REPORT NUMBER: SINCAP-MGA-2015-030

NEW CAR ASSESSMENT PROGRAM (NCAP)
Moving Deformable Barrier Side Impact Test

AUDI AG
2015 Audi A3 4-Dr Sedan
NHTSA No.: O20155802

MGA RESEARCH CORPORATION
5000 Warren Road
Burlington, WI 53105

Test Date: November 12, 2014

Final Report Date: January 7, 2015

FINAL REPORT

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

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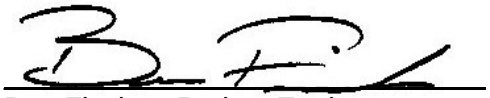
Approved by: 
Ben Fischer, Project Engineer

Approval Date: January 7, 2015

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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15. Supplementary Notes

16. Abstract

A 55/28 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the 2015 Audi A3 4-Dr Sedan in accordance with the specifications of the Office of Crashworthiness Standards NCAP Side Laboratory Test Procedure for the generation of consumer information on vehicle side crash protection. The test was conducted at MGA Research Corporation in Burlington, Wisconsin on November 12, 2014.

The impact velocity of the Moving Deformable Barrier (MDB) was 62.1 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.0° C. The target vehicle post-test maximum crush was 224 mm at level 3. The test vehicle's performance was as follows:

	Driver ATD (ES-2re)		
Measurement Description	**Units**	**Threshold**	**Result**
Head Injury Criteria (HIC_{36})	N/A	1000	172
Maximum Thorax Rib Deflection	mm	44	27
Total Abdominal Force	N	2500	974
Pubic Symphysis Force	N	6000	1372

	Passenger ATD (SID-IIs)		
Measurement Description	**Units**	**Threshold**	**Result**
Head Injury Criteria (HIC_{36})	N/A	1000	277
Resultant Lower Spine Acceleration	Gs	82	56
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3458
Maximum Thoracic Rib Deflection	mm	38*	37
Maximum Abdomen Rib Deflection	mm	45*	25

*Proposed IARV Passenger Head Y Redundant channel was used.

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.

17. Key Words New Car Assessment Program (NCAP) Side Impact MDB ES-2re SID-IIs		*18. Distribution Statement* Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division, NPO-411 1200 New Jersey Ave, SE Washington, DC 20590 e-mail: tis@nhtsa.dot.gov FAX: 202-493-2833	
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SECTION 1
TEST PURPOSE AND PROCEDURE

This moving deformable barrier side impact test is part of the MY 2015 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00124. The purpose of this test is to generate comparative side impact performance in a 2015 Audi A3 4-Dr Sedan. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Laboratory Test Procedure dated September 2013.

SECTION 2
SUMMARY OF TEST RESULTS

A 2015 Audi A3 4-Dr Sedan was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 62.1 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 MGA Research Corporation in Burlington, Wisconsin on November 12, 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 NCAP Side Laboratory Test Procedure dated September 2013. The side impact event was documented by eleven (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 Triaxial Accelerometers
Chest Upper Rib, Middle Rib, and Lower Rib Y-Axis Displacement Potentiometers
Abdomen Forward, Middle, and Rear Y-Axis Load Cells
Lower Spine (T12) Triaxial Accelerometers
Pubic Symphysis Y-Axis Load Cell

PASSENGER ATD (SID-IIs)
Primary and Redundant Head CG Triaxial Accelerometers
Chest Upper Rib, Middle Rib, and Lower Rib Y-Axis Displacement Potentiometers
Abdomen Upper Rib and Lower Rib Y-Axis Displacement Potentiometers
Lower Spine (T12) Triaxial Accelerometers
Acetabulum and Iliac Wing Y-Axis Load Cells

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

Dummy Injury readings were recorded as follows:

DUMMY INJURY VALUES

	Driver ATD (ES-2re)		
Measurement Description	**Units**	**Threshold**	**Result**
Head Injury Criteria (HIC_{36})	N/A	1000	172
Maximum Thorax Rib Deflection	mm	44	27
Total Abdominal Force	N	2500	974
Pubic Symphysis Force	N	6000	1372

	Passenger ATD (SID-IIs)		
Measurement Description	**Units**	**Threshold**	**Result**
Head Injury Criteria (HIC_{36})	N/A	1000	277
Resultant Lower Spine Acceleration	Gs	82	56
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	3458
Maximum Thoracic Rib Deflection	mm	38*	37
Maximum Abdomen Rib Deflection	mm	45*	25

*Proposed IARV Passenger Head Y Redundant channel was used.

Supplemental restraint information is given below:

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

The test data can be found on the NHTSA website at www.nhtsa.dot.gov

GENERAL COMMENTS

Left Lower B-Post Y has no valid data after 2 ms.
Left Mid B-Post Y has no valid data after 1 ms.
Floorpan @ Rear Axle X has no valid data after 50 ms.
Floorpan @ Rear Axle Y has no valid data after 50 ms.
Floorpan @ Rear Axle Z has no valid data after 50 ms.

SECTION 3
OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	O20155802
Model Year	2015
Make	Audi
Model	A3
Body Style	Sedan
VIN	WAUACGFF5F1019336
Body Color	Ice Silver Metallic
Odometer Reading (km/mi)	127 / 179
Engine Displacement (L)	1.8
Type/No. Cylinders	4
Engine Placement	Lateral
Transmission Type	Automatic
Transmission Speeds	6
Overdrive	Yes
Final Drive	Front
Roof Rack	No
Sunroof/T-Top	Yes
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Driver Only
Anti-Lock Brakes (ABS)	Yes

Traction Control System (TCS)	Yes
Auto-Leveling System	No
Automatic Door Locks (ADL)	Yes
Power Window Auto-Reverse	Yes
Other Optional Feature	N/A
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	Yes
Rear Pass. Curtain Airbag	Yes
Rear Pass. Head/Torso Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Rear Pass. Load Limiter	No
Other Restraint Feature	N/A

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Audi AG
Date of Manufacture	05 14
Vehicle Type	Passenger Car

GVWR (kg)	1990
GAWR Front (kg)	1040
GAWR Rear (kg)	1000

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	
Capacity Weight (VCW) (kg)				500	(A)
DSC x 68.04 kg				340	(B)
Rated Cargo and Luggage Weight (RCLW)				160	(A-B)

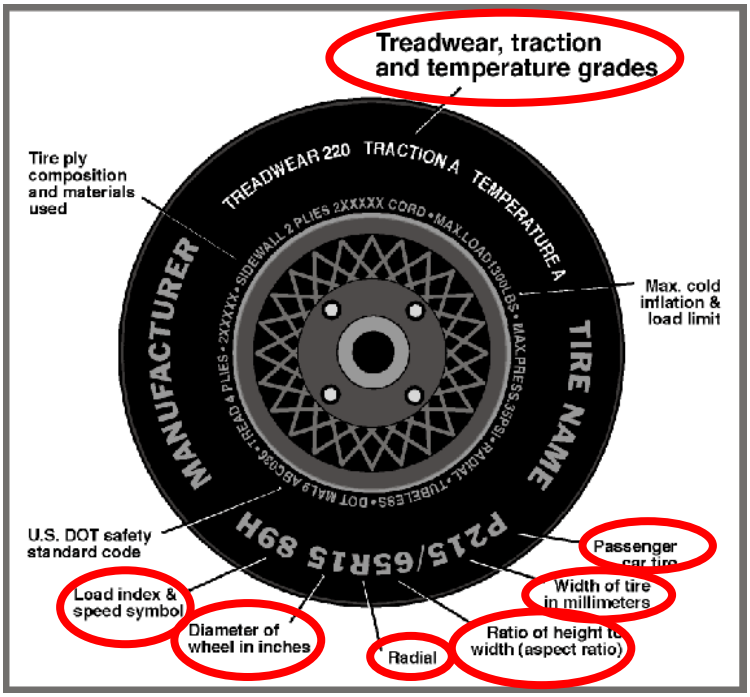
VEHICLE SEAT TYPE

Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						Manual	Power
Front Seat	X						X
Rear or Second Row		X			X		
Third Row Seat							

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

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	270	270
Recommended Tire Size	225/45R17	225/45R17
Tire Size on Vehicle	225/45R17	225/45R17
Tire Manufacturer	Perelli	Perelli
Tire Model	Cintarato	Cintarato
Treadwear	500	500
Traction	A	A
Temperature Grade	A	A
Tire Plies Sidewall	2 Rayon	2 Rayon
Tire Plies Body	2 Rayon, 2 Steel, 1 Polyamide	2 Rayon, 2 Steel, 1 Polyamide
Load Index/Speed Symbol	91H	91H
Tire Material	Rubber	Rubber
DOT Safety Code Left	93CJ U120 0814	93CJ U120 0814
DOT Safety Code Right	93CJ U120 0814	93CJ U120 0814

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

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	197	197	200	197
Tire Placard	kPa	270	270	270	270
Owner's Manual	kPa				
As Tested	kPa	270	270	270	270

MDB TIRE SPECIFICATIONS

	Requirement	Units	LF	RF	LR	RR
Tire Size	P205/75R15	N/A	P205/75R15	P205/75R15	P205/75R15	P205/75R15
Tire Pressure	200 ± 21	kPa	200	200	200	200

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	414.5	305.0		471.0	401.5		443.5	454.0	
Right	kg	434.0	272.5		453.5	382.0		433.0	385.0	
Ratio	%	59.5	40.5		54.1	45.9		51.1	48.9	
Totals	kg	848.5	577.5	1426.0	924.5	783.5	1708.0	876.5	839.0	1715.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1426.0	(A)
Sum of Actual Weight of 2 P572 ATDs Used	kg	129.3	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	160	(C)
Calculated Test Vehicle Target Weight (TVTW)	kg	1715.3	(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**

TEST VEHICLE ATTITUDES AND CG

	Units	Fully Loaded	As Tested	Meets Requirement***
Left Front	mm	676	667	Yes
Right Front	mm	682	672	Yes
Right Rear	mm	635	640	Yes
Left Rear	mm	623	633	Yes
Vehicle CG (Aft of Front Axle)	mm	1287	1207	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	35	17	

*** 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.

Test height adjustable suspension setting, if applicable:	Not Applicable

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

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Weight of Ballast, if any	133.8
Cargo area carpet, rear floor mats, jack & tools, spare tire/cover, cargo area subwoofer, rear sill trim plastic.	28.1

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

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014

SEAT POSITIONING

The driver's seat, front center seat (if applicable), and right front passenger's seat should be set to the mid-track, lowest, mid-angle position. The struck-side rear passenger's seat, rear center seat, and non-struck side rear passenger's seats should be set to the rear-most, lowest, mid-angle position.

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	24.2	13.8	19.0
Front Passenger Seat	23.1	13.1	18.1
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As Tested SCRL Angle (Mid) (°)	As Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rear-most	Mid-Fore/Aft	Forward-Most
Driver Seat	19.0	0	Max	80	80	80
			Mid	40	40	40
			Min	0	0	0
Front Passenger Seat	18.1	0	Max	76	76	76
			Mid	38	38	38
			Min	0	0	0
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed

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

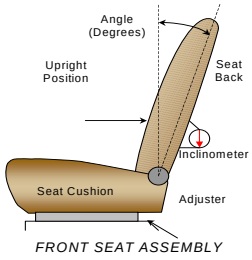
Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014

SEAT FORE/AFT POSITIONS

Seat	Total Fore/Aft Travel		Test Position from Forward-most Position	
	mm	Detents	mm	Detent
Driver Seat	250		125	
Front Passenger Seat	220	33 (1st as 1)	110	16th (1st as 0)
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned to the manufacturer's designated design angle. The front passenger's seat back is positioned in a similar manner as the driver's seat back. The struck side rear seat back is adjusted following Appendix C, "Positioning Dummies in the Test Vehicle" in the NCAP Laboratory Test Procedure dated September 2013. The rear center and non-struck side rear outboard seat backs are positioned to match the struck side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Vertical	
	Degrees	Detents	Degrees	Detent
Driver Seat w/Seated Dummy	73.4		17.1	
Front Passenger Seat	67.3		17.1	
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

Seat back angles measured on seatback.

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

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014

SEAT BELT ANCHORAGE ADJUSTMENT

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

	Total # of Positions	Placed in Position #
Driver Seat	4 detents (1st as 1)	1st (uppermost as 0)
Rear Seat	Fixed	Not Applicable

HEAD RESTRAINT ADJUSTMENT

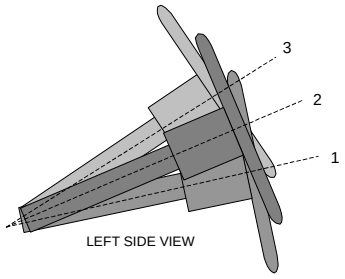
The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	4	Highest / Full-Forward
Rear Seat	2	Lowest

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.

	Degrees	Fore/Aft Position (mm)
Lowermost, Position 1	70.4	210
Geometric Center, Position 2	67.8	182
Uppermost, Position 3	65.2	154
Telescoping Steering Wheel Travel		56
Test Position	67.8	182

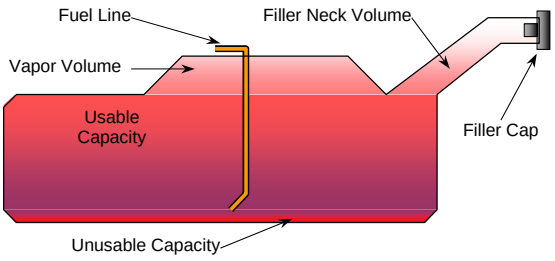


STEERING COLUMN ASSEMBLY

FUEL PUMP

Describe the fuel pump type, details about how it operates and the location of the fuel filler pipe.

The vehicle is equipped with an electric fuel pump. At ignition "ON", the pump will work for a short time to put pressure into the system. If the engine is started, the pump works normally. The fuel pipe is on the right side.



VEHICLE FUEL TANK ASSEMBLY

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

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014

FUEL TANK CAPACITY DATA

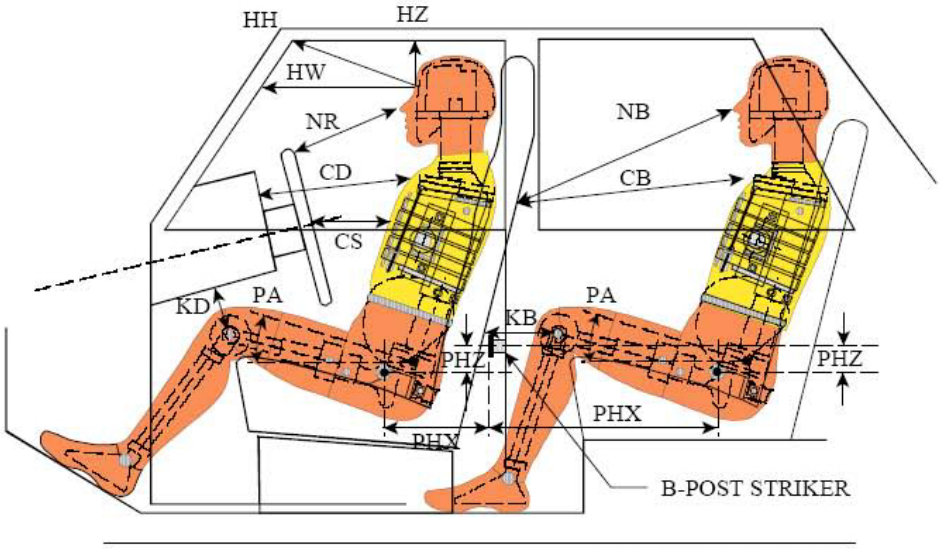
	Liters
Usable Capacity of "Standard" Tank (see Form No. 1)	50.0
Usable Capacity of "Optional" Tank (see Form No. 1)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	50.0
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	46.5
Actual Amount of Solvent Used	46.6
1/3 of Usable Capacity	16.7

Is the actual amount of solvent used in the test equal to 93% ± 1%
of the Usable Capacity stated in Form No. 1? **YES**

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Audi A3 4-Dr Sedan
Test Program: NCAP Side MDB Impact Test

NHTSA No. O20155802
Test Date: 11/12/2014



LEFT SIDE VIEW

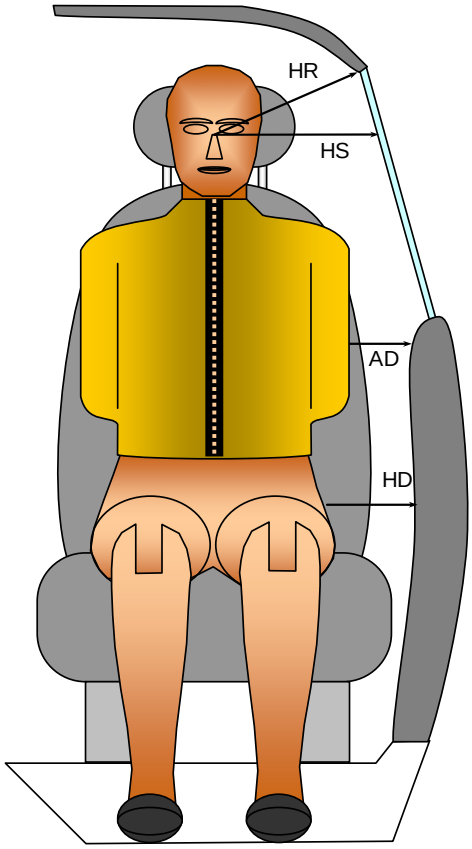
NOTE: 2-DOOR VEHICLE SHOWN. REAR DUMMY PHX & PHZ MEASUREMENTS FOR A 4-DOOR VEHICLE WOULD USE THE C-POST STRIKER AS A REFERENCE POINT

DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length (mm)	Angle(°)	Length (mm)	Angle(°)
HH		Head to Header	347	19.9		
HW		Head to Windshield	625			
HZ	HZ	Head to Roof Liner	150		232	
NR	NB	Nose to Rim/Seat Back	399	12.5	499	13.5
CD	CB	Chest to Dashboard/Seat Back	556	17.7	503	2.9
CS		Chest to Steering Wheel	341	0.3		
KDL	KBL	Left Knee to Dash/Seat Back	233	28.6	221	20.9
KDR	KBR	Right Knee to Dash/Seat Back	232	29.4	228	18.4
PAX	PAX	Pelvic Tilt Angle X		16.2		26.8
	PAY	Pelvic Tilt Angle Y		-0.4		-0.3
PHX	PHX	Hip Point to Striker (X-Axis)	125		191	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	210		281	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014



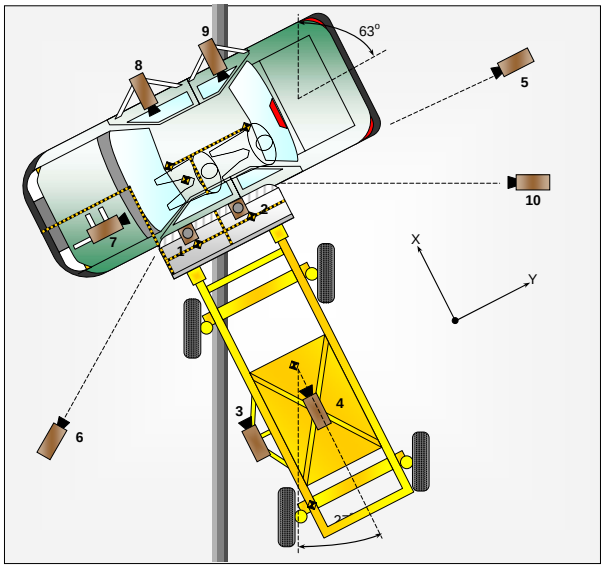
FRONT VIEW OF DUMMY

DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	196	208
HS	Head to Side Window	mm	338	349
AD	Arm to Door	mm	114	146
HD	Hip Point to Door	mm	161	143

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014



CAMERA LOCATIONS AND DATA

No.	Camera View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X*	Y*	Z*		
1	Overhead Overall	-110	190	-5050	14	1000
2	Overhead Close-Up	40	20	-5050	20	1000
3	Left Impact Point (MDB)				50	1000
4	Side Overall (MDB)				16	1000
5	Rear	30	5060	-1160	24	1000
6	Left Front	3460	-4150	-1190	24	1000
7	Driver Front (OB)				16	1000
8	Driver Side (OB)				8	1000
9	Passenger Side (OB)				8	1000
10	Real Time Left Rear					30
11	Real Time Inrun					30

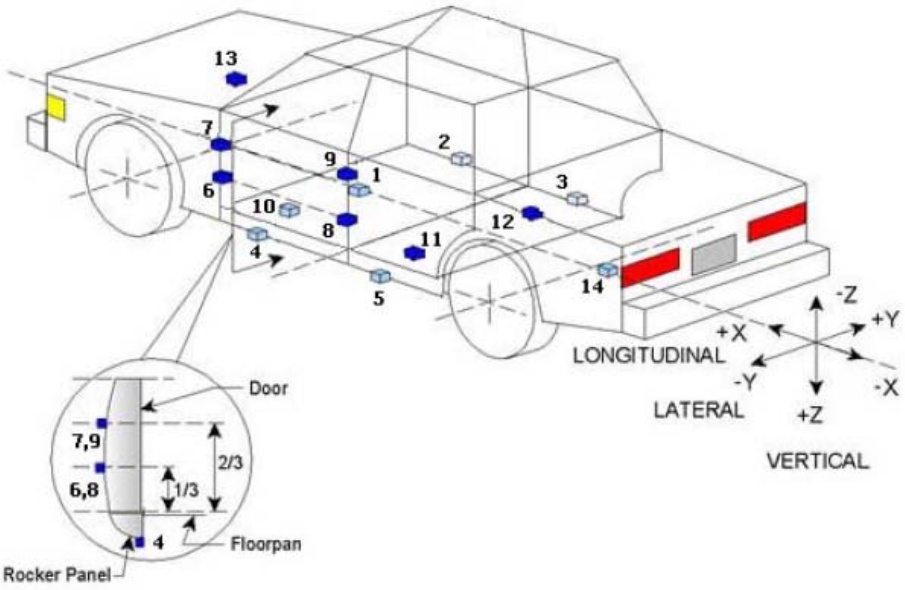
Reference: Impact Point projected to Ground; +X = To Front of MDB, + Y = To Right of MDB, +Z = Down
* All measurements accurate to ± 6 mm
Explain why camera(s) did not operate as intended: None

INSTRUMENTATION

	Number of Channels
Driver Dummy	16
Passenger Dummy	16
Vehicle Structure	23
MDB Accelerometers	5
MDB Contacts	2
Total	62

DATA SHEET NO. 6
TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014



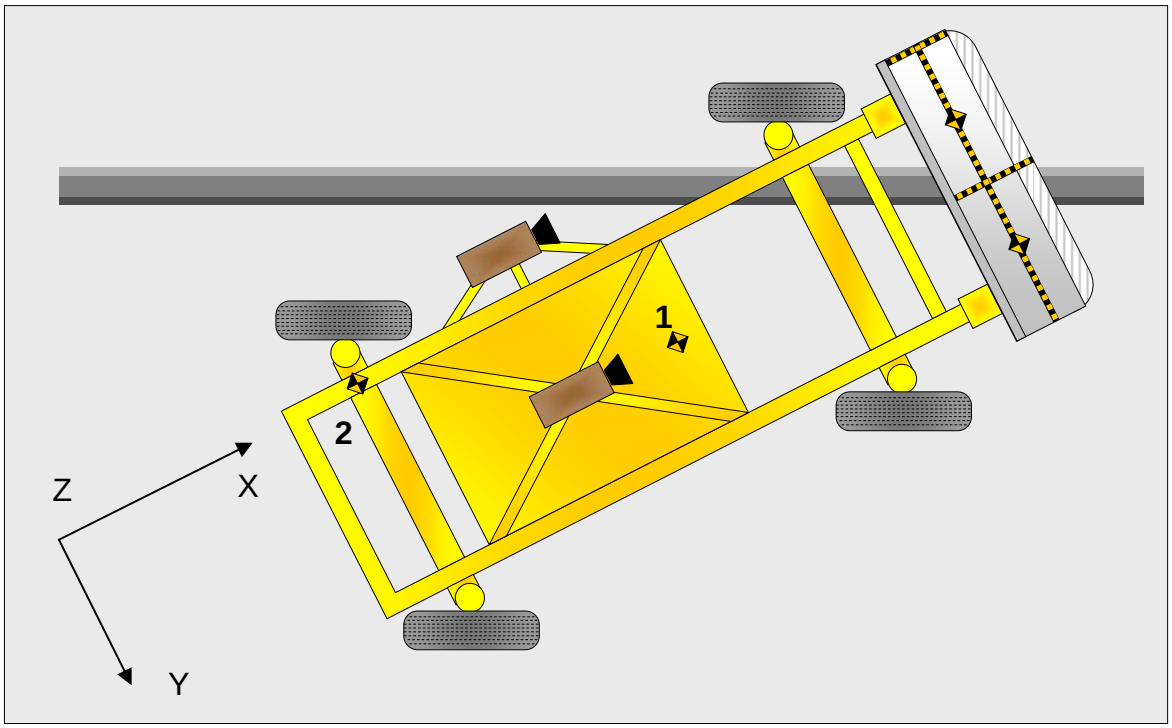
TEST VEHICLE ACCELEROMETER LOCATIONS

Accelerometer Location				
No.	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2425	216	-155
2	Right Sill at Front Seat	2192	750	-195
3	Right Sill at Rear Seat	1383	750	-195
4	Left Sill at Front Door	2582	-750	-195
5	Left Sill at Rear Door	1741	-750	-195
6	Left Lower A-Post	3011	-794	-506
7	Left Middle A-Post	3035	-786	-701
8	Left Lower B-Post	2080	-724	-653
9	Left Middle B-Post	1942	-710	-813
10	Front Seat Track	2045	352	-189
11	Rear Seat Structure	1769	344	-301
12	Rt. Rear Occ. Compartment	1844	391	-212
13	Engine Block	3719	180	-749
14	Rear Above Axle	875	0	-339

Reference: X – Rear Surface of Vehicle (+ forward)
Y - Vehicle Centerline (+ to right)
Z - Ground Plane (+ down)

DATA SHEET NO. 7
MDB ACCELEROMETER LOCATIONS

Test Vehicle: 2015 Audi A3 4-Dr Sedan
Test Program: NCAP Side MDB Impact Test
NHTSA No. O20155802
Test Date: 11/12/2014



MDB ACCELEROMETER LOCATIONS

Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	MDB CG	-1105	0	-330
2	MDB Rear	-2580	-650	-625

Reference: X - MDB Face (+ forward)
Y - MDB Centerline (+ to right)
Z - Ground Plane (+ down)

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	Curtain Airbag	Curtain Airbag
Top of Head	Curtain Airbag, Headliner	Curtain Airbag, Headliner
Left Side of Head	Curtain Airbag, Headliner	Curtain Airbag
Back of Head	Curtain Airbag, Headliner, Headrest	Center Seatback, Headliner
Left Shoulder	Door Panel	Door Panel, Seatback
Upper Torso	Side Airbag, Seatback	Seatback
Lower Torso	Side Airbag, Seatback	Seatback, Door Panel
Left Hip	Side Airbag, Seatpan	Door Panel, Seatpan
Left Knee	Door Panel	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 or Latches	No	No	No	No	No
Latch or 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

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

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No Separation
Sill Separation	None
Windshield Damage	Cracked
Side Window Damage	Left Front and Left Rear Windows Broken
Other Notable Effects	None

DATA SHEET NO. 8 (CONTINUED)
POST-TEST OBSERVATIONS

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		2632
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		376
Actual Impact Point (Aft of Front Axle)	mm		389
Horizontal Offset (+forward / -rearward)	mm	+/- 50 of intended impact point	-13
Vertical Offset (+down / -up)	mm	+/- 20 of intended impact point	-6

DATA SHEET NO. 9
MDB SUMMARY OF RESULTS

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1251
Overall Length Including Honeycomb Face	4115
Wheelbase of Framework Carriage	2595
CG Location aft of Front Axle	1134

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	390.0	300.1	
Right	kg	376.8	294.7	
Ratio	%	56.3	43.7	
Totals	kg	766.8	594.8	1361.6

SPEED AND ANGLE AT IMPACT DATA

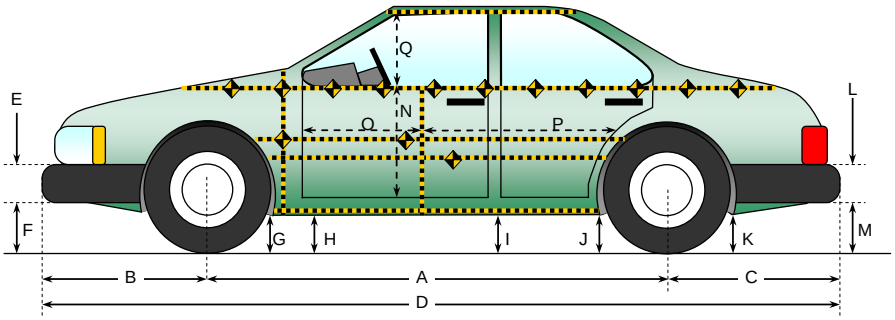
Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.1
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.1
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.7
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	63.2
MDB Crabbed Angle to MDB 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	800	Left	204
B	Top of Bumper	533	800	Left	120
C	Mid-Level	686	800	Left	167
D	Top of Stack	813	800	Left	194

DATA SHEET NO. 10
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014



All measurements in (mm) with tolerance of ± 3 mm

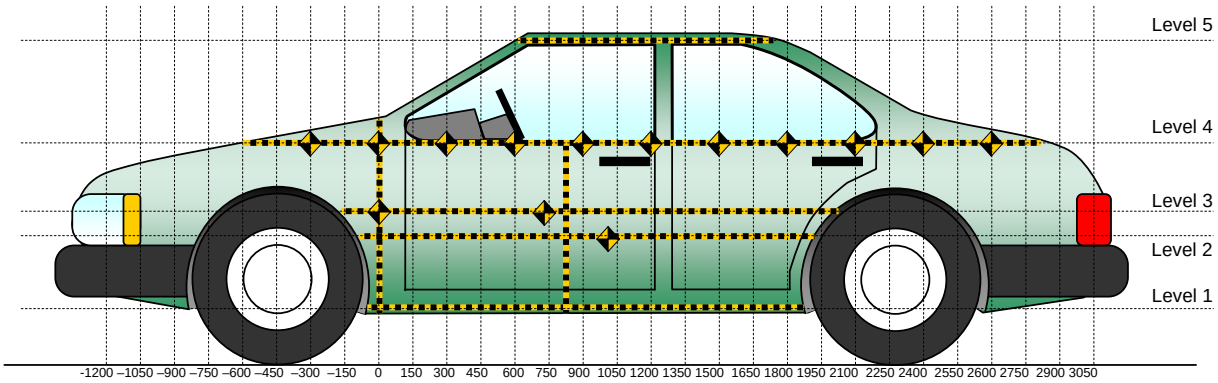
LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2632	2628	4
B	Front Axle to FSOV	870	870	0
C	Rear Axle to RSOV	962	966	-4
D	Total Length at Centerline	4464	4464	0
E	Front Bumper Thickness	112	112	0
F	Front Bumper Bottom to Ground	210	214	-4
G	Sill Height at Front Wheel Well	170	182	-12
H	Sill Height at Front Door Leading Edge	165	174	-9
I	Sill Height at B Pillar	173	203	-30
J1	Sill Height at Rear Wheel Well	158	185	-27
J2	Pinch Weld Height at Rear Wheel Well	170	190	-20
K	Sill Height Aft of Rear Wheel Well	190	201	-11
L	Rear Bumper Thickness	97	97	0
M	Rear Bumper Bottom to Ground	216	212	4
N	Sill Height to Window Bottom Sill	715	601	114
O	Front Door Leading Edge to Impact CL	754	698	56
P	Rear Door Trailing Edge to Impact CL	1137	1076	61
Q	Front Window Opening	398	368	30
R	Right Side Length	3586	3587	-1
S	Left Side Length	3586	3576	10
T	Vehicle Width at B Post	1782	1729	53

DATA SHEET NO. 11
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014



All Measurements Shown in mm

LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEAUREMENTS

Level	Measurement Description	Height Above Ground (mm)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	216	45	1350
2	Occupant Hip Point	451	202	900
3	Mid Door	600	224	750
4	Window Sill	908	155	1500
5	Window Top	1320	10	1500

Note: The measurements are taken along the vertical impact reference line.
Vehicle measurements forward of the vertical impact reference line are negative.

DATA SHEET NO. 11 (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014

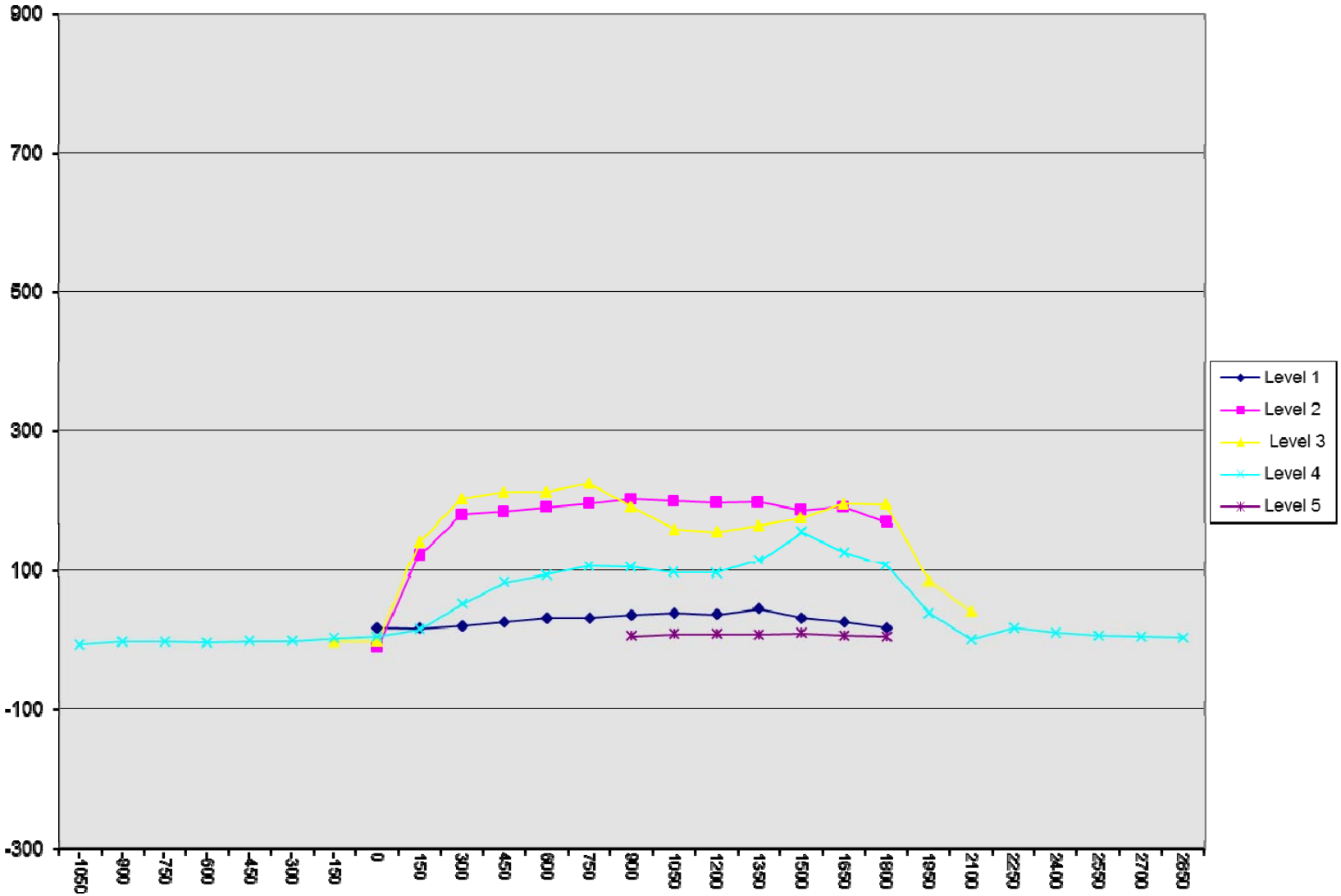
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1050				561					555					-6	
-900				506					504					-2	
-750				465					363					-2	
-600				426					423					-3	
-450				393					392					-1	
-300				363					362					-1	
-150			207	335				205	338				-2	3	
0	242	210	223	316		260	201	222	321		18	-9	-1	5	
150	240	230	223	301		257	353	364	317		17	123	141	16	
300	238	227	220	294		259	407	422	346		21	180	202	52	
450	236	225	217	286		262	409	429	369		26	184	212	83	
600	234	224	215	284		266	414	427	377		32	190	212	93	
750	233	224	214	277		265	420	438	383		32	196	224	106	
900	233	225	214	276	514	269	427	405	380	520	36	202	191	104	6
1050	233	226	216	274	512	271	425	375	371	521	39	199	159	97	9
1200	235	226	218	273	512	272	423	373	369	522	37	197	155	96	9
1350	236	225	220	273	519	281	423	384	388	527	45	198	164	115	8
1500	238	225	223	275	525	270	411	398	430	535	32	186	175	155	10
1650	239	228	228	280	538	265	417	423	407	545	26	191	195	127	7
1800	242	231	233	284	553	260	400	427	391	558	18	169	194	107	5
1950			219	291				304	330				85	39	
2100			213	297				254	298				41	1	
2250				307					325					18	
2400				322					333					11	
2550				336					343					7	
2700				354					359					5	
2850				378					382					4	

NOTE: Pre-test measurements are taken when the vehicle is in the “As Tested” weight condition. Vehicle measurements forward of the vertical impact reference line are negative. The crush profile grid is established prior to the test based on an estimated impact point.

DATA SHEET NO. 11 (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

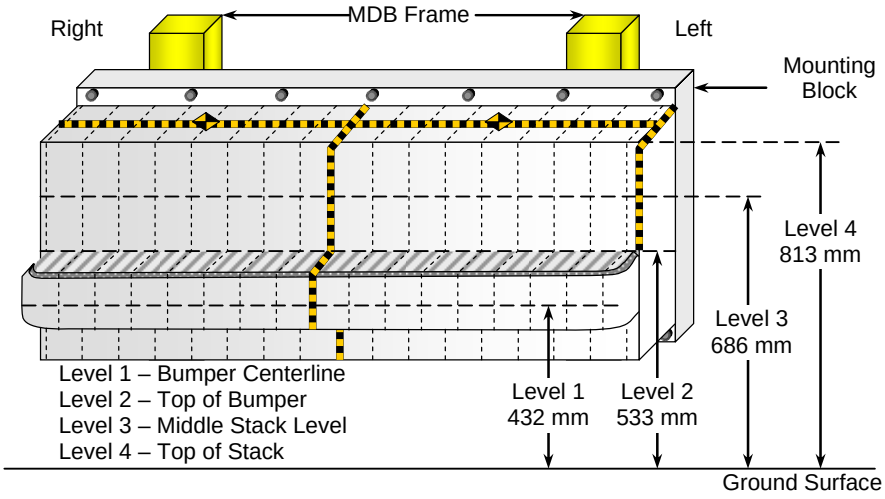
Test Vehicle: 2015 Audi A3 4-Dr Sedan
Test Program: NCAP Side MDB Impact Test

NHTSA No. O20155802
Test Date: 11/12/2014



DATA SHEET NO. 12
MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014



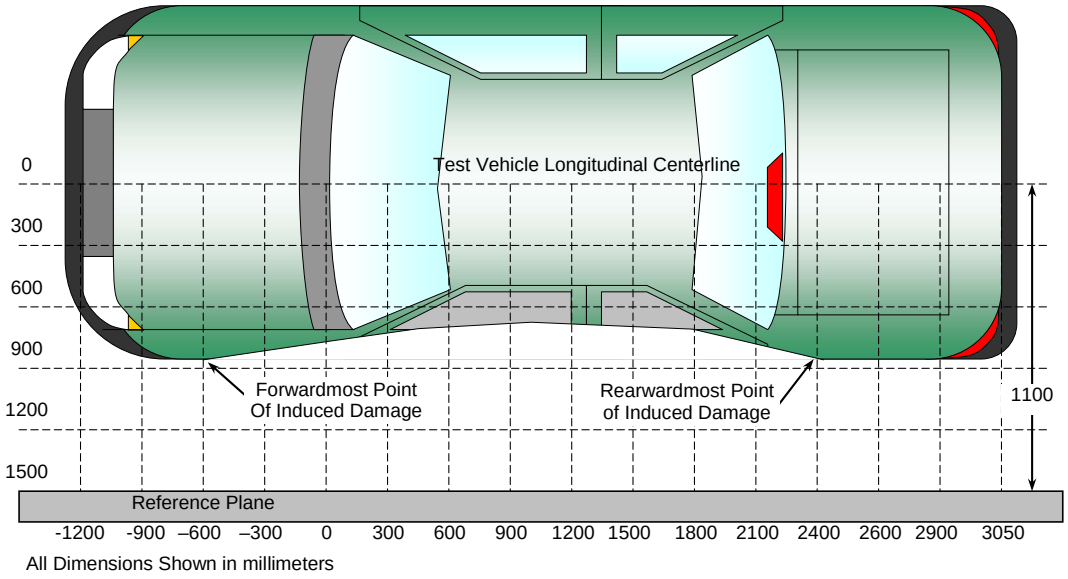
FRONT VIEW

DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center (mm)								C_L	Distance Left of Center (mm)							
	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
4	33	12	7	18	45	75	114	83	71	71	69	66	80	93	118	150	194
3	29	20	18	26	41	66	91	101	76	53	32	27	30	41	62	94	167
2	95	95	99	100	92	97	110	98	88	84	93	99	100	100	105	112	120
1	178	172	171	173	171	175	174	175	169	169	168	167	168	170	175	184	204

DATA SHEET NO. 13
VEHICLE AND MDB DAMAGE PROFILE DISTANCES

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014



TOP VIEW

VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Max. Static Crush (mm)
1	1975	3	218	379	161
2	1595	3	225	412	187
3	1215	3	218	370	152
4	835	3	214	411	197
5	455	3	217	428	211
6	75	3	223	231	8

MDB DAMAGE PROFILE DISTANCES

DPD	Distance from Center of MDB	Level	Post-Test (mm)
1	800 mm right of center	1	178
2	480 mm right of center	1	172
3	160 mm right of center	1	174
4	160 mm left of center	1	168
5	480 mm left of center	1	169
6	800 mm left of center	1	204

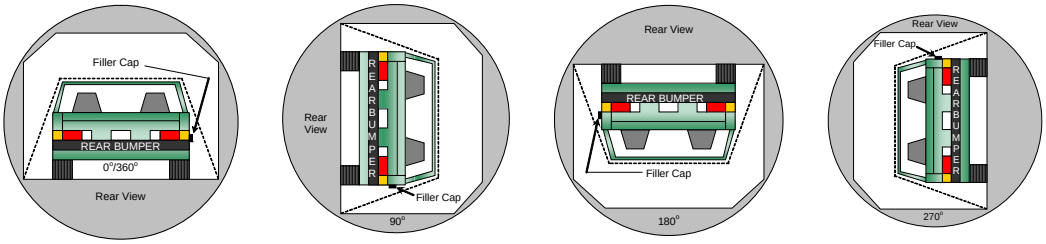
DATA SHEET NO. 14
FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2015 Audi A3 4-Dr Sedan NHTSA No. O20155802
Test Program: NCAP Side MDB Impact Test Test Date: 11/12/2014

Test Time: 2:11 pm Temperature: 21.0° C

A. From impact until vehicle motion ceases: 0 oz.
(Maximum Allowable = 1 ounce)
B. For the 5 minute period after motion ceases: None
(Maximum allowable = 5 ounces)
C. For the following 25 minutes: None
(Maximum allowable = 1 oz./minute)
D. Spillage Details: None

FMVSS 301 STATIC ROLLOVER DATA



0°/360° 90° 180° 270°

ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	111	300	411
90° to 180°	111	300	411
180° to 270°	108	300	408
270° to 360°	113	300	413

FMVSS 301 ROLLOVER SPILLAGE TABLE (units in ounces)

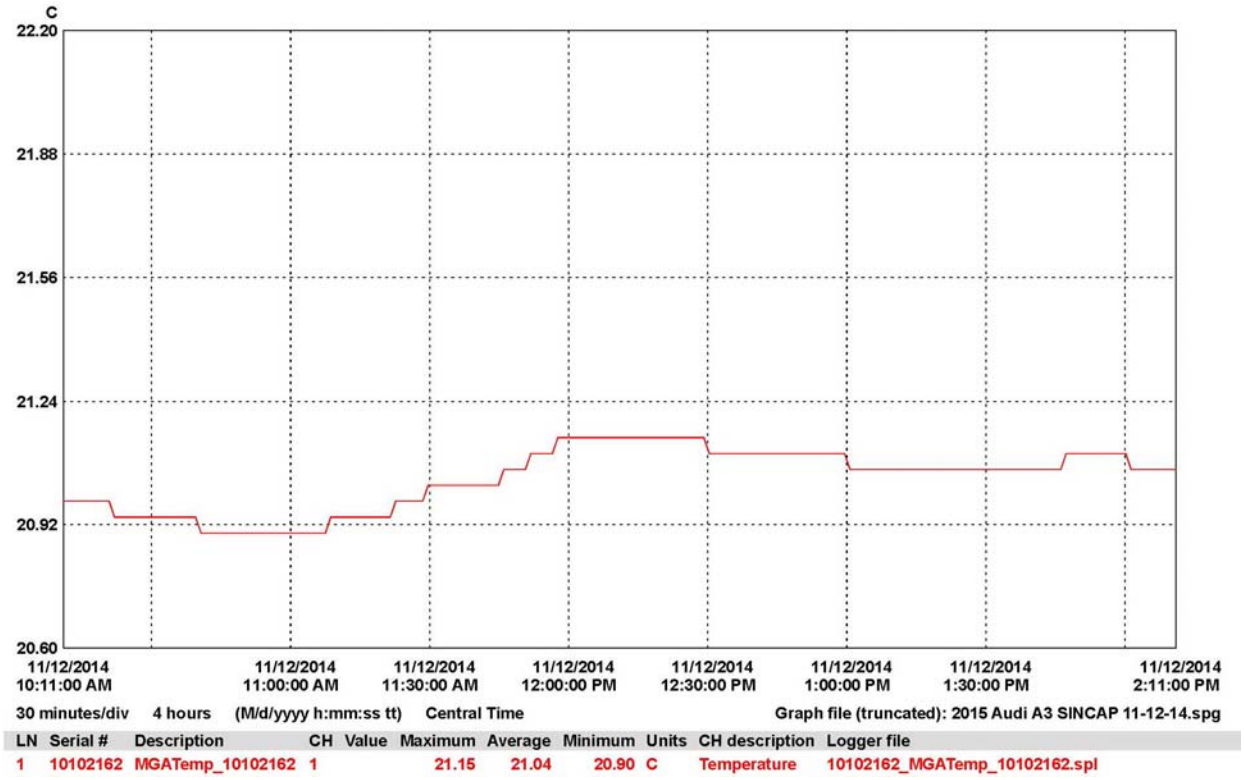
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eight Minute
0° to 90°	0	0	0	0
90° to 180°	0	0	0	0
180° to 270°	0	0	0	0
270° to 360°	0	0	0	0

ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° to 90°	
90° to 180°	
180° to 270°	
270° to 360°	

DATA SHEET NO. 15
DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA

Test Vehicle:	2015 Audi A3 4-Dr Sedan	NHTSA No.	O20155802
Test Program:	NCAP Side MDB Impact Test	Test Date:	11/12/2014

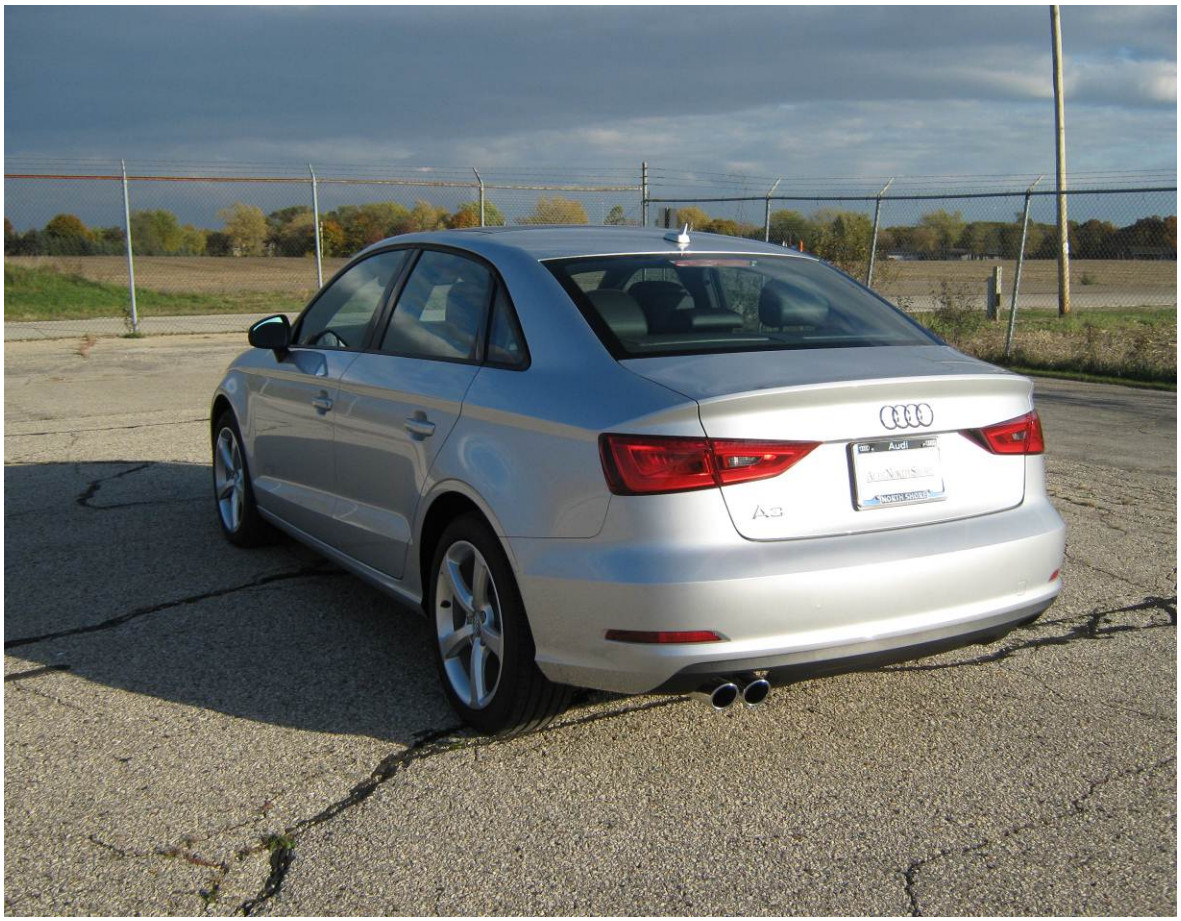


LN	Serial #	Description	CH	Value	Maximum	Average	Minimum	Units	CH description	Logger file
1	10102162	MGATemp_10102162	1		21.15	21.04	20.90	C	Temperature	10102162_MGATemp_10102162.spl

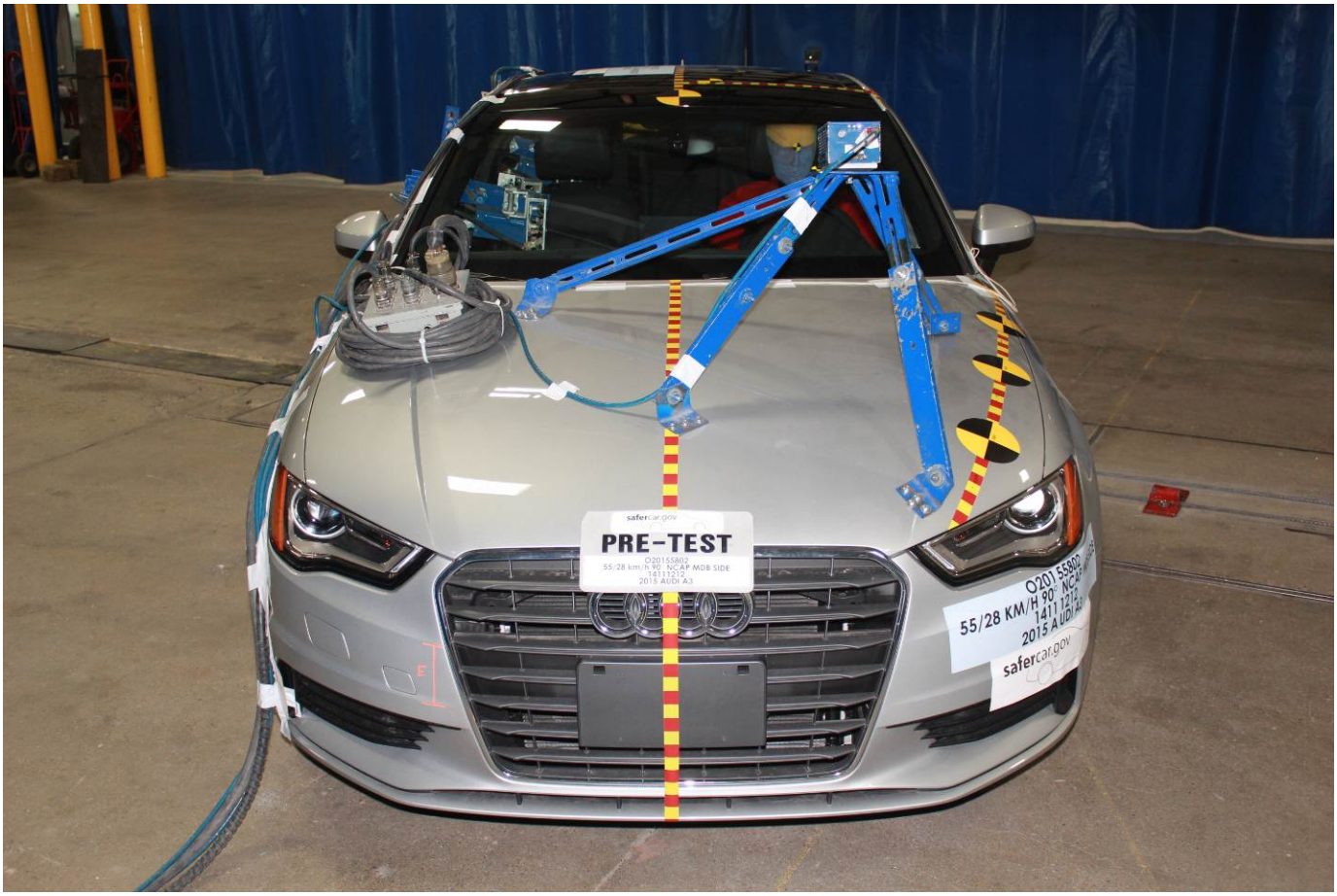
APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

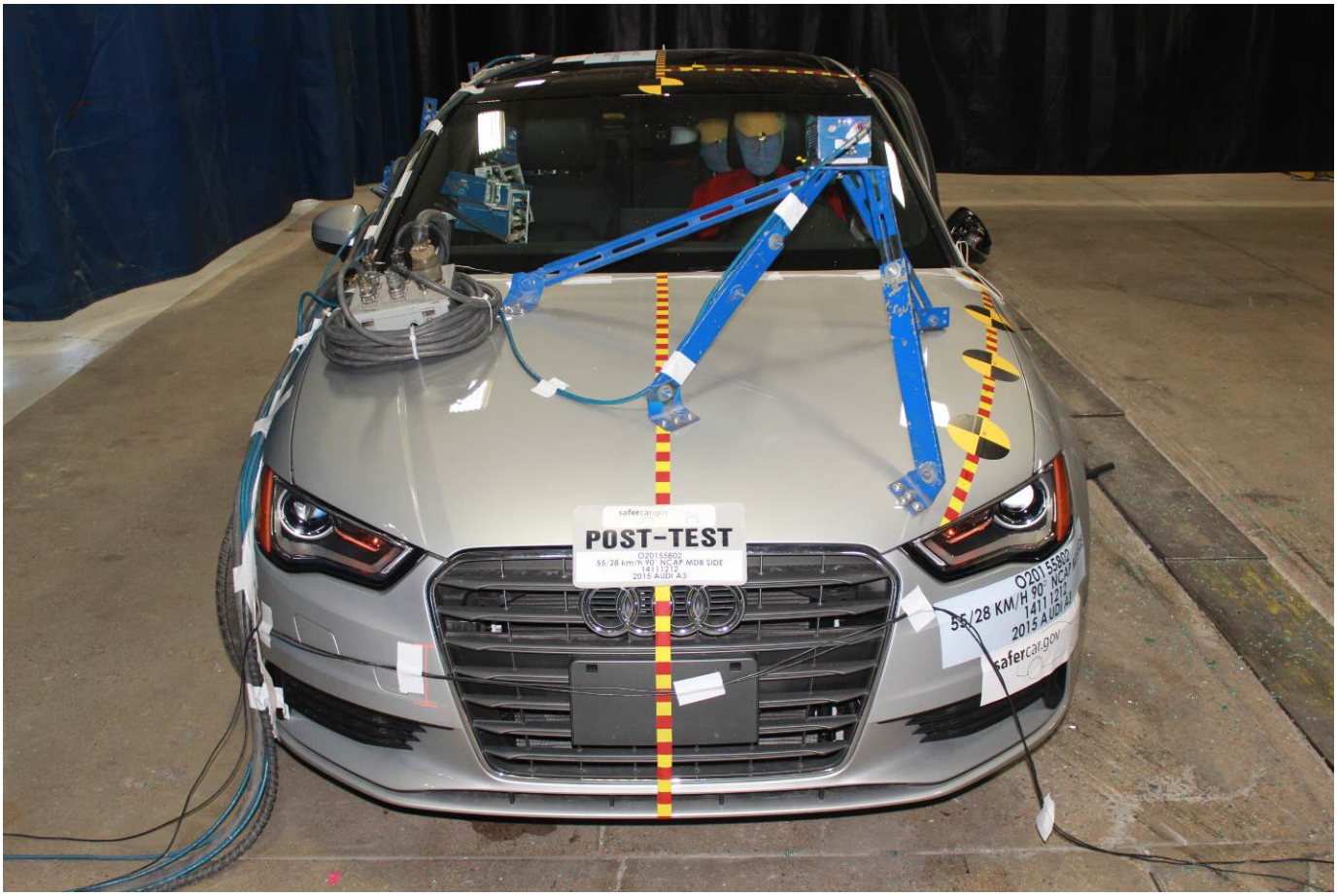
As Delivered Right Front Three-Quarter View of Test Vehicle



As Delivered Left Rear Three-Quarter View of Test Vehicle

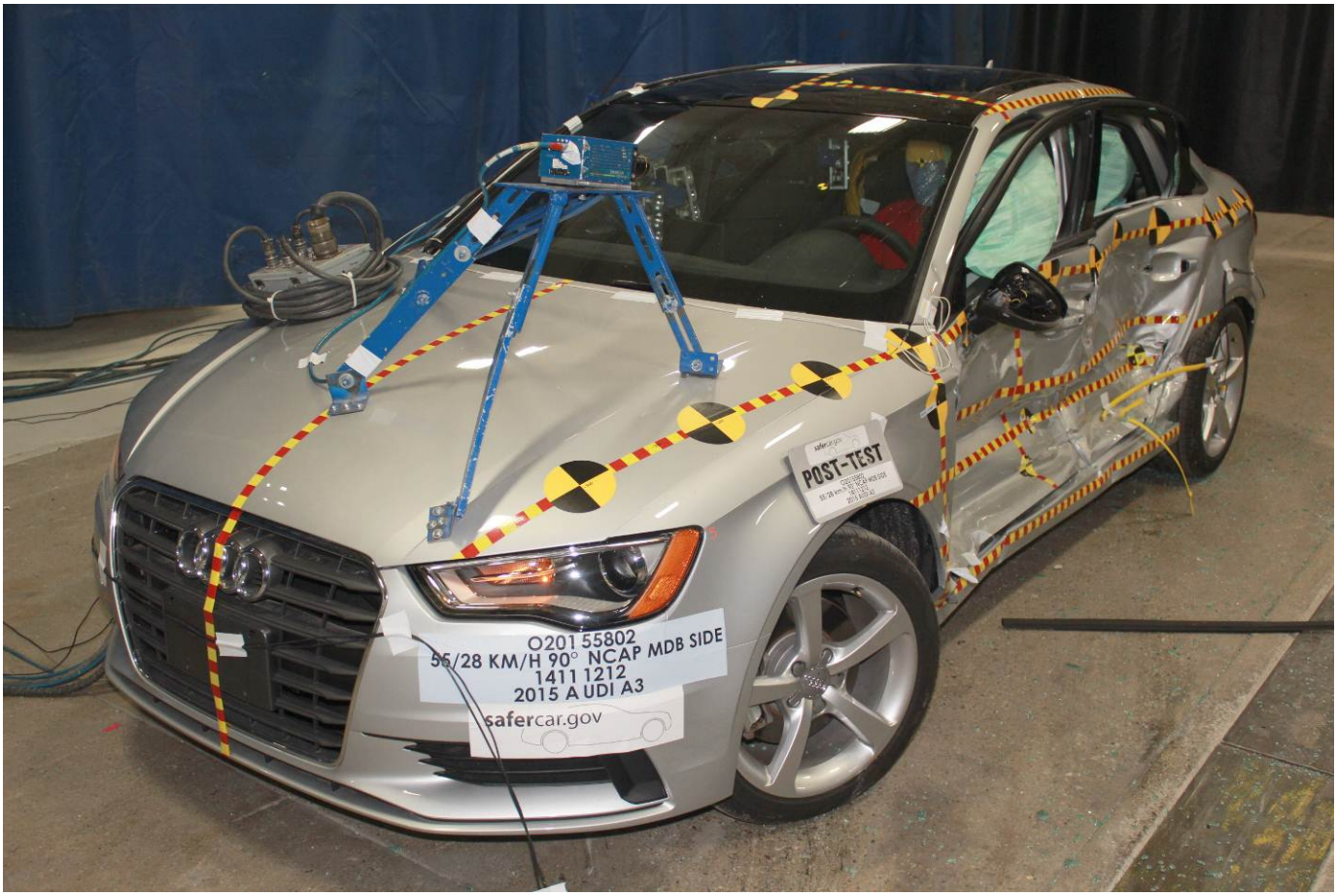


Pre-Test Frontal View of Test Vehicle



Post-Test Frontal View of Test Vehicle

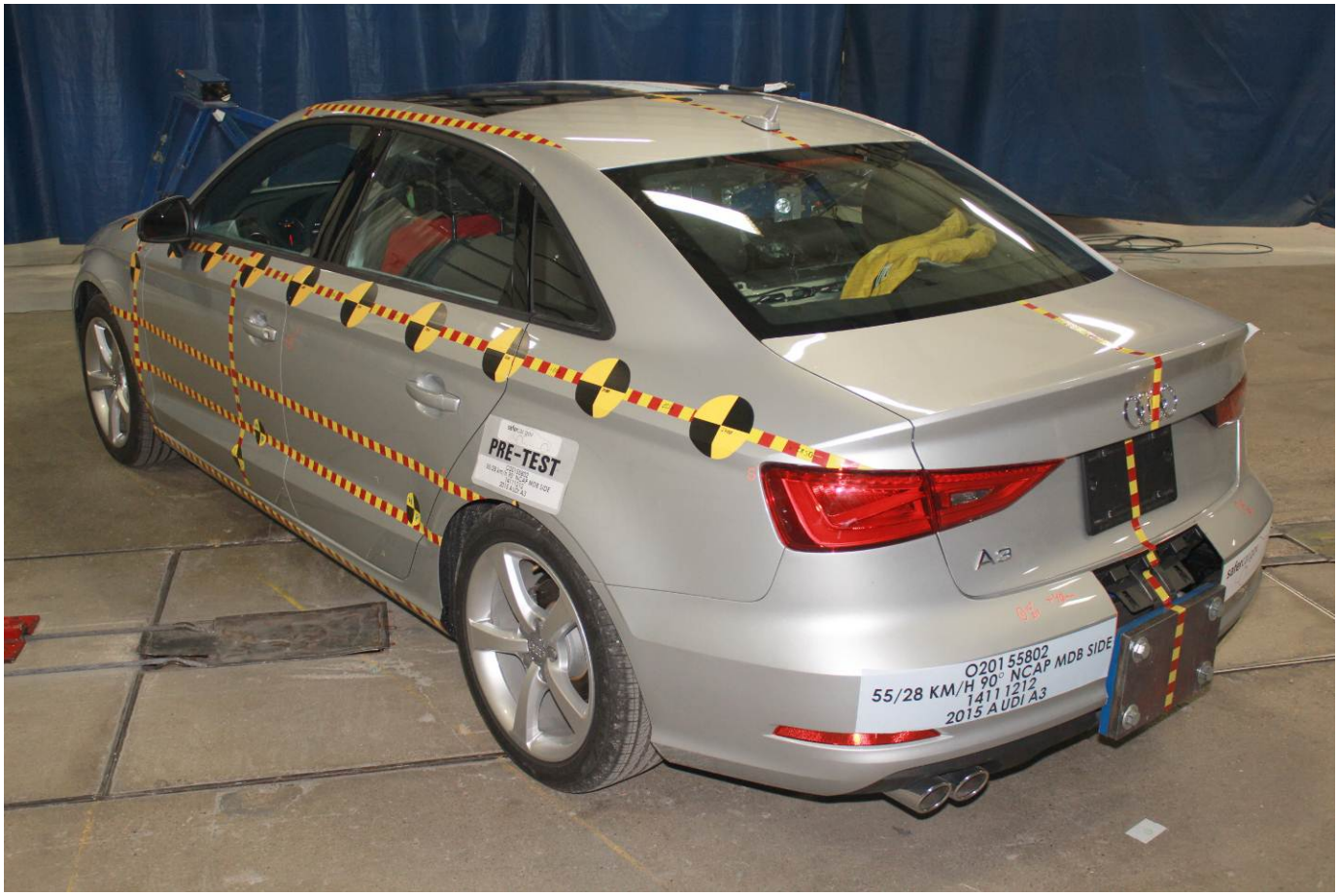
Pre-Test Left Front Three-Quarter View of Test Vehicle



Post-Test Left Front Three-Quarter View of Test Vehicle

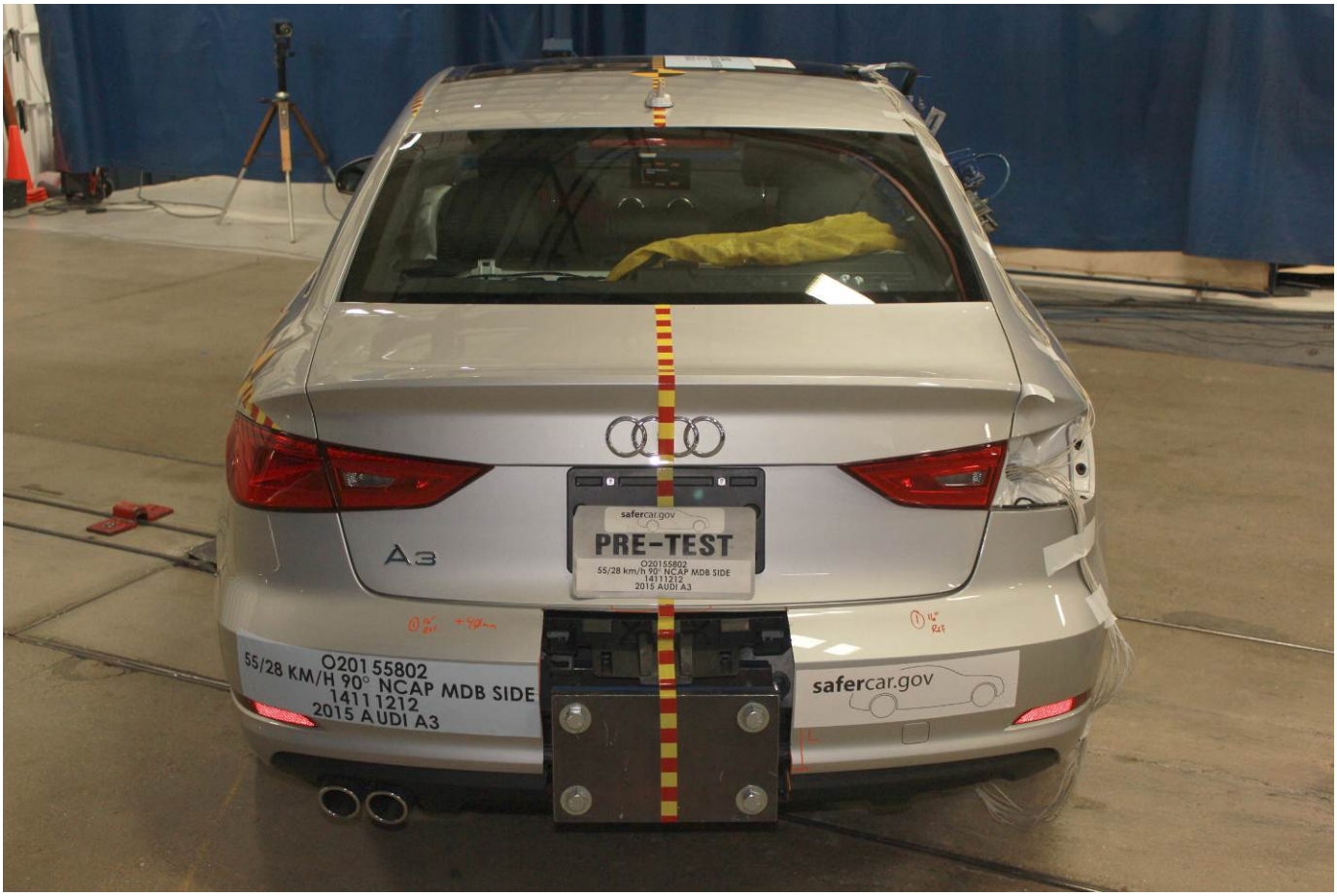
Pre-Test Left Side View of Test Vehicle

Post-Test Left Side View of Test Vehicle



Pre-Test Left Three-Quarter Rear View of Test Vehicle

Post-Test Left Three-Quarter Rear View of Test Vehicle

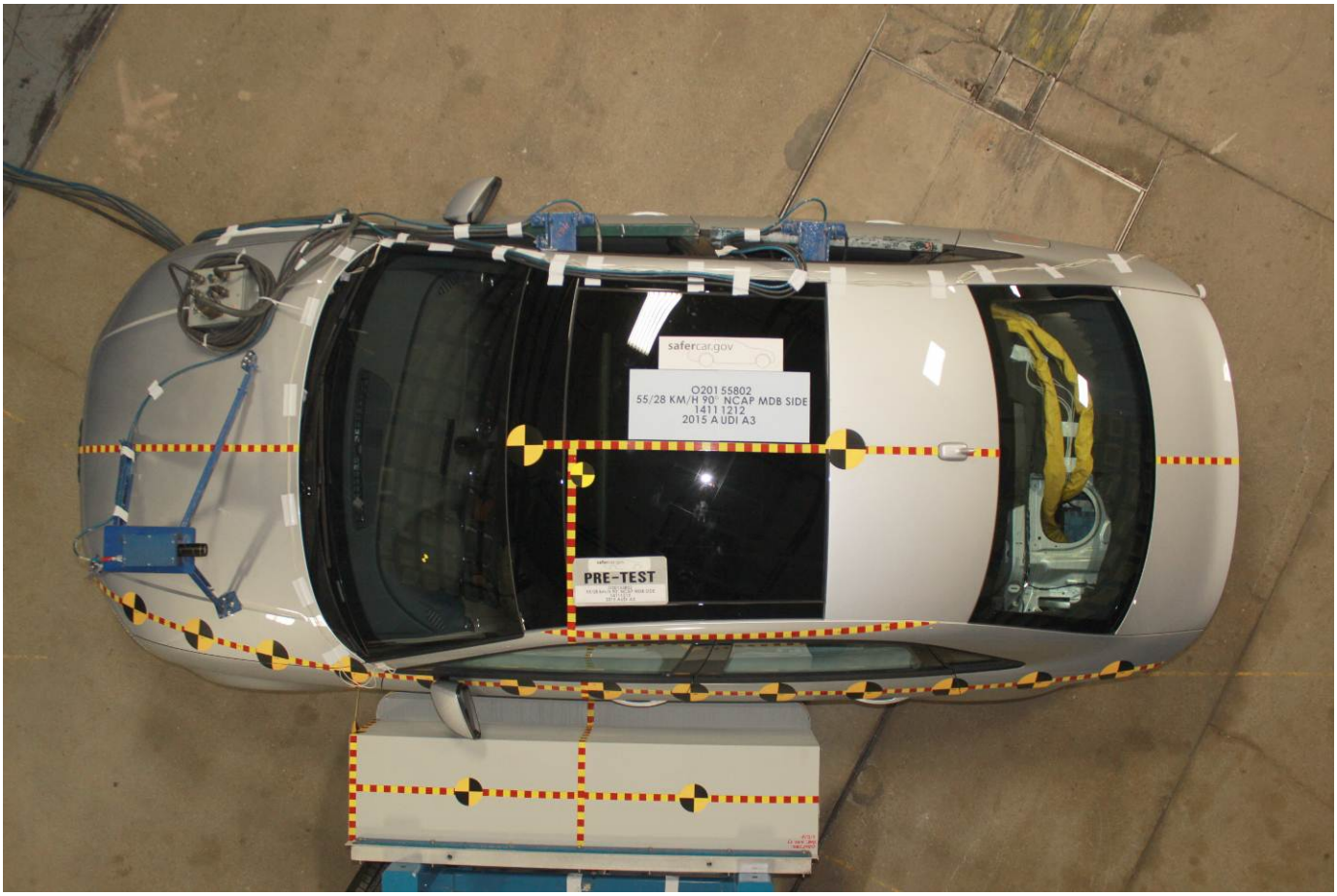


Pre-Test Rear View of Test Vehicle

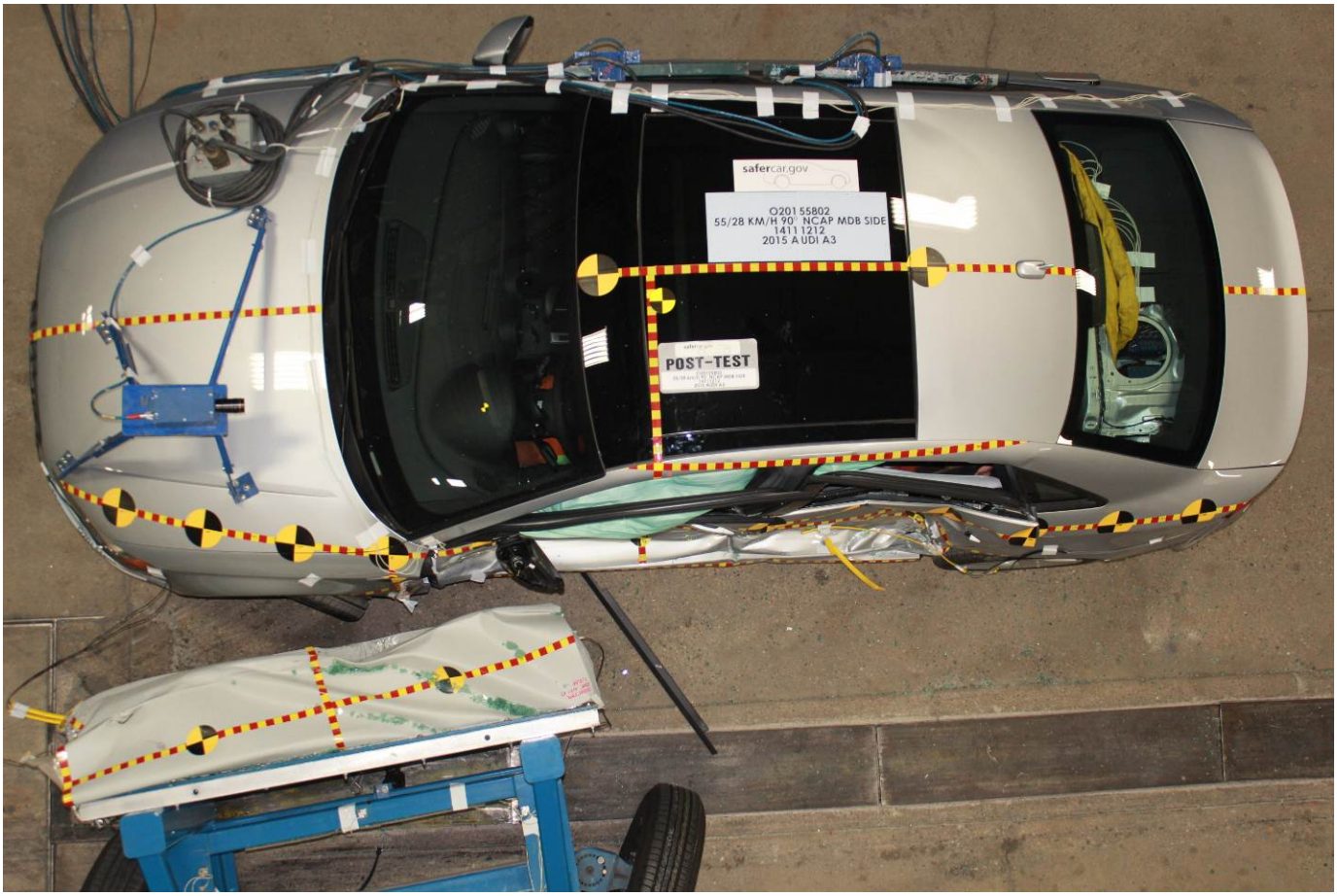
Post-Test Rear View of Test Vehicle

Pre-Test Right Side View of Test Vehicle

Post-Test Right Side View of Test Vehicle



Pre-Test Overhead View of Test Area



Post-Test Overhead View of Test Area

Pre-Test Left Side View of MDB Positioned Against Side of Test Vehicle

Pre-Test Right Side View of MDB Positioned Against Side of Test Vehicle

Pre-Test Close-Up View of Impact Point Target

Post-Test Close-Up View of Impact Point Target

Pre-Test Left Front Door Latch Close-Up

Post-Test Left Front Door Latch Close-Up

Pre-Test Left Rear Door Latch Close-Up

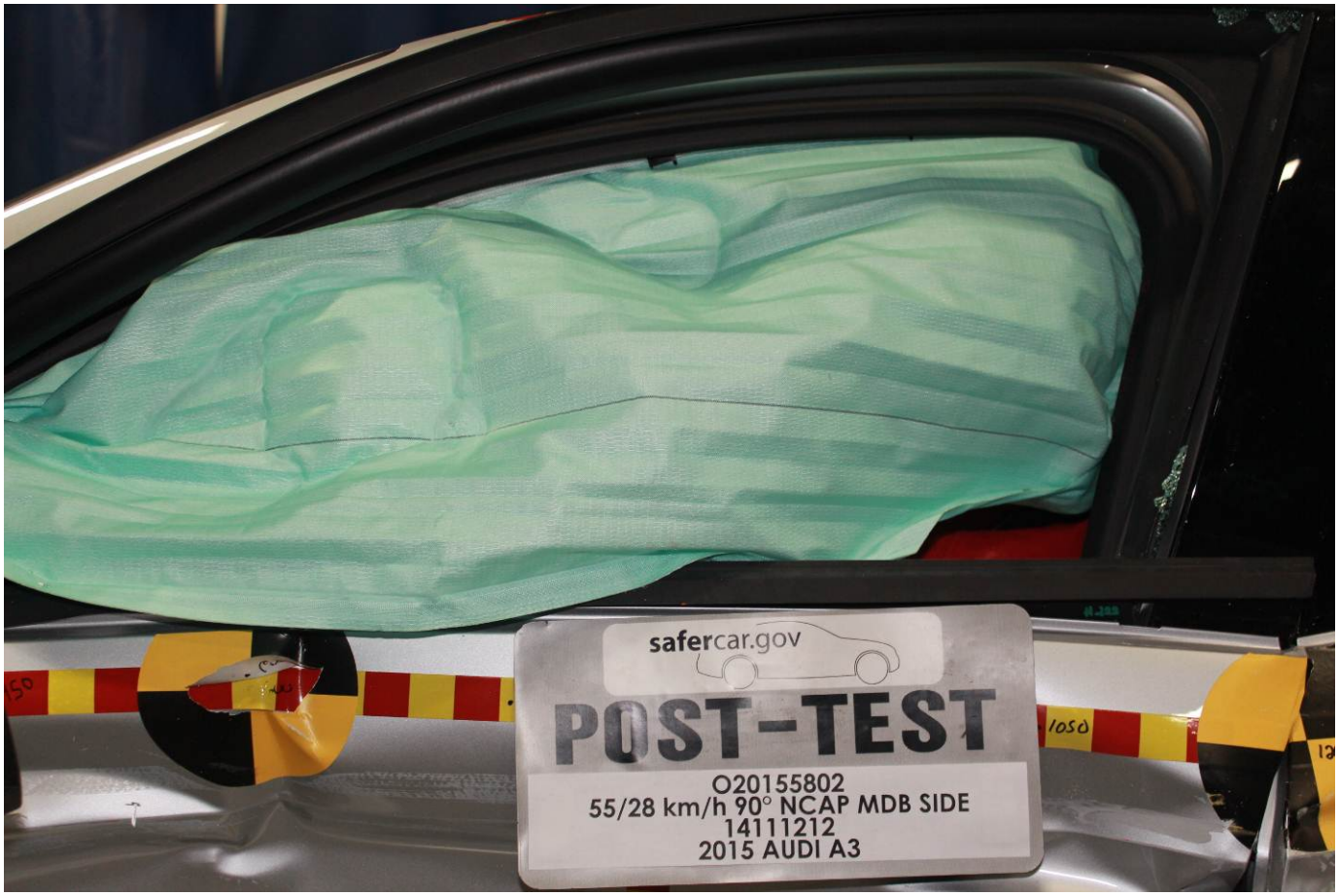
Post-Test Left Rear Door Latch Close-Up

Pre-Test Front Close-Up View of Driver Dummy

Post-Test Front Close-Up View of Driver Dummy

Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking

Pre-Test Left Side View of Driver Dummy Shoulder and Door Top View

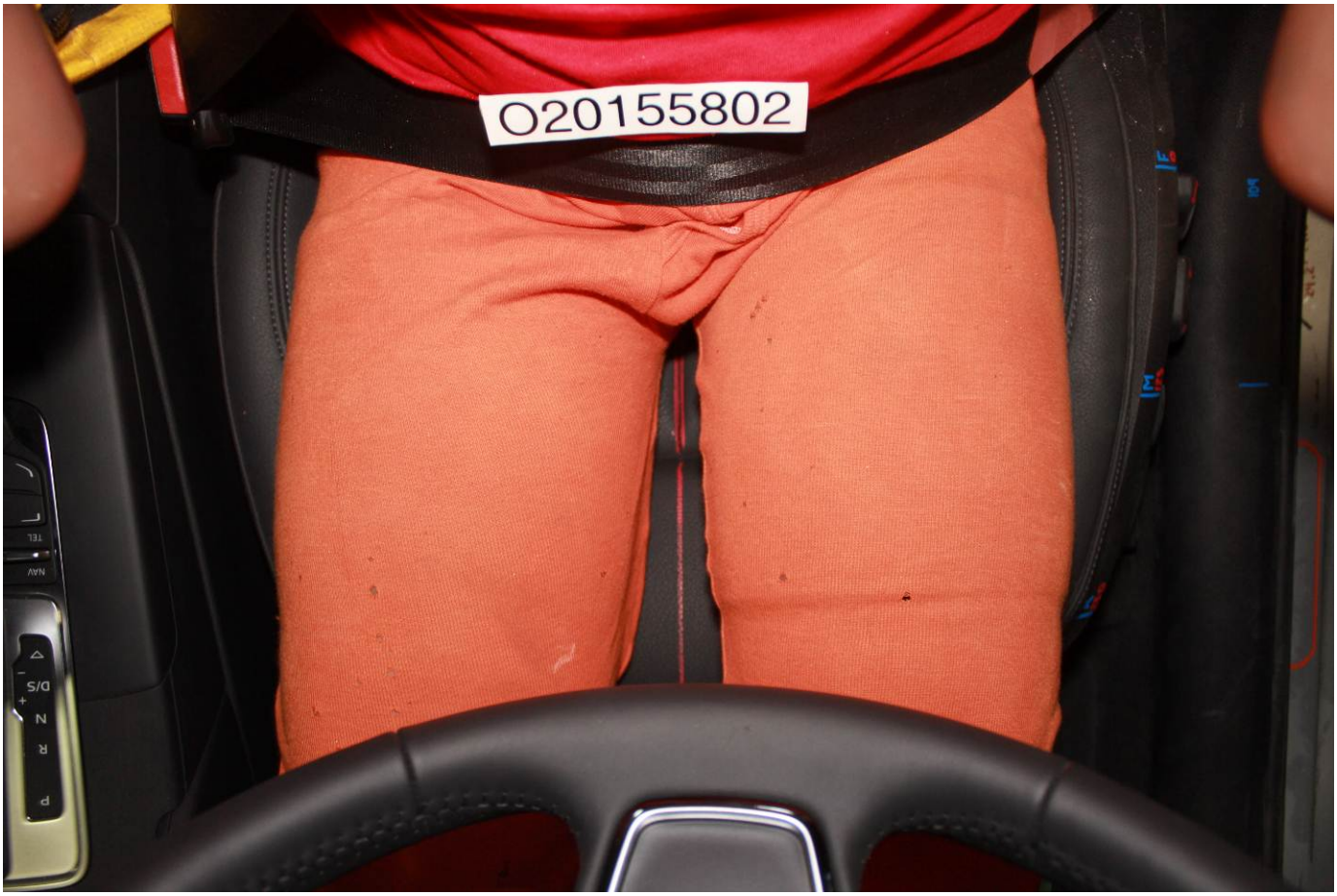


Post-Test Left Side View of Driver Dummy Shoulder and Door Top View

Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning

Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint

Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning



Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan

Pre-Test Placement of Driver Dummy's Feet

Pre-Test View of Belt Anchorage for Driver Dummy

Pre-Test Left Side View of Steering Wheel

Pre-Test View of Disengaged Parking Brake

Pre-Test View of Parking Brake

Pre-Test Close-Up Left Side View of Driver Seat Track

Pre-Test Close-Up Left Side View of Driver Seat Back

Pre-Test Close-Up View of Driver Seat Back or Head Restraint

Pre-Test Driver Dummy and Door Clearance View

Post-Test Driver Dummy and Door Clearance View

Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment

Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment

Pre-Test Driver Inner Door Panel View

Post-Test Driver Inner Door Panel View

Post-Test Driver Dummy Close-up Head Contact with Vehicle Interior View

Post-Test Driver Dummy Close-up Head Contact with Side Airbag View

Post-Test Driver Dummy Close-up Torso Contact with Vehicle Interior View

Post-Test Driver Dummy Close-up Torso Contact with Vehicle Interior View

Post-Test Driver Dummy Close-up Torso Contact with Side Airbag View

Post-Test Driver Dummy Close-up Pelvis Contact with Vehicle Interior View

Post-Test Driver Dummy Close-up Pelvis Contact with Side Airbag View

Post-Test Driver Dummy Close-up Knee Contact View

Pre-Test Left Side View of Rear Passenger Dummy Showing Belt and Chalking

Pre-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View

Post-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View

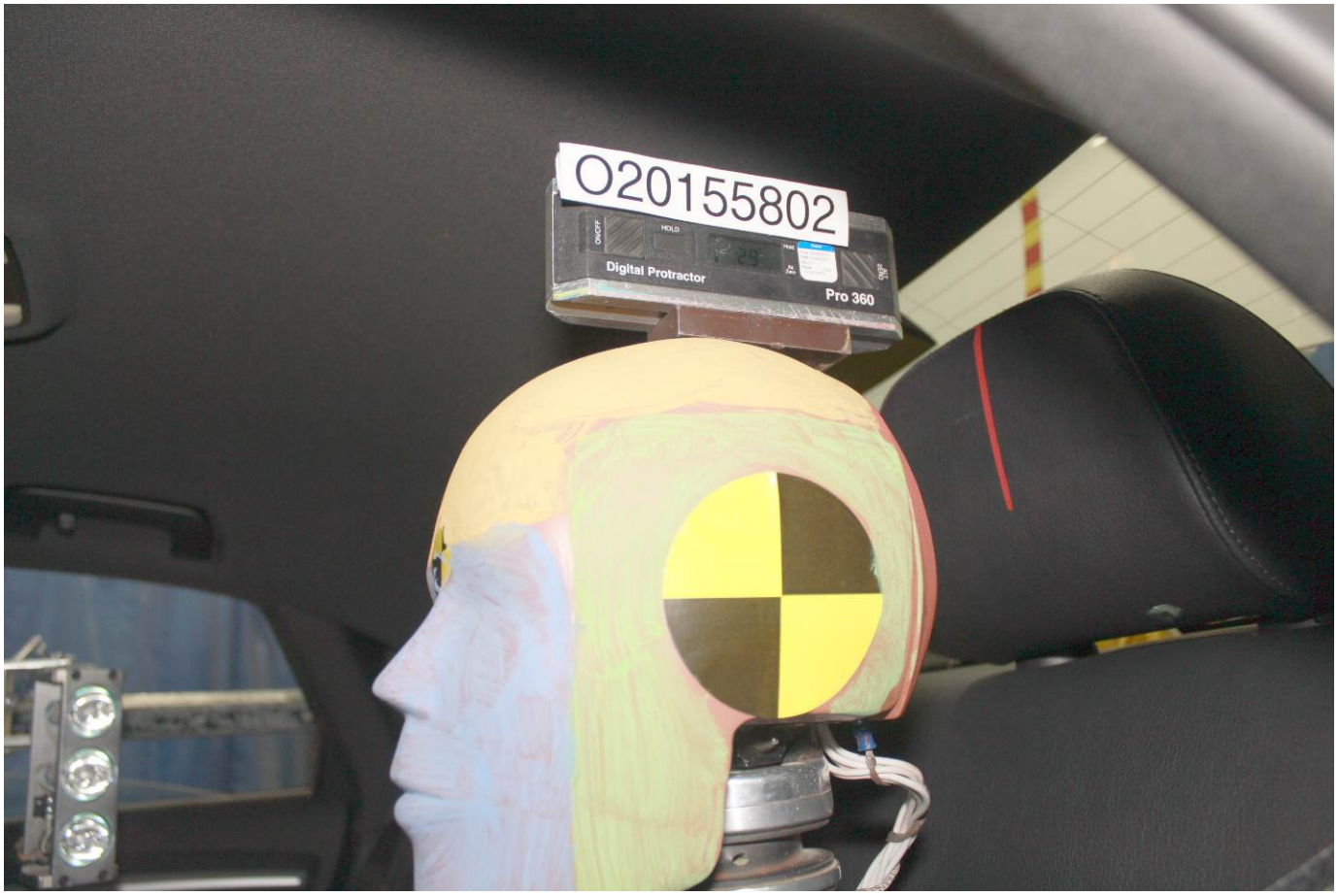
Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning

