

REPORT NUMBER: SPNCAP-MGA-2019-040

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

**TOYOTA MOTOR CORPORATION
2019 Lexus UX 200 F Sport 5-Door Hatchback
NHTSA No.: O20195111**

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



Test Date: April 5, 2019

Final Report Date: July 9, 2019

FINAL REPORT

**U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Office of Crashworthiness Standards
Mail Code: NRM-110
1200 New Jersey Ave, SE
Room W43-410
Washington, DC 20590**

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Approved by: 
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Approval Date: July 9, 2019

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 2019 Lexus UX 200 F Sport 5-Door Hatchback 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 April 5, 2019. The impact velocity was 32.40 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 22.0°C. The test vehicle post-test maximum crush was 316 mm at level 3. The test vehicle's performance was as follows:																														
<table border="1" style="width: 100%; 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;">292</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;">44</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;">4087</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;">19</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;">28</td> </tr> </tbody> </table>				Measurement Description	Driver ATD (SID-IIs)			Units	Threshold	Result	Head Injury Criteria (HIC ₃₆)	N/A	1000	292	Resultant Lower Spine Acceleration	Gs	82	44	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4087	Maximum Thoracic Rib Deflection	mm	38*	19	Maximum Abdomen Rib Deflection	mm	45*	28
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*Proposed IARV																														
The 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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TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	Test Purpose and Procedure	1
2	Summary of Test Results	2
3	Occupant and Vehicle Information	4

<u>Data Sheet No.</u>		<u>Page No.</u>
1	General Test and Vehicle Parameter Data	5
2	Seat, Seat Belt, Steering Wheel Adjustment and Fuel System Data	8
3	Dummy Longitudinal Clearance Dimensions	11
4	Dummy Lateral Clearance Dimensions	12
5	Camera and Instrumentation Data	13
6	Vehicle Accelerometer Data	14
7	Rigid Pole Load Cell Data	15
8	Post-Test Observations	16
9	Vehicle Profile Measurements	18
10	Vehicle Exterior Crush Measurements	19
11	Vehicle Damage Profile Distances	22
12	FMVSS No. 301 Static Rollover Results	23
13	Dummy/Vehicle Temperature Stabilization Data	24

<u>Appendix</u>		
A	Photographs	A
B	Vehicle and Dummy Response Data Plots	B
C	Dummy Configuration and Performance Verification Data	C
D	Test Equipment and Instrumentation Calibration Data	D

SECTION 1
TEST PURPOSE AND PROCEDURE

This side impact test is part of the MY 2019 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-14-D-00353. The purpose of this test is to generate comparative side impact performance in a 2019 Lexus UX 200 F Sport 5-Door Hatchback. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Pole Laboratory Test Procedure, dated October 2015.

SECTION 2 SUMMARY OF TEST RESULTS

A rigid pole side impact test was conducted on a 2019 Lexus UX 200 F Sport 5-Door Hatchback. The subject vehicle was towed into the rigid pole at an angle of 75° and a velocity of 32.40 km/h. The test was conducted by MGA Research Corporation in Burlington, Wisconsin on April 5, 2019. 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 October 2015. 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	292
Resultant Lower Spine Acceleration	Gs	82	44
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	4087
Maximum Thoracic Rib Deflection	mm	38*	19
Maximum Abdominal Rib Deflection	mm	45*	28

*Proposed IARV

Supplemental restraint information is given below:

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	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes		Yes	
Other	No		No	

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

GENERAL COMMENTS

Left Floor Sill Y recorded no valid data after 55 ms.
Left B-Post @ Sill Y recorded questionable data after 15 ms.
Driver Seat Track Y recorded no valid data after 25 ms.
Firewall Y recorded no valid data after 15 ms.
Load Cell Pole #8 Fy recorded no valid data.

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: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
 Test Date: 4/5/2019

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	O20195111	Traction Control System (TCS)	Yes
Model Year	2019	Auto-Leveling System	No
Make	Lexus	Automatic Door Locks (ADL)	Yes
Model	UX 200 F Sport	Power Window Auto-Reverse	Yes
Body Style	5-Door Hatchback	Other Optional Feature	N/A
VIN	JTHY3JBH2K2002499	Driver Front Airbag	Yes
Body Color	Atomic Silver	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	312km / 194mi	Driver Head/Torso Airbag	No
Engine Displacement (L)	2.0 L	Driver Torso Airbag	No
Type/No. Cylinders	Inline 4	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Lateral	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	Yes
Transmission Speeds	10	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	FWD	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	Yes
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 Restraint Feature	N/A

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

DATA FROM CERTIFICATION LABEL

Manufactured By	TOYOTA MOTOR CORPORATION	GVWR (kg)	2000
Date of Manufacture	10/18	GAWR Front (kg)	1100
Vehicle Type	Passenger Car	GAWR Rear (kg)	1100

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	
Capacity Weight (VCW) (kg)				397	(A)
DSC x 68.04 kg				340	(B)
Rated Cargo and Luggage Weight (RCLW) (kg)				57	(A-B)

*Vehicle Capacity Weight (VCW) was reduced by 8kg to account for Load Carrying Capacity Reduction label.

VEHICLE SEAT TYPE

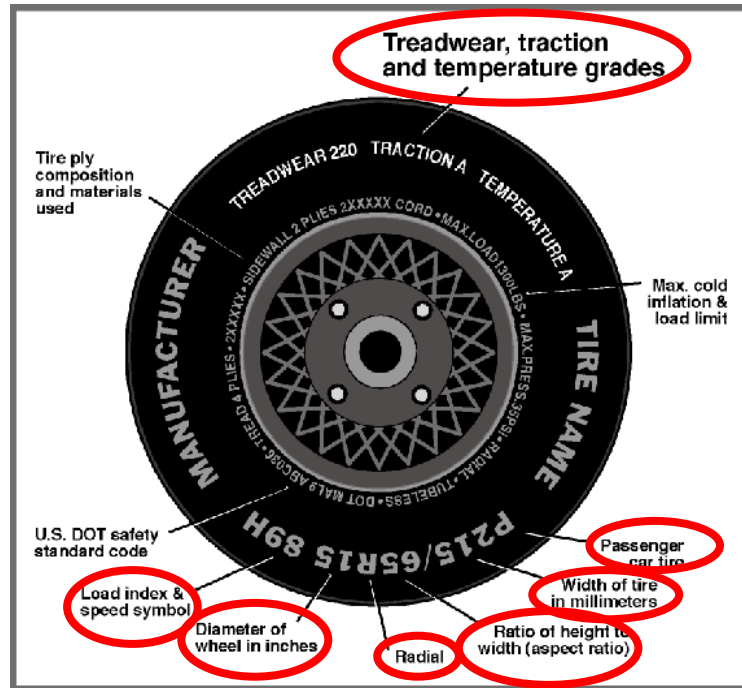
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						Manual	Power
Front Seat	X						X
Rear or Second Row				X	X		
Third Row Seat							

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

Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
 Test Date: 4/5/2019

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	230	230
Recommended Tire Size	225/50RF18	225/50RF18
Tire Size on Vehicle	225/50RF18	225/50RF18
Tire Manufacturer	Bridgestone	Bridgestone
Tire Model	Turanza	Turanza
Treadwear	400	400
Traction	A	A
Temperature Grade	A	A
Tire Plies Sidewall	2 Rayon	2 Rayon
Tire Plies Body	1 Polyester, 2 Steel, 1 Rayon	1 Polyester, 2 Steel, 1 Rayon
Load Index/Speed Symbol	95V	95V
Tire Material	Rubber	Rubber
DOT Safety Code Left	ELIN JAF 4118	ELIN JAF 4118
DOT Safety Code Right	ELIN JAF 4118	ELIN JAF 4118

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

Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
 Test Date: 4/5/2019

TEST PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kpa	255	248	248	255
Tire Placard	kpa	230	230	230	230
Owner's Manual	kpa	230	230	230	230
As Tested	kpa	230	230	230	230

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	453.5	313.5		468.0	361.0		475.0	359.0	
Right	kg	455.5	283.5		457.0	321.0		461.0	320.0	
Ratio	%	60.4%	39.6%		57.6%	42.4%		58.0%	42.0%	
Totals	kg	909.0	597.0	1506.0	925.0	682.0	1607.0	936.0	679.0	1615.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1506.0	(A)
Actual Weight of 1 P572V ATD (SID-IIs) ATD Used	kg	52	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	57	(C)
Calculated Vehicle Target Weight (TVTW)	kg	1615.0	(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-	deg	0.1	0.1	0.4	Yes
Front Pass. Sill Angle (front-to-	deg	-0.6	-0.5	-0.3	Yes
Front Bumper Angle (left-to-right)**	deg	-0.3	-0.4	-0.5	Yes
Rear Bumper Angle (left-to-right)**	deg	0.3	0.3	0.3	Yes
Vehicle CG (Aft of Front Axle)	mm	1047	1122	1110	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	14	25	25	

*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 TVTW

Component Description	Weight (kg)
Ballast (if any)	11
None	

Test height adjustable suspension setting, if applicable:	Not Applicable
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DATA SHEET NO. 2
SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEM DATA

Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
 Test Date: 4/5/2019

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	22.4	11.7	17.1
Front Passenger Seat	20.8	10.7	15.8
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	17.1	29	Max	57	57	57
			Mid	29	29	29
			Min	0	0	0
Front Passenger Seat	15.8	30	Max	59	59	59
			Mid	30	30	30
			Min	0	0	0
Front Center Seat			Max			
			Mid			
			Min			
Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed

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

Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

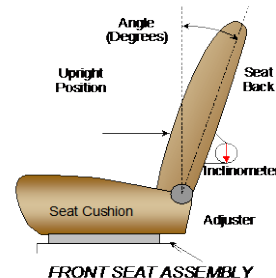
NHTSA No. O20195111
 Test Date: 4/5/2019

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	260		0	
Front Center Seat				
Struck Side Rear Seat	Fixed		Fixed	
Non-Struck Side Rear Seat	Fixed		Fixed	
Rear Center Seat	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	50.7		-3.0	
Front Passenger Seat	50.9		-3.0	
Front Center Seat				
Struck Side Rear Seat	Fixed		Fixed	
Non-Struck Side Rear Seat	Fixed		Fixed	
Rear Center Seat	Fixed		Fixed	

Front seat back angle measured on outboard headrest post.

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 th (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	4 detents (1 st as 1)	0 th (Lowermost as 0)

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

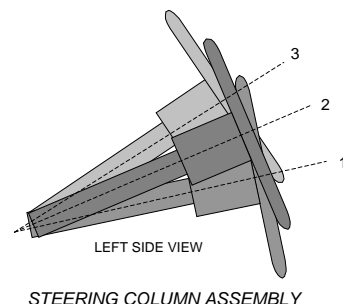
Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
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 Test Date: 4/5/2019

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.

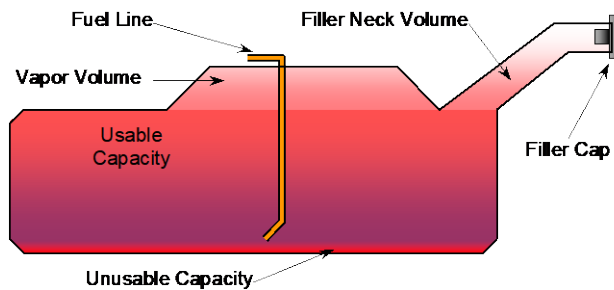
	Degrees	Fore/Aft Position (mm)
Lowermost, Position 1	70.6	189
Geometric Center, Position 2	68.7	165
Uppermost, Position 3	66.7	141
Telescoping Steering Wheel Travel		48
Test Position	68.7	165



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 electronic fuel pump. The fuel pump is activated when the ignition is turned on. The filler neck is located on the driver's side.



VEHICLE FUEL TANK ASSEMBLY

FUEL TANK CAPACITY DATA

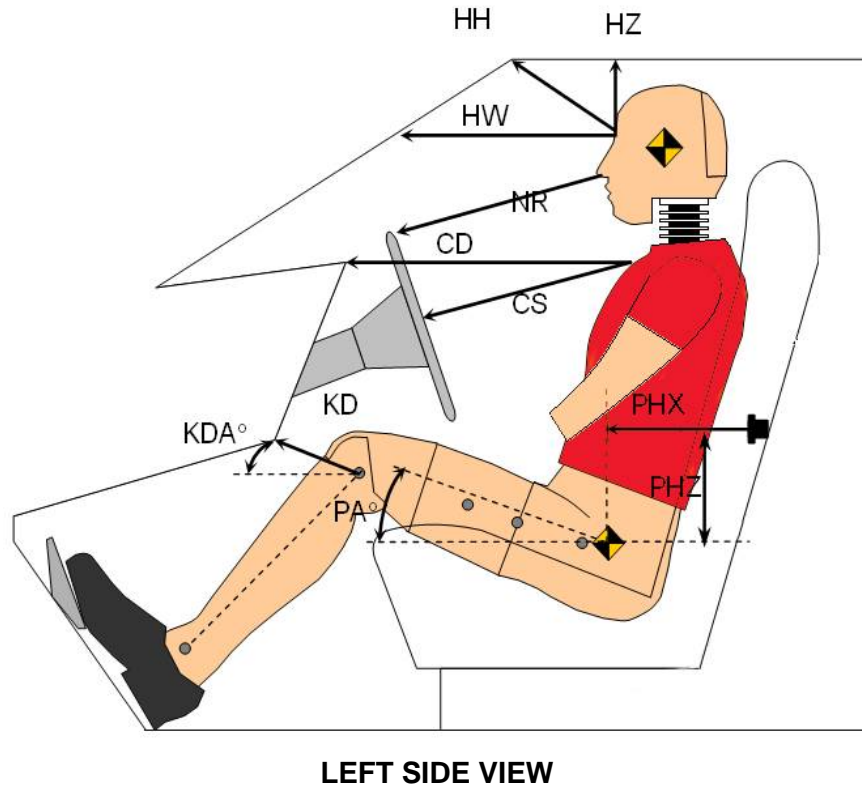
	Liters
Usable Capacity of "Standard Tank" (see Form No. 1)	46.9
Usable Capacity of "Optional Tank" (see Form No. 1)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	46.9
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	43.7
Actual Amount of Solvent Used	43.5
1/3 of Usable Capacity	15.6

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: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
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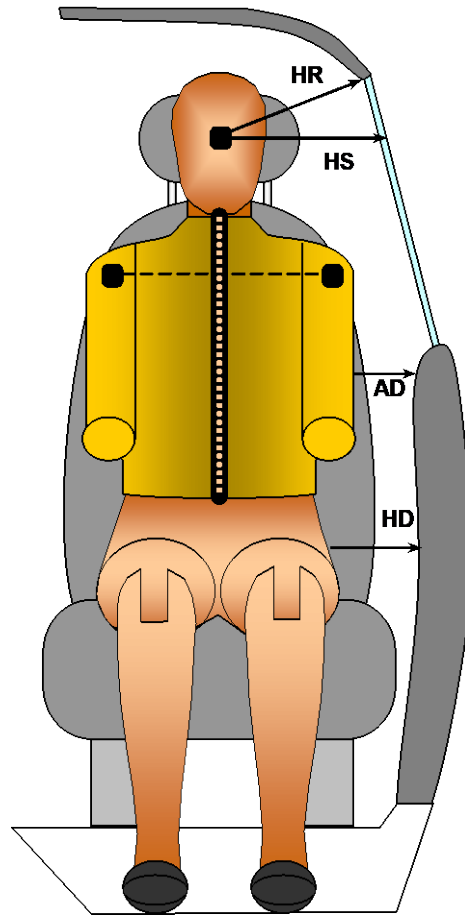


Code	Measurement Description	Driver	
		Length (mm)	Angle (°)
HH	Head to Header	276	
HW	Head to Windshield	609	
HZ	Head to Roof Liner	178	
NR	Nose to Rim	222	
CD	Chest to Dashboard	379	
CS	Chest to Steering Wheel	169	
KDL/KDAL°	Left Knee to Dash	127	34.8
KDR/KDAR°	Right Knee to Dash	129	35.4
PAX°	Pelvic Tilt Angle (X-Axis)		22.0
PAY°	Pelvic Tilt Angle (Y-Axis)		-0.2
PHX	Hip Point to Striker (X-Axis)	326	
PHZ	Hip Point to Striker (Z-Axis)	211	

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

Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
 Test Date: 4/5/2019



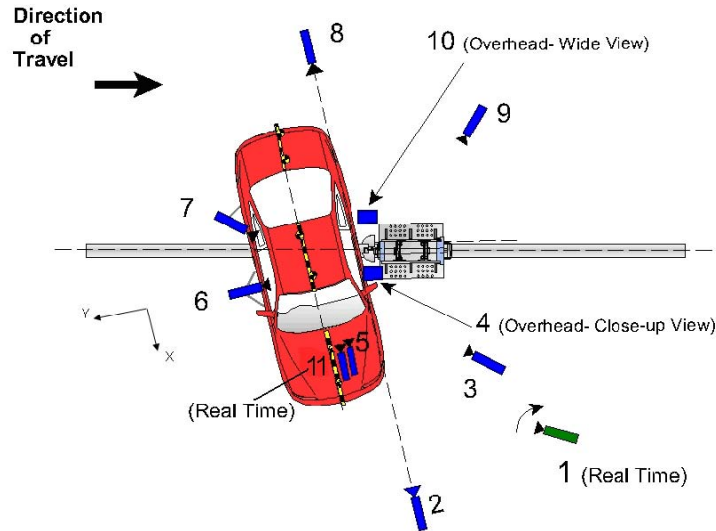
FRONT VIEW OF DUMMY

Code	Measurement Description	Driver
		Length (mm)
HR	Head to Side Header	211
HS	Head to Side Window	368
AD	Arm to Door	182
HD	Hip Point to Door	165

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

Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
 Test Date: 4/5/2019



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	6210	230	-2030	25	1000
3	Impact Side 45° Forward	4650	-1700	-1940	20	1000
4	Overhead Closeup	0	0	-6670	70	1000
5	Onboard – Driver Front				16	1000
6	Onboard – Driver Side				8	1000
7	Onboard – Driver Rear				8	1000
8	Rear Ground Level	-7120	220	-1980	25	1000
9	Impact Side 45° Rearward	-2950	-3780	-1960	20	1000
10	Overhead Wide View	-330	750	-6650	11	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.

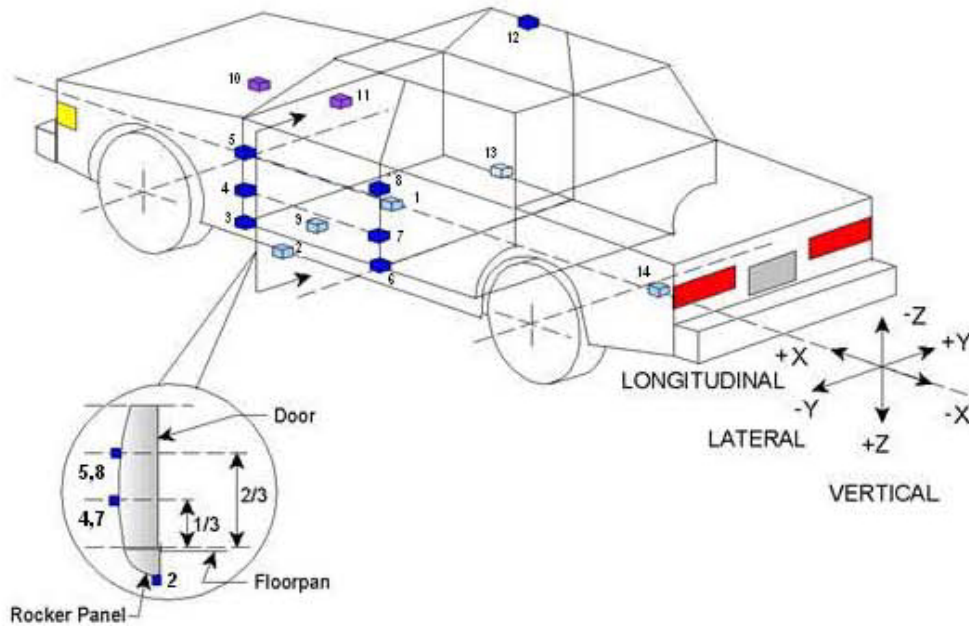
Explain why camera(s) did not operate as intended: None

INSTRUMENTATION	Number of Channels
Driver Dummy	19
Vehicle Structure	18
Pole Load Cells	8
TOTAL	45

**DATA SHEET NO. 6
VEHICLE ACCELEROMETER DATA**

Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
 Test Date: 4/5/2019



	Accelerometer Location			
	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2399	200	-235
2	Left Floor Sill	2538	-715	-242
3	A Pillar Sill	3009	-715	-240
4	A Pillar Low	3026	-815	-580
5	A Pillar Mid	3027	-819	-800
6	B Pillar Sill	1943	-715	-245
7	B Pillar Low	1964	-720	-630
8	B Pillar Mid	1951	-710	-835
9	Driver Seat Track	2089	-390	-296
10	Engine Top	3693	-5	-858
11	Firewall	3453	0	-918
12	Right Roof	2011	552	-1493
13	Right Floor Sill	2537	715	-240
14	Rear Floorpan	899	0	-569

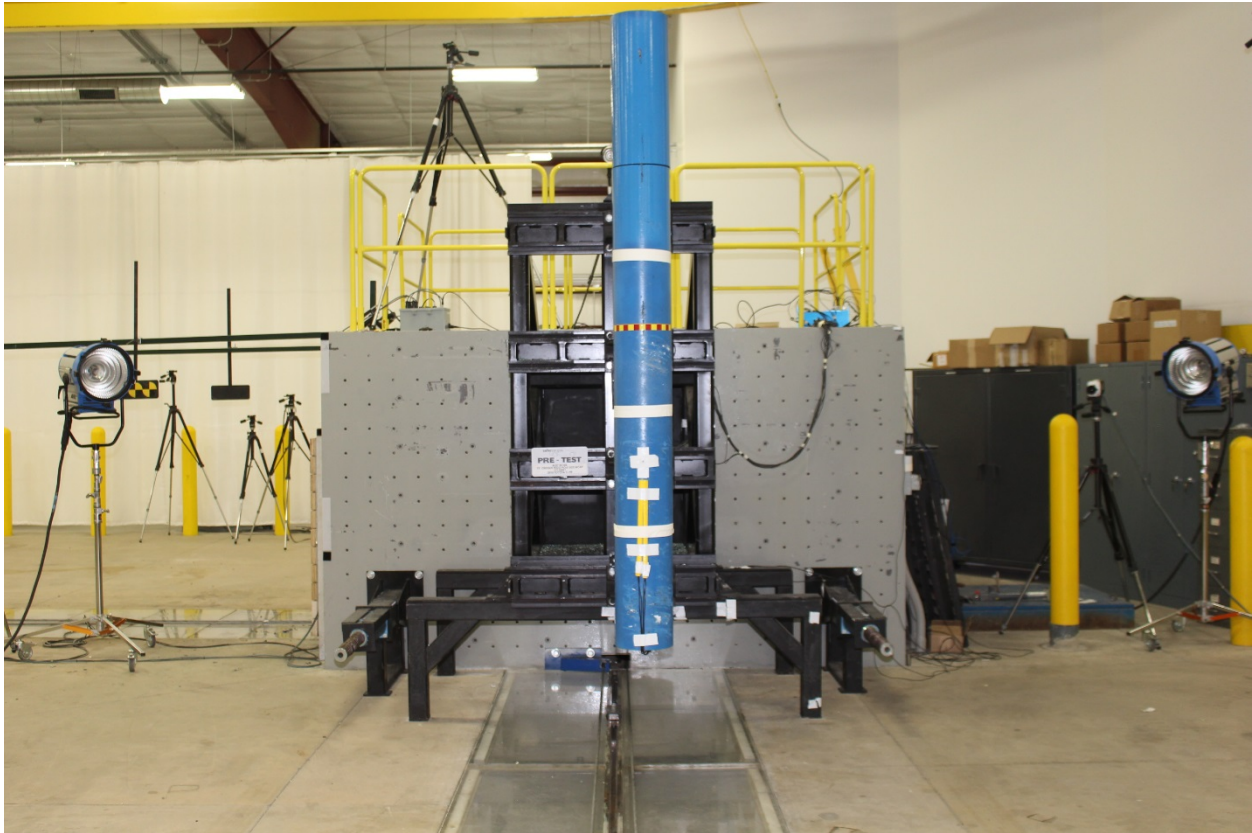
Reference:

- 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: 2019 Lexus UX 200 F Sport 5-Door Hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
Test Date: 4/5/2019



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: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
 Test Date: 4/5/2019

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	Side Torso/Pelvis Airbag, Seat Back
Upper Torso	Side Torso/Pelvis Airbag, Seat Back
Lower Torso	Side Torso/Pelvis Airbag, Seat Back
Left Hip	Side Torso/Pelvis Airbag
Left Knee	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)					

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	None
Side Window Damage	LF Window Broken
Other Notable Effects	None

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

Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
 Test Date: 4/5/2019

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	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes		Yes	
Other	No		No	

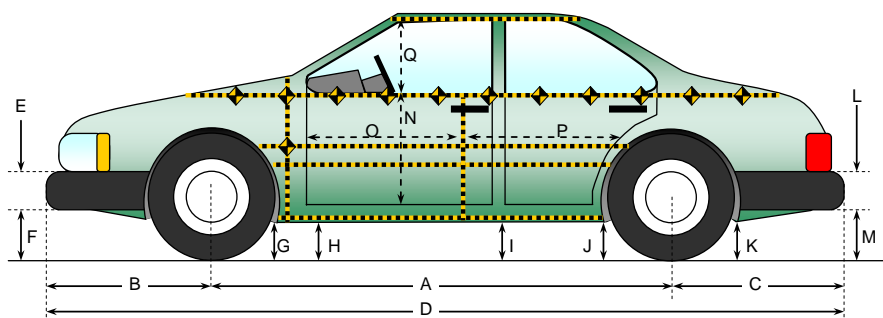
VEHICLE SPEED, VEHICLE ANGLE AT IMPACT, AND IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		1093
Actual Impact Point (Aft of Front Axle)	mm		1097
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	75.3
Trap No. 1 Velocity (Primary)	km/h	31.4 to 33.0	32.40
Trap No. 2 Velocity (Redundant)	km/h	31.4 to 33.0	32.35

**DATA SHEET NO. 9
VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
 Test Date: 4/5/2019



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

LEFT SIDE VIEW

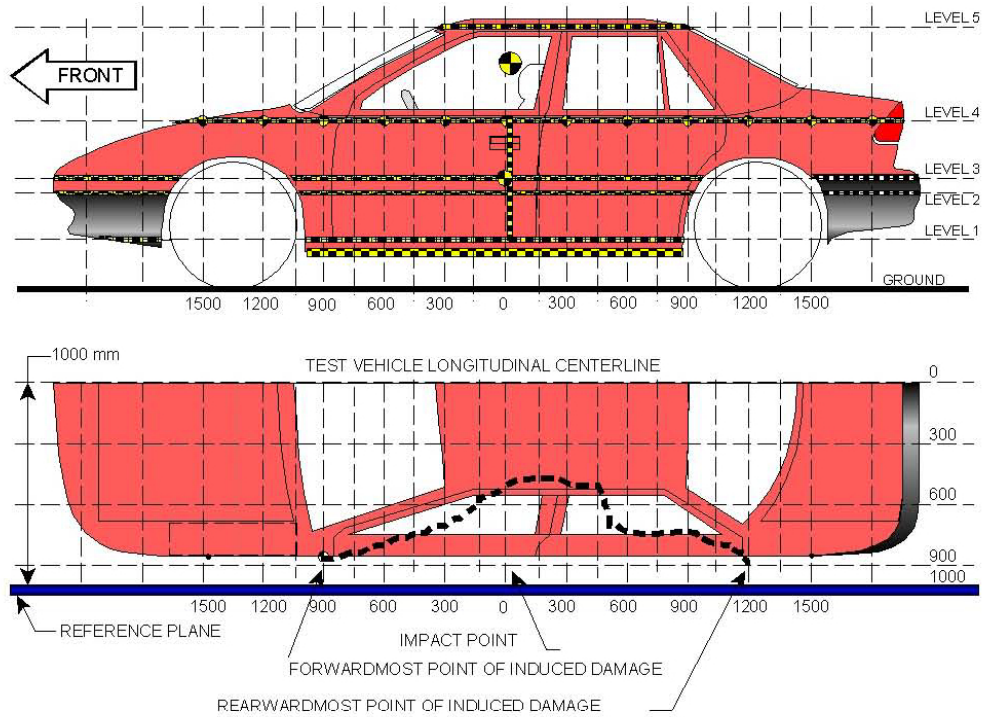
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2644	2592	52
B	Front Axle to FSOV	965	983	-18
C	Rear Axle to RSOV	883	888	-5
D	Total Vehicle Length at Centerline	4492	4463	29
E	Front Bumper Thickness	150	150	0
F	Front Bumper Bottom to Ground	224	242	-18
G	Sill Height at Front Wheel Well	221	222	-1
H	Sill Height at Front Door Leading Edge	216	214	2
I	Sill Height at B-Pillar	226	270	-44
J1	Sill Height at Rear Wheel Well	214	231	-17
J2	Pinch Weld Height at Rear Wheel Well	220	233	-13
K	Sill Height Aft of Rear Wheel Well	268	278	-10
L	Rear Bumper Thickness	156	156	0
M	Rear Bumper Bottom to Ground	355	353	2
N	Sill Height to Bottom of Front Window Sill	910	883	27
O	Front Door Leading Edge to Impact CL	645	539	106
P	Rear Door Trailing Edge to Impact CL	1164	1118	46
Q	Front Window Opening	376	323	53
R	Right Side Length	3406	3418	-12
S	Left Side Length	3406	3348	58
T	Vehicle Width at B-Pillars	1799	1732	67

DATA SHEET NO. 10
VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
Test Date: 4/5/2019



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)	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	341	301	0
2	Occupant Hip Point	576	310	0
3	Mid Door	646	315	0
4	Window Sill	974	242	0
5	Window Top	1425	46	0

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

Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
 Test Date: 4/5/2019

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 pile 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.

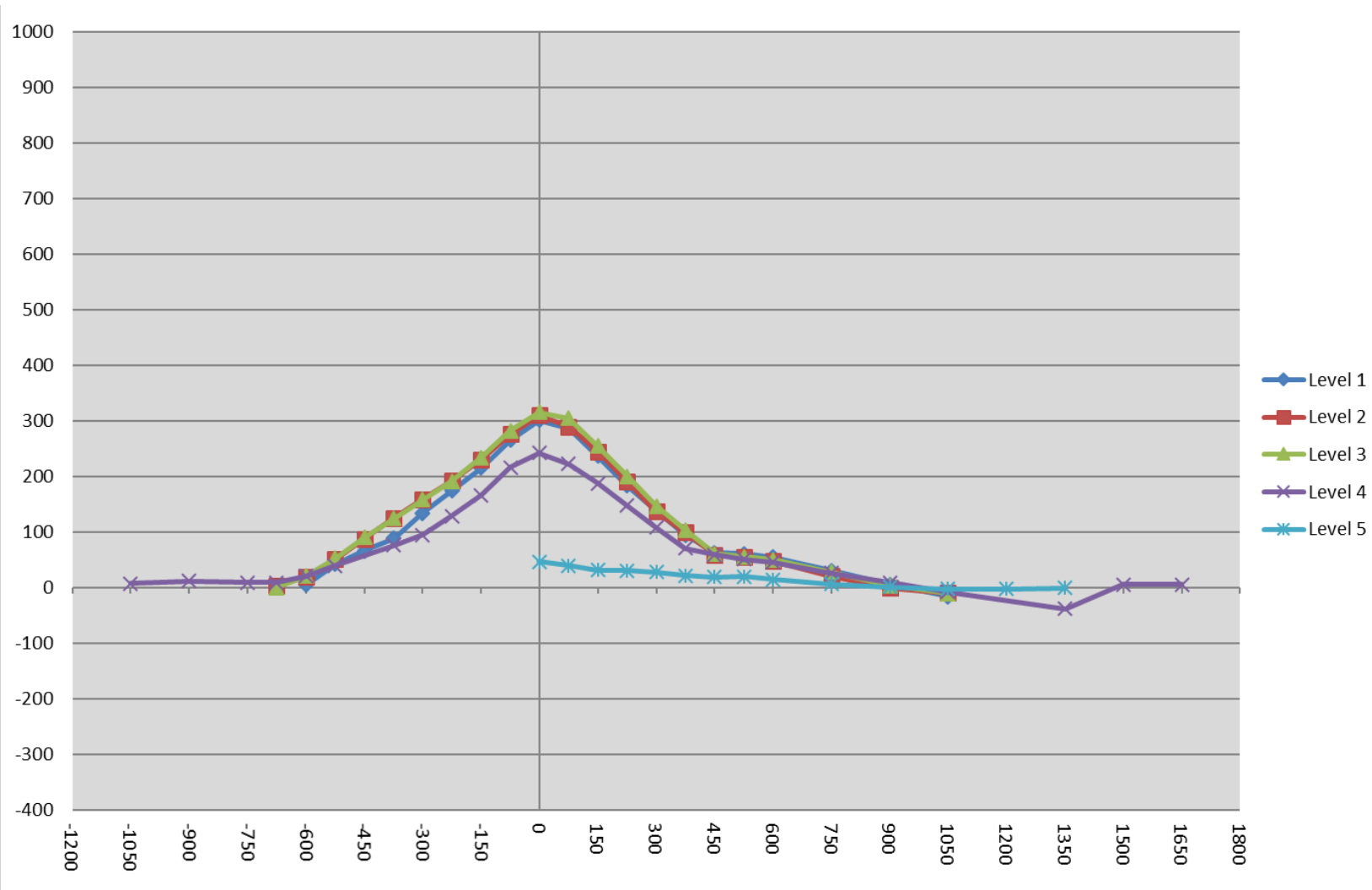
	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-2700															
-2550															
-2400															
-2250															
-2100															
-1950															
-1800															
-1650															
-1500															
-1350															
-1200															
-1050				330					337					7	
-900				317					328					11	
-825															
-750				307					316					9	
-675		209	207	301			211	207	310			2	0	9	
-600	228	207	204	298		232	226	224	318		4	19	20	20	
-525	227	204	202	297		269	255	254	336		42	51	52	39	
-450	224	203	199			290	290	289			66	87	90		
-375	228	202	197	288		316	327	321	364		88	125	124	76	
-300	213	199	195	284		347	358	353	378		134	159	158	94	
-225	208	199	194	278		382	391	385	406		174	192	191	128	
-150	205	198	193	274		420	428	427	440		215	230	234	166	
-75	203	198	192	269		468	474	474	485		265	276	282	216	
0	200	199	193	266	558	501	509	508	508	604	301	310	315	242	46
75	198	200	195	262	541	484	489	499	484	580	286	289	304	222	39
150	199	202	197	257	531	435	446	451	444	562	236	244	254	187	31
225	203	205	199	254	524	386	395	399	401	554	183	190	200	147	30
300	208	207	202	250	520	345	343	348	358	547	137	136	146	108	27
375	215	209	205	249	518	309	308	308	319	539	94	99	103	70	21
450	222	213	208	246	517	284	272	268	305	535	62	59	60	59	18
525	228	215	213	244	515	288	270	268	295	534	60	55	55	51	19
600	234	217	216	243	515	288	264	266	288	529	54	47	50	45	14
675															
750	235	218	219	245	515	265	238	246	271	521	30	20	27	26	6
825															
900	233	214	214	257	518	238	213	217	266	519	5	-1	3	9	1
1050	232	206	204	279	525	216	196	193	271	522	-16	-10	-11	-8	-3
1200					550					547					-3
1350				282	588				243	587				-39	-1
1500				282					287					5	
1650				284					289					5	
1800															
1950															
2100															
2250															
2400															
2550															
2700															

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

Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
 Test Date: 4/5/2019

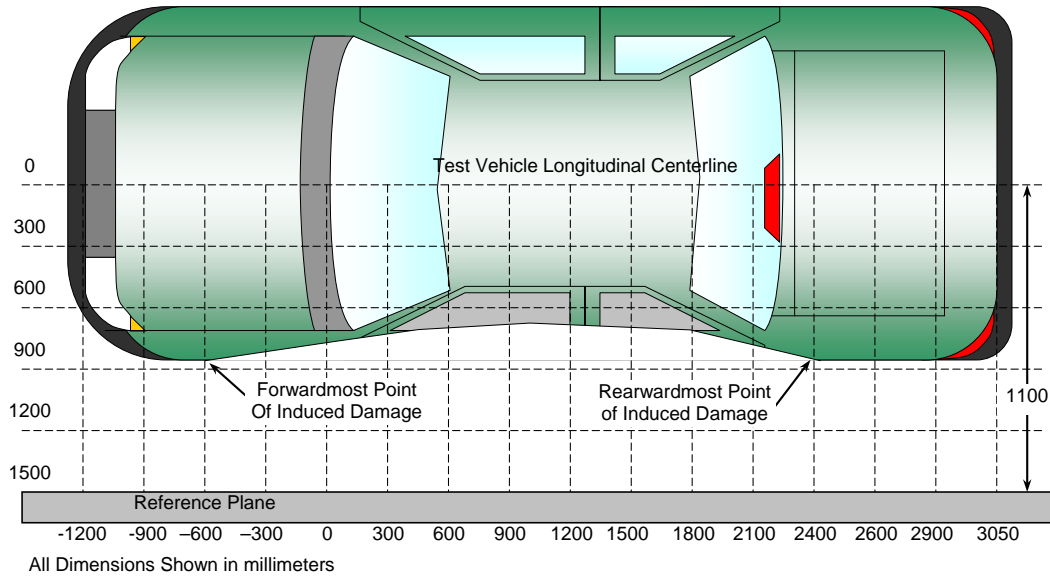
21



**DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES**

Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
 Test Date: 4/5/2019



TOP VIEW

DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point (mm)	Level	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	445	3	208	275	67
2	228	3	199	397	198
3	11	3	193	509	316
4	-206	3	194	395	201
5	-423	3	198	299	101
6	-640	3	206	209	3

**DATA SHEET NO. 12
FMVSS NO. 301 STATIC ROLLOVER RESULTS**

Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

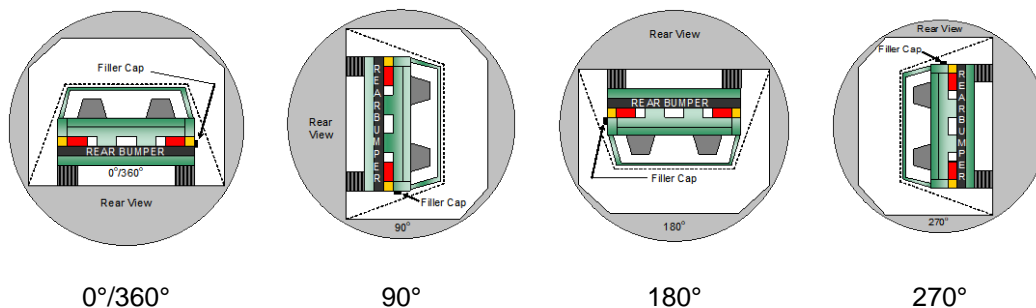
NHTSA No. O20195111
 Test Date: 4/5/2019

Test Time: 10:17 a.m.

Temperature: 22.0°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°	112	300	412
90° to 180°	115	300	415
180° to 270°	112	300	412
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

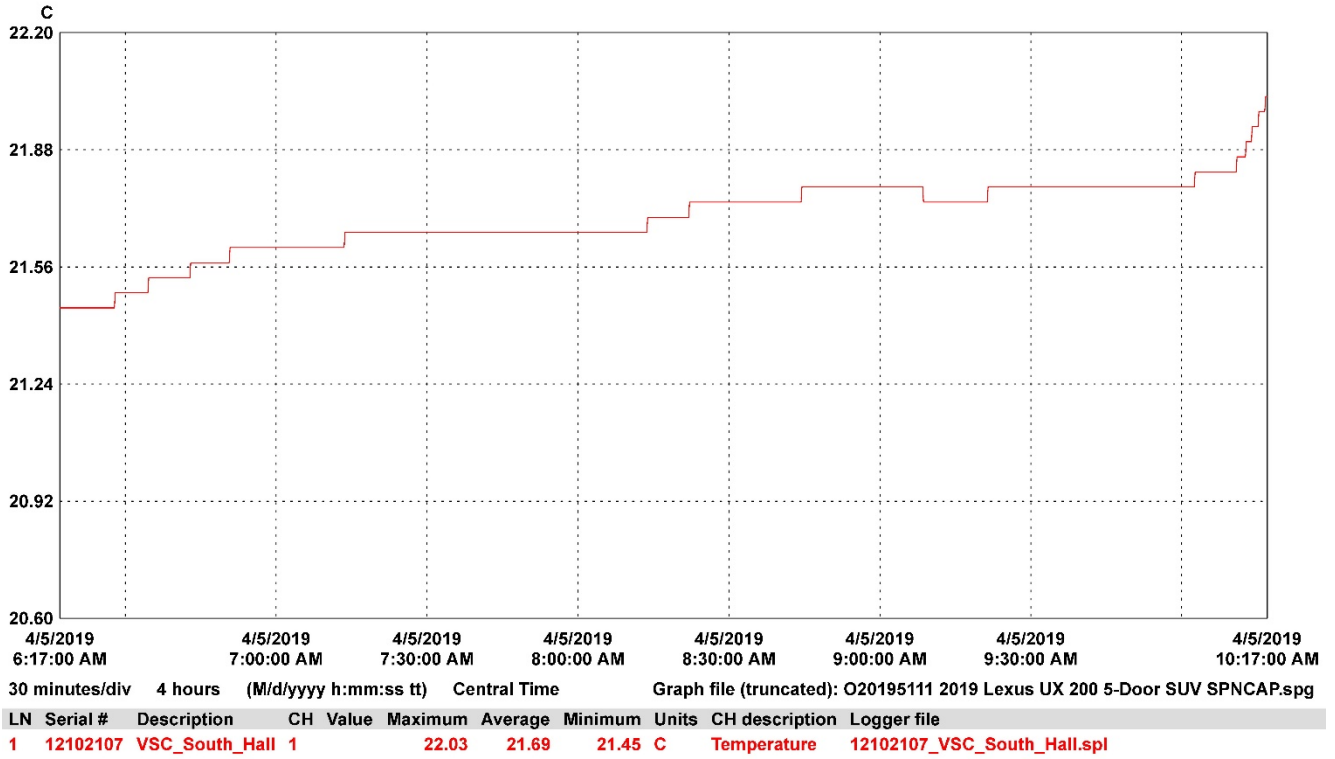
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 13
DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA

Test Vehicle: 2019 Lexus UX 200 F Sport 5-Door Hatchback
 Test Program: NCAP Side Pole Impact Test

NHTSA No. O20195111
 Test Date: 4/5/2019



**APPENDIX A
PHOTOGRAPHS**

TABLE OF PHOTOGRAPHS

		<u>Page No.</u>
Photo No. 001	As Delivered Right Front $\frac{3}{4}$ View of Test Vehicle	A-1
Photo No. 002	As Delivered Left Rear $\frac{3}{4}$ View of Test Vehicle	A-1
Photo No. 003	Pre-Test Frontal View of Test Vehicle	A-2
Photo No. 004	Post-Test Frontal View of Test Vehicle	A-2
Photo No. 005	Pre-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-3
Photo No. 006	Post-Test Left Front $\frac{3}{4}$ View of Test Vehicle	A-3
Photo No. 007	Pre-Test Left Side View of Test Vehicle	A-4
Photo No. 008	Post-Test Left Side View of Test Vehicle	A-4
Photo No. 009	Pre-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-5
Photo No. 010	Post-Test Left Rear $\frac{3}{4}$ View of Test Vehicle	A-5
Photo No. 011	Pre-Test Rear View of Test Vehicle	A-6
Photo No. 012	Post-Test Rear View of Test Vehicle	A-6
Photo No. 013	Pre-Test Right Side View of Test Vehicle	A-7
Photo No. 014	Post-Test Right Side View of Test Vehicle	A-7
Photo No. 015	Pre-Test Overhead View of Test Area	A-8
Photo No. 016	Post-Test Overhead View of Test Area	A-8
Photo No. 017	Pre-Test Left Side View of Pole Positioned Against Side of Vehicle	A-9
Photo No. 018	Pre-Test Right Side View of Pole Positioned Against Side of Vehicle	A-9
Photo No. 019	Pre-Test Close-Up View of Impact Point Target	A-10
Photo No. 020	Post-Test Close-Up View of Impact Point Target Showing Impact Location	A-10
Photo No. 021	Pre-Test Front Close-Up View of Dummy Head and Chest	A-11
Photo No. 022	Post-Test Front Close-Up View of Dummy	A-11
Photo No. 023	Pre-Test Left Side View of Dummy Showing Belt and Chalking	A-12
Photo No. 024	Pre-Test Left Side View of Dummy Shoulder and Door Top View	A-12
Photo No. 025	Post-Test Left Side View of Dummy Shoulder and Door Top View	A-13

		<u>Page No.</u>
Photo No. 026	Pre-Test Front View of Seat Back Prior to Dummy Positioning	A-13
Photo No. 027	Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint	A-14
Photo No. 028	Pre-Test Front View of Seat Pan Prior to Dummy Positioning	A-14
Photo No. 029	Pre-Test Overhead View of Dummy Thighs on Seat Pan	A-15
Photo No. 030	Pre-Test Left Side View of Dummy's Neck Showing Position of Adjustable Neck Bracket	A-15
Photo No. 031	Pre-Test Left Side View of Dummy's Head Showing Dummy's Head is Level	A-16
Photo No. 032	Pre-Test Placement of Dummy's Feet	A-16
Photo No. 033	Pre-Test View of Belt Anchorage for Dummy	A-17
Photo No. 034	Pre-Test Left Side View of Steering Wheel	A-17
Photo No. 035	Pre-Test View of Disengaged Parking Brake	A-18
Photo No. 036	Pre-Test View of Parking Brake	A-18
Photo No. 037	Pre-Test Close-Up Left Side View of Driver Seat Track	A-19
Photo No. 038	Pre-Test Close-Up Left Side View of Driver Seat Back	A-19
Photo No. 039	Pre-Test Close-Up View of Driver Seat Back or Head Restraint	A-20
Photo No. 040	Pre-Test Dummy and Door Clearance View	A-20
Photo No. 041	Post-Test Dummy and Door Clearance View	A-21
Photo No. 042	Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-21
Photo No. 043	Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment	A-22
Photo No. 044	Pre-Test Inner Door Panel View	A-22
Photo No. 045	Post-Test Inner Door Panel View Showing Dummy Contact Location	A-23
Photo No. 046	Post-Test Dummy Close-Up Head Contact with Vehicle Interior View	A-23
Photo No. 047	Post-Test Dummy Close-Up Head Contact with Side Air Bag View	A-24
Photo No. 048	Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View	A-24
Photo No. 049	Post-Test Dummy Close-Up Torso Contact with Side Air Bag View	A-25

		<u>Page No.</u>
Photo No. 050	Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View	A-25
Photo No. 051	Post-Test Dummy Close-Up Pelvis Contact with Side Air Bag View	A-26
Photo No. 052	Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View	A-26
Photo No. 053	Pre-Test View of Fuel Filler Cap or Fuel Filler Neck	A-27
Photo No. 054	Post-Test View of Fuel Filler Cap or Fuel Filler Neck	A-27
Photo No. 055	Close-Up View of Vehicle's Certification Label	A-28
Photo No. 056	Close-Up View of Vehicle's Tire Information Placard or Label	A-28
Photo No. 056a	Close-Up View of Vehicle Load Carrying Capacity Reduction Label	A-29
Photo No. 057	Pre-Test Pole Barrier Front View	A-29
Photo No. 058	Post-Test Pole Barrier Front View	A-30
Photo No. 059	Pre-Test Pole Barrier Side View	A-30
Photo No. 060	Post-Test Pole Barrier Side View	A-31
Photo No. 061	Pre-Test Ballast View	A-31
Photo No. 062	Post-Test Primary and Redundant Speed Trap Read-Out	A-32
Photo No. 063	FMVSS No. 301 Static Rollover 0 Degrees	A-32
Photo No. 064	FMVSS No. 301 Static Rollover 90 Degrees	A-33
Photo No. 065	FMVSS No. 301 Static Rollover 180 Degrees	A-33
Photo No. 066	FMVSS No. 301 Static Rollover 270 Degrees	A-34
Photo No. 067	FMVSS No. 301 Static Rollover 360 Degrees	A-34
Photo No. 068	Impact Event	A-35
Photo No. 069	Monroney Label	A-35
Photo No. 070	Head Restraint Use and Adjustment Information from Vehicle Owner's Manual	A-36
Photo No. 071	Post-Test View of Shattered Vehicle Inner Door Panel	A-36



