REPORT NUMBER: SINCAP-MCW-12-06

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

HONDA OF AMERICA MFG., INC.
2012 HONDA FIT 5-DOOR HATCHBACK
NHTSA NUMBER: MC 5317

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

TEST DATE: 14 DECEMBER 2011

REPORT DATE: 29 DECEMBER 2011

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

Prepared by: _____

Date: 2/24/12

Approved by: _____

Date: 2/24/12

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

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4. Title and Subtitle Final report of New Car Assessment Program Side Impact MDB Test of a 2012 Honda Fit 5-Door Hatchback NHTSA No. MC 5317		*5. Report Date* December 29, 2011 *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-12SN06
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 Dec. 14 to Dec. 29, 2011 *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 2012 Honda Fit 5-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 14 December 2011.

The impact velocity of the Moving Deformable Barrier (MDB) was 62.3 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 276 mm at level 2. The test vehicle's performance is as follows:

	Units	IARV	DRIVER ATD (ES-2re)
Head Injury Criteria (HIC_{36})	N/a	1000	179
Maximum Thoracic Rib Deflection	mm	44	38
Total Abdominal Force	N	2500	833
Public Symphysis Force	N	6000	2543

	Units	IARV	Pass. ATD (SID-IIs)
Head Injury Criteria (HIC_{36})	N/a	1000	347
Lower Spine Resultant Acceleration	G's	82	80
Total Pelvic Force (sum of Acetabular and Iliac forces)	N	5525	3907
Maximum Thoracic Rib Deflection	mm	38	37
Maximum Abdominal Rib Deflection	mm	45	37

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.

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SECTION 1
TEST PURPOSE AND PROCEDURE

This moving deformable barrier side impact test is part of the MY 2012 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 2012 Honda Fit 5-Door Hatchback. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated August 2011.

SECTION 2
SUMMARY OF TEST RESULTS

A 2012 Honda Fit 5-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 62.3 km/h (38.7 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 December 14, 2011. 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 August 2011. 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 (T_{12}) 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 (T_{12}) 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	Did Not Deploy	No	N/a
Knee Airbag	No	N/a	No	N/a
Side Curtain Airbag	Yes	Deployed	Yes	Deployed
Side Torso Airbag	Yes	Deployed	No	N/a
Seat Belt Pretensioner	Yes	Deployed	Yes	Deployed
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	179
Maximum Thorax Rib Deflection	mm	44	38
Combined Abdominal Force	N	2500	833
Pubic Symphysis Force	N	6000	2543

PASSENGER DUMMY INJURY VALUES			
Measurement Description	**Passenger ATD (SID-IIs)**		
	Units	**Threshold**	**Result**
Head Injury Criteria (HIC_{36})	N/a	1000	347
Lower Spine (T_{12}) Resultant Acceleration	G's	82	80
Total Pelvic Force (Sum of Acetabular and Iliac Forces)	N	5525	3907
Maximum Thoracic Rib Deflection	mm	38*	37
Maximum Abdominal Rib Deflection	mm	45*	37

**Proposed IARV*

GENERAL COMMENTS
The MDB cameras triggered early and were lost.

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

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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.	MC 5317
Model Year	2012
Make	Honda
Model	Fit
Body Style	Hatchback
VIN	JHMGE8H36CC004990
Body Color	Vortex Blue Pearl
Odometer Reading (km/mi)	67 mi
Engine Displacement (L)	1.5
Type/No. of Cylinders	4
Engine Placement	Lateral
Transmission Type	Automatic
Transmission Speeds	5
Overdrive	Yes
Final Drive	FWD
Roof Rack	No
Sunroof/T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes
All-Wheel Drive (AWD)	No

VEHICLE OPTIONS	
Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks (ADL)	Yes
Power Window Auto-Reverse	No
Other Optional Features	None Noted
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	Yes
Driver Torso/Pelvis Airbag	No
Driver Pelvis Airbag	No
Driver Knee Airbag	No
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? Yes

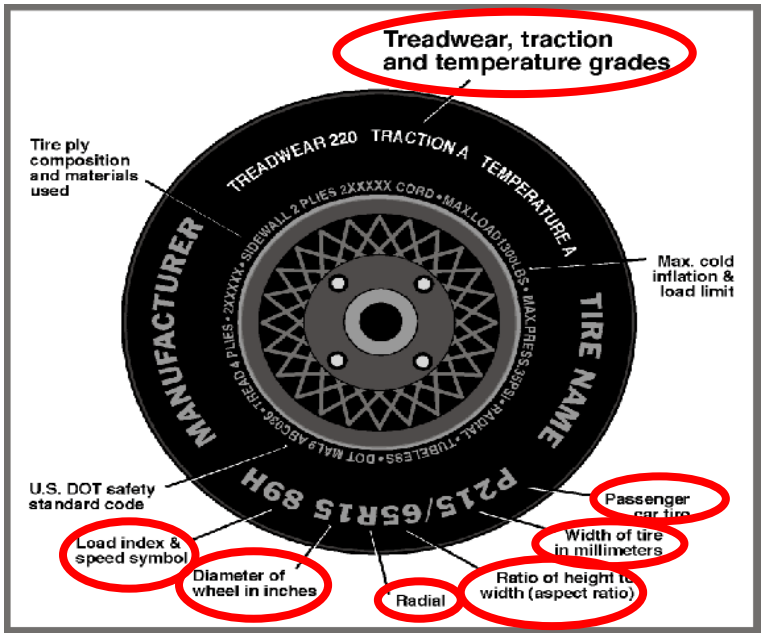
DATA FROM CERTIFICATION LABEL			
Manufactured By	Honda of America Mfg., Inc.	GVWR (kg)	1594
Date of Manufacture	Oct. 2011	GAWR Front(kg)	872
Vehicle Type	Passenger Car	GAWR Rear (kg)	735

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION					
	Front	**Rear**	**Third**	**Total**	
Designated Seating Capacity (DSC)	2	3	3	5	
Capacity Weight (VCW) (kg)				385.6	(A)
DSC X 68.04 (kg)				340.2	(B)
Cargo Weight (RCLW) (kg)				45.4	(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)



TIRE PLACARD INFORMATION		
Measured Parameter	**Front**	**Rear**
Recommended Cold Tire Pressure (kPa)	220	220
Recommended Tire Size	175/R65R15	175/R65R15

TIRE SIDEWALL INFORMATION		
Measured Parameter	**Front**	**Rear**
Max. Tire Pressure (kPa)	300	300
Tire Size on Vehicle	175/R65R15	175/R65R15
Tire Manufacturer	Dunlop	Dunlop
Tire Name	SP31	SP31
Tire Type	Passenger Car Tire	Passenger Car Tire
Tire Width	175	175
Aspect Ratio	65	65
Radial	Yes	Yes
Wheel Diameter	15	15
Load Index/Speed Symbol	84S	84S
Treadware	320	320
Traction Grade	A	A
Temperature Grade	B	B
Tire Material	Polyester & Steel	Polyester & Steel

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

TIRE PRESSURES					
	Units	**LF**	**RF**	**LR**	**RR**
As Delivered	kpa	219	207	216	207
Tire Placard	kpa	220	220	220	220
Owner's Manual	kpa	220	220	220	220
As Tested	kpa	220	220	220	220

MDB TIRE SPECIFICATIONS						
	Units	**Requirement**	**LF**	**RF**	**LR**	**RR**
Tire Size		P205/75R15	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	372.9	218.6		403.2	284.9		413.2	293.5	
Right	kg	368.3	202.3		385.1	253.1		375.6	250.8	
Ratio	%	63.8	36.2		59.4	40.6		59.2	40.8	
Totals	kg	741.2	420.9	1162.1	788.3	538.0	1326.3	788.8	544.3	1333.1

TARGET TEST WEIGHT CALCULATION			
	Units		
Total Delivered Weight (UVW)	kg	1162.1	(A)
Sum of Actual Weight of 2 P572 ATDs used	kg	125.6	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	45.4	(C)
Calculated Target Vehicle Test Weight (TVTW)	kg	1333.1	(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 partial exhaust, side mirror, non-struck side windows and motors, passenger side head rests, spare tire, tool kit, non-struck side door panels to rear to achieve calculated "As Tested" weight.	52.0

TEST VEHICLE ATTITUDE AND CG				
Measurement description	**Units**	**Fully Loaded**	**As Tested**	**Meets Requirement*** **
LF	mm	663	668	Yes
RF	mm	680	671	Yes
RR	mm	653	660	Yes
LR	mm	651	653	Yes
Vehicle CG (Aft of Front Axle)	mm	1021	1014	
Vehicle CG (Left(+))/Right(-) from Longitudinal Centerline)	mm	51	32	

***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 ADJUSTMENT, FUEL SYSTEMS, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA

SCRL ANGLE RANGE			
Seat	**SCRL (°)**		
	Max	**Min**	**Mid**
Driver Seat	5.3° - Fixed	5.3° - Fixed	5.3° - Fixed
Front Passenger Seat	Fixed	Fixed	Fixed
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 SCRP Height (mm)**	**SCRP Height Position**	**SCRP Height (mm)**		
				Rearmost	**Mid-Fore/Aft**	**Forward-Most**
Driver's Seat	N/a	N/a	Max	N/a	N/a	N/a
	5.3	-22.1	Mid	-11.8	-22.1	-31.7
	N/a	N/a	Min	N/a	N/a	N/a
Front Passenger Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
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			

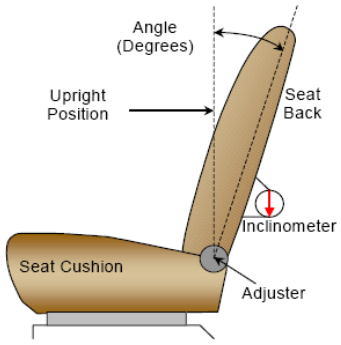
*If applicable

DATA SHEET NO. 2
SEAT ADJUSTMENT, FUEL SYSTEMS, 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	240	25	120	12 (w/ 1st detent = 0)
Front Passenger Seat	240	25	120	12 (w/ 1st detent = 0)
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.



FRONT SEAT ASSEMBLY

SEAT BACK ANGLE ADJUSTMENT				
Seat	**Total Seat Back Angle Range**		**Test Position from Most Upright**	
	Degrees	**Detents***	**Degrees**	**Detents***
Driver Seat w/ Seated Dummy	59.5	Not Measured	7.8	4
Front Passenger Seat	59.9	Not Measured	7.8	4
Front Center Seat*				
Struck Side Rear Seat	Fixed	Fixed	11.4	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Not Measured	Fixed
Rear Center Seat*				

*If applicable

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

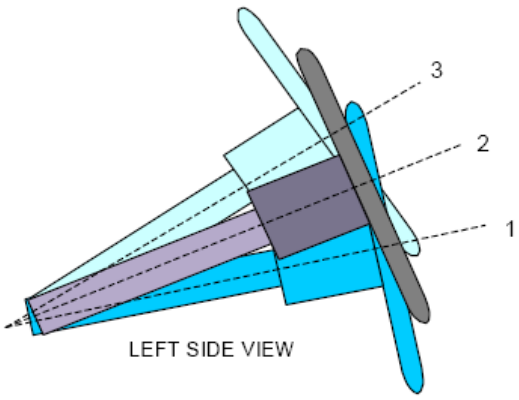
Seat Belt Anchorage Adjustment
Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on Form No. 1.

SEAT BELT ANCHORAGE ADJUSTMENT		
	Total No. of Positions	**Placed in Position No.**
Driver Seat	4	H
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	7	Highest Position
Rear Seat	2	Lowest Detent

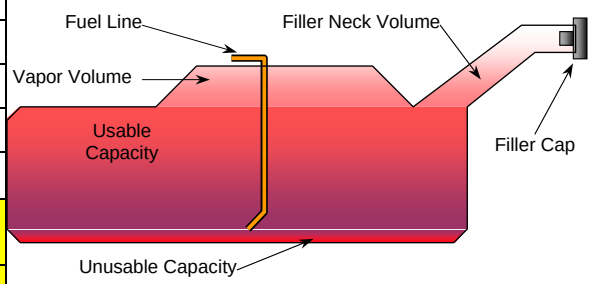
Steering Column Adjustment
Steering wheel and column adjustments are made so that the steering wheel hub is at the center of its geometric locus it describes when it moves through its full range of motion.

STEERING COLUMN ADJUSTMENT			
	Degrees	**Fore/Aft Position (mm)**	
Lowermost, Pos. No. 1	57.8	15 mm	
Geometric Center, Pos. No. 2	60.6	15 mm	
Uppermost, Pos. No. 3	63.6	15 mm	
Telescoping Steering Wheel Travel	N/a	30 mm	
Test Position	60.6	15 mm	

STEERING COLUMN ASSEMBLY

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

FUEL TANK CAPACITY DATA			
Description	**Units**	**Value**	
Usable Capacity of "Standard Tank"	L	40.1	
Usable Capacity of "Optional Tank"	L	0.0	
Usable Capacity of Standard Tank	L	40.1	
Usable Capacity of Optional Tank	L	0.0	
93% of Usable Capacity	%	37.3	
Actual Amount of Solvent Used in Test	L	93.0	
1/3 of Usable Capacity	13.4		

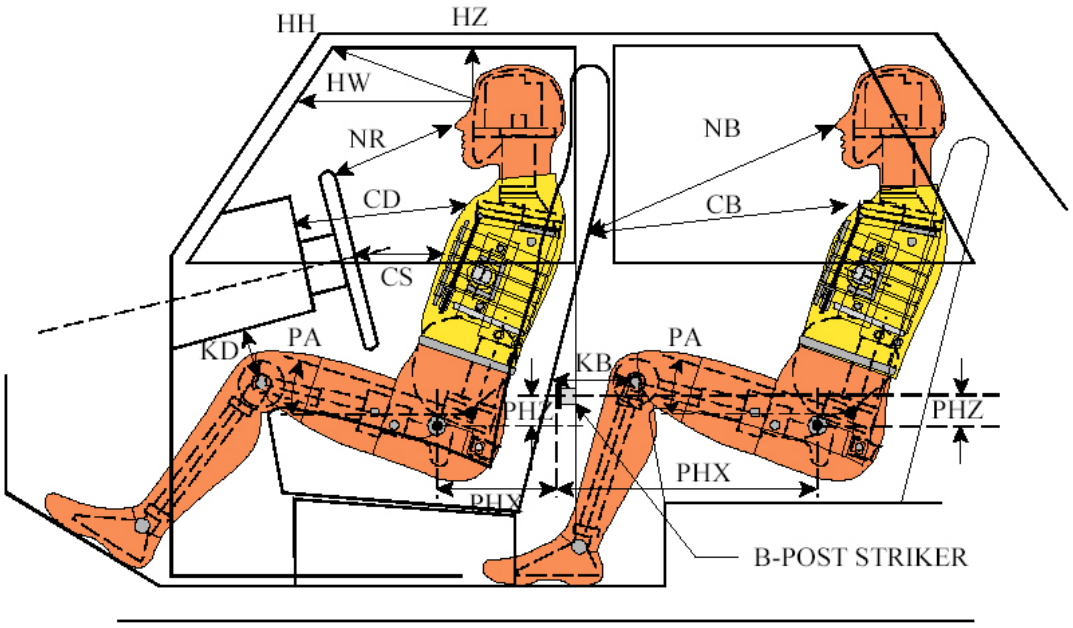


VEHICLE FUEL TANK ASSEMBLY

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

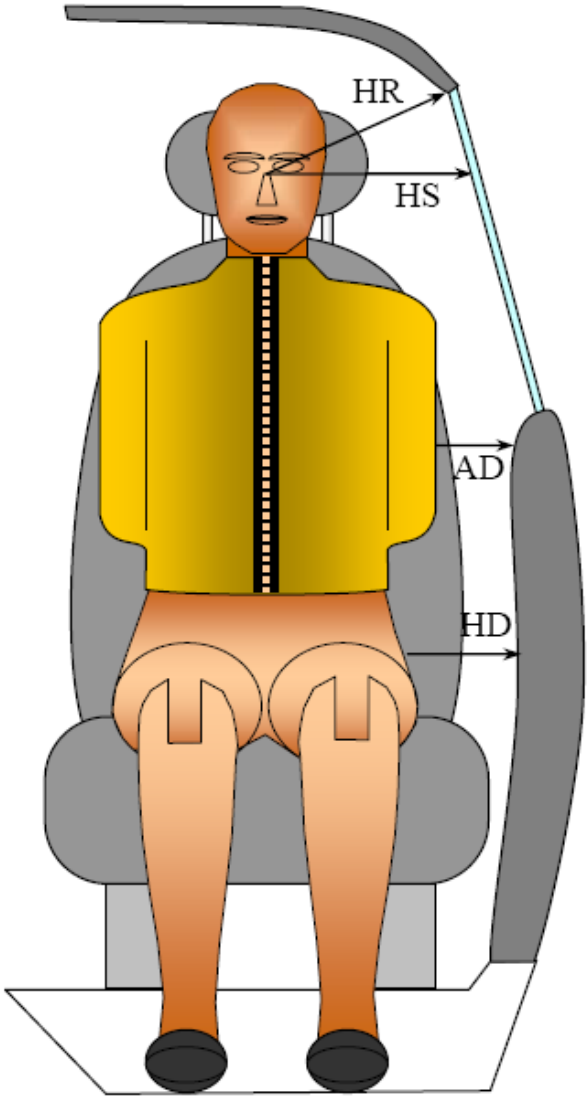
Is the Actual Amount of Solvent Used in the test equal to 93% +/- 1% of the Usable Capacity stated in on Form No. 1? Yes

DATA SHEET NUMBER 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS



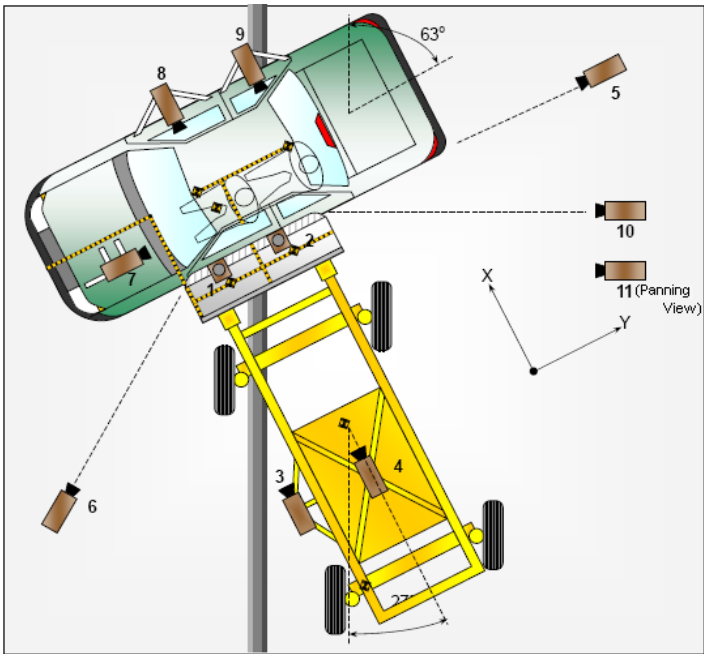
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION						
Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length (mm)	Angle	Length (mm)	Angle
HH		Header to Header	340			
HW		Header to Windshield	717			
HZ	HZ	Head to Roof	201		301	
NR	NB	Nose to Rim/Seat Back	451		496	
CD	CB	Chest to Dash/Seat Back	602		474	
CS		Chest to Steering Wheel	357			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	155	13.6	286	12.4
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	130	13.4	399	12.7
PAX°	PAX°	Pelvic Tilt Angle X		0.0		0.0
	PAY°	Pelvic Tilt Angle Y		19.9		18.3
PHX	PHX	Hip Point to Striker (X-Axis)	55.6		102.6	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	-581.8		-328.8	

DATA SHEET NUMBER 4
DUMMY LATERAL CLEARANCE DIMENSIONS



DUMMY LATERAL CLEARANCE MEASUREMENTS INFORMATION				
Code	**Description**	**Units**	**Driver**	**Passenger**
HR	Head to Side Header	mm	221	278
HS	Head to Side Window	mm	342	348
AD	Arm to Door	mm	178	171
HD	Hip Point to Door	mm	155	165

DATA SHEET 5
CAMERA AND INSTRUMENTATION DATA



	View	Coordinates †			Lens Length	Operating Frame Rate
		X	Y	Z		
		mm	mm	mm	mm	fps
1	Overhead Overall	1737	2109	-6062	8	1000
2	Overhead Close-up	984	712	-5910	25	1000
3	Left Impact Point (MDB)	-2285	-167	-776	35	1000
4	Side Overall (MDB)	-2142	910	-1306	12.5	1000
5	Rear	4509	12006	-1295	50	1000
6	Left Front	-4098	-2562	-1387	25	1000
7	Driver Front (OB)				16	1000
8	Driver Side (OB)				12.5	1000
9	Passenger Side (OB)				12.5	1000
10	Real-time Left Rear				N/a	24
11	Real – Time Inrun				N/a	24

Origin		Orientation	
X	Impact Point	X	+(X) To Front of MDB
Y	Impact Point	Y	+(Y) To Right of MDB
Z	Ground	Z	+(Z) Down

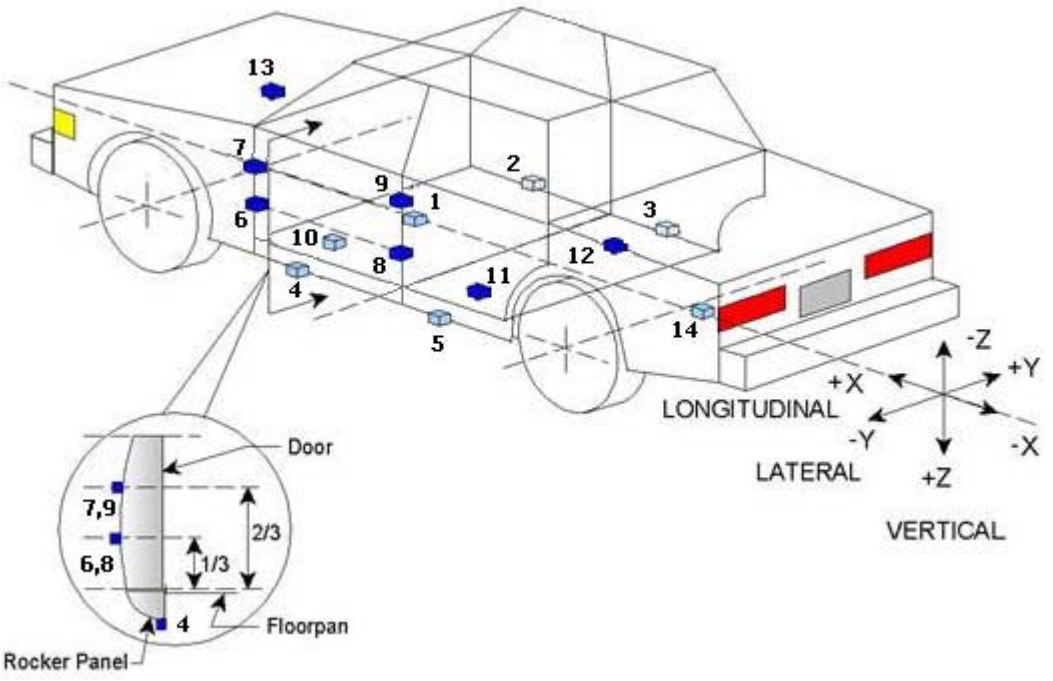
**All measurements accurate to +/- 6 mm*

DATA SHEET 5
CAMERA AND INSTRUMENTATION DATA (CONTINUED)

Why did the cameras not operate?
Both MDB cameras triggered prior to impact._____
_____

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

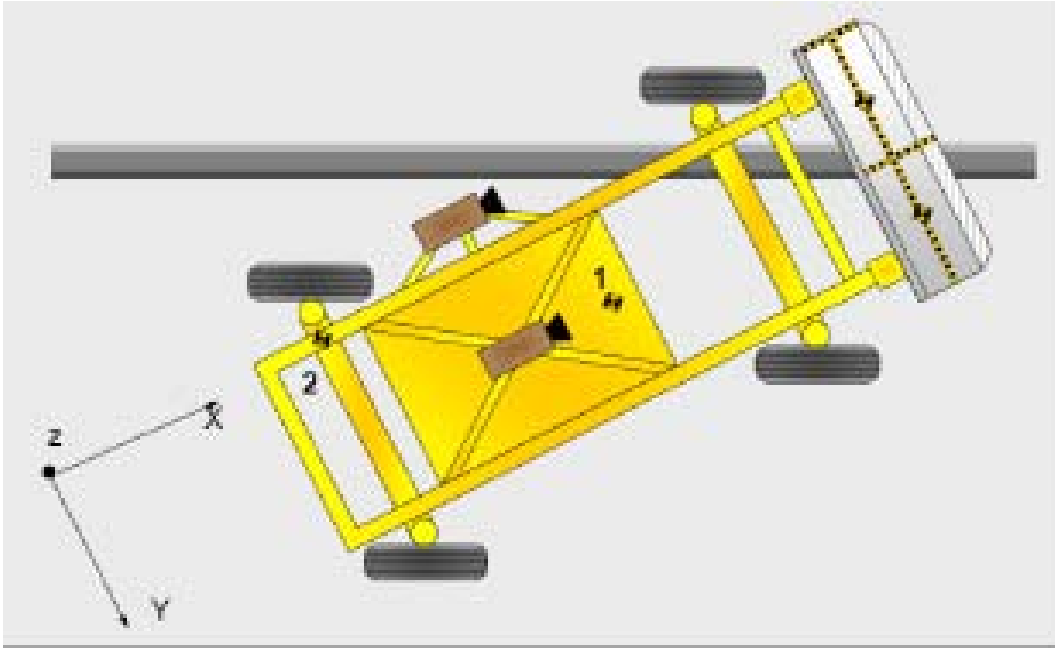
DATA SHEET 6
TEST VEHICLE ACCELEROMETER LOCATIONS



TEST VEHICLE ACCELEROMETER LOCATIONS				
Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Vehicle CG	2531.2	6.84	167.3
2	Right Sill at Front Seat	2298.8	698.7	309.2
3	Right Sill at Rear Seat	1322.3	695.7	311.6
4	Left Sill at Front Door	1314.5	-702.5	311.8
5	Left Sill at Rear Door	2291.2	-706.1	307.1
6	A-Post Lower	2744.9	-775.9	-29.6
7	A-Post Middle	2732.4	-769.8	-208.0
8	B-Post Lower	1728.8	-771.7	-30.8
9	B-Post Middle	1686.8	-759.9	-283.8
10	Front Seat Track	2029.8	-567.8	179.0
11	Rear Seat Structure	990.5	-439.9	75.6
12	Rt. Rear Occ. Compartment	980.2	448.2	89.5
13	Engine Block	3355.9	145.7	-359.6
14	Rear Above Axle	653.0	-54.5	214.1

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

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 Roof Rail	To Side Curtain Airbag
Left Side of Head	To Side Curtain Airbag	To Side Curtain Airbag
Back of Head	To Side Curtain Airbag, Rebound into HR Post	Rebounds into HR Post
Left Shoulder	To Side Curtain Airbag	To Interior Door Panel
Upper Torso	Along Seat Back to Side Airbag	To Interior Door Panel
Lower Torso	Along Seat Back to Side Airbag	To Interior Door Panel
Left Hip	To Interior Door Panel	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 Larches	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 123 mm at C-Pillar Along Upper Window Sill
Windshield Damage	No Damage
Window Damage	Front Window 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 – Steering Wheel	Did Not Deploy		
Knee Airbag	No	N/a		
Side Curtain Airbag	Yes – Side Header	Deployed Properly	Yes – Side Header	Deployed Properly
Side Torso Airbag	Yes – Seat Back	Deployed Properly	No	N/a
Seat Belt Pretensioner	Yes	Deployed Properly	Yes	Deployed Properly
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		2500
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		2190
Actual Impact Point (Aft of Front Axle)	mm		2191
Horizontal Offset (+ forward / - rear)	mm	+/- 50 of Intended Impact Point	-1
Vertical Offset (+ down / - up)	mm	+/- 20 of Intended Impact Point	16

DATA SHEET NUMBER 9
MDB SUMMARY OF RESULTS

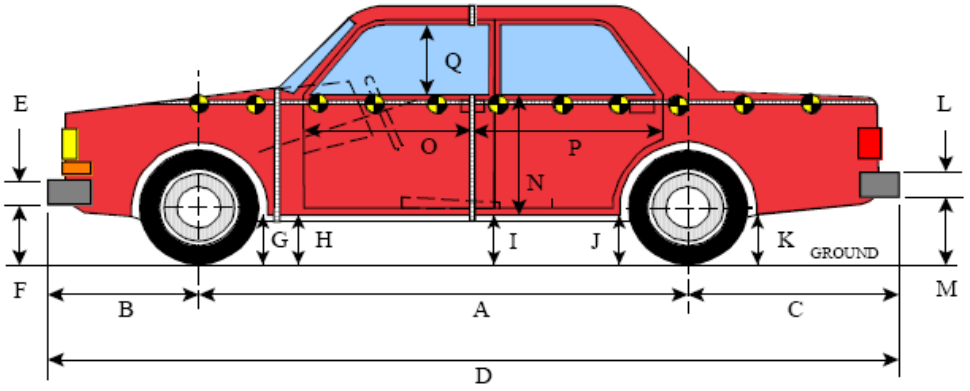
MDB SPECIFICATIONS	
Measurement Description	**Length (mm)**
Overall Width of Framework Carriage	1250
Overall Length Including Honeycomb Frame	4116
Wheel Base of Framework Carriage	2578
CG Location of Front Axle	1112

MDB WEIGHTS				
	Units	**Front Axle**	**Rear Axle**	**Total**
Left	kg	430.0	247.7	677.7
Right	kg	329.8	352.9	682.7
Ratio	%	55.9	44.1	100.0
Totals	kg	759.8	600.6	1360.4

SPEED AND ANGLE AT IMPACT DATA			
Measured parameter	**Units**	**Requirement**	**Value**
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.3
Trap No. 2 Velocity (Secondary)	km/h	61.1 to 62.7	62.3
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90.0
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

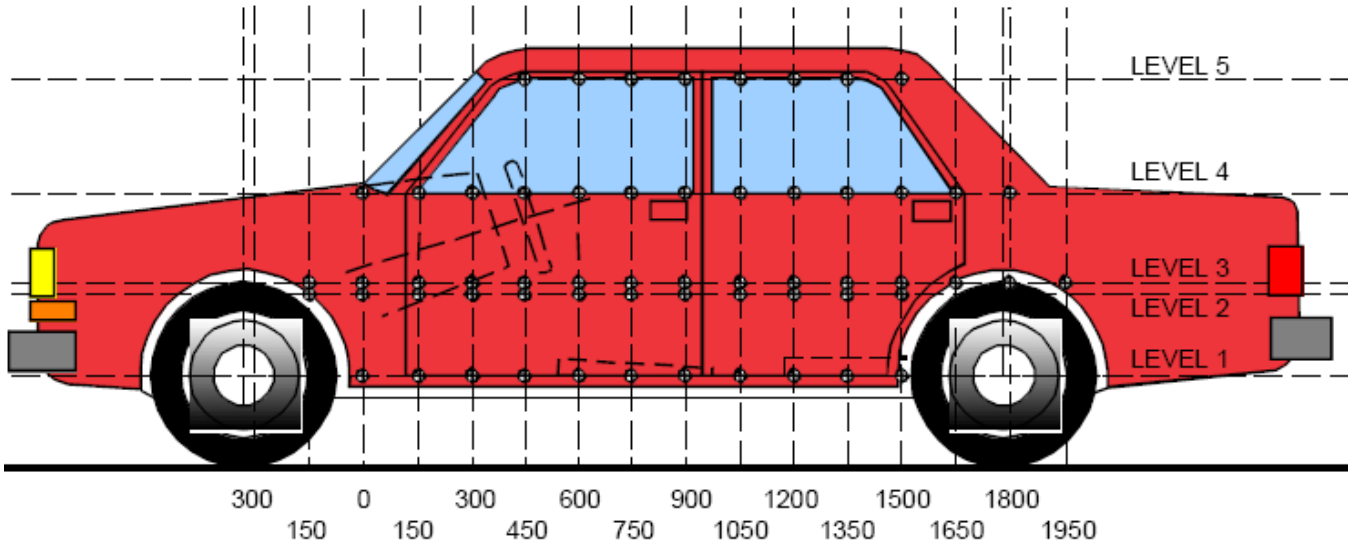
MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE					
Vertical Location			**From Centerline**		**Maximum Crush**
Row	**Description**	**Height**	**Distance**	**Direction**	
A	Bottom of Barrier	277	800	R	153
B	Bottom of Bumper	329	800	L	72
C	Top of Bumper	530	800	L	125
D	Top of Barrier	837	800	R	166

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	2500	2484	-16
B	Front Axle to FSOV	546	546	0
C	Rear Axle to RSOV	559	572	13
D	Total Length at Centerline	4104	4107	3
E	Front Bumper Thickness	270	270	0
F	Front Bumper Bottom to Ground	247	246	-1
G	Sill Height at Front Wheel Well	234	221	-13
H	Sill Height at Front Door Leading Edge	238	290	52
I	Sill Height at B-Pillar	250	293	43
J1	Sill Height at Rear Wheel Well	183	174	-9
J2	Pinch Weld Height at Rear Wheel Well	257	287	30
K	Sill Height Aft of Rear Wheel Well	283	250	-33
L	Rear Bumper Thickness	108	108	0
M	Rear Bumper Bottom to Ground	412	382	-30
N	Sill Height to Bottom of Front Window Sill	732	640	-92
O	Front Door Leading Edge to Impact C/L	1055	1013	-42
P	Rear Door Trailing Edge to Impact C/L	903	868	-35
Q	Front Window Opening	448	432	-16
R	Right Side Length	3605	3612	7
S	Left Side Length	3605	3602	-3
T	Vehicle Width at B-Pillar	1693	1501	-192

DATA SHEET NUMBER 11
VEHICLE EXTERIOR CRUSH MEASUREMENTS



LEFT SIDE VIEW

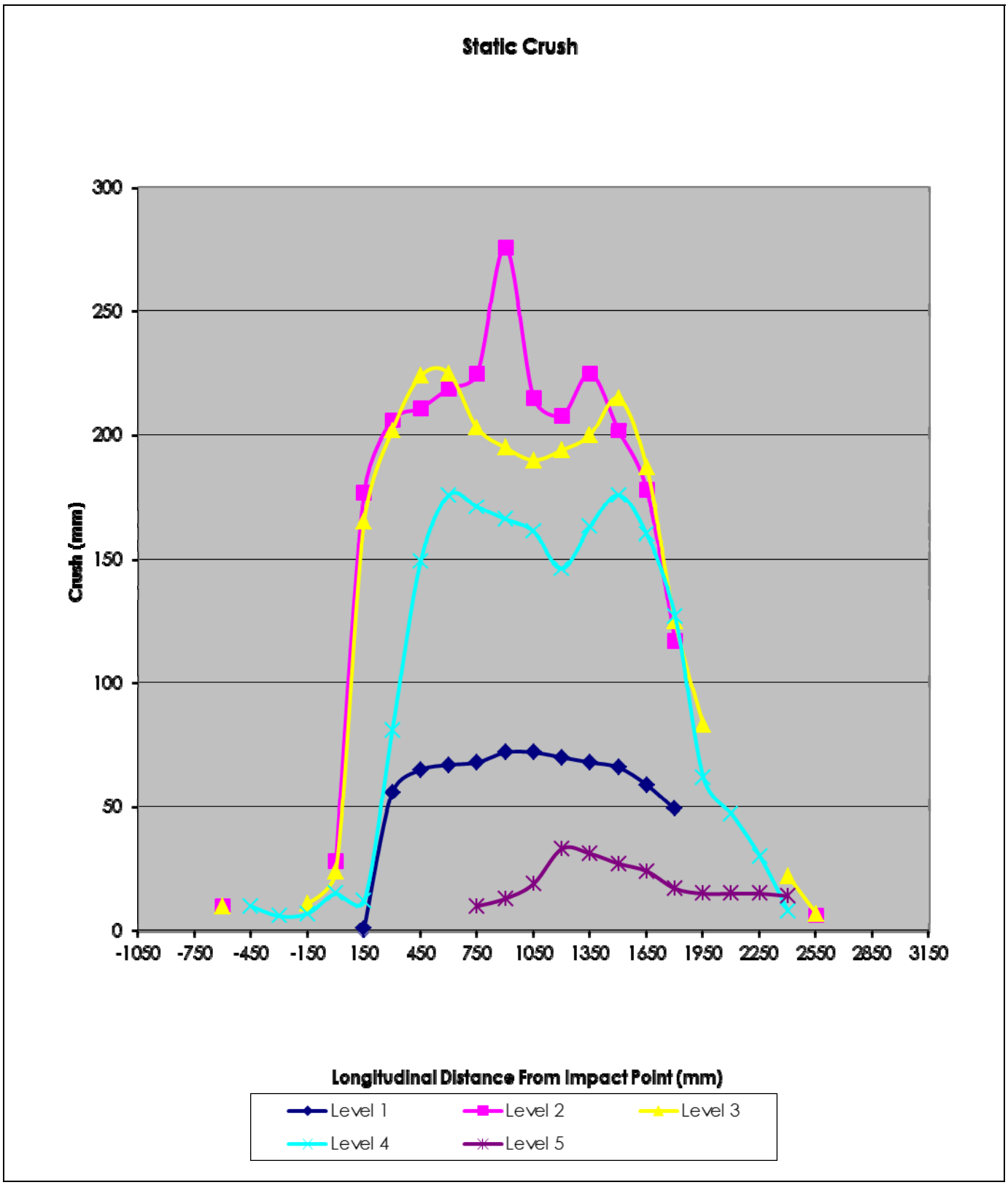
MAXIMUM EXTERIOR CRUSH MEASUREMENTS				
Level	**Measurement Description**	**Height Above Ground**	**Maximum Exterior Static Crush**	**Distance from Impact**
1	Sill Top	243	72	900 & 1050
2	Occupant Hip Point	538	276	900
3	Mid-Door	601	225	600
4	Window Sill	887	176	600
5	Window Top	1404	33	1200

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

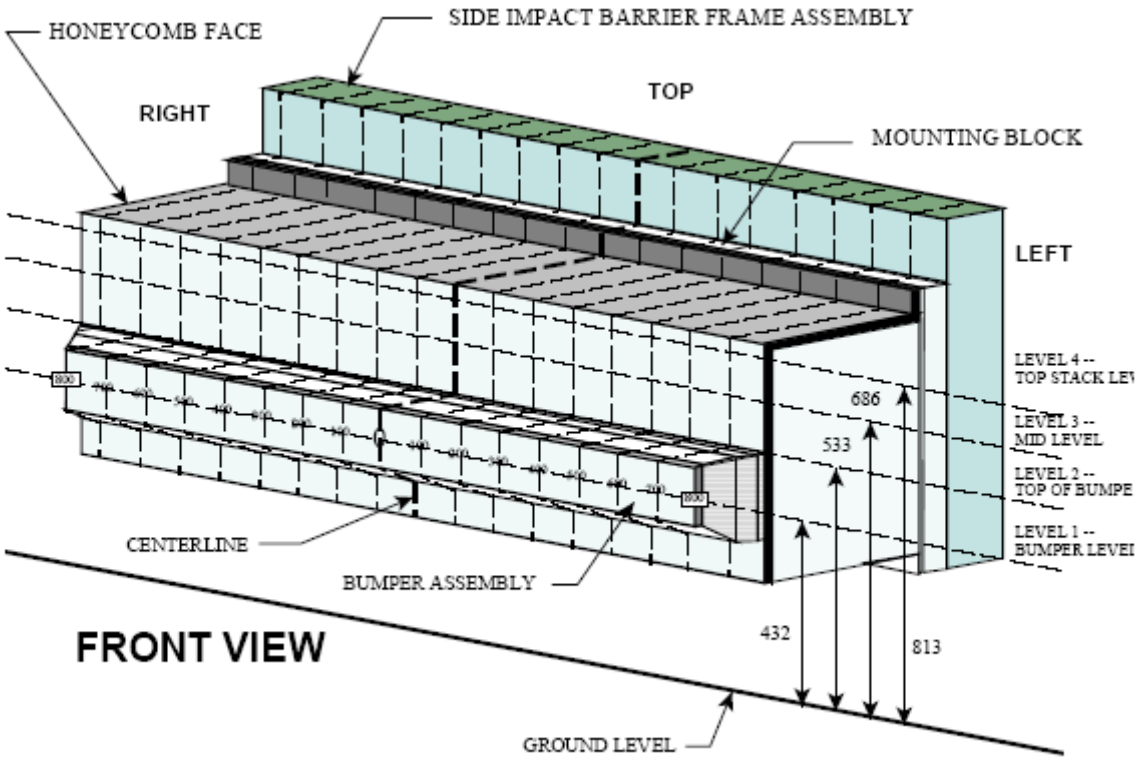
EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

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				213	223	10	220	230	10						
	-450										304	314	10			
	-300										287	293	6			
	-150							208	219	11	282	289	7			
	0				210	238	28	213	237	24	282	297	15			
	150	239	240	1	216	393	177	217	382	165	270	282	12			
	300	241	297	56	219	425	206	218	420	202	259	340	81			
	450	241	306	65	220	431	211	219	443	224	255	404	149			
	600	241	308	67	220	439	219	219	444	225	251	427	176			
	750	242	310	68	218	443	225	218	421	203	249	420	171	483	493	10
	900	242	314	72	216	492	276	215	410	195	247	413	166	477	490	13
	1050	243	315	72	215	430	215	214	404	190	243	404	161	475	494	19
	1200	243	313	70	215	423	208	214	408	194	241	387	146	472	505	33
	1350	244	312	68	215	440	225	214	414	200	240	403	163	481	512	31
	1500	244	310	66	216	418	202	215	430	215	240	416	176	484	511	27
	1650	243	302	59	217	395	178	215	402	187	239	399	160	486	510	24
	1800	240	289	49	215	332	117	215	340	125	243	370	127	493	510	17
	1950							213	296	83	254	316	62	500	515	15
	2100										257	304	47	512	527	15
	2250										270	300	30	527	542	15
	2400							220	242	22	290	298	8	545	559	14
	2550				249	255	6	253	260	7						
	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

