

REPORT NUMBER: SPNCAP-MGA-2013-043

**NEW CAR ASSESSMENT PROGRAM (NCAP)
Side Impact Pole Test**

**MERCEDES-BENZ U.S. INTL., INC
2013 Mercedes-Benz ML350 SUV
NHTSA No.: MD0510**

**MGA RESEARCH CORPORATION
5000 Warren Road
Burlington, WI 53105**



Test Date: December 19, 2012


Final Report Date: February 27, 2013

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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Approval Date: February 27, 2013

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

Technical Report Documentation Page

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15. Supplementary Notes																														
16. Abstract A 32.20 km/h, 75° oblique impact Side NCAP Test was conducted on the subject 2013 Mercedes-Benz ML350 SUV in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP Pole Laboratory Test Procedure for the generation of consumer information on vehicle side pole crash protection. The test was conducted at MGA Research Corporation, in Burlington, Wisconsin, on December 19, 2012. The impact velocity was 32.1 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.0°C. The test vehicle post-test maximum crush was 392 mm at level 2. The test vehicle's performance was as follows:																														
<table border="1" style="margin: auto; border-collapse: collapse;"> <thead> <tr> <th rowspan="2" style="text-align: left;">Measurement Description</th> <th colspan="3" style="text-align: center;">Driver ATD (SID-IIs)</th> </tr> <tr> <th style="text-align: center;">Units</th> <th style="text-align: center;">Threshold</th> <th style="text-align: center;">Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td style="text-align: center;">N/A</td> <td style="text-align: center;">1000</td> <td style="text-align: center;">206</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td style="text-align: center;">Gs</td> <td style="text-align: center;">82</td> <td style="text-align: center;">29</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td style="text-align: center;">N</td> <td style="text-align: center;">5525</td> <td style="text-align: center;">2638</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">38*</td> <td style="text-align: center;">20</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td style="text-align: center;">mm</td> <td style="text-align: center;">45*</td> <td style="text-align: center;">20</td> </tr> </tbody> </table>				Measurement Description	Driver ATD (SID-IIs)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	206	Resultant Lower Spine Acceleration	Gs	82	29	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2638	Maximum Thoracic Rib Deflection	mm	38*	20	Maximum Abdomen Rib Deflection	mm	45*	20
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*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 Pole Part 572V 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 side impact test is part of the MY 2013 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-09-D-00124. The purpose of this test is to generate comparative side impact performance in a 2013 Mercedes-Benz ML350 SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated September 2012.

SECTION 2 SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2013 Mercedes-Benz ML350 SUV. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.1 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin, on December 19, 2012. Pre-test and post-test photographs of the test vehicle and side impact dummy (SID-IIs) are included in Appendix A of this report.

One Part 572V (SID-IIs) dummy was placed in the driver designated seating position according to instructions specified in the OCWS Side NCAP Pole Laboratory Test Procedure dated September 2012. Camera locations and other pertinent camera information are included in this report.

The Part 572V (SID-IIs) dummy was instrumented accordingly:

- Primary and Redundant Head CG Triaxial Accelerometers
- Thorax Upper, Middle, and Lower Rib Displacement Potentiometers
- Abdomen Upper Rib and Lower Rib Displacement Potentiometers
- Lower Spine (T12) Triaxial Accelerometers
- Iliac Load Cell
- Acetabulum Load Cell

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

Injury readings for the SID-IIs dummy were recorded as follows:

Measurement Description	Driver ATD (SID-IIs)		
	Units	Threshold	Result
Head Injury Criteria (HIC ₃₆)	N/A	1000	206
Resultant Lower Spine Acceleration	Gs	82	29
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2638
Maximum Thoracic Rib Deflection	mm	38*	20
Maximum Abdominal Rib Deflection	mm	45*	20

*Proposed IARV

Supplemental restraint information is given below:

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	Yes	No		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Abdomen/Pelvis Airbag	Yes	Yes	No	
Side Torso Airbag	No		Yes	Yes
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	No
Other				

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

GENERAL COMMENTS

There was no valid data collected for:

- Left A-Post @ Sill Y after 82
- Left Mid B-Post Y after 11ms
- Driver Seat Track Y after 30ms

Vehicle CG X is questionable from 53-61ms
Left Floor Sill Y is questionable from 5-22 and 35-38ms
Left Lower A-Post Y is questionable from 12-16ms
Left Mid A-Post Y is questionable from 12-16ms
Left B-Post @ Sill Y is questionable from 27-30 and 36-46ms

MGA does not endorse or certify products. The manufacturer's name appears solely for identification purposes.

**SECTION 3
OCCUPANT AND VEHICLE INFORMATION**

**DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
Test Date: 12/19/2012

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	MD0510	Traction Control System (TCS)	Yes
Model Year	2013	Auto-Leveling System	No
Make	Mercedes-Benz	Automatic Door Locks (ADL)	Yes
Model	ML350	Power Window Auto-Reverse	Yes
Body Style	SUV	Other Optional Feature	N/A
VIN	4JGDA5JB4DA128622	Driver Front Airbag	Yes
Body Color	Cinnabar Red Metallic	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	134 / 83	Driver Head/Torso Airbag	No
Engine Displacement (L)	3.5	Driver Torso Airbag	No
Type/No. Cylinders	6	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Longitudinal	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	Yes
Transmission Speeds	7	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	Rear	Rear Pass. Torso Airbag	Yes
Roof Rack	Yes	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	Yes	Rear Pass. Pelvis Airbag	No
Running Boards	No	Driver Seat Belt Pretensioner	Yes
Tilt Steering Wheel	Yes	Rear Pass. Seat Belt Pretensioner	Yes
Power Seats	Yes	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	Yes
		Other Safety Restraint	N/A

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Mercedes-Benz U.S. Intl., Inc	GVWR (kg)	2800
Date of Manufacture	09/12	GAWR Front (kg)	1300
Vehicle Type	MPV	GAWR Rear (kg)	1600

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	
Capacity Weight (VCW) (kg)				550	(A)
DSC x 68.04 kg				340	(B)
Rated Cargo and Luggage Weight (RCLW) (kg)				210	(A-B)

VEHICLE SEAT TYPE

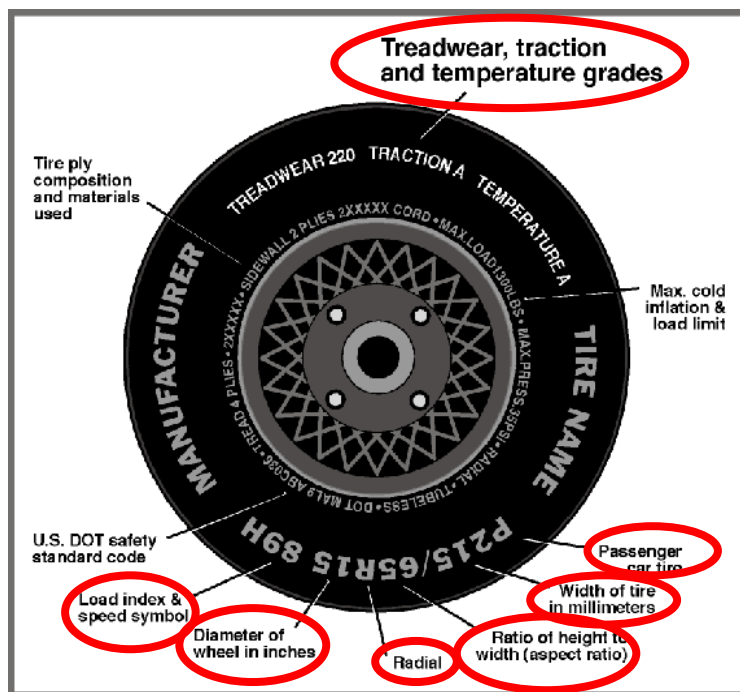
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						Manual	Power
Front Seat	X						X
Rear or Second Row			X			w/lever	
Third Row Seat							

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

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
 Test Date: 12/19/2012

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	340	340
Cold Pressure (kPa)	310	330
Recommended Tire Size	255/50R19	255/50R19
Tire Size on Vehicle	255/50R19	255/50R19
Tire Manufacturer	Dunlop	Dunlop
Tire Model	Grandtrek Touring	Grandtrek Touring
Treadwear	200	200
Traction	A	A
Temperature Grade	A	A
Tire Plies Sidewall	2	2
Tire Plies Body	5	5
Load Index/Speed Symbol	107H	107H
Tire Material	Rubber	Rubber
DOT Safety Code Left	M6LH JMIR	M6LH JMIR
DOT Safety Code Right	M6LH JMIR	M6LH JMIR

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

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
 Test Date: 12/19/2012

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kpa	310	310	330	330
Tire Placard	kpa	310	310	330	330
Owner's Manual	kpa				
As Tested	kpa	310	310	330	330

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	537.5	510.8		561.6	607.4		557.0	596.0	
Right	kg	551.1	524.4		540.2	596.5		556.6	602.4	
Ratio	%	51.3	48.7		47.8	52.2		48.2	51.8	
Totals	kg	1088.6	1035.2	2123.8	1101.8	1203.9	2305.7	1113.6	1198.4	2312.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	2123.8	(A)
Actual Weight of 1 P572V ATD (SID-IIs) ATD Used	kg	52.2	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	136.0	(C)
Calculated Vehicle Target Weight (TVTWT)	kg	2312.0	(A+B+C)

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

TEST VEHICLE ATTITUDES AND CG

	Units	As Delivered	As Tested	Fully Loaded	Meets Requirement***
Driver Door Sill Angle (front-to-rear)*	deg	-0.2	-0.1	-0.1	Yes
Front Pass. Sill Angle (front-to-rear)*	deg	-0.5	-0.3	-0.3	Yes
Front Bumper Angle (left-to-right)**	deg	0.2	0.0	0.0	Yes
Rear Bumper Angle (left-to-right)**	deg	-0.2	-0.2	0.0	Yes
Vehicle CG (Aft of Front Axle)	mm	1421	1522	1511	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	-10	11	-2	

*ND=Nose Down (-), NU=Nose Up (+) ** LD=Left Down (-), LU=Left Up (+)
 *** The "As Tested" vehicle attitude measurements must be equal to or between the "As Delivered" and "Fully Loaded" vehicle attitude measurements.

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTWT

Component Description	Weight (kg)
Ballast (if any)	103.4
Right taillight, jack & tools, first aid kit, spare tire, tonneau cover, cargo bin, cargo sub floor, rear sill plastic trim.	37.6

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

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
 Test Date: 12/19/2012

SEAT POSITIONING

The driver's seat, front center seat (if applicable), and right front passenger's seat should be set to the forward-most, mid-height, 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	20.2	12.4	16.3
Front Passenger Seat	20.7	12.7	16.7
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	16.3	32	Max	64	64	64
	16.3	32	Mid	32	32	32
	16.3	32	Min	0	0	0
Front Passenger Seat	16.7	32	Max	64	64	64
	16.7	32	Mid	32	32	32
	16.7	32	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: 2013 Mercedes-Benz ML350 SUV
 Test Program: NCAP Side Pole Impact Test

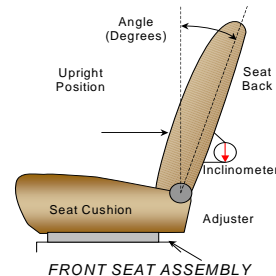
NHTSA No. MD0510
 Test Date: 12/19/2012

SEAT FORE/AFT POSITIONS

Seat	Total Fore/Aft Travel		Test Position from Forward-most Position	
	mm	Detents	mm	Detent
Driver Seat	260		0	
Front Passenger Seat	265		0	
Front Center Seat				
Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed	Fixed

SEAT BACK ANGLE ADJUSTMENT

The driver's seat back is positioned such that the dummy's head is level. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck-side rear passenger seat back is positioned in accordance with the information provided by the manufacturer on Form No. 1 for the 5th percentile female dummy in a Side NCAP MDB test. The rear center and non-struck side rear passenger's seat back is set to match the struck-side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Vertical	
	Degrees	Detents	Degree	Detent
Driver Seat w/Seated Dummy	80.4		9.3	
Front Passenger Seat	85.5		9.3	
Front Center Seat				
Struck Side Rear Seat	17.0	10	10.5	2 (1 st as 0)
Non-Struck Side Rear Seat	17.0	10	10.5	2 (1 st as 0)
Rear Center Seat	17.0	10	10.5	2 (1 st as 0)

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 (1 st as 1)	0 (uppermost as 0)

HEAD RESTRAINT ADJUSTMENT

Head restraints are adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	Power	Lowest/Full Forward

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

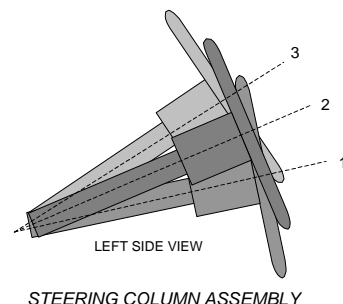
Test Vehicle: 2013 Mercedes-Benz ML350 SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
 Test Date: 12/19/2012

STEERING COLUMN ADJUSTMENT

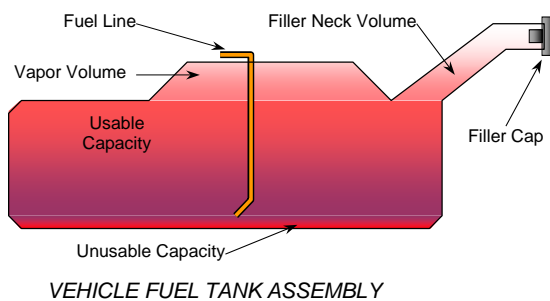
Steering wheel and column adjustments are made so that the steering wheel geometric locus is described when it moves through its full range of motion.

	Degrees	Fore/Aft Position (mm)
Lowermost, Position 1	70.8	168
Geometric Center, Position 2	68.8	140
Uppermost, Position 3	66.8	112
Telescoping Steering Wheel Travel		56
Test Position	68.8	140



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 operates until the internal pressure achieves its designed level. Then it turns off and keeps the pressure. The fuel pipe is on the right side.



FUEL TANK CAPACITY DATA

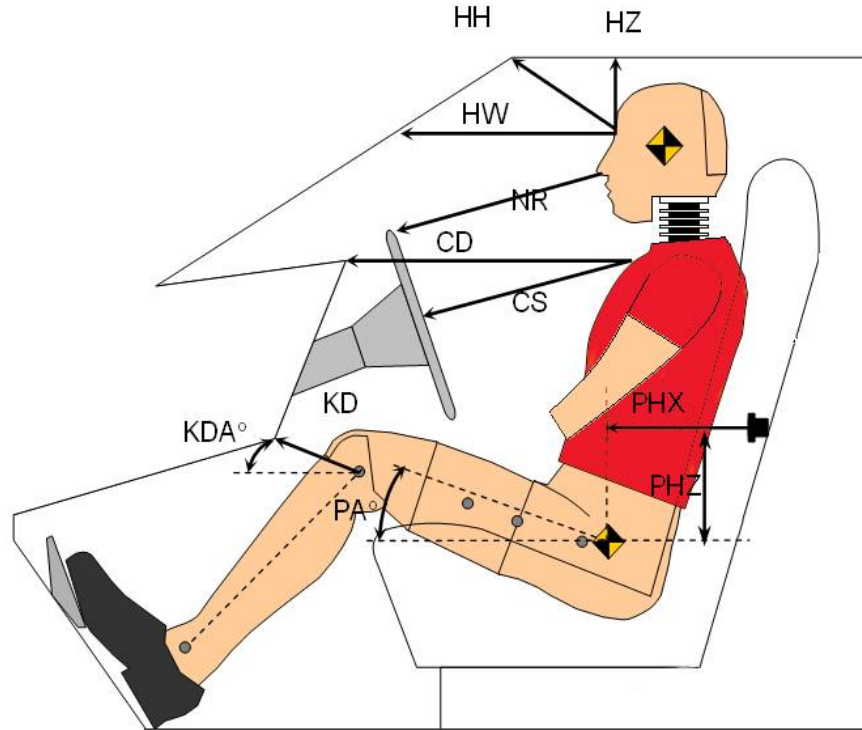
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	78.0
Usable Capacity of "Optional Tank" (see Form No. 1)	93.0
Usable Capacity of Standard Tank as Specified in Owner's Manual	93.0
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	86.5
Actual Amount of Solvent Used	86.6
1/3 of Usable Capacity	31.0

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: 2013 Mercedes-Benz ML350 SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
 Test Date: 12/19/2012



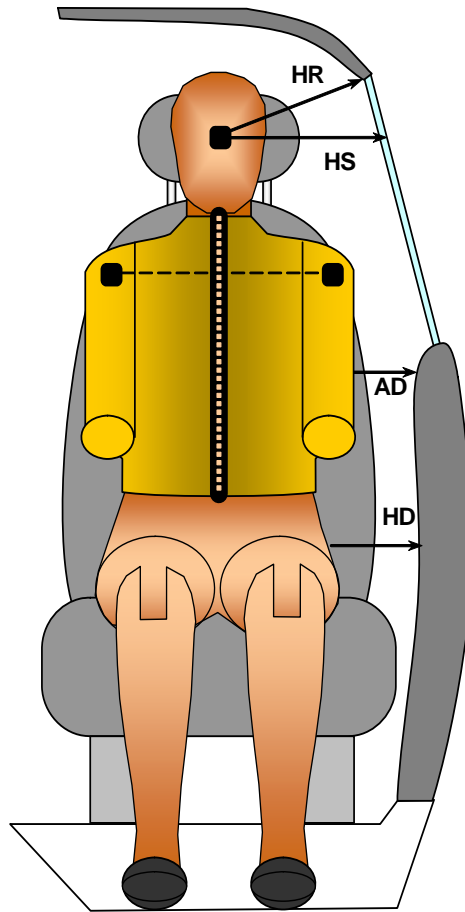
LEFT SIDE VIEW

Code	Measurement Description	Driver S/N 296	
		Length (mm)	Angle (°)
HH	Head to Header	238	
HW	Head to Windshield	553	
HZ	Head to Roof Liner	160	
NR	Nose to Rim	208	
CD	Chest to Dashboard	398	
CS	Chest to Steering Wheel	144	
KDL/KDAL°	Left Knee to Dash	92	32.2
KDR/KDAR°	Right Knee to Dash	78	45.4
PAX°	Pelvic Tilt Angle (X-Axis)		21.5
PAY°	Pelvic Tilt Angle (Y-Axis)		-1.1
PHX	Hip Point to Striker (X-Axis)	348	
PHZ	Hip Point to Striker (Z-Axis)	72	

**DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS**

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
 Test Date: 12/19/2012



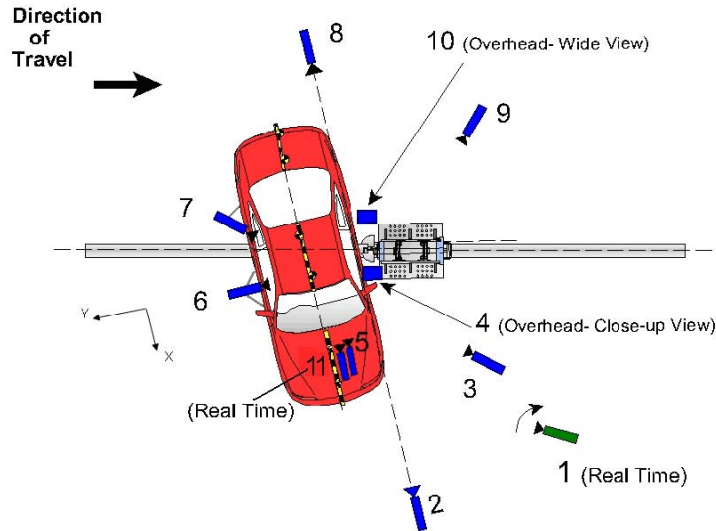
FRONT VIEW OF DUMMY

Code	Measurement Description	Driver S/N 296
		Length (mm)
HR	Head to Side Header	245
HS	Head to Side Window	368
AD	Arm to Door	155
HD	Hip Point to Door	157

**DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA**

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
 Test Date: 12/19/2012



Reference: (from Point of Impact for X and Y; from Ground for Z):
 +X = Forward of Impact, + Y = Right of Impact, +Z = Down

Camera No.	View	Coordinates (mm)			Lens (mm)	Film Speed (fps)
		X*	Y*	Z*		
1	Real-Time Pan View					30
2	Front Ground Level	-170	5930	-1660	24	1000
3	Impact Side 45° Forward	-2910	3260	-1810	20	1000
4	Overhead Closeup	130	0	-4380	50	1000
5	Onboard – Driver Front				16	
6	Onboard – Driver Side				8	
7	Onboard – Driver Rear				8	
8	Rear Ground Level	-110	-6420	-1620	24	1000
9	Impact Side 45° Rearward	-4320	-3940	-1970	20	1000
10	Overhead Wide View	340	0	-4750	14	1000
11	Real-Time Dummy Front View					30

* All measurements accurate to ± 6 mm

Note: Vehicle was at a 75° angle to the rigid pole.

Explain why camera(s) did not operate as intended: Not Applicable

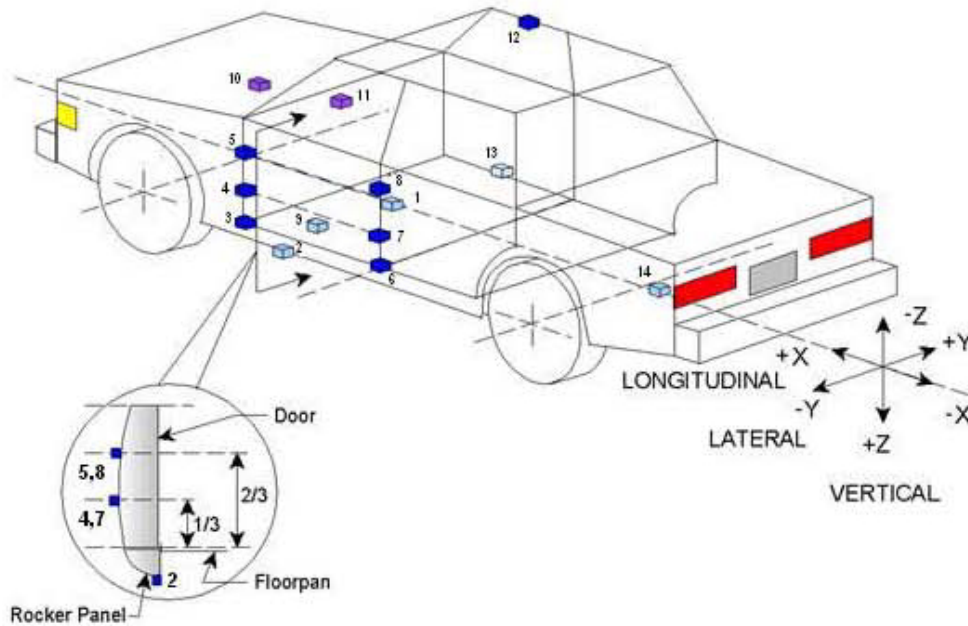
INSTRUMENTATION

	Number of Channels
Driver Dummy	16
Vehicle Structure	18
Pole Load Cells	8
TOTAL	42

DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
Test Date: 12/19/2012



	Accelerometer Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2184	418	-279
2	Left Floor Sill	3065	-725	-287
3	A Pillar Sill	3264	-725	-284
4	A Pillar Low	3175	-844	-684
5	A Pillar Mid	3191	-842	-926
6	B Pillar Sill	2220	-725	-279
7	B Pillar Low	2141	-735	-739
8	B Pillar Mid	2141	-726	-971
9	Driver Seat Track	2530	-578	-488
10	Engine Top	3919	0	-1043
11	Firewall	3602	175	-1086
12	Right Roof	2067	629	-1762
13	Right Floor Sill	3072	725	-285
14	Rear Floorpan	437	0	-475

Reference:

- X – Test Vehicle Rear Bumper (+forward)
- Y – Test Vehicle Centerline (+ to right)
- Z – Ground Plane (+ down)

DATA SHEET NO. 7
RIGID POLE LOAD CELL DATA

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
Test Date: 12/19/2012



254 mm Diameter Rigid Pole

Load Cell Locations	
ID	Height From Impact Surface (mm)
1	182
2	470
3	698
4	986
5	1212
6	1641
7	1854
8	2053

**DATA SHEET NO. 8
POST-TEST OBSERVATIONS**

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
 Test Date: 12/19/2012

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Driver SID-IIs Dummy
Face	Curtain Airbag
Top of Head	Curtain Airbag
Left Side of Head	Curtain Airbag
Back of Head	Curtain Airbag, Headrest
Left Shoulder	Seatback
Upper Torso	Seatback
Lower Torso	Seatback
Left Hip	Seatback, Seat pan
Left Knee	None

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

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

POST-TEST STRUCTURAL OBSERVATIONS

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

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

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
Test Date: 12/19/2012

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 1		Left Rear (Passenger) Occupant Location 4	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	No		
Knee Airbag	Yes	No		
Side Curtain Airbag	Yes	Yes	Yes	Yes
Side Torso/Abdomen/Pelvis Airbag	Yes	Yes	No	
Side Torso Airbag	No		Yes	Yes
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	No
Other				

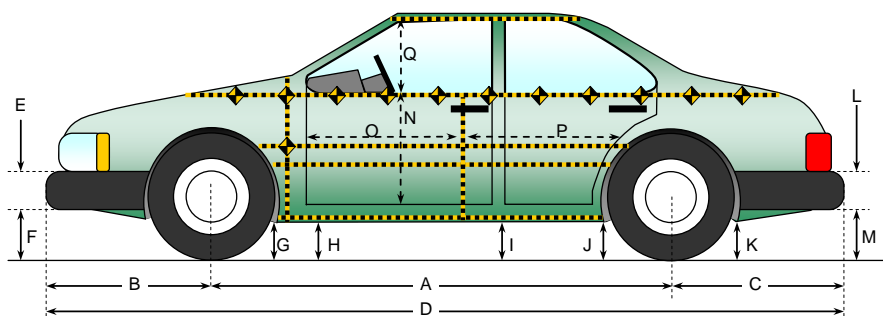
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1263
Actual Impact Point (Aft of Front Axle)	mm		1267
Horizontal Offset (+forward / -rearward)	mm	+/- 38 of Intended Impact Point	-4
Angle Between Vehicle's Longitudinal Centerline and Line of Forward Motion	deg	75 +/- 3	75
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.1
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.2

DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
Test Date: 12/19/2012



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

LEFT SIDE VIEW

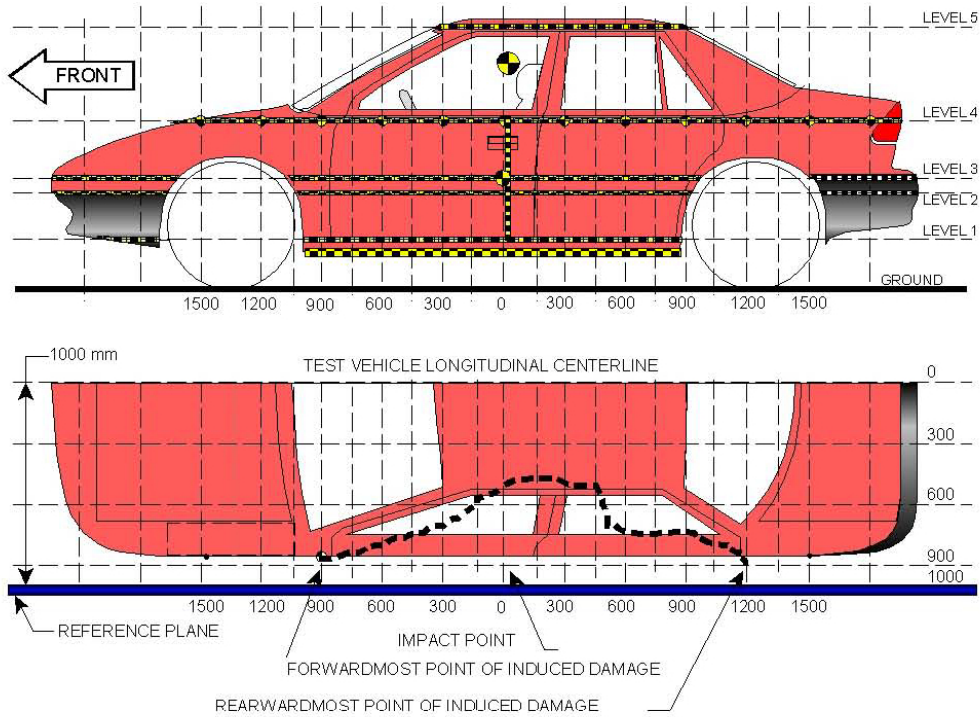
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2915	2807	108
B	Front Axle to FSOV	870	870	0
C	Rear Axle to RSOV	1022	1022	0
D	Total Vehicle Length at Centerline	4807	4699	108
E	Front Bumper Thickness	95	95	0
F	Front Bumper Bottom to Ground	299	319	-20
G	Sill Height at Front Wheel Well	282	271	11
H	Sill Height at Front Door Leading Edge	281	276	5
I	Sill Height at B-Pillar	263	223	40
J1	Sill Height at Rear Wheel Well	274	285	-11
J2	Pinch Weld Height at Rear Wheel Well	268	284	-16
K	Sill Height Aft of Rear Wheel Well	315	327	-12
L	Rear Bumper Thickness	106	106	0
M	Rear Bumper Bottom to Ground	350	349	1
N	Sill Height to Bottom of Front Window Sill	833	835	-2
O	Front Door Leading Edge to Impact CL	676	674	2
P	Rear Door Trailing Edge to Impact CL	1363	1422	-59
Q	Front Window Opening	452	409	43
R	Right Side Length	3860	3871	-11
S	Left Side Length	3860	3731	129
T	Vehicle Width at B-Pillars	1916	1847	69

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
Test Date: 12/19/2012



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

MAXIMUM EXTERIOR CRUSH MEASUREMENTS

Level	Measurement Description	Height Above Ground (mm)
1	Sill Top	329
2	Occupant Hip Point	780
3	Mid Door	805
4	Window Sill	1126
5	Window Top	1667

DATA SHEET NO. 10 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
 Test Date: 12/19/2012

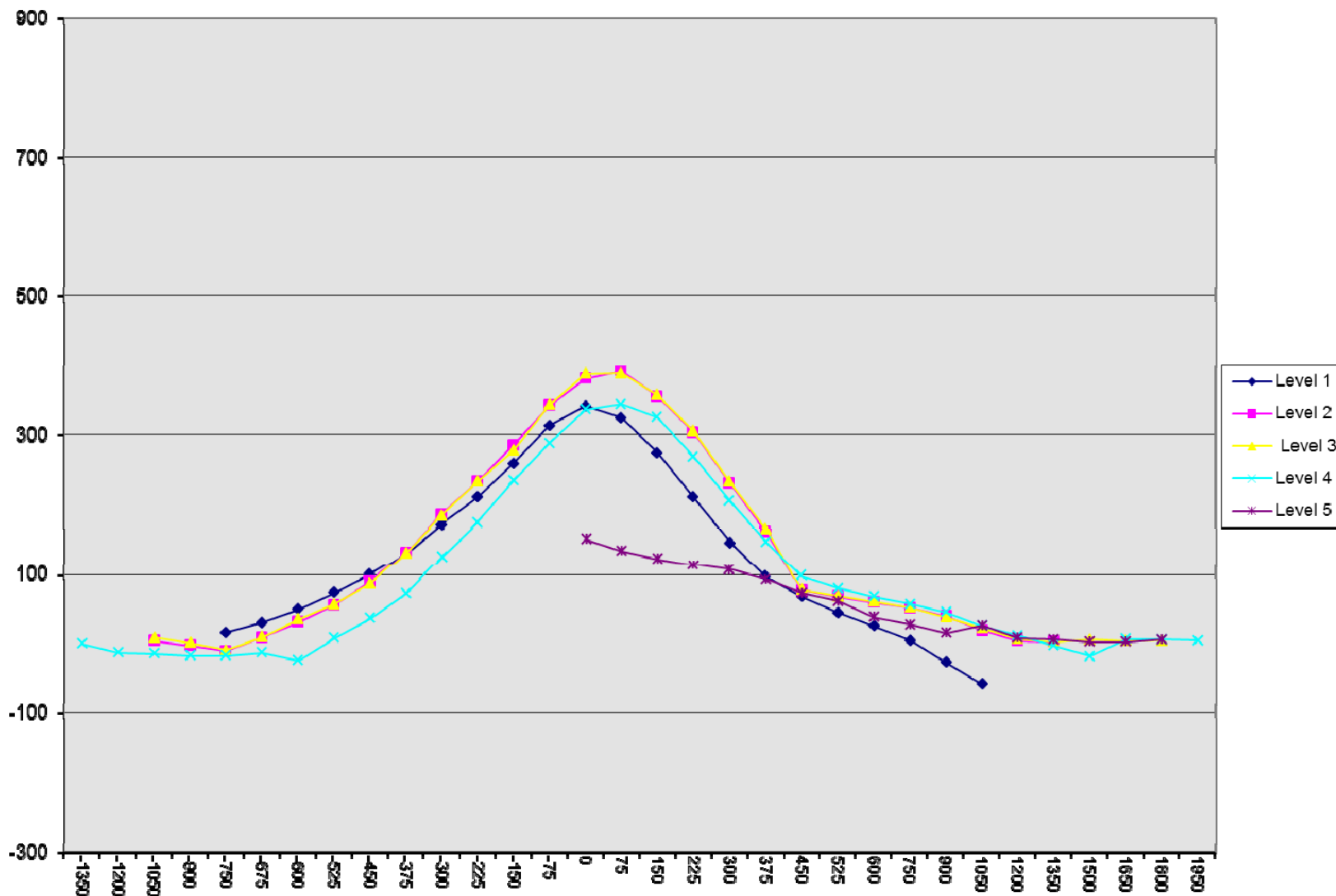
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-1350				277					278					1	
-1200				261					249					-12	
-1050		141	141	250			146	151	237			5	10	-13	
-900		145	147	242			143	149	226			-2	2	-16	
-750	179	147	148	232		196	137	140	216		17	-10	-8	-16	
-675	180	147	148	228		211	157	159	216		31	10	11	-12	
-600	181	148	148	224		231	180	184	201		50	32	36	-23	
-525	182	148	148	219		256	204	206	228		74	56	58	9	
-450	185	148	148	217		285	238	235	254		100	90	87	37	
-375	186	148	148	213		317	280	280	286		131	132	132	73	
-300	187	148	148	211		358	333	332	337		171	185	184	126	
-225	188	148	148	208		398	380	380	382		210	232	232	174	
-150	189	148	148	205		447	433	425	439		258	285	277	234	
-75	189	148	147	201		502	490	490	489		313	342	343	288	
0	190	148	147	200	451	531	529	535	536	602	341	381	388	336	151
75	191	147	147	198	446	515	539	536	542	580	324	392	389	344	134
150	191	147	147	194	442	465	502	504	519	565	274	355	357	325	123
225	192	147	147	193	440	402	450	452	461	554	210	303	305	268	114
300	192	147	147	193	439	338	377	379	398	546	146	230	232	205	107
375	193	147	146	193	440	289	308	311	340	533	96	161	165	147	93
450	194	148	147	191	440	262	225	225	289	513	68	77	78	98	73
525	195	150	149	189	440	240	218	218	269	502	45	68	69	80	62
600	196	151	150	188	440	222	211	211	256	479	26	60	61	68	39
750	196	154	153	188	444	202	206	206	246	472	6	52	53	58	28
900	200	156	156	188	446	174	196	195	234	462	-26	40	39	46	16
1050	201	160	158	190	432	144	180	181	216	459	-57	20	23	26	27
1200		152	154	192	459		157	162	205	468		5	8	13	9
1350		139	141	195	465		143	145	193	472		4	4	-2	7
1500			135	200	475			142	183	479			7	-17	4
1650			135	206	485			140	214	489			5	8	4
1800			135	214	498			141	221	505			6	7	7
1950				223					229					6	

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. The final distance from impact is determined after the final dummy positioning and the pole is aligned with the center of gravity of the dummy's head.

DATA SHEET NO. 10 (CONTINUED)
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
 Test Date: 12/19/2012



DATA SHEET NO. 11
FMVSS NO. 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
 Test Program: NCAP Side Pole Impact Test

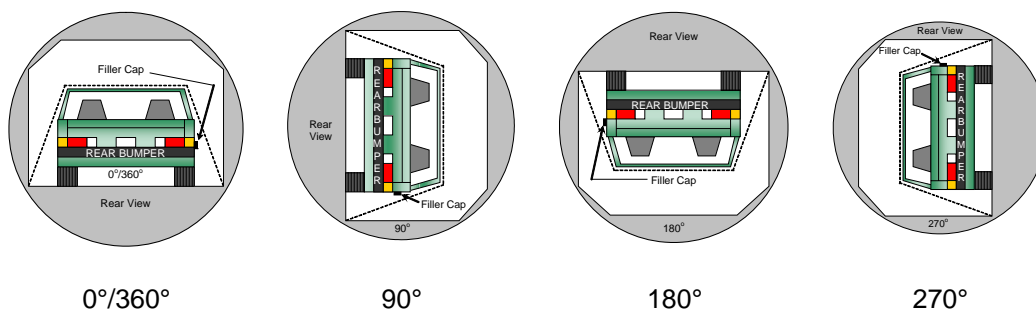
NHTSA No. MD0510
 Test Date: 12/19/2012

Test Time: 10:31 am

Temperature: 21.0° C

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

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	106	300	406
90° to 180°	112	300	412
180° to 270°	108	300	408
270° to 360°	112	300	412

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

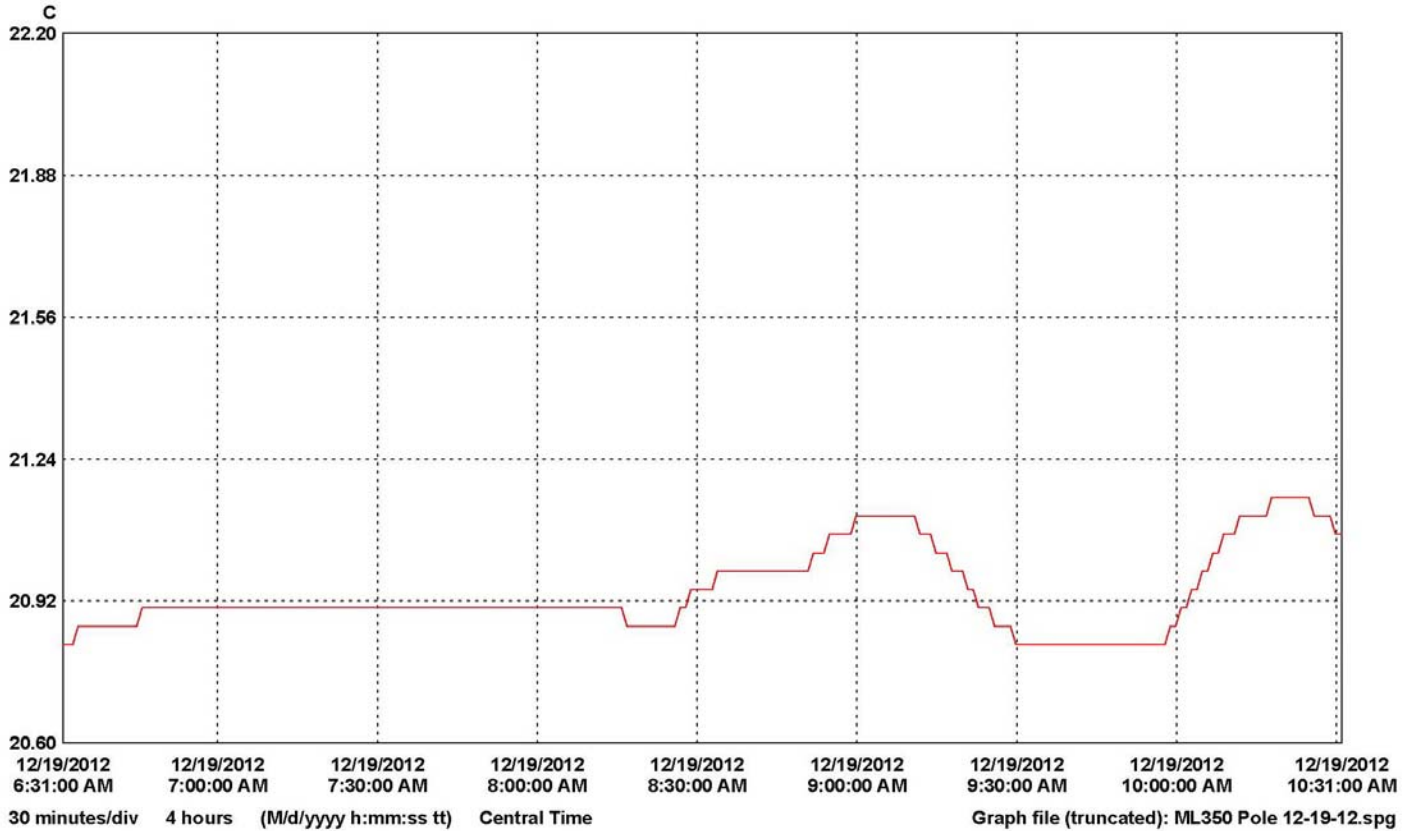
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

**DATA SHEET NO. 12
DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA**

Test Vehicle: 2013 Mercedes-Benz ML350 SUV
 Test Program: NCAP Side Pole Impact Test

NHTSA No. MD0510
 Test Date: 12/19/2012



LN	Serial #	Description	CH	Value	Maximum	Average	Minimum	Units	CH description	Logger file		
1	10102056	Crash Prep 1	1		21.15	20.94	20.82	C	Temperature	10102056_Crash_Prep_1.spl		
LN	Logger file								ID #	Security	Created by	Creation time
1	C:\Program Files (x86)\Veriteq Instruments\wLog 4.4\2013 NCAP\10102056_Crash_Prep_1.spl											

APPENDIX A
PHOTOGRAPHS

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As Delivered Right Front ¾ View of Test Vehicle



As Delivered Left Rear ¾ View of Test Vehicle



Pre-Test Frontal View of Test Vehicle



Post-Test Frontal View of Test Vehicle



Pre-Test Left Front ¾ View of Test Vehicle



Post-Test Left Front ¾ View of Test Vehicle



Pre-Test Left Side View of Test Vehicle



Post-Test Left Side View of Test Vehicle



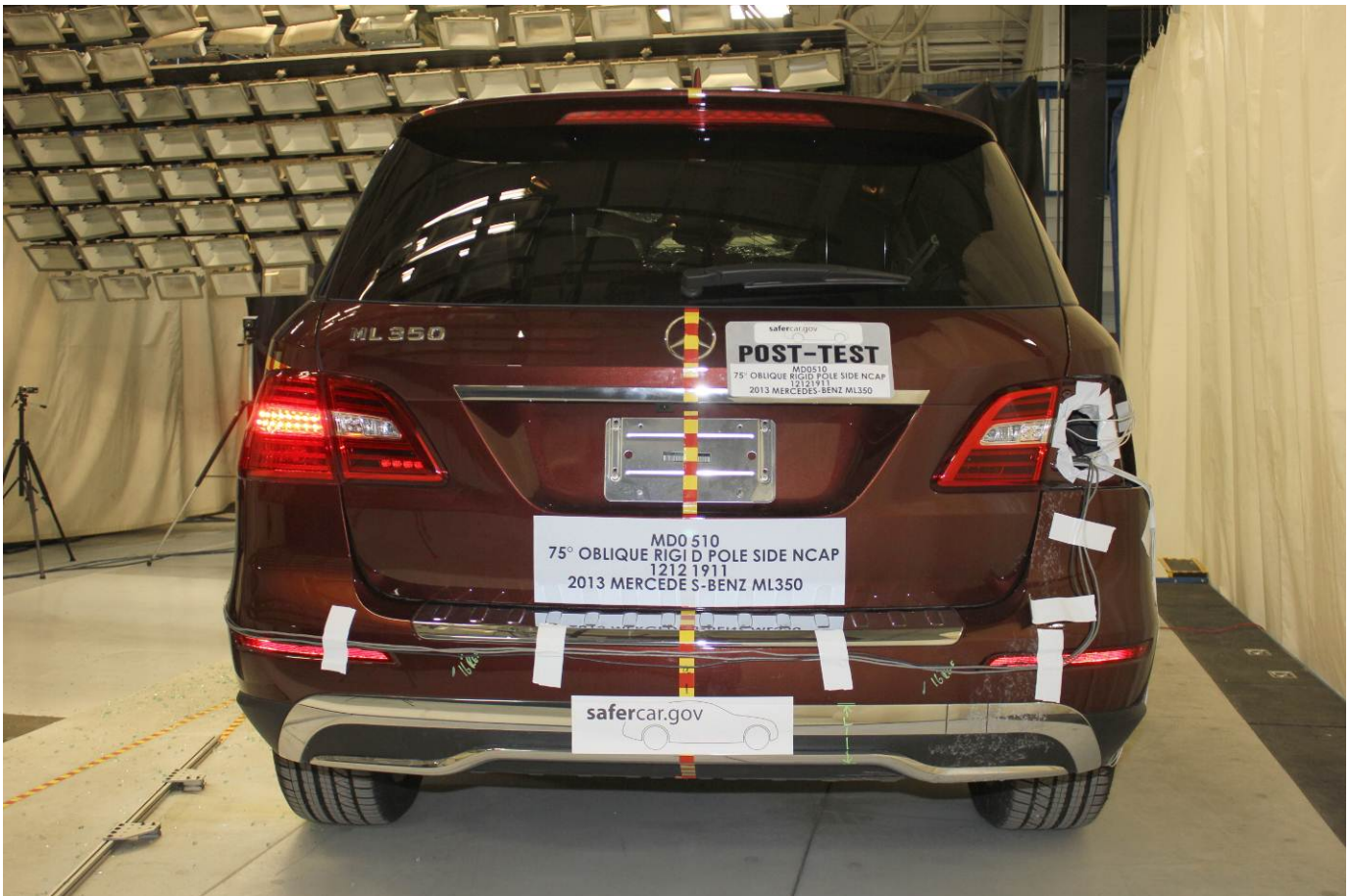
Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle



Post-Test Left Rear $\frac{3}{4}$ 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 Pole Positioned Against Side of Vehicle



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



Pre-Test Close-Up View of Impact Point Target



Post-Test Close-Up View of Impact Point Target Showing Impact Location



Pre-Test Front Close-Up View of Dummy Head and Chest



Post-Test Front Close-Up View of Dummy



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



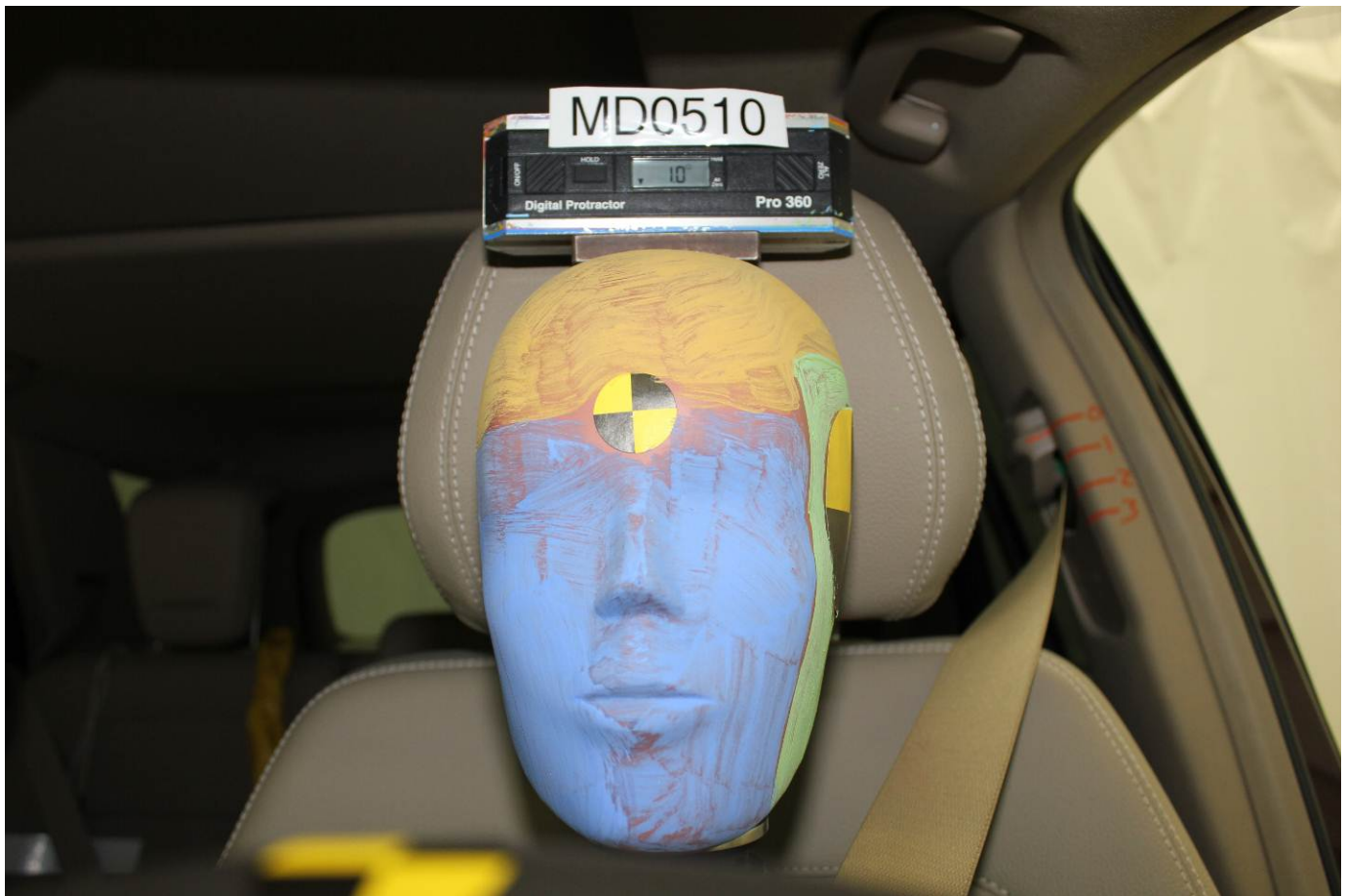
Pre-Test Left Side View of Dummy Shoulder and Door Top View



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



Pre-Test Front View of Seat Back Prior to Dummy Positioning



Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



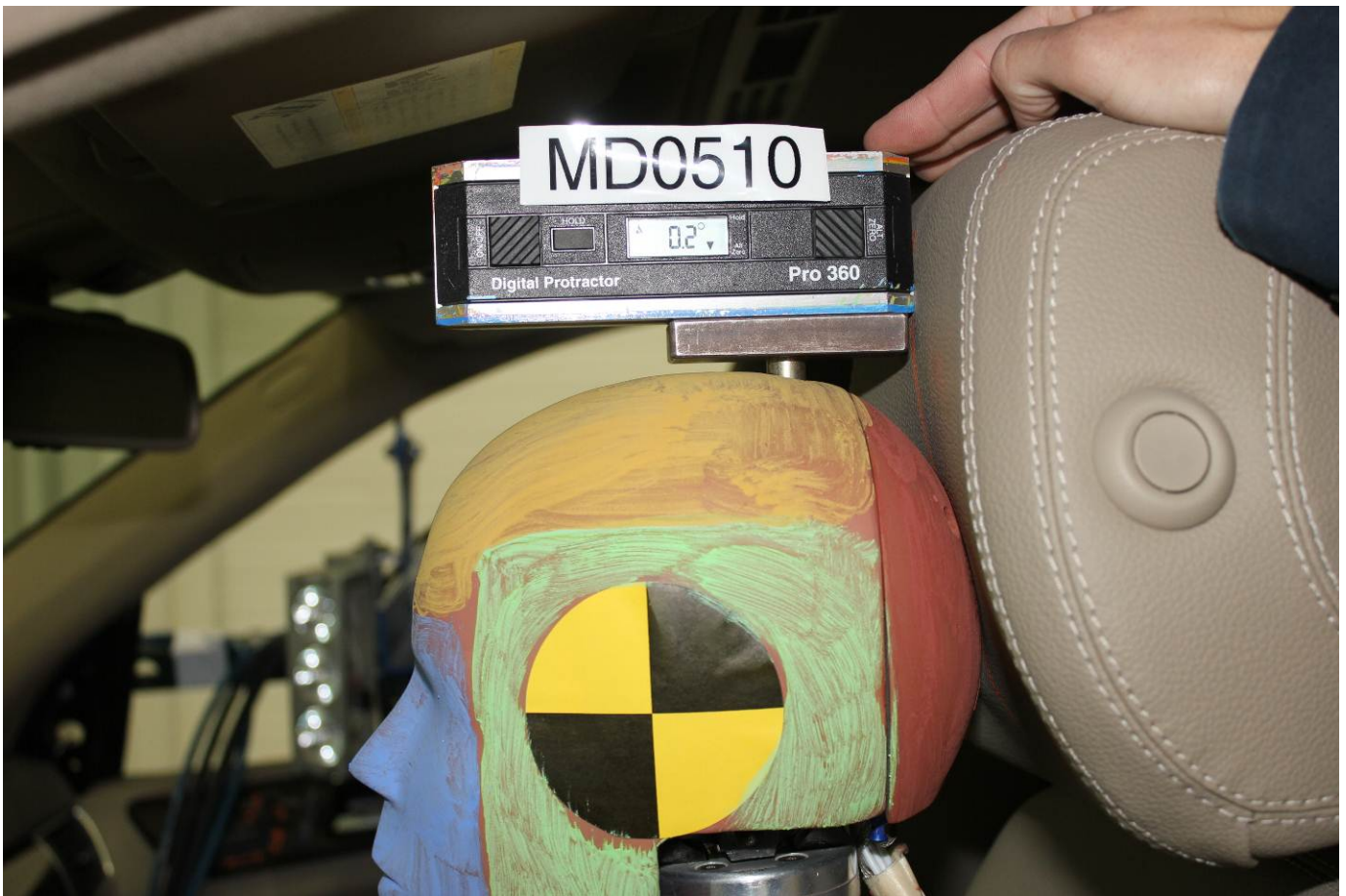
Pre-Test Front View of Seat Pan Prior to Dummy Positioning



Pre-Test Overhead View of Dummy Thighs on Seat Pan



Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket



Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level



Pre-Test Placement of Dummy's Feet



Pre-Test View of Belt Anchorage for 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 Dummy and Door Clearance View



Post-Test Dummy and Door Clearance View



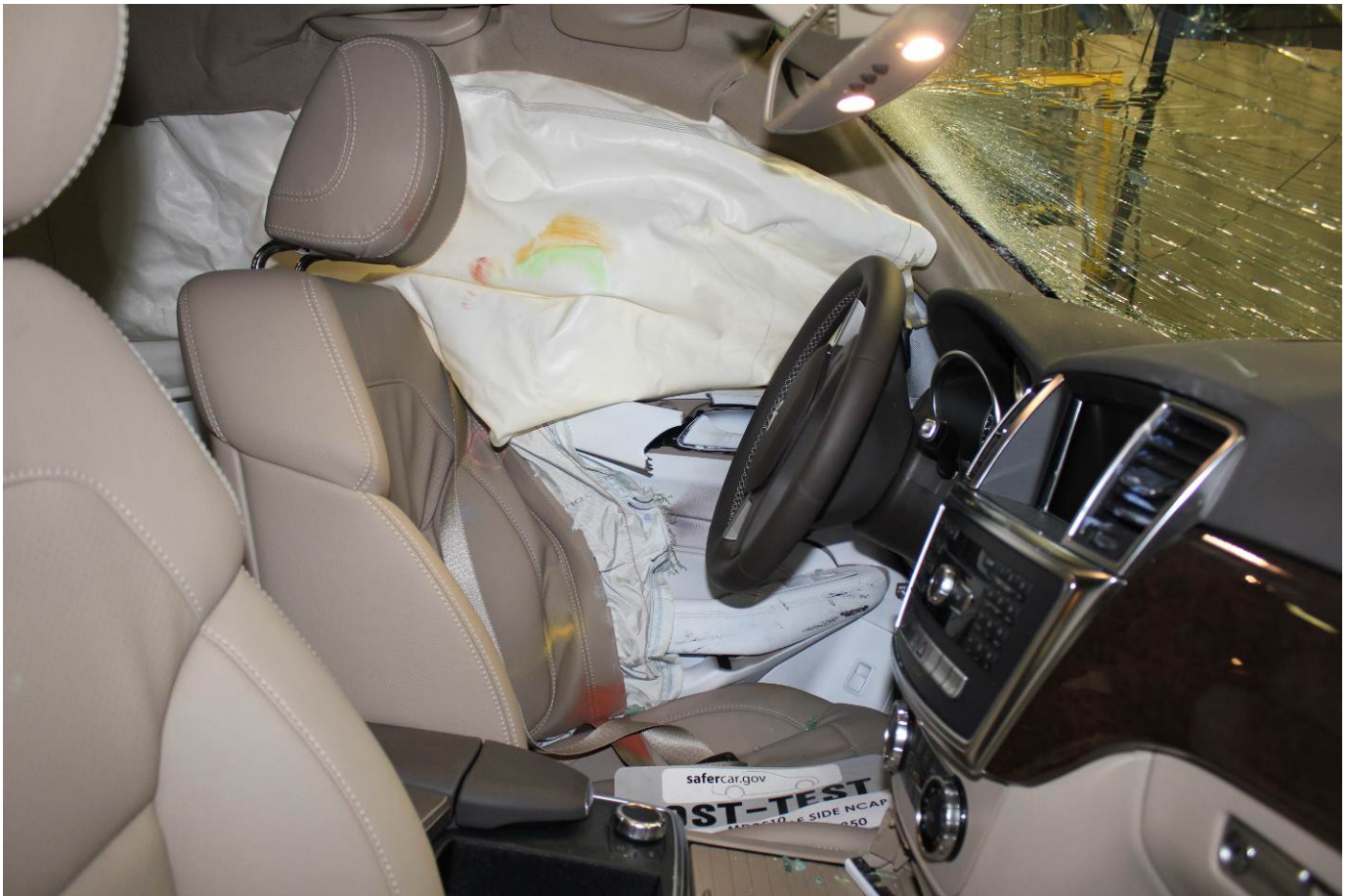
Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



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



Pre-Test Inner Door Panel View



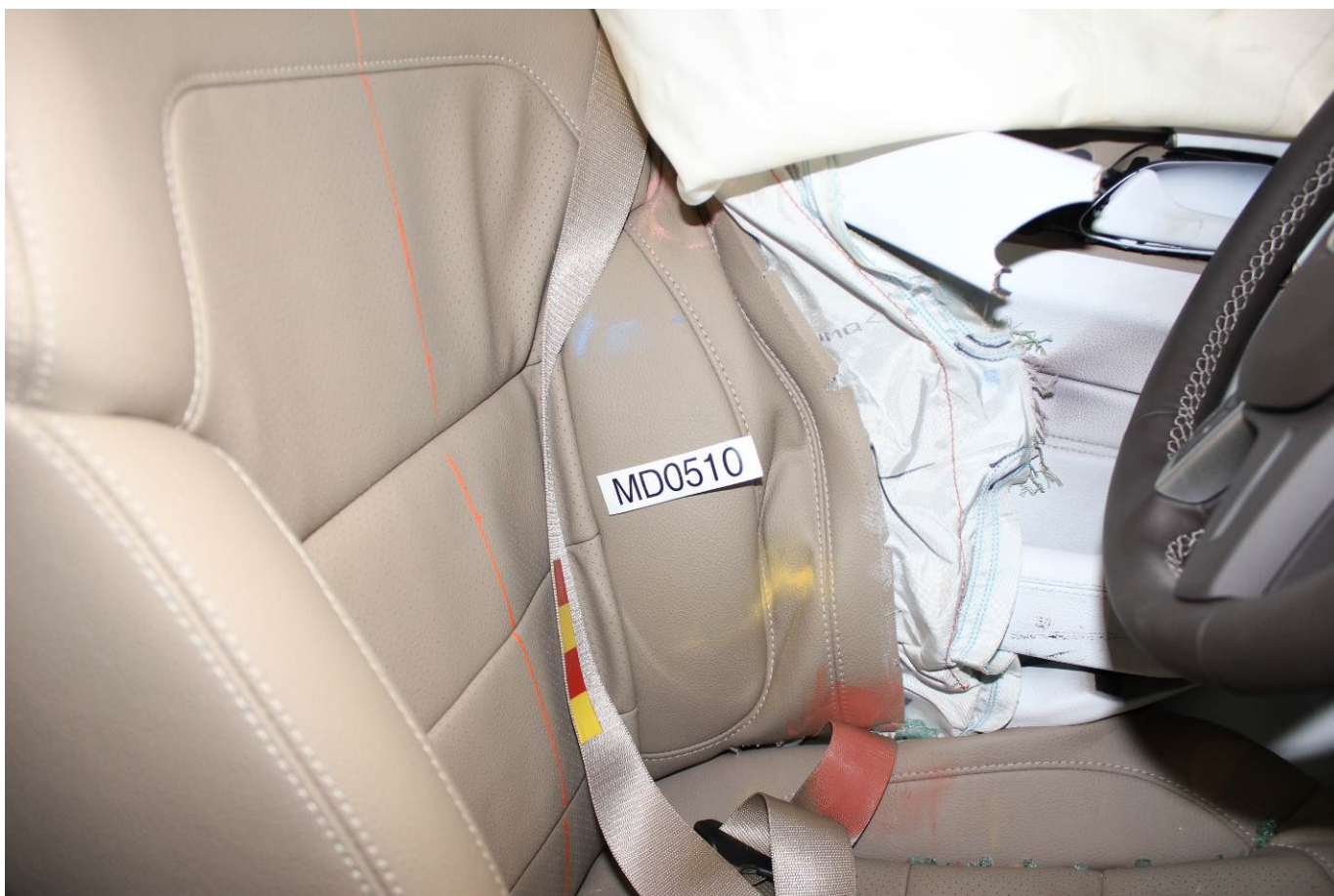
Post-Test Inner Door Panel View Showing Dummy Contact Location



Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



Post-Test Dummy Close-Up Head Contact with Side Air Bag View



Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View

PHOTOGRAPH NOT APPLICABLE

Post-Test Dummy Close-Up Torso Contact with Side Air Bag View



Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View

PHOTOGRAPH NOT APPLICABLE

Post-Test Dummy Close-Up Pelvis Contact with Side Air Bag View

PHOTOGRAPH NOT APPLICABLE

Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View



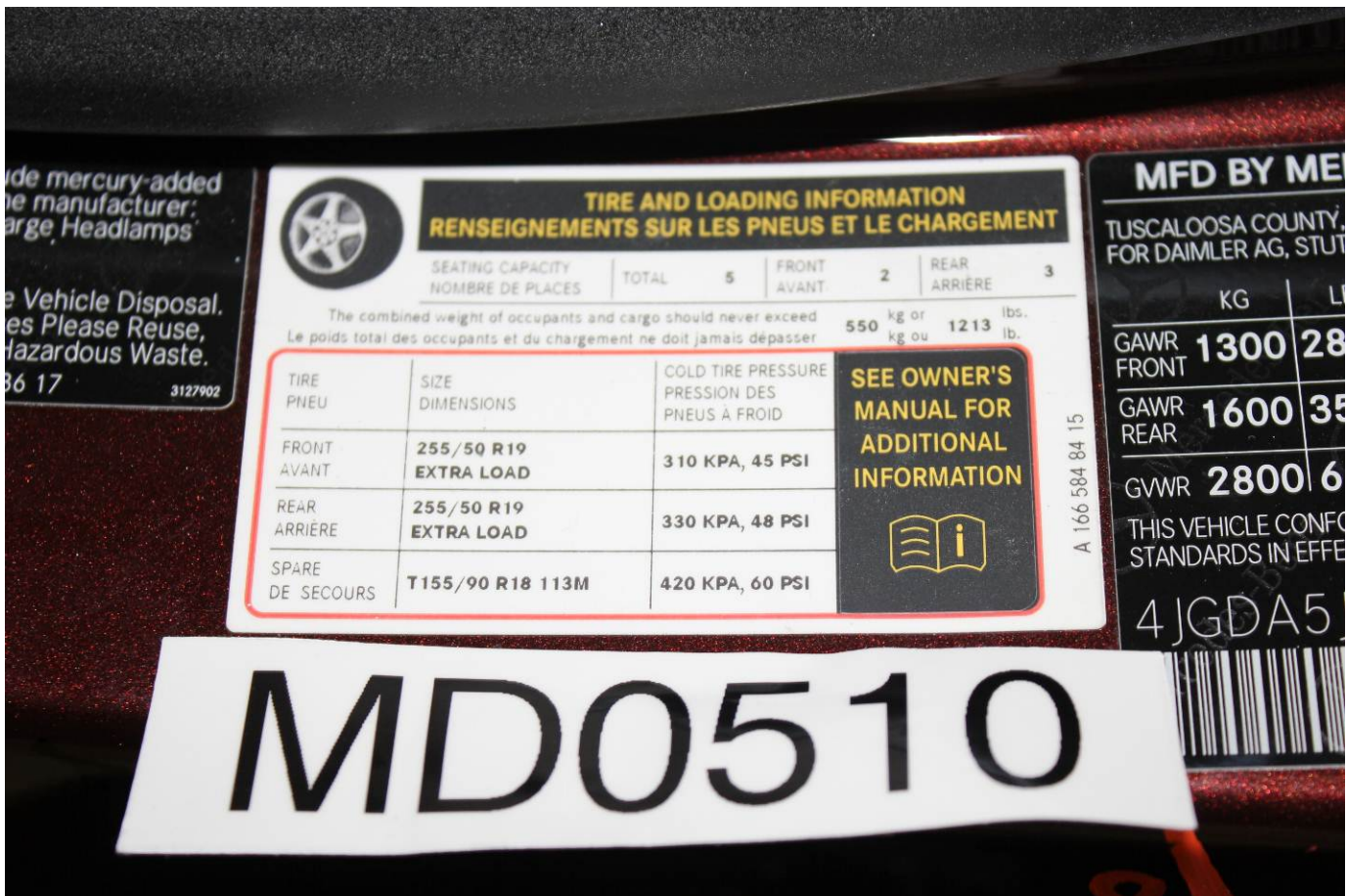
Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



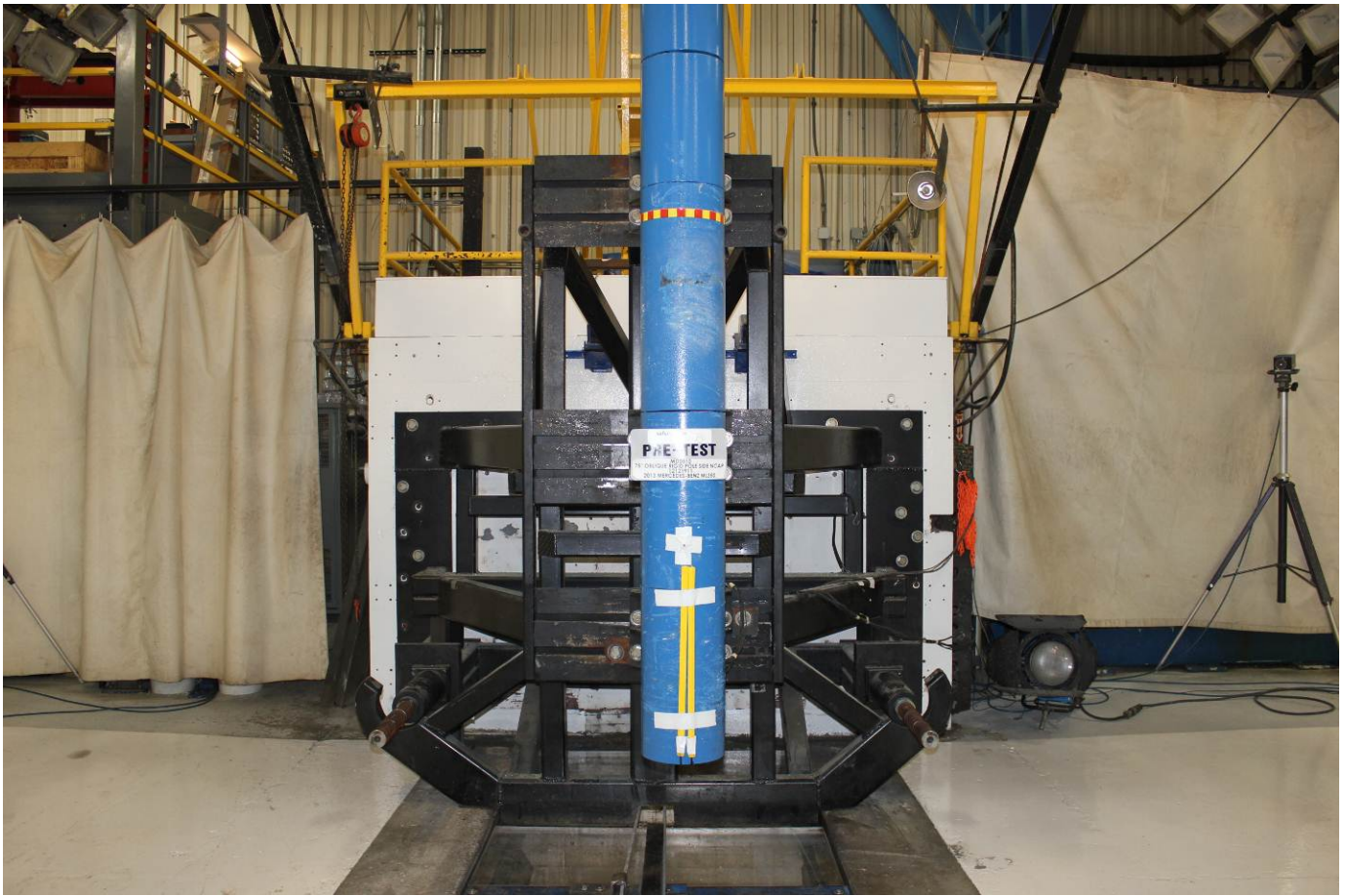
Post-Test View of Fuel Filler Cap or Fuel Filler Neck



Close-Up View of Vehicle's Certification Label



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



Pre-Test Pole Barrier Front View



Post-Test Pole Barrier Front View



Pre-Test Pole Barrier Side View



Post-Test Pole Barrier Side View



Pre-Test Ballast View



Pre-Test Ballast View



Pre-Test Ballast View



Post-Test Primary and Redundant Speed Trap Read-Out



FMVSS No. 301 Static Rollover 0 Degrees



FMVSS No. 301 Static Rollover 90 Degrees



FMVSS No. 301 Static Rollover 180 Degrees



FMVSS No. 301 Static Rollover 270 Degrees



FMVSS No. 301 Static Rollover 360 Degrees



Impact Event



2013 ML350

Mercedes-Benz

PO#: 0370644747
VIN: 4JGDA5JB4DA128622

www.MBUSA.com

Standard Features	Suggested Retail Price	\$47,270
PERFORMANCE/HANDLING	PAINT/UPHOLSTERY & TRIM	
3.5 Liter V4 Engine with Direct Injection	151 Cinabari Red Metallic	720.00
302 Horsepower	105 Almond Beige MB-Tex	N/C
273 lb-ft Torque	734 Eucalyptus Wood Trim	N/C
7-Speed Automatic Transmission with Shift Paddles		
Rear-Wheel Drive	OPTIONAL EQUIPMENT AND VALUE ADDED PACKAGES	
AGILITY CONTROL Suspension System	155 19" Twin 5-spoke Wheel	N/C
Electromechanical Power Steering	866 Pre-Wiring for Rear Seat Entertainment	170.00
Independent Front/Rear Suspension	P01 Package: Auto-Dimming/Power-Folding Mirrors, COMAND® w/	3,700.00
19-inch Wheels	Navigation, MB Apps- mburace™, Voice Control, iPod/iPad/iPhone	
All-Season Tires	Interface, Memory for Driver's Seat/Steering Wheel/Mirrors, Rear View	
	Camera, SiriusXM™ w/ 6 mos. Service, 115V AC Outlet in 2nd seat row	
COMFORT/CONVENIENCE	Destination and Delivery	905.00
Power Tilt/Sliding Sunroof	Total Retail Price	\$52,765.00
Rain-Sensing Intermittent Windshield Wipers		
Central Controller with Color Display		
Bluetooth® Interface for Hands-Free Calling		
Bluetooth® Connectivity with Audio Streaming		
Power Liftgate		
Heated Front Seats		
CD/DVD Audio/Video Player		
Dual-Zone Automatic Climate Control		
MB-Tex Upholstery with Wood Trim		
Power Adjustable Front Seats with Driver		
Lumbar Support		
Flat Folding 2nd Row Seat		
Roof Rails		
Rear Window Intermittent Wiper and Washer		
Cargo Cover		
Privacy Glass		
Automatic Headlamps with Twilight		
Sensor and Locator Lighting		
mburace™ - w. trial period by Hughes Telematics		
SAFETY/SECURITY		
COLLISION PREVENTION ASSIST		
ATTENTION ASSIST™		
PRE-SAFE®		
Advanced Airbag Protection System		
LED Daytime Running Lamps and Tail Lamps		
Rear Door Child Safety Locks		
LATCH System (2nd Row Outboard Seats)		
ISOFIX Anchor System (2nd Row Seats)		
Electronic Stability Program (ESP®)		
with ESP® Trailer Stabilization		
Anti-Lock Braking System (ABS)		
Brake Assist System (BAS®)		
ADAPTIVE BRAKE Technology		
New Vehicle 4-year/50,000 Mile Warranty		
24-Hour Roadside Assistance Program		

Special Messages: Prepaid Maintenance Plan available for this vehicle, see dealer for details.

This vehicle is equipped with bumpers that can withstand an impact of 2.5 miles per hour with no damage to the vehicle's body and safety systems, although the bumper and related components may sustain damage. The bumper system on this vehicle conforms to the current federal bumper standard of 2.5 miles per hour.

EPA DOT Fuel Economy and Environment Gasoline Vehicle

Fuel Economy

20 MPG combined city/hwy
18 MPG city
23 MPG highway

Standard SUV's range from 12 to 28 MPG. The best vehicle rates 112 MPG.

You spend \$2,650 more in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$2,850

Fuel Economy & Greenhouse Gas Rating (tailpipe only)

Smog Rating (tailpipe only)

This vehicle emits 443 grams CO₂ 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 23 MPG and costs \$11,600 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.00 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

GOVERNMENT 5-STAR SAFETY RATINGS

Overall Vehicle Score Not Rated
Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.

Frontal Crash Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.	Driver Passenger Not Rated	Not Rated
--	--------------------------------------	------------------

Side Crash Based on the risk of injury in a side impact.	Front seat Rear seat Not Rated	Not Rated
--	--	------------------

Rollover
Based on the risk of rollover in a single-vehicle crash. Not Rated

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

PARTS CONTENT INFORMATION

For vehicles in this carline: U.S./Canadian Parts Content: **42%**

Major Sources of Foreign Parts Content: **GERMANY: 30%**

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

For this vehicle:
Final Assembly Point: **VANCE, ALABAMA USA**
Country of Origin: **GERMANY**
Engine: **GERMANY**
Transmission: **GERMANY**

Ship To: MEMPHIS/BIEN DE OUTLER BAY 8001 S.W. 15TH STREET OUTLER BAY FL 33057

Port of Entry: MBUSA-Alabama
Transport:

Monroney Label

Seats

Important safety notes

WARNING
The seats can still be adjusted when there is no key in the ignition lock. For this reason, children should never be left unsupervised in the vehicle. They could otherwise become trapped when adjusting the seat.

WARNING
Make sure that the back of your head is supported at eye level by the central area of the head restraint. If your head is not supported correctly by the head restraint, you could suffer a severe neck injury in the event of an accident. Never drive if the head restraints are not engaged and set correctly.

WARNING
In order to avoid possible loss of vehicle control, all seat, head restraint, steering wheel and rear view mirror adjustments, as well as fastening of seat belts, must be done before setting the vehicle in motion.

WARNING
Do not adjust the driver's seat while driving. Adjusting the seat while driving could cause the driver to lose control of the vehicle. Never travel in a moving vehicle with the seat backrest in an excessively reclined position as this can be dangerous. You could slide under the seat belt in a collision. If you slide under it, the seat belt would apply force at the abdomen or neck. This could cause serious or fatal injuries. The seat backrest and seat belts provide the best restraint when the wearer is in a position that is as upright as possible and seat belts are properly positioned on the body.

WARNING
Your seat belt must be adjusted so that you can correctly fasten your seat belt.

Observe the following points:

- adjust the seat backrest until your arms are slightly angled when holding the steering wheel.
- adjust the seat to a comfortable seating position that still allows you to reach the accelerator/brake pedal safely. The position should be as far back as possible with the driver still able to operate the controls properly.
- adjust the head restraint so that it is as close to the head as possible and the center of the head restraint supports the back of the head at eye level.
- never place hands under the seat or near any moving parts while a seat is being adjusted.

Failure to do so could result in an accident and/or serious personal injury.

WARNING
According to accident statistics, children are safer when properly restrained on the rear seats than on the front-passenger seat. Thus, we strongly recommend that children be placed in the rear seat whenever possible. Regardless of seating position, children 12 years old and under must be seated and properly secured in an appropriately sized child restraint system or booster seat recommended for the size and weight of the child. For additional information, see the "Children in the vehicle" section. A child's risk of serious or fatal injuries is significantly increased if the child restraints are not properly secured in the vehicle and/or the child is not properly secured in the child restraint.

WARNING
For your protection, drive only with properly positioned head restraints. Adjust the head restraint so that it is as close to the head as possible and the center of the head restraint supports the back of the head at eye level. This will reduce the potential for

Seats, steering wheel and mirrors

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

injury to the head and neck in the event of an accident or similar situation.

Do not drive the vehicle without the seat head restraints. Head restraints are intended to help reduce injuries during an accident.

! To avoid damage to the seats and the seat heating, observe the following information:

- keep liquids from spilling on the seats. If liquid is spilled on the seats, dry them as soon as possible.
- if the seat covers are damp or wet, do not switch on the seat heating. The seat heating should also not be used to dry the seats.
- clean the seat covers as recommended; see the "Interior care" section.
- do not transport heavy loads on the seats. Do not place sharp objects on the seat cushions, e.g. knives, nails or tools. The seats should only be occupied by passengers, if possible.
- when the seat heating is in operation, do not cover the seats with insulating materials, e.g. blankets, coats, bags, seat covers, child seats or booster seats.

! Make sure that there are no objects in the footwell or behind the seats when resetting the seats. There is a risk that the seats and/or the objects could be damaged.

i It is not possible to remove the head restraints from the front seats. The rear-compartment head restraints, however, can be removed. You can find information about this in the Digital Operator's Manual. For more information, contact a qualified specialist workshop.

i Further related subjects:

- Cargo compartment enlargement (folding down the rear bench seat) (> page 242)

Information in the Digital Operator's Manual

In the Digital Operator's Manual you will find information on the following topics:

- Adjusting the seats
- Adjusting the head restraints
- Adjusting the 4-way lumbar support
- Switching the seat ventilation on/off

Switching the seat heating on/off

Activating/deactivating

⚠ WARNING

Repeatedly setting the seat heating to level 3 may result in excessive seat temperatures. The health of passengers that have limited temperature sensitivity or a limited ability to react to excessively high temperatures may be affected or they may even suffer burn-like injuries. Therefore, do not use seat heating level 3 repeatedly.

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



Post-Test View of Shattered Vehicle Inner Door Panel

APPENDIX B

VEHICLE AND DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS
Driver Dummy Instrumentation Plots

		<u>Page No.</u>
Figure No. 1.	Driver Head CG Acceleration (X) vs. Time	B-1
Figure No. 2.	Driver Head CG Acceleration (Y) vs. Time	B-1
Figure No. 3.	Driver Head CG Acceleration (Z) vs. Time	B-1
Figure No. 4.	Driver Head CG Resultant Acceleration (X) vs. Time	B-1
Figure No. 5.	Driver Lower Spine T12 Acceleration (X) vs. Time	B-2
Figure No. 6.	Driver Lower Spine T12 Acceleration (Y) vs. Time	B-2
Figure No. 7.	Driver Lower Spine T12 Acceleration (Z) vs. Time	B-2
Figure No. 8.	Driver Lower Spine T12 Resultant Acceleration vs. Time	B-2
Figure No. 9.	Driver Iliac Wing Force on Impact Side (Y) vs. Time	B-3
Figure No. 10.	Driver Acetabulum Force on Impact Side (Y) vs. Time	B-3
Figure No. 11.	Driver Total Pelvis Force on Impact Side (Y) vs. Time	B-3

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 Dummy Instrumentation Data

Driver Head CG Redundant Acceleration (X) vs. Time

Driver Head CG Redundant Acceleration (Y) vs. Time

Driver Head CG Redundant Acceleration (Z) vs. Time

Driver Upper Thorax Rib Deflection (Y)

Driver Middle Thorax Rib Deflection (Y)

Driver Lower Thorax Rib Deflection (Y)

Driver Upper Abdomen Rib Deflection (Y)

Driver Lower Abdomen Rib Deflection (Y)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)

Vehicle Center of Gravity Acceleration (Y)

Vehicle Center of Gravity Acceleration (Z)

Left Floor Sill Acceleration (Y)

Left A-Pillar Sill Acceleration (Y)

Left Lower A-Pillar Acceleration (Y)

Left Mid A-Pillar Acceleration (Y)

Left B-Pillar Sill Acceleration (Y)

Left Lower B-Pillar Acceleration (Y)

Left Mid B-Pillar Acceleration (Y)

Driver Seat Track at Dummy Hip Point Acceleration (Y)

Engine Top Acceleration (X)

Engine Top Acceleration (Y)

Firewall Center Acceleration (Y)

Right Roof at Vertical Impact Reference Line Acceleration (Y)

Right Sill at Vertical Impact Reference Line Acceleration (Y)

Rear Floorpan Behind Rear Axle at Centerline Acceleration (X)

Rear Floorpan Behind Rear Axle at Centerline Acceleration (Y)

Pole Instrumentation Data

Load Cell Pole Barrier #1 Force (Y)

Load Cell Pole Barrier #2 Force (Y)

Load Cell Pole Barrier #3 Force (Y)

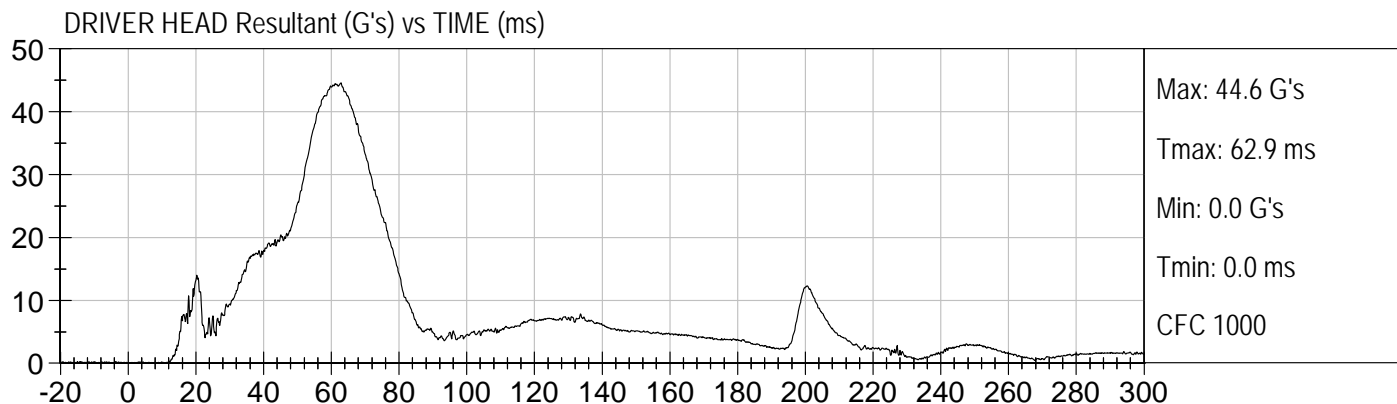
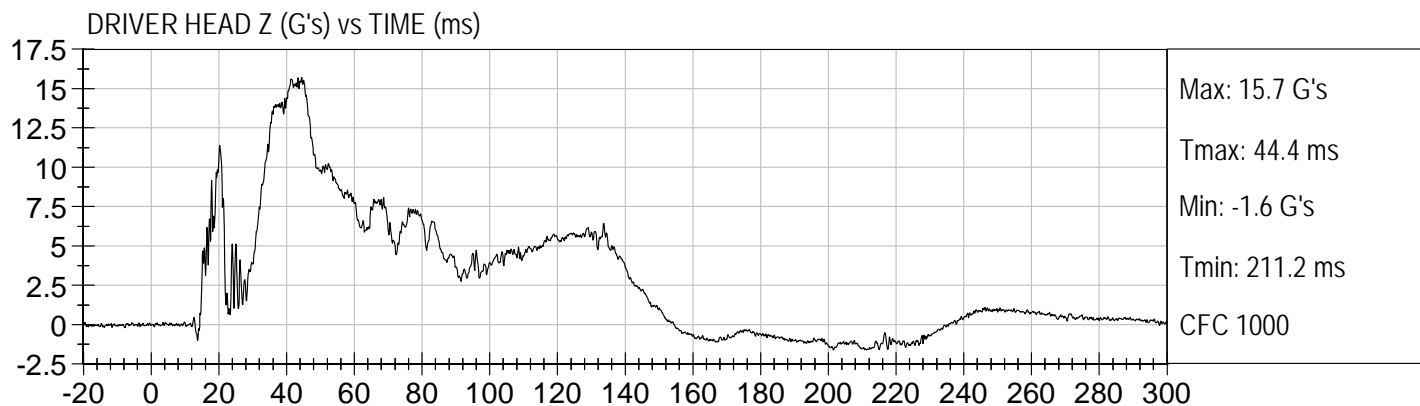
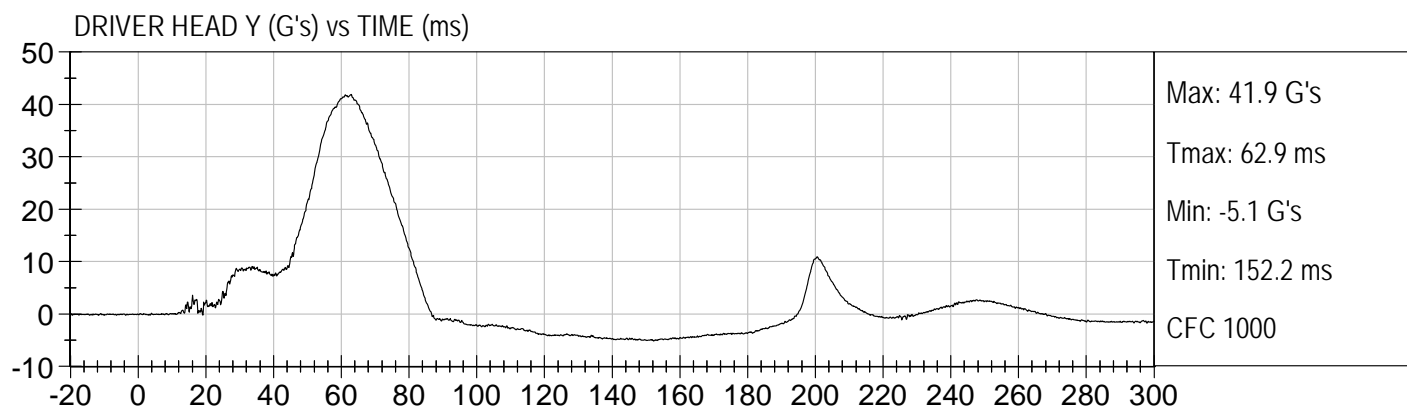
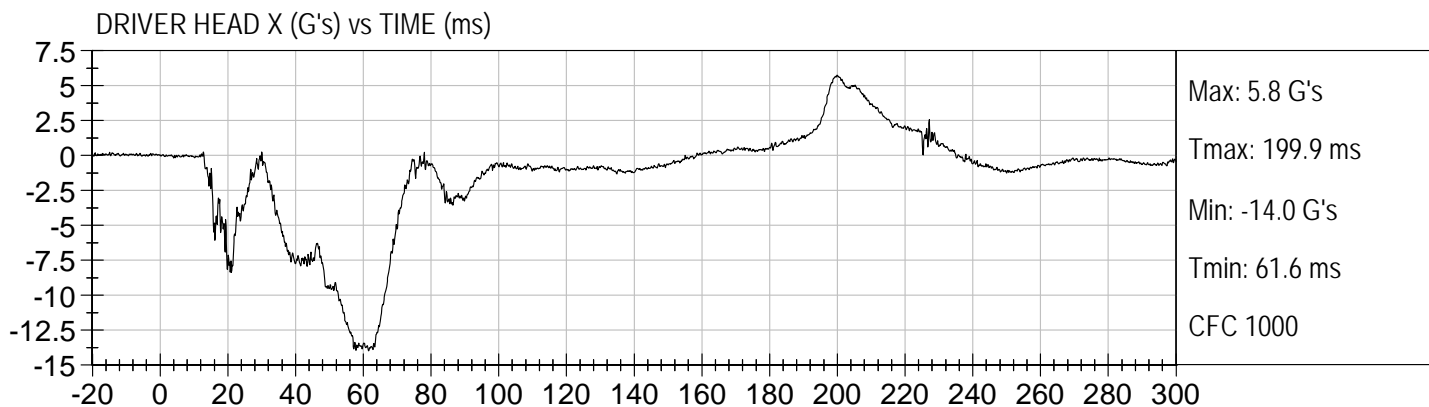
Load Cell Pole Barrier #4 Force (Y)