Photo No. 001 - As Delivered Right Front Three-Quarter View of Test Vehicle



Photo No. 002 - As Delivered Left Rear Three-Quarter View of Test Vehicle

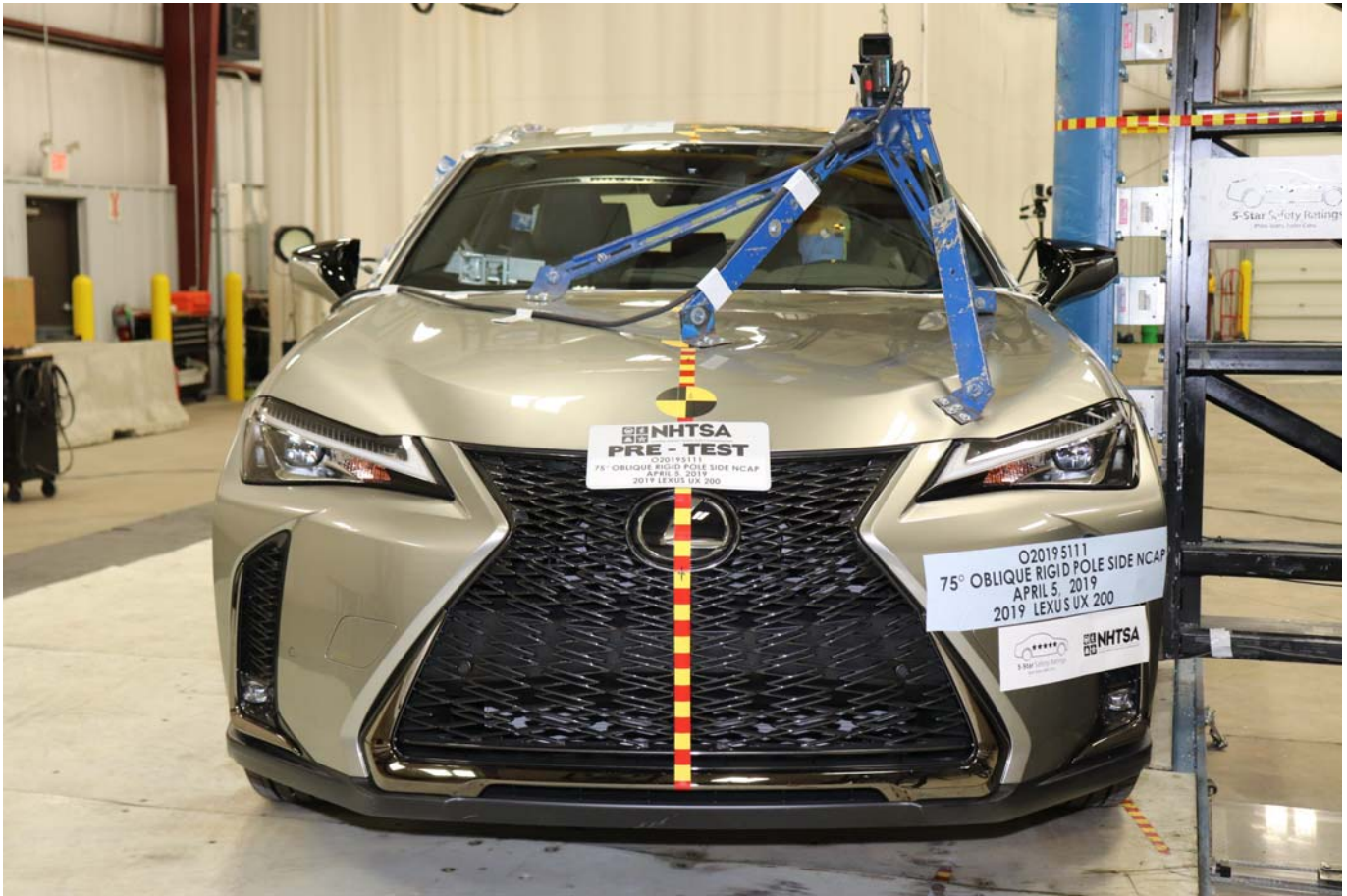


Photo No. 003 - Pre-Test Frontal View of Test Vehicle

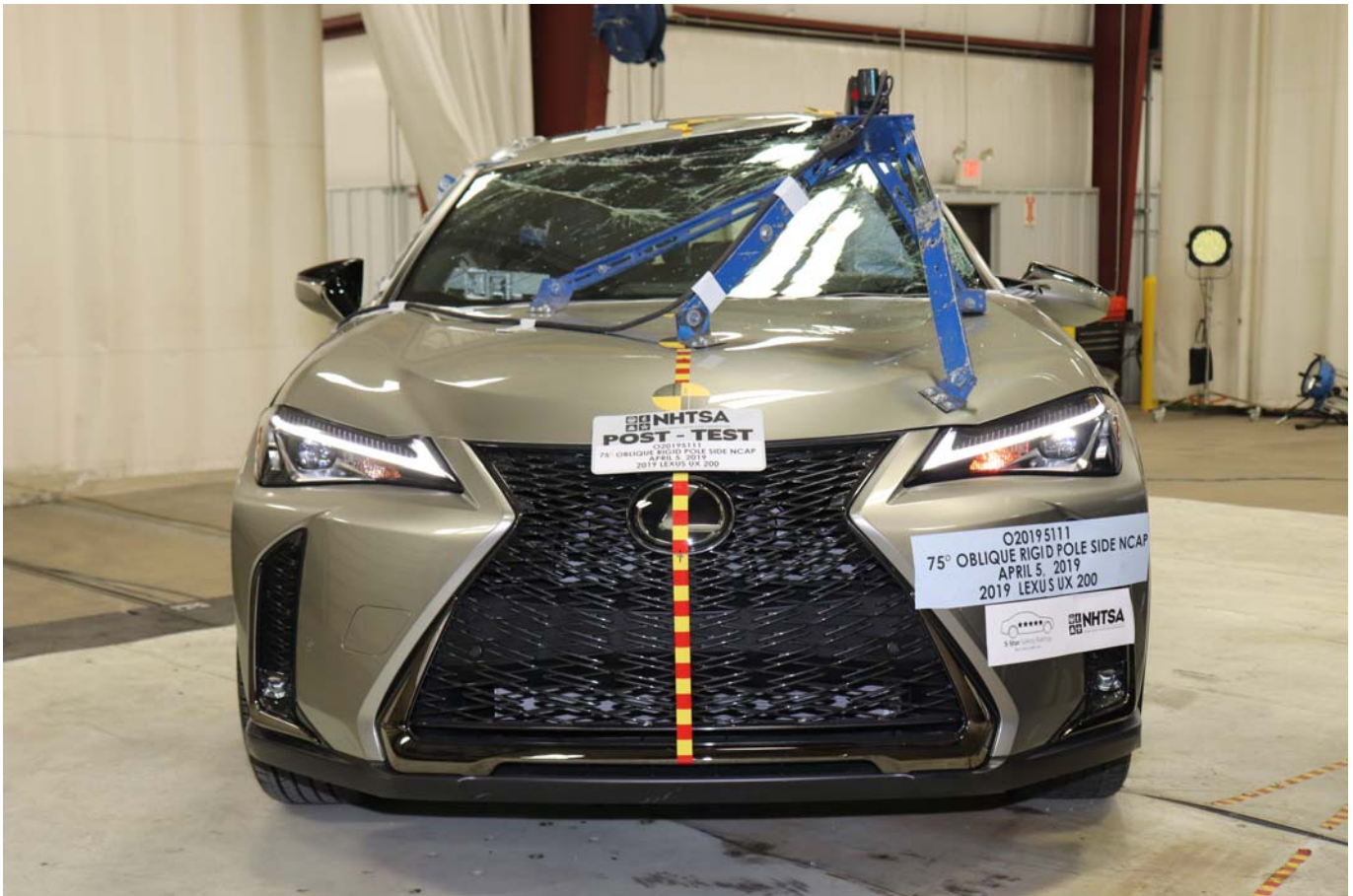


Photo No. 004 - Post-Test Frontal View of Test Vehicle

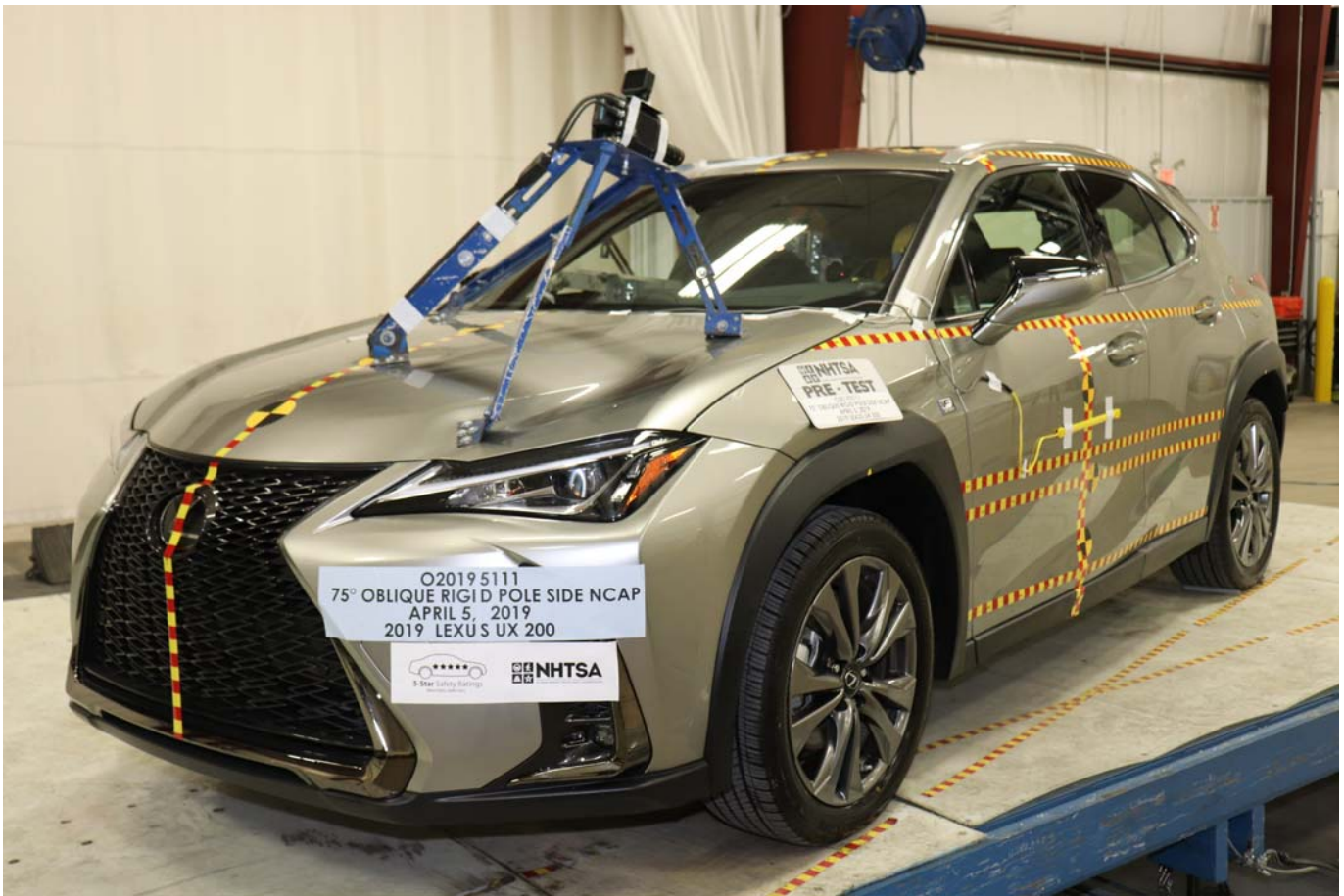


Photo No. 005 - Pre-Test Left Front Three-Quarter View of Test Vehicle

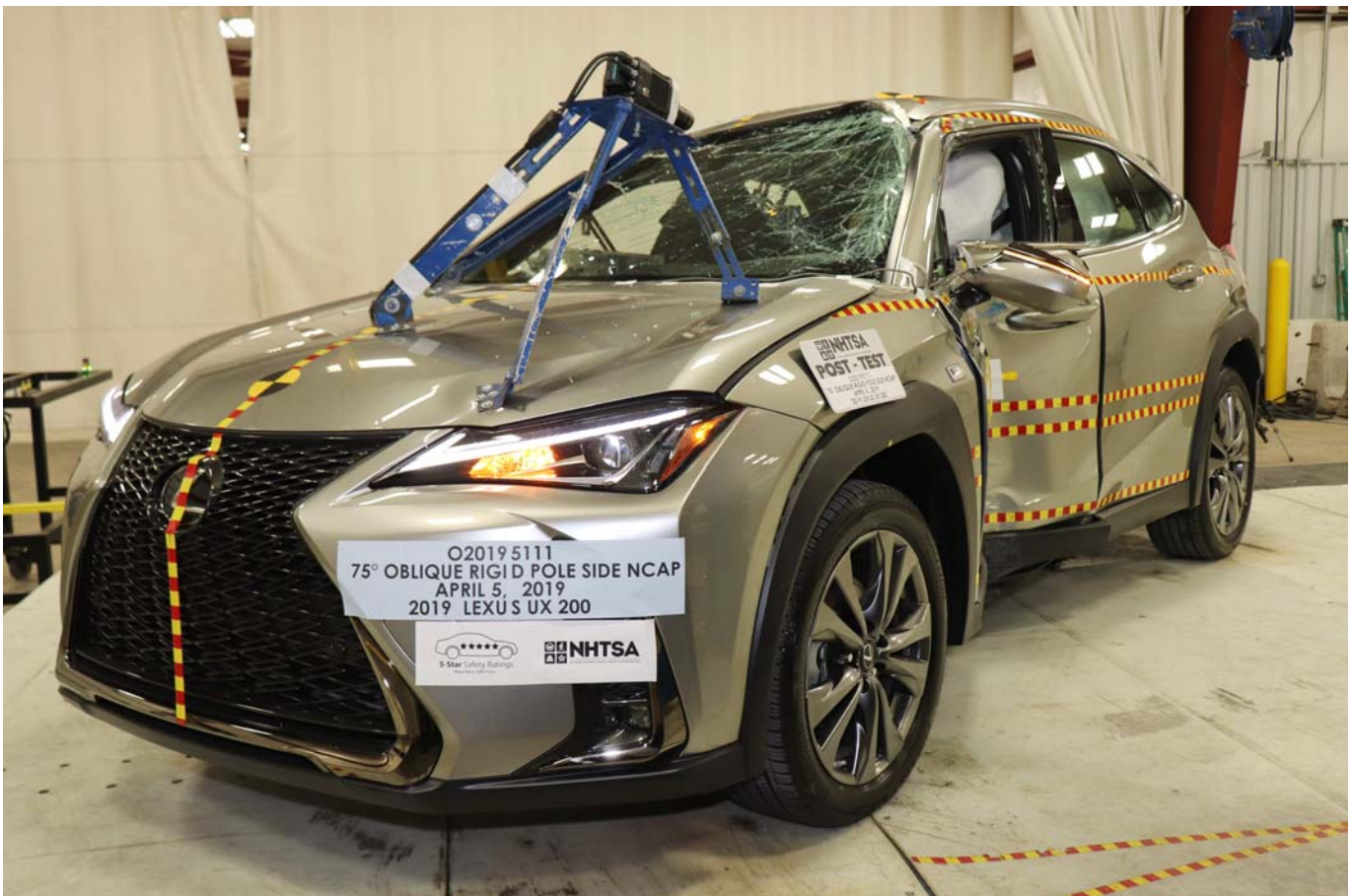


Photo No. 006 - Post-Test Left Front Three-Quarter View of Test Vehicle



Photo No. 007 - Pre-Test Left Side View of Test Vehicle



Photo No. 008 - Post-Test Left Side View of Test Vehicle



Photo No. 009 - Pre-Test Left Rear Three-Quarter View of Test Vehicle



Photo No. 010 - Post-Test Left Rear Three-Quarter View of Test Vehicle



Photo No. 011 - Pre-Test Rear View of Test Vehicle



Photo No. 012 - Post-Test Rear View of Test Vehicle



Photo No. 013 - Pre-Test Right Side View of Test Vehicle



Photo No. 014 - Post-Test Right Side View of Test Vehicle

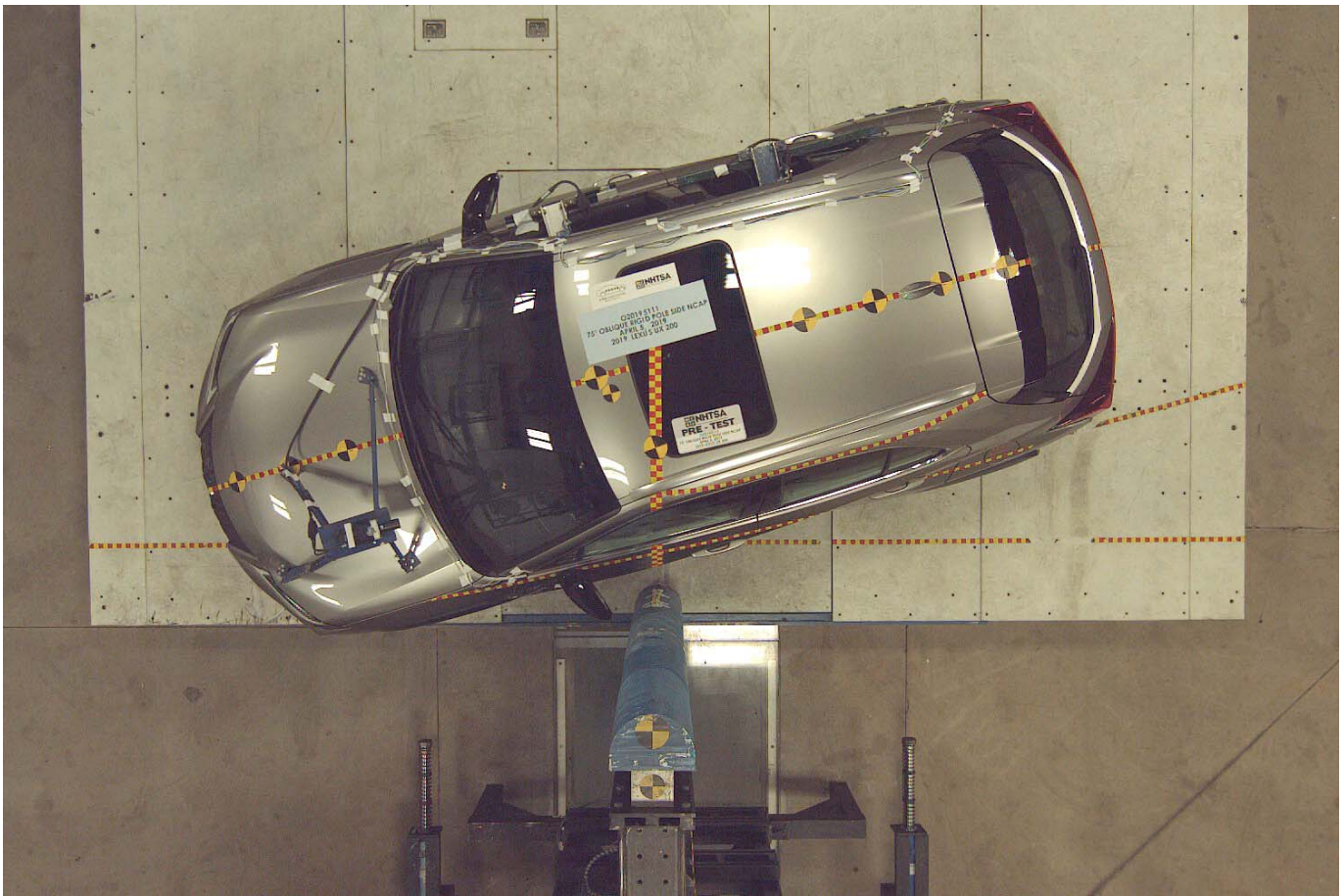


Photo No. 015 - Pre-Test Overhead View of Test Area

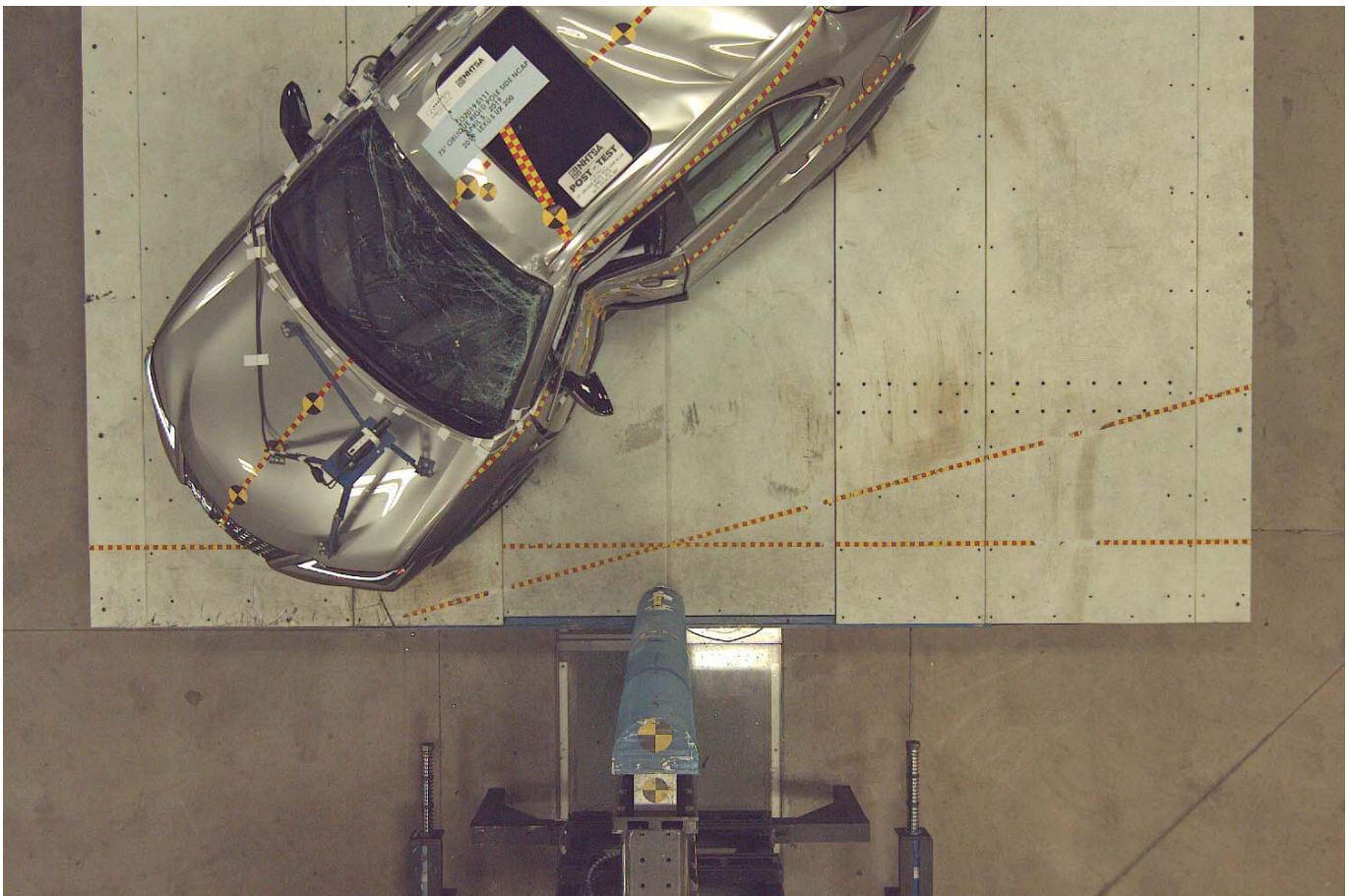


Photo No. 016 - Post-Test Overhead View of Test Area

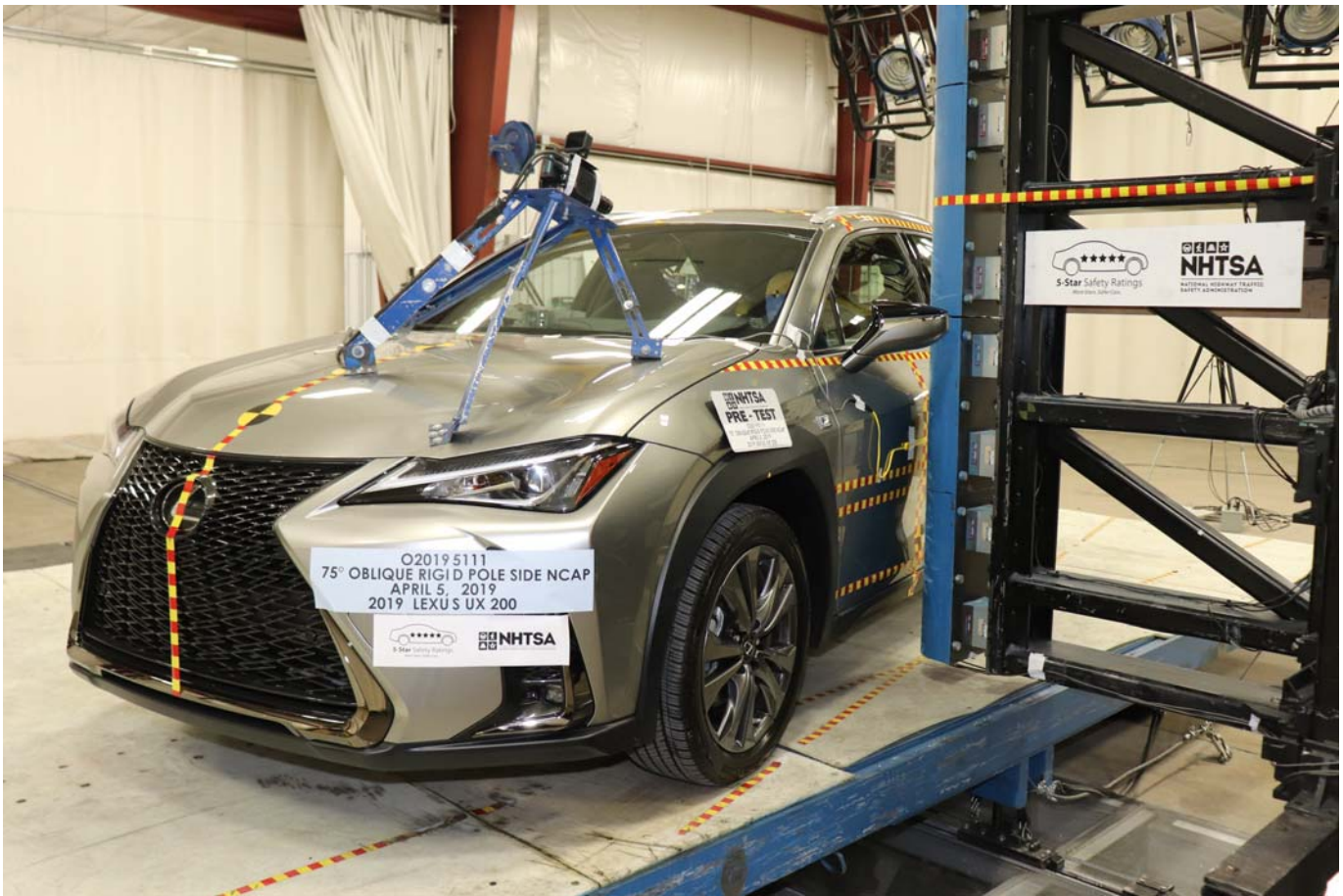


Photo No. 017 - Pre-Test Left Side View of Pole Positioned Against Side of Vehicle



Photo No. 018 - Pre-Test Right Side View of Pole Positioned Against Side of Vehicle



Photo No. 019 - Pre-Test Close-Up View of Impact Point Target



Photo No. 020 - Post-Test Close-Up View of Impact Point Target Showing Impact Location



Photo No. 021 - Pre-Test Front Close-Up View of Dummy Head and Chest

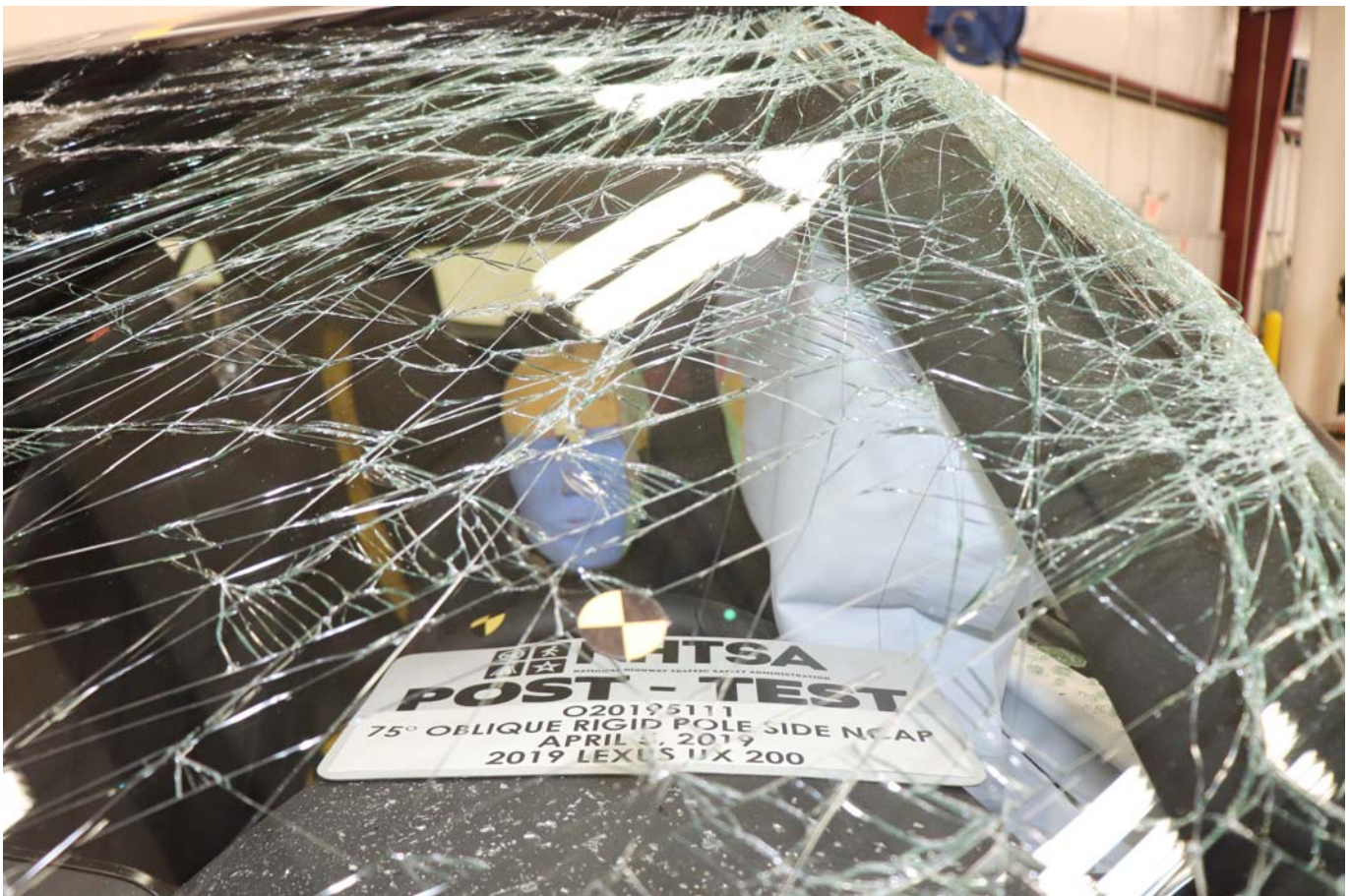


Photo No. 022 - Post-Test Front Close-Up View of Dummy



Photo No. 023 - Pre-Test Left Side View of Dummy Showing Belt and Chalking



Photo No. 024 - Pre-Test Left Side View of Dummy Shoulder and Door Top View



Photo No. 025 - Post-Test Left Side View of Dummy Shoulder and Door Top View



Photo No. 026 - Pre-Test Front View of Seat Back Prior to Dummy Positioning



Photo No. 027 - Pre-Test Front Close-Up View of Dummy Head and Shoulders in Relation to Head Restraint



Photo No. 028 - Pre-Test Front View of Seat Pan Prior to Dummy Positioning



Photo No. 029 - Pre-Test Overhead View of Dummy Thighs on Seat Pan



Photo No. 030 - Pre-Test Left Side View of Dummy Neck Showing Position of Adjustable Neck Bracket



Photo No. 031 - Pre-Test Left Side View of Dummy Head Showing Dummy Head is Level



Photo No. 032 - Pre-Test Placement of Dummy Feet



Photo No. 033 - Pre-Test View of Belt Anchorage for Dummy



Photo No. 034 - Pre-Test Left Side View of Steering Wheel



Photo No. 035 - Pre-Test View of Disengaged Parking Brake



Photo No. 036 - Pre-Test View of Parking Brake



Photo No. 037 - Pre-Test Close-Up Left Side View of Driver Seat Track

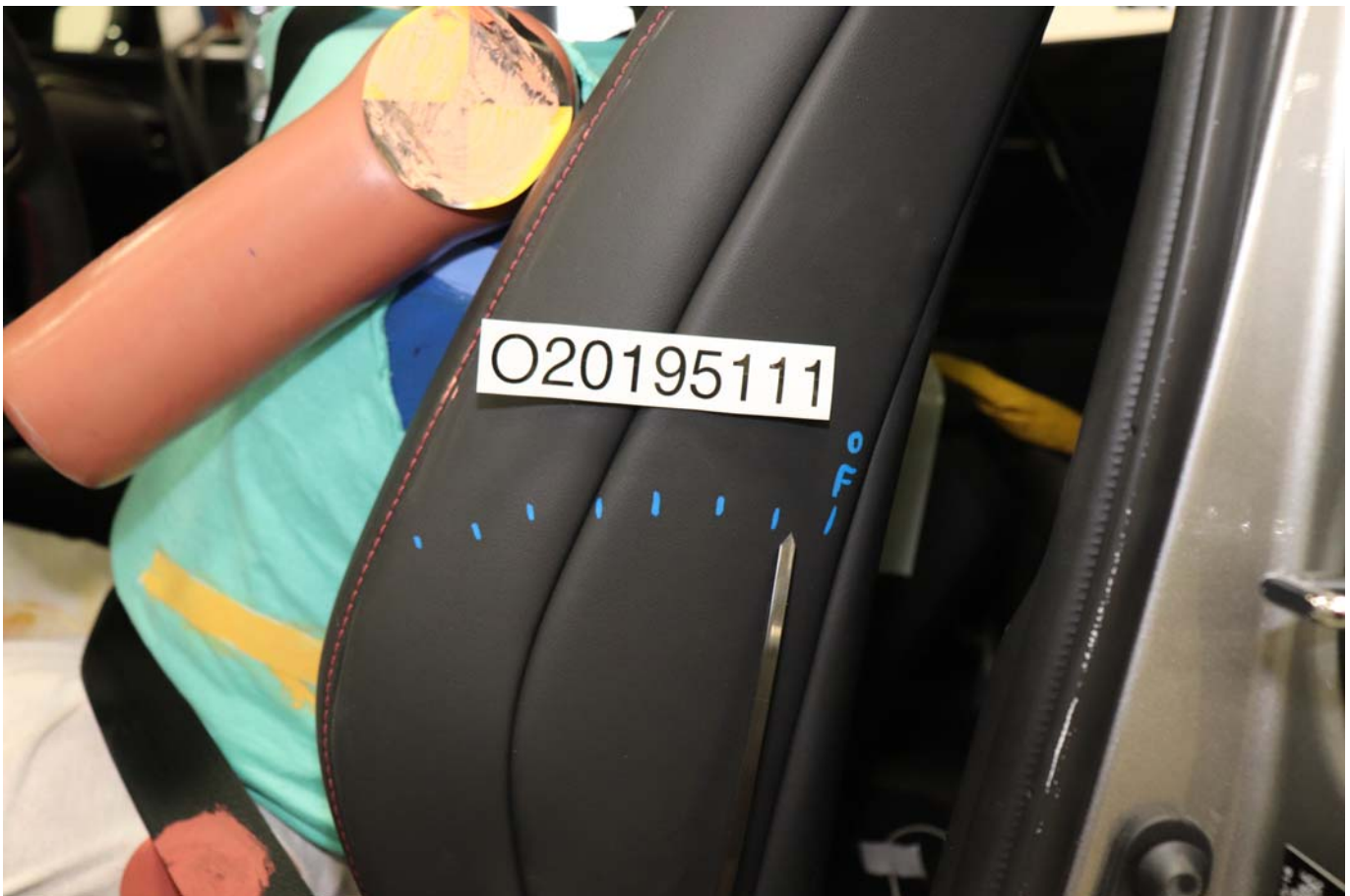


Photo No. 038 - Pre-Test Close-Up Left Side View of Driver Seat Back



Photo No. 039 - Pre-Test Close-Up View of Driver Seat Back or Head Restraint



Photo No. 040 - Pre-Test Dummy and Door Clearance View



Photo No. 041 - Post-Test Dummy and Door Clearance View



Photo No. 042 - Pre-Test Right Side View of Dummy and Front Seat of Occupant Compartment



Photo No. 043 - Post-Test Right Side View of Dummy and Front Seat of Occupant Compartment



Photo No. 044 - Pre-Test Inner Door Panel View



Photo No. 045 - Post-Test Inner Door Panel View Showing Dummy Contact Location



Photo No. 046 - Post-Test Dummy Close-Up Head Contact with Vehicle Interior View



Photo No. 047 - Post-Test Dummy Close-Up Head Contact with Side Air Bag View



Photo No. 048 - Post-Test Dummy Close-Up Torso Contact with Vehicle Interior View



Photo No. 049 - Post-Test Dummy Close-Up Torso Contact with Side Air Bag View

PHOTOGRAPH NOT APPLICABLE

Photo No. 050 - Post-Test Dummy Close-Up Pelvis Contact with Vehicle Interior View



Photo No. 051 - Post-Test Dummy Close-Up Pelvis Contact with Side Air Bag View



Photo No. 052 - Post-Test Dummy Close-Up Knee Contact with Vehicle Interior View



Photo No. 053 - Pre-Test View of Fuel Filler Cap or Fuel Filler Neck



Photo No. 054 - Post-Test View of Fuel Filler Cap or Fuel Filler Neck



Photo No. 055 - Close-Up View of Vehicle Certification Label



Photo No. 056 - Close-Up View of Vehicle Tire Information Placard or Label

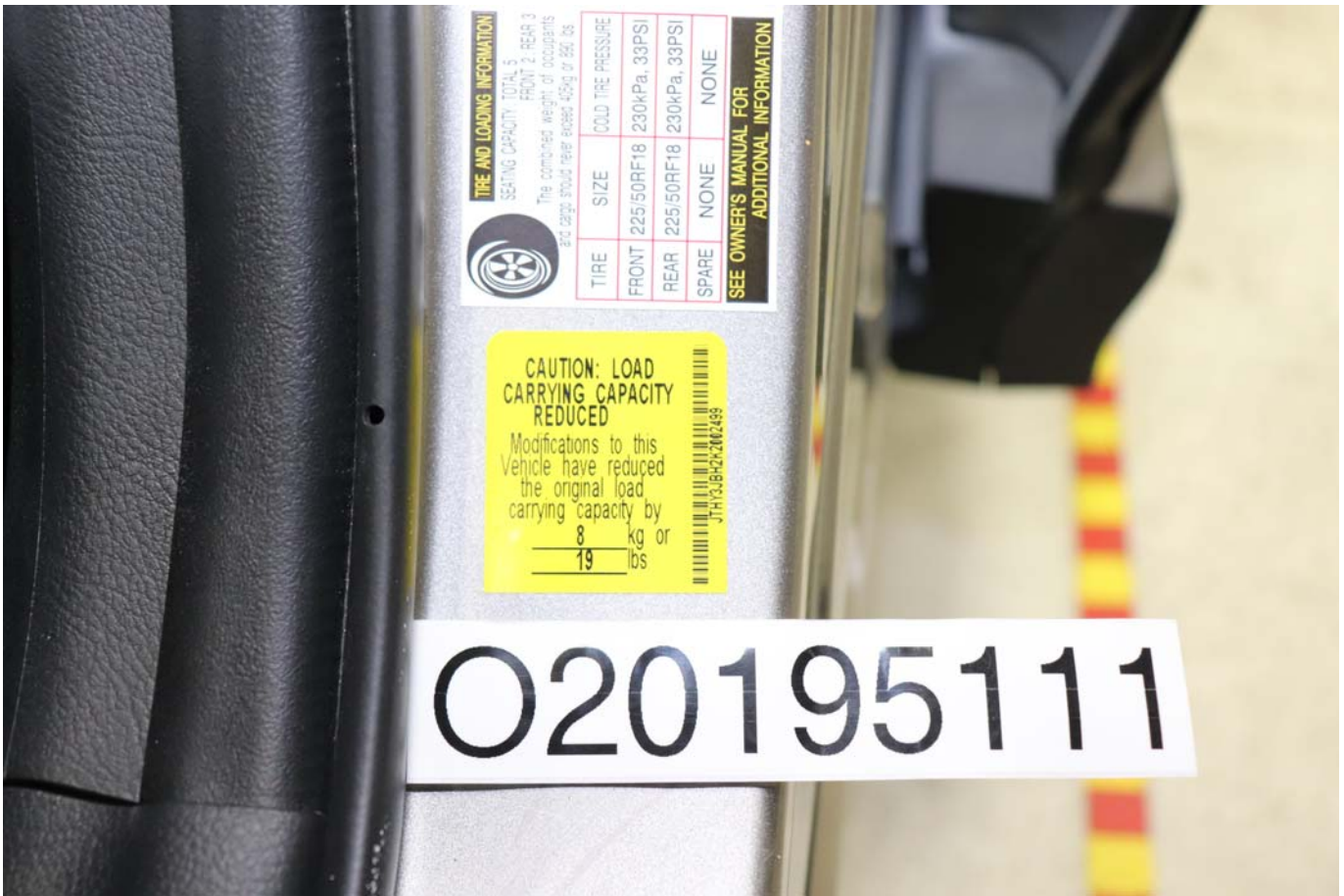


Photo No. 056a - Close-Up View of Vehicle Load Carrying Capacity Reduction Label



Photo No. 057 - Pre-Test Pole Barrier Front View

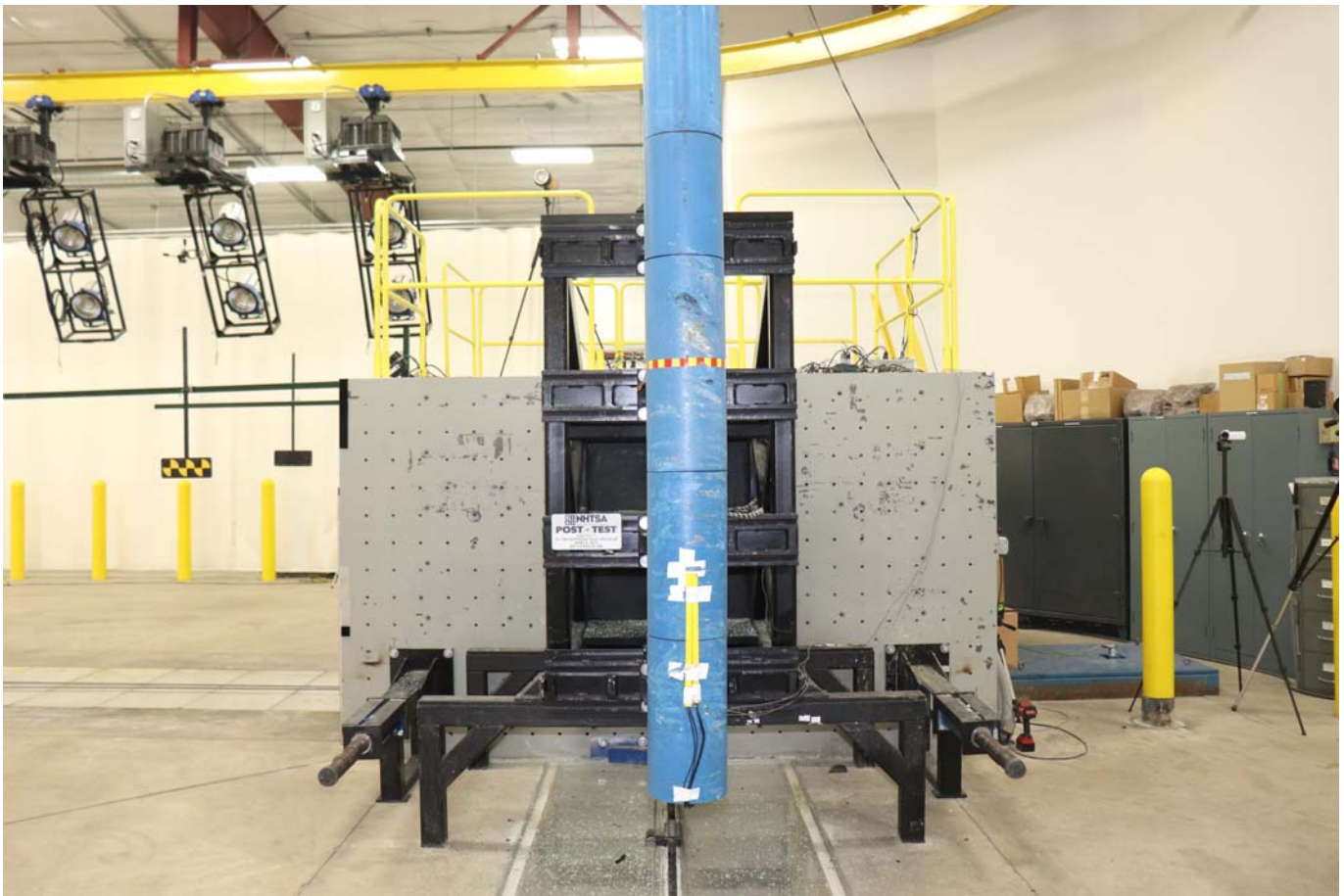


Photo No. 058 - Post-Test Pole Barrier Front View



Photo No. 059 - Pre-Test Pole Barrier Side View



Photo No. 060 - Post-Test Pole Barrier Side View

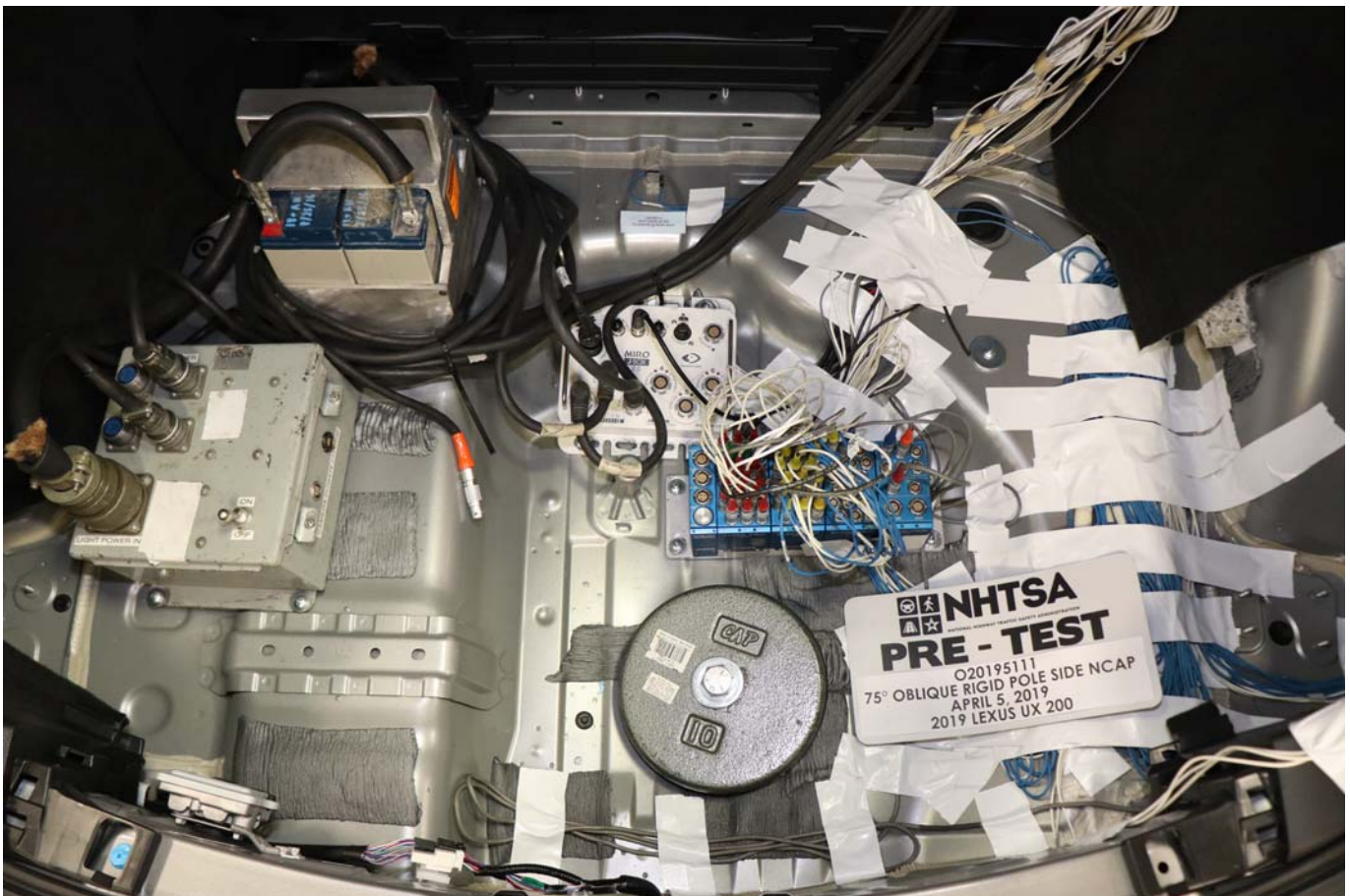


Photo No. 061 - Pre-Test Ballast View

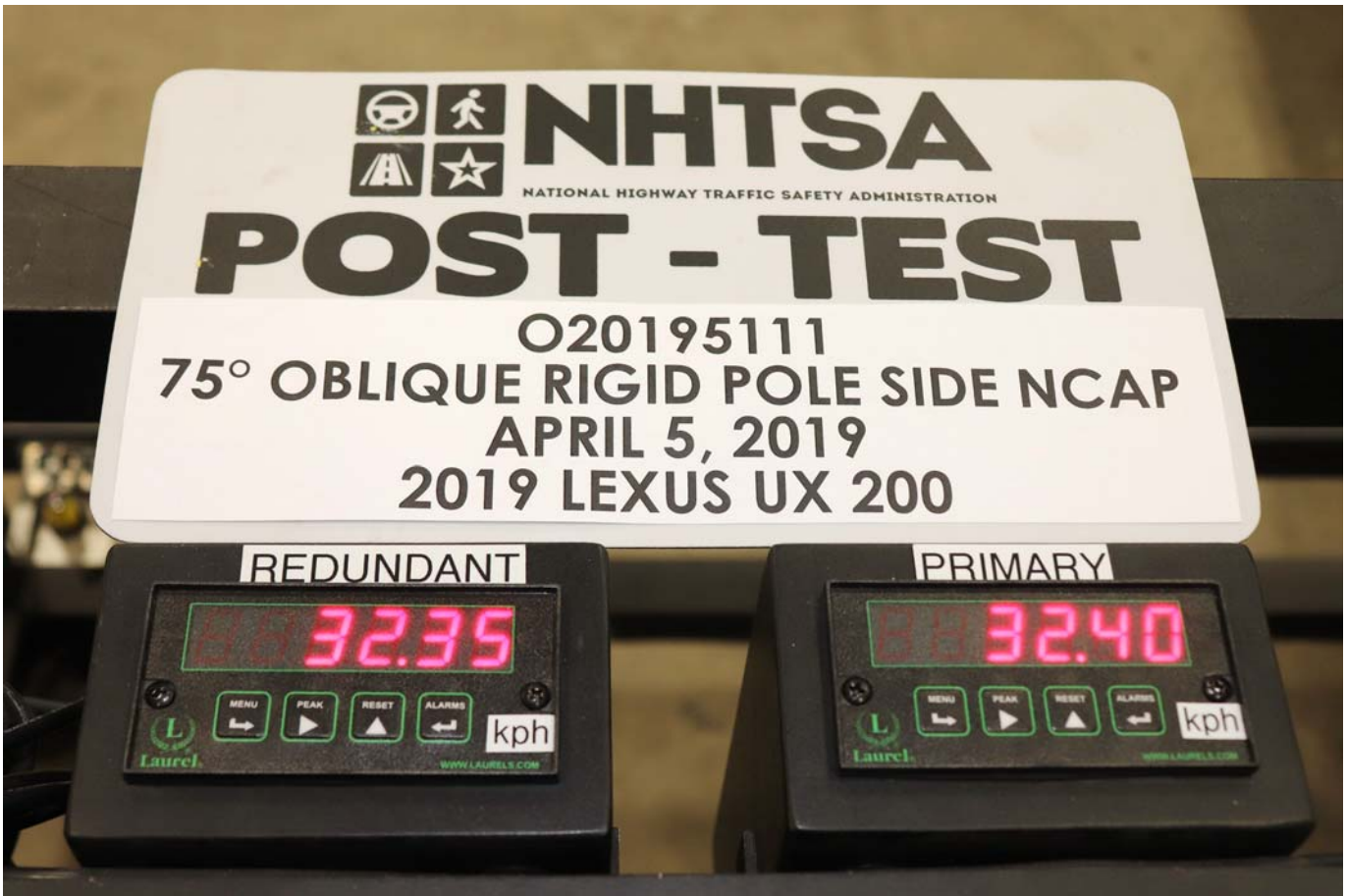


Photo No. 062 - Post-Test Primary and Redundant Speed Trap Read-Out



Photo No. 063 - FMVSS Photo No. 301 Static Rollover 0 Degrees



Photo No. 064 - FMVSS Photo No. 301 Static Rollover 90 Degrees



Photo No. 065 - FMVSS Photo No. 301 Static Rollover 180 Degrees



Photo No. 066 - FMVSS Photo No. 301 Static Rollover 270 Degrees



Photo No. 067 - FMVSS Photo No. 301 Static Rollover 360 Degrees



Photo No. 068 - Impact Event

LEXUS
EXPERIENCE AMAZING

STANDARD EQUIPMENT & INSTALLED OPTIONS

DESCRIPTION: 2019 / 9722A UX 200 F SPORT
 COLOR: ATOMIC SILVER
 VIN: JTHY3JBH2K2002499
 FINAL ASSEMBLY POINT: MIYAWAKA, FUKUOKA, JAPAN

