REPORT NUMBER: SINCAP-MCW-14-014

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

MITSUBISHI MOTORS NORTH AMERICA, INC.
2014 MITSUBISHI OUTLANDER SPORT 5-DOOR SUV
NHTSA NUMBER: O20145601

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

TEST DATE: 10 JUNE 2014

REPORT DATE: 19 JUNE 2014

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, DC 20590

Prepared by: _____

Date: July 22, 2014

Approved by: _____ Brad D Stemper _____

Date: July 23, 2014

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 2014 Mitsubishi Outlander Sport 5-Door SUV NHTSA No. O20145601		*5. Report Date* June 19, 2014 *6. Performing Organization Code* MCW
7. Author(s) Brian D. Stemper, Ph. D, Project Manager Mark Meyer, Project Engineer		*8. Performing Organization Report No.* MCW-DOT-2014-014
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 June 10 to June 19, 2014 *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 2014 Mitsubishi Outlander Sport 5-Door SUV 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 10 June 2014.

The impact velocity of the Moving Deformable Barrier (MDB) was 61.95 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21°C. The target vehicle's post test maximum static crush was 229 mm at level 3. The test vehicle's performance is as follows:

	Units	IARV	DRIVER ATD (ES-2re)
Head Injury Criteria (HIC_{36})	N/a	1000	163.0
Maximum Thoracic Rib Deflection	mm	44	9.35
Total Abdominal Force	N	2500	724.7
Pubic Symphysis Force	N	6000	2304.9

	Units	IARV	Pass. ATD (SID-IIs)
Head Injury Criteria (HIC_{36})	N/a	1000	349.1
Lower Spine Resultant Acceleration	G	82	46.6
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3530.5
Maximum Thoracic Rib Deflection	mm	38*	10.0
Maximum Abdominal Rib Deflection	mm	45*	21.5

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 2014 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 2014 Mitsubishi Outlander Sport 5-Door SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated September 2013.

SECTION 2
SUMMARY OF TEST RESULTS

A 2014 Mitsubishi Outlander Sport 5-Door SUV 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 61.95 km/h. 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 June 10, 2014. Pre-test and post-test photographs of the test vehicle, the MDB, and the dummies (ES-2re and SID-IIs) are included in this report.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated September 2013. 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

APPENDIX B contains the vehicle and dummy response data. Dummy configuration and performance verification data can be found in APPENDIX C of this report. APPENDIX D of this report contains the test equipment and instrumentation calibration data.

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	163.0
Maximum Thorax Rib Deflection	mm	44	9.35
Combined Abdominal Force	N	2500	724.7
Pubic Symphysis Force	N	6000	2304.9

PASSENGER DUMMY INJURY VALUES			
Measurement Description	**Passenger ATD (SID-IIs)**		
	Units	**Threshold**	**Result**
Head Injury Criteria (HIC_{36})	N/a	1000	349.1
Lower Spine (T_{12}) Resultant Acceleration	G's	82	46.6
Total Pelvic Force (Sum of Acetabular and Iliac Forces)	N	5525	3530.5
Maximum Thoracic Rib Deflection	mm	38*	10.0
Maximum Abdominal Rib Deflection	mm	45*	21.5

**Proposed IARV*

Supplemental restraint information is given below:

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION				
Restraint type	**Left Front (Driver) Occupant Location 1**		**Left Rear (Passenger) Occupant Location 4**	
	Mounted	**Deployed**	**Mounted**	**Deployed**
Frontal Airbag	Yes	Did Not Deploy	No	N/a
Knee Airbag	Yes	Did Not Deploy	No	N/a
Side Curtain Airbag	Yes	Deployed	Yes	Deployed
Side Torso/Abdomen/Pelvis Airbag	Yes	Deployed	No	N/a
Seat Belt Pretensioner	Yes	Deployed	No	N/a
Seat Belt Load Limiter	Yes	N/a	No	N/a
Other	N/a	N/a	N/a	N/a

GENERAL COMMENTS

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

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Data Sheet No. 10 – Test Vehicle Profile Measurements

Data Sheet No. 11 – Test Vehicle Exterior Crush Measurements

Data Sheet No. 12 – MDB Exterior Static Crush Measurements

Data Sheet No. 13 – FMVSS No. 301 Static Rollover Results

Data Sheet No. 14 – Dummy/Vehicle Temperature and Humidity Stabilization Data

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

VEHICLE INFORMATION	
NHTSA No.	O20145601
Model Year	2014
Make	Mitsubishi
Model	Outlander Sport
Body Style	SUV
VIN	4A4AP3AU0EE027396
Body Color	Laguna Pearl
Odometer Reading (km/mi)	100 mi
Engine Displacement (L)	2.0
Type/No. of Cylinders	CVT, 4-Cylinder
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

VEHICLE OPTIONS	
Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks (ADL)	No
Power Window Auto-Reverse	No
Other Optional Features	Yes
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	No
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? N/a

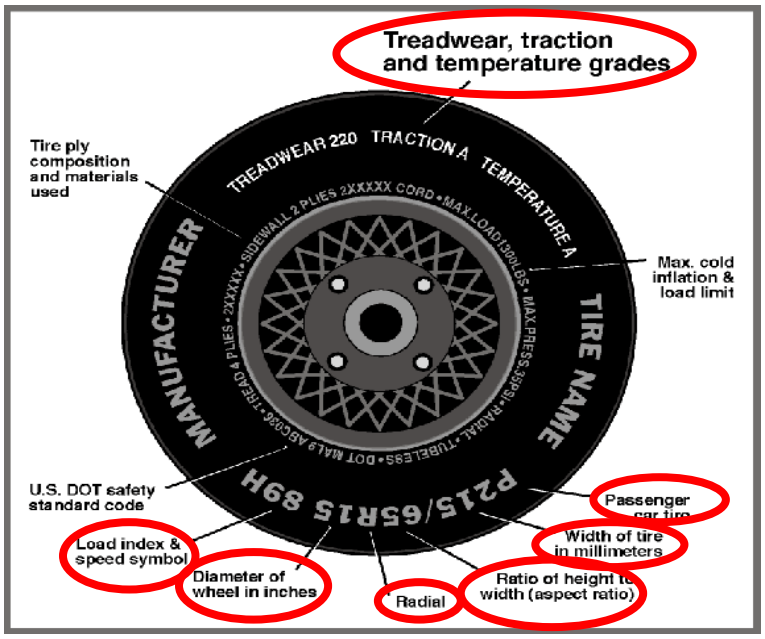
DATA FROM CERTIFICATION LABEL			
Manufactured By	Mitsubishi Motors North America, Inc.	GVWR (kg)	1970
Date of Manufacture	April 2014	GAWR Front(kg)	1030
Vehicle Type	SUV	GAWR Rear (kg)	1000

VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION					
	Front	**Rear**	**Third**	**Total**	
Designated Seating Capacity (DSC)	2	3	0	5	
Capacity Weight (VCW) (kg)				375.1	(A)
DSC X 68.04 (kg)				340.2	(B)
Cargo Weight (RCLW) (kg)				34.9	(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		
Third Row Seat							

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



VEHICLE TIRE INFORMATION		
Measured Parameter	**Front**	**Rear**
Max. Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	230	230
Recommended Tire Size	P225/55R18	P225/55R18
Tire Size on Vehicle	P225/55R18	P225/55R18
Tire Manufacturer	Nexen	Nexen
Tire Model	NPriz RH7	NPriz RH7
Treadwear	440	440
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2	2
Tire Plies Body	5	5
Load Index/Speed Symbol	97H	97H
Tire Material	Nylon, Polyester & Steel	Nylon, Polyester & Steel
DOT Safety Code Left	UAK8 CACR 0714	UAK8 BAFL 0714
DOT Safety Code Right	UAK8 BAFL 0714	UAK8 BAFR 0714

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

TIRE PRESSURES					
	Units	**LF**	**RF**	**LR**	**RR**
As Delivered	kPa	258.0	254.8	250.2	254.1
Tire Placard	kPa	227.5	227.5	227.5	227.5
Owner's Manual	kPa	227.5	227.5	227.5	227.5
As Tested	kPa	227.5	227.5	227.5	227.5

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

TEST VEHICLE WEIGHTS										
	Units	**As Delivered (UVW)**			**As Tested (ATW)**			**Fully Loaded**		
		Front Axle	**Rear Axle**	**Total**	**Front Axle**	**Rear Axle**	**Total**	**Front Axle**	**Rear Axle**	**Total**
Left	kg	429.1	293.0		471.7	369.7		480.2	354.6	
Right	kg	424.6	271.7		405.1	325.2		427.2	316.5	
Ratio	%	60.2	39.8		55.8	44.2		57.5	42.5	
Totals	kg	853.7	564.7	1418.4	876.8	694.9	1571.7	907.4	671.1	1578.5

TARGET TEST WEIGHT CALCULATION			
	Units		
Total Delivered Weight (UVW)	kg	1418.4	(A)
Sum of Actual Weight of 2 P572 ATDs used	kg	125.2	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	34.9	(C)
Calculated Target Vehicle Test Weight (TVTW)	kg	1578.5	(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)

TEST VEHICLE ATTITUDE AND CG				
Measurement description	**Units**	**Fully Loaded**	**As Tested**	**Meets Requirement*** **
LF	mm	794	797	Yes
RF	mm	812	814	Yes
RR	mm	809	804	Yes
LR	mm	791	782	Yes
Vehicle CG (Aft of Front Axle)	mm	1135	1180	
Vehicle CG (Left(+))/Right(-) from Longitudinal Centerline)	mm	50.9	62.4	

***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.

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW	
Ballast	**Weight (kg)**
Exhaust, air box, non-struck side windows & motors, non-struck-side rear-view mirror, wipers, jack, spare tire, floor mats, non-struck side headrests, plastic trim	80.3

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

SCRL ANGLE RANGE			
Seat	**SCRL (°)**		
	Max	**Min**	**Mid**
Driver Seat	2.8°	0.0°	1.4°
Front Passenger Seat	0.0°	0.0°	0.0°
Front Center Seat*			
Struck Side Rear Seat	0.0°	0.0°	0.0°
Non-Struck Side Rear Seat	0.0°	0.0°	0.0°
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**
	1.4	52.7	Mid	57.7	52.7	48.0
	N/a**	N/a**	Min	N/a**	N/a**	N/a**
Front Passenger Seat	N/a**	N/a**	Max	N/a**	N/a**	N/a**
	0.0	43.7	Mid	48.4	43.7	39.4
	N/a**	N/a**	Min	N/a**	N/a**	N/a**
Front Center Seat*			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	0.0	84.9	Mid	Fixed	84.9	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			

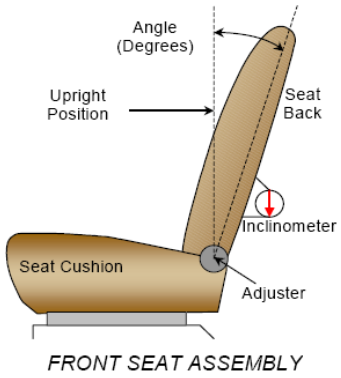
**If applicable

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

SEAT FORE/AFT POSITION				
Seat	**Total Fore/Aft Travel**		**Test Position from Forward-most Position**	
	mm	**Detent***	**mm**	**Detent***
Driver Seat	220	23	110	11
Front Passenger Seat	220	23	110	11
Front Center Seat*				
Struck Side Rear Seat	Fixed	N/a	As-Positioned	N/a
Non-Struck Side Rear Seat	Fixed	N/a	As-Positioned	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	72.2	36	8.2	4
Front Passenger Seat	70.6	36	7.6	4
Front Center Seat*				
Struck Side Rear Seat	Fixed	N/a	As-Positioned	N/a
Non-Struck Side Rear Seat	Fixed	N/a	As-Positioned	N/a
Rear Center Seat*				

*If applicable

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

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

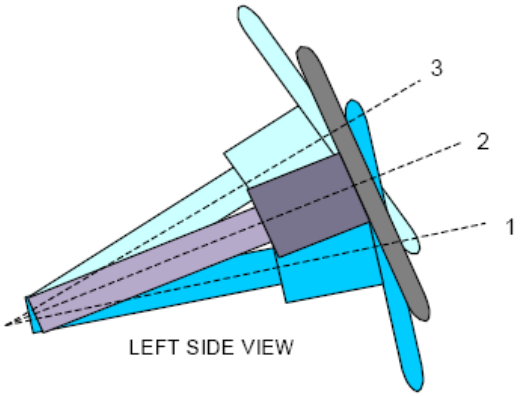
SEAT BELT ANCHORAGE ADJUSTMENT		
	Total # of Positions	**Placed in Position #**
Driver Seat	4	H
Rear Seat	Fixed	As Positioned

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 # of Positions	**Placed in Position #**
Driver Seat	4	H
Rear Seat	Fixed	As-Positioned

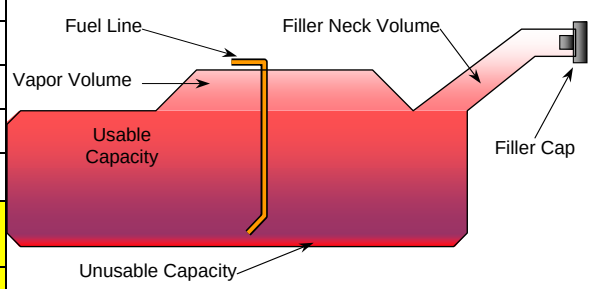
Steering Column Adjustment
Steering wheel and column adjustments are made so that the steering wheel hub is at the center of its geometric locus it describes when it moves through its full range of motion.

STEERING COLUMN ADJUSTMENT			
	Degrees	**Fore/Aft Position (mm)**	
Lowermost, Pos. No. 1	64.5	18.5	
Geometric Center, Pos. No. 2	62.5	18.5	
Uppermost, Pos. No. 3	60.4	18.5	
Telescoping Steering Wheel Travel	62.5	37	
Test Position	62.5	18.5	



STEERING COLUMN ASSEMBLY

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

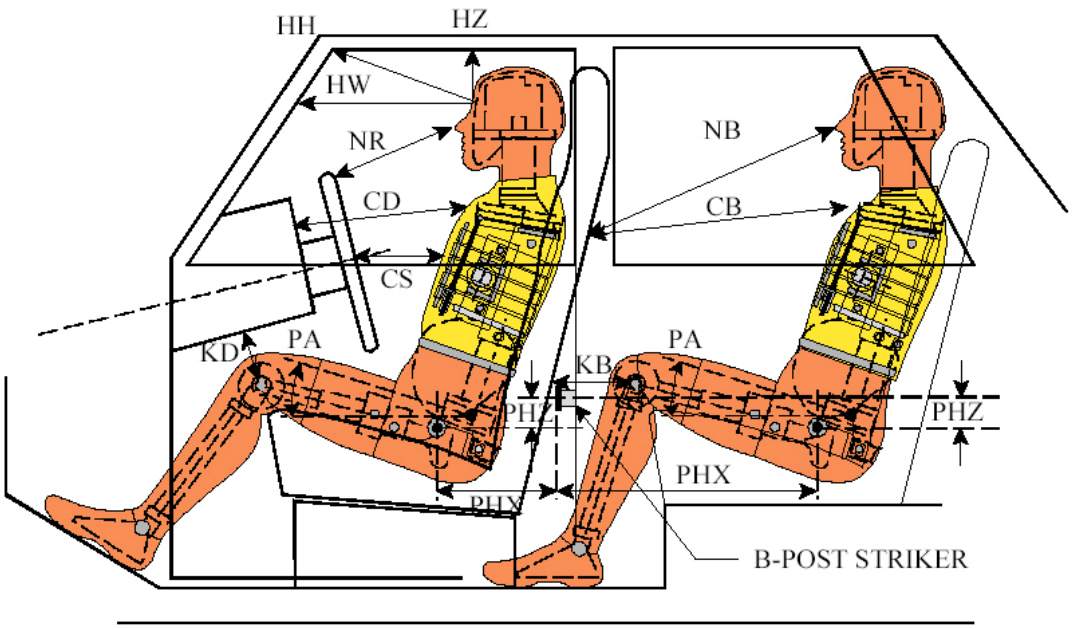
FUEL TANK CAPACITY DATA			
Description	**Units**	**Value**	
Usable Capacity of "Standard Tank"	L	57.9	
Usable Capacity of "Optional Tank"	L	N/a	
Usable Capacity of Standard Tank	L	57.9	
Usable Capacity of Optional Tank	L	N/a	
93% of Usable Capacity	%	54.0	
Actual Amount of Solvent Used in Test	L	54.0	
1/3 of Usable Capacity	19.3		

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.

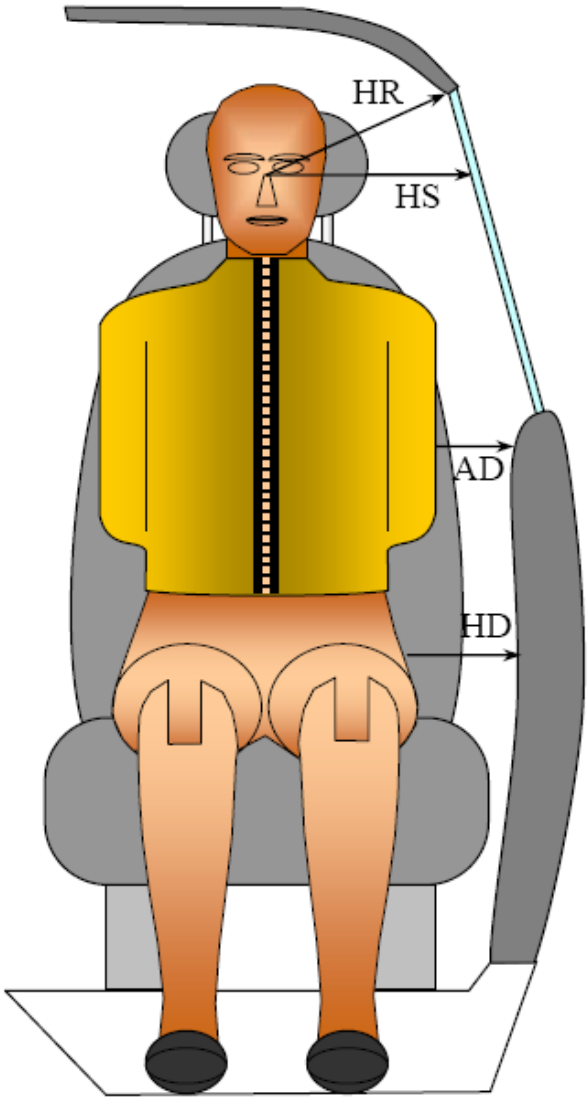
Is the Actual Amount of Solvent Used in the test equal to 93% +/- 1% of the Usable Capacity stated in on Form No. 1?	Yes

DATA SHEET NUMBER 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS



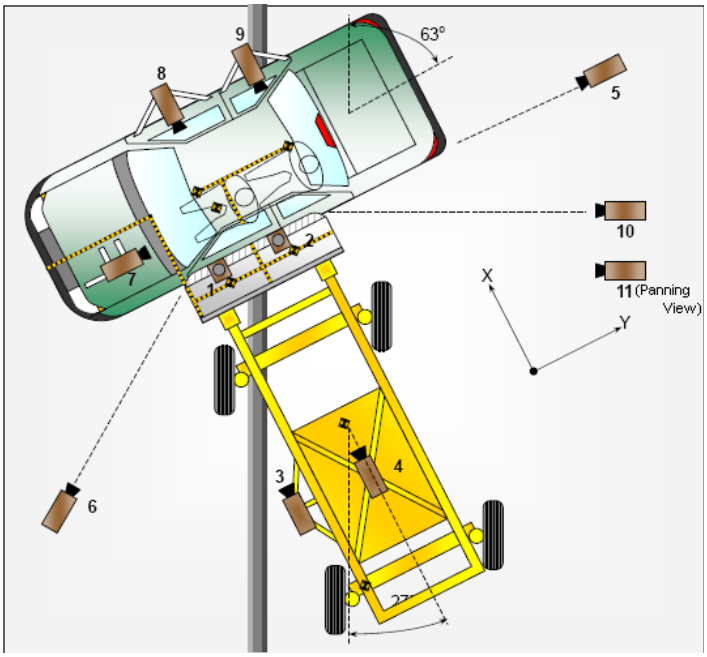
DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION						
Driver Code	**Pass. Code**	**Measurement Description**	**Driver**		**Passenger**	
			Length (mm)	**Angle**	**Length (mm)**	**Angle**
HH		Header to Header	330			
HW		Header to Windshield	620			
HZ	HZ	Head to Roof Liner	146		274	
NR	NB	Nose to Rim/Seat Back	429		556	
CD	CB	Chest to Dash/Seat Back	538		554	
CS		Chest to Steering Wheel	330			
KD(L)/KDA(L)°	KB(L)/KBA(L)°	Left Knee to Dash/Seat Back	198	18.4	292	20.1
KD(R)/KDA(R)°	KB(R)/KBA(R)°	Right Knee to Dash/Seat Back	197	11.4	290	19.1
PAX°	PAX°	Pelvic Tilt Angle X		0.0		0.0
	PAY°	Pelvic Tilt Angle Y		16.1		18.9
PHX	PHX	Hip Point to Striker (X-Axis)	225.2		230.3	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	123.3		226.3	

DATA SHEET NUMBER 4
DUMMY LATERAL CLEARANCE DIMENSIONS



DUMMY LATERAL CLEARANCE DIMENSION INFORMATION				
Code	**Description**	**Units**	**Driver**	**Passenger**
HR	Head to Side Header	mm	229	248
HS	Head to Side Window	mm	318	249
AD	Arm to Door	mm	203	159
HD	Hip Point to Door	mm	128	155

DATA SHEET 5
CAMERA AND INSTRUMENTATION DATA



	View	Coordinates †			Lens Length	Operating Frame Rate
		X	Y	Z		
		mm	mm	mm	mm	fps
1	Overhead Wide View	2458	-361	-3880	12.5	1000
2	Overhead Close-Up View	3111	-996	-3919	25	1000
3	Impact Point	3020	-3257	-367	25	1000
4	Struck-Side at Impact	2155	-3171	-841	12.5	1000
5	Rear Impact View of Struck Side	-8966	-797	-1024	35	1000
6	Front Oblique Impact View of Struck Side	7436	-1788	-1028	16	1000
7	Driver Dummy Front View (Onboard)				12.5	1000
8	Driver Dummy Side View (Onboard)				12.5	1000
9	Rear Passenger Dummy Side View (Onboard)				12.5	1000
10	Real-Time Rear View of Impact				N/a	30
11	Real-Time Pan View of Impact				N/a	30

Origin		Orientation	
X	Vehicle Zero Point	X	+(X) To Front of Vehicle
Y	Vehicle Zero Point	Y	+(Y) To Right of Vehicle
Z	Vehicle Zero Point	Z	+(Z) Down

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

DATA SHEET 5
CAMERA AND INSTRUMENTATION DATA (CONTINUED)

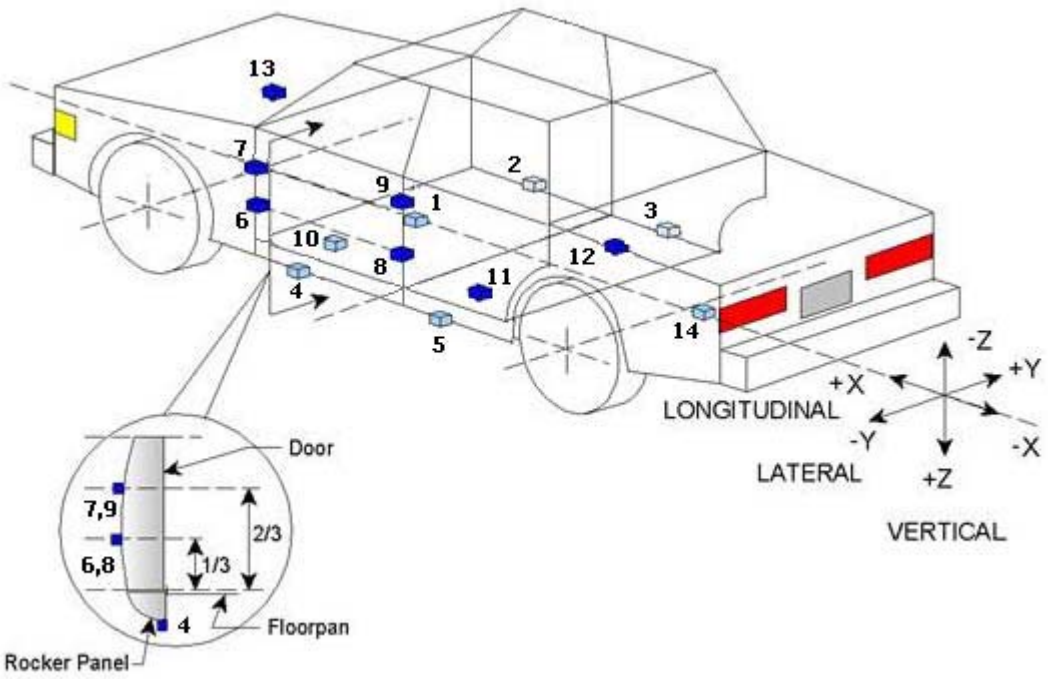
Why did the cameras not operate?

_____

_____

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

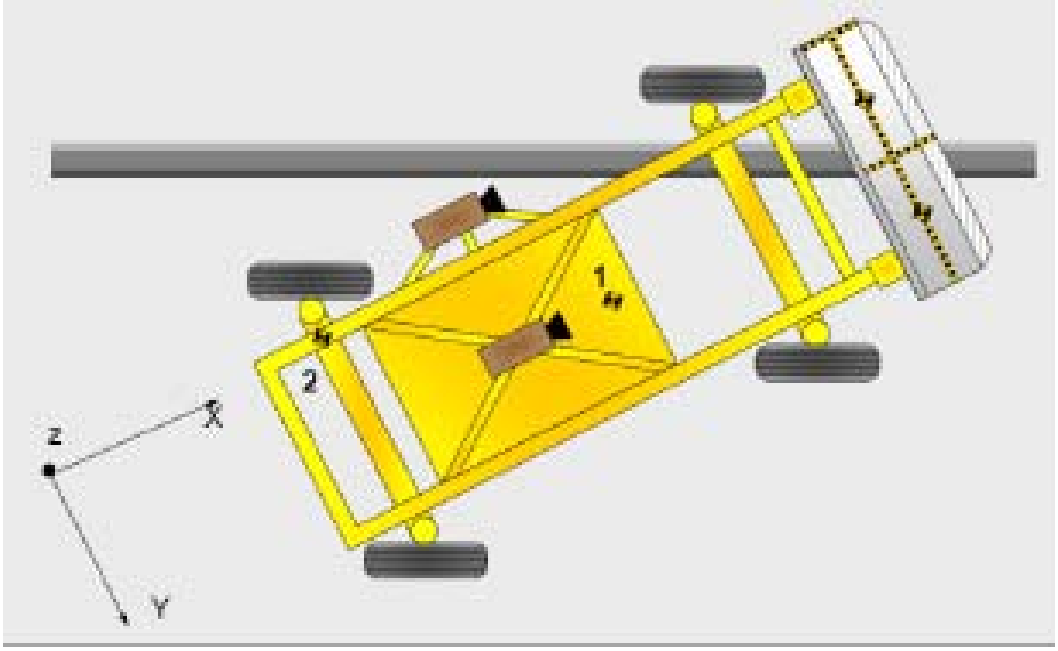
DATA SHEET 6
TEST VEHICLE ACCELEROMETER LOCATIONS



TEST VEHICLE ACCELEROMETER LOCATIONS				
Loc. No.	**Accelerometer Location**	**Measurements (mm)**		
		X	**Y**	**Z**
1	Vehicle CG	2604.9	63.4	234.9
2	Right Sill at Front Seat	2278.4	698.1	437.0
3	Right Sill at Rear Seat	1437.5	697.6	429.1
4	Left Sill at Front Door	2302.3	-702.0	448.2
5	Left Sill at Rear Door	1484.2	-704.8	437.7
6	A-Post Lower	2933.5	-800.6	151.4
7	A-Post Middle	2918.7	-793.7	-100.9
8	B-Post Lower	1850.3	-807.7	8.91
9	B-Post Middle	1834.0	-809.1	-190.2
10	Front Seat Track	2143.8	-577.3	253.2
11	Rear Seat Structure	1524.9	-286.8	295.7
12	Rt. Rear Occ. Compartment	1533.5	346.5	299.7
13	Engine Block	3629.2	157.9	-158.4
14	Rear Above Axle	831.4	4.16	137.7

Reference:
X - Rear surface of vehicle (+ forward)
Y - Vehicle centerline (+ right)
Z - Bumper target (+ down)

DATA SHEET 7
MDB ACCELEROMETER LOCATIONS



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

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

DATA SHEET NUMBER 8
POST-TEST OBSERVATIONS

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

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

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

DATA SHEET NUMBER 8
POST-TEST OBSERVATIONS (CONTINUED)

POST TEST STRUCTURAL OBSERVATIONS	
Critical Areas of Performance	**Observations/Conclusions**
Pillar Performance	No Damage
Sill Separation	No Separation
Windshield Damage	No Damage
Window Damage	Shattered at Impact
Other Notable Effects	None Noted

SUPPLEMENTAL RESTRAINT INFORMATION				
Restraint Type	**Struck Side Driver**		**Struck Side Rear Passenger**	
	Mounted	**Deployed**	**Mounted**	**Deployed**
Frontal Airbag	Yes – Steering Wheel	Did Not Deploy		
Knee Airbag	Yes – Knee Bolster	Did Not Deploy		
Side Curtain Airbag	Yes – Side Header	Deployed Properly	Yes – Side Header	Deployed Properly
Side Torso/Abdomen/Pelvis Airbag	Yes – Seat Back	Deployed Properly	No	N/a
Seat Belt Pretensioner	Yes	Deployed Properly	No	N/a
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		2670
Vertical Impact Reference Line (Aft of Front Axle)(Intended Impact Point)	mm		395
Actual Impact Point (Aft of Front Axle)	mm		355
Horizontal Offset (+ forward / - rear)	mm	+/- 50 of Intended Impact Point	40 Forward
Vertical Offset (+ down / - up)	mm	+/- 20 of Intended Impact Point	12 Below

DATA SHEET NUMBER 9
MDB SUMMARY OF RESULTS

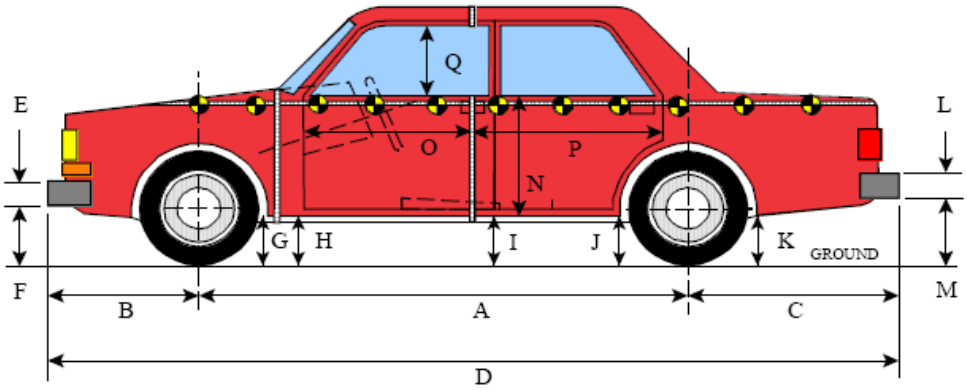
MDB SPECIFICATIONS	
Measurement Description	**Length (mm)**
Overall Width of Framework Carriage	1250
Overall Length Including Honeycomb Frame	4116
Wheel Base of Framework Carriage	2578
CG Location of Front Axle	1112

MDB WEIGHTS				
	Units	**Front Axle**	**Rear Axle**	**Total**
Left	kg	458.6	224.5	683.1
Right	kg	301.2	376.5	677.7
Ratio	%	55.8	44.2	100.0
Totals	kg	759.9	601.0	1360.8

SPEED AND ANGLE AT IMPACT DATA			
Measured parameter	**Units**	**Requirement**	**Value**
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	61.95
Trap No. 2 Velocity (Secondary)	km/h	61.1 to 62.7	61.94
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90
MDB Forward Line of Motion to Target Vehicle	degrees	62.5 to 63.5	63.0
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26 to 28	27.0

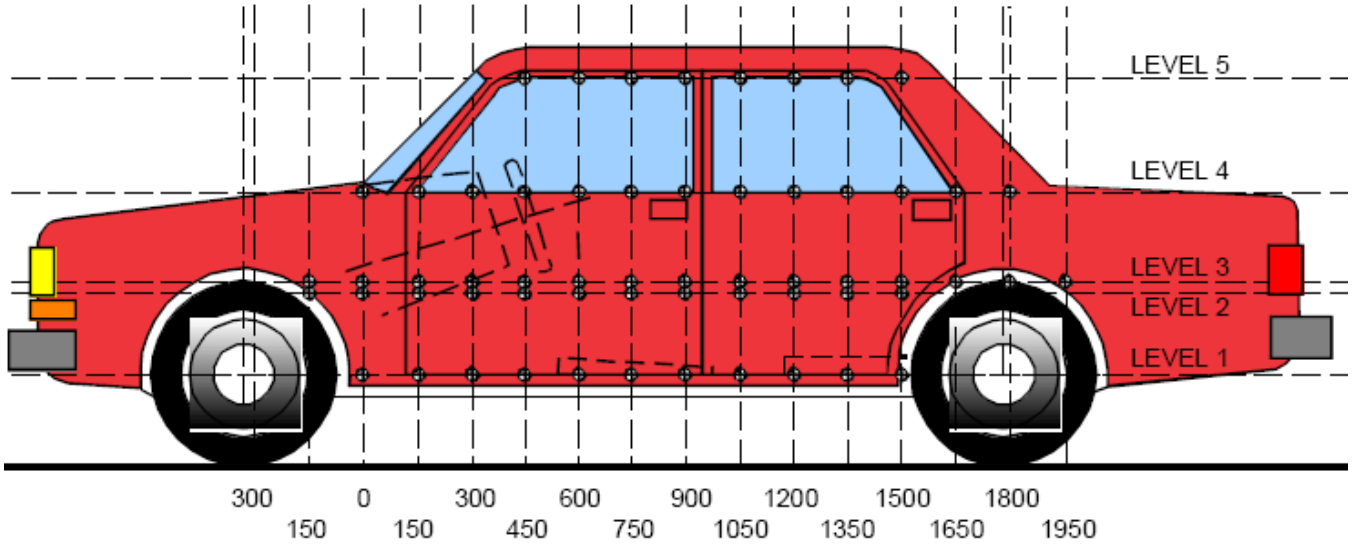
MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE					
Vertical Location			**From Centerline**		**Maximum Crush**
Row	**Description**	**Height**	**Distance**	**Direction**	
A	Center of Bumper	432	300, 400 & 800	Right	229
B	Top of Bumper	533	800	Left	123
C	Mid-Level	560	800	Left	140
D	Top of Stack	840	800	Left	172

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	2670	2663	-7
B	Front Axle to FSOV	570	585	15
C	Rear Axle to RSOV	598	590	-8
D	Total Length at Centerline	4301	4301	0
E	Front Bumper Thickness	81	81	0
F	Front Bumper Bottom to Ground	362	373	11
G	Sill Height at Front Wheel Well	288	260	-28
H	Sill Height at Front Door Leading Edge	292	260	-32
I	Sill Height at B-Pillar	298	265	-33
J1	Sill Height at Rear Wheel Well	266	244	-22
J2	Pinch Weld Height at Rear Wheel Well	311	265	-46
K	Sill Height Aft of Rear Wheel Well	348	311	-37
L	Rear Bumper Thickness	310	310	0
M	Rear Bumper Bottom to Ground	404	370	-34
N	Sill Height to Bottom of Front Window Sill	771	697	-74
O	Front Door Leading Edge to Impact C/L	1091	1067	-24
P	Rear Door Trailing Edge to Impact C/L	870	862	-8
Q	Front Window Opening	425	422	-3
R	Right Side Length	3838	3837	-1
S	Left Side Length	3838	3838	0
T	Maximum Vehicle Width	1765	1581	-184

DATA SHEET NUMBER 11
VEHICLE EXTERIOR CRUSH MEASUREMENTS



LEFT SIDE VIEW

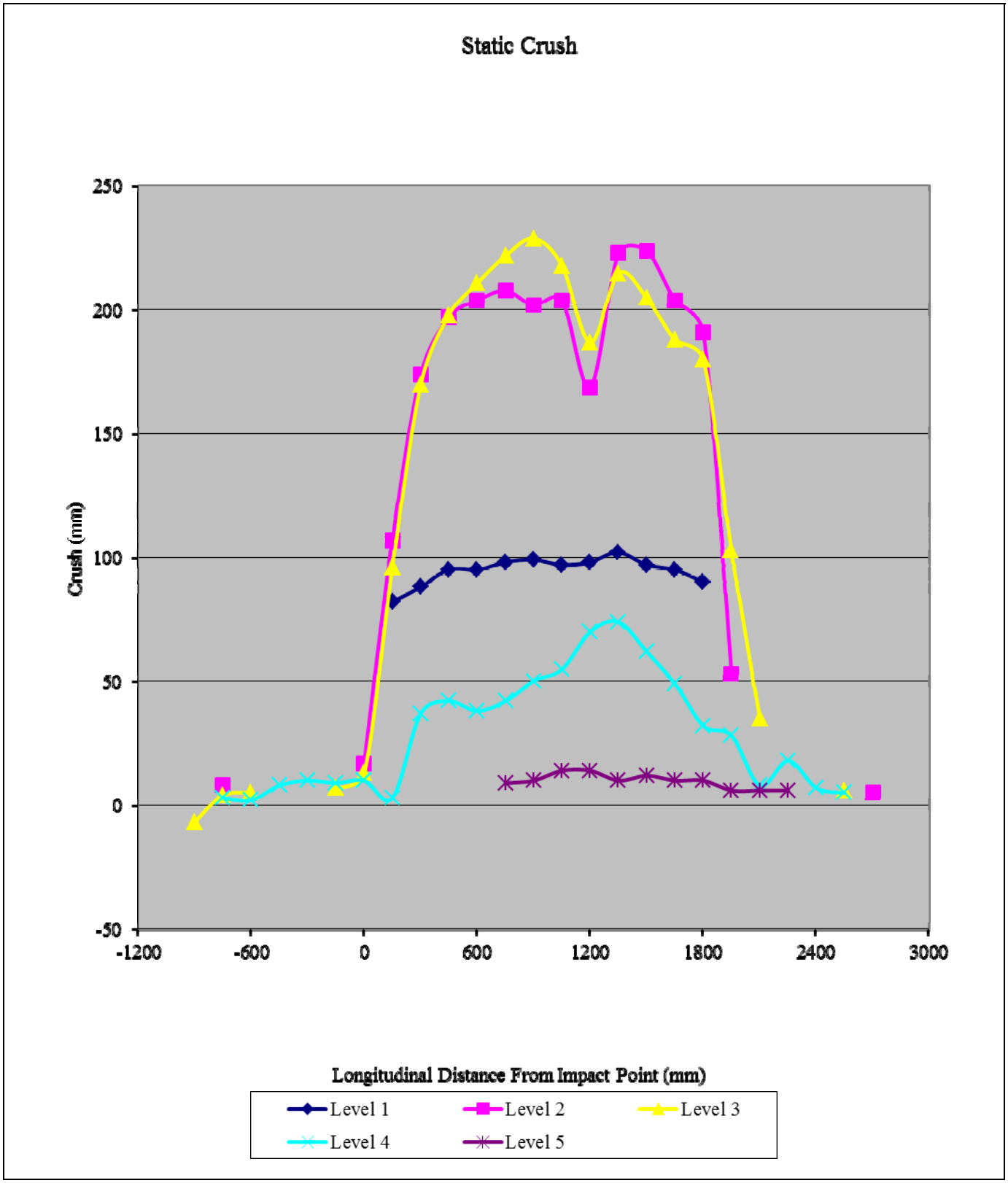
MAXIMUM EXTERIOR CRUSH MEASUREMENTS				
Level	**Measurement Description**	**Height Above Ground**	**Maximum Exterior Static Crush**	**Distance from Impact**
1	Sill Top	327	102	1350
2	Occupant Hip Point	663	224	1500
3	Mid-Door	744	229	900
4	Window Sill	1038	74	1350
5	Window Top	1533	14	1050 & 1200

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

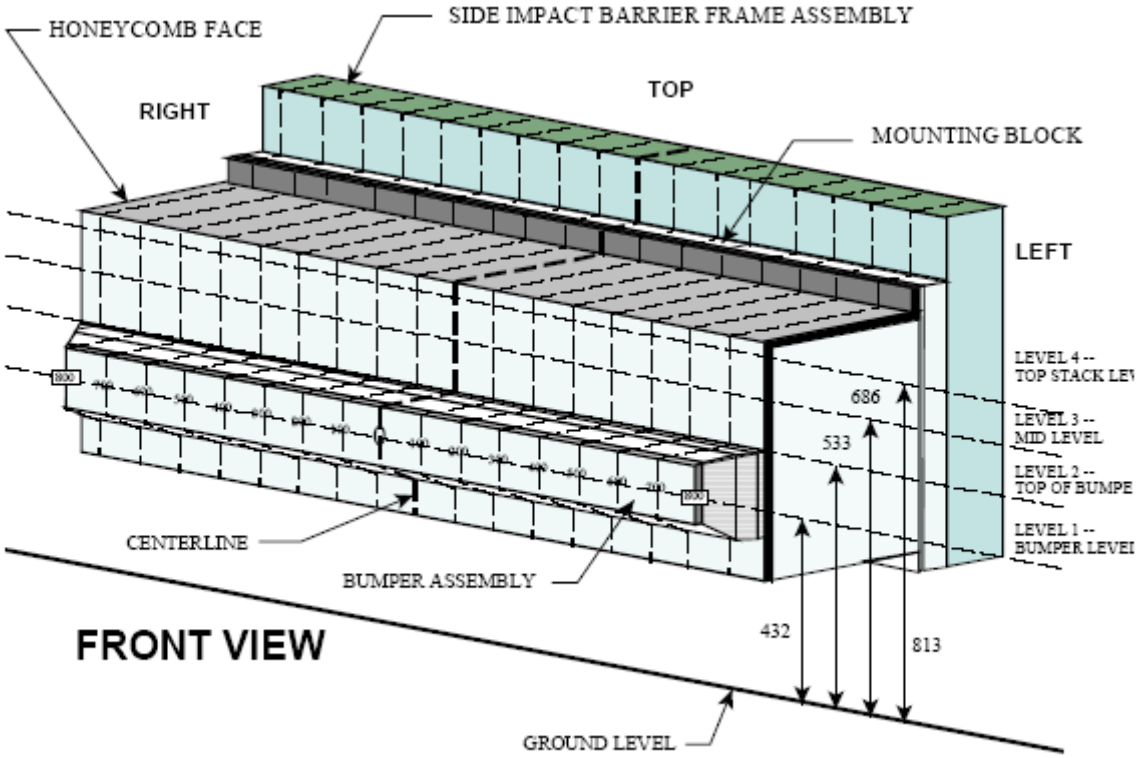
EXTERIOR CRUSH MEASUREMENTS AT EACH LEVEL