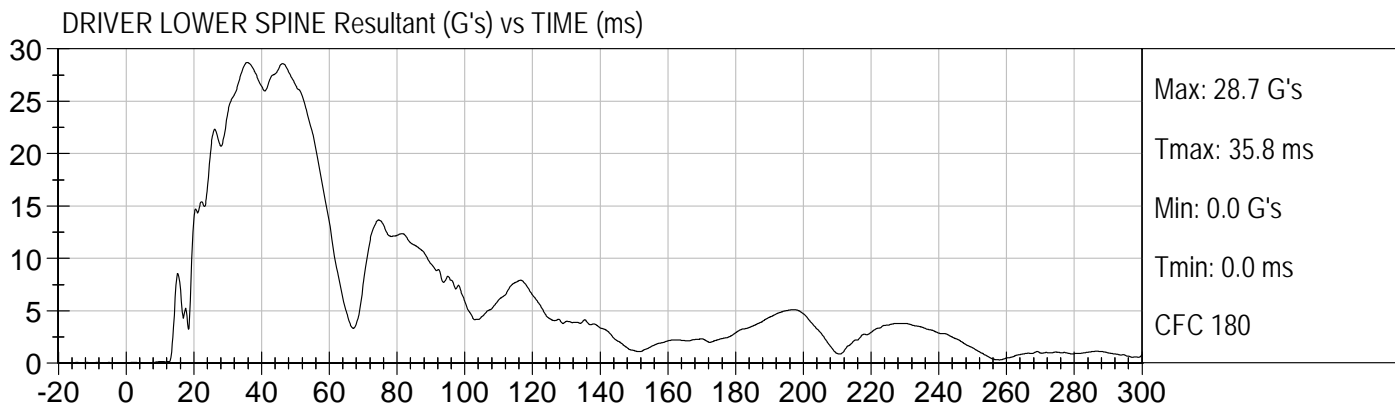
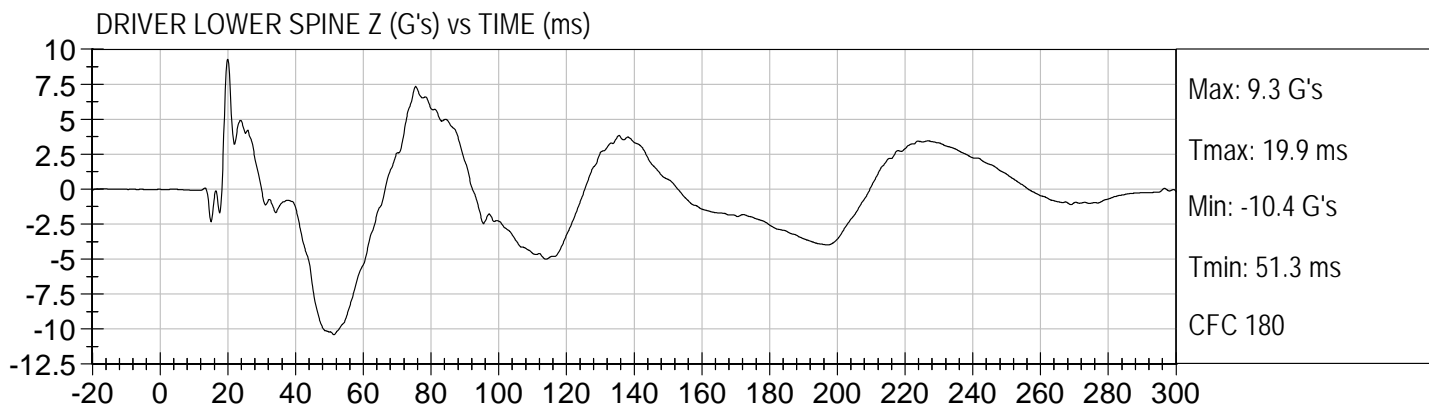
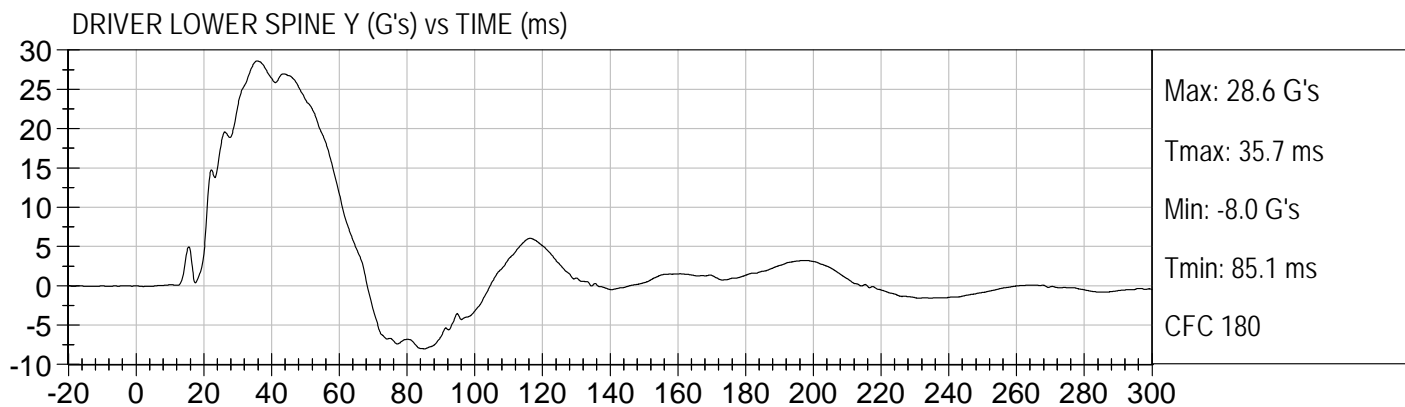
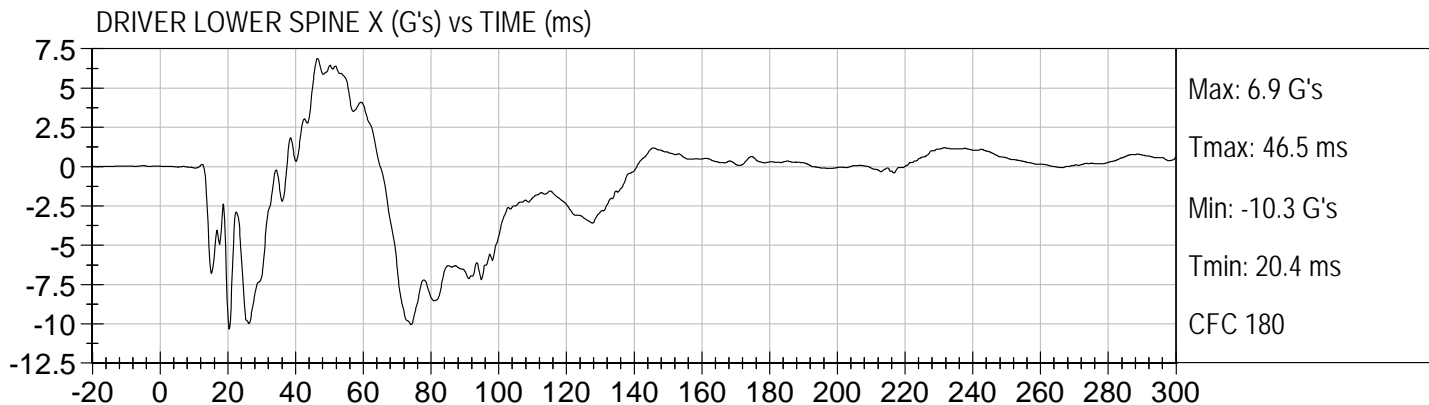
Load Cell Pole Barrier #5 Force (Y)

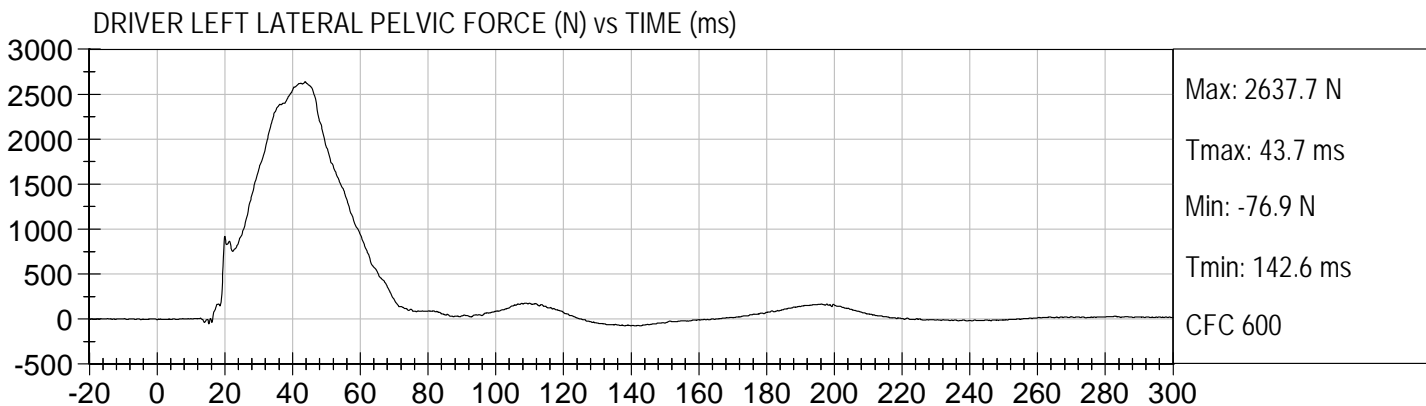
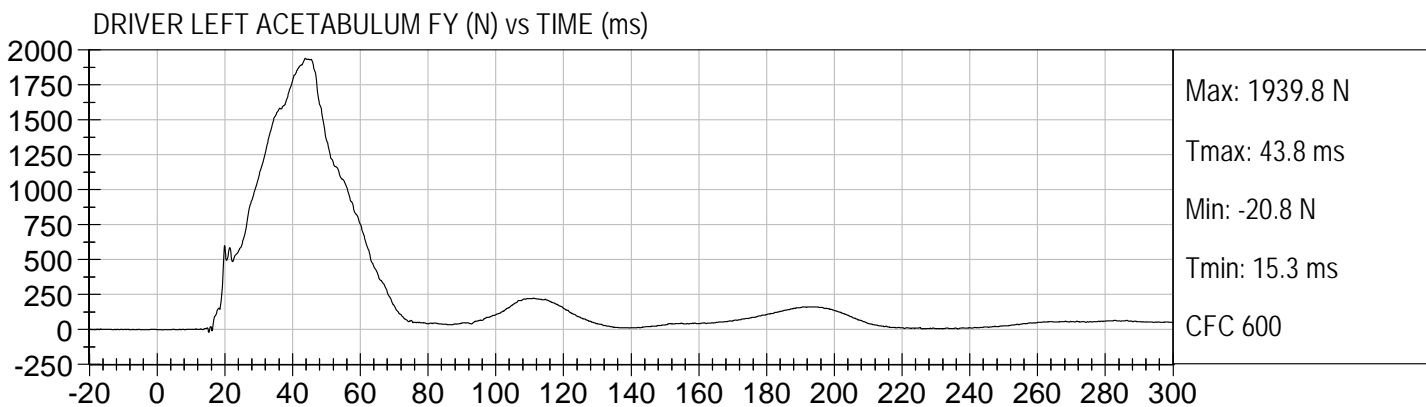
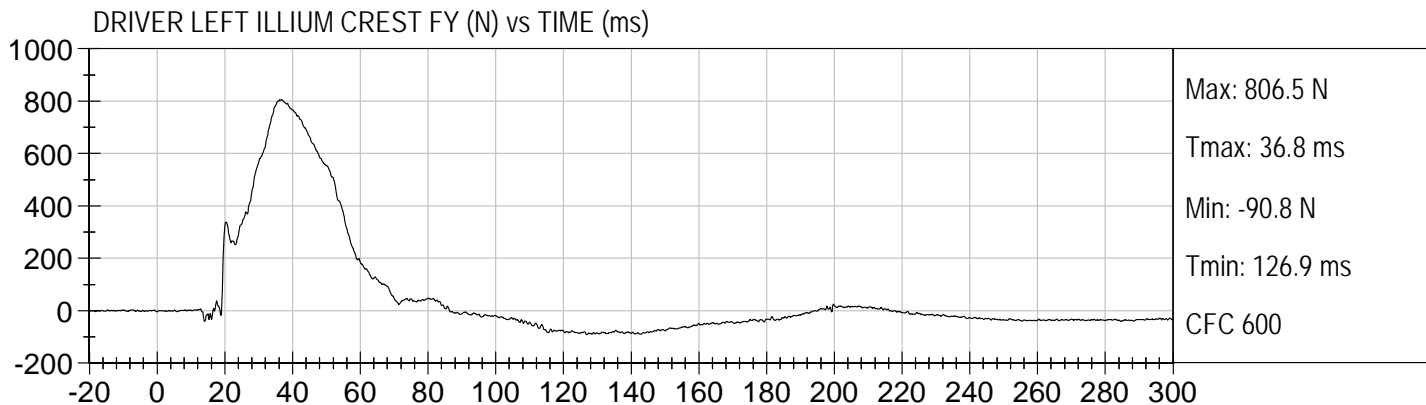
Load Cell Pole Barrier #6 Force (Y)

Load Cell Pole Barrier #7 Force (Y)

Load Cell Pole Barrier #8 Force (Y)







APPENDIX C

DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

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

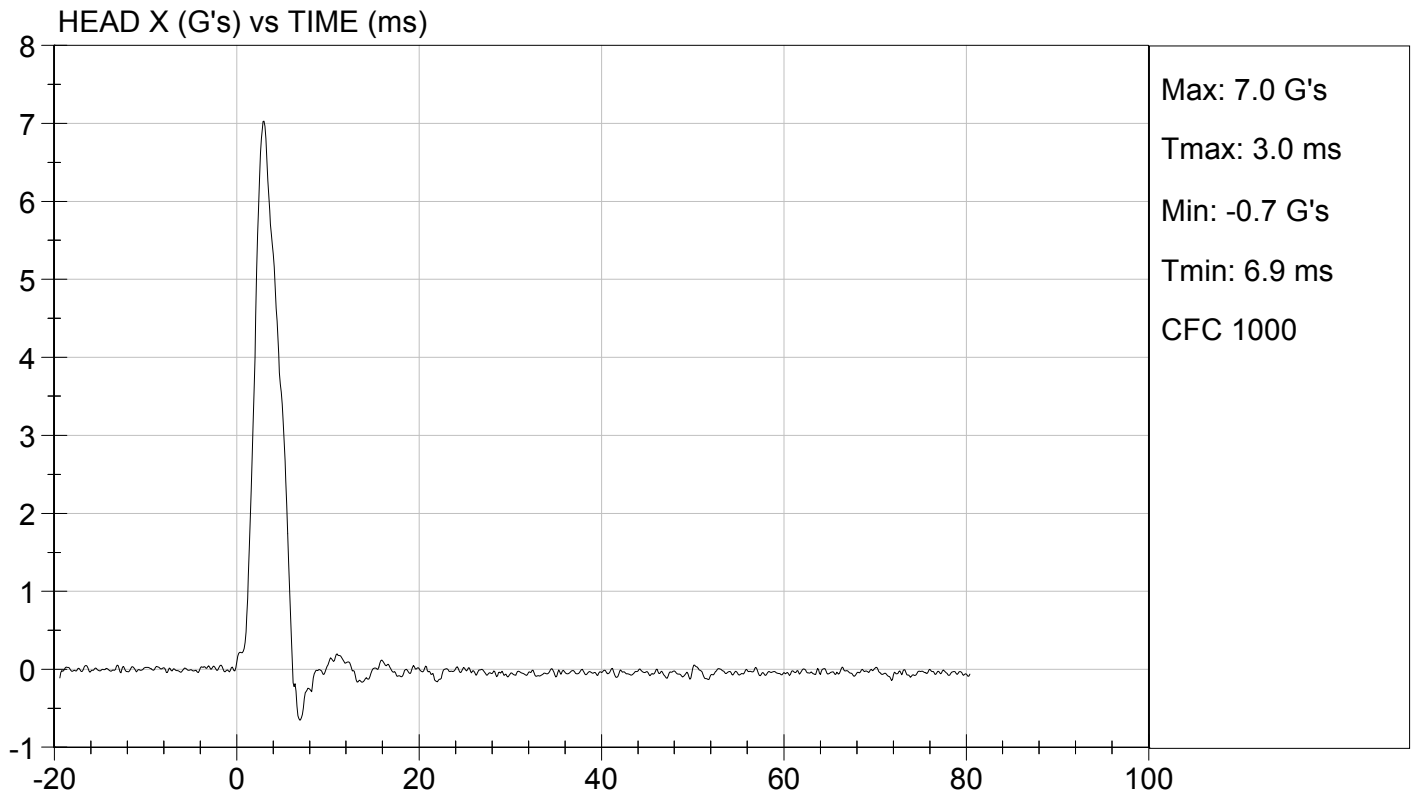
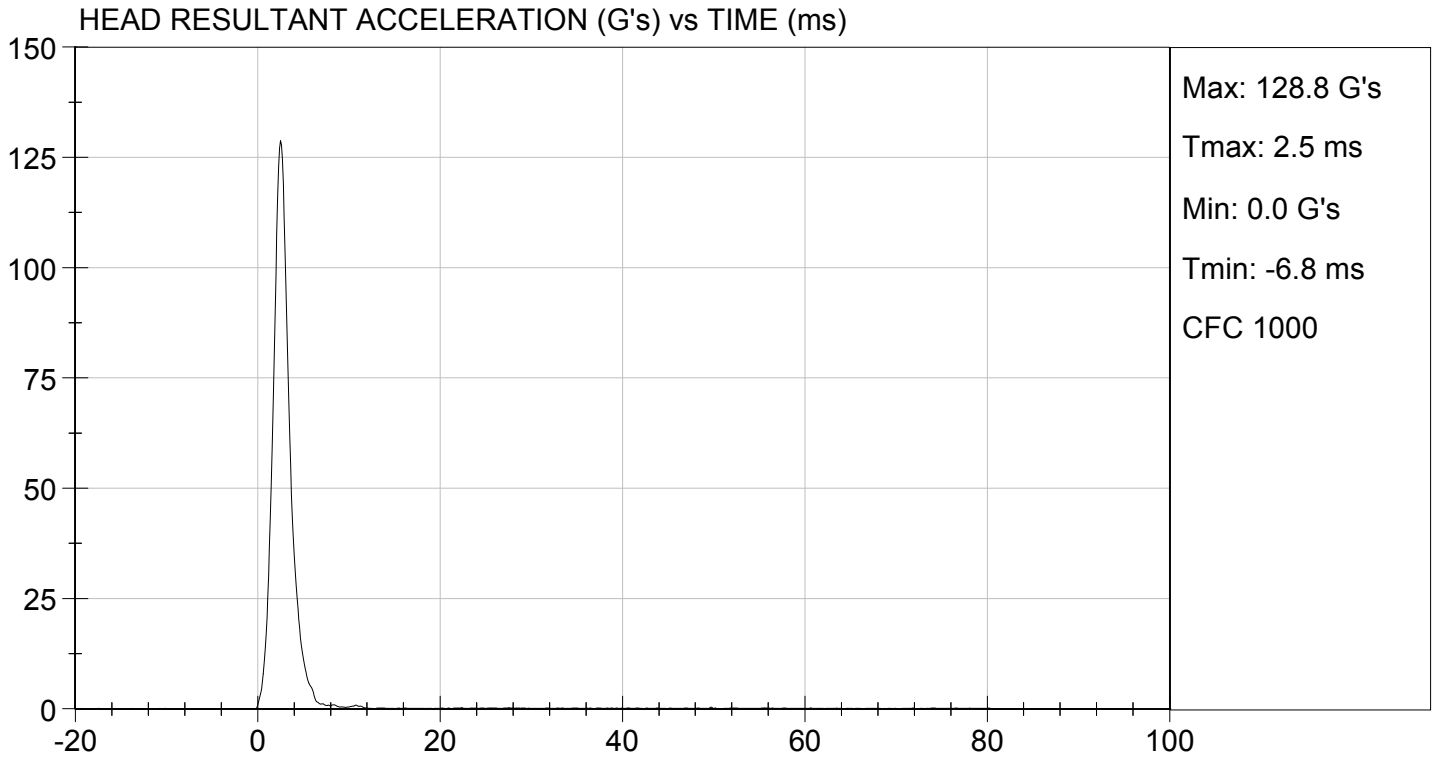
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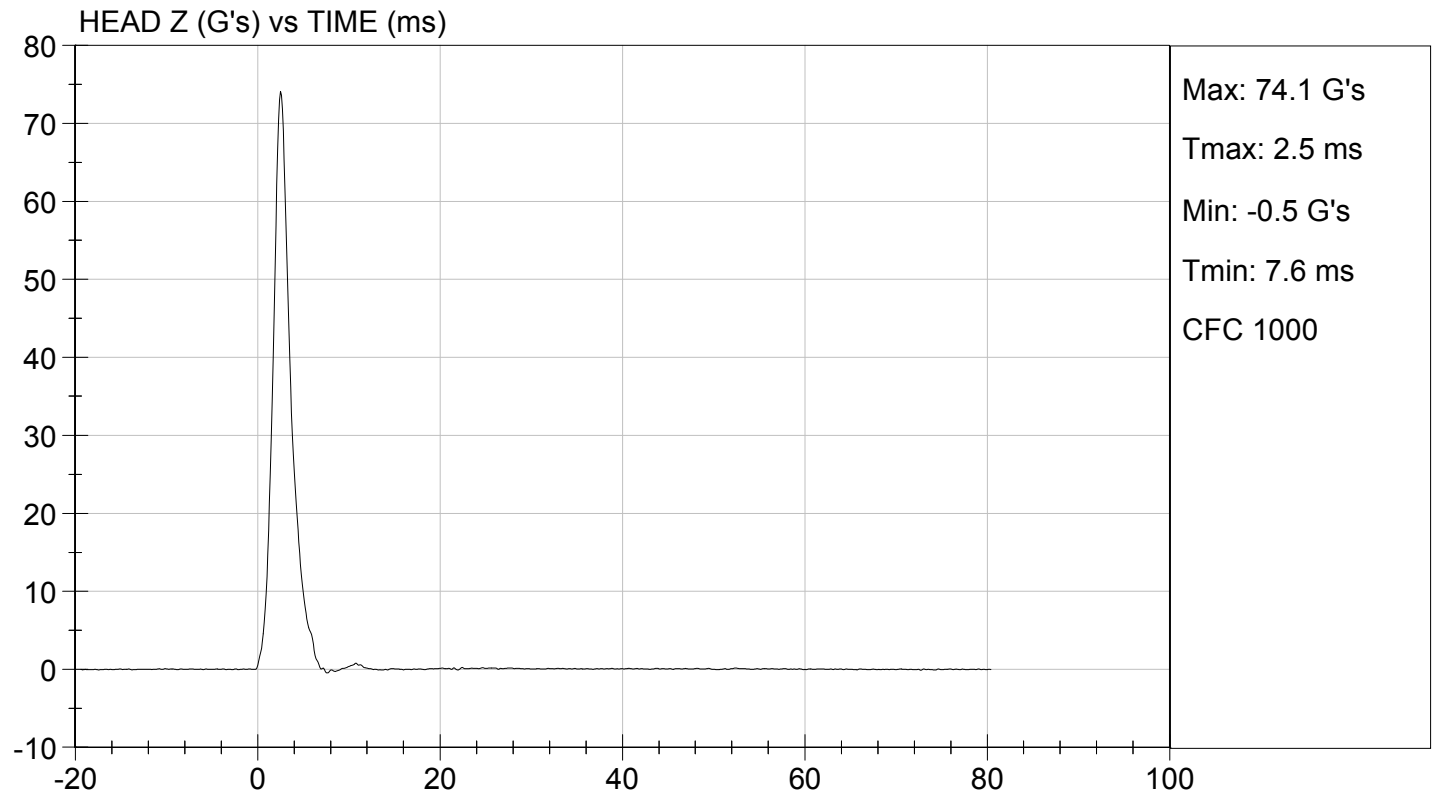
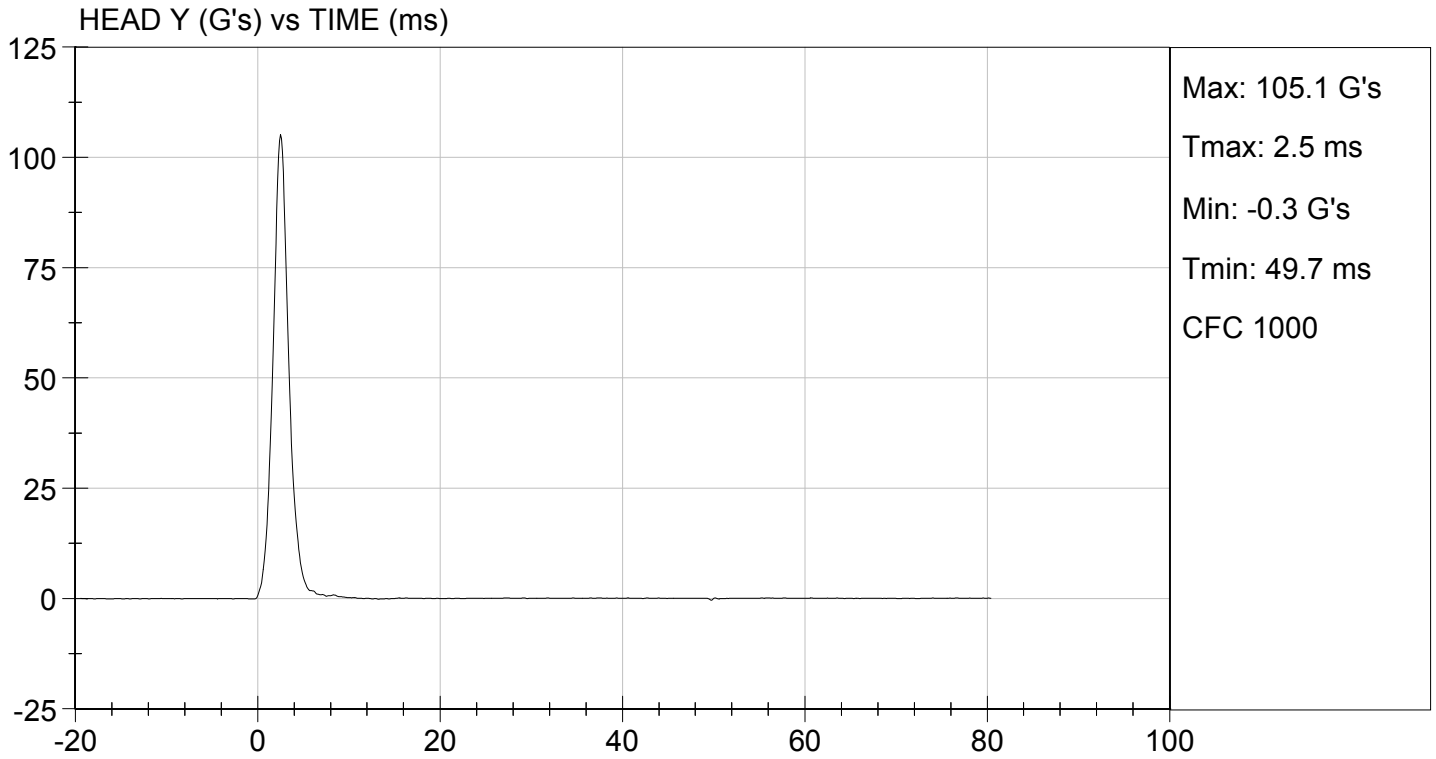
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	23	Pass
Peak Resultant Acceleration	G's	115 to 137	129	Pass
Peak Longitudinal Acceleration	G's	+/- 15	7.0	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

12/12/2012
Test Date

David Winkelbauer
Approved By





**MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY**

ATD Serial No: 296

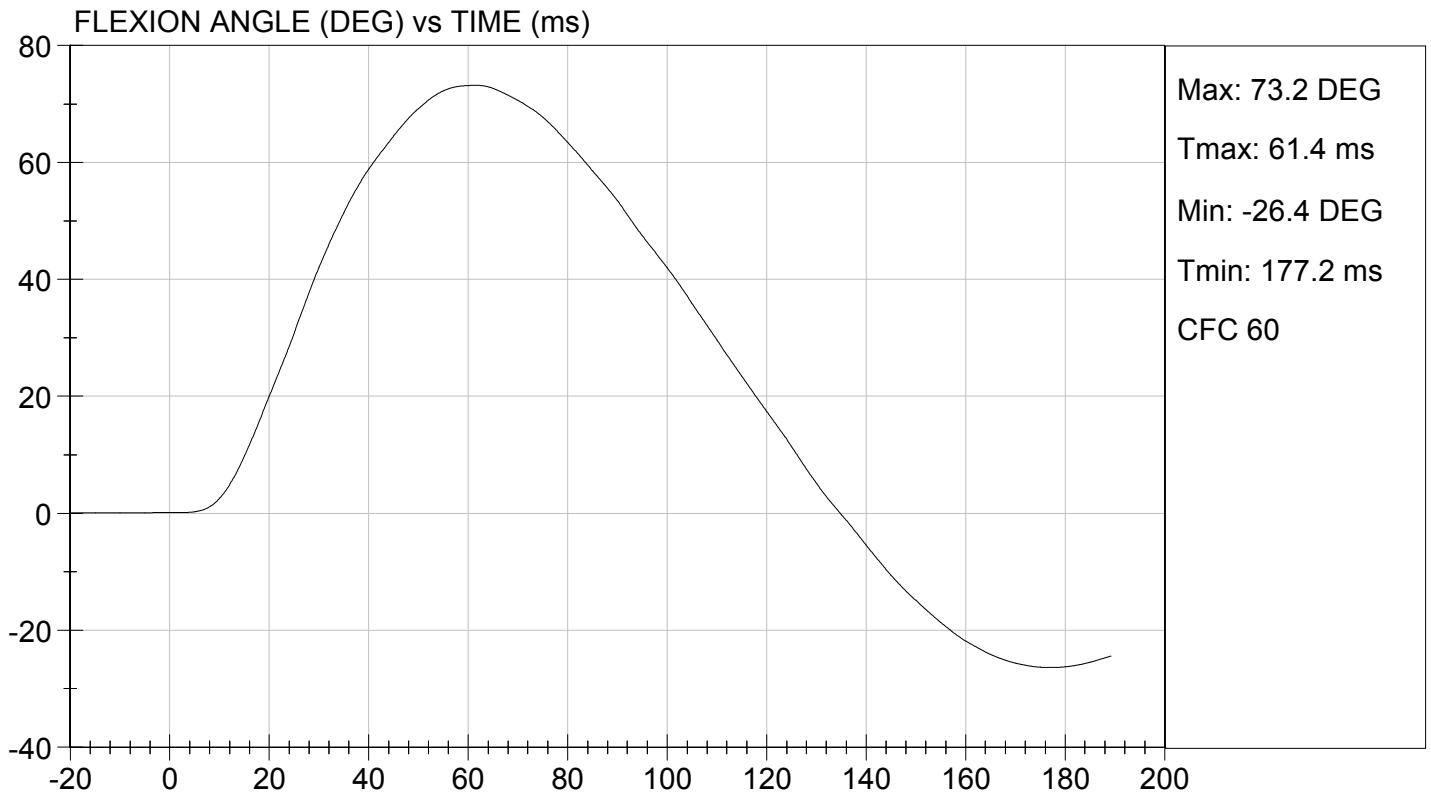
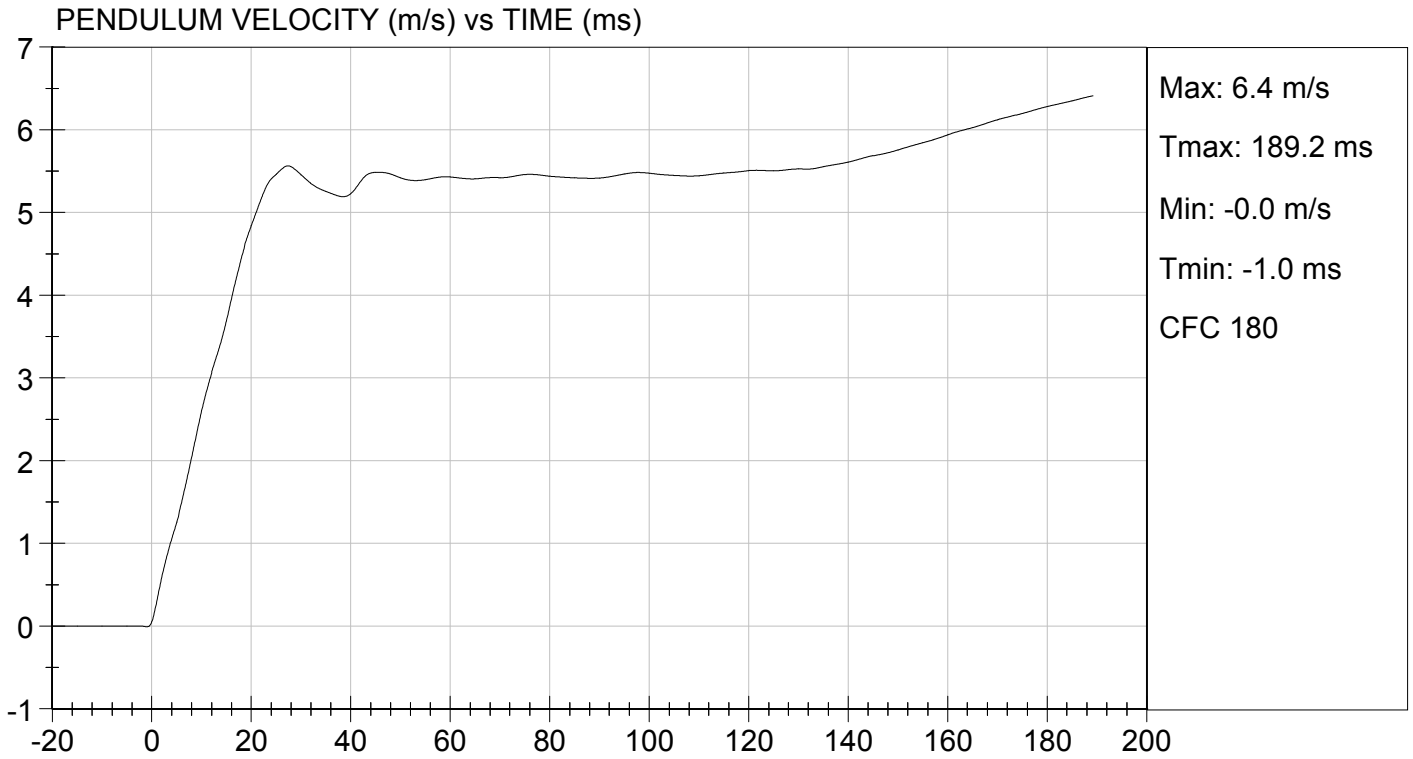
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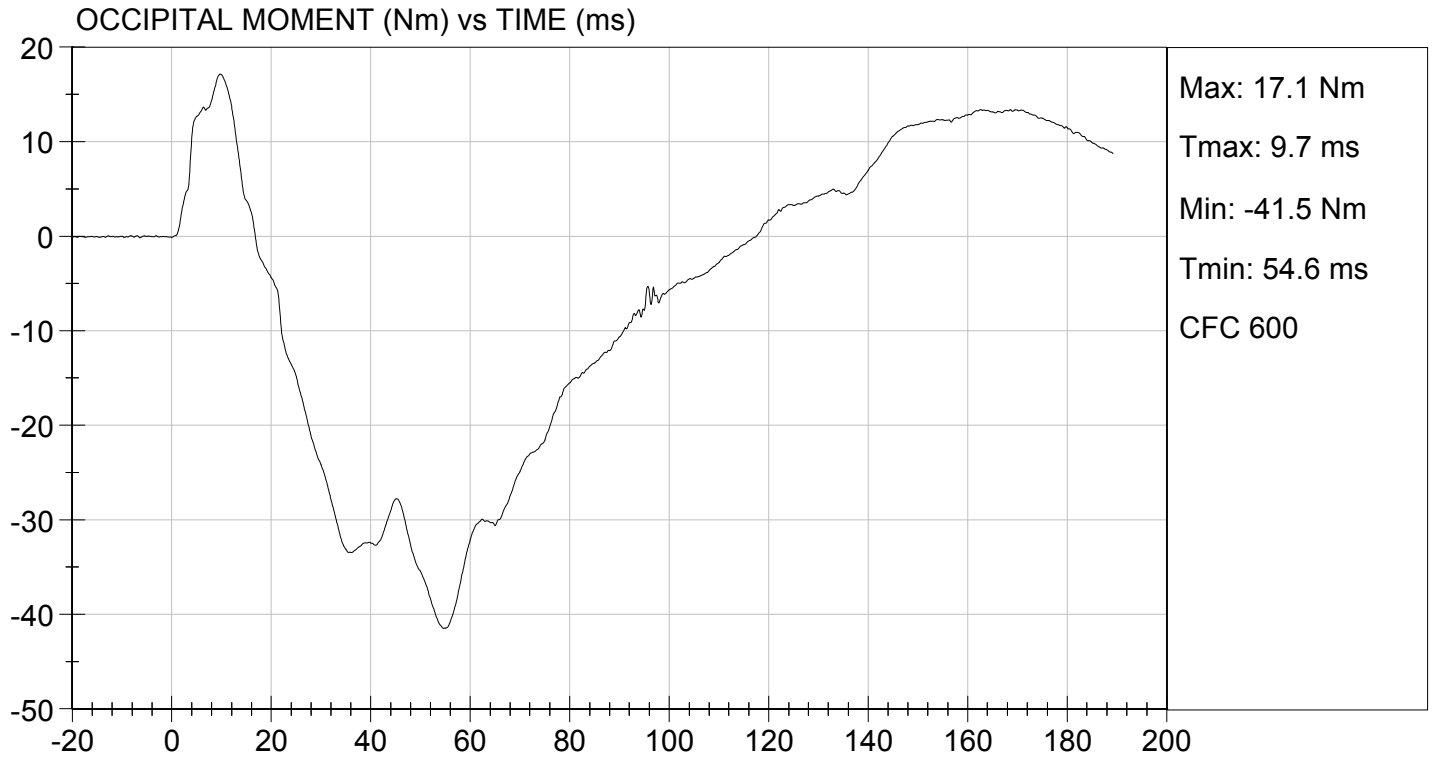
Tested Parameter	Units	Specification	Result	Pass/Fail	
Temperature	deg C	20.6 to 22.2	21.6	Pass	
Humidity	%	10 to 70	23	Pass	
Impact Velocity	m/s	5.51 to 5.63	5.58	Pass	
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.60	Pass
	15 ms	m/s	3.30 to 4.10	3.69	Pass
	20 ms	m/s	4.40 to 5.40	4.84	Pass
	25 ms	m/s	5.40 to 6.10	5.46	Pass
	25-100 ms	m/s	5.50 to 6.20	5.56	Pass
Maximum D-Plane Rotation	deg	71 to 81	73	Pass	
Time of Maximum D-Plane Rotation	ms	50 to 70	61	Pass	
Maximum Occipital Condyle Moment	Nm	-44 to -36	-41	Pass	
Time of Moment Decay to 0 Nm	ms	102 to 126	118	Pass	
Overall Test Results				Pass	

