REPORT NUMBER: SINCAP-MGA-2015-001

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

HYUNDAI MOTOR COMPANY
2015 Hyundai Genesis 4-Dr Sedan
NHTSA No.: O20154202

MGA RESEARCH CORPORATION
5000 Warren Road
Burlington, WI 53105

Test Date: June 4, 2014

Final Report Date: July 17, 2014

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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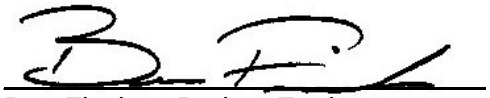
Prepared by: 
Donna Janovicz, Project Manager

Approved by: 
Ben Fischer, Project Engineer

Approval Date: July 17, 2014

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

Technical Report Documentation Page

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9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105		*10. Work Unit No.* *11. Contract or Grant No.* DTNH22-09-D-00124
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards (NVS-111) 1200 New Jersey Ave, SE, Room W43-410 Washington, D.C. 20590		*13. Type of Report and Period Covered:* Final Test Report June 4, 2014 to July 17, 2014 *14. Sponsoring Agency Code* NVS-111

15. Supplementary Notes

16. Abstract

A 55/28 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the 2015 Hyundai Genesis 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 June 4, 2014.

The impact velocity of the Moving Deformable Barrier (MDB) was 62.0 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 20.8° C. The target vehicle post-test maximum crush was 191 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	81
Maximum Thorax Rib Deflection	mm	44	34
Total Abdominal Force	N	2500	867
Pubic Symphysis Force	N	6000	878

		Passenger ATD (SID-IIs)	
Measurement Description	**Units**	**Threshold**	**Result**
Head Injury Criteria (HIC_{36})	N/A	1000	88
Resultant Lower Spine Acceleration	Gs	82	31
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1753
Maximum Thoracic Rib Deflection	mm	38*	18
Maximum Abdomen Rib Deflection	mm	45*	5

*Proposed IARV

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 Hyundai Genesis 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 Hyundai Genesis 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 62.0 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 June 4, 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	81
Maximum Thorax Rib Deflection	mm	44	34
Total Abdominal Force	N	2500	867
Pubic Symphysis Force	N	6000	878

	Passenger ATD (SID-IIs)		
Measurement Description	**Units**	**Threshold**	**Result**
Head Injury Criteria (HIC_{36})	N/A	1000	88
Resultant Lower Spine Acceleration	Gs	82	31
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1753
Maximum Thoracic Rib Deflection	mm	38*	18
Maximum Abdomen Rib Deflection	mm	45*	5

*Proposed IARV

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		
Side Torso Airbag			Yes	Yes
Seat Belt Pretensioner	Yes	Yes	No	
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 Rear Sill Y has questionable data from 21-62ms
Left Lower A-Post Y has no valid data after 11ms
Left Lower B-Post Y has questionable data after 7ms
Left Mid B-Post Y has no valid data after 6ms

SECTION 3
OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	O20154202
Model Year	2015
Make	Hyundai
Model	Genesis
Body Style	Sedan
VIN	KMHGN4JE0FU017976
Body Color	Empire State Gray
Odometer Reading (km/mi)	219 / 136
Engine Displacement (L)	3.8
Type/No. Cylinders	6
Engine Placement	Longitudinal
Transmission Type	Automatic
Transmission Speeds	8
Overdrive	Yes
Final Drive	Rear
Roof Rack	No
Sunroof/T-Top	Yes
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	Yes
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	Yes
Rear Pass. Torso/Pelvis Airbag	No
Rear Pass. Pelvis Airbag	No
Driver Seat Belt Pretensioner	Yes
Rear Pass. Seat Belt Pretensioner	No
Driver Load Limiter	Yes
Rear Pass. Load Limiter	No
Other Restraint Feature	N/A

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Hyundai Motor Company
Date of Manufacture	MAR/26/14
Vehicle Type	Passenger Car

GVWR (kg)	2440
GAWR Front (kg)	1230
GAWR Rear (kg)	1325

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	
Capacity Weight (VCW) (kg)				410	(A)
DSC x 68.04 kg				340	(B)
Rated Cargo and Luggage Weight (RCLW)				70	(A-B)

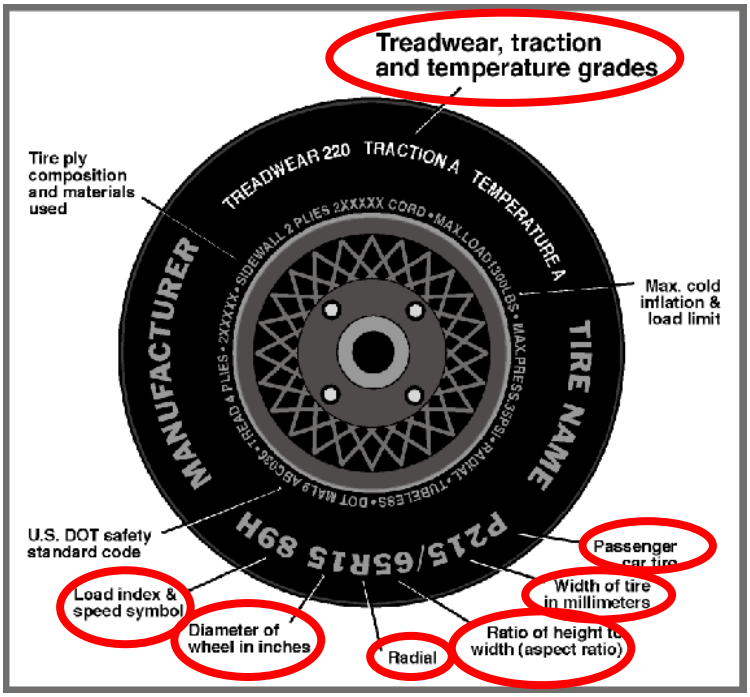
VEHICLE SEAT TYPE

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 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	230	230
Recommended Tire Size	245/45R18	245/45R18
Tire Size on Vehicle	245/45R18	245/45R18
Tire Manufacturer	Hankook	Hankook
Tire Model	Ventus Noble	Ventus Noble
Treadwear	500	500
Traction	AA	AA
Temperature Grade	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Steel, 2 Polyester 1 Nylon	2 Steel, 2 Polyester 1 Nylon
Load Index/Speed Symbol	96W	96W
Tire Material	Rubber	Rubber
DOT Safety Code Left	T7EF 1AH 1214	T7EF 1AH 1214
DOT Safety Code Right	T7EF 1AH 1214	T7EF 1AH 1214

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

Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	262	276	282	276
Tire Placard	kPa	230	230	230	230
Owner's Manual	kPa				
As Tested	kPa	230	230	230	230

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	484.0	500.0		525.5	580.5		523.5	599.5	
Right	kg	516.5	469.5		516.5	539.5		515.5	530.5	
Ratio	%	50.8	49.2		48.2	51.8		47.9	52.1	
Totals	kg	1000.5	969.5	1970.0	1042.0	1120.0	2162.0	1039.0	1130.0	2169.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1970.0	(A)
Sum of Actual Weight of 2 P572 ATDs Used	kg	129.3	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	70	(C)
Calculated Test Vehicle Target Weight (TVTW)	kg	2169.3	(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	705	700	Yes
Right Front	mm	708	708	Yes
Right Rear	mm	696	691	Yes
Left Rear	mm	679	688	Yes
Vehicle CG (Aft of Front Axle)	mm	1568	1559	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	29	19	

*** 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 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Weight (kg)
Weight of Ballast, if any	52.6
None	0.0

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

Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014

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	22.4	15.0	18.7
Front Passenger Seat	20.1	12.8	16.5
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	18.7	0	Max	58	58	58
	18.7	0	Mid	29	29	29
	18.7	0	Min	0	0	0
Front Passenger Seat	16.5	0	Max	58	58	58
	16.5	0	Mid	29	29	29
	16.5	0	Min	0	0	0
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
	Fixed	Fixed	Mid	Fixed	Fixed	Fixed
	Fixed	Fixed	Min	Fixed	Fixed	Fixed

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

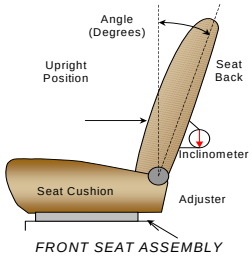
Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014

SEAT FORE/AFT POSITIONS

Seat	Total Fore/Aft Travel		Test Position from Forward-most Position	
	mm	Detents	mm	Detent
Driver Seat	236		118	
Front Passenger Seat	238		119	
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	61.3		2.3	
Front Passenger Seat	61.0		2.3	
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	3.9	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	3.9	Fixed
Rear Center Seat	Fixed	Fixed	3.9	Fixed

Seat back angles measured on headrest post.

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

Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014

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)	0 (uppermost as 0)
Rear Seat	Fixed	Not Applicable

HEAD RESTRAINT ADJUSTMENT

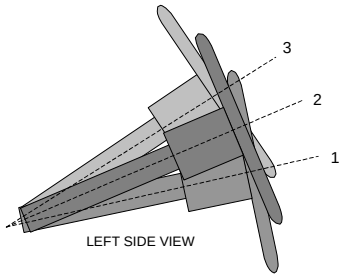
The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	6	Highest
Rear Seat	4	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	286
Geometric Center, Position 2	68.3	262
Uppermost, Position 3	66.2	238
Telescoping Steering Wheel Travel		48
Test Position	68.3	262

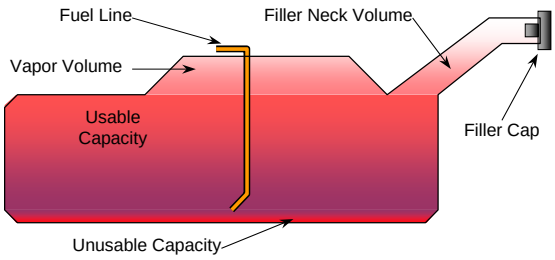


STEERING COLUMN ASSEMBLY

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. The fuel pump will pump fuel when the key is in the "ON" position. The fuel pipe is on the left side.



VEHICLE FUEL TANK ASSEMBLY

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

Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014

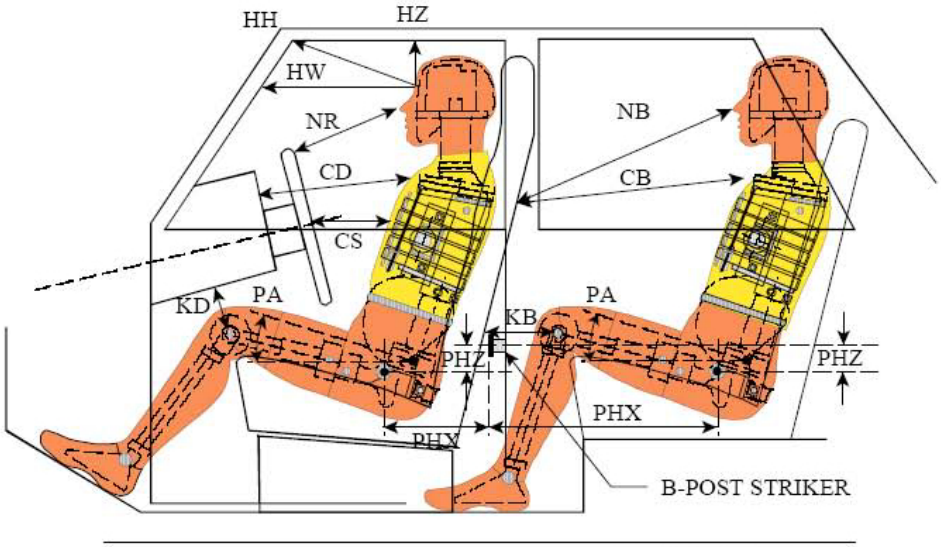
FUEL TANK CAPACITY DATA

	Liters
Usable Capacity of "Standard" Tank (see Form No. 1)	76.8
Usable Capacity of "Optional" Tank (see Form No. 1)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	77.0
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	71.4
Actual Amount of Solvent Used	71.5
1/3 of Usable Capacity	25.6

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 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014



LEFT SIDE VIEW

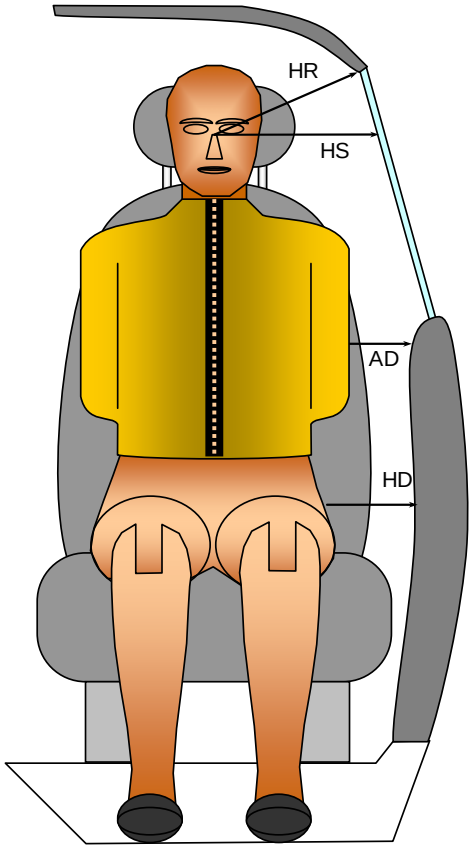
NOTE: 2-DOOR VEHICLE SHOWN. REAR DUMMY PHX & PHZ MEASUREMENTS FOR A 4-DOOR VEHICLE WOULD USE THE C-POST STRIKER AS A REFERENCE POINT

DUMMY LONGITUDINAL CLEARANCE DIMENSION INFORMATION

Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length (mm)	Angle(°)	Length (mm)	Angle(°)
HH		Head to Header	358	17.7		
HW		Head to Windshield	616			
HZ	HZ	Head to Roof Liner	143		254	
NR	NB	Nose to Rim/Seat Back	447	14.0	584	7.7
CD	CB	Chest to Dashboard/Seat Back	569	9.0	575	4.0
CS		Chest to Steering Wheel	376	6.9		
KDL	KBL	Left Knee to Dash/Seat Back	213	28.5	264	12.3
KDR	KBR	Right Knee to Dash/Seat Back	198	21.6	265	11.6
PAX	PAX	Pelvic Tilt Angle X		20.8		28.2
	PAY	Pelvic Tilt Angle Y		0.0		-1.0
PHX	PHX	Hip Point to Striker (X-Axis)	171		258	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	284		243	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014



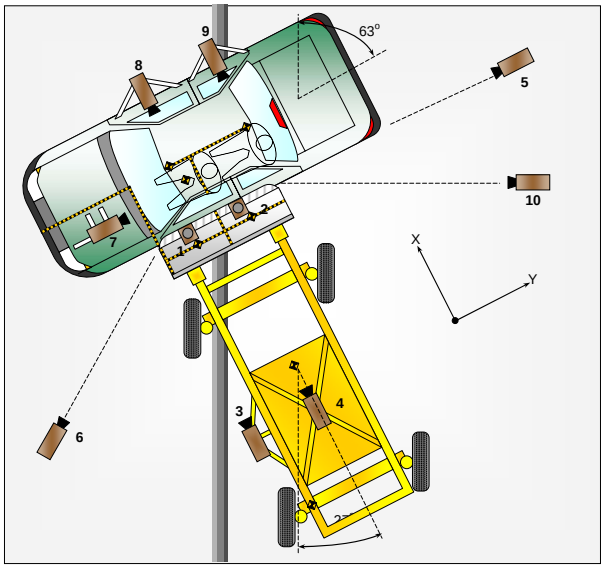
FRONT VIEW OF DUMMY

DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	177	236
HS	Head to Side Window	mm	335	373
AD	Arm to Door	mm	109	104
HD	Hip Point to Door	mm	157	178

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014



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	-4160	-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

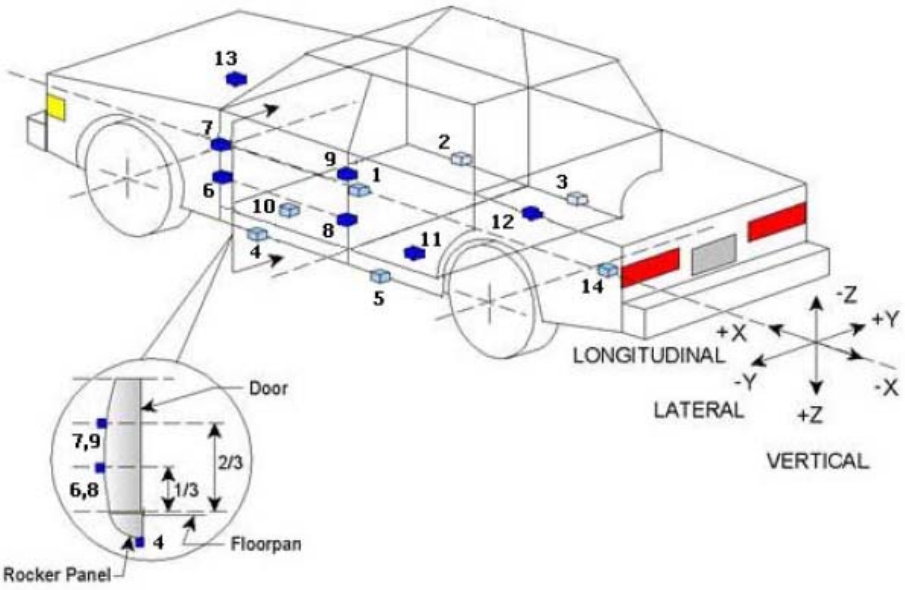
Reference: Impact Point projected to Ground; +X = To Front of MDB, + Y = To Right of MDB, +Z = Down
* All measurements accurate to ± 6 mm
Explain why camera(s) did not operate as intended: None

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 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014



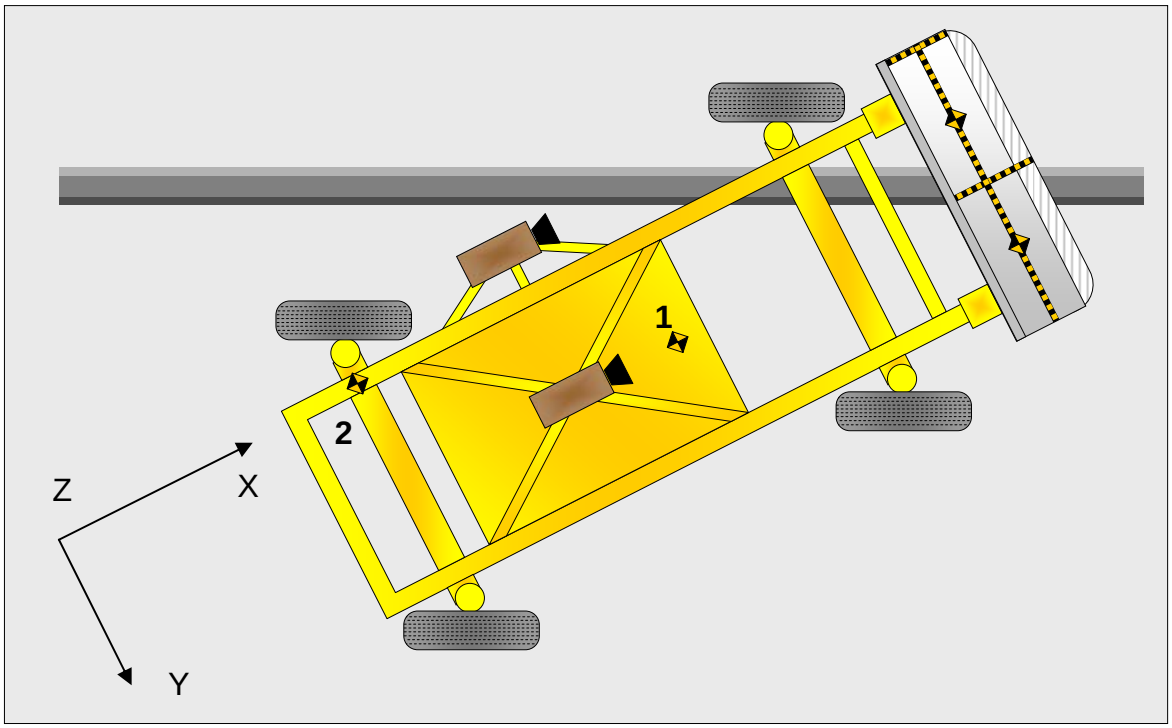
TEST VEHICLE ACCELEROMETER LOCATIONS

Accelerometer Location				
No.	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2504	167	-165
2	Right Sill at Front Seat	2471	748	-185
3	Right Sill at Rear Seat	1565	748	-190
4	Left Sill at Front Door	2801	-748	-180
5	Left Sill at Rear Door	1936	-748	-185
6	Left Lower A-Post	3421	-841	-522
7	Left Middle A-Post	3427	-836	-782
8	Left Lower B-Post	2265	-757	-495
9	Left Middle B-Post	2242	-744	-758
10	Front Seat Track	2451	-380	-270
11	Rear Seat Structure	1953	-370	-340
12	Rt. Rear Occ. Compartment	2028	415	-232
13	Engine Block	3980	24	-843
14	Rear Above Axle	977	0	-563

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 Hyundai Genesis 4-Dr Sedan
Test Program: NCAP Side MDB Impact Test
NHTSA No. O20154202
Test Date: 6/04/2014



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 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014

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	Headliner	Curtain Airbag
Left Side of Head	Curtain Airbag	Curtain Airbag
Back of Head	Curtain Airbag, Headliner, Headrest	None
Left Shoulder	Curtain Airbag, Side Airbag	Seatback
Upper Torso	Side Airbag, Seatback	Seatback
Lower Torso	Side Airbag, Seatback	Seatback
Left Hip	Side Airbag, Seatpan	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	No	No	No
Seat Disengagement from Floor Pan	No	No	No	No
Seat Back Movement from Initial Position	No	No	No	No
Seat Back Collapse	No	No	No	No

POST-TEST STRUCTURAL OBSERVATIONS

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

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

Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014

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		
Side Torso Airbag			Yes	Yes
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes		No	
Other				

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheel Base	mm		3010
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		508
Actual Impact Point (Aft of Front Axle)	mm		513
Horizontal Offset (+forward / -rearward)	mm	+/- 50 of intended impact point	-5
Vertical Offset (+down / -up)	mm	+/- 20 of intended impact point	-7

DATA SHEET NO. 9
MDB SUMMARY OF RESULTS

Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014

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

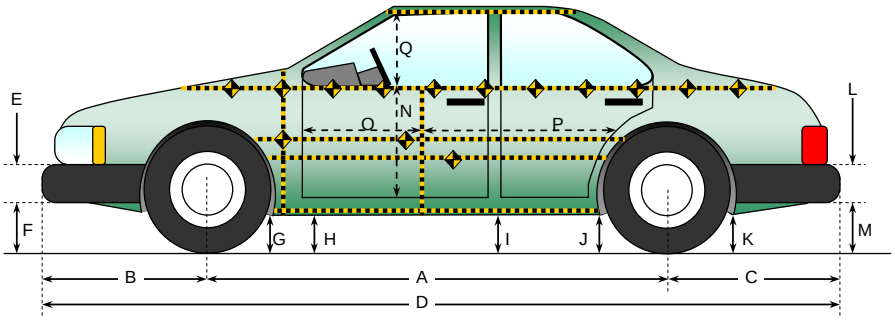
Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.0
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.1
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90.4
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	62.6
MDB Crabbed Angle to MDB 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	272
B	Top of Bumper	533	800	Left	212
C	Mid-Level	686	800	Left	180
D	Top of Stack	813	800	Left	224

DATA SHEET NO. 10
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014



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

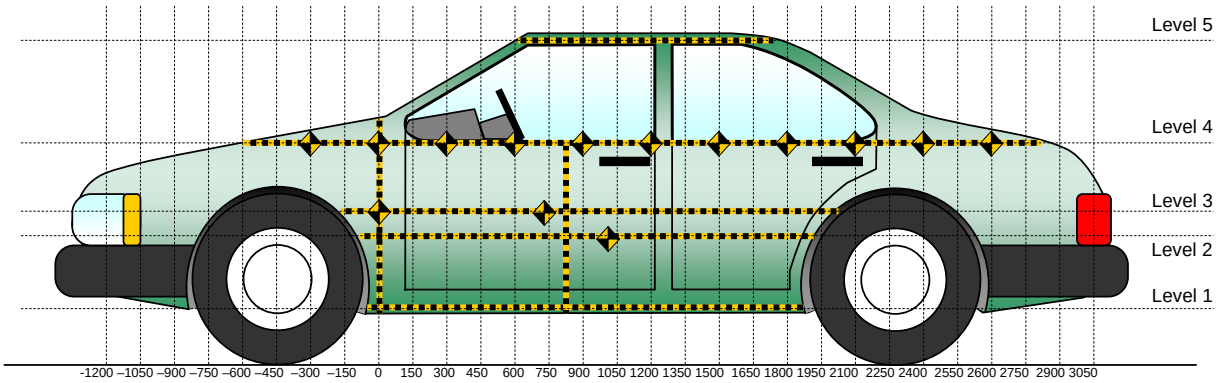
LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	3010	3007	3
B	Front Axle to FSOV	850	840	10
C	Rear Axle to RSOV	1127	1147	-20
D	Total Length at Centerline	4987	4994	-7
E	Front Bumper Thickness	100	100	0
F	Front Bumper Bottom to Ground	217	204	13
G	Sill Height at Front Wheel Well	170	162	8
H	Sill Height at Front Door Leading Edge	168	179	-11
I	Sill Height at B Pillar	164	169	-5
J1	Sill Height at Rear Wheel Well	153	162	-9
J2	Pinch Weld Height at Rear Wheel Well	153	158	-5
K	Sill Height Aft of Rear Wheel Well	202	200	2
L	Rear Bumper Thickness	160	160	0
M	Rear Bumper Bottom to Ground	227	225	2
N	Sill Height to Window Bottom Sill	767	710	57
O	Front Door Leading Edge to Impact CL	685	671	14
P	Rear Door Trailing Edge to Impact CL	1368	1317	51
Q	Front Window Opening	330	325	5
R	Right Side Length	3658	3658	0
S	Left Side Length	3658	3658	0
T	Vehicle Width at B Post	1880	1823	57

DATA SHEET NO. 11
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014



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	223	23	1200
2	Mid Door	499	171	900
3	Occupant Hip Point	630	191	900
4	Window Sill	971	89	1500
5	Window Top	1405	20	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 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014

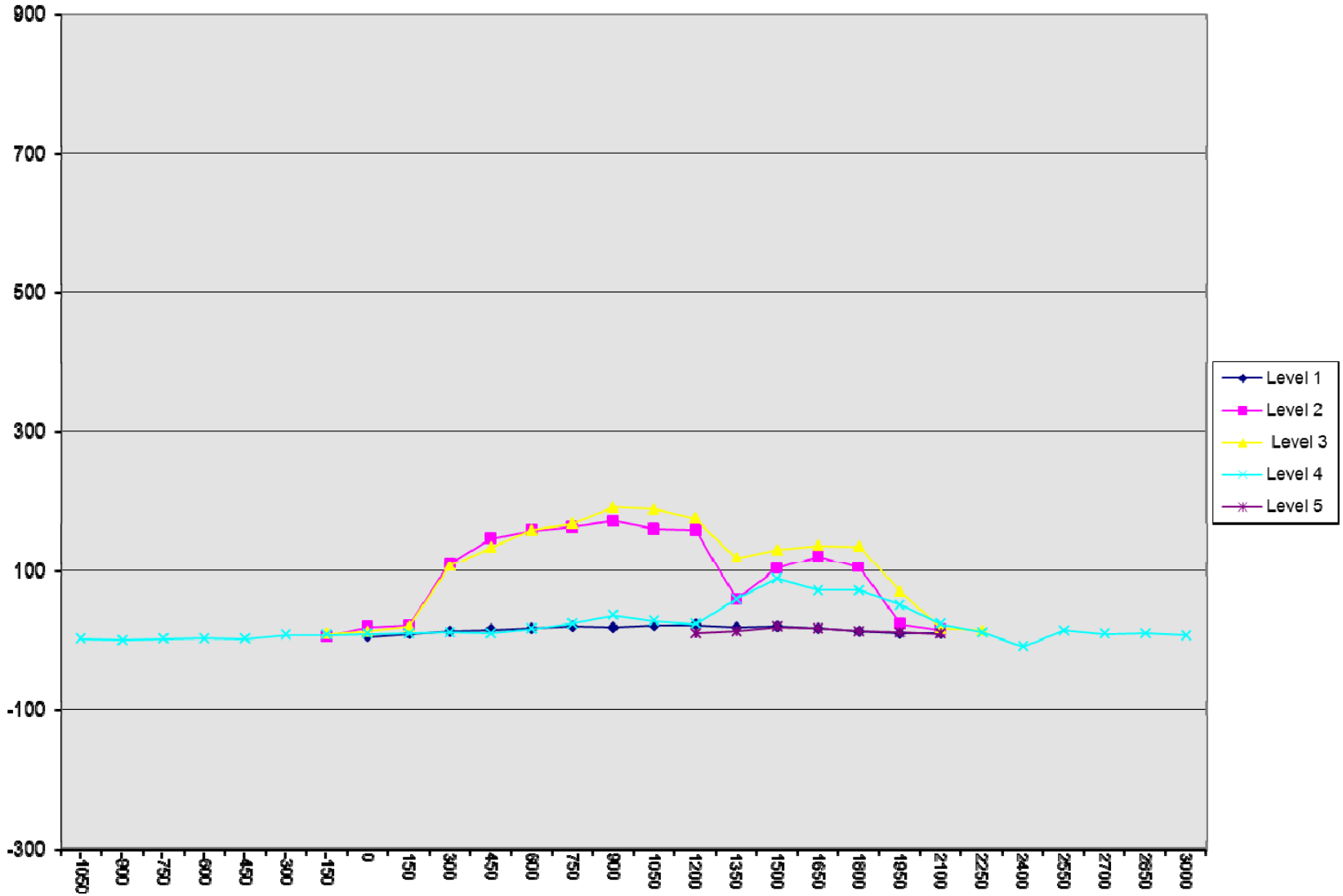
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1050				452					455					3	
-900				415					416					1	
-750				379					382					3	
-600				351					355					4	
-450				330					333					3	
-300				309					318					9	
-150		161	162	295			168	172	304			7	10	9	
0	200	170	165	283		206	190	179	293		6	20	14	10	
150	204	179	167	275		214	201	188	286		10	22	21	11	
300	205	181	167	266		219	292	274	278		14	111	107	12	
450	206	182	165	264		222	329	299	275		16	147	134	11	
600	207	182	164	260		225	340	323	277		18	158	159	17	
750	207	182	163	252		228	345	331	277		21	163	168	25	
900	210	180	162	247		229	351	353	284		19	171	191	37	
1050	209	180	161	245		231	340	349	273		22	160	188	28	
1200	211	179	161	242	495	234	338	336	266	506	23	159	175	24	11
1350	216	180	163	240	491	235	240	282	300	505	19	60	119	60	14
1500	216	180	163	240	489	237	283	294	329	509	21	103	131	89	20
1650	219	180	163	239	492	237	302	300	311	510	18	122	137	72	18
1800	219	177	163	237	496	233	282	299	309	510	14	105	136	72	14
1950	215	170	161	236	500	226	194	231	287	512	11	24	70	51	12
2100	199	162	158	238	508	210	178	176	262	518	11	16	18	24	10
2250			152	240				167	252				15	12	
2400				244					236					-8	
2550				248					263					15	
2700				253					263					10	
2850				260					271					11	
3000				274					282					8	

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

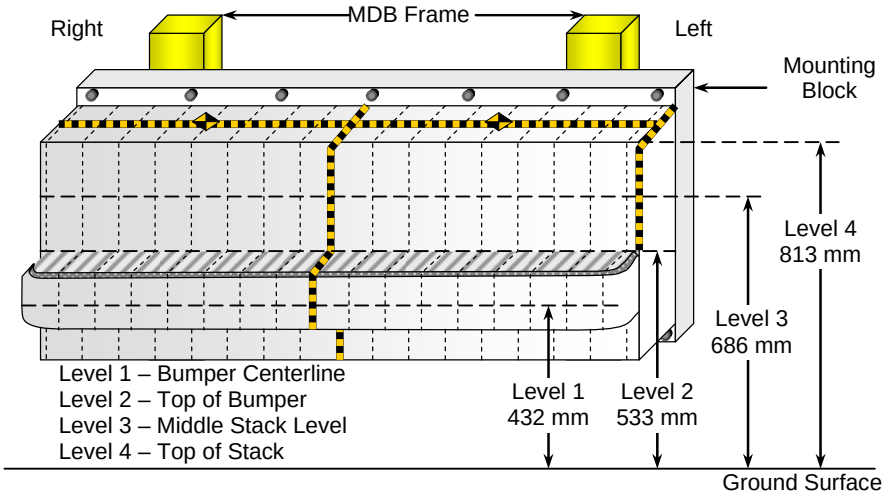
Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan
Test Program: NCAP Side MDB Impact Test

NHTSA No. O20154202
Test Date: 6/04/2014



DATA SHEET NO. 12
MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014



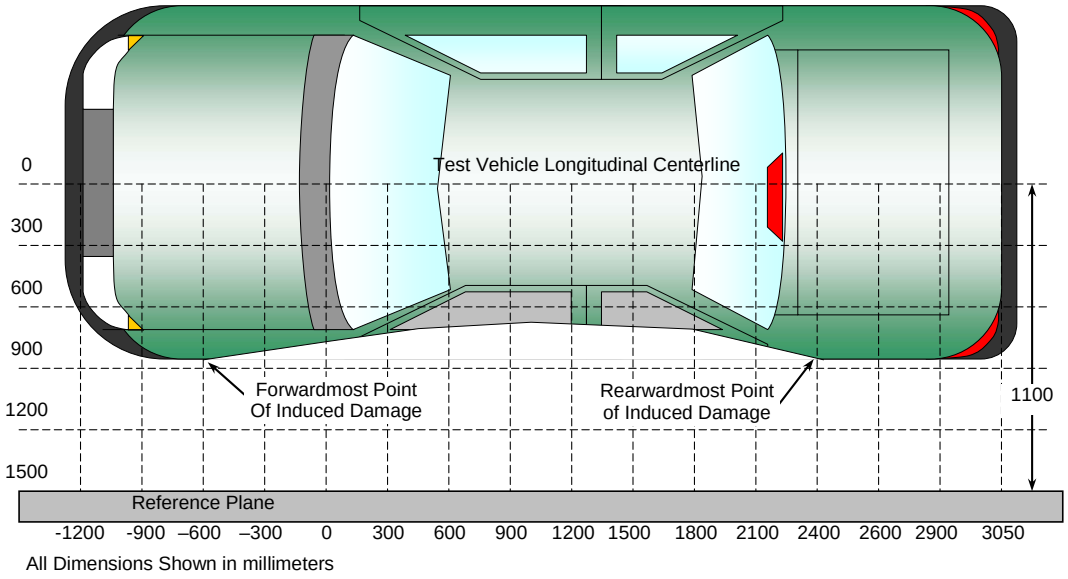
FRONT VIEW

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	69	54	61	82	128	134	98	77	72	89	95	100	100	110	127	173	224
3	48	47	56	72	87	108	69	55	47	43	49	57	69	88	111	145	180
2	101	107	109	121	130	101	97	99	99	102	113	132	145	156	167	185	212
1	149	152	162	176	189	193	196	184	181	177	179	187	195	206	173	269	272

DATA SHEET NO. 13
VEHICLE AND MDB DAMAGE PROFILE DISTANCES

Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014



TOP VIEW

VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Max. Static Crush (mm)
1	2250	3	152	167	15
2	1830	3	162	282	120
3	1410	3	163	297	134
4	990	3	162	351	189
5	570	3	164	316	152
6	150	3	167	188	21

MDB DAMAGE PROFILE DISTANCES

DPD	Distance from Center of MDB	Level	Post-Test (mm)
1	800 mm right of center	1	149
2	480 mm right of center	1	177
3	160 mm right of center	1	189
4	160 mm left of center	1	178
5	480 mm left of center	1	205
6	800 mm left of center	1	272

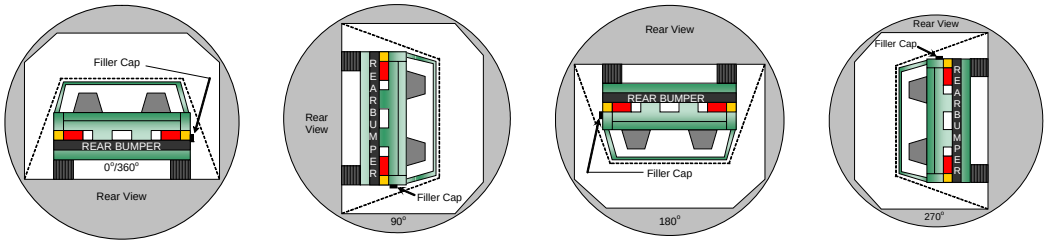
DATA SHEET NO. 14
FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2015 Hyundai Genesis 4-Dr Sedan NHTSA No. O20154202
Test Program: NCAP Side MDB Impact Test Test Date: 6/04/2014

Test Time: 11:56 am Temperature: 20.8° 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°	112	300	412
90° to 180°	110	300	410
180° to 270°	107	300	407
270° to 360°	113	300	413

FMVSS 301 ROLLOVER SPILLAGE TABLE (units in ounces)

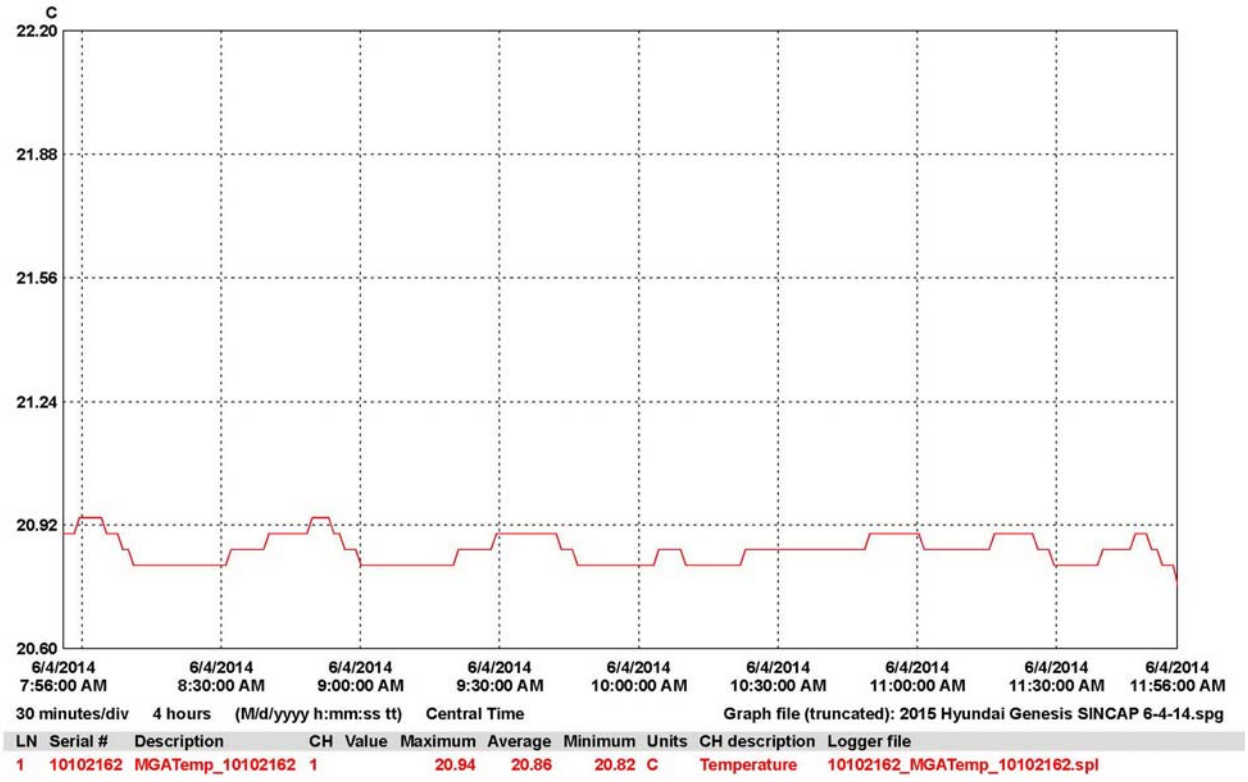
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eight Minute
0° to 90°	0	0	0	0
90° to 180°	0	0	0	0
180° to 270°	0	0	0	0
270° to 360°	0	0	0	0

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 Hyundai Genesis 4-Dr Sedan	NHTSA No.	O20154202
Test Program:	NCAP Side MDB Impact Test	Test Date:	6/04/2014



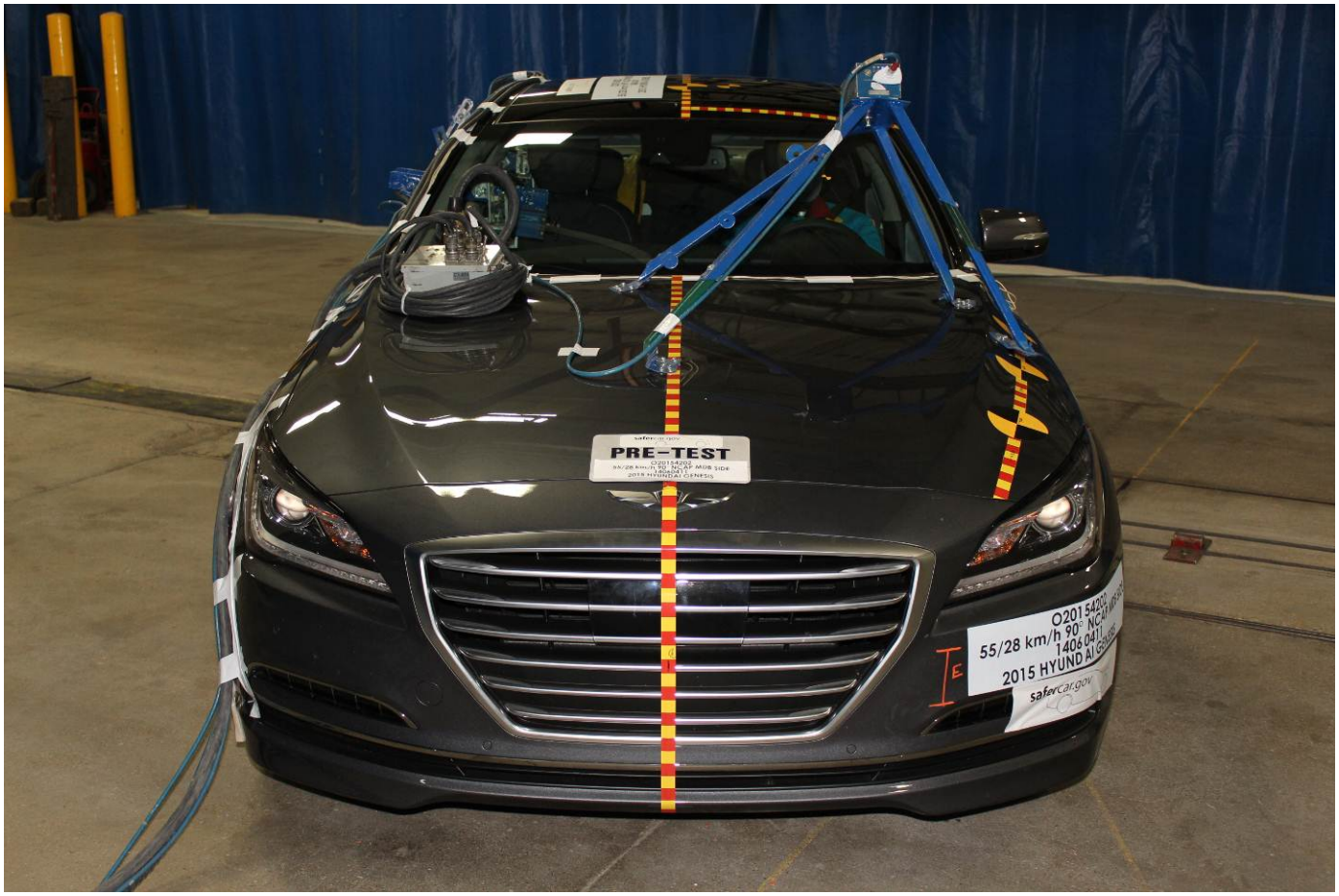
LN	Serial #	Description	CH	Value	Maximum	Average	Minimum	Units	CH description	Logger file
1	10102162	MGATemp_10102162	1		20.94	20.86	20.82	C	Temperature	10102162_MGATemp_10102162.spl

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



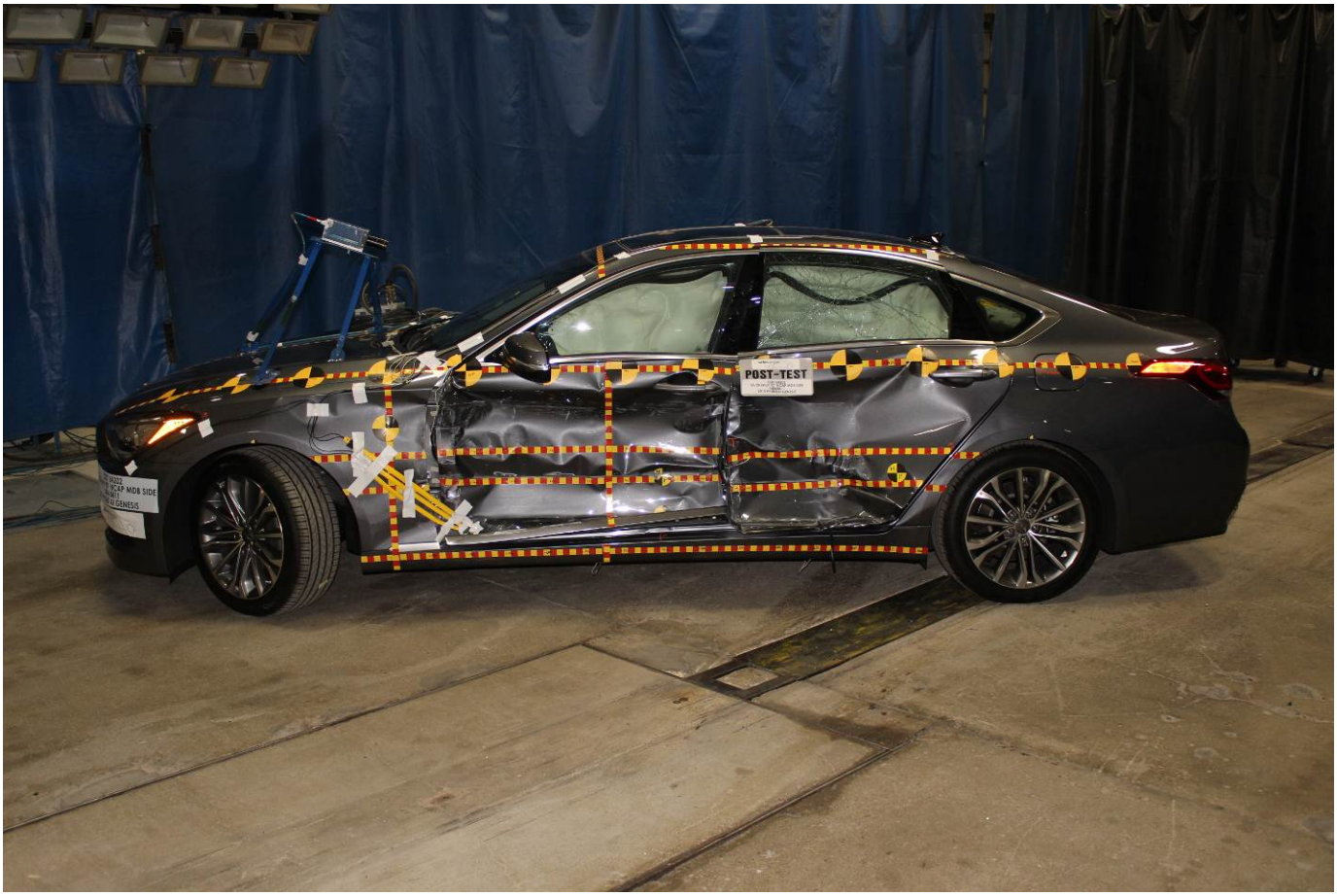
Pre-Test Frontal View of Test Vehicle

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

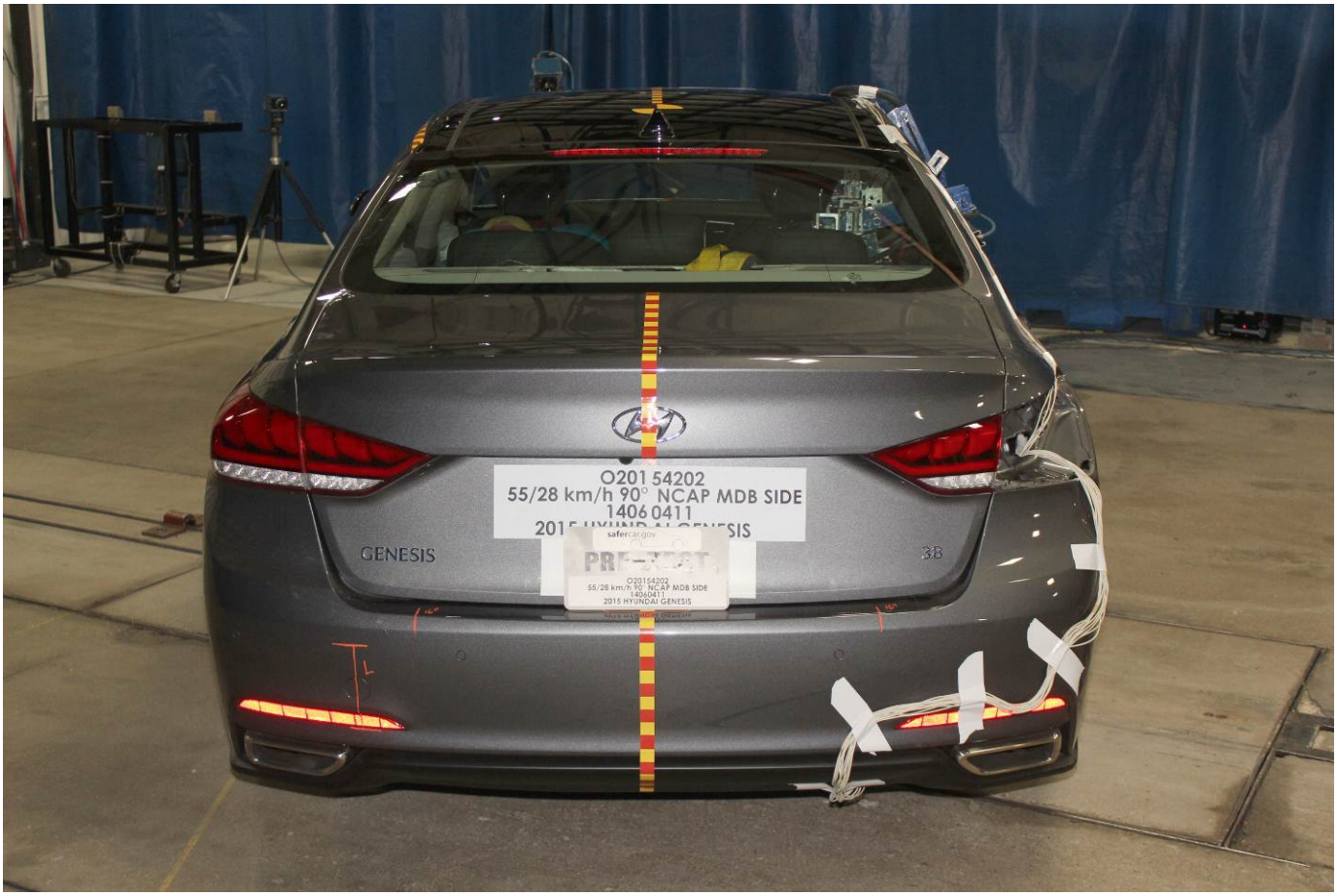
Pre-Test Left Side View of Test Vehicle



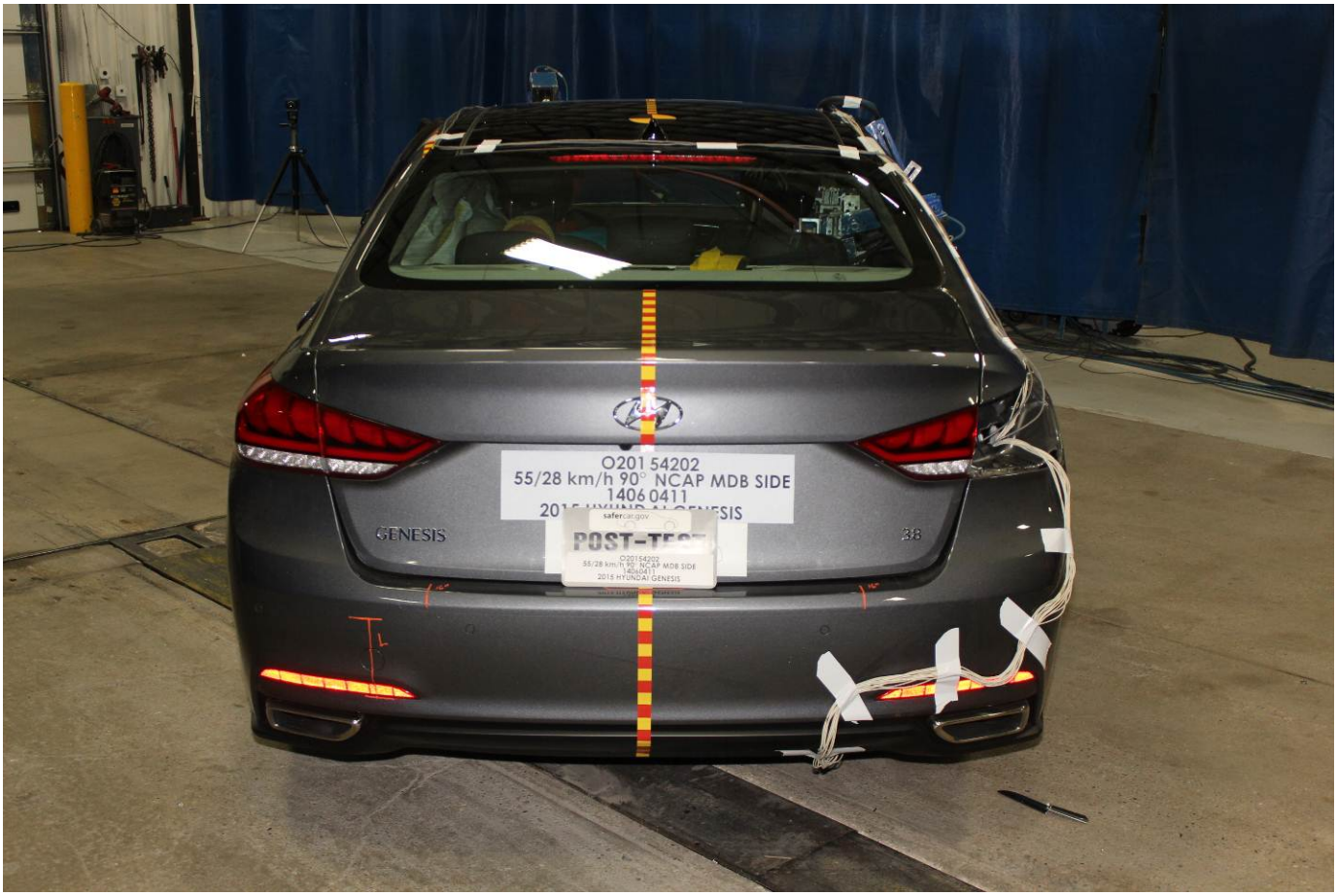
Post-Test Left Side View of Test Vehicle

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

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



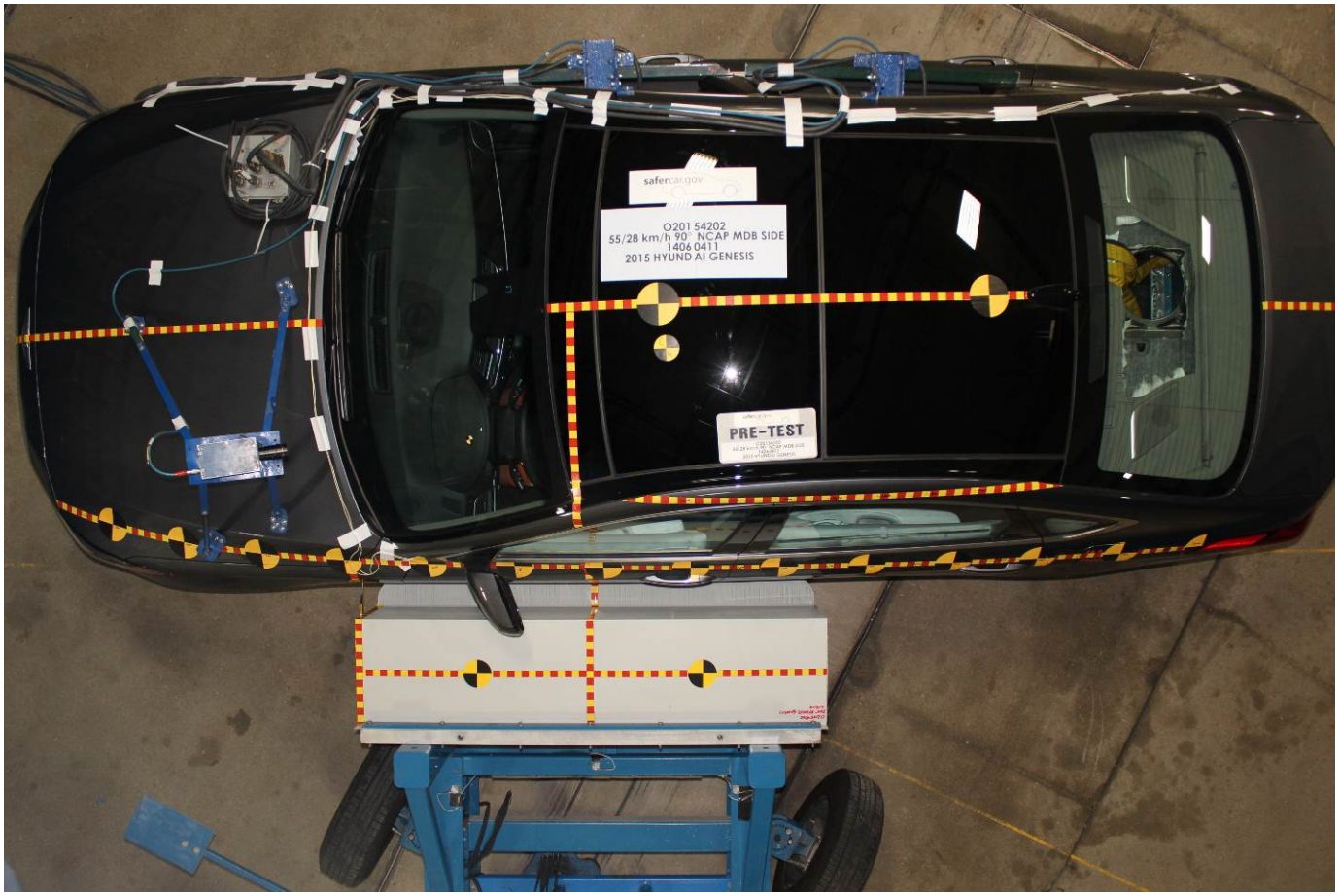
Pre-Test Rear View of Test Vehicle



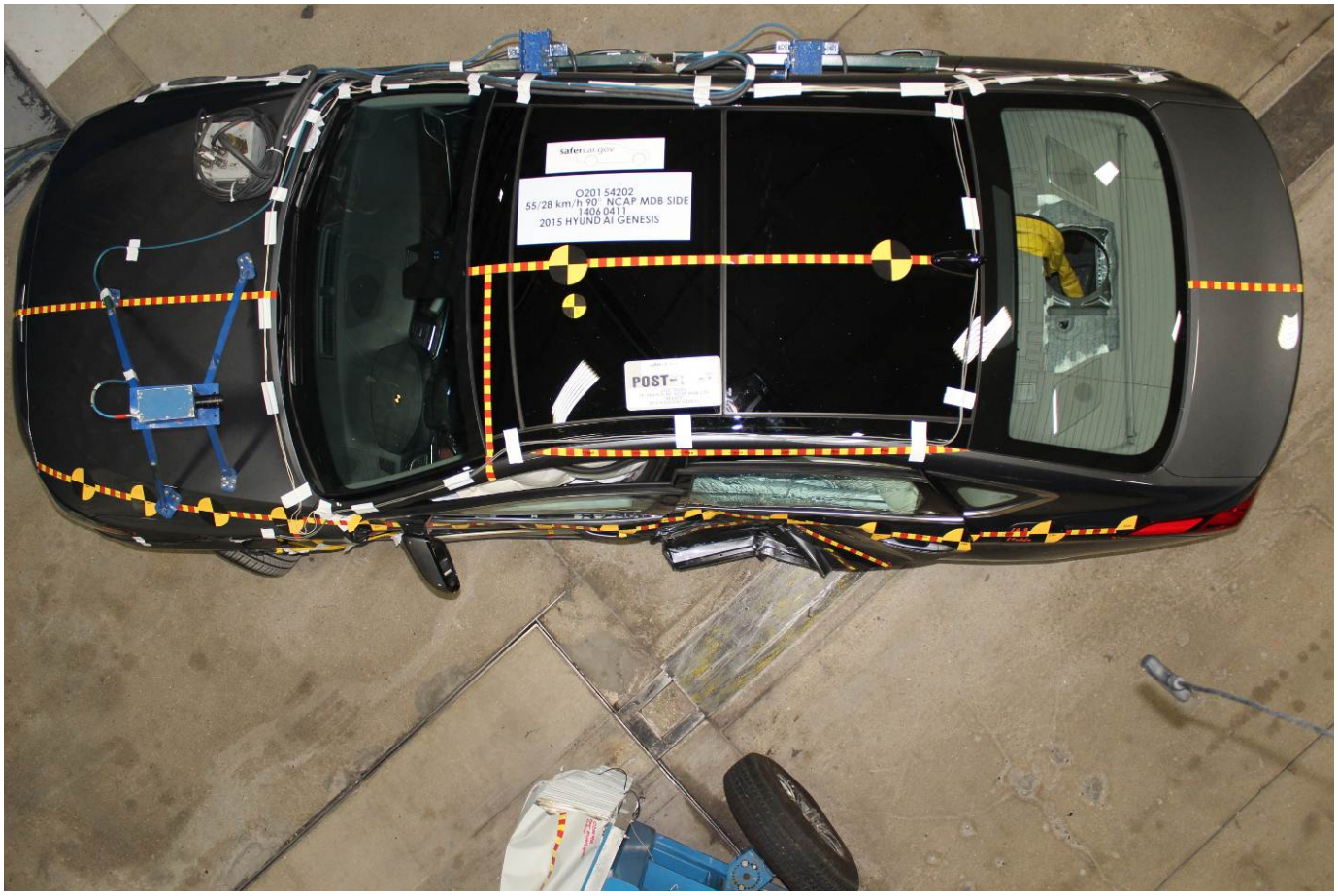
Post-Test Rear View of Test Vehicle

Pre-Test Right Side View of Test Vehicle

Post-Test Right Side View of Test Vehicle



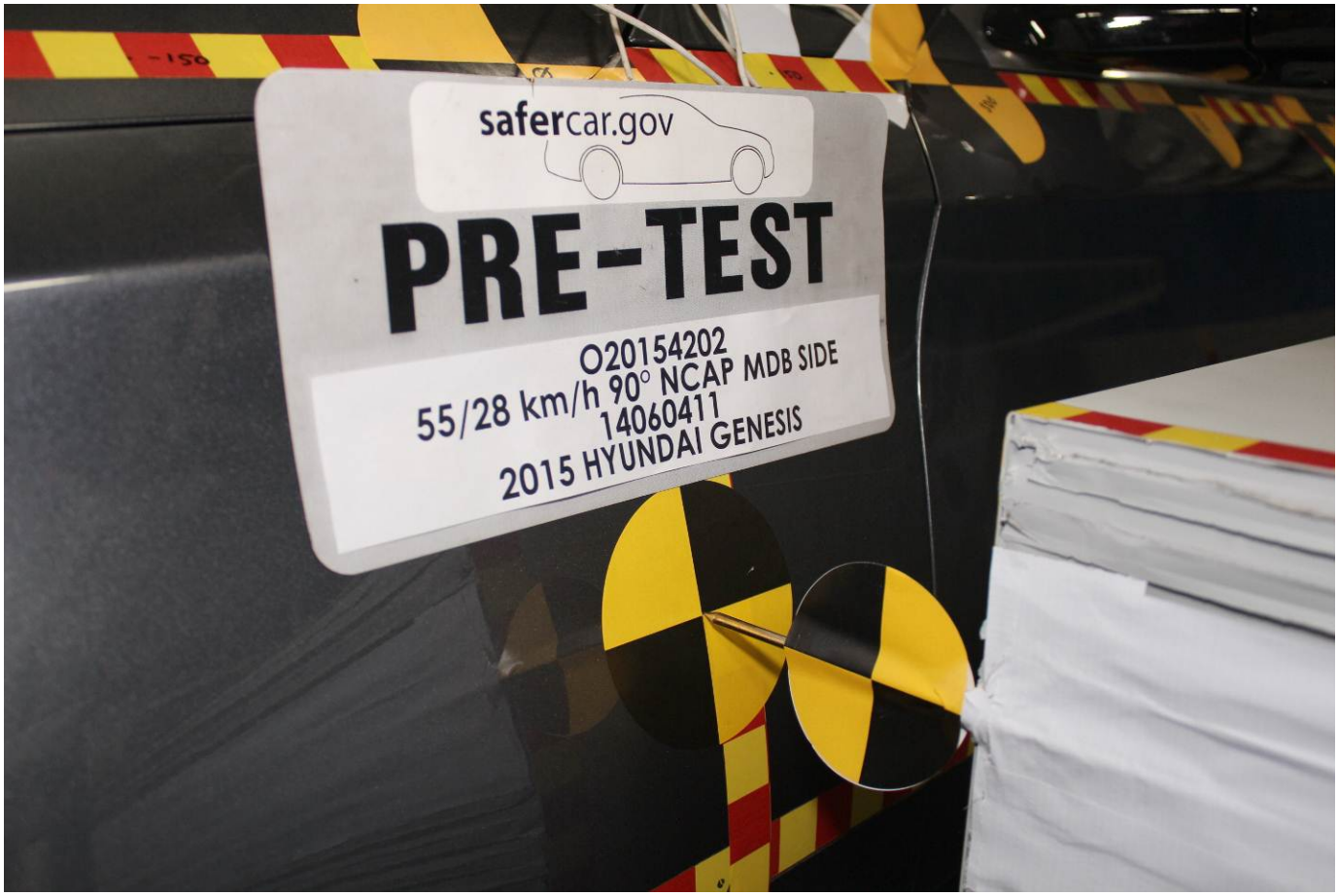
Pre-Test Overhead View of Test Area



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

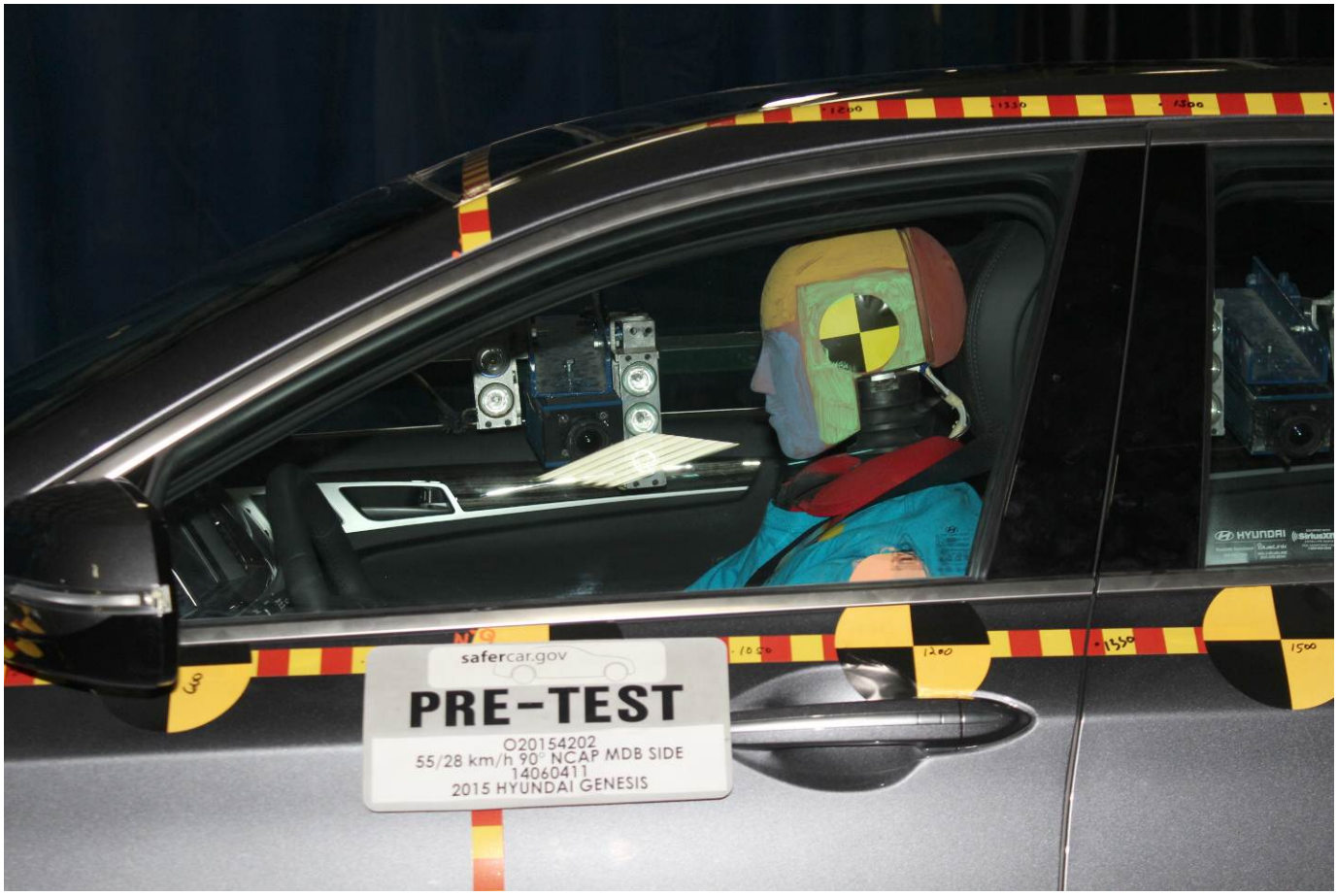
Pre-Test Left Rear Door Latch Close-Up

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

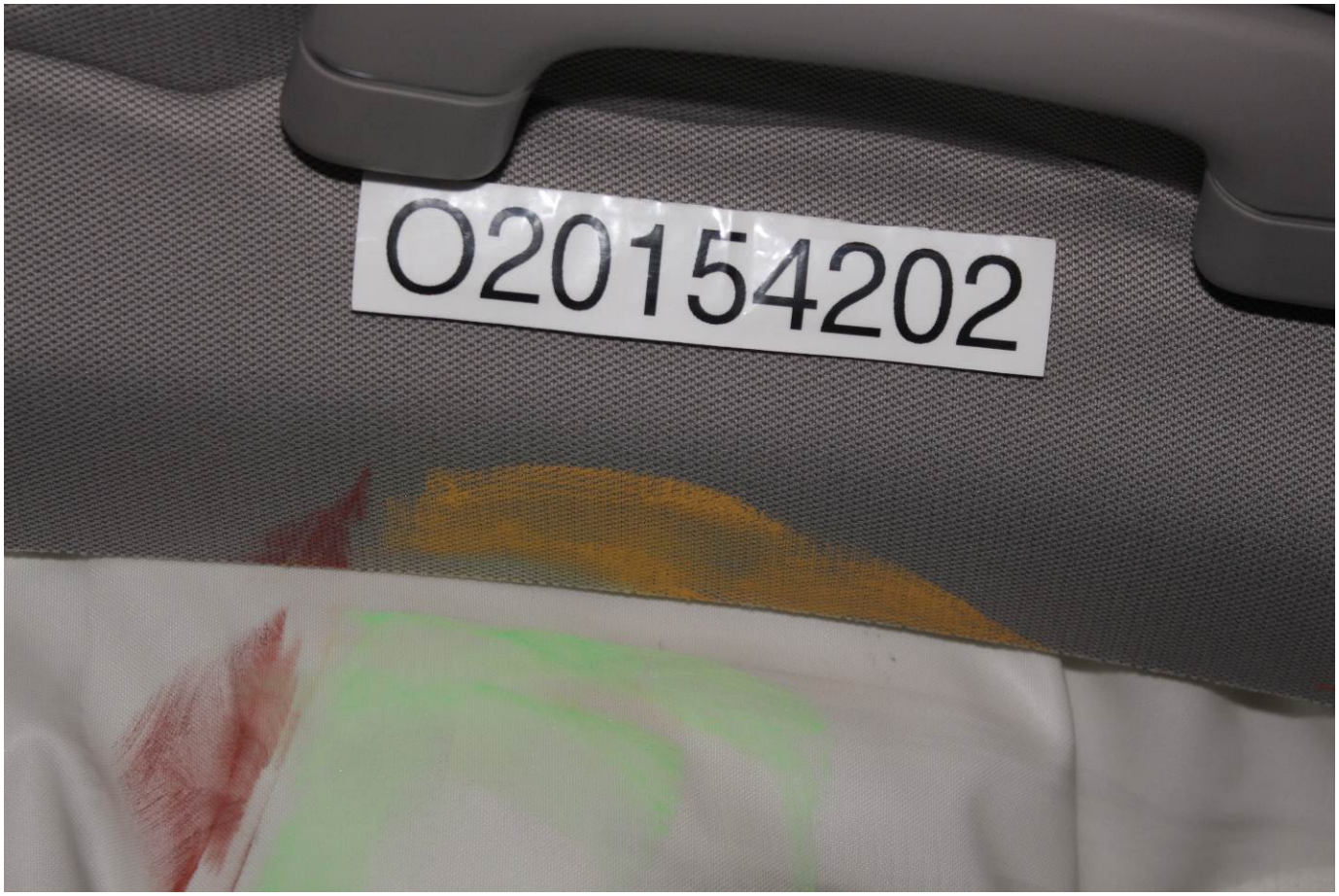
Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment

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 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 Side Airbag View

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

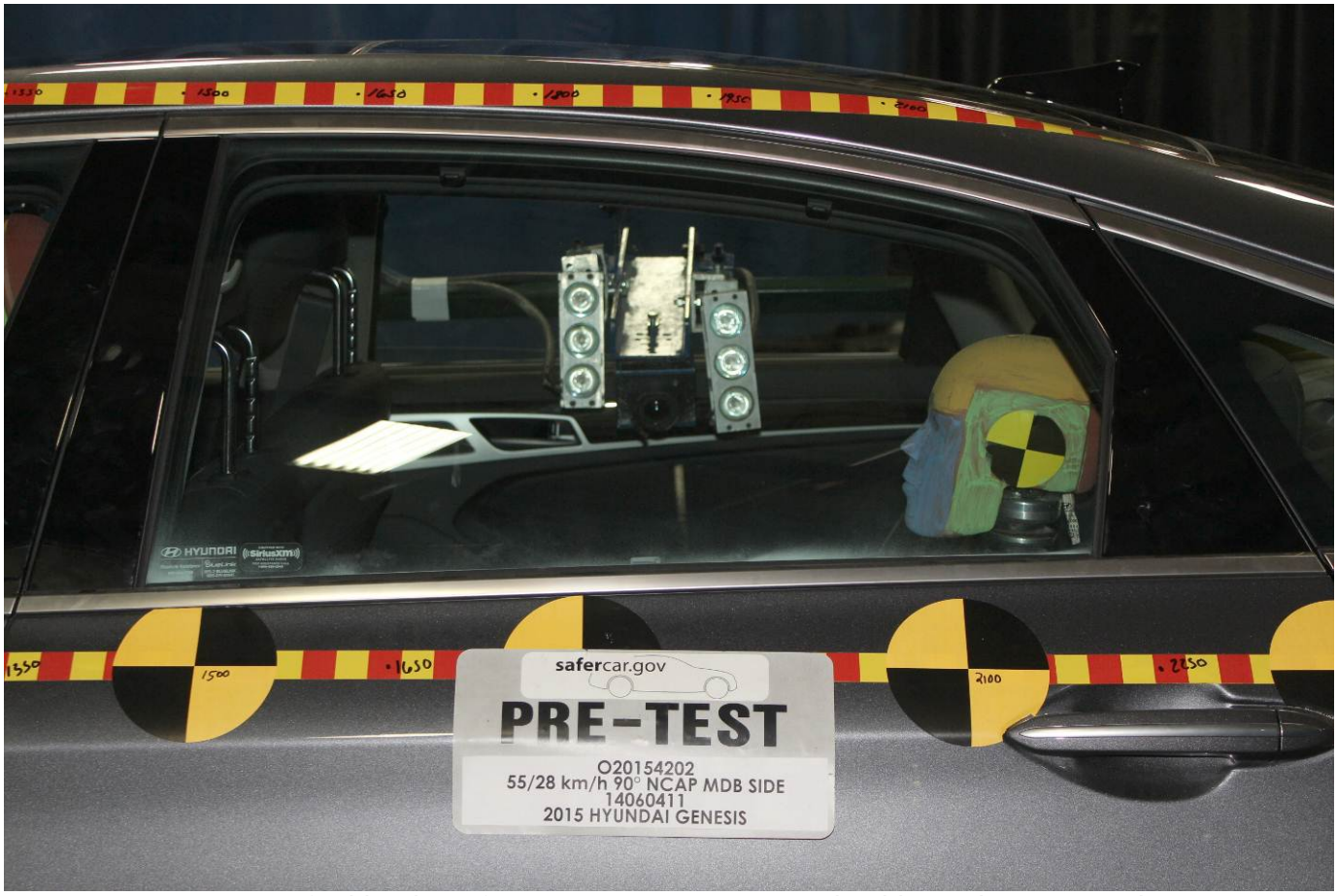
Post-Test Driver Dummy Close-up Pelvis Contact with Vehicle Interior View

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

Post-Test Driver Dummy Close-up 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

