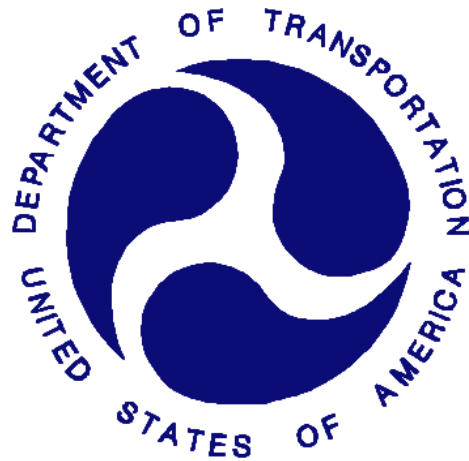


REPORT NUMBER: SINCAP-MCW-13-01

**NEW CAR ASSESSMENT PROGRAM (SINCAP)
MOVING DEFORMABLE BARRIER SIDE IMPACT TEST**

**CHRYSLER GROUP, LLC
2013 FIAT 500 3-DOOR HATCHBACK
NHTSA NUMBER: MD 0306**

**PREPARED BY:
MEDICAL COLLEGE OF WISCONSIN
5000 WEST NATIONAL AVENUE
RESEARCH 151
MILWAUKEE, WISCONSIN 53295**



TEST DATE: 01 NOVEMBER 2012

REPORT DATE: 15 NOVEMBER 2012

FINAL REPORT

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

Test Vehicle: 2013 Fiat 500 3-Dr. Hatchback
Test Program: SINCAP

NHTSA Number: MD 0306
Test Date: November 1, 2012

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Prepared by: Mane Wajya

Date: 12/21/12

Approved by: Jim H. [Signature]

Date: 12/21/2012

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

Technical Report Documentation Page

1. Report No. SINCAP-MCW-13-01	2. Government Accession No.	3. Recipient's Catalog No.																																												
4. Title and Subtitle Final report of New Car Assessment Program Side Impact MDB Test of a 2013 Fiat 500 3-Door Hatchback NHTSA No. MD 0306	5. Report Date November 15, 2012	6. Performing Organization Code MCW																																												
7. Author(s) Frank A. Pintar, Ph. D, Project Manager Mark Meyer, Project Engineer	8. Performing Organization Report No. MCW-DOT-13SN01																																													
9. Performing Organization Name and Address Medical College of Wisconsin 5000 W. National Ave. Research 151 Milwaukee, WI 53295	10. Work Unit No.	11. Contract or Grant No. DTNH22-09-D-00123																																												
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards (NVS-111) 1200 New Jersey Ave, SE, Room W43-410 Washington, D.C. 20590	13. Type of Report and Period Covered: Final Test Report Nov. 01 to Nov. 15, 2012	14. Sponsoring Agency Code NVS-111																																												
15. Supplementary Notes																																														
16. Abstract A 55/28 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2013 Fiat 500 3-Door Hatchback in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. The test was conducted at the Medical College of Wisconsin (MCW) facility in Milwaukee, Wisconsin on 01 November 2012. The impact velocity of the Moving Deformable Barrier (MDB) was 62.20 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 20°C. The target vehicle's post test maximum static crush was 164 mm at levels 2 & 3. The test vehicle's performance is as follows: <table border="1"> <thead> <tr> <th></th> <th>Units</th> <th>IARV</th> <th>DRIVER ATD (ES-2re)</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td>N/a</td> <td>1000</td> <td>166</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>44</td> <td>18</td> </tr> <tr> <td>Total Abdominal Force</td> <td>N</td> <td>2500</td> <td>885</td> </tr> <tr> <td>Pubic Symphysis Force</td> <td>N</td> <td>6000</td> <td>3042</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th></th> <th>Units</th> <th>IARV</th> <th>Pass. ATD (SID-IIs)</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td>N/a</td> <td>1000</td> <td>382</td> </tr> <tr> <td>Lower Spine Resultant Acceleration</td> <td>G's</td> <td>82</td> <td>70</td> </tr> <tr> <td>Total Pelvic Force (sum of Acetabular and Iliac forces)</td> <td>N</td> <td>5525</td> <td>3789</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38</td> <td>26</td> </tr> <tr> <td>Maximum Abdominal Rib Deflection</td> <td>mm</td> <td>45</td> <td>35</td> </tr> </tbody> </table>				Units	IARV	DRIVER ATD (ES-2re)	Head Injury Criteria (HIC ₃₆)	N/a	1000	166	Maximum Thoracic Rib Deflection	mm	44	18	Total Abdominal Force	N	2500	885	Pubic Symphysis Force	N	6000	3042		Units	IARV	Pass. ATD (SID-IIs)	Head Injury Criteria (HIC ₃₆)	N/a	1000	382	Lower Spine Resultant Acceleration	G's	82	70	Total Pelvic Force (sum of Acetabular and Iliac forces)	N	5525	3789	Maximum Thoracic Rib Deflection	mm	38	26	Maximum Abdominal Rib Deflection	mm	45	35
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The two 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.																																														

Test Vehicle: 2013 Fiat 500 3-Dr. Hatchback
Test Program: SINCAP

NHTSA Number: MD 0306
Test Date: November 1, 2012

Technical Report Documentation Page (CONTINUED)

17. Key Words New Car Assessment Program (NCAP) Side impact MDB ES-2re SID-IIs		18. Distribution Statement Copies of this report are available from : National Highway Traffic Safety Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave, SE Washington, D.C. 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833	
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Test Vehicle: 2013 Fiat 500 3-Dr. Hatchback
Test Program: SINCAP

NHTSA Number: MD 0306
Test Date: November 1, 2012

SECTION 1

TEST PURPOSE AND PROCEDURE

This moving deformable barrier side impact test is part of the MY 2013 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract number DTNH22-09-D-00123. The purpose of this test is to generate comparative side impact performance in a 2013 Fiat 500 3-Door Hatchback. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated September 2012.

SECTION 2 SUMMARY OF TEST RESULTS

A 2013 Fiat 500 3-Door Hatchback 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 (38.6 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by The Medical College of Wisconsin in Milwaukee, Wisconsin, on November 1, 2012. Pre test and post test photographs of the test vehicle, the MDB, and the dummies (ES-2re and SID-IIs) are included in this report.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated September 2012. The side impact event was documented by 11 cameras. Camera locations are included in this report.

The dummies were instrumented in the following manner:

DRIVER ATD (ES-2re)

- Primary and Redundant Head CG Tri-Axial Accelerometers
- Chest, Upper Rib, Middle Rib, and Lower Rib Y-Axis Displacement Potentiometers
- Abdomen Forward, Middle, and Rear Y-Axis Load Cells
- Lower Spine (T₁₂) Tri-Axial Accelerometers
- Pubic Symphysis Y-Axis Load Cell

PASSENGER ATD (SID-IIs)

- Primary and Redundant Head CG Tri-Axial Accelerometers
- Chest, Upper Rib, Middle Rib, and Lower Rib Y-Axis Displacement Potentiometers
- Abdomen Upper Rib and Lower Rib Y-Axis Displacement Potentiometers
- Lower Spine (T₁₂) Tri-Axial Accelerometers
- Acetabulum and Iliac Wing Y-Axis Load Cells

Supplemental restraint information is given below:

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION				
Restraint type	Left Front (Driver)		Left Rear (Passenger)	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No	No	N/a
Knee Airbag	Yes	No	No	N/a
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	N/a
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	N/a	No	N/a
Other	N/a	N/a	N/a	N/a

SECTION 2
SUMMARY OF TEST RESULTS (CONTINUED)

Dummy injury values were recorded as follows:

DRIVER DUMMY INJURY VALUES			
Measurement Description	Driver ATD (ES-2re)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/a	1000	166
Maximum Thorax Rib Deflection	mm	44	18
Combined Abdominal Force	N	2500	885
Pubic Symphysis Force	N	6000	3042

PASSENGER DUMMY INJURY VALUES			
Measurement Description	Passenger ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/a	1000	382
Lower Spine (T ₁₂) Resultant Acceleration	G's	82	70
Total Pelvic Force (Sum of Acetabular and Iliac Forces)	N	5525	3789
Maximum Thoracic Rib Deflection	mm	38*	26
Maximum Abdominal Rib Deflection	mm	45*	35

**Proposed IARV*

GENERAL COMMENTS

The offboard front and rear cameras triggered post-impact.

SECTION 3 OCCUPANT AND VEHICLE INFORMATION

PRE TEST

Data Sheet No. 1 – General Test and Vehicle Parameter Data
Data Sheet No. 2 – Seat, Seat Belt, Steering Wheel Adjustment and Fuel System Data
Data Sheet No. 3 – Dummy Longitudinal Clearance Dimensions
Data Sheet No. 4 – Dummy Lateral Clearance Dimensions
Data Sheet No. 5 – Camera and Instrumentation Data
Data Sheet No. 6 – Test Vehicle Accelerometer Locations
Data Sheet No. 7 – MDB Accelerometer Locations

POST TEST

Data Sheet No. 8 – Post-Test Observations
Data Sheet No. 9 – MDB Summary of Results
Data Sheet No. 10 – Test Vehicle Profile Measurements
Data Sheet No. 11 – Test Vehicle Exterior Crush Measurements
Data Sheet No. 12 – MDB Exterior Static Crush Measurements
Data Sheet No. 13 – FMVSS No. 301 Static Rollover Results
Data Sheet No. 14 – Dummy/Vehicle Temperature and Humidity Stabilization Data

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

VEHICLE INFORMATION	
NHTSA No.	MD 0306
Model Year	2013
Make	Fiat
Model	500
Body Style	Hatchback
VIN	3C3CFFAR6DT515464
Body Color	Light Green
Odometer Reading (km/mi)	36 mi
Engine Displacement (L)	1.4
Type/No. of Cylinders	4
Engine Placement	Lateral
Transmission Type	Manual
Transmission Speeds	5
Overdrive	Yes
Final Drive	2WD
Roof Rack	No
Sunroof/T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes

VEHICLE OPTIONS	
Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks (ADL)	Yes
Power Window Auto-Reverse	No
Other Optional Features	Yes
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Rear Pass. Load Limiter	No
Other Safety Restraint	None Noted

Does owner's manual provide instructions to turn off automatic door locks?

DATA FROM CERTIFICATION LABEL			
Manufactured By	Chrysler Group, LLC	GVWR (kg)	1497
Date of Manufacture	August 2012	GAWR Front(kg)	849
Vehicle Type	Hatchback	GAWR Rear (kg)	810

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION				
	Front	Rear	Third	Total
Designated Seating Capacity (DSC)	2	2	0	4
Capacity Weight (VCW) (kg)				340.2
DSC X 68.04 (kg)				272.2
Cargo Weight (RCLW) (kg)				68.0

(A)

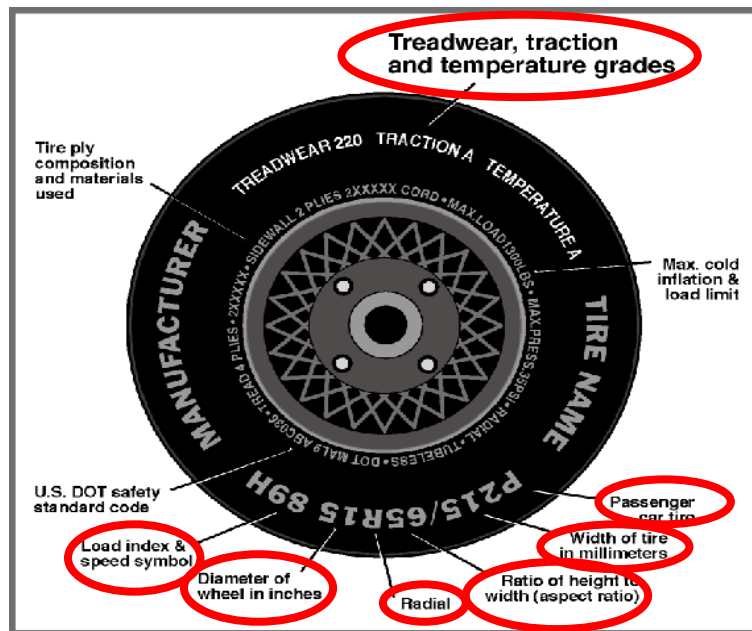
(B)

(A-B)

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

VEHICLE SEAT TYPE							
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						W/ Lever	W/ Knob
Front Seat	X					X	
Rear or Second Row Seat			X	X	X	N/a	
Third Row Seat							

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



VEHICLE TIRE INFORMATION		
Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	240	220
Recommended Tire Size	185/55R15	185/55R15
Tire Size on Vehicle	185/55R15	185/55R15
Tire Manufacturer	Firestone	Firestone
Tire Model	Firehawk GT	Firehawk GT
Treadware	460	460
Traction	B	B
Temperature Grade	A	A
Tire Plies Sidewall	1	1
Tire Plies Body	4	4
Load Index/Speed Symbol	82H	82H
Tire Material	Nylon, Polyester, Steel	Nylon, Polyester, Steel
DOT Safety Code Left	V68X	V68X
DOT Safety Code Right	V68X	V68X

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

TIRE PRESSURES					
	Units	LF	RF	LR	RR
As Delivered	kPa	243.8	242.9	221.0	222.1
Tire Placard	kPa	241.3	241.3	220.6	220.6
Owner's Manual	kPa	241.3	241.3	220.6	220.6
As Tested	kPa	241.3	241.3	220.6	220.6

MDB TIRE SPECIFICATIONS						
	Units	Requirement	LF	RF	LR	RR
Tire Size		205/75R15	P205/75R15	P205/75R15	P205/75R15	P205/75R15
Tire Pressure	kPa	200 +/- 21	200	200	200	200

TEST VEHICLE AXLE WEIGHTS										
	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	347.9	193.2		377.4	275.8		378.4	285.4	
Right	kg	335.2	195.5		350.6	253.6		346.6	254.6	
Ratio	%	63.7	36.3		57.9	42.1		57.3	42.7	
Totals	kg	683.1	388.7	1071.8	728.0	529.4	1257.4	725.0	540.0	1265.0

TARGET TEST WEIGHT CALCULATION			
	Units		
Total Delivered Weight (UVW)	kg	1071.8	(A)
Sum of Actual Weight of 2 P572 ATDs used	kg	125.2	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	68.0	(C)
Calculated Target Vehicle Test Weight (TVTW)	kg	1265.0	(A + B + C)

Does the measured As Tested Vehicle Weight lie within the required weight range (i.e. Calculated Test Vehicle Target Weight – 4.5 kg to 9 kg)?

Yes

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

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW	
Ballast	Weight (kg)
Removed non-struck side windows & door panels to achieve calculated "As Tested" weight.	18.6

TEST VEHICLE ATTITUDE AND CG				
Measurement description	Units	Fully Loaded	As Tested	Meets Requirement***
LF	mm	654	655	Yes
RF	mm	662	657	Yes
RR	mm	658	660	Yes
LR	mm	665	665	Yes
Vehicle CG (Aft of Front Axle)	mm	981	968	
Vehicle CG (Left(+))/Right(-) from Longitudinal Centerline)	mm	40	31	

***The "As Tested" vehicle attitude measurements must be equal to or within +/- 10 mm of the "Fully Loaded" vehicle attitude measurements at each wheel well. "Yes" or "No" is indicated.

DATA SHEET NO. 2
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA

SCRL ANGLE RANGE			
Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	4°	0°	2°
Front Passenger Seat	3.5°	0°	1.8°
Front Center Seat*			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat*			

*If applicable

SCRL ANGLE RANGE						
Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRCP Height (mm)	SCRCP Height Position	SCRCP Height (mm)		
				Rearmost	Mid-Fore / Aft	Forward- Most
Driver's Seat	2.0	135.1	Max	93.6	94.6	97.7
	2.0	135.1	Mid	111.8	112.8	113.8
	2.0	135.1	Min	134.3	135.1	137.9
Front Passenger Seat	N/a**	N/a**	Max	N/a**	N/a**	N/a**
	1.8	152.6	Mid	150.9	152.6	154.5
	N/a**	N/a**	Min	N/a**	N/a**	N/a**
Front Center Seat*			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Rear Center Seat*			Max			
			Mid			
			Min			

*If applicable

**Not measured

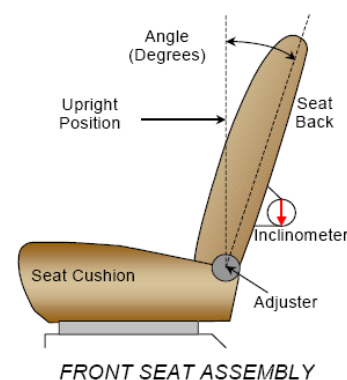
DATA SHEET NO. 2
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA (CONTINUED)

SEAT FORE/AFT TRAVEL				
Seat	Total Fore/Aft Travel		Test Position from Forward-most Position	
	mm	Detents*	mm	Detents*
Driver Seat	210	22	110	11
Front Passenger Seat	210	22	110	11
Front Center Seat*				
Struck Side Rear Seat	Fixed	N/a	Fixed	N/a
Non-Struck Side Rear Seat	Fixed	N/a	Fixed	N/a
Rear Center Seat*				

*If applicable

Seat Back Angle Adjustment

The driver's seat back is positioned to the manufacturer's designated design angle. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck side rear seat back is positioned such that the dummy's head is level. The rear center and non-struck side rear outboard seat backs are positioned in a similar manner as the struck-side rear seat back.



SEAT BACK ANGLE ADJUSTMENT				
Seat	Total Seat Back Angle Range		Test Position from Most Upright	
	Degrees	Detents*	Degrees	Detents*
Driver Seat w/ Seated Dummy	29.2	22	7.8	6
Front Passenger Seat	27.8	22	7.7	6
Front Center Seat*				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat*				

*If applicable

DATA SHEET NO. 2
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA (CONTINUED)

Seat Belt Anchorage Adjustment

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1.

SEAT BELT ANCHORAGE ADJUSTMENT		
	Total No. of Positions	Placed in Position No.
Driver Seat	Fixed	As Positioned
Rear Seat	Fixed	As Positioned

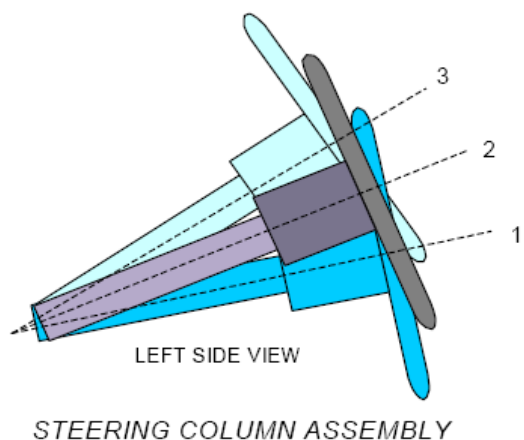
Head Restraint Adjustment

The driver's head restraint is adjusted to the highest and most forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

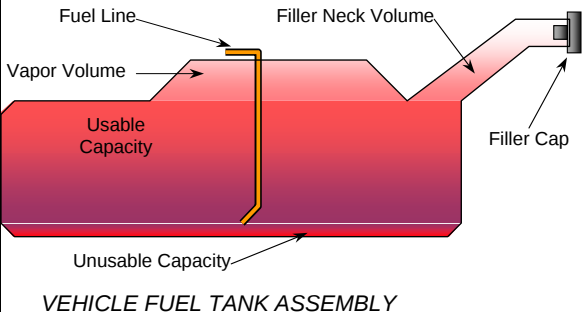
HEAD RESTRAINT ADJUSTMENT		
	Total No. of Positions	Placement
Driver Seat	4	Highest Position
Rear Seat	1	Lowest Detent

Steering Column Adjustment

Steering wheel and column adjustments are made so that the steering wheel hub is at the center of its geometric locus it describes when it moves through its full range of motion.

STEERING COLUMN ADJUSTMENT			
	Degrees	Fore/Aft Position (mm)	
Lowermost, Pos. No. 1	60.0	Non-Adjustable	
Geometric Center, Pos. No. 2	62.5	Non-Adjustable	
Uppermost, Pos. No. 3	65.0	Non-Adjustable	
Telescoping Steering Wheel Travel	62.5	N/a	
Test Position	62.5	As Positioned	

DATA SHEET NO. 2
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA (CONTINUED)

FUEL TANK CAPACITY DATA			
Description	Units	Value	 VEHICLE FUEL TANK ASSEMBLY
Usable Capacity of “Standard Tank”	L	39.7	
Usable Capacity of “Optional Tank”	L	0.0	
Usable Capacity of Standard Tank	L	39.7	
Usable Capacity of Optional Tank	L	0.0	
93% of Usable Capacity	%	36.9	
Actual Amount of Solvent Used in Test	L	36.9	
1/3 of Usable Capacity	13.2		

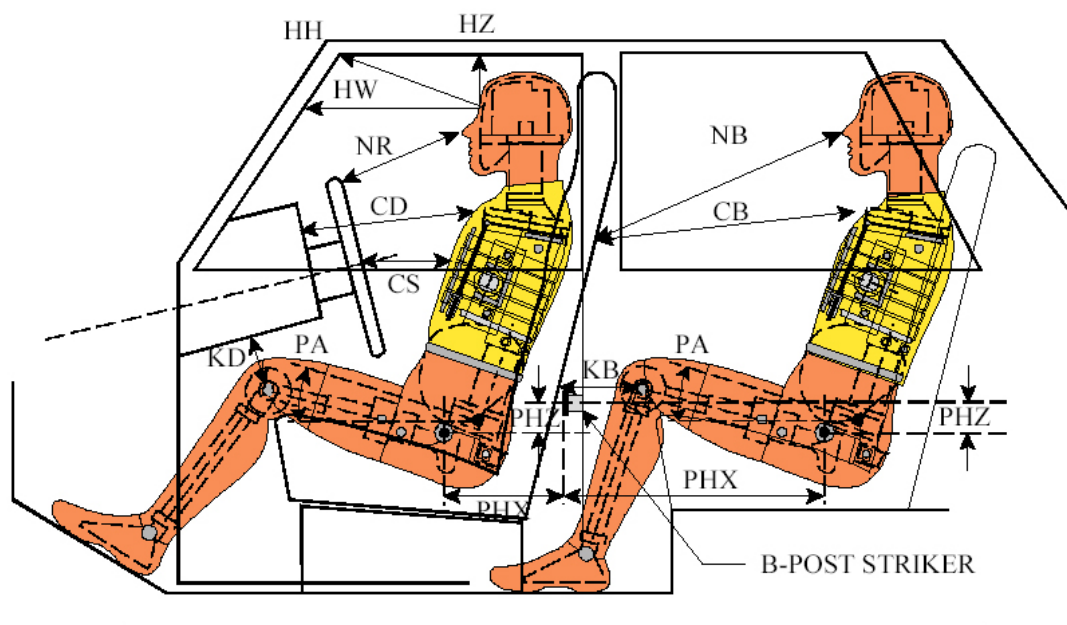
Fuel Pump

The vehicle is equipped with an electronic fuel pump. Key is "ON" position. The fuel pump is on the left side.

Is the Actual Amount of Solvent Used in the test equal to 93% +/- 1% of the Usable Capacity stated in on Form No. 1?

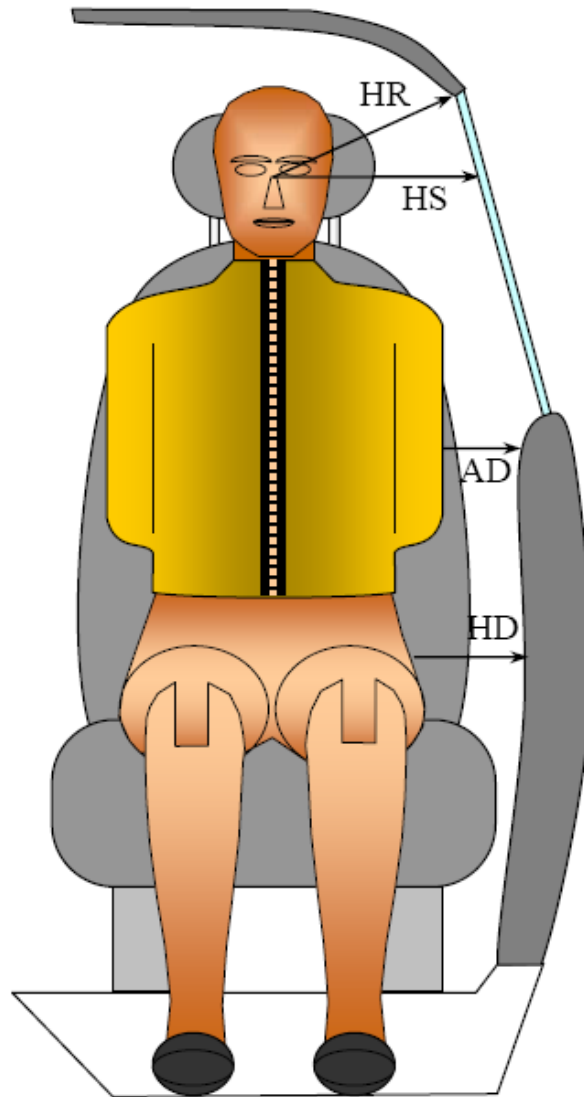
Yes

DATA SHEET NUMBER 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS



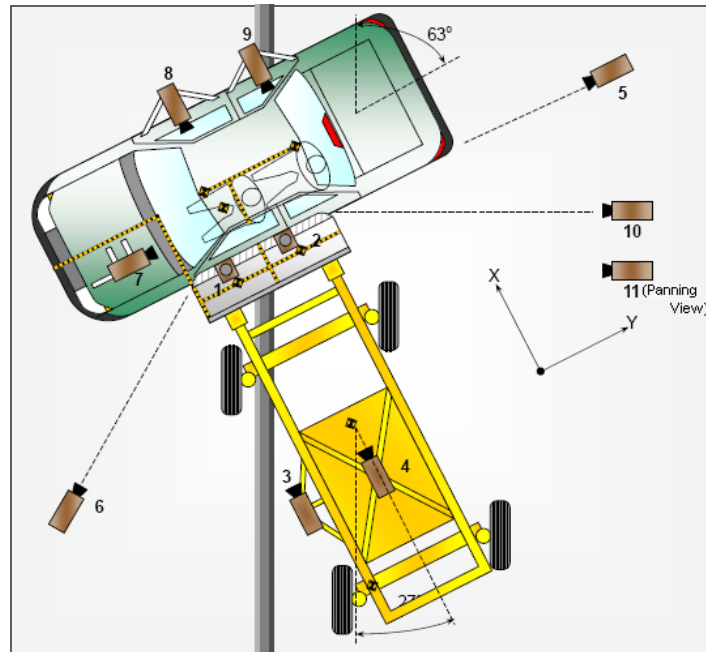
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION						
Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length (mm)	Angle	Length (mm)	Angle
HH		Header to Header	364			
HW		Header to Windshield	585			
HZ	HZ	Head to Roof	157		215	
NR	NB	Nose to Rim/Seat Back	440		470	
CD	CB	Chest to Dash/Seat Back	555		418	
CS		Chest to Steering Wheel	326			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	156	5.0	190	65.1
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	145	4.8	195	64.2
PAX°	PAX°	Pelvic Tilt Angle X		0.0		0.0
	PAY°	Pelvic Tilt Angle Y		18.7		20.2
PHX	PHX	Hip Point to Striker (X-Axis)	425.5		-359.2	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	-616.9		-496.8	

DATA SHEET NUMBER 4
DUMMY LATERAL CLEARANCE DIMENSIONS



DUMMY LATERAL CLEARANCE MEASUREMENTS INFORMATION				
Code	Description	Units	Driver	Passenger
HR	Head to Side Header	mm	156	211
HS	Head to Side Window	mm	258	342
AD	Arm to Door	mm	170	267
HD	Hip Point to Door	mm	125	145

DATA SHEET 5 CAMERA AND INSTRUMENTATION DATA



	View	Coordinates †			Lens Length	Operating Frame Rate
		X	Y	Z		
		mm	mm	mm		fps
1	Overhead Overall	-348	1526	-4184	10	1000
2	Overhead Close-up	-245	-458	-4702	25	1000
3	Left Impact Point (MDB)	-2102	1093	-212	25	1000
4	Side Overall (MDB)	-1487	1732	-673	12.5	1000
5	Rear	2523	8136	-506	50	1000
6	Left Front	-1731	-4254	-589	25	1000
7	Driver Front (OB)				12.5	1000
8	Driver Side (OB)				12.5	1000
9	Passenger Side (OB)				12.5	1000
10	Real-Time Left Rear				N/a	30
11	Real-Time In-Run				N/a	30

Origin

X

Y

Z

Impact Point

Impact Point

Ground

Orientation

X

Y

Z

+(X) To Front of MDB

+(Y) To Right of MDB

+(Z) Down

*All measurements accurate to +/- 6 mm

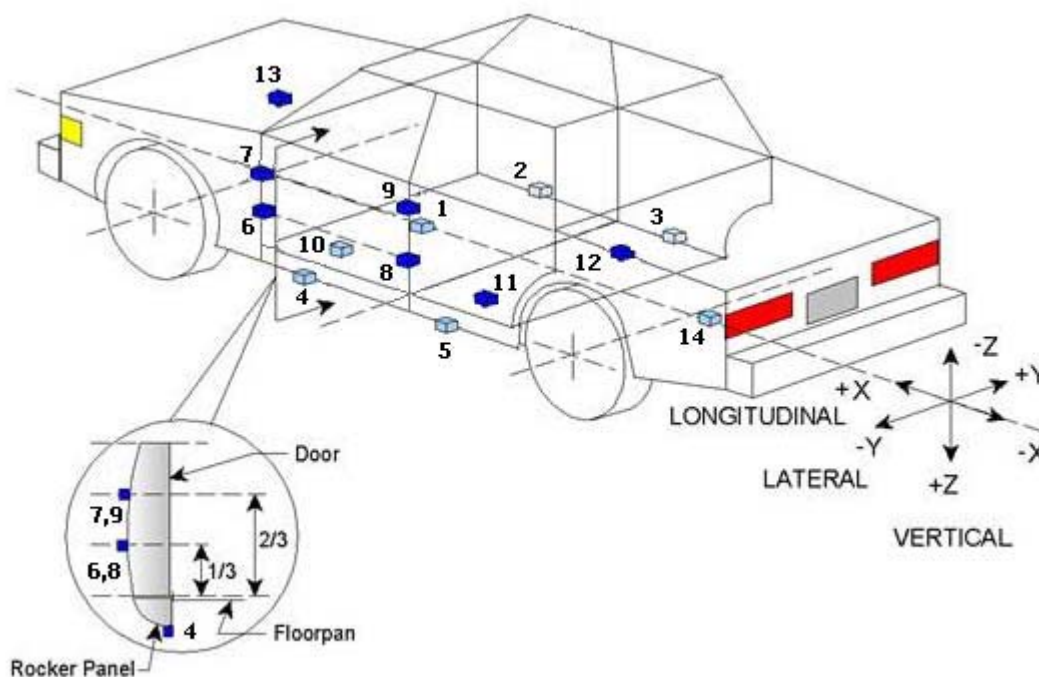
DATA SHEET 5
CAMERA AND INSTRUMENTATION DATA (CONTINUED)

Why did the cameras not operate?

The off-board front & rear cameras lost pre-images due to a tape-switch being damaged by the MDB. _____

INSTRUMENTATION	
Driver Dummy Channels	16
Passenger Dummy Channels	16
Vehicle Structure Accelerometers	23
MDB Accelerometers	5
Total	60

DATA SHEET 6
TEST VEHICLE ACCELEROMETER LOCATIONS

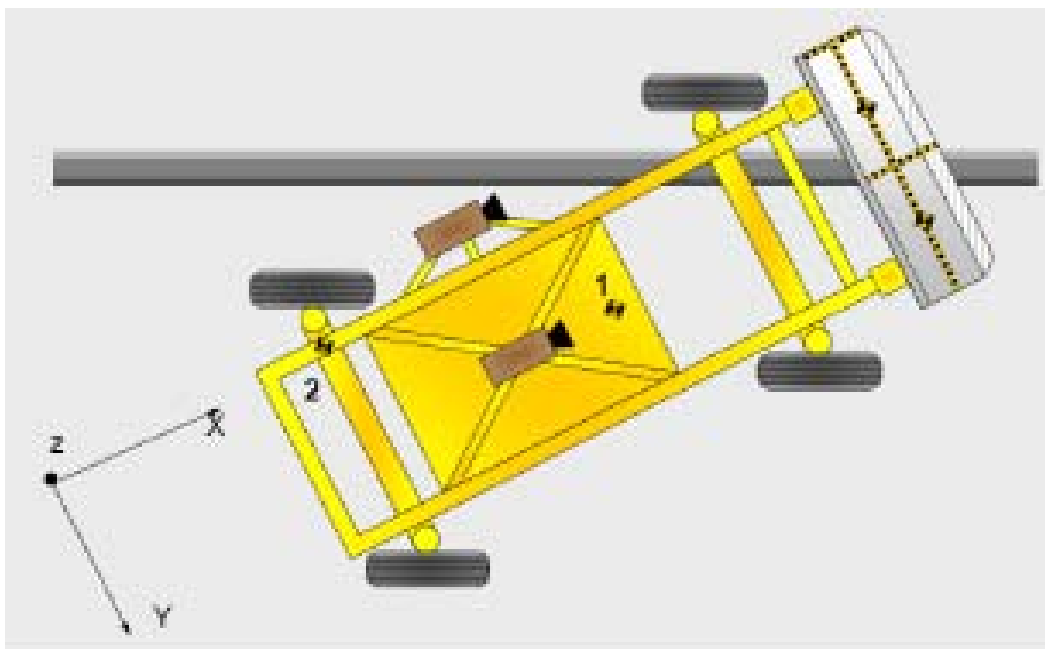


TEST VEHICLE ACCELEROMETER LOCATIONS				
Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Vehicle CG	2020.2	76.4	336.9
2	Right Sill at Front Seat	1803.6	628.8	461.1
3	Right Sill at Rear Seat	1065.6	637.7	446.3
4	Left Sill at Front Door	1779.8	-630.2	474.0
5	Left Sill at Rear Door	1039.7	-631.7	455.5
6	A-Post Lower	2370.7	-714.6	174.6
7	A-Post Middle	2373.5	-706.0	-14.6
8	B-Post Lower	1261.1	-658.5	110.9
9	B-Post Middle	1235.4	-652.2	-60.1
10	Front Seat Track	1755.7	-550.8	356.8
11	Rear Seat Structure	1131.2	-288.5	259.1
12	Rt. Rear Occ. Compartment	1128.7	267.2	235.7
13	Engine Block	3035.2	4.02	-37.0
14	Rear Above Axle	517.7	23.0	164.8

Reference:

X - Rear surface of vehicle (+ forward)
 Y - Vehicle centerline (+ right)
 Z - Ground plane (+ down)

DATA SHEET 7
MDB ACCELEROMETER LOCATIONS



MDB ACCELEROMETER LOCATIONS				
Loc No.	Accelerometer Locations	Coordinates (mm)		
		X	Y	Z
1	MDB CG	1113	-1	311
2	MDB Rear	2812	-614	585

Reference

X - Face of MDB (+ forward)
Y - MDB centerline (+ to right)
Z - Ground plane (+ down)

**DATA SHEET NUMBER 8
 POST-TEST OBSERVATIONS**

TEST DUMMY INFORMATION AND CONTACT POINTS		
Dummy Body Part	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	To Side Curtain Airbag	To Side Curtain Airbag
Top of Head	To Side Curtain Airbag & Roof Rail	To Side Curtain Airbag & Roof Rail
Left Side of Head	To Side Curtain Airbag	To Side Curtain Airbag
Back of Head	Along Head Rest to the Side Curtain Airbag	Rebounds Into Head Rest
Left Shoulder	To Side Curtain Airbag	To Interior Door Panel
Upper Torso	To Seat Mounted Side Airbag	To Interior Door Panel
Lower Torso	To Seat Mounted Side Airbag	To Interior Door Panel
Left Hip	To Seat Mounted Side Airbag	To Interior Door Panel
Left Knee	To Interior Door Panel	To Interior Door Panel

POST TEST DOOR PERFORMANCE					
Description	Struck Side		Non-Struck Side		Rear Hatch/ Other Door
	Front	Rear	Front	Rear	
Remained Closed and Operational	No	No	Yes	Yes	Yes
Total Separation from Vehicle at Hinges of Latches	No	No	No	No	No
Latch of Hinge Systems Pulled Out of Their Anchorages	No	No	No	No	No
Disengaged from Latched Position	No	No	No	No	No
Latch Separated from Striker	No	No	No	No	No
Jammed Shut	Yes	Yes	No	No	No
If Door Opened at Striker, Record Width of Opening at Striker (mm)	N/a	N/a	N/a	N/a	N/a

POST TEST SEAT PERFORMANCE				
Description	Struck Side		Non-Struck Side	
	Front	Rear	Front	Rear
Seat Movement Along Seat Track	No	No	No	No
Seat Disengagement from Floor Pan	No	No	No	No
Seat Back Movement from Initial Position	No	No	No	No
Seat Back Collapse	No	No	No	No

**DATA SHEET NUMBER 8
 POST-TEST OBSERVATIONS (CONTINUED)**

POST TEST STRUCTURAL OBSERVATIONS	
Critical Areas of Performance	Observations/Conclusions
Pillar Performance	No Damage
Sill Separation	Max Sill Separation of 160 mm at upper B-Post
Windshield Damage	Slight Cracking at Upper Driver's Side Corner
Window Damage	Shattered at Impact
Other Notable Effects	None Noted

SUPPLEMENTAL RESTRAINT INFORMATION				
Restraint Type	Struck Side Driver		Struck Side Rear Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	Yes	No		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Pelvis Airbag	Yes	Yes	No	N/a
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	N/a	No	N/a
Other	No	N/a	No	N/a

IMPACT POINT LOCATION DATA			
Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2298
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		209
Actual Impact Point (Aft of Front Axle)	mm		177
Horizontal Offset (+ forward / - rear)	mm	+/- 50 of Intended Impact Point	32
Vertical Offset (+ down / - up)	mm	+/- 20 of Intended Impact Point	9

DATA SHEET NUMBER 9
MDB SUMMARY OF RESULTS

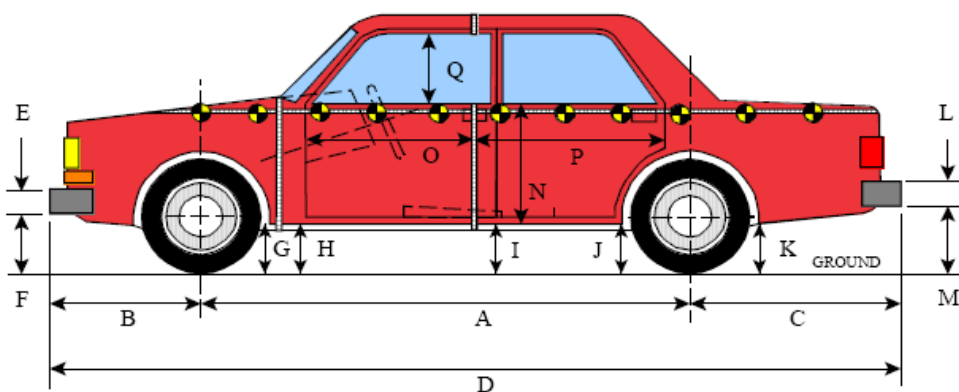
MDB SPECIFICATIONS	
Measurement Description	Length (mm)
Overall Width of Framework Carriage	1250
Overall Length Including Honeycomb Frame	4116
Wheel Base of Framework Carriage	2578
CG Location of Front Axle	1112

MDB WEIGHTS				
	Units	Front Axle	Rear Axle	Total
Left	kg	429.1	253.6	682.7
Right	kg	331.6	348.4	680.0
Ratio	%	55.8	44.2	100.0
Totals	kg	760.7	602.0	1362.7

SPEED AND ANGLE AT IMPACT DATA			
Measured parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.2
Trap No. 2 Velocity (Secondary)	km/h	61.1 to 62.7	62.2
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90
MDB Forward Line of Motion to Target Vehicle	degrees	62.5 to 63.5	63.0
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26 to 28	27.0