Jessica Hall
Laboratory Technician

12/12/2012
Test Date

David Winkelbauer
Approved By





MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

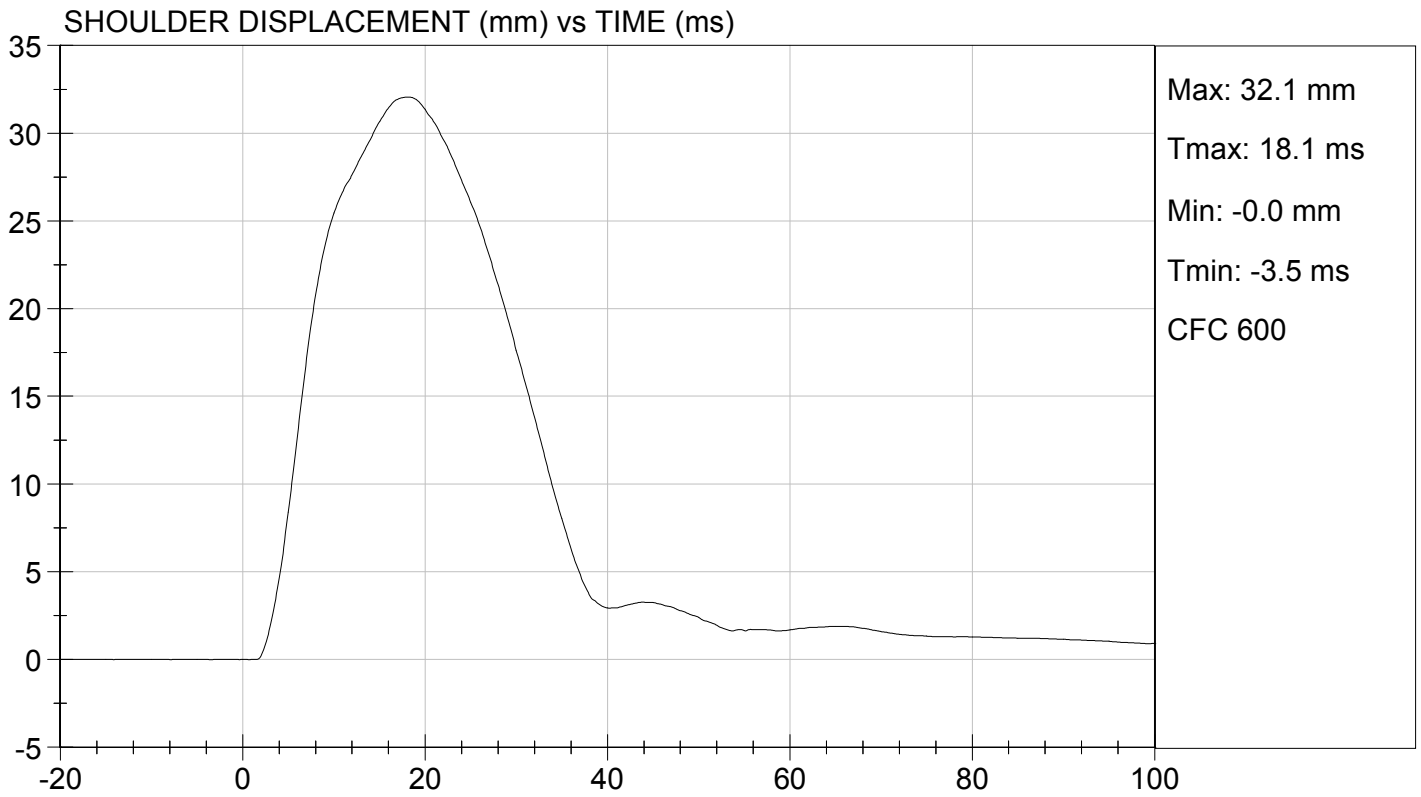
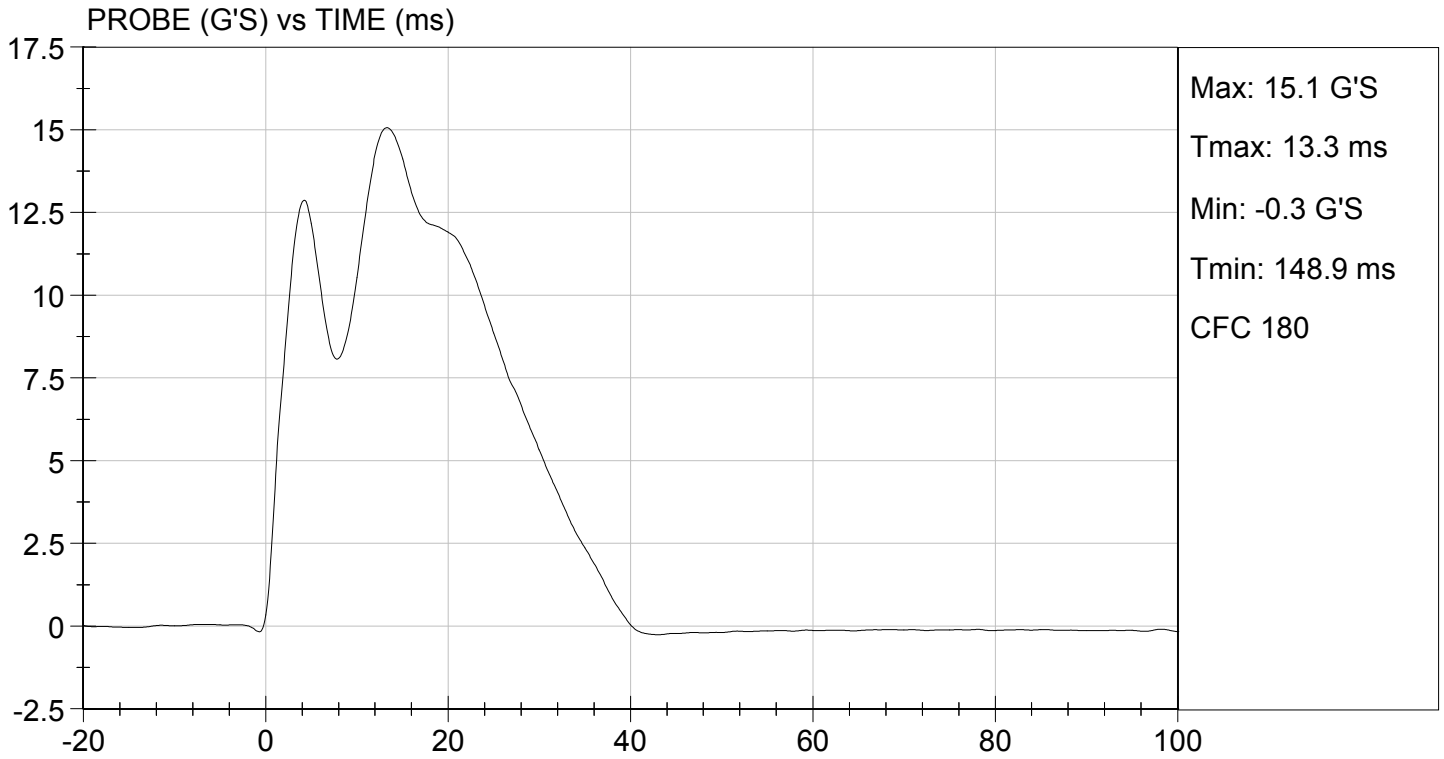
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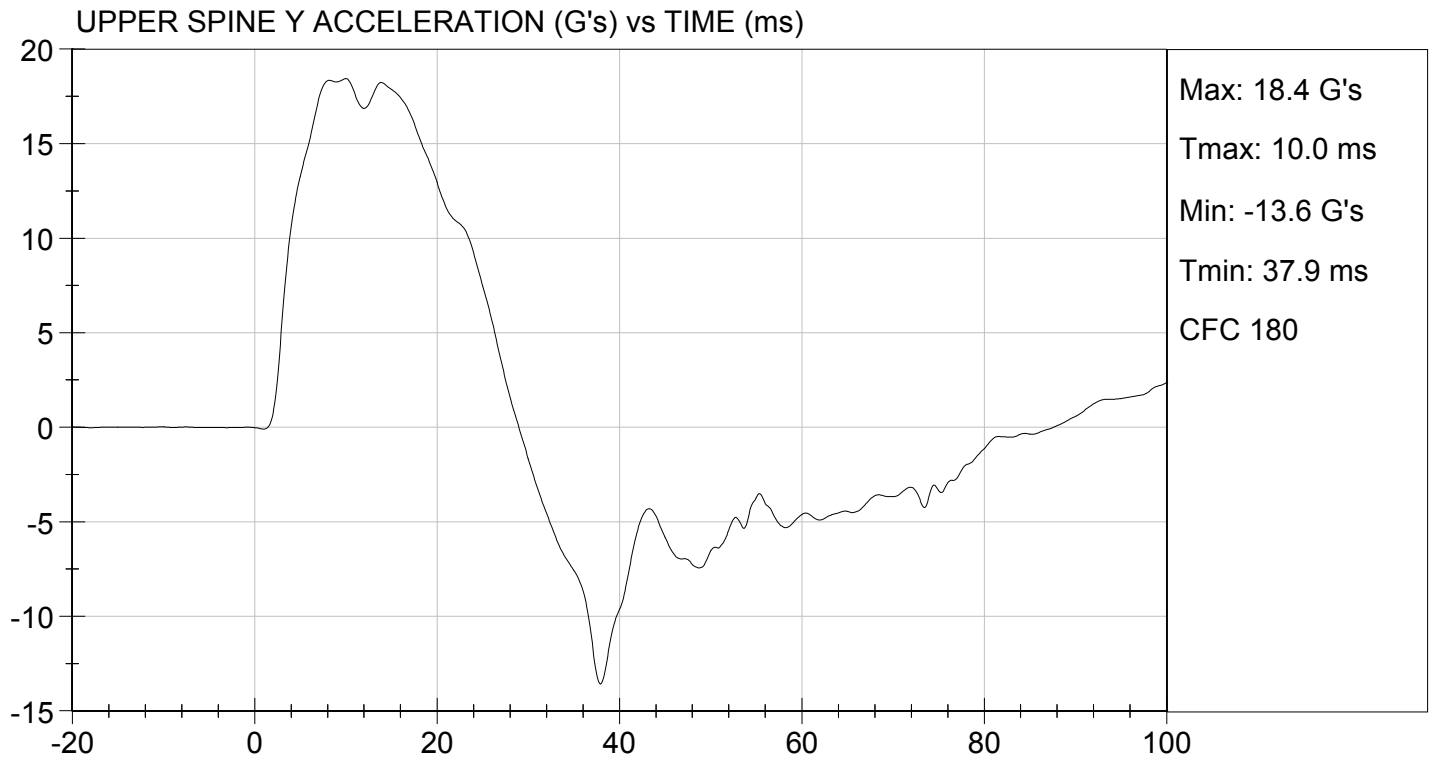
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Laboratory Temperature	deg C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	22	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	32	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	18	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

12/11/2012
 Test Date

David Winkelbauer
 Approved By





MGA RESEARCH CORPORATION
THORAX (WITH ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

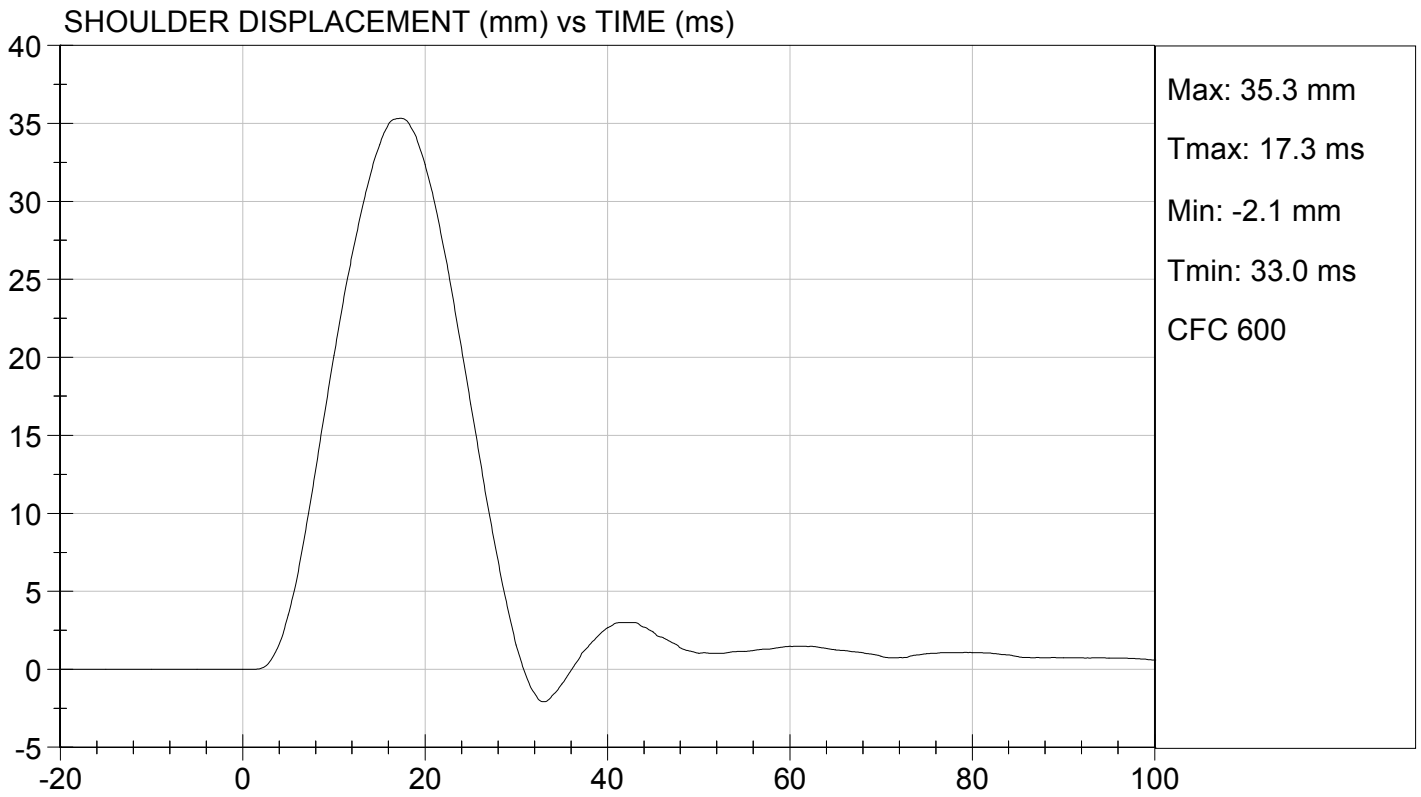
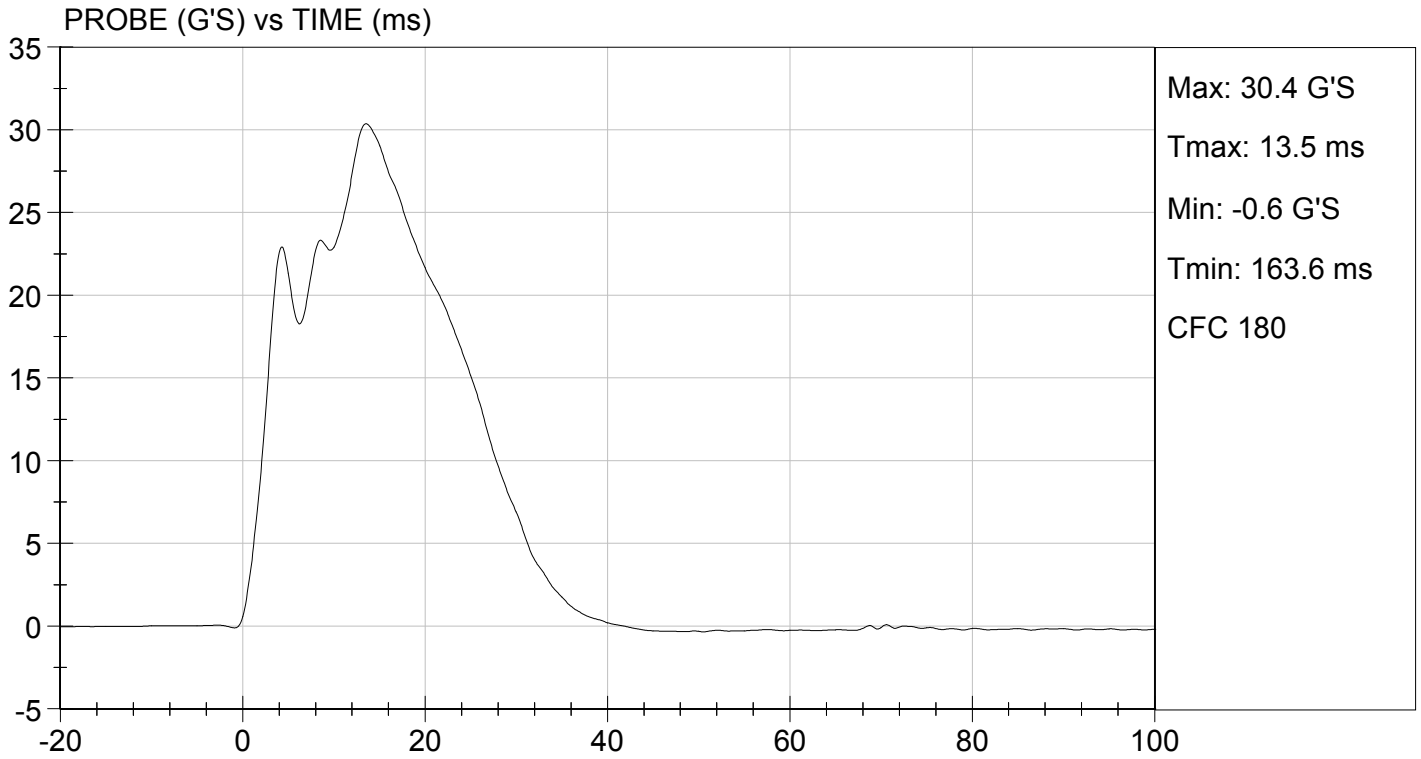
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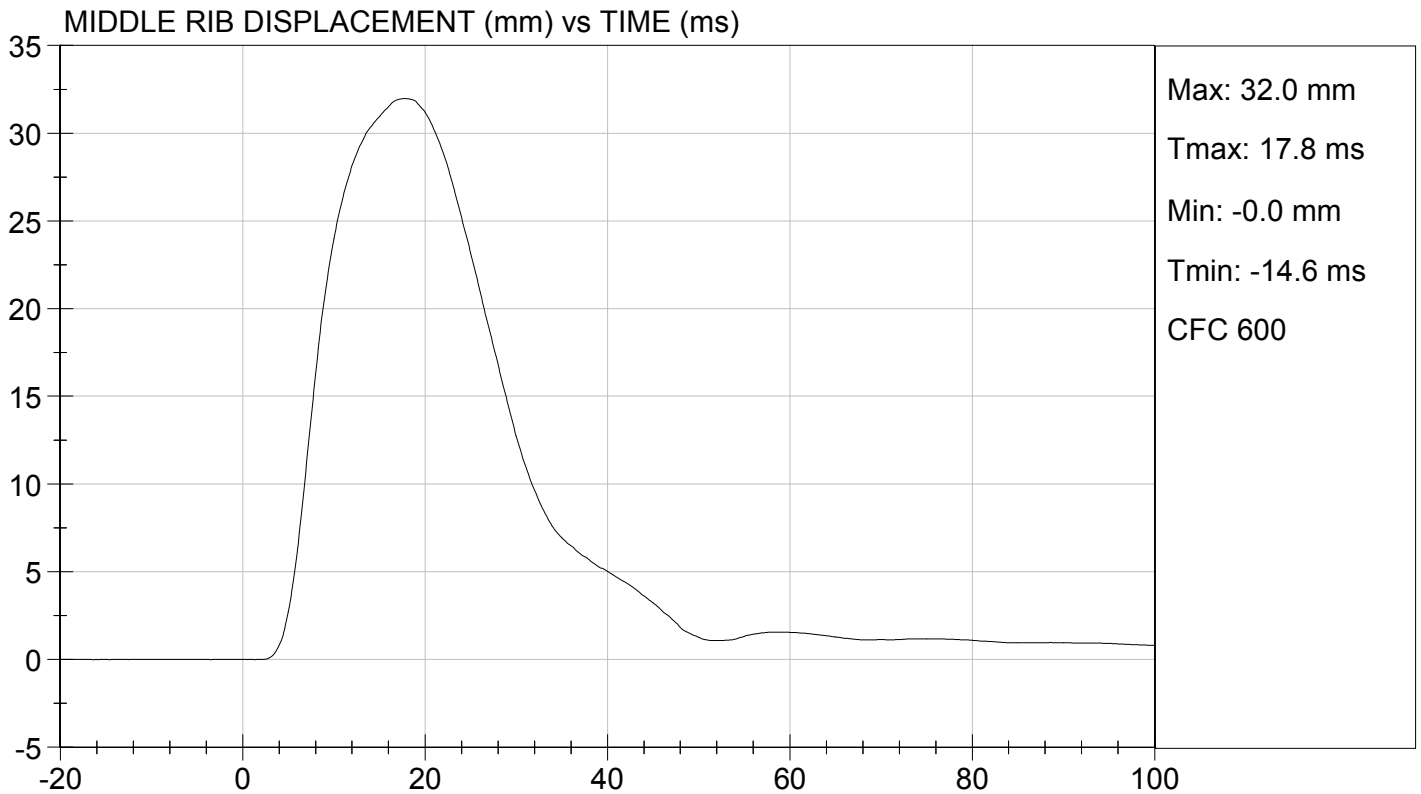
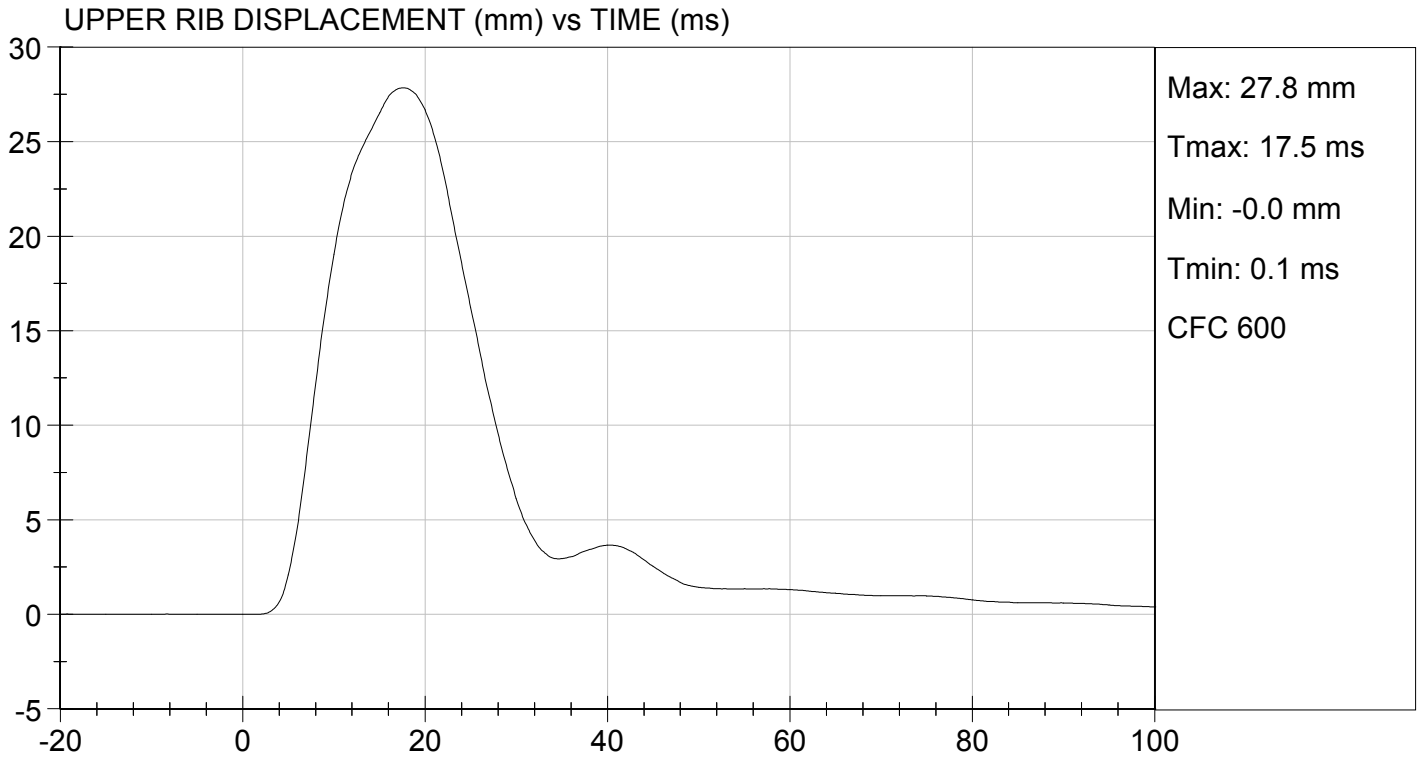
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Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	22	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	30 to 36	30	Pass
Shoulder Displacement	mm	31 to 40	35	Pass
Upper Rib Displacement	mm	25 to 32	28	Pass
Middle Rib Displacement	mm	30 to 36	32	Pass
Lower Rib Displacement	mm	32 to 38	35	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	36	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	29	Pass
Overall Test Results				Pass

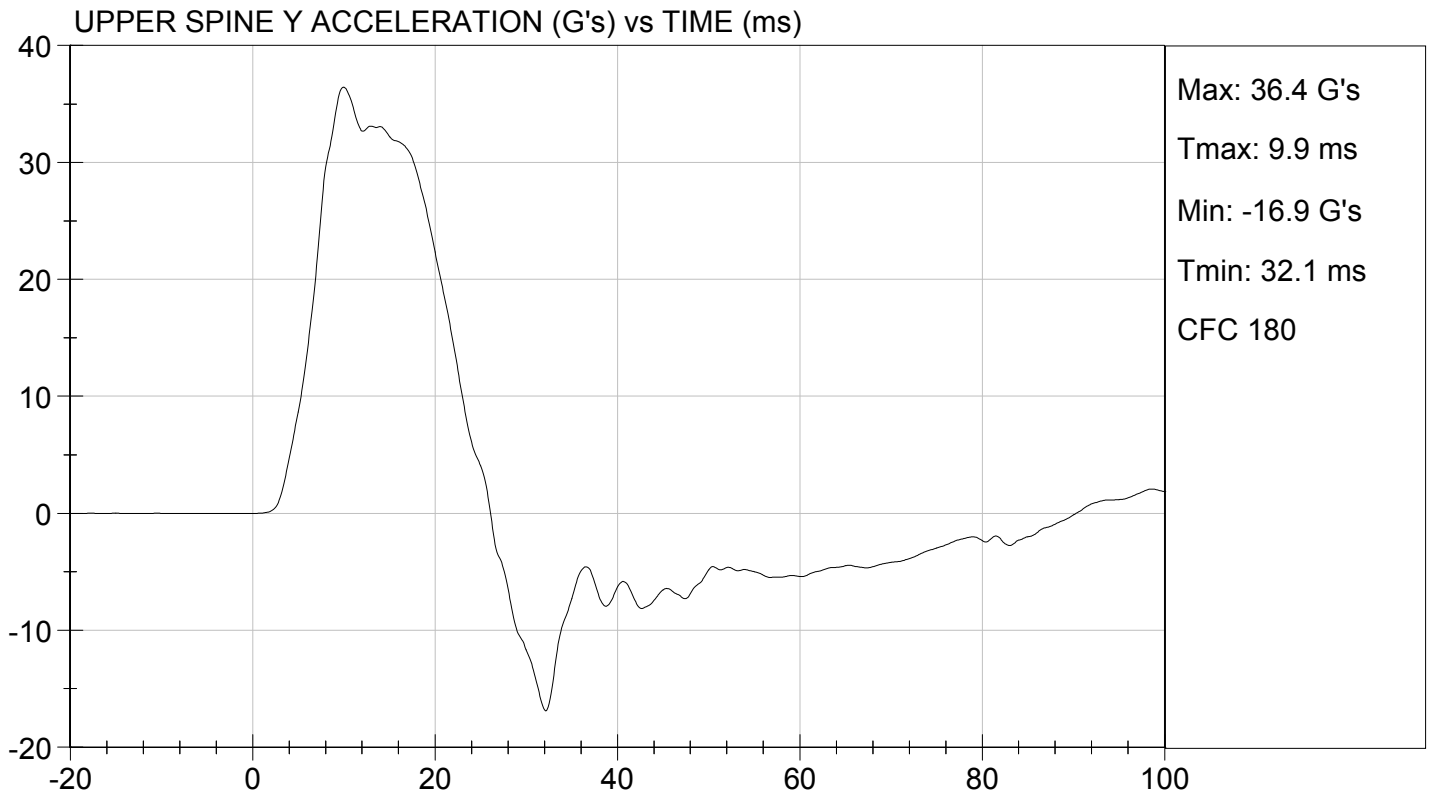
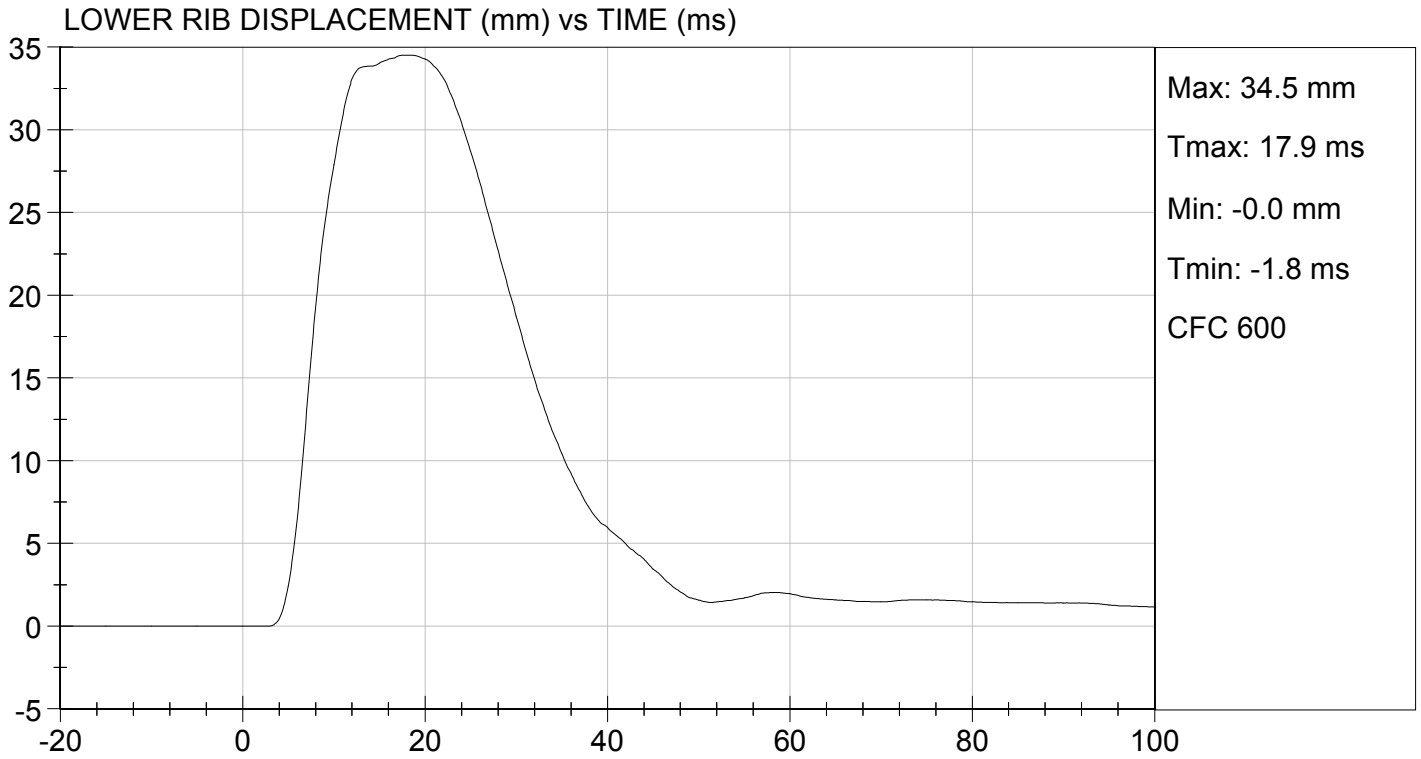
Jessica Gall
 Laboratory Technician

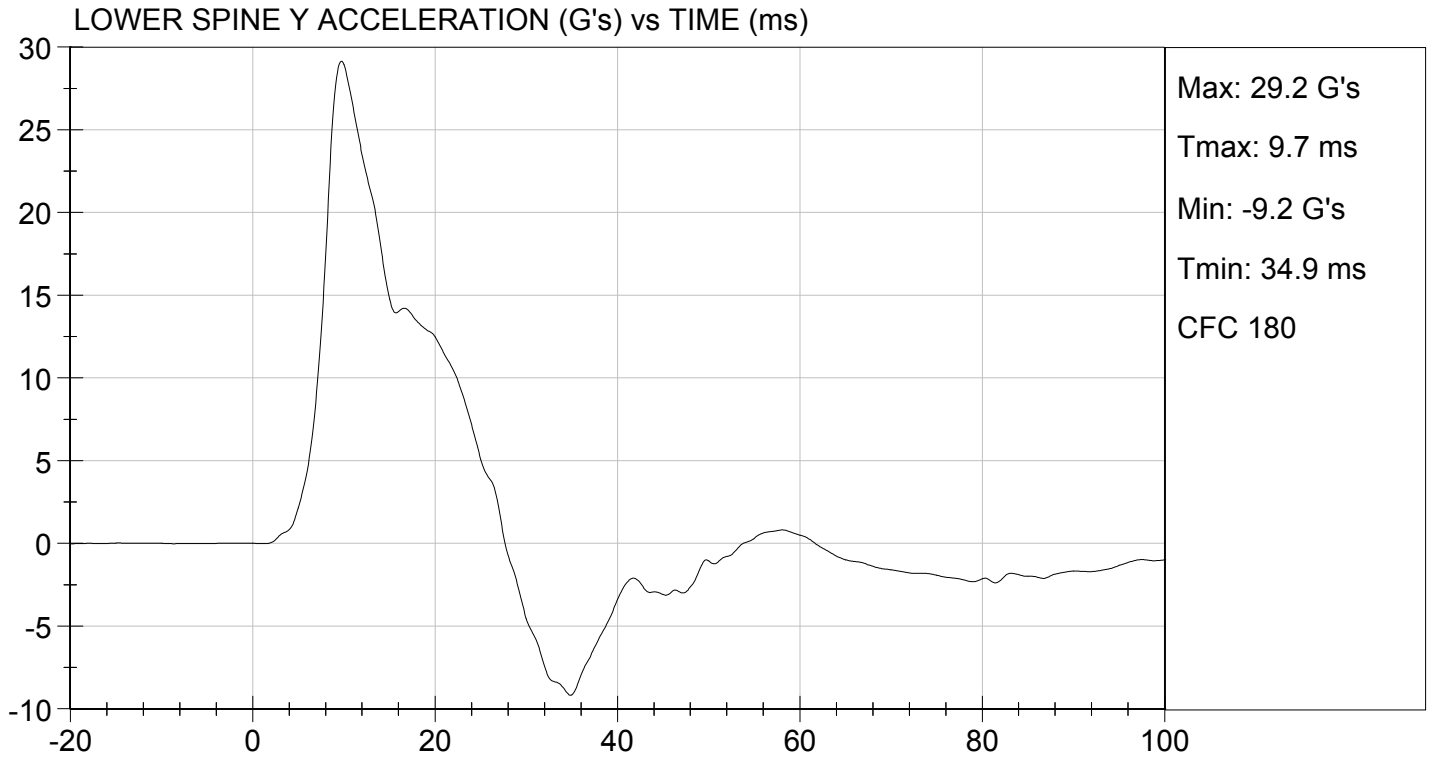
12/11/2012
 Test Date

David Winkelbauer
 Approved By









MGA RESEARCH CORPORATION
THORAX (WITHOUT ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

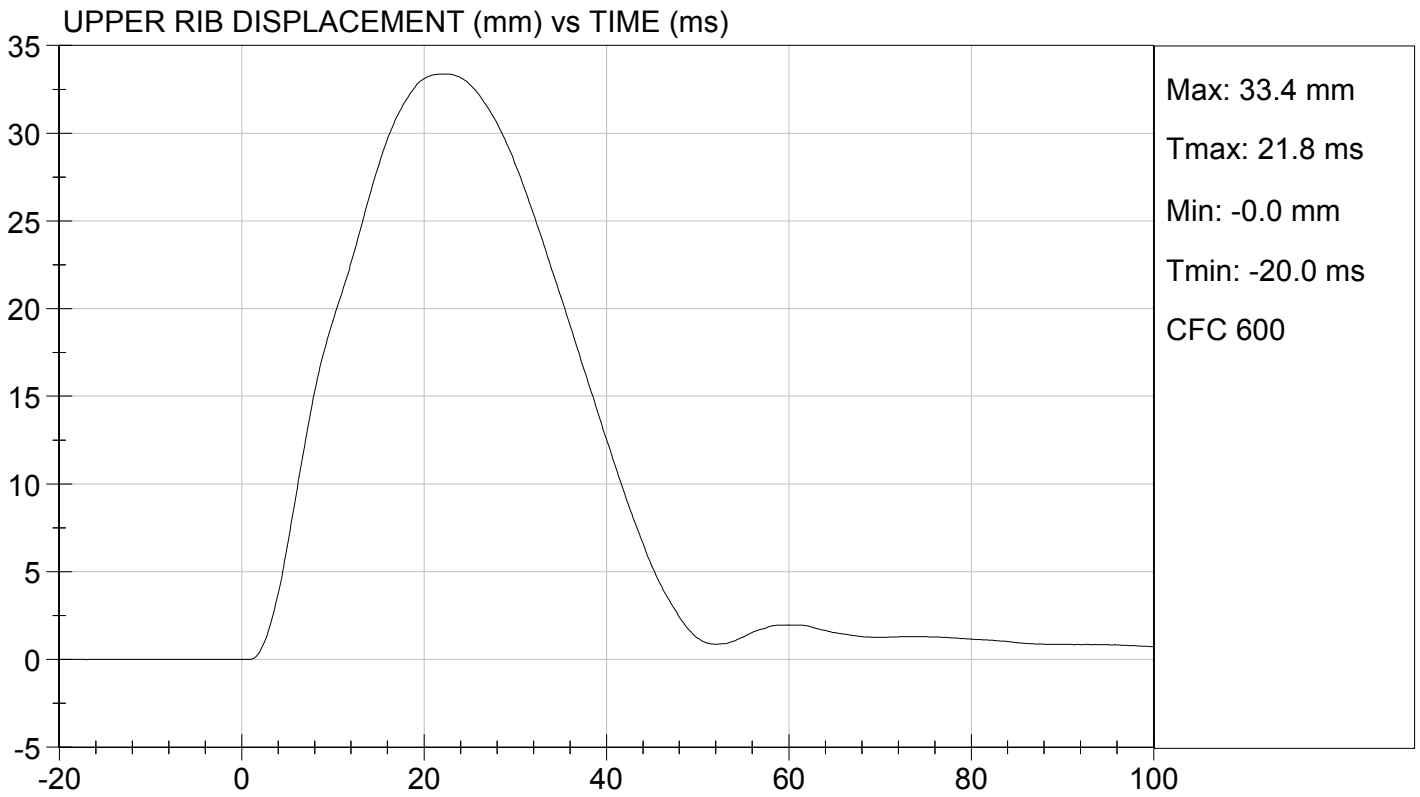
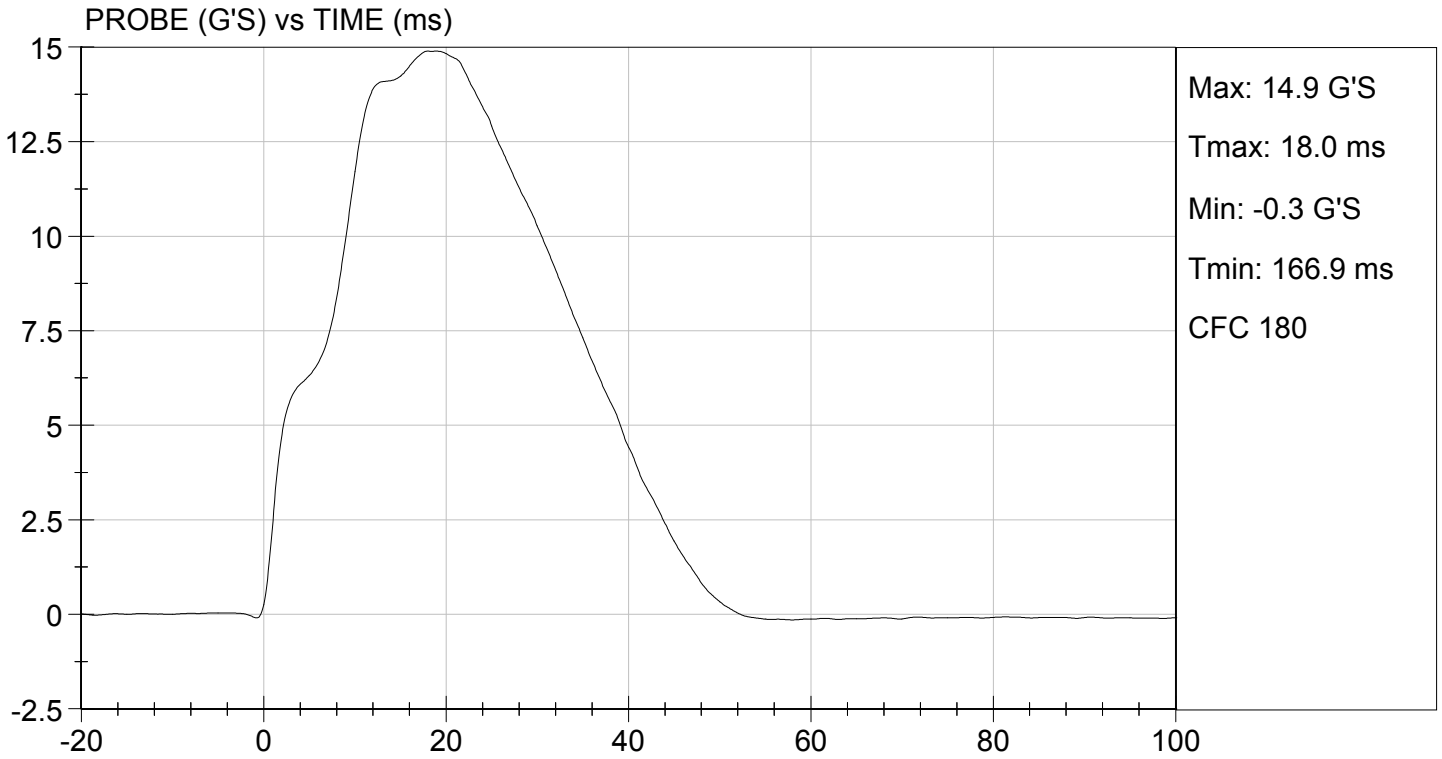
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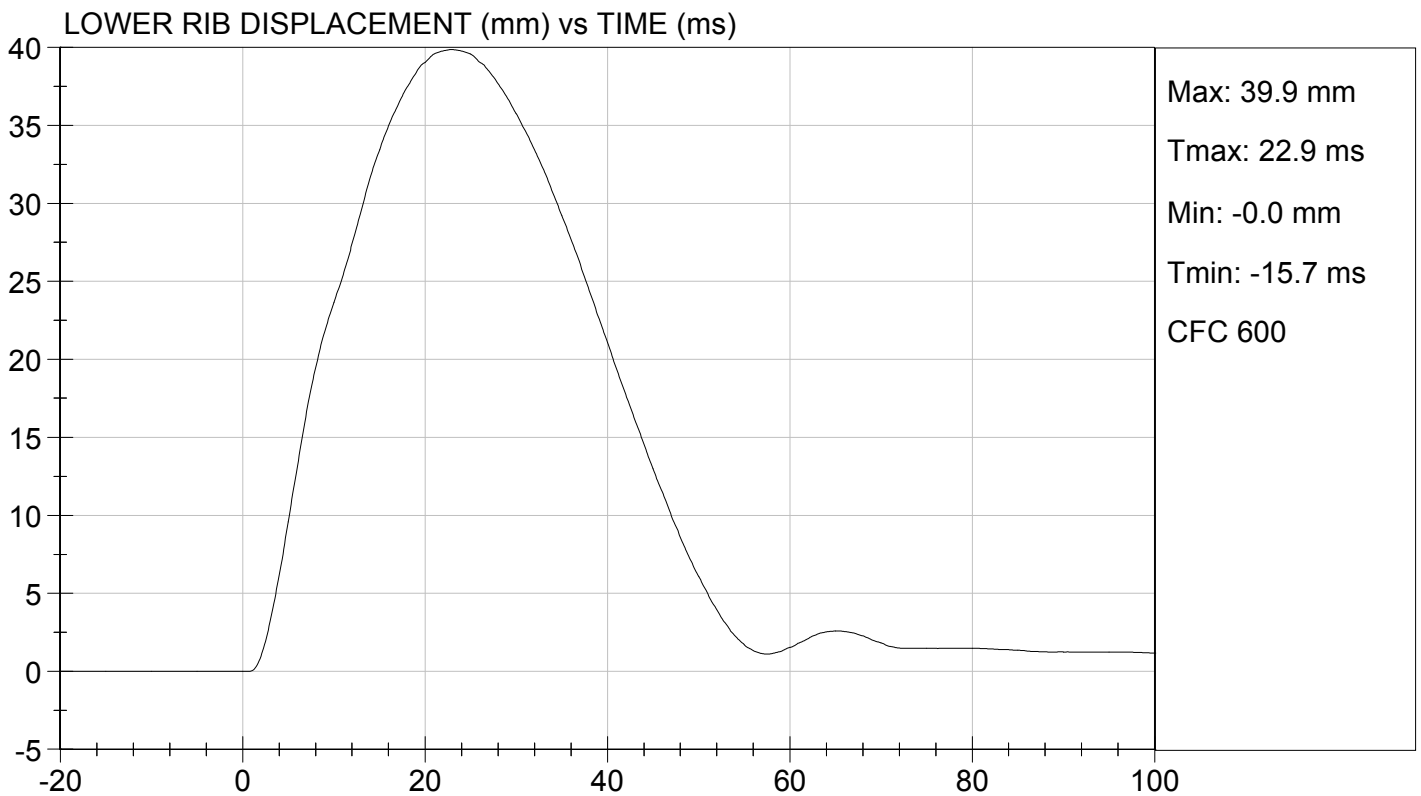
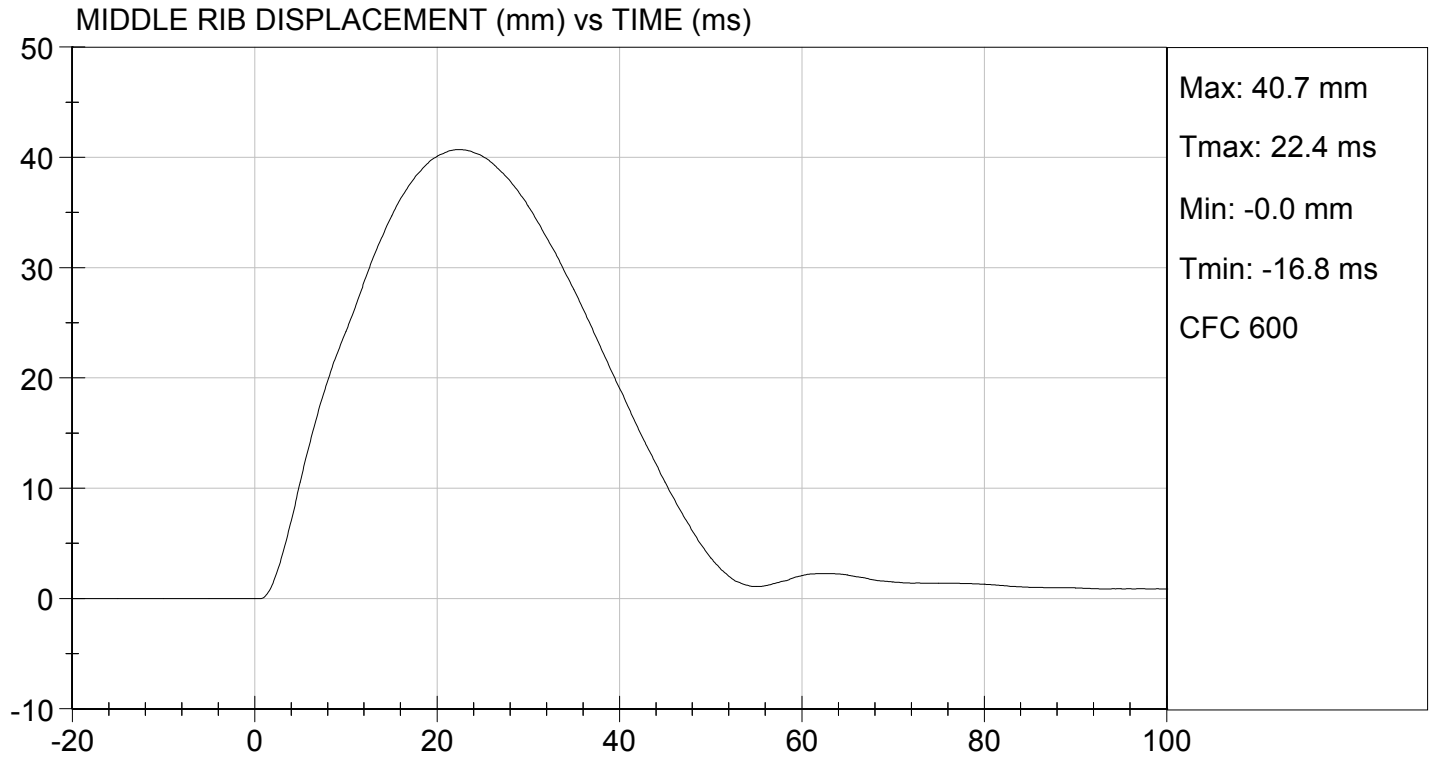
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	22	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	33	Pass
Middle Rib Displacement	mm	39 to 45	41	Pass
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	10	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