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							350	343	-7						
	-750				286	294	8	296	300	4	432	435	3			
	-600							278	283	5	403	405	2			
	-450										382	390	8			
	-300										371	381	10			
	-150							273	280	7	358	367	9			
	0				275	292	17	282	295	13	347	357	10			
	150	311	393	82	288	395	107	292	388	96	340	343	3			
	300	312	400	88	281	455	174	287	457	170	329	366	37			
	450	311	406	95	277	474	197	282	480	198	322	364	42			
	600	310	405	95	276	480	204	279	490	211	316	354	38			
	750	309	407	98	275	483	208	276	498	222	310	352	42	547	556	9
	900	308	407	99	278	480	202	274	503	229	306	356	50	536	546	10
	1050	308	405	97	279	483	204	274	492	218	303	358	55	532	546	14
	1200	310	408	98	281	450	169	275	462	187	300	370	70	535	549	14
	1350	310	412	102	284	507	223	278	493	215	300	374	74	535	545	10
	1500	314	411	97	288	512	224	278	483	205	300	362	62	535	547	12
	1650	314	409	95	292	496	204	282	470	188	302	351	49	539	549	10
	1800	308	398	90	285	476	191	282	462	180	306	338	32	545	555	10
	1950				273	326	53	272	375	103	319	347	28	558	564	6
	2100							271	306	35	319	327	8	572	578	6
	2250										327	345	18	587	593	6
	2400										336	343	7			
	2550							278	284	6	349	354	5			
	2700				300	305	5									
	2850															
	3000															
	3150															
	3330															

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



DATA SHEET NUMBER 12
MDB EXTERIOR STATIC CRUSH MEASUREMENTS



NOTE: Dimensions are shown in millimeters, mm

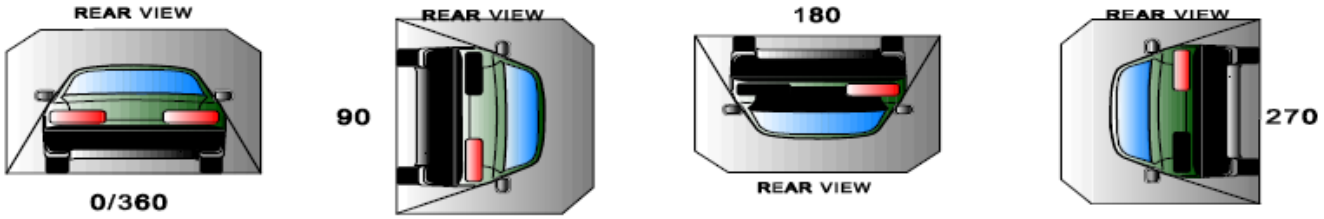
DEFORMABLE BARRIER STATIC CRUSH																	
	Distance Left of Center								C_L	Distance Right of Center							
	800	**700**	**600**	**500**	**400**	**300**	**200**	**100**	**0**	**100**	**200**	**300**	**400**	**500**	**600**	**700**	**800**
1	215	208	208	209	208	206	212	213	213	217	225	229	229	220	221	228	229
2	123	103	114	112	112	108	103	102	102	102	103	97	95	95	102	115	119
3	142	101	71	55	42	38	39	44	45	47	73	85	53	40	40	60	84
4	172	143	108	84	77	67	68	64	55	70	92	92	79	79	89	110	128

DATA SHEET NO. 13
FMVSS 301 STATIC ROLLOVER RESULTS

Temperature at Time of Impact: 21° C Test Time: 2:25 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 IN SECONDS			
Test Phase	**Rotation Time**	**Hold Time**	**Total Time**
0° to 90°	64	300	364
90° to 180°	65	300	365
180° to 270°	66	300	366
270° to 360°	65	300	365

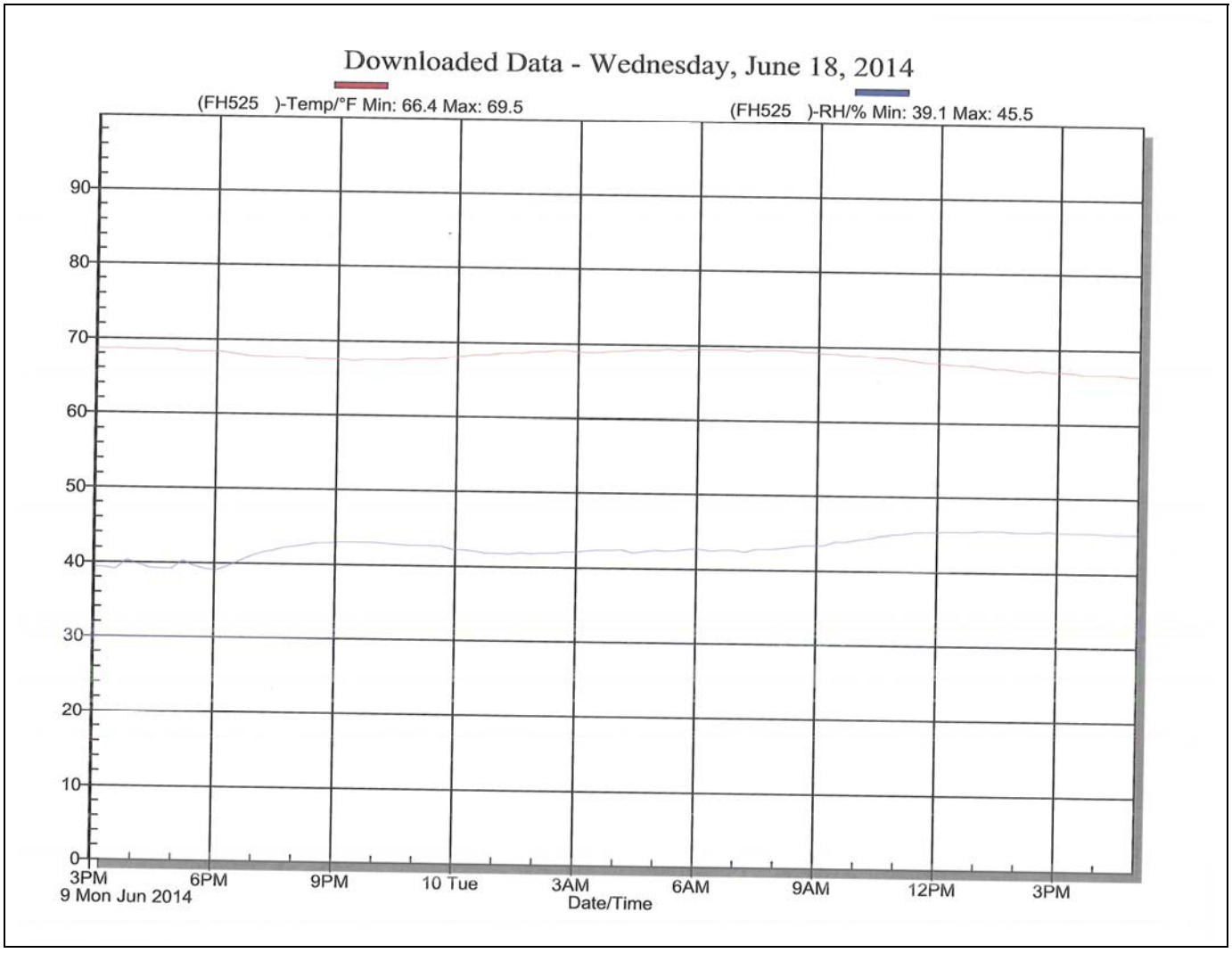
DATA SHEET NO. 13
FMVSS 301 STATIC ROLLOVER RESULTS (CONTINUED)

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

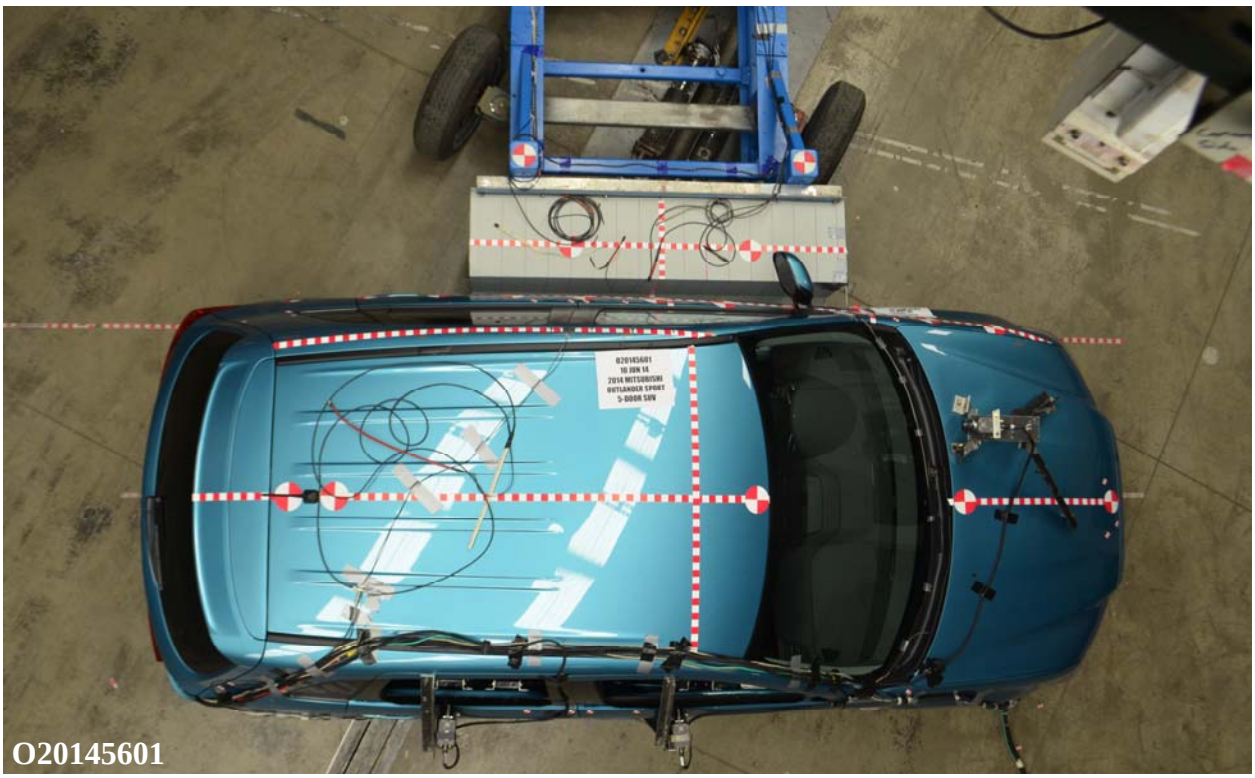


Figure A-15: Pre-Test Overhead View of Test Area

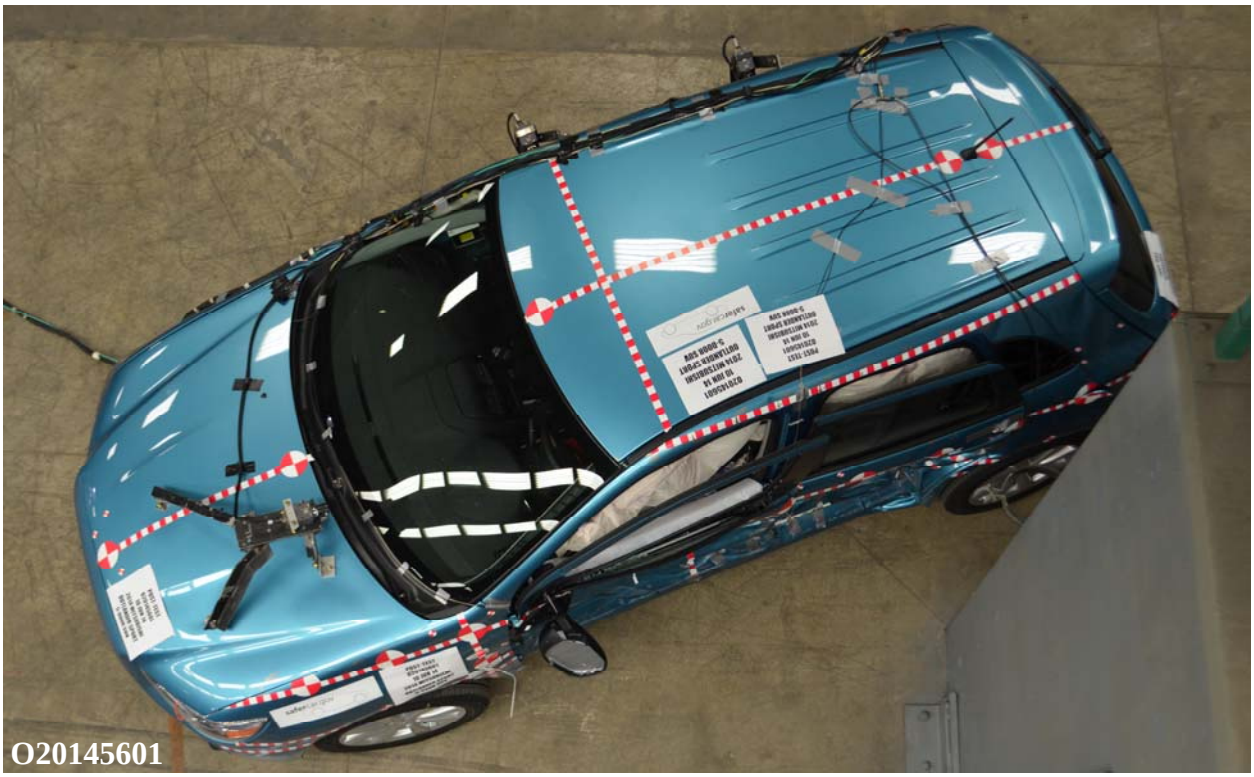


Figure A-16: Post-Test Overhead View of Test Area

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

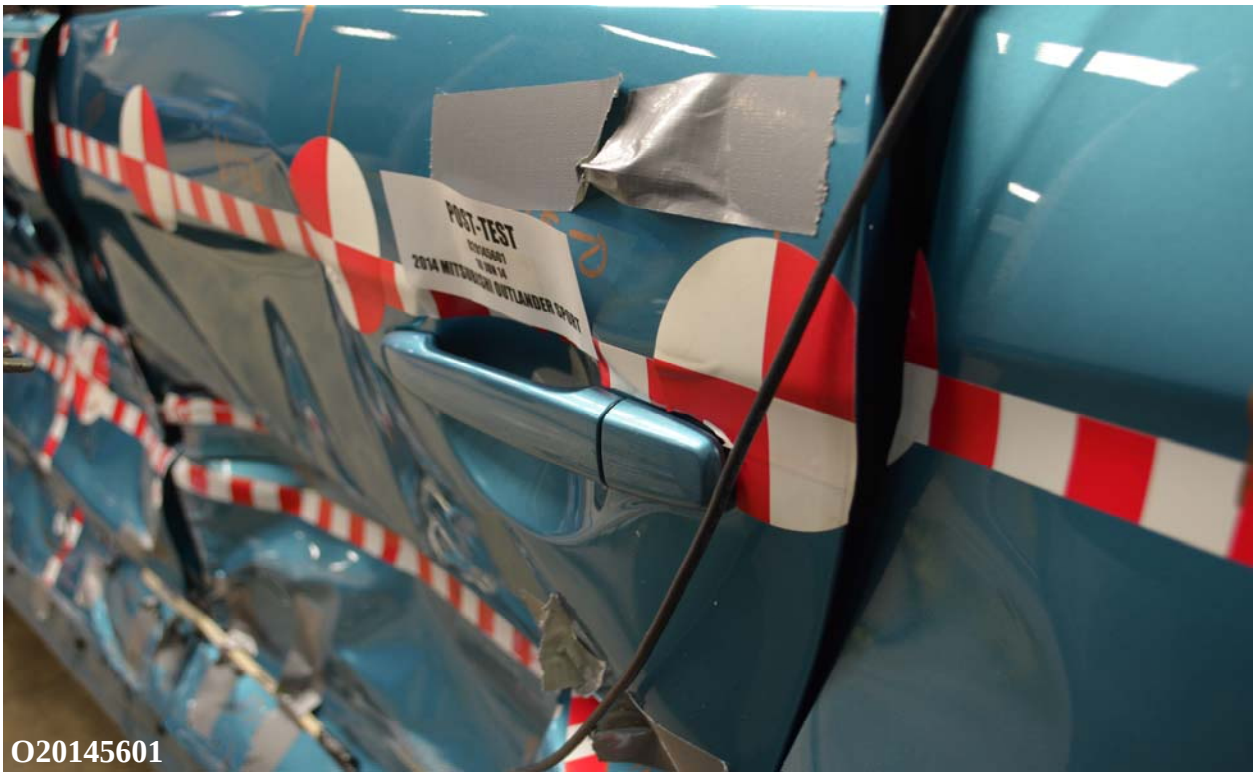


Figure A-24: Post-Test Left Rear Door Latch Close-Up

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

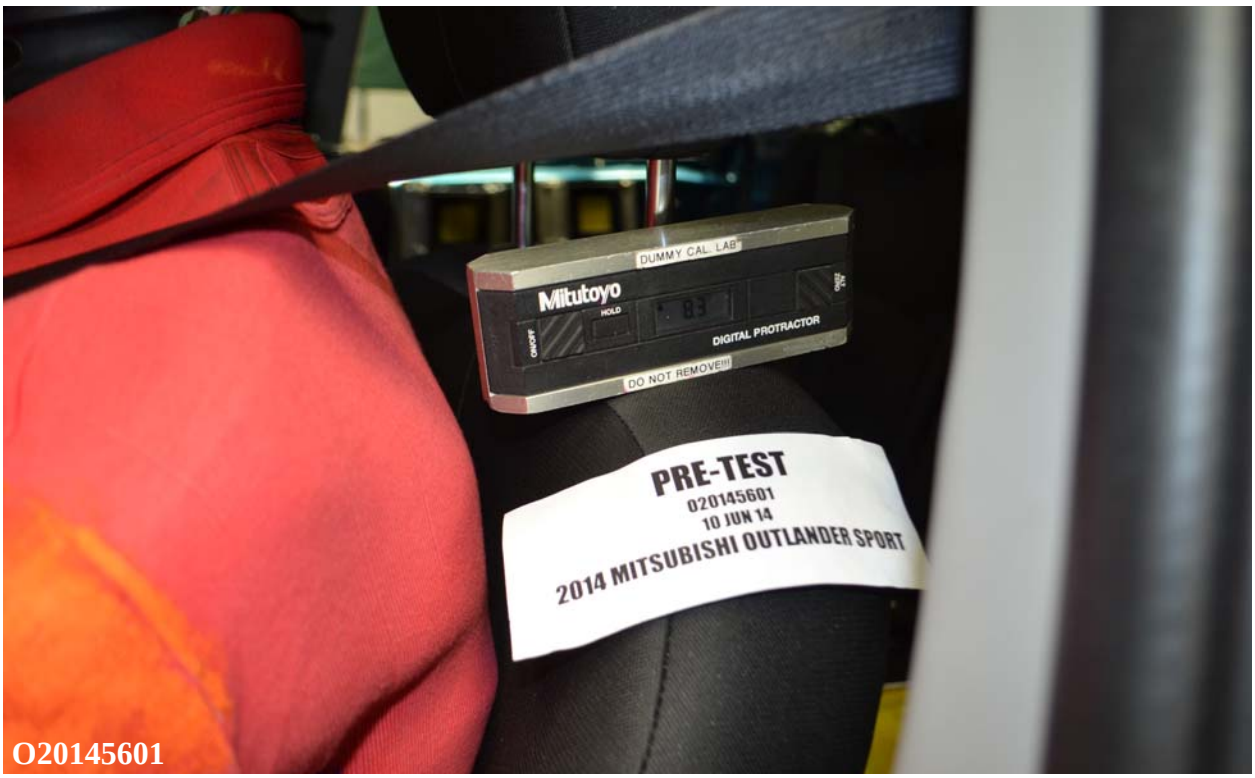


Figure A-41: Pre-Test Close-Up View of Driver Seat Back or Head Restraint

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

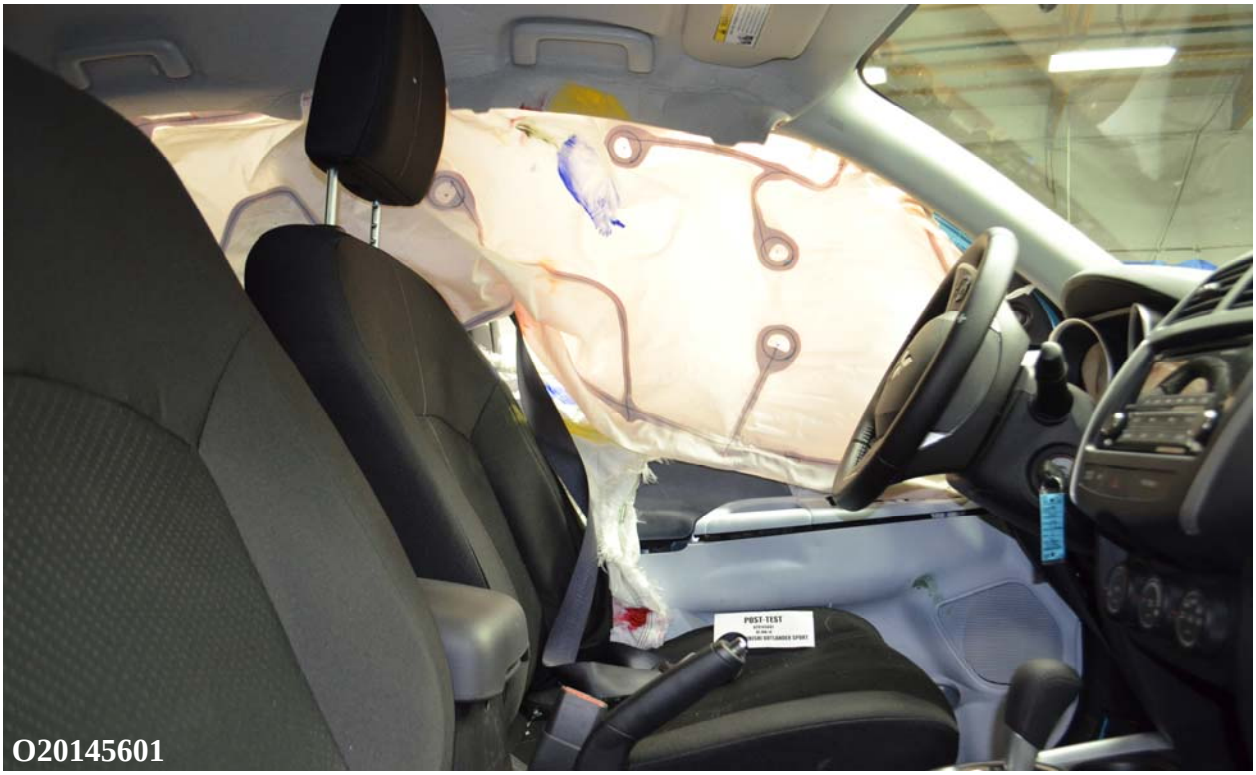


Figure A-47: Post-Test Driver Inner Door Panel View Showing Driver Dummy Contact Locations

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

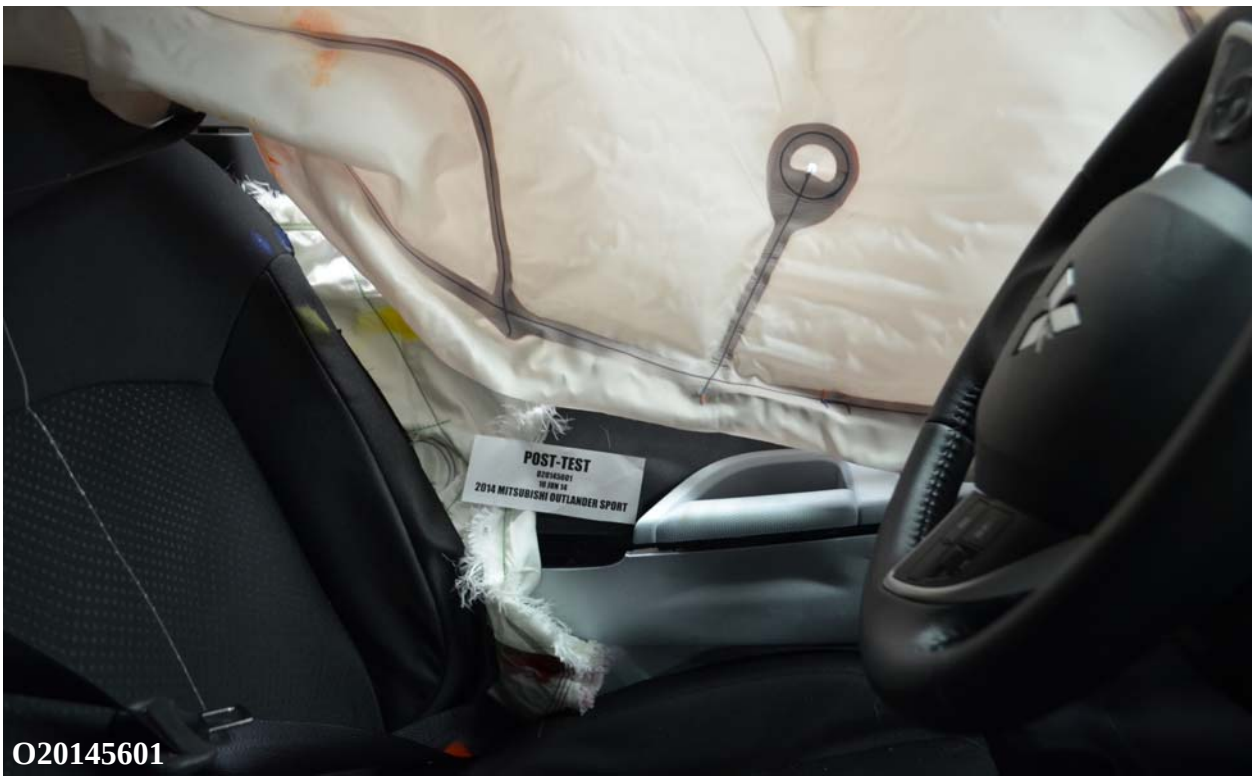


Figure A-51: Post-Test Driver Dummy Close-Up Torso Contact with Side Air Bag View

Not Applicable

O20145601

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: Post-Test Driver Dummy Close-Up Knee Contact View