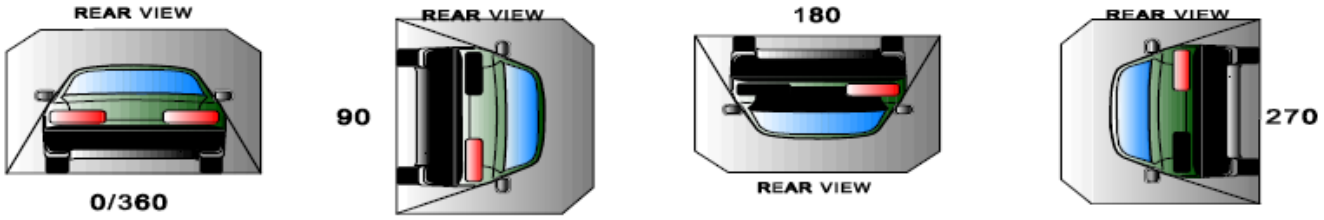
DEFORMABLE BARRIER STATIC CRUSH																	
	Distance Right of Center								C_L	Distance Left of Center							
	800	**700**	**600**	**500**	**400**	**300**	**200**	**100**	**0**	**100**	**200**	**300**	**400**	**500**	**600**	**700**	**800**
1	148	125	105	104	106	108	104	106	106	107	113	115	115	120	133	145	153
2	72	50	54	52	53	49	46	46	41	40	39	43	50	59	68	79	70
3	125	58	33	22	23	13	13	15	17	22	20	18	13	16	16	22	39
4	59	30	9	5	14	34	61	45	33	21	16	16	14	23	58	107	166

FMVSS 301 STATIC ROLLOVER RESULTS

Temperature at Time of Impact: 20° C Test Time: 2:30 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°	66	300	366
90° to 180°	66	300	366
180° to 270°	65	300	365
270° to 360°	66	300	366

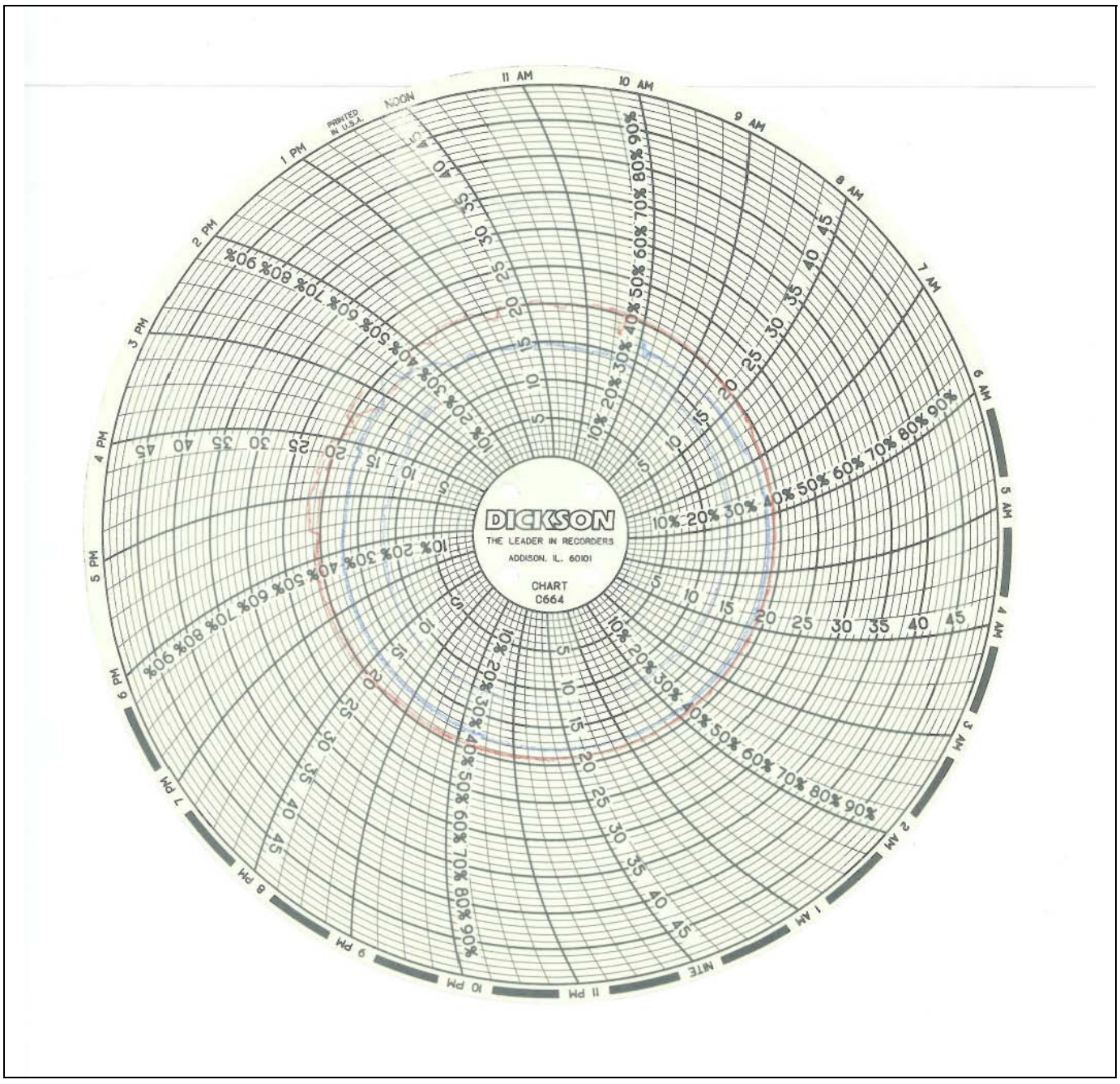
FMVSS 301 STATIC ROLLOVER RESULTS (CONTINUED)

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



APPENDIX A
PHOTOGRAPHS

LIST OF PHOTOGRAPHS

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

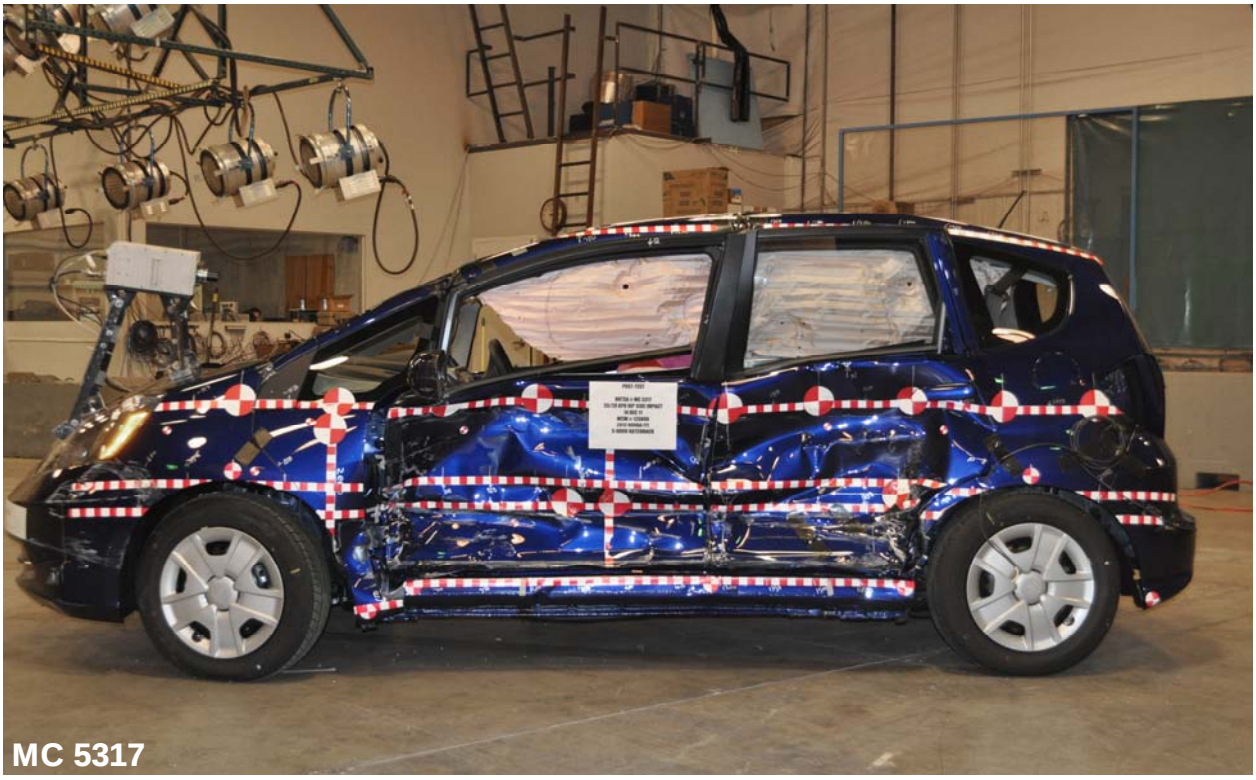


Figure A-8: Post-Test Left Side View of Test Vehicle

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

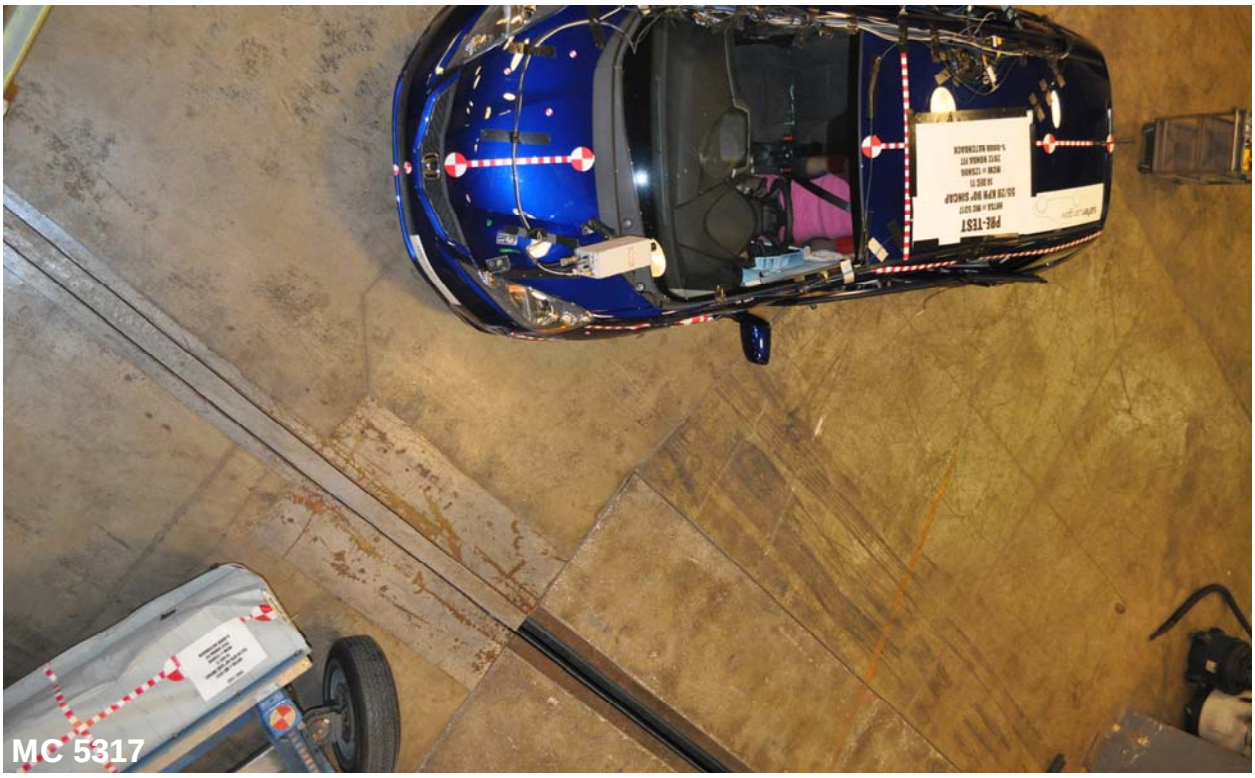


Figure A-16: Post-Test Overhead View of Test Area

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

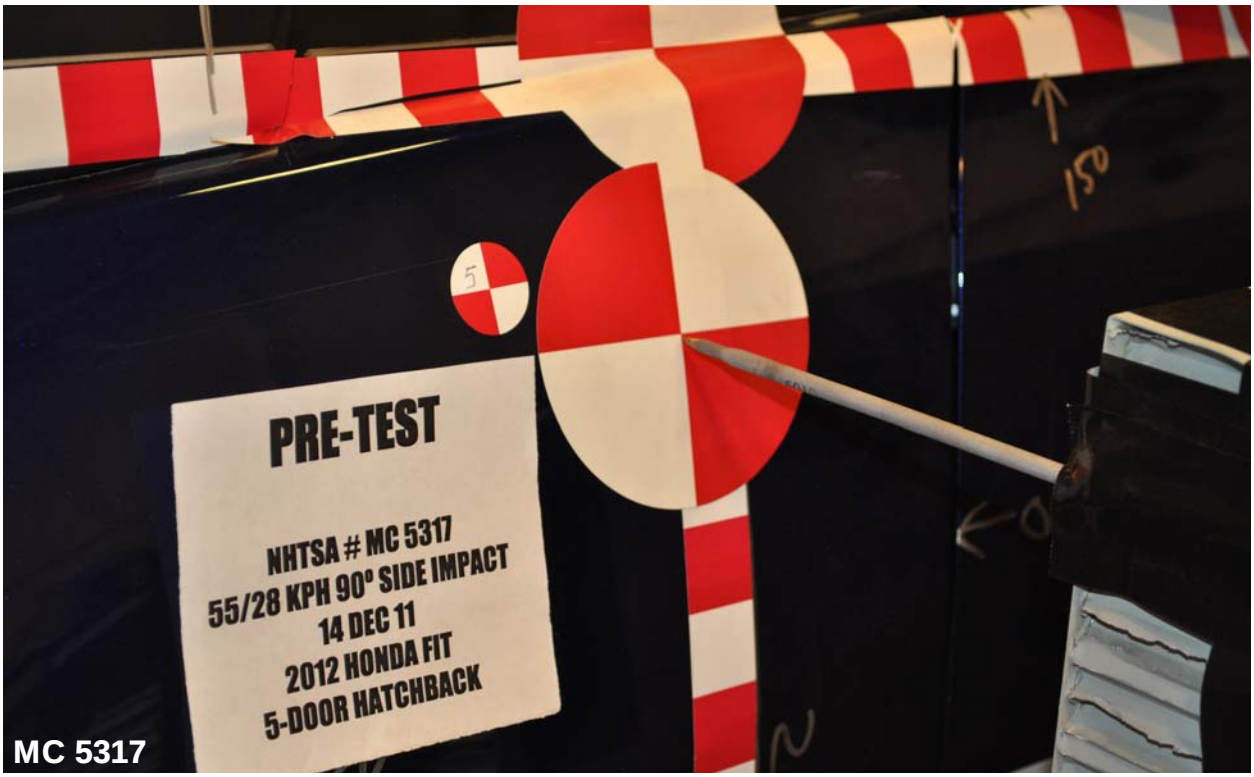


Figure A-19: Pre-Test Close-Up View of Impact Point Target

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

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

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

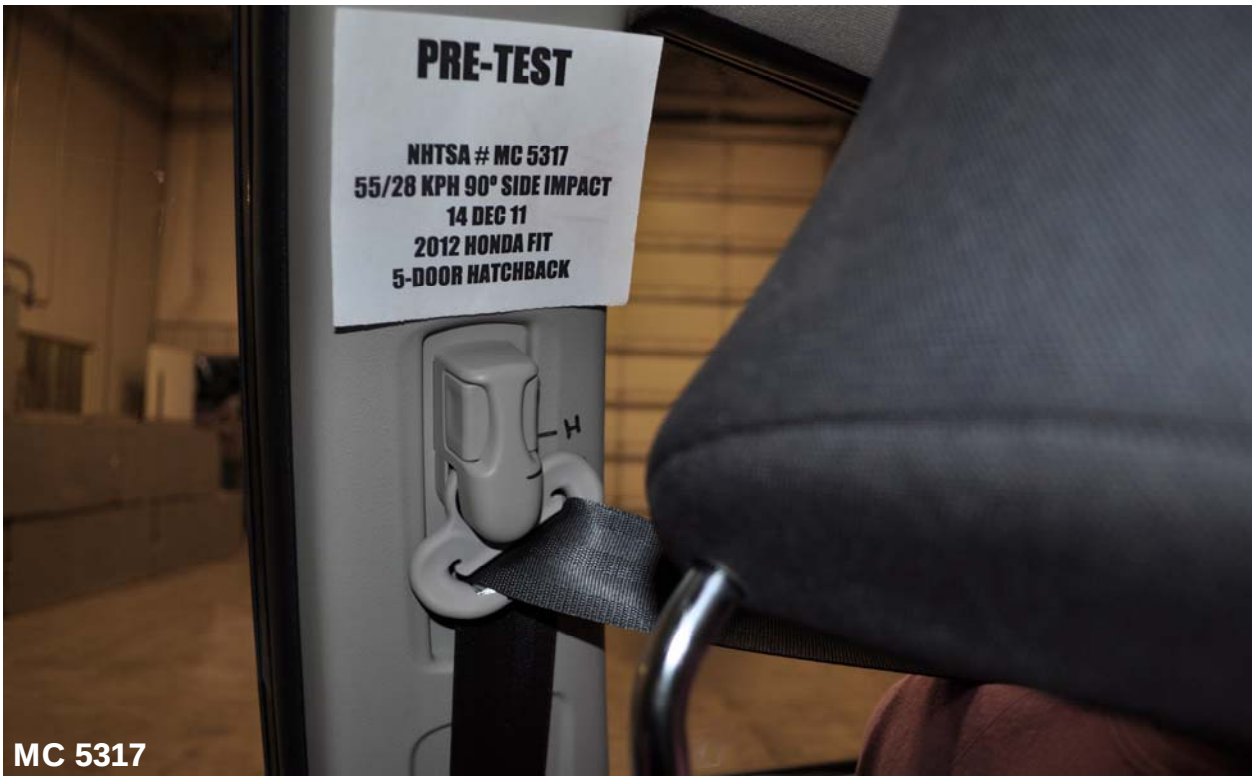


Figure A-35: Pre-Test View of Belt Anchorage for Driver Dummy

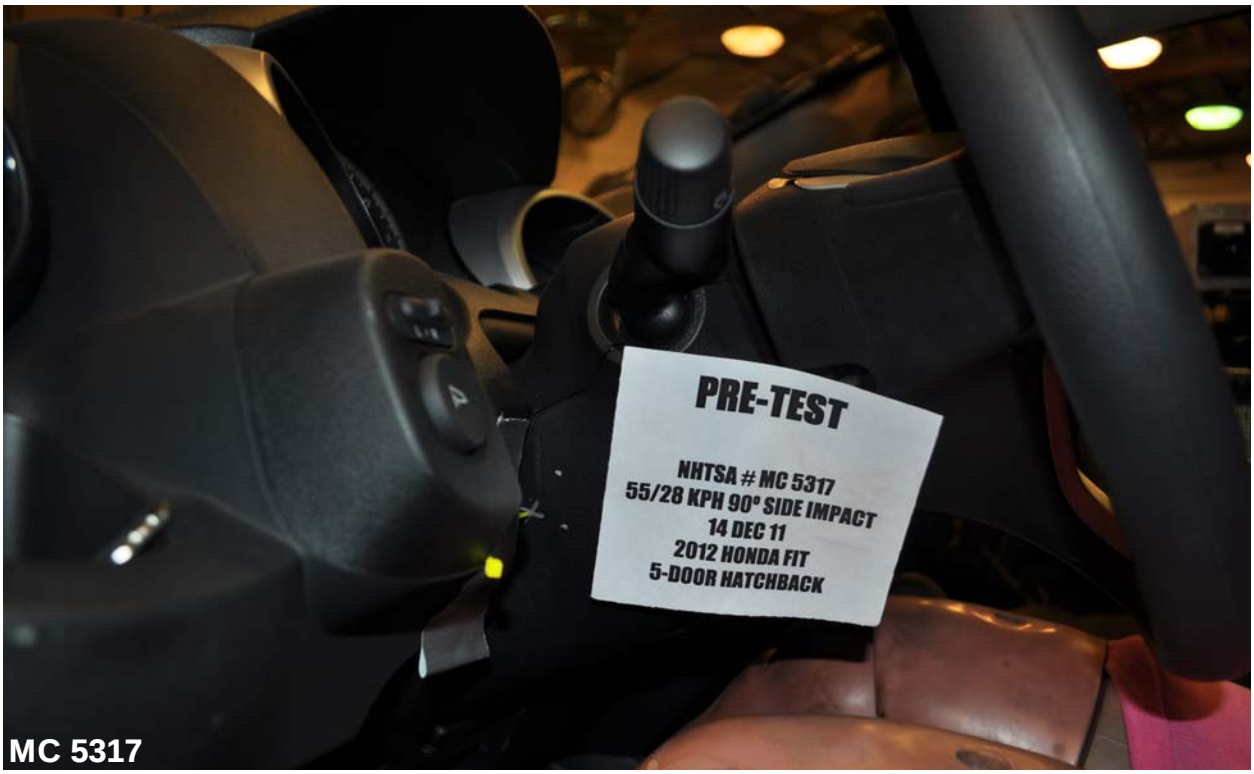


Figure A-36: Pre-Test Left Side View of Steering Wheel

Figure A-37: View of Disengaged Parking Brake

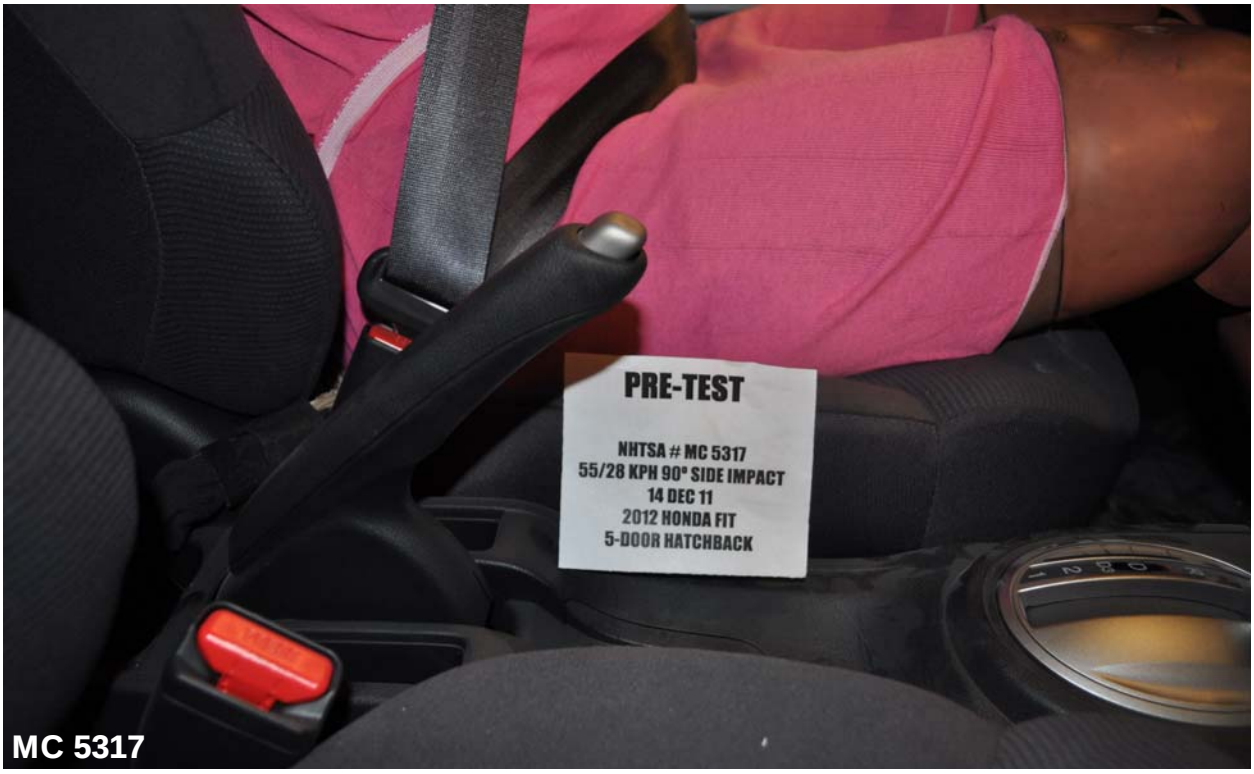


Figure A-38: Pre-Test View of Parking Brake

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

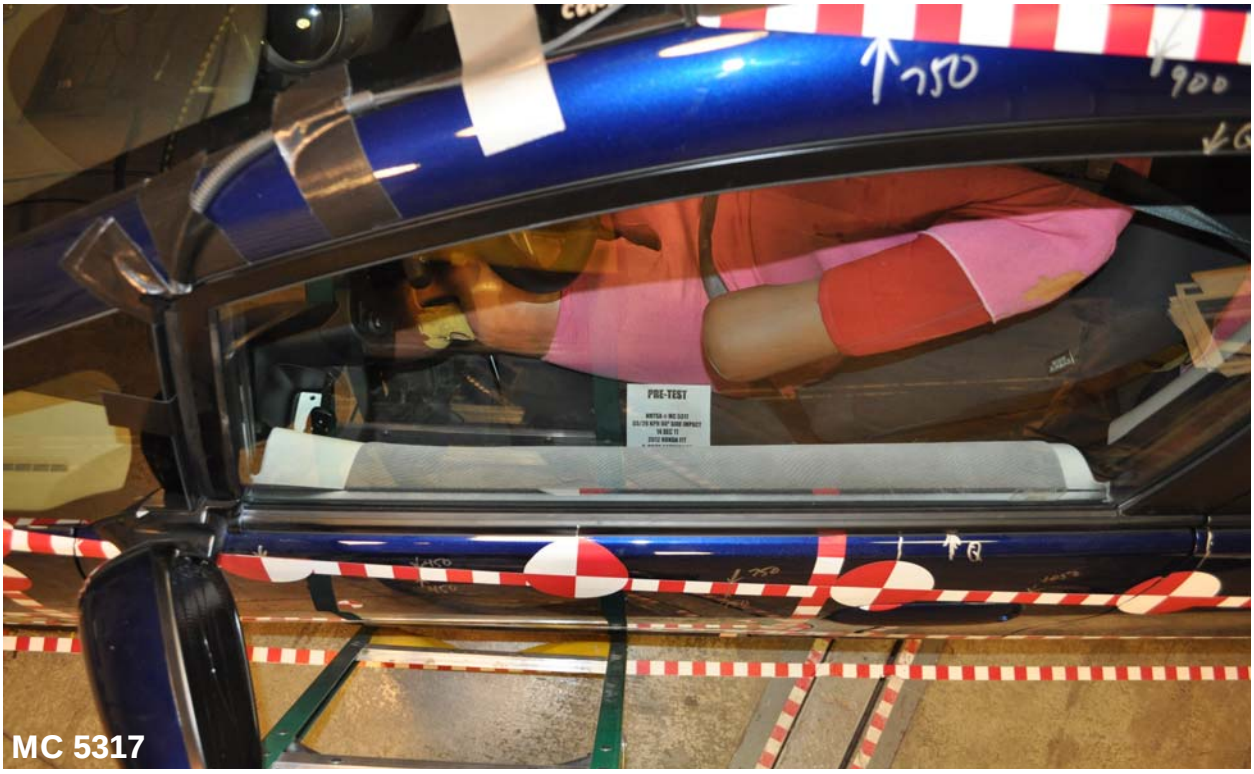


Figure A-42: Pre-Test Driver Dummy and Door Clearance View

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

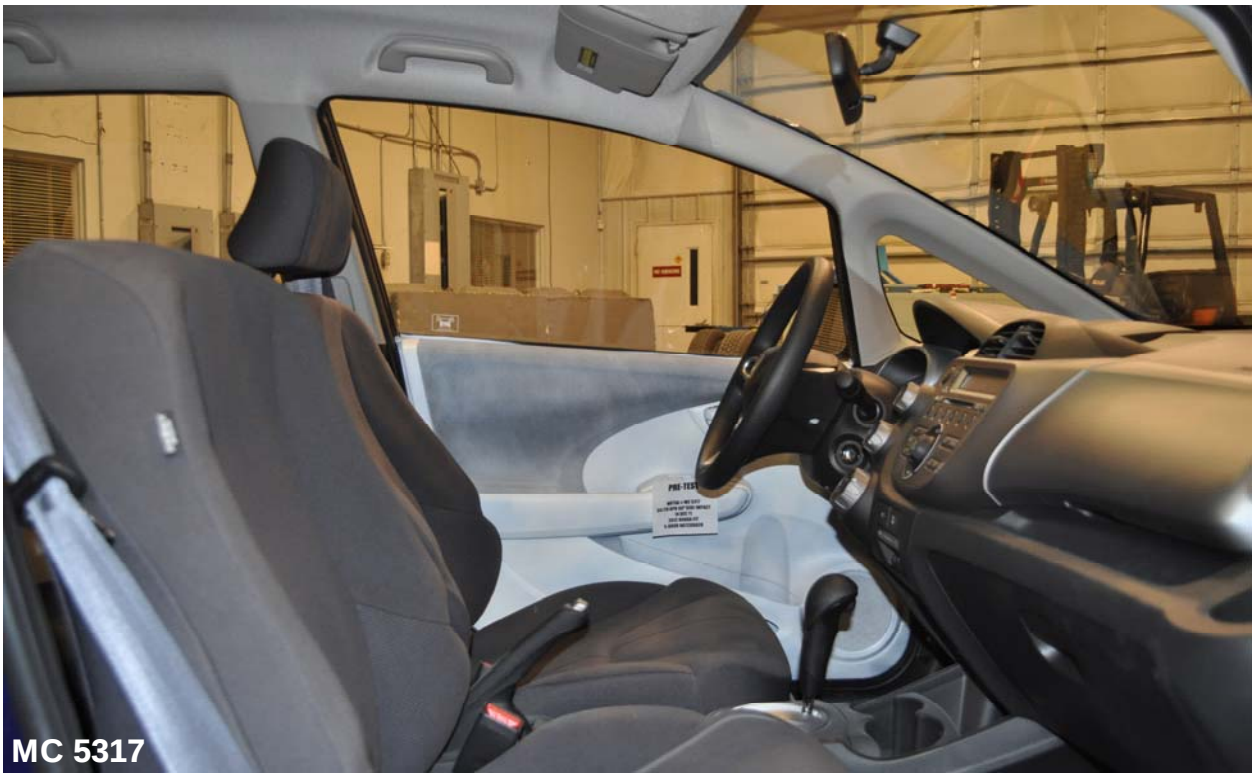


Figure A-46: Pre-Test Driver Inner Door Panel View

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

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

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

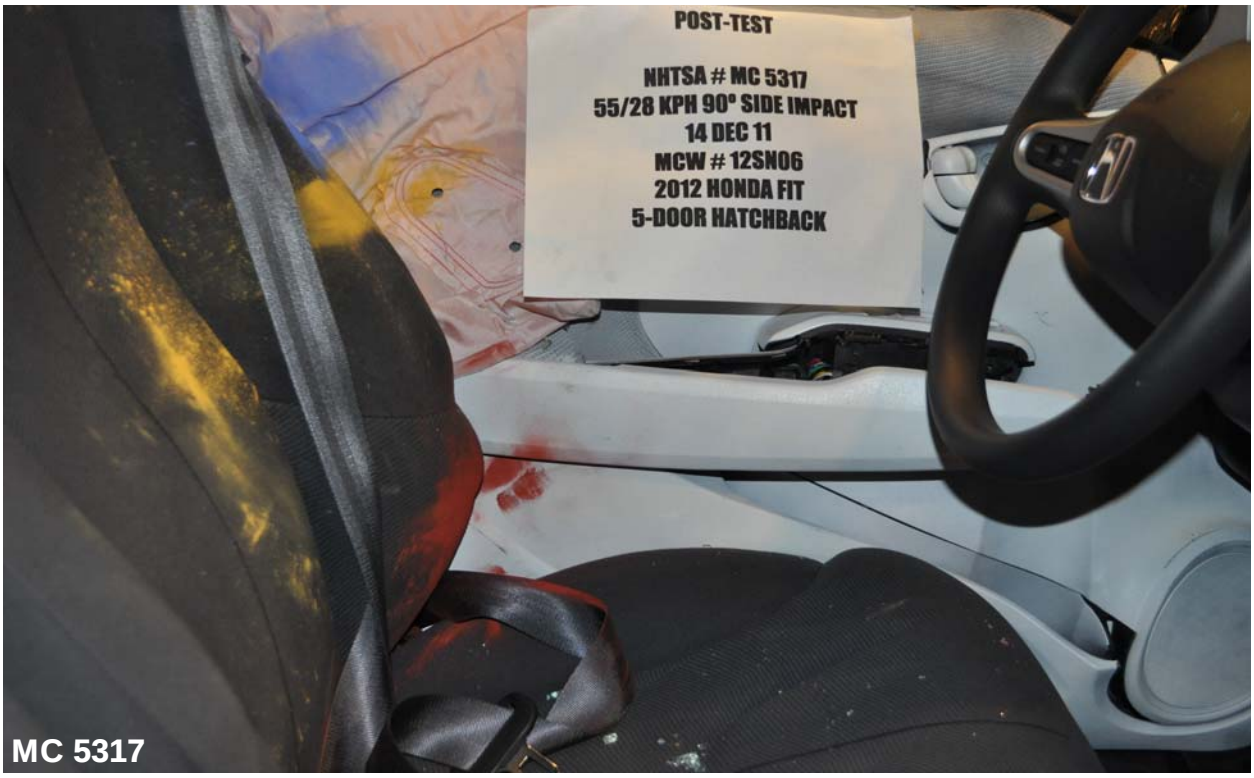


Figure A-52: Post-Test Driver Dummy Close-Up Pelvis Contact With Vehicle Interior View - N/a

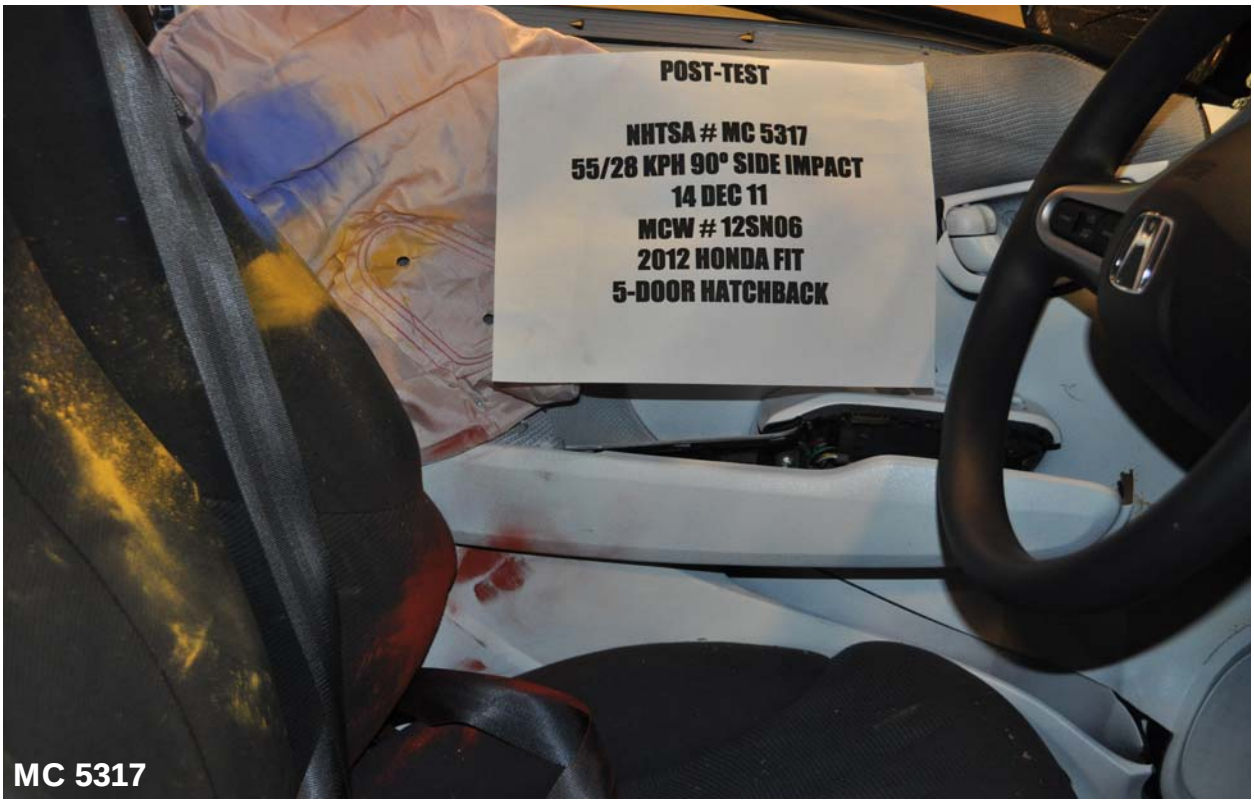


Figure A-53: Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View

Figure A-54: Pre-Test Left Side View of Rear Passenger Dummy Showing Belt and Chalking

Figure A-55: Pre-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View

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

Figure A-57: Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning

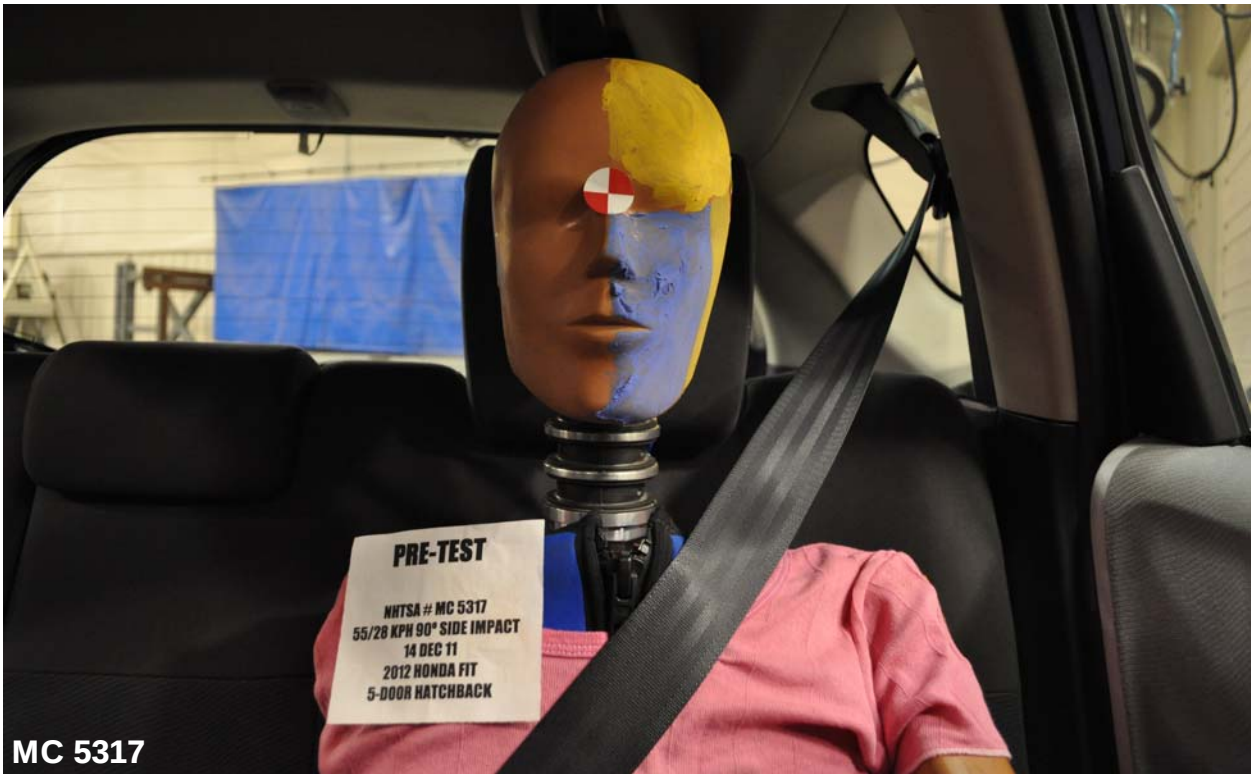


Figure A-58: Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint

Figure A-59: Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning

Figure A-60: Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan

Figure A-61: Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket

Figure A-62: Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level

Figure A-63: Pre-Test Placement of Rear Passenger Dummy's Feet

Figure A-64: Pre-Test View of Belt Anchorage for Rear Passenger Dummy

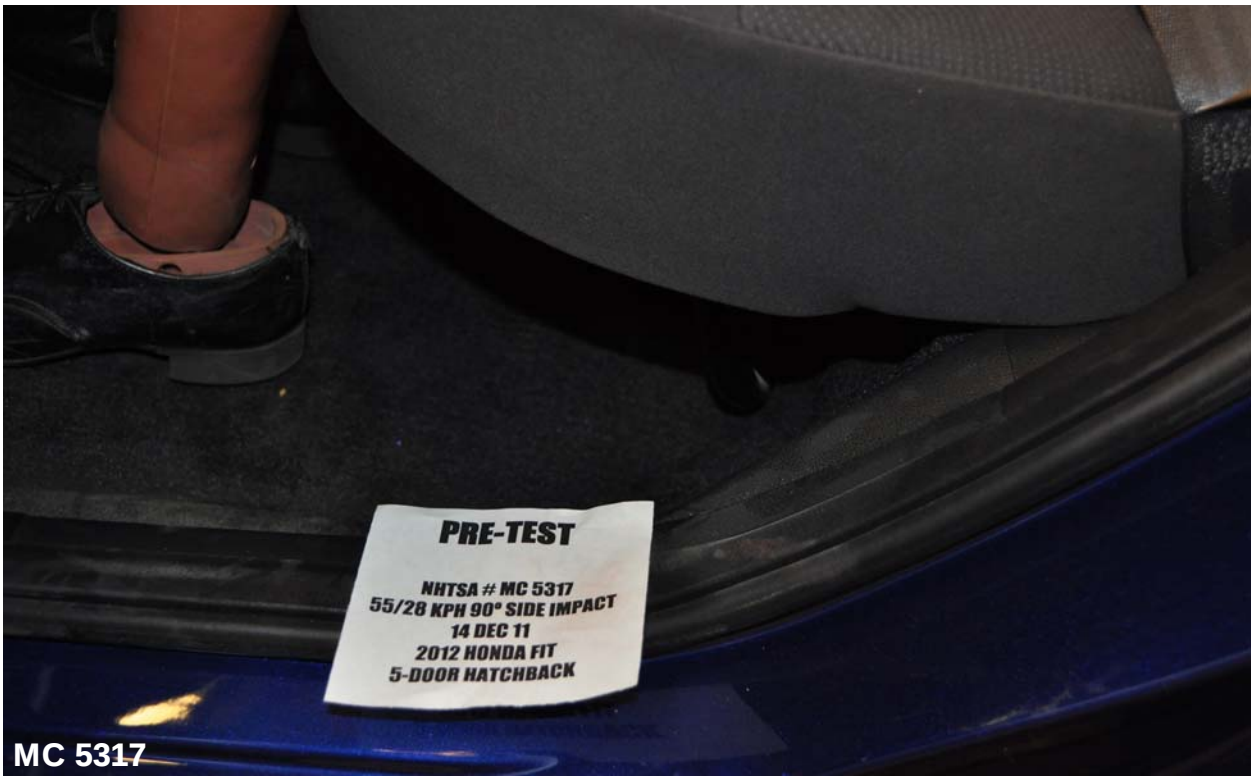


Figure A-65: Pre-Test Close-Up Left Side View of Rear Passenger Seat Track

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

Figure A-67: Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint

Figure A-68: Pre-Test Rear Passenger Dummy and Door Clearance View

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

Figure A-70: Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment

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

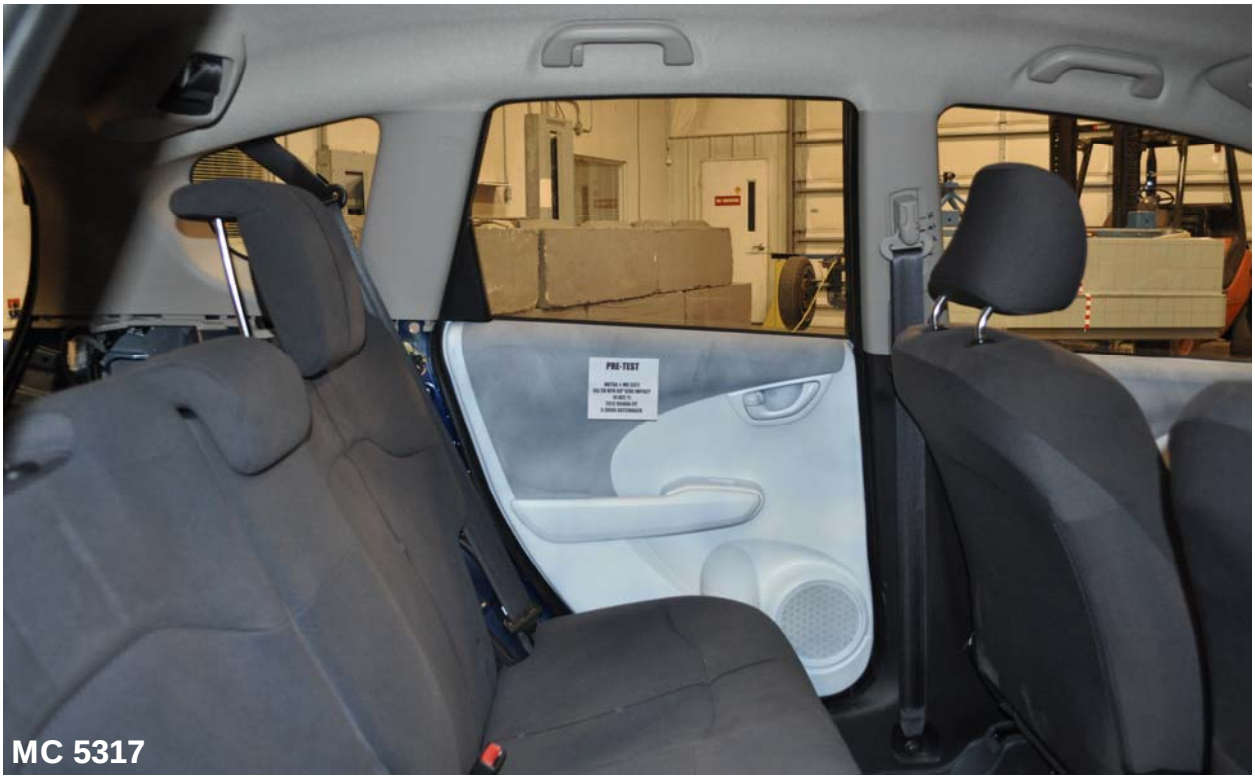


Figure A-72: Pre-Test Rear Passenger Inner Door Panel View

Figure A-73: Post-Test Rear Passenger Inner Door Panel View Showing Dummy Contact Locations