12/11/2012
 Test Date

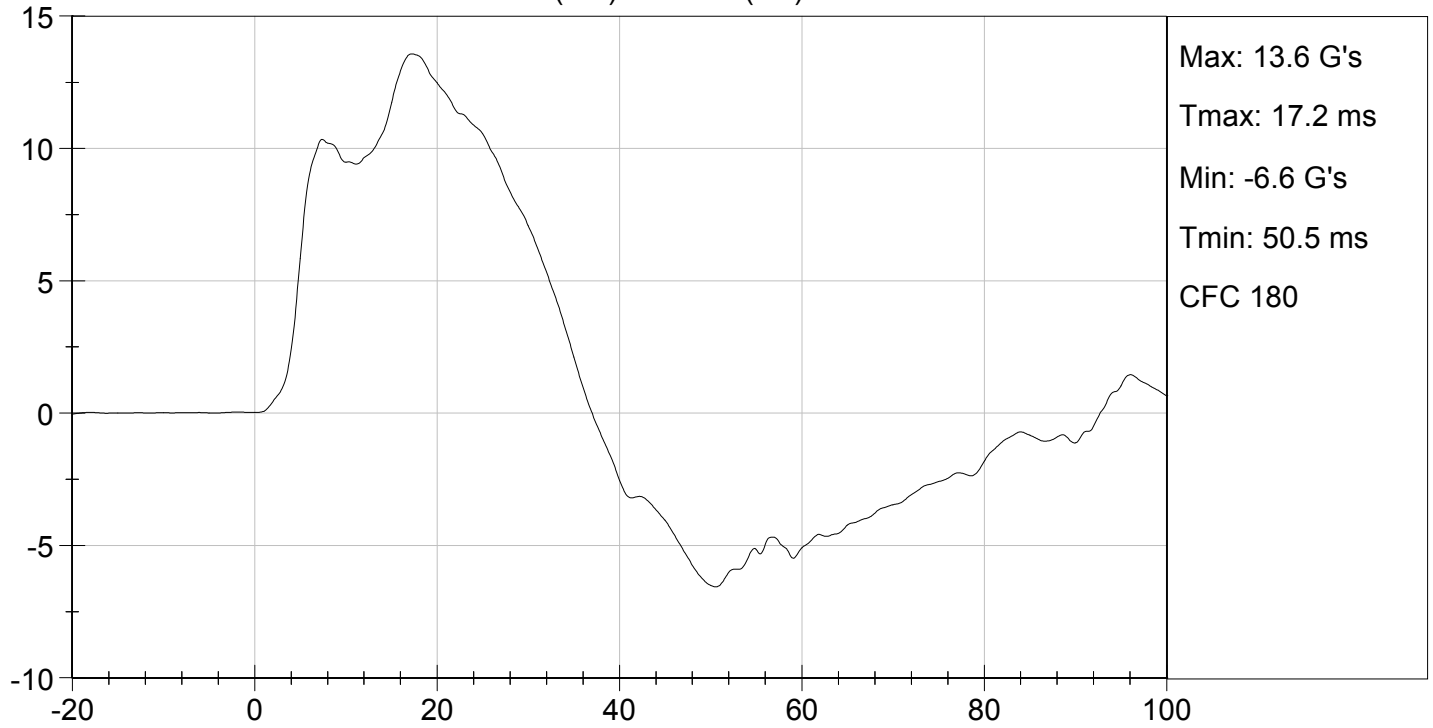
David Winkelbauer
 Approved By



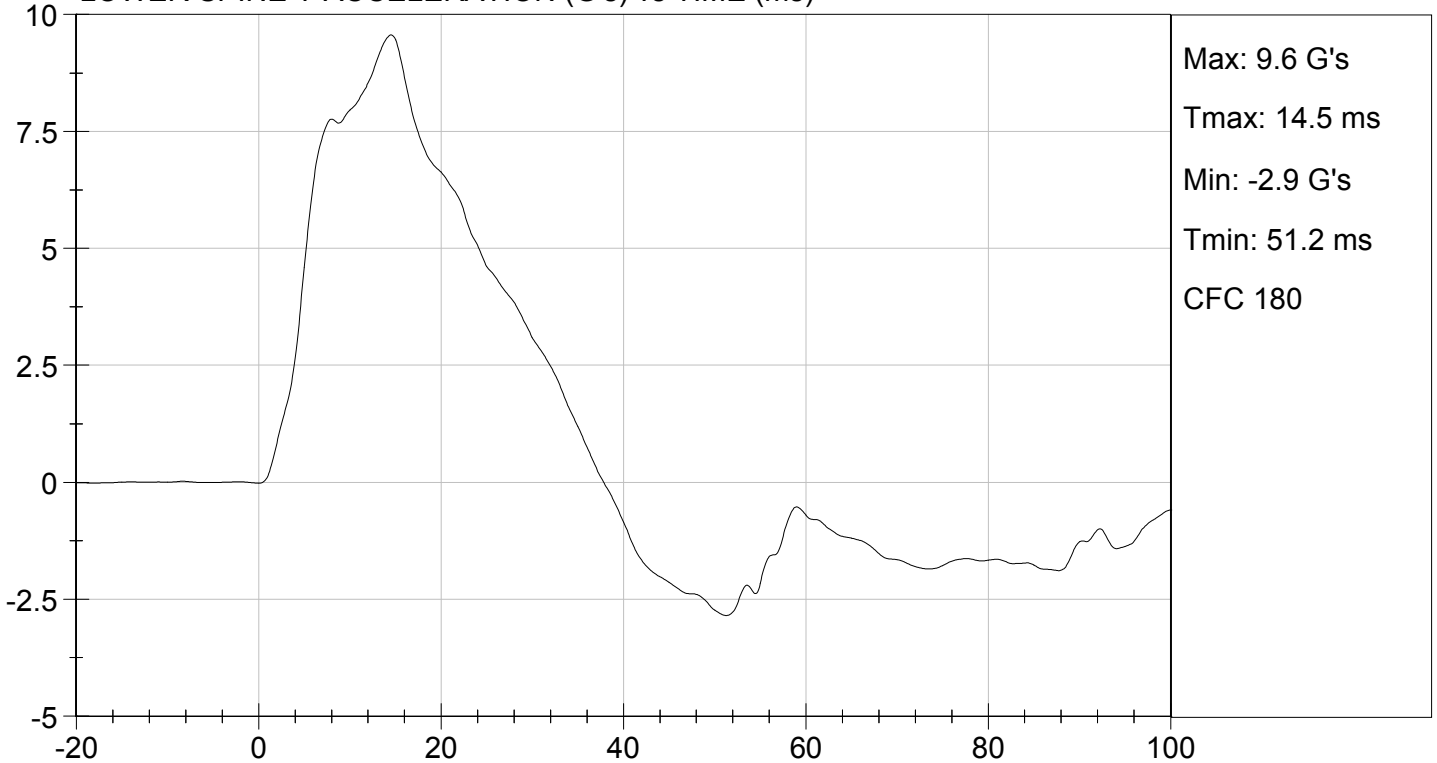




UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)



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

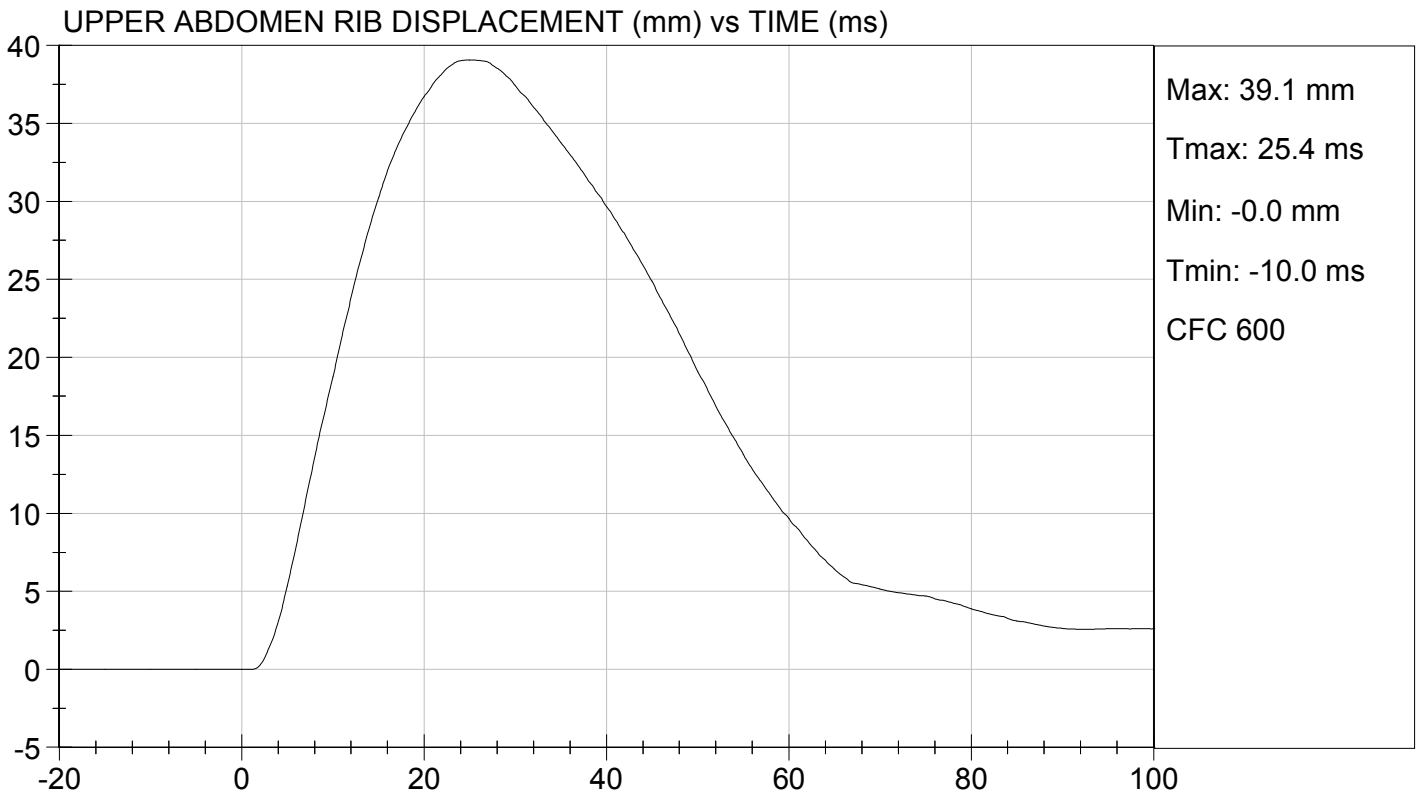
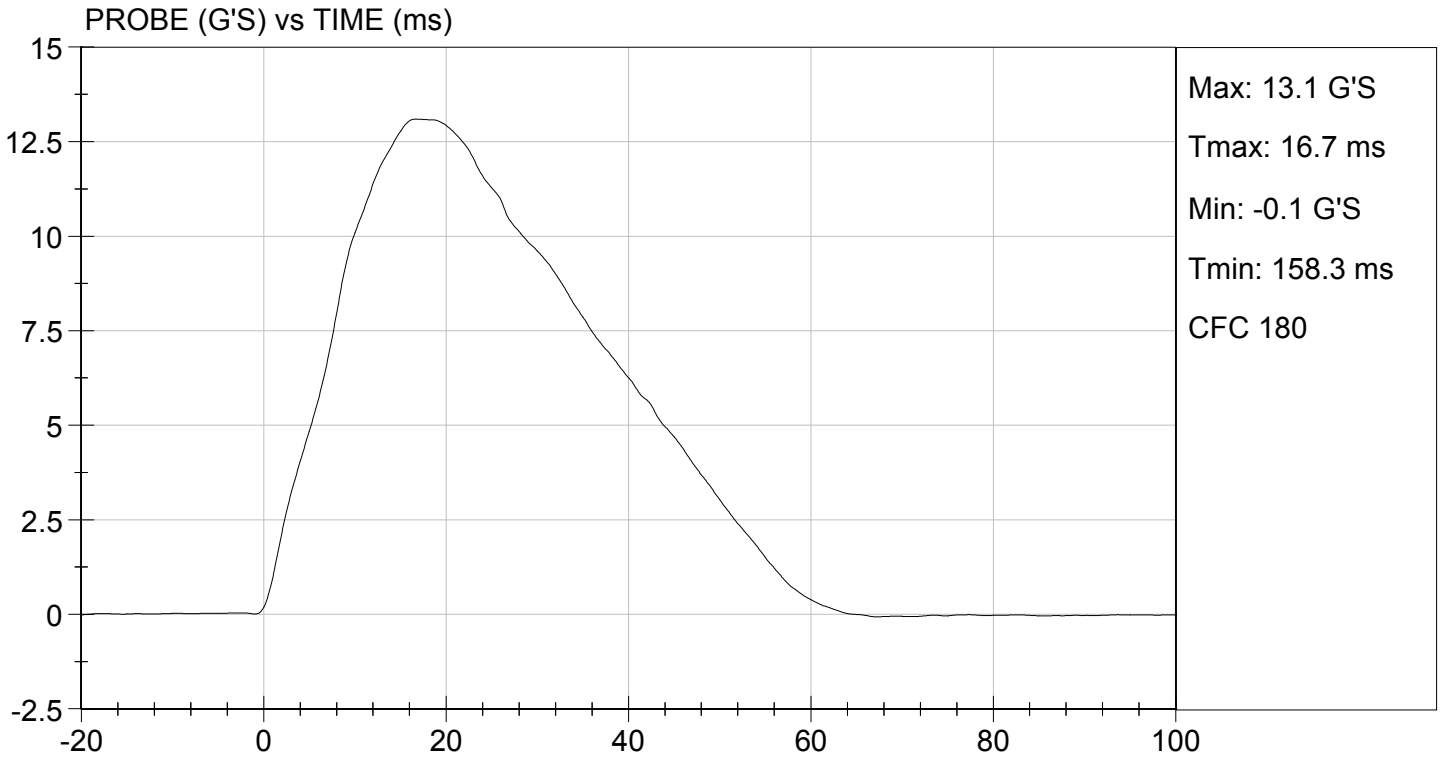
Test I.D: D124706

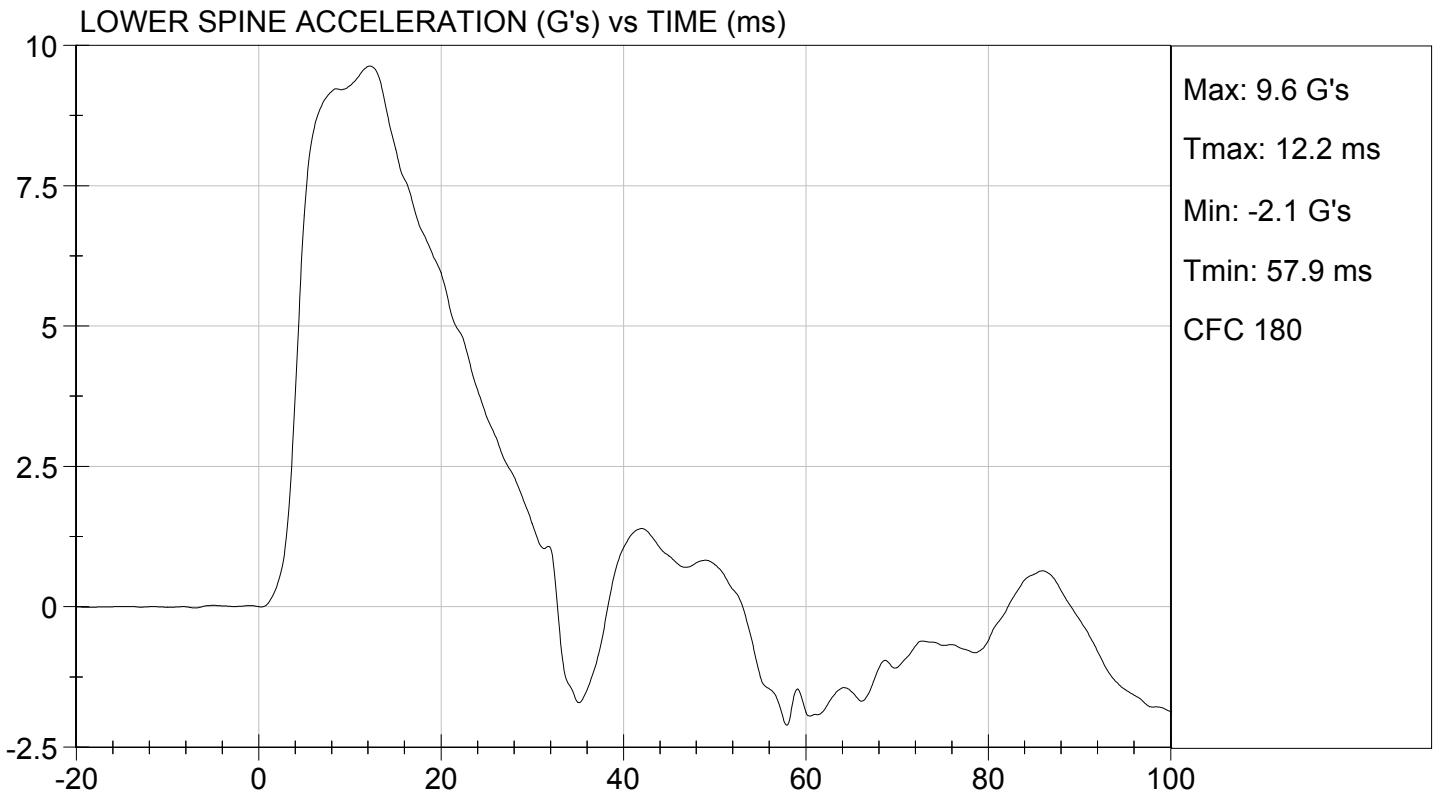
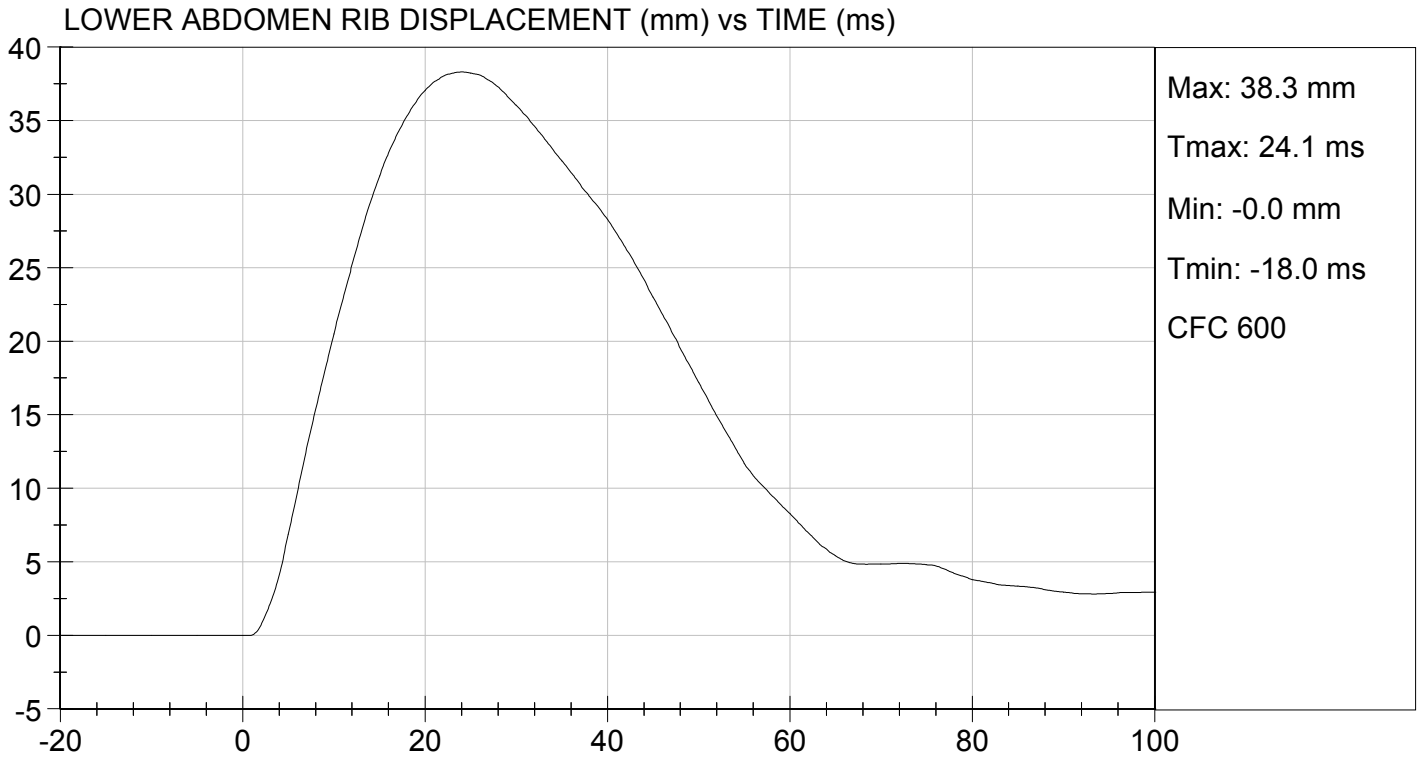
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	22	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	12 to 16	13	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	39	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	38	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	10	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

12/11/2012
 Test Date

David Winkelbauer
 Approved By





MGA RESEARCH CORPORATION
PELVIS IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

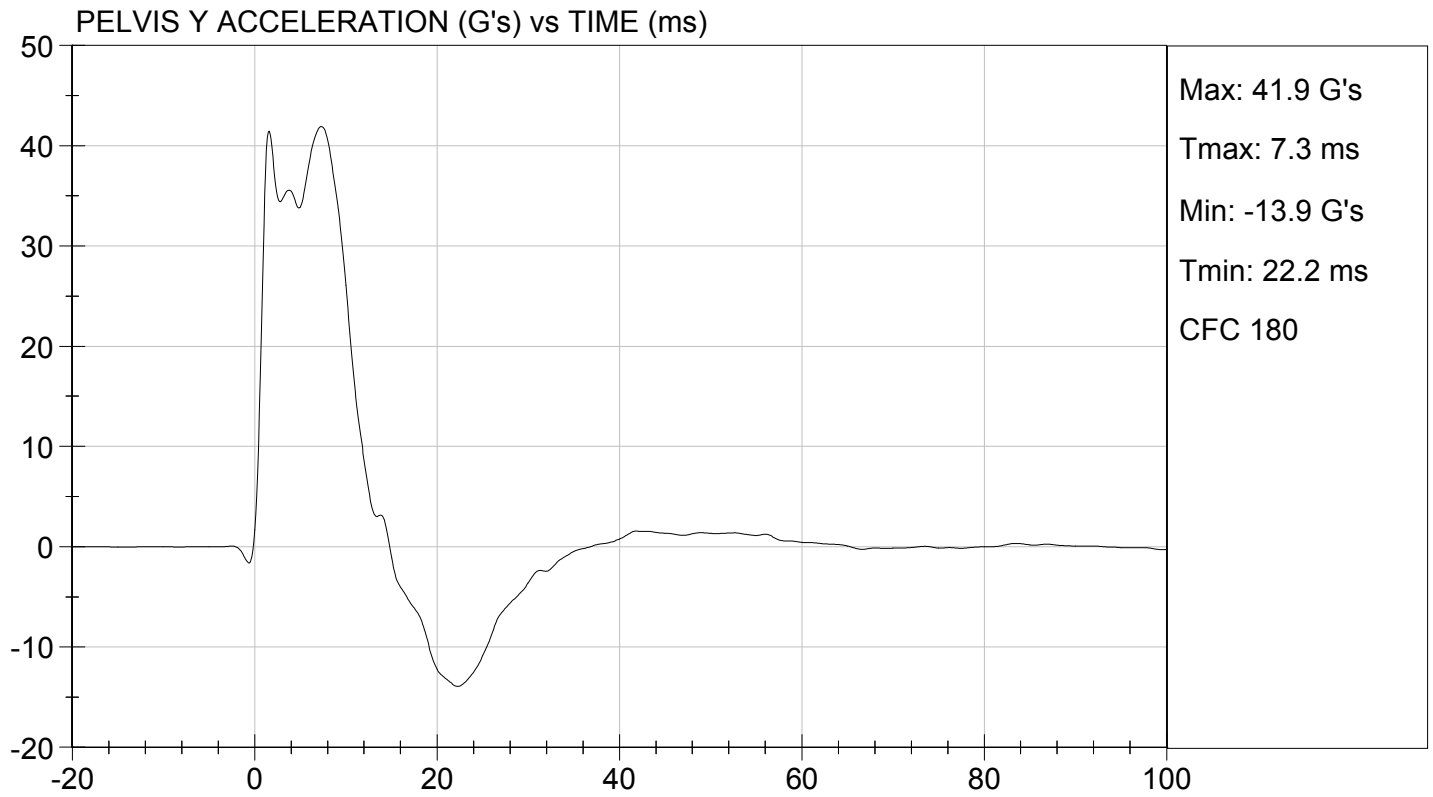
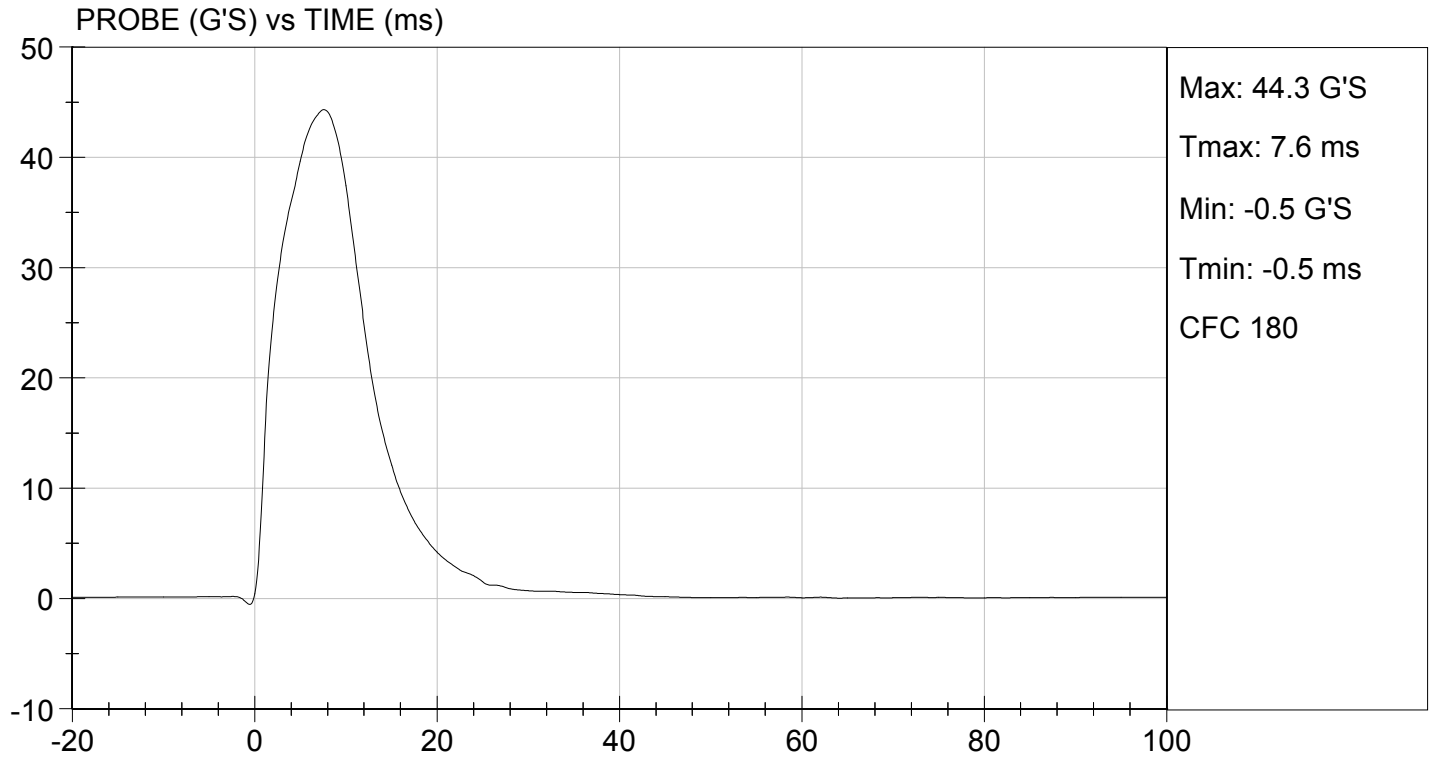
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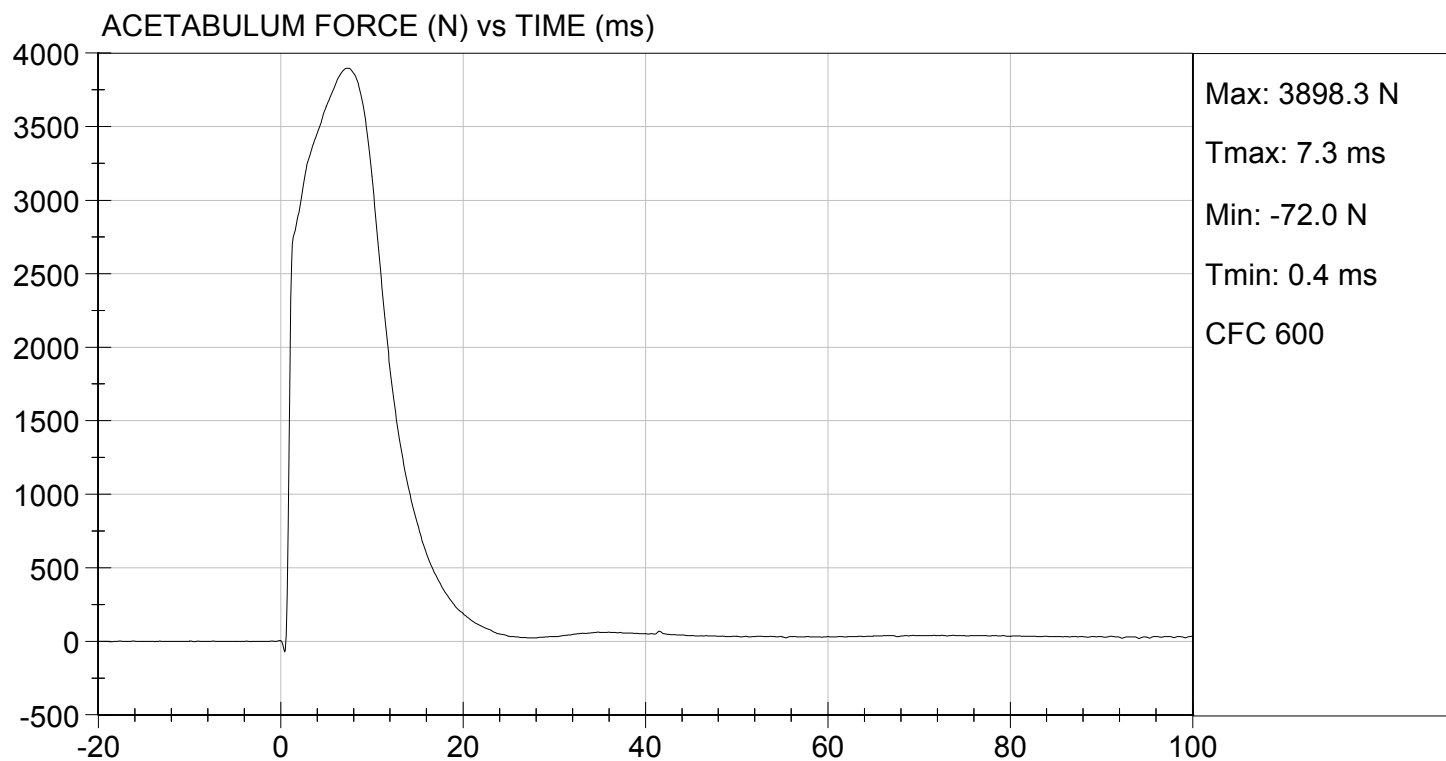
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.9	Pass
Humidity	%	10 to 70	24	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	38 to 47	44	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	42	Pass
Peak Acetabulum Force	N	3600 to 4300	3,898	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

12/12/2012
 Test Date

David Winkelbauer
 Approved By





MGA RESEARCH CORPORATION
ILIAC IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

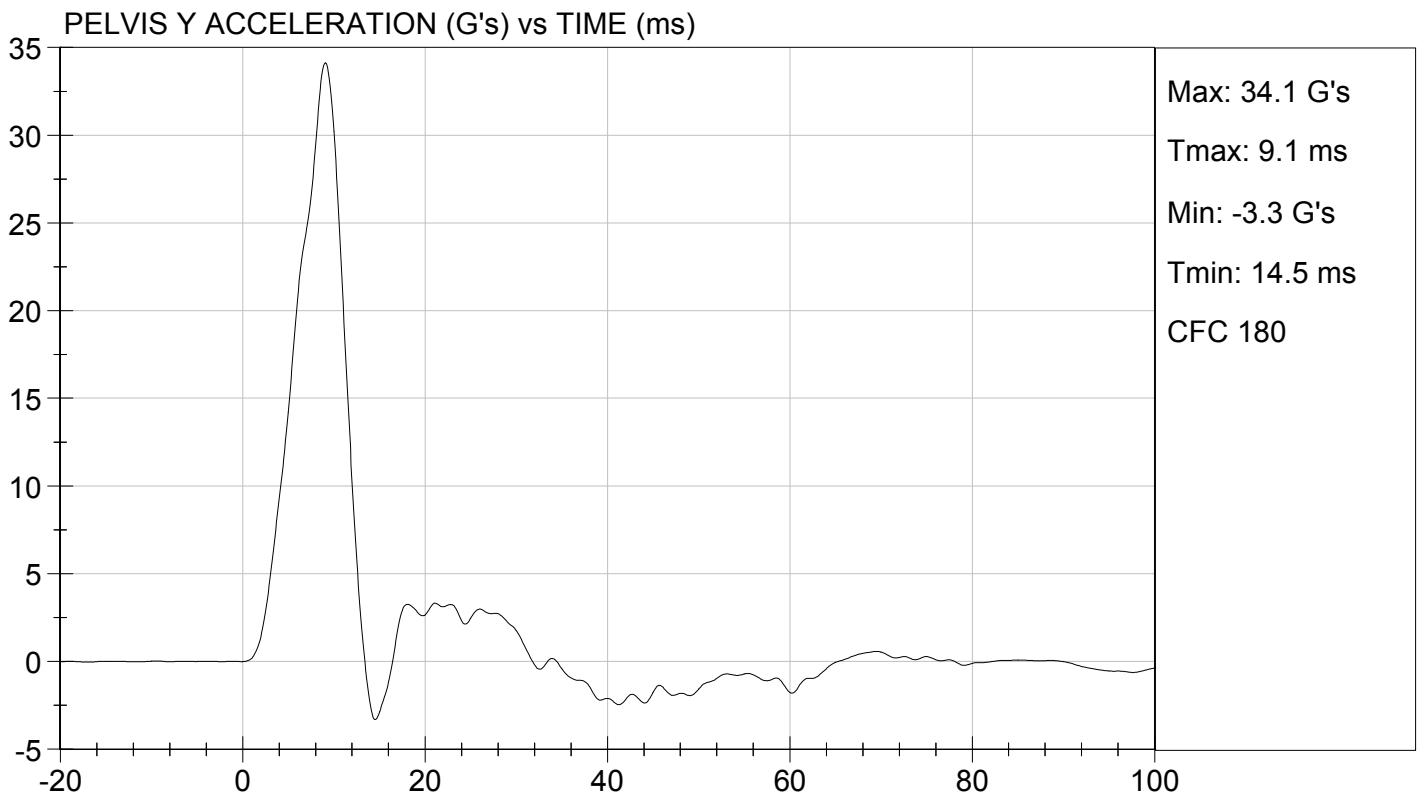
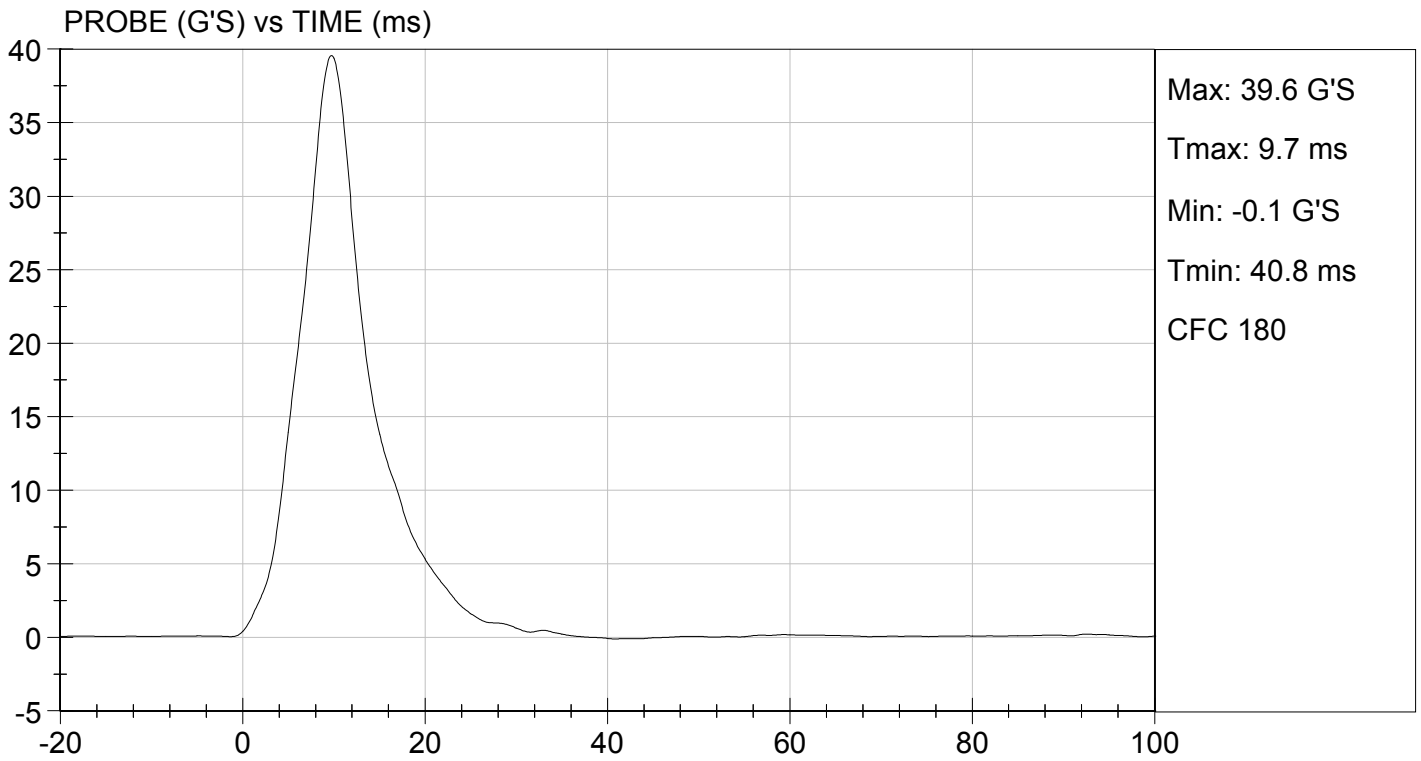
Test I.D: D124708

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	20.9	Pass
Humidity	%	10 to 70	24	Pass
Impact Velocity	m/s	4.20 to 4.40	4.23	Pass
Maximum Probe Acceleration	G's	36 to 45	40	Pass
Pelvis Y Acceleration	G's	28 to 39	34	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,792	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

