

REPORT NUMBER: SideNCAPMDB-MGA-24-022

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

**GENERAL MOTORS DE MEXICO, S. DE R.L. DE C.V.
2024 Chevrolet Equinox EV 2LT 5-Door SUV
NHTSA No.: M20240112**

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



Test Date: July 31, 2024

Final Report Date: December 30, 2024

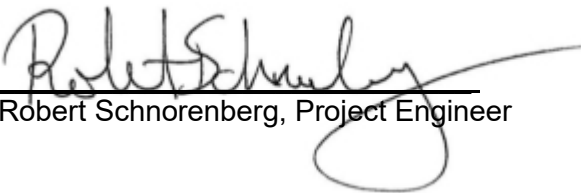
FINAL REPORT

**U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Office of Crashworthiness Standards
Mail Code: NRM-100
1200 New Jersey Ave, SE
Washington, DC 20590**

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Approval Date: December 30, 2024

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

TECHNICAL REPORT DOCUMENTATION PAGE

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9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105		8. Performing Organization Report No. SideNCAPMDB-MGA-24-022																																																					
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15. Supplementary Notes		13. Type of Report and Period Covered: Final Test Report July 31, 2024 to December 30, 2024																																																					
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16. Abstract A 55/28 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2024 Chevrolet Equinox EV 2LT 5-Door SUV in accordance with the specifications of the Office of Crashworthiness Standards Side NCAP MDB Test Procedure for the generation of consumer information on vehicle side crash protection. The test was conducted at the MGA Research Corporation facility in Burlington, Wisconsin on July 31, 2024. The impact velocity of the Moving Deformable Barrier (MDB) was 62.04 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 22.1°C. The target vehicle post-test maximum crush was 194 mm at level 3. The test vehicle's performance was as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD (ES-2re)</th> </tr> <tr> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td></td> <td>1000</td> <td>128.402</td> </tr> <tr> <td>Maximum Thorax Rib Deflection</td> <td>mm</td> <td>44</td> <td>23.259</td> </tr> <tr> <td>Total Abdominal Force</td> <td>N</td> <td>2500</td> <td>725.107</td> </tr> <tr> <td>Pubic Symphysis Force</td> <td>N</td> <td>6000</td> <td>1281.582</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>g</td> <td>82*</td> <td>20.655</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Passenger ATD (SID-IIs)</th> </tr> <tr> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₃₆)</td> <td></td> <td>1000</td> <td>140.958</td> </tr> <tr> <td>Resultant Lower Spine Acceleration</td> <td>g</td> <td>82</td> <td>38.474</td> </tr> <tr> <td>Total Pelvic Force (sum of acetabular and iliac forces)</td> <td>N</td> <td>5525</td> <td>1579.117</td> </tr> <tr> <td>Maximum Thoracic Rib Deflection</td> <td>mm</td> <td>38*</td> <td>13.672</td> </tr> <tr> <td>Maximum Abdomen Rib Deflection</td> <td>mm</td> <td>45*</td> <td>11.250</td> </tr> </tbody> </table> *Proposed IARV The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite door(s) did not open during the side impact event.				Measurement Description	Units	Driver ATD (ES-2re)		Threshold	Result	Head Injury Criteria (HIC ₃₆)		1000	128.402	Maximum Thorax Rib Deflection	mm	44	23.259	Total Abdominal Force	N	2500	725.107	Pubic Symphysis Force	N	6000	1281.582	Resultant Lower Spine Acceleration	g	82*	20.655	Measurement Description	Units	Passenger ATD (SID-IIs)		Threshold	Result	Head Injury Criteria (HIC ₃₆)		1000	140.958	Resultant Lower Spine Acceleration	g	82	38.474	Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1579.117	Maximum Thoracic Rib Deflection	mm	38*	13.672	Maximum Abdomen Rib Deflection	mm	45*	11.250
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SECTION 1 PURPOSE AND SUMMARY OF TEST

PURPOSE

This moving deformable barrier side impact test is part of the MY 2024 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. 693JJ920D000017. The purpose of this test is to generate comparative side impact performance in a 2024 Chevrolet Equinox EV 2LT 5-Door SUV. The side impact test was conducted in accordance with the Office of Crashworthiness Standard's Side NCAP Laboratory Test Procedure dated March 2020.

SUMMARY

A 2024 Chevrolet Equinox EV 2LT 5-Door SUV was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 62.04 km/h. The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by MGA Research Corporation in Burlington, Wisconsin on July 31, 2024. Pre-test and post-test photographs of the test vehicle, the MDB, and the dummies (ES-2re and SID-IIs) are included in this report.

Dummies were placed in the driver and left rear designated seating positions according to instructions specified in the OCWS NCAP Side Laboratory Test Procedure dated March 2020. The side impact event was documented by eleven (11) cameras. Camera locations are included in this report.

The dummies were instrumented in the following manner:

DRIVER ATD (ES-2re)

- Primary and Redundant Head CG Triaxial Accelerometers
- Chest Upper Rib, Middle Rib, and Lower Rib Y-Axis Displacement Potentiometers
- Abdomen Forward, Middle, and Rear Y-Axis Load Cells
- Lower Spine (T12) Triaxial Accelerometers
- Pubic Symphysis Y-Axis Load Cell

PASSENGER ATD (SID-IIs)

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

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

Dummy Injury readings were recorded as follows:

DUMMY INJURY VALUES

Measurement Description	Units	Driver ATD (ES-2re)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	128.402
Maximum Thorax Rib Deflection	mm	44	23.259
Total Abdominal Force	N	2500	725.107
Pubic Symphysis Force	N	6000	1281.582
Resultant Lower Spine Acceleration	g	82*	20.655

Measurement Description	Units	Passenger ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC ₃₆)		1000	140.958
Resultant Lower Spine Acceleration	g	82	38.474
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	1579.117
Maximum Thoracic Rib Deflection	mm	38*	13.672
Maximum Abdomen Rib Deflection	mm	45*	11.250

*Proposed IARV

Supplemental restraint information is given below:

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

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

GENERAL COMMENTS

None.

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

SECTION 2
OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20240112	Traction Control System (TCS)	Yes
Model Year	2024	Auto-Leveling System	No
Make	Chevrolet	Automatic Door Locks (ADL)	Yes
Model	Equinox EV 2LT	Power Window Auto-Reverse	Yes
Body Style	5-Door SUV	Other Optional Feature	No
VIN	3GN7DLRP1RS241065	Driver Front Airbag	Yes
Body Color	Riptide Blue Metallic	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	8 km / 5 mi	Driver Head/Torso Airbag	No
Engine Displacement (L)		Driver Torso Airbag	No
Type/No. Cylinders	Electric	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Lateral	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	Yes
Transmission Speeds	1	Rear Pass. Curtain Airbag	Yes
Overdrive	No	Rear Pass. Head/Torso Airbag	No
Final Drive	FWD	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	No
Sunroof/T-Top	No	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	Driver	Driver Load Limiter	Yes
Anti-Lock Brakes (ABS)	Yes	Rear Pass. Load Limiter	Yes
		Other Safety Restraint	N/A

Does owner's manual provide instruction to turn off automatic door locks?	No
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DATA FROM CERTIFICATION LABEL

Manufactured By	GENERAL MOTORS DE MEXICO, S. DE R.L. DE C.V.	GVWR (kg)	2749
Date of Manufacture	04/24	GAWR Front (kg)	1450
Vehicle Type	MPV	GAWR Rear (kg)	1425

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	
Capacity Weight (VCW) (kg)				523	(A)
DSC x 68 kg				340	(B)
Rated Cargo and Luggage Weight (RCLW) (kg)				136	(A-B)

* Rated Cargo and Luggage Weight (RCLW) limited to maximum of 300 lbs (136 kg).

VEHICLE SEAT TYPE

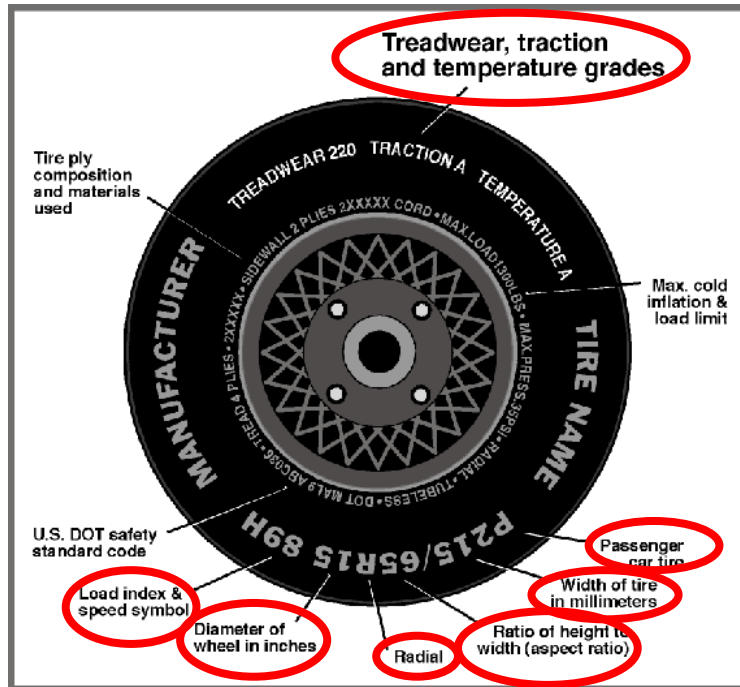
Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable	
						w/ Lever	w/ Knob
Front Seat	X					X	
Rear or Second Row				X	X		
Third Row Seat							

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
 Test Date: 7/31/2024

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	290	290
Recommended Tire Size	245/55R19	245/55R19
Tire Size on Vehicle	245/55R19	245/55R19
Tire Manufacturer	Michelin	Michelin
Tire Model	Primacy	Primacy
Treadwear	540	540
Traction	B	B
Temperature Grade	B	B
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 2 Steel, 1 Polyamide	2 Polyester, 2 Steel, 1 Polyamide
Load Index/Speed Symbol	103H	103H
Tire Material	Rubber	Rubber
DOT Safety Code Left	03LCH 01BX 0824	03LCH 01BX 0824
DOT Safety Code Right	03LCH 01BX 0824	03LCH 01BX 0724

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

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TEST VEHICLE TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	250	250	250	250
Tire Placard	kPa	290	290	290	290
Owner's Manual	kPa	290	290	290	290
As Tested	kPa	290	290	290	290

MDB TIRE SPECIFICATIONS

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

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	597.0	496.0		636.5	610.5		623.5	630.0	
Right	kg	568.0	514.5		581.0	607.0		564.5	622.5	
Ratio	%	53.6%	46.4%		50.0%	50.0%		48.7%	51.3%	
Totals	kg	1165.0	1010.5	2175.5	1217.5	1217.5	2435.0	1188.0	1252.5	2440.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	2175.5	(A)
Sum of Actual Weight of 2 P572 ATDs Used	kg	129	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	136	(C)
Calculated Test Vehicle Target Weight (TVTWT)	kg	2440.5	(A+B+C)

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

TEST VEHICLE ATTITUDES AND CG

	Units	Fully Loaded	As Tested	Meets Requirement*
Left Front	mm	810	807	Yes
Right Front	mm	807	806	Yes
Right Rear	mm	792	796	Yes
Left Rear	mm	789	785	Yes
Vehicle CG (Aft of Front Axle)	mm	1517	1478	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	22	20	

* ND=Nose Down (-), NU=Nose Up (+) ** LD=Left Down (-), LU=Left Up (+)

*** The "As Tested" vehicle attitude measurements must be equal to or within ± 10 mm of the "Fully Loaded" vehicle attitude measurements at each wheel well.

Test height adjustable suspension setting, if applicable:	Not Applicable
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DATA SHEET NO. 1 (CONTINUED)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
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WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Units	Weight
Weight of Ballast Added	kg	70
Components Removed: none	kg	

TEST SURFACE MARKINGS

	Units	Distance from 63° Impact Angle Line
Fore 25 mm Target	mm	953
Aft 25 mm Target	mm	953
Pre-Impact Angle Line	mm	100

Parallel Track Target	Units	X Location	Y Location
A	mm	0	0
B	mm	1520	3085
C	mm		
D	mm	3500	0

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
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SEAT POSITIONING

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

SCRL ANGLE RANGE

Seat	SCRL (°)		
	Max	Min	Mid
Driver Seat	19.9	11.5	15.7
Front Passenger Seat	15.8	11.7	13.8
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 SCR Height (mm)	SCR Height Position	SCR Height (mm)		
				Rear-Most	Mid	Forward- Most
Driver Seat	15.7	0	Max	67	67	67
			Mid	34	34	34
			Min	0	0	0
Front Passenger Seat	13.8	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
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: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
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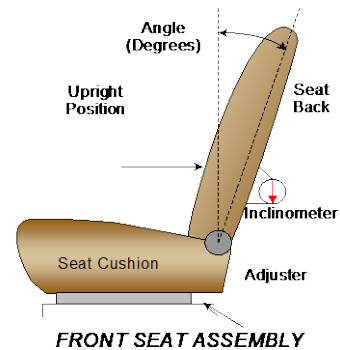
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SEAT FORE/AFT POSITIONS

Seat	Total Fore/Aft Travel		Test Position from Forward-Most Position	
	mm	Detents (1 st as 1)	mm	Detent (1 st as 0)
Driver Seat	260		130	
Front Passenger Seat	260	27	130	13
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 to the manufacturer's designated design angle. The front center and front passenger's seat backs are positioned in a similar manner as the driver's seat back. The struck side rear seat back is positioned such that the dummy's head is level. The rear center and non-struck side rear outboard seat backs are positioned in a similar manner as the struck-side rear seat back.



Seat	Total Seat Back Angle Range		Test Position from Vertical	
	Degrees	Detents (1 st as 1)	Degrees	Detent (1 st as 0)
Driver Seat	56.1		-13.2	
Front Passenger Seat	65.8	36	12.4	9
Front Center Seat				
Struck Side Rear Seat	Fixed		20.0	
Non-Struck Side Rear Seat	Fixed		20.0	
Rear Center Seat	Fixed		20.0	

Seat back angles measured on outboard headrest post.

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
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SEAT BELT ANCHORAGE ADJUSTMENT

Seat belt anchorages are adjusted in accordance with the information provided by the manufacturer on S1 - Vehicle Setup Information.

	Total # of Positions	Placed in Position #
Driver Seat	4	0 (Uppermost as 0)
Rear Seat	Fixed	

HEAD RESTRAINT ADJUSTMENT

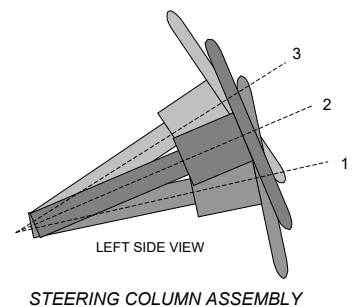
The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

	Total # of Positions	Placed in Position #
Driver Seat	4	3 (Lowest as 0) / Fixed Fore-Aft
Rear Seat	2	0 (Lowest as 0) / Fixed Fore-Aft

STEERING COLUMN ADJUSTMENT

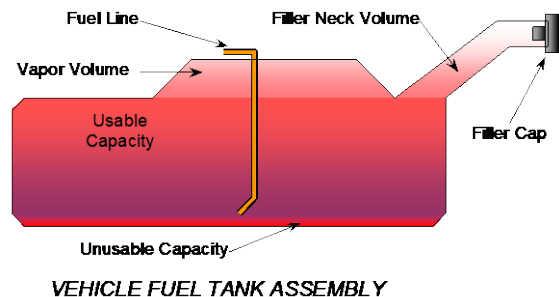
Steering wheel and column adjustments are made so that the steering wheel hub is at the center of its geometric locus it describes when it moves through its full range of motion.

	Wheel Angle (°)	Fore/Aft Position (mm)
Lowermost, Position 1	70.5	
Geometric Center, Position 2	68.5	
Uppermost, Position 3	66.4	
Telescoping Steering Wheel Travel		45
Test Position	68.5	23



FUEL PUMP

Electric Vehicle.



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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
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FUEL TANK CAPACITY DATA

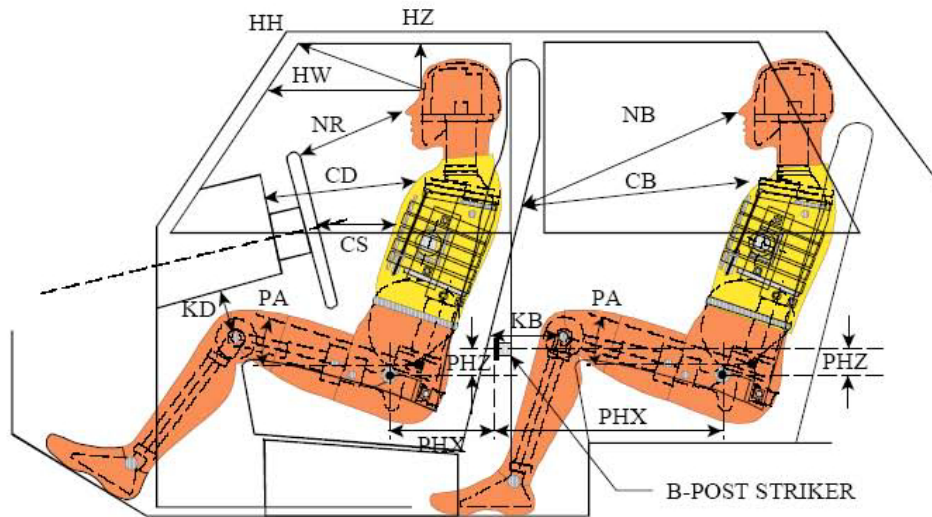
	Liters
Usable Capacity of Standard Tank (see S1 - Vehicle Setup Information)	
Usable Capacity of Optional Tank (see S1 - Vehicle Setup Information)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	
Actual Amount of Solvent Used	
1/3 of Usable Capacity	

Is the actual amount of solvent used in the test equal to $93\% \pm 1\%$
 of the Usable Capacity stated in S1 - Vehicle Setup Information? **N/A**

DATA SHEET NO. 3 DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024



LEFT SIDE VIEW

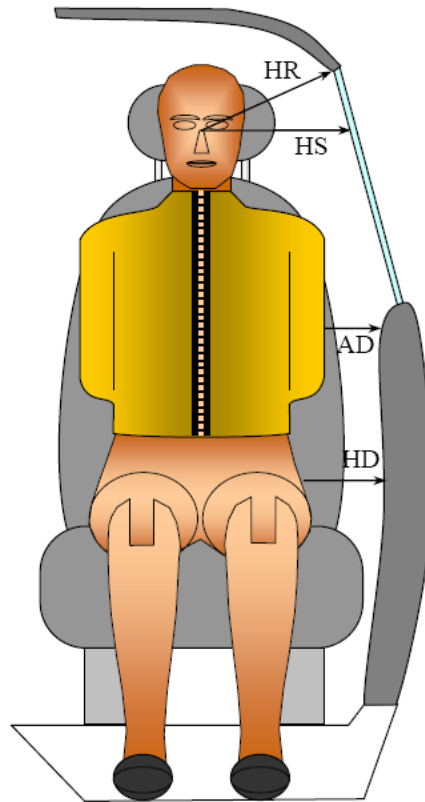
NOTE: 2-DOOR VEHICLE SHOWN.
REAR DUMMY PHX & PHZ
MEASUREMENTS FOR A 4-DOOR
VEHICLE WOULD USE THE C-POST
STRIKER AS A REFERENCE POINT

Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length (mm)	Angle (°)	Length (mm)	Angle (°)
HH		Head to Header	437	19.7		
HW		Head to Windshield	821	0		
HZ	HZ	Head to Roof Liner	191	90	298	90
NR	NB	Nose to Rim/Seat Back	464	8.5	581	12.5
CD	CB	Chest to Dashboard/Seat Back	667	7.4	589	0.8
CS		Chest to Steering Wheel	399	5.7		
KDL	KBL	Left Knee to Dash/Seat Back	233	29.0	308	26.1
KDR	KBR	Right Knee to Dash/Seat Back	221	29.0	310	21.4
PAX	PAX	Pelvic Tilt Angle X		24.3		26.9
PAY	PAY	Pelvic Tilt Angle Y		-0.4		-0.5
PHX	PHX	Hip Point to Striker (X-Axis)	178		201	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	165		222	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
 Test Date: 7/31/2024

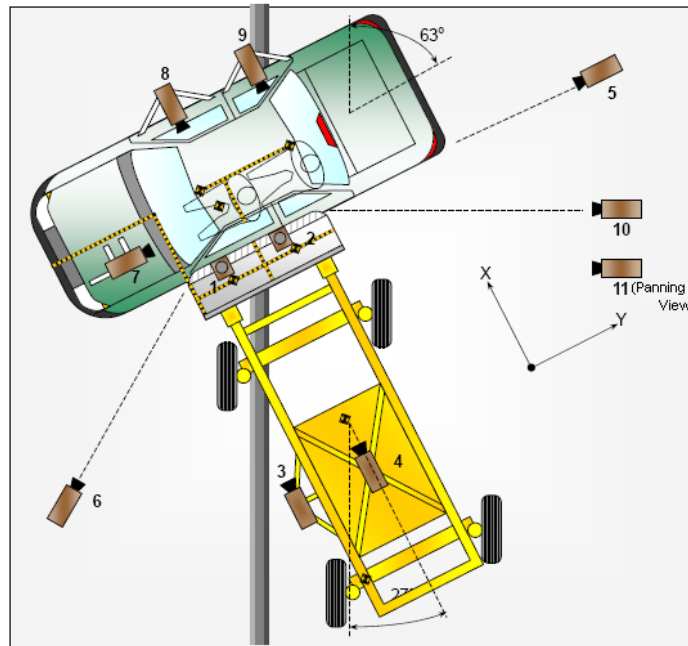


Code	Measurement Description	Driver	Passenger
		Length (mm)	
HR	Head to Side Header	202	292
HS	Head to Side Window	341	356
AD	Arm to Door	111	153
HD	Hip Point to Door	174	154

DATA SHEET NO. 5 CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024



CAMERA LOCATIONS AND DATA

No.	Camera View	Coordinates* (mm)			Lens (mm)	Frame Rate (fps)
		X	Y	Z		
1	Overhead Overall	595	500	-4995	8.5	1000
2	Overhead Close-Up	0	0	-4895	20	1000
3	Left Impact Point (MDB)				50	1000
4	Side Overall (MDB)				16	1000
5	Rear	-35	7290	-1500	24	1000
6	Left Front	-1545	-5180	-1530	24	1000
7	Driver Front (OB)				16	1000
8	Driver Side (OB)				8	1000
9	Passenger Side (OB)				8	1000
10	Real Time Left Rear					30
11	Real Time Inrun					30

Reference: Impact Point projected to Ground; +X = To Front of MDB, + Y = To Right of MDB, +Z = Down

*All measurements accurate to ± 6 mm

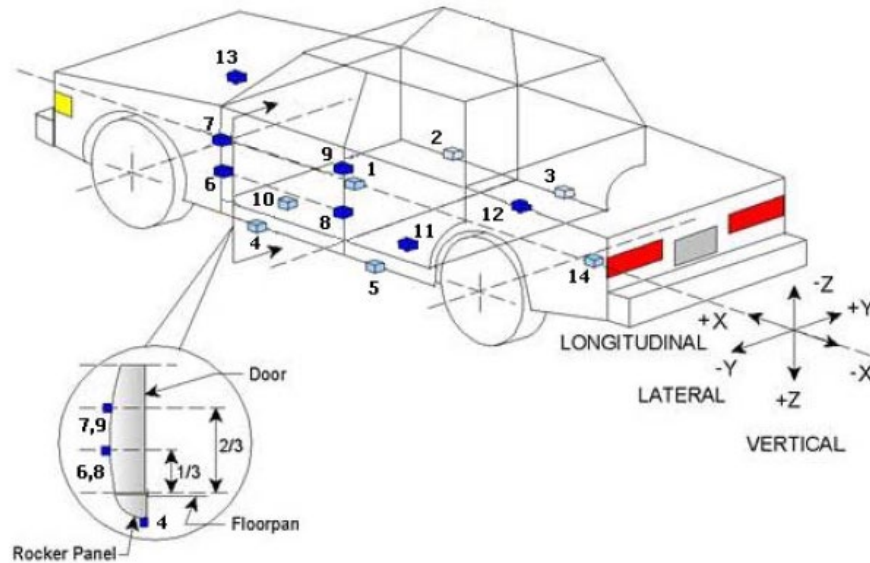
INSTRUMENTATION

	Number of Channels
Driver Dummy	16
Passenger Dummy	19
Vehicle Structure	21
MDB Accelerometers	5
Total	61

DATA SHEET NO. 6
TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024



TEST VEHICLE ACCELEROMETER LOCATIONS

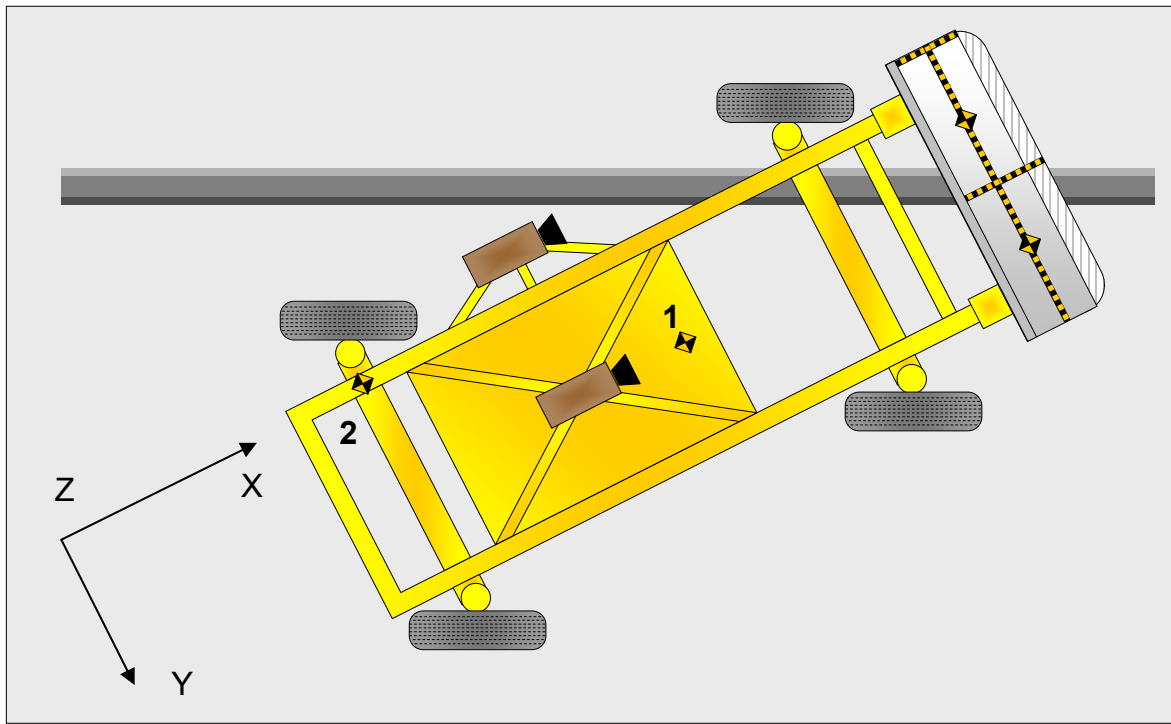
No.	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2438	4	-161
2	Right Sill at Front Seat	2781	791	-213
3	Right Sill at Rear Seat	1699	791	-212
4	Left Sill at Front Door	2785	-793	-212
5	Left Sill at Rear Door	1700	-791	-207
6	Left Lower A-Post	3339	-875	-560
7	Left Middle A-Post	3357	-860	-843
8	Left Lower B-Post			
9	Left Middle B-Post			
10	Front Seat Track	2385	-385	-389
11	Rear Seat Structure	1794	-339	-413
12	Rt. Rear Occ. Compartment	1790	337	-432
13	Engine Block	4143	-22	-814
14	Rear Above Axle	954	-1	-548

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

DATA SHEET NO. 7 **MDB ACCELEROMETER LOCATIONS**

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
 Test Date: 7/31/2024



MDB ACCELEROMETER LOCATIONS

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

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

Width between left and right MDB contact switches	mm	1403
---	----	------

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	Curtain Airbag	Curtain Airbag
Top of Head	Curtain Airbag, Headliner	Curtain Airbag, Center Headrest
Left Side of Head	Curtain Airbag	Curtain Airbag
Back of Head	Curtain Airbag, Headrest	Curtain Airbag, Center Headrest
Left Shoulder	None	Seatback, Door Panel
Upper Torso	Side Torso/Pelvis Airbag, Seatback	Seatback
Lower Torso	Side Torso/Pelvis Airbag, Seatback	Seatback, Door Panel
Left Hip	Side Torso/Pelvis Airbag, Seat Cushion	Seat Cushion, Door Panel
Left Knee	Door Panel	Door Panel

POST-TEST DOOR PERFORMANCE

Description	Struck Side		Non-Struck Side		Rear Hatch
	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	36.6°	No	No	No
Seat Back Collapse	No	No	No	No

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No
Sill Separation	No
Windshield Damage	No
Side Window Damage	LR window broken
Other Notable Effects	Driver seatback reclined after test

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

IMPACT POINT LOCATION DATA

Measured Parameter	Units	Tolerance	Value
Vehicle Wheelbase	mm		2955
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		508
Actual Impact Point (Aft of Front Axle)	mm		501
Horizontal Offset (+forward / -rearward)	mm	+/- 50 of intended impact point	7
Vertical Offset (+down / -up)	mm	+/- 20 of intended impact point	1

DATA SHEET NO. 9
MDB SUMMARY OF RESULTS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1250
Overall Length Including Honeycomb Face	4119
Wheelbase of Framework Carriage	2591
CG Location aft of Front Axle	1127

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	368.2	320.6	
Right	kg	400.7	271.4	
Ratio	%	56.5	43.5	
Totals	kg	768.9	592.0	1360.9

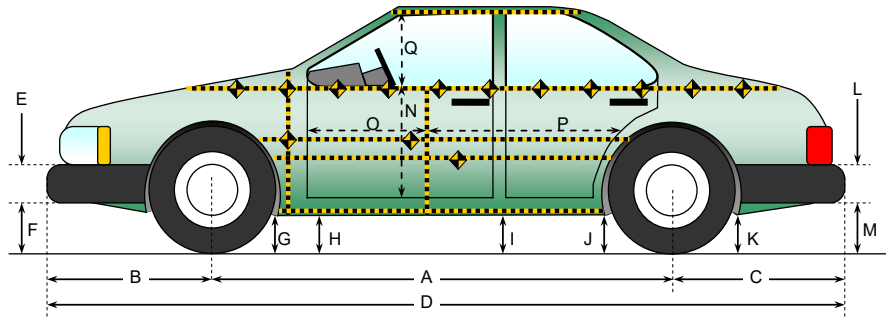
SPEED AND ANGLE AT IMPACT DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.04
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.26
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	90.2
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	63.0
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26 to 28	26.6

DATA SHEET NO. 10
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024



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

LEFT SIDE VIEW

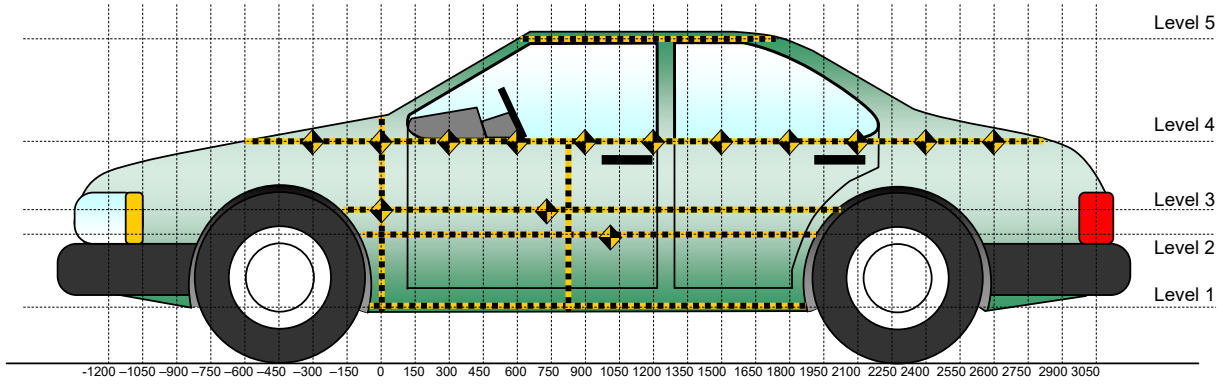
VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Change
A	Wheelbase	2955	2961	6
B	Front Axle to FSOV	908	896	-12
C	Rear Axle to RSOV	977	989	12
D	Total Length at Centerline	4840	4846	6
E	Front Bumper Thickness	125	124	-1
F	Front Bumper Bottom to Ground	461	472	11
G	Sill Height at Front Wheel Well	208	211	3
H	Sill Height at Front Door Leading Edge	213	220	7
I	Sill Height at B Pillar	208	180	-28
J1	Sill Height at Rear Wheel Well	201	206	5
J2	Pinch Weld Height at Rear Wheel Well	207	208	1
K	Sill Height Aft of Rear Wheel Well	226	230	4
L	Rear Bumper Thickness	79	75	-4
M	Rear Bumper Bottom to Ground	452	451	-1
N	Sill Height to Window Bottom Sill	643	622	-21
O	Front Door Leading Edge to Impact CL	837	824	-13
P	Rear Door Trailing Edge to Impact CL	1163	1145	-18
Q	Front Window Opening	385	393	8
R	Right Side Length	4303	4304	1
S	Left Side Length	4306	4312	6
T	Vehicle Width at B Post	1879	1558	-321
U	Front Wheel Track Width	1613		
V	Rear Wheel Track Width	1607		

DATA SHEET NO. 11 **TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS**

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024



All Measurements Shown in mm

LEFT SIDE VIEW

MAXIMUM EXTERIOR CRUSH MEAUREMENTS

Level	Measurement Description	Height Above Ground	Maximum Exterior Static Crush	Distance from Impact
1	Sill Top	477	132	1650
2	Occupant H-Point	648	186	1500
3	Mid Door	674	194	1500
4	Window Sill	1072	69	1650
5	Window Top	1511	-1	900

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

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
 Test Date: 7/31/2024

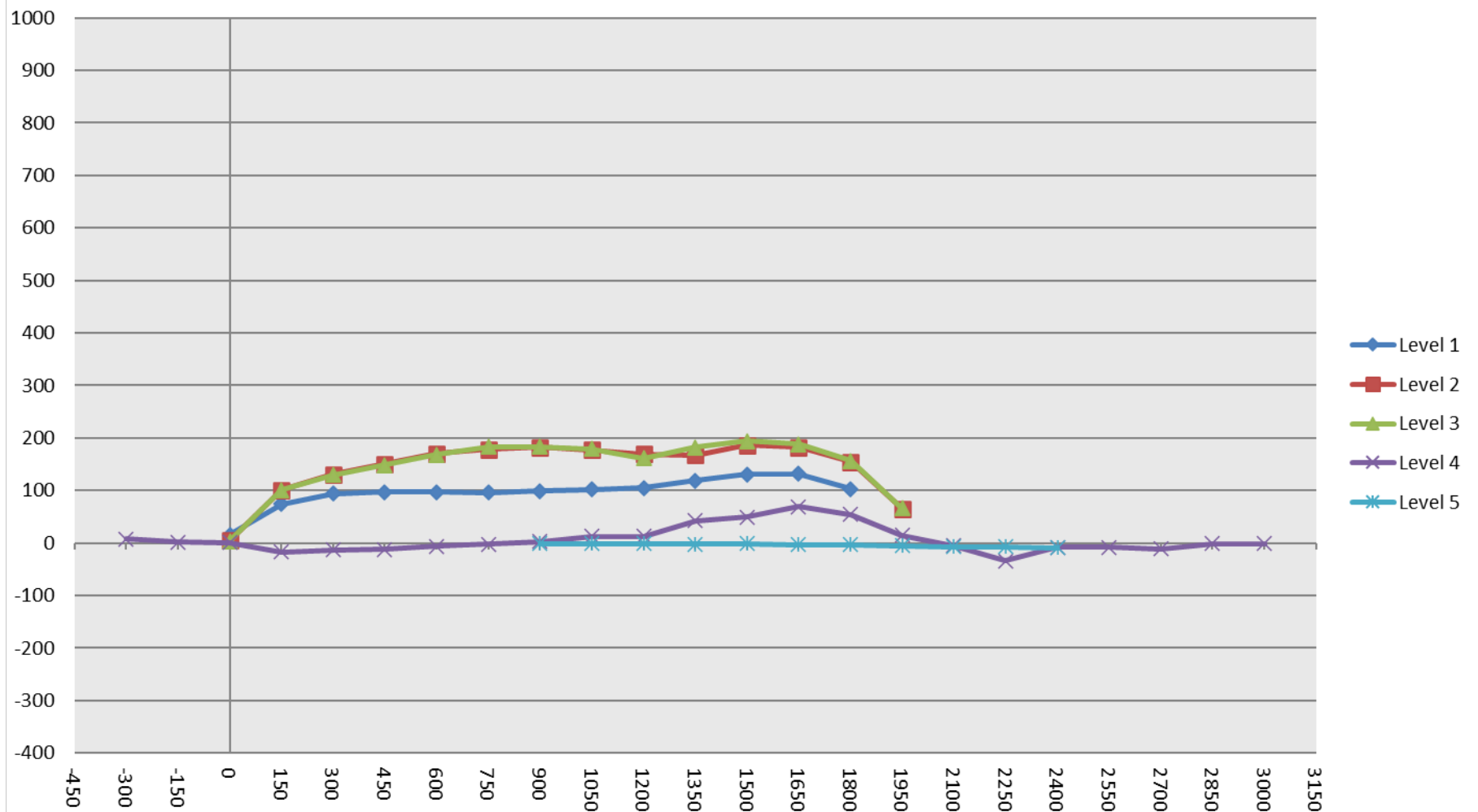
	Pre-Test					Post-Test					Exterior Crush				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-2100															
-1950															
-1800															
-1650															
-1500															
-1350															
-1200															
-1050															
-900															
-750															
-600															
-450															
-300				822					814					8	
-150				833					831					2	
0	944	954	954	843		928	949	950	842		16	5	4	1	
150	935	945	945	847		861	844	844	864		74	101	101	-17	
300	926	941	940	854		832	810	810	867		94	131	130	-13	
450	923	941	940	858		826	790	791	870		97	151	149	-12	
600	924	943	941	863		827	773	773	869		97	170	168	-6	
750	923	943	941	864		827	765	758	866		96	178	183	-2	
900	922	944	941	865	646	823	762	758	862	647	99	182	183	3	-1
1050	921	944	941	866	650	819	767	762	853	651	102	177	179	13	-1
1200	921	942	940	866	651	816	773	779	853	652	105	169	161	13	-1
1350	918	939	936	863	650	799	772	754	821	652	119	167	182	42	-2
1500	914	936	933	861	648	783	750	739	812	649	131	186	194	49	-1
1650	917	934	932	855	643	785	752	744	786	646	132	182	188	69	-3
1800	938	938	938	851	637	835	784	782	797	640	103	154	156	54	-3
1950		950	949	847	629		885	883	832	634		65	66	15	-5
2100				857	618				862	625				-5	-7
2250				865	603				899	610				-34	-7
2400				872	578				880	587				-8	-9
2550				867					875					-8	
2700				853					864					-11	
2850				832					833					-1	
3000				807					808					-1	
3150															
3300															
3450															
3600															
3750															
3900															