Figure A-74: Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle Interior View

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

Figure A-76: Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View

Not Applicable

MC 5317

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

Figure A-78: Post-Test Rear Passenger Dummy Close-up Pelvis Contact with Vehicle Interior View

Not Applicable

MC 5317

Figure A-79: Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View

Figure A-80: Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

Figure A-81: Post-Test View of Fuel Filler Cap or Fuel Filler Neck

Figure A-82: Pre-Test Front View of MDB Impactor Face

Figure A-83: Post-Test Front View of MDB Impactor Face

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

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

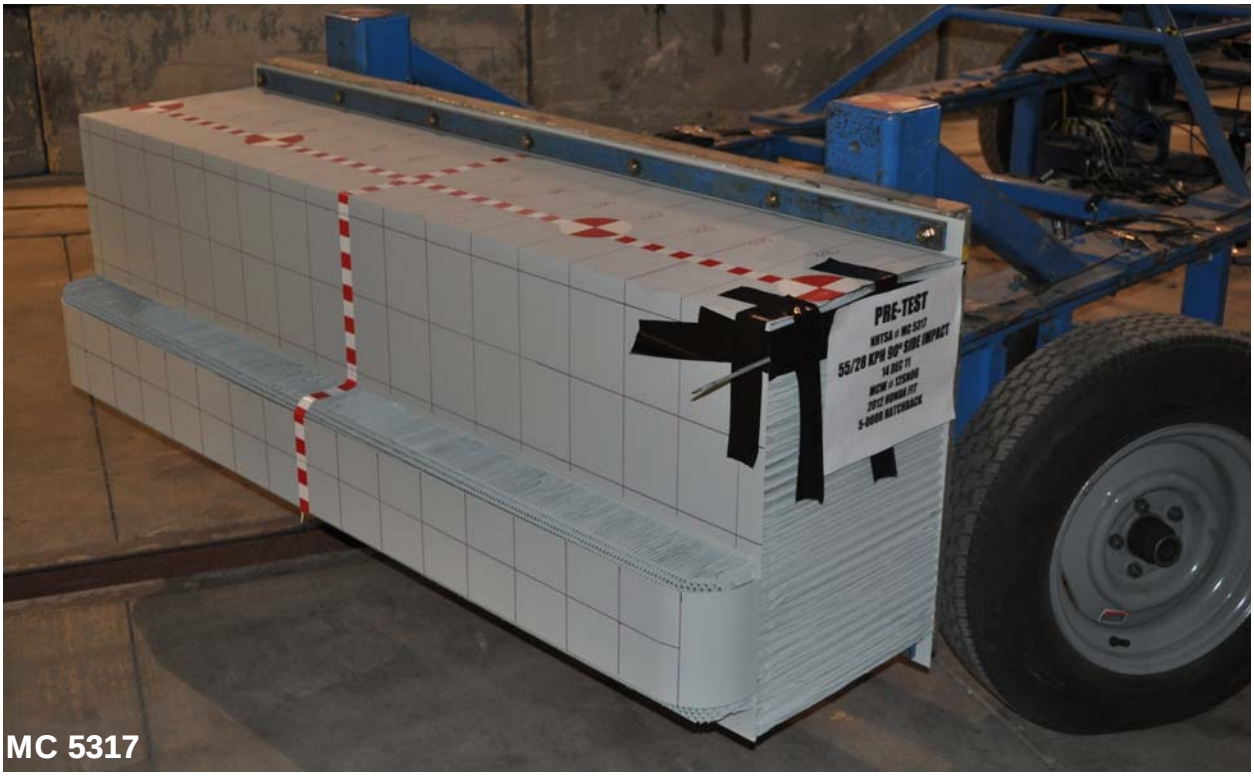


Figure A-86: Pre-Test Left Side View of MDB Impactor Face

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

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

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

Figure A-90: Close-Up View of Vehicle's Certification Label

Figure A-91: Close-Up View of Vehicle's Tire Information Placard or Label

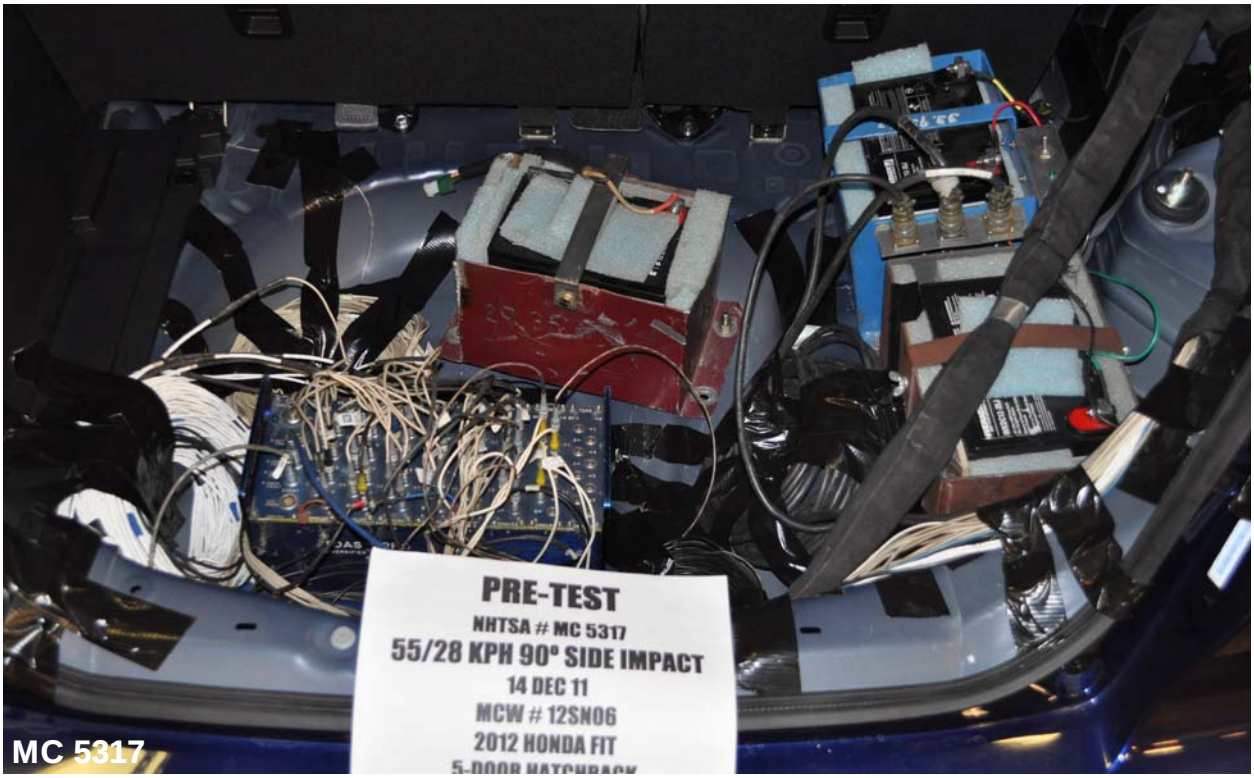


Figure A-92: Pre-Test Ballast View

Figure A-93: Post-Test Primary and Redundant Speed Trap Read-Out

Figure A-94: FMVSS No. 301 Static Rollover 0 Degrees

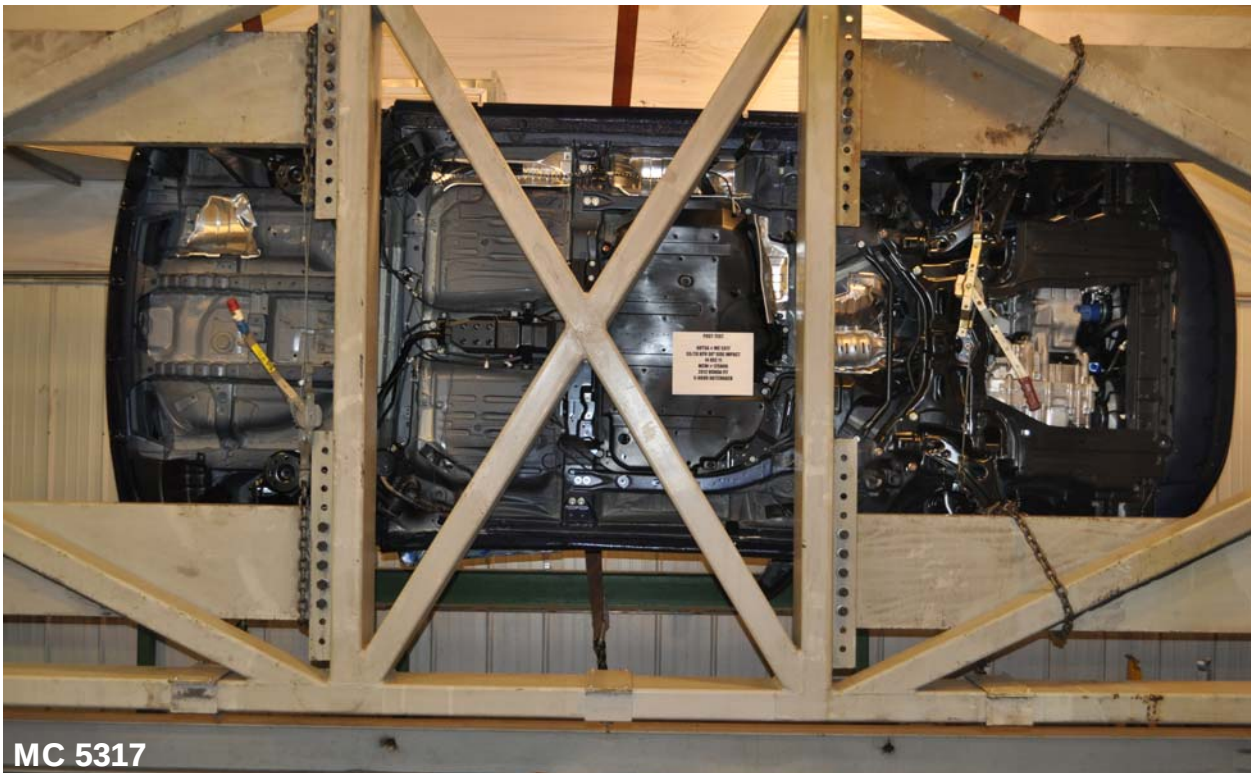


Figure A-95: FMVSS No. 301 Static Rollover 90 Degrees

Figure A-96: FMVSS No. 301 Static Rollover 180 Degrees

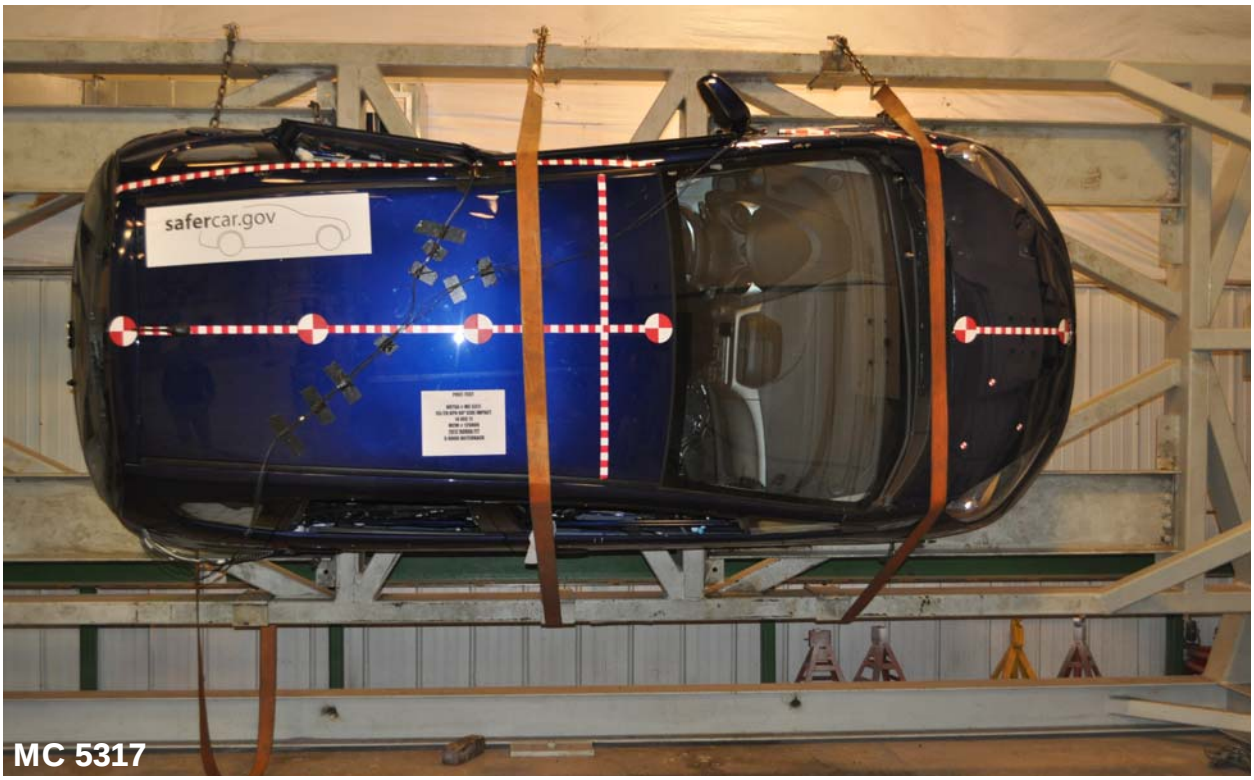


Figure A-97: FMVSS No. 301 Static Rollover 270 Degrees

Figure A-98: FMVSS No. 301 Static Rollover 360 Degrees

Figure A-99: Impact Event

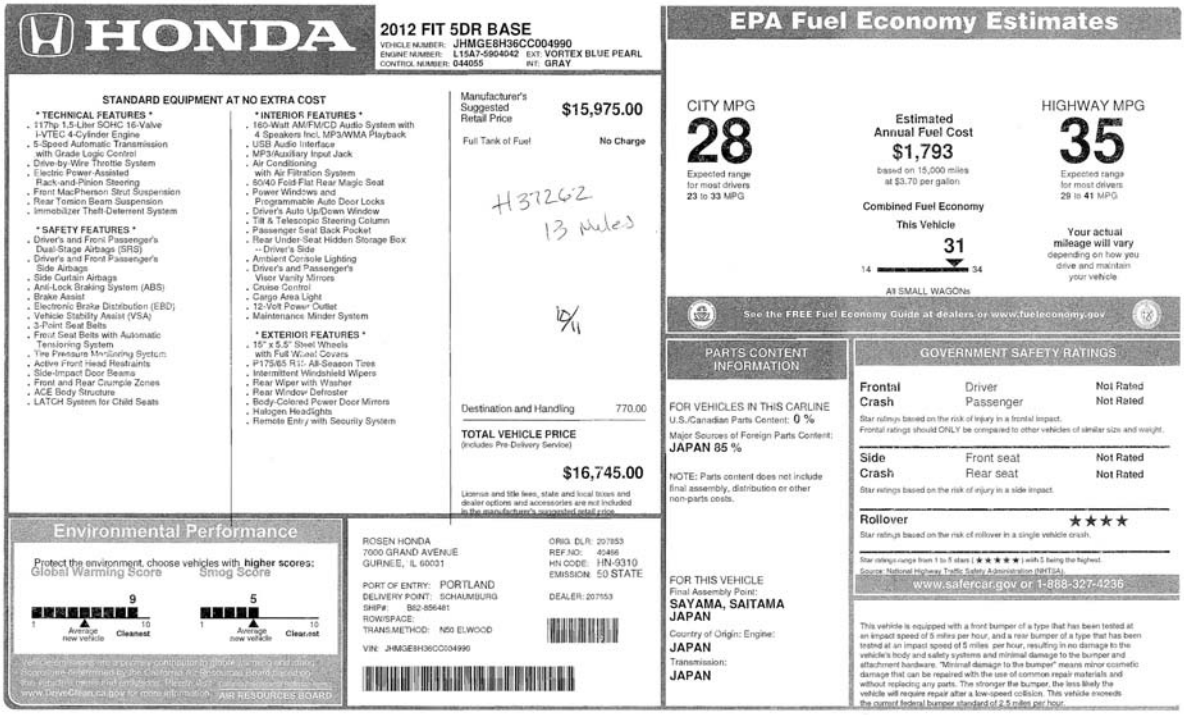
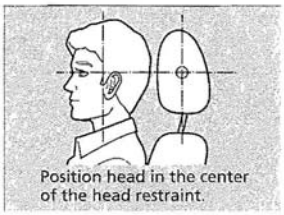


Figure A-100: Monroney Label

Adjusting the Head Restraints

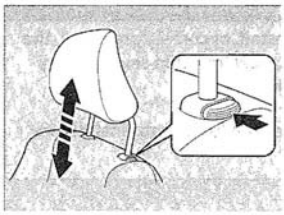


Position head in the center of the head restraint.

Your vehicle is equipped with head restraints in all seating positions.

Head restraints are most effective for protection against whiplash and other rear-impact crash injuries when the center of the back of the occupant's head rests against the center of the restraint. The tops of the occupant's ears should be level with the center height of the restraint.

Adjusting the front head restraint positions



To raise the head restraint: Pull it upward.
To lower the head restraint: Push it down while pressing the release button.

Adjusting the Head Restraints

⚠WARNING

Improperly positioning head restraints reduces their effectiveness and increases the likelihood of serious injury in a crash.

Make sure head restraints are in place and positioned properly before driving.

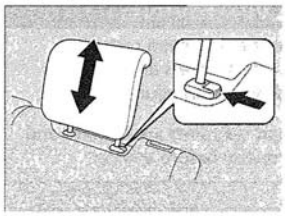
The driver's and front passenger's seats have active head restraints.

Active Head Restraints P. 107

MC 5317

Figure A-101: Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

Changing the Rear Seat Head Restraint Positions



A passenger sitting in a back seating position should adjust the height of their head restraint to an appropriate position before the vehicle begins moving.
To raise the head restraint:
Pull it upward.
To lower the head restraint:
Push it down while pressing the release button.

Removing and Reinstalling the Head Restraints

Head restraints can be removed for cleaning or repair.

To remove a head restraint:
Pull the restraint up as far as it will go. Then push the release button, and pull the restraint up and out.

To reinstall a head restraint:
Insert the legs back in place, then adjust the head restraint to an appropriate height while pressing the release button. Pull up on the restraint to make sure it is locked in position.

Removing and Reinstalling the Head Restraints

⚠WARNING

Failure to reinstall, or correctly reinstall, the head restraints can result in severe injury during a crash.

Always replace the head restraints before driving.

MC 5317

Figure A-102: Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B
DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS

The following plots are provided in the test report

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 T_{12} Acceleration (X)
Driver Lower Spine T_{12} Acceleration (Y)
Driver Lower Spine T_{12} 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

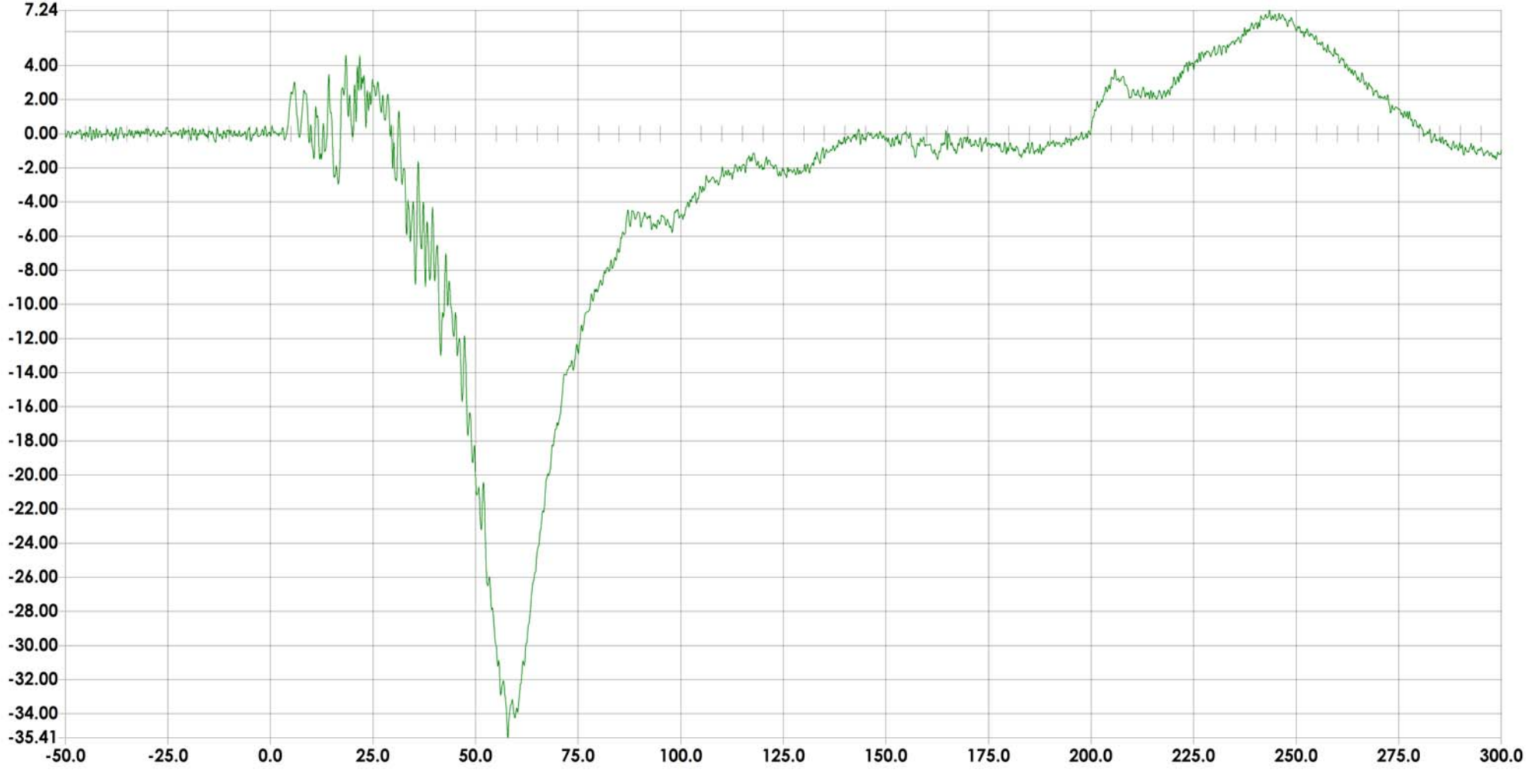
MDB Center of Gravity Acceleration (X)
MDB Center of Gravity Acceleration (Y)
MDB Center of Gravity Acceleration (Z)
MDB Rear Acceleration (X)
MDB Rear Acceleration (Y)
Left MDB Contact Switch
Right MDB Contact Switch

Test ID	**MC 5317**
Date	12-14-2011
Description	2012 Honda Fit 5-Door Hatchback SINCAP

Filter	**CFC1000**		
Sampling Rate (Hz)	12500	Sensor Location	HDCG
Number of Points	4376	Sensor Info	ENDEVCO 7264-2000TZ
Pretrigger Points	625	Serial Number	J43494

MEDICAL COLLEGE OF WISCONSIN

Driver Head Acceleration (X) Primary vs. Time



Max	7.24	G'S	at	243.44	msec
Min	-35.41	G'S	at	57.84	msec

MC 5317 Plot 001

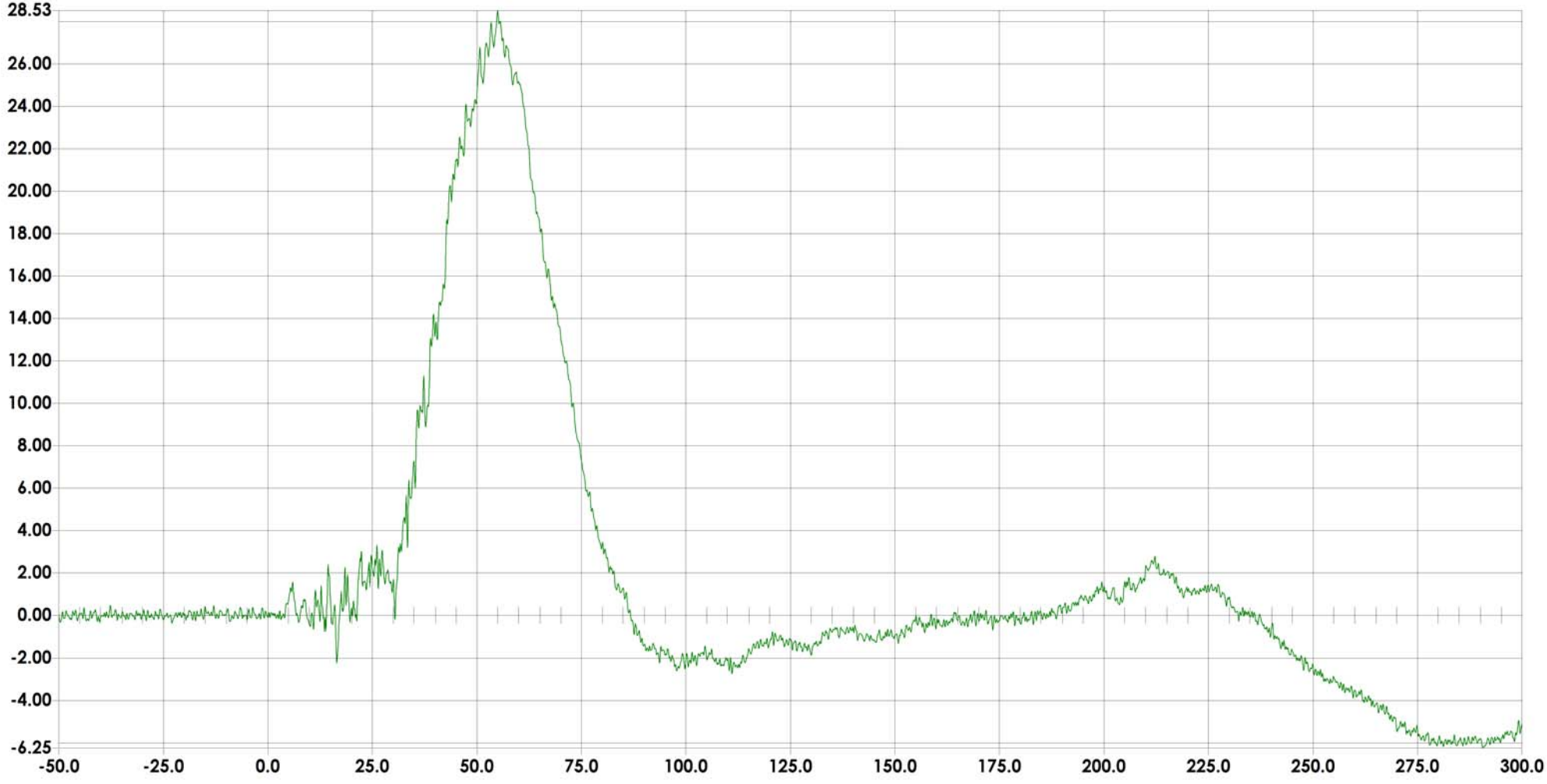
Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	MC 5317
Date	12-14-2011
Description	2012 Honda Fit 5-Door Hatchback SINCAP

Filter	CFC1000		
Sampling Rate (Hz)	12500	Sensor Location	HDCG
Number of Points	4376	Sensor Info	ENDEVCO 7264-2000TZ
Pretrigger Points	625	Serial Number	J43475

MEDICAL COLLEGE OF WISCONSIN

Driver Head Acceleration (Y) Primary vs. Time



Max	28.53	G'S	at	54.96	msec
Min	-6.25	G'S	at	290.56	msec

MC 5317 Plot 002

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5317**	**Filter**	**CFC1000**		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	HDCG
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	ENDEVCO 7264-2000
		Pretrigger Points	625	Serial Number	J43779

MEDICAL COLLEGE OF WISCONSIN

Driver Head Acceleration (Z) Primary vs. Time

Max	13.92	G'S	at	38.32	msec
Min	-10.87	G'S	at	62.32	msec

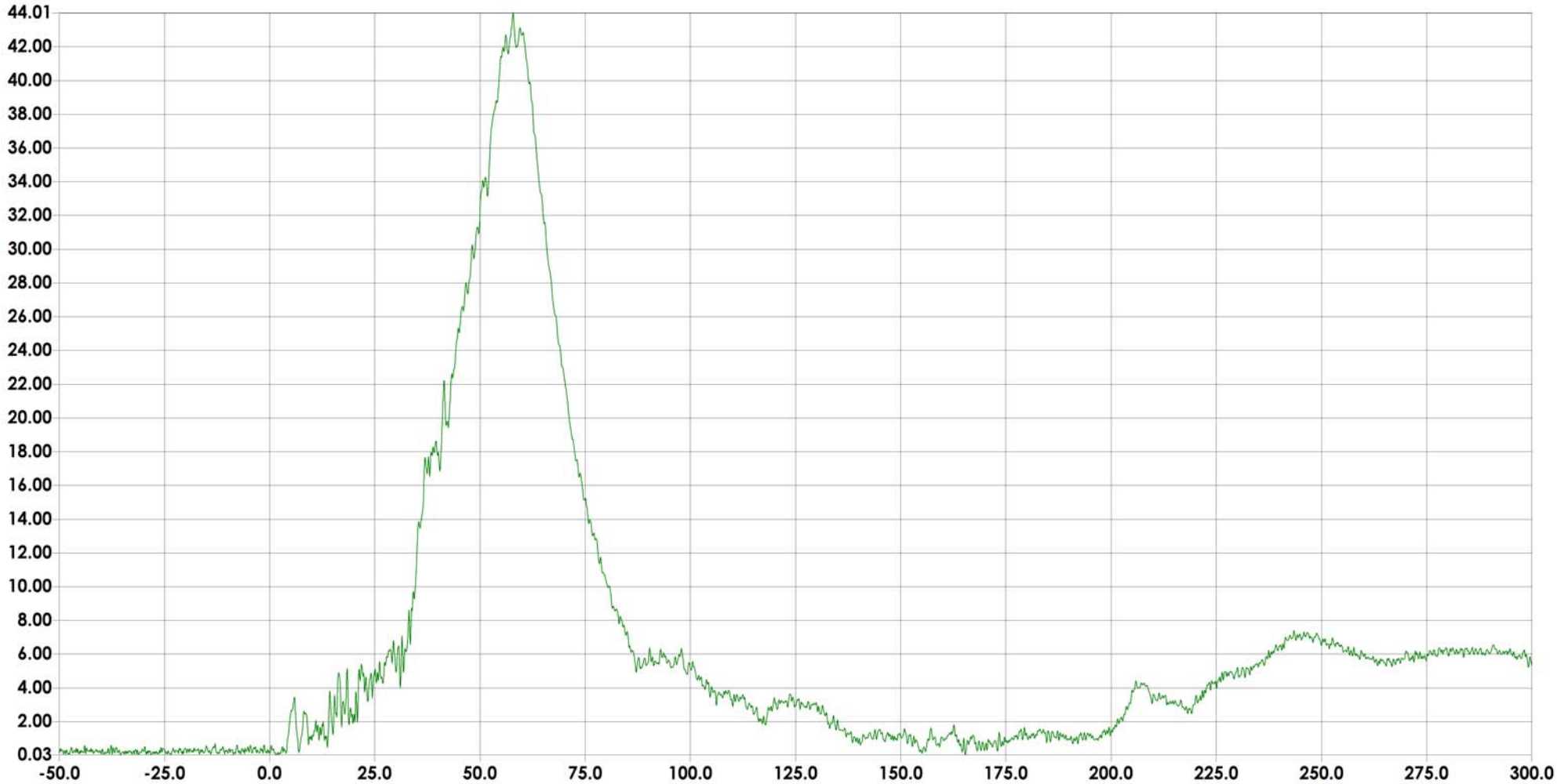
MC 5317 Plot 003

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5317**	**Filter**	**CFC1000**		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	MCW Multiviewer
		Pretrigger Points	625	Serial Number	3.5.2j

MEDICAL COLLEGE OF WISCONSIN

Driver Head Resultant Acceleration Primary vs. Time



Max	44.01	G'S	at	57.84	msec
Min	0.03	G'S	at	165.36	msec

MC 5317 Plot 063

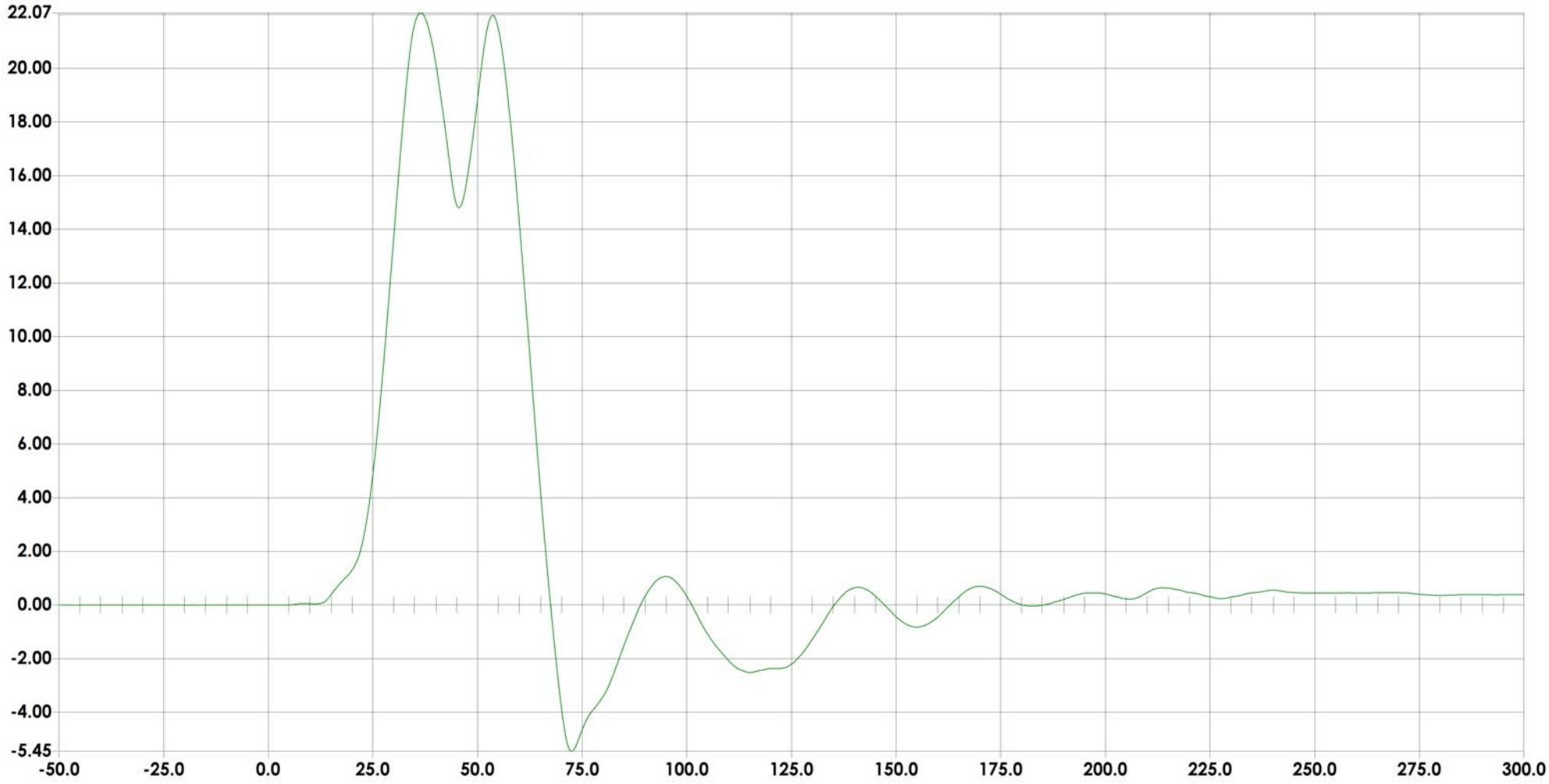
Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	MC 5317
Date	12-14-2011
Description	2012 Honda Fit 5-Door Hatchback SINCAP

Filter	CFC180		
Sampling Rate (Hz)	12500	Sensor Location	RBLU
Number of Points	4376	Sensor Info	Denton
Pretrigger Points	625	Serial Number	433