12/12/2012
 Test Date

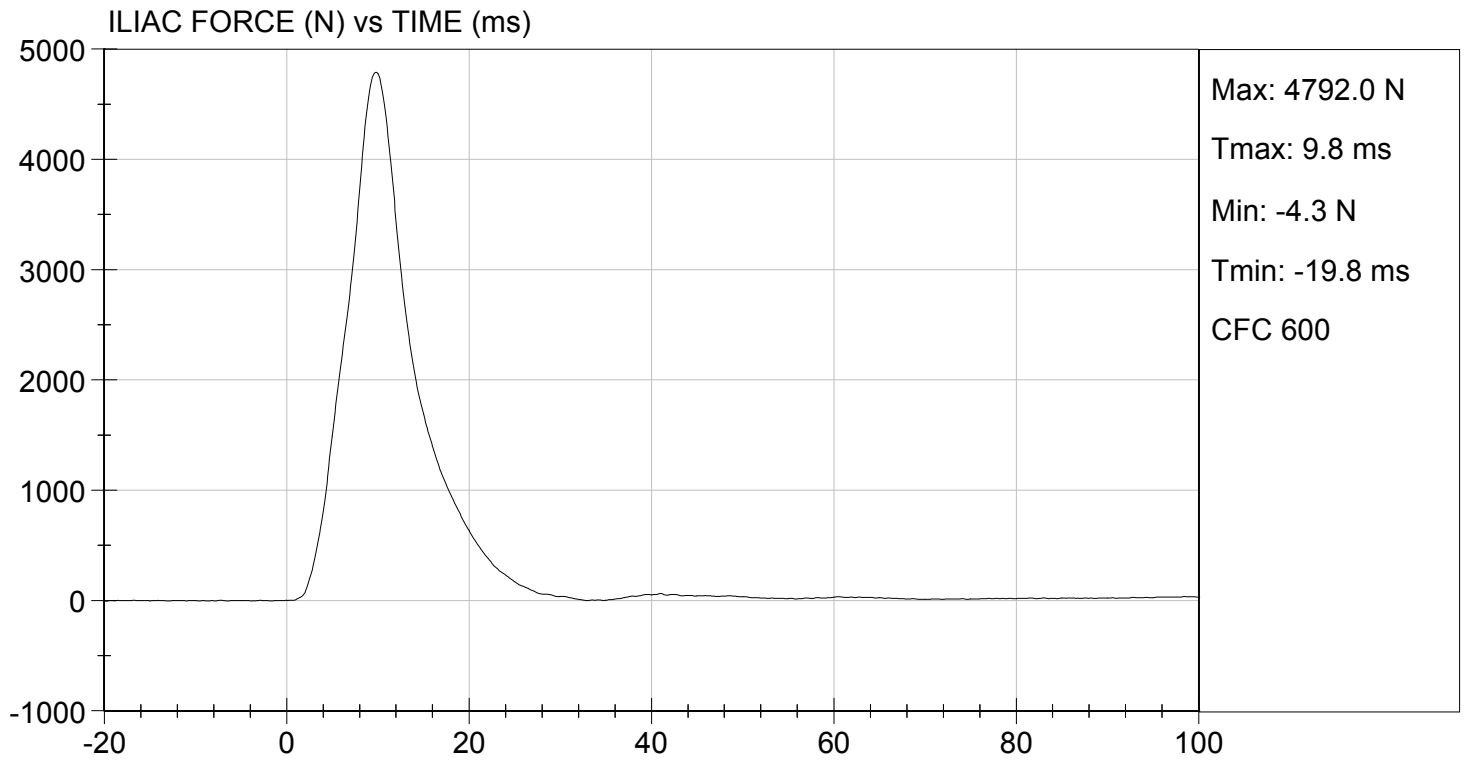
David Winkelbauer
 Approved By





TEST DESC: ILLIAC
VELOCITY: 13.89 ft/s, 4.23 m/s

TEST DATE: 12/12/2012
TEST #: D124708



**MGA RESEARCH CORPORATION
HEAD DROP TEST
SID-IIs BUILD LEVEL D DUMMY**

ATD Serial No: 296

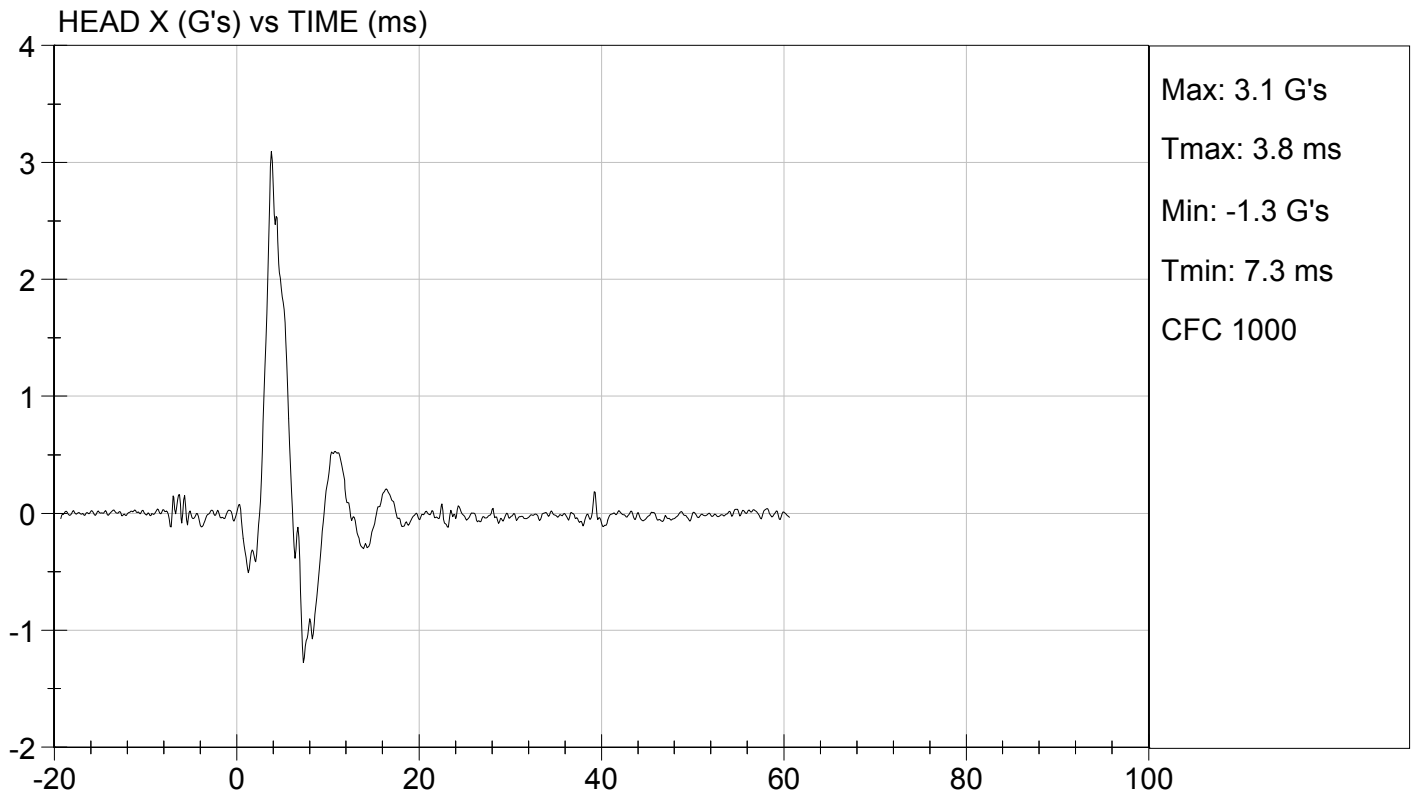
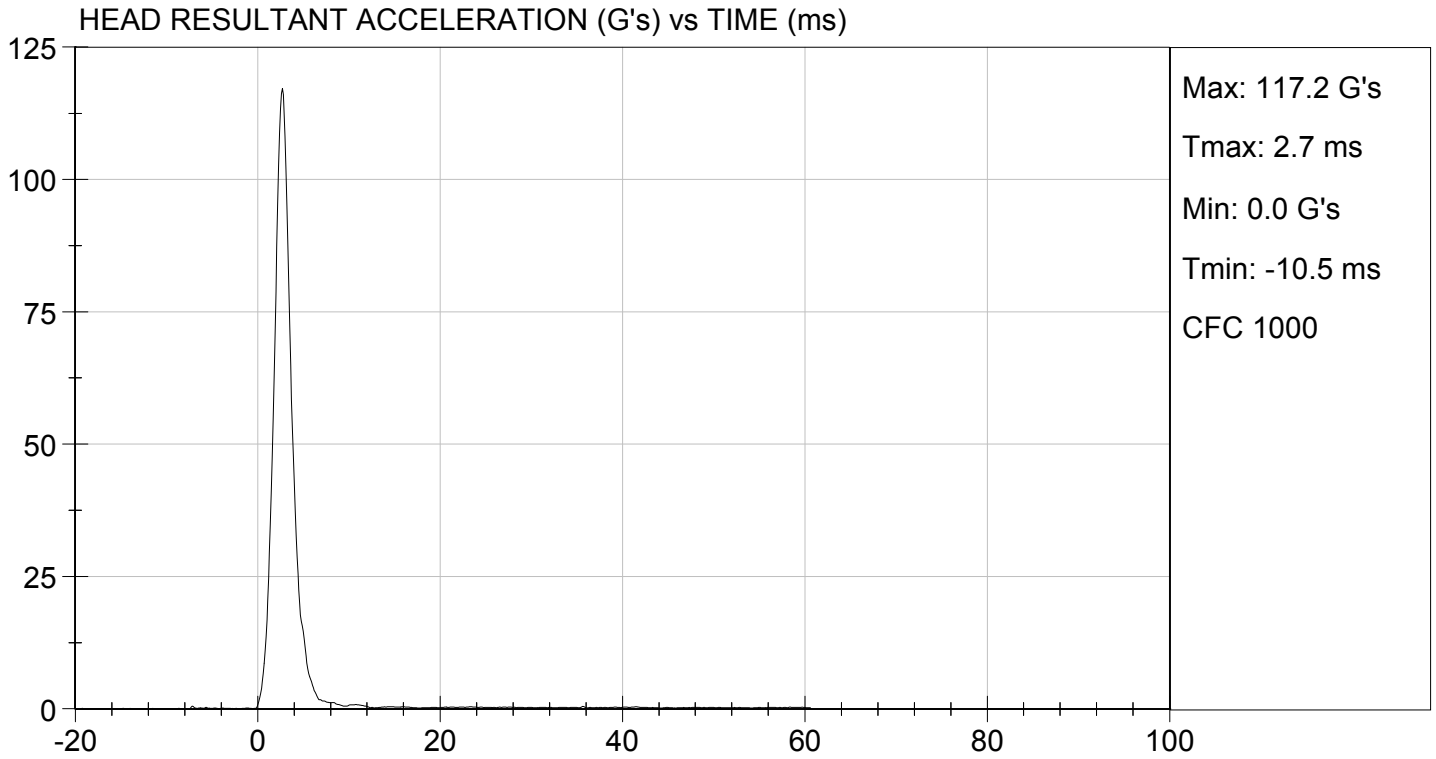
Test ID: D124791

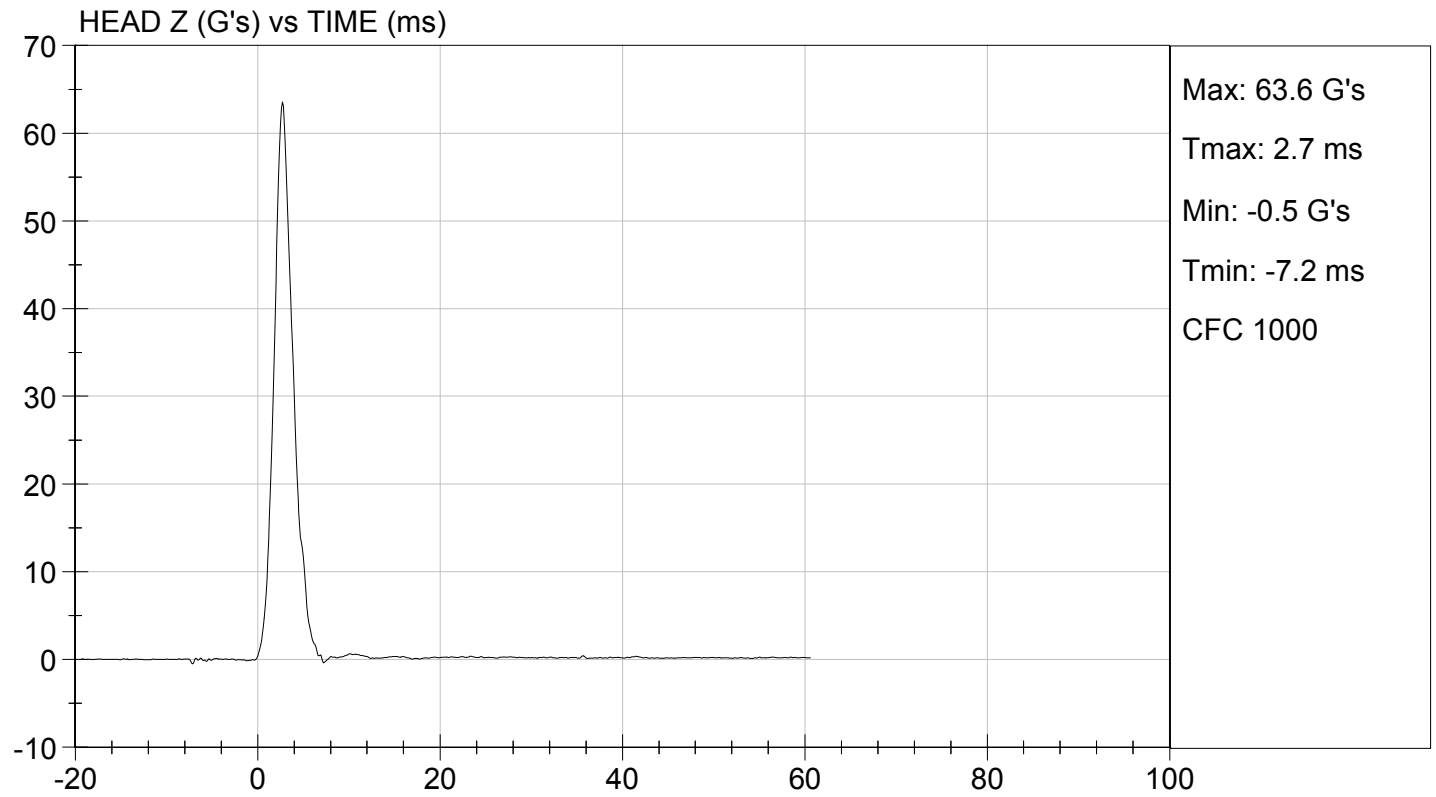
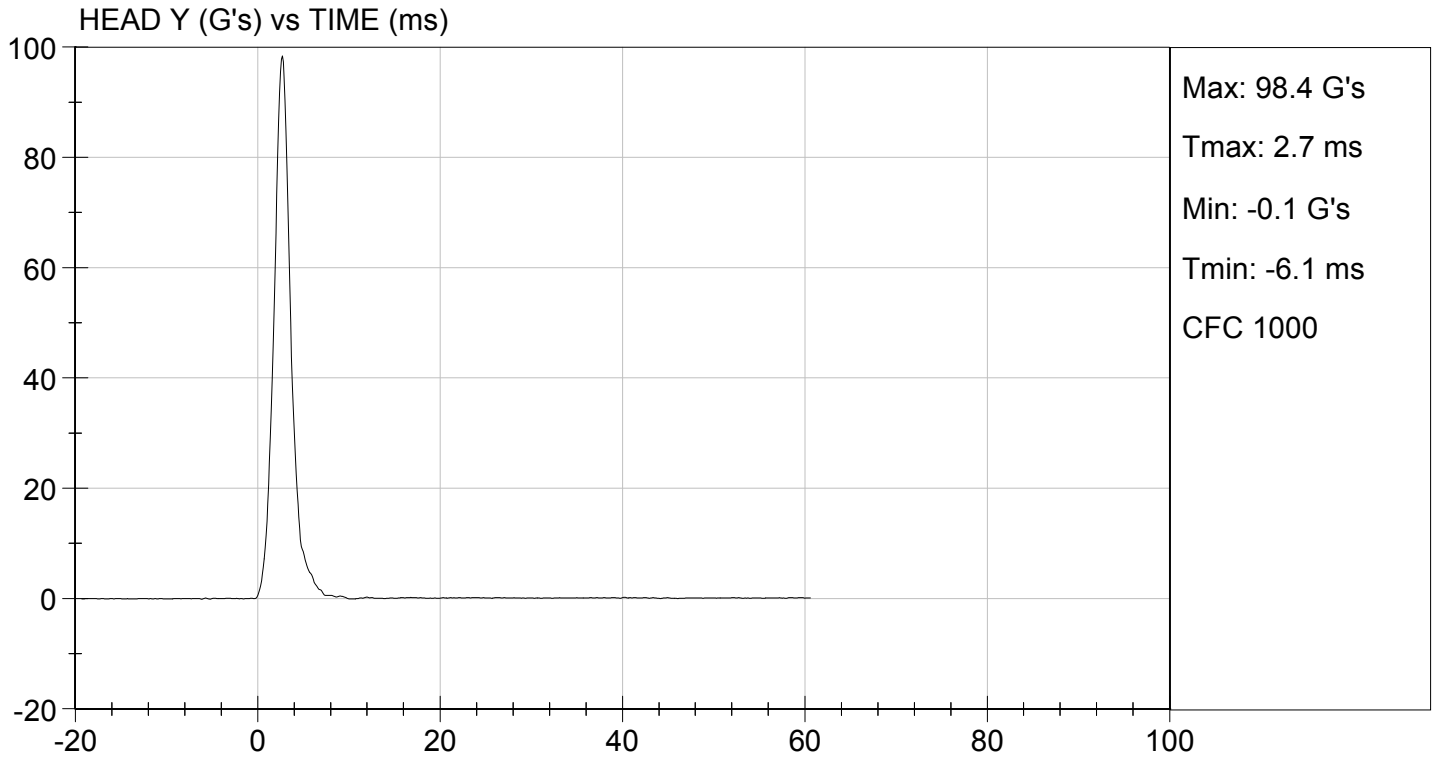
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	34	Pass
Peak Resultant Acceleration	G's	115 to 137	117	Pass
Peak Longitudinal Acceleration	G's	+/- 15	3.1	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results				Pass

Jessica Gall
Laboratory Technician

12/20/2012
Test Date

David Winkelbauer
Approved By





**MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-IIs BUILD LEVEL D DUMMY**

ATD Serial No: 296

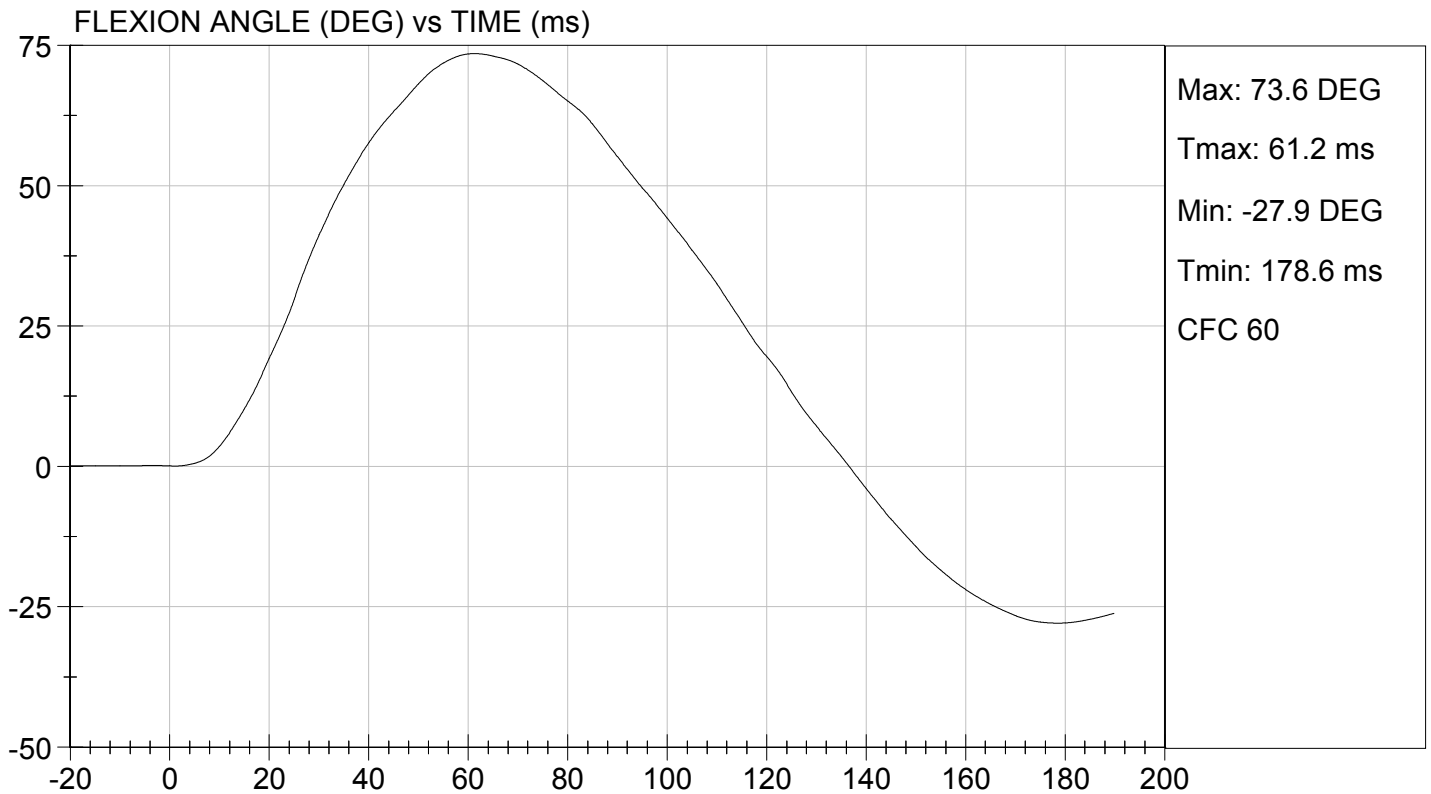
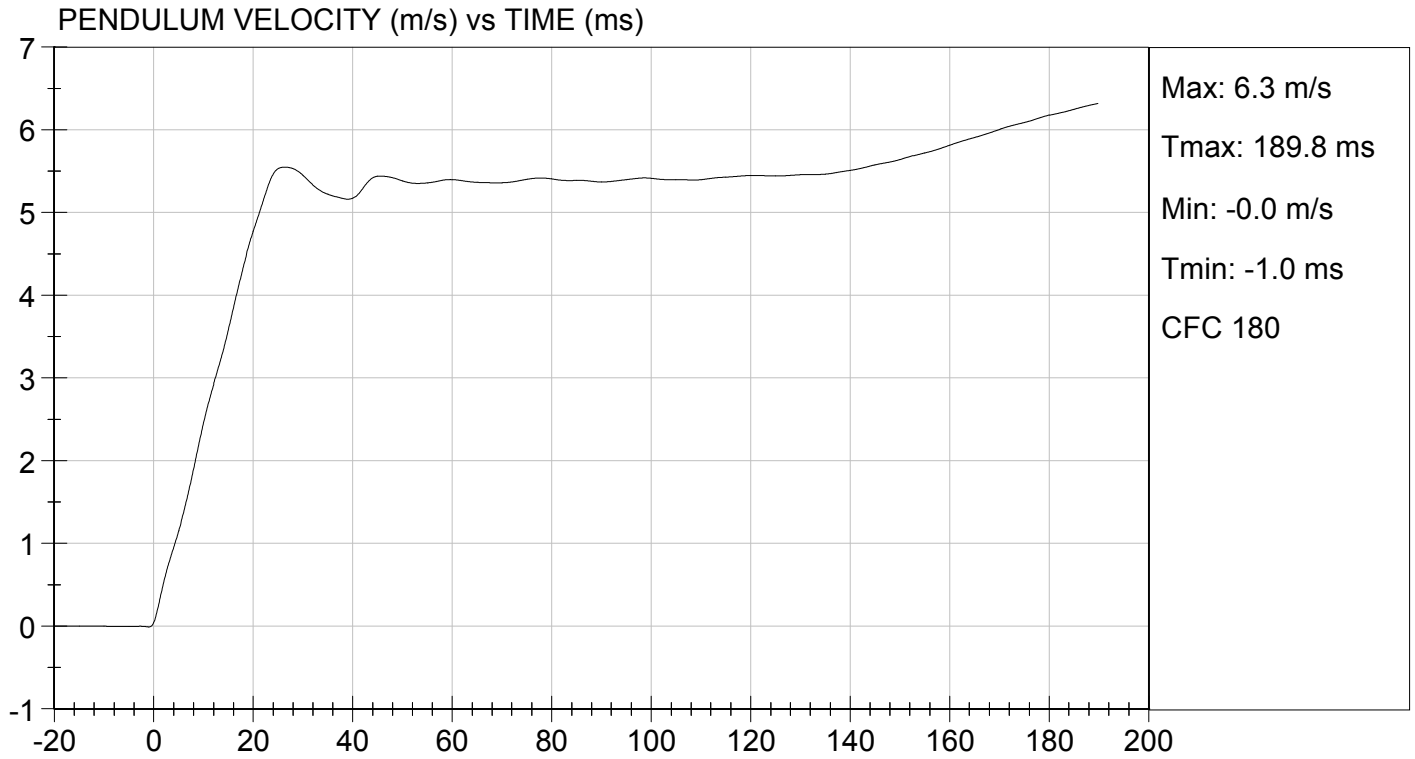
Test I.D.: D124792

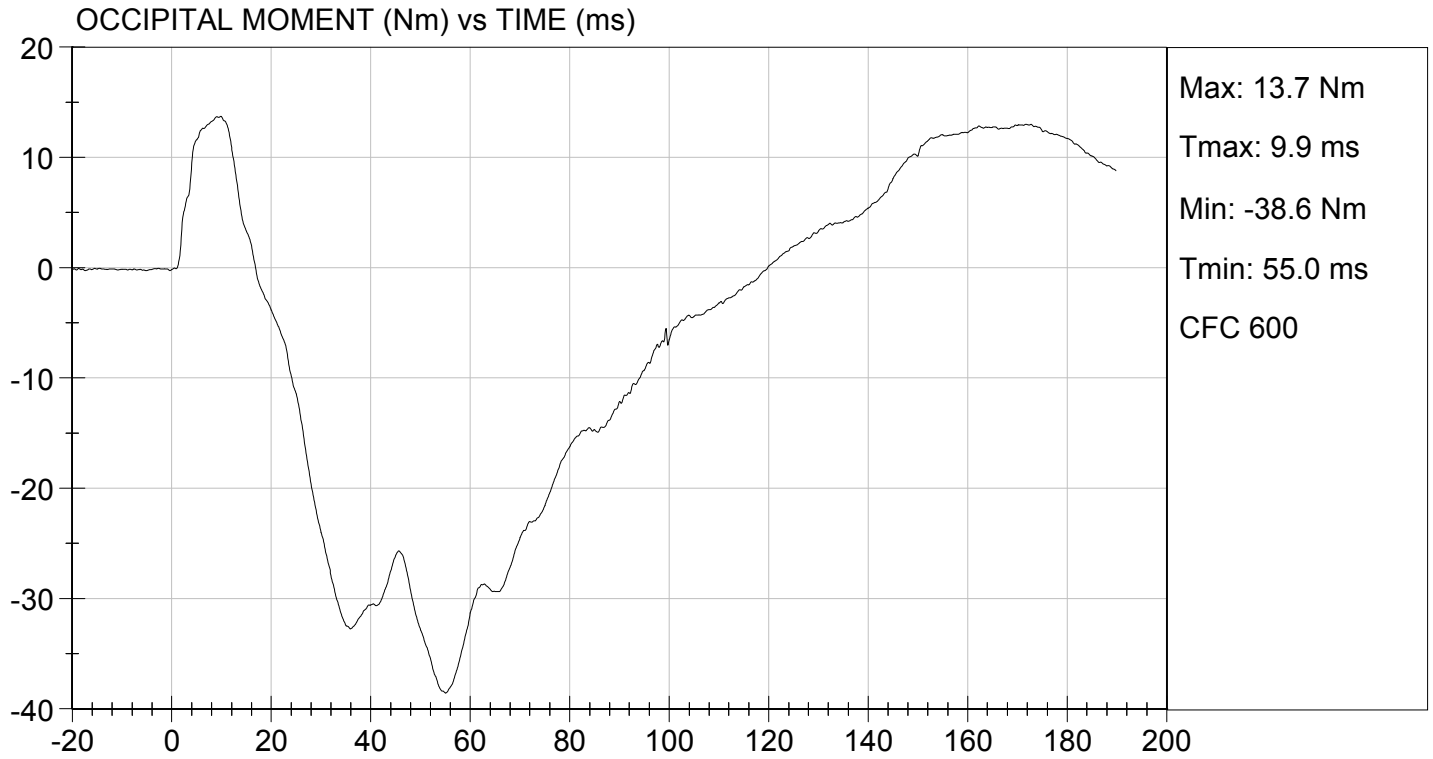
Tested Parameter	Units	Specification	Result	Pass/Fail	
Temperature	deg C	20.6 to 22.2	21.6	Pass	
Humidity	%	10 to 70	28	Pass	
Impact Velocity	m/s	5.51 to 5.63	5.58	Pass	
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.46	Pass
	15 ms	m/s	3.30 to 4.10	3.58	Pass
	20 ms	m/s	4.40 to 5.40	4.77	Pass
	25 ms	m/s	5.40 to 6.10	5.53	Pass
	25-100 ms	m/s	5.50 to 6.20	5.55	Pass
Maximum D-Plane Rotation	deg	71 to 81	74	Pass	
Time of Maximum D-Plane Rotation	ms	50 to 70	61	Pass	
Maximum Occipital Condyle Moment	Nm	-44 to -36	-39	Pass	
Time of Moment Decay to 0 Nm	ms	102 to 126	120	Pass	
Overall Test Results				Pass	

Jessica Hall
Laboratory Technician

12/19/2012
Test Date

David Winkelbauer
Approved By





MGA RESEARCH CORPORATION
SHOULDER IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

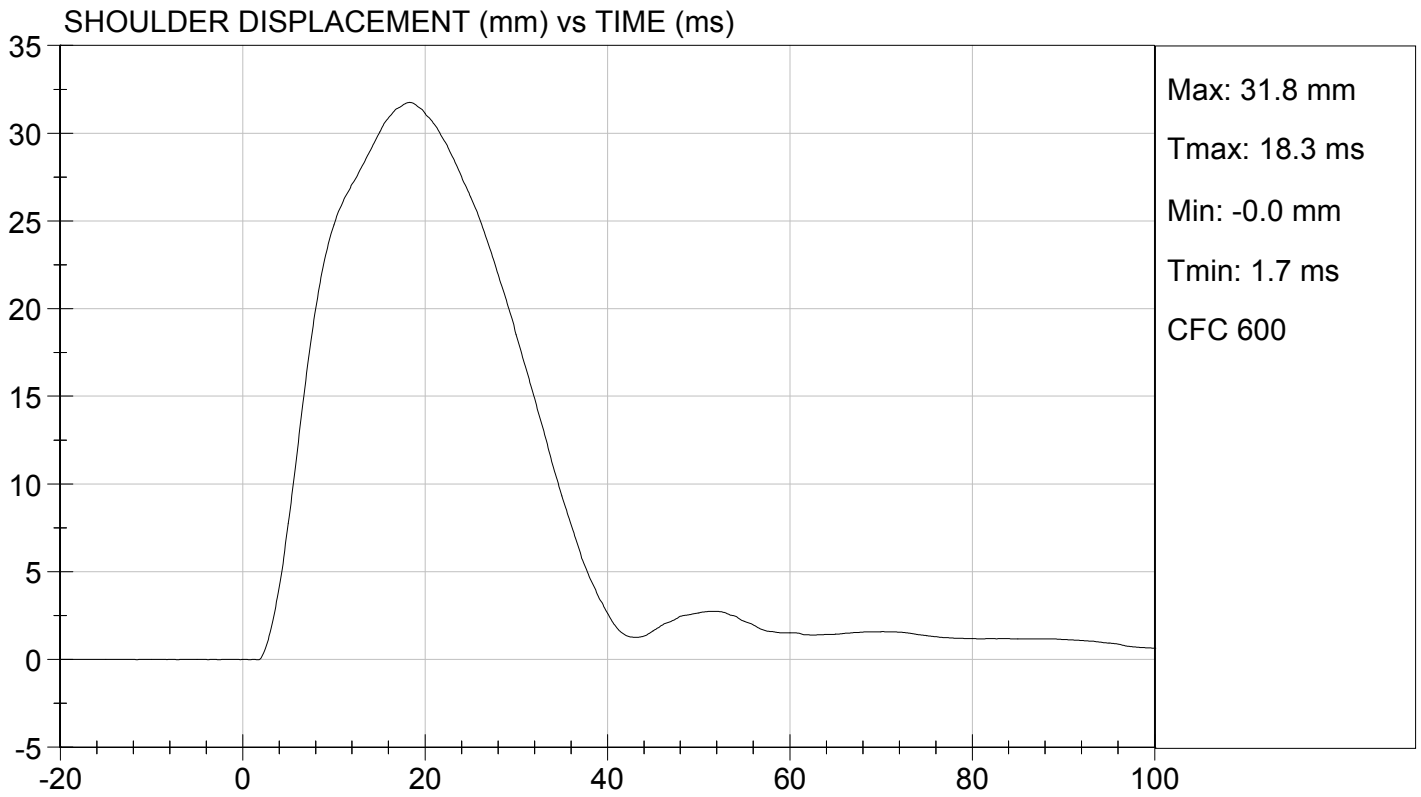
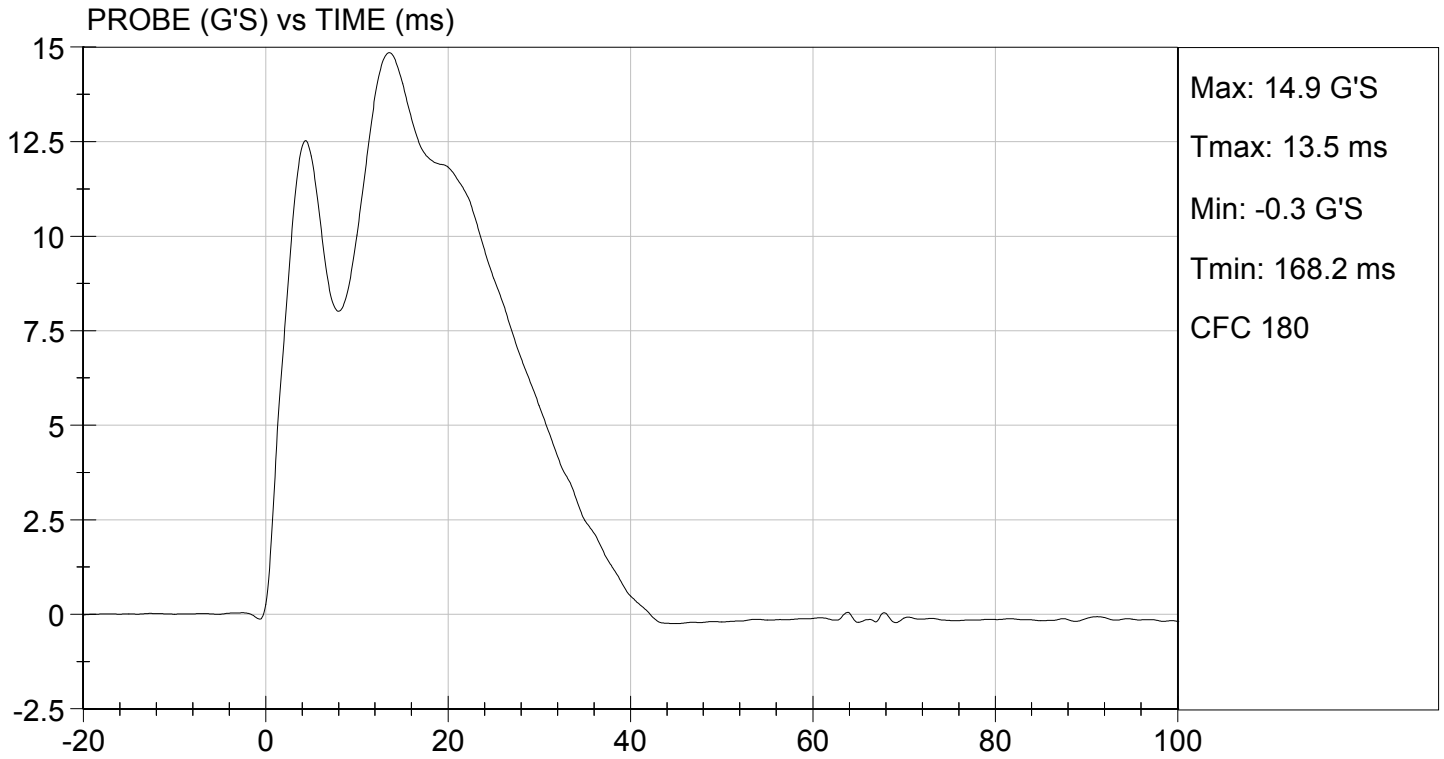
Test ID: D124793

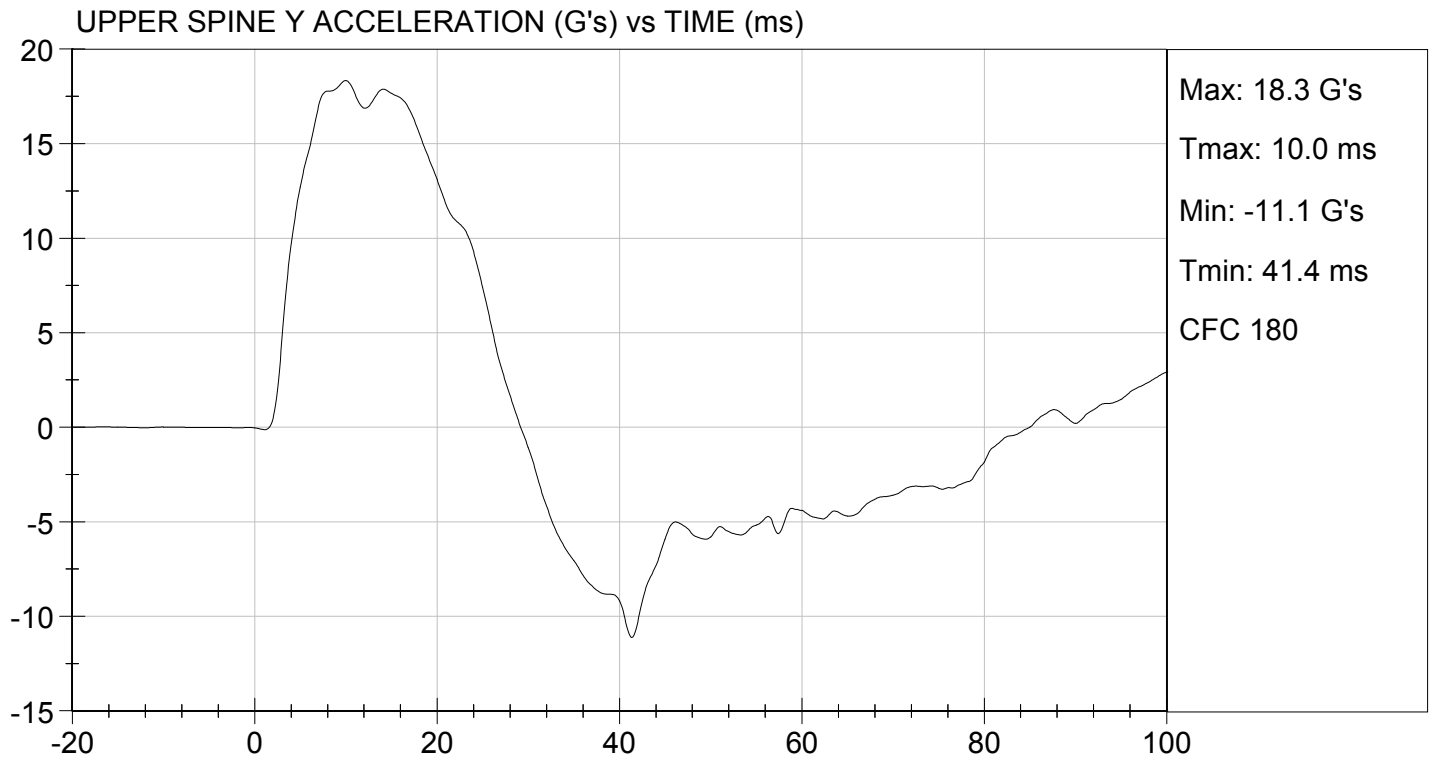
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	27	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	32	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	18	Pass
Overall Test Results				Pass

Jessica Gall
Laboratory Technician

12/19/2012
Test Date

David Winkelbauer
Approved By





**MGA RESEARCH CORPORATION
THORAX (WITH ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY**

ATD Serial No: 296

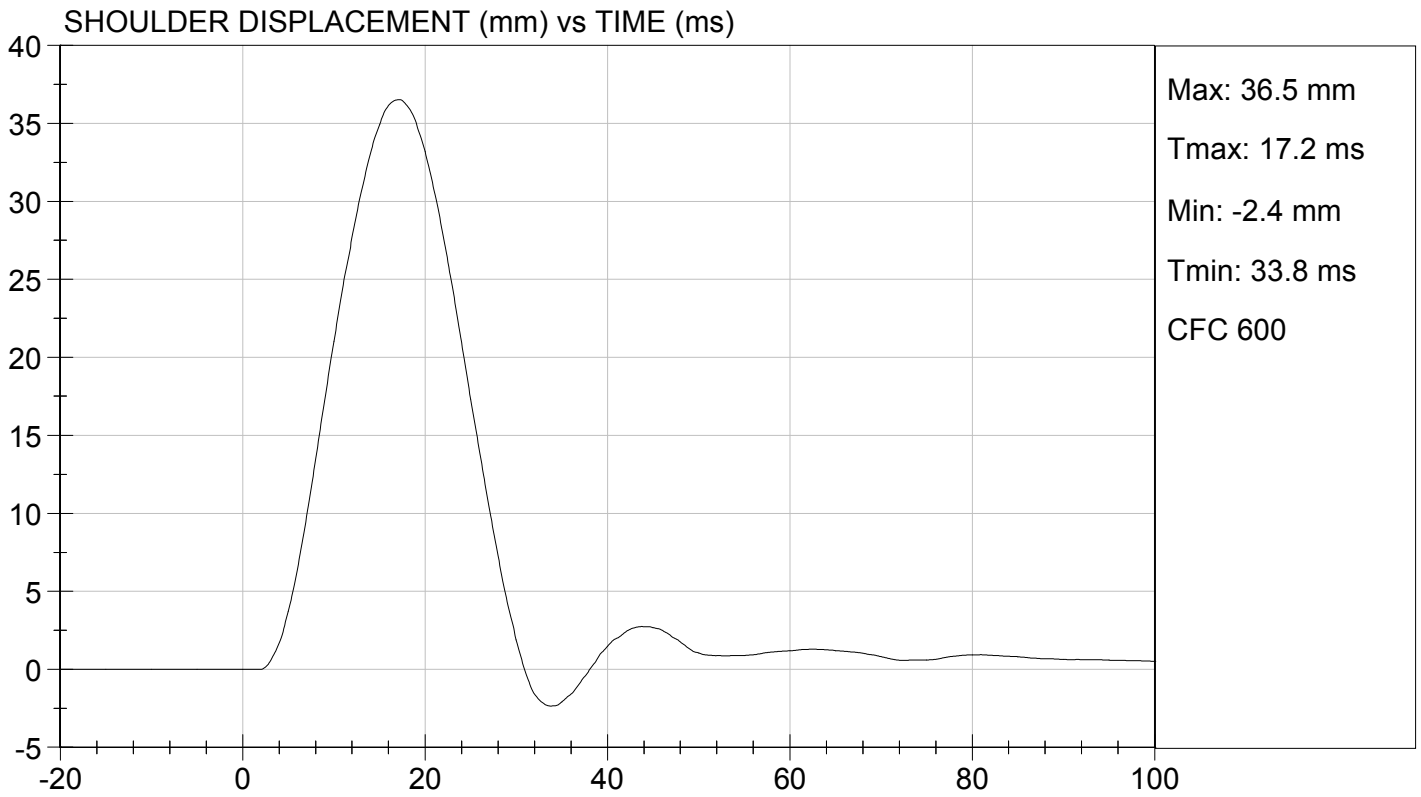
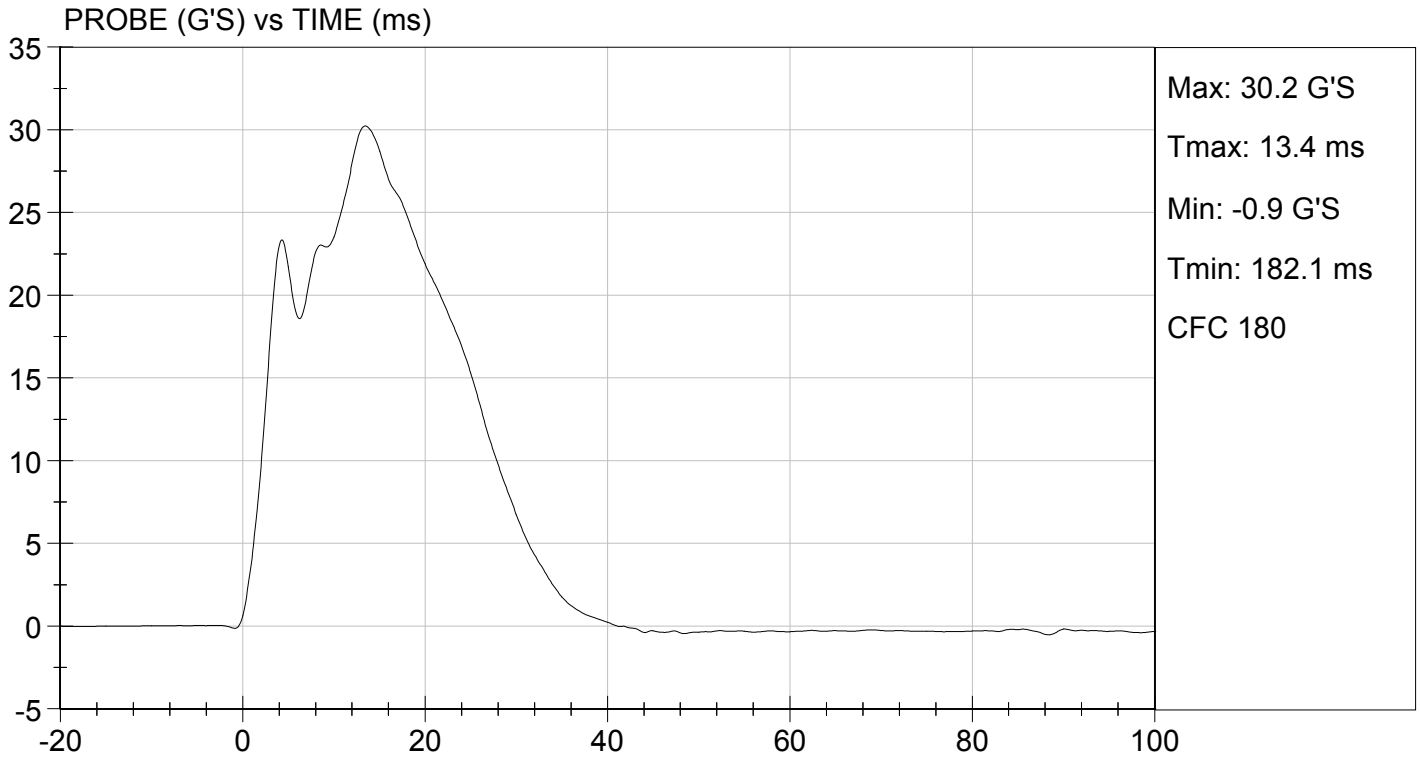
Test I.D.: D124794