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

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

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

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

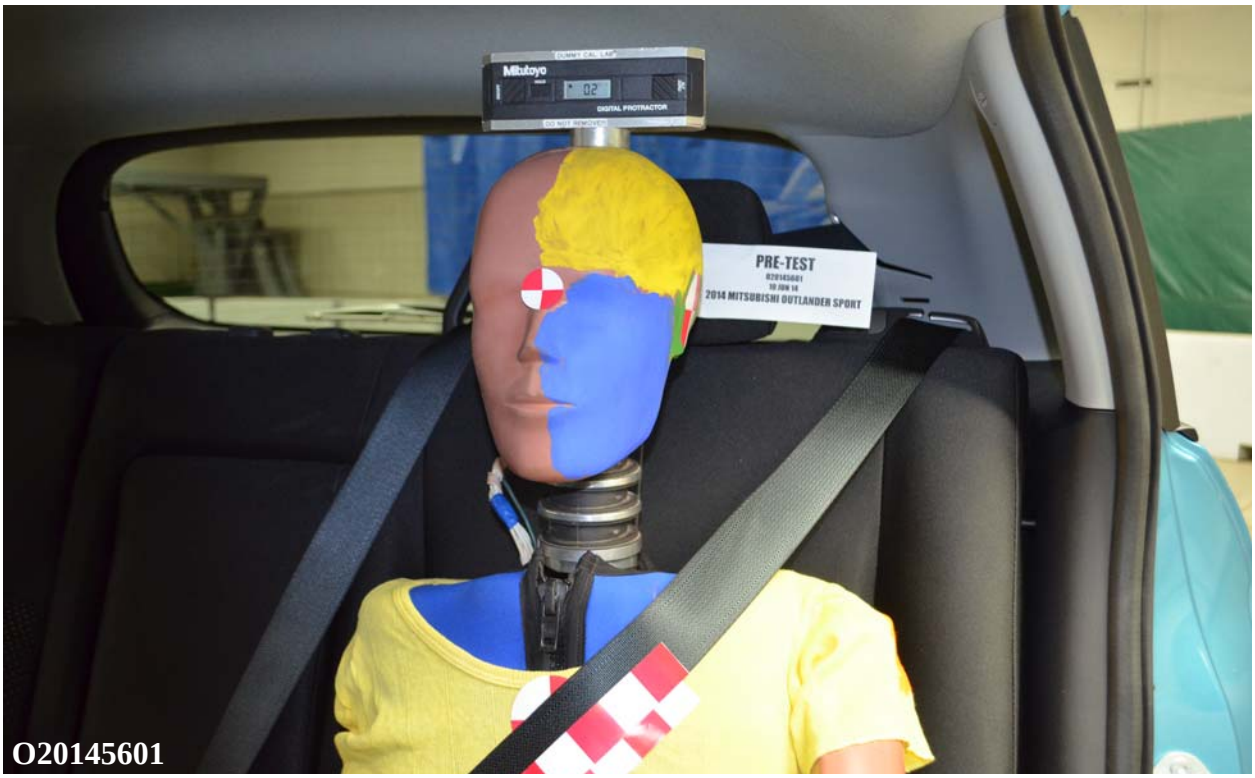


Figure A-59 - Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint

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

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

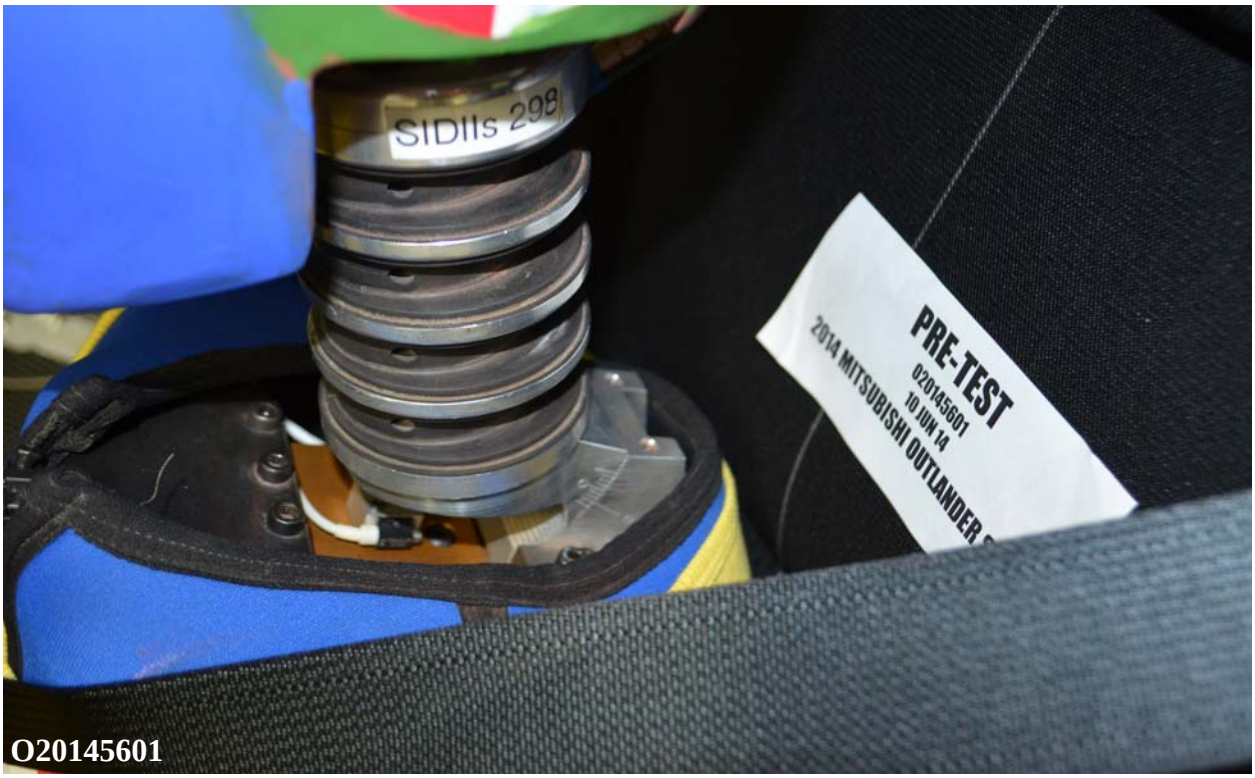


Figure A-62: Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket

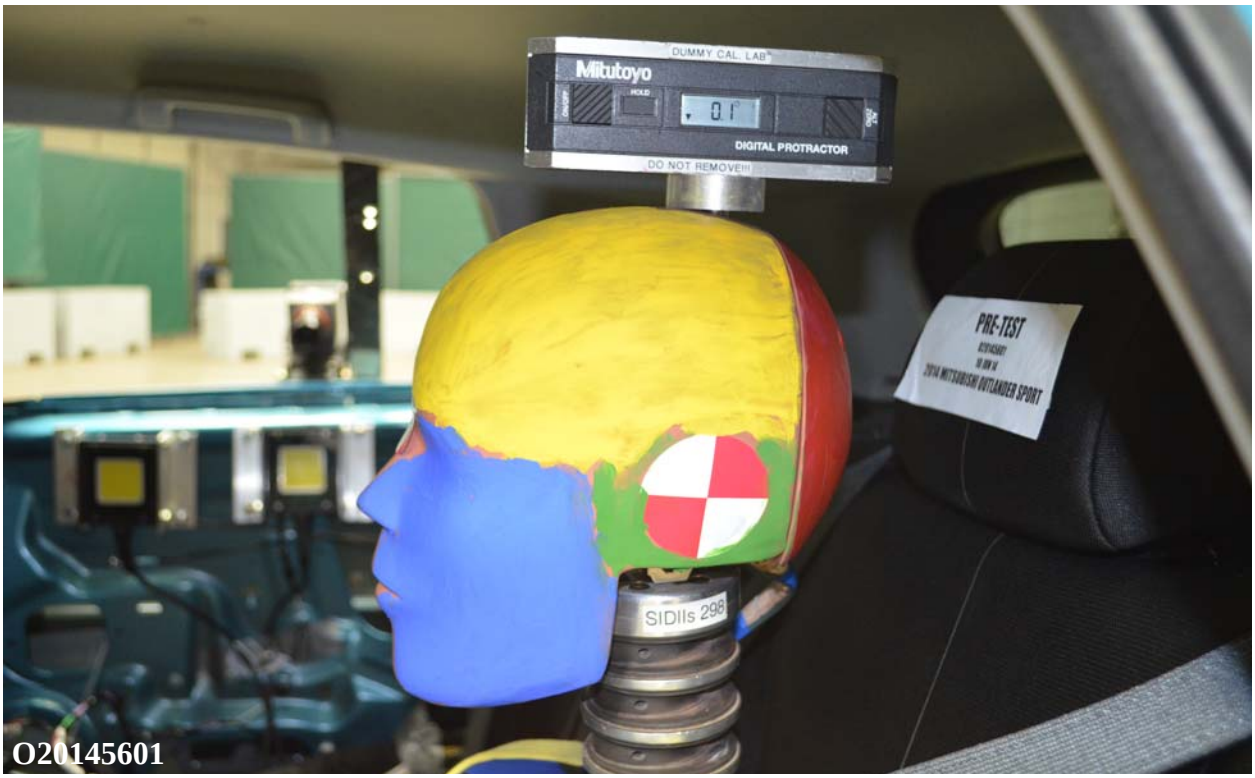


Figure A-63: Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Not Applicable

O20145601

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

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

Not Applicable

O20145601

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

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

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

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

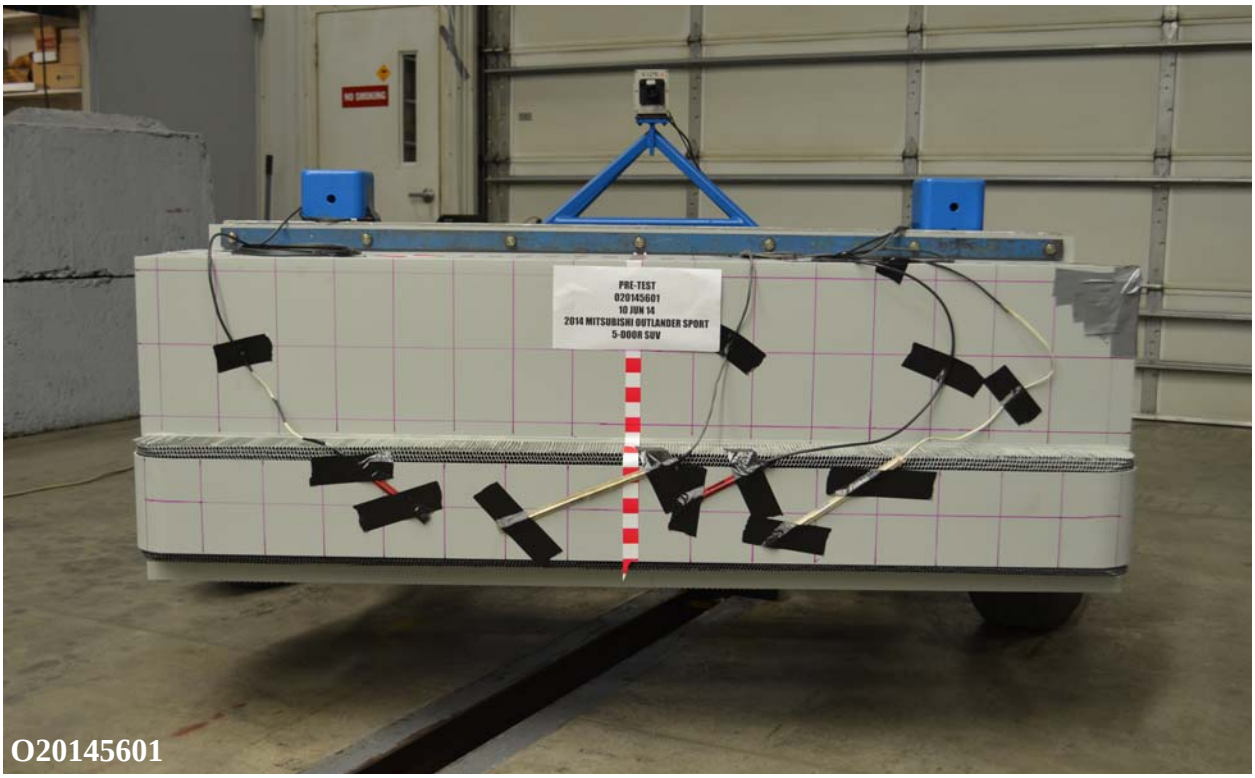


Figure A-84: Pre-Test Front View of MDB Impactor Face

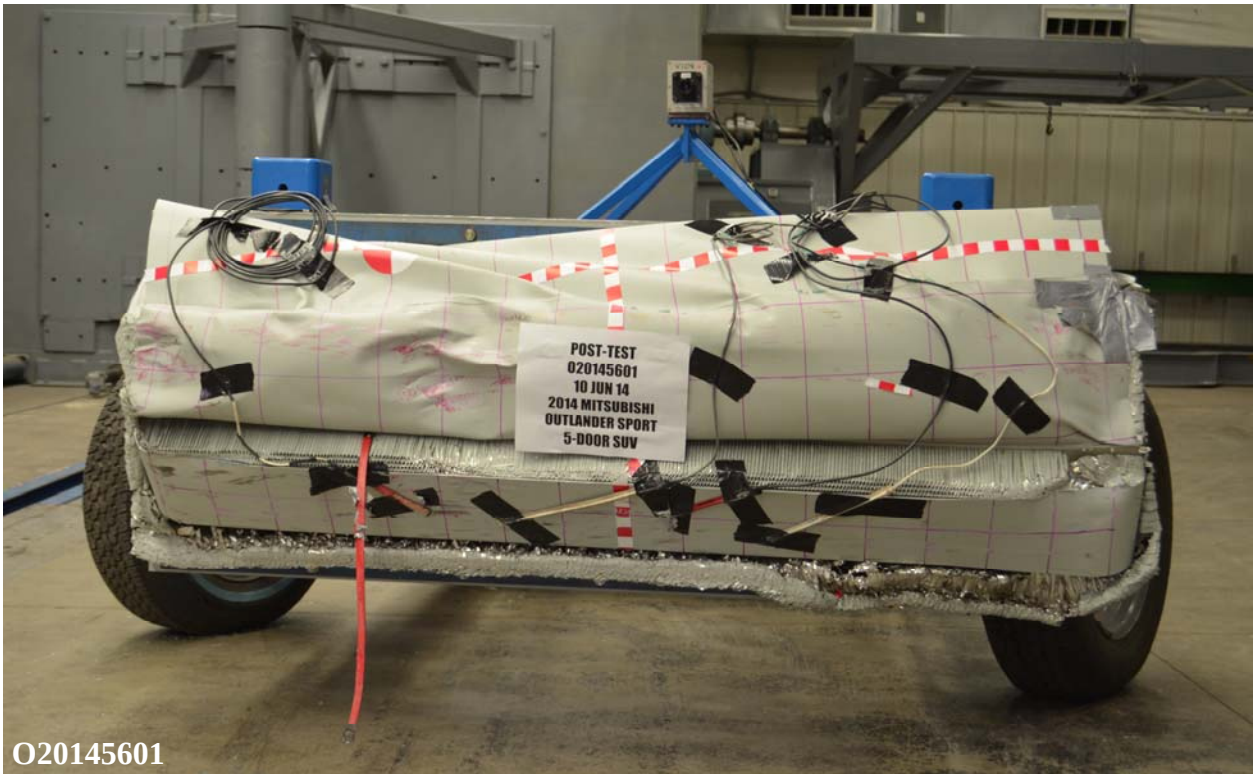


Figure A-85: Post-Test Front View of MDB Impactor Face

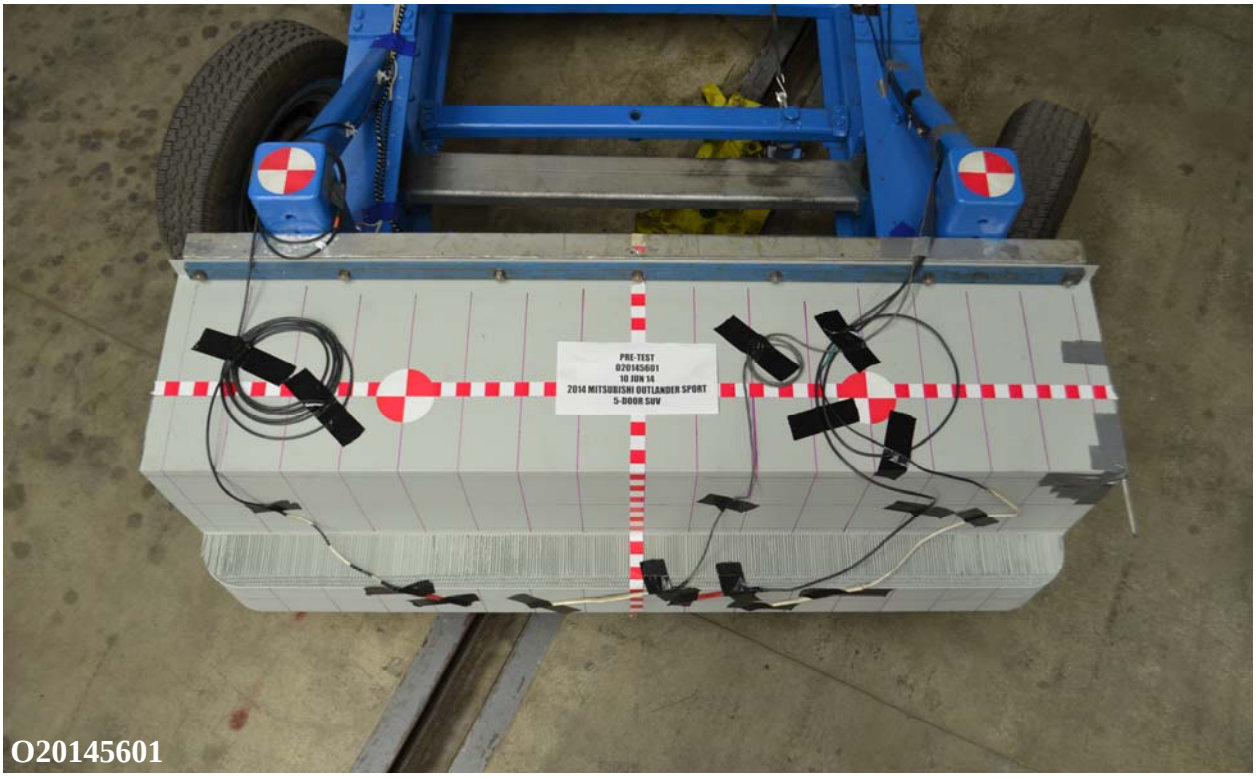


Figure A-86: Pre-Test Top View of MDB Impactor Face

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

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

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

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

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

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

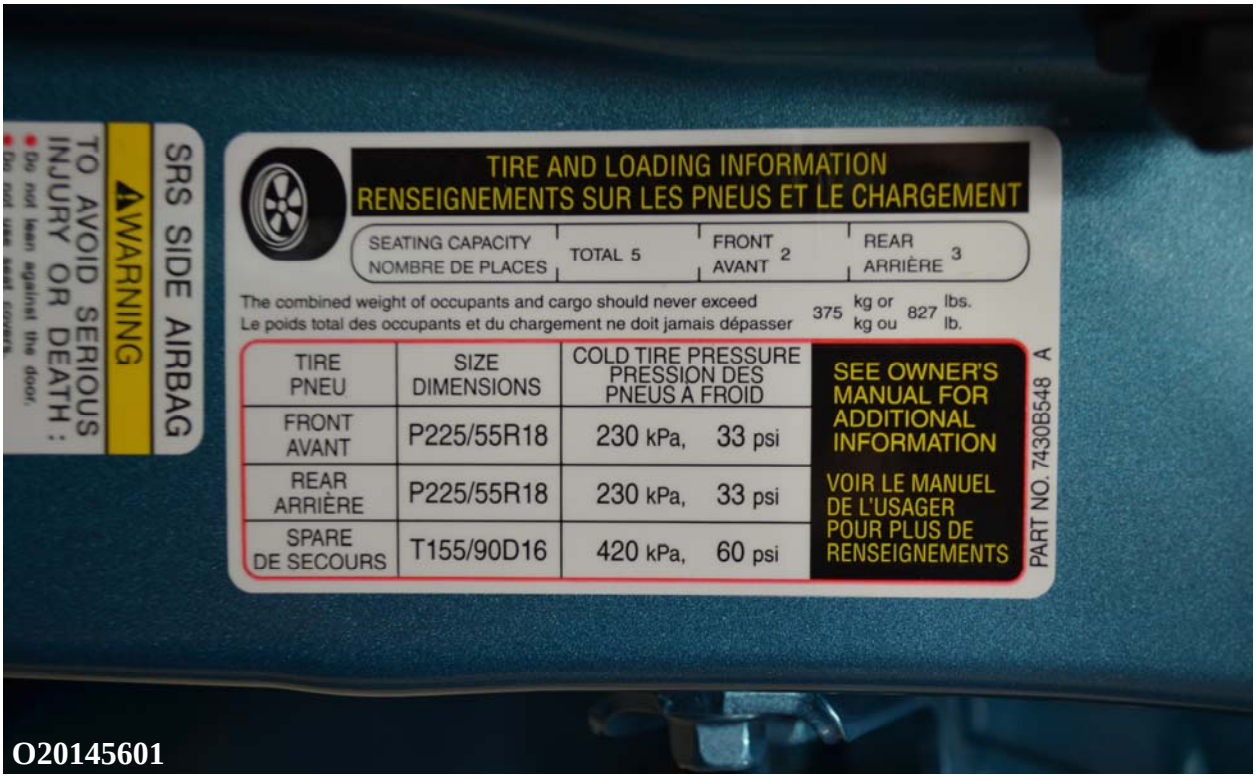


Figure A-93: Close-Up View of Vehicle's Tire Information Placard or Label

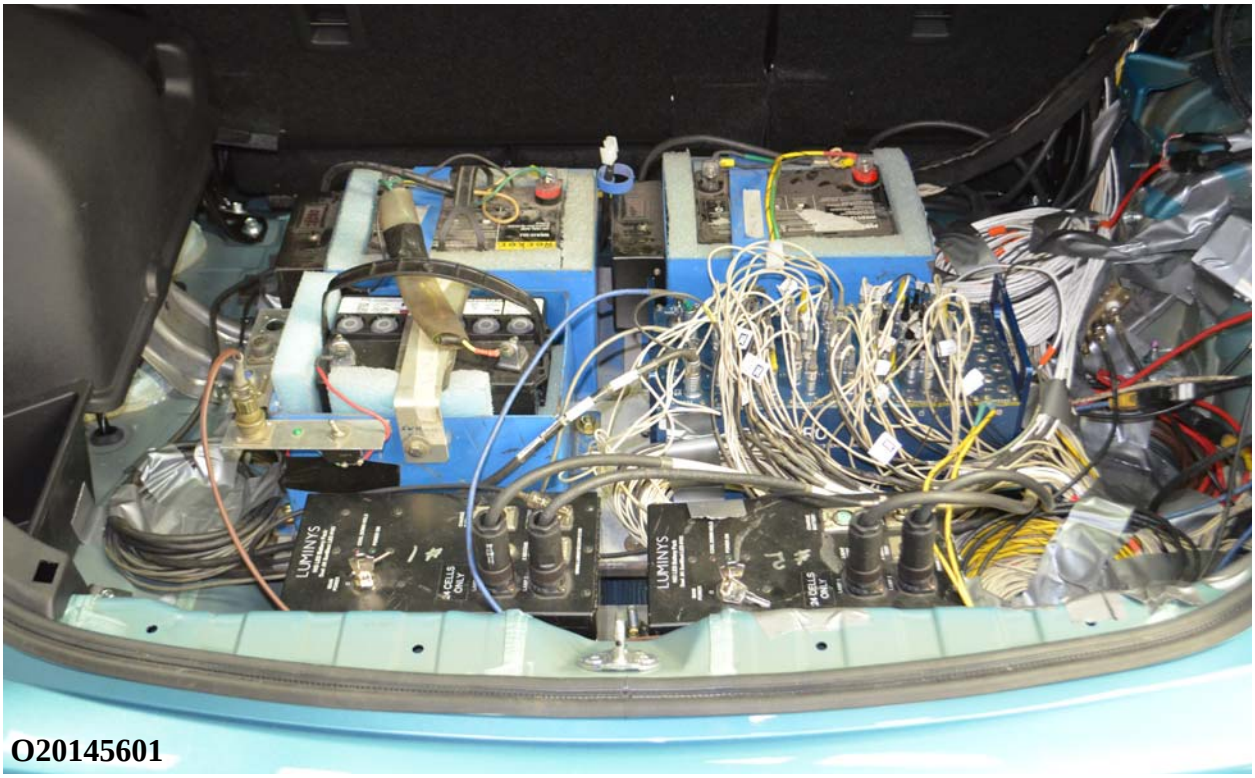


Figure A-94: Pre-Test Ballast View

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

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

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

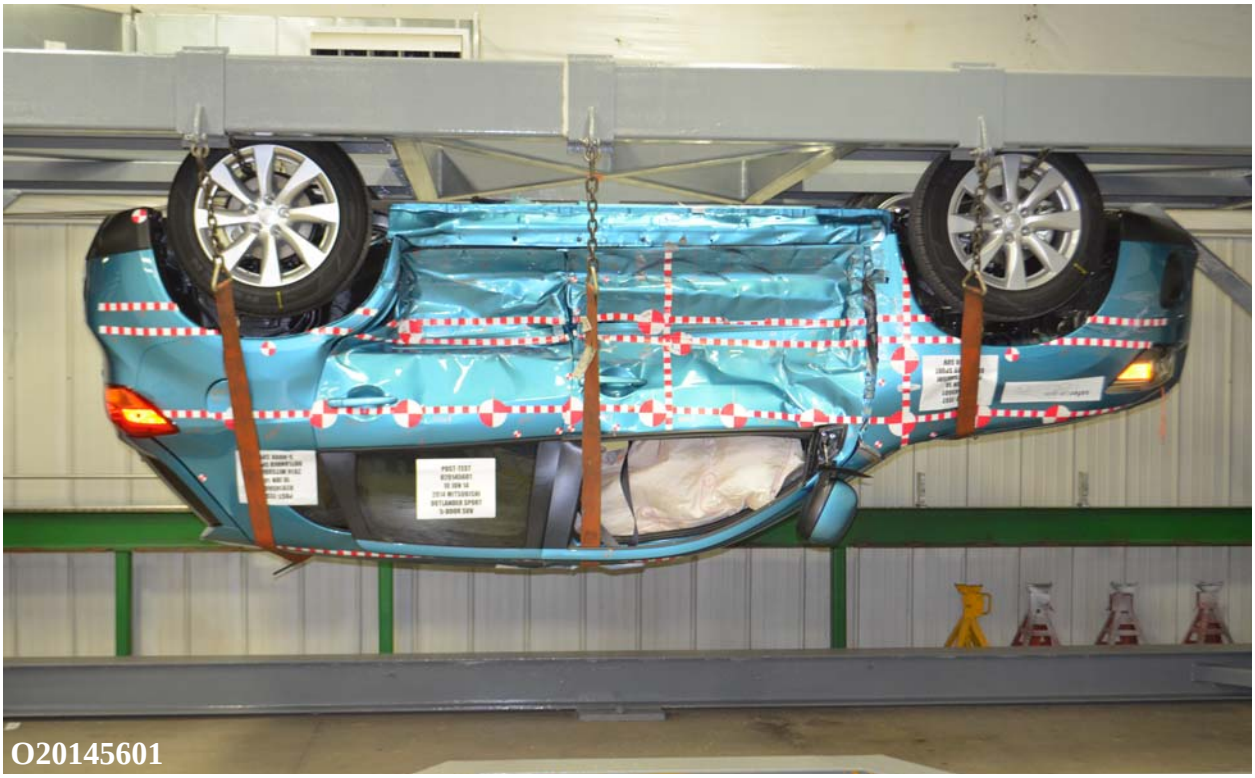


Figure A-98: FMVSS No. 301 Static Rollover 180 Degrees

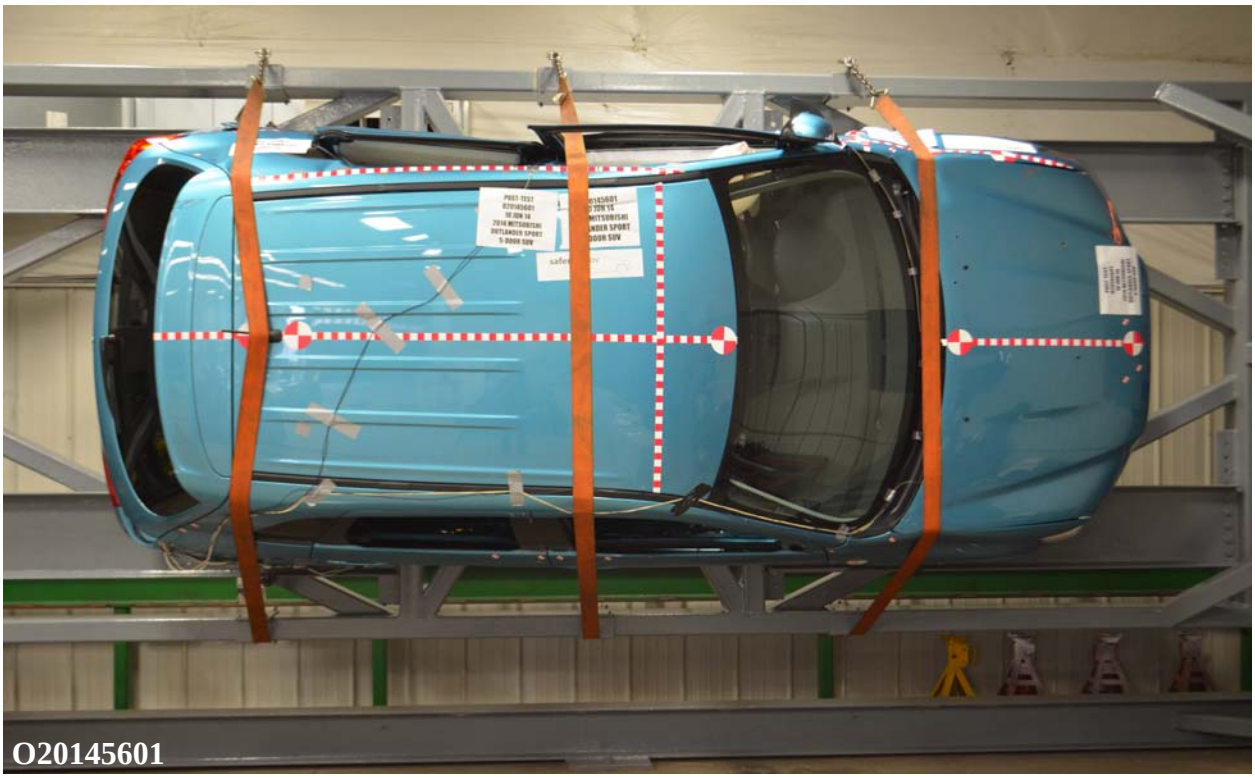


Figure A-99: FMVSS No. 301 Static Rollover 270 Degrees

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

Figure A-101: Impact Event

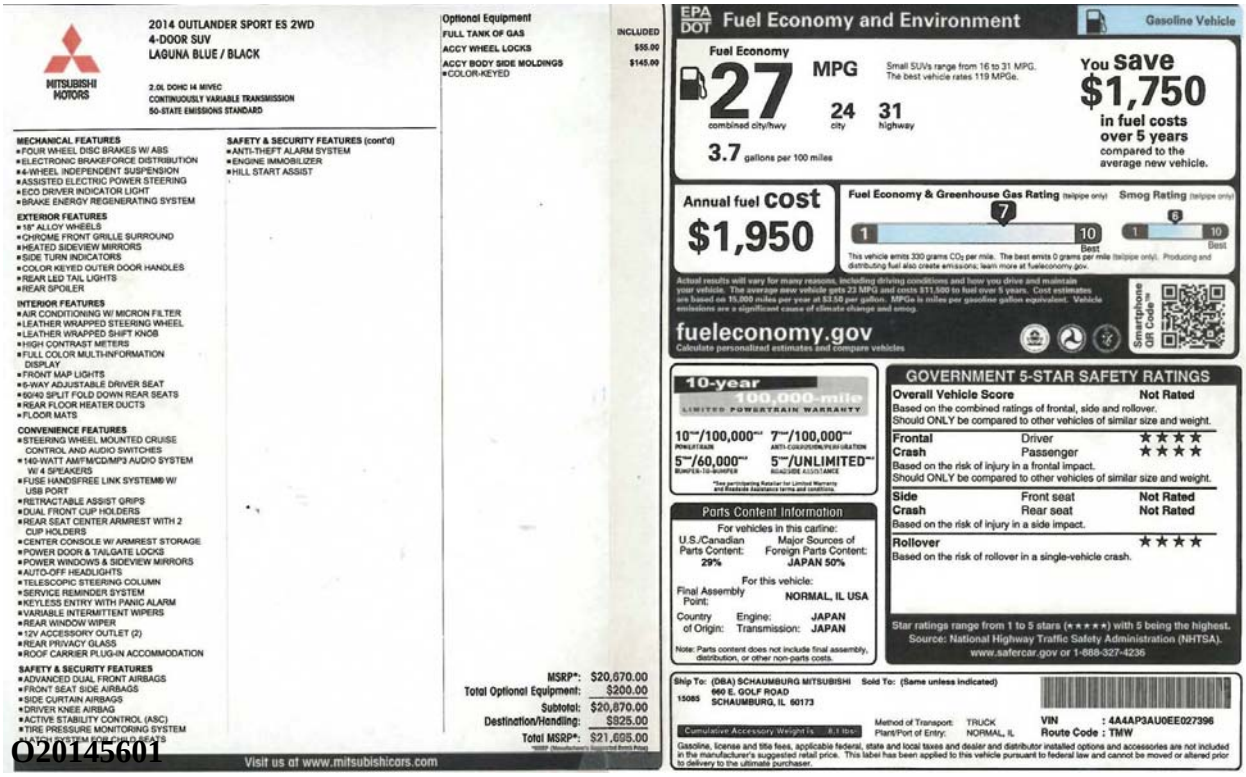
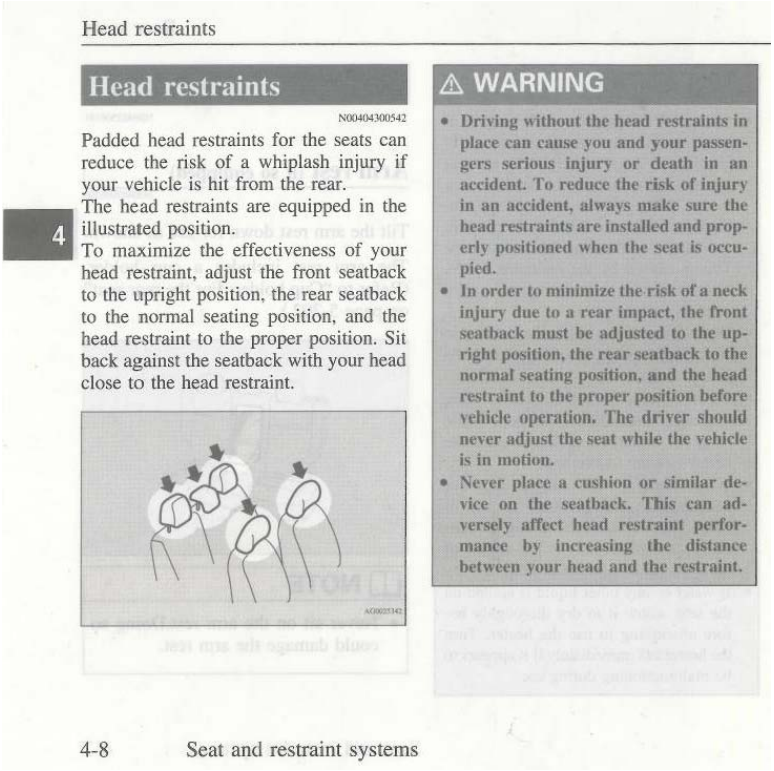


Figure A-102: Monroney Label



Head restraints

Head restraints

N00404300542

Padded head restraints for the seats can reduce the risk of a whiplash injury if your vehicle is hit from the rear.
The head restraints are equipped in the illustrated position.
To maximize the effectiveness of your head restraint, adjust the front seatback to the upright position, the rear seatback to the normal seating position, and the head restraint to the proper position. Sit back against the seatback with your head close to the head restraint.

4

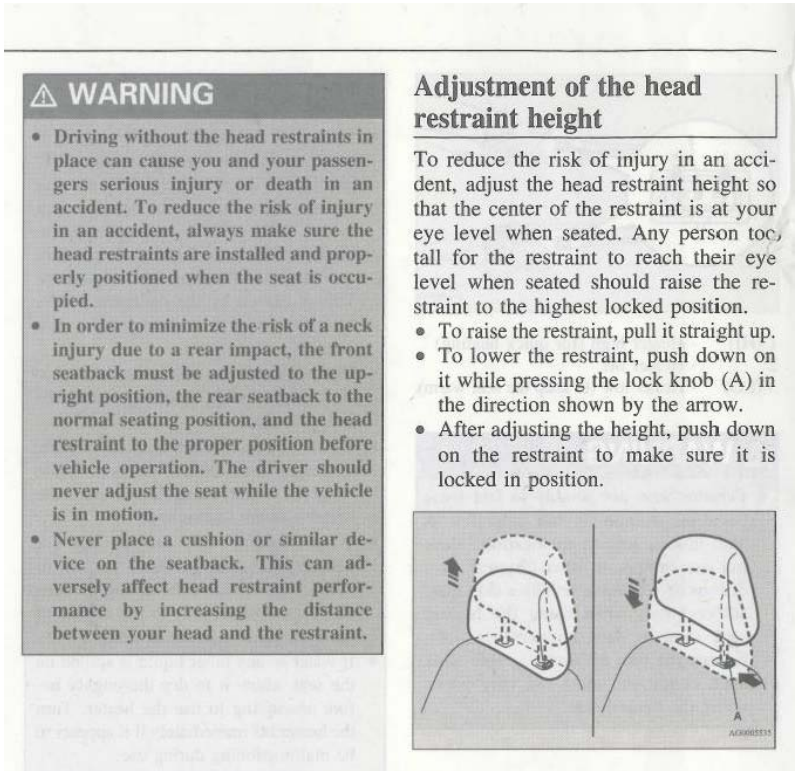
⚠ WARNING

- Driving without the head restraints in place can cause you and your passengers serious injury or death in an accident. To reduce the risk of injury in an accident, always make sure the head restraints are installed and properly positioned when the seat is occupied.
- In order to minimize the risk of a neck injury due to a rear impact, the front seatback must be adjusted to the upright position, the rear seatback to the normal seating position, and the head restraint to the proper position before vehicle operation. The driver should never adjust the seat while the vehicle is in motion.
- Never place a cushion or similar device on the seatback. This can adversely affect head restraint performance by increasing the distance between your head and the restraint.

4-8 Seat and restraint systems

O20145601

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



⚠ WARNING

- Driving without the head restraints in place can cause you and your passengers serious injury or death in an accident. To reduce the risk of injury in an accident, always make sure the head restraints are installed and properly positioned when the seat is occupied.
- In order to minimize the risk of a neck injury due to a rear impact, the front seatback must be adjusted to the upright position, the rear seatback to the normal seating position, and the head restraint to the proper position before vehicle operation. The driver should never adjust the seat while the vehicle is in motion.
- Never place a cushion or similar device on the seatback. This can adversely affect head restraint performance by increasing the distance between your head and the restraint.

Adjustment of the head restraint height

To reduce the risk of injury in an accident, adjust the head restraint height so that the center of the restraint is at your eye level when seated. Any person too tall for the restraint to reach their eye level when seated should raise the restraint to the highest locked position.

- To raise the restraint, pull it straight up.
- To lower the restraint, push down on it while pressing the lock knob (A) in the direction shown by the arrow.
- After adjusting the height, push down on the restraint to make sure it is locked in position.

A

O20145601

Figure A-104: 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

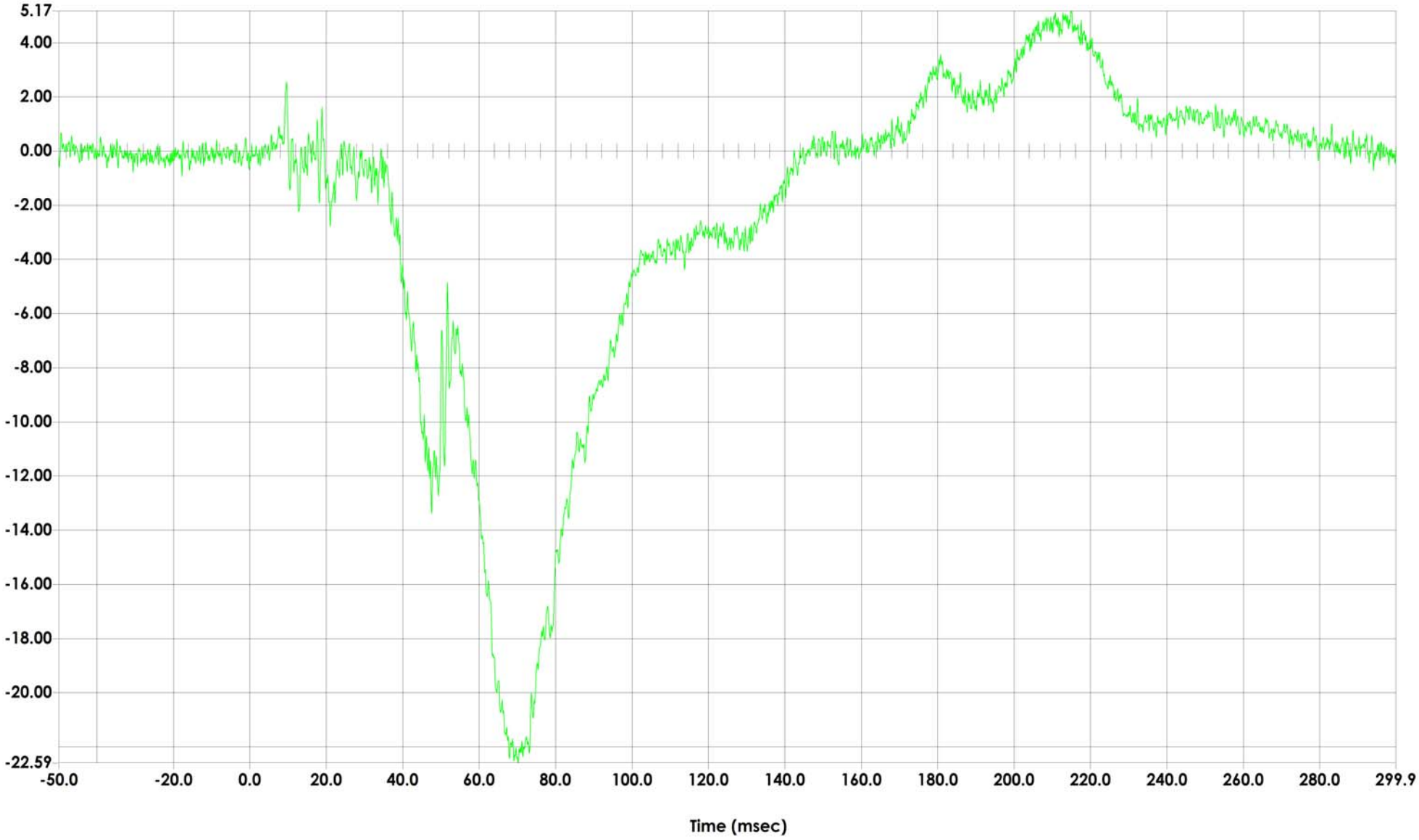
MDB Center of Gravity Acceleration (X)
MDB Center of Gravity Acceleration (Y)
MDB Center of Gravity Acceleration (Z)
MDB Rear Acceleration (X)
MDB Rear Acceleration (Y)
Left MDB Contact Switch
Right MDB Contact Switch

Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC1000
Plot number	001
Units	G'S

Max	5.17	G'S
	215.04	msec
Min	-22.59	G'S
	70.24	msec

MEDICAL COLLEGE OF WISCONSIN

Driver Head Acceleration (X) Primary vs. Time

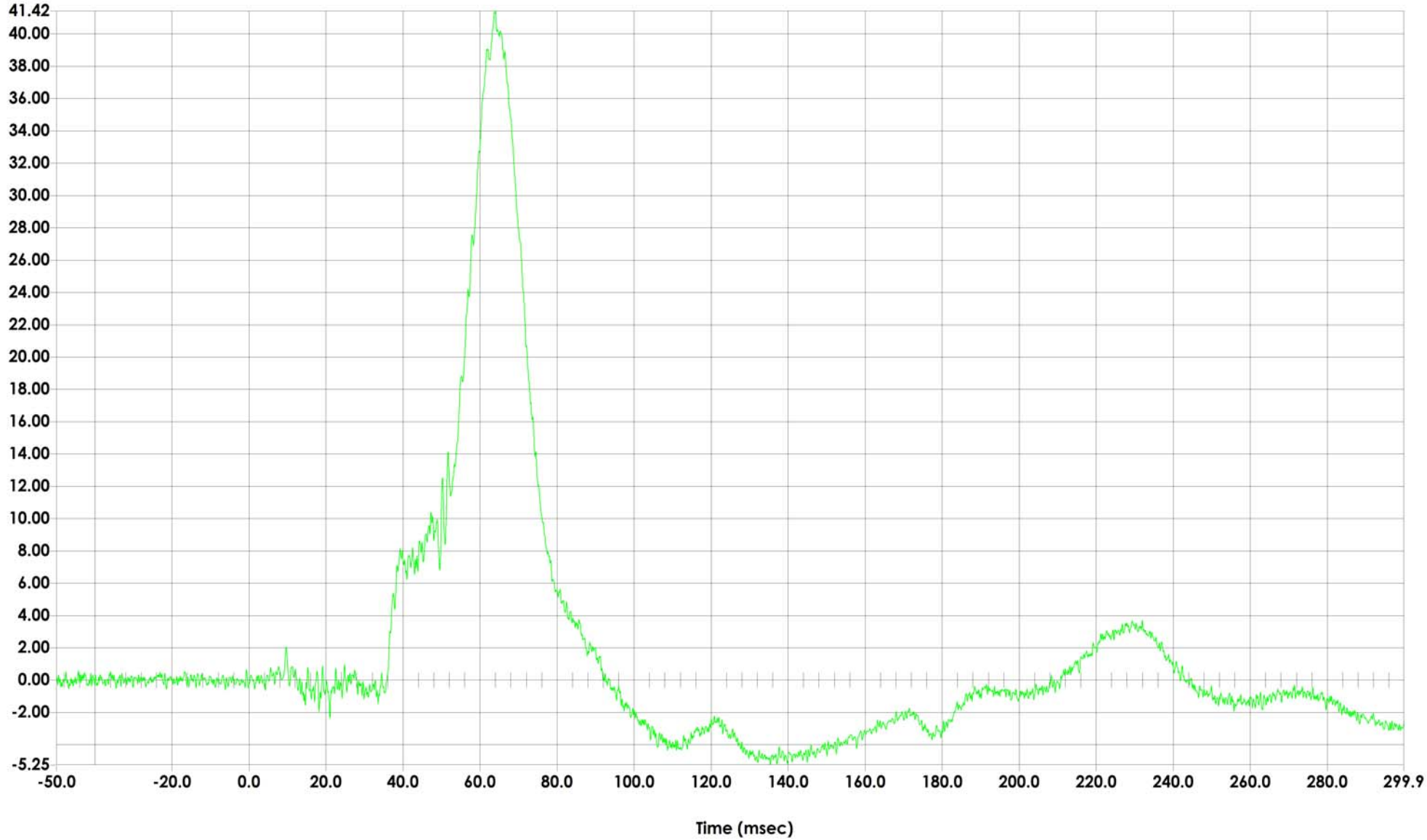


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC1000
Plot number	002
Units	G'S

Max	41.42	G'S
	64.00	msec
Min	-5.25	G'S
	135.36	msec

MEDICAL COLLEGE OF WISCONSIN

Driver Head Acceleration (Y) Primary vs. Time

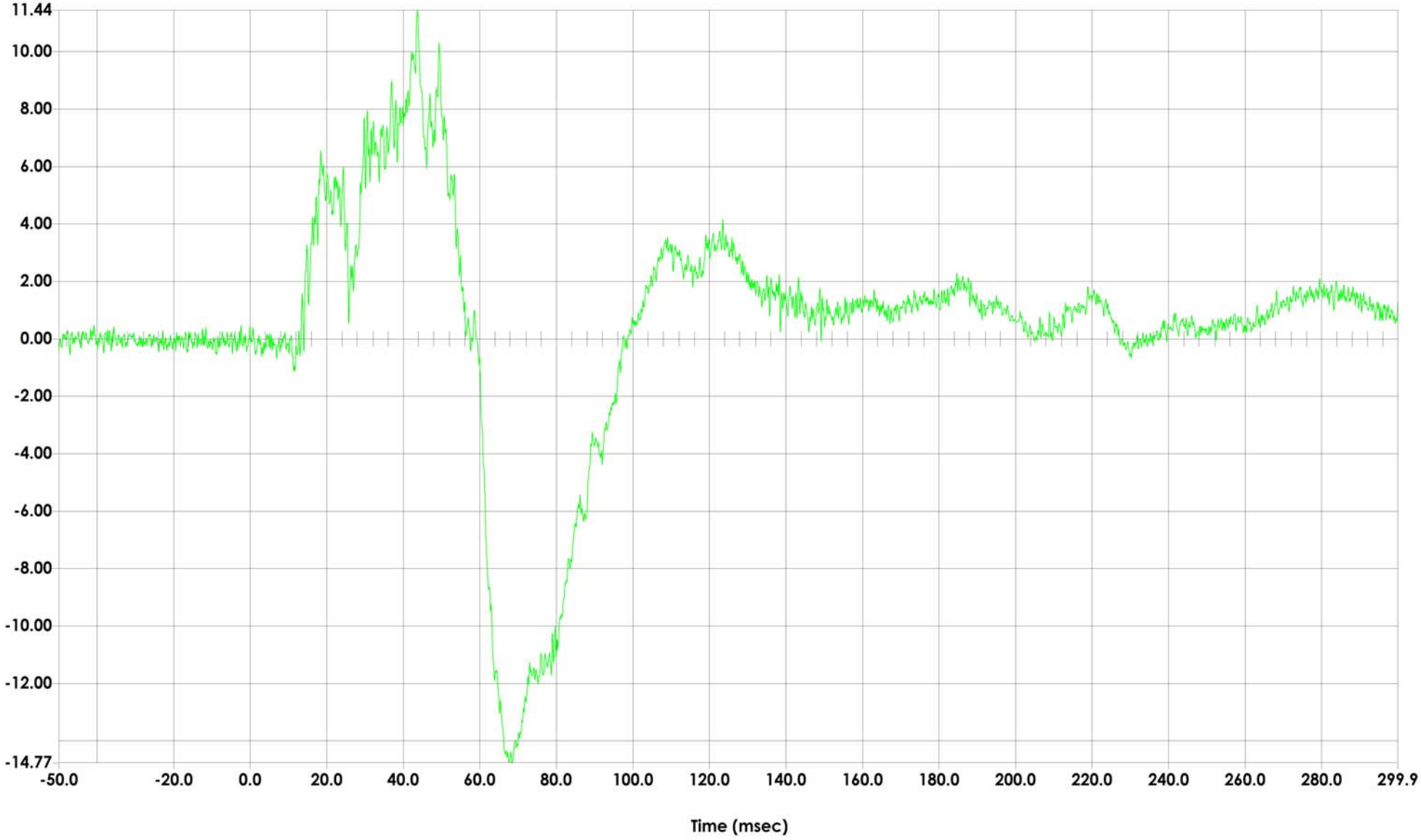


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC1000
Plot number	003
Units	G'S

Max	11.44	G'S
	43.76	msec
Min	-14.77	G'S
	68.40	msec

MEDICAL COLLEGE OF WISCONSIN

Driver Head Acceleration (Z) Primary vs. Time

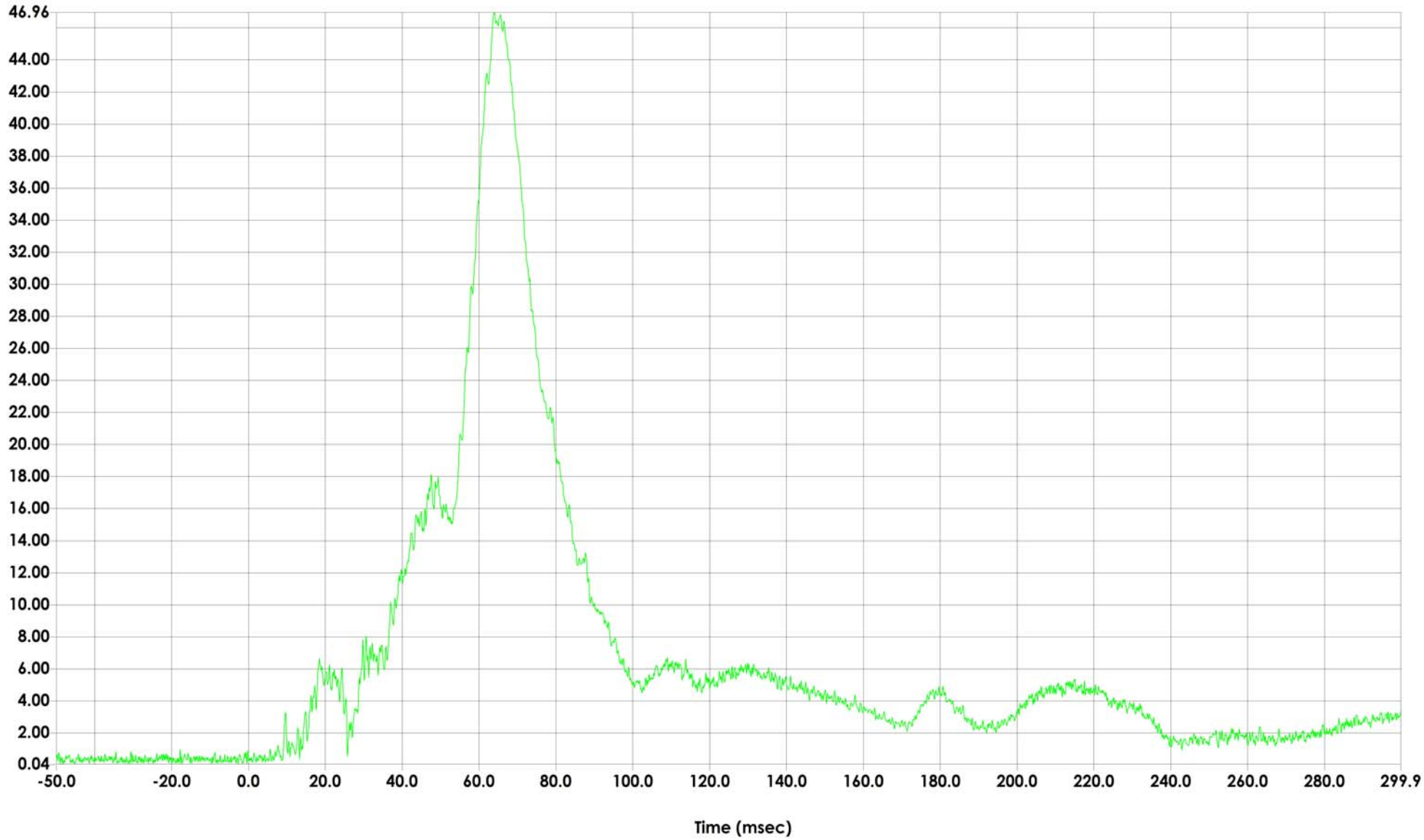


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC1000
Plot number	063
Units	G'S

Max	46.96	G'S
	64.00	msec
Min	0.04	G'S
	-48.32	msec

MEDICAL COLLEGE OF WISCONSIN

Driver Head Resultant Acceleration Primary vs. Time

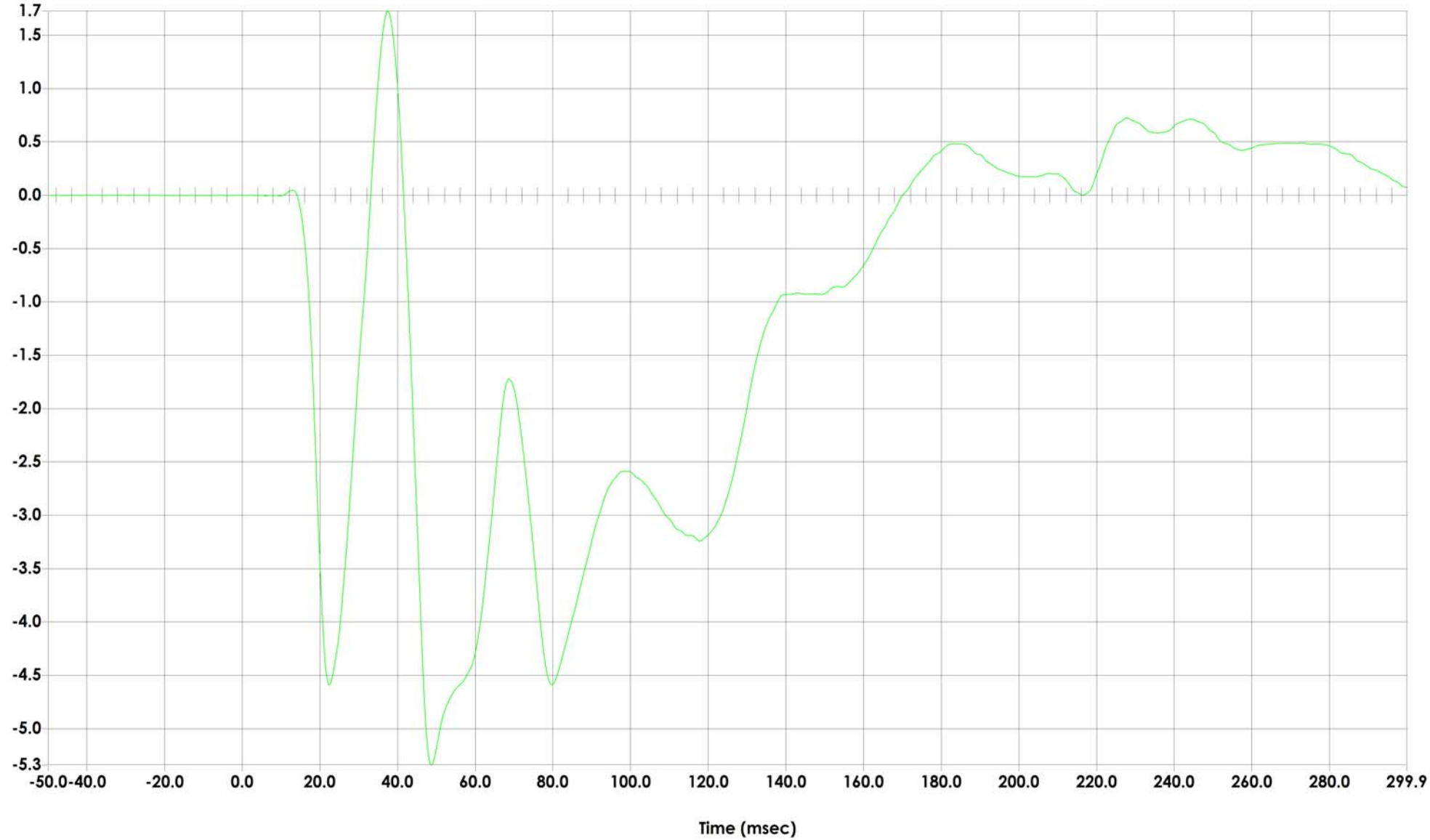


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC180
Plot number	007
Units	MM