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

Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning

Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan

Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket



Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level

Pre-Test Placement of Rear Passenger Dummy's Feet

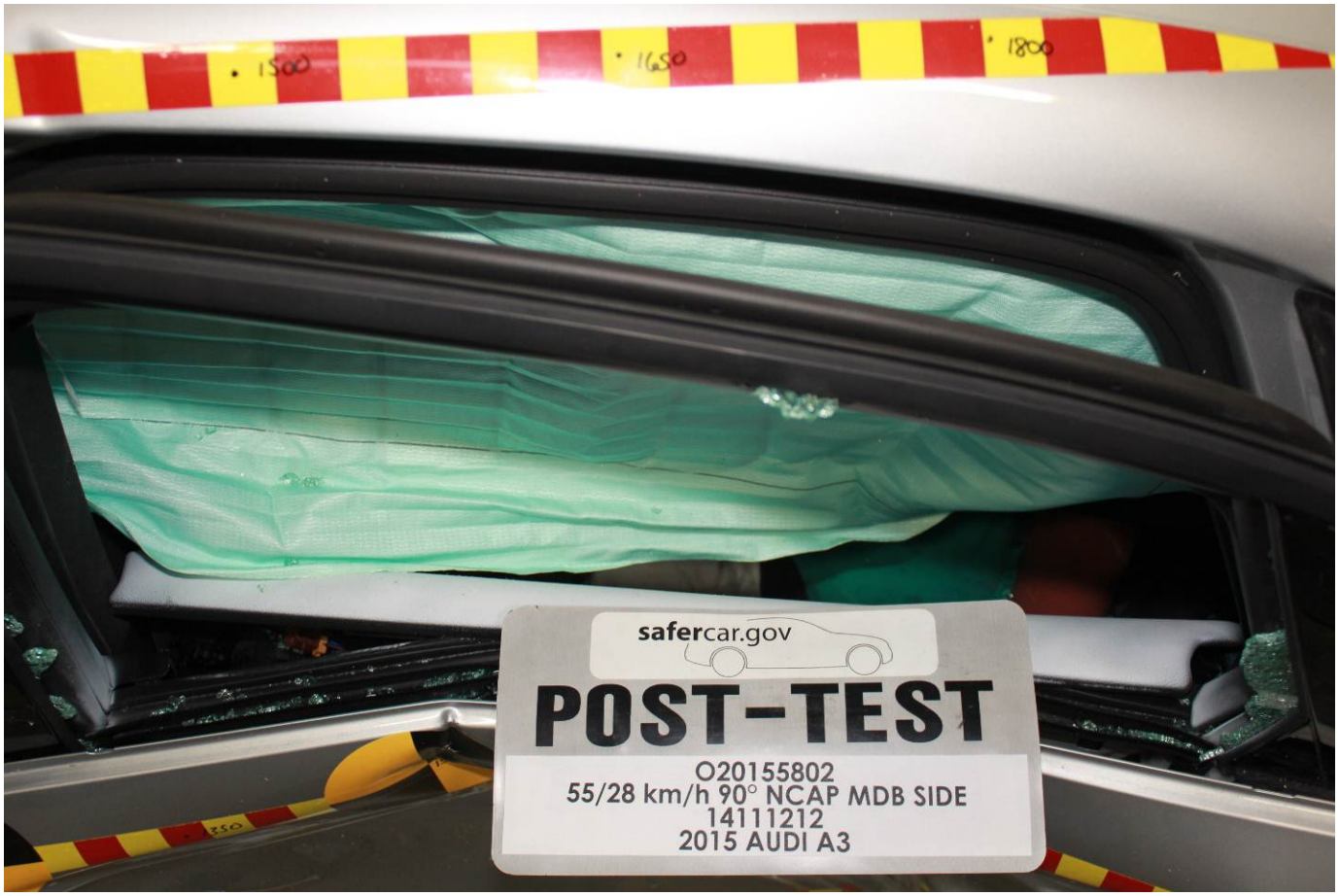
Pre-Test View of Belt Anchorage for Rear Passenger Dummy

Pre-Test Close-Up Left Side View of Rear Passenger Seat Track

Pre-Test Close-Up Left Side View of Rear Passenger Seat Back

Pre-Test Close-up View of Rear Passenger Seat Back or Head Restraint

Pre-Test Rear Passenger Dummy and Door Clearance View



Post-Test Rear Passenger Dummy and Door Clearance View

Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment

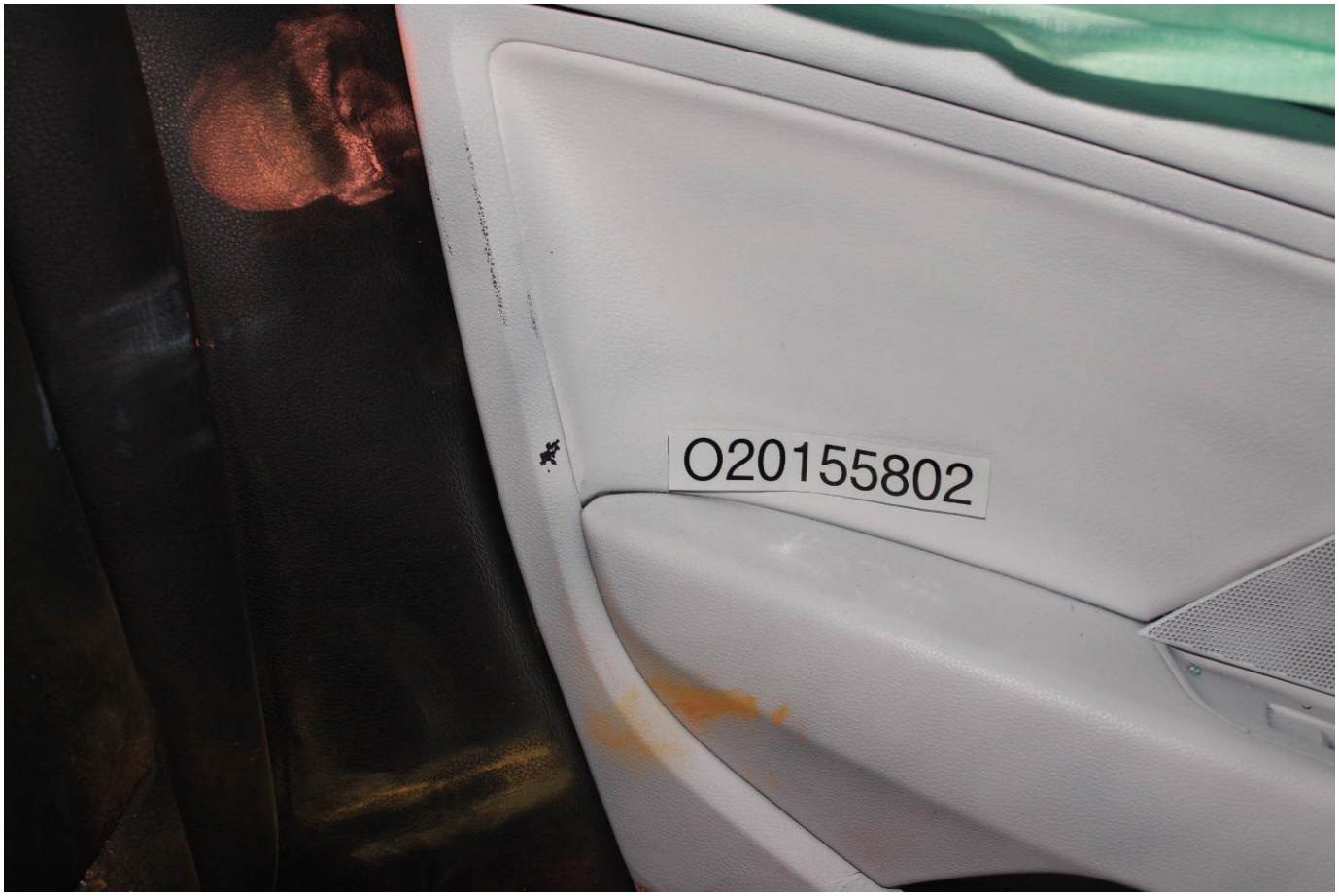
Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment

Pre-Test Rear Passenger Inner Door Panel View

Post-Test Rear Passenger Inner Door Panel View

Post-Test Rear Passenger Dummy Close-up Head Contact with Vehicle Interior View

Post-Test Rear Passenger Dummy Close-up Head Contact with Side Airbag View



Post-Test Rear Passenger Dummy Close-up Torso Contact with Vehicle Interior View

PHOTOGRAPH NOT APPLICABLE

Post-Test Rear Passenger Dummy Close-up Torso Contact with Side Airbag View

Post-Test Rear Passenger Dummy Close-up Pelvis Contact with Vehicle Interior View

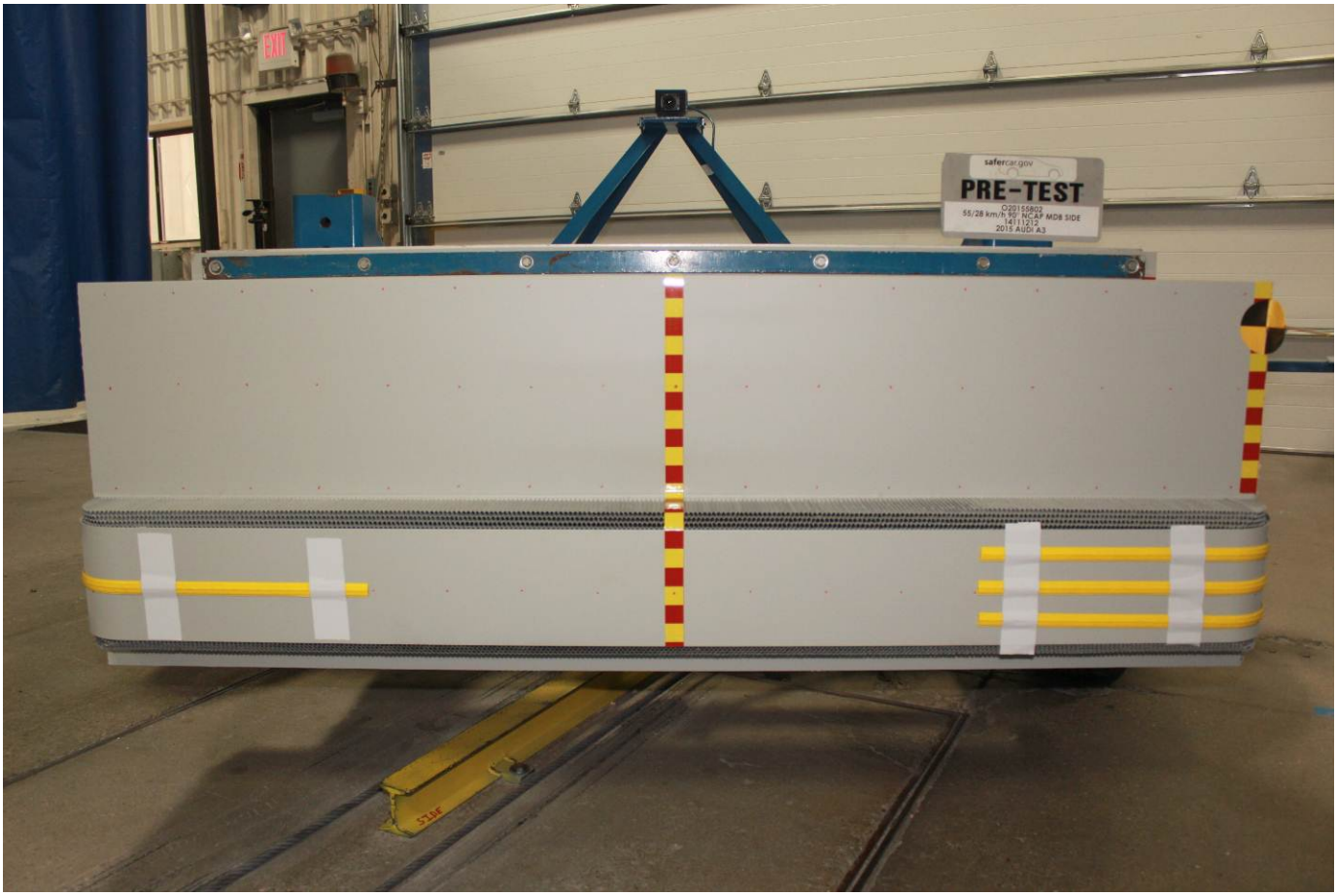
PHOTOGRAPH NOT APPLICABLE

Post-Test Rear Passenger Dummy Close-up Pelvis Contact with Side Airbag View

Post-Test Rear Passenger Dummy Close-up Knee Contact View

Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

Post-Test View of Fuel Filler Cap or Fuel Filler Neck



Pre-Test Front View of MDB Impactor Face

Post-Test Front View of MDB Impactor Face

Pre-Test Top View of MDB Impactor Face

Post-Test Top View of MDB Impactor Face

Pre-Test Left Side View of MDB Impactor Face

Post-Test Left Side View of MDB Impactor Face

Pre-Test Right Side View of MDB Impactor Face

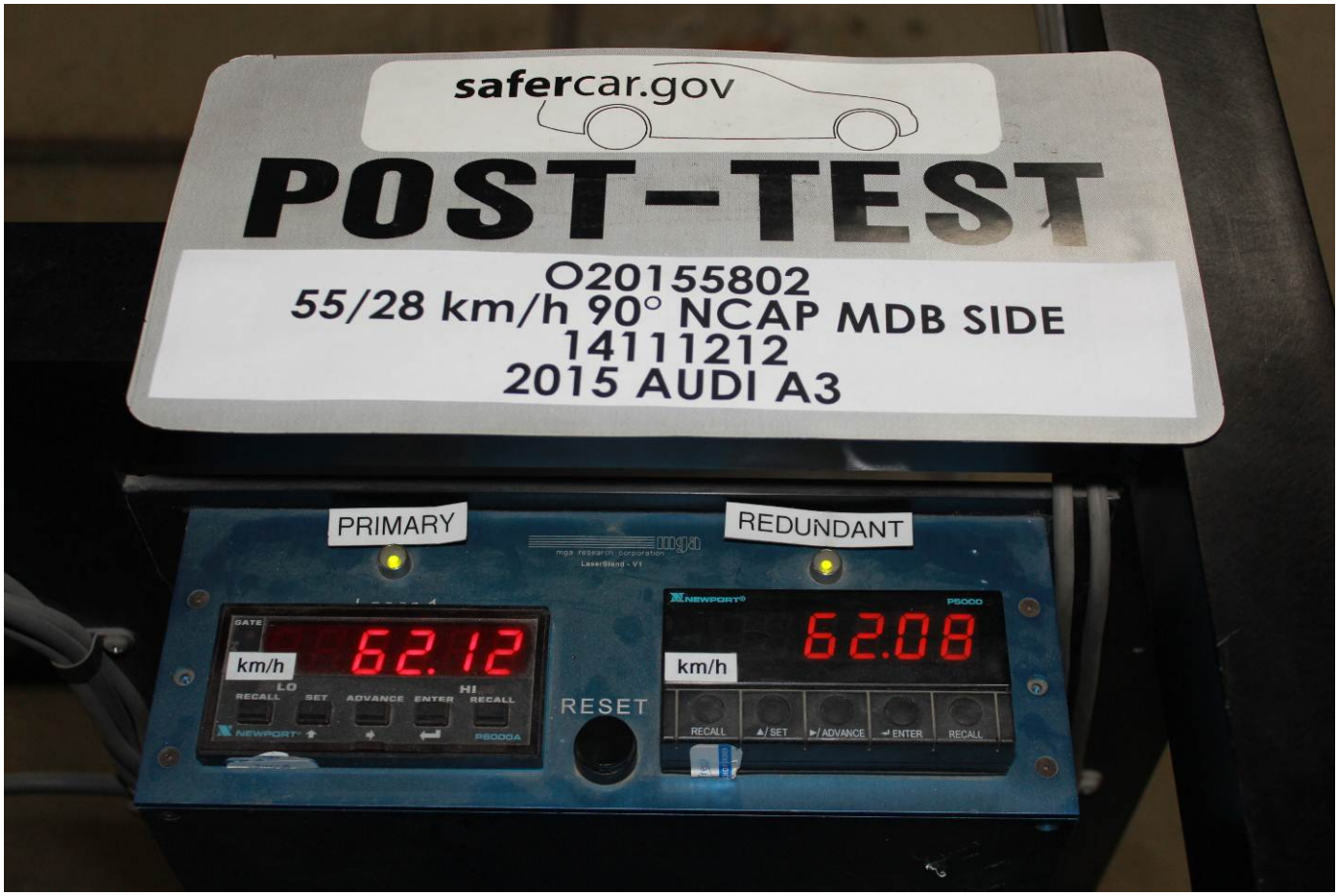
Post-Test Right Side View of MDB Impactor Face

Close-Up View of Vehicle's Certification Label

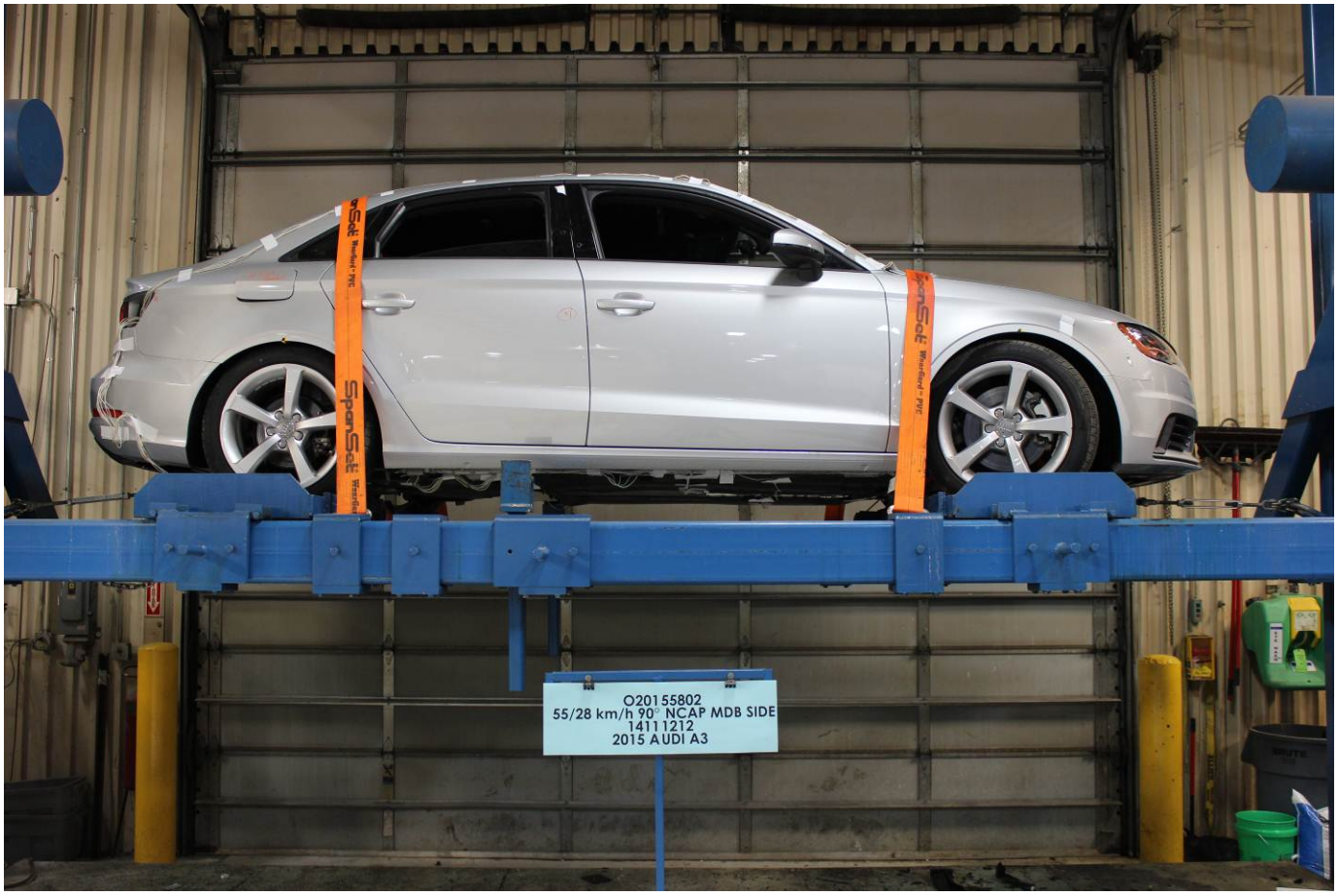
Close-Up View of Vehicle's Tire Information Placard or Label

Pre-Test Ballast View

Pre-Test Ballast View

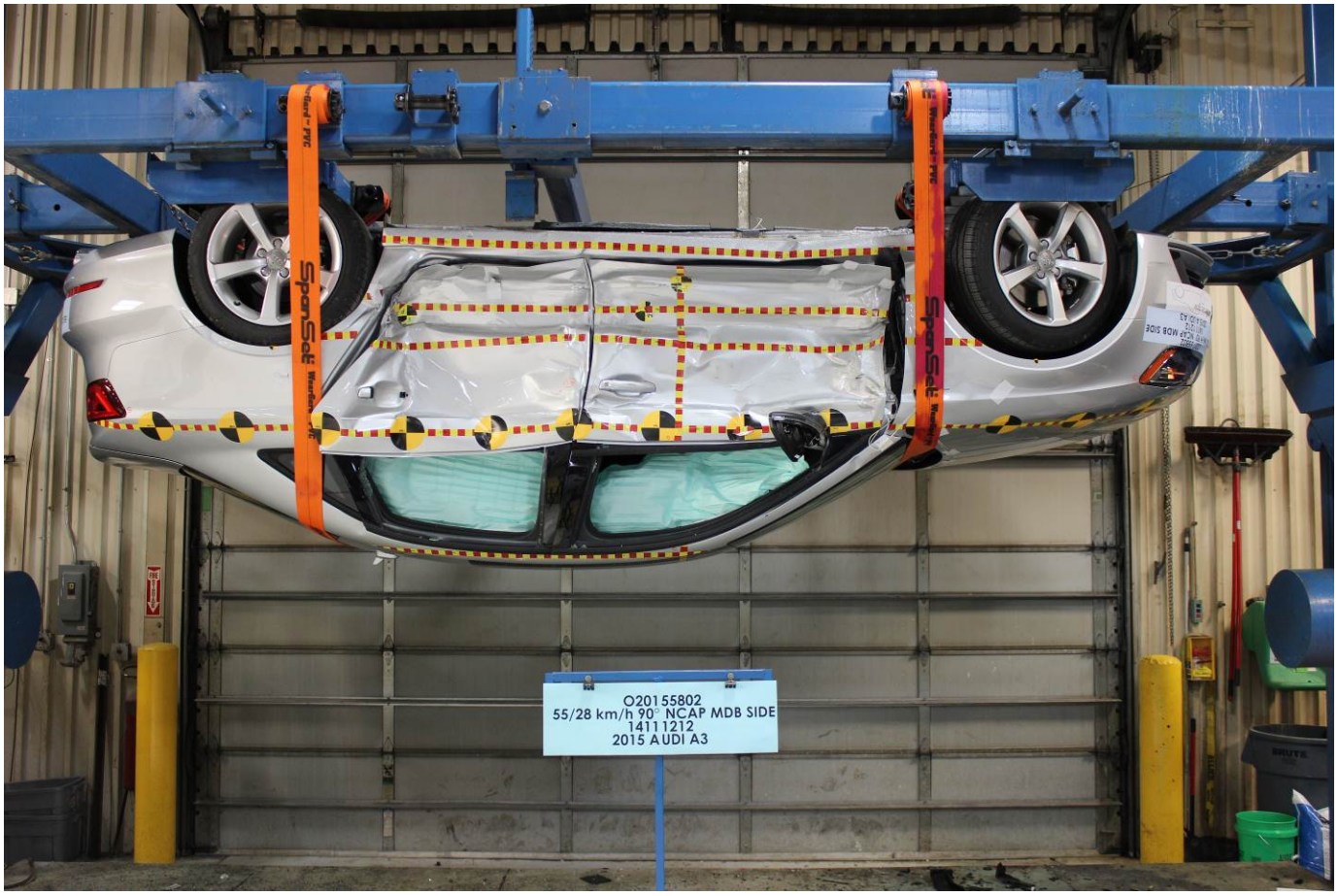


Post-Test Primary and Redundant Speed Trap Read-Out

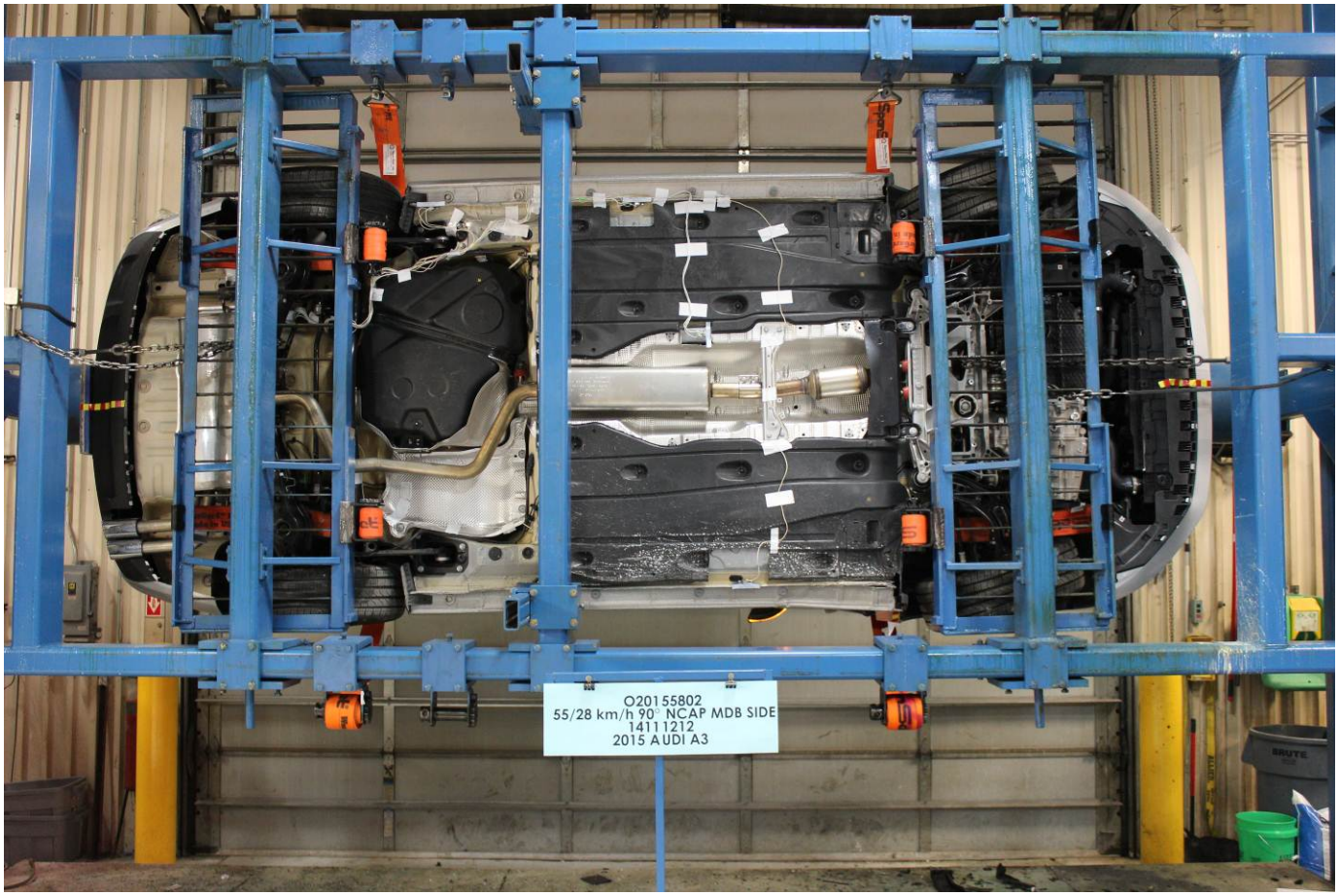


FMVSS No. 301 Static Rollover 0 Degrees

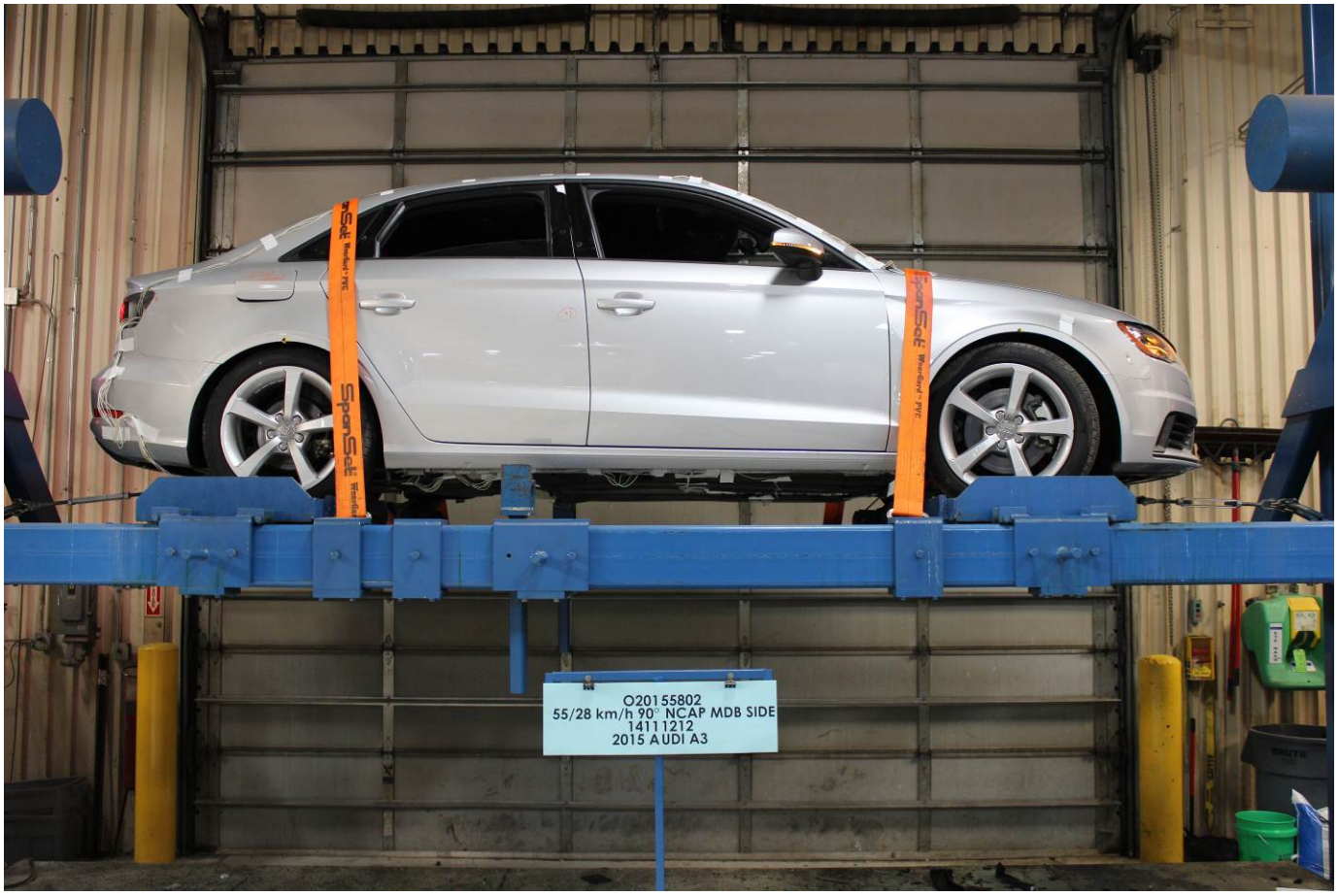
FMVSS No. 301 Static Rollover 90 Degrees



FMVSS No. 301 Static Rollover 180 Degrees



FMVSS No. 301 Static Rollover 270 Degrees



FMVSS No. 301 Static Rollover 360 Degrees

Impact Event

2015 Audi A3 Sedan 1.8T FWD S tronic

Audi Truth in Engineering

STANDARD EQUIPMENT (unless replaced by options)

TECHNICAL
- 1.8L TFSI® 170hp / 200lb-ft M engine
- 6-speed S tronic® transmission
- 17" 5-spoke-Star-design wheels, 225/45 all-season tires
- ESC (Electronic Stability Control) with secondary collision brake assist
- Disc brakes, ventilated front & solid rear discs
- ABS (Anti-lock brake system) with brake assist
- Electromechanical speed-sensitive power steering
- TPMS (tire pressure monitoring system)
- Temporary, inflatable compact spare tire

COMFORT/CONVENIENCE
- Panorama sunroof w/ retractable sunshade
- Audi xenon plus headlights w/ LED DRLs & taillights
- Rain & light sensor
- Power adjustable exterior mirrors
- 12-way power adjustable driver seat including lumbar adjustment
- 60/40 split-folding rear seat
- Leather seating surfaces
- Dual-zone automatic climate control
- 3-spoke leather-wrapped multifunction steering wheel
- Audi sound system
- AM/FM/SAT/CD audio w/ SD card reader & aux-in
- SIRIUS® satellite radio (w/ three-month complimentary subscription)
- Preparation for mobile phone (Bluetooth®)
- Driver information system

SAFETY/SECURITY
- Driver and front passenger advanced airbag supplemental restraint system
- Driver and front passenger knee airbags
- Driver and front-passenger seat-mounted thorax side airbags
- SIDEGUARD® inflatable curtain airbags
- Driver 3-point safety belts with automatic pre-tensioning and force limiters
- Front passenger 3-point safety belts with Automatic Locking Retractor (ALR), automatic pre-tensioning, and force limiters
- Rear outboard 3-point safety belts with Automatic Locking Retractor (ALR) and automatic pre-tensioning
- Rear center 3-point safety belt with Automatic Locking Retractor (ALR)
- Lower Anchors and Tethers for Children (LATCH) in rear
- Rear child safety locks
- Anti-theft vehicle alarm system

WARRANTY/MAINTENANCE
- 4 Year/50,000 mile (whichever occurs first) New Vehicle Limited Warranty*
- 12 Year Limited Warranty Against Corrosion Perforation
- 1 Year/5,000 mile (whichever occurs first) First Scheduled Maintenance Service FREE OF CHARGE
- 4 Year Roadside Assistance coverage provided by a third party supplier

*Please refer to the 2015 Audi Warranty and Maintenance Booklet for complete coverage information.

MANUFACTURER'S SUGGESTED RETAIL PRICE

2015 Audi A3 Sedan 1.8T FWD S tronic	$29,900.00
PACKAGES / OPTIONS	
Ice Silver metallic	$550.00
Black interior	Included
Cold Weather package	$500.00
Heated front seats & exterior mirrors	
Heated windshield washer nozzles	
Audi first aid kit	$45.00
Black cloth headliner	Included
Front license plate holder	Included
Destination Charge	$895.00
Total Price:	**$31,890.00**

Fuel, license, title fees, taxes and dealer-installed accessories are not included.

MODEL: 8VS57X

VIN: WAUACGFF5F1019336

DEALER: 402F09
ZIMBRICK AUDI
2300 RIMROCK ROAD
MADISON, WI 53713
Port of Entry: HOUSTON

SHIP TO: 402F09
ZIMBRICK AUDI
2300 RIMROCK ROAD
MADISON, WI 53713
COMM NUM: CM6205
Transportation Method: TRUCK

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score		**Not Rated**
Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.		
Frontal Crash	Driver	**Not Rated**
	Passenger	**Not Rated**
Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.		
Side Crash	Front Seat	**Not Rated**
	Rear Seat	**Not Rated**
Based on the risk of injury in a side impact.		
Rollover		**Not Rated**
Based on the risk of rollover in a single-vehicle crash.		

Star ratings range from 1 to 5 stars (★★★★★) with 5 being the highest.
Source: National Highway Traffic Safety Administration (NHTSA).
www.safercar.gov or 1-888-327-4236

EPA DOT Fuel Economy and Environment — Gasoline Vehicle

Fuel Economy: **27** MPG combined city/hwy — 23 city — 33 highway
3.7 gallons per 100 miles

SubCompact Cars range from 15 to 119 MPG. The best vehicle rates 119 MPGe.

You save **$500** in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost **$2,100**

Fuel Economy & Greenhouse Gas Rating (tailpipe only): 7 (1 — 10 Best)
Smog Rating (tailpipe only): 9 (1 — 10 Best)

This vehicle emits 328 grams of CO_2 per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also create emissions; learn more at fueleconomy.gov.

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 24 MPG and costs $11,000 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at $3.60 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fueleconomy.gov — Calculate personalized estimates and compare vehicles

Smartphone QR Code™

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE:		FOR THIS VEHICLE:	
U.S./CANADIAN PARTS CONTENT:	1%	FINAL ASSEMBLY POINT: GYOR, HUNGARY	
MAJOR SOURCES OF FOREIGN PARTS CONTENT:		COUNTRY OF ORIGIN: ENGINE:	HUNGARY
GERMANY:	65%	TRANSMISSION:	GERMANY
HUNGARY:	35%		

NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY, DISTRIBUTION OR OTHER NON-PARTS COSTS.

Monroney Label

is folded down. Because of this, the armrest should not be folded down during city driving.

The armrest can slide forward and back.

There is a storage compartment under the arm rest.

Rear center armrest

Applies to vehicles: with rear center armrest

The storage compartment and cup holder are integrated in the armrest.

Fig. 49 Rear armrest

Folding the armrest down

- Tilt the armrest all the way down.

Opening the storage compartment

- Lift the cover on the upper rim.

For more information on the use of the cup holders, see ⇨ *page 61*.

Headrests

Front head restraints

Applies to vehicles: with adjustable head restraints

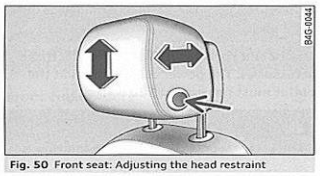


Fig. 50 Front seat: Adjusting the head restraint

Applies to vehicles with super sport seats* (no illustration): The head restraints are integrated in the backrest and cannot be adjusted.

Adjust the head restraints so the upper edge is as even as possible with the top of your head. If that is not possible, try to adjust as close to this position as possible. Push the head restraint as close as possible to the back of the head.

- To move the head restraint up or forward, slide it until it locks into place.
- To move the head restraint down or back, press the side button -arrow- ⇨ *fig. 50* and slide the head restraint until it locks into place.

Refer to ⇨ *page 129, Proper adjustment of head restraints* for guidelines on how to adjust the height of the front head restraints to suit the occupant's body size.

⚠ WARNING

- Driving without head restraints or head restraints that are not adjusted correctly dramatically increases the risk of serious or fatal neck injuries.
- Read and following the WARNINGS in ⇨ *page 129, Proper adjustment of head restraints*.

ⓘ Tips

Head restraints that are adjusted correctly and safety belts are an extremely effective combination of safety equipment.

Rear head restraints

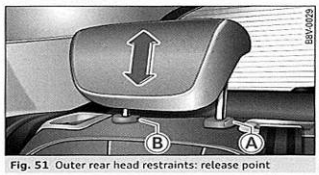


Fig. 51 Outer rear head restraints: release point

Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

If there are passengers in the rear seat, fold the head restraints up on the occupied seats at least to the next notch ⇨ ⚠.

Adjusting the head restraints

- To move the head restraint up, hold it at the sides with both hands and slide it upward until you feel it click into place.
- To move the head restraint down, press the button Ⓐ ⇨ *fig. 51* and slide the head restraint downward.

Removing the head restraints

To remove the head restraints, the backrest must be folded forward partially.

- Remove the screwdriver from the vehicle tool kit ⇨ *page 268*.
- Release the backrest ⇨ *page 65*.
- Press the button Ⓐ ⇨ *fig. 51* and move the head restraint upward as far as it can go ⇨ ⚠.
- Place the screwdriver in position Ⓑ in the opening, press the button Ⓐ and pull the head restraint out of the backrest at the same time ⇨ ⚠.
- Fold the backrest down until it latches securely ⇨ ⚠ *in Increasing the size of the luggage compartment on page 65*.

Installing the head restraints

To install the head restraints, the backrest must be folded forward partially.

- Release the backrest ⇨ *page 65*.
- Slide the posts on the head restraint down into the guides until you feel the posts click into place. You should not be able to pull the head restraint out of the backrest.
- Fold the backrest down until it latches securely ⇨ ⚠ *in Increasing the size of the luggage compartment on page 65*.

⚠ WARNING

- Only remove the rear seat head restraints when necessary in order to install a child seat. Install the head restraint again immediately once the child seat is removed. Driving with the head restraints removed or head restraints not in the highest position increases the risk of serious injury.
- Read and following the WARNINGS in ⇨ *page 129*.

Socket

Applies to vehicles: with socket

Electrical accessories can be connected in the 12 volt socket.

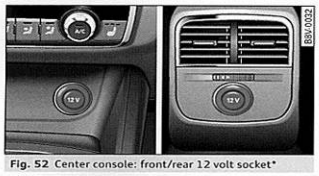


Fig. 52 Center console: front/rear 12 volt socket*

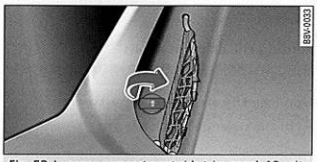


Fig. 53 Luggage compartment side trim panel: 12 volt socket* (example)

- Remove the plug from the center console socket ⇨ *fig. 52*, or
- Open the cover on the luggage compartment socket* ⇨ *fig. 53*.
- Insert the plug for the electrical device into the socket.

The 12 volt socket can be used for electrical accessories. The power consumption at the outlet must not exceed 120 watts.

⚠ WARNING

The socket works only when the ignition is switched on. Incorrect usage can lead to serious injuries or burns. To reduce the risk of injuries, never leave children unattended in the vehicle with the vehicle key.

Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

– For adjustable head restraints: always adjust the head restraint properly so that it can give maximum protection.

Proper adjustment of head restraints

Applies to vehicles: with adjustable head restraints

Correctly adjusted head restraints are an important part of your vehicle's occupant restraint system and can help to reduce the risk of injuries in accident situations.

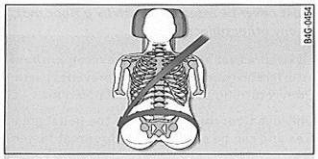


Fig. 115 Head restraint: viewed from the front

The head restraints must be correctly adjusted to achieve the best protection.

- Adjust the head restraint so the upper edge is as even as possible with the top of your head. If that is not possible, try to adjust the head restraint so that it is as close to this position as possible ⇨ *fig. 115*. Move the head restraint so that it is as close to the back of the head as possible.
- If there is a passenger on the rear center seating position, slide the center head restraint upward at least to the next notch.

Adjusting head restraints ⇨ *page 59*.

⚠ WARNING

All seats are equipped with head restraints. Driving without head restraints or with head restraints that are not properly adjusted increases the risk of serious or fatal neck injury dramatically. To help reduce the risk of injury:

– Always drive with the head restraints in place and properly adjusted.
– Every person in the vehicle must have a properly adjusted head restraint.
– Always make sure each person in the vehicle properly adjusts their head restraint. Adjust the head restraint so the upper edge is as even as possible with the top of your head. If that is not possible, try to adjust the head restraint so that it is as close to this position as possible. Move the head restraint so that it is as close to the back of the head as possible.
– Never attempt to adjust head restraint while driving. If you have driven off and must adjust the driver headrest for any reason, first stop the vehicle safely before attempting to adjust the head restraint.
– Children must always be properly restrained in a child restraint that is appropriate for their age and size ⇨ *page 170*.

Examples of improper seating positions

The occupant restraint system can only reduce the risk of injury if vehicle occupants are properly seated.

Improper seating positions can cause serious injury or death. Safety belts can only work when they are properly positioned on the body. Improper seating positions reduce the effectiveness of safety belts and will even increase the risk of injury and death by moving the safety belt to critical areas of the body. Improper seating positions also increase the risk of serious injury and death when an airbag deploys and strikes an occupant who is not in the proper seating position. A driver is responsible for the safety of all vehicle occupants and especially for children. Therefore:

- Never allow anyone to assume an incorrect seating position when the vehicle is being used ⇨ ⚠.

The following bulletins list only some sample positions that will increase the risk of serious injury and death. Our hope is that these examples will make you more aware of seating positions that are dangerous. ▶

Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

APPENDIX B
DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS
Driver Dummy Instrumentation Plots

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

Additional Driver & Passenger Dummy Instrumentation Data

Driver Lower Spine T12 Acceleration (X)

Driver Lower Spine T12 Acceleration (Y)

Driver Lower Spine T12 Acceleration (Z)

Passenger Upper Thorax Rib Deflection (Y)

Passenger Middle Thorax Rib Deflection (Y)

Passenger Lower Thorax Rib Deflection (Y)

Passenger Upper Abdomen Rib Deflection (Y)

Passenger Lower Abdomen Rib Deflection (Y)

Driver Head Acceleration Redundant (X)

Driver Head Acceleration Redundant (Y)

Driver Head Acceleration Redundant (Z)

Passenger Head Acceleration Redundant (X)

Passenger Head Acceleration Redundant (Y)

Passenger Head Acceleration Redundant (Z)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)

Vehicle Center of Gravity Acceleration (Y)

Vehicle Center of Gravity Acceleration (Z)

Right Side Sill at Front Seat Acceleration (X)

Right Side Sill at Front Seat Acceleration (Y)

Right Side Sill at Front Seat Acceleration (Z)

Right Side Sill at Rear Seat Acceleration (X)

Right Side Sill at Rear Seat Acceleration (Y)

Right Side Sill at Rear Seat Acceleration (Z)

Left Side Sill at Front Seat Acceleration (Y)

Left Side Sill at Rear Seat Acceleration (Y)

Lower A-Post Acceleration (Y)

Middle A-Post Acceleration (Y)

Lower B-Post Acceleration (Y)

Middle B-Post Acceleration (Y)

Front Seat Track Acceleration (Y)

Rear Seat Track 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)

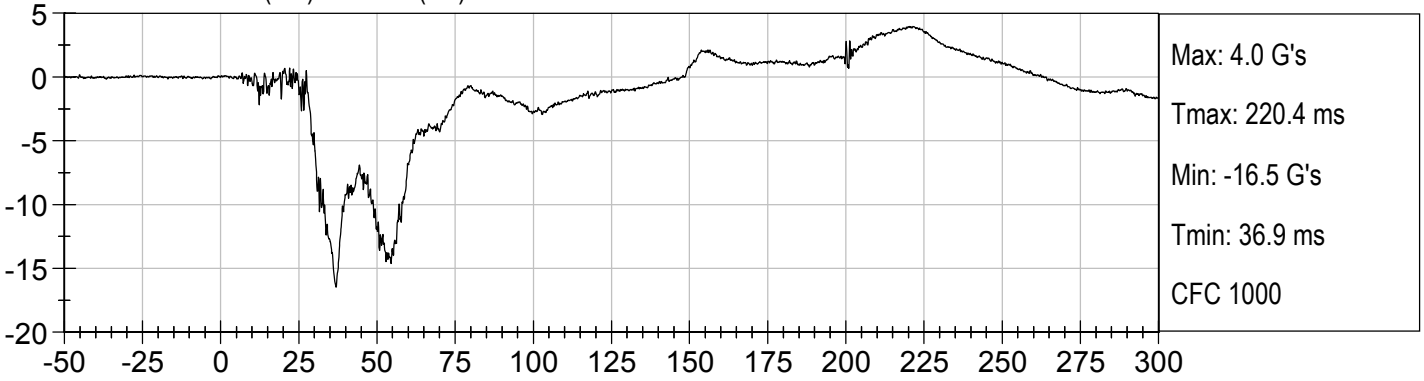
MDB Rear Acceleration (X)

MDB Rear Acceleration (Y)

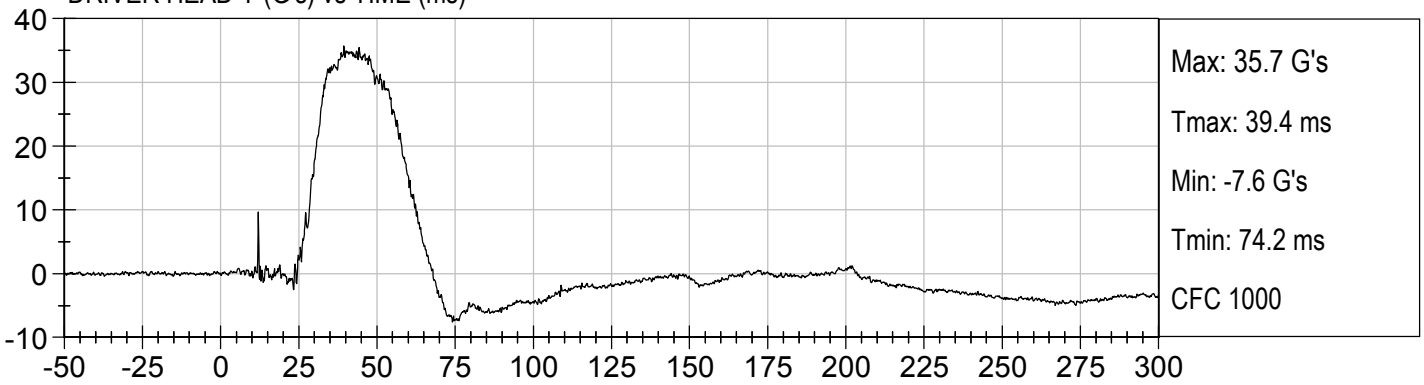
Left MDB Contact Switch

Right MDB Contact Switch

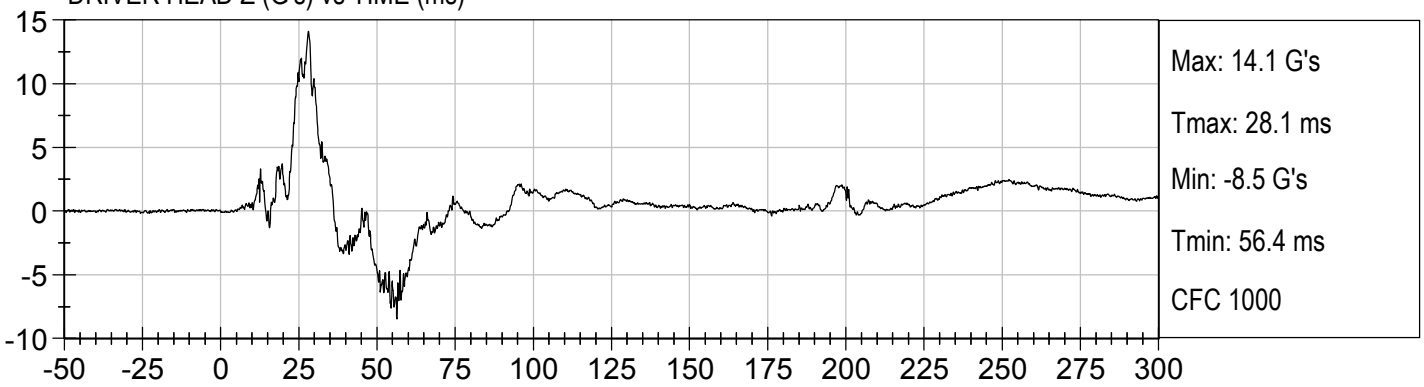
DRIVER HEAD X (G's) vs TIME (ms)



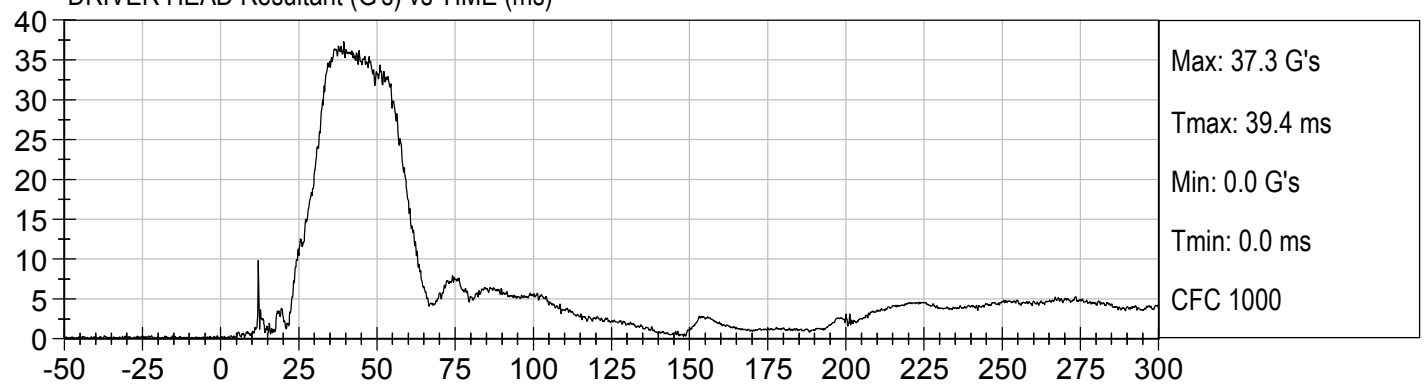
DRIVER HEAD Y (G's) vs TIME (ms)



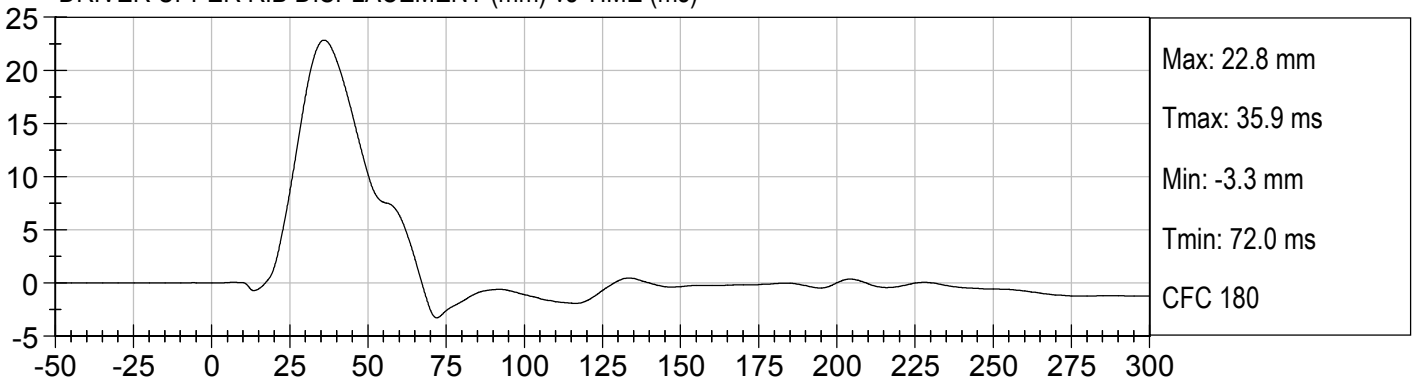
DRIVER HEAD Z (G's) vs TIME (ms)



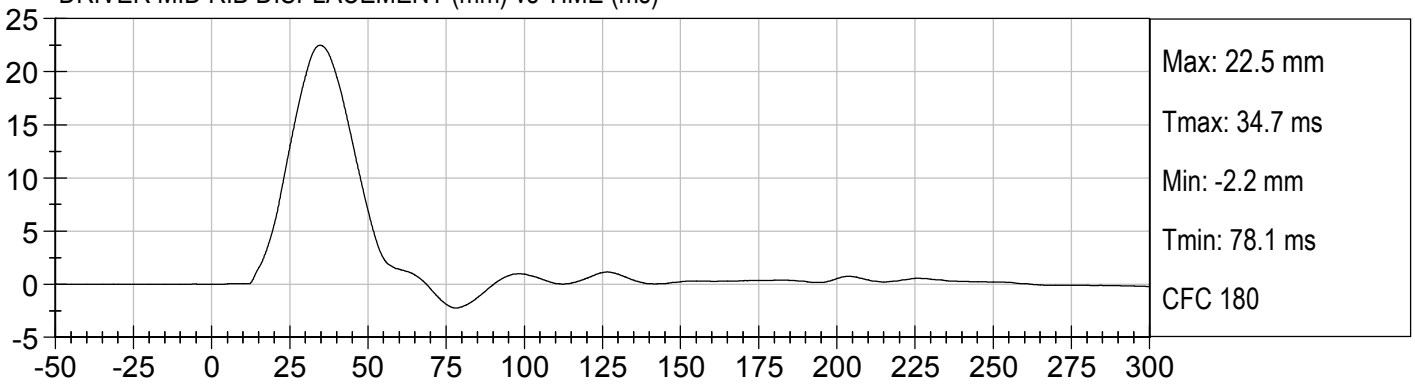
DRIVER HEAD Resultant (G's) vs TIME (ms)



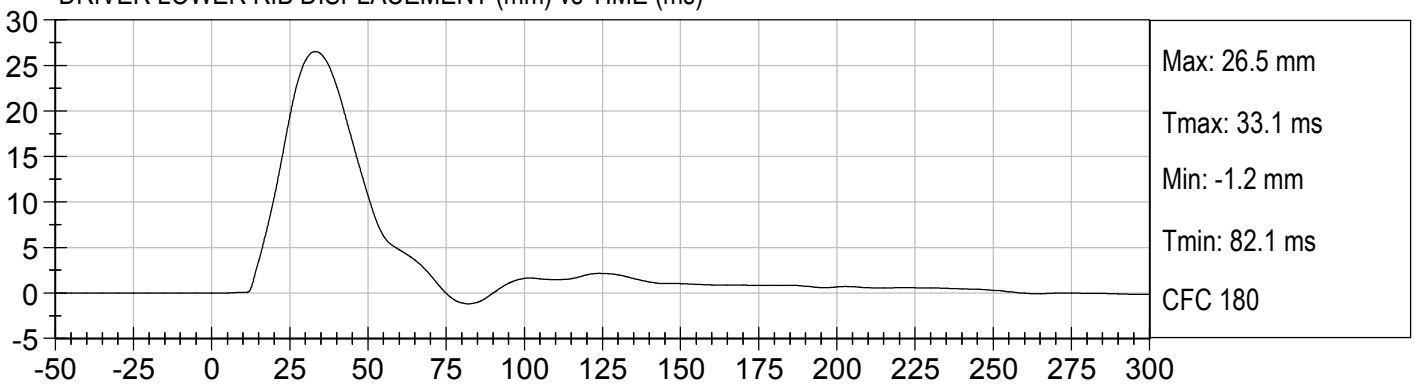
DRIVER UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



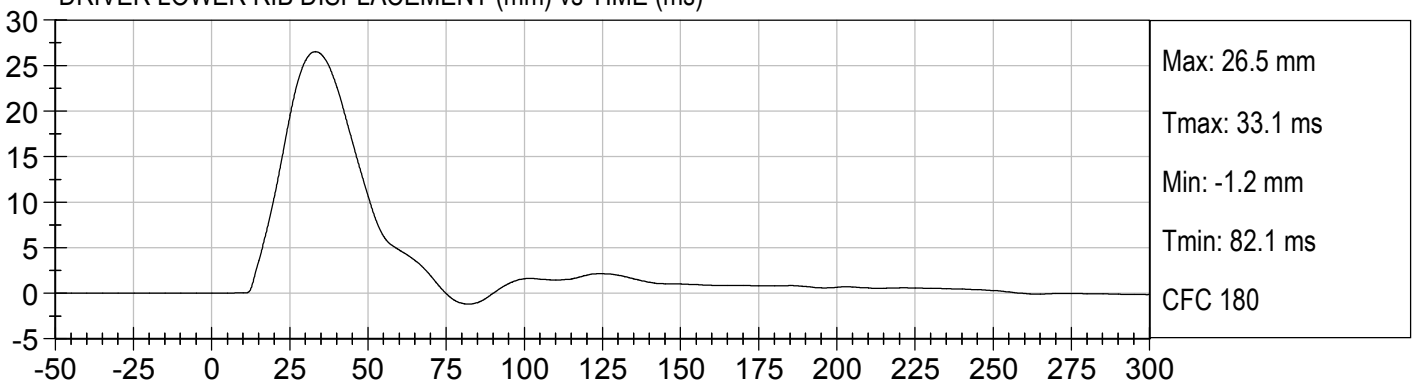
DRIVER MID RIB DISPLACEMENT (mm) vs TIME (ms)



DRIVER LOWER RIB DISPLACEMENT (mm) vs TIME (ms)

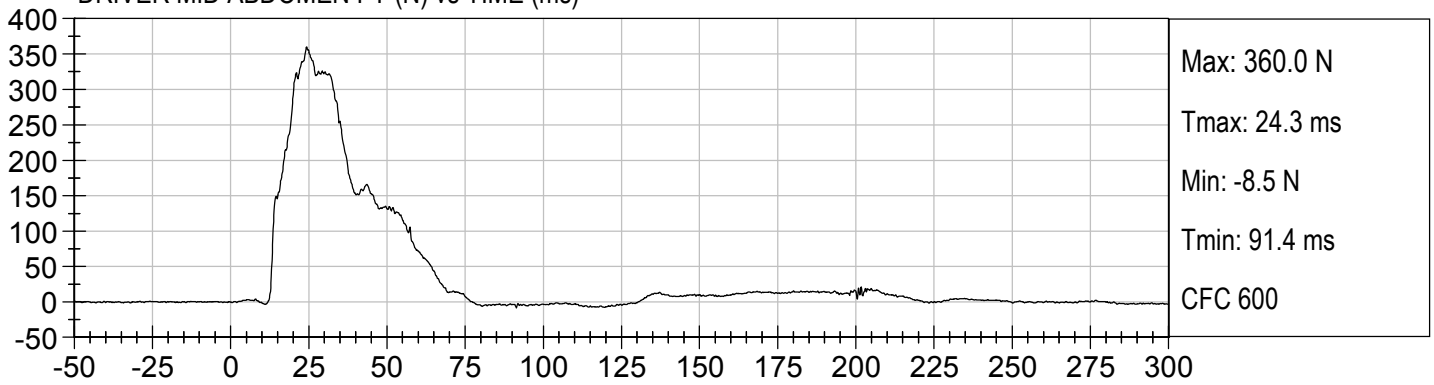


DRIVER LOWER RIB DISPLACEMENT (mm) vs TIME (ms)

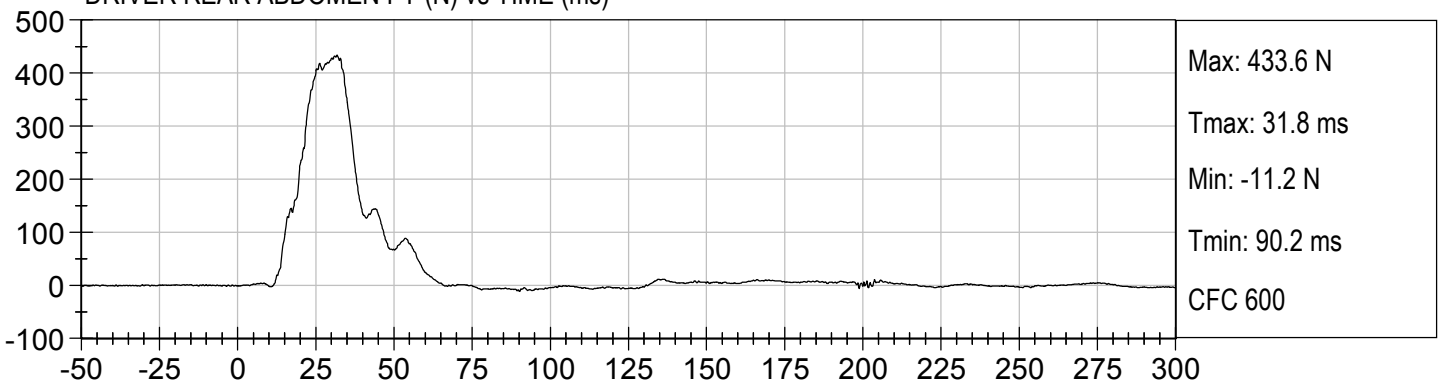


DRIVER FRONT ABDOMEN FY (N) vs TIME (ms)

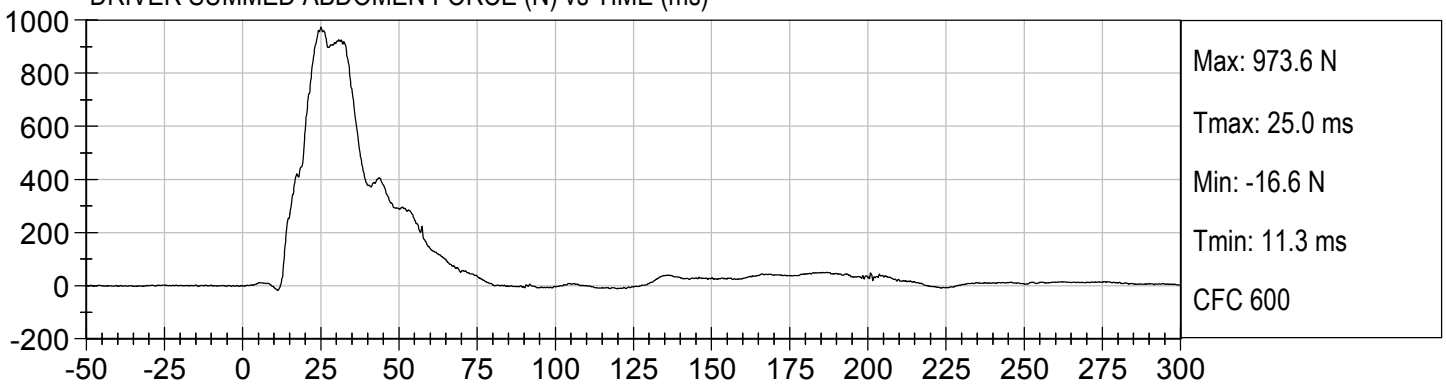
DRIVER MID ABDOMEN FY (N) vs TIME (ms)

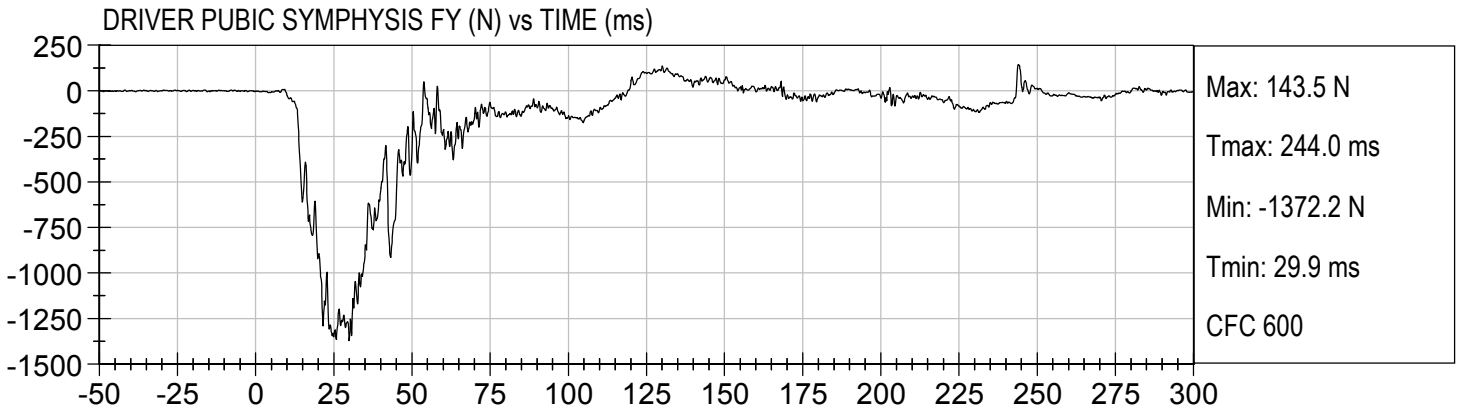


DRIVER REAR ABDOMEN FY (N) vs TIME (ms)

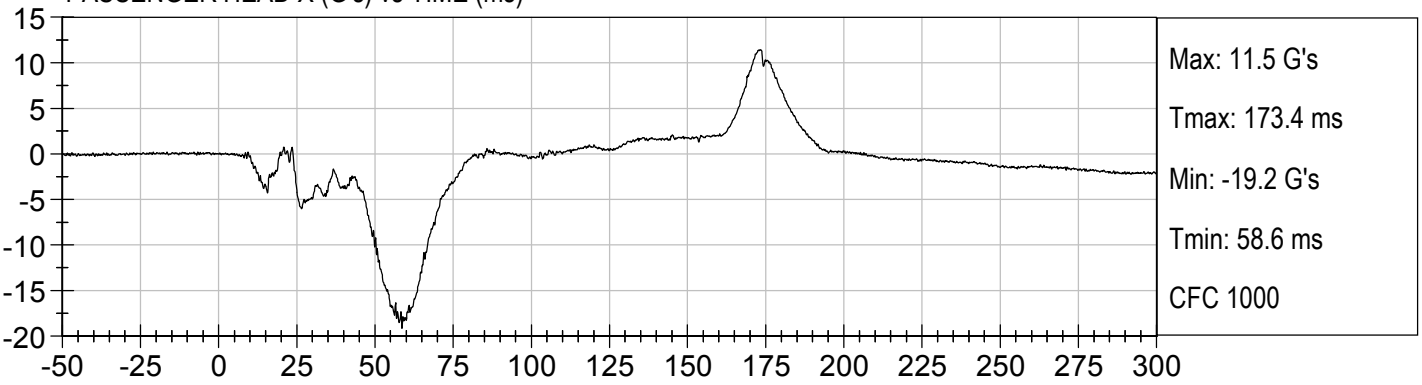


DRIVER SUMMED ABDOMEN FORCE (N) vs TIME (ms)

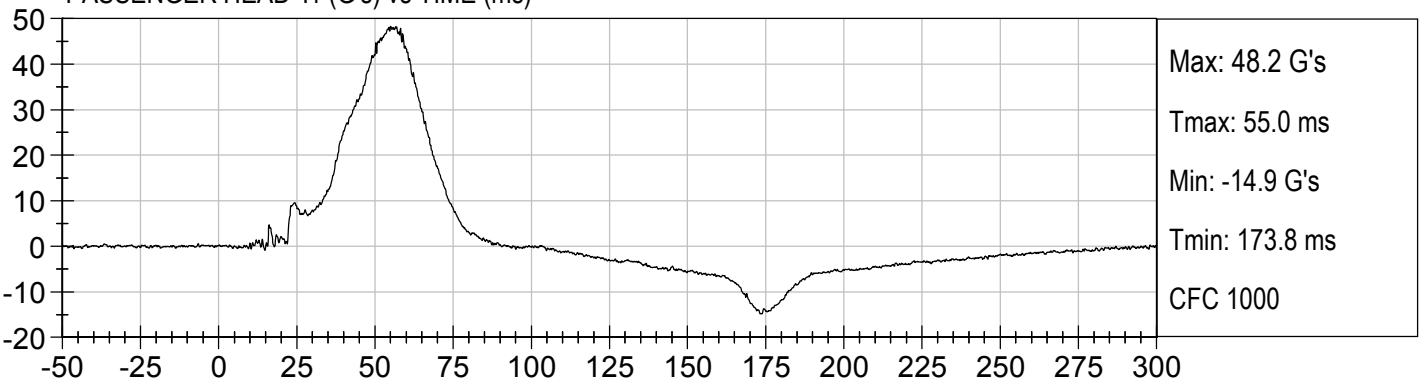



DRIVER PUBIC SYMPHYSIS FY (N) vs TIME (ms)
250
0
-250
-500
-750
-1000
-1250
-1500
-50
-25
0
25
50
75
100
125
150
175
200
225
250
275
300
Max: 143.5 N
Tmax: 244.0 ms
Min: -1372.2 N
Tmin: 29.9 ms
CFC 600

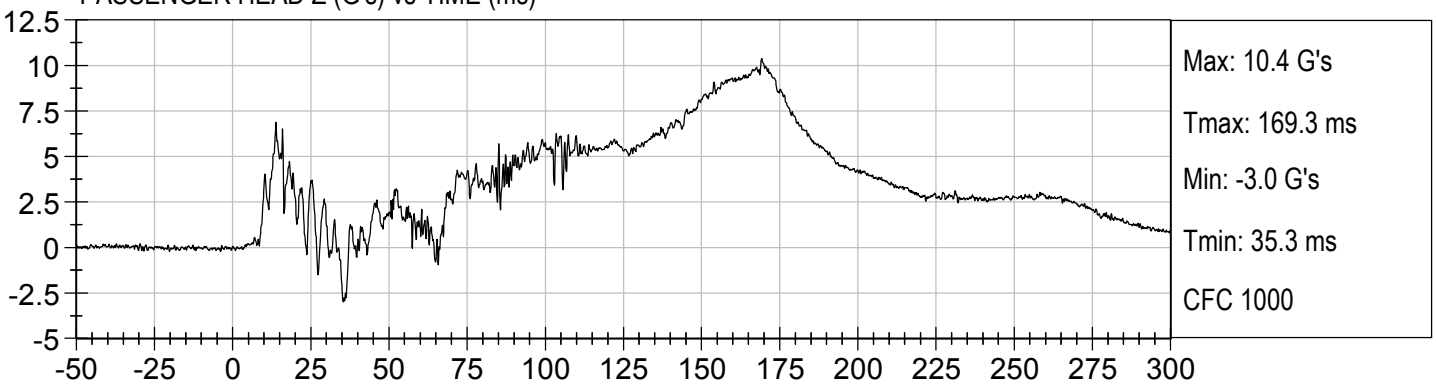
PASSENGER HEAD X (G's) vs TIME (ms)



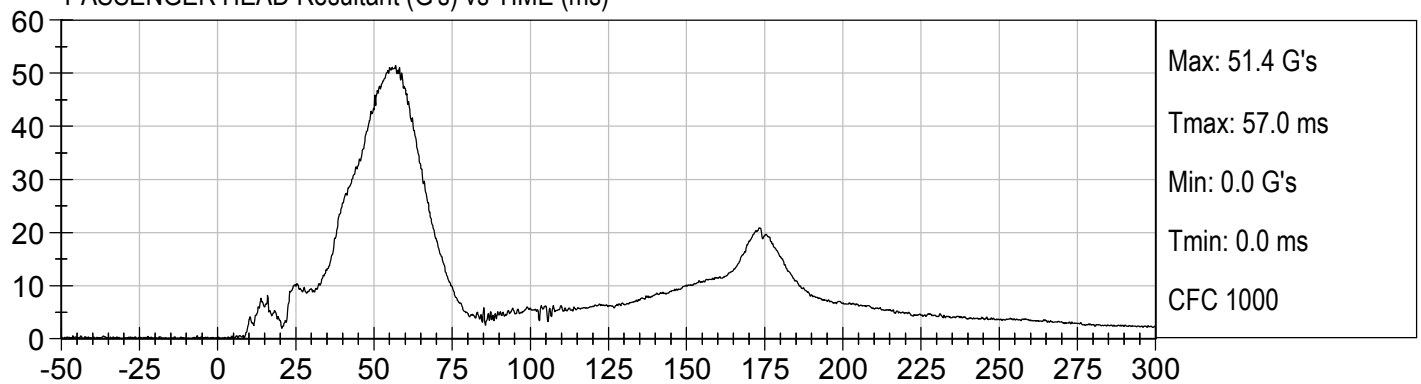
PASSENGER HEAD Yr (G's) vs TIME (ms)