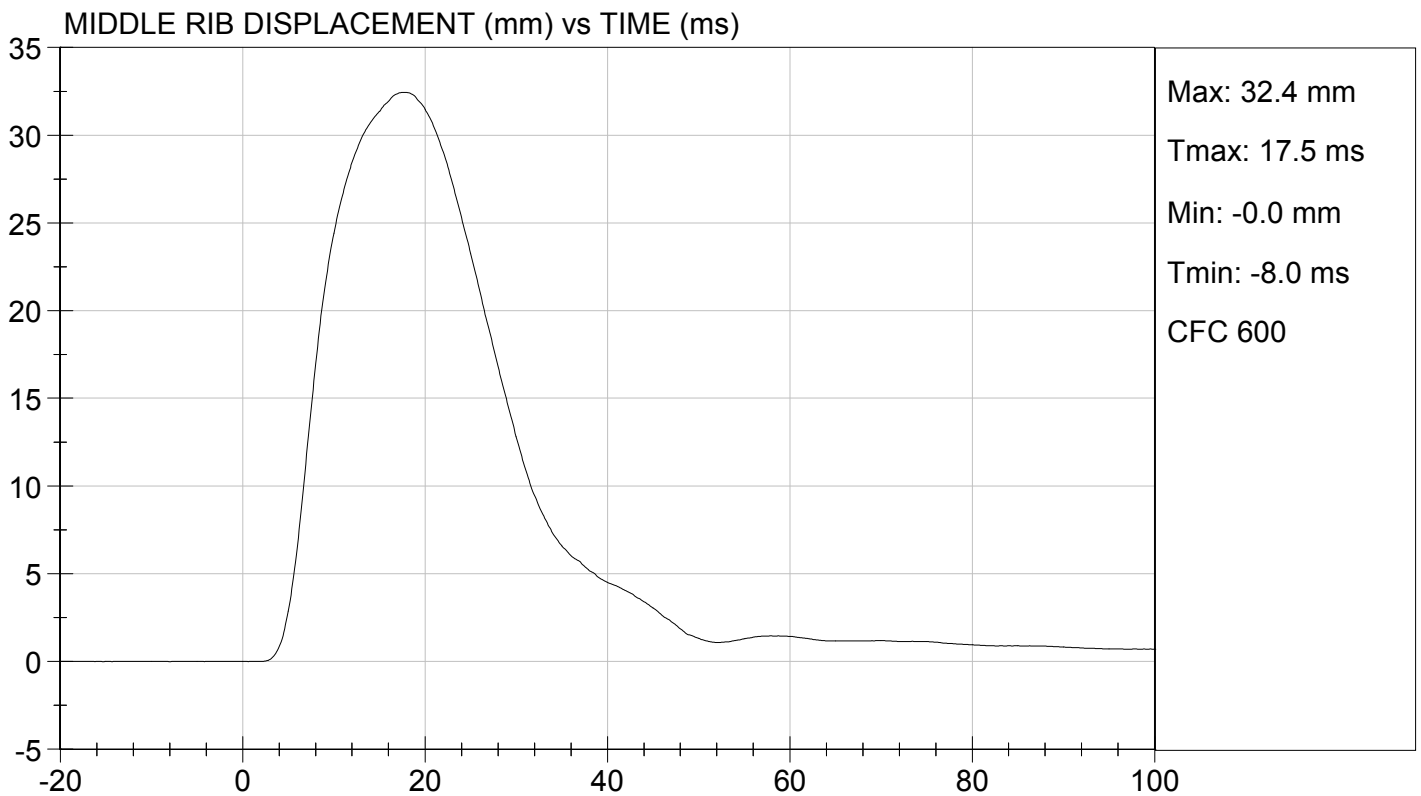
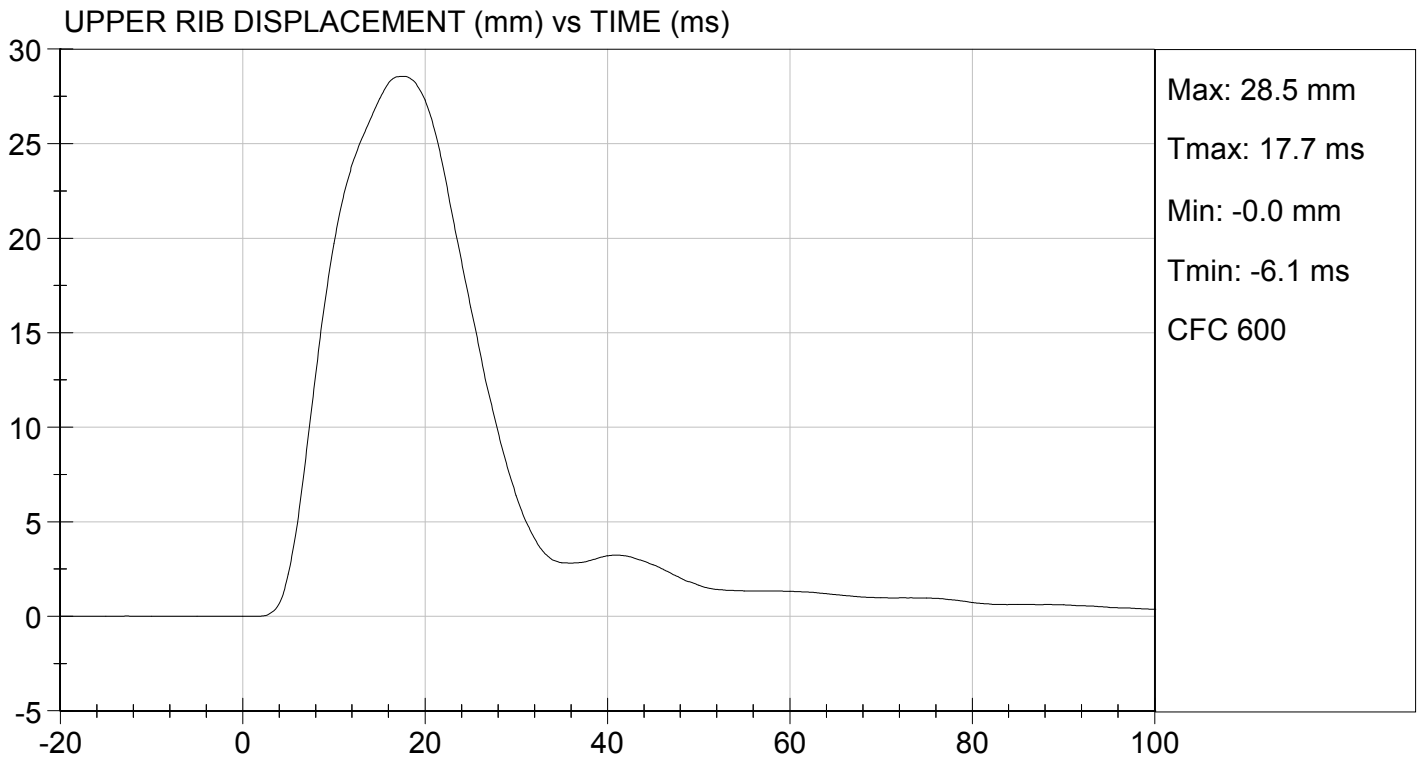
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	27	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	30 to 36	30	Pass
Shoulder Displacement	mm	31 to 40	37	Pass
Upper Rib Displacement	mm	25 to 32	29	Pass
Middle Rib Displacement	mm	30 to 36	32	Pass
Lower Rib Displacement	mm	32 to 38	35	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	37	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	30	Pass
Overall Test Results				Pass

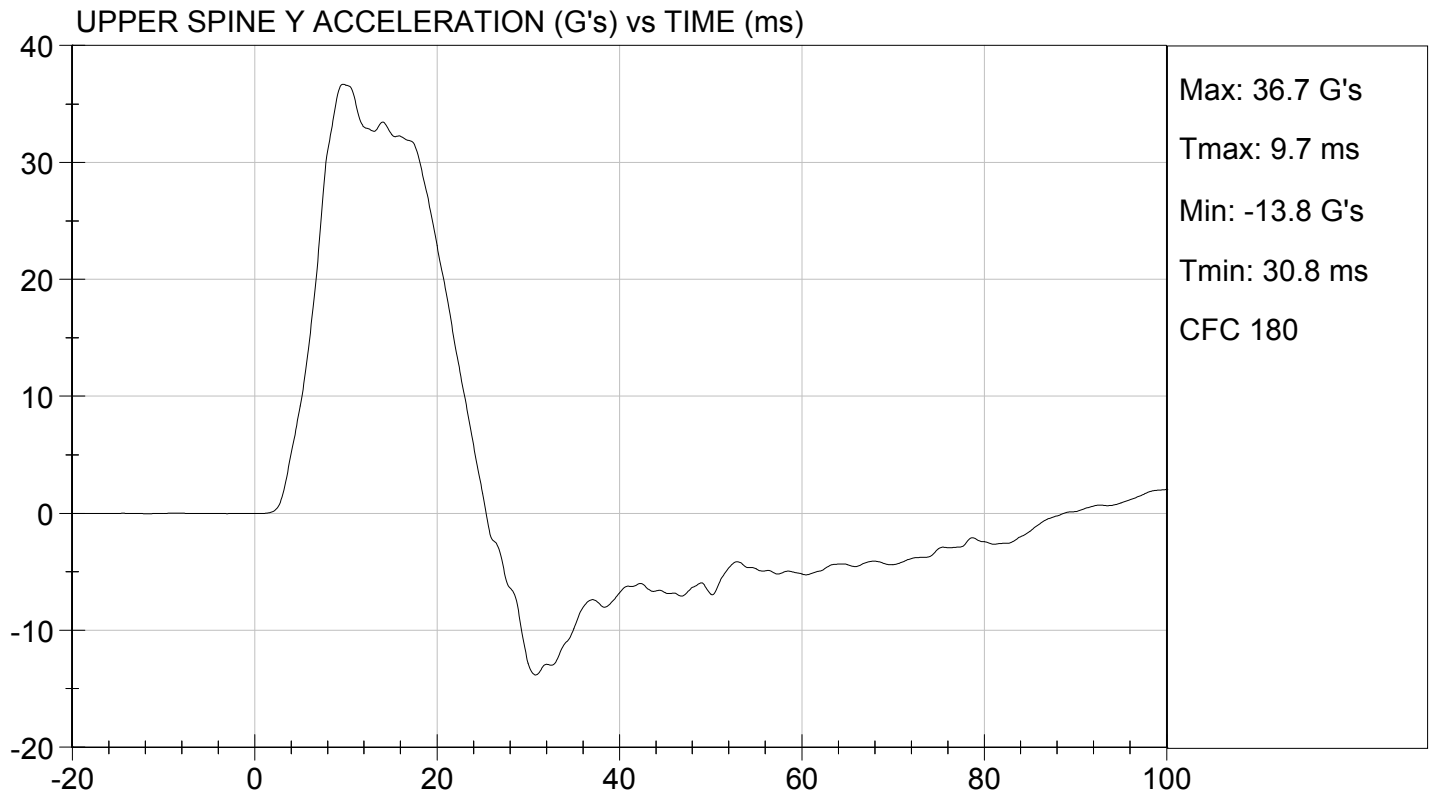
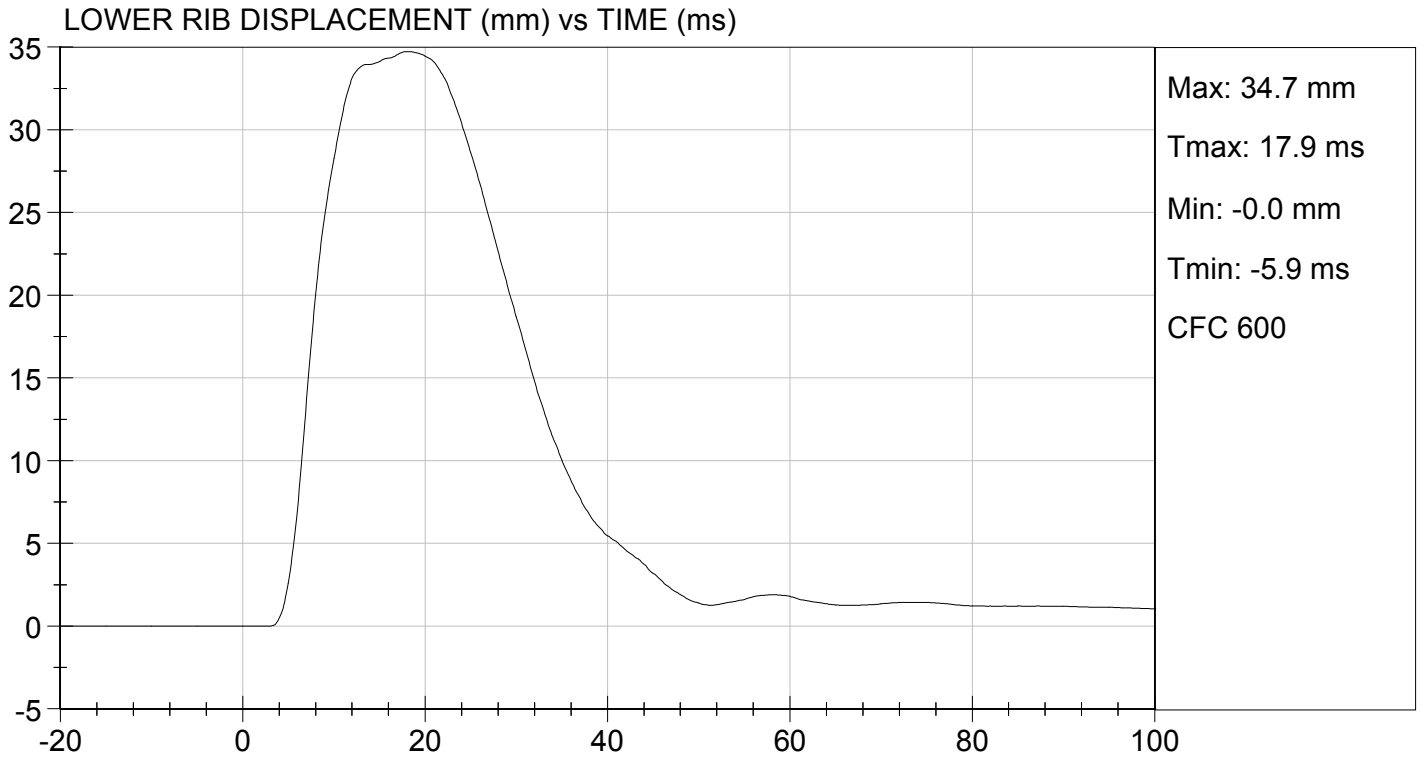
Jessica Hall
Laboratory Technician

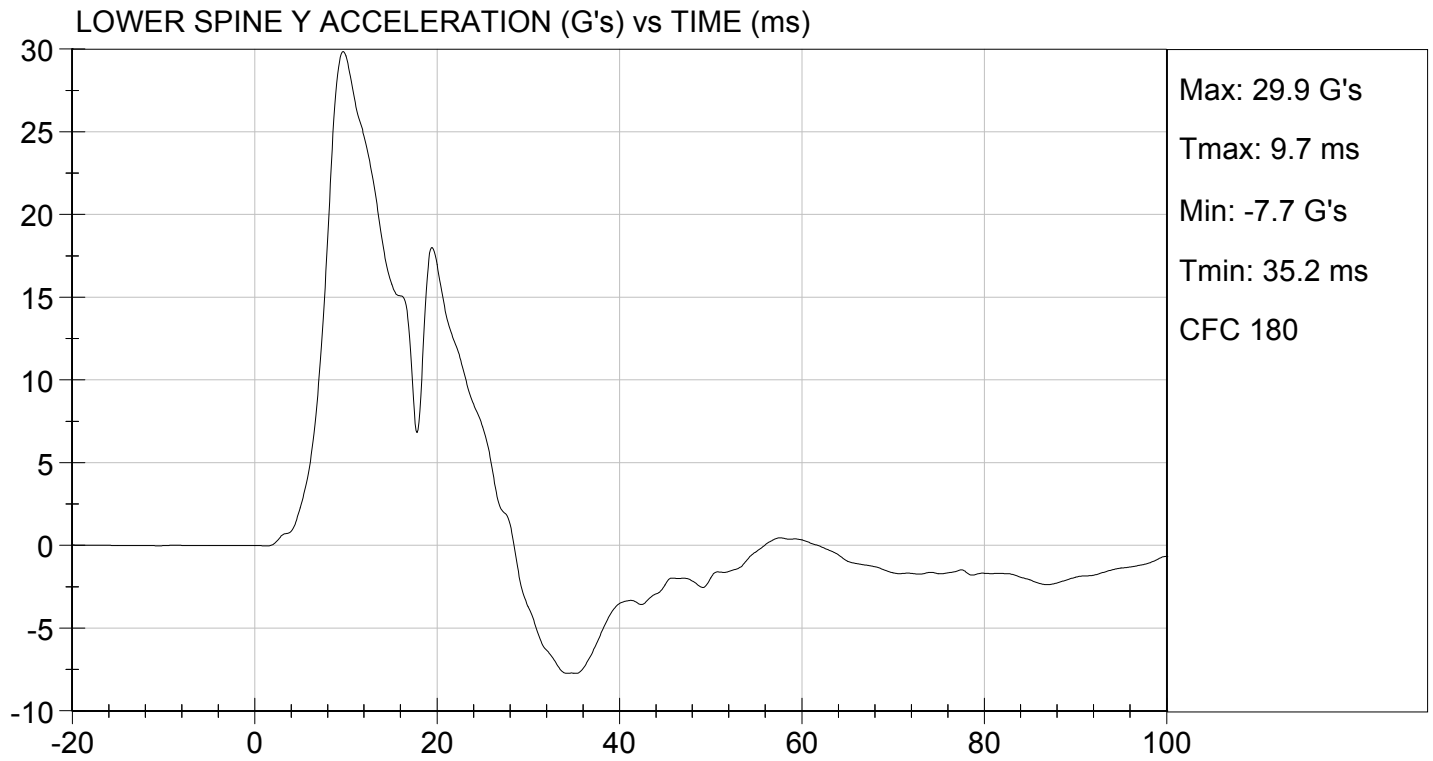
12/19/2012
Test Date

David Winkelbauer
Approved By









MGA RESEARCH CORPORATION
THORAX (WITHOUT ARM) IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

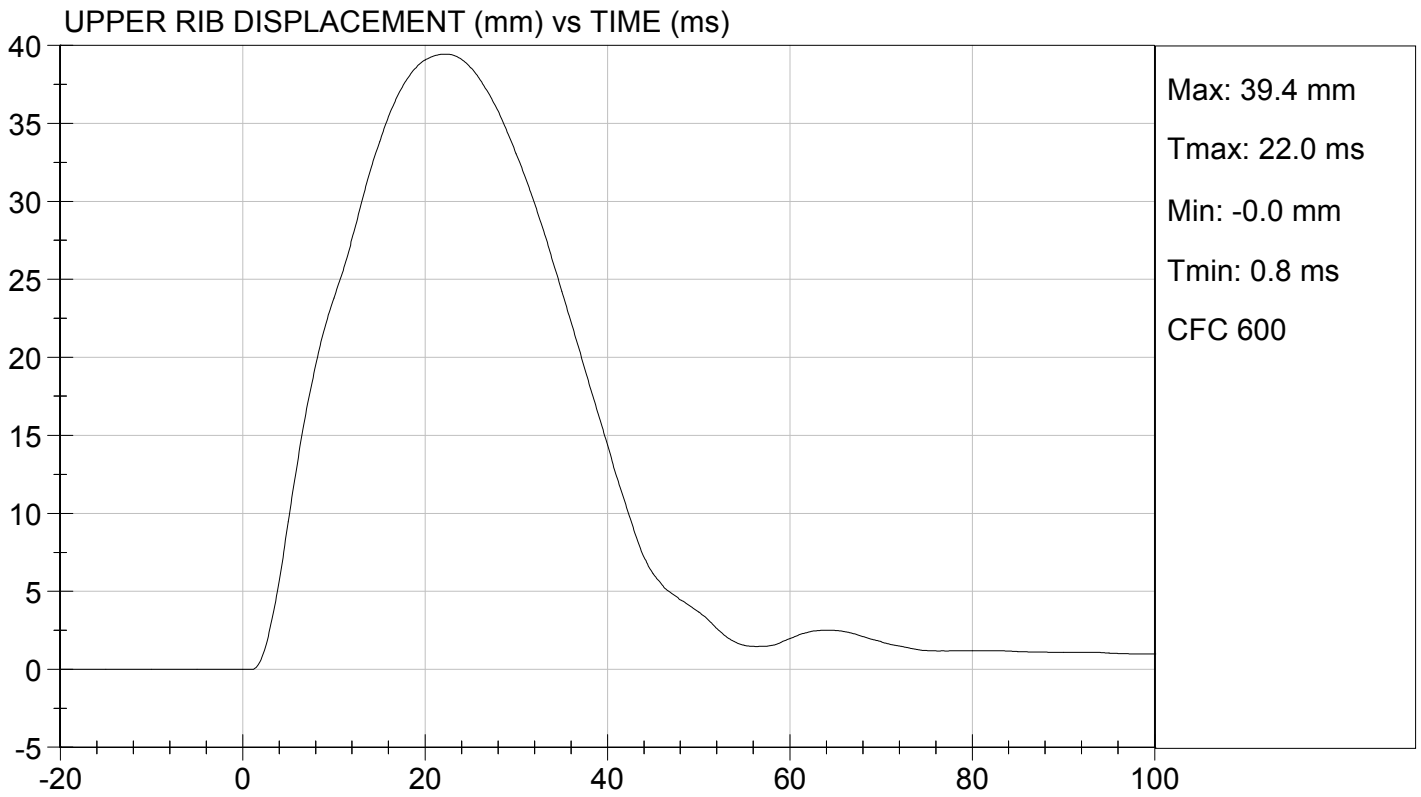
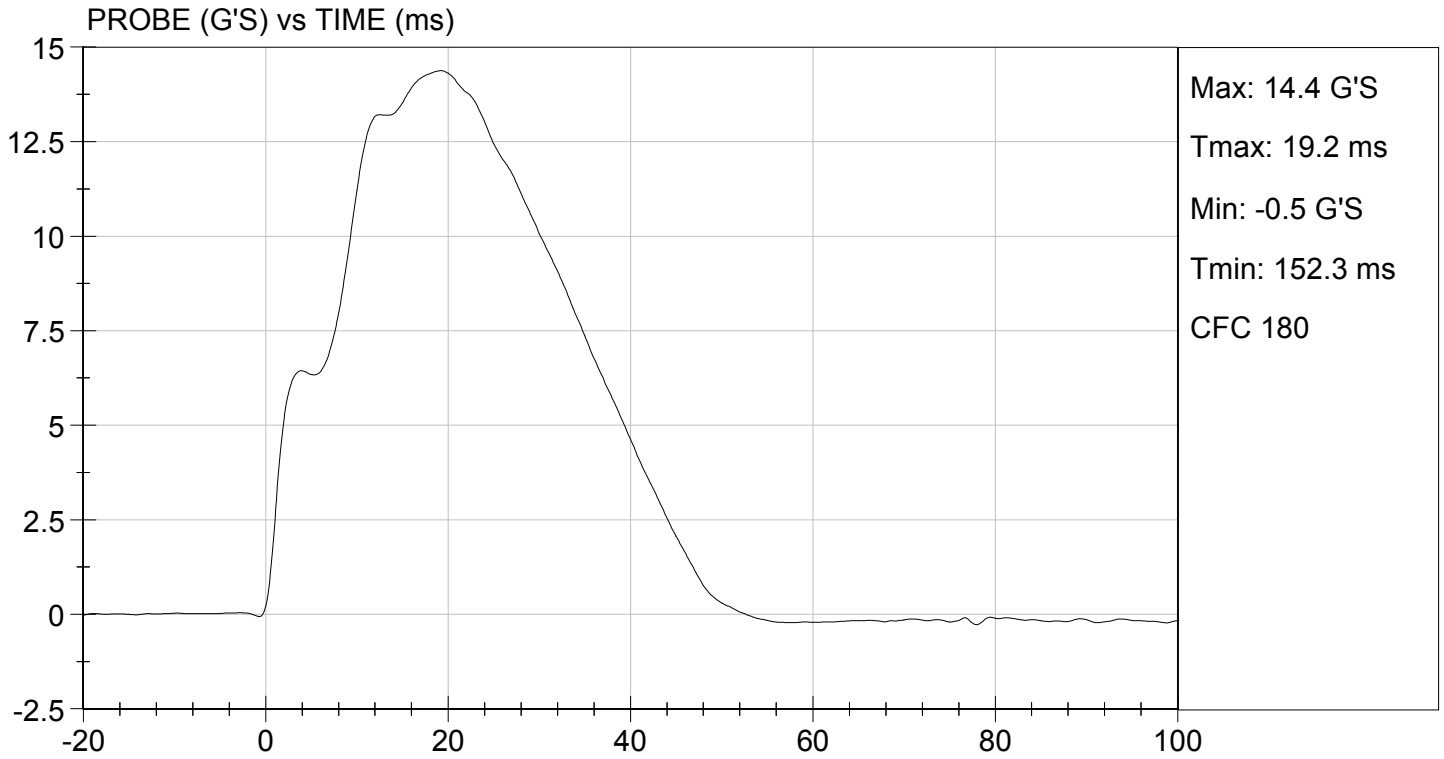
Test I.D: D124795

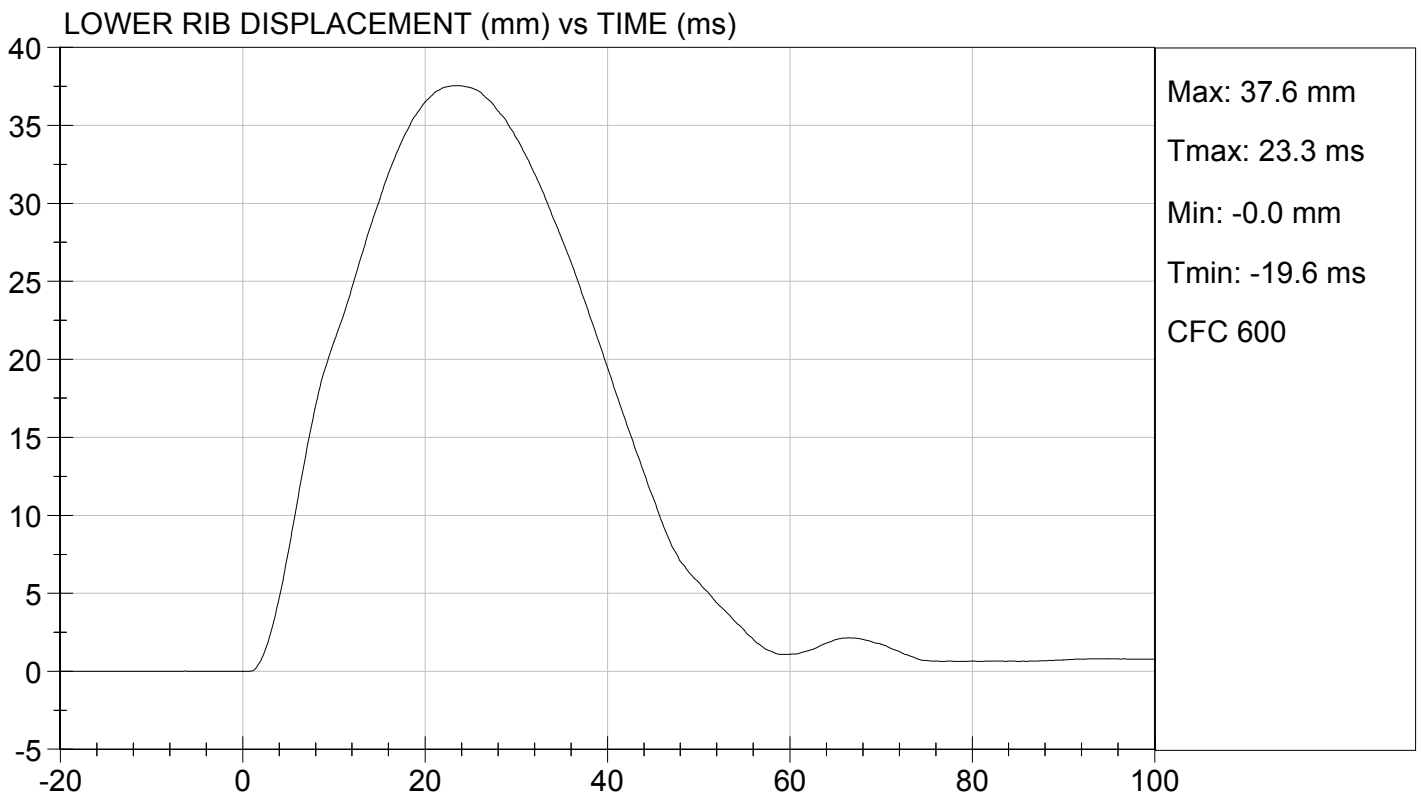
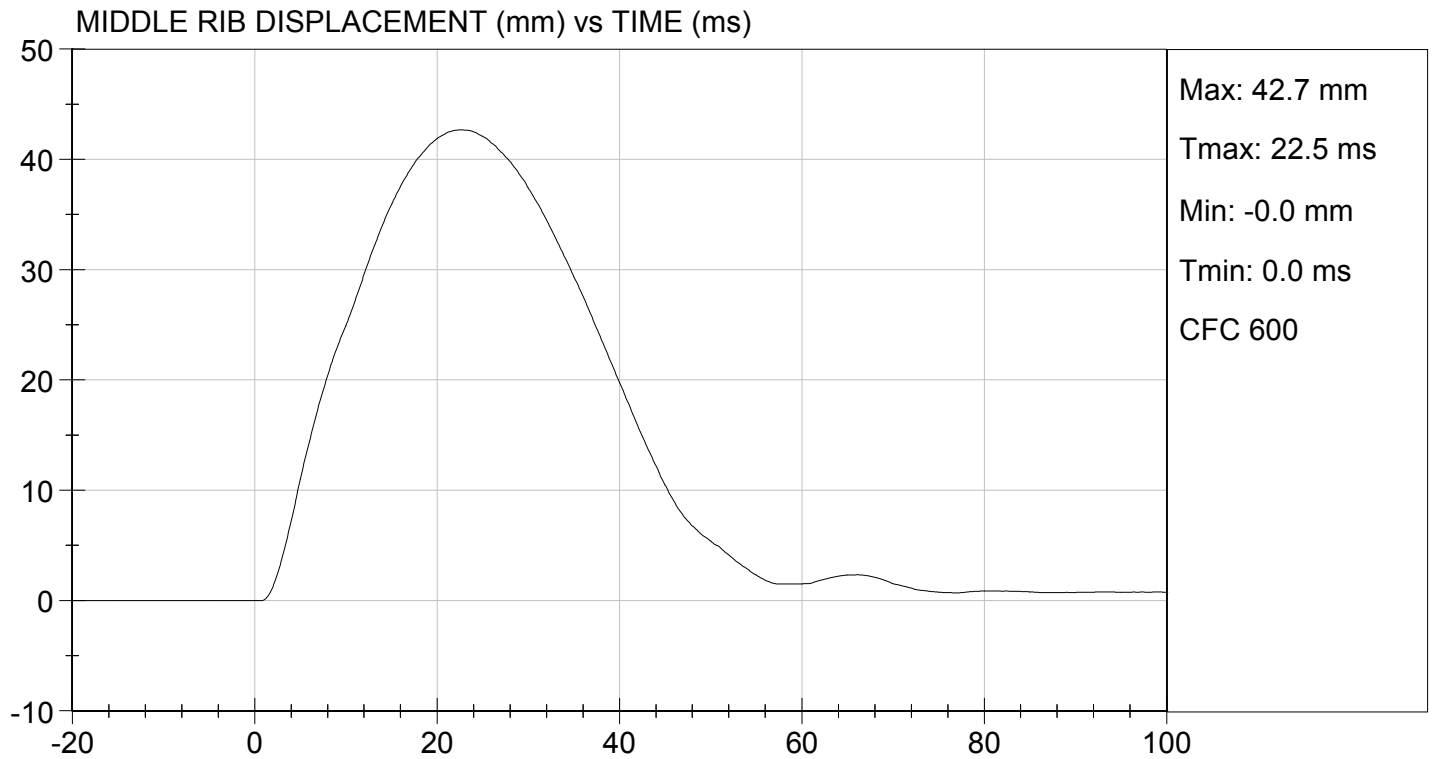
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	27	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	14 to 18	14	Pass
Upper Rib Displacement	mm	32 to 40	39	Pass
Middle Rib Displacement	mm	39 to 45	43	Pass
Lower Rib Displacement	mm	35 to 43	38	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	14	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	7	Pass
Overall Test Results				Pass

Jessica Gall
 Laboratory Technician

12/19/2012
 Test Date

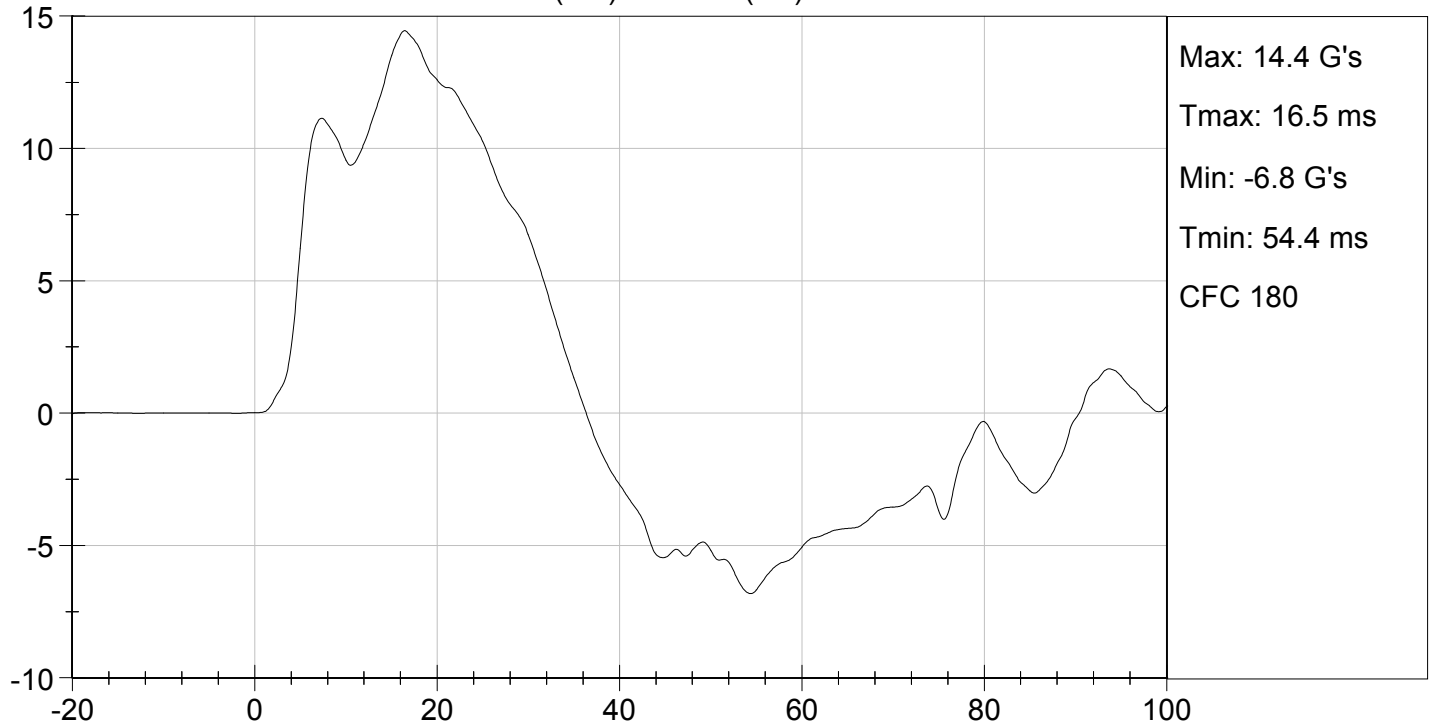
David Winkelbauer
 Approved By



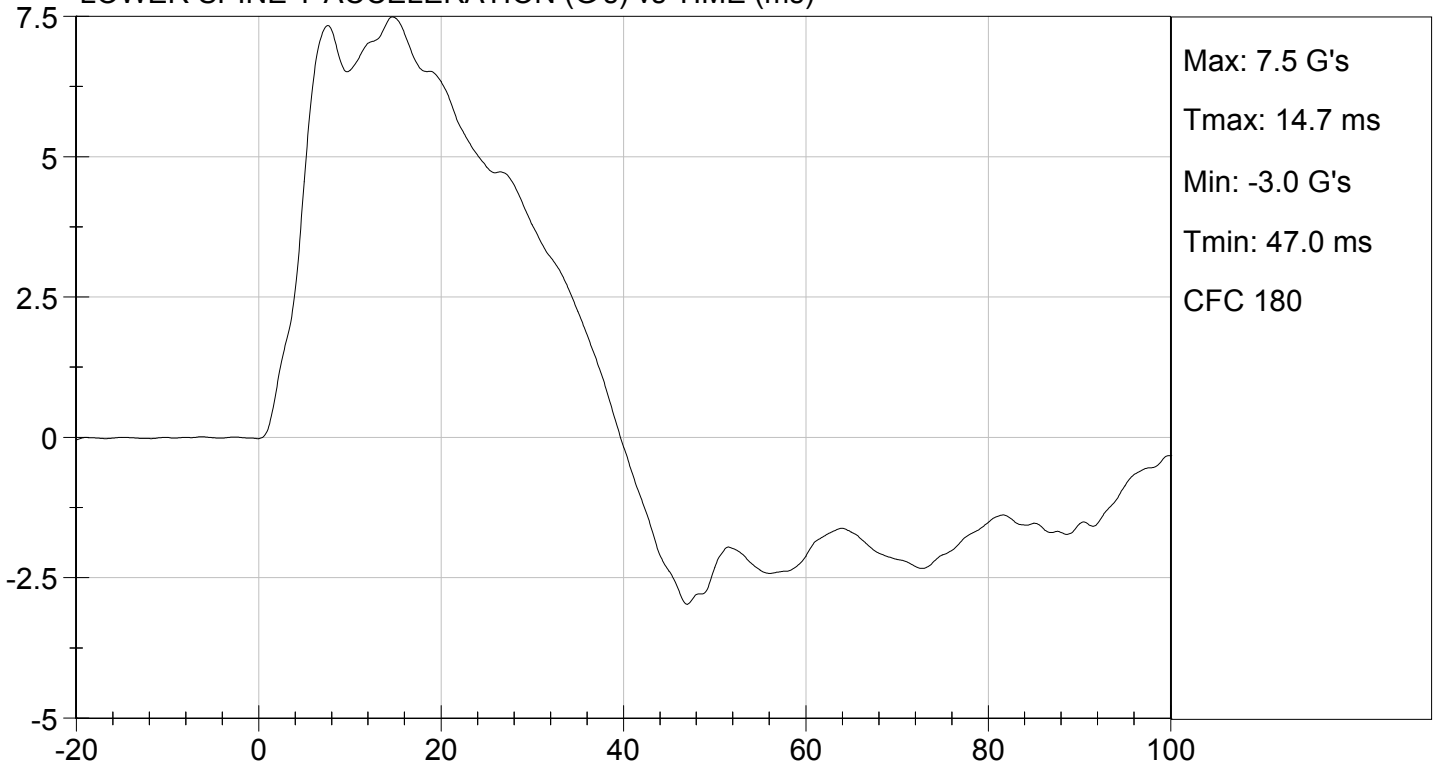




UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)