Max	1.73	MM
	37.44	msec
Min	-5.34	MM
	48.72	msec

MEDICAL COLLEGE OF WISCONSIN

Driver Upper Thorax Rib Deflection (Y) vs. Time

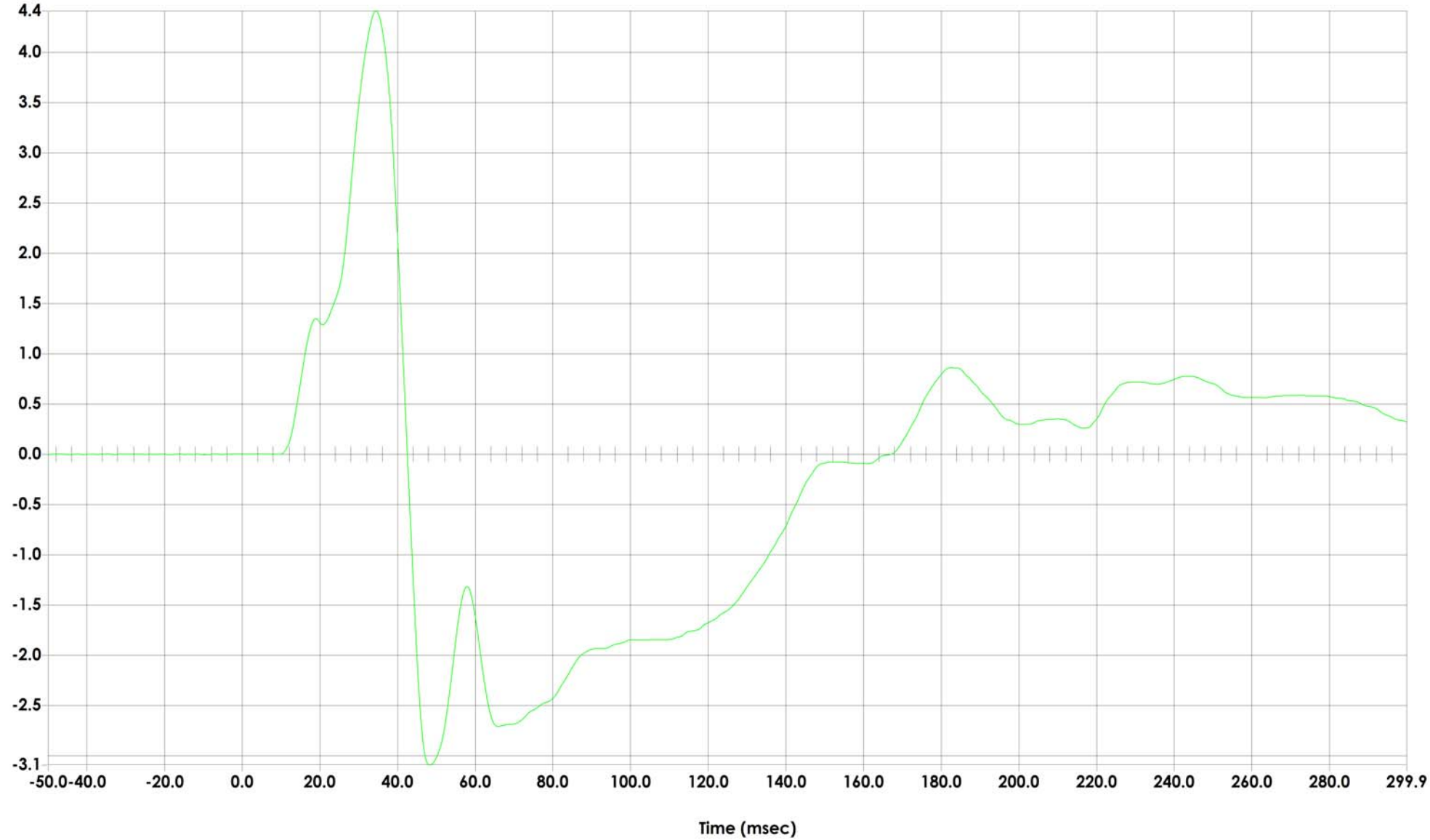


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC180
Plot number	008
Units	MM

Max	4.41	MM
	34.40	msec
Min	-3.09	MM
	48.32	msec

MEDICAL COLLEGE OF WISCONSIN

Driver Middle Thorax Rib Deflection (Y) vs. Time

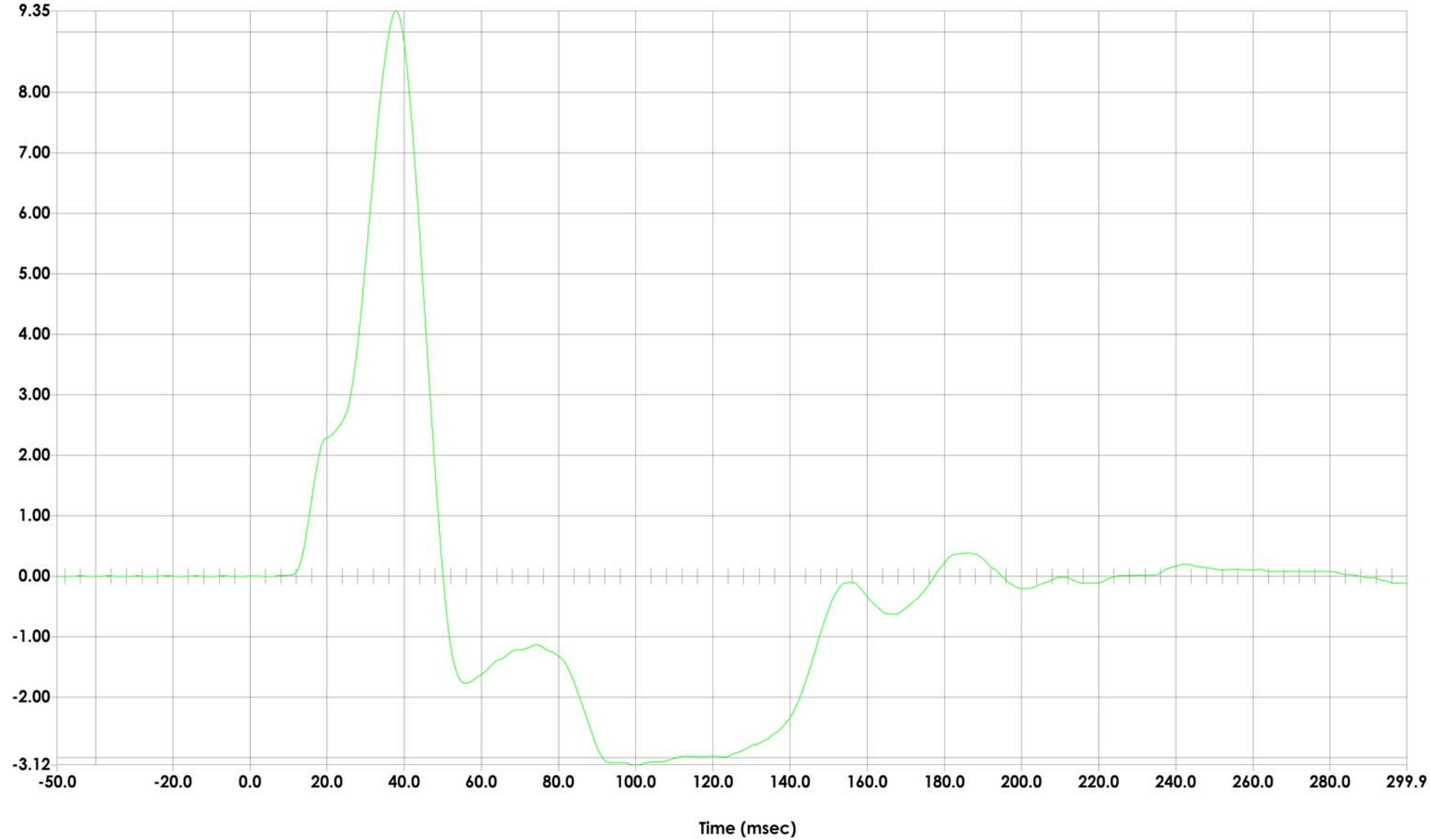


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC180
Plot number	009
Units	MM

Max	9.35	MM
	37.92	msec
Min	-3.12	MM
	100.24	msec

MEDICAL COLLEGE OF WISCONSIN

Driver Lower Thorax Rib Deflection (Y) vs. Time

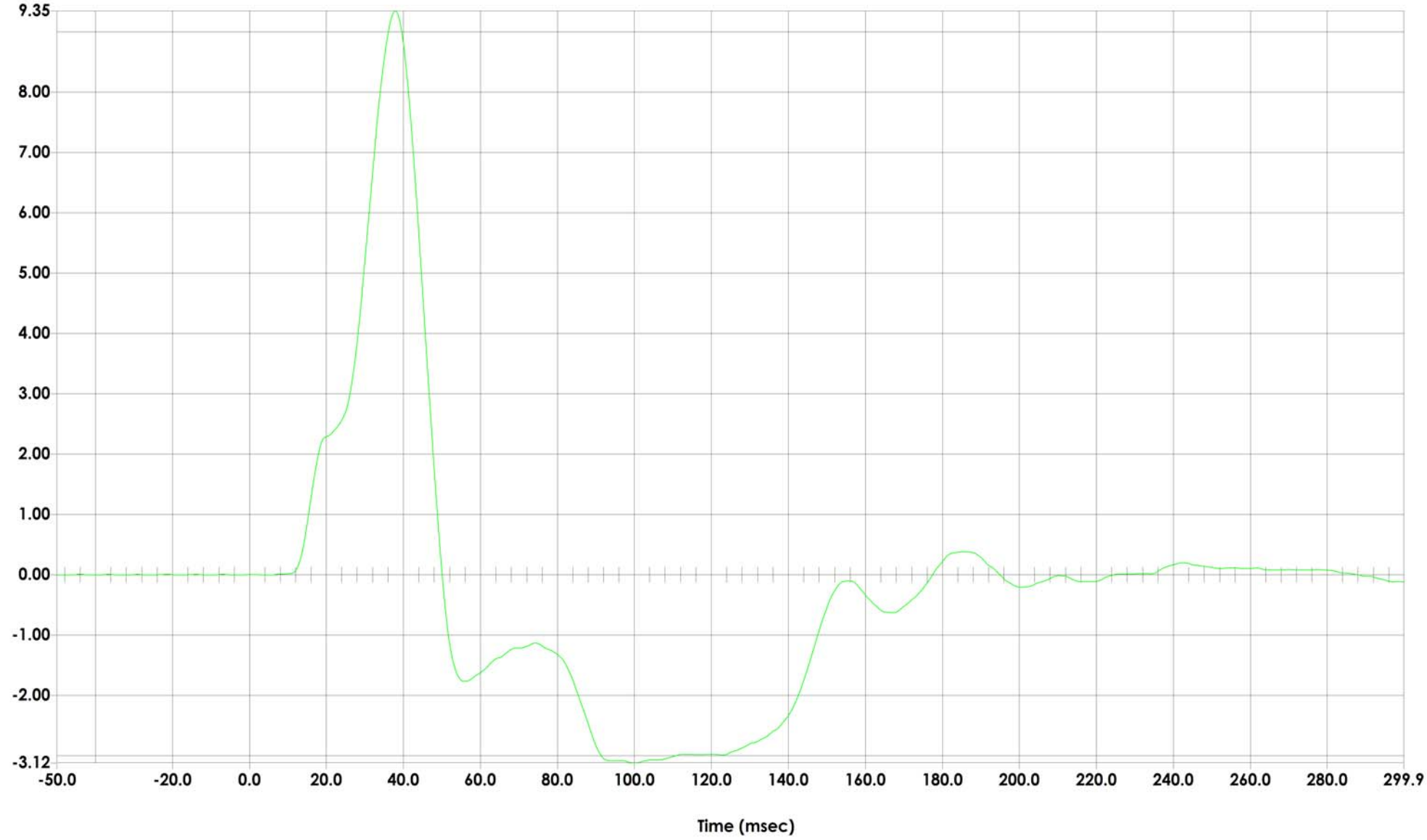


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC180
Plot number	009
Units	MM

Max	9.35	MM
	37.92	msec
Min	-3.12	MM
	100.24	msec

MEDICAL COLLEGE OF WISCONSIN

Driver Thorax Rib Deflection Maximum vs. Time

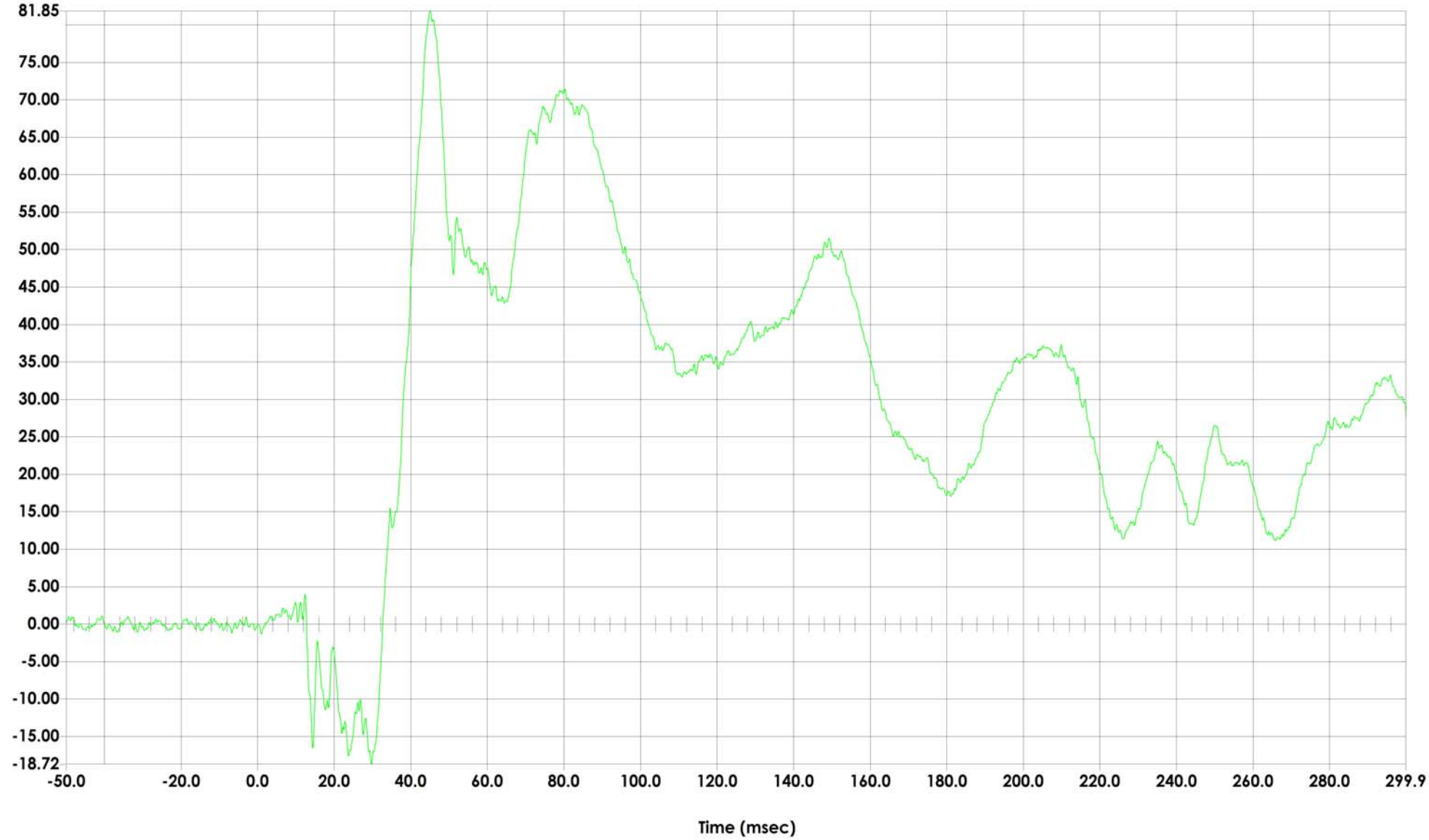


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC600
Plot number	010
Units	NWT

Max	81.85	NWT
	45.12	msec
Min	-18.72	NWT
	29.68	msec

MEDICAL COLLEGE OF WISCONSIN

Driver Anterior Abdominal Force (Y) vs. Time

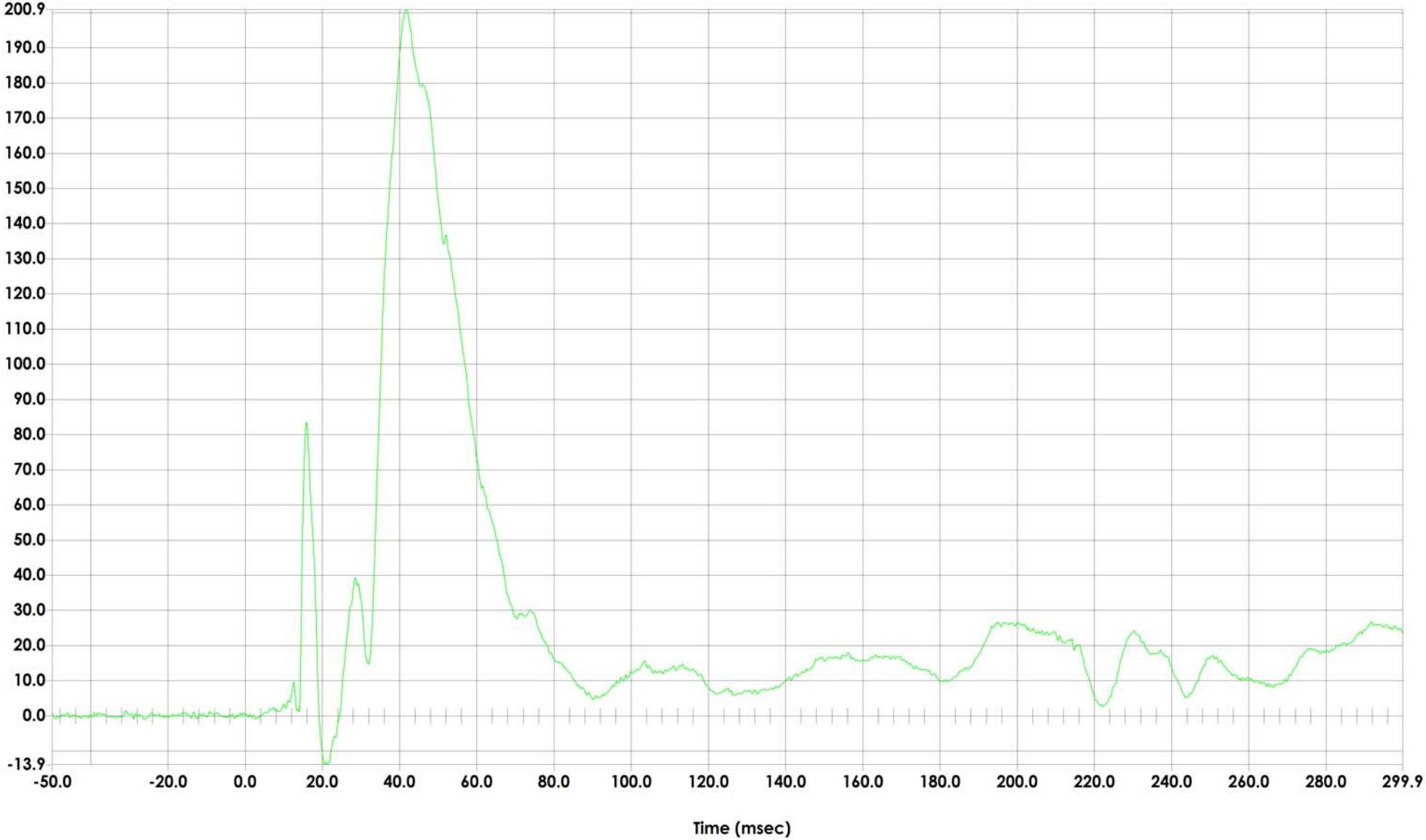


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC600
Plot number	011
Units	NWT

Max	200.87	NWT
	41.84	msec
Min	-13.92	NWT
	20.48	msec

MEDICAL COLLEGE OF WISCONSIN

Driver Middle Abdominal Force (Y) vs. Time

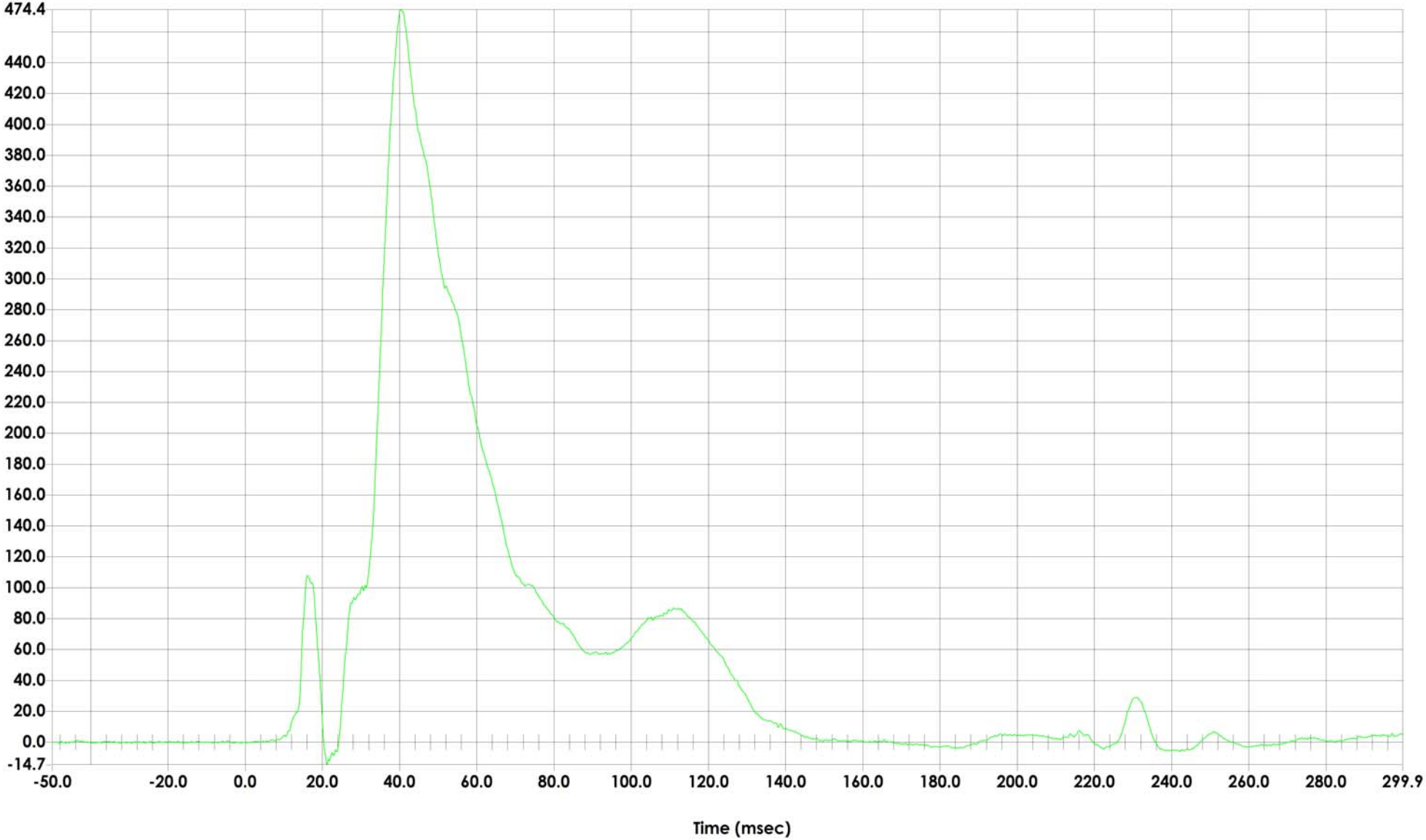


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC600
Plot number	012
Units	NWT

Max	474.36	NWT
	40.24	msec
Min	-14.68	NWT
	21.12	msec

MEDICAL COLLEGE OF WISCONSIN

Driver Posterior Abdominal Force (Y) vs. Time

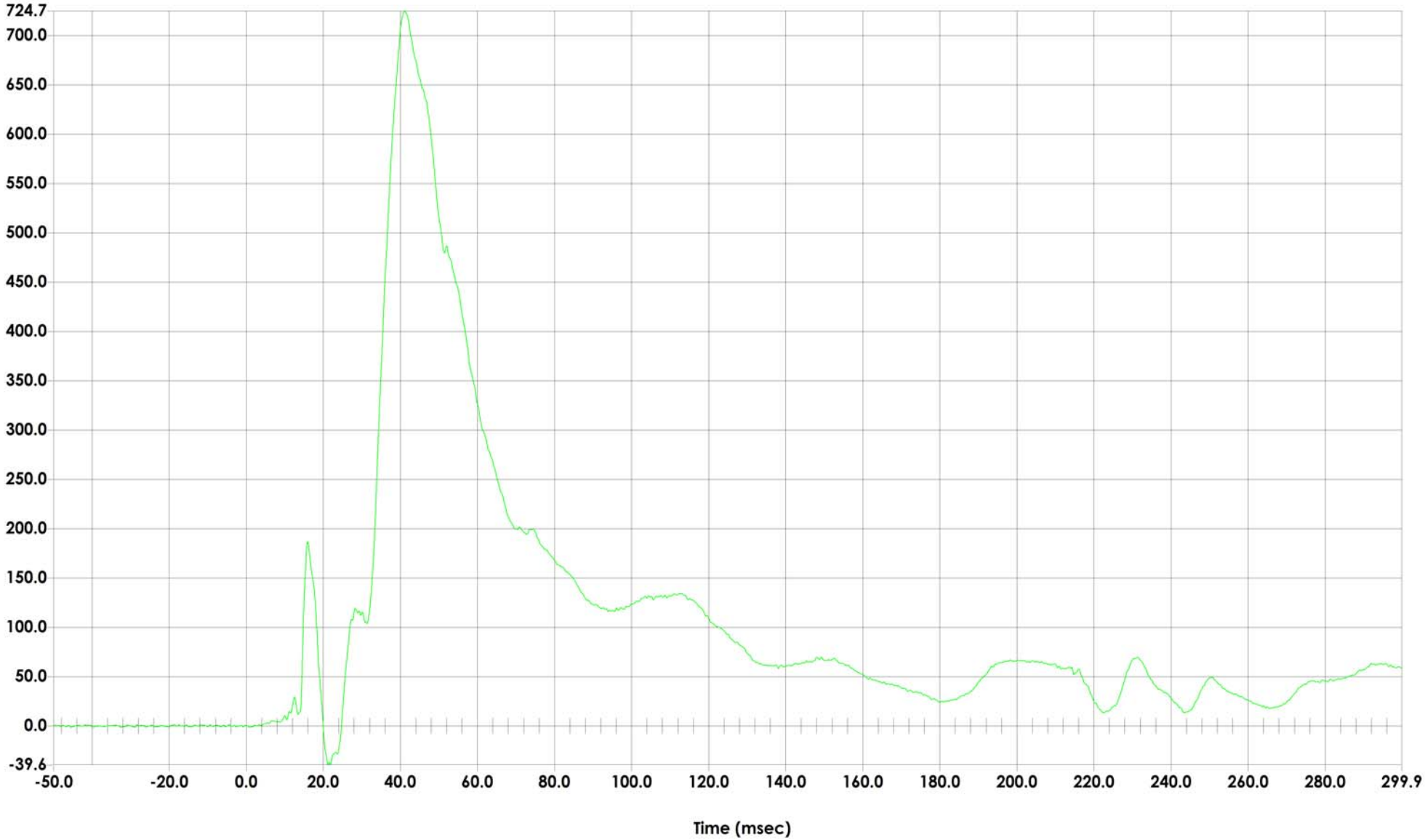


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC600
Plot number	064
Units	NWT

Max	724.68	NWT
	41.04	msec
Min	-39.62	NWT
	21.20	msec

MEDICAL COLLEGE OF WISCONSIN

Driver Total Abdominal Force (Y) vs. Time

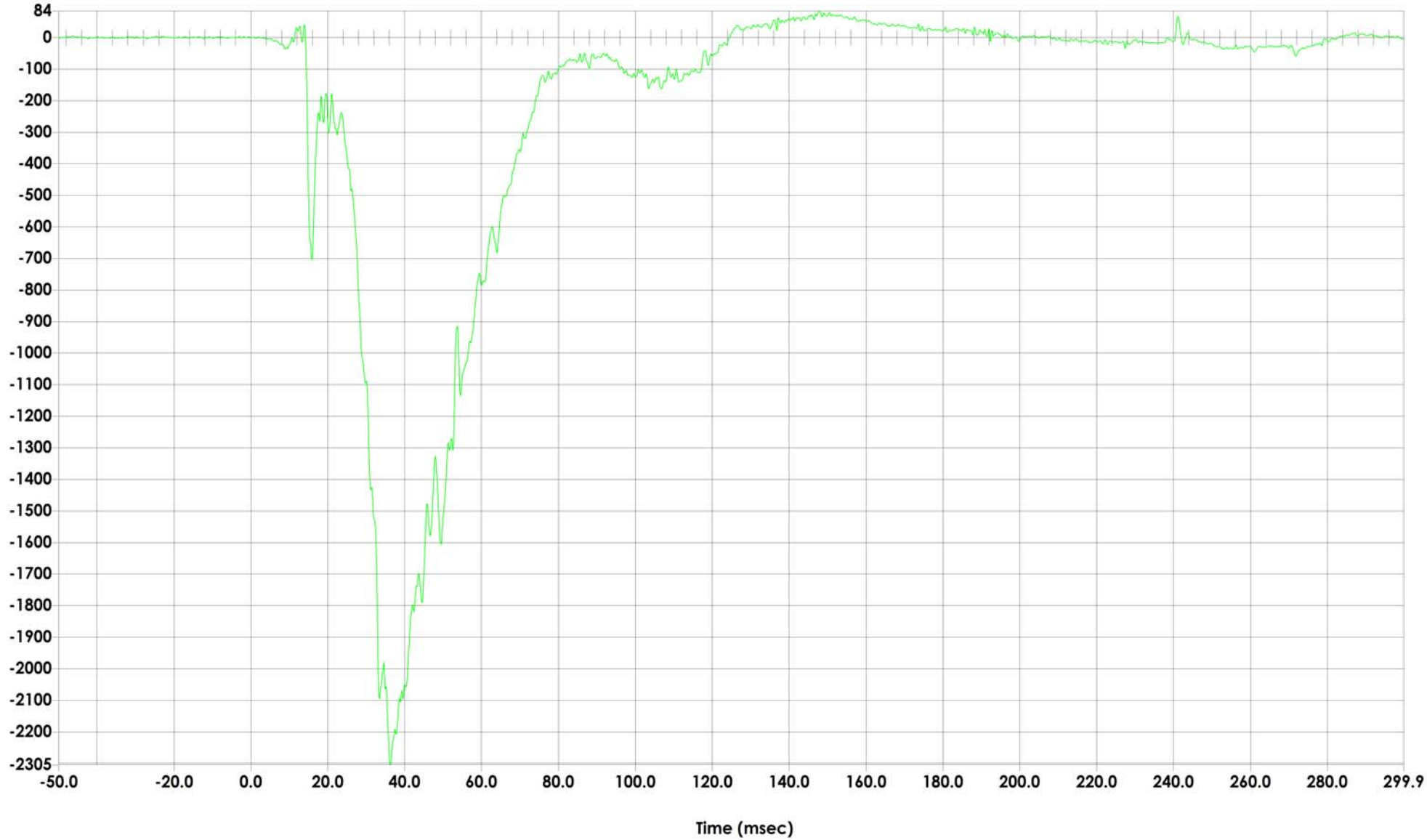


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC600
Plot number	016
Units	NWT

Max	83.65	NWT
	147.92	msec
Min	-2304.86	NWT
	36.24	msec

MEDICAL COLLEGE OF WISCONSIN

Driver Pubic Symphysis Force (Y) vs. Time

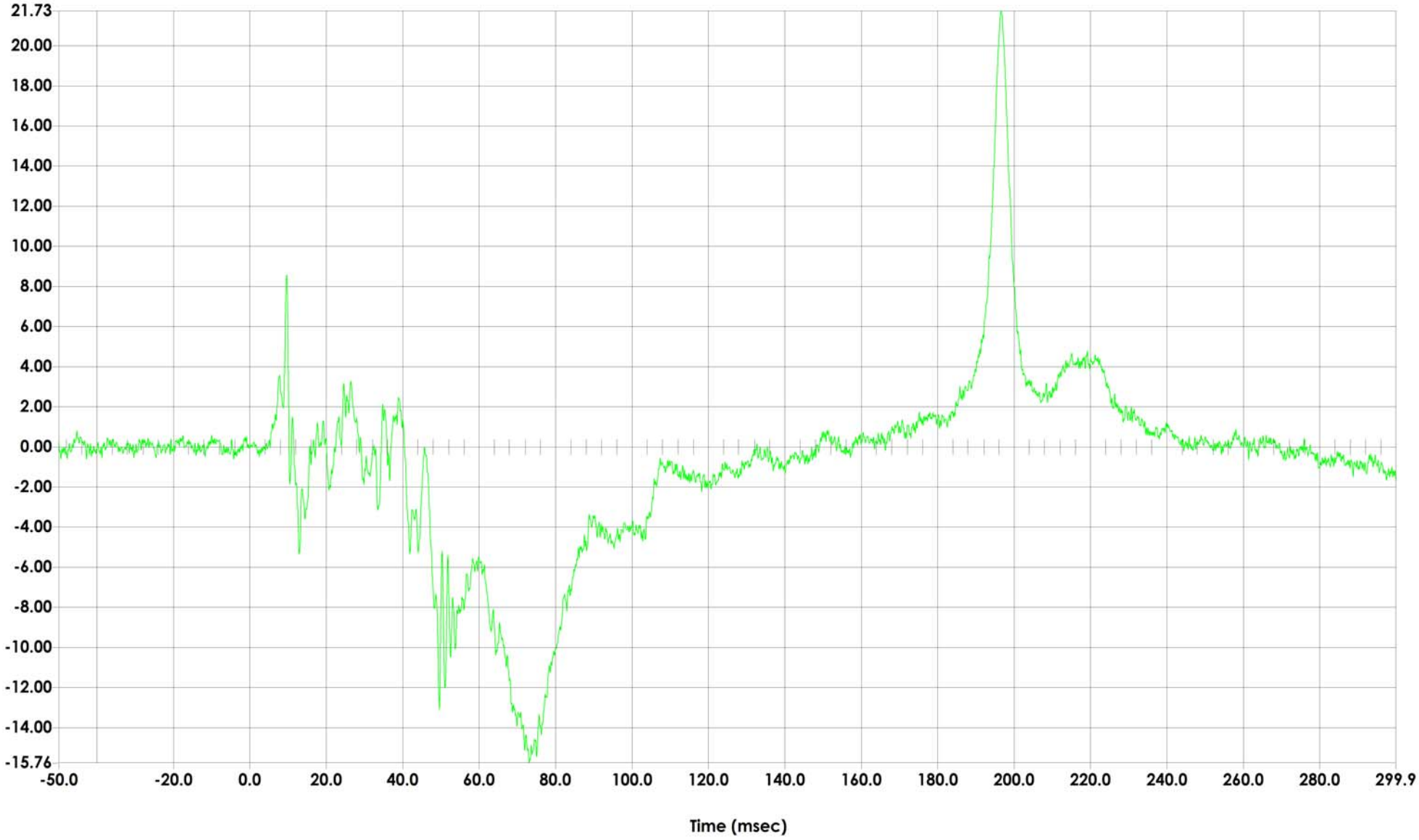


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC1000
Plot number	017
Units	G'S

Max	21.73	G'S
	196.56	msec
Min	-15.76	G'S
	73.12	msec

MEDICAL COLLEGE OF WISCONSIN

Passenger Head Acceleration (X) Primary vs. Time

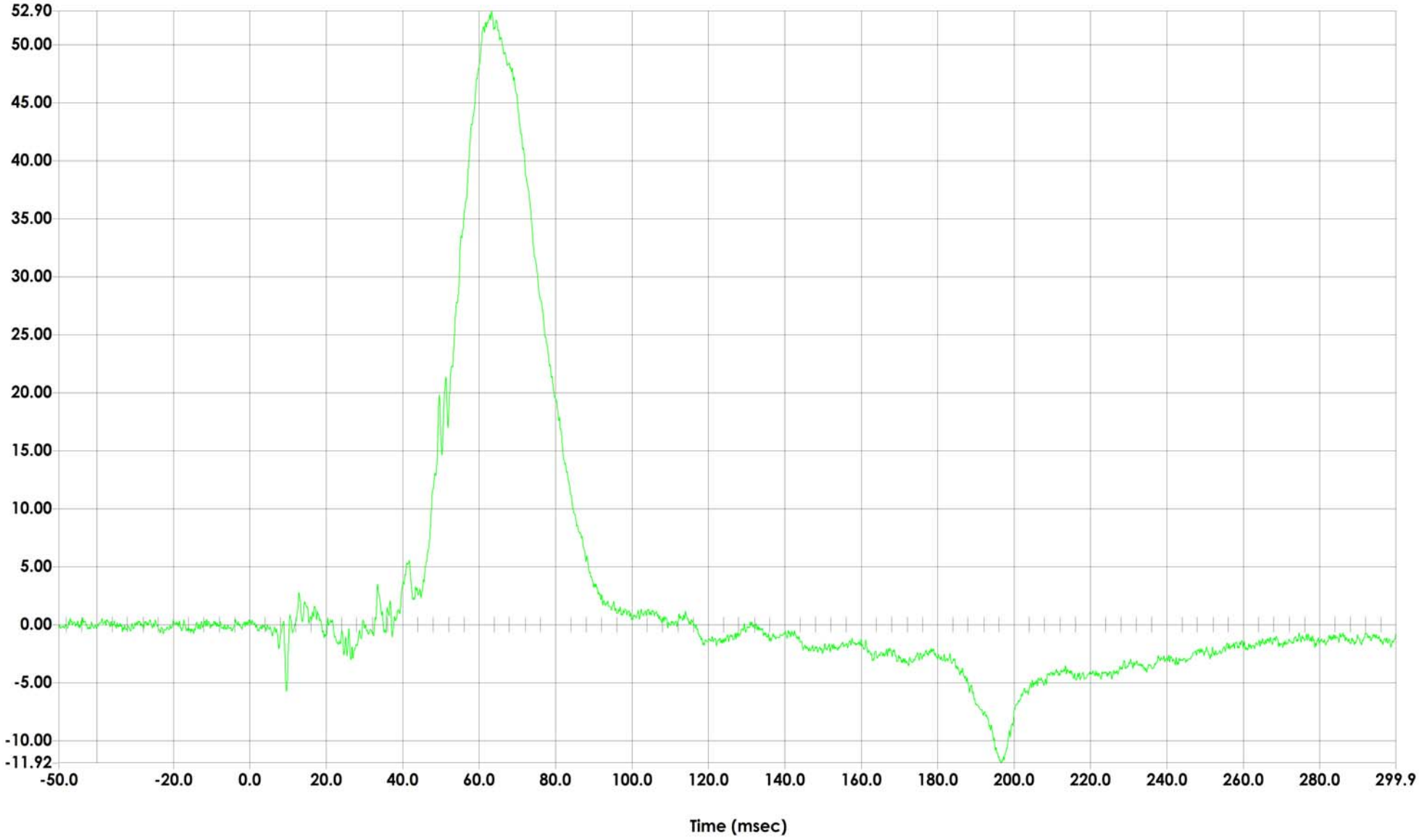


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC1000
Plot number	018
Units	G'S

Max	52.90	G'S
	63.28	msec
Min	-11.92	G'S
	196.64	msec

MEDICAL COLLEGE OF WISCONSIN

Passenger Head Acceleration (Y) Primary vs. Time

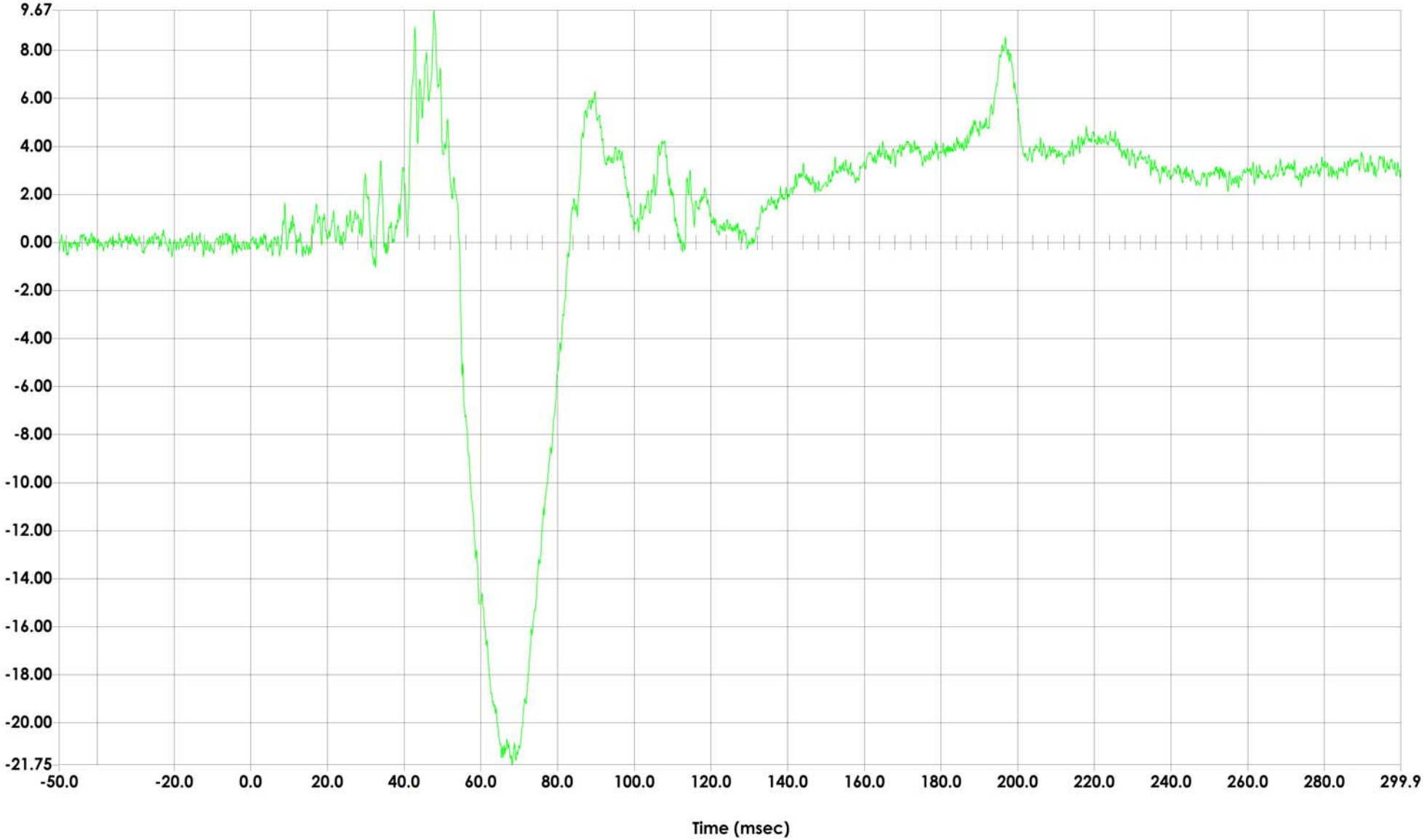


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC1000
Plot number	019
Units	G'S