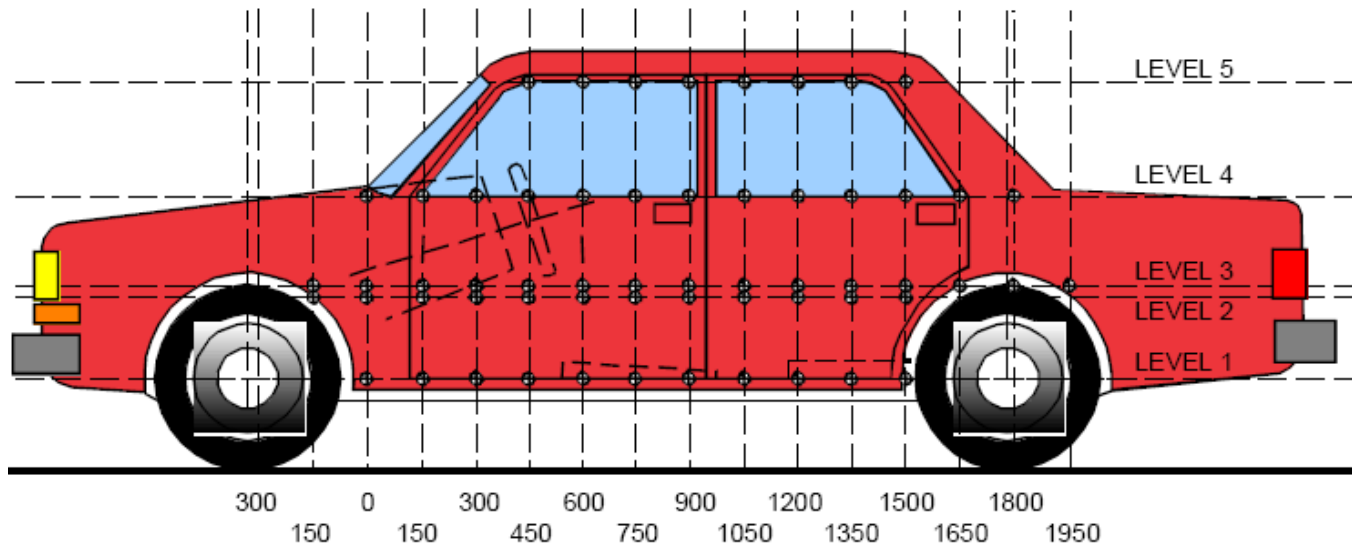
MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE					
Vertical Location			From Centerline		Maximum Crush
Row	Description	Height	Distance	Direction	
A	Bottom of Barrier	276	700	Left	199
B	Bottom of Bumper	331	800	Left	148
C	Top of Bumper	533	800	Left	119
D	Top of Barrier	838	800	Left	127

DATA SHEET NUMBER 10
TEST VEHICLE PROFILE MEASUREMENTS



VEHICLE PRE - AND POST - TEST MEASUREMENT INFORMATION				
Code	Description	Pre test	Post test	Difference
		mm	mm	mm
A	Wheelbase	2298	2292	-6
B	Front Axle to FSOV	524	526	2
C	Rear Axle to RSOV	440	430	-10
D	Total Length at Centerline	3544	3539	-5
E	Front Bumper Thickness	222	222	0
F	Front Bumper Bottom to Ground	242	244	2
G	Sill Height at Front Wheel Well	258	283	25
H	Sill Height at Front Door Leading Edge	259	276	17
I	Sill Height at B-Pillar	260	234	-26
J1	Sill Height at Rear Wheel Well	219	173	-46
J2	Pinch Weld Height at Rear Wheel Well	259	225	-34
K	Sill Height Aft of Rear Wheel Well	345	290	-55
L	Rear Bumper Thickness	260	260	0
M	Rear Bumper Bottom to Ground	412	362	-50
N	Sill Height to Bottom of Front Window Sill	800	766	-34
O	Front Door Leading Edge to Impact C/L	1323	1223	-100
P	Rear Door Trailing Edge to Impact C/L	551	514	-37
Q	Front Window Opening	420	427	7
R	Right Side Length	3262	3260	-2
S	Left Side Length	3262	3248	-14
T	Maximum Vehicle Width	1600	1453	-147

DATA SHEET NUMBER 11
VEHICLE EXTERIOR CRUSH MEASUREMENTS



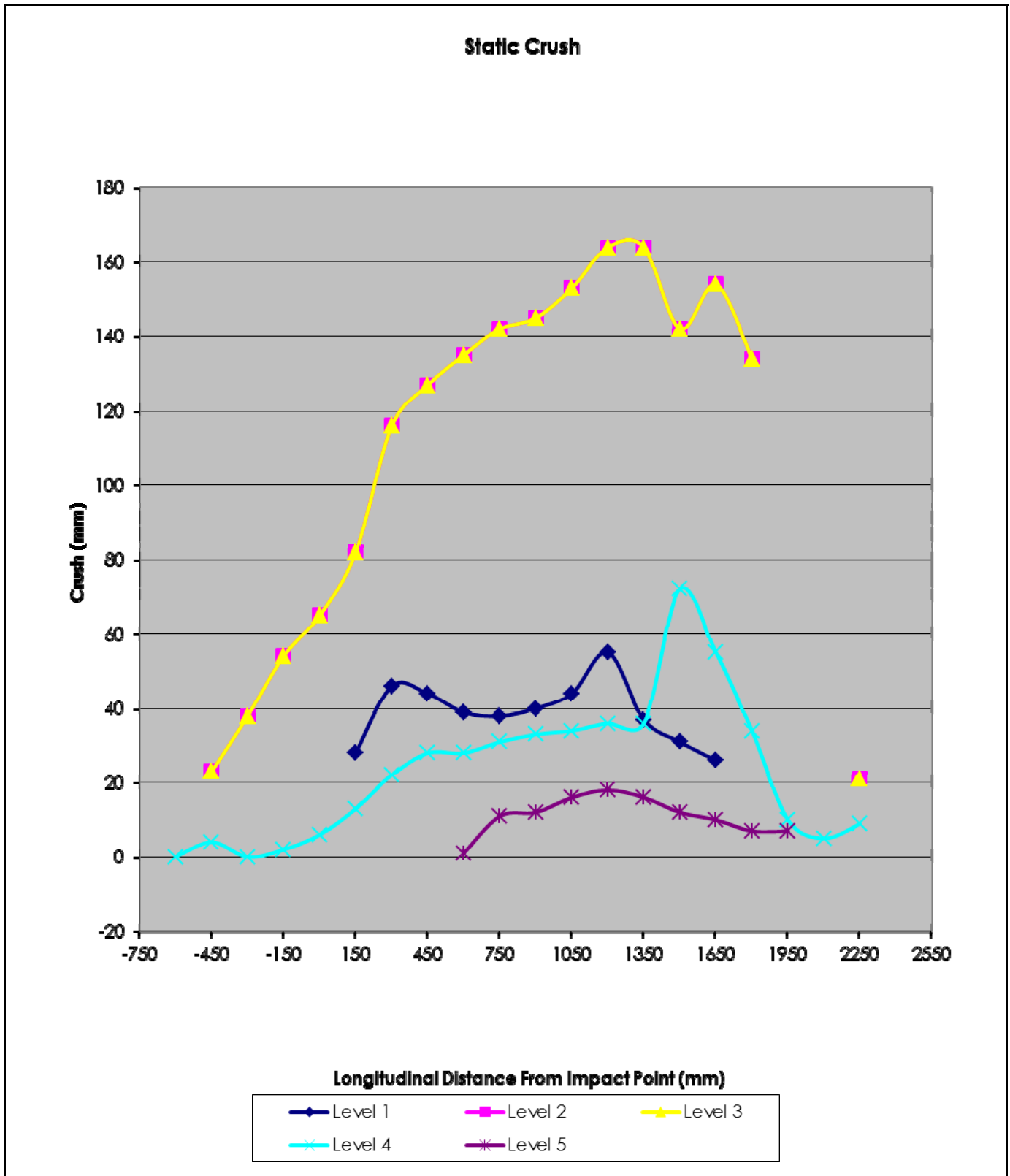
LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEASUREMENTS				
Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	258	55	1200
2	Occupant Hip Point	610	164	1200 & 1350
3	Mid-Door	612	164	1200 & 1350
4	Window Sill	969	72	1500
5	Window Top	1399	18	1200

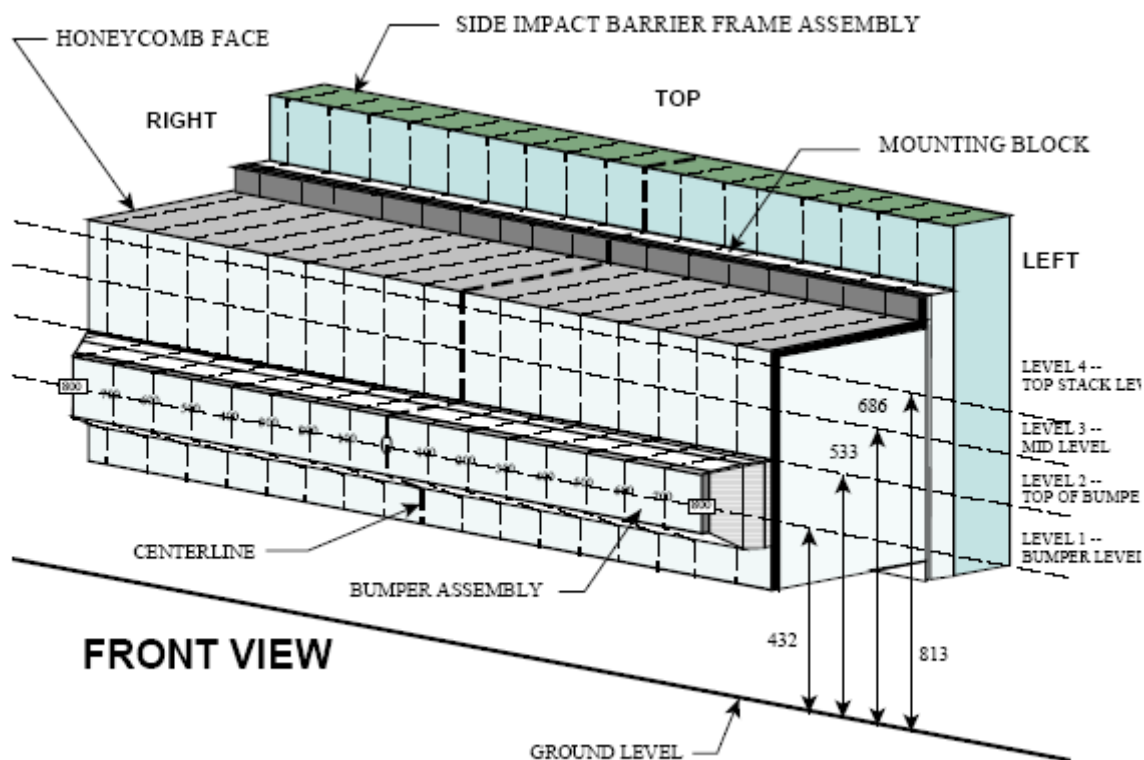
DATA SHEET NUMBER 11
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS (CONTINUED)

EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL																
Level		1			2			3			4			5		
		Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush	Pre	Post	Crush
DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT	-1050															
	-900															
	-750															
	-600										627	627	0			
	-450				366	389	23	366	389	23	580	584	4			
	-300				348	386	38	348	386	38	540	540	0			
	-150				345	399	54	345	399	54	500	502	2			
	0				343	408	65	343	408	65	470	476	6			
	150	384	412	28	352	434	82	352	434	82	455	468	13			
	300	399	445	46	350	466	116	350	466	116	438	460	22			
	450	396	440	44	346	473	127	346	473	127	430	458	28			
	600	396	435	39	345	480	135	345	480	135	427	455	28	618	619	1
	750	396	434	38	344	486	142	344	486	142	423	454	31	598	609	11
	900	397	437	40	345	490	145	345	490	145	419	452	33	595	607	12
	1050	400	444	44	347	500	153	347	500	153	420	454	34	596	612	16
	1200	403	458	55	350	514	164	350	514	164	420	456	36	600	618	18
	1350	405	442	37	354	518	164	354	518	164	424	460	36	604	620	16
	1500	406	437	31	359	501	142	359	501	142	430	502	72	610	622	12
	1650	406	432	26	366	520	154	366	520	154	439	494	55	620	630	10
	1800				351	485	134	351	485	134	445	479	34	639	646	7
	1950										457	467	10	670	677	7
	2100										472	477	5			
	2250				354	375	21	354	375	21	511	520	9			
	2400															
	2550															
	2700															
	2850															
	3000															
3150																
3330																

DATA SHEET NUMBER 11
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS (CONTINUED)



DATA SHEET NUMBER 12
MDB EXTERIOR STATIC CRUSH MEASUREMENTS



NOTE: Dimensions are shown in millimeters, mm

DEFORMABLE BARRIER STATIC CRUSH

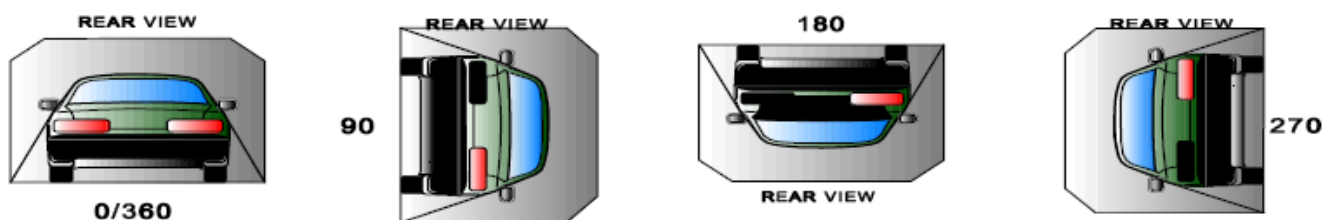
	Distance Left of Center								C _L	Distance Right of Center							
	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
1	197	199	176	149	135	135	130	129	126	126	130	145	163	179	194	184	181
2	148	143	120	102	97	94	92	79	69	65	67	74	92	106	102	119	105
3	119	115	101	80	63	50	40	32	30	26	25	27	41	77	78	57	62
4	127	117	90	77	65	56	49	45	42	36	39	57	71	88	63	63	79

FMVSS 301 STATIC ROLLOVER RESULTS

Temperature at Time of Impact: 20° C Test Time: 2:35 pm

STODDARD SOLVENT SPILLAGE MEASUREMENTS				
Period	Description	Maximum Allowable Spillage	Spillage	
			Amount	Location
A	From Impact Until Vehicle Motion Ceases	1 oz	0	N/a
B	5 Minutes After Vehicle Motion Ceases	5 oz	0	N/a
C	Next 25 Minutes	1 oz/minute	0	N/a
D	Spillage Details:			

FMVSS 301 STATIC ROLLOVER



ROLLOVER SOLVENT COLLECTION TIME TABLE			
Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	68	300	368
90° to 180°	65	300	365
180° to 270°	67	300	367
270° to 360°	65	300	365

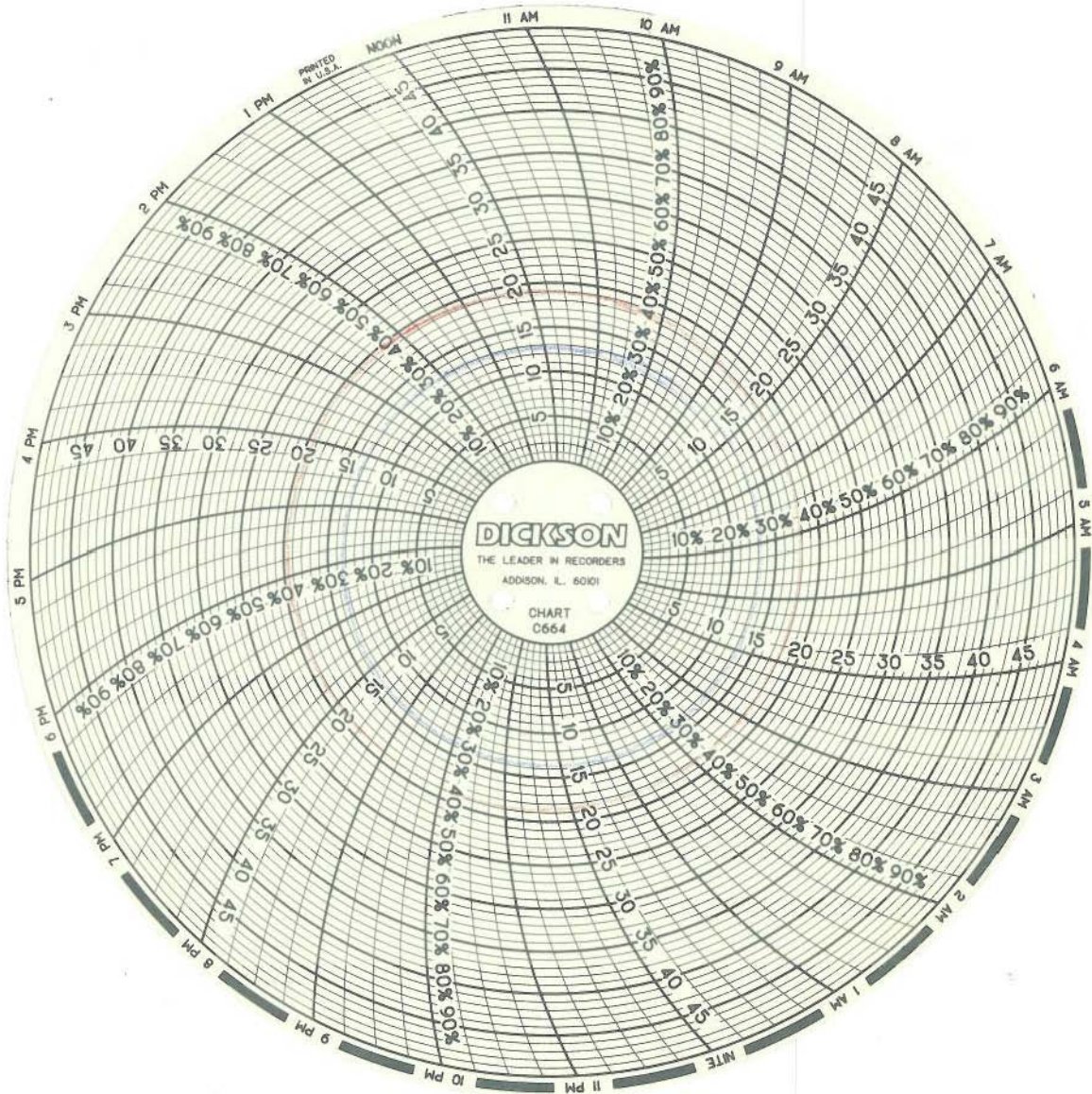
FMVSS 301 STATIC ROLLOVER RESULTS (CONTINUED)

FMVSS No. 301 Rollover Spillage Table				
	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0° to 90°	0	0	0	N/a
90° to 180°	0	0	0	N/a
180° to 270°	0	0	0	N/a
270° to 360°	0	0	0	N/a

FMVSS No. 301 Static Rollover - Spillage				
	First five minutes (oz)	Sixth minute (oz)	Seventh minute (oz)	Eighth minute (oz)
Max allowable leakage	5.0	1.0	1.0	1.0
0° to 90°	0	0	0	N/a
90° to 180°	0	0	0	N/a
180° to 270°	0	0	0	N/a
270° to 360°	0	0	0	N/a

Rollover Solvent Spillage Location Table	
Test Phase	Spillage Location
0° to 90°	N/a
90° to 180°	N/a
180° to 270°	N/a
270° to 360°	N/a

DATA SHEET 14
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA



Test Vehicle: 2013 Fiat 500 3-Dr. Hatchback
Test Program: SINCAP

NHTSA Number: MD 0306
Test Date: November 1, 2012

APPENDIX A PHOTOGRAPHS

LIST OF PHOTOGRAPHS

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No. 099	FMVSS No. 301 Static Rollover 270°	A-54
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No. 103	Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-56
No. 104	Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-56



Figure A-1: As-Delivered Right Front 3-4 View of Test Vehicle



Figure A-2: As-Delivered Left Rear 3-4 View of Test Vehicle



Figure A-3: Pre-Test Frontal View of the Test Vehicle



Figure A-4: Post-Test Frontal View of Test Vehicle



Figure A-5: Pre-Test Left Front 3-4 View of Test Vehicle



Figure A-6: Post-Test Left Front 3-4 View of Test Vehicle



Figure A-7: Pre-Test Left Side View of Test Vehicle



Figure A-8: Post-Test Left Side View of Test Vehicle



Figure A-9: Pre-Test Left Rear 3-4 View of Test Vehicle



Figure A-10: Post-Test Left Rear 3-4 View of Test Vehicle



Figure A-11: Pre-Test Rear View of Test Vehicle



Figure A-12: Post-Test Rear View of Test Vehicle



Figure A-13: Pre-Test Right Side View of Test Vehicle



Figure A-14: Post-Test Right Side View of Test Vehicle



Figure A-15: Pre-Test Overhead View of Test Area

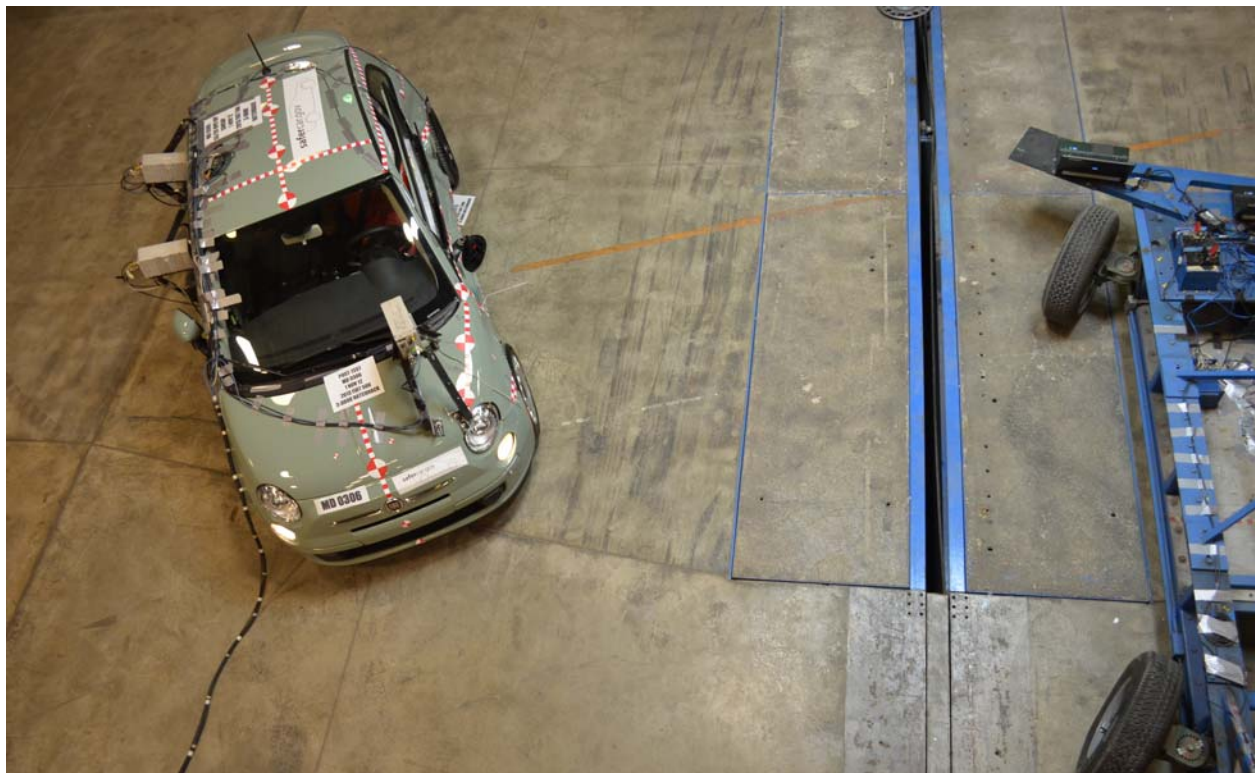


Figure A-16: Post-Test Overhead View of Test Area



Figure A-17: Pre-Test Left Side View of MDB Positioned Against Side of Test Vehicle



Figure A-18: Pre-Test Right Side View of MDB Positioned Against Side of Test Vehicle



Figure A-19: Pre-Test Close-Up View of Impact Point Target



Figure A-20: Post-Test Close-Up View of Impact Point Target

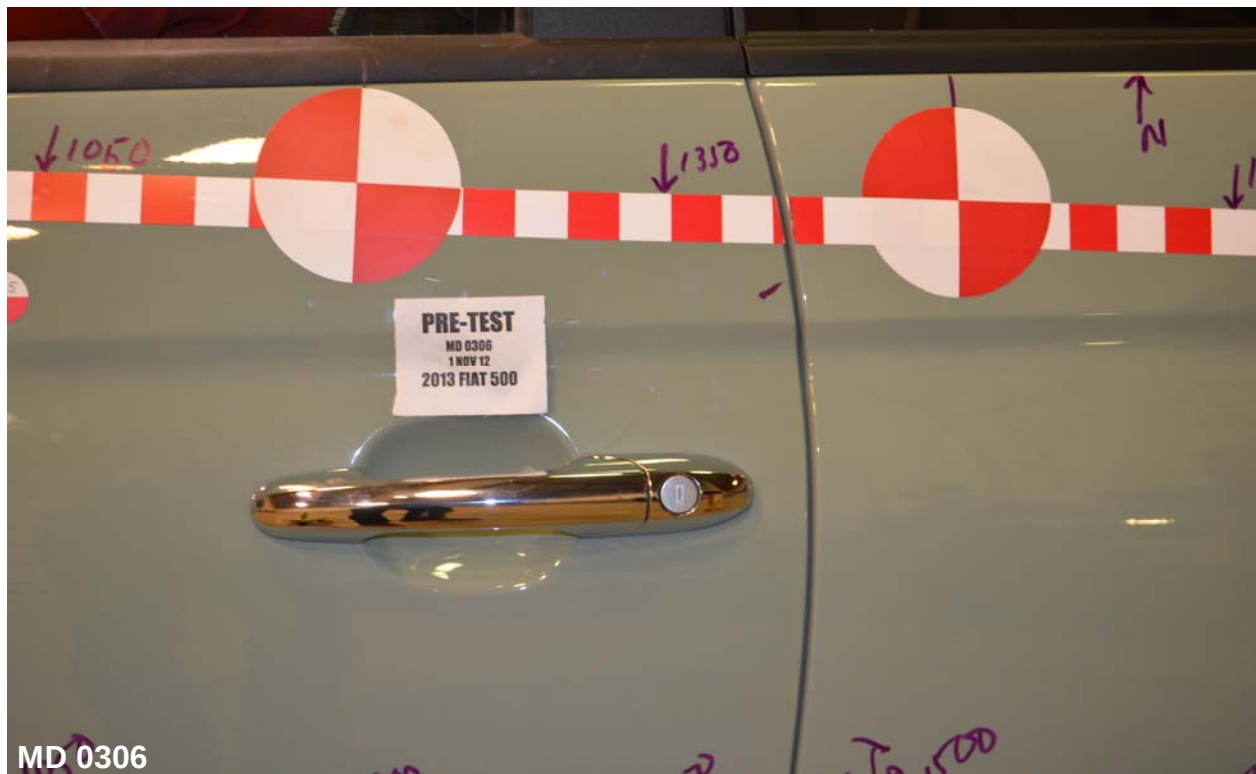


Figure A-21: Pre-Test Left Front Door Latch Close-Up

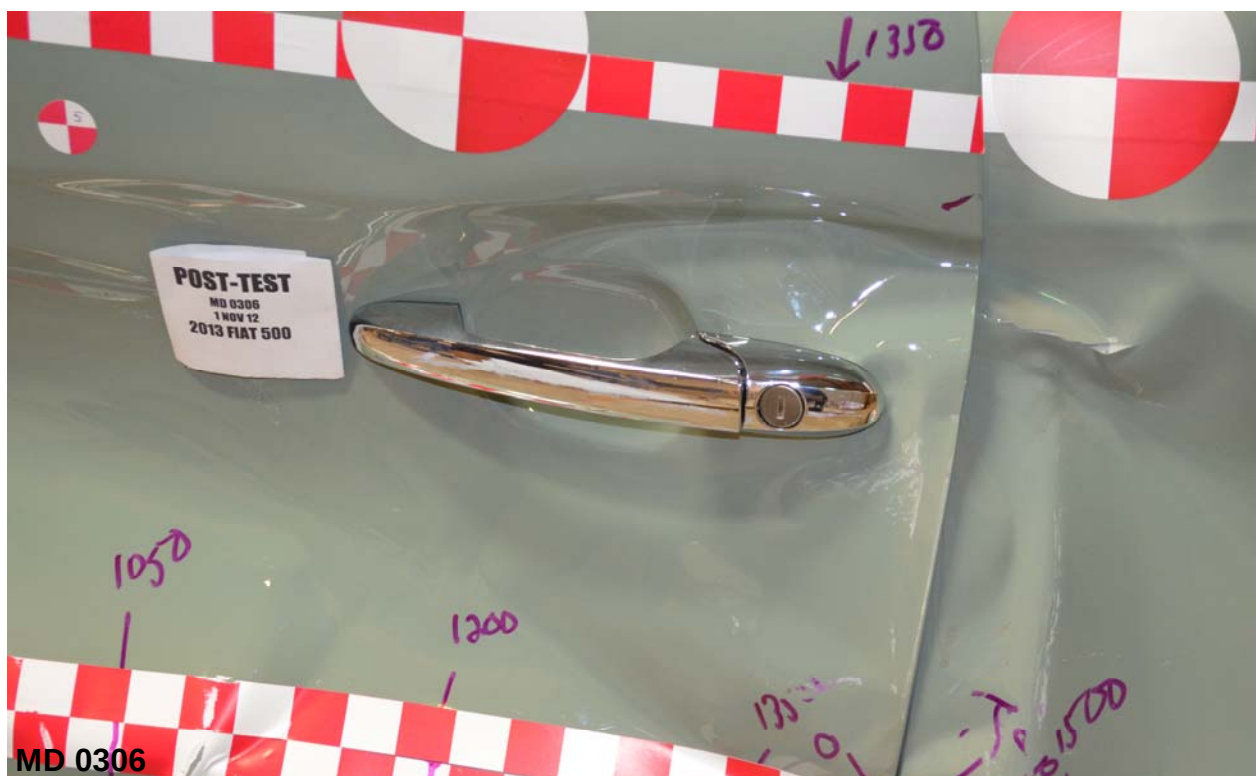


Figure A-22: Post-Test Left Front Door Latch Close-Up

Not Applicable

MD 0306

Figure A-23: Pre-Test Left Rear Door Latch Close-Up

Not Applicable

MD 0306

Figure A-24: Post-Test Left Rear Door Latch Close-Up



Figure A-25: Pre-Test Front Close-Up View of Driver Dummy



Figure A-26: Post-Test Front Close-Up View of Driver Dummy



Figure A-27: Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking



Figure A-28: Pre-Test Left Side View of Driver Dummy Shoulder and Door Top View



Figure A-29: Post-Test Left Side View of Driver Dummy Shoulder and Door Top View



Figure A-30: Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



Figure A-31: Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



Figure A-32: Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning



Figure A-33: Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



Figure A-34: Pre-Test Placement of Driver Dummy's Feet



Figure A-35: Pre-Test View of Belt Anchorage for Driver Dummy

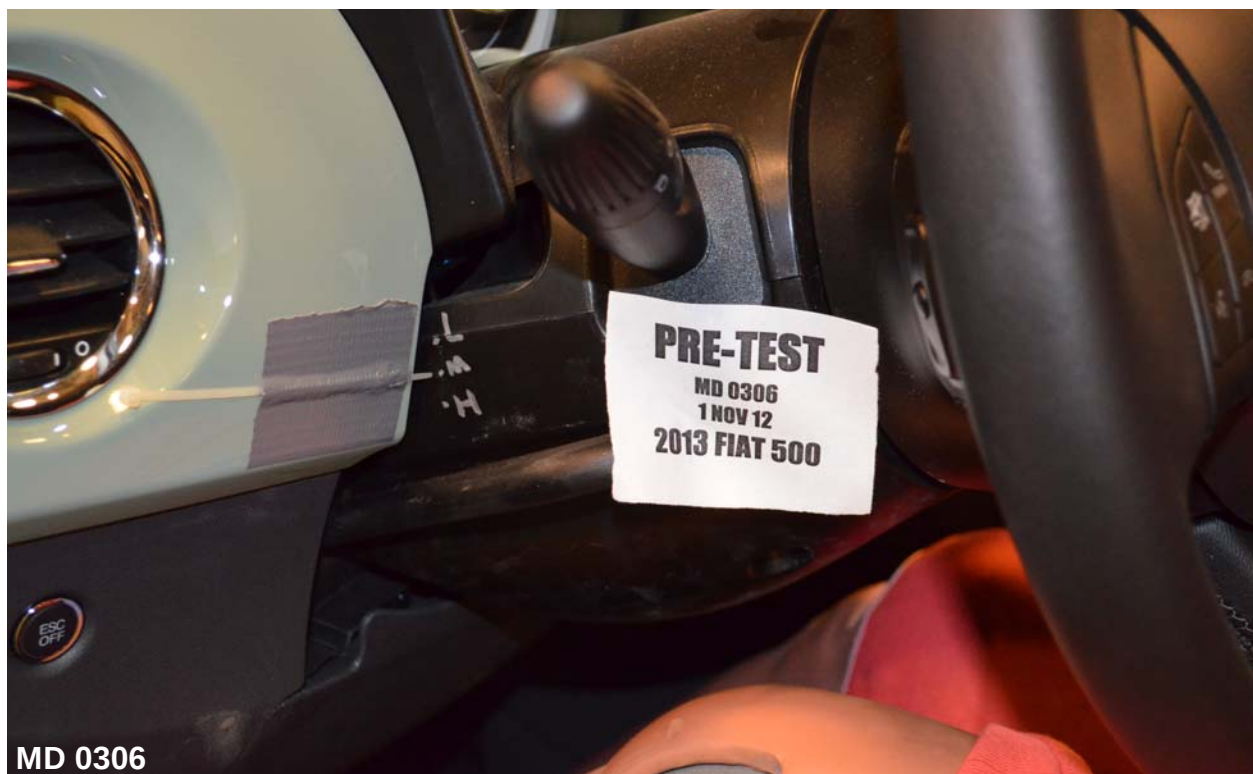


Figure A-36: Pre-Test Left Side View of Steering Wheel



Figure A-37: View of Disengaged Parking Brake



Figure A-38: Pre-Test View of Parking Brake



Figure A-39: Pre-Test Close-Up Left Side View of Driver Seat Track



Figure A-40: Pre-Test Close-Up Left Side View of Driver Seat Back



Figure A-41: Pre-Test Close-Up View of Driver Seat Back or Head Restraint



Figure A-42: Pre-Test Driver Dummy and Door Clearance View



Figure A-43: Post-Test Driver Dummy and Door Clearance View



Figure A-44: Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment

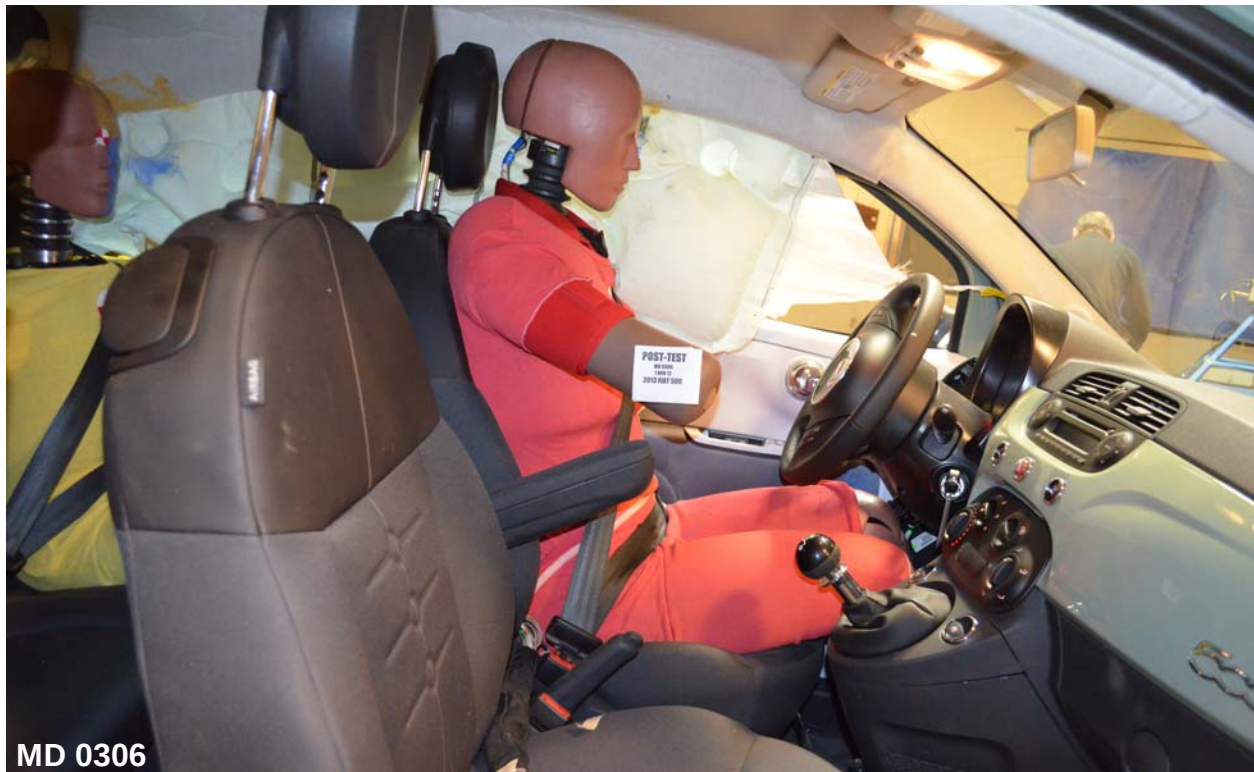


Figure A-45: Post-Test Right Side View of Driver Dummy and Front Seat Occupant Compartment



Figure A-46: Pre-Test Driver Inner Door Panel View

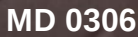


Figure A-47: Post-Test Driver Inner Door Panel View Showing Driver Dummy Contact Locations



Figure A-48: Post-Test Driver Dummy Close-Up Head Contact With Vehicle Interior View



Figure A-49: Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View

Not Applicable

MD 0306

Figure A-50: Post-Test Driver Dummy Close-Up Torso Contact with Vehicle Interior View



Figure A-51: Post-Test Driver Dummy Close-Up Torso Contact with Side Air Bag View



Figure A-52: Post-Test Driver Dummy Close-Up Pelvis Contact With Vehicle Interior View



Figure A-53: Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View



Figure A-54: Post-Test Driver Dummy Close-Up Knee Contact View

Not Applicable

MD 0306

Figure A-55: Pre-Test Left Side View of Rear Passenger Dummy Showing Belt and Chalking