MEDICAL COLLEGE OF WISCONSIN

Driver Upper Thorax Rib Deflection (Y) vs. Time



Max	22.07	MM	at	36.40	msec
Min	-5.45	MM	at	72.48	msec

MC 5317 Plot 007

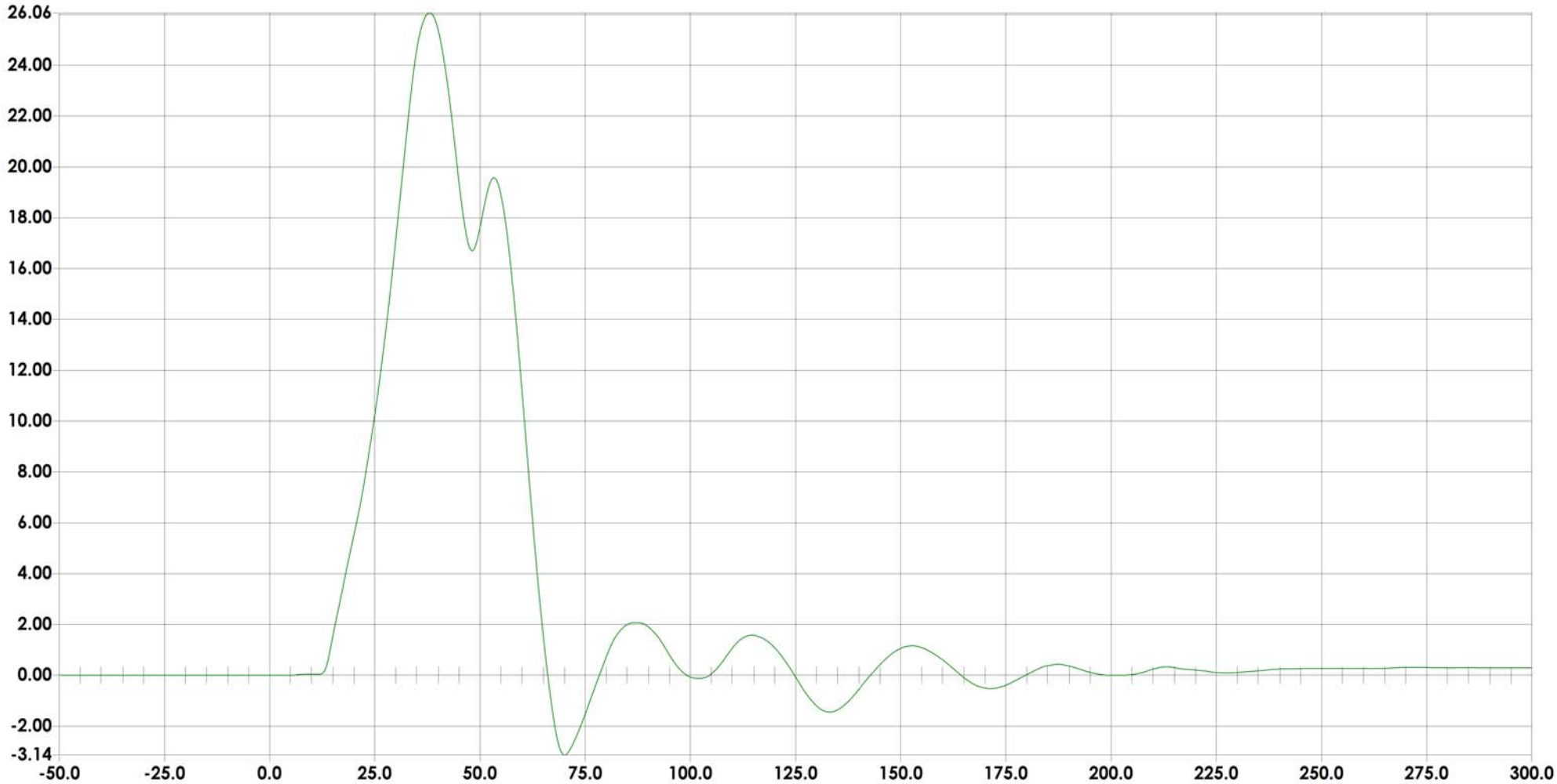
Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	MC 5317
Date	12-14-2011
Description	2012 Honda Fit 5-Door Hatchback SINCAP

Filter	CFC180		
Sampling Rate (Hz)	12500	Sensor Location	RBLM
Number of Points	4376	Sensor Info	Denton
Pretrigger Points	625	Serial Number	193

MEDICAL COLLEGE OF WISCONSIN

Driver Middle Thorax Rib Deflection (Y) vs. Time



Max	26.06	MM	at	38.00	msec
Min	-3.14	MM	at	70.08	msec

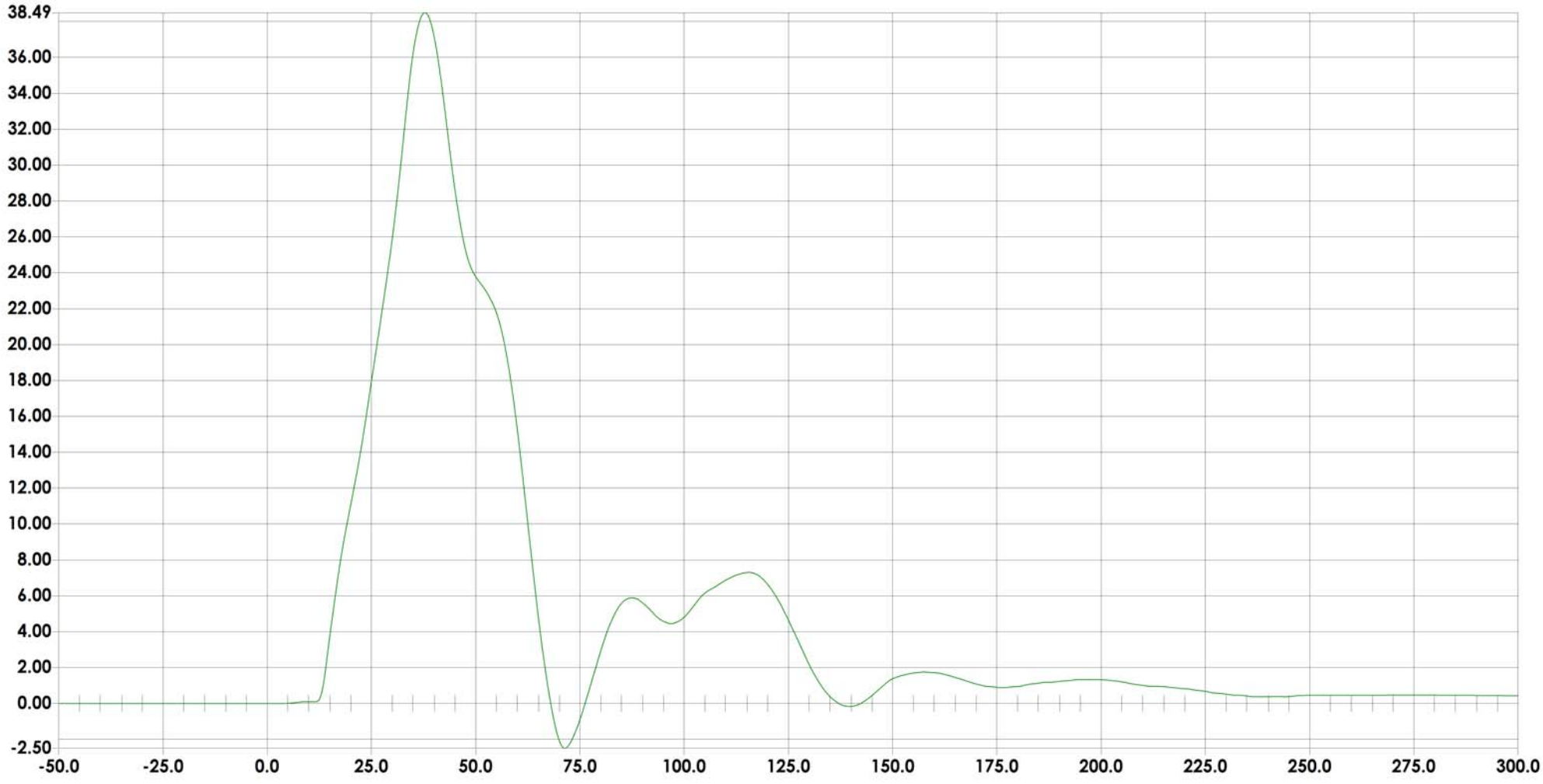
MC 5317 Plot 008

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	MC 5317	Filter	CFC180		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	RBLL
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	Denton
		Pretrigger Points	625	Serial Number	191

MEDICAL COLLEGE OF WISCONSIN

Driver Lower Thorax Rib Deflection (Y) vs. Time



Max	38.49	MM	at	37.84	msec
Min	-2.50	MM	at	71.36	msec

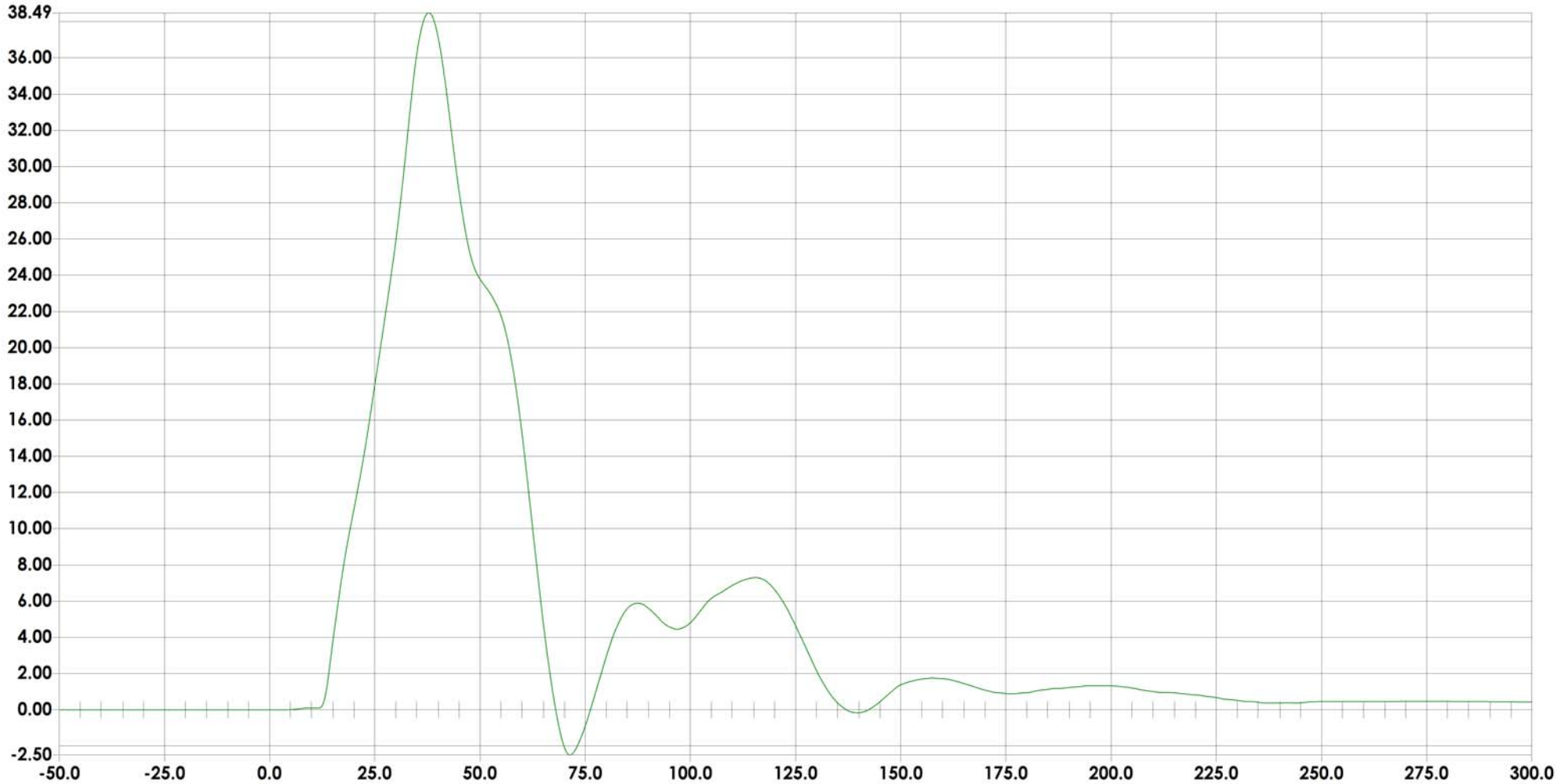
MC 5317 Plot 009

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	MC 5317	Filter	CFC180		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	RBLL
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	Denton
		Pretrigger Points	625	Serial Number	191

MEDICAL COLLEGE OF WISCONSIN

Driver Thorax Rib Deflection Maximum (Y) vs. Time YL



Max	38.49	MM	at	37.84	msec
Min	-2.50	MM	at	71.36	msec

MC 5317 Plot 009

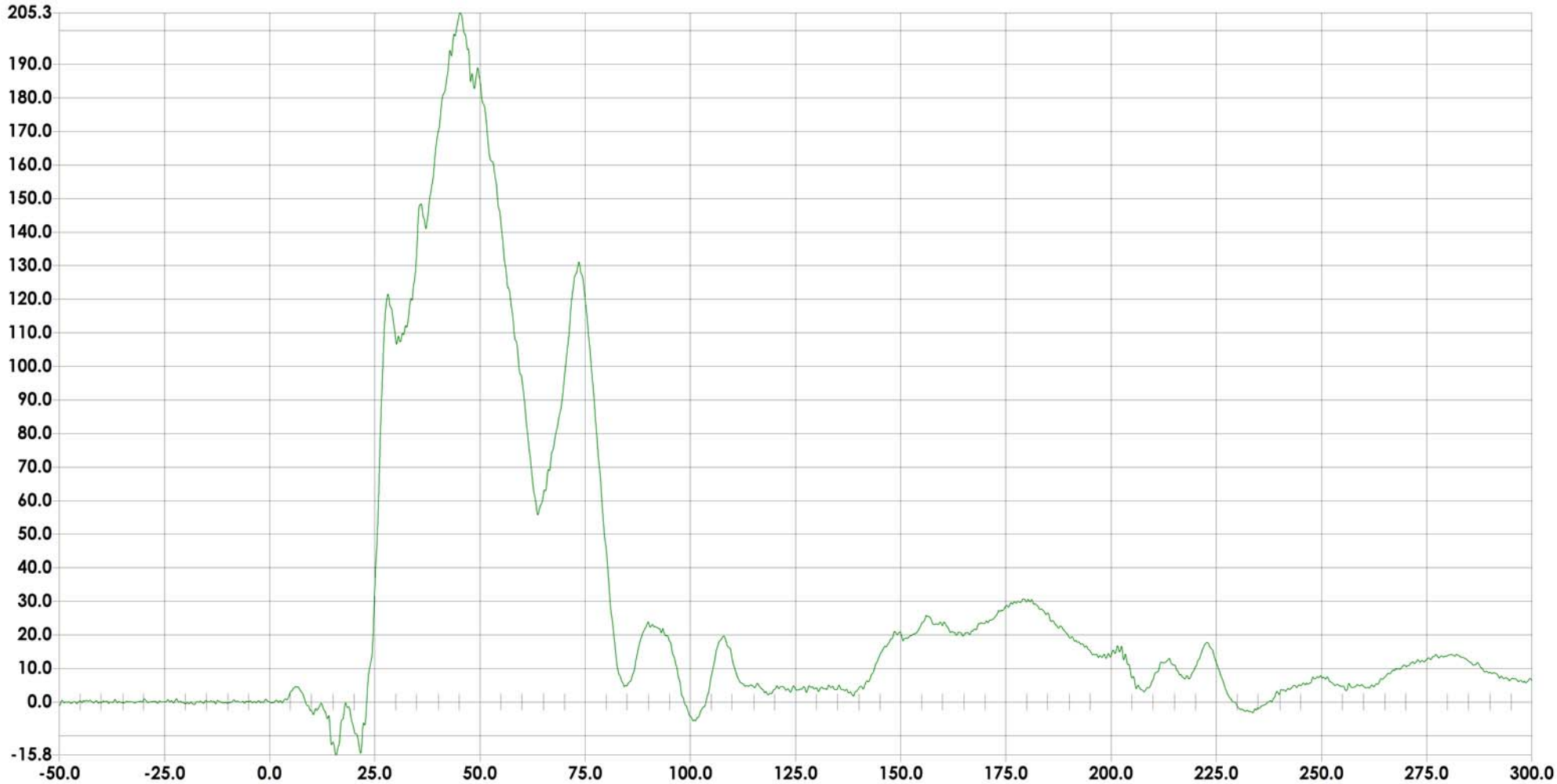
Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	MC 5317
Date	12-14-2011
Description	2012 Honda Fit 5-Door Hatchback SINCAP

Filter	CFC600		
Sampling Rate (Hz)	12500	Sensor Location	ESAF
Number of Points	4376	Sensor Info	Denton 2631
Pretrigger Points	625	Serial Number	2631_1502

MEDICAL COLLEGE OF WISCONSIN

Driver Abdomen Forward Force (Y) vs. Time



Max	205.32	NWT	at	45.28	msec
Min	-15.78	NWT	at	15.76	msec

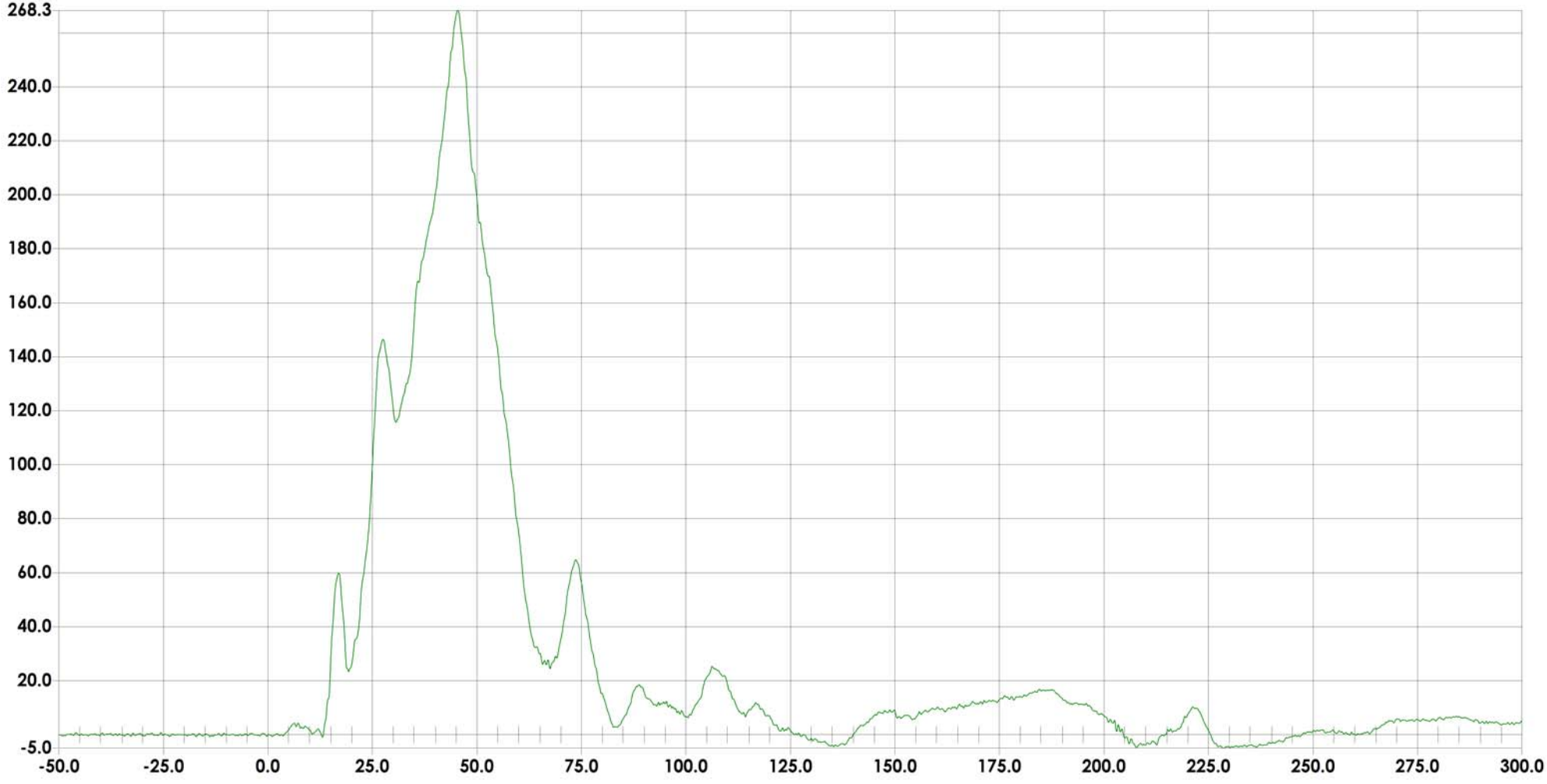
MC 5317 Plot 010

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5317**	**Filter**	**CFC600**		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	ESAM
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	Denton 2631
		Pretrigger Points	625	Serial Number	2631_1511

MEDICAL COLLEGE OF WISCONSIN

NWT Driver Abdomen Middle Force (Y) vs. Time



Max	268.28	NWT	at	45.44	msec
Min	-5.00	NWT	at	228.64	msec

MC 5317 Plot 011

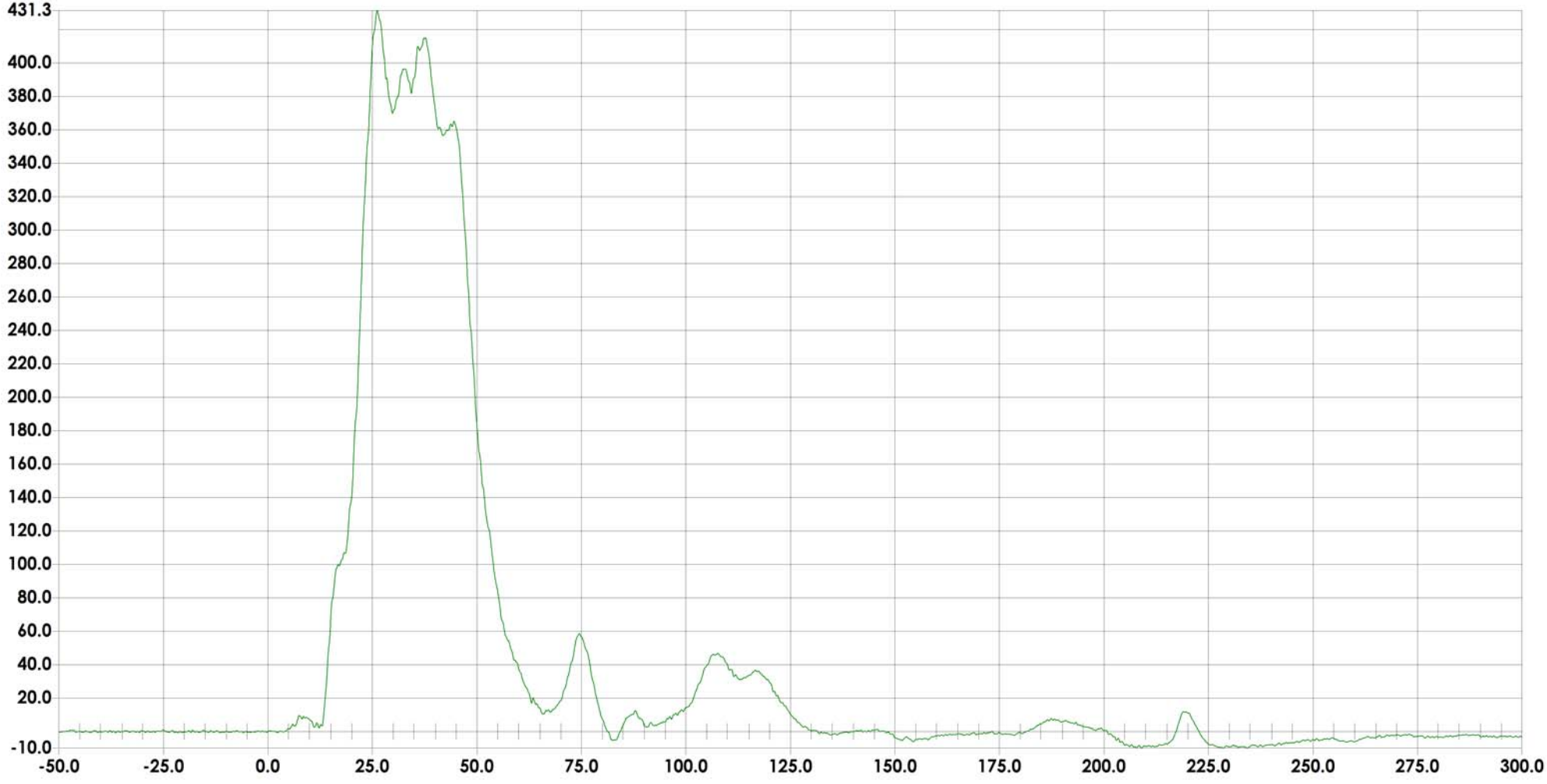
Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	MC 5317
Date	12-14-2011
Description	2012 Honda Fit 5-Door Hatchback SINCAP

Filter	CFC600		
Sampling Rate (Hz)	12500	Sensor Location	ESAR
Number of Points	4376	Sensor Info	Denton 2631
Pretrigger Points	625	Serial Number	2631_1537

MEDICAL COLLEGE OF WISCONSIN

Driver Abdomen Rear Force (Y) vs. Time



Max	431.28	NWT	at	26.16	msec
Min	-9.99	NWT	at	228.56	msec

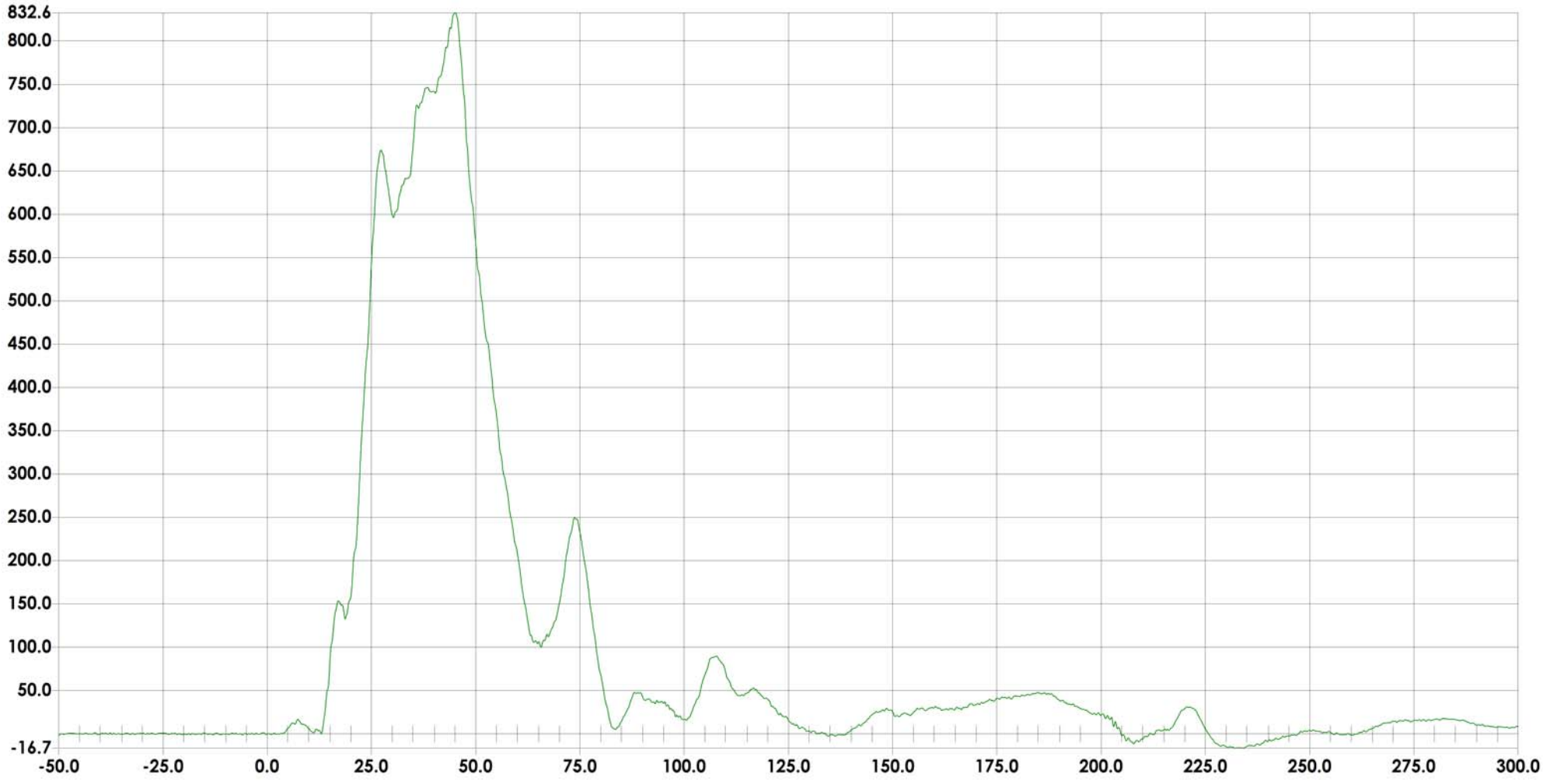
MC 5317 Plot 012

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5317**	**Filter**	**CFC600**		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	MCW Multiviewer
		Pretrigger Points	625	Serial Number	3.5.2j

MEDICAL COLLEGE OF WISCONSIN

Driver Total Abdominal Force (Y) vs. Time



Max	832.60	NWT	at	45.12	msec
Min	-16.74	NWT	at	232.08	msec

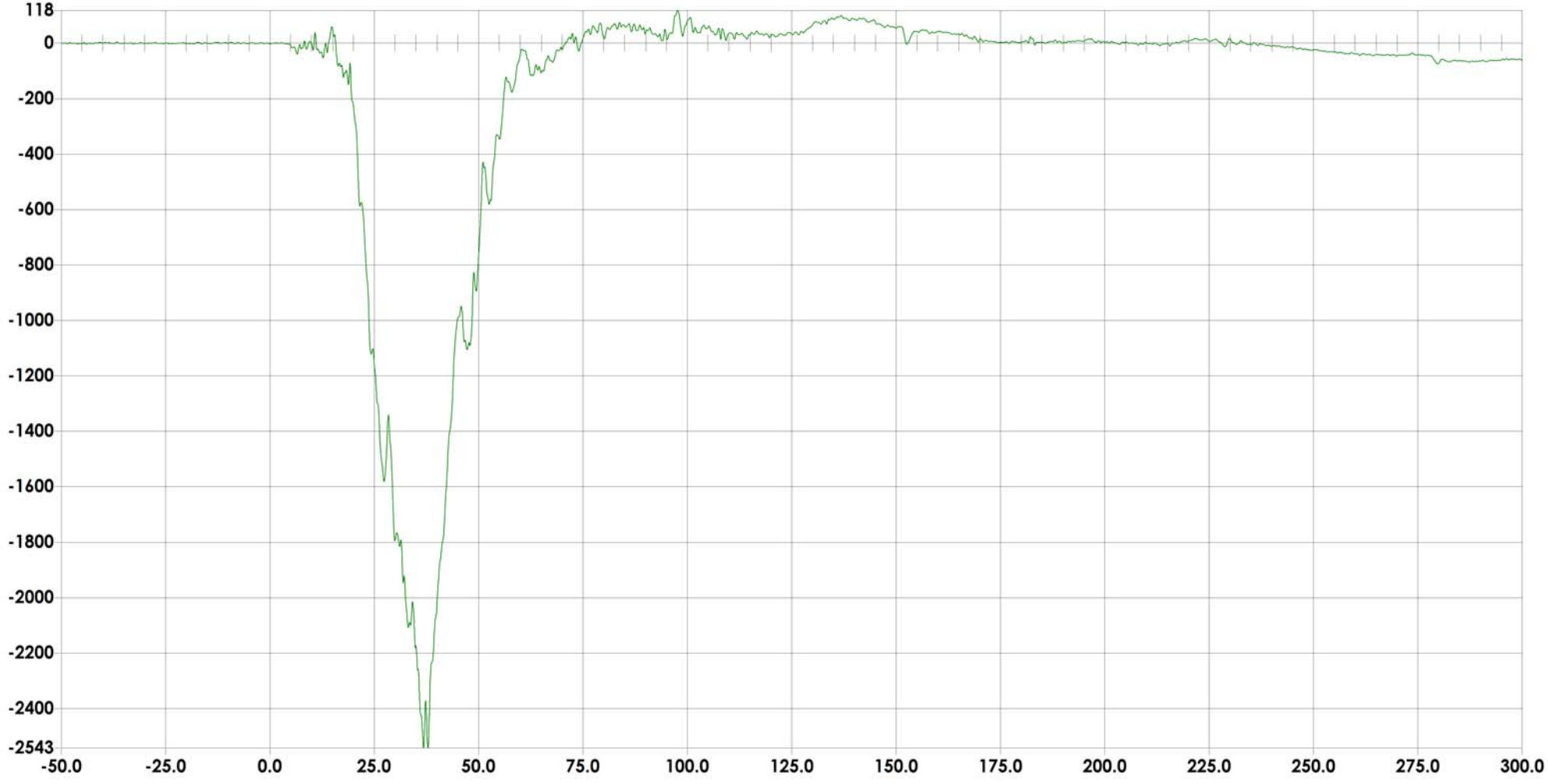
MC 5317 Plot 064

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5317**	**Filter**	**CFC600**		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	PVPS
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	Denton 3096JFL
		Pretrigger Points	625	Serial Number	3096_460

MEDICAL COLLEGE OF WISCONSIN

Driver Pubic Symphysis Force (Y) vs. Time



Max	118.17	NWT	at	97.68	msec
Min	-2542.57	NWT	at	37.84	msec

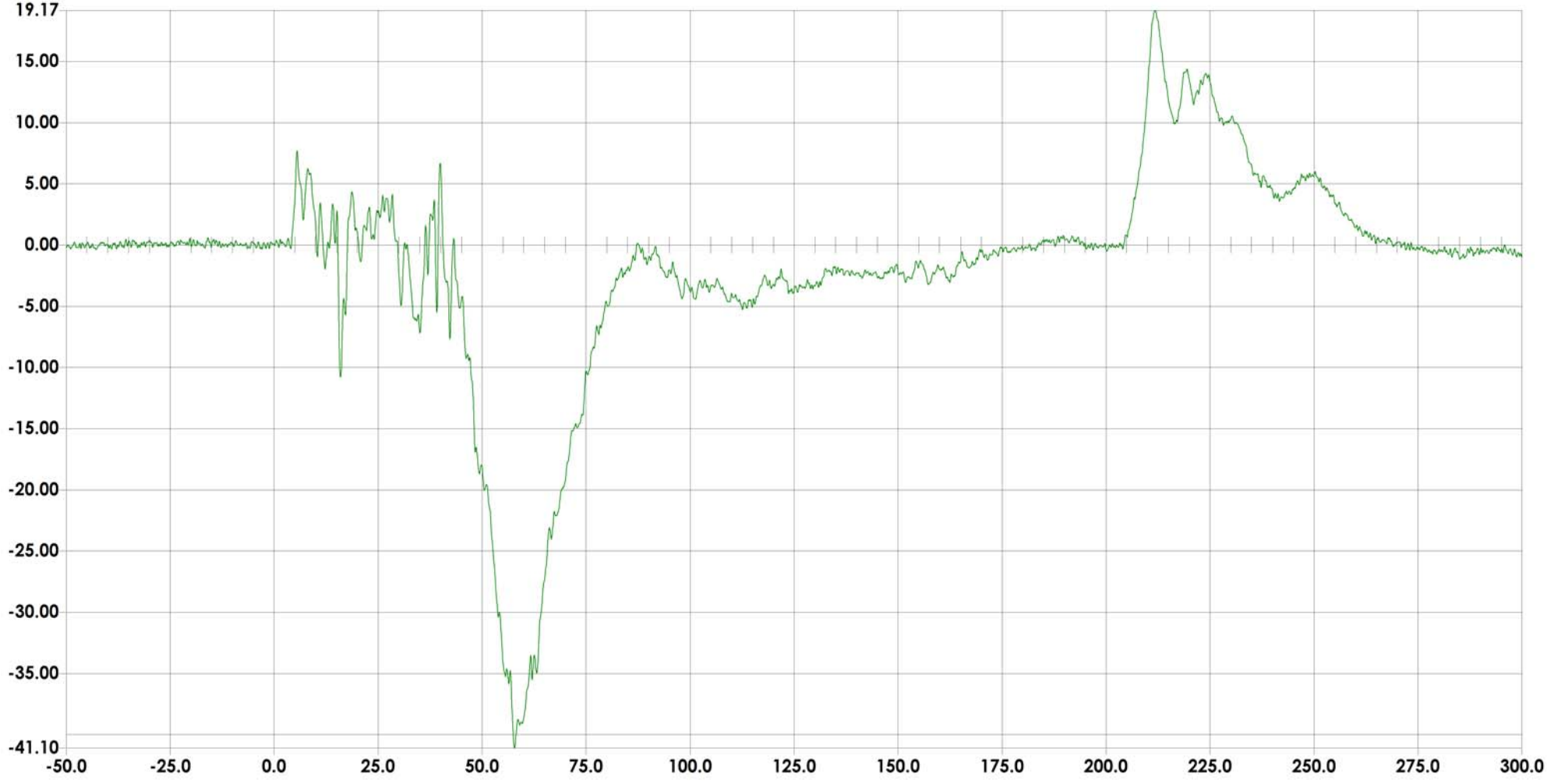
MC 5317 Plot 016

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5317**	**Filter**	**CFC1000**		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	HDCG
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	ENDEVCO 7264C-2KTZ-2-240
		Pretrigger Points	625	Serial Number	P22041

MEDICAL COLLEGE OF WISCONSIN

Passenger Head Acceleration (X) Primary vs. Time



Max	19.17	G'S	at	211.92	msec
Min	-41.10	G'S	at	57.76	msec

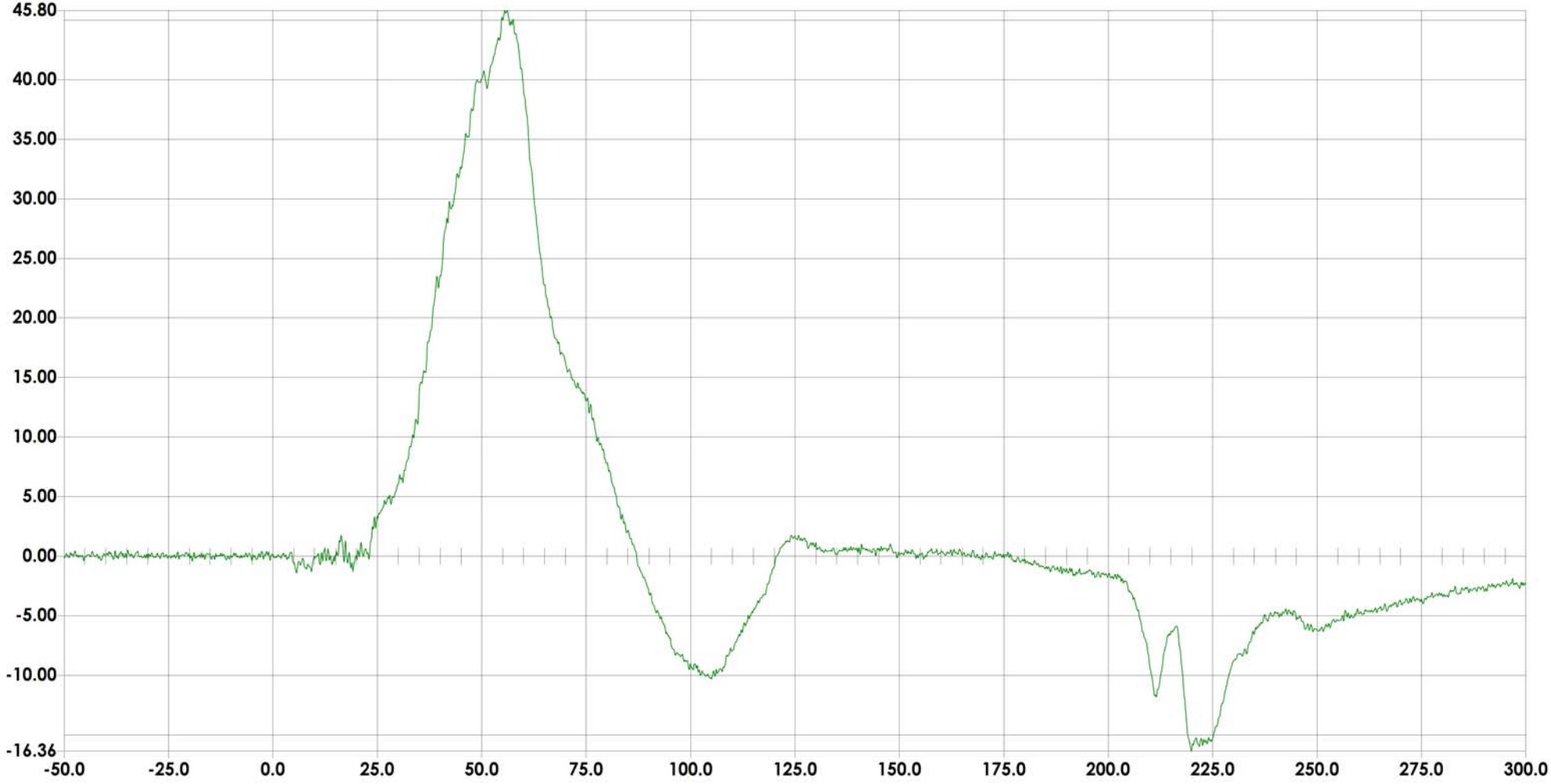
MC 5317 Plot 017

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5317**	**Filter**	**CFC1000**		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	HDCG
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	ENDEVCO 7264C-2KTZ-2-240
		Pretrigger Points	625	Serial Number	P24562

MEDICAL COLLEGE OF WISCONSIN

Passenger Head Acceleration (Y) Primary vs. Time



Max	45.80	G'S	at	56.08	msec
Min	-16.36	G'S	at	219.92	msec

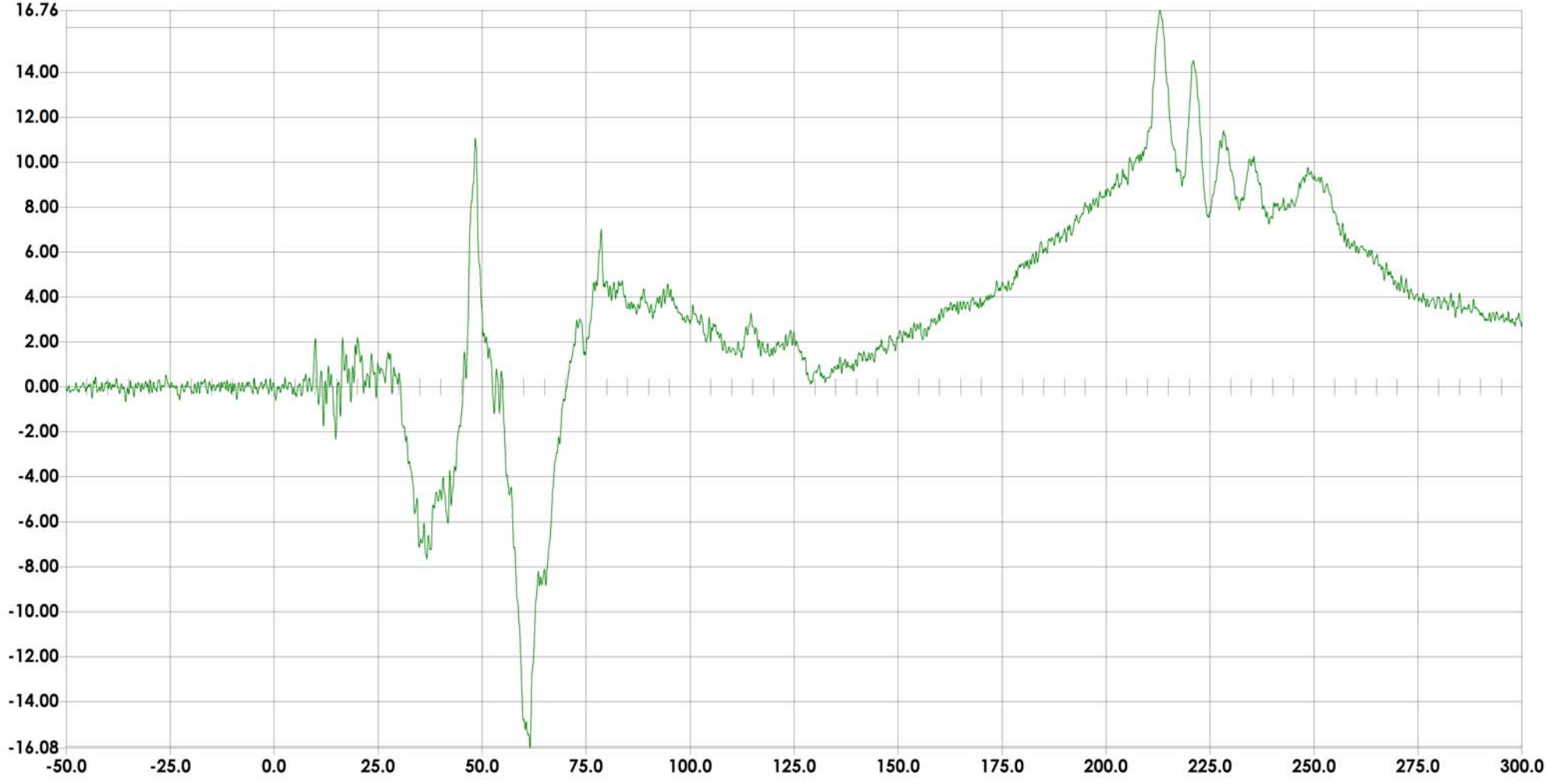
MC 5317 Plot 018

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5317**	**Filter**	**CFC1000**		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	HDCG
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	ENDEVCO 7264C-2KTZ-2-300
		Pretrigger Points	625	Serial Number	P22322