Delivered by Truck to:
 LEXUS OF MADISON
 8000 AIRPORT ROAD
 MIDDLETON WI 53562

<ul style="list-style-type: none"> • 2.0 Liter, 4-Cylinder, 16-Valve DOHC, VVT-i, 169 HP • 10-Speed Direct-Shift Continuously Variable Transmission • 10 Airbags • Anti-Lock Braking System (ABS) with Electronic Brakeforce Distribution (EBD) & Brake Assist • Location Specific Tire Pressure Monitoring System • Lexus Safety System+ 2.0- Pre-Collision System w/Pedestrian Detection, All-Speed Dynamic Radar Cruise Control, Lane Tracing Assist, Lane Departure Alert w/Steering Assist, Intelligent High Beam Headlamps, Road Sign Assist • Lexus Enform Safety Connect & Service Connect: Complimentary for the first 10-years of ownership • Electronic Parking Brake • Backup Camera • Lexus Multimedia System with 7.0 in Color Display, Apple CarPlay Compatibility • 6-speaker Lexus Premium Sound System, Voice Command, Siri Eyes Free, Google Voice Ctrl • Lexus Enform Wi-Fi, 4GB (1-Year Trial Included) • Lexus Enform Remote (1-Year Trial Included) with Smart Watch & Alexa Skill Integration 	<ul style="list-style-type: none"> • Lexus Enform App Suite 2.0 (Complimentary) w/ Amazon Alexa Compatibility • Scout GPS Link TurnStream & MapStream Compatible (3-Year Trial) • SiriusXM Satellite Radio (3-Mo All Access Trial) • Bi-LED Headlamps • LED Daytime Running Light, Turn Signals, Door Handle Courtesy Lamps, and Tail Lights • Aluminum Roof Rails / Heated Outer Mirrors • Auto Dual Zone Climate Control Sys w/Rear Venis Driver Seat: 10-Way Power (including 2-Way Lumbar); Passenger Seat: 8-Way Power Manual Folding 60/40 Split Rear Seat • SmartAccess Entry System w/Push Button Start/Stop • 7" Color Multi-Information Display w/Driving Information, Audio & Outside Temp Display • Tonneau Cover / First Aid Kit / Carpet Floor Mats <p>F SPORT Features:</p> <ul style="list-style-type: none"> • 18-in F SPORT Wheels (225/50R18) w/Run-Flat • All-Season Tires • F SPORT Front & Rear Bumper, F SPORT Grille Insert, LED Fog Lamp, F SPORT Seats, F SPORT Steering Wheel with Paddle Shifters, F SPORT Shift Knob, Aluminum Front Door Scuff Plates, Aluminum Pedals, 8-in Multi-Information Display, Active Sound Control 	<p>MANUFACTURER'S SUGGESTED RETAIL PRICE</p> <table border="0" style="width: 100%;"> <tr><td>** Blind Spot Monitor</td><td style="text-align: right;">500.00</td></tr> <tr><td>** Windshield Deicer</td><td style="text-align: right;">100.00</td></tr> <tr><td>** Auto-Dimming Inner Mirror w/Compass and HomeLink</td><td style="text-align: right;">325.00</td></tr> <tr><td>** Parking Assist, Rear Cross Traffic Alert w/Braking</td><td style="text-align: right;">565.00</td></tr> <tr><td>** Power Rear Door with Kick Sensor</td><td style="text-align: right;">600.00</td></tr> <tr><td>** F SPORT Premium Package- Moonroof, Rain Sensing Wipers, Heated Front Seats</td><td style="text-align: right;">975.00</td></tr> <tr><td>** Heated F SPORT Steering Wheel w/Paddle Shifters</td><td style="text-align: right;">150.00</td></tr> <tr><td>** All-Weather Floor Liners with Cargo Mat</td><td style="text-align: right;">248.00</td></tr> <tr><td>** Cargo Mat / Wheel Locks / Key Glove</td><td style="text-align: right;">199.00</td></tr> </table> <p style="text-align: right;">\$ 34,000.00</p>	** Blind Spot Monitor	500.00	** Windshield Deicer	100.00	** Auto-Dimming Inner Mirror w/Compass and HomeLink	325.00	** Parking Assist, Rear Cross Traffic Alert w/Braking	565.00	** Power Rear Door with Kick Sensor	600.00	** F SPORT Premium Package- Moonroof, Rain Sensing Wipers, Heated Front Seats	975.00	** Heated F SPORT Steering Wheel w/Paddle Shifters	150.00	** All-Weather Floor Liners with Cargo Mat	248.00	** Cargo Mat / Wheel Locks / Key Glove	199.00
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** Heated F SPORT Steering Wheel w/Paddle Shifters	150.00																			
** All-Weather Floor Liners with Cargo Mat	248.00																			
** Cargo Mat / Wheel Locks / Key Glove	199.00																			

EPA DOT Fuel Economy and Environment Gasoline Vehicle

Fuel Economy

33 MPG

combined city/hwy

3.0 gallons per 100 miles

You save

\$ 1,250

in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost \$1,150

Fuel Economy & Greenhouse Gas Rating (EPA est.) **8** Smog Rating (EPA est.) **6**

The vehicle emits 271 grams CO2 per mile. The best emits 0 grams per mile (EPA est.). Producing and distributing fuel also create emissions. Learn more at fuel-economy.gov

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 27 MPG and costs \$7,000 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$2.50 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuel-economy.gov

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.

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

SUB-TOTAL	\$ 37,662.00
DELIVERY, PROCESSING AND HANDLING FEE	1,025.00
TOTAL	\$ 38,687.00

APPLICABLE FEDERAL TAXES NOT INCLUDED

Manufacturer's suggested retail price includes manufacturer's recommended pre-delivery service. License and title fees, state, local and applicable federal taxes, and dealer-installed options and accessories are not included in the manufacturer's suggested retail price.

LEXUS NEW VEHICLE LIMITED WARRANTY

Limited warranty coverage highlights include:

- * 4 yr / 50,000 mile basic coverage
- * 8 yr / 100,000 mile powertrain coverage
- * 8 yr / Unlimited mile corrosion perforation warranty

See your Warranty and Services Guide for details.

LEXUS IS PLEASED TO OFFER THE FOLLOWING OWNER SUPPORT PACKAGE WITH EACH NEW LEXUS

- * 24-hour, 24/7 emergency roadside assistance plan
- * Complimentary 1st and 2nd scheduled maintenance services
- * Lodging for emergency breakdown 100 miles from home

An extended service contract may be available for this vehicle. Ask dealer for details.

331B15 652 LK19 A2888

Photo No. 069 - Monroney Label

- Recall procedure
- 1 Make sure that the doors are locked before recalling the driving position. Carry the electronic key that has been registered to the driving position, and then unlock and open the driver's door using the smart access system with push-button start or wireless remote control.

The driving position will move to the recorded position (not including the steering wheel and head-up display [if equipped]). However, the seat will move to a position slightly behind the recorded position in order to make entering the vehicle easier.

If the driving position is in a position that has already been recorded, the seat and outside rear view mirrors will not move.

- 2 Turn the engine switch to ACC or ON, or fasten a seat belt.

The seat, steering wheel and head-up display (if equipped) will move to the recorded position.

■ Recalling the driving position using the memory recall function

● Different driving positions can be registered for each electronic key. Therefore, the driving position that is recalled may be different depending on the key being carried.

● If a door other than the driver's door is unlocked with the smart access system with push-button start, the driving position cannot be recalled. In this case, press the driving position button which has been set.

■ Customization

The unlock door settings of the memory recall function can be customized. (Customizable features: →P.413)

Head restraints

Head restraints are provided for all seats.

⚠ WARNING

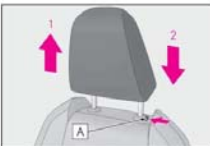
■ Head restraint precautions

Observe the following precautions regarding the head restraints. Failure to do so may result in death or serious injury.

- Use the head restraints designed for each respective seat.
- Adjust the head restraints to the correct position at all times.
- After adjusting the head restraints, push down on them and make sure they are locked in position.
- Do not drive with the head restraints removed.

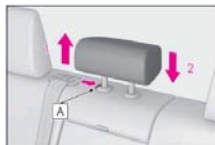
Vertical adjustment

■ Front seats



- 1 Up
Pull the head restraints up.
- 2 Down
Push the head restraint down while pressing the lock release button [A].

■ Center rear seat



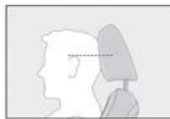
- 1 Up
Pull the head restraints up.
- 2 Down
Push the head restraint down while pressing the lock release button [A].

■ Outboard rear seats



- 1 To fold
Pull up the head restraint while pressing the lock release button [A].
- 2 To use
Lift up and push down the head restraint to the lowest lock position.

■ Adjusting the height of the head restraints (front seats)



Make sure that the head restraints are adjusted so that the center of the head restraint is closest to the top of your ears.

■ Adjusting the center rear seat head restraint

Always raise the head restraint one level from the stowed position when using.

Horizontal adjustment (if equipped)

The position of the head restraint for the front seat can be adjusted forward in 4 stages.

If the head restraint is pulled forward from the foremost position, it will return to the rearmost position.



Removing the head restraints

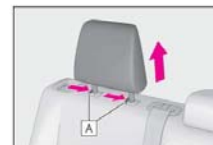
- ▶ Front and center rear seats
Pull the head restraint up while pressing the lock release button [A].

If the head restraint touches the ceiling, making the removal difficult, change the seat height or angle. (→P.121)



- ▶ Outboard rear seats
Pull the head restraint up while pressing the lock release buttons [A].

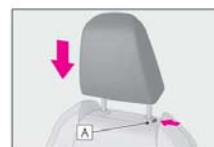
If the head restraint touches the ceiling, making the removal difficult, change the seat angle. (→P.122)



Installing the head restraints

- ▶ Front and center rear seats
Align the head restraint with the installation holes and push it down to the lock position.

Press and hold the lock release button [A] when lowering the head restraint.



- ▶ Outboard rear seats
Align the head restraint with the installation holes and push it down to the lowest lock position.



Before driving

Photo No. 070 - Head Restraint Use and Adjustment Information from Vehicle Owners Manual



Photo No. 071 - Post-Test View of Shattered Vehicle Inner Door Panel

APPENDIX B
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.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 Head Angular Velocity X (Deg/Sec) vs. Time

Driver Head Angular Velocity Y (Deg/Sec) vs. Time

Driver Head Angular Velocity Z (Deg/Sec) 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)

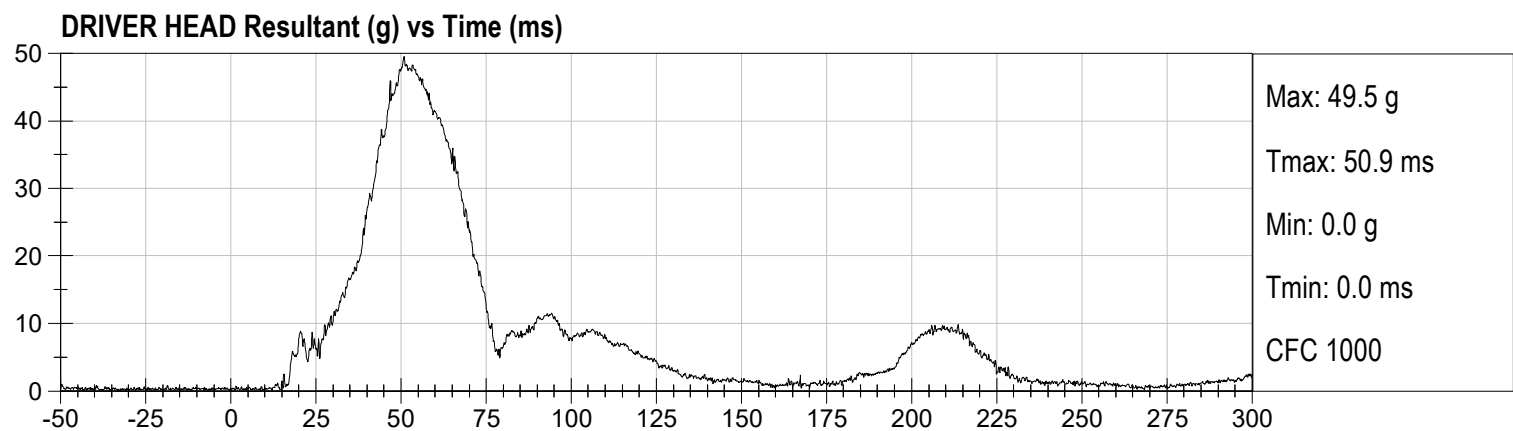
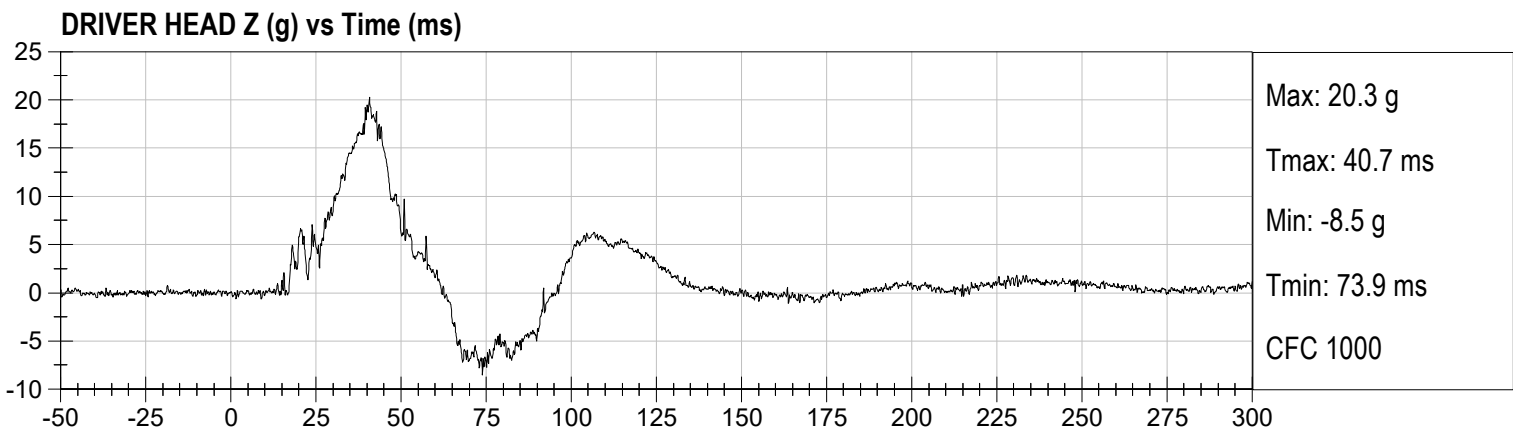
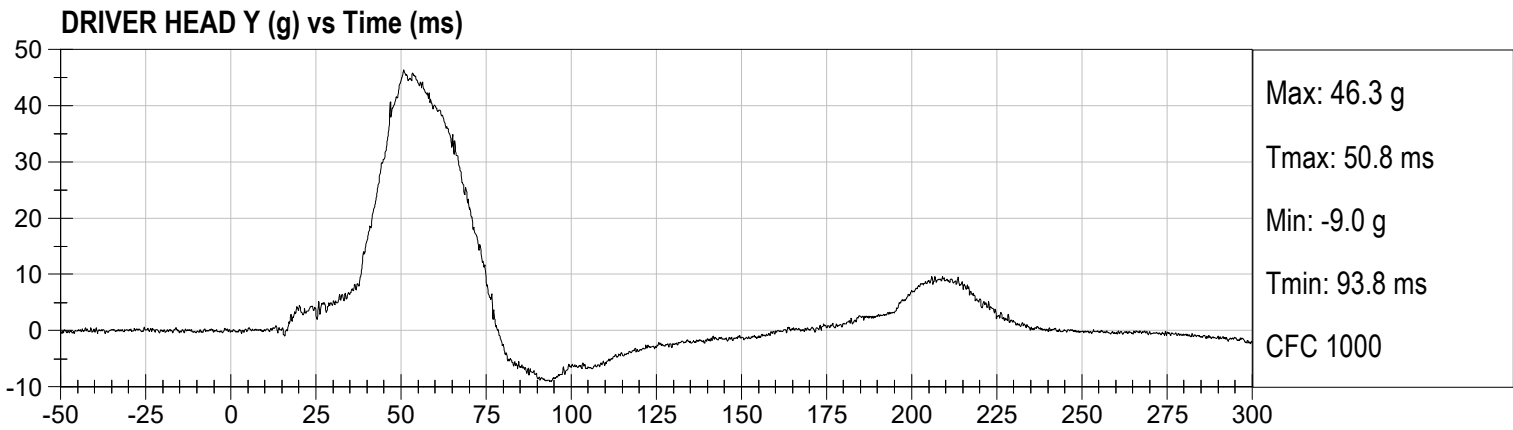
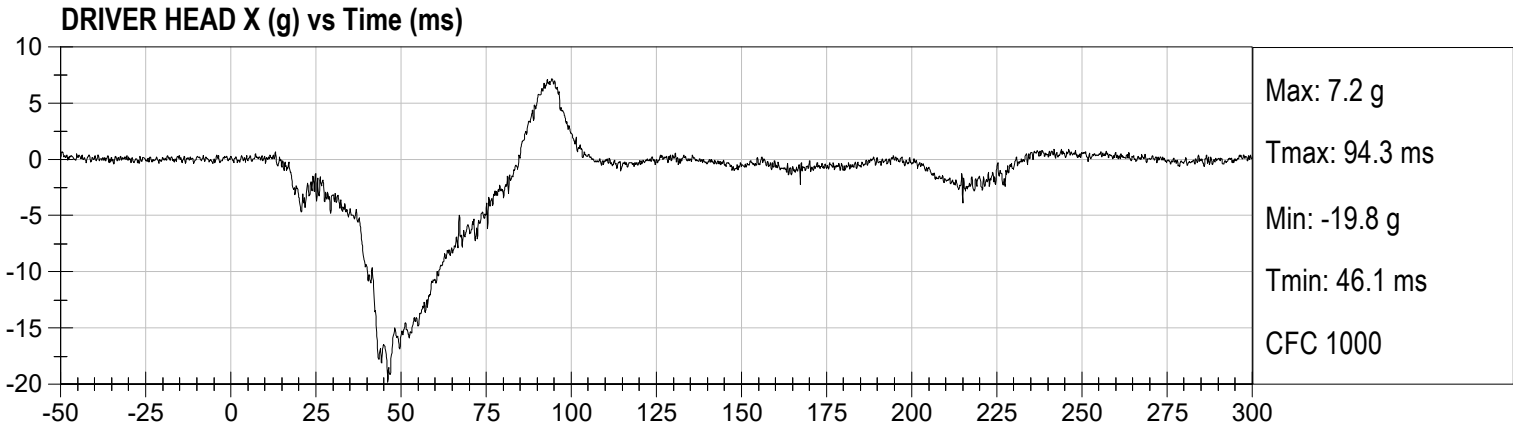
Load Cell Pole Barrier #4 Force (Y)

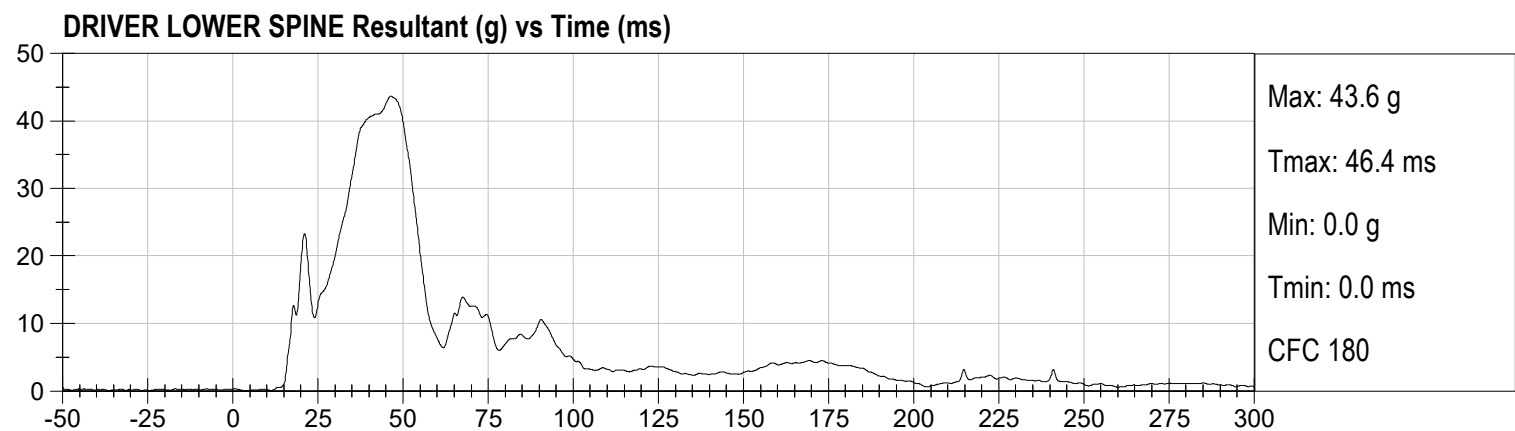
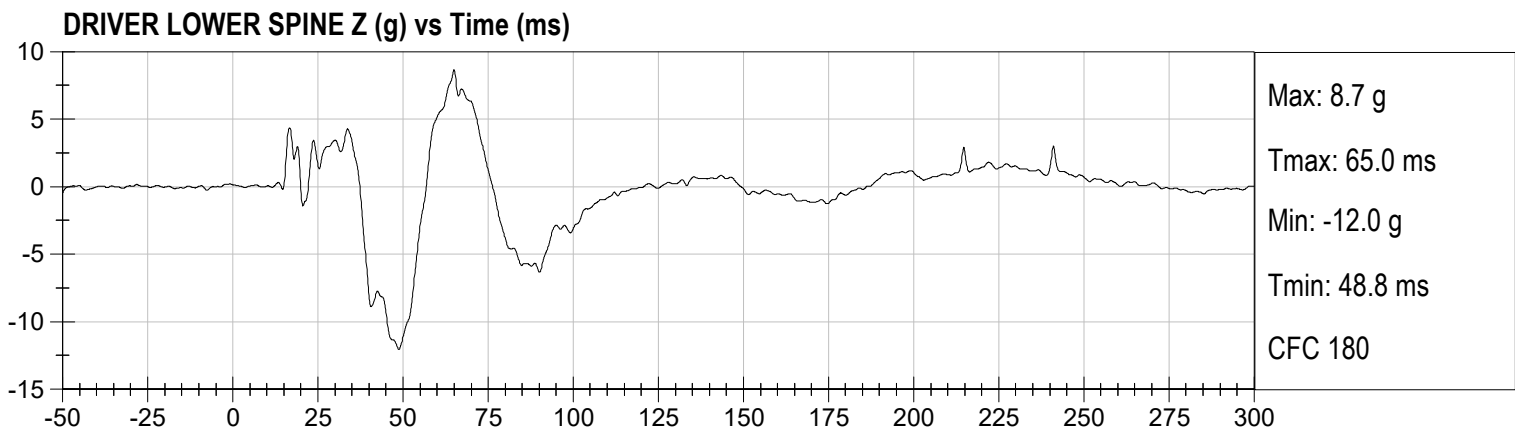
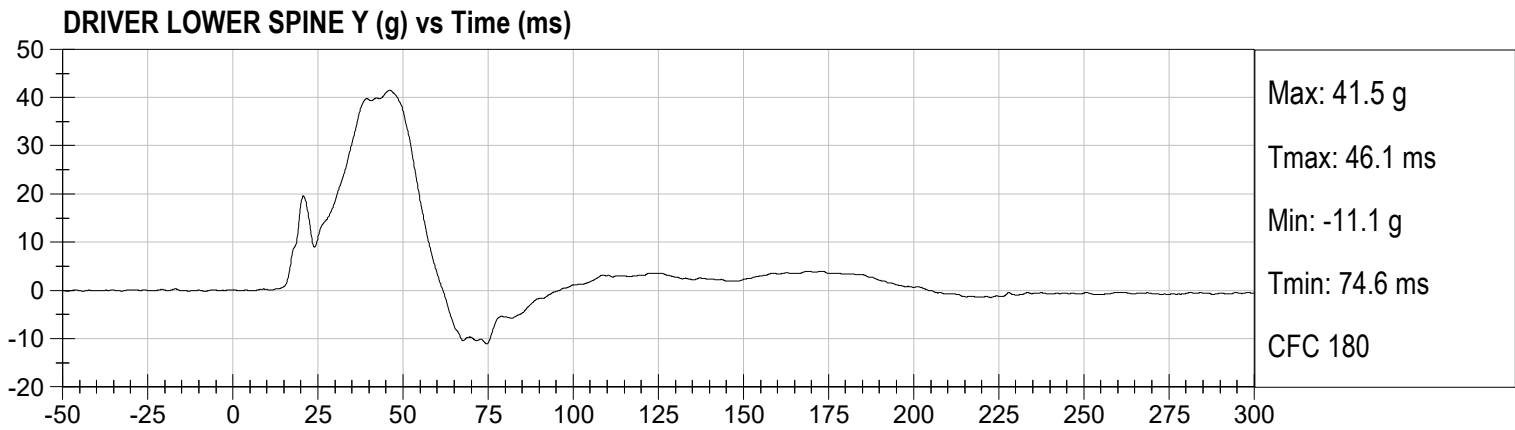
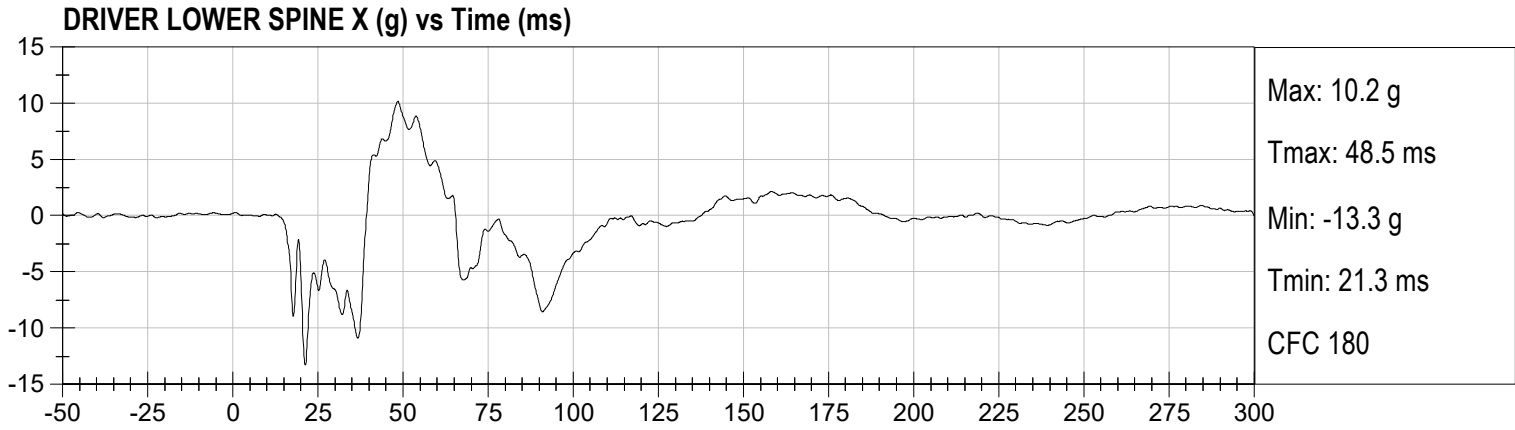
Load Cell Pole Barrier #5 Force (Y)

Load Cell Pole Barrier #6 Force (Y)

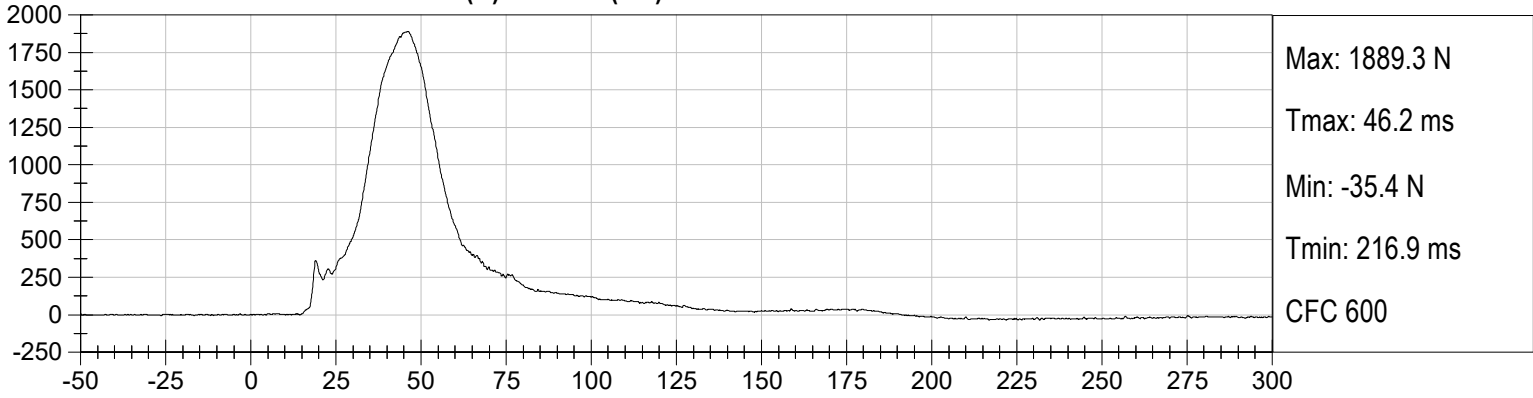
Load Cell Pole Barrier #7 Force (Y)

Load Cell Pole Barrier #8 Force (Y)

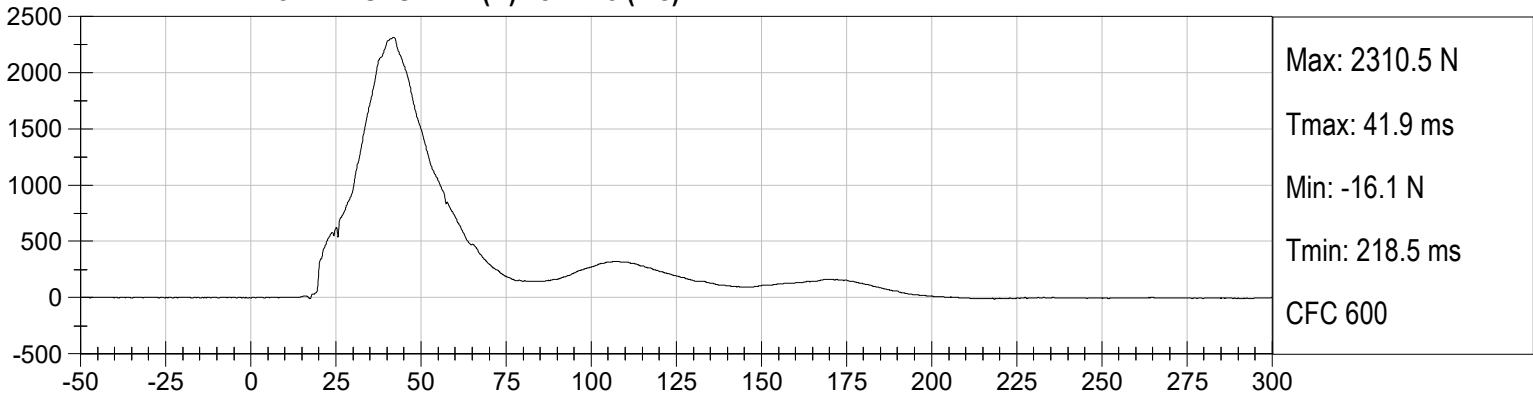




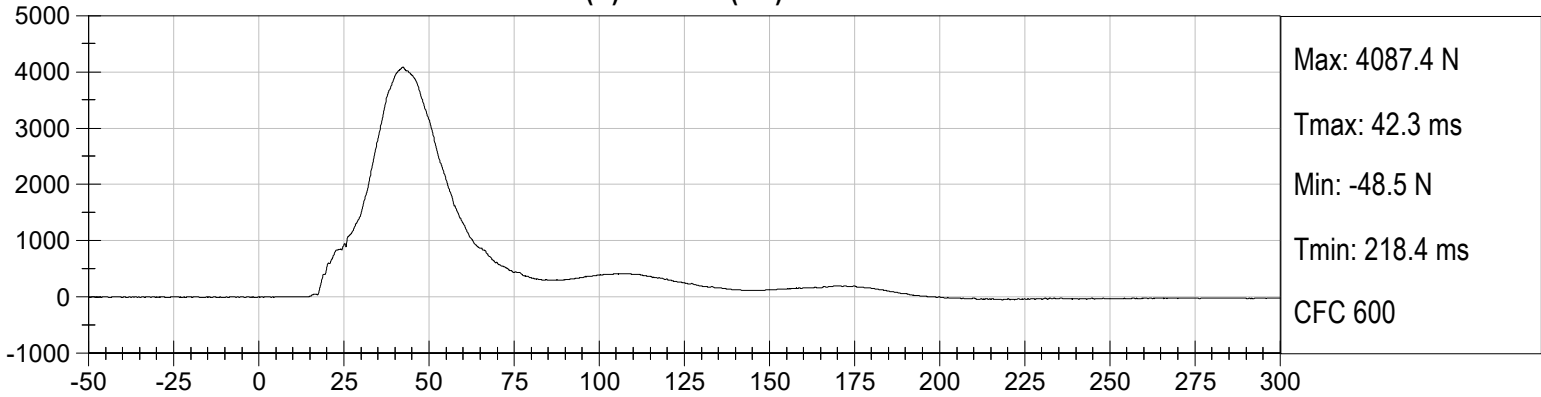
DRIVER LEFT ILIUM CREST FY (N) vs Time (ms)



DRIVER LEFT ACETABULUM FY (N) vs Time (ms)



DRIVER LEFT LATERAL PELVIC FORCE (N) vs Time (ms)



APPENDIX C
DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION DATA

CALIBRATION TEST RESULTS

PRE-TEST

SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

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: D190911

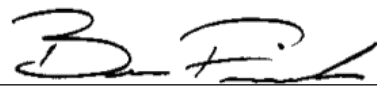
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	23	Pass
Peak Resultant Acceleration	G's	115 to 137	133	Pass
Peak Longitudinal Acceleration	G's	+/- 15	1.9	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
			Overall Test Results	Pass



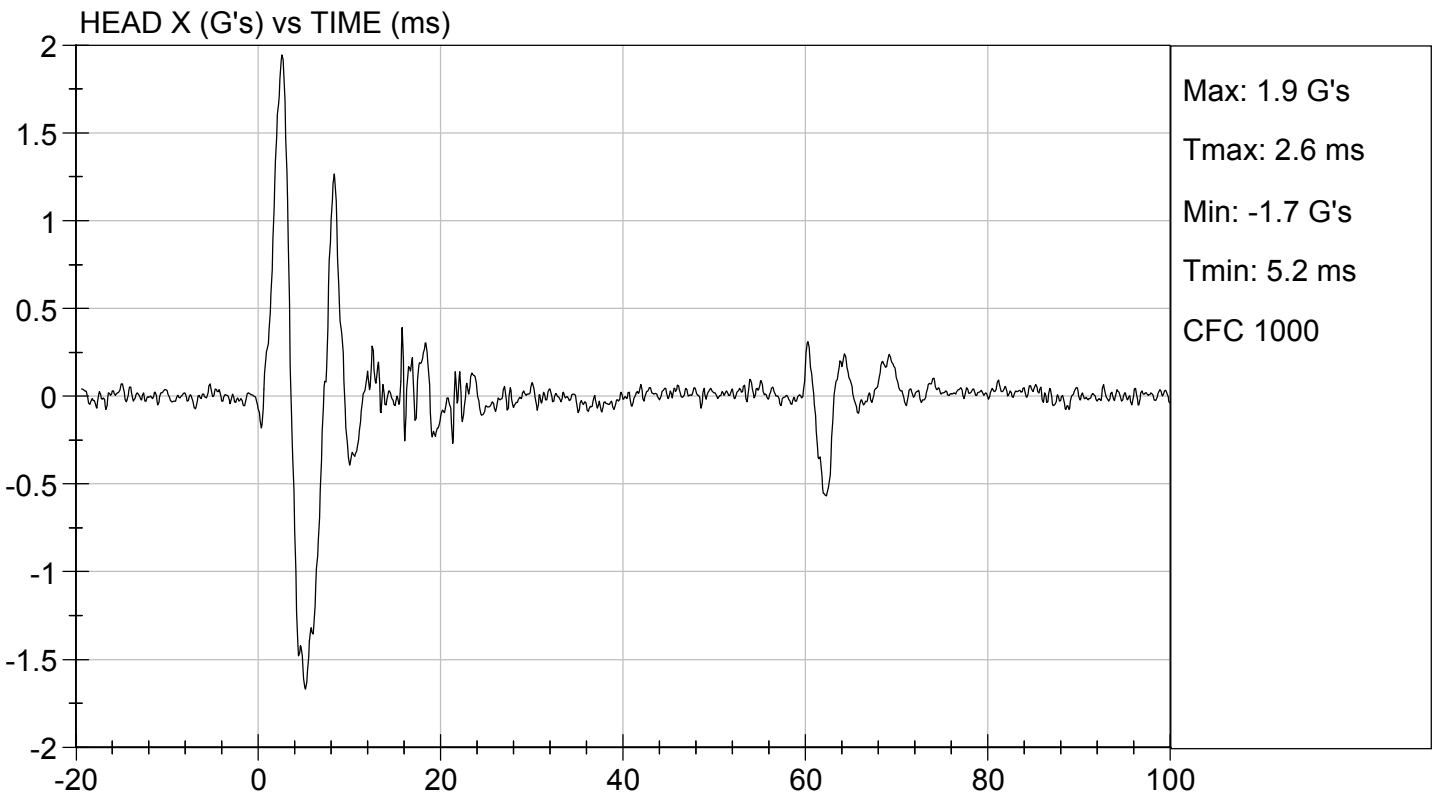
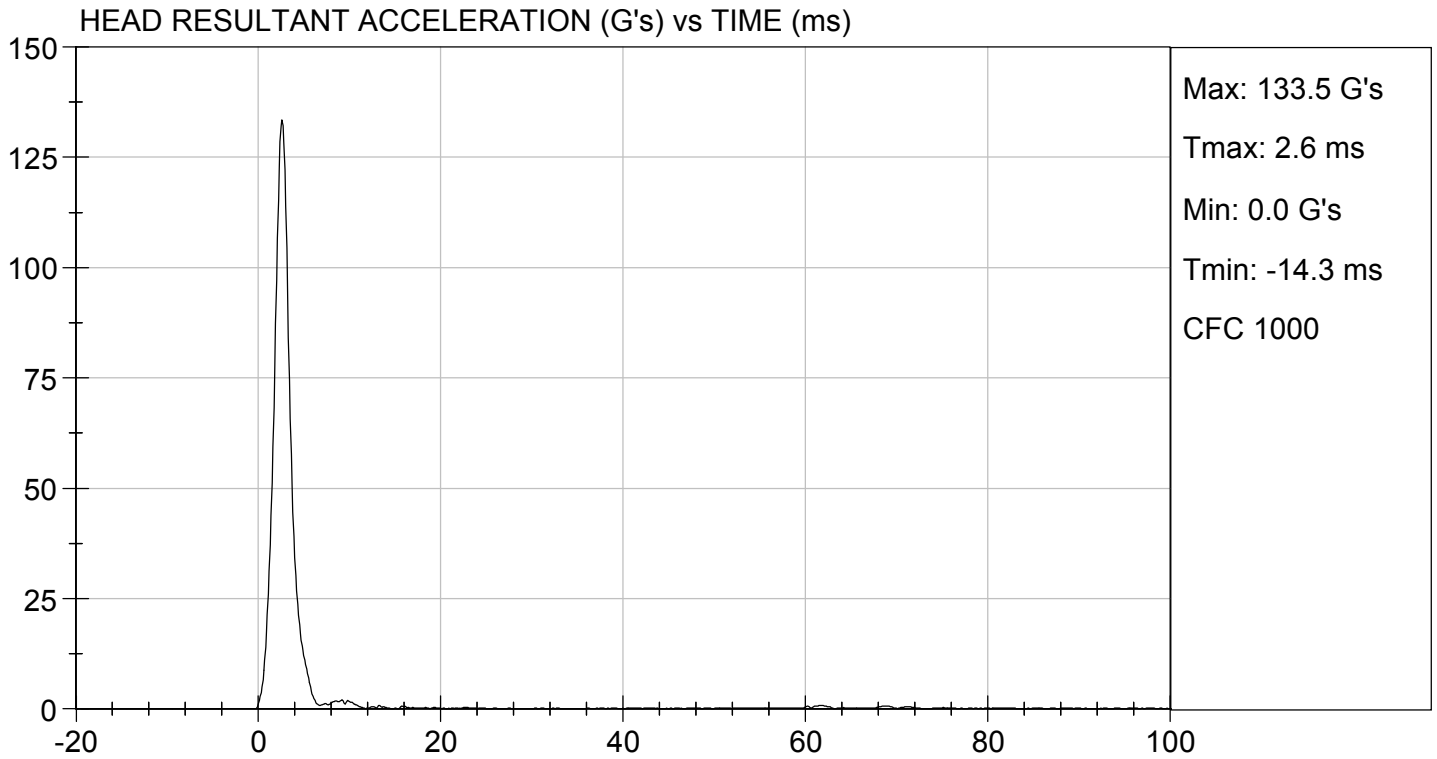
 Laboratory Technician