PHOTOGRAPH NOT APPLICABLE

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

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

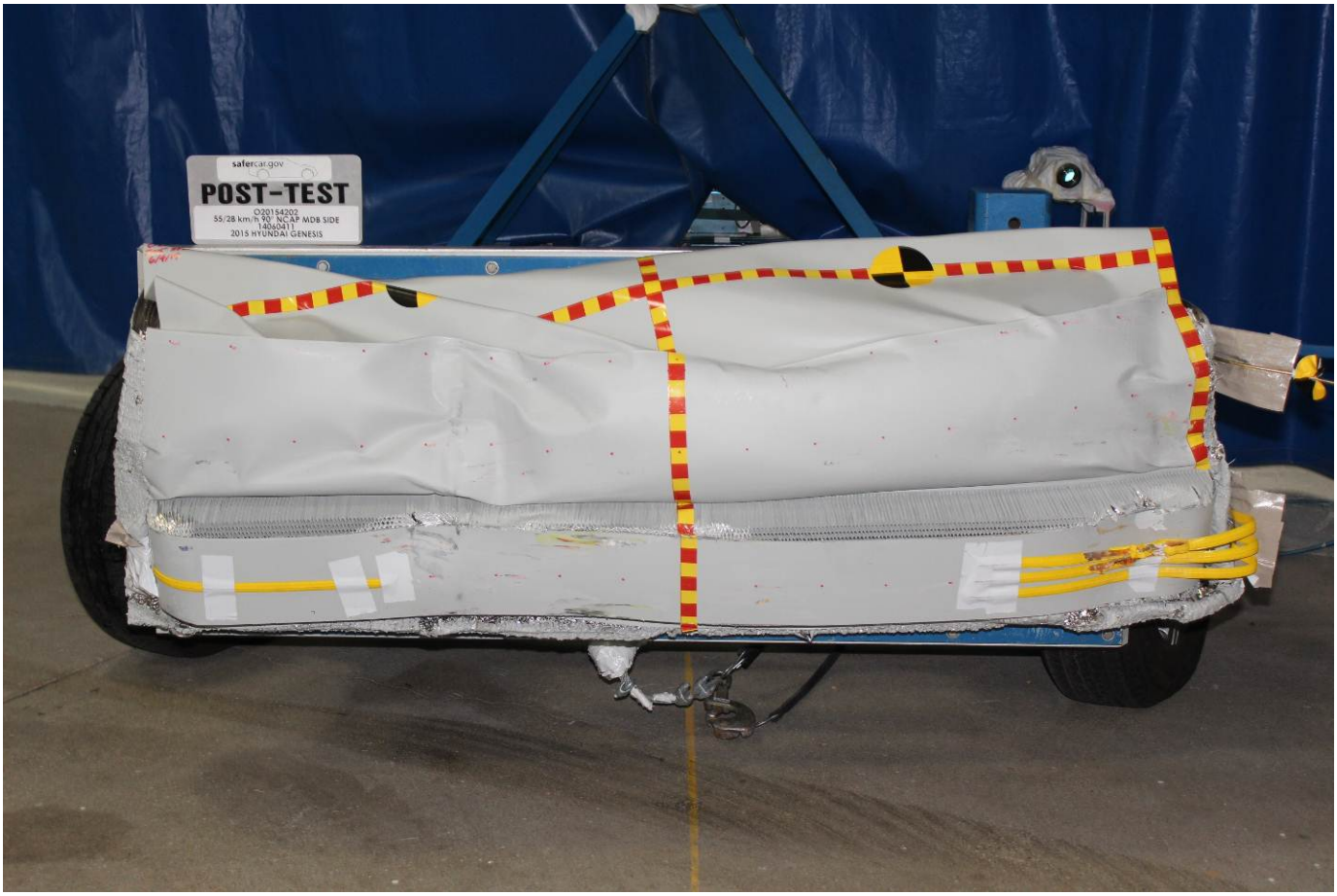
Post-Test Rear Passenger Dummy Close-up Pelvis Contact with Side Airbag View

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

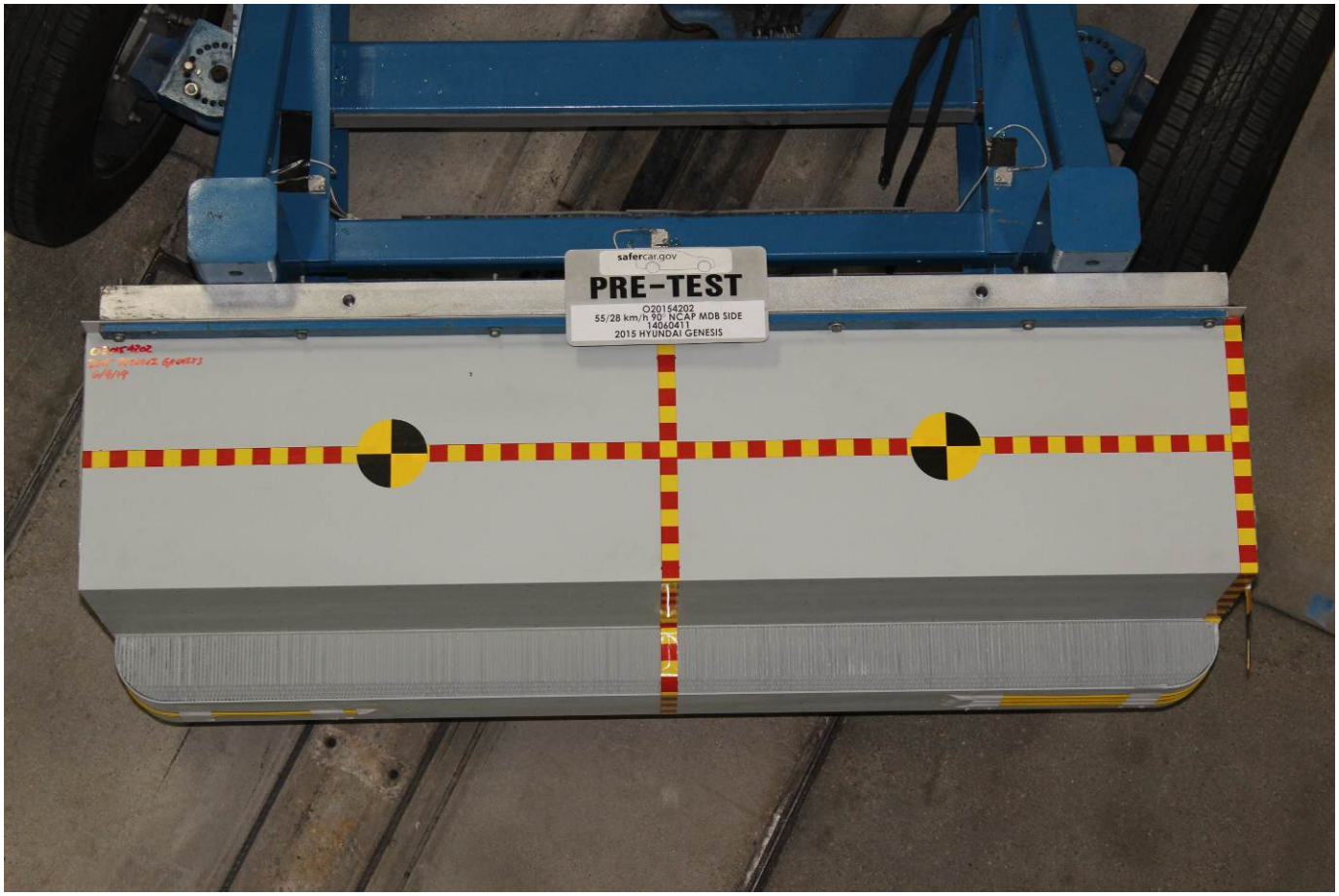
Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

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

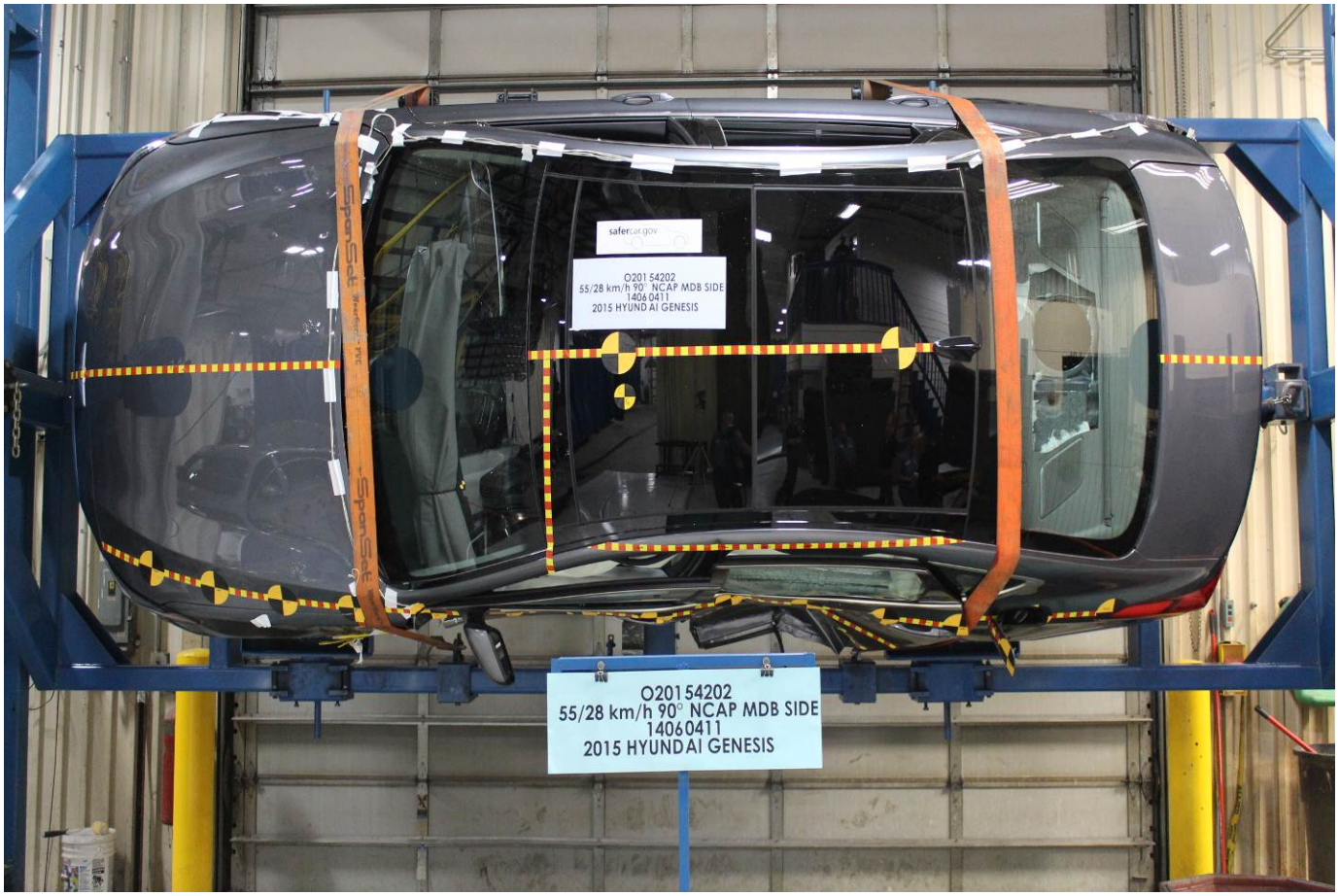
Close-Up View of Vehicle's Tire Information Placard or Label

Close-Up View of Load Carrying Capacity Reduced Label

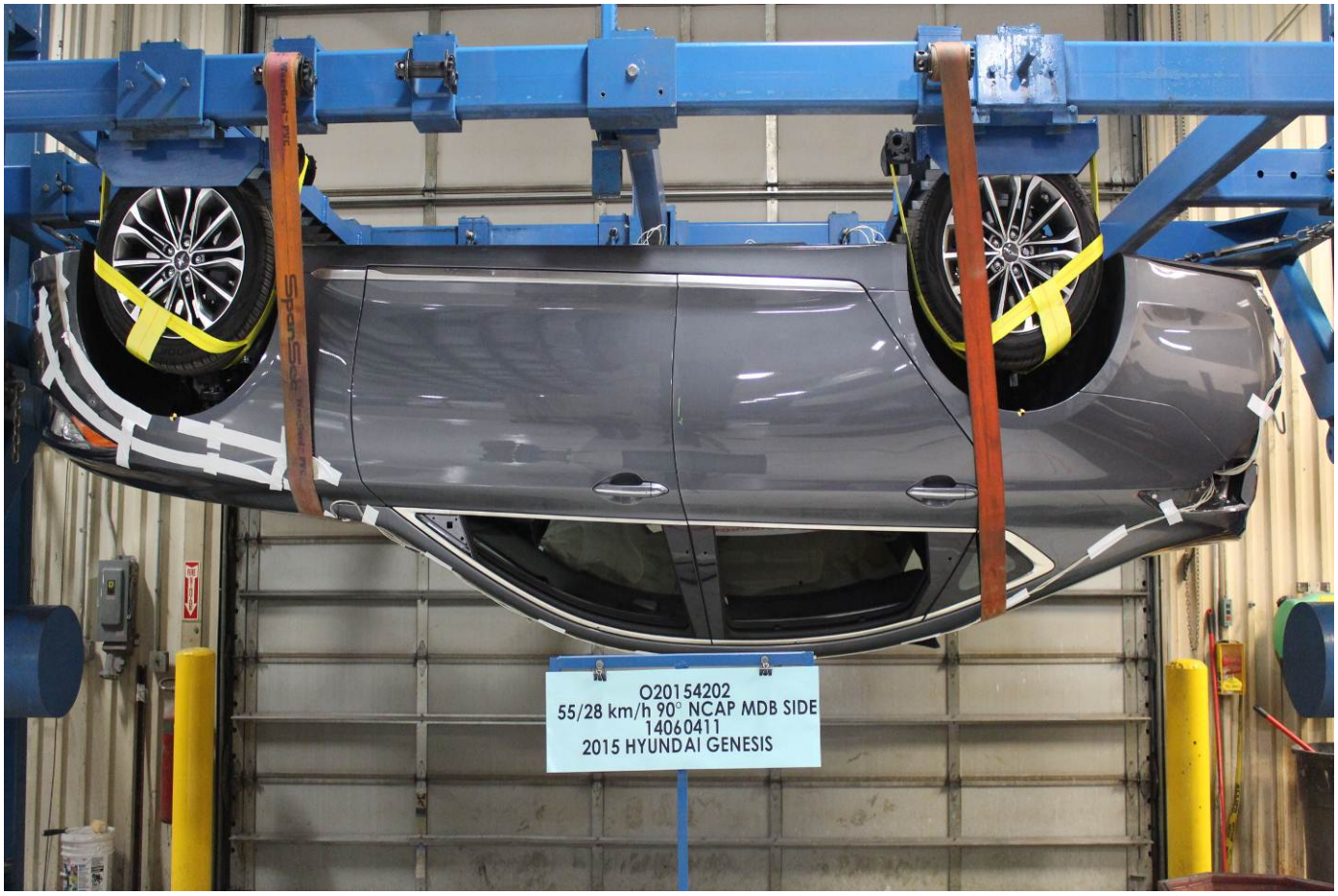
Pre-Test Ballast View

Post-Test Primary and Redundant Speed Trap Read-Out

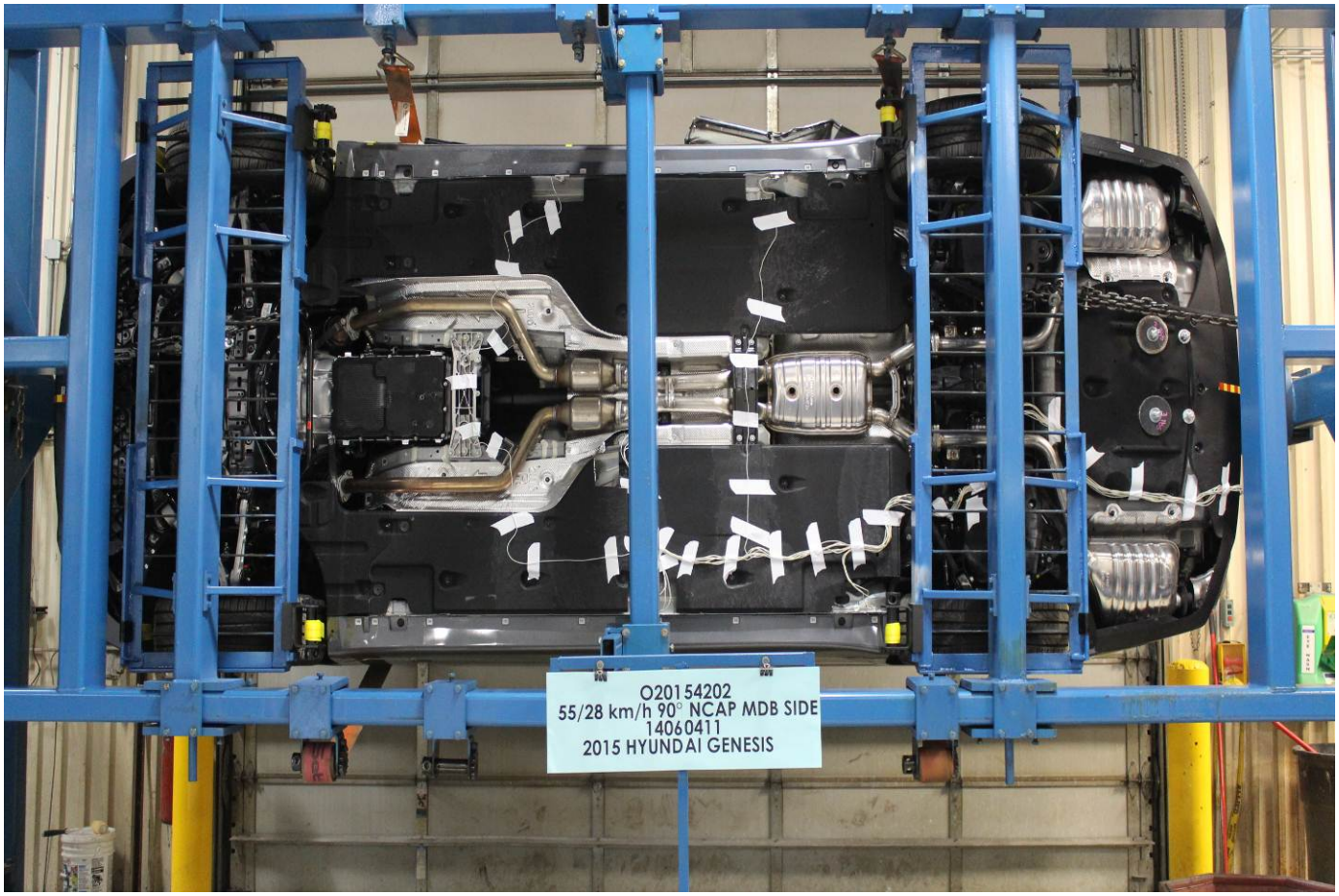
FMVSS No. 301 Static Rollover 0 Degrees



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

HYUNDAI

2015 GENESIS RWD 3.8

Genesis offers dynamic design, advanced safety, premium performance & smart luxury.

BlueLink

Hyundai Hope On Wheels

SOLD TO: IL061 **SHIPPED TO: IL061**

ROSEN HYUNDAI
771 S. RANDALL ROAD
ALGONQUIN IL 60102

VIN:	KMHGN4JE0FU017976
MODEL:	B1402R65
ENGINE:	G6DJEA228513
PORT OF ENTRY:	PT
EXTERIOR COLOR:	EMPIRE STATE GRAY
INTERIOR/SEAT COLOR:	BLACK/BLACK
TRANSPORT:	TRUCK
ACCESSORY WEIGHT:	11 lbs./ 5 kgs.

EMISSIONS: This vehicle is certified to meet emission requirements in all 50 states.

GOVERNMENT 5-STAR SAFETY RATINGS

This vehicle has not been rated by the government for overall vehicle score, frontal crash, side crash or rollover risk.

Source: National Highway Traffic Safety Administration (NHTSA).
www.safercar.gov or 1-888-327-4236

STANDARD FEATURES:

AMERICA'S BEST WARRANTY	
5-year/60,000-mile New Vehicle Warranty	INCLUDED
10-year/100,000-mile Powertrain Warranty	INCLUDED
7-year/Unlimited-mile Anti-perforation Warranty	INCLUDED
*5-year/Unlimited-mile Roadside Assistance	INCLUDED
*Limited warranties, see dealer for details	
ADVANCED SAFETY TECHNOLOGY	
*Vehicle Stability Management System	INCLUDED
*Electronic Stability Control (ESC) with Traction Control (TCS)	INCLUDED
*ABS with Electronic Brake Force Distribution & Brake Assist	INCLUDED
*4-Wheel Disc Brakes	INCLUDED
*9 Airbags including Driver Knee Airbag	INCLUDED
*Anti-Whiplash Front Head Restraints	INCLUDED
*Front & Rear Outboard Seatbelt Pretensioners	INCLUDED
POWERTRAIN TECHNOLOGY	
*3.8L DOHC V6 GDI & Dual CVVT Aluminum Engine with 311 HP (Regular)	INCLUDED
*8-Speed Auto Transmission with SHIFTRONIC® & Paddle Shifters	INCLUDED
*Intelligent Drive Mode Select	INCLUDED
*High Performance Gas Shock Absorbers	INCLUDED
*5-Link Fully-Independent Front and Rear Suspension	INCLUDED
COMFORT & CONVENIENCE	
*18-Inch Alloy Wheels with P245/45R18 All Season Tires	INCLUDED
*Auto Headlights with Daytime Running Lights & LED Accents	INCLUDED
*Rain-Sensing Wipers with Auto Defogger Windshield	INCLUDED
*Heated Dual Power Outside Mirrors with Turn Signal Indicators	INCLUDED
*Power Folding Outside Mirrors with "Genesis Logo" Puddle Lamps	INCLUDED
*Leather Seating Surfaces with Heated Front Seats	INCLUDED
*12-way Power Front Seats with Power Lumbar	INCLUDED
*Leather-Wrapped Tilt & Telescopic Steering Wheel	INCLUDED
*Steering-Wheel-Mounted Cruise & Audio Controls	INCLUDED
*Proximity Key Entry with Push-Button Start	INCLUDED
*Navigation System with 8" Display and Rearview Camera	INCLUDED
*4.3" TFT LCD Multi-Info Display & Electroluminescent Gauges	INCLUDED
*Dual Automatic Temperature Control	INCLUDED
*Auto-Dimming Rearview Mirror with Compass & Homelink®	INCLUDED
*Bluetooth® Hands-Free Phone System with Audio Streaming	INCLUDED
*Hyundai Blue Link® powered by Google (TM)	INCLUDED
*Blue Link Free Trial (enrollment required)	INCLUDED
*AM/FM/SiriusXM®/CD/MP3/HD Radio® Audio System w/ 7 Speakers	INCLUDED
*SiriusXM® Travel Link® Including 3-Year Complimentary Services	INCLUDED
*Tire Pressure Monitor with Individual Tire Pressure Indicator	INCLUDED
*Carpeted Floor Mats & Cargo Net / Hands-Free Smart Trunk Opener	INCLUDED
*Full Tank of Gas	INCLUDED

Manufacturer's Suggested Retail Price:	$38,000.00
ADDED FEATURES:	
*Signature Package:	$4,000.00
Power Tilt-and-Slide Panoramic Sunroof	
Integrated Memory System (IMS)	
Power Tilt-and-Telescopic Steering Wheel	
Auto-Dimming Outside Mirrors	
Blind Spot Detection with Rear Cross-traffic Alert	
Lexicon® 14-Speaker Discrete Logic 7 Audio System	
HID Headlights & Parking Guidelines	
Power Rear Sunshade and Manual Rear Side Sunshades	
Ventilated Front Seats	
*Tech Package:	$3,500.00
Ultra Leather Seats / 7" TFT LCD Cluster Display	
Power Driver Seat Cushion Extender and Side Bolster	
Lane Departure Warning & Lane Keep Assist	
Smart Cruise Control with Stop/Start Capability	
Haptic Steering Wheel & Pre-Safety Seatbelt	
Auto Emergency Braking (AEB) / High Beam Assist	
Electronic Parking Brake with Automatic Vehicle Hold	
Front & Rear Parking Assistance System	
*First Aid Kit	$30.00
*Rear Bumper Protector	$70.00
*Wheel Locks	$55.00
Inland Freight & Handling :	$950.00
Total Price :	**$46,605.00**

EPA DOT **Fuel Economy and Environment** — Gasoline Vehicle

Fuel Economy

22 MPG combined city/hwy — 18 city — 29 highway

Large Cars range from 14 to 29 MPG. The best vehicle rates 119 MPGe.

4.5 gallons per 100 miles

You **spend $1,000** more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel **cost** **$ 2,400**

Fuel Economy & Greenhouse Gas Rating (tailpipe only) 5 (1 — 10 Best)

Smog Rating (tailpipe only) 5 (1 — 10 Best)

This vehicle emits 409 grams 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 $11,600 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at $ 3.59 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 Tag Code

Manufacturer's suggested retail price includes manufacturer's recommended pre-delivery service. Gasoline license and title fees, state and local taxes and dealer installed options and accessories are not included in the manufacturer's suggested retail price. This label has been affixed to this vehicle by Hyundai Motor America, pursuant to the requirements of 15 U.S.C. 1231 et seq. which prohibits its removal or alteration prior to delivery to the ultimate purchaser.

PART CONTENT INFORMATION
FOR VEHICLES IN THIS CARLINE:
U.S./CANADIAN PARTS CONTENT: 5 %
MAJOR SOURCES OF FOREIGN PARTS CONTENT: KOREA: 81 %

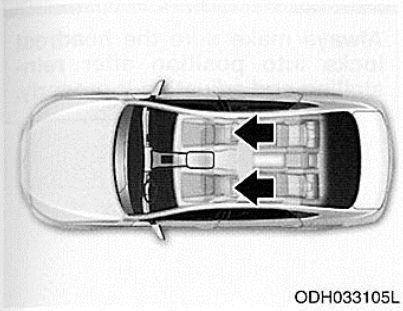
Note: Parts content does not include final assembly, distribution, or other non-parts costs.

FOR THIS VEHICLE:
FINAL ASSEMBLY POINT: ASAN, KOREA
COUNTRY OF ORIGIN:
ENGINE: KOREA
TRANSMISSION: KOREA

114 A 1065GSKAUB 11

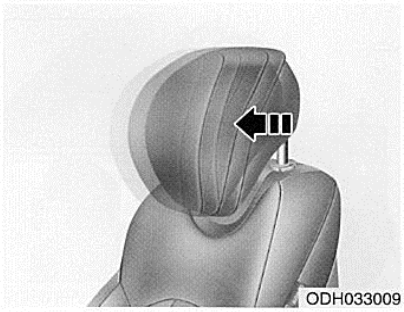
Monroney Label

Front seat headrest



ODH033105L

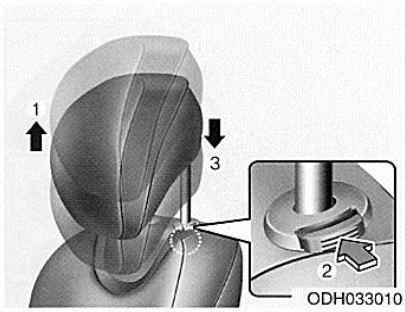
The driver's and front passenger's seats are equipped with adjustable headrests for the passengers safety and comfort.



ODH033009

Forward and rearward adjustment

The headrest may be adjusted forward to 3 different positions by pulling the headrest forward to the desired detent. To adjust the headrest to it's furthest rearwards position, pull it fully forward to the farthest position and release it.



ODH033010

Adjusting the height up and down

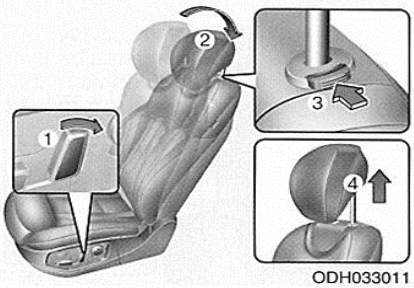
To raise the headrest:

1. Pull it up to the desired position (1).

To lower the headrest:

1. Push and hold the release button (2) on the headrest support.
2. Lower the headrest to the desired position (3).

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



ODH033011

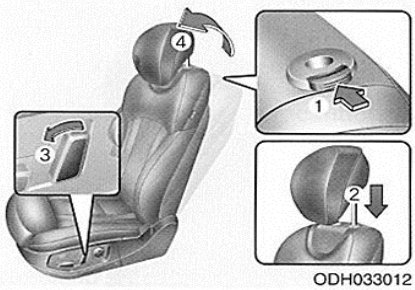
Removal/Reinstall

To remove the headrest:

1. Recline the seatback (2) with using the seatback angle switch (1).
2. Raise headrest as far as it can go.
3. Press the headrest release button (3) while pulling the headrest up (4).

⚠ WARNING

NEVER allow anyone to travel in a seat with the headrest removed.



ODH033012

To reinstall the headrest :

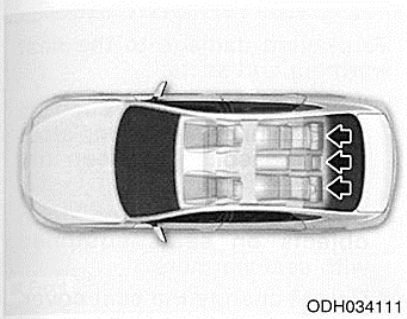
1. Recline the seatback.
2. Put the headrest poles (2) into the holes while pressing the release button (1).
3. Adjust the headrest to the appropriate height.
4. Recline the seatback (4) with using the seatback angle switch (3).

⚠ WARNING

Always make sure the headrest locks into position after reinstalling and adjusting it properly.

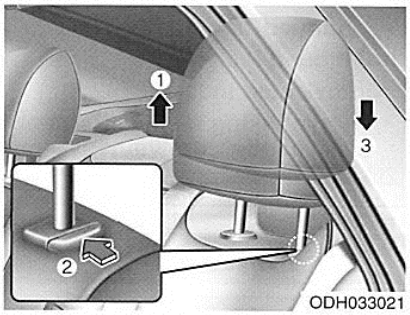
Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

Rear seat headrests



ODH034111

The rear seats are equipped with headrests in all the seating positions for the passenger's safety and comfort.



ODH033021

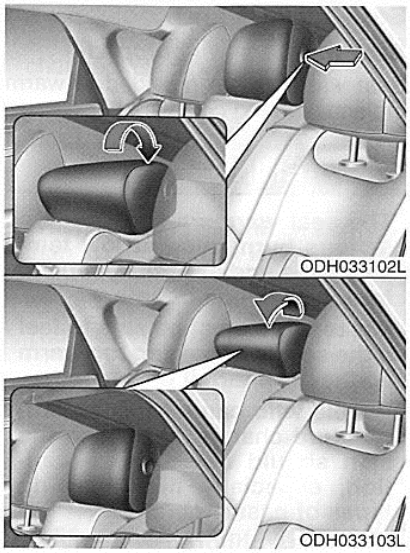
Adjusting the height up and down

To raise the headrest:

1. Pull it up to the desired position (1).

To lower the headrest:

1. Push and hold the release button (2) on the headrest support.
2. Lower the headrest to the desired position (3).



ODH033102L

ODH033103L

Folding the center headrest

To fold the center headrest:

1. Fold the center headrest while pushing the button.

To unfold the center headrest:

1. Lift the center headrest.

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)

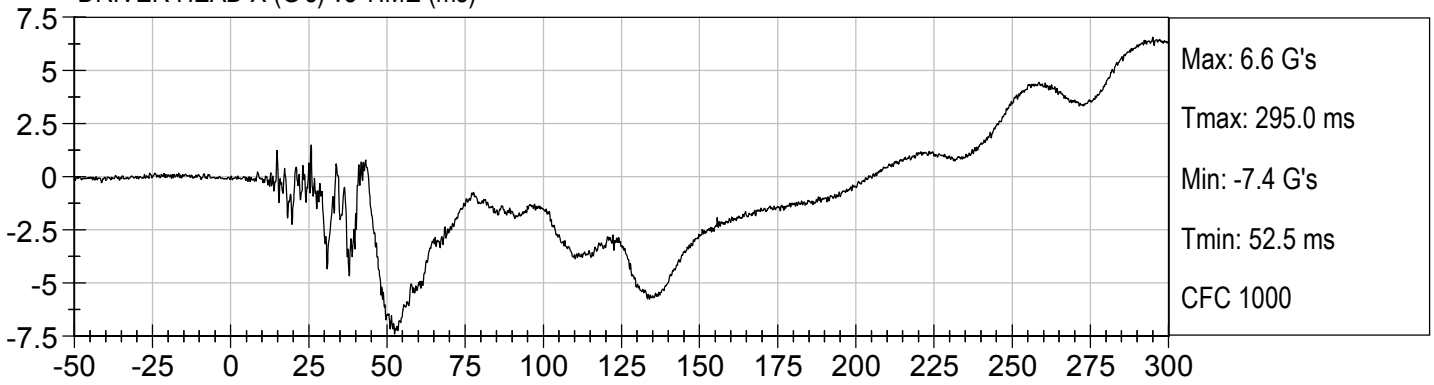
MDB Rear Acceleration (X)

MDB Rear Acceleration (Y)

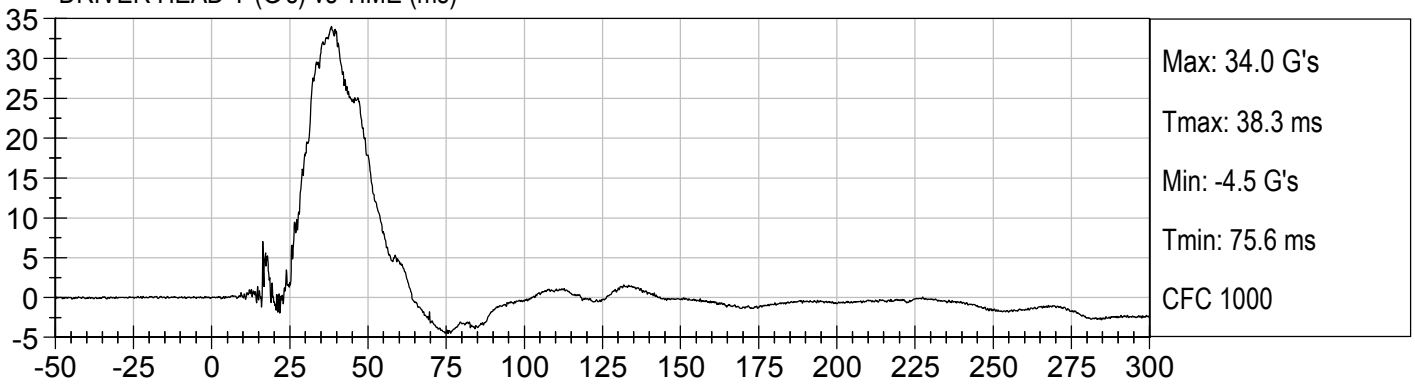
Left MDB Contact Switch

Right MDB Contact Switch

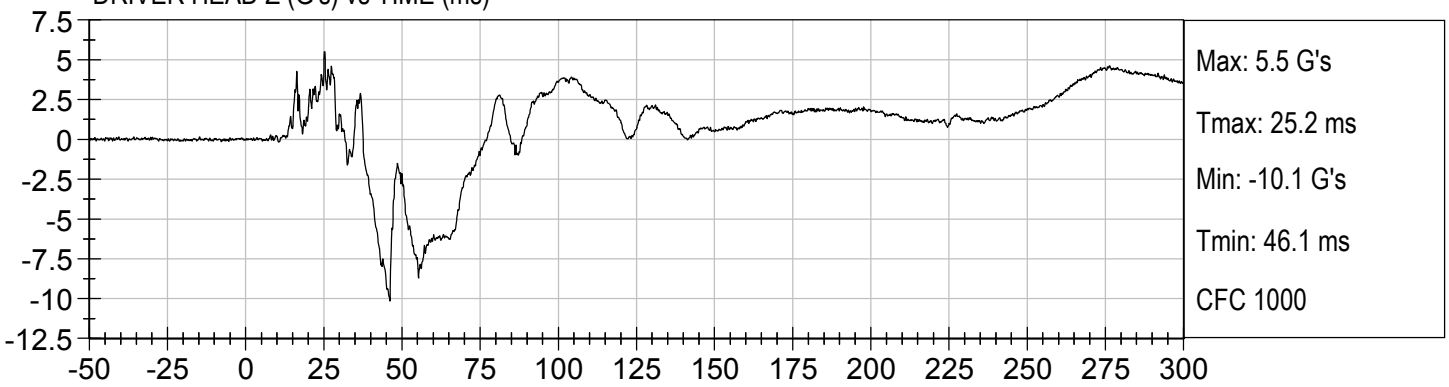
DRIVER HEAD X (G's) vs TIME (ms)



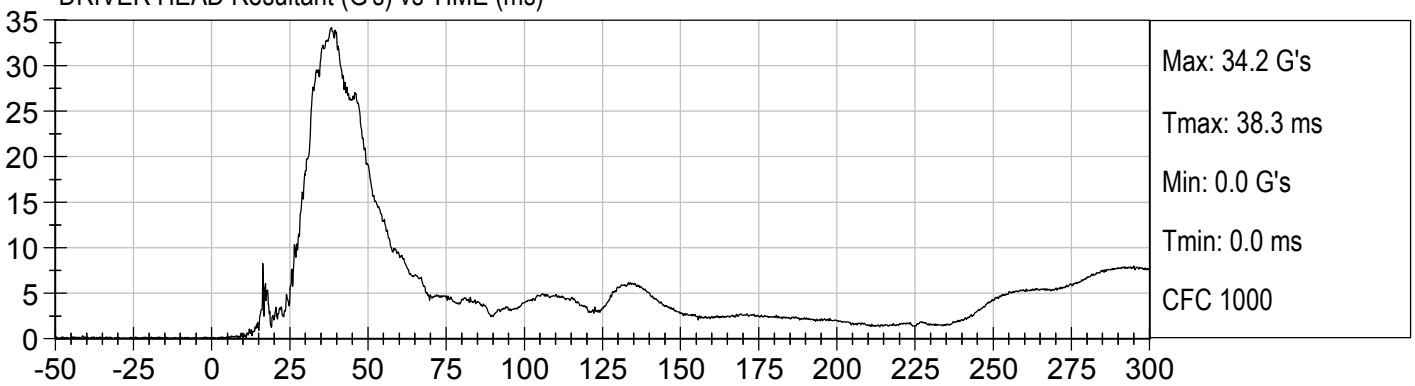
DRIVER HEAD Y (G's) vs TIME (ms)



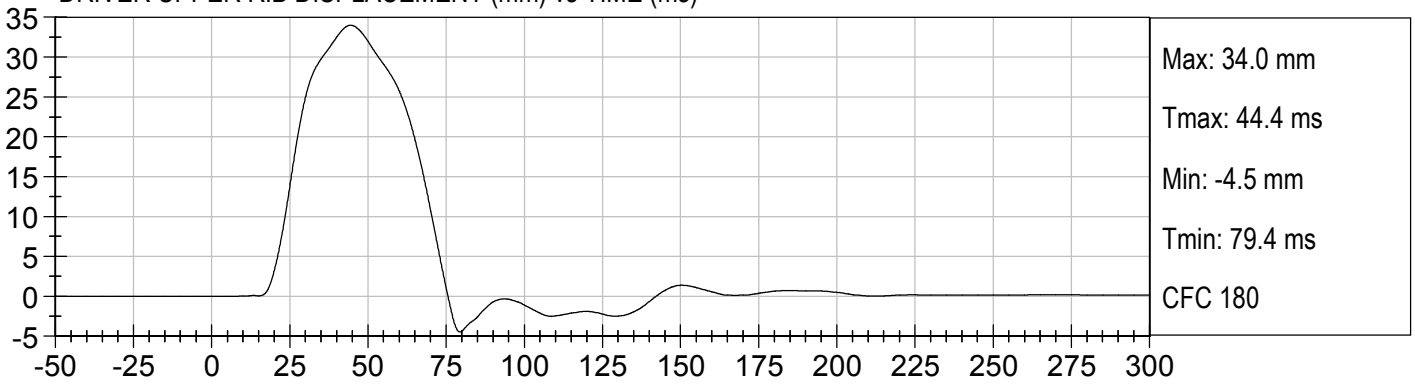
DRIVER HEAD Z (G's) vs TIME (ms)



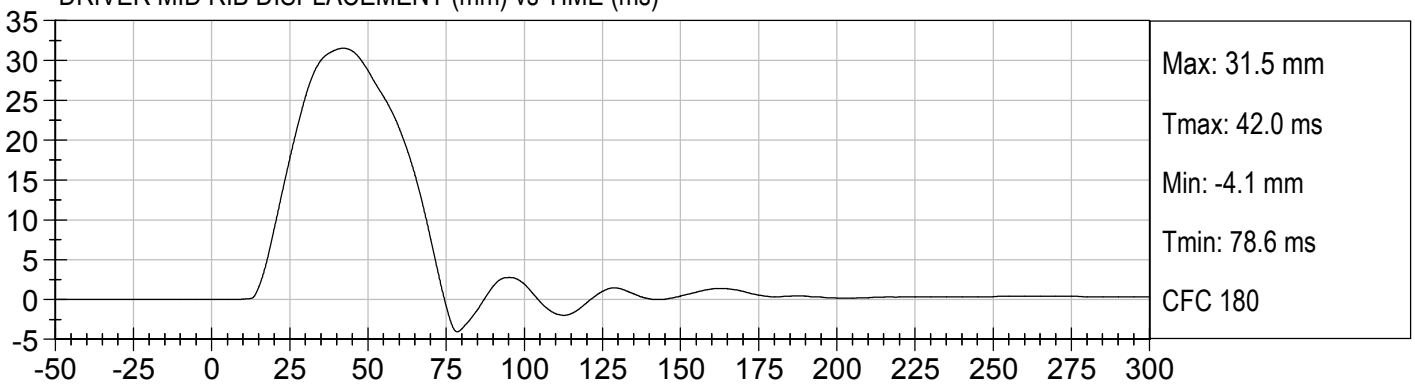
DRIVER HEAD Resultant (G's) vs TIME (ms)



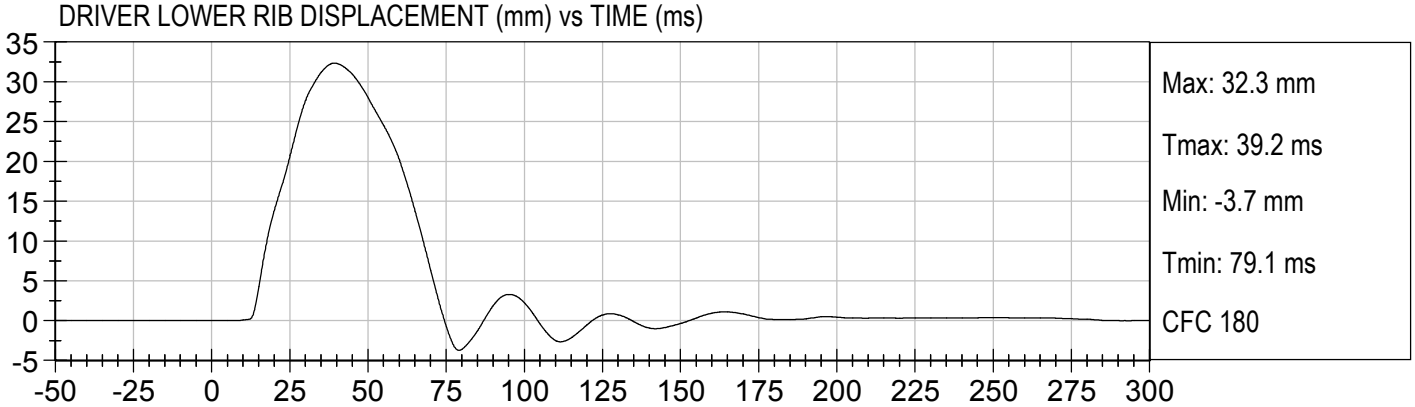
DRIVER UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



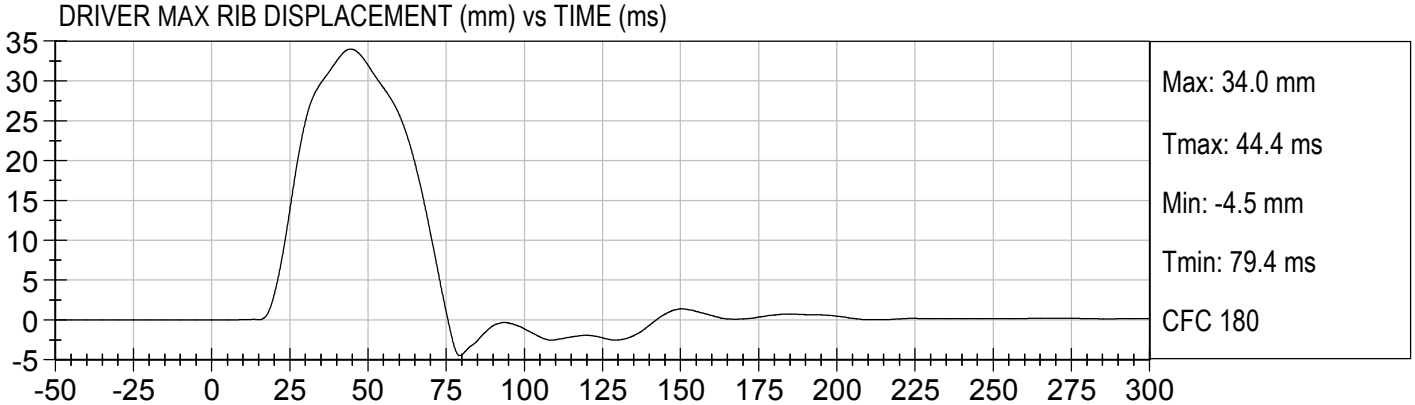
DRIVER MID RIB DISPLACEMENT (mm) vs TIME (ms)



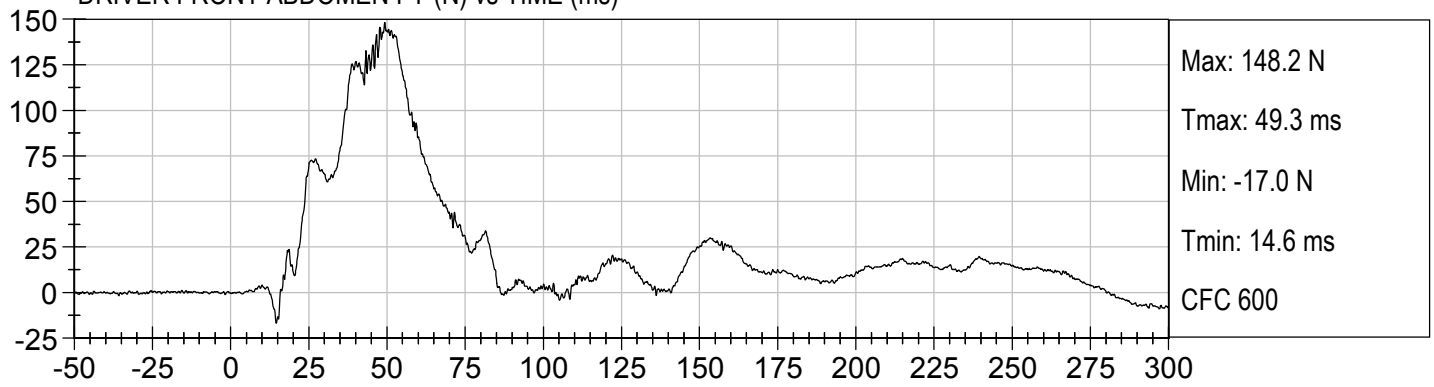
DRIVER LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



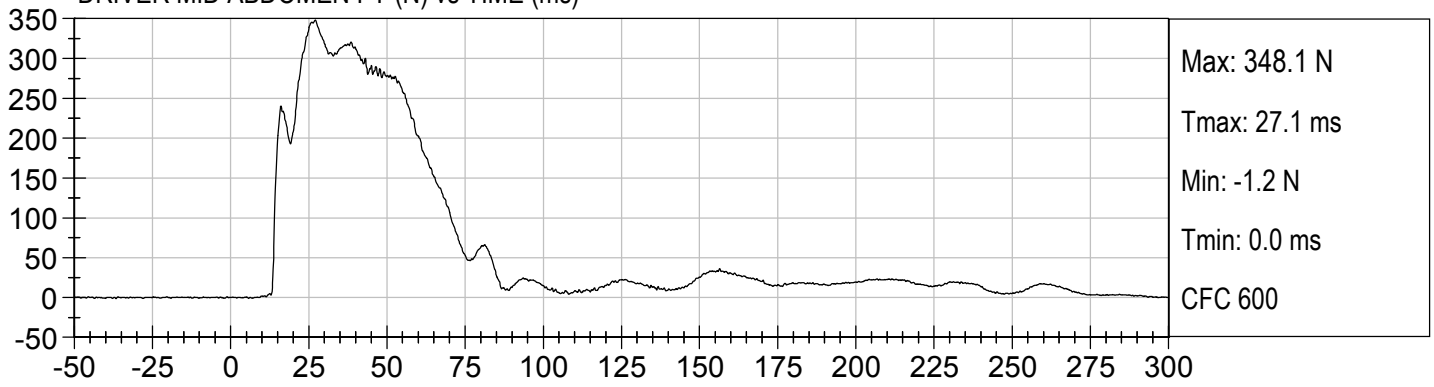
DRIVER MAX RIB DISPLACEMENT (mm) vs TIME (ms)



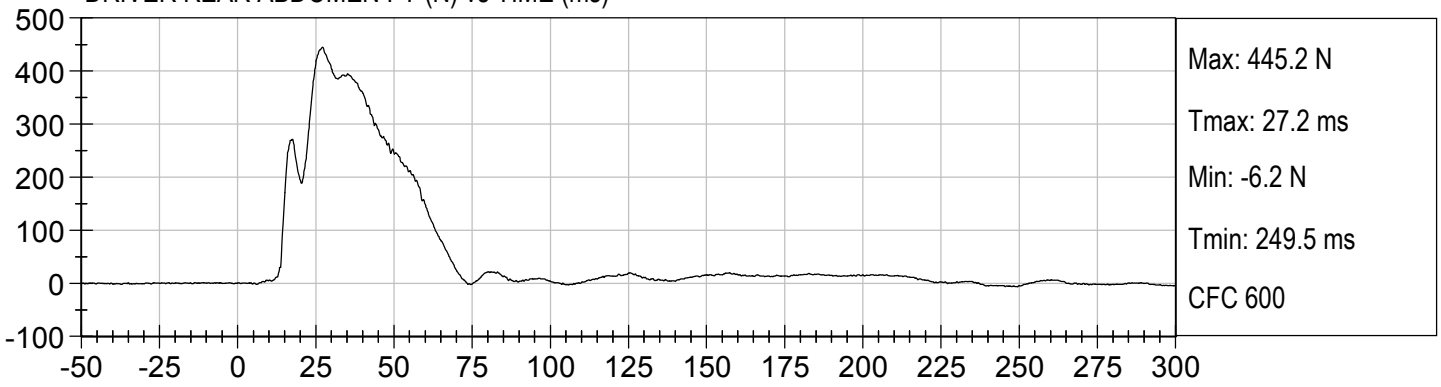
DRIVER FRONT ABDOMEN FY (N) vs TIME (ms)



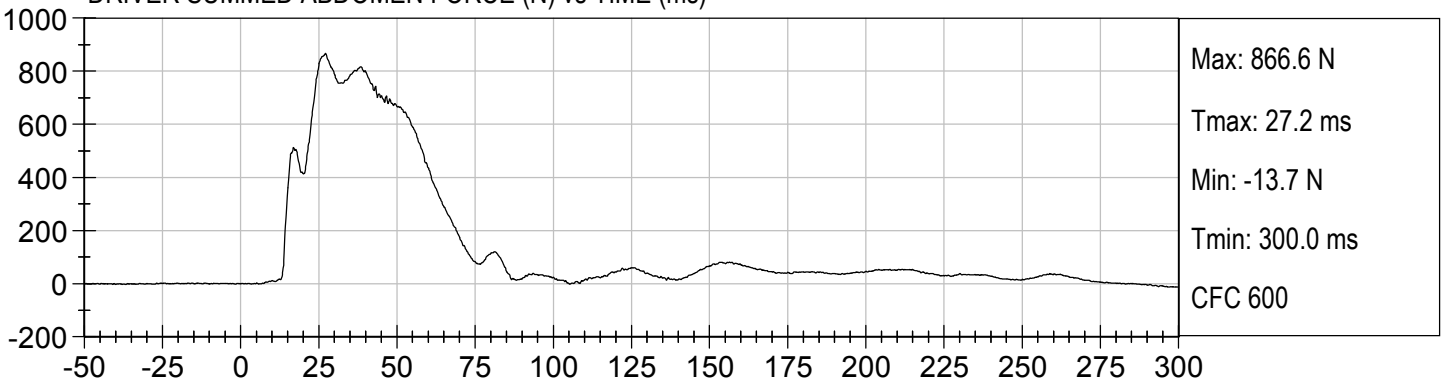
DRIVER MID ABDOMEN FY (N) vs TIME (ms)

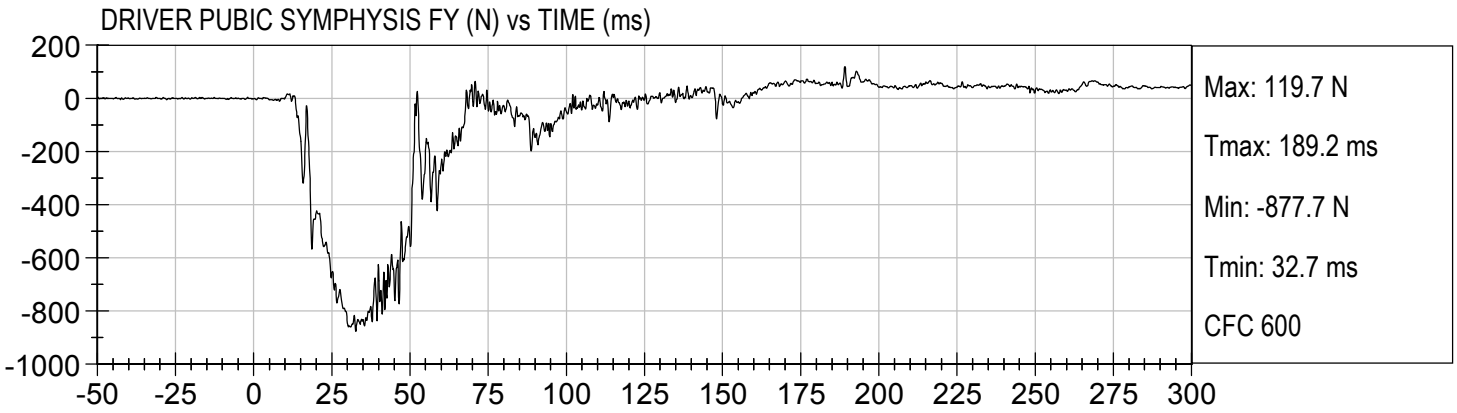


DRIVER REAR ABDOMEN FY (N) vs TIME (ms)

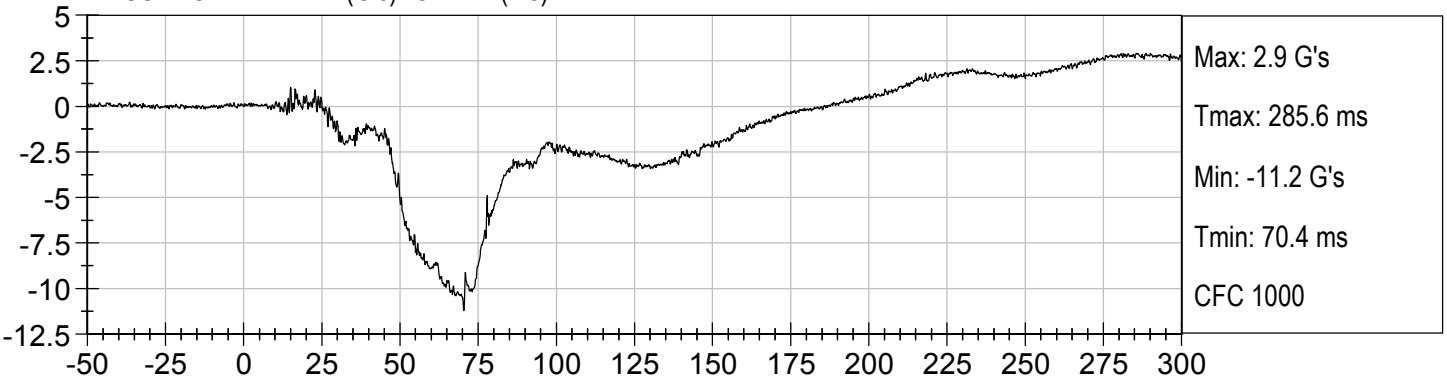


DRIVER SUMMED ABDOMEN FORCE (N) vs TIME (ms)

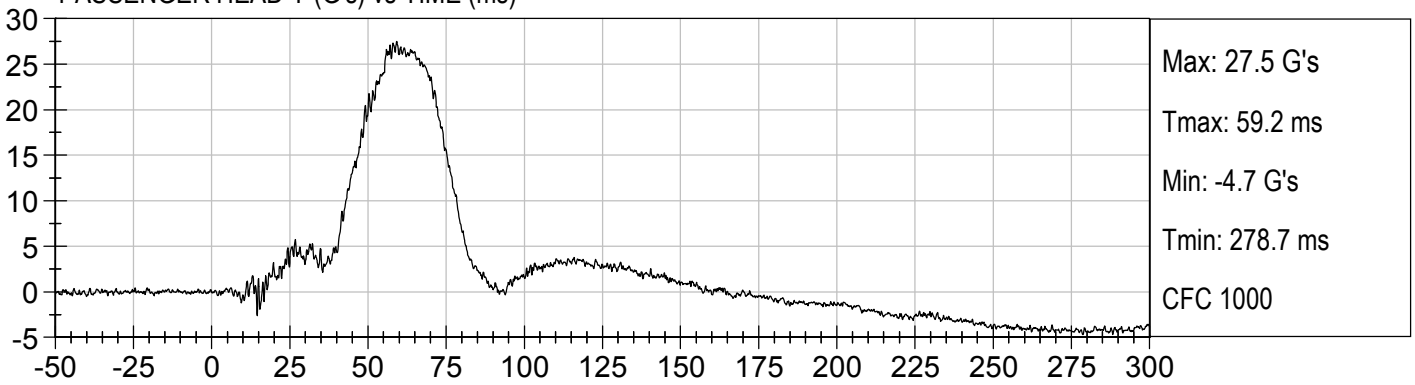



DRIVER PUBIC SYMPHYSIS FY (N) vs TIME (ms)
200
0
-200
-400
-600
-800
-1000
-50
-25
0
25
50
75
100
125
150
175
200
225
250
275
300
Max: 119.7 N
Tmax: 189.2 ms
Min: -877.7 N
Tmin: 32.7 ms
CFC 600

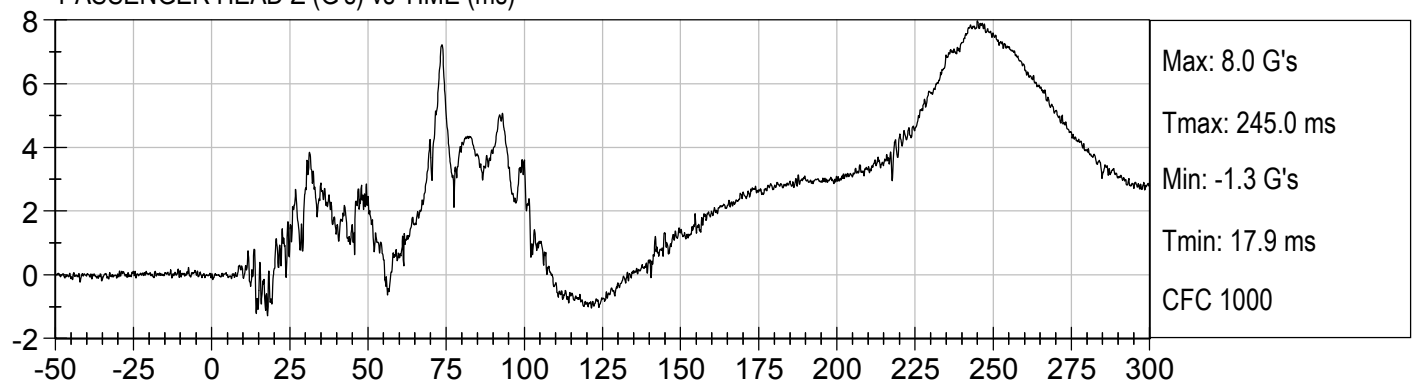
PASSENGER HEAD X (G's) vs TIME (ms)



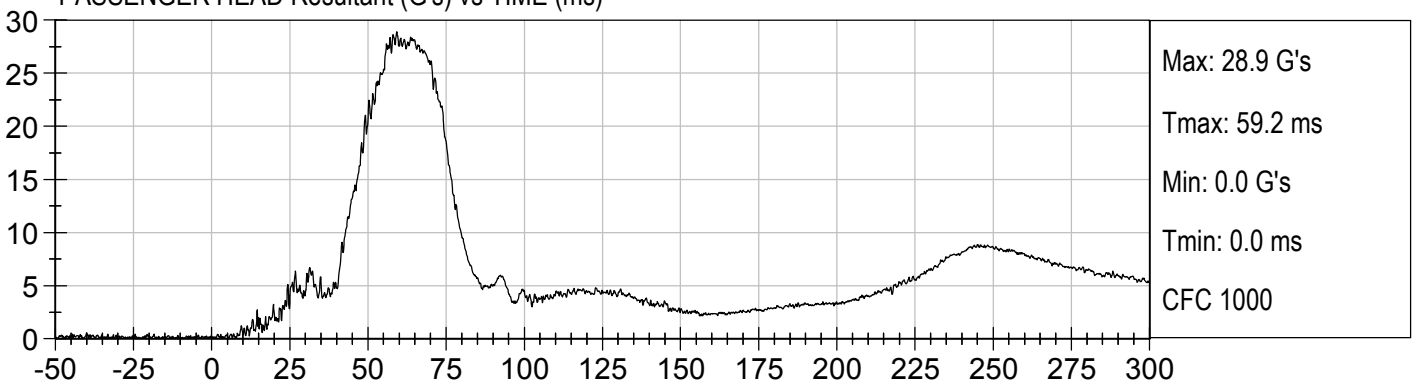
PASSENGER HEAD Y (G's) vs TIME (ms)



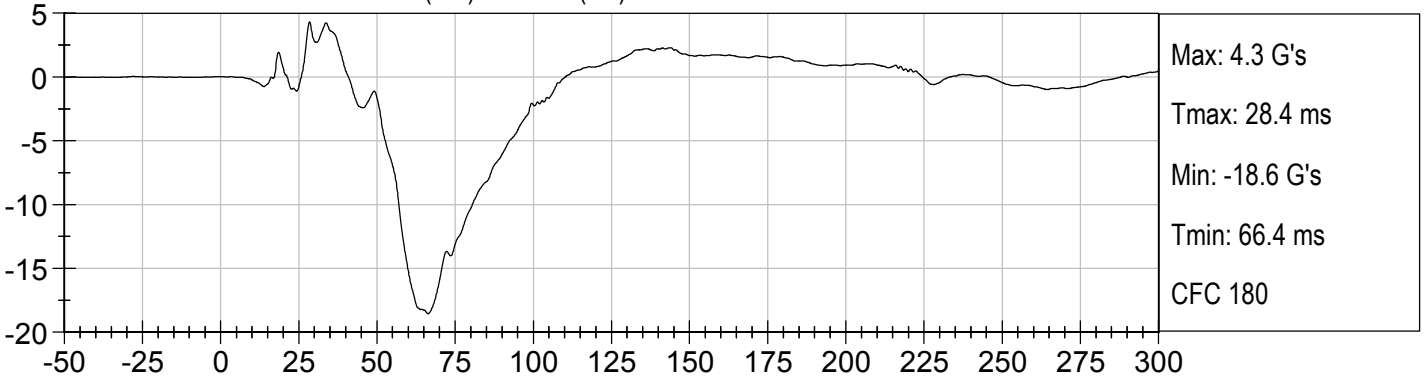
PASSENGER HEAD Z (G's) vs TIME (ms)



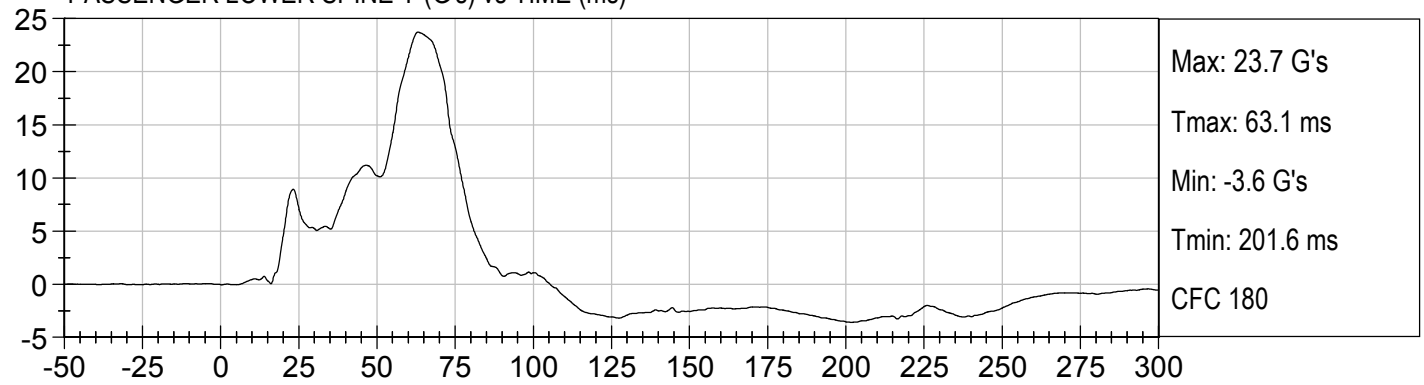
PASSENGER HEAD Resultant (G's) vs TIME (ms)



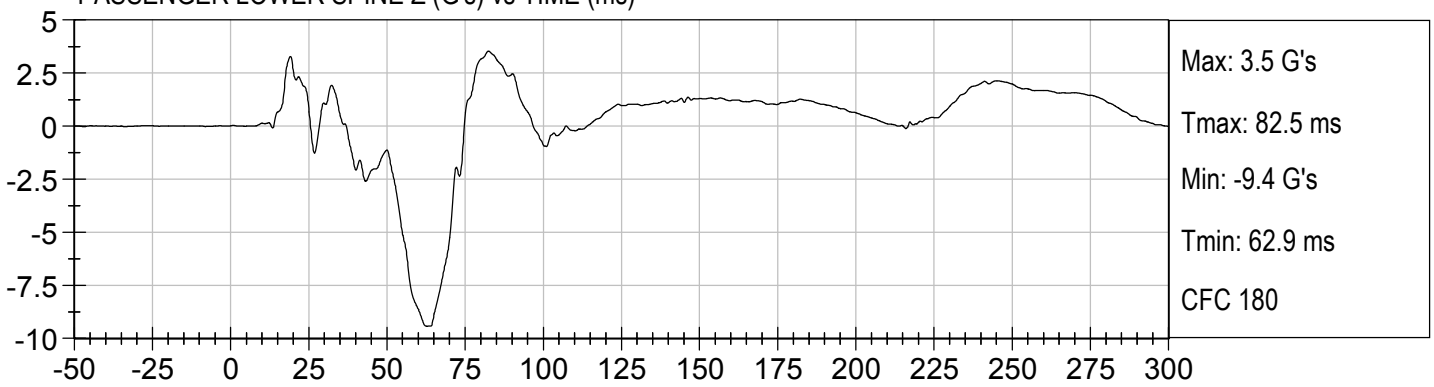
PASSENGER LOWER SPINE X (G's) vs TIME (ms)



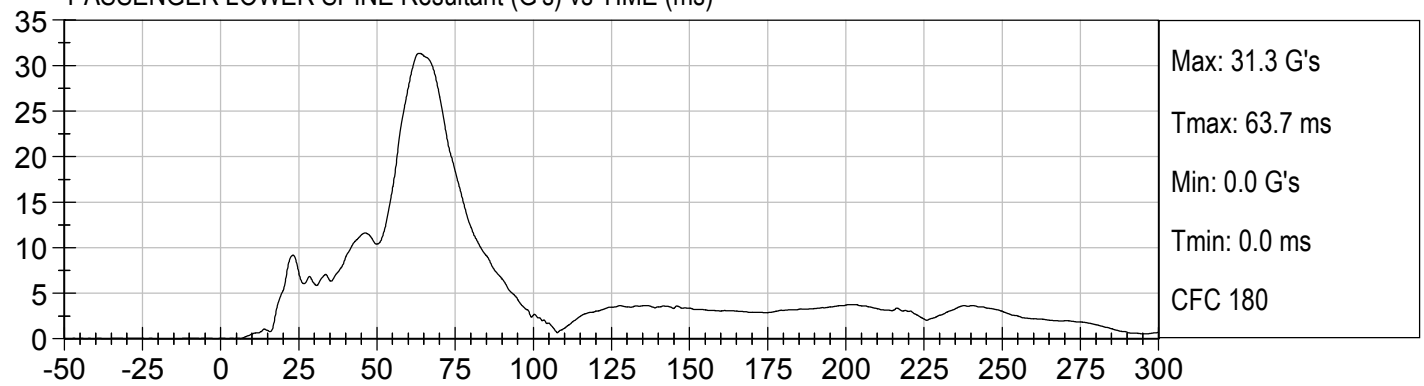
PASSENGER LOWER SPINE Y (G's) vs TIME (ms)



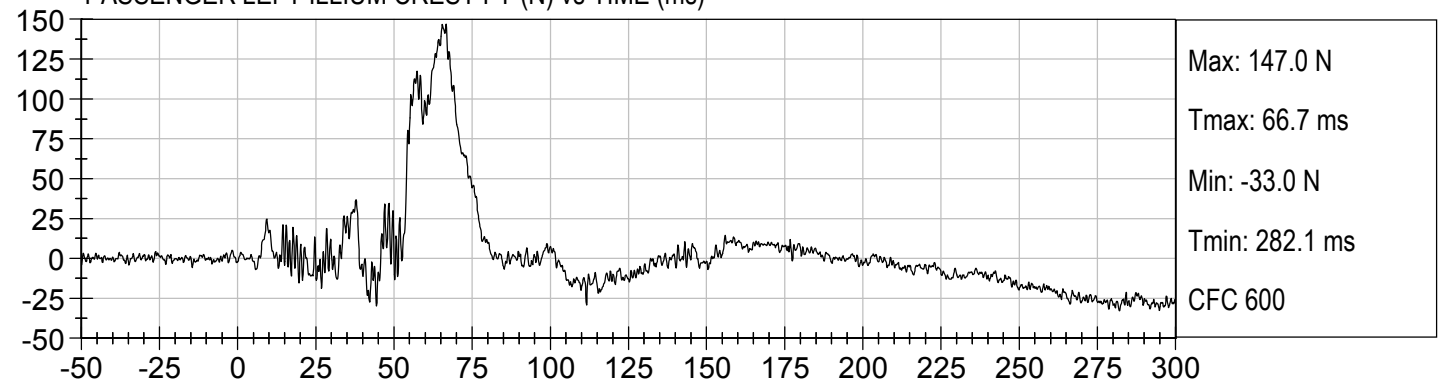
PASSENGER LOWER SPINE Z (G's) vs TIME (ms)



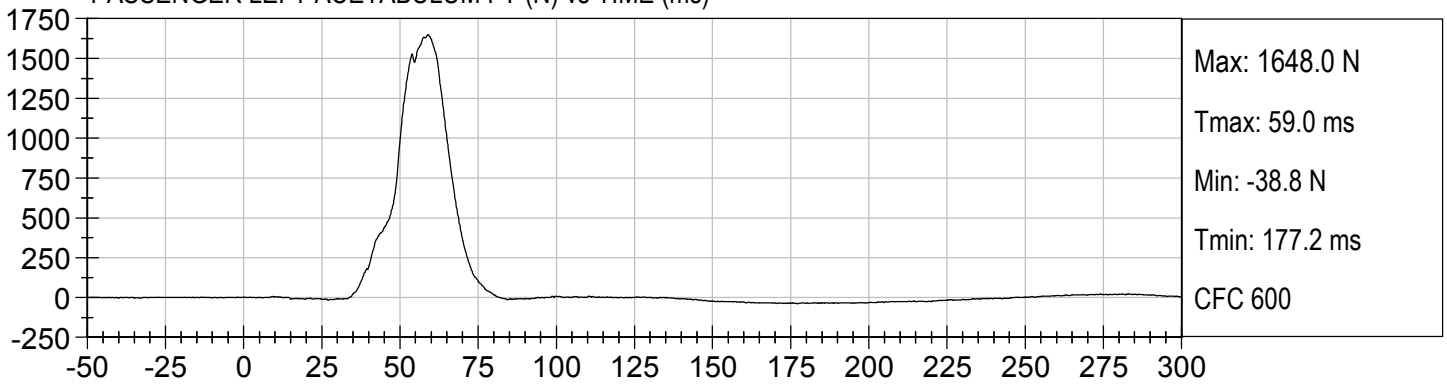
PASSENGER LOWER SPINE Resultant (G's) vs TIME (ms)



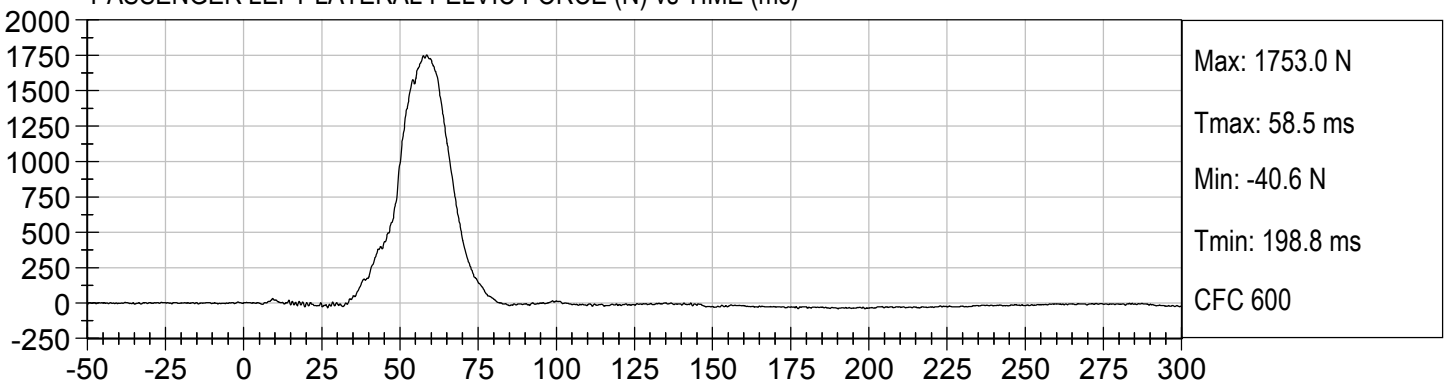
PASSENGER LEFT ILLIUM CREST FY (N) vs TIME (ms)



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:** D141891

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Peak Resultant Acceleration	G's	125 to 155	150	Pass
Peak Longitudinal Acceleration	G's	<= +/- 15.0	7.4	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 15% of peak	Yes	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