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

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

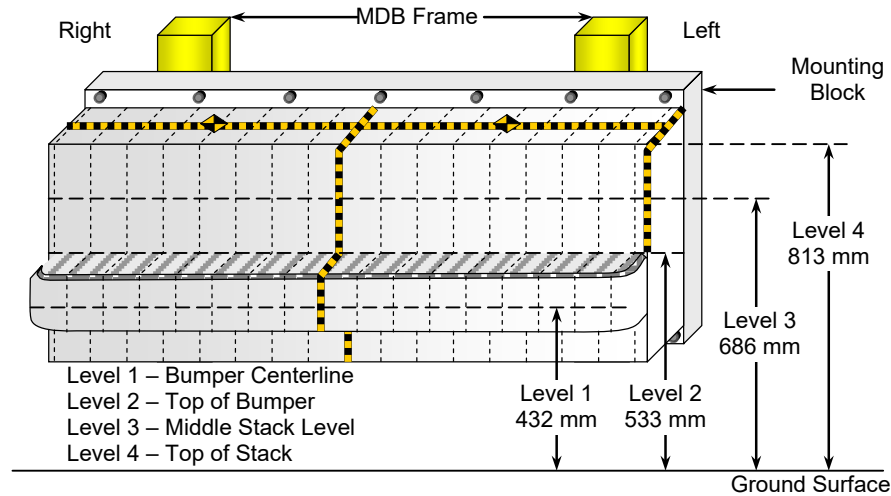
NHTSA No.: M20240112
Test Date: 7/31/2024



DATA SHEET NO. 12
MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
 Test Date: 7/31/2024



FRONT VIEW

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

Vertical Location			From Centerline		Maximum Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	800	Left	307
B	Top of Bumper	533	800	Left	229
C	Mid-Level	686	800	Left	191
D	Top of Stack	813	800	Left	232

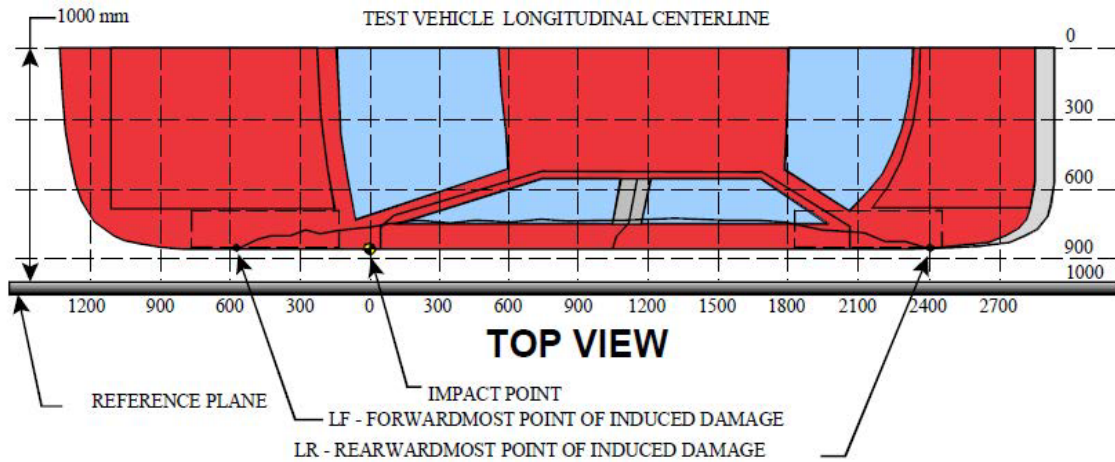
DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center (mm)								C _L	Distance Left of Center (mm)							
	800	700	600	500	400	300	200	100		100	200	300	400	500	600	700	800
4	100	81	83	99	139	155	144	120	100	88	106	122	126	129	141	174	232
3	113	94	89	90	100	101	95	84	81	80	84	90	101	115	131	153	191
2	193	190	177	179	190	207	194	183	183	189	195	197	200	202	205	213	229
1	295	299	298	300	303	304	303	299	293	289	288	289	290	292	296	302	307

DATA SHEET NO. 13
VEHICLE AND MDB DAMAGE PROFILE DISTANCES

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
 Test Date: 7/31/2024



VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Max. Static Crush (mm)
1	1950	3	117	51	66
2	420	3	205	60	145
3	858	3	245	59	186
4	1245	3	229	61	168
5	1671	3	253	67	186
6	0	3	50	46	4

MDB DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Max. Static Crush (mm)
1	800 mm right of center	1	771	476	295
2	480 mm right of center	1	765	463	302
3	160 mm right of center	1	764	463	301
4	160 mm left of center	1	748	463	285
5	480 mm left of center	1	760	463	297
6	800 mm left of center	1	783	476	307

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

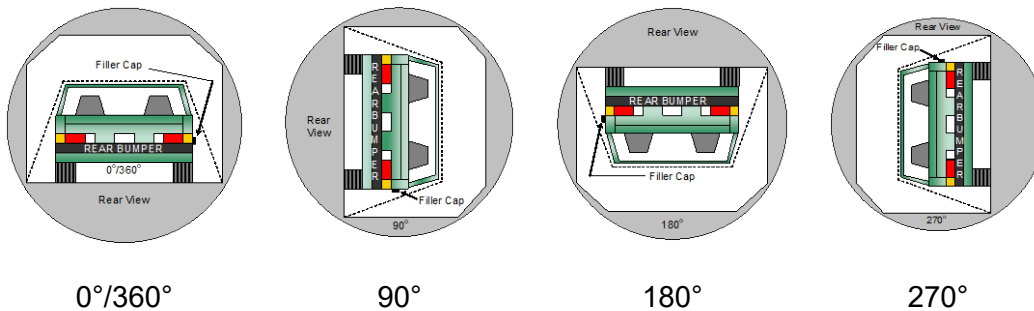
NHTSA No.: M20240112
 Test Date: 7/31/2024

Test Time: 11:31 am

Temperature: 22.1°C

- A. From impact until vehicle motion ceases: (Maximum Allowable = 1 ounce) N/A oz.
 B. For the 5 minute period after motion ceases: (Maximum Allowable = 5 ounces) N/A oz.
 C. For the following 25 minutes: (Maximum Allowable = 1 ounce / minute) N/A
 D. Spillage Details: N/A

FMVSS 301 STATIC ROLLOVER DATA



ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°			
90° to 180°			
180° to 270°			
270° to 360°			

FMVSS 301 ROLLOVER SPILLAGE TABLE (UNITS IN OUNCES)

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

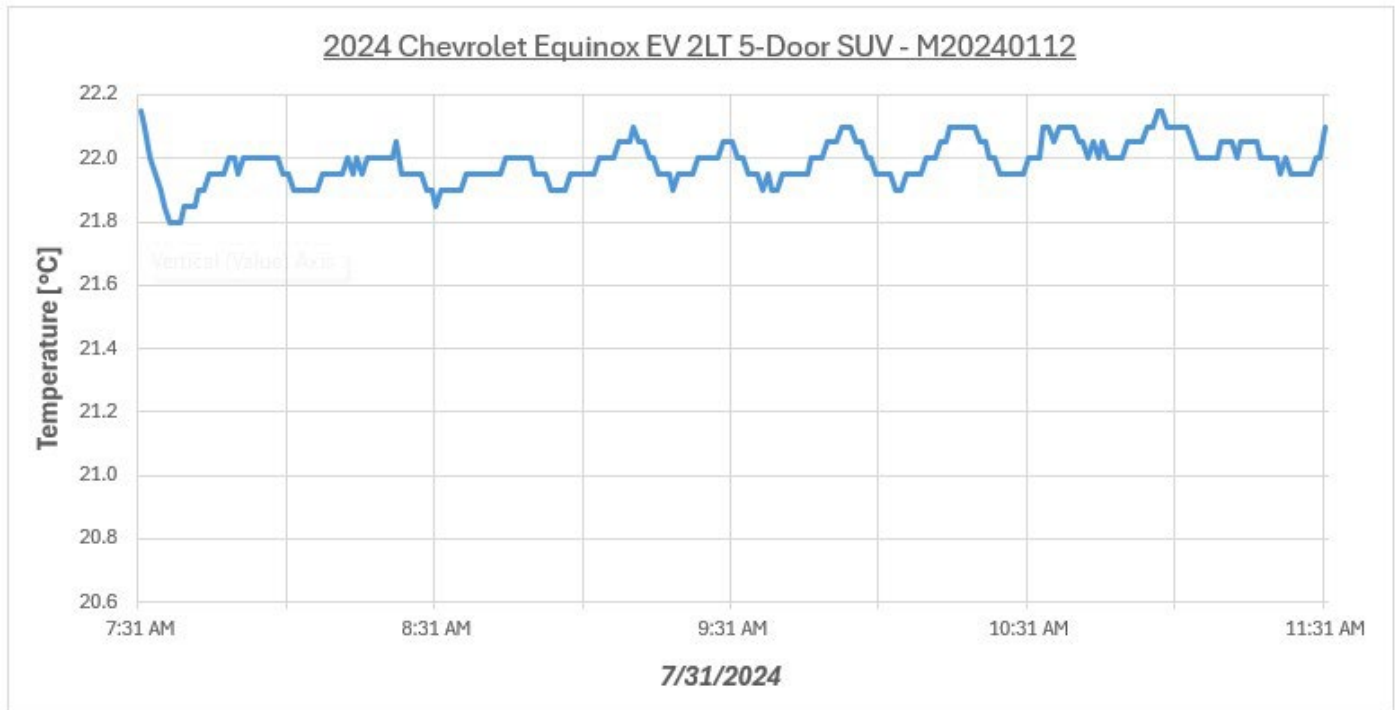
ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 15
DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION DATA

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024



Serial #	Description	Maximum	Average	Minimum	Units
W2425691	VSC North Hall - Temp (3016)	22.15	21.99	21.80	°C

DATA SHEET NO. 305-1
GENERAL TEST AND VEHICLE PARAMETER DATA
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024

ELECTRIC VEHICLE PROPULSION SYSTEM

	Units	Observations and Conclusions
Type of Electric Vehicle		All-Electric Vehicle
Propulsion Battery Type		High Voltage Li-ion Propulsion Battery Pack
Nominal Voltage	V	335
Physical Location of Automatic Propulsion Battery Disconnect		Internal to the Propulsion Battery Pack
Auxiliary Battery Type		AGM 12V battery, Underhood Left-hand Side

PROPULSION BATTERY SYSTEM DATA

	Units	Observations and Conclusions
Electrolyte Fluid Type		Newtonian Fluid
Electrolyte Fluid Specific Gravity	g/cm ³	1.203
Electrolyte Fluid Kinematic Viscosity	m ² /s	3.9235x10 ⁻⁶
Electrolyte Fluid Color		Transparent
Propulsion Battery Coolant Type, Color, Specific Gravity (if applicable)		DEX COOL Premix 50/50 Coolant, Orange
Location of Battery Modules		Inside Passenger Compartment
	X	Outside Passenger Compartment
		The high-voltage battery is located on the underside of the vehicle.

PROPULSION BATTERY STATE OF CHARGE

<i>For all battery types:</i>	
Voltage range corresponding to useable energy of the battery:	
Minimum State of Charge	
Maximum State of Charge	335 V
95% of Maximum State of Charge	301.5 V
Test Voltage - No less than 95% of maximum State of Charge	329.7 V
<i>For batteries that are rechargeable ONLY by an energy source on the vehicle:</i>	
Voltage range corresponding to useable energy of the battery:	
Minimum State of Charge	
Maximum State of Charge	
Test Voltage – Maximum practicable State of Charge within Normal Operating Range	

**DATA SHEET NO. 305-2
PRE-IMPACT DATA
FOR INDICANT FMVSS NO. 305 TESTING**

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024

VEHICLE CHASSIS GROUND POINT(S) LOCATION(S)

Details of Vehicle Chassis Ground Point(s) & Location(s)	Stud near battery front.
---	--------------------------

PROPULSION BATTERY SYSTEM

Details of Electric Energy Storage/Conversion System Test Points	Front right hand side harness at battery
Additional Comments	None

DATA SHEET NO. 305-3
PRE-IMPACT ELECTRICAL ISOLATION MEASUREMENTS AND CALCULATIONS
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
 Test Date: 7/31/2024

VOLTMETER INFORMATION

	Units	Observations and Conclusions
Make		Fluke
Model		177
Serial Number		61660495
Internal Impedance Value	MΩ	> 10 MΩ < 100 pF
Resolution	V	0.001
Last Calibration Date		2/14/2024

PROPULSION BATTERY VOLTAGE

Measurement shall be made with Energy Storage/Conversion System connected to the vehicle propulsion system, and the vehicle in the “ready-to-drive” (propulsion system energized) position.
NOTE: If voltage measurement is not at the voltage or within the normal operating voltage range specified by the manufacturer, the battery must be charged.

Vb	V	329.7
----	---	-------

ELECTRIC ISOLATION MEASUREMENTS
PROPULSION BATTERY TO VEHICLE CHASSIS

Vehicle chassis point(s) determined and supplied to contractor by COR.
--

V1	V	99.8
V2	V	208.3

PROPULSION BATTERY TO VEHICLE CHASSIS ACROSS RESISTOR

The known resistance Ro (in ohms) should be approximately 500 times the normal operating voltage of the vehicle (in volts) per SAE J1766.

Ro	Ω	226,100
----	---	---------

V1' Pre-Impact	V	24.0
V2' Pre-Impact	V	58.3

DATA SHEET NO. 305-3 (CONTINUED)
PRE-IMPACT ELECTRICAL ISOLATION MEASUREMENTS AND CALCULATIONS
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
 Test Date: 7/31/2024

ELECTRICAL ISOLATION CALCULATIONS

NOTE: If measured voltage is zero and results in a division by zero, record "Zero Volts".
 This "zero voltage" condition is considered as being compliant.

$R_{i1} = R_o (1 + V_2/V_1) [(V_1 - V_1')/V_1']$		
Ri1 Pre-Impact	Ω	2,204,549
$R_{i2} = R_o (1 + V_1/V_2) [(V_2 - V_2')/V_2']$		
Ri2 Pre-Impact	Ω	860,450
$R_i = \text{The lesser of } R_{i1} \text{ and } R_{i2}$		
Ri Pre-Impact	Ω	860,450
$R_i / V_b = \text{Electrical Isolation Value} / \text{Nominal Battery Voltage}$		
Ri / Vb Pre-Impact	Ω	2,610

NOTE: The minimum Electrical Isolation Value is 500 Ω/V .

	Yes	No (Fail)
Is the measured Electrical Isolation Value $\geq 500 \Omega/V$?	X	
Additional Comments	None	

DATA SHEET NO. 305-4
POST-IMPACT DATA
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024

VOLTMETER INFORMATION

	Units	Observations and Conclusions
Make		Fluke
Model		177
Serial Number		61660495
Internal Impedance Value	MΩ	> 10 MΩ < 100 pF
Resolution	V	0.001
Last Calibration Date		2/14/2024

ELECTRICAL ISOLATION MEASUREMENTS

Vb Post-Impact	V	4.30
----------------	---	------

V1 Post-Impact	V	0.31	Impact Time	2	Minutes	11	Seconds
V2 Post-Impact	V	4.31		2	Minutes	15	Seconds
V1' Post-Impact	V	0.05		2	Minutes	26	Seconds
V2' Post-Impact	V	0.73		2	Minutes	21	Seconds

DATA SHEET NO. 305-4 (CONTINUED)
POST-IMPACT DATA
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
 Test Date: 7/31/2024

ELECTRICAL ISOLATION CALCULATIONS

NOTE: If measured voltage is zero and results in a division by zero, record "Zero Volts".
 This "zero voltage" condition is considered as being compliant.

$R_{i1} = R_o (1 + V_2/V_1) [(V_1 - V_1')/V_1']$							
Ri1 Post-Impact	Ω	17,522,021	Impact Time	2	Minutes	26	Seconds
$R_{i2} = R_o (1 + V_1/V_2) [(V_2 - V_2')/V_2']$							
Ri2 Post-Impact	Ω	1,188,572	Impact Time	2	Minutes	21	Seconds
$R_i = \text{The lesser of } R_{i1} \text{ and } R_{i2}$							
Ri Post-Impact	Ω	1,188,572	Impact Time	2	Minutes	21	Seconds
$R_i / V_b = \text{Electrical Isolation Value} / \text{Nominal Battery Voltage}$							
Ri / Vb Post-Impact	Ω	276,412	Impact Time	2	Minutes	21	Seconds

NOTE: The minimum Electrical Isolation Value is 500 Ω/V.

	Yes	No (Fail)
Is the measured Electrical Isolation Value $\geq 500 \Omega/V$?	X	
Additional Comments	None	

DATA SHEET NO. 305-4 (CONTINUED)
POST-IMPACT DATA
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024

PROPULSION BATTERY SYSTEM COMPONENTS

Describe any Propulsion Battery Module movement within the passenger compartment [Supply photographs as appropriate]:
Not Applicable

	Yes (Fail)	No
Has the Propulsion Battery Module moved within the passenger compartment?		X

Describe intrusion of an outside Propulsion Battery Component into the passenger compartment [Supply photographs as appropriate]:
No Intrusion

	Yes (Fail)	No
Has an outside Propulsion Battery Component intruded into the passenger compartment?		X

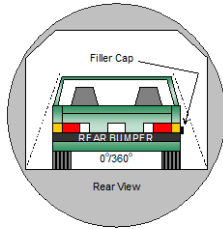
	Yes (Fail)	No
Is the Propulsion Battery Electrolyte Spillage visible in the passenger compartment?		X

DATA SHEET NO. 305-5
STATIC ROLLOVER TEST DATA
FOR INDICANT FMVSS NO. 305 TESTING

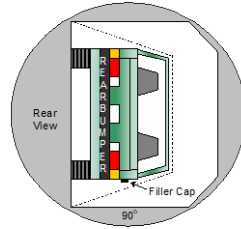
Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
 Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
 Test Date: 7/31/2024

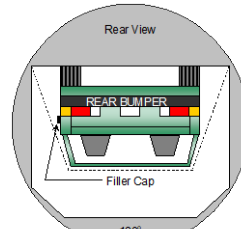
PROPULSION BATTERY SYSTEM COMPONENTS



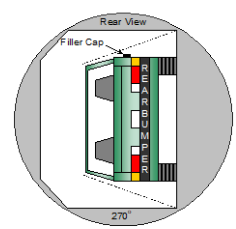
0°/360°



90°



180°



270°

PROPULSION BATTERY ELECTROLYTE COLLECTION TIME PERIOD

Test Phase	Rotation Time (spec. 1-3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	1	min	52	sec	5	min	6	min	52	sec	7	min
90° - 180°	1	min	50	sec	5	min	6	min	50	sec	7	min
180° - 270°	1	min	46	sec	5	min	6	min	46	sec	7	min
270° - 360°	1	min	50	sec	5	min	6	min	50	sec	7	min

TEST VEHICLE PROPULSION BATTERY ELECTROLYTE SPILLAGE

NOTE: The maximum allowable Propulsion Battery Electrolyte Spillage is 5.0 Liters.

Test Phase	Propulsion Battery Electrolyte Spillage (L)	Spillage Location
0° to 90°	0	Not Applicable
90° to 180°	0	Not Applicable
180° to 270°	0	Not Applicable
270° to 360°	0	Not Applicable
Total Spillage	0	

	Yes (Fail)	No
Is the total Propulsion Battery Electrolyte Spillage greater than 5.0 Liters?		X
Is the Propulsion Battery Electrolyte Spillage visible in the passenger compartment?		X

DATA SHEET NO. 305-5 (CONTINUED)
STATIC ROLLOVER TEST DATA
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024

VOLTMETER INFORMATION

	Units	Observations and Conclusions
Make		Fluke
Model		177
Serial Number		61660495
Internal Impedance Value	MΩ	> 10 MΩ < 100 pF
Resolution	V	0.001
Last Calibration Date		2/14/2024

ELECTRICAL ISOLATION MEASUREMENTS

Vb Post-Impact	V	0.87
----------------	---	------

Record V1, V2, V1', V2' voltage measurements at the start of each successive increment of 90°, 180°, 270°, and 360° of the static rollover test.

	Voltage	Units	Test Phase	Time			
V1	0.26	V	0°		min		sec
	0.00		90°	2		15	
	0.00		180°	3		13	
	0.00		270°	2		25	
	0.00		360°	3		14	
V2	0.23	V	0°		min		sec
	0.00		90°	2		18	
	0.00		180°	3		19	
	0.00		270°	2		28	
	0.00		360°	3		18	
V1'	0.01	V	0°		min		sec
	0.00		90°	2		27	
	0.00		180°	3		28	
	0.00		270°	2		39	
	0.00		360°	3		29	
V2'	0.02	V	0°		min		sec
	0.00		90°	2		22	
	0.00		180°	3		24	
	0.00		270°	2		33	
	0.00		360°	3		21	

DATA SHEET NO. 305-5 (CONTINUED)
STATIC ROLLOVER TEST DATA
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2024 Chevrolet Equinox EV 2LT 5-Door SUV
Test Program: NCAP Side MDB Impact Test

NHTSA No.: M20240112
Test Date: 7/31/2024

ELECTRICAL ISOLATION CALCULATIONS

NOTE: If measured voltage is zero and results in a division by zero, record "Zero Volts".
This "zero voltage" condition is considered as being compliant.

	Voltage	Units	Test Phase	Time			
Ri1 = Ro (1 + V2/V1) [(V1-V1')/V1']							
Ri1	10,652,788	Ω	0°		min		sec
	Zero Volts		90°	2		27	
	Zero Volts		180°	3		28	
	Zero Volts		270°	2		39	
	Zero Volts		360°	3		29	
Ri2 = Ro (1 + V1/V2) [(V2-V2')/V2']							
Ri2	5,057,759	Ω	0°		min		sec
	Zero Volts		90°	2		22	
	Zero Volts		180°	3		24	
	Zero Volts		270°	2		33	
	Zero Volts		360°	3		21	
Ri = The lesser of Ri1 and Ri2							
Ri	5,057,759	Ω	0°		min		sec
	Zero Volts		90°	2		22	
	Zero Volts		180°	3		24	
	Zero Volts		270°	2		33	
	Zero Volts		360°	3		21	
Ri / Vb = Electrical Isolation Value / Nominal Battery Voltage							
Ri / Vb	5,813,516	Ω/V	0°		min		sec
	Zero Volts		90°	2		22	
	Zero Volts		180°	3		24	
	Zero Volts		270°	2		33	
	Zero Volts		360°	3		21	

NOTE: The minimum Electrical Isolation Value is 500 Ω/V .

	Yes	No (Fail)
Is the measured Electrical Isolation Value $\geq 500 \Omega/V$?	X	
Additional Comments	None	

APPENDIX A
PHOTOGRAPHS

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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 Three-Quarter Rear View of Test Vehicle



Photo No. 010 - Post-Test Left Three-Quarter Rear 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

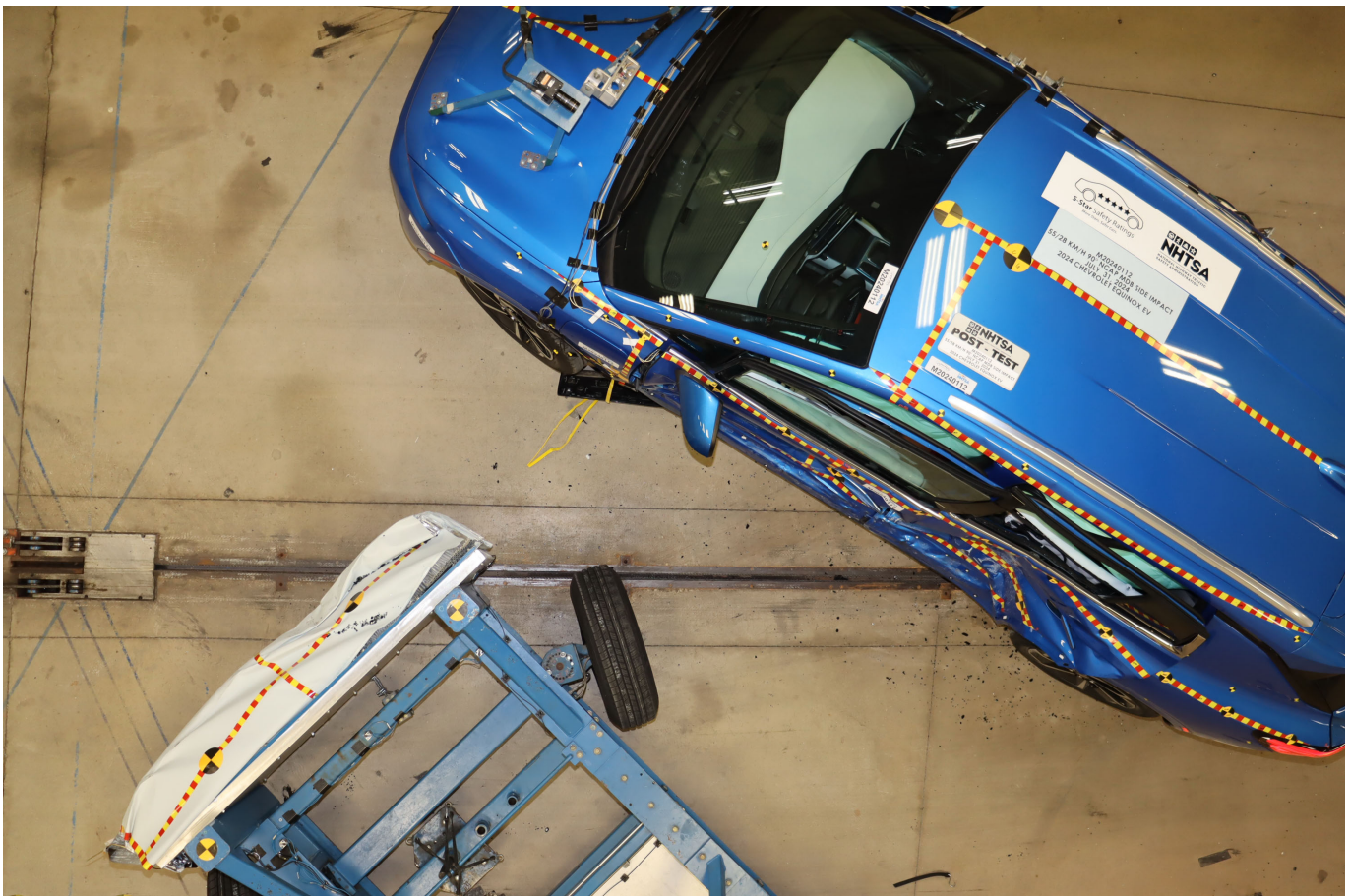


Photo No. 016 - Post-Test Overhead View of Test Area



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



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



Photo No. 021 - Pre-Test Left Front Door Latch Close-Up



Photo No. 022 - Post-Test Left Front Door Latch Close-Up



Photo No. 023 - Pre-Test Left Rear Door Latch Close-Up



Photo No. 024 - Post-Test Left Rear Door Latch Close-Up



Photo No. 025 - Pre-Test Front Close-Up View of Driver Dummy



Photo No. 026 - Post-Test Front Close-Up View of Driver Dummy



Photo No. 027 - Pre-Test Left Side View of Driver Dummy Showing Belt and Chalking



Photo No. 028 - Pre-Test Left Side View of Driver Dummy Shoulder and Door Top View



Photo No. 029 - Post-Test Left Side View of Driver Dummy Shoulder and Door Top View



Photo No. 030 - Pre-Test Frontal View of Driver Seat Back Prior to Dummy Positioning



Photo No. 031 - Pre-Test Frontal View of Driver Dummy Head and Shoulders in Relation to Head Restraint



Photo No. 032 - Pre-Test Frontal View of Driver Seat Pan Prior to Dummy Positioning



Photo No. 033 - Pre-Test Overhead View of Driver Dummy Thighs on Seat Pan



Photo No. 034 - Pre-Test Placement of Driver Dummy's Feet



Photo No. 035 - Pre-Test View of Belt Anchorage for Driver Dummy



Photo No. 036 - Pre-Test Left Side View of Steering Wheel



Photo No. 037 - Pre-Test View of Disengaged Parking Brake



Photo No. 038 - Pre-Test View of Parking Brake



Photo No. 039 - Pre-Test Close-Up Left Side View of Driver Seat Track



Photo No. 040 - Pre-Test Close-Up Left Side View of Driver Seat Back



Photo No. 041 - Pre-Test Close-Up View of Driver Seat Back or Head Restraint



Photo No. 042 - Pre-Test Driver Dummy and Door Clearance View



Photo No. 043 - Post-Test Driver Dummy and Door Clearance View



Photo No. 044 - Pre-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



Photo No. 045 - Post-Test Right Side View of Driver Dummy and Front Seat of Occupant Compartment



Photo No. 046 - Pre-Test Driver Inner Door Panel View



Photo No. 047 - Post-Test Driver Inner Door Panel View



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



Photo No. 049 - Post-Test Driver Dummy Close-Up Head Contact with Side Airbag View



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



Photo No. 051 - Post-Test Driver Dummy Close-Up Torso Contact with Side Airbag View



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



Photo No. 053 - Post-Test Driver Dummy Close-Up Pelvis Contact with Side Airbag View



Photo No. 054 - Post-Test Driver Dummy Close-Up Knee Contact View



Photo No. 055 - Pre-Test Left Side View of Rear Passenger Dummy Showing Belt and Chalking



Photo No. 056 - Pre-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View



Photo No. 057 - Post-Test Left Side View of Rear Passenger Dummy Shoulder and Door Top View



Photo No. 058 - Pre-Test Frontal View of Rear Passenger Seat Back Prior to Dummy Positioning

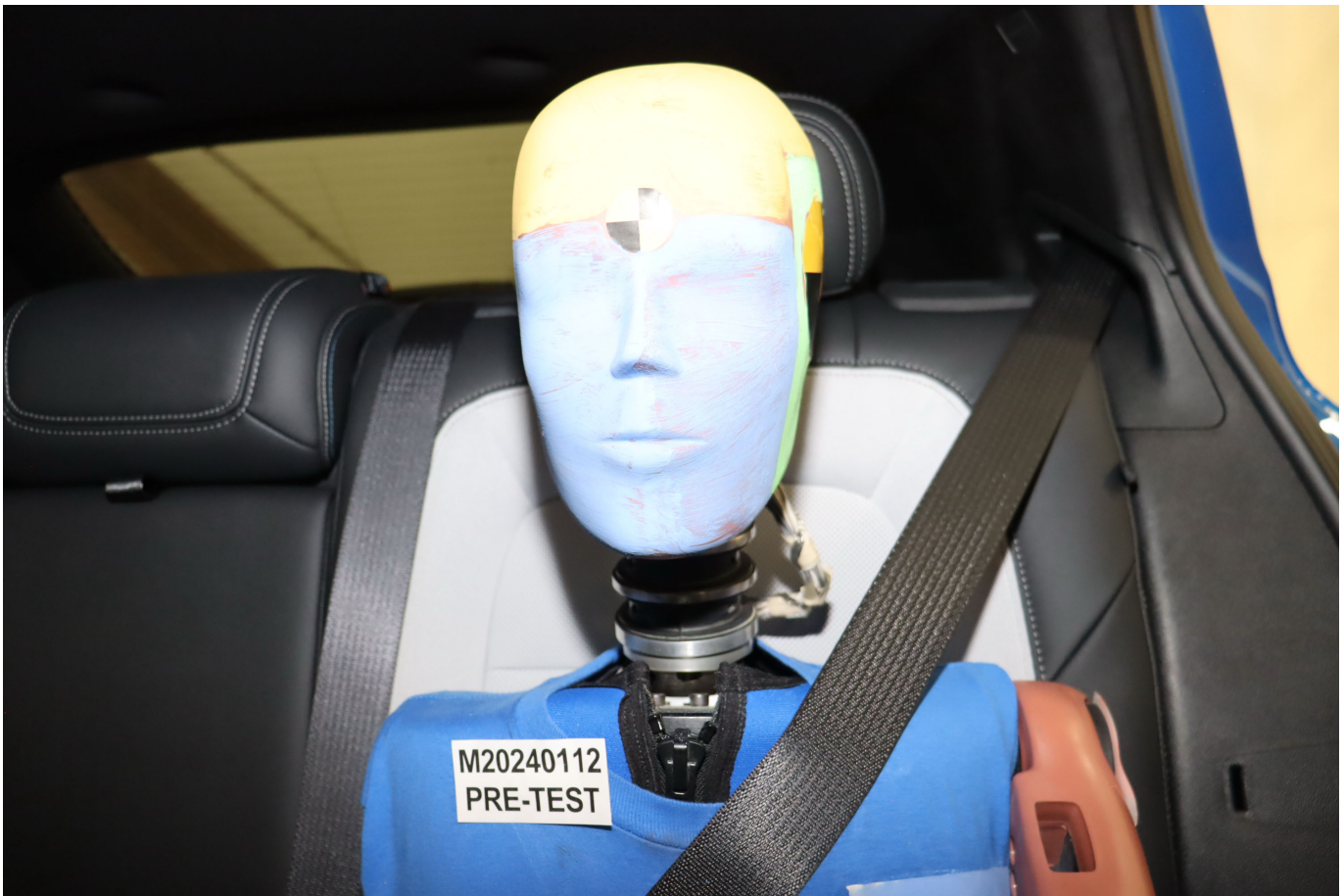


Photo No. 059 - Pre-Test Frontal View of Rear Passenger Dummy Head and Shoulders in Relation to Head Restraint



Photo No. 060 - Pre-Test Overhead View of Rear Passenger Seat Pan Prior to Dummy Positioning



Photo No. 061 - Pre-Test Overhead View of Rear Passenger Dummy Thighs on Seat Pan



Photo No. 062 - Pre-Test View of Rear Passenger Dummy's Neck Showing Position of Adjustable Neck Bracket

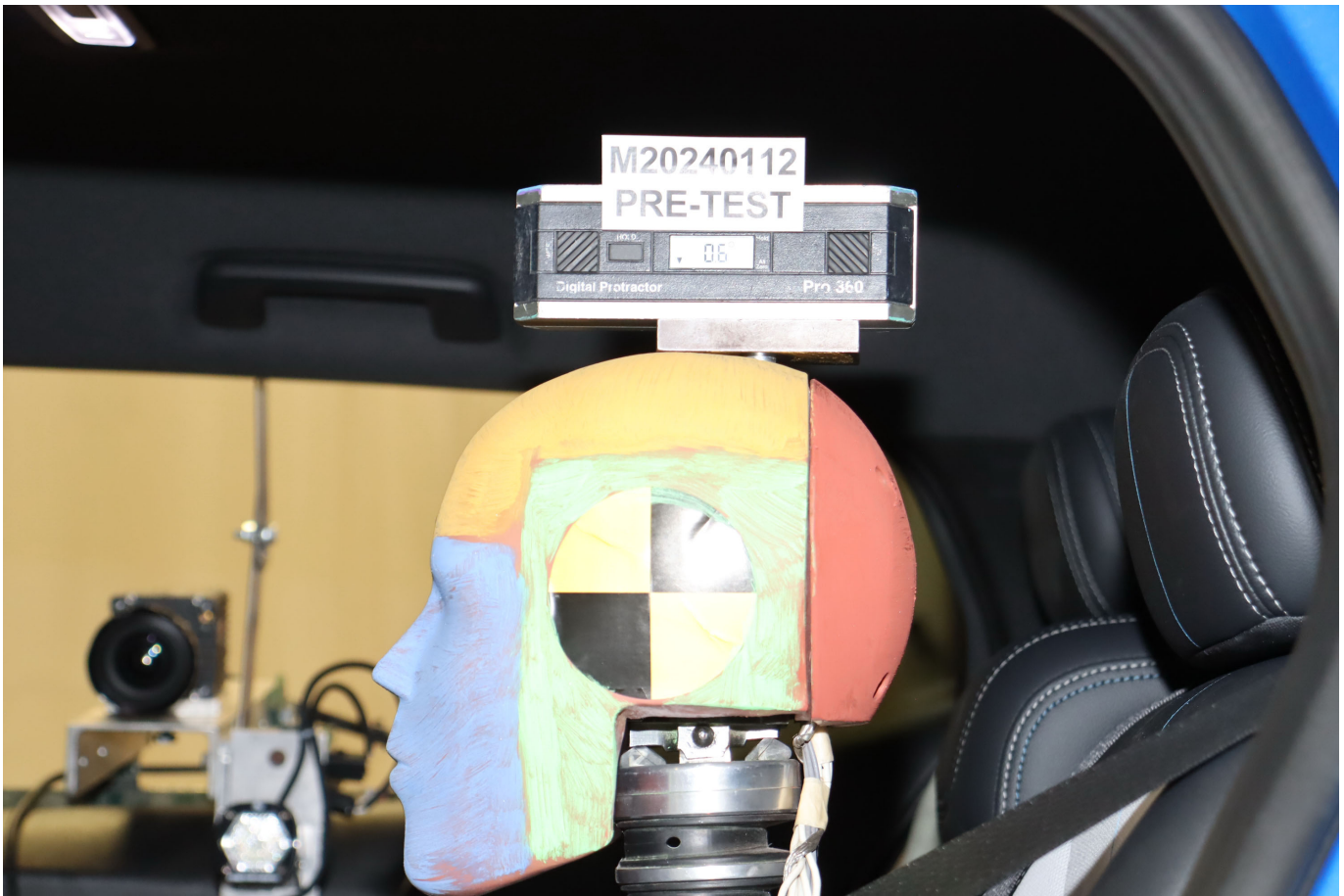


Photo No. 063 - Pre-Test View of Rear Passenger Dummy's Head Showing Dummy's Head is Level



Photo No. 064 - Pre-Test Placement of Rear Passenger Dummy's Feet



Photo No. 065 - Pre-Test View of Belt Anchorage for Rear Passenger Dummy



Photo No. 066 - Pre-Test Close-Up Left Side View of Rear Passenger Seat Track

PHOTOGRAPH NOT APPLICABLE

Photo No. 067 - Pre-Test Close-Up Left Side View of Rear Passenger Seat Back



Photo No. 068 - Pre-Test Close-Up View of Rear Passenger Seat Back or Head Restraint