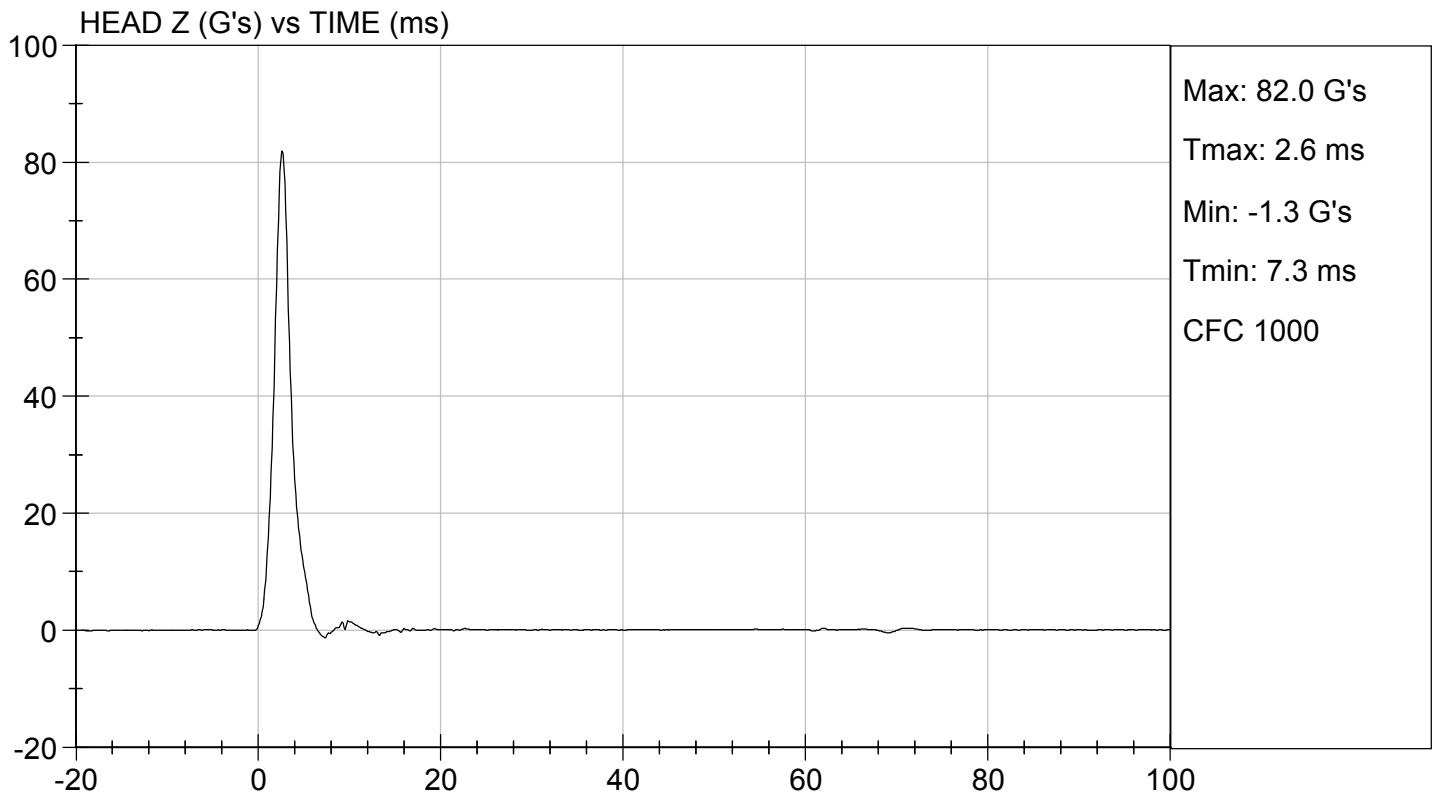
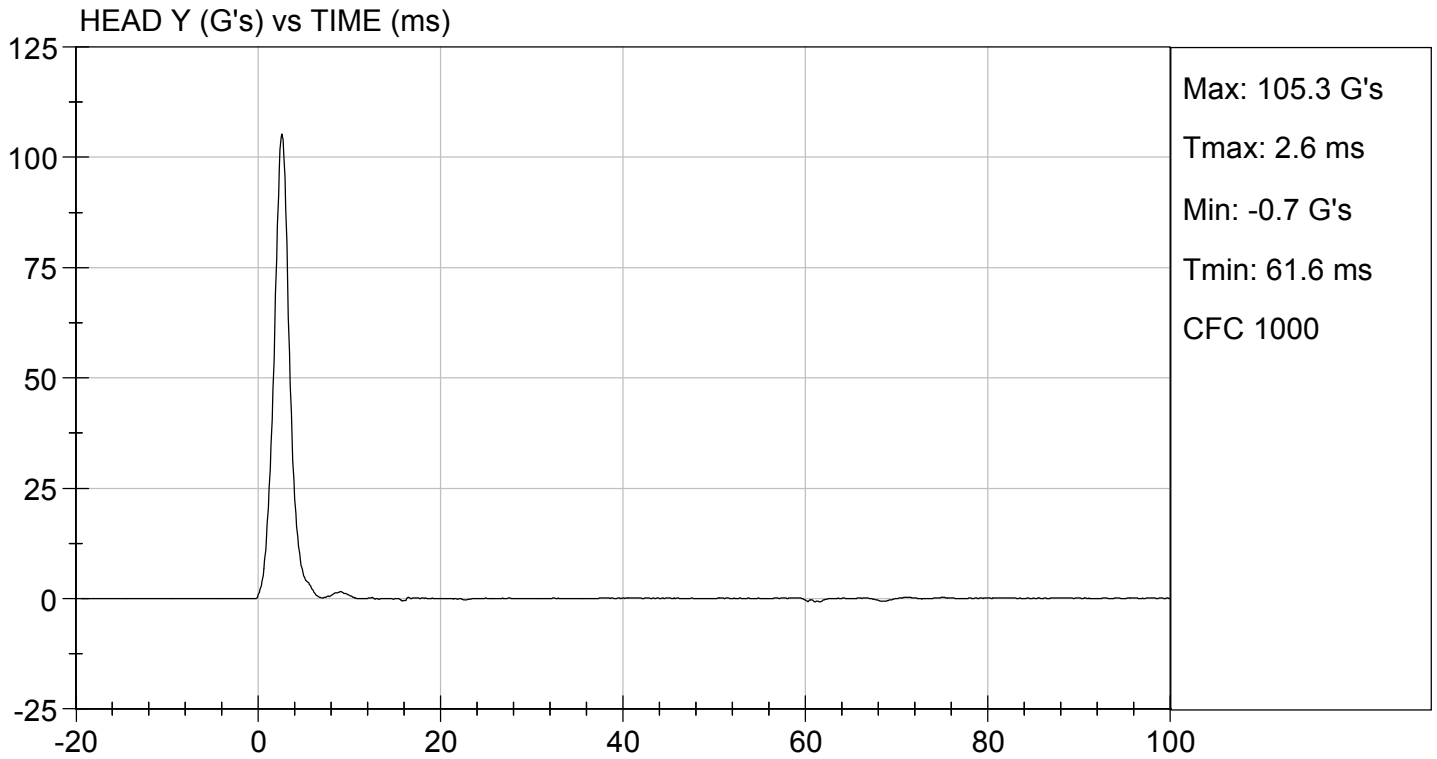
03/11/2019

 Test Date



 Approved By





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

ATD Serial No: 296

Test I.D.: D190912

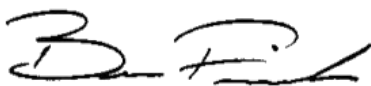
Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.4	Pass
Humidity		%	10 to 70	21	Pass
Impact Velocity		m/s	5.51 to 5.63	5.58	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.56	Pass
	15 ms	m/s	3.30 to 4.10	3.70	Pass
	20 ms	m/s	4.40 to 5.40	5.19	Pass
	25 ms	m/s	5.40 to 6.10	5.59	Pass
	25-100 ms	m/s	5.50 to 6.20	5.64	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	-39	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	115	Pass
Overall Test Results					Pass



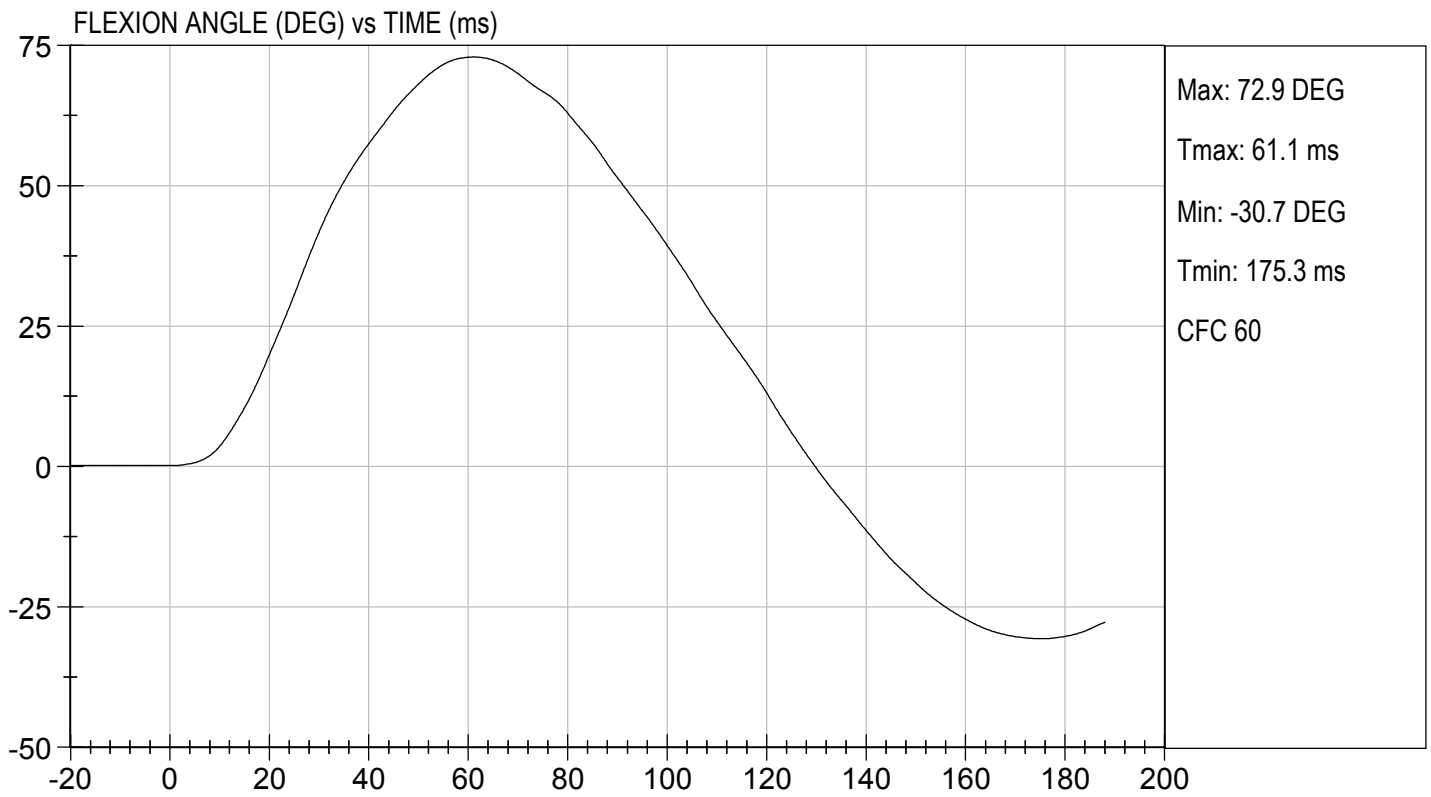
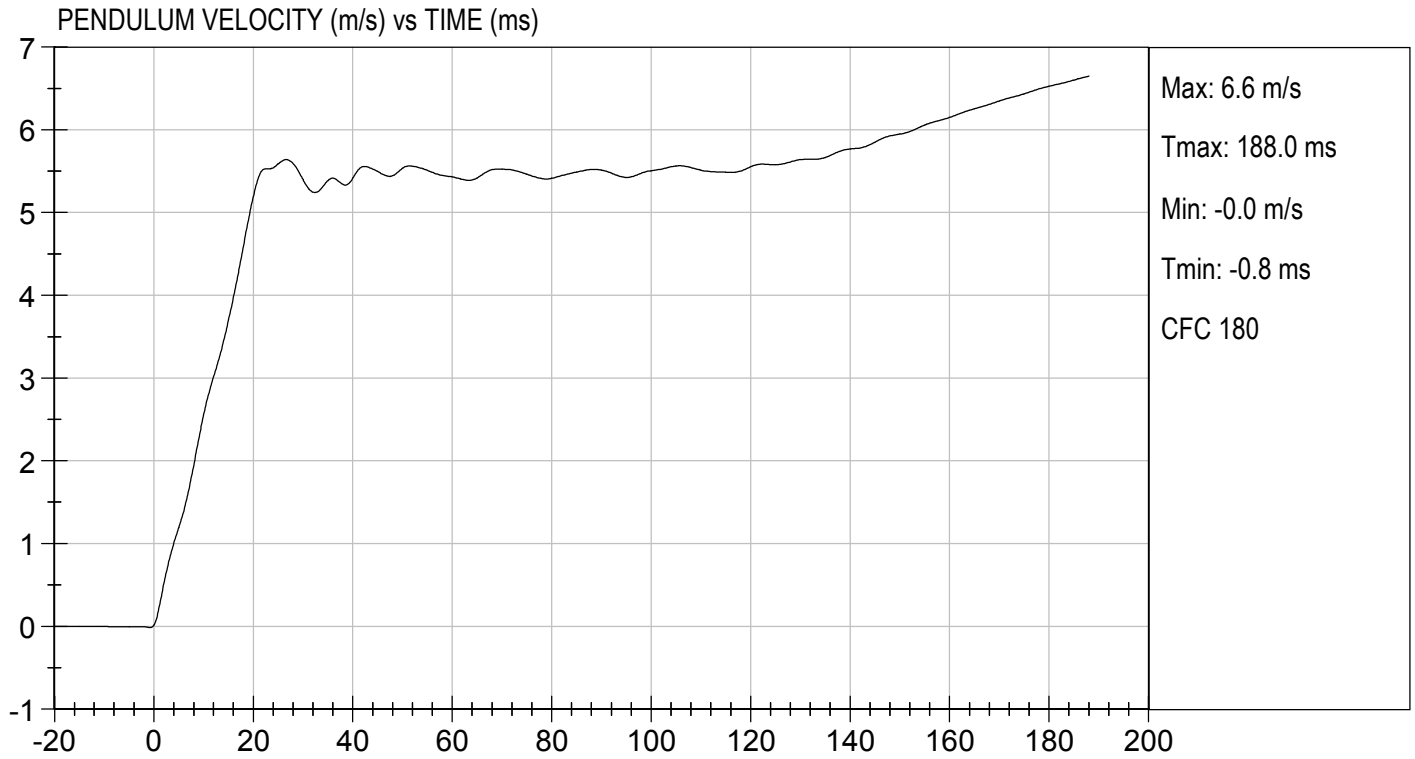
Laboratory Technician

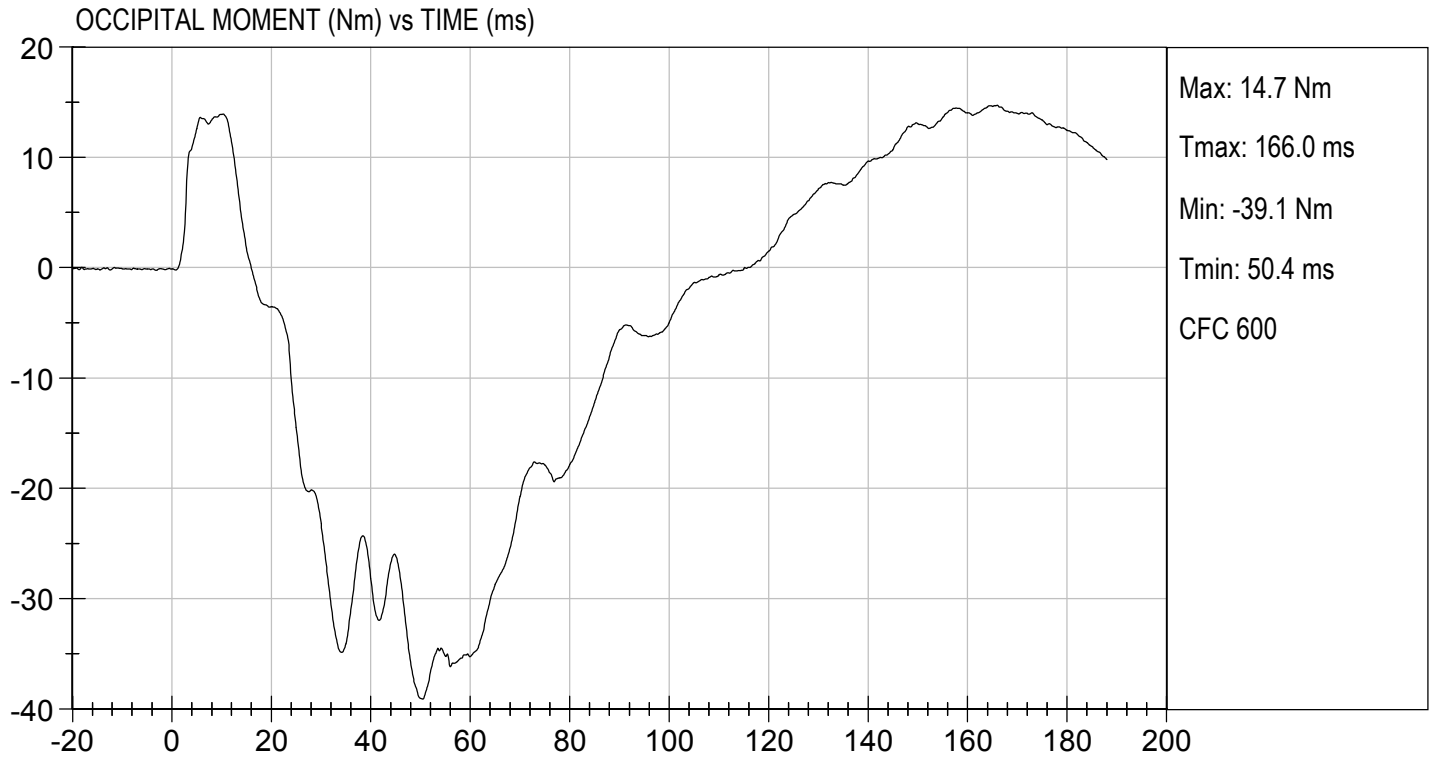
03/11/2019

Test Date



Approved By





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

ATD Serial No: 296

Test ID: D190913

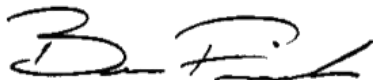
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	17	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	29	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	21	Pass
Overall Test Results				Pass



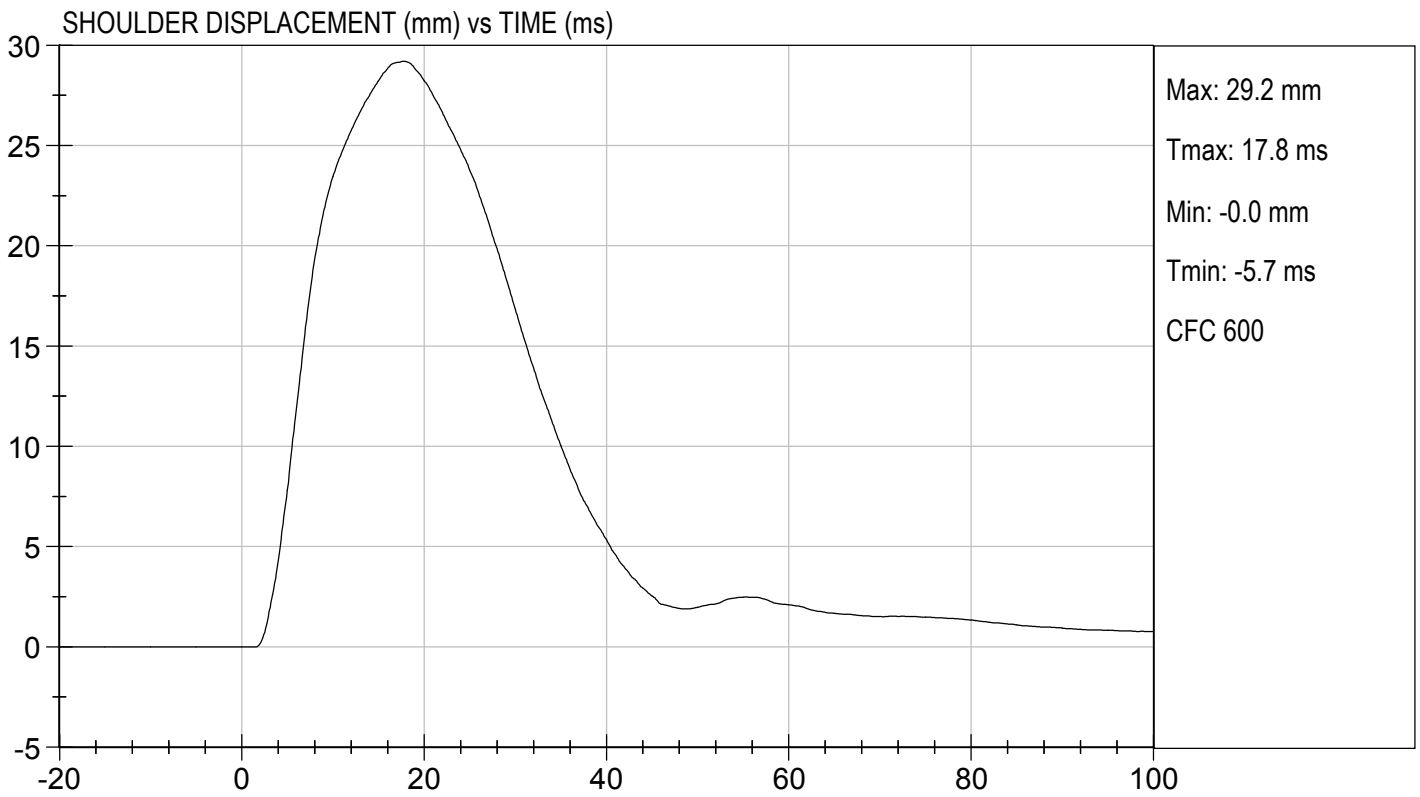
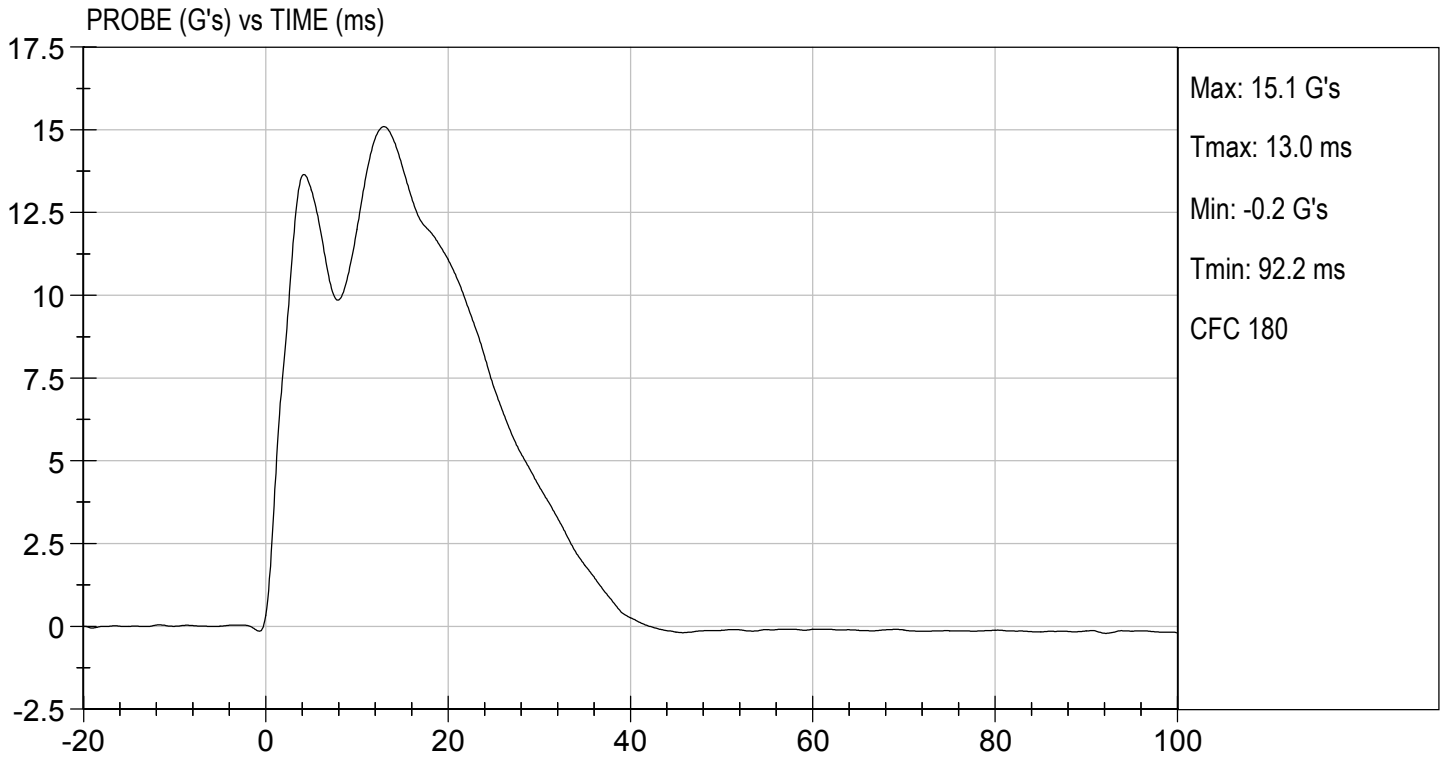
Laboratory Technician

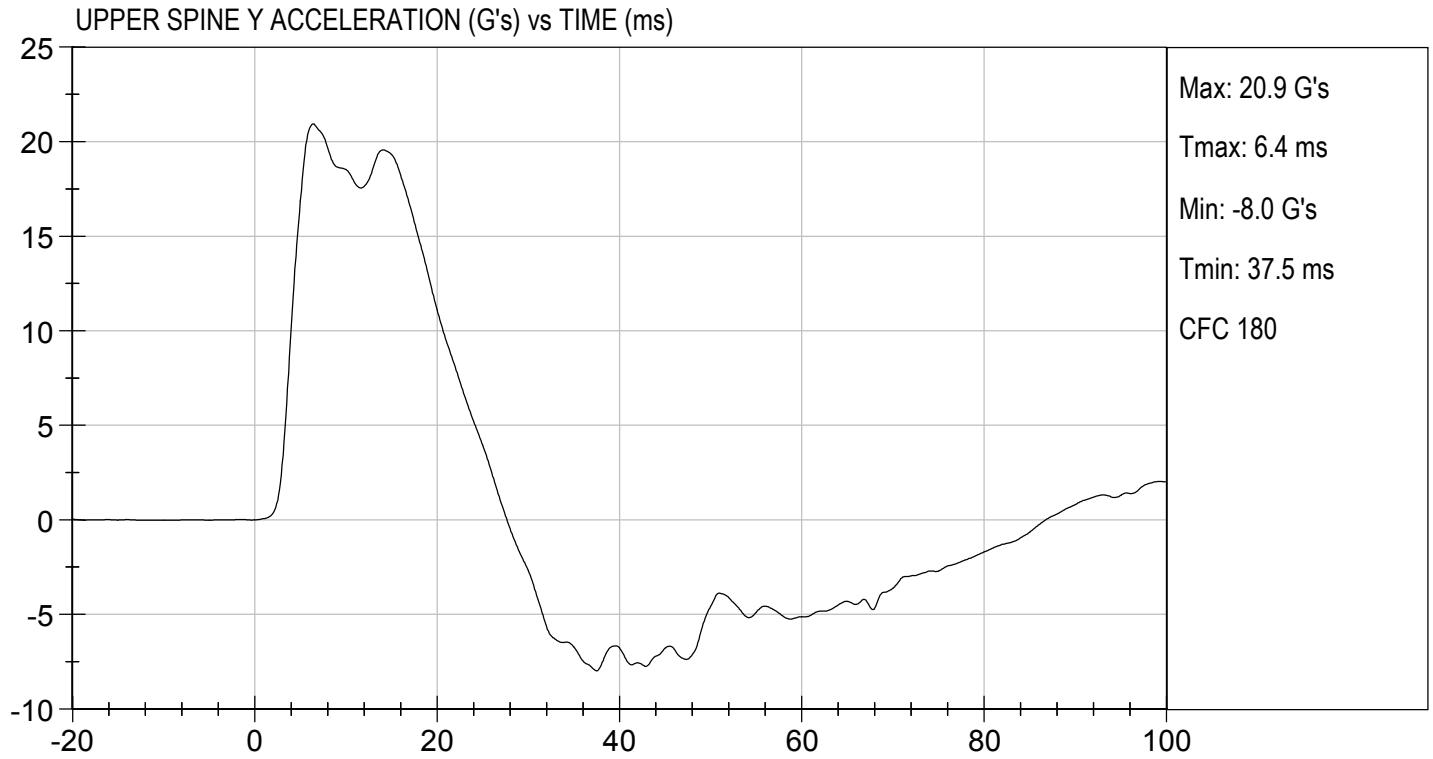
03/08/2019

Test Date



Approved By





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

ATD Serial No: 296

Test I.D: D190914

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	17	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	30 to 36	33	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	31	Pass
Lower Rib Displacement	mm	32 to 38	33	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	41	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	37	Pass
Overall Test Results				Pass

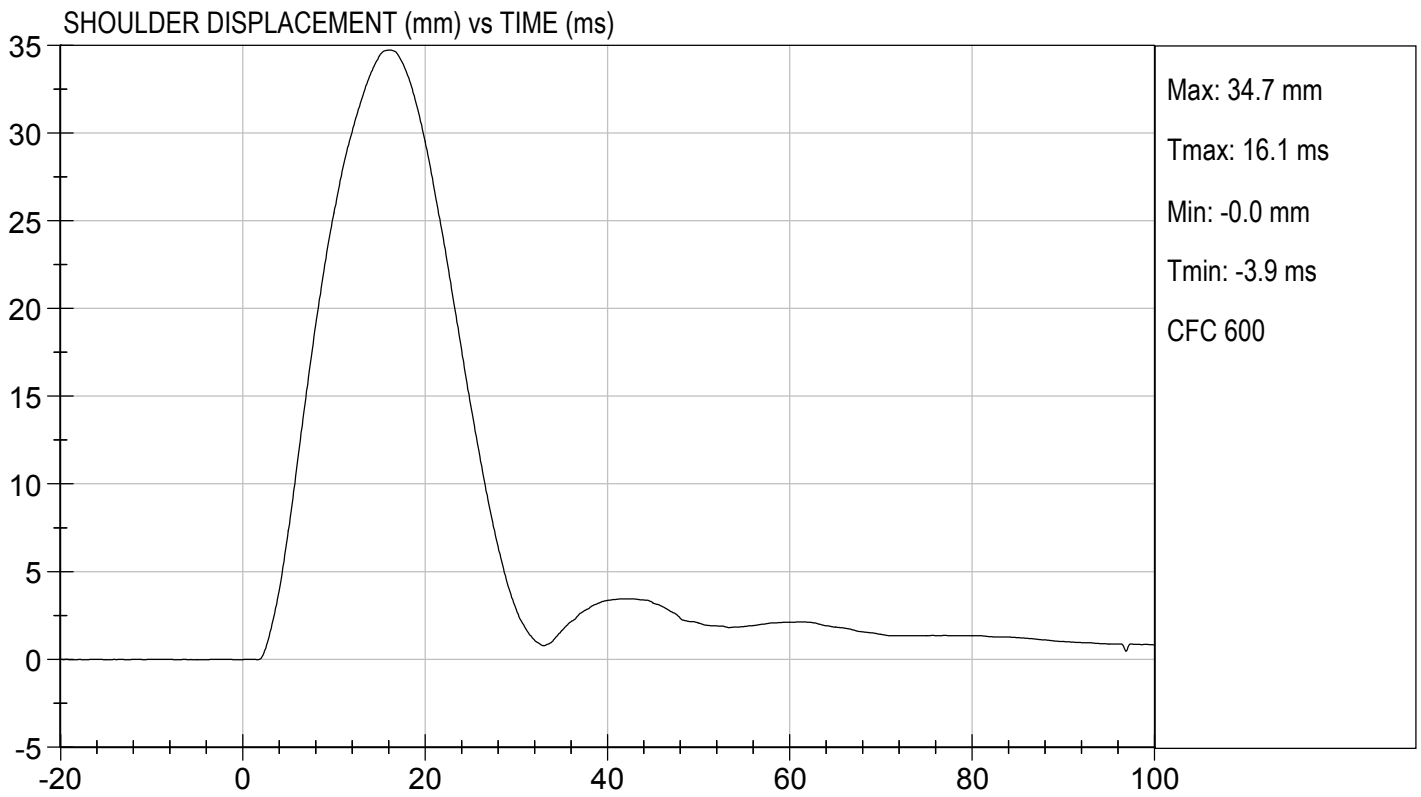
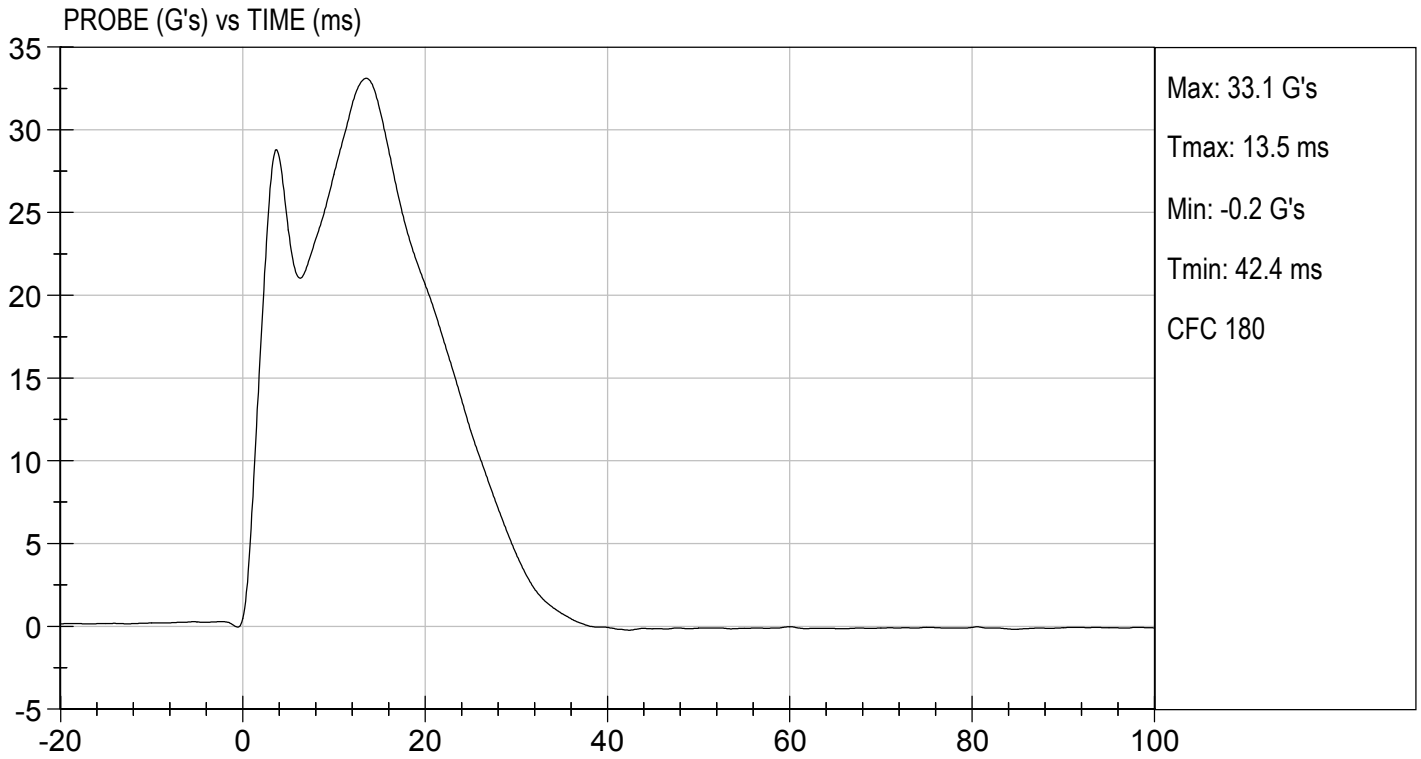
Danielle Redinlaugh
 Laboratory Technician

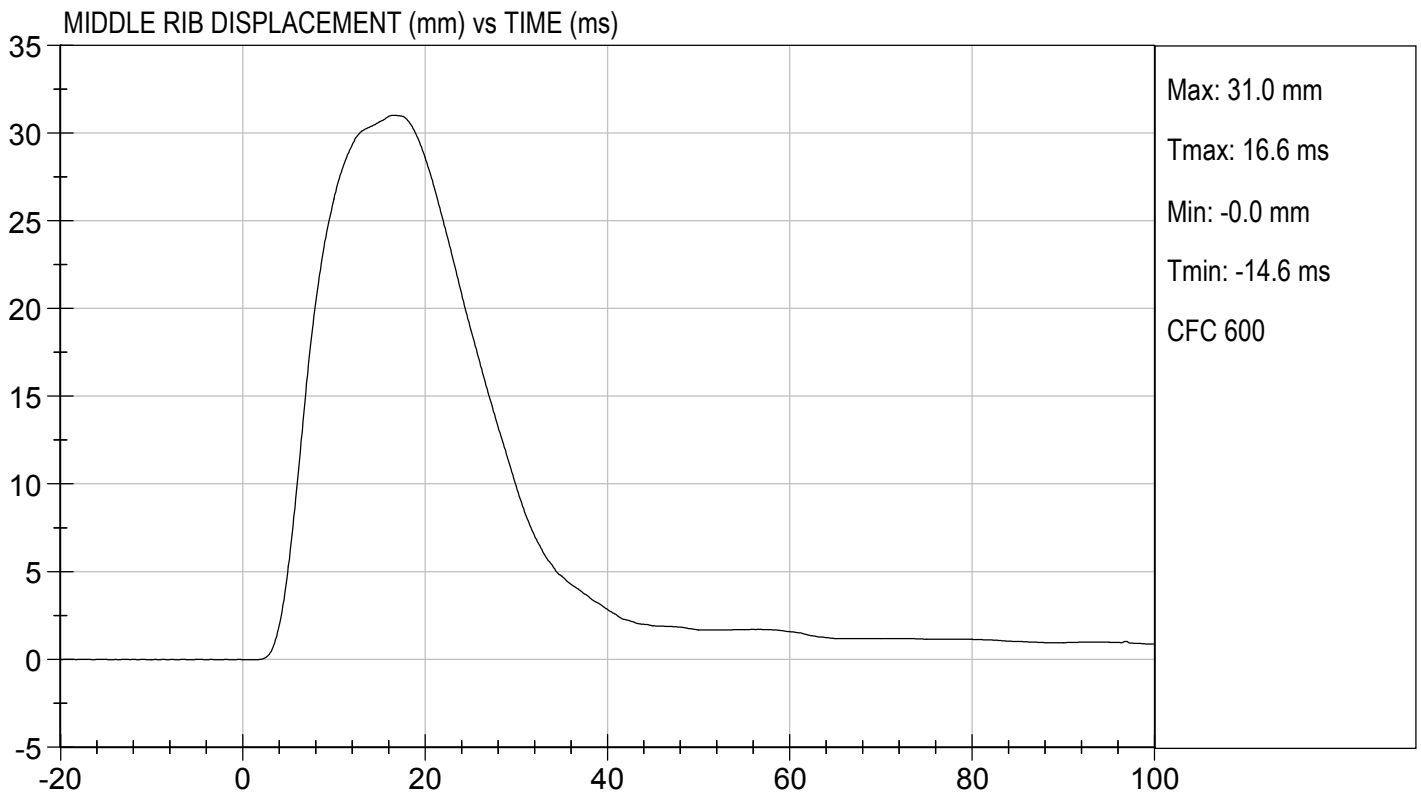
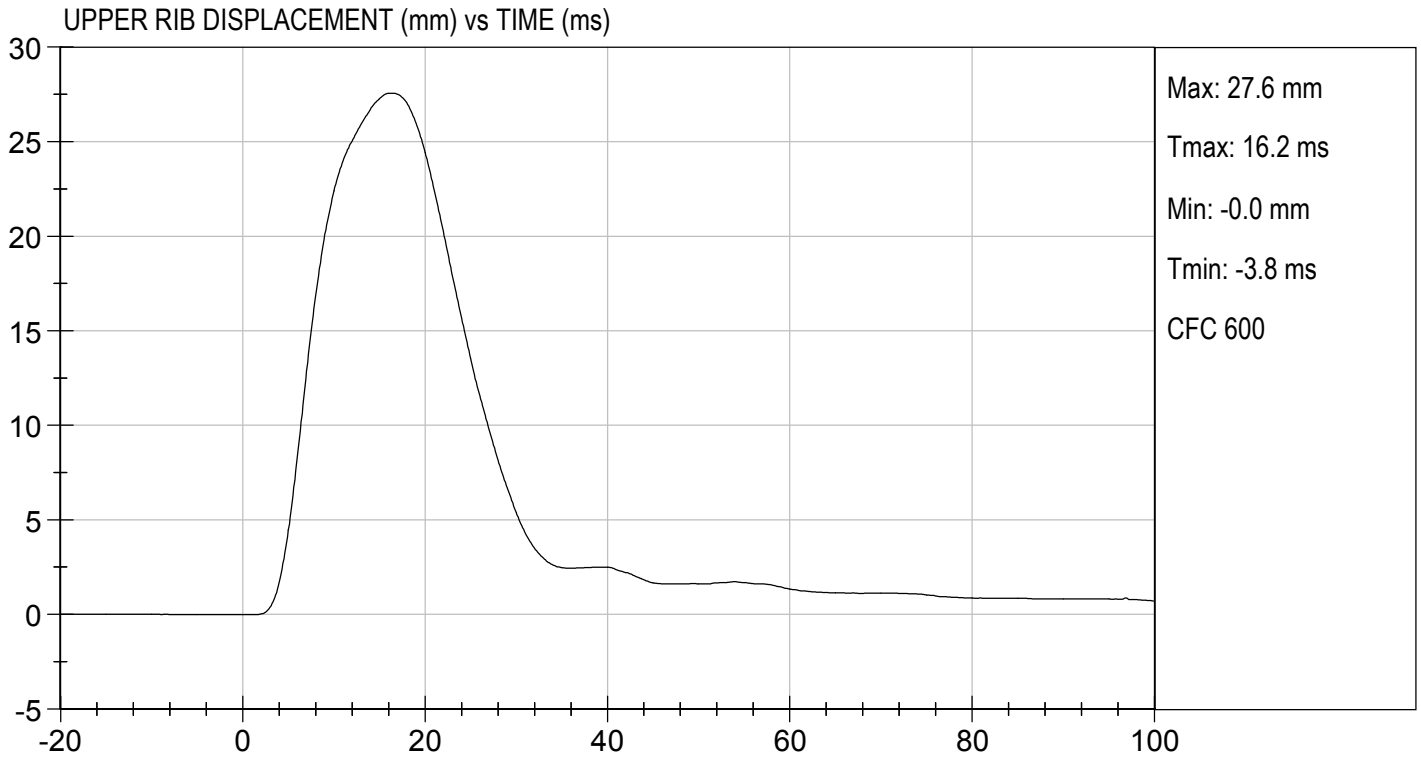
03/08/2019

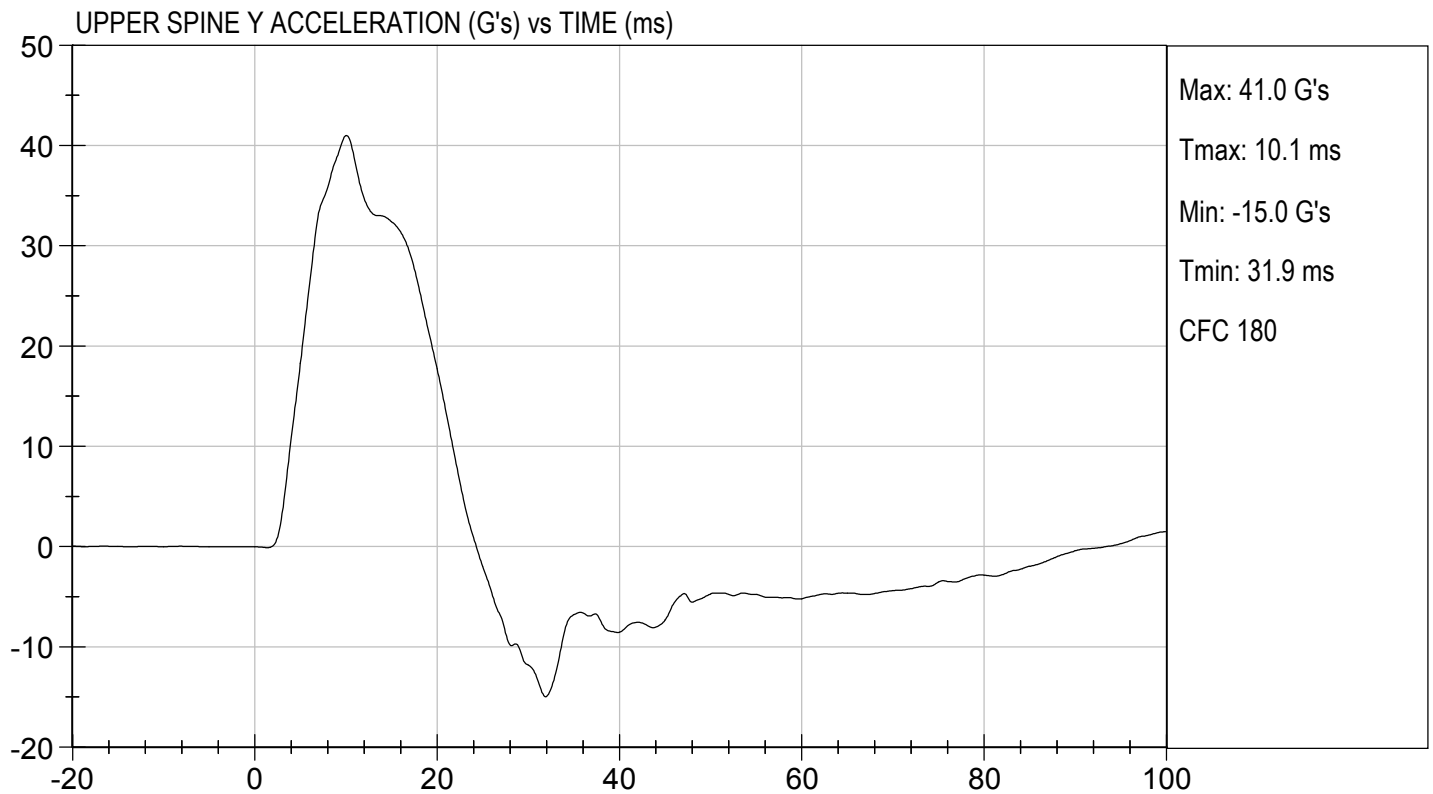
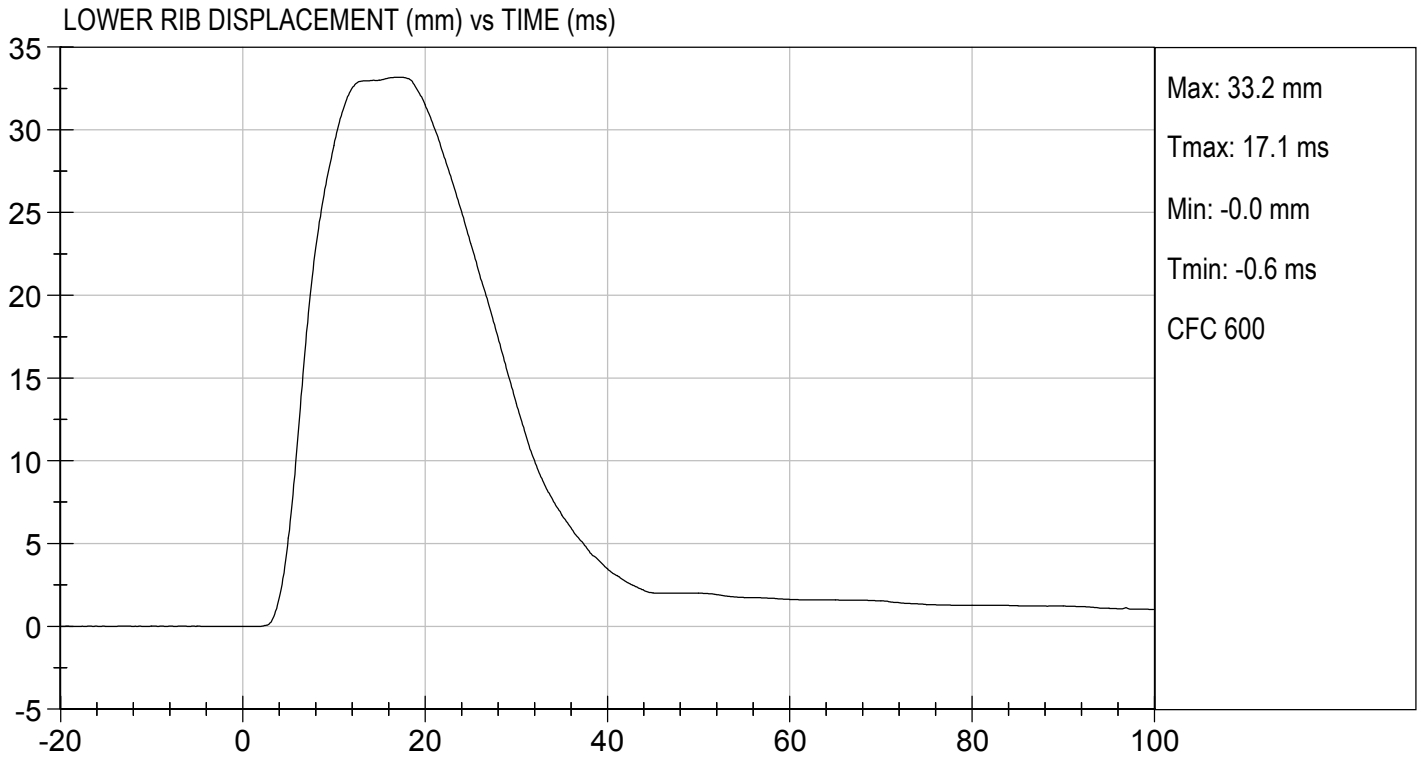
Test Date

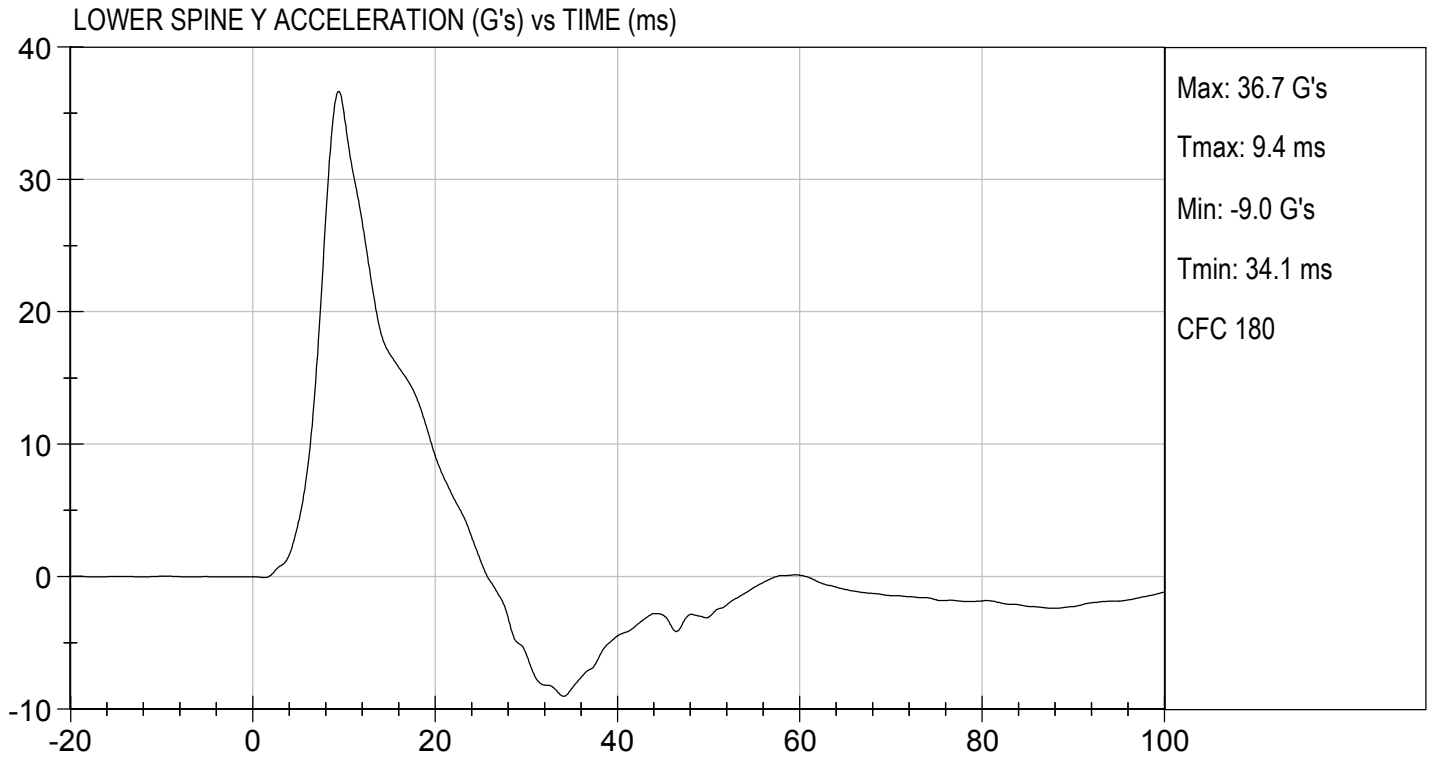
B. F.