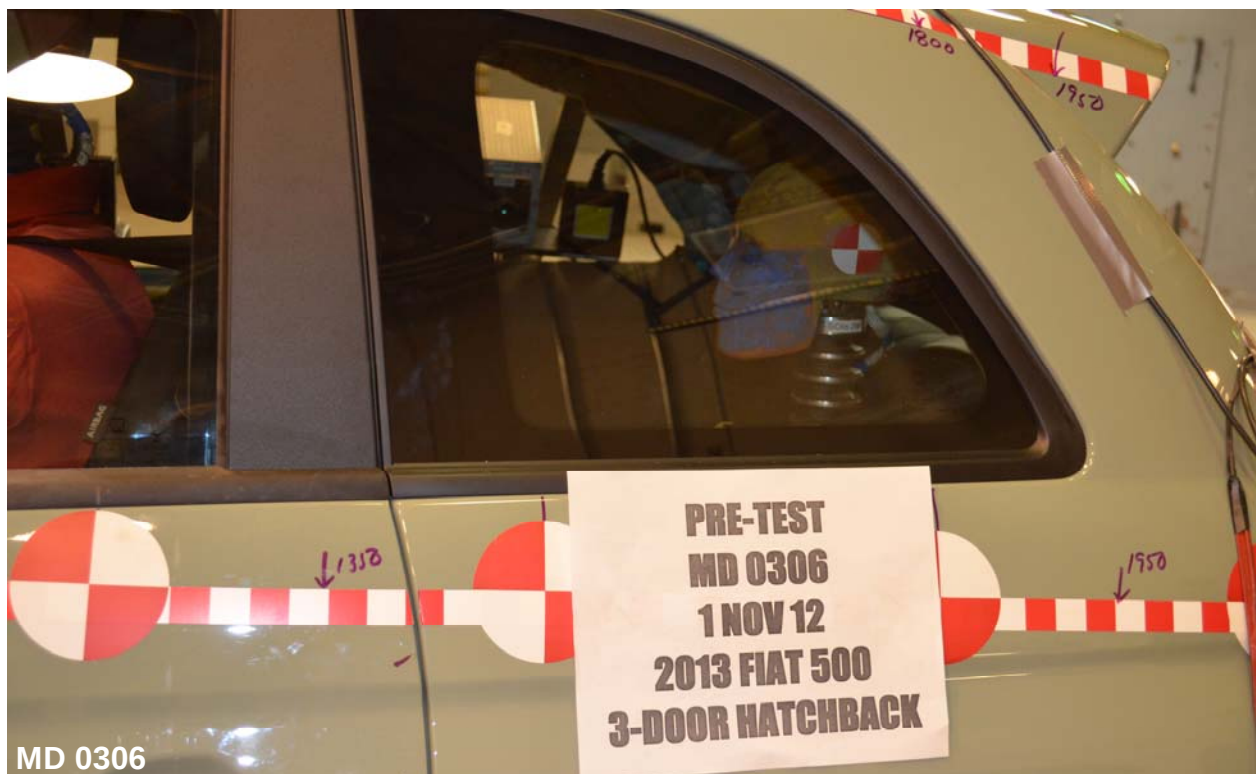


Figure A-56: Pre-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View



Figure A-57: Post-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View

Not Taken

MD 0306

Figure A-58: Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning

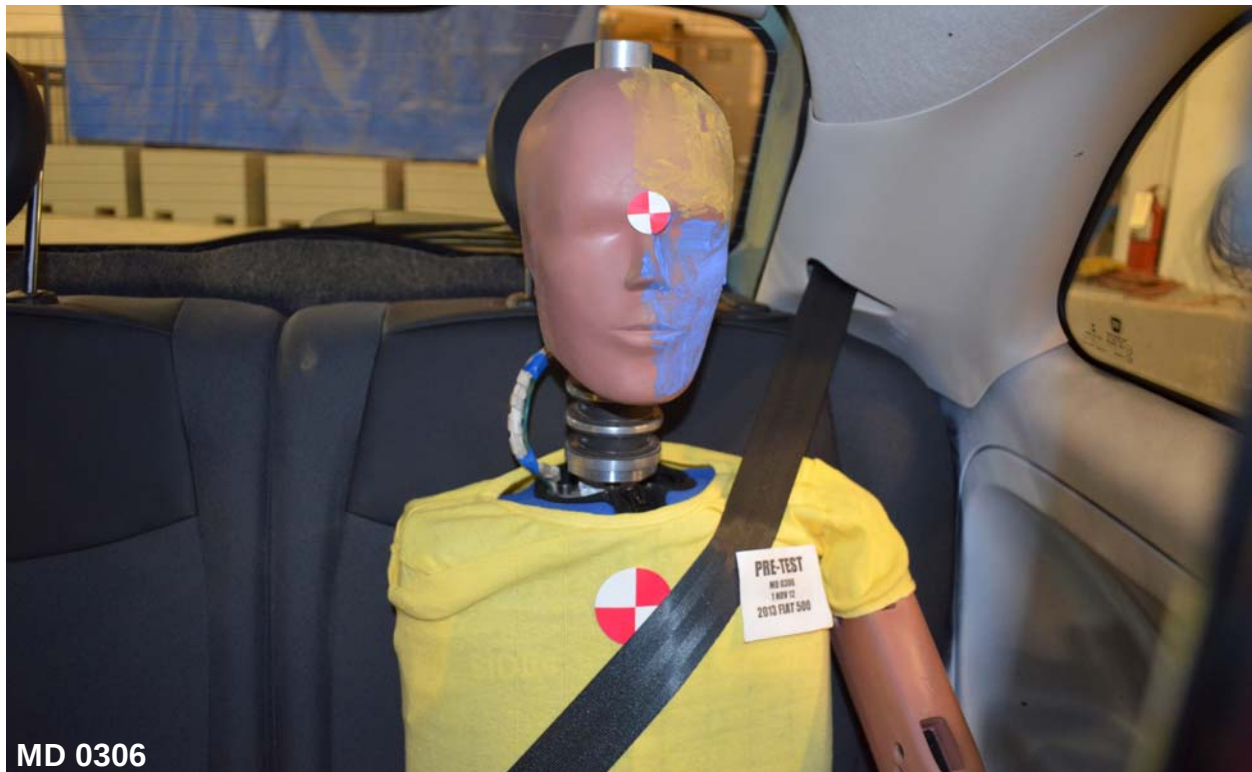


Figure A-59 - Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint



Figure A-60: Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning



Figure A-61: Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



Figure A-62: Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket



Figure A-63: Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level



Figure A-64: Pre-Test Placement of Rear Passenger Dummy's Feet



Figure A-65: Pre-Test View of Belt Anchorage for Rear Passenger Dummy

Not Applicable

Figure A-66: Pre-Test Close-Up Left Side View of Rear Passenger Seat Track

Not Applicable

MD 0306

Figure A-67: Pre-Test Close-Up Left Side View of Rear Passenger Seat Back



Figure A-68: Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint



Figure A-69: Pre-Test Rear Passenger Dummy and Door Clearance View



Figure A-70: Post-Test Rear Passenger Dummy and Door Clearance View



Figure A-71: Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



Figure A-72: Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



Figure A-73: Pre-Test Rear Passenger Inner Door Panel View



Figure A-74: Post-Test Rear Passenger Inner Door Panel View Showing Dummy Contact Locations



Figure A-75: Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle Interior View



Figure A-76: Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag View



Figure A-77: Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View

Not Applicable

MD 0306

Figure A-78: Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Airbag View



Figure A-79: Post-Test Rear Passenger Dummy Close-up Pelvis Contact with Vehicle Interior View

Not Applicable

MD 0306

Figure A-80: Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View



Figure A-81: Post-Test Rear Passenger Dummy Close-Up Knee Contact View



Figure A-82: Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

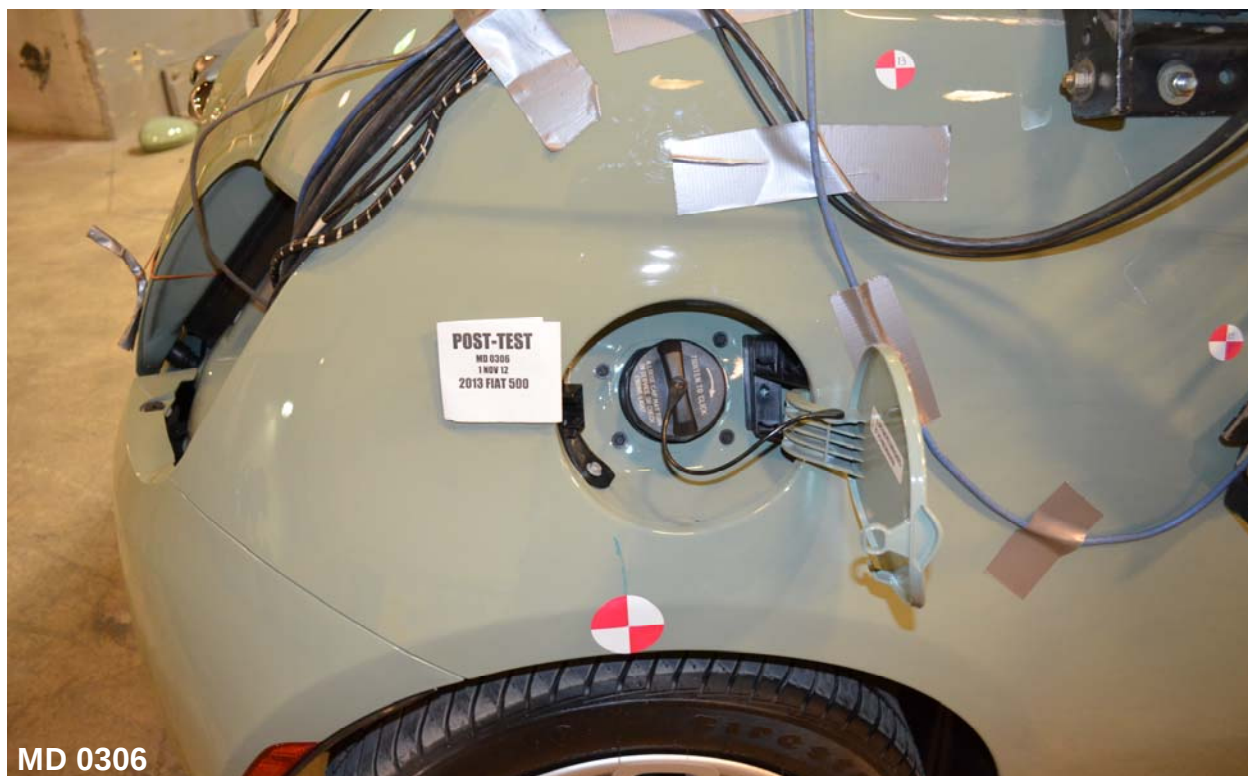


Figure A-83: Post-Test View of Fuel Filler Cap or Fuel Filler Neck



Figure A-84: Pre-Test Front View of MDB Impactor Face



Figure A-85: Post-Test Front View of MDB Impactor Face



Figure A-86: Pre-Test Top View of MDB Impactor Face



Figure A-87: Post-Test Top View of MDB Impactor Face



Figure A-88: Pre-Test Left Side View of MDB Impactor Face



Figure A-89: Post-Test Left Side View of MDB Impactor Face



Figure A-90: Pre-Test Right Side View of MDB Impactor Face



Figure A-91: Post-Test Right Side View of MDB Impactor Face

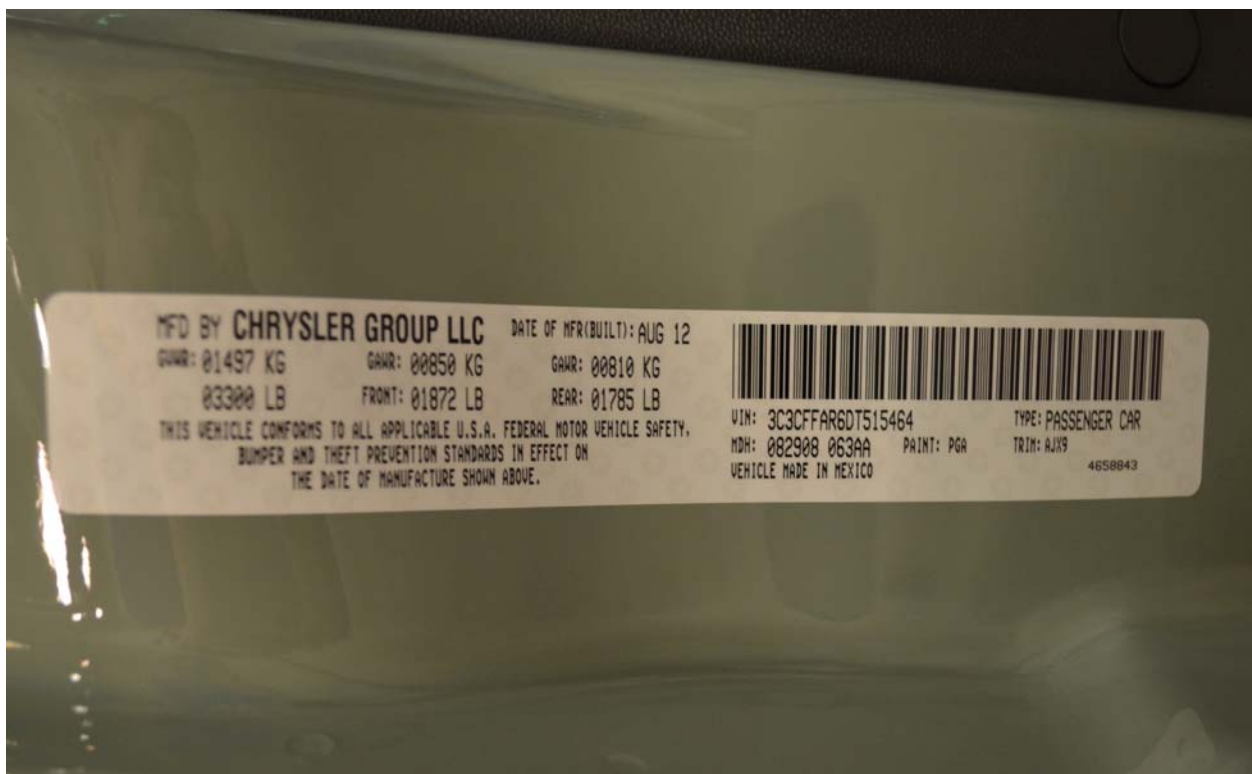
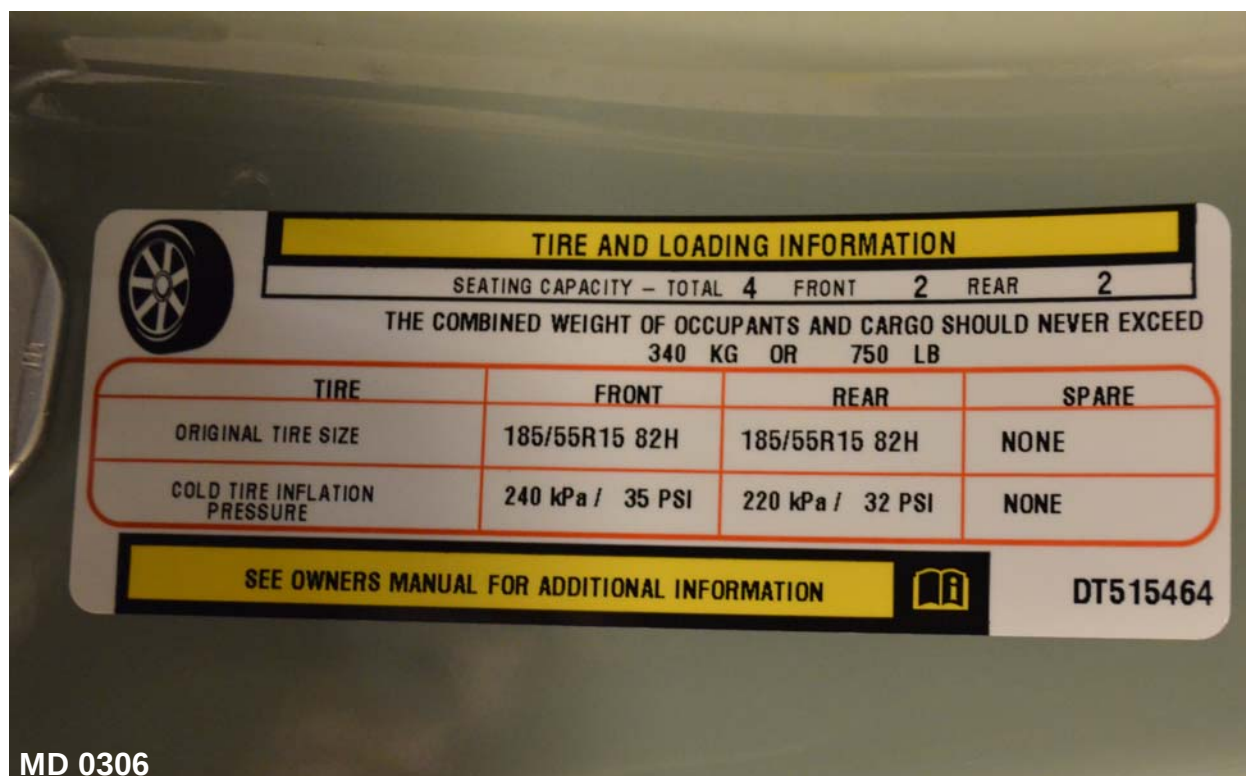


Figure A-92: Close-Up View of Vehicle's Certification Label



MD 0306

Figure A-93: Close-Up View of Vehicle's Tire Information Placard or Label

Not Taken

MD 0306

Figure A-94: Pre-Test Ballast View N/a (No Ballast Added)

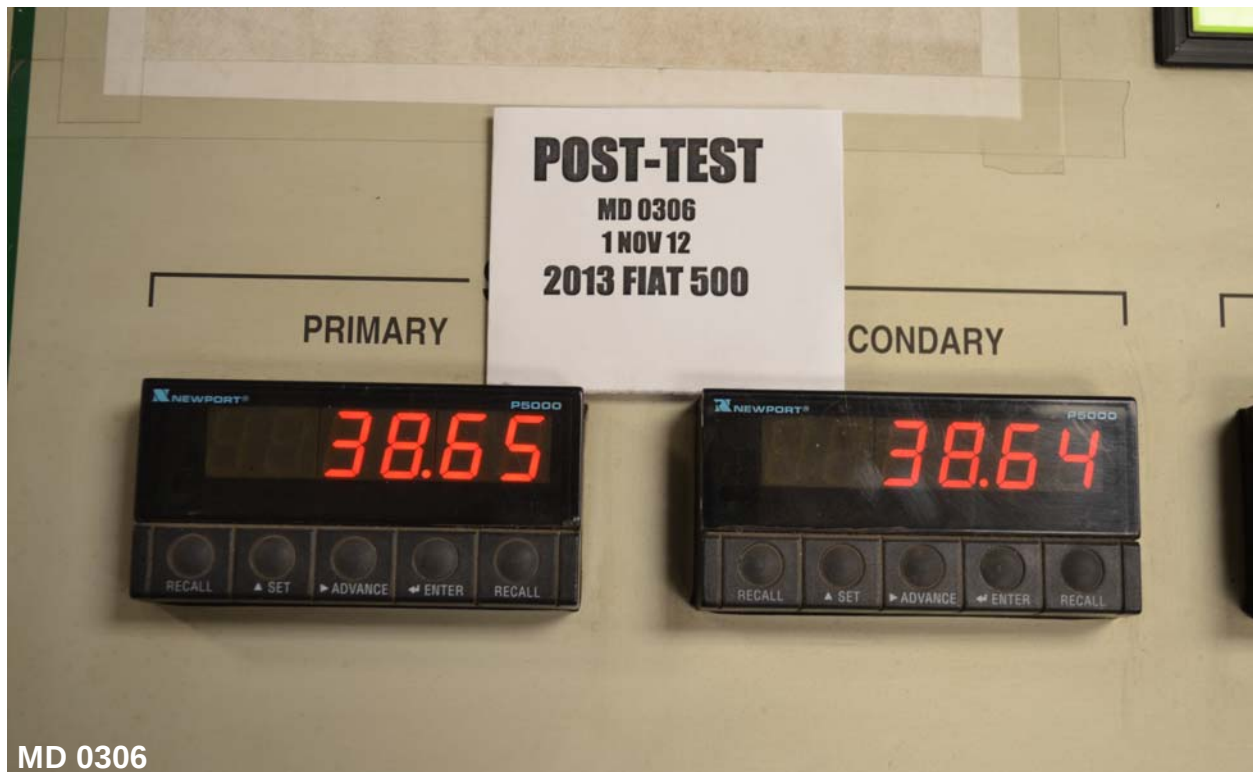


Figure A-95: Post-Test Primary and Redundant Speed Trap Read-Out



Figure A-96: FMVSS No. 301 Static Rollover 0 Degrees

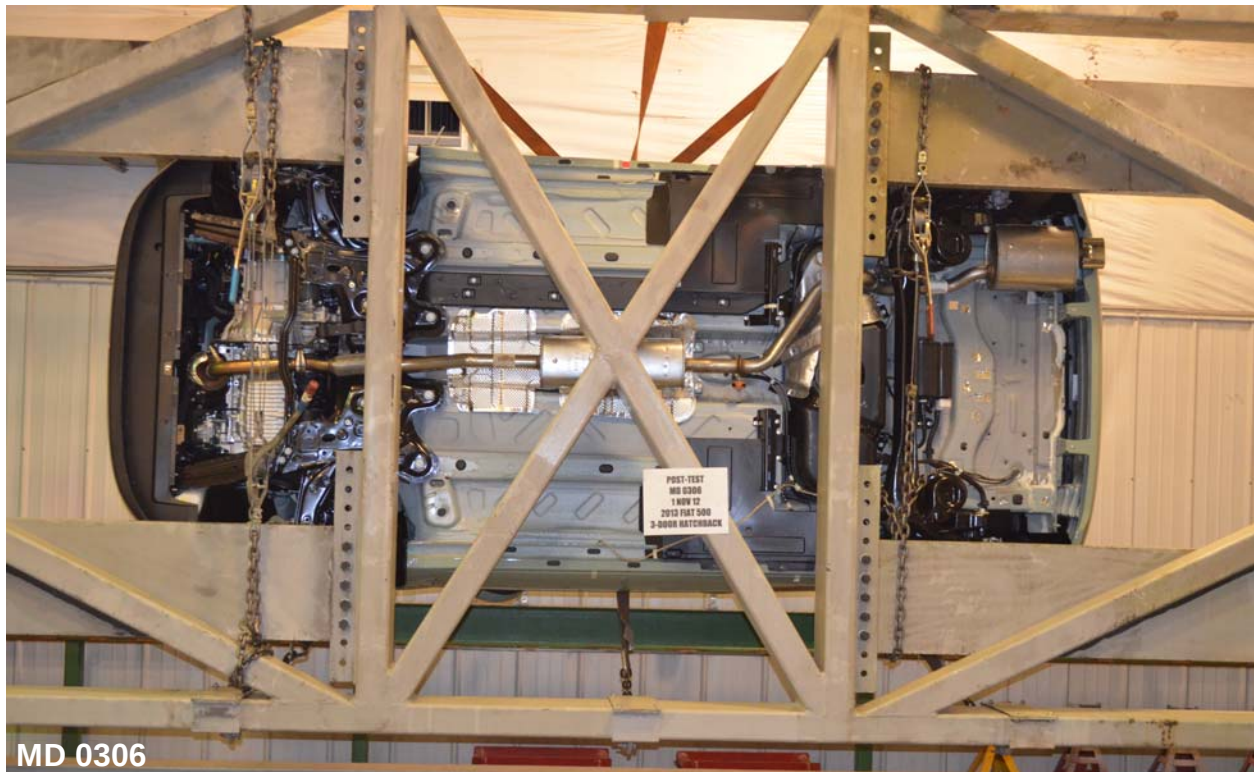


Figure A-97: FMVSS No. 301 Static Rollover 90 Degrees



Figure A-98: FMVSS No. 301 Static Rollover 180 Degrees



Figure A-99: FMVSS No. 301 Static Rollover 270 Degrees

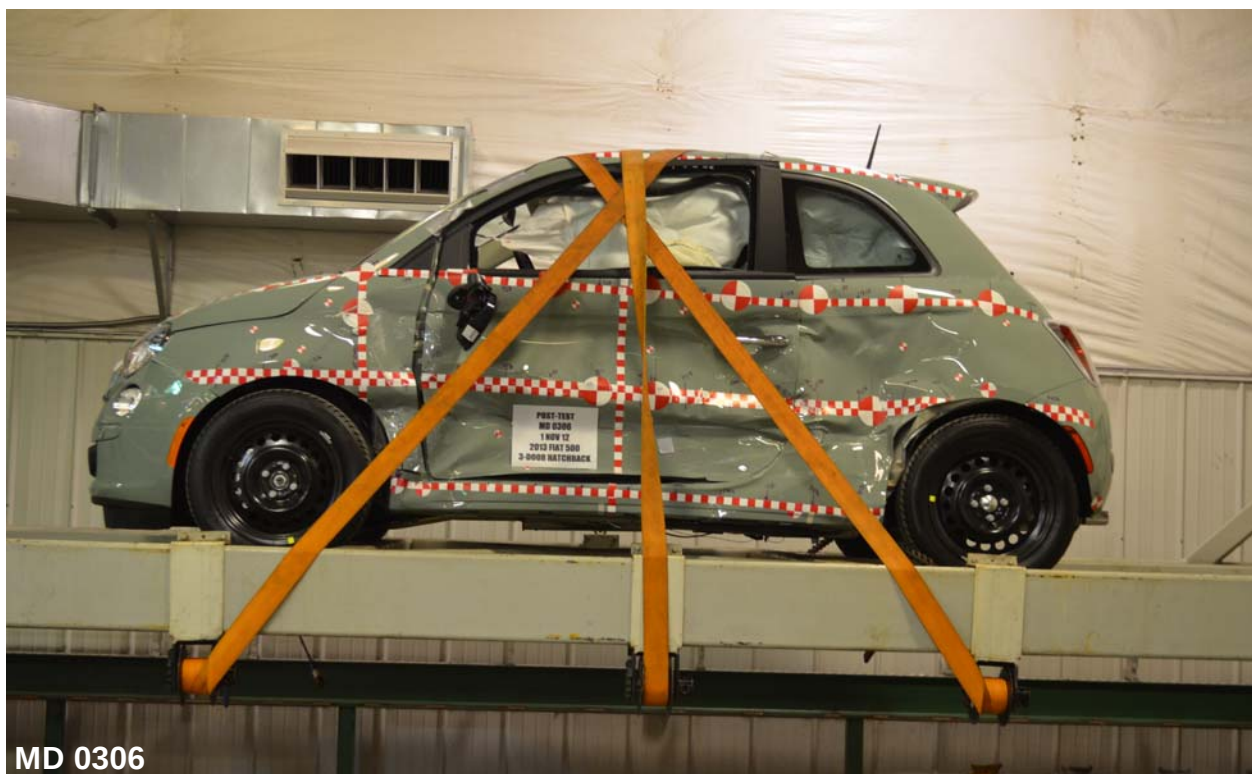


Figure A-100: FMVSS No. 301 Static Rollover 360 Degrees

NHTSA Number: MD 0306
Test Date: November 1, 2012



MD 0306

Figure A-102: Monroney Label

104 UNDERSTANDING THE FEATURES OF YOUR VEHICLE

Reactive Head Restraints — Front Seats

The front driver and passenger seats are equipped with Reactive Head Restraints. In the event of a rear impact the Reactive Head Restraints will automatically extend forward minimizing the gap between the back of the occupant's head and the Reactive Head Restraint.

To raise the head restraint, pull upward on the head restraint. To lower the head restraint, press the push button, located at the base of the head restraint, and push downward on the head restraint.



Push Button

The Reactive Head Restraints will automatically return to their normal position following a rear impact. If the Reactive Head Restraints do not return to their normal position, see your authorized studio immediately.

MD 0306

Figure A-103: Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

NOTE: The head restraints should only be removed by qualified technicians, for service purposes only. If either of the head restraints require removal, see your authorized studio.

WARNING!

Do not place items over the top of the Reactive Head Restraint, such as coats, seat covers or portable DVD players. These items may interfere with the operation of the Reactive Head Restraint in the event of a collision and could result in serious injury or death.

Rear Head Restraints

To raise the head restraint, pull upward on the head restraint. To lower the head restraint, press the push button, located at the base of the head restraint, and push

UNDERSTANDING THE FEATURES OF YOUR VEHICLE 105

downward on the head restraint. Refer to "Occupant Restraints" in "Things To Know Before Starting Your Vehicle" for information on tether routing.



Push Button

3

MD 0306

Figure A-104: Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

Test Vehicle: 2013 Fiat 500 3-Dr. Hatchback
Test Program: SINCAP

NHTSA Number: MD 0306
Test Date: November 1, 2012

APPENDIX B
DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS

The following plots are provided in the test report

Data Plot	Description	Page
1	Driver Head Acceleration (X) Primary vs. Time	B-4
2	Driver Head Acceleration (Y) Primary vs. Time	B-5
3	Driver Head Acceleration (Z) Primary vs. Time	B-6
4	Driver Head Resultant Acceleration Primary vs. Time	B-7
5	Driver Upper Thorax Rib Deflection (Y) vs. Time	B-8
6	Driver Middle Thorax Rib Deflection (Y) vs. Time	B-9
7	Driver Lower Thorax Rib Deflection (Y) vs. Time	B-10
8	Driver Thorax Rib Deflection Maximum vs. Time	B-11
9	Driver Anterior Abdominal Force (Y) vs. Time	B-12
10	Driver Middle Abdominal Force (Y) vs. Time	B-13
11	Driver Posterior Abdominal Force (Y) vs. Time	B-14
12	Driver Total Abdominal Force (Y) vs. Time	B-15
13	Driver Pubic Symphysis Force (Y) vs. Time	B-16
14	Passenger Head Acceleration (X) Primary vs. Time	B-17
15	Passenger Head Acceleration (Y) Primary vs. Time	B-18
16	Passenger Head Acceleration (Z) Primary vs. Time	B-19
17	Passenger Head Resultant Acceleration Primary vs. Time	B-20
18	Passenger Lower Spine T ₁₂ Acceleration (X) vs. Time	B-21
19	Passenger Lower Spine T ₁₂ Acceleration (Y) vs. Time	B-22
20	Passenger Lower Spine T ₁₂ Acceleration (Z) vs. Time	B-23
21	Passenger Lower Spine T ₁₂ Resultant Acceleration vs. Time	B-24
22	Passenger Iliac Force on Impact Side (Y) vs. Time	B-25
23	Passenger Acetabulum Force on Impact Side (Y) vs. Time	B-26
24	Passenger Total Pelvic Force on Impact Side (Y) vs. Time	B-27

The following additional data for this test can be obtained from the Research and Development section of the NHTSA website. The website can be found at www.NHTSA.dot.gov.

Additional Driver & Passenger Dummy Instrumentation Data

Driver Lower Spine T₁₂ Acceleration (X)
Driver Lower Spine T₁₂ Acceleration (Y)
Driver Lower Spine T₁₂ Acceleration (Z)
Passenger Upper Thorax Rib Deflection (Y)
Passenger Middle Thorax Rib Deflection (Y)
Passenger Lower Thorax Rib Deflection (Y)
Passenger Upper Abdomen Rib Deflection (Y)
Passenger Lower Abdomen Rib Deflection (Y)
Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Passenger Head Acceleration Redundant (X)
Passenger Head Acceleration Redundant (Y)
Passenger Head Acceleration Redundant (Z)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Right Side Sill at Front Seat Acceleration (X)
Right Side Sill at Front Seat Acceleration (Y)
Right Side Sill at Front Seat Acceleration (Z)
Right Side Sill at Rear Seat Acceleration (X)
Right Side Sill at Rear Seat Acceleration (Y)
Right Side Sill at Rear Seat Acceleration (Z)
Left Side Sill at Front Seat Acceleration (Y)
Left Side Sill at Rear Seat Acceleration (Y)
Lower A-Post Acceleration (Y)
Middle A-Post Acceleration (Y)
Lower B-Post Acceleration (Y)
Middle B-Post Acceleration (Y)
Front Seat Track Acceleration (Y)
Rear Seat Structure Acceleration (Y)
Right Rear Occupant Compartment Acceleration (Y)
Engine Block (X)
Engine Block (Y)
Rear Floorpan Above Axle Acceleration (X)
Rear Floorpan Above Axle Acceleration (Y)
Rear Floorpan Above Axle Acceleration (Z)

MDB Instrumentation Data

MDB Center of Gravity Acceleration (X)
MDB Center of Gravity Acceleration (Y)
MDB Center of Gravity Acceleration (Z)
MDB Rear Acceleration (X)
MDB Rear Acceleration (Y)
Left MDB Contact Switch
Right MDB Contact Switch

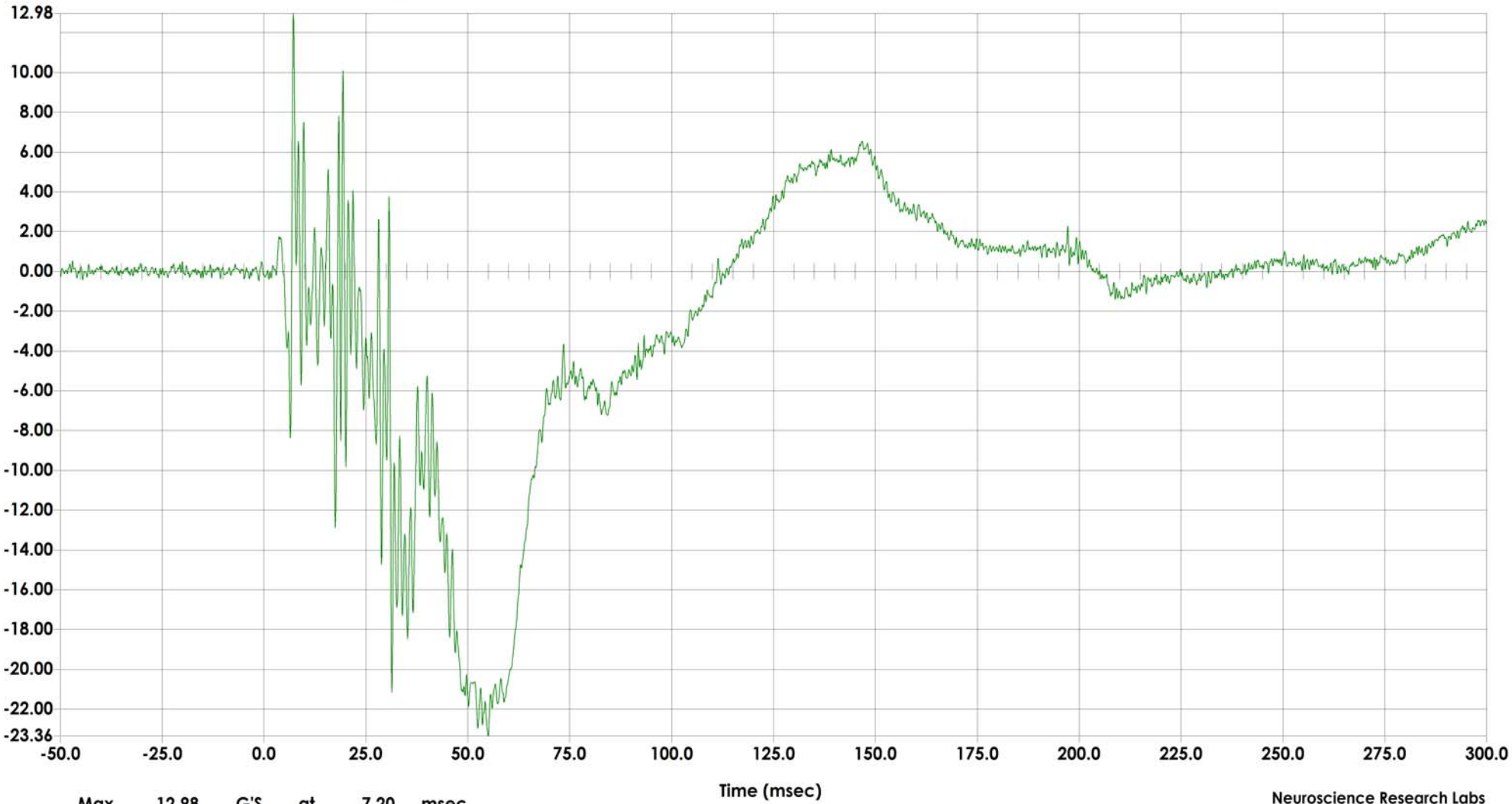
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Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC1000
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location HDCG
Sensor Info ENDEVCO 7264-2000TZ
Serial Number J43494



G'S Driver Head Acceleration (X) Primary vs. Time



Max 12.98 G'S at 7.20 msec
Min -23.36 G'S at 55.04 msec

MD 0306 Plot 001

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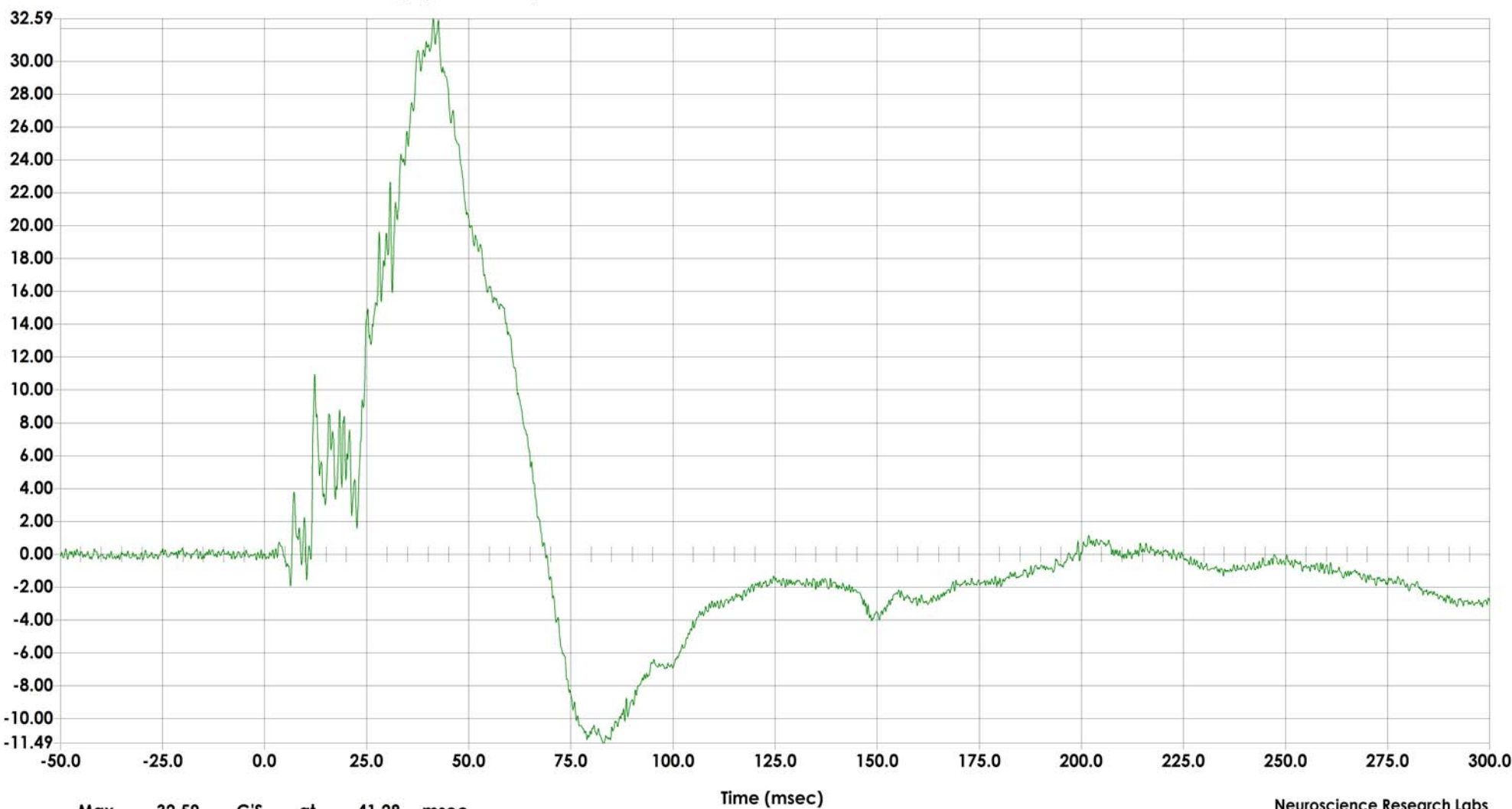
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Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC1000
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location HDCG
Sensor Info ENDEVCO 7264-2000TZ
Serial Number J43475



G'S Driver Head Acceleration (Y) Primary vs. Time



Max 32.59 G'S at 41.28 msec
Min -11.49 G'S at 82.96 msec

MD 0306 Plot 002

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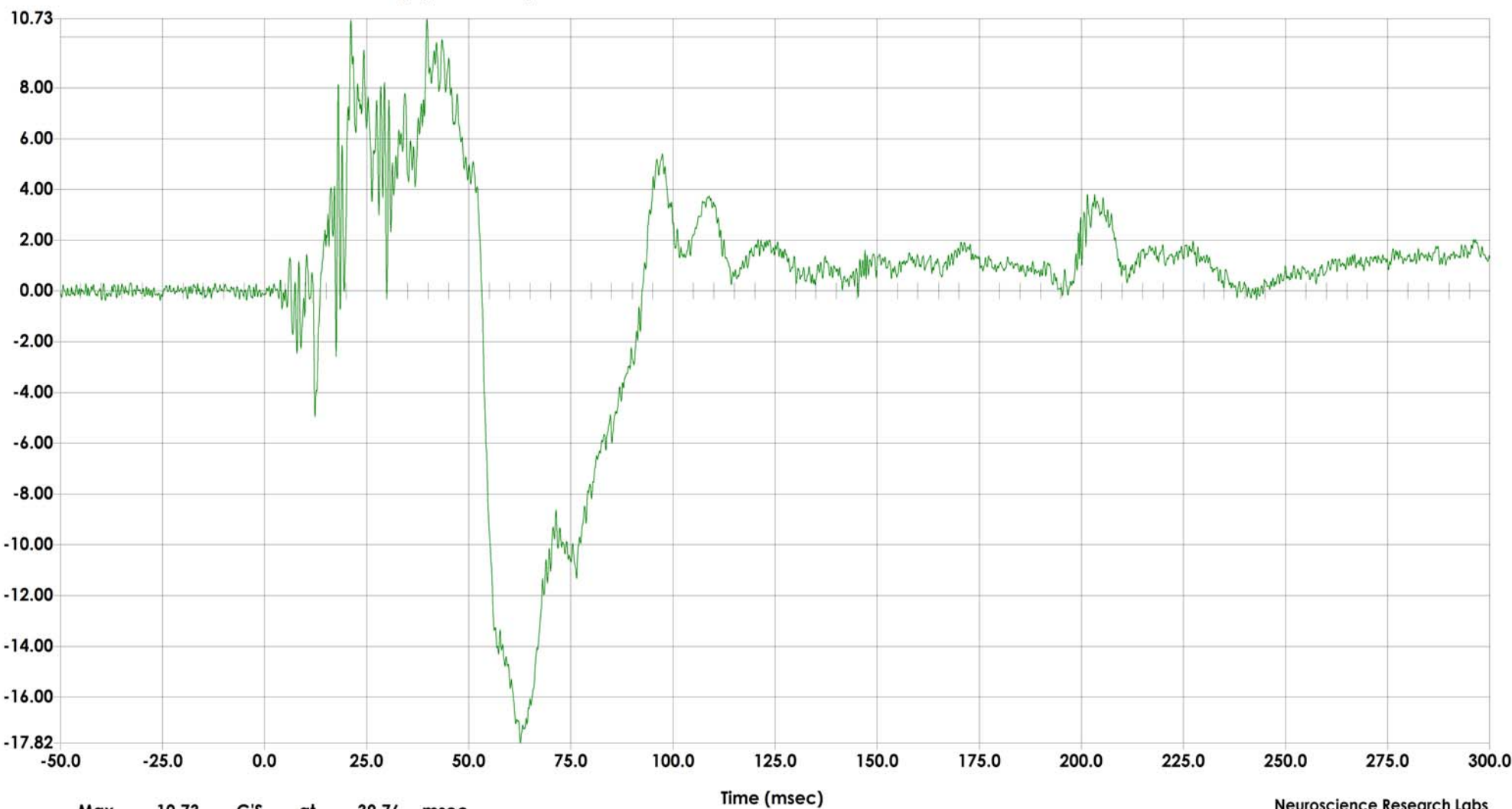
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Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC1000
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location HDCG
Sensor Info ENDEVCO 7264-2000
Serial Number J43779