MEDICAL COLLEGE OF WISCONSIN

Passenger Head Acceleration (Z) Primary vs. Time



Max	16.76	G'S	at	212.96	msec
Min	-16.08	G'S	at	61.52	msec

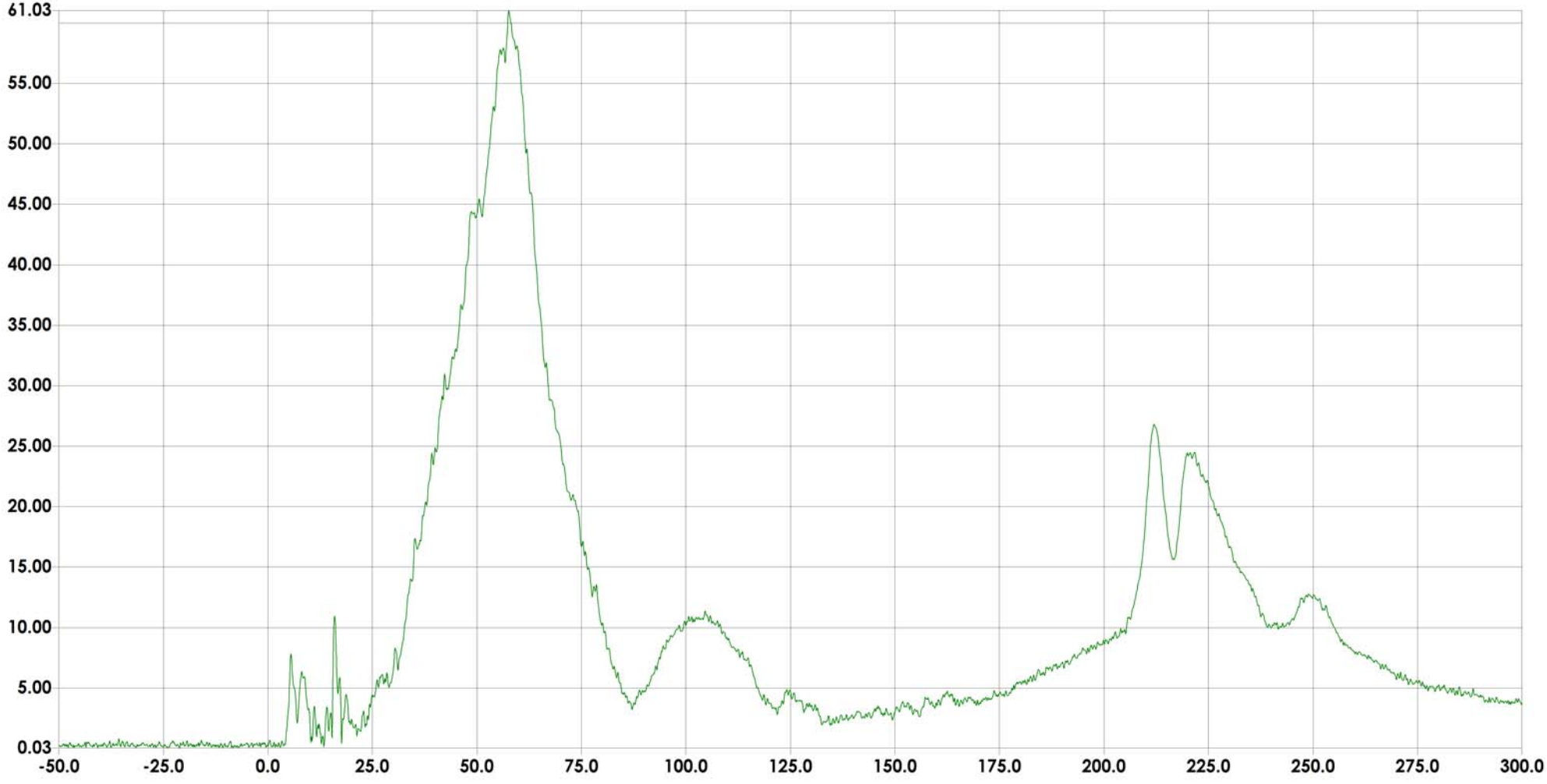
MC 5317 Plot 019

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5317**	**Filter**	**CFC1000**		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	MCW Multiviewer
		Pretrigger Points	625	Serial Number	3.5.2j

MEDICAL COLLEGE OF WISCONSIN

Passenger Head Resultant Acceleration Primary vs. Time



Max	61.03	G'S	at	57.60	msec
Min	0.03	G'S	at	-21.12	msec

MC 5317 Plot 067

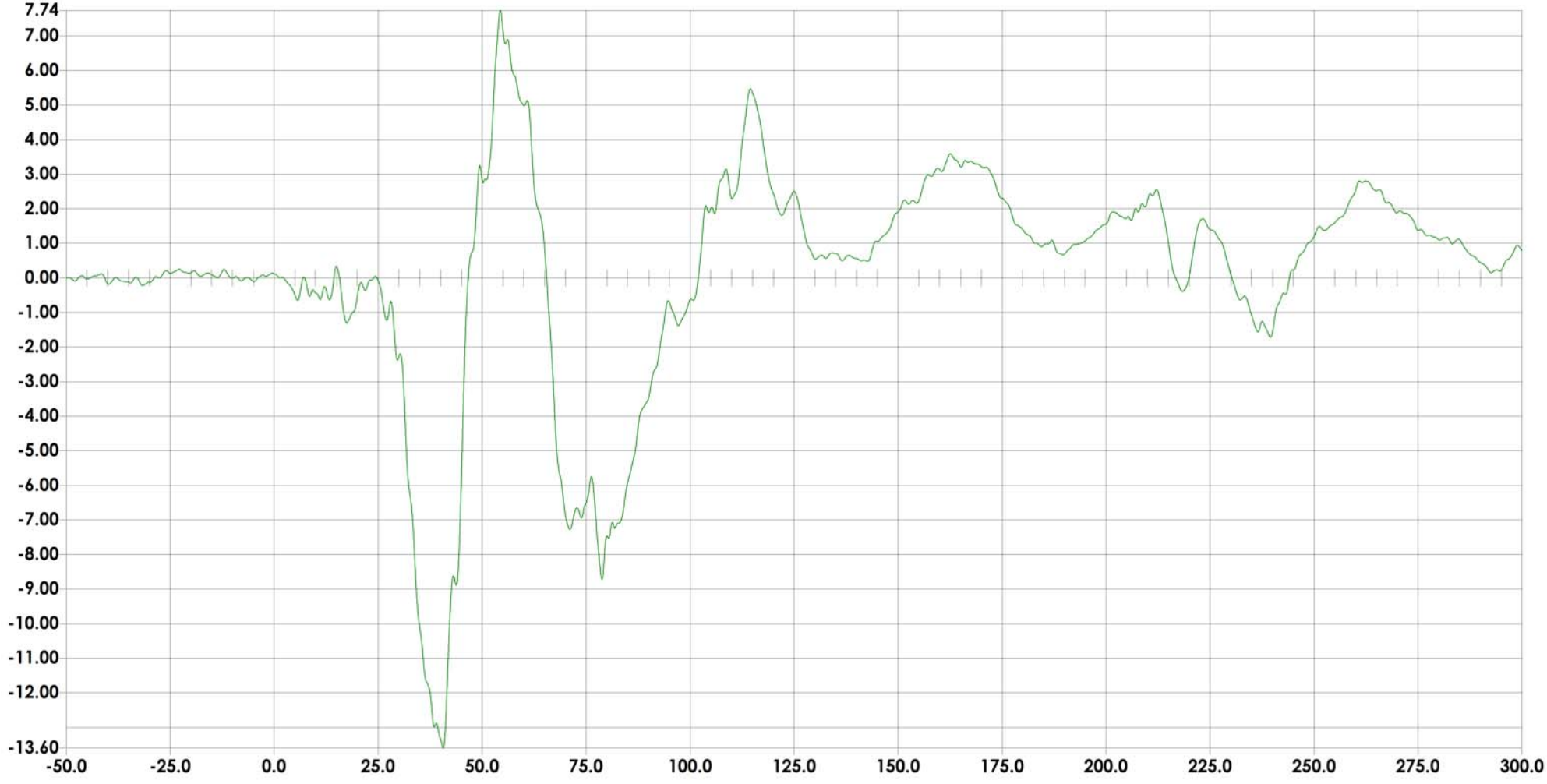
Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	MC 5317
Date	12-14-2011
Description	2012 Honda Fit 5-Door Hatchback SINCAP

Filter	CFC180		
Sampling Rate (Hz)	12500	Sensor Location	SPNL
Number of Points	4376	Sensor Info	ENDEVCO 7264C-2KTZ-2-240
Pretrigger Points	625	Serial Number	P21661

MEDICAL COLLEGE OF WISCONSIN

Passenger Lower Spine T12 Acceleration (X) vs. Time



Max	7.74	G'S	at	54.40	msec
Min	-13.60	G'S	at	40.64	msec

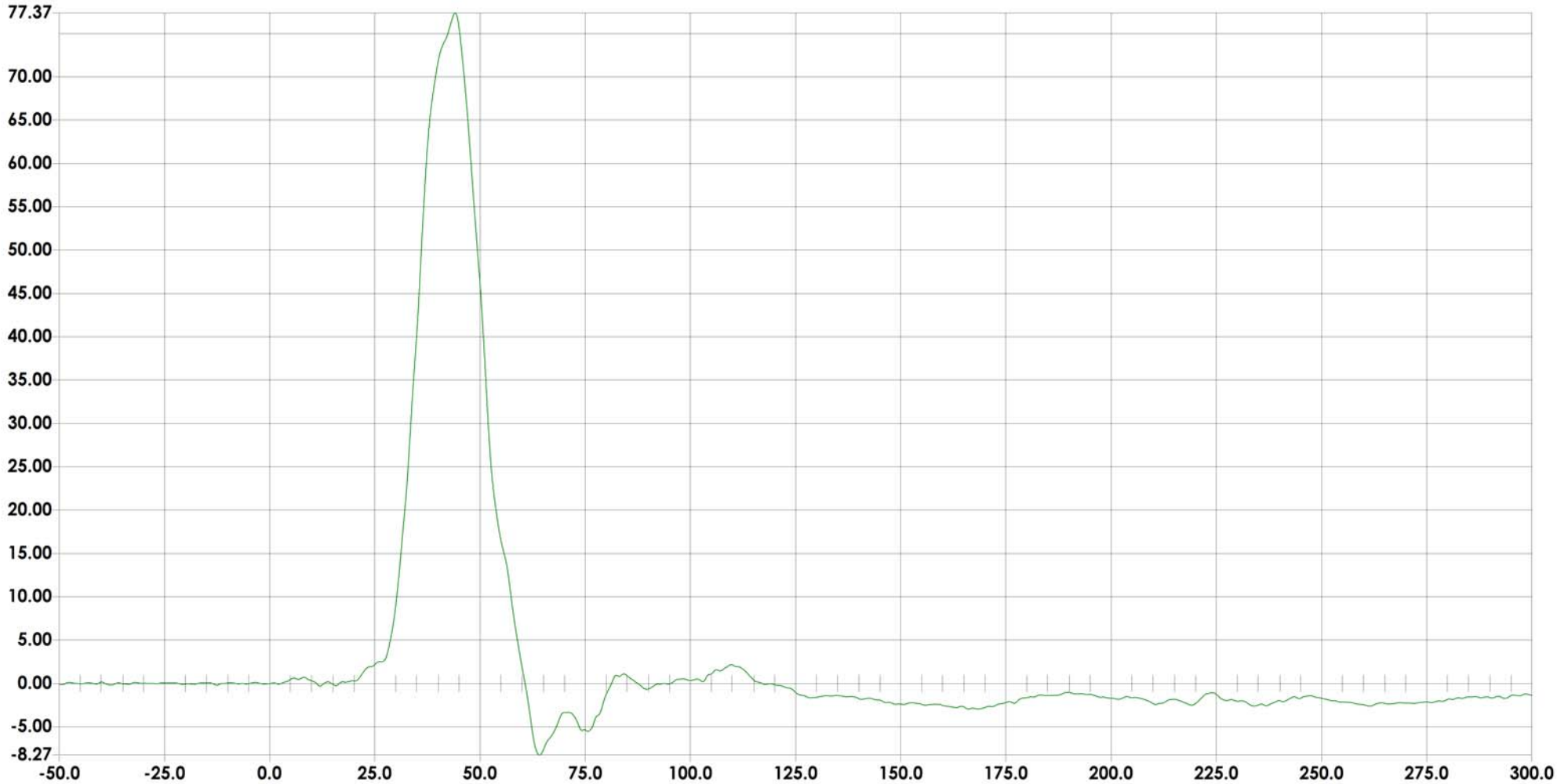
MC 5317 Plot 028

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5317**	**Filter**	**CFC180**		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	SPNL
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	ENDEVCO 7264C-2KTZ-2-240
		Pretrigger Points	625	Serial Number	P24682

MEDICAL COLLEGE OF WISCONSIN

Passenger Lower Spine T12 Acceleration (Y) vs. Time



Max	77.37	G'S	at	44.08	msec
Min	-8.27	G'S	at	64.16	msec

MC 5317 Plot 029

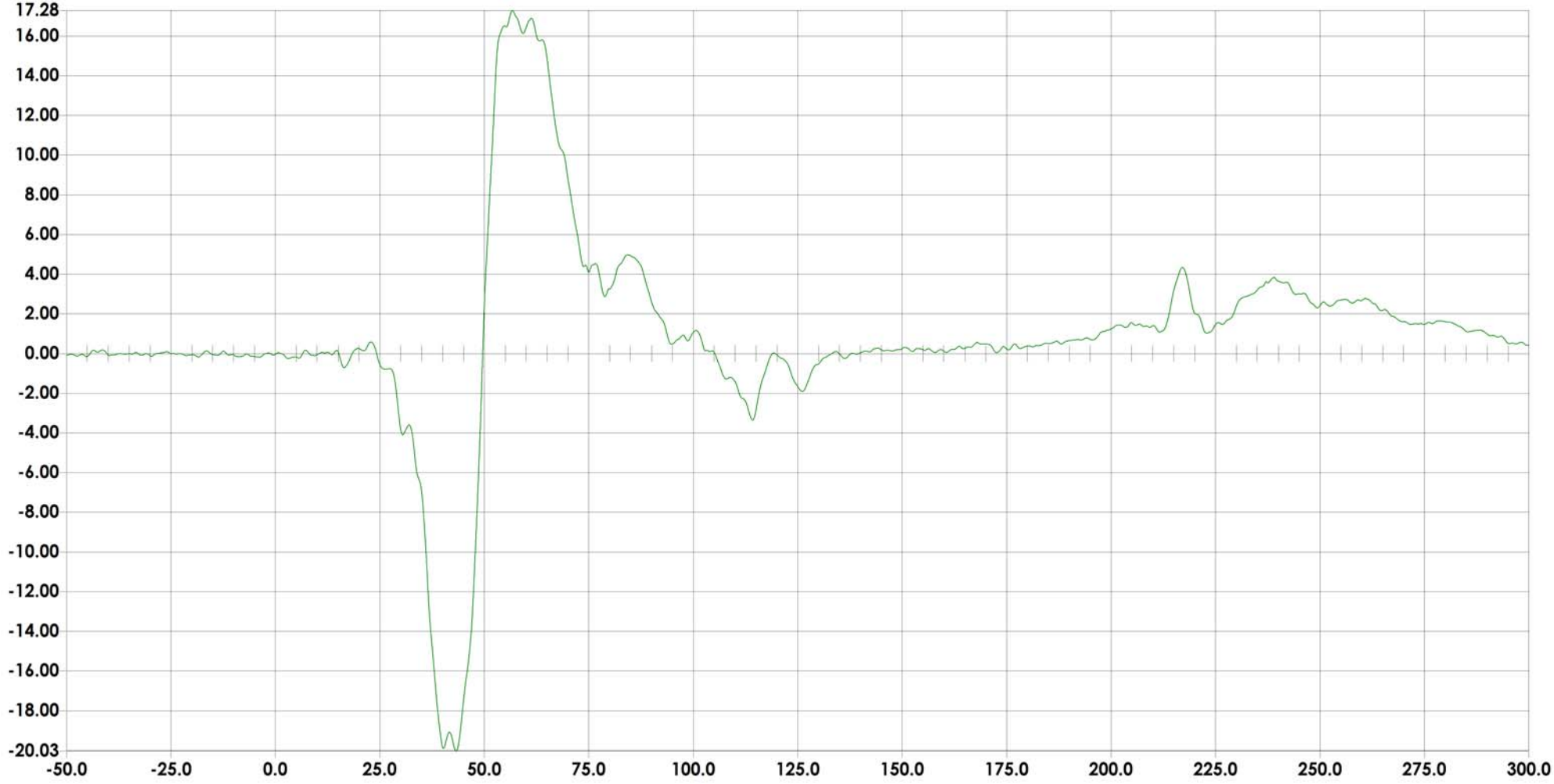
Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	MC 5317
Date	12-14-2011
Description	2012 Honda Fit 5-Door Hatchback SINCAP

Filter	CFC180		
Sampling Rate (Hz)	12500	Sensor Location	SPNL
Number of Points	4376	Sensor Info	ENDEVCO 7264C-2KTZ-2-240
Pretrigger Points	625	Serial Number	P21788

MEDICAL COLLEGE OF WISCONSIN

Passenger Lower Spine T12 Acceleration (Z) vs. Time



Max	17.28	G'S	at	56.72	msec
Min	-20.03	G'S	at	43.28	msec

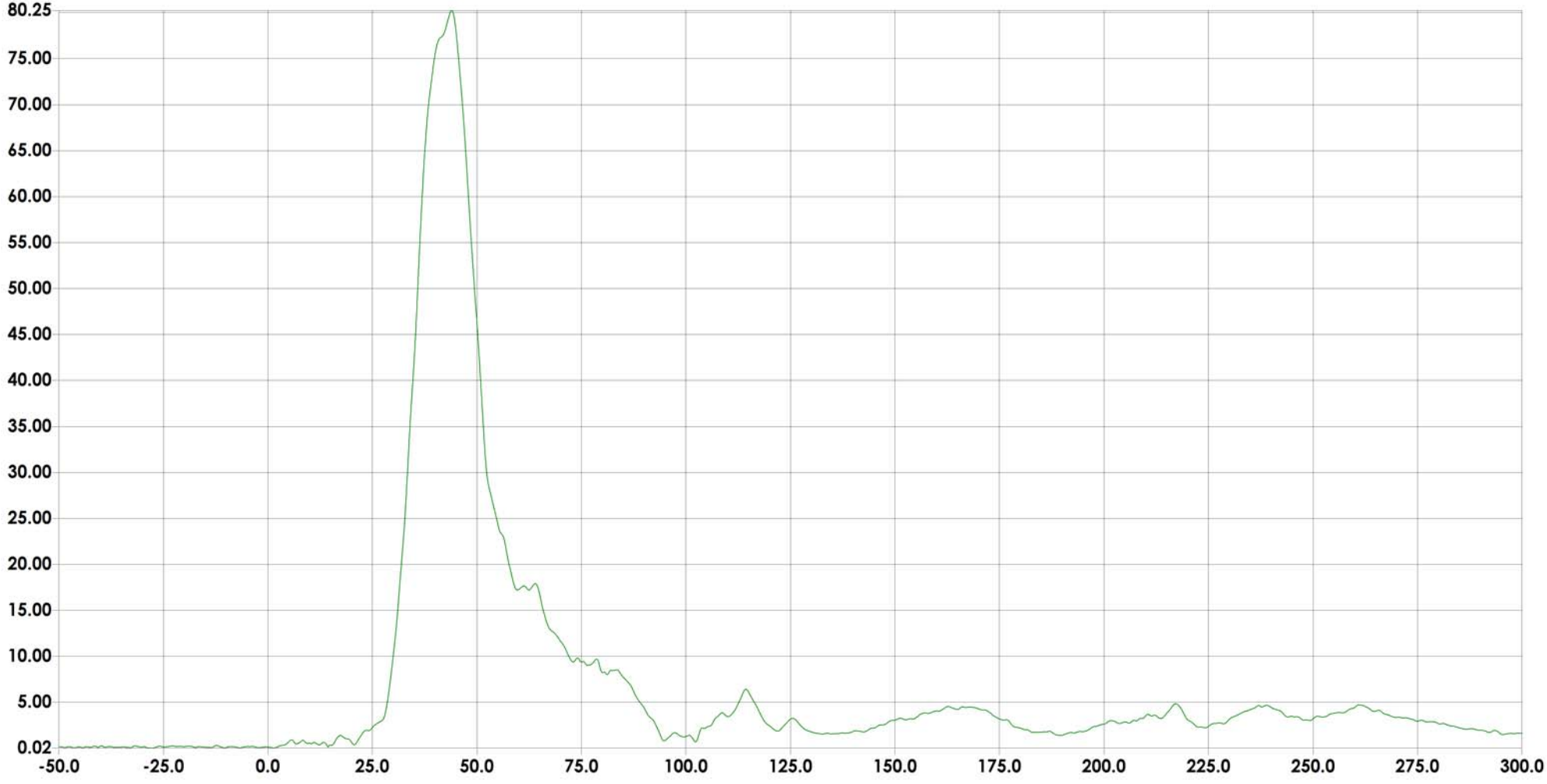
MC 5317 Plot 030

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	MC 5317	Filter	CFC180		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	MCW Multiviewer
		Pretrigger Points	625	Serial Number	3.5.2j

MEDICAL COLLEGE OF WISCONSIN

Passenger Lower Spine T12 Resultant Acceleration vs. Time



Max	80.25	G'S	at	44.00	msec
Min	0.02	G'S	at	1.52	msec

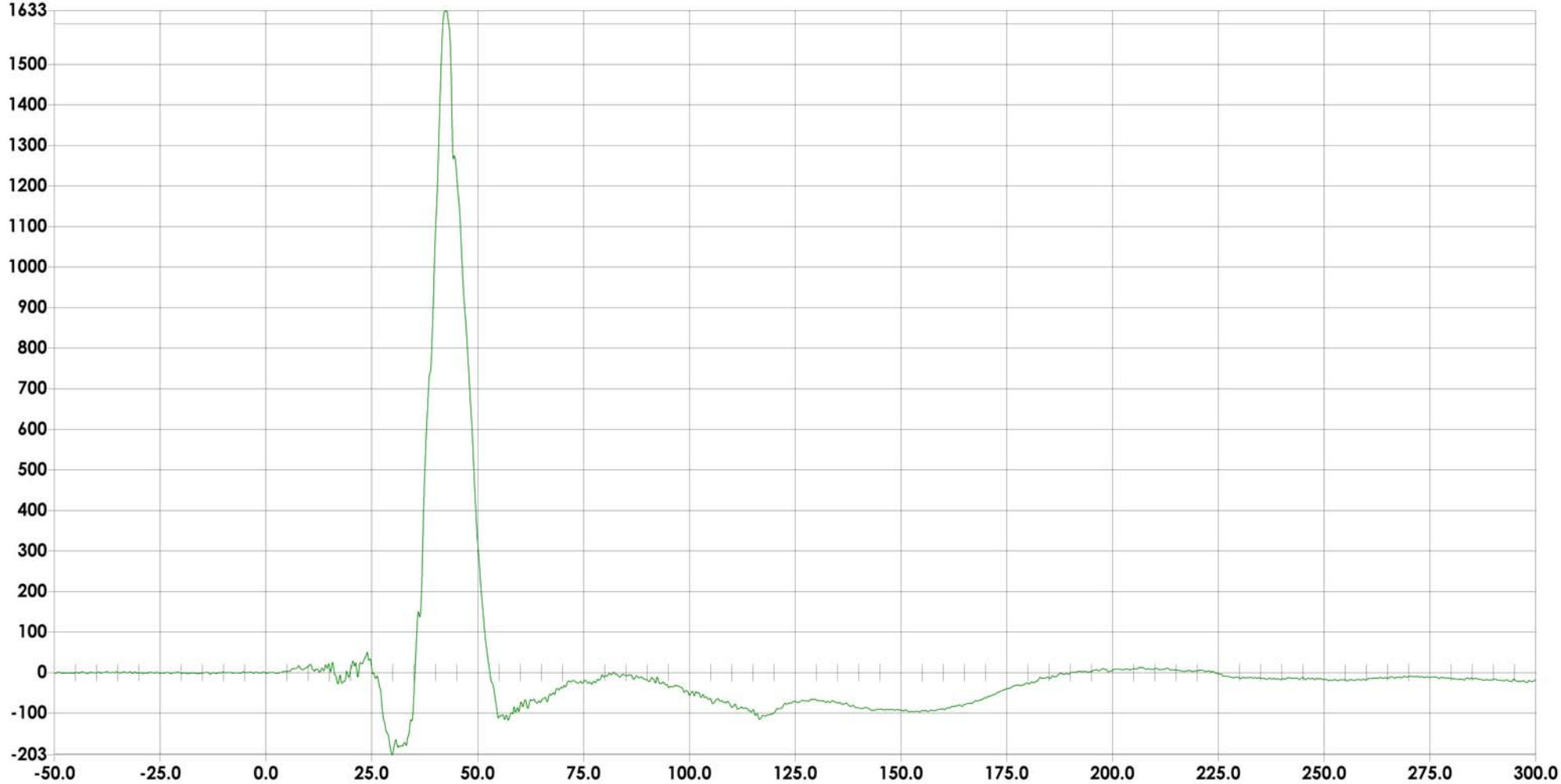
MC 5317 Plot 065

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5317**	**Filter**	**CFC600**		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	PVIL
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	Denton 3228J
		Pretrigger Points	625	Serial Number	3228J_283

MEDICAL COLLEGE OF WISCONSIN

Passenger Iliac Wing Force on Impact Side vs. Time



Max	1632.68	NWT	at	42.64	msec
Min	-202.96	NWT	at	29.84	msec

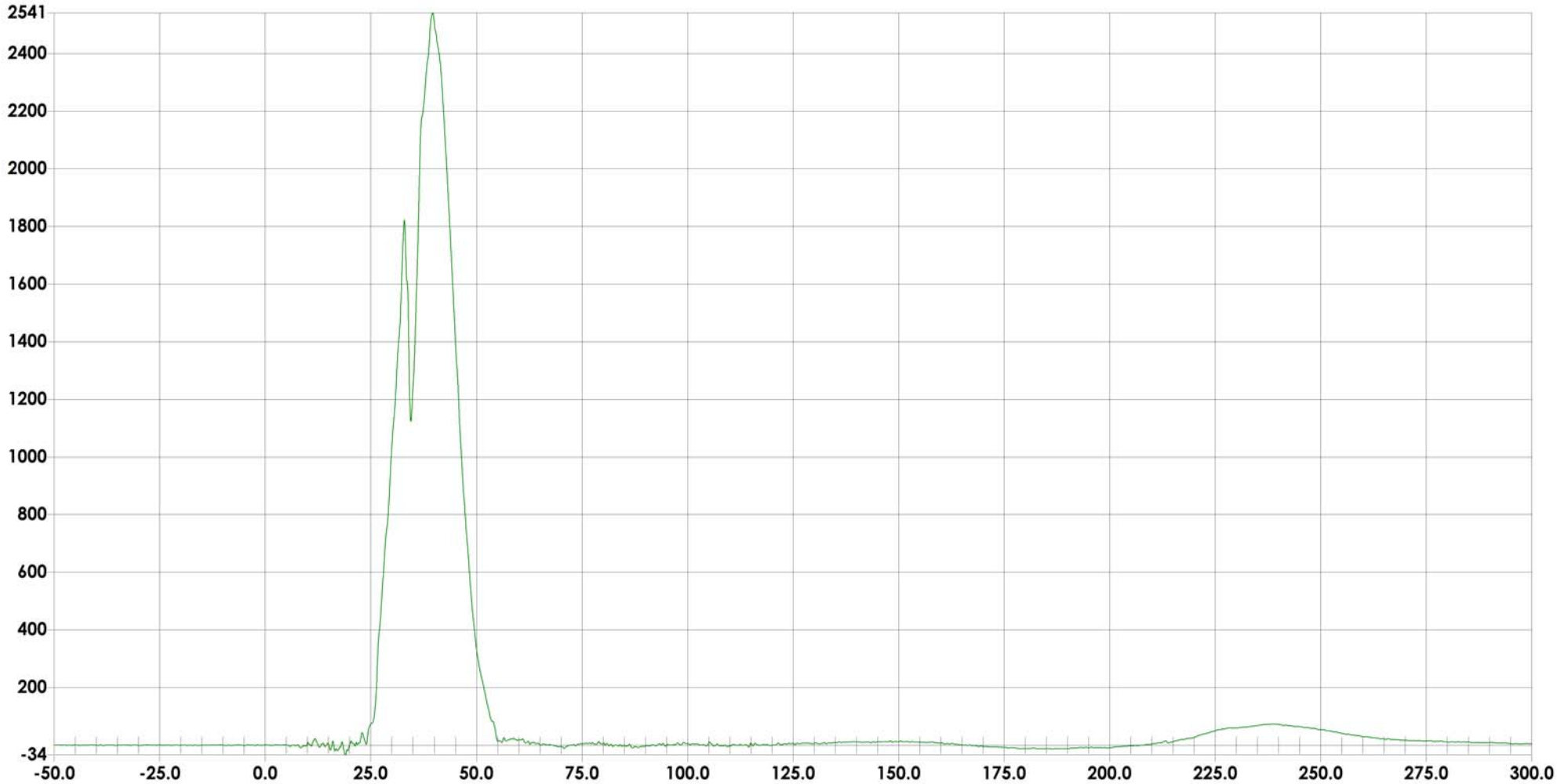
MC 5317 Plot 031

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5317**	**Filter**	**CFC600**		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	PVAL
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	Denton 3249J
		Pretrigger Points	625	Serial Number	3249J_270

MEDICAL COLLEGE OF WISCONSIN

Passenger Acetabulum Force on Impact Side vs. Time



Max	2541.18	NWT	at	39.68	msec
Min	-34.25	NWT	at	18.96	msec

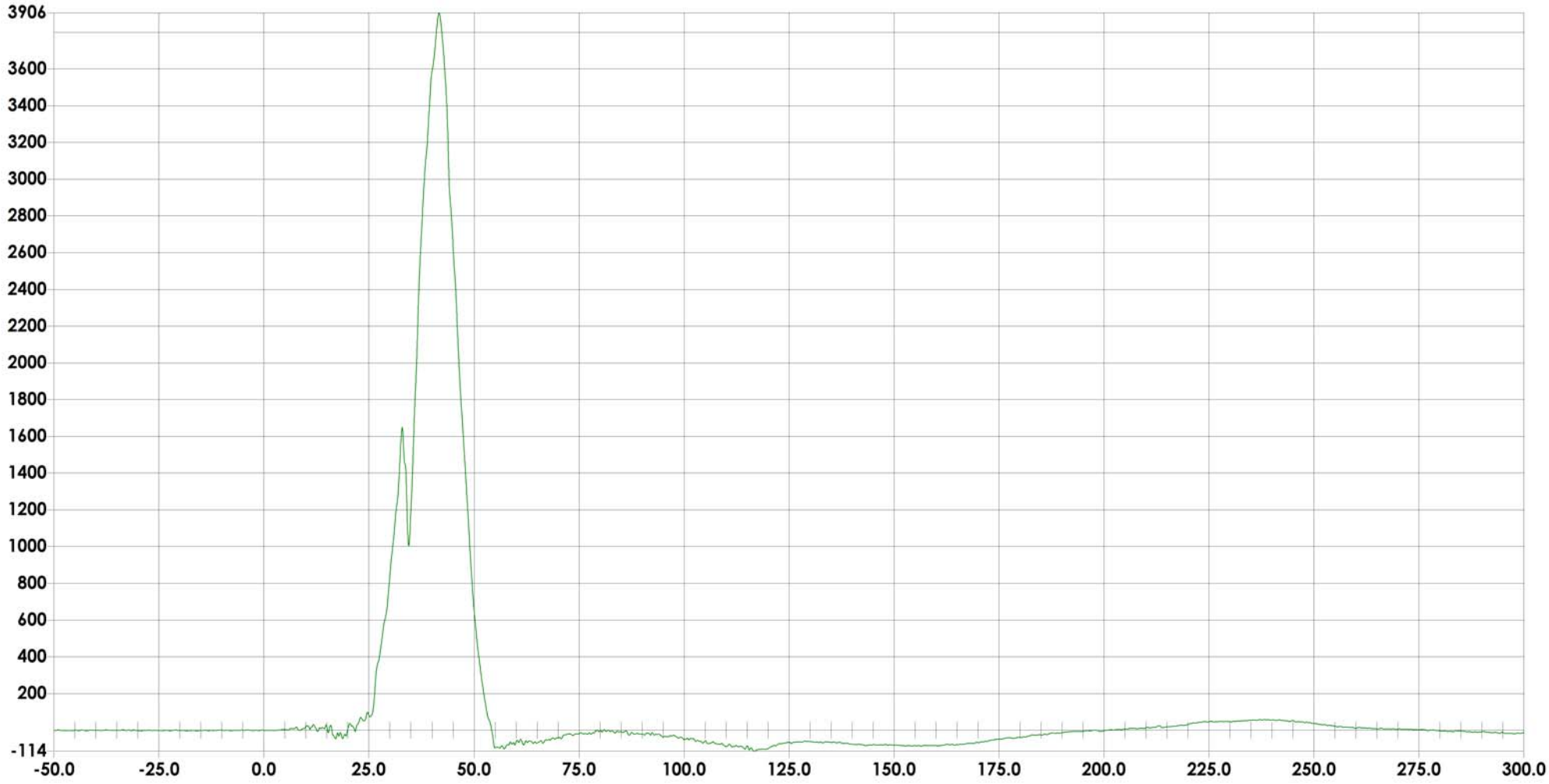
MC 5317 Plot 032

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

Test ID	**MC 5317**	**Filter**	**CFC600**		
Date	12-14-2011	Sampling Rate (Hz)	12500	Sensor Location	
Description	2012 Honda Fit 5-Door Hatchback SINCAP	Number of Points	4376	Sensor Info	MCW Multiviewer
		Pretrigger Points	625	Serial Number	3.5.2j

MEDICAL COLLEGE OF WISCONSIN

Passenger Total Pelvic Force on Impact Side (Y) vs. Time



Max	3905.61	NWT	at	41.68	msec
Min	-113.99	NWT	at	116.72	msec

MC 5317 Plot 066

Neuroscience Research Labs
5000 West National Ave
Research 151
Milwaukee, WI 53295

APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE DATA

TABLE 1
EXTERNAL MEASUREMENTS (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 3 & 4

TEST PARAMETER	SPEC.	PRE		POST	
Date	-	11/8/11		12/20/11	
Sequential Test Number	-	3		4	
		Result	**Pass/Fail**	**Result**	**Pass/Fail**
Temperature (°C)	**20.6-22.2**	20.7	Pass	20.7	Pass
Relative Humidity (%)	**10-70**	31.6	Pass	37.9	Pass
Sitting Height	**900 - 918**	917	Pass	912	Pass
Seat to Shoulder Joint	**558 -572**	570	Pass	564	Pass
Seat to Lower Face of Thoracic Spine Box	**346 -356**	354	Pass	355	Pass
Seat to Hip Joint (Center of Bolt)	**97 - 103**	101	Pass	100	Pass
Sole to Seat, Sitting	**433 - 451**	440	Pass	441	Pass
Head Width	**152 -158**	152	Pass	154	Pass
Shoulder/Arm Width	**461 - 479**	464	Pass	472	Pass
Thorax Width	**322 - 332**	323	Pass	325	Pass
Abdomen Width	**273 - 287**	281	Pass	281	Pass
Pelvis/Lap Width	**359 - 373**	364	Pass	361	Pass
Head Depth	**196 - 206**	201	Pass	201	Pass
Thorax Depth	**262 - 272**	269	Pass	270	Pass
Abdomen Depth	**194 - 204**	200	Pass	202	Pass
Pelvis Depth	**235 - 245**	242	Pass	241	Pass
Back of Buttocks to Hip Joint (Center of Bolt)	**150 - 160**	158	Pass	157	Pass
Back of Buttocks to Front Knee	**597 - 615**	610	Pass	610	Pass

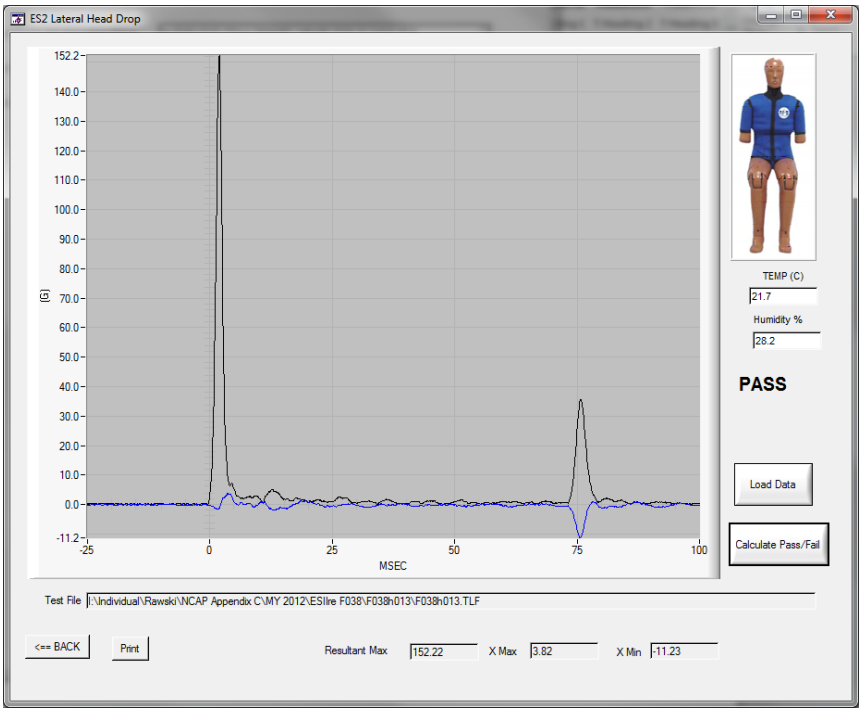
TABLE 2
HEAD DROP TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/4/11		12/16/11	
Sequential Test Number		-	3		4	
			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**	22.1	Pass	21.7	Pass
	Min		20.6	Pass	20.7	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	34.2	Pass	41.0	Pass
	Min		22.0	Pass	33.2	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.7	Pass	21.7	Pass
Humidity – During Test (%)		**10-70**	28.2	Pass	33.2	Pass
Peak Head Resultant Acceleration (G)		**125-155**	152.2	Pass	135.4	Pass
Peak Head X Acceleration (G)		**<15**	3.8	Pass	3.9	Pass
Unimodal (Oscillation) (Yes/No)		**<15%**	-	Yes	-	Yes