Approved By










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

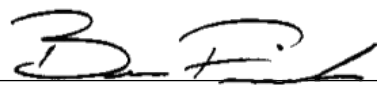
ATD Serial No: 296

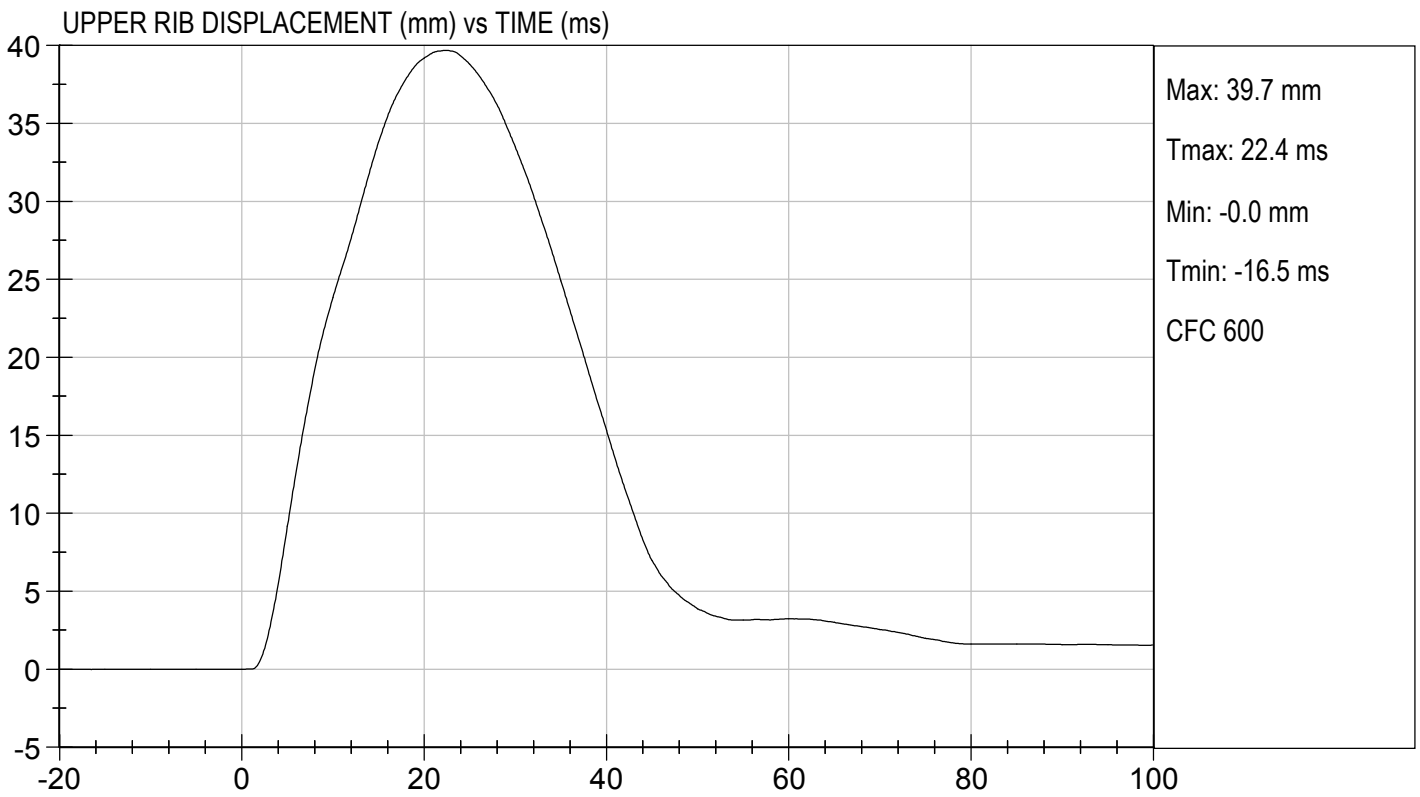
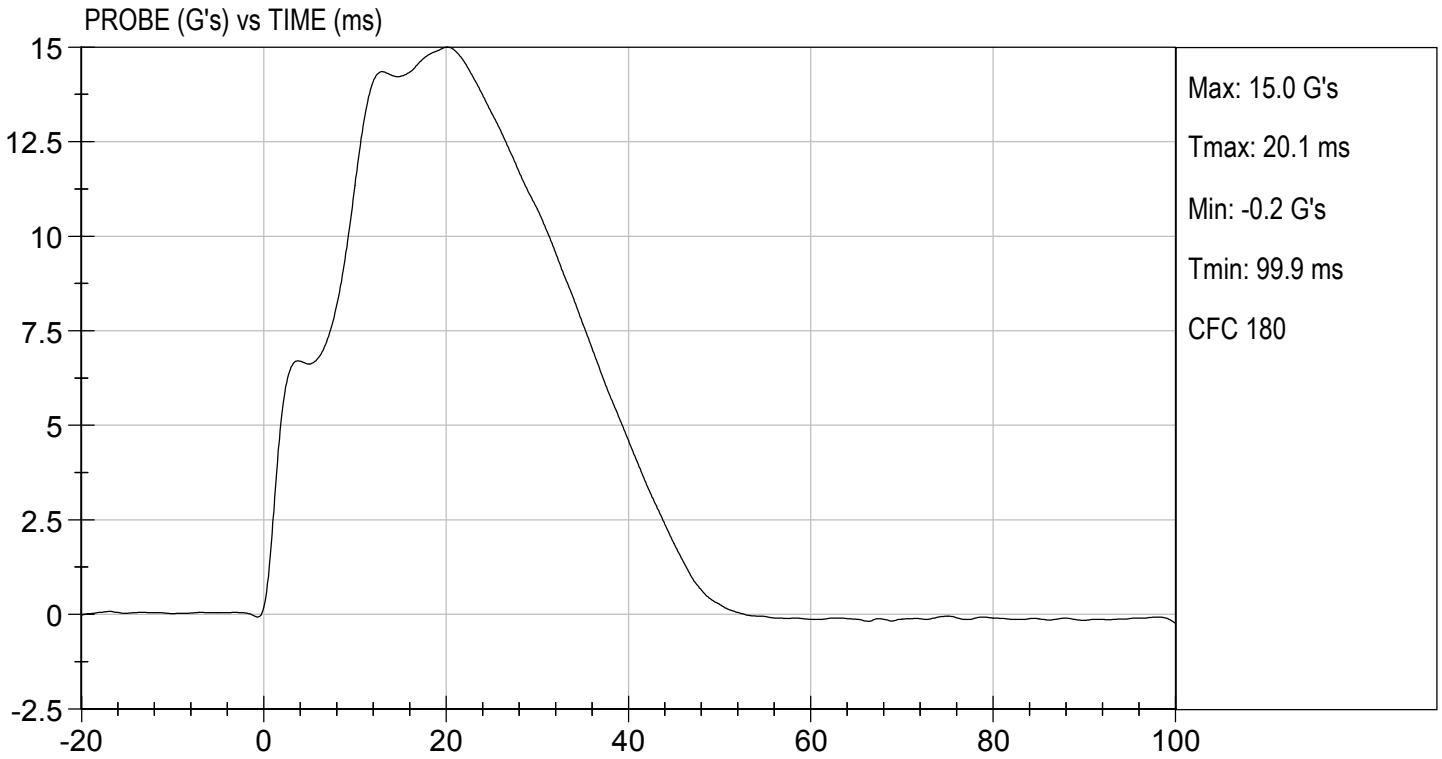
Test I.D: D190915

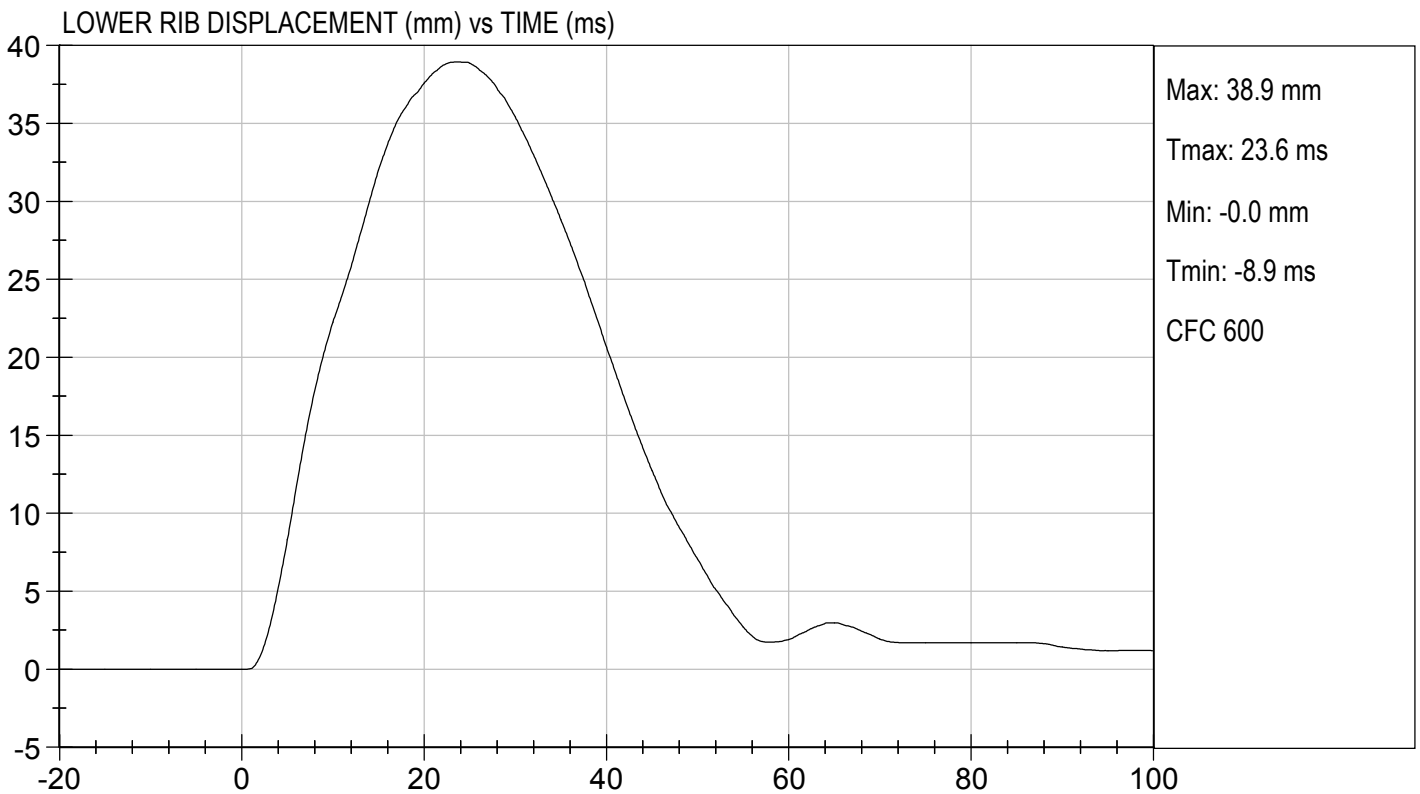
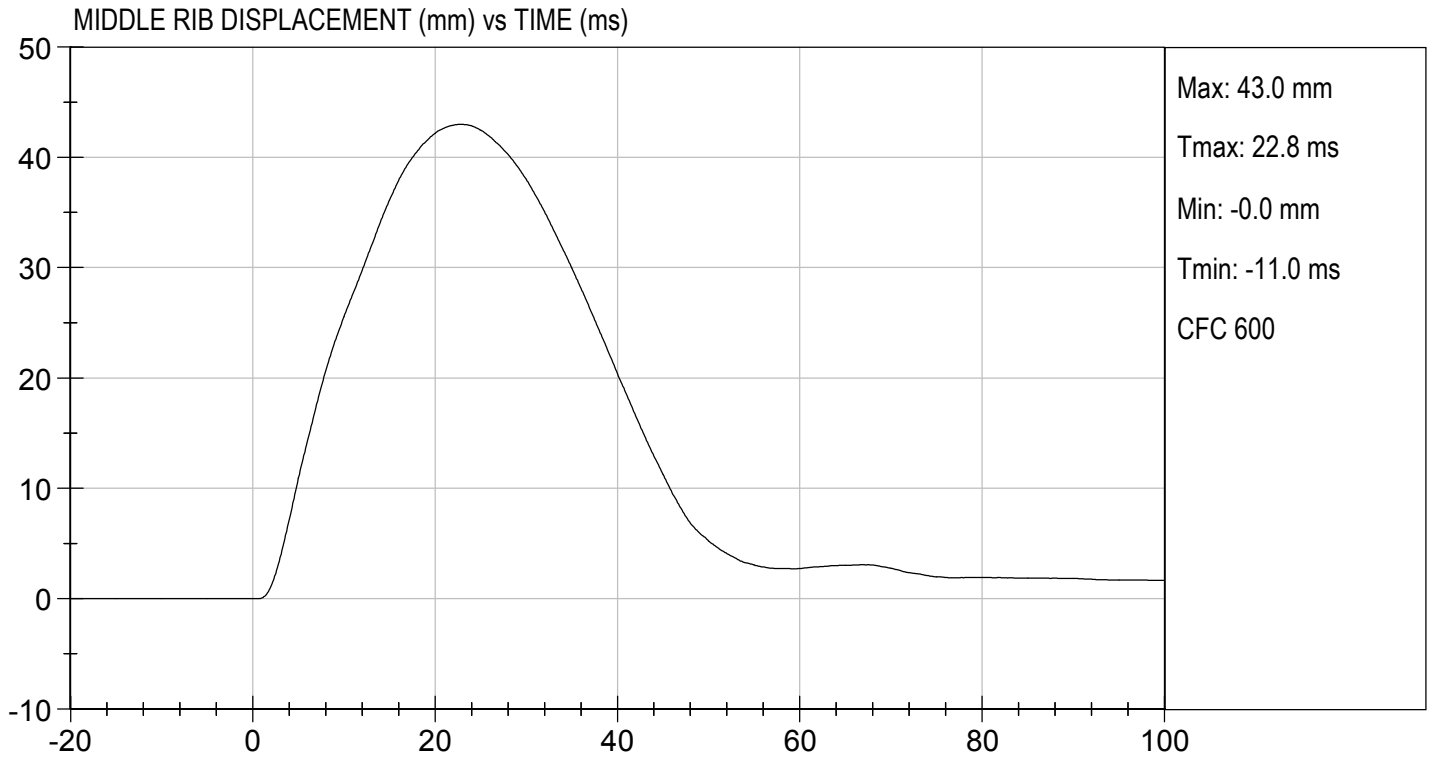
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	17	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	40	Pass
Middle Rib Displacement	mm	39 to 45	43	Pass
Lower Rib Displacement	mm	35 to 43	39	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	15	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	9	Pass
Overall Test Results				Pass

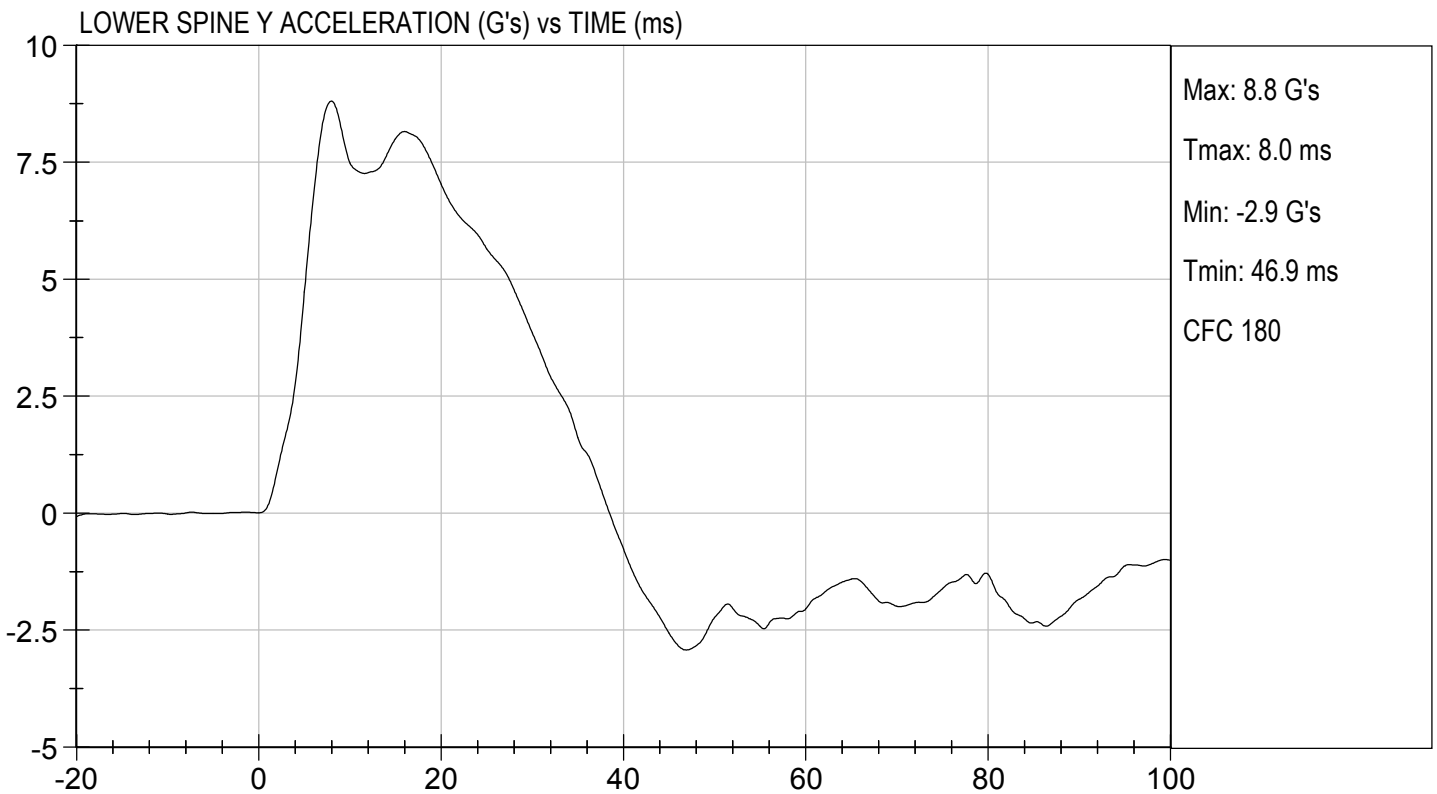
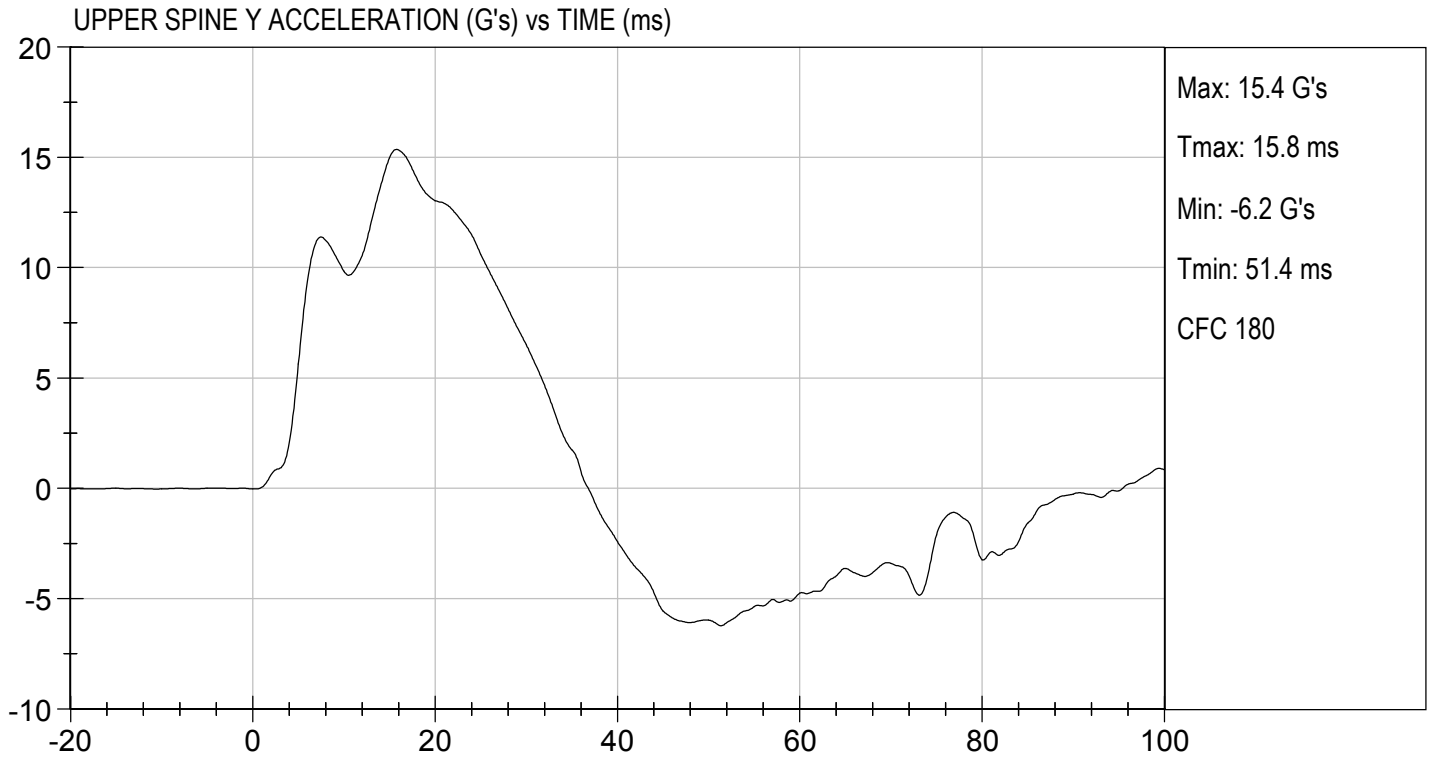

 Laboratory Technician

03/08/2019
 Test Date


 Approved By







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

ATD Serial No: 296

Test I.D: D190916

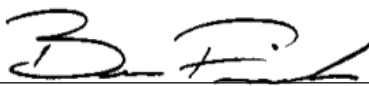
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	17	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	12 to 16	14	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	43	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	42	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass



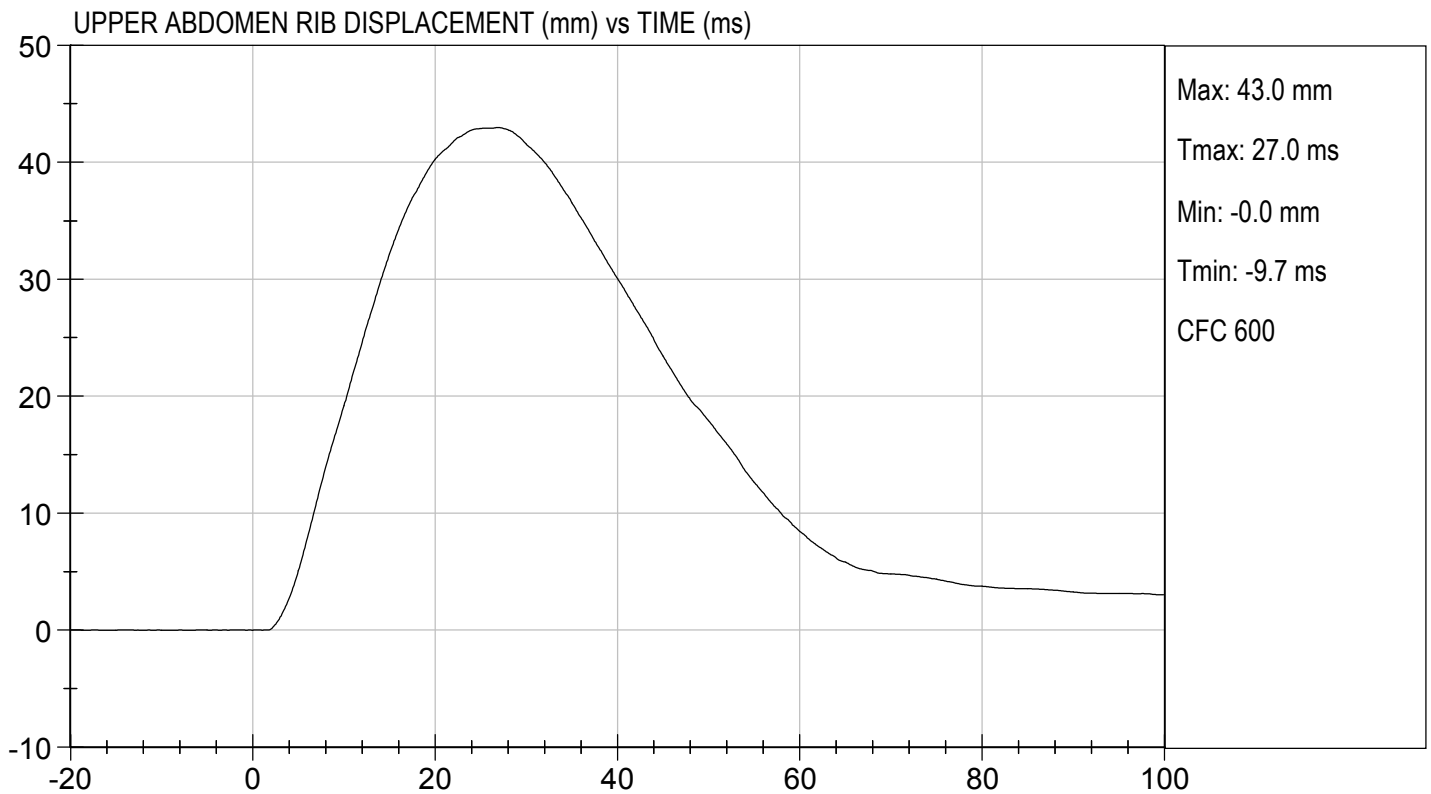
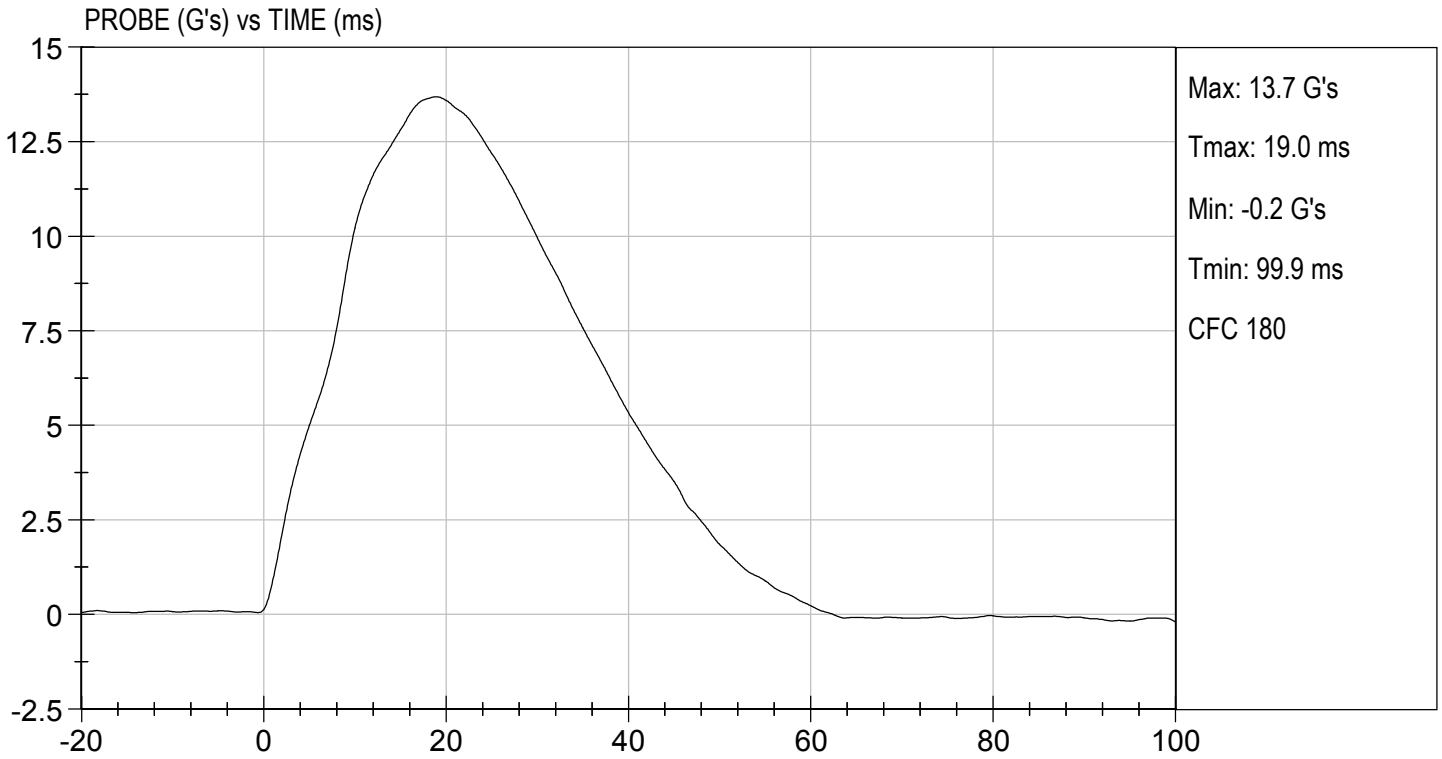
 Laboratory Technician

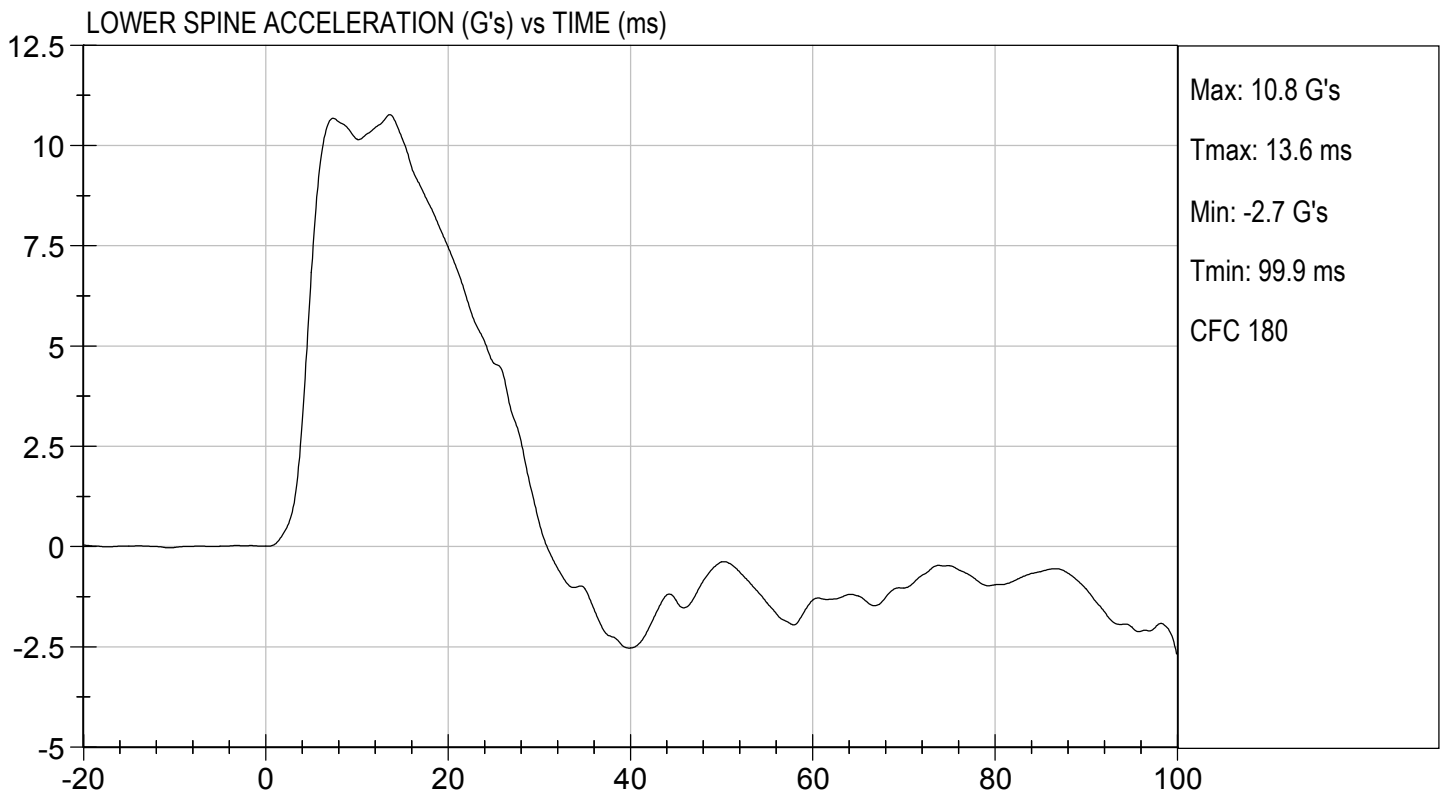
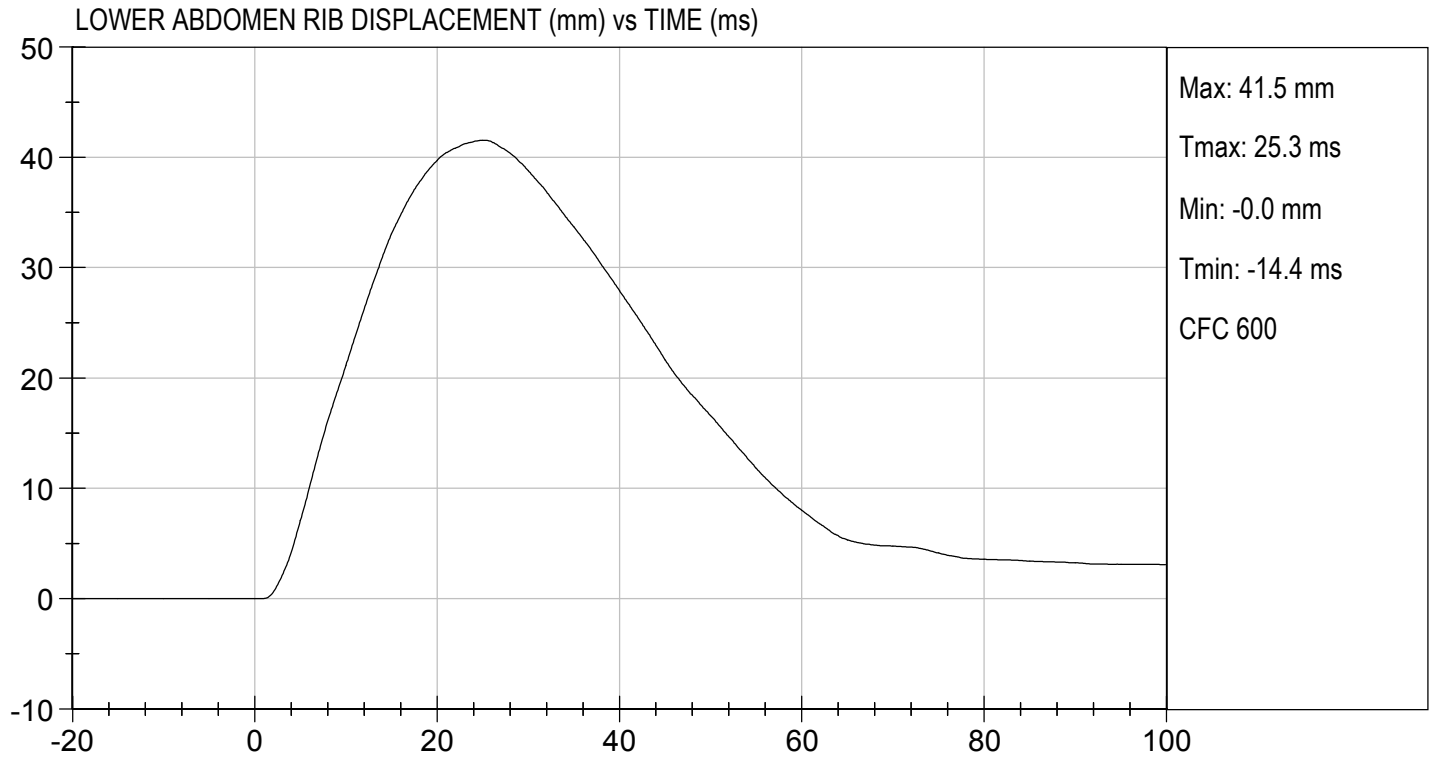
03/08/2019

 Test Date



 Approved By





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

ATD Serial No: 296

Test I.D: D190917

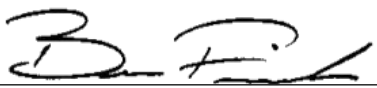
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	17	Pass
Impact Velocity	m/s	6.60 to 6.80	6.60	Pass
Maximum Probe Acceleration	G's	38 to 47	43	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	40	Pass
Peak Acetabulum Force	N	3600 to 4300	3,814	Pass
Overall Test Results				Pass



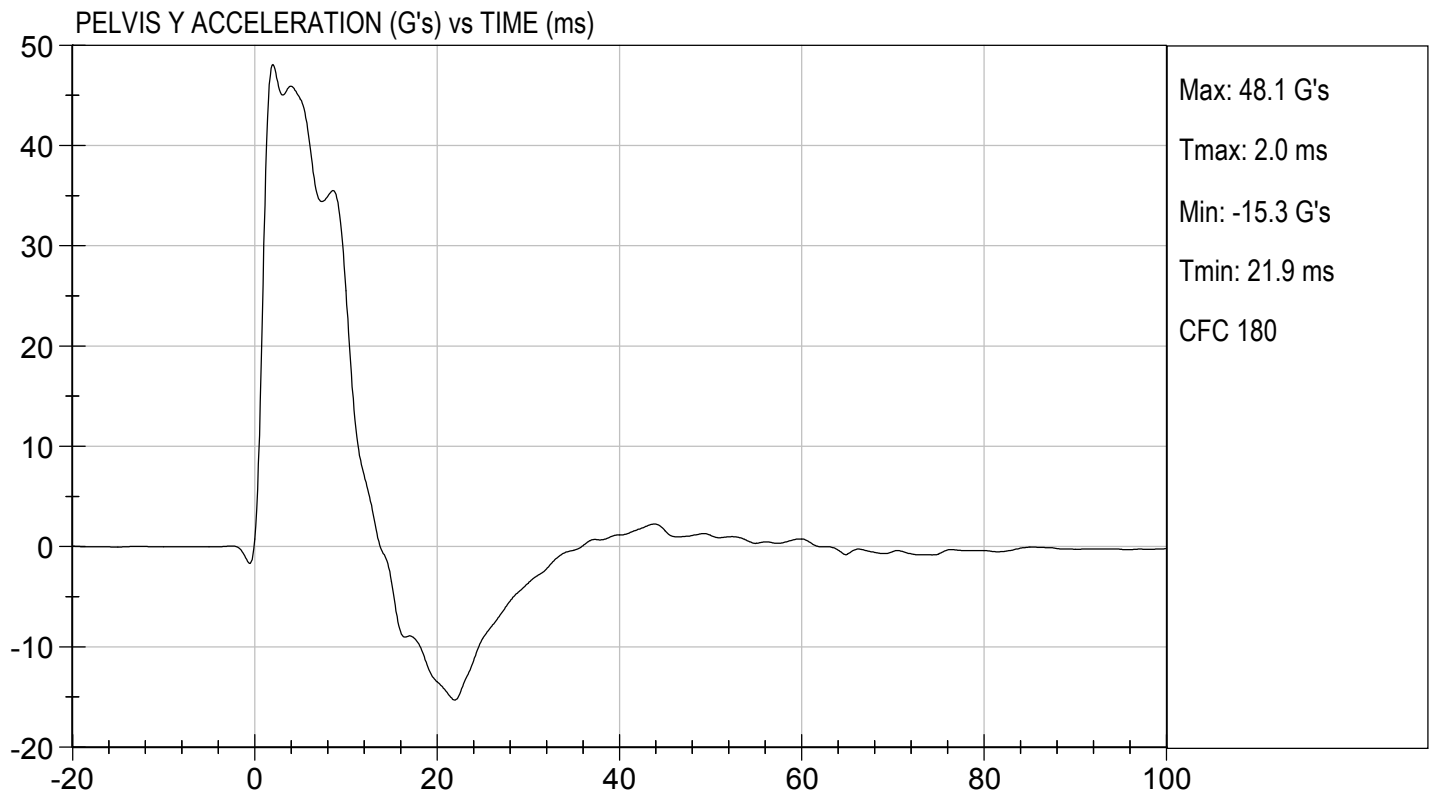
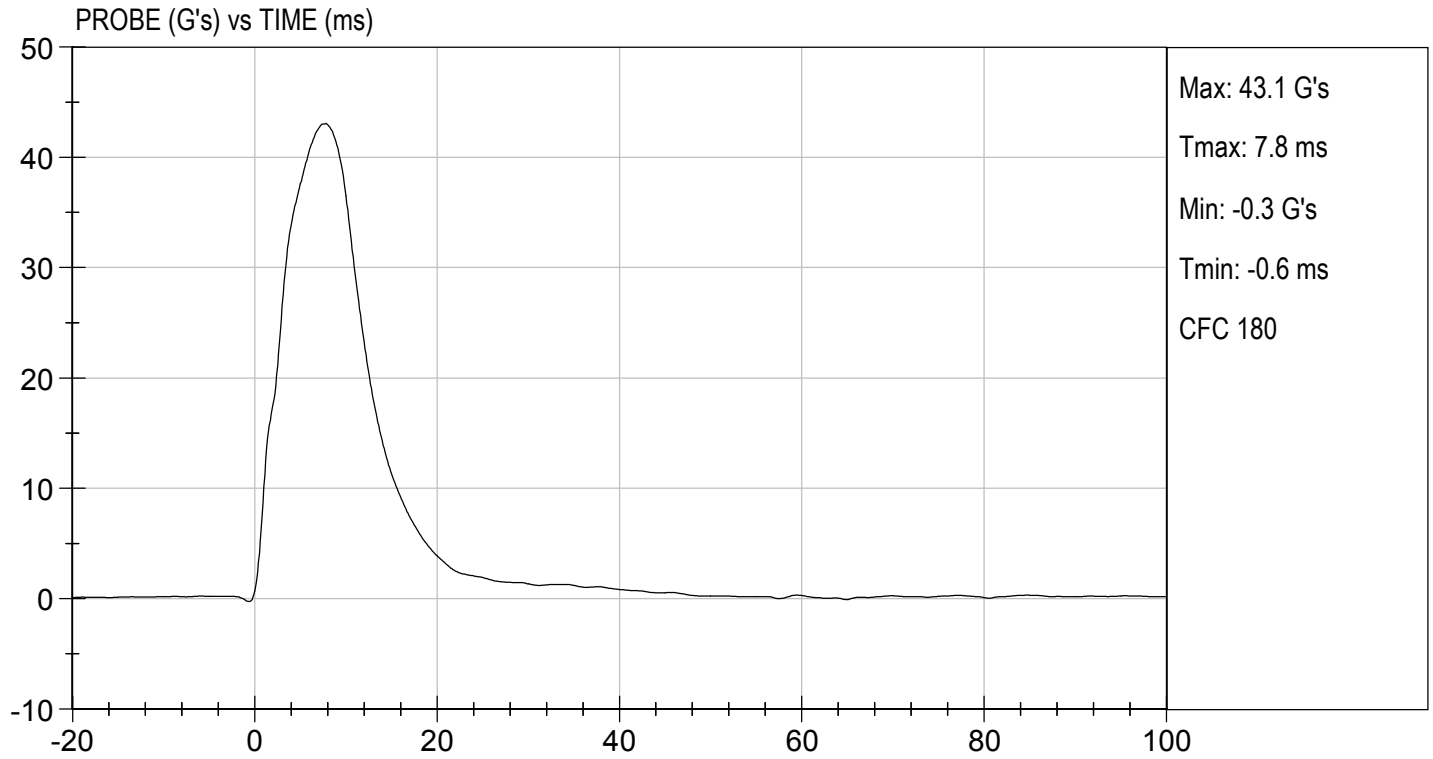
 Laboratory Technician