Photo No. 069 - Pre-Test Rear Passenger Dummy and Door Clearance View



Photo No. 070 - Post-Test Rear Passenger Dummy and Door Clearance View



Photo No. 071 - Pre-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



Photo No. 072 - Post-Test Right Side View of Rear Passenger Dummy and Rear Seat Occupant Compartment



Photo No. 073 - Pre-Test Rear Passenger Inner Door Panel View



Photo No. 074 - Post-Test Rear Passenger Inner Door Panel View



Photo No. 075 - Post-Test Rear Passenger Dummy Close-Up Head Contact with Vehicle Interior View



Photo No. 076 - Post-Test Rear Passenger Dummy Close-Up Head Contact with Side Airbag View



Photo No. 077 - Post-Test Rear Passenger Dummy Close-Up Torso Contact with Vehicle Interior View

PHOTOGRAPH NOT APPLICABLE

Photo No. 078 - Post-Test Rear Passenger Dummy Close-Up Torso Contact with Side Airbag View



Photo No. 079 - Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Vehicle Interior View

PHOTOGRAPH NOT APPLICABLE

Photo No. 080 - Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View



Photo No. 081 - Post-Test Rear Passenger Dummy Close-Up Knee Contact View

PHOTOGRAPH NOT APPLICABLE

Photo No. 082 - Pre-Test View of Fuel Filler Cap or Fuel Filler Neck

PHOTOGRAPH NOT APPLICABLE

Photo No. 083 - Post-Test View of Fuel Filler Cap or Fuel Filler Neck



Photo No. 084 - Pre-Test Front View of MDB Impactor Face

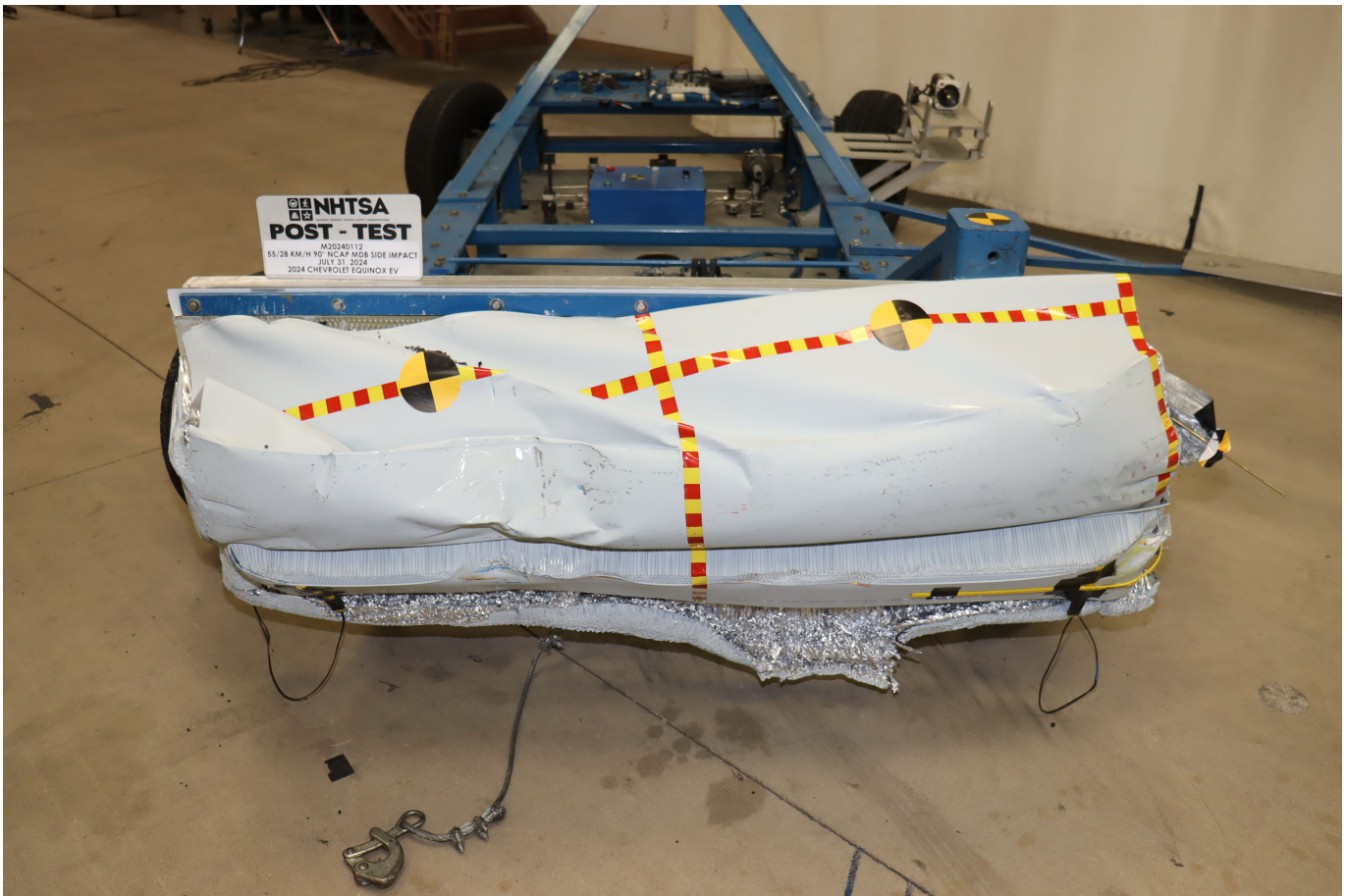


Photo No. 085 - Post-Test Front View of MDB Impactor Face

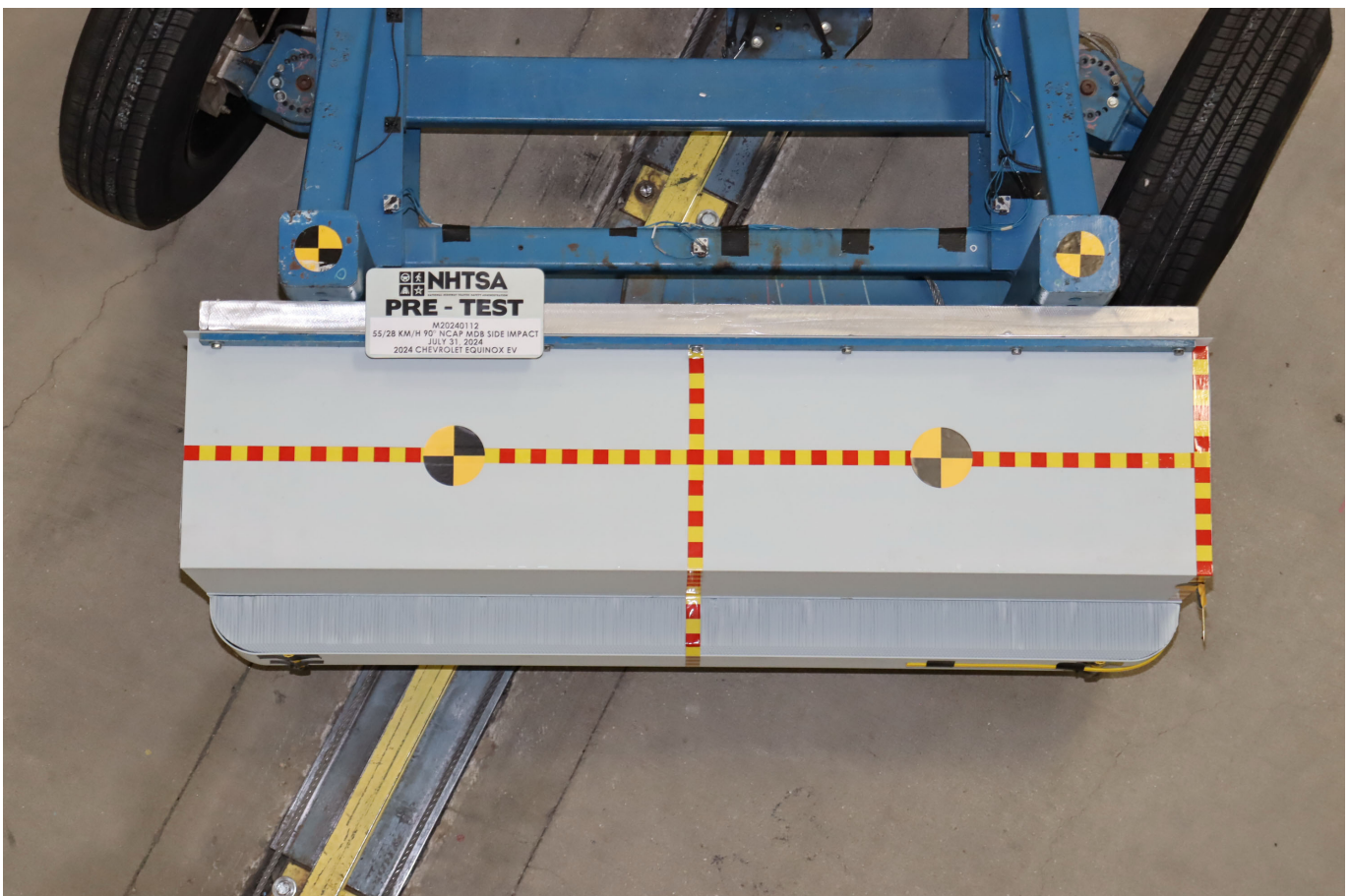


Photo No. 086 - Pre-Test Top View of MDB Impactor Face



Photo No. 087 - Post-Test Top View of MDB Impactor Face



Photo No. 088 - Pre-Test Left Side View of MDB Impactor Face



Photo No. 089 - Post-Test Left Side View of MDB Impactor Face



Photo No. 090 - Pre-Test Right Side View of MDB Impactor Face



Photo No. 091 - Post-Test Right Side View of MDB Impactor Face



Photo No. 092 - Close-Up View of Vehicle's Certification Label



Photo No. 093 - Close-Up View of Vehicle's Tire Information Placard or Label

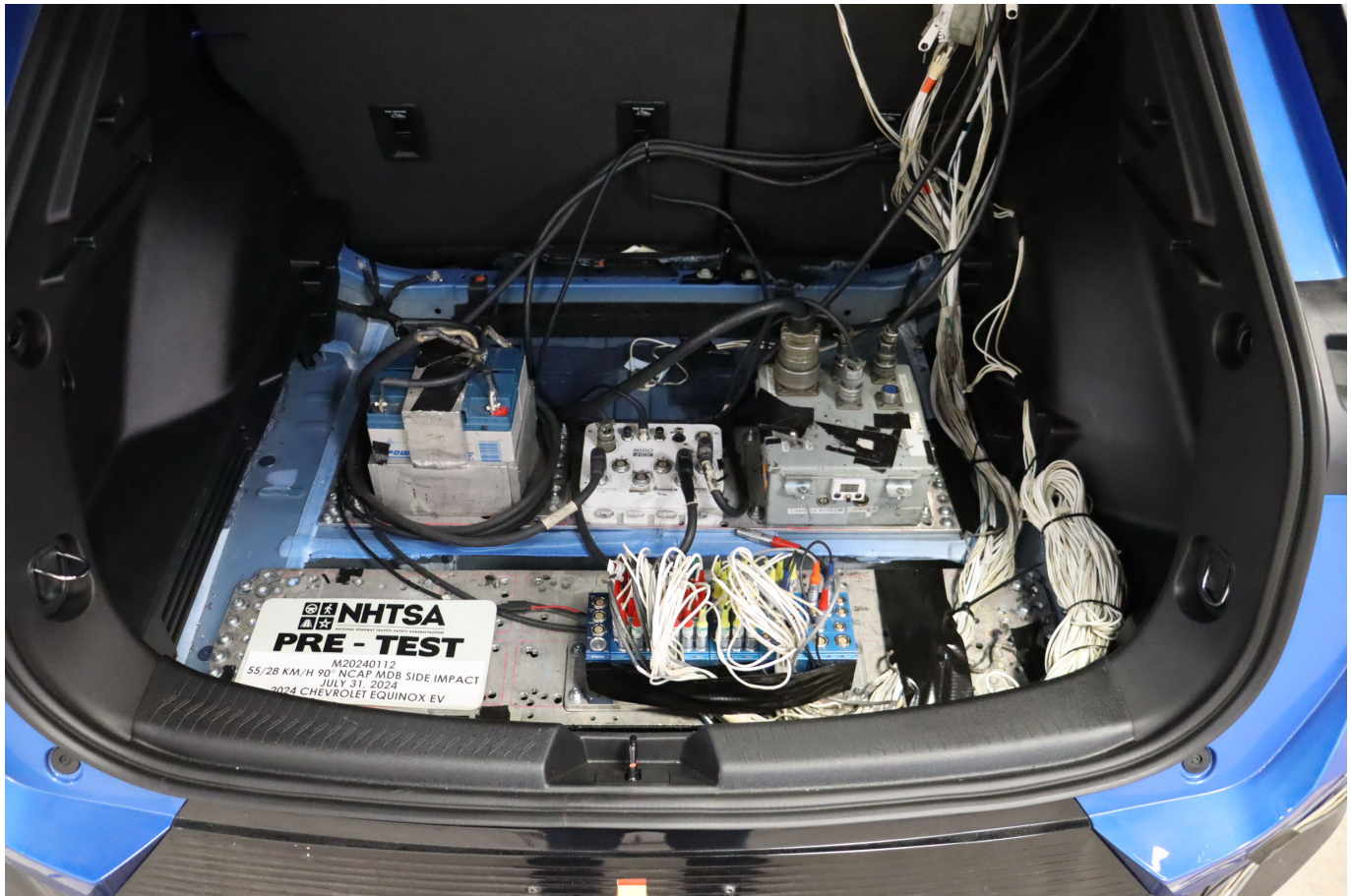


Photo No. 094 - Pre-Test Ballast View



Photo No. 095 - Post-Test Primary and Redundant Speed Trap Read-Out

PHOTOGRAPH NOT APPLICABLE

Photo No. 096 - FMVSS Photo No. 301 Static Rollover 0 Degrees

PHOTOGRAPH NOT APPLICABLE

Photo No. 097 - FMVSS Photo No. 301 Static Rollover 90 Degrees

PHOTOGRAPH NOT APPLICABLE

Photo No. 098 - FMVSS Photo No. 301 Static Rollover 180 Degrees

PHOTOGRAPH NOT APPLICABLE

Photo No. 099 - FMVSS Photo No. 301 Static Rollover 270 Degrees

PHOTOGRAPH NOT APPLICABLE

Photo No. 100 - FMVSS Photo No. 301 Static Rollover 360 Degrees



Photo No. 101 - Impact Event



CHEVROLET

2024 EQUINOX EV 2LT

EXTERIOR: RIPTIDE BLUE METALLIC
INTERIOR: SKY COOL GRAY

ultium 
powered by GM's ultium platform



STANDARD EQUIPMENT

ITEMS FEATURED BELOW ARE INCLUDED AT NO EXTRA CHARGE IN THE STANDARD VEHICLE PRICE SHOWN.

OWNER BENEFITS

- 3 YEAR/ 36,000 MILE* BUMPER-TO-BUMPER LIMITED WARRANTY
- 8 YEAR/100,000 MILE* ELECTRIC VEHICLE PROPULSION BATTERY WARRANTY
- COURTESY TRANSPORTATION & ROADSIDE ASSISTANCE TOWING
- 5 YEAR/60,000 MILE* ALL OTHER ROADSIDE SERVICES
- FIRST MAINTENANCE VISIT
- *WHICHEVER COMES FIRST SEE CHEVROLET.COM OR DEALER FOR TERMS, DETAILS & LIMITS

PERFORMANCE & MECHANICAL

- 19" WHEELS
- ULTIUM PROPULSION BATTERY, 85KWH BATTERY RATED ENERGY,

150KW DC FAST CHARGE CAPABLE

- 11.5KW AC CHARGING
- DUAL LEVEL CHARGE CORD
- TRAILERING WIRING PROVISIONS
- ONE PEDAL DRIVING

CONNECTIVITY & TECHNOLOGY

- 17.7" DIAGONAL LCD DISPLAY
- GOOGLE BUILT-IN AND ROUTE PLANNING COMPATIBILITY
- DRIVER INFORMATION CENTER
- 11" DIAGONAL DIGITAL DISPLAY
- 8 YEARS REMOTE ACCESS AND CONNECTIVITY. ONSTAR AND WI-FI DATA CAPABLE. SEE ONSTAR.COM FOR TERMS.
- REMOTE START
- SIRIUSXM AUDIO WITH SXM TRIAL SUBSCRIPTION
- USB PORTS & POWER OUTLETS

INTERIOR

- EVOTEX SEATING SURFACES
- DRIVER 8-WAY POWER SEAT

WITH 4-WAY LUMBAR

- PASSENGER 6-WAY MANUAL SEATS
- HEATED FRONT ROW SEATS
- REAR 60/40-SPLIT SEATS
- REAR CENTER ARMREST & HEADREST
- REAR SEAT REMINDER
- FRONT VISORS WITH ILLUMINATED VANITY MIRRORS
- AUTO DIMMING INSIDE REARVIEW MIRROR
- HEATED, WRAPPED, ROUND BOTTOM STEERING WHEEL
- MULTICOLOR AMBIENT LIGHTING

EXTERIOR

- AUTOSENSE POWER LIFTGATE
- LED HEAD AND TAIL LAMPS
- CENTER LIT HEADLAMP BAR
- APPROACH, WALK-AWAY, & CHARGE INDICATION LIGHTING
- FLUSH DOOR HANDLES
- OUTSIDE HEATED MIRRORS

- DRIVER WINDOW EXPRESS UP/DOWN
- LUGGAGE CARRIER - ROOF RAIL

SAFETY & SECURITY

- ENHANCED AUTOMATIC EMERGENCY BRAKING
- FORWARD COLLISION ALERT
- FRONT PEDESTRIAN AND BICYCLIST BRAKING
- FOLLOWING DISTANCE INDICATOR
- INTELLIBEAM-AUTO HIGH BEAM
- SAFETY ALERT SEAT
- REAR CROSS TRAFFIC BRAKING
- BLIND ZONE STEERING ASSIST
- REVERSE AUTOMATIC BRAKING
- INTERSECTION AUTOMATIC EMERGENCY BRAKING
- ADAPTIVE CRUISE CONTROL
- SIDE BICYCLIST ALERT
- HD SURROUND VISION

MANUFACTURER'S SUGGESTED RETAIL PRICE

STANDARD VEHICLE PRICE \$41,900.00

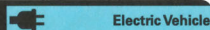
Visit us at www.chevy.com

OPTIONS & PRICING

OPTIONS INSTALLED BY THE MANUFACTURER (MAY REPLACE STANDARD EQUIPMENT SHOWN)

TOTAL OPTIONS	\$0.00
TOTAL VEHICLE & OPTIONS	\$41,900.00
DESTINATION CHARGE	1,395.00
TOTAL VEHICLE PRICE*	\$43,295.00

EPA DOT Fuel Economy and Environment



Electric Vehicle

Fuel Economy
108 MPGe

EQUINOX EV FWD

Small SUVs range from 14 to 118 MPGe. The best vehicle rates 140 MPGe.

You save \$6,250
in fuel costs over 5 years
compared to the average new vehicle.



Annual fuel cost \$700

Fuel Economy & Greenhouse Gas Rating (tailpipe only)



Smog Rating (tailpipe only)



Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 28 MPG and costs \$9,750 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$0.15 per kWh. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuel economy.gov
Calculate personalized estimates and compare vehicles



GOVERNMENT 5-STAR SAFETY RATINGS

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

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



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PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE:
U.S./CANADIAN PARTS CONTENT: 62%
MAJOR SOURCES OF FOREIGN PARTS CONTENT: CN 18%

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

FOR THIS VEHICLE:
FINAL ASSEMBLY POINT:
RAMOS ARIZPE, CZ MEXICO
COUNTRY OF ORIGIN:
ENGINE (MOTOR): MEXICO
TRANSMISSION (ELECTRIC DRIVE UNIT): MEXICO

This label has been applied pursuant to Federal law - Do not remove prior to delivery to the ultimate purchaser. *Includes Manufacturer's Recommended Pre-Delivery Service. Does not include dealer installed options and accessories not listed above, local taxes or license fees.

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ORDER NO. DNBSS2 SALES CODE E

SALES MODEL CODE 1MB48

DEALER NO. 14005

FINAL ASSEMBLY:

RAMOS ARIZPE, CZ MEXICO

VIN 3GN7DLRP1R241065 REISSUE

DEALER TO WHOM DELIVERED

SPORT CHEVROLET COMPANY, LLC

3101 AUTOMOBILE BLVD

SILVER SPRING, MD 20904-4999



Photo No. 102 - Monroney Label

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Head Restraints

The vehicle's front seats have adjustable head restraints in the outboard seating positions.

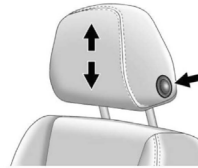


With head restraints that are not installed and adjusted properly, there is a greater chance that occupants will suffer a neck/spinal injury in a crash. Do not drive until the head restraints for all occupants are installed and adjusted properly.



Adjust the head restraint so that the top of the restraint is at the same height as the top of the occupant's head. This position reduces the chance of a neck injury in a crash.

Front Seats



The height of the head restraint can be adjusted.

To raise or lower the head restraint, press the button located on the side of the head restraint and pull up or push the head restraint down, and release the button. Pull and push on the head restraint after the button is released to make sure that it is locked in place.

The front seat outboard head restraints are not removable.

Rear Seats

Rear Head Restraint Adjustment

The vehicle's rear seat has adjustable head restraints in the outboard seating positions.

The height of the head restraint can be adjusted. Pull the head restraint up to raise it. Try to move the head restraint to make sure that it is locked in place.



To lower the head restraint, press the button, located on the top of the seatback, and push the head restraint down. Try to move the head restraint after the button is released to make sure that it is locked in place.



The vehicle's rear seat has an adjustable headrest in the center seating position that can be adjusted the same way as the outboard head restraints.

Always adjust the head restraint so that the top of the restraint is at the same height as the top of the occupant's head.

The rear head restraints are not removable.

Photo No. 103 - Driver Head Restraint Use and Adjustment Information from Vehicle Owner's Manual

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Head Restraints

The vehicle's front seats have adjustable head restraints in the outboard seating positions.

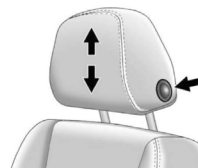


With head restraints that are not installed and adjusted properly, there is a greater chance that occupants will suffer a neck/spinal injury in a crash. Do not drive until the head restraints for all occupants are installed and adjusted properly.



Adjust the head restraint so that the top of the restraint is at the same height as the top of the occupant's head. This position reduces the chance of a neck injury in a crash.

Front Seats



The height of the head restraint can be adjusted.

To raise or lower the head restraint, press the button located on the side of the head restraint and pull up or push the head restraint down, and release the button. Pull and push on the head restraint after the button is released to make sure that it is locked in place.

The front seat outboard head restraints are not removable.

Rear Seats

Rear Head Restraint Adjustment

The vehicle's rear seat has adjustable head restraints in the outboard seating positions.

The height of the head restraint can be adjusted. Pull the head restraint up to raise it. Try to move the head restraint to make sure that it is locked in place.



To lower the head restraint, press the button, located on the top of the seatback, and push the head restraint down. Try to move the head restraint after the button is released to make sure that it is locked in place.



The vehicle's rear seat has an adjustable headrest in the center seating position that can be adjusted the same way as the outboard head restraints.

Always adjust the head restraint so that the top of the restraint is at the same height as the top of the occupant's head.

The rear head restraints are not removable.

Photo No. 104 - Left Rear Passenger Head Restraint Use and Adjustment Information from Vehicle Owner's Manual



Photo No. 305-01 - Auxiliary Power Module Warning Label



Photo No. 305-02 - Power Inverter Warning Label



Photo No. 305-03 - First Responder Warning Label



Photo No. 305-04 - First Responder Warning Location

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-05 - Other Vehicle Label(s) Related to Electrical Propulsion System



Photo No. 305-06 - Manual High Voltage Service Disconnect in Place



Photo No. 305-07 - Manual High Voltage Service Disconnect Removed

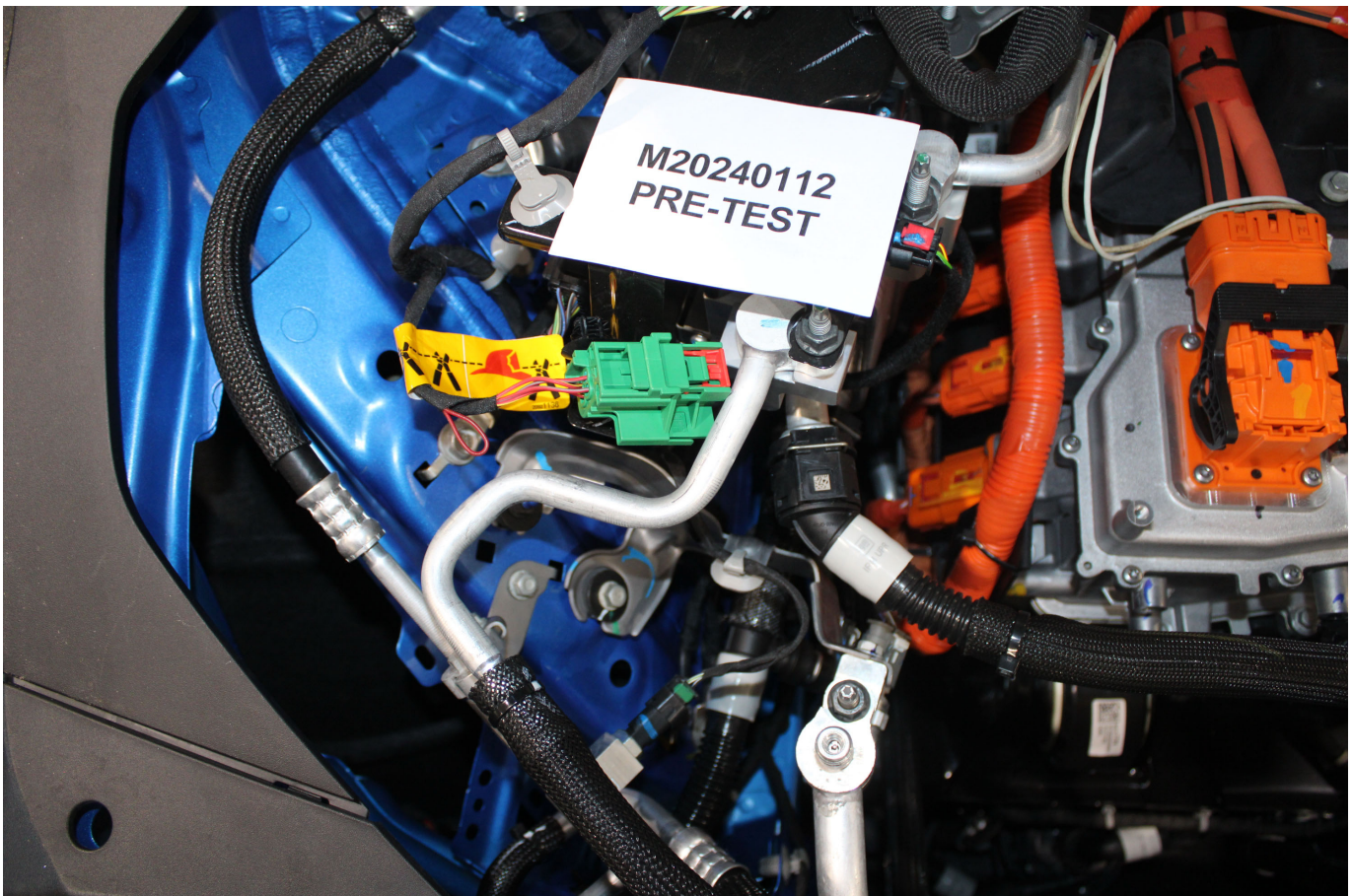


Photo No. 305-08 - Manual High Voltage Service Disconnect Removed



Photo No. 305-09 - Pre-Impact View of Propulsion Battery

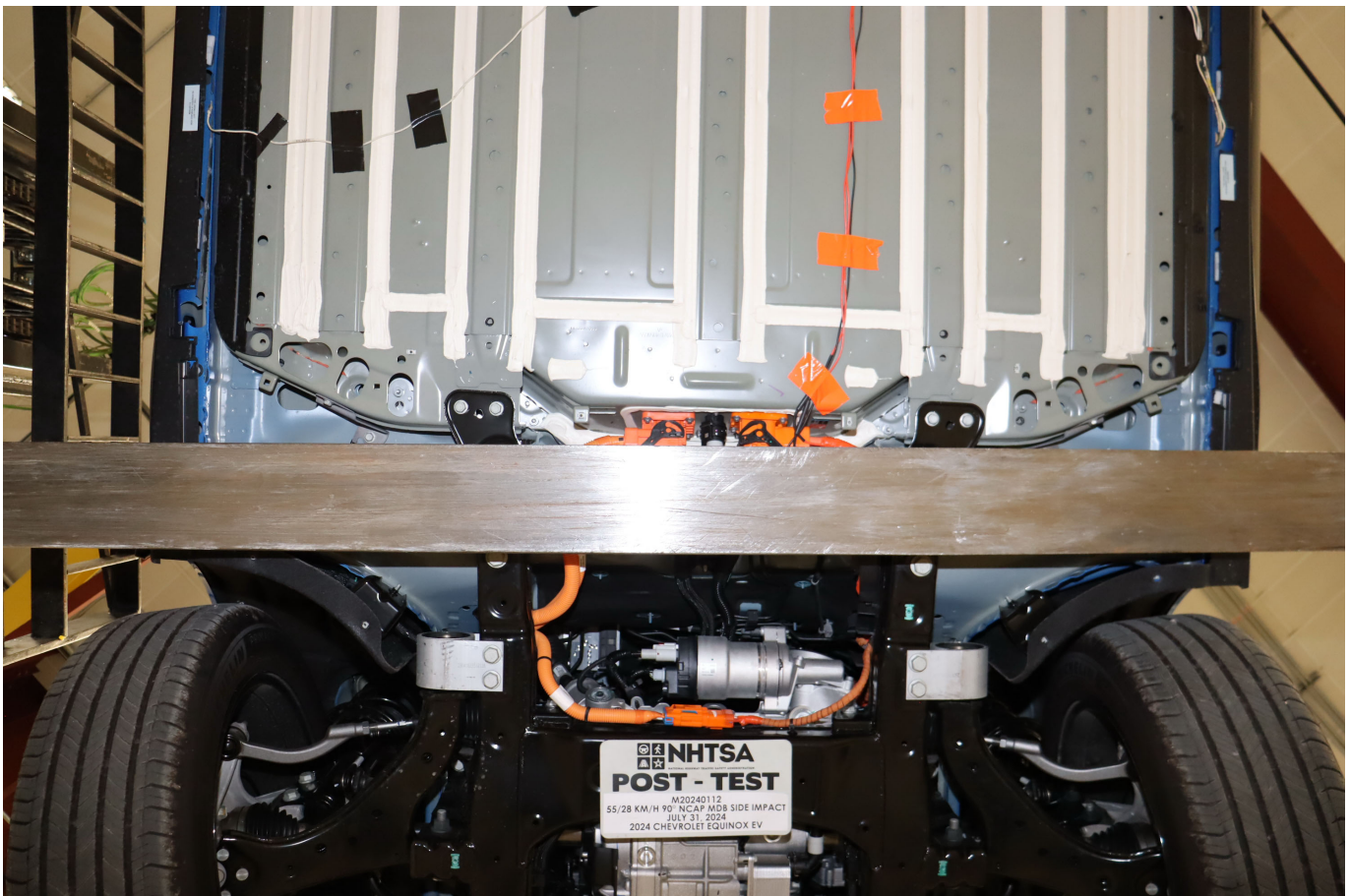


Photo No. 305-10 - Post-Impact Front View of Propulsion Battery

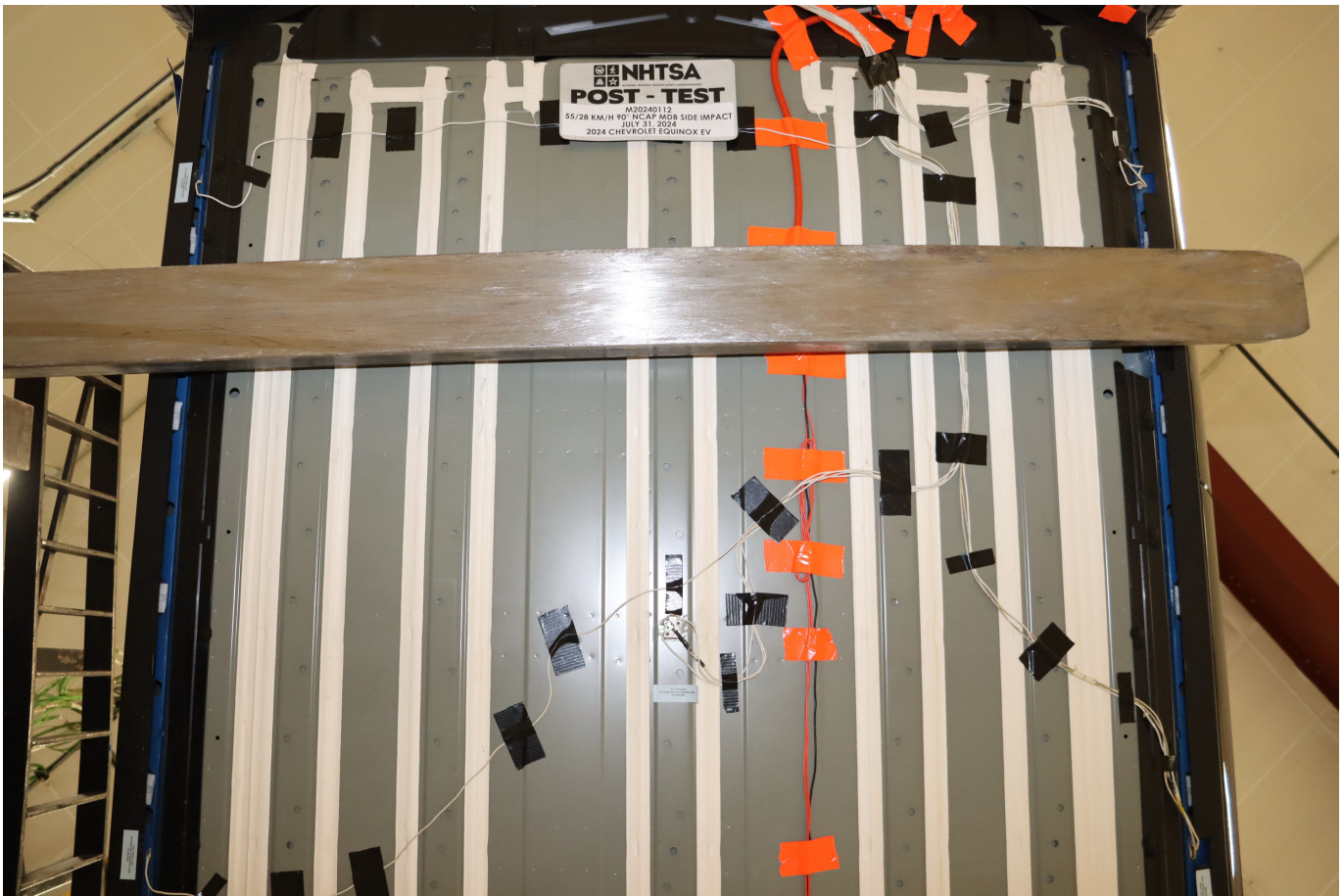


Photo No. 305-11 - Post-Impact Rear View of Propulsion Battery

PHOTOGRAPH NOT AVAILABLE

Photo No. 305-12 - Pre-Impact View of Battery Box(s) or Container(s) Which Holds Individual Battery Modules

PHOTOGRAPH NOT AVAILABLE

Photo No. 305-13 - Post-Impact View of Battery Box(s) or Container(s) Which Holds Individual Battery Modules

PHOTOGRAPH NOT AVAILABLE

Photo No. 305-14 - Pre-Impact View of Propulsion Battery Module(s)

PHOTOGRAPH NOT AVAILABLE

Photo No. 305-15 - Post-Impact View of Propulsion Battery Module(s)