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

PRE-TEST



POST-TEST

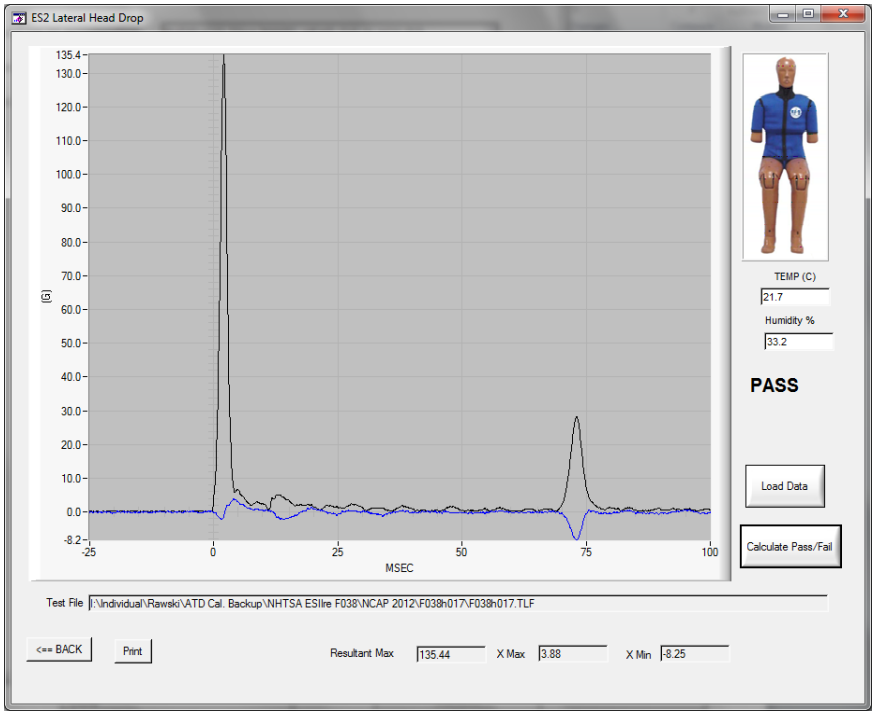


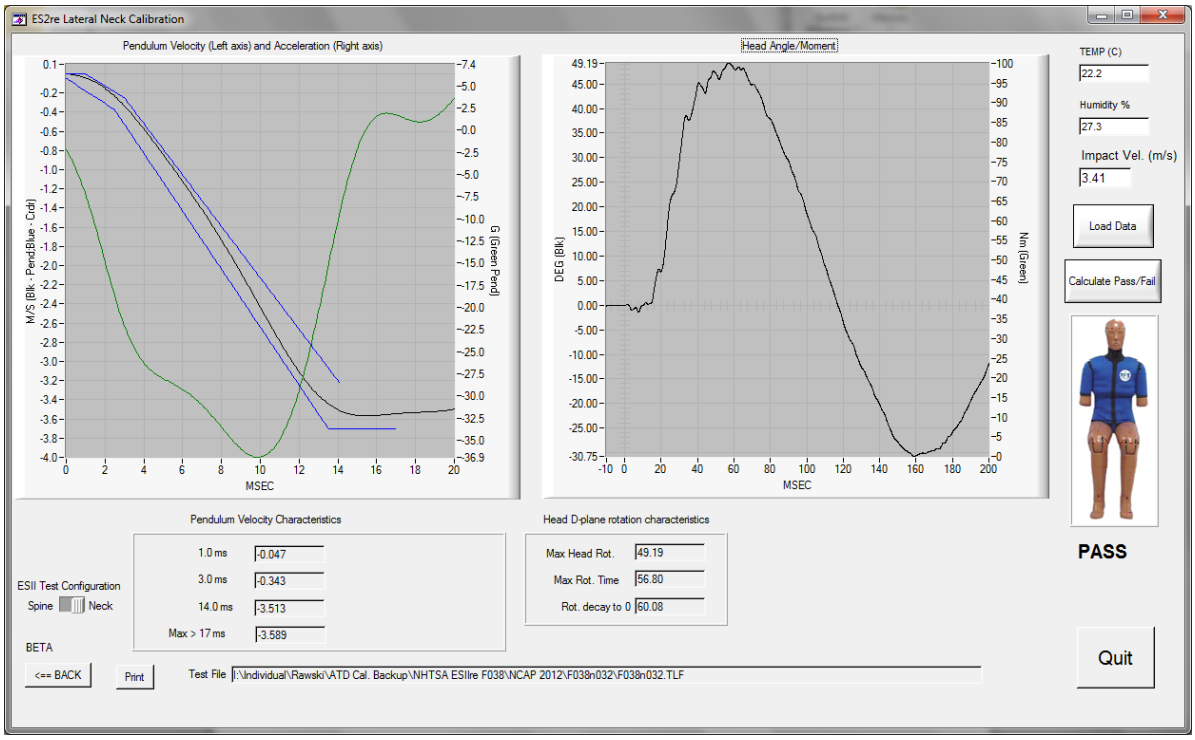
TABLE 3
NECK PENDULUM TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/7/11		12/16/11	
Sequential Test Number		-	3		4	
			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**	22.1	Pass	21.7	Pass
	Min		20.6	Pass	20.7	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	34.2	Pass	41.0	Pass
	Min		22.0	Pass	33.2	Pass
Temperature – During Test (°C)		**20.6-22.2**	22.2	Pass	21.1	Pass
Humidity – During Test (%)		**10-70**	27.3	Pass	36.7	Pass
Pendulum Velocity (m/s)		**3.3-3.5**	3.41	Pass	3.41	Pass
Pendulum Velocity Corridors (m/s)	0-1.0 ms	**(-0.05)-0.00**	-0.047	Pass	-0.045	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)**	-3.5	Pass	-3.5	Pass
	Max > 17 ms	**-3.7**	-3.6	Pass	-3.6	Pass
Max D-Plane rotation (deg)		**49-59**	49.2	Pass	49.5	Pass
Time of Max D-Plane Rotation (ms)		**54-66**	56.8	Pass	58.2	Pass
Time of Moment Decay from Peak to 0 Nm (ms)		**53-88**	60.1	Pass	57.8	Pass

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

PRE-TEST



POST-TEST

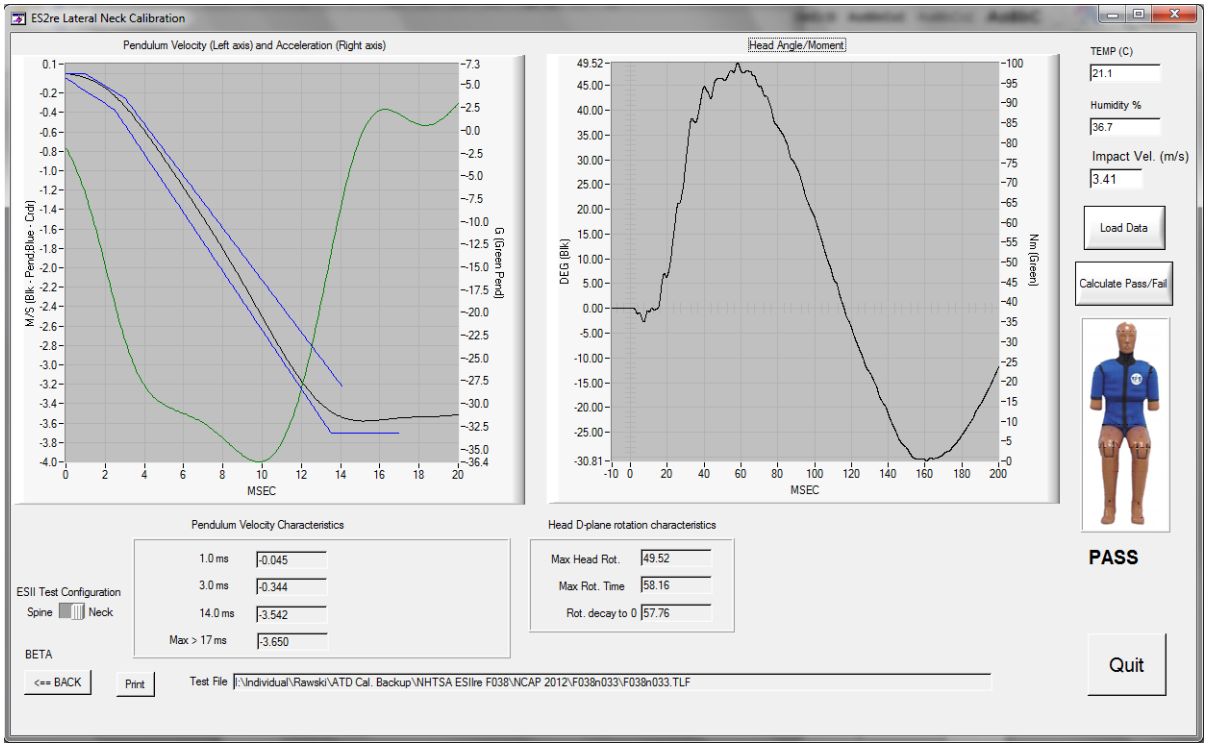


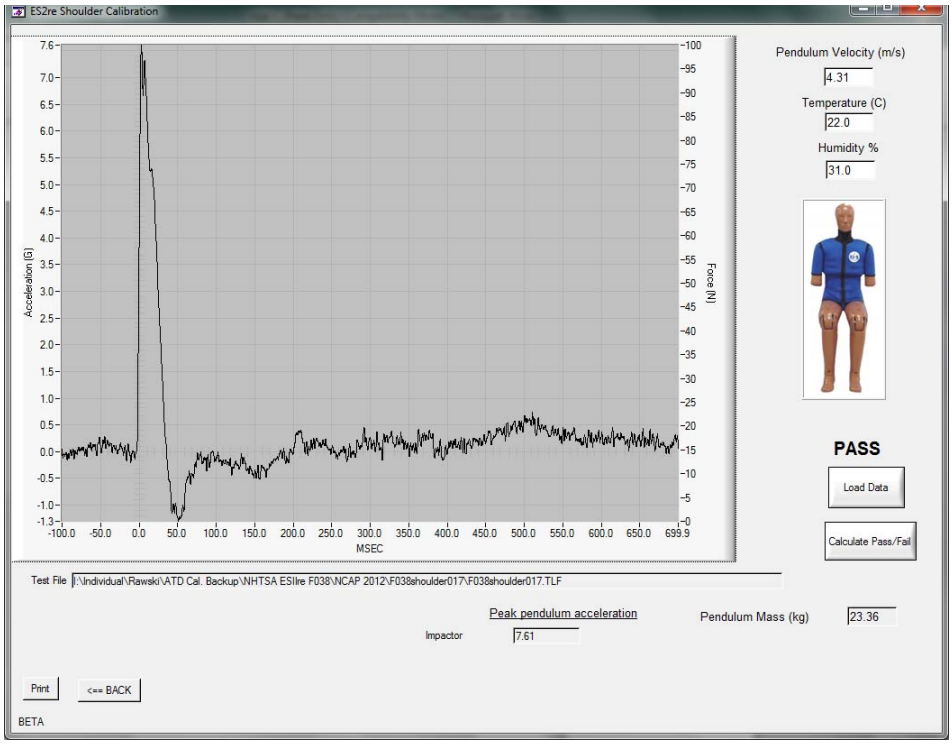
TABLE 4
SHOULDER IMPACT TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/7/11		12/20/11	
Sequential Test Number		-	3		4	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	**20.6-22.2**	21.7	Pass	20.8	Pass
	Min		20.7	Pass	20.7	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	32.3	Pass	40.4	Pass
	Min		29.8	Pass	35.9	Pass
Temperature – During Test (°C)		**20.6-22.2**	22.0	Pass	20.7	Pass
Humidity – During Test (%)		**10-70**	31.0	Pass	35.9	Pass
Pendulum Velocity (m/s)		**4.2-4.4**	4.3	Pass	4.31	Pass
Peak Impactor Acceleration (G)		**7.5-10.5**	7.6	Pass	7.7	Pass

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

PRE-TEST



POST-TEST

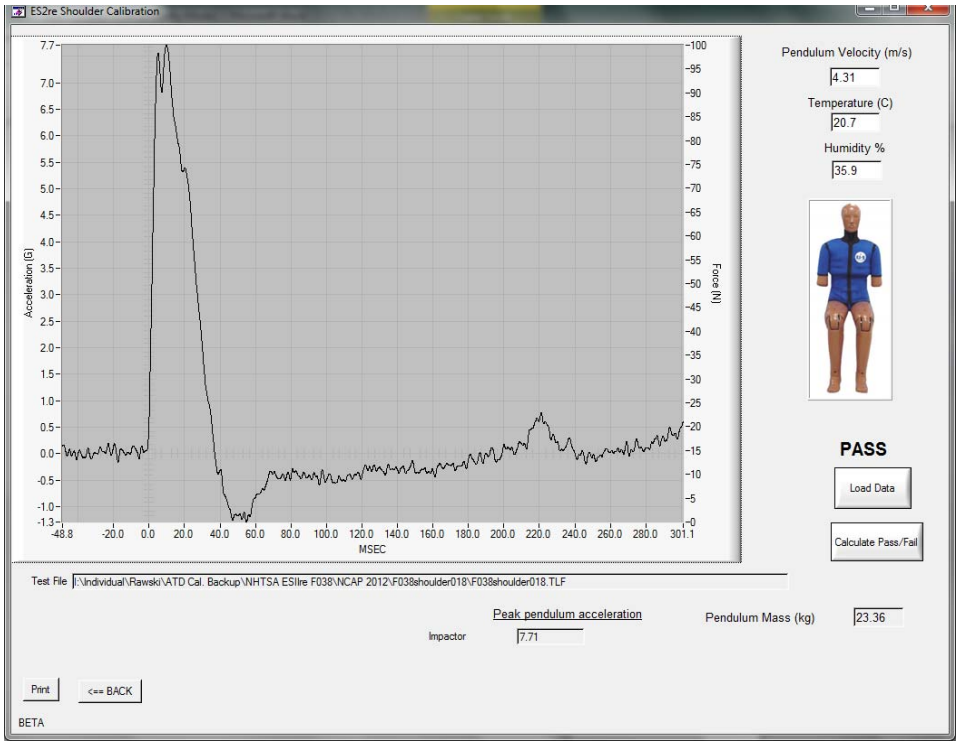


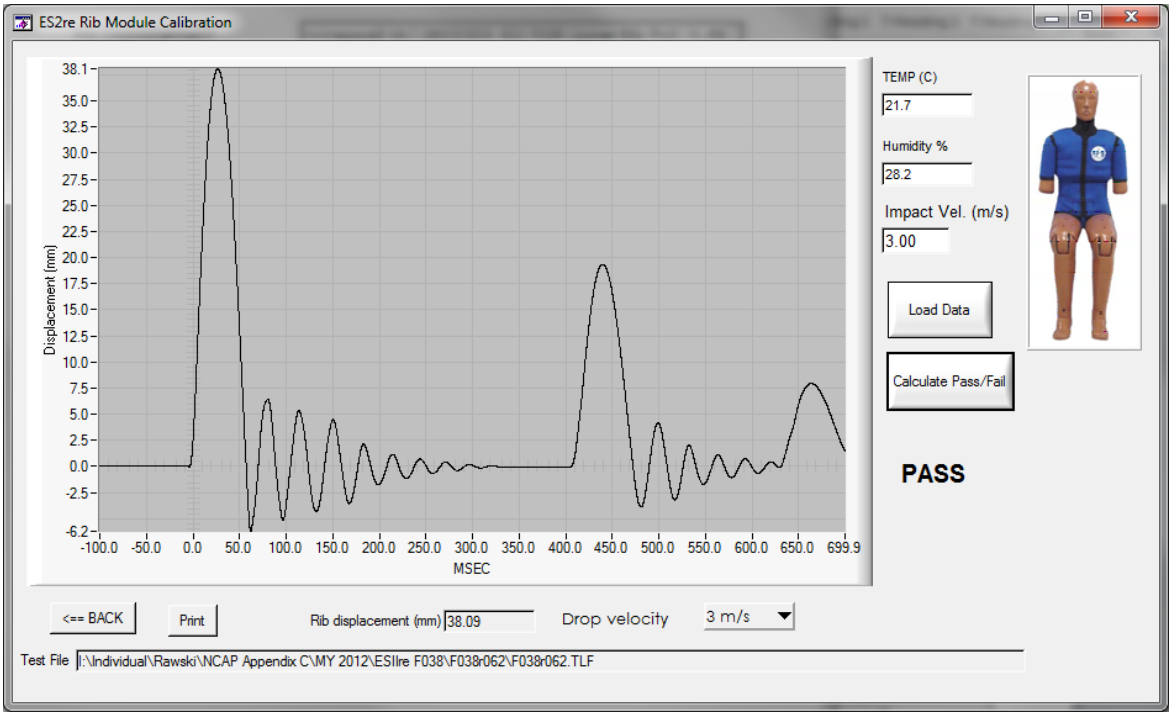
TABLE 5
THORAX – UPPER RIB DROP TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/4/11		12/15/11	
Sequential Test Number		-	3		4	
			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**	22.1	Pass	20.8	Pass
	Min		20.6	Pass	20.7	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	34.2	Pass	41.5	Pass
	Min		22.0	Pass	41.0	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.7	Pass	20.7	Pass
Humidity – During Test (%)		**10-70**	28.2	Pass	41.0	Pass
1st Test - Drop Height 459 ± 5 mm		**36-40**	38.1	Pass	37.8	Pass
2nd Test - Drop Height 815 ± 5 mm		**46-51**	49.4	Pass	49.1	Pass

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

PRE-TEST



POST-TEST

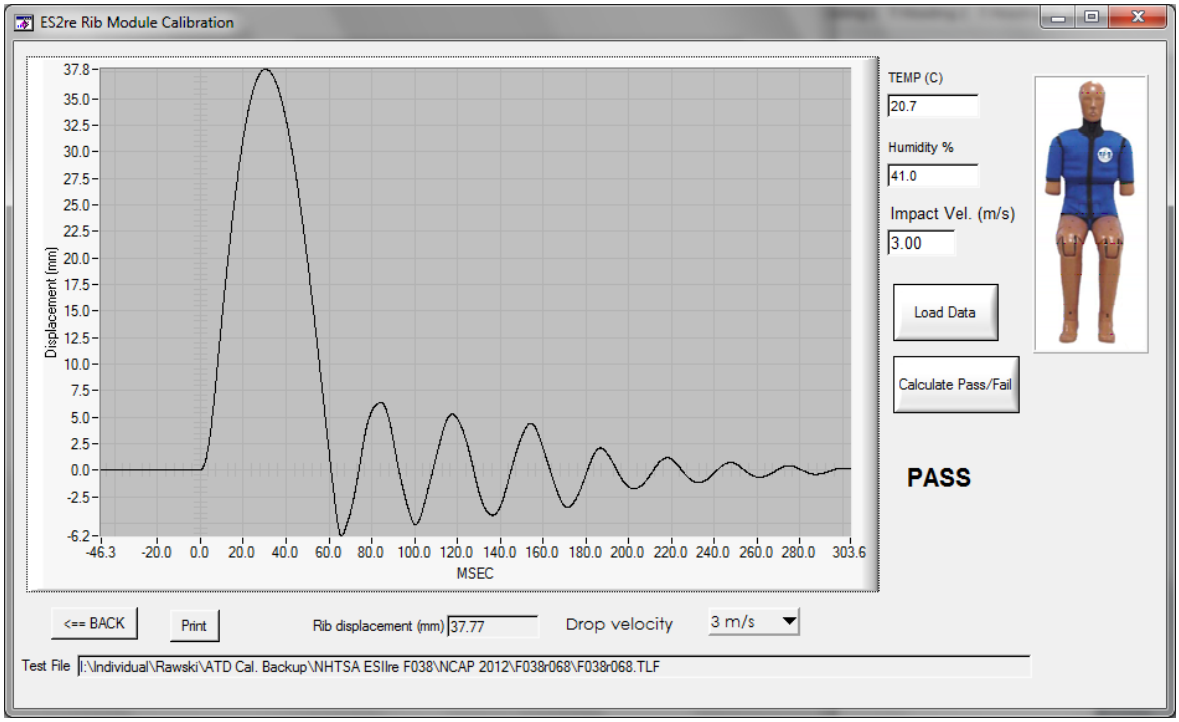
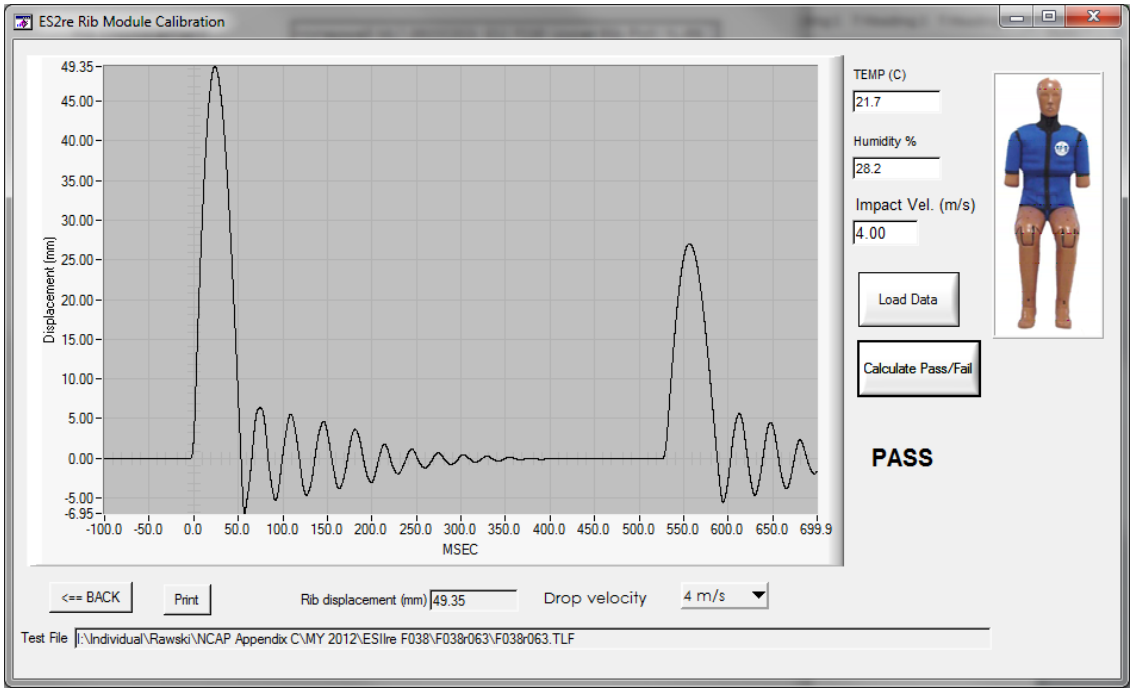


TABLE 5
THORAX – UPPER RIB DROP TEST (ES-IIre) (CONTINUED)
4.00 m/s

PRE-TEST



POST-TEST

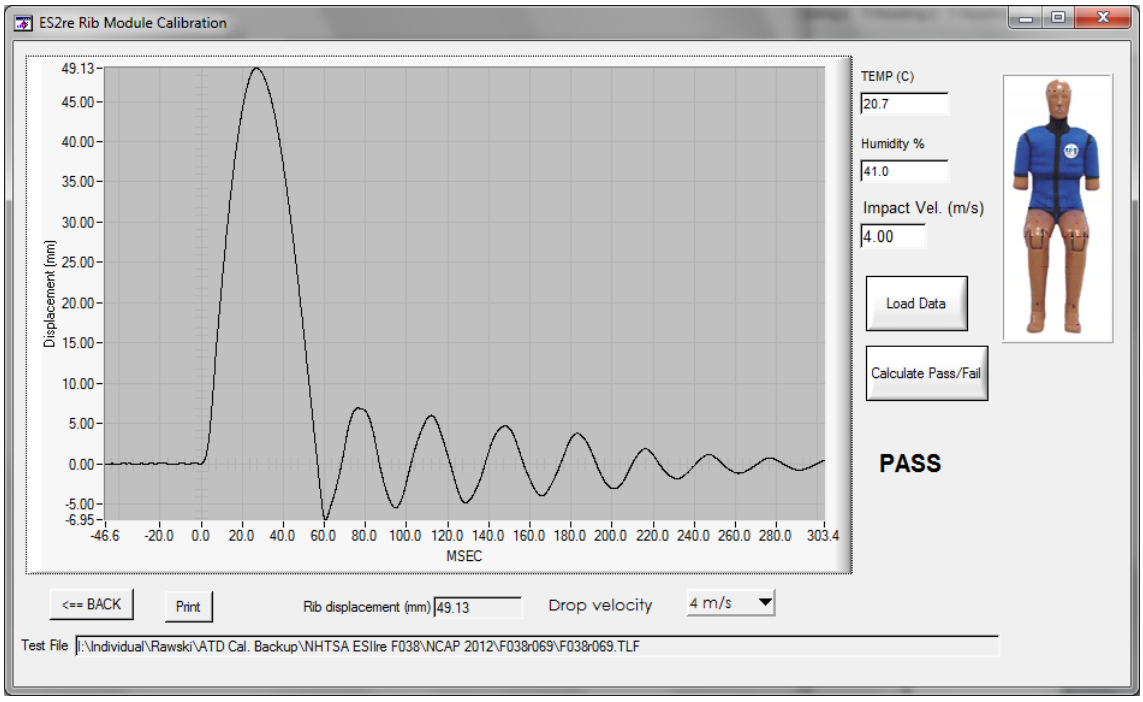


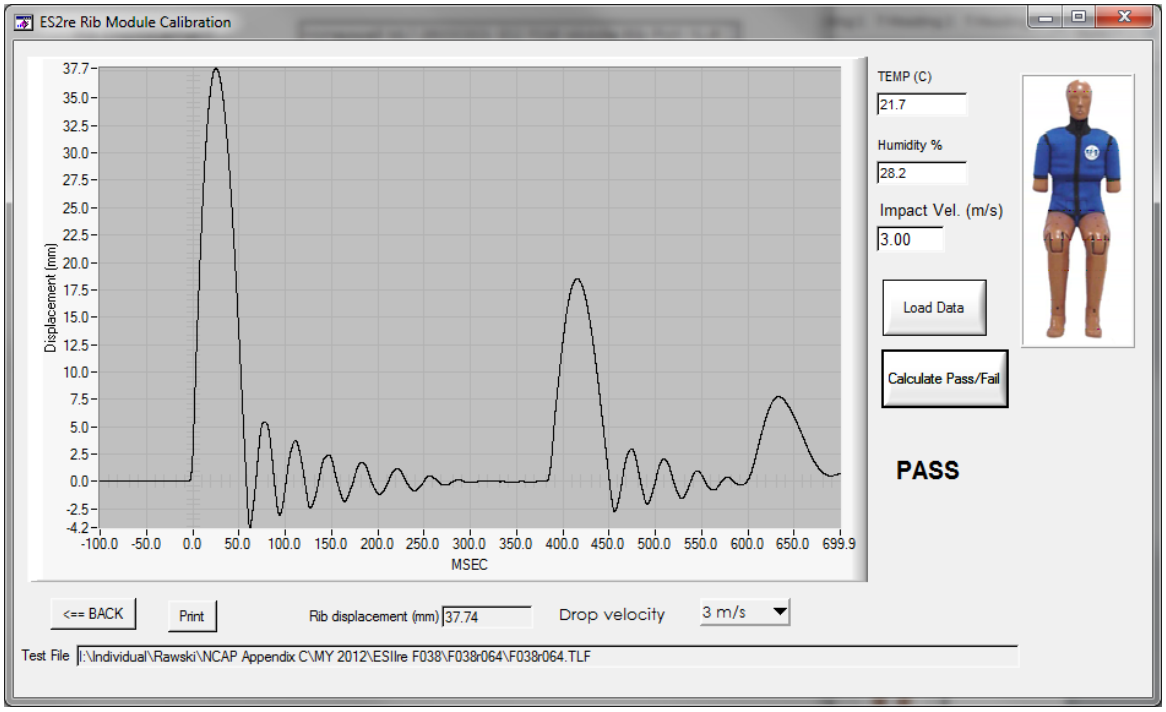
TABLE 6
THORAX – MIDDLE RIB DROP TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/4/11		12/15/11	
Sequential Test Number		-	3		4	
			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**	22.1	Pass	20.8	Pass
	Min		21.5	Pass	20.7	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	45.2	Pass	41.5	Pass
	Min		22.0	Pass	41.0	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.7	Pass	20.7	Pass
Humidity – During Test (%)		**10-70**	28.2	Pass	41.0	Pass
1st Test - Drop Height 459 ± 5 mm		**36-40**	37.7	Pass	38.0	Pass
2nd Test - Drop Height 815 ± 5 mm		**46-51**	49.9	Pass	49.8	Pass

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

PRE-TEST



POST-TEST

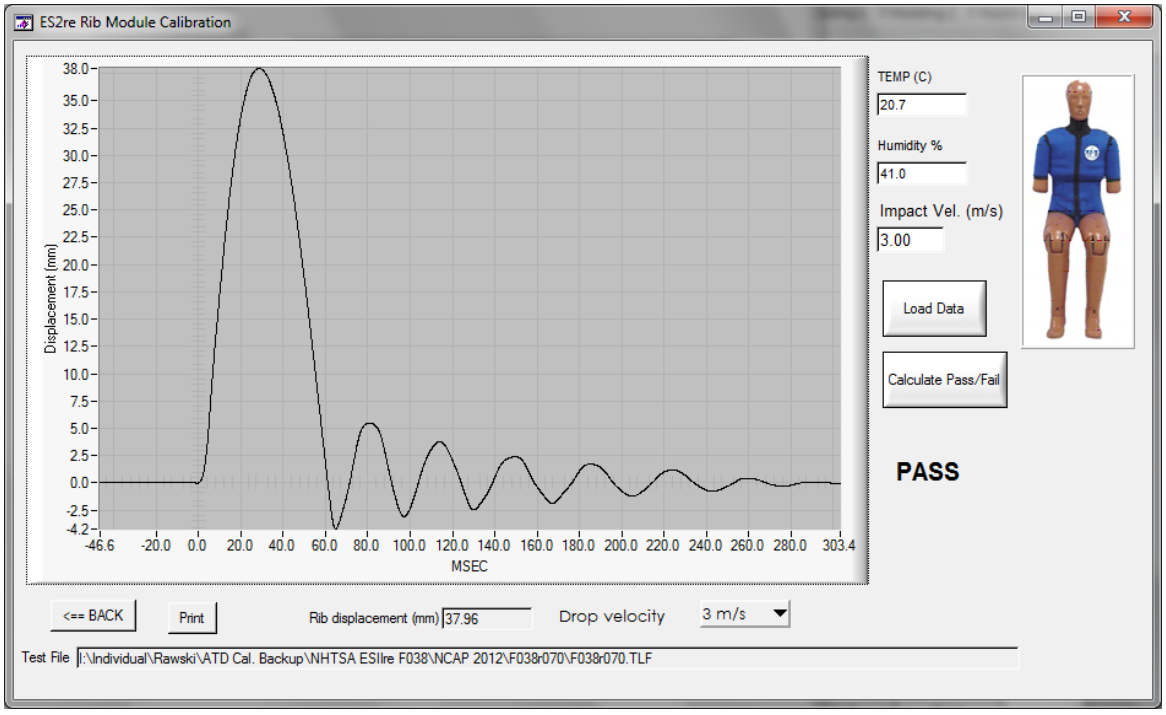
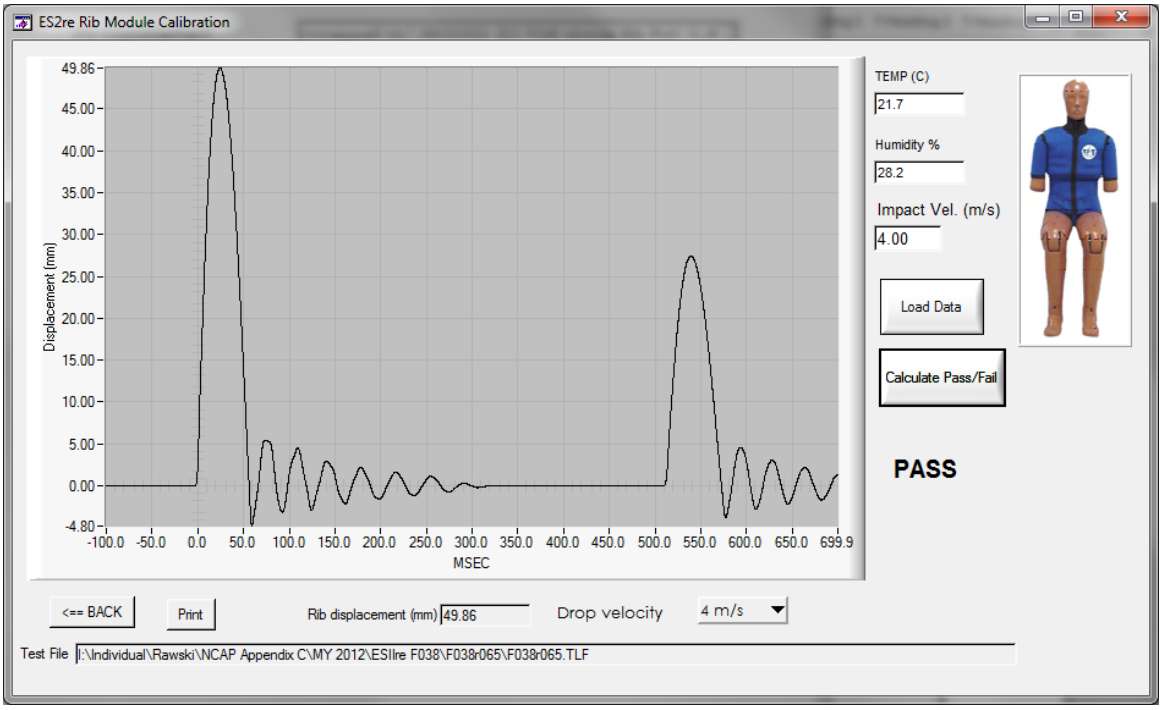


TABLE 6
THORAX – MIDDLE RIB DROP TEST (ES-IIre) (CONTINUED)
4.00 m/s

PRE-TEST



POST-TEST

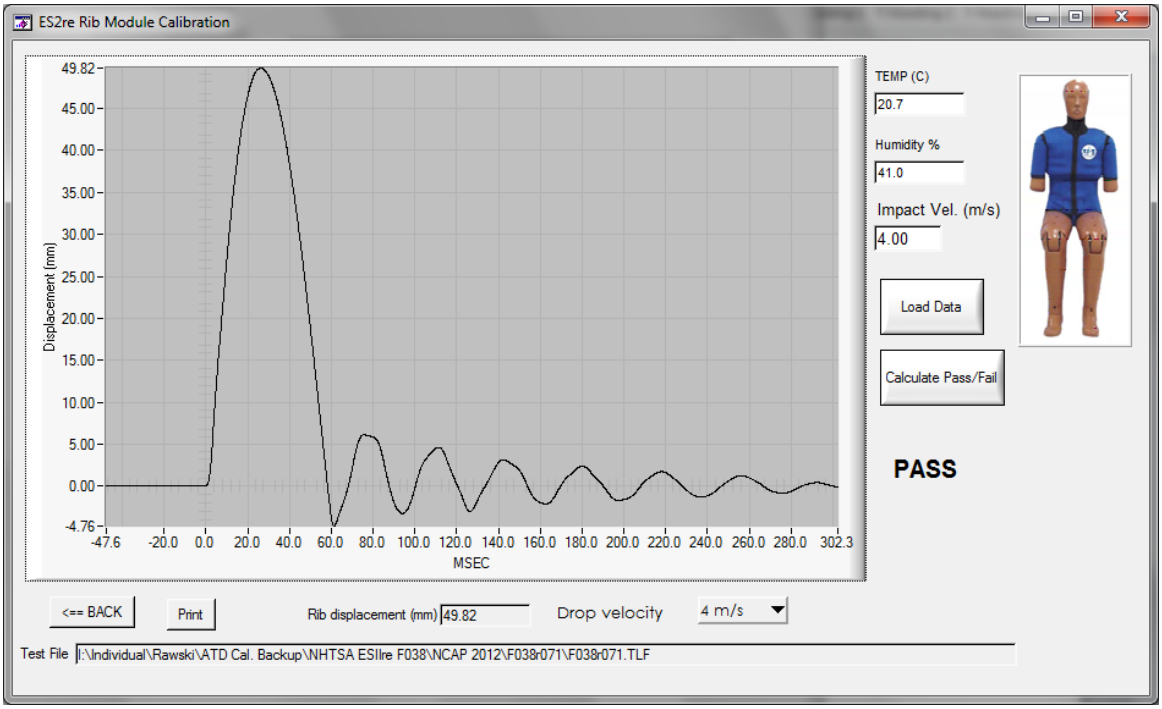


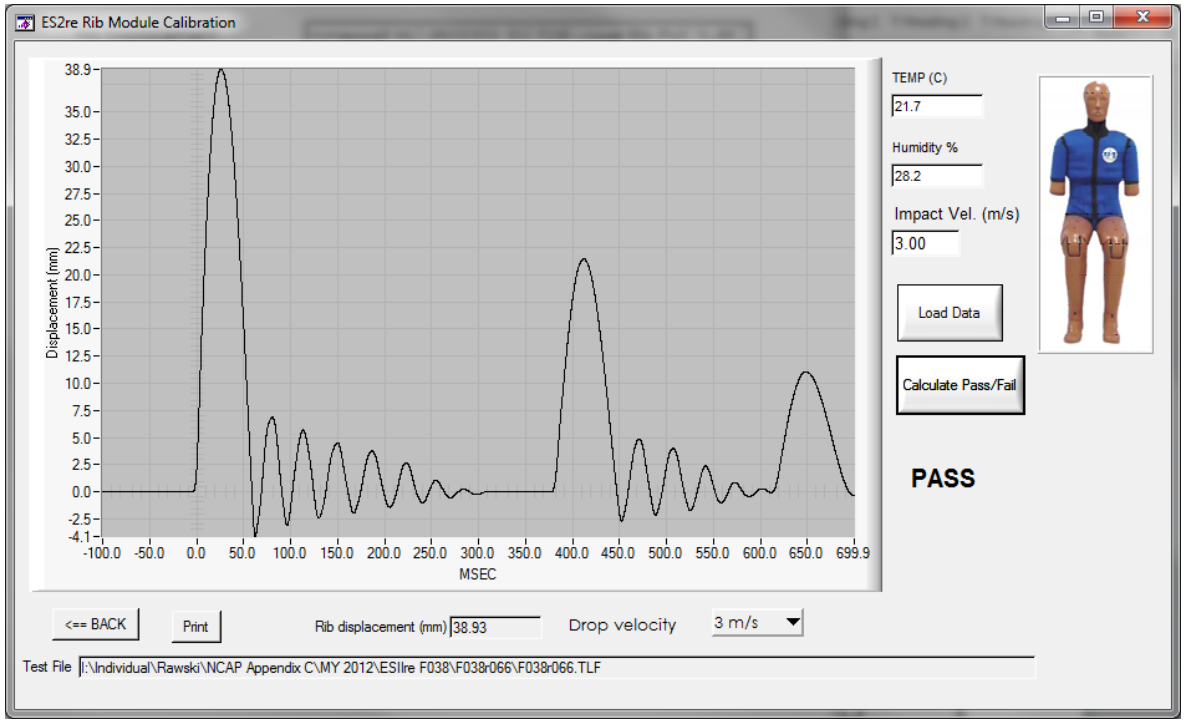
TABLE 7
THORAX – LOWER RIB DROP TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/4/11		12/15/11	
Sequential Test Number		-	3		4	
			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**	22.1	Pass	20.8	Pass
	Min		20.6	Pass	20.7	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	34.2	Pass	41.5	Pass
	Min		22.0	Pass	41.0	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.7	Pass	20.7	Pass
Humidity – During Test (%)		**10-70**	28.2	Pass	41.0	Pass
1st Test - Drop Height 459 ± 5 mm		**36-40**	38.9	Pass	38.9	Pass
2nd Test - Drop Height 815 ± 5 mm		**46-51**	49.8	Pass	49.6	Pass

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

PRE-TEST



POST-TEST

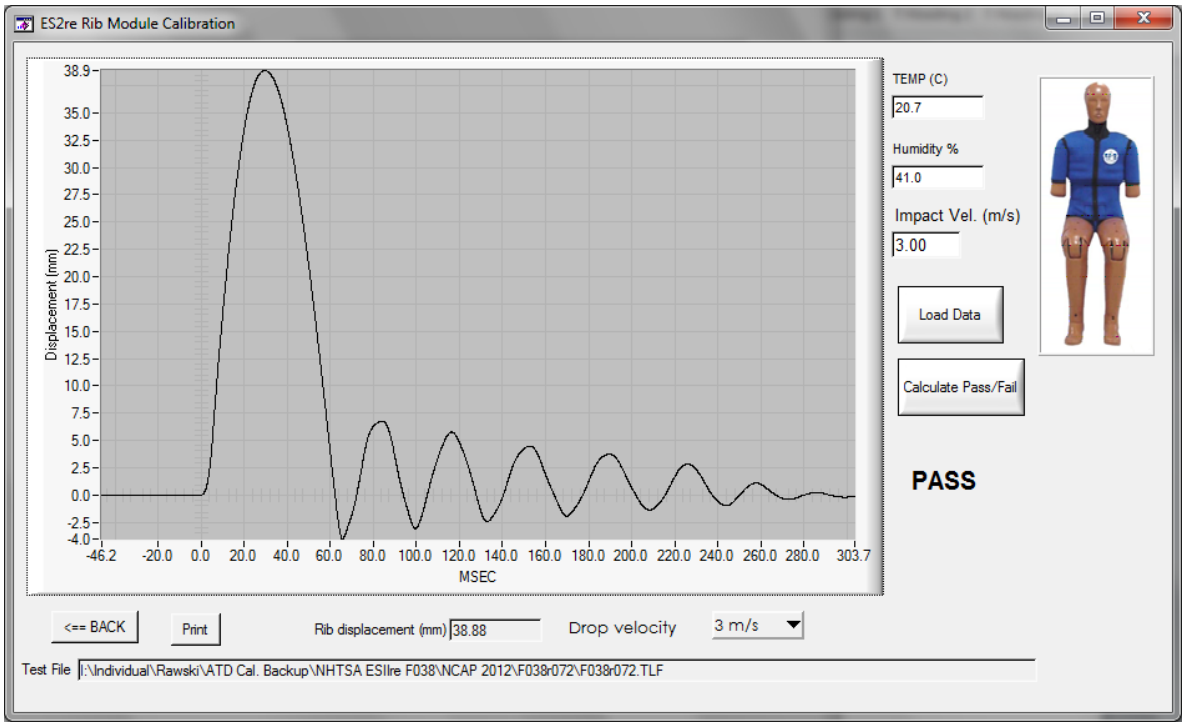
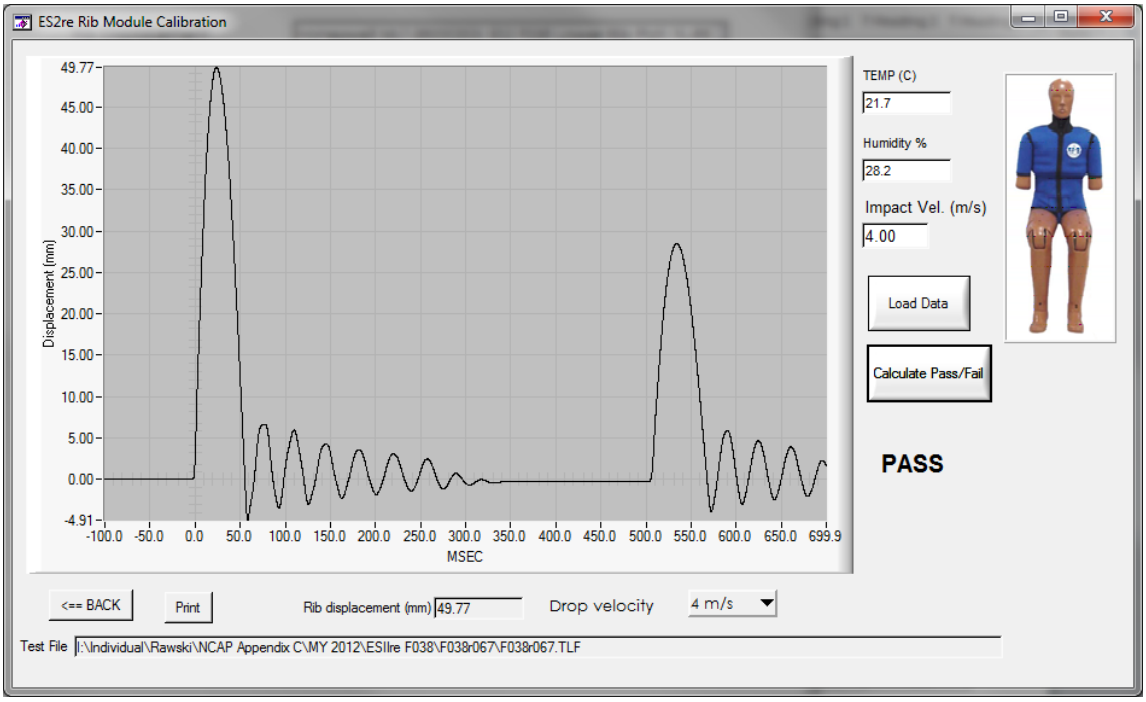