Max	9.67	G'S
	47.76	msec
Min	-21.75	G'S
	68.16	msec

MEDICAL COLLEGE OF WISCONSIN

Passenger Head Acceleration (Z) Primary vs. Time

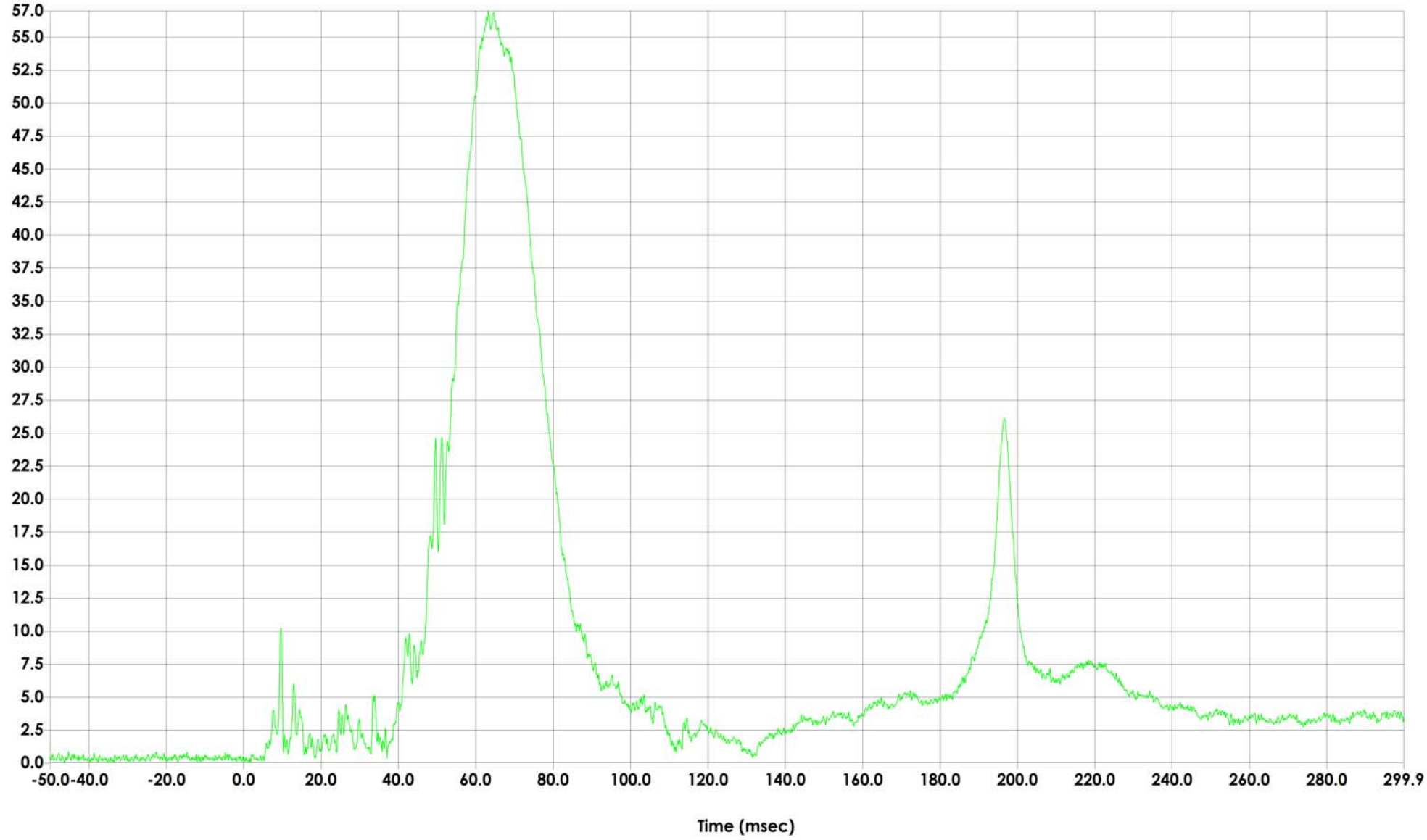


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC1000
Plot number	065
Units	G'S

Max	56.98	G'S
	63.28	msec
Min	0.02	G'S
	-46.32	msec

MEDICAL COLLEGE OF WISCONSIN

Passenger Head Resultant Acceleration Primary vs. Time

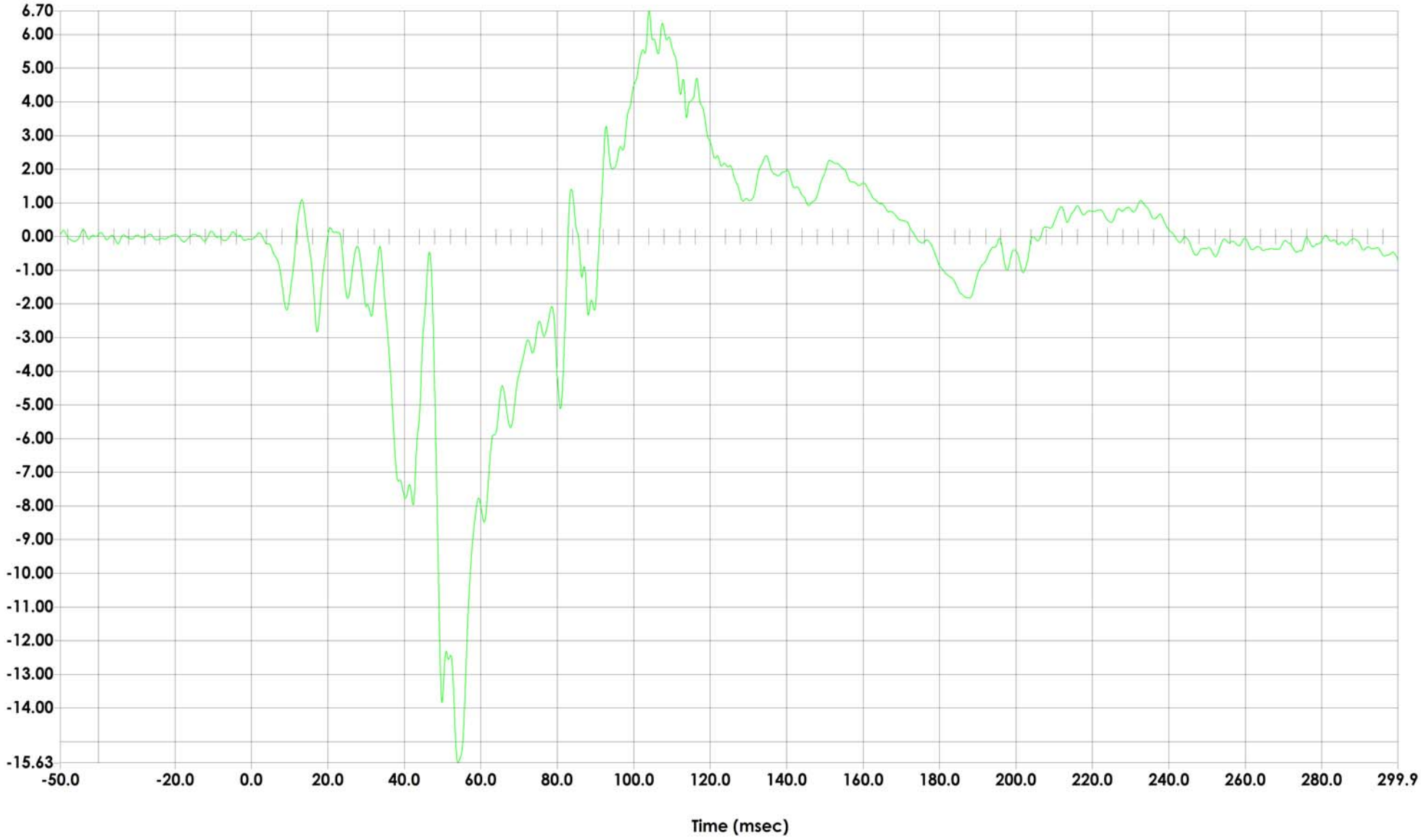


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC180
Plot number	028
Units	G'S

Max	6.70	G'S
	104.00	msec
Min	-15.63	G'S
	54.00	msec

MEDICAL COLLEGE OF WISCONSIN

Passenger Lower Spine T12 Acceleration (X) vs. Time

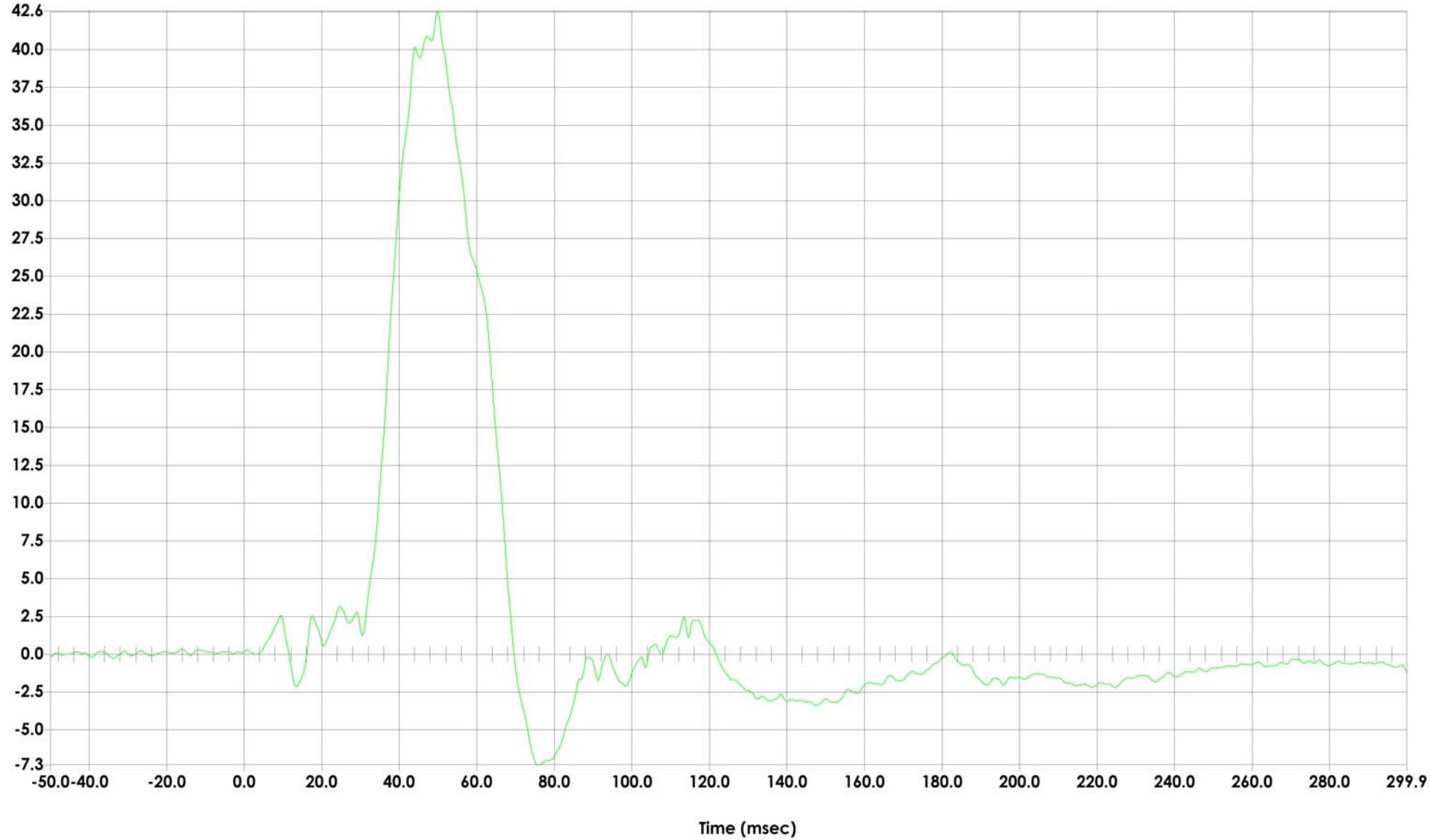


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC180
Plot number	029
Units	G'S

Max	42.55	G'S
	49.84	msec
Min	-7.32	G'S
	75.68	msec

MEDICAL COLLEGE OF WISCONSIN

Passenger Lower Spine T12 Acceleration (Y) vs. Time

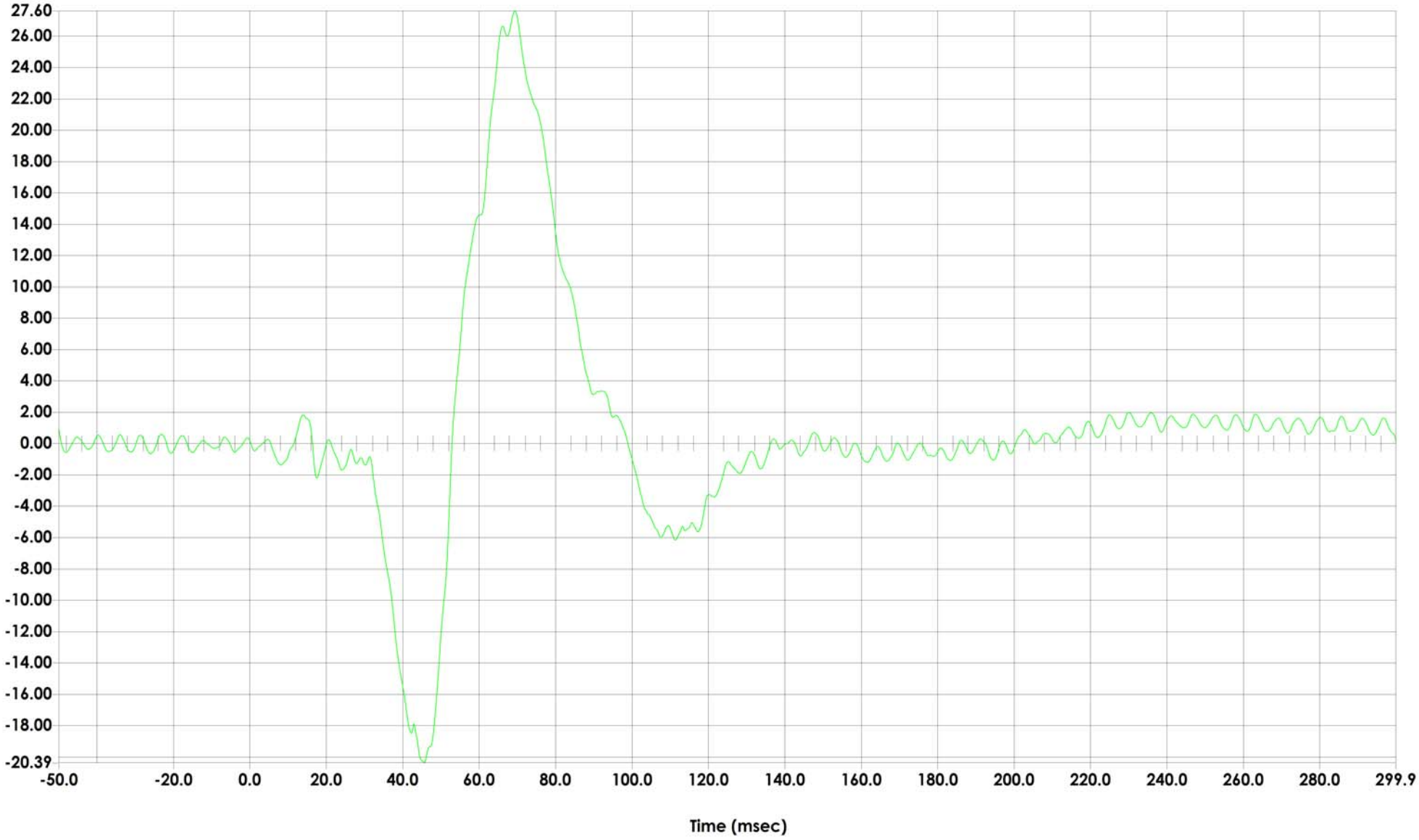


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC180
Plot number	030
Units	G'S

Max	27.60	G'S
	69.36	msec
Min	-20.39	G'S
	45.68	msec

MEDICAL COLLEGE OF WISCONSIN

Passenger Lower Spine T12 Acceleration (Z) vs. Time

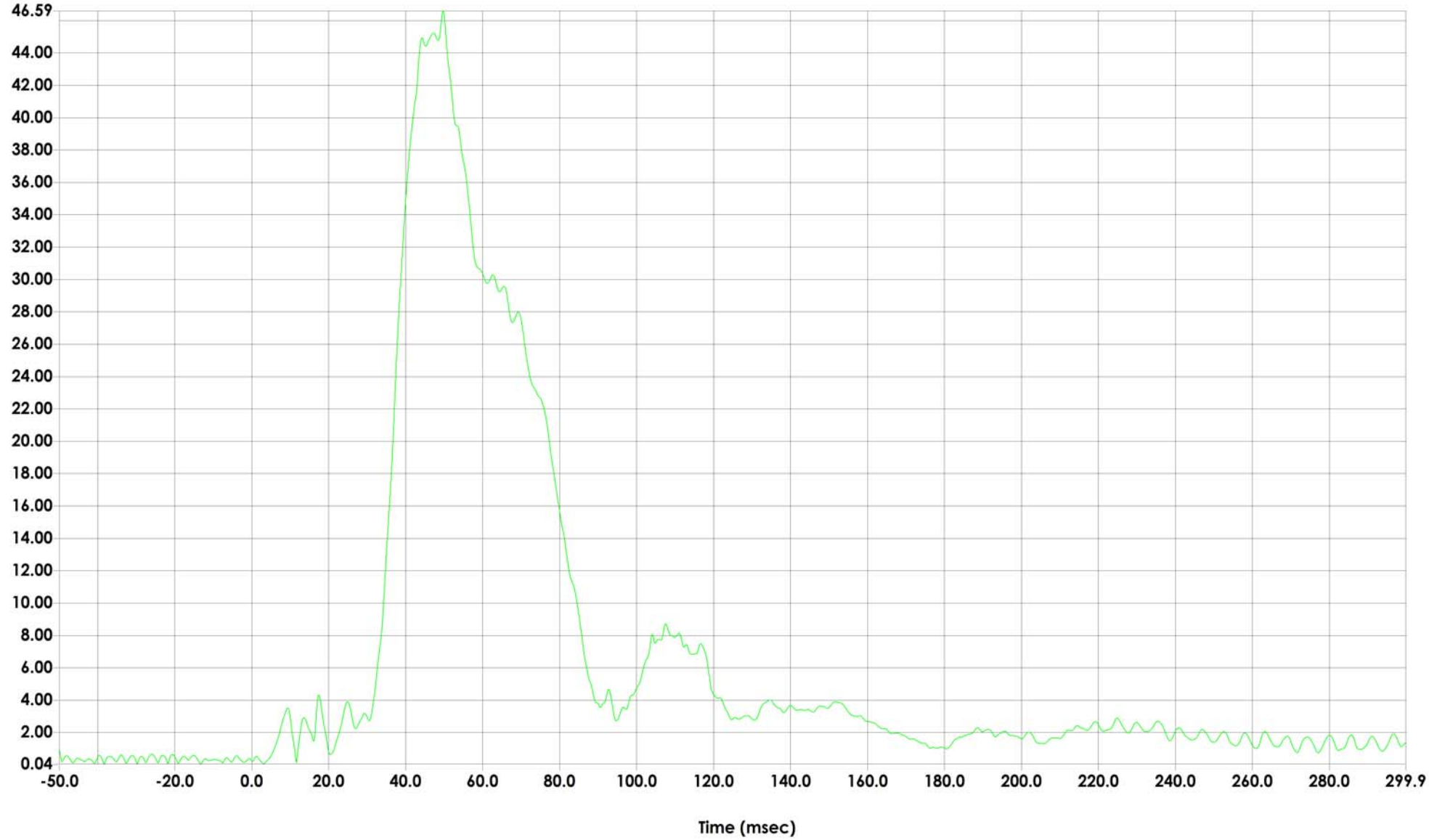


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC180
Plot number	066
Units	G'S

Max	46.59	G'S
	49.68	msec
Min	0.04	G'S
	-38.40	msec

MEDICAL COLLEGE OF WISCONSIN

Passenger Lower Spine T12 Resultant Acceleration vs. Time

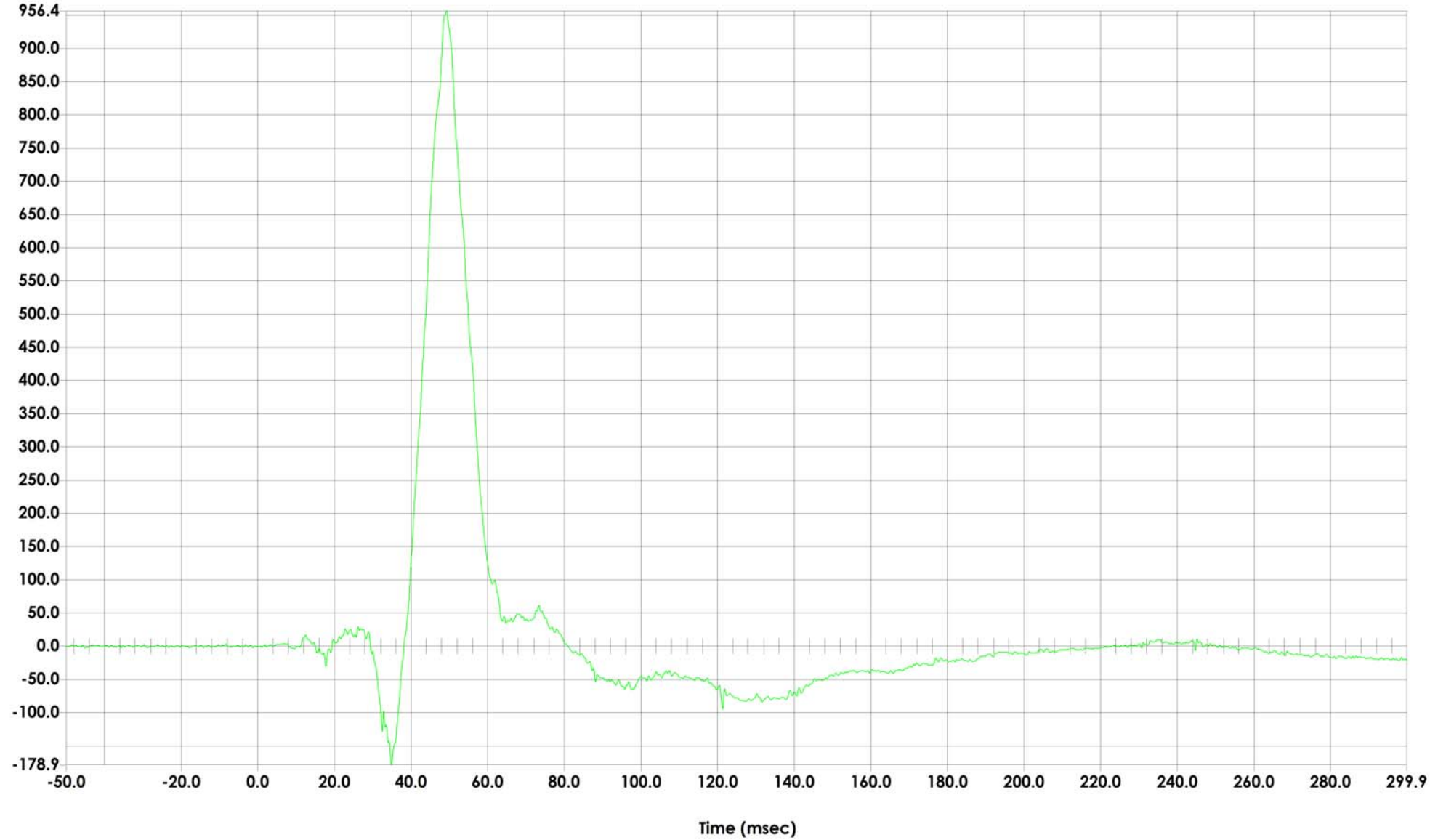


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC600
Plot number	031
Units	NWT

Max	956.36	NWT
	49.28	msec
Min	-178.89	NWT
	34.88	msec

MEDICAL COLLEGE OF WISCONSIN

Passenger Iliac Wing Force on Impact Side vs. Time

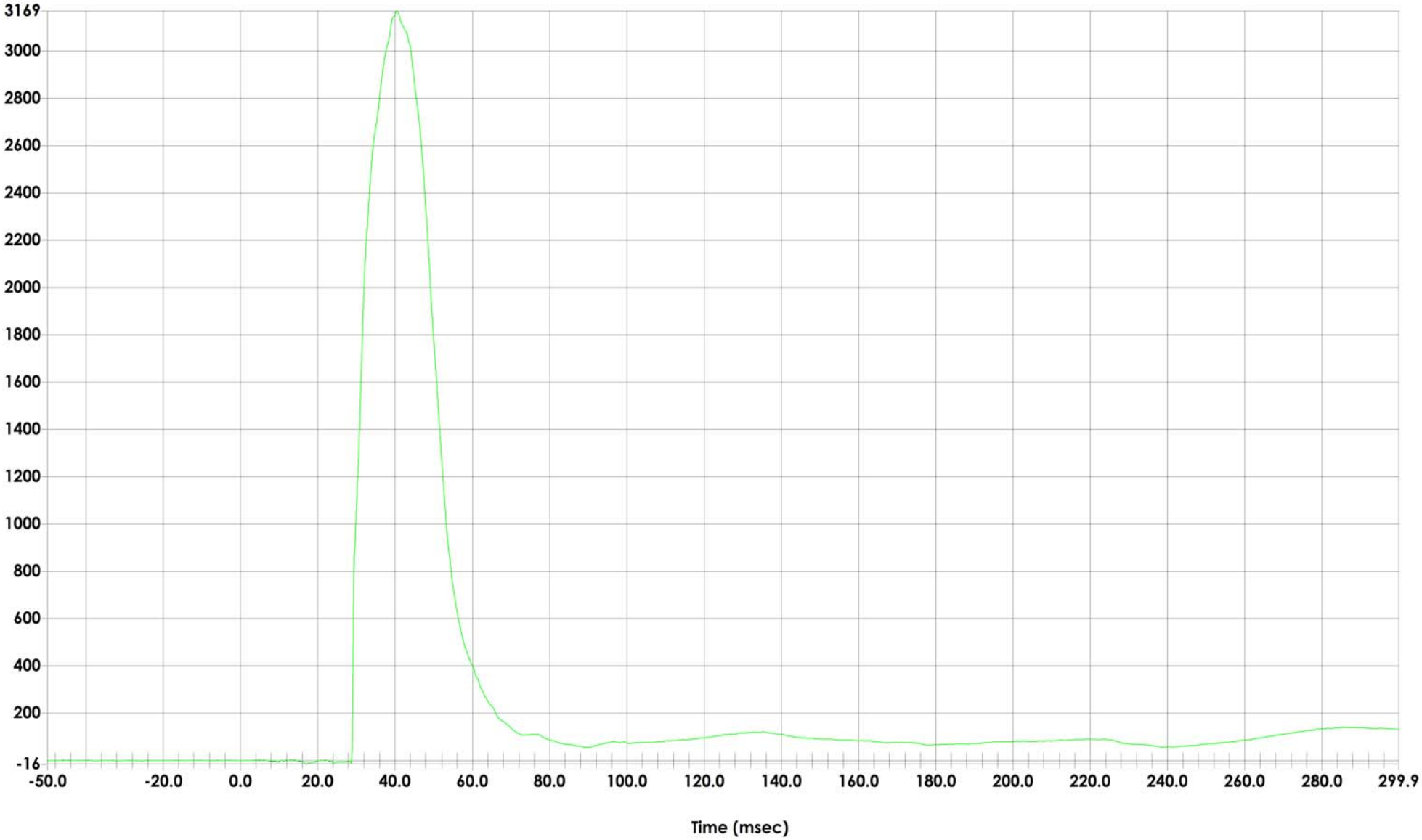


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC600
Plot number	032
Units	NWT

Max	3169.06	NWT
	40.40	msec
Min	-16.06	NWT
	17.12	msec

MEDICAL COLLEGE OF WISCONSIN

Passenger Acetabulum Force on Impact Side vs. Time

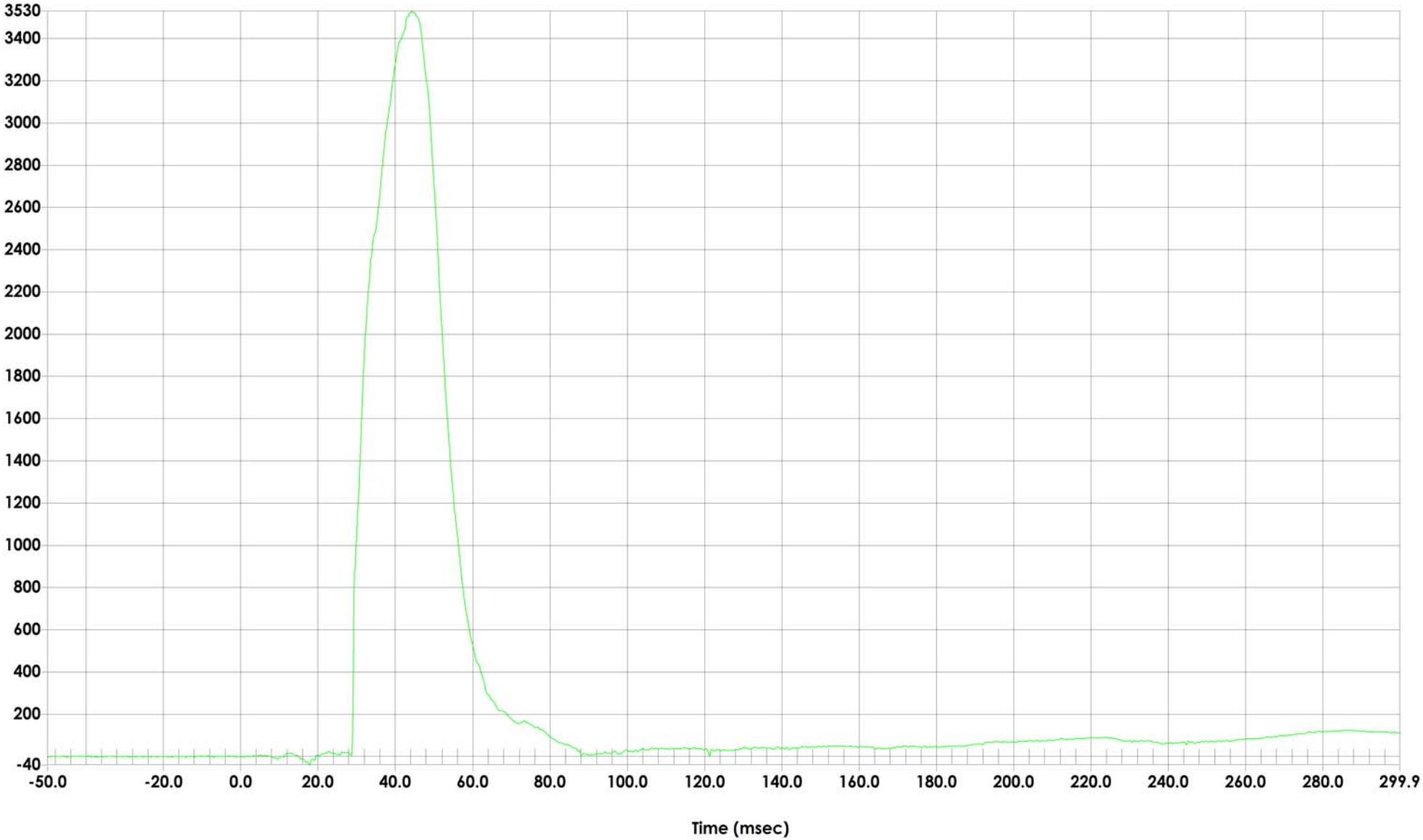


Test ID	O20145601
Sampling Rate (Hz)	12500
Filter	CFC600
Plot number	067
Units	NWT

Max	3530.05	NWT
	44.24	msec
Min	-40.23	NWT
	17.76	msec

MEDICAL COLLEGE OF WISCONSIN

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



APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE DATA

TABLE 1
EXTERNAL MEASUREMENTS (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 8 & 9

TEST PARAMETER	SPEC.	PRE		POST	
Date	-	2-4-14		6-17-14	
Sequential Test Number	-	8		9	
		Result	**Pass/Fail**	**Result**	**Pass/Fail**
Temperature (°C)	**20.6-22.2**	21.2	Pass	21.4	Pass
Relative Humidity (%)	**10-70**	30.0	Pass	41.2	Pass
Sitting Height	**900 - 918**	911	Pass	910	Pass
Seat to Shoulder Joint	**558 -572**	567	Pass	567	Pass
Seat to Lower Face of Thoracic Spine Box	**346 -356**	354	Pass	350	Pass
Seat to Hip Joint (Center of Bolt)	**97 - 103**	99	Pass	100	Pass
Sole to Seat, Sitting	**433 - 451**	441	Pass	440	Pass
Head Width	**152 -158**	155	Pass	155	Pass
Shoulder/Arm Width	**461 - 479**	478	Pass	477	Pass
Thorax Width	**322 - 332**	324	Pass	327	Pass
Abdomen Width	**273 - 287**	280	Pass	280	Pass
Pelvis/Lap Width	**359 - 373**	363	Pass	363	Pass
Head Depth	**196 - 206**	201	Pass	199	Pass
Thorax Depth	**262 - 272**	266	Pass	265	Pass
Abdomen Depth	**194 - 204**	201	Pass	199	Pass
Pelvis Depth	**235 - 245**	239	Pass	239	Pass
Back of Buttocks to Hip Joint (Center of Bolt)	**150 - 160**	155	Pass	154	Pass
Back of Buttocks to Front Knee	**597 - 615**	610	Pass	610	Pass

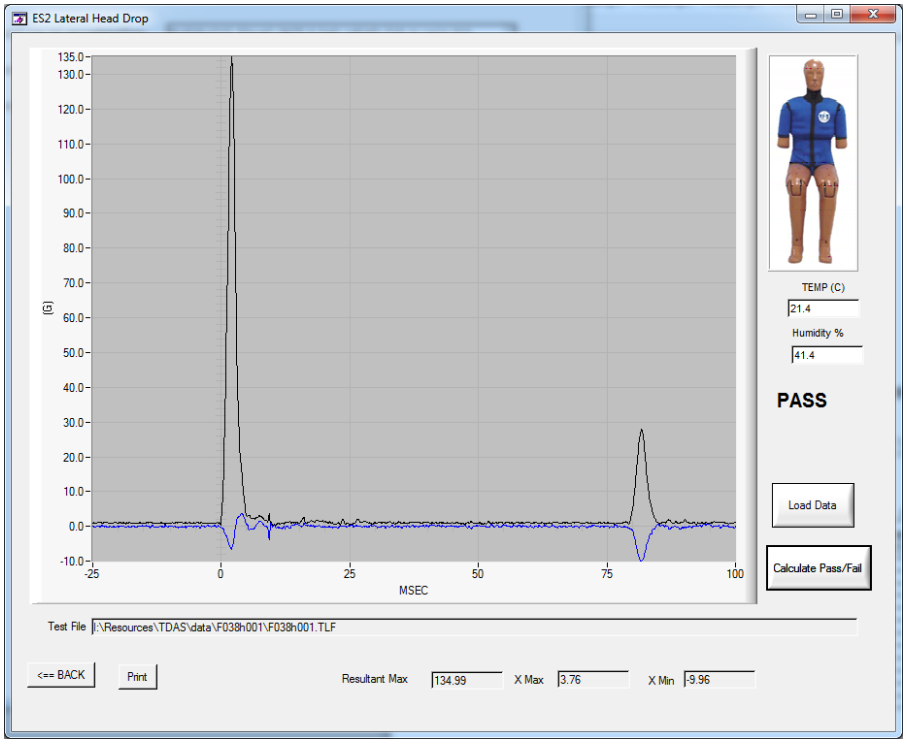
TABLE 2
HEAD DROP TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-3-14		6-16-14	
Sequential Test Number		-	8		9	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Head Assembly Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	**20.6-22.2**	21.4	Pass	21.4	Pass
	Min		21.0	Pass	20.9	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	41.4	Pass	48.1	Pass
	Min		39.1	Pass	39.0	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.4	Pass	21.4	Pass
Humidity – During Test (%)		**10-70**	41.4	Pass	39.0	Pass
Peak Head Resultant Acceleration (G)		**125-155**	135.0	Pass	142.3	Pass
Peak Head X Acceleration (G)		**<15**	3.8	Pass	6.8	Pass
Unimodal (Oscillation) (Yes/No)		**<15%**	Yes	Pass	Yes	Pass

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

PRE-TEST



POST-TEST

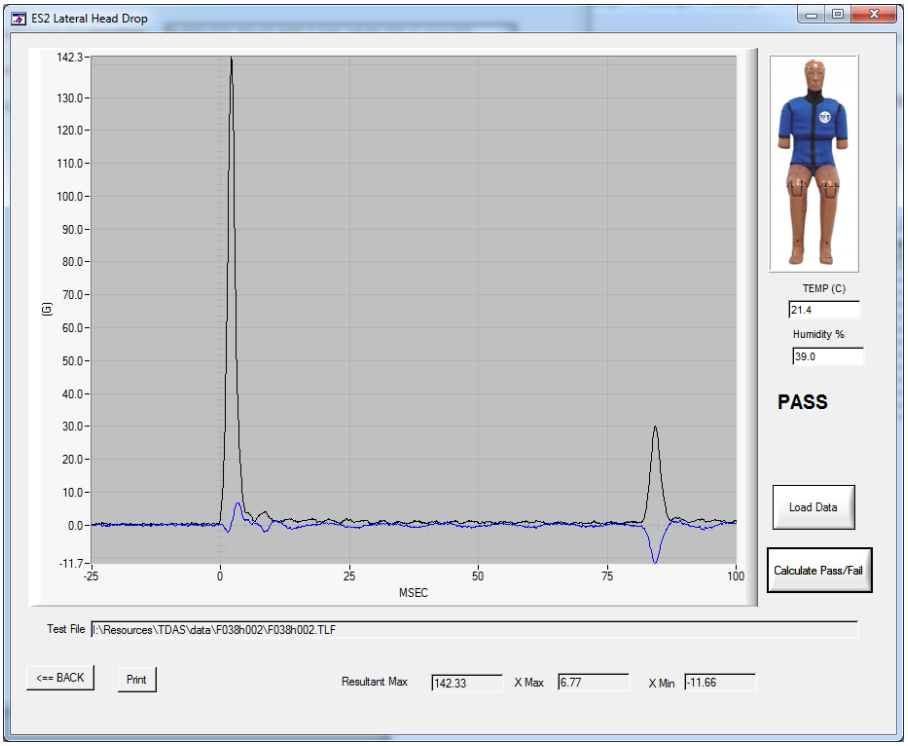


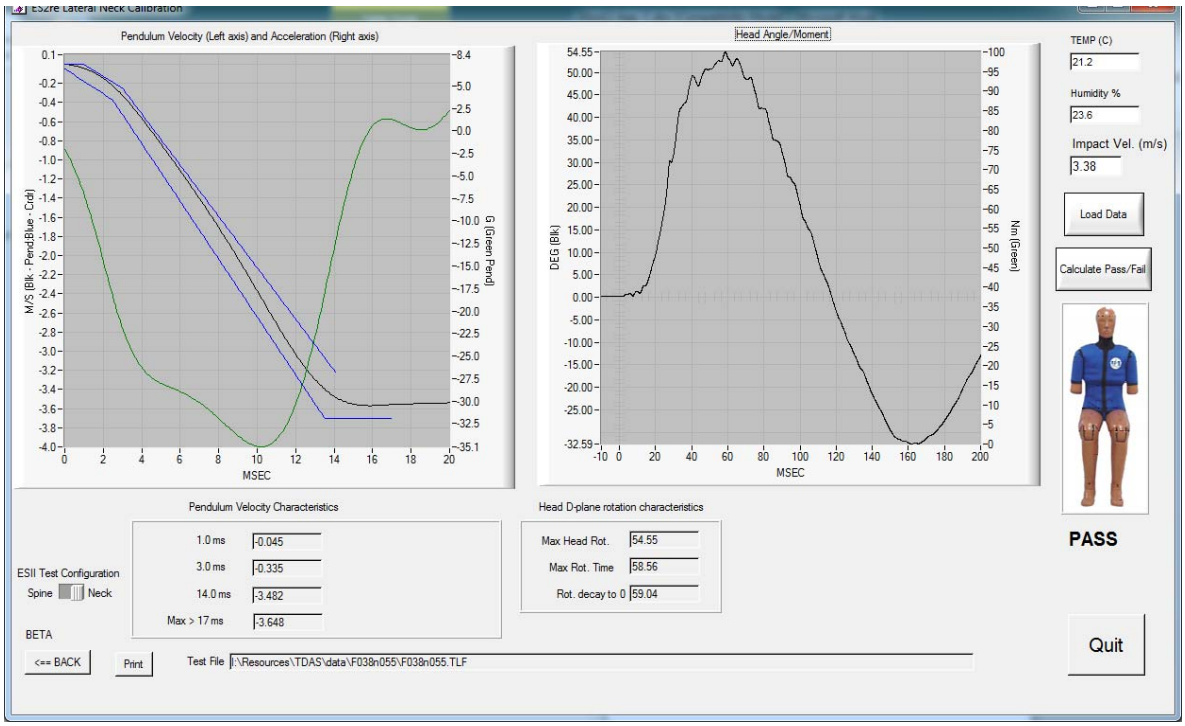
TABLE 3
NECK PENDULUM TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	2-3-14		6-17-14	
Sequential Test Number		-	8		9	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Neck Assembly Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	**20.6-22.2**	21.2	Pass	20.7	Pass
	Min		20.8	Pass	20.6	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	23.6	Pass	44.6	Pass
	Min		13.5	Pass	44.0	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.2	Pass	20.7	Pass
Humidity – During Test (%)		**10-70**	23.6	Pass	44.6	Pass
Pendulum Velocity (m/s)		**3.3-3.5**	3.4	Pass	3.4	Pass
Pendulum Velocity Corridors (m/s)	0-1.0 ms	**(-0.05)-0.00**	-0.05	Pass	-0.05	Pass
	2.5-3.0 ms	**(-0.375) - (-0.25)**	-0.34	Pass	-0.34	Pass
	13.5-14.0 ms	**(-3.7) - (-3.20)**	-3.5	Pass	-3.5	Pass
	Max > 17 ms	**-3.7**	-3.6	Pass	-3.6	Pass
Max D-Plane rotation (deg)		**49-59**	54.6	Pass	52.7	Pass
Time of Max D-Plane Rotation (ms)		**54-66**	58.6	Pass	57.3	Pass
Time of Moment Decay from Peak to 0 Nm (ms)		**53-88**	59.0	Pass	58.6	Pass