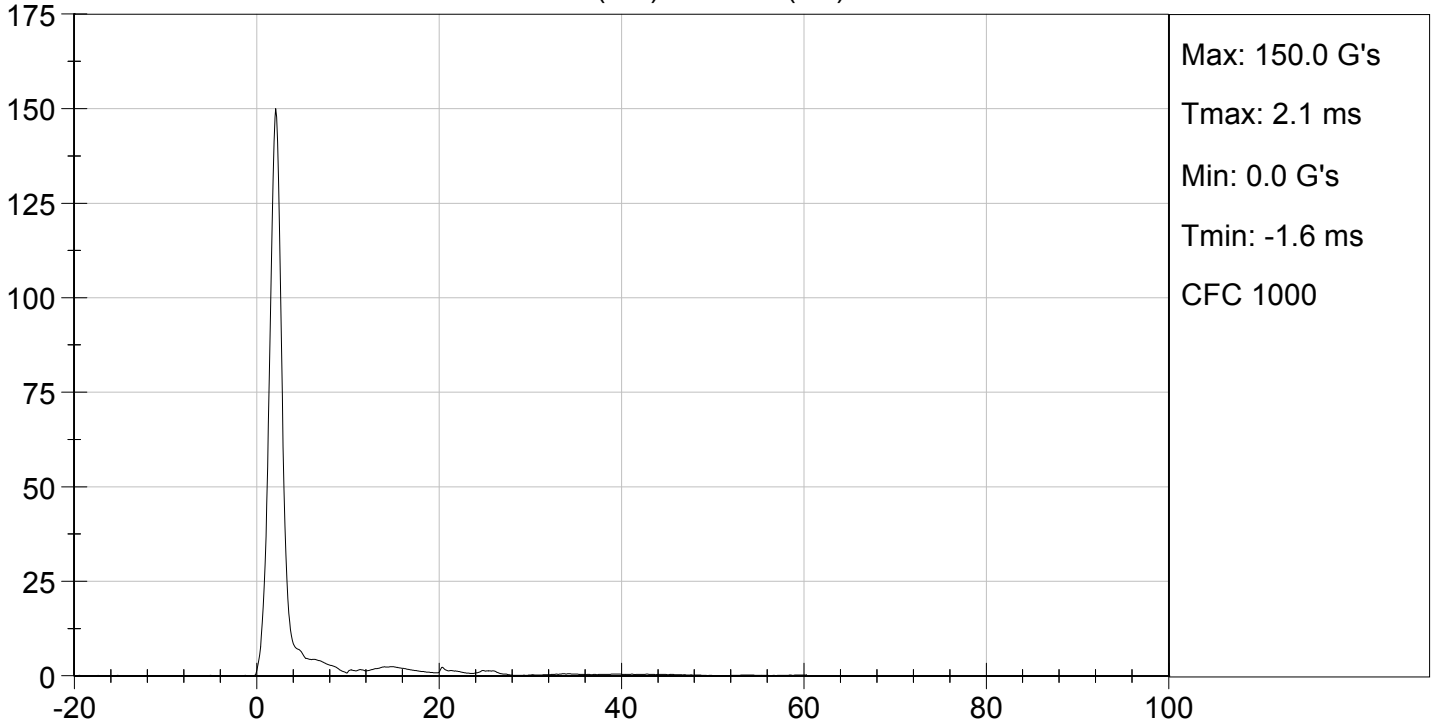
05/15/2014
Test Date

David Winkelbauer
Approved By

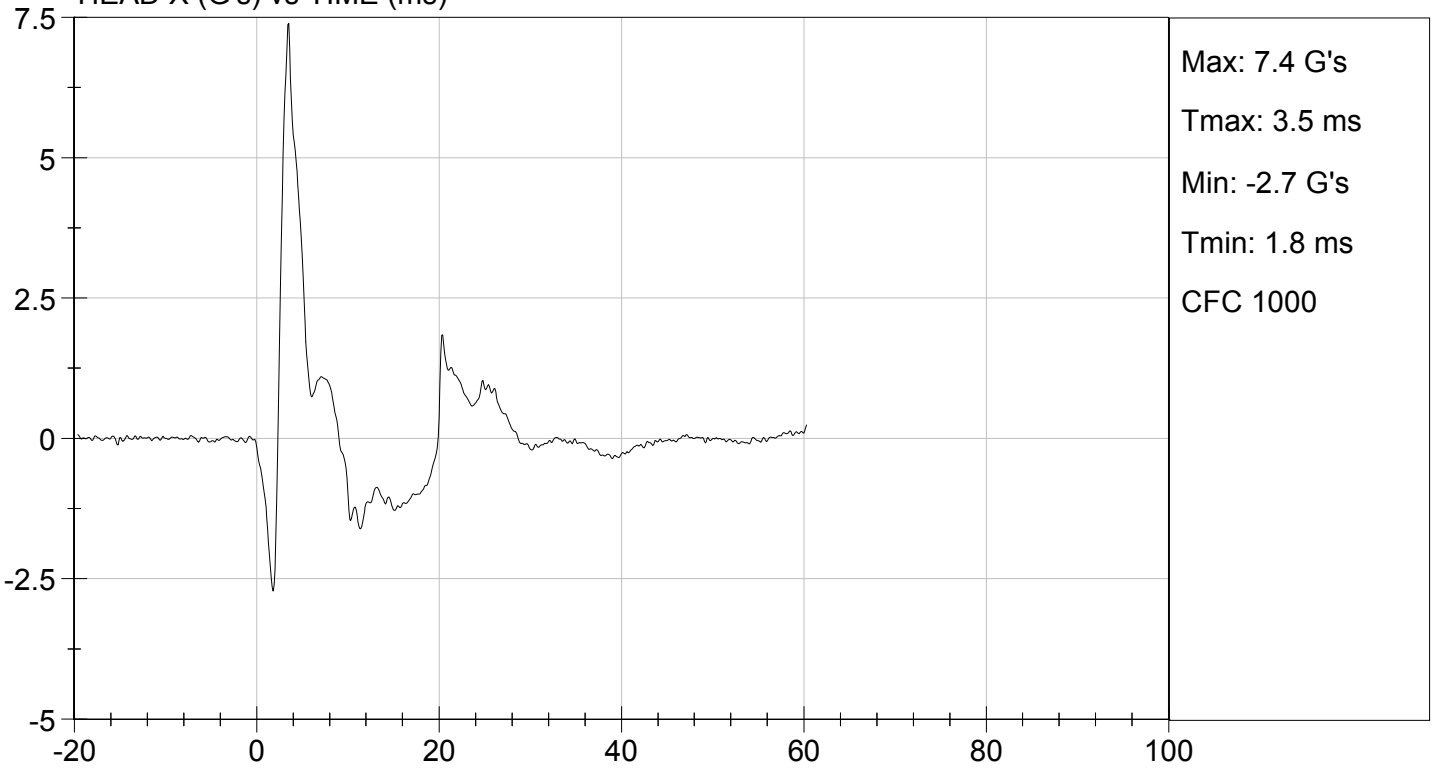
TEST DESC: HEAD DROP

TEST DATE: 05/15/2014
TEST #: D141891

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



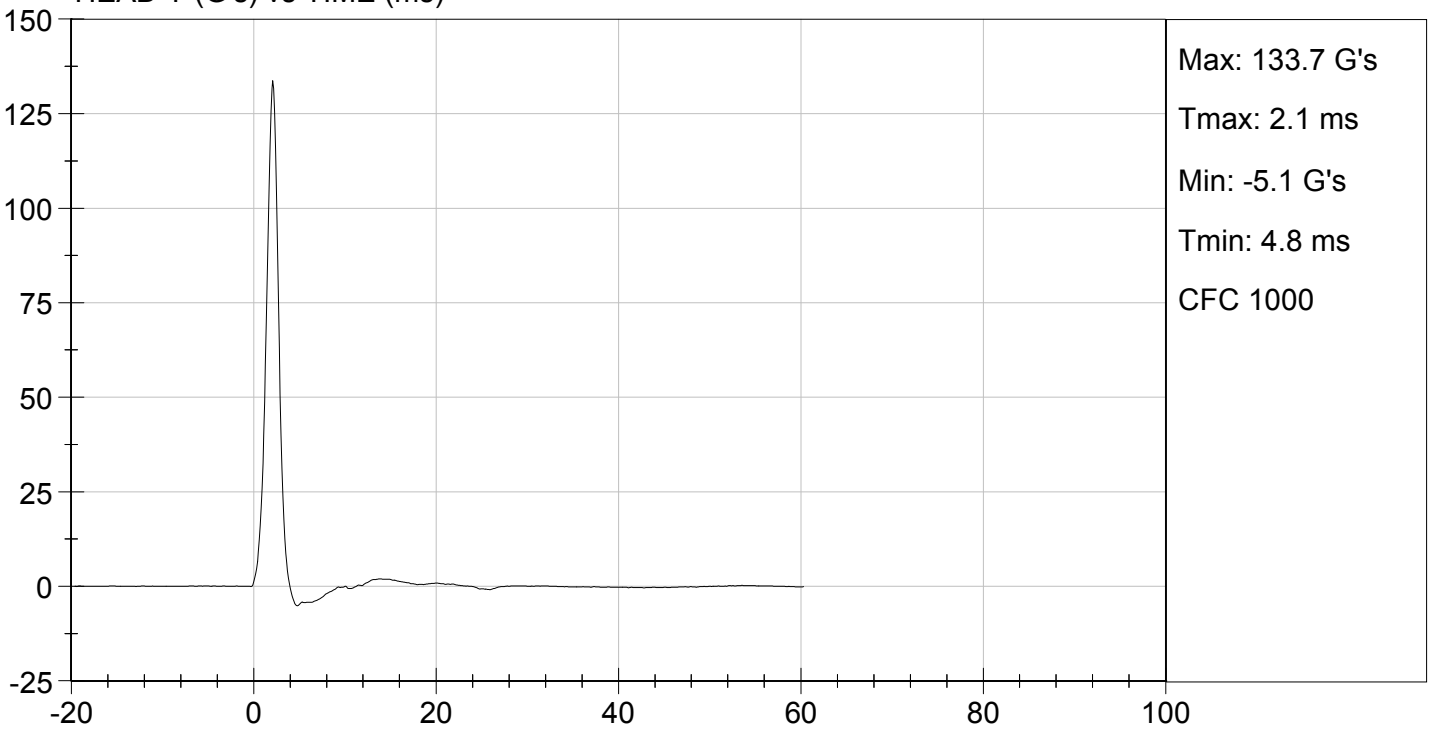
HEAD X (G's) vs TIME (ms)



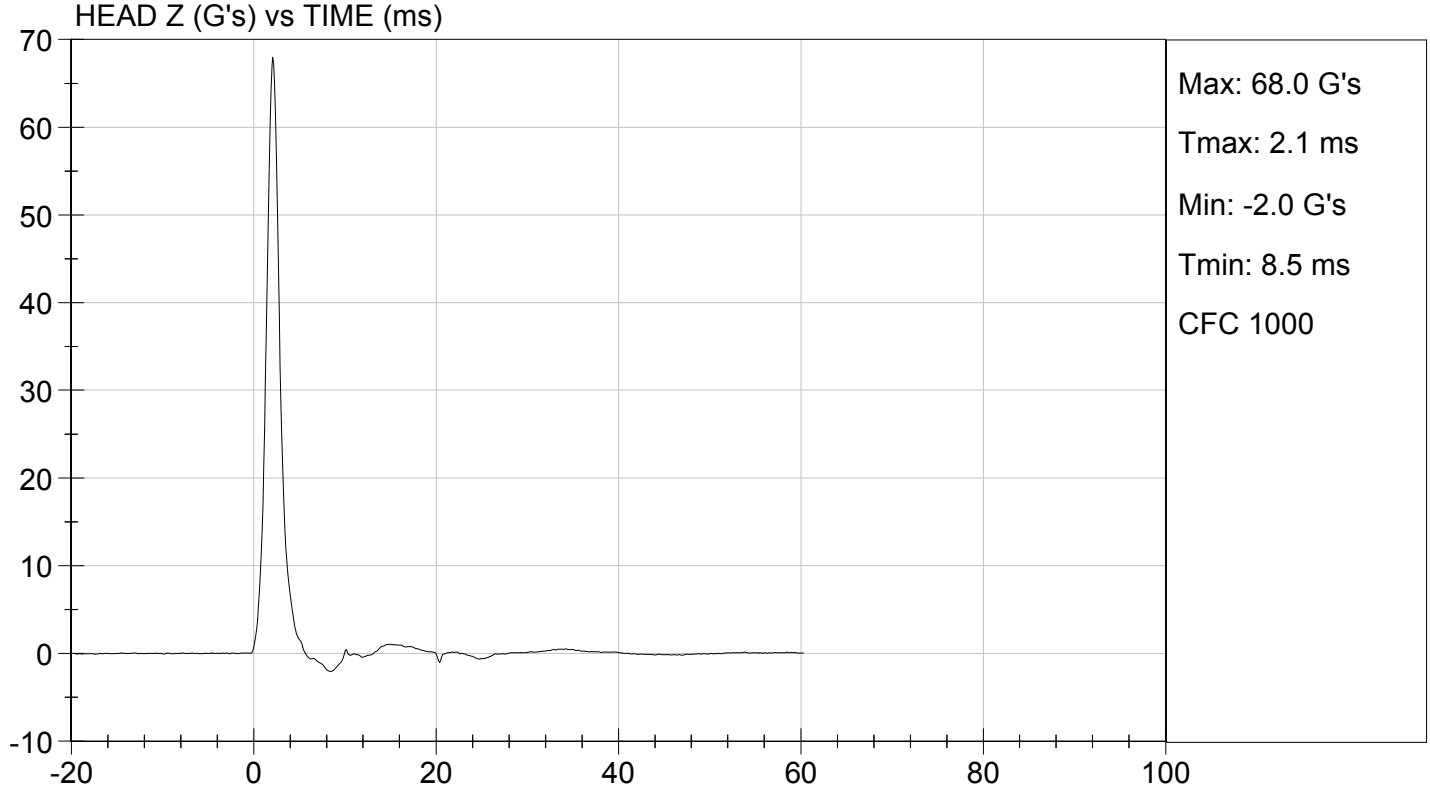
TEST DESC: HEAD DROP

TEST DATE: 05/15/2014
TEST #: D141891

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:** D141892

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity		%	10 to 70	42	Pass
Pendulum Speed		m/s	3.30 to 3.50	3.41	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	-3.39	Pass
	17 ms	m/s	>= -3.70	-3.43	Pass
Maximum Flexion Angle		deg	49.0 to 59.0	49.8	Pass
Time of Maximum Flexion Angle		ms	54.0 to 66.0	61.2	Pass
Head Rotation Decay Time to 0 Degree		ms	53.0 to 88.0	56.3	Pass
			Overall Results		Pass

Jessica Gall
Laboratory Technician

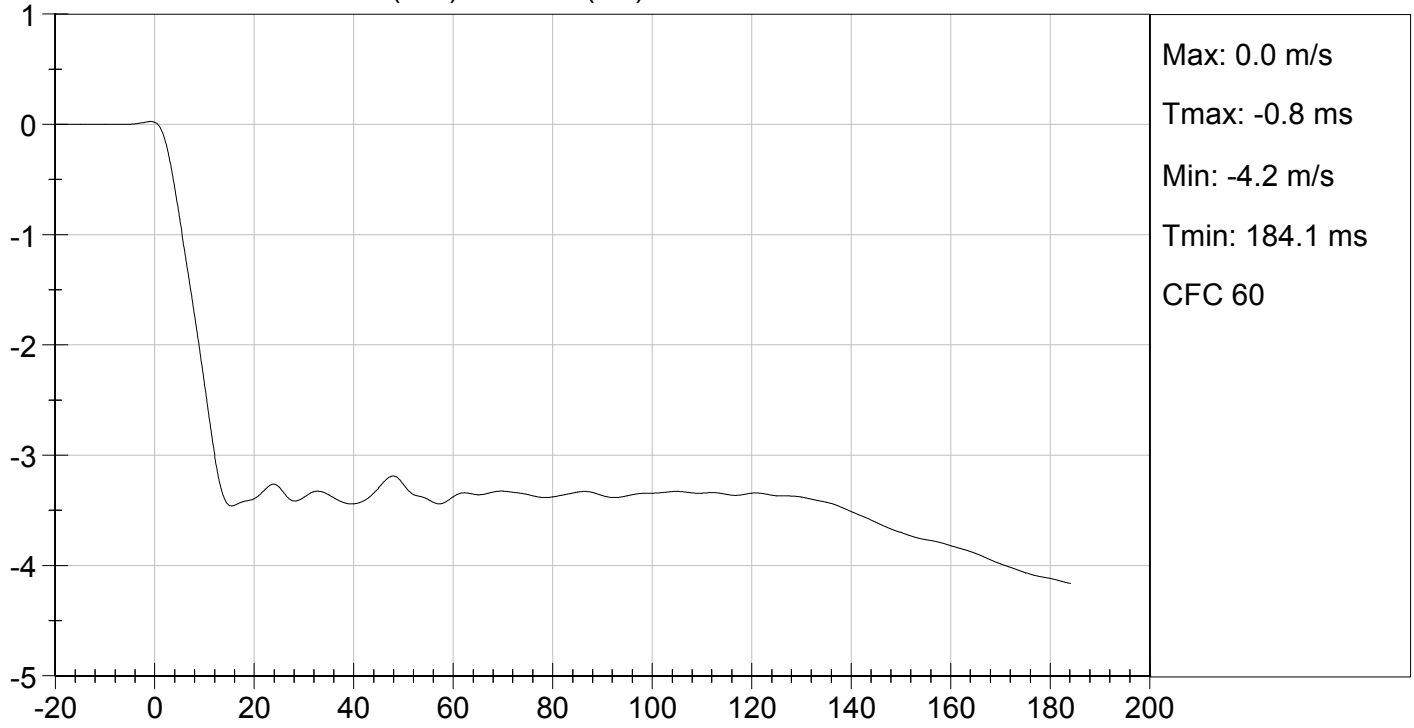
05/15/2014
Test Date

David Winkelbauer
Approved By

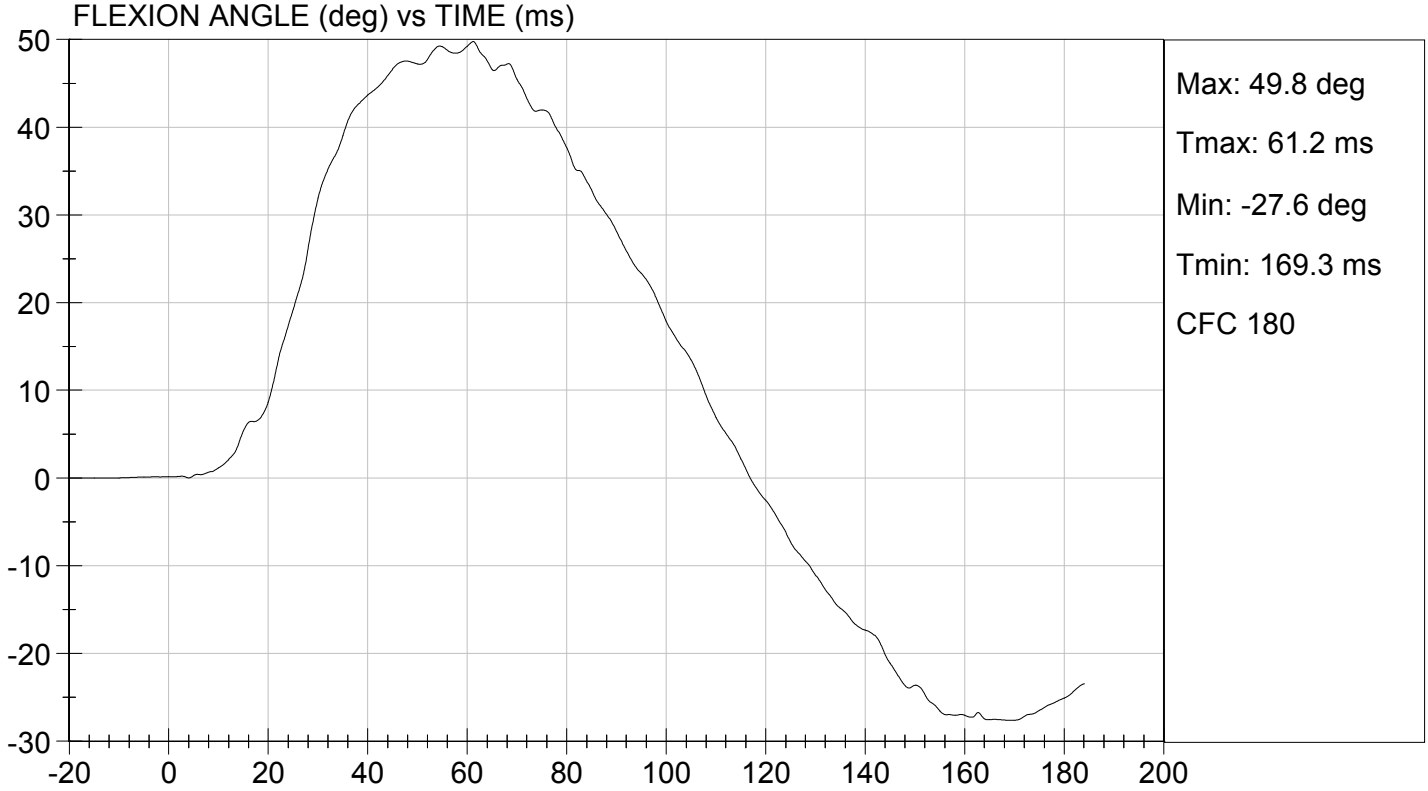
TEST DESC: NECK BENDING
VELOCITY: 11.19 ft/s, 3.41 m/s

TEST DATE: 05/15/2014
TEST #: D141892

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



FLEXION ANGLE (deg) vs TIME (ms)

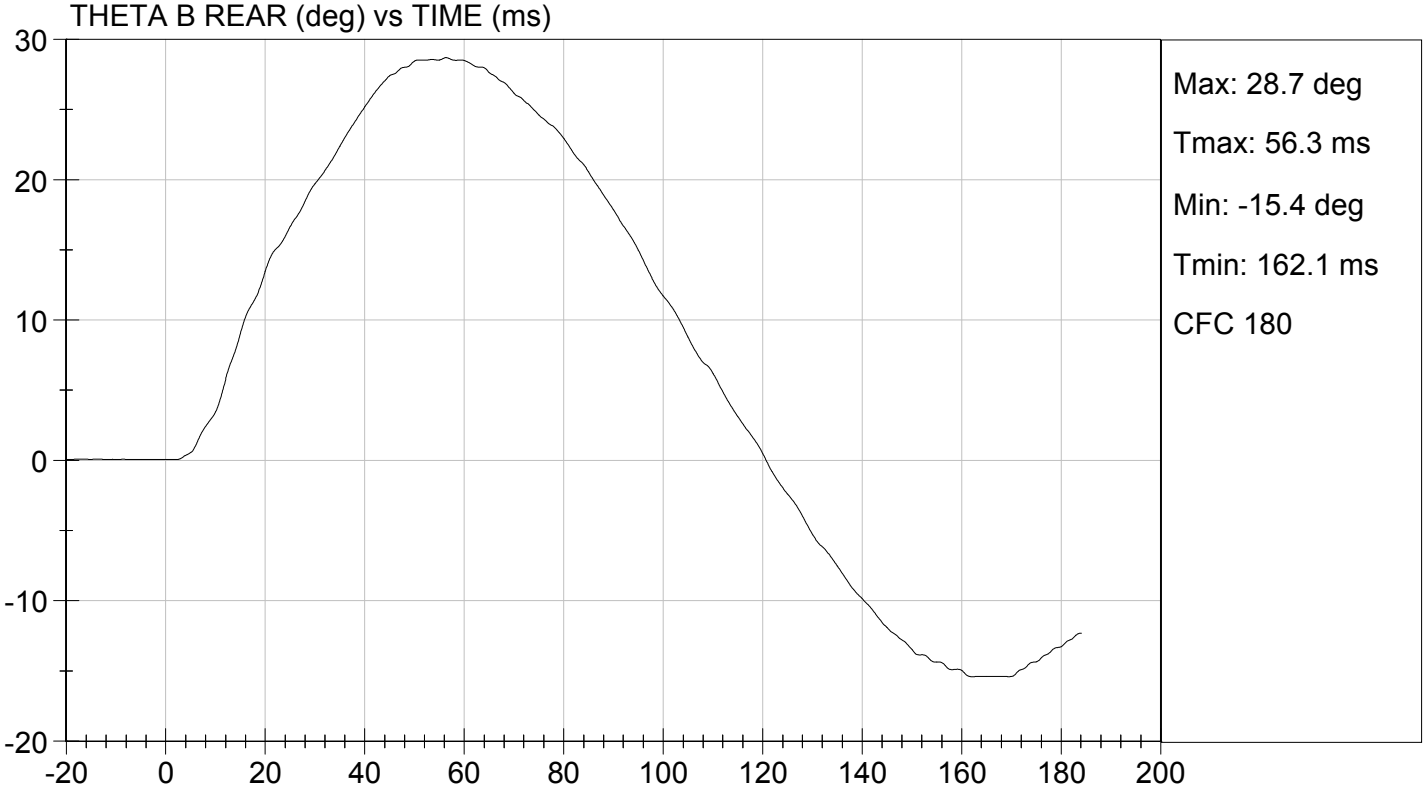


TEST DESC: NECK BENDING
VELOCITY: 11.19 ft/s, 3.41 m/s

TEST DATE: 05/15/2014
TEST #: D141892

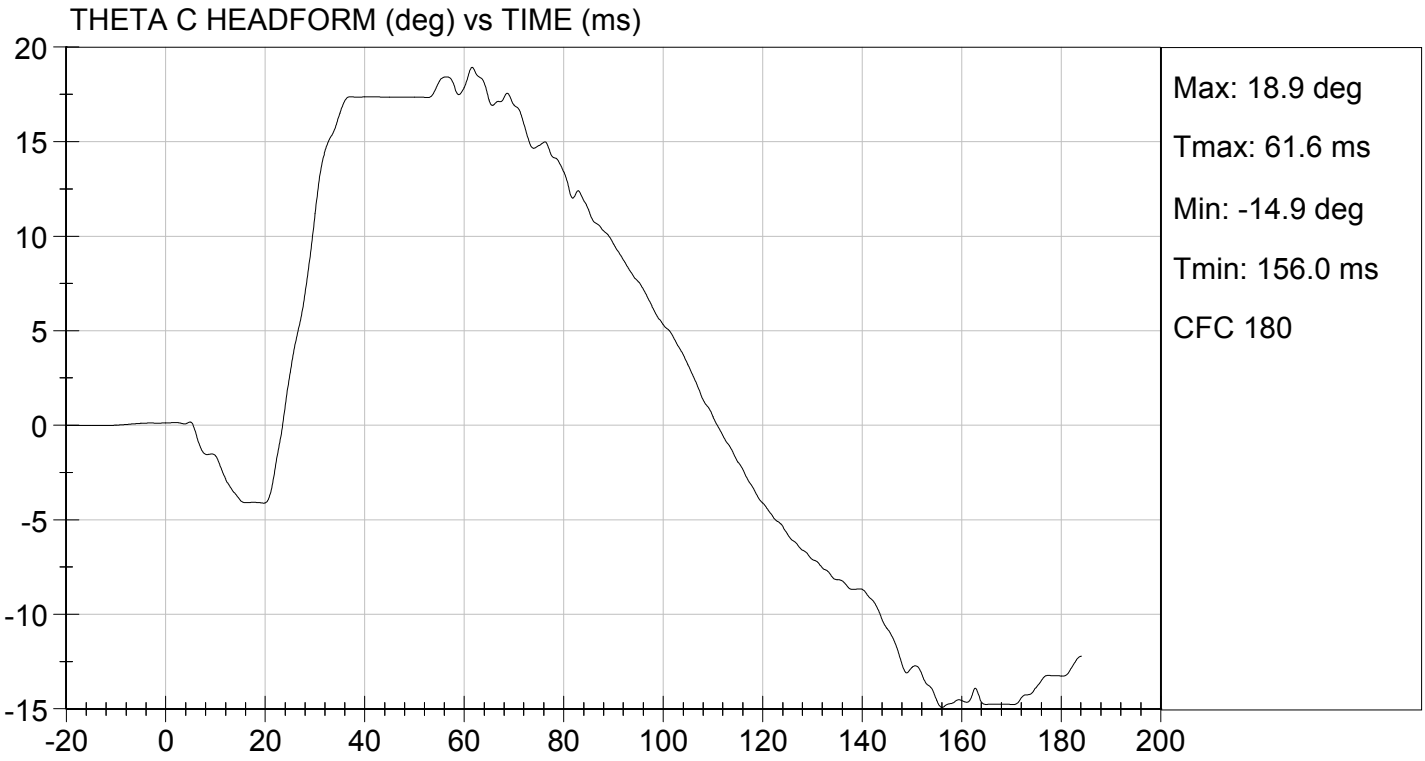
THETA A FRONT (deg) vs TIME (ms)

THETA B REAR (deg) vs TIME (ms)



TEST DESC: NECK BENDING
VELOCITY: 11.19 ft/s, 3.41 m/s

TEST DATE: 05/15/2014
TEST #: D141892



MGA RESEARCH CORPORATION

SHOULDER IMPACT TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D141893

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	42	Pass
Pendulum Speed	m/s	4.20 to 4.40	4.30	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	9.3	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

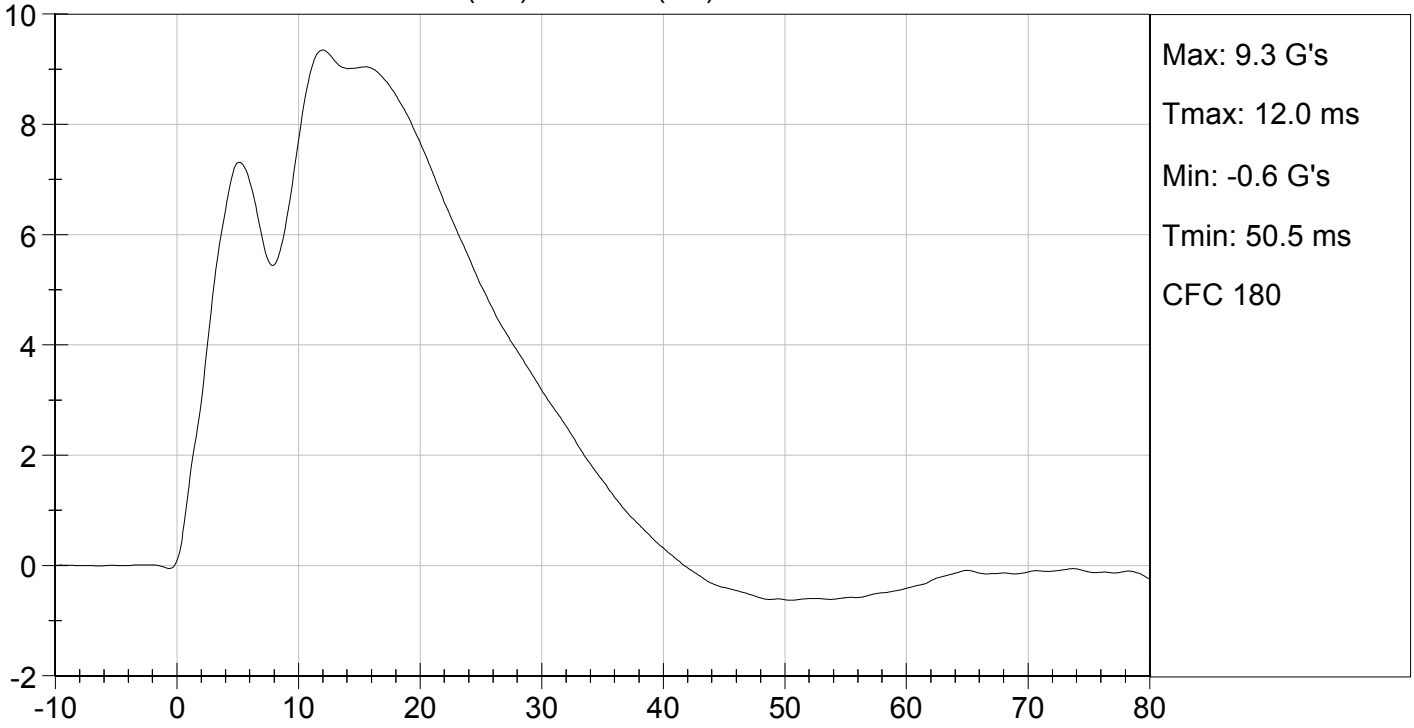
05/15/2014
Test Date

David Winkelbauer
Approved By

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

TEST DATE: 05/15/2014
TEST #: D141893

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



MGA RESEARCH CORPORATION

UPPER RIB TEST

ES-2re DUMMY

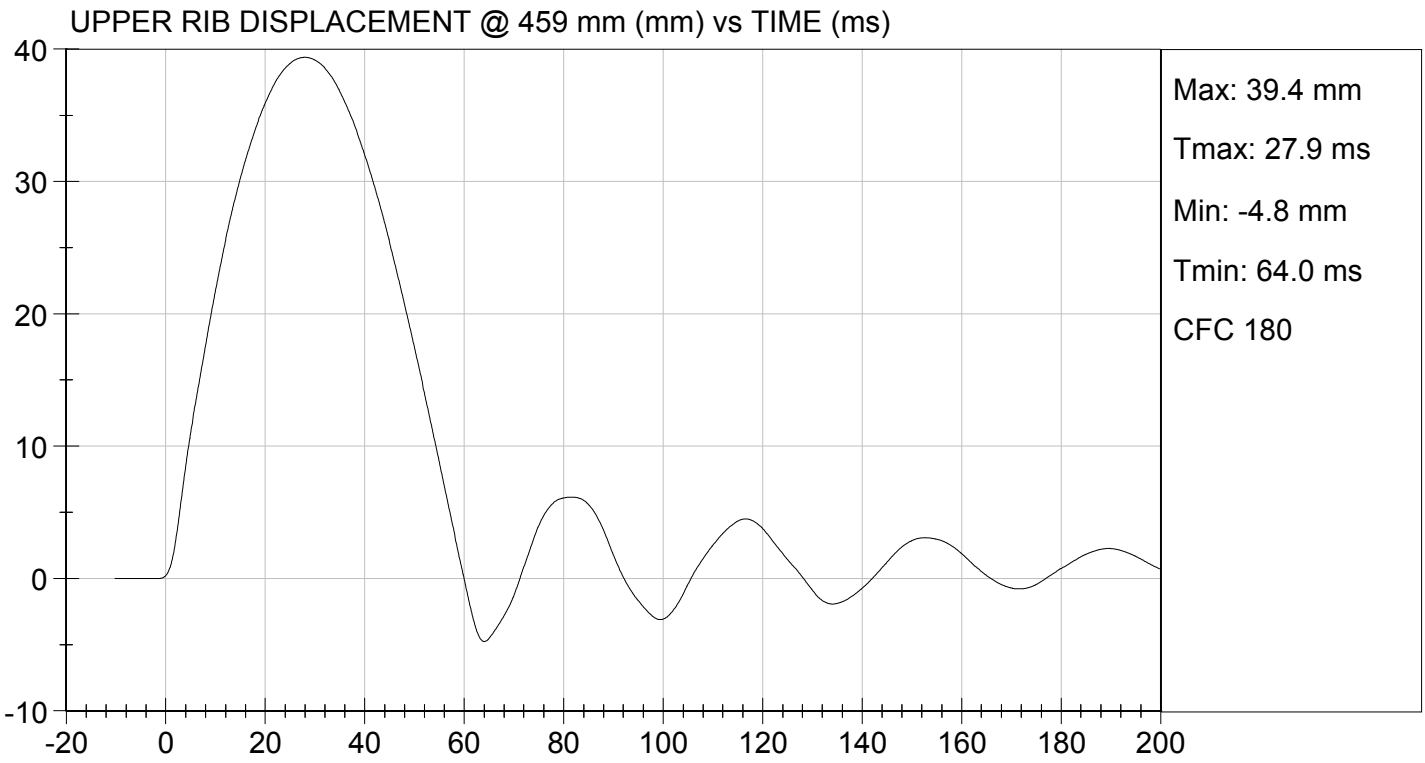
ATD Serial No: 032 **Test I.D:** D141894

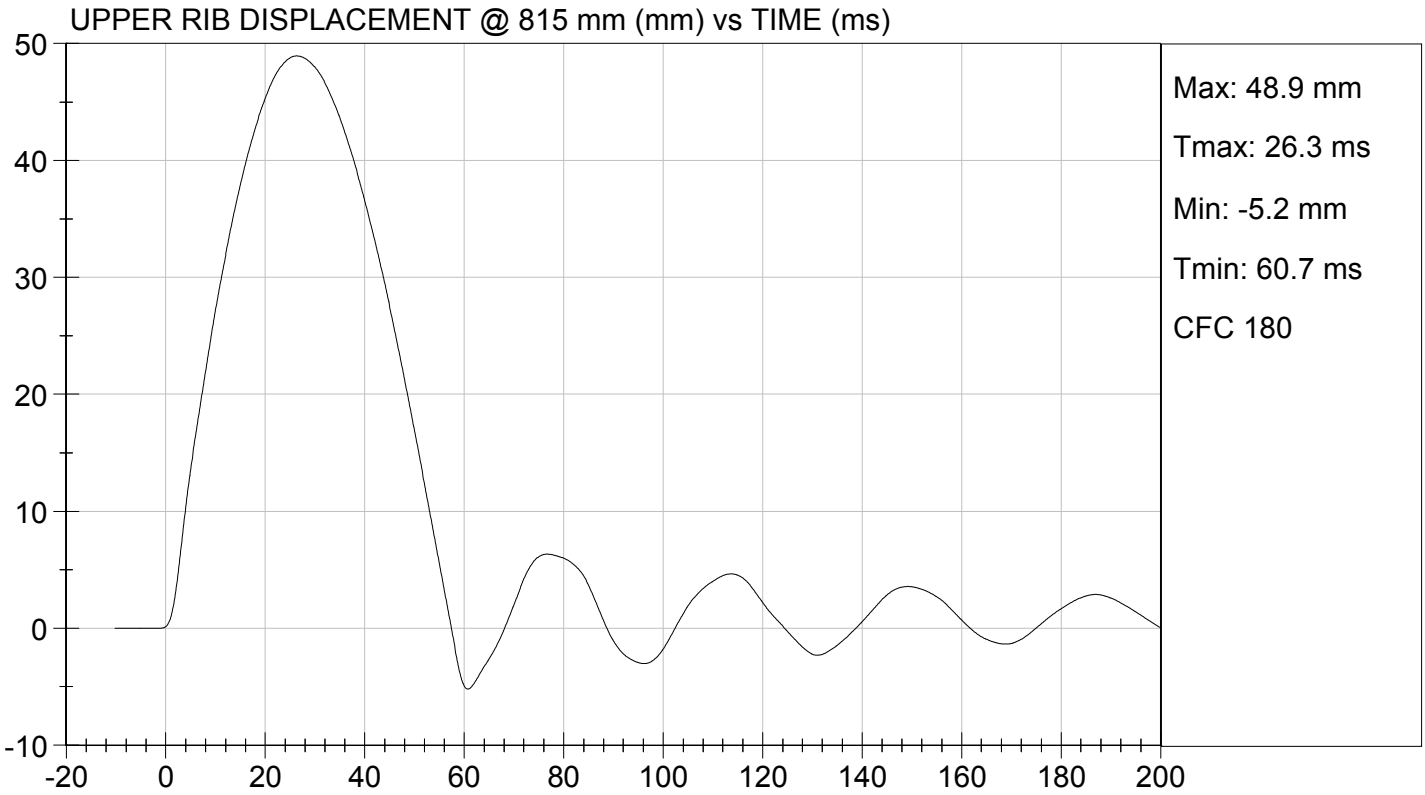
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Displacement at 459 mm	mm	36.0 to 40.0	39.4	Pass
Displacement at 815 mm	mm	46.0 to 51.0	48.9	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

05/15/2014
Test Date

David Winkelbauer
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: 27.9 ms
Min: -4.8 mm
Tmin: 64.0 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: 48.9 mm
Tmax: 26.3 ms
Min: -5.2 mm
Tmin: 60.7 ms
CFC 180

MGA RESEARCH CORPORATION

MID RIB TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D141895

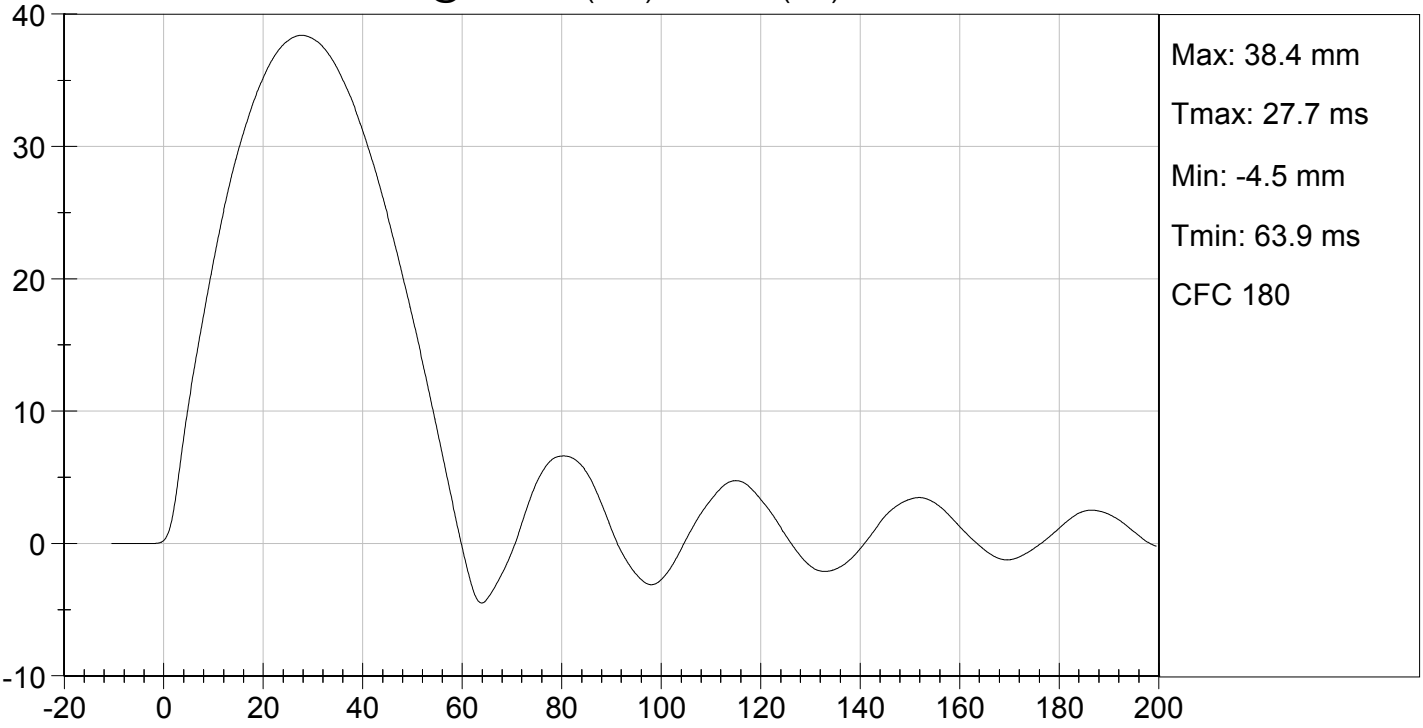
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Displacement at 459 mm	mm	36.0 to 40.0	38.4	Pass
Displacement at 815 mm	mm	46.0 to 51.0	48.5	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

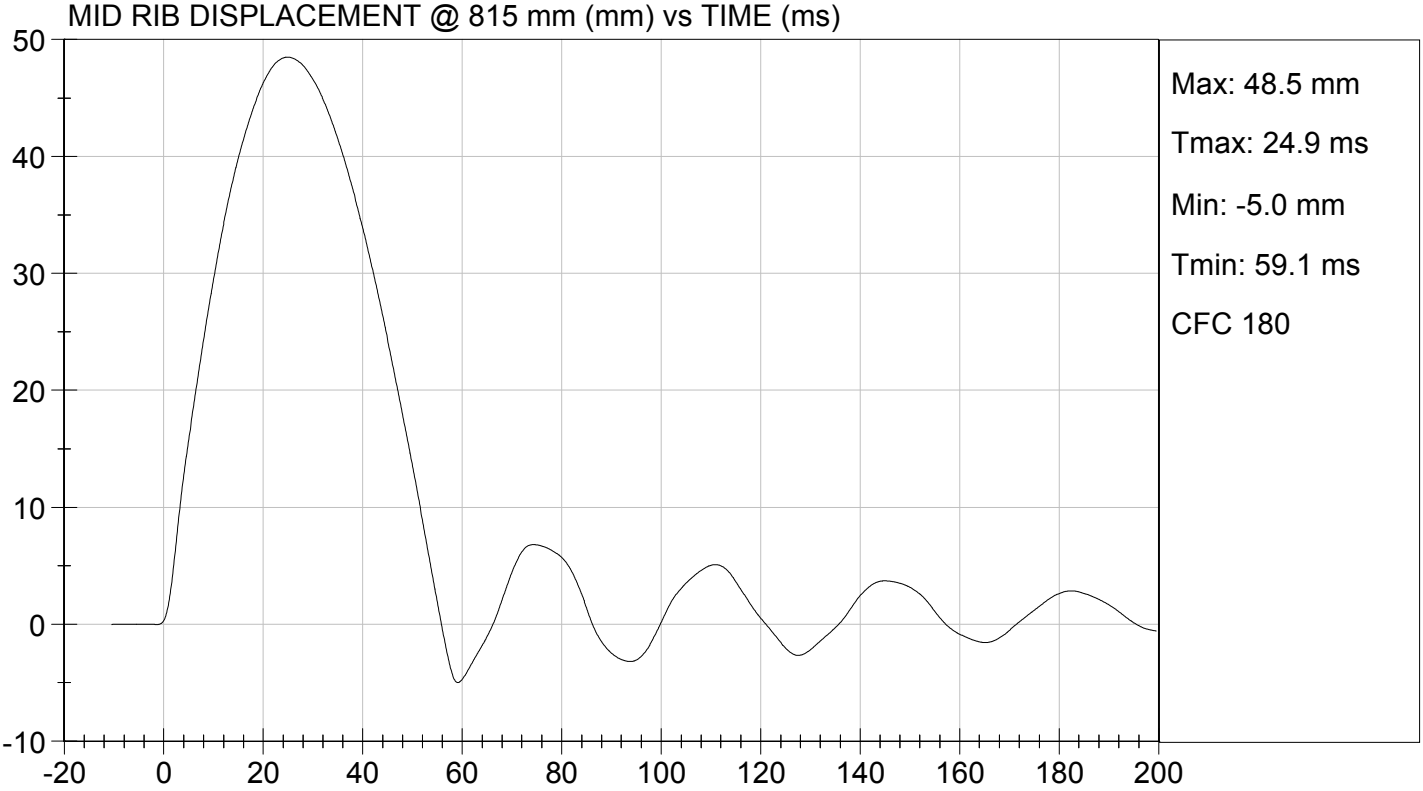
05/15/2014
Test Date

David Winkelbauer
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:** D141896

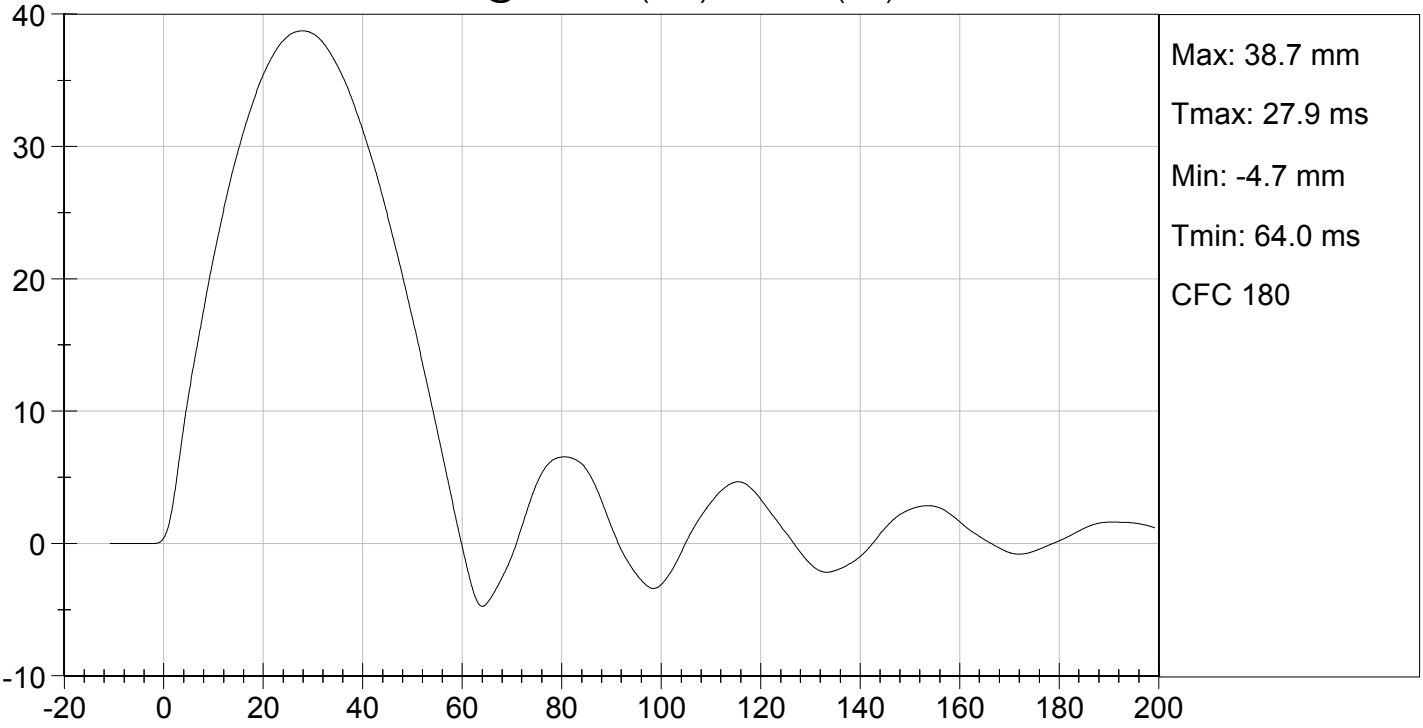
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Displacement at 459 mm	mm	36.0 to 40.0	38.7	Pass
Displacement at 815 mm	mm	46.0 to 51.0	50.3	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

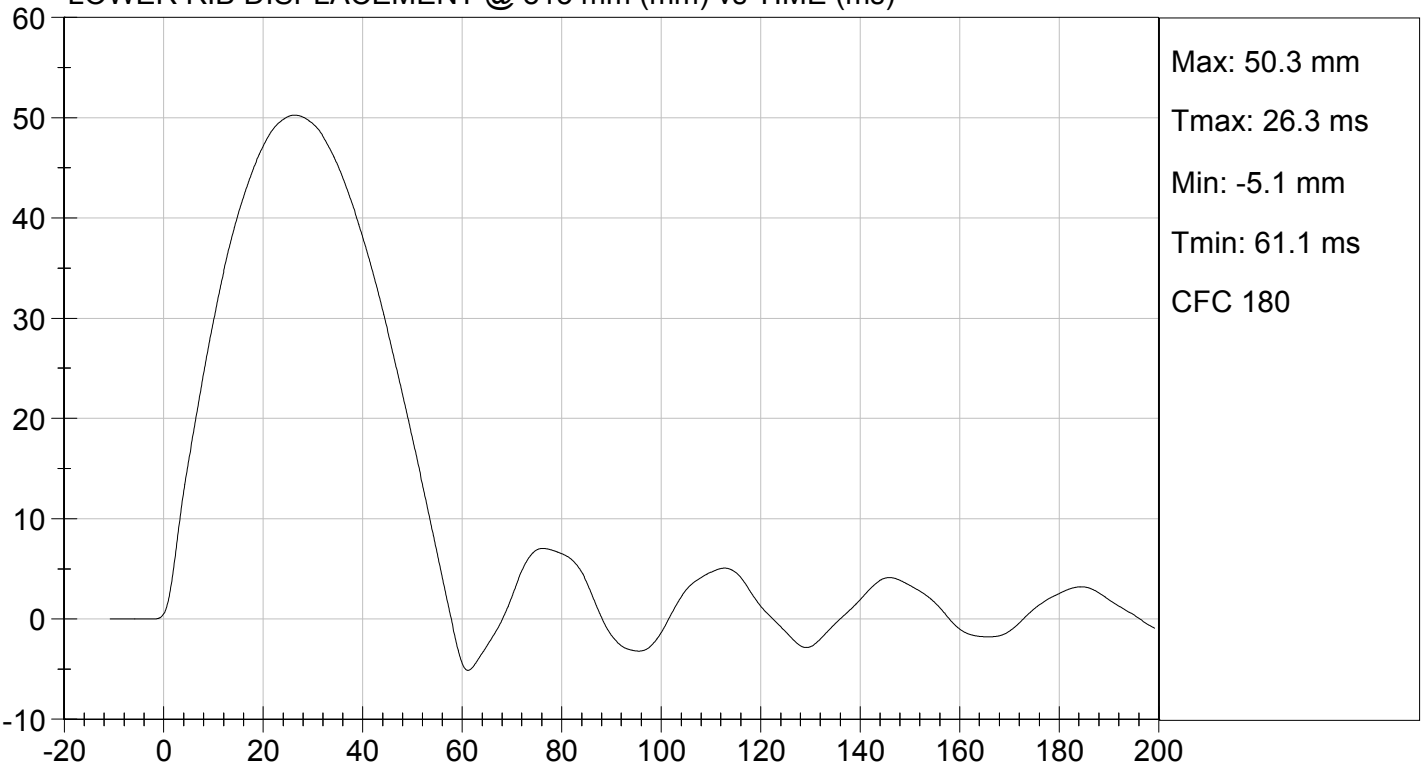
05/15/2014
Test Date

David Winkelbauer
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:** D141890

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	43	Pass
Probe Speed	m/s	5.40 to 5.60	5.58	Pass
Maximum Impactor Force (after 6 ms)	N	5100 to 6200	5607	Pass
Upper Rib Displacement	mm	34.0 to 41.0	38.9	Pass
Middle Rib Displacement	mm	37.0 to 45.0	42.5	Pass
Lower Rib Displacement	mm	37.0 to 44.0	42.6	Pass
		Overall Test Results		Pass

Jessica Gall
Laboratory Technician

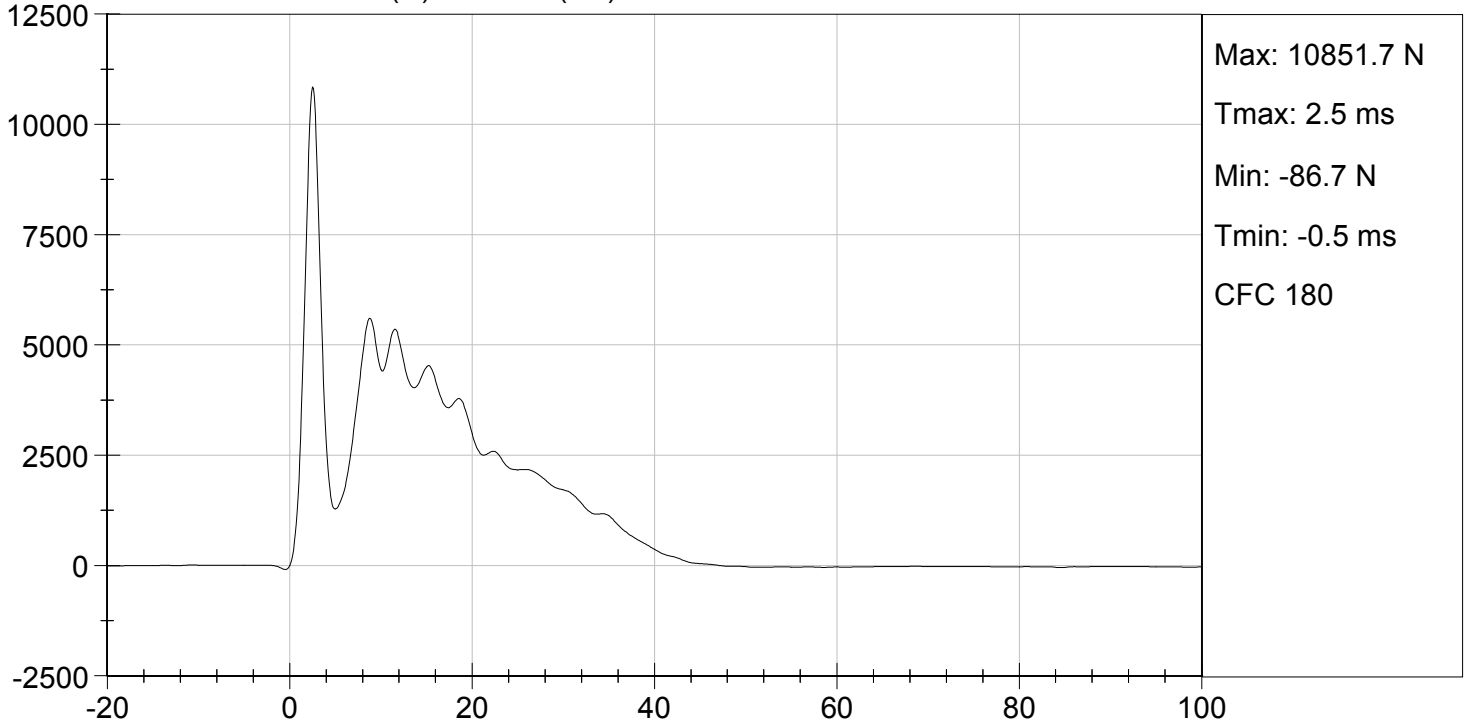
05/15/2014
Test Date

David Winkelbauer
Approved By

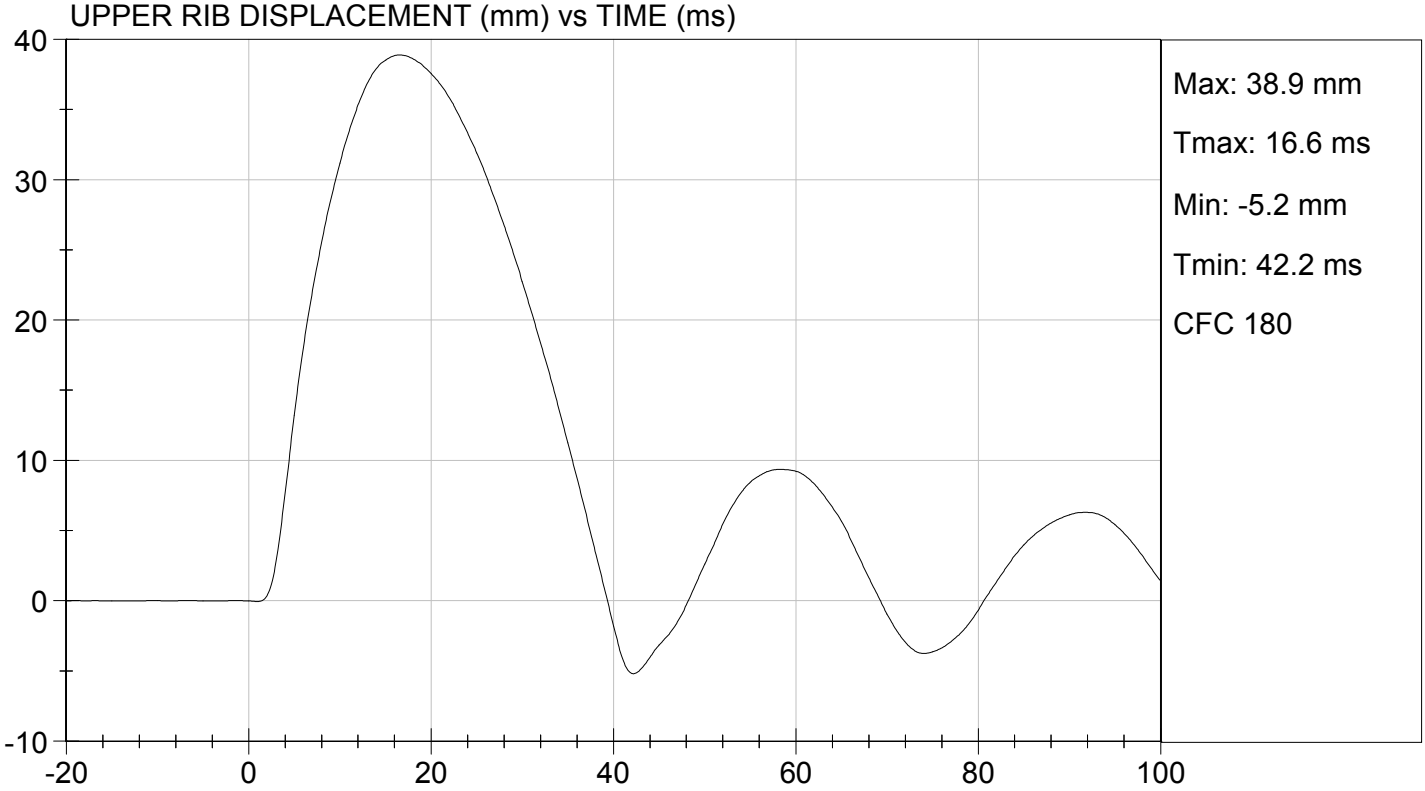
TEST DESC: THORAX IMPACT
VELOCITY: 18.32 ft/s, 5.58 m/s

TEST DATE: 05/15/2014
TEST #: D141890

IMPACTOR FORCE (N) vs TIME (ms)



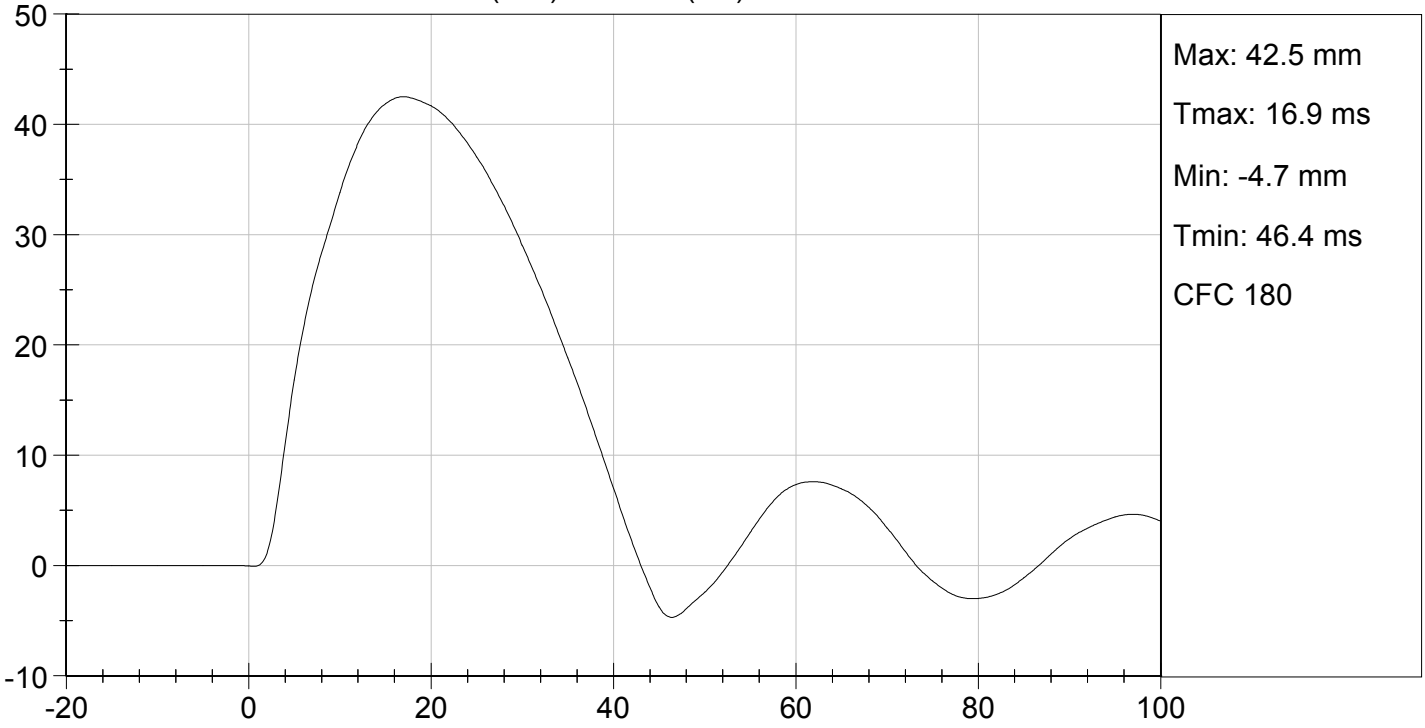
UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



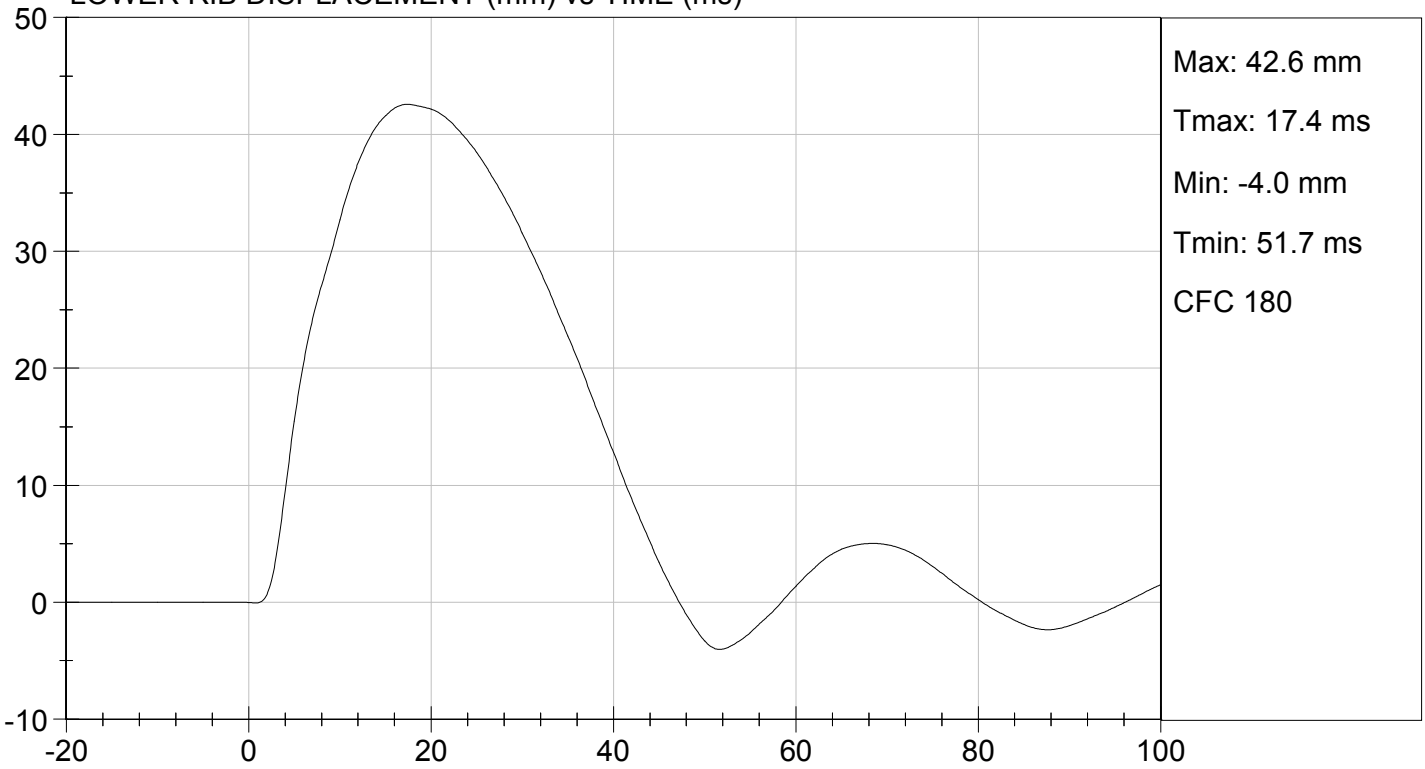
TEST DESC: THORAX IMPACT
VELOCITY: 18.32 ft/s, 5.58 m/s

TEST DATE: 05/15/2014
TEST #: D141890

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:** D141897

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	43	Pass
Probe Speed	m/s	3.90 to 4.10	4.07	Pass
Maximum Impactor Force	N	4000 to 4800	4275	Pass
Time of Maximum Impactor Force	ms	10.6 to 13.0	10.7	Pass
Maximum Total Abdomen Force	N	2200 to 2700	2241	Pass
Time of Maximum Abdomen Force	ms	10.0 to 12.3	11.2	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

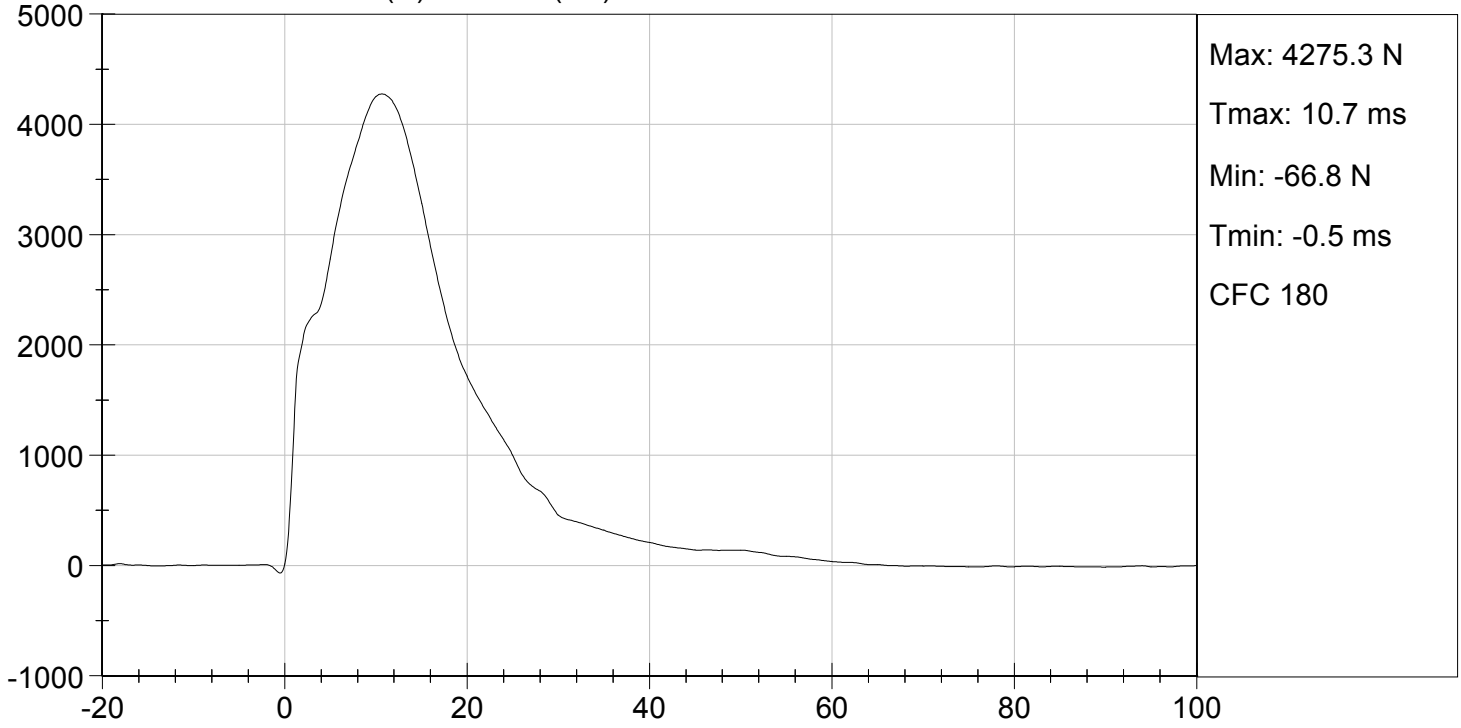
05/15/2014
Test Date

David Winkelbauer
Approved By

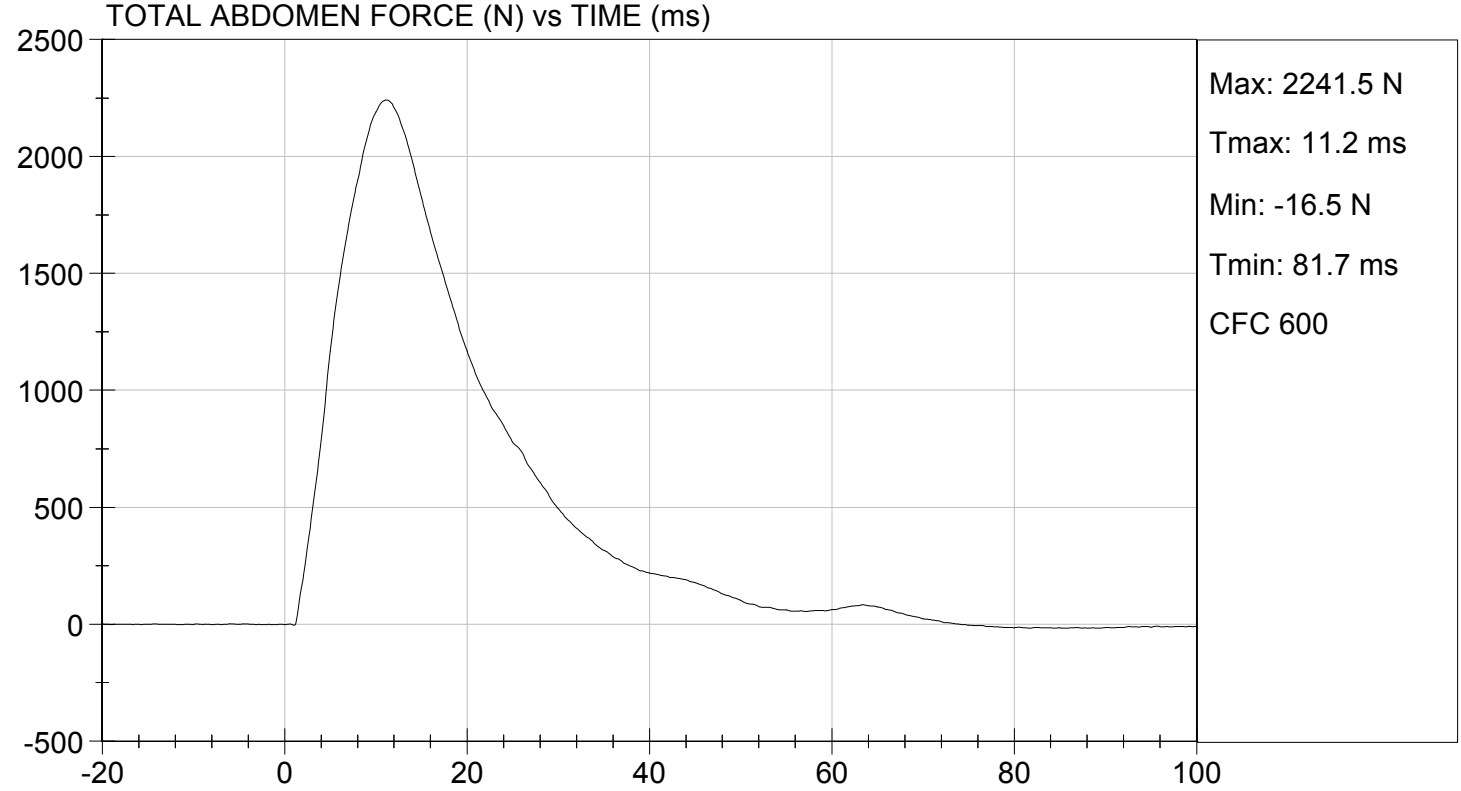
TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.36 ft/s, 4.07 m/s

TEST DATE: 05/15/2014
TEST #: D141897

IMPACTOR FORCE (N) vs TIME (ms)



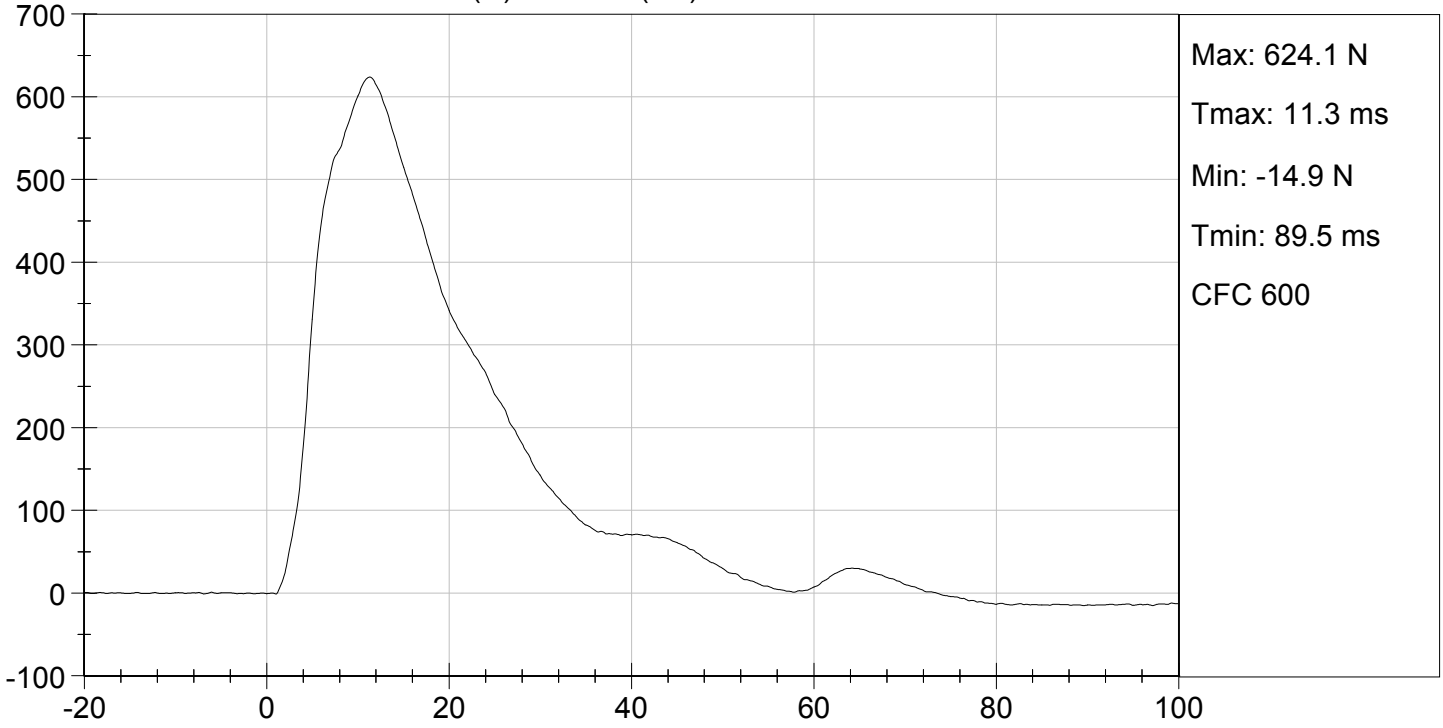
TOTAL ABDOMEN FORCE (N) vs TIME (ms)



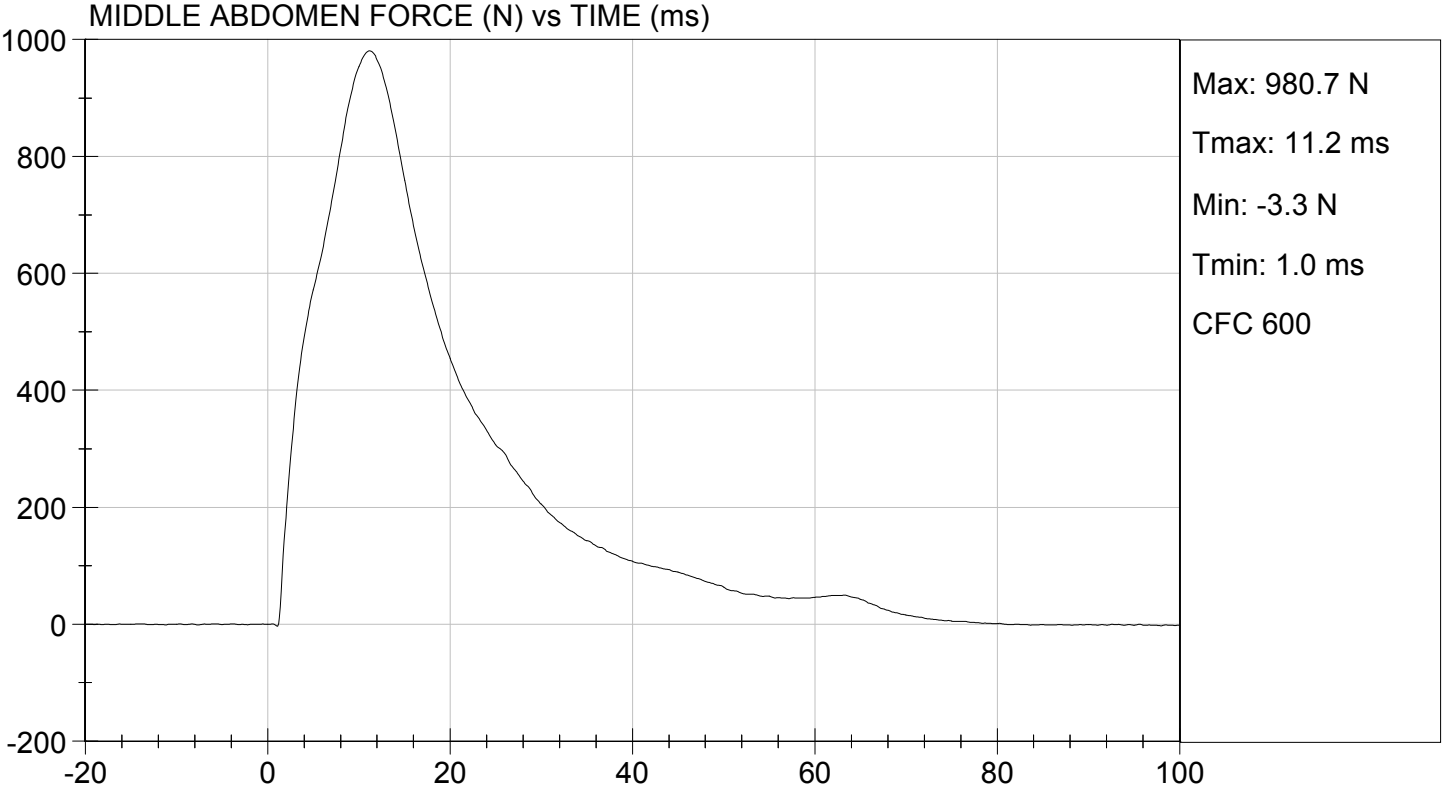
TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.36 ft/s, 4.07 m/s