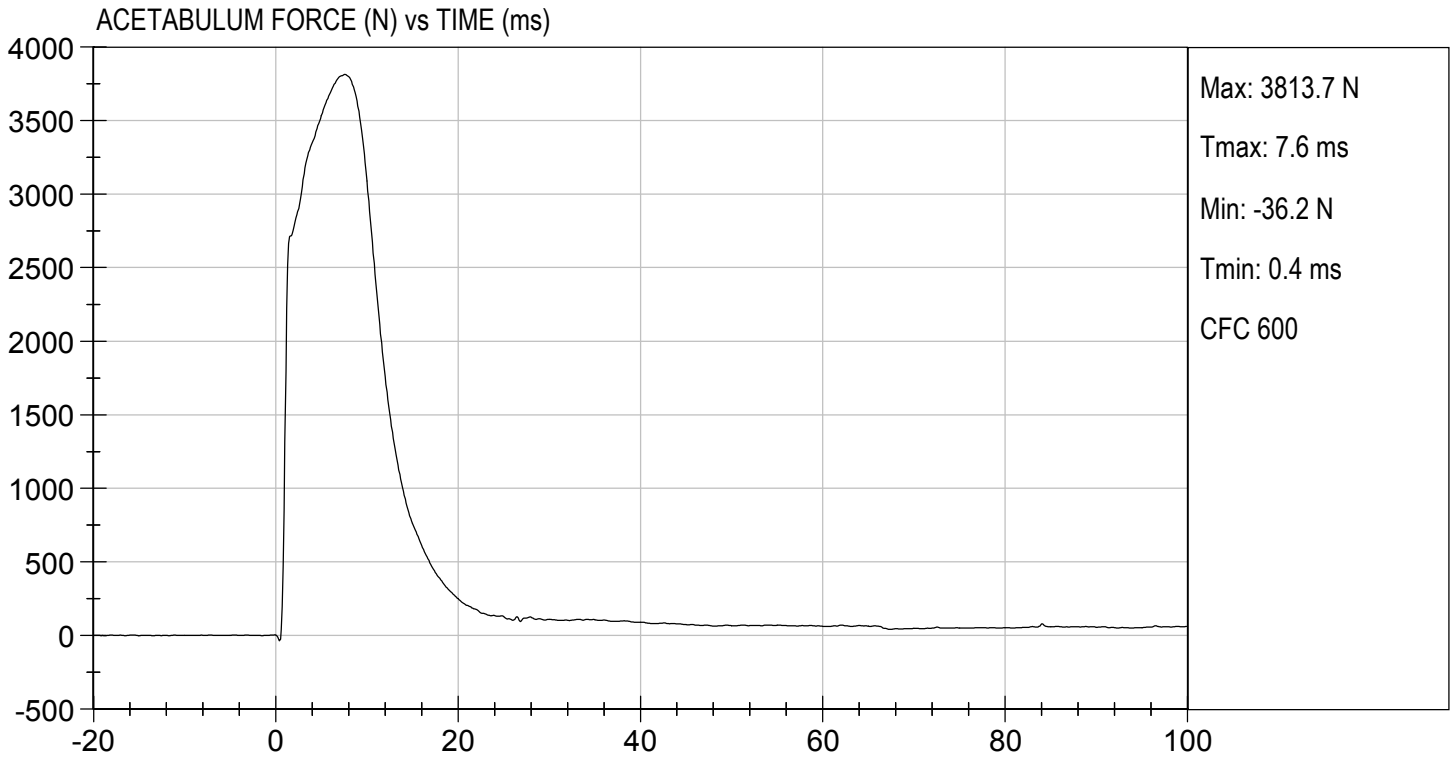
03/08/2019

 Test Date



 Approved By





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

ATD Serial No: 296

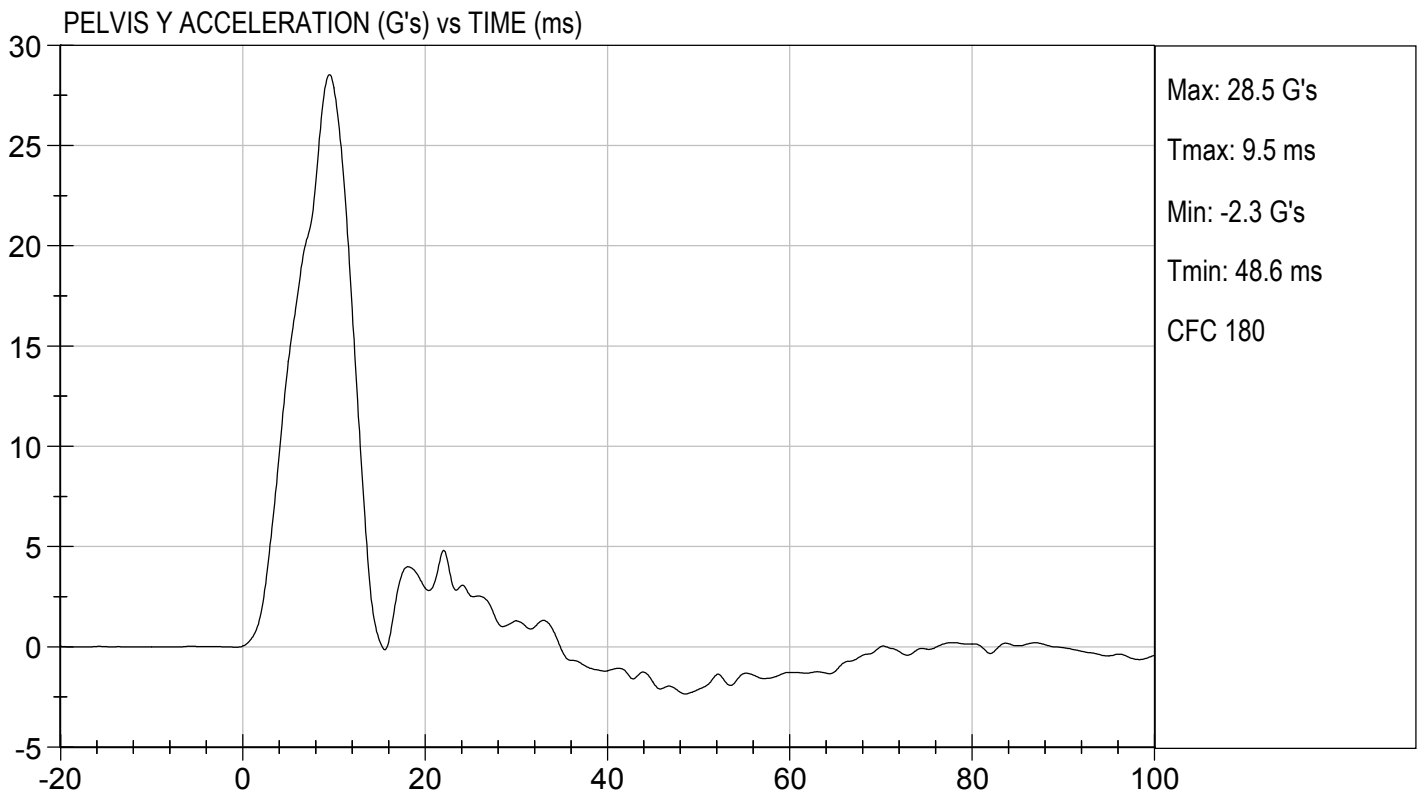
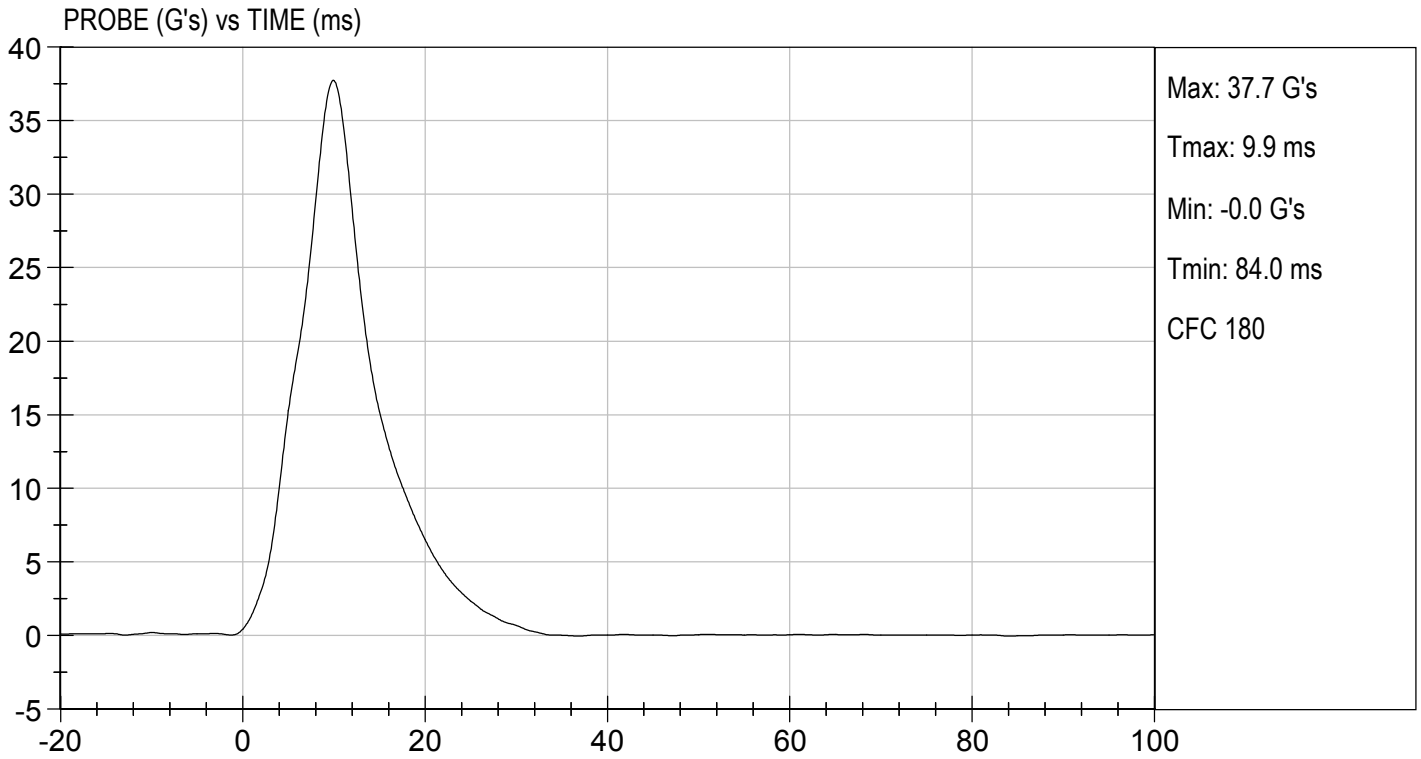
Test I.D: D190918

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	17	Pass
Impact Velocity	m/s	4.20 to 4.40	4.36	Pass
Maximum Probe Acceleration	G's	36 to 45	38	Pass
Pelvis Y Acceleration	G's	28 to 39	29	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,252	Pass
Overall Test Results				Pass

Danielle Redinlaugh
 Laboratory Technician

03/08/2019
 Test Date

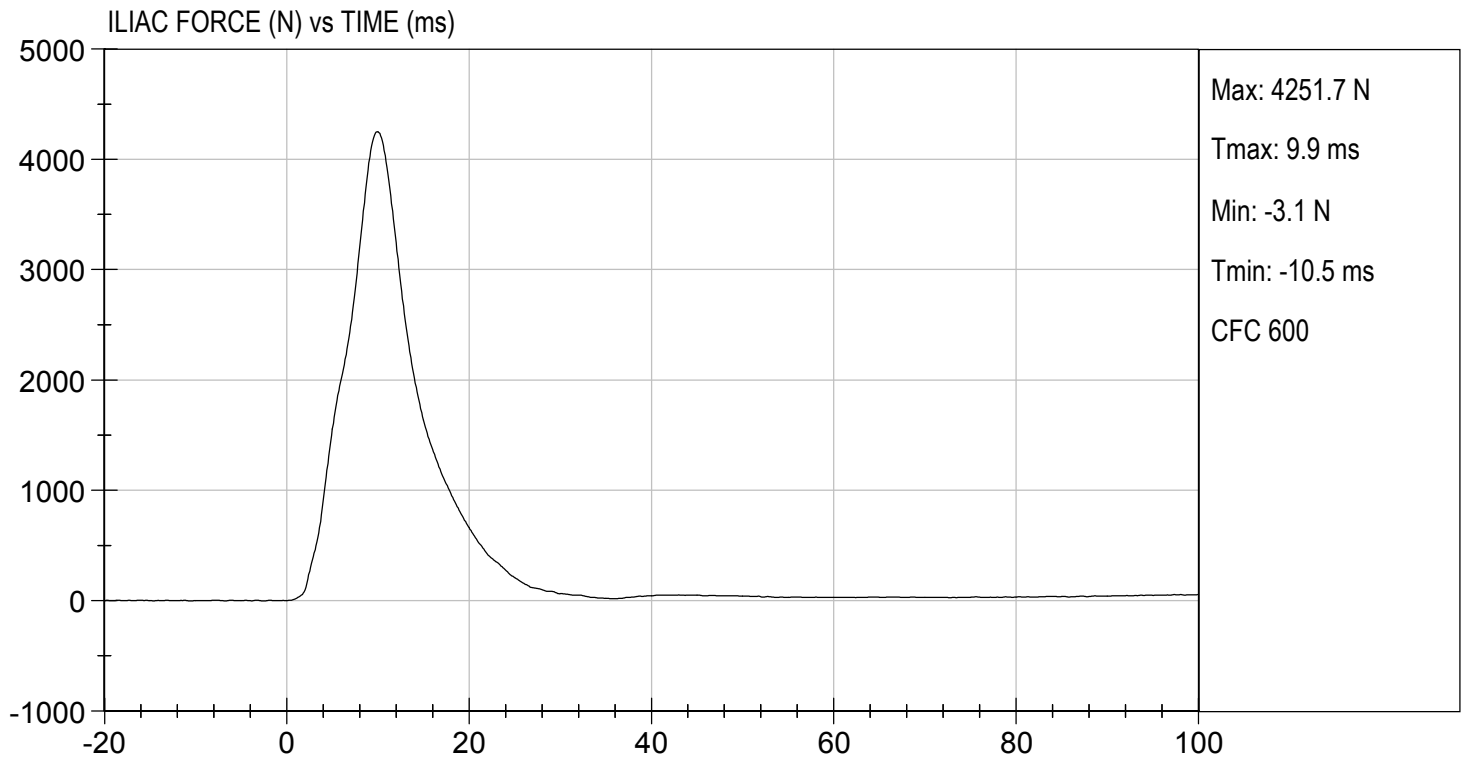
B. F. K.
 Approved By





TEST DESC: ILLIAC
VELOCITY: 14.30 ft/s, 4.36 m/s

TEST DATE: 03/08/2019
TEST #: D190918



CALIBRATION TEST RESULTS

POST-TEST

SID-IIS 5TH PERCENTILE FEMALE - DRIVER ATD

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: D191231

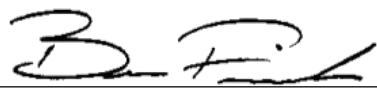
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Peak Resultant Acceleration	G's	115 to 137	132	Pass
Peak Longitudinal Acceleration	G's	+/- 15	-2.7	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results				Pass



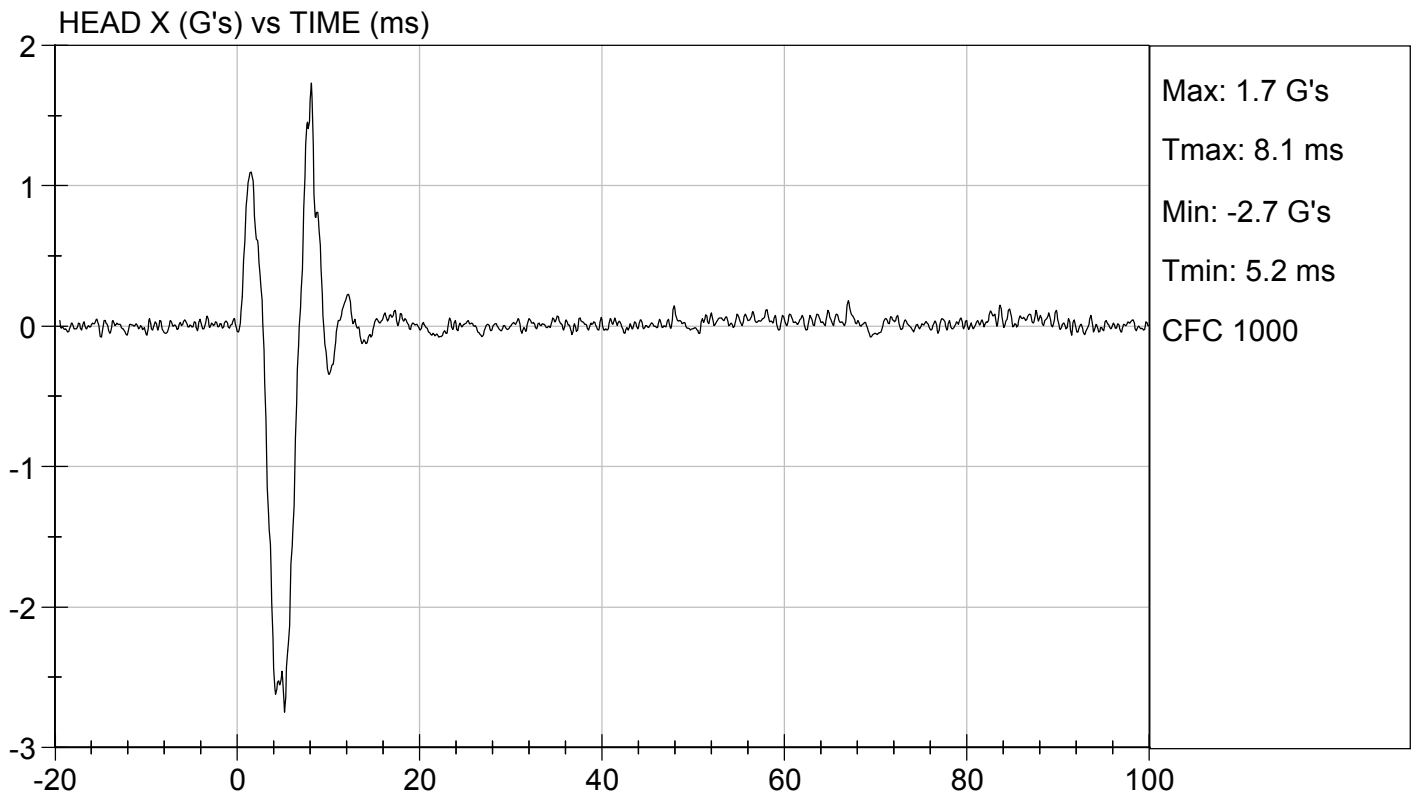
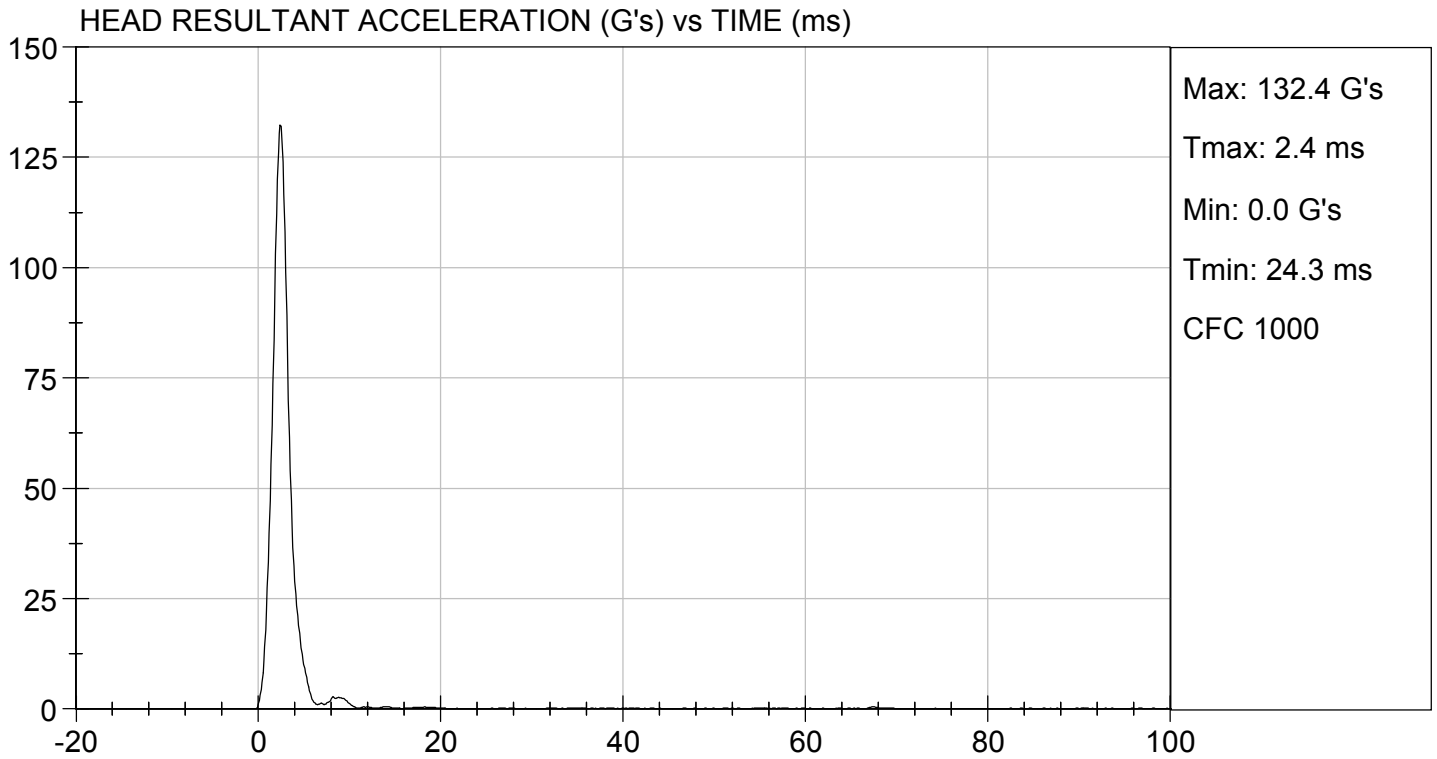
Laboratory Technician

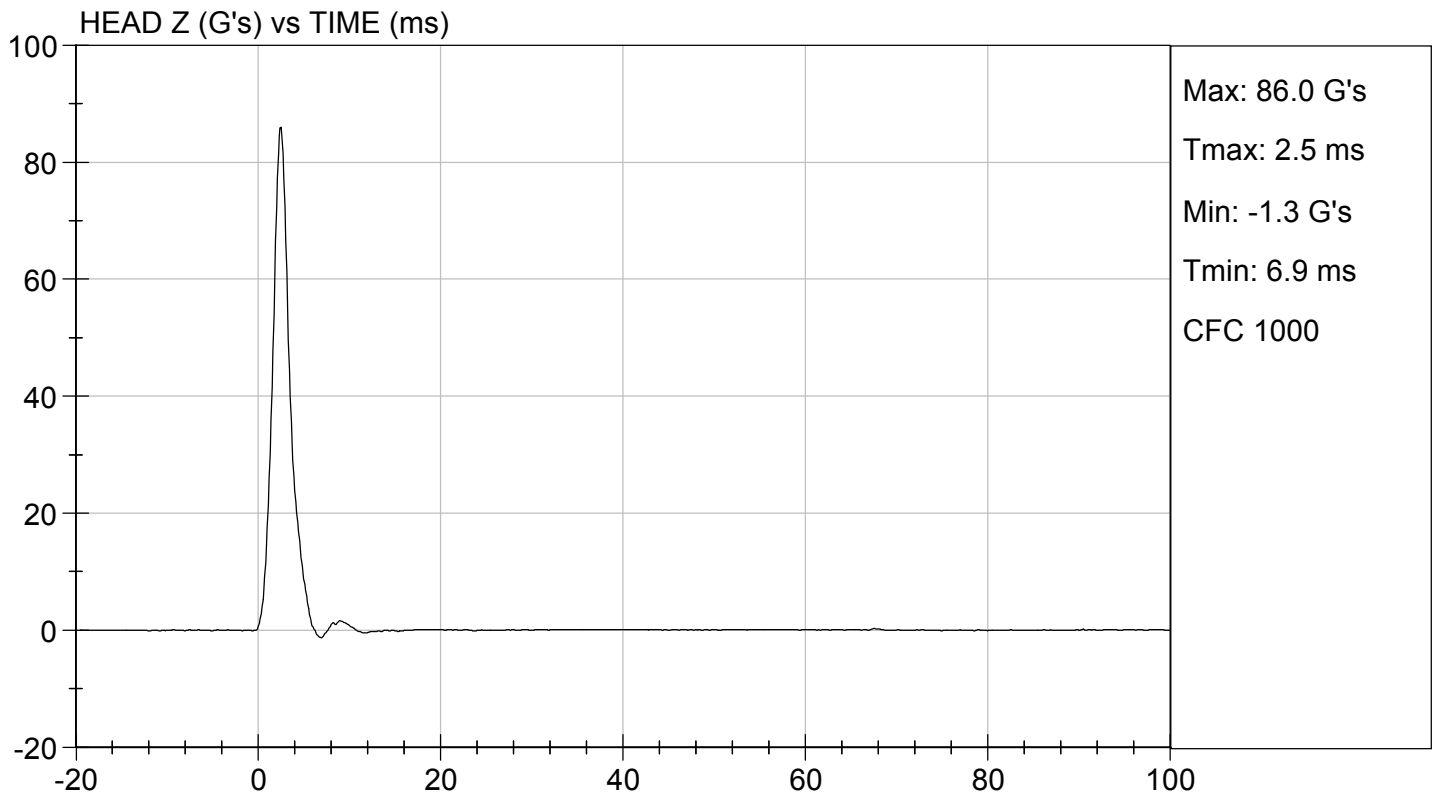
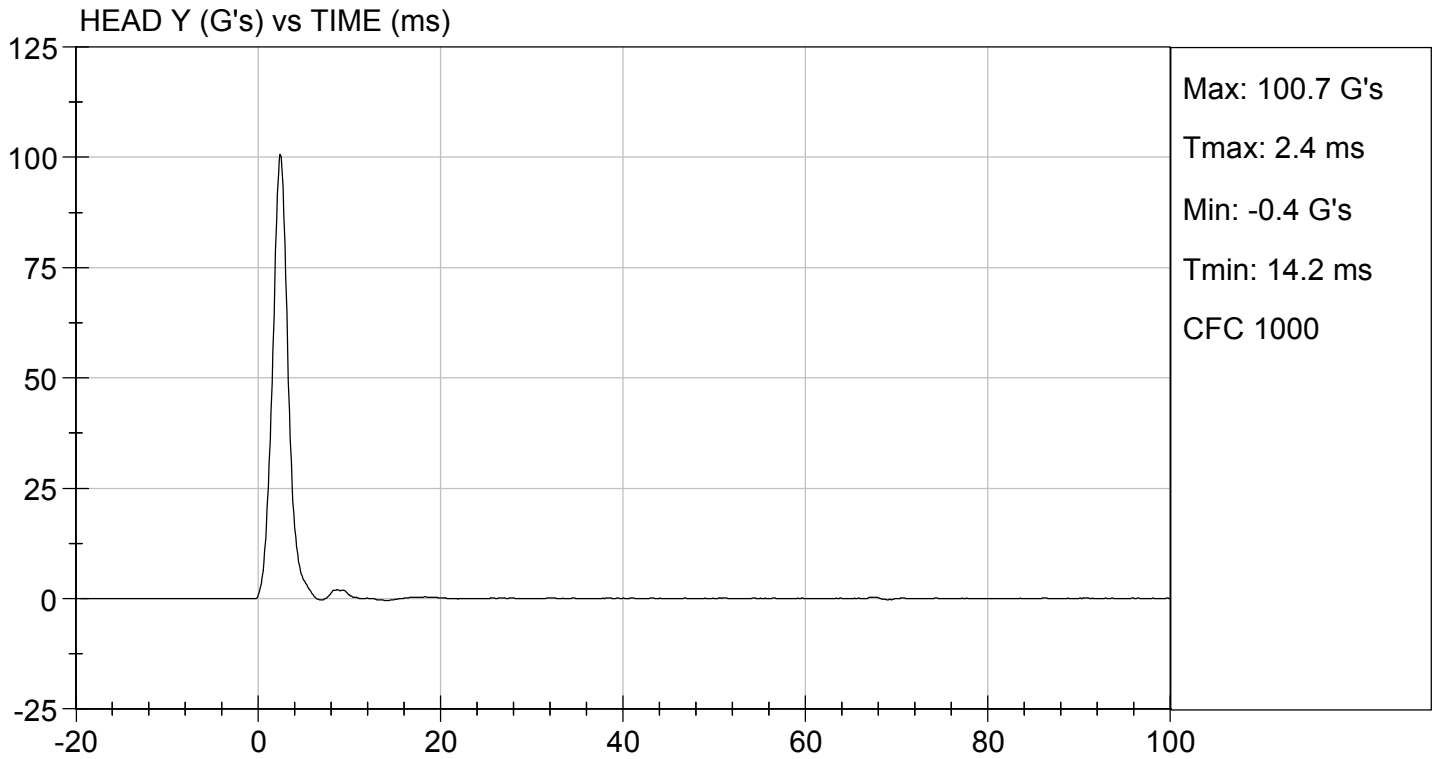
04/08/2019

Test Date



Approved By





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

ATD Serial No: 296

Test I.D.: D191232

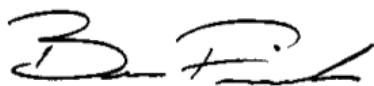
Tested Parameter	Units	Specification	Result	Pass/Fail	
Temperature	deg C	20.6 to 22.2	21.7	Pass	
Humidity	%	10 to 70	27	Pass	
Impact Velocity	m/s	5.51 to 5.63	5.58	Pass	
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.45	Pass
	15 ms	m/s	3.30 to 4.10	3.67	Pass
	20 ms	m/s	4.40 to 5.40	5.19	Pass
	25 ms	m/s	5.40 to 6.10	5.72	Pass
	25-100 ms	m/s	5.50 to 6.20	5.73	Pass
Maximum D-Plane Rotation	deg	71 to 81	73	Pass	
Time of Maximum D-Plane Rotation	ms	50 to 70	63	Pass	
Maximum Occipital Condyle Moment	Nm	-44 to -36	-42	Pass	
Time of Moment Decay to 0 Nm	ms	102 to 126	114	Pass	
Overall Test Results				Pass	



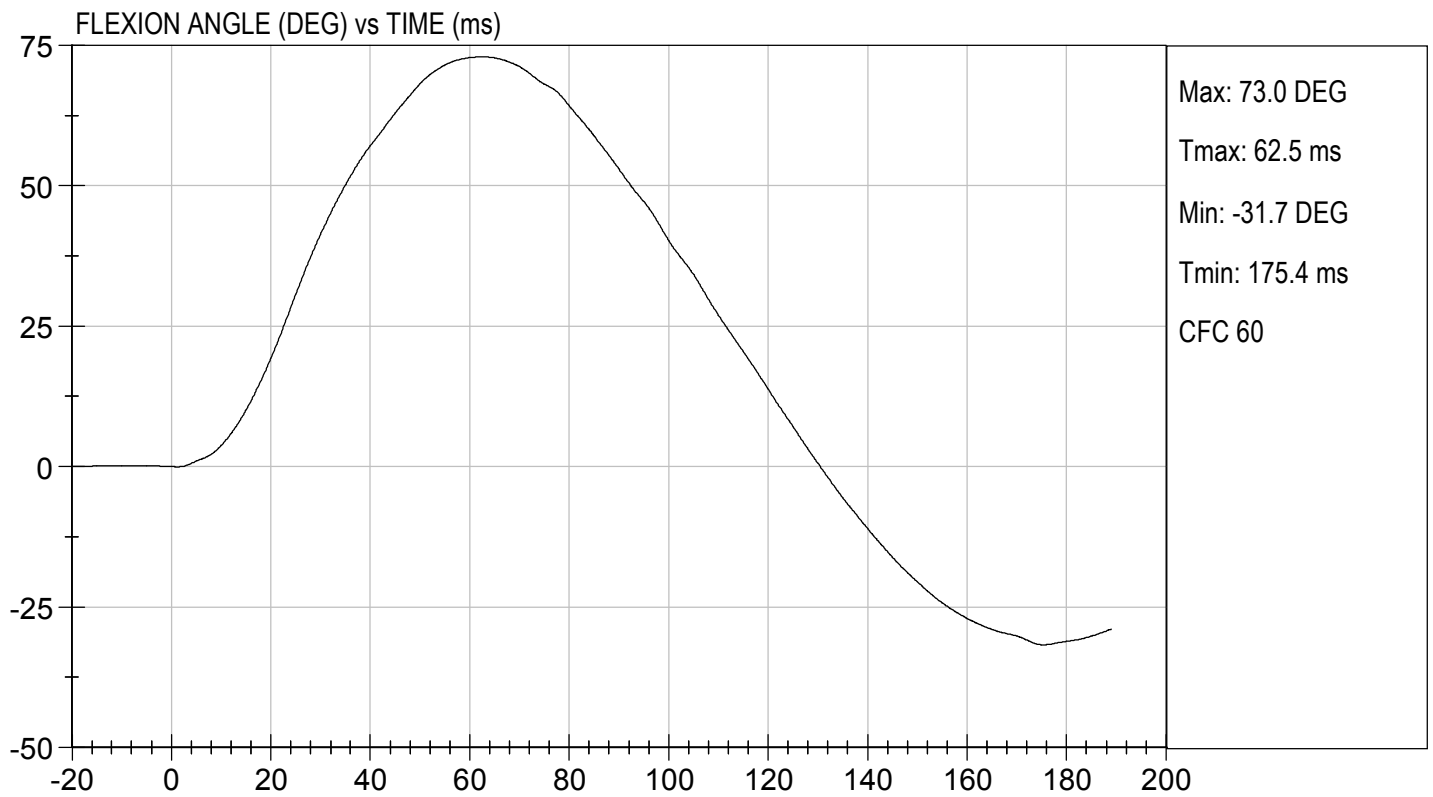
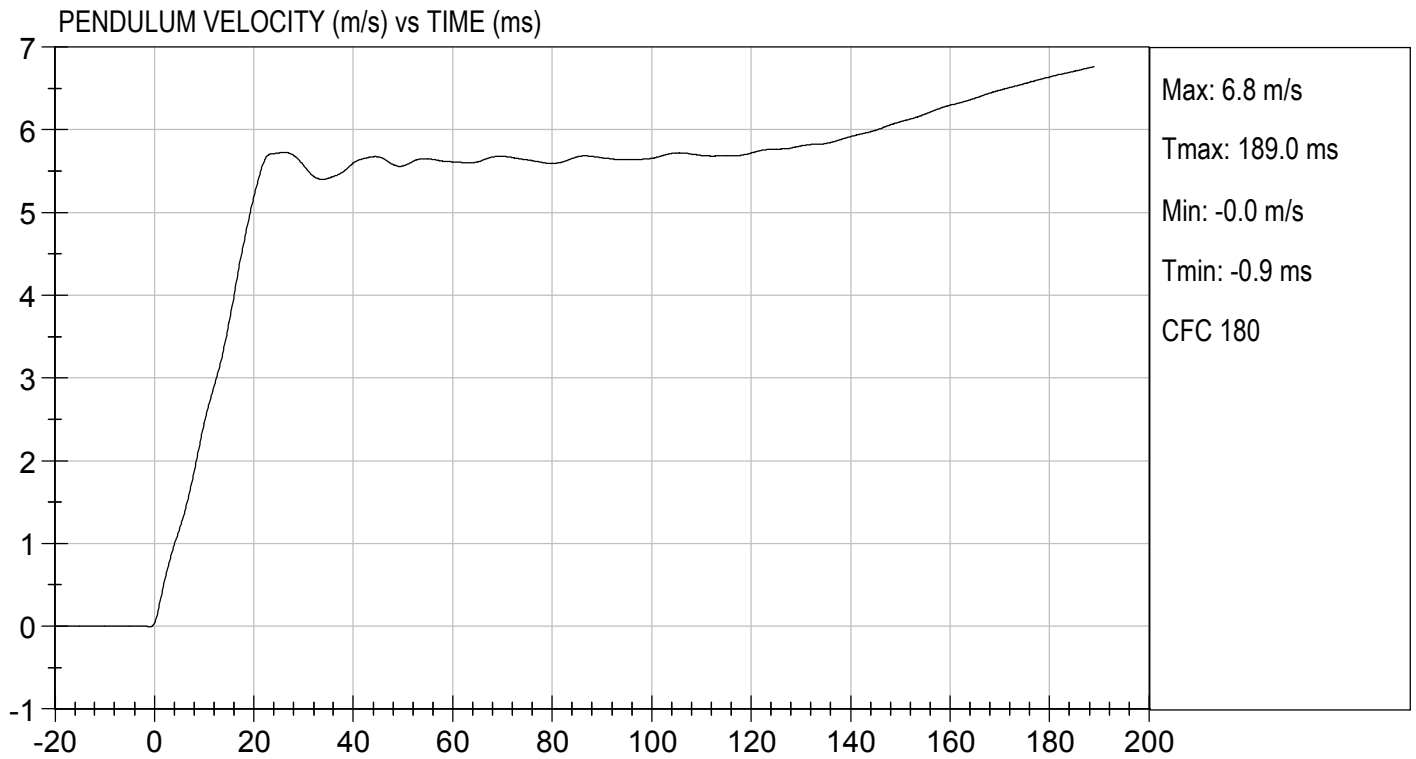
Laboratory Technician

04/08/2019

Test Date



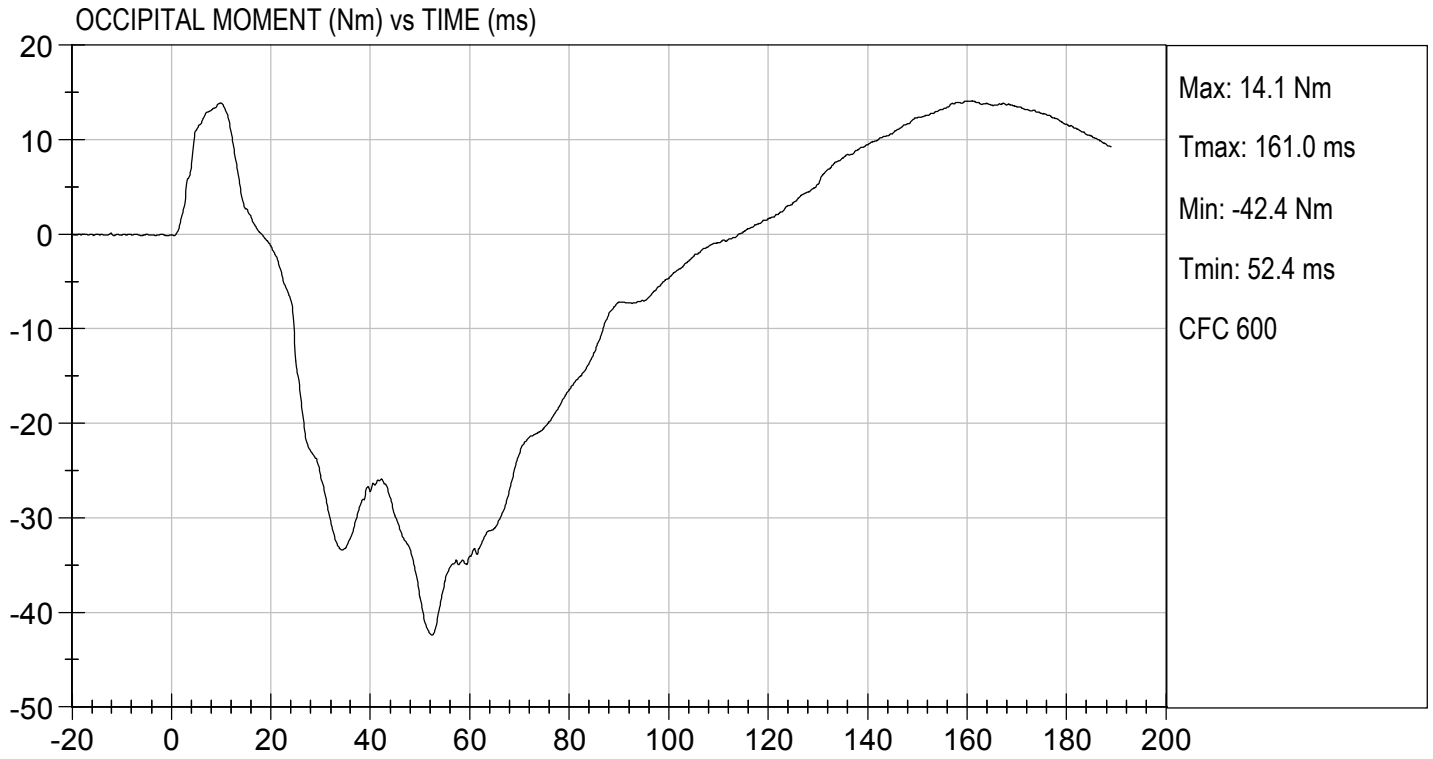
Approved By





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

TEST DATE: 04/08/2019
TEST #: D191232



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

ATD Serial No: 296

Test ID: D191233

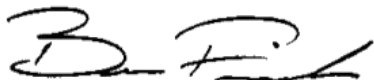
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	29	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	22	Pass
Overall Test Results				Pass



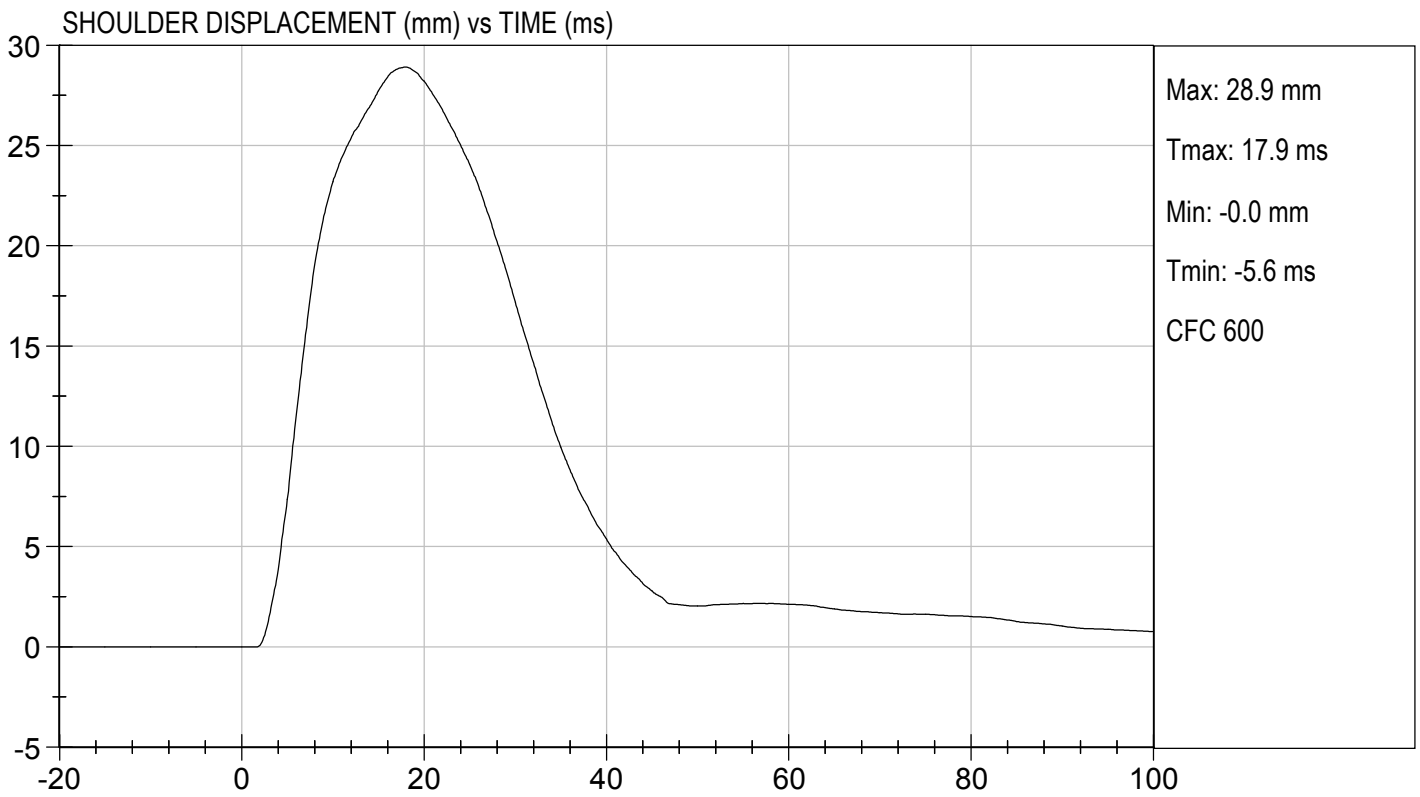
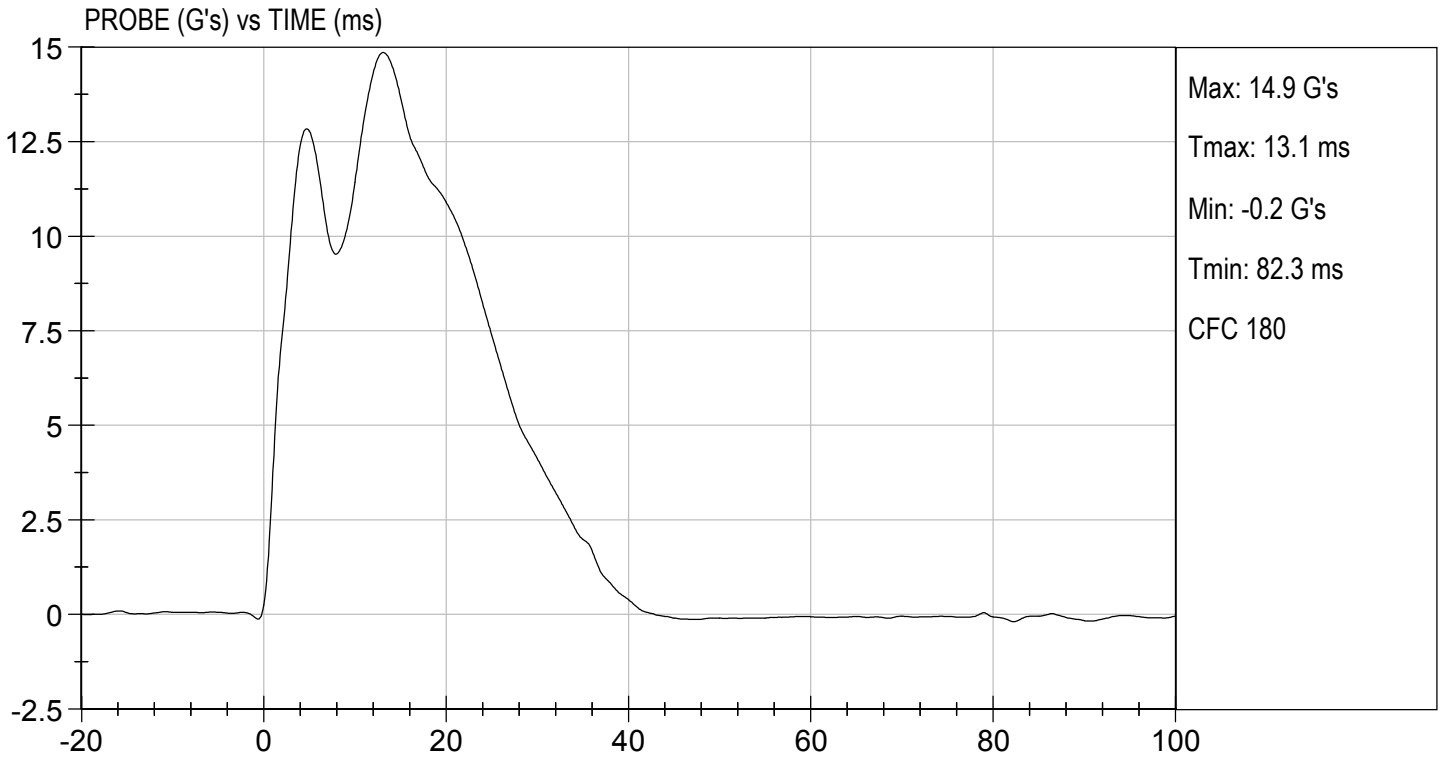
Laboratory Technician