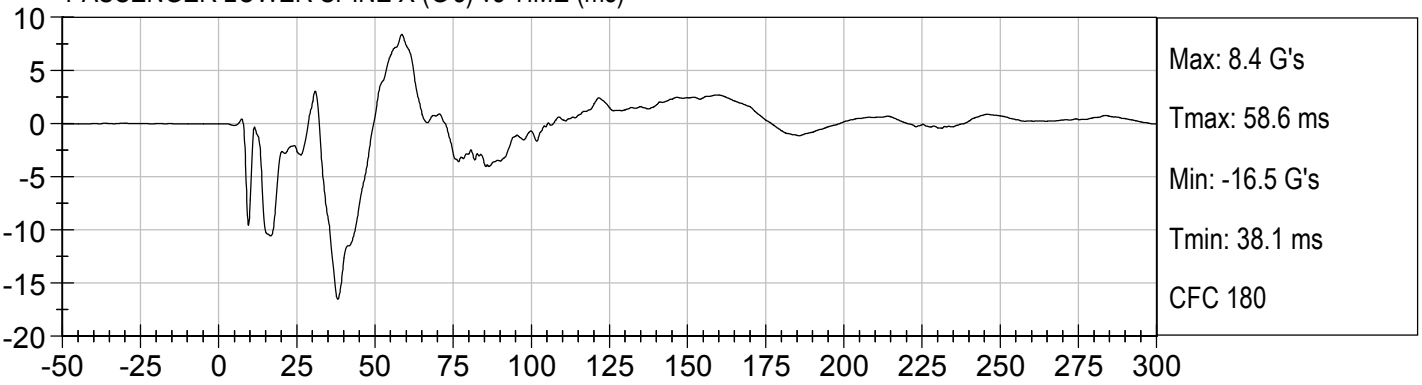
PASSENGER HEAD Z (G's) vs TIME (ms)



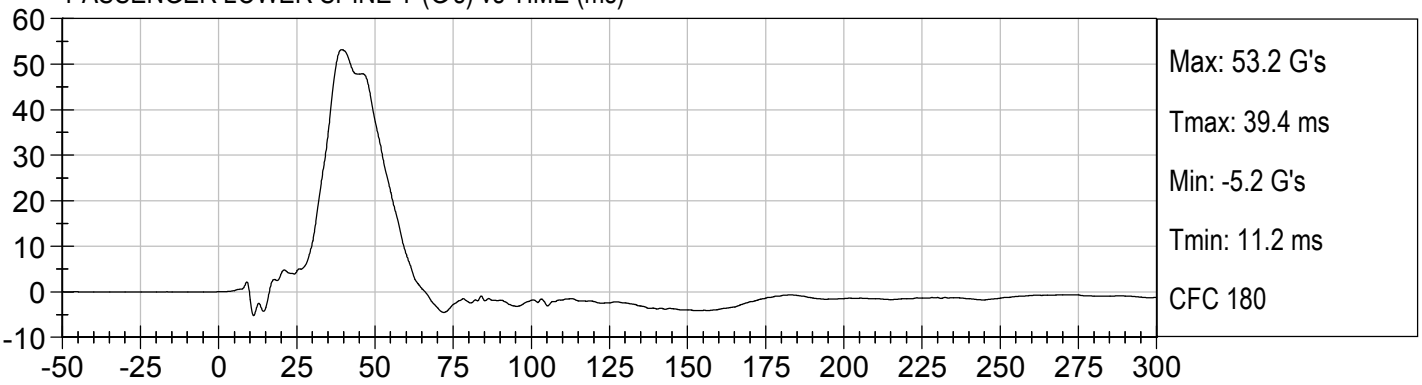
PASSENGER HEAD Resultant (G's) vs TIME (ms)



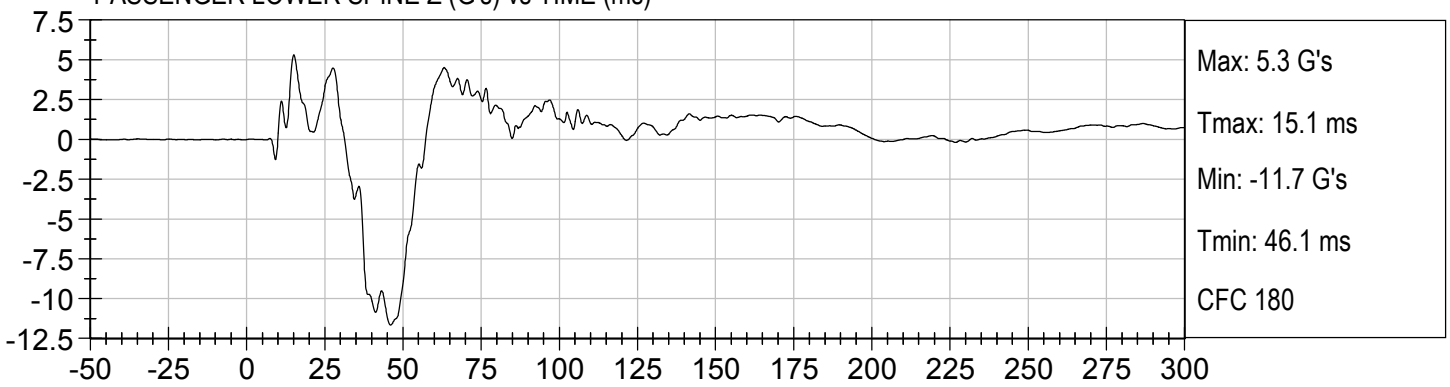
PASSENGER LOWER SPINE X (G's) vs TIME (ms)



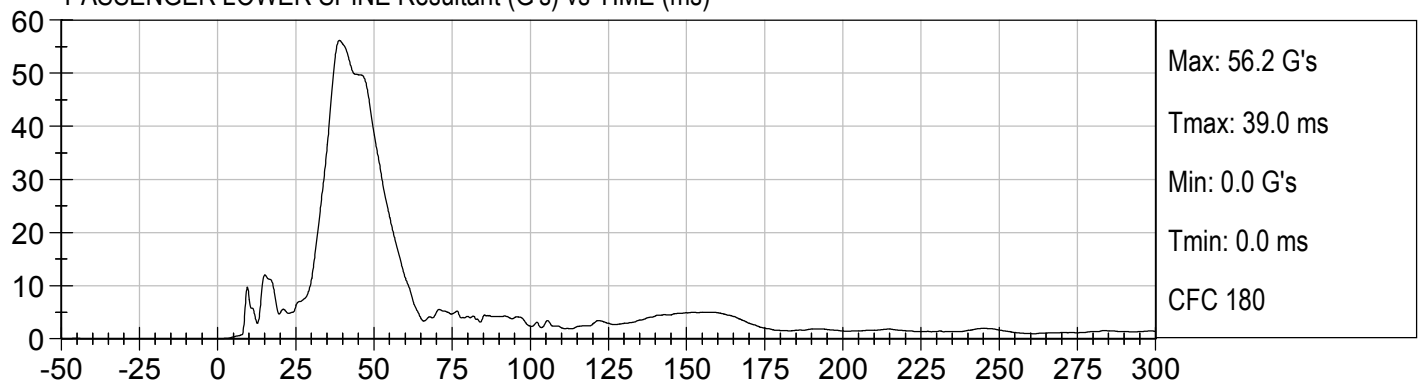
PASSENGER LOWER SPINE Y (G's) vs TIME (ms)



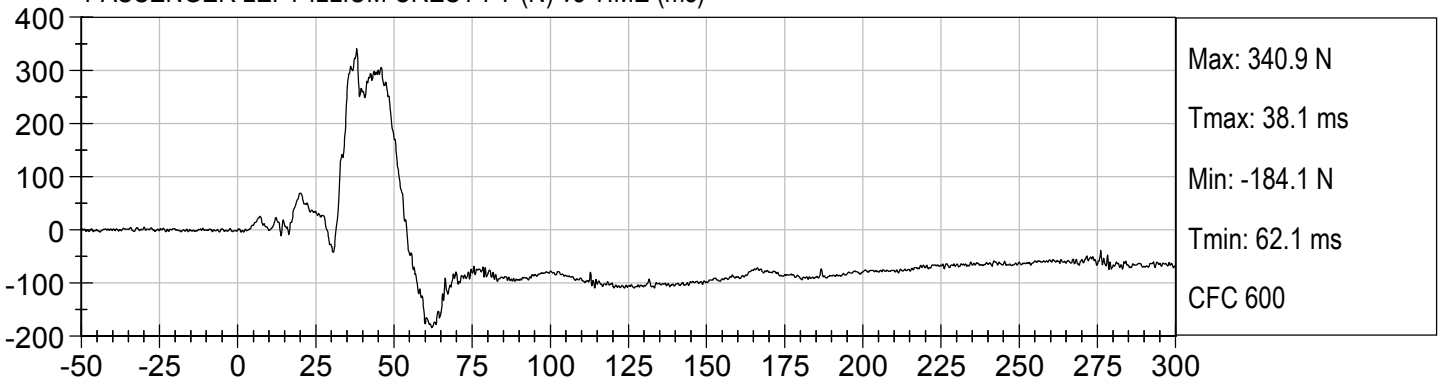
PASSENGER LOWER SPINE Z (G's) vs TIME (ms)



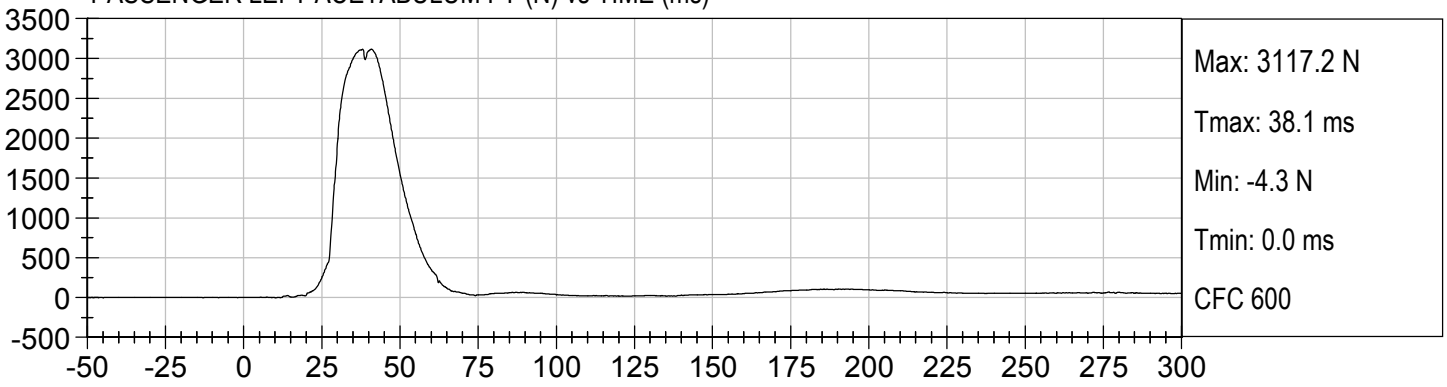
PASSENGER LOWER SPINE Resultant (G's) vs TIME (ms)



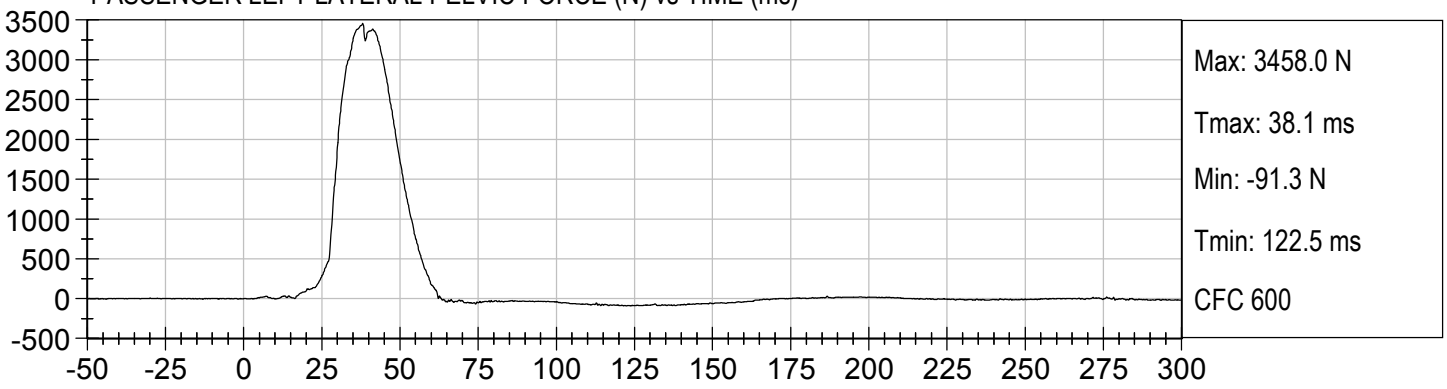
PASSENGER LEFT ILLIUM CREST FY (N) vs TIME (ms)



PASSENGER LEFT ACETABULUM FY (N) vs TIME (ms)



PASSENGER LEFT LATERAL PELVIC FORCE (N) vs TIME (ms)



APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

ES-2re External Measurements
SN: 032

No.	Name	Spec. (mm)	Result	Pass/Fail
1	Sitting Height	900 - 918	915	Pass
2	Seat to Shoulder Joint	558 - 572	568	Pass
3	Seat to Lower Face of Thoracic Spine Box	346 - 356	355	Pass
4	Seat to Hip Joint (center of bolt)	97 - 103	98	Pass
5	Sole to Seat, Sitting	333 - 451	440	Pass
6	Head Width	152 - 158	157	Pass
7	Shoulder/Arm Width	461 - 479	464	Pass
8	Thorax Width	322 - 332	323	Pass
9	Abdomen Width	273 - 287	281	Pass
10	Pelvis Lap Width	359 - 373	370	Pass
11	Head Depth	196 - 206	203	Pass
12	Thorax Depth	262 - 272	264	Pass
13	Abdomen Depth	194 - 204	196	Pass
14	Pelvis Depth	235 - 245	236	Pass
15	Back of Buttocks to Hip Joint (center of bolt)	150 - 160	151	Pass
16	Back of Buttocks to Front Knee	597 - 615	607	Pass

MGA RESEARCH CORPORATION

HEAD DROP TEST

ES-2re DUMMY

ATD Serial No: 032 **Test ID:** D143881

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	22.0	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Peak Resultant Acceleration	G's	125 to 155	140	Pass
Peak Longitudinal Acceleration	G's	<= +/- 15.0	7.0	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 15% of peak	Yes	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

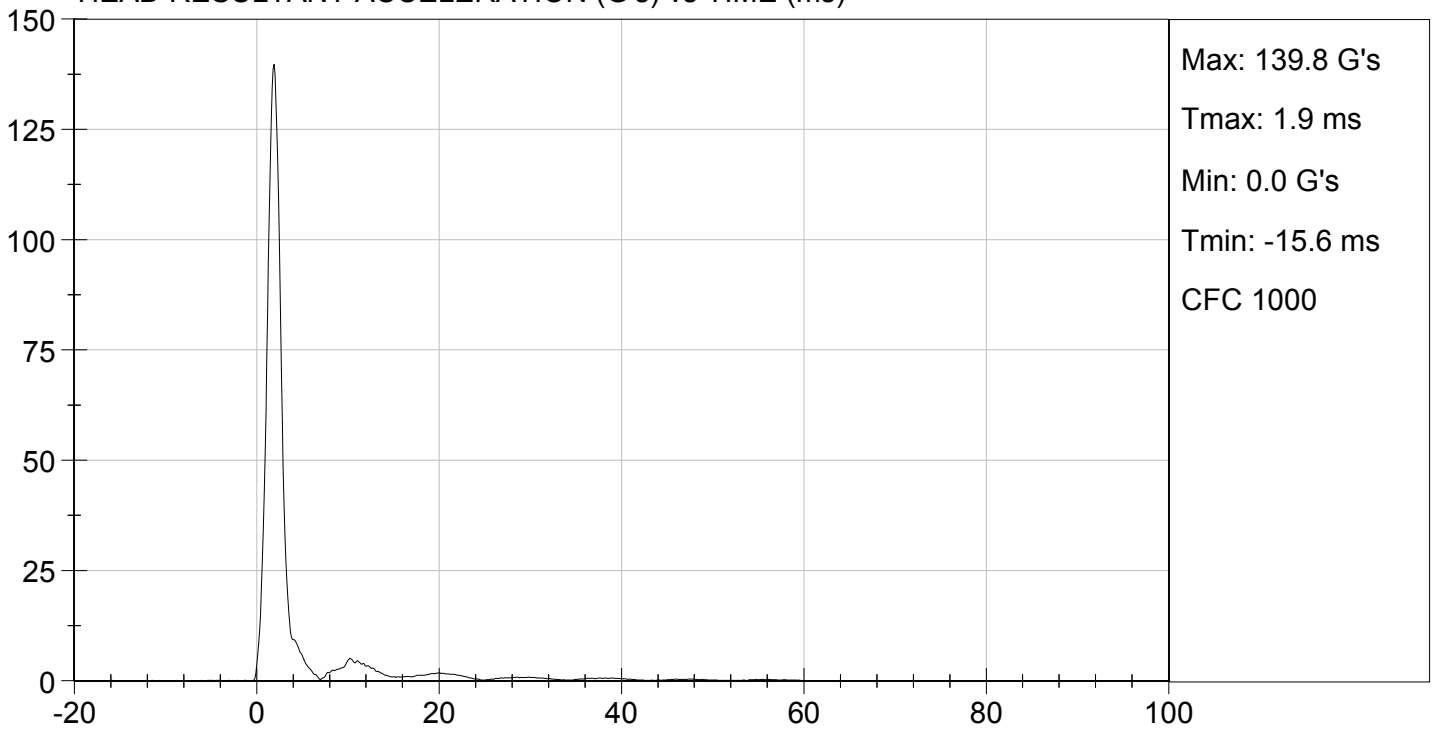
11/04/2014
Test Date

Jessica Gall
Approved By

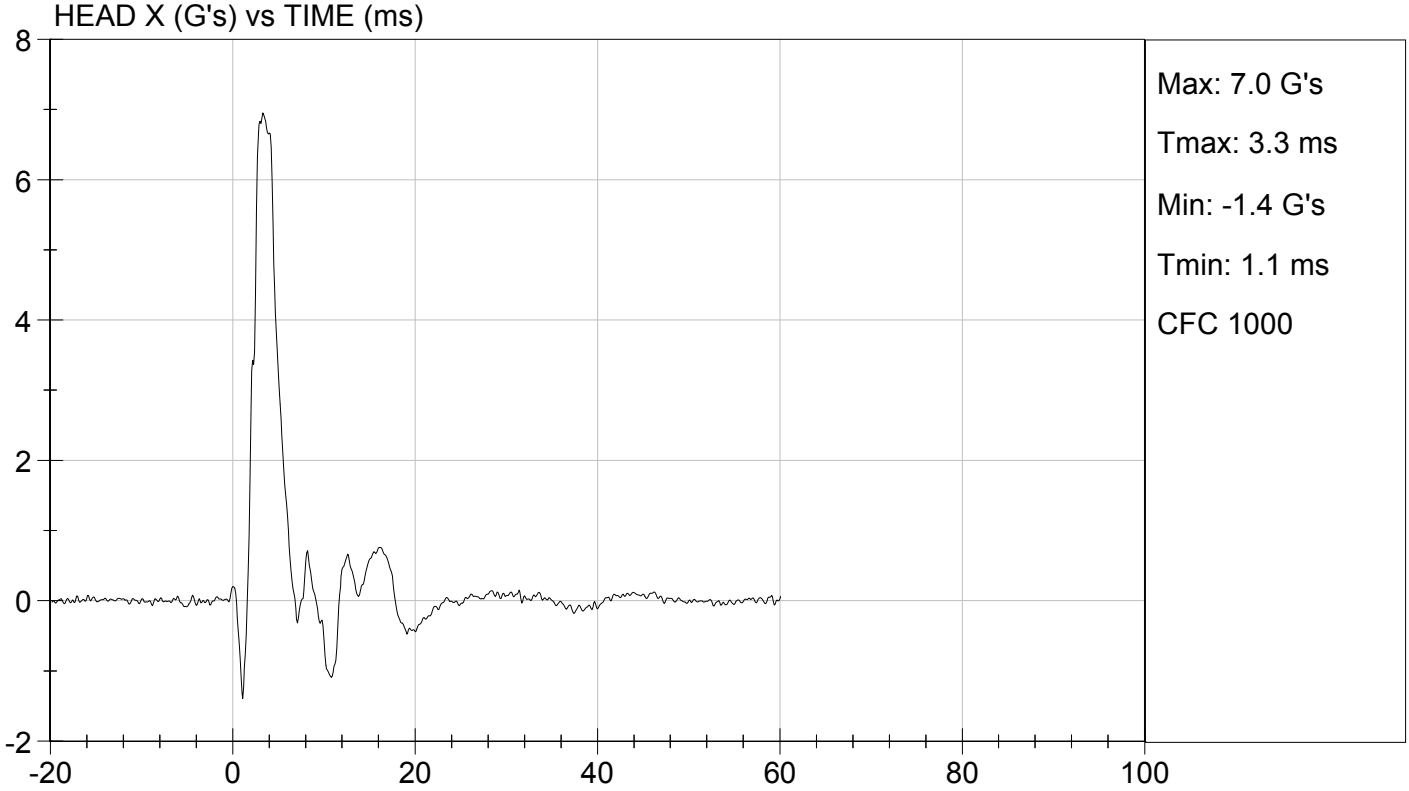
TEST DESC: HEAD DROP

TEST DATE: 11/04/2014
TEST #: D143881

HEAD RESULTANT ACCELERATION (G's) vs TIME (ms)



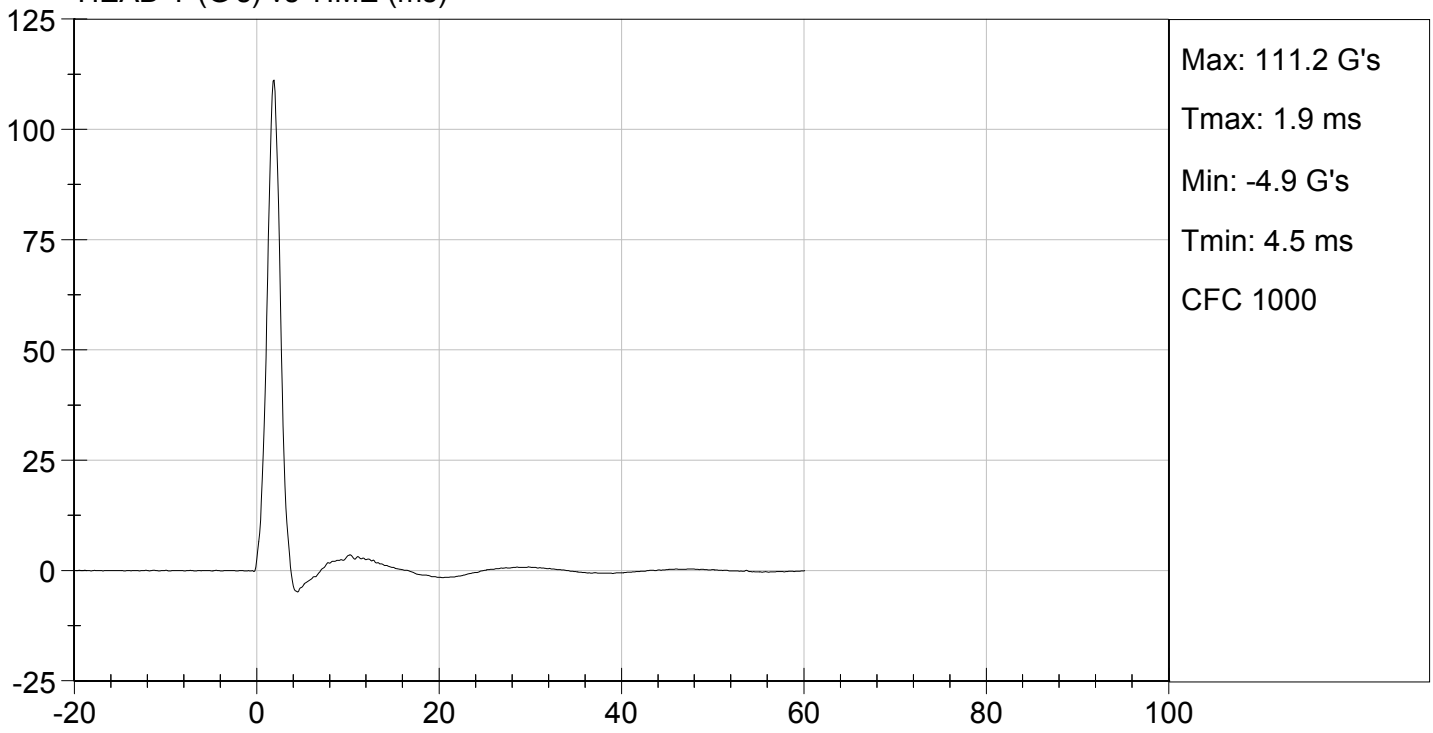
HEAD X (G's) vs TIME (ms)



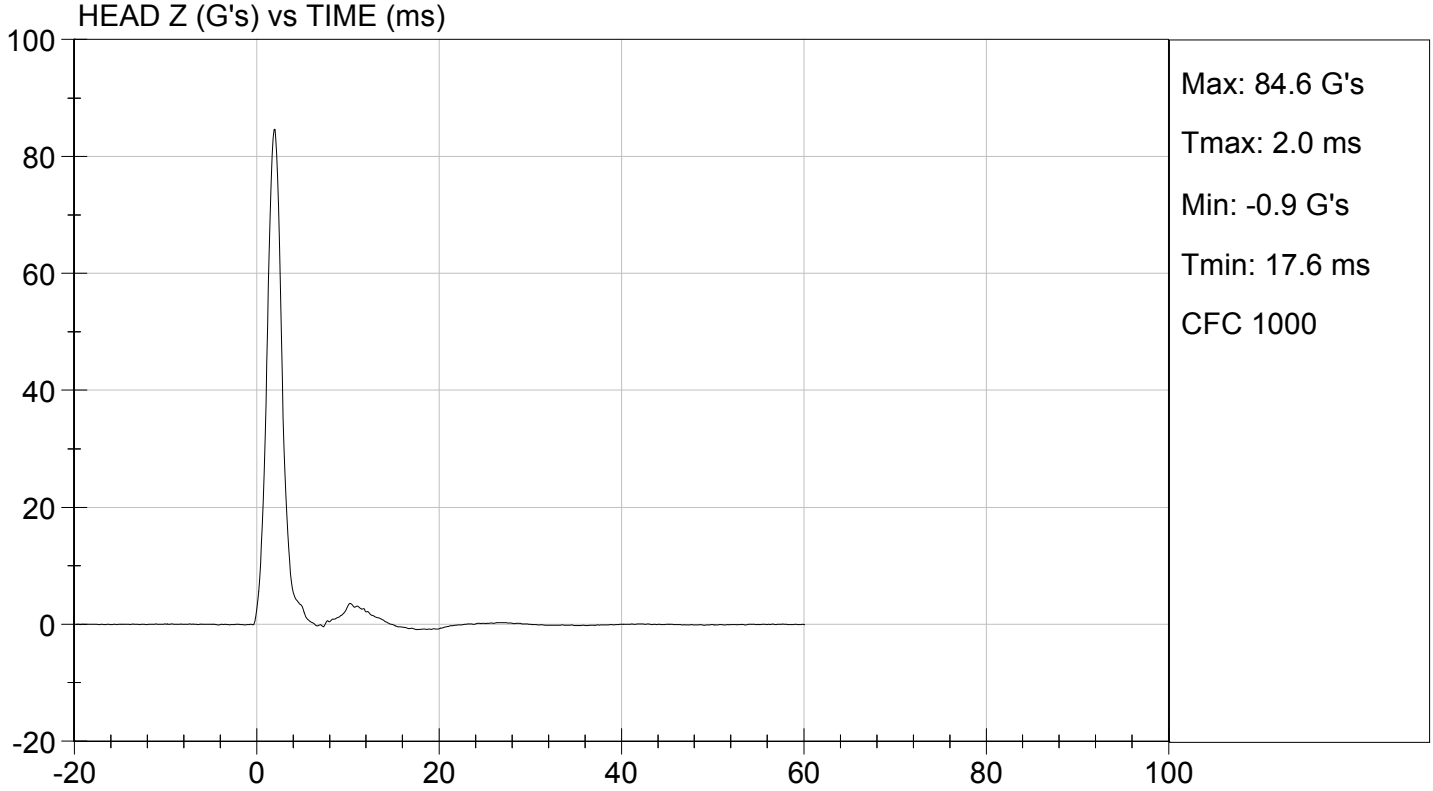
TEST DESC: HEAD DROP

TEST DATE: 11/04/2014
TEST #: D143881

HEAD Y (G's) vs TIME (ms)



HEAD Z (G's) vs TIME (ms)



MGA RESEARCH CORPORATION

NECK PENDULUM TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143882

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	29	Pass
Pendulum Speed		m/s	3.30 to 3.50	3.46	Pass
Pendulum Velocity	1 ms	m/s	-0.05 to 0.00	-0.02	Pass
	3 ms	m/s	-0.25 to -0.375	-0.33	Pass
	14 ms	m/s	-3.20 to -3.70	-3.31	Pass
	17 ms	m/s	>= -3.70	-3.46	Pass
Maximum Flexion Angle		deg	49.0 to 59.0	50.9	Pass
Time of Maximum Flexion Angle		ms	54.0 to 66.0	56.5	Pass
Head Rotation Decay Time to 0 Degree		ms	53.0 to 88.0	59.8	Pass
			Overall Results		Pass

David Schoedel
Laboratory Technician

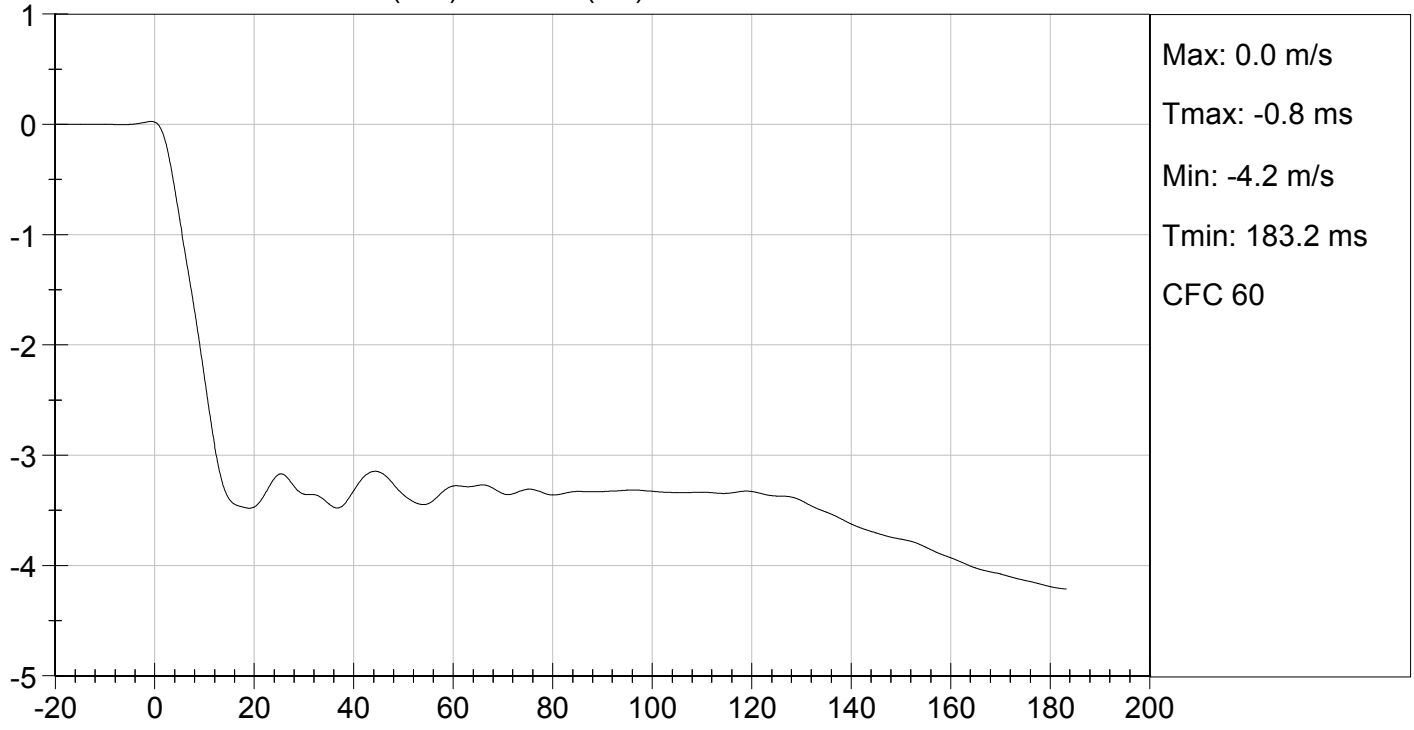
11/04/2014
Test Date

Jessica Gall
Approved By

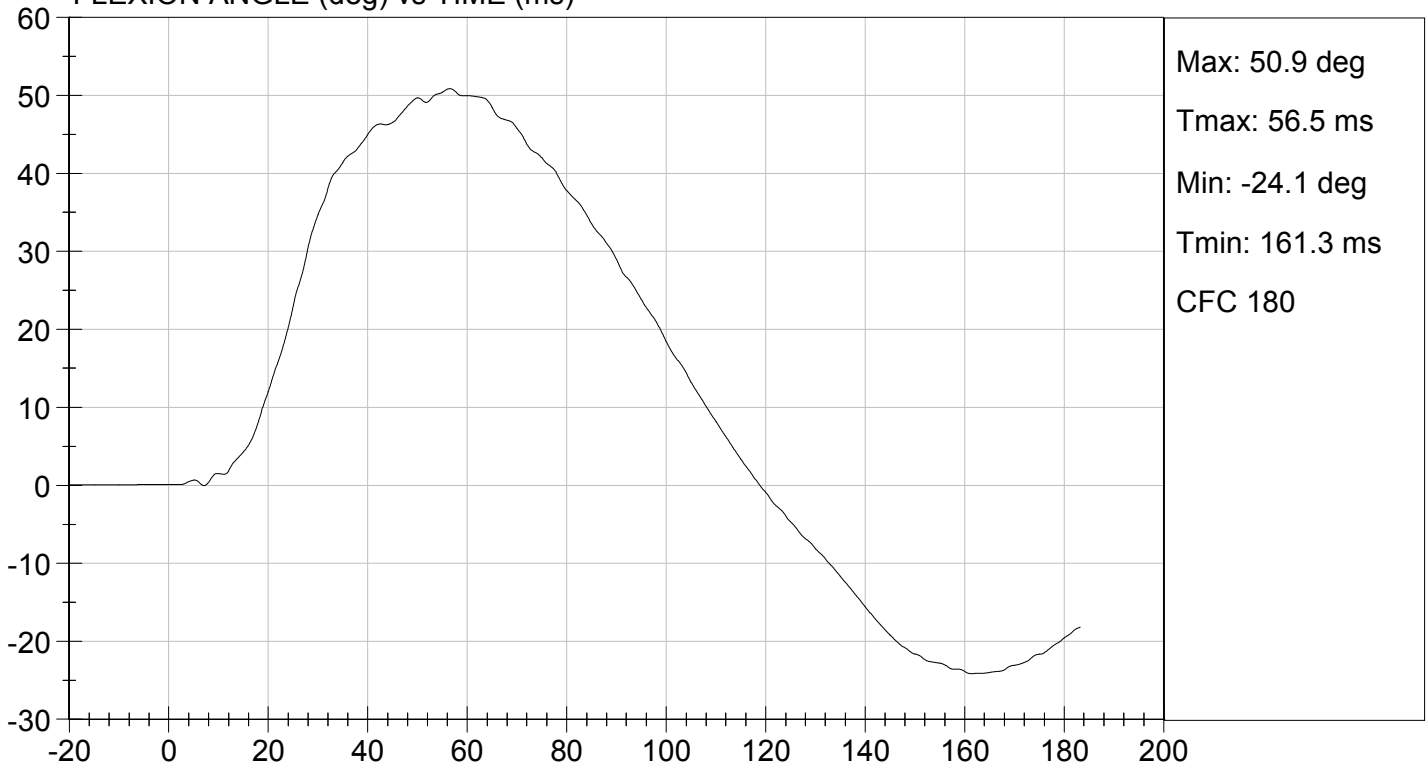
TEST DESC: NECK BENDING
VELOCITY: 11.36 ft/s, 3.46 m/s

TEST DATE: 11/04/2014
TEST #: D143882

PENDULUM VELOCITY (m/s) vs TIME (ms)



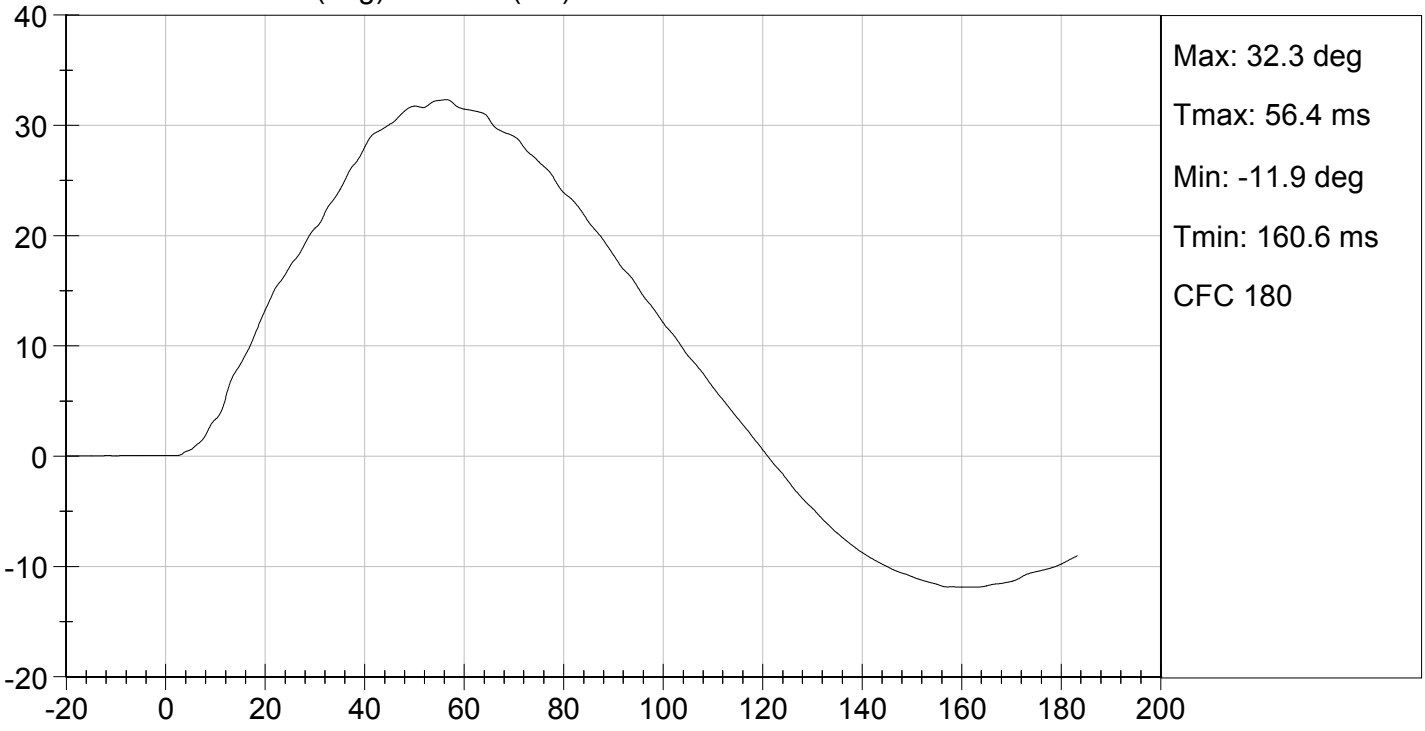
FLEXION ANGLE (deg) vs TIME (ms)



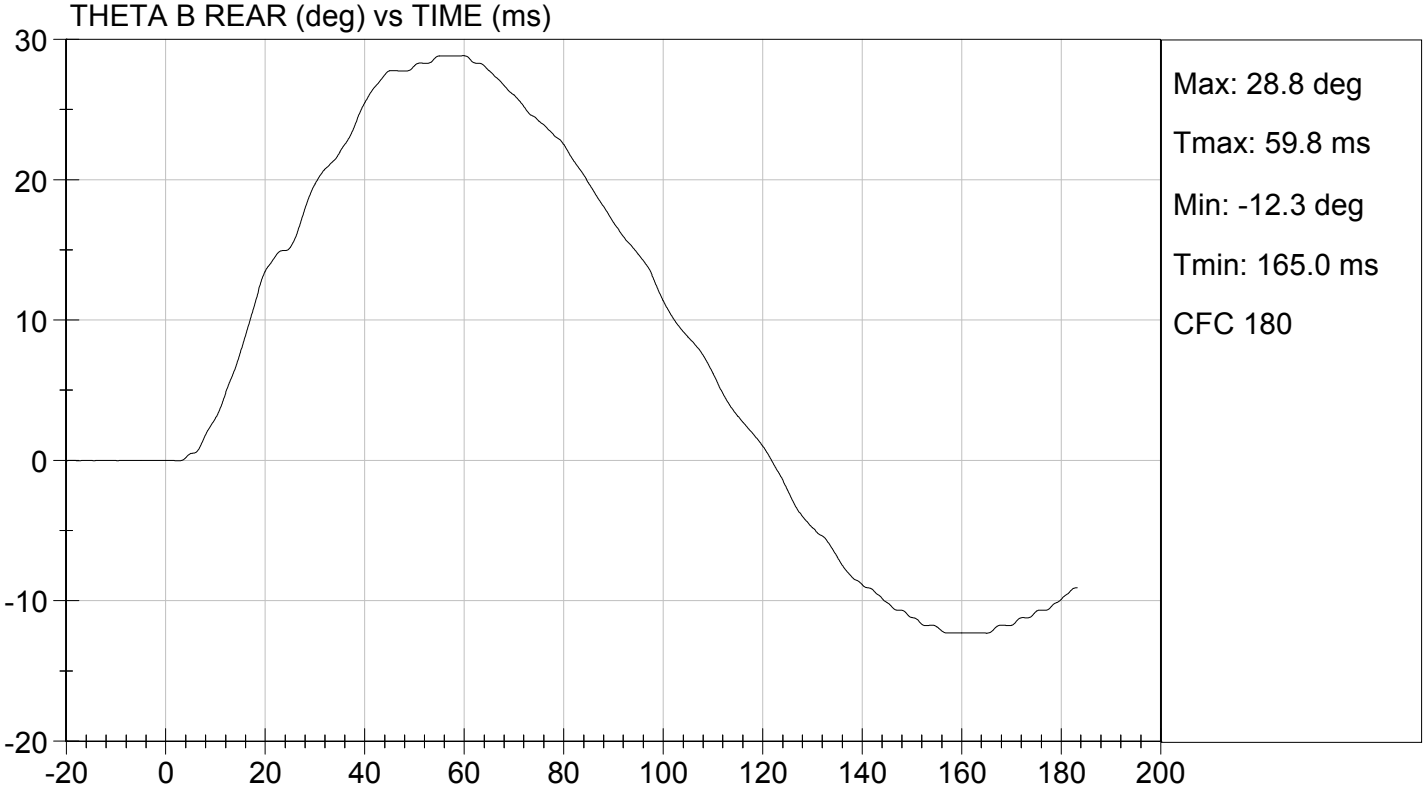
TEST DESC: NECK BENDING
VELOCITY: 11.36 ft/s, 3.46 m/s

TEST DATE: 11/04/2014
TEST #: D143882

THETA A FRONT (deg) vs TIME (ms)

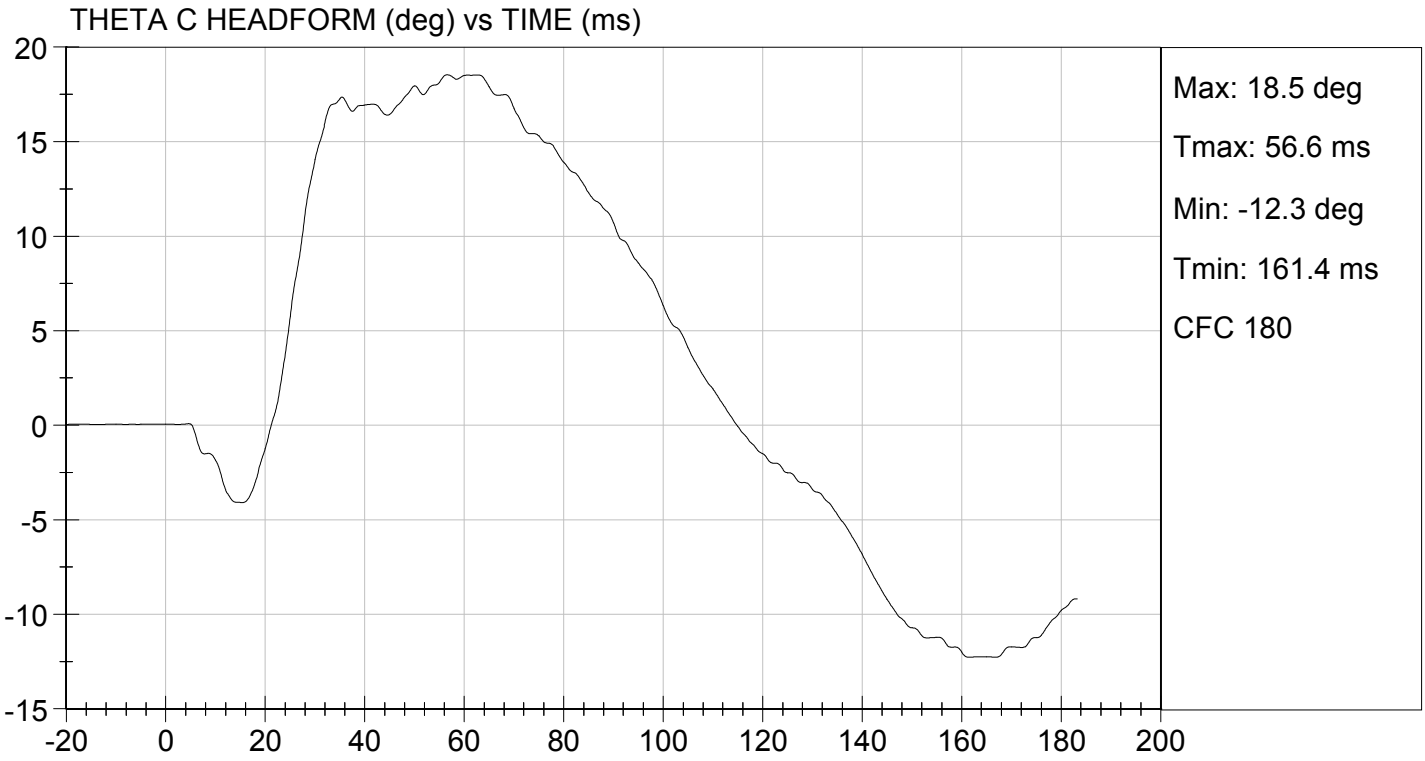


THETA B REAR (deg) vs TIME (ms)



TEST DESC: NECK BENDING
VELOCITY: 11.36 ft/s, 3.46 m/s

TEST DATE: 11/04/2014
TEST #: D143882



MGA RESEARCH CORPORATION

SHOULDER IMPACT TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143883

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	35	Pass
Pendulum Speed	m/s	4.20 to 4.40	4.3	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	9.7	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

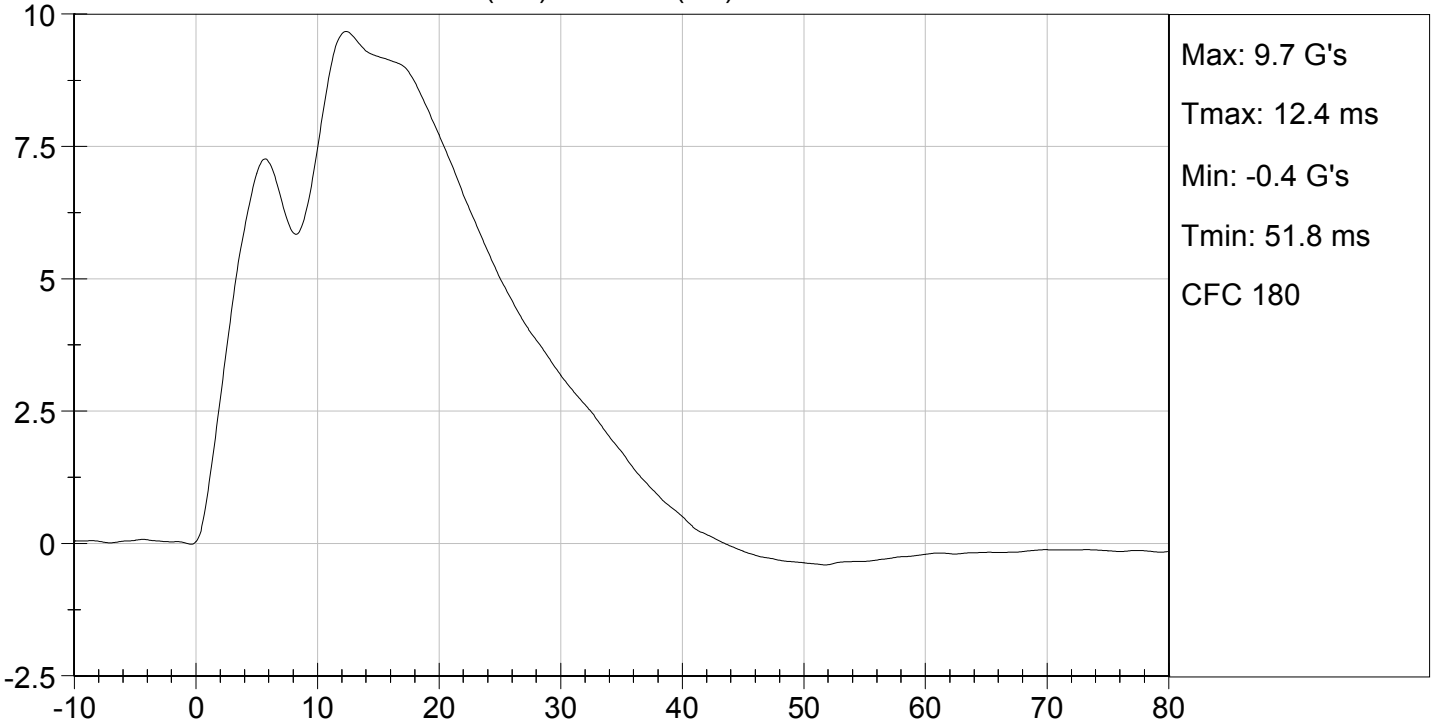
11/04/2014
Test Date

Jessica Gall
Approved By

TEST DESC: SHOULDER IMPACT
VELOCITY: 14.12 ft/s, 4.3 m/s

TEST DATE: 11/04/2014
TEST #: D143883

IMPACTOR ACCELERATION (G's) vs TIME (ms)



MGA RESEARCH CORPORATION

UPPER RIB TEST

ES-2re DUMMY

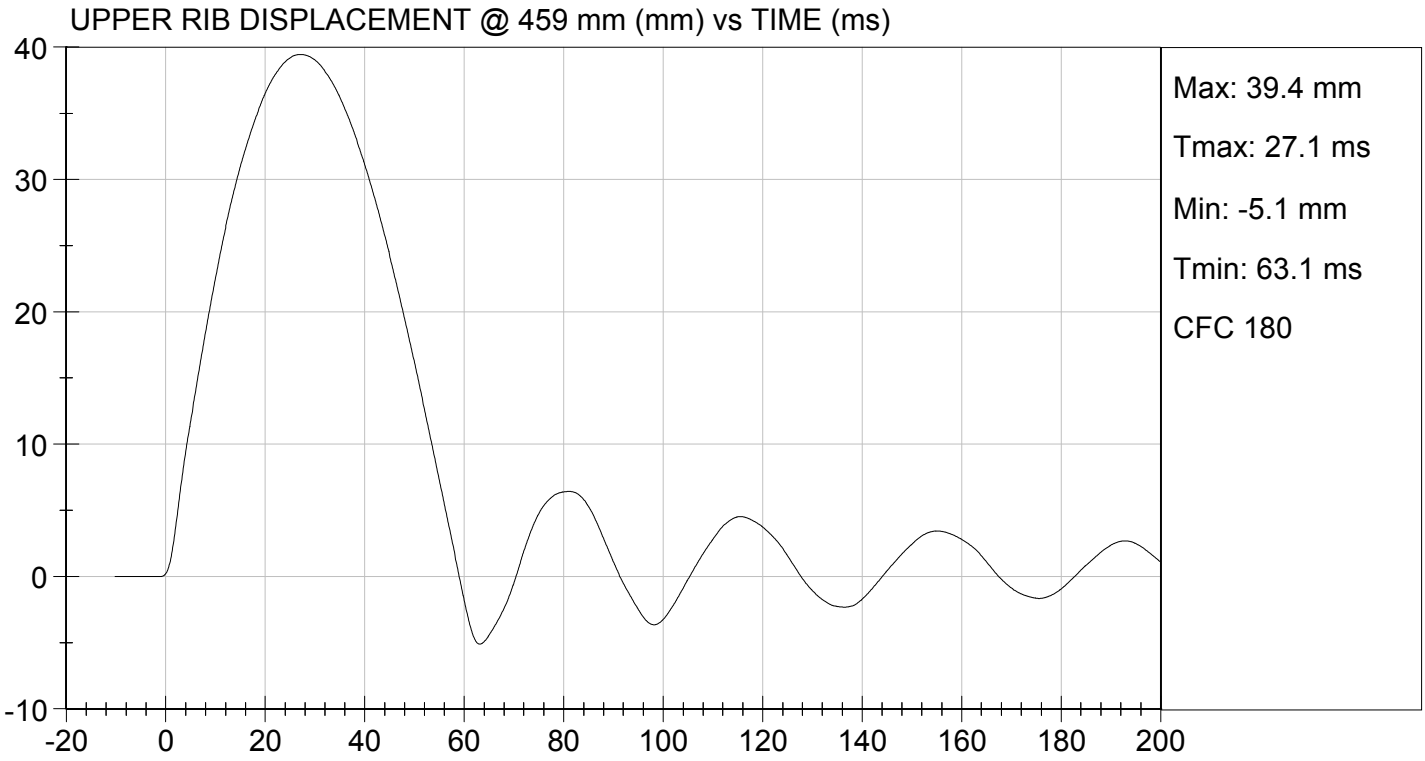
ATD Serial No: 032 **Test I.D:** D143884

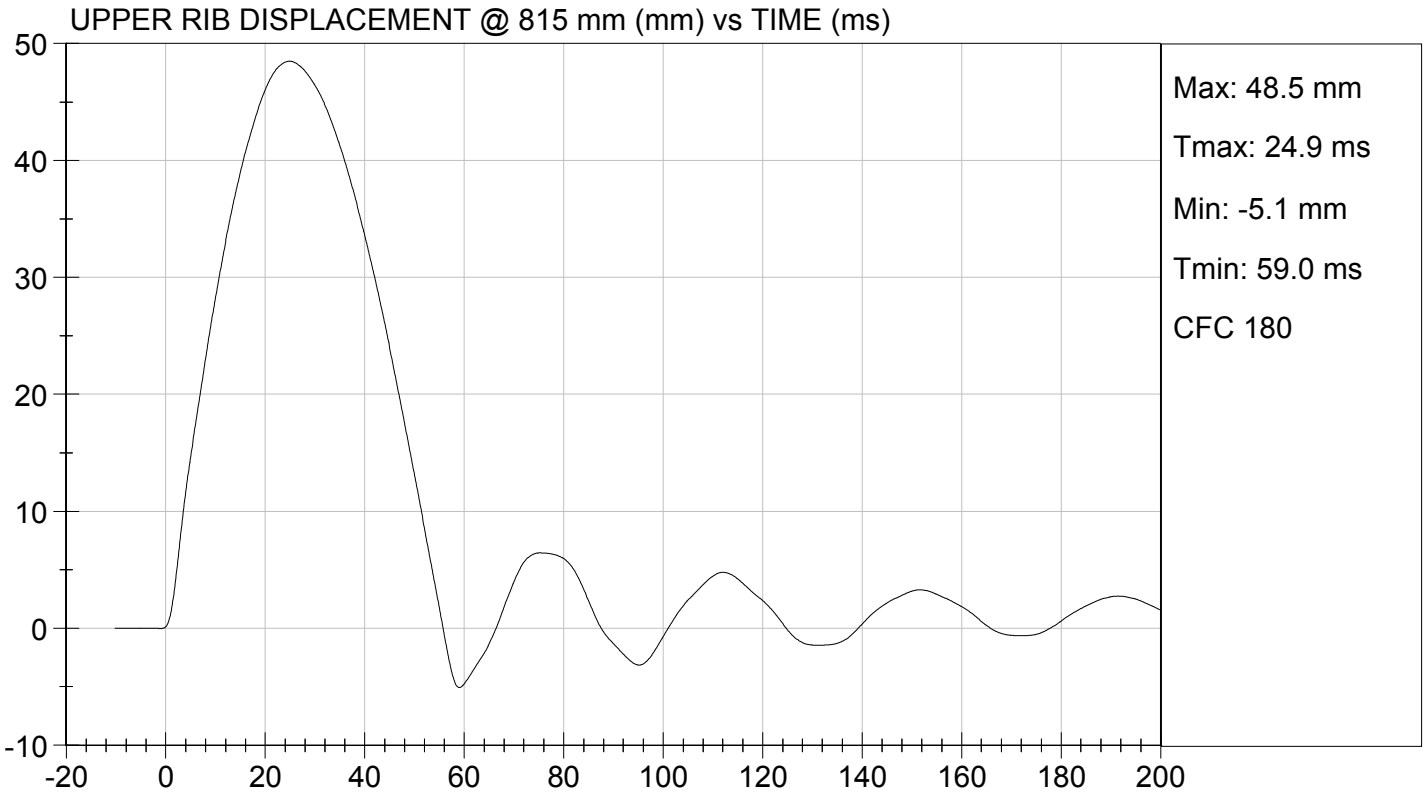
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	40	Pass
Displacement at 459 mm	mm	36.0 to 40.0	39.4	Pass
Displacement at 815 mm	mm	46.0 to 51.0	48.5	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

11/04/2014
Test Date

Jessica Hall
Approved By


UPPER RIB DISPLACEMENT @ 459 mm (mm) vs TIME (ms)
40
30
20
10
0
-10
-20
0
20
40
60
80
100
120
140
160
180
200
Max: 39.4 mm
Tmax: 27.1 ms
Min: -5.1 mm
Tmin: 63.1 ms
CFC 180


UPPER RIB DISPLACEMENT @ 815 mm (mm) vs TIME (ms)
50
40
30
20
10
0
-10
-20
0
20
40
60
80
100
120
140
160
180
200
Max: 48.5 mm
Tmax: 24.9 ms
Min: -5.1 mm
Tmin: 59.0 ms
CFC 180

MGA RESEARCH CORPORATION

MID RIB TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143885

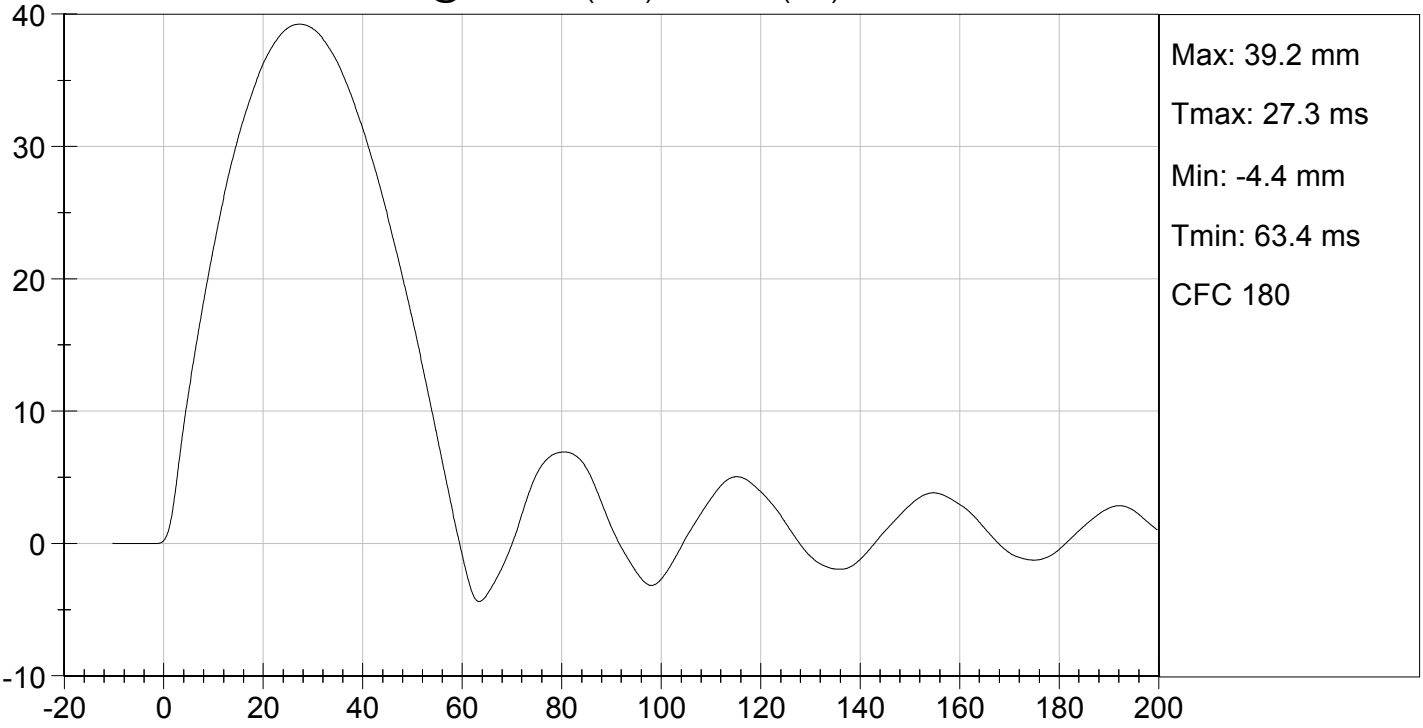
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	40	Pass
Displacement at 459 mm	mm	36.0 to 40.0	39.2	Pass
Displacement at 815 mm	mm	46.0 to 51.0	49.0	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

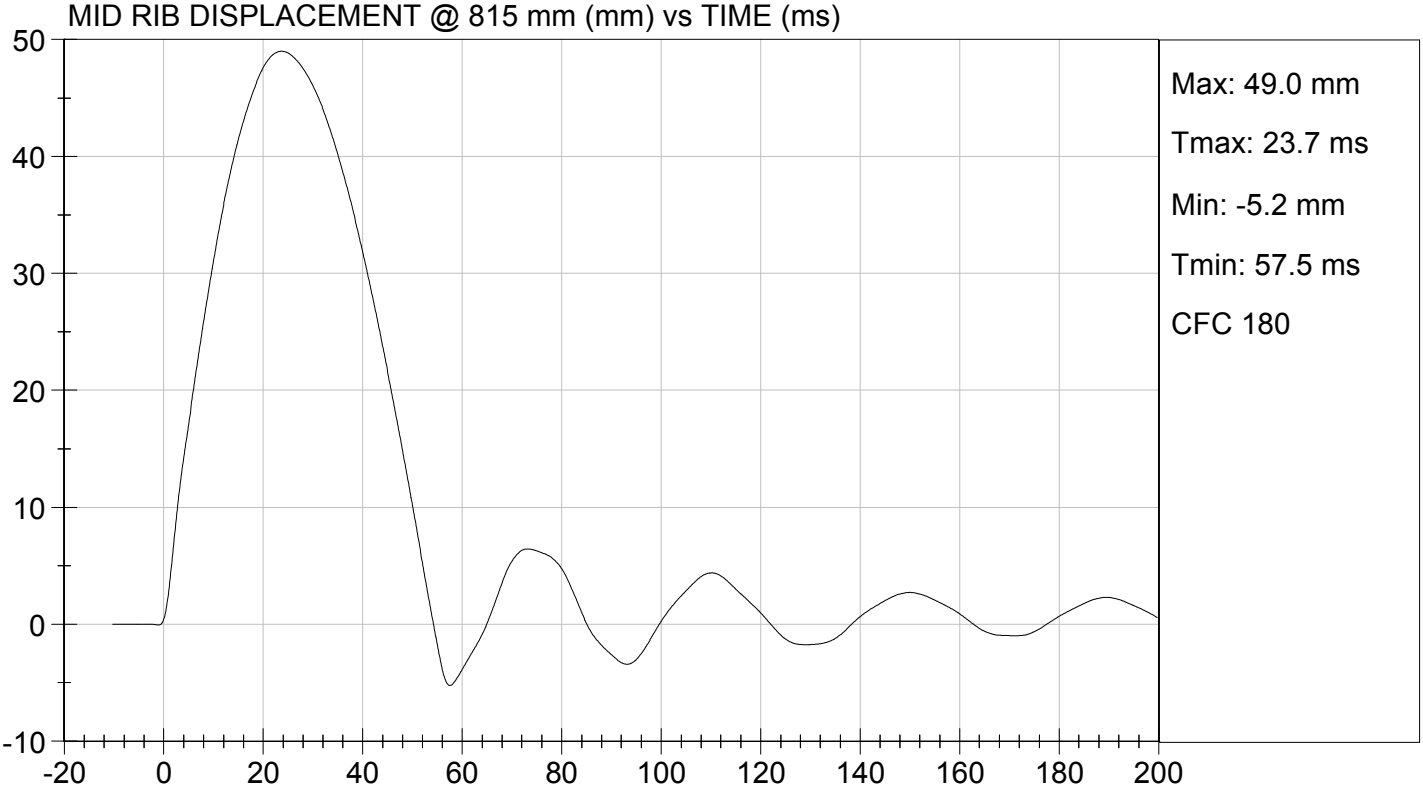
11/04/2014
Test Date

Jessica Hall
Approved By

MID RIB DISPLACEMENT @ 459 mm (mm) vs TIME (ms)



MID RIB DISPLACEMENT @ 815 mm (mm) vs TIME (ms)



MGA RESEARCH CORPORATION

LOWER RIB TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143886

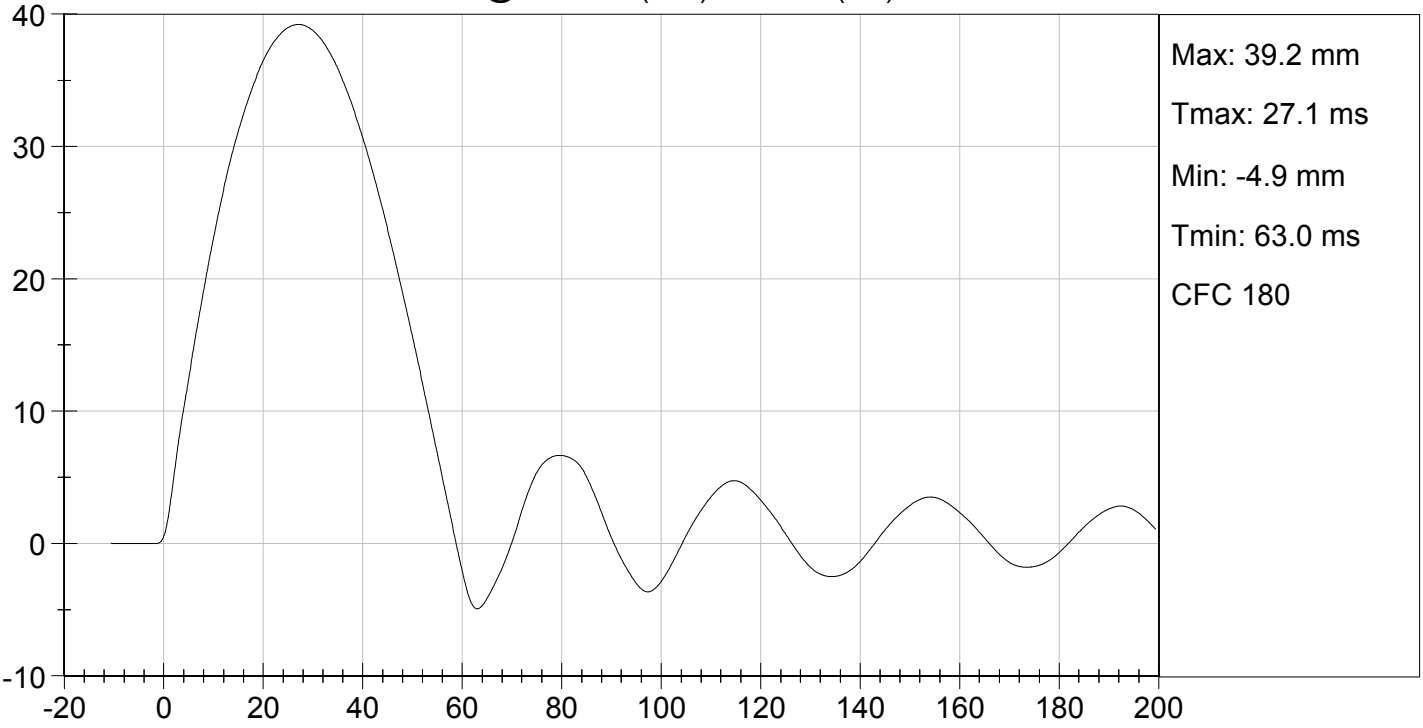
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	40	Pass
Displacement at 459 mm	mm	36.0 to 40.0	39.2	Pass
Displacement at 815 mm	mm	46.0 to 51.0	50.2	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

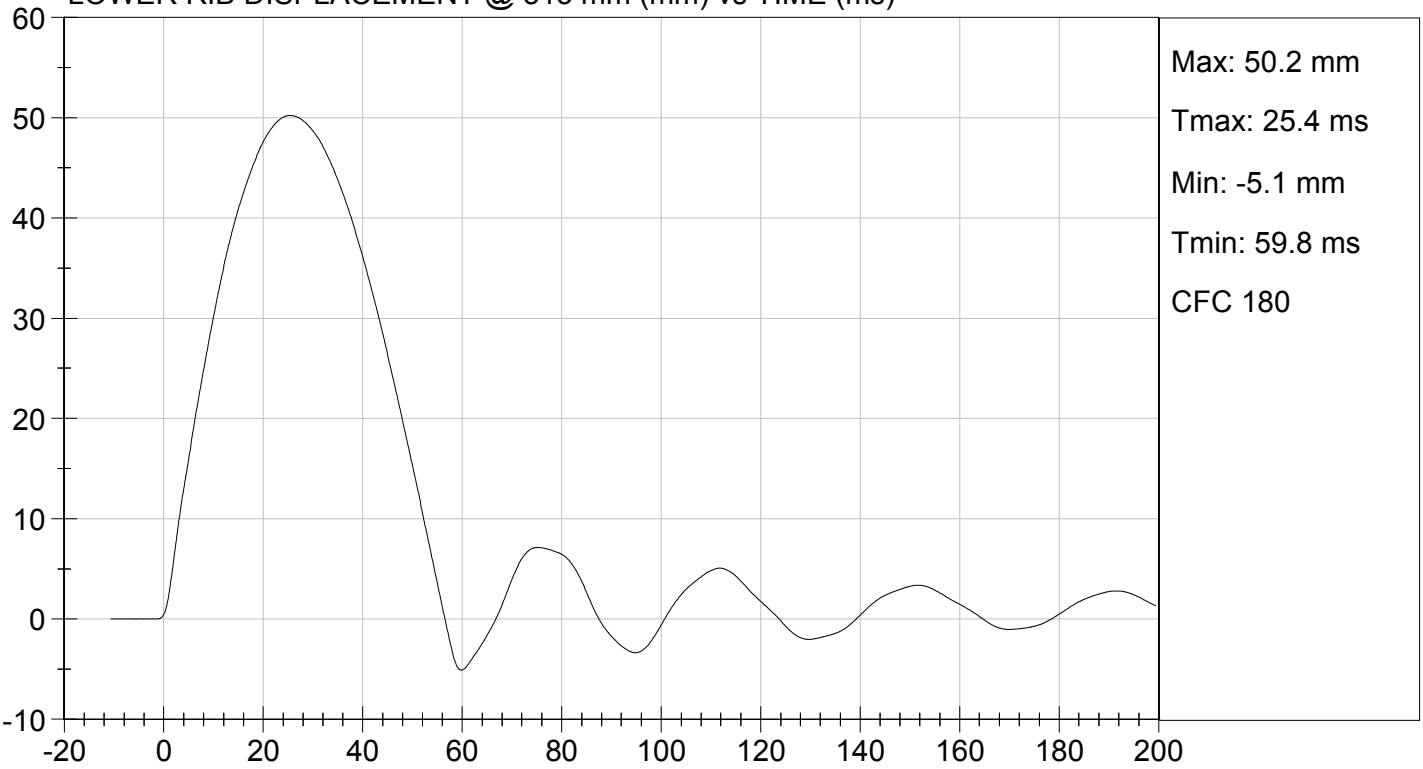
11/04/2014
Test Date

Jessica Hall
Approved By

LOWER RIB DISPLACEMENT @ 459 mm (mm) vs TIME (ms)



LOWER RIB DISPLACEMENT @ 815 mm (mm) vs TIME (ms)



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143880

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	35	Pass
Probe Speed	m/s	5.40 to 5.60	5.52	Pass
Maximum Impactor Force (after 6 ms)	N	5100 to 6200	6105	Pass
Upper Rib Displacement	mm	34.0 to 41.0	38.3	Pass
Middle Rib Displacement	mm	37.0 to 45.0	41.3	Pass
Lower Rib Displacement	mm	37.0 to 44.0	40.6	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

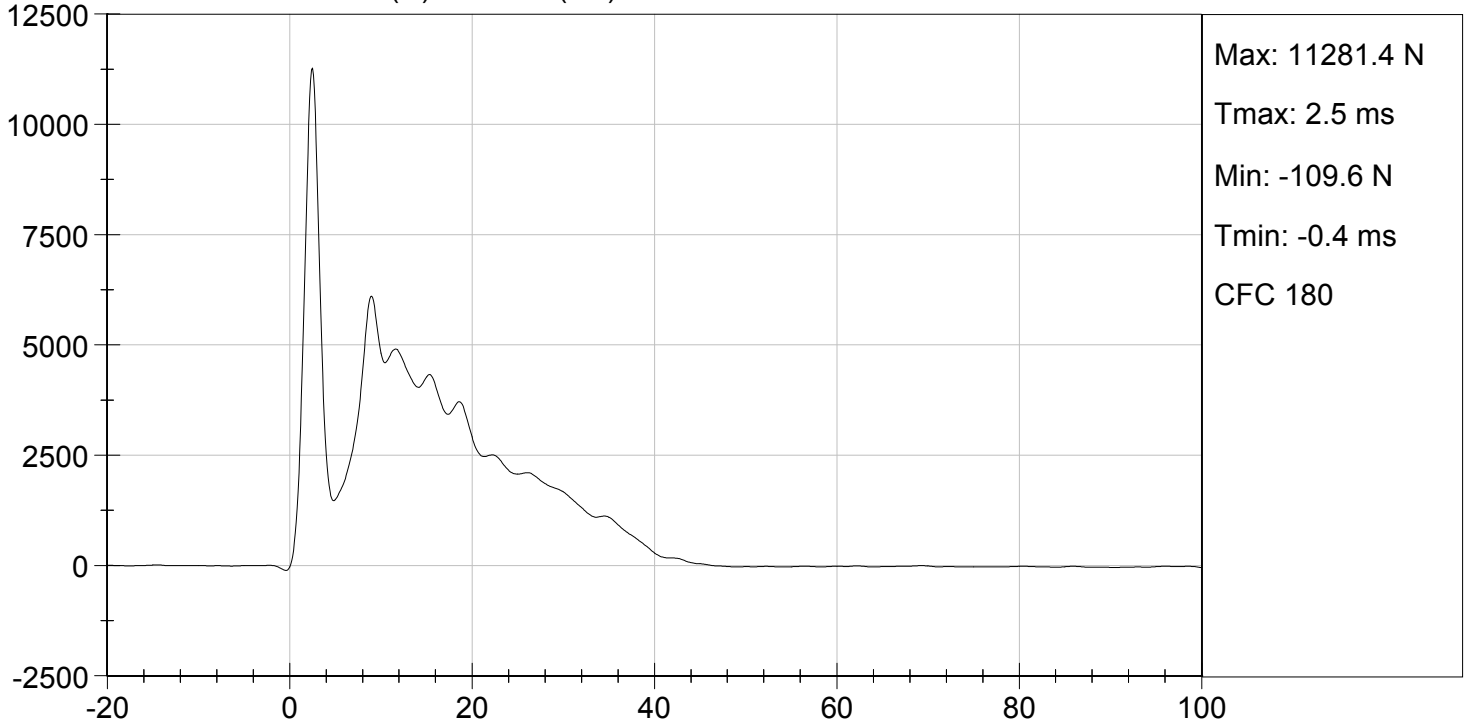
11/04/2014
Test Date

Jessica Hall
Approved By

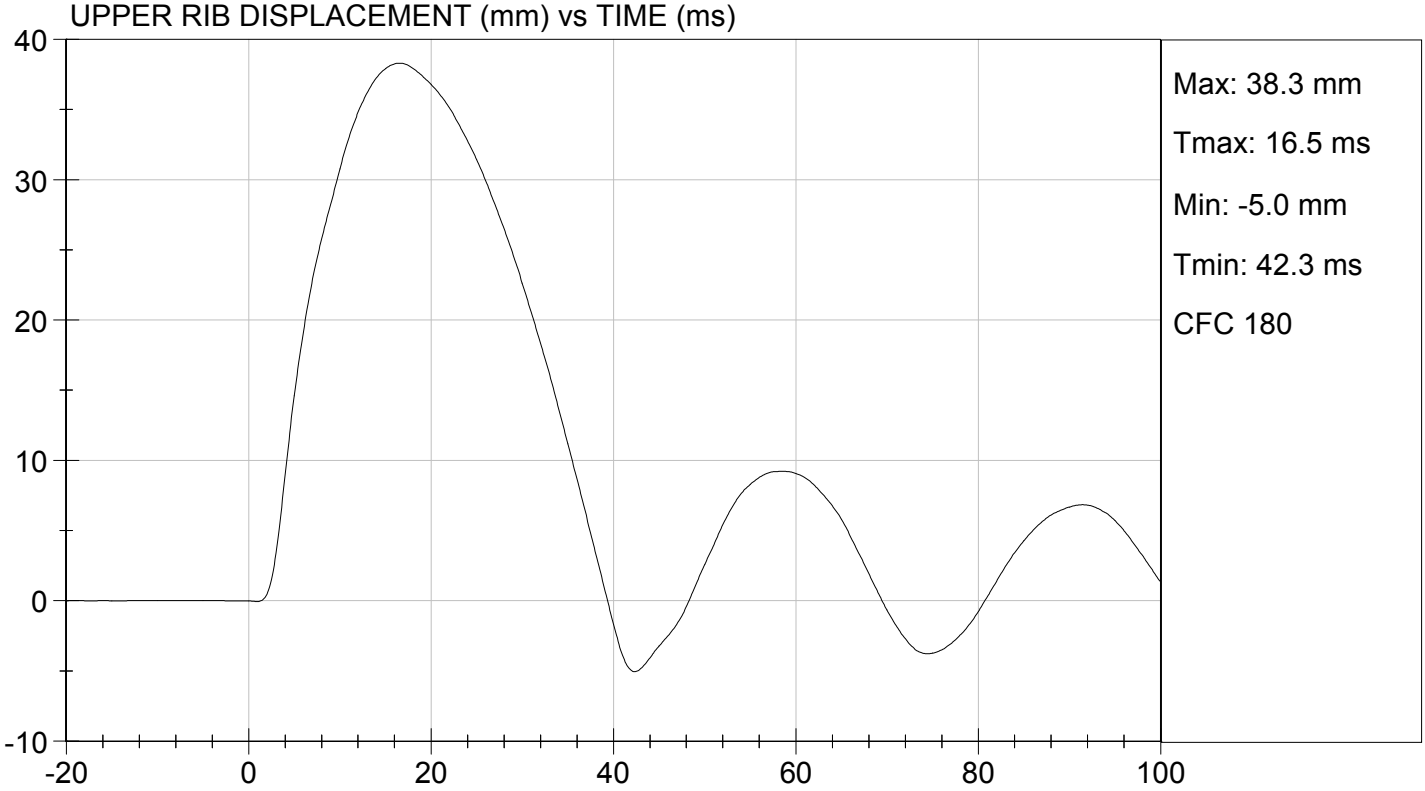
TEST DESC: THORAX IMPACT
VELOCITY: 18.12 ft/s, 5.52 m/s

TEST DATE: 11/04/2014
TEST #: D143880

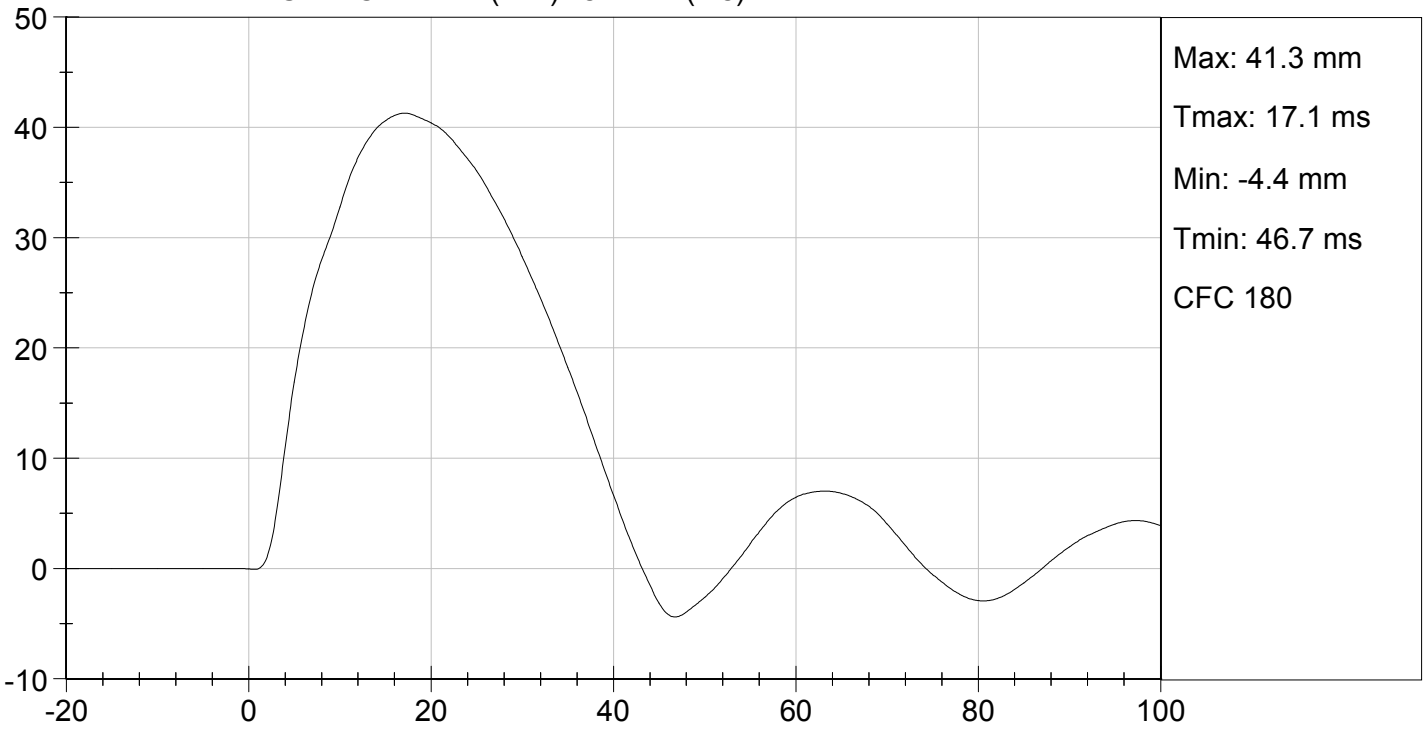
IMPACTOR FORCE (N) vs TIME (ms)