TEST DATE: 05/15/2014
TEST #: D141897

FRONT ABDOMEN FORCE (N) vs TIME (ms)



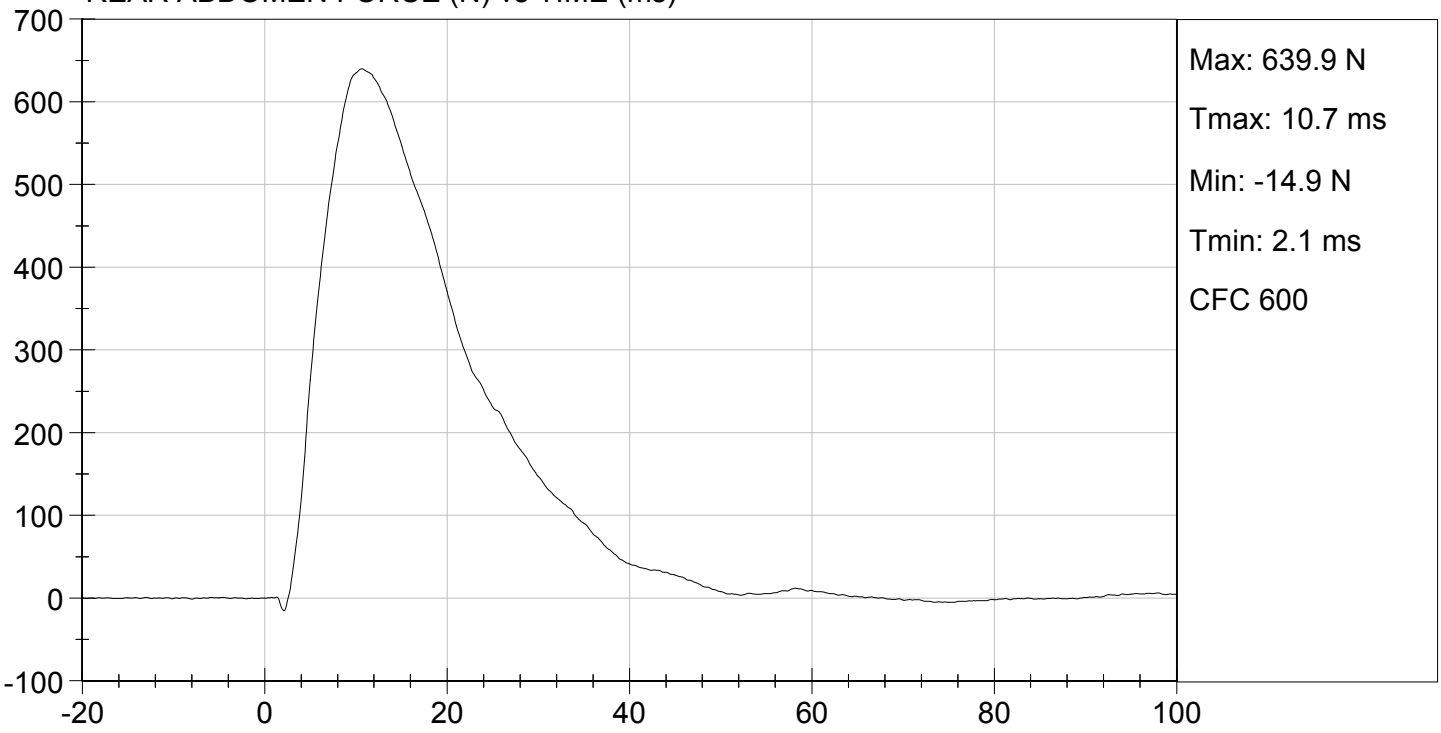
MIDDLE ABDOMEN FORCE (N) vs TIME (ms)



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

TEST DATE: 05/15/2014
TEST #: D141897

REAR ABDOMEN FORCE (N) vs TIME (ms)



MGA RESEARCH CORPORATION

LUMBAR SPINE TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D141898

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity		%	10 to 70	42	Pass
Pendulum Speed		m/s	5.95 to 6.15	6.15	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	-0.398	Pass
	27 ms	m/s	-6.50 to -5.80	-5.81	Pass
	30 ms	m/s	>= -6.50	-6.00	Pass
Maximum Flexion Angle		deg	45.0 to 55.0	47.4	Pass
Time of Maximum Flexion Angle		ms	39.0 to 53.0	44.0	Pass
Headform Rotation Decay to Initial Position		ms	37 to 57	43	Pass
			Overall Results		Pass

Jessica Hall
Laboratory Technician

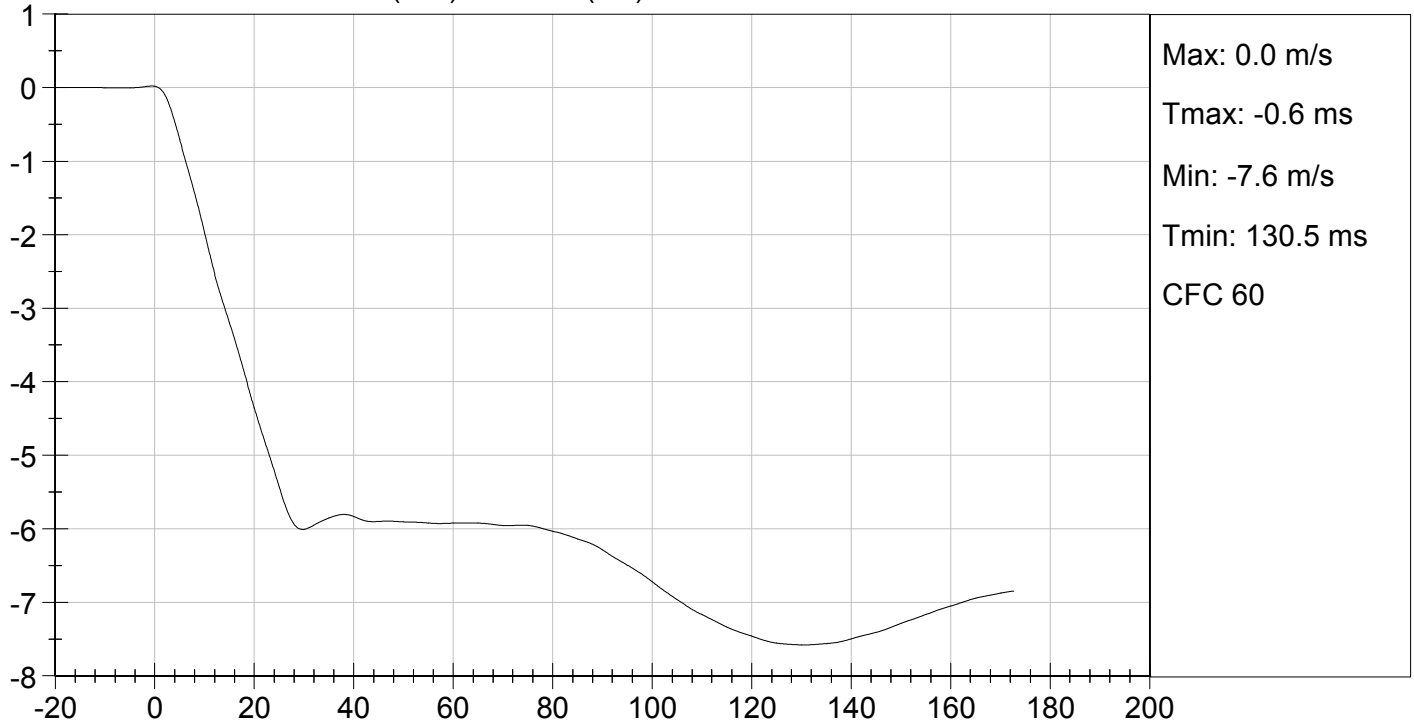
05/15/2014
Test Date

David Winkelbauer
Approved By

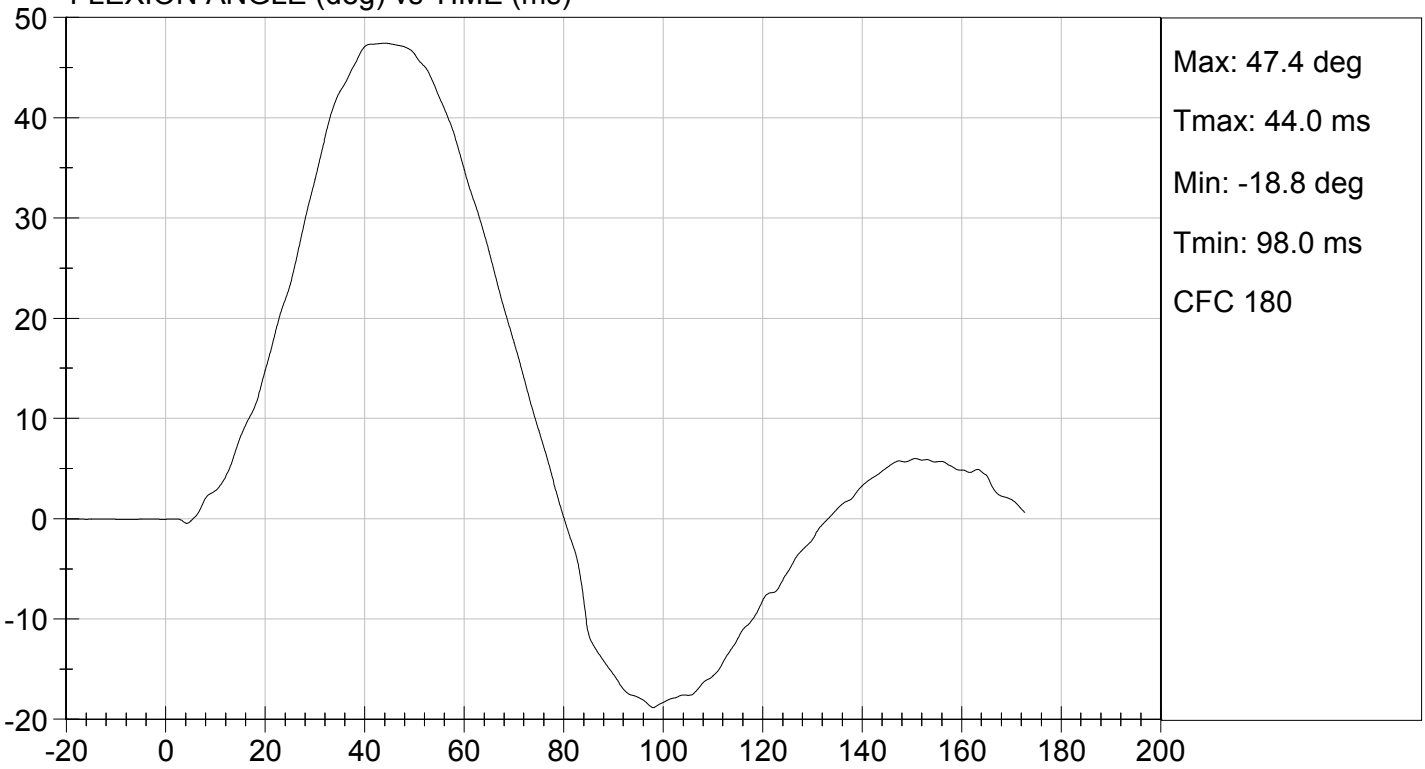
TEST DESC: LUMBAR BENDING
VELOCITY: 20.17 ft/s, 6.15 m/s

TEST DATE: 05/15/2014
TEST #: D141898

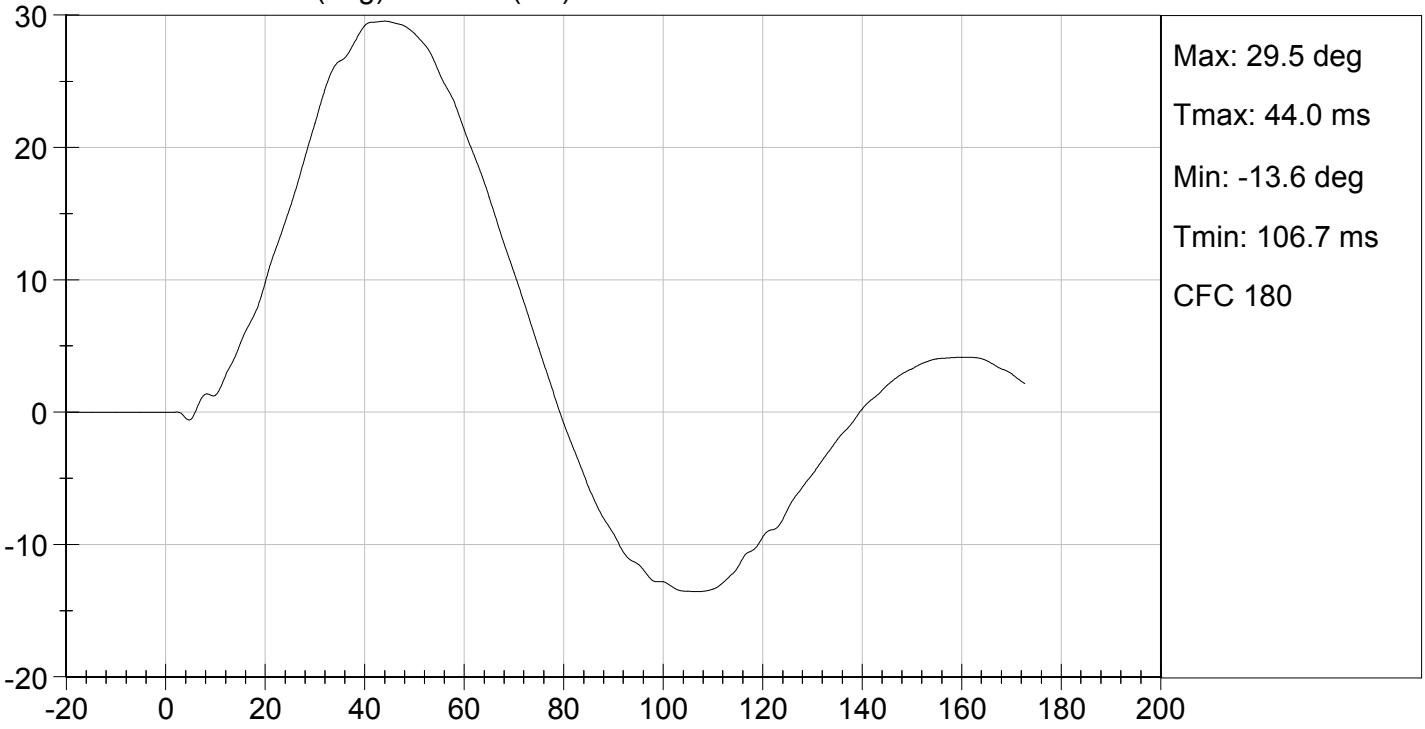
PENDULUM VELOCITY (m/s) vs TIME (ms)



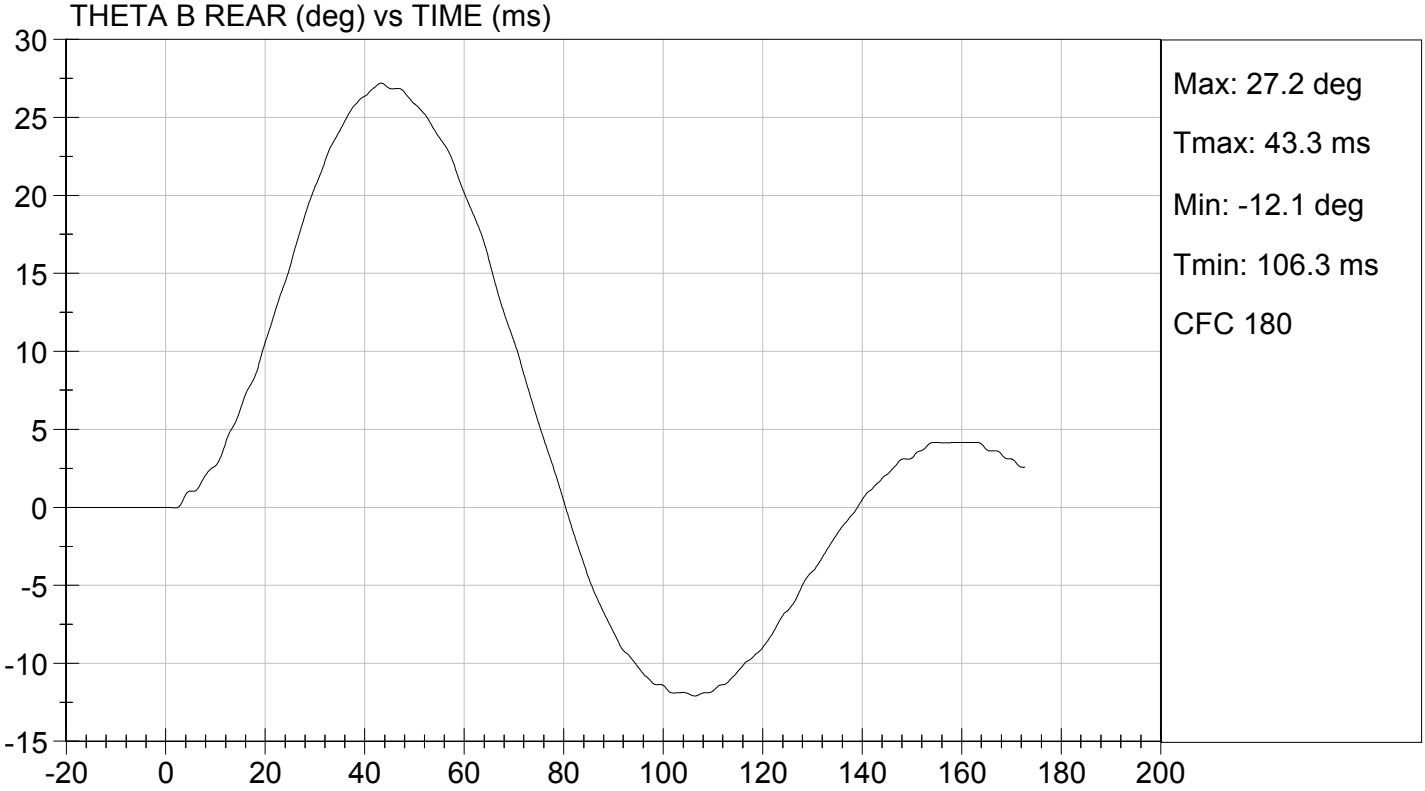
FLEXION ANGLE (deg) vs TIME (ms)



THETA A FRONT (deg) vs TIME (ms)

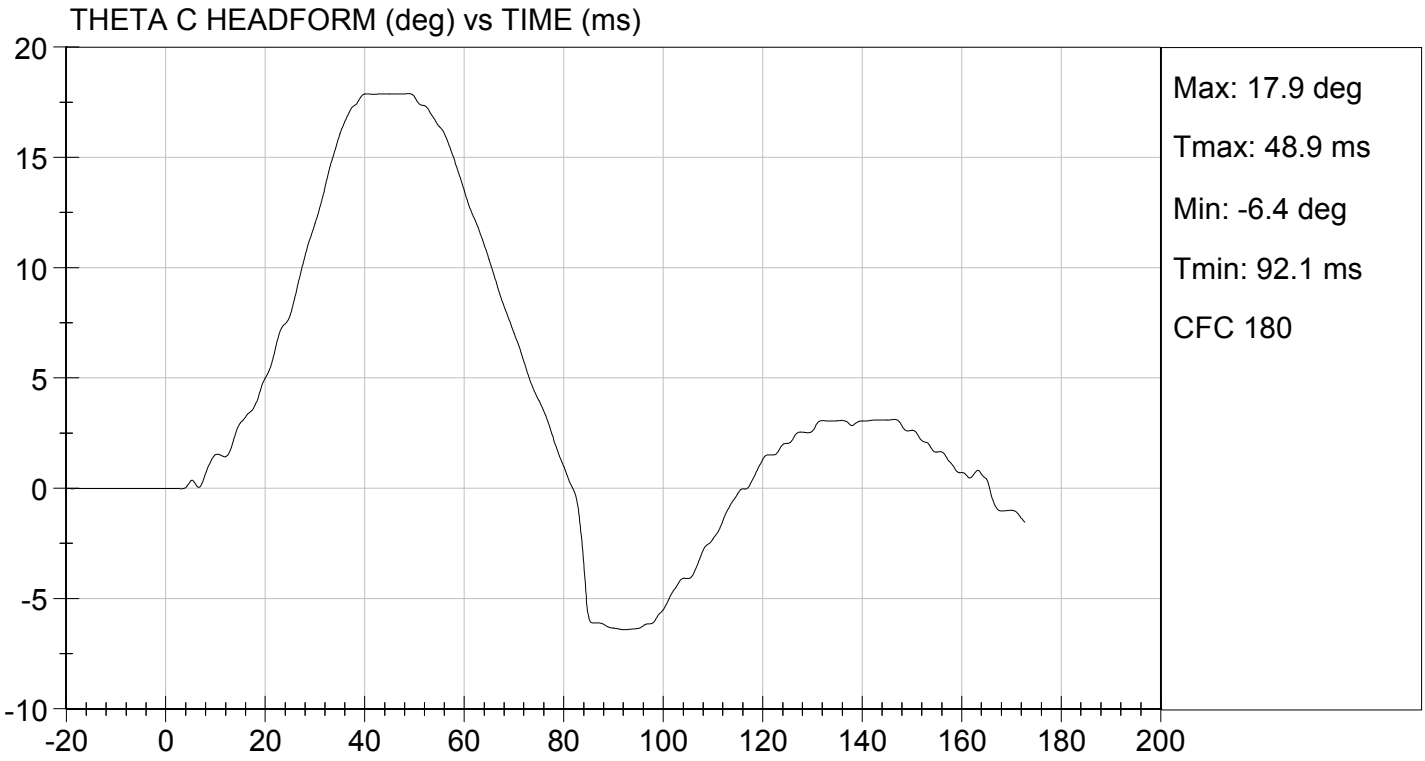


THETA B REAR (deg) vs TIME (ms)



TEST DESC: LUMBAR BENDING
VELOCITY: 20.17 ft/s, 6.15 m/s

TEST DATE: 05/15/2014
TEST #: D141898



MGA RESEARCH CORPORATION

PELVIS TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D141899

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	43	Pass
Probe Speed	m/s	4.20 to 4.40	4.30	Pass
Maximum Impactor Force	N	4700 to 5400	4966	Pass
Time of Maximum Impactor Force	ms	11.8 to 16.1	13.4	Pass
Maximum Pubic Force	N	1230 to 1590	1309	Pass
Time of Maximum Pubic Force	ms	12.2 to 17.0	13.8	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

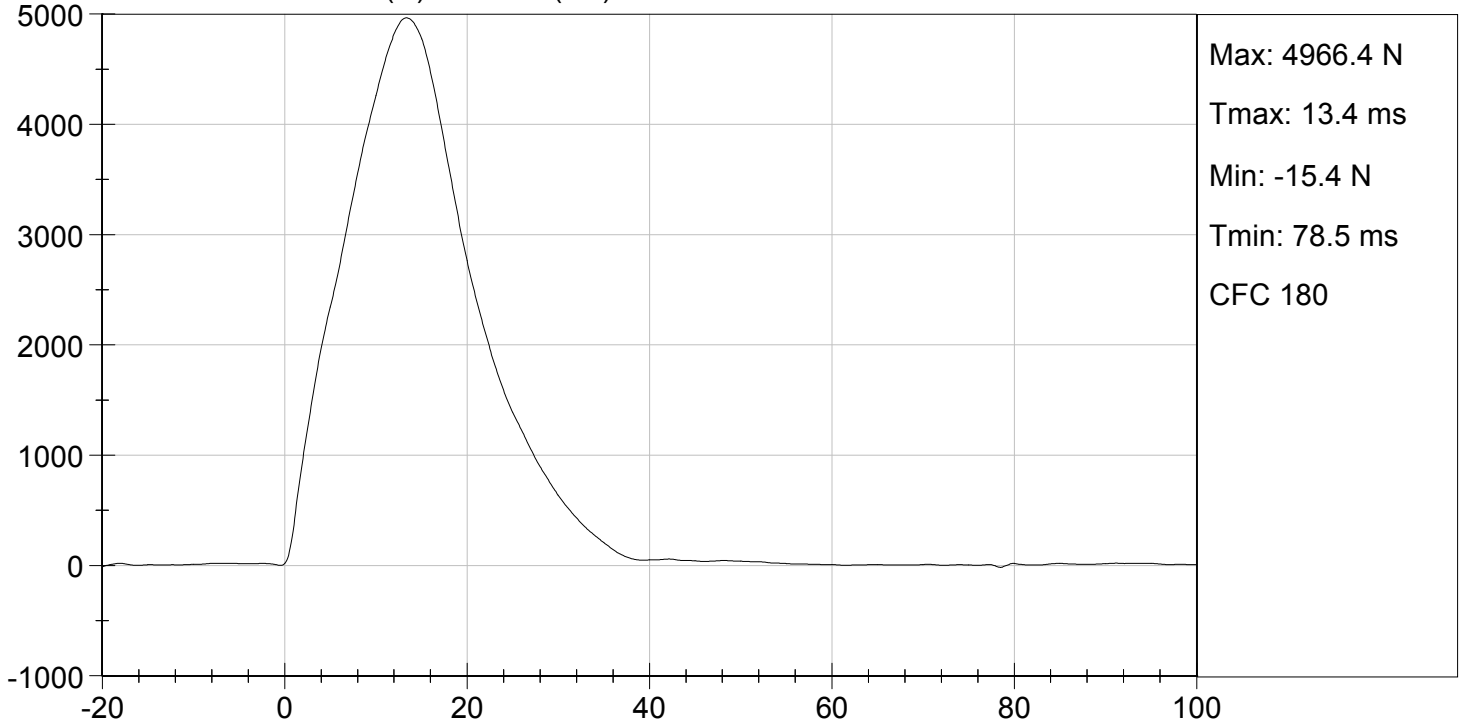
05/15/2014
Test Date

David Winkelbauer
Approved By

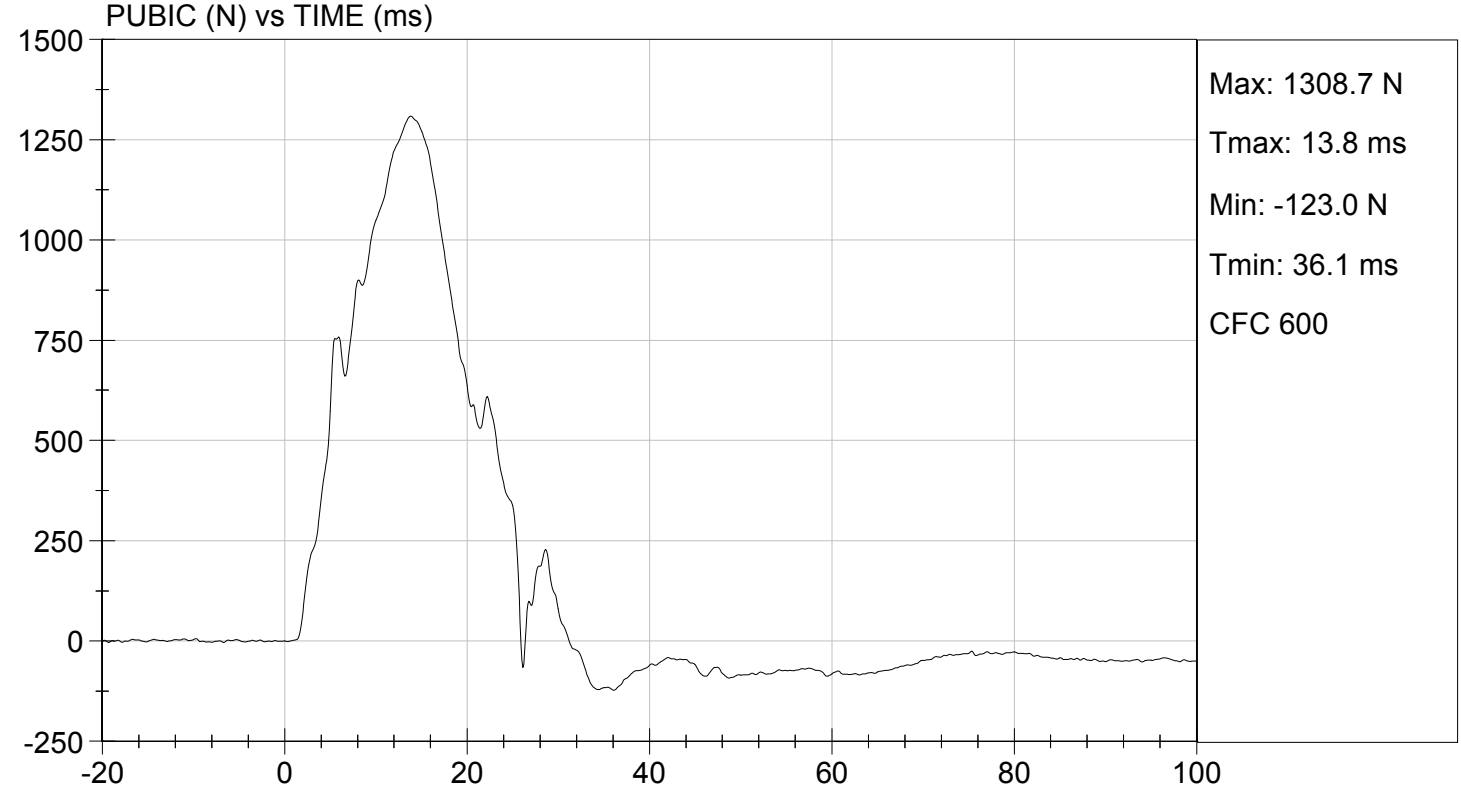
TEST DESC: PELVIS IMPACT
VELOCITY: 14.12 ft/s, 4.3 m/s

TEST DATE: 05/15/2014
TEST #: D141899

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:** D142061

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	52	Pass
Peak Resultant Acceleration	G's	125 to 155	154	Pass
Peak Longitudinal Acceleration	G's	<= +/- 15.0	7.3	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 15% of peak	Yes	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

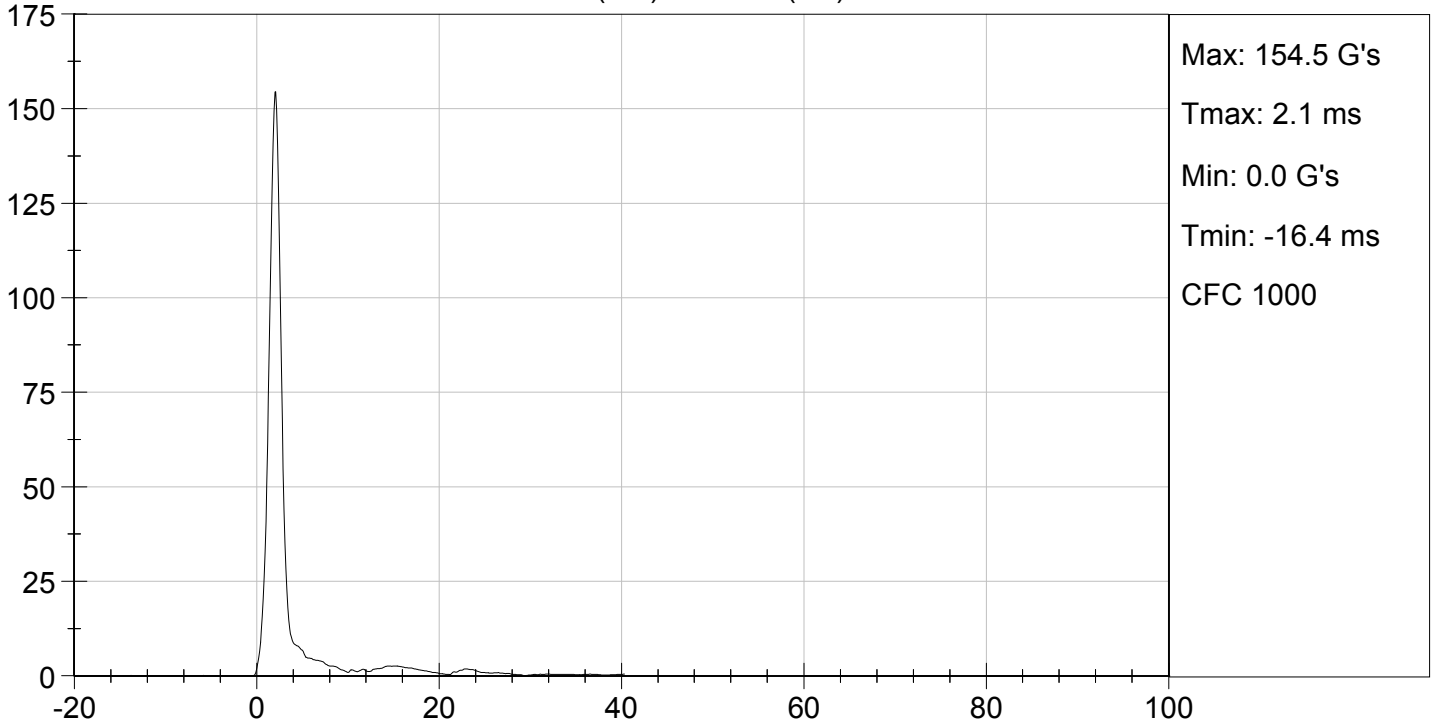
06/04/2014
Test Date

David Winkelbauer
Approved By

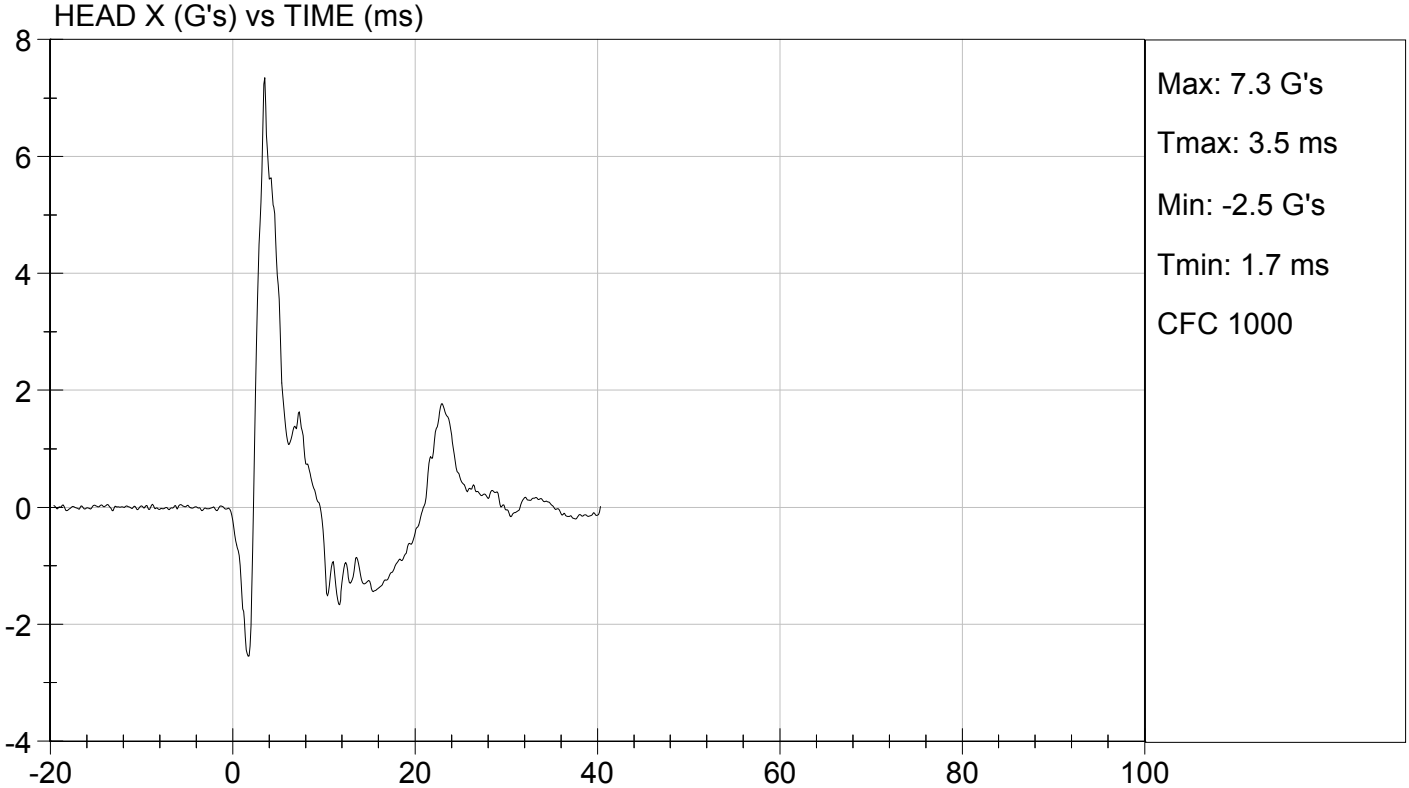
TEST DESC: HEAD DROP

TEST DATE: 06/04/2014
TEST #: D142061

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



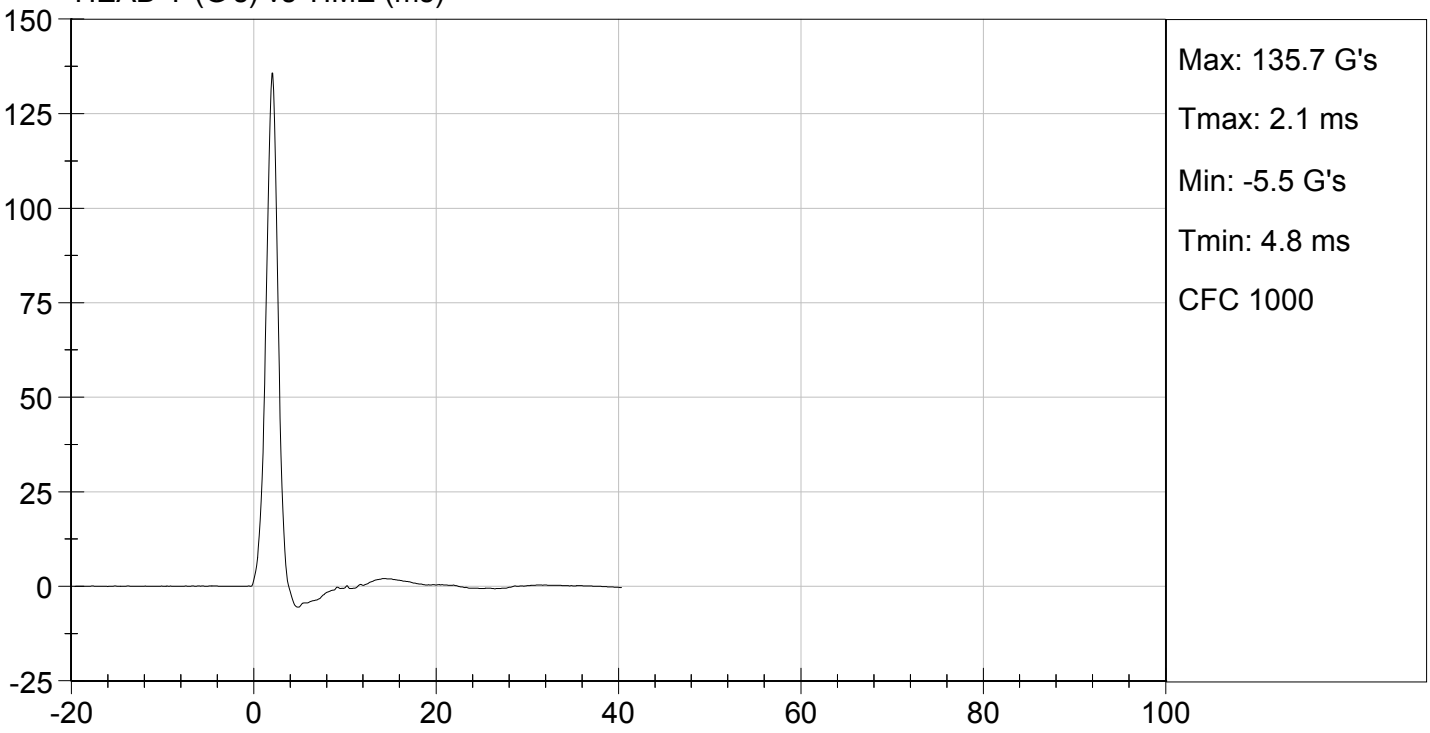
HEAD X (G's) vs TIME (ms)



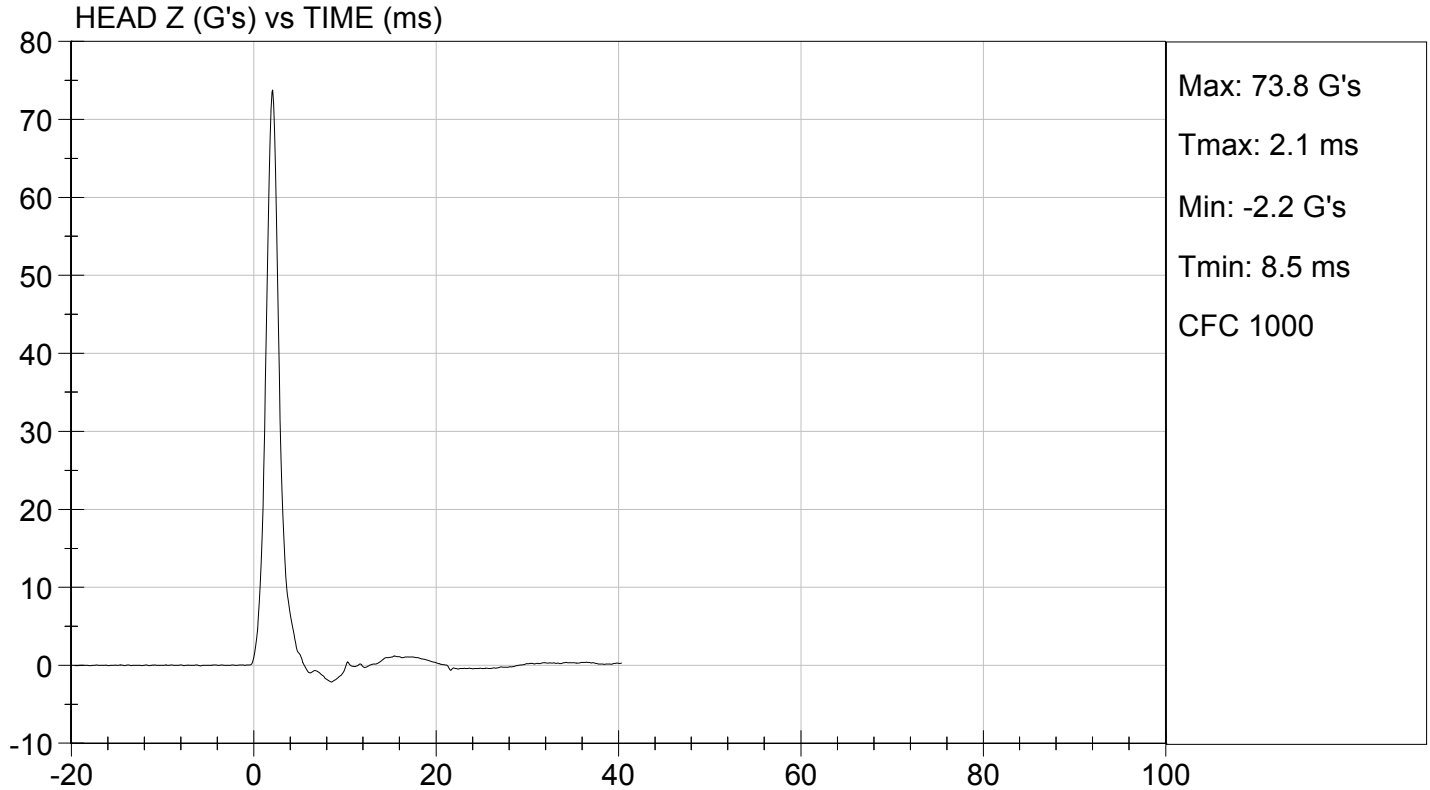
TEST DESC: HEAD DROP

TEST DATE: 06/04/2014
TEST #: D142061

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:** D142062

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	45	Pass
Pendulum Speed		m/s	3.30 to 3.50	3.43	Pass
Pendulum Velocity	1 ms	m/s	-0.05 to 0.00	-0.02	Pass
	3 ms	m/s	-0.25 to -0.375	-0.32	Pass
	14 ms	m/s	-3.20 to -3.70	-3.24	Pass
	17 ms	m/s	>= -3.70	-3.23	Pass
Maximum Flexion Angle		deg	49.0 to 59.0	51.9	Pass
Time of Maximum Flexion Angle		ms	54.0 to 66.0	57.3	Pass
Head Rotation Decay Time to 0 Degree		ms	53.0 to 88.0	56.9	Pass
			Overall Results		Pass

Jessica Hall
Laboratory Technician

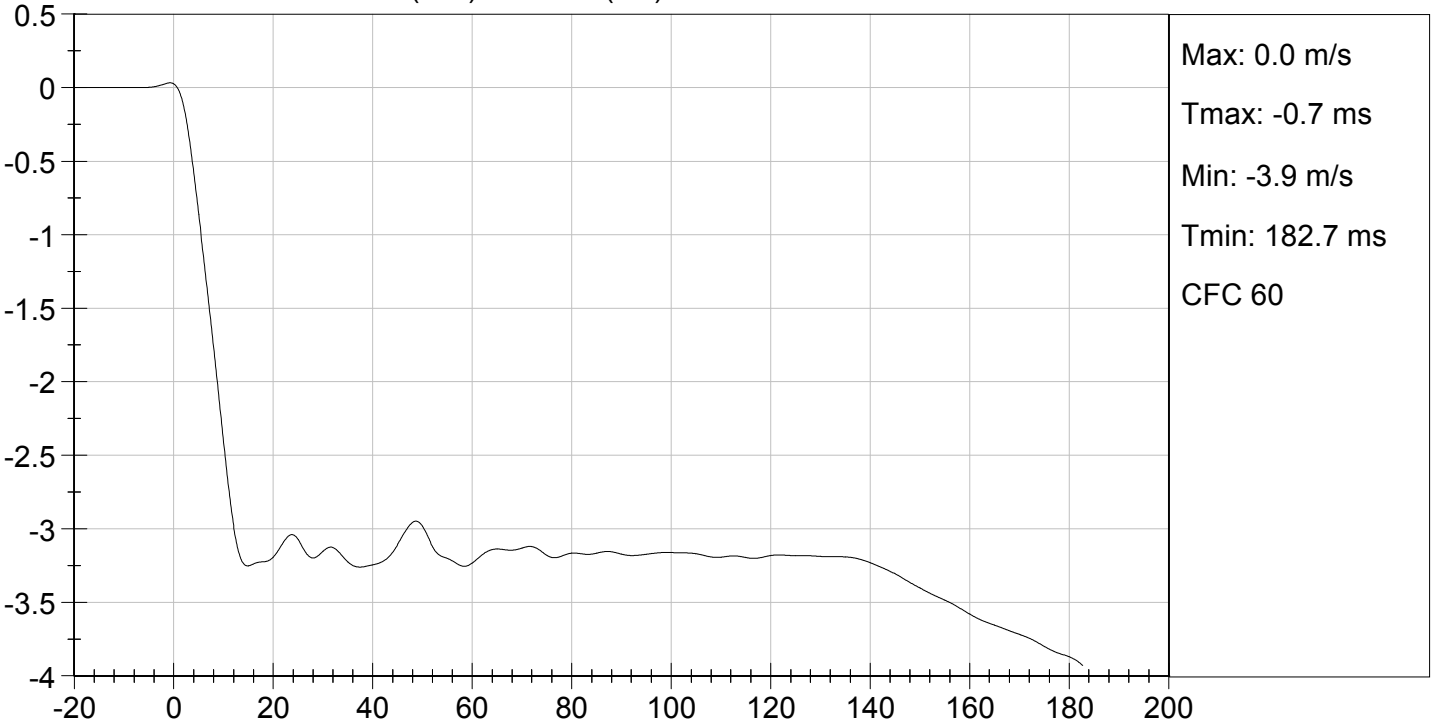
06/05/2014
Test Date

David Winkelbauer
Approved By

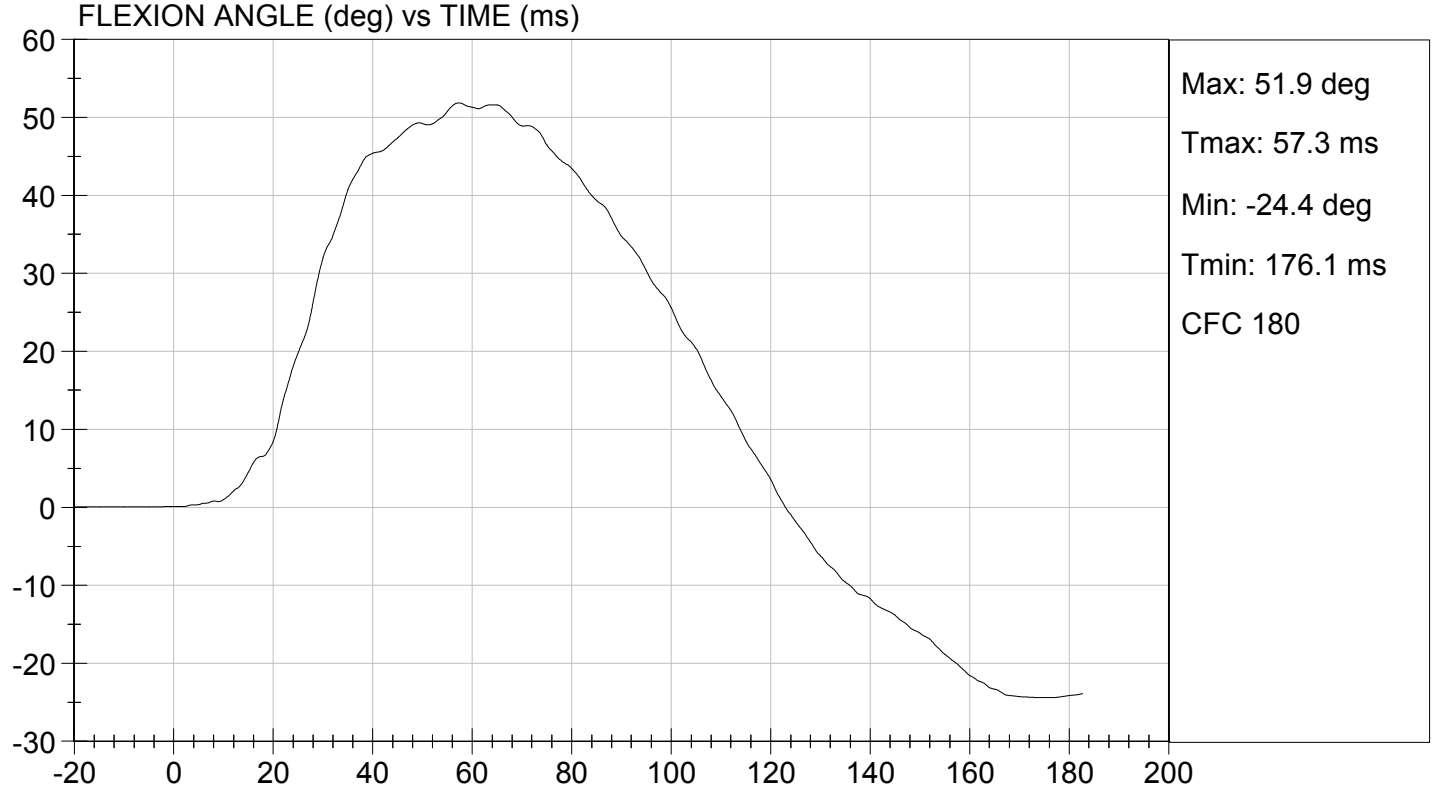
TEST DESC: NECK BENDING
VELOCITY: 11.26 ft/s, 3.43 m/s

TEST DATE: 06/05/2014
TEST #: D142062

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



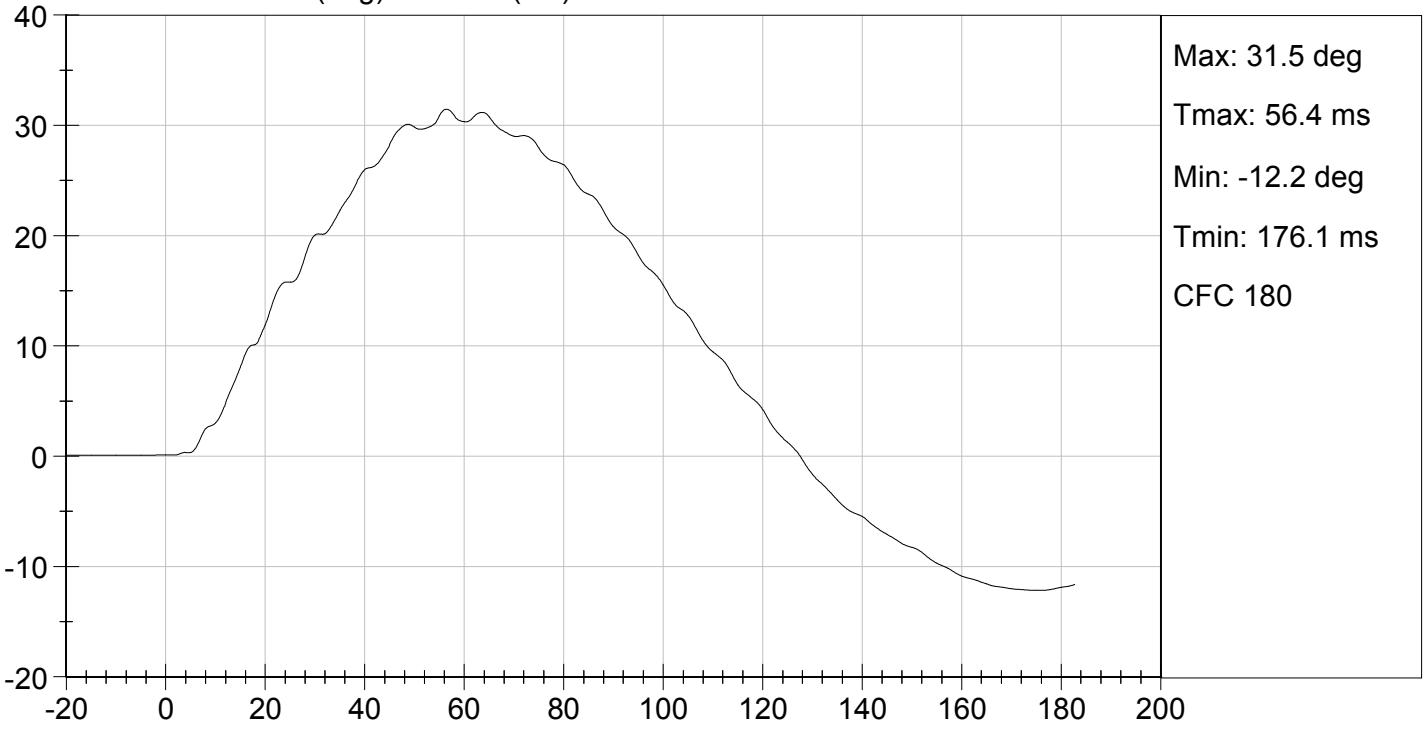
FLEXION ANGLE (deg) vs TIME (ms)



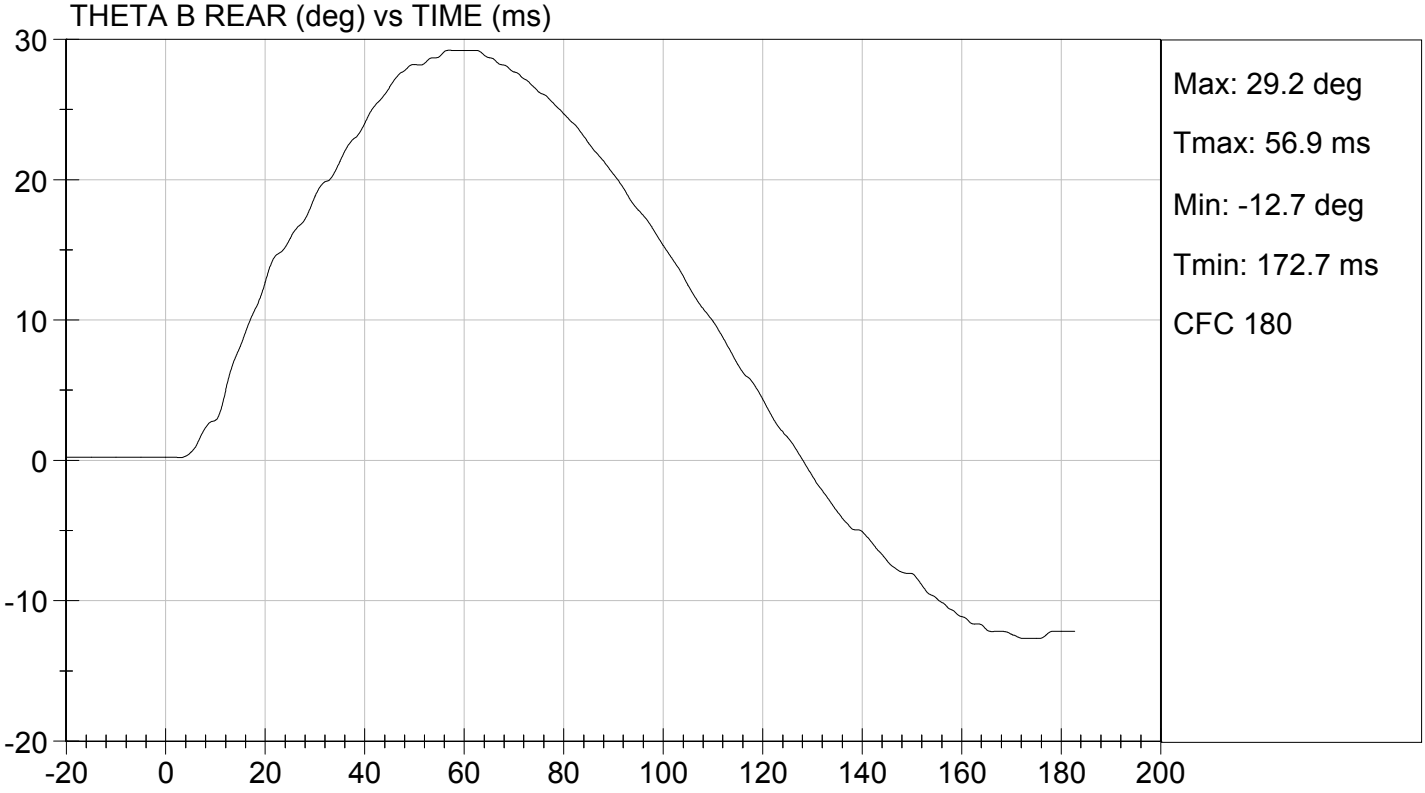
TEST DESC: NECK BENDING
VELOCITY: 11.26 ft/s, 3.43 m/s

TEST DATE: 06/05/2014
TEST #: D142062

THETA A FRONT (deg) vs TIME (ms)

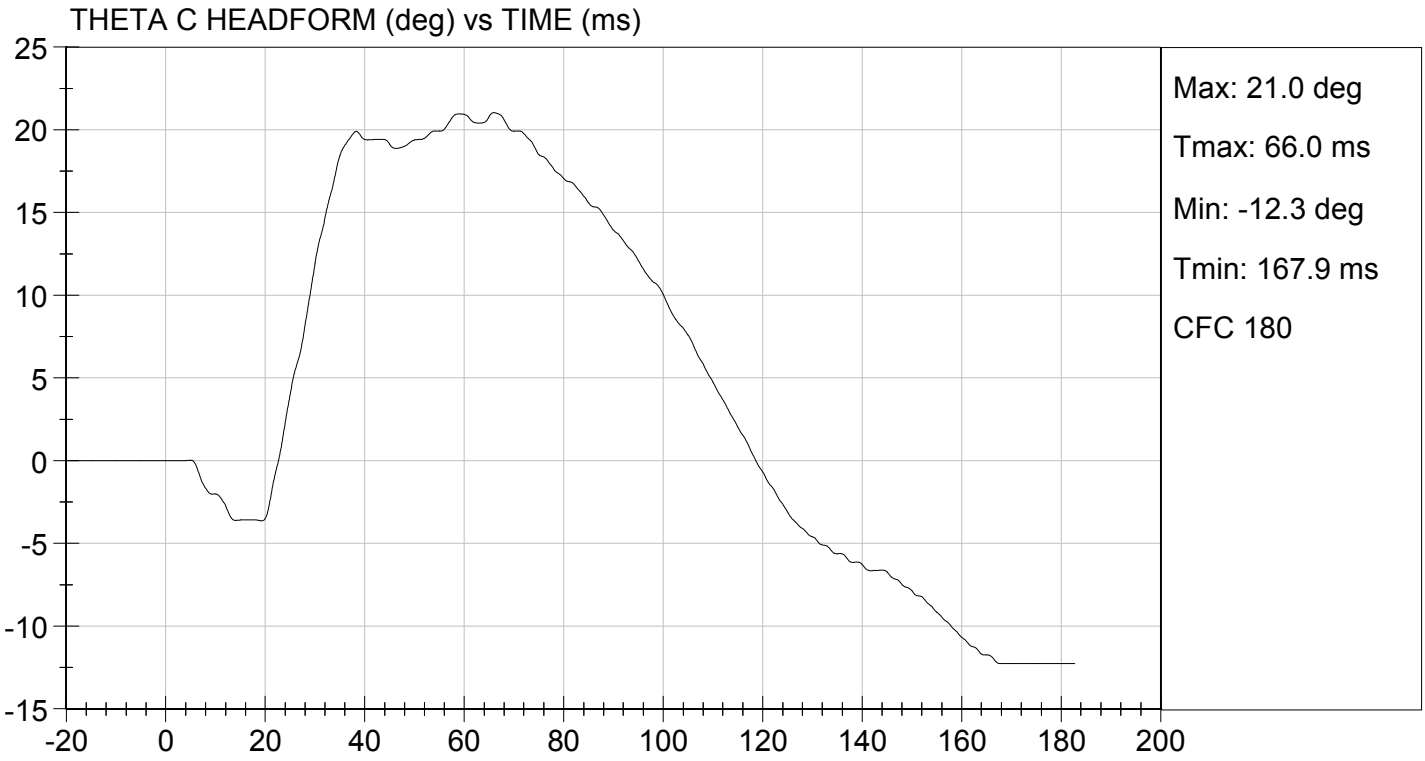


THETA B REAR (deg) vs TIME (ms)



TEST DESC: NECK BENDING
VELOCITY: 11.26 ft/s, 3.43 m/s

TEST DATE: 06/05/2014
TEST #: D142062



MGA RESEARCH CORPORATION

SHOULDER IMPACT TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D142063

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.0	Pass
Laboratory Relative Humidity	%	10 to 70	43	Pass
Pendulum Speed	m/s	4.20 to 4.40	4.30	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	9.2	Pass
		Overall Test Results		Pass

Jessica Gall
Laboratory Technician

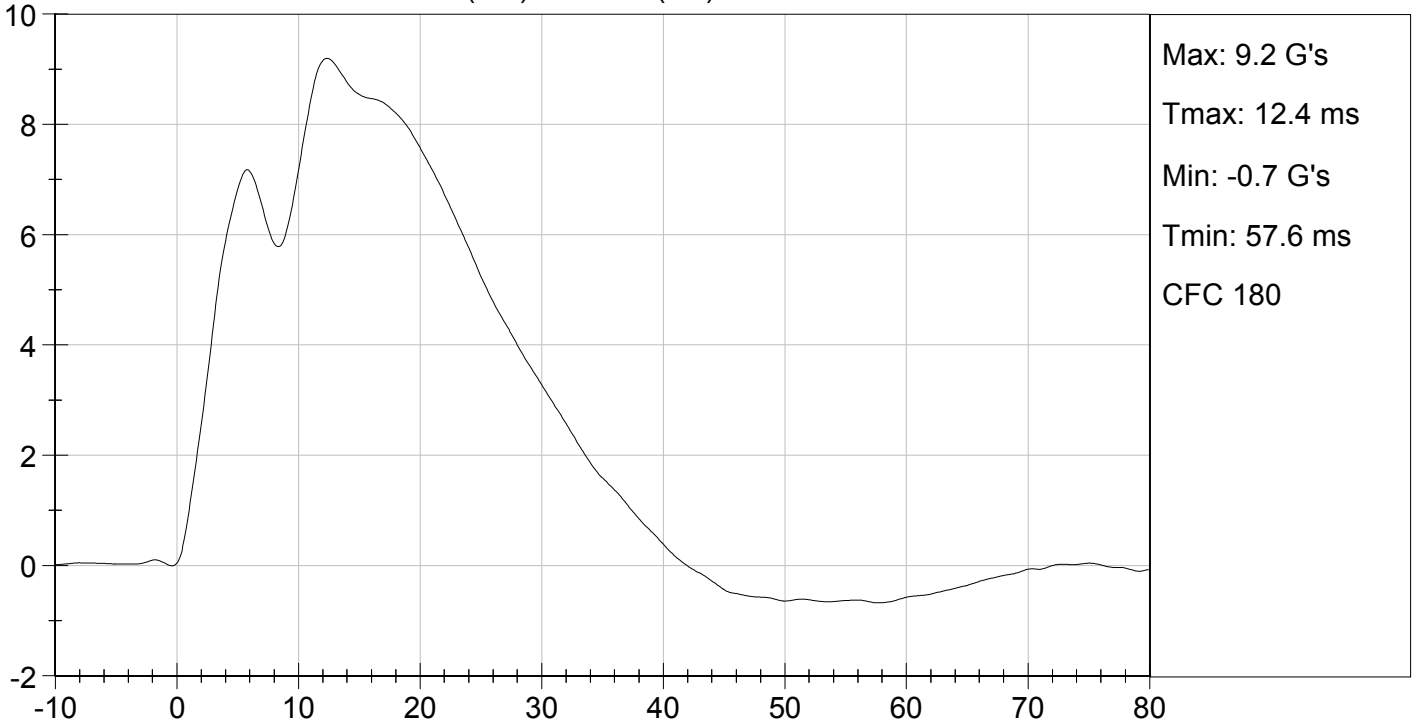
06/05/2014
Test Date

David Winkelbauer
Approved By

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

TEST DATE: 06/05/2014
TEST #: D142063

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



MGA RESEARCH CORPORATION

UPPER RIB TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D142064

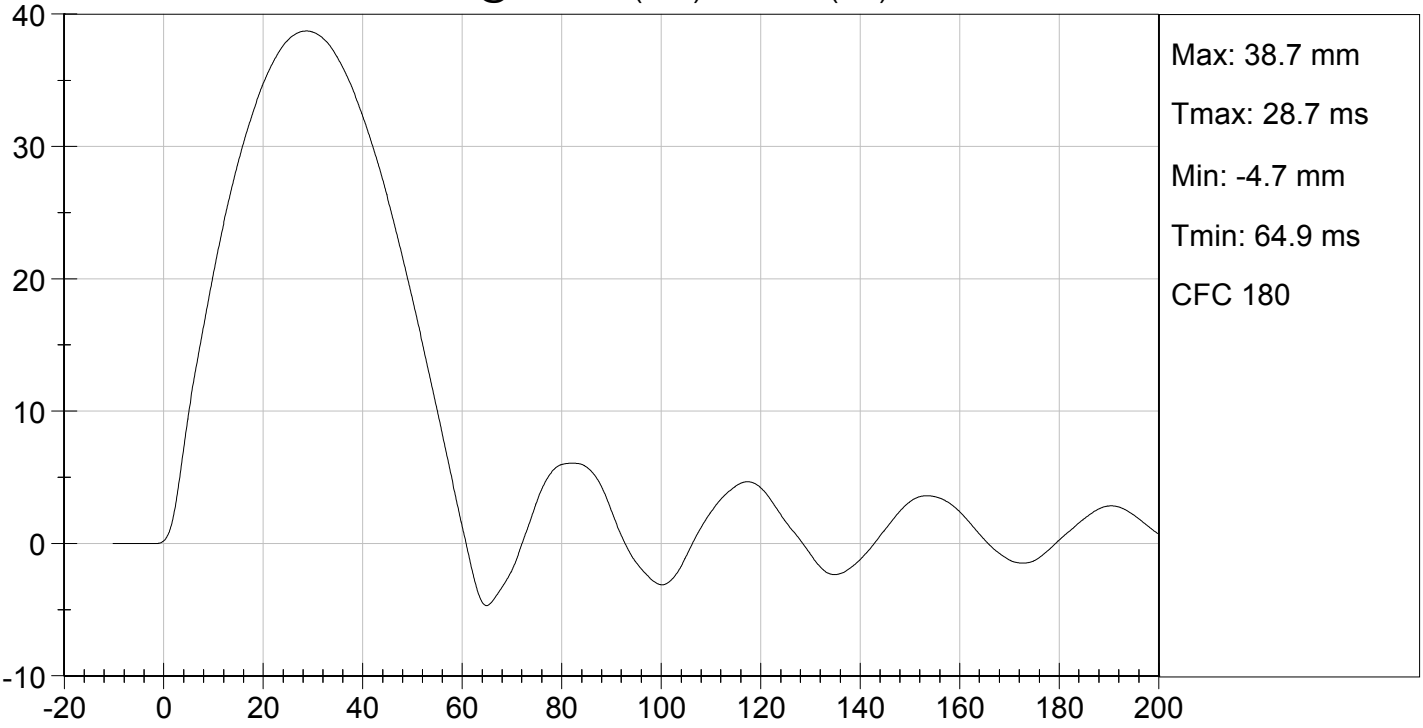
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Displacement at 459 mm	mm	36.0 to 40.0	38.7	Pass
Displacement at 815 mm	mm	46.0 to 51.0	49.1	Pass
		Overall Test Results		Pass

Jessica Gall
Laboratory Technician

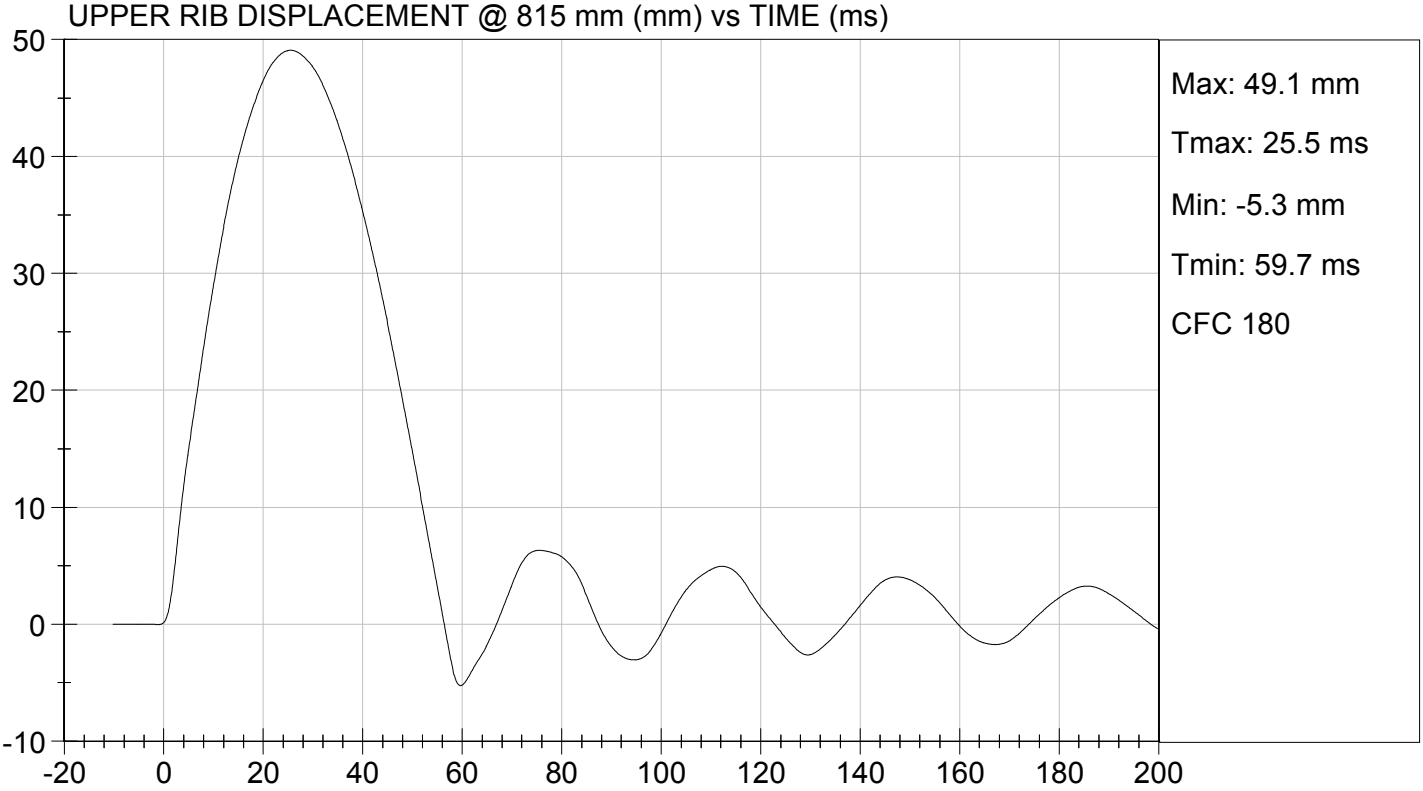
06/05/2014
Test Date

David Winkelbauer
Approved By

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



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



MGA RESEARCH CORPORATION

MID RIB TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D142065

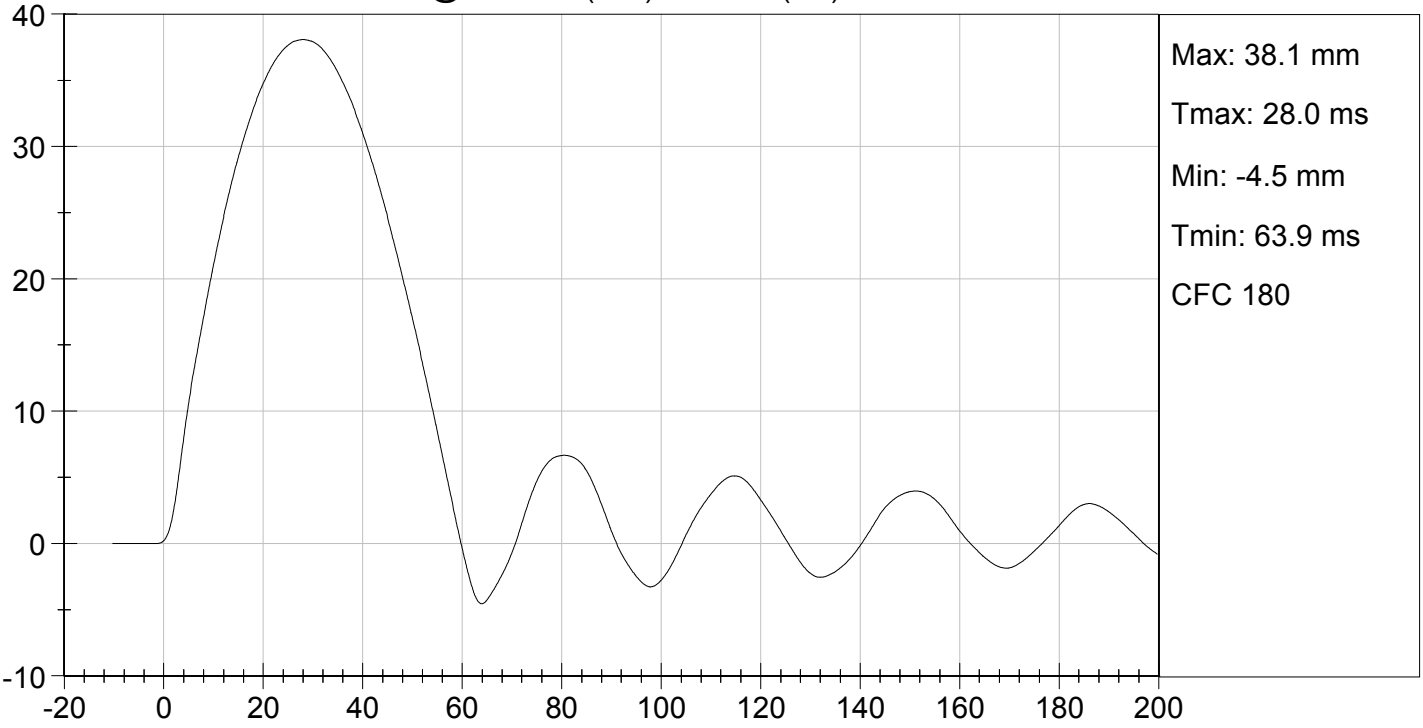
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Displacement at 459 mm	mm	36.0 to 40.0	38.1	Pass
Displacement at 815 mm	mm	46.0 to 51.0	48.5	Pass
		Overall Test Results		Pass