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

PRE-TEST



POST-TEST

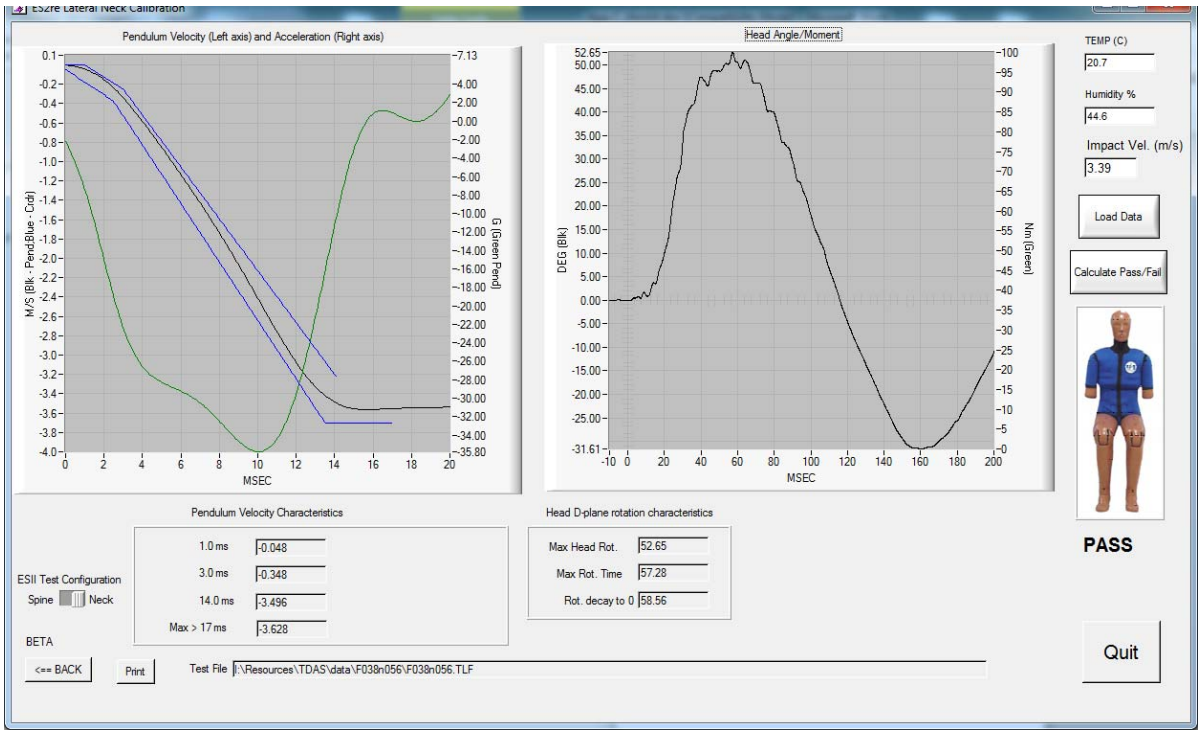


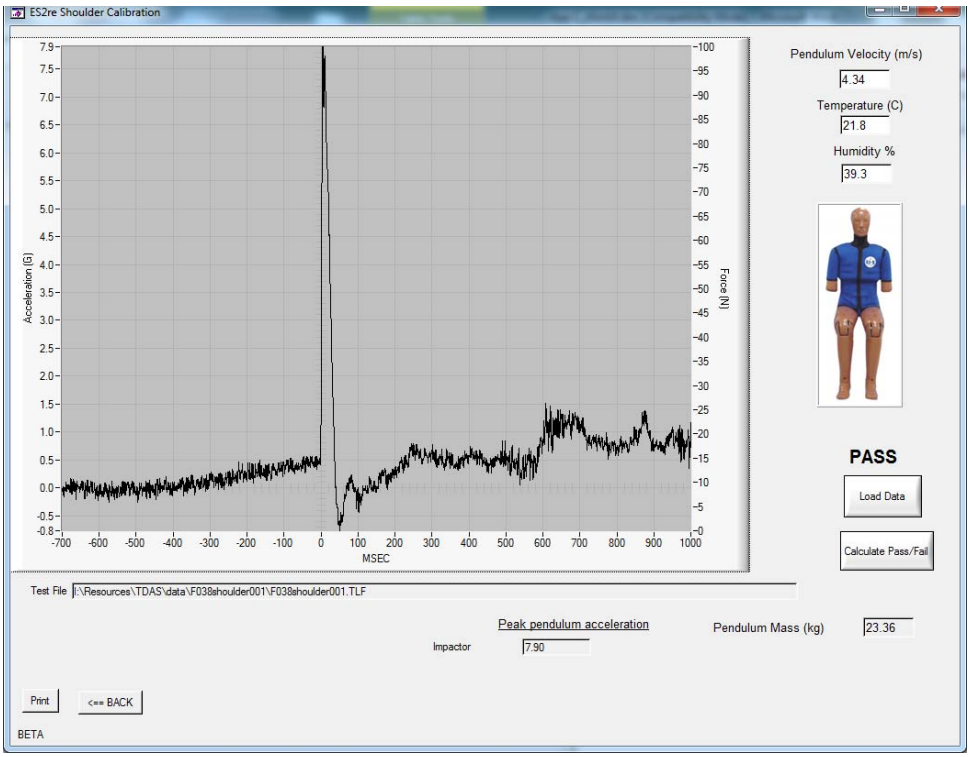
TABLE 4
SHOULDER IMPACT TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-5-14		6-17-14	
Sequential Test Number		-	8		9	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	**20.6-22.2**	21.8	Pass	21.3	Pass
	Min		20.7	Pass	20.6	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	40.2	Pass	44.1	Pass
	Min		39.3	Pass	40.8	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.8	Pass	21.3	Pass
Humidity – During Test (%)		**10-70**	39.3	Pass	40.8	Pass
Pendulum Velocity (m/s)		**4.2-4.4**	4.34	Pass	4.34	Pass
Peak Impactor Acceleration (G)		**7.5-10.5**	7.9	Pass	8.0	Pass

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

PRE-TEST



POST-TEST

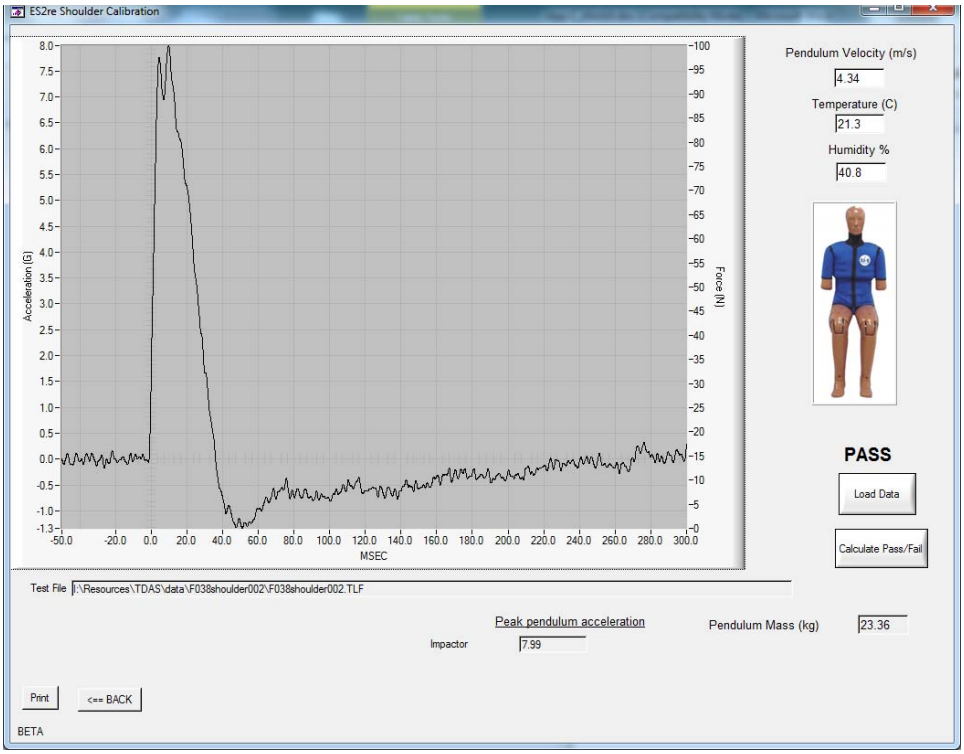


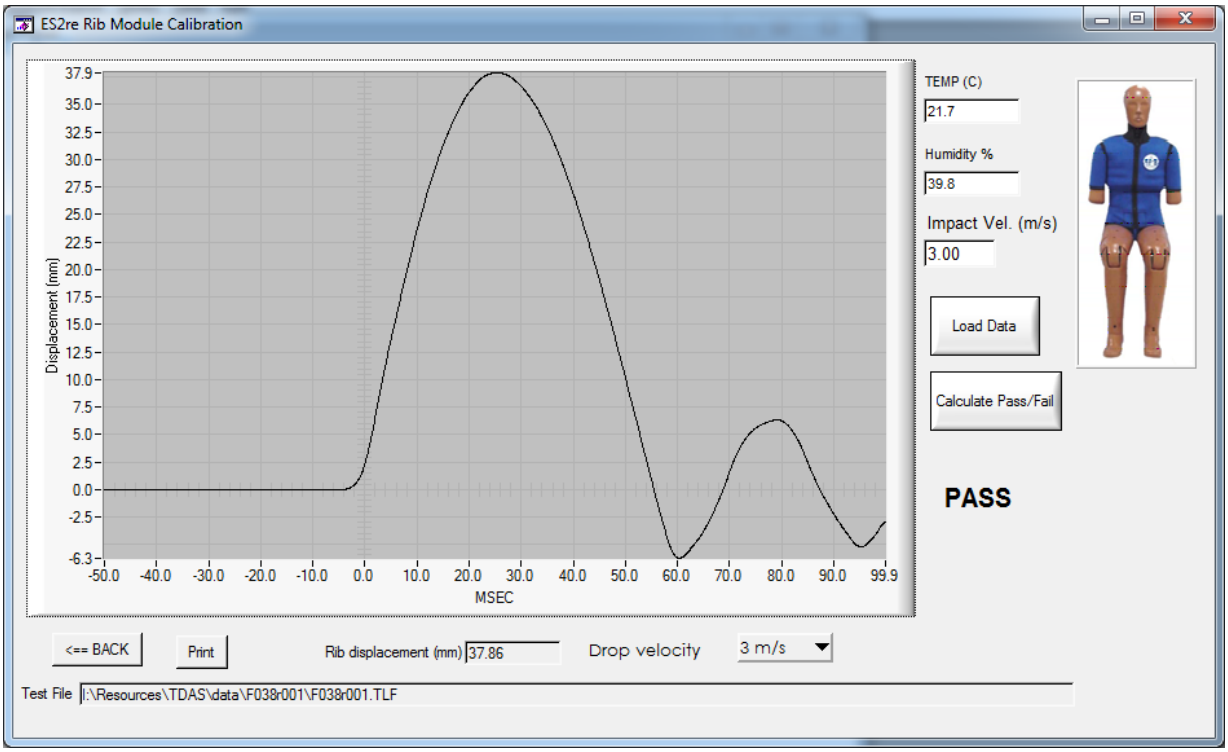
TABLE 5
THORAX – UPPER RIB DROP TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-3-14		6-16-14	
Sequential Test Number		-	8		9	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Upper Rib Drop Module Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	**20.6-22.2**	21.7	Pass	21.7	Pass
	Min		20.7	Pass	20.9	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	41.1	Pass	48.1	Pass
	Min		39.8	Pass	46.3	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.7	Pass	21.7	Pass
Humidity – During Test (%)		**10-70**	39.8	Pass	46.3	Pass
1st Test - Drop Height 459 ± 5 mm		**36-40**	37.9	Pass	37.8	Pass
2nd Test - Drop Height 815 ± 5 mm		**46-51**	48.8	Pass	49.0	Pass

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

PRE-TEST



POST-TEST

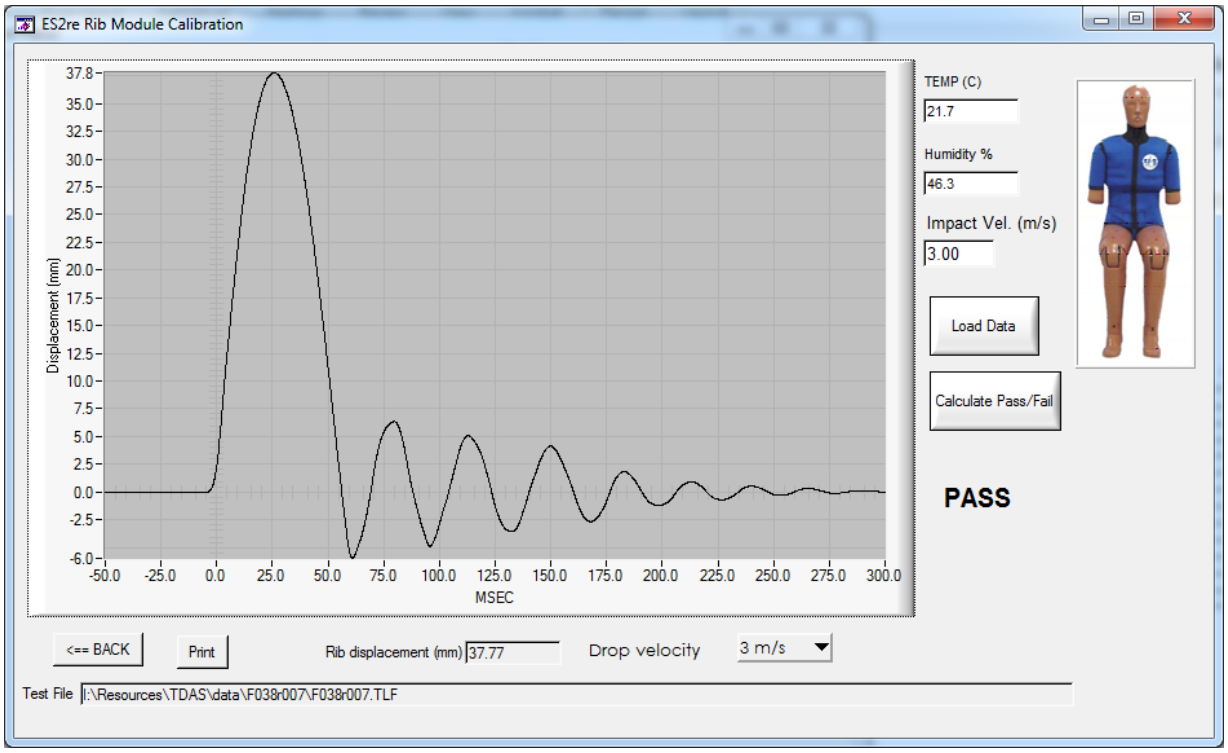
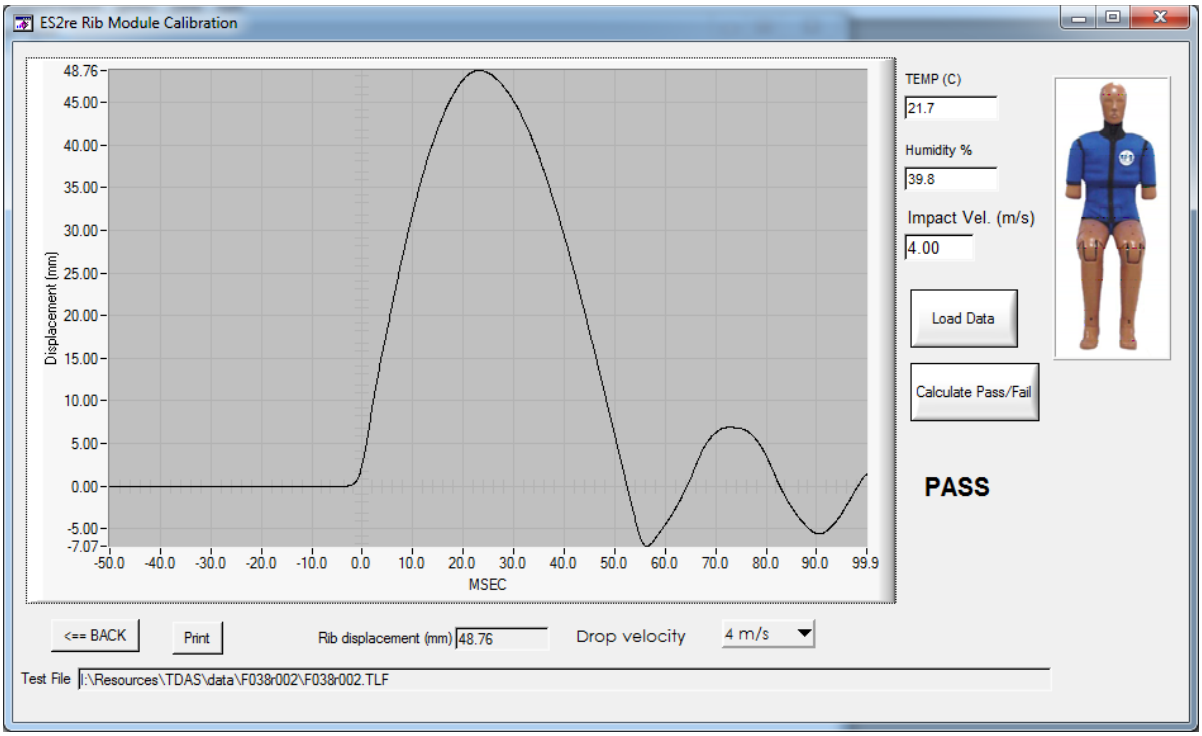


TABLE 5
THORAX – UPPER RIB DROP TEST (ES-IIre) (CONTINUED)
4.00 m/s

PRE-TEST



POST-TEST

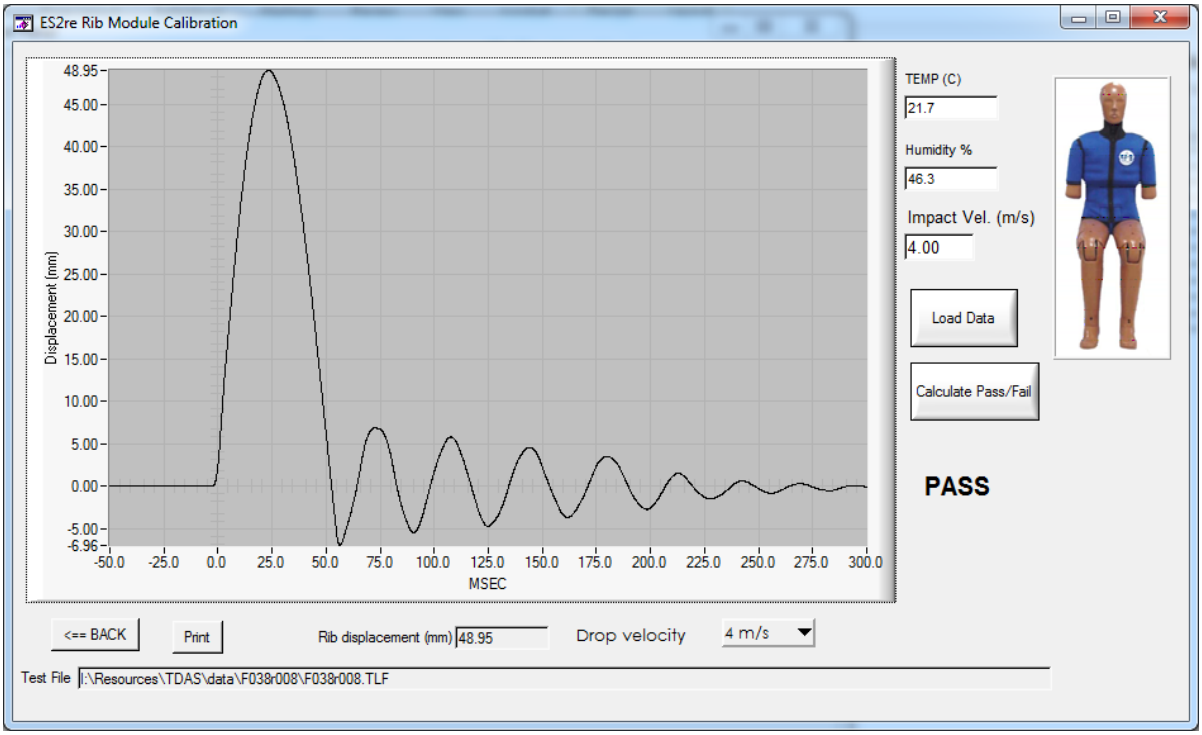


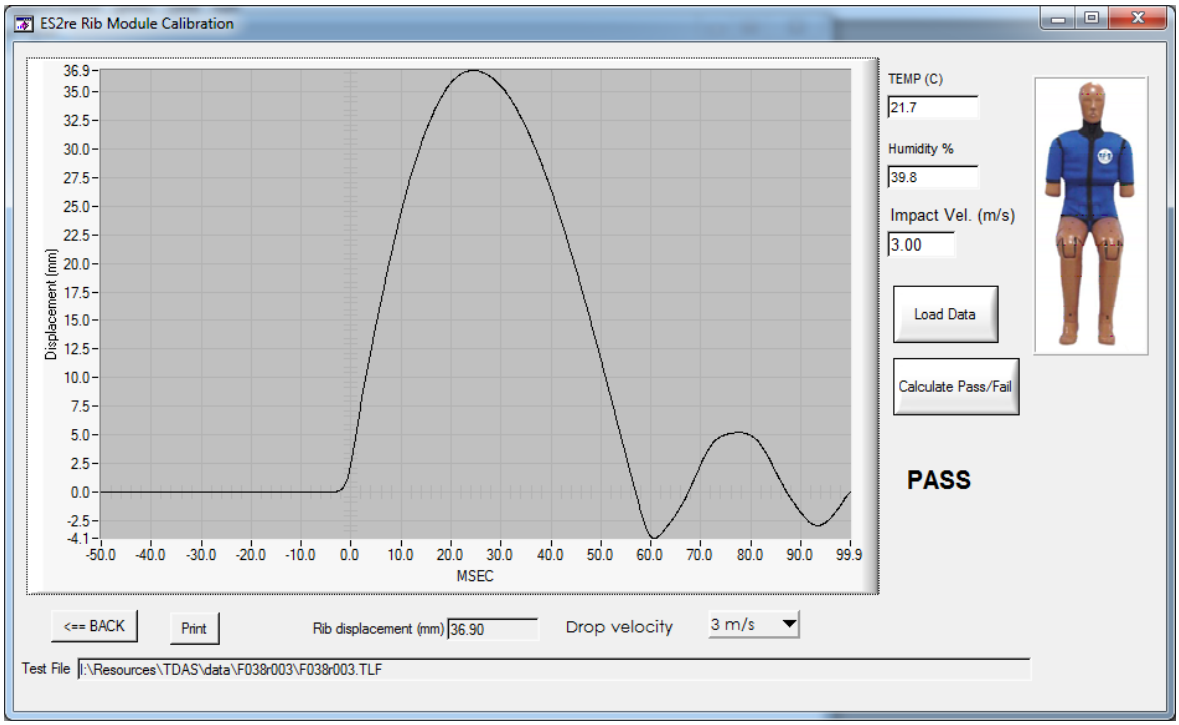
TABLE 6
THORAX – MIDDLE RIB DROP TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-3-14		6-16-14	
Sequential Test Number		-	8		9	
			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**	21.7	Pass	21.7	Pass
	Min		20.7	Pass	20.9	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	41.1	Pass	48.1	Pass
	Min		39.8	Pass	46.3	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.7	Pass	21.7	Pass
Humidity – During Test (%)		**10-70**	39.8	Pass	46.3	Pass
1st Test - Drop Height 459 ± 5 mm		**36-40**	36.9	Pass	37.6	Pass
2nd Test - Drop Height 815 ± 5 mm		**46-51**	48.5	Pass	48.9	Pass

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

PRE-TEST



POST-TEST

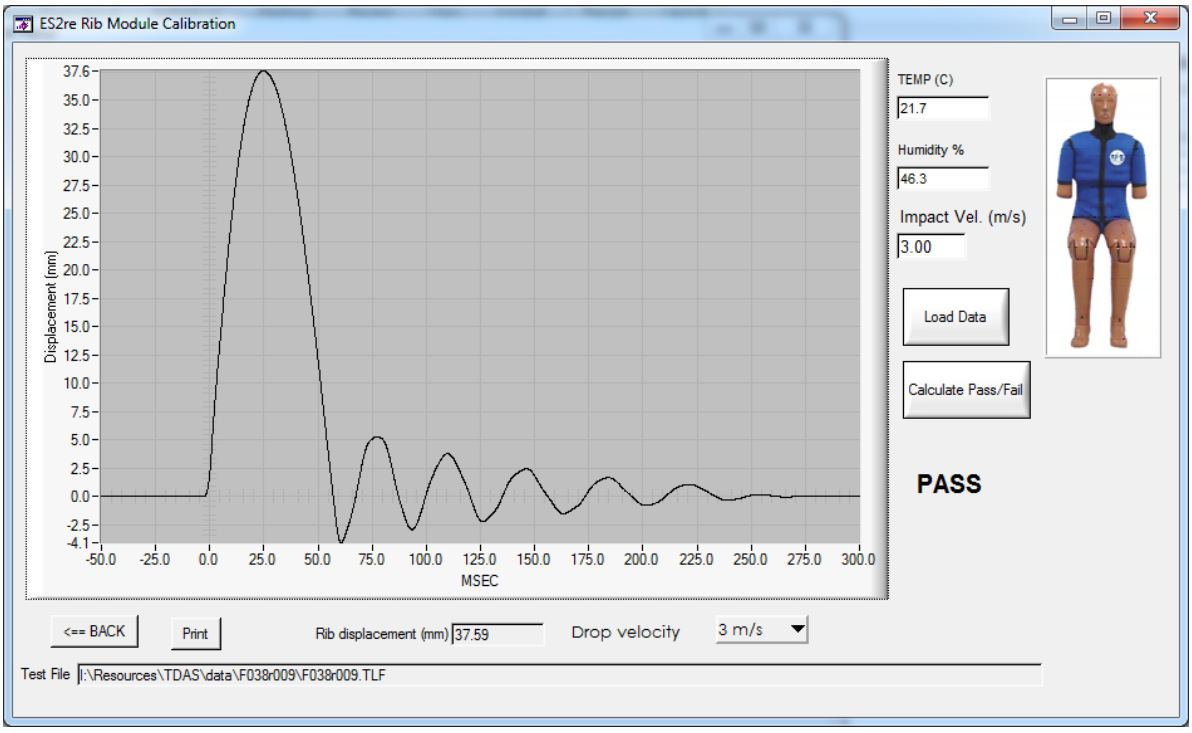
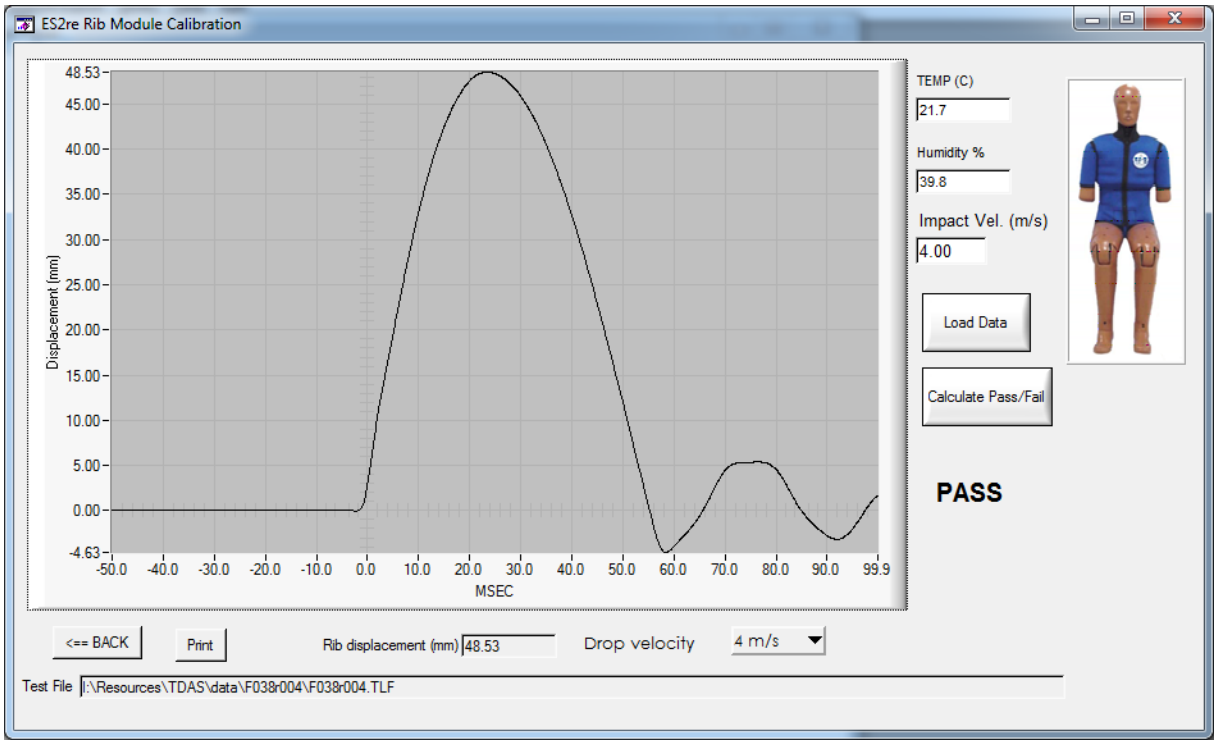


TABLE 6
THORAX – MIDDLE RIB DROP TEST (ES-IIre) (CONTINUED)
4.00 m/s

PRE-TEST



POST-TEST

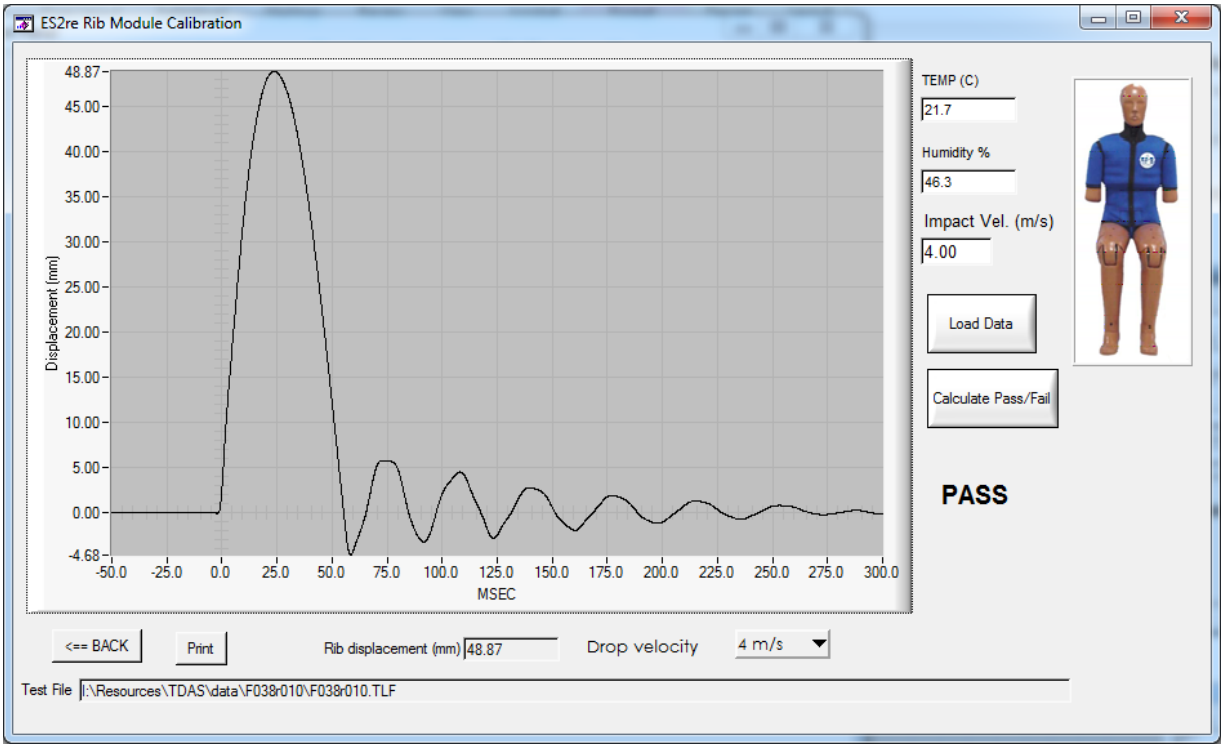


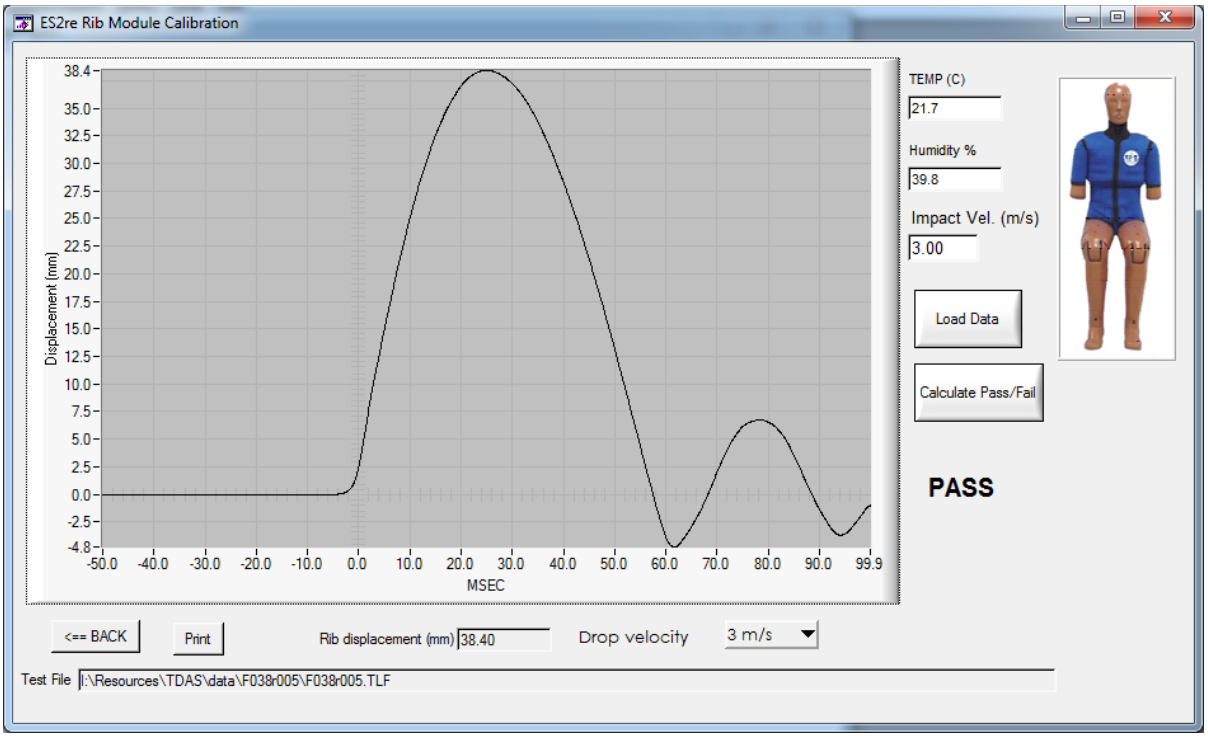
TABLE 7
THORAX – LOWER RIB DROP TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-3-14		6-16-14	
Sequential Test Number		-	8		9	
			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**	21.7	Pass	21.7	Pass
	Min		20.7	Pass	20.9	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	41.1	Pass	48.1	Pass
	Min		39.8	Pass	46.3	Pass
Temperature – During Test (°C)		20.6-22.2	21.7	Pass	21.7	Pass
Humidity – During Test (%)		10-70	39.8	Pass	46.3	Pass
1st Test - Drop Height 459 ± 5 mm		36-40	38.4	Pass	39.1	Pass
2nd Test - Drop Height 815 ± 5 mm		46-51	49.4	Pass	49.6	Pass

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

PRE-TEST



POST-TEST

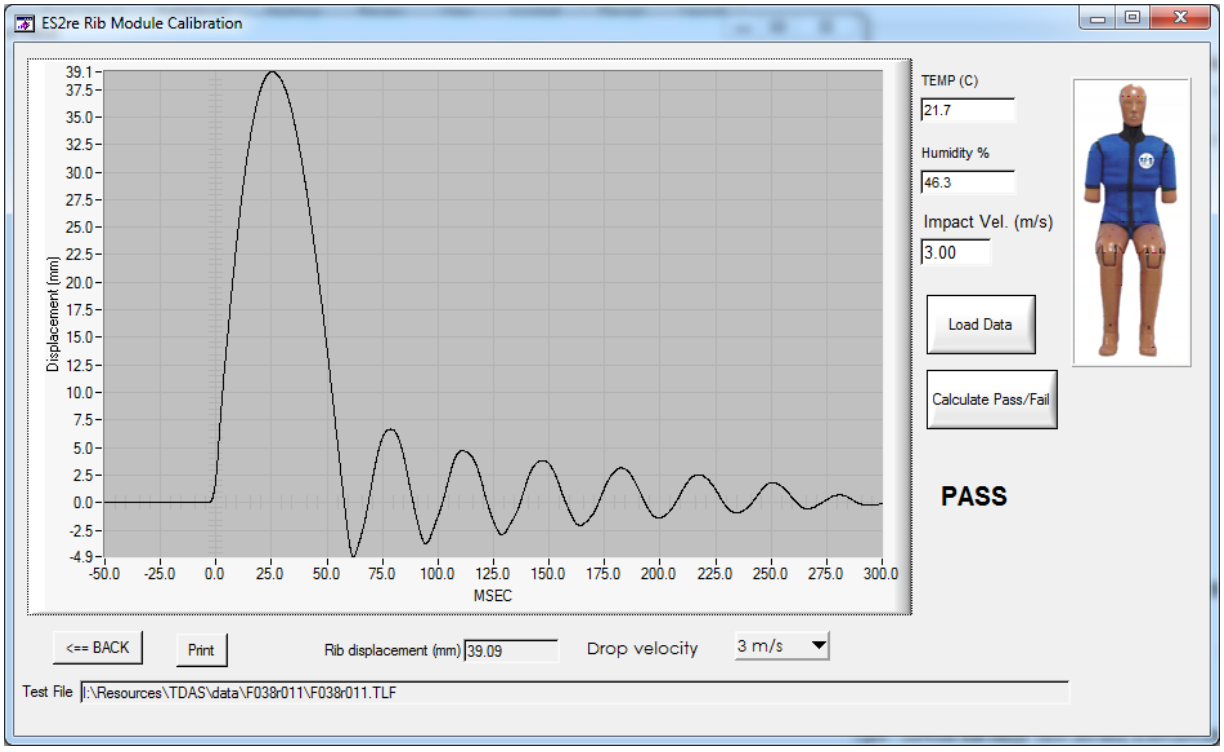
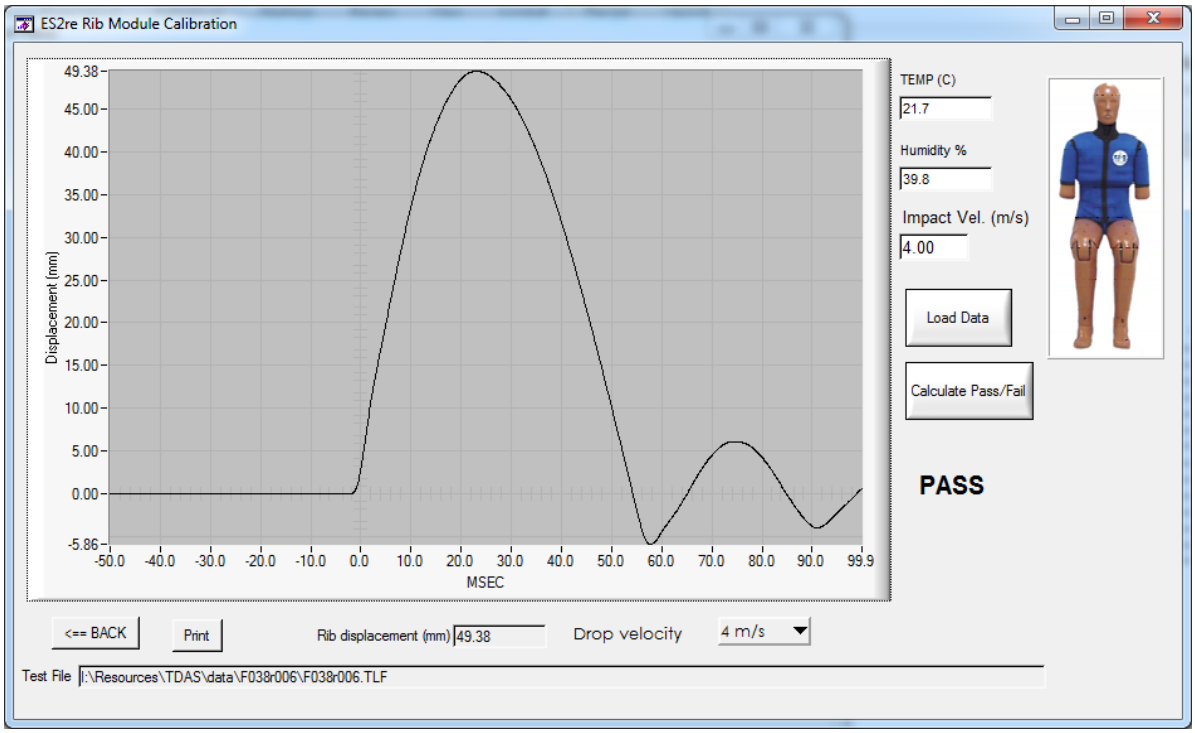