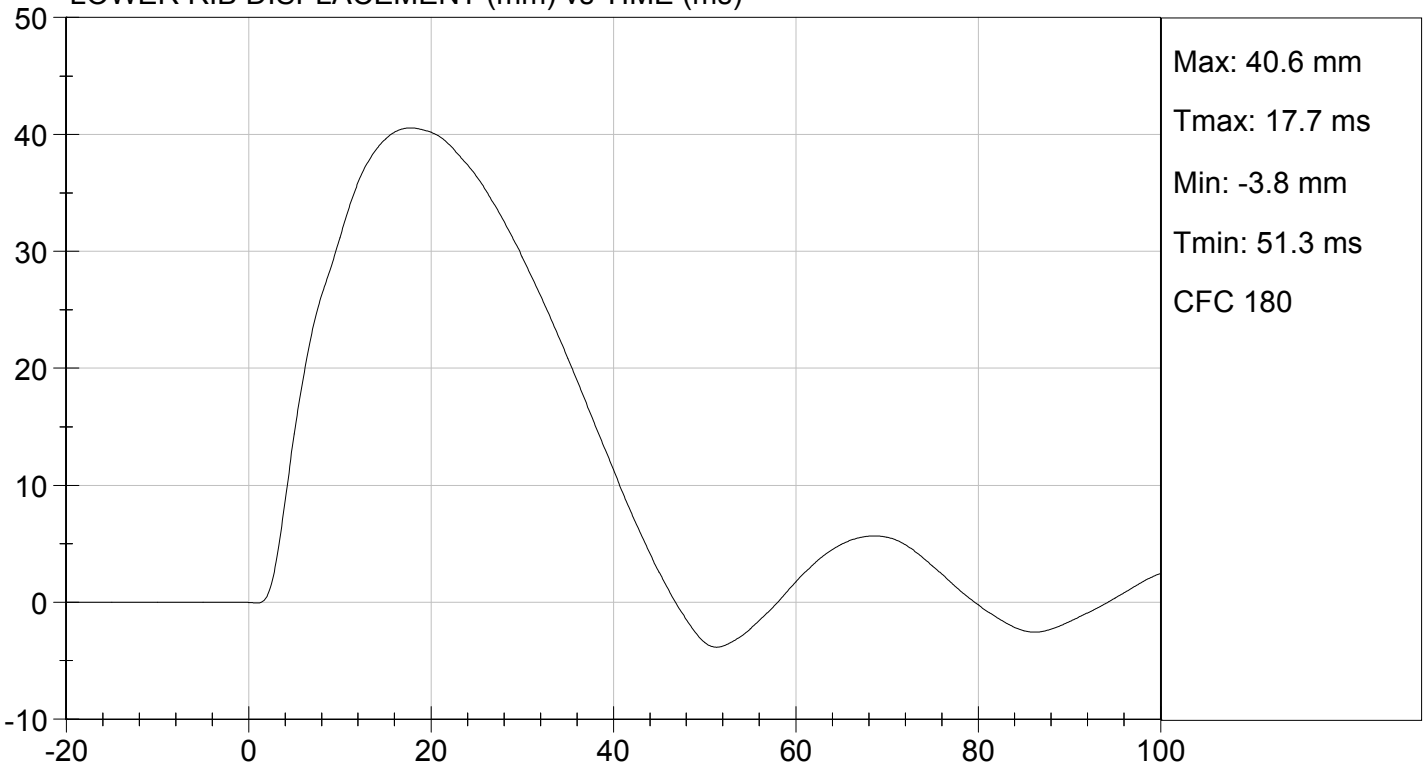
UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



MGA RESEARCH CORPORATION

ABDOMEN TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143887

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Speed	m/s	3.90 to 4.10	4.07	Pass
Maximum Impactor Force	N	4000 to 4800	4354	Pass
Time of Maximum Impactor Force	ms	10.6 to 13.0	10.6	Pass
Maximum Total Abdomen Force	N	2200 to 2700	2299	Pass
Time of Maximum Abdomen Force	ms	10.0 to 12.3	10.4	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

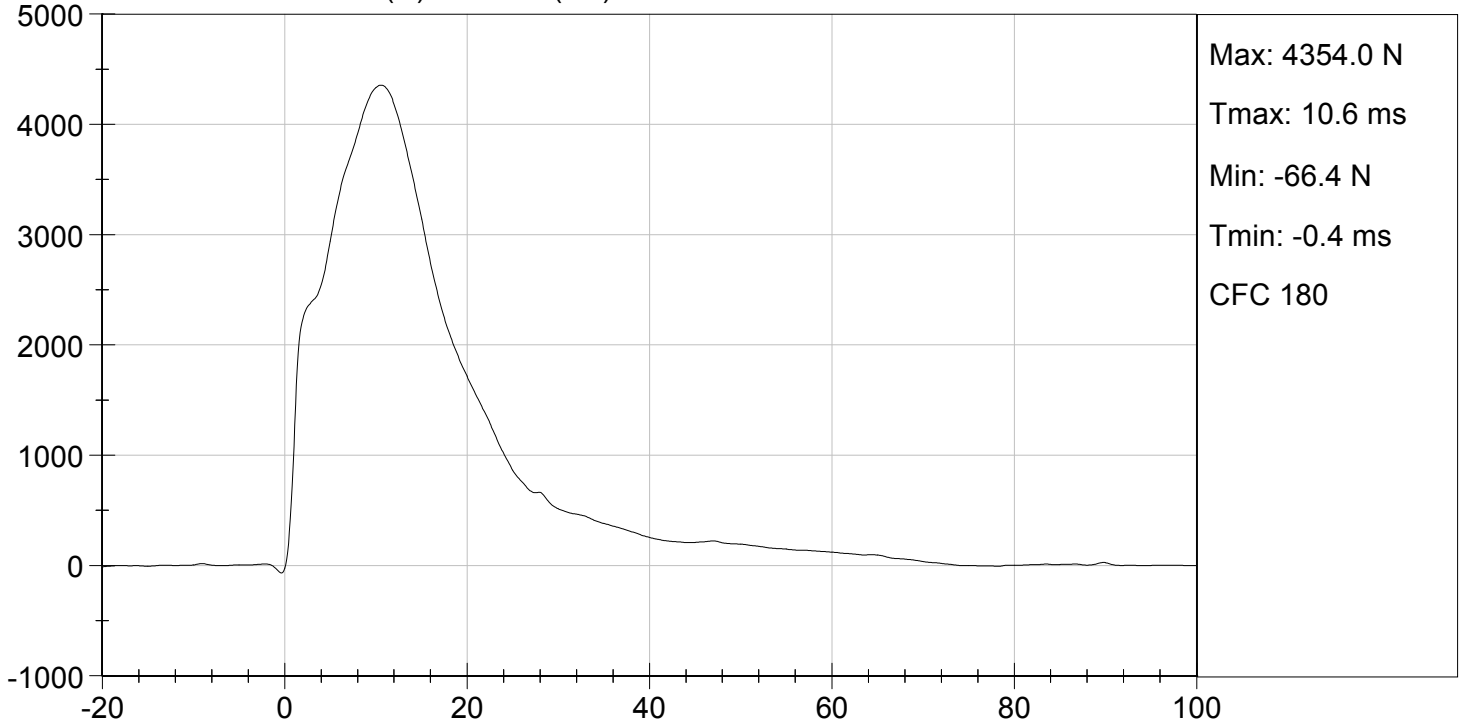
11/05/2014
Test Date

Jessica Hall
Approved By

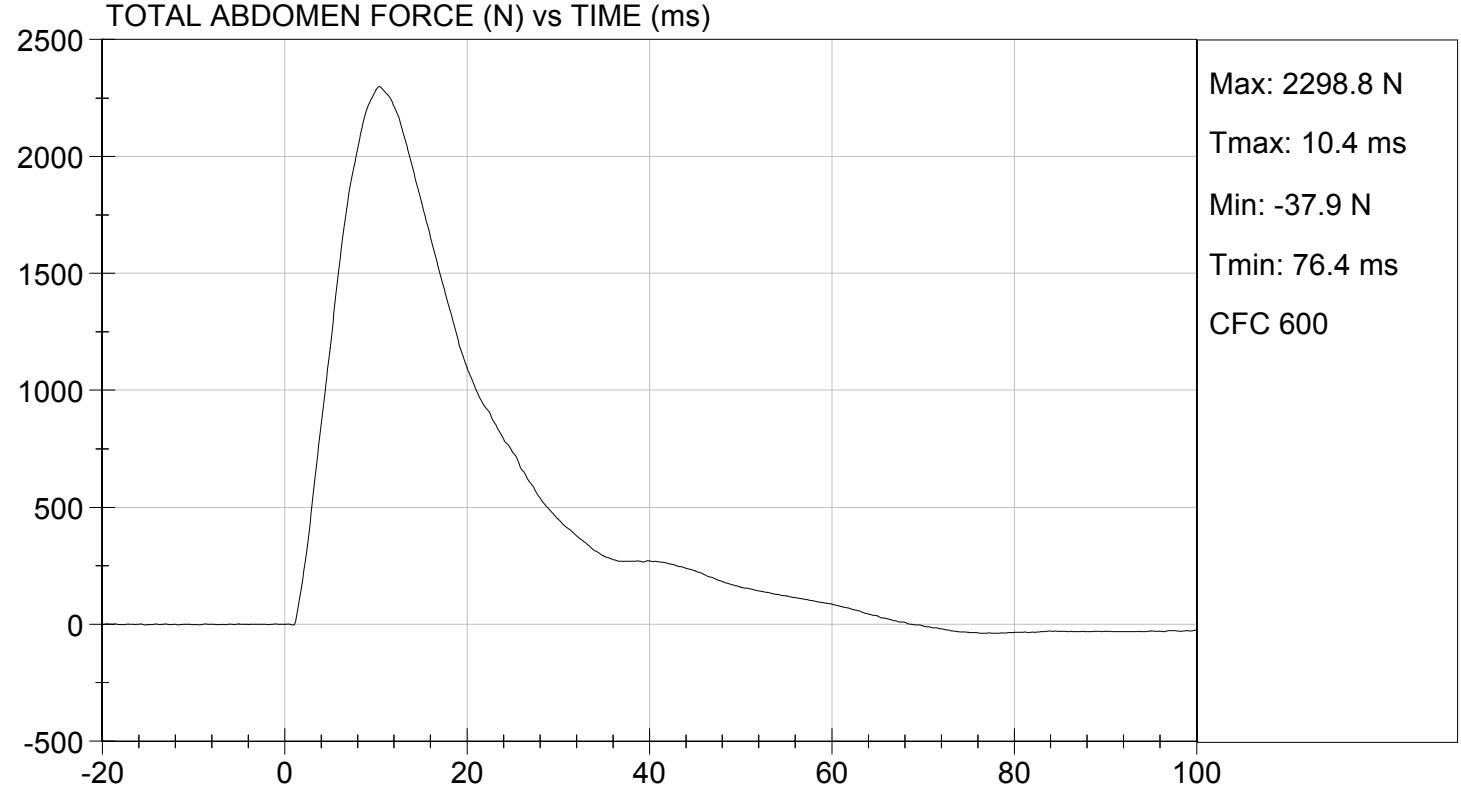
TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.36 ft/s, 4.07 m/s

TEST DATE: 11/05/2014
TEST #: D143887

IMPACTOR FORCE (N) vs TIME (ms)



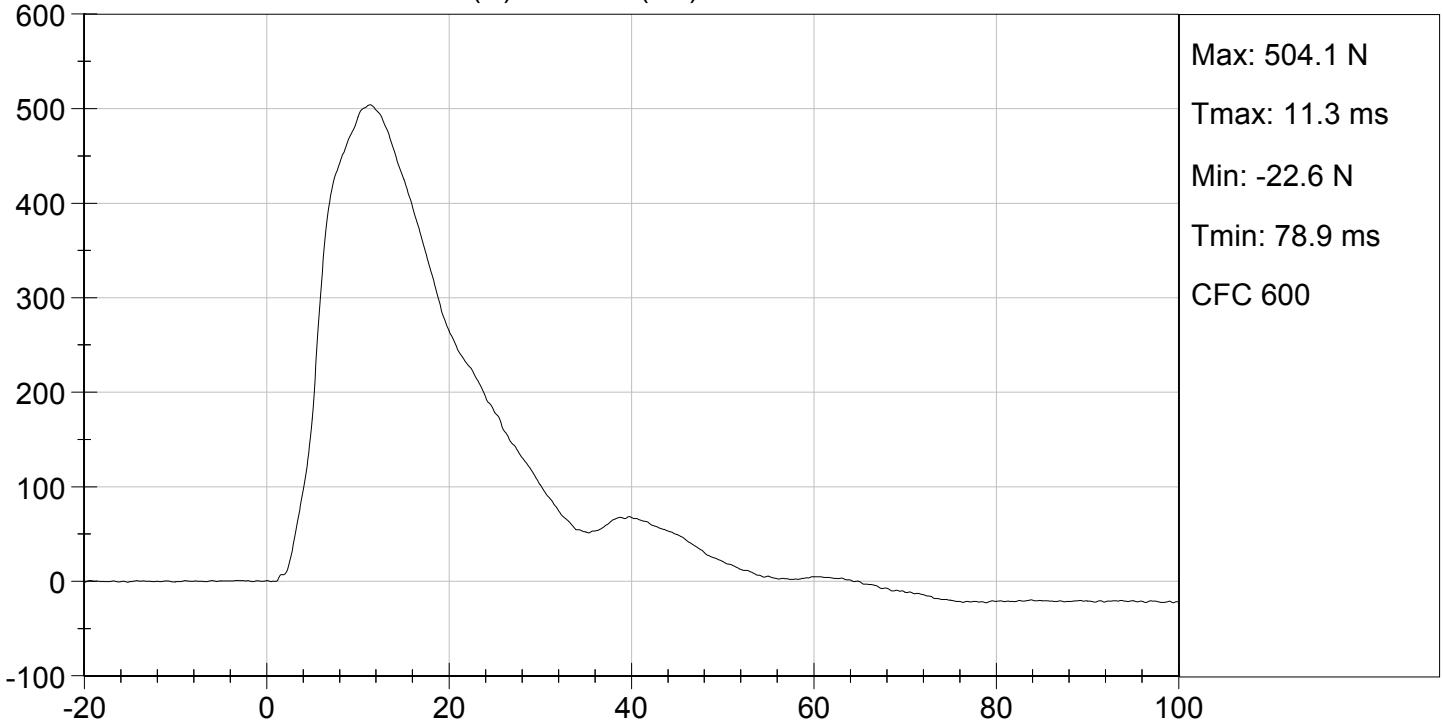
TOTAL ABDOMEN FORCE (N) vs TIME (ms)



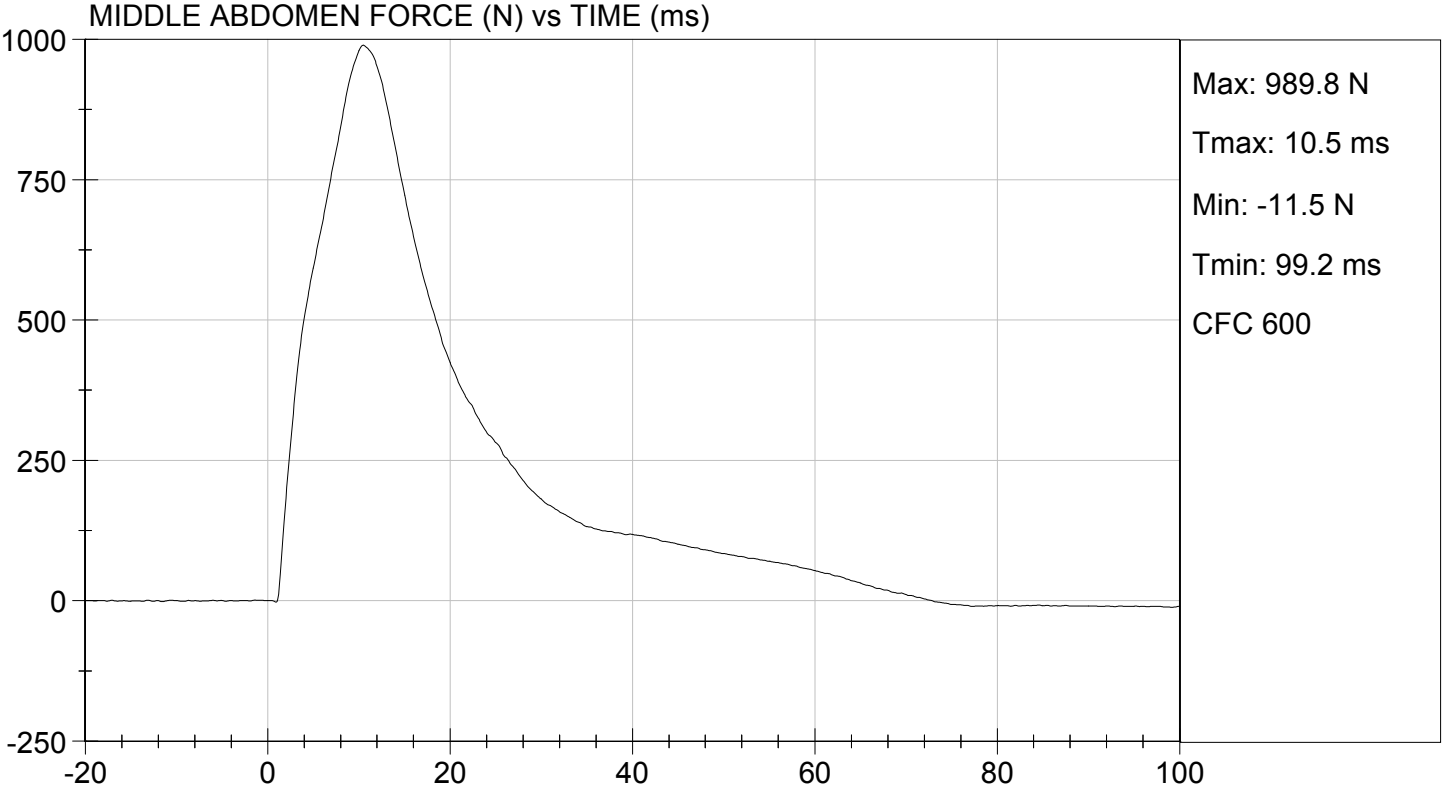
TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.36 ft/s, 4.07 m/s

TEST DATE: 11/05/2014
TEST #: D143887

FRONT ABDOMEN FORCE (N) vs TIME (ms)



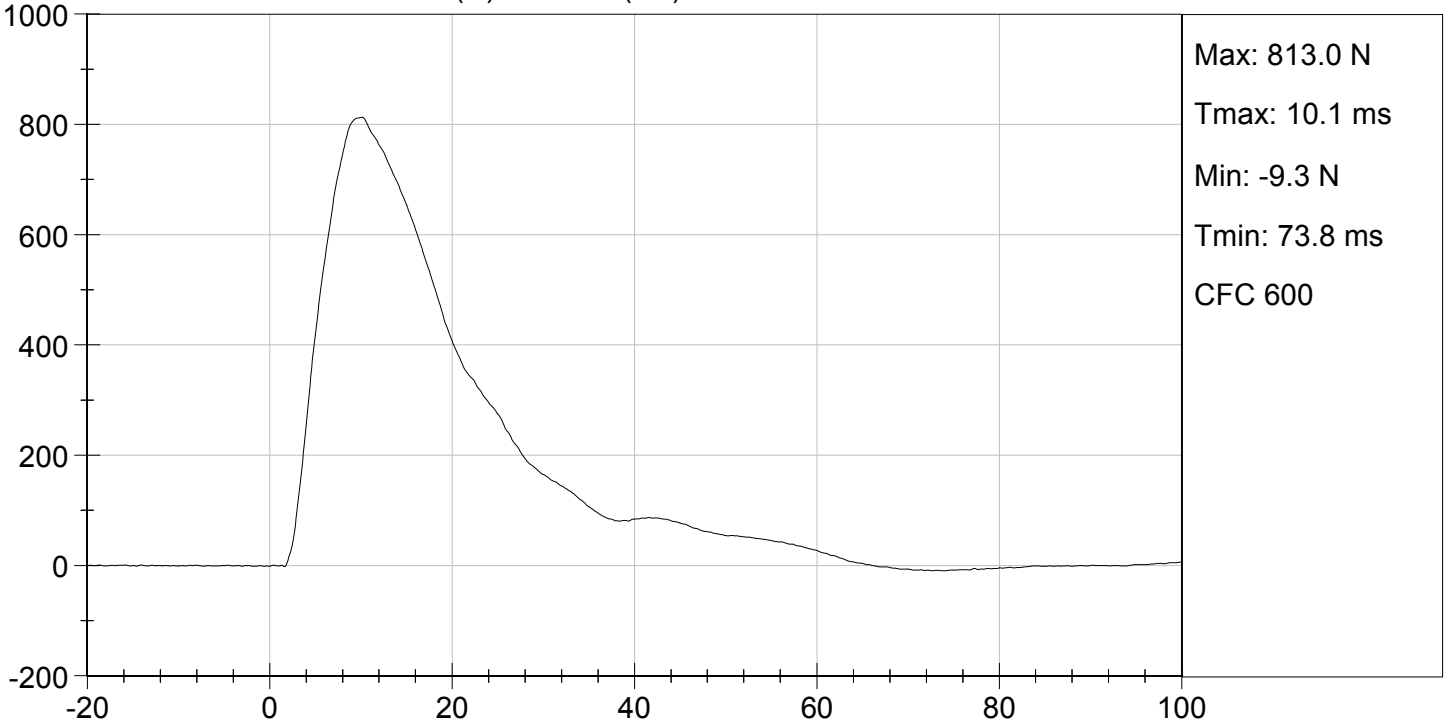
MIDDLE ABDOMEN FORCE (N) vs TIME (ms)



TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.36 ft/s, 4.07 m/s

TEST DATE: 11/05/2014
TEST #: D143887

REAR ABDOMEN FORCE (N) vs TIME (ms)



MGA RESEARCH CORPORATION

LUMBAR SPINE TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143888

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	29	Pass
Pendulum Speed		m/s	5.95 to 6.15	6.12	Pass
Pendulum Velocity	1 ms	m/s	-0.05 to 0.00	-0.00	Pass
	3.7 ms	m/s	-0.425 to -0.24	-0.397	Pass
	27 ms	m/s	-6.50 to -5.80	-5.98	Pass
	30 ms	m/s	>= -6.50	-6.05	Pass
Maximum Flexion Angle		deg	45.0 to 55.0	45.6	Pass
Time of Maximum Flexion Angle		ms	39.0 to 53.0	47.7	Pass
Headform Rotation Decay to Initial Position		ms	37 to 57	46	Pass
			Overall Results		Pass

David Schoedel
Laboratory Technician

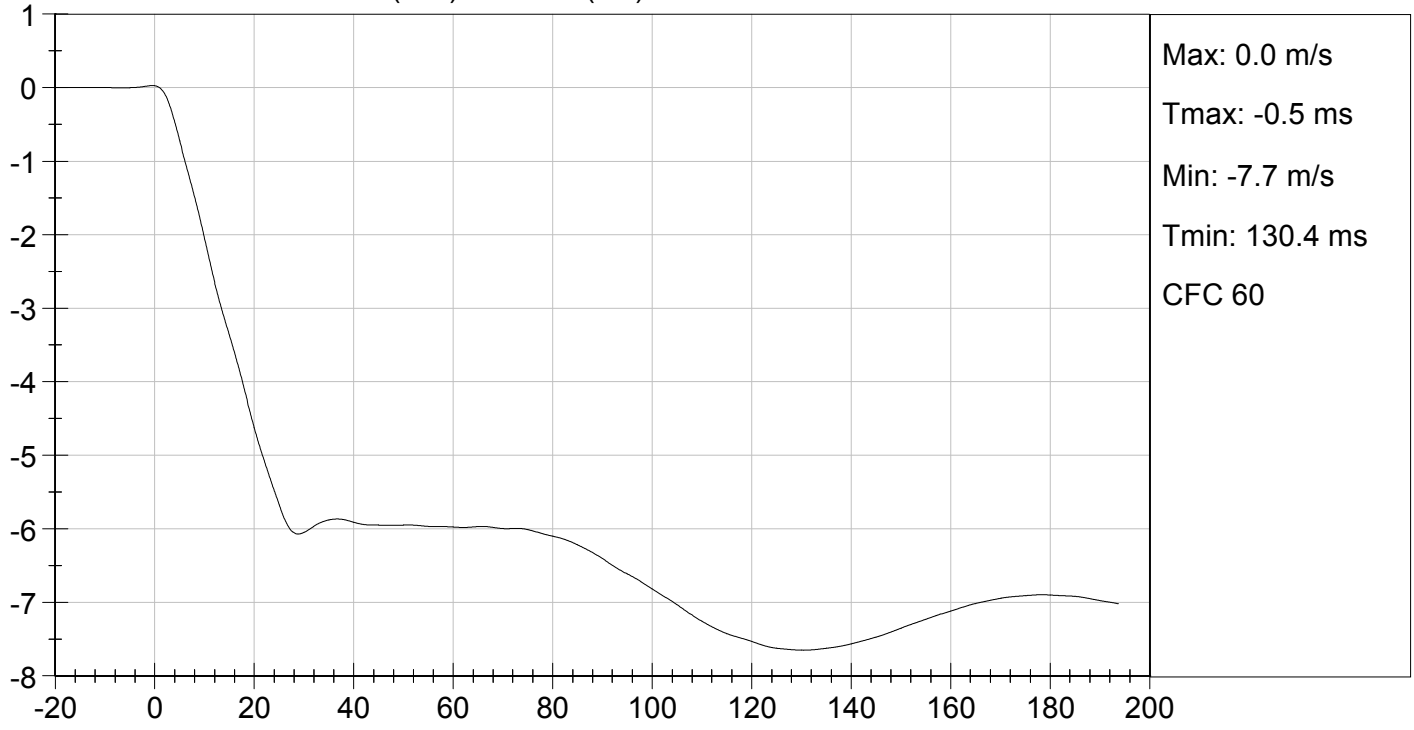
11/04/2014
Test Date

Jessica Gall
Approved By

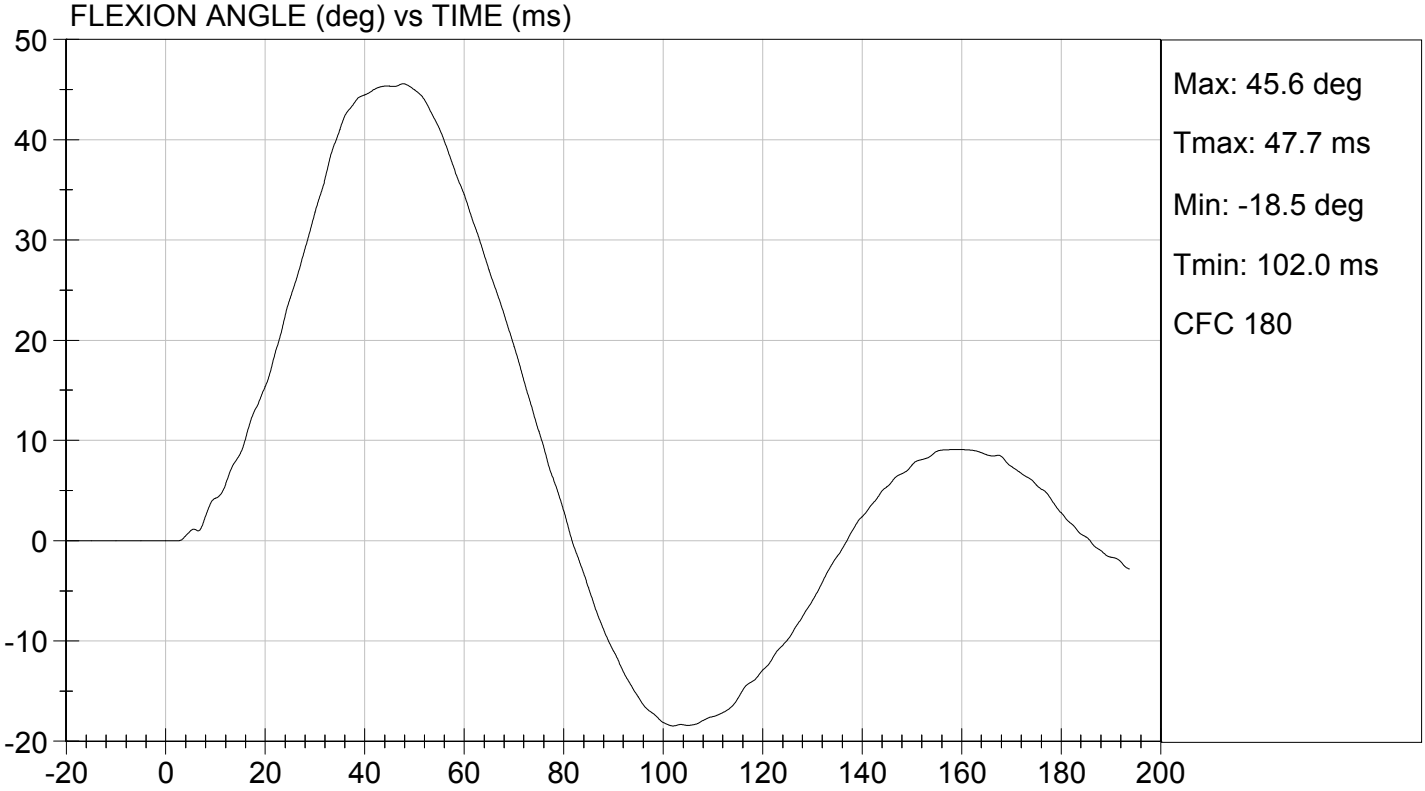
TEST DESC: LUMBAR BENDING
VELOCITY: 20.08 ft/s, 6.12 m/s

TEST DATE: 11/04/2014
TEST #: D143888

PENDULUM VELOCITY (m/s) vs TIME (ms)



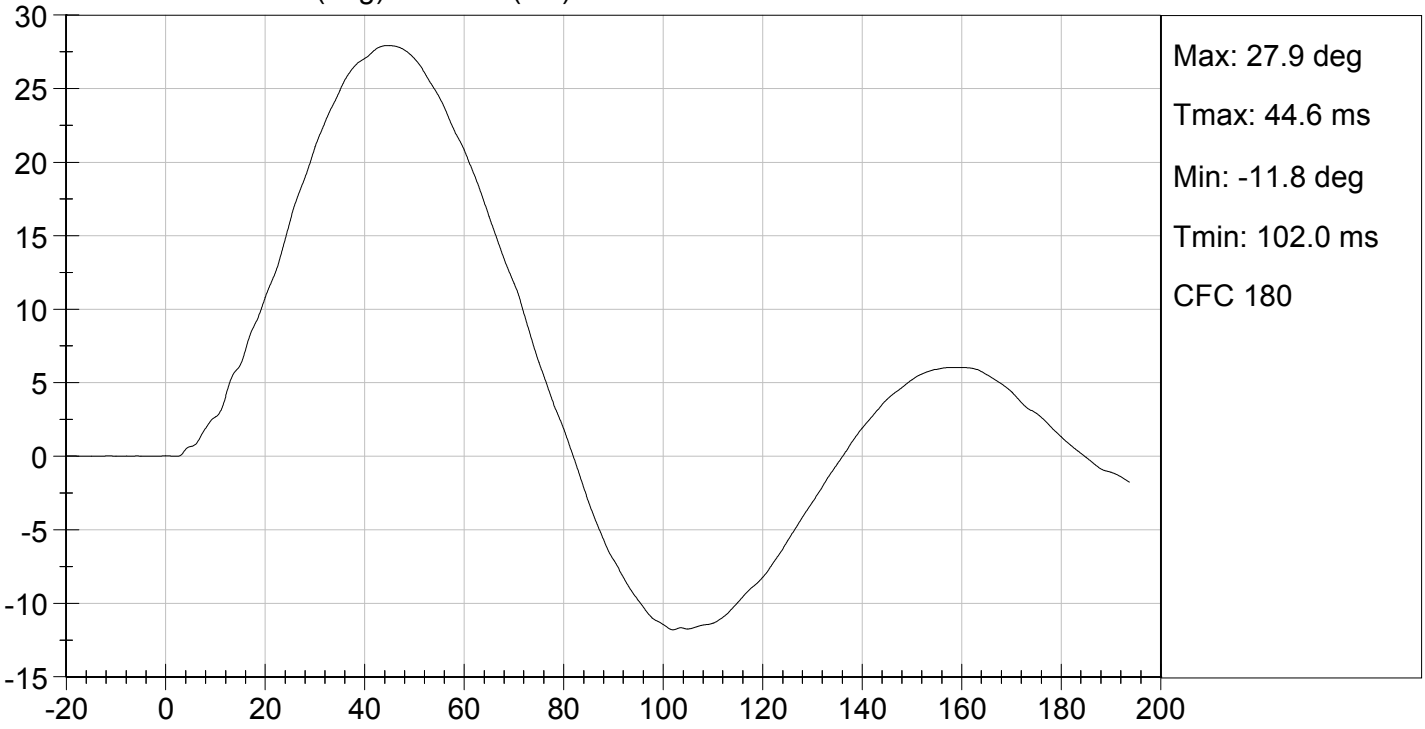
FLEXION ANGLE (deg) vs TIME (ms)



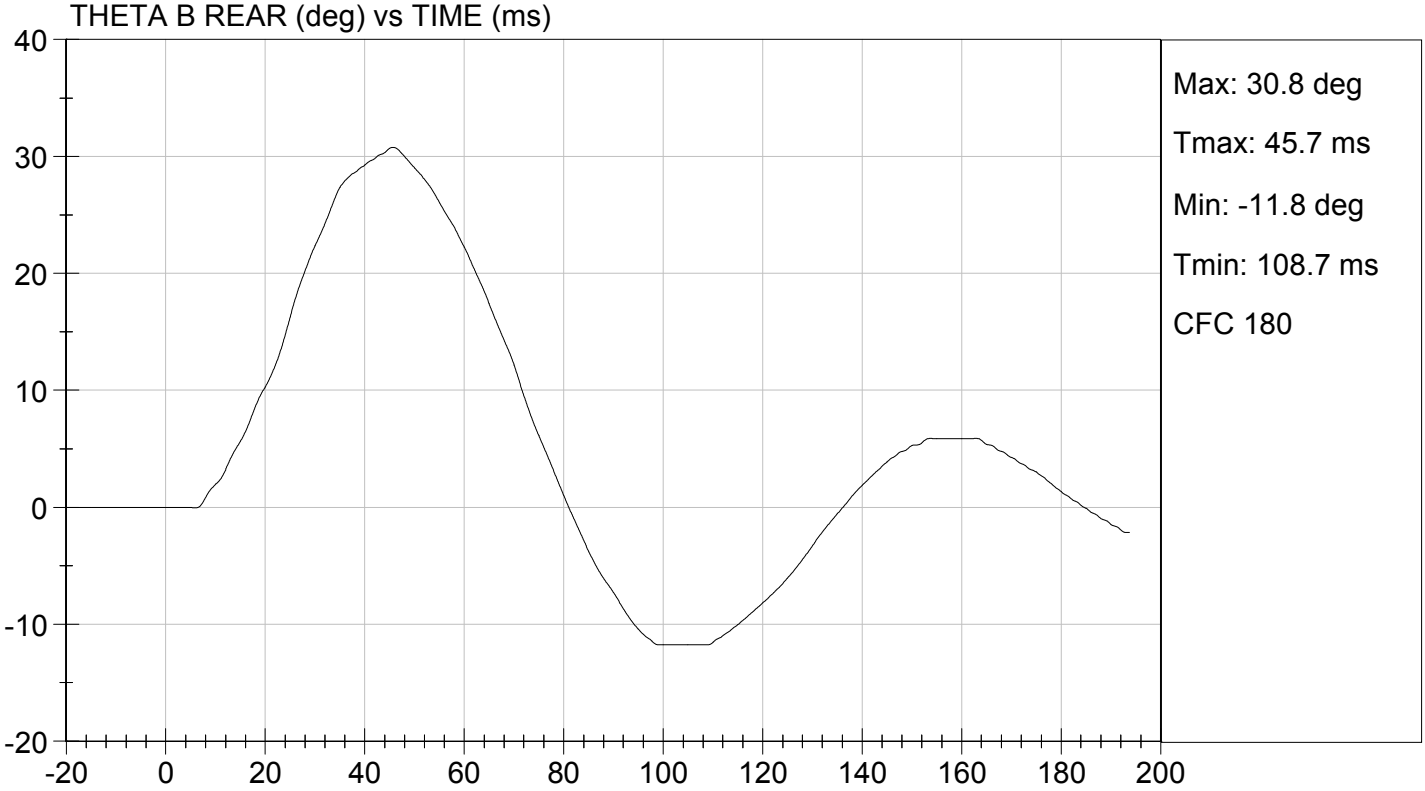
TEST DESC: LUMBAR BENDING
VELOCITY: 20.08 ft/s, 6.12 m/s

TEST DATE: 11/04/2014
TEST #: D143888

THETA A FRONT (deg) vs TIME (ms)

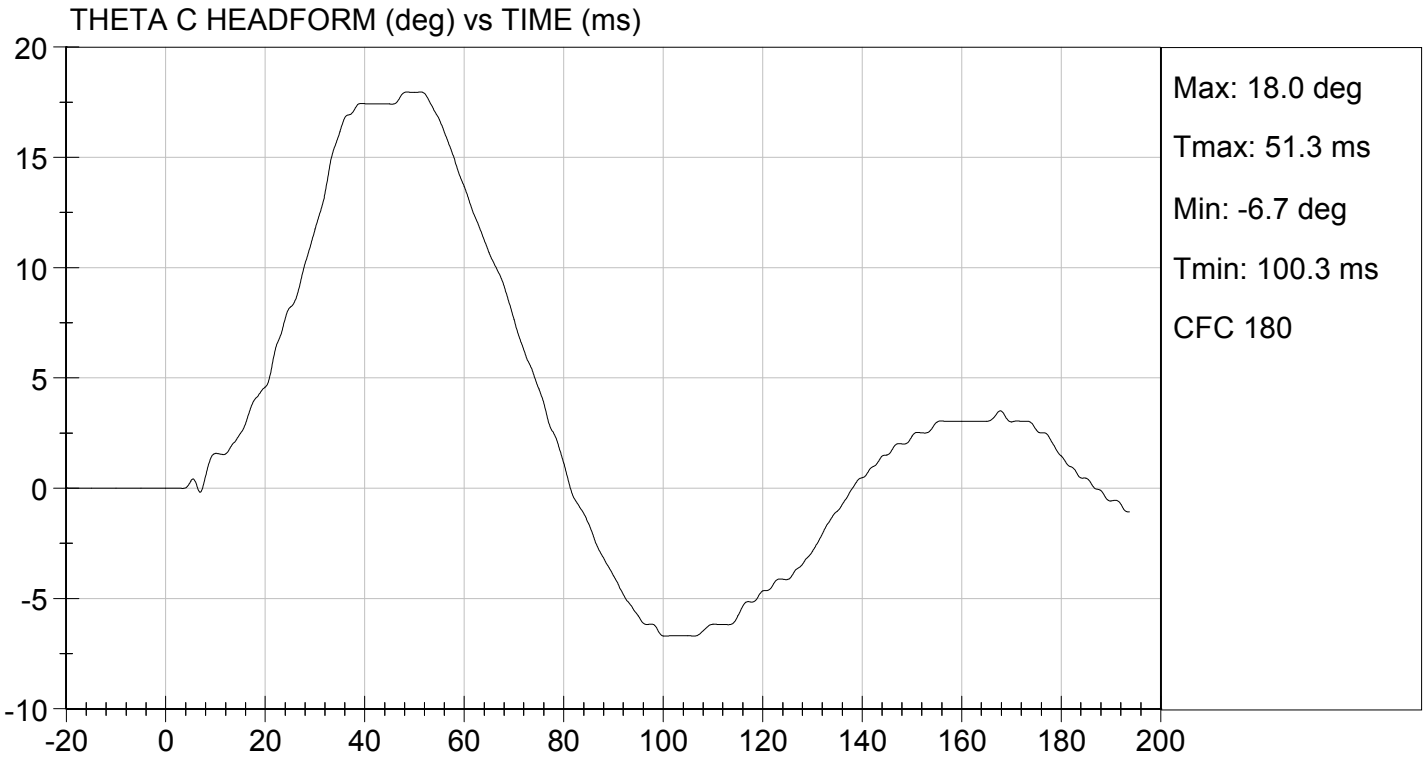


THETA B REAR (deg) vs TIME (ms)



TEST DESC: LUMBAR BENDING
VELOCITY: 20.08 ft/s, 6.12 m/s

TEST DATE: 11/04/2014
TEST #: D143887



MGA RESEARCH CORPORATION

PELVIS TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143889

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	35	Pass
Probe Speed	m/s	4.20 to 4.40	4.38	Pass
Maximum Impactor Force	N	4700 to 5400	4819	Pass
Time of Maximum Impactor Force	ms	11.8 to 16.1	13.0	Pass
Maximum Pubic Force	N	1230 to 1590	1260	Pass
Time of Maximum Pubic Force	ms	12.2 to 17.0	14.6	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

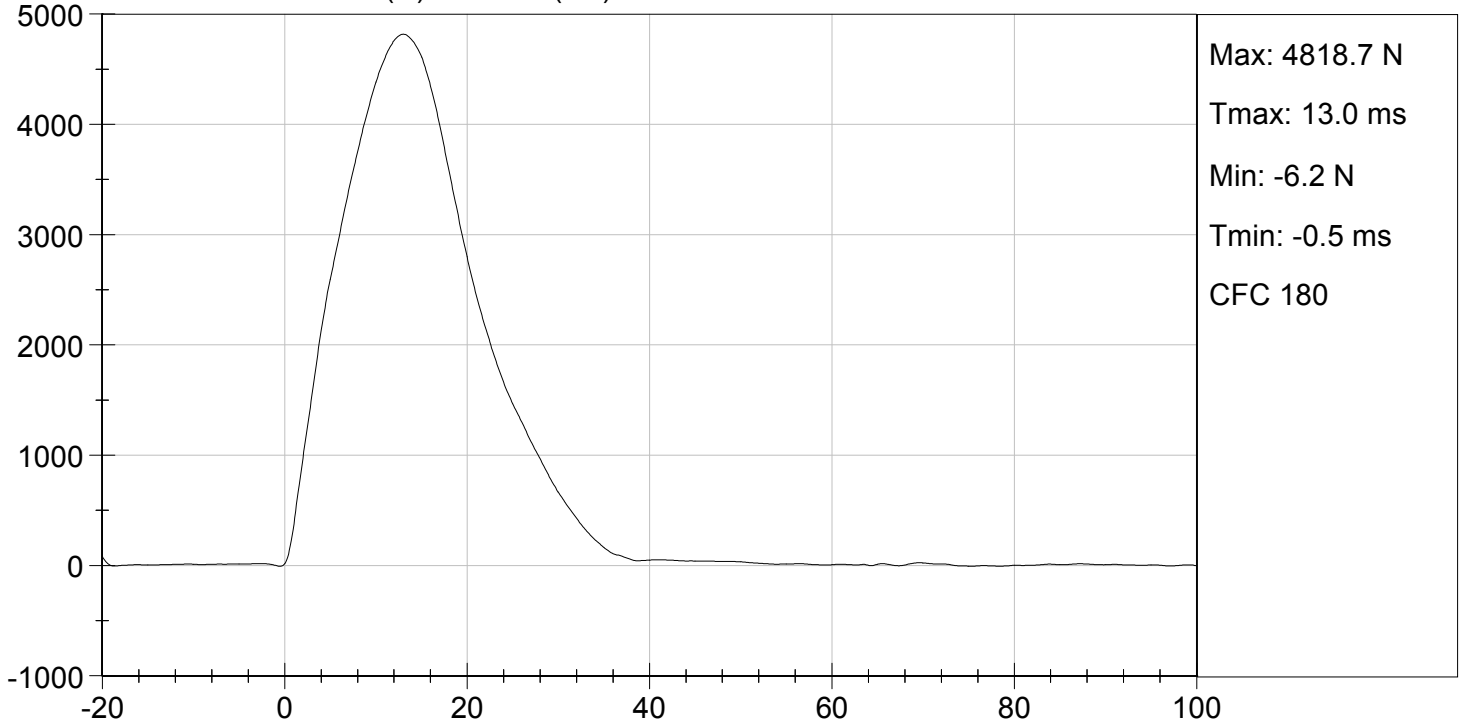
11/04/2014
Test Date

Jessica Gall
Approved By

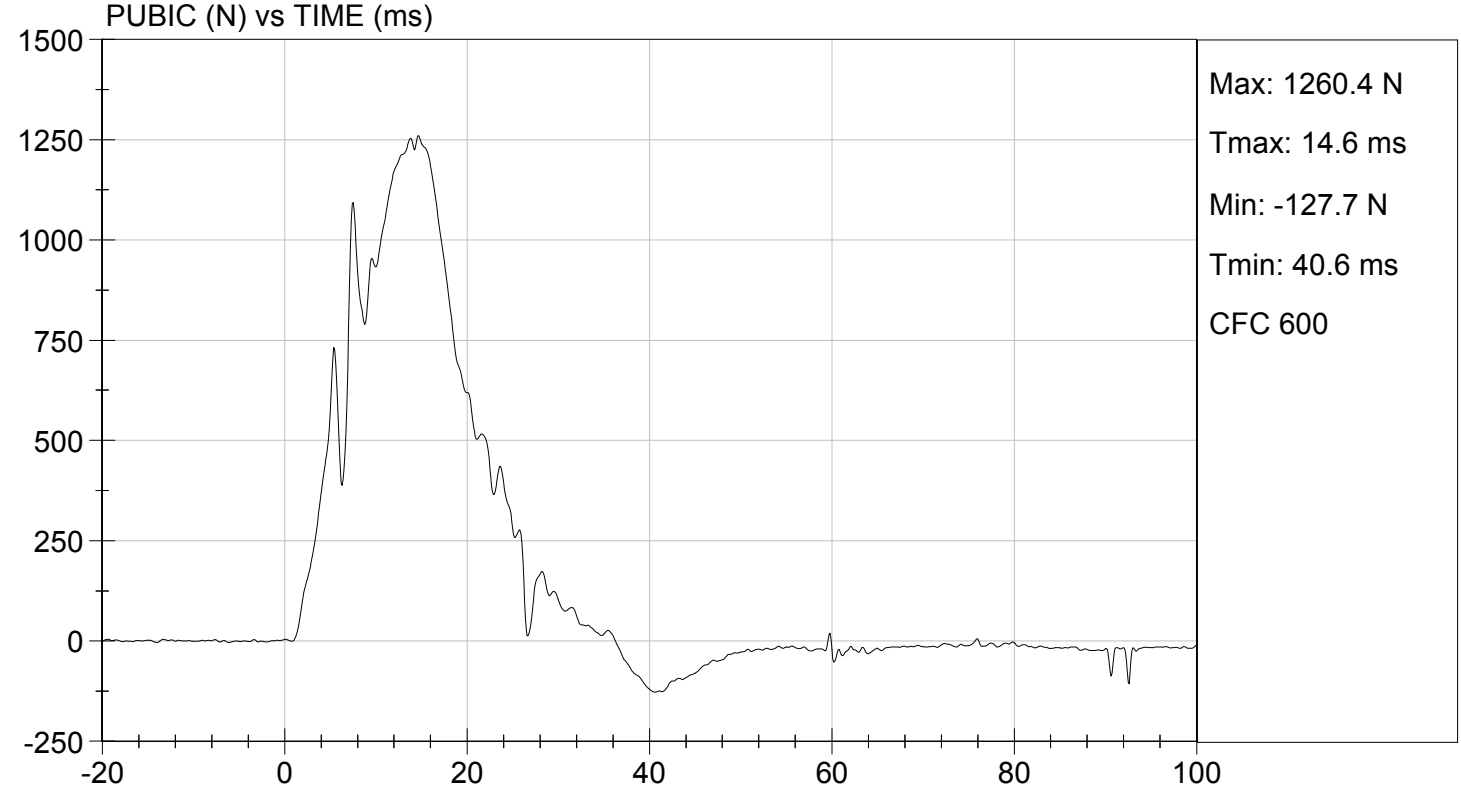
TEST DESC: PELVIS IMPACT
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 11/04/2014
TEST #: D143889

IMPACTOR FORCE (N) vs TIME (ms)



PUBIC (N) vs TIME (ms)



MGA RESEARCH CORPORATION

HEAD DROP TEST

ES-2re DUMMY

ATD Serial No: 032 **Test ID:** D143991

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Peak Resultant Acceleration	G's	125 to 155	135	Pass
Peak Longitudinal Acceleration	G's	<= +/- 15.0	6.3	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 15% of peak	Yes	Pass
		Overall Test Results		Pass

Maxime Chamberland
Laboratory Technician

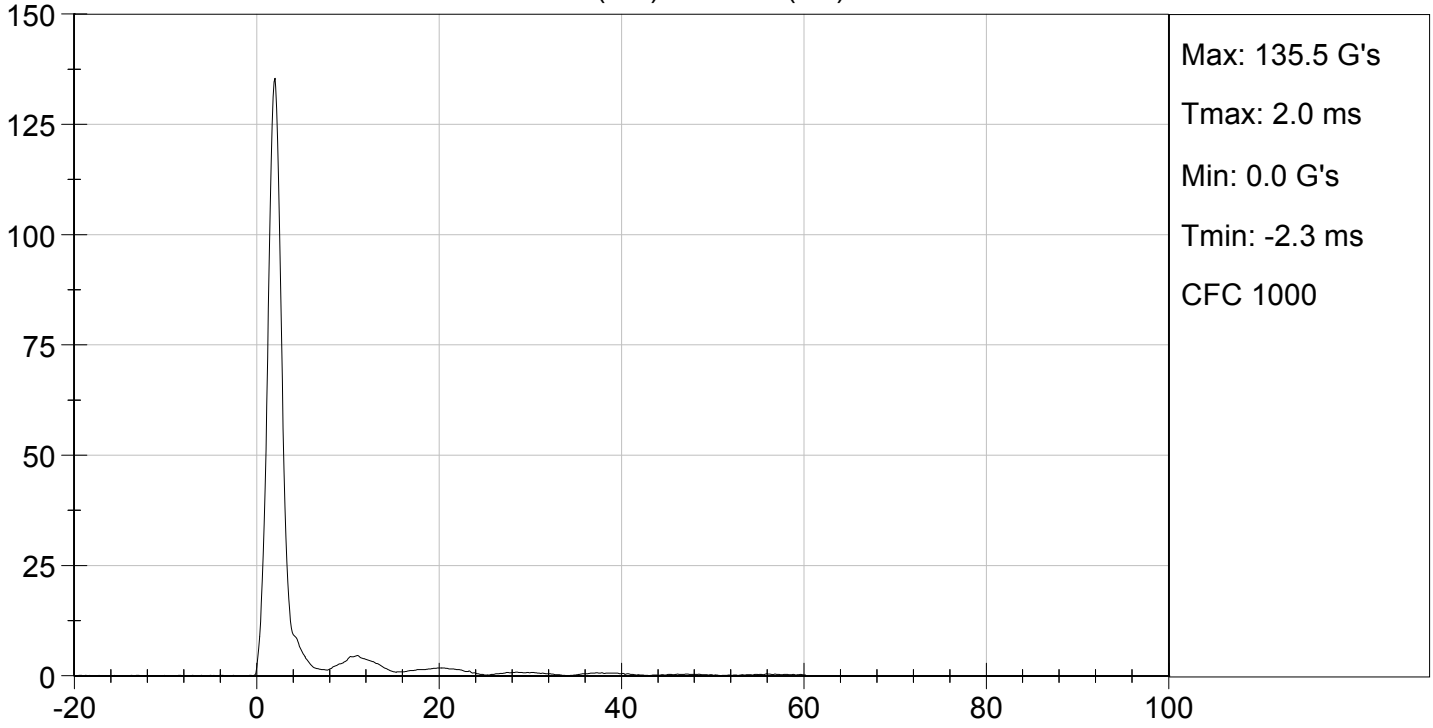
11/13/2014
Test Date

Jessica Hall
Approved By

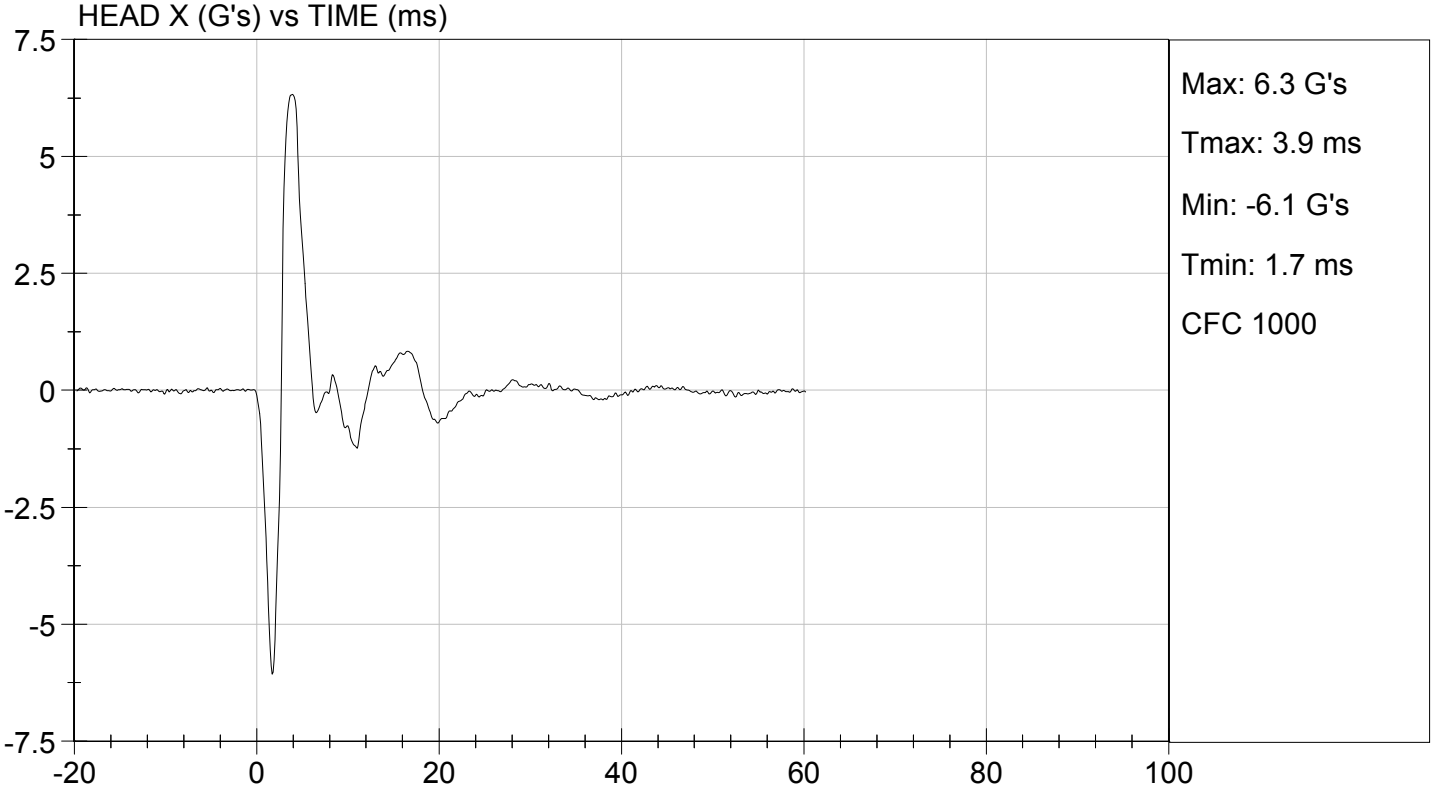
TEST DESC: HEAD DROP

TEST DATE: 11/13/2014
TEST #: D143991

HEAD RESULTANT ACCELERATION (G's) vs TIME (ms)



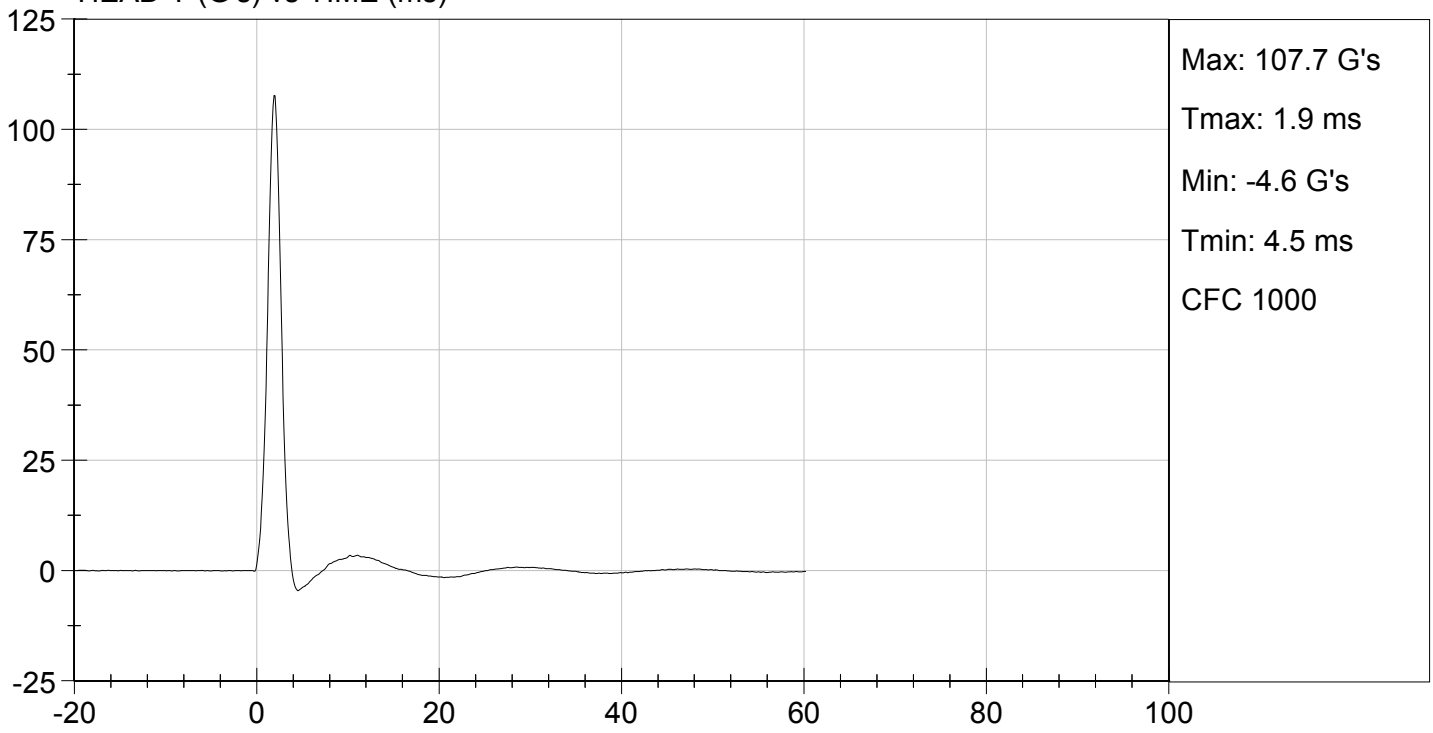
HEAD X (G's) vs TIME (ms)



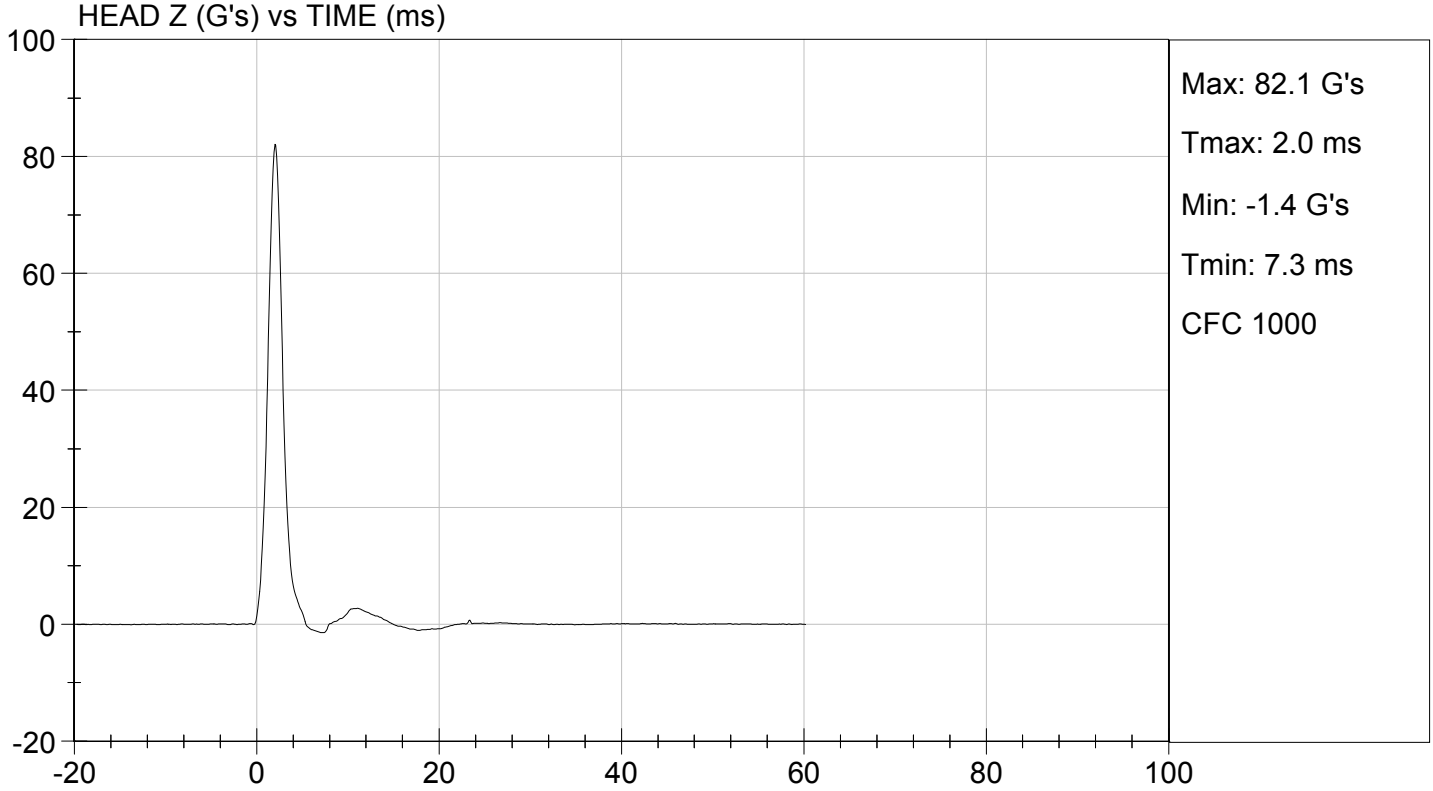
TEST DESC: HEAD DROP

TEST DATE: 11/13/2014
TEST #: D143991

HEAD Y (G's) vs TIME (ms)



HEAD Z (G's) vs TIME (ms)



MGA RESEARCH CORPORATION

NECK PENDULUM TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143992

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity		%	10 to 70	23	Pass
Pendulum Speed		m/s	3.30 to 3.50	3.46	Pass
Pendulum Velocity	1 ms	m/s	-0.05 to 0.00	-0.02	Pass
	3 ms	m/s	-0.25 to -0.375	-0.34	Pass
	14 ms	m/s	-3.20 to -3.70	-3.27	Pass
	17 ms	m/s	>= -3.70	-3.32	Pass
Maximum Flexion Angle		deg	49.0 to 59.0	50.1	Pass
Time of Maximum Flexion Angle		ms	54.0 to 66.0	57.7	Pass
Head Rotation Decay Time to 0 Degree		ms	53.0 to 88.0	61.1	Pass
			Overall Results		Pass

Maxime Chamberland
Laboratory Technician

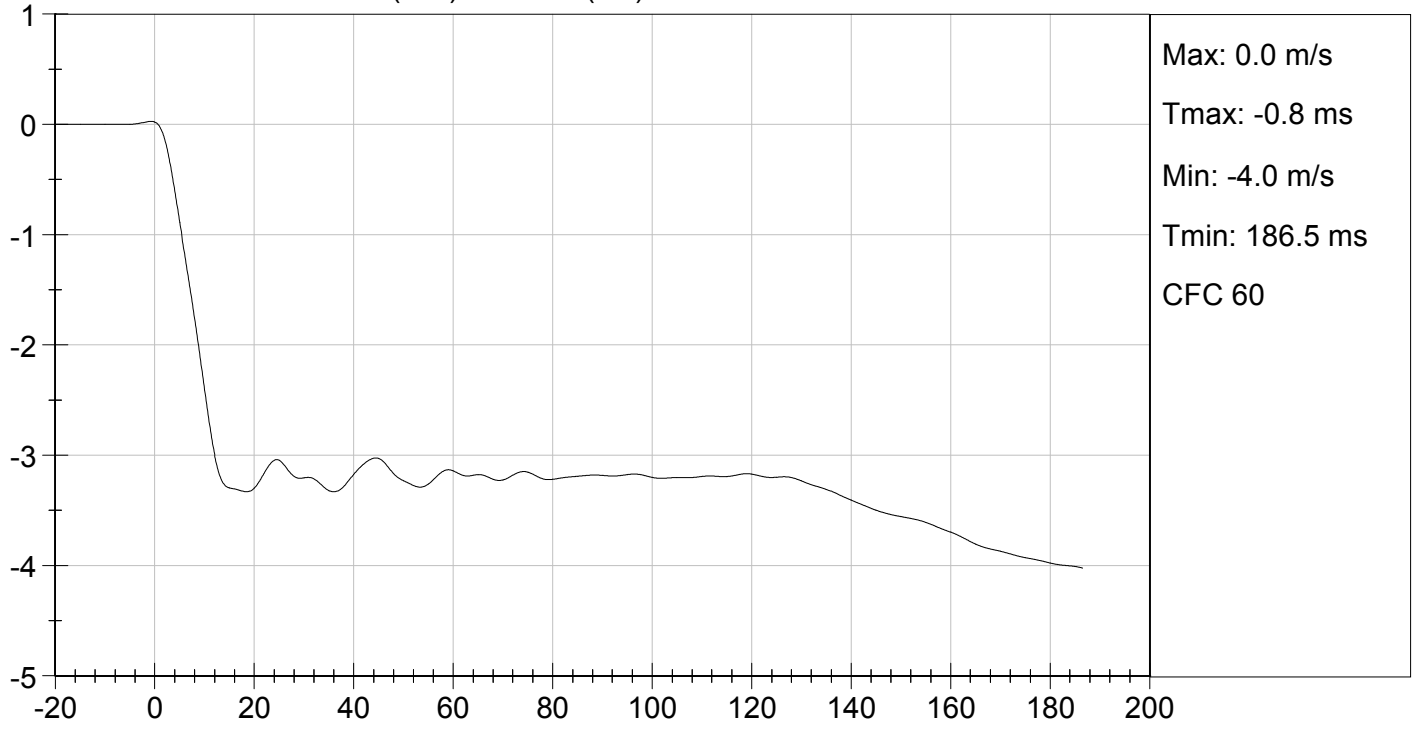
11/13/2014
Test Date

Jessica Hall
Approved By

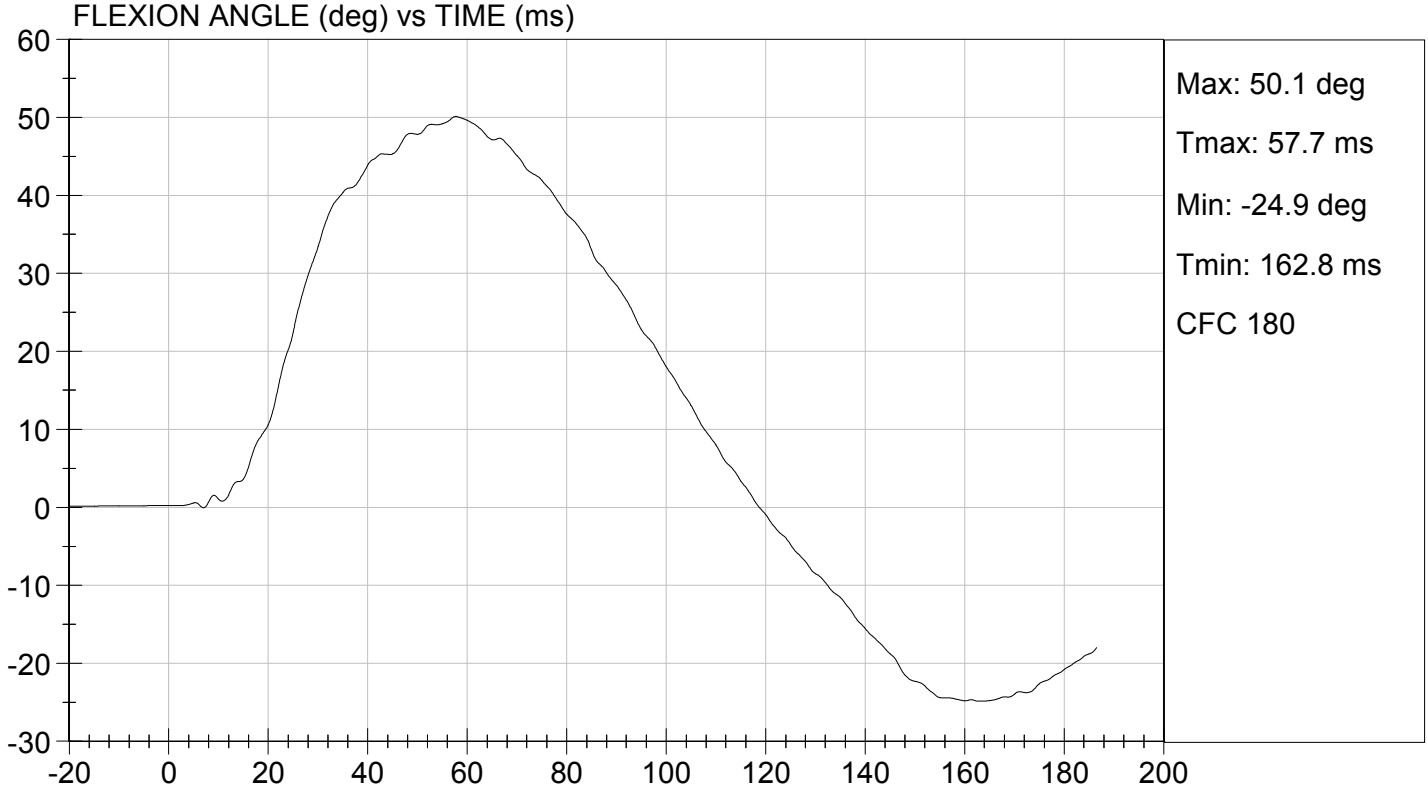
TEST DESC: NECK BENDING
VELOCITY: 11.34 ft/s, 3.46 m/s

TEST DATE: 11/13/2014
TEST #: D143992

PENDULUM VELOCITY (m/s) vs TIME (ms)



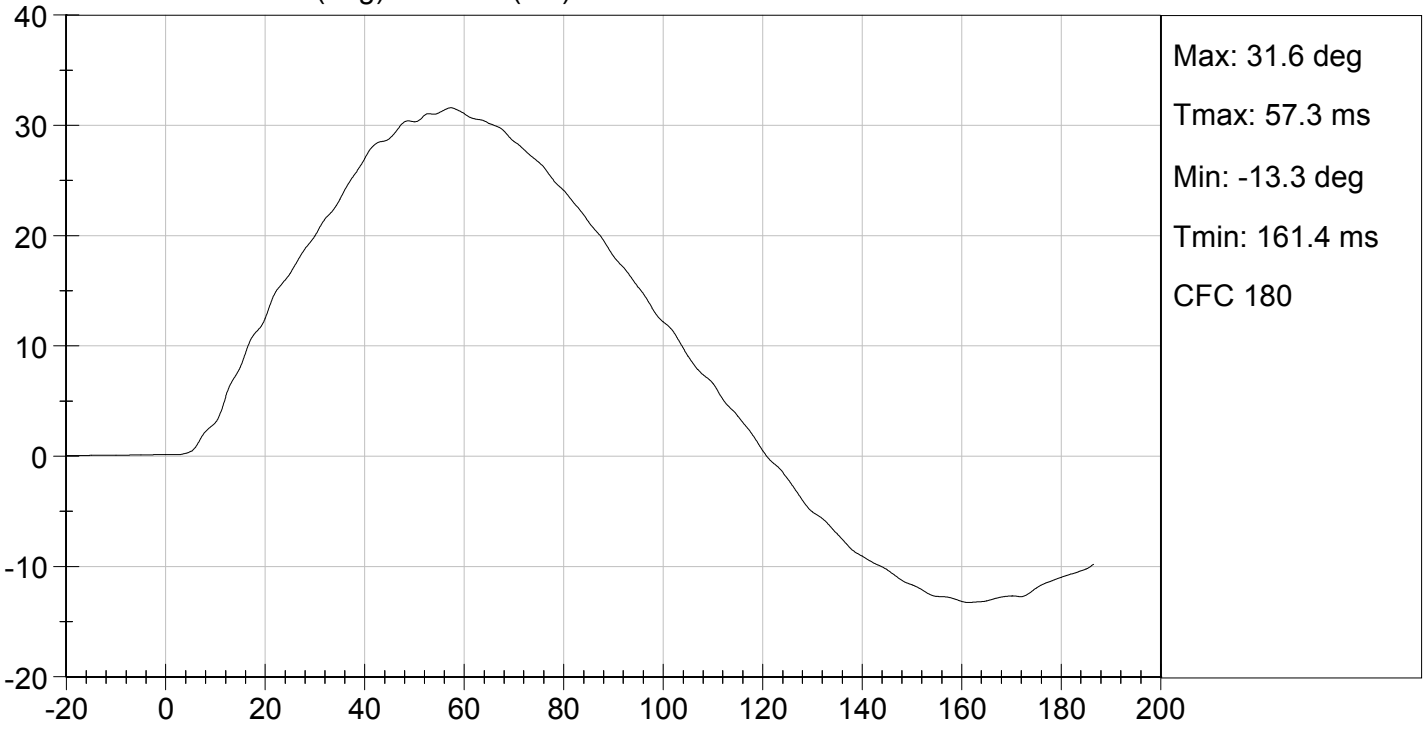
FLEXION ANGLE (deg) vs TIME (ms)



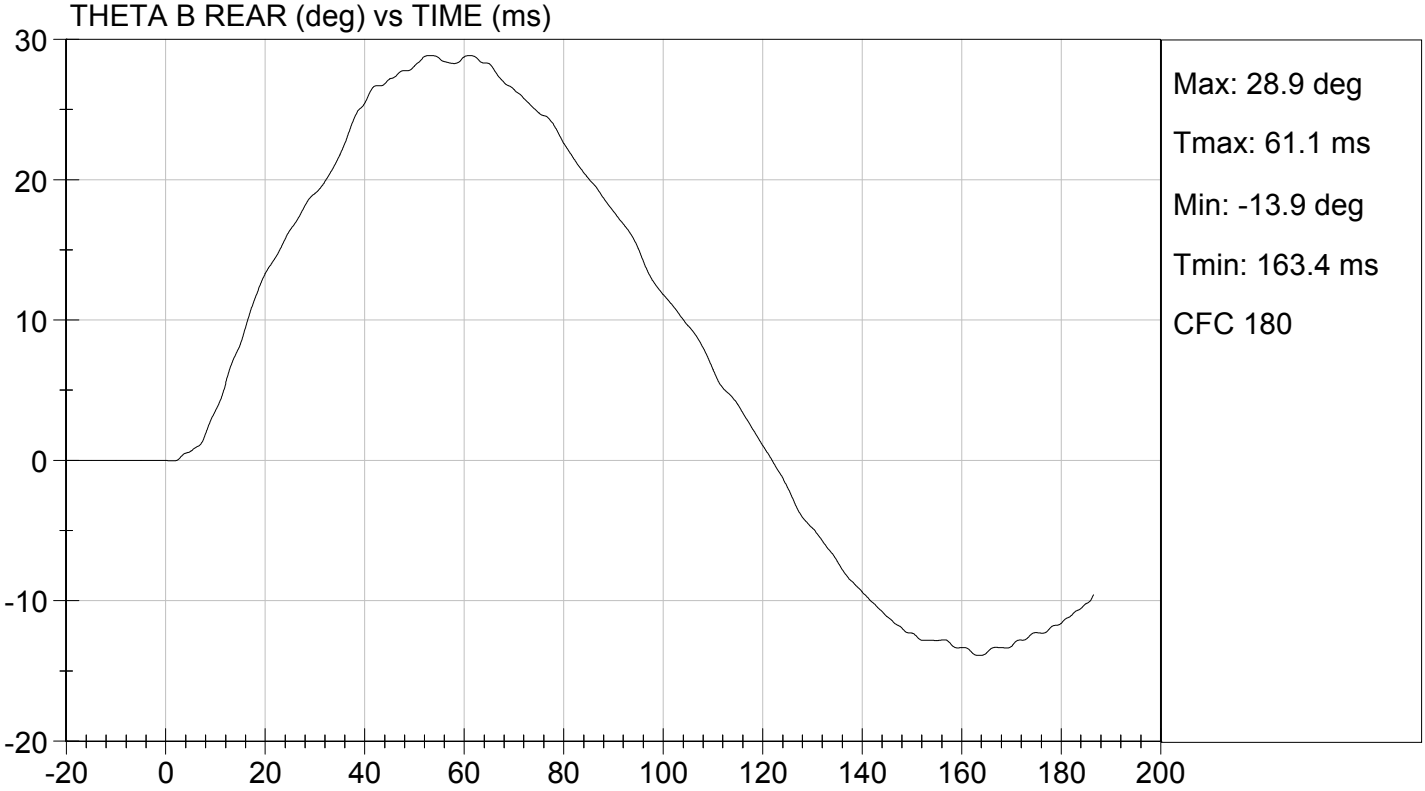
TEST DESC: NECK BENDING
VELOCITY: 11.34 ft/s, 3.46 m/s

TEST DATE: 11/13/2014
TEST #: D143992

THETA A FRONT (deg) vs TIME (ms)

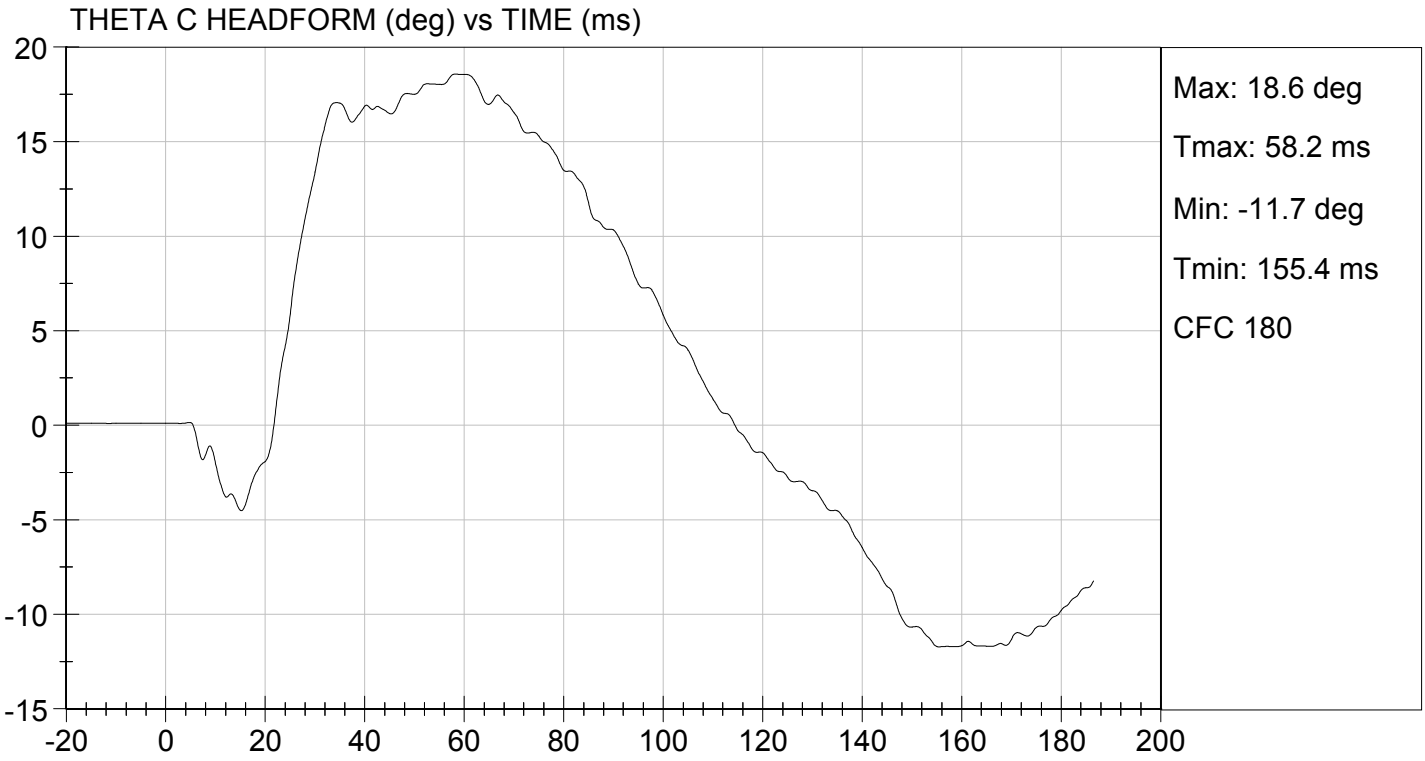


THETA B REAR (deg) vs TIME (ms)



TEST DESC: NECK BENDING
VELOCITY: 11.34 ft/s, 3.46 m/s

TEST DATE: 11/13/2014
TEST #: D143992



MGA RESEARCH CORPORATION

SHOULDER IMPACT TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143993

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.9	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Pendulum Speed	m/s	4.20 to 4.40	4.38	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	9.0	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