G'S Driver Head Acceleration (Z) Primary vs. Time



Max 10.73 G'S at 39.76 msec
Min -17.82 G'S at 62.64 msec

MD 0306 Plot 003

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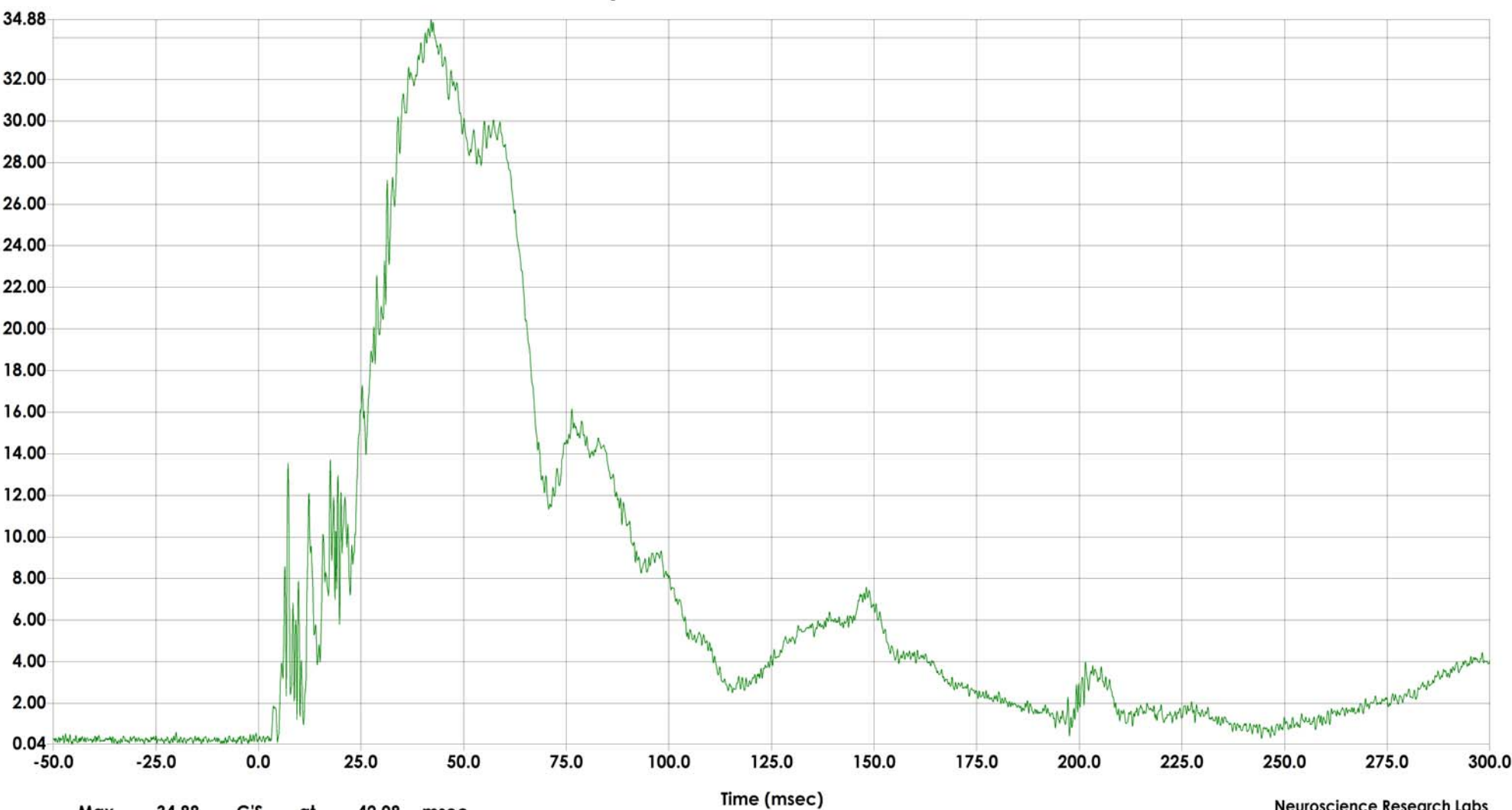
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Filter CFC1000
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location
Sensor Info MCW Multiviewer
Serial Number 3.5.2j



G'S Driver Head Resultant Acceleration Primary vs. Time



Max 34.88 G'S at 42.08 msec
Min 0.04 G'S at -45.52 msec

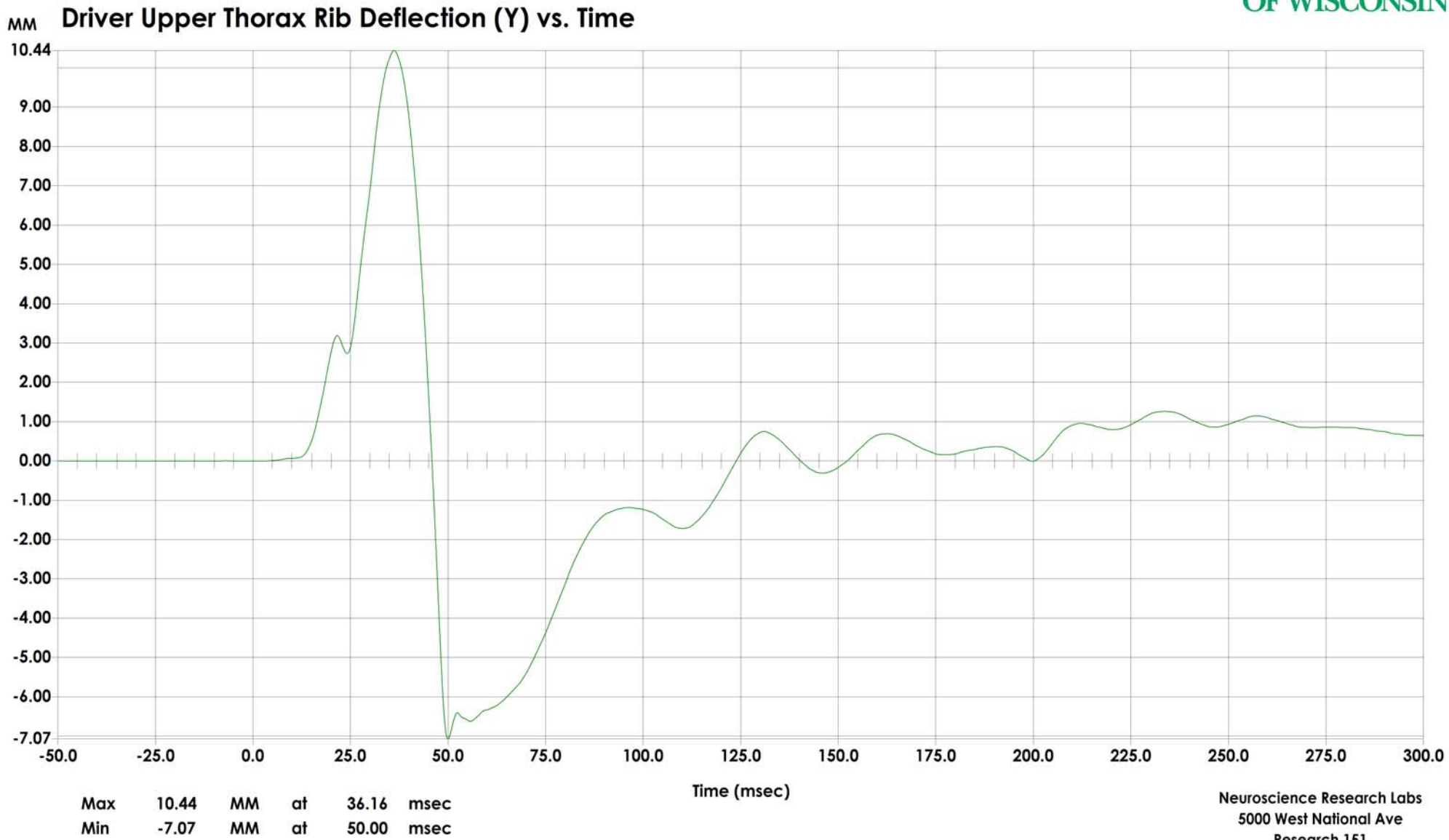
MD 0306 Plot 063

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Milwaukee, WI 53295

Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC180
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location RBLU
Sensor Info Honeywell MLT-38000203
Serial Number MLT-38000203_433

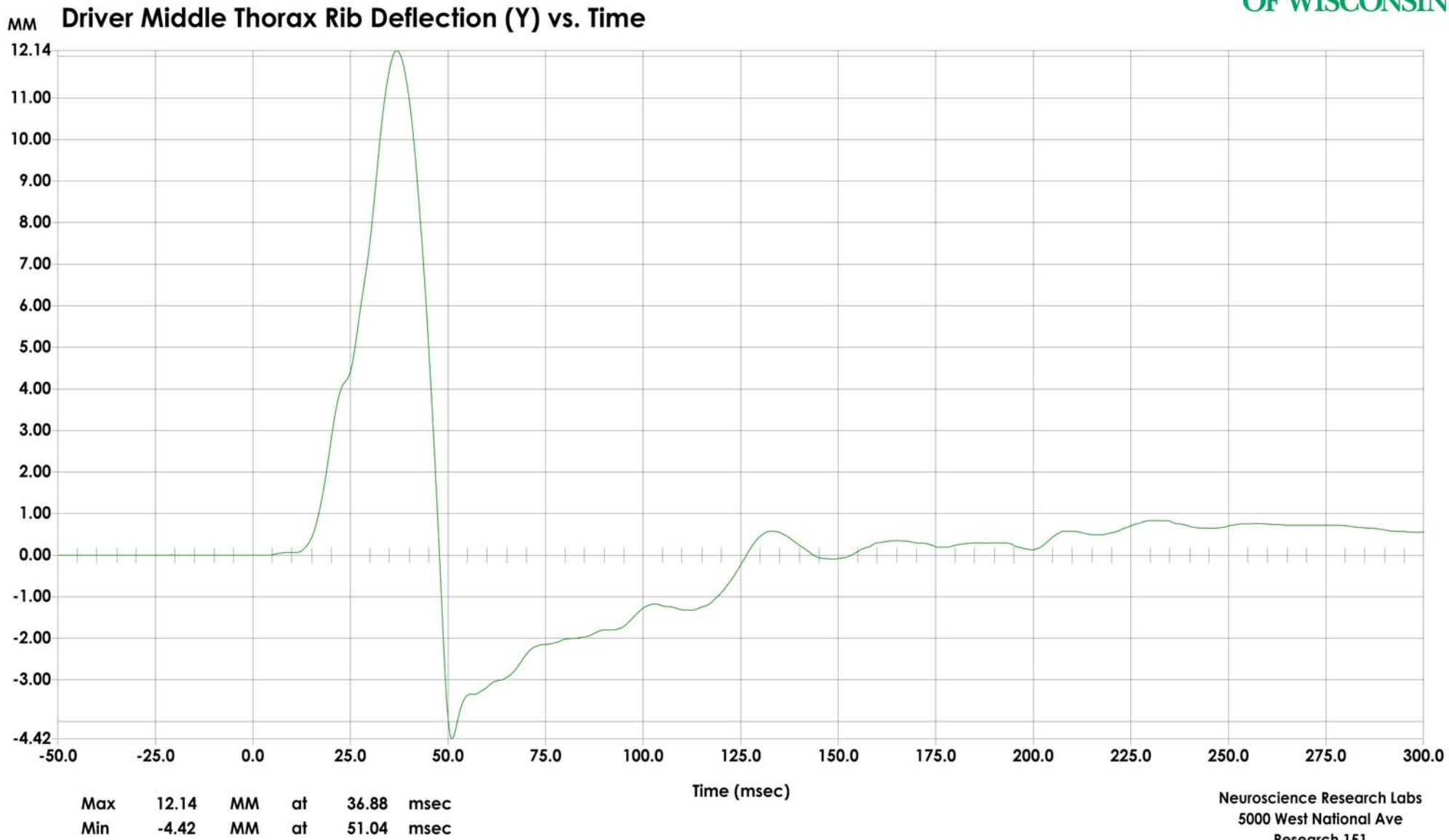


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Research 151
Milwaukee, WI 53295

Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC180
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location RBLM
Sensor Info Honeywell MLT-38000203
Serial Number MLT-38000203_193

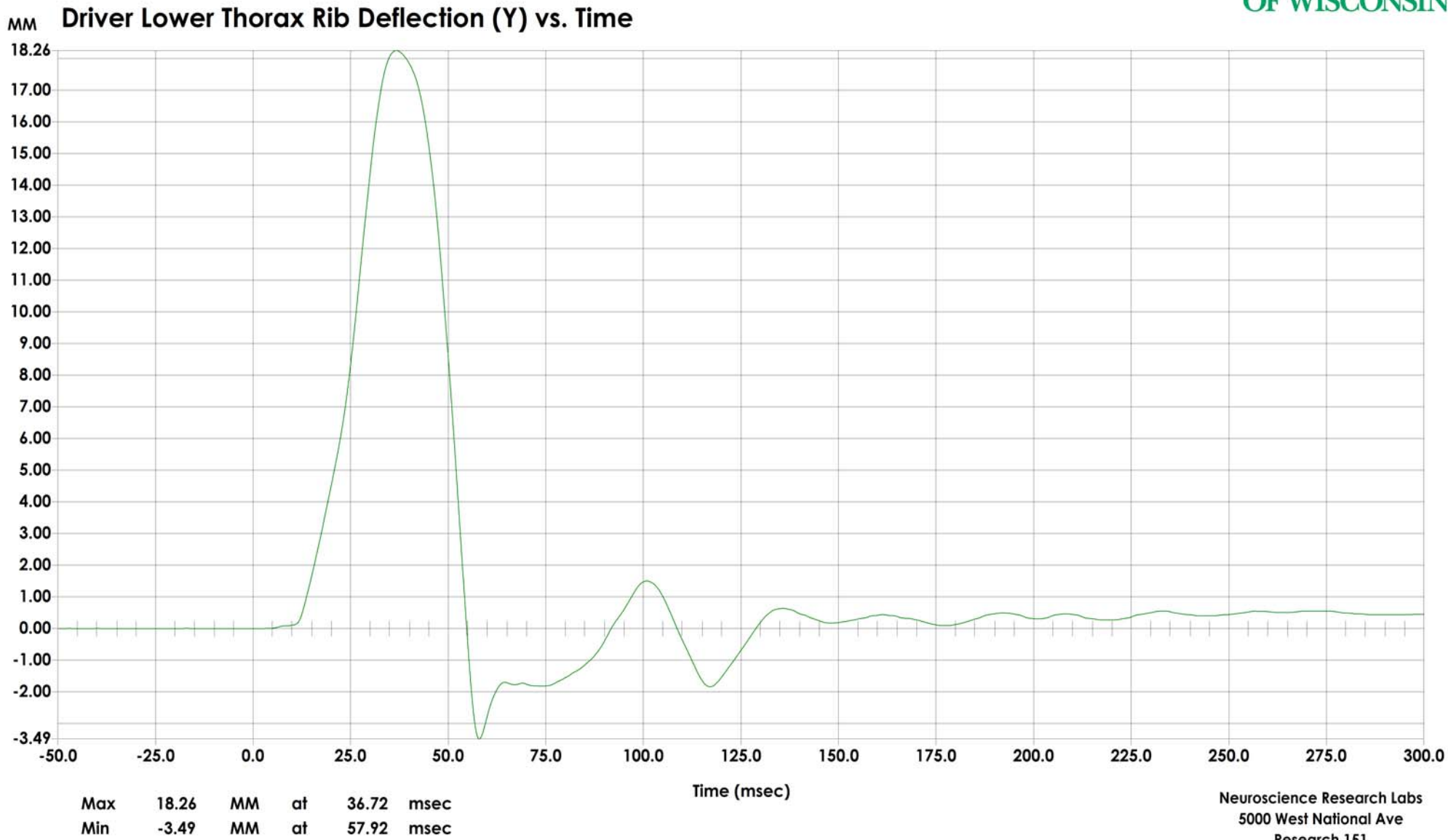


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Research 151
Milwaukee, WI 53295

Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC180
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location RBLL
Sensor Info Honeywell MLT-38000203
Serial Number MLT-38000203_191

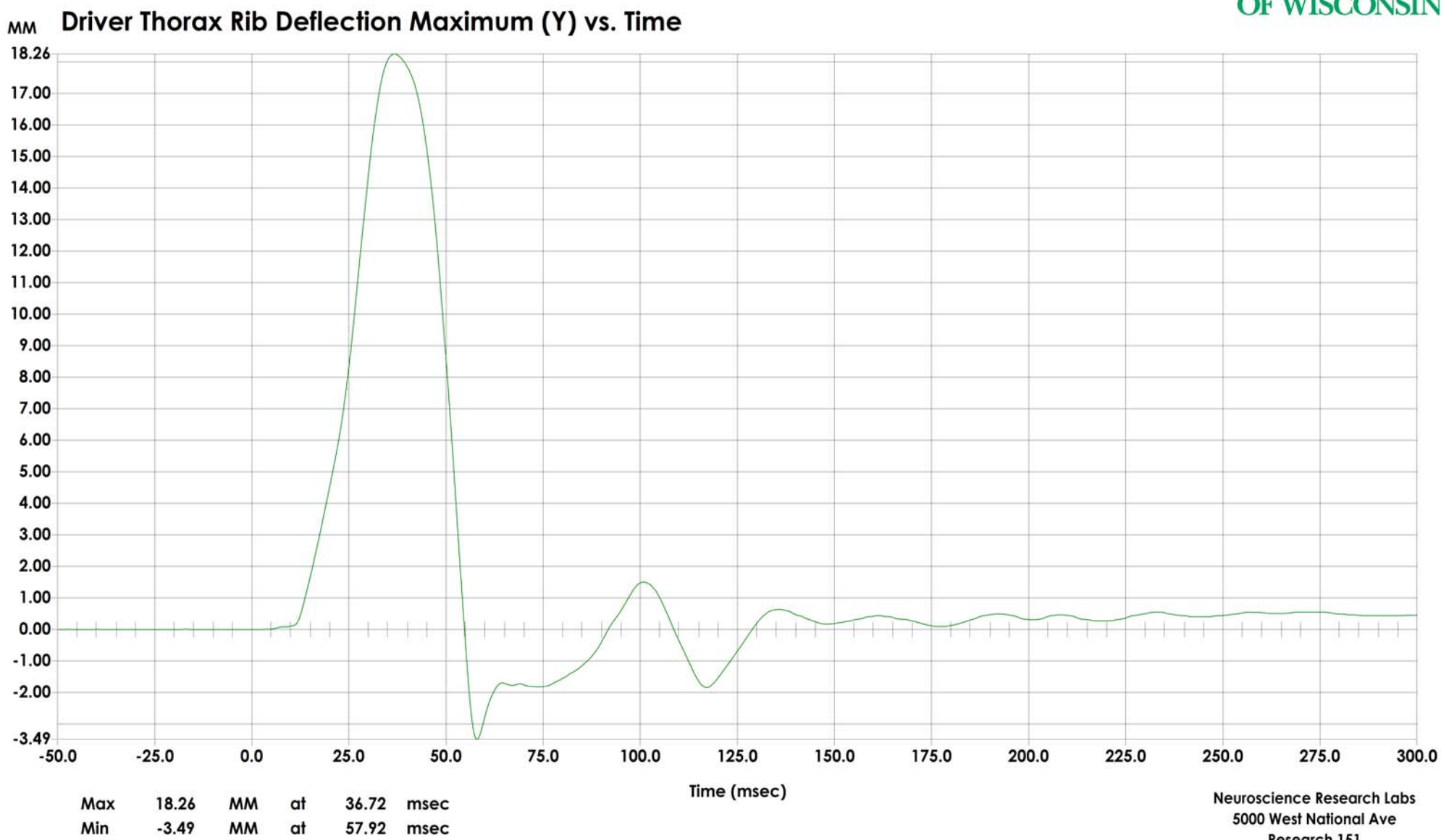


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Milwaukee, WI 53295

Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC180
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location RBLL
Sensor Info Honeywell MLT-38000203
Serial Number MLT-38000203_191



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Milwaukee, WI 53295

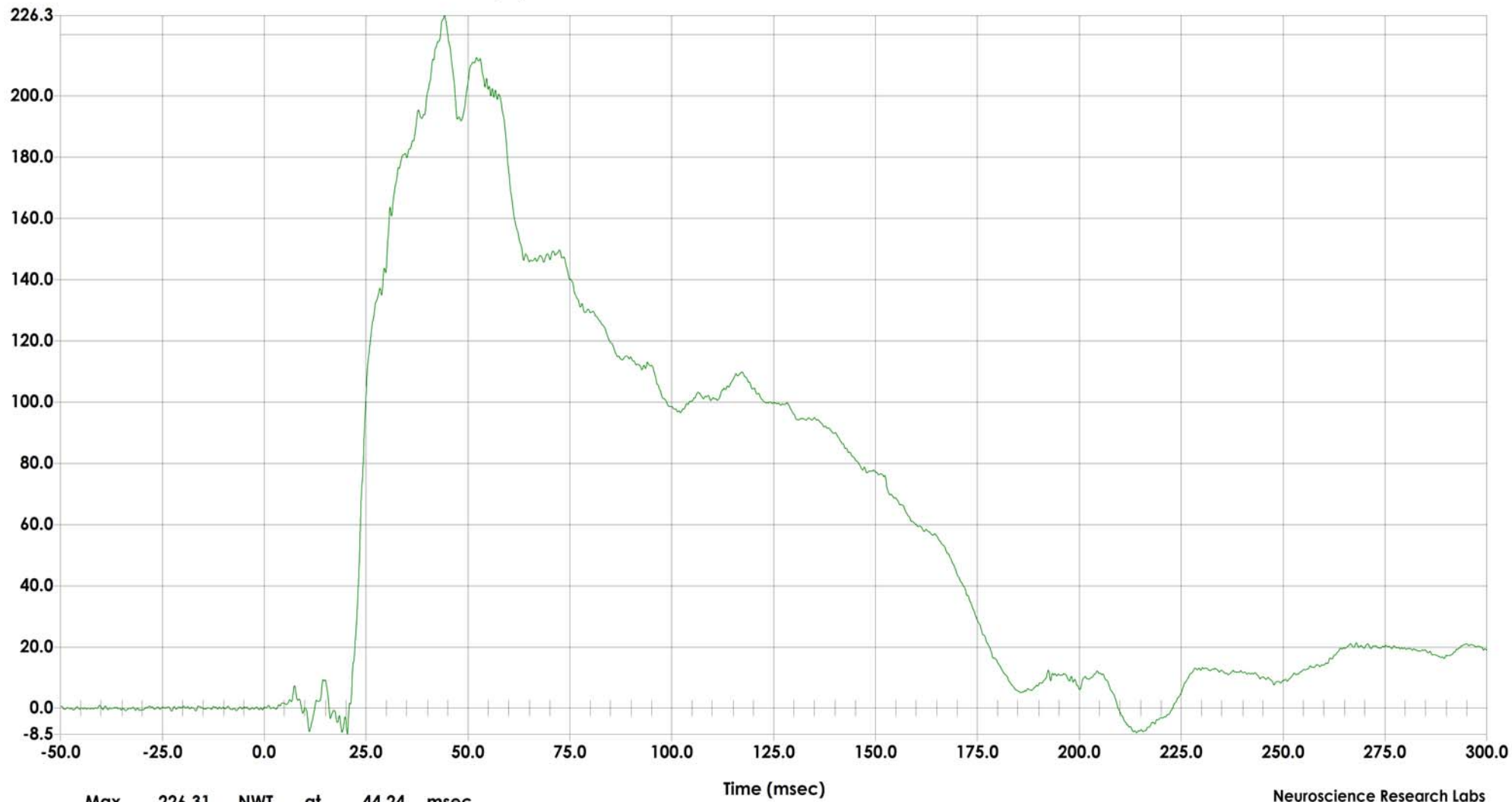
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Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC600
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location ESAF
Sensor Info Denton 2631
Serial Number 2631_1502



NWT Driver Anterior Abdominal Force (Y) vs. Time



Max 226.31 NWT at 44.24 msec
Min -8.55 NWT at 20.40 msec

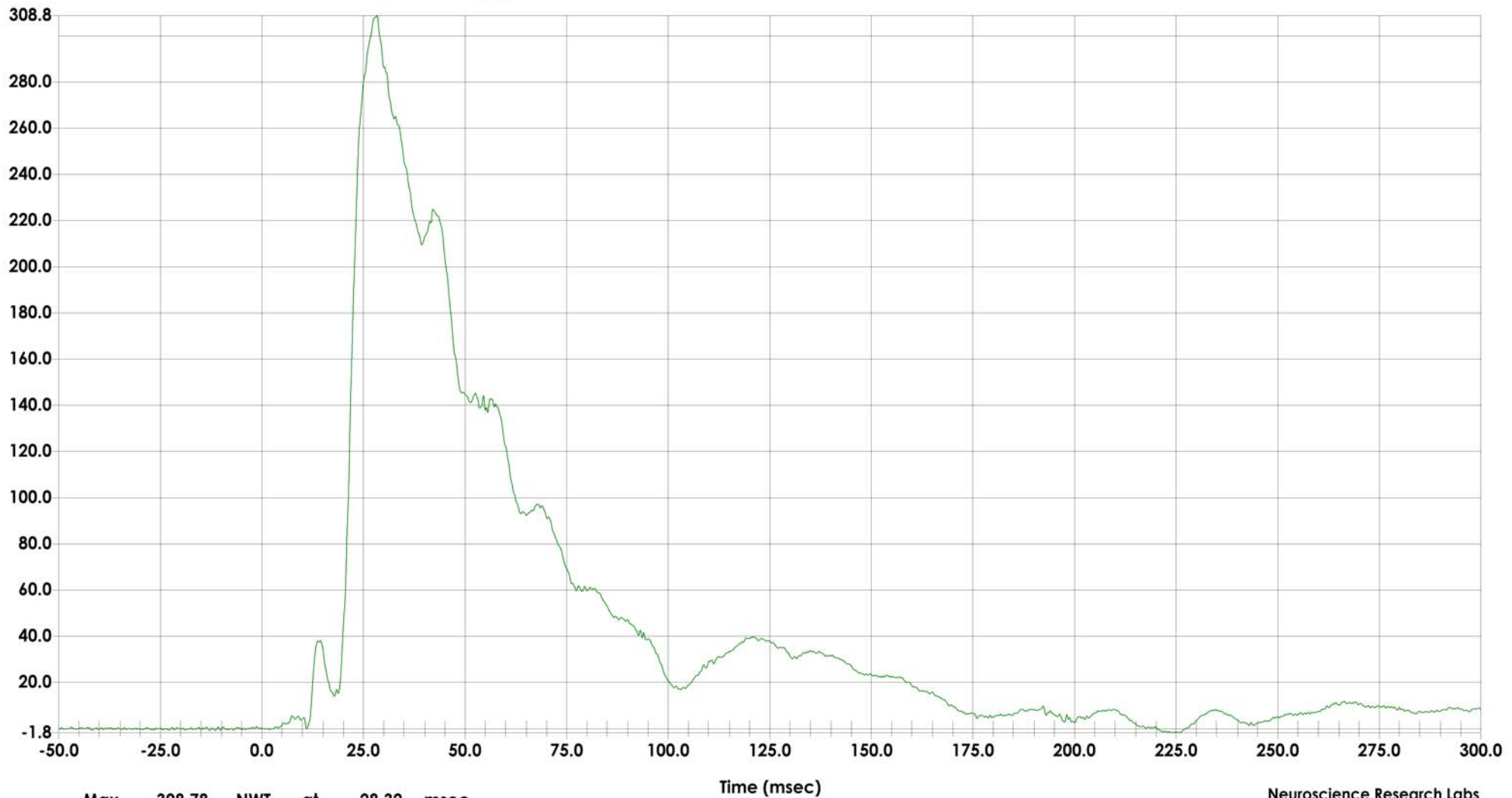
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Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC600
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location ESAM
Sensor Info Denton 2631
Serial Number 2631_1511



NWT Driver Middle Abdominal Force (Y) vs. Time



Max 308.78 NWT at 28.32 msec
Min -1.83 NWT at 224.16 msec

MD 0306 Plot 011

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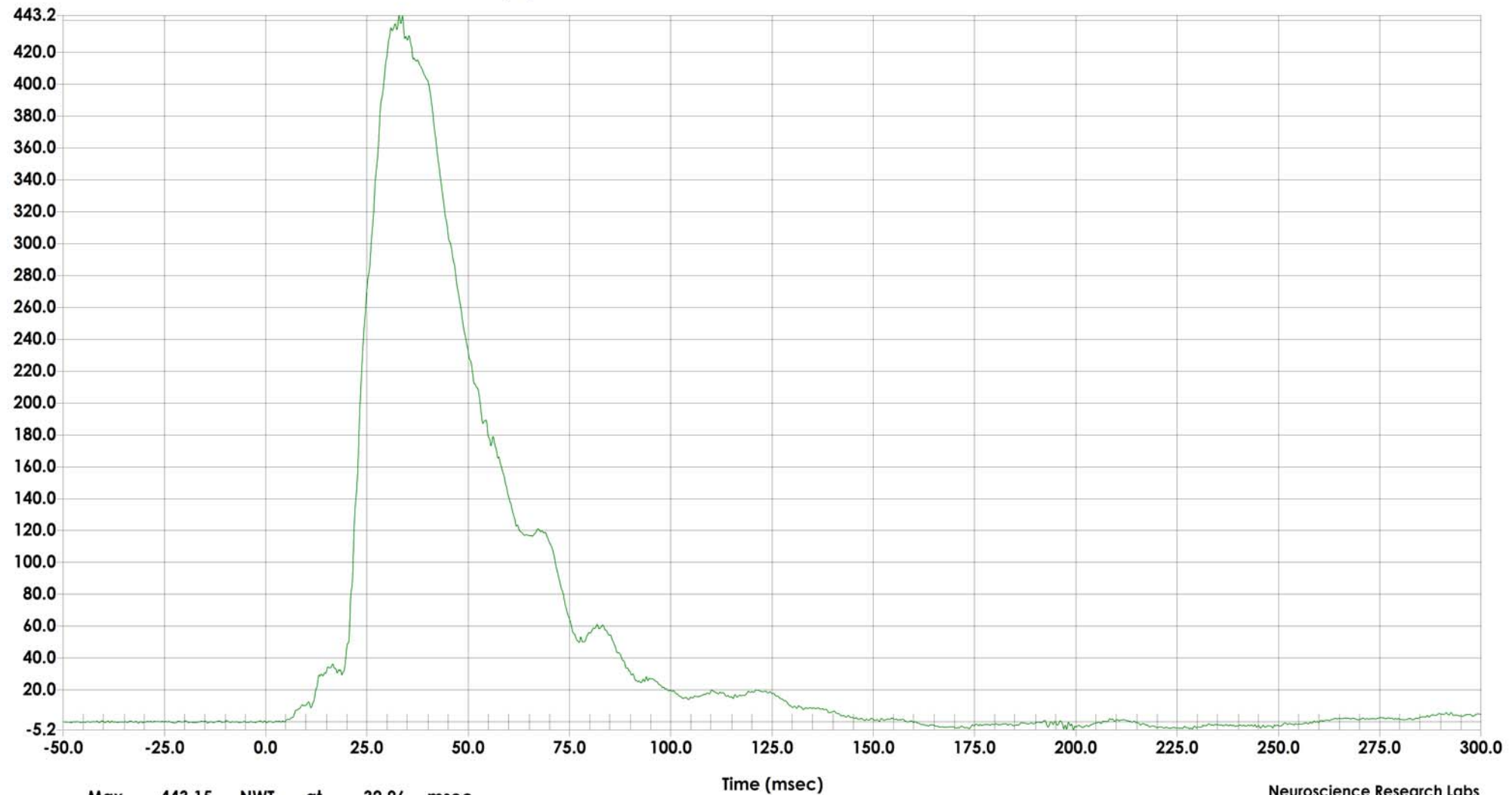
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Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC600
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location ESAR
Sensor Info Denton 2631
Serial Number 2631_1537



NWT Driver Posterior Abdominal Force (Y) vs. Time



Max 443.15 NWT at 32.96 msec
Min -5.17 NWT at 199.44 msec

MD 0306 Plot 012

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Milwaukee, WI 53295

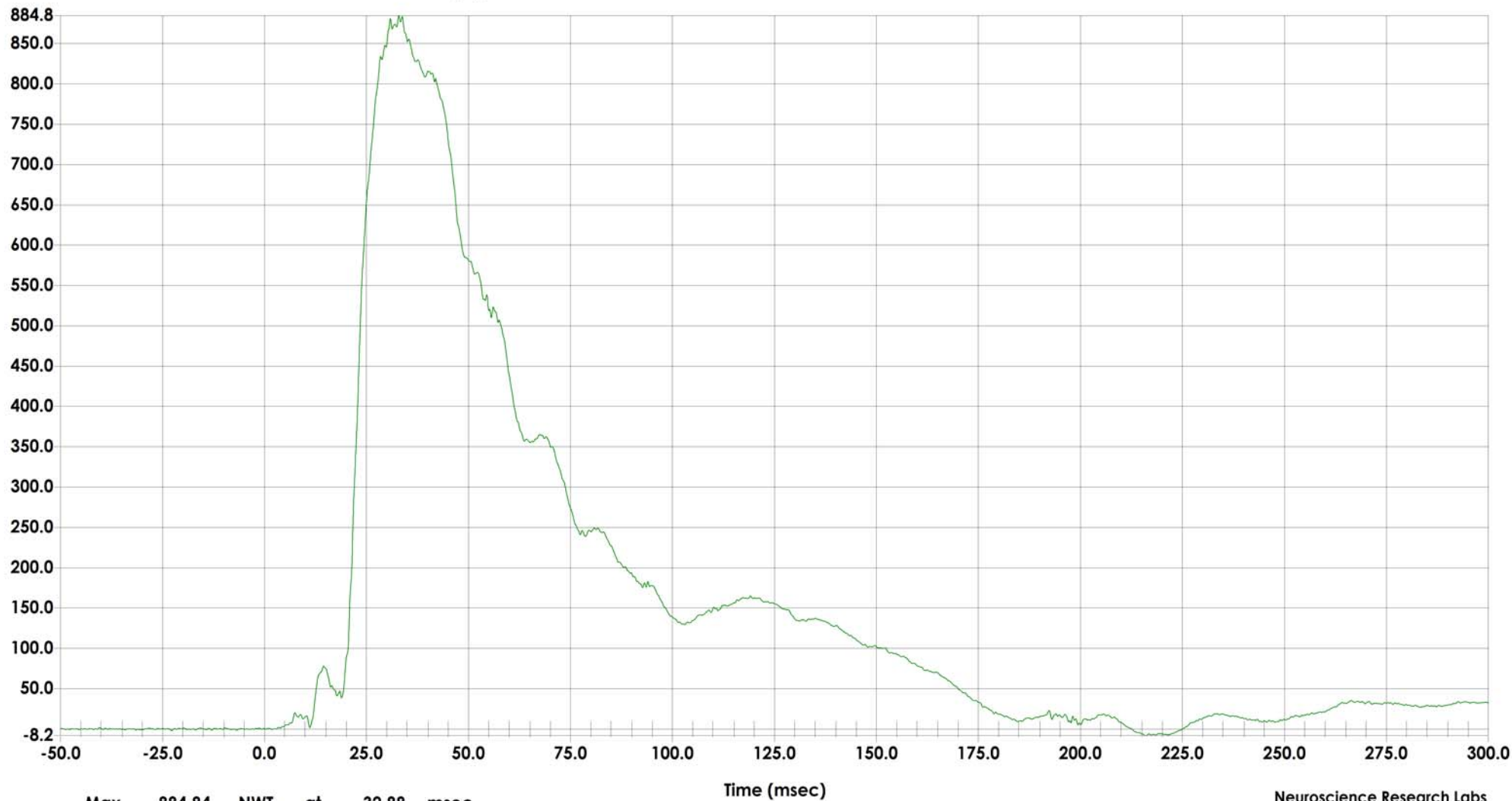
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Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC600
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location
Sensor Info MCW Multiviewer
Serial Number 3.5.2j



NWT Driver Total Abdominal Force (Y) vs. Time



Max 884.84 NWT at 32.88 msec
Min -8.24 NWT at 216.00 msec

MD 0306 Plot 064

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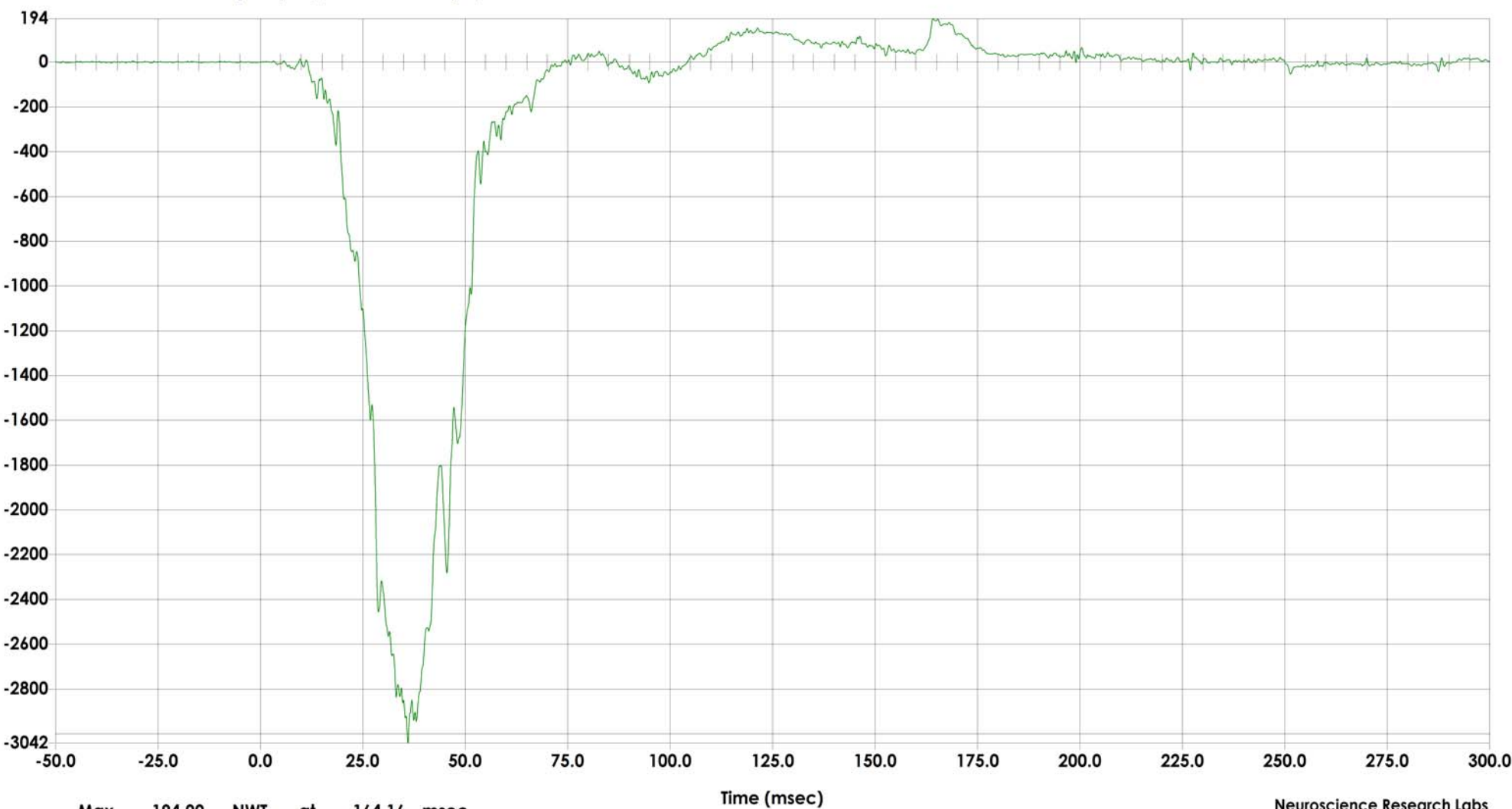
Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC600
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location PVPS
Sensor Info Denton 3096JFL
Serial Number 3096_460