TABLE 7
THORAX – LOWER RIB DROP TEST (ES-IIre) (CONTINUED)
4.00 m/s

PRE-TEST



POST-TEST

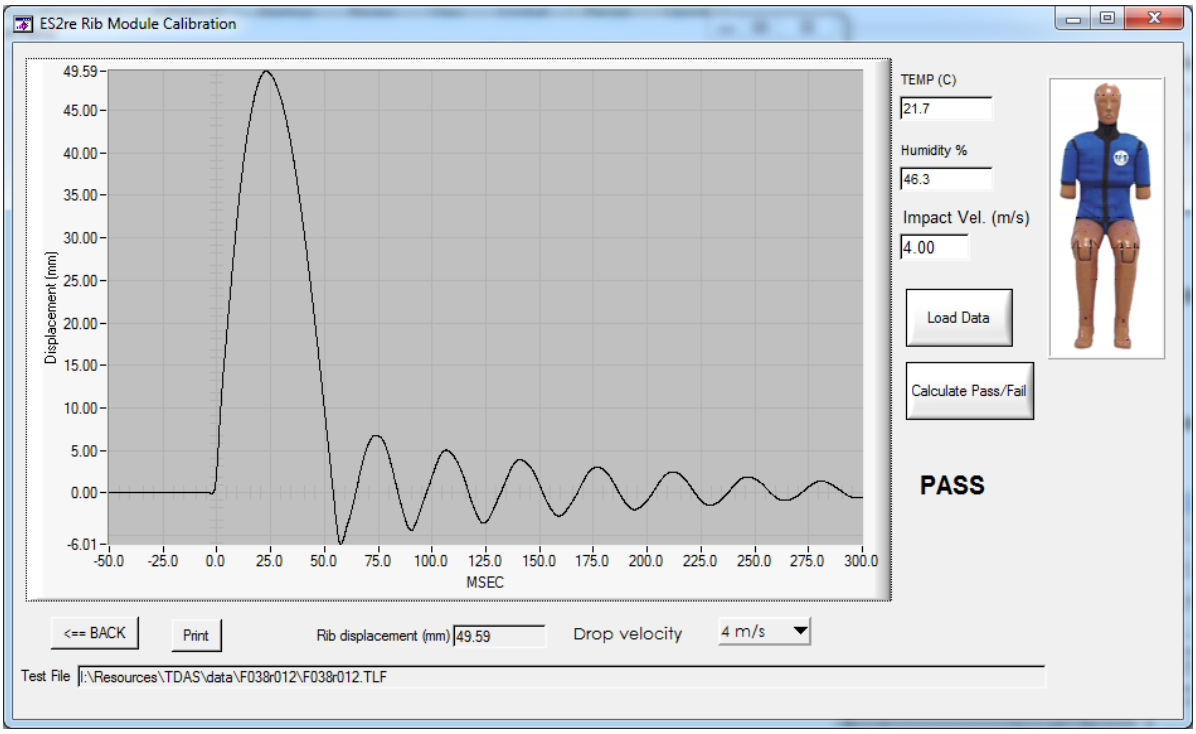


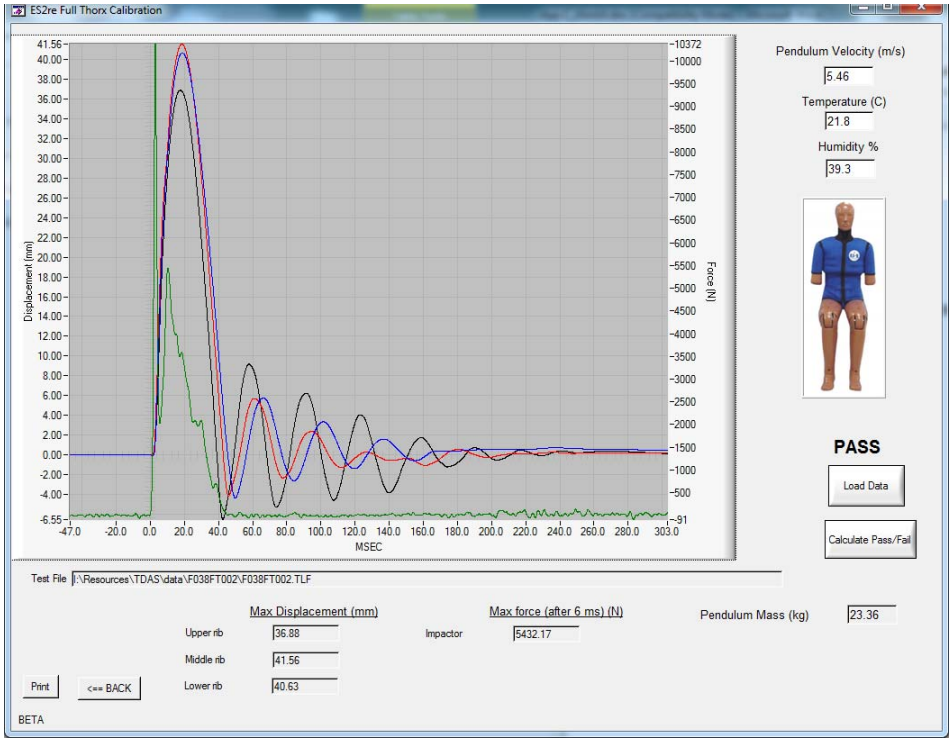
TABLE 8
THORAX – FULL BODY IMPACT TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-5-14		6-17-14	
Sequential Test Number		-	8		9	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	**20.6-22.2**	21.8	Pass	21.3	Pass
	Min		20.8	Pass	20.6	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	41.5	Pass	48.1	Pass
	Min		39.3	Pass	40.9	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.8	Pass	21.3	Pass
Humidity – During Test (%)		**10-70**	39.3	Pass	40.9	Pass
Peak Impactor Velocity (m/s)		**5.4-5.6**	5.5	Pass	5.5	Pass
Peak Upper Rib Deflection (mm)		**34-41**	36.9	Pass	36.8	Pass
Peak Middle Rib Deflection (mm)		**37-45**	41.6	Pass	41.4	Pass
Peak Lower Rib Deflection (mm)		**37-44**	40.6	Pass	41.1	Pass
Peak Impactor Force (>6ms) (kN)		**5.1-6.2**	5.4	Pass	5.6	Pass

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

PRE-TEST



POST-TEST

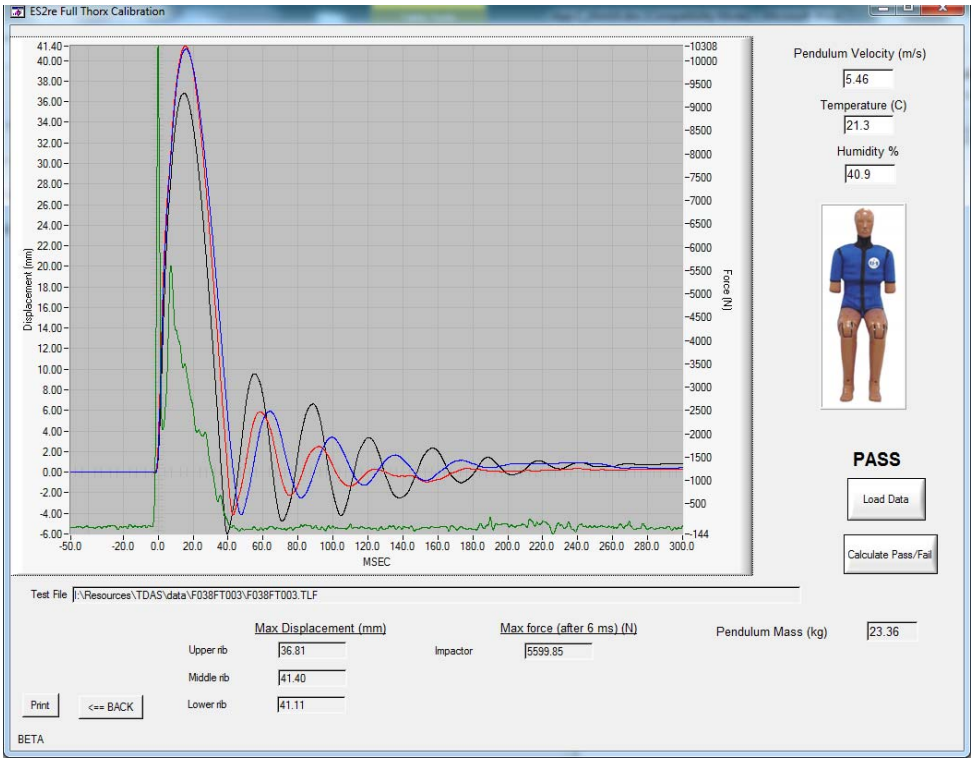


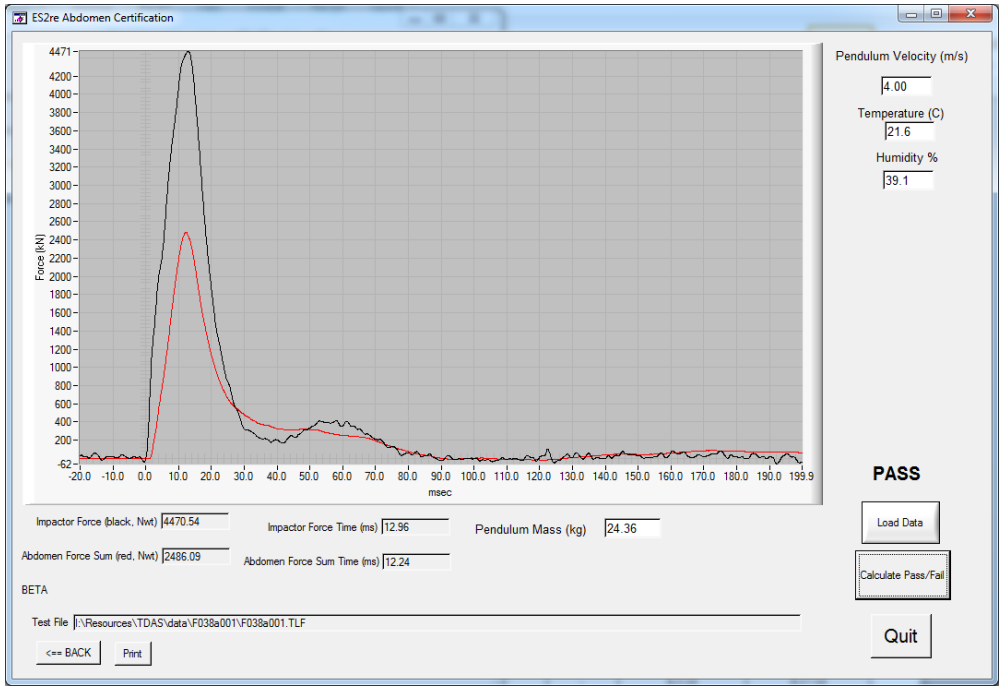
TABLE 9
ABDOMEN IMPACT TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-5-14		6-17-14	
Sequential Test Number		-	8		9	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	**20.6-22.2**	21.6	Pass	21.3	Pass
	Min		20.8	Pass	20.6	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	41.5	Pass	48.1	Pass
	Min		39.1	Pass	43.6	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.6	Pass	21.3	Pass
Humidity – During Test (%)		**10-70**	39.1	Pass	43.6	Pass
Peak Impactor Velocity (m/s)		**3.9-4.1**	4.0	Pass	4.0	Pass
Sum of Abdominal Forces (kN)		**2.2-2.7**	2.5	Pass	2.6	Pass
Time of Abdominal Forces (ms)		**10-12.3**	12.2	Pass	12.1	Pass
Peak Impactor Force (kN)		**4.0-4.8**	4.5	Pass	4.4	Pass
Time of Peak Impactor Force (ms)		**10.6-13.0**	13.0	Pass	12.3	Pass

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

PRE-TEST



POST-TEST

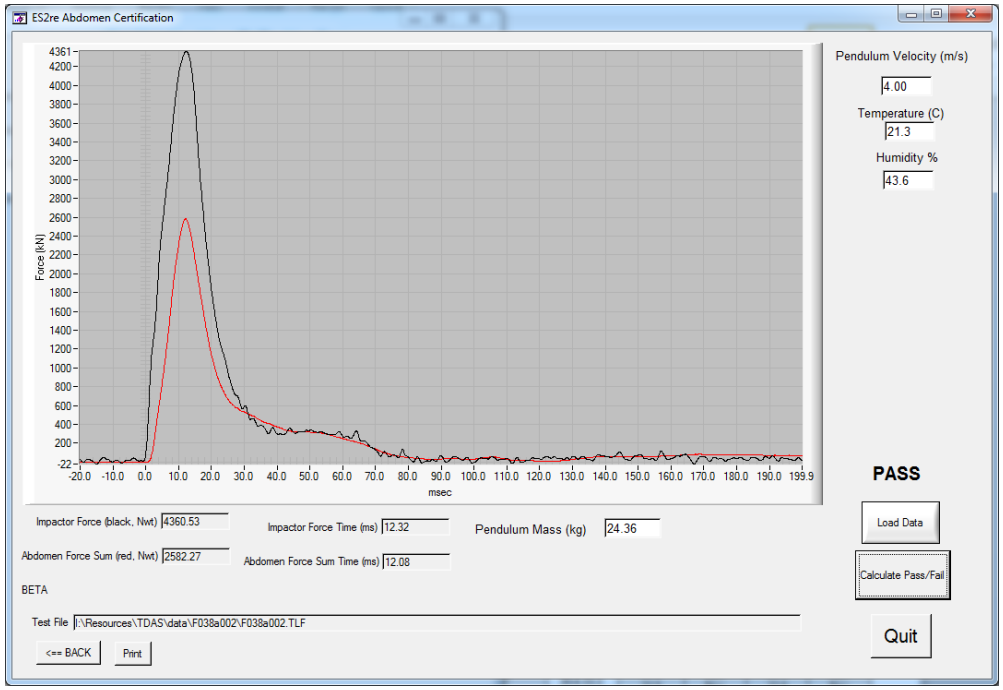


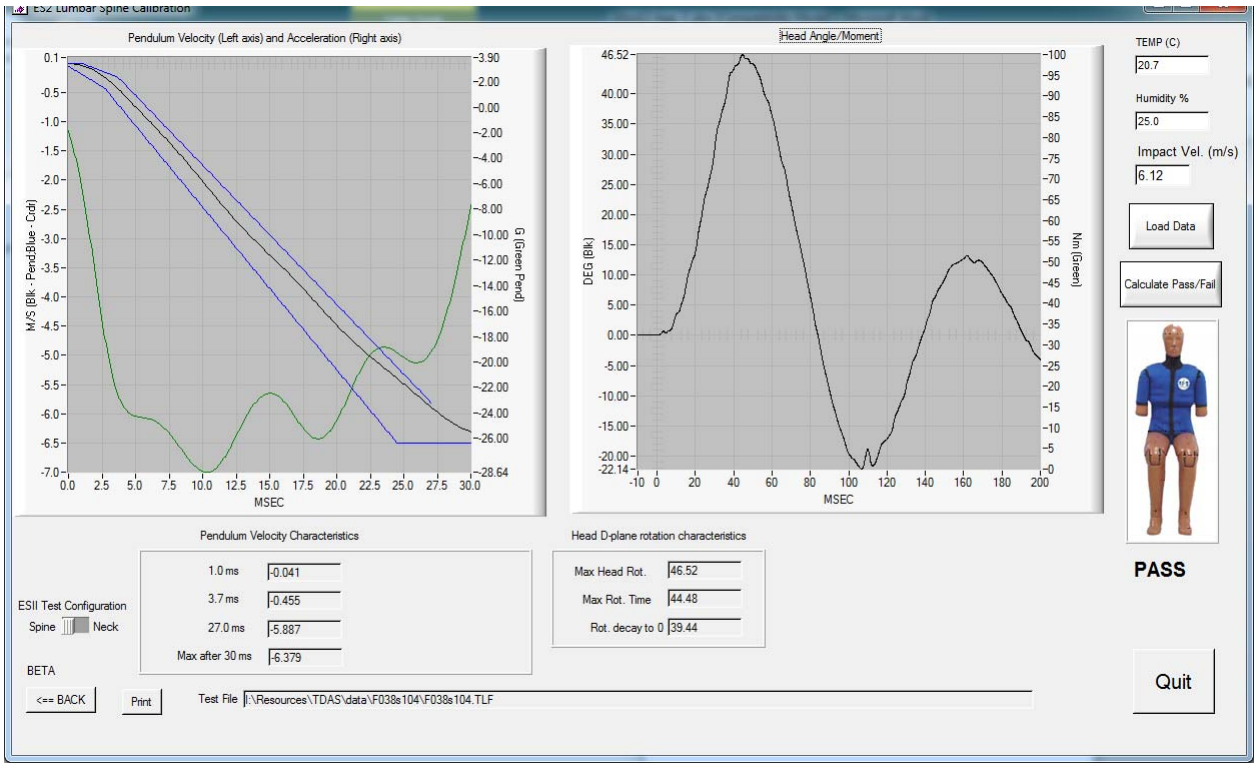
TABLE 10
LUMBAR SPINE FLEXION TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	2-4-14		6-17-14	
Sequential Test Number		-	8		9	
			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	21.0	Pass
	Min		20.6	Pass	20.6	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	25.0	Pass	48.1	Pass
	Min		23.1	Pass	41.7	Pass
Temperature – During Test (°C)		**20.6-22.2**	20.7	Pass	21.0	Pass
Humidity – During Test (%)		**10-70**	25.0	Pass	41.7	Pass
Pendulum Velocity (m/s)		**5.95-6.15**	6.1	Pass	6.0	Pass
Pendulum Velocity Corridors (m/s)	0-1.0 ms	**(-0.05)-0.00**	-0.04	Pass	-0.4	Pass
	2.7-3.7 ms	**(-0.425) - (-0.24)**	-0.45	Pass	-0.47	Pass
	24.5-27.0 ms	**(-6.50) - (-5.80)**	-5.9	Pass	-6.4	Pass
	Max after 30 ms	**-6.50**	-6.4	Pass	-6.4	Pass
Maximum Headform Flexion Angle (deg)		**45-55**	46.5	Pass	46.0	Pass
Time at Maximum Flexion Angel (ms)		**39-53**	44.5	Pass	43.4	Pass
Time of Decay to Zero Angle from Peak (ms)		**37-57**	39.4	Pass	39.4	Pass

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

PRE-TEST



POST-TEST

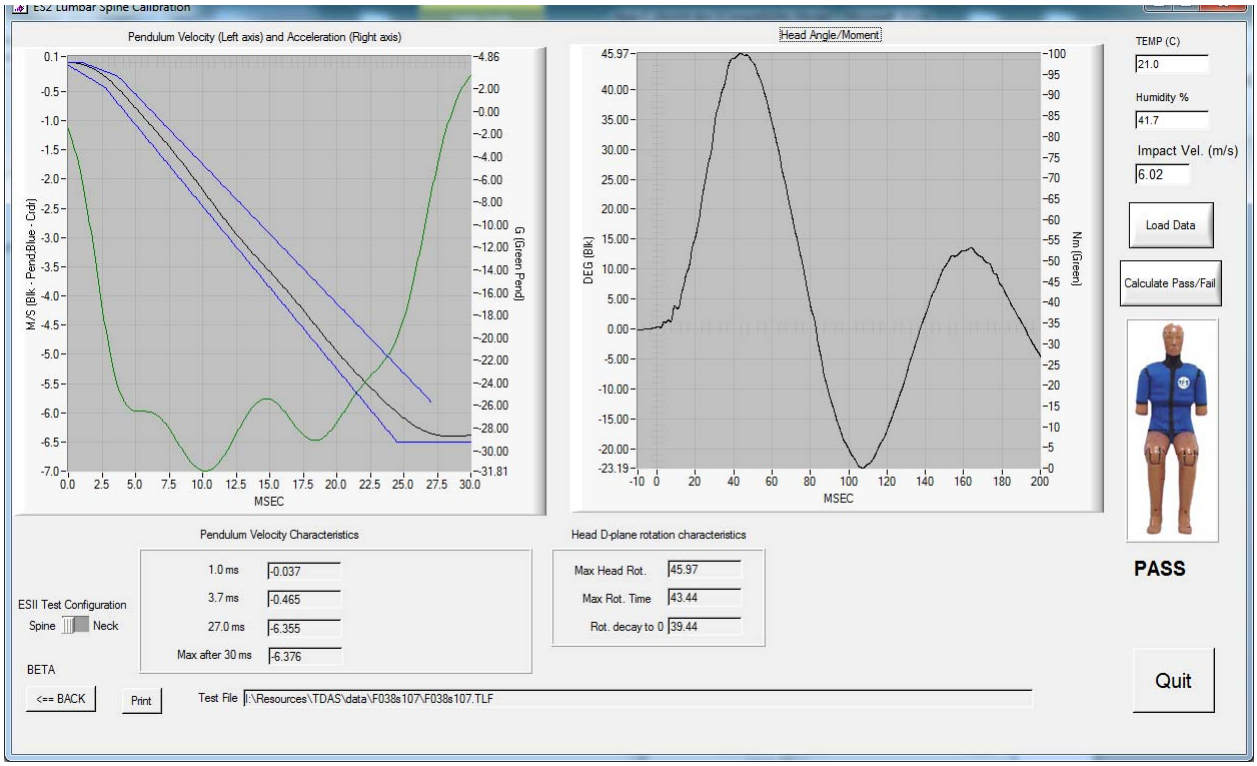


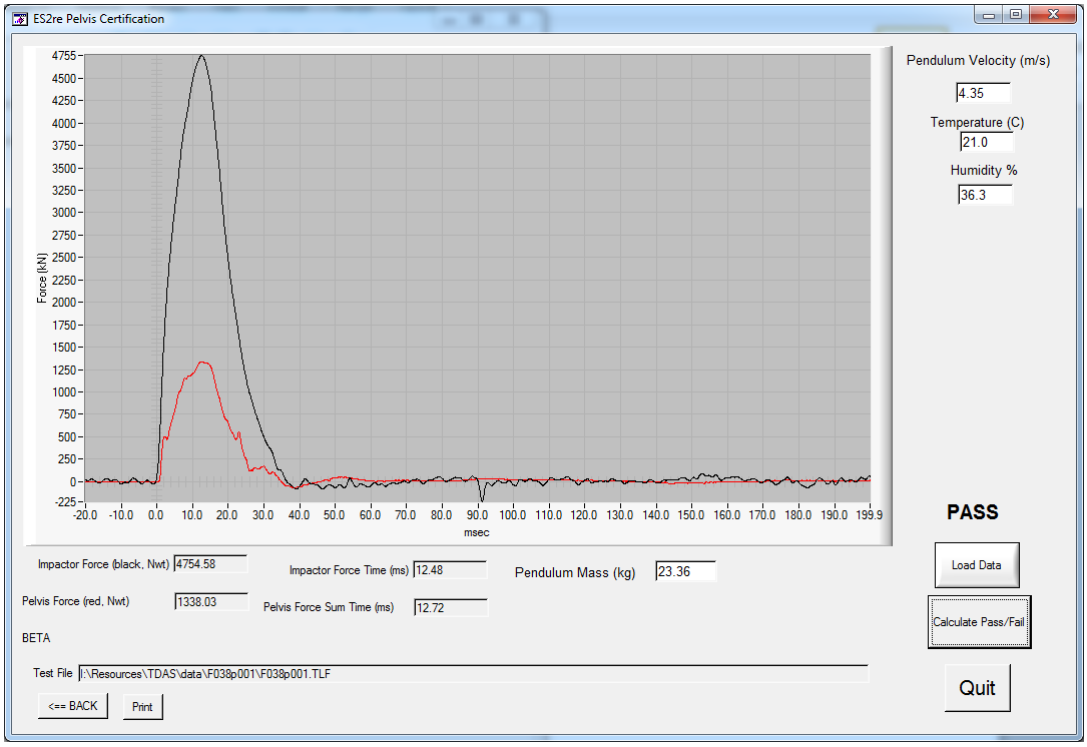
TABLE 11
PELVIS IMPACT TEST (ES-IIre)

ES-IIre Serial Number F038 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-5-14		6-17-14	
Sequential Test Number		-	8		9	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature (°C) – During Soak	Max	**20.6-22.2**	21.0	Pass	21.4	Pass
	Min		20.8	Pass	20.6	Pass
Humidity (%) – During Soak	Max	**10.0-70.0**	41.5	Pass	48.1	Pass
	Min		36.3	Pass	43.2	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.0	Pass	21.4	Pass
Humidity – During Test (%)		**10-70**	36.3	Pass	43.2	Pass
Pendulum Velocity (m/s)		**4.2-4.4**	4.4	Pass	4.4	Pass
Peak Impactor Force (kN)		**4.7 – 5.4**	4.8	Pass	4.8	Pass
Time at Peak Force (ms)		**11.8-16.1**	12.5	Pass	11.9	Pass
Peak Pubic Symphysis Force (kN)		**1.23-1.59**	1.3	Pass	1.4	Pass
Time at Peak Force (ms)		**12.2-17.0**	12.7	Pass	13.0	Pass

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

PRE-TEST



POST-TEST

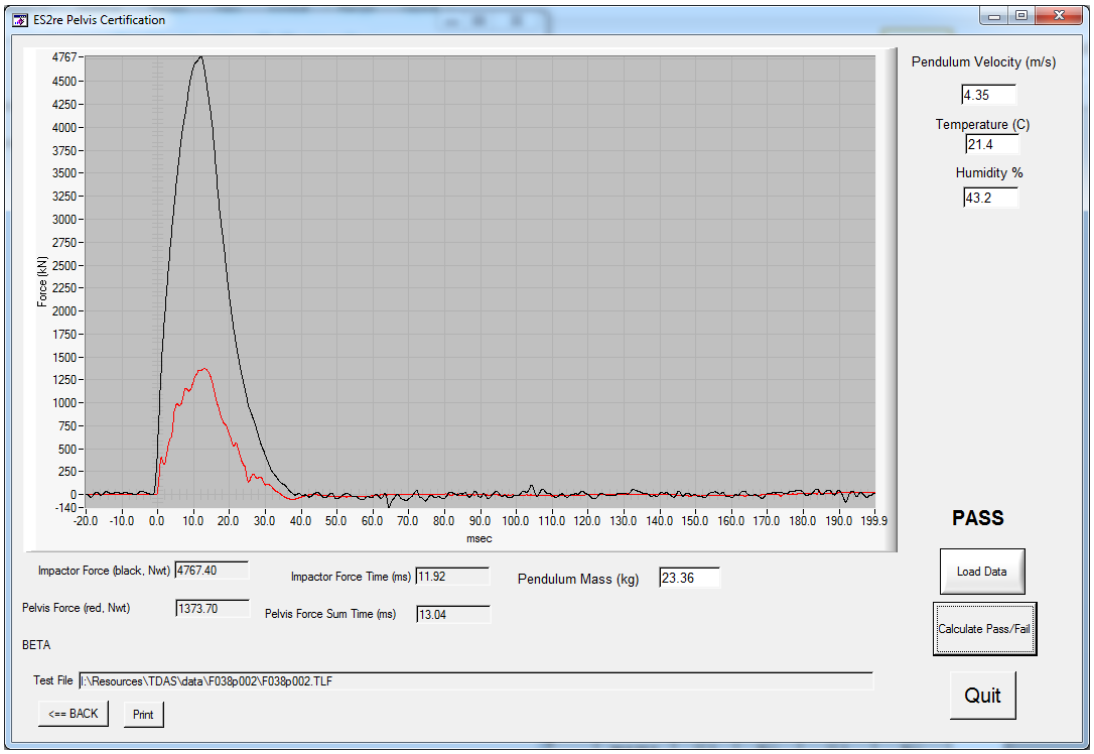


TABLE 1
EXTERNAL MEASUREMENTS (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 8 & 9

TEST PARAMETER	SPEC.	PRE		POST	
Date	-	2-4-14		6-17-14	
Sequential Test Number	-	8		9	
		Result	**Pass/Fail**	**Result**	**Pass/Fail**
Temperature (°C)	**20.6-22.2**	21.2	Pass	21.1	Pass
Relative Humidity (%)	**10-70**	32.2	Pass	45.1	Pass
Sitting Height	**772 – 788**	775	Pass	775	Pass
Shoulder Pivot Height	**437 – 453**	448	Pass	446	Pass
H-Point Height	**79 – 89**	87	Pass	85	Pass
H-Point from Seat Back	**141 – 151**	146	Pass	145	Pass
Shoulder Pivot from Backline	**97 – 107**	100	Pass	100	Pass
Thigh Clearance	**119 – 135**	124	Pass	126	Pass
Head Breadth	**140 – 148**	141	Pass	145	Pass
Head Back from Backline	**40 – 46**	42	Pass	43	Pass
Head Depth	**178 – 188**	182	Pass	180	Pass
Head Circumference	**541 – 551**	542	Pass	543	Pass
Buttock to Knee Length	**514 – 540**	525	Pass	525	Pass
Popliteal Height	**343 – 369**	360	Pass	360	Pass
Knee Pivot to Floor Height	**392 – 409**	405	Pass	405	Pass
Buttock Popliteal Length	**416 – 442**	430	Pass	430	Pass
Chest Depth w/o Jacket	**195 – 211**	205	Pass	210	Pass
Foot Length	**216 – 232**	225	Pass	225	Pass
Hip Breadth	**313 – 323**	320	Pass	320	Pass
Arm Length	**249 – 259**	255	Pass	251	Pass
Knee Joint to Seat Back	**477 – 493**	485	Pass	485	Pass
Shoulder Width	**341 – 357**	350	Pass	350	Pass
Foot Width	**78 – 94**	87	Pass	87	Pass
Chest Circumference w/Jacket	**851 – 881**	880	Pass	858	Pass
Waist Circumference	**761 – 791**	783	Pass	785	Pass

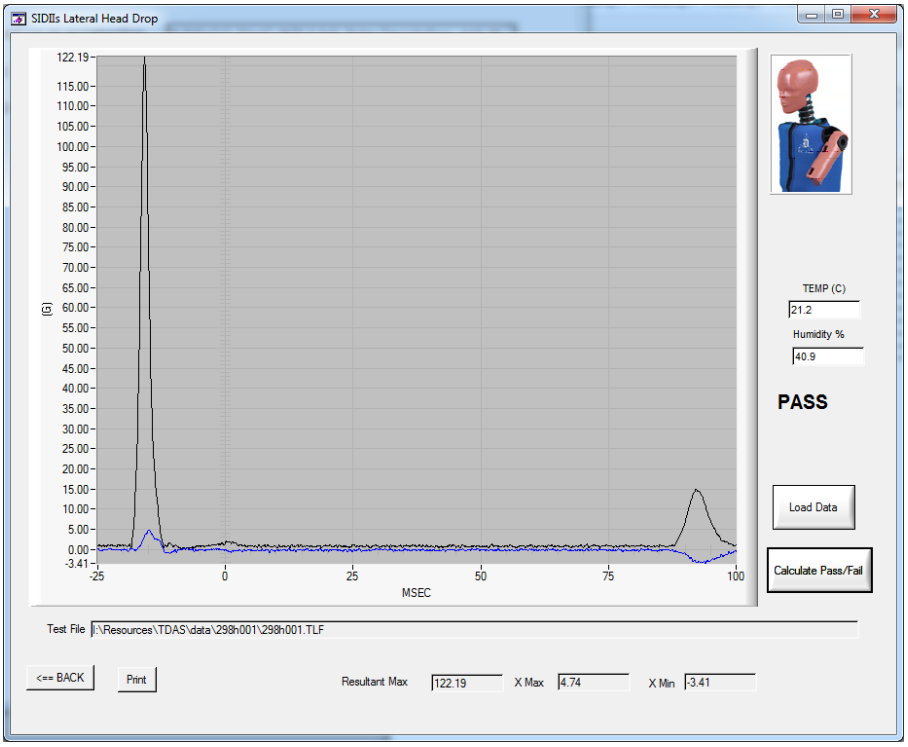
TABLE 2
HEAD DROP TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-3-14		6-16-14	
Sequential Test Number		-	8		9	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Head Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	21.4	Pass	21.5	Pass
	Min		21.2	Pass	20.9	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	41.4	Pass	48.1	Pass
	Min		40.9	Pass	39.0	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.2	Pass	21.5	Pass
Humidity – During Test (%)		**10-70**	40.9	Pass	39.0	Pass
Peak Head Resultant Acceleration (G)		**115-137**	122.2	Pass	126.3	Pass
Peak Head X Acceleration (G)		**<15**	4.7	Pass	7.1	Pass
Unimodal (Oscillation) (Yes/No)		**<15%**	Yes	Pass	Yes	Pass

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

PRE-TEST



POST-TEST

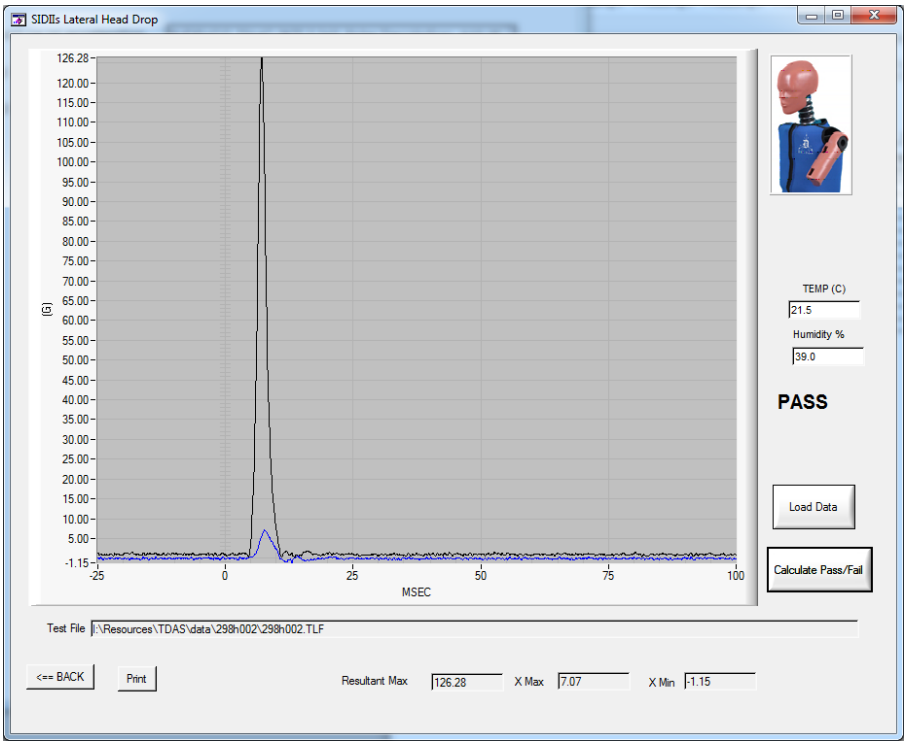


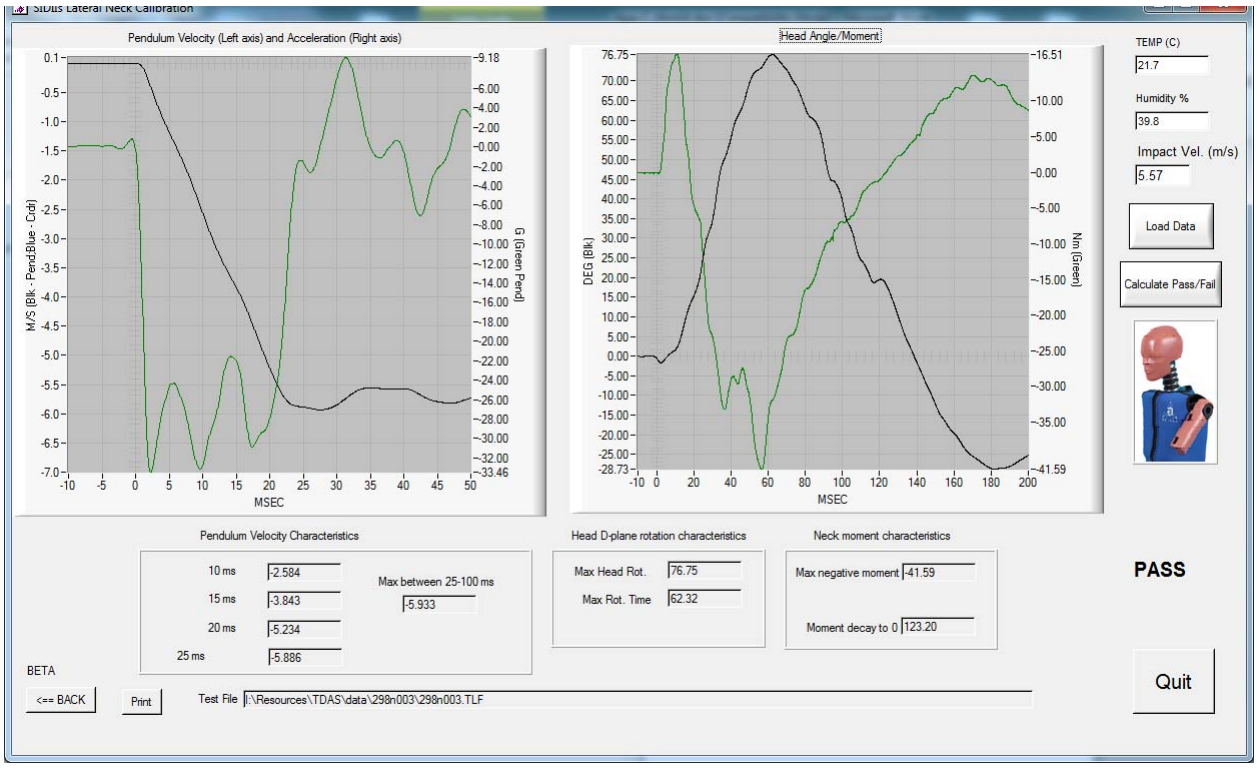
TABLE 3
LATERAL NECK PENDULUM TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-3-14		6-17-14	
Sequential Test Number		-	8		9	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Neck Assembly Soak Time (min)		**≥ 240**	240	Pass	240	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	21.7	Pass	21.4	Pass
	Min		20.7	Pass	20.6	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	41.1	Pass	48.1	Pass
	Min		39.8	Pass	44.1	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.7	Pass	20.6	Pass
Humidity – During Test (%)		**10-70**	39.8	Pass	44.1	Pass
Pendulum Velocity (m/s)		**5.51-5.63**	5.6	Pass	5.6	Pass
Pendulum Deceleration (G)	10 ms	**2.20-2.80**	2.6	Pass	2.3	Pass
	15 ms	**3.30-4.10**	3.8	Pass	3.4	Pass
	20 ms	**4.40-5.40**	5.2	Pass	4.5	Pass
	25 ms	**5.40-6.10**	5.9	Pass	5.5	Pass
	25-100 ms	**5.50-6.20**	5.9	Pass	5.9	Pass
Maximum D-Plane rotation (deg)		**71-81**	76.8	Pass	74.5	Pass
Time of Maximum D-Plane Rotation (ms)		**50-70**	62.3	Pass	65.7	Pass
Peak Occ. Condyle Moment (Nm)		**36-44**	41.6	Pass	41.3	Pass
Time of Moment Decay (ms)		**102-126**	123.2	Pass	124.8	Pass

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

PRE-TEST



POST-TEST

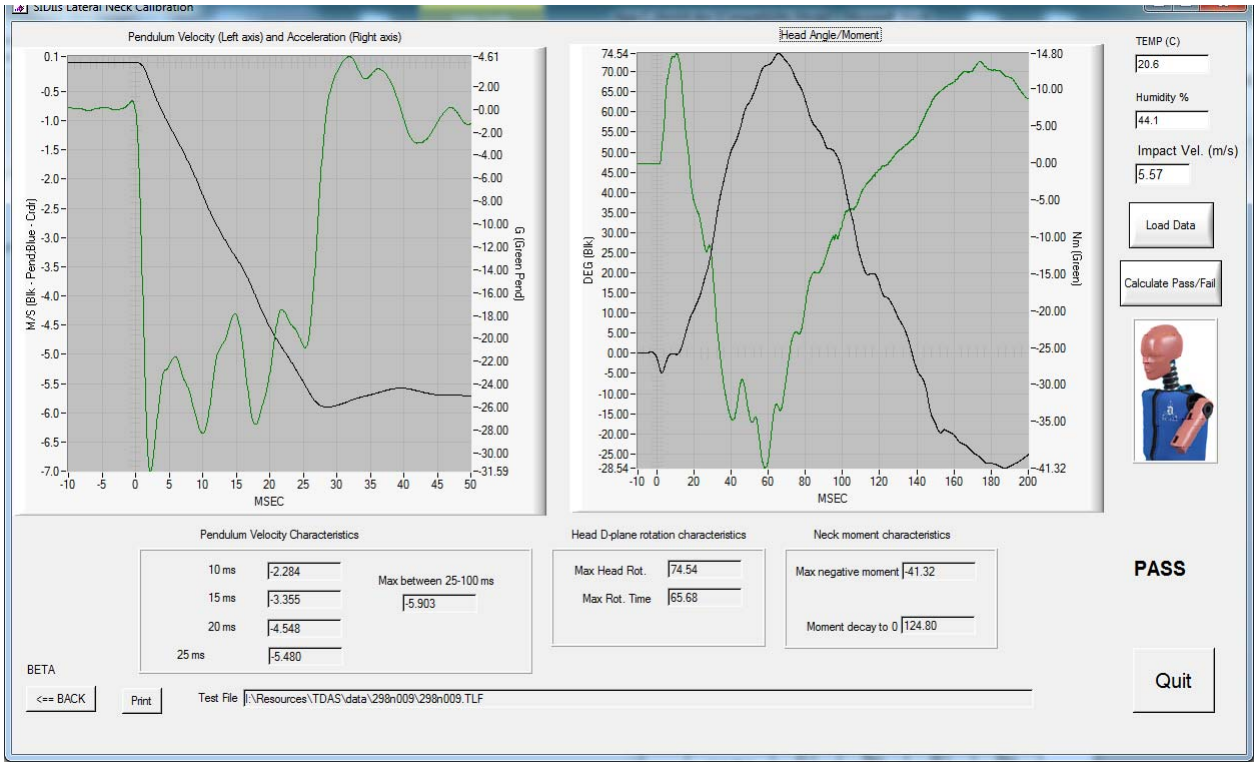


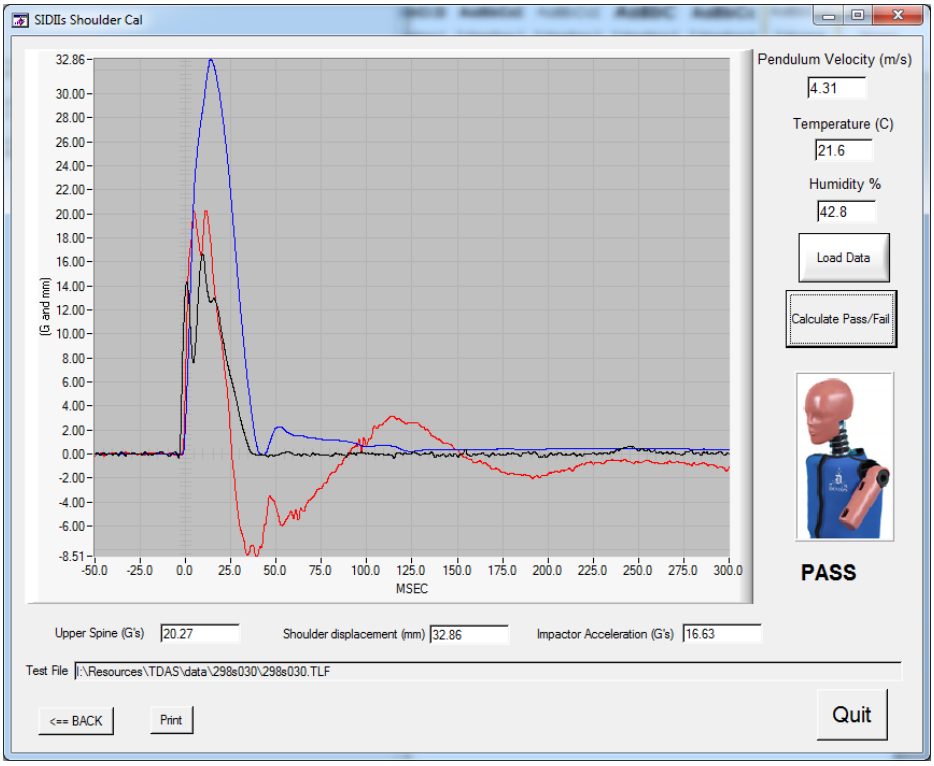
TABLE 4
SHOULDER IMPACT TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-6-14		6-17-14	
Sequential Test Number		-	8		9	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 180**	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	21.6	Pass	21.1	Pass
	Min		21.2	Pass	20.6	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	42.8	Pass	48.1	Pass
	Min		40.3	Pass	40.0	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.6	Pass	21.1	Pass
Relative Humidity – During Test (%)		**10-70**	42.8	Pass	40.0	Pass
Impactor Velocity (m/s)		**4.2-4.4**	4.31	Pass	4.31	Pass
Peak Shoulder Deflection (mm)		**28-37**	32.9	Pass	32.4	Pass
Peak Lateral Spine (T1) Acceleration Y (G)		**17-22**	20.3	Pass	21.1	Pass
Peak Impactor Acceleration (G)		**13-18**	16.6	Pass	17.1	Pass