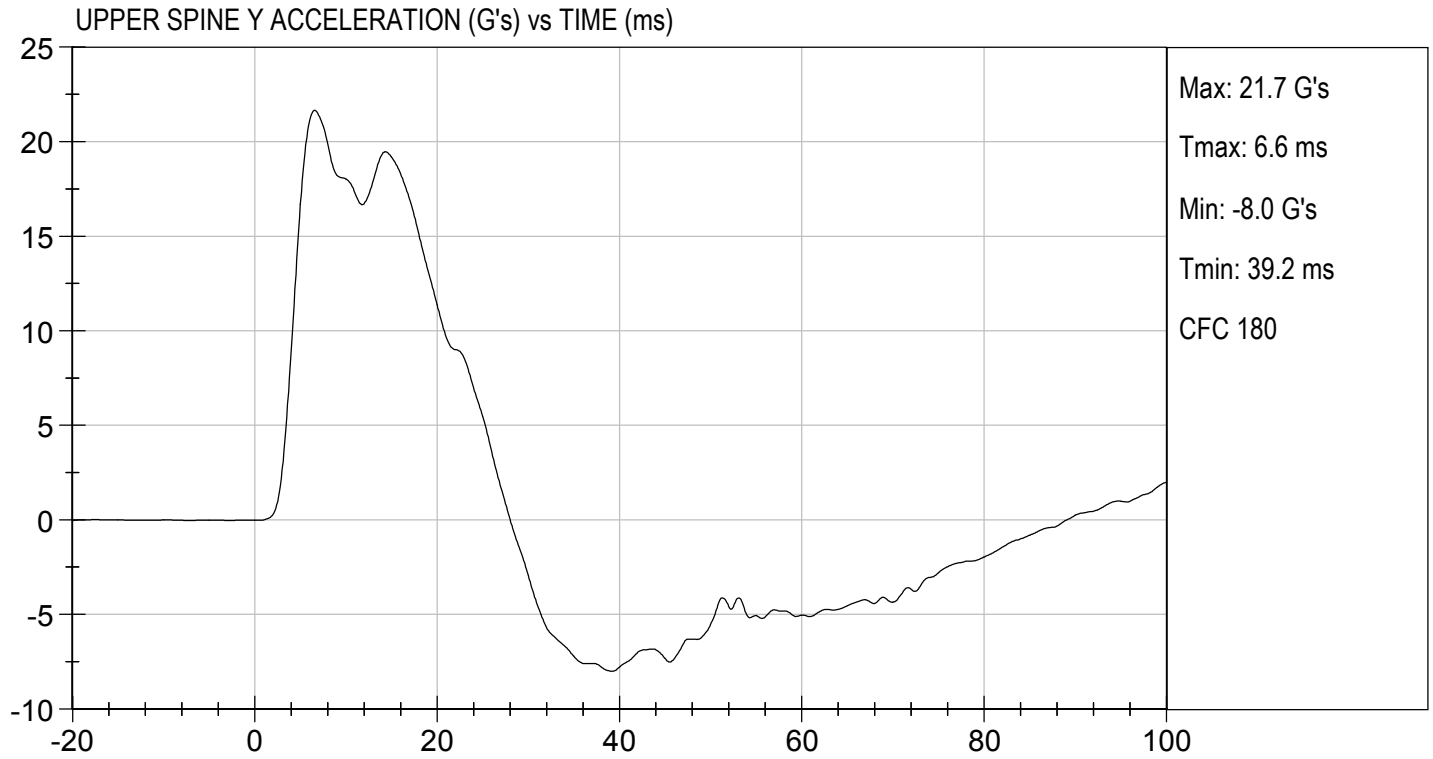
04/08/2019

Test Date



Approved By





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

ATD Serial No: 296

Test I.D: D191234

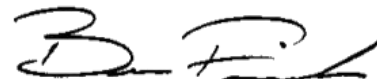
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.4	Pass
Humidity	%	10 to 70	42	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	30 to 36	34	Pass
Shoulder Displacement	mm	31 to 40	31	Pass
Upper Rib Displacement	mm	25 to 32	27	Pass
Middle Rib Displacement	mm	30 to 36	32	Pass
Lower Rib Displacement	mm	32 to 38	36	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	40	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	33	Pass
Overall Test Results				Pass



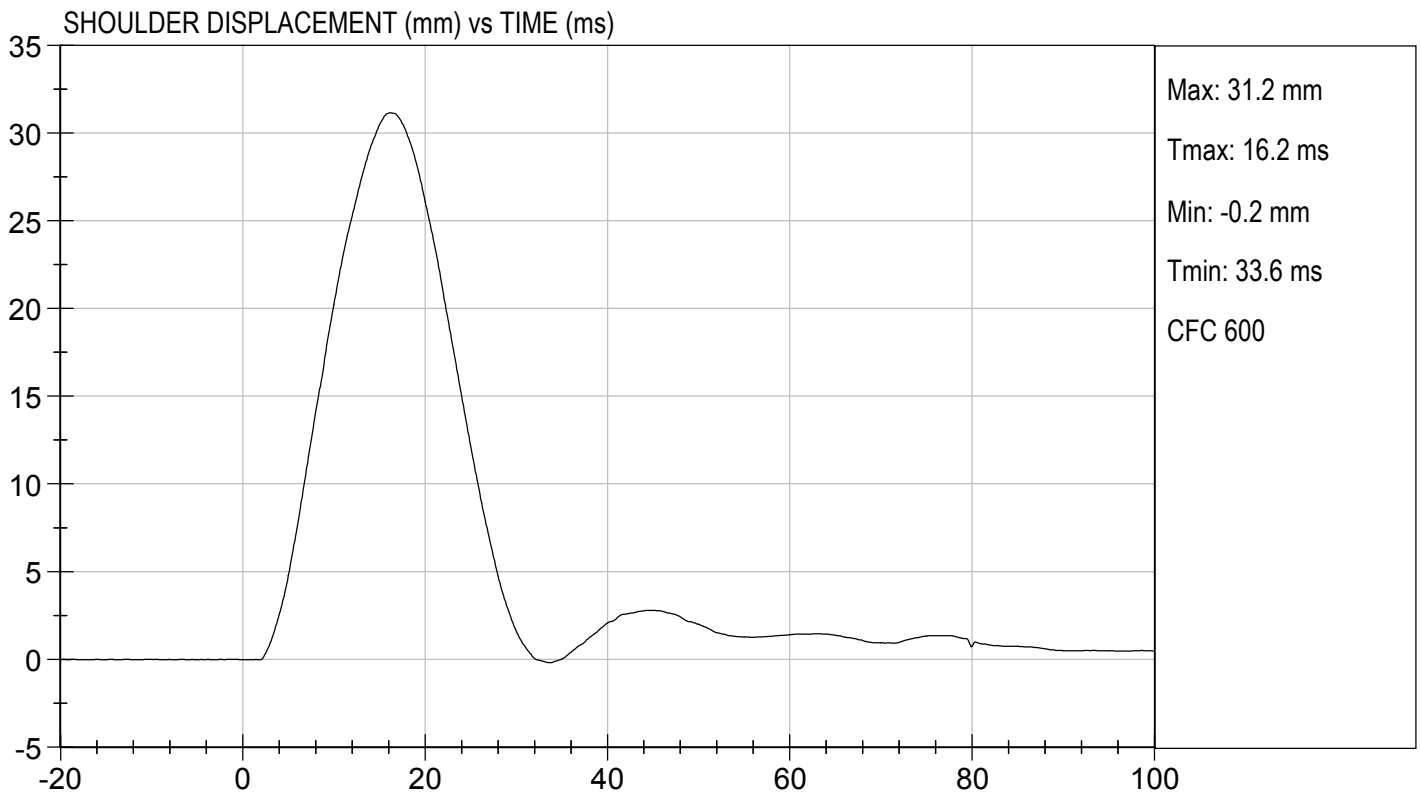
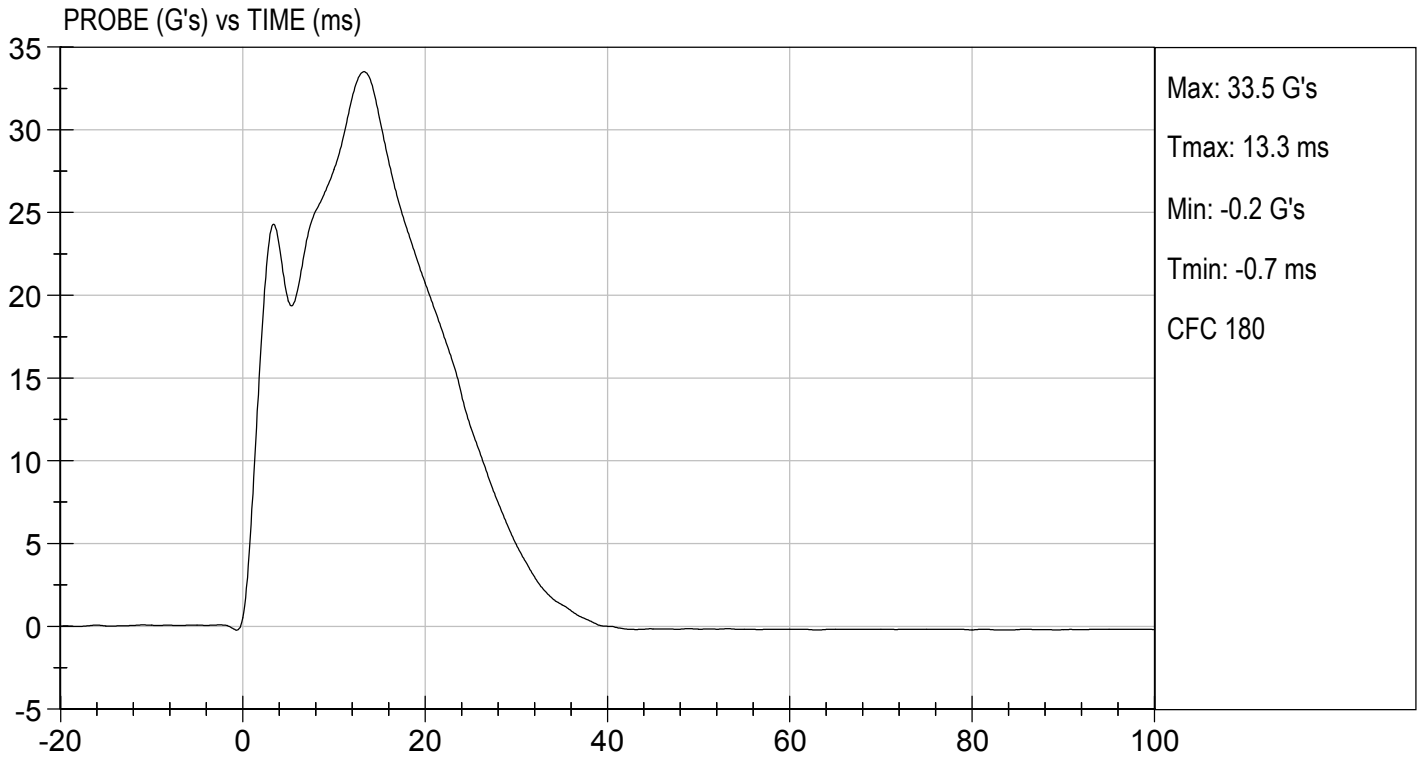
Laboratory Technician

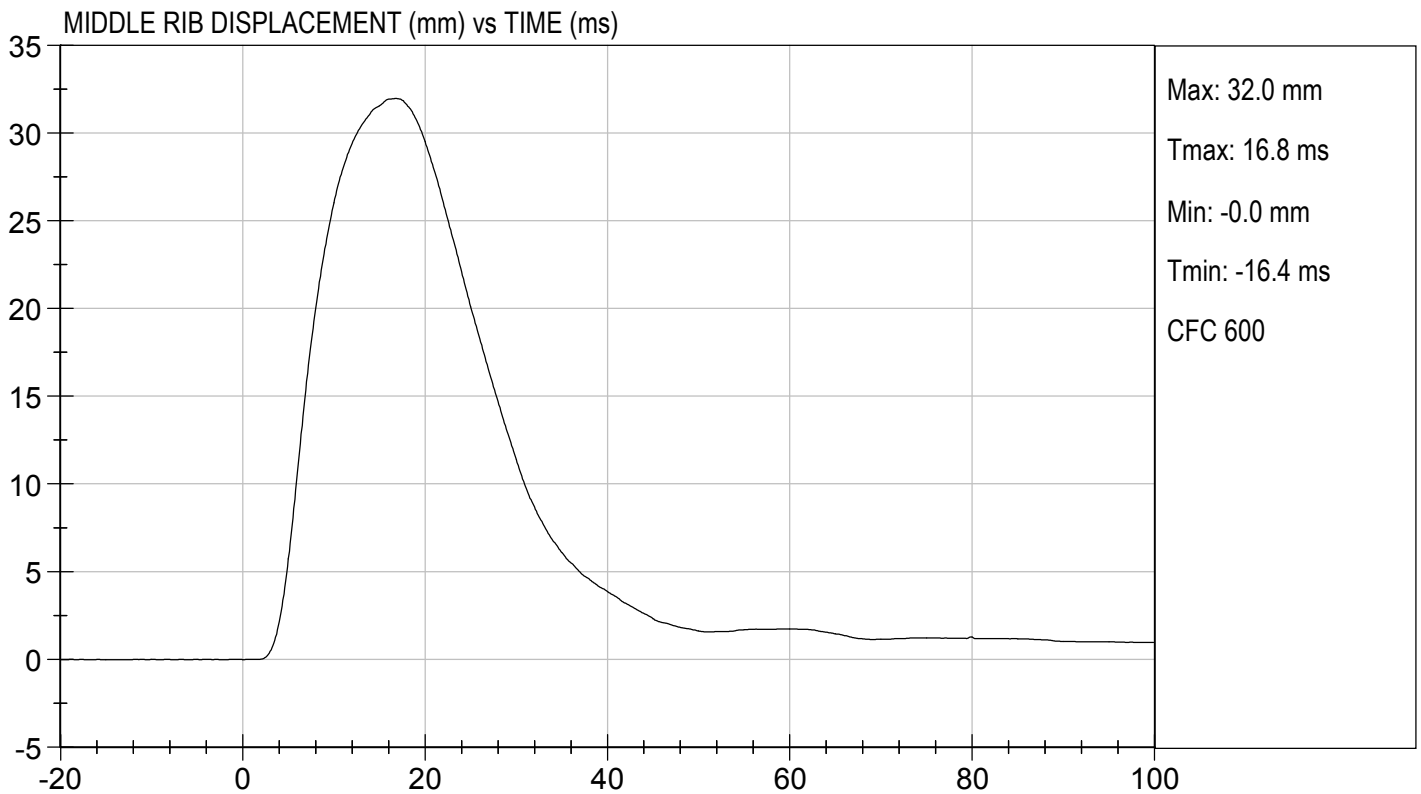
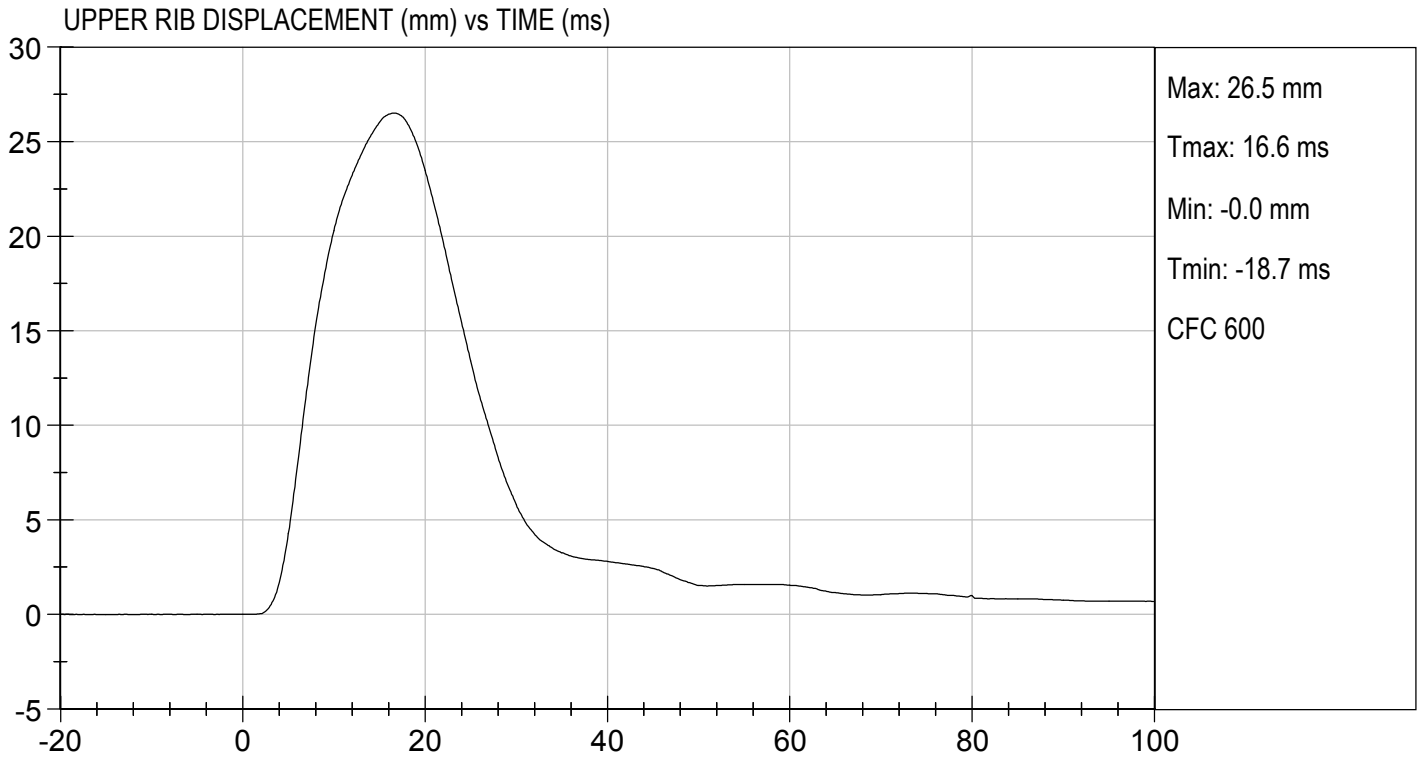
04/08/2019

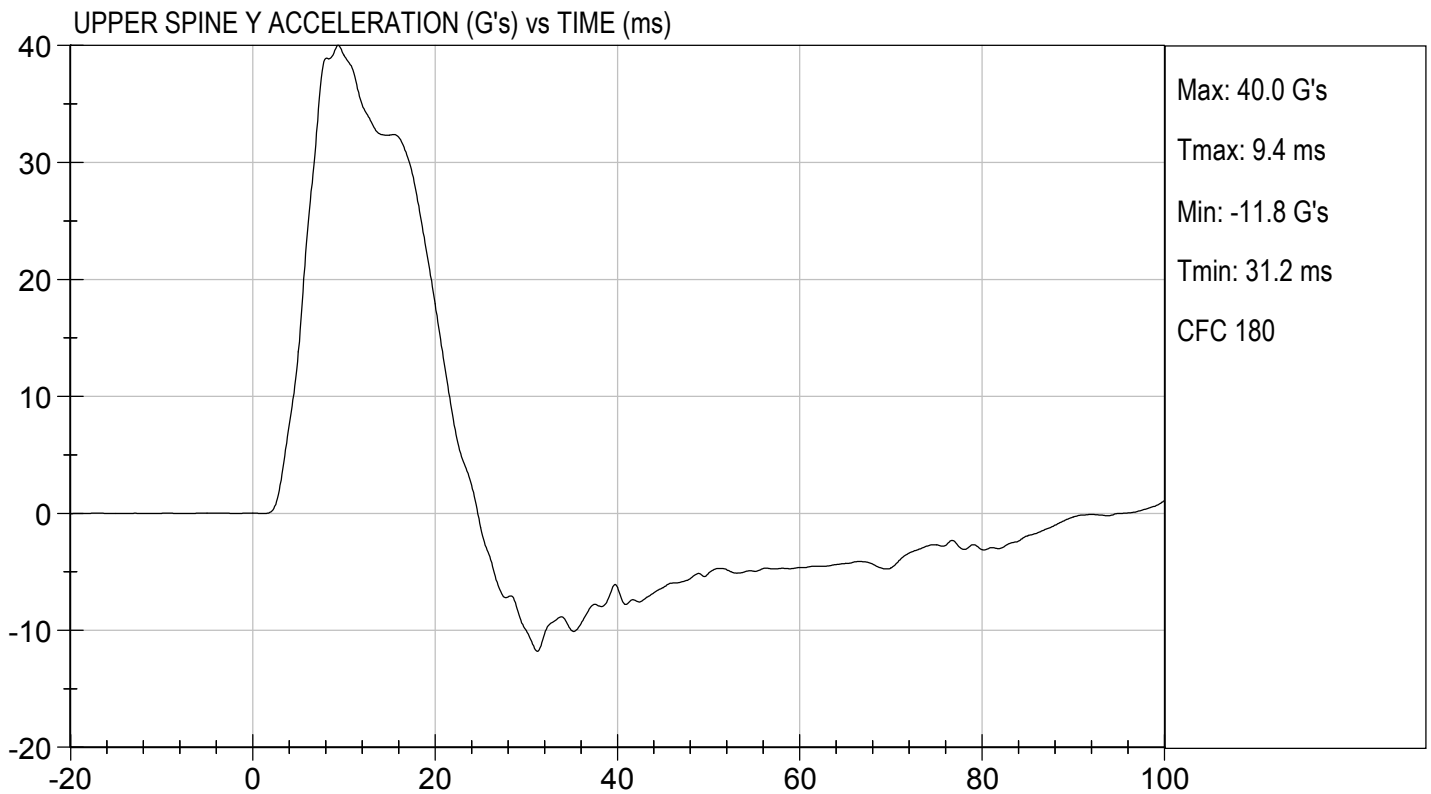
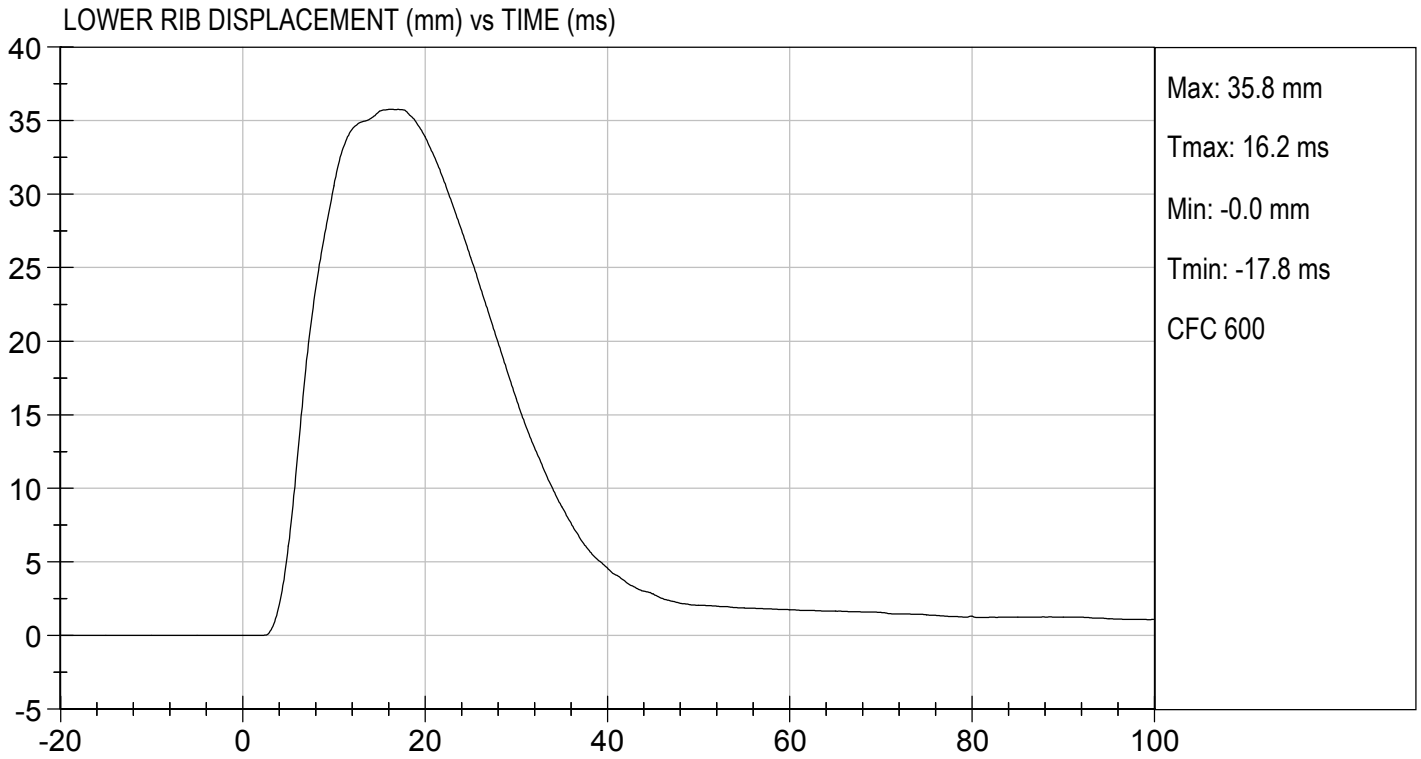
Test Date

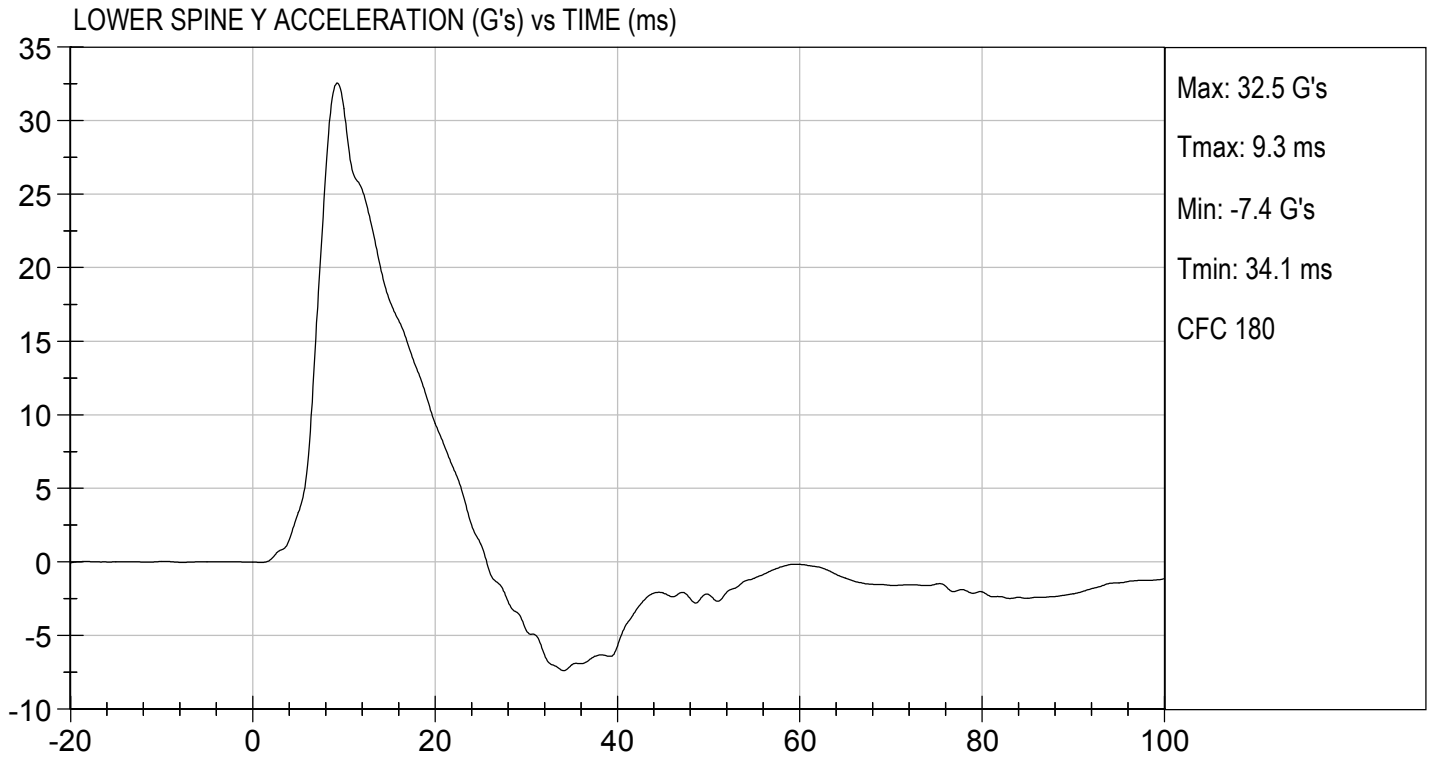


Approved By









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

ATD Serial No: 296

Test I.D: D191235

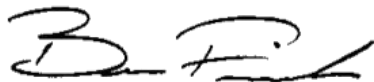
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.4	Pass
Humidity	%	10 to 70	42	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	37	Pass
Middle Rib Displacement	mm	39 to 45	42	Pass
Lower Rib Displacement	mm	35 to 43	40	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	15	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	9	Pass
Overall Test Results				Pass



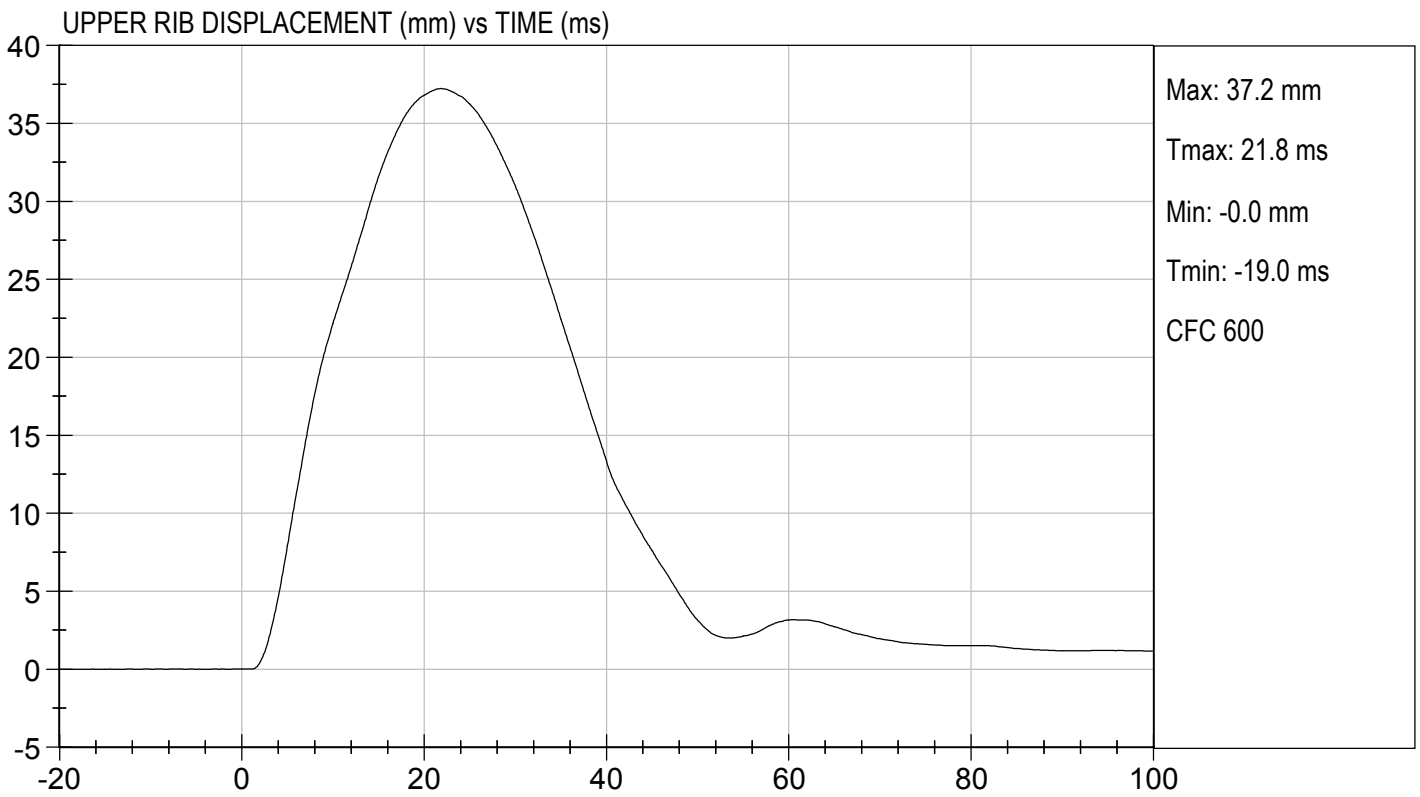
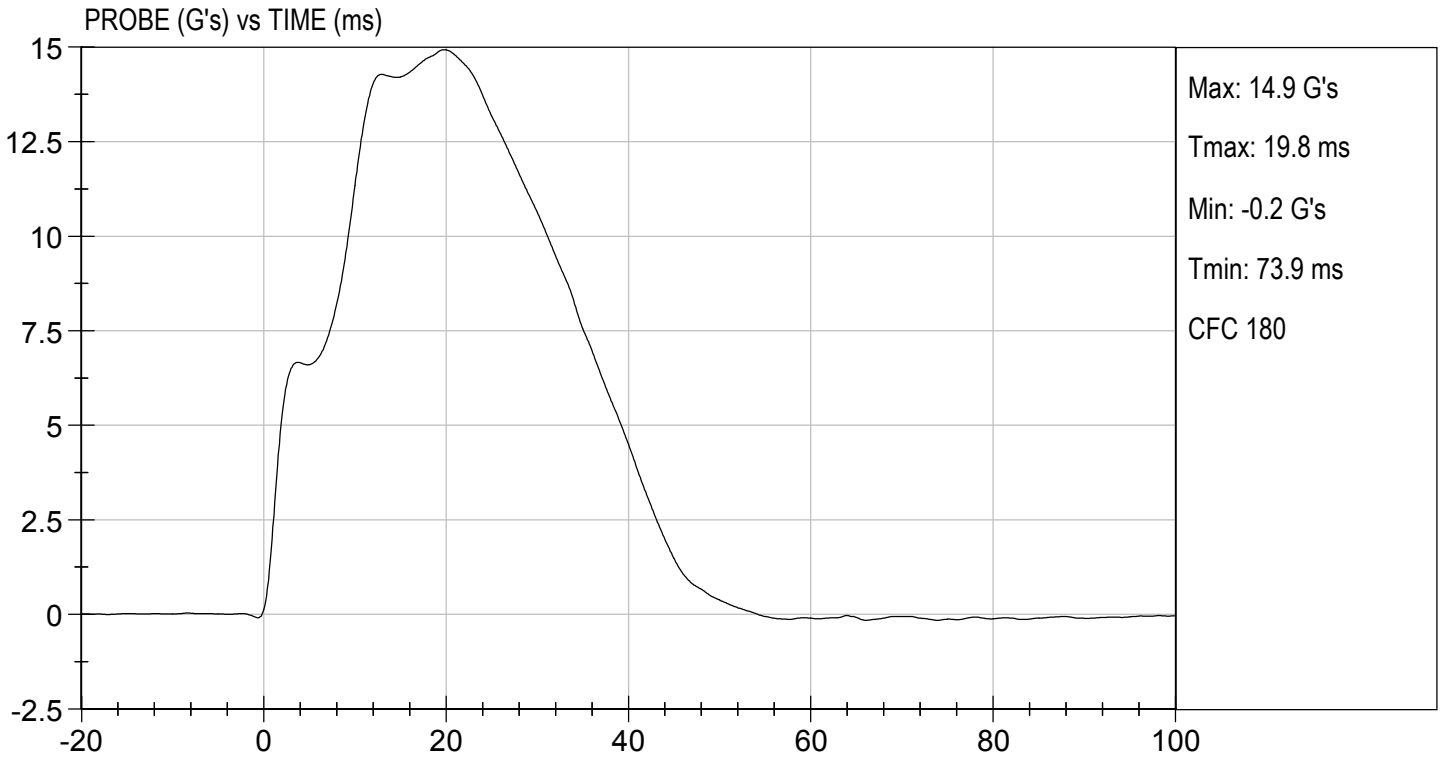
 Laboratory Technician

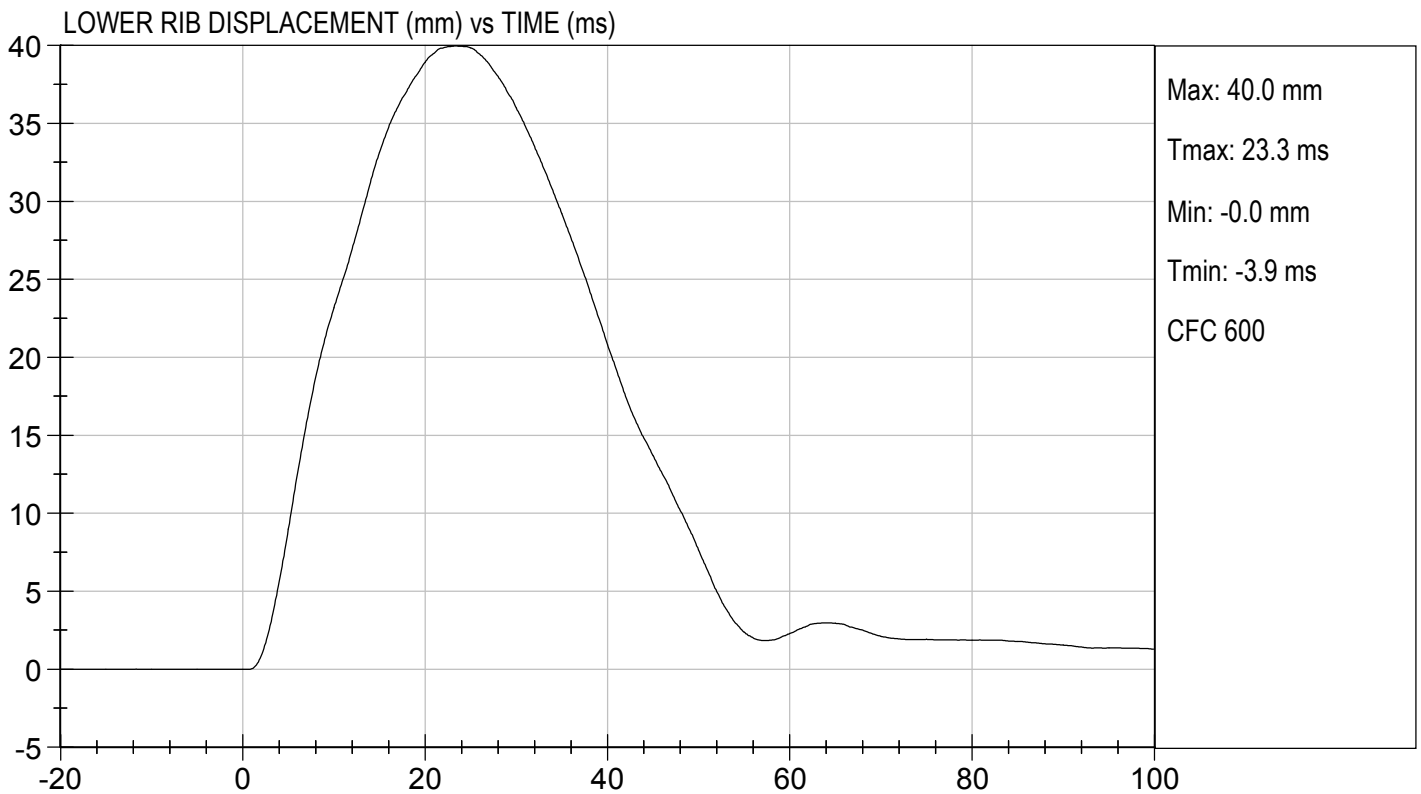
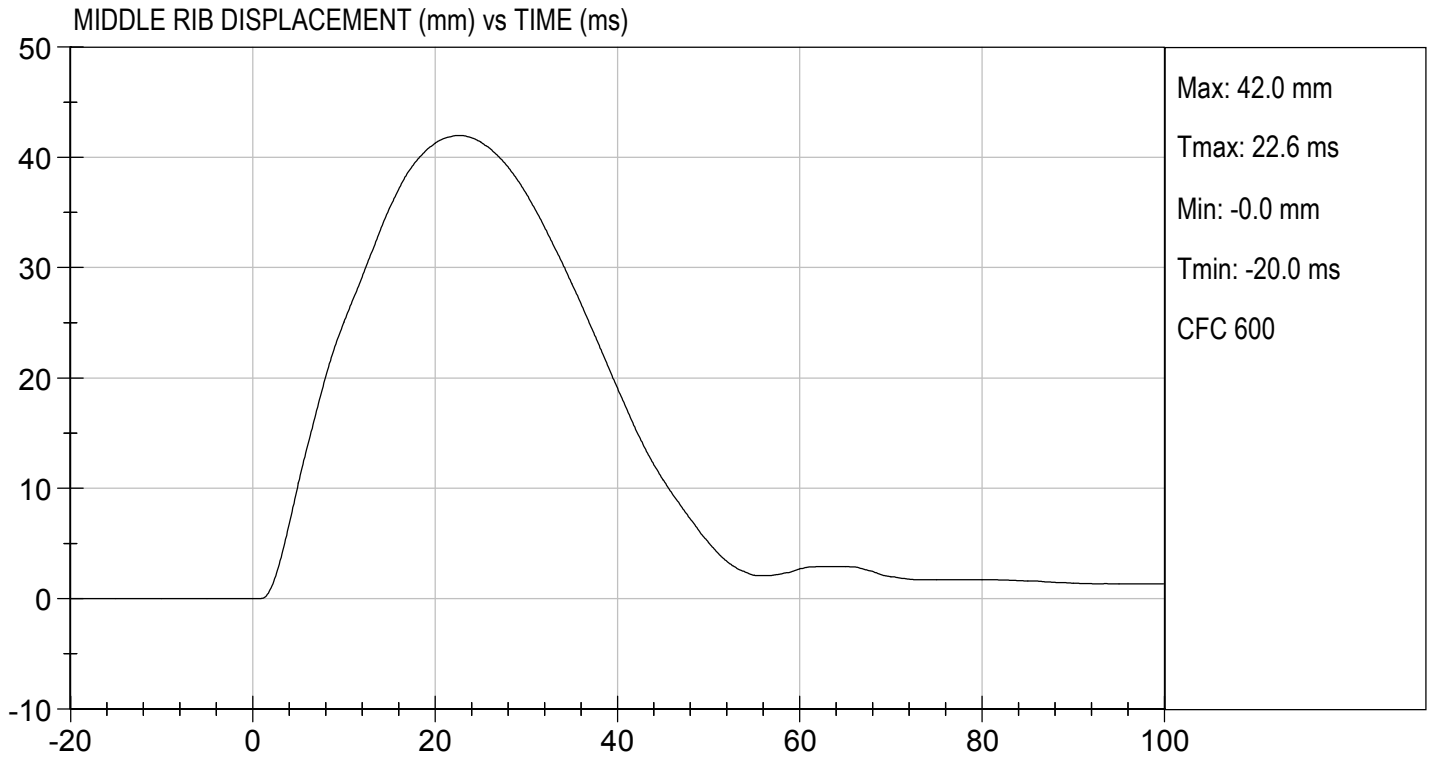
04/08/2019

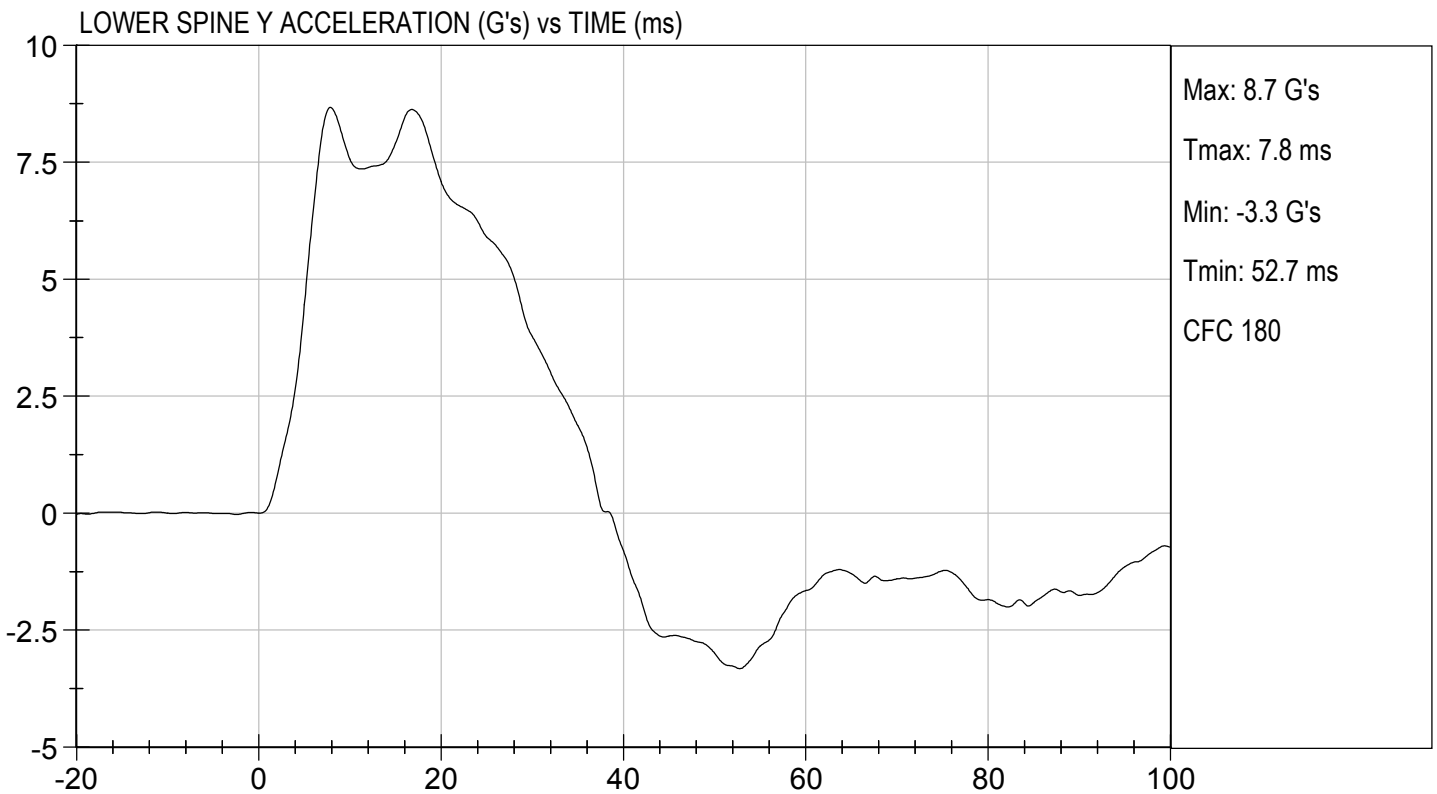
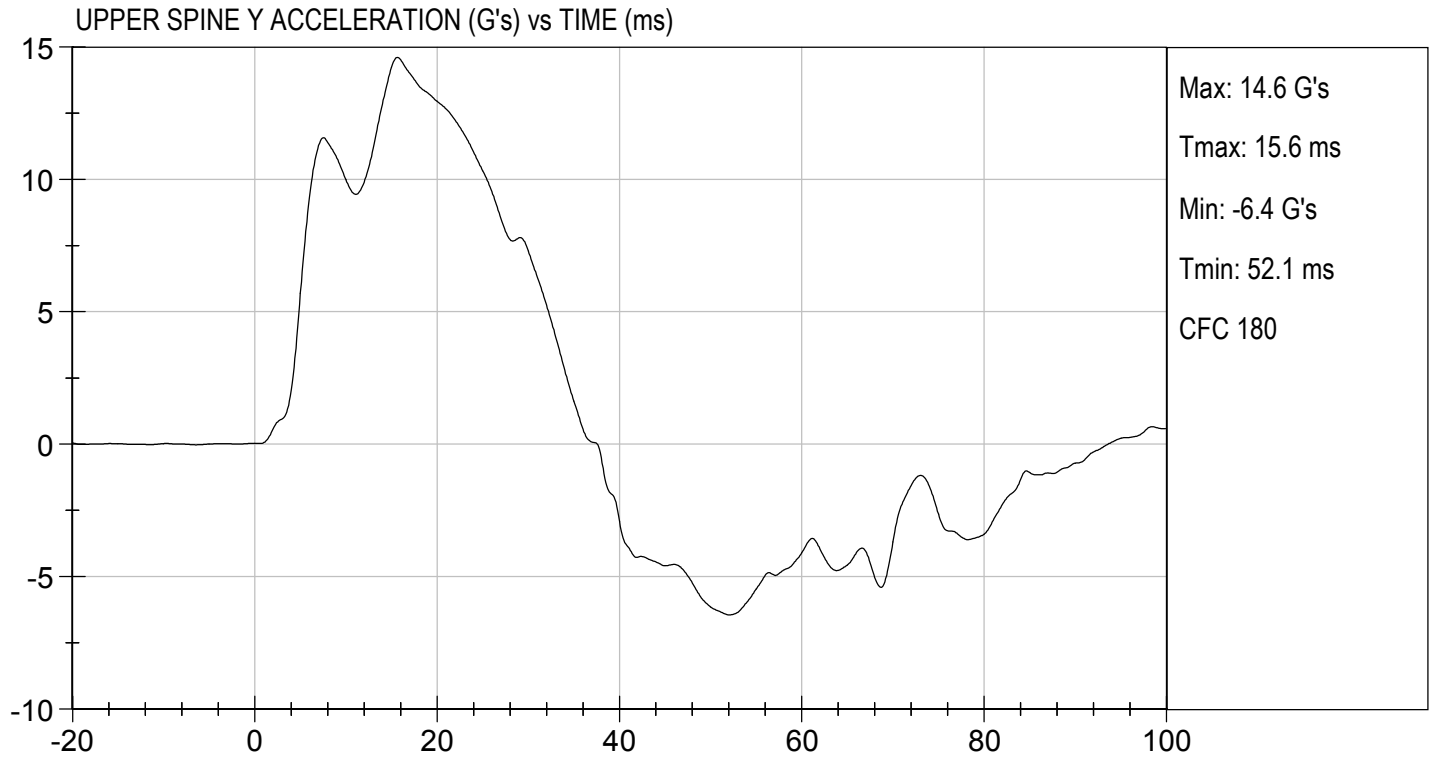
 Test Date