TABLE 7
THORAX – LOWER RIB DROP TEST (ES-IIre) (CONTINUED)
4.00 m/s

PRE-TEST



POST-TEST

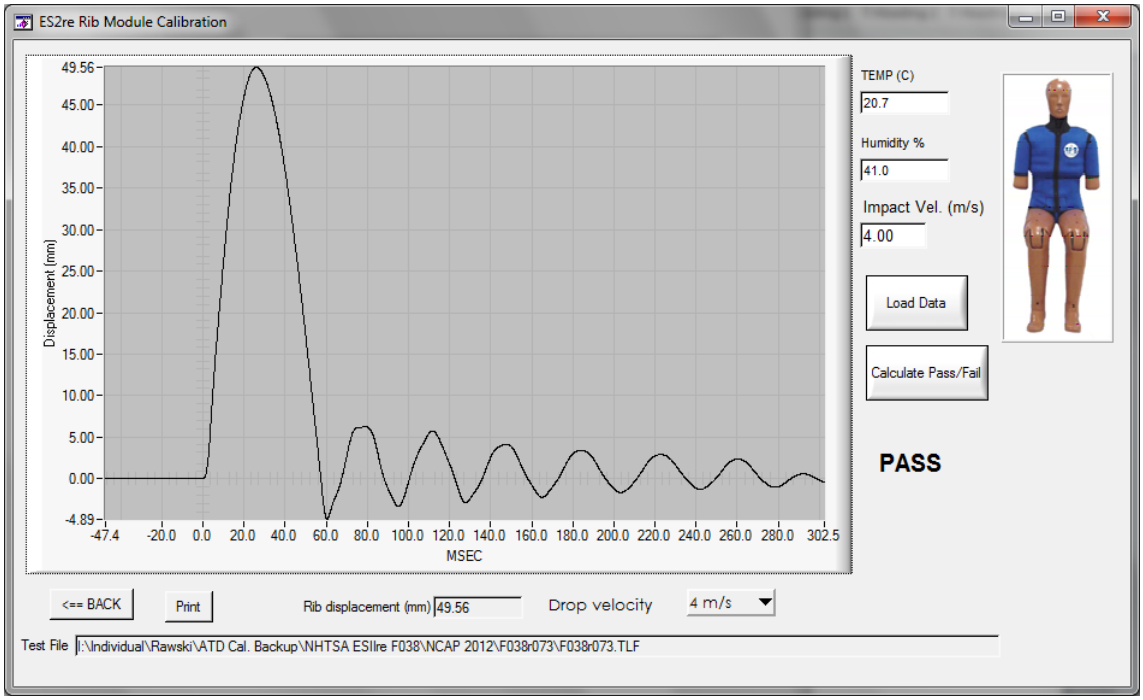


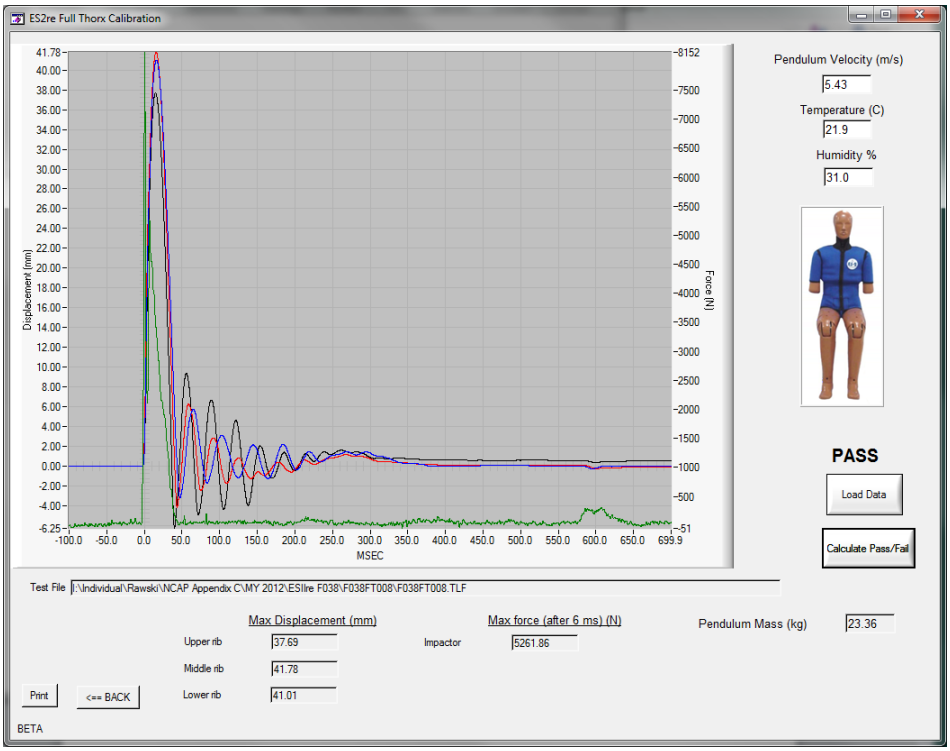
TABLE 8
THORAX – FULL BODY IMPACT TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/7/11		12/20/11	
Sequential Test Number		-	3		4	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	**20.6-22.2**	20.7	Pass	20.8	Pass
	Min		20.7	Pass	20.7	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	32.3	Pass	40.4	Pass
	Min		29.8	Pass	35.9	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.9	Pass	20.7	Pass
Humidity – During Test (%)		**10-70**	31.0	Pass	37.2	Pass
Peak Impactor Velocity (m/s)		**5.4-5.6**	5.4	Pass	5.5	Pass
Peak Upper Rib Deflection (mm)		**34-41**	37.7	Pass	36.9	Pass
Peak Middle Rib Deflection (mm)		**37-45**	41.8	Pass	41.6	Pass
Peak Lower Rib Deflection (mm)		**37-44**	41.0	Pass	41.0	Pass
Peak Impactor Force (>6ms) (kN)		**5.1-6.2**	5.3	Pass	5.5	Pass

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

PRE-TEST



POST-TEST

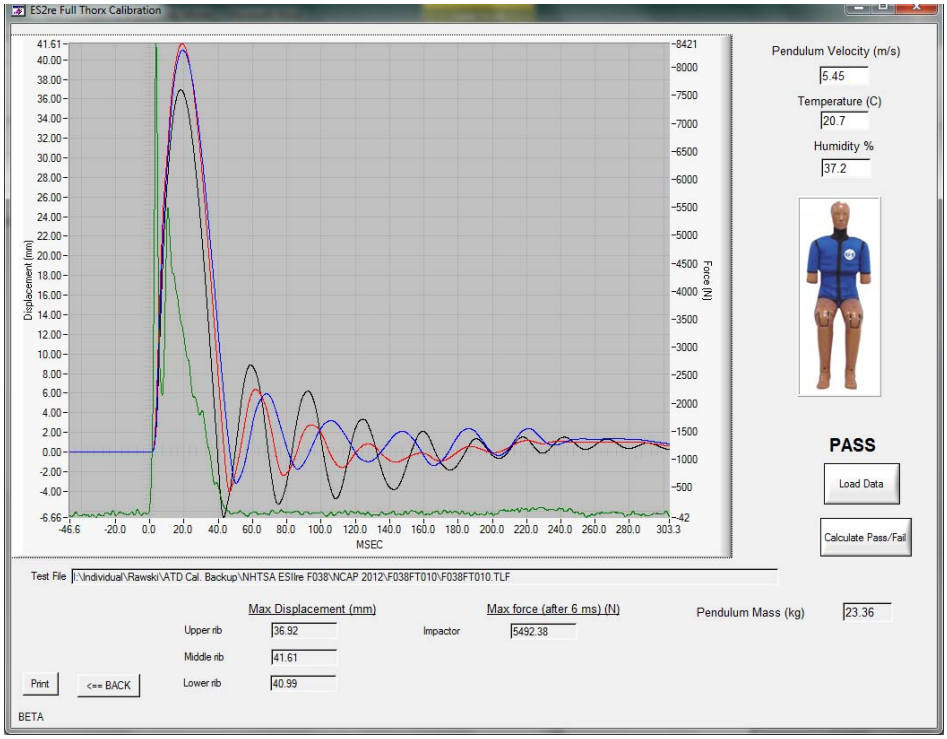


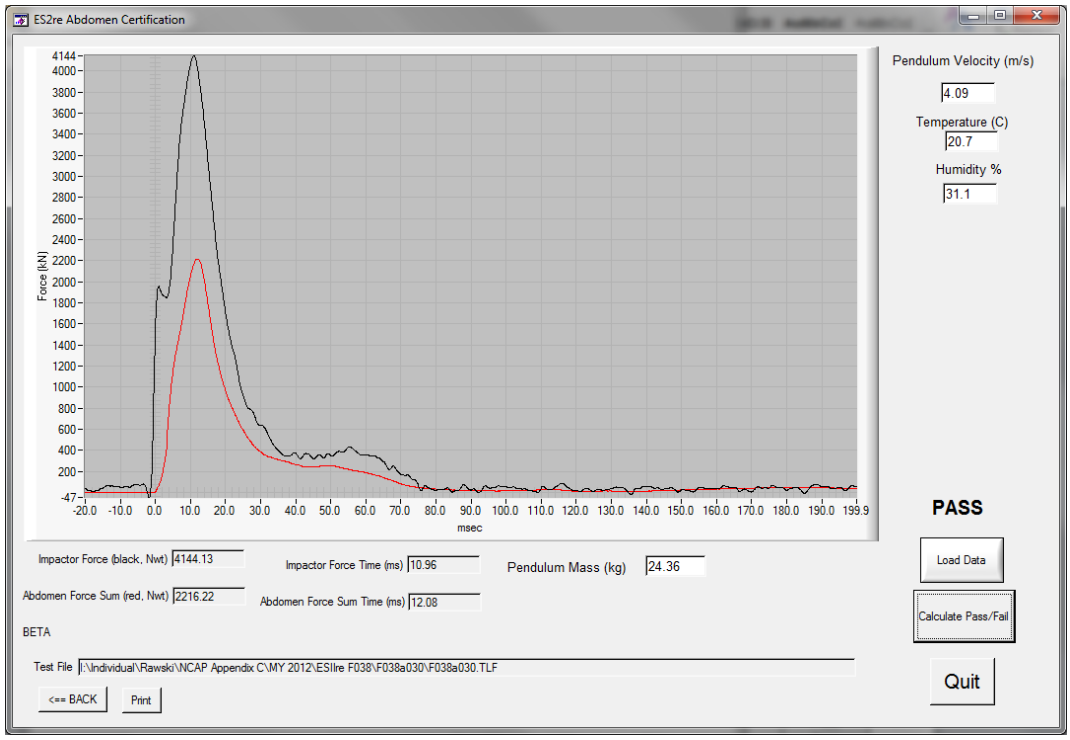
TABLE 9
ABDOMEN IMPACT TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/7/11		12/20/11	
Sequential Test Number		-	3		4	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	**20.6-22.2**	20.7	Pass	20.8	Pass
	Min		20.7	Pass	20.7	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	32.3	Pass	40.4	Pass
	Min		29.8	Pass	35.9	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.7	Pass	20.8	Pass
Humidity – During Test (%)		**10-70**	31.1	Pass	37.7	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**	2.2	Pass	2.3	Pass
Time of Abdominal Forces (ms)		**10-12.3**	12.1	Pass	11.3	Pass
Peak Impactor Force (kN)		**4.0-4.8**	4.1	Pass	4.2	Pass
Time of Peak Impactor Force (ms)		**10.6-13.0**	11.0	Pass	11.1	Pass

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

PRE-TEST



POST-TEST

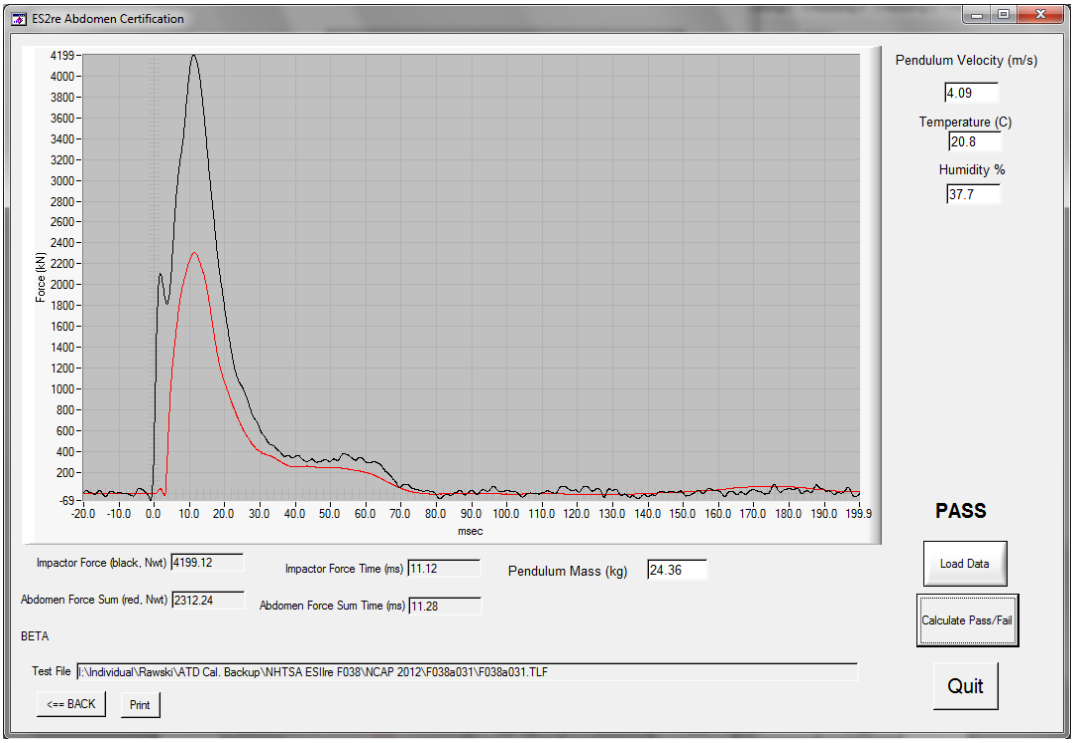


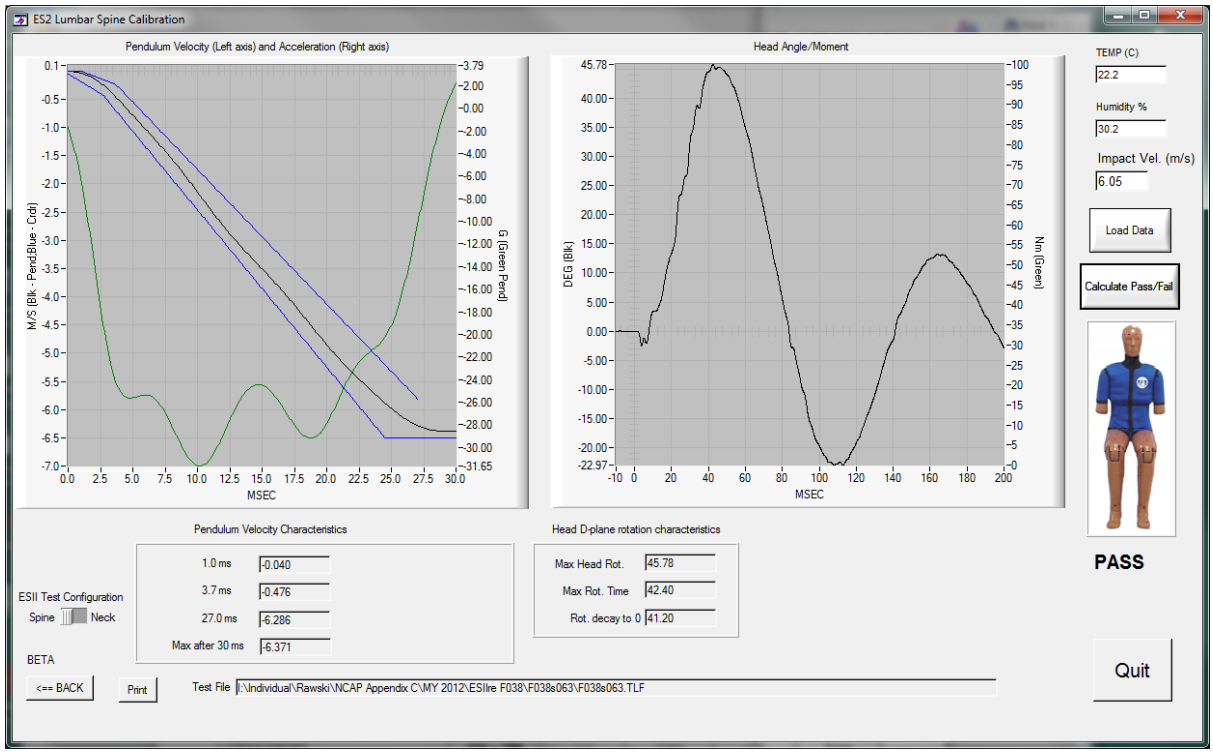
TABLE 10
LUMBAR SPINE FLEXION TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/7/11		11/7/11	
Sequential Test Number		-	3		3	
			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**	20.7	Pass	21.4	Pass
	Min		20.7	Pass	20.8	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	32.3	Pass	26.4	Pass
	Min		29.8	Pass	18.1	Pass
Temperature – During Test (°C)		**20.6-22.2**	22.2	Pass	21.4	Pass
Humidity – During Test (%)		**10-70**	30.2	Pass	26.4	Pass
Pendulum Velocity (m/s)		**5.95-6.15**	6.05	Pass	6.1	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	-0.48	Pass
	24.5-27.0 ms	**(-6.50) - (-5.80)**	-6.3	Pass	-6.2	Pass
	Max after 30 ms	**-6.50**	-6.4	Pass	-6.4	Pass
Maximum Headform Flexion Angle (deg)		**50 ± 5**	45.8	Pass	45.1	Pass
Time at Maximum Flexion Angel (ms)		**39-53**	42.4	Pass	45.5	Pass
Time of Decay to Zero Angle from Peak (ms)		**37-57**	41.2	Pass	38.4	Pass

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

PRE-TEST



POST-TEST

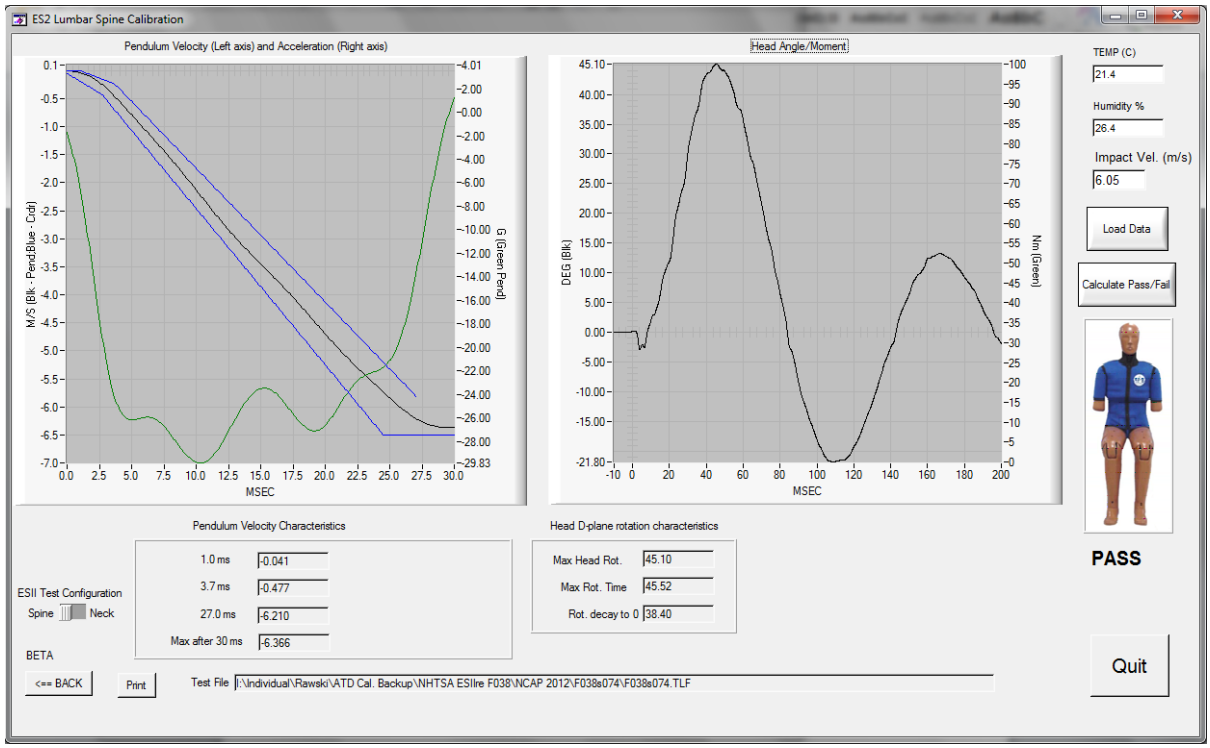


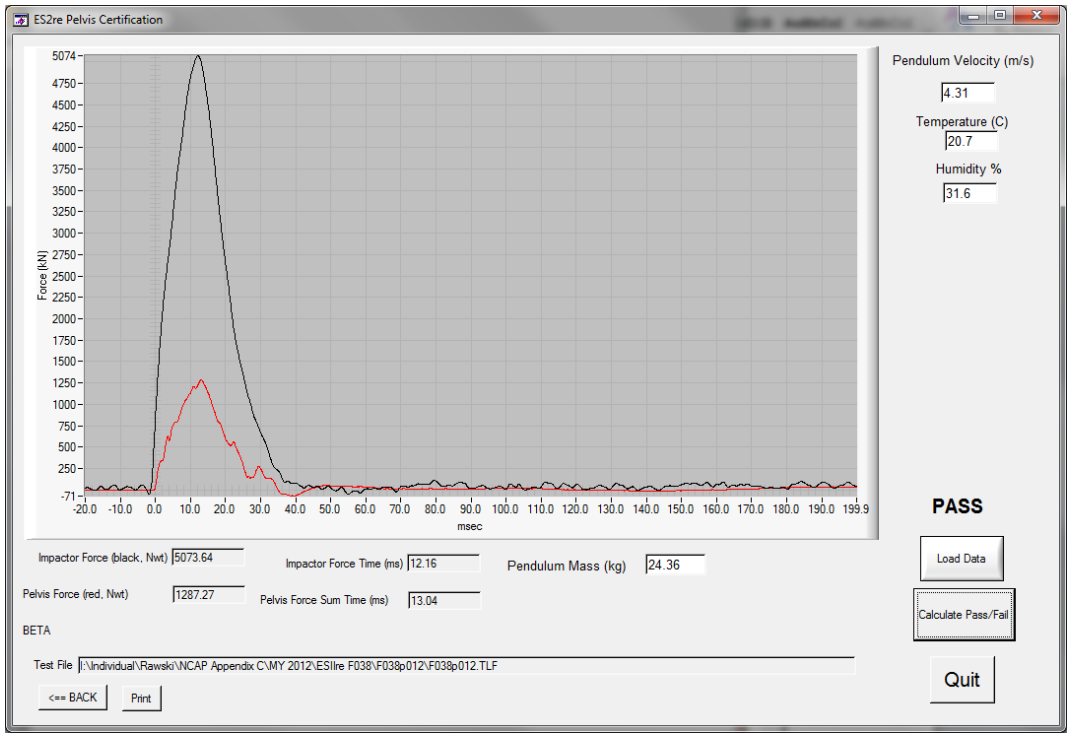
TABLE 11
PELVIS IMPACT TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/7/11		12/15/11	
Sequential Test Number		-	3		4	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	**20.6-22.2**	20.7	Pass	20.8	Pass
	Min		20.7	Pass	20.7	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	32.3	Pass	41.5	Pass
	Min		29.8	Pass	41.0	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.7	Pass	20.8	Pass
Humidity – During Test (%)		**10-70**	31.6	Pass	41.5	Pass
Pendulum Velocity (m/s)		**4.2-4.4**	4.3	Pass	4.3	Pass
Peak Impactor Force (kN)		**4.7 – 5.4**	5.1	Pass	4.9	Pass
Time at Peak Force (ms)		**11.8-16.1**	12.2	Pass	13.1	Pass
Peak Pubic Symphysis Force (kN)		**1.23-1.59**	1.3	Pass	1.3	Pass
Time at Peak Force (ms)		**12.2-17.0**	13.0	Pass	13.6	Pass

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

PRE-TEST



POST-TEST

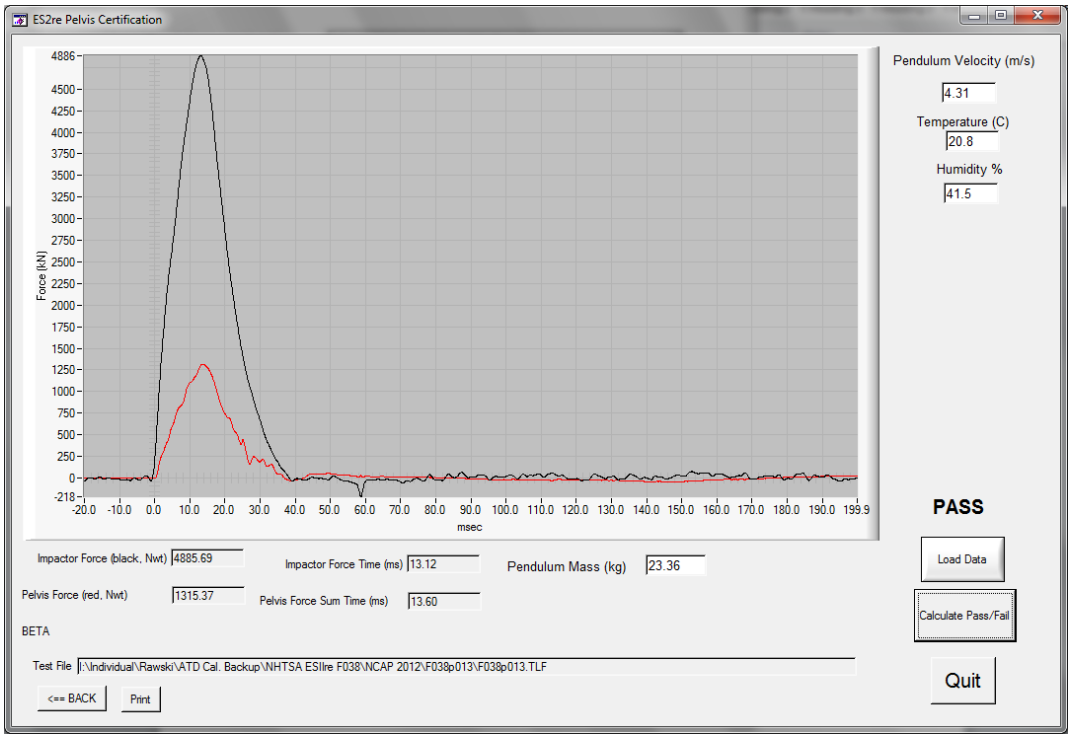


TABLE 1
EXTERNAL MEASUREMENTS (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 3 & 4

TEST PARAMETER	SPEC.	PRE		POST	
Date	-	11/8/11		12/20/11	
Sequential Test Number	-	3		4	
		Result	**Pass/Fail**	**Result**	**Pass/Fail**
Temperature (°C)	**20.6-22.2**	20.6	Pass	20.7	Pass
Relative Humidity (%)	**10-70**	33.5	Pass	40.6	Pass
Sitting Height	**772 – 788**	778	Pass	774	Pass
Shoulder Pivot Height	**437 – 453**	446	Pass	444	Pass
H-Point Height	**79 – 89**	84	Pass	85	Pass
H-Point from Seat Back	**141 – 151**	145	Pass	145	Pass
Shoulder Pivot from Backline	**97 – 107**	102	Pass	102	Pass
Thigh Clearance	**119 – 135**	124	Pass	122	Pass
Head Breadth	**140 – 148**	144	Pass	144	Pass
Head Back from Backline	**40 – 46**	44	Pass	45	Pass
Head Depth	**178 – 188**	181	Pass	182	Pass
Head Circumference	**541 – 551**	545	Pass	545	Pass
Buttock to Knee Length	**514 – 540**	525	Pass	526	Pass
Popliteal Height	**343 – 369**	360	Pass	360	Pass
Knee Pivot to Floor Height	**392 – 409**	394	Pass	395	Pass
Buttock Popliteal Length	**416 – 442**	425	Pass	427	Pass
Chest Depth w/o Jacket	**195 – 211**	205	Pass	205	Pass
Foot Length	**216 – 232**	221	Pass	220	Pass
Hip Breadth	**313 – 323**	320	Pass	318	Pass
Arm Length	**249 – 259**	254	Pass	255	Pass
Knee Joint to Seat Back	**477 – 493**	485	Pass	485	Pass
Shoulder Width	**341 – 357**	348	Pass	346	Pass
Foot Width	**78 – 94**	84	Pass	82	Pass
Chest Circumference w/Jacket	**851 – 881**	855	Pass	856	Pass
Waist Circumference	**761 – 791**	774	Pass	779	Pass

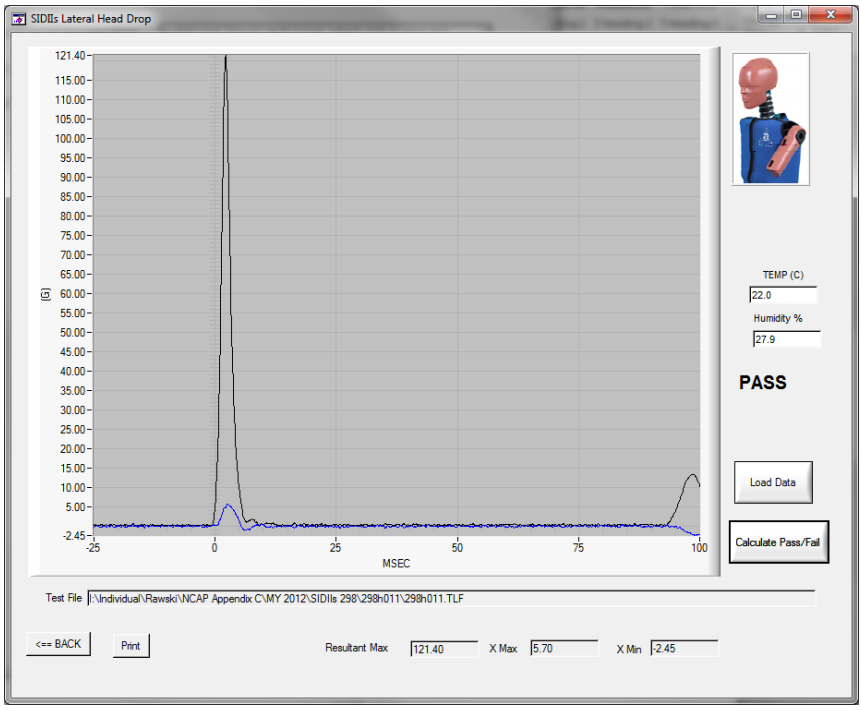
TABLE 2
HEAD DROP TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/4/11		12/15/11	
Sequential Test Number		-	3		4	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Head Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	20.7	Pass	20.8	Pass
	Min		20.6	Pass	20.7	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	34.2	Pass	41.5	Pass
	Min		22.0	Pass	41.0	Pass
Temperature – During Test (°C)		**20.6-22.2**	22.0	Pass	20.8	Pass
Humidity – During Test (%)		**10-70**	27.9	Pass	41.5	Pass
Peak Head Resultant Acceleration (G)		**115-137**	121.4	Pass	118.5	Pass
Peak Head X Acceleration (G)		**<15**	5.70	Pass	3.5	Pass
Unimodal (Oscillation) (Yes/No)		**<15%**	-	Yes	-	Yes

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

PRE-TEST



POST-TEST

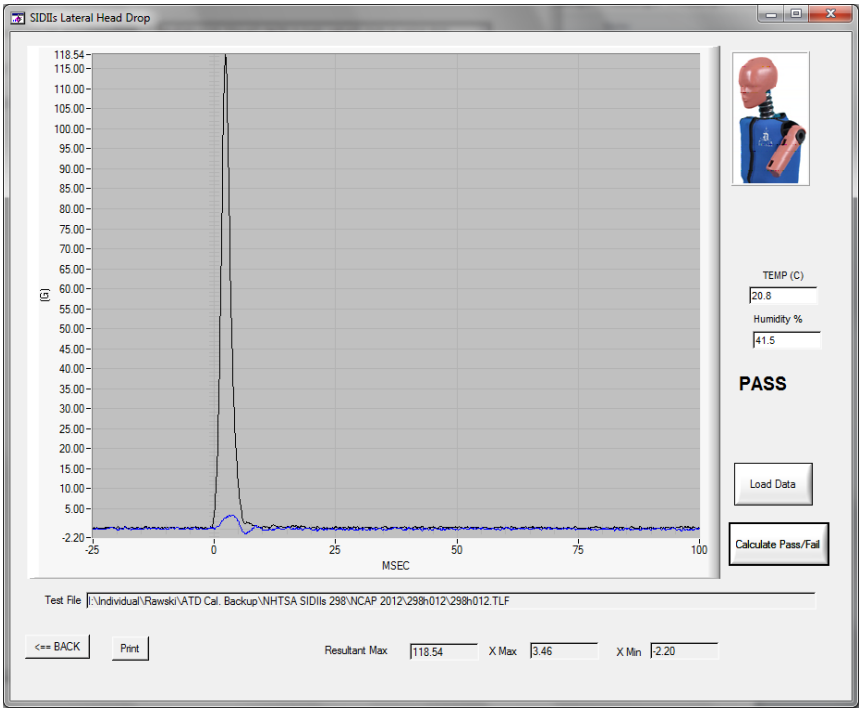


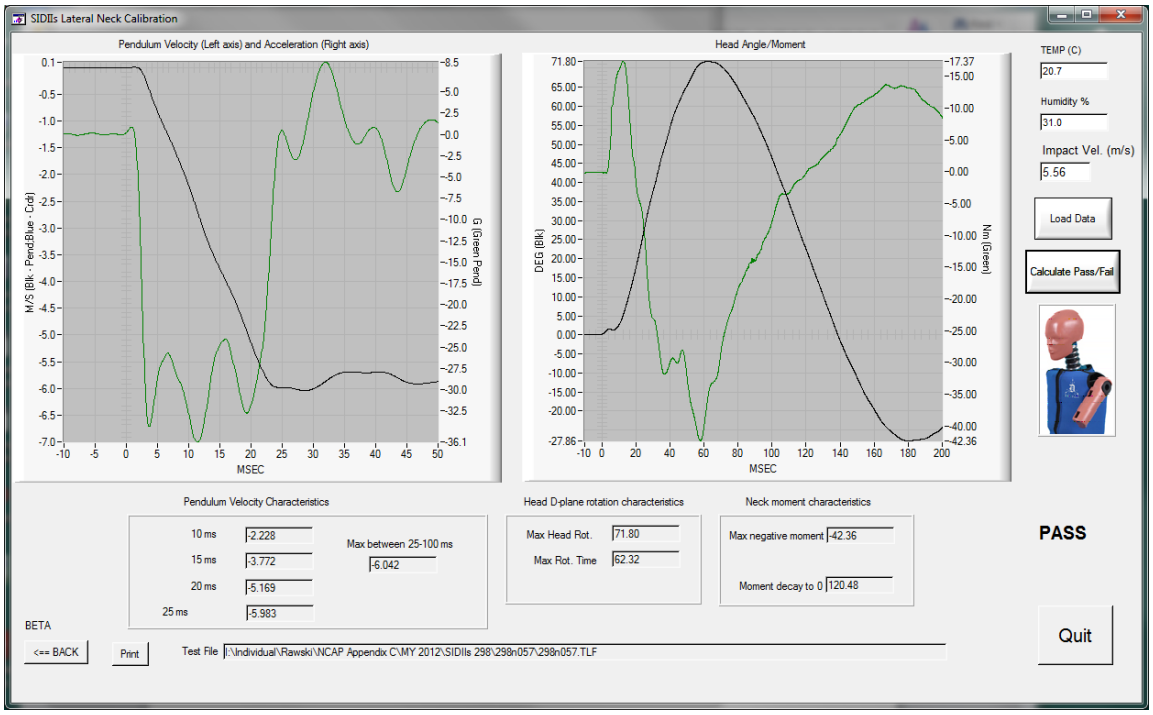
TABLE 3
LATERAL NECK PENDULUM TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/7/11		12/16/11	
Sequential Test Number		-	3		4	
			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**	20.7	Pass	21.1	Pass
	Min		20.7	Pass	20.7	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	32.3	Pass	36.7	Pass
	Min		29.8	Pass	33.2	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.7	Pass	21.1	Pass
Humidity – During Test (%)		**10-70**	31.0	Pass	36.7	Pass
Pendulum Velocity (m/s)		**5.51-5.63**	5.6	Pass	5.6	Pass
Pendulum Deceleration (G)	10 ms	**2.20-2.80**	2.2	Pass	2.4	Pass
	15 ms	**3.30-4.10**	3.8	Pass	3.7	Pass
	20 ms	**4.40-5.40**	5.2	Pass	5.0	Pass
	25 ms	**5.40-6.10**	6.0	Pass	5.9	Pass
	25-100 ms	**5.50-6.20**	6.0	Pass	6.0	Pass
Maximum D-Plane rotation (deg)		**71-81**	72.0	Pass	73.1	Pass
Time of Maximum D-Plane Rotation (ms)		**50-70**	62.3	Pass	62.4	Pass
Peak Occ. Condyle Moment (Nm)		**36-44**	42.4	Pass	41.0	Pass
Time of Moment Decay (ms)		**102-126**	121.0	Pass	125.7	Pass

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

PRE-TEST



POST-TEST

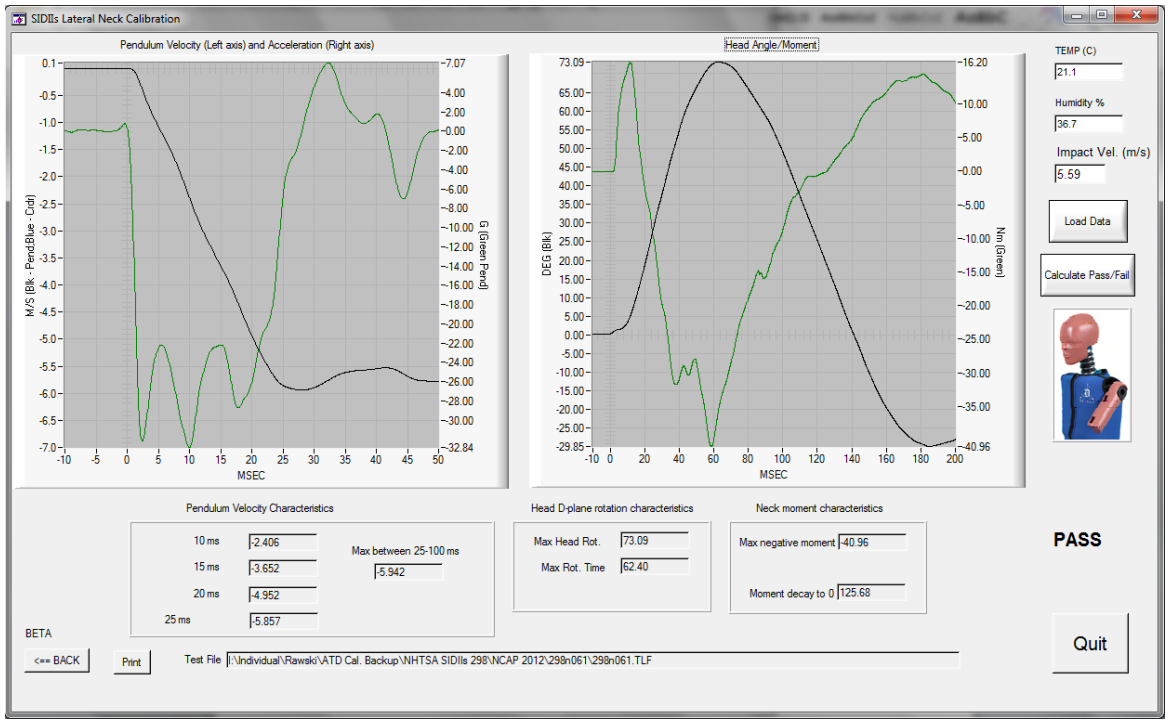


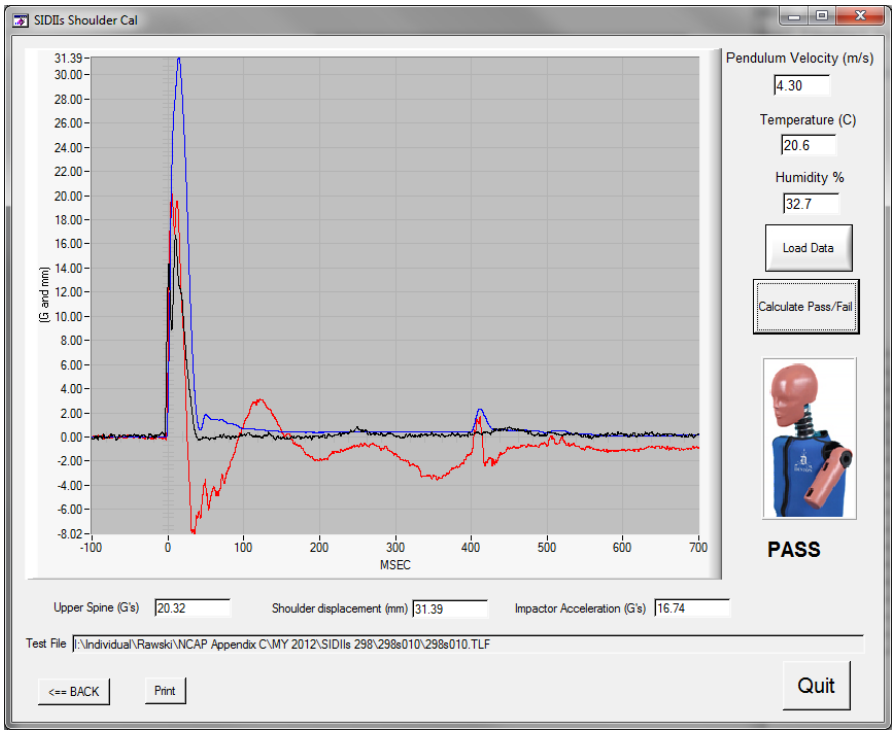
TABLE 4
SHOULDER IMPACT TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/8/11		12/20/11	
Sequential Test Number		-	3		4	
			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	20.7	Pass
	Min		20.7	Pass	20.6	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	35.1	Pass	40.4	Pass
	Min		27.4	Pass	35.9	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.6	Pass	20.7	Pass
Relative Humidity – During Test (%)		**10-70**	32.7	Pass	39.6	Pass
Impactor Velocity (m/s)		**4.2-4.4**	4.30	Pass	4.3	Pass
Peak Shoulder Deflection (mm)		**28-37**	31.4	Pass	31.0	Pass
Peak Lateral Spine (T1) Acceleration Y (G)		**17-22**	20.3	Pass	20.0	Pass
Peak Impactor Acceleration (G)		**13-18**	16.7	Pass	16.2	Pass