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

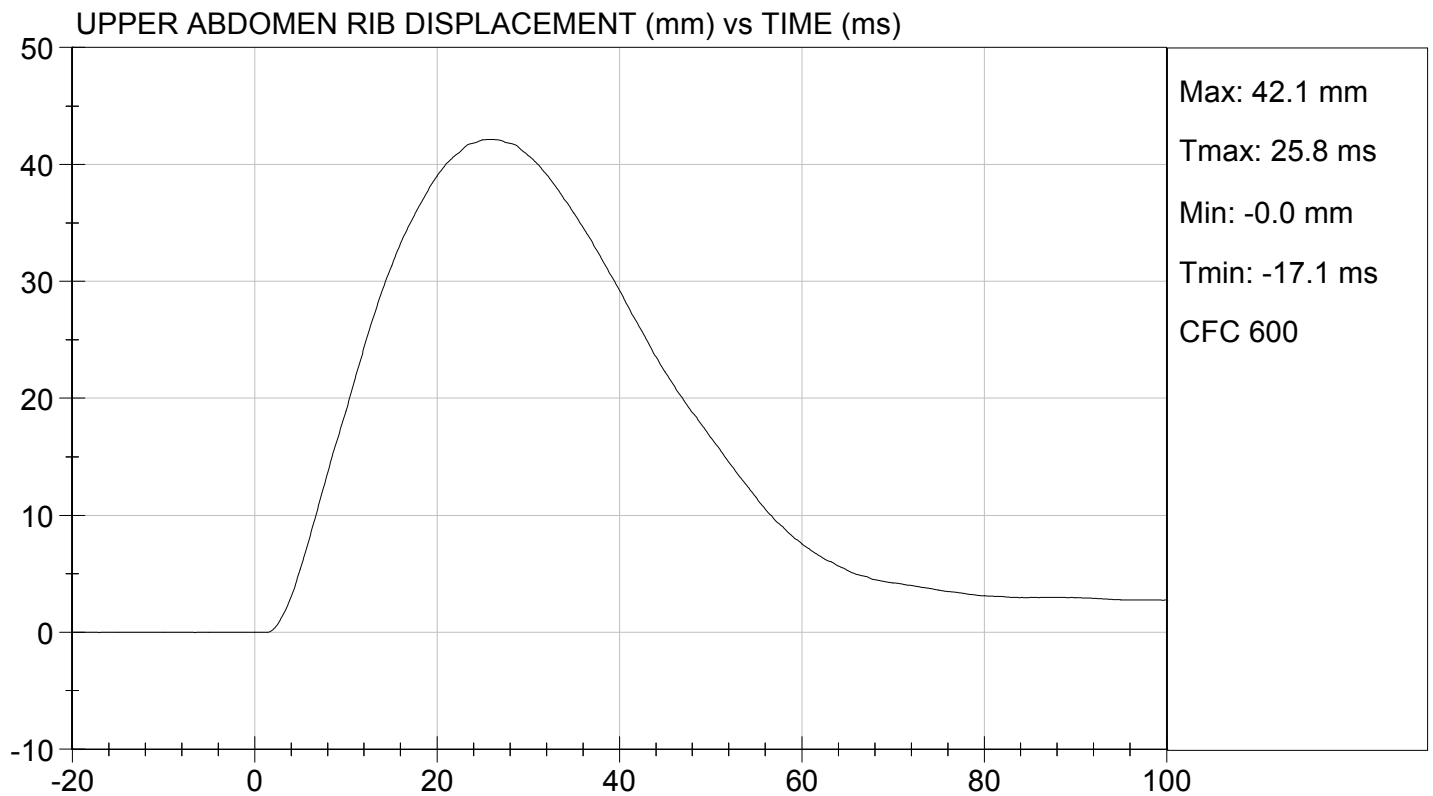
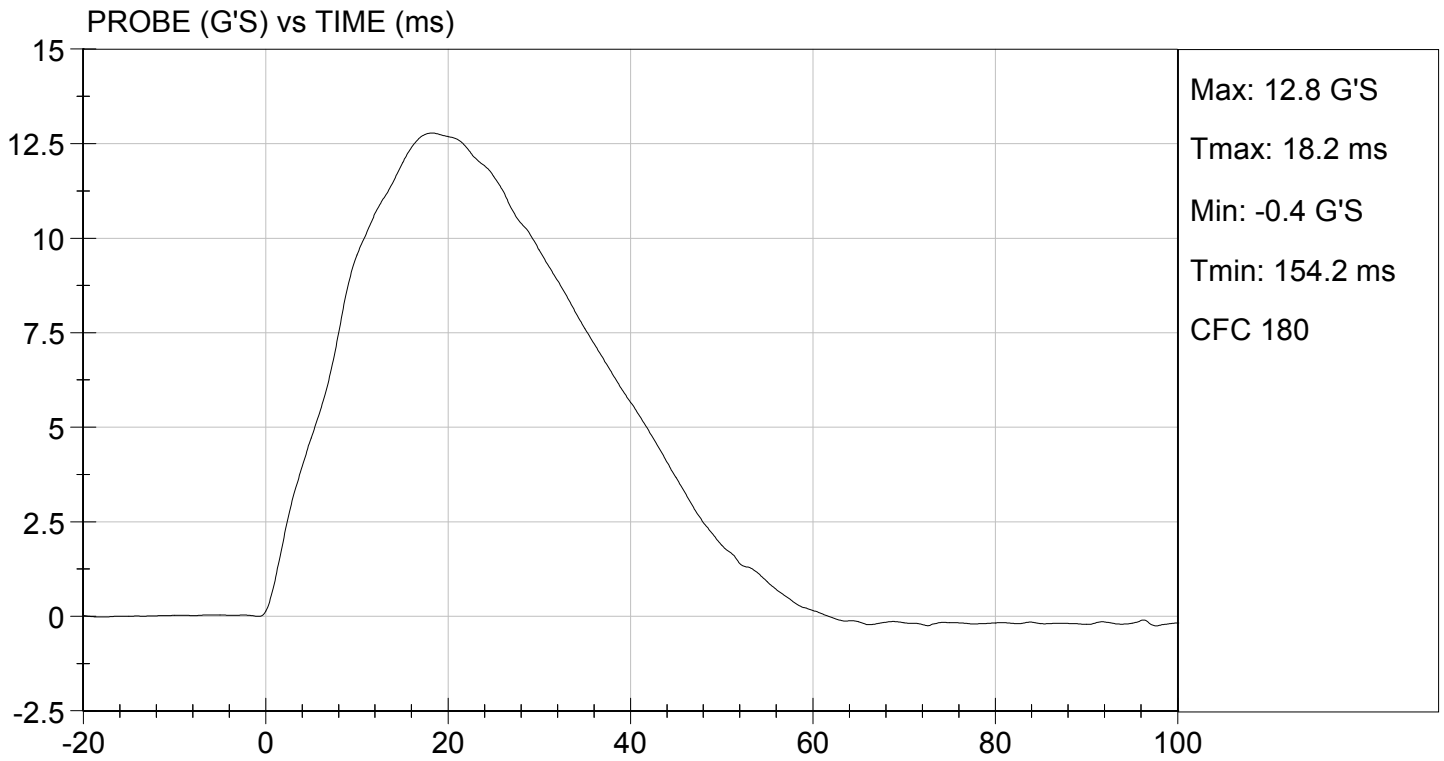
Test I.D: D124796

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	27	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	12 to 16	13	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	42	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	42	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	10	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

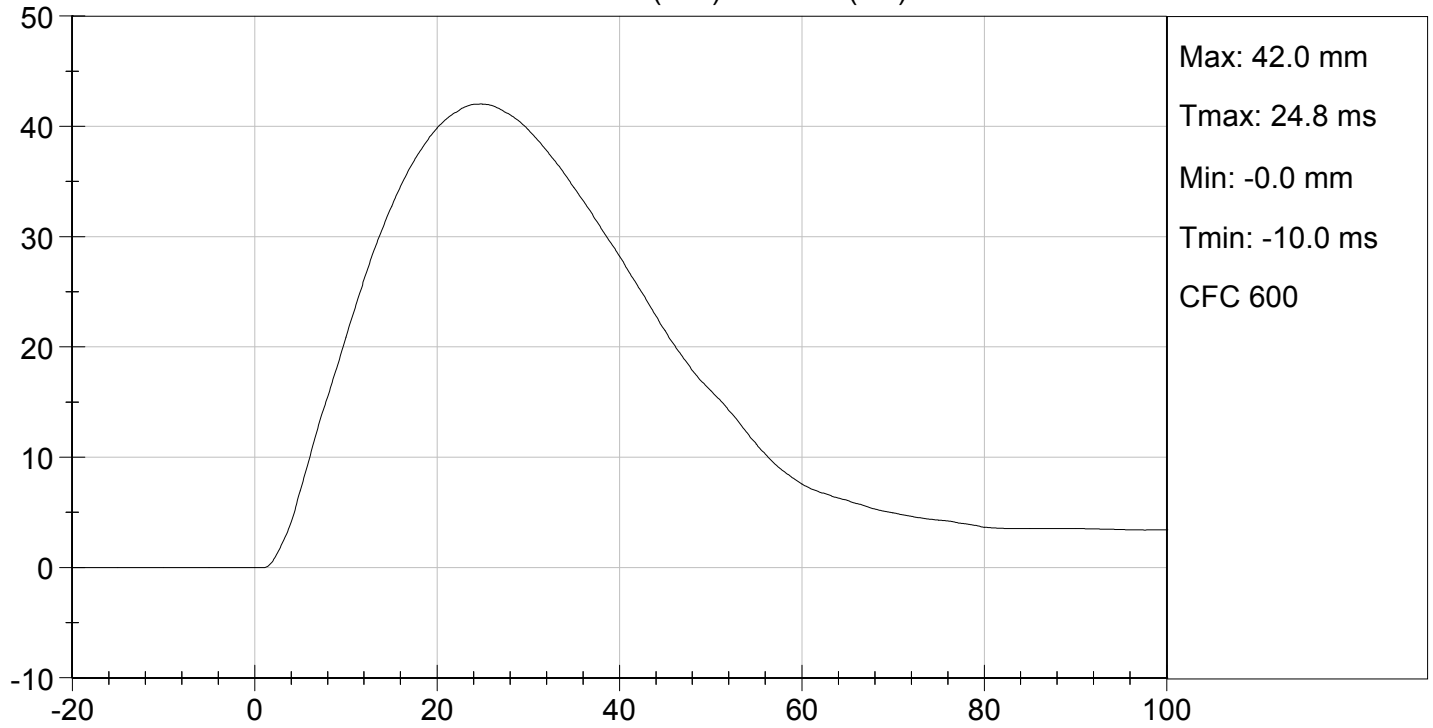
12/19/2012
Test Date

David Winkelbauer
Approved By

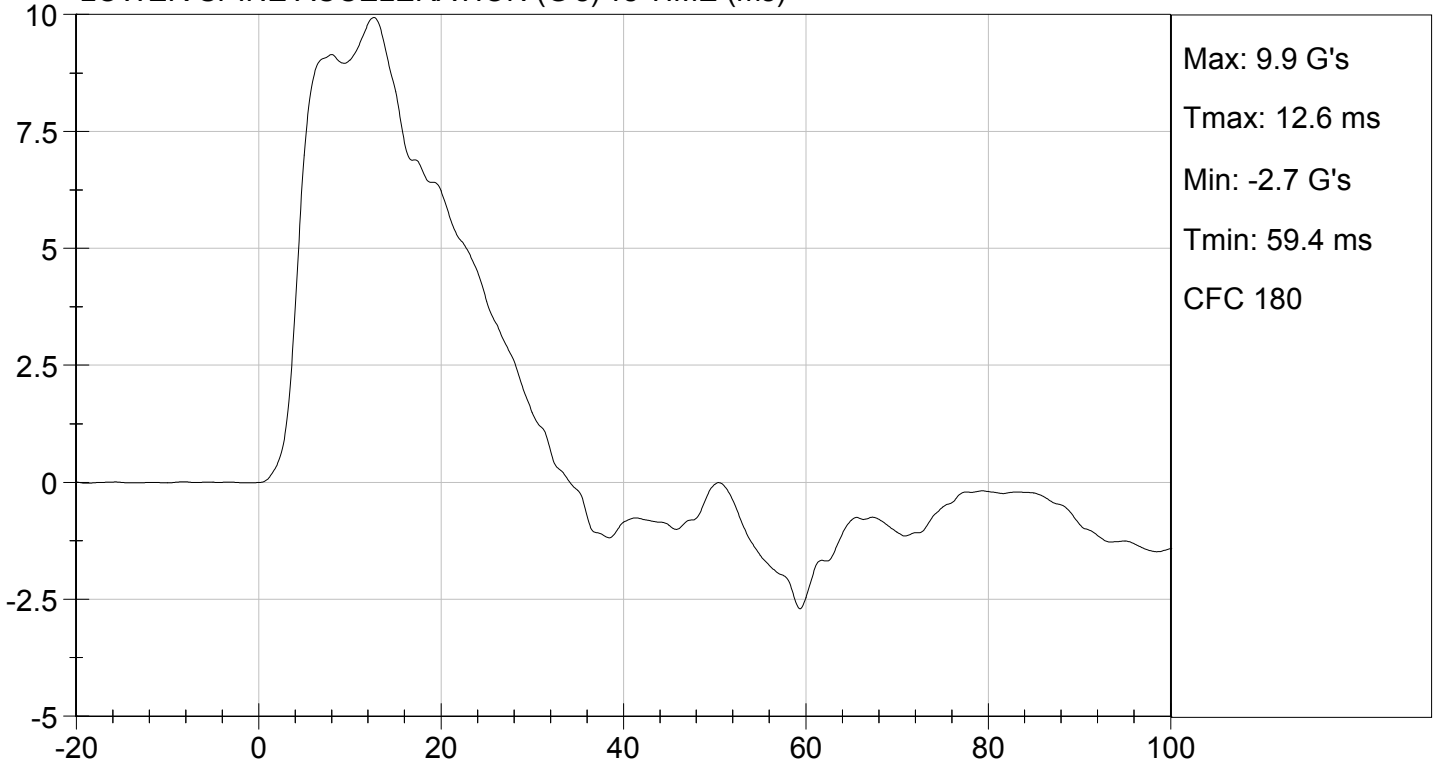




LOWER ABDOMEN RIB DISPLACEMENT (mm) vs TIME (ms)



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



MGA RESEARCH CORPORATION
PELVIS IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

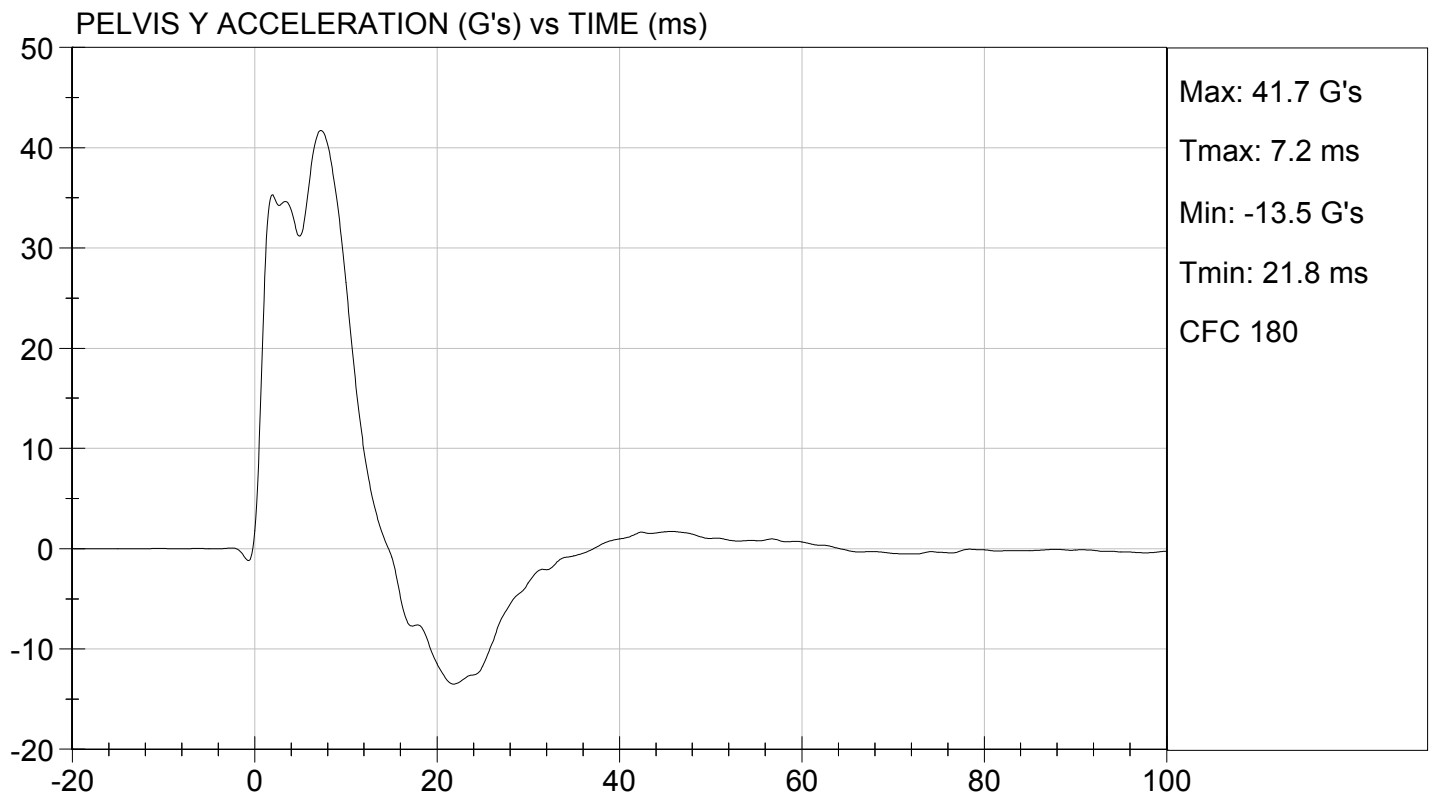
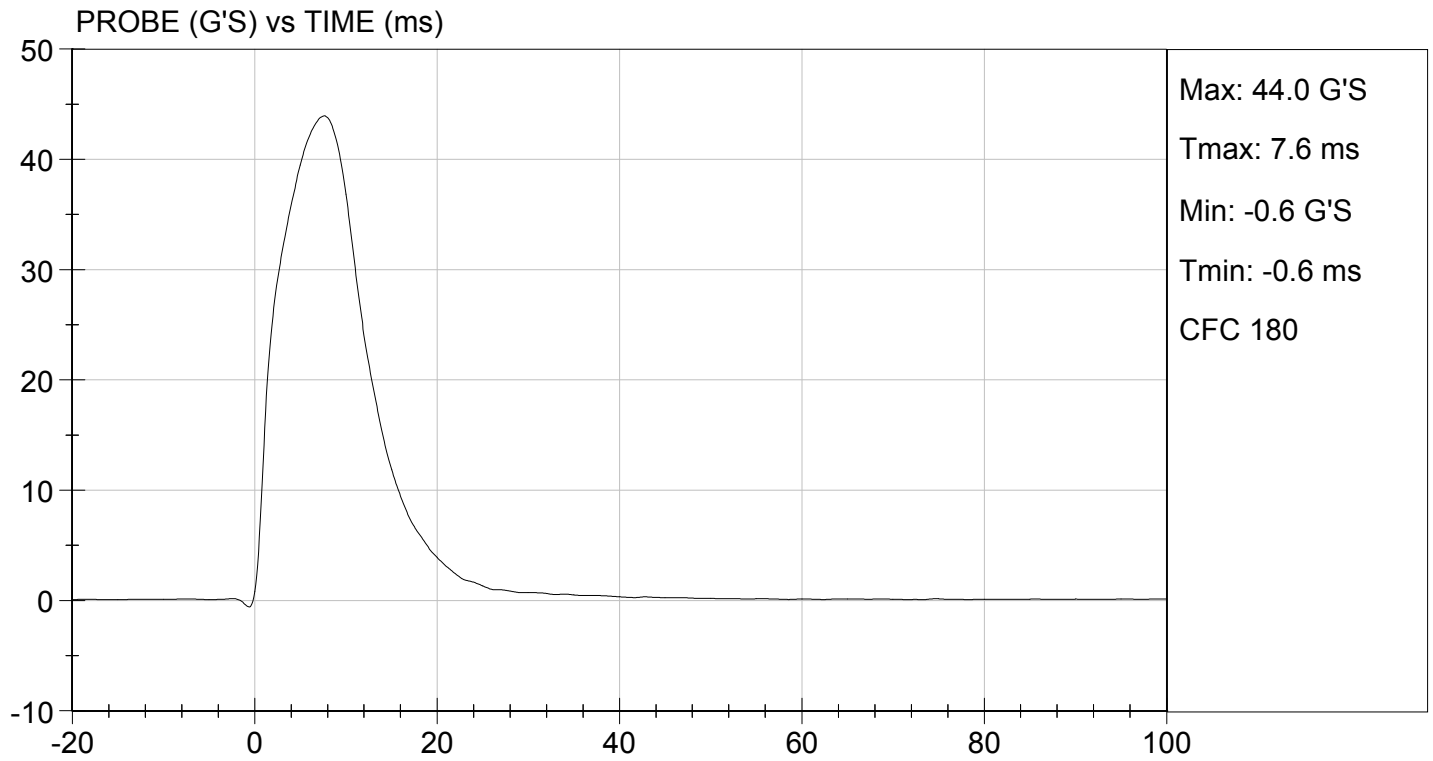
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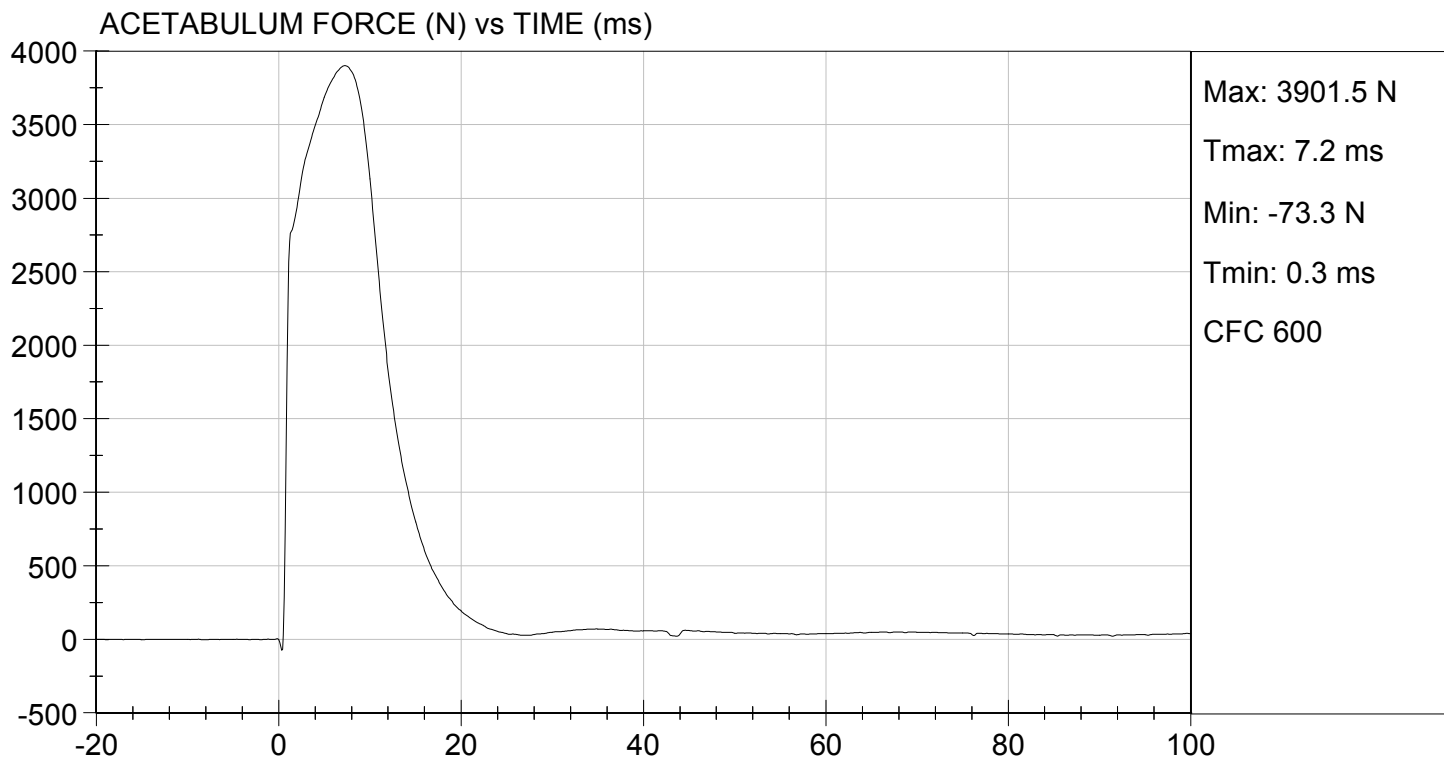
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	28	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	38 to 47	44	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	42	Pass
Peak Acetabulum Force	N	3600 to 4300	3,902	Pass
Overall Test Results				Pass

Jessica Hall
Laboratory Technician

12/19/2012
Test Date

David Winkelbauer
Approved By





MGA RESEARCH CORPORATION
ILIAC IMPACT TEST
SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 296

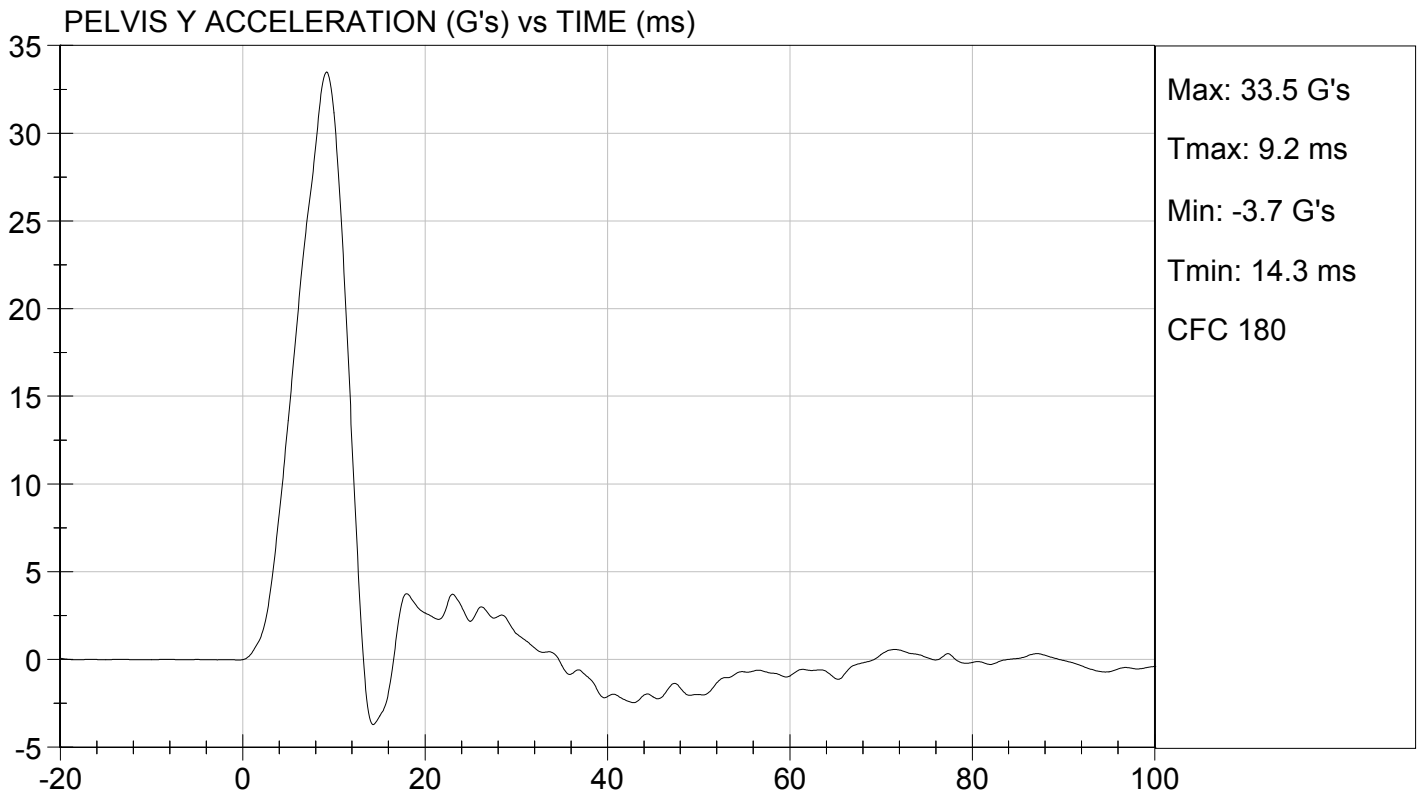
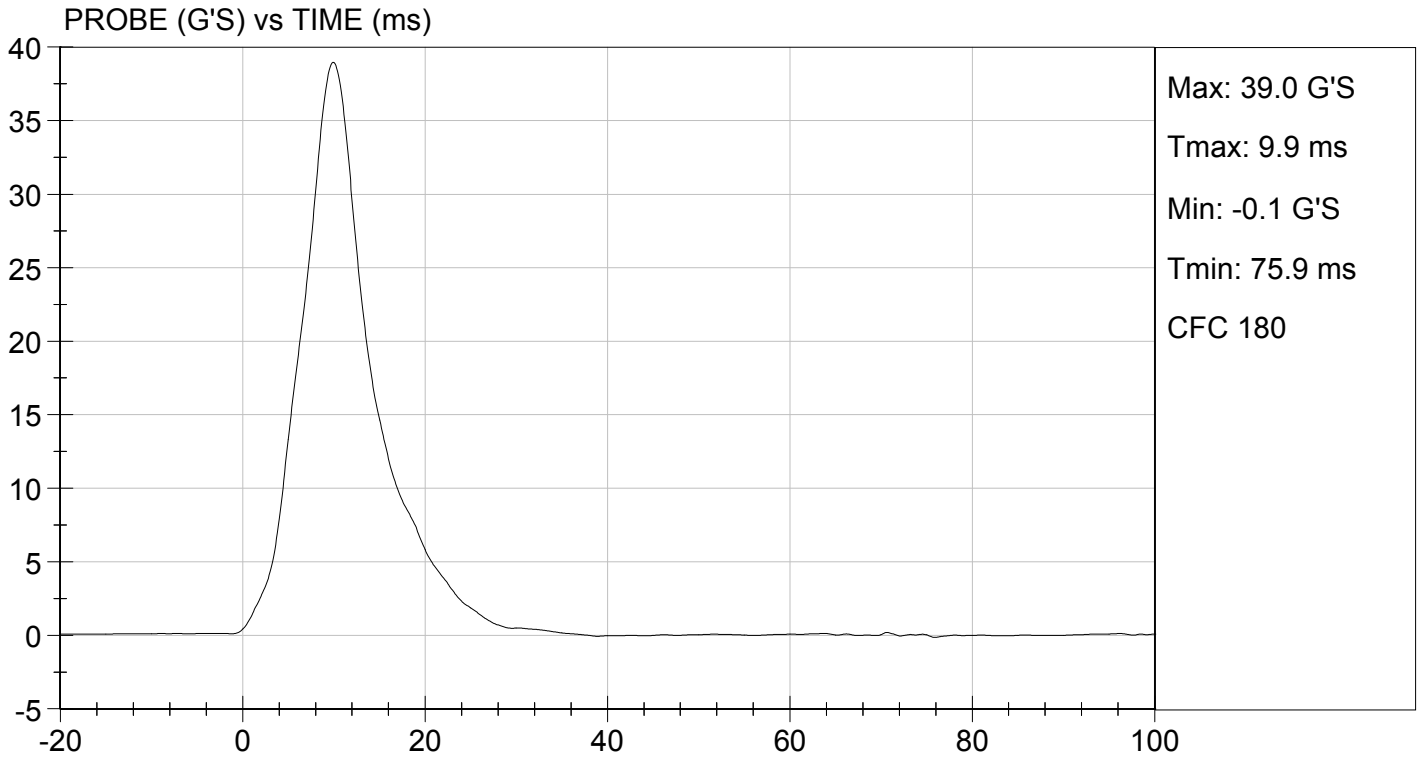
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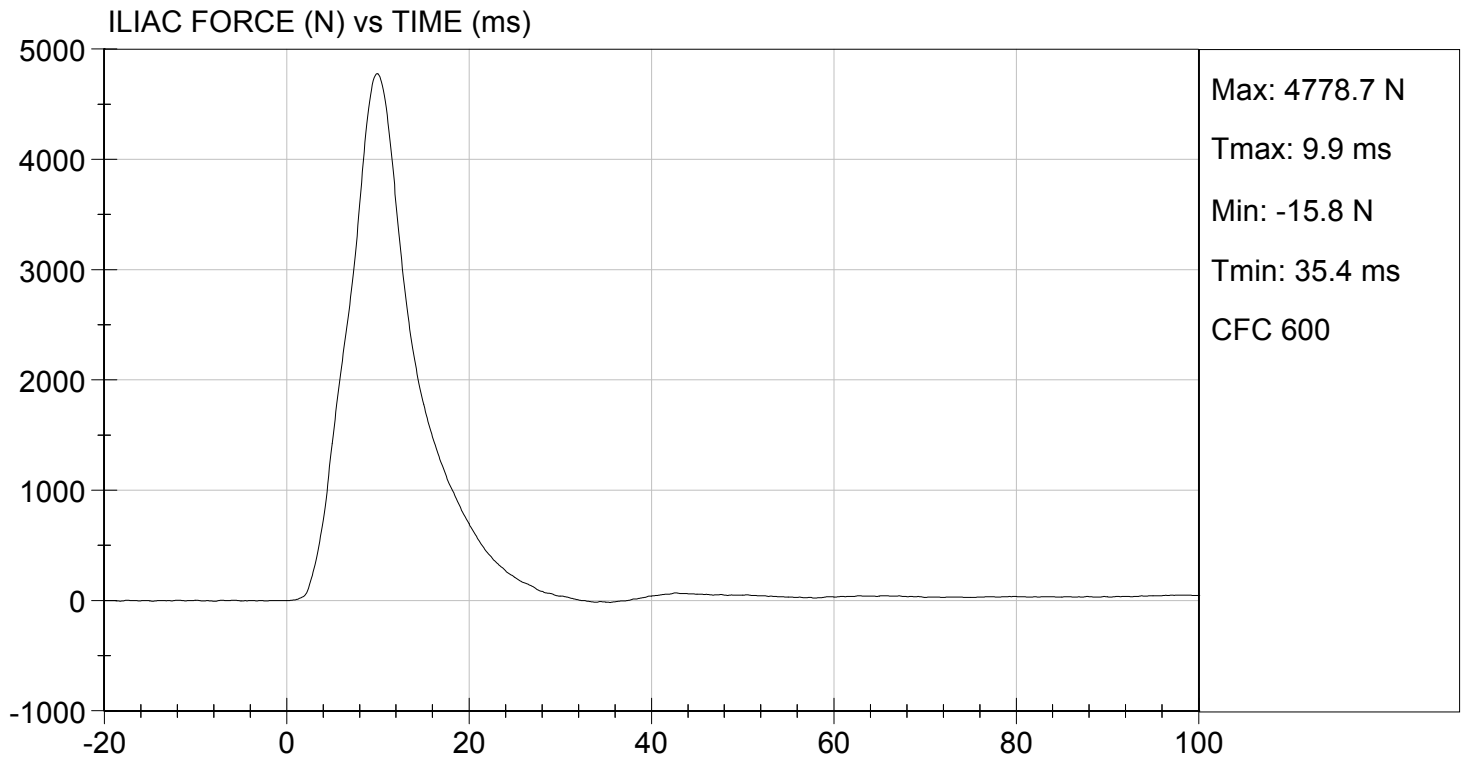
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	28	Pass
Impact Velocity	m/s	4.20 to 4.40	4.23	Pass
Maximum Probe Acceleration	G's	36 to 45	39	Pass
Pelvis Y Acceleration	G's	28 to 39	33	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,779	Pass
Overall Test Results				Pass

Jessica Hall
 Laboratory Technician

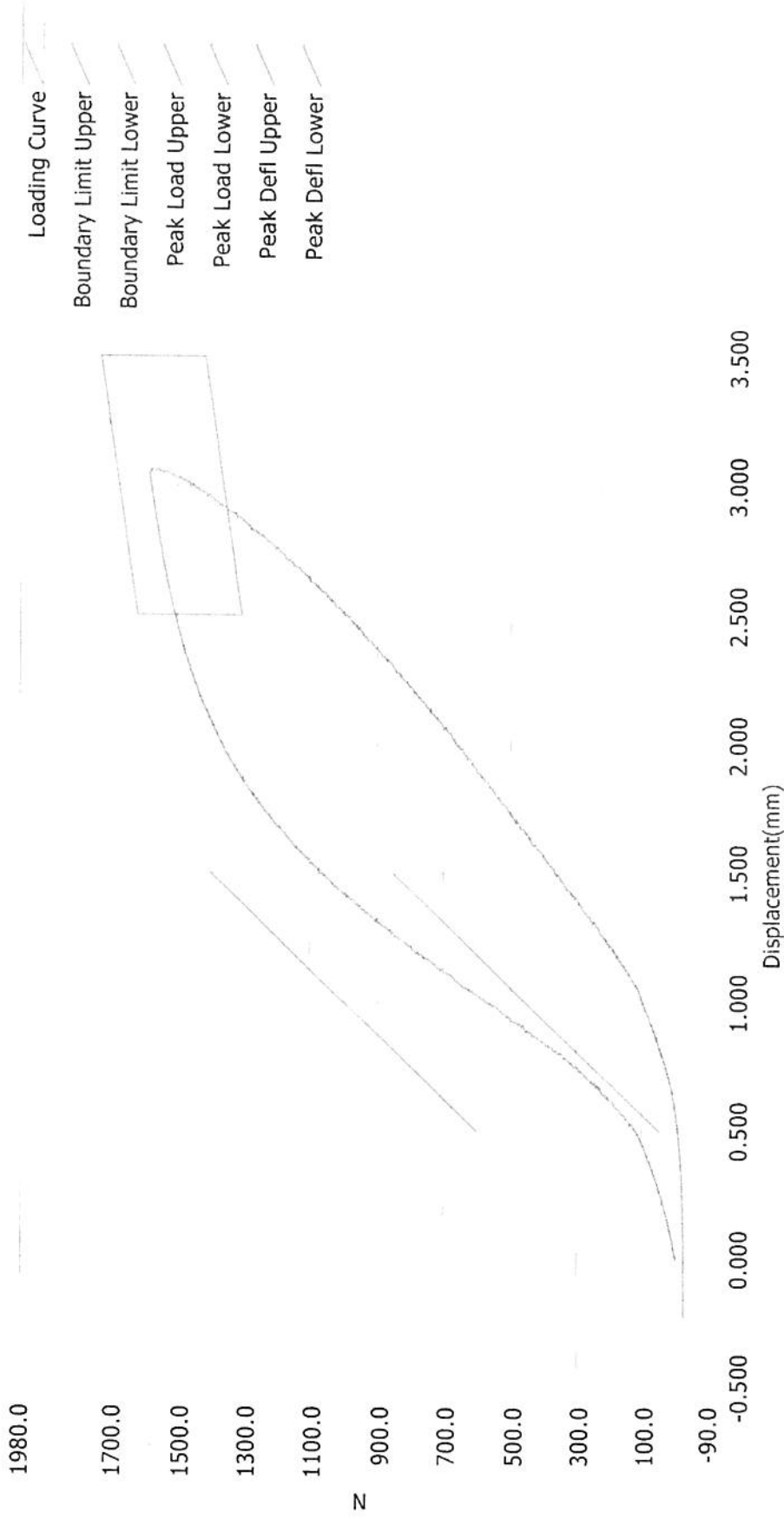
12/19/2012
 Test Date

David Winkelbauer
 Approved By





Resultant Data - SIDIIs Plug Compression



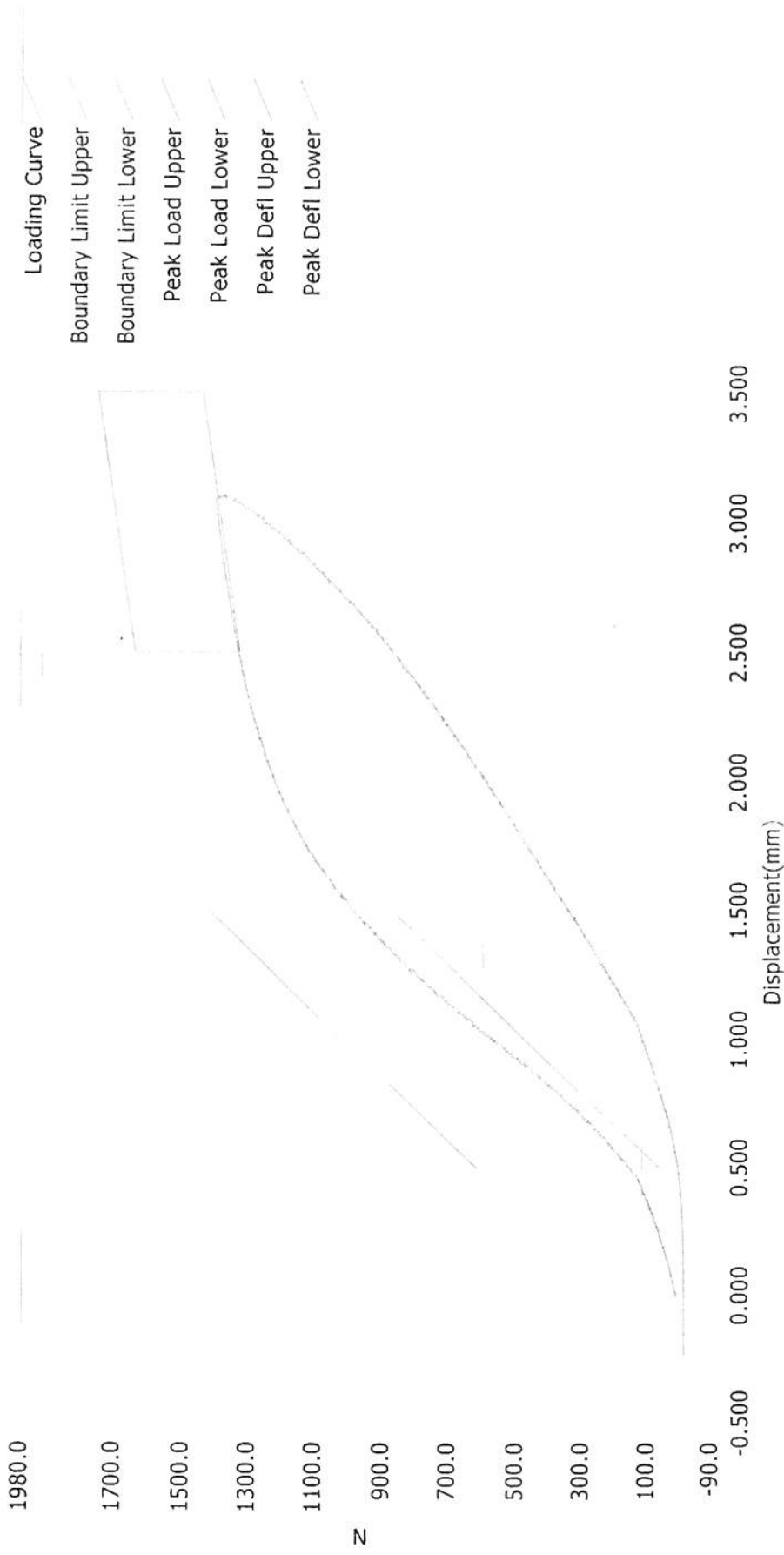
ATD Calibration Lab

<u>Test ID</u>	<u>Part Serial Number</u>	<u>Test Date</u>	<u>Test Time</u>
	46661	9/28/2011	9:23 PM
<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
	N/A	SIDIIs	

Current Date : 9/28/2011

Current Time : 21:24:12

Resultant Data - SIDIIs Plug Compression



ATD Calibration Lab

<u>Test ID</u>	<u>Part Serial Number</u>	<u>Test Date</u>	<u>Test Time</u>
	47726	10/28/2011	12:33 AM
<u>Cert ID</u>	<u>ATD Serial Number</u>	<u>ATD Type</u>	
	N/A	SIDIIs	

Current Date : 10/28/2011 Current Time : 00:33:47

APPENDIX D

TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation

				SID-IIs S/N 296		
				Serial Number	Manufacturer	Calibration Date
Head Accelerometers			X	P78696	Endevco	10/12/12
			Y	P78698	Endevco	10/12/12
			Z	P78699	Endevco	10/12/12
Head Accelerometers			Xr	P78700	Endevco	10/12/12
			Yr	P78701	Endevco	10/12/12
			Zr	P78708	Endevco	10/12/12
Displacement Potentiometers	Thoracic Rib	Upper	Y	G012	Servo	10/15/12
		Middle	Y	G1163	FTSS	10/15/12
		Lower	Y	G1158	FTSS	10/15/12
	Abdominal Rib	Upper	Y	G1146	FTSS	10/15/12
		Lower	Y	G1126	FTSS	10/15/12
Lower Spine Accelerometers (T12)			X	P78690	Endevco	10/12/12
			Y	P78693	Endevco	10/12/12
			Z	P78694	Endevco	10/12/12
Acetabulum Load Cell			Y	ACG268	Denton	01/11/12
Iliac Wing Load Cell			Y	IWG282	Denton	12/23/11
Pelvis Plug (struck side)				46661	FTSS	09/28/11
Pelvis Plug (non-struck side)				47726	FTSS	10/28/11

Table 2 – Vehicle Instrumentation

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	P77762	Endevco	07/23/12
Vehicle Center of Gravity	Y	P77761	Endevco	07/23/12
Vehicle Center of Gravity	Z	P77763	Endevco	07/23/12
Left Floor Sill	Y	P67948	Endevco	07/05/12
A-Pillar Sill	Y	P63503	Endevco	11/02/12
A-Pillar Low	Y	P66635	Endevco	10/22/12
A-Pillar Mid	Y	P67441	Endevco	10/30/12
B-Pillar Sill	Y	P66538	Endevco	12/03/12
B-Pillar Low	Y	P47881	Endevco	12/03/12
B-Pillar Mid	V	P78974	Endevco	12/03/12
Driver Seat	Y	P67873	Endevco	07/12/12
Engine Top	X	P66669	Endevco	11/02/12
Engine Top	Y	P66668	Endevco	11/02/12
Firewall	Y	P52191	Endevco	08/15/12
Right Roof	Y	P52186	Endevco	10/06/12
Right Floor Sill	Y	P78894	Endevco	11/02/12
Rear Floorpan	X	P63556	Endevco	08/15/12
Rear Floorpan	Y	P63555	Endevco	08/15/12

Table 3 – Pole Instrumentation

	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DG6277	FTSS	09/05/12
Load Cell 2	DG6278	FTSS	09/05/12
Load Cell 3	DG6279	FTSS	09/05/12
Load Cell 4	DG6280	FTSS	09/05/12
Load Cell 5	DG6281	FTSS	09/05/12
Load Cell 6	DG6283	FTSS	09/05/12
Load Cell 7	DG6284	FTSS	09/05/12
Load Cell 8	DG6282	FTSS	09/05/12