NWT Driver Pubic Symphysis Force (Y) vs. Time



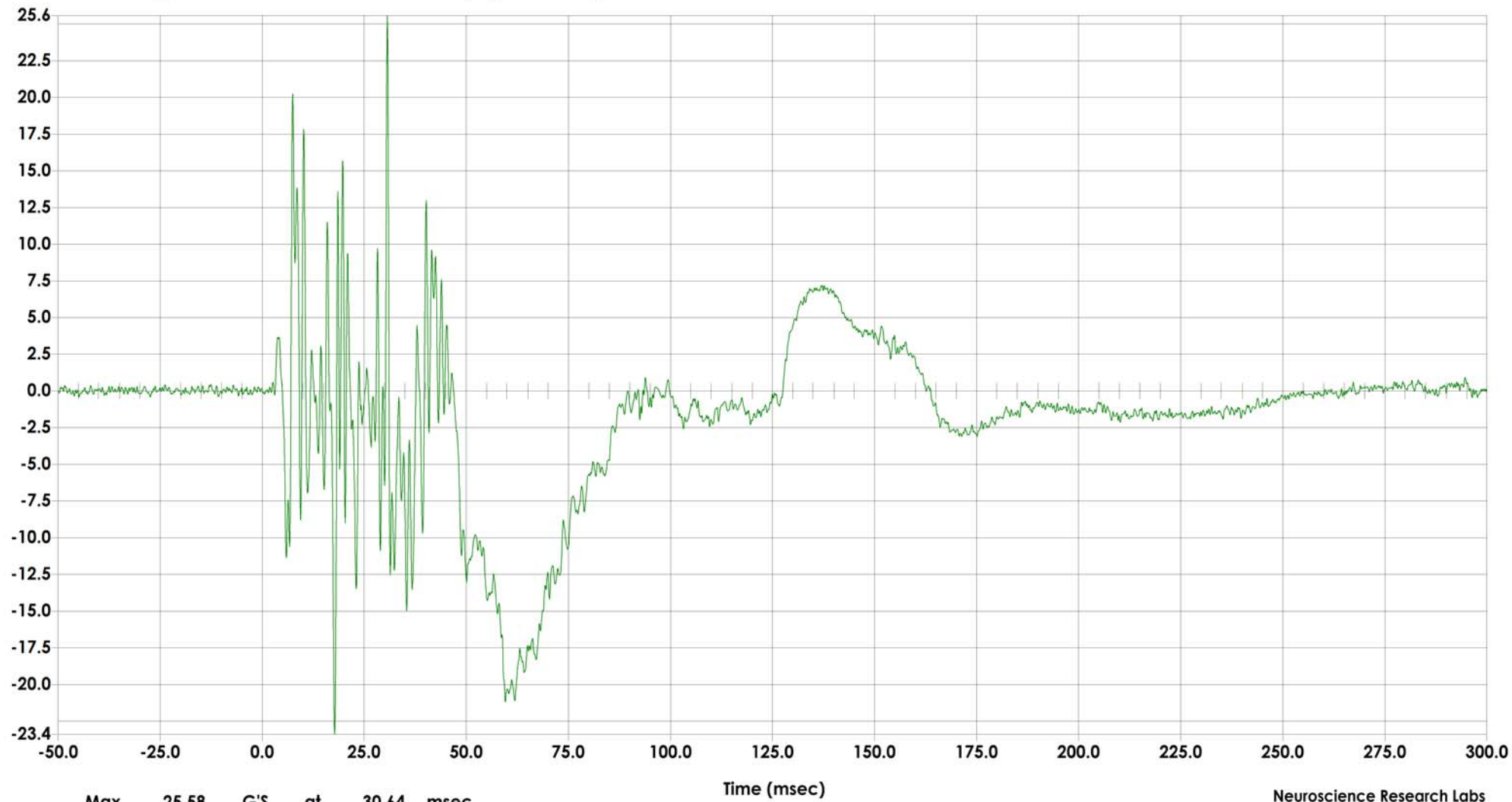
Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC1000
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location HDCG
Sensor Info ENDEVCO 7264C-2KTZ-2-240
Serial Number P22041



G'S Passenger Head Acceleration (X) Primary vs. Time



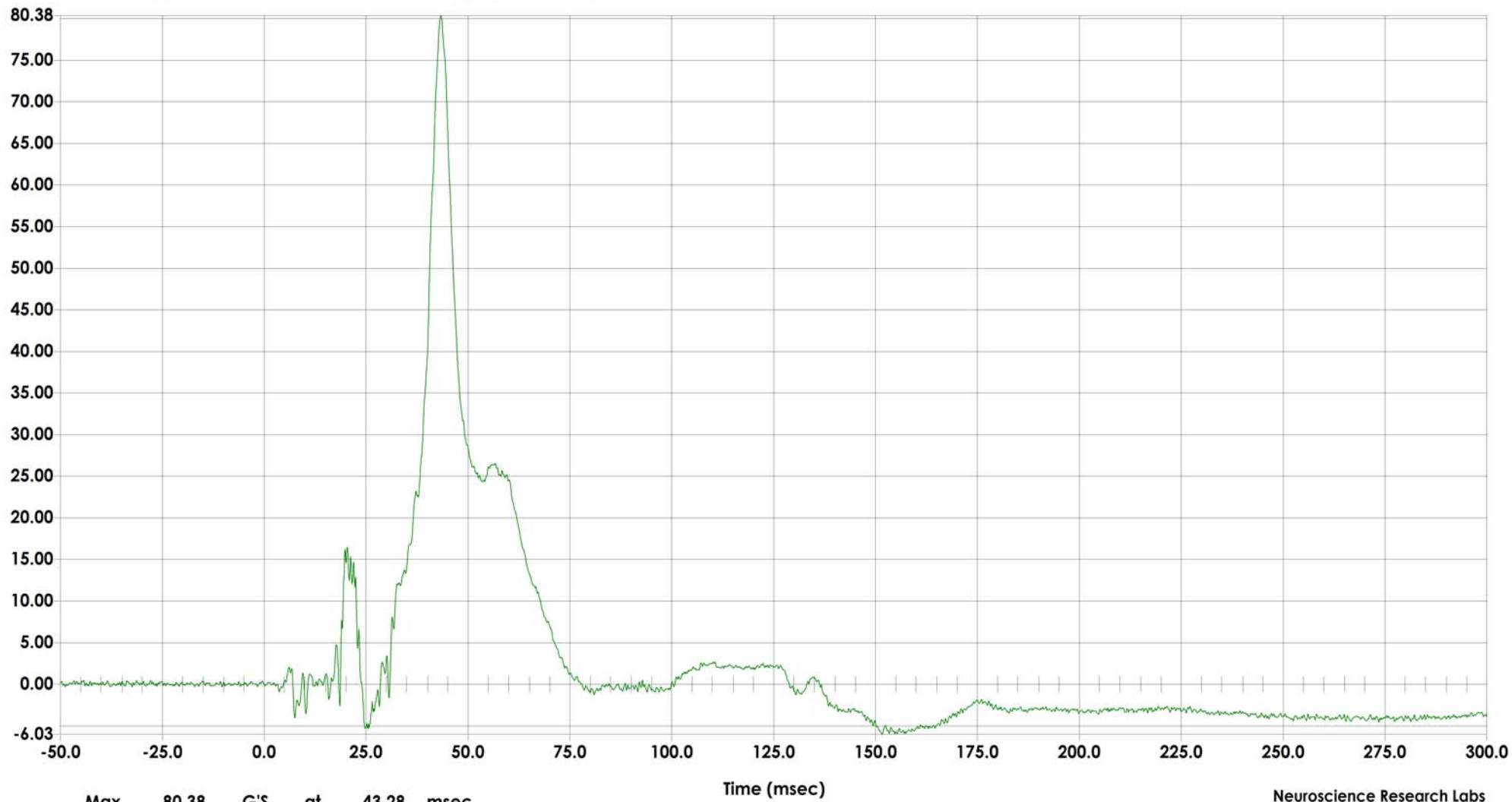
Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC1000
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location HDCG
Sensor Info ENDEVCO 7264C-2KTZ-2-240
Serial Number P24562



G'S Passenger Head Acceleration (Y) Primary vs. Time



Max 80.38 G'S at 43.28 msec
Min -6.03 G'S at 151.60 msec

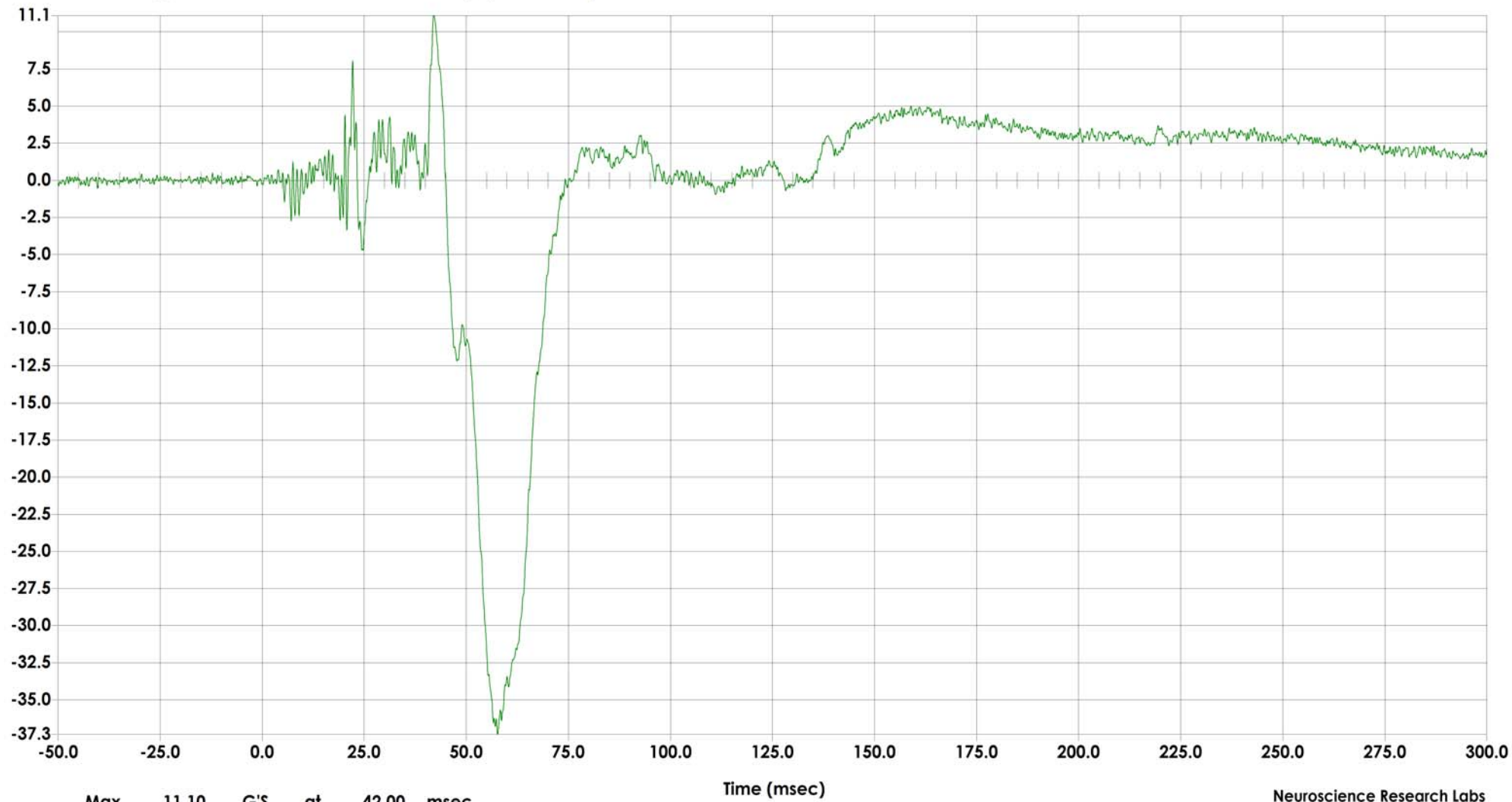
Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC1000
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location HDCG
Sensor Info ENDEVCO 7264C-2KTZ-2-300
Serial Number P22322



G'S Passenger Head Acceleration (Z) Primary vs. Time



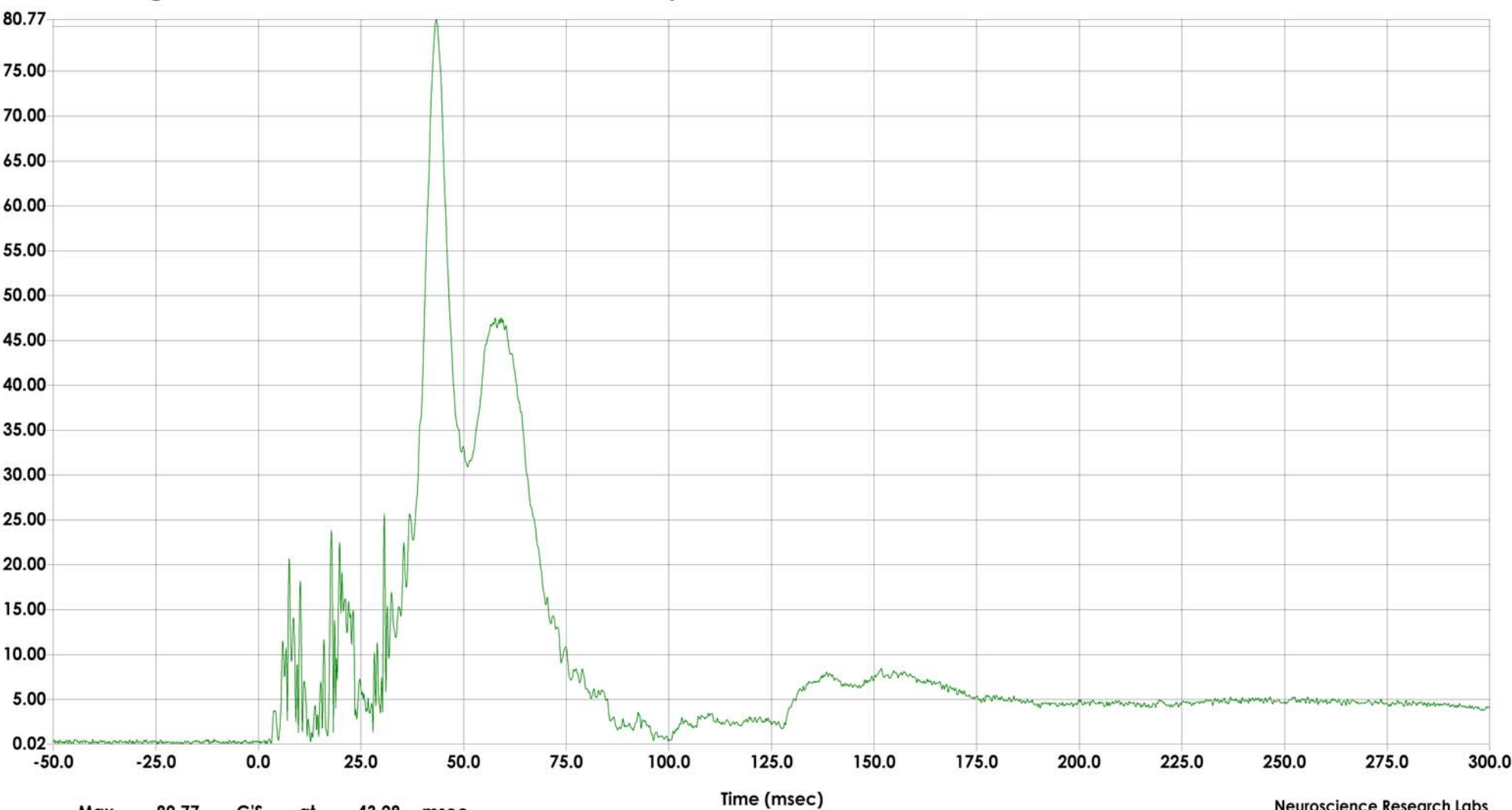
Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC1000
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location
Sensor Info MCW Multiviewer
Serial Number 3.5.2j



G'S Passenger Head Resultant Acceleration Primary vs. Time



Max 80.77 G'S at 43.28 msec
Min 0.02 G'S at -24.64 msec

MD 0306 Plot 067

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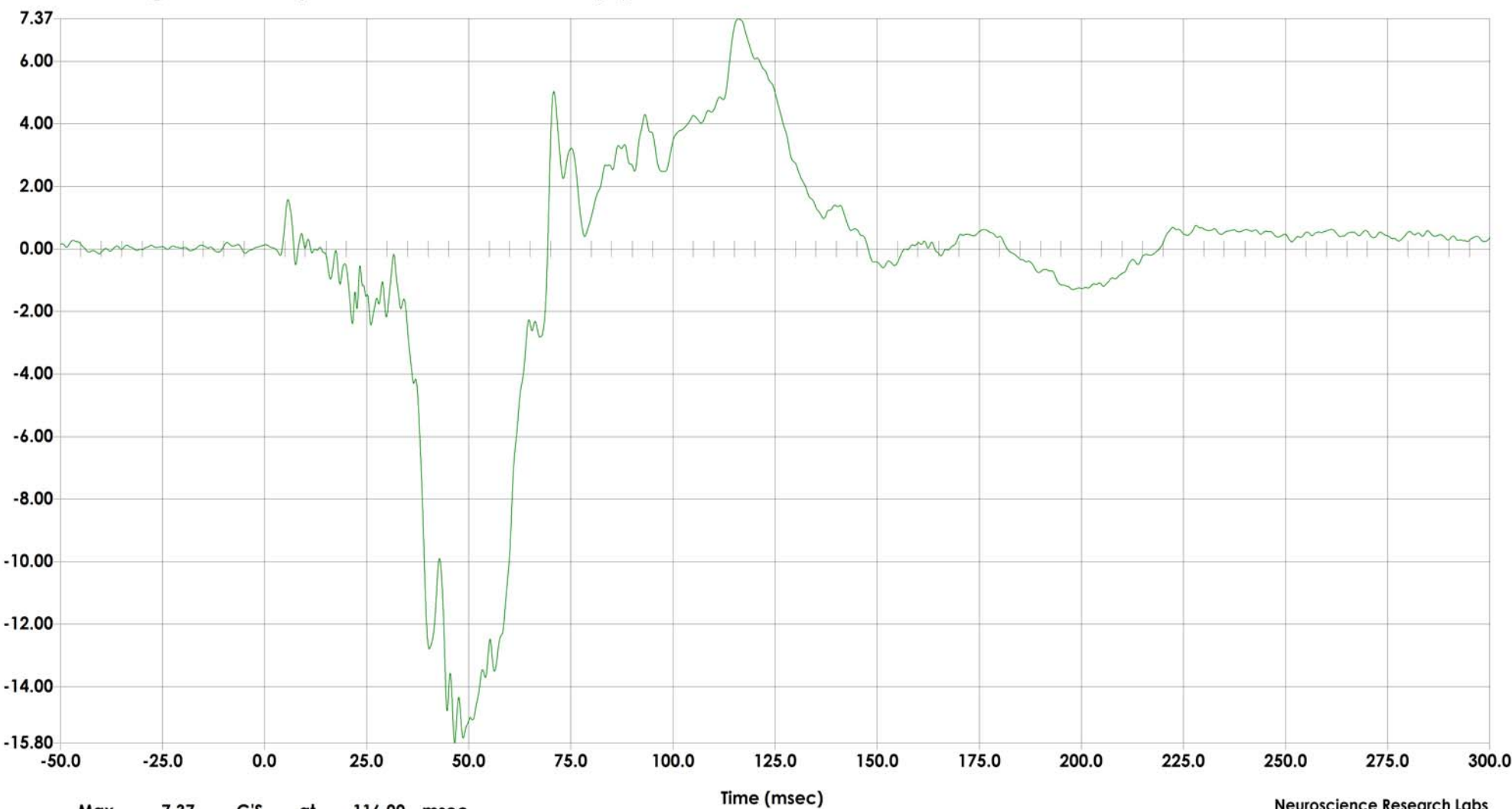
Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC180
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location SPNL
Sensor Info ENDEVCO 7264C-2KTZ-2-240
Serial Number P21661



G'S Passenger Lower Spine T12 Acceleration (X) vs. Time



Max 7.37 G'S at 116.00 msec
Min -15.80 G'S at 46.56 msec

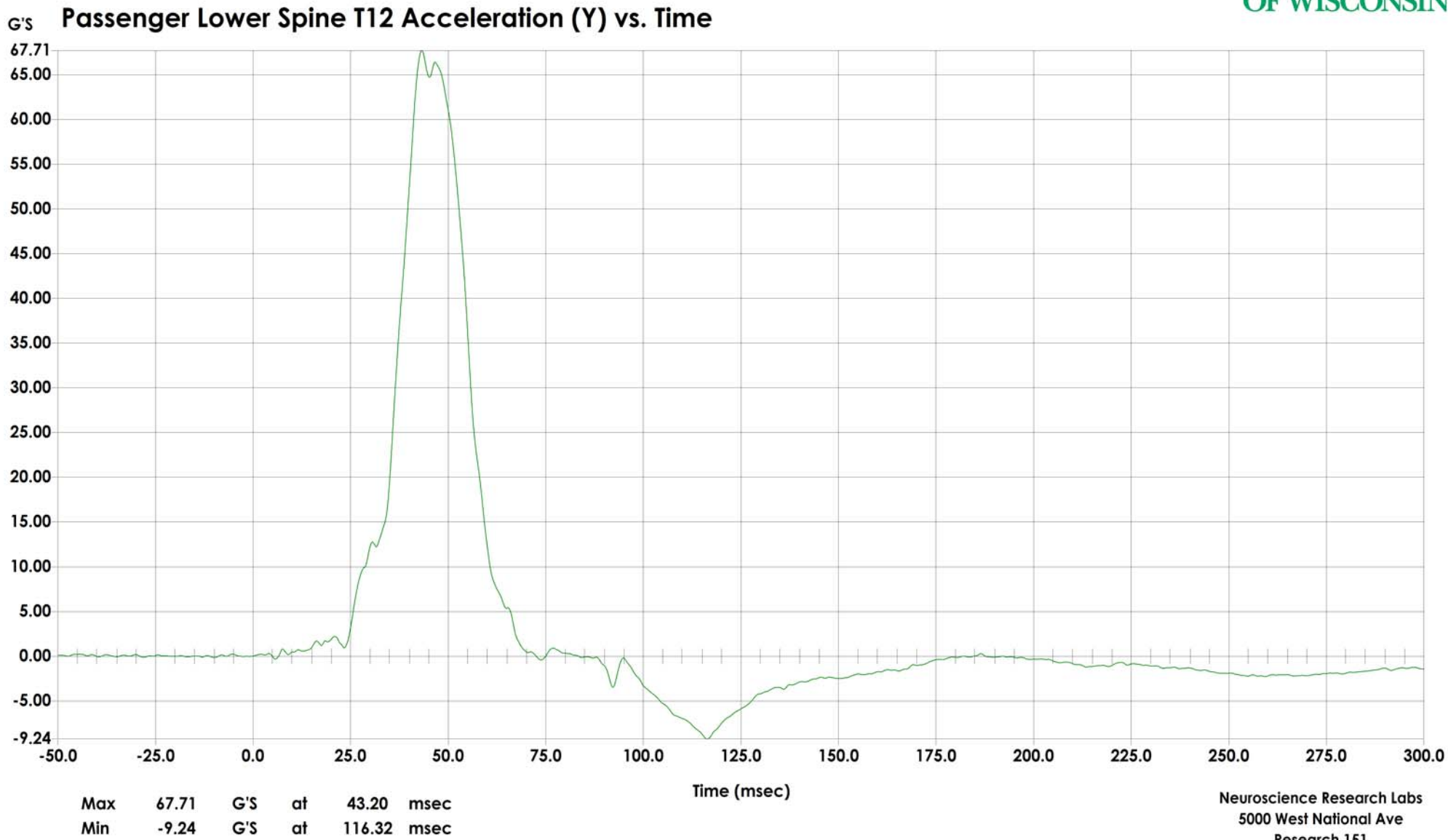
MD 0306 Plot 028

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Milwaukee, WI 53295

Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC180
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location SPNL
Sensor Info ENDEVCO 7264C-2KTZ-2-240
Serial Number P24682



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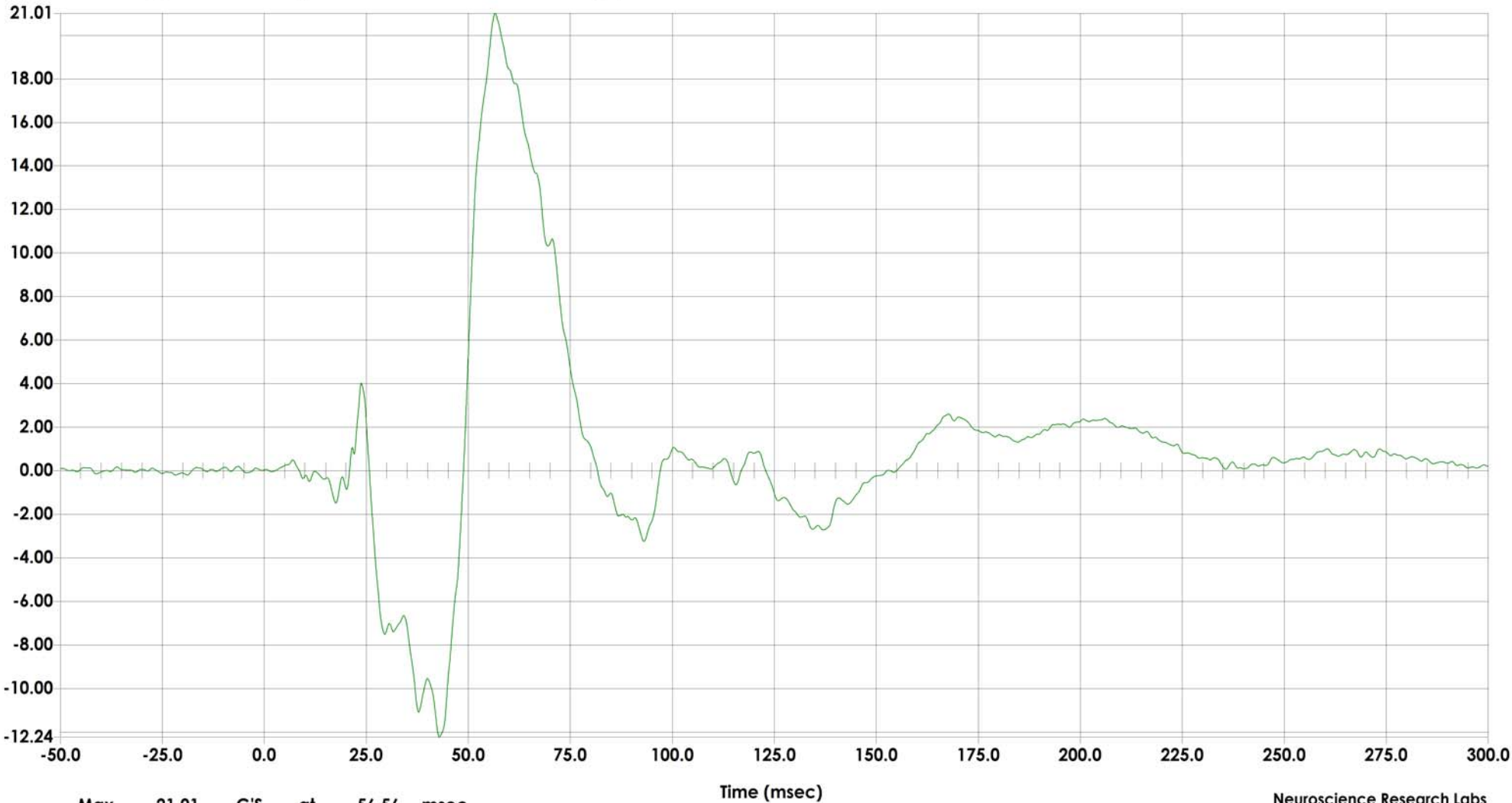
Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC180
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location SPSL
Sensor Info ENDEVCO 7264C-2KTZ-2-240
Serial Number P21788



G'S Passenger Lower Spine T12 Acceleration (Z) vs. Time



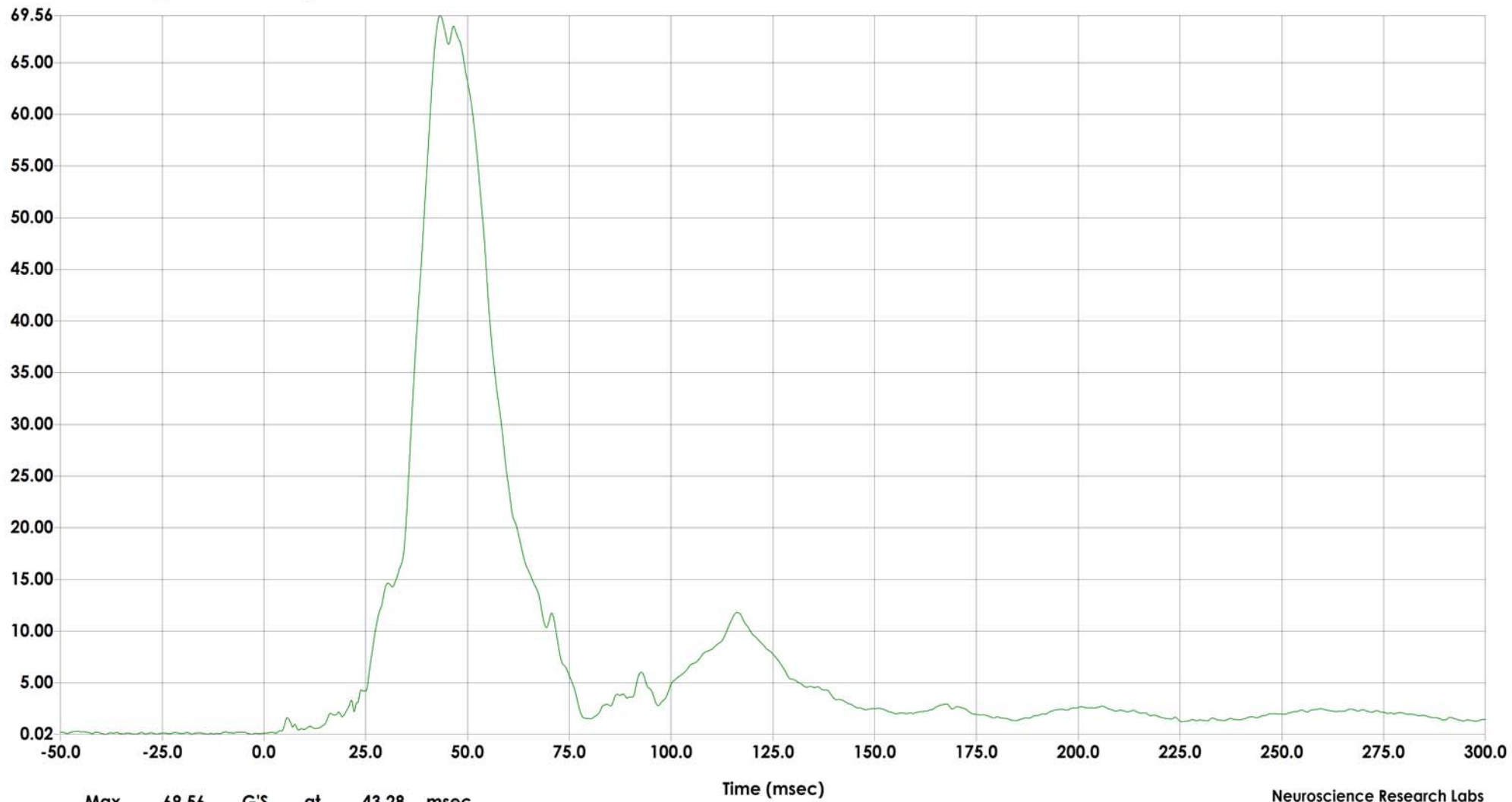
Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC180
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location
Sensor Info MCW Multiviewer
Serial Number 3.5.2j



G'S Passenger Lower Spine T12 Resultant Acceleration vs. Time



Max 69.56 G'S at 43.28 msec
Min 0.02 G'S at -38.80 msec

MD 0306 Plot 065

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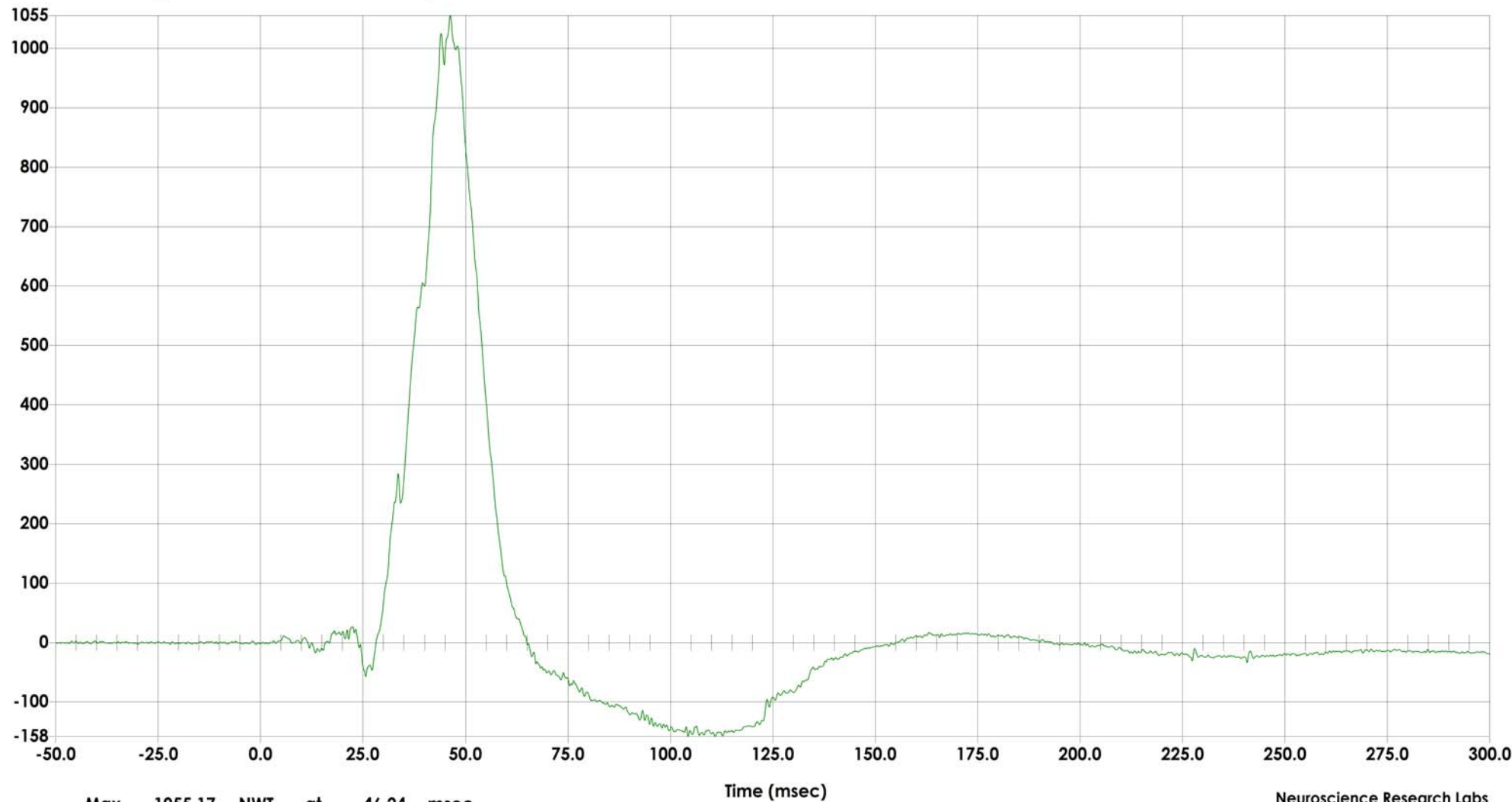
Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC600
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location PVIL
Sensor Info Denton 3228J
Serial Number 3228J_283



NWT Passenger Iliac Force on Impact Side vs. Time



Max 1055.17 NWT at 46.24 msec
Min -158.08 NWT at 104.32 msec

MD 0306 Plot 031

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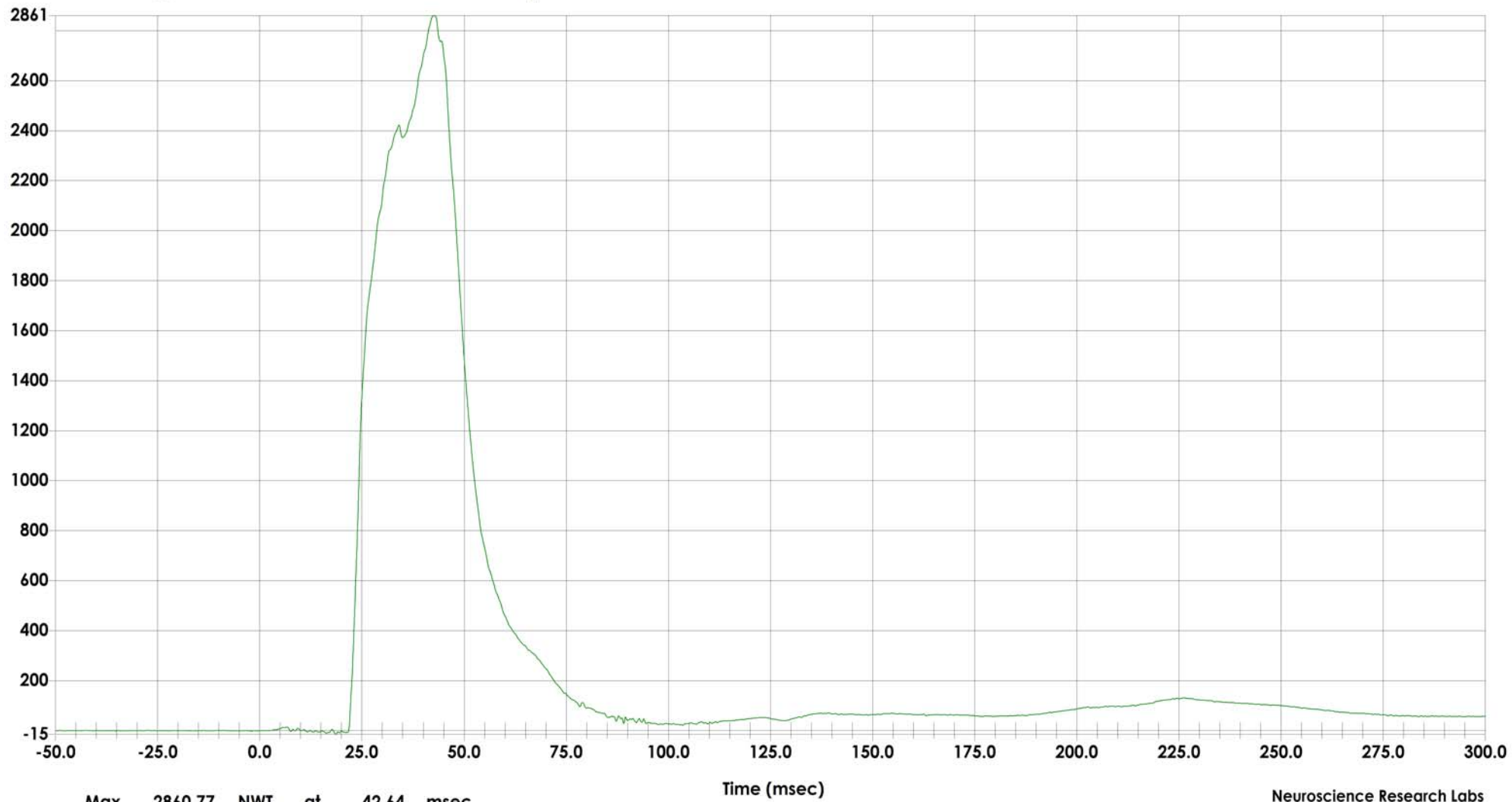
Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC600
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location PVAL
Sensor Info FTSS IF-520
Serial Number IF-520_114