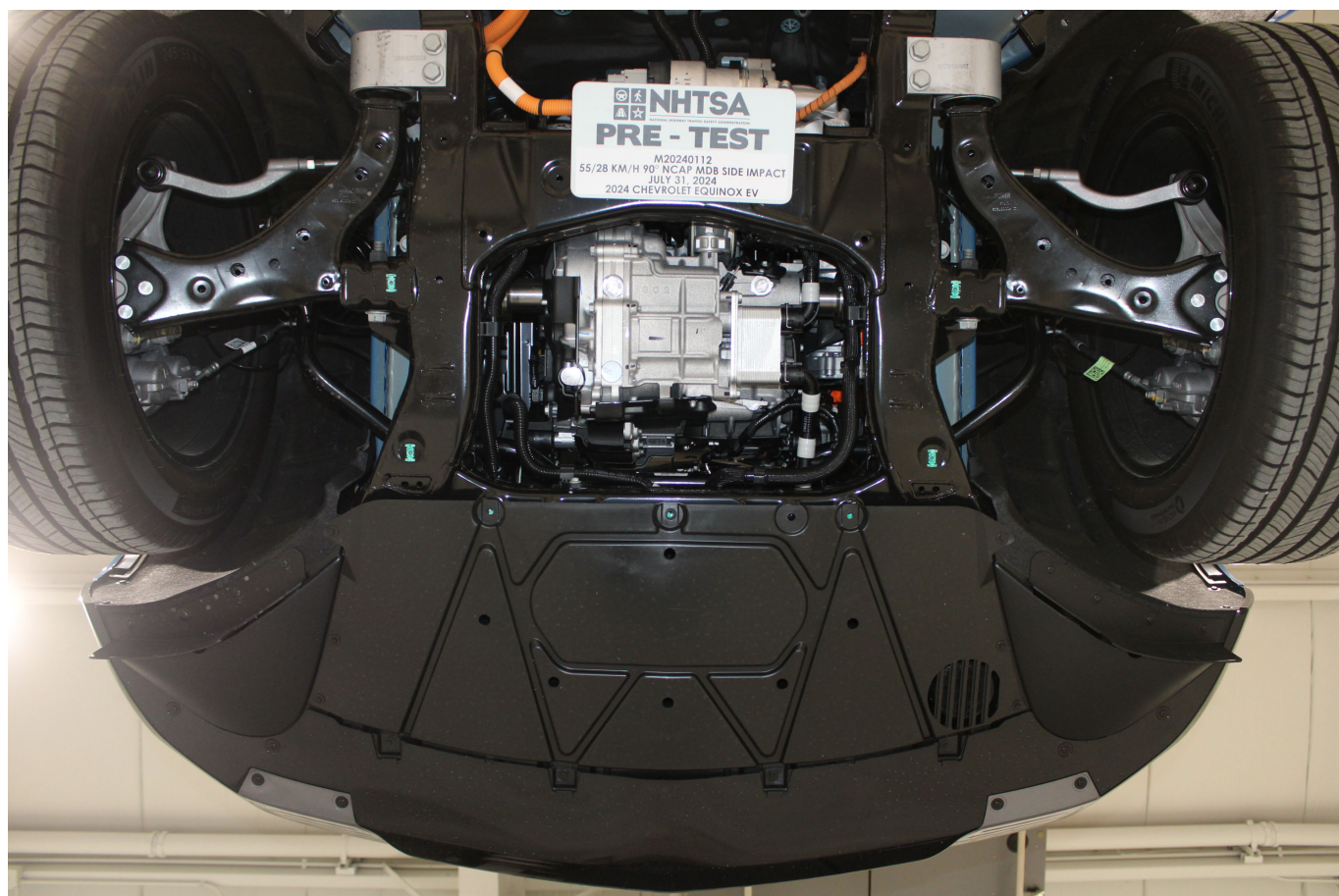


Photo No. 305-16 - Pre-Impact View of Electric Propulsion Drive

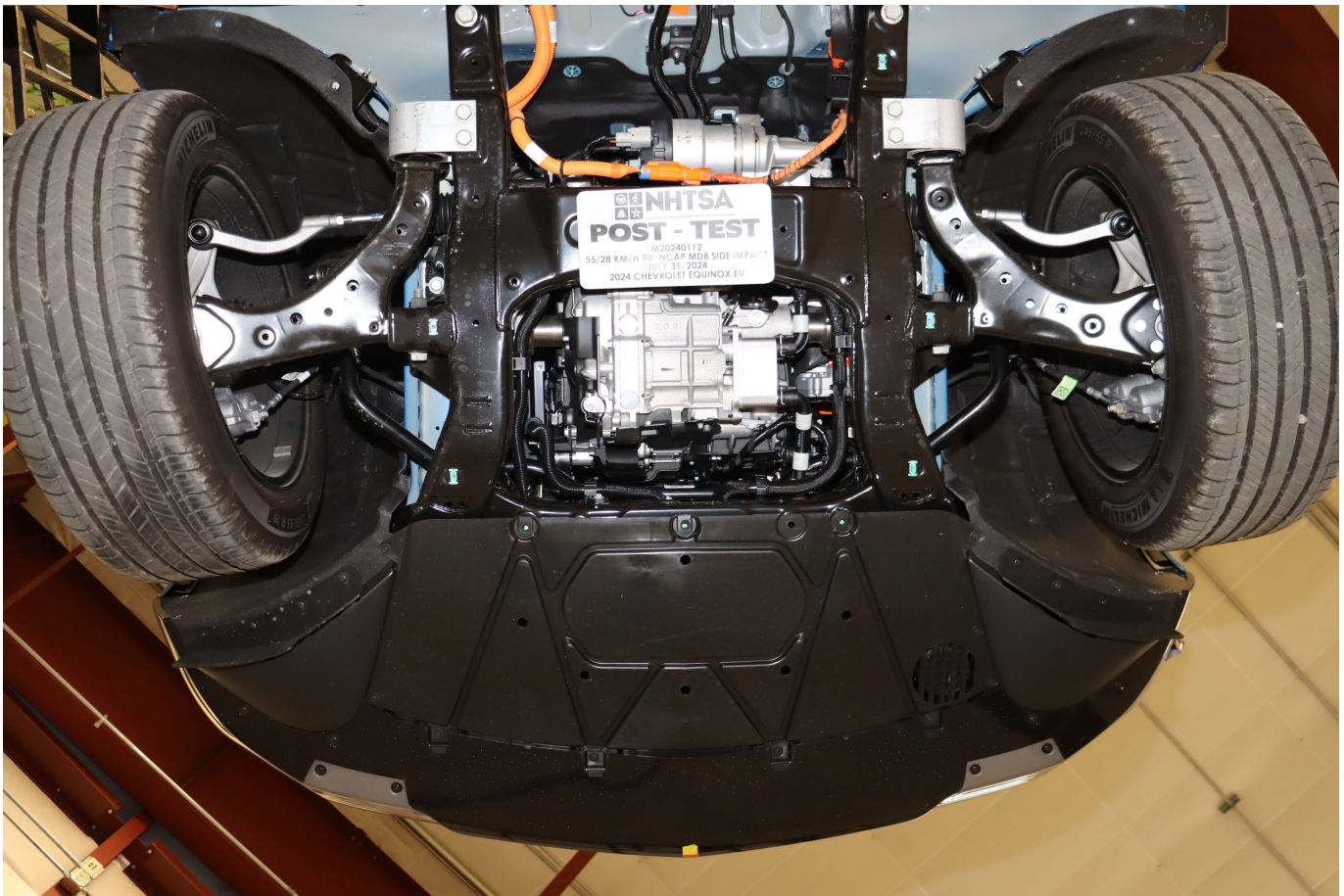


Photo No. 305-17 - Post-Impact View of Electric Propulsion Drive

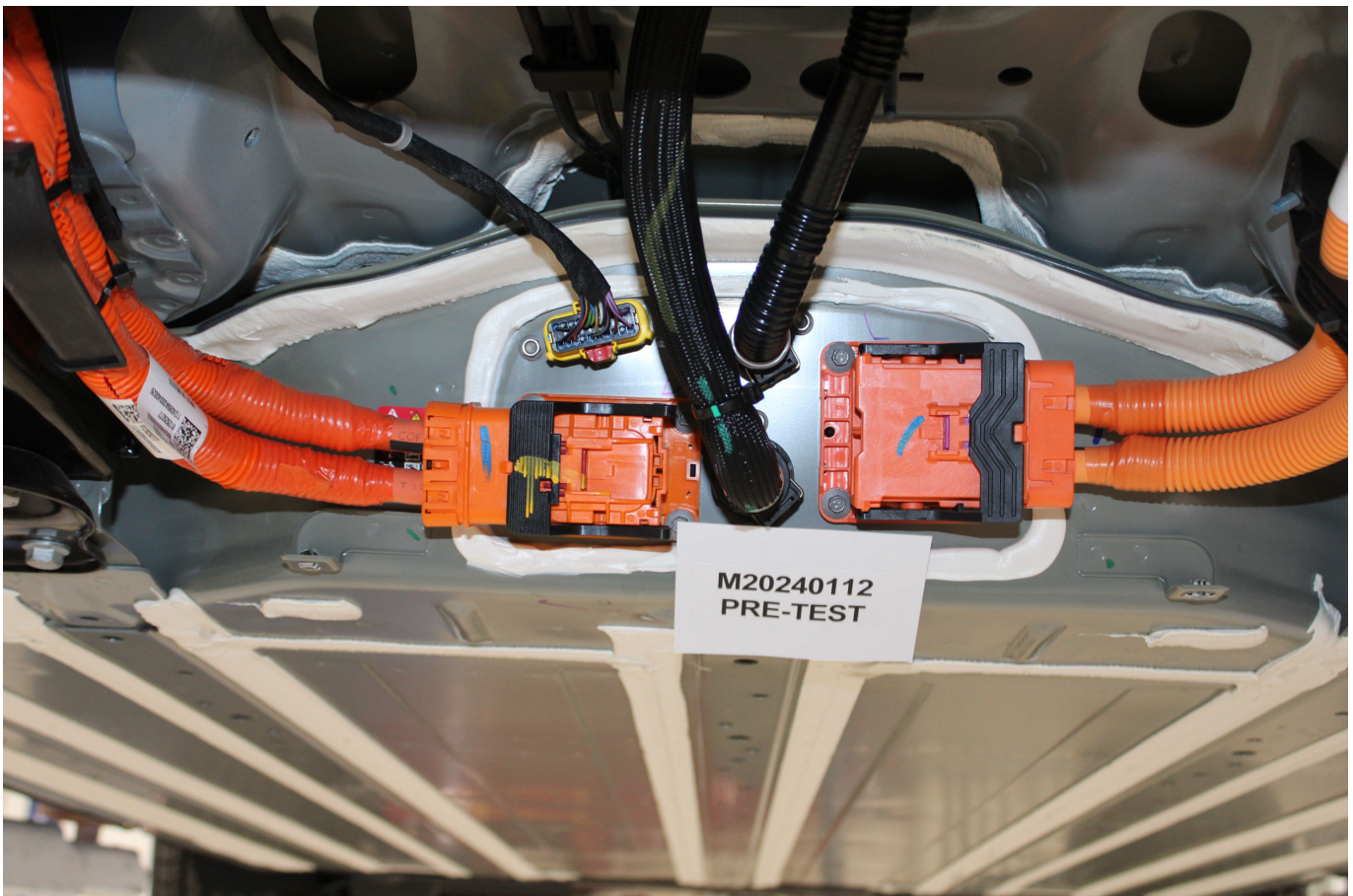


Photo No. 305-18 - Pre-Impact View of High Voltage Interconnect(s)

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-19 - Pre-Impact View Propulsion Battery Venting System(s)

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-20 - Pre-Impact View of Other Visible Electric Propulsion Components

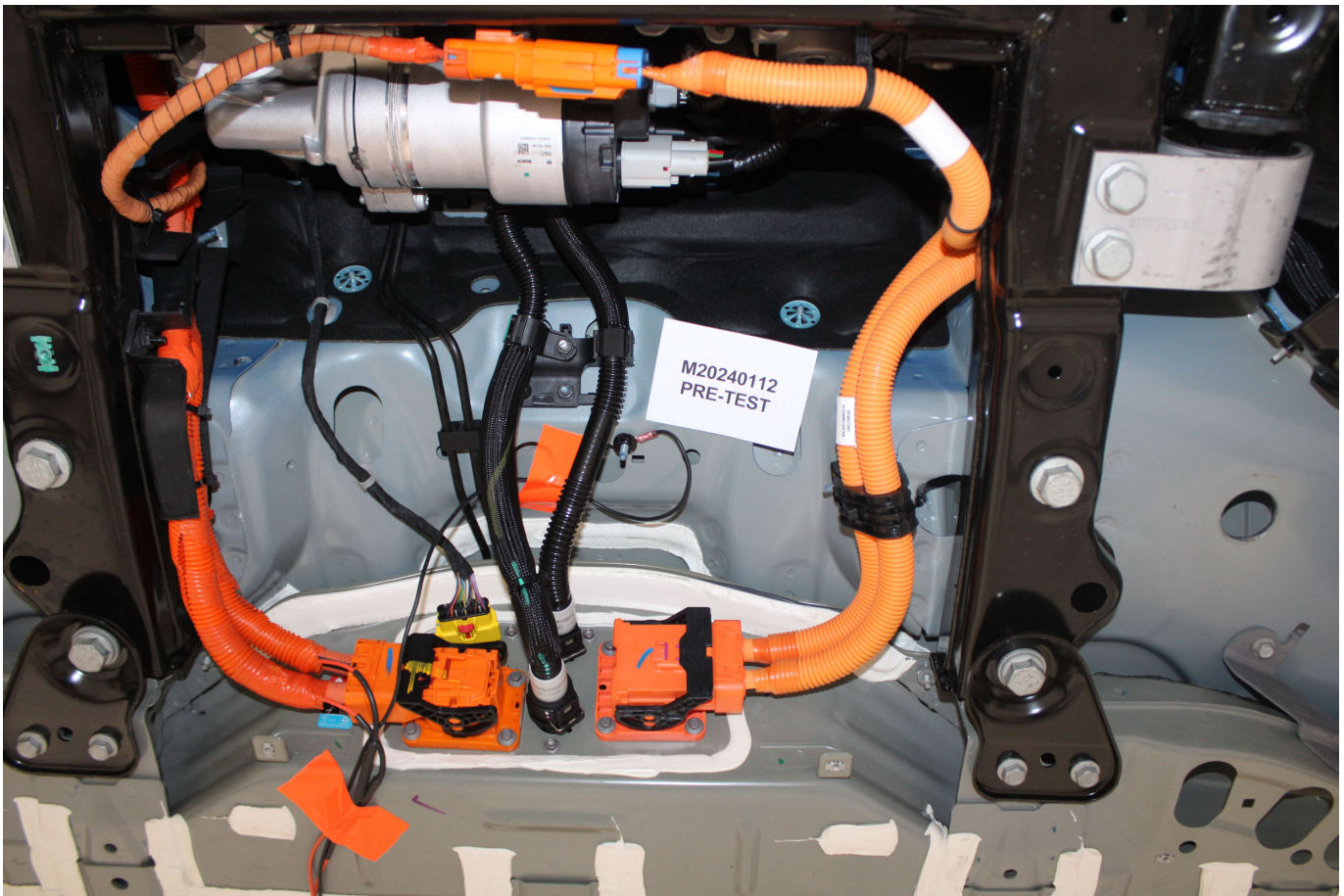


Photo No. 305-21 - Pre-Impact View of Ground Lead Attached



Photo No. 305-22 - Pre-Impact View of High Voltage Leads Attached



Photo No. 305-23 - Pre-Impact Close-Up View of High Voltage Leads Attached



Photo No. 305-24 - Pre-Impact View of Installed Test Interface Port



Photo No. 305-25 - Post-Impact View of Installed Test Interface Port



Photo No. 305-26 - Pre-Impact View of Other Test Devices



Photo No. 305-27 - Post-Impact View of Other Test Devices



Photo No. 305-28 - FMVSS No. 305 Static Rollover at 90 Degrees



Photo No. 305-29 - FMVSS No. 305 Static Rollover at 180 Degrees



Photo No. 305-30 - FMVSS No. 305 Static Rollover at 270 Degrees



Photo No. 305-31 - FMVSS No. 305 Static Rollover at 360 Degrees



Photo No. 305-32 - Pre-Impact View of the Vehicle Passenger Compartment Adjacent to Propulsion Battery



Photo No. 305-33 - Post-Impact View of the Vehicle Passenger Compartment Adjacent to Propulsion Battery

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-34 - Post-Impact Propulsion Battery System Mounting and-or Intrusion Failure(s)

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-35 - Post-Impact View of Battery Component Intrusion

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-36 - Post-Impact View of Battery Module Movement or Retention Loss

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-37 - Post-Impact View of Propulsion Battery Electrolyte Spillage Location

PHOTOGRAPH NOT APPLICABLE

Photo No. 305-38 - Post-Test View of Propulsion Battery Electrolyte Spillage Location

APPENDIX B
DUMMY RESPONSE DATA PLOTS

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Driver Dummy Instrumentation Plots

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Figure No. 22.	Passenger Iliac Force on Impact Side (Y) vs. Time	B-7
Figure No. 23.	Passenger Acetabulum Force on Impact Side (Y) vs. Time	B-7
Figure No. 24.	Passenger Total Pelvic Force on Impact Side (Y) vs. Time	B-7

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 & Passenger Dummy Instrumentation Data

Passenger Head Angular Velocity (X)
Passenger Head Angular Velocity (Y)
Passenger Head Angular Velocity (Z)
Driver Lower Spine T12 Acceleration (X)
Driver Lower Spine T12 Acceleration (Y)
Driver Lower Spine T12 Acceleration (Z)
Passenger Upper Thorax Rib Deflection (Y)
Passenger Middle Thorax Rib Deflection (Y)
Passenger Lower Thorax Rib Deflection (Y)
Passenger Upper Abdomen Rib Deflection (Y)
Passenger Lower Abdomen Rib Deflection (Y)
Driver Head Acceleration Redundant (X)
Driver Head Acceleration Redundant (Y)
Driver Head Acceleration Redundant (Z)
Passenger Head Acceleration Redundant (X)
Passenger Head Acceleration Redundant (Y)
Passenger Head Acceleration Redundant (Z)

Vehicle Instrumentation Data

Vehicle Center of Gravity Acceleration (X)
Vehicle Center of Gravity Acceleration (Y)
Vehicle Center of Gravity Acceleration (Z)
Right Side Sill at Front Seat Acceleration (X)
Right Side Sill at Front Seat Acceleration (Y)
Right Side Sill at Front Seat Acceleration (Z)
Right Side Sill at Rear Seat Acceleration (X)
Right Side Sill at Rear Seat Acceleration (Y)
Right Side Sill at Rear Seat Acceleration (Z)
Left Side Sill at Front Seat Acceleration (Y)
Left Side Sill at Rear Seat Acceleration (Y)
Lower A-Post Acceleration (Y)
Middle A-Post Acceleration (Y)
Lower B-Post Acceleration (Y)
Middle B-Post Acceleration (Y)
Front Seat Track Acceleration (Y)
Rear Seat Track Acceleration (Y)
Right Rear Occupant Compartment Acceleration (Y)
Engine Block (X)
Engine Block (Y)
Rear Floorpan Above Axle Acceleration (X)
Rear Floorpan Above Axle Acceleration (Y)
Rear Floorpan Above Axle Acceleration (Z)

MDB Instrumentation Data

MDB Center of Gravity Acceleration (X)

MDB Center of Gravity Acceleration (Y)

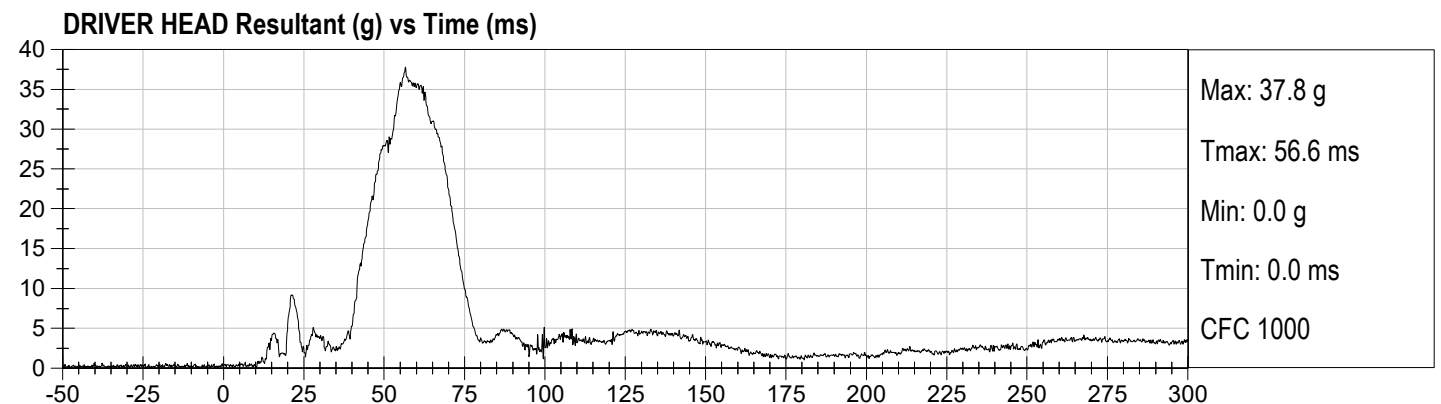
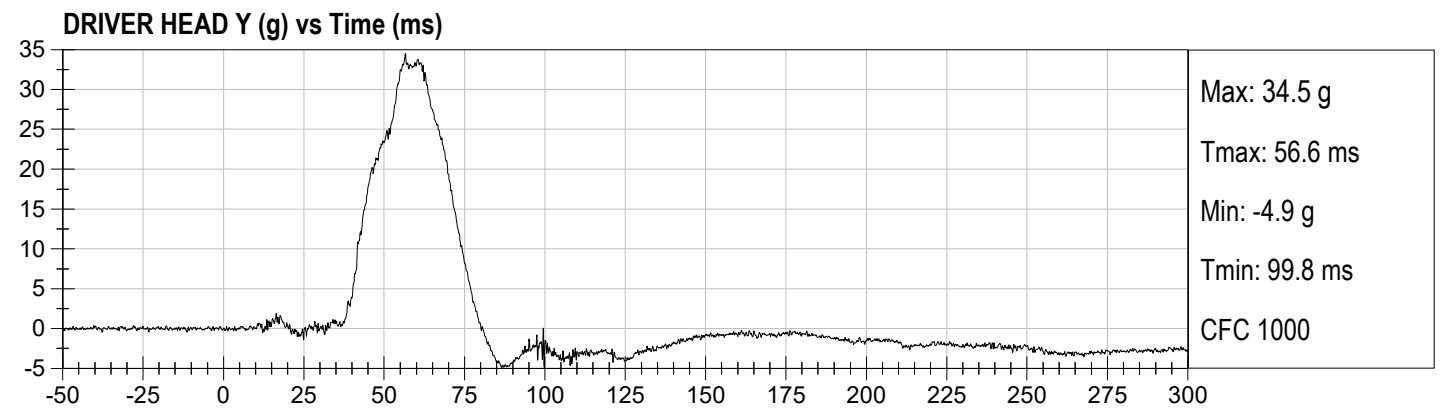
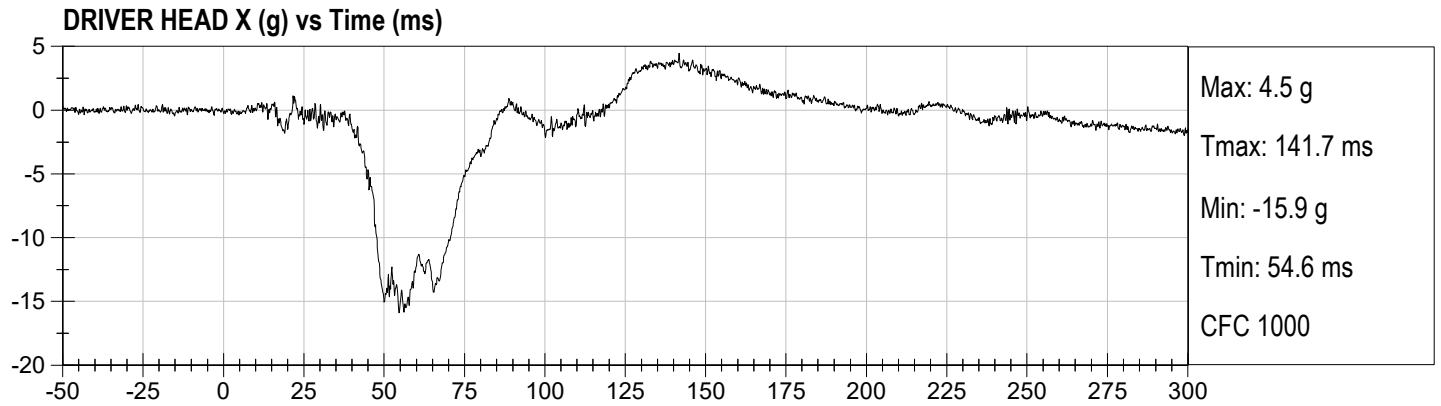
MDB Center of Gravity Acceleration (Z)

MDB Rear Acceleration (X)

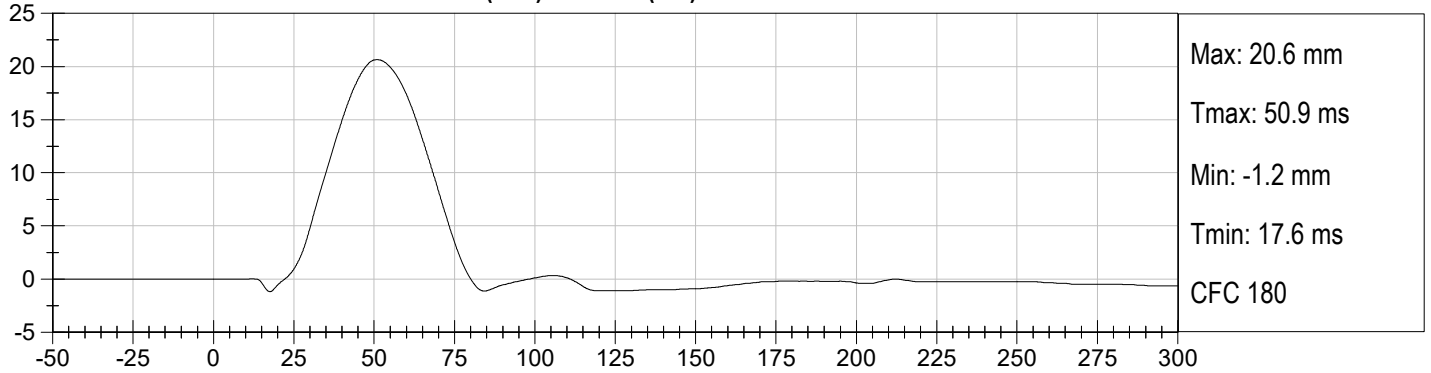
MDB Rear Acceleration (Y)

Left MDB Contact Switch

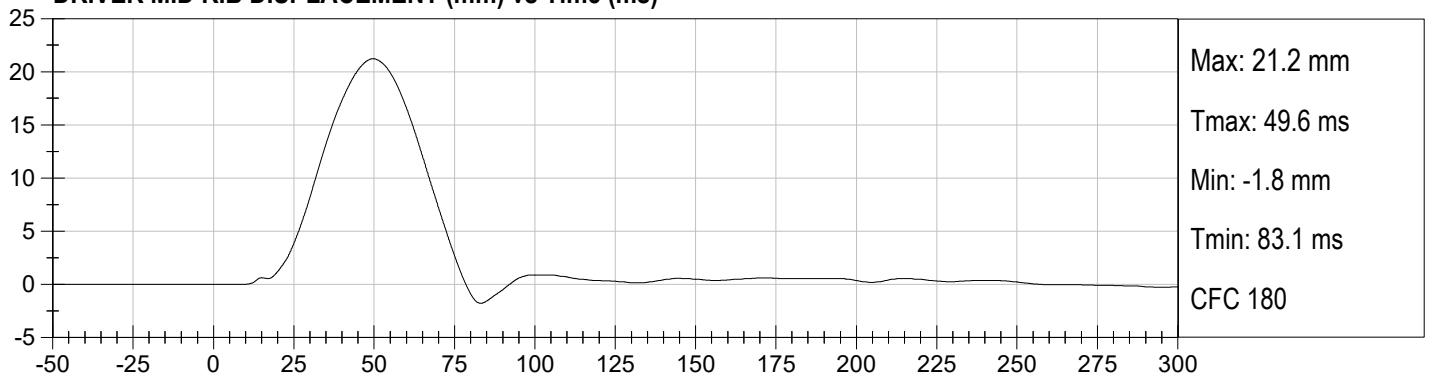
Right MDB Contact Switch



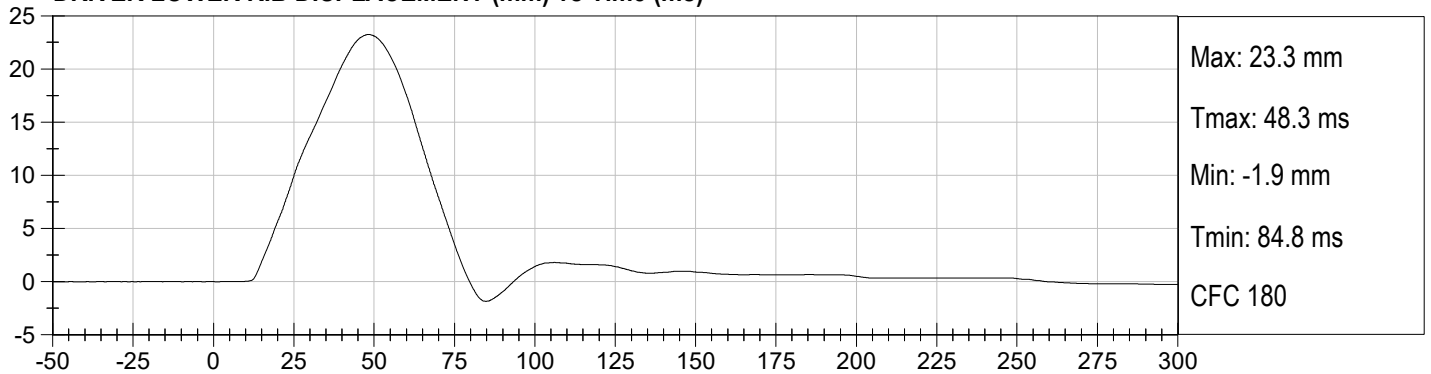
DRIVER UPPER RIB DISPLACEMENT (mm) vs Time (ms)



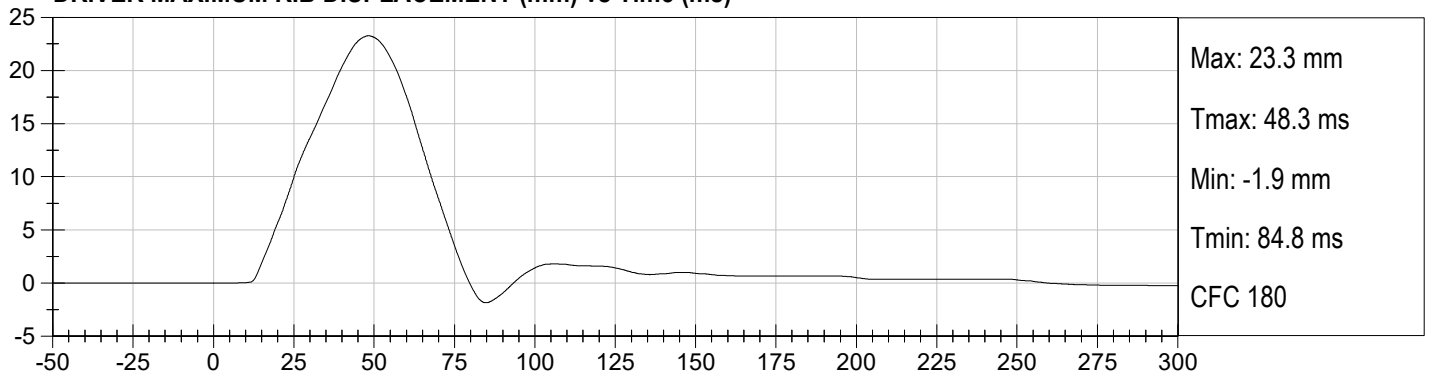
DRIVER MID RIB DISPLACEMENT (mm) vs Time (ms)



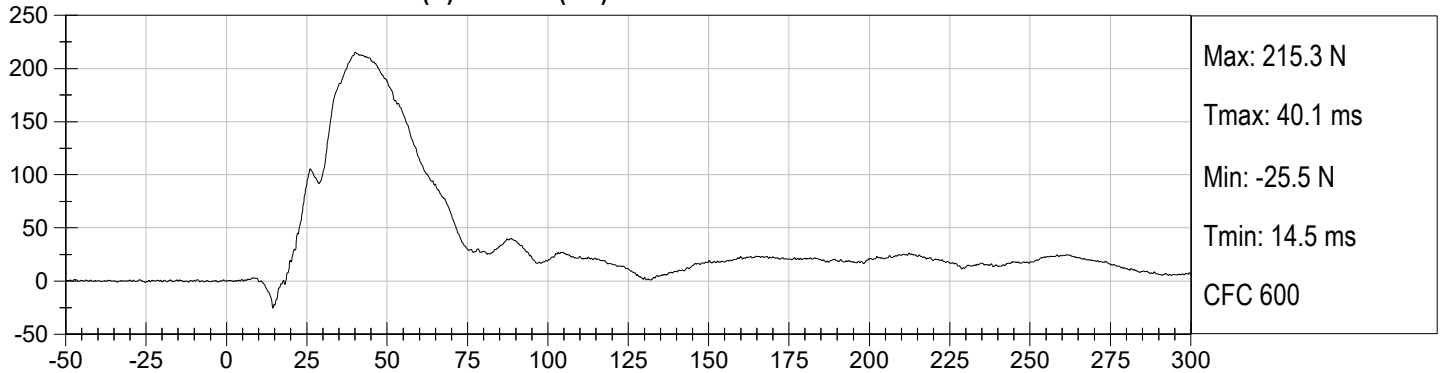
DRIVER LOWER RIB DISPLACEMENT (mm) vs Time (ms)



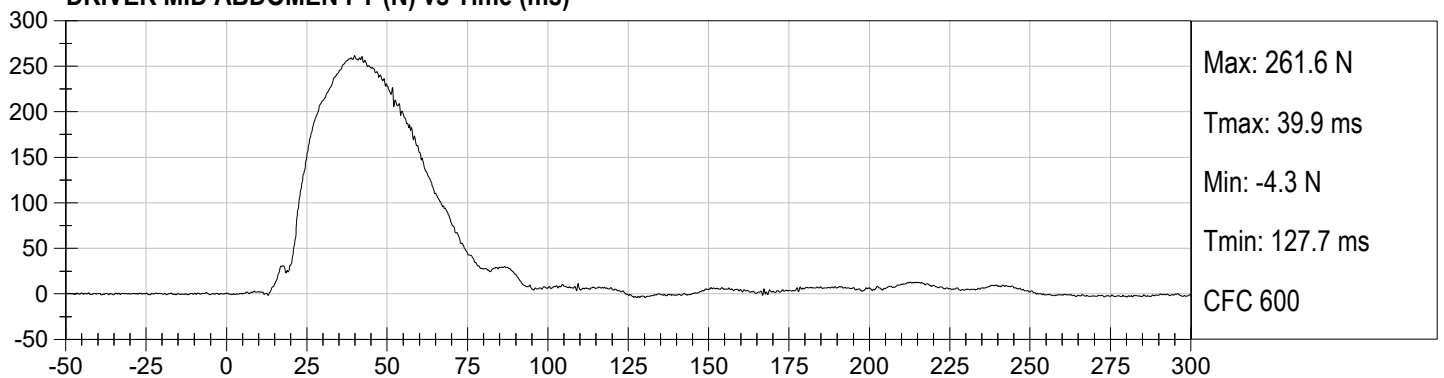
DRIVER MAXIMUM RIB DISPLACEMENT (mm) vs Time (ms)



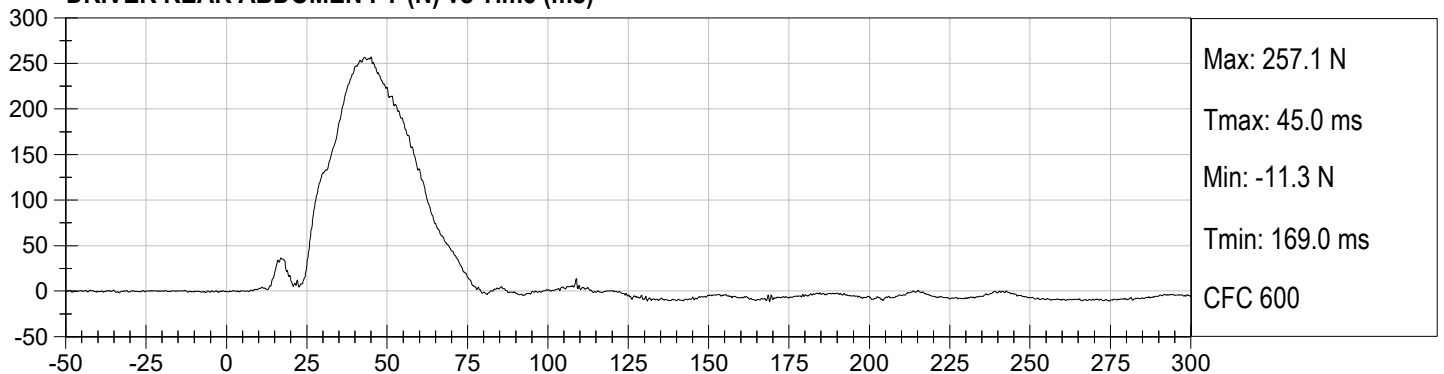
DRIVER FRONT ABDOMEN FY (N) vs Time (ms)



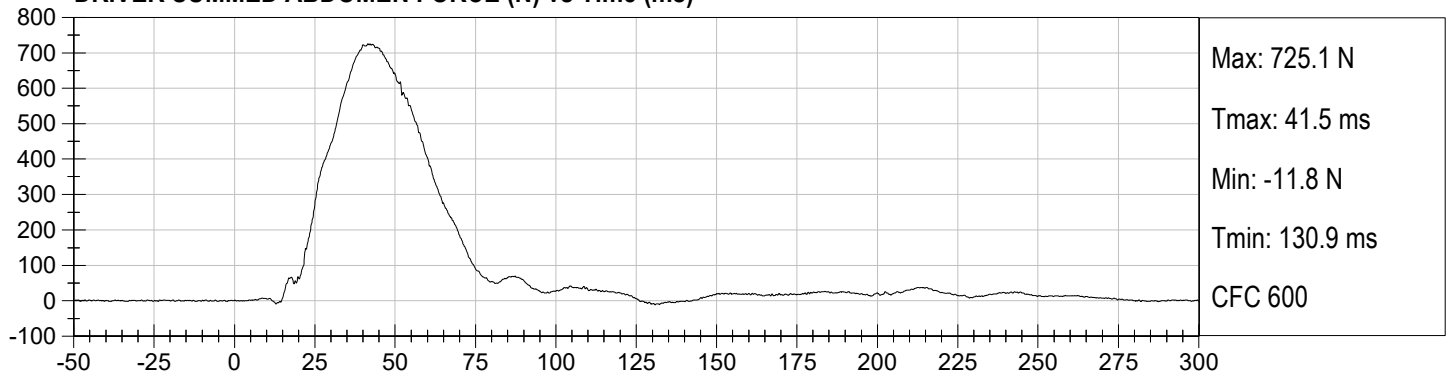
DRIVER MID ABDOMEN FY (N) vs Time (ms)

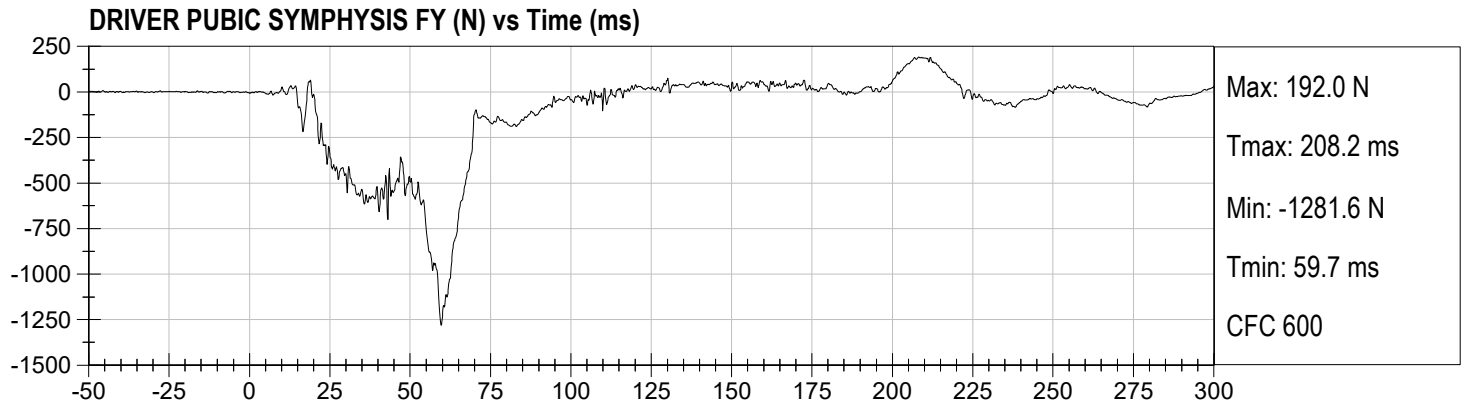


DRIVER REAR ABDOMEN FY (N) vs Time (ms)