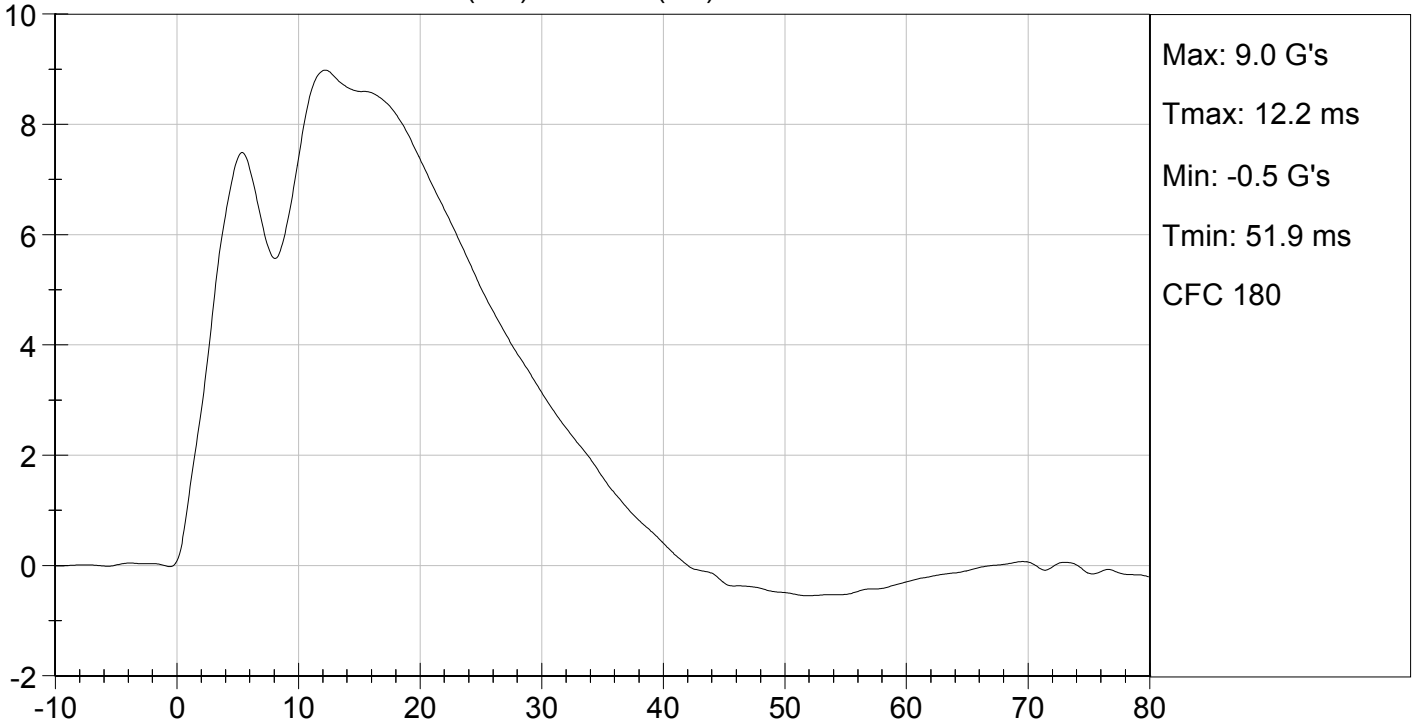
11/13/2014
Test Date

Jessica Hall
Approved By

TEST DESC: SHOULDER IMPACT
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 11/13/2014
TEST #: D143993

IMPACTOR ACCELERATION (G's) vs TIME (ms)



MGA RESEARCH CORPORATION

UPPER RIB TEST

ES-2re DUMMY

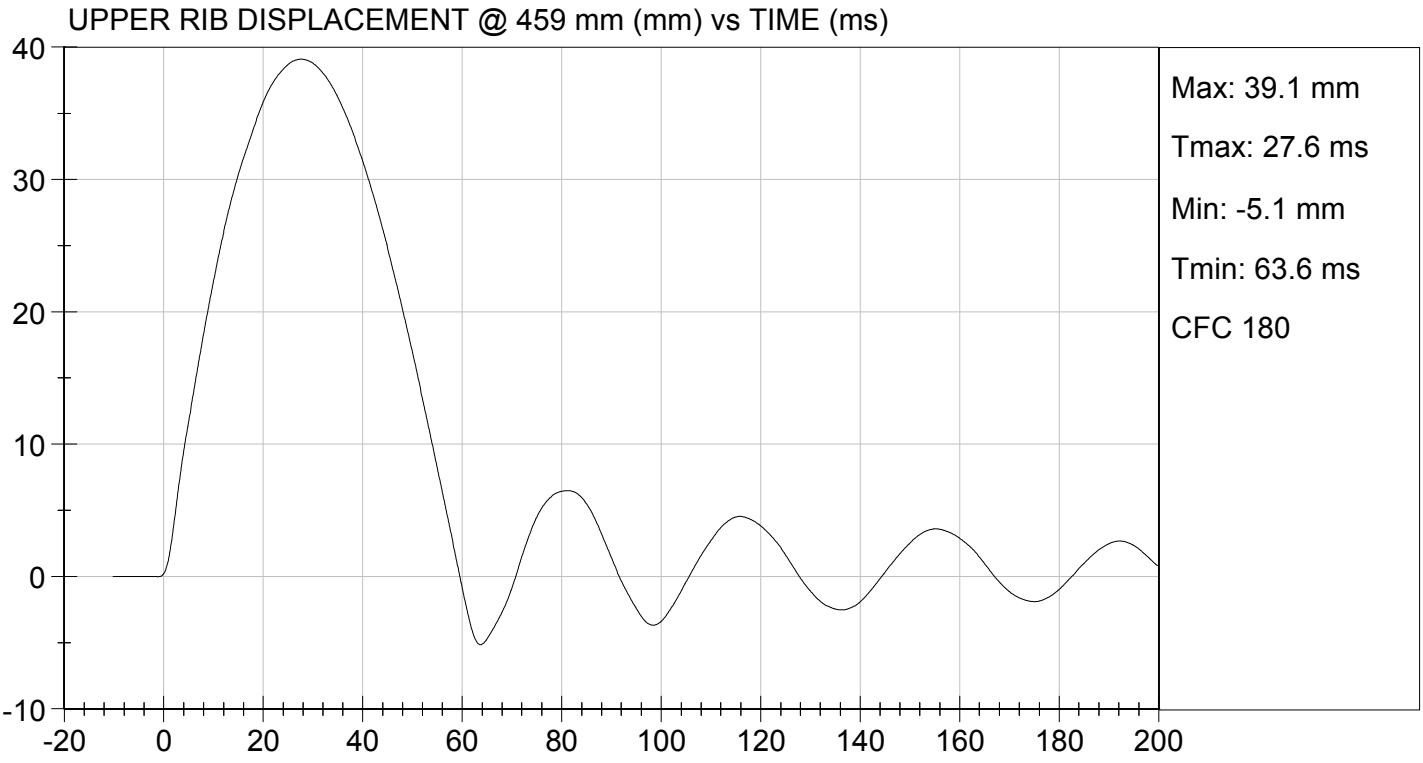
ATD Serial No: 032 **Test I.D:** D143994

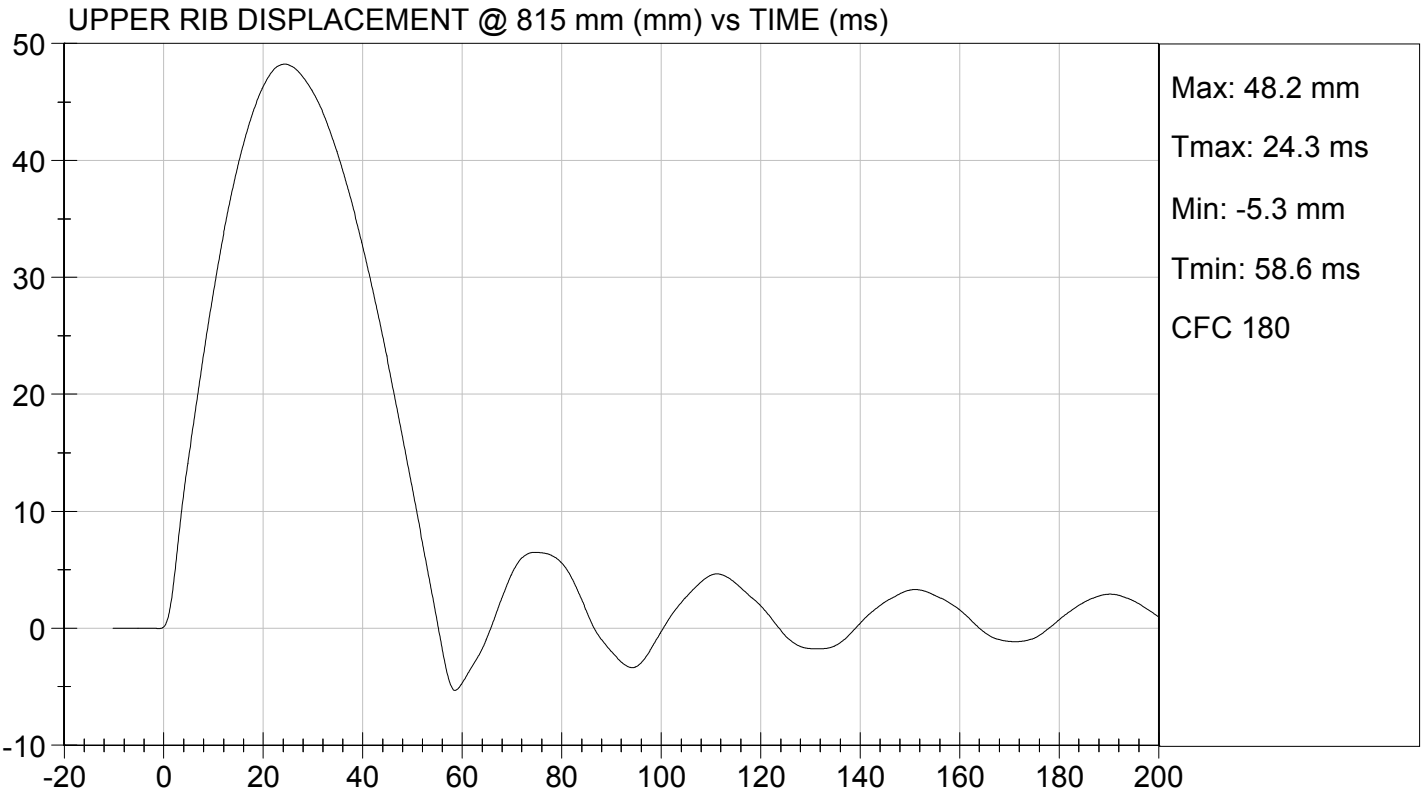
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.9	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Displacement at 459 mm	mm	36.0 to 40.0	39.1	Pass
Displacement at 815 mm	mm	46.0 to 51.0	48.2	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

11/13/2014
Test Date

Jessica Hall
Approved By


UPPER RIB DISPLACEMENT @ 459 mm (mm) vs TIME (ms)
40
30
20
10
0
-10
-20
0
20
40
60
80
100
120
140
160
180
200
Max: 39.1 mm
Tmax: 27.6 ms
Min: -5.1 mm
Tmin: 63.6 ms
CFC 180


UPPER RIB DISPLACEMENT @ 815 mm (mm) vs TIME (ms)
50
40
30
20
10
0
-10
-20
0
20
40
60
80
100
120
140
160
180
200
Max: 48.2 mm
Tmax: 24.3 ms
Min: -5.3 mm
Tmin: 58.6 ms
CFC 180

MGA RESEARCH CORPORATION

MID RIB TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143995

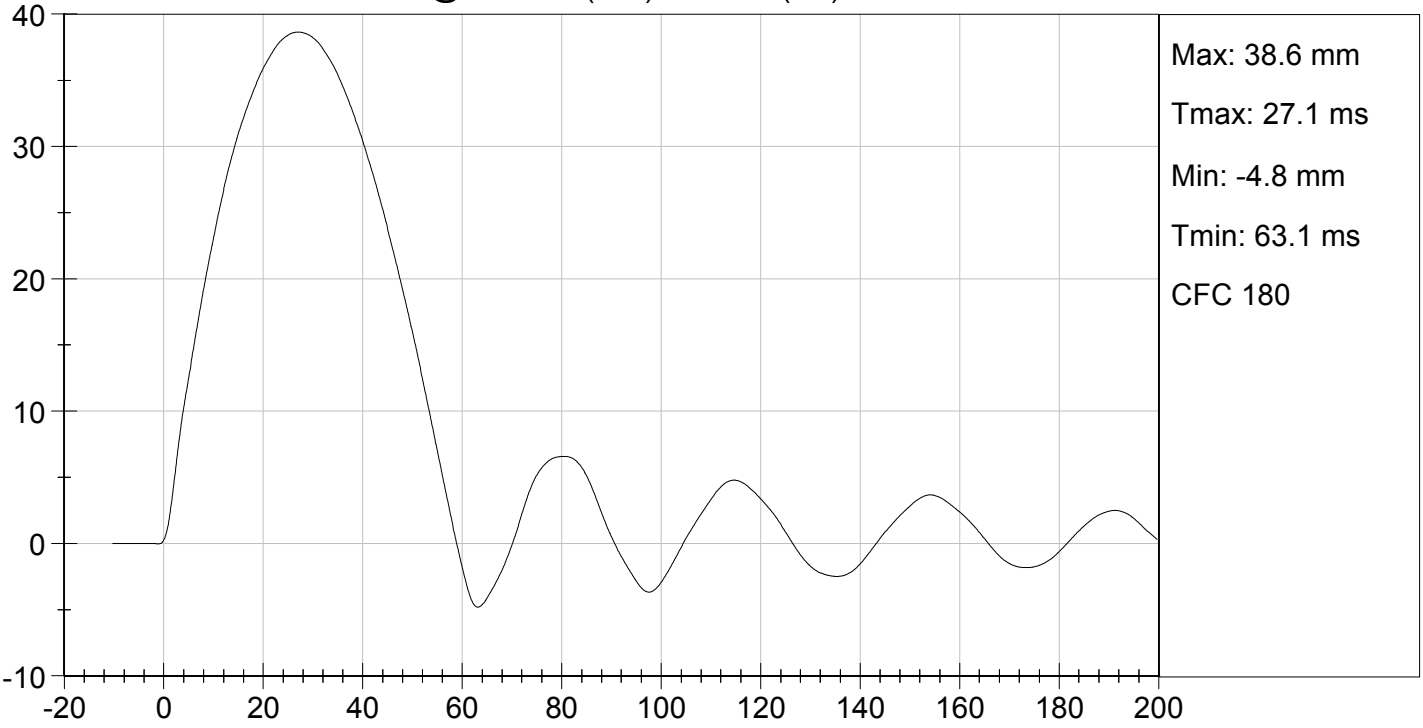
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.9	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Displacement at 459 mm	mm	36.0 to 40.0	38.6	Pass
Displacement at 815 mm	mm	46.0 to 51.0	48.7	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

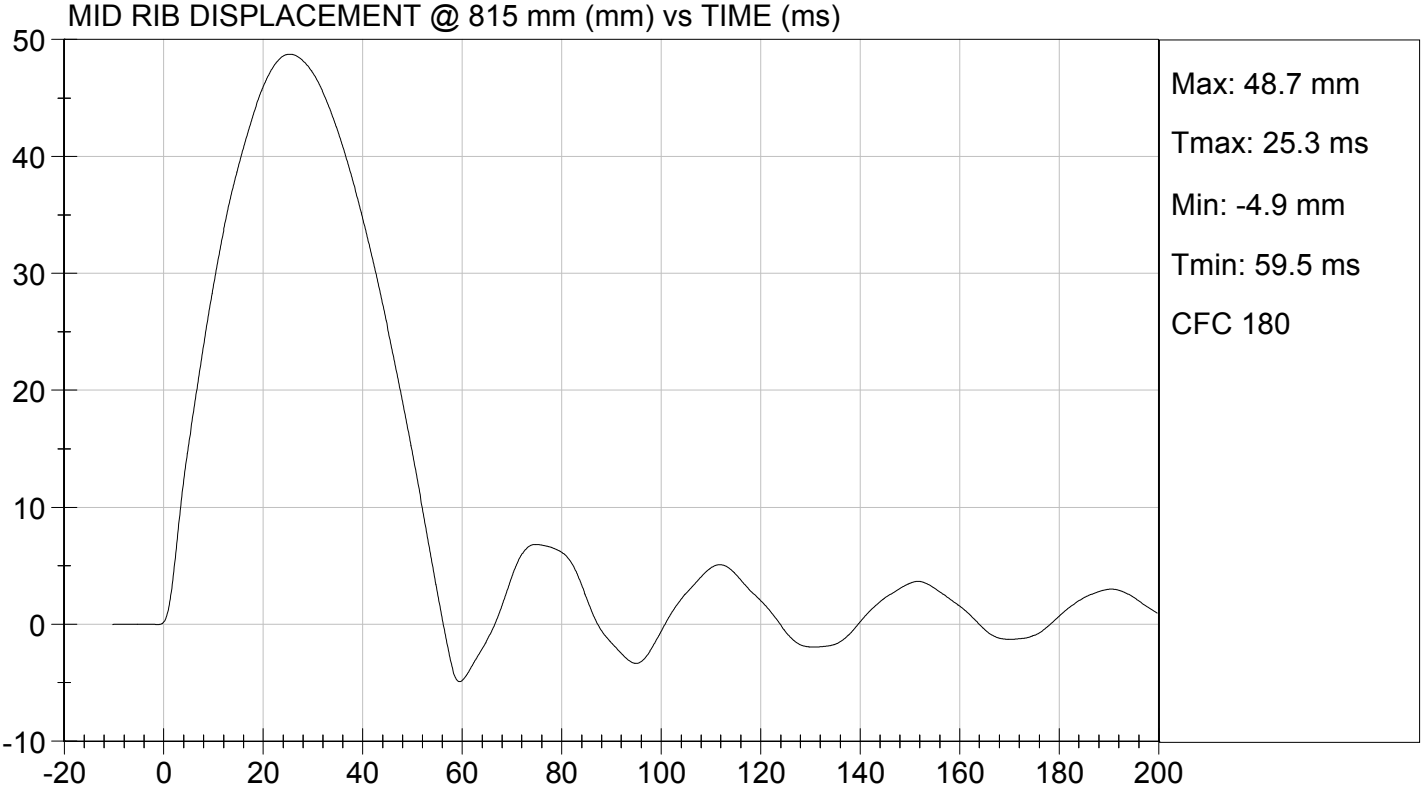
11/13/2014
Test Date

Jessica Hall
Approved By

MID RIB DISPLACEMENT @ 459 mm (mm) vs TIME (ms)



MID RIB DISPLACEMENT @ 815 mm (mm) vs TIME (ms)



MGA RESEARCH CORPORATION

LOWER RIB TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143996

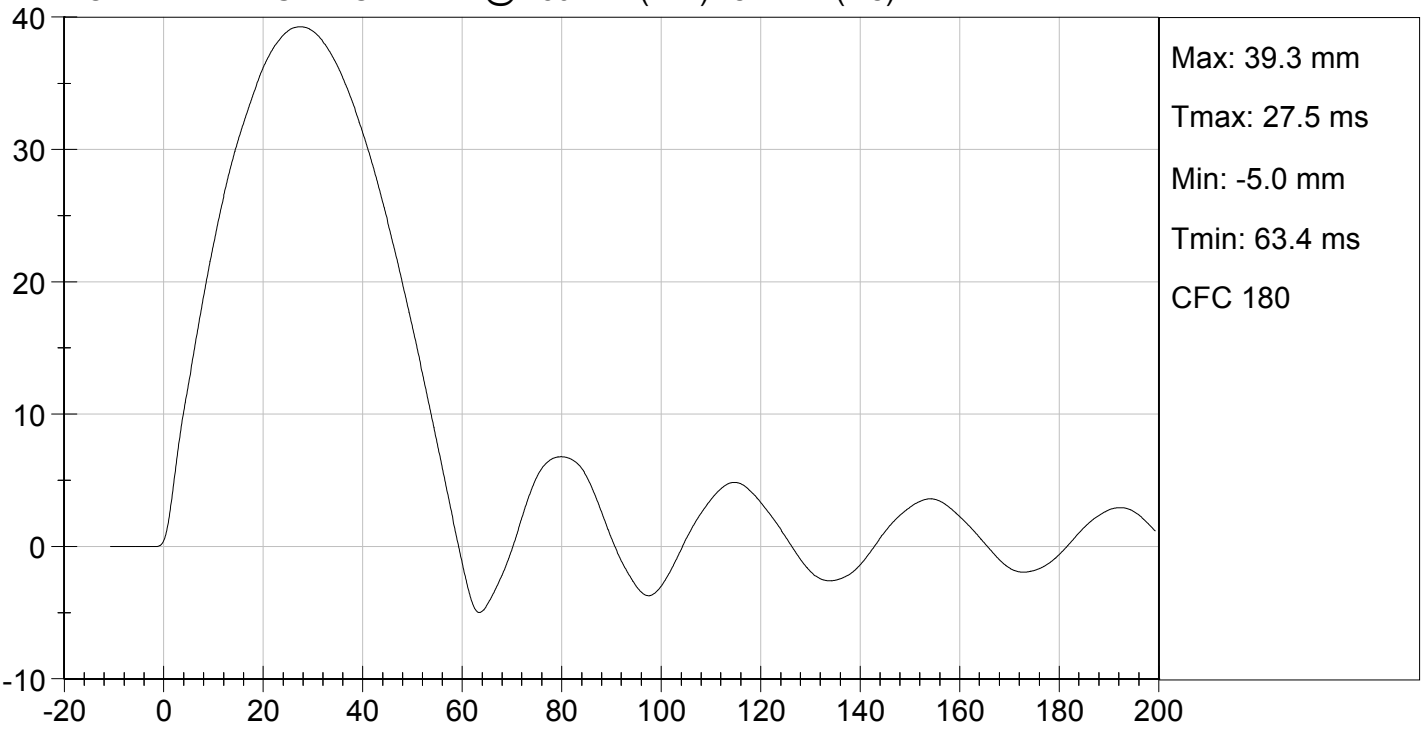
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.9	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Displacement at 459 mm	mm	36.0 to 40.0	39.3	Pass
Displacement at 815 mm	mm	46.0 to 51.0	49.8	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

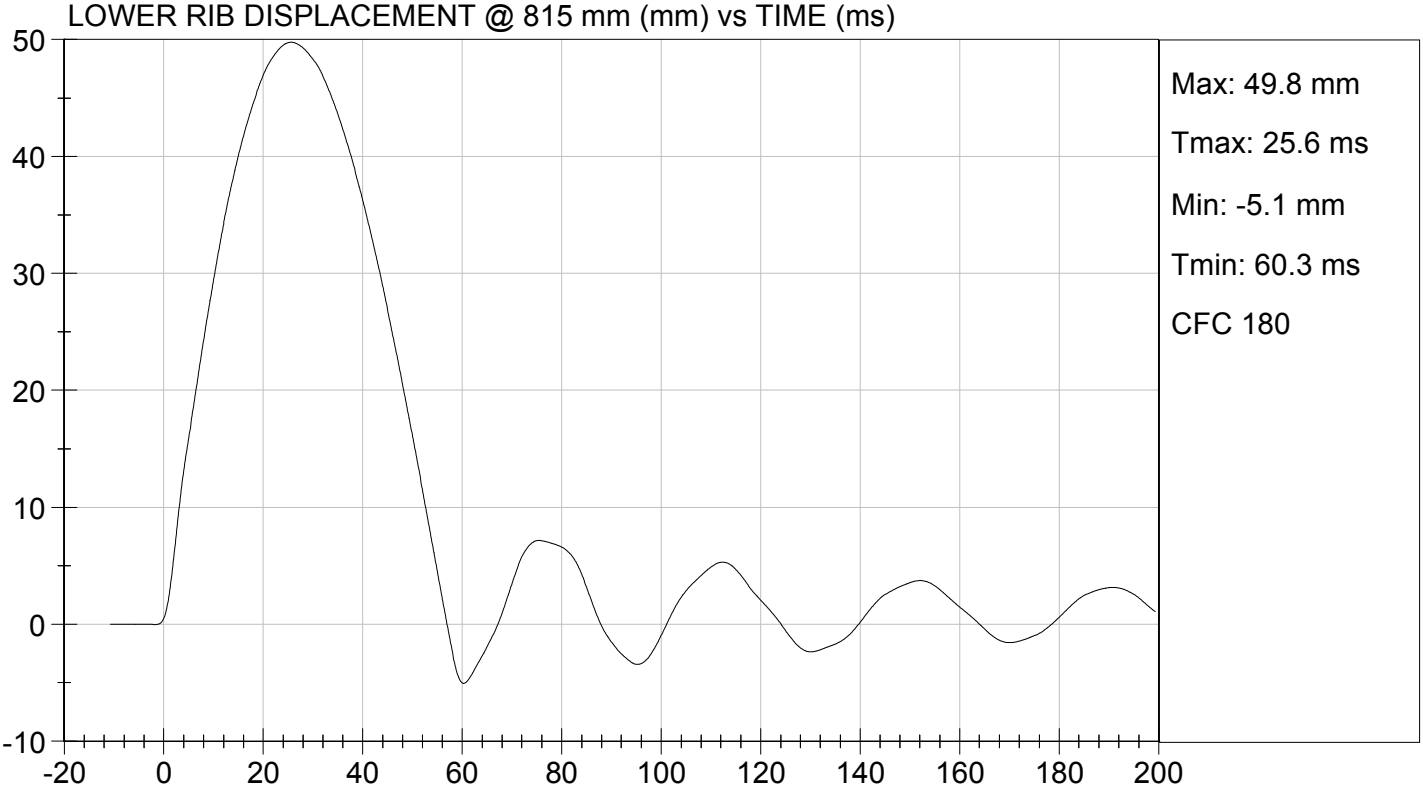
11/13/2014
Test Date

Jessica Hall
Approved By

LOWER RIB DISPLACEMENT @ 459 mm (mm) vs TIME (ms)



LOWER RIB DISPLACEMENT @ 815 mm (mm) vs TIME (ms)



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143990

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.9	Pass
Humidity	%	10 to 70	20	Pass
Probe Speed	m/s	5.40 to 5.60	5.58	Pass
Maximum Impactor Force (after 6 ms)	N	5100 to 6200	5732	Pass
Upper Rib Displacement	mm	34.0 to 41.0	39.1	Pass
Middle Rib Displacement	mm	37.0 to 45.0	42.2	Pass
Lower Rib Displacement	mm	37.0 to 44.0	41.4	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

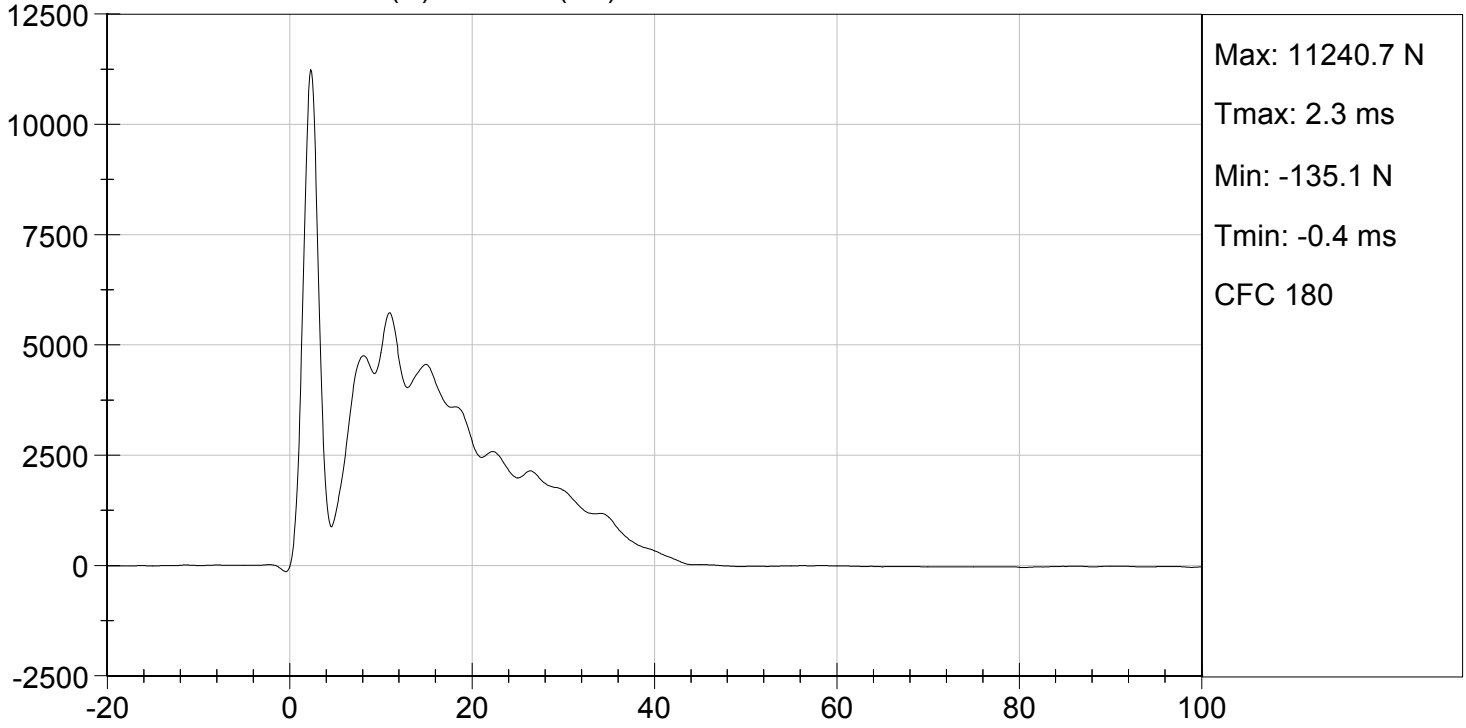
11/13/2014
Test Date

Jessica Hall
Approved By

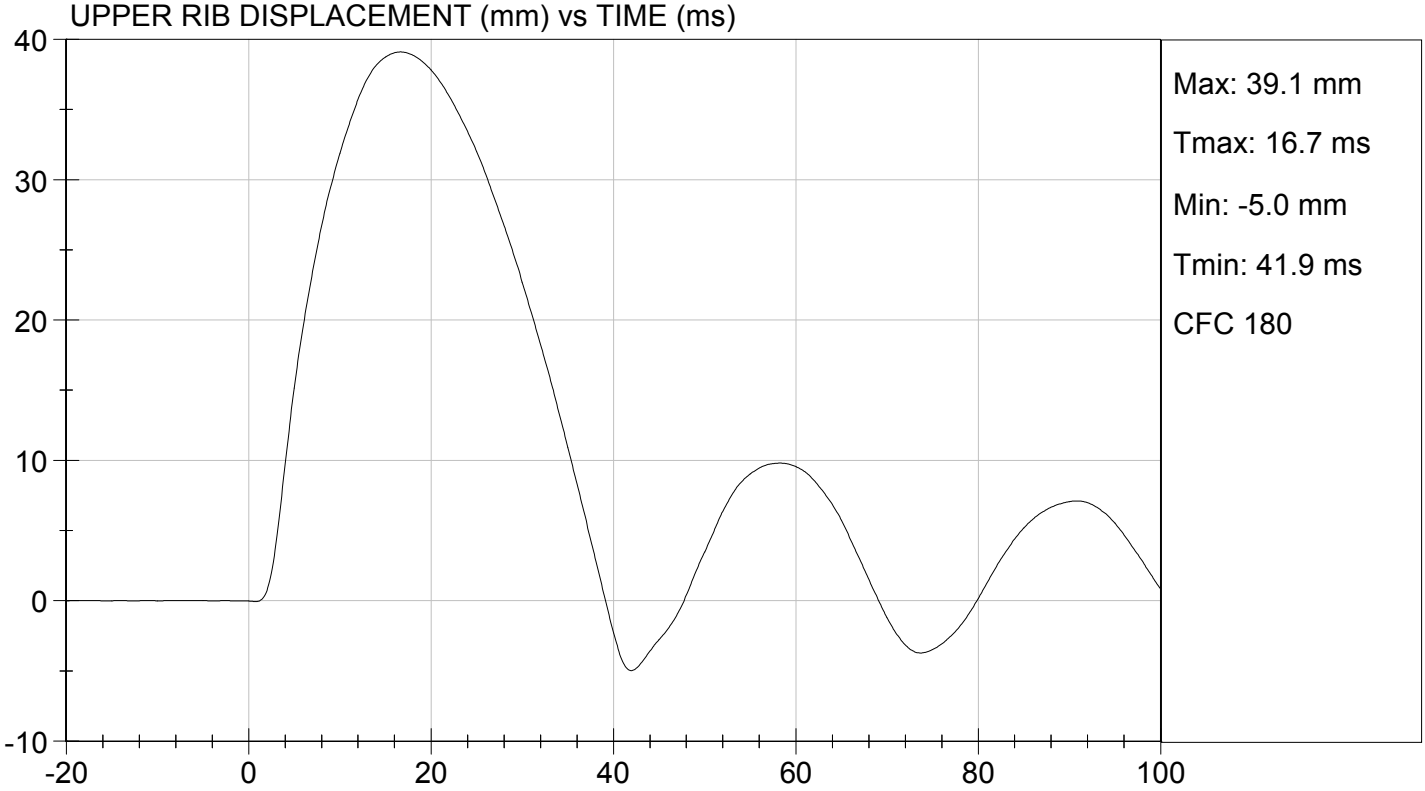
TEST DESC: THORAX IMPACT
VELOCITY: 18.32 ft/s, 5.58 m/s

TEST DATE: 11/13/2014
TEST #: D143990

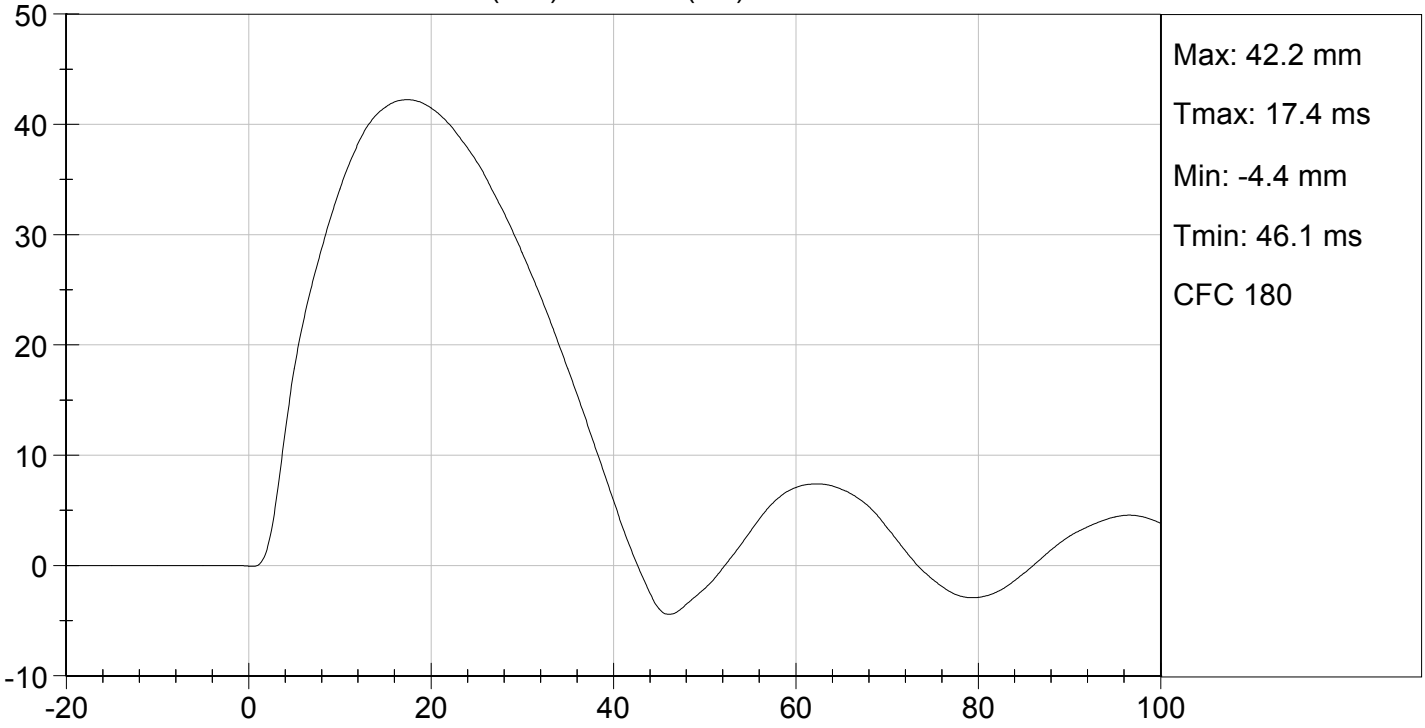
IMPACTOR FORCE (N) vs TIME (ms)



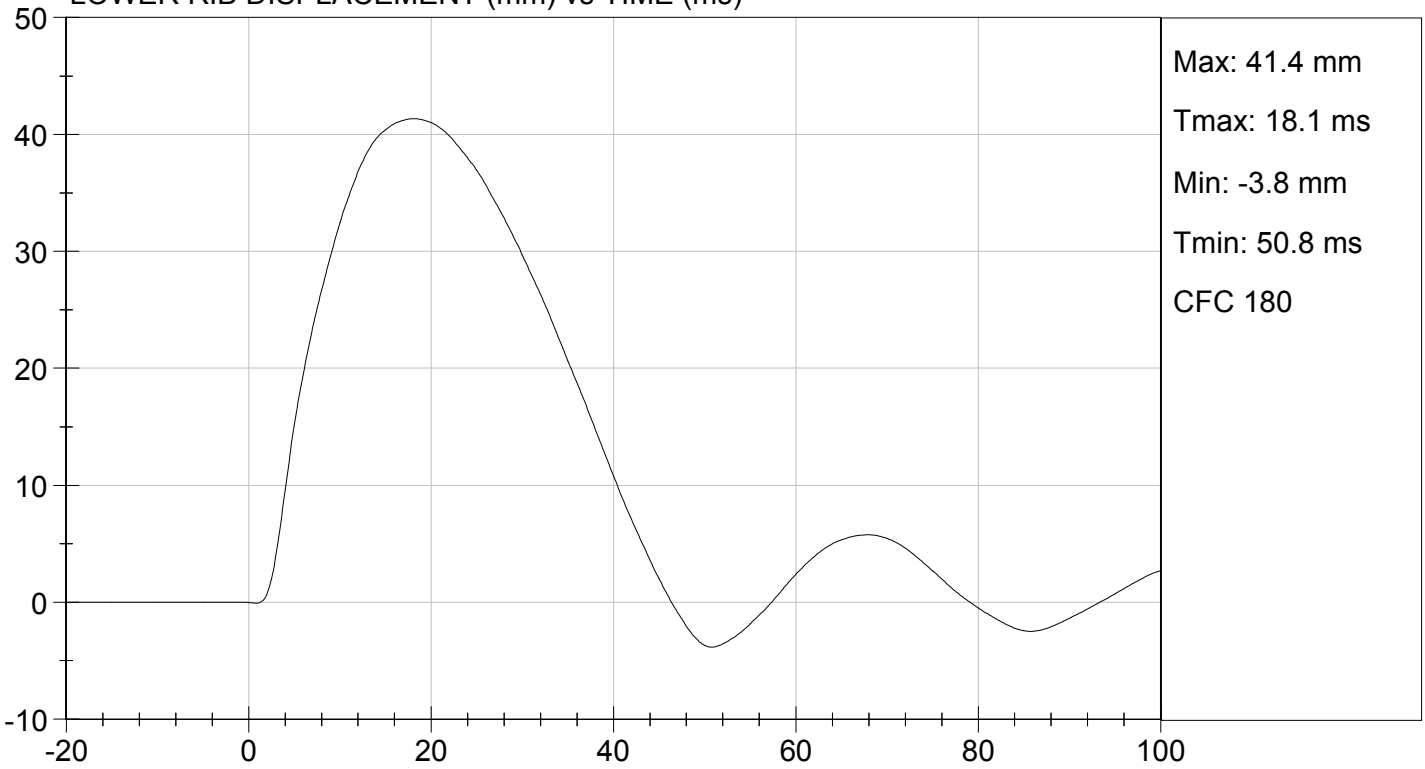
UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



MGA RESEARCH CORPORATION

ABDOMEN TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143997

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.9	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Probe Speed	m/s	3.90 to 4.10	4.06	Pass
Maximum Impactor Force	N	4000 to 4800	4385	Pass
Time of Maximum Impactor Force	ms	10.6 to 13.0	11.3	Pass
Maximum Total Abdomen Force	N	2200 to 2700	2266	Pass
Time of Maximum Abdomen Force	ms	10.0 to 12.3	10.7	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

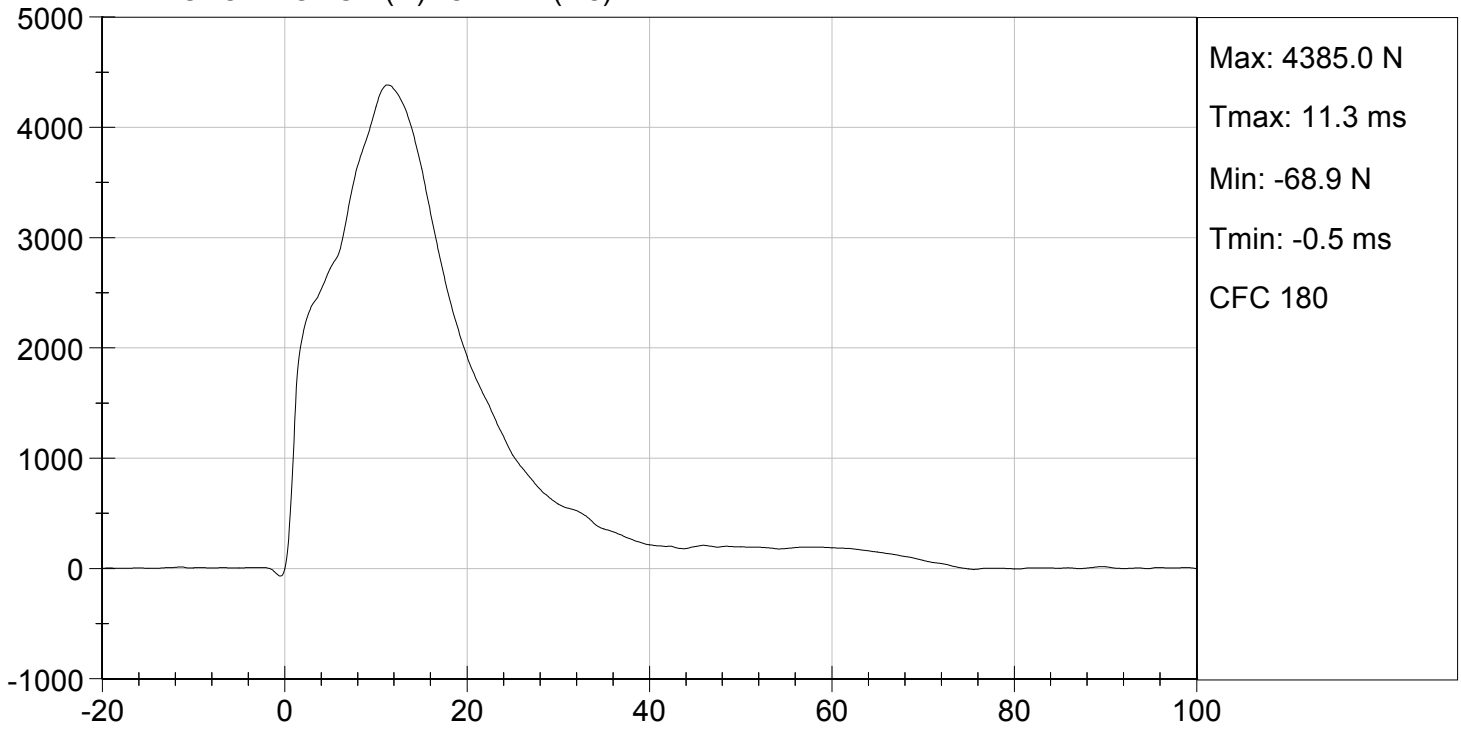
11/13/2014
Test Date

Jessica Hall
Approved By

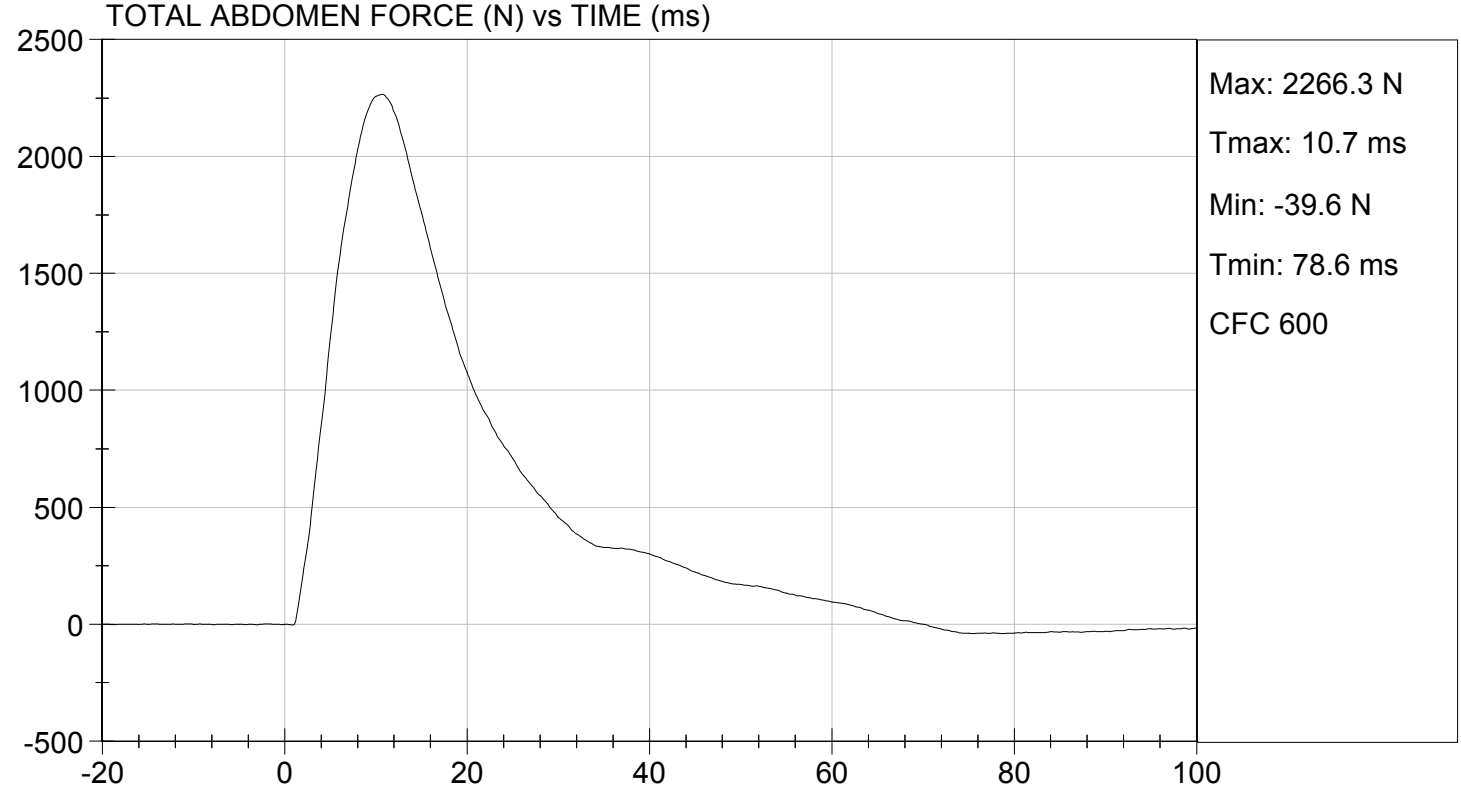
TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.33 ft/s, 4.06 m/s

TEST DATE: 11/13/2014
TEST #: D143997

IMPACTOR FORCE (N) vs TIME (ms)



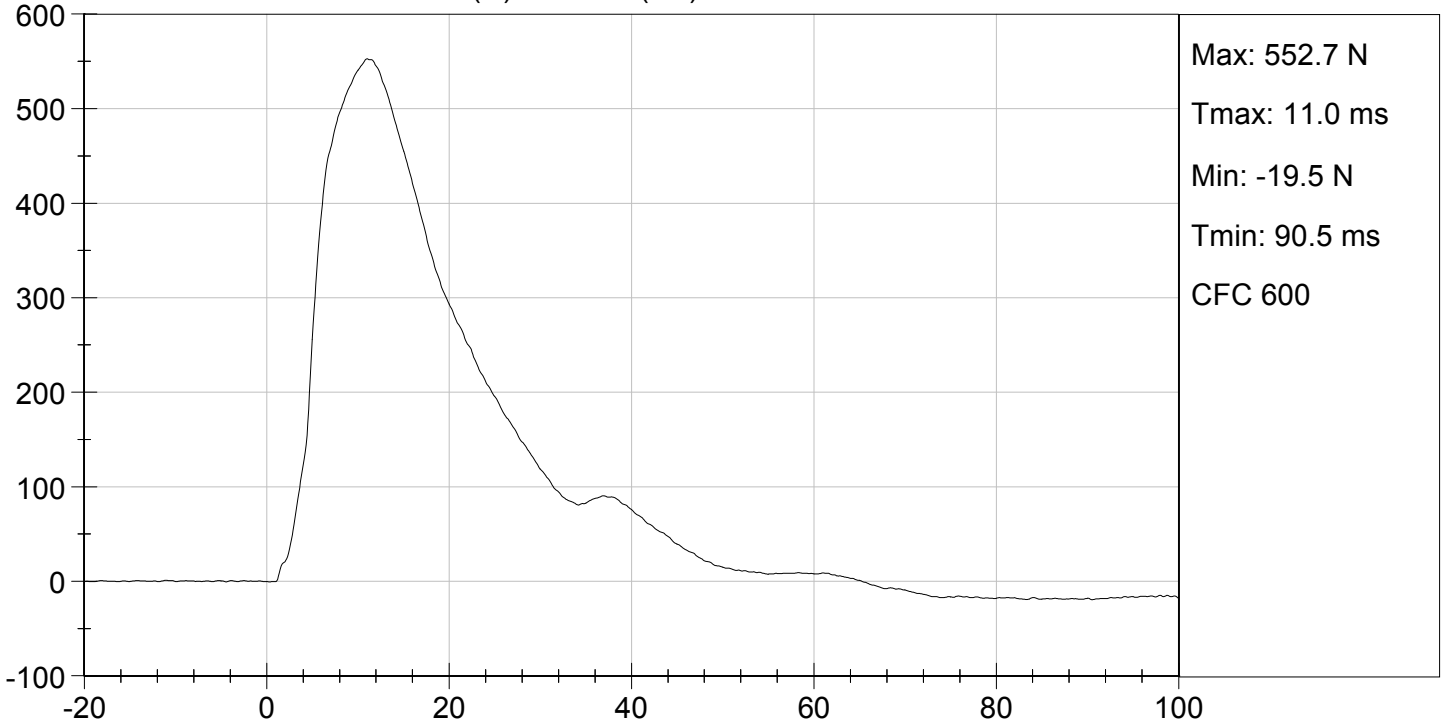
TOTAL ABDOMEN FORCE (N) vs TIME (ms)



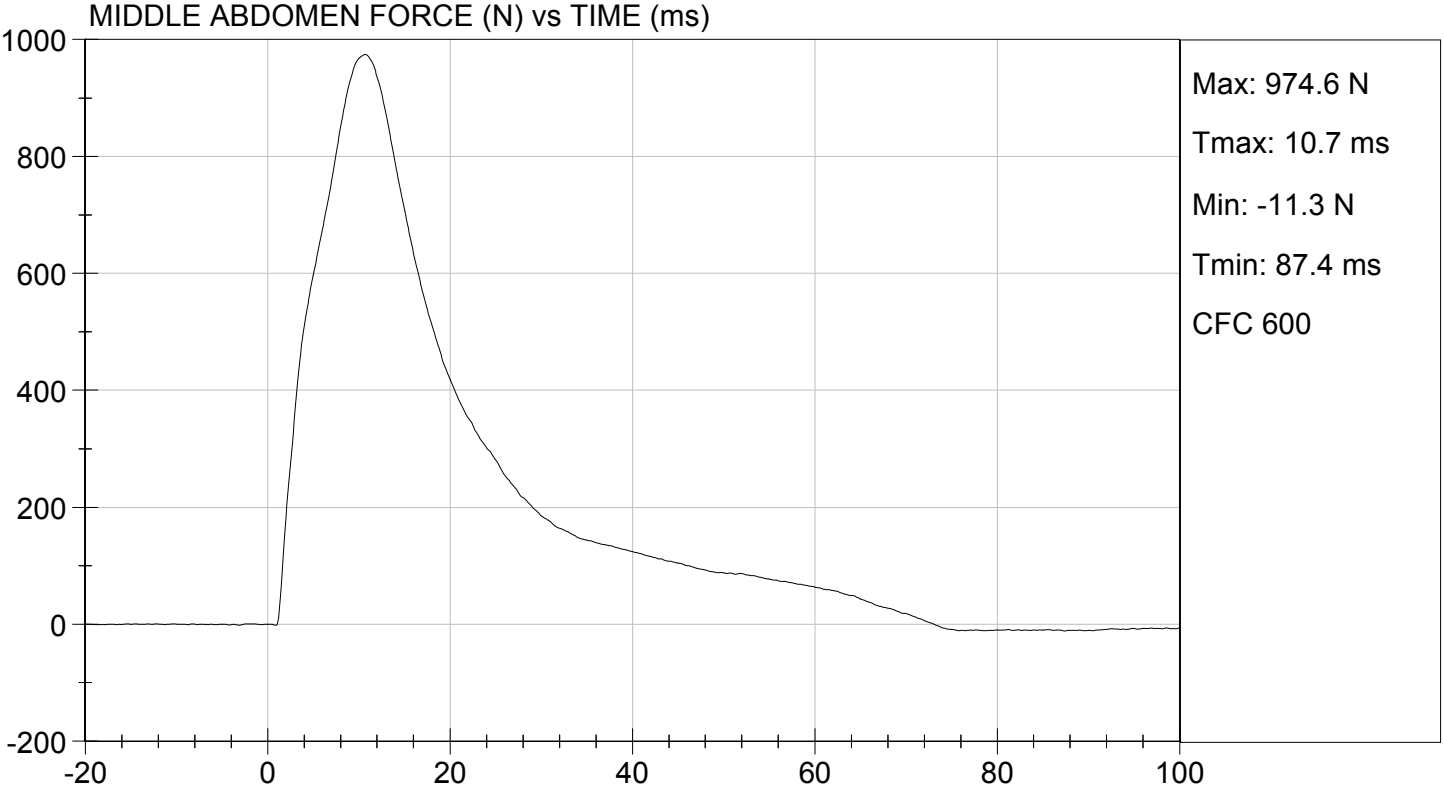
TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.33 ft/s, 4.06 m/s

TEST DATE: 11/13/2014
TEST #: D143997

FRONT ABDOMEN FORCE (N) vs TIME (ms)



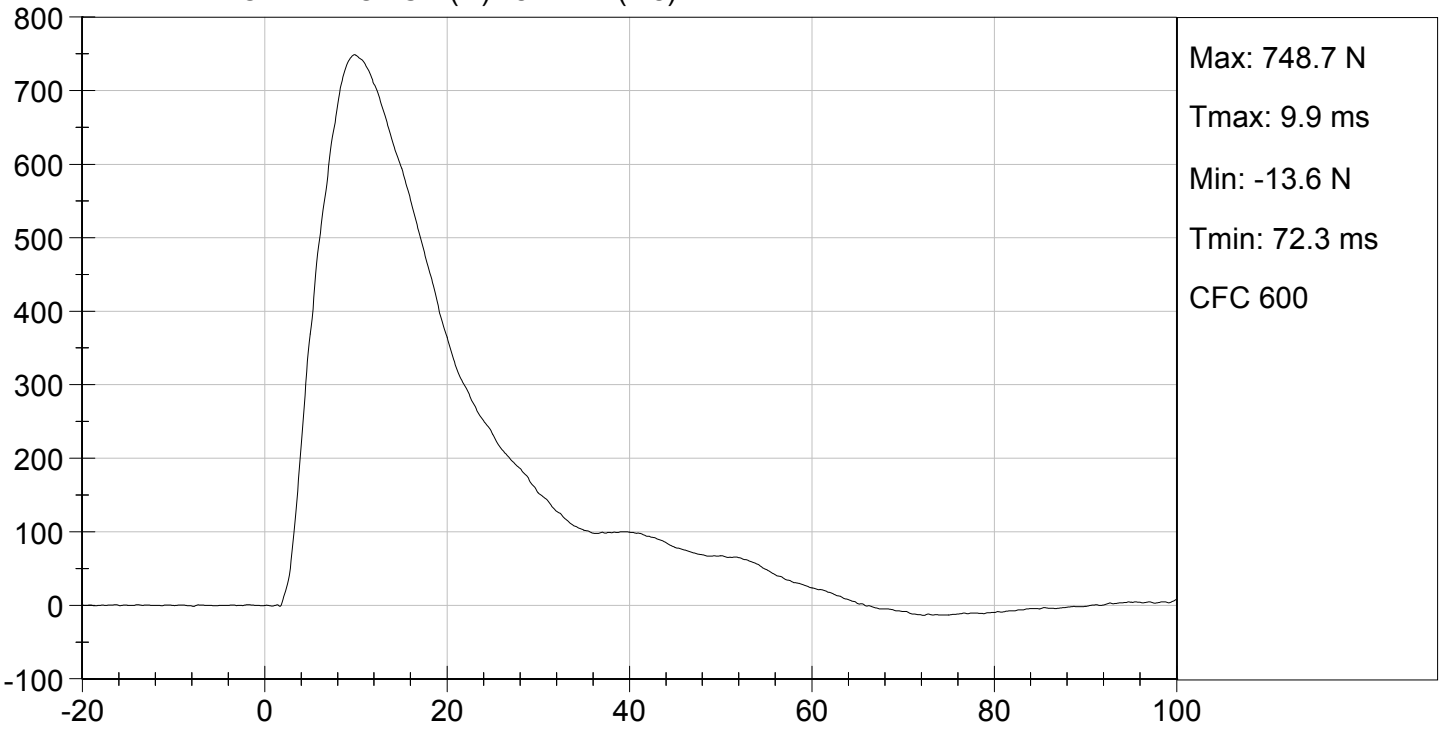
MIDDLE ABDOMEN FORCE (N) vs TIME (ms)



TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.33 ft/s, 4.06 m/s

TEST DATE: 11/13/2014
TEST #: D143997

REAR ABDOMEN FORCE (N) vs TIME (ms)



MGA RESEARCH CORPORATION

LUMBAR SPINE TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143998

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity		%	10 to 70	21	Pass
Pendulum Speed		m/s	5.95 to 6.15	6.12	Pass
Pendulum Velocity	1 ms	m/s	-0.05 to 0.00	-0.01	Pass
	3.7 ms	m/s	-0.425 to -0.24	-0.416	Pass
	27 ms	m/s	-6.50 to -5.80	-5.87	Pass
	30 ms	m/s	>= -6.50	-5.88	Pass
Maximum Flexion Angle		deg	45.0 to 55.0	46.2	Pass
Time of Maximum Flexion Angle		ms	39.0 to 53.0	44.7	Pass
Headform Rotation Decay to Initial Position		ms	37 to 57	42	Pass
			Overall Results		Pass

David Schoedel
Laboratory Technician

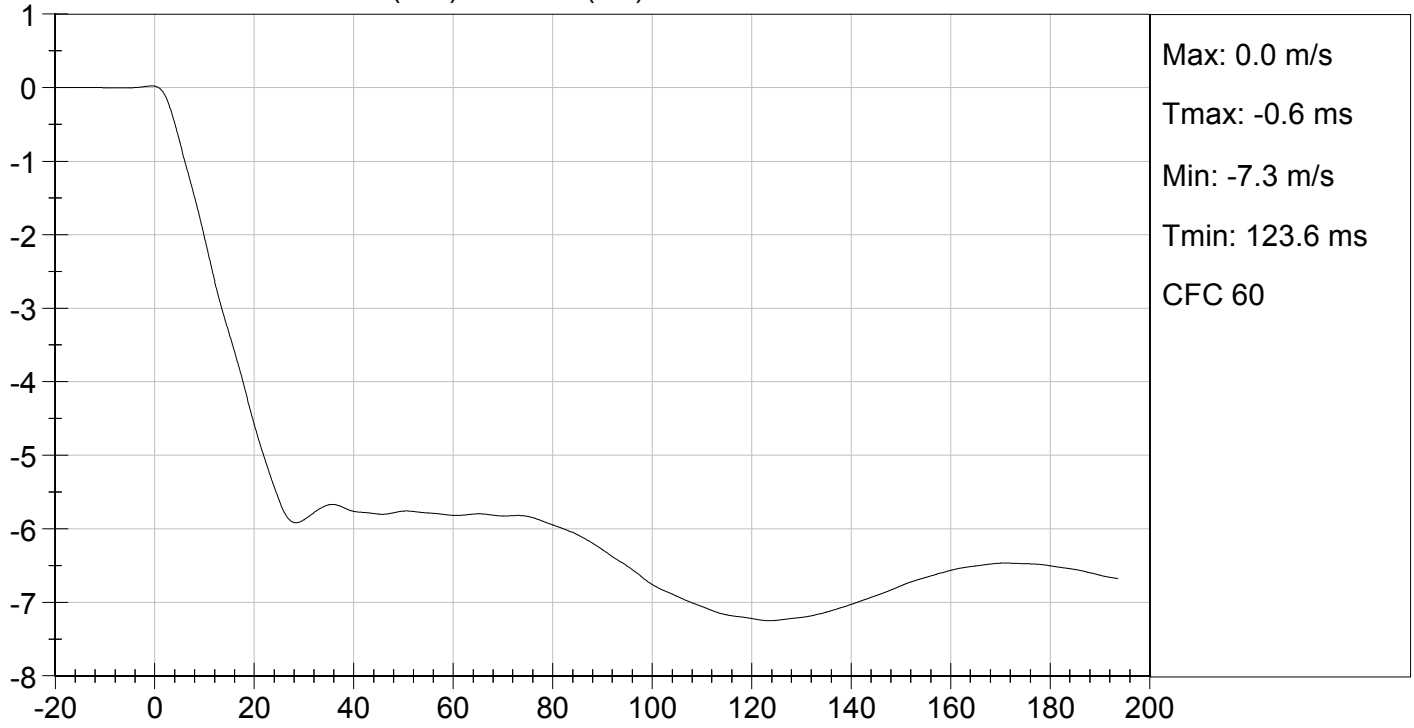
11/13/2014
Test Date

Jessica Hall
Approved By

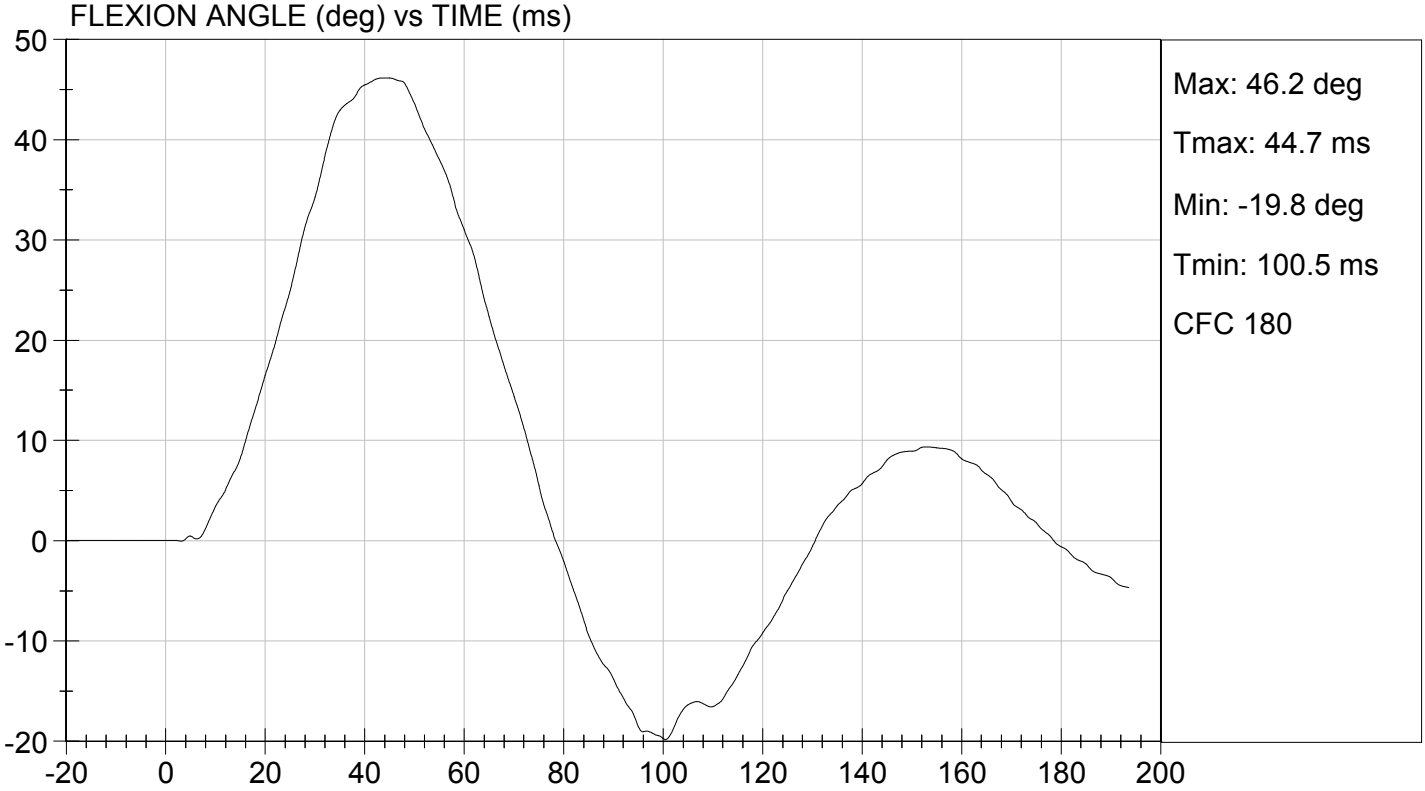
TEST DESC: LUMBAR BENDING
VELOCITY: 20.08 ft/s, 6.12 m/s

TEST DATE: 11/13/2014
TEST #: D143998

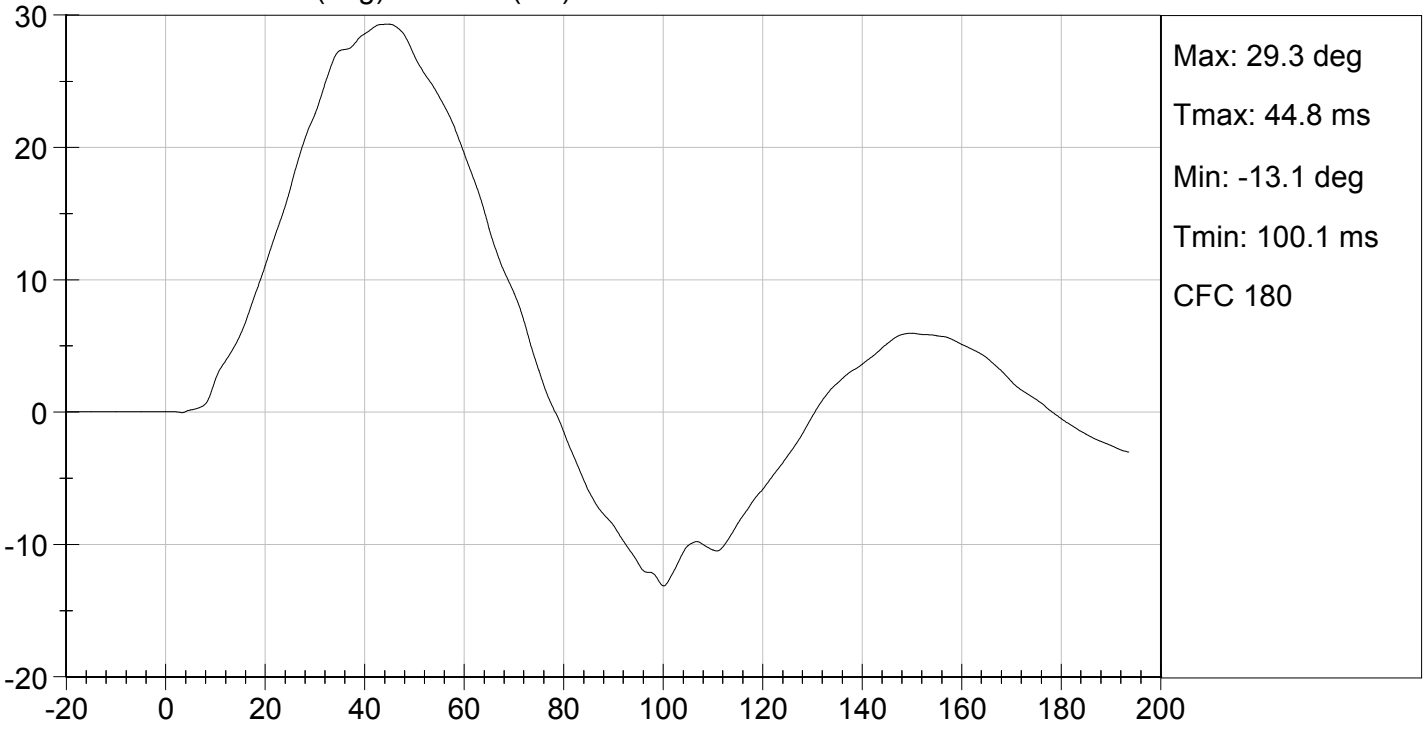
PENDULUM VELOCITY (m/s) vs TIME (ms)



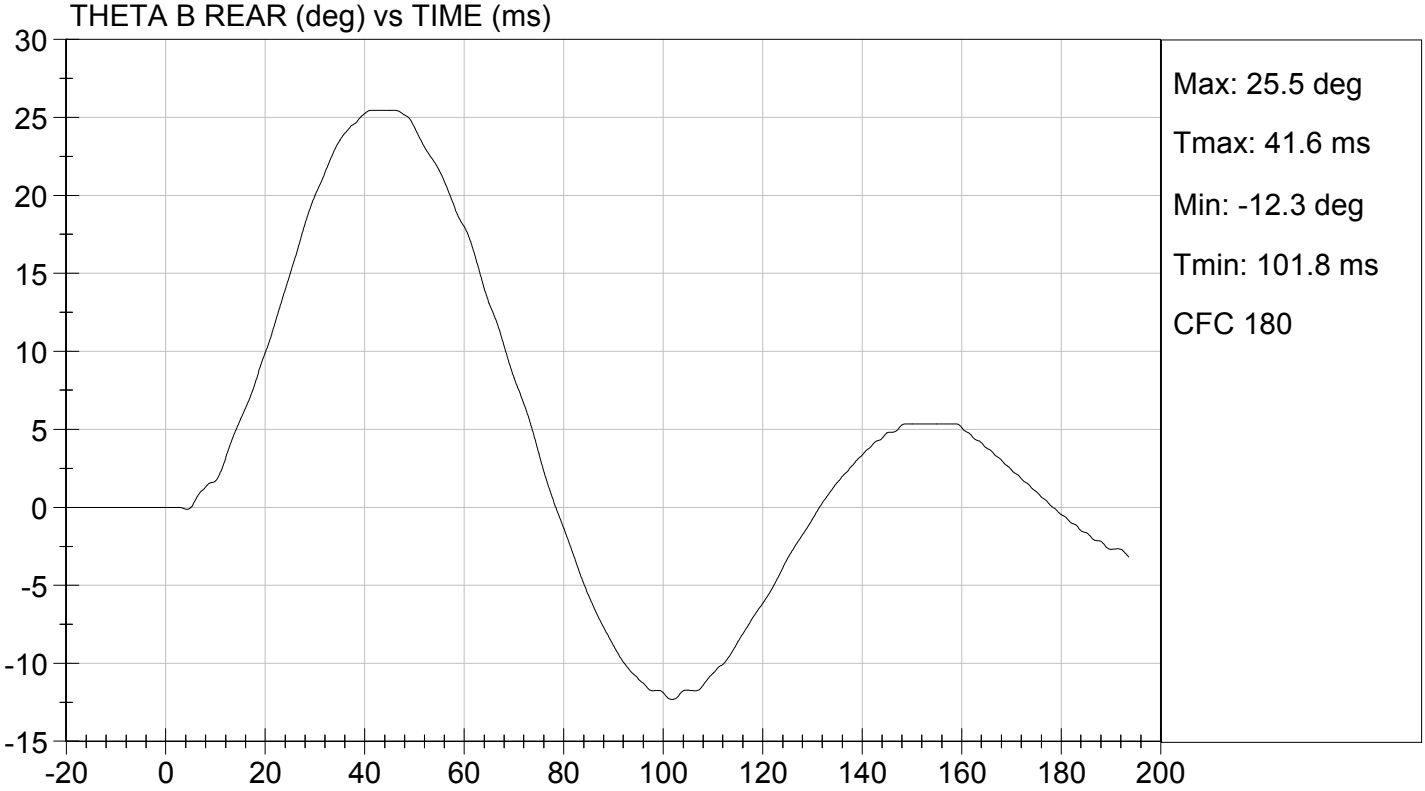
FLEXION ANGLE (deg) vs TIME (ms)



THETA A FRONT (deg) vs TIME (ms)

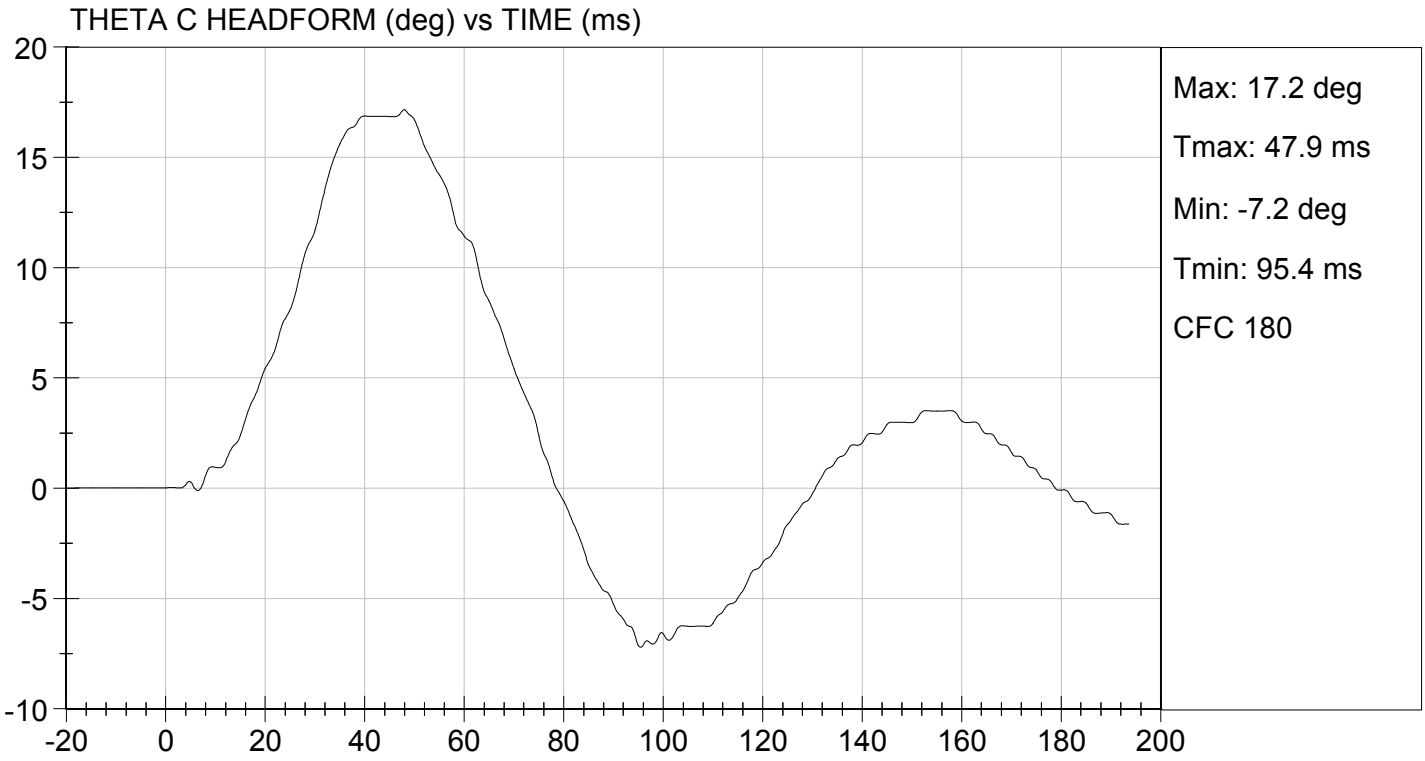


THETA B REAR (deg) vs TIME (ms)



TEST DESC: LUMBAR BENDING
VELOCITY: 20.08 ft/s, 6.12 m/s

TEST DATE: 11/13/2014
TEST #: D143998



MGA RESEARCH CORPORATION

PELVIS TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D143999

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.9	Pass
Laboratory Relative Humidity	%	10 to 70	20	Pass
Probe Speed	m/s	4.20 to 4.40	4.38	Pass
Maximum Impactor Force	N	4700 to 5400	4915	Pass
Time of Maximum Impactor Force	ms	11.8 to 16.1	13.3	Pass
Maximum Pubic Force	N	1230 to 1590	1328	Pass
Time of Maximum Pubic Force	ms	12.2 to 17.0	14.2	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

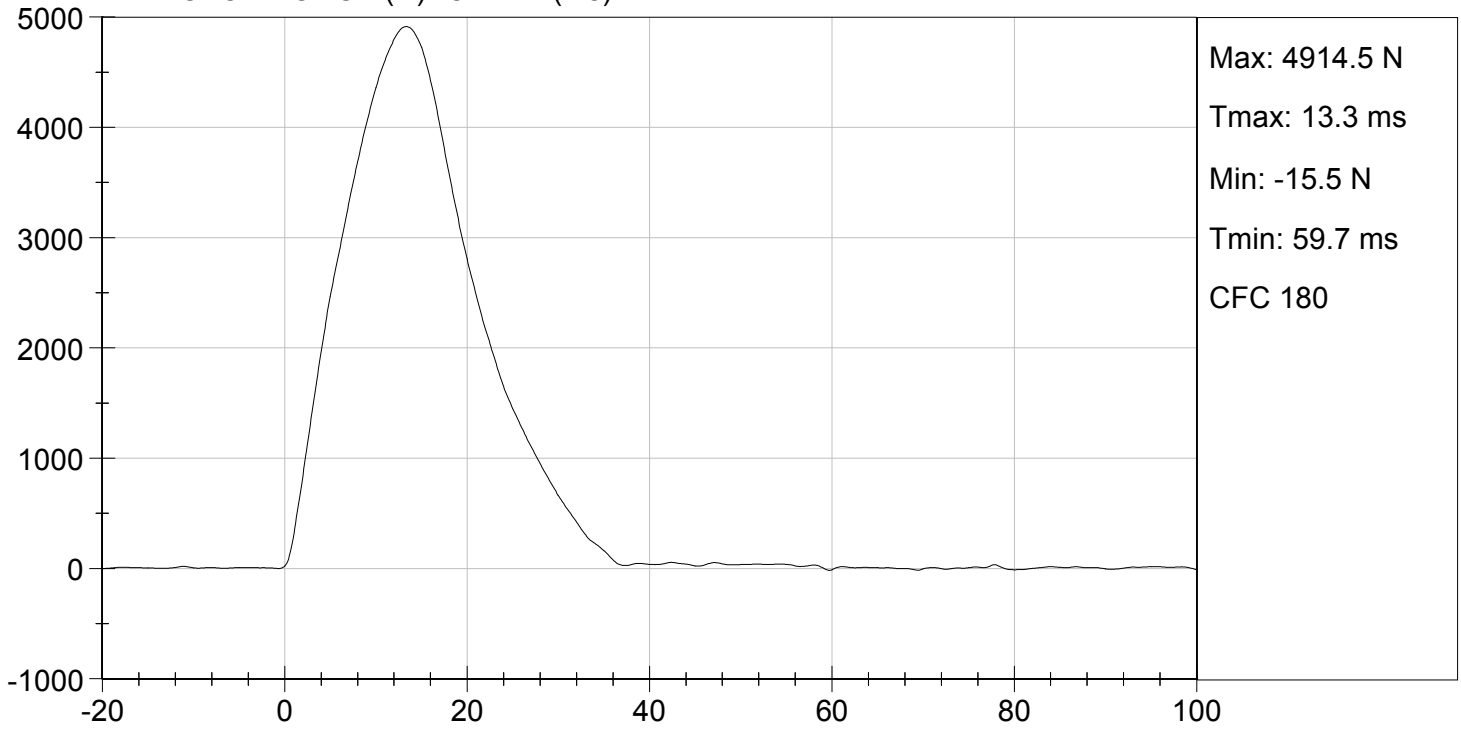
11/13/2014
Test Date

Jessica Hall
Approved By

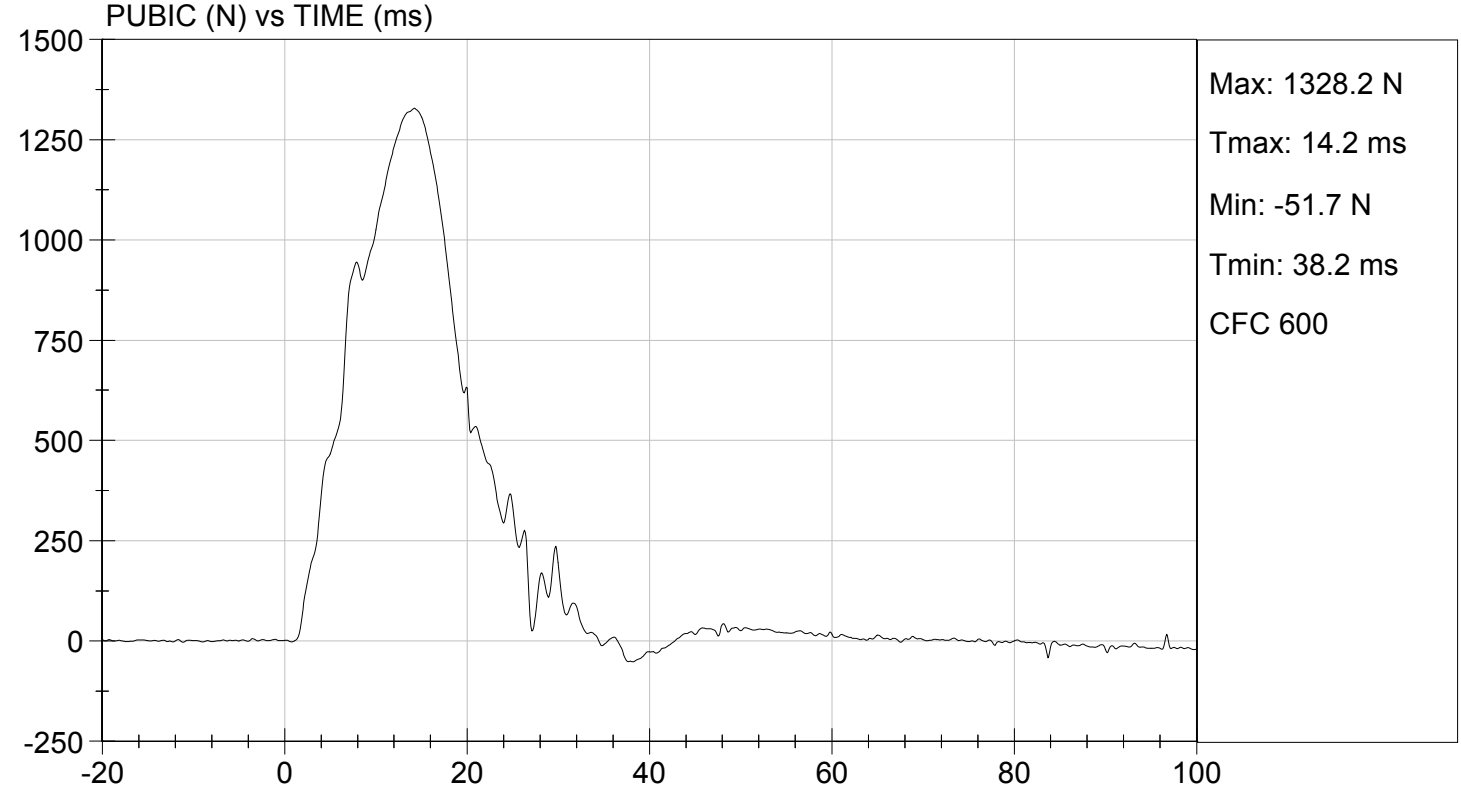
TEST DESC: PELVIS IMPACT
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 11/13/2014
TEST #: D143999