NWT Passenger Acetabulum Force on Impact Side vs. Time



Max 2860.77 NWT at 42.64 msec
Min -15.26 NWT at 18.64 msec

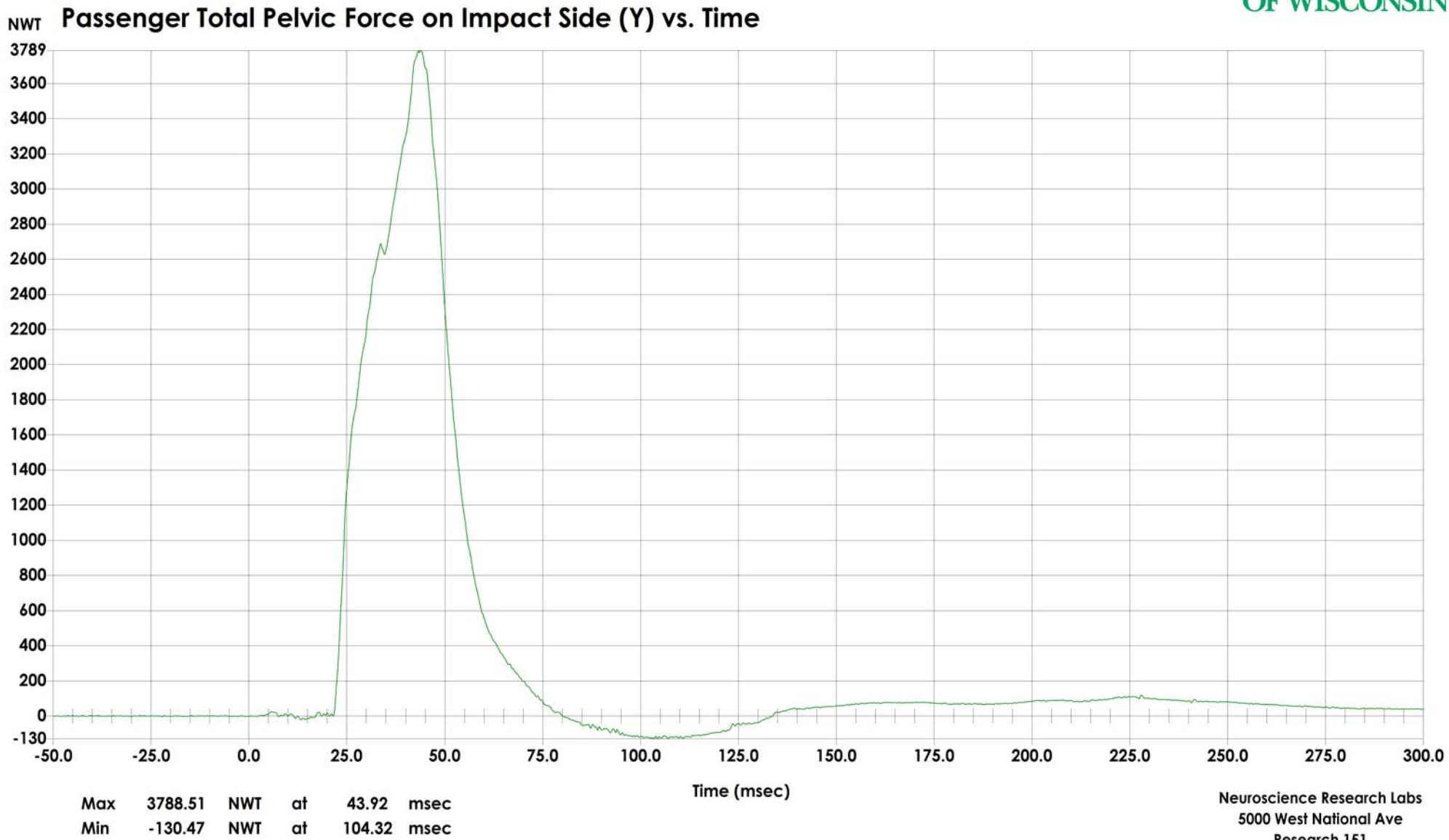
MD 0306 Plot 032

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Test ID MD 0306
Date 11-01-2012
Description MD 0306 2013 Fiat 500 3-Door Hatchback SINCAP

Filter CFC600
Sampling Rate (Hz) 12500
Number of Points 4376
Pretrigger Points 625

Sensor Location
Sensor Info MCW Multiviewer
Serial Number 3.5.2j



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Milwaukee, WI 53295

Test Vehicle: 2013 Fiat 500 3 Door Hatchback
Test Program: SINCAP

NHTSA Number: MD 0306
Test Date: November 1, 2012

APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE DATA

TABLE 1
EXTERNAL MEASUREMENTS (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 1 & 2

TEST PARAMETER	SPEC.	PRE		POST	
Date	-	7-11-12		11-5-12	
Sequential Test Number	-	1		2	
		Result	Pass/Fail	Result	Pass/Fail
Temperature (°C)	20.6-22.2	21.7	Pass	21.2	Pass
Relative Humidity (%)	10-70	43.3	Pass	53.6	Pass
Sitting Height	900 - 918	906	Pass	909	Pass
Seat to Shoulder Joint	558 -572	565	Pass	565	Pass
Seat to Lower Face of Thoracic Spine Box	346 -356	353	Pass	352	Pass
Seat to Hip Joint (Center of Bolt)	97 - 103	103	Pass	100	Pass
Sole to Seat, Sitting	433 - 451	440	Pass	437	Pass
Head Width	152 -158	154	Pass	154	Pass
Shoulder/Arm Width	461 - 479	476	Pass	476	Pass
Thorax Width	322 - 332	326	Pass	325	Pass
Abdomen Width	273 - 287	282	Pass	281	Pass
Pelvis/Lap Width	359 - 373	361	Pass	362	Pass
Head Depth	196 - 206	201	Pass	200	Pass
Thorax Depth	262 - 272	265	Pass	270	Pass
Abdomen Depth	194 - 204	197	Pass	202	Pass
Pelvis Depth	235 - 245	238	Pass	237	Pass
Back of Buttocks to Hip Joint (Center of Bolt)	150 - 160	154	Pass	153	Pass
Back of Buttocks to Front Knee	597 - 615	604	Pass	602	Pass

TABLE 2
HEAD DROP TEST (ES-IIre)

ES-IIre Serial Number F038

Test Sequences 1 & 2

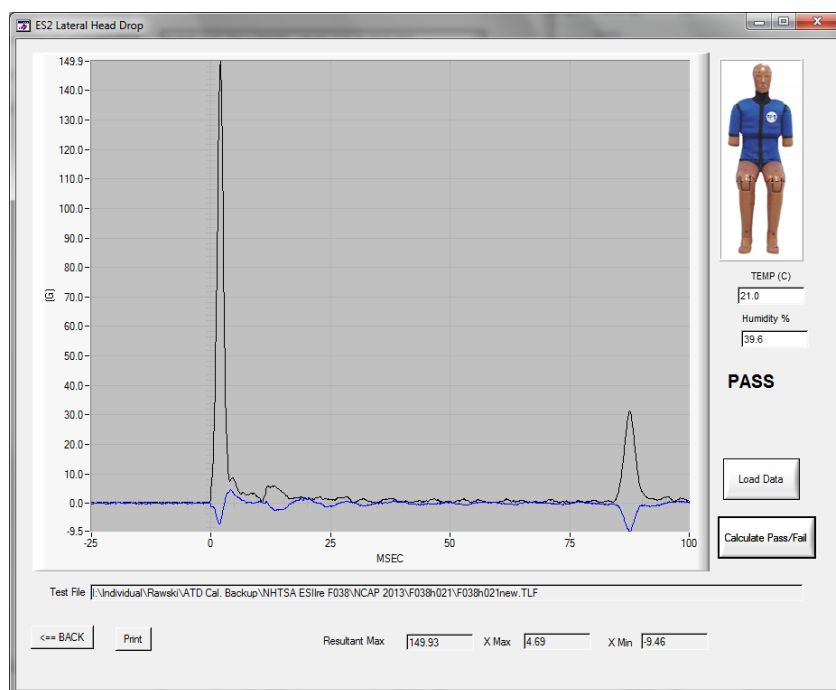
TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-27-12		11-2-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Head Assembly Soak Time (min)		≥ 240	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	20.6-22.2	21.0	Pass	21.2	Pass
	Min		20.8	Pass	21.2	Pass
Humidity (%) – During Soak	Max	10.0-70.0	41.3	Pass	53.6	Pass
	Min		39.6	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	21.0	Pass	21.2	Pass
Humidity – During Test (%)		10-70	39.6	Pass	53.6	Pass
Peak Head Resultant Acceleration (G)		125-155	149.9	Pass	152.1	Pass
Peak Head X Acceleration (G)		<15	4.7	Pass	4.4	Pass
Unimodal (Oscillation) (Yes/No)		<15%	Yes	Pass	Yes	Pass

Test Vehicle: 2013 Fiat 500 3 Door Hatchback
Test Program: SINCAP

NHTSA Number: MD 0306
Test Date: November 1, 2012

TABLE 2
HEAD DROP TEST (ES-Ilre) (CONTINUED)

PRE-TEST



POST-TEST

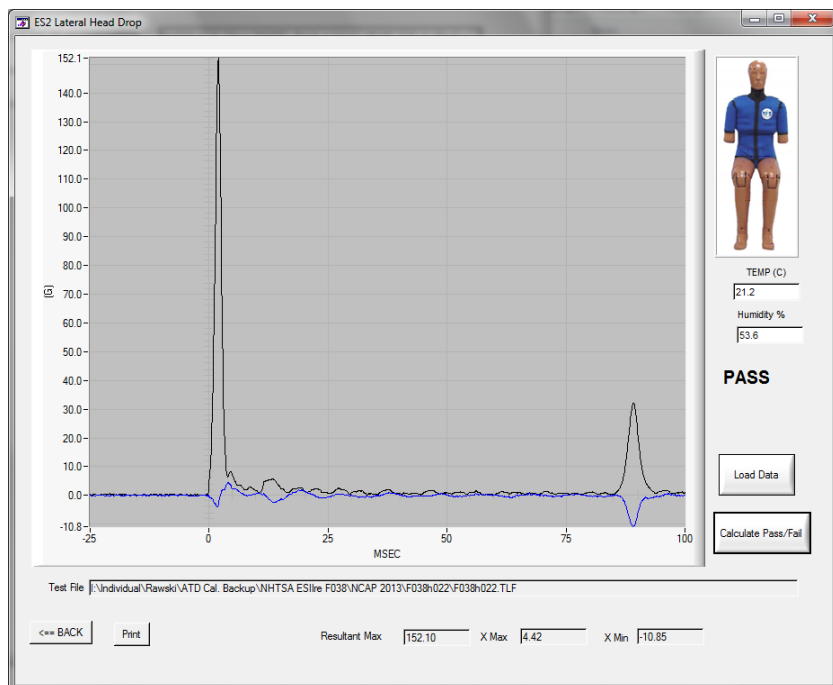


TABLE 3
NECK PENDULUM TEST (ES-Ilre)

ES-Ilre Serial Number F038

Test Sequences 1 & 2

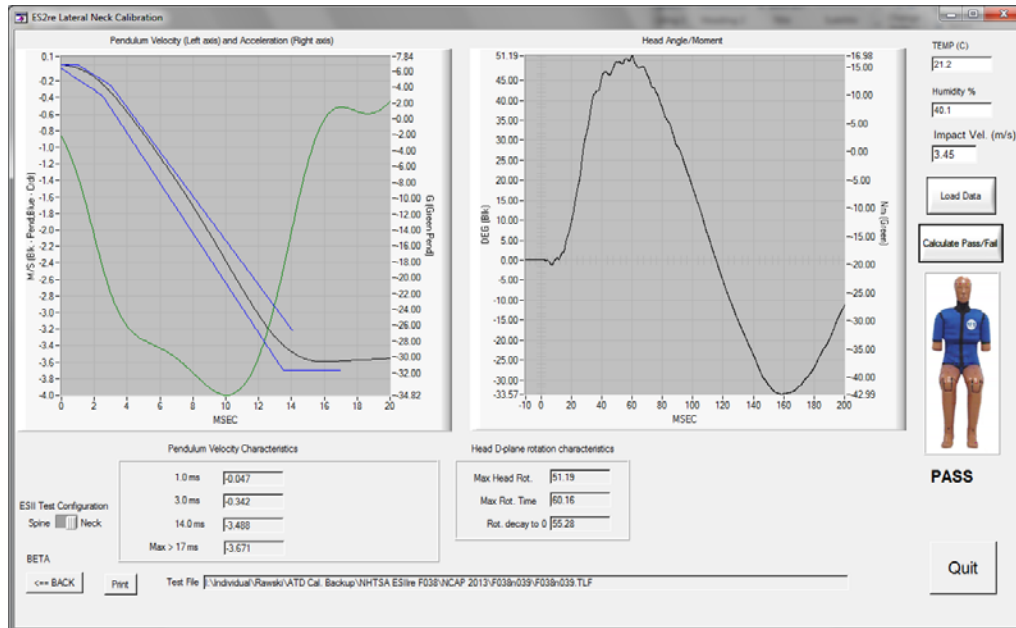
TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-28-12		11-3-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Neck Assembly Soak Time (min)		≥ 240	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	20.6-22.2	21.2	Pass	21.2	Pass
	Min		20.9	Pass	21.2	Pass
Humidity (%) – During Soak	Max	10.0-70.0	41.4	Pass	53.6	Pass
	Min		40.1	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	21.2	Pass	21.2	Pass
Humidity – During Test (%)		10-70	40.1	Pass	53.6	Pass
Pendulum Velocity (m/s)		3.3-3.5	3.45	Pass	3.45	Pass
Pendulum Velocity Corridors (m/s)	0-1.0 ms	(-0.05)-0.00	-0.05	Pass	-0.05	Pass
	2.5-3.0 ms	(-0.375) - (-0.25)	-0.34	Pass	-0.34	Pass
	13.5-14.0 ms	(-3.7) - (-3.20)	-3.49	Pass	-3.42	Pass
	Max > 17 ms	-3.7	3.67	Pass	-3.69	Pass
Max D-Plane rotation (deg)		49-59	51.2	Pass	56.9	Pass
Time of Max D-Plane Rotation (ms)		54-66	60.2	Pass	58.9	Pass
Time of Moment Decay from Peak to 0 Nm (ms)		53-88	55.3	Pass	57.8	Pass

Test Vehicle: 2013 Fiat 500 3 Door Hatchback
Test Program: SINCAP

NHTSA Number: MD 0306
Test Date: November 1, 2012

TABLE 3
NECK PENDULUM TEST (ES-Ilre) (CONTINUED)

PRE-TEST



POST-TEST

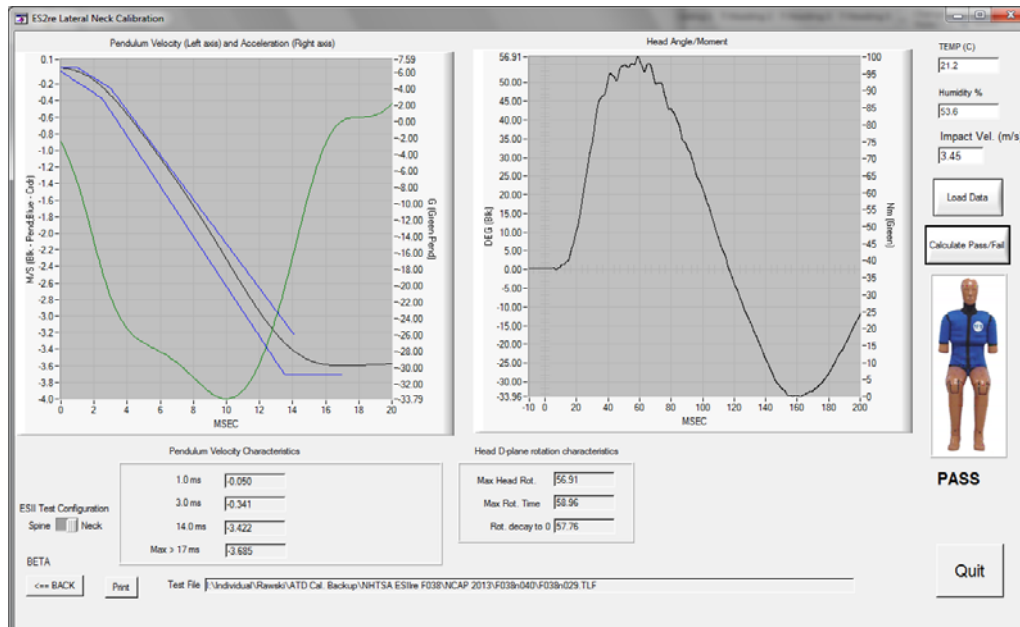


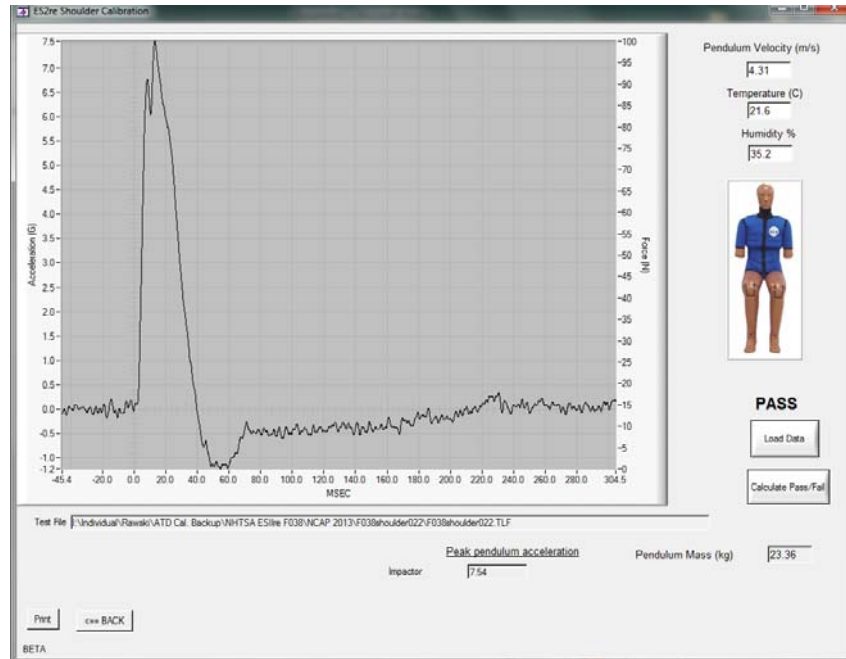
TABLE 4
SHOULDER IMPACT TEST (ES-Ilre)

ES-Ilre Serial Number F038 Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	7-5-12		11-5-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Dummy Soak Time (min)		≥ 240	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	20.6-22.2	21.6	Pass	21.2	Pass
	Min		21.0	Pass	21.2	Pass
Humidity (%) – During Soak	Max	10.0-70.0	38.1	Pass	53.6	Pass
	Min		35.2	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	21.6	Pass	21.2	Pass
Humidity – During Test (%)		10-70	35.2	Pass	53.6	Pass
Pendulum Velocity (m/s)		4.2-4.4	4.31	Pass	4.31	Pass
Peak Impactor Acceleration (G)		7.5-10.5	7.54	Pass	7.95	Pass

TABLE 4
SHOULDER IMPACT TEST (ES-IIre) (CONTINUED)

PRE-TEST



POST-TEST

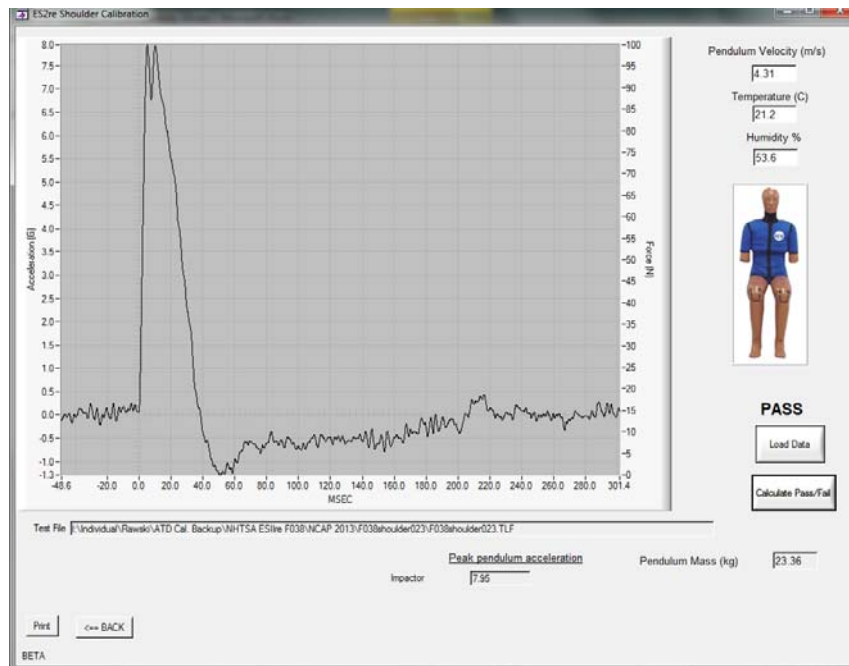


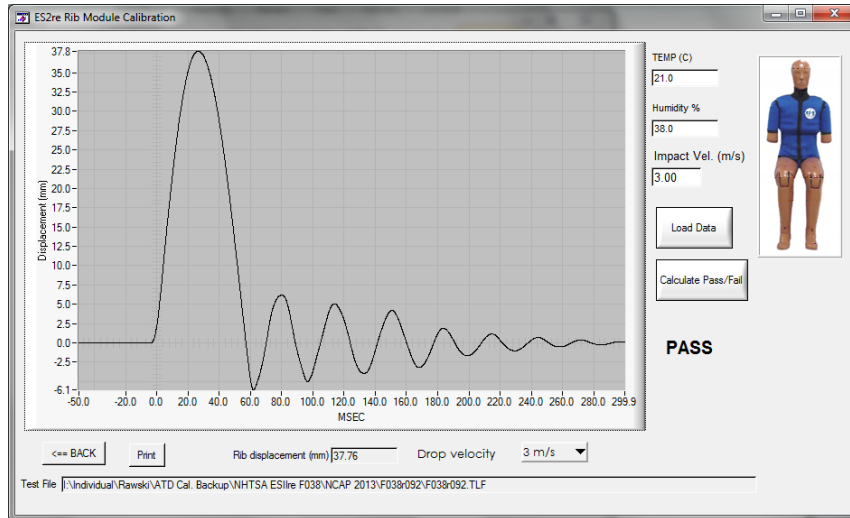
TABLE 5
THORAX – UPPER RIB DROP TEST (ES-Ilre)

ES-Ilre Serial Number F038 Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-27-12		11-2-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Upper Rib Drop Module Soak Time (min)		≥ 240	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	20.6-22.2	21.0	Pass	21.2	Pass
	Min		20.8	Pass	21.2	Pass
Humidity (%) – During Soak	Max	10.0-70.0	40.3	Pass	53.6	Pass
	Min		38.0	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	21.0	Pass	21.2	Pass
Humidity – During Test (%)		10-70	38.0	Pass	53.6	Pass
1 st Test - Drop Height 459 ± 5 mm		36-40	37.8	Pass	37.9	Pass
2 nd Test - Drop Height 815 ± 5 mm		46-51	48.8	Pass	49.0	Pass

TABLE 5
THORAX – UPPER RIB DROP TEST (ES-IIre) (CONTINUED)
3.00 m/s

PRE-TEST



POST-TEST

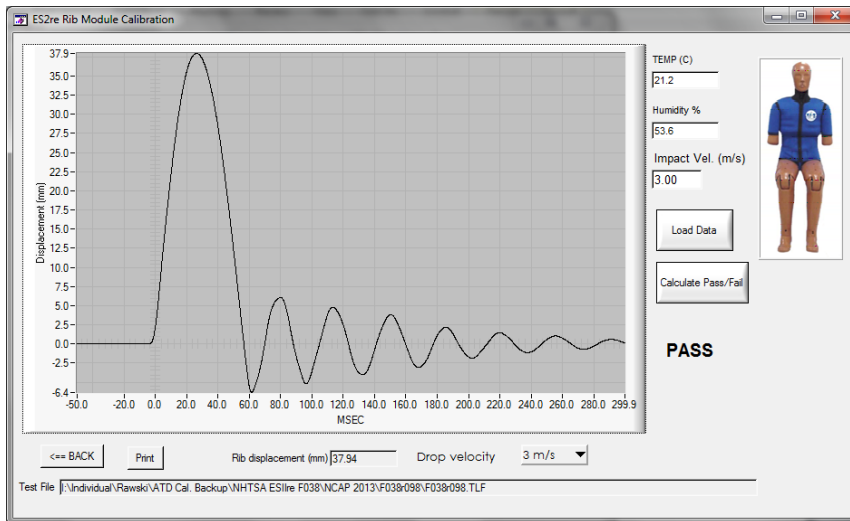
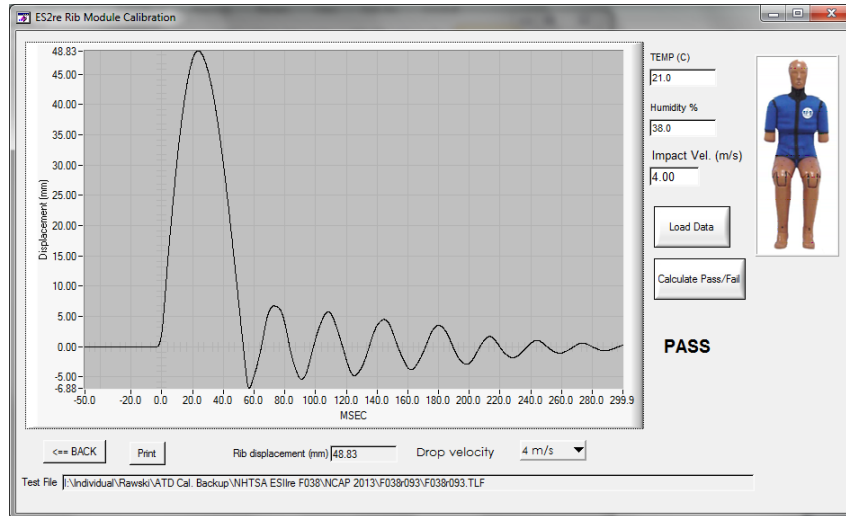


TABLE 5
THORAX – UPPER RIB DROP TEST (ES-Ilre) (CONTINUED)
4.00 m/s

PRE-TEST



POST-TEST

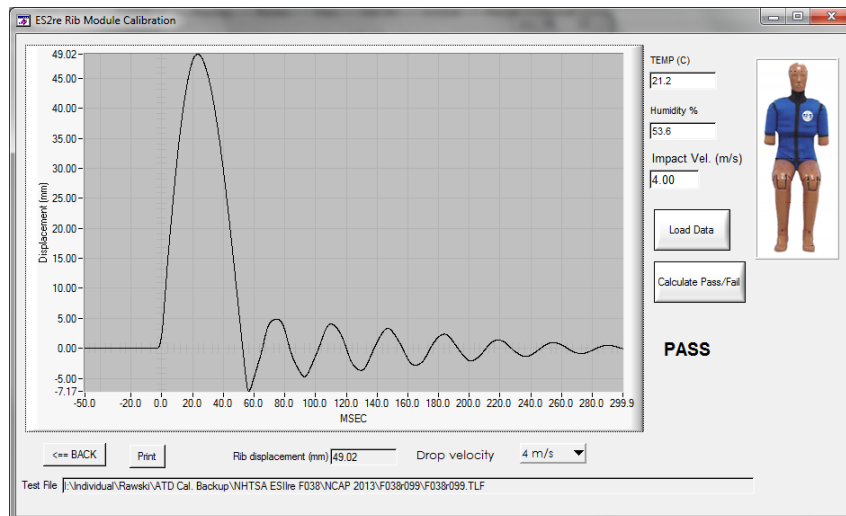


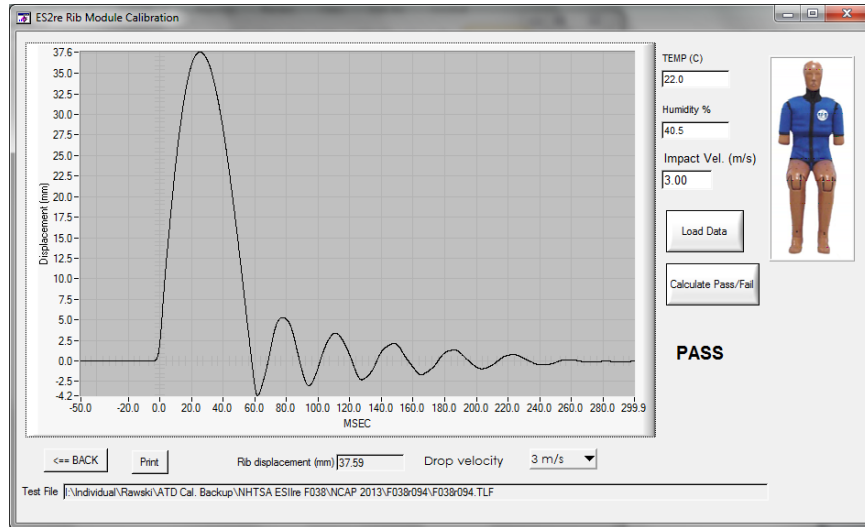
TABLE 6
THORAX – MIDDLE RIB DROP TEST (ES-Ilre)

ES-Ilre Serial Number F038 Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	7-15-12		11-2-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Middle Rib Drop Module Soak Time (min)		≥ 240	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	20.6-22.2	22.0	Pass	21.2	Pass
	Min		21.1	Pass	21.2	Pass
Humidity (%) – During Soak	Max	10.0-70.0	42.1	Pass	53.6	Pass
	Min		40.5	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	22.0	Pass	21.2	Pass
Humidity – During Test (%)		10-70	40.5	Pass	53.6	Pass
1 st Test - Drop Height 459 ± 5 mm		36-40	37.6	Pass	38.0	Pass
2 nd Test - Drop Height 815 ± 5 mm		46-51	49.9	Pass	49.8	Pass

TABLE 6
THORAX – MIDDLE RIB DROP TEST (ES-Ilre) (CONTINUED)
3.00 m/s

PRE-TEST



POST-TEST

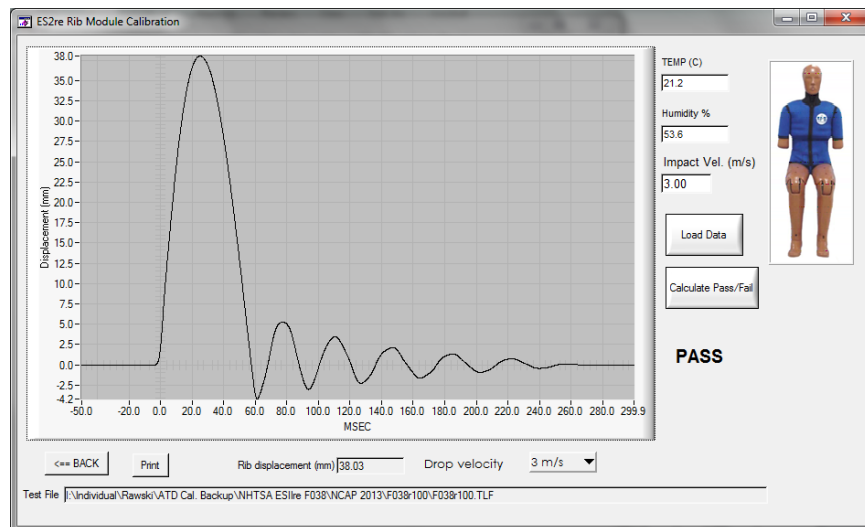
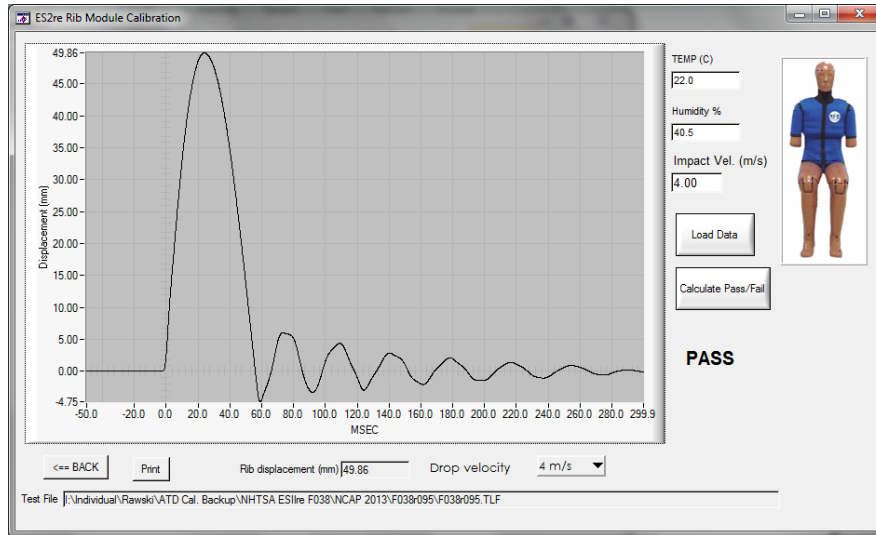


TABLE 6
THORAX – MIDDLE RIB DROP TEST (ES-Ilre) (CONTINUED)
4.00 m/s

PRE-TEST



POST-TEST

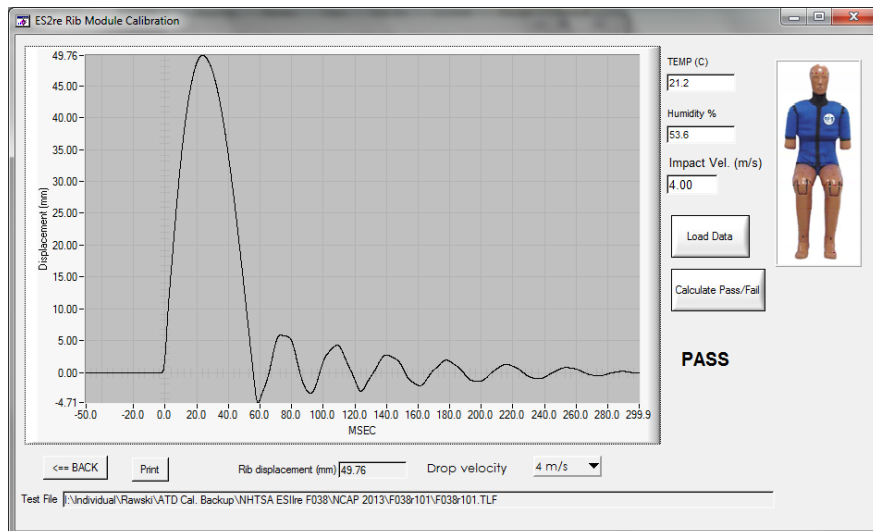


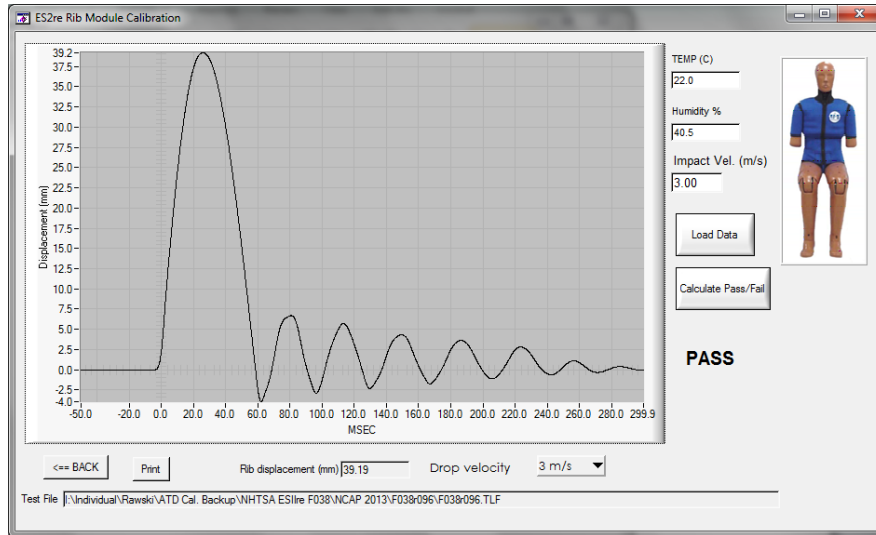
TABLE 7
THORAX – LOWER RIB DROP TEST (ES-Ilre)

ES-Ilre Serial Number F038 Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	7-15-12		11-2-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Lower Rib Drop Module Soak Time (min)		≥ 240	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	20.6-22.2	22.0	Pass	21.2	Pass
	Min		21.1	Pass	21.2	Pass
Humidity (%) – During Soak	Max	10.0-70.0	42.1	Pass	53.6	Pass
	Min		40.5	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	22.0	Pass	21.2	Pass
Humidity – During Test (%)		10-70	40.5	Pass	53.6	Pass
1 st Test - Drop Height 459 ± 5 mm		36-40	39.2	Pass	39.0	Pass
2 nd Test - Drop Height 815 ± 5 mm		46-51	49.6	Pass	49.6	Pass

TABLE 7
THORAX – LOWER RIB DROP TEST (ES-Ilre) (CONTINUED)
3.00 m/s

PRE-TEST



POST-TEST

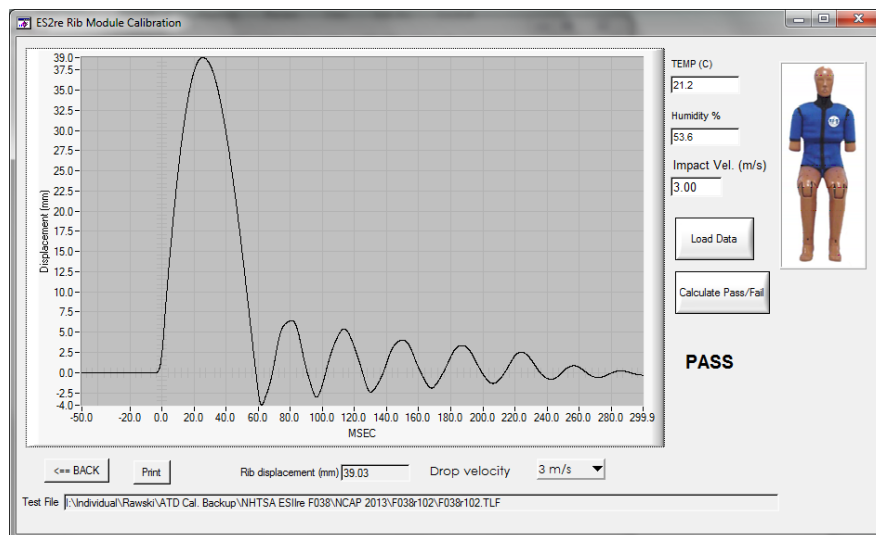
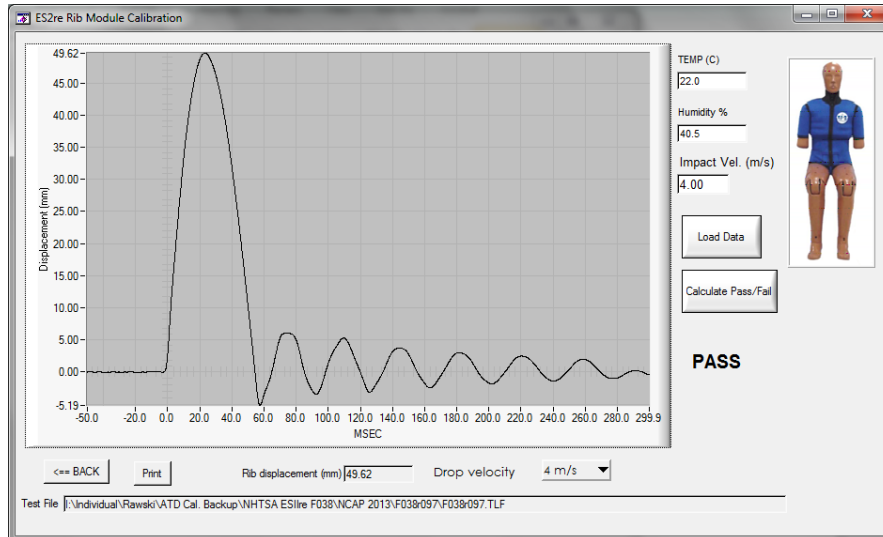