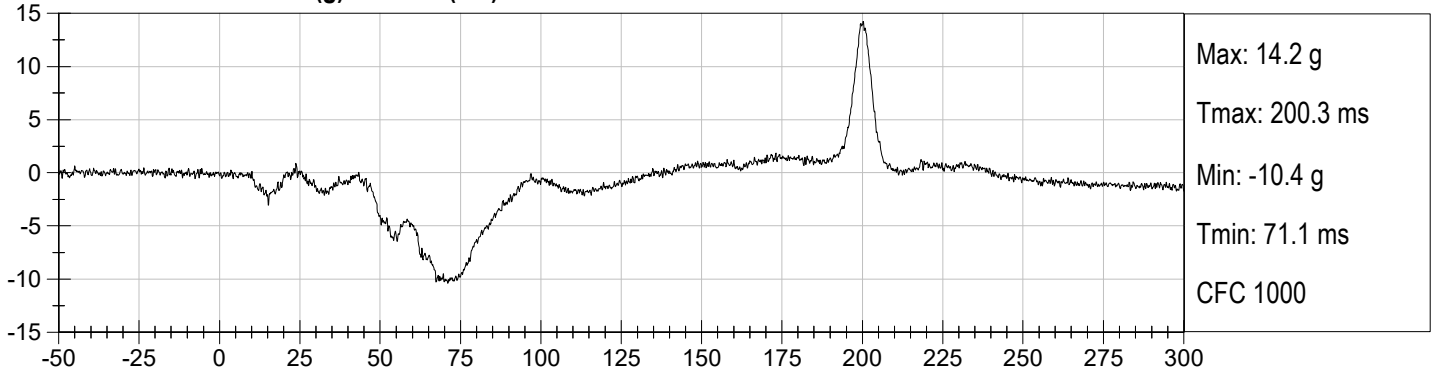


DRIVER SUMMED ABDOMEN FORCE (N) vs Time (ms)

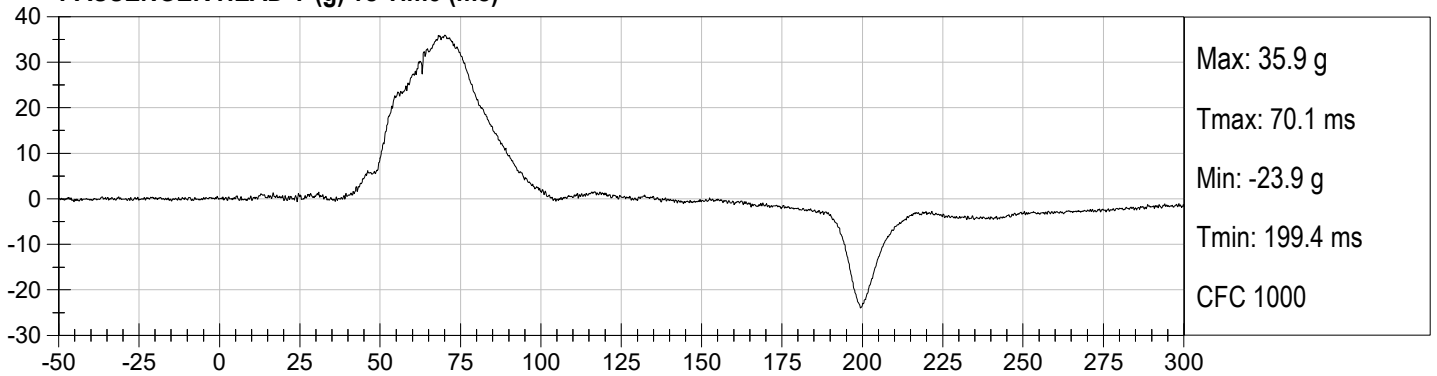




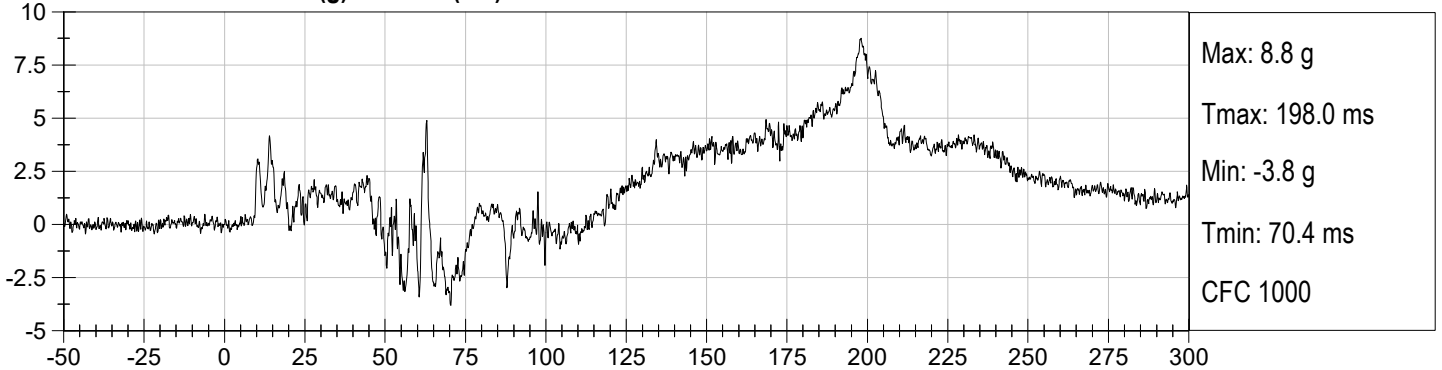
PASSENGER HEAD X (g) vs Time (ms)



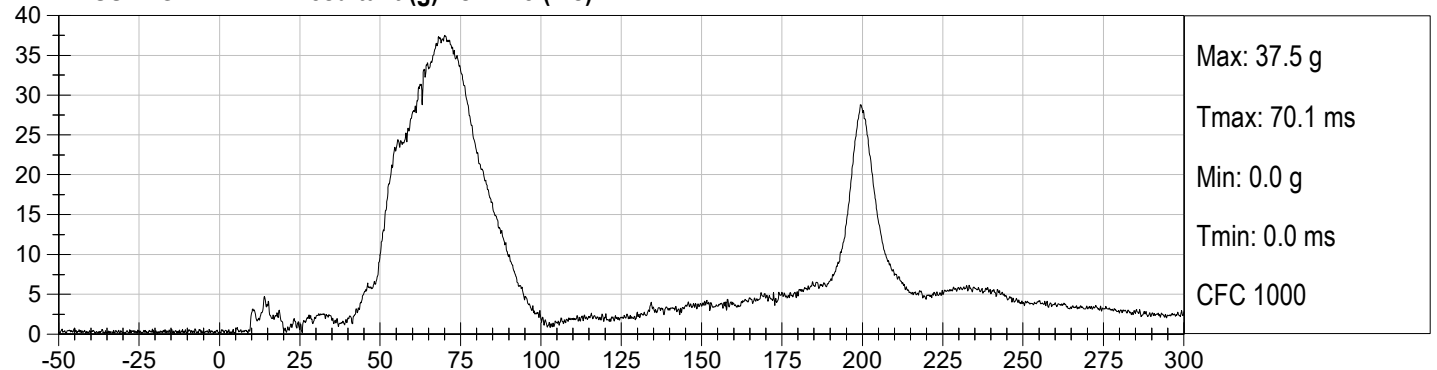
PASSENGER HEAD Y (g) vs Time (ms)



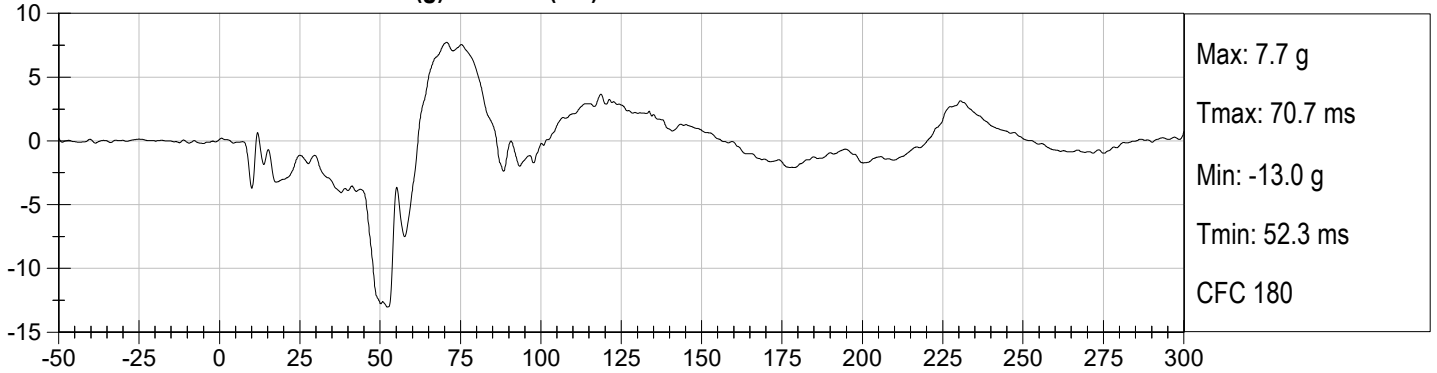
PASSENGER HEAD Z (g) vs Time (ms)



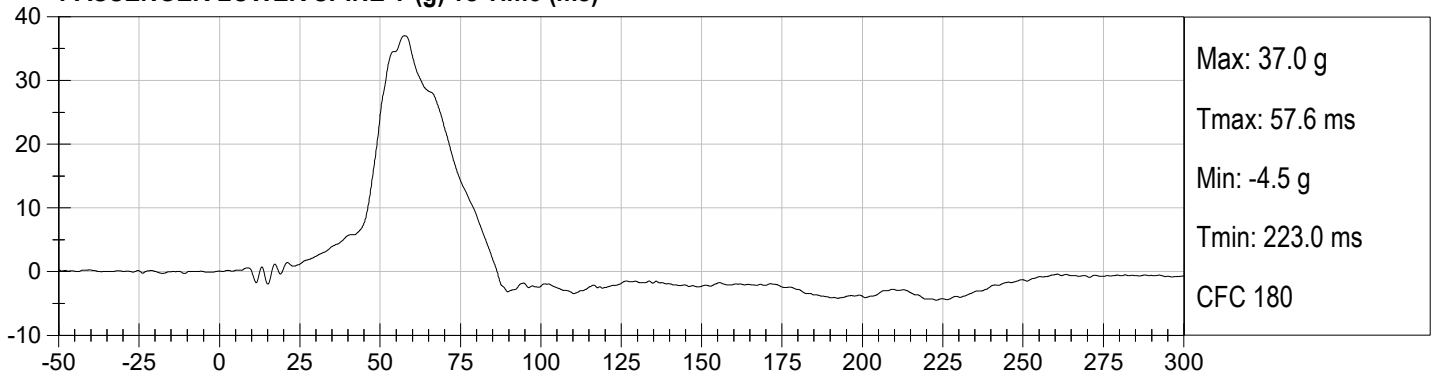
PASSENGER HEAD Resultant (g) vs Time (ms)



PASSENGER LOWER SPINE X (g) vs Time (ms)



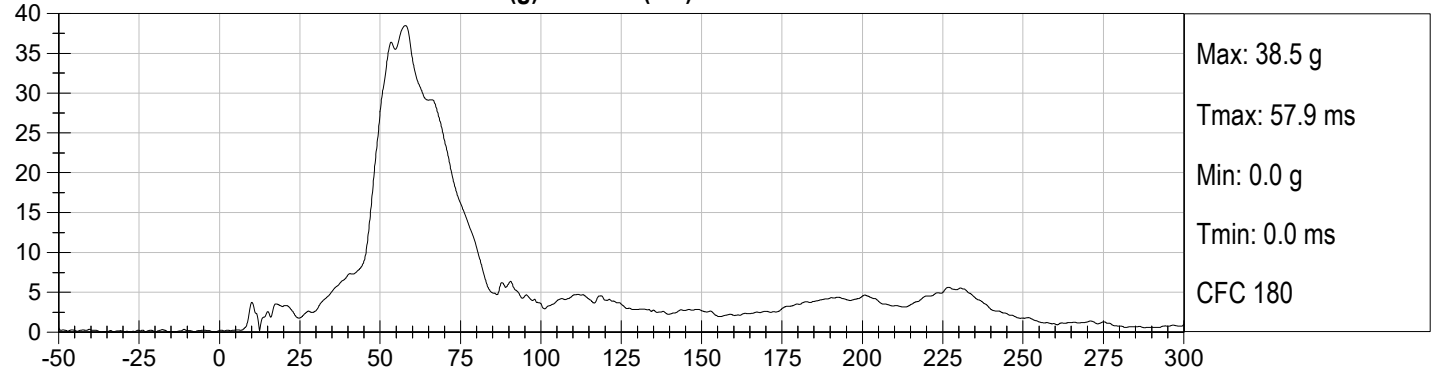
PASSENGER LOWER SPINE Y (g) vs Time (ms)



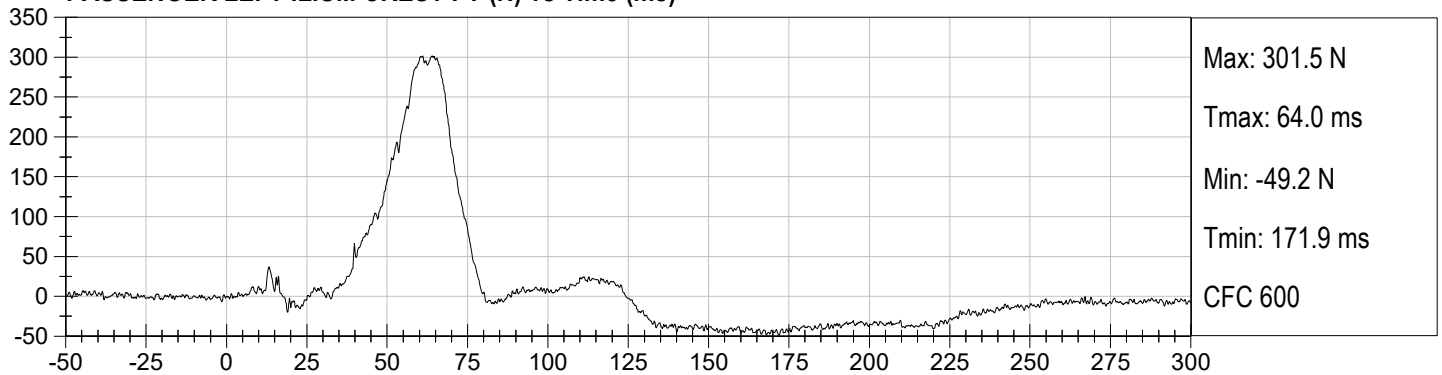
PASSENGER LOWER SPINE Z (g) vs Time (ms)



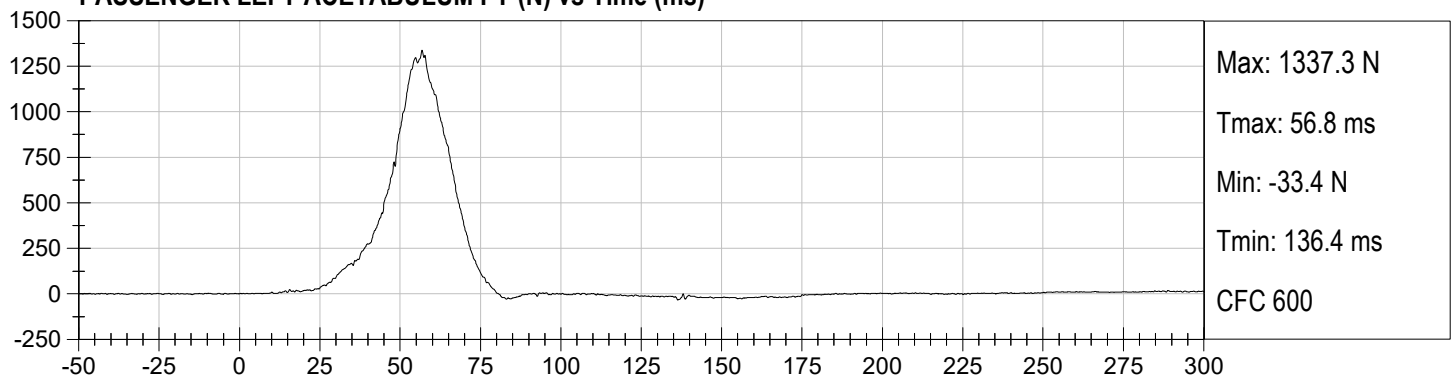
PASSENGER LOWER SPINE Resultant (g) vs Time (ms)



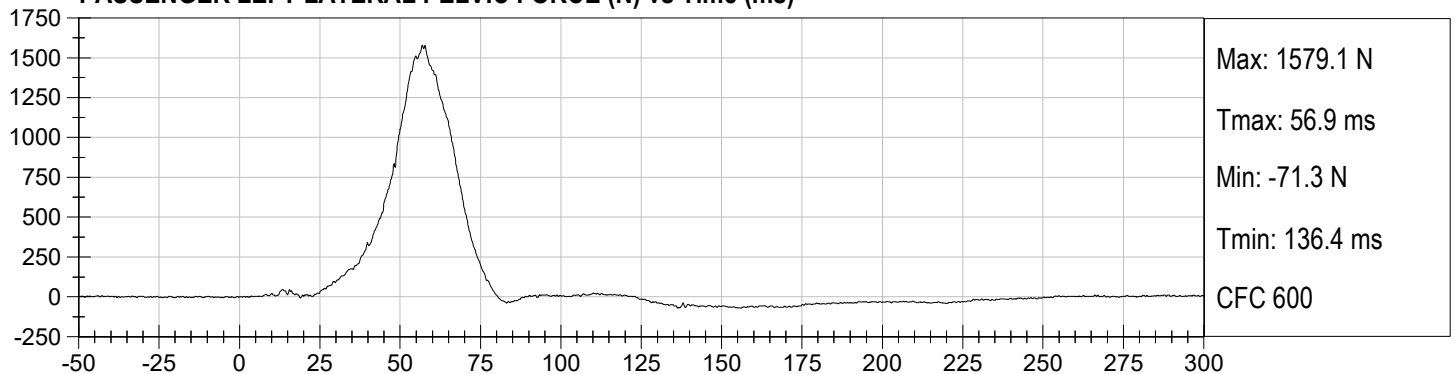
PASSENGER LEFT ILIUM CREST FY (N) vs Time (ms)



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



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



APPENDIX C
DUMMY QUALIFICATION AND PERFORMANCE VERIFICATION

QUALIFICATION TEST RESULTS

PRE-TEST

EUROSID 2 (ES-2RE) MALE – DRIVER ATD

ES-2re External Measurements
SN: F032

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

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HEAD DROP TEST

ES-2re DUMMY

ATD Serial No: F032

Test ID: D241781

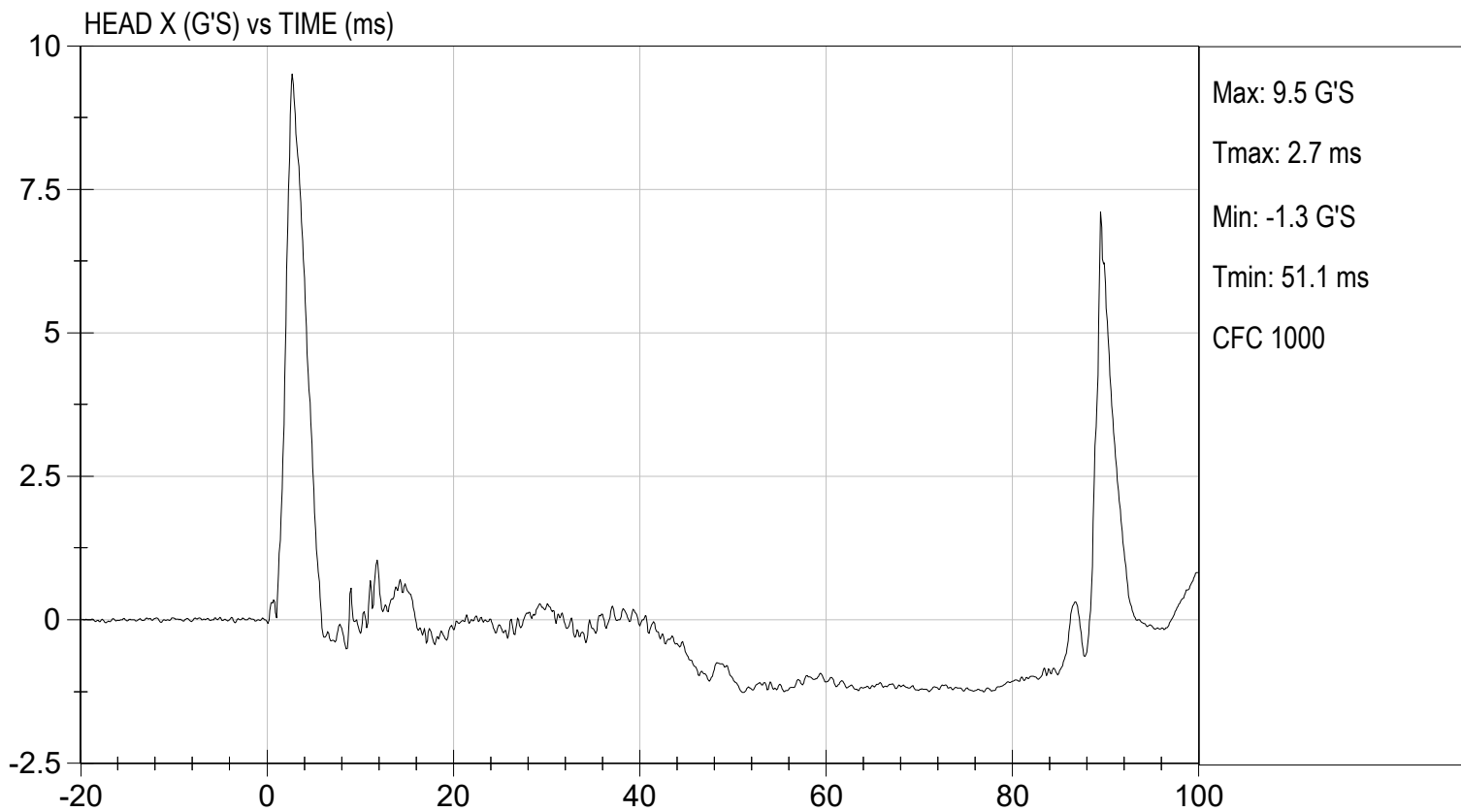
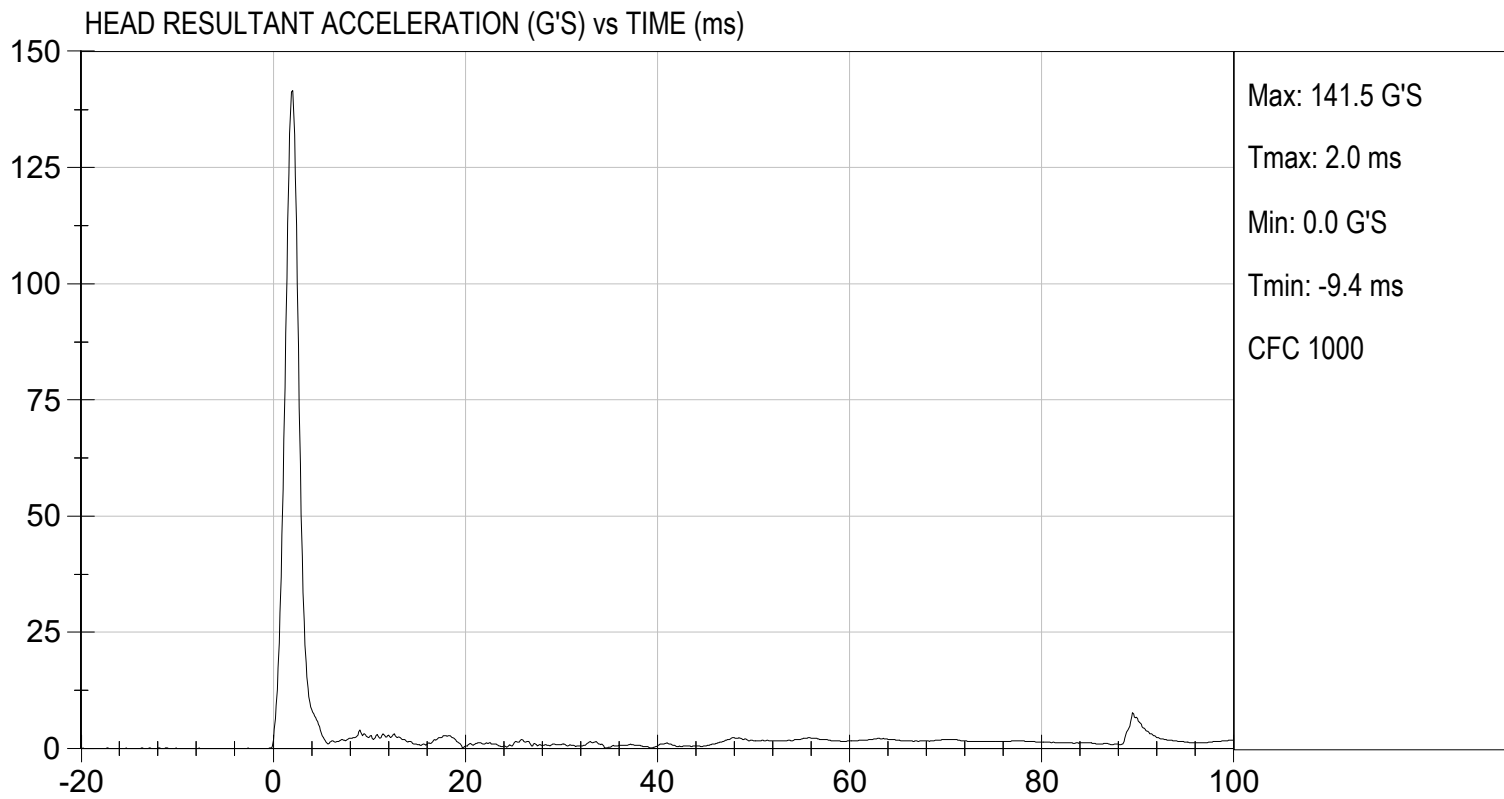
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	44	Pass
Peak Resultant Acceleration	G's	125 to 155	142	Pass
Peak Longitudinal Acceleration	G's	<= +/- 15.0	9.5	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 15% of peak	Yes	Pass
Overall Test Results				Pass

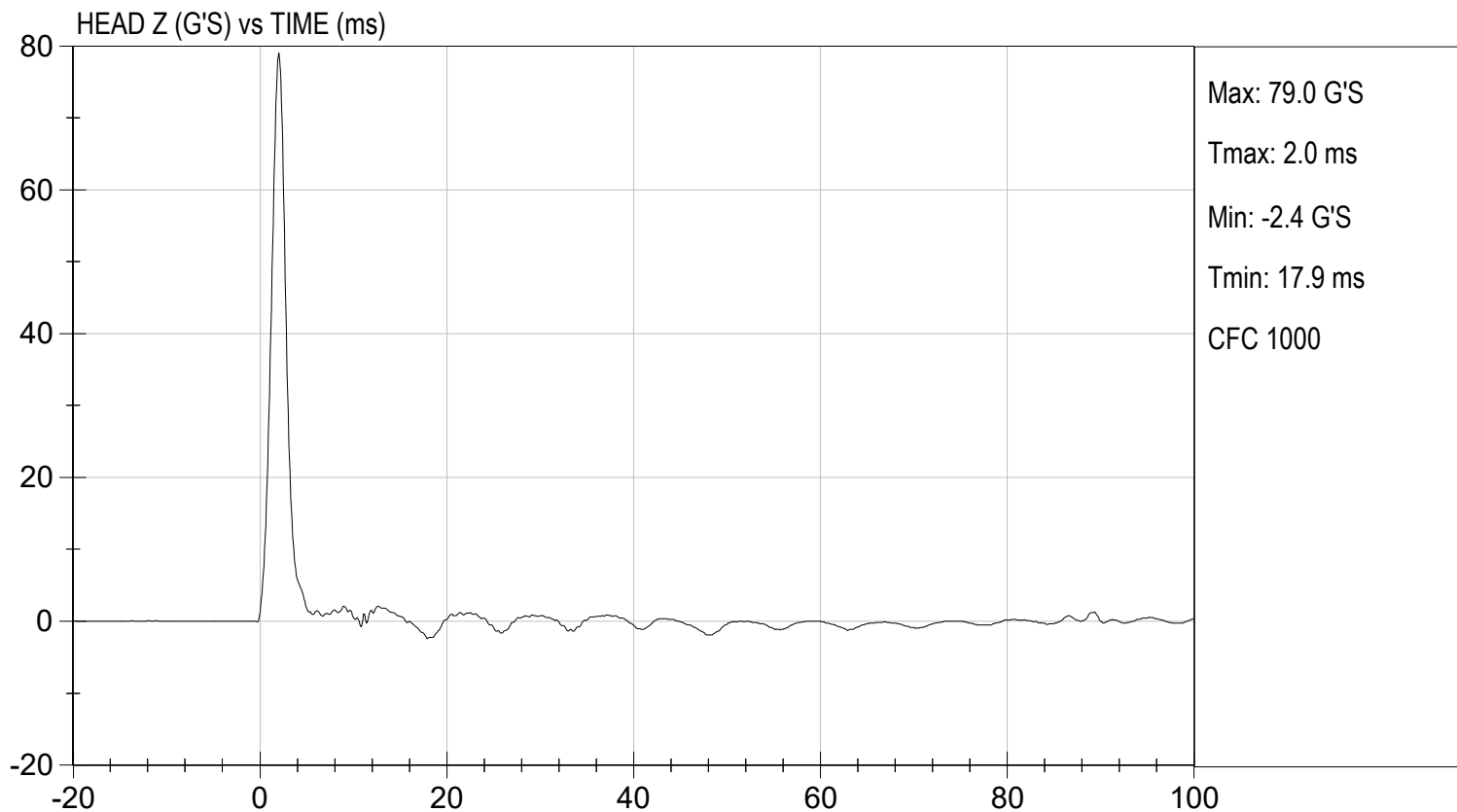
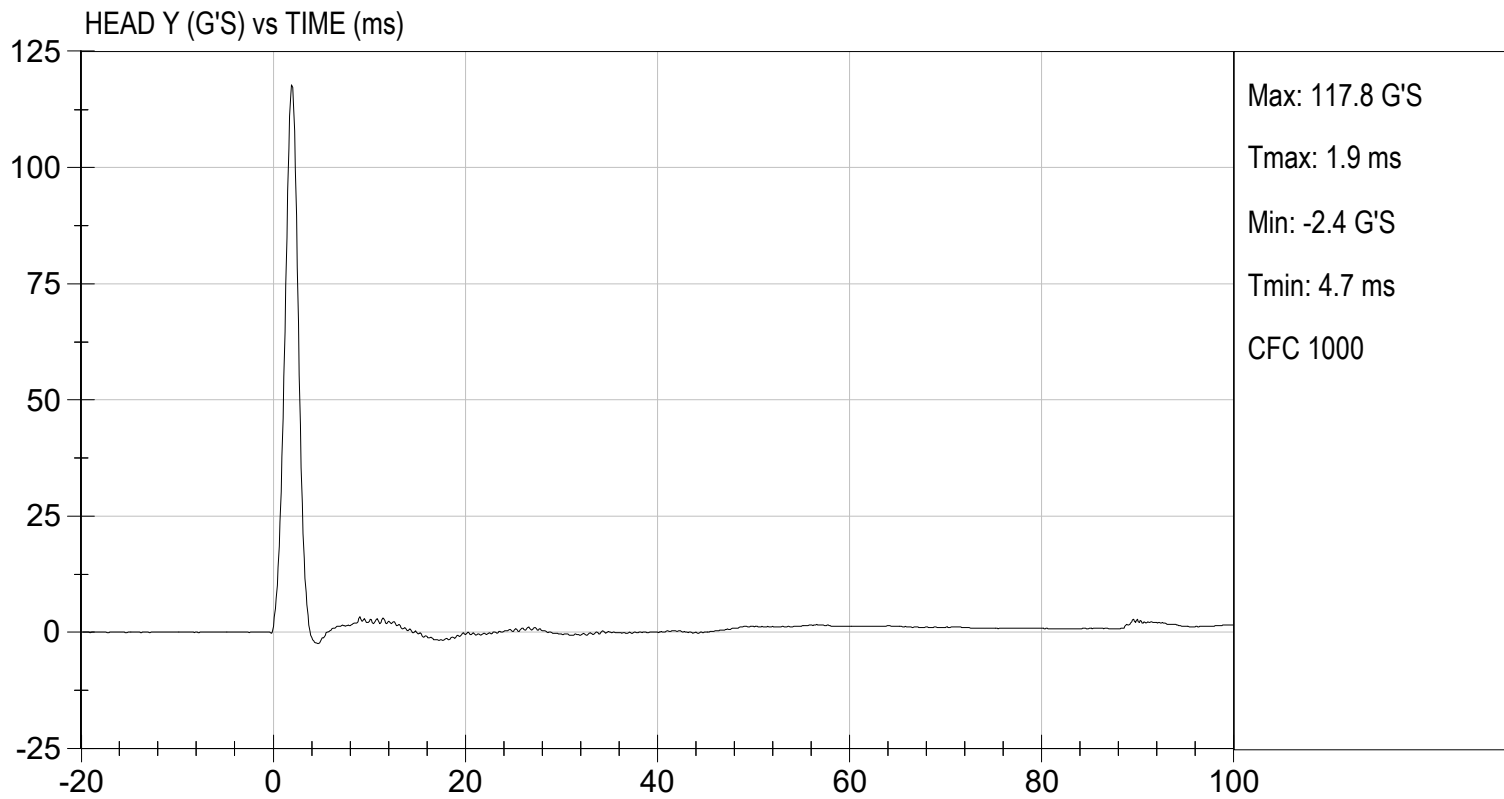

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07/17/2024

Test Date


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NECK PENDULUM TEST
ES-2re DUMMY

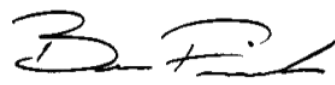
ATD Serial No: F032

Test I.D: D241782

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity		%	10 to 70	44	Pass
Pendulum Speed		m/s	3.30 to 3.50	3.46	Pass
Pendulum Velocity	1 ms	m/s	-0.05 to 0.00	-0.01	Pass
	3 ms	m/s	-0.25 to -0.375	-0.32	Pass
	14 ms	m/s	-3.20 to -3.70	-3.50	Pass
	17 ms	m/s	>= -3.70	-3.64	Pass
Maximum Flexion Angle		deg	49.0 to 59.0	50.6	Pass
Time of Maximum Flexion Angle		ms	54.0 to 66.0	59.4	Pass
Head Rotation Decay Time to 0 Degree		ms	53.0 to 88.0	60.3	Pass
Overall Results				Pass	