IMPACTOR FORCE (N) vs TIME (ms)



PUBIC (N) vs TIME (ms)



SID-IIsD External Measurements
SN: 296

No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	784	Pass
B	Shoulder Pivot Height	437 - 453	442	Pass
C	H-point Height	79 - 89	83	Pass
D	H-point from Seatback	141 - 151	145	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	121	Pass
G	Head Breadth	140 - 148	142	Pass
H	Head Back from Backline	40 - 46	45	Pass
I	Head Depth	178 - 188	180	Pass
J	Head Circumference	541 - 551	548	Pass
K	Buttock to Knee Length	514 - 540	535	Pass
L	Popliteal Height	343 - 369	358	Pass
M	Knee Pivot to Floor Height	392 - 409	404	Pass
N	Buttock Popliteal Length	416 - 442	435	Pass
O	Chest Depth w/o Jacket	195 - 211	206	Pass
P	Foot Length	216 - 232	219	Pass
Q	Hip Breadth (w/ pelvic plugs)	313 - 323	316	Pass
R	Arm Length	249 - 259	250	Pass
S	Knee Joint to Seatback	477 - 493	481	Pass
V	Shoulder Width	341 - 357	346	Pass
W	Foot Width	78 - 94	85	Pass
Y	Chest Circumference w/ jacket	851 - 881	870	Pass
Z	Waist Circumference	761 - 791	772	Pass

MGA RESEARCH CORPORATION

HEAD DROP TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test ID:** D143891

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	20.6	Pass
Laboratory Relative Humidity	%	10 to 70	32	Pass
Peak Resultant Acceleration	G's	115 to 137	125	Pass
Peak Longitudinal Acceleration	G's	+/- 15	7.4	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
		Overall Test Results		Pass

Jack Coleman
Laboratory Technician

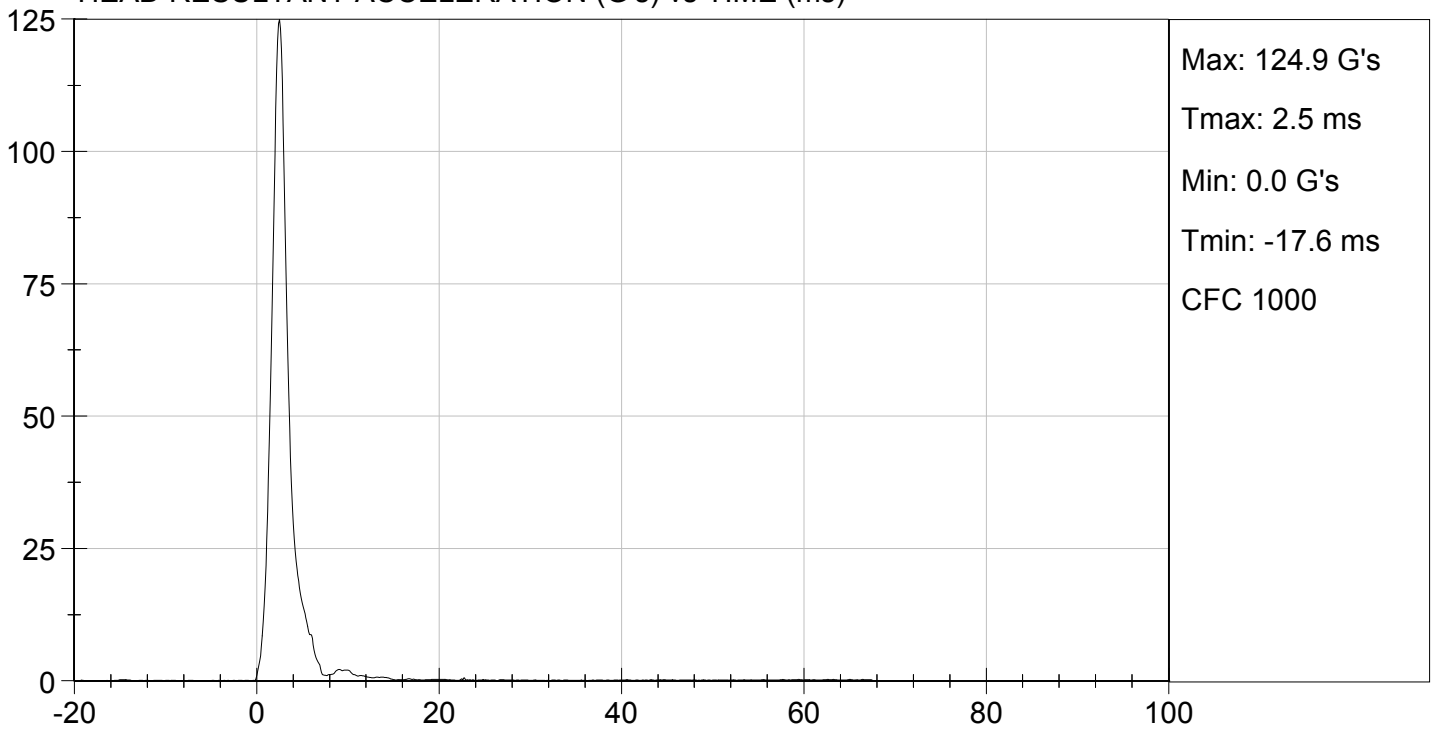
11/04/2014
Test Date

Jessica Gall
Approved By

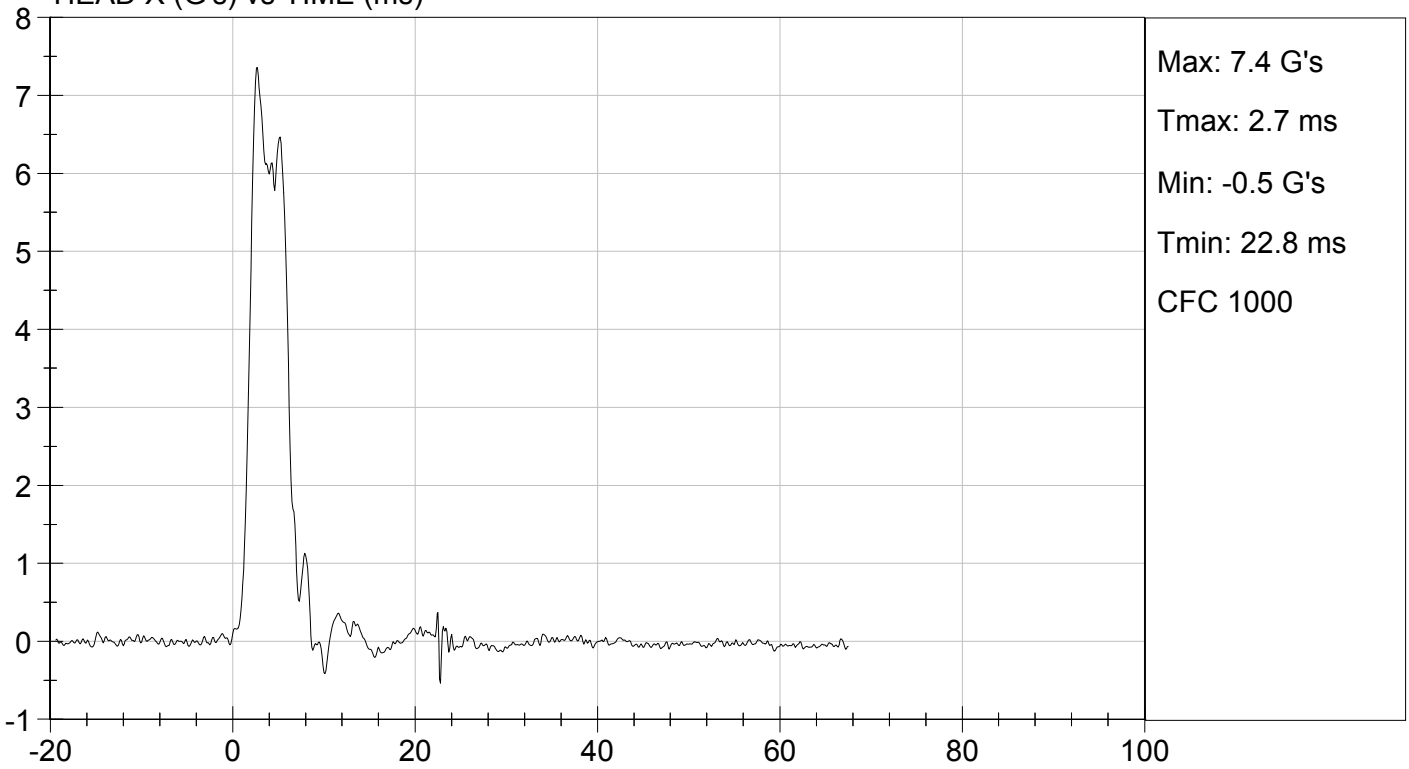
TEST DESC: HEAD DROP

TEST DATE: 11/04/2014
TEST #: D143891

HEAD RESULTANT ACCELERATION (G's) vs TIME (ms)



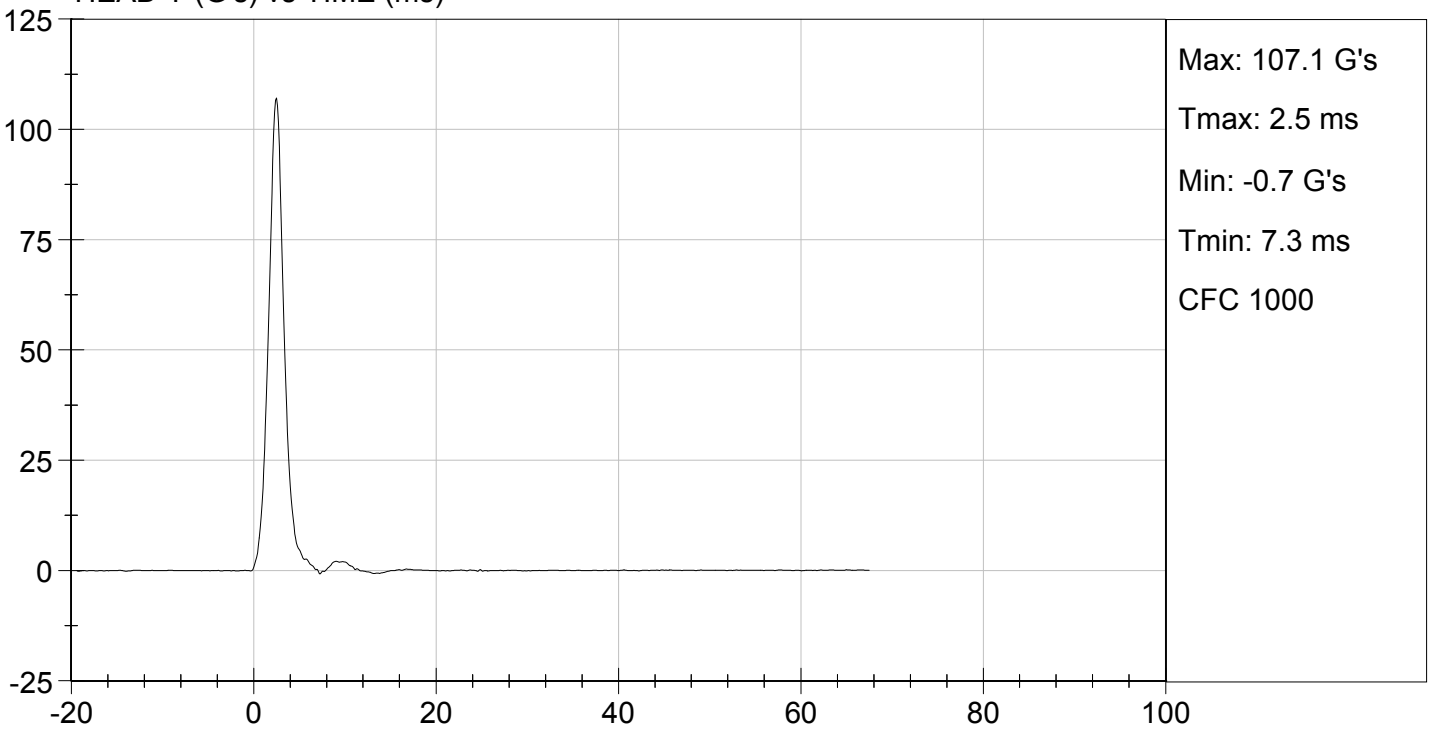
HEAD X (G's) vs TIME (ms)



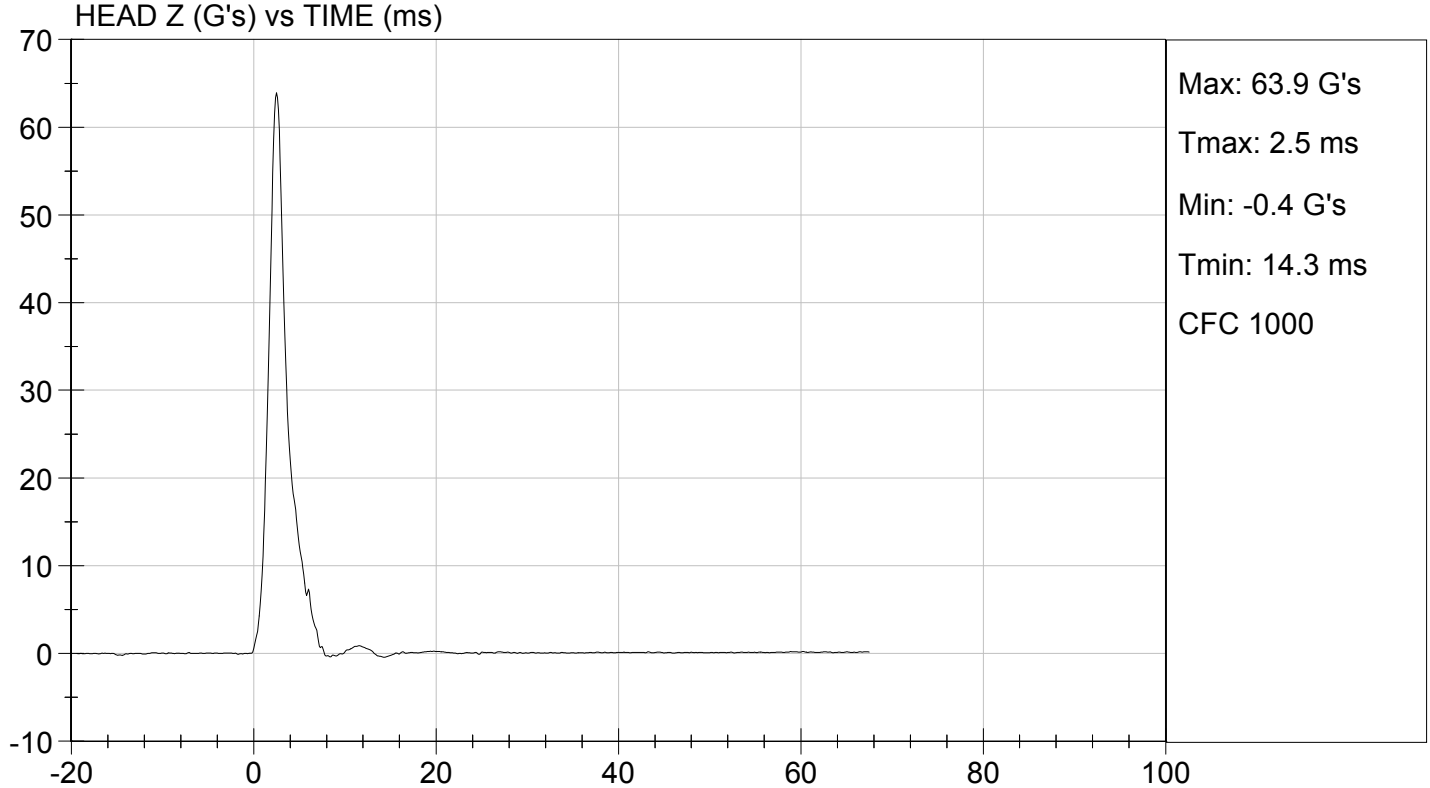
TEST DESC: HEAD DROP

TEST DATE: 11/04/2014
TEST #: D143891

HEAD Y (G's) vs TIME (ms)



HEAD Z (G's) vs TIME (ms)



MGA RESEARCH CORPORATION

LATERAL NECK PENDULUM TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D143892

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.4	Pass
Humidity		%	10 to 70	30	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.69	Pass
	15 ms	m/s	3.30 to 4.10	3.83	Pass
	20 ms	m/s	4.40 to 5.40	5.01	Pass
	25 ms	m/s	5.40 to 6.10	5.51	Pass
	25-100 ms	m/s	5.50 to 6.20	5.52	Pass
Maximum D-Plane Rotation		deg	71 to 81	75	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	56	Pass
Maximum Occipital Condyle Moment		Nm	-44 to -36	-42	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	111	Pass
			Overall Test Results		Pass

Jack Coleman
Laboratory Technician

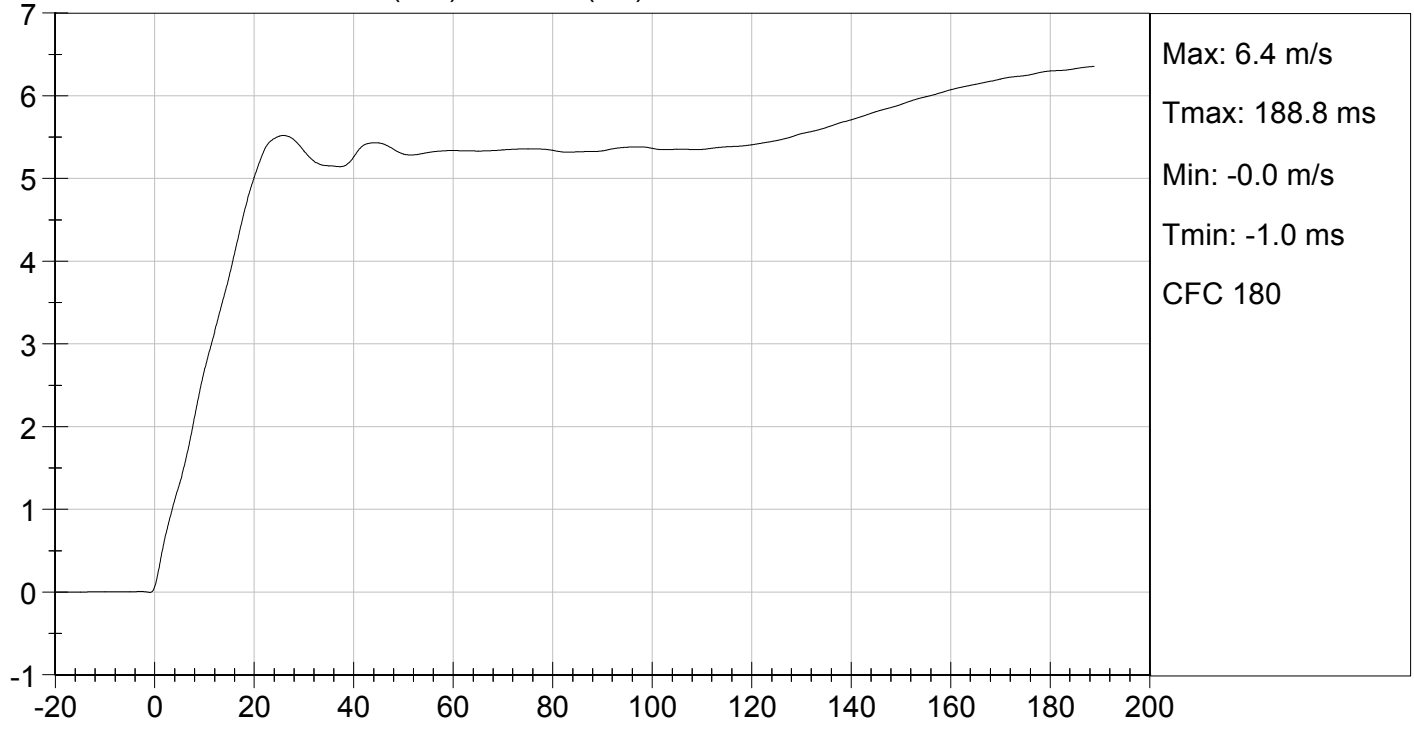
11/05/2014
Test Date

Jessica Hall
Approved By

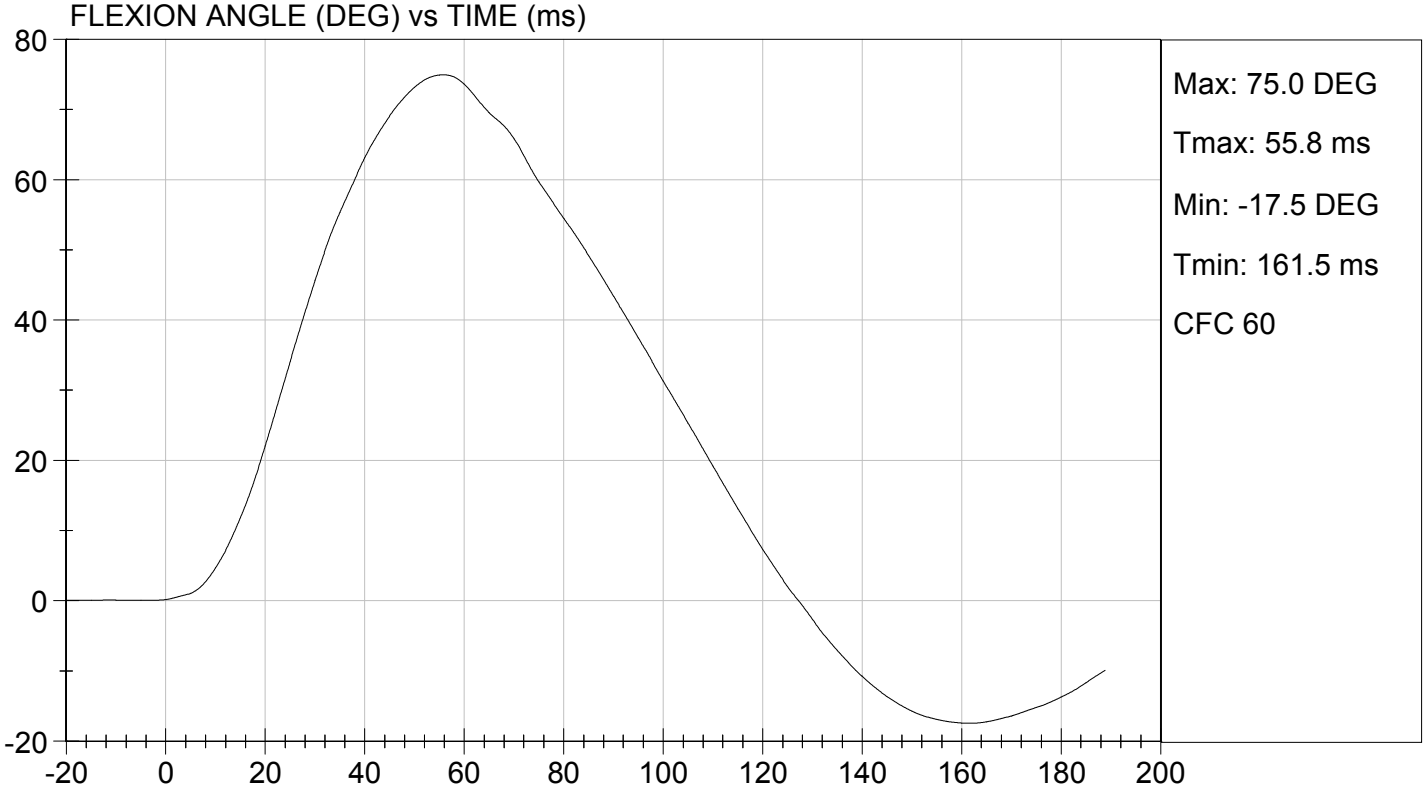
TEST DESC: NECK BENDING
VELOCITY: 18.32 ft/s, 5.58 m/s

TEST DATE: 11/05/2014
TEST #: D143892

PENDULUM VELOCITY (m/s) vs TIME (ms)

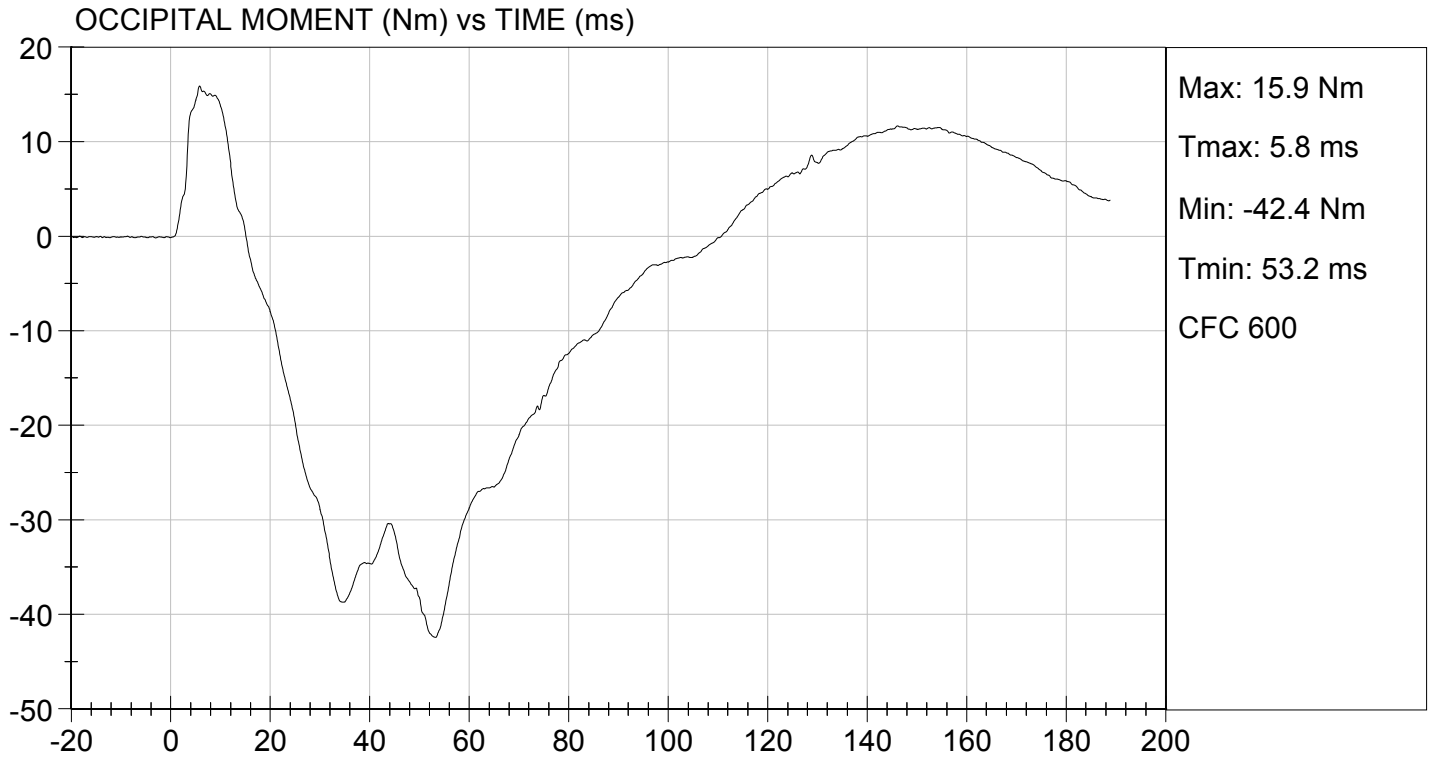


FLEXION ANGLE (DEG) vs TIME (ms)



TEST DESC: NECK BENDING
VELOCITY: 18.32 ft/s, 5.58 m/s

TEST DATE: 11/05/2014
TEST #: D143892



MGA RESEARCH CORPORATION

SHOULDER IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test ID:** D143893

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	22.1	Pass
Laboratory Relative Humidity	%	10 to 70	40	Pass
Impact Velocity	m/s	4.20 to 4.40	4.27	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	30	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	17	Pass
		Overall Test Results		Pass

Jack Coleman
Laboratory Technician

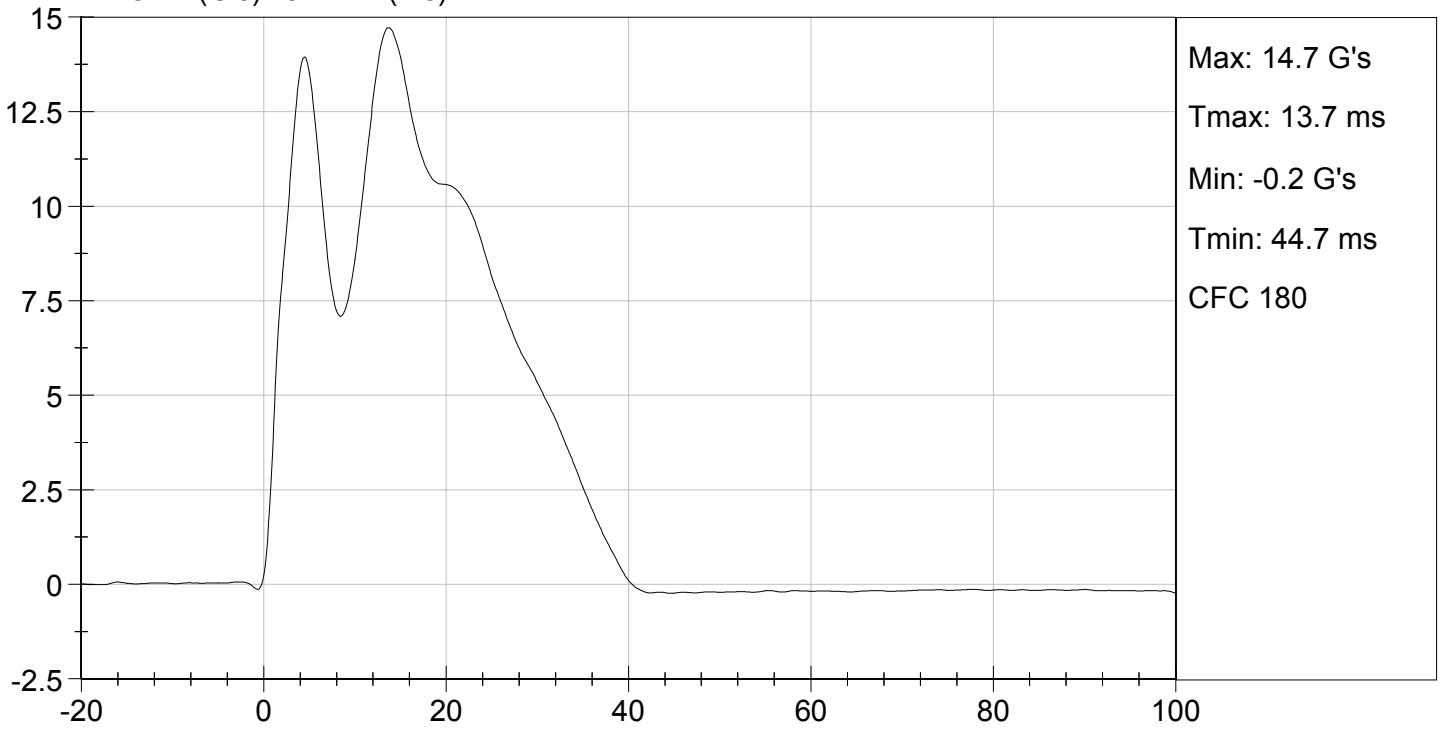
11/04/2014
Test Date

Jessica Gall
Approved By

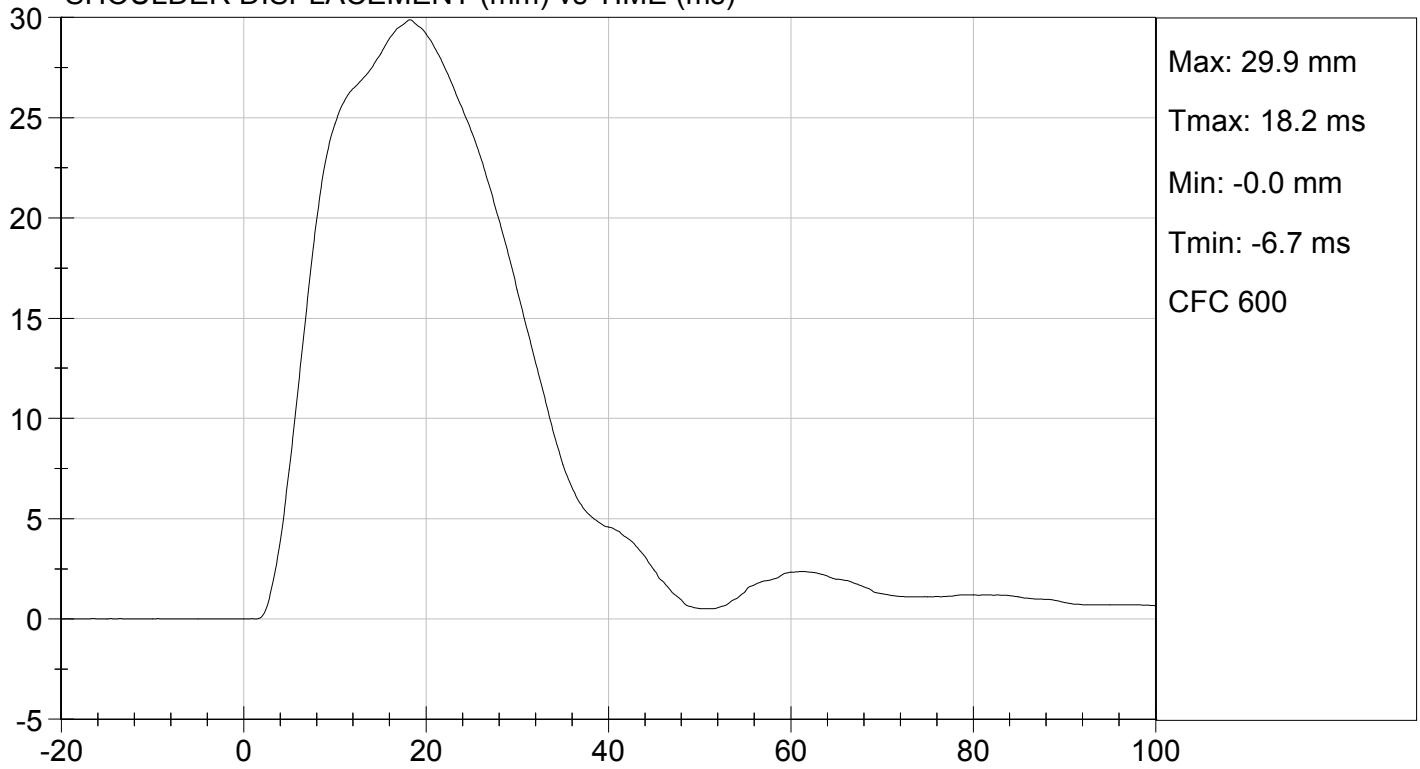
TEST DESC: SHOULDER IMPACT
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 11/04/2014
TEST #: D143893

PROBE (G's) vs TIME (ms)



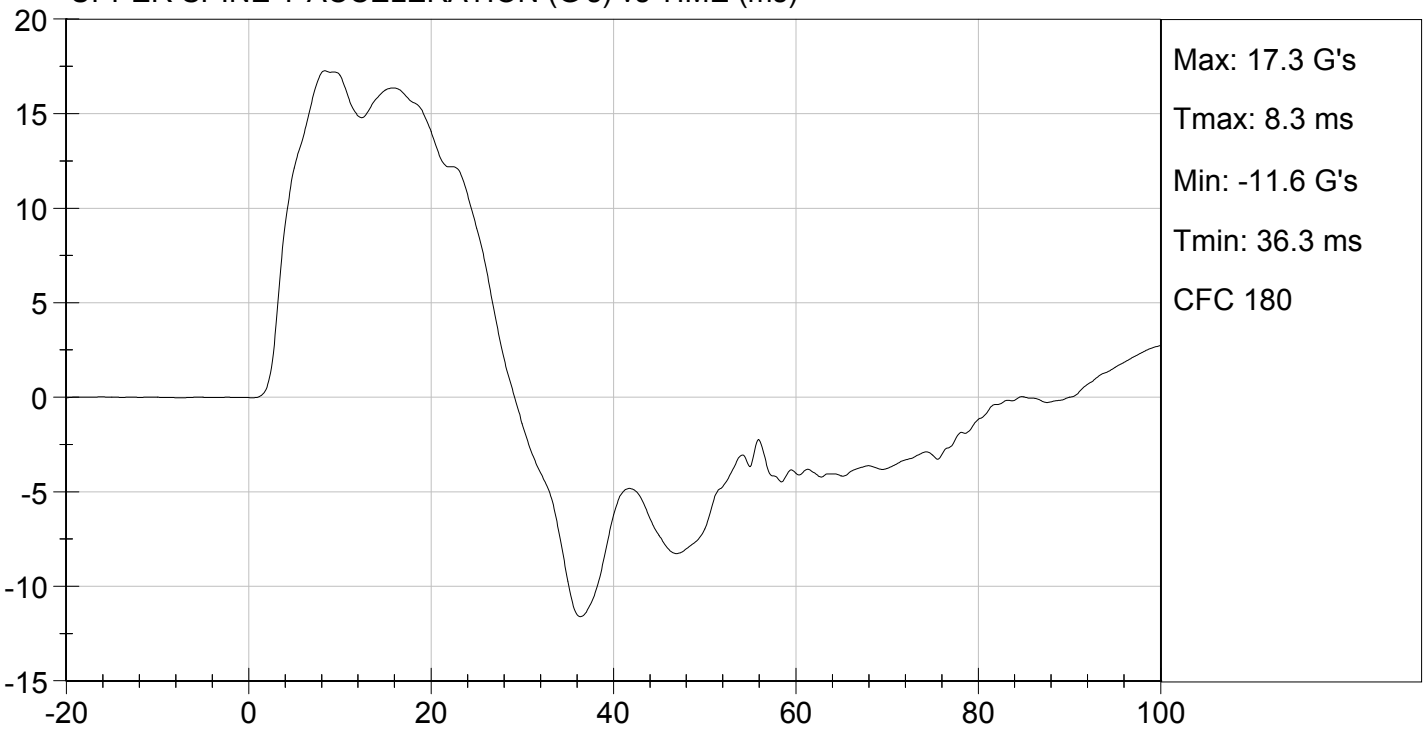
SHOULDER DISPLACEMENT (mm) vs TIME (ms)



TEST DESC: SHOULDER IMPACT
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 11/04/2014
TEST #: D143893

UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)



MGA RESEARCH CORPORATION

THORAX (WITH ARM) IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D143894

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	36	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	30 to 36	31	Pass
Shoulder Displacement	mm	31 to 40	37	Pass
Upper Rib Displacement	mm	25 to 32	29	Pass
Middle Rib Displacement	mm	30 to 36	33	Pass
Lower Rib Displacement	mm	32 to 38	34	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	35	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	29	Pass
		Overall Test Results		Pass

Jack Coleman
Laboratory Technician

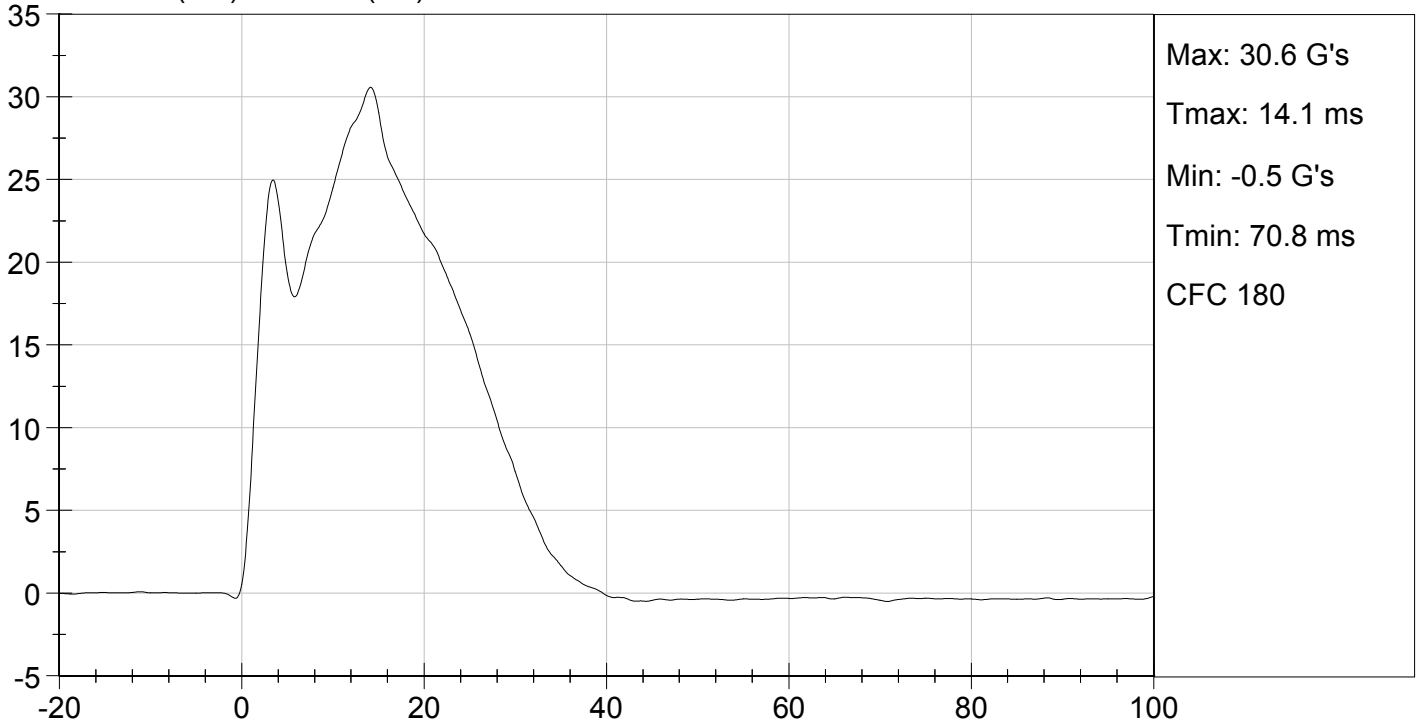
11/04/2014
Test Date

Jessica Hall
Approved By

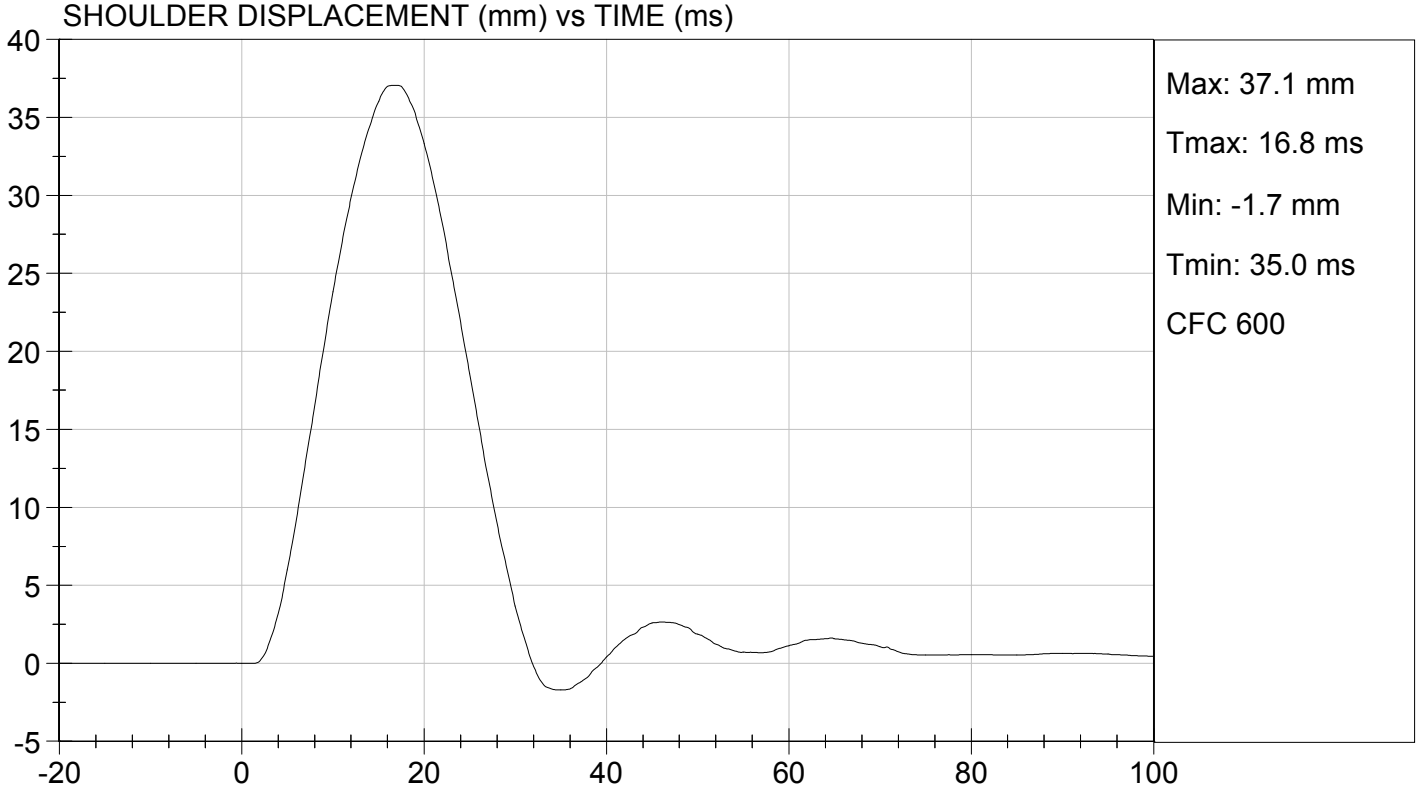
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 11/04/2014
TEST #: D143894

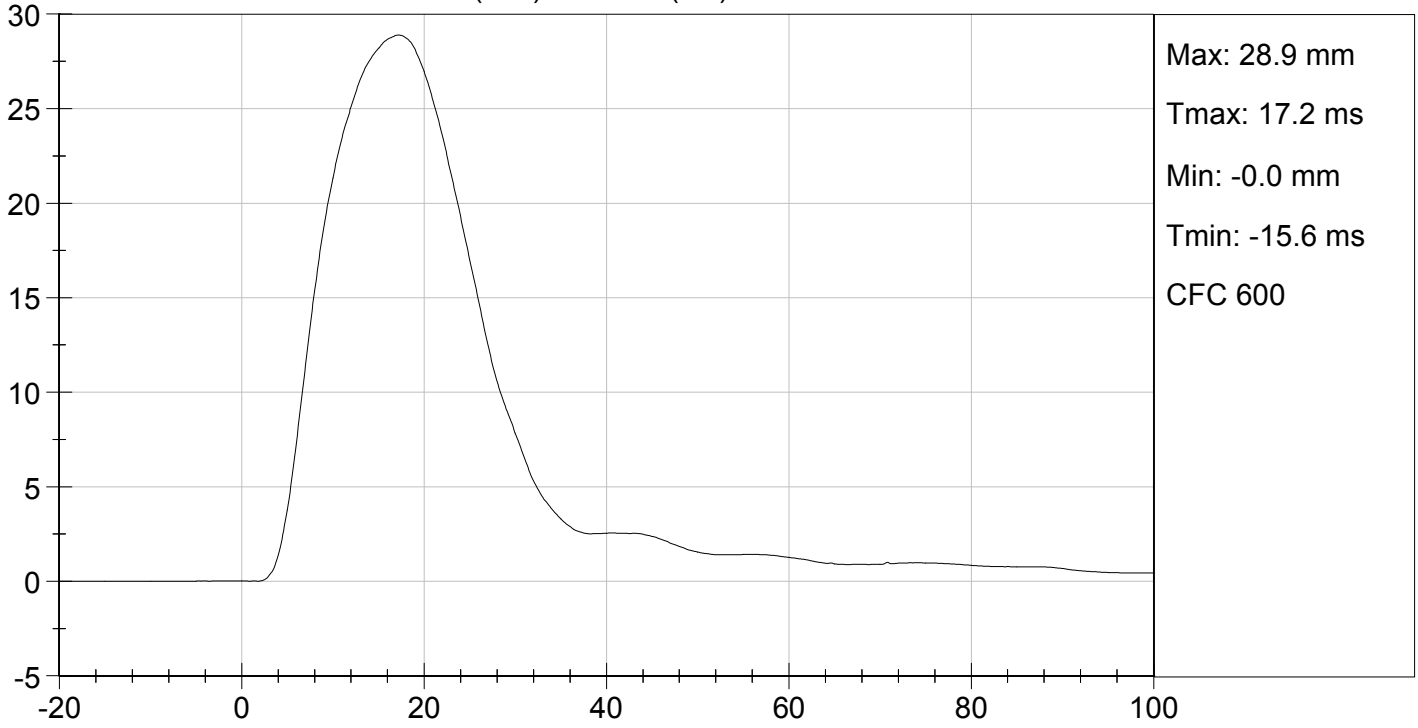
PROBE (G's) vs TIME (ms)



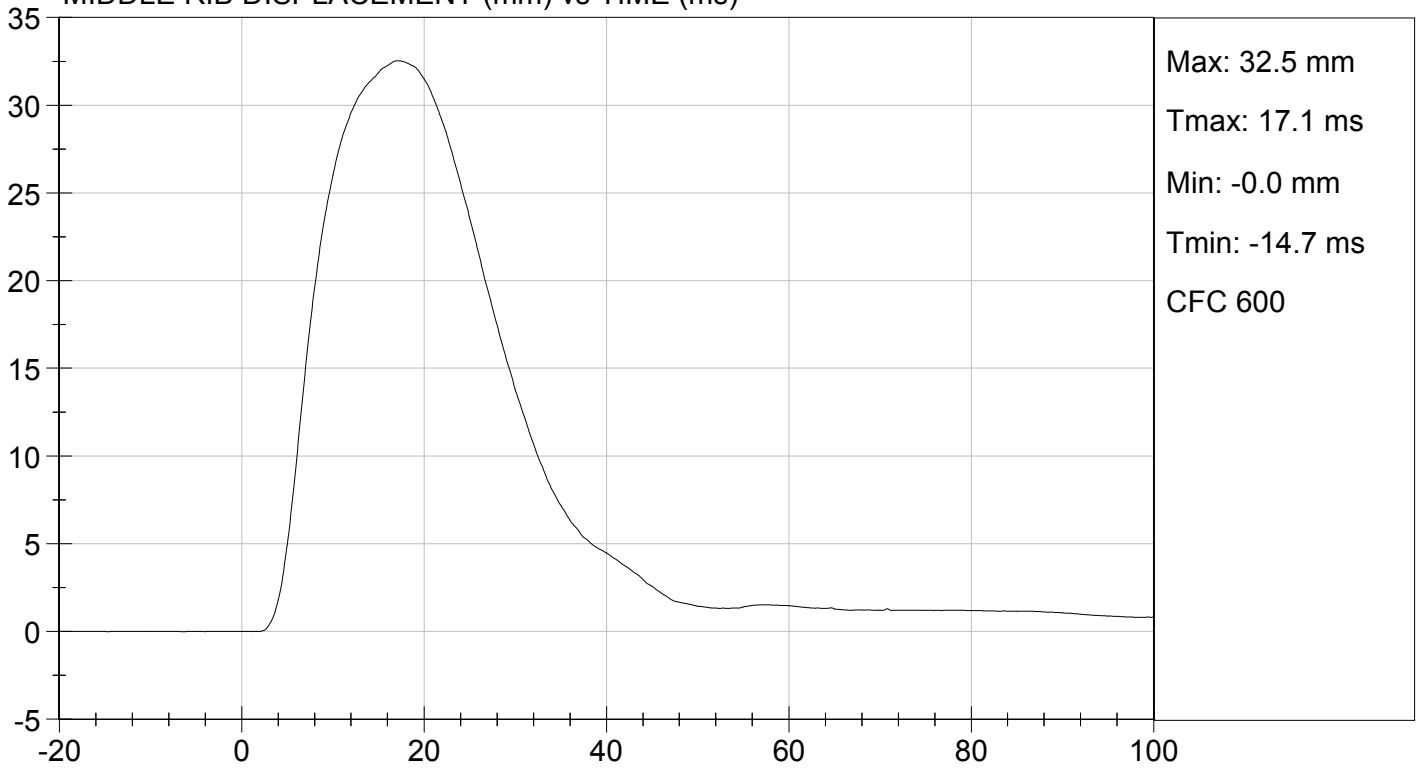
SHOULDER DISPLACEMENT (mm) vs TIME (ms)



UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



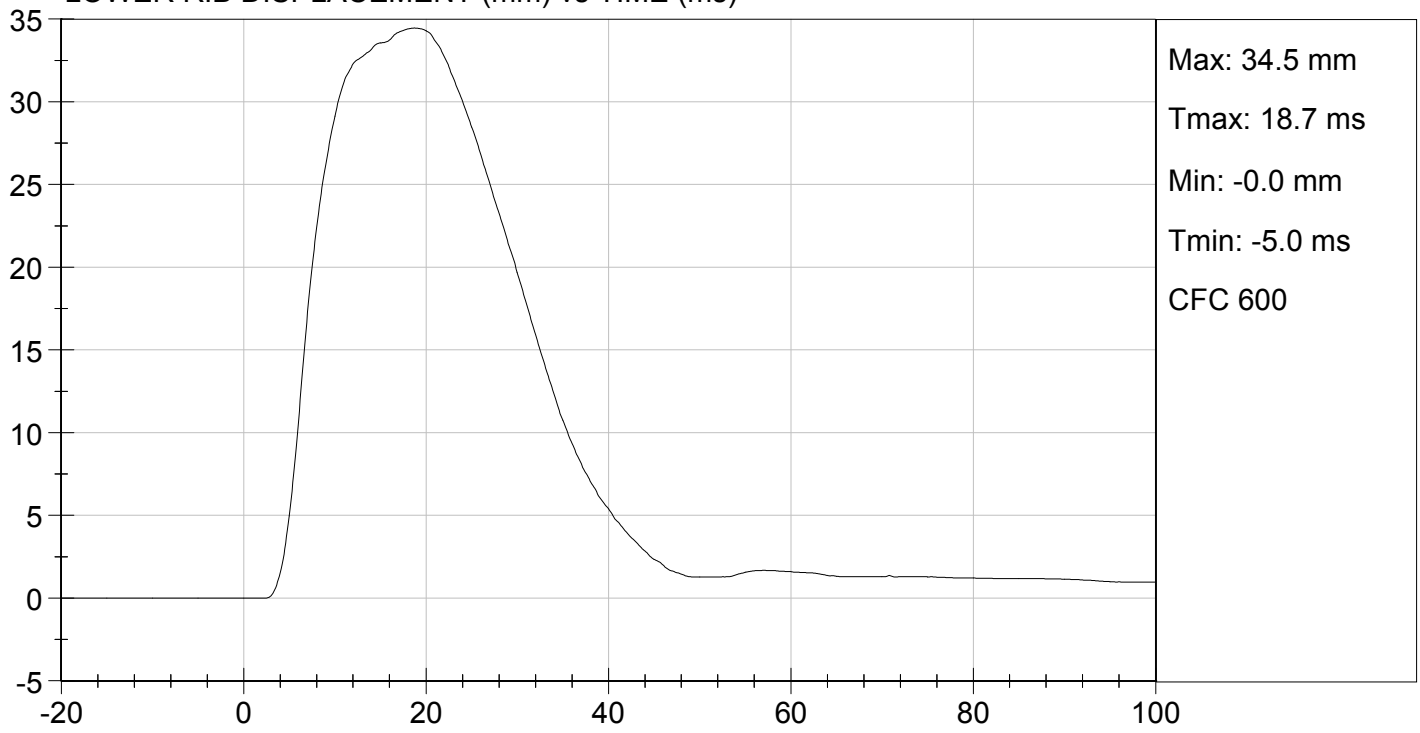
MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



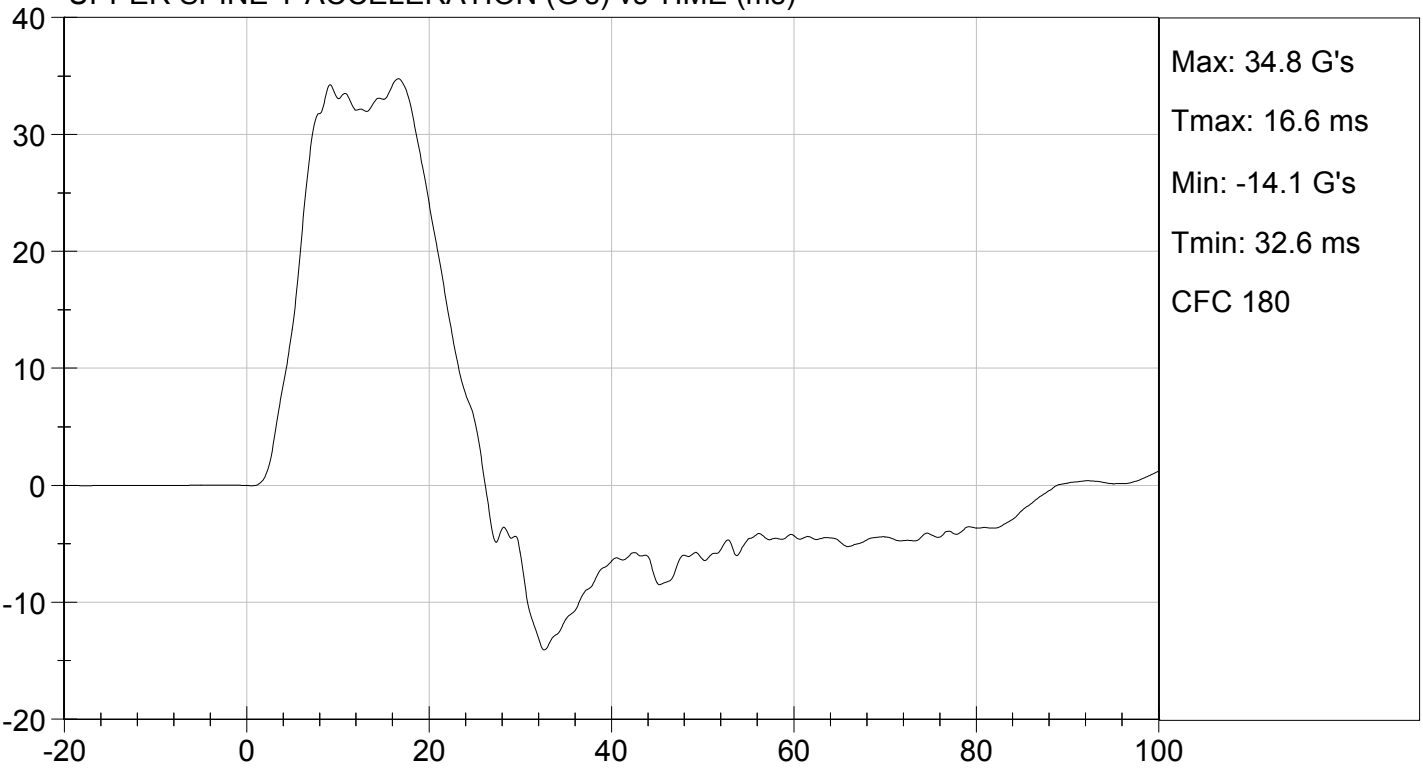
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 11/04/2014
TEST #: D143894

LOWER RIB DISPLACEMENT (mm) vs TIME (ms)

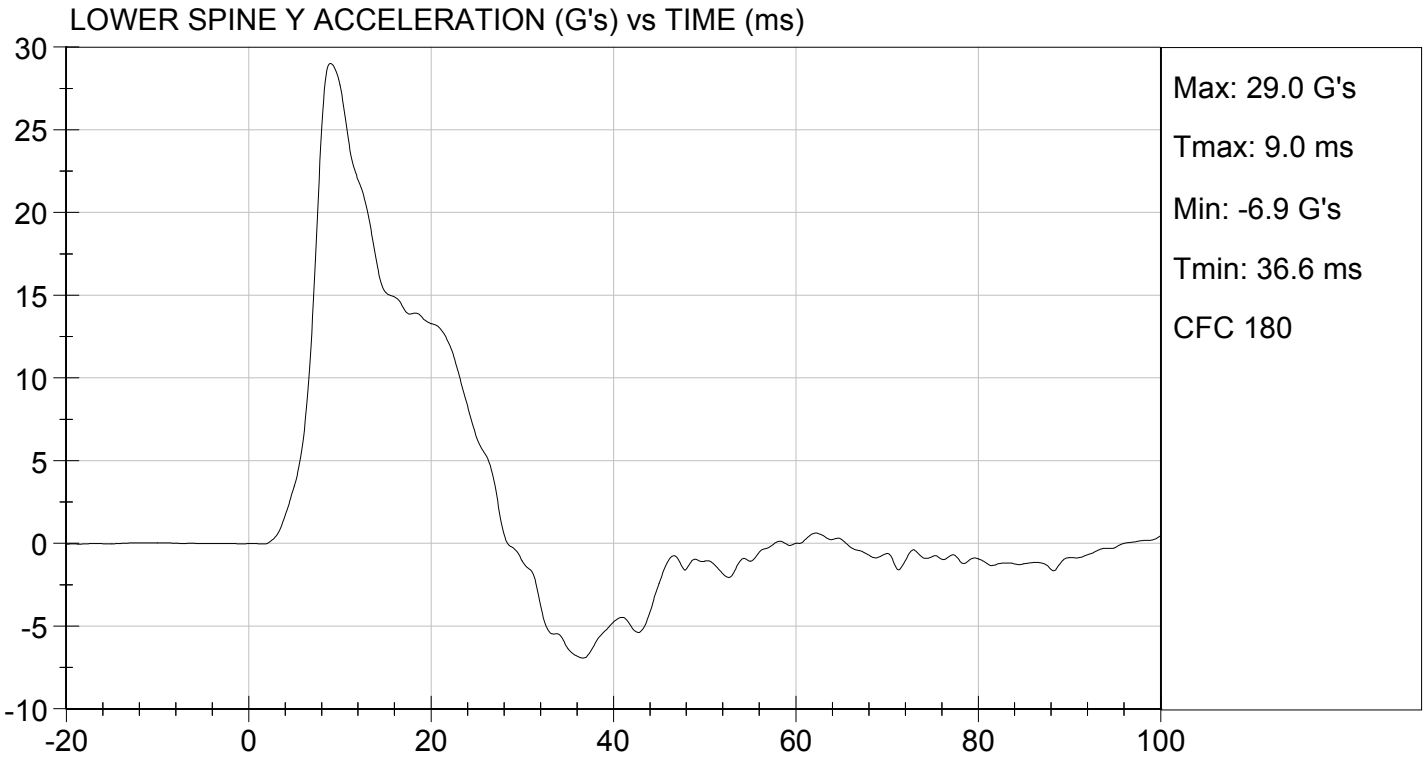


UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)



TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 11/04/2014
TEST #: D143894



MGA RESEARCH CORPORATION

THORAX (WITHOUT ARM) IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D143895

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	36	Pass
Impact Velocity	m/s	4.20 to 4.40	4.27	Pass
Maximum Probe Acceleration	G's	14 to 18	14	Pass
Upper Rib Displacement	mm	32 to 40	40	Pass
Middle Rib Displacement	mm	39 to 45	44	Pass
Lower Rib Displacement	mm	35 to 43	40	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	13	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	8	Pass
		Overall Test Results		Pass

Jack Coleman
Laboratory Technician

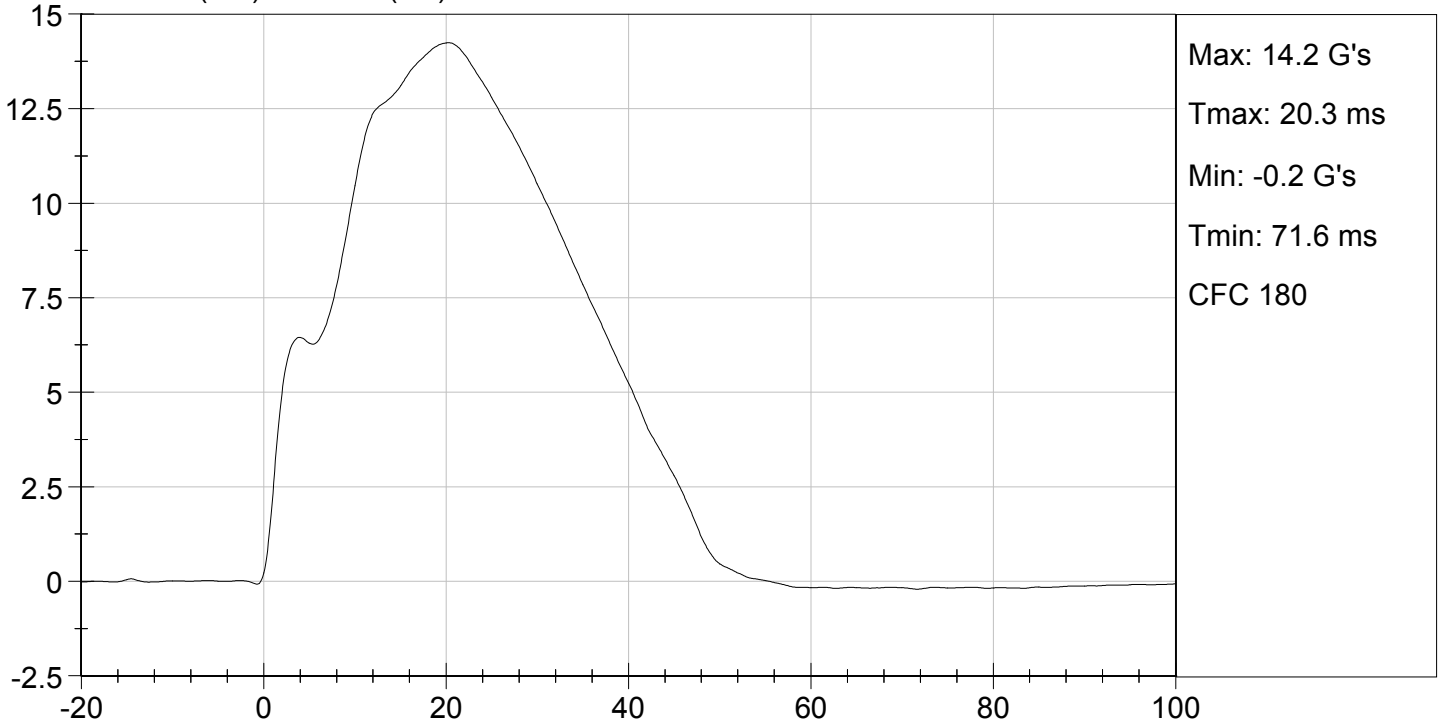
11/04/2014
Test Date

Jessica Hall
Approved By

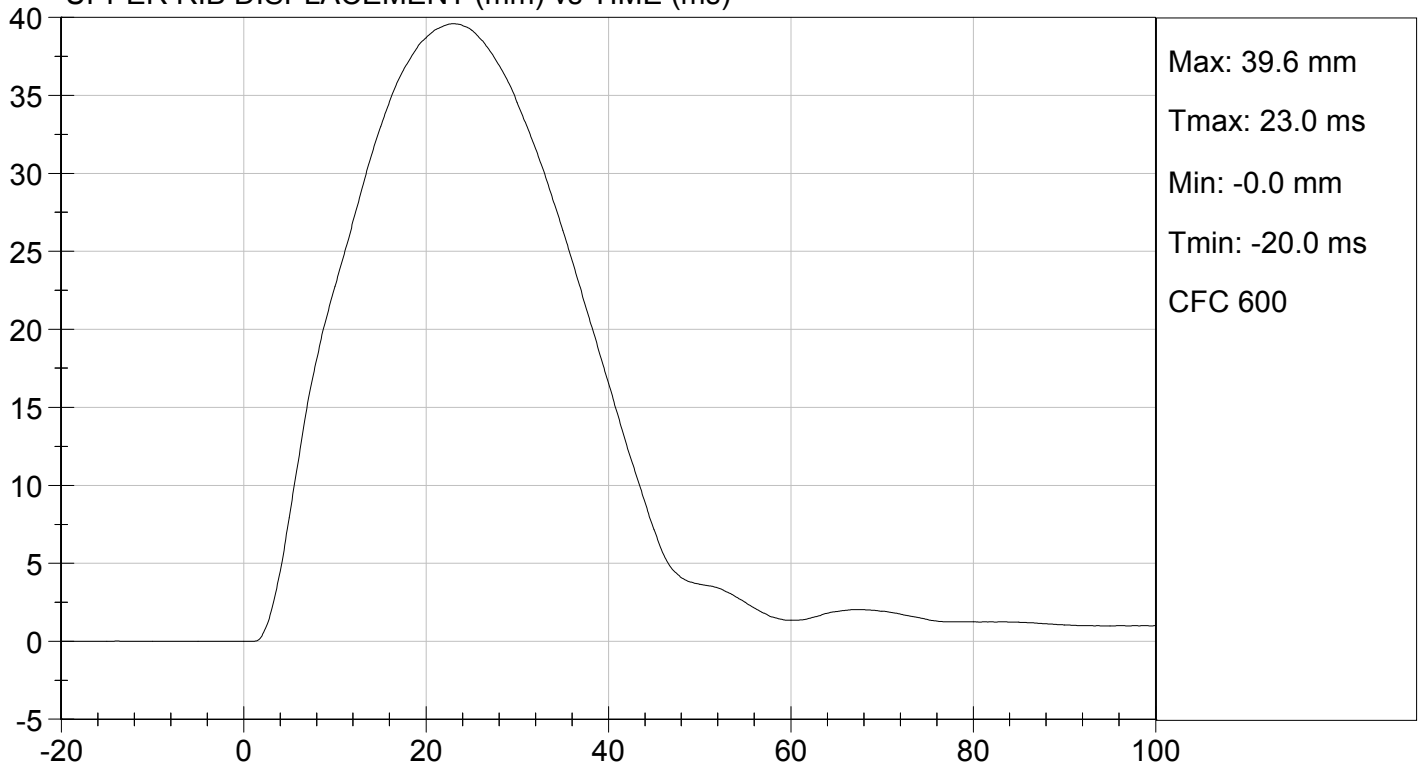
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 11/04/2014
TEST #: D143895

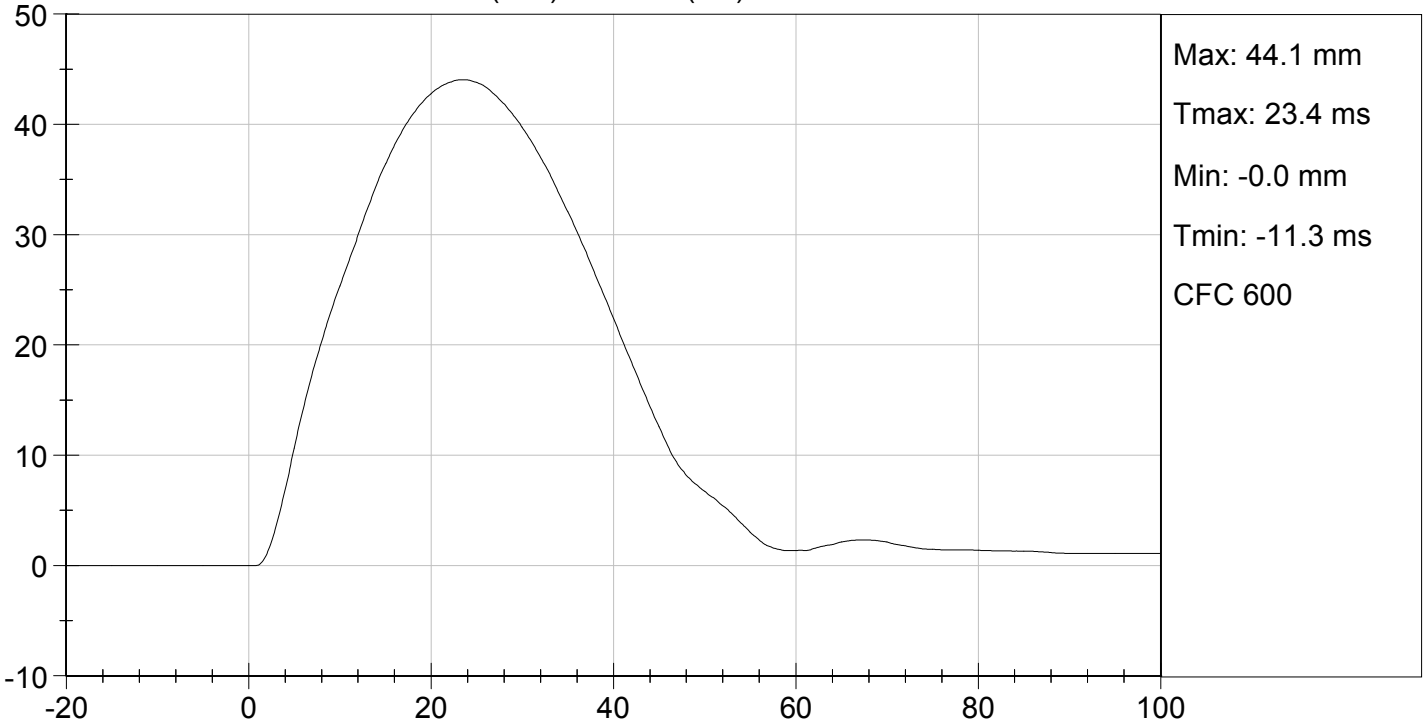
PROBE (G's) vs TIME (ms)



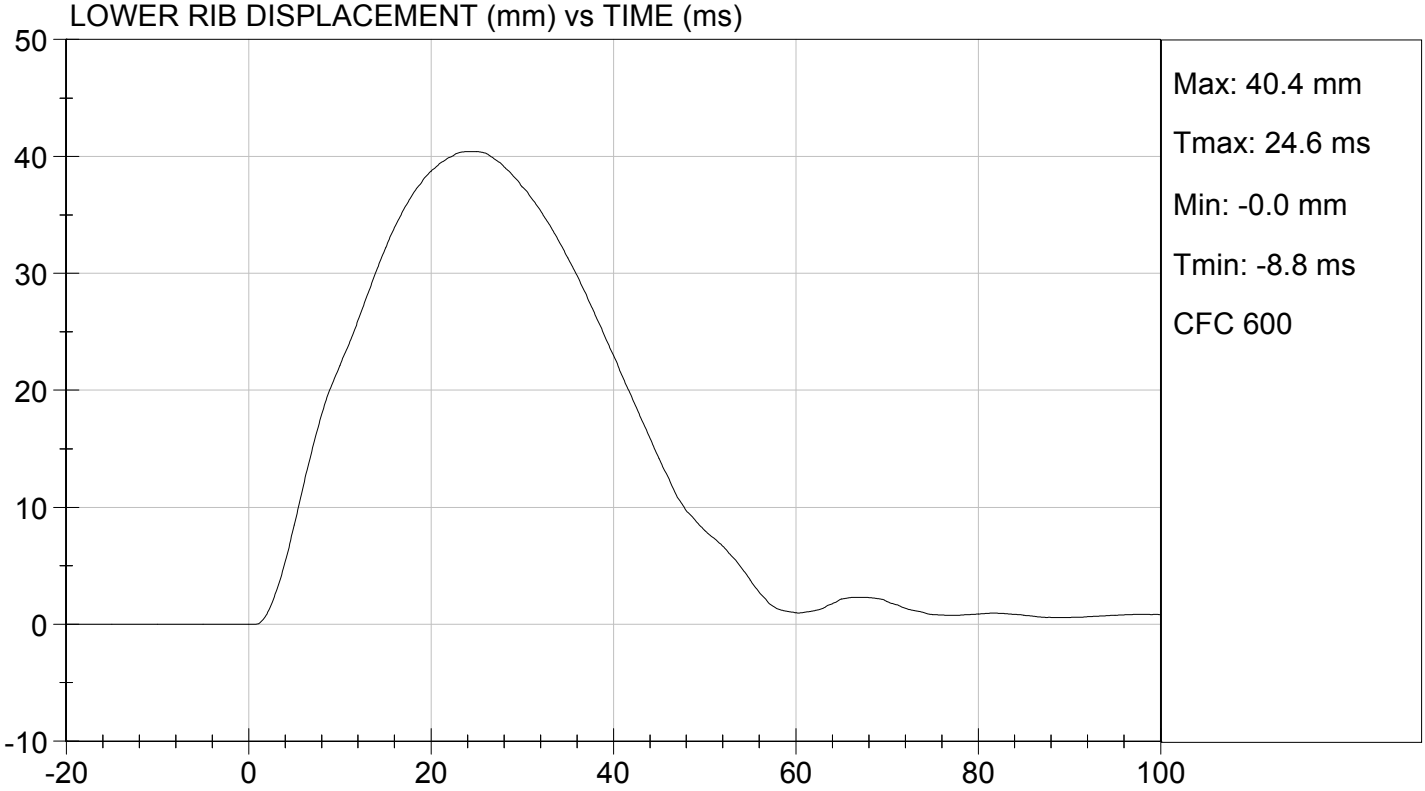
UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



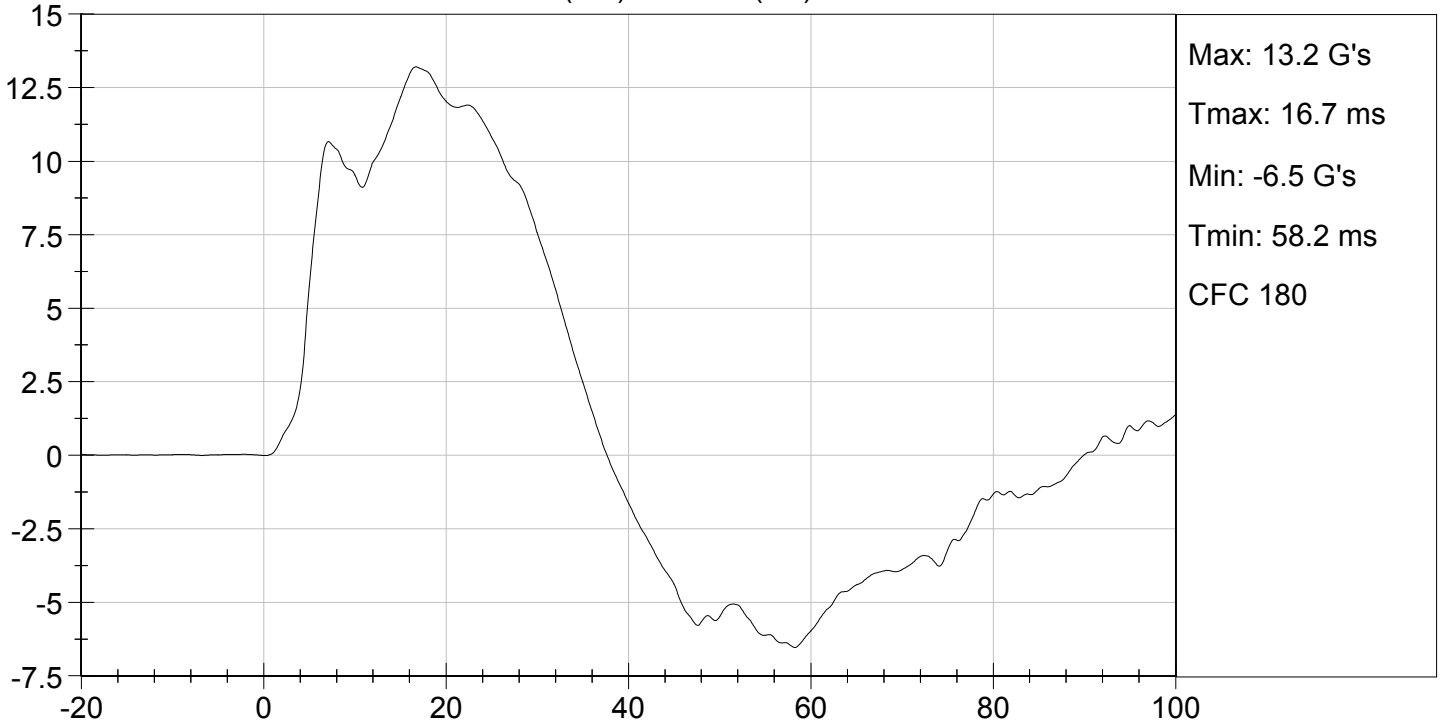
LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



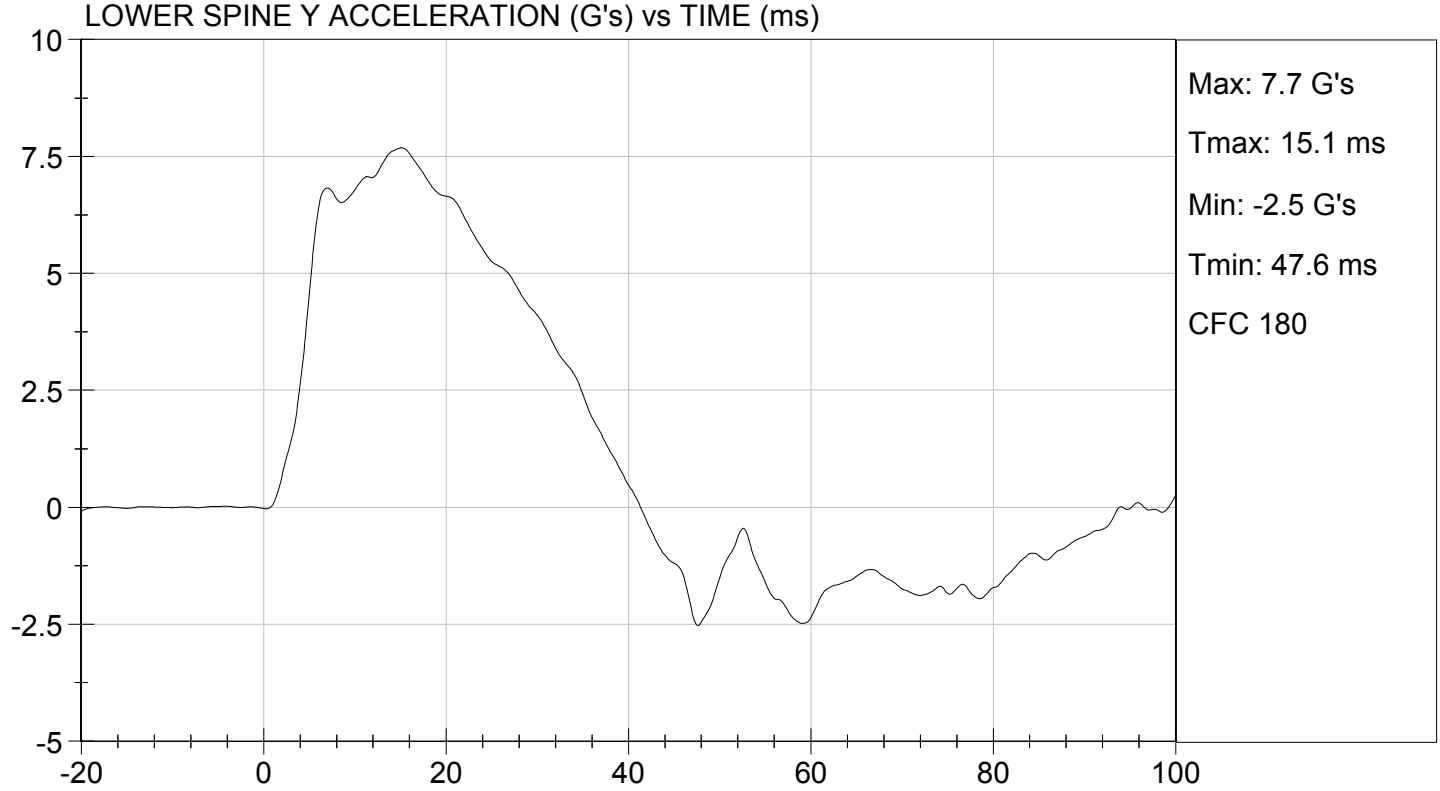
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 11/04/2014
TEST #: D143895

UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)



LOWER SPINE Y ACCELERATION (G's) vs TIME (ms)



MGA RESEARCH CORPORATION

ABDOMINAL IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D143896

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	22.1	Pass
Humidity	%	10 to 70	40	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	12 to 16	13	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	42	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	40	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	10	Pass
		Overall Test Results		Pass

Jack Coleman
Laboratory Technician

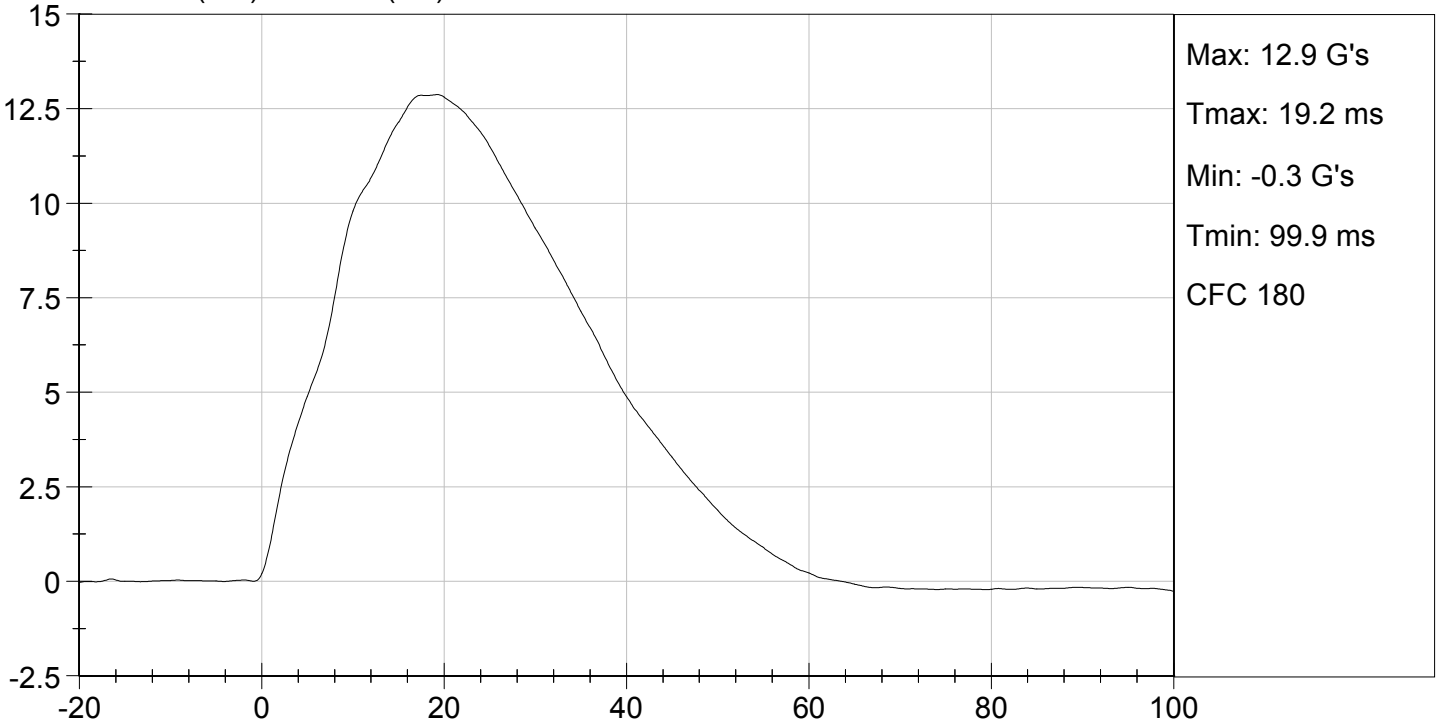
11/04/2014
Test Date

Jessica Hall
Approved By

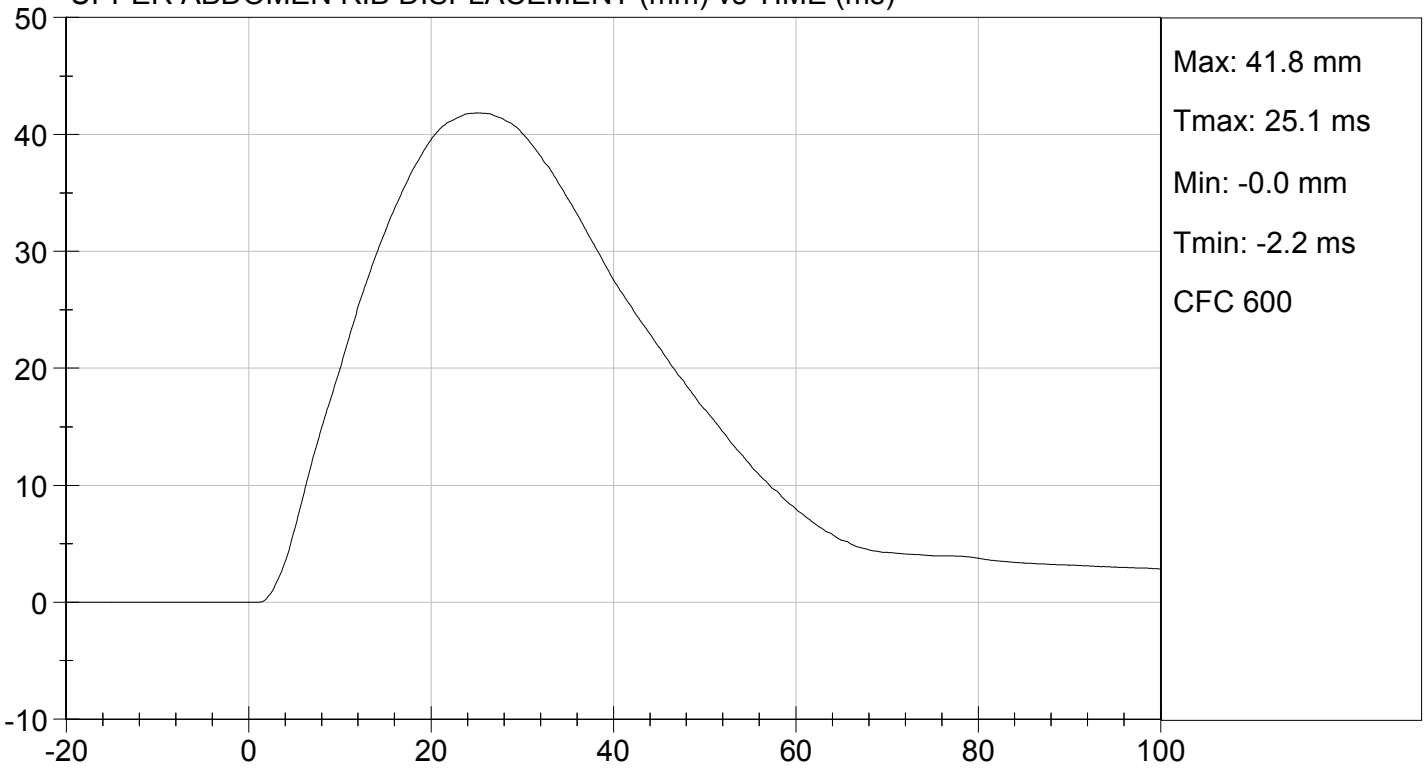
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 11/04/2014
TEST #: D143896

PROBE (G's) vs TIME (ms)



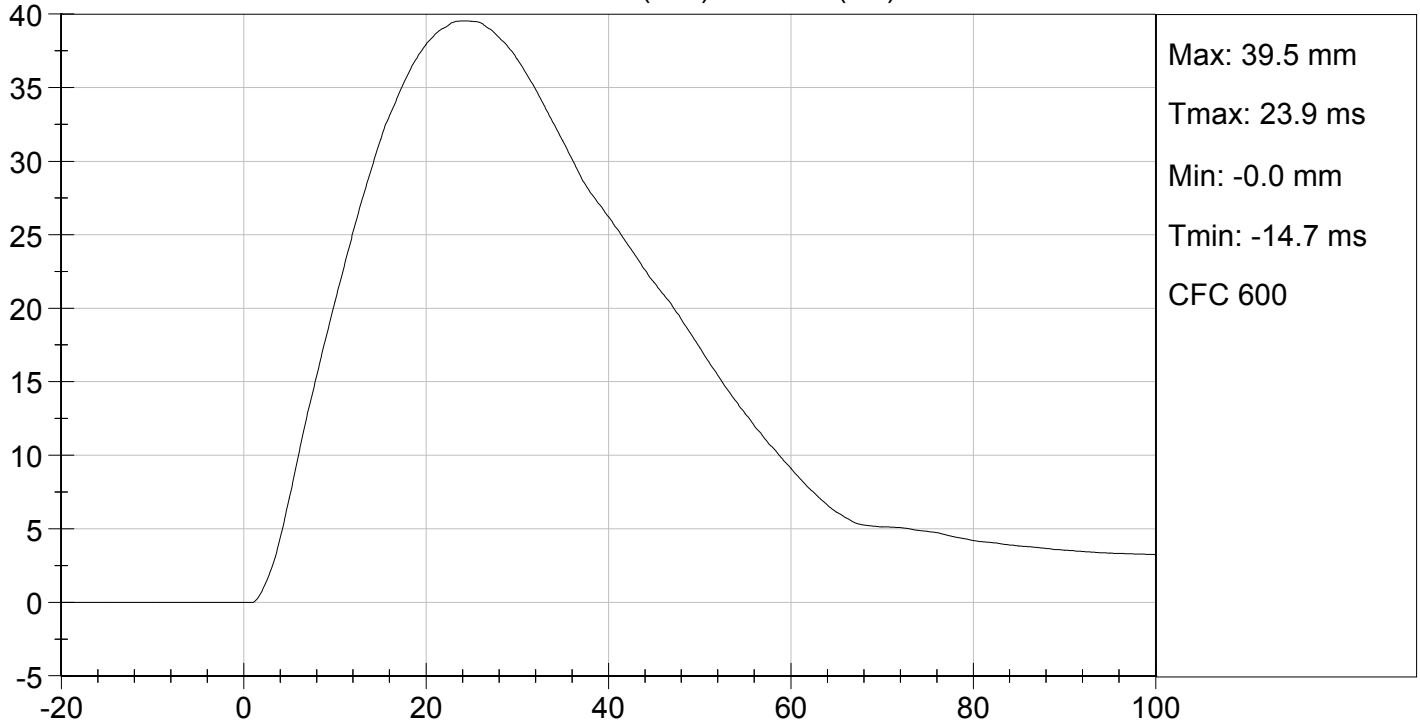
UPPER ABDOMEN RIB DISPLACEMENT (mm) vs TIME (ms)



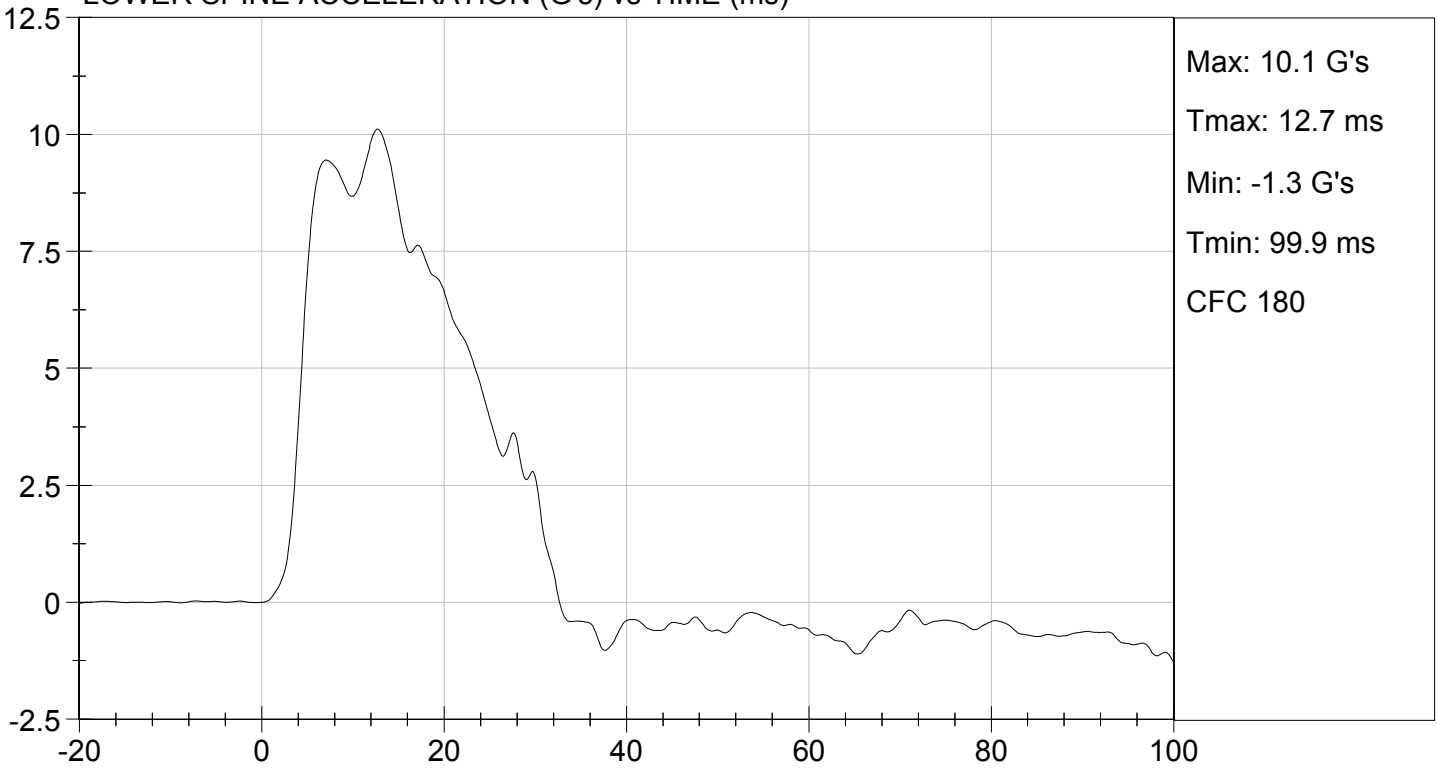
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 11/04/2014
TEST #: D143896

LOWER ABDOMEN RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER SPINE ACCELERATION (G's) vs TIME (ms)



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D143897

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	36	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	38 to 47	43	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	40	Pass
Peak Acetabulum Force	N	3600 to 4300	4,068	Pass
		Overall Test Results		Pass

Jack Coleman
Laboratory Technician

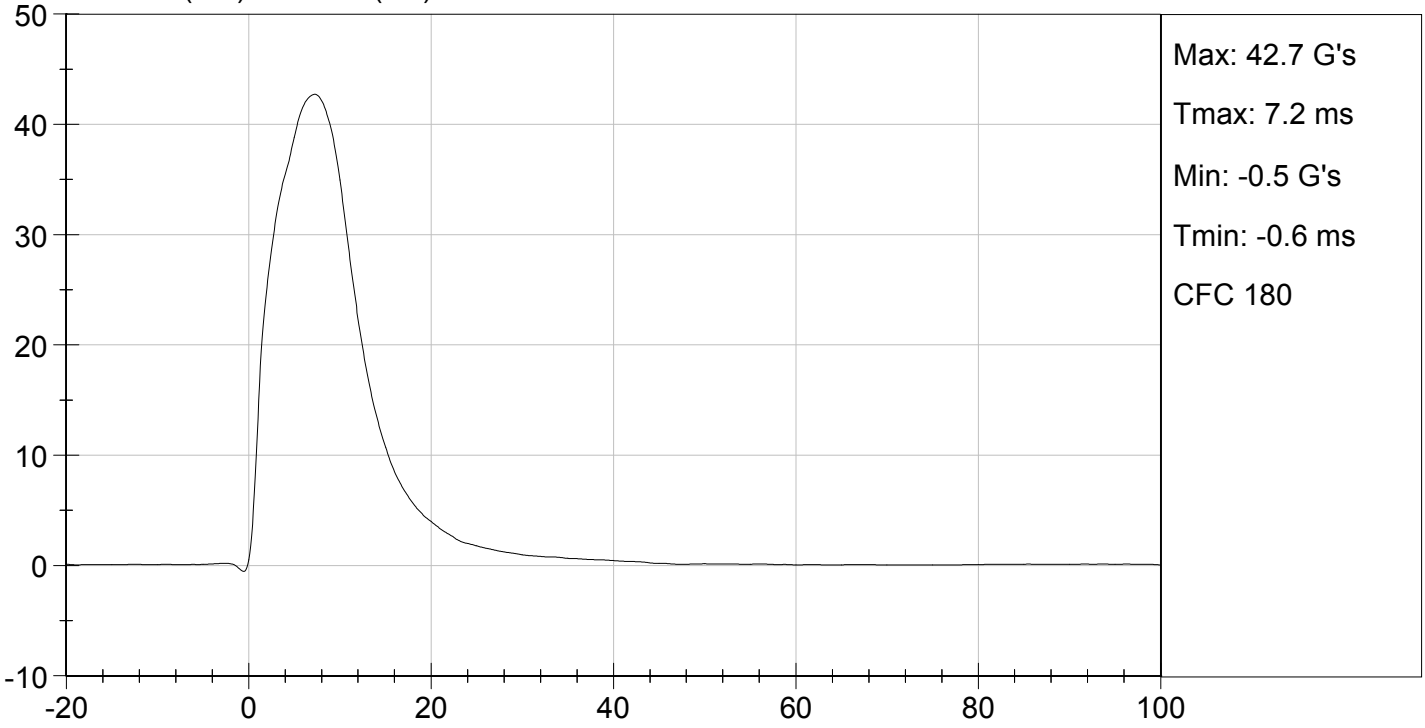
11/04/2014
Test Date

Jessica Hall
Approved By

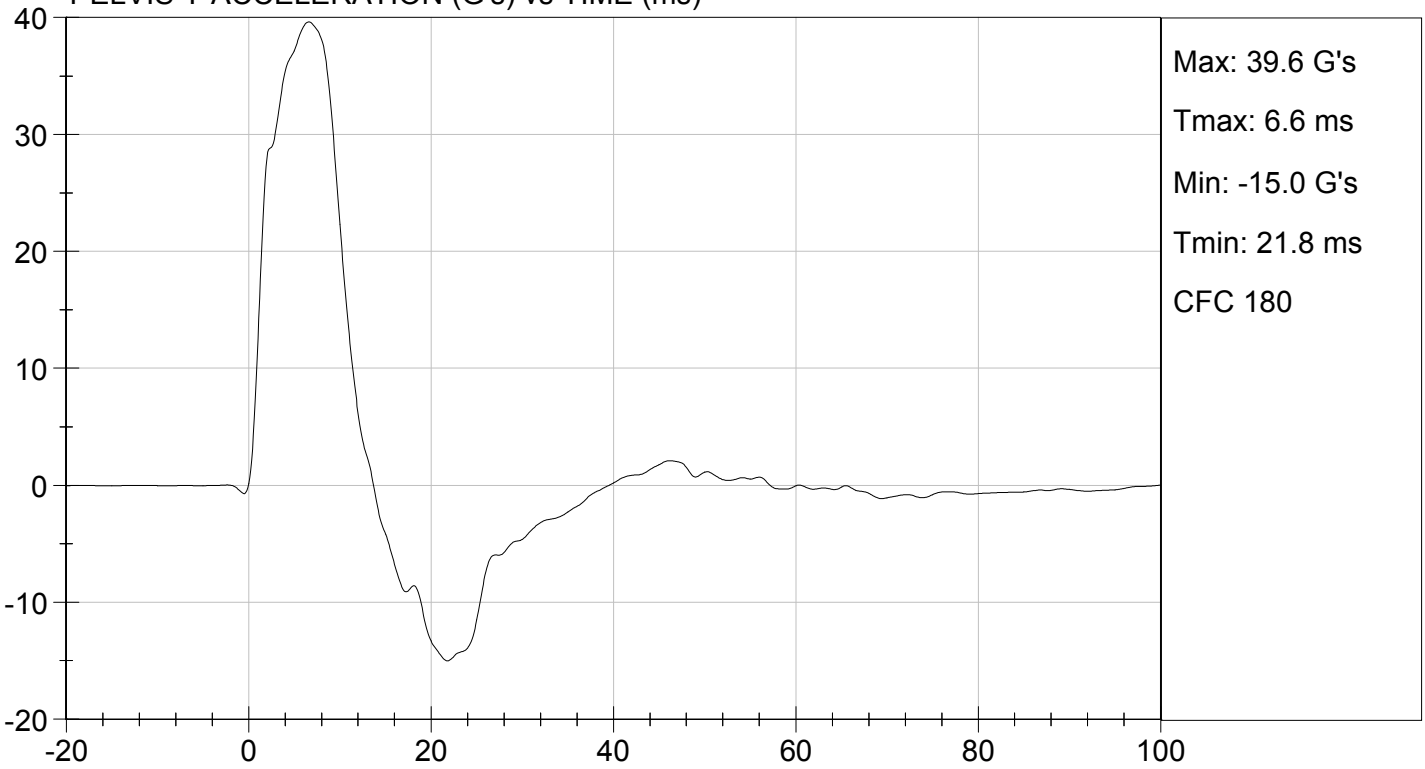
TEST DESC: PELVIS IMPACT
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 11/04/2014
TEST #: D143897

PROBE (G's) vs TIME (ms)

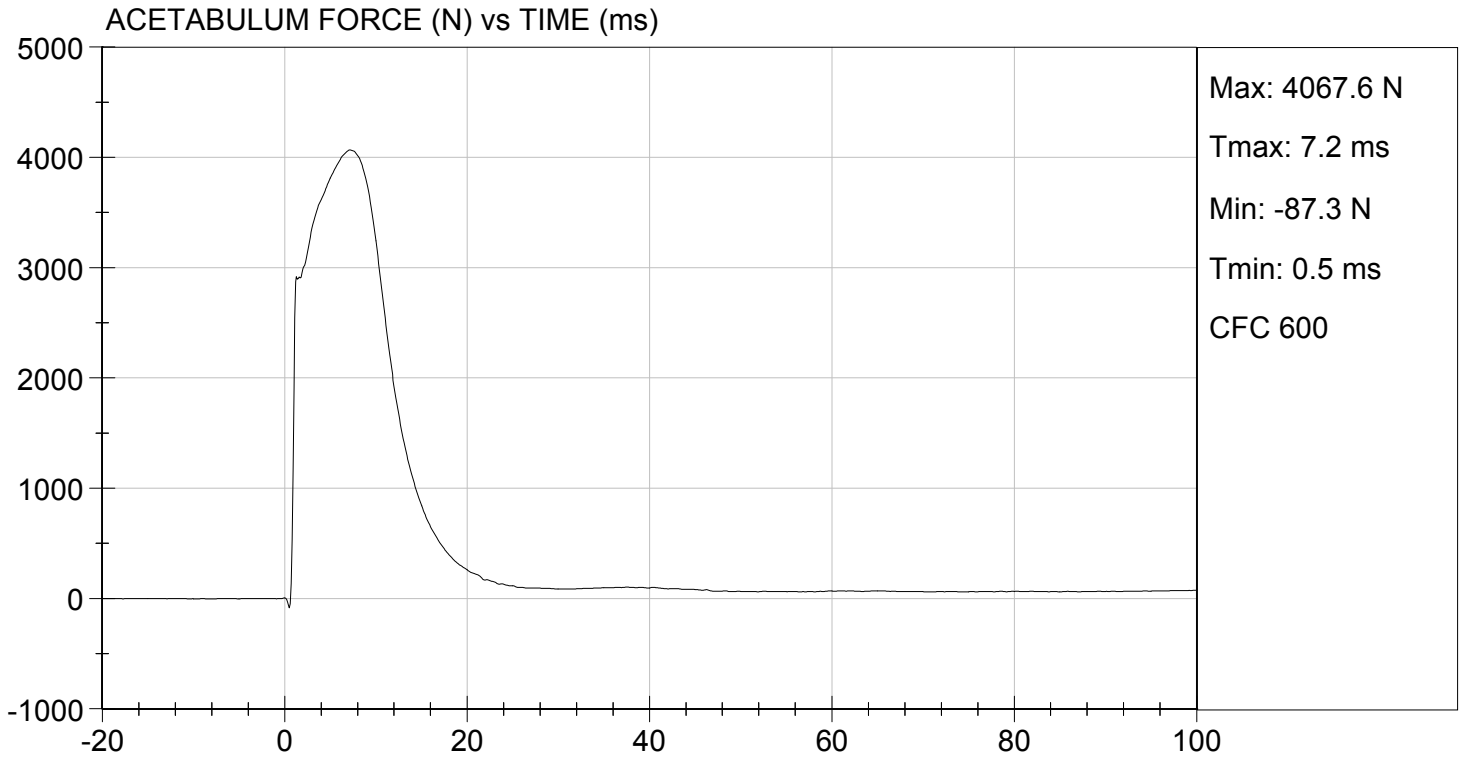


PELVIS Y ACCELERATION (G's) vs TIME (ms)



TEST DESC: PELVIS IMPACT
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 11/04/2014
TEST #: D143897



MGA RESEARCH CORPORATION

ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D143898

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.8	Pass
Humidity	%	10 to 70	36	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	36 to 45	40	Pass
Pelvis Y Acceleration	G's	28 to 39	29	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,691	Pass
		Overall Test Results		Pass

Jack Coleman
Laboratory Technician

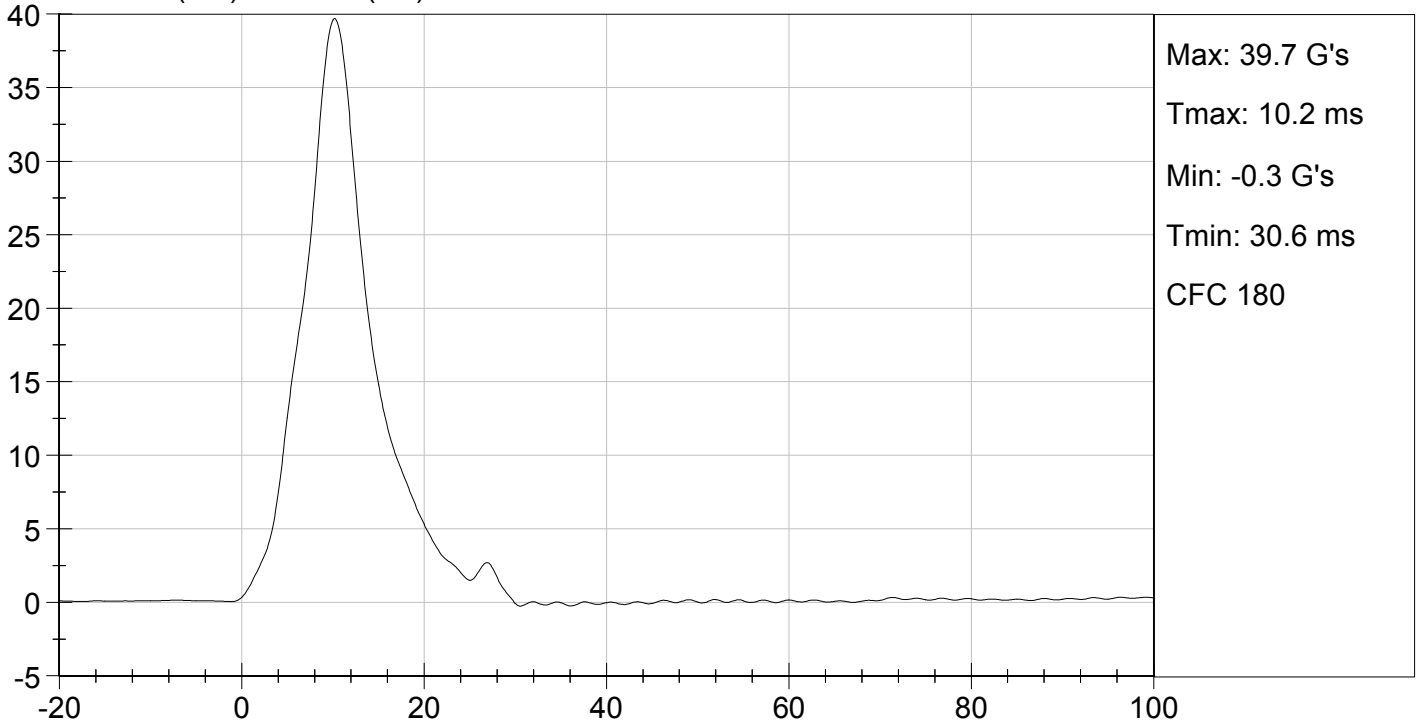
11/04/2014
Test Date

Jessica Hall
Approved By

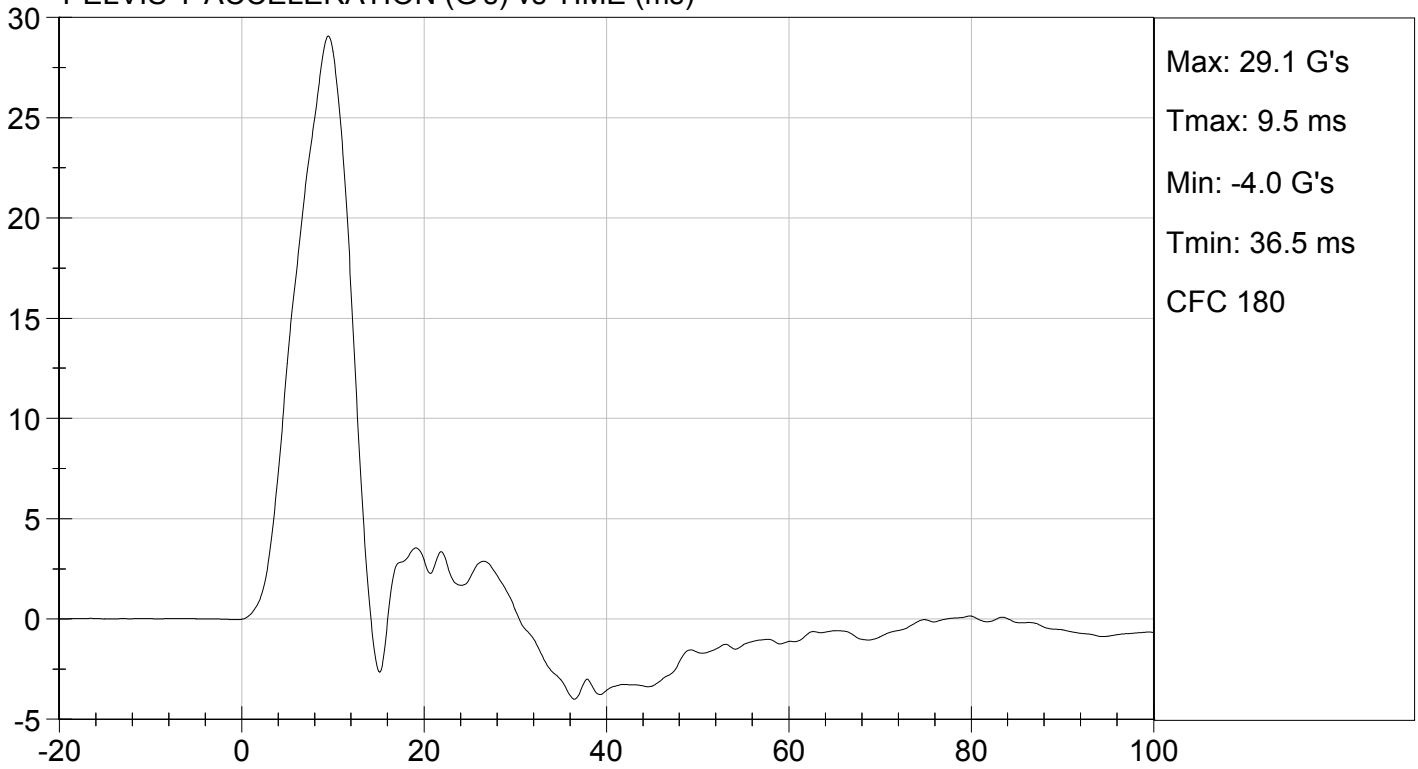
TEST DESC: ILLIAC
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 11/04/2014
TEST #: D143898

PROBE (G's) vs TIME (ms)

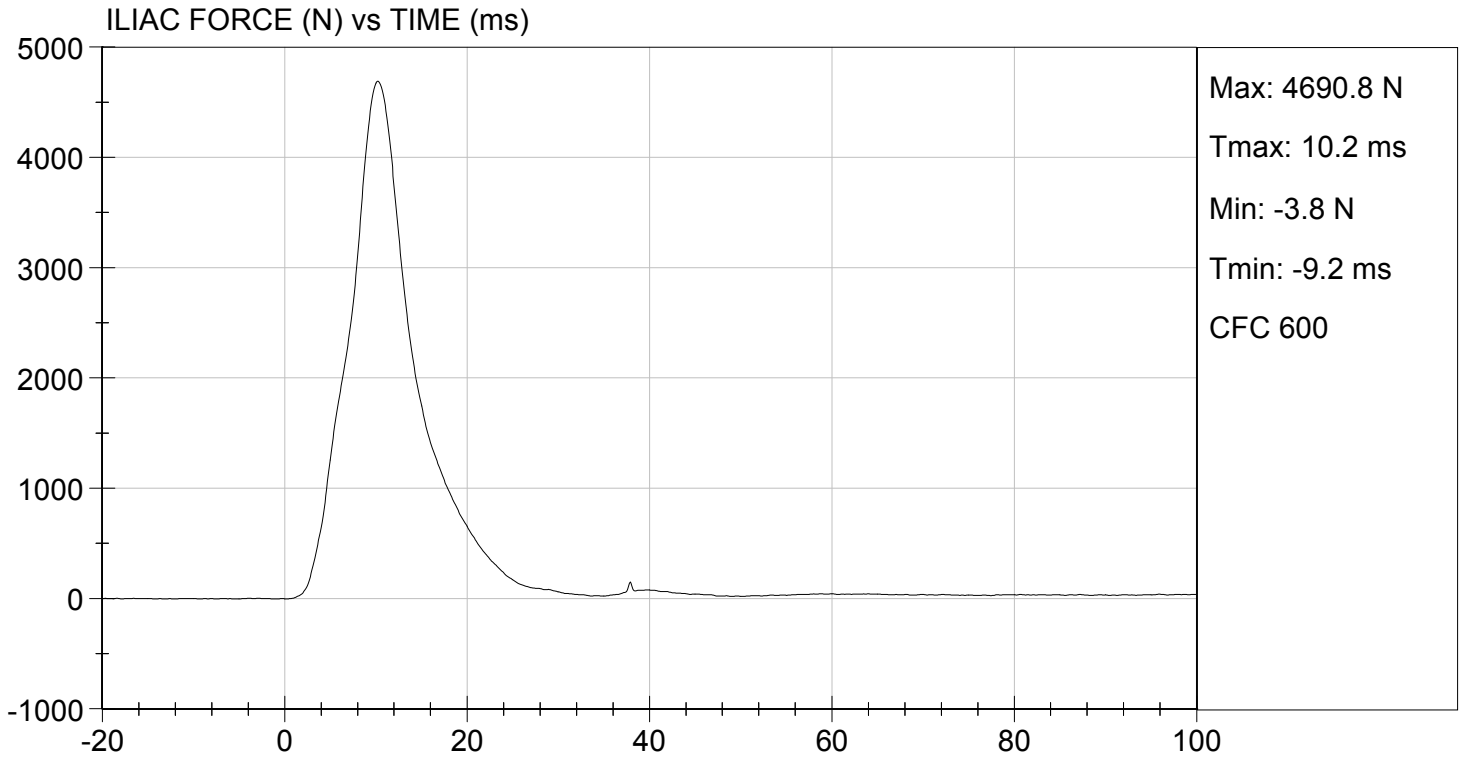


PELVIS Y ACCELERATION (G's) vs TIME (ms)



TEST DESC: ILLIAC
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 11/04/2014
TEST #: D143898



MGA RESEARCH CORPORATION

HEAD DROP TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test ID:** D144001

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Peak Resultant Acceleration	G's	115 to 137	123	Pass
Peak Longitudinal Acceleration	G's	+/- 15	-6.5	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

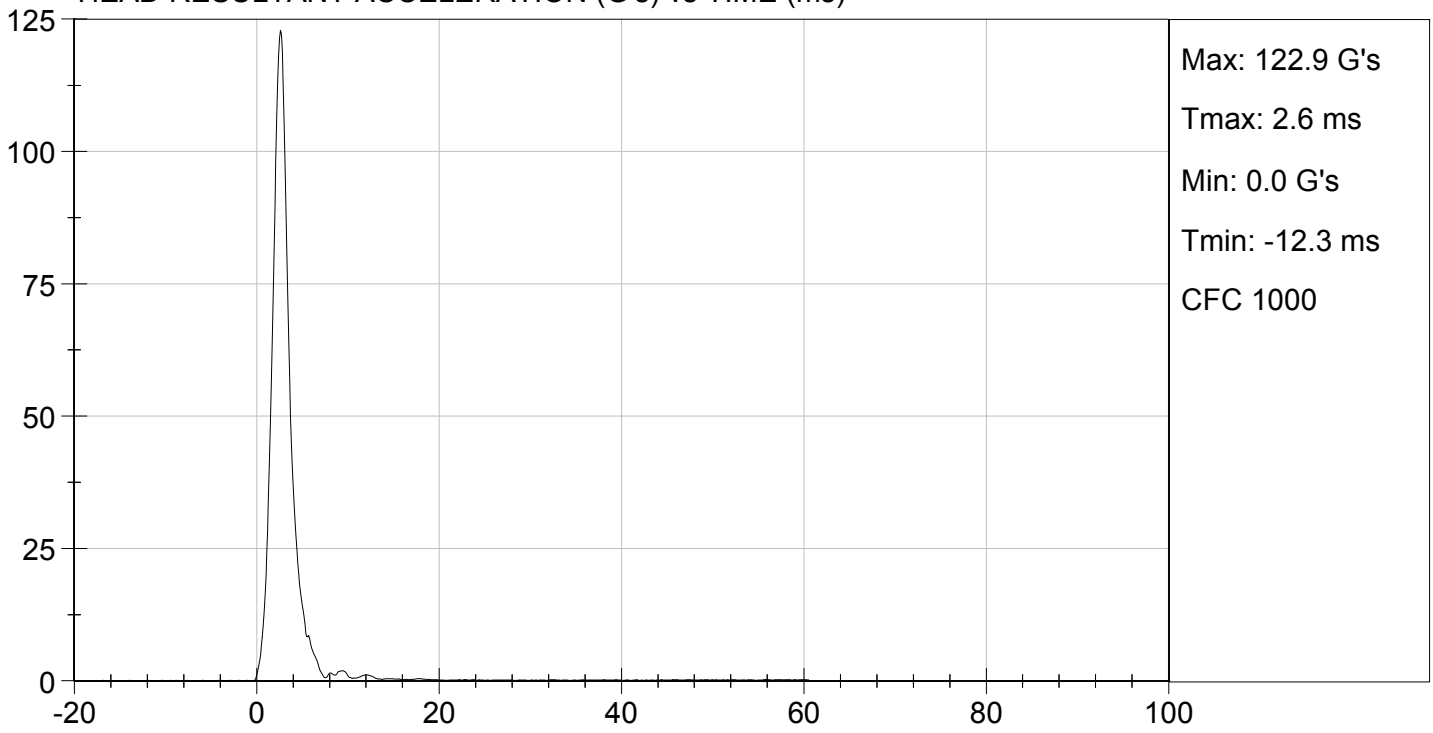
11/12/2014
Test Date

Jessica Hall
Approved By

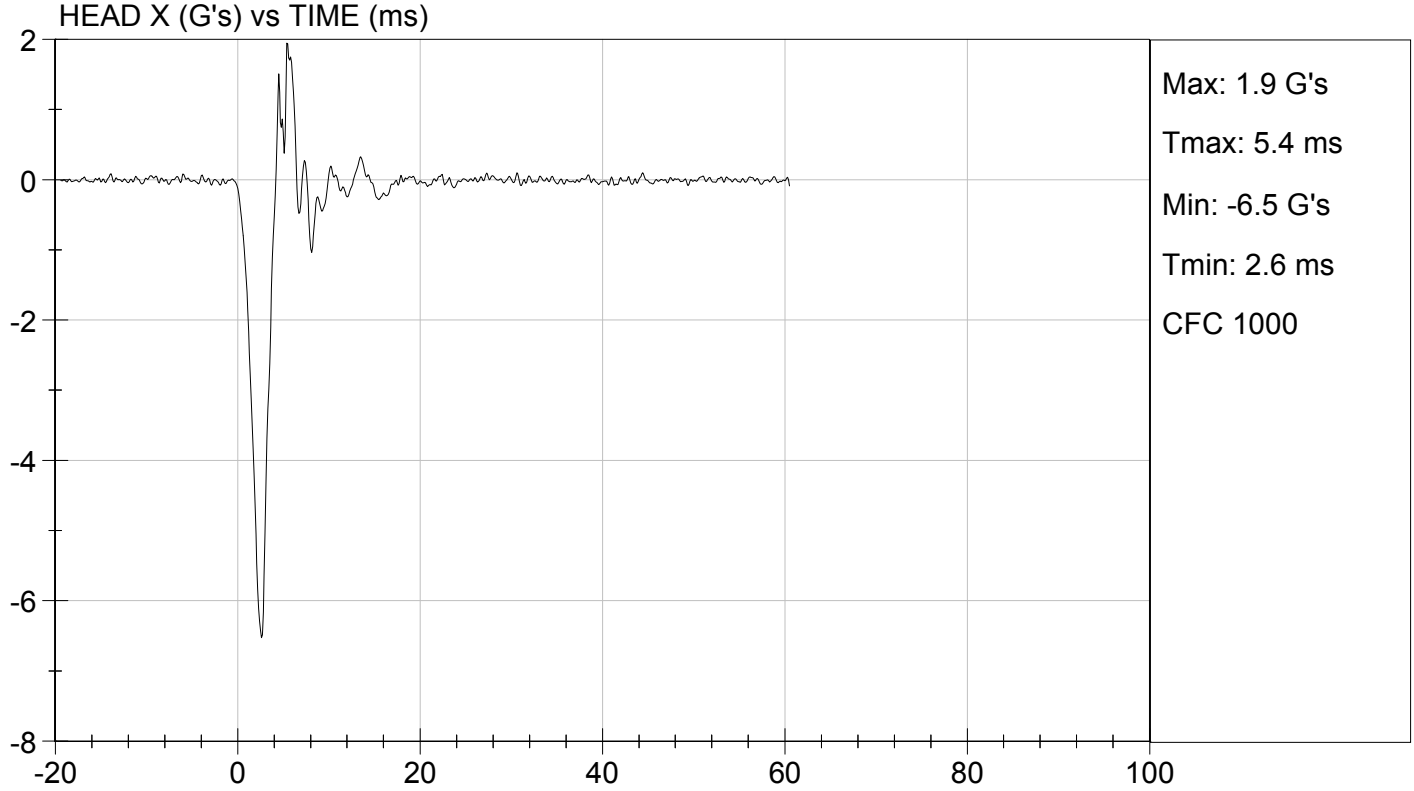
TEST DESC: HEAD DROP

TEST DATE: 11/12/2014
TEST #: D144001

HEAD RESULTANT ACCELERATION (G's) vs TIME (ms)

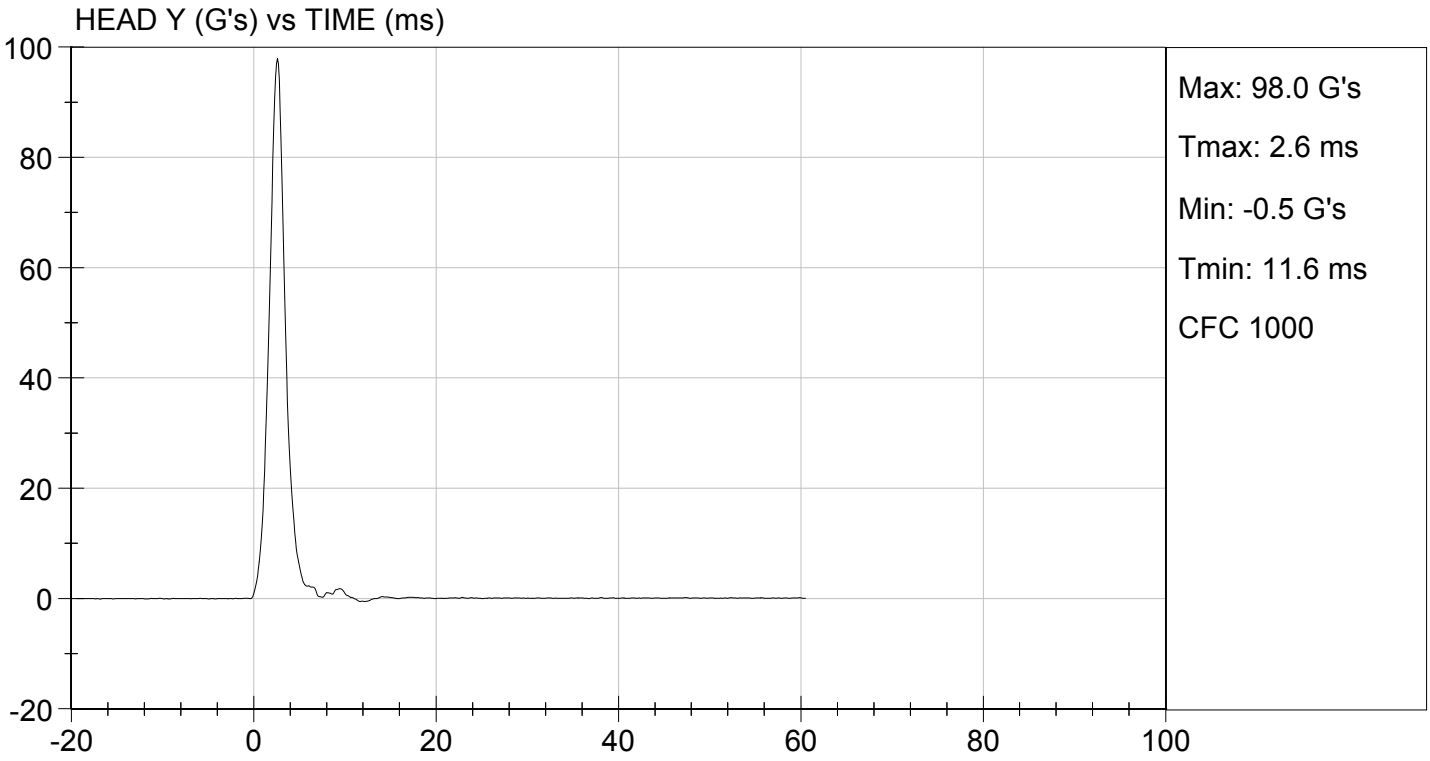


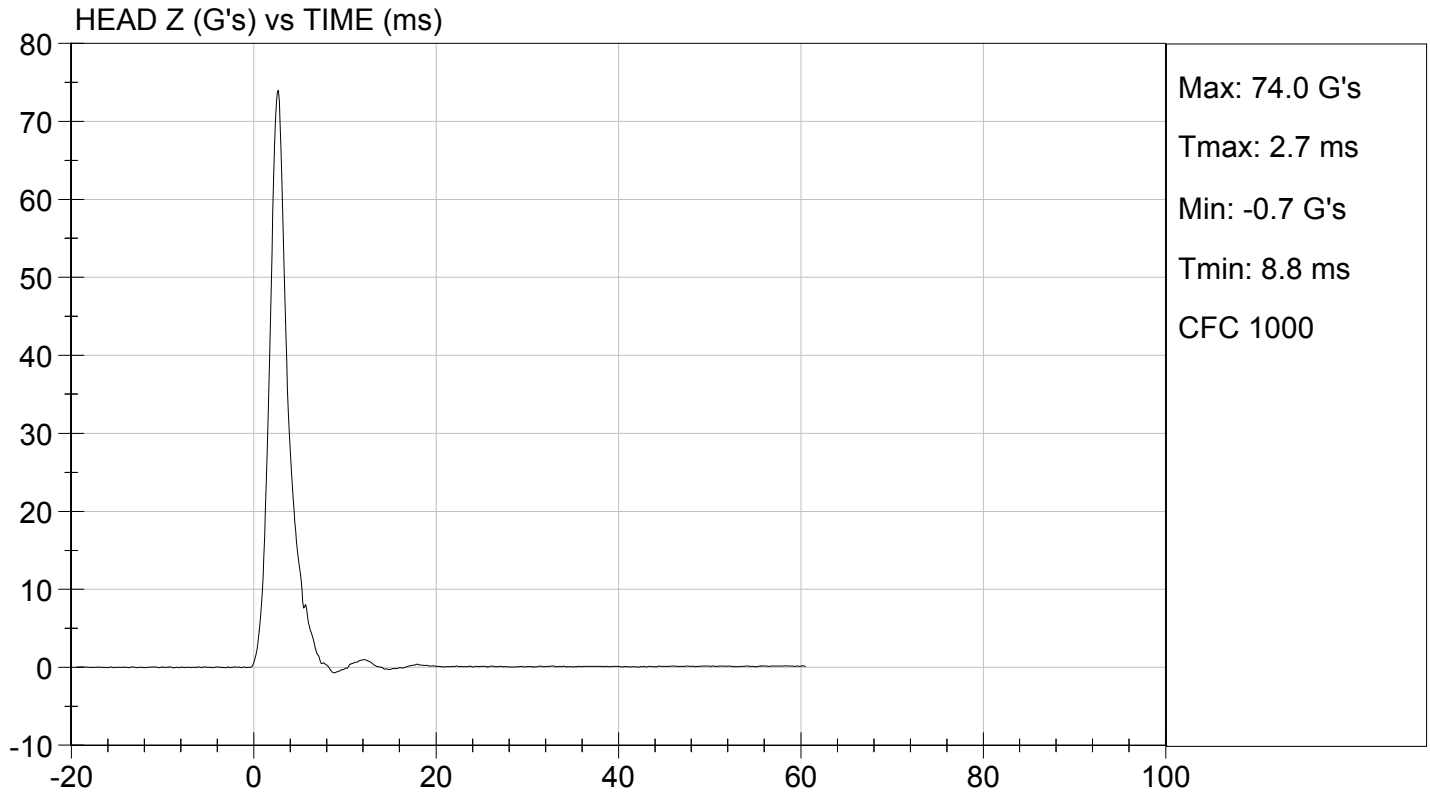
HEAD X (G's) vs TIME (ms)



TEST DESC: HEAD DROP

TEST DATE: 11/12/2014
TEST #: D144001





MGA RESEARCH CORPORATION

LATERAL NECK PENDULUM TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D144002

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.9	Pass
Humidity		%	10 to 70	24	Pass
Impact Velocity		m/s	5.51 to 5.63	5.63	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.59	Pass
	15 ms	m/s	3.30 to 4.10	3.66	Pass
	20 ms	m/s	4.40 to 5.40	4.82	Pass
	25 ms	m/s	5.40 to 6.10	5.55	Pass
	25-100 ms	m/s	5.50 to 6.20	5.56	Pass
Maximum D-Plane Rotation		deg	71 to 81	75	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	59	Pass
Maximum Occipital Condyle Moment		Nm	-44 to -36	-40	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	114	Pass
			Overall Test Results		Pass

David Schoedel
Laboratory Technician

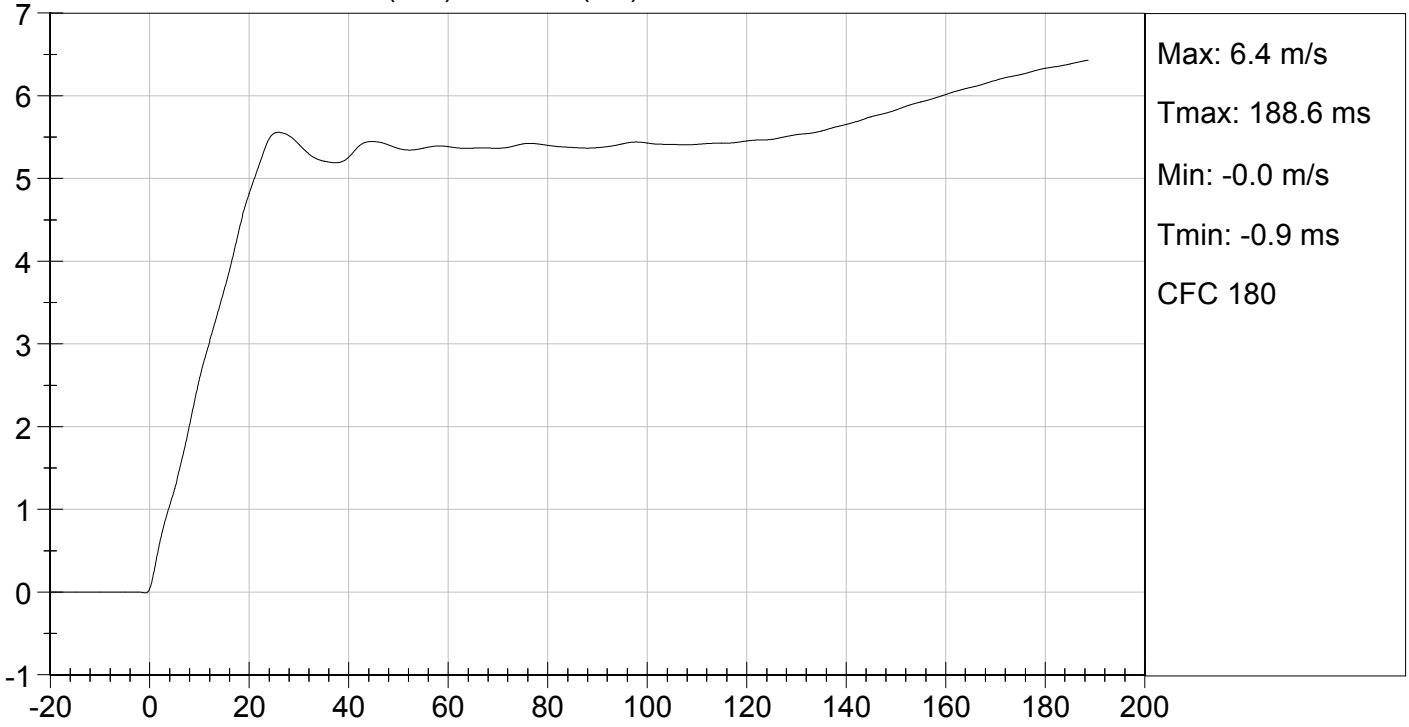
11/12/2014
Test Date

Jessica Hall
Approved By

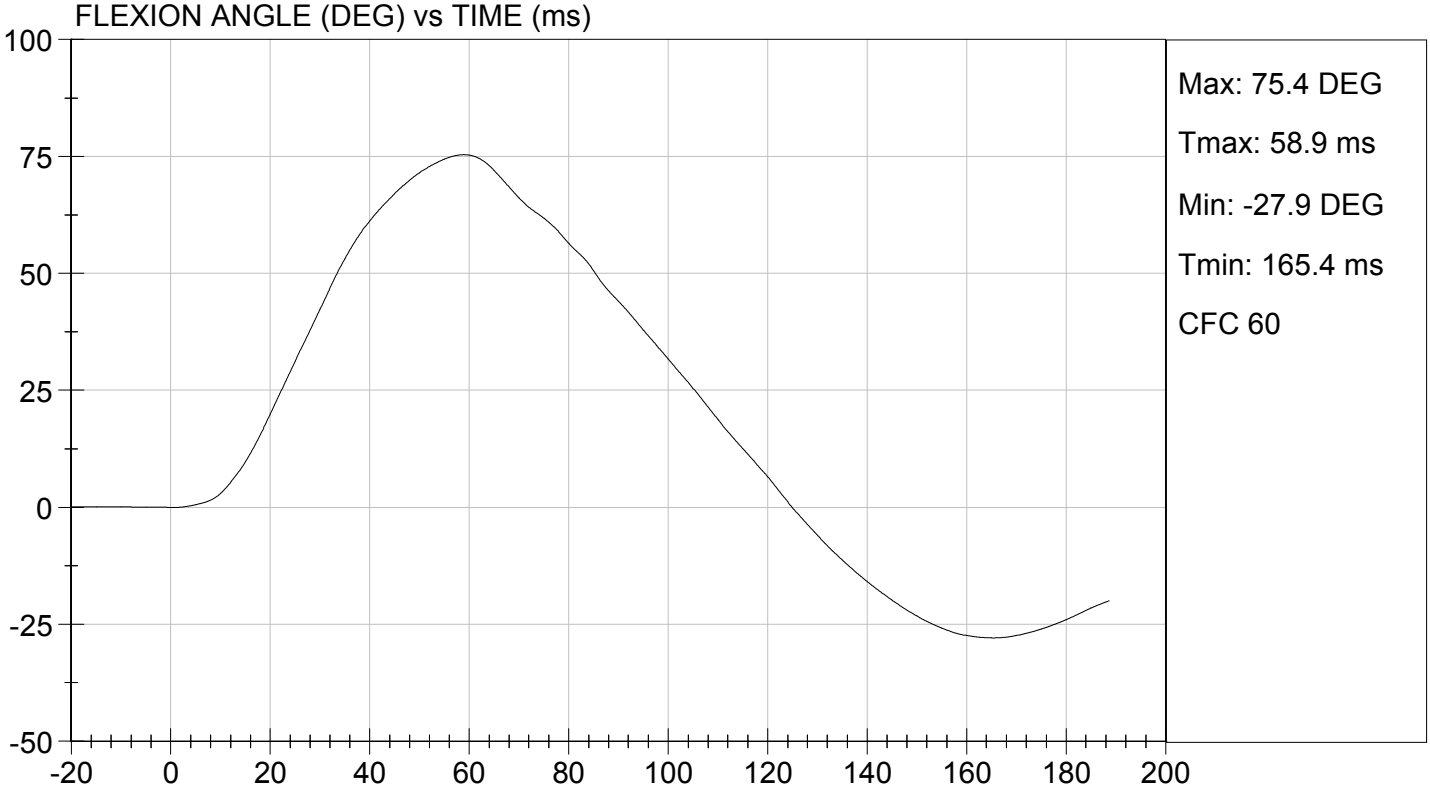
TEST DESC: NECK BENDING
VELOCITY: 18.47 ft/s, 5.63 m/s

TEST DATE: 11/12/2014
TEST #: D144002

PENDULUM VELOCITY (m/s) vs TIME (ms)

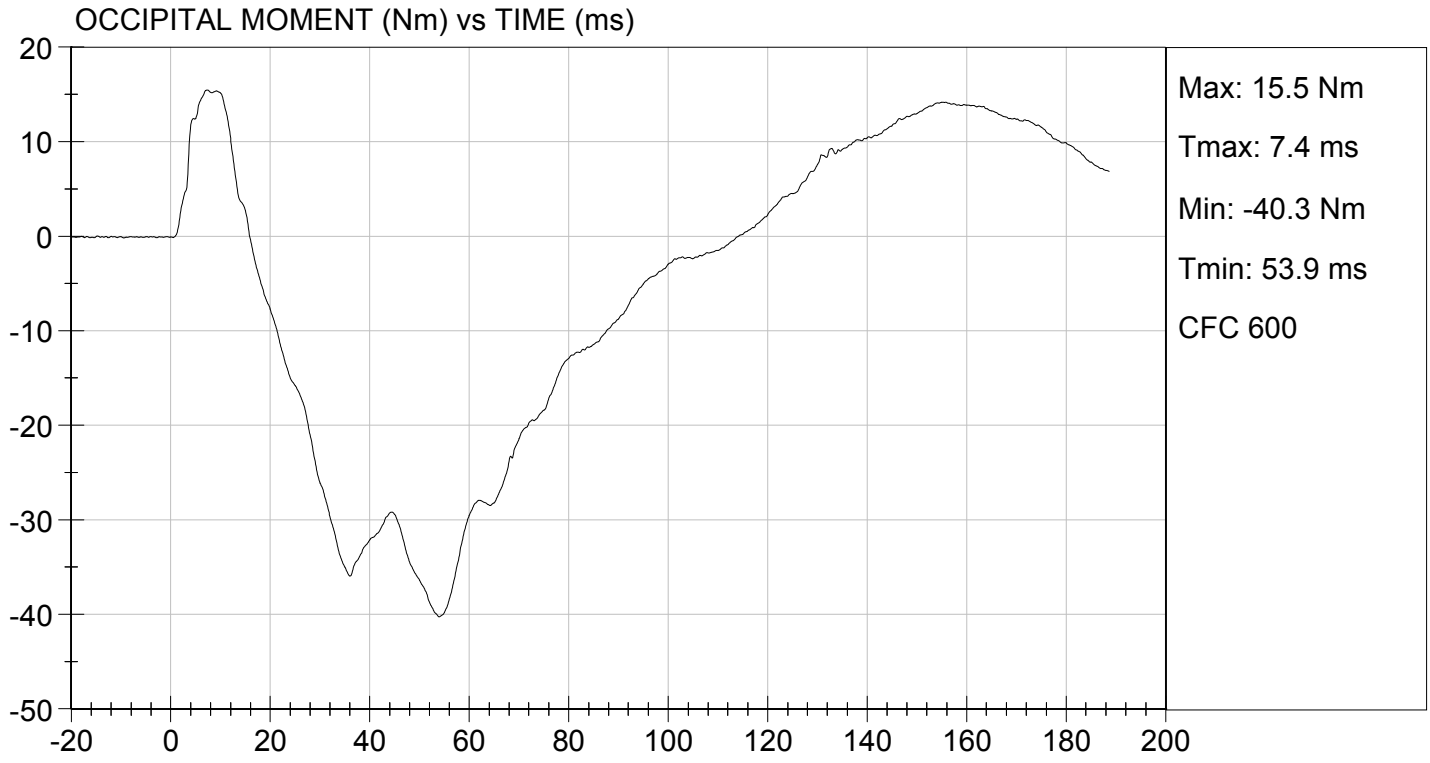


FLEXION ANGLE (DEG) vs TIME (ms)



TEST DESC: NECK BENDING
VELOCITY: 18.47 ft/s, 5.63 m/s

TEST DATE: 11/12/2014
TEST #: D144002



MGA RESEARCH CORPORATION

SHOULDER IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test ID:** D144003

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	13 to 18	13	Pass
Shoulder Displacement	mm	28 to 37	32	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	18	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

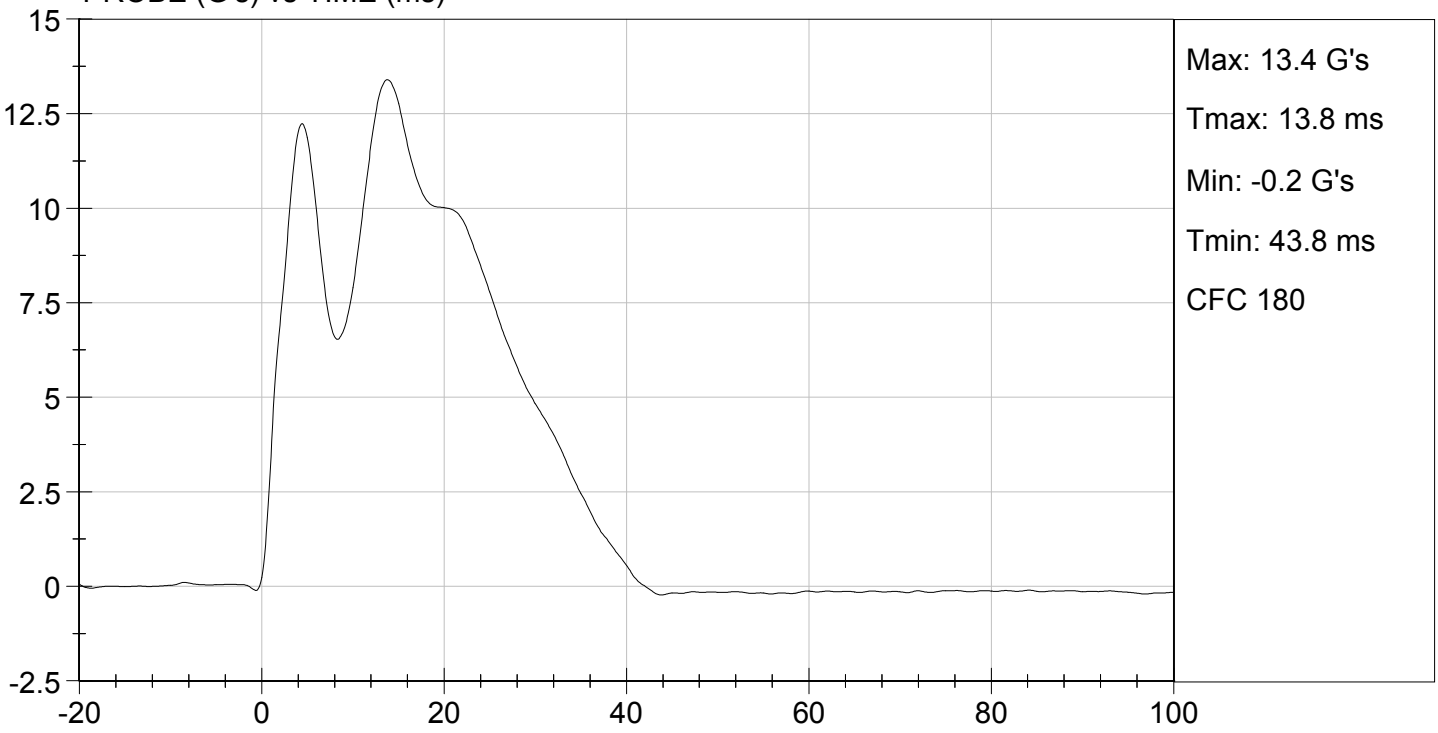
11/12/2014
Test Date

Jessica Hall
Approved By

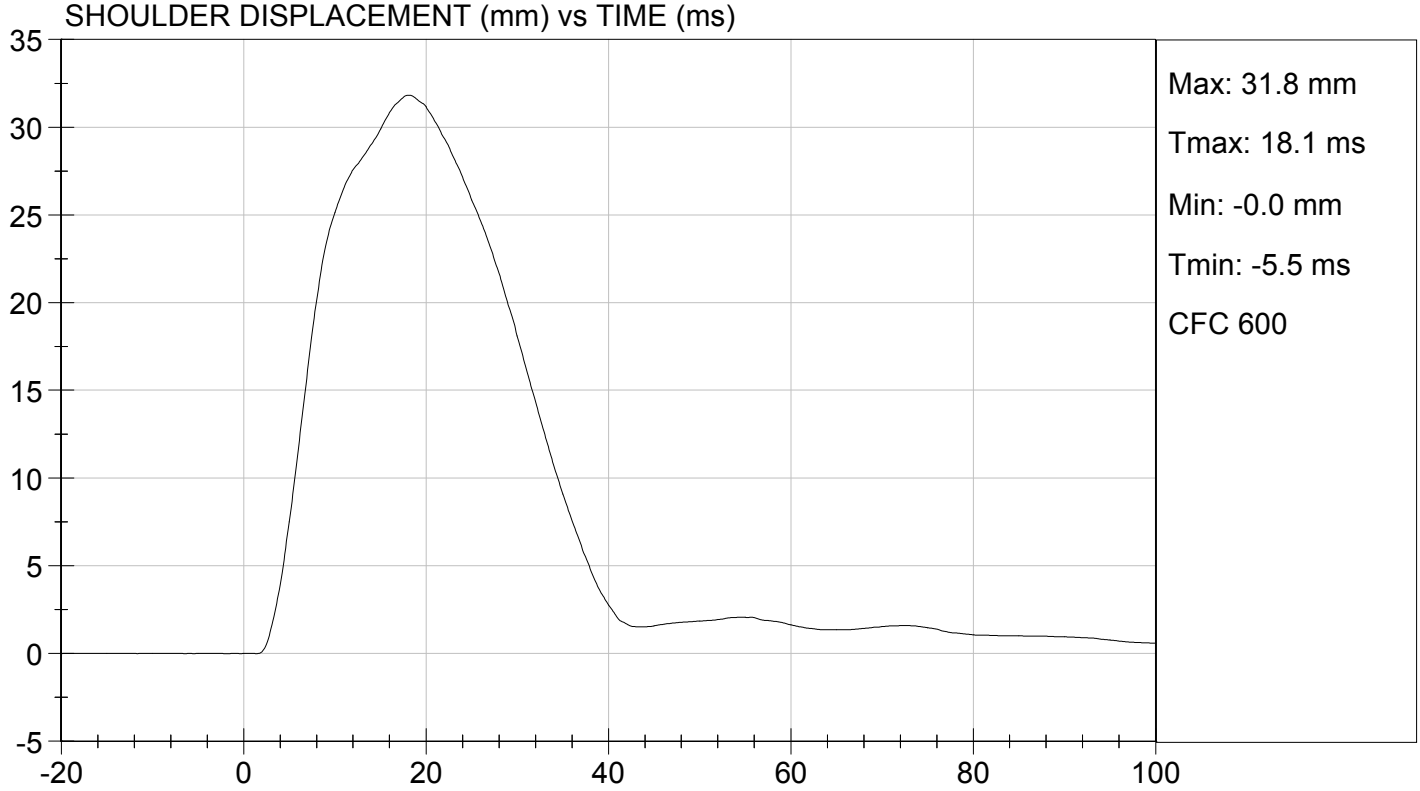
TEST DESC: SHOULDER IMPACT
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 11/12/2014
TEST #: D144003

PROBE (G's) vs TIME (ms)

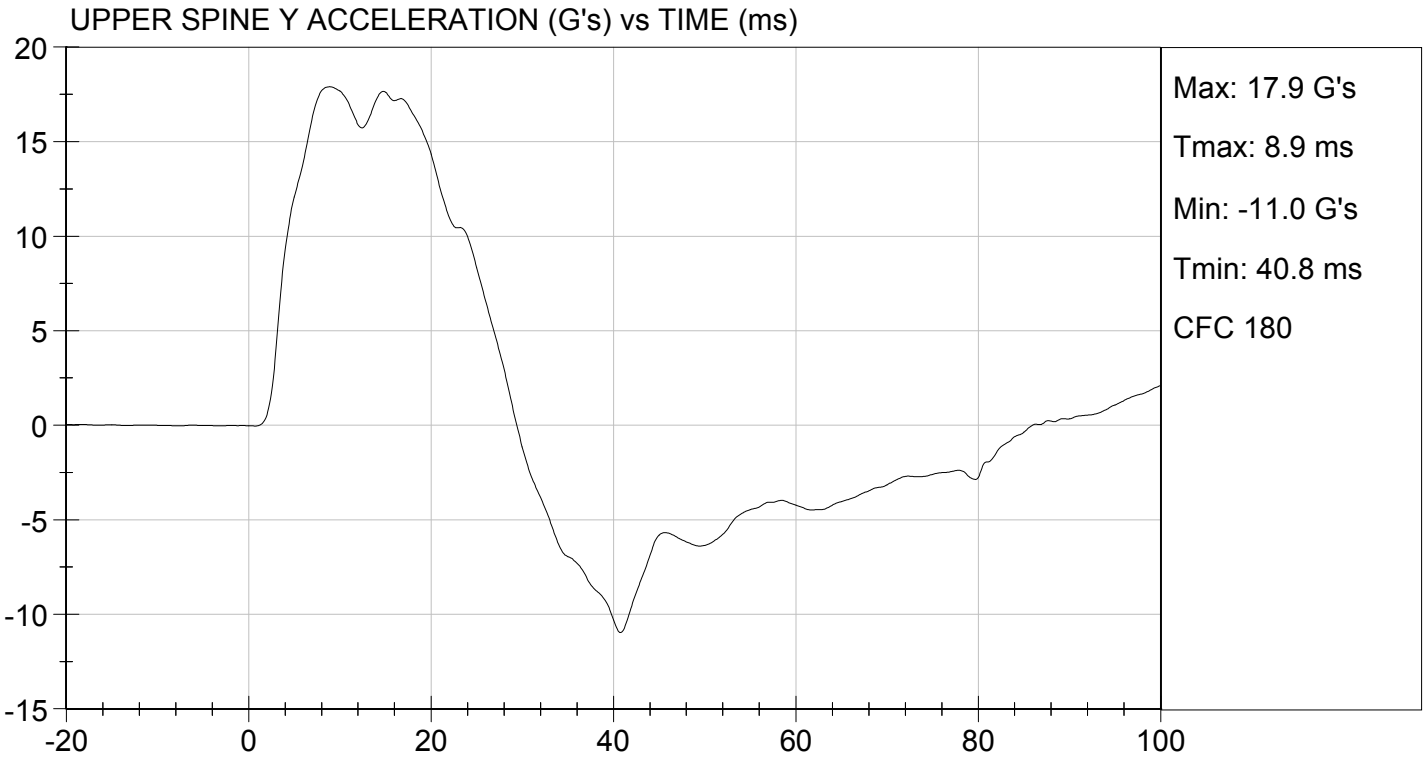


SHOULDER DISPLACEMENT (mm) vs TIME (ms)



TEST DESC: SHOULDER IMPACT
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 11/12/2014
TEST #: D144003



MGA RESEARCH CORPORATION

THORAX (WITH ARM) IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D144004

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	30 to 36	31	Pass
Shoulder Displacement	mm	31 to 40	37	Pass
Upper Rib Displacement	mm	25 to 32	29	Pass
Middle Rib Displacement	mm	30 to 36	33	Pass
Lower Rib Displacement	mm	32 to 38	35	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	34	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	30	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

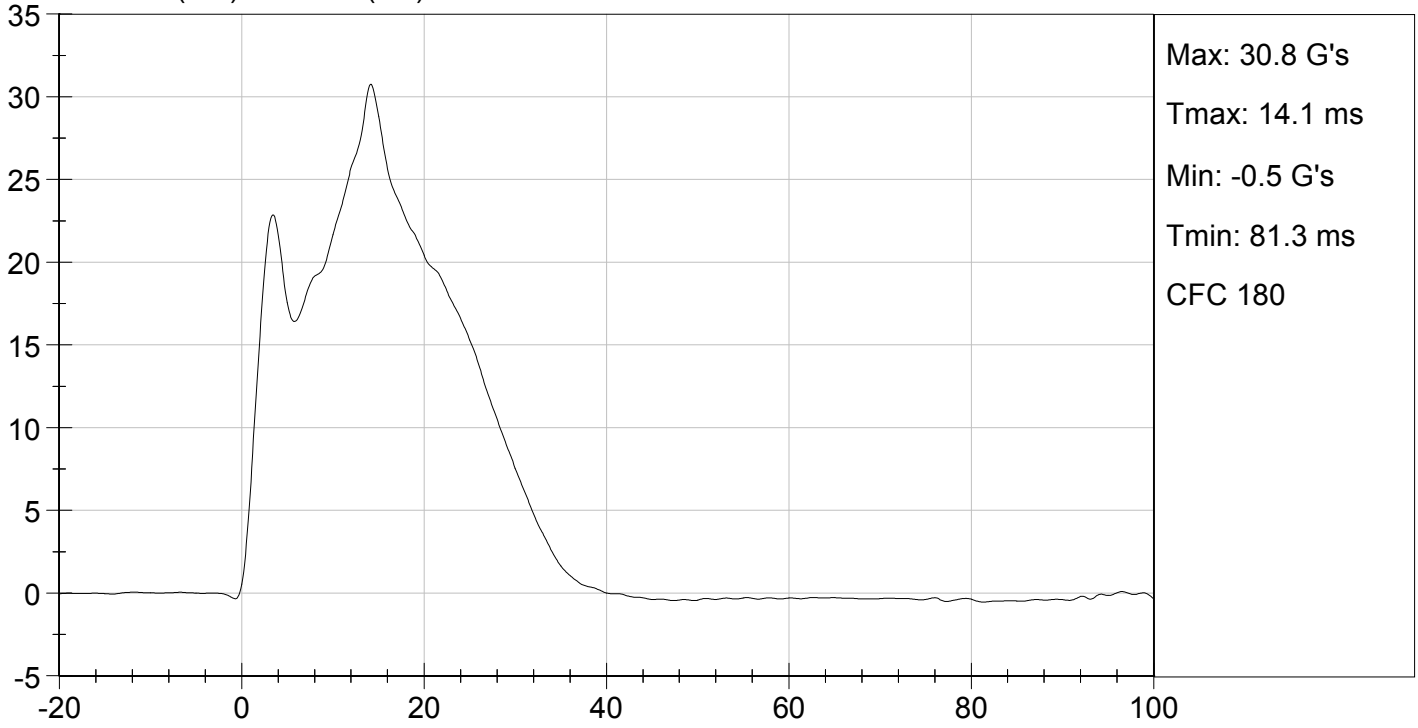
11/12/2014
Test Date

Jessica Hall
Approved By

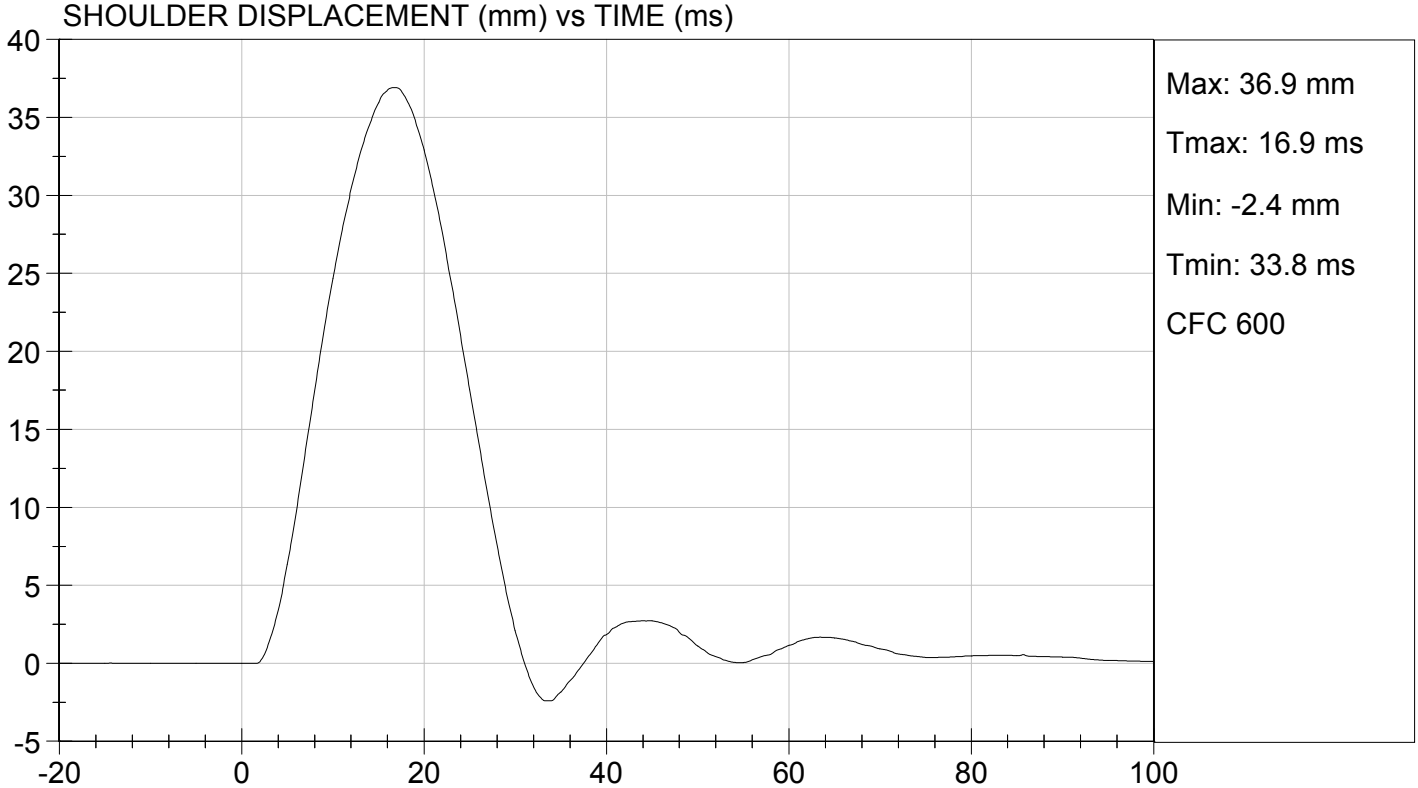
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 11/12/2014
TEST #: D144004

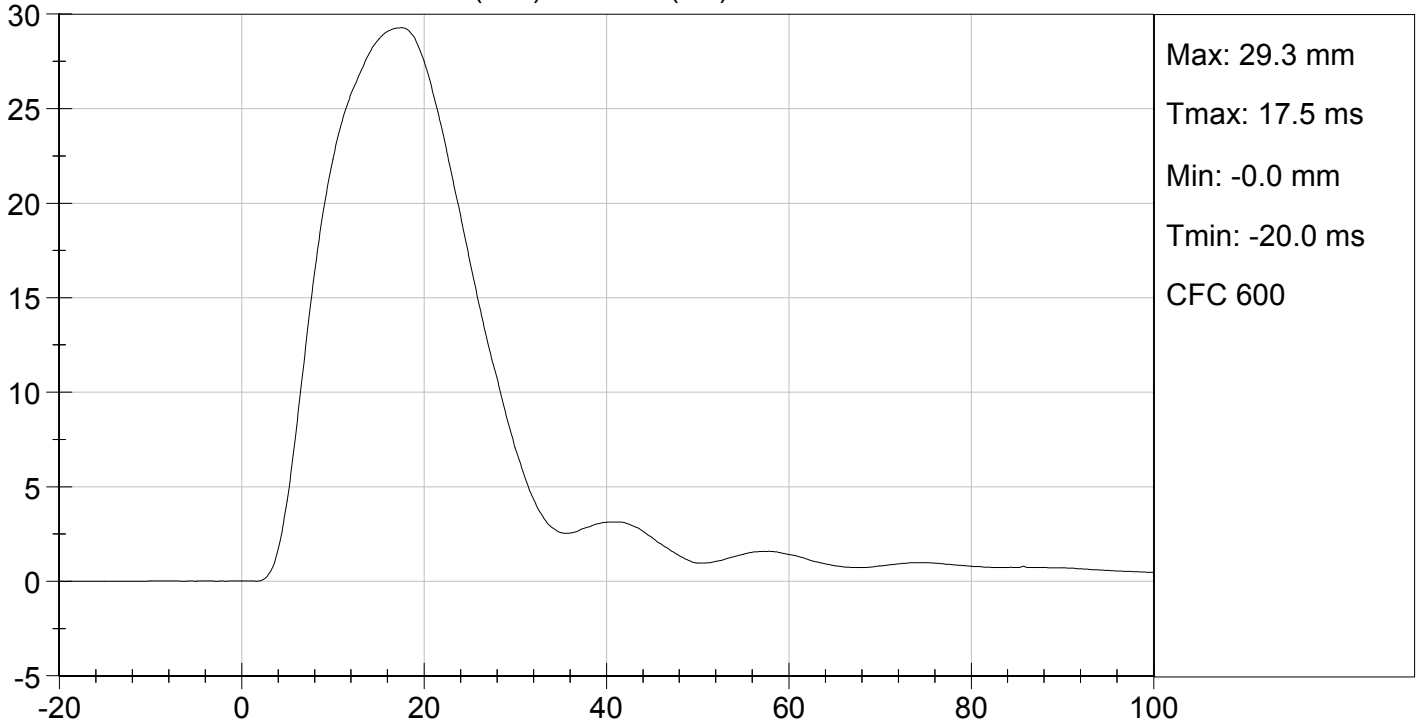
PROBE (G's) vs TIME (ms)