 Approved By







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

ATD Serial No: 296

Test I.D: D191236

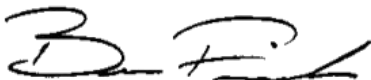
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.4	Pass
Humidity	%	10 to 70	42	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Maximum Probe Acceleration	G's	12 to 16	14	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	44	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	39	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass



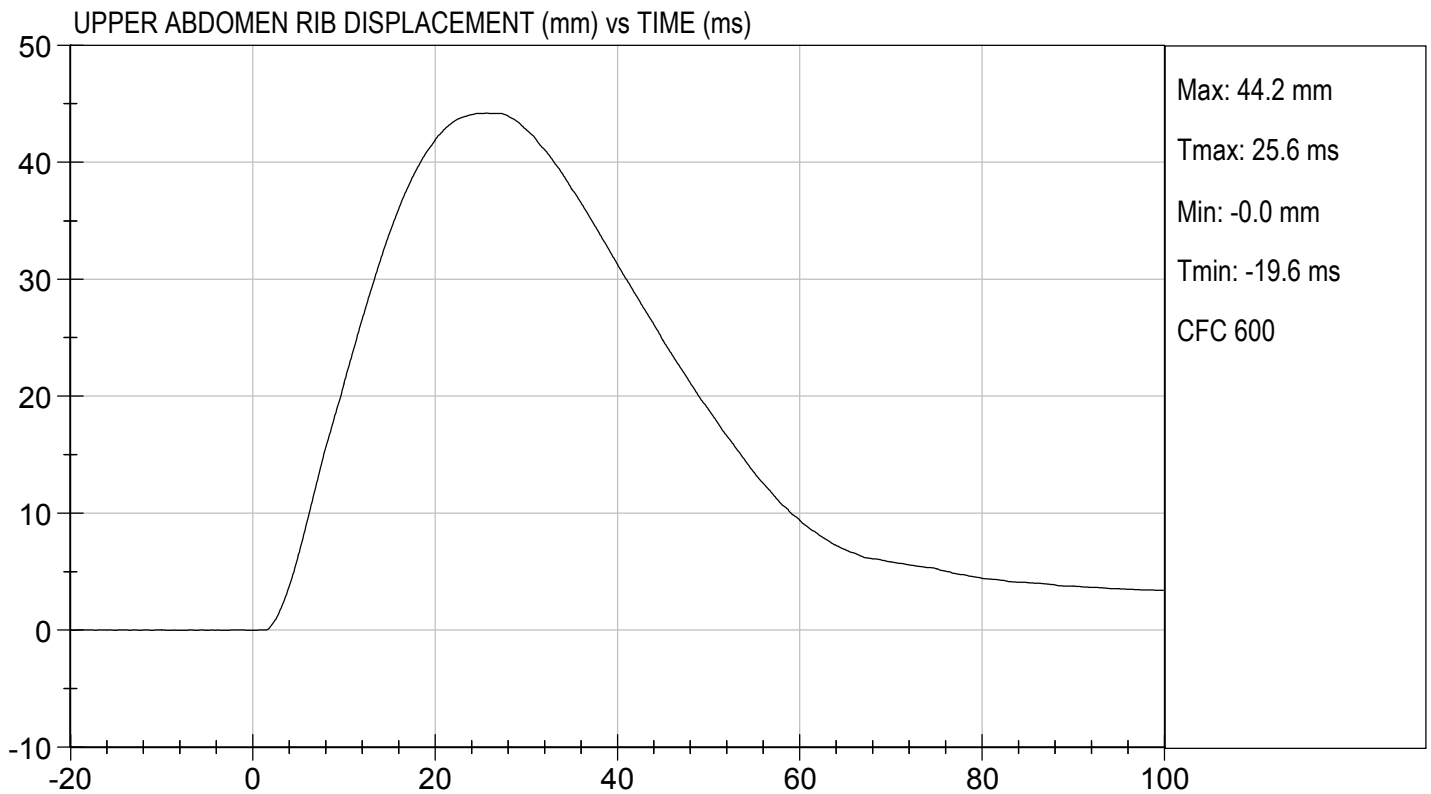
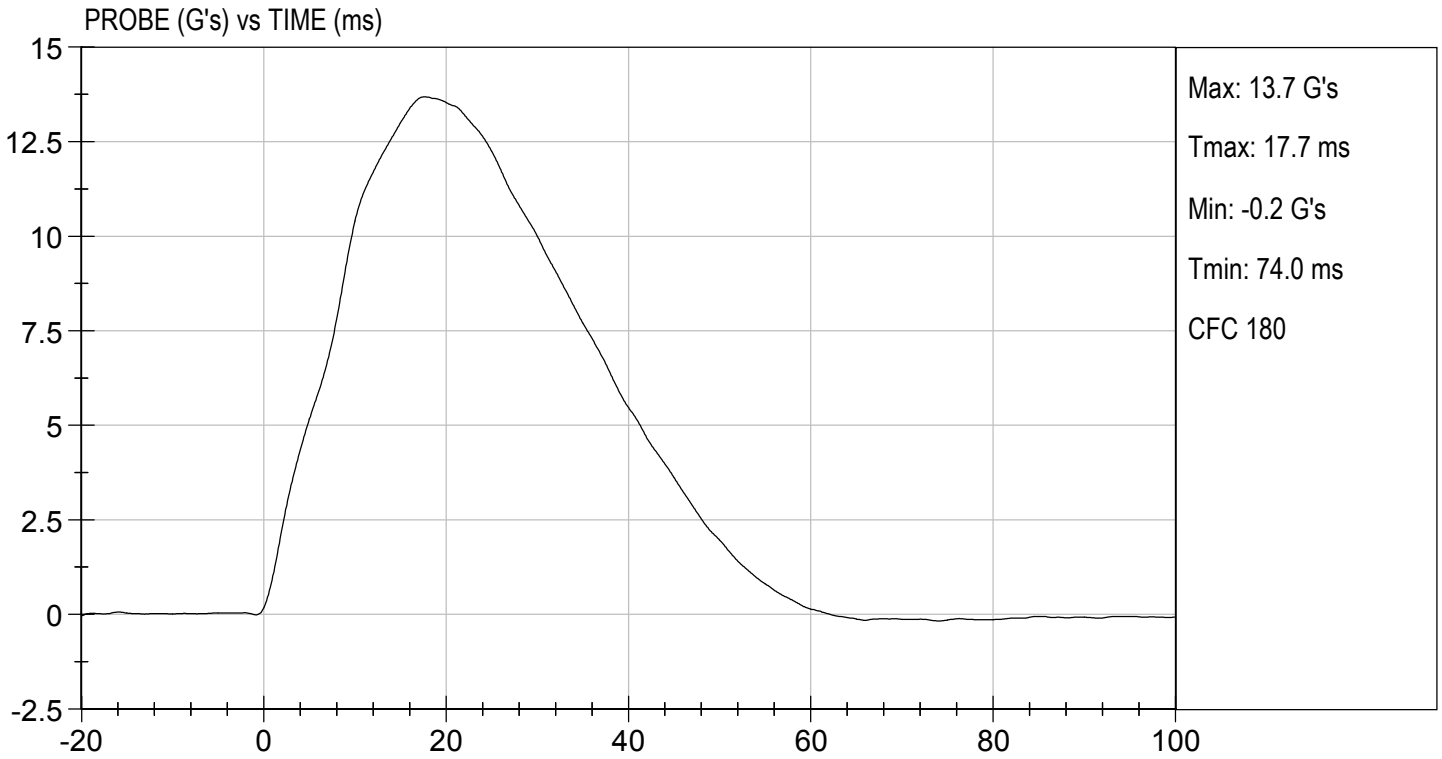
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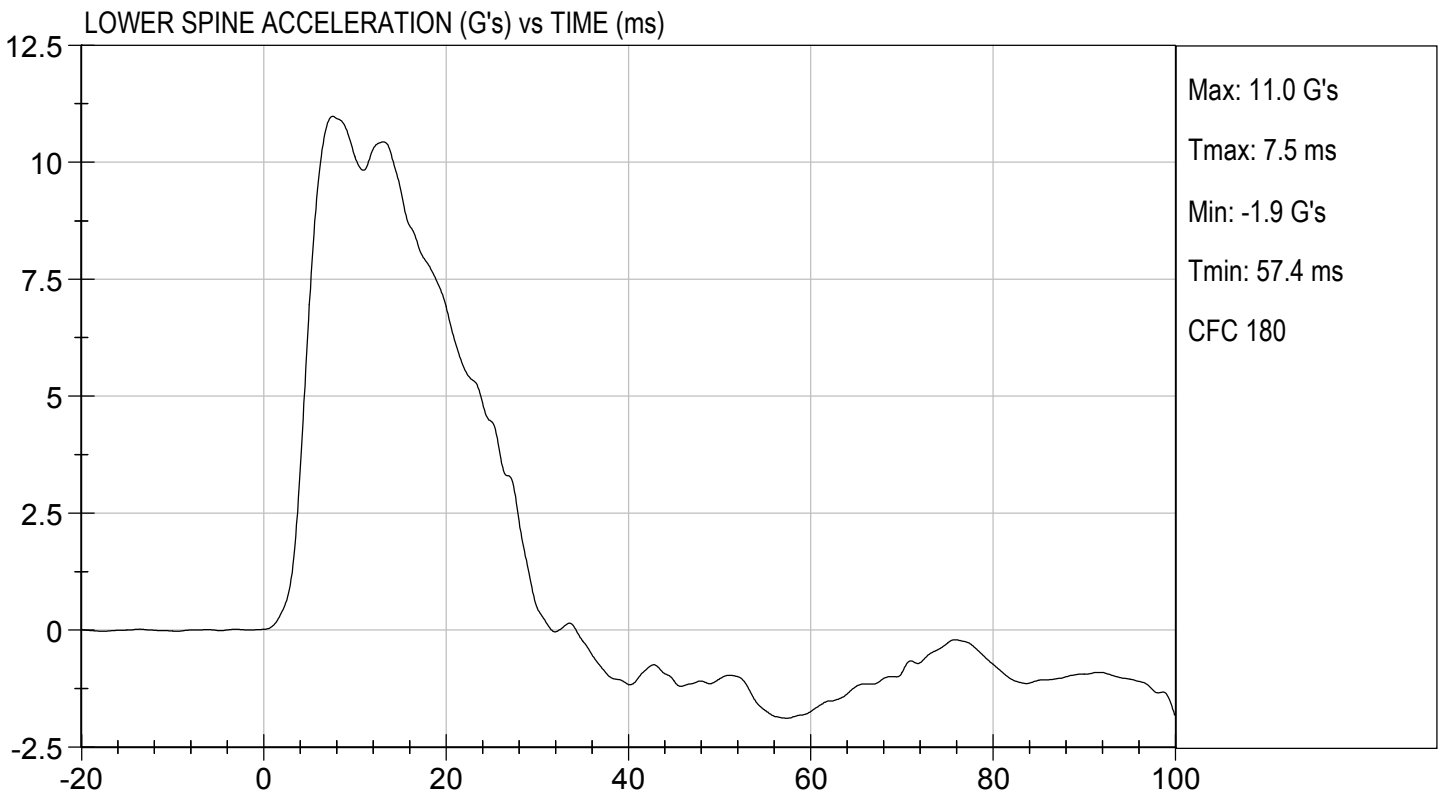
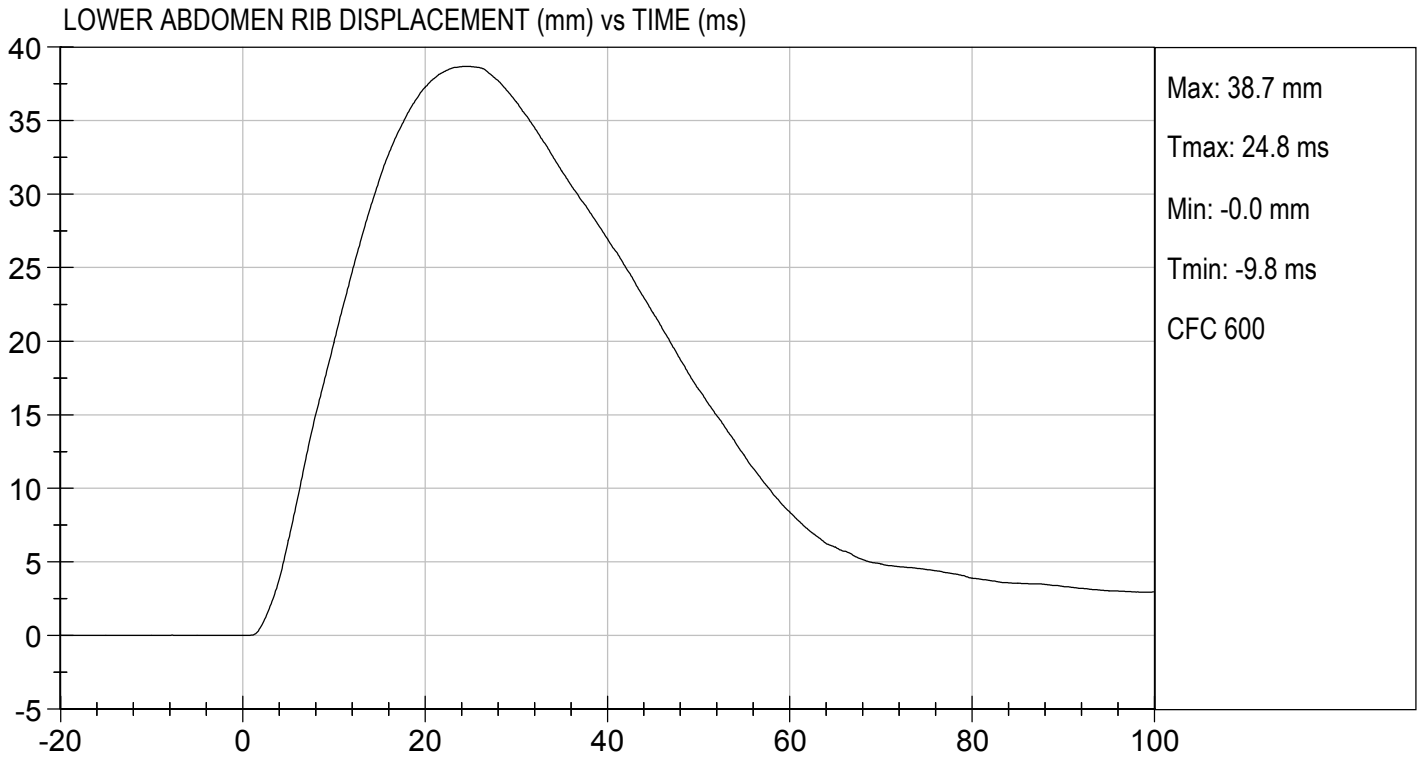
04/08/2019

 Test Date



 Approved By





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

ATD Serial No: 296

Test I.D: D191237

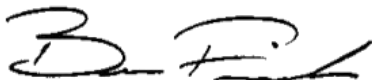
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.0	Pass
Humidity	%	10 to 70	30	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	38 to 47	43	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	42	Pass
Peak Acetabulum Force	N	3600 to 4300	3,734	Pass
Overall Test Results				Pass



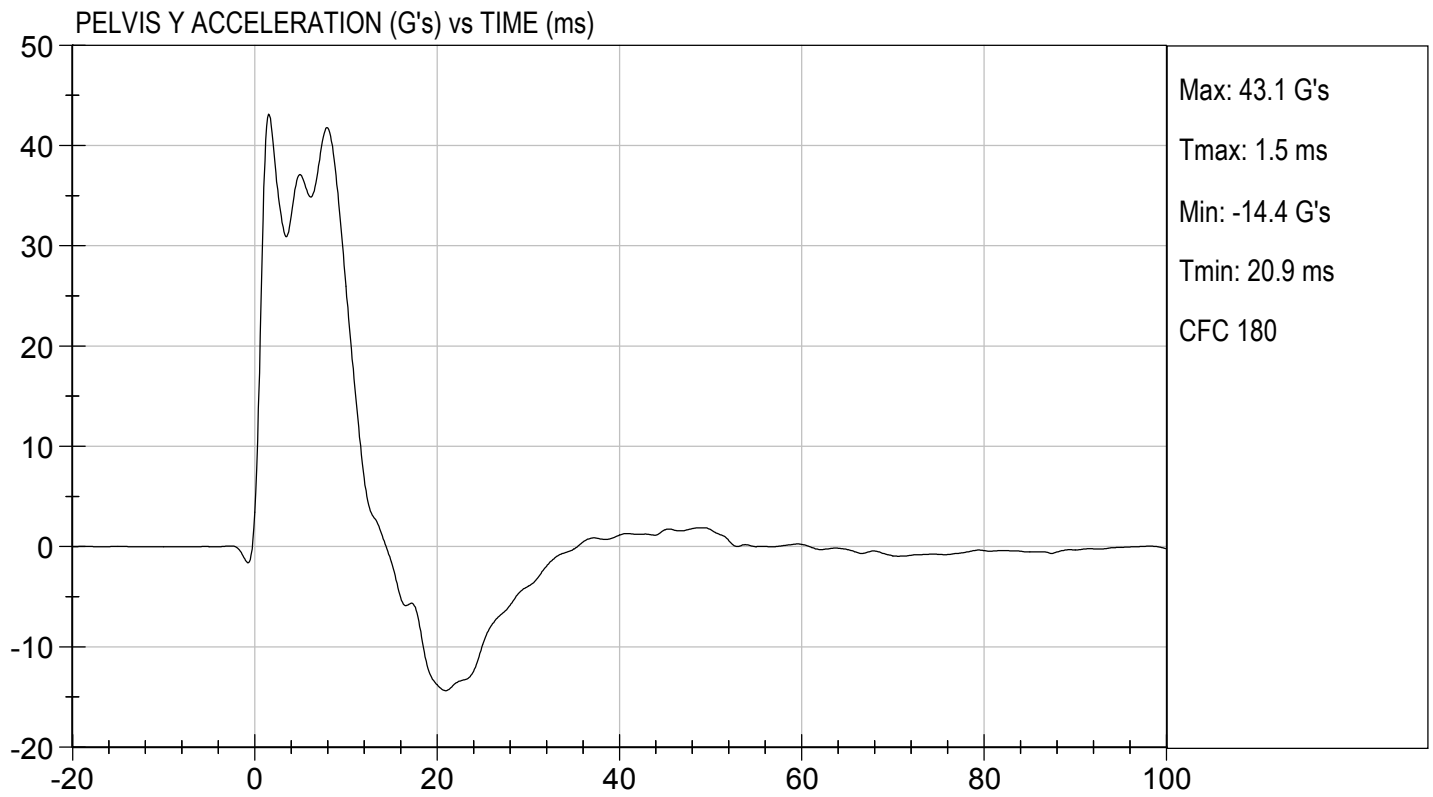
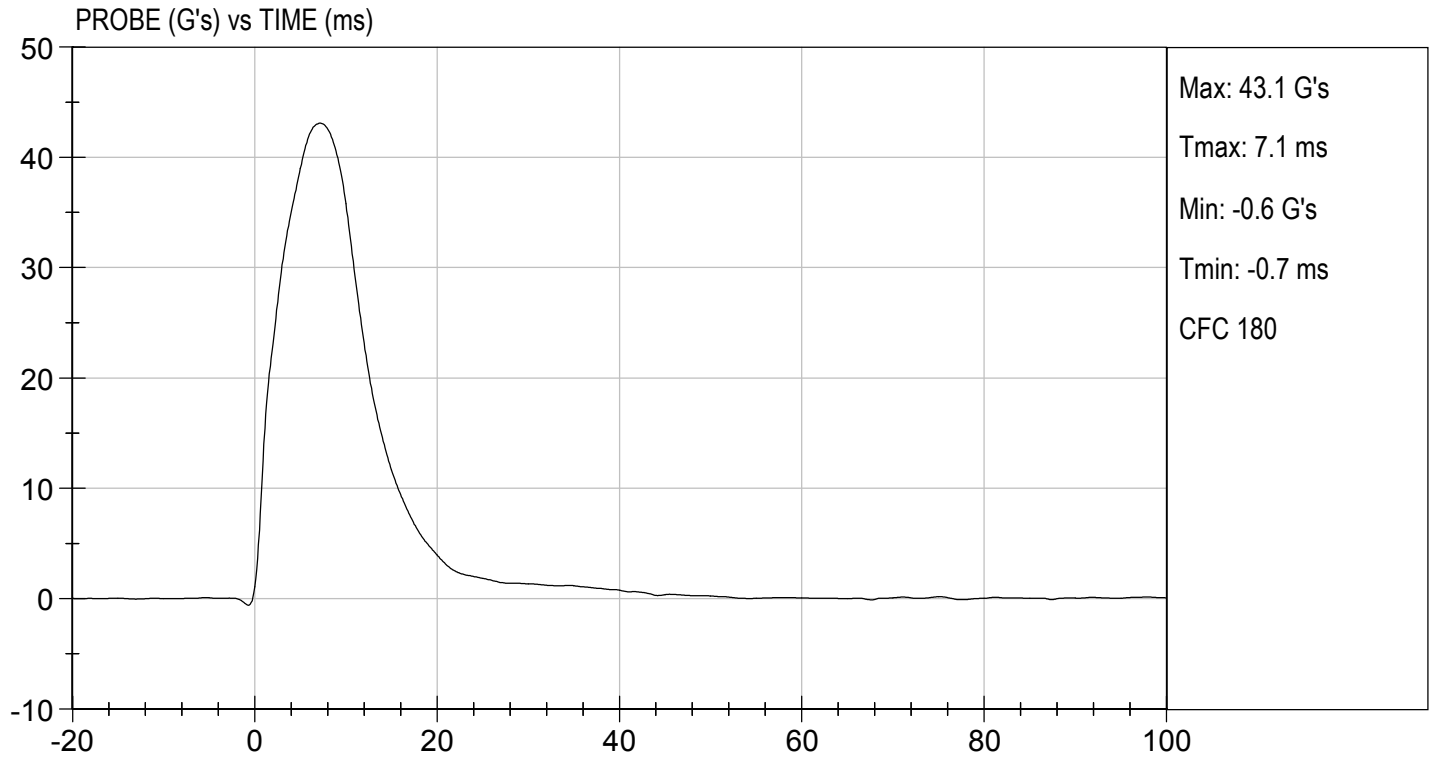
Laboratory Technician

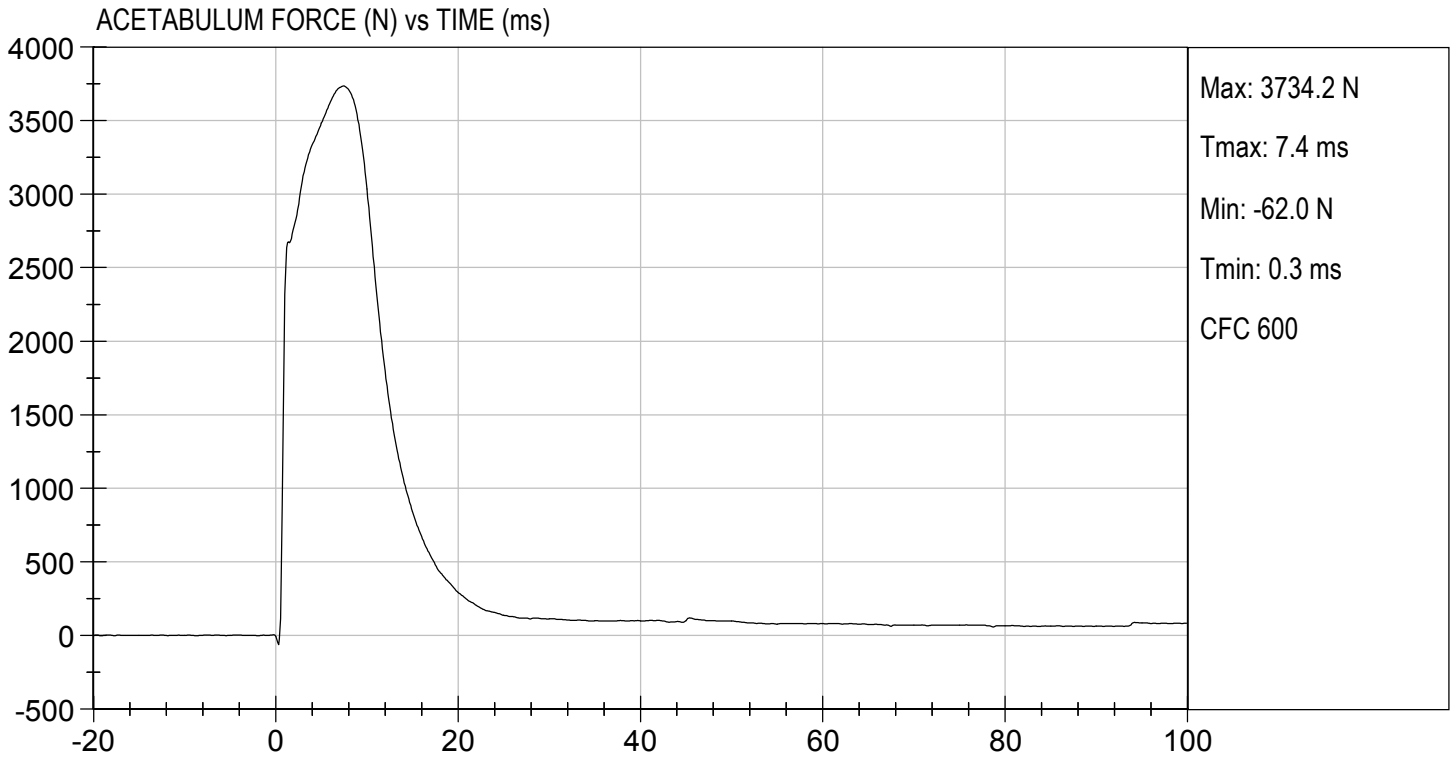
04/09/2019

Test Date



Approved By





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

ATD Serial No: 296

Test I.D: D191238

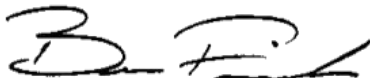
Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.0	Pass
Humidity	%	10 to 70	30	Pass
Impact Velocity	m/s	4.20 to 4.40	4.40	Pass
Maximum Probe Acceleration	G's	36 to 45	37	Pass
Pelvis Y Acceleration	G's	28 to 39	29	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,286	Pass
Overall Test Results				Pass



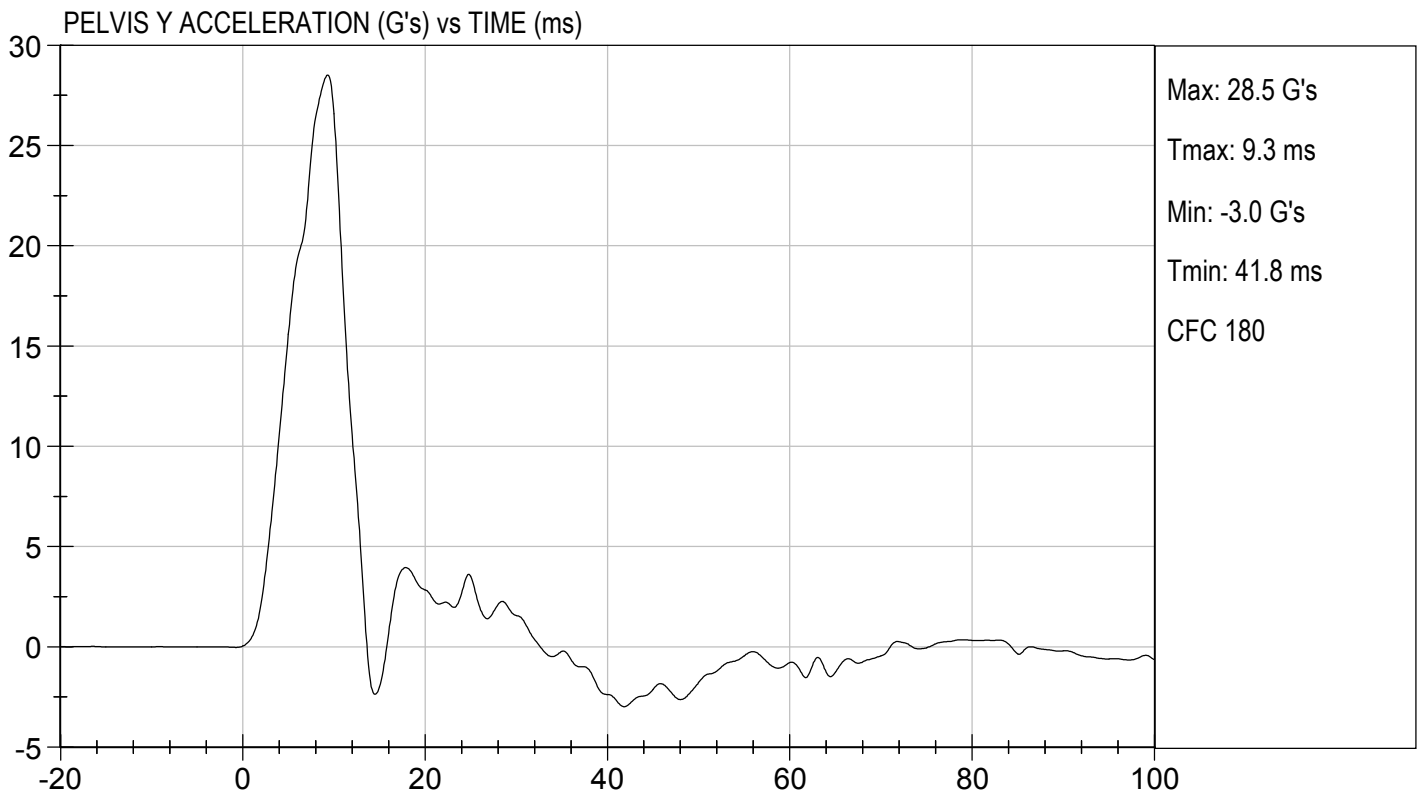
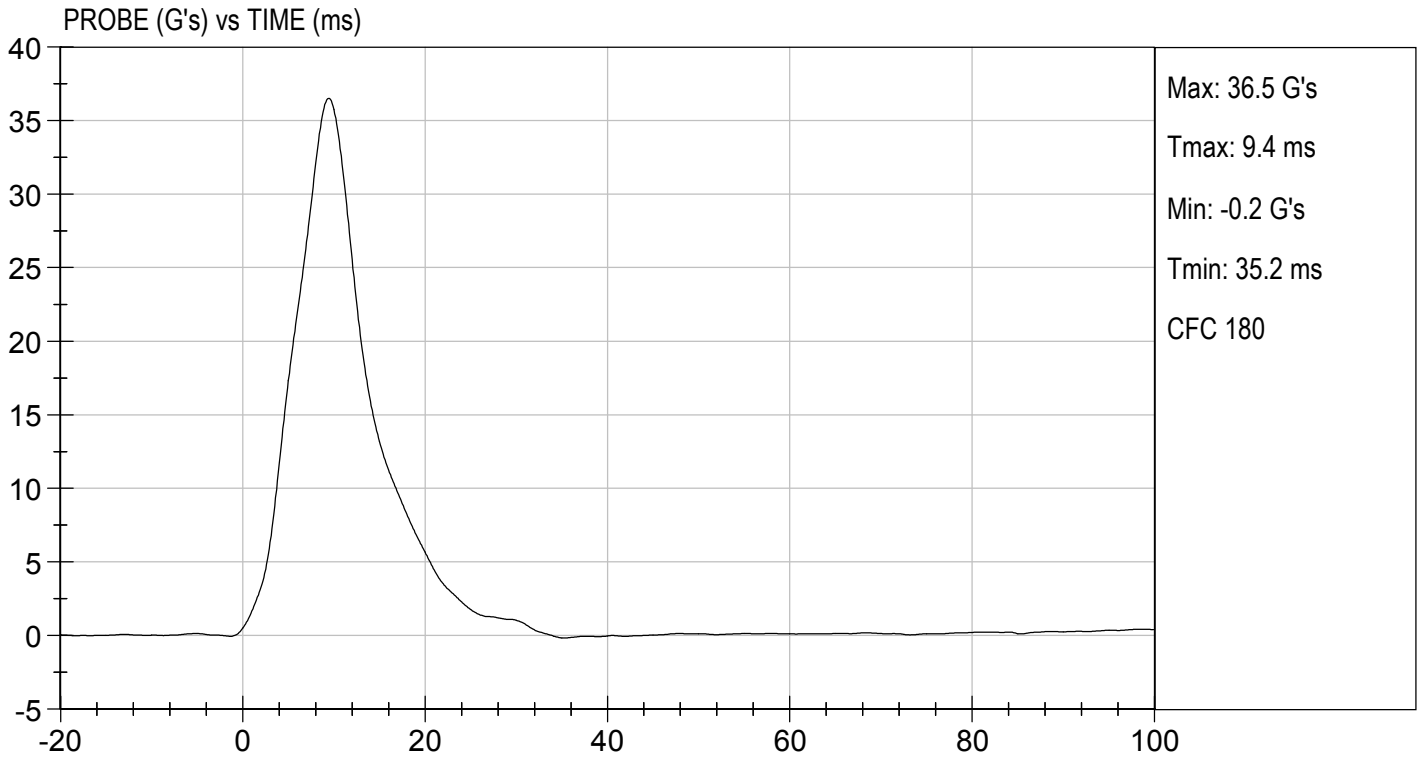
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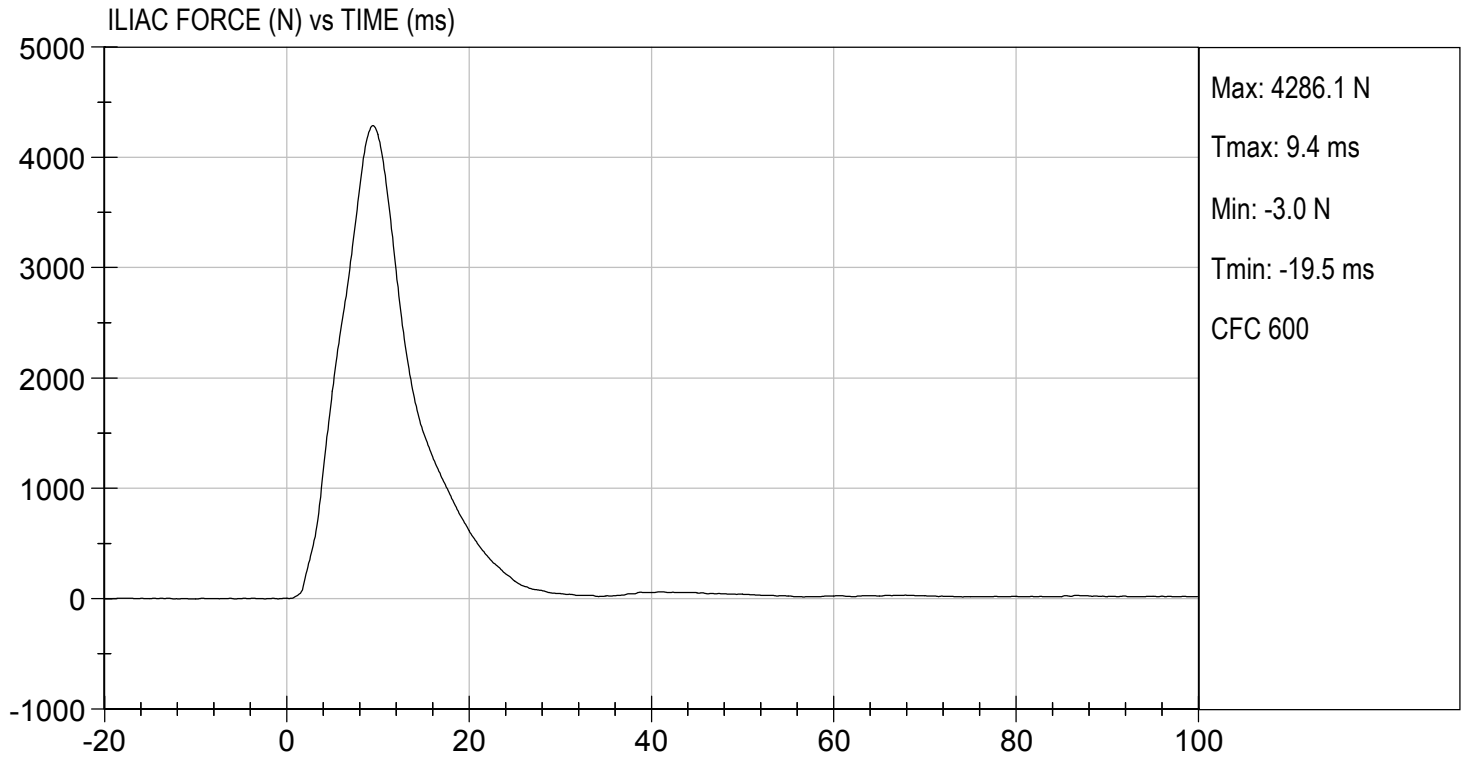
04/09/2019

Test Date



Approved By







SID-IIs Pelvis Plug Certification Test

Plug S/N 12510

Test Number 7437

Report Number 7451

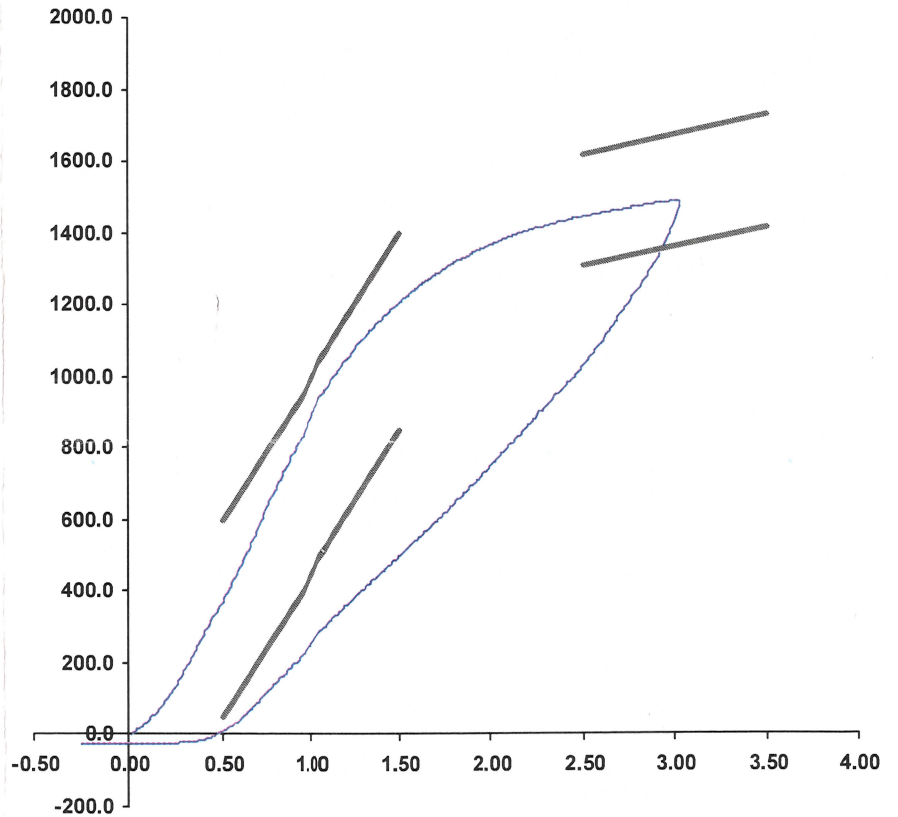
Test Date 10/2/2018 8:16:25 AM

	<u>Test Results</u>	<u>Spec Min</u>	<u>Spec Max</u>
Force @ 0.5 mm (N)	372.52	50.00	600.00
Force @ 1.5 mm (N)	1,208.23	850.00	1,400.00
Force @ 2.5 mm (N)	1,444.90	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,488.69	1,361.00	1,673.00

Testing Machine STM-20 5965542
 Load Cell S/N (FI360947), Units (LBS) 1000
 Crosshead Speed (mm / min) or Rate 12.7
 Extension or Position Measured by XHD_100 (XHD100)

Notes:

Force (-N) vs Extension (-mm)



Operator DC

Part Number 180-4450

Template No 107 02-Oct-18
 SACO Research

By : DC Date : 10/2/18



SID-IIs Pelvis Plug Certification Test

Plug S/N 11592

Test Number 3135

Report Number 3128

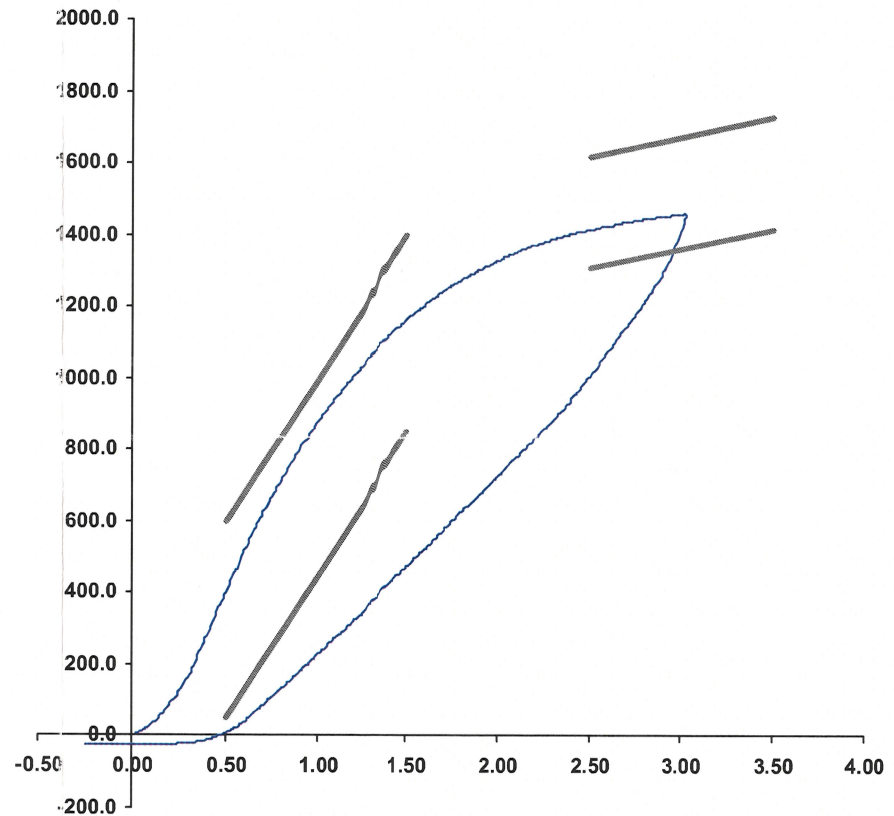
Test Date 10/4/2016 12:41:57 PM

	<u>Test Results</u>	<u>Spec Min</u>	<u>Spec Max</u>
Force @ 0.5 mm (N)	403.69	50.00	600.00
Force @ 1.5 mm (N)	1,165.81	850.00	1,400.00
Force @ 2.5 mm (N)	1,414.67	1,306.00	1,618.00
Force @ 3.0 mm (N)	1,458.64	1,361.00	1,673.00

Testing Machine STM-20 5965542
 Load Cell S/N (TI240813), Units (LBS) 1000
 Crosshead Speed (mm / min) or Rate 12.7
 Extension or Position Measured by XHD_100 (XHD100)

Notes:

Force (-N) vs Extension (-mm)



Operator DC

Part Number 180-4450

Template No 107 04-Oct-16
 SACO Research

By: DC Date: 10/4/16

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION DATA

Table 1 – Dummy Instrumentation

			SID-IIs S/N 296			
			Serial Number	Manufacturer	Calibration Date	
Head CG Accelerometers			X	P85003	Endevco	01/07/19
			Y	P94783	Endevco	01/07/19
			Z	P94786	Endevco	01/07/19
			Xr	P94938	Endevco	01/07/19
			Yr	P96854	Endevco	01/07/19
			Zr	P97386	Endevco	01/07/19
Head Angular Rate Sensors			X	ARS7413	DTS	07/15/14
			Y	ARS7421	DTS	07/15/14
			Z	ARS7423	DTS	07/15/14
Displacement Potentiometers	Thoracic Rib	Upper	Y	G012	Servo	01/07/19
		Middle	Y	G1163	FTSS	01/07/19
		Lower	Y	G1158	FTSS	01/07/19
	Abdominal Rib	Upper	Y	G1146	FTSS	01/07/19
		Lower	Y	G1126	FTSS	01/07/19
Lower Spine Accelerometers (T12)			X	P79418	Endevco	01/07/19
			Y	P79439	Endevco	01/07/19
			Z	P79614	Endevco	01/07/19
Acetabulum Load Cell			Y	ACG269	Denton	03/15/19
Iliac Wing Load Cell			Y	IWG282	Denton	03/15/19
Pelvis Plug (struck side)				12510	SACO	10/02/18
Pelvis Plug (non-struck side)				11592	SACO	10/04/16

Table 2 – Vehicle Instrumentation

		Serial Number	Manufacturer	Calibration Date
Vehicle Center of Gravity	X	PCB1189	PCB	12/28/18
Vehicle Center of Gravity	Y	PCB1193	PCB	12/28/18
Vehicle Center of Gravity	Z	PCB1262	PCB	12/28/18
Left Floor Sill	Y	PCB1366	PCB	03/05/19
A-Pillar Sill	Y	PCB897	PCB	01/09/19
A-Pillar Low	Y	T18370	Endevco	01/04/19
A-Pillar Mid	Y	T17925	Endevco	01/04/19
B-Pillar Sill	Y	T12063	Endevco	03/05/19
B-Pillar Low	Y	T17943	Endevco	01/16/19
B-Pillar Mid	Y	P92962	Endevco	12/20/18
Driver Seat	Y	T18393	Endevco	01/14/19
Engine Top	X	PCB1361	PCB	03/13/19
Engine Top	Y	PCB1362	PCB	03/13/19
Firewall	Y	T17923	Endevco	01/16/19
Right Roof	Y	T16729	Endevco	12/19/18
Right Floor Sill	Y	PCB1200	PCB	10/18/18
Rear Floorpan	X	PCB1147	PCB	10/23/18
Rear Floorpan	Y	PCB1318	PCB	10/24/18

Table 3 – Pole Instrumentation

	Serial Number	Manufacturer	Calibration Date
Load Cell 1	DG6277	FTSS	07/30/18
Load Cell 2	DG6278	FTSS	07/30/18
Load Cell 3	DG6279	FTSS	07/30/18
Load Cell 4	DG6280	FTSS	07/30/18
Load Cell 5	DG6281	FTSS	07/30/18
Load Cell 6	DG6283	FTSS	07/30/18
Load Cell 7	DG6284	FTSS	07/30/18
Load Cell 8	DG6582	FTSS	07/30/18