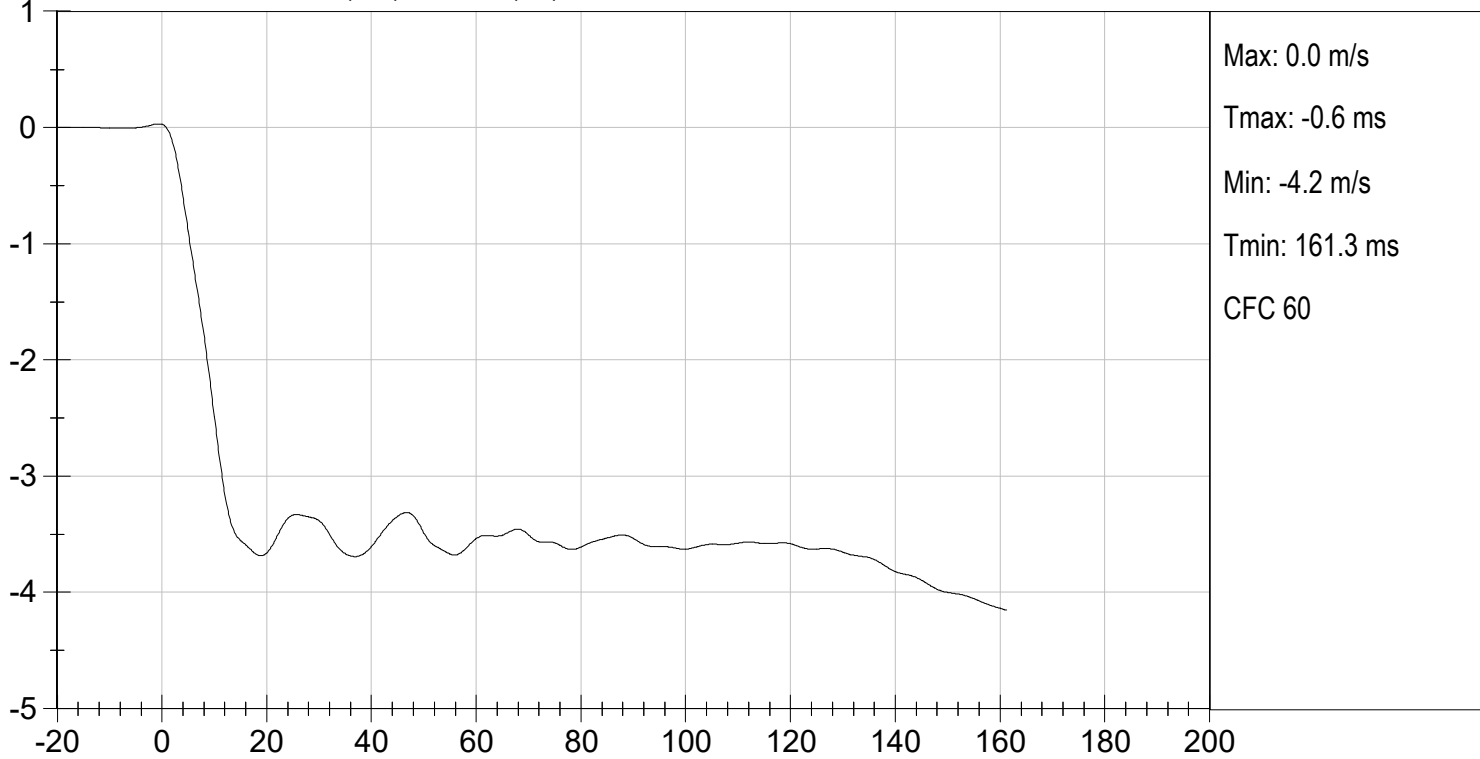

 Laboratory Technician

07/17/2024
 Test Date

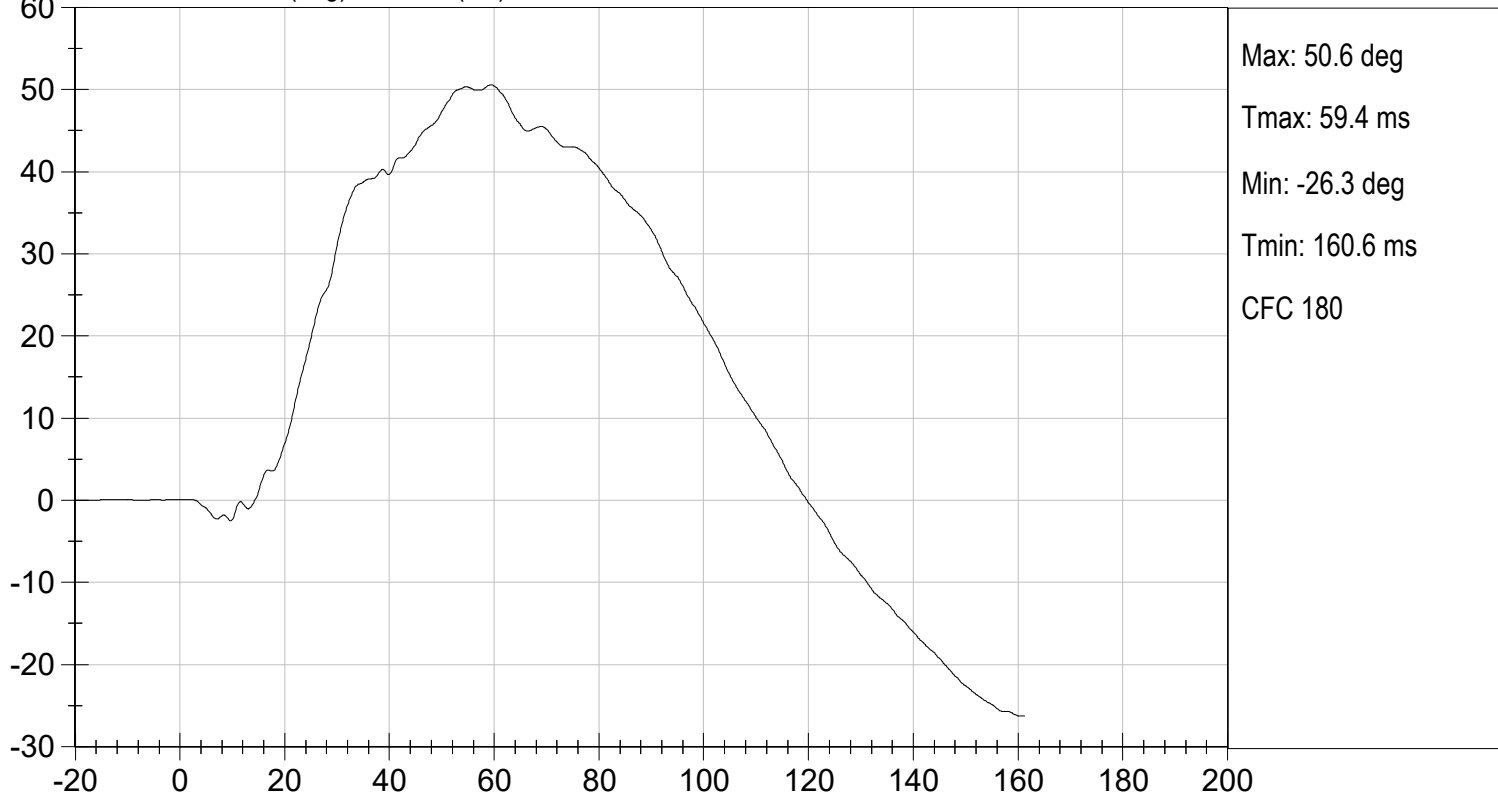

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PENDULUM VELOCITY (m/s) vs TIME (ms)



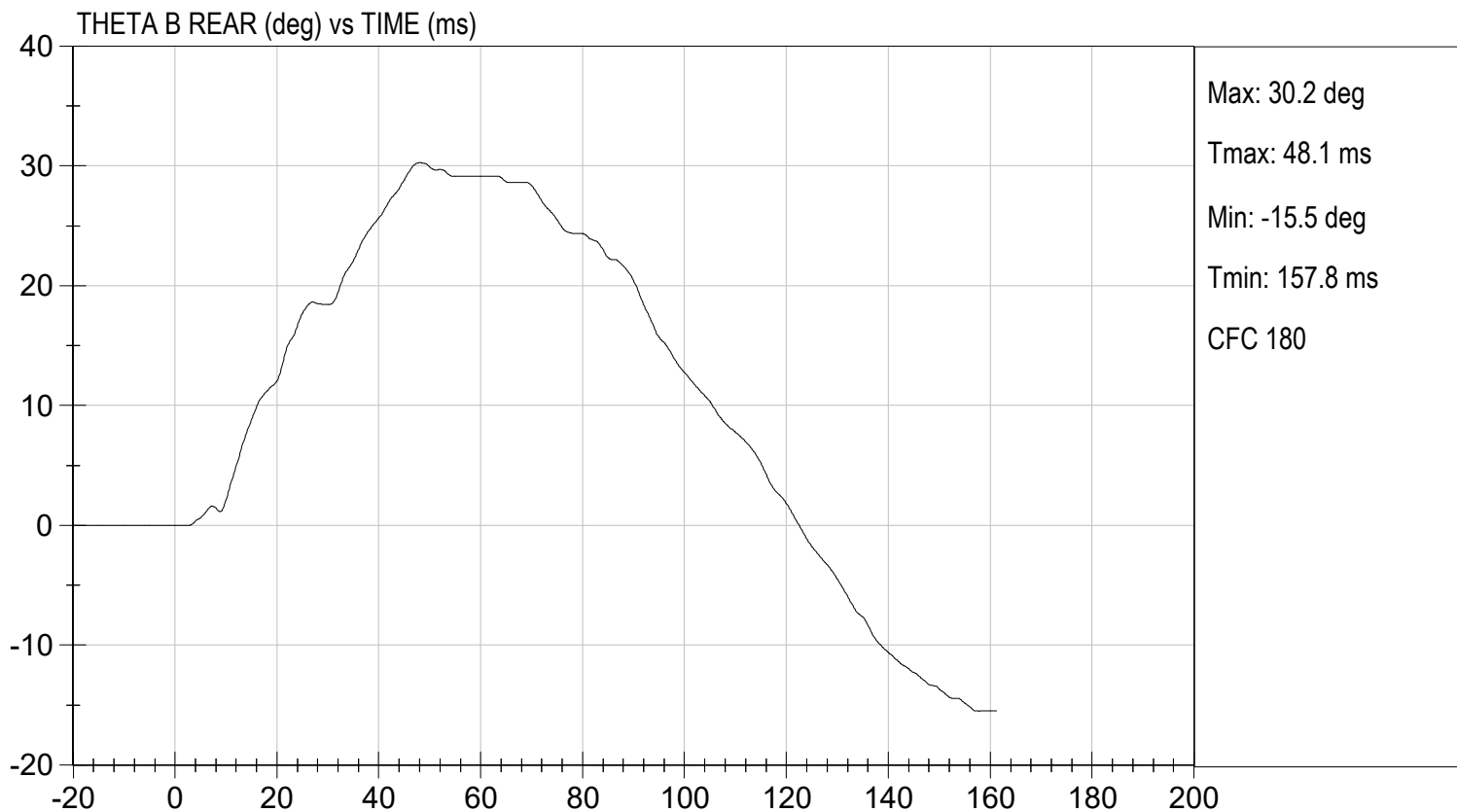
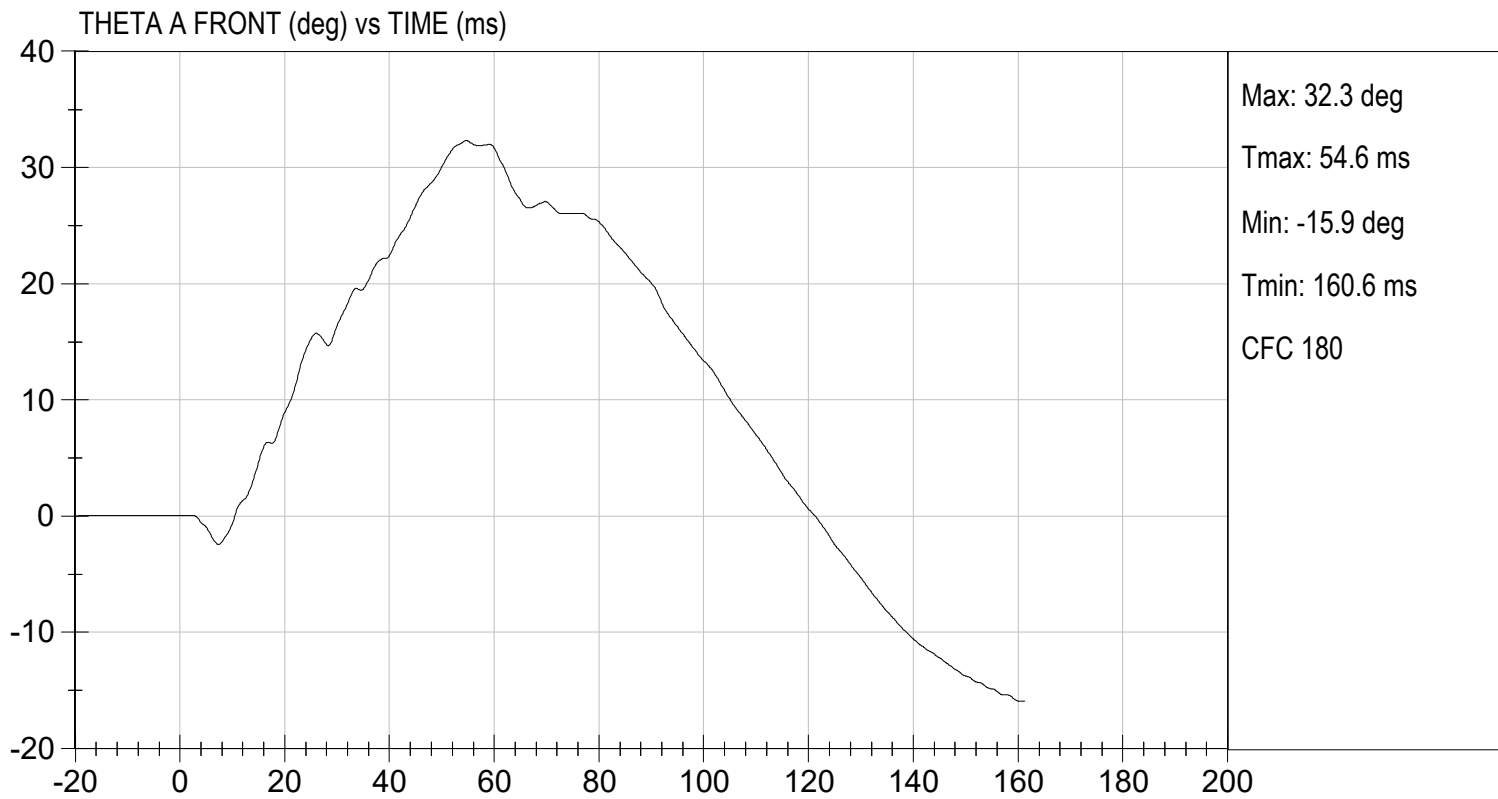
FLEXION ANGLE (deg) vs TIME (ms)





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

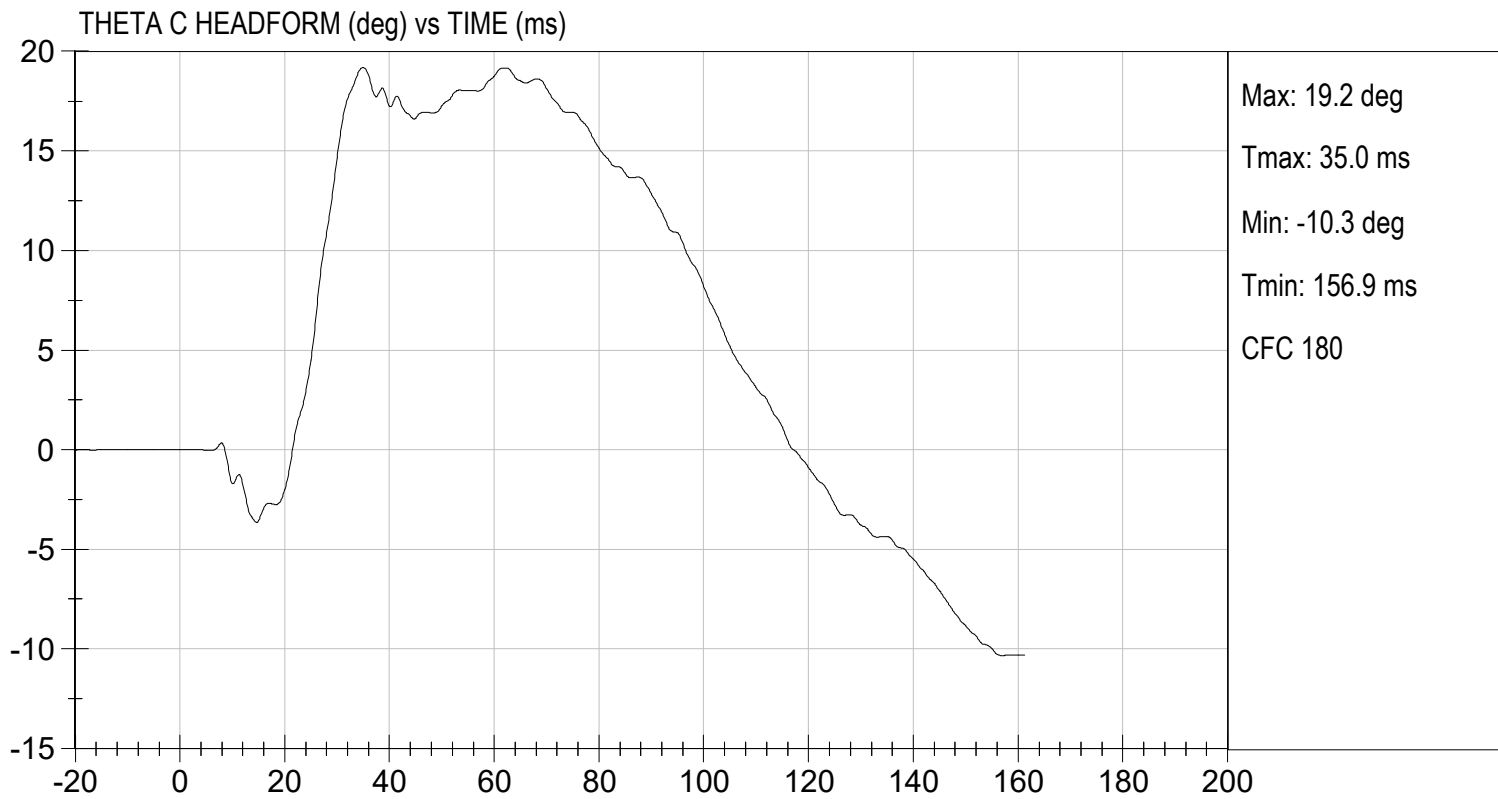
TEST DATE: 07/17/2024
TEST #: D241782





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

TEST DATE: 07/17/2024
TEST #: D241782



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SHOULDER IMPACT TEST

ES-2re DUMMY

ATD Serial No: F032

Test I.D: D241783

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Pendulum Speed	m/s	4.20 to 4.40	4.23	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	9.3	Pass
Overall Test Results				Pass


Laboratory Technician

07/17/2024

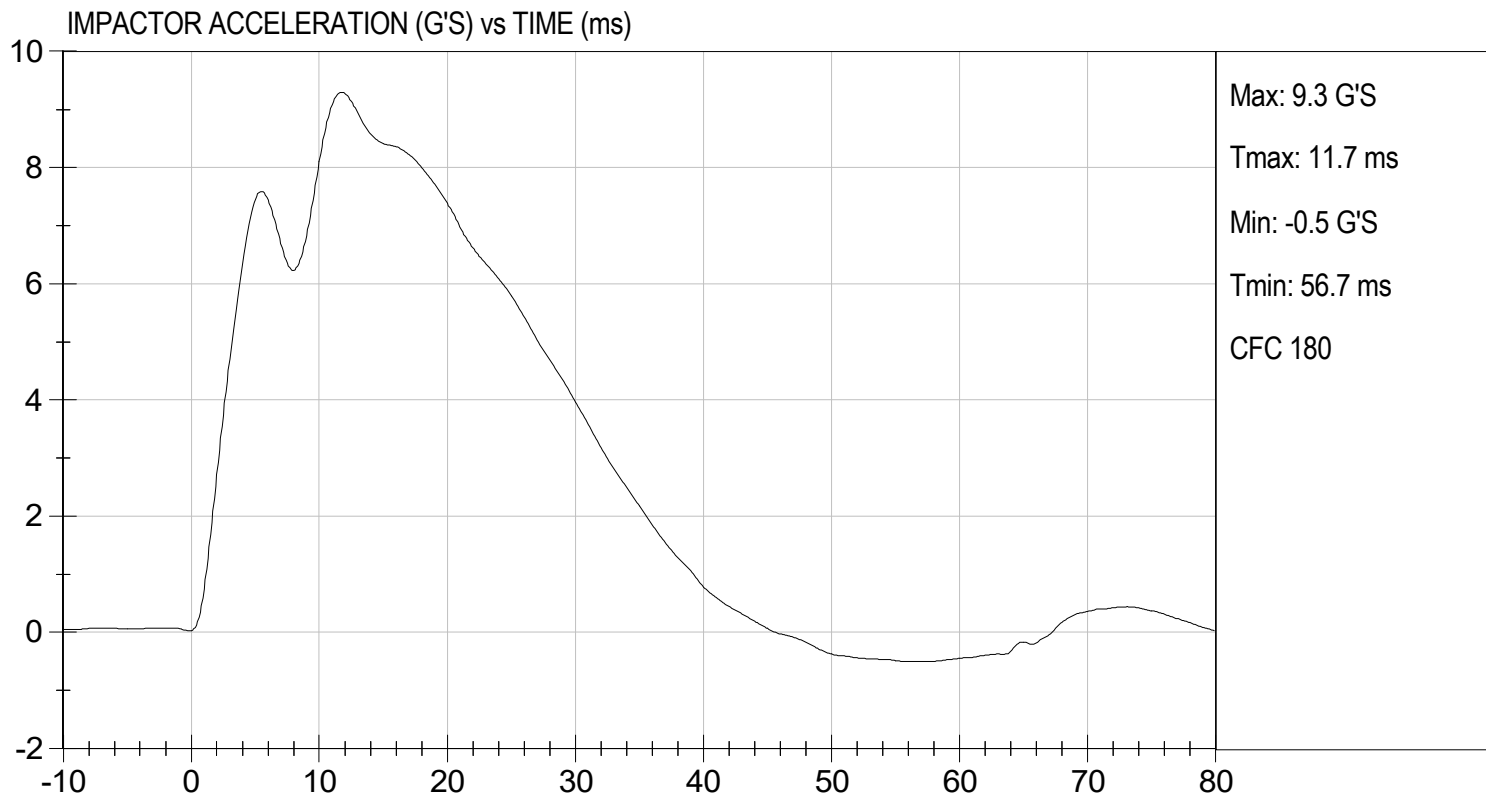
Test Date


Approved By



TEST DESC: SHOULDER IMPACT
VELOCITY: 13.89 ft/s, 4.23 m/s

TEST DATE: 07/17/2024
TEST #: D241783



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UPPER RIB TEST

ES-2re DUMMY

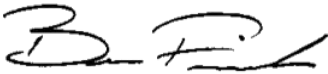
ATD Serial No: F032

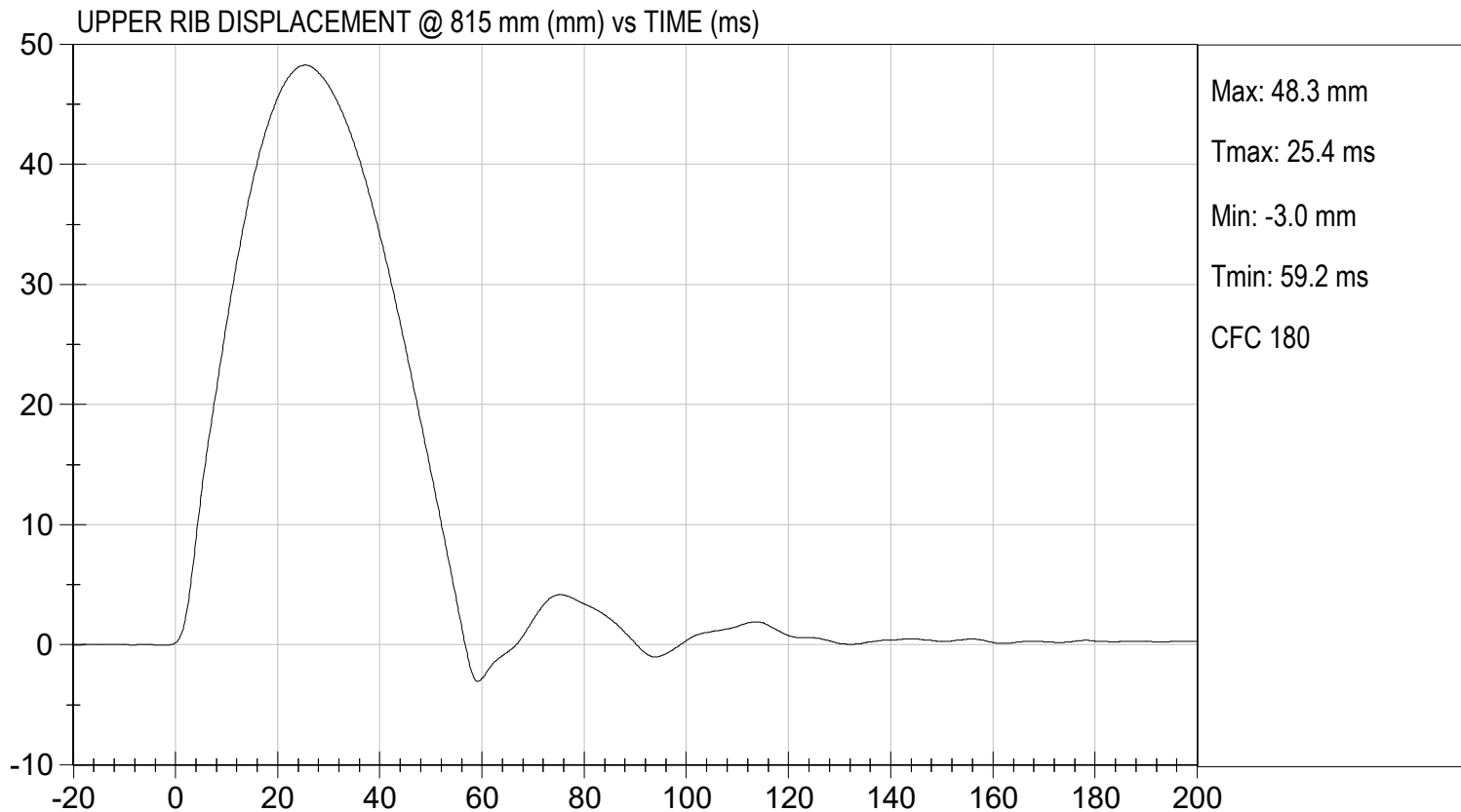
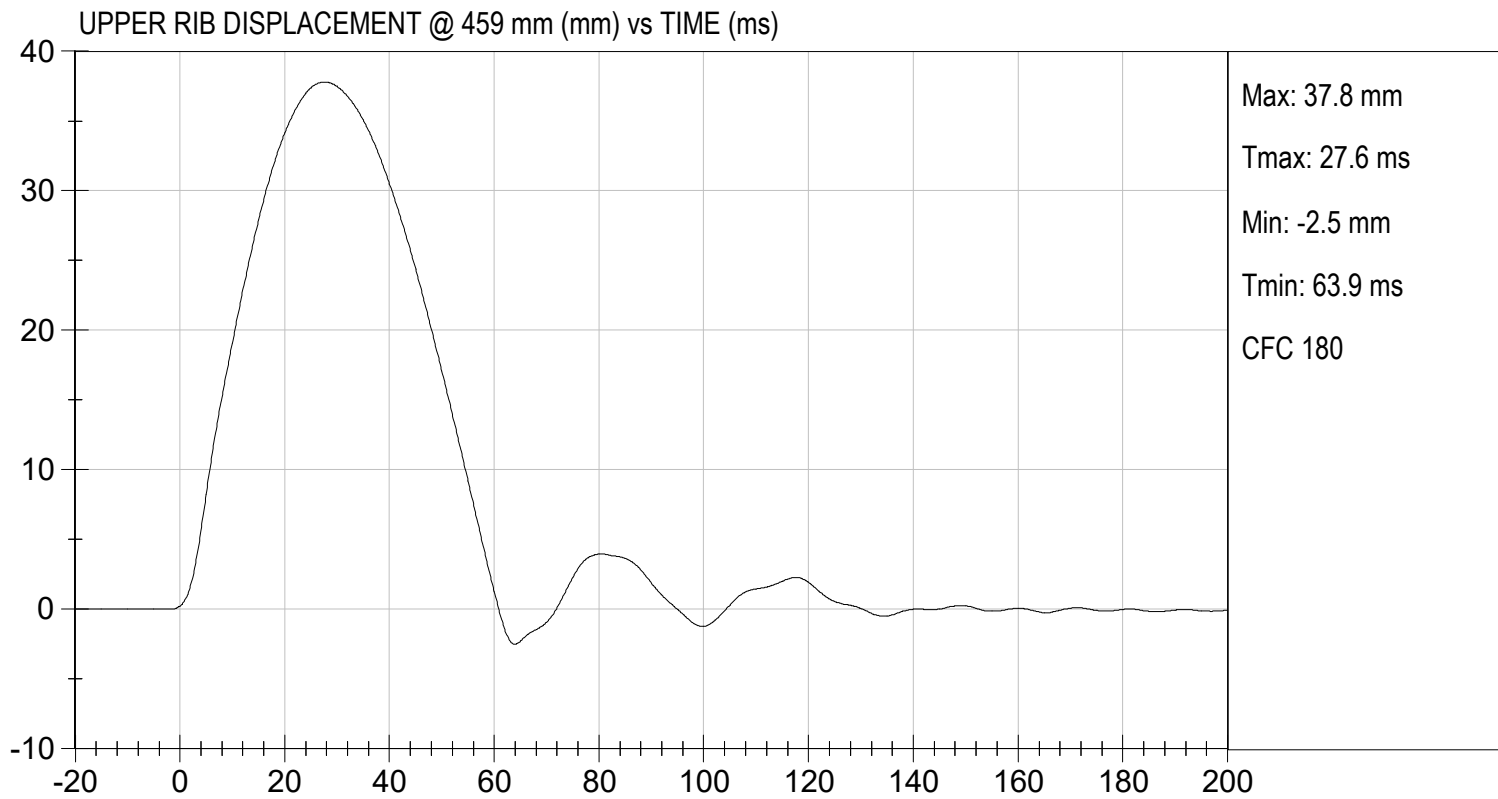
Test I.D: D241784

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	44	Pass
Displacement at 459 mm	mm	36.0 to 40.0	37.8	Pass
Displacement at 815 mm	mm	46.0 to 51.0	48.3	Pass
Overall Test Results			Pass	


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07/17/2024
Test Date


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MID RIB TEST

ES-2re DUMMY

ATD Serial No: F032

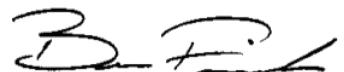
Test I.D: D241785

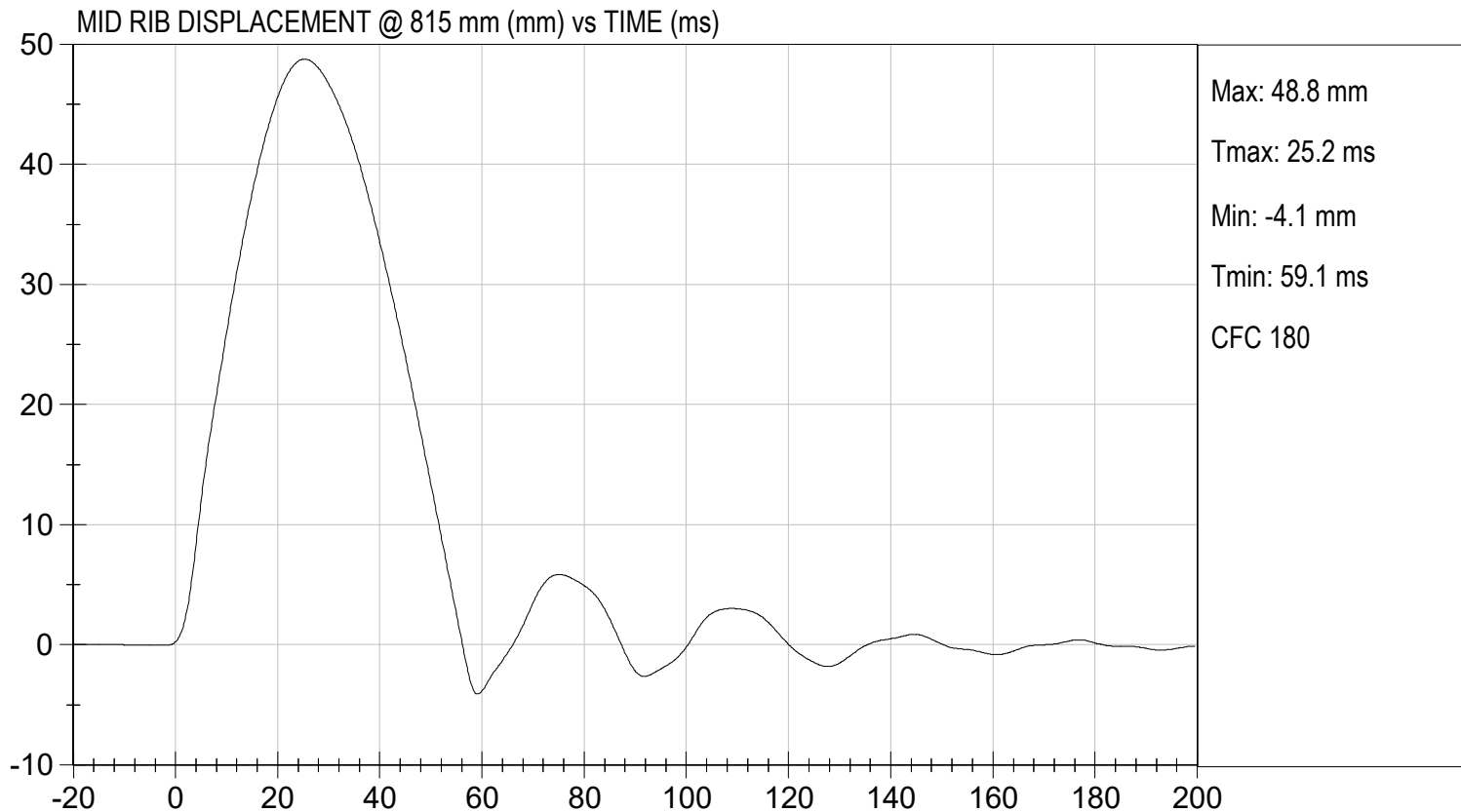
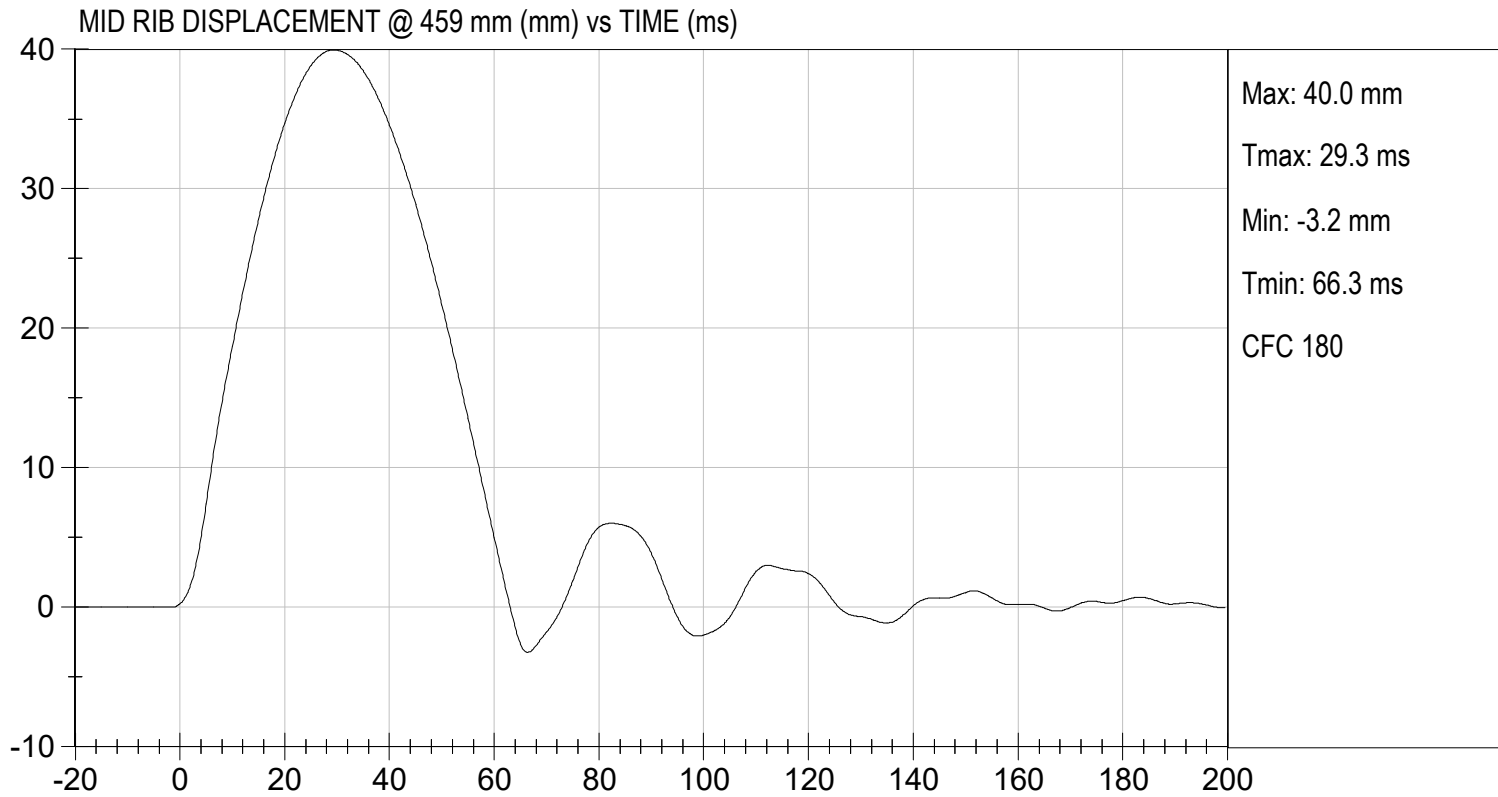
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	44	Pass
Displacement at 459 mm	mm	36.0 to 40.0	40.0	Pass
Displacement at 815 mm	mm	46.0 to 51.0	48.8	Pass
Overall Test Results			Pass	