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

PRE-TEST



POST-TEST

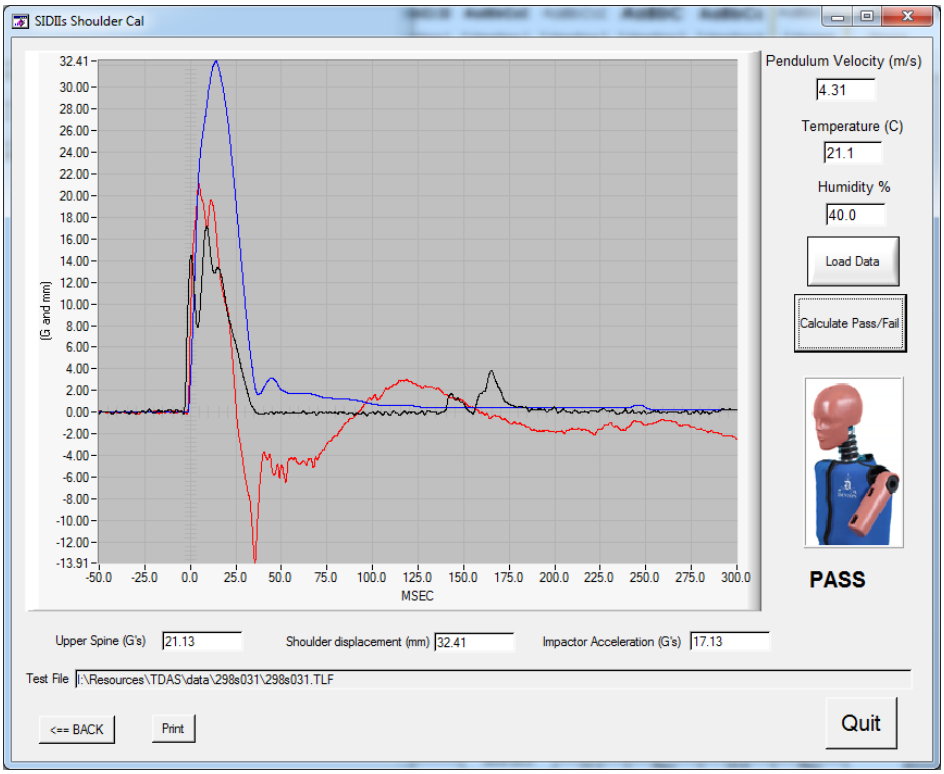


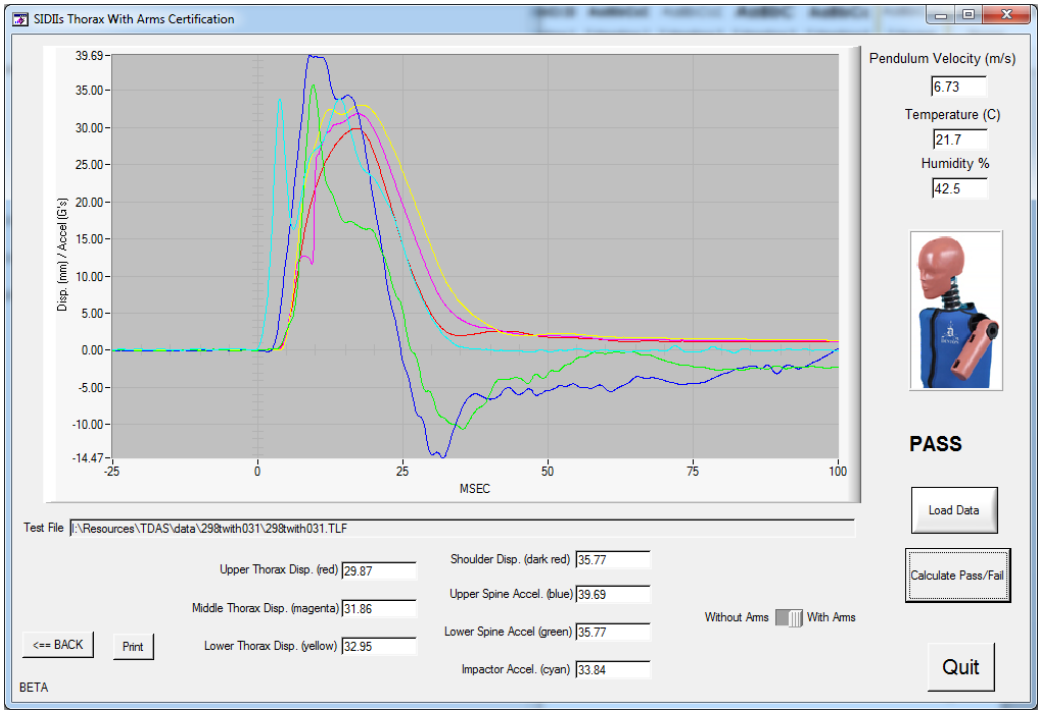
TABLE 5
THORAX (WITH ARM) IMPACT TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-6-14		6-17-14	
Sequential Test Number		-	8		9	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 180**	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	21.7	Pass	21.0	Pass
	Min		21.2	Pass	20.6	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	42.8	Pass	48.1	Pass
	Min		42.5	Pass	40.9	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.7	Pass	21.0	Pass
Relative Humidity – During Test (%)		**10-70**	42.5	Pass	40.9	Pass
Impactor Velocity (m/s)		**6.6-6.8**	6.7	Pass	6.7	Pass
Peak Shoulder Deflection (mm)		**31-40**	35.8	Pass	35.7	Pass
Peak Upper Rib Deflection (mm)		**25-32**	29.9	Pass	29.6	Pass
Peak Middle Rib Deflection (mm)		**30-36**	31.9	Pass	31.1	Pass
Peak Lower Rib Deflection (mm)		**32-38**	33.0	Pass	32.1	Pass
Peak Upper Spine (T1) Acceleration Y (G)		**34-43**	39.7	Pass	41.8	Pass
Peak Lower Spine (T12) Acceleration Y (G)		**29-37**	35.8	Pass	35.7	Pass
Peak Impactor Acceleration (G)		**30-36**	33.8	Pass	33.9	Pass

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

PRE-TEST



POST-TEST

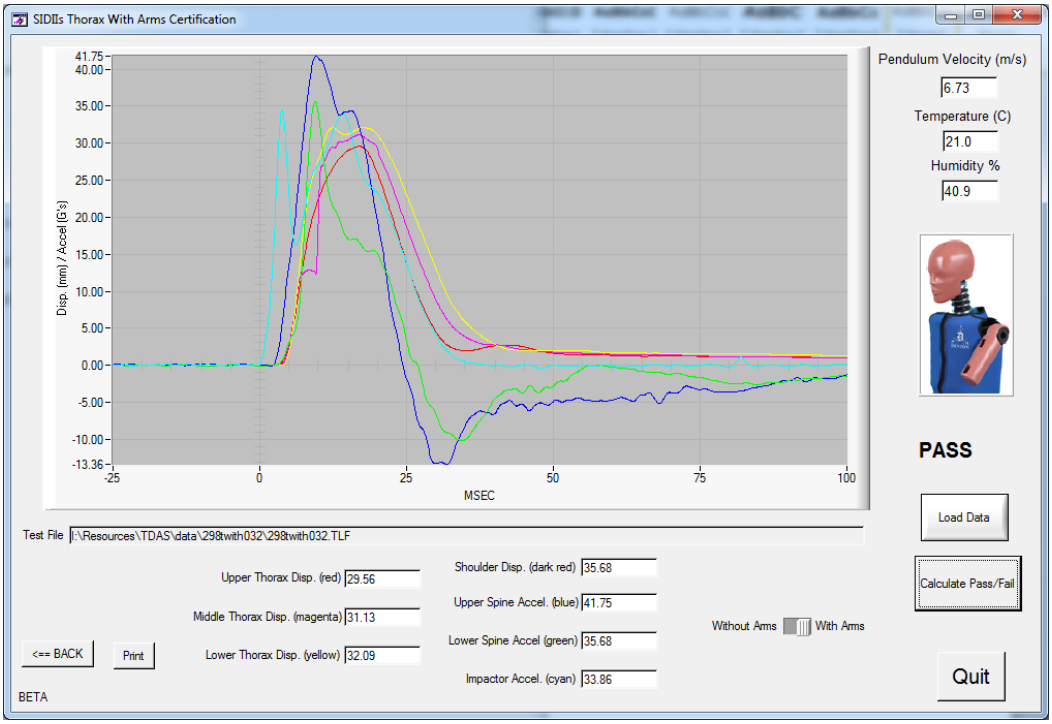


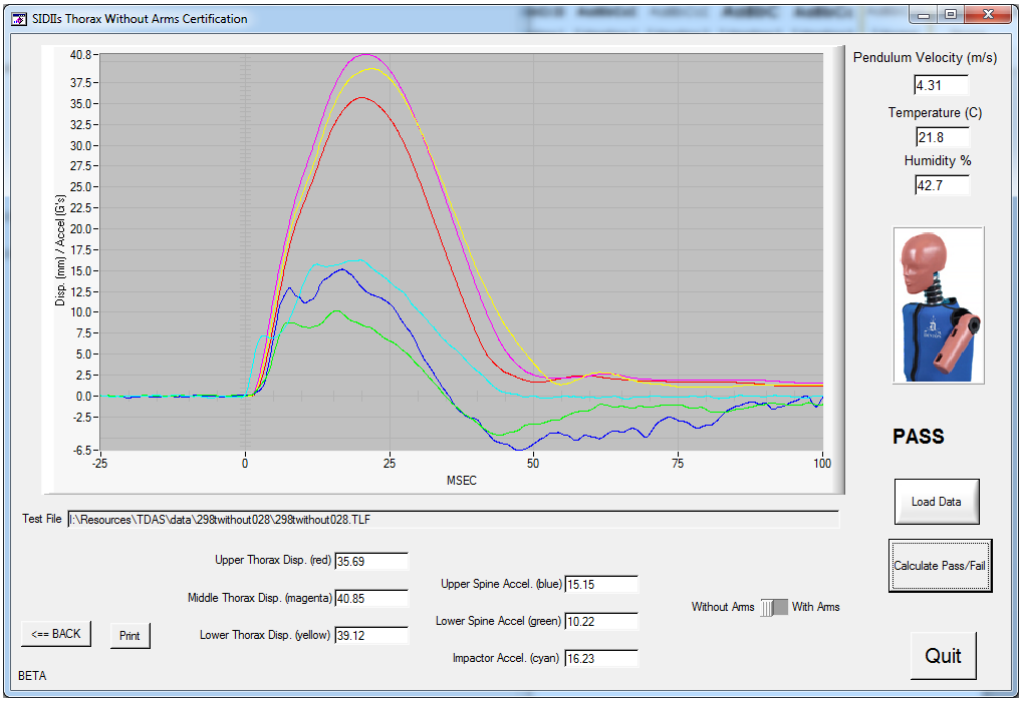
TABLE 6
THORAX (WITHOUT ARM) IMPACT TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-6-14		6-17-14	
Sequential Test Number		-	8		9	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 180**	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	21.8	Pass	21.1	Pass
	Min		21.2	Pass	20.6	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	42.8	Pass	48.1	Pass
	Min		42.7	Pass	42.1	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.8	Pass	21.1	Pass
Relative Humidity – During Test (%)		**10-70**	42.7	Pass	42.1	Pass
Impactor Velocity (m/s)		**4.2-4.4**	4.3	Pass	4.3	Pass
Peak Upper Rib Deflection (mm)		**32-40**	35.7	Pass	38.1	Pass
Peak Middle Rib Deflection (mm)		**39-45**	40.9	Pass	40.7	Pass
Peak Lower Rib Deflection (mm)		**35-43**	39.1	Pass	36.8	Pass
Peak Upper Spine (T1) Acceleration Y (G)		**13-17**	15.2	Pass	16.2	Pass
Peak Lower Spine (T12) Acceleration Y (G)		**7-11**	10.2	Pass	9.3	Pass
Peak Impactor Acceleration (G)		**14-18**	16.2	Pass	16.5	Pass

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

PRE-TEST



POST-TEST

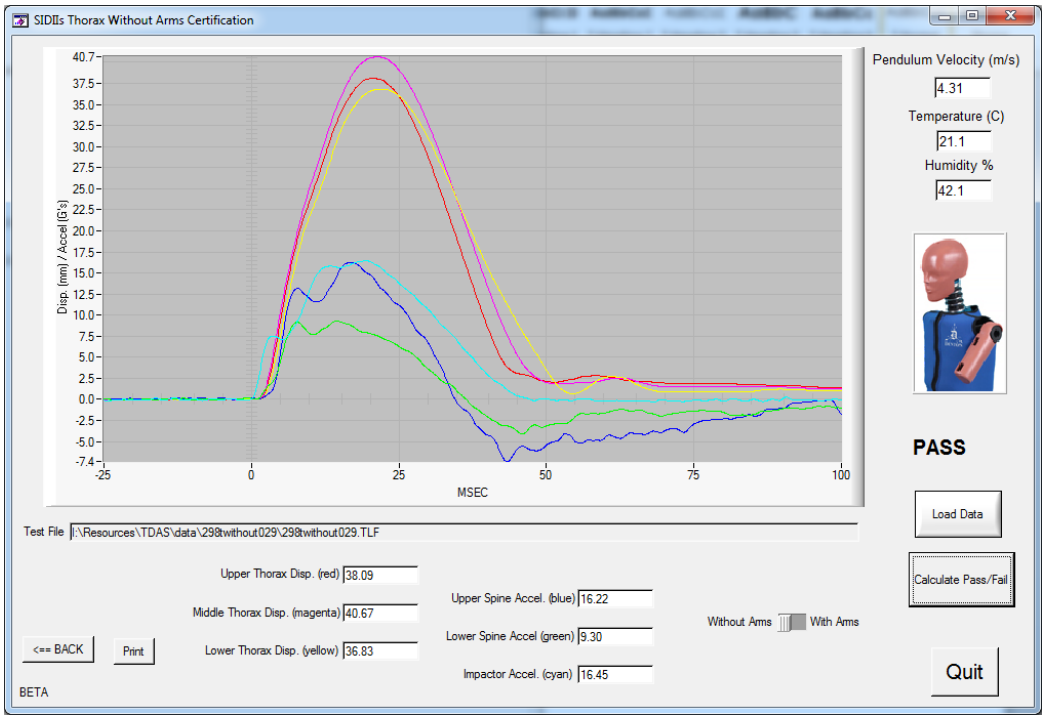


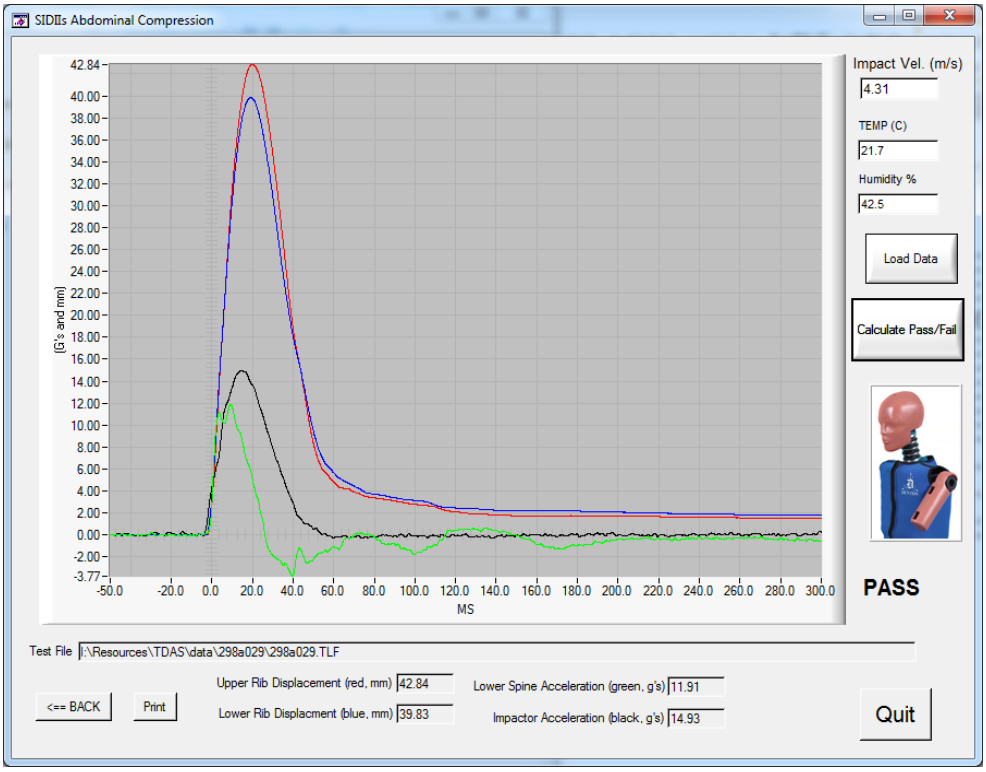
TABLE 7
ABDOMEN IMPACT TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-6-14		6-17-14	
Sequential Test Number		-	8		9	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 180**	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	21.7	Pass	21.0	Pass
	Min		21.2	Pass	20.6	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	42.8	Pass	48.1	Pass
	Min		42.5	Pass	43.0	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.7	Pass	21.0	Pass
Relative Humidity – During Test (%)		**10-70**	42.5	Pass	43.0	Pass
Impactor Velocity (m/s)		**4.2-4.4**	4.3	Pass	4.3	Pass
Peak Upper Abdominal Rib Deflection (mm)		**36-47**	42.8	Pass	42.4	Pass
Peak Lower Abdominal Rib Deflection (mm)		**33-44**	39.8	Pass	39.0	Pass
Peak Lower Spine (T12) Acceleration Y (G)		**9-14**	11.9	Pass	12.2	Pass
Peak Impactor Acceleration (G)		**12-16**	14.9	Pass	15.1	Pass

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

PRE-TEST



POST-TEST

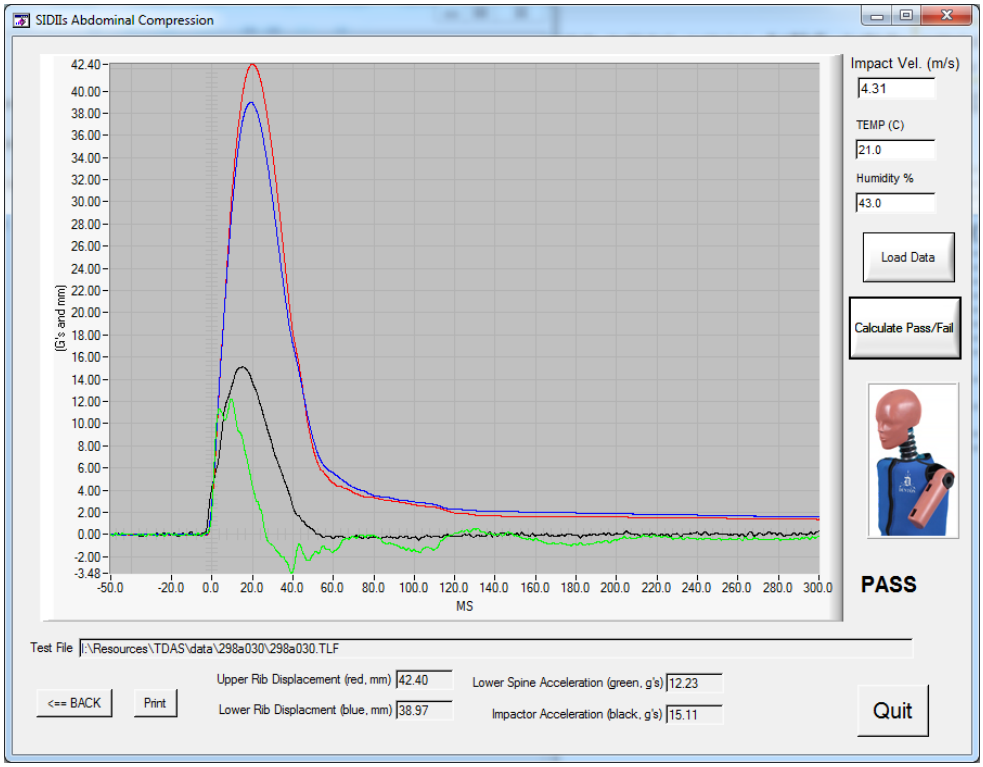
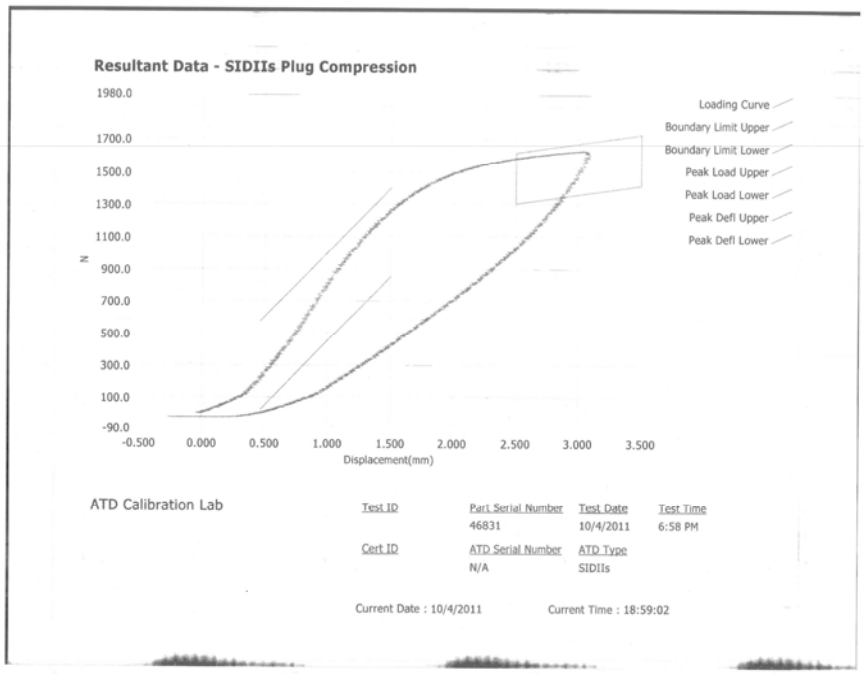


TABLE 8
PELVIS PLUG QUASI-STATIC TEST (SID-IIs)

PRE-Test



POST-TEST

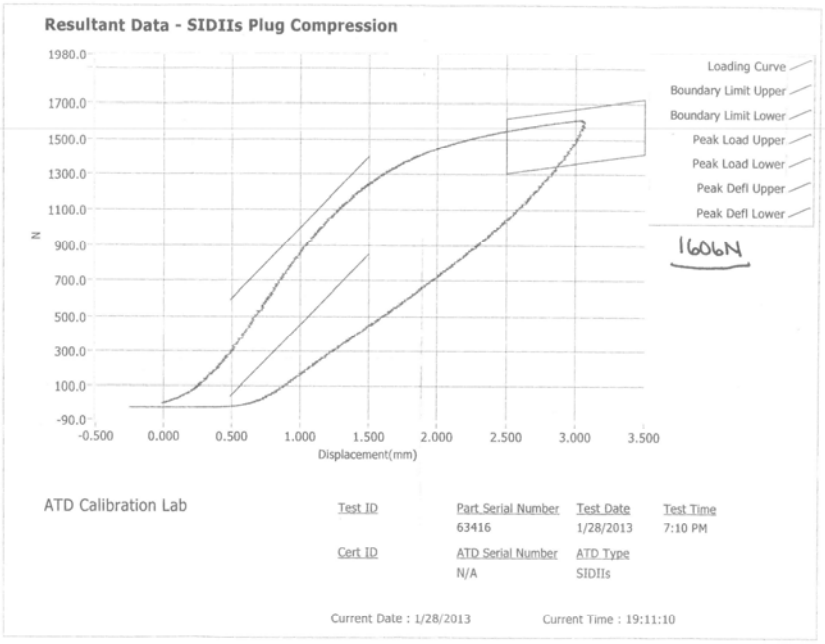


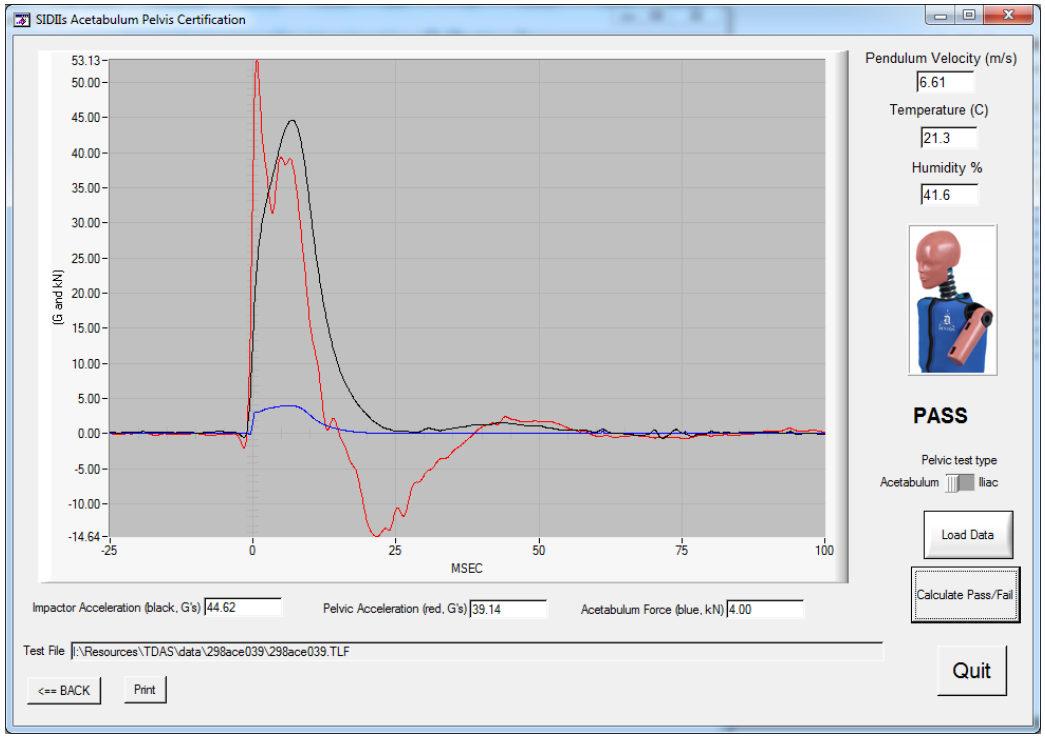
TABLE 9
PELVIS ACETABULUM IMPACT TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 8 & 9

TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-9-14		6-17-14	
Sequential Test Number		-	8		9	
			Result	**Pass/Fail**	**Results**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 180**	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	21.3	Pass	21.1	Pass
	Min		20.7	Pass	20.6	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	48.7	Pass	48.1	Pass
	Min		41.6	Pass	46.2	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.3	Pass	21.1	Pass
Humidity – During Test (%)		**10-70**	41.6	Pass	46.2	Pass
Impactor Velocity (m/s)		**6.6-6.8**	6.6	Pass	6.6	Pass
Peak Impactor Acceleration (G)		**38-47**	44.6	Pass	45.5	Pass
Pelvis Acceleration Y after 6ms (G)		**34-42**	39.1	Pass	42.0	Pass
Peak Acetabulum Force (kN)		**3.60-4.30**	4.0	Pass	4.3	Pass
Pelvis Plug Serial No. 46831 (Pre) No. 63416 (Post)						

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

PRE-TEST



POST-TEST

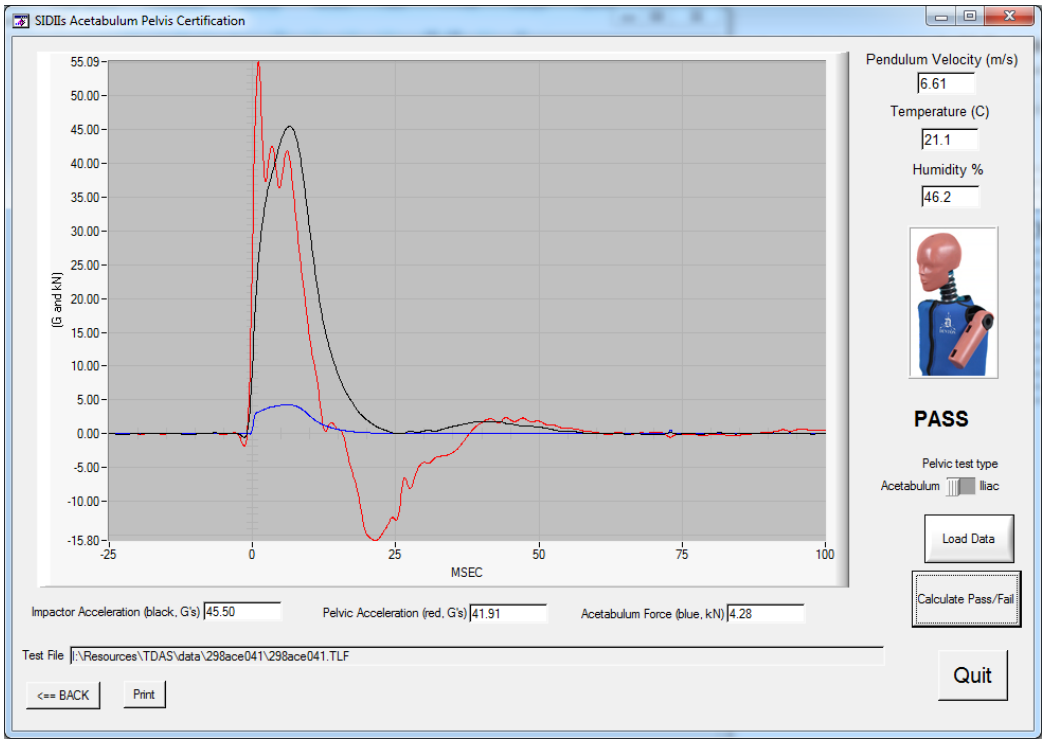


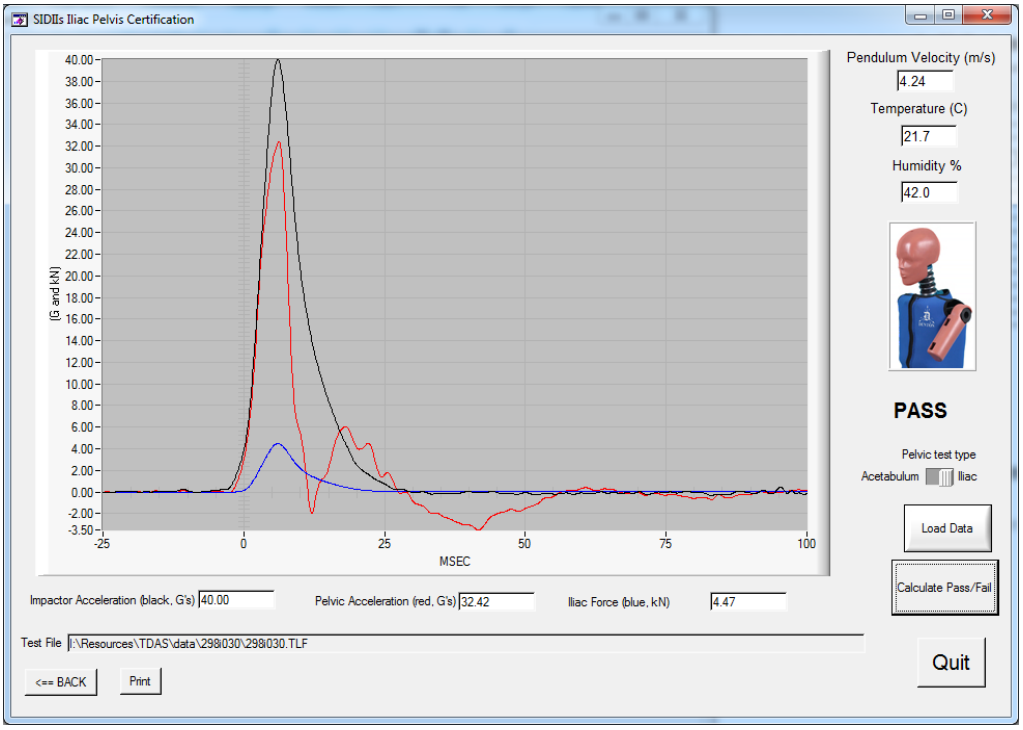
TABLE 10
PELVIS ILIAC IMPACT TEST (SID-IIs)

SIDIIs Serial Number 298 Test Sequences 8 & 9

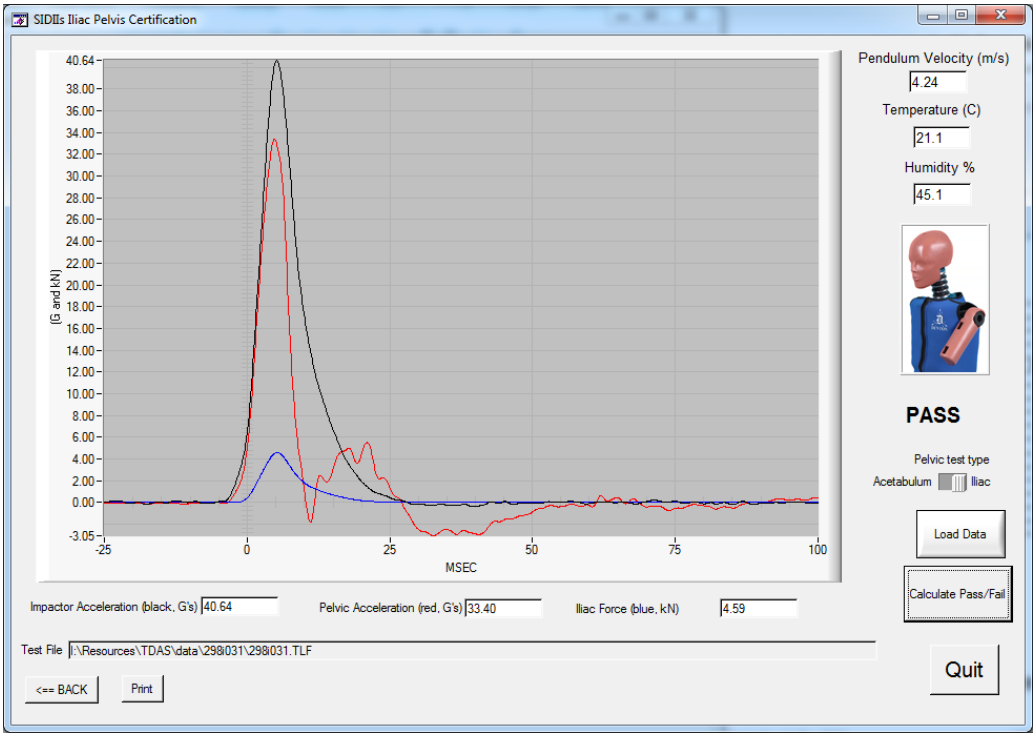
TEST PARAMETER		SPEC.	PRE		POST	
Date		-	6-6-14		6-17-14	
Sequential Test Number		-	8		9	
			Result	**Pass/Fail**	**Result**	**Pass/Fail**
Dummy Soak Time (min)		**≥ 180**	180	Pass	180	Pass
Temperature(°C) – During Soak	Max	**20.6-22.2**	21.7	Pass	21.1	Pass
	Min		21.2	Pass	20.6	Pass
Humidity(%) – During Soak	Max	**10.0-70.0**	42.0	Pass	48.1	Pass
	Min		40.3	Pass	45.1	Pass
Temperature – During Test (°C)		**20.6-22.2**	21.7	Pass	21.1	Pass
Humidity – During Test (%)		**10-70**	42.0	Pass	45.1	Pass
Pendulum Velocity (m/s)		**4.2-4.4**	4.2	Pass	4.2	Pass
Peak Impactor Acceleration (G)		**36-46**	40.0	Pass	40.6	Pass
Pelvis Acceleration Y (G)		**29-39**	32.4	Pass	33.4	Pass
Peak Iliac Force Y (N)		**4.00-5.20**	4.5	Pass	4.6	Pass
Pelvis Plug Serial No. 46831 (Pre) No. 63416 (Post)						

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	P24165	Endevco	23/May/2014
		Y	P25036	Endevco	23/May/2014
		Z	12091	Endevco	23/May/2014
		X_R	12120	Endevco	23/May/2014
		Y_R	12093	Endevco	05/Mar/2014
		Z_R	12133	Endevco	23/May/2014
Thoracic Rib Displacement Potentiometers	Upper	Y	224	Honeywell	20/May/2014
	Middle	Y	193	Honeywell	20/May/2014
	Lower	Y	191	Honeywell	20/May/2014
Abdomen Load Cells	Forward	Y	1502	Denton	20/May/2014
	Middle	Y	1511	Denton	20/May/2014
	Rear	Y	1537	Denton	20/May/2014
Lower Spine Accelerometers (T_{12})		X	P19287	Endevco	05/Nov/2013
		Y	P21575	Endevco	05/Nov/2013
		Z	P21732	Endevco	05/Nov/2013
Pubic Symphosis Load Cell		Y	460	Denton	20/May/2014

TABLE 2 - DUMMY INSTRUMENTATION – SID-IIS

				SID-IIs S/N: 298		
				Serial Number	**Manufacturer**	**Calibration Date**
Head Accelerometers			X	P59221	Endevco	05/Nov/2013
			Y	P22311	Endevco	05/Nov/2013
			Z	P23582	Endevco	05/Nov/2013
			X_R	12099	Endevco	23/May/2014
			Y_R	12103	Endevco	05/Nov/2013
			Z_R	12108	Endevco	05/Nov/2013
Displacement Potentiometers	Shoulder		Y	N/a	N/a	N/a
	Thoracic Rib	Upper	Y	1181	FTSS	05/June/2014
		Middle	Y	1203	FTSS	05/June/2014
		Lower	Y	1215	FTSS	05/June/2014
	Abdominal Rib	Upper	Y	717	FTSS	05/June/2014
		Lower	Y	486	FTSS	05/June/2014
Lower Spine Accelerometers (T_{12})			X	P21586	Endevco	05/Nov/2013
			Y	P21673	Endevco	05/Nov/2013
			Z	P24682	Endevco	05/Nov/2013
Acetabulum Load Cell			Y	114	FTSS	20/May/2014
Iliac Wing Load Cell			Y	283	Denton	20/May/2014
Pelvis Plug (Struck-Side)				46831	FTSS	N/a
Pelvis Plug (Non-Struck-Side)				46804	FTSS	N/a

TABLE 3 - VEHICLE INSTRUMENTATION					
			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	P25041	Endevco	05/Nov/2013
	Vehicle Center of Gravity	Y	P24138	Endevco	05/Nov/2013
	Vehicle Center of Gravity	Z	P21689	Endevco	05/Nov/2013
2	Right Sill at Front Seat	X	12110	Endevco	05/Nov/2013
	Right Sill at Front Seat	Y	A011343	MSI	05/Nov/2013
	Right Sill at Front Seat	Z	A011334	MSI	05/Nov/2013
3	Right Sill at Rear Seat	X	P22993	Endevco	05/Nov/2013
	Right Sill at Rear Seat	Y	P23020	Endevco	05/Nov/2013
	Right Sill at Rear Seat	Z	P22965	Endevco	05/Nov/2013
4	Left Sill at Front Door	Y	A134036	MSI	23/May/2014
5	Left Sill at Rear Door	Y	A134049	MSI	23/May/2014
6	Left A-Post Lower	Y	A119067	MSI	23/May/2014
7	Left A-Post Middle	Y	A119071	MSI	23/May/2014
8	Left B-Post Lower	Y	A119080	MSI	23/May/2014
9	Left B-Post Middle	Y	A134042	MSI	23/May/2014
10	Front Seat Track	Y	A134023	MSI	23/May/2014
11	Rear Seat Track or Structure	Y	J44021	Endevco	05/Nov/2013
12	Right Rear Occ. Compartment	Y	J43513	Endevco	05/Nov/2013
13	Engine Block	X	P21820	Endevco	05/Nov/2013
	Engine Block	Y	J43474	Endevco	05/Nov/2013
14	Rear Floorpan Above Axle	X	P21785	Endevco	05/Nov/2013
	Rear Floorpan Above Axle	Y	P21608	Endevco	05/Nov/2013
	Rear Floorpan Above Axle	Z	P21605	Endevco	22/May/2014

TABLE 4 - MDB INSTRUMENTATION				
		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	12115	Endevco	23/May/2014
MDB Center of Gravity	Y	12149	Endevco	23/May/2014
MDB Center of Gravity	Z	P21898	Endevco	23/May/2014
Left Frame at Rear Axle Centerline	X	P22339	Endevco	23/May/2014
Left Frame at Rear Axle Centerline	Y	P22539	Endevco	23/May/2014