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

PRE-TEST



POST-TEST

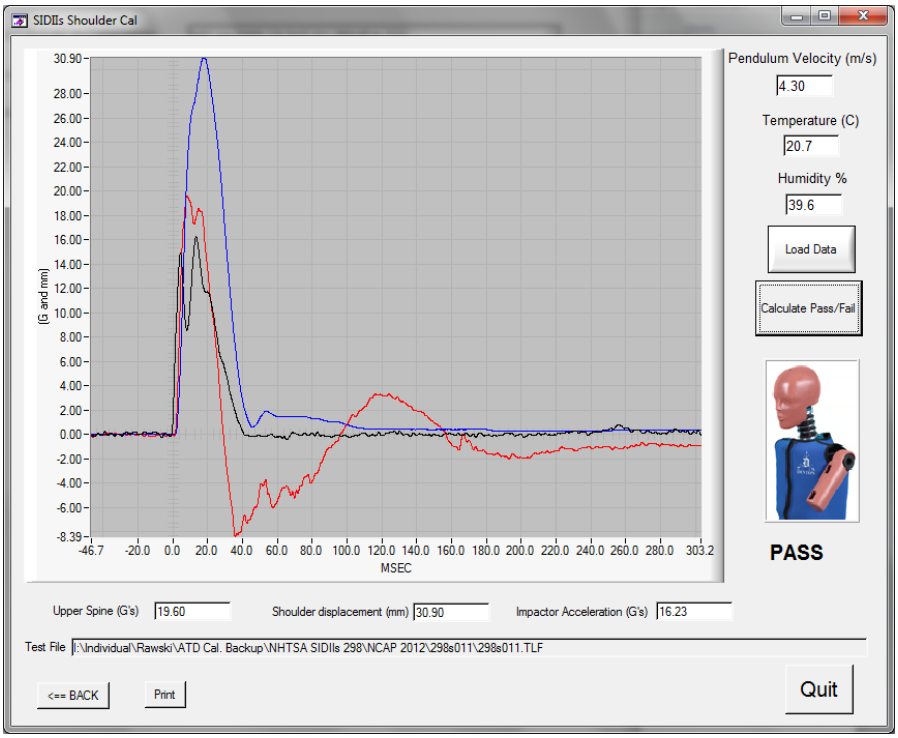


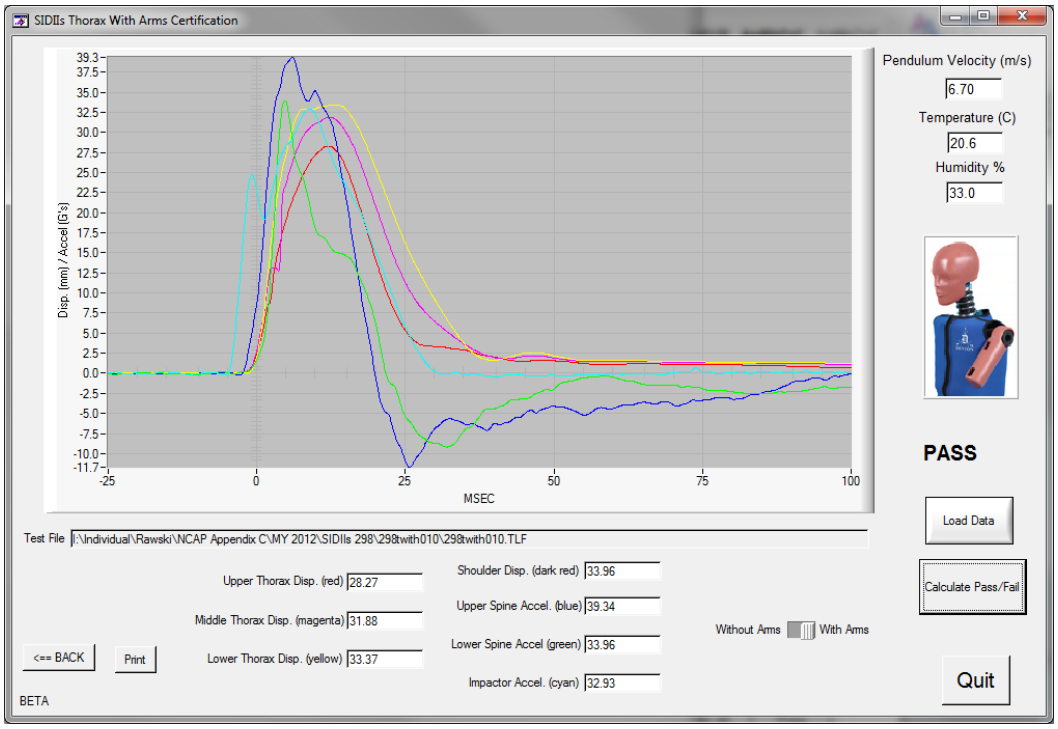
TABLE 5
THORAX (WITH ARM) IMPACT TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/8/11		12/20/11	
Sequential Test Number		-	3		4	
			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	20.7	Pass
	Min		20.6	Pass	20.6	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	35.1	Pass	40.4	Pass
	Min		27.4	Pass	35.9	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.6	Pass	20.7	Pass
Relative Humidity – During Test (%)		**10-70**	33.0	Pass	39.7	Pass
Impactor Velocity (m/s)		**6.6-6.8**	6.70	Pass	6.70	Pass
Peak Shoulder Deflection (mm)		**31-40**	34.0	Pass	32.0	Pass
Peak Upper Rib Deflection (mm)		**25-32**	28.3	Pass	28.0	Pass
Peak Middle Rib Deflection (mm)		**30-36**	31.9	Pass	33.0	Pass
Peak Lower Rib Deflection (mm)		**32-38**	33.4	Pass	35.0	Pass
Peak Upper Spine (T1) Acceleration Y (G)		**34-43**	39.3	Pass	38.4	Pass
Peak Lower Spine (T12) Acceleration Y (G)		**29-37**	34.0	Pass	32.0	Pass
Peak Impactor Acceleration (G)		**30-36**	32.9	Pass	32.3	Pass

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

PRE-TEST



POST-TEST

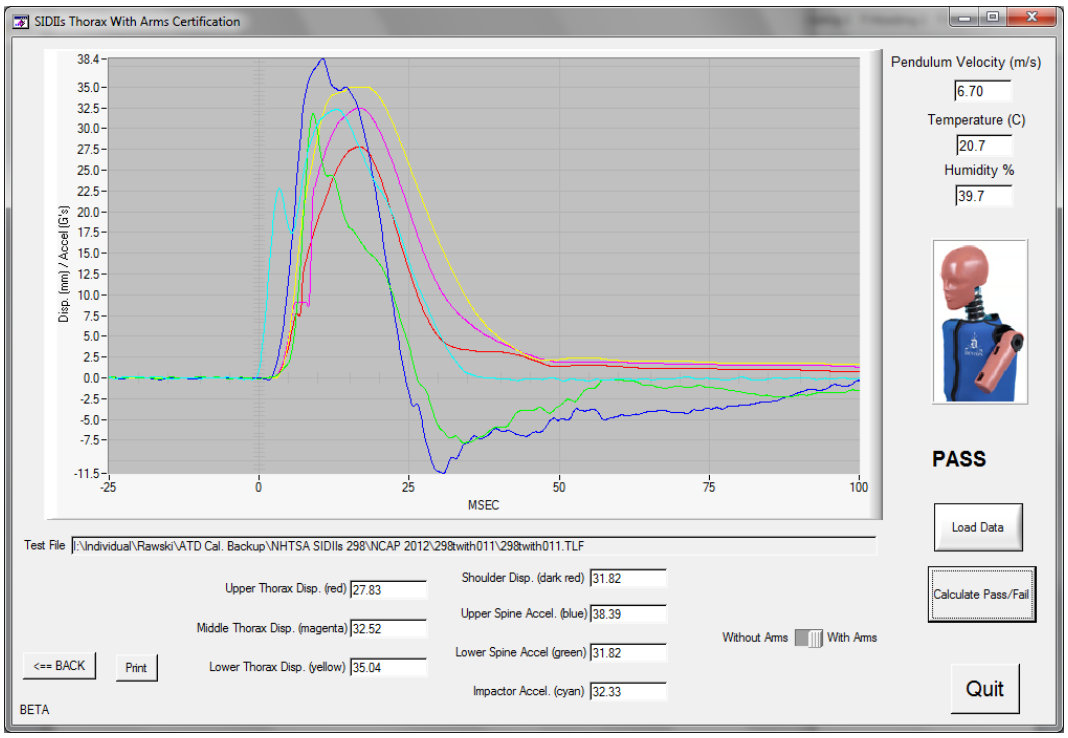


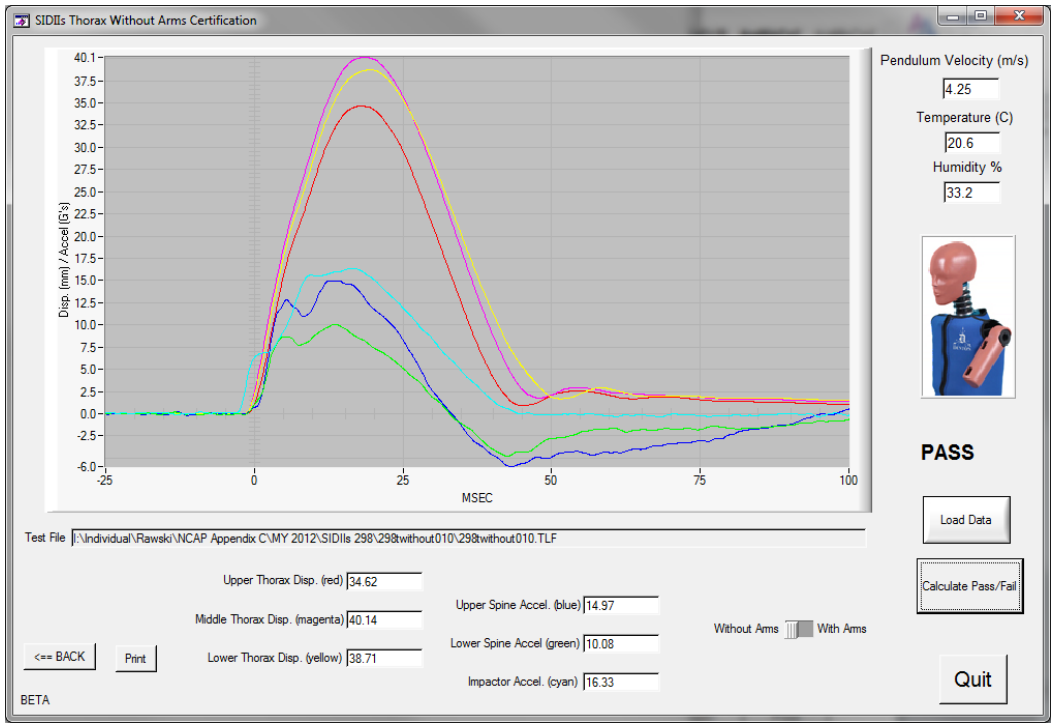
TABLE 6
THORAX (WITHOUT ARM) IMPACT TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/8/11		12/20/11	
Sequential Test Number		-	3		4	
			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	20.7	Pass
	Min		20.6	Pass	20.6	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	35.1	Pass	40.4	Pass
	Min		27.4	Pass	35.9	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.6	Pass	20.7	Pass
Relative Humidity – During Test (%)		**10-70**	33.2	Pass	39.9	Pass
Impactor Velocity (m/s)		**4.2-4.4**	4.25	Pass	4.25	Pass
Peak Upper Rib Deflection (mm)		**32-40**	34.6	Pass	35.4	Pass
Peak Middle Rib Deflection (mm)		**39-45**	40.1	Pass	41.0	Pass
Peak Lower Rib Deflection (mm)		**35-43**	38.7	Pass	39.2	Pass
Peak Upper Spine (T1) Acceleration Y (G)		**13-17**	15.0	Pass	15.3	Pass
Peak Lower Spine (T12) Acceleration Y (G)		**7-11**	10.1	Pass	9.4	Pass
Peak Impactor Acceleration (G)		**14-18**	16.3	Pass	16.1	Pass

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

PRE-TEST



POST-TEST

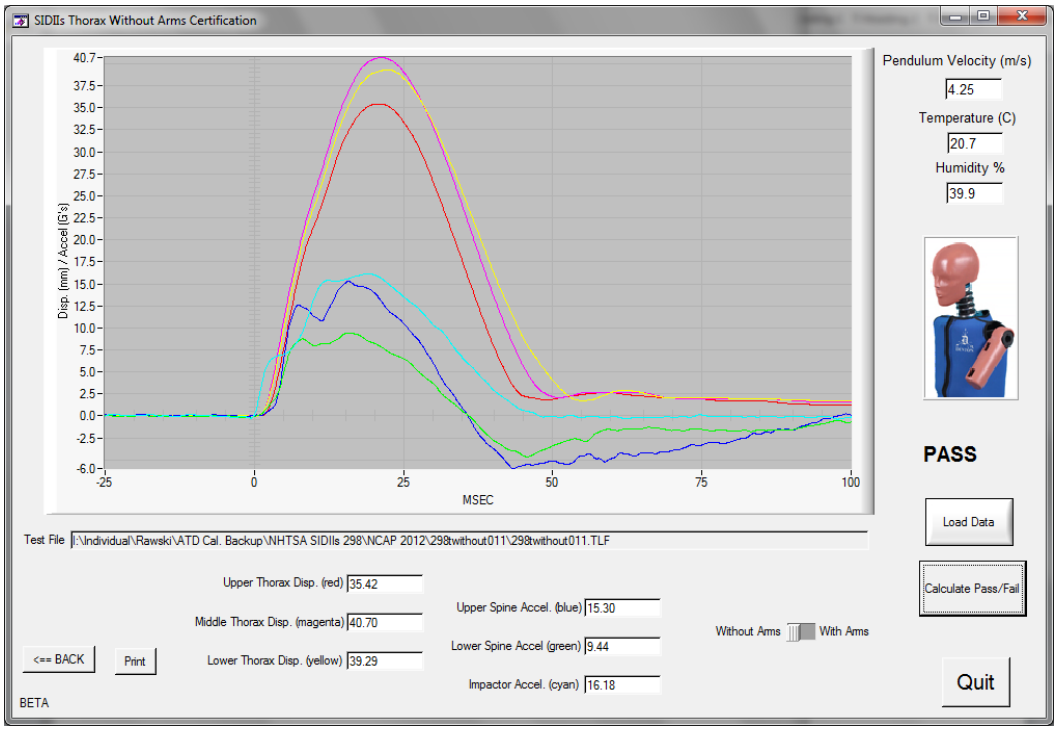


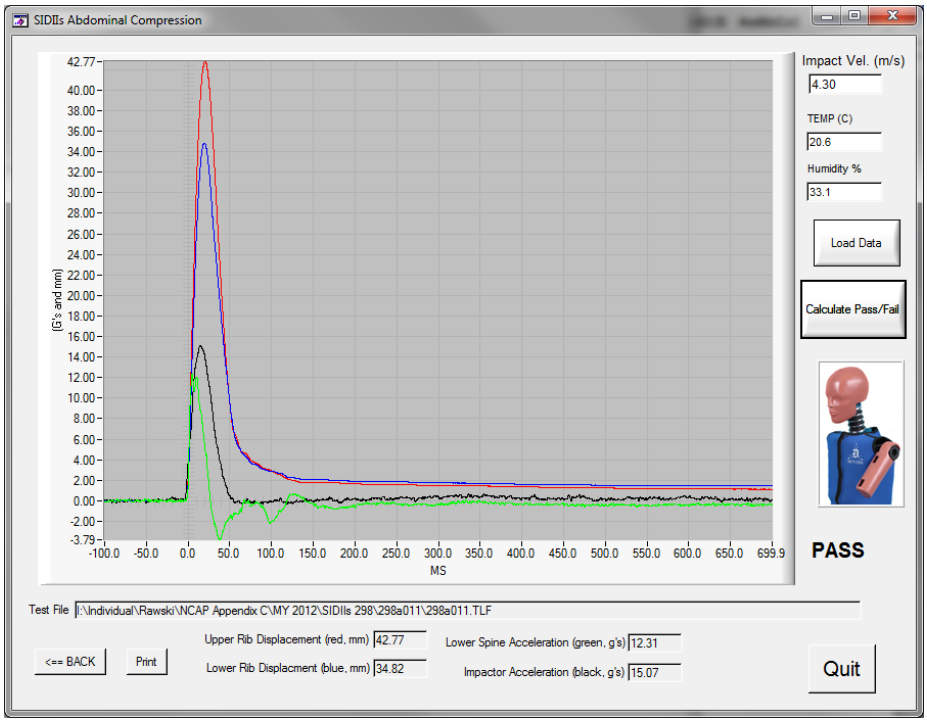
TABLE 7
ABDOMEN IMPACT TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/8/11		12/20/11	
Sequential Test Number		-	3		4	
			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	20.7	Pass
	Min		20.6	Pass	20.6	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	35.1	Pass	40.4	Pass
	Min		27.4	Pass	35.9	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.6	Pass	20.7	Pass
Relative Humidity – During Test (%)		**10-70**	33.1	Pass	40.1	Pass
Impactor Velocity (m/s)		**4.2-4.4**	4.30	Pass	4.3	Pass
Peak Upper Abdominal Rib Deflection (mm)		**36-47**	42.8	Pass	41.4	Pass
Peak Lower Abdominal Rib Deflection (mm)		**33-44**	34.8	Pass	37.1	Pass
Peak Lower Spine (T12) Acceleration Y (G)		**9-14**	12.3	Pass	12.1	Pass
Peak Impactor Acceleration (G)		**12-16**	15.1	Pass	15.3	Pass

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

PRE-TEST



POST-TEST

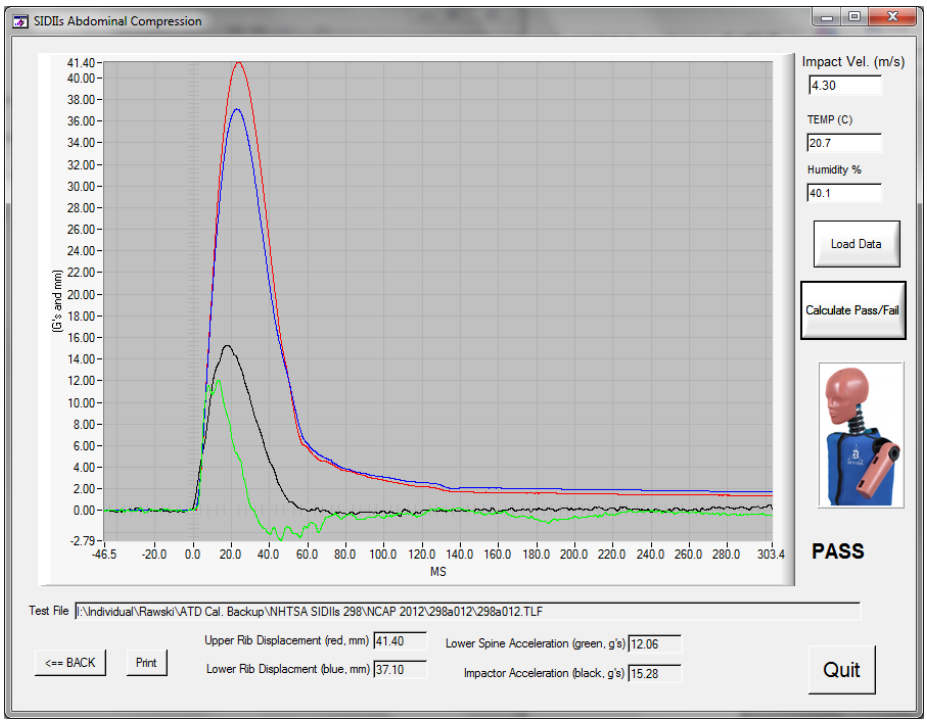
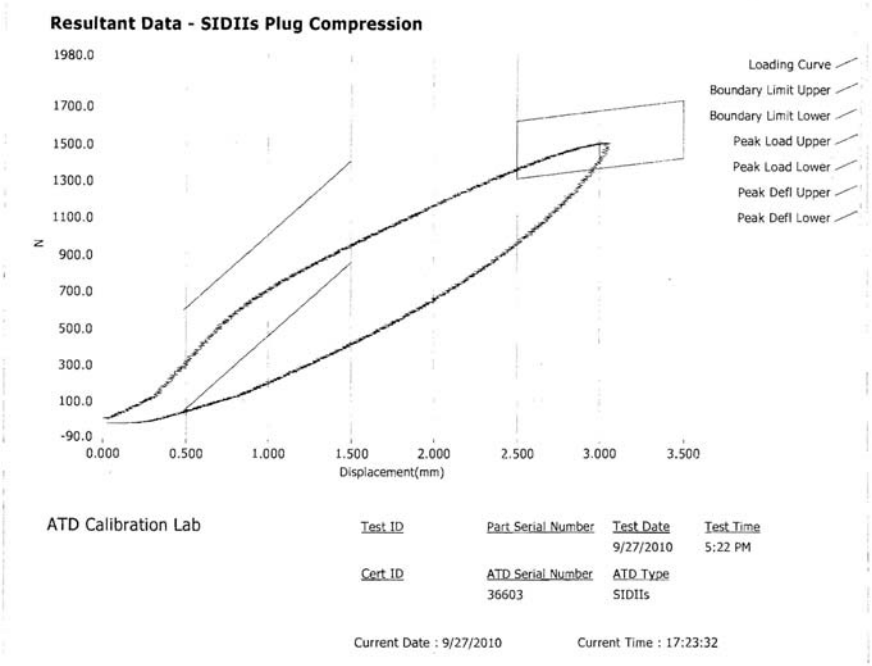


TABLE 8
PELVIS PLUG QUASI-STATIC TEST (SID-IIs)

PRE-Test



POST-TEST

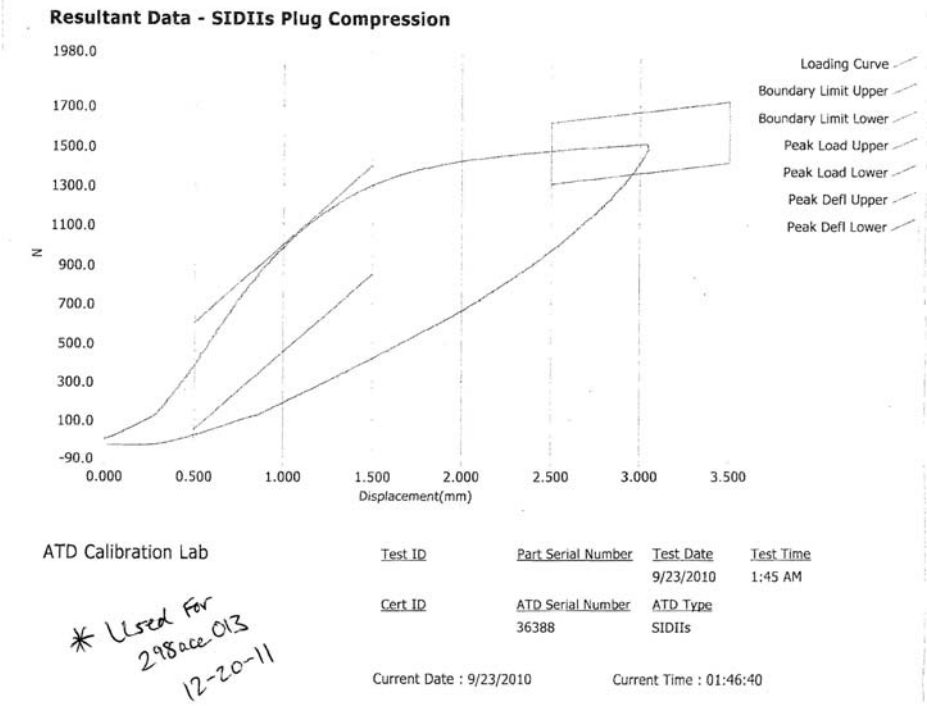


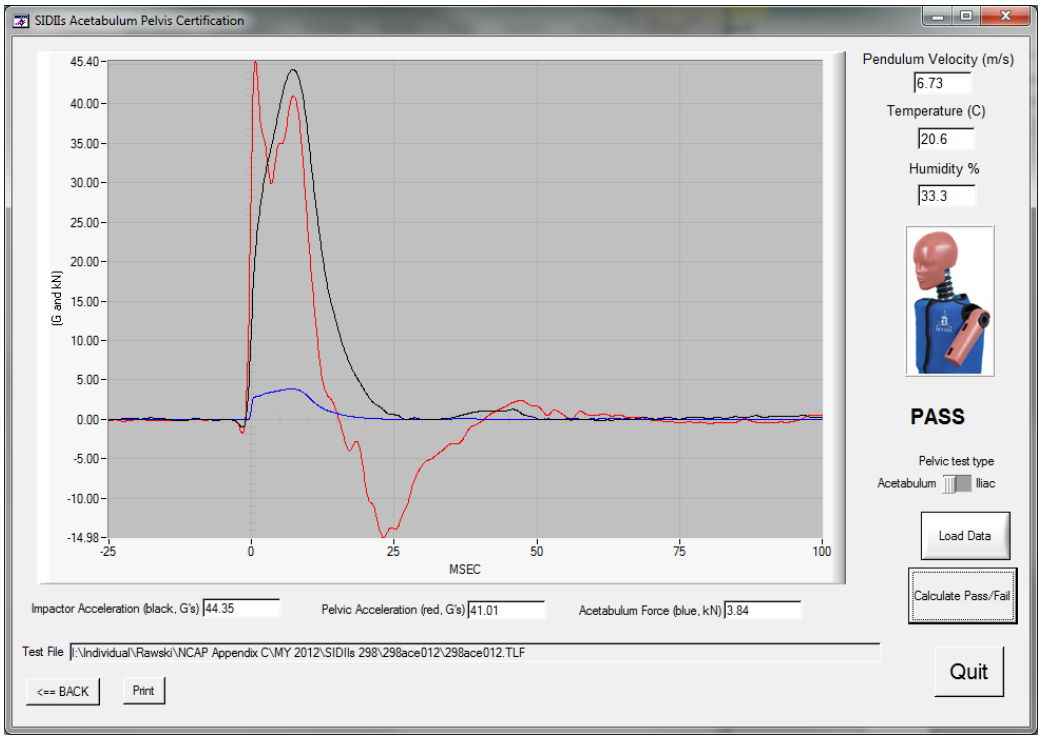
TABLE 9
PELVIS ACETABULUM IMPACT TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 3 & 4

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/8/11		12/20/11	
Sequential Test Number		-	3		4	
			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	20.7	Pass
	Min		20.6	Pass	20.6	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	35.1	Pass	40.4	Pass
	Min		27.4	Pass	35.9	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.6	Pass	20.7	Pass
Humidity – During Test (%)		**10-70**	33.3	Pass	40.4	Pass
Impactor Velocity (m/s)		**6.6-6.8**	6.7	Pass	6.7	Pass
Peak Impactor Acceleration (G)		**38-47**	44.4	Pass	45.4	Pass
Pelvis Acceleration Y after 6ms (G)		**34-42**	41.0	Pass	41.0	Pass
Peak Acetabulum Force (kN)		**3.60-4.30**	3.84	Pass	4.1	Pass
Pelvis Plug Serial No. 36603 (Pre) No. (Post) 36388						

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

PRE-TEST



POST-TEST

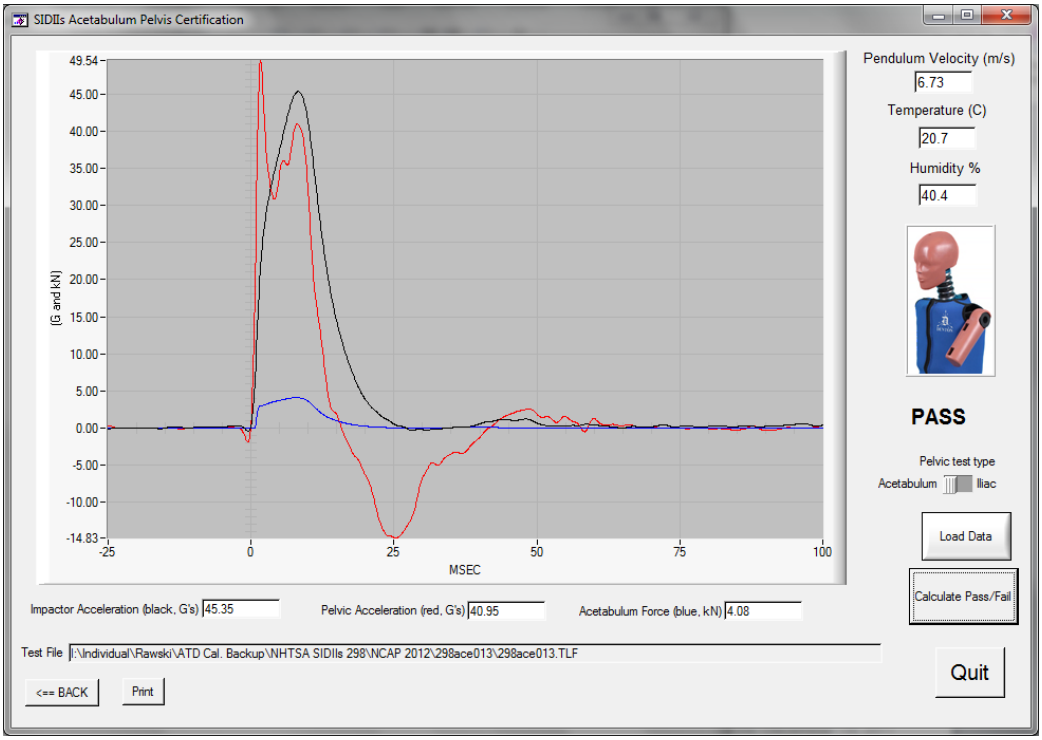


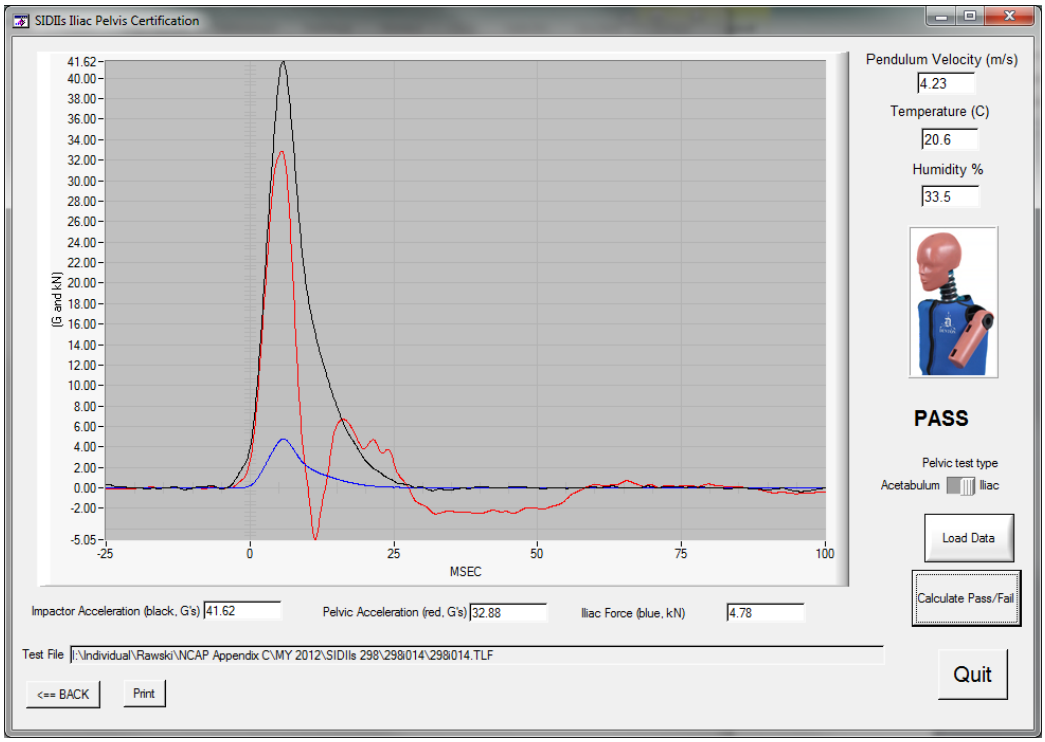
TABLE 10
PELVIS ILIAC IMPACT TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 3 & 4

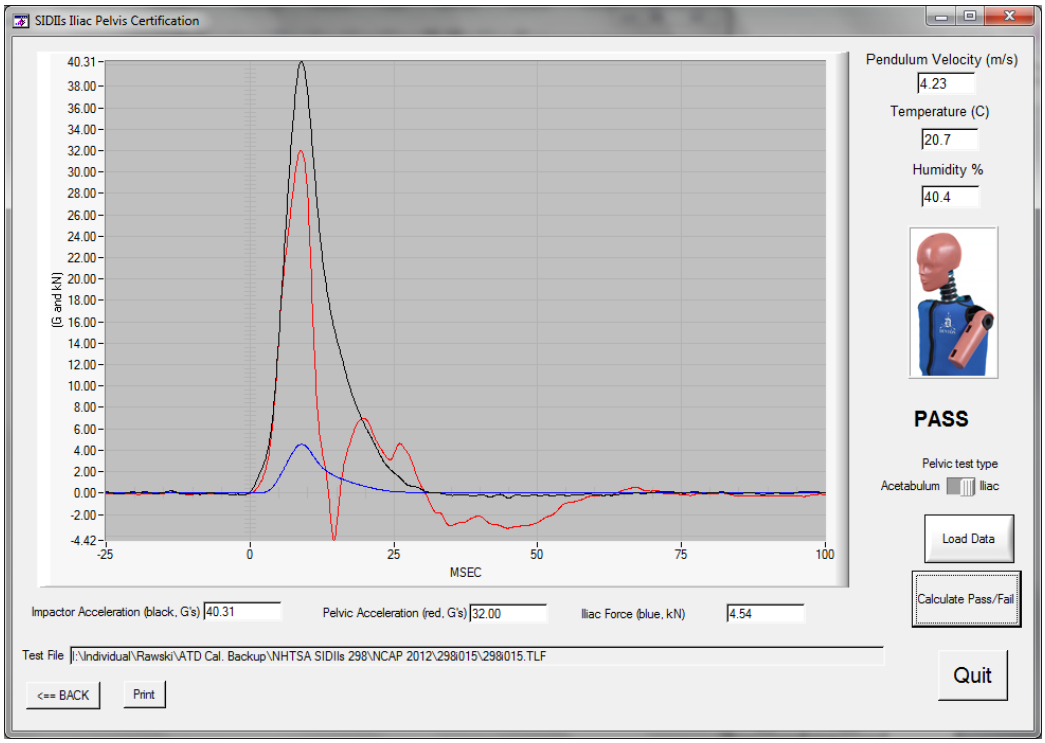
TEST PARAMETER		SPEC.	PRE		POST	
Date		-	11/8/11		12/20/11	
Sequential Test Number		-	3		4	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 180**	180	Pass		
Temperature(°C) – During Soak	Max	**20.6-22.2**	22.0	Pass	20.7	Pass
	Min		20.6	Pass	20.6	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	35.1	Pass	40.4	Pass
	Min		27.4	Pass	35.9	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.6	Pass	20.7	Pass
Humidity – During Test (%)		**10-70**	33.5	Pass	40.4	Pass
Pendulum Velocity (m/s)		**4.2-4.4**	4.2	Pass	4.2	Pass
Peak Impactor Acceleration (G)		**36-45**	41.6	Pass	40.3	Pass
Pelvis Acceleration Y (G)		**28-39**	32.9	Pass	32.0	Pass
Peak Iliac Force Y (N)		**4.10-5.10**	4.8	Pass	4.5	Pass
Pelvis Plug Serial No. 36603 (Pre) No. (Post) 36388						

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

PRE-TEST



POST-TEST



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	25/APR/2011
		Y	J43475	Endevco	25/APR/2011
		Z	J43779	Endevco	25/APR/2011
		X_R	J21551	Endevco	25/APR/2011
		Y_R	J43432	Endevco	25/APR/2011
		Z_R	12104	Endevco	25/APR/2011
Thoracic Rib Displacement Potentiometers	Upper	Y	433	Denton	08/APR/2011
	Middle	Y	193	Denton	08/APR/2011
	Lower	Y	191	Denton	08/APR/2011
Abdomen Load Cells	Forward	Y	1502	Denton	07/APR/2011
	Middle	Y	1511	Denton	07/APR/2011
	Rear	Y	1537	Denton	07/APR/2011
Lower Spine Accelerometers (T_{12})		X	12112	Endevco	25/APR/2011
		Y	P21586	Endevco	25/APR/2011
		Z	P21580	Endevco	25/APR/2011
Pubic Symphosis Load Cell		Y	460	Denton	08/DEC/2010

TABLE 2 - DUMMY INSTRUMENTATION – SID-IIS

				SID-IIs S/N: 298		
				Serial Number	Manufacturer	Calibration Date
Head Accelerometers			X	P22041	Endevco	25/APR/2011
			Y	P24562	Endevco	25/APR/2011
			Z	P22322	Endevco	25/APR/2011
			X_R	P24124	Endevco	25/APR/2011
			Y_R	P21575	Endevco	25/APR/2011
			Z_R	12132	Endevco	25/APR/2011
Displacement Potentiometers	Shoulder		Y	1095	FTSS	07/APR/2011
	Thoracic Rib	Upper	Y	1181	Denton	07/APR/2011
		Middle	Y	1203	Denton	07/APR/2011
		Lower	Y	486	Denton	07/APR/2011
	Abdominal Rib	Upper	Y	717	Denton	07/APR/2011
		Lower	Y	1215	Denton	07/APR/2011
Lower Spine Accelerometers (T_{12})			X	P21661	Endevco	25/APR/2011
			Y	P24682	Endevco	25/APR/2011
			Z	P21788	Endevco	25/APR/2011
Acetabulum Load Cell			Y	270	Denton	07/APR/2011
Iliac Wing Load Cell			Y	283	Denton	07/APR/2011
Pelvis Plug (Struck-Side)				36603	FTSS	22/SEP/11
Pelvis Plug (Non-Struck-Side)				36388	FTSS	23/SEP/11

TABLE 3 - VEHICLE INSTRUMENTATION

			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	A011321	MSI	22/SEP/2011
	Vehicle Center of Gravity	Y	A011312	MSI	22/SEP/2011
	Vehicle Center of Gravity	Z	A011331	MSI	22/SEP/2011
2	Right Sill at Front Seat	X	12111	Endevco	22/SEP/2011
	Right Sill at Front Seat	Y	12118	Endevco	22/SEP/2011
	Right Sill at Front Seat	Z	12096	Endevco	22/SEP/2011
3	Right Sill at Rear Seat	X	A010890	MSI	22/SEP/2011
	Right Sill at Rear Seat	Y	98F98E11-K07	Entran	22/SEP/2011
	Right Sill at Rear Seat	Z	A011335	MSI	22/SEP/2011
4	Left Sill at Front Door	Y	A086987	MSI	22/SEP/2011
5	Left Sill at Rear Door	Y	A011625	MSI	22/SEP/2011
6	Left A-Post Lower	Y	A086968	MSI	22/SEP/2011
7	Left A-Post Middle	Y	A086980	MSI	22/SEP/2011
8	Left B-Post Lower	Y	A086978	MSI	22/SEP/2011
9	Left B-Post Middle	Y	A086975	MSI	22/SEP/2011
10	Front Seat Track	Y	A086966	MSI	22/SEP/2011
11	Rear Seat Track or Structure	Y	A086973	MSI	22/SEP/2011
12	Right Rear Occ. Compartment	Y	A086969	MSI	22/SEP/2011
13	Engine Block	X	P12746	Endevco	22/SEP/2011
	Engine Block	Y	P13835	Endevco	22/SEP/2011
14	Rear Floorpan Above Axle	X	P22993	Endevco	22/SEP/2011
	Rear Floorpan Above Axle	Y	P22965	Endevco	22/SEP/2011
	Rear Floorpan Above Axle	Z	P23020	Endevco	22/SEP/2011

TABLE 4 - MDB INSTRUMENTATION

		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	12115	Endevco	13/OCT/2011
MDB Center of Gravity	Y	12149	Endevco	13/OCT/2011
MDB Center of Gravity	Z	P21898	Endevco	13/OCT/2011
Left Frame at Rear Axle Centerline	X	P22339	Endevco	13/OCT/2011
Left Frame at Rear Axle Centerline	Y	P22539	Endevco	13/OCT/2011