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Test Date


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LOWER RIB TEST

ES-2re DUMMY

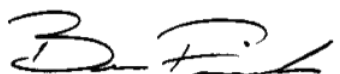
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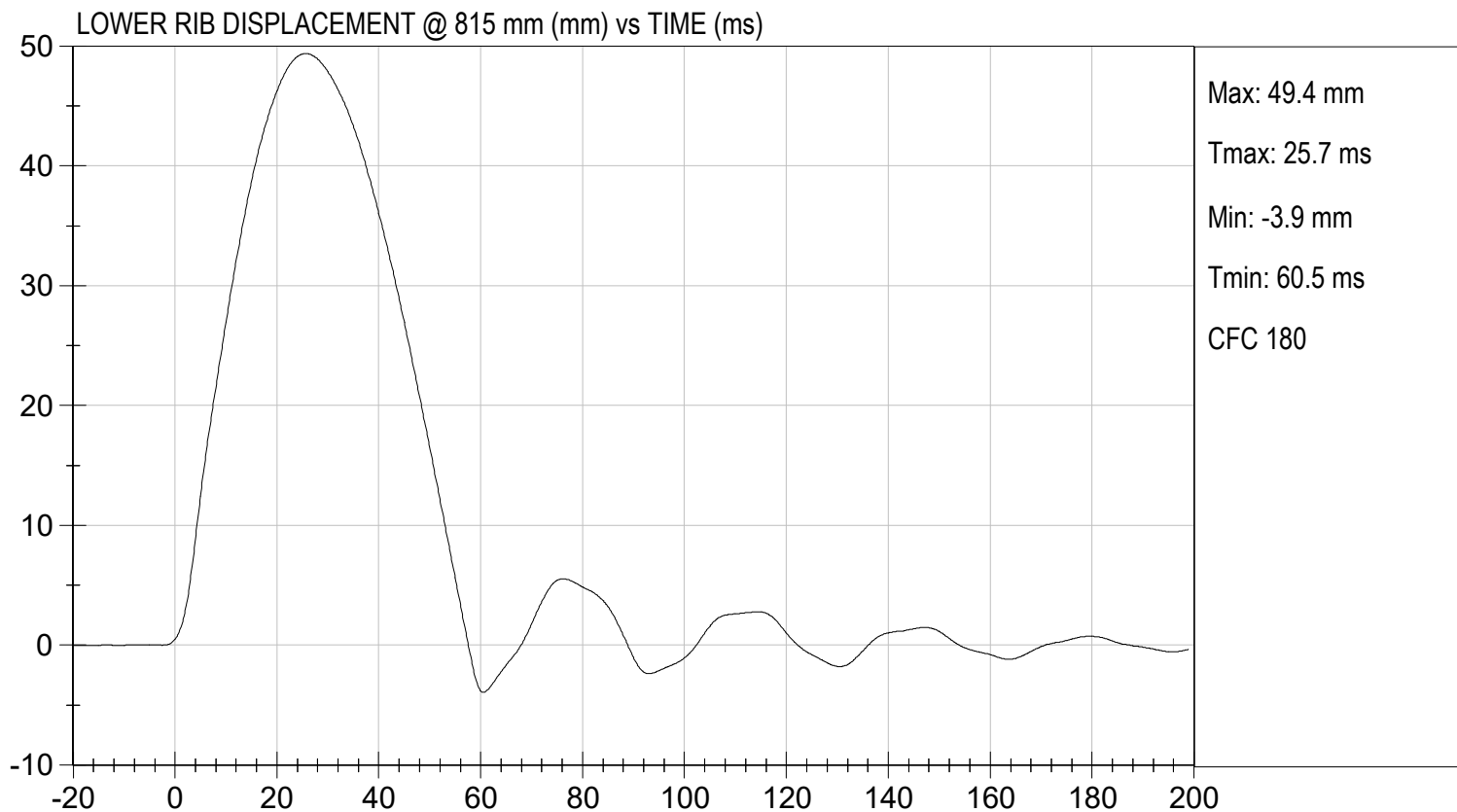
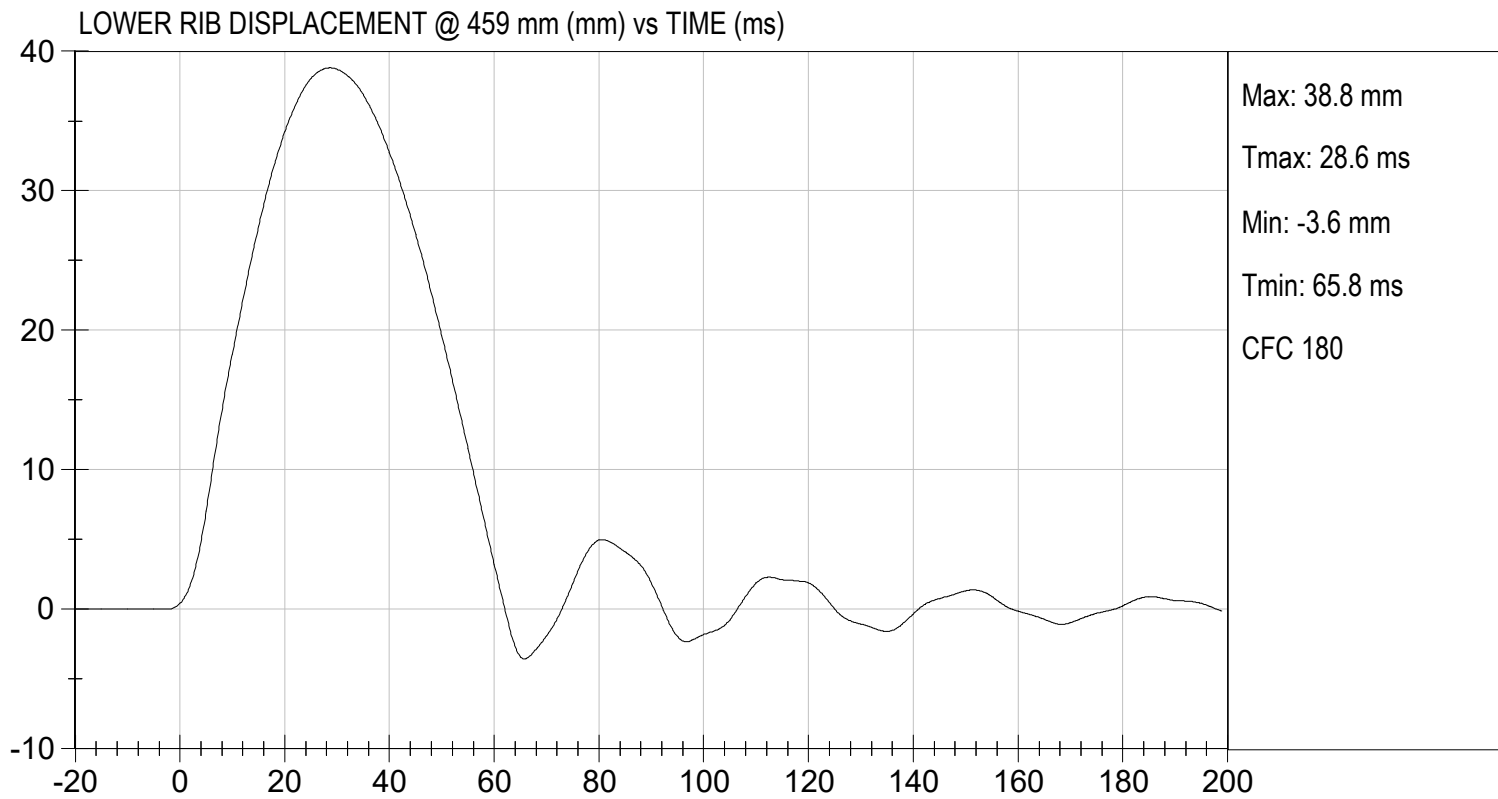
Test I.D: D241786

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	44	Pass
Displacement at 459 mm	mm	36.0 to 40.0	38.8	Pass
Displacement at 815 mm	mm	46.0 to 51.0	49.4	Pass
Overall Test Results			Pass	


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07/17/2024
Test Date


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ABDOMEN TEST

ES-2re DUMMY

ATD Serial No: F032

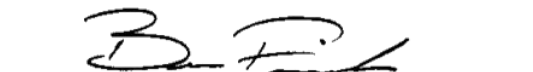
Test I.D: D241787

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Probe Speed	m/s	3.90 to 4.10	4.00	Pass
Maximum Impactor Force	N	4000 to 4800	4341	Pass
Time of Maximum Impactor Force	ms	10.6 to 13.0	12.2	Pass
Maximum Total Abdomen Force	N	2200 to 2700	2230	Pass
Time of Maximum Abdomen Force	ms	10.0 to 12.3	12.2	Pass
Overall Test Results				Pass


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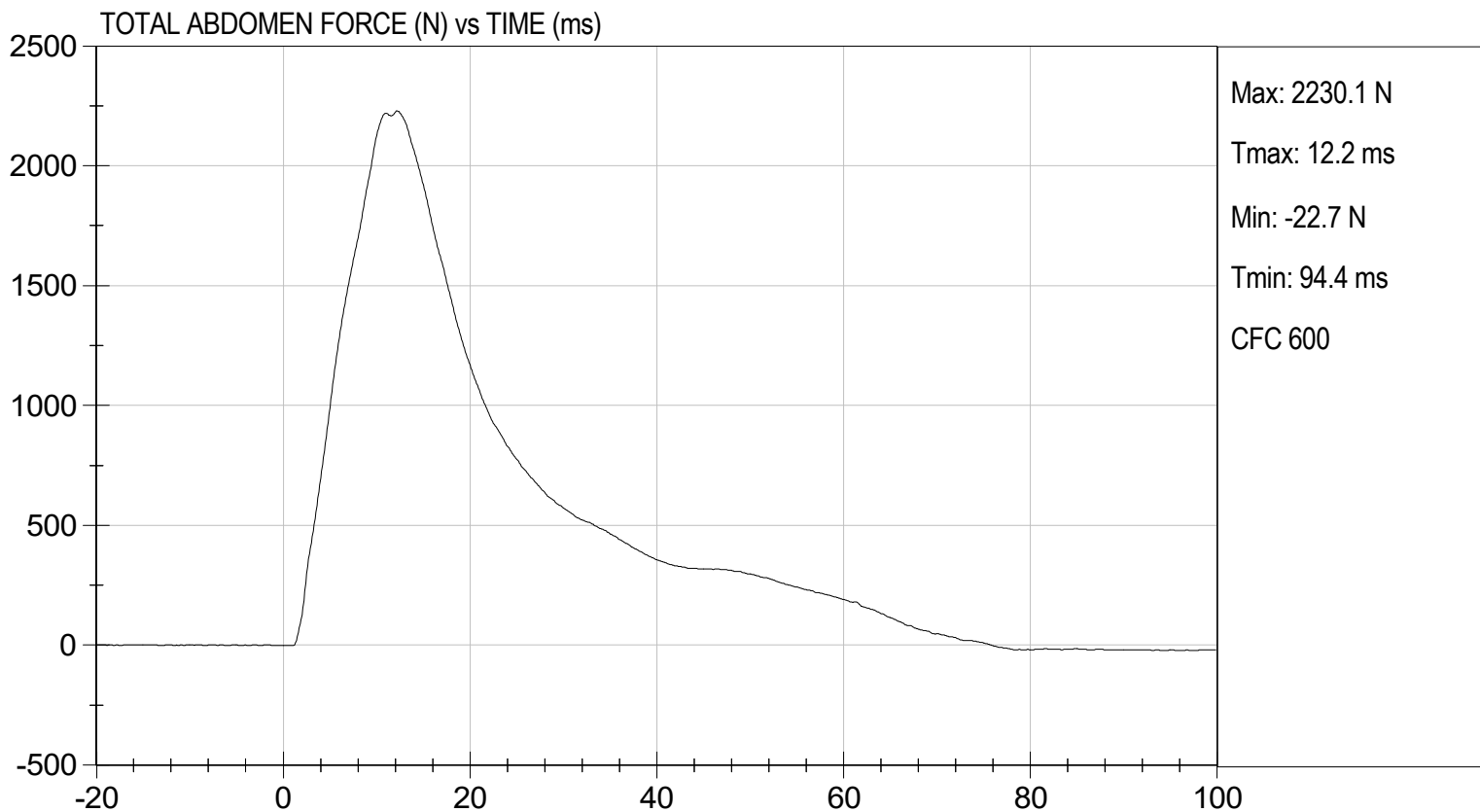
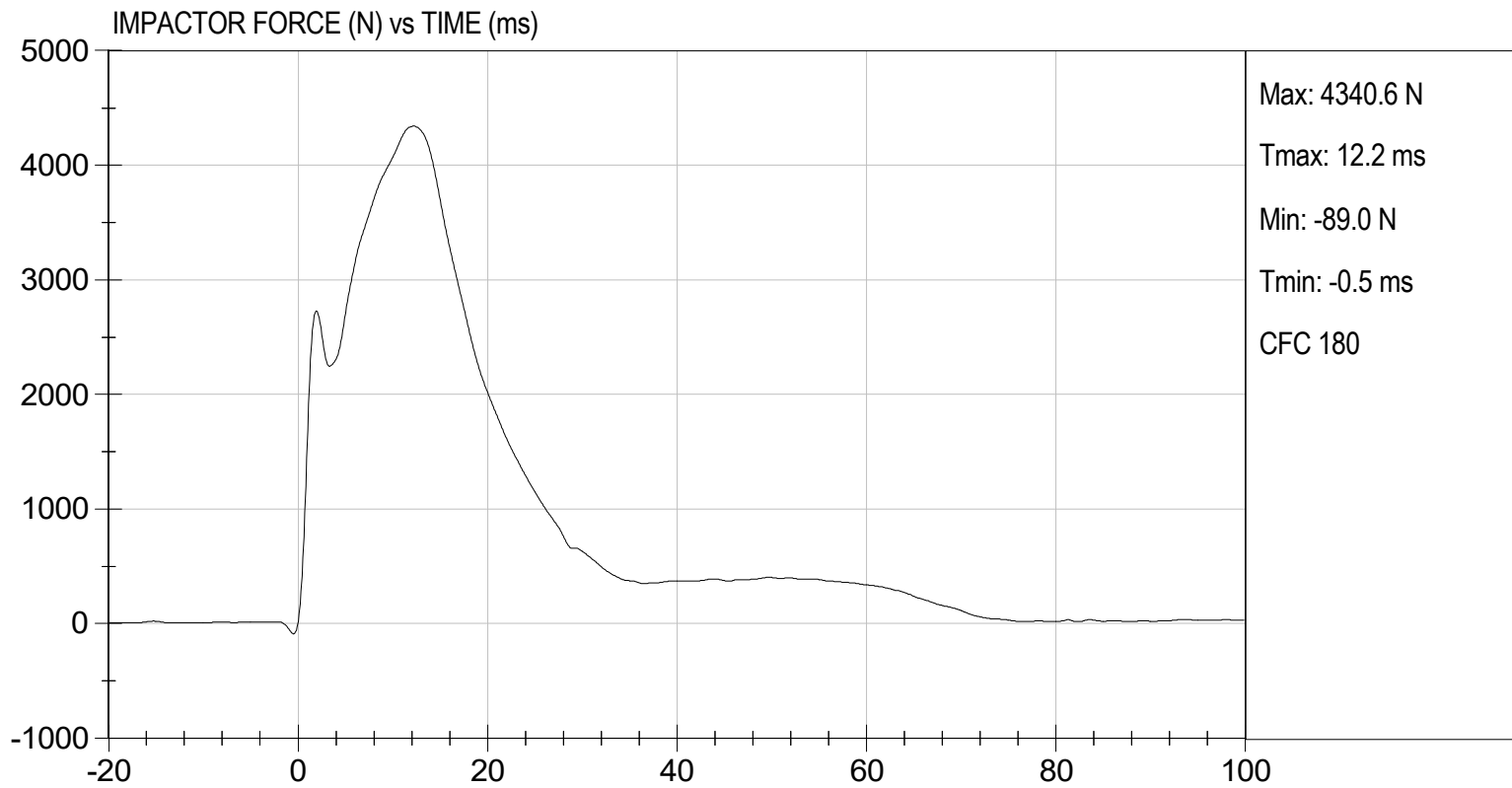
Test Date


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TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.12 ft/s, 4.00 m/s

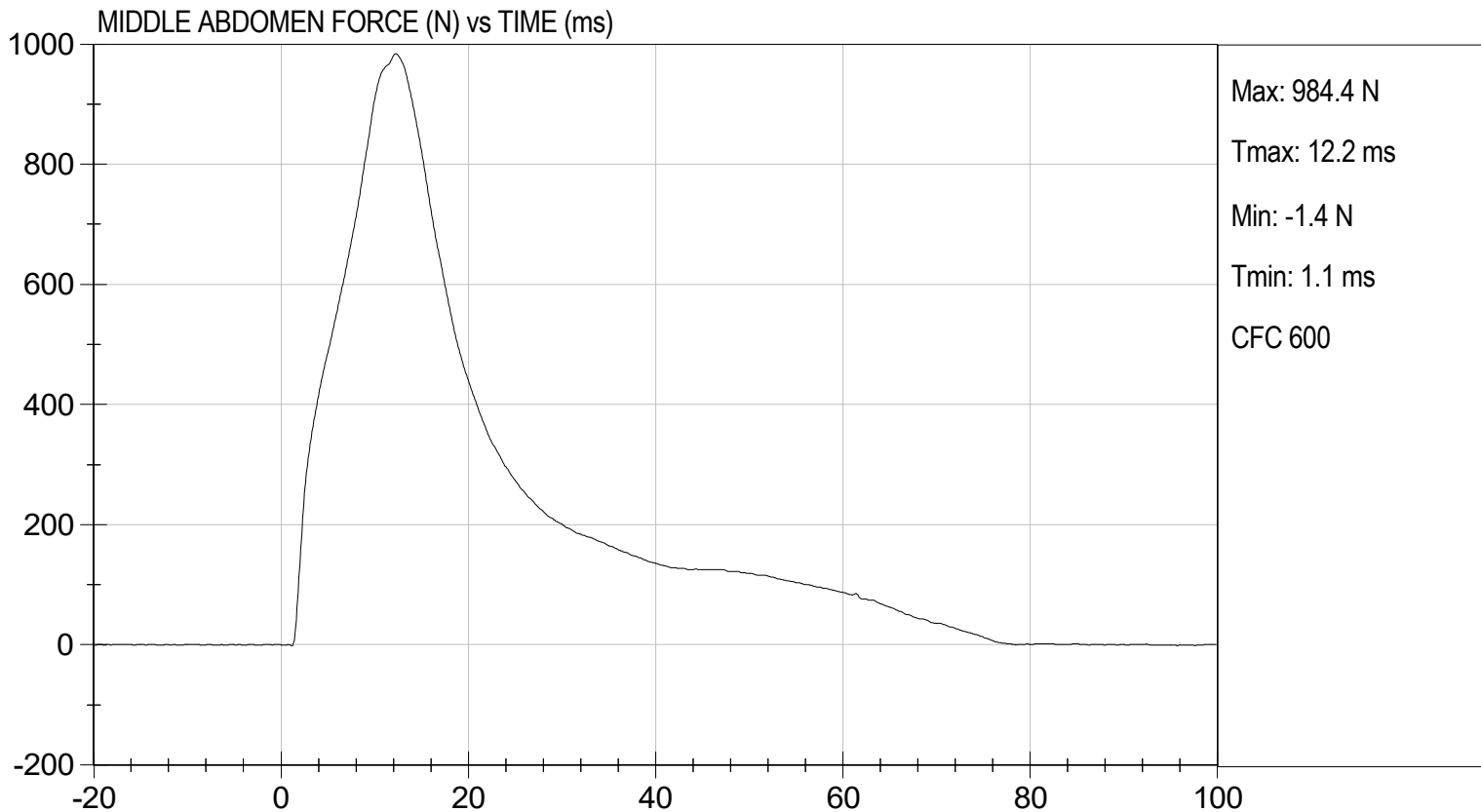
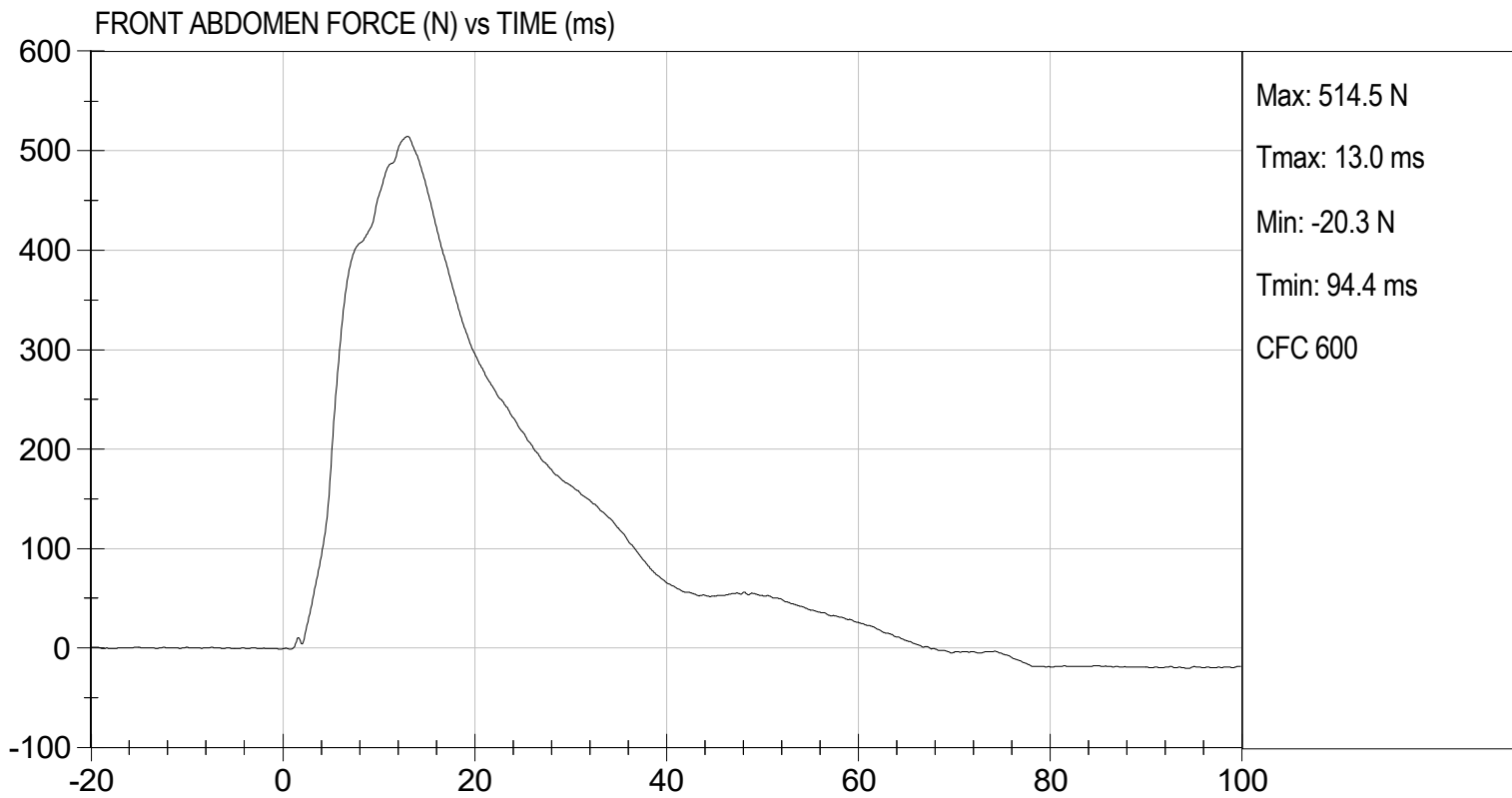
TEST DATE: 07/17/2024
TEST #: D241787





TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.12 ft/s, 4.00 m/s

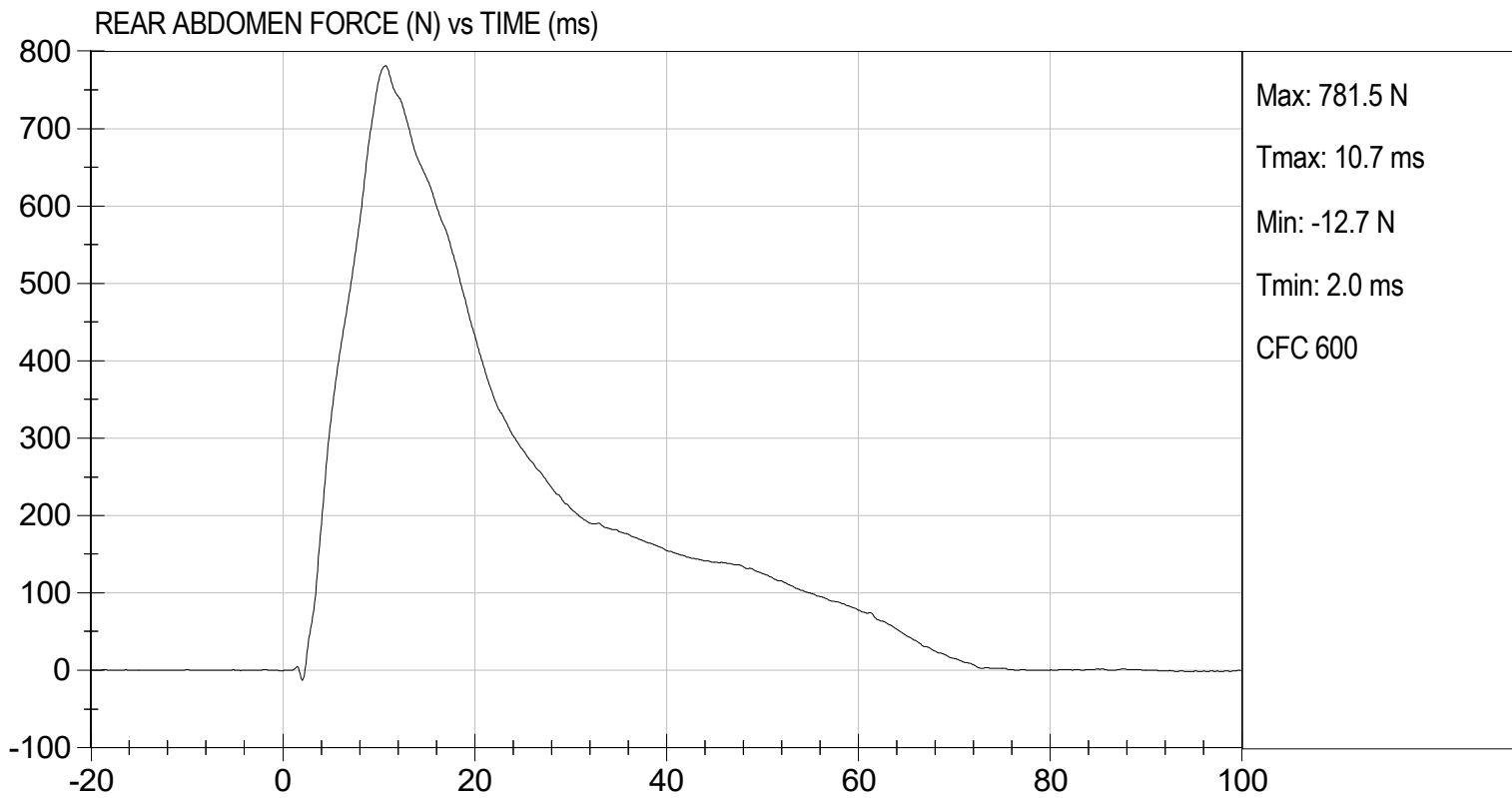
TEST DATE: 07/17/2024
TEST #: D241787





TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.12 ft/s, 4.00 m/s

TEST DATE: 07/17/2024
TEST #: D241787



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LUMBAR SPINE TEST

ES-2re DUMMY

ATD Serial No: F032

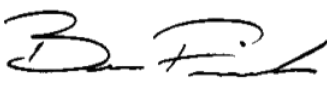
Test I.D: D241788

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity		%	10 to 70	44	Pass
Pendulum Speed		m/s	5.95 to 6.15	6.05	Pass
Pendulum Velocity	1 ms	m/s	-0.05 to 0.00	-0.02	Pass
	3.7 ms	m/s	-0.425 to -0.24	-0.417	Pass
	27 ms	m/s	-6.50 to -5.80	-5.99	Pass
	30 ms	m/s	>= -6.50	-6.26	Pass
Maximum Flexion Angle		deg	45.0 to 55.0	46.7	Pass
Time of Maximum Flexion Angle		ms	39.0 to 53.0	45.1	Pass
Headform Rotation Decay to Initial Position		ms	37 to 57	42	Pass
Overall Results				Pass	


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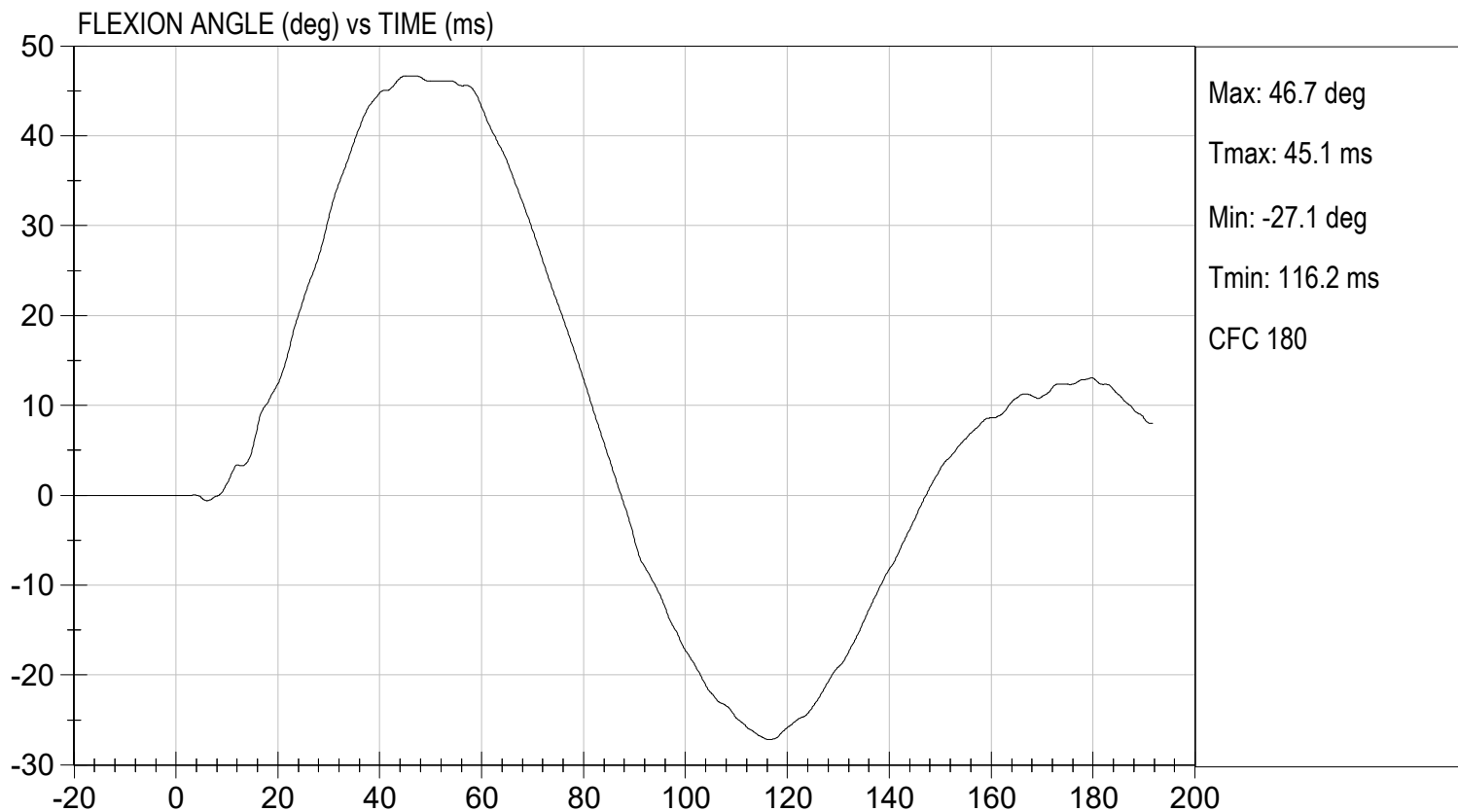
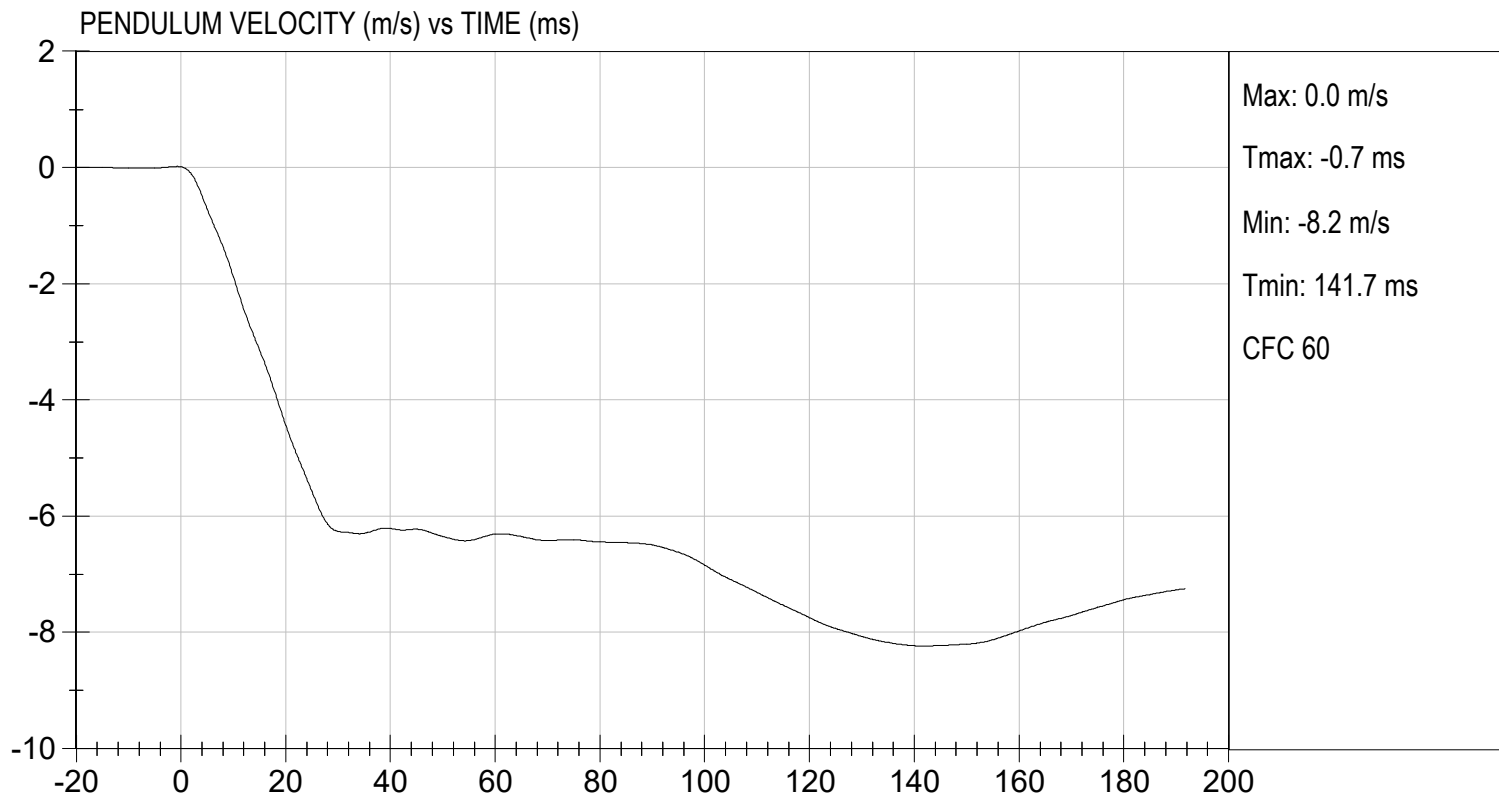
Test Date


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TEST DESC: LUMBAR BENDING
VELOCITY: 19.84 ft/s, 6.05 m/s

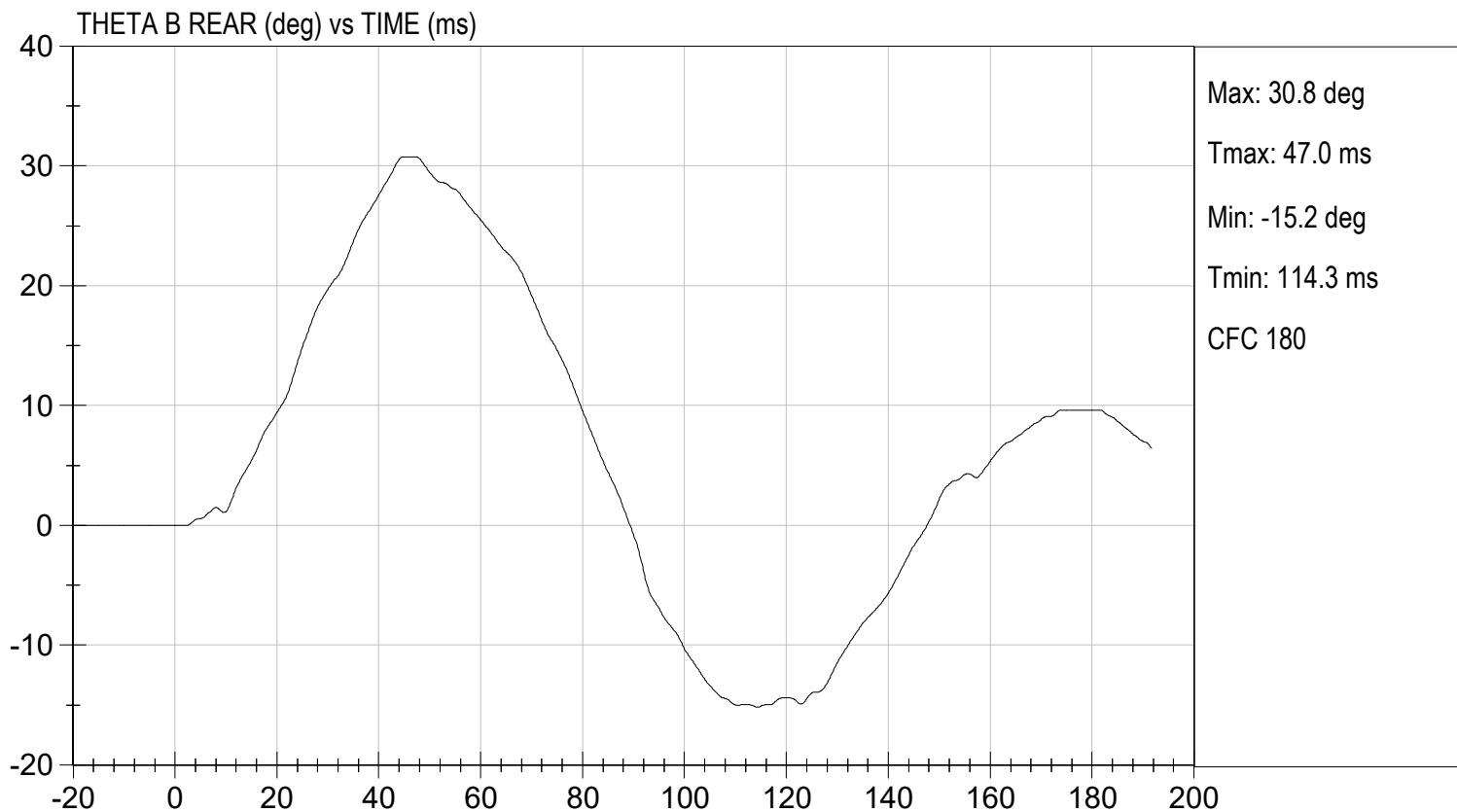
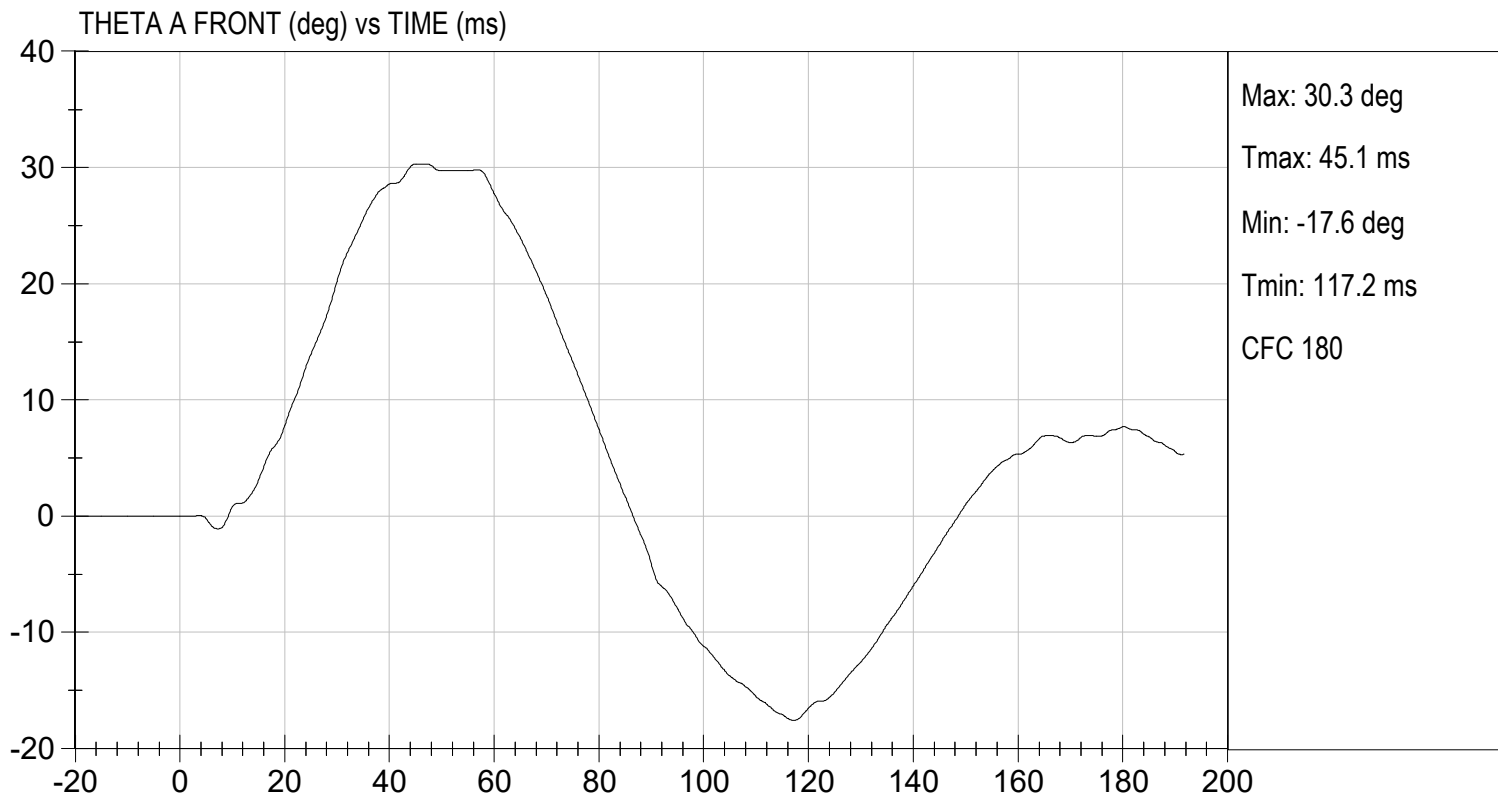
TEST DATE: 07/17/2024
TEST #: D241788