Jessica Gall
Laboratory Technician

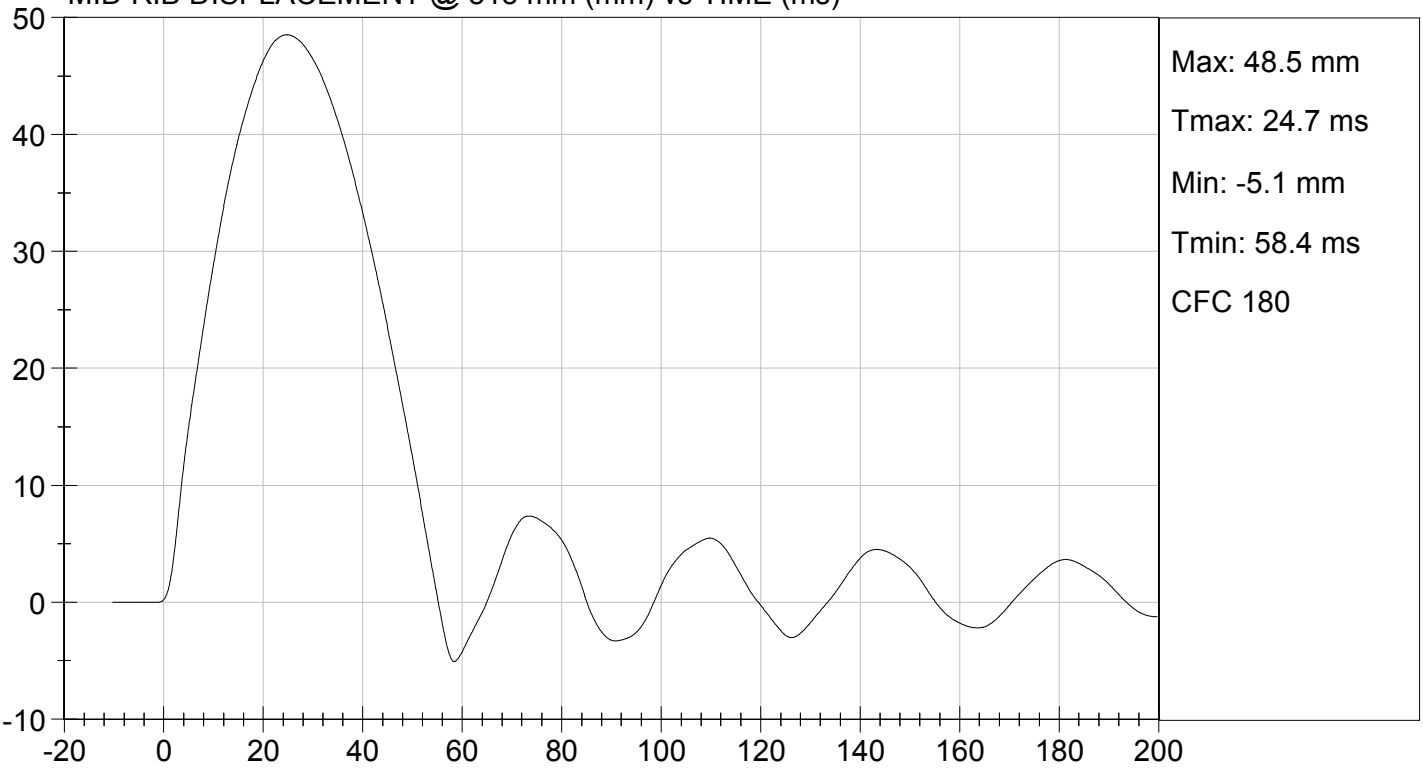
06/05/2014
Test Date

David Winkelbauer
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:** D142066

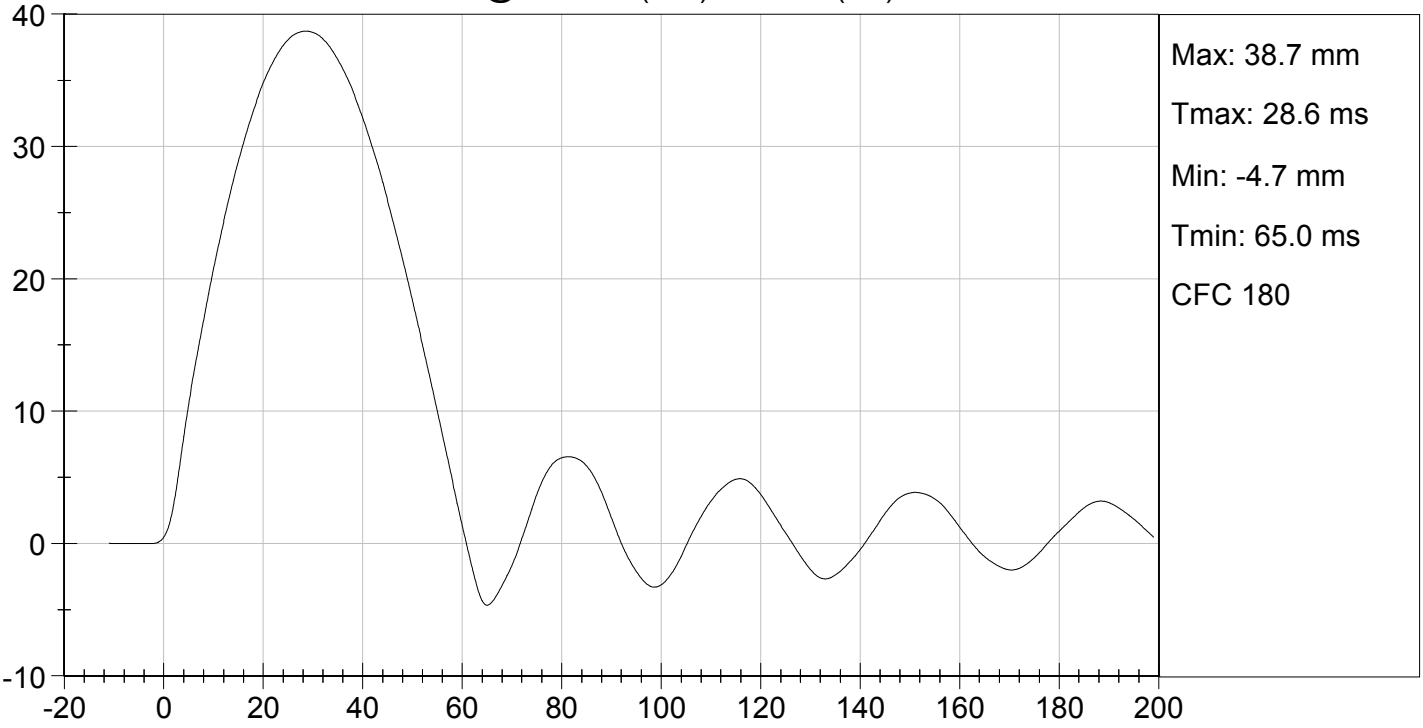
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Displacement at 459 mm	mm	36.0 to 40.0	38.7	Pass
Displacement at 815 mm	mm	46.0 to 51.0	49.7	Pass
		Overall Test Results		Pass

Jessica Gall
Laboratory Technician

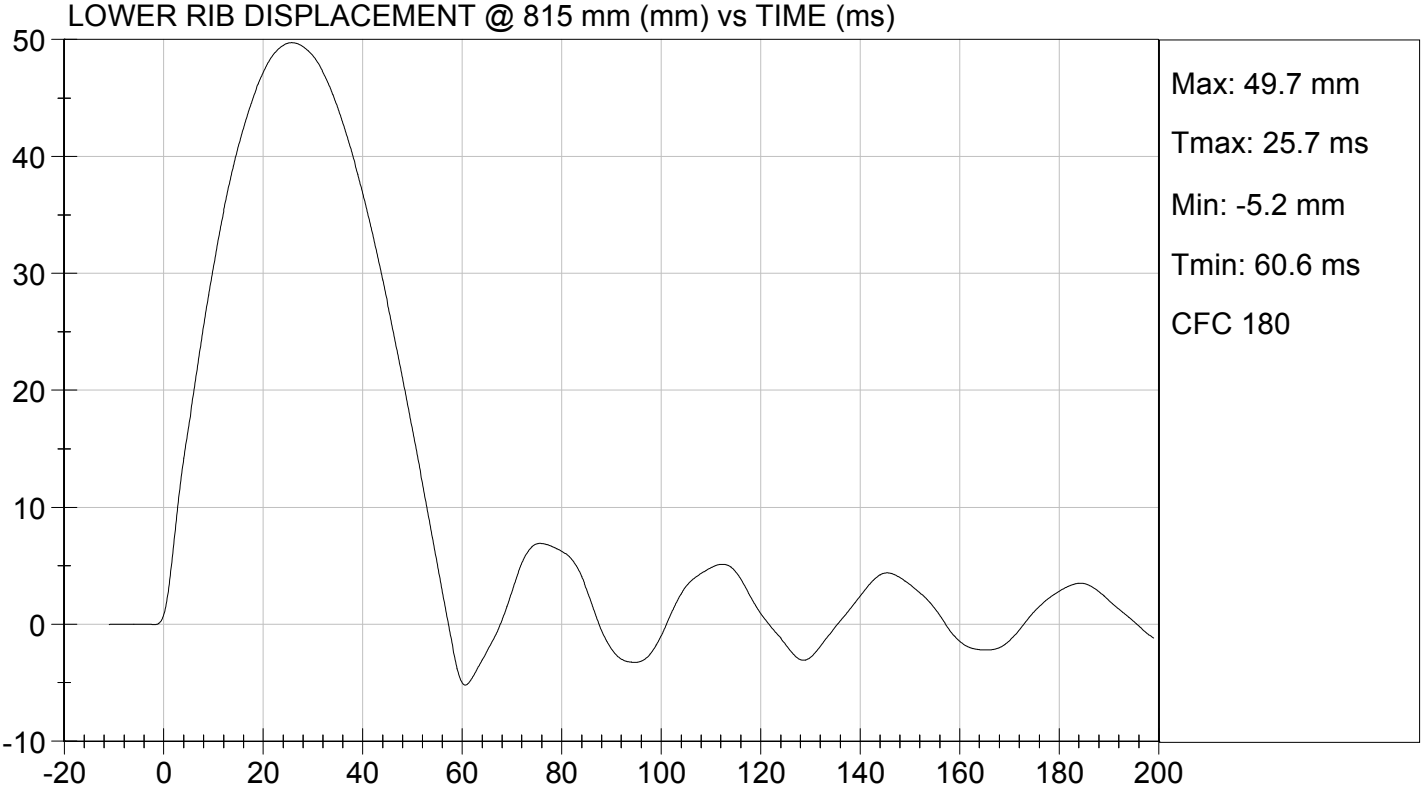
06/05/2014
Test Date

David Winkelbauer
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:** D142060

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.1	Pass
Humidity	%	10 to 70	43	Pass
Probe Speed	m/s	5.40 to 5.60	5.52	Pass
Maximum Impactor Force (after 6 ms)	N	5100 to 6200	5804	Pass
Upper Rib Displacement	mm	34.0 to 41.0	38.5	Pass
Middle Rib Displacement	mm	37.0 to 45.0	40.1	Pass
Lower Rib Displacement	mm	37.0 to 44.0	38.5	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

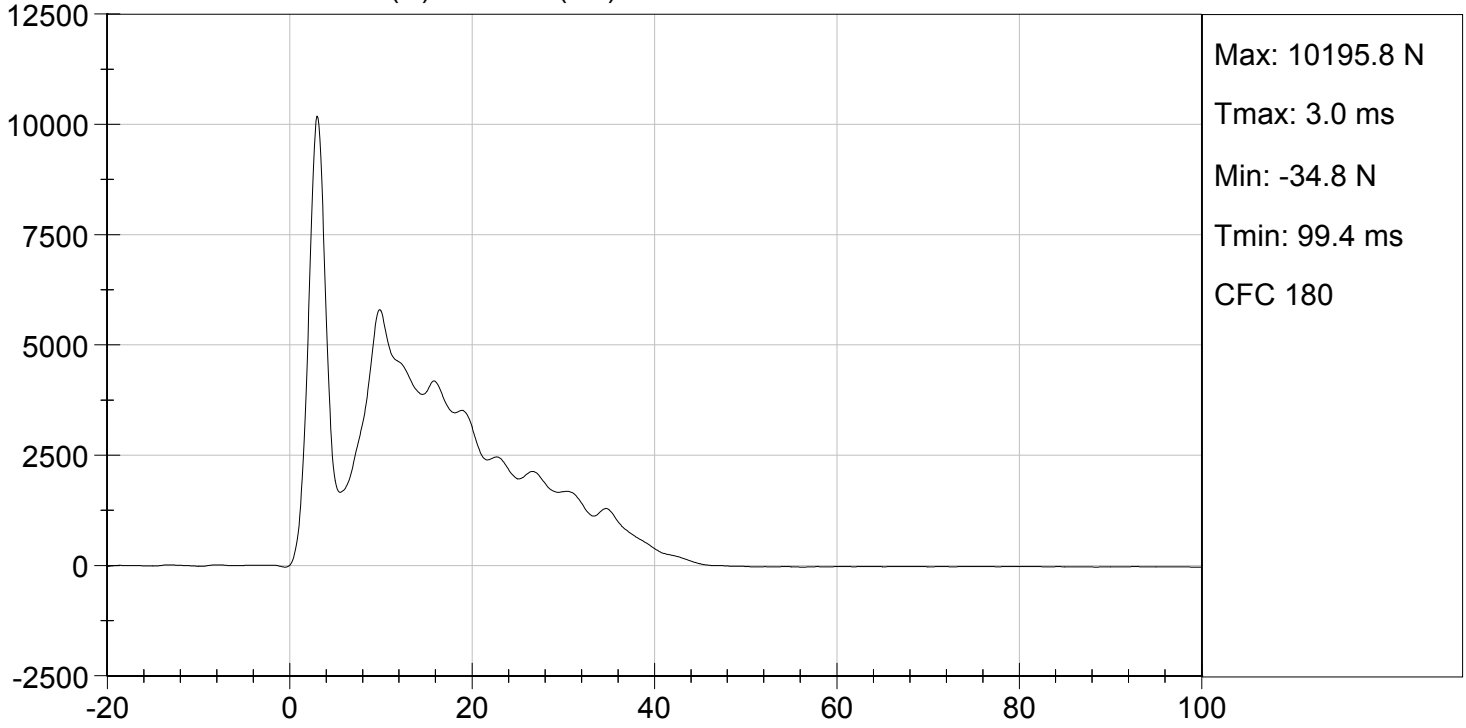
06/05/2014
Test Date

David Winkelbauer
Approved By

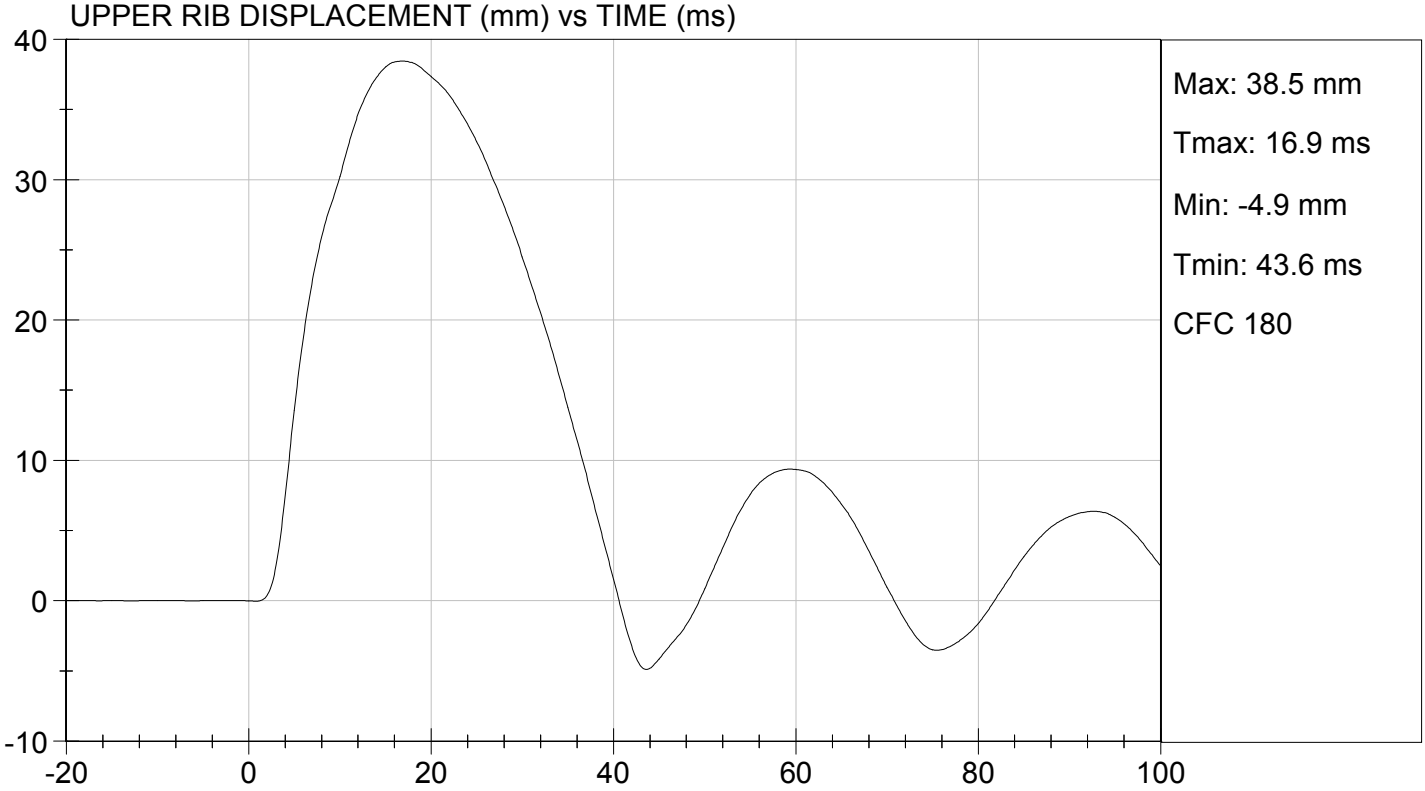
TEST DESC: THORAX IMPACT
VELOCITY: 18.12 ft/s, 5.52 m/s

TEST DATE: 06/05/2014
TEST #: D142060

IMPACTOR FORCE (N) vs TIME (ms)



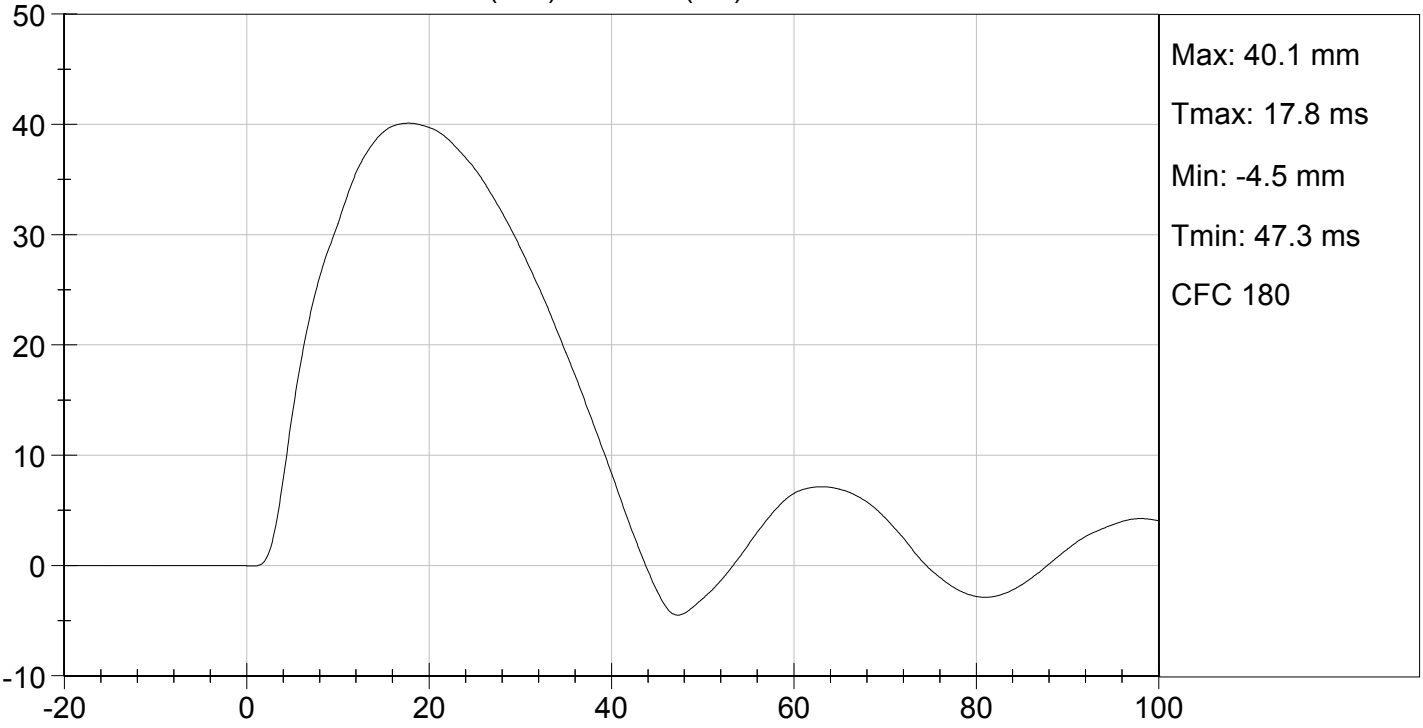
UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



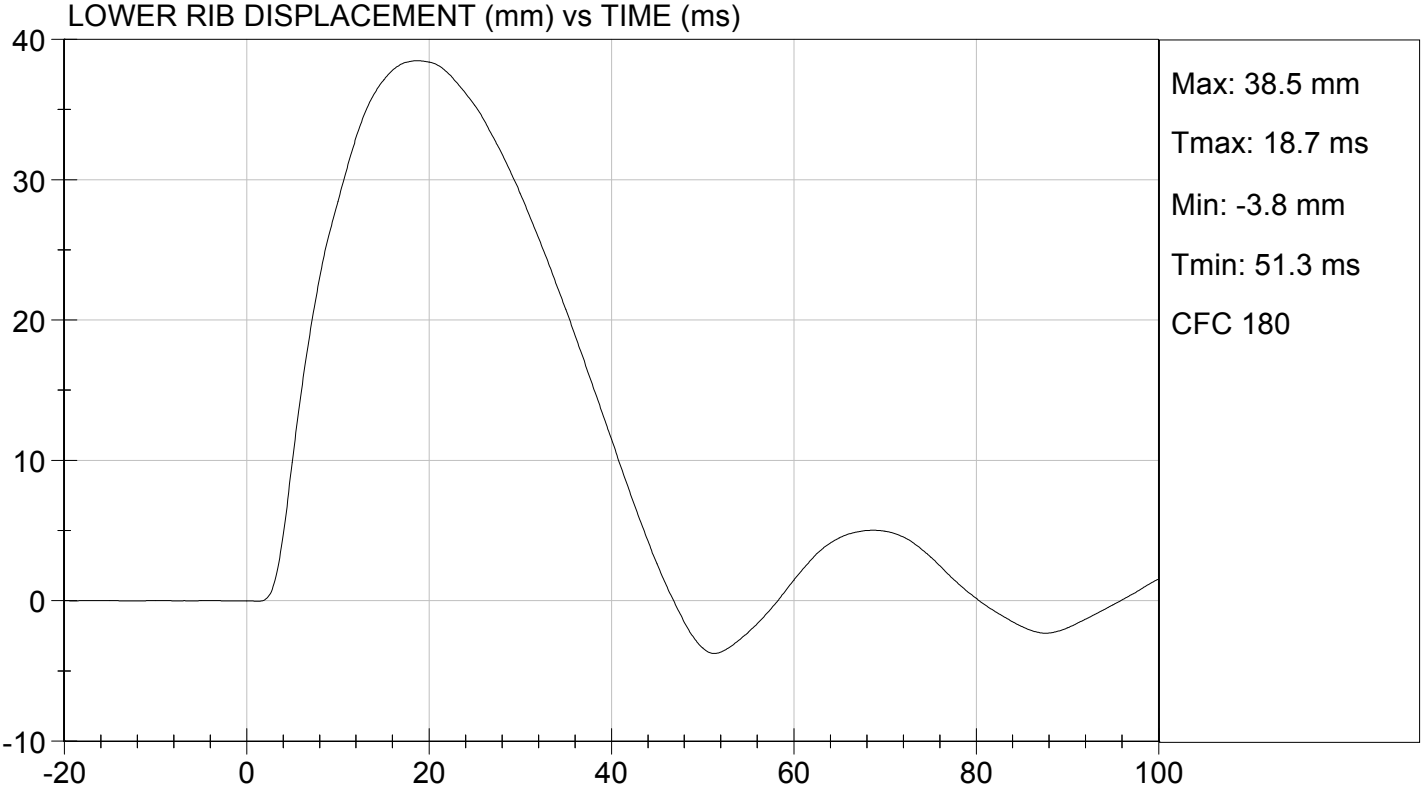
TEST DESC: THORAX IMPACT
VELOCITY: 18.12 ft/s, 5.52 m/s

TEST DATE: 06/05/2014
TEST #: D142060

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:** D142067

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	43	Pass
Probe Speed	m/s	3.90 to 4.10	4.06	Pass
Maximum Impactor Force	N	4000 to 4800	4286	Pass
Time of Maximum Impactor Force	ms	10.6 to 13.0	11.0	Pass
Maximum Total Abdomen Force	N	2200 to 2700	2235	Pass
Time of Maximum Abdomen Force	ms	10.0 to 12.3	11.1	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

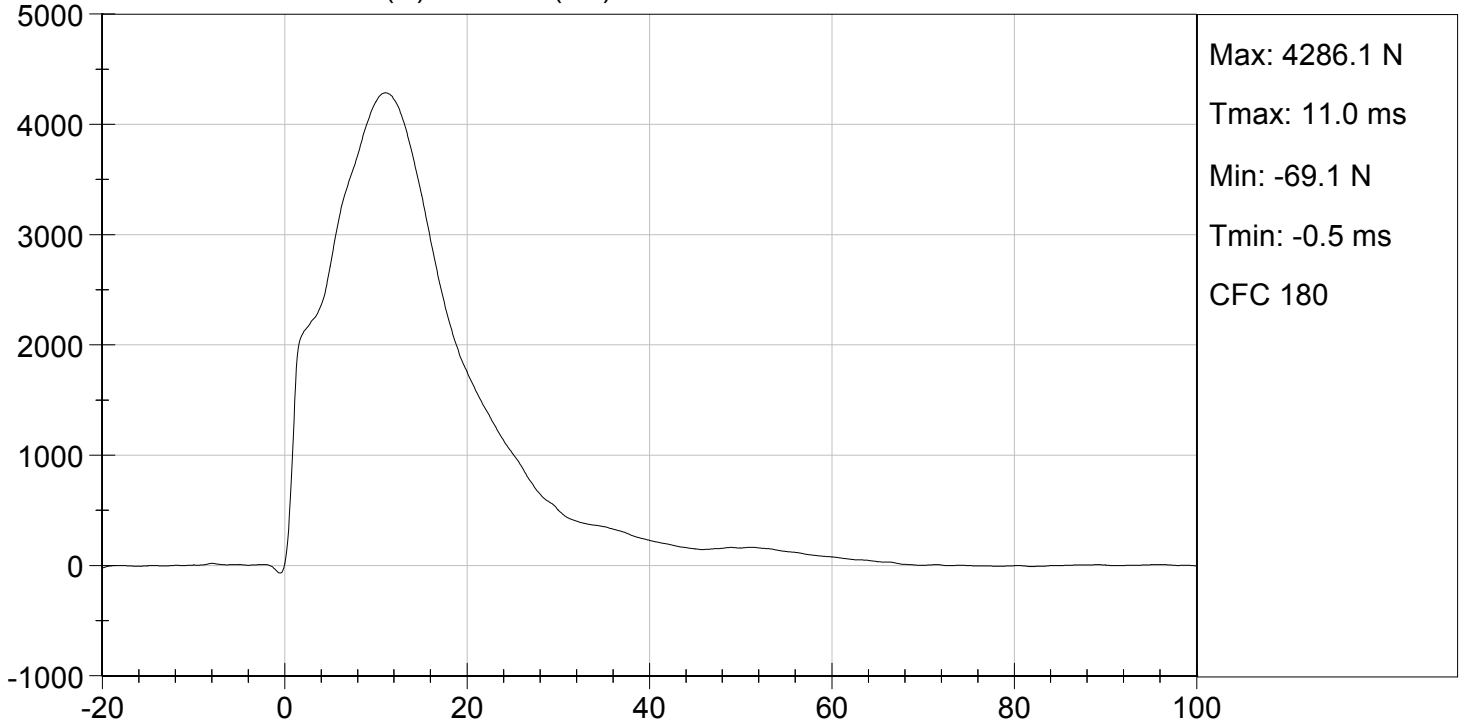
06/05/2014
Test Date

David Winkelbauer
Approved By

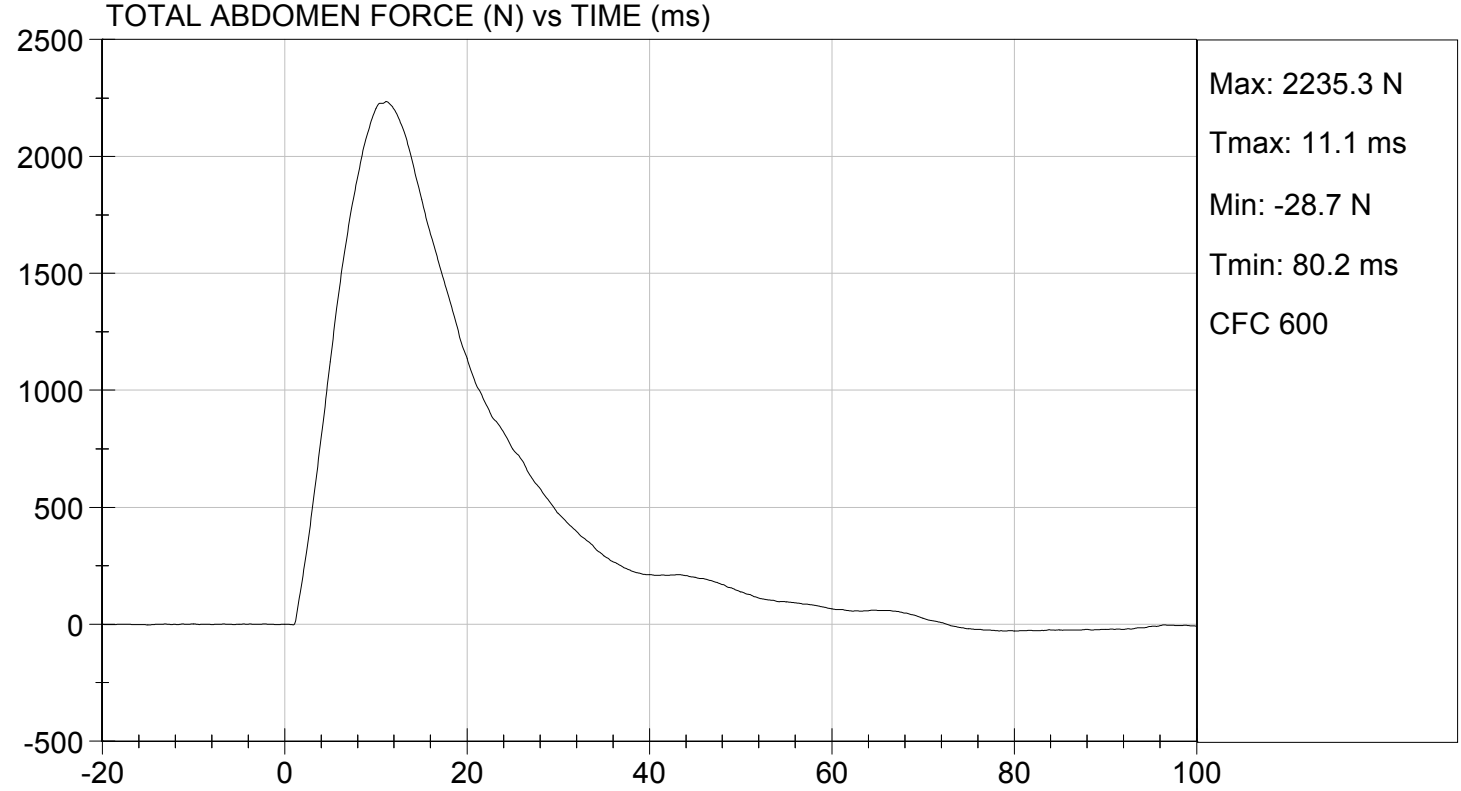
TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.33 ft/s, 4.06 m/s

TEST DATE: 06/05/2014
TEST #: D142067

IMPACTOR FORCE (N) vs TIME (ms)



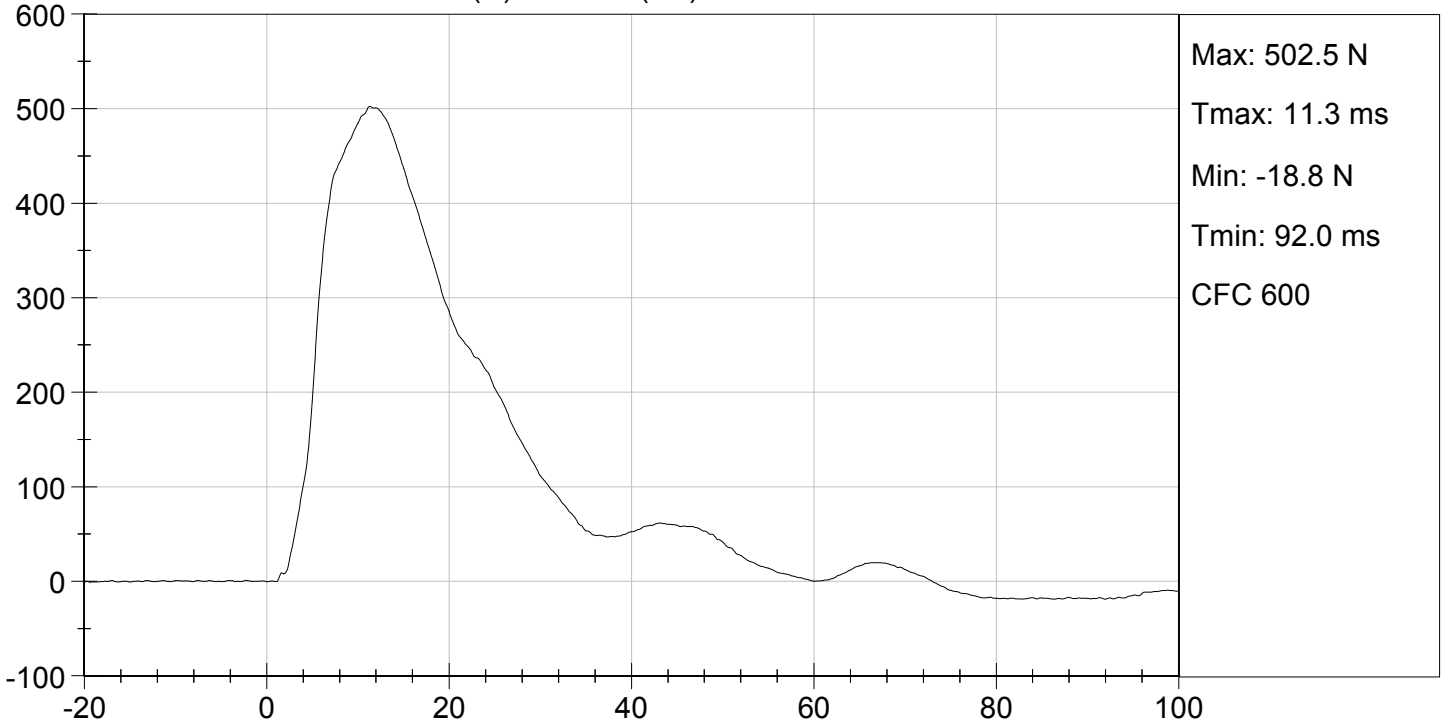
TOTAL ABDOMEN FORCE (N) vs TIME (ms)



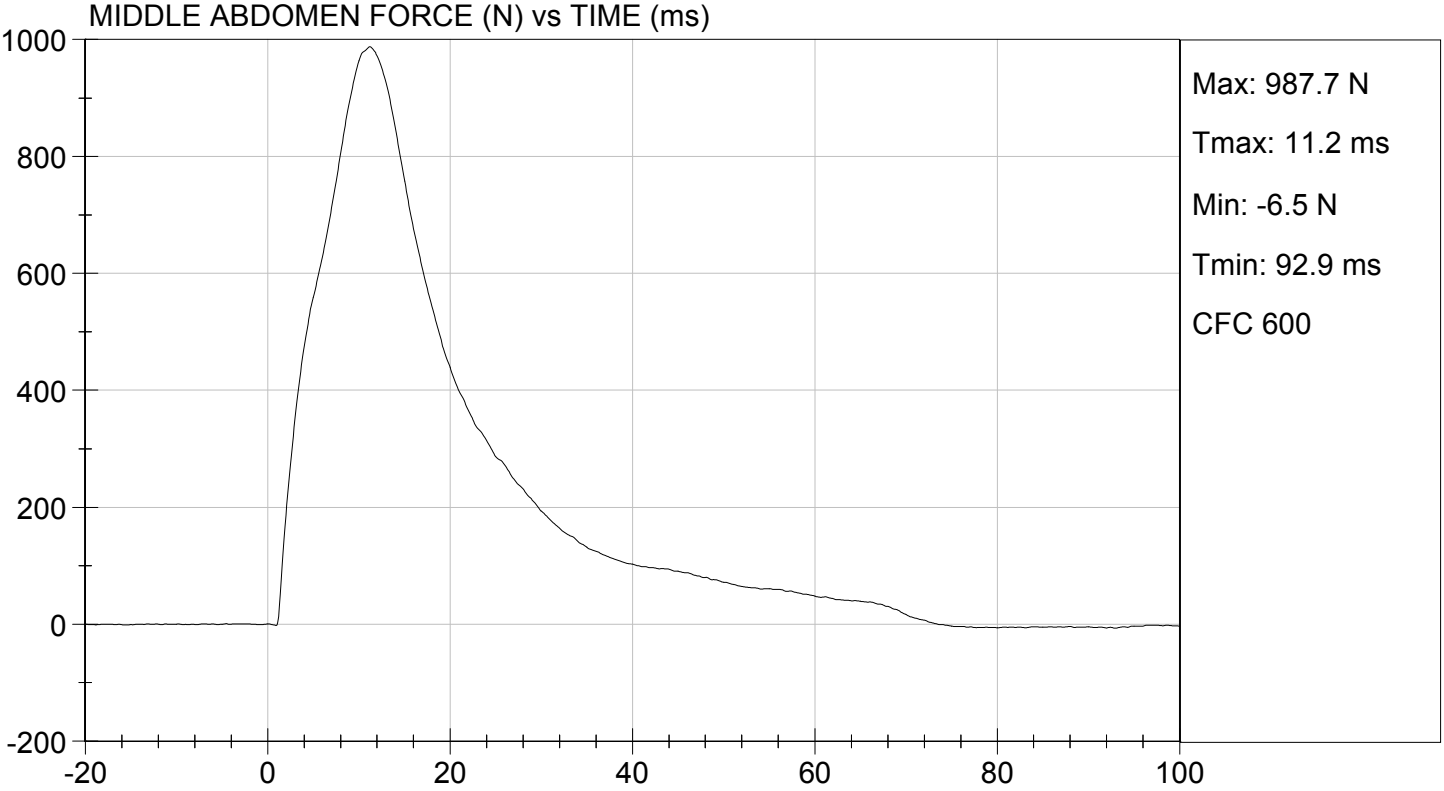
TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.33 ft/s, 4.06 m/s

TEST DATE: 06/05/2014
TEST #: D142067

FRONT ABDOMEN FORCE (N) vs TIME (ms)



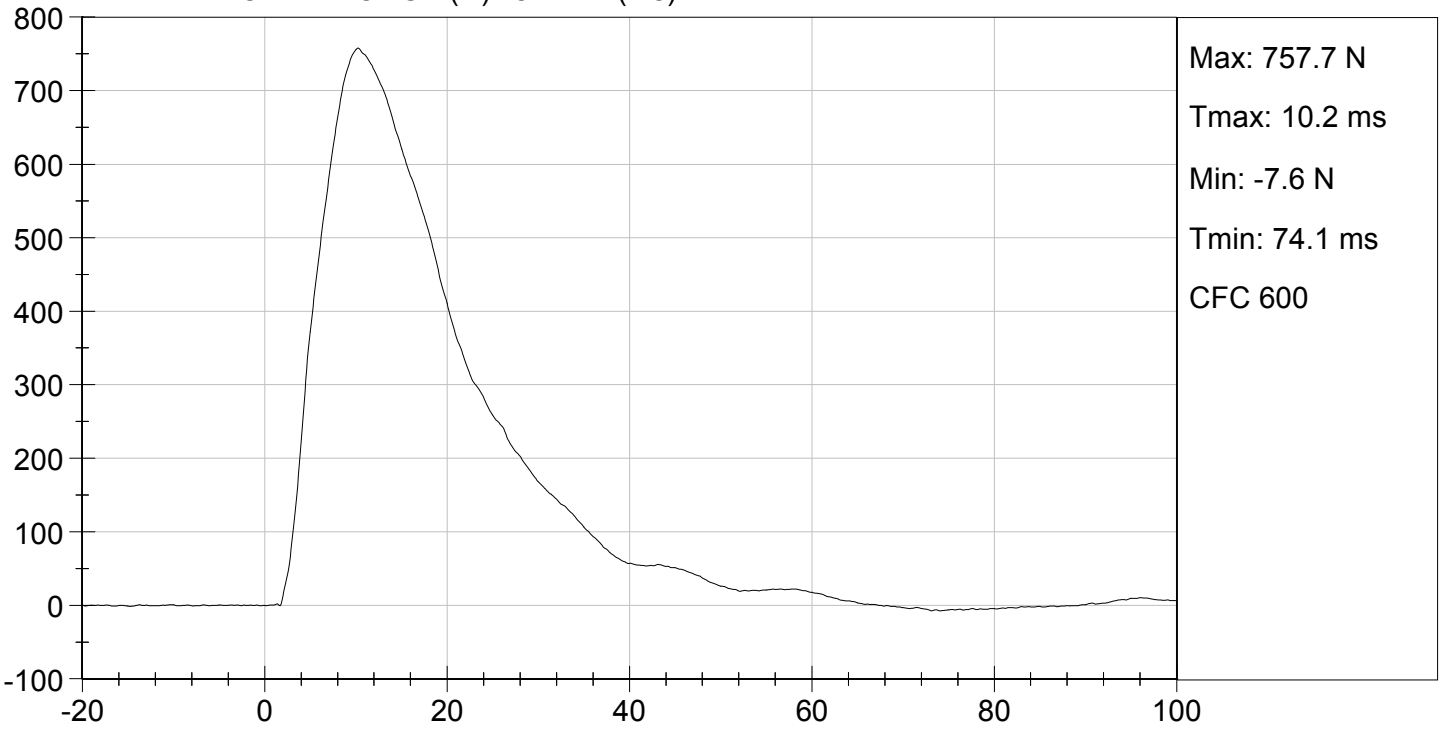
MIDDLE ABDOMEN FORCE (N) vs TIME (ms)



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

TEST DATE: 06/05/2014
TEST #: D142067

REAR ABDOMEN FORCE (N) vs TIME (ms)



MGA RESEARCH CORPORATION

LUMBAR SPINE TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D142068

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	45	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	-0.404	Pass
	27 ms	m/s	-6.50 to -5.80	-5.97	Pass
	30 ms	m/s	>= -6.50	-5.88	Pass
Maximum Flexion Angle		deg	45.0 to 55.0	49.7	Pass
Time of Maximum Flexion Angle		ms	39.0 to 53.0	44.6	Pass
Headform Rotation Decay to Initial Position		ms	37 to 57	43	Pass
			Overall Results		Pass

Jessica Hall
Laboratory Technician

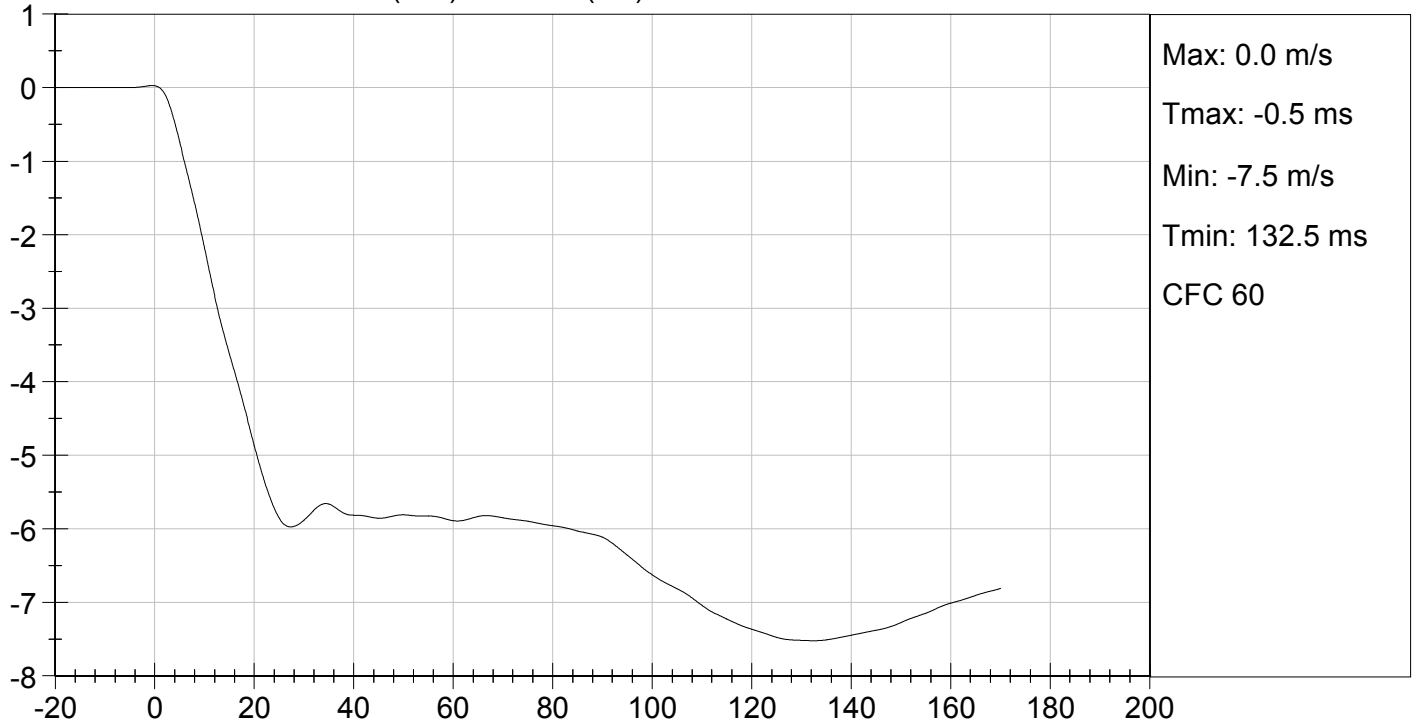
06/05/2014
Test Date

David Winkelbauer
Approved By

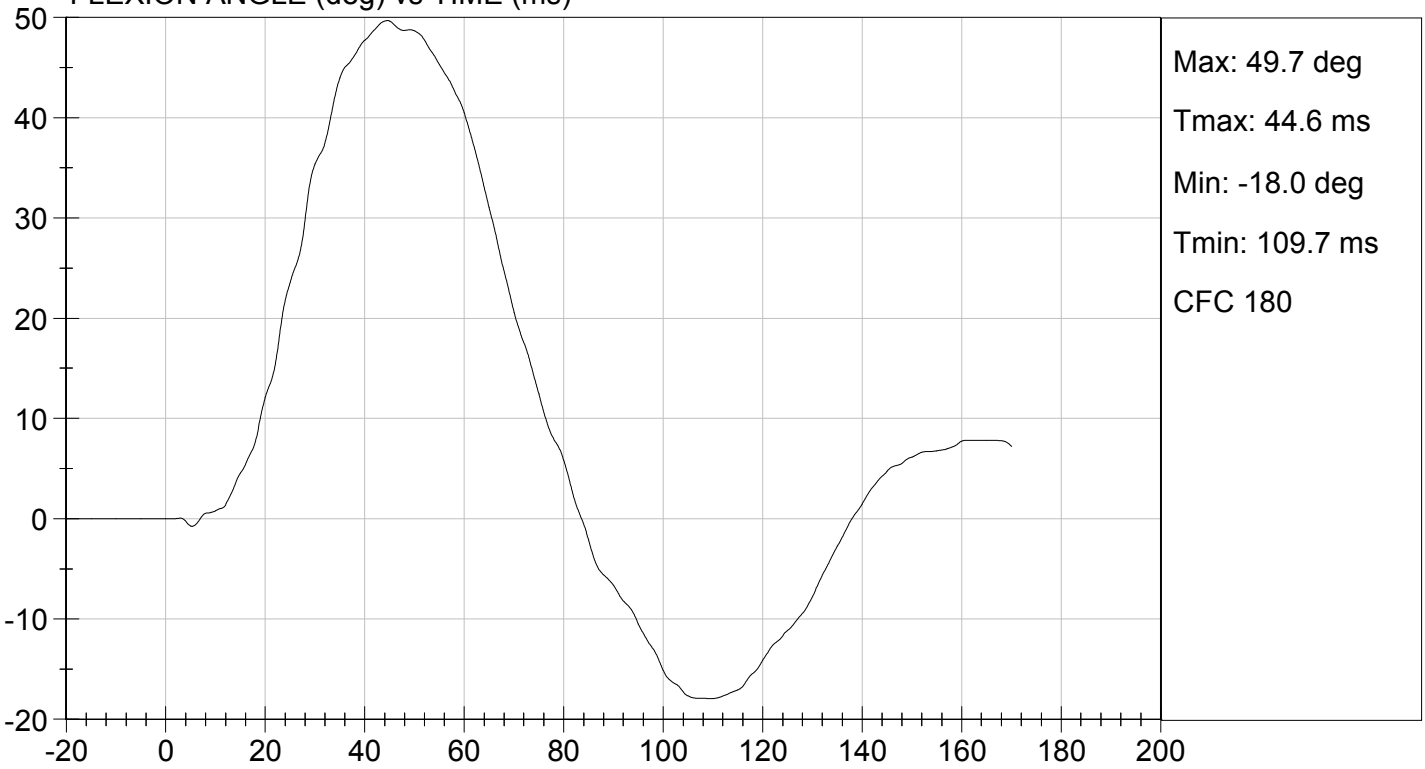
TEST DESC: LUMBAR BENDING
VELOCITY: 20.08 ft/s, 6.12 m/s

TEST DATE: 06/05/2014
TEST #: D142068

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



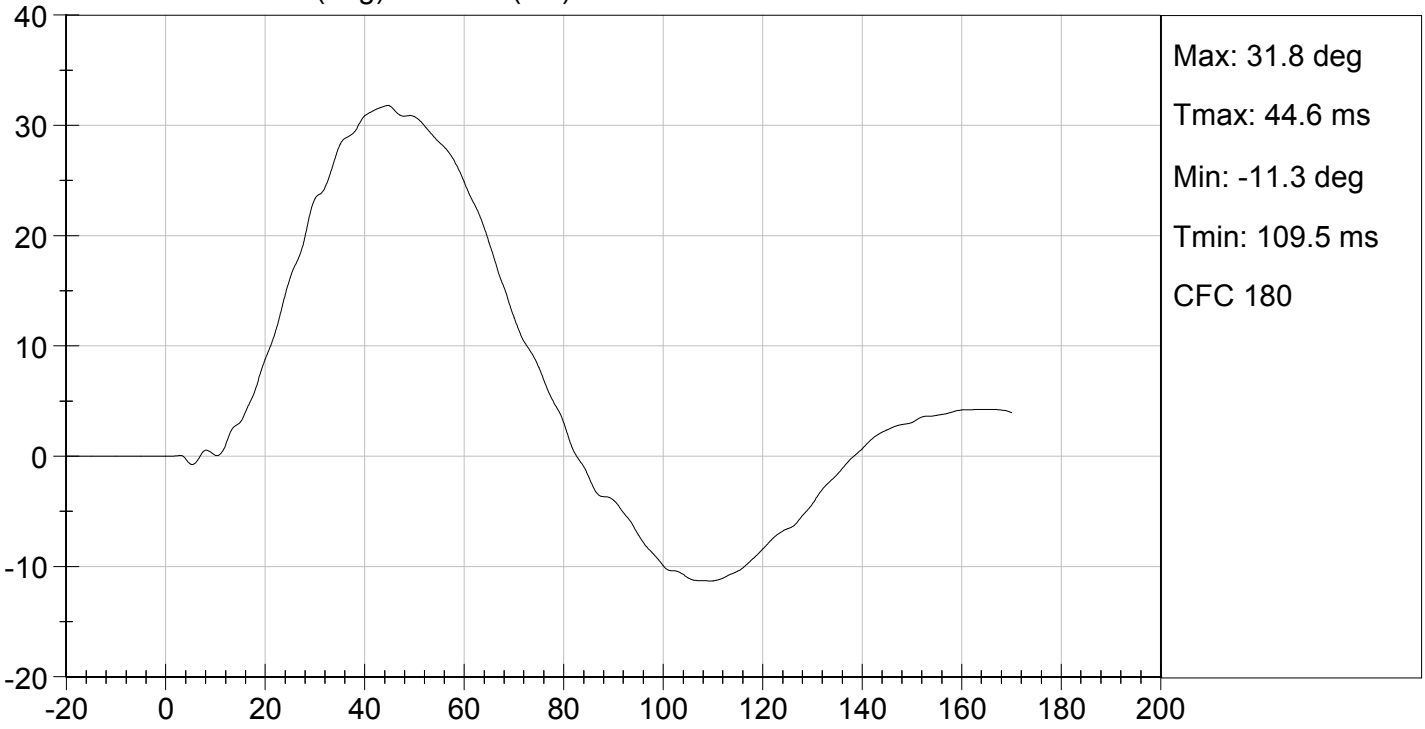
FLEXION ANGLE (deg) vs TIME (ms)



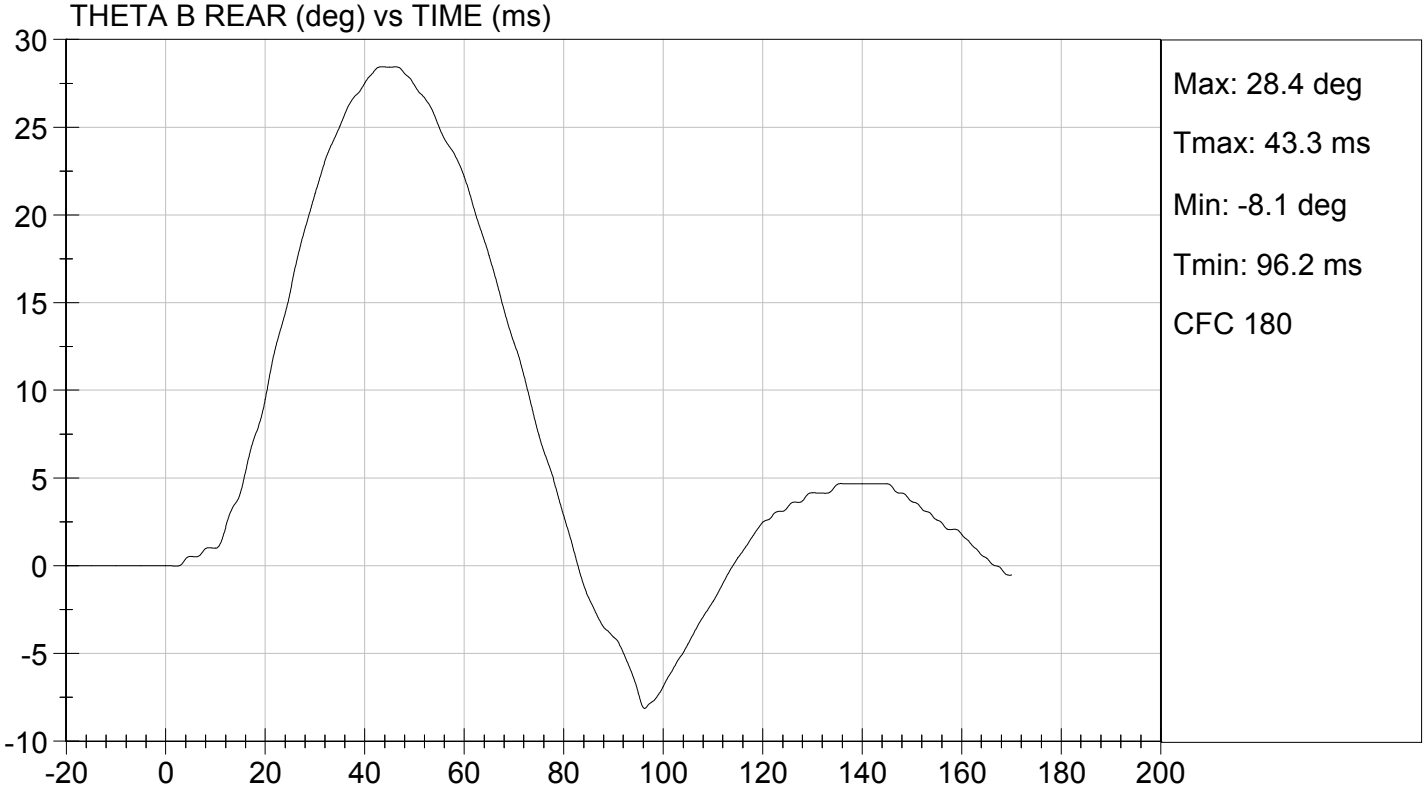
TEST DESC: LUMBAR BENDING
VELOCITY: 20.08 ft/s, 6.12 m/s

TEST DATE: 06/05/2014
TEST #: D142068

THETA A FRONT (deg) vs TIME (ms)

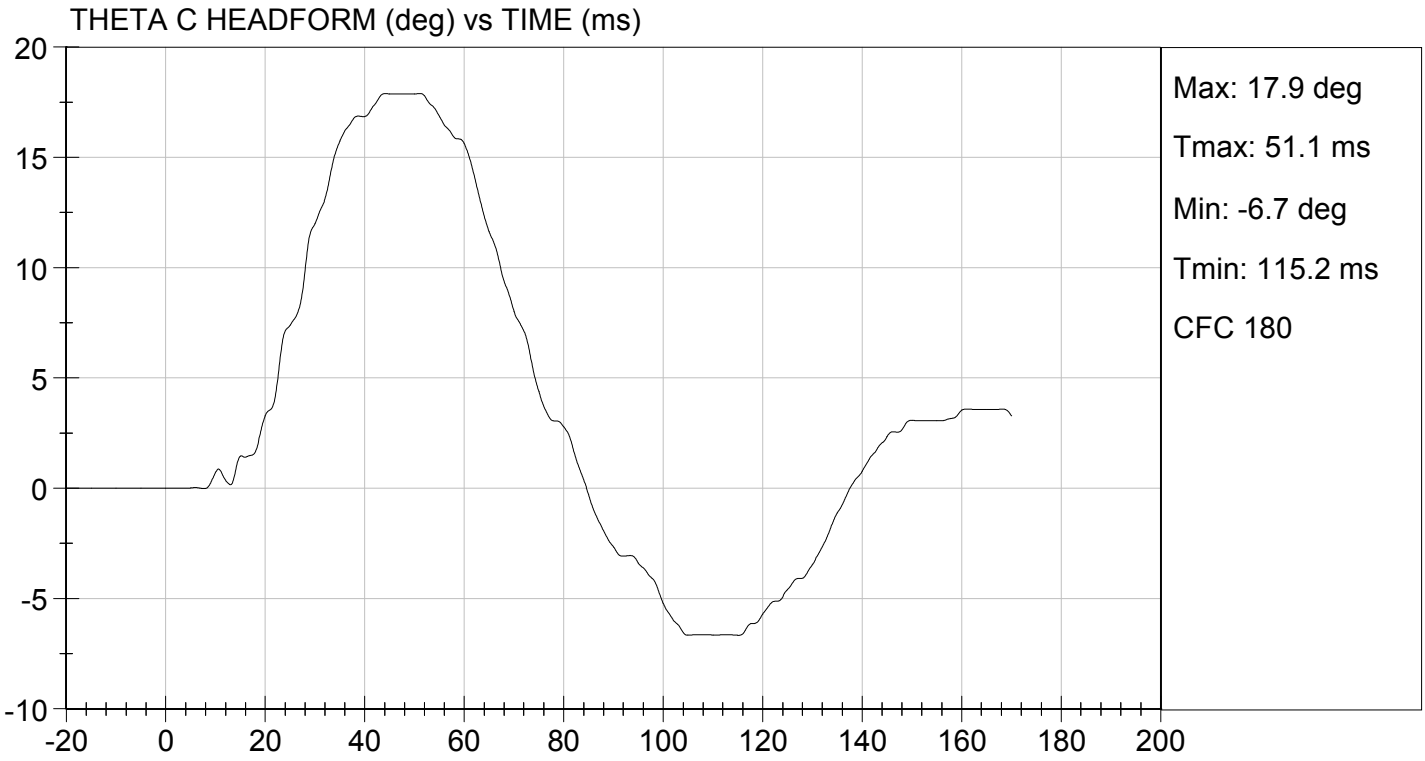


THETA B REAR (deg) vs TIME (ms)



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

TEST DATE: 06/05/2014
TEST #: D142068



MGA RESEARCH CORPORATION

PELVIS TEST

ES-2re DUMMY

ATD Serial No: 032 **Test I.D:** D142069

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	43	Pass
Probe Speed	m/s	4.20 to 4.40	4.27	Pass
Maximum Impactor Force	N	4700 to 5400	4738	Pass
Time of Maximum Impactor Force	ms	11.8 to 16.1	13.7	Pass
Maximum Pubic Force	N	1230 to 1590	1320	Pass
Time of Maximum Pubic Force	ms	12.2 to 17.0	13.5	Pass
		Overall Test Results		Pass

Jessica Gall
Laboratory Technician

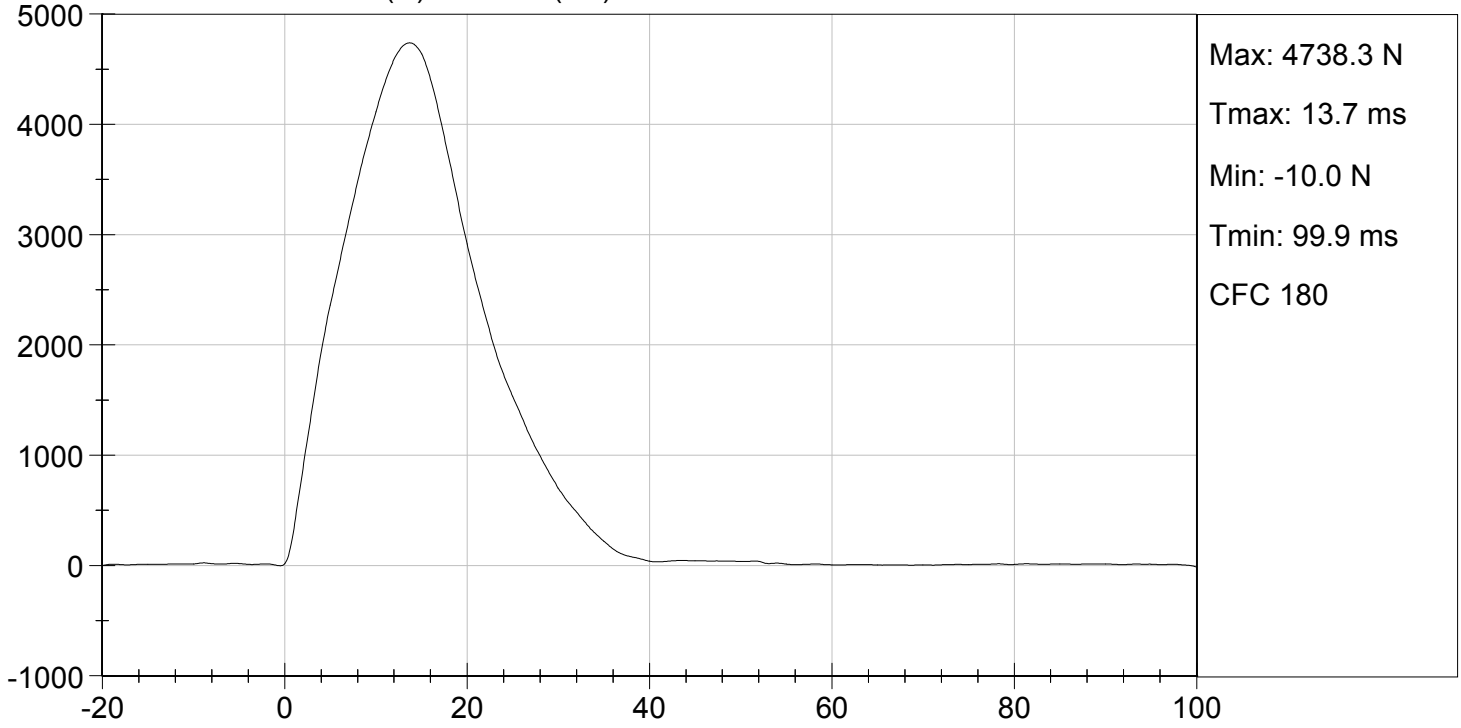
06/05/2014
Test Date

David Winkelbauer
Approved By

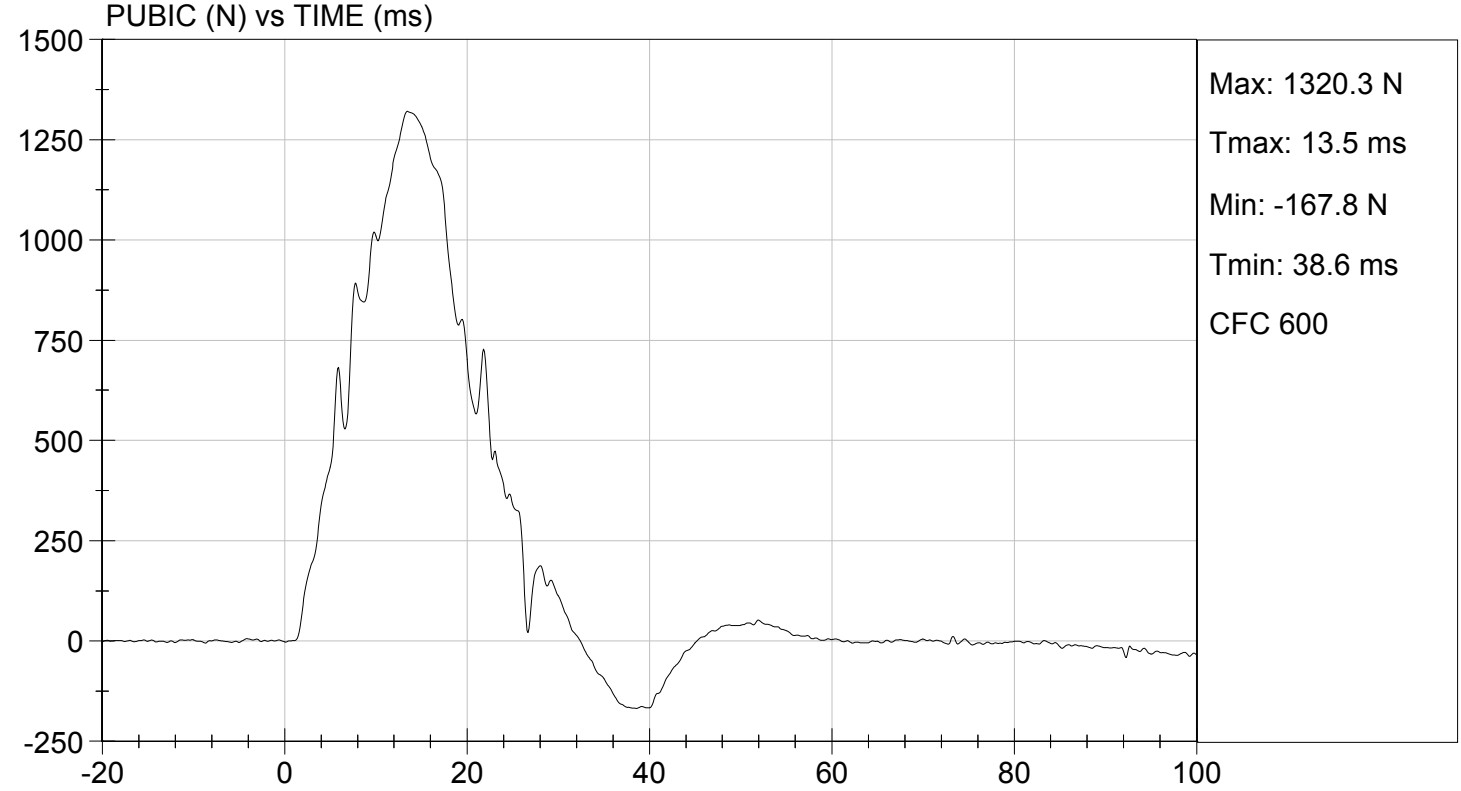
TEST DESC: PELVIS IMPACT
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 06/05/2014
TEST #: D142069

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:** D141881

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	43	Pass
Peak Resultant Acceleration	G's	115 to 137	119	Pass
Peak Longitudinal Acceleration	G's	+/- 15	-8.8	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

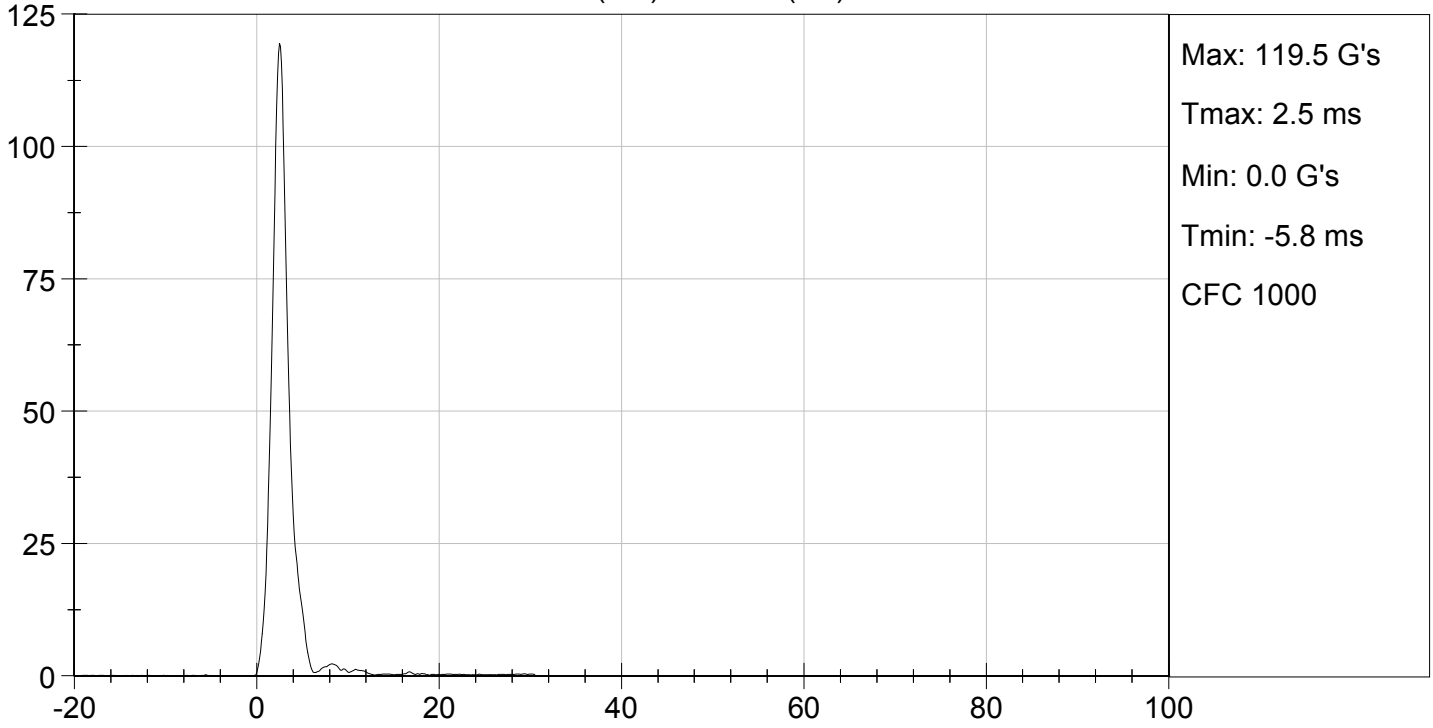
05/15/2014
Test Date

David Winkelbauer
Approved By

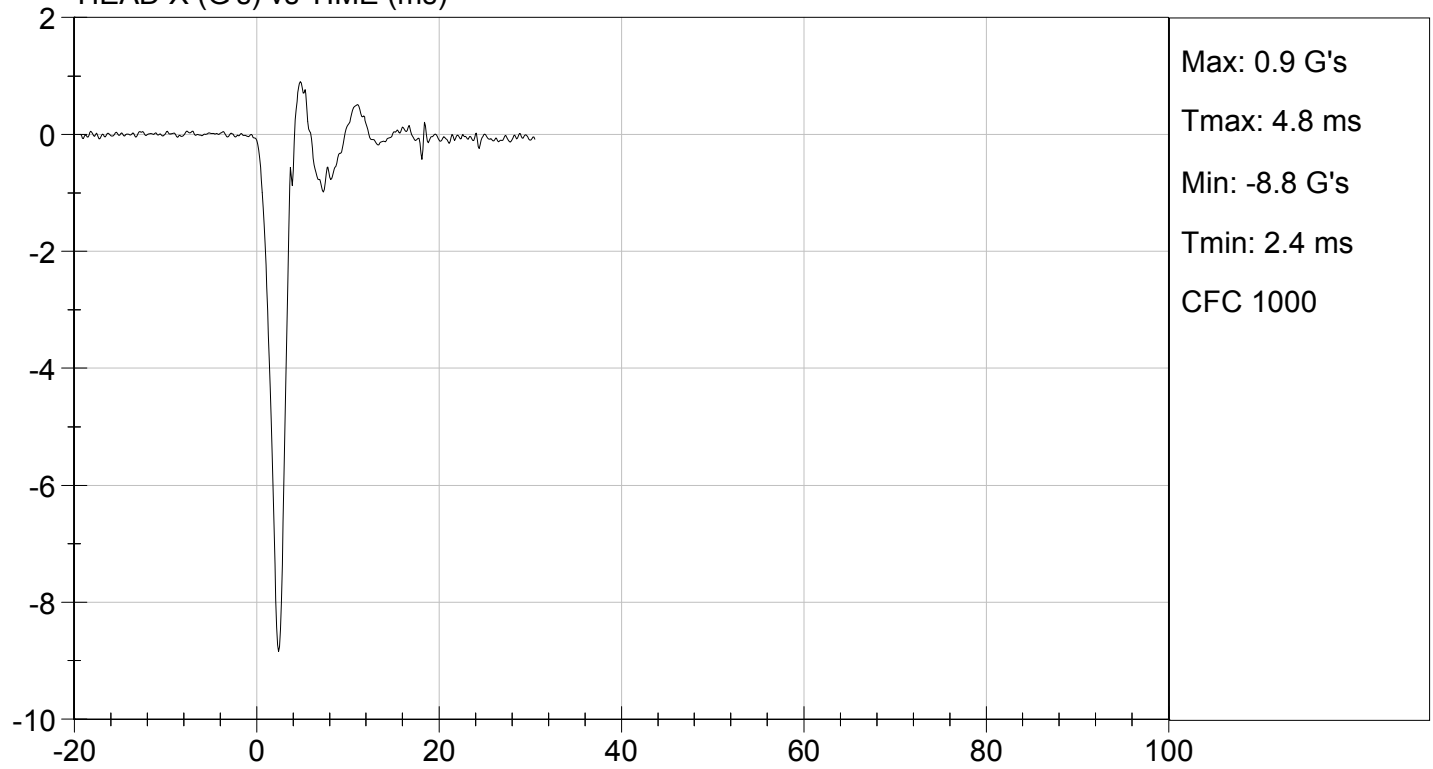
TEST DESC: HEAD DROP

TEST DATE: 05/15/2014
TEST #: D141881

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



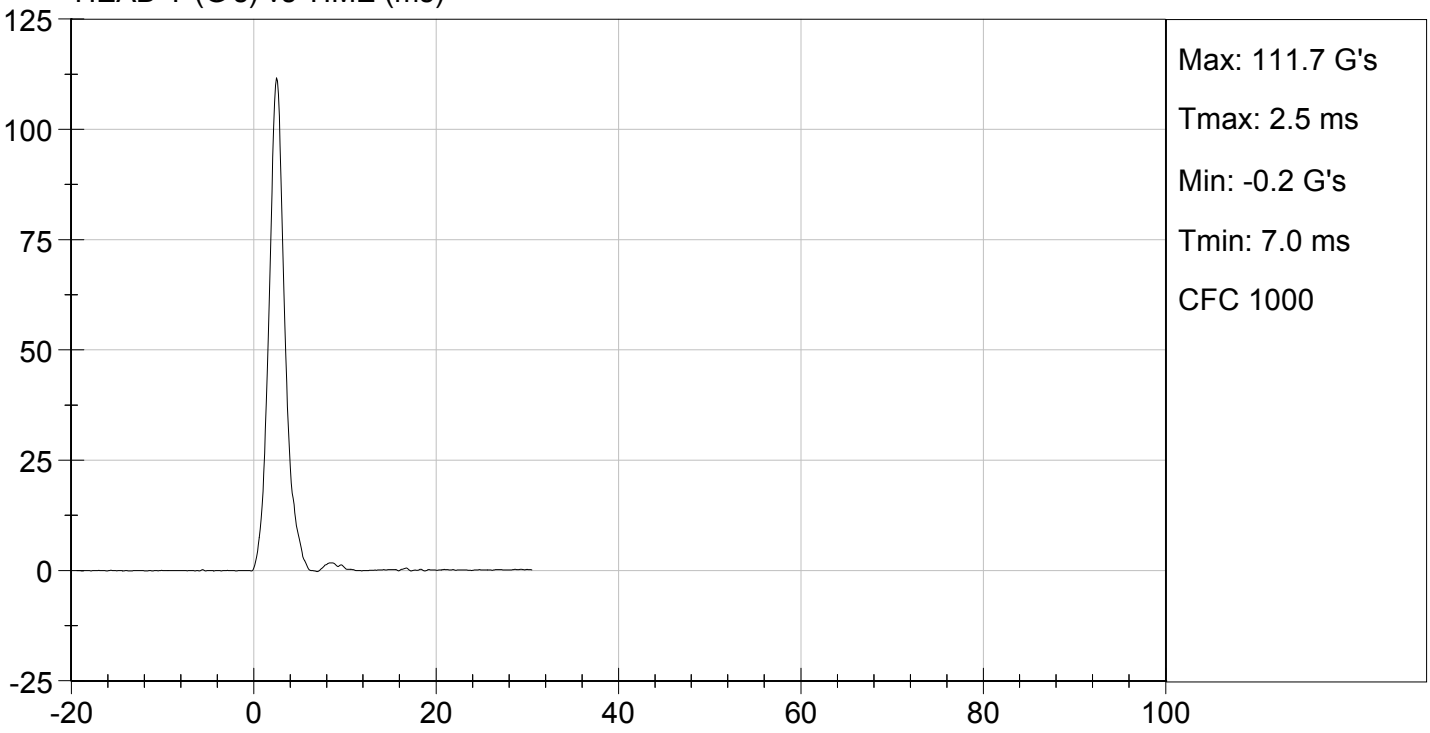
HEAD X (G's) vs TIME (ms)