TABLE 7
THORAX – LOWER RIB DROP TEST (ES-Ilre) (CONTINUED)
4.00 m/s

PRE-TEST



POST-TEST

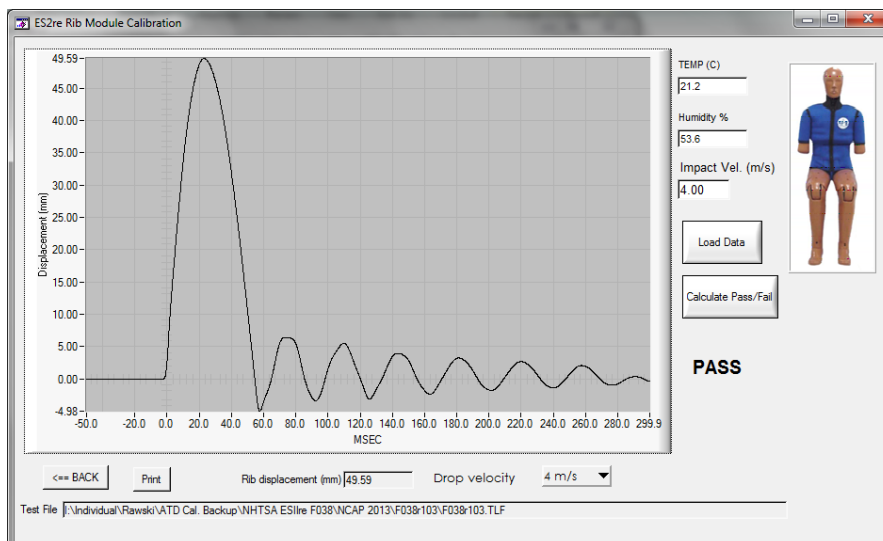


TABLE 8
THORAX – FULL BODY IMPACT TEST (ES-Ilre)

ES-Ilre Serial Number F038 Test Sequences 1 & 2

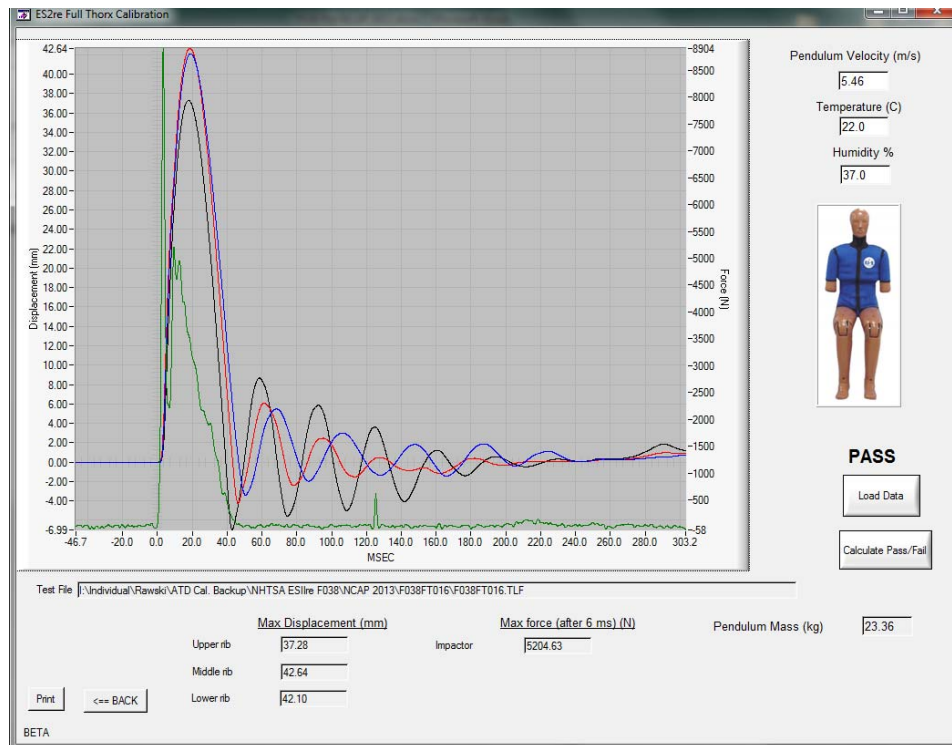
TEST PARAMETER		SPEC.	PRE		POST	
Date		-	7-15-12		11-5-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Dummy Soak Time (min)		≥ 240	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	20.6-22.2	22.0	Pass	21.2	Pass
	Min		20.9	Pass	21.2	Pass
Humidity (%) – During Soak	Max	10.0-70.0	42.7	Pass	53.6	Pass
	Min		37.0	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	22.0	Pass	21.2	Pass
Humidity – During Test (%)		10-70	37.0	Pass	53.6	Pass
Peak Impactor Velocity (m/s)		5.4-5.6	5.46	Pass	5.46	Pass
Peak Upper Rib Deflection (mm)		34-41	37.3	Pass	37.0	Pass
Peak Middle Rib Deflection (mm)		37-45	42.6	Pass	41.9	Pass
Peak Lower Rib Deflection (mm)		37-44	42.1	Pass	41.8	Pass
Peak Impactor Force (>6ms) (kN)		5.1-6.2	5.2	Pass	5.7	Pass

Test Vehicle: 2013 Fiat 500 3 Door Hatchback
Test Program: SINCAP

NHTSA Number: MD 0306
Test Date: November 1, 2012

TABLE 8
THORAX – FULL BODY IMPACT TEST (ES-IIre)

PRE-TEST



POST-TEST

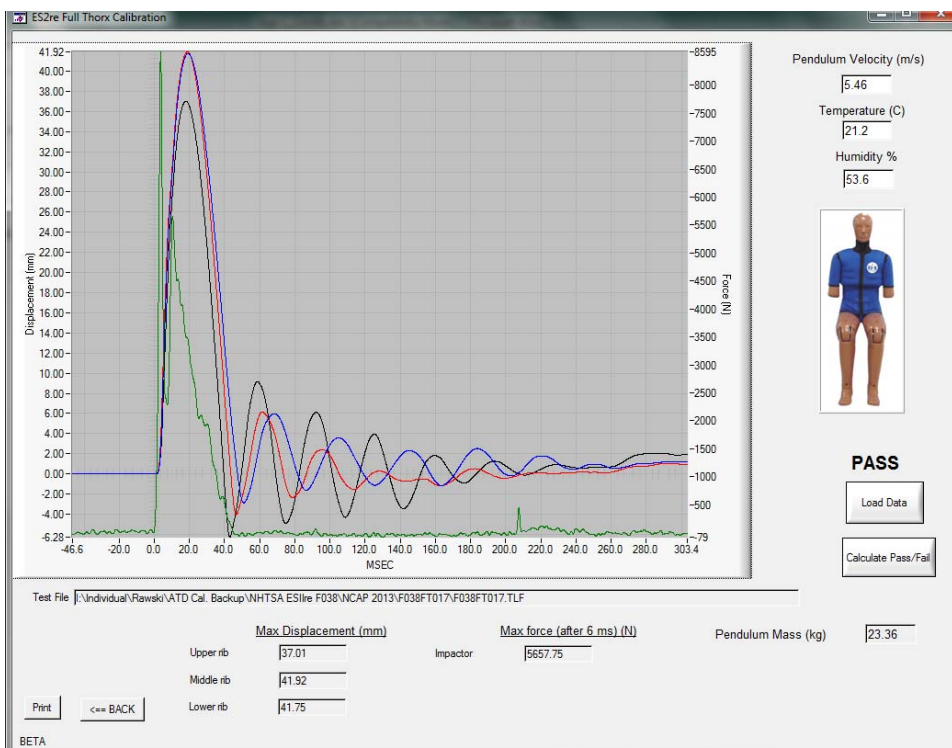


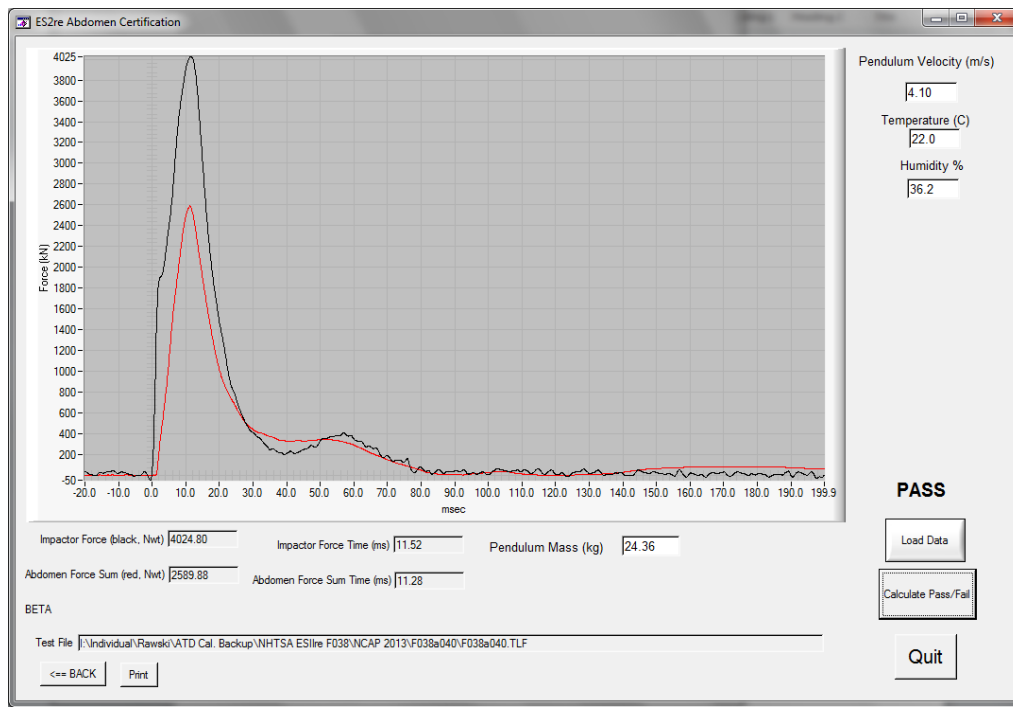
TABLE 9
ABDOMEN IMPACT TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	7-5-12		11-5-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Dummy Soak Time (min)		≥ 240	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	20.6-22.2	22.0	Pass	21.2	Pass
	Min		21.1	Pass	21.2	Pass
Humidity (%) – During Soak	Max	10.0-70.0	43.6	Pass	53.6	Pass
	Min		36.2	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	22.0	Pass	21.2	Pass
Humidity – During Test (%)		10-70	36.2	Pass	53.6	Pass
Peak Impactor Velocity (m/s)		3.9-4.1	4.1	Pass	4.1	Pass
Sum of Abdominal Forces (kN)		2.2-2.7	2.6	Pass	2.5	Pass
Time of Abdominal Forces (ms)		10-12.3	11.3	Pass	10.6	Pass
Peak Impactor Force (kN)		4.0-4.8	4.0	Pass	4.5	Pass
Time of Peak Impactor Force (ms)		10.6-13.0	11.5	Pass	10.9	Pass

TABLE 9
ABDOMEN IMPACT TEST (ES-IIre) (CONTINUED)

PRE-TEST



POST-TEST

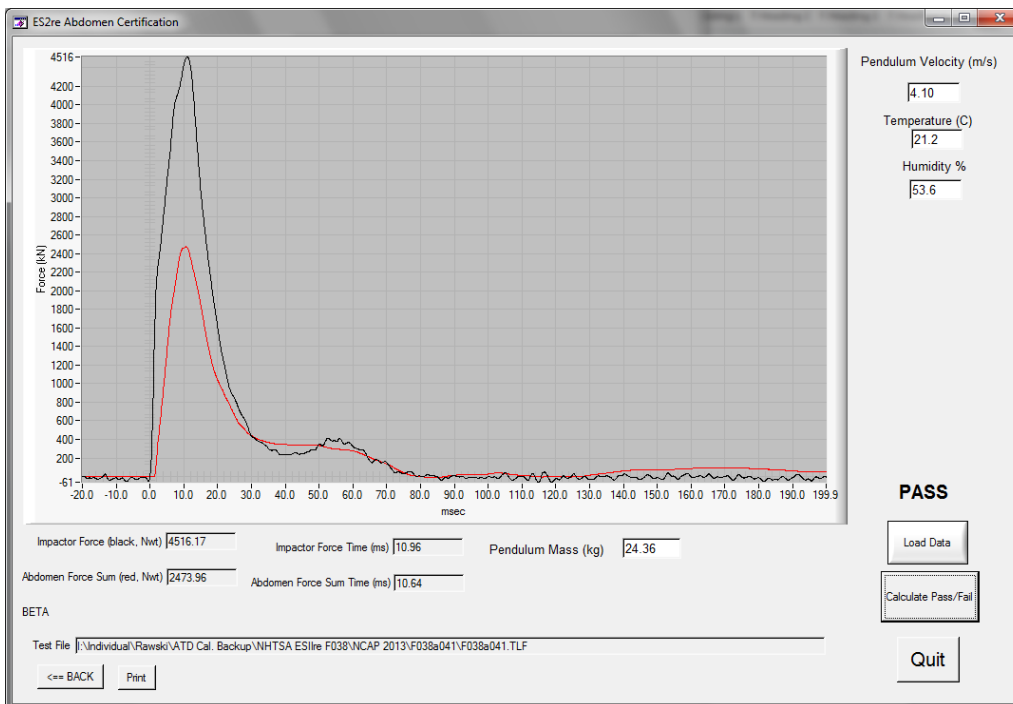


TABLE 10
LUMBAR SPINE FLEXION TEST (ES-Ilre)

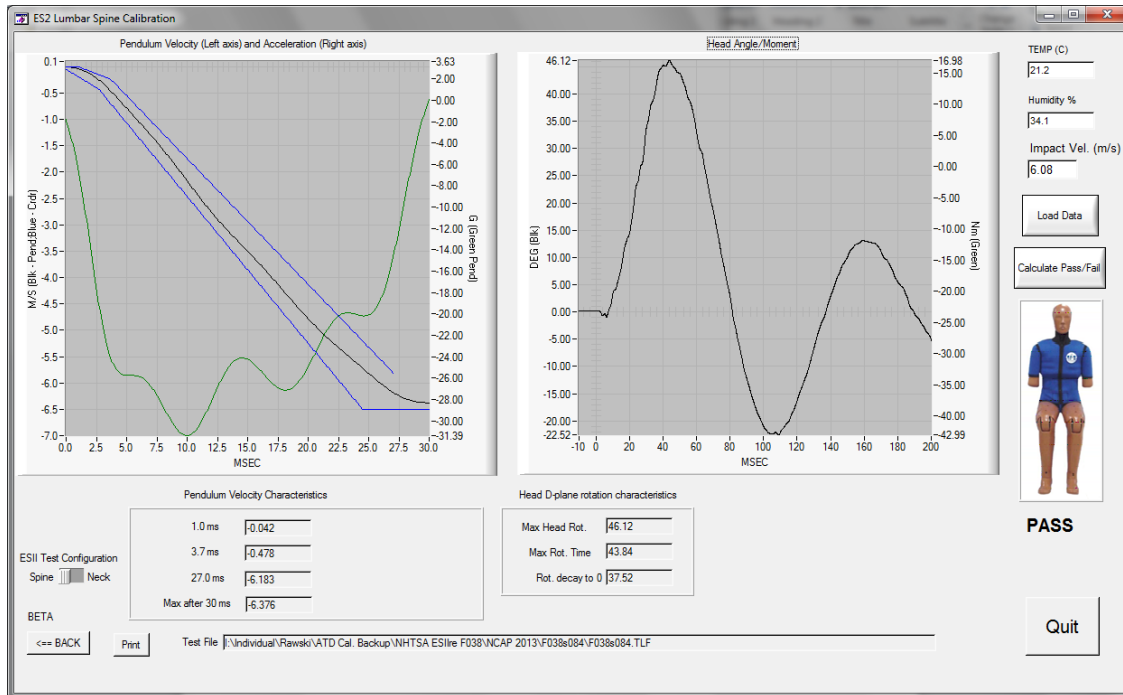
ES-Ilre Serial Number F038

Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	7-2-12		11-3-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Lumbar Spine Assembly Soak Time (min)		≥ 240	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	20.6-22.2	21.2	Pass	21.2	Pass
	Min		20.8	Pass	21.2	Pass
Humidity (%) – During Soak	Max	10.0-70.0	38.1	Pass	53.6	Pass
	Min		34.1	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	21.2	Pass	21.2	Pass
Humidity – During Test (%)		10-70	34.1	Pass	53.6	Pass
Pendulum Velocity (m/s)		5.95-6.15	6.08	Pass	6.10	Pass
Pendulum Velocity Corridors (m/s)	0-1.0 ms	(-0.05)-0.00	-0.04	Pass	-0.04	Pass
	2.7-3.7 ms	(-0.425) - (-0.24)	-0.48	Pass	-0.45	Pass
	24.5-27.0 ms	(-6.50) - (-5.80)	-6.2	Pass	-5.9	Pass
	Max after 30 ms	-6.50	-6.4	Pass	-6.4	Pass
Maximum Headform Flexion Angle (deg)		45-55	46.1	Pass	48.5	Pass
Time at Maximum Flexion Angel (ms)		39-53	43.8	Pass	44.6	Pass
Time of Decay to Zero Angle from Peak (ms)		37-57	37.5	Pass	38.5	Pass

TABLE 10
LUMBAR SPINE FLEXION TEST (ES-IIre) (CONTINUED)

PRE-TEST



POST-TEST

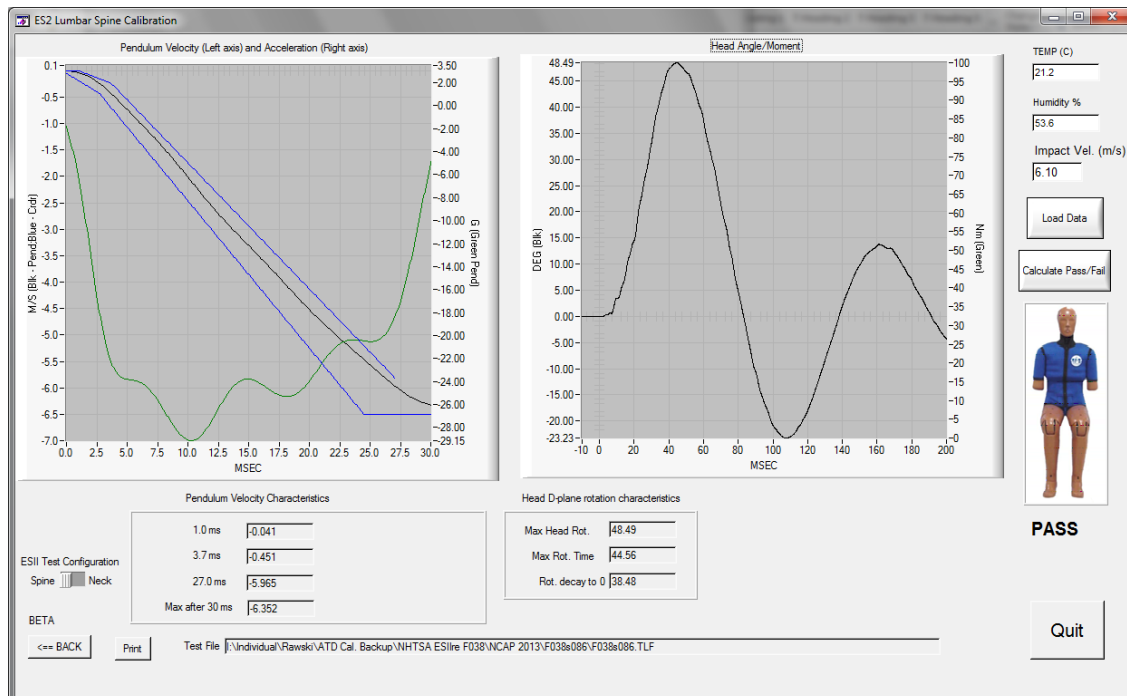


TABLE 11
PELVIS IMPACT TEST (ES-IIre)

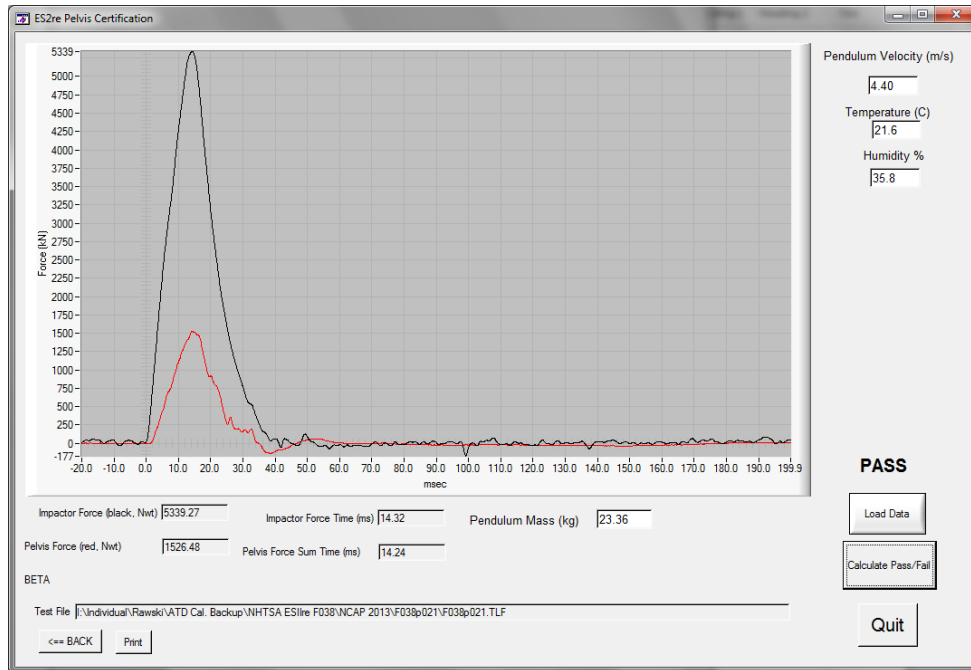
ES-IIre Serial Number F038

Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	7-12-12		11-5-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Dummy Soak Time (min)		≥ 240	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	20.6-22.2	21.6	Pass	21.2	Pass
	Min		21.0	Pass	21.2	Pass
Humidity (%) – During Soak	Max	10.0-70.0	40.3	Pass	53.6	Pass
	Min		35.8	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	21.6	Pass	21.2	Pass
Humidity – During Test (%)		10-70	35.8	Pass	53.6	Pass
Pendulum Velocity (m/s)		4.2-4.4	4.4	Pass	4.4	Pass
Peak Impactor Force (kN)		4.7 – 5.4	5.3	Pass	5.1	Pass
Time at Peak Force (ms)		11.8-16.1	14.3	Pass	12.9	Pass
Peak Pubic Symphysis Force (kN)		1.23-1.59	1.53	Pass	1.5	Pass
Time at Peak Force (ms)		12.2-17.0	14.2	Pass	13.6	Pass

TABLE 11
PELVIS IMPACT TEST (ES-Ilre) (CONTINUED)

PRE-TEST



POST-TEST

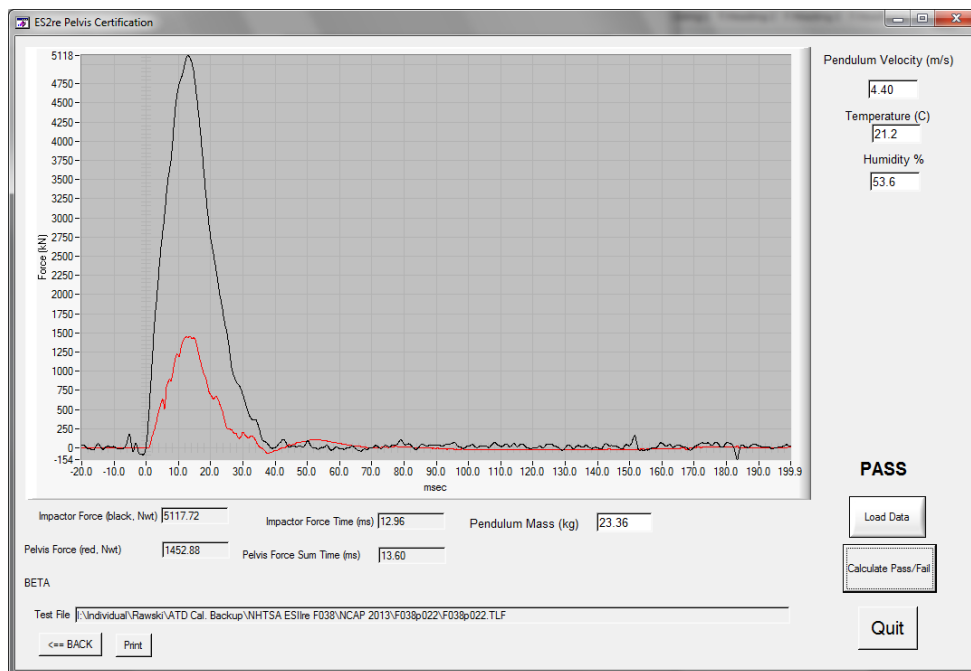


TABLE 1
EXTERNAL MEASUREMENTS (SID-IIs)

SIDIs Serial Number	298	Test Sequences		1 & 2	
TEST PARAMETER	SPEC.	PRE		POST	
Date	-	7-12-12		11-5-12	
Sequential Test Number	-	1		2	
		Result	Pass/Fail	Result	Pass/Fail
Temperature (°C)	20.6-22.2	22.0	Pass	21.2	Pass
Relative Humidity (%)	10-70	33.6	Pass	53.6	Pass
Sitting Height	772 – 788	775	Pass	776	Pass
Shoulder Pivot Height	437 – 453	445	Pass	446	Pass
H-Point Height	79 – 89	84	Pass	83	Pass
H-Point from Seat Back	141 – 151	150	Pass	147	Pass
Shoulder Pivot from Backline	97 – 107	105	Pass	105	Pass
Thigh Clearance	119 – 135	122	Pass	123	Pass
Head Breadth	140 – 148	142	Pass	144	Pass
Head Back from Backline	40 – 46	43	Pass	42	Pass
Head Depth	178 – 188	183	Pass	181	Pass
Head Circumference	541 – 551	544	Pass	543	Pass
Buttock to Knee Length	514 – 540	525	Pass	525	Pass
Popliteal Height	343 – 369	345	Pass	351	Pass
Knee Pivot to Floor Height	392 – 409	400	Pass	397	Pass
Buttock Popliteal Length	416 – 442	421	Pass	425	Pass
Chest Depth w/o Jacket	195 – 211	209	Pass	203	Pass
Foot Length	216 – 232	223	Pass	220	Pass
Hip Breadth	313 – 323	317	Pass	317	Pass
Arm Length	249 – 259	251	Pass	255	Pass
Knee Joint to Seat Back	477 – 493	483	Pass	484	Pass
Shoulder Width	341 – 357	350	Pass	343	Pass
Foot Width	78 – 94	82	Pass	84	Pass
Chest Circumference w/Jacket	851 – 881	873	Pass	876	Pass
Waist Circumference	761 – 791	786	Pass	786	Pass

TABLE 2
HEAD DROP TEST (SID-IIs)

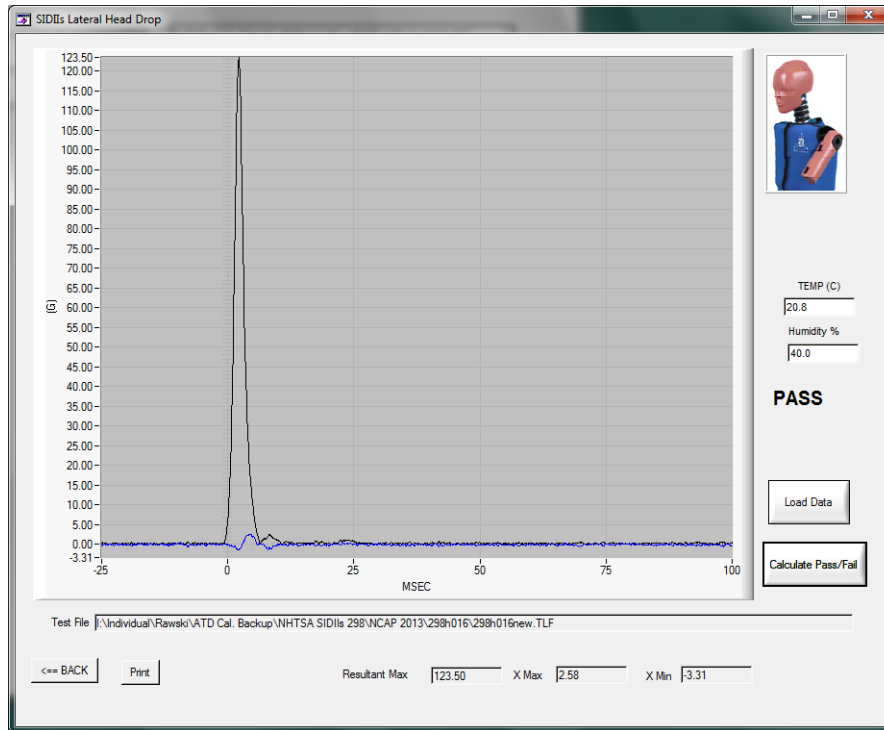
SIDIs Serial Number 298

Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-27-12		11-2-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Head Soak Time (min)		≥ 240	240	Pass	240	Pass
Temperature(°C) – During Soak	Max	20.6-22.2	21.5	Pass	21.2	Pass
	Min		20.8	Pass	21.2	Pass
Humidity(%) – During Soak	Max	10.0-70.0	47.2	Pass	53.6	Pass
	Min		40.0	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	20.8	Pass	21.2	Pass
Humidity – During Test (%)		10-70	40.0	Pass	53.6	Pass
Peak Head Resultant Acceleration (G)		115-137	123.5	Pass	124.6	Pass
Peak Head X Acceleration (G)		<15	2.6	Pass	5.3	Pass
Unimodal (Oscillation) (Yes/No)		<15%	Yes	Pass	Yes	Pass

TABLE 2
HEAD DROP TEST (SID-IIs) (CONTINUED)

PRE-TEST



POST-TEST

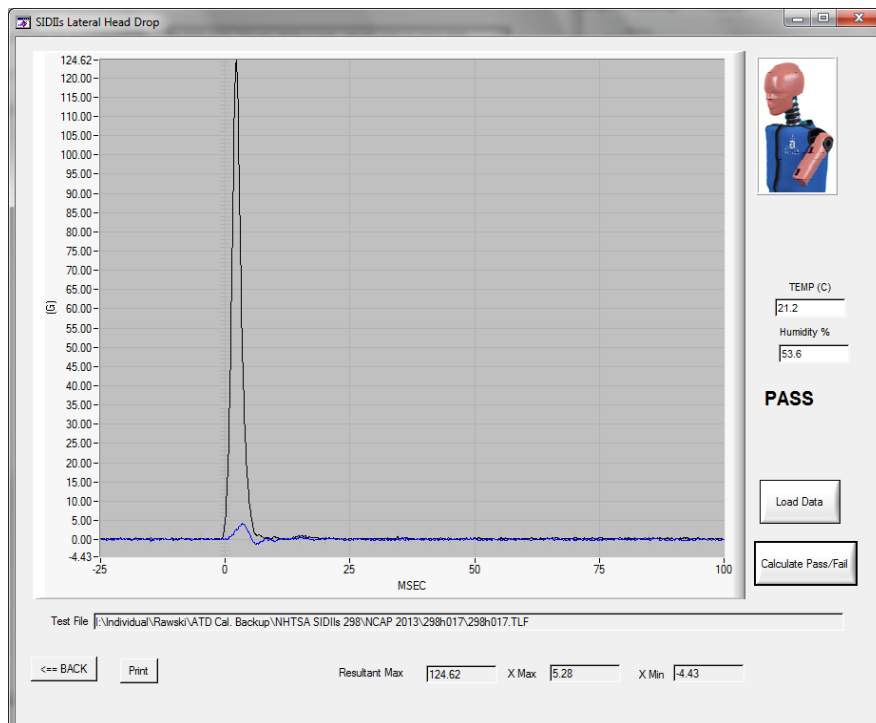


TABLE 3
LATERAL NECK PENDULUM TEST (SID-IIs)

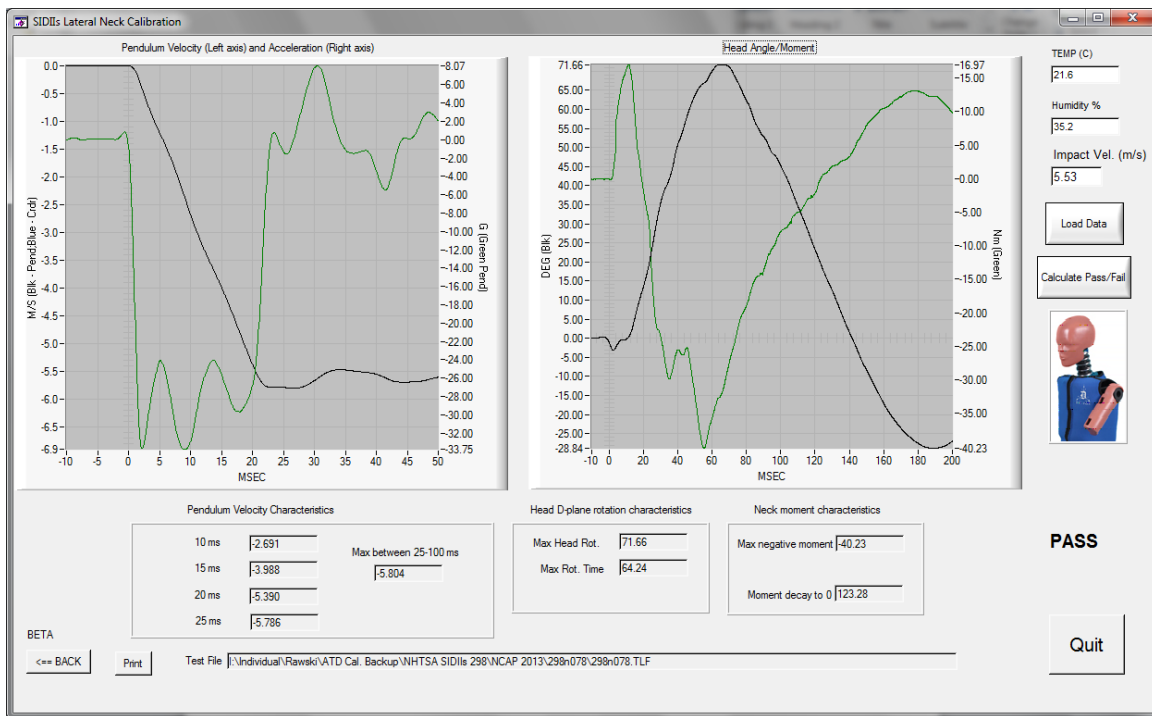
SIDIs Serial Number 298

Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	7-2-12		11-3-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Neck Assembly Soak Time (min)		≥ 240	240	Pass	240	Pass
Temperature(°C) – During Soak	Max	20.6-22.2	21.6	Pass	21.2	Pass
	Min		20.9	Pass	21.2	Pass
Humidity(%) – During Soak	Max	10.0-70.0	42.3	Pass	53.6	Pass
	Min		35.2	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	21.6	Pass	21.2	Pass
Humidity – During Test (%)		10-70	35.2	Pass	53.6	Pass
Pendulum Velocity (m/s)		5.51-5.63	5.53	Pass	5.55	Pass
Pendulum Deceleration (G)	10 ms	2.20-2.80	2.69	Pass	2.45	Pass
	15 ms	3.30-4.10	3.99	Pass	3.64	Pass
	20 ms	4.40-5.40	5.39	Pass	4.91	Pass
	25 ms	5.40-6.10	5.79	Pass	5.82	Pass
	25-100 ms	5.50-6.20	5.80	Pass	5.89	Pass
Maximum D-Plane rotation (deg)		71-81	71.7	Pass	72.3	Pass
Time of Maximum D-Plane Rotation (ms)		50-70	64.2	Pass	63.9	Pass
Peak Occ. Condyle Moment (Nm)		36-44	40.2	Pass	39.6	Pass
Time of Moment Decay (ms)		102-126	123.3	Pass	121.8	Pass

TABLE 3
LATERAL NECK PENDULUM TEST (SID-IIIs) (CONTINUED)

PRE-TEST



POST-TEST

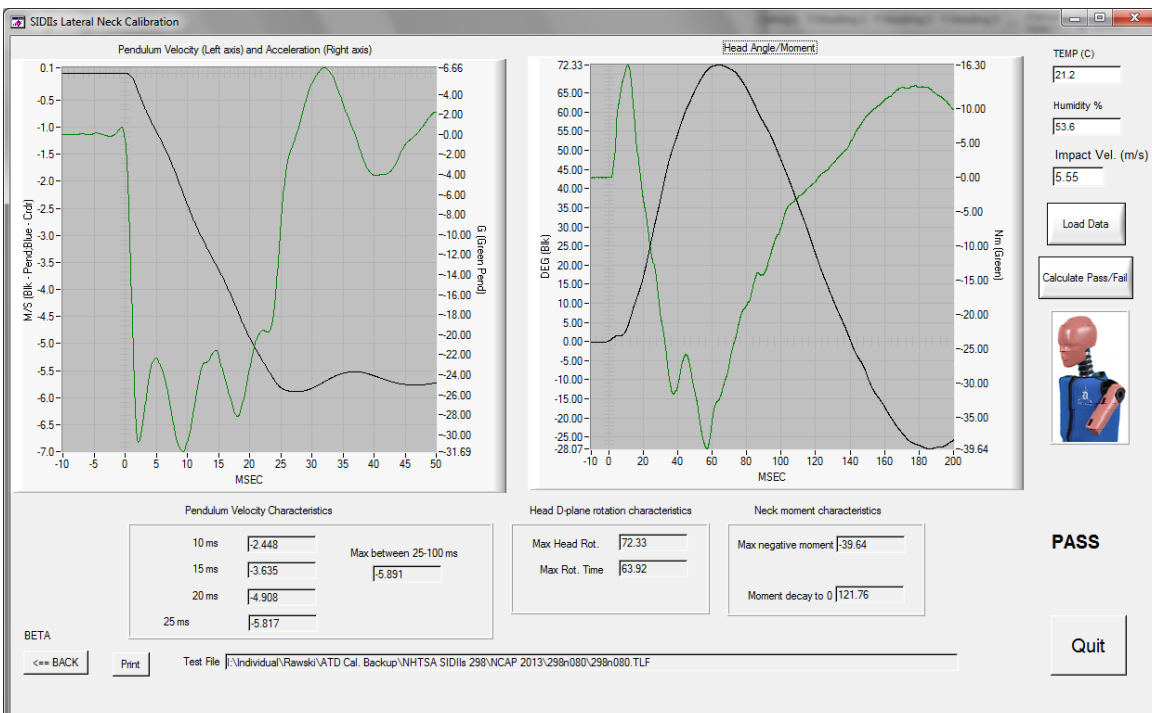


TABLE 4
SHOULDER IMPACT TEST (SID-IIs)

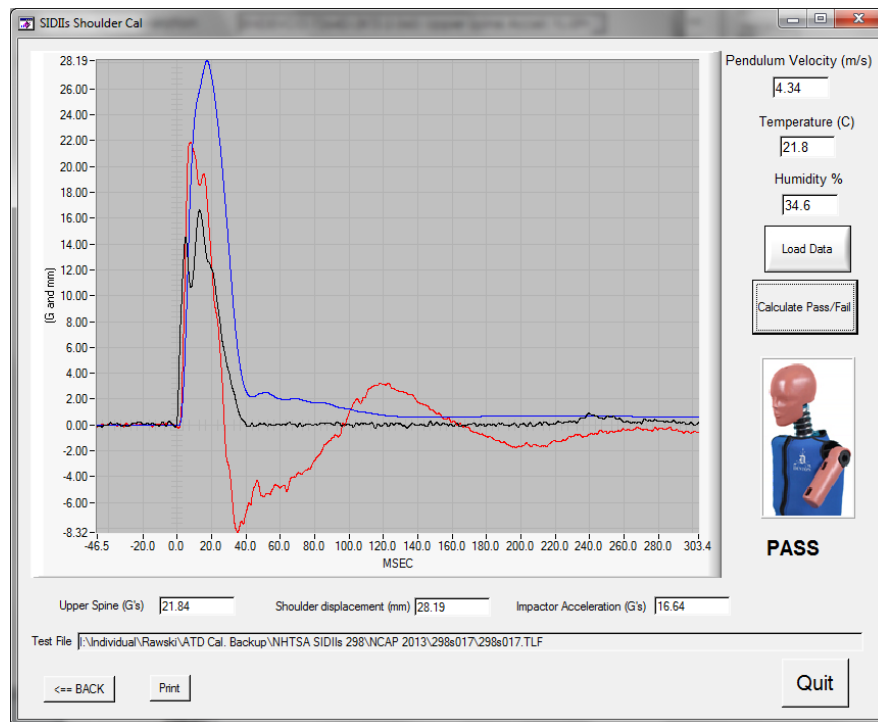
SIDIs Serial Number 298

Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	7-9-12		11-5-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Dummy Soak Time (min)		≥ 180	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	20.6-22.2	21.8	Pass	21.2	Pass
	Min		21.1	Pass	21.2	Pass
Humidity(%) – During Soak	Max	10.0-70.0	27.6	Pass	53.6	Pass
	Min		34.6	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	21.8	Pass	21.2	Pass
Relative Humidity – During Test (%)		10-70	34.6	Pass	53.6	Pass
Impactor Velocity (m/s)		4.2-4.4	4.34	Pass	4.30	Pass
Peak Shoulder Deflection (mm)		28-37	28.2	Pass	28.6	Pass
Peak Lateral Spine (T1) Acceleration Y (G)		17-22	21.8	Pass	21.9	Pass
Peak Impactor Acceleration (G)		13-18	16.6	Pass	17.2	Pass