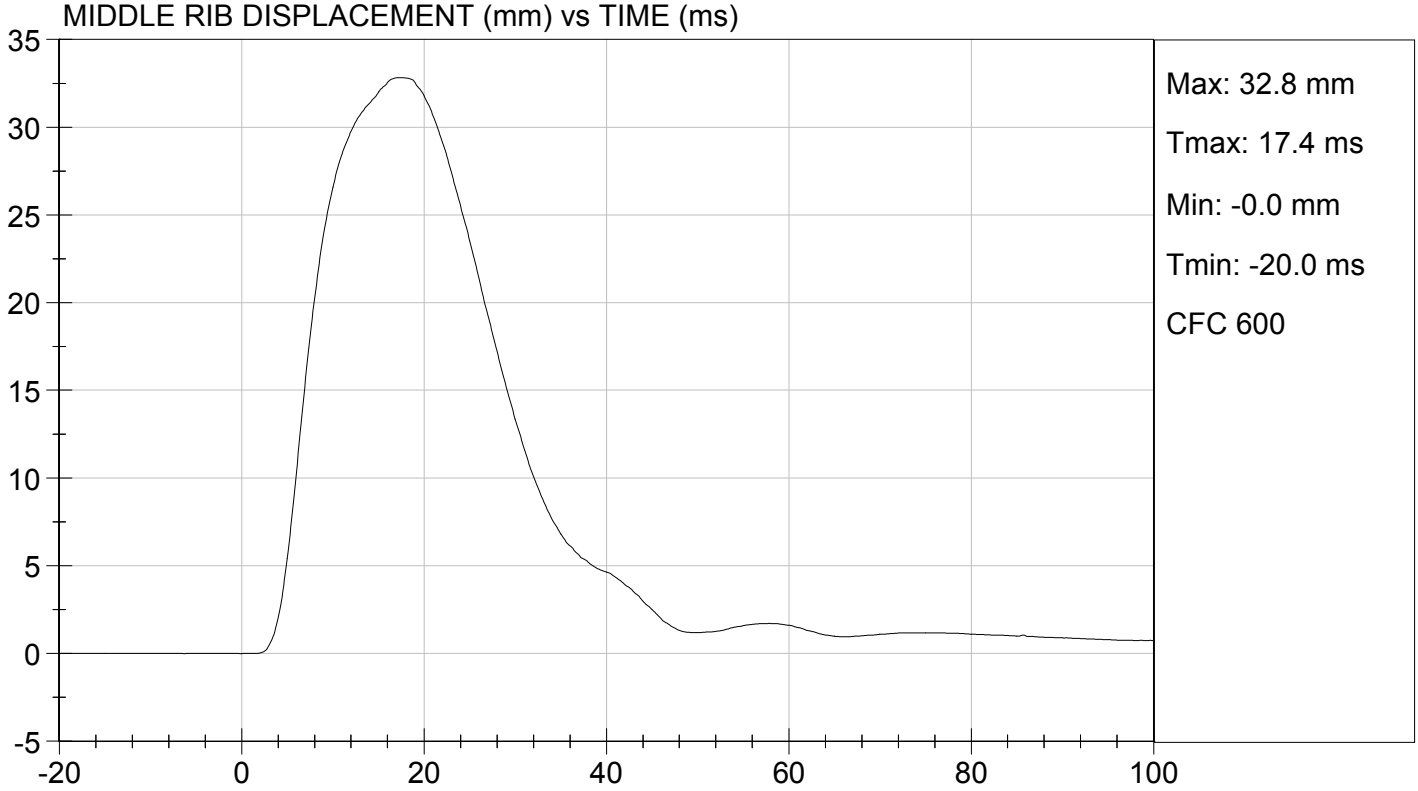
SHOULDER DISPLACEMENT (mm) vs TIME (ms)



UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



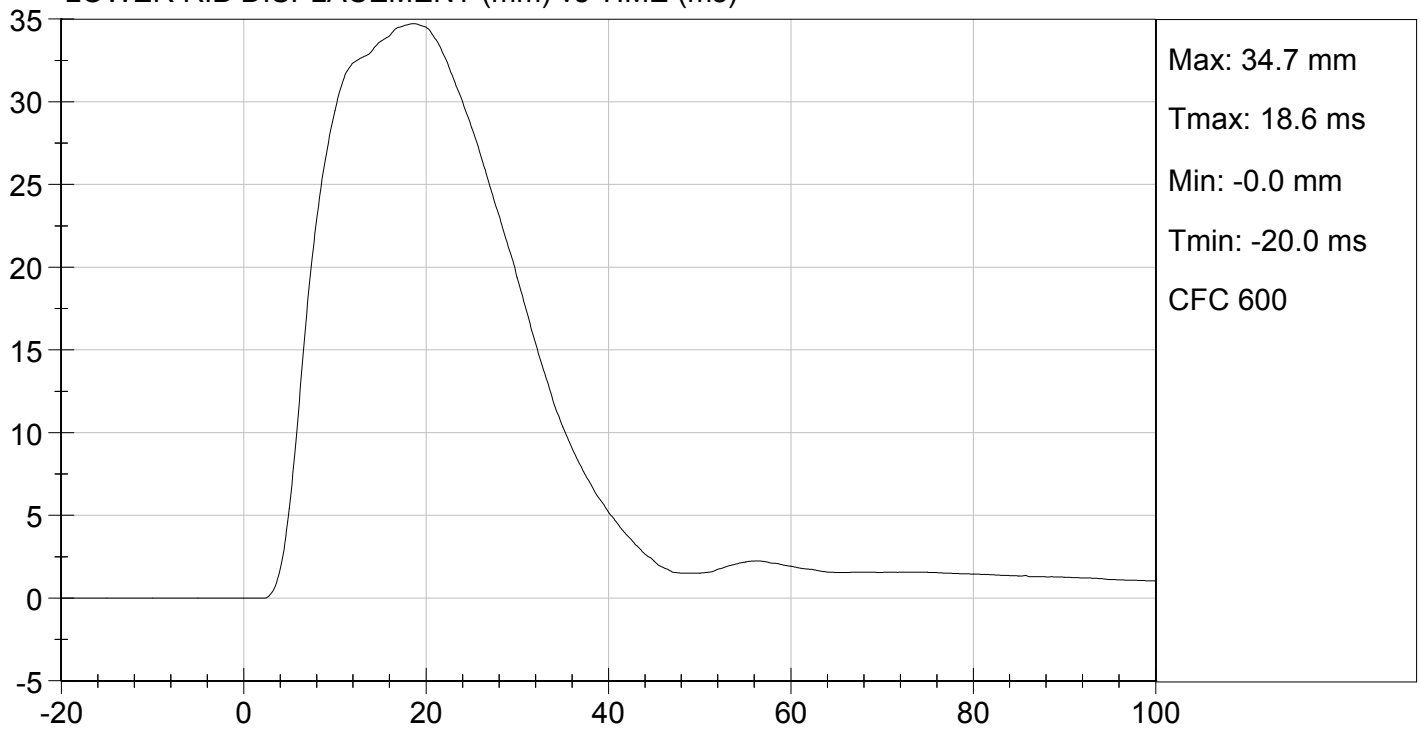
MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



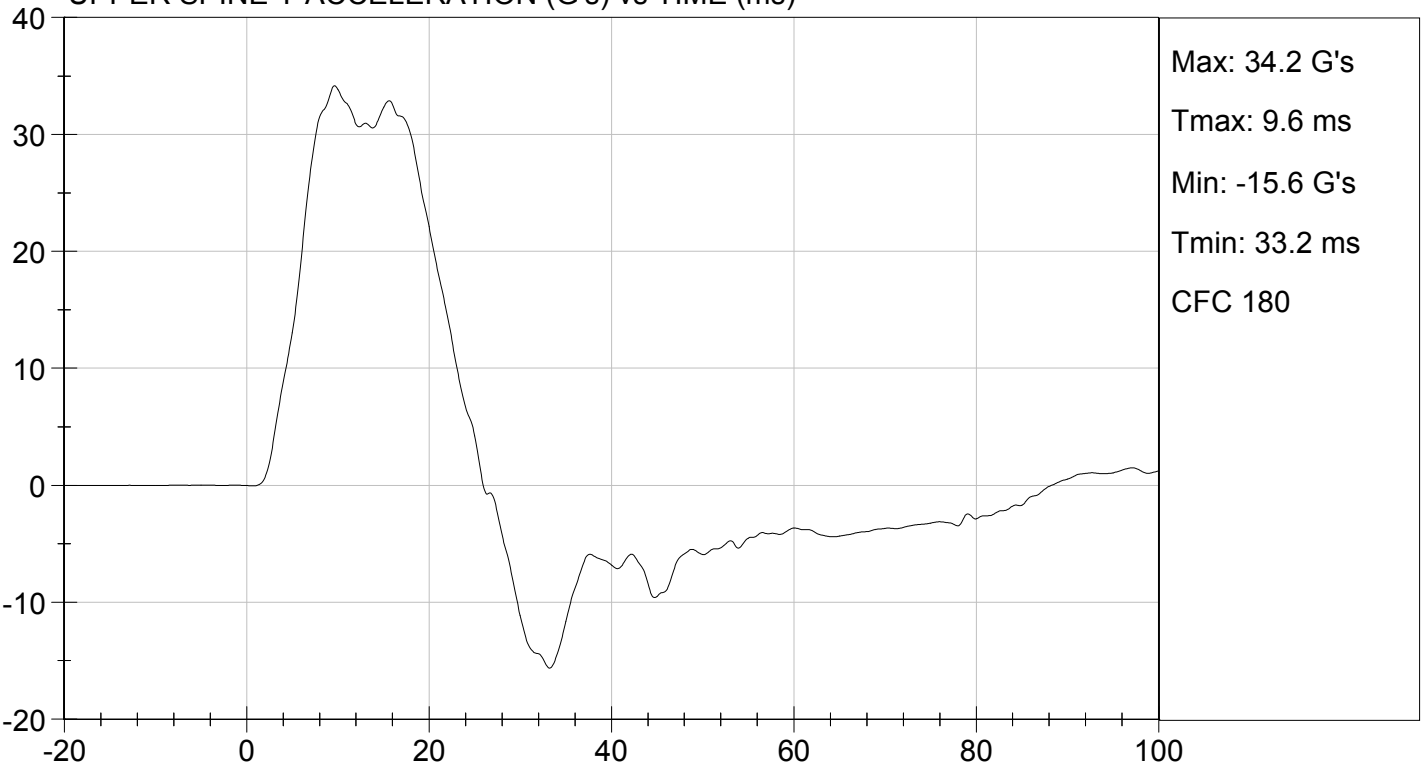
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 11/12/2014
TEST #: D144004

LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



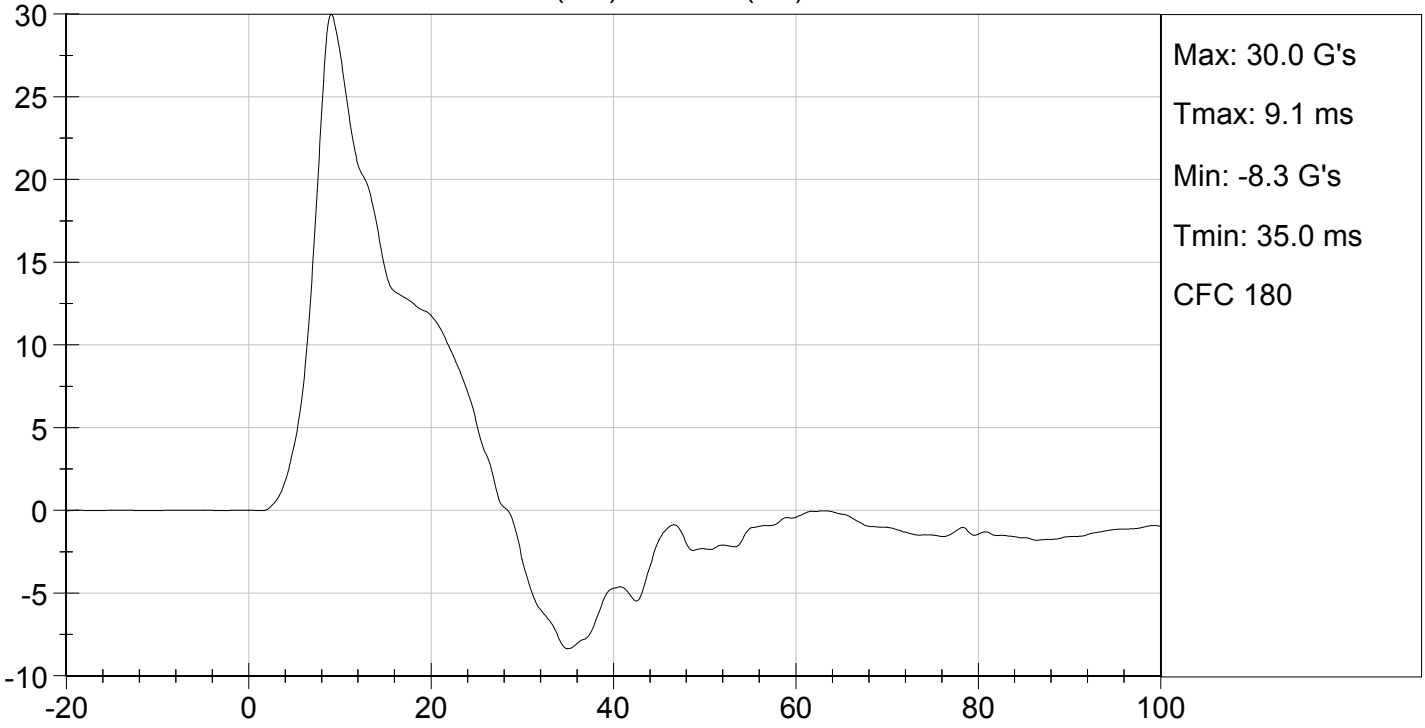
UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)



TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 11/12/2014
TEST #: D144004

LOWER SPINE Y ACCELERATION (G's) vs TIME (ms)



MGA RESEARCH CORPORATION

THORAX (WITHOUT ARM) IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D144005

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	37	Pass
Middle Rib Displacement	mm	39 to 45	42	Pass
Lower Rib Displacement	mm	35 to 43	39	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	13	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	8	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

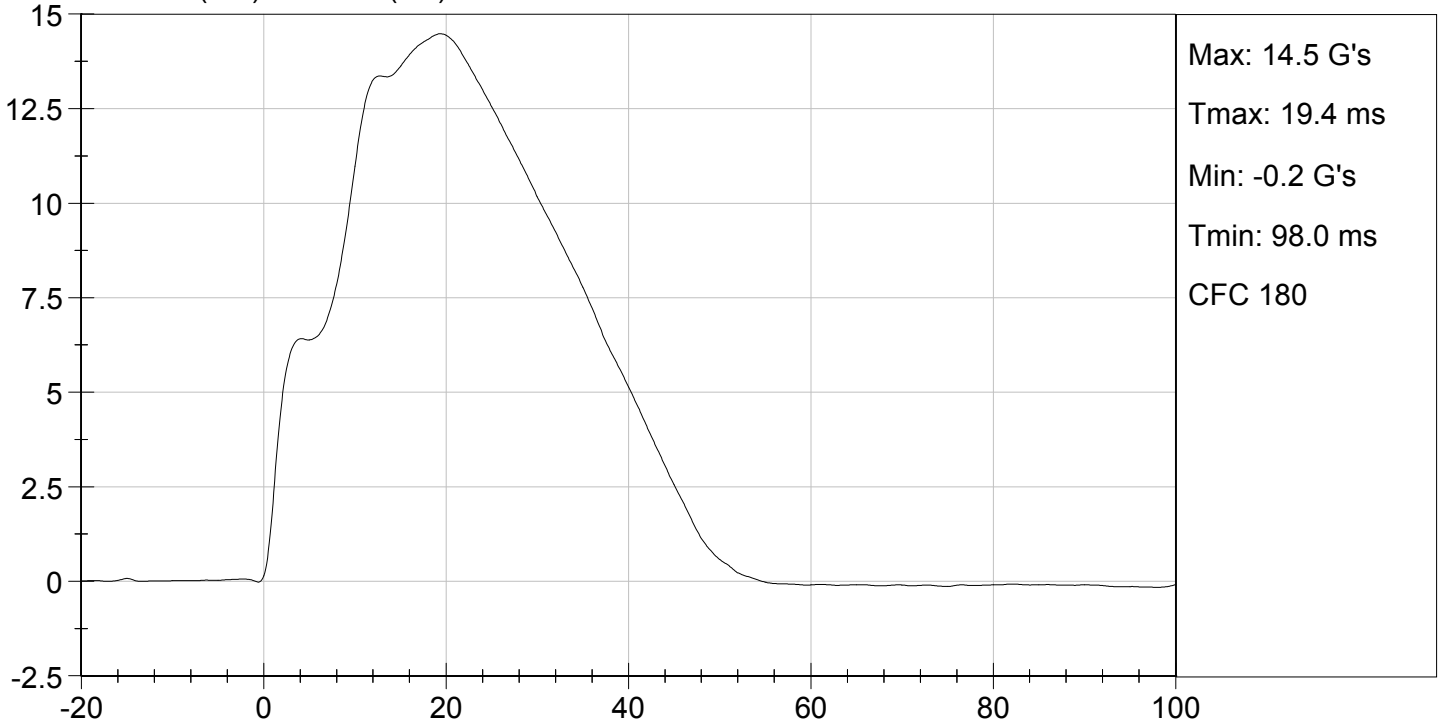
11/12/2014
Test Date

Jessica Hall
Approved By

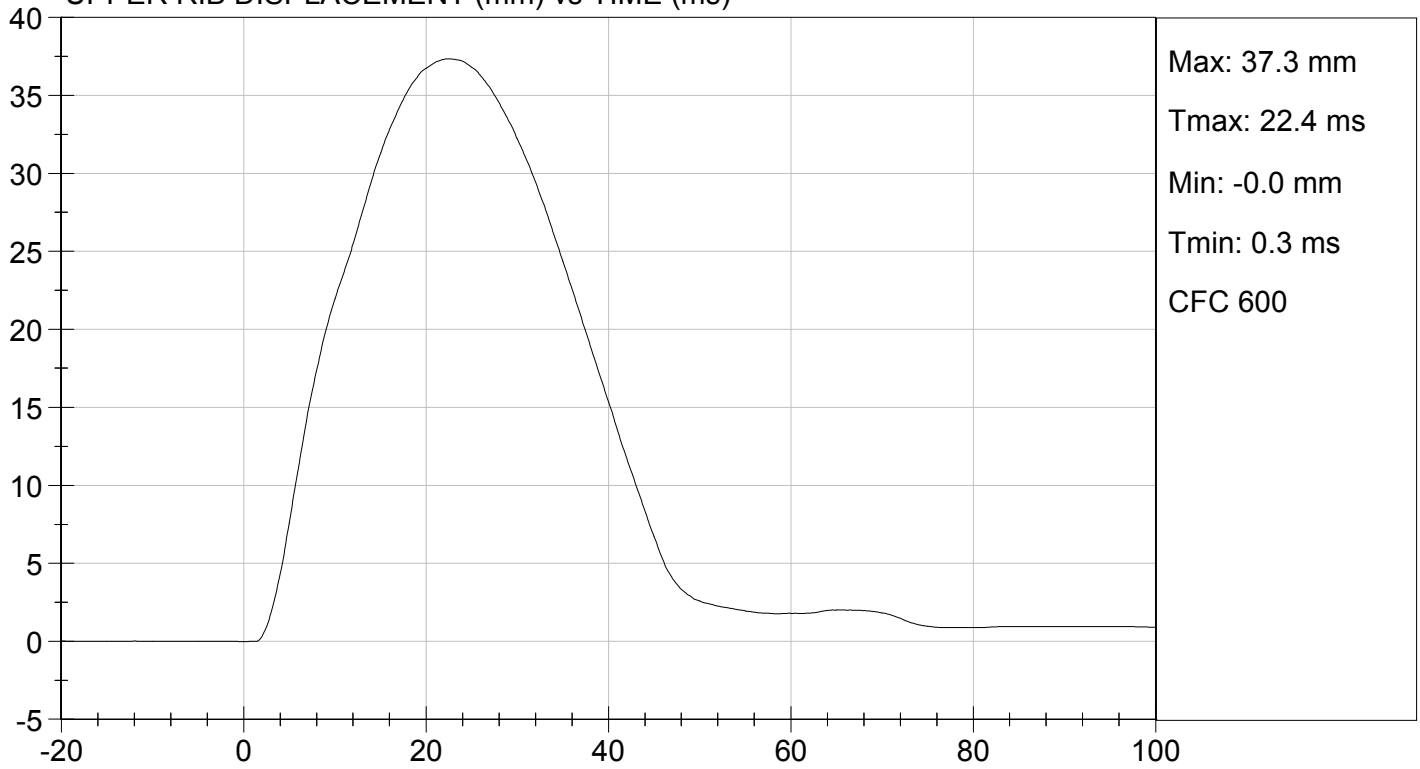
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 11/12/2014
TEST #: D144005

PROBE (G's) vs TIME (ms)



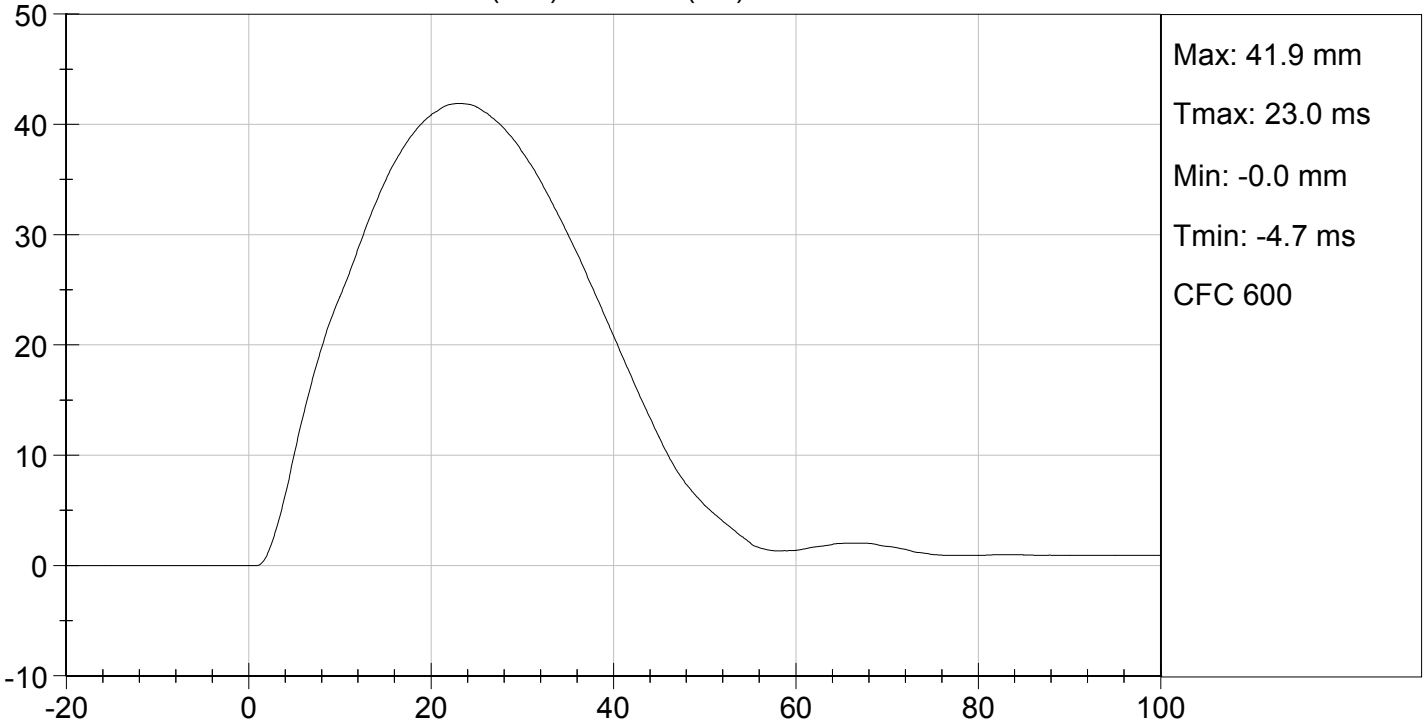
UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



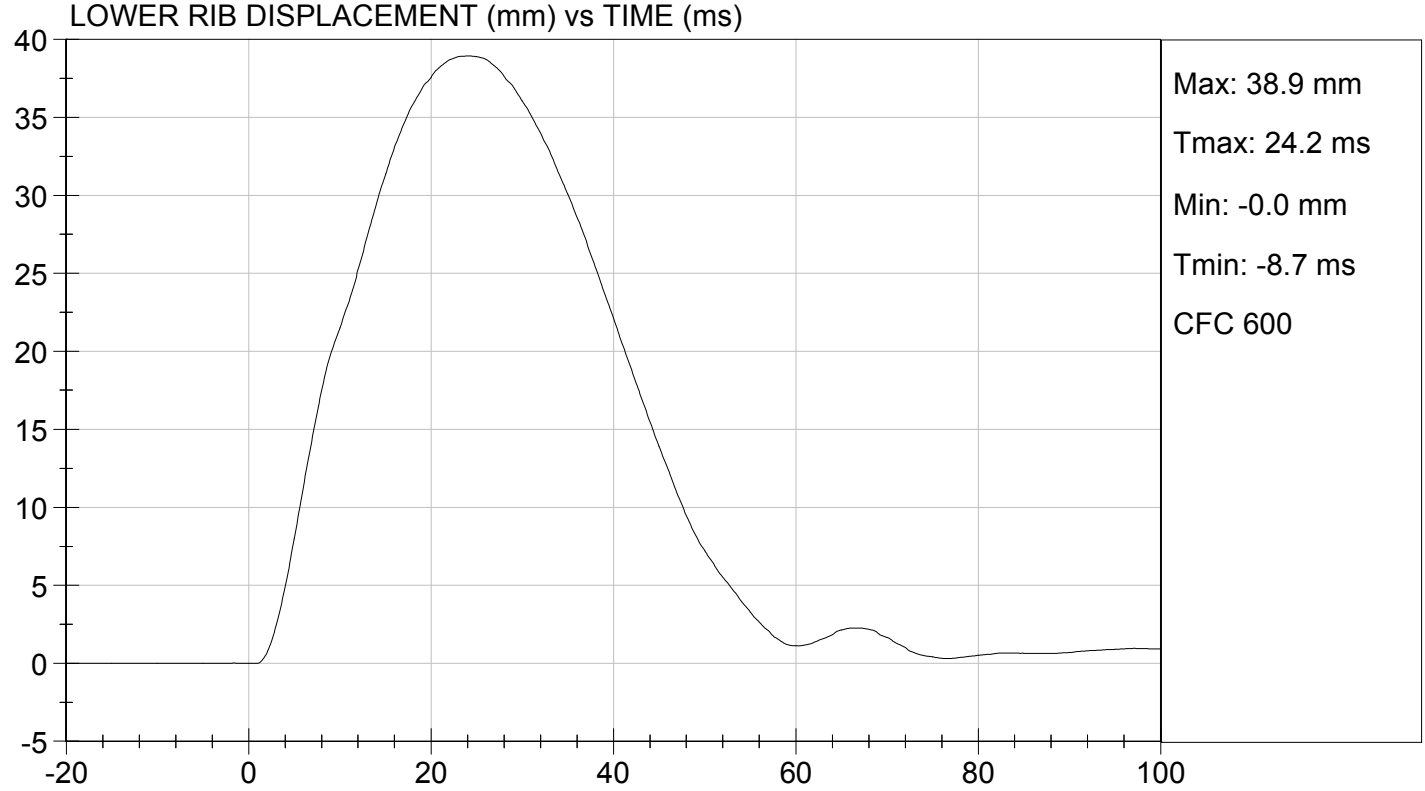
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 11/12/2014
TEST #: D144005

MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



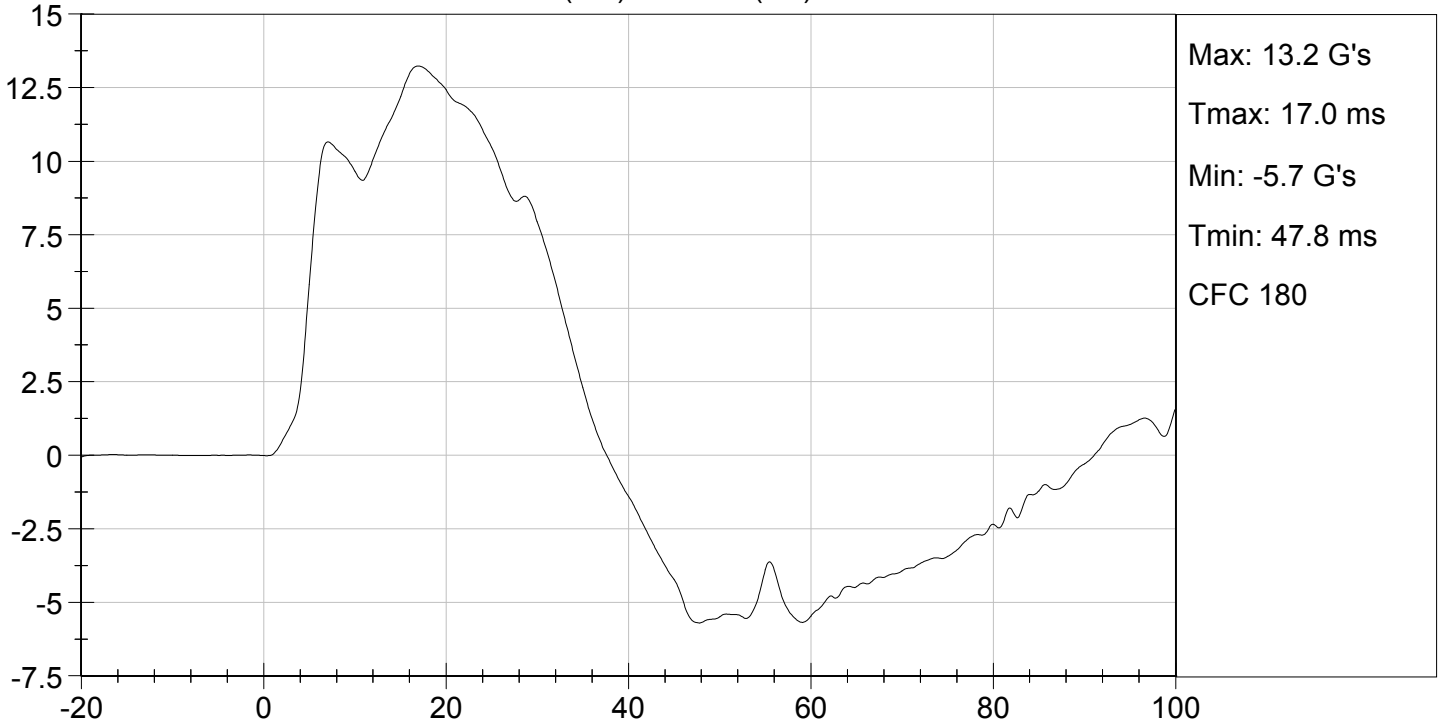
LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



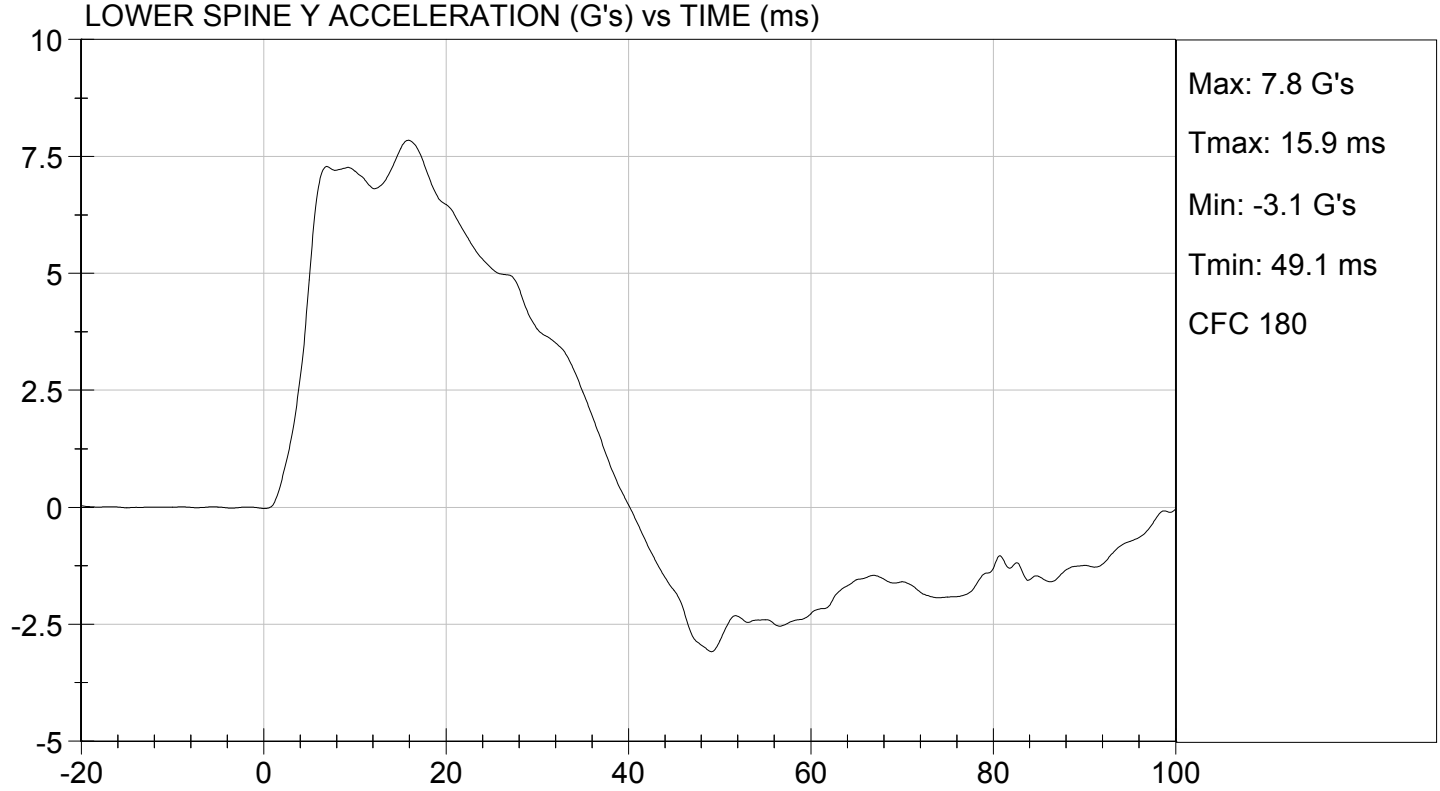
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 11/12/2014
TEST #: D144005

UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)



LOWER SPINE Y ACCELERATION (G's) vs TIME (ms)



MGA RESEARCH CORPORATION

ABDOMINAL IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D144006

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	12 to 16	13	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	41	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	41	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	10	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

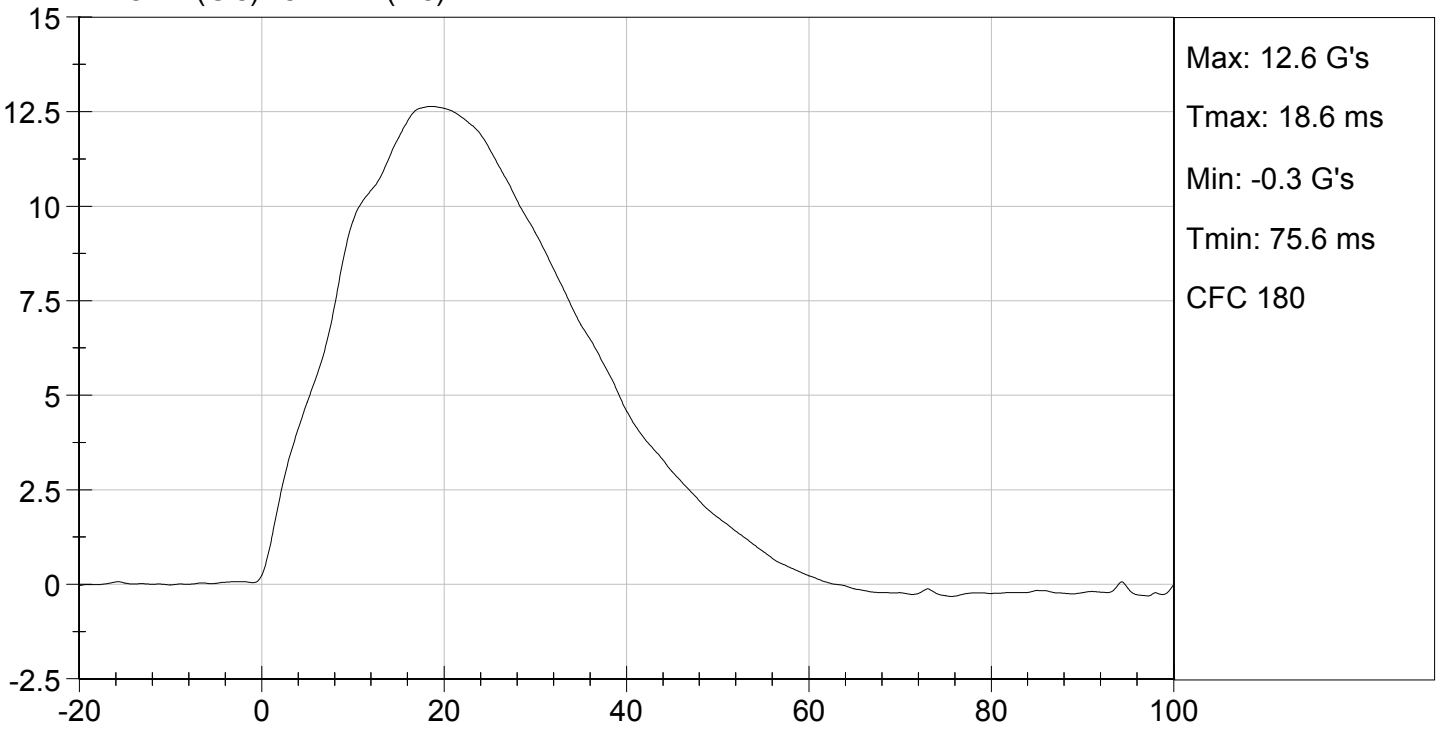
11/12/2014
Test Date

Jessica Hall
Approved By

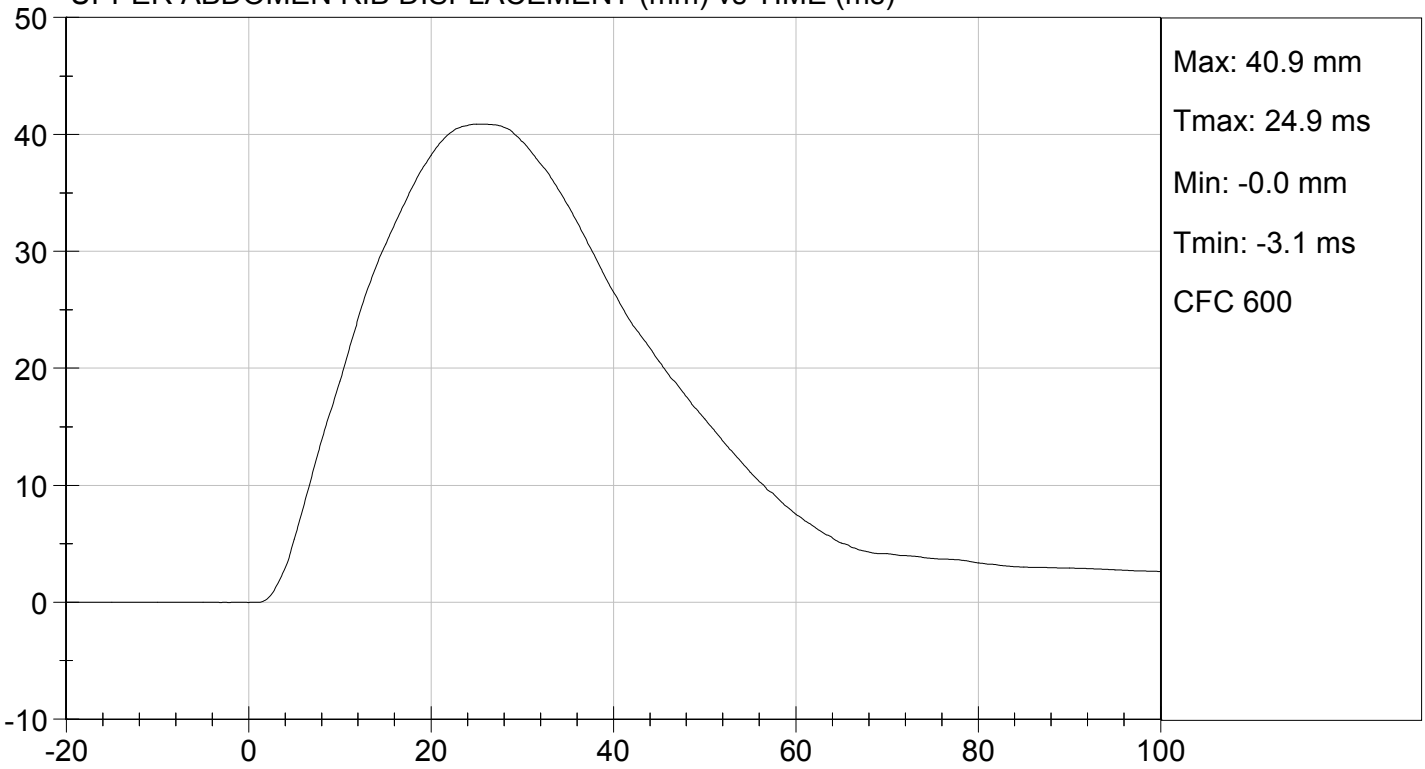
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 11/12/2014
TEST #: D144006

PROBE (G's) vs TIME (ms)



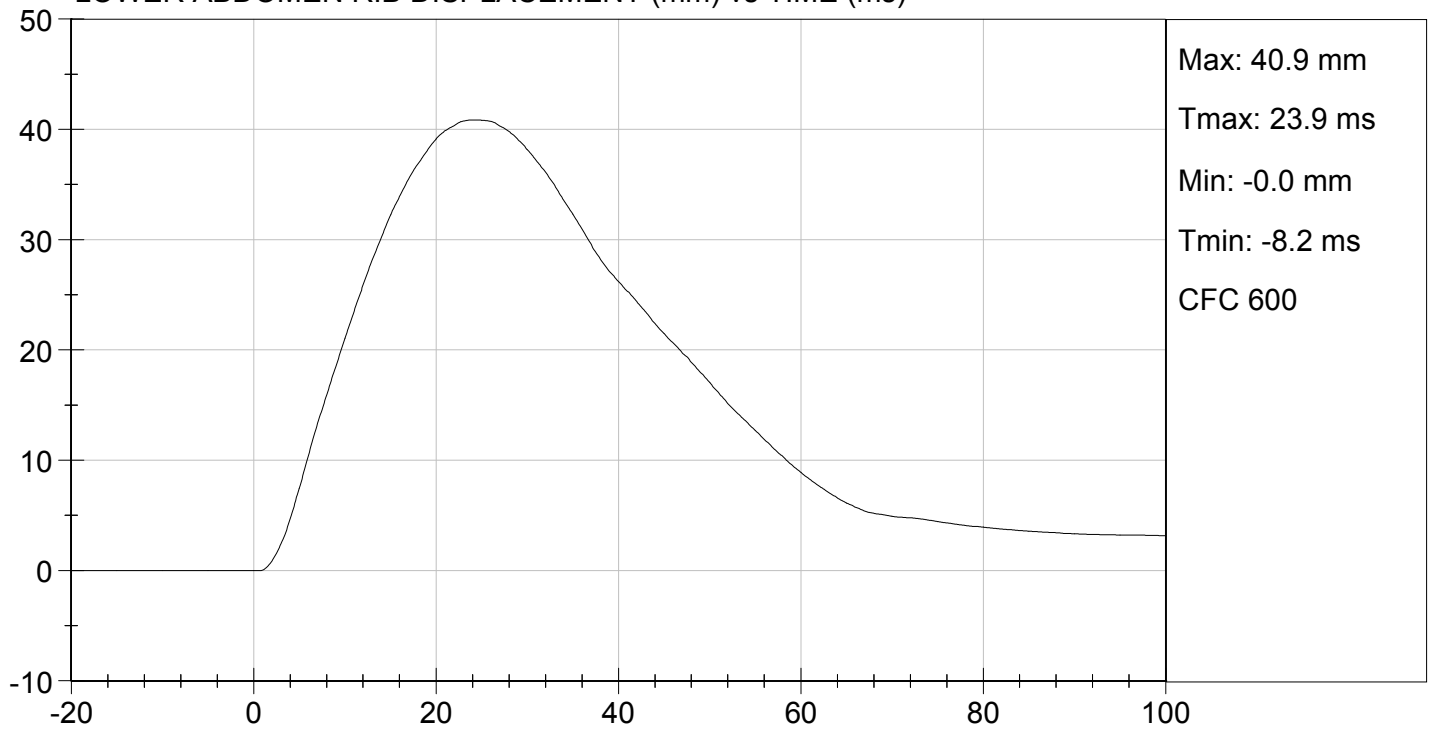
UPPER ABDOMEN RIB DISPLACEMENT (mm) vs TIME (ms)



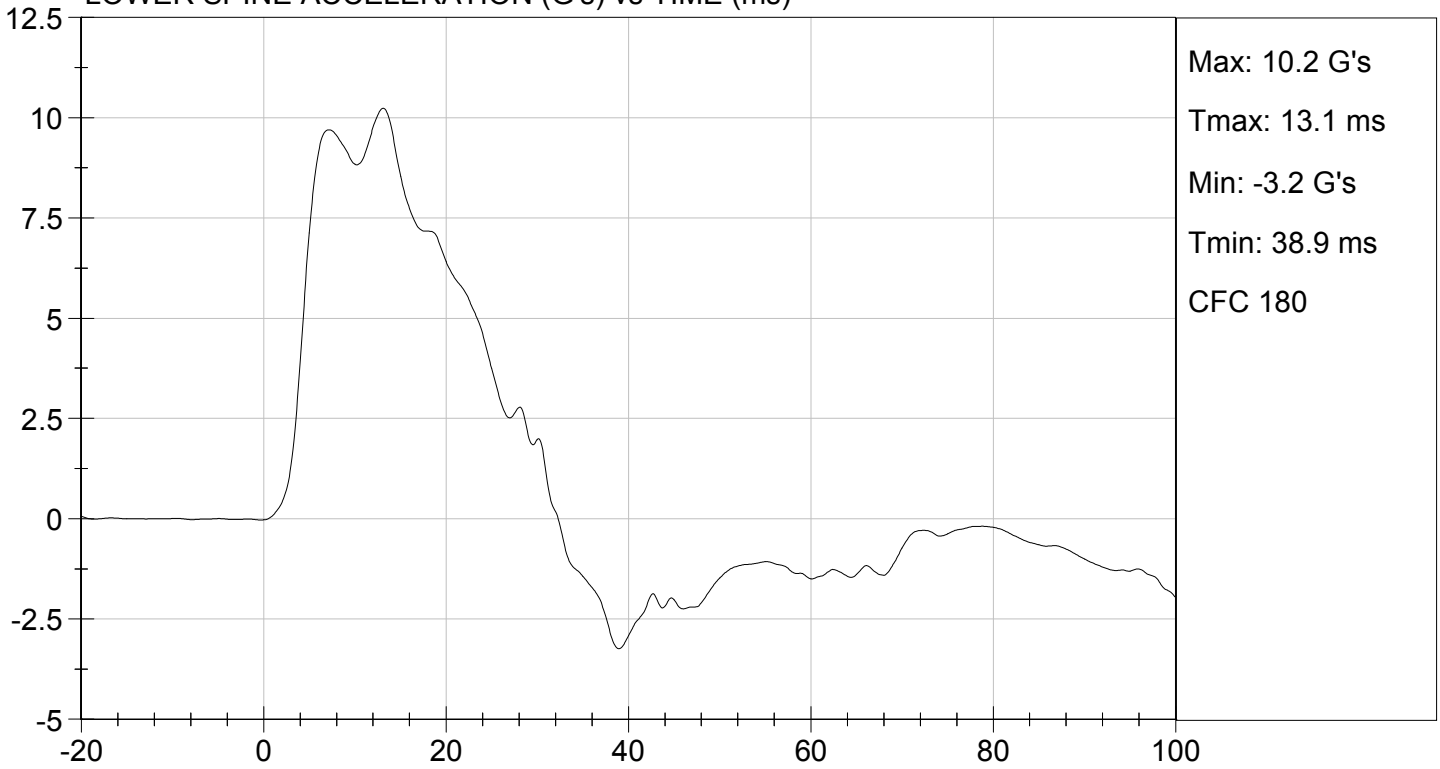
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 11/12/2014
TEST #: D144006

LOWER ABDOMEN RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER SPINE ACCELERATION (G's) vs TIME (ms)



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D144007

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	38 to 47	40	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	37	Pass
Peak Acetabulum Force	N	3600 to 4300	4,243	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

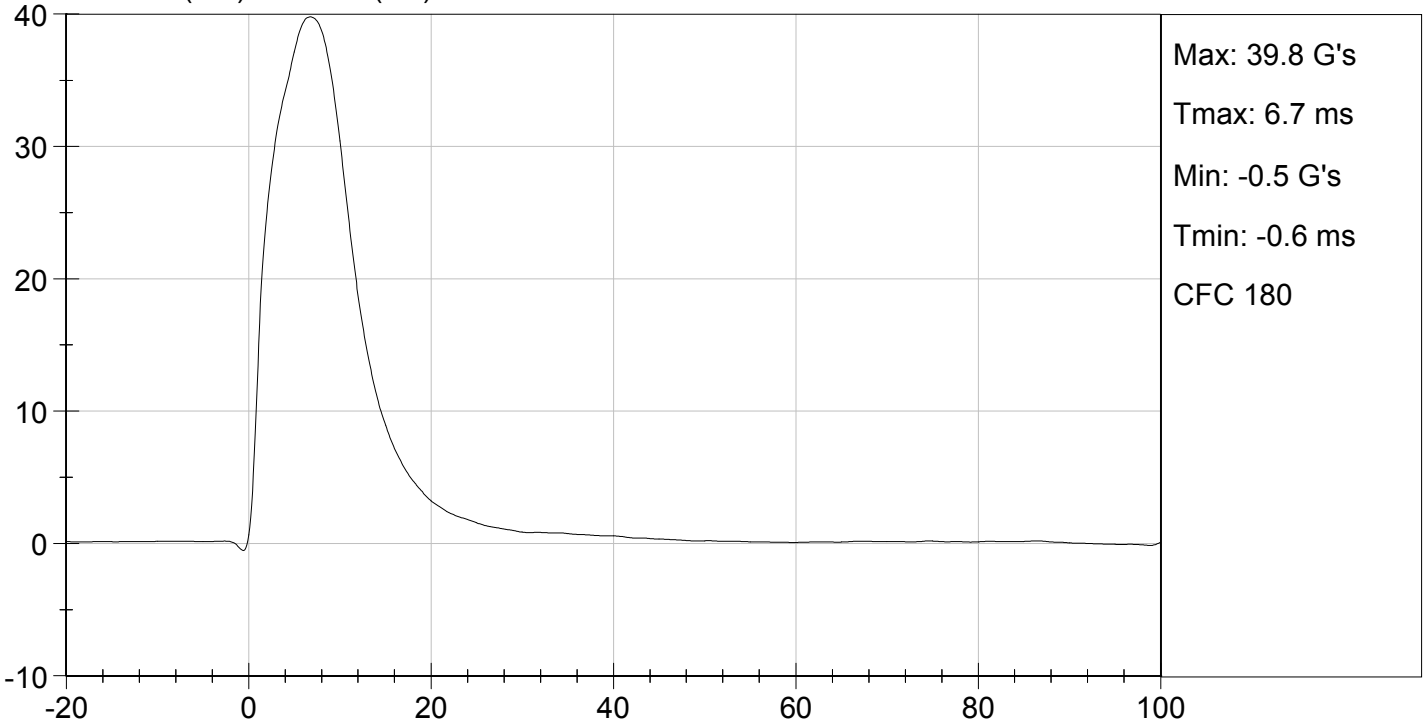
11/12/2014
Test Date

Jessica Hall
Approved By

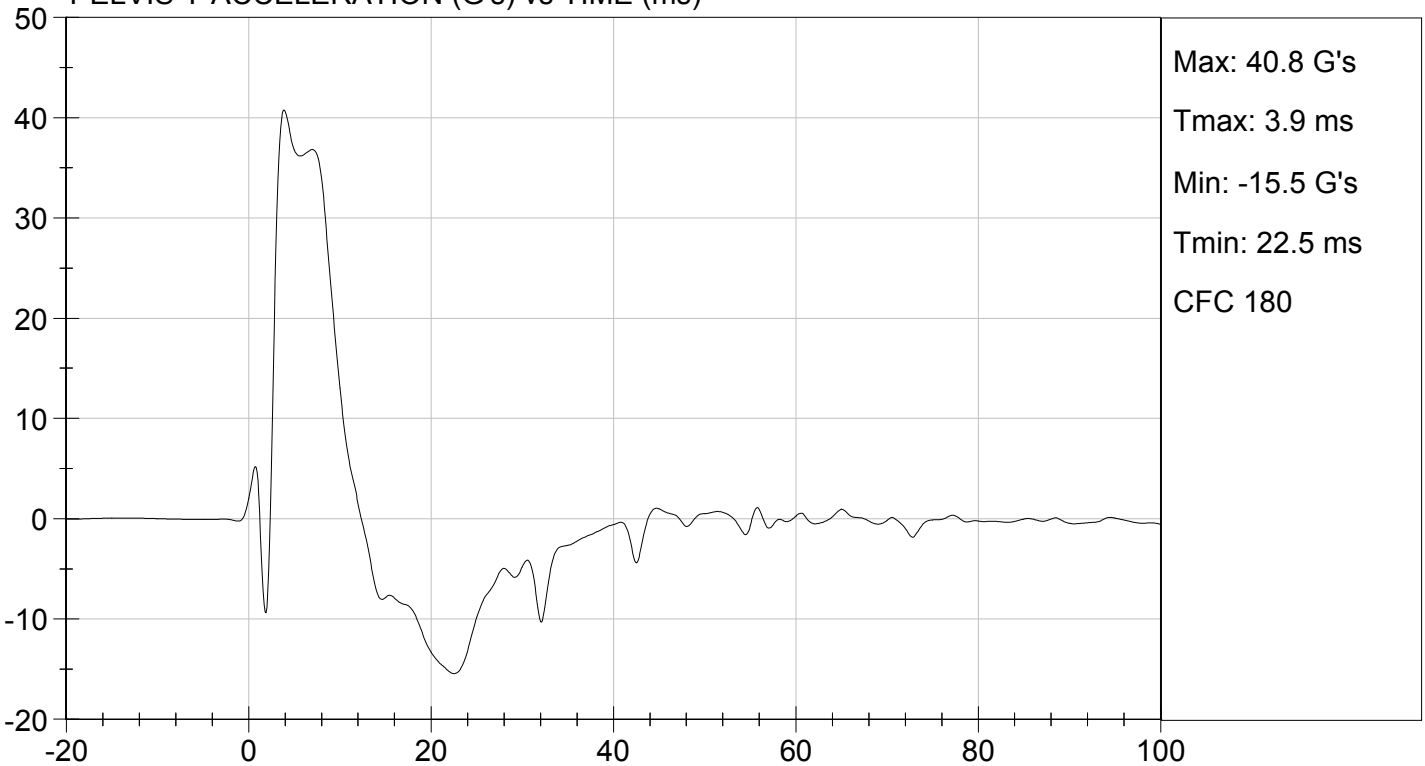
TEST DESC: PELVIS IMPACT
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 11/12/2014
TEST #: D144007

PROBE (G's) vs TIME (ms)

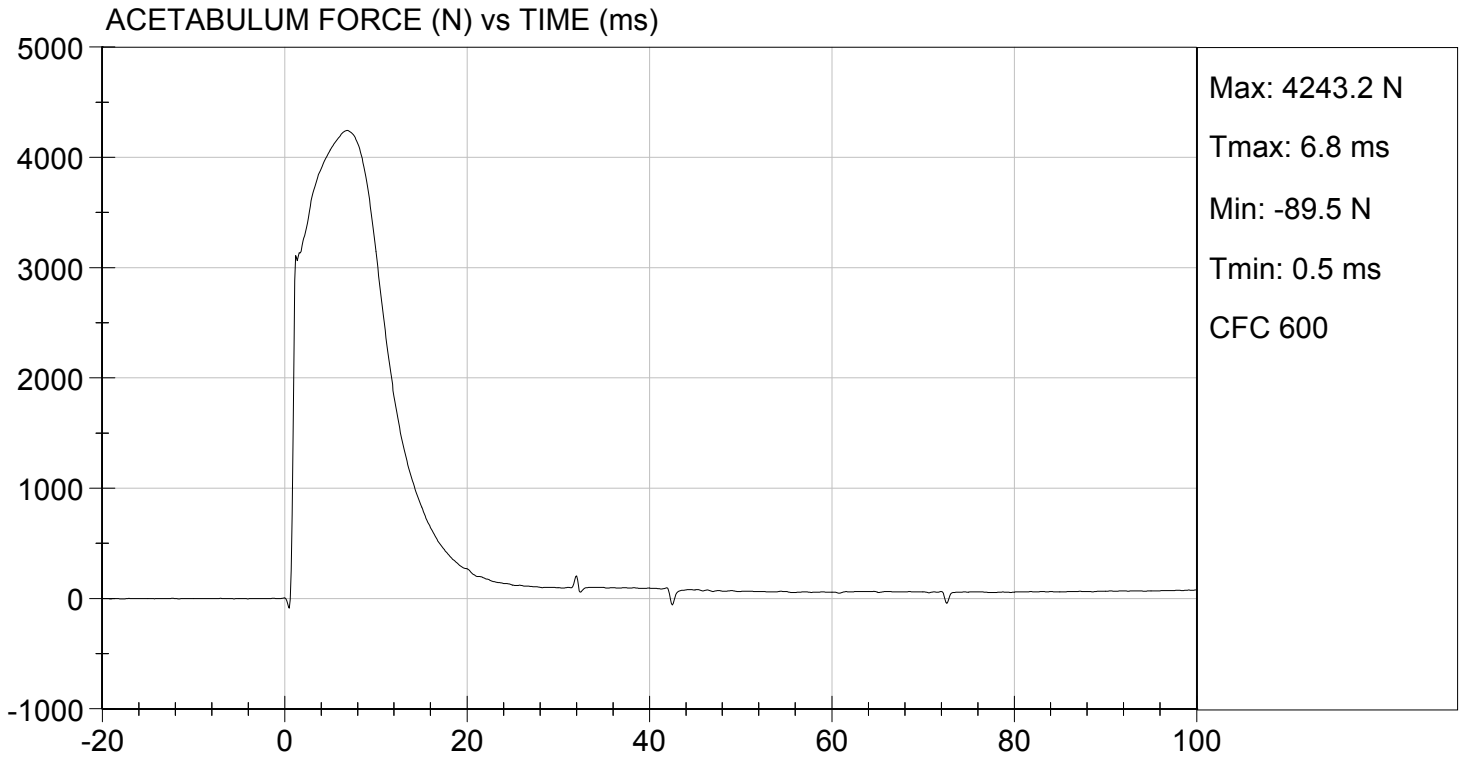


PELVIS Y ACCELERATION (G's) vs TIME (ms)



TEST DESC: PELVIS IMPACT
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 11/12/2014
TEST #: D144007



MGA RESEARCH CORPORATION

ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D144008

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	36 to 45	40	Pass
Pelvis Y Acceleration	G's	28 to 39	31	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,767	Pass
		Overall Test Results		Pass

David Schoedel
Laboratory Technician

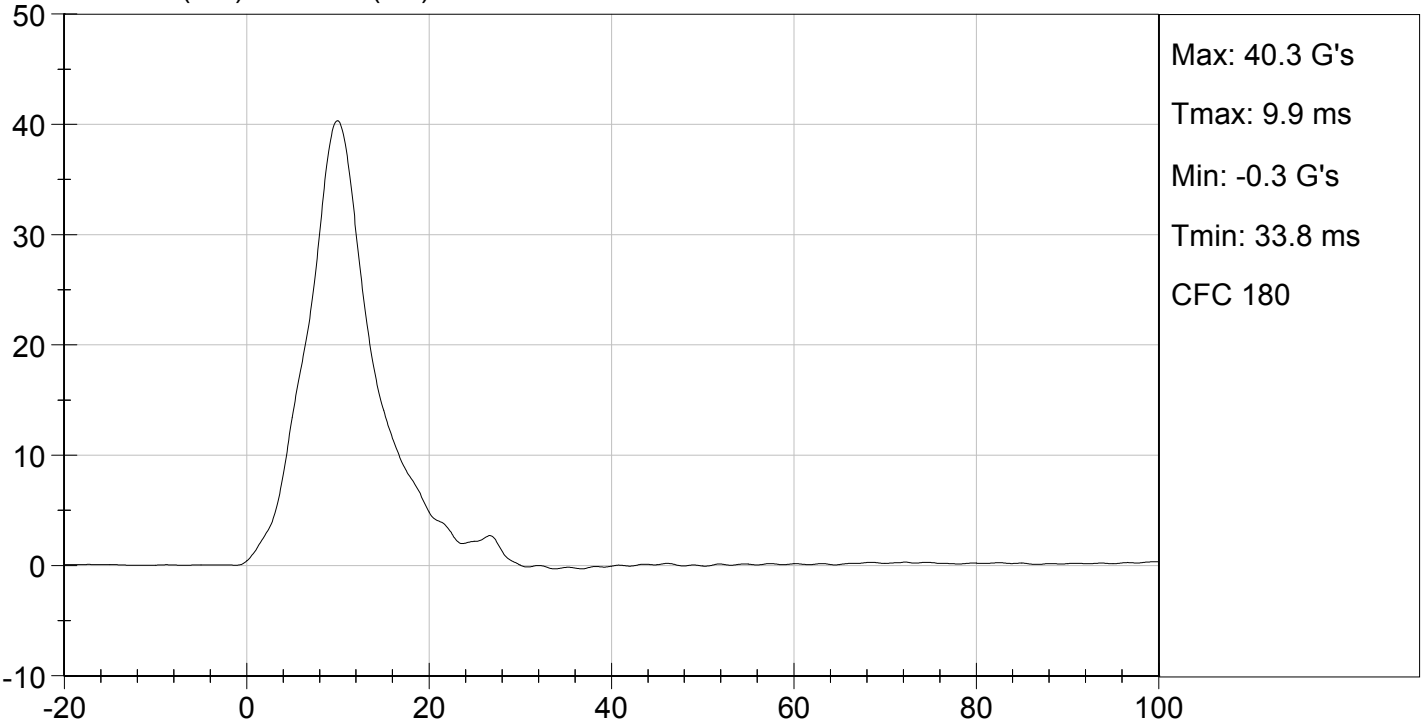
11/12/2014
Test Date

Jessica Gall
Approved By

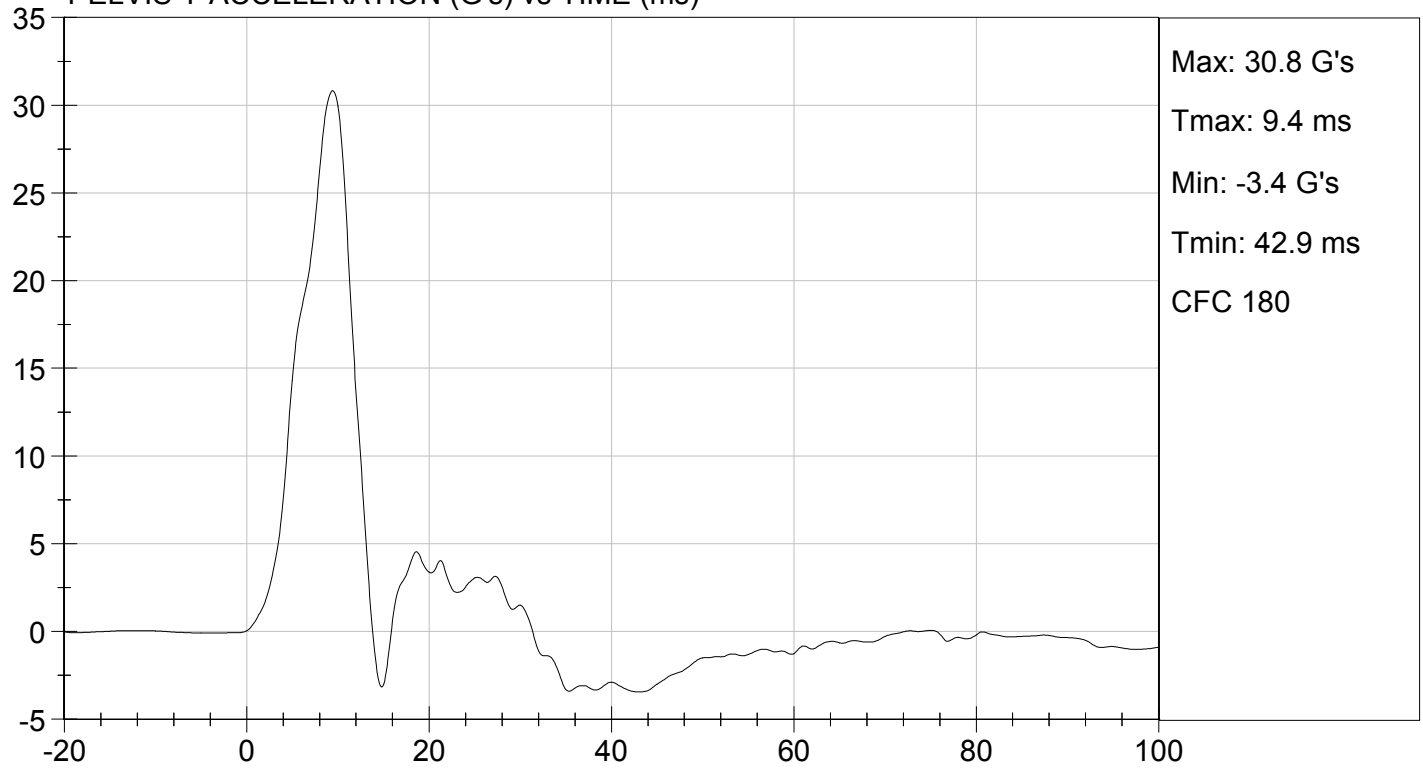
TEST DESC: ILLIAC
VELOCITY: 14.24 ft/s, 4.34 m/s

TEST DATE: 11/12/2014
TEST #: D144008

PROBE (G's) vs TIME (ms)

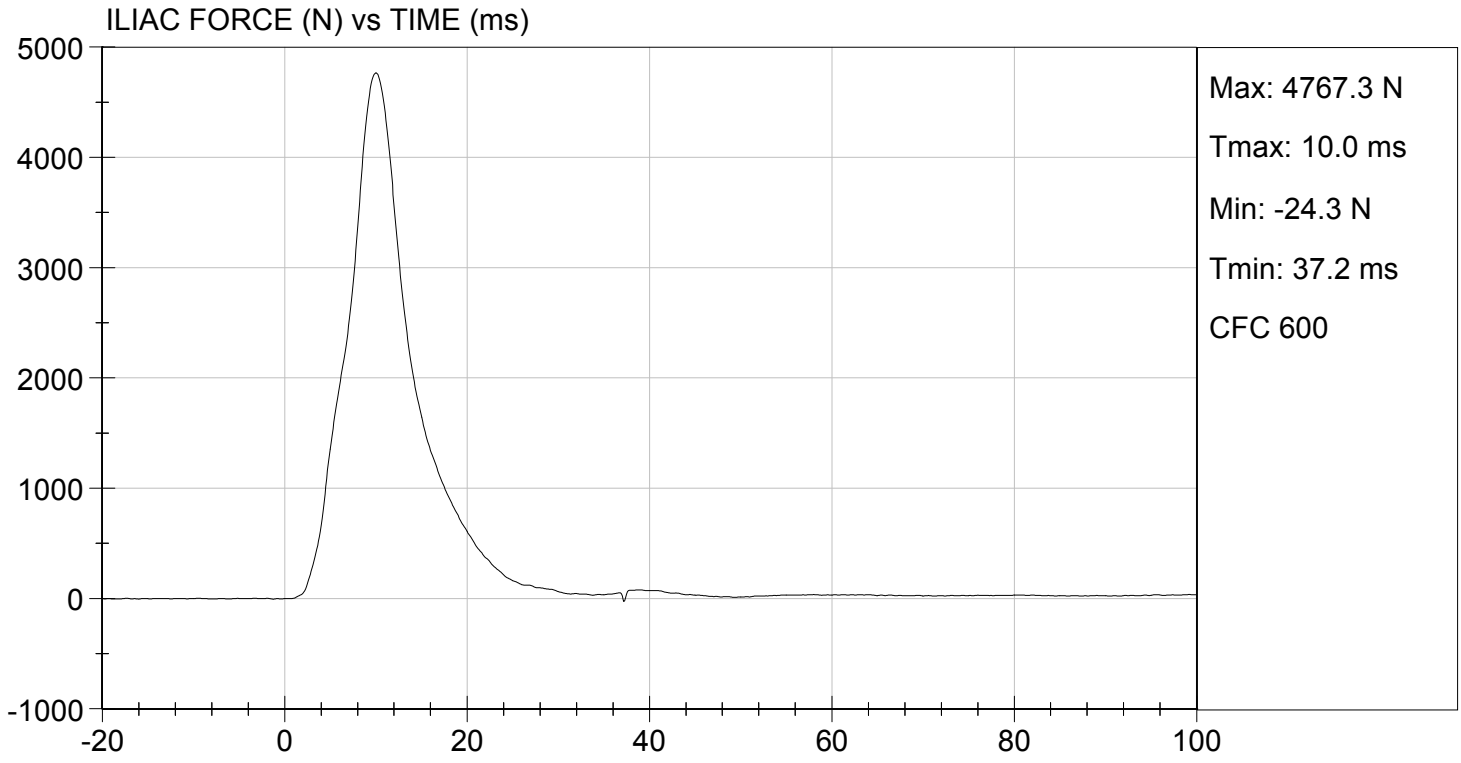


PELVIS Y ACCELERATION (G's) vs TIME (ms)

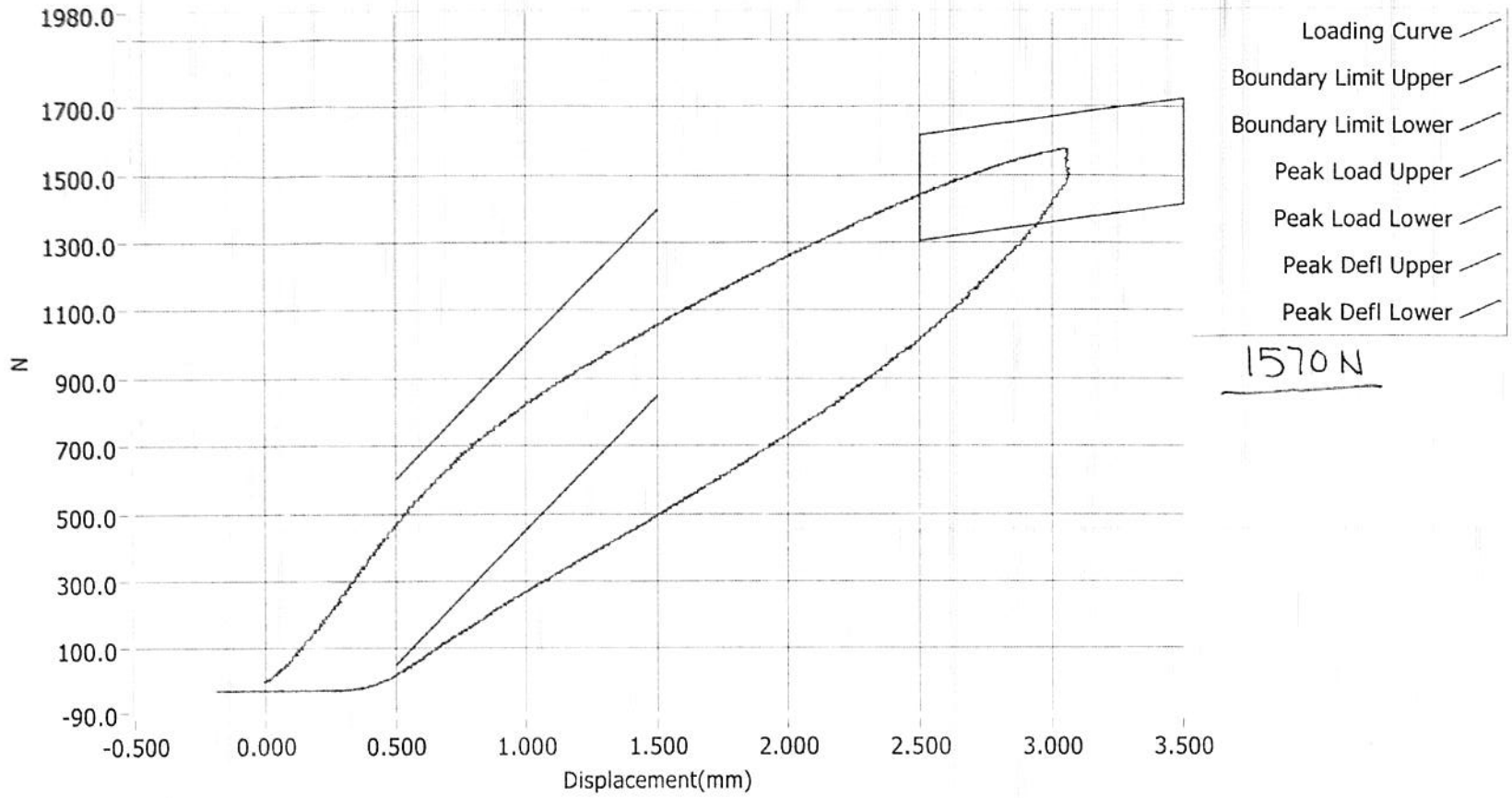


TEST DESC: ILLIAC
VELOCITY: 14.24 ft/s, 4.34 m/s

TEST DATE: 11/12/2014
TEST #: D144008



Resultant Data - SIDIIs Plug Compression

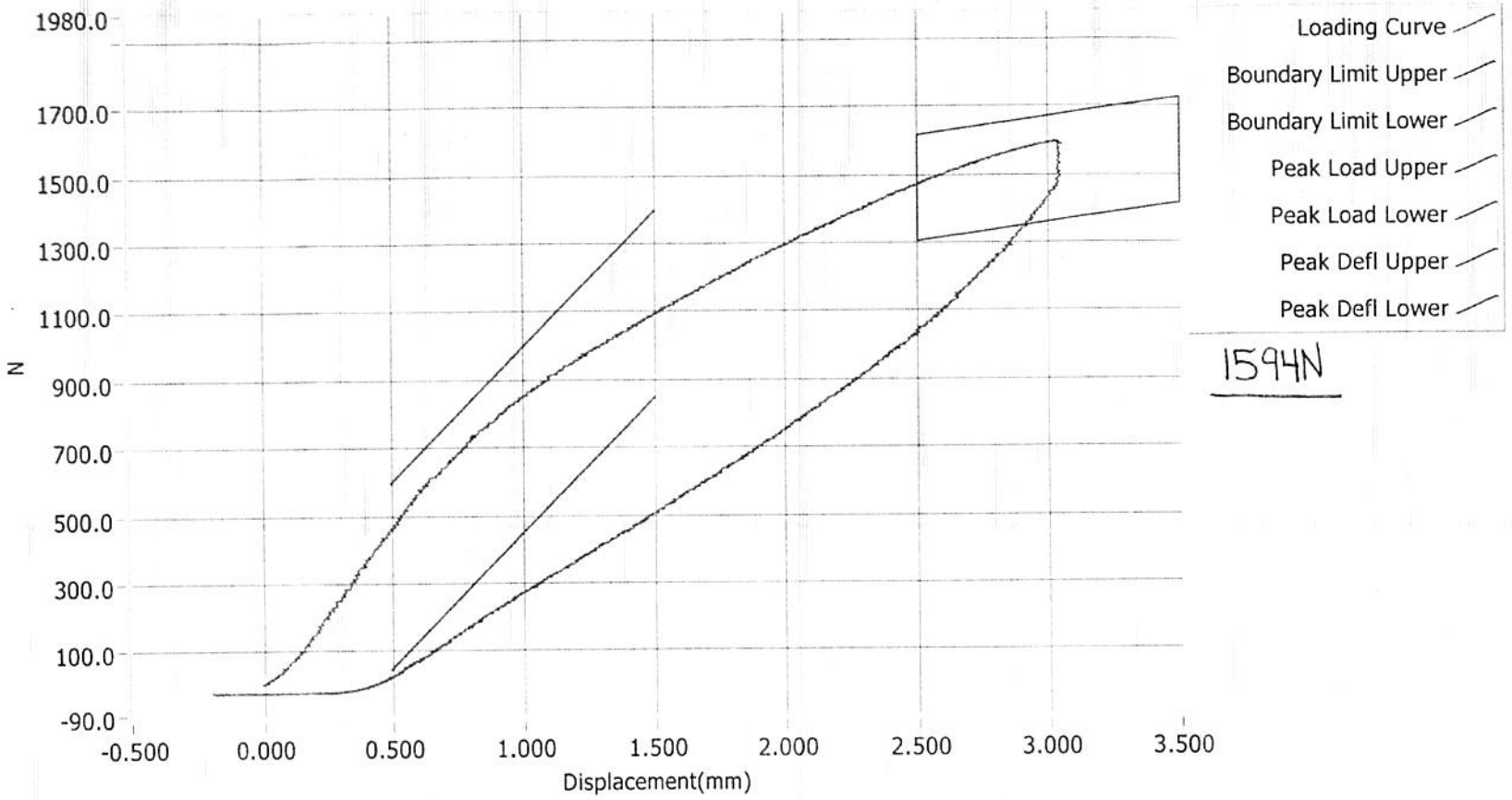


ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	70601	12/12/2013	7:48 PM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 12/12/2013 Current Time : 19:48:51

Resultant Data - SIDIIs Plug Compression



1594N

ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	70662	12/12/2013	9:03 PM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 12/12/2013 Current Time : 21:04:00

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N 032		
			Serial Number	Manufacturer	Calibration Date
Head CG Accelerometers		X	P79575	Endevco	08/11/14
		Y	P79577	Endevco	08/11/14
		Z	P79578	Endevco	08/11/14
		Xr	P79799	Endevco	08/11/14
		Yr	P79802	Endevco	08/11/14
		Zr	P79803	Endevco	08/11/14
Thorax Rib Displacement Potentiometers	Upper	Y	G176	Honeywell	08/11/14
	Middle	Y	G169	Honeywell	08/11/14
	Lower	Y	G164	Honeywell	08/11/14
Abdomen Load Cells	Forward	Y	ABG1532	Denton	01/09/14
	Middle	Y	ABG1534	Denton	01/09/14
	Rear	Y	ABG1535	Denton	01/09/14
Lower Spine Accelerometers (T12)		X	P78853	Endevco	08/08/14
		Y	P78861	Endevco	08/08/14
		Z	P78863	Endevco	08/08/14
Public Symphysis Load Cell		Y	PG461	Denton	01/09/14

Table 2 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 296		
				Serial Number	Manufacturer	Calibration Date
Head CG Accelerometers			X	P84436	Endevco	08/11/14
			Y	P84439	Endevco	08/11/14
			Z	P84440	Endevco	08/11/14
			Xr	P84450	Endevco	08/11/14
			Yr	P84456	Endevco	08/11/14
			Zr	P84457	Endevco	08/11/14
Displacement Potentiometers	Thoracic Rib	Upper	Y	G012	Servo	08/12/14
		Middle	Y	G1163	FTSS	08/12/14
		Lower	Y	G1158	FTSS	08/12/14
	Abdominal Rib	Upper	Y	G1146	FTSS	08/12/14
		Lower	Y	G1126	FTSS	08/12/14
Lower Spine Accelerometers (T12)			X	P84437	Endevco	08/11/14
			Y	P84442	Endevco	08/11/14
			Z	P84443	Endevco	08/11/14
Acetabulum Load Cell			Y	ACG268	Denton	01/09/14
Iliac Wing Load Cell			Y	IWG282	Denton	01/09/14
Pelvis Plug (struck side)				70601	FTSS	12/12/13
Pelvis Plug (non-struck side)				70662	FTSS	12/12/13

Table 3 – Vehicle Instrumentation

			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	P85136	Endevco	09/18/14
	Vehicle Center of Gravity	Y	P85135	Endevco	09/18/14
	Vehicle Center of Gravity	Z	P85134	Endevco	09/18/14
2	Right Sill at Front Seat	X	P74667	Endevco	09/04/14
	Right Sill at Front Seat	Y	P74668	Endevco	09/04/14
	Right Sill at Front Seat	Z	P74666	Endevco	09/04/14
3	Right Sill at Rear Seat	X	P73123	Endevco	09/18/14
	Right Sill at Rear Seat	Y	P73122	Endevco	09/18/14
	Right Sill at Rear Seat	Z	P73124	Endevco	09/18/14
4	Left Sill at Front Door	Y	P66581	Endevco	06/06/14
5	Left Sill at Rear Door	Y	P77620	Endevco	08/21/14
6	Left A-Post Lower	Y	P74589	Endevco	08/05/14
7	Left A-Post Middle	Y	P78759	Endevco	10/31/14
8	Left B-Post Lower	Y	P72794	Endevco	09/23/14
9	Left B-Post Middle	Y	P72774	Endevco	05/30/14
10	Front Seat Track	Y	P74562	Endevco	07/16/14
11	Rear Seat Track or Structure	Y	P78792	Endevco	06/04/14
12	Right Rear Occ. Compartment	Y	P78690	Endevco	10/08/14
13	Engine Block	X	P74552	Endevco	08/05/14
	Engine Block	Y	P74551	Endevco	08/05/14
14	Rear Floorpan Above Axle	X	P75048	Endevco	07/16/14
	Rear Floorpan Above Axle	Y	P75047	Endevco	07/16/14
	Rear Floorpan Above Axle	Z	P75046	Endevco	07/16/14

Table 4 – MDB Instrumentation

		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	P85036	Endevco	08/08/14
MDB Center of Gravity	Y	P85038	Endevco	08/08/14
MDB Center of Gravity	Z	P85037	Endevco	08/08/14
Left Frame at Rear Axle Centerline	X	P67517	Endevco	08/18/14
Left Frame at Rear Axle Centerline	Y	P67518	Endevco	08/18/14