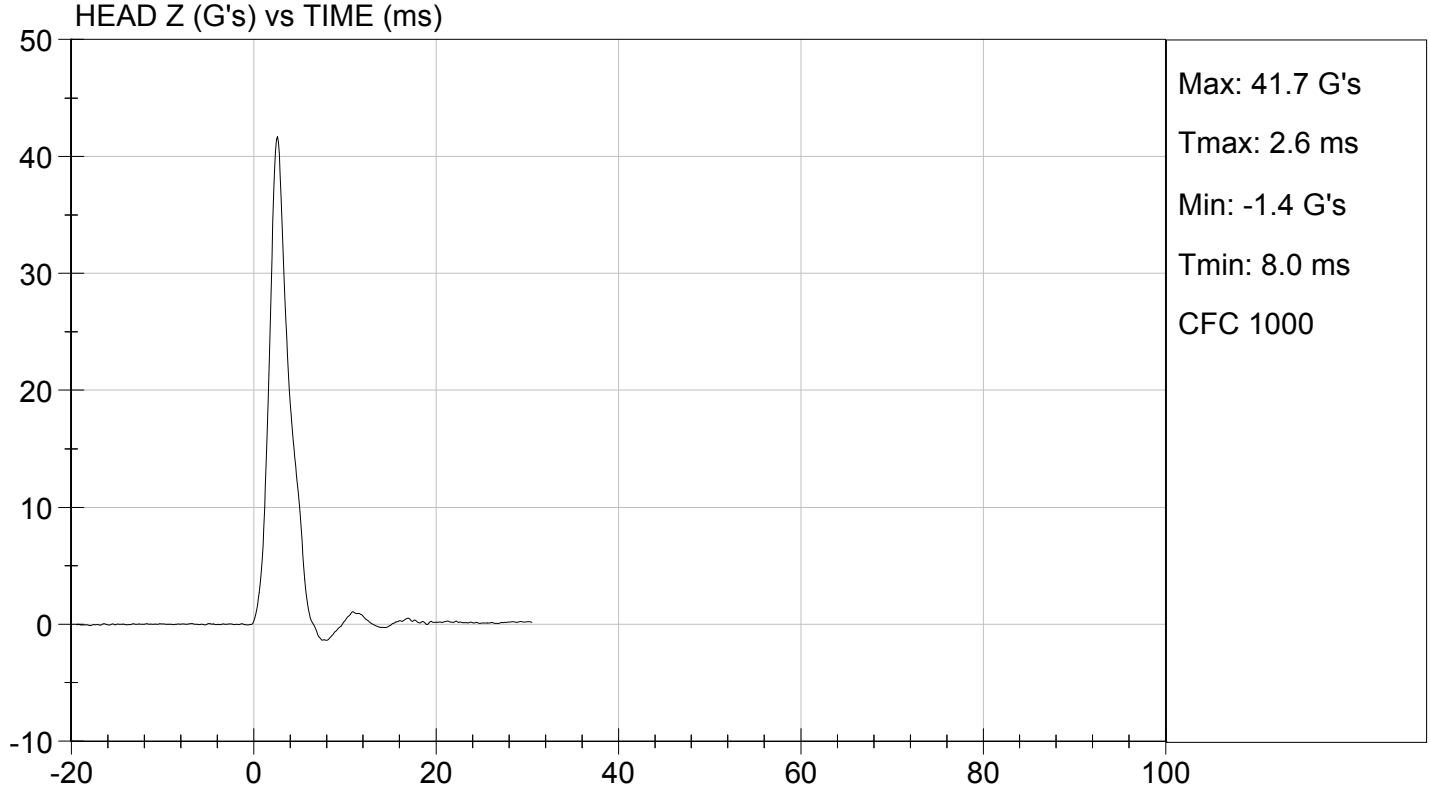
TEST DESC: HEAD DROP

TEST DATE: 05/15/2014
TEST #: D141881

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:** D141882

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.5	Pass
Humidity		%	10 to 70	46	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.54	Pass
	15 ms	m/s	3.30 to 4.10	3.61	Pass
	20 ms	m/s	4.40 to 5.40	4.79	Pass
	25 ms	m/s	5.40 to 6.10	5.54	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	62	Pass
Maximum Occipital Condyle Moment		Nm	-44 to -36	-41	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	117	Pass
			Overall Test Results		Pass

Jessica Hall
Laboratory Technician

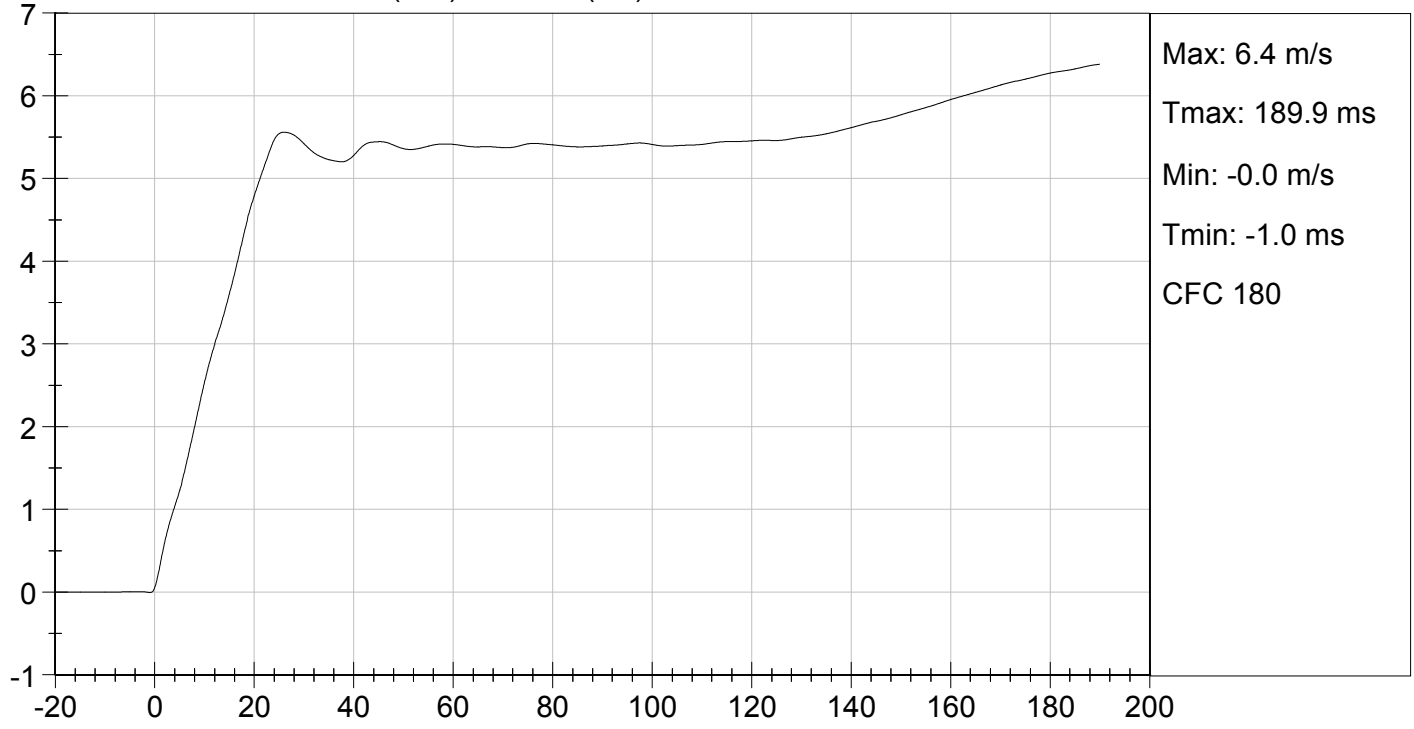
05/15/2014
Test Date

David Winkelbauer
Approved By

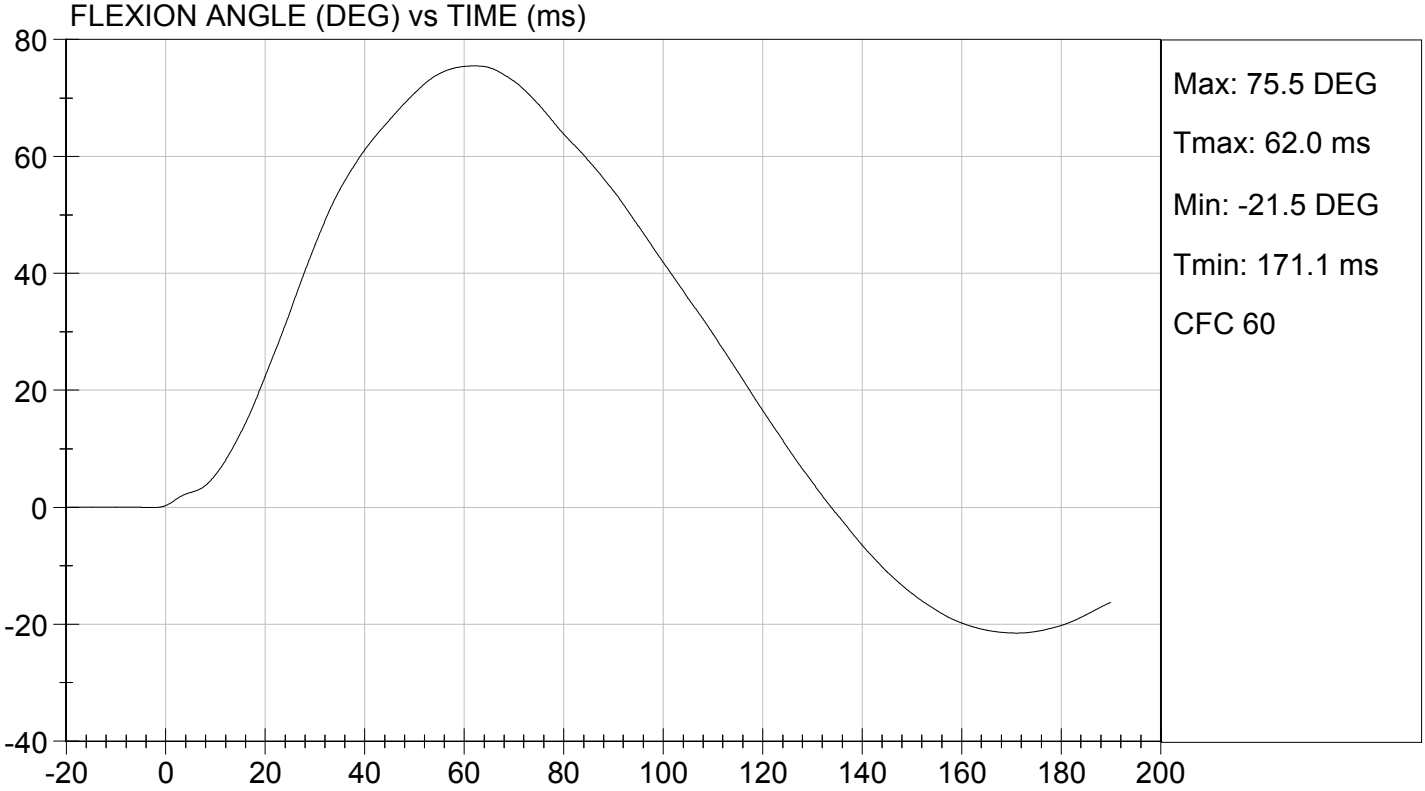
TEST DESC: NECK BENDING
VELOCITY: 18.32 ft/s, 5.58 m/s

TEST DATE: 05/15/2014
TEST #: D141882

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

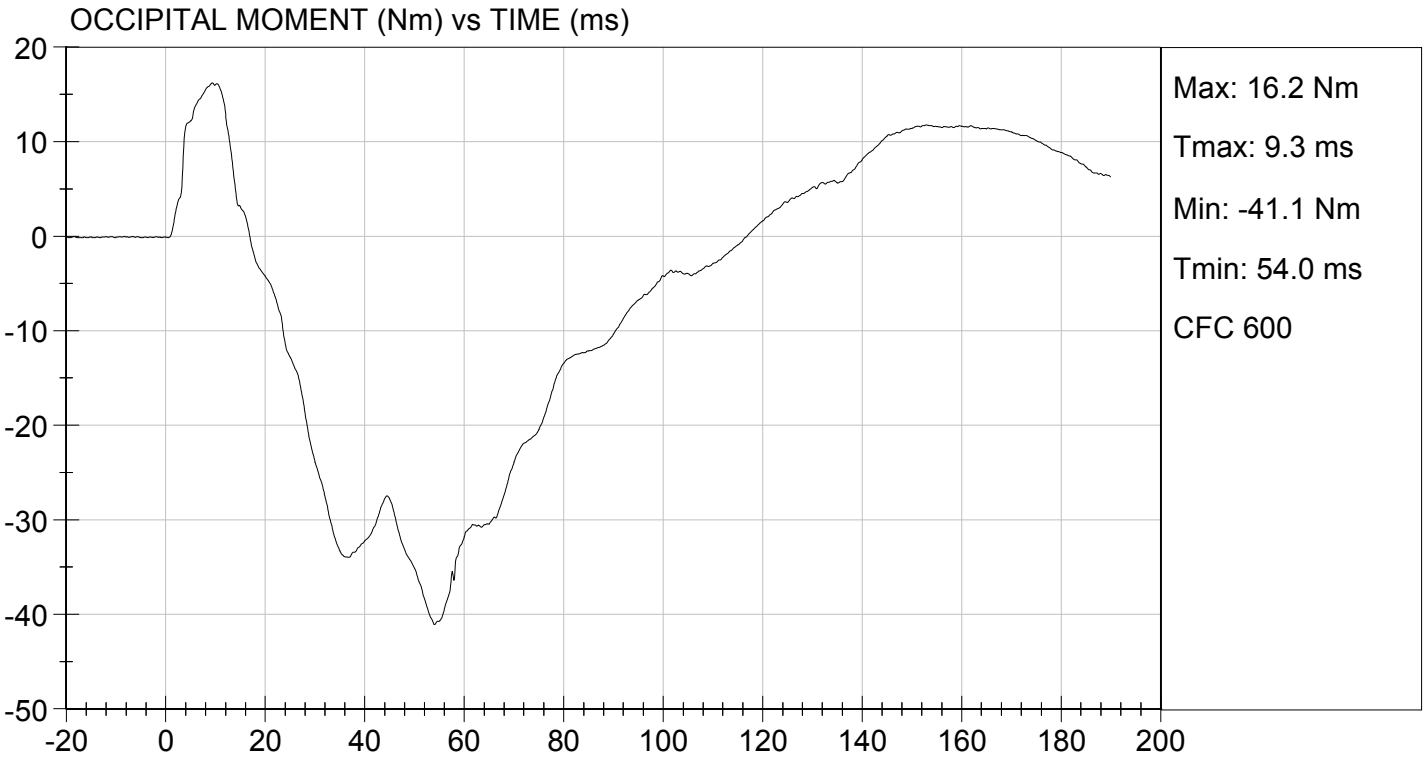


FLEXION ANGLE (DEG) vs TIME (ms)



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

TEST DATE: 05/15/2014
TEST #: D141882



MGA RESEARCH CORPORATION

SHOULDER IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test ID:** D141883

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	46	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	32	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	19	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

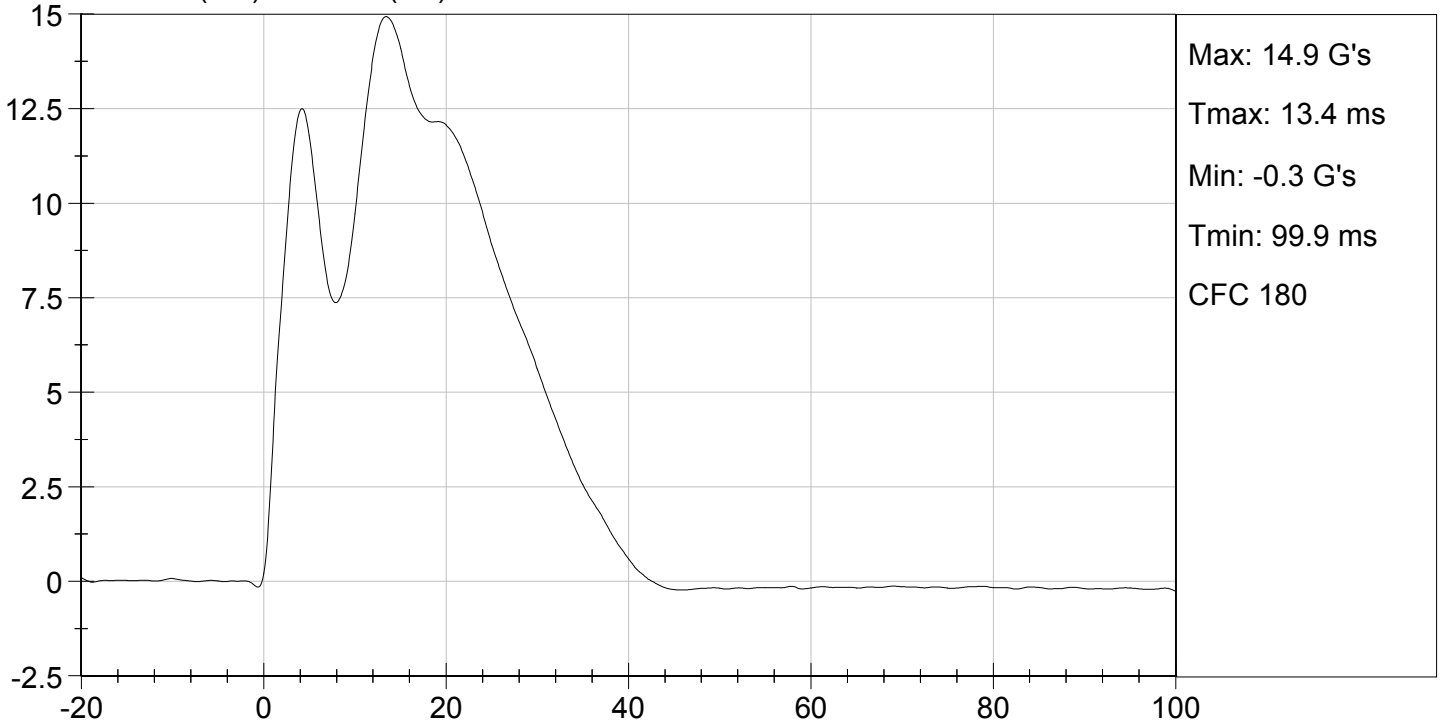
05/15/2014
Test Date

David Winkelbauer
Approved By

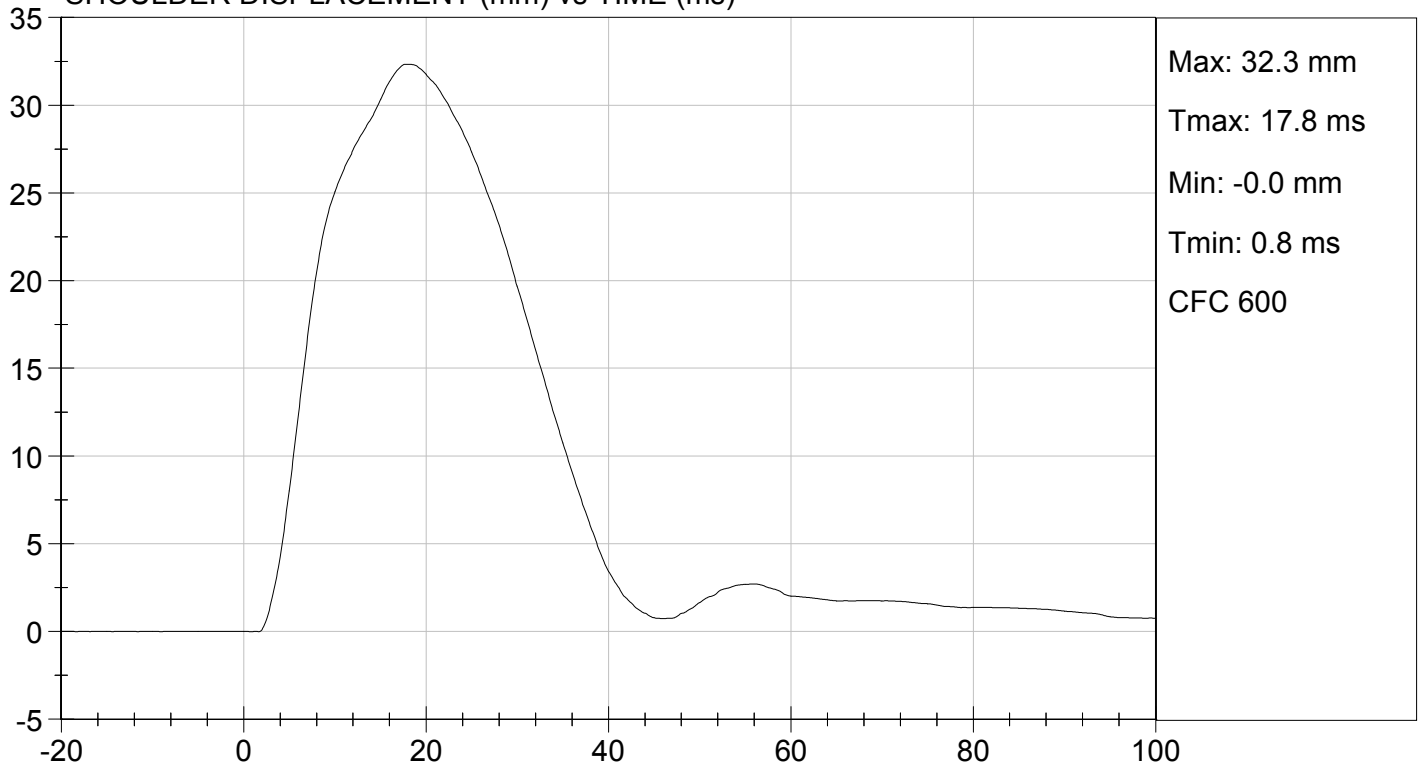
TEST DESC: SHOULDER IMPACT
VELOCITY: 14.24 ft/s, 4.34 m/s

TEST DATE: 05/15/2014
TEST #: D141883

PROBE (G's) vs TIME (ms)



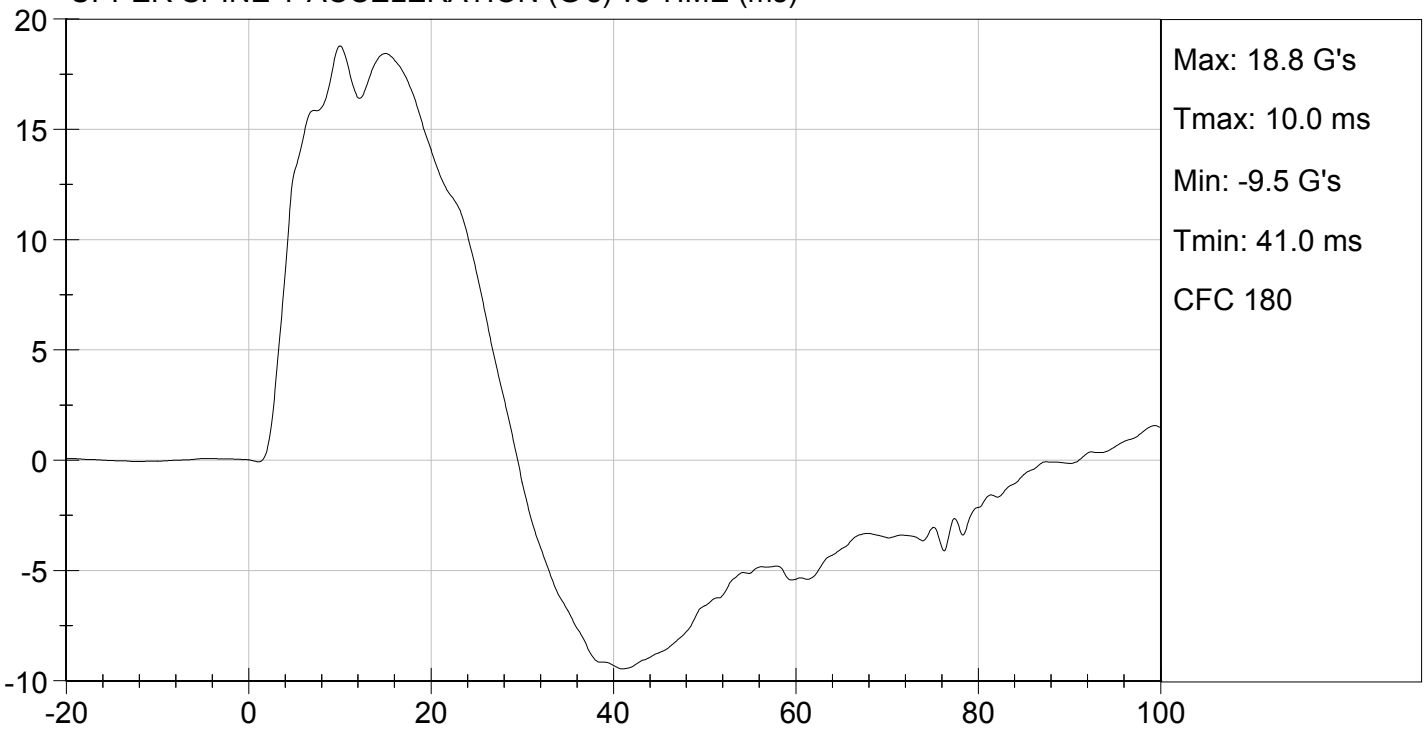
SHOULDER DISPLACEMENT (mm) vs TIME (ms)



TEST DESC: SHOULDER IMPACT
VELOCITY: 14.24 ft/s, 4.34 m/s

TEST DATE: 05/15/2014
TEST #: D141883

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:** D141884

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	46	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	30 to 36	32	Pass
Shoulder Displacement	mm	31 to 40	36	Pass
Upper Rib Displacement	mm	25 to 32	28	Pass
Middle Rib Displacement	mm	30 to 36	32	Pass
Lower Rib Displacement	mm	32 to 38	34	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	36	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	30	Pass
		Overall Test Results		Pass

Jessica Gall
Laboratory Technician

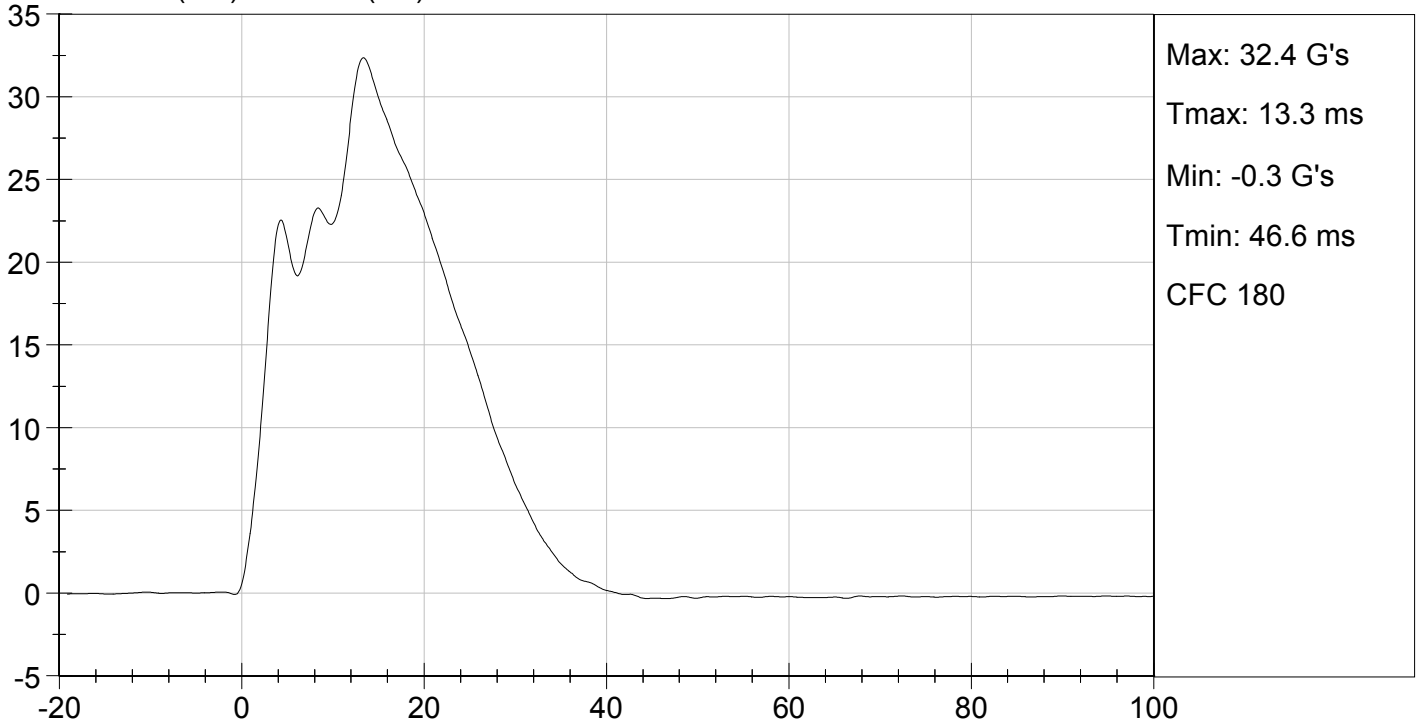
05/15/2014
Test Date

David Winkelbauer
Approved By

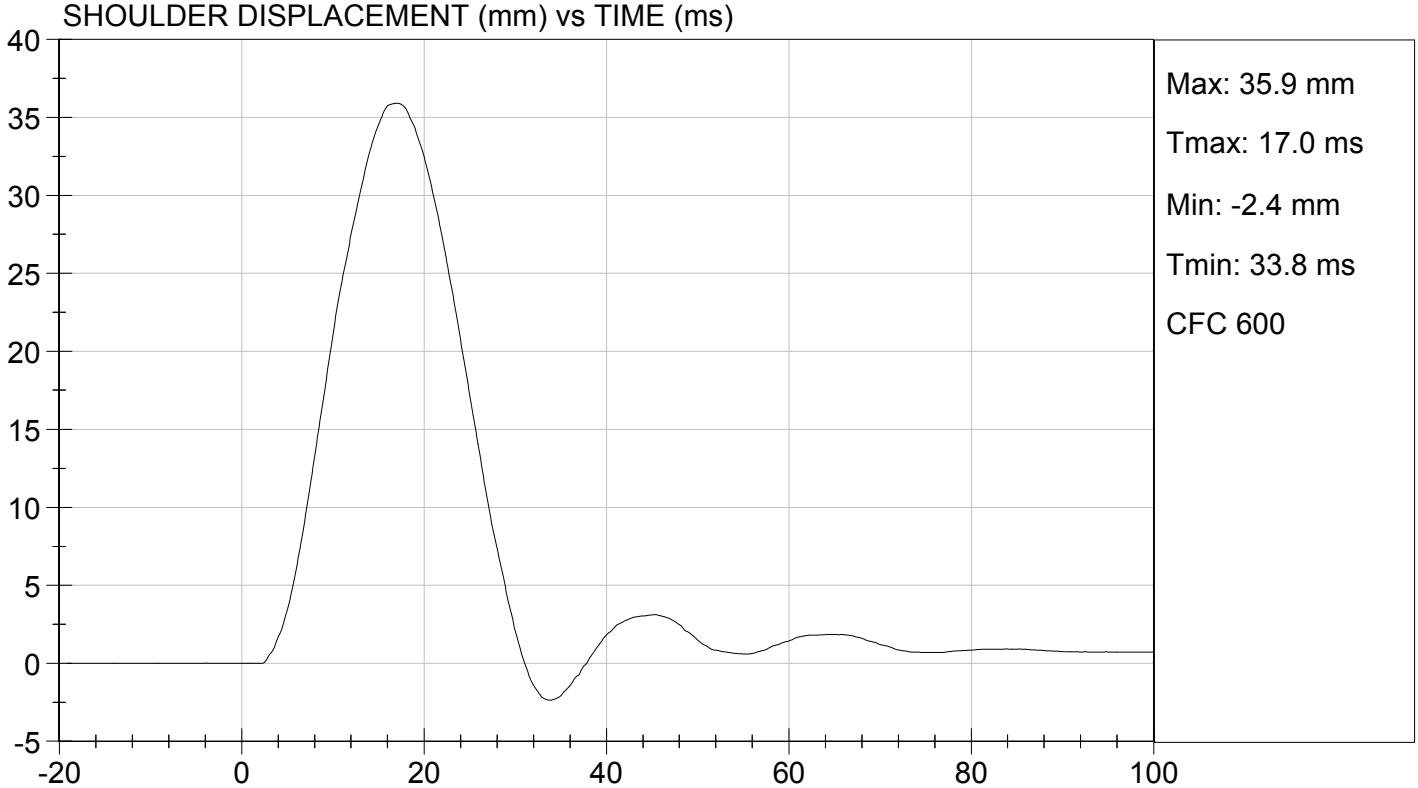
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 05/15/2014
TEST #: D141884

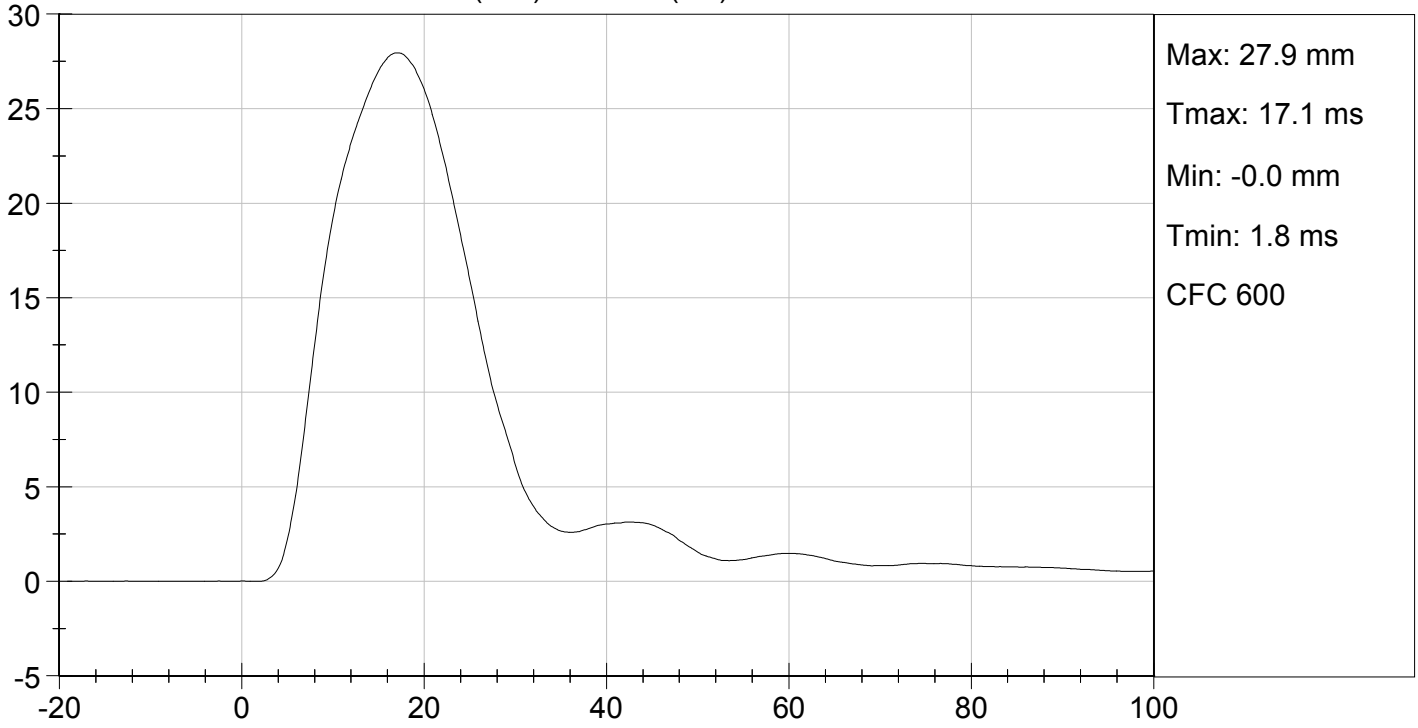
PROBE (G's) vs TIME (ms)



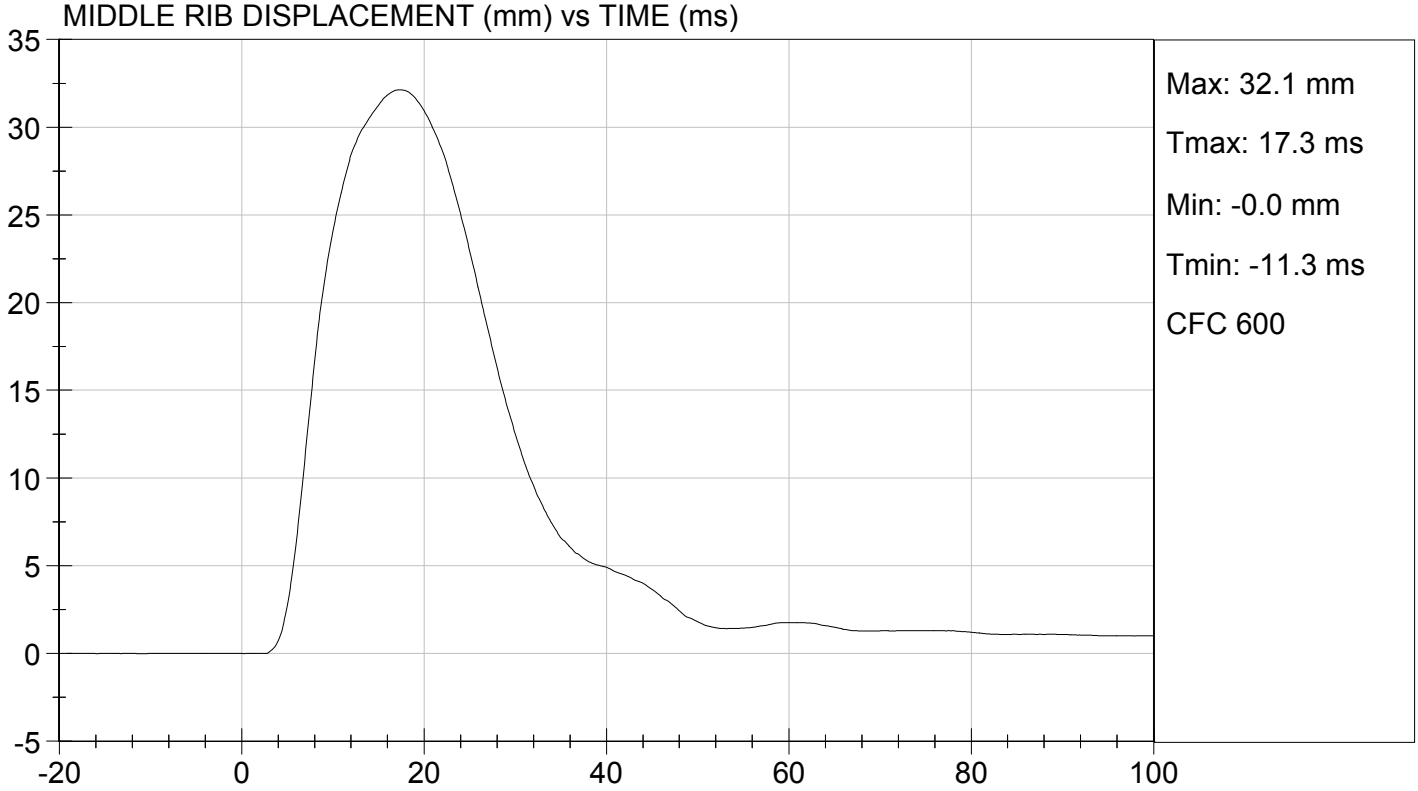
SHOULDER DISPLACEMENT (mm) vs TIME (ms)



UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



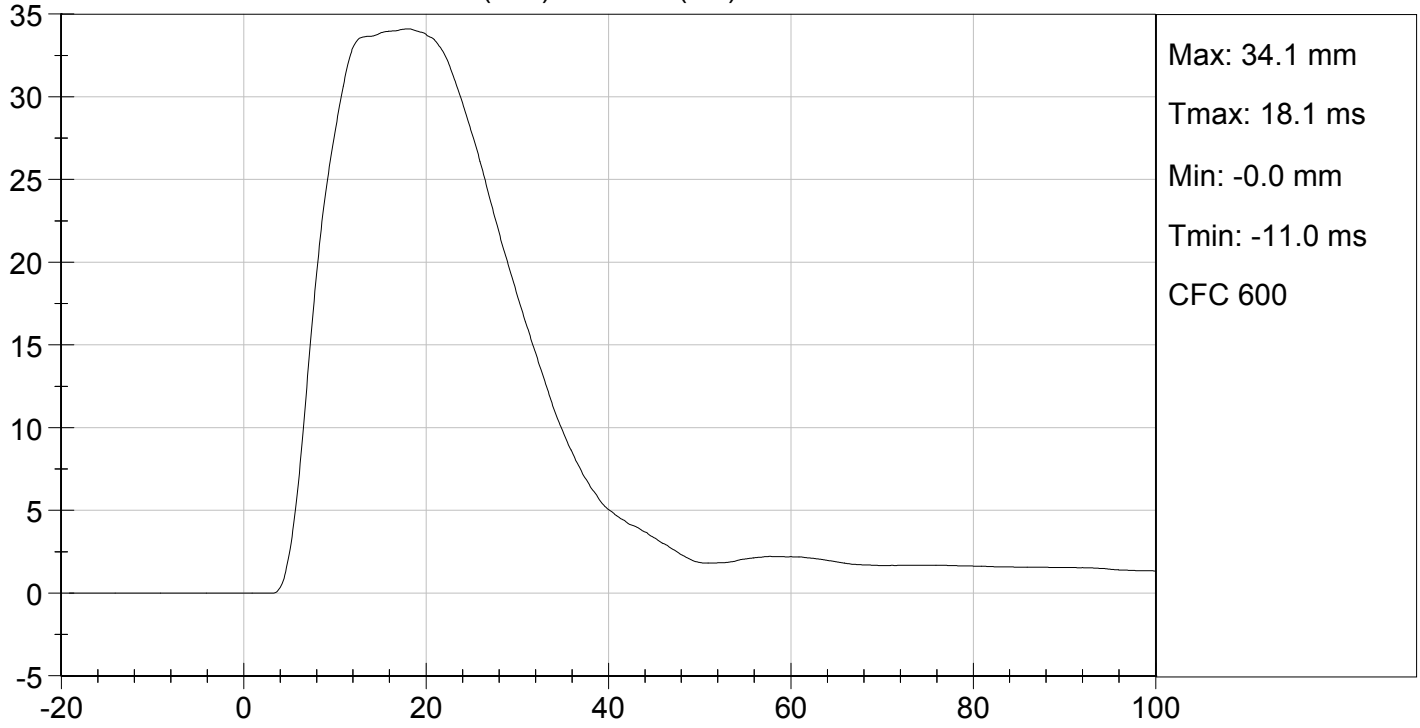
MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



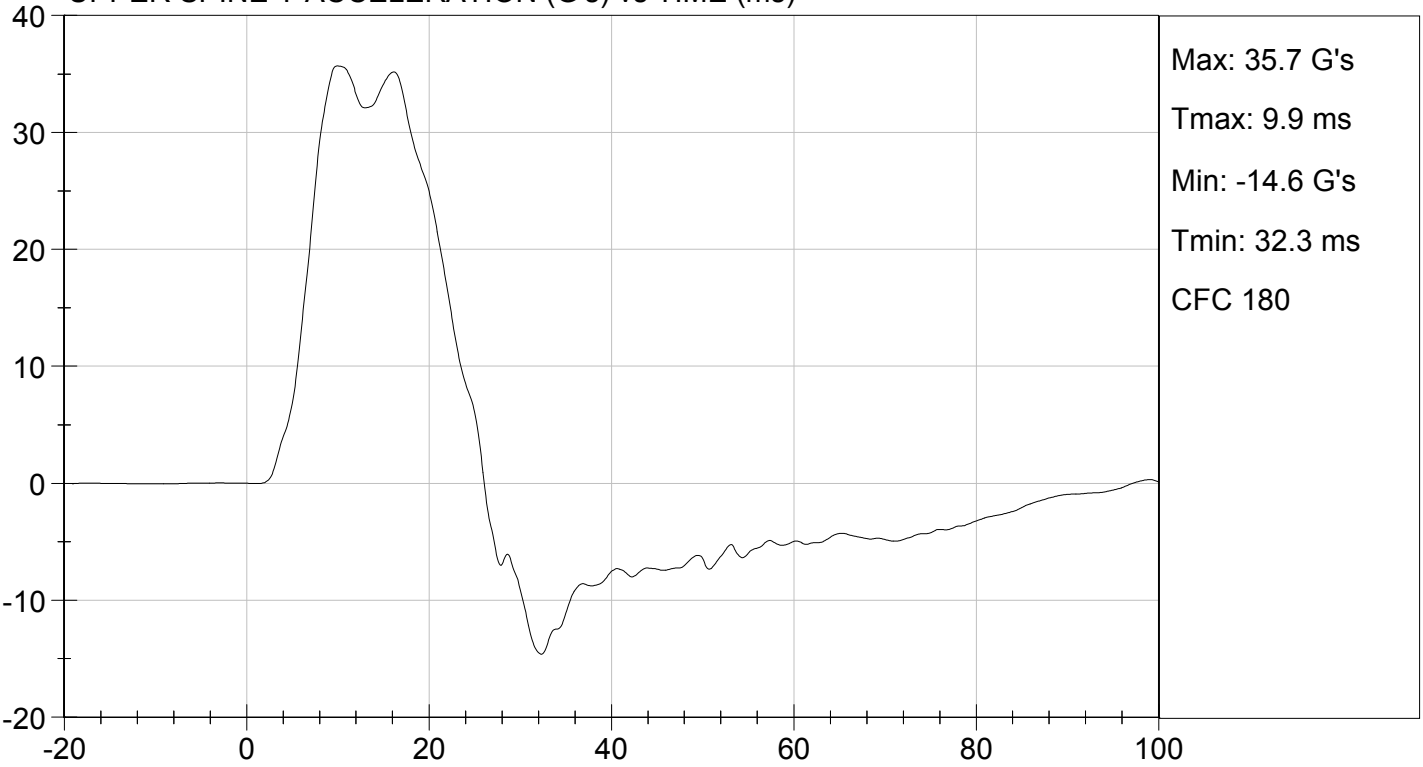
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 05/15/2014
TEST #: D141884

LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



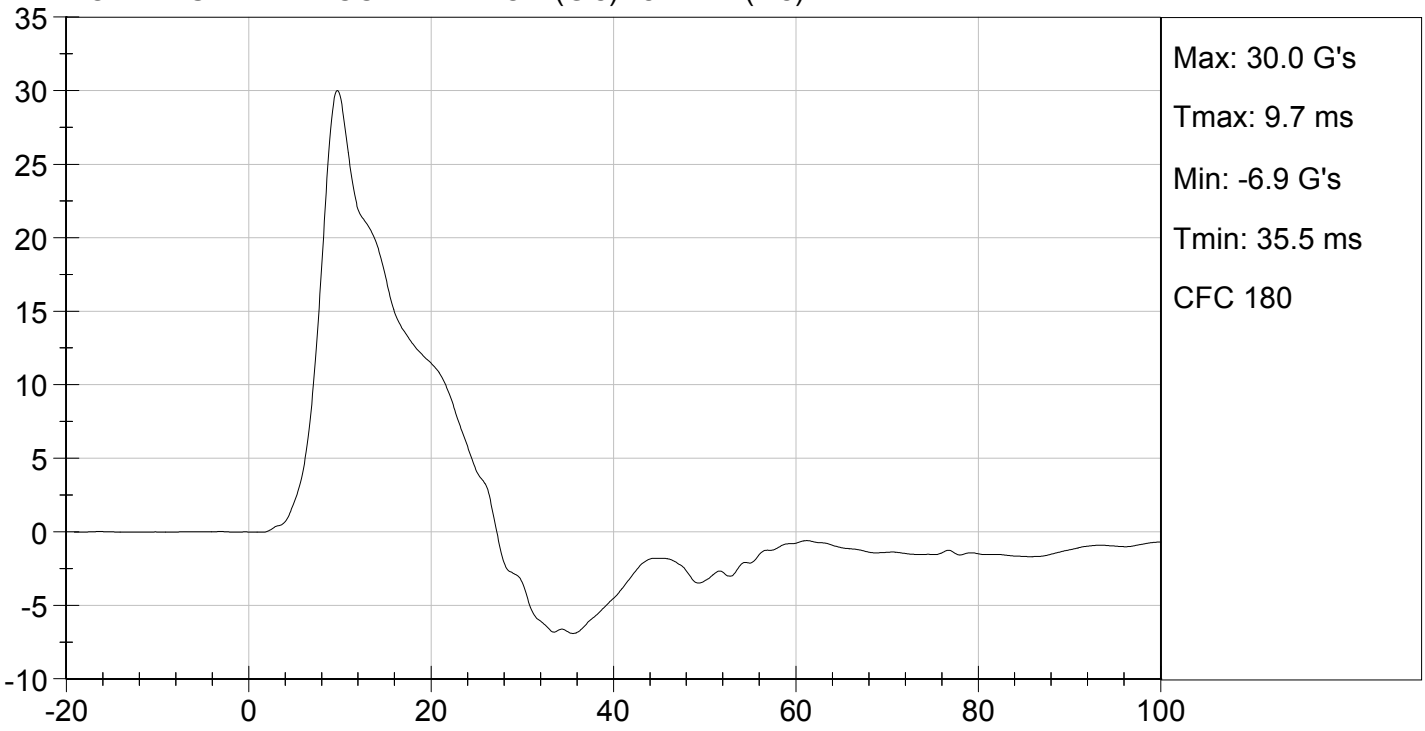
UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)



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

TEST DATE: 05/15/2014
TEST #: D141884

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:** D141885

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	46	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	36	Pass
Middle Rib Displacement	mm	39 to 45	42	Pass
Lower Rib Displacement	mm	35 to 43	40	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	14	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	8	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

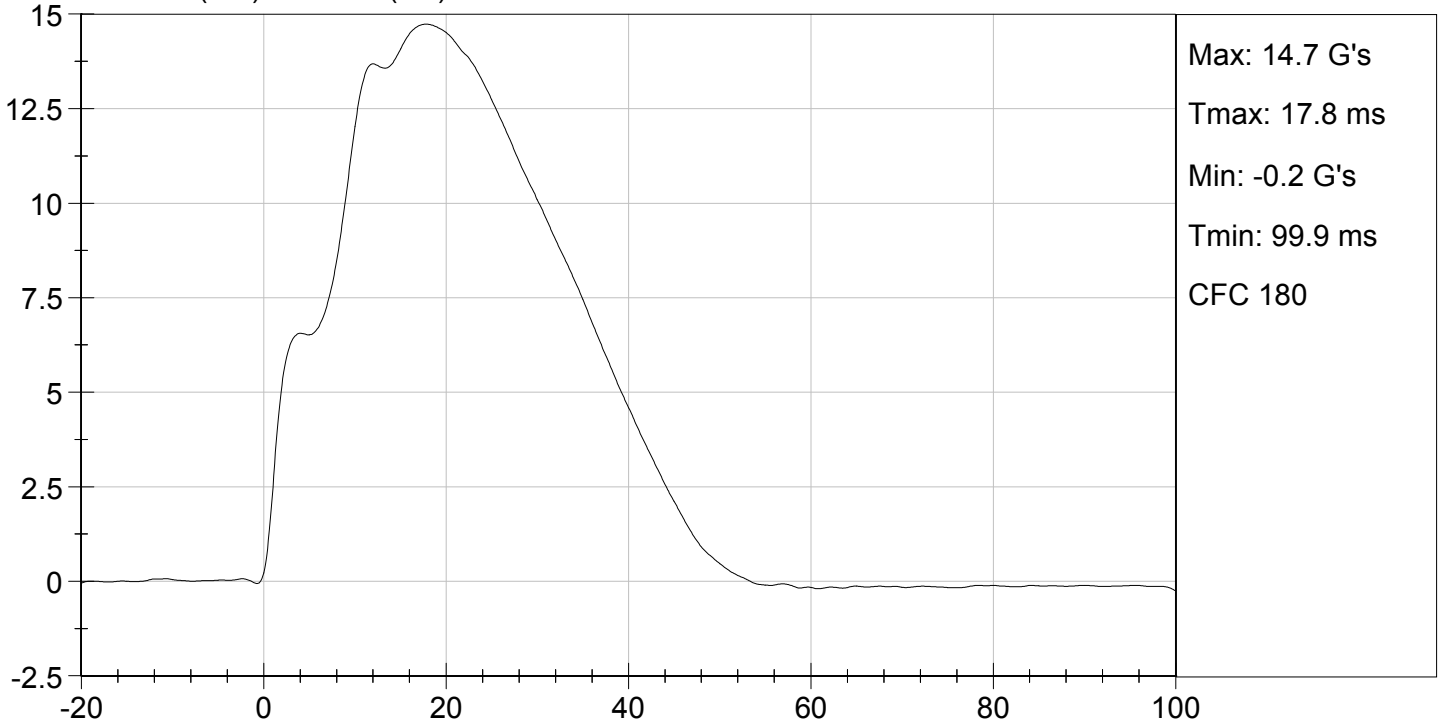
05/15/2014
Test Date

David Winkelbauer
Approved By

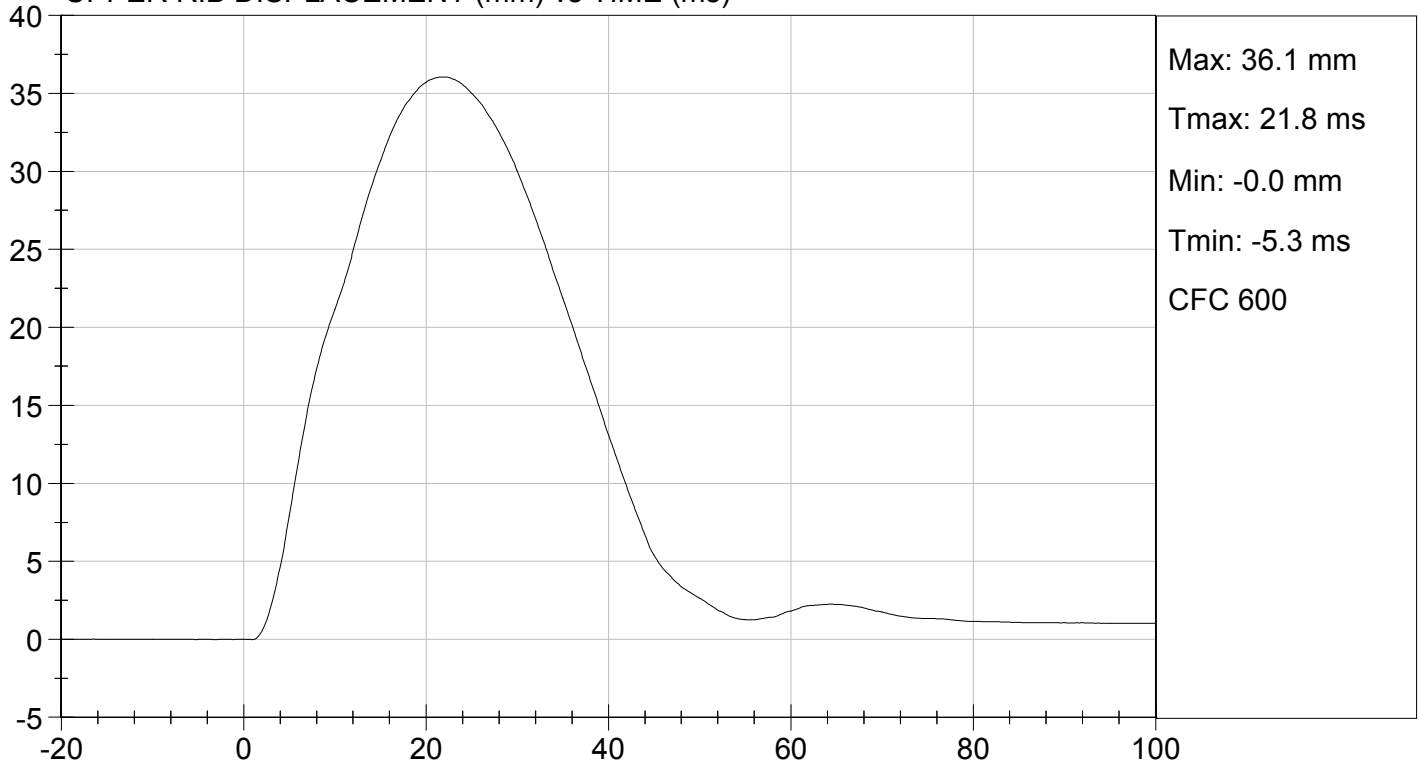
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 05/15/2014
TEST #: D141885

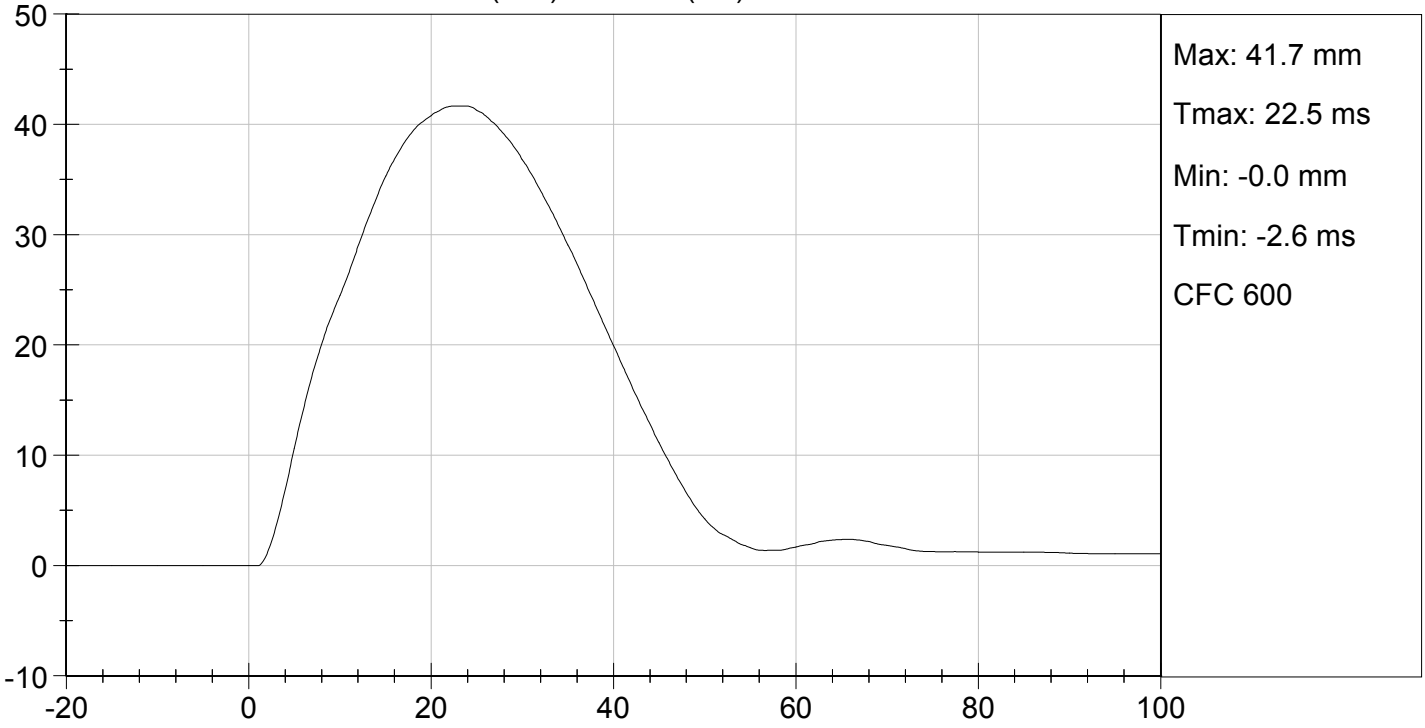
PROBE (G's) vs TIME (ms)



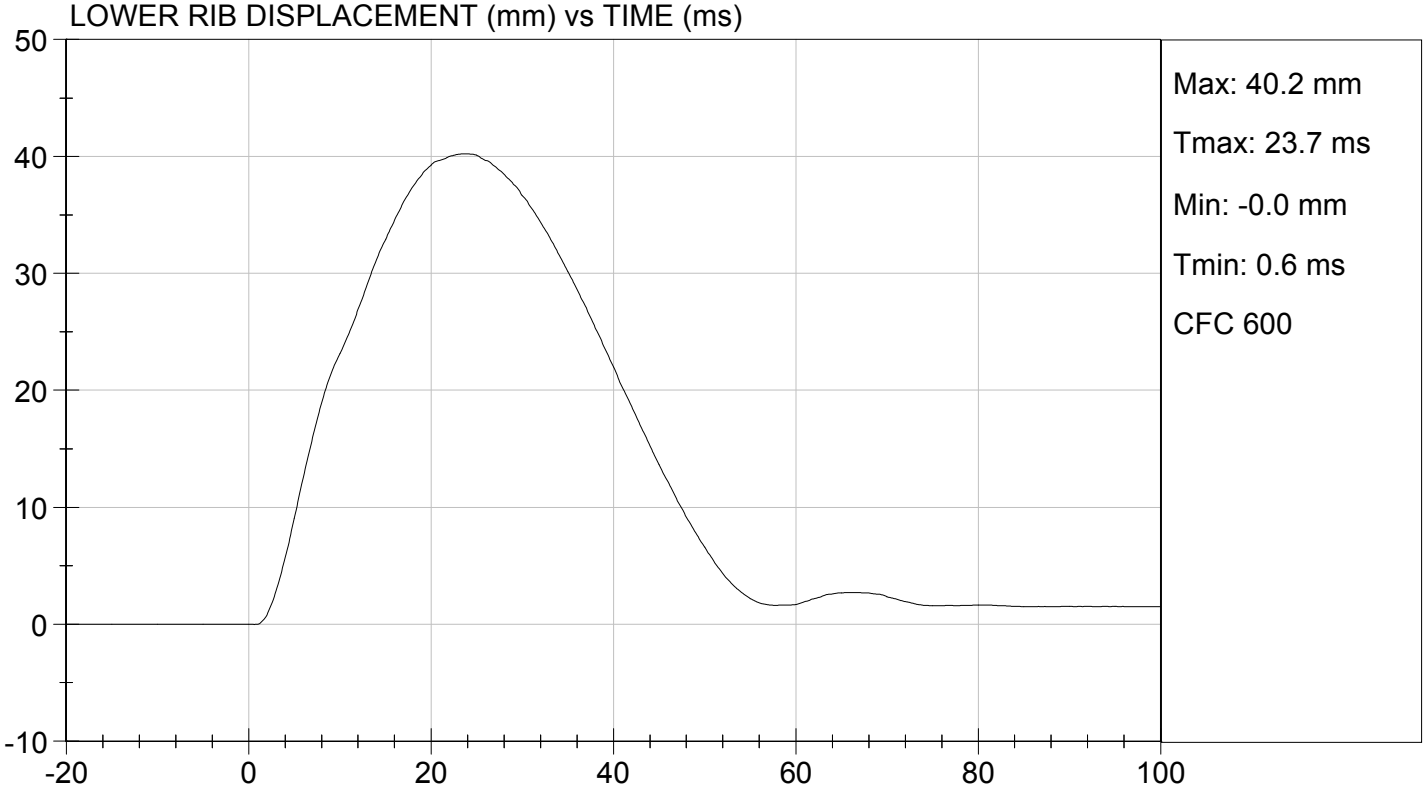
UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



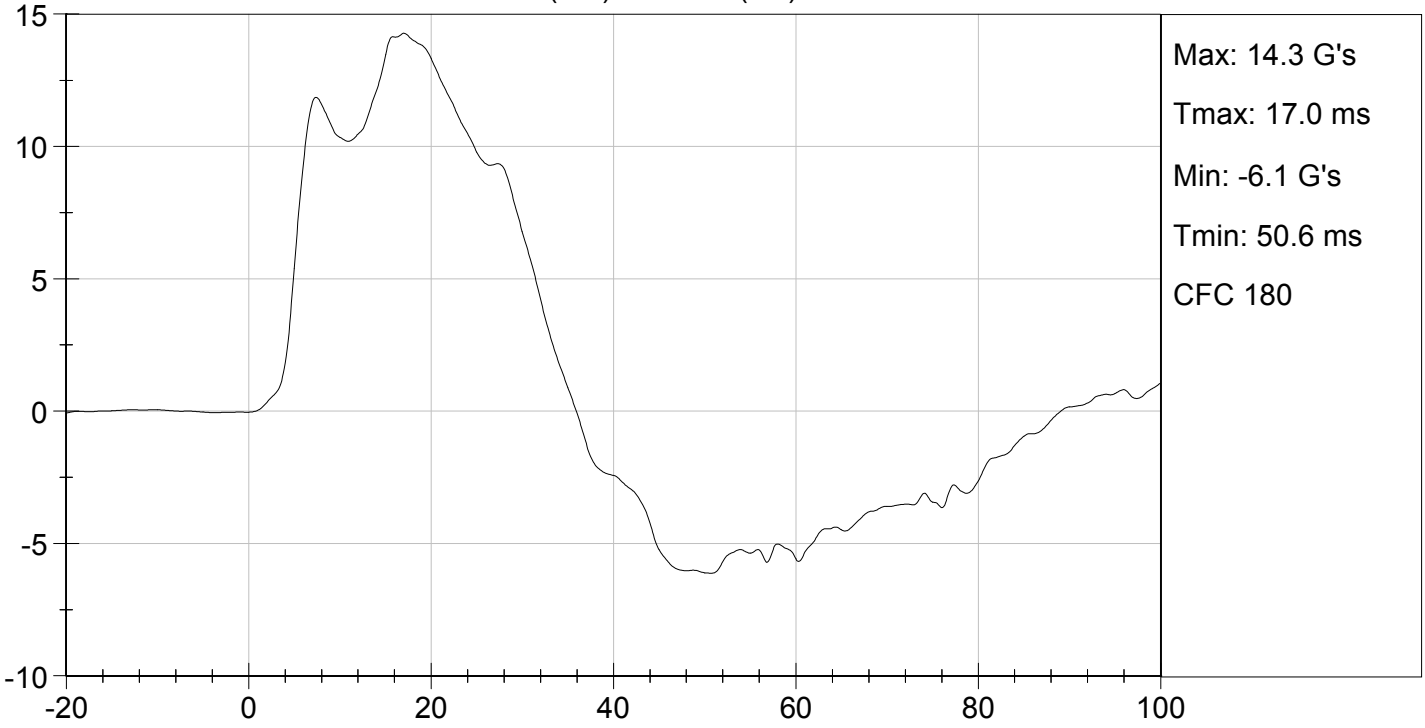
LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



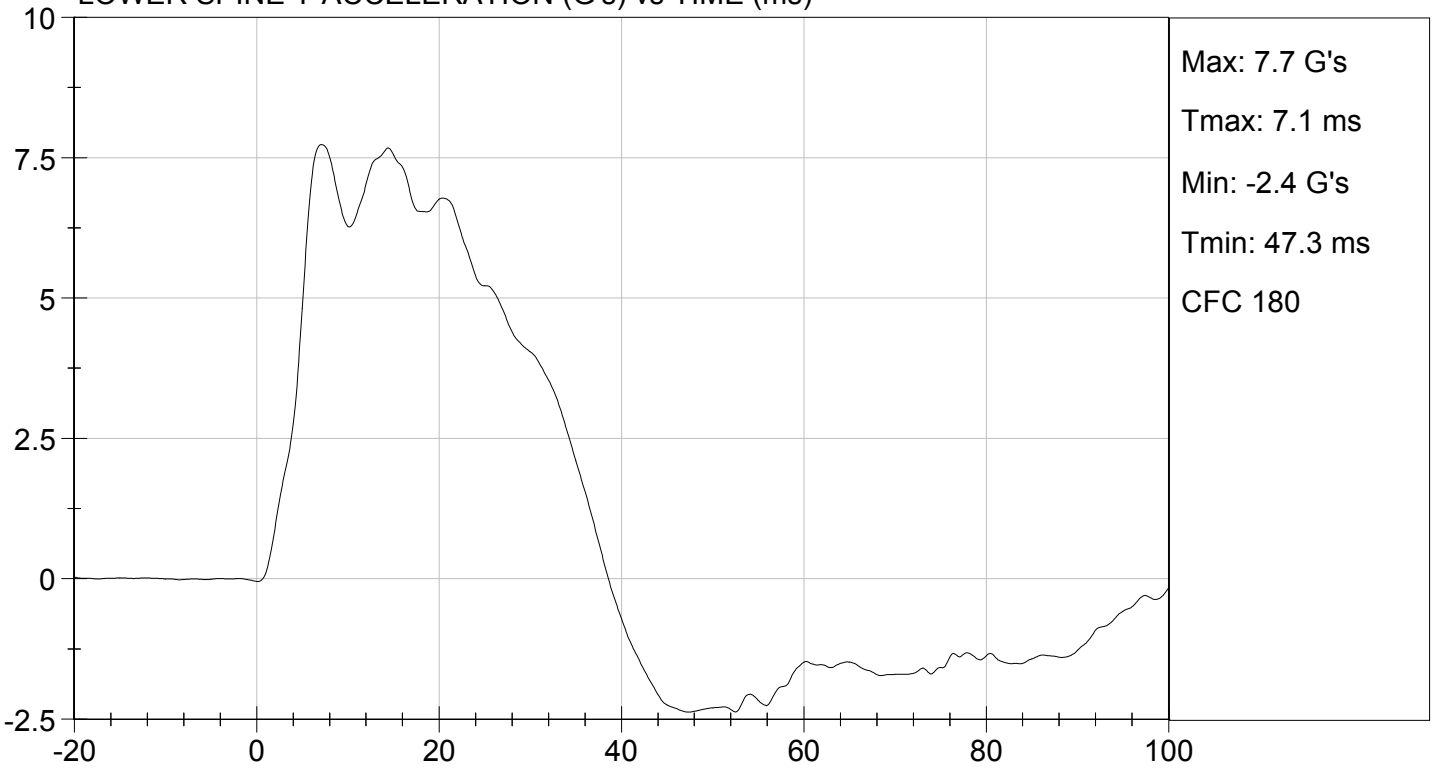
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 05/15/2014
TEST #: D141885

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:** D141886

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	43	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	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	42	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	10	Pass
		Overall Test Results		Pass

Jessica Gall
Laboratory Technician

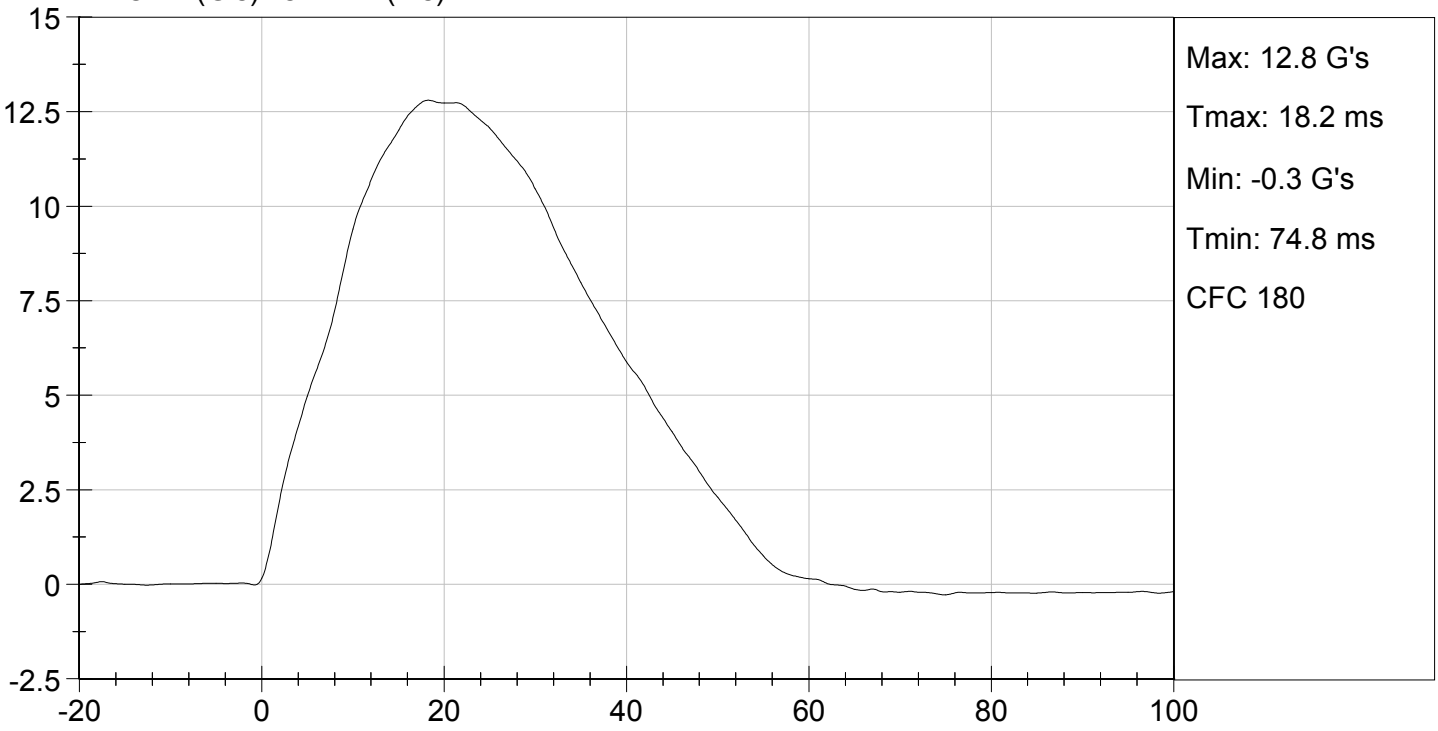
05/15/2014
Test Date

David Winkelbauer
Approved By

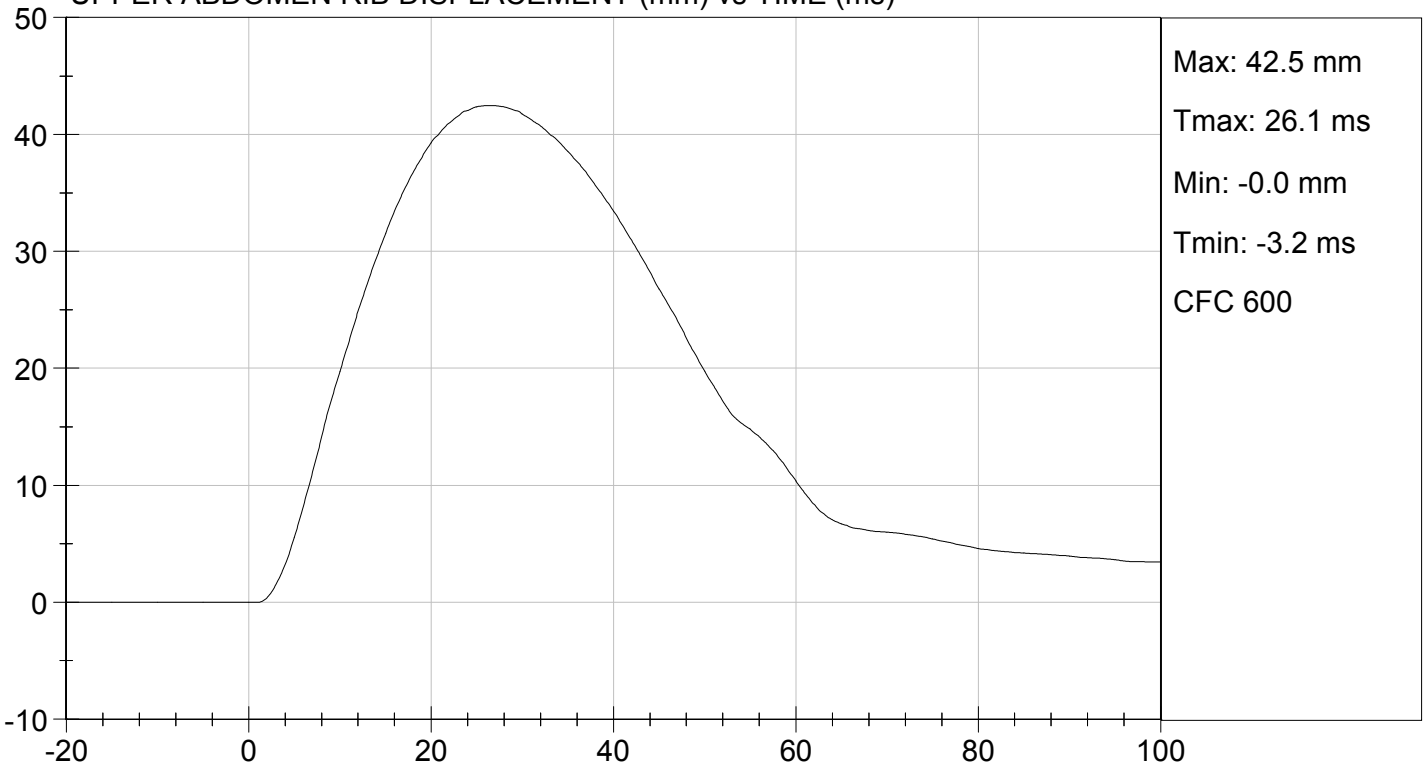
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 05/15/2014
TEST #: D141886

PROBE (G's) vs TIME (ms)