TABLE 4
SHOULDER IMPACT TEST (SID-IIs) (CONTINUED)

PRE-TEST



POST-TEST

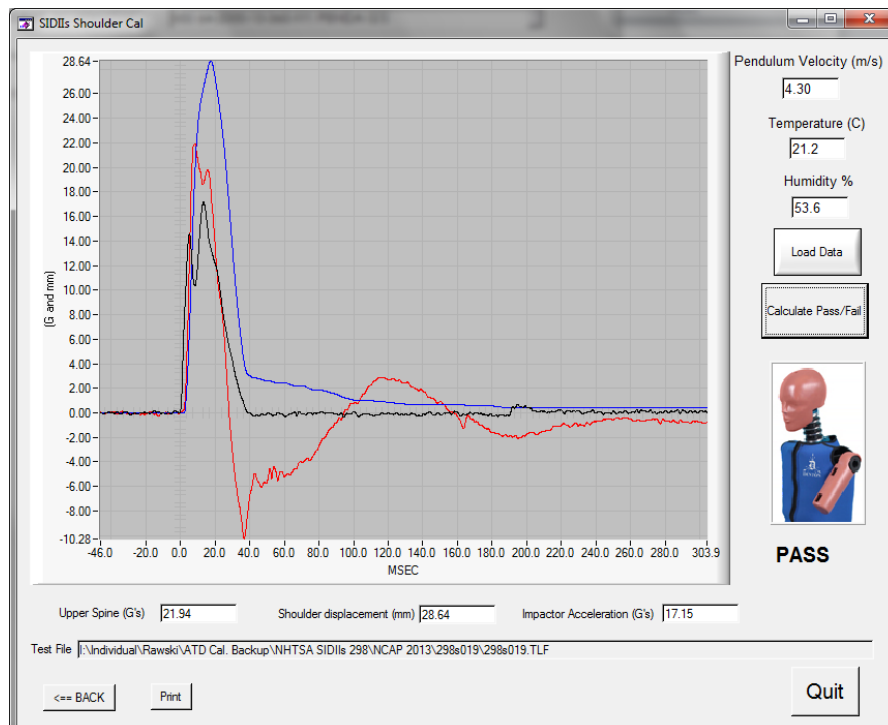


TABLE 5
THORAX (WITH ARM) IMPACT TEST (SID-IIs)

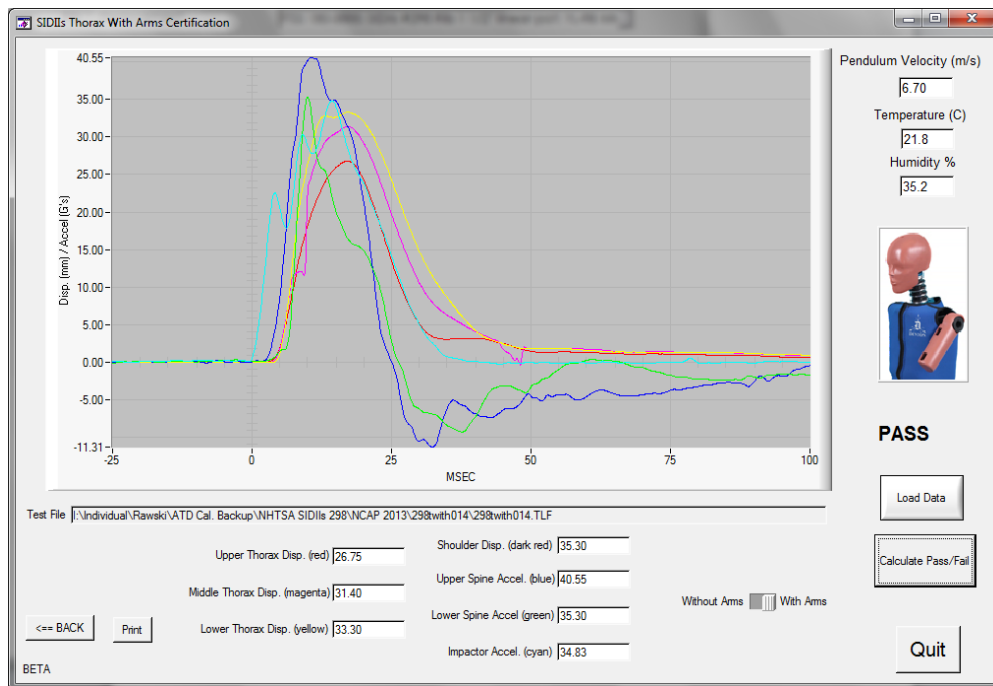
SIDIIs Serial Number 298

Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	7-9-12		11-5-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Dummy Soak Time (min)		≥ 180	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	20.6-22.2	21.8	Pass	21.2	Pass
	Min		20.9	Pass	21.2	Pass
Humidity(%) – During Soak	Max	10.0-70.0	39.2	Pass	53.6	Pass
	Min		35.2	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	21.8	Pass	21.2	Pass
Relative Humidity – During Test (%)		10-70	35.2	Pass	53.6	Pass
Impactor Velocity (m/s)		6.6-6.8	6.7	Pass	6.70	Pass
Peak Shoulder Deflection (mm)		31-40	35.3	Pass	32.3	Pass
Peak Upper Rib Deflection (mm)		25-32	26.8	Pass	27.3	Pass
Peak Middle Rib Deflection (mm)		30-36	31.4	Pass	32.2	Pass
Peak Lower Rib Deflection (mm)		32-38	33.3	Pass	34.2	Pass
Peak Upper Spine (T1) Acceleration Y (G)		34-43	40.6	Pass	39.9	Pass
Peak Lower Spine (T12) Acceleration Y (G)		29-37	35.3	Pass	32.3	Pass
Peak Impactor Acceleration (G)		30-36	34.8	Pass	34.9	Pass

TABLE 5
THORAX (WITH ARM) IMPACT TEST (SID-IIIs) (CONTINUED)

PRE-TEST



POST-TEST

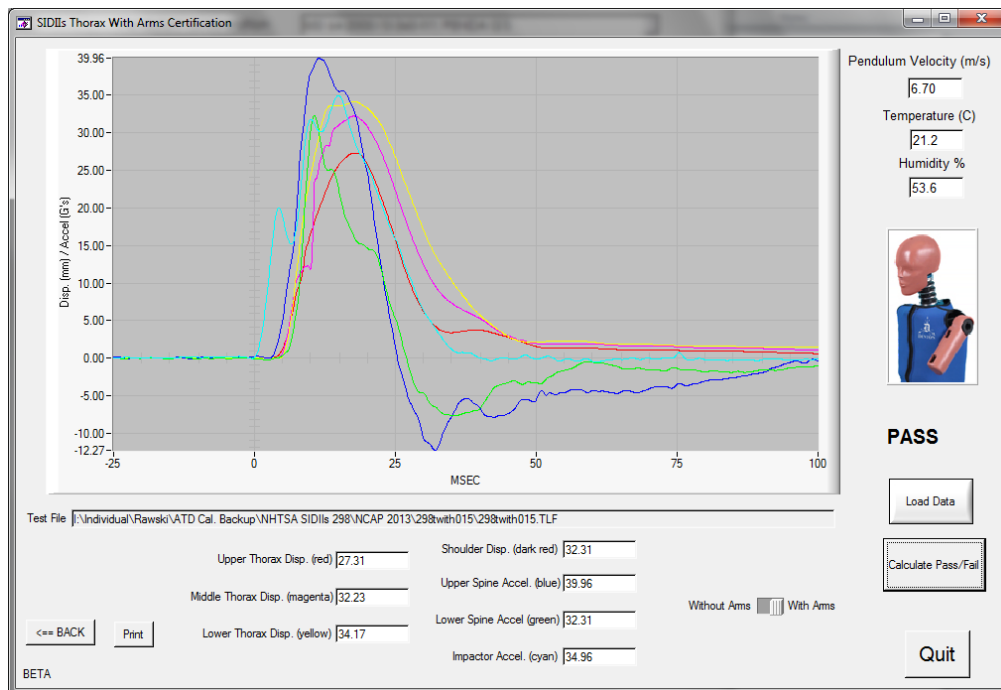


TABLE 6
THORAX (WITHOUT ARM) IMPACT TEST (SID-IIs)

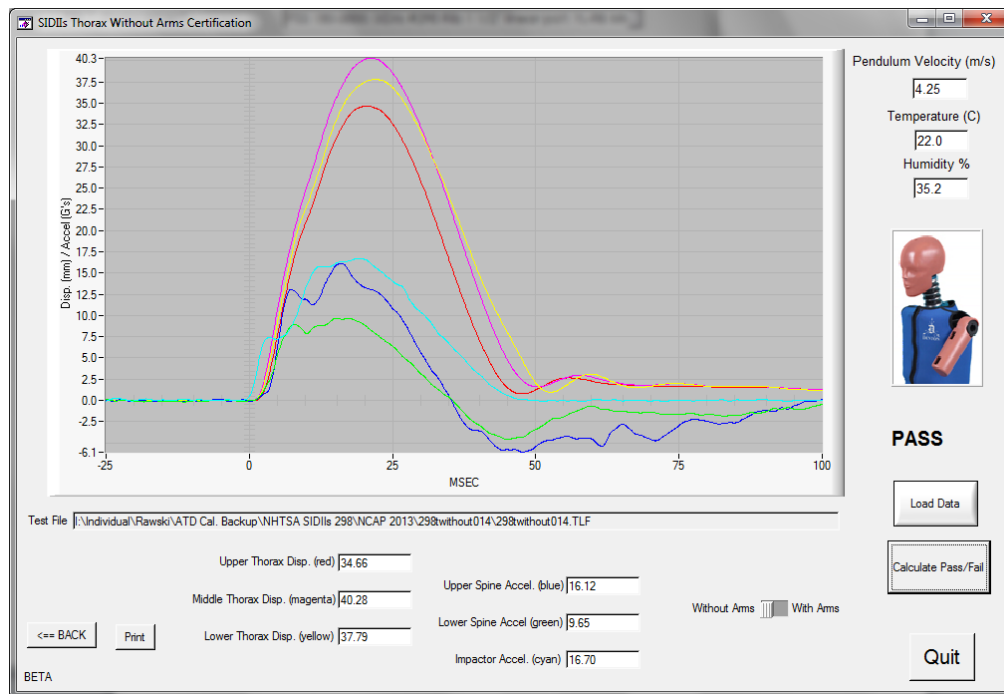
SIDIs Serial Number 298

Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	7-9-12		11-5-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Dummy Soak Time (min)		≥ 180	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	20.6-22.2	22.0	Pass	21.2	Pass
	Min		21.3	Pass	21.2	Pass
Humidity(%) – During Soak	Max	10.0-70.0	39.4	Pass	53.6	Pass
	Min		35.2	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	22.0	Pass	21.2	Pass
Relative Humidity – During Test (%)		10-70	35.2	Pass	53.6	Pass
Impactor Velocity (m/s)		4.2-4.4	4.25	Pass	4.25	Pass
Peak Upper Rib Deflection (mm)		32-40	34.7	Pass	35.2	Pass
Peak Middle Rib Deflection (mm)		39-45	40.3	Pass	40.3	Pass
Peak Lower Rib Deflection (mm)		35-43	37.8	Pass	37.1	Pass
Peak Upper Spine (T1) Acceleration Y (G)		13-17	16.1	Pass	16.4	Pass
Peak Lower Spine (T12) Acceleration Y (G)		7-11	9.7	Pass	9.9	Pass
Peak Impactor Acceleration (G)		14-18	16.7	Pass	16.9	Pass

TABLE 6
THORAX (WITHOUT ARM) IMPACT TEST (SID-IIs) (CONTINUED)

PRE-TEST



POST-TEST

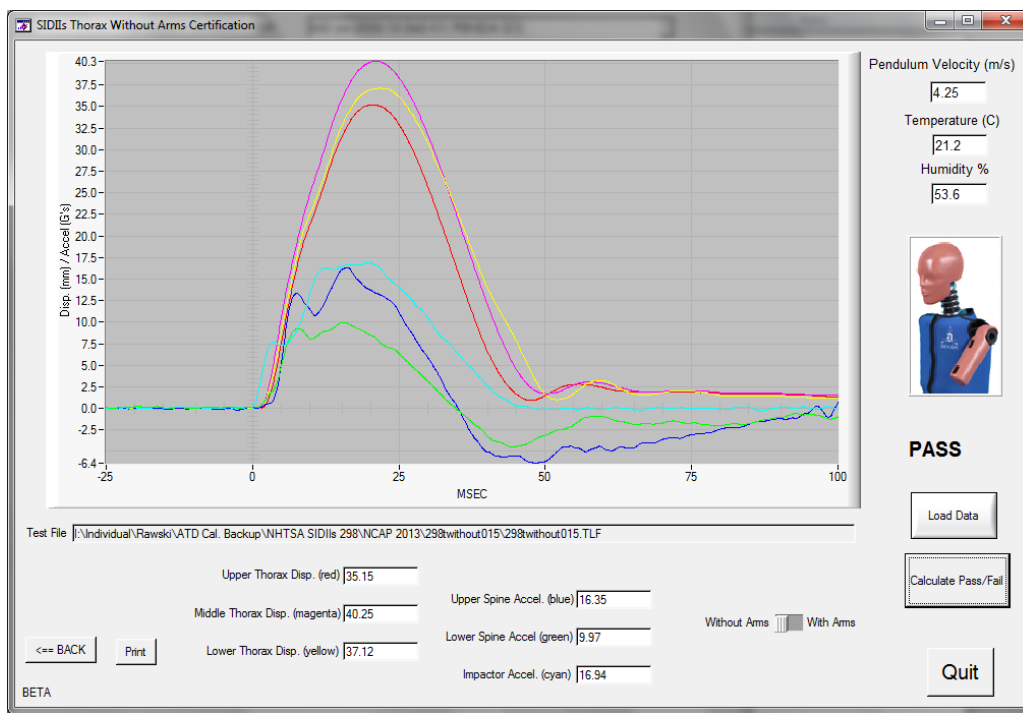


TABLE 7
ABDOMEN IMPACT TEST (SID-IIs)

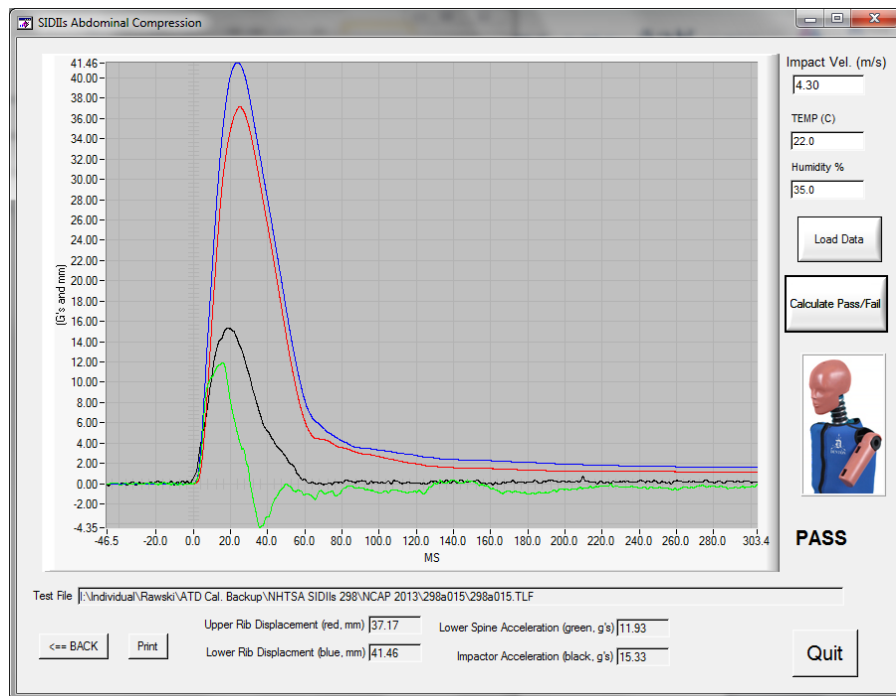
SIDIs Serial Number 298

Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	7-9-12		11-5-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Dummy Soak Time (min)		≥ 180	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	20.6-22.2	22.0	Pass	21.2	Pass
	Min		21.1	Pass	21.2	Pass
Humidity(%) – During Soak	Max	10.0-70.0	39.8	Pass	53.6	Pass
	Min		35.0	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	22.0	Pass	21.2	Pass
Relative Humidity – During Test (%)		10-70	35.0	Pass	53.6	Pass
Impactor Velocity (m/s)		4.2-4.4	4.3	Pass	4.25	Pass
Peak Upper Abdominal Rib Deflection (mm)		36-47	37.2	Pass	38.2	Pass
Peak Lower Abdominal Rib Deflection (mm)		33-44	41.5	Pass	37.5	Pass
Peak Lower Spine (T12) Acceleration Y (G)		9-14	11.9	Pass	12.6	Pass
Peak Impactor Acceleration (G)		12-16	15.3	Pass	15.9	Pass

TABLE 7
ABDOMEN IMPACT TEST (SID-IIs) (CONTINUED)

PRE-TEST



POST-TEST

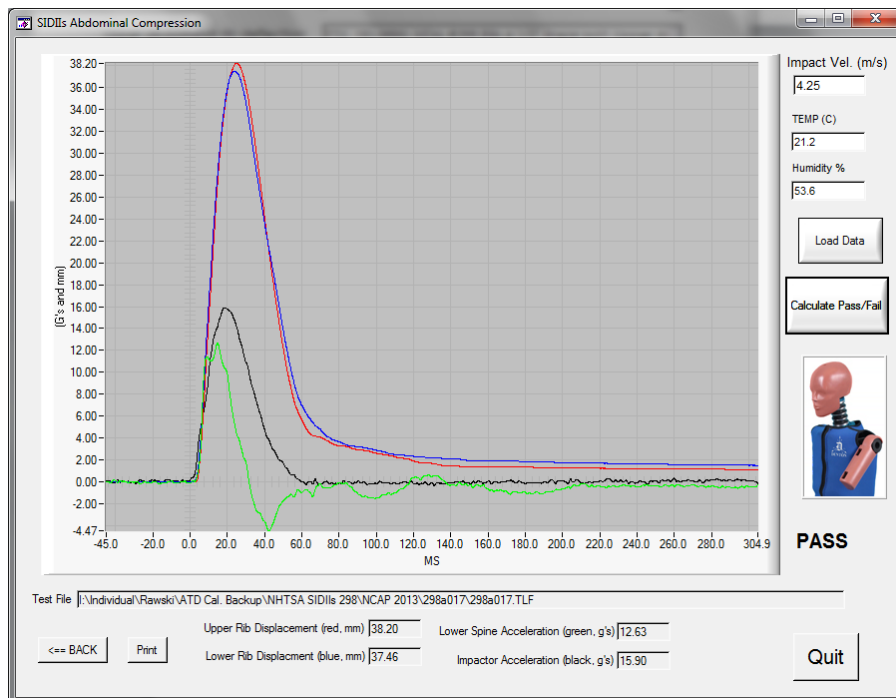
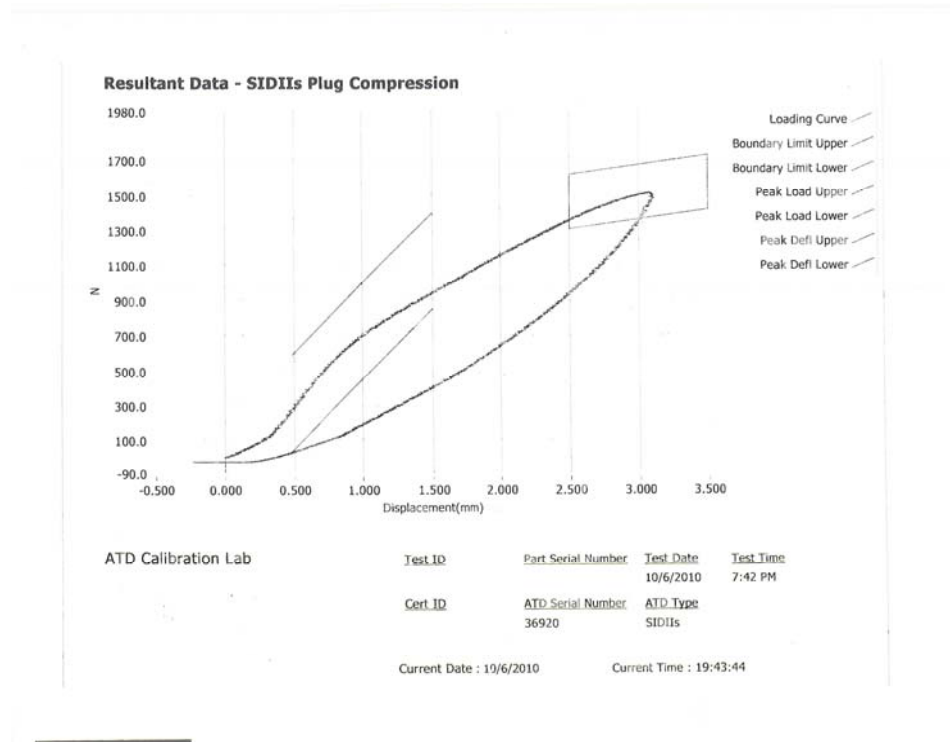


TABLE 8
PELVIS PLUG QUASI-STATIC TEST (SID-IIs)

PRE-TEST



POST-TEST

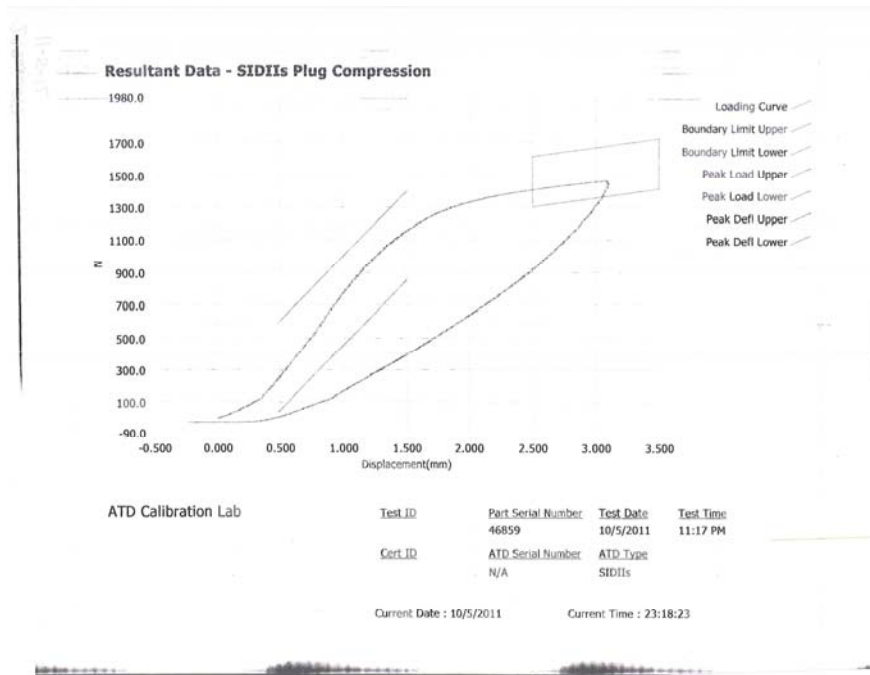


TABLE 9
PELVIS ACETABULUM IMPACT TEST (SID-IIs)

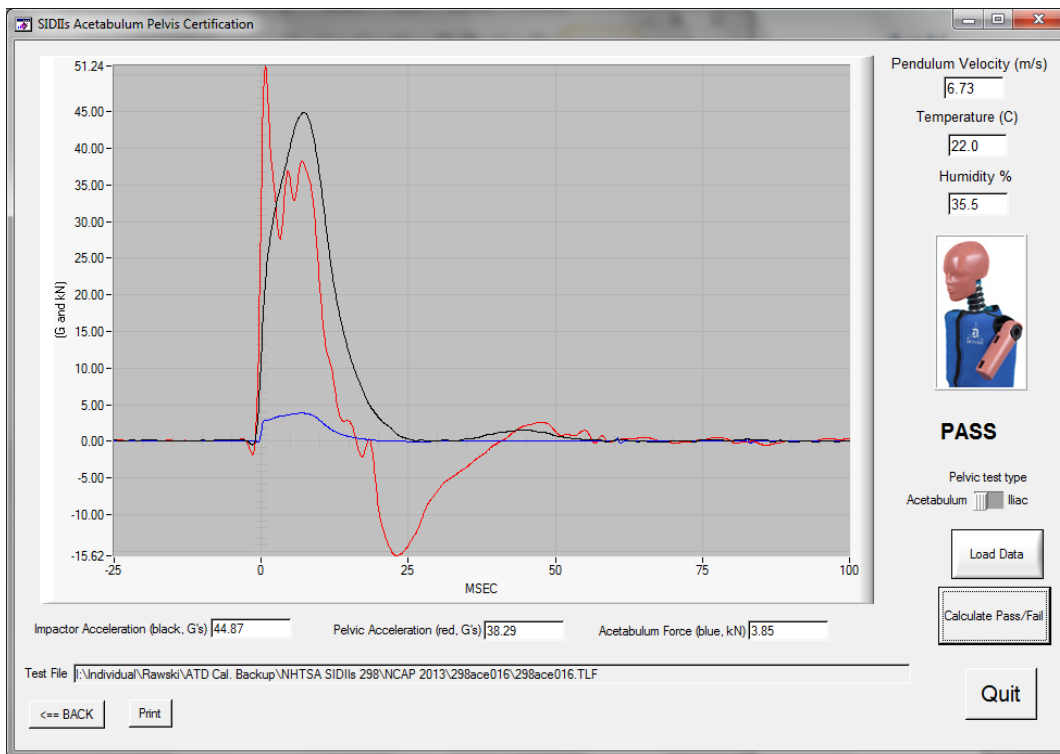
SIDIIs Serial Number 298

Test Sequences 1 & 2

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	7-9-12		11-5-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Results	Pass/Fail
Dummy Soak Time (min)		≥ 180	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	20.6-22.2	22.0	Pass	21.2	Pass
	Min		20.9	Pass	21.2	Pass
Humidity(%) – During Soak	Max	10.0-70.0	39.4	Pass	53.6	Pass
	Min		35.5	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	22.0	Pass	21.2	Pass
Humidity – During Test (%)		10-70	35.5	Pass	53.6	Pass
Impactor Velocity (m/s)		6.6-6.8	6.73	Pass	6.73	Pass
Peak Impactor Acceleration (G)		38-47	44.9	Pass	45.9	Pass
Pelvis Acceleration Y after 6ms (G)		34-42	38.3	Pass	39.4	Pass
Peak Acetabulum Force (kN)		3.60-4.30	3.85	Pass	4.02	Pass
Pelvis Plug Serial No. 36920 (Pre) No. (Post) 46859						

TABLE 9
PELVIS ACETABULUM IMPACT TEST (SID-IIIs) (CONTINUED)

PRE-TEST



POST-TEST

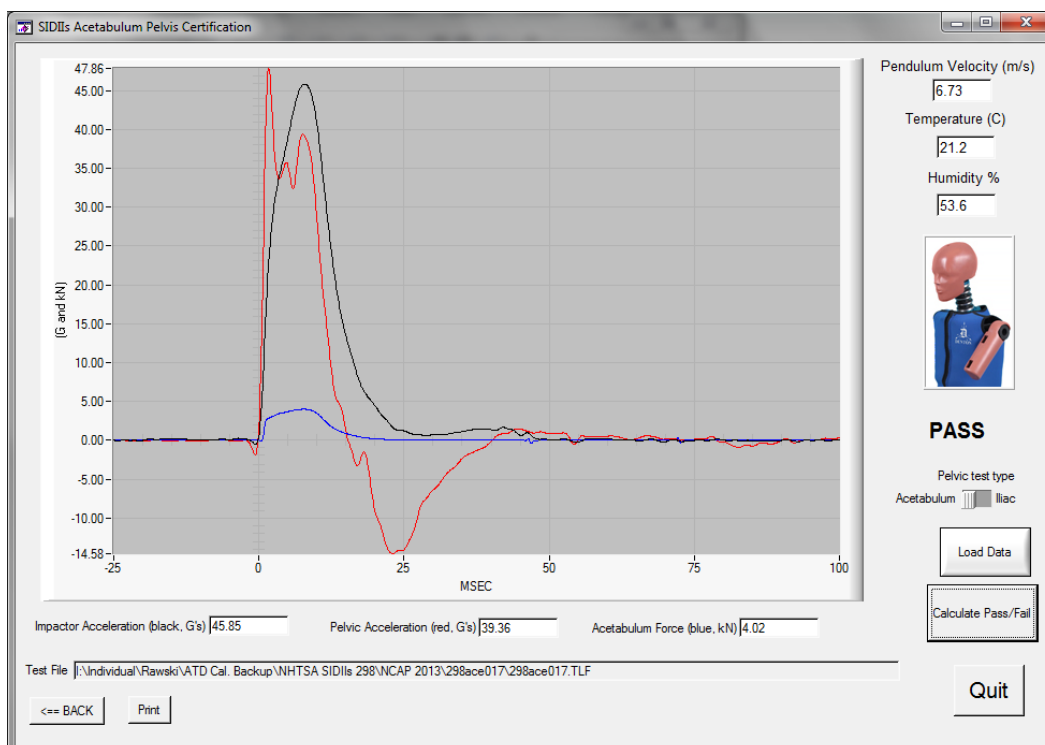


TABLE 10
PELVIS ILIAC IMPACT TEST (SID-IIs)

SIDIs Serial Number 298

Test Sequences 1 & 2

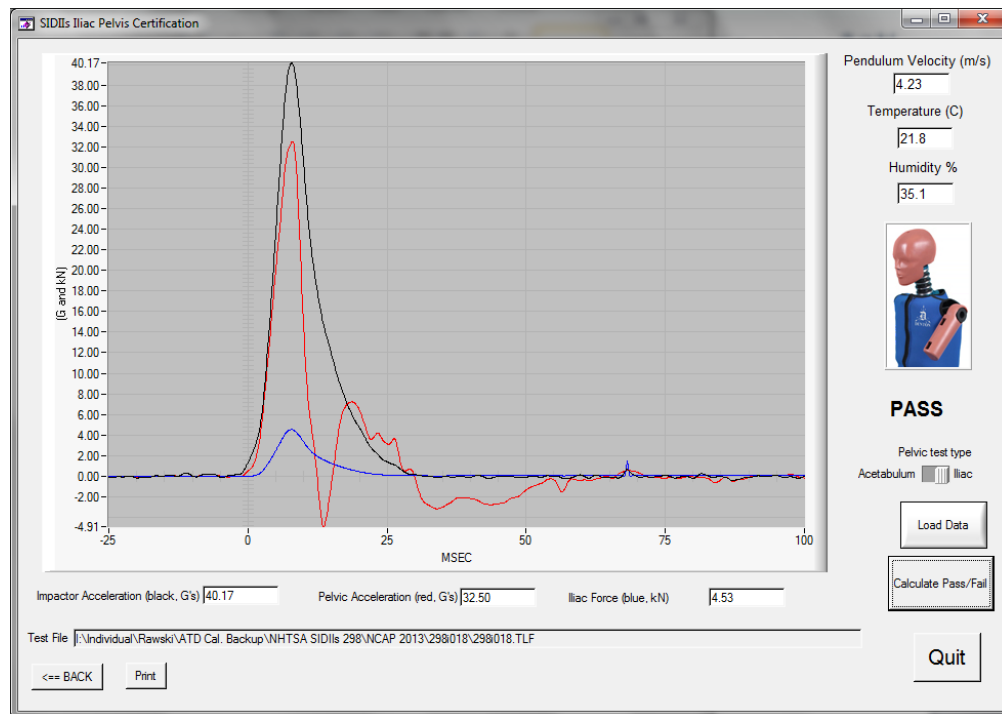
TEST PARAMETER		SPEC.	PRE		POST	
Date		-	7-9-12		11-5-12	
Sequential Test Number		-	1		2	
			Result	Pass/Fail	Result	Pass/Fail
Dummy Soak Time (min)		≥ 180	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	20.6-22.2	21.8	Pass	21.2	Pass
	Min		20.8	Pass	21.2	Pass
Humidity(%) – During Soak	Max	10.0-70.0	41.2	Pass	53.6	Pass
	Min		35.1	Pass	53.6	Pass
Temperature – During Test (°C)		20.6-22.2	21.8	Pass	21.2	Pass
Humidity – During Test (%)		10-70	35.1	Pass	53.6	Pass
Pendulum Velocity (m/s)		4.2-4.4	4.23	Pass	4.23	Pass
Peak Impactor Acceleration (G)		36-45	40.2	Pass	42.5	Pass
Pelvis Acceleration Y (G)		28-39	32.5	Pass	35.9	Pass
Peak Iliac Force Y (N)		4.10-5.10	4.5	Pass	4.9	Pass
Pelvis Plug Serial No. 36920 (Pre) No. 46859 (Post)						

Test Vehicle: 2013 Fiat 500 3 Door Hatchback
Test Program: SINCAP

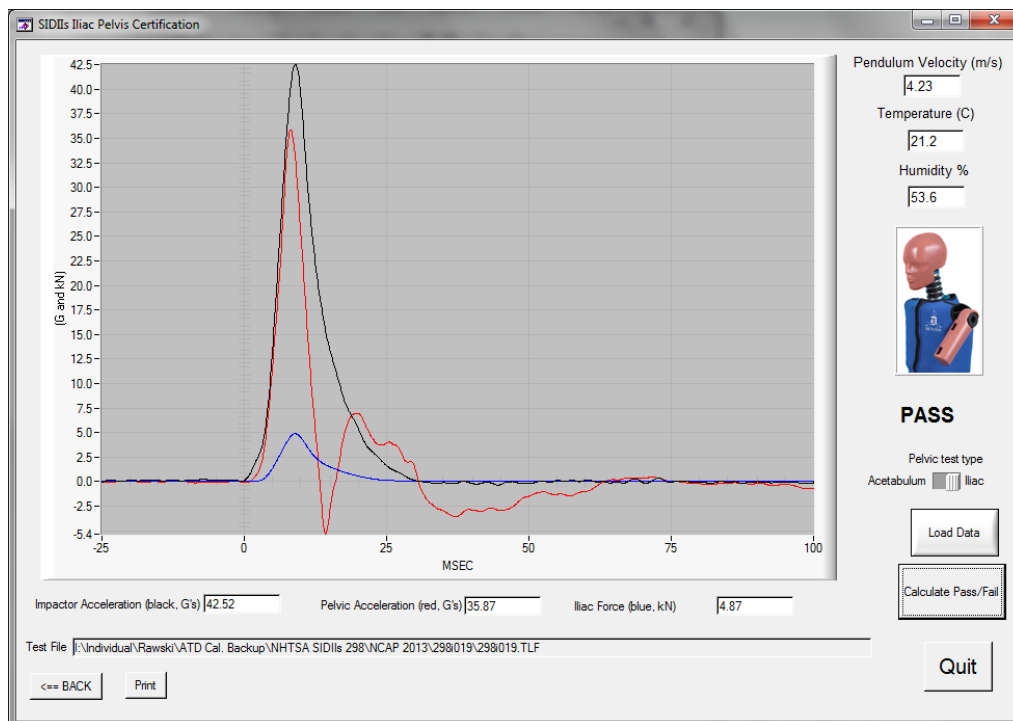
NHTSA Number: MD 0306
Test Date: November 1, 2012

TABLE 10
PELVIS ILIAC IMPACT TEST (SID-IIIs) (CONTINUED)

PRE-TEST



POST-TEST



Test Vehicle: 2013 Fiat 500 3-Door Hatchback
Test Program: SINCAP

NHTSA Number: MD 0306
Test Date: November 1, 2012

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

TABLE 1 - DUMMY INSTRUMENTATION – ES-IIre					
			ES-IIre S/N: F038		
			Serial Number	Manufacturer	Calibration Date
Head Accelerometers		X	J43494	Endevco	15/June/2012
		Y	J43475	Endevco	15/June/2012
		Z	J43779	Endevco	15/June/2012
		X _R	J21551	Endevco	15/June/2012
		Y _R	J43432	Endevco	15/June/2012
		Z _R	12104	Endevco	15/June/2012
Thoracic Rib Displacement Potentiometers	Upper	Y	433	Denton	15/June/2012
	Middle	Y	193	Denton	15/June/2012
	Lower	Y	191	Denton	15/June/2012
Abdomen Load Cells	Forward	Y	1502	Denton	19/April/2012
	Middle	Y	1511	Denton	20/April/2012
	Rear	Y	1537	Denton	20/April/2012
Lower Spine Accelerometers (T ₁₂)		X	12112	Endevco	15/June/2012
		Y	P21586	Endevco	15/June/2012
		Z	P21580	Endevco	15/June/2012
Pubic Symphosis Load Cell		Y	460	Denton	19/April/2012

TABLE 2 - DUMMY INSTRUMENTATION – SID-IIs						
			SID-IIs S/N: 298			
			Serial Number	Manufacturer	Calibration Date	
Head Accelerometers			X	P22041	Endevco	15/June/2012
			Y	P24562	Endevco	15/June/2012
			Z	P22322	Endevco	15/June/2012
			X _R	P24124	Endevco	15/June/2012
			Y _R	P21575	Endevco	15/June/2012
			Z _R	12132	Endevco	15/June/2012
Displacement Potentiometers	Shoulder		Y	1095	FTSS	16/April/2012
	Thoracic Rib	Upper	Y	1181	Denton	16/April/2012
		Middle	Y	1203	Denton	16/April/2012
		Lower	Y	1215	Denton	16/April/2012
	Abdominal Rib	Upper	Y	717	Denton	16/April/2012
		Lower	Y	486	Denton	16/April/2012
Lower Spine Accelerometers (T ₁₂)			X	P21661	Endevco	15/June/2012
			Y	P24682	Endevco	15/June/2012
			Z	P21788	Endevco	15/June/2012
Acetabulum Load Cell			Y	114	Denton	19/April/2012
Iliac Wing Load Cell			Y	283	Denton	20/April/2012
Pelvis Plug (Struck-Side)				36920	FTSS	07/Sept/2012
Pelvis Plug (Non-Struck-Side)				46859	FTSS	07/Sept/2012

TABLE 3 - VEHICLE INSTRUMENTATION					
			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	12111	Endevco	15/Oct/2012
	Vehicle Center of Gravity	Y	12096	Endevco	15/Oct/2012
	Vehicle Center of Gravity	Z	12118	Endevco	15/Oct/2012
2	Right Sill at Front Seat	X	A011321	MSI	15/Oct/2012
	Right Sill at Front Seat	Y	A011331	MSI	15/Oct/2012
	Right Sill at Front Seat	Z	A011312	MSI	15/Oct/2012
3	Right Sill at Rear Seat	X	A010890	MSI	15/Oct/2012
	Right Sill at Rear Seat	Y	98F98E11-K07	Endevco	15/Oct/2012
	Right Sill at Rear Seat	Z	A011335	MSI	15/Oct/2012
4	Left Sill at Front Door	Y	A086977	MSI	15/Oct/2012
5	Left Sill at Rear Door	Y	A086987	MSI	15/Oct/2012
6	Left A-Post Lower	Y	A011644	MSI	15/Oct/2012
7	Left A-Post Middle	Y	A011655	MSI	15/Oct/2012
8	Left B-Post Lower	Y	A086966	MSI	15/Oct/2012
9	Left B-Post Middle	Y	A086969	MSI	15/Oct/2012
10	Front Seat Track	Y	A086976	MSI	15/Oct/2012
11	Rear Seat Track or Structure	Y	A007267	MSI	15/Oct/2012
12	Right Rear Occ. Compartment	Y	A007227	MSI	15/Oct/2012
13	Engine Block	X	12110	Endevco	15/Oct/2012
	Engine Block	Y	A011334	MSI	15/Oct/2012
14	Rear Floorpan Above Axle	X	98G98E11-K02	Endevco	15/Oct/2012
	Rear Floorpan Above Axle	Y	98L98H31-Z05	Endevco	15/Oct/2012
	Rear Floorpan Above Axle	Z	98G98D22-Z15	Endevco	15/Oct/2012

TABLE 4 - MDB INSTRUMENTATION				
		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	12115	Endevco	22/Oct/2012
MDB Center of Gravity	Y	12149	Endevco	22/Oct/2012
MDB Center of Gravity	Z	P21898	Endevco	22/Oct/2012
Left Frame at Rear Axle Centerline	X	P22339	Endevco	22/Oct/2012
Left Frame at Rear Axle Centerline	Y	P22539	Endevco	22/Oct/2012