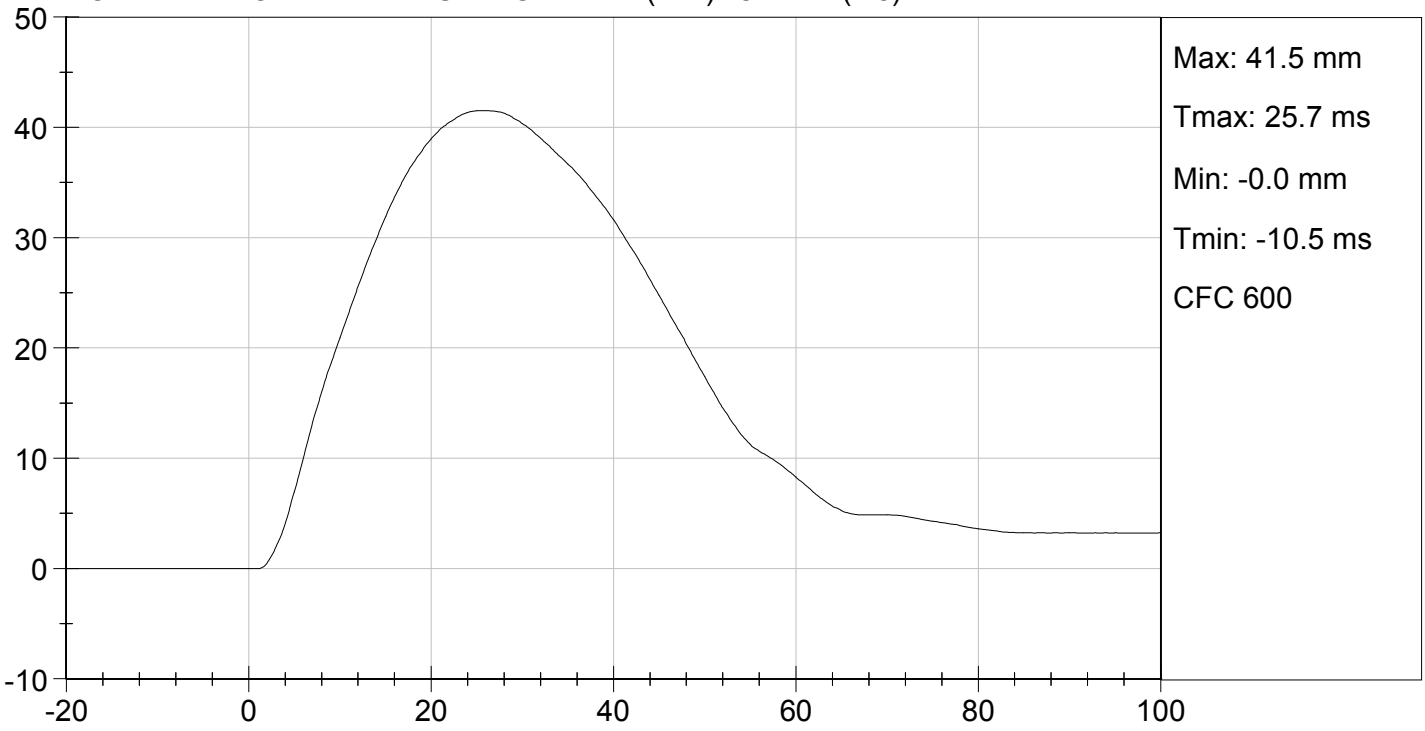
UPPER ABDOMEN RIB DISPLACEMENT (mm) vs TIME (ms)



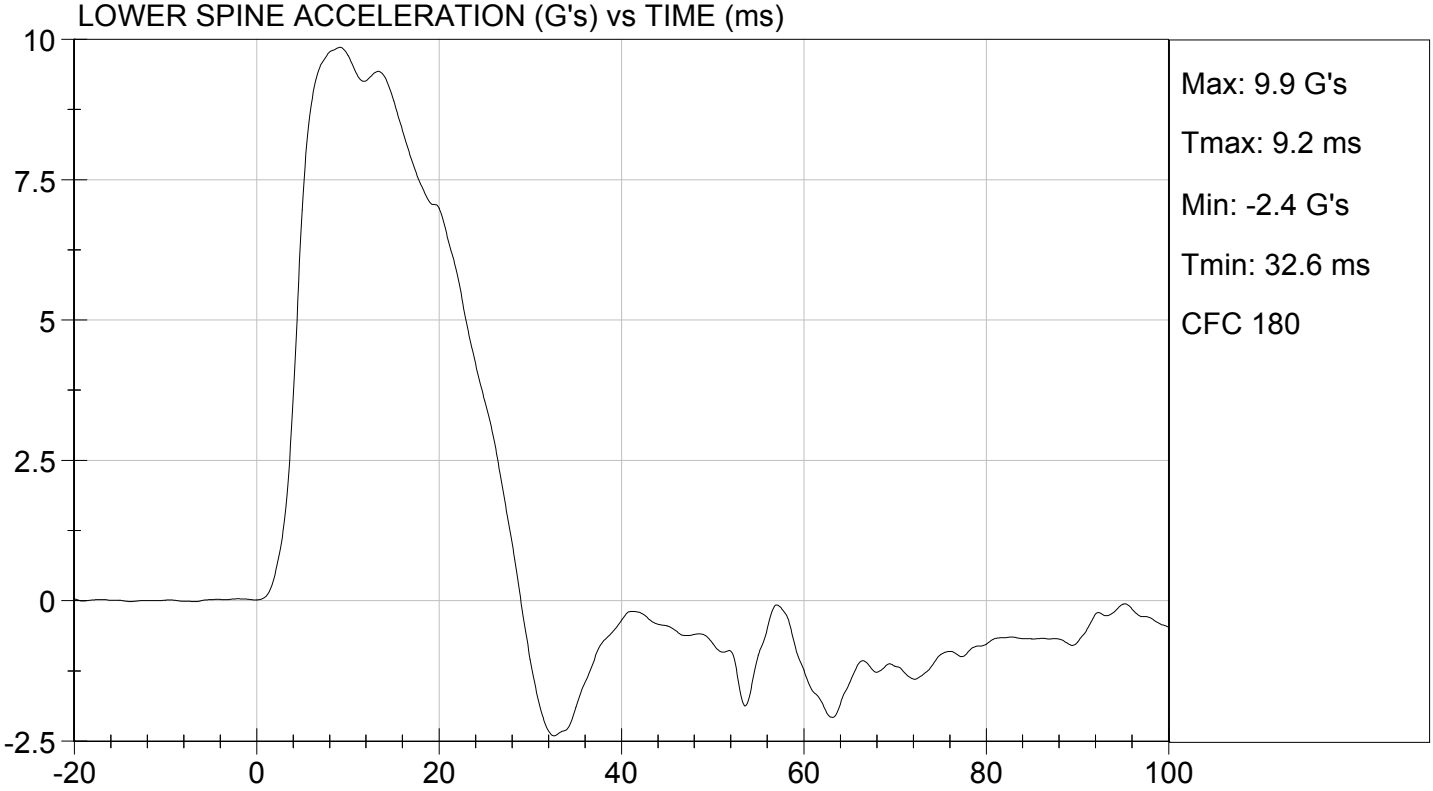
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 05/15/2014
TEST #: D141886

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:** D141887

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	43	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	41	Pass
Peak Acetabulum Force	N	3600 to 4300	4,140	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

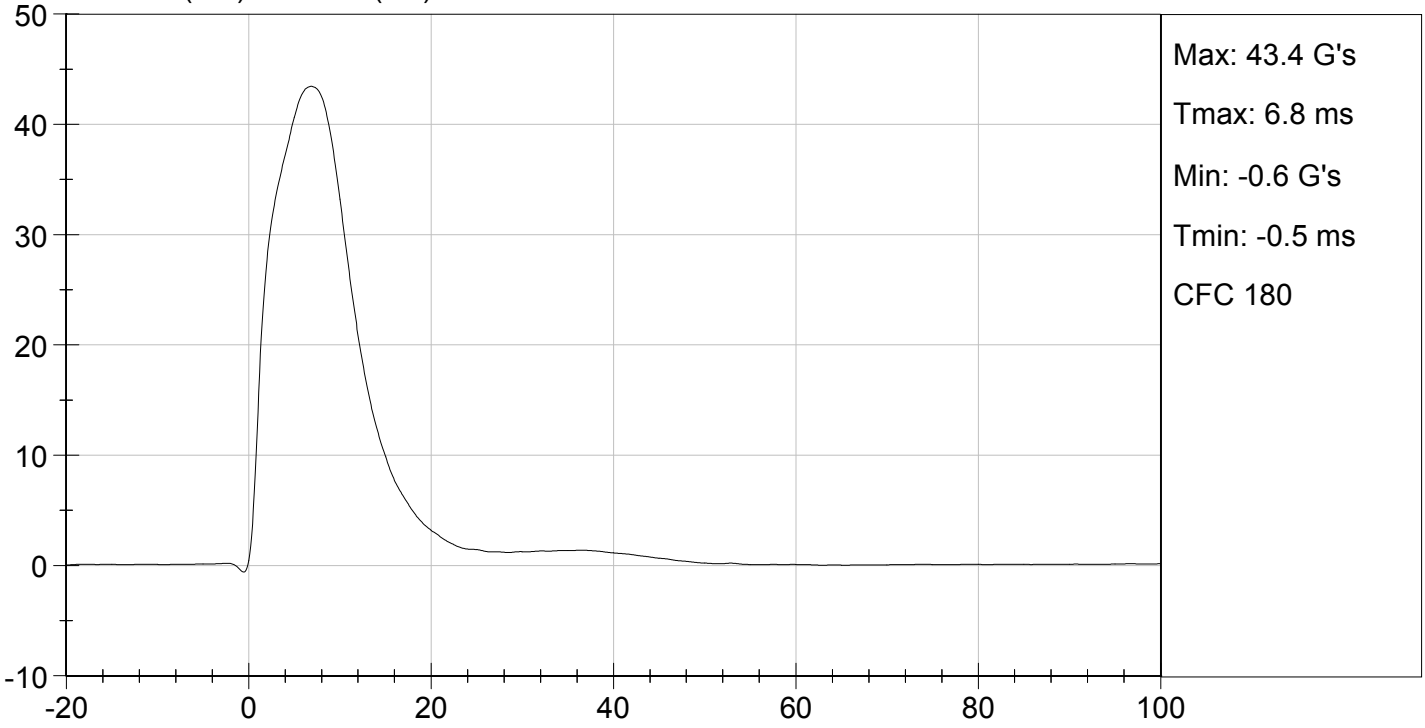
05/15/2014
Test Date

David Winkelbauer
Approved By

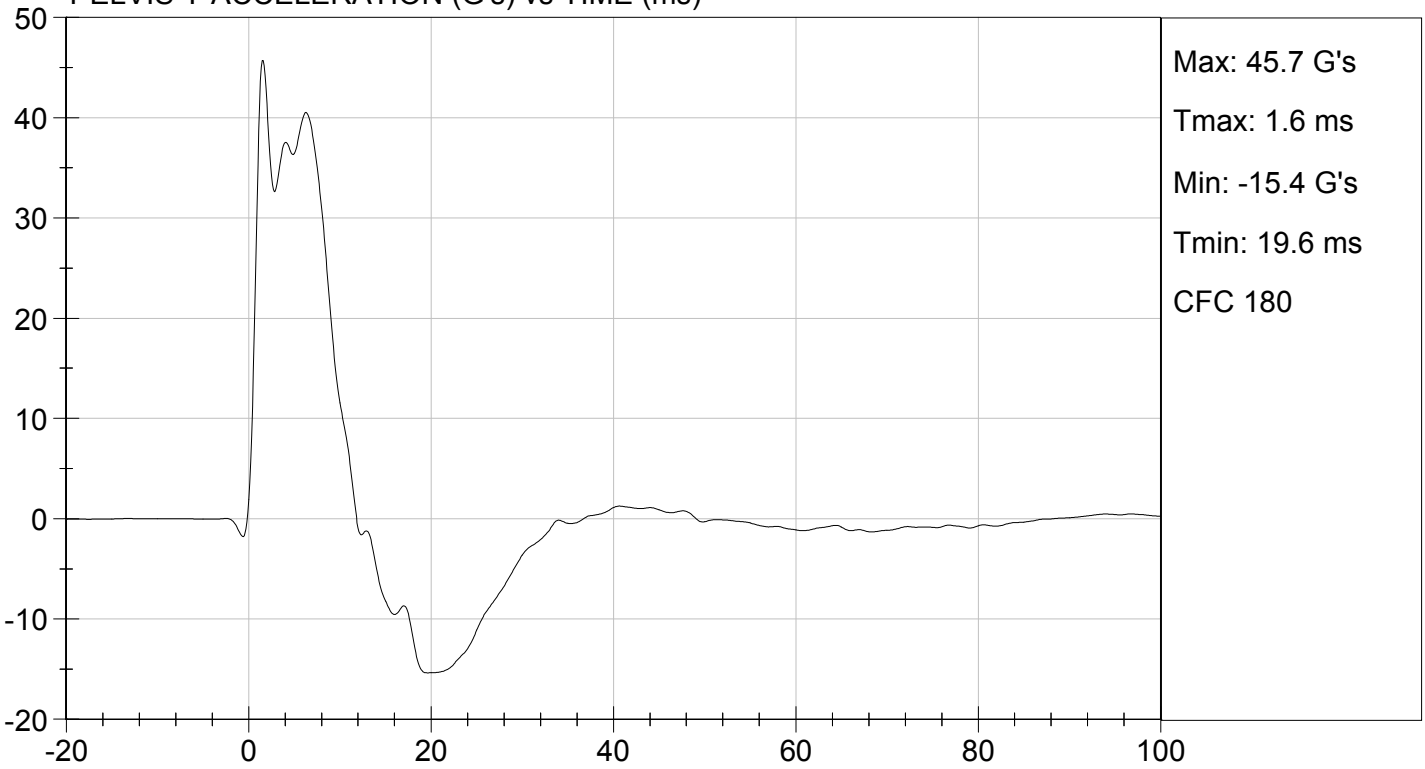
TEST DESC: PELVIS IMPACT
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 05/15/2014
TEST #: D141887

PROBE (G's) vs TIME (ms)

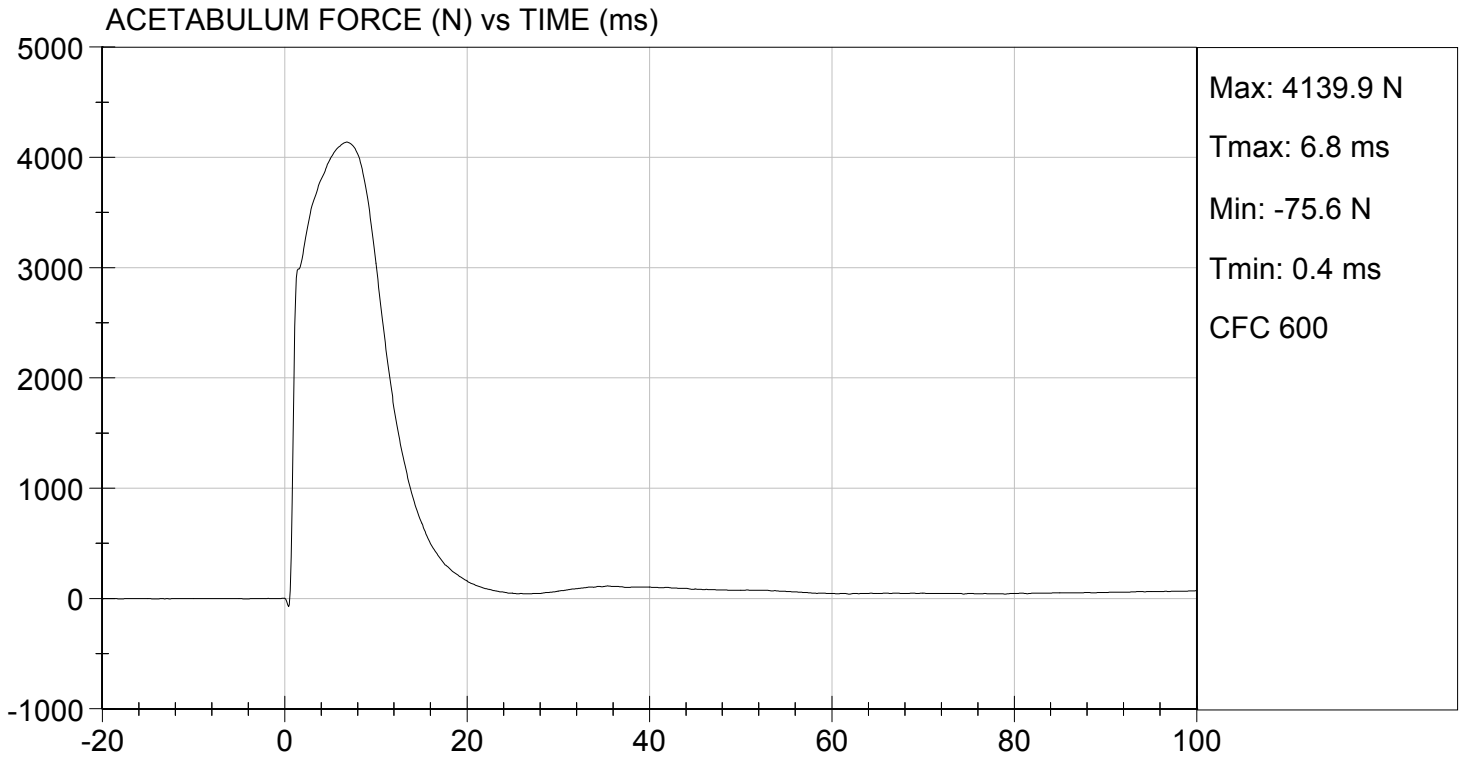


PELVIS Y ACCELERATION (G's) vs TIME (ms)



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

TEST DATE: 05/15/2014
TEST #: D141887



MGA RESEARCH CORPORATION

ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D141888

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	43	Pass
Impact Velocity	m/s	4.20 to 4.40	4.20	Pass
Maximum Probe Acceleration	G's	36 to 45	41	Pass
Pelvis Y Acceleration	G's	28 to 39	31	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,936	Pass
		Overall Test Results		Pass

Jessica Gall
Laboratory Technician

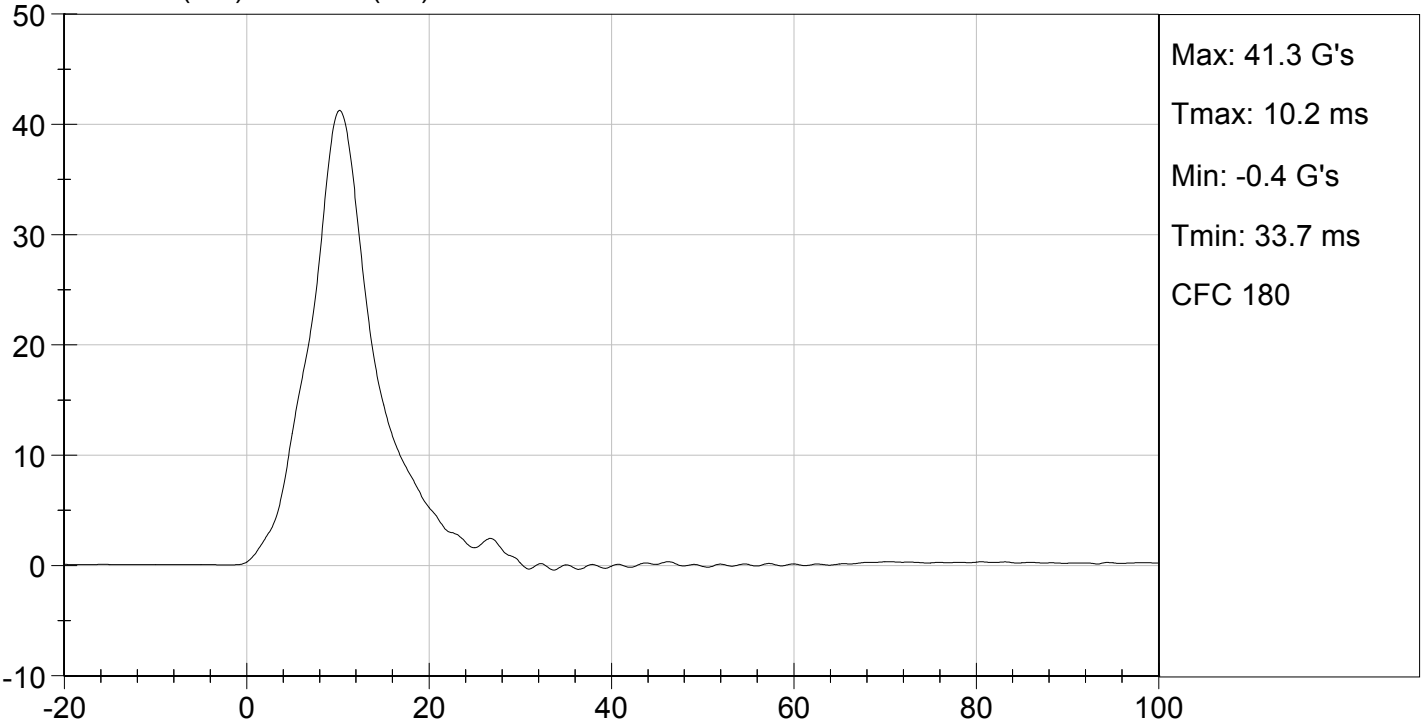
05/15/2014
Test Date

David Winkelbauer
Approved By

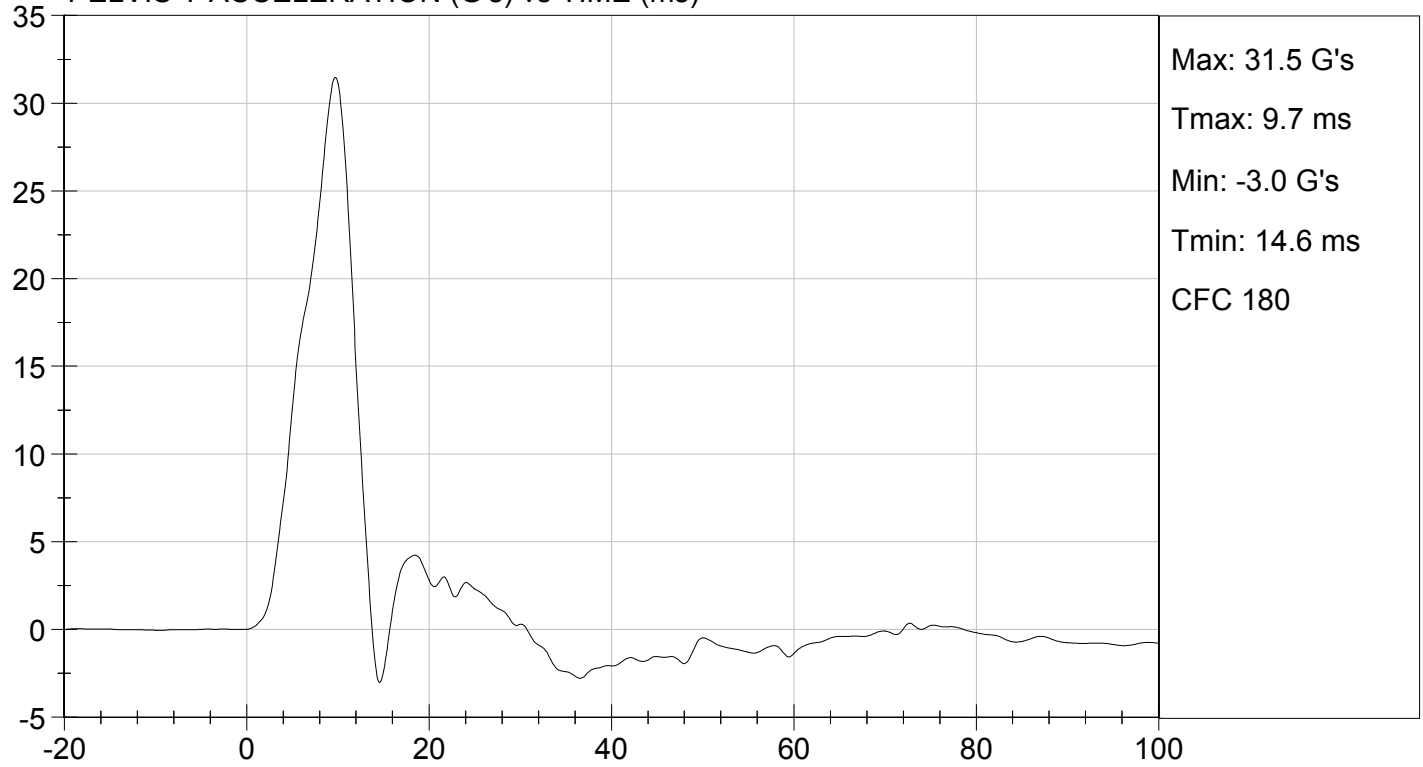
TEST DESC: ILLIAC
VELOCITY: 13.77 ft/s, 4.20 m/s

TEST DATE: 05/15/2014
TEST #: D141888

PROBE (G's) vs TIME (ms)

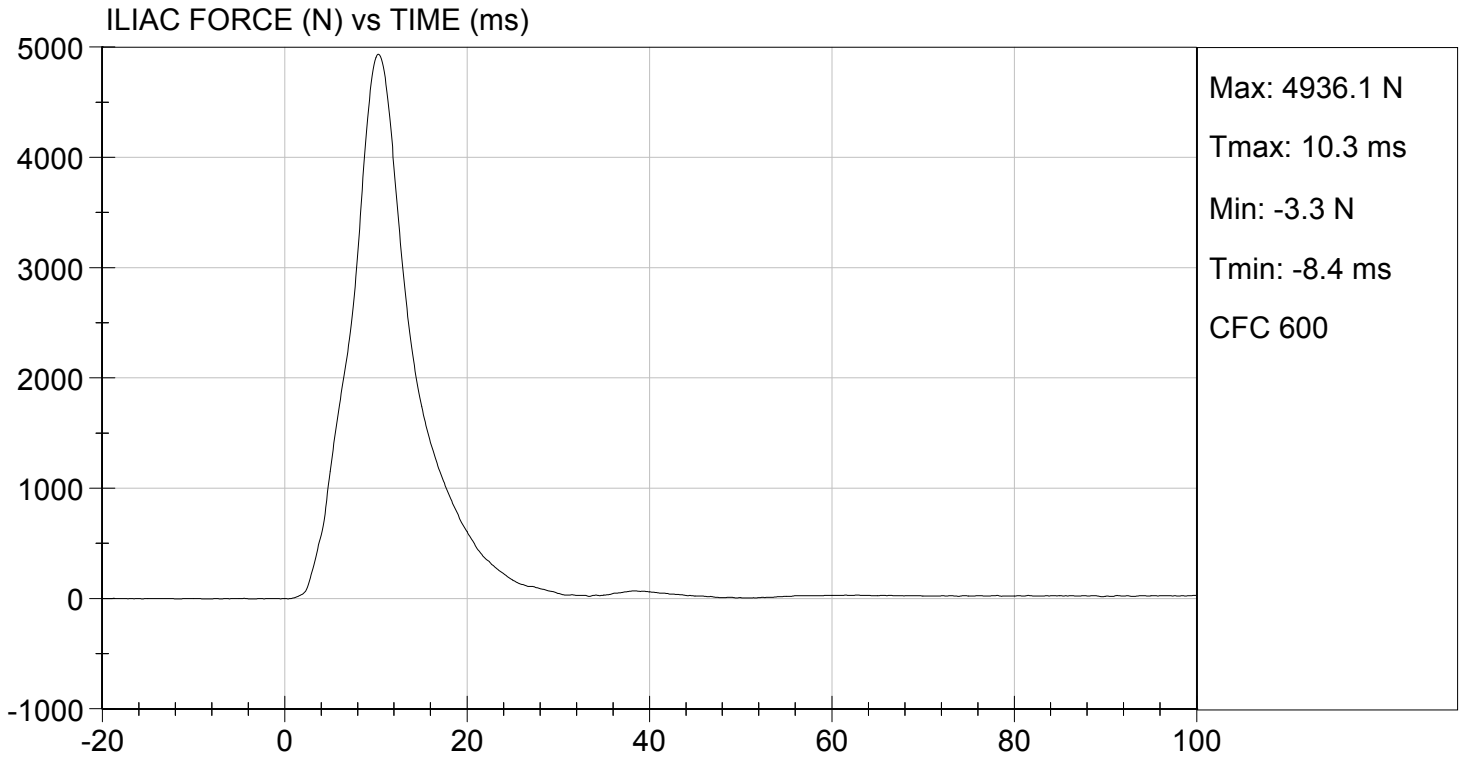


PELVIS Y ACCELERATION (G's) vs TIME (ms)



TEST DESC: ILLIAC
VELOCITY: 13.77 ft/s, 4.20 m/s

TEST DATE: 05/15/2014
TEST #: D141888



MGA RESEARCH CORPORATION

HEAD DROP TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test ID:** D142051

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	50	Pass
Peak Resultant Acceleration	G's	115 to 137	120	Pass
Peak Longitudinal Acceleration	G's	+/- 15	-9.8	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
		Overall Test Results		Pass

Jessica Gall
Laboratory Technician

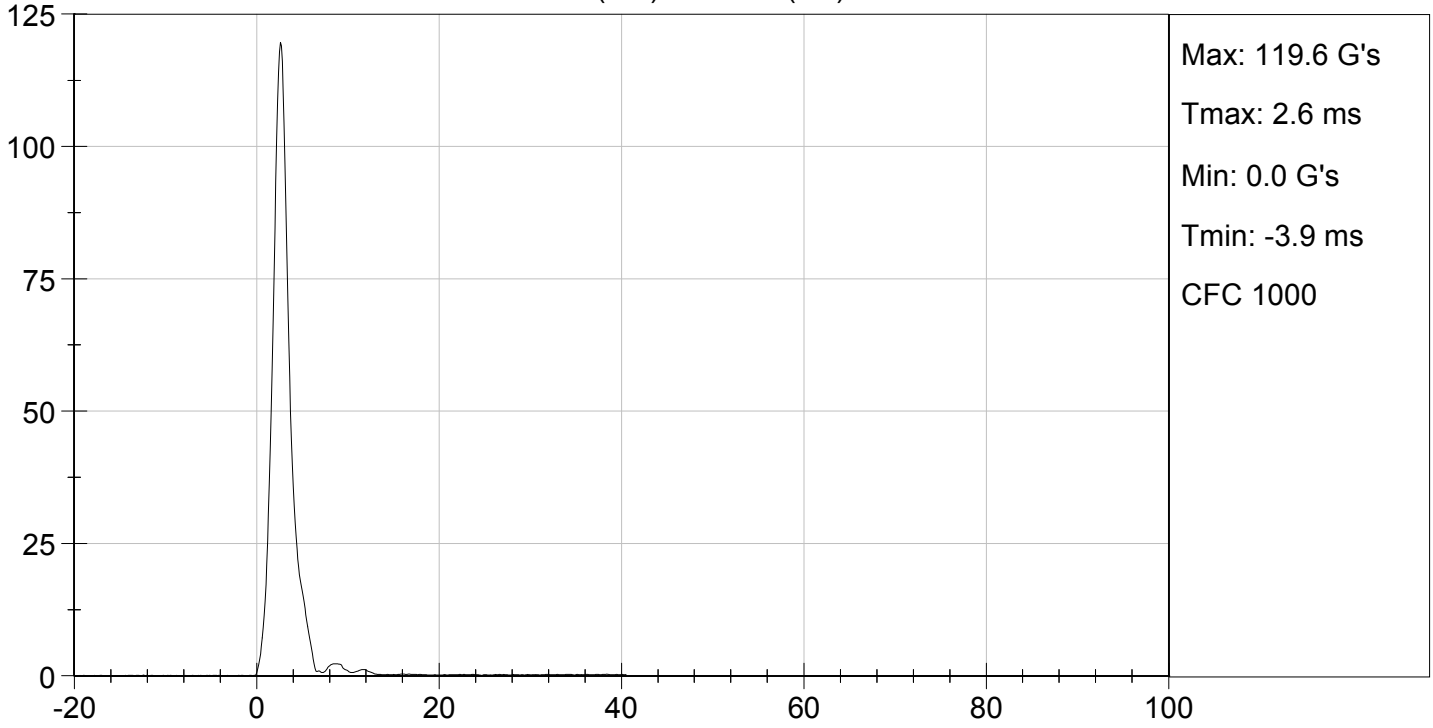
06/04/2014
Test Date

David Winkelbauer
Approved By

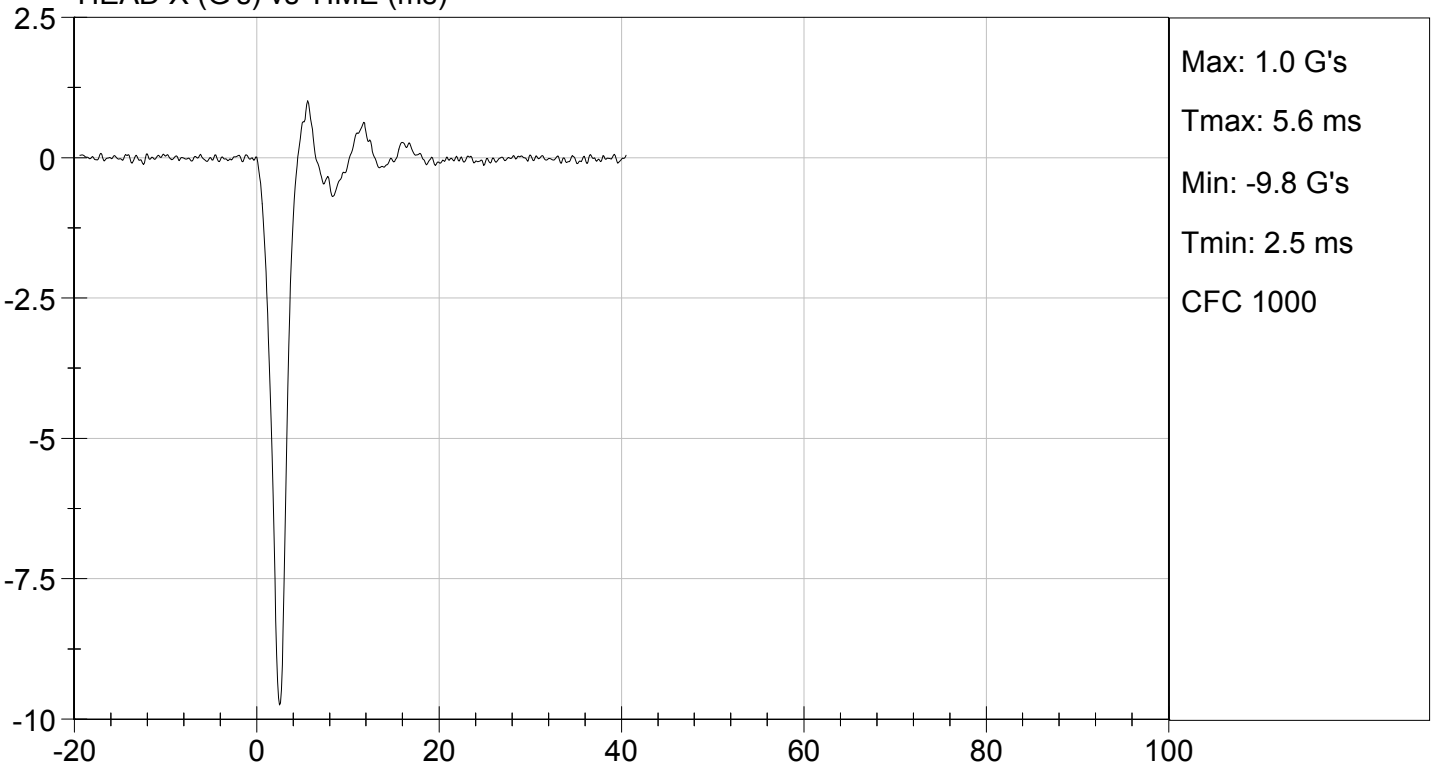
TEST DESC: HEAD DROP

TEST DATE: 06/04/2014
TEST #: D142051

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



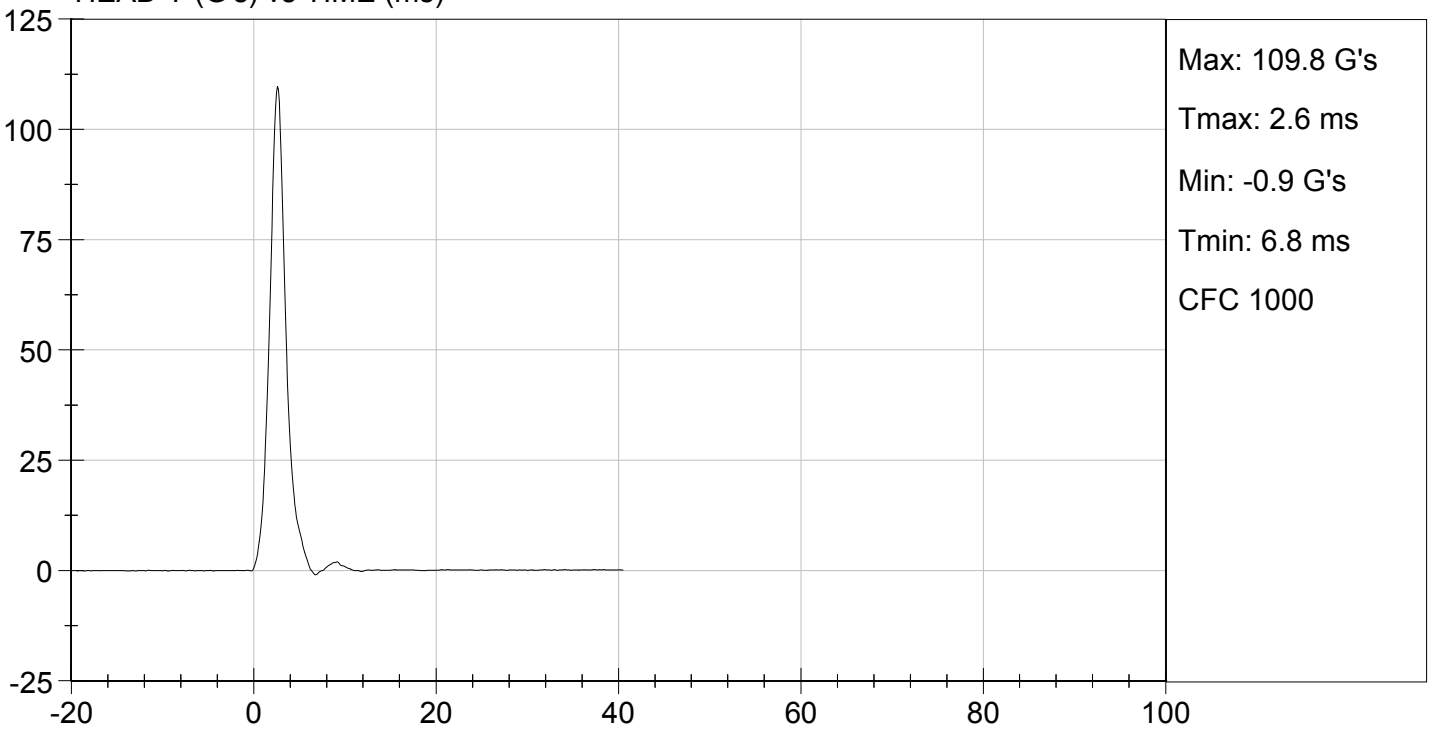
HEAD X (G's) vs TIME (ms)



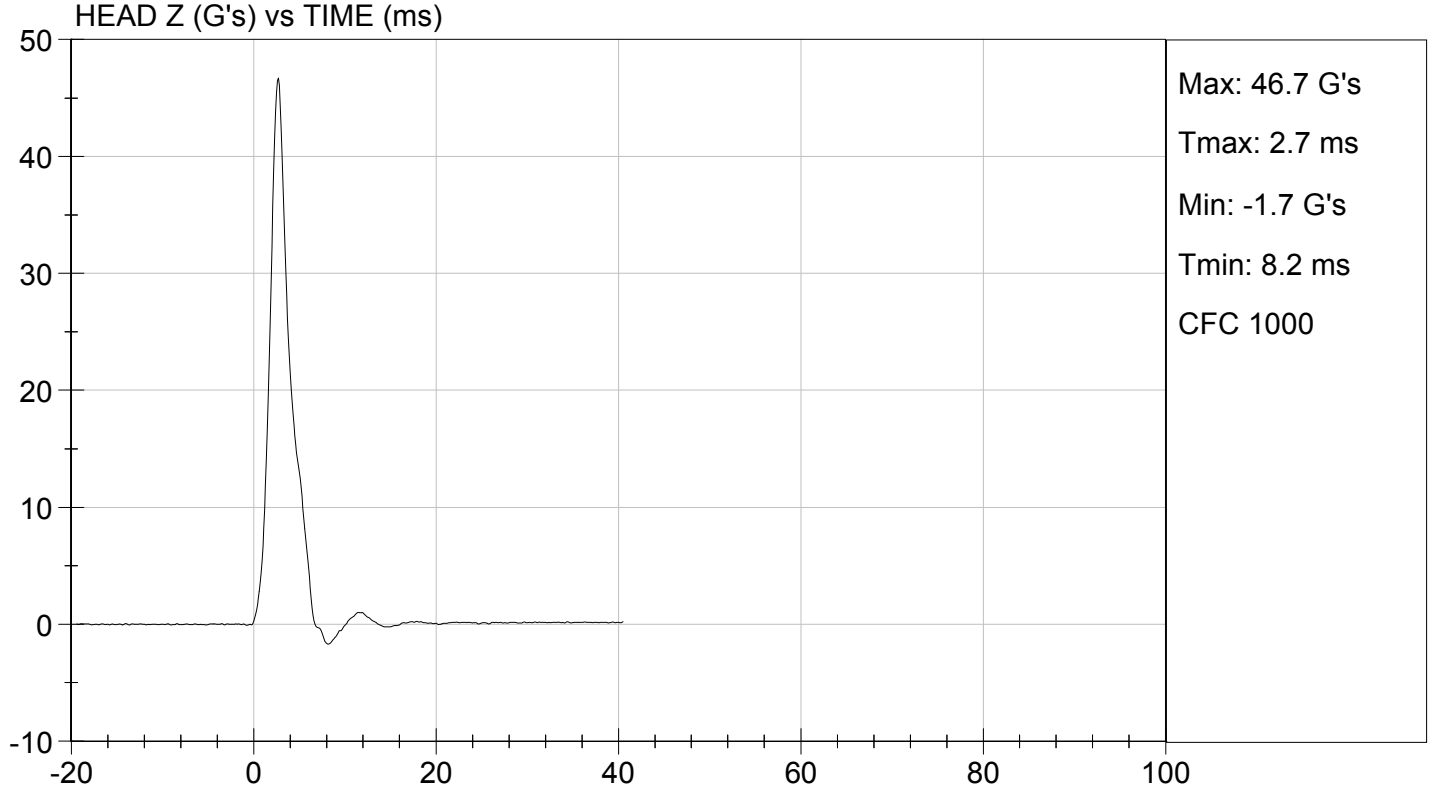
TEST DESC: HEAD DROP

TEST DATE: 06/04/2014
TEST #: D142051

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:** D142052

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.6	Pass
Humidity		%	10 to 70	52	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.60	Pass
	15 ms	m/s	3.30 to 4.10	3.69	Pass
	20 ms	m/s	4.40 to 5.40	4.81	Pass
	25 ms	m/s	5.40 to 6.10	5.51	Pass
	25-100 ms	m/s	5.50 to 6.20	5.51	Pass
Maximum D-Plane Rotation		deg	71 to 81	71	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	61	Pass
Maximum Occipital Condyle Moment		Nm	-44 to -36	-40	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	115	Pass
			Overall Test Results		Pass

Jessica Gall
Laboratory Technician

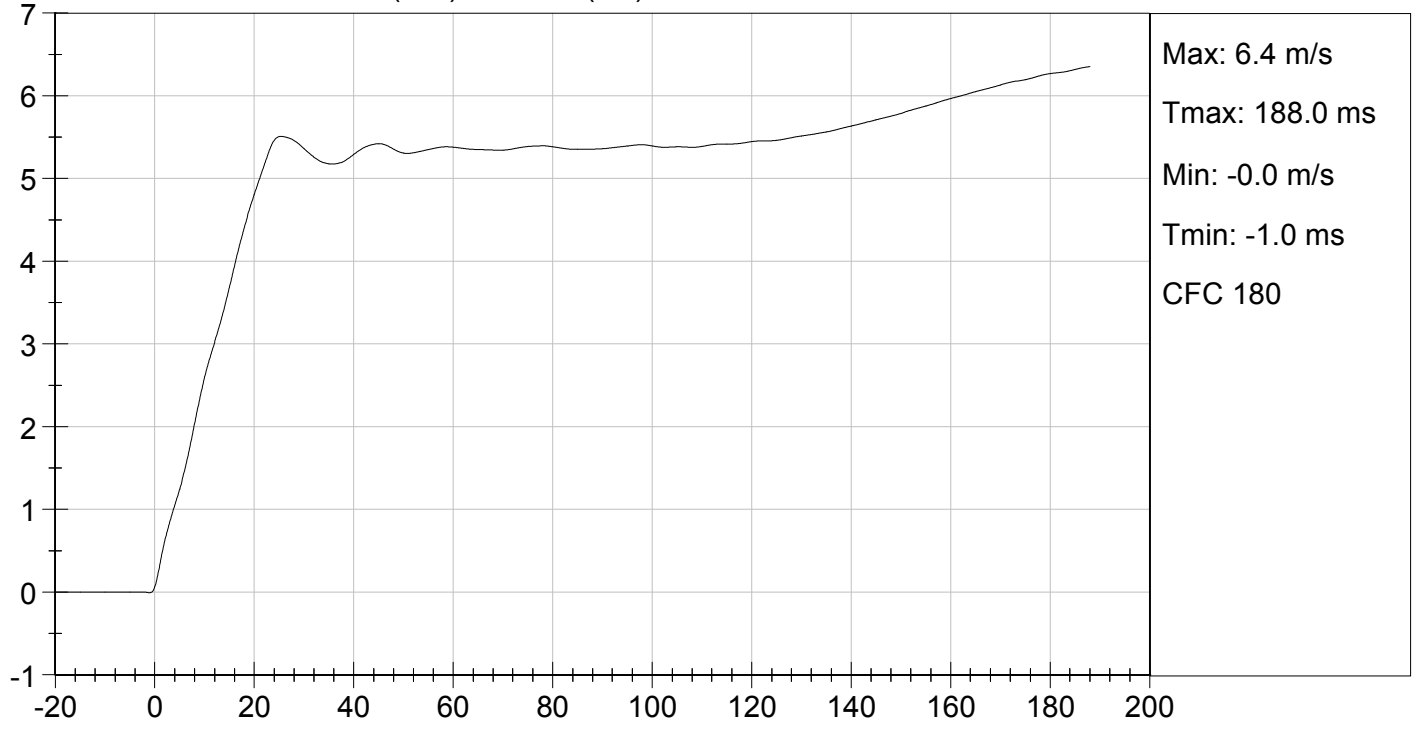
06/04/2014
Test Date

David Winkelbauer
Approved By

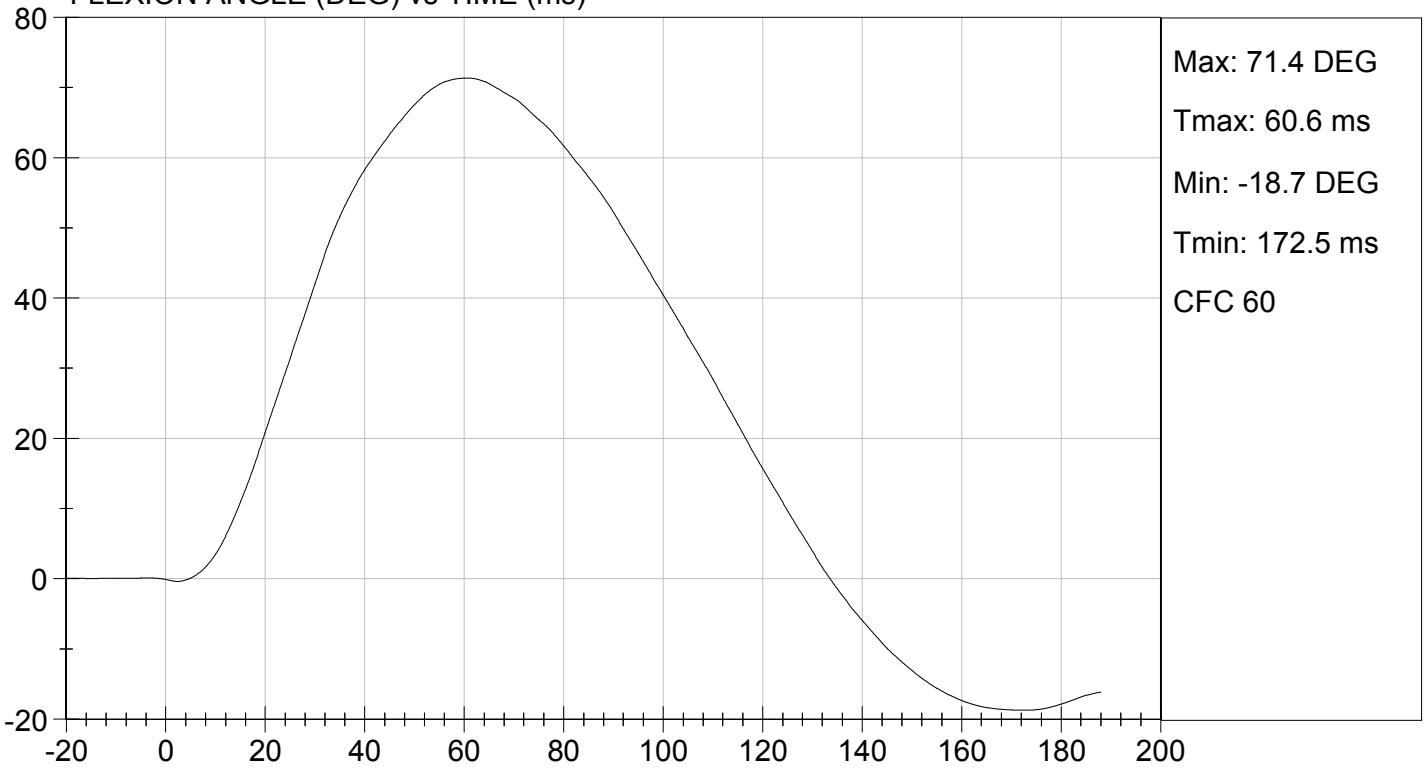
TEST DESC: NECK BENDING
VELOCITY: 18.32 ft/s, 5.58 m/s

TEST DATE: 06/04/2014
TEST #: D142052

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



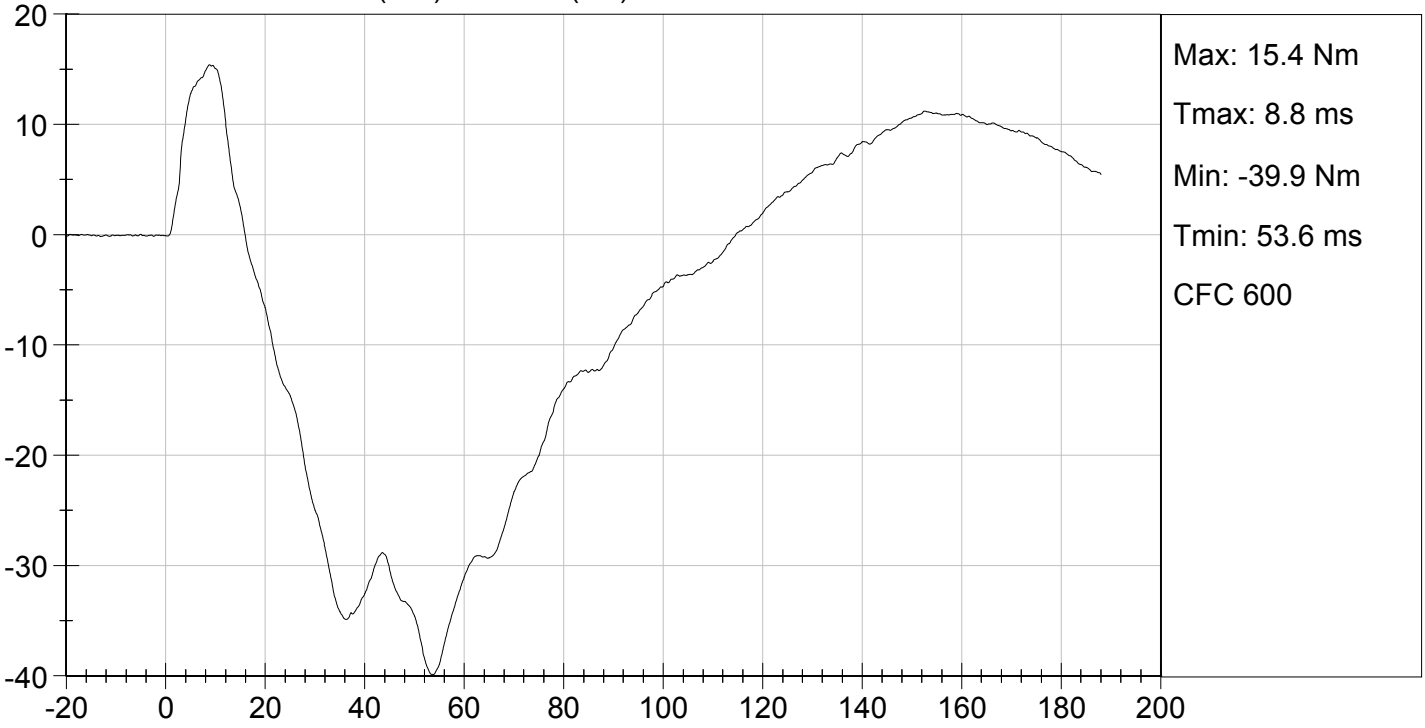
FLEXION ANGLE (DEG) vs TIME (ms)



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

TEST DATE: 06/04/2014
TEST #: D142052

OCCIPITAL MOMENT (Nm) vs TIME (ms)



MGA RESEARCH CORPORATION

SHOULDER IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test ID:** D142053

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	50	Pass
Impact Velocity	m/s	4.20 to 4.40	4.35	Pass
Maximum Probe Acceleration	G's	13 to 18	15	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

Jessica Hall
Laboratory Technician

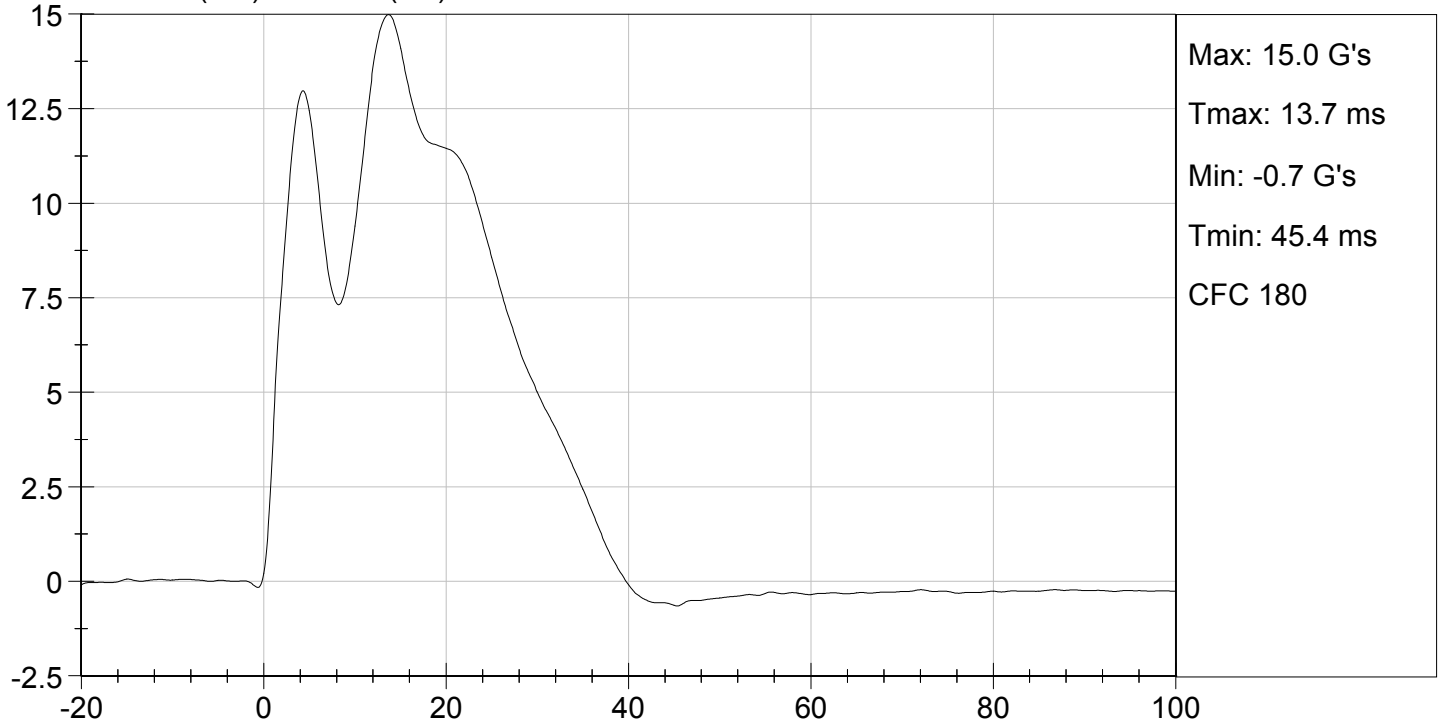
06/04/2014
Test Date

David Winkelbauer
Approved By

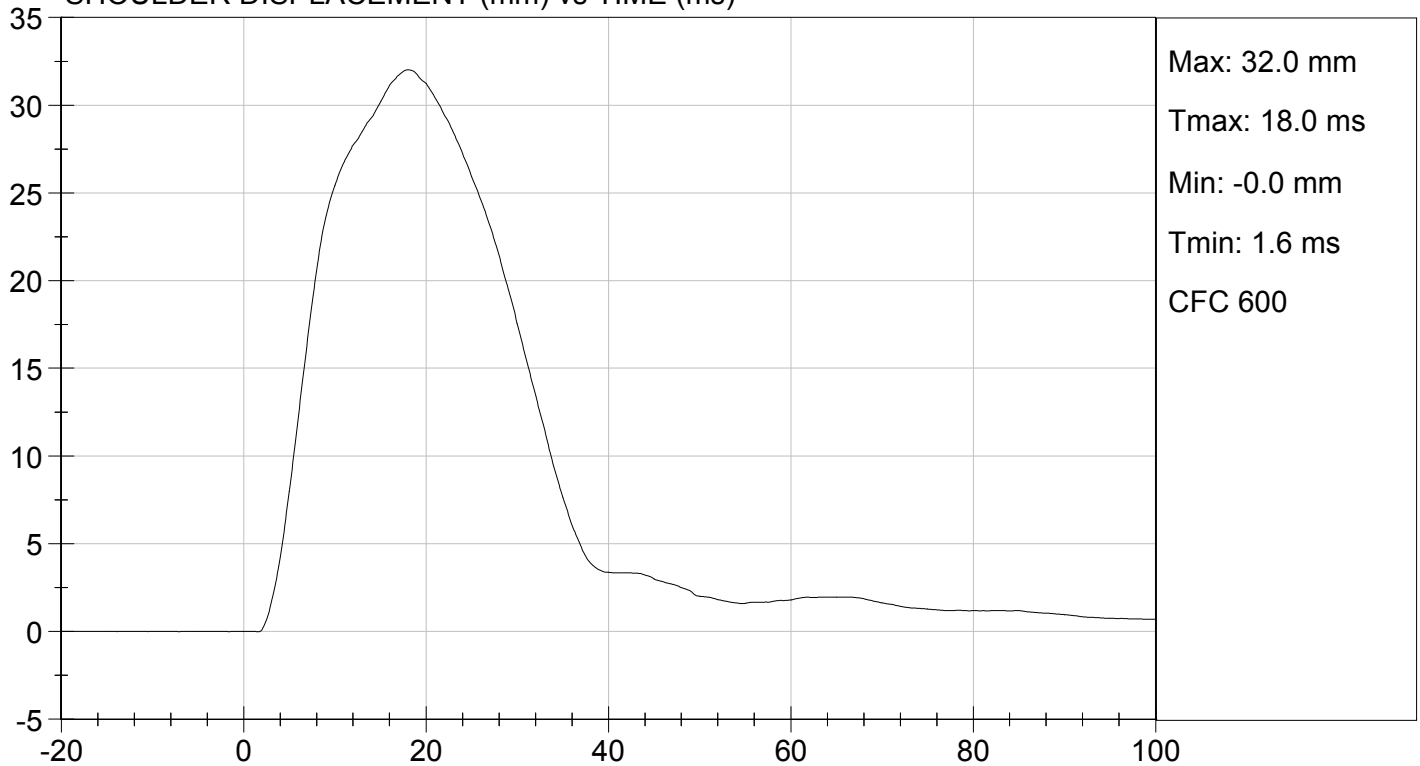
TEST DESC: SHOULDER IMPACT
VELOCITY: 14.28 ft/s, 4.35 m/s

TEST DATE: 06/04/2014
TEST #: D142053

PROBE (G's) vs TIME (ms)

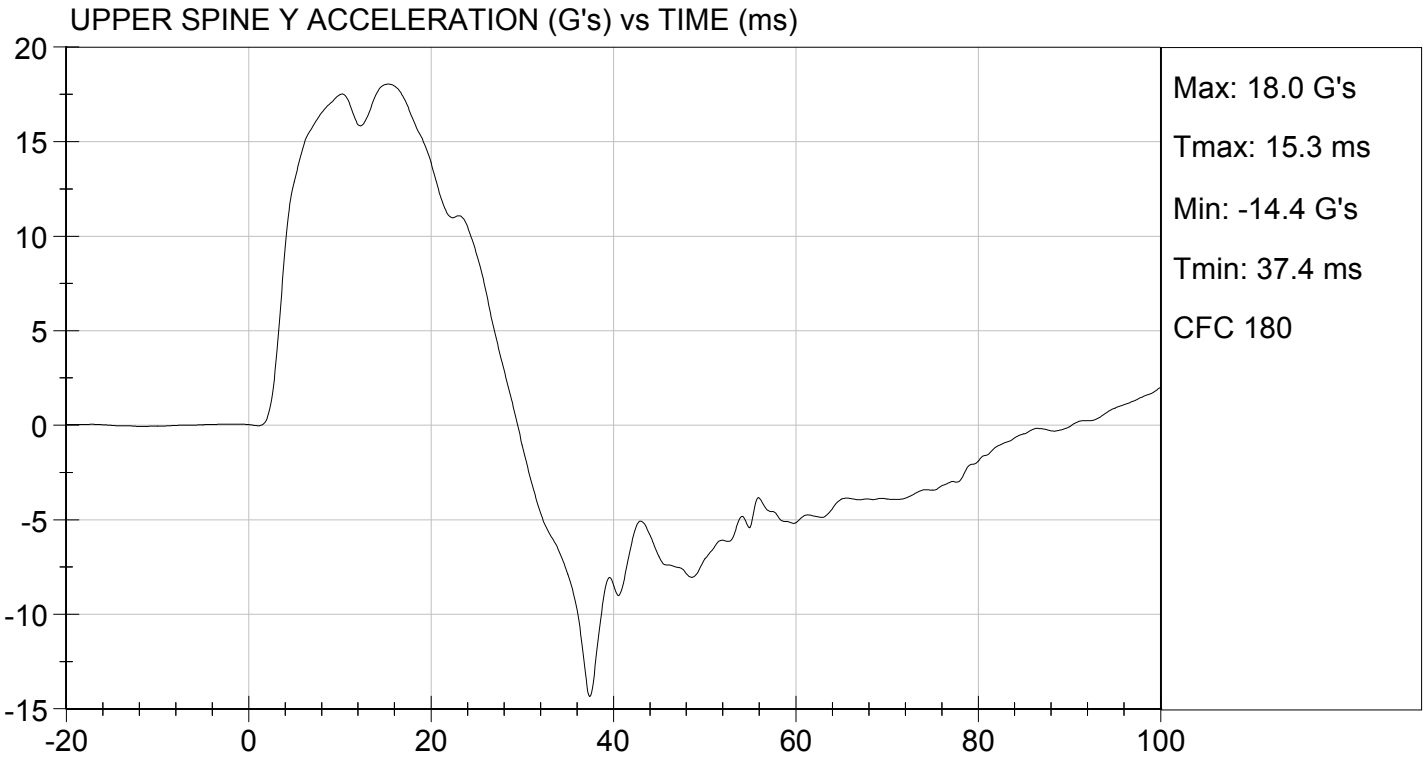


SHOULDER DISPLACEMENT (mm) vs TIME (ms)



TEST DESC: SHOULDER IMPACT
VELOCITY: 14.28 ft/s, 4.35 m/s

TEST DATE: 06/04/2014
TEST #: D142053



MGA RESEARCH CORPORATION

THORAX (WITH ARM) IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D142054

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	50	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	30 to 36	31	Pass
Shoulder Displacement	mm	31 to 40	36	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	35	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	30	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

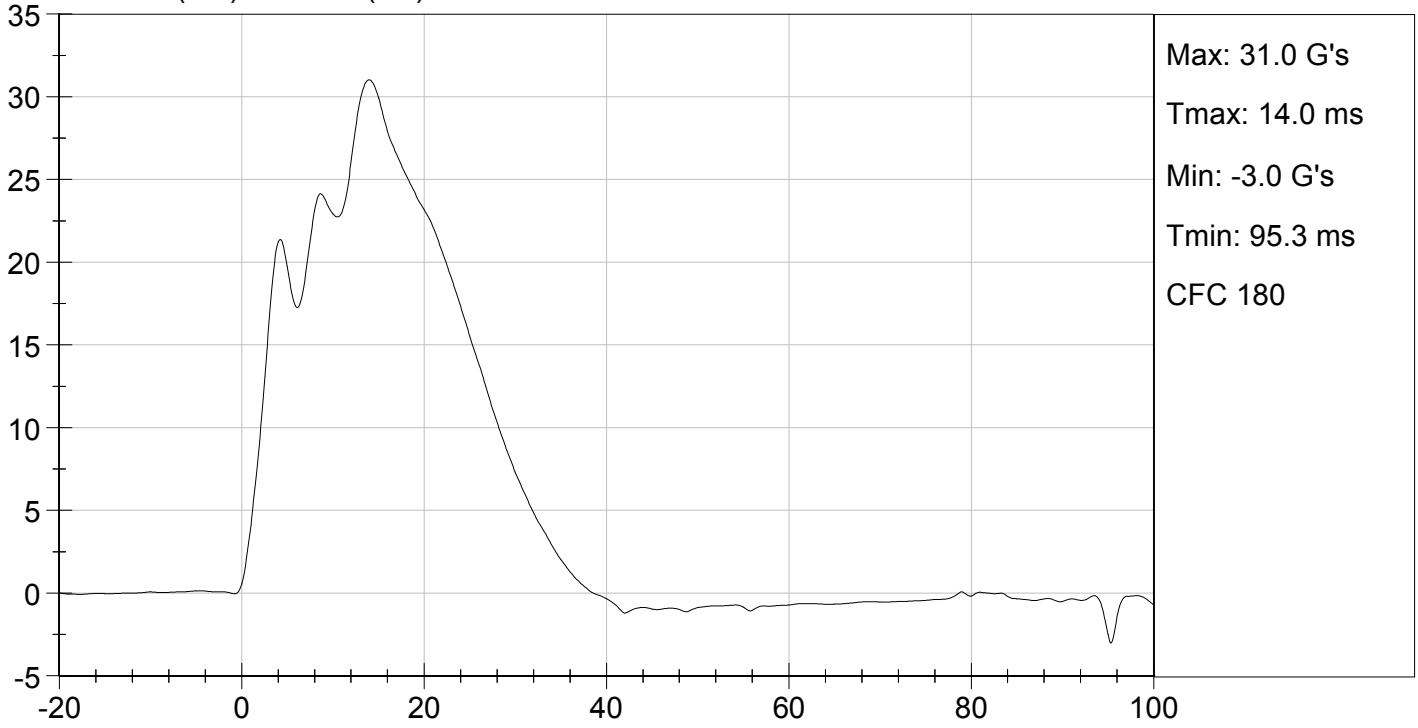
06/04/2014
Test Date

David Winkelbauer
Approved By

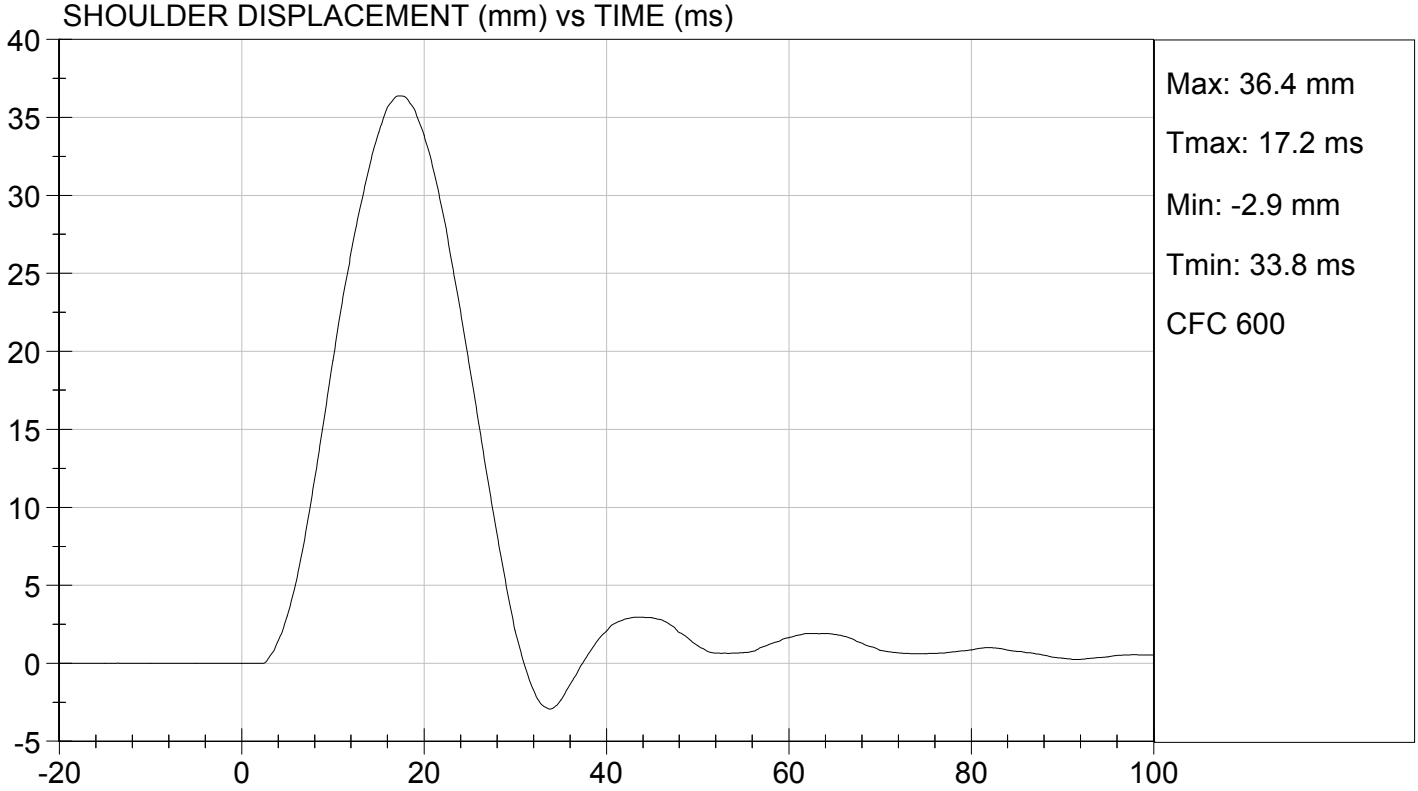
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 06/04/2014
TEST #: D142054

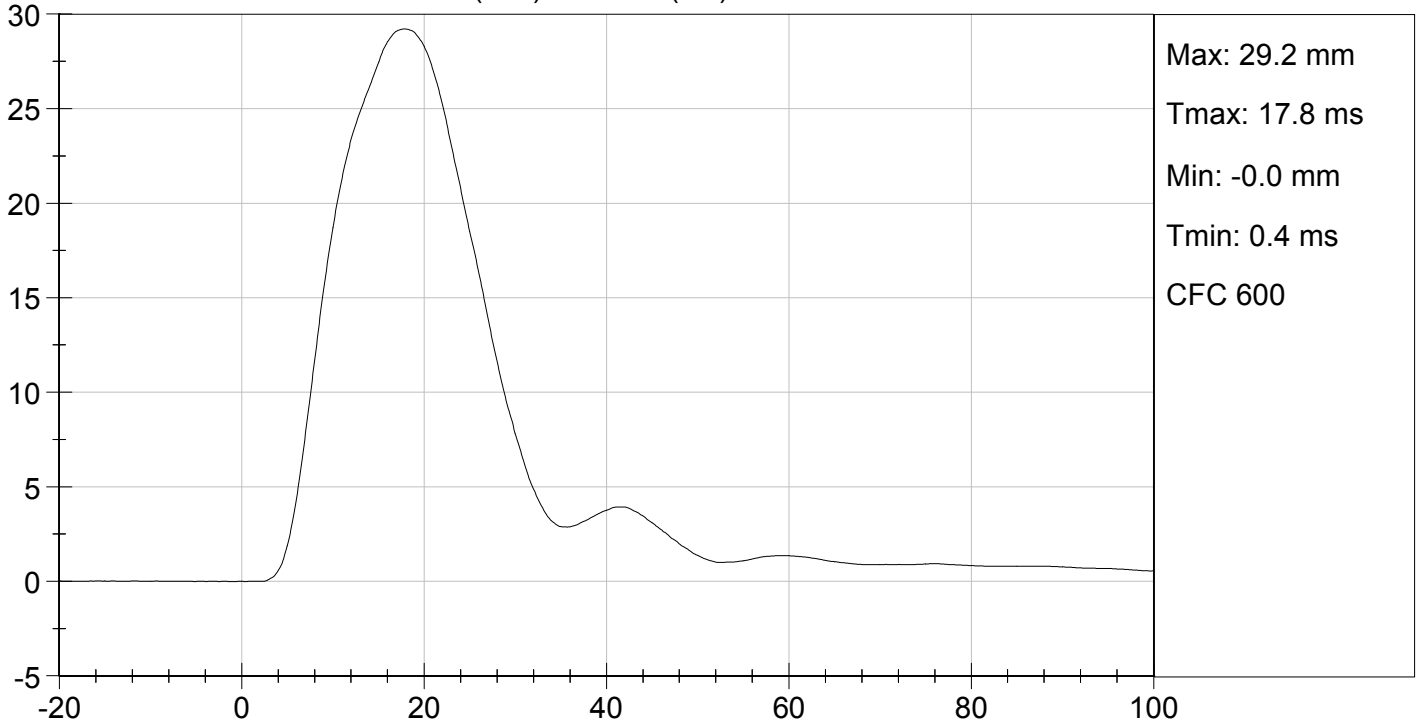
PROBE (G's) vs TIME (ms)



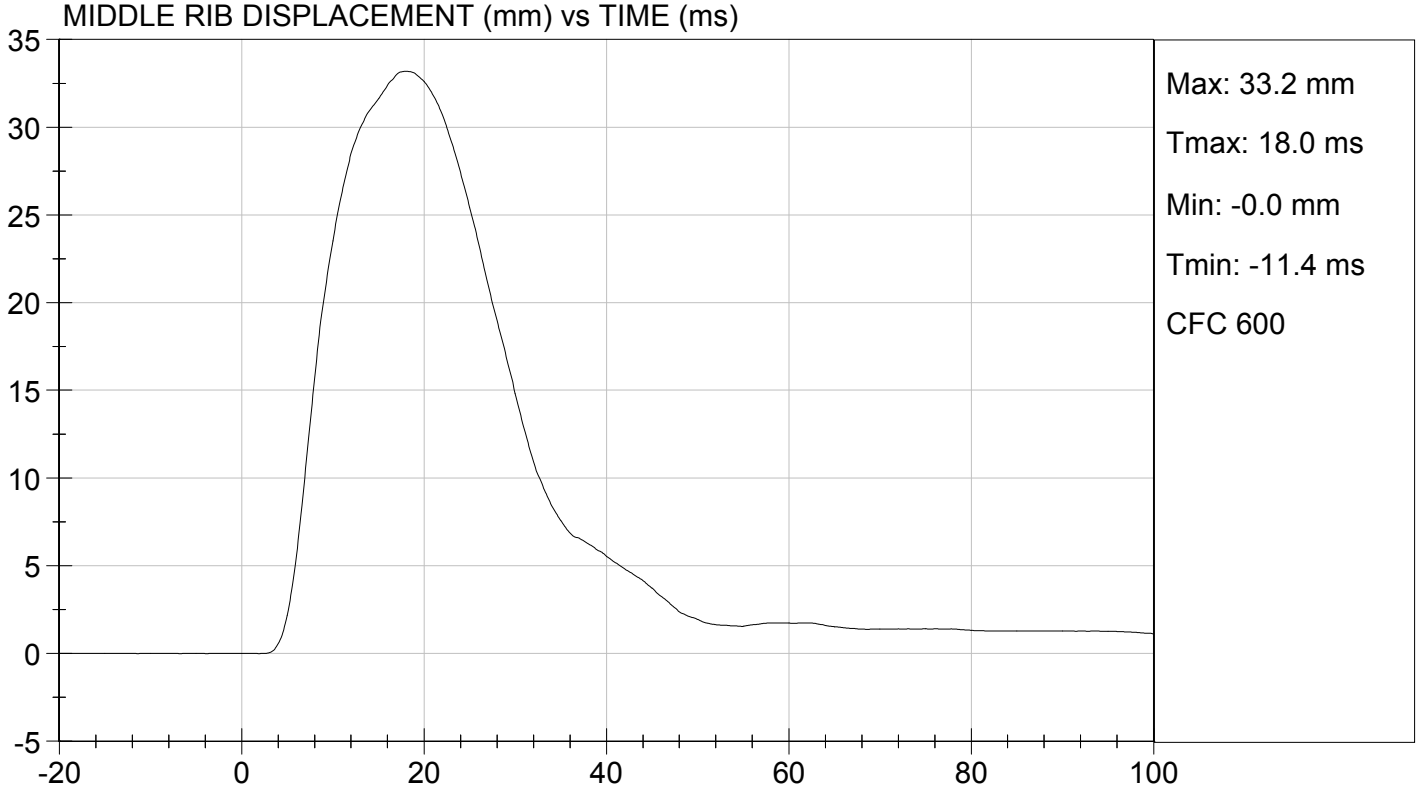
SHOULDER DISPLACEMENT (mm) vs TIME (ms)



UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



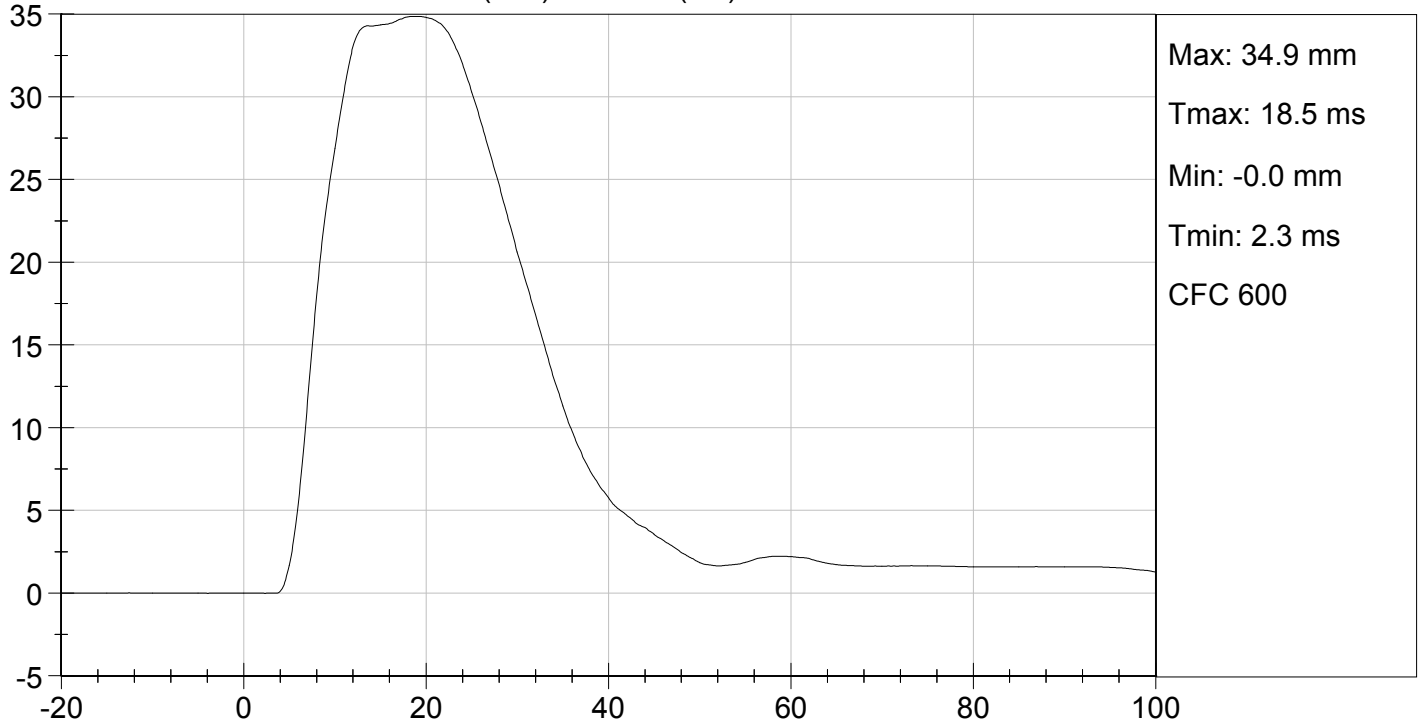
MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



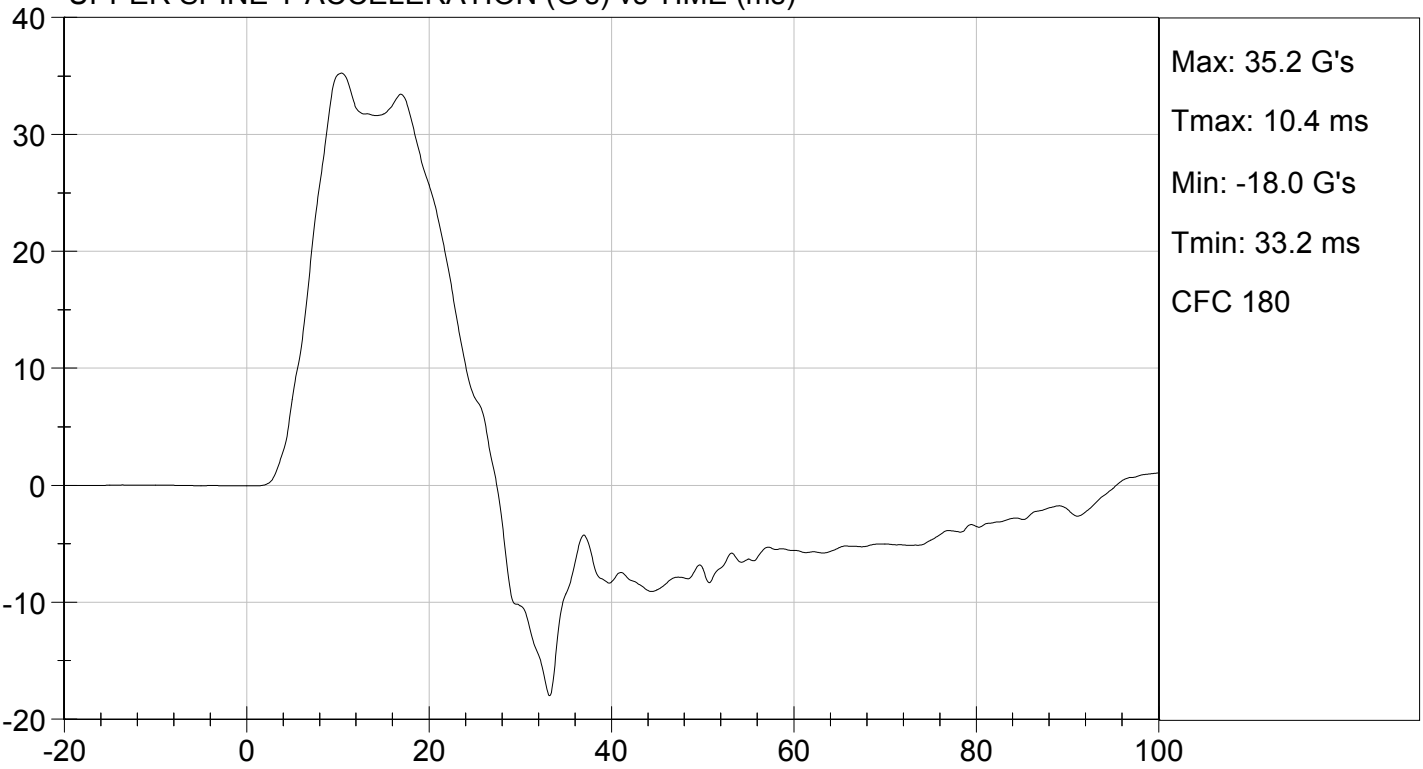
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 06/04/2014
TEST #: D142054

LOWER RIB DISPLACEMENT (mm) vs TIME (ms)

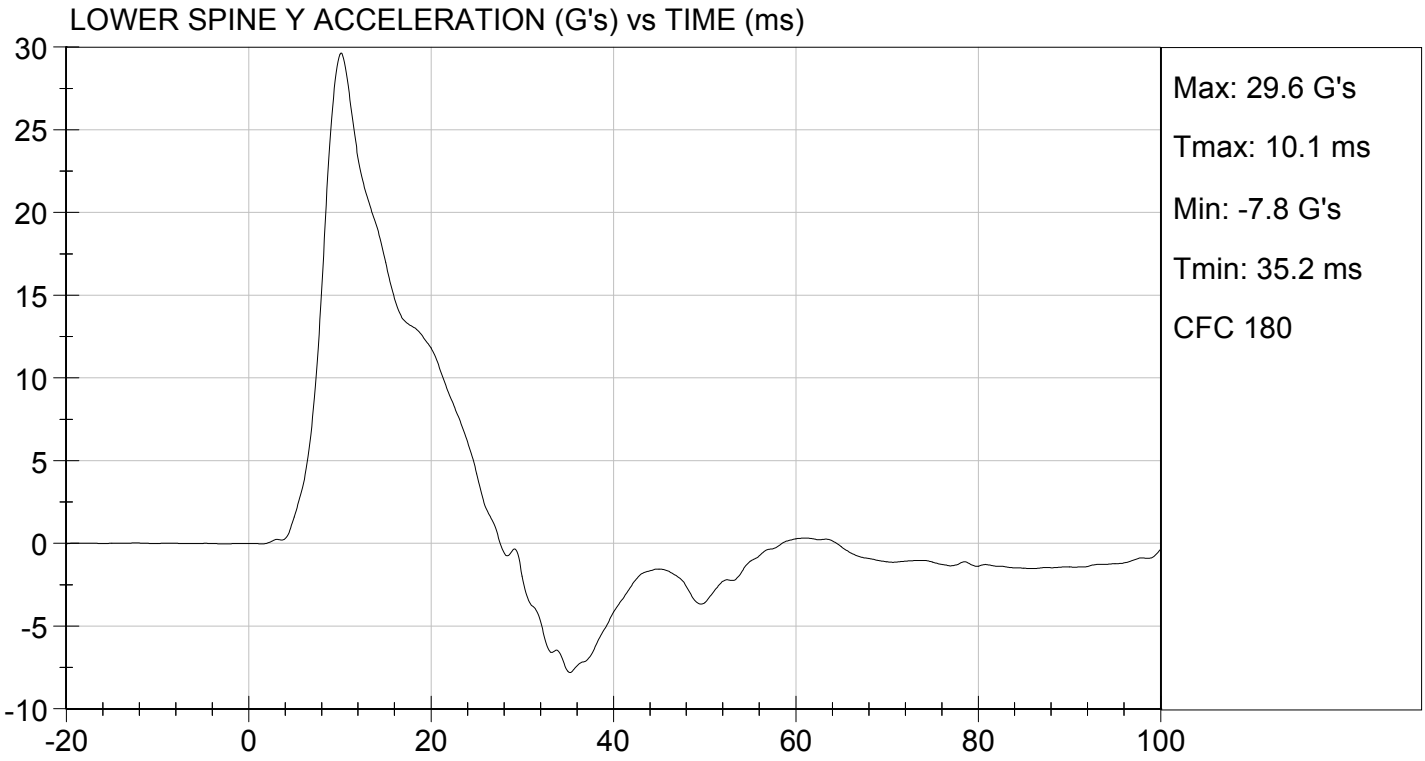


UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)



TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 06/04/2014
TEST #: D142054



MGA RESEARCH CORPORATION

THORAX (WITHOUT ARM) IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D142055

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	50	Pass
Impact Velocity	m/s	4.20 to 4.40	4.27	Pass
Maximum Probe Acceleration	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	38	Pass
Middle Rib Displacement	mm	39 to 45	43	Pass
Lower Rib Displacement	mm	35 to 43	42	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	14	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	8	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

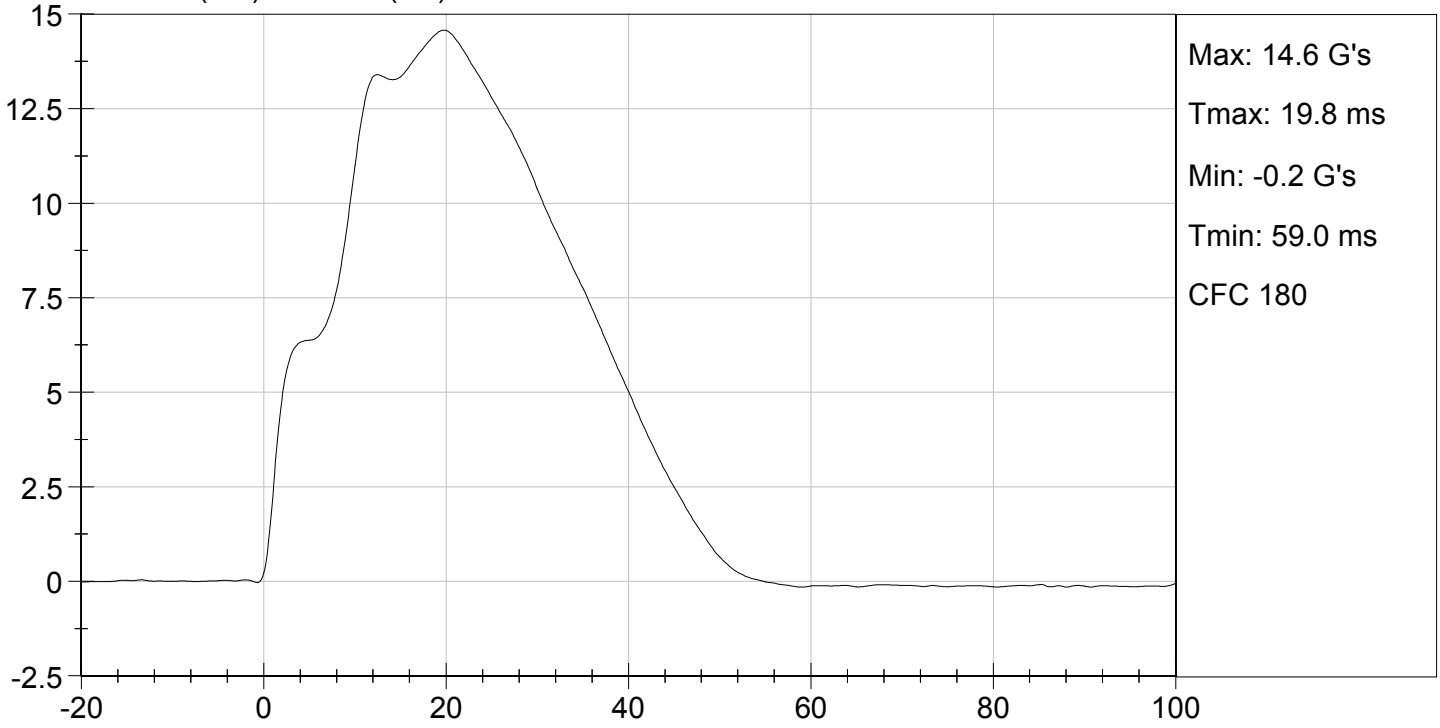
06/04/2014
Test Date

David Winkelbauer
Approved By

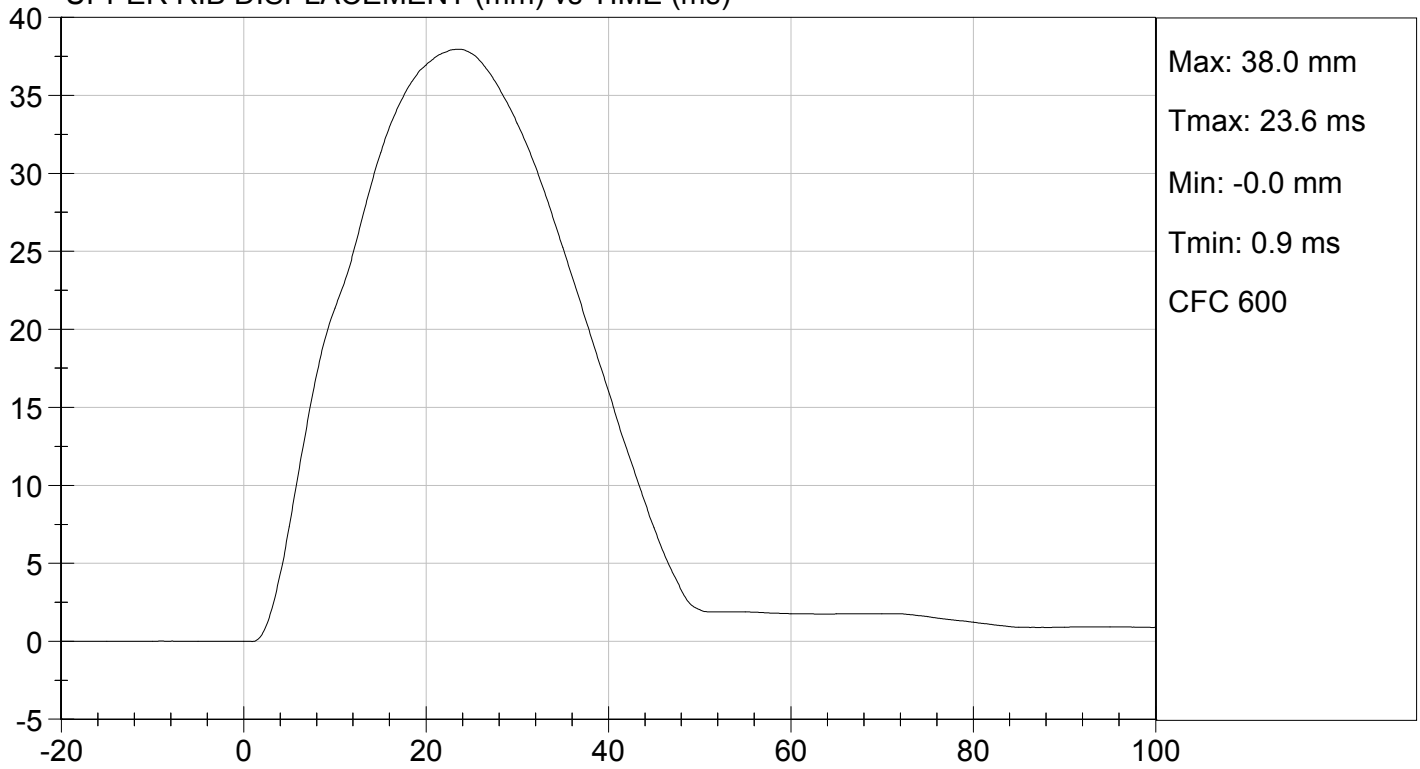
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 06/04/2014
TEST #: D142055

PROBE (G's) vs TIME (ms)



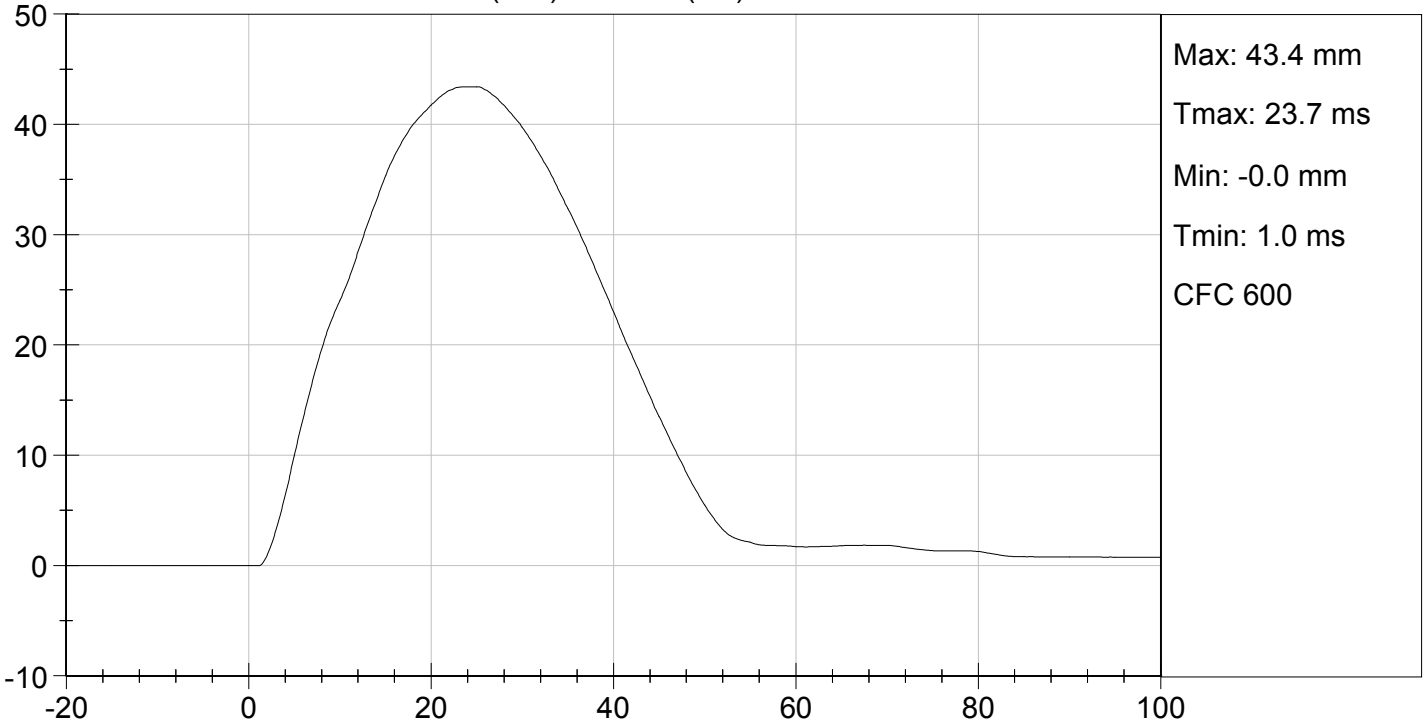
UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



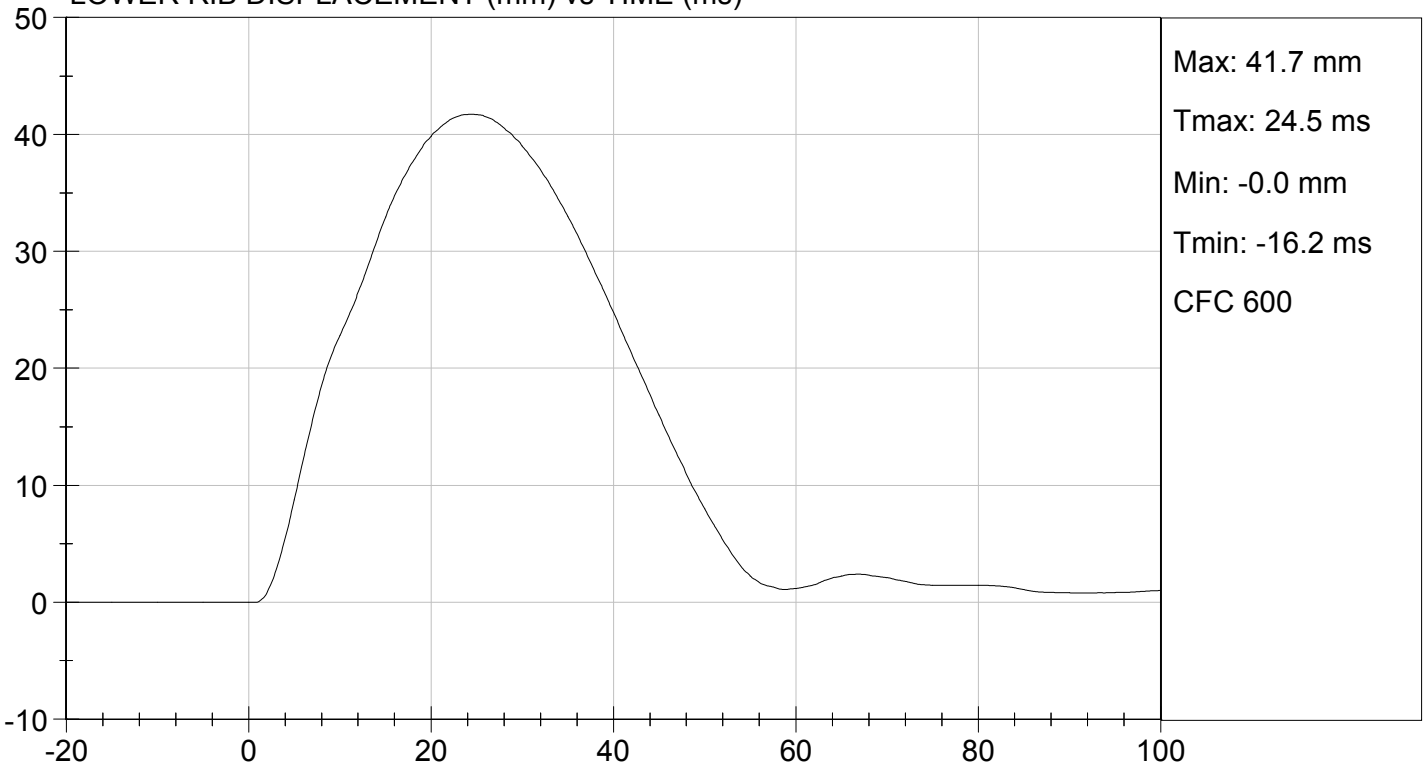
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 06/04/2014
TEST #: D142055

MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



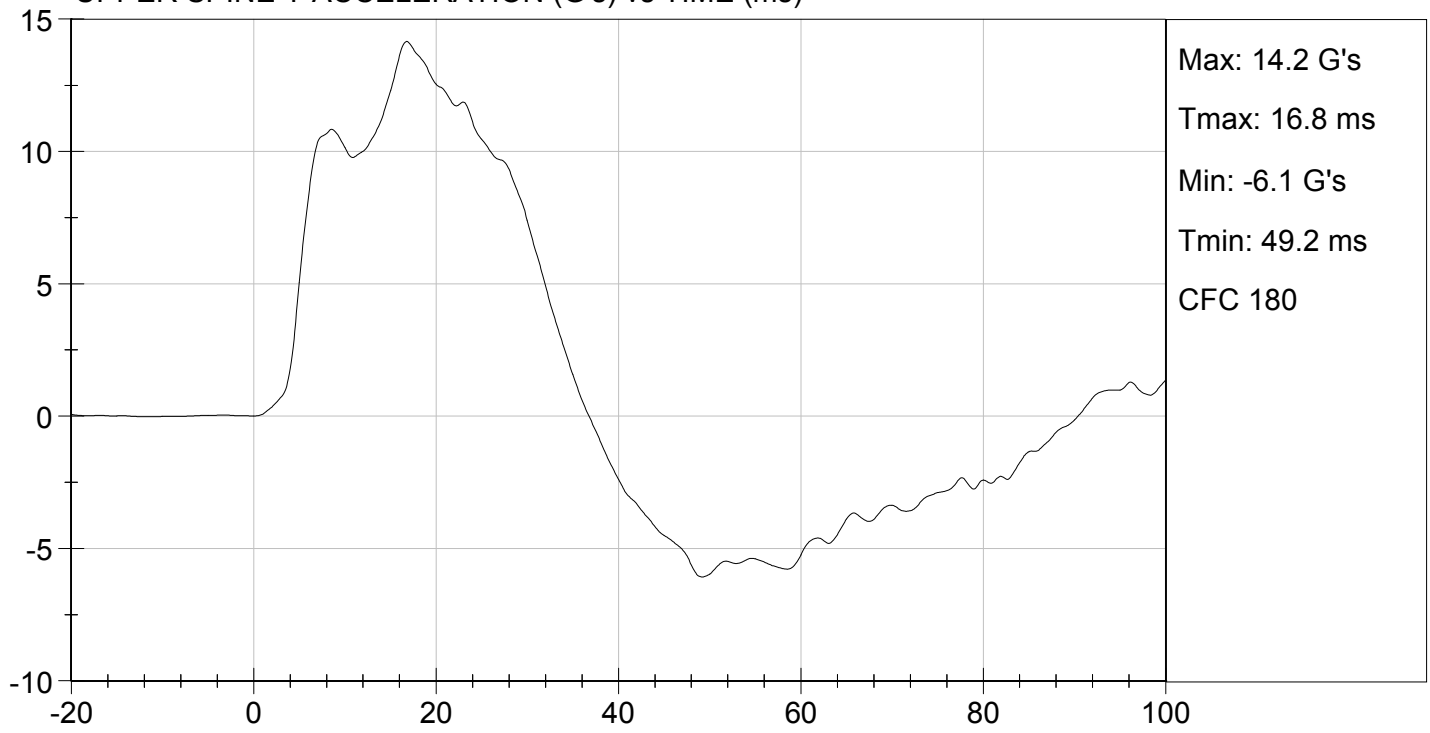
LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



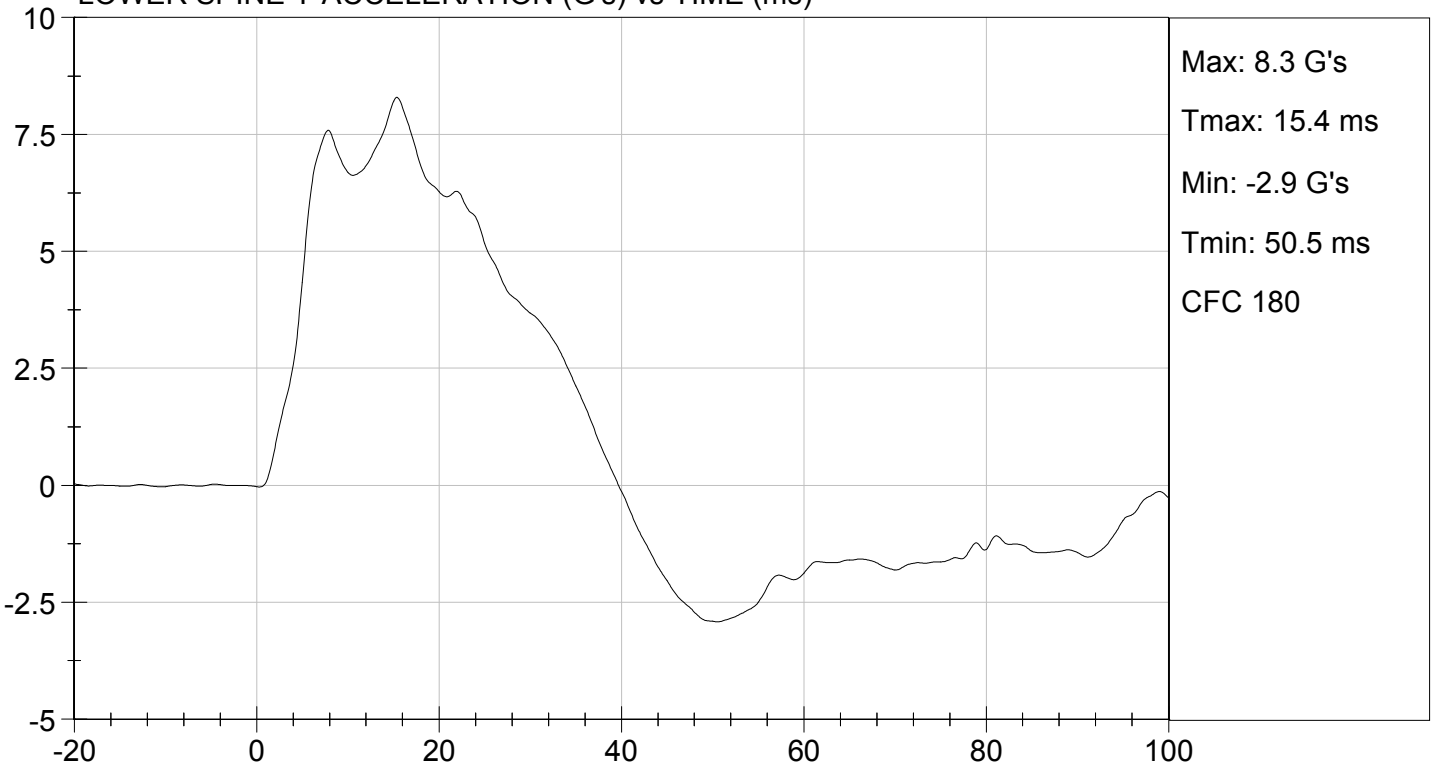
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.01 ft/s, 4.27 m/s

TEST DATE: 06/04/2014
TEST #: D142055

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:** D142056

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	50	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	12 to 16	13	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	40	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	42	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	10	Pass
		Overall Test Results		Pass

Jessica Gall
Laboratory Technician

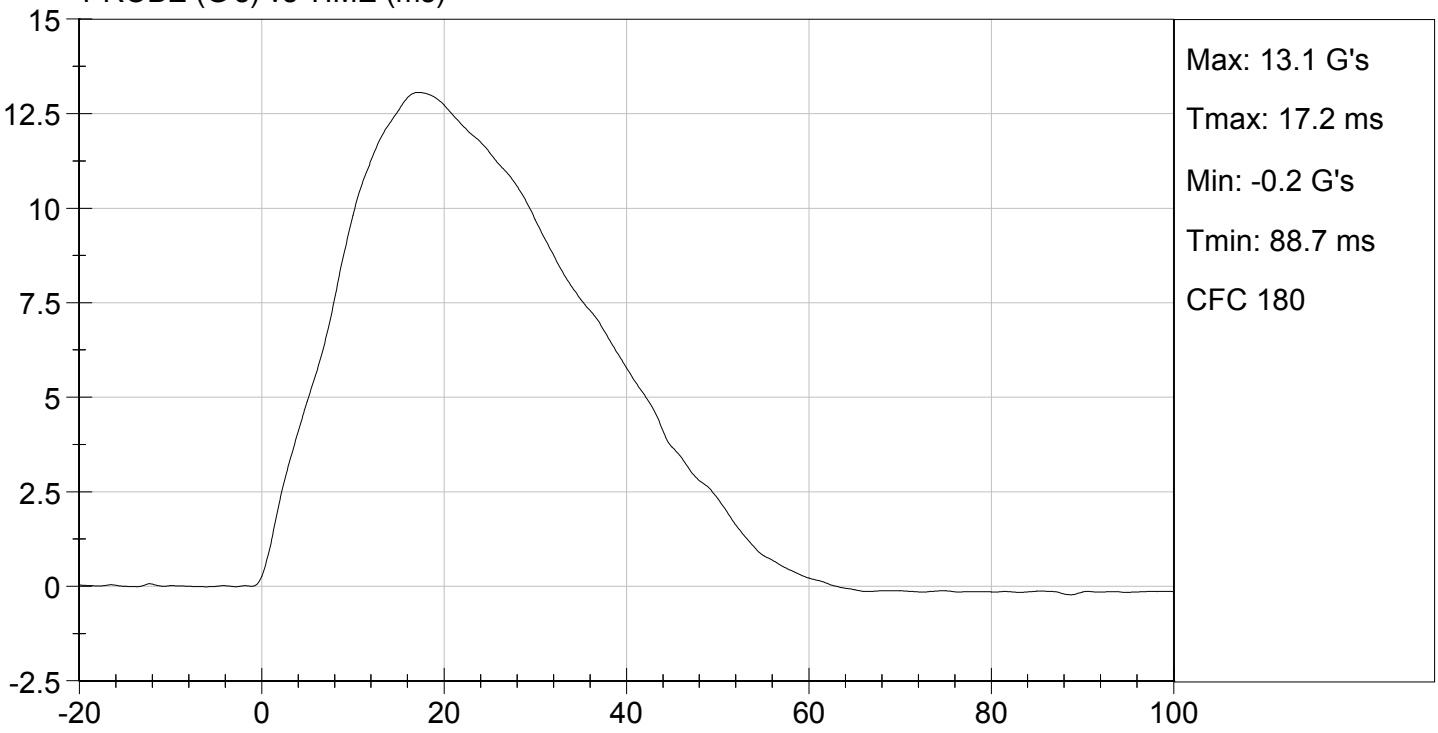
06/04/2014
Test Date

David Winkelbauer
Approved By

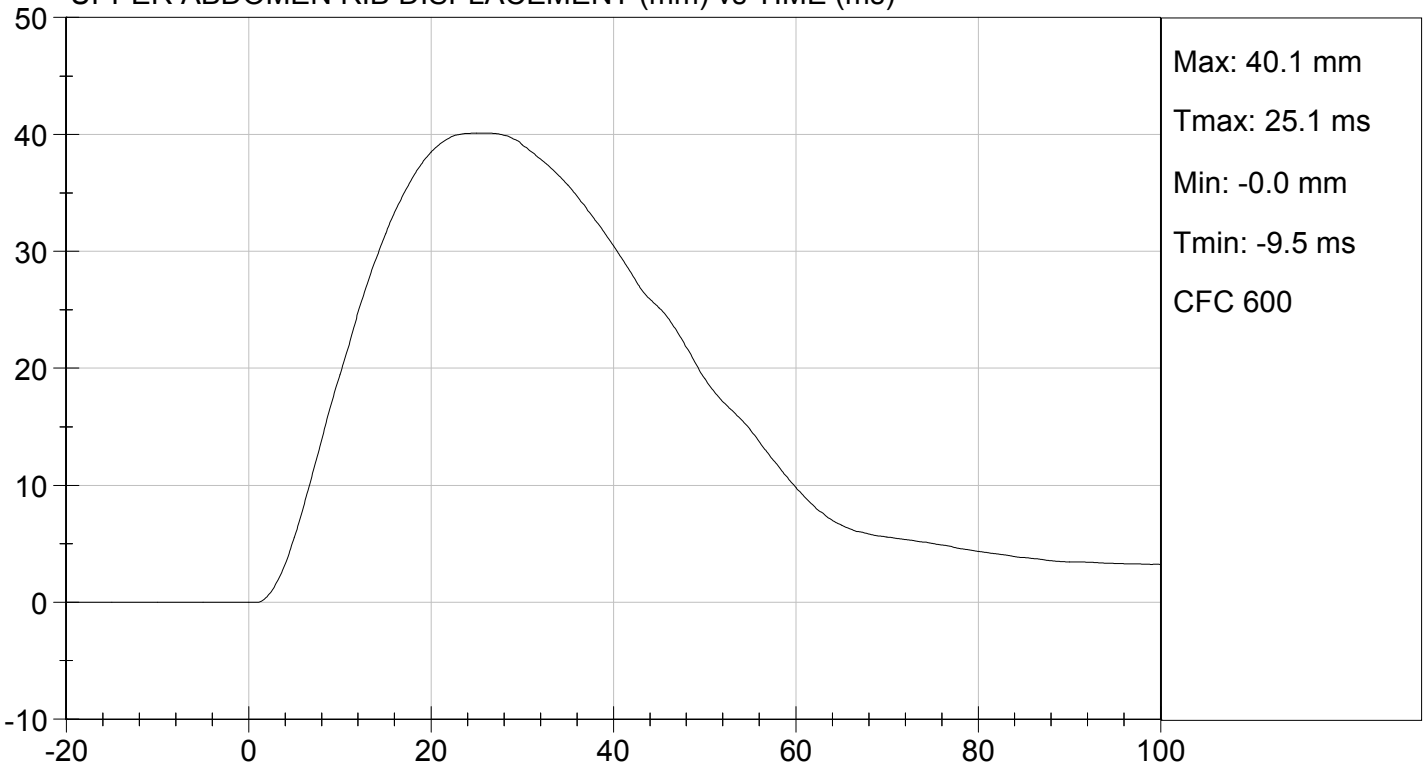
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 06/04/2014
TEST #: D142056

PROBE (G's) vs TIME (ms)



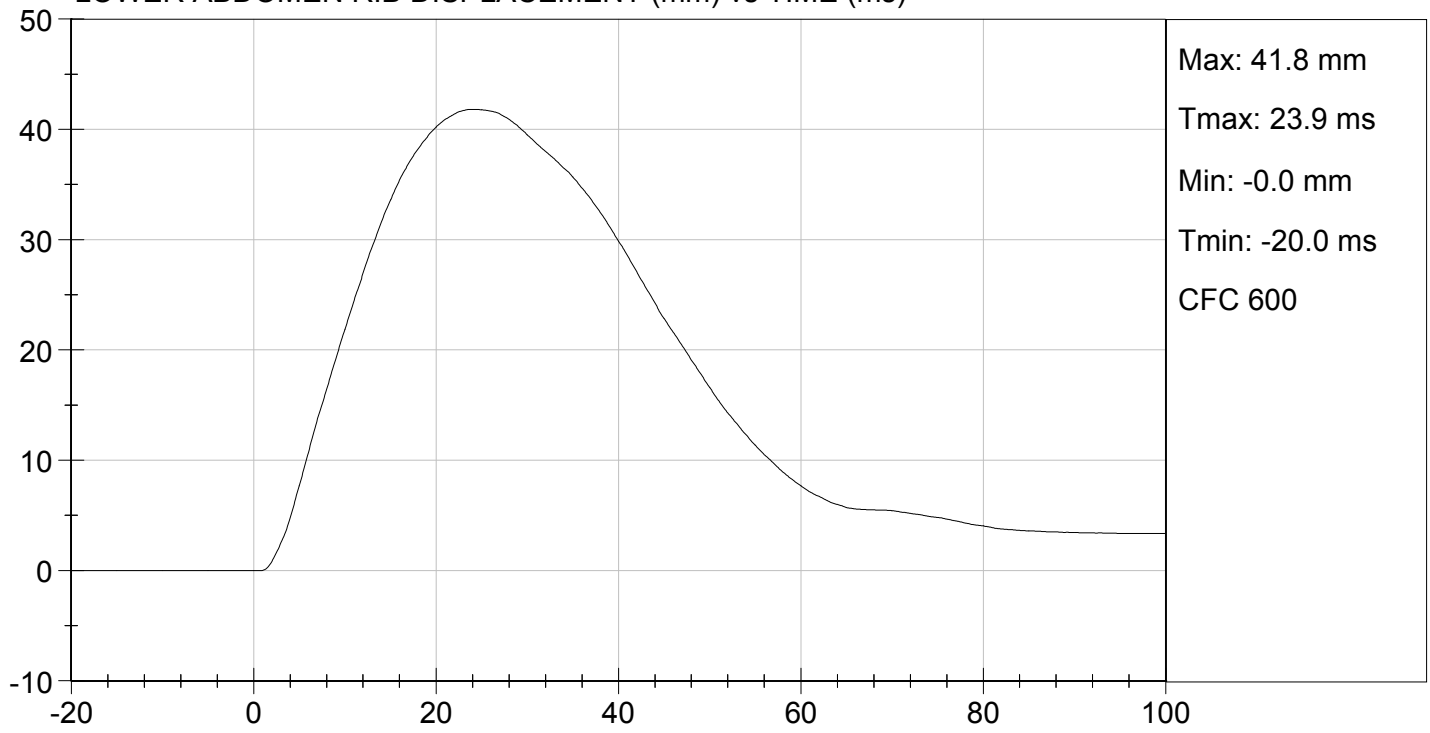
UPPER ABDOMEN RIB DISPLACEMENT (mm) vs TIME (ms)



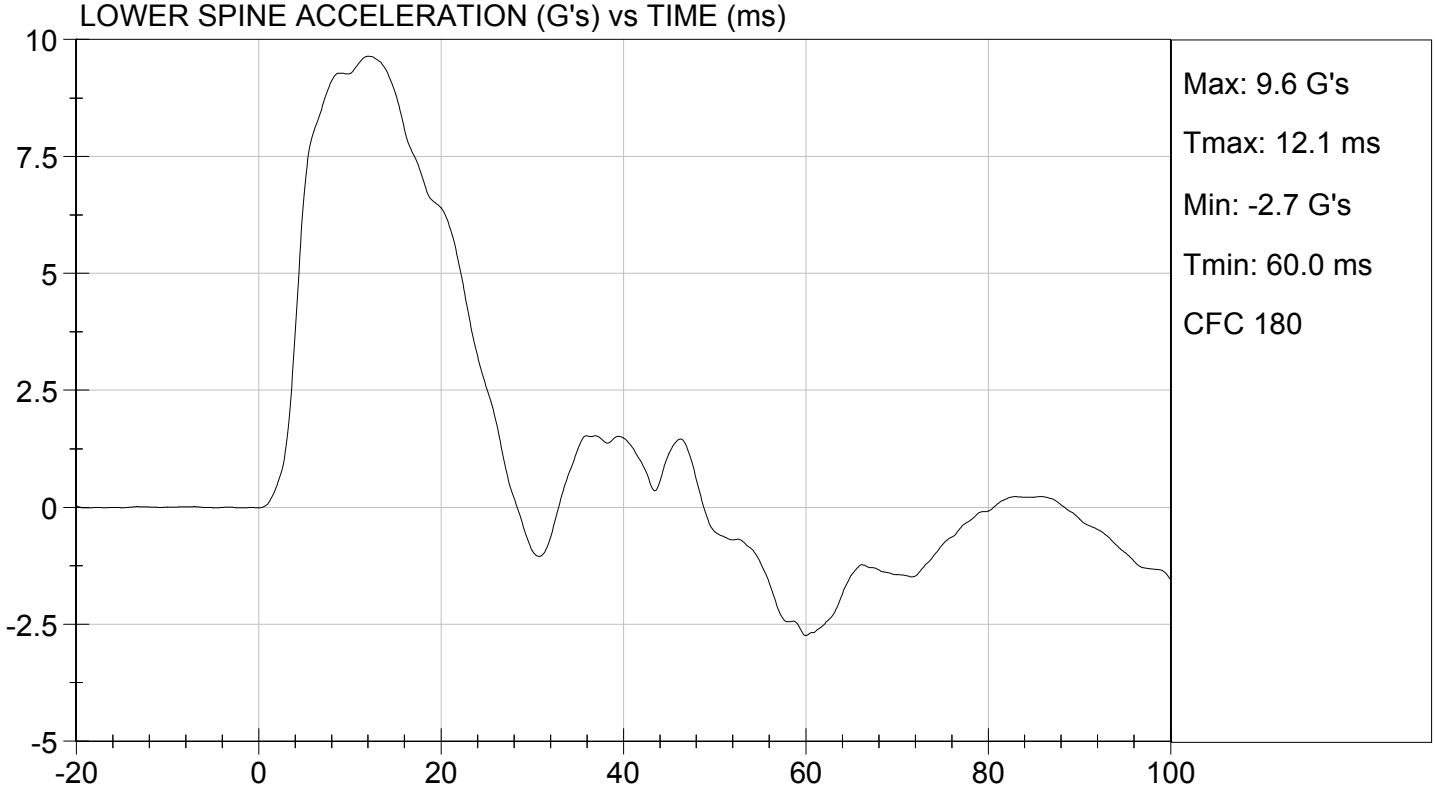
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 06/04/2014
TEST #: D142056

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:** D142057

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	50	Pass
Impact Velocity	m/s	6.60 to 6.80	6.60	Pass
Maximum Probe Acceleration	G's	38 to 47	43	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	42	Pass
Peak Acetabulum Force	N	3600 to 4300	4,224	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

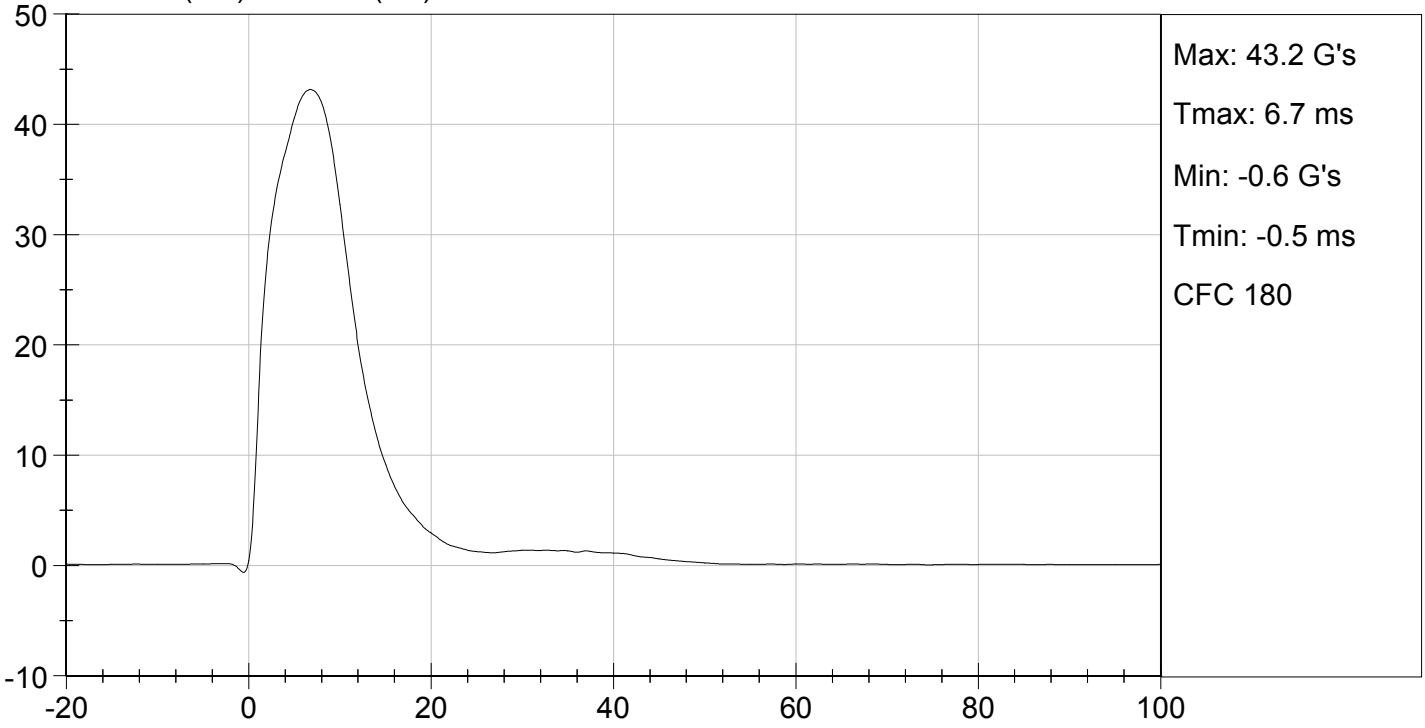
06/04/2014
Test Date

David Winkelbauer
Approved By

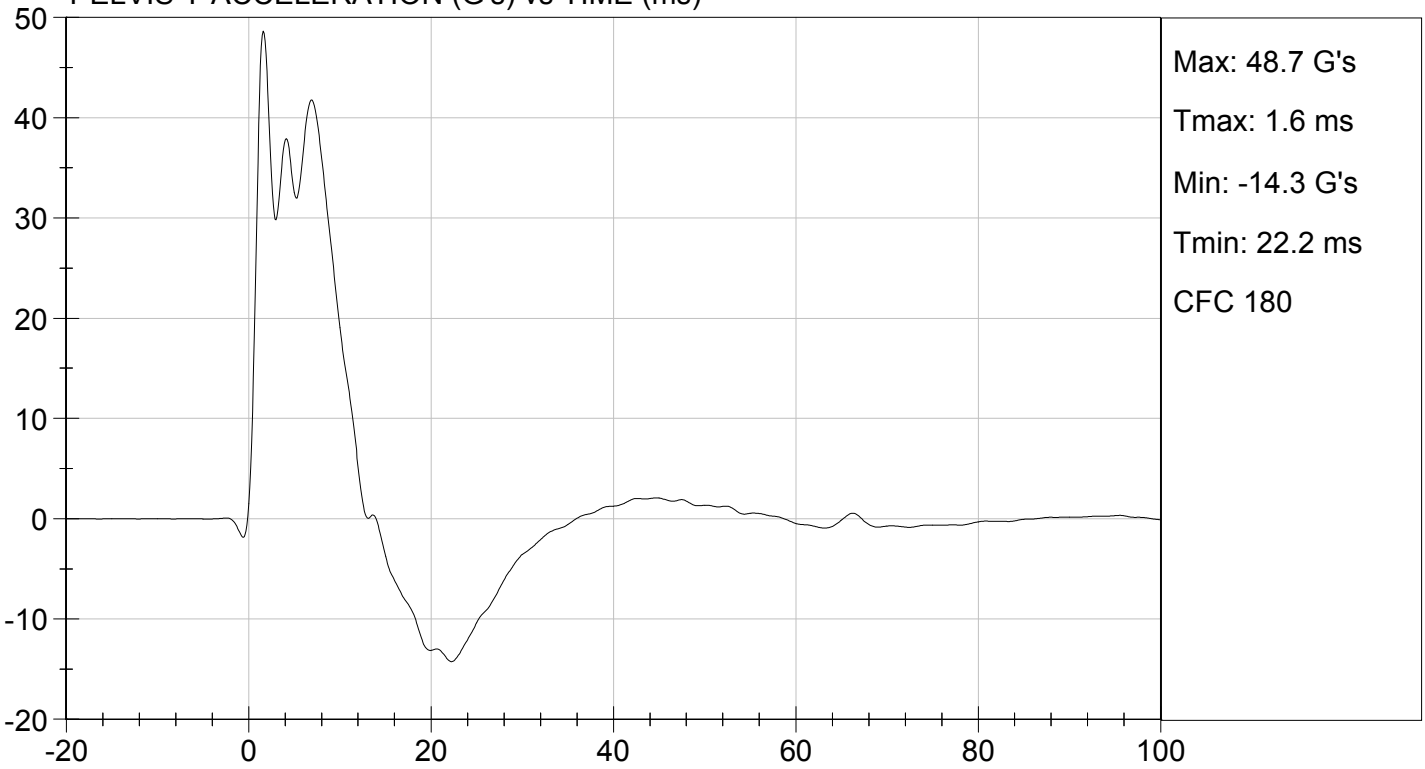
TEST DESC: PELVIS IMPACT
VELOCITY: 21.65 ft/s, 6.60 m/s

TEST DATE: 06/04/2014
TEST #: D142057

PROBE (G's) vs TIME (ms)

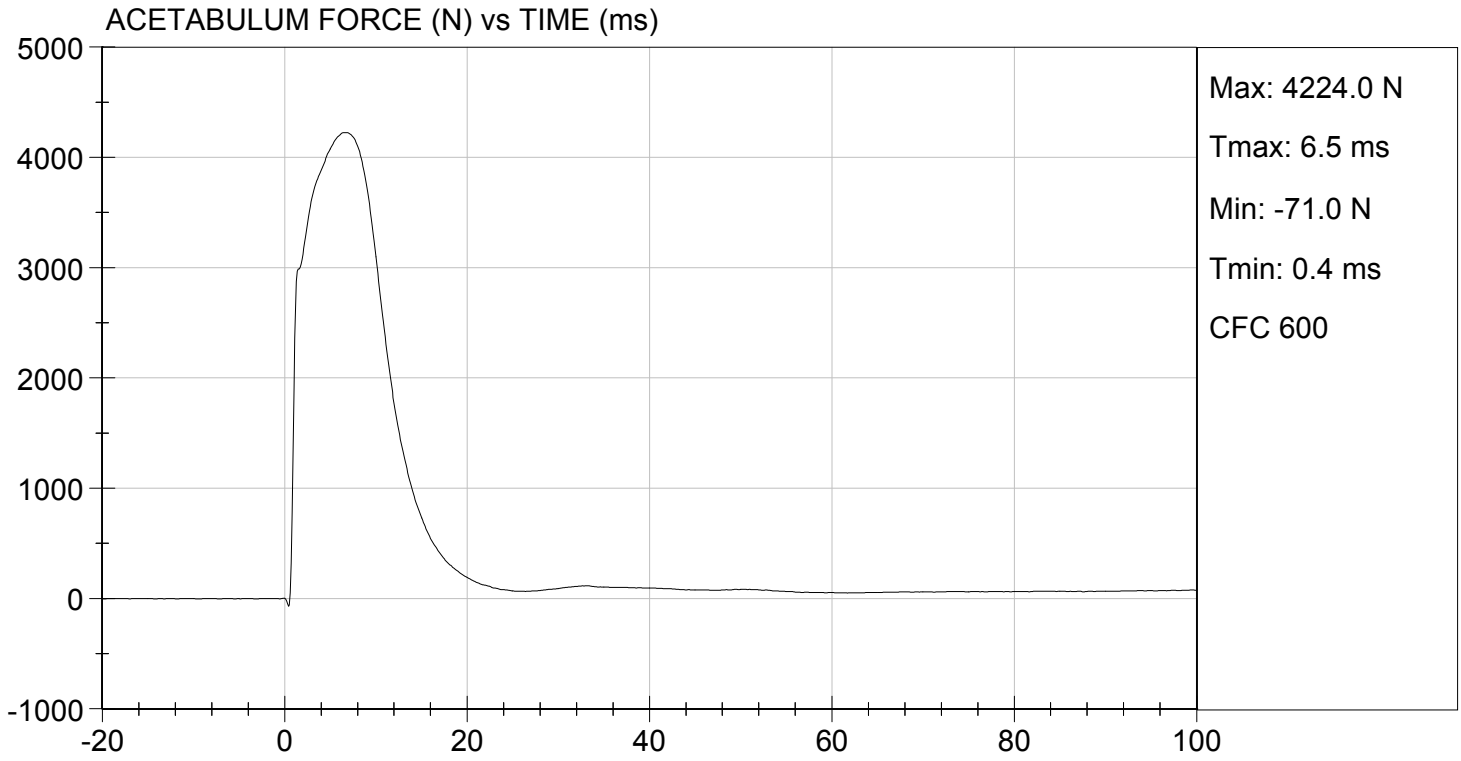


PELVIS Y ACCELERATION (G's) vs TIME (ms)



TEST DESC: PELVIS IMPACT
VELOCITY: 21.65 ft/s, 6.60 m/s

TEST DATE: 06/04/2014
TEST #: D142057



MGA RESEARCH CORPORATION

ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296 **Test I.D:** D142058

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	50	Pass
Impact Velocity	m/s	4.20 to 4.40	4.20	Pass
Maximum Probe Acceleration	G's	36 to 45	39	Pass
Pelvis Y Acceleration	G's	28 to 39	29	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,651	Pass
		Overall Test Results		Pass

Jessica Hall
Laboratory Technician

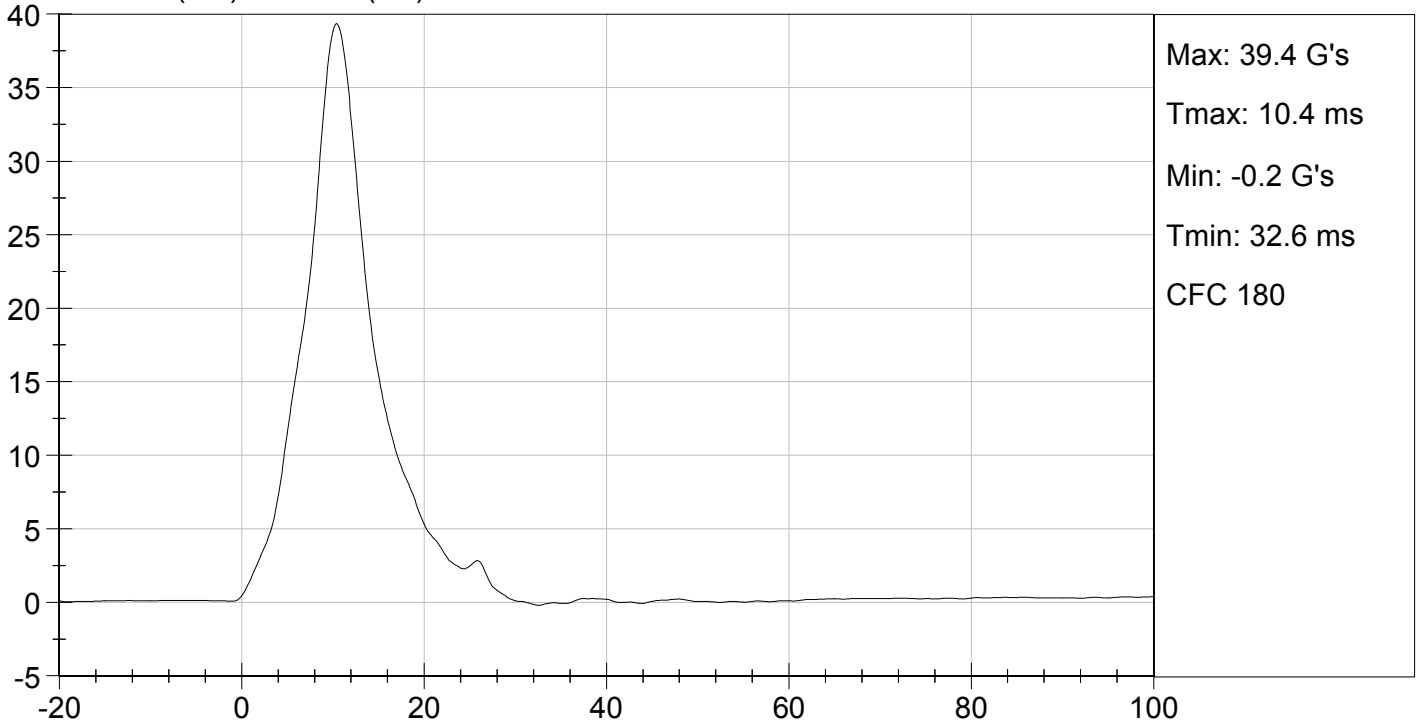
06/04/2014
Test Date

David Winkelbauer
Approved By

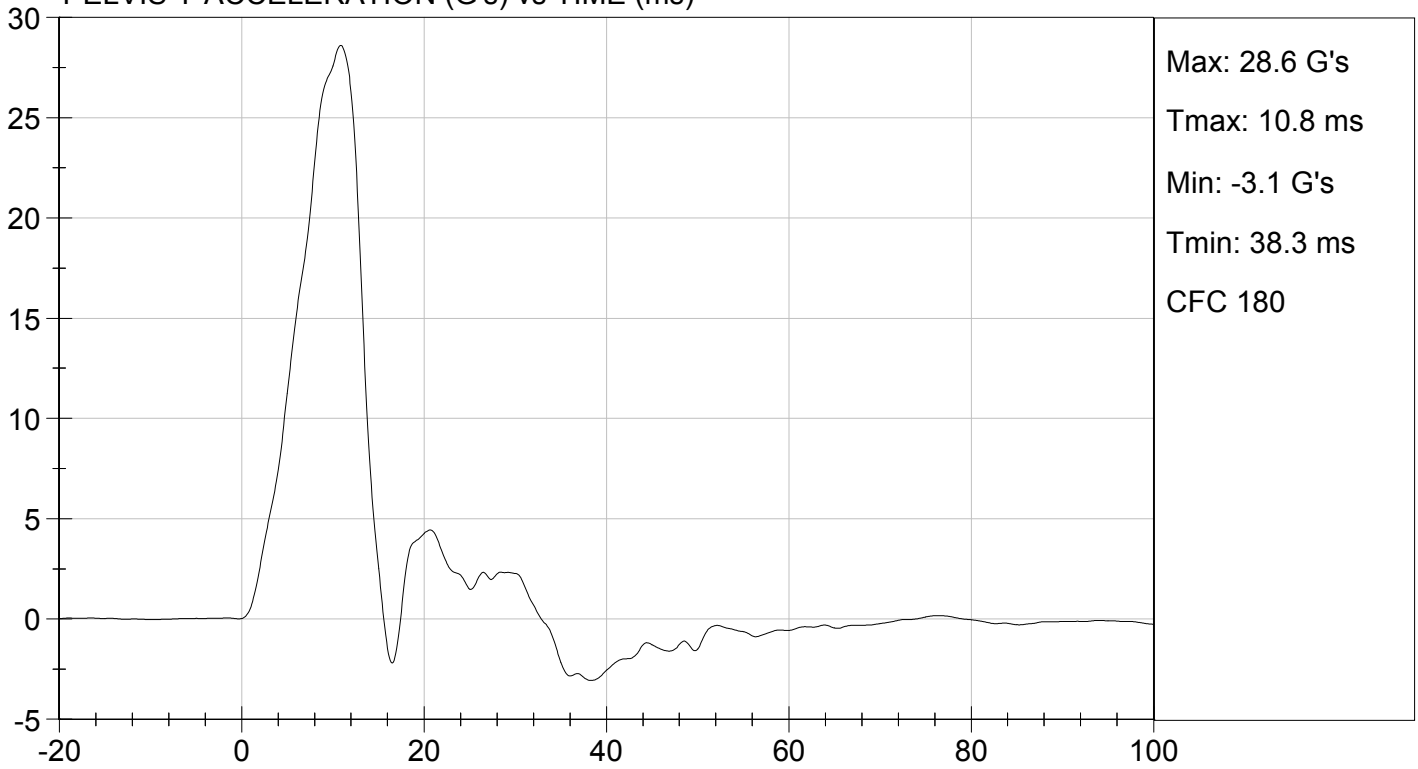
TEST DESC: ILLIAC
VELOCITY: 13.78 ft/s, 4.20 m/s

TEST DATE: 06/04/2014
TEST #: D142058

PROBE (G's) vs TIME (ms)

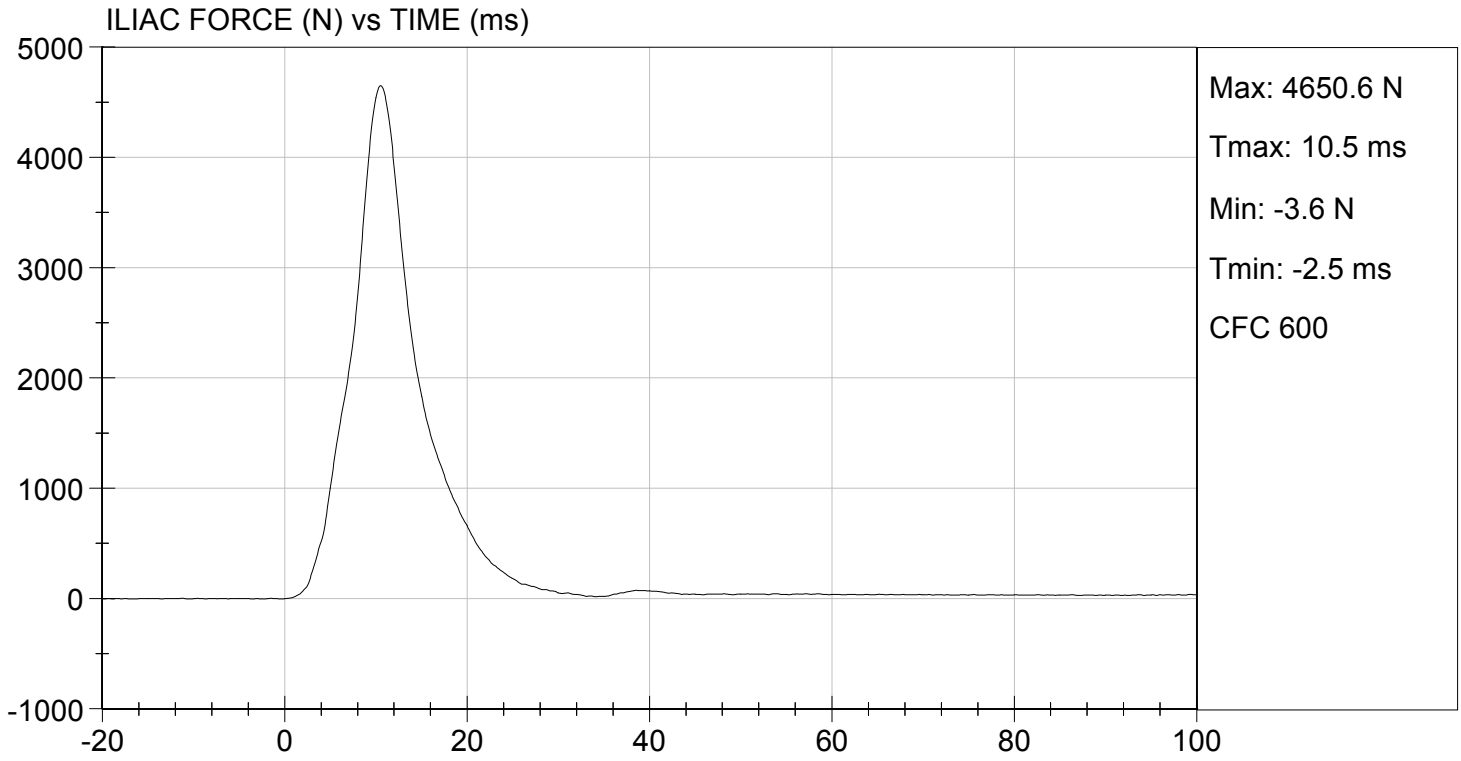


PELVIS Y ACCELERATION (G's) vs TIME (ms)

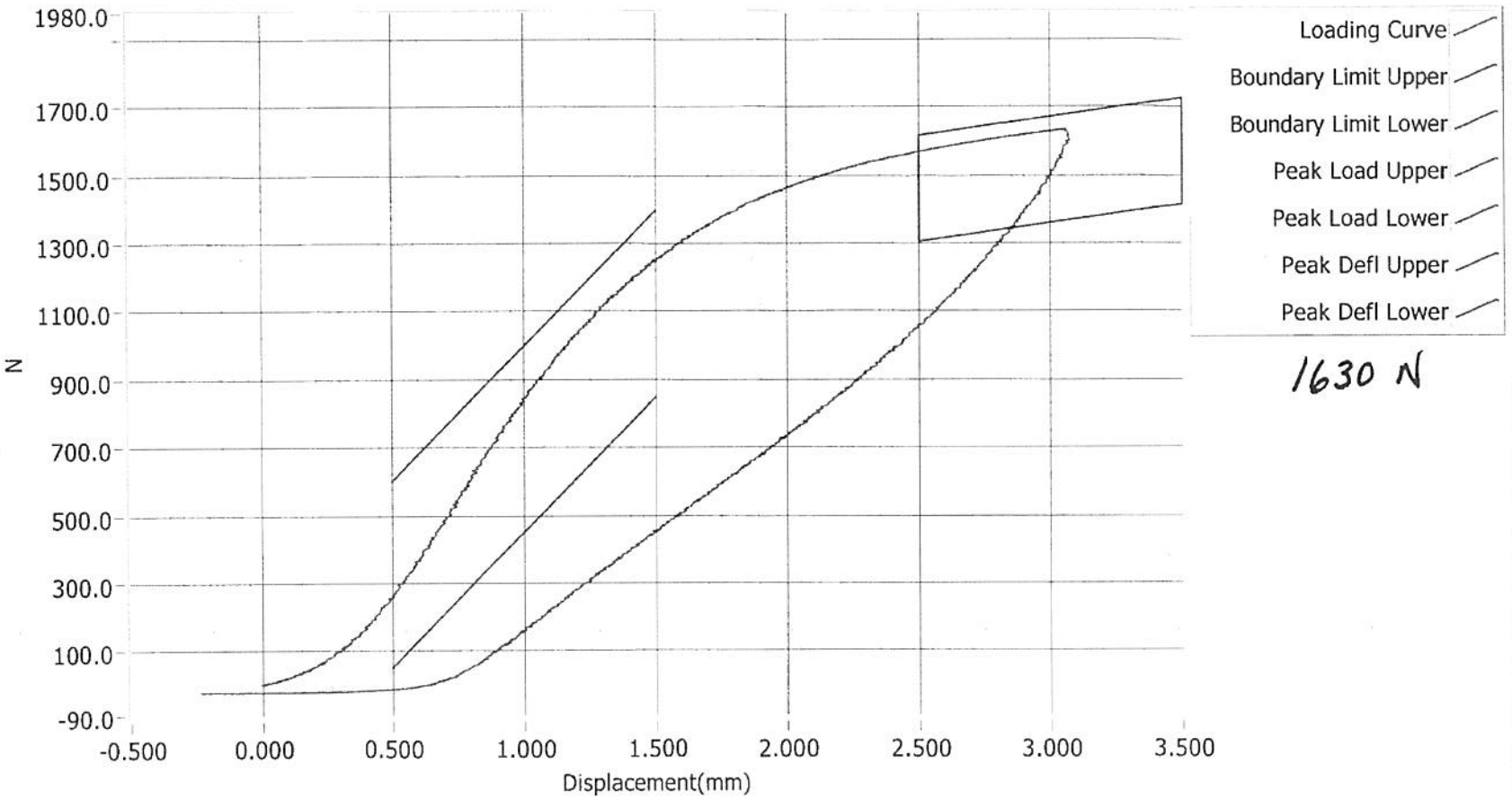


TEST DESC: ILLIAC
VELOCITY: 13.78 ft/s, 4.20 m/s

TEST DATE: 06/04/2014
TEST #: D142058



Resultant Data - SIDIIs Plug Compression



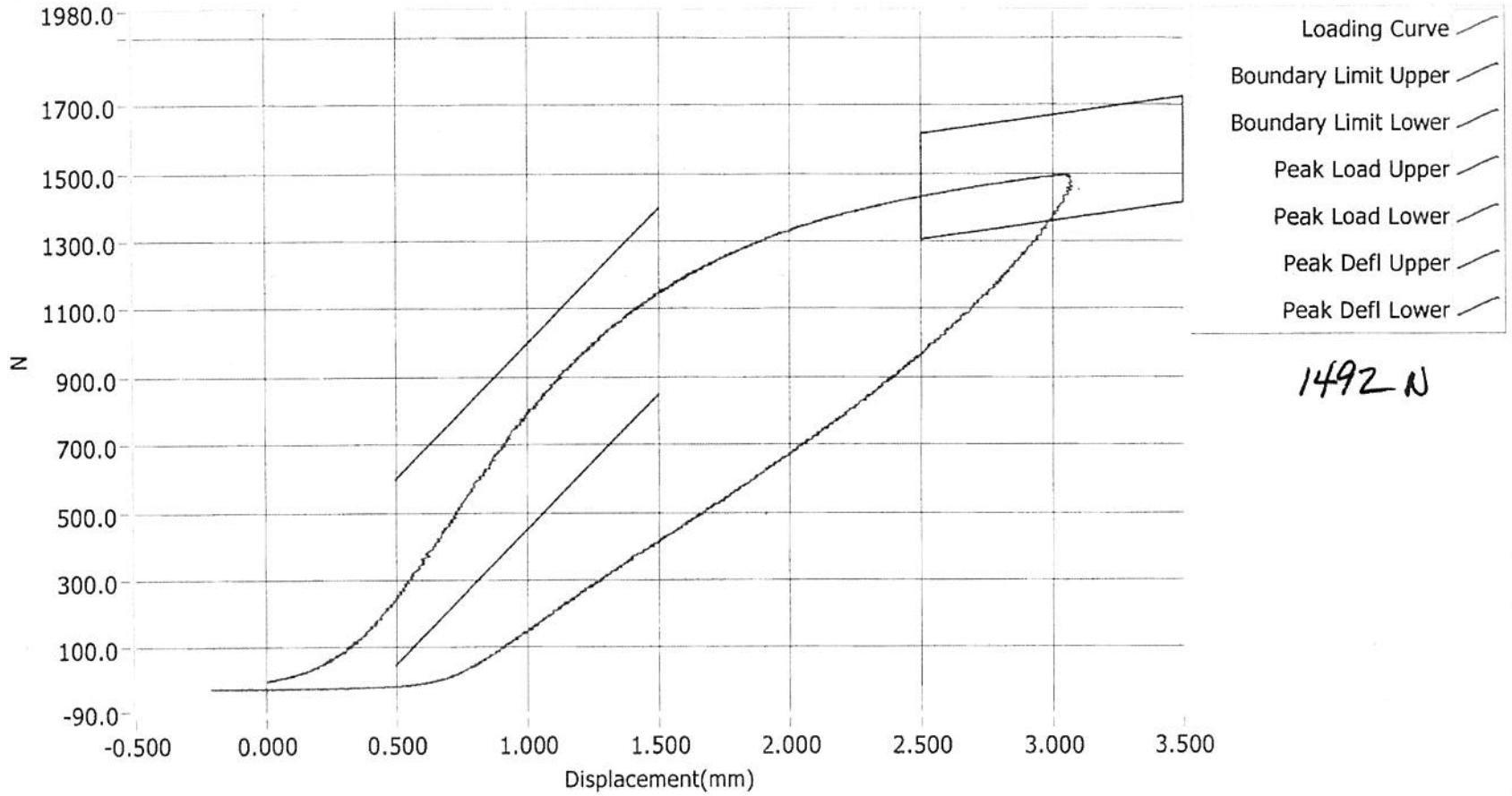
1630 N

ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	63353	1/25/2013	12:25 AM
Cert ID	**ATD Serial Number**	**ATD Type**	
	N/A	SIDIIs	

Current Date : 1/25/2013 Current Time : 00:26:32

Resultant Data - SIDIIs Plug Compression



1492 N

ATD Calibration Lab

Test ID	Part Serial Number	Test Date	Test Time
	63495	2/4/2013	8:20 PM
Cert ID	ATD Serial Number	ATD Type	
	N/A	SIDIIs	

Current Date : 2/4/2013 Current Time : 20:21:19

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	P82095	Endevco	02/25/14
		Y	P82096	Endevco	02/25/14
		Z	P82097	Endevco	02/25/14
		Xr	P82098	Endevco	02/25/14
		Yr	P82099	Endevco	02/25/14
		Zr	P82100	Endevco	02/25/14
Thorax Rib Displacement Potentiometers	Upper	Y	G176	Honeywell	03/06/14
	Middle	Y	G169	Honeywell	03/06/14
	Lower	Y	G164	Honeywell	03/06/14
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	P78685	Endevco	02/25/14
		Y	P79430	Endevco	02/25/14
		Z	P82312	Endevco	02/25/14
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	P79864	Endevco	02/25/14
			Y	P79866	Endevco	02/25/14
			Z	P79867	Endevco	02/25/14
			Xr	P79816	Endevco	03/03/14
			Yr	P79817	Endevco	03/03/14
			Zr	P79818	Endevco	03/03/14
Displacement Potentiometers	Thoracic Rib	Upper	Y	G012	Servo	03/06/14
		Middle	Y	G1163	FTSS	03/06/14
		Lower	Y	G1158	FTSS	03/06/14
	Abdominal Rib	Upper	Y	G1146	FTSS	03/06/14
		Lower	Y	G1126	FTSS	03/06/14
Lower Spine Accelerometers (T12)			X	P82087	Endevco	03/03/14
			Y	P82088	Endevco	03/03/14
			Z	P82089	Endevco	03/03/14
Acetabulum Load Cell			Y	ACG268	Denton	01/09/14
Iliac Wing Load Cell			Y	IWG282	Denton	01/09/14
Pelvis Plug (struck side)				63353	FTSS	01/25/13
Pelvis Plug (non-struck side)				63495	FTSS	02/05/13

Table 3 – Vehicle Instrumentation

			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	P73994	Endevco	01/14/14
	Vehicle Center of Gravity	Y	P73995	Endevco	01/14/14
	Vehicle Center of Gravity	Z	P73993	Endevco	01/14/14
2	Right Sill at Front Seat	X	P73717	Endevco	03/19/14
	Right Sill at Front Seat	Y	P73716	Endevco	03/19/14
	Right Sill at Front Seat	Z	P73718	Endevco	03/19/14
3	Right Sill at Rear Seat	X	P66595	Endevco	04/23/14
	Right Sill at Rear Seat	Y	P66596	Endevco	04/23/14
	Right Sill at Rear Seat	Z	P66597	Endevco	04/23/14
4	Left Sill at Front Door	Y	P77758	Endevco	02/26/14
5	Left Sill at Rear Door	Y	P72735	Endevco	02/07/14
6	Left A-Post Lower	Y	P77691	Endevco	02/26/14
7	Left A-Post Middle	Y	P66750	Endevco	12/18/13
8	Left B-Post Lower	Y	P64019	Endevco	12/18/13
9	Left B-Post Middle	Y	P78884	Endevco	01/06/14
10	Front Seat Track	Y	P66647	Endevco	12/18/13
11	Rear Seat Track or Structure	Y	P74653	Endevco	01/06/14
12	Right Rear Occ. Compartment	Y	P66763	Endevco	03/19/14
13	Engine Block	X	P73737	Endevco	05/16/14
	Engine Block	Y	P73738	Endevco	05/16/14
14	Rear Floorpan Above Axle	X	P66779	Endevco	03/27/14
	Rear Floorpan Above Axle	Y	P66780	Endevco	03/27/14
	Rear Floorpan Above Axle	Z	P66778	Endevco	03/27/14

Table 4 – MDB Instrumentation

		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	P66819	Endevco	12/11/13
MDB Center of Gravity	Y	P66820	Endevco	12/11/13
MDB Center of Gravity	Z	P66821	Endevco	12/11/13
Left Frame at Rear Axle Centerline	X	P74310	Endevco	12/11/13
Left Frame at Rear Axle Centerline	Y	P74311	Endevco	12/11/13