TEST DESC: LUMBAR BENDING
VELOCITY: 19.84 ft/s, 6.05 m/s

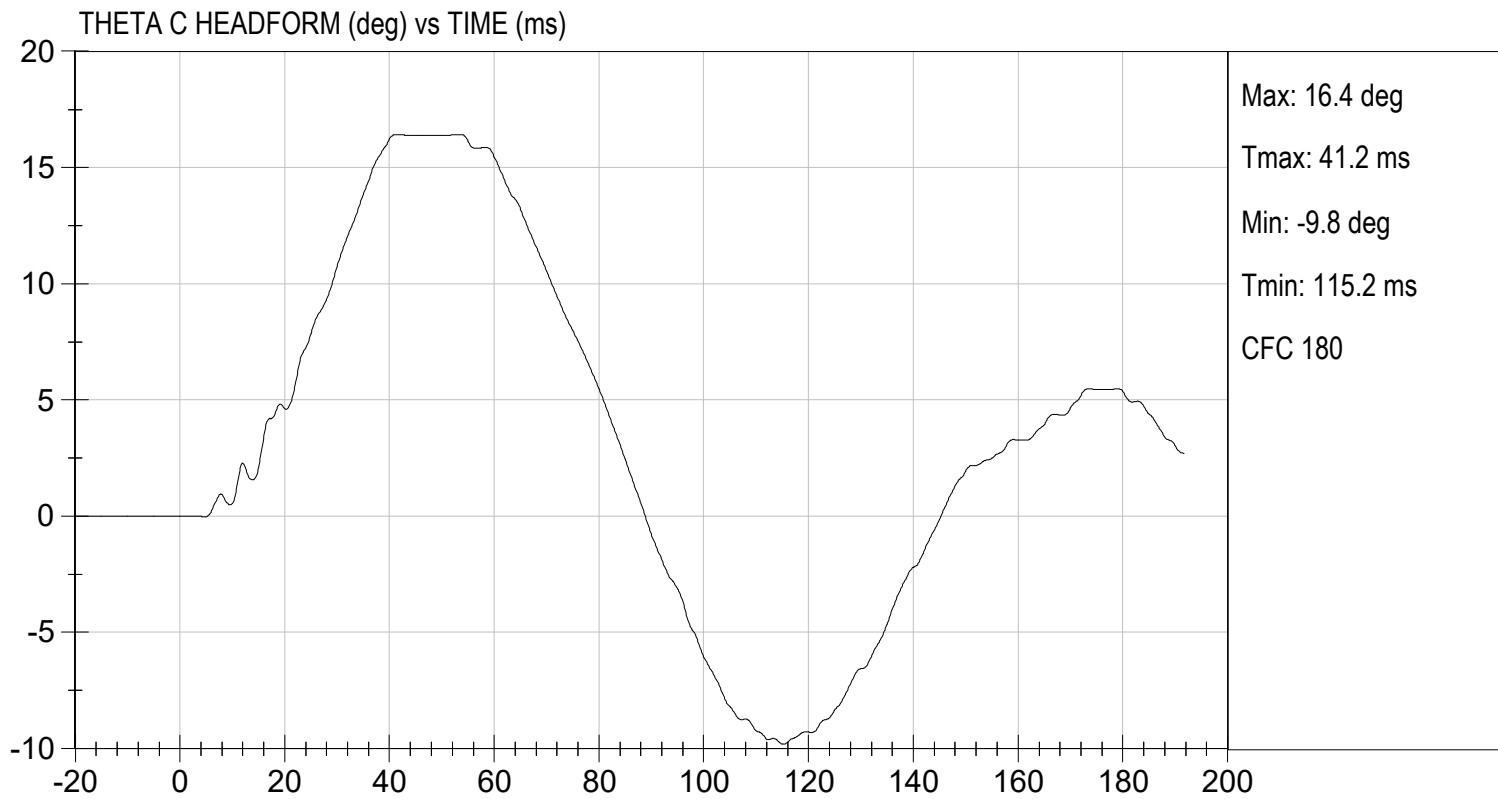
TEST DATE: 07/17/2024
TEST #: D241788





TEST DESC: LUMBAR BENDING
VELOCITY: 19.84 ft/s, 6.05 m/s

TEST DATE: 07/17/2024
TEST #: D241788



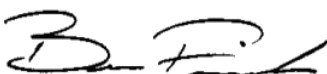
MGA RESEARCH CORPORATION**PELVIS TEST****ES-2re DUMMY**ATD Serial No: F032Test I.D: D241789

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	44	Pass
Probe Speed	m/s	4.20 to 4.40	4.34	Pass
Maximum Impactor Force	N	4700 to 5400	4860	Pass
Time of Maximum Impactor Force	ms	11.8 to 16.1	13.9	Pass
Maximum Pubic Force	N	1230 to 1590	1285	Pass
Time of Maximum Pubic Force	ms	12.2 to 17.0	14.6	Pass
Overall Test Results				Pass


Laboratory Technician

07/17/2024

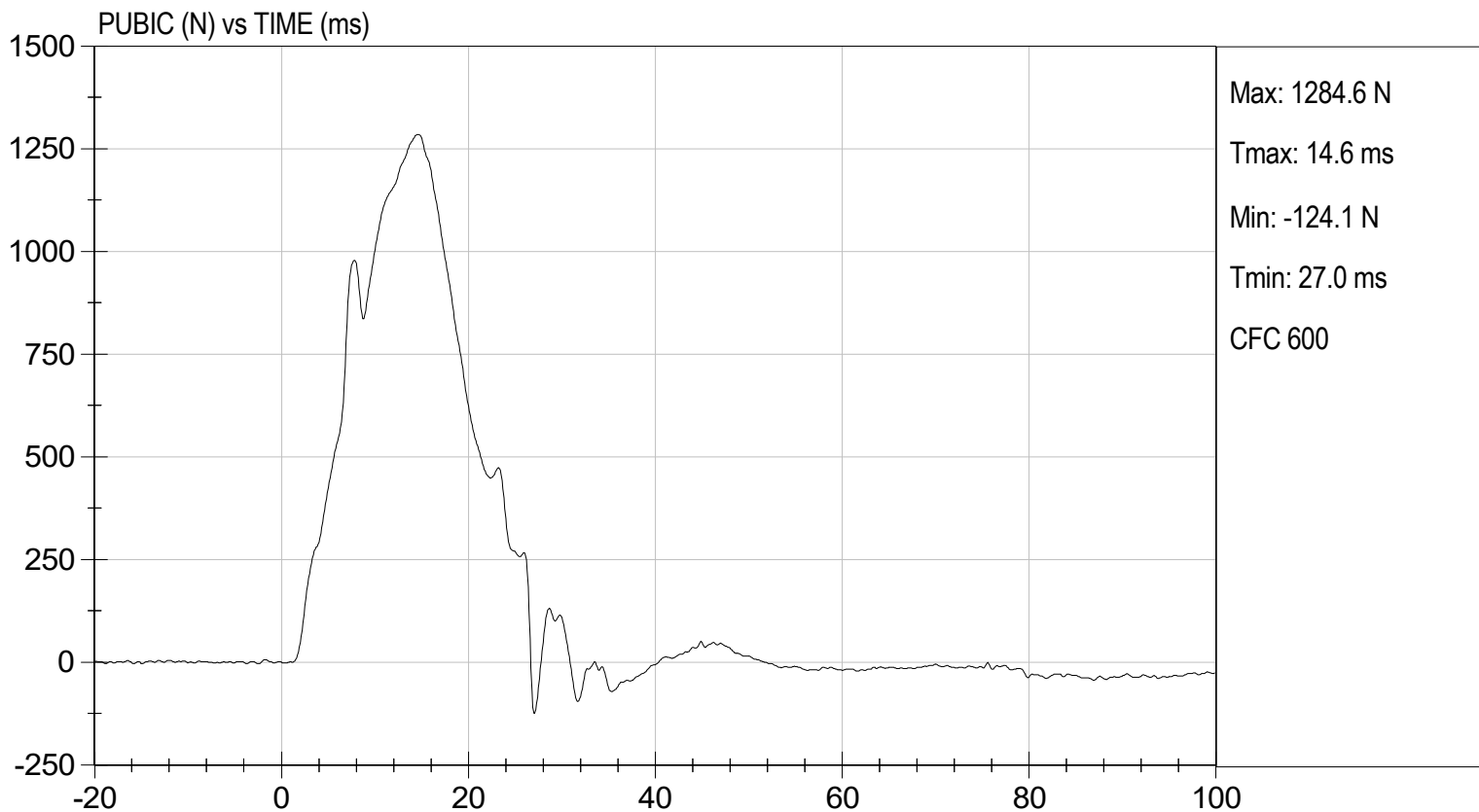
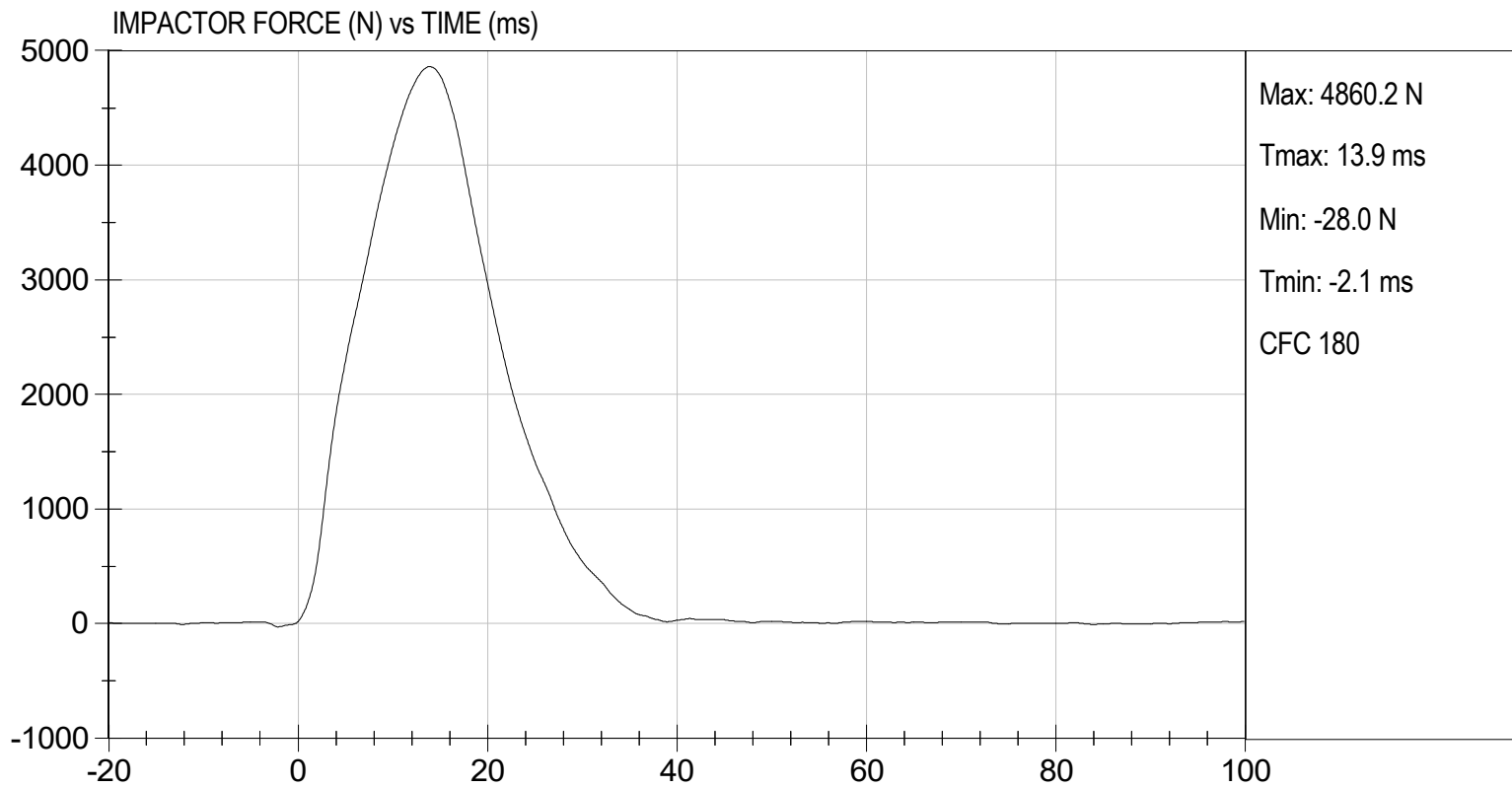
Test Date


Approved By



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

TEST DATE: 07/17/2024
TEST #: D241789



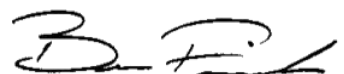
MGA RESEARCH CORPORATION**THORAX IMPACT TEST****ES-2re DUMMY**ATD Serial No: F032Test I.D: D241780

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	44	Pass
Probe Speed	m/s	5.40 to 5.60	5.40	Pass
Maximum Impactor Force (after 6 ms)	N	5100 to 6200	5504	Pass
Upper Rib Displacement	mm	34.0 to 41.0	37.5	Pass
Middle Rib Displacement	mm	37.0 to 45.0	40.2	Pass
Lower Rib Displacement	mm	37.0 to 44.0	38.7	Pass
Overall Test Results			Pass	


Laboratory Technician

07/17/2024

Test Date

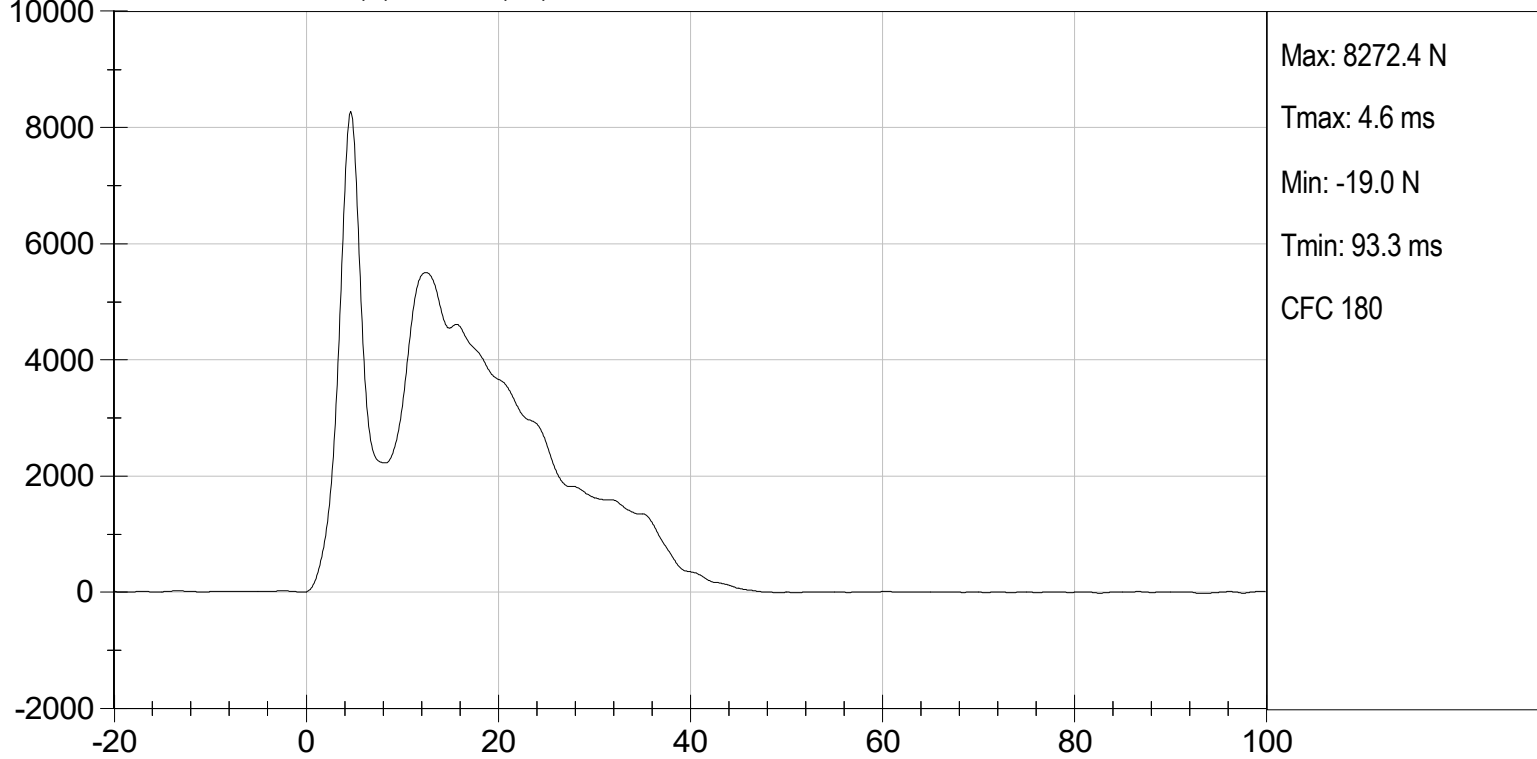

Approved By



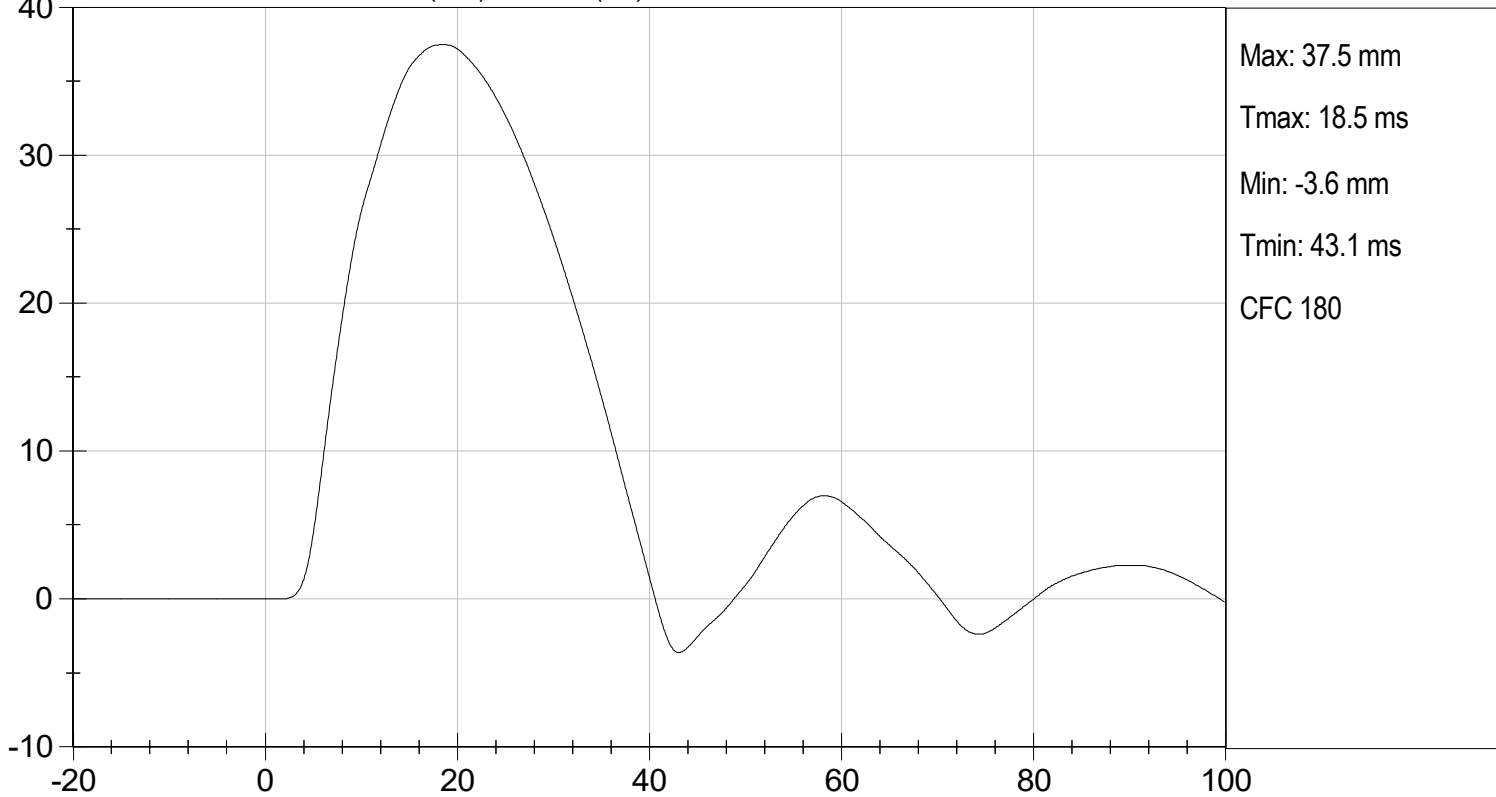
TEST DESC: THORAX IMPACT
VELOCITY: 17.73 ft/s, 5.40 m/s

TEST DATE: 07/17/2024
TEST #: D241780

IMPACTOR FORCE (N) vs TIME (ms)



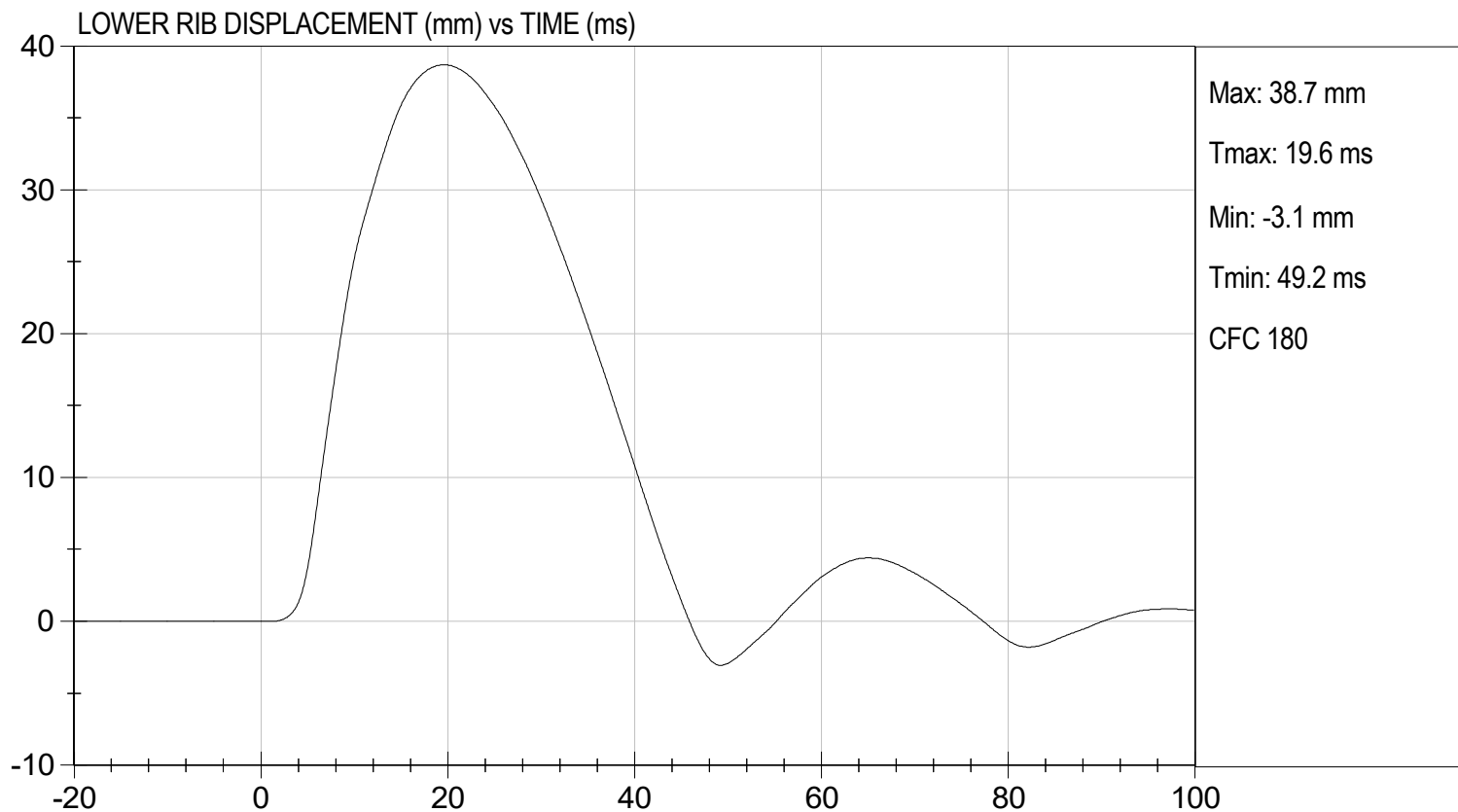
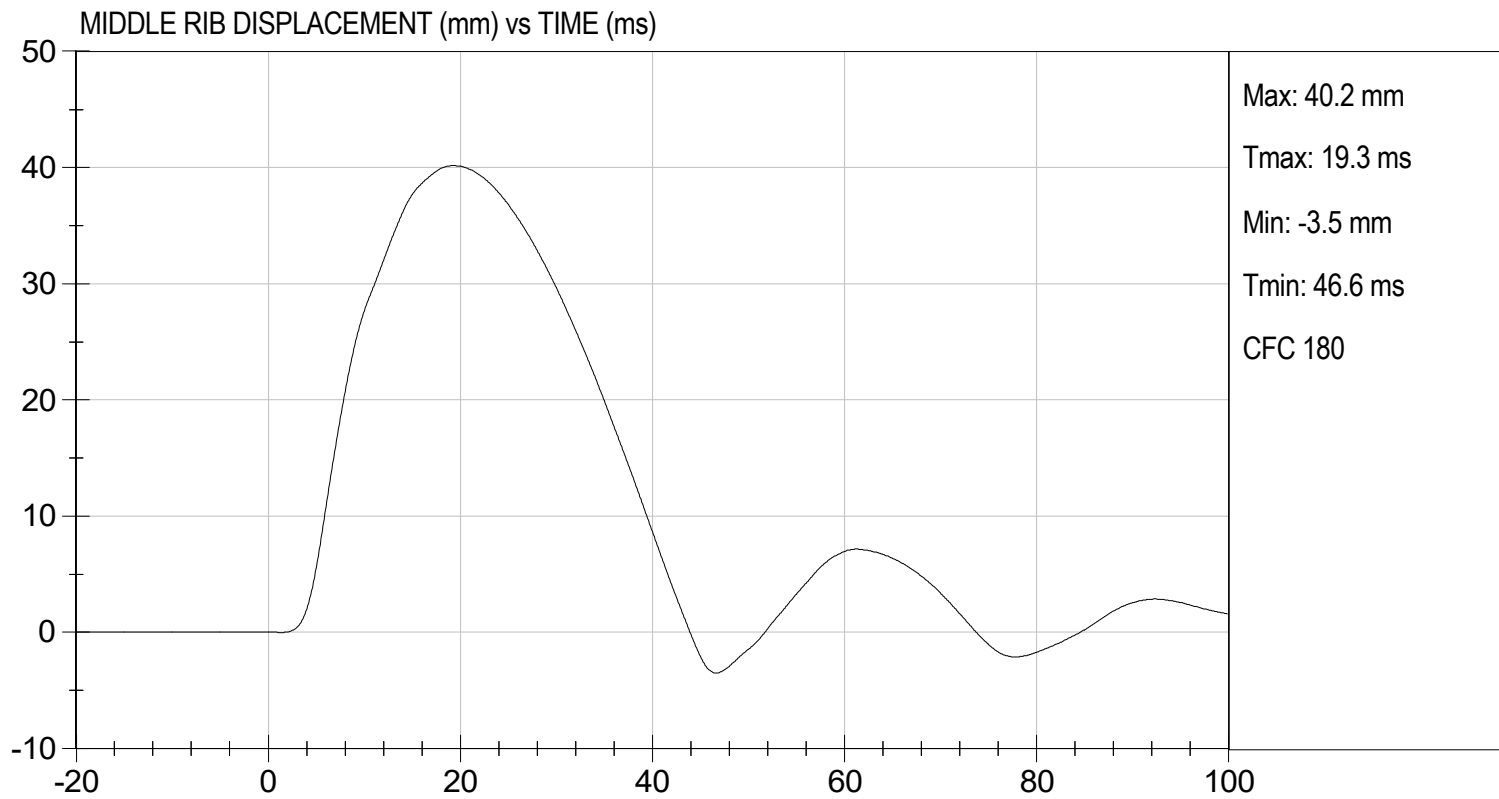
UPPER RIB DISPLACEMENT (mm) vs TIME (ms)





TEST DESC: THORAX IMPACT
VELOCITY: 17.73 ft/s, 5.40 m/s

TEST DATE: 07/17/2024
TEST #: D241780



QUALIFICATION TEST RESULTS

POST-TEST

EUROSID 2 (ES-2RE) MALE – DRIVER ATD

ES-2re External Measurements
SN: F032

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

MGA RESEARCH CORPORATION

HEAD DROP TEST

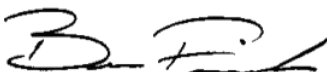
ES-2re DUMMY

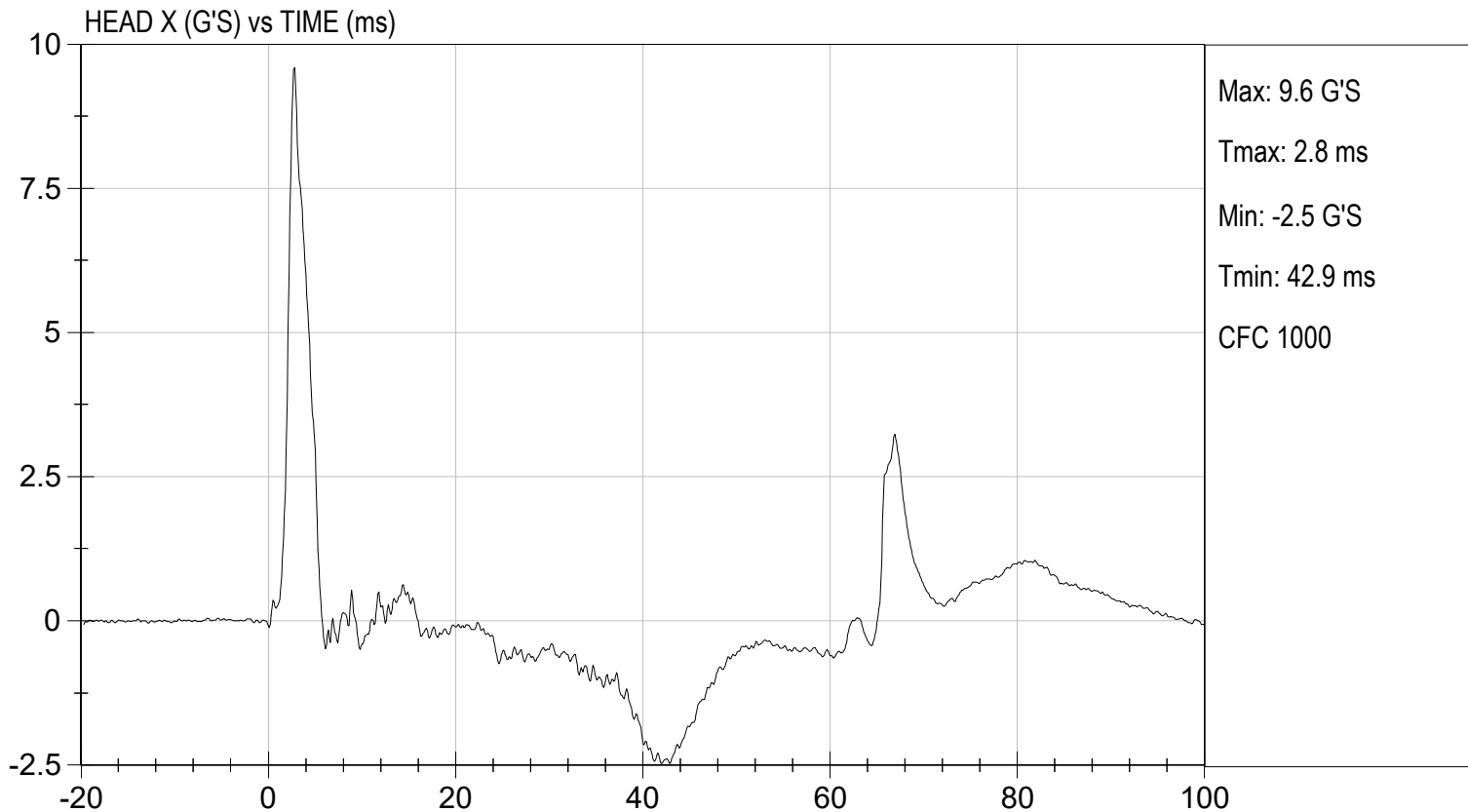
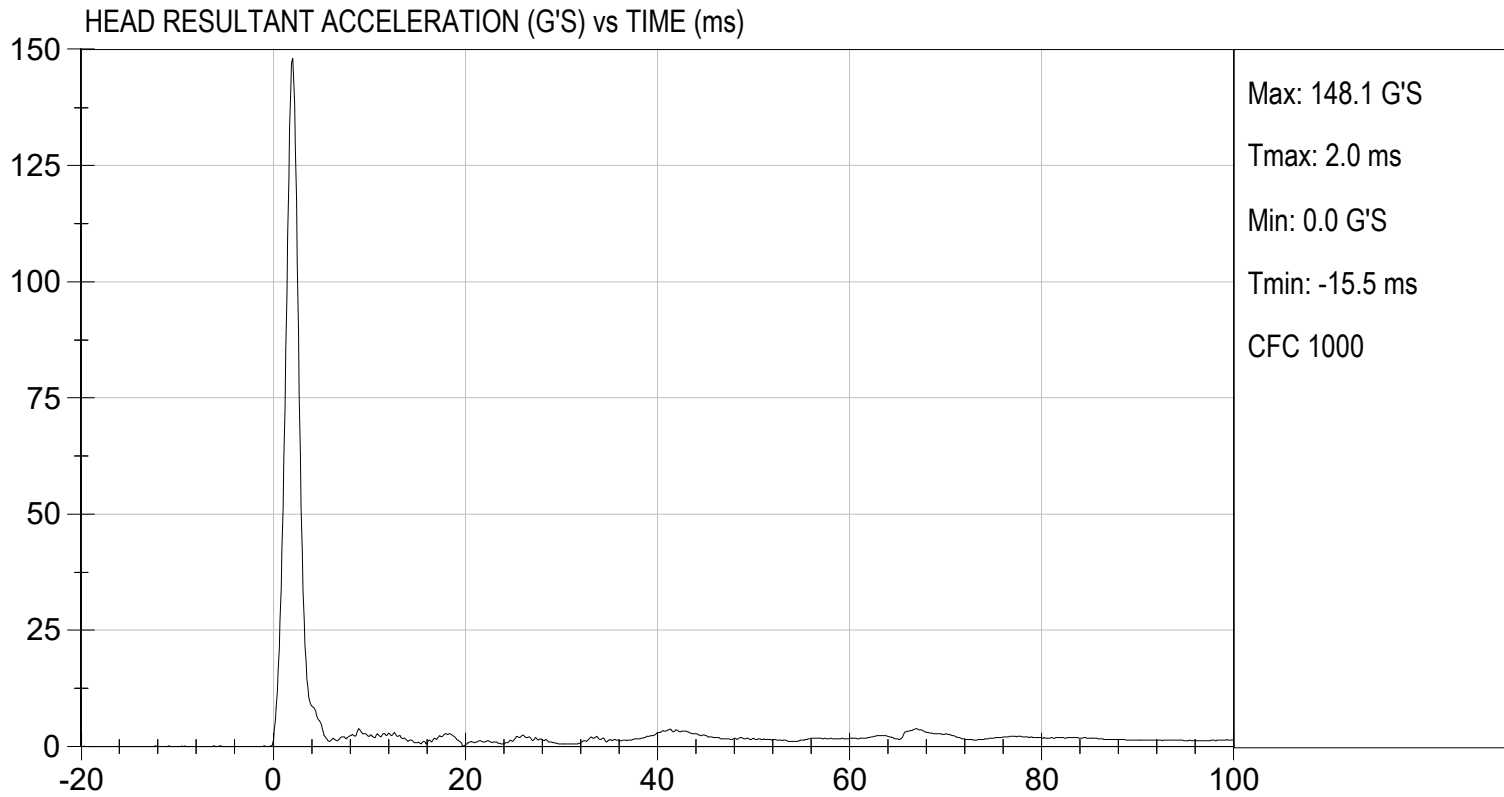
ATD Serial No: F032Test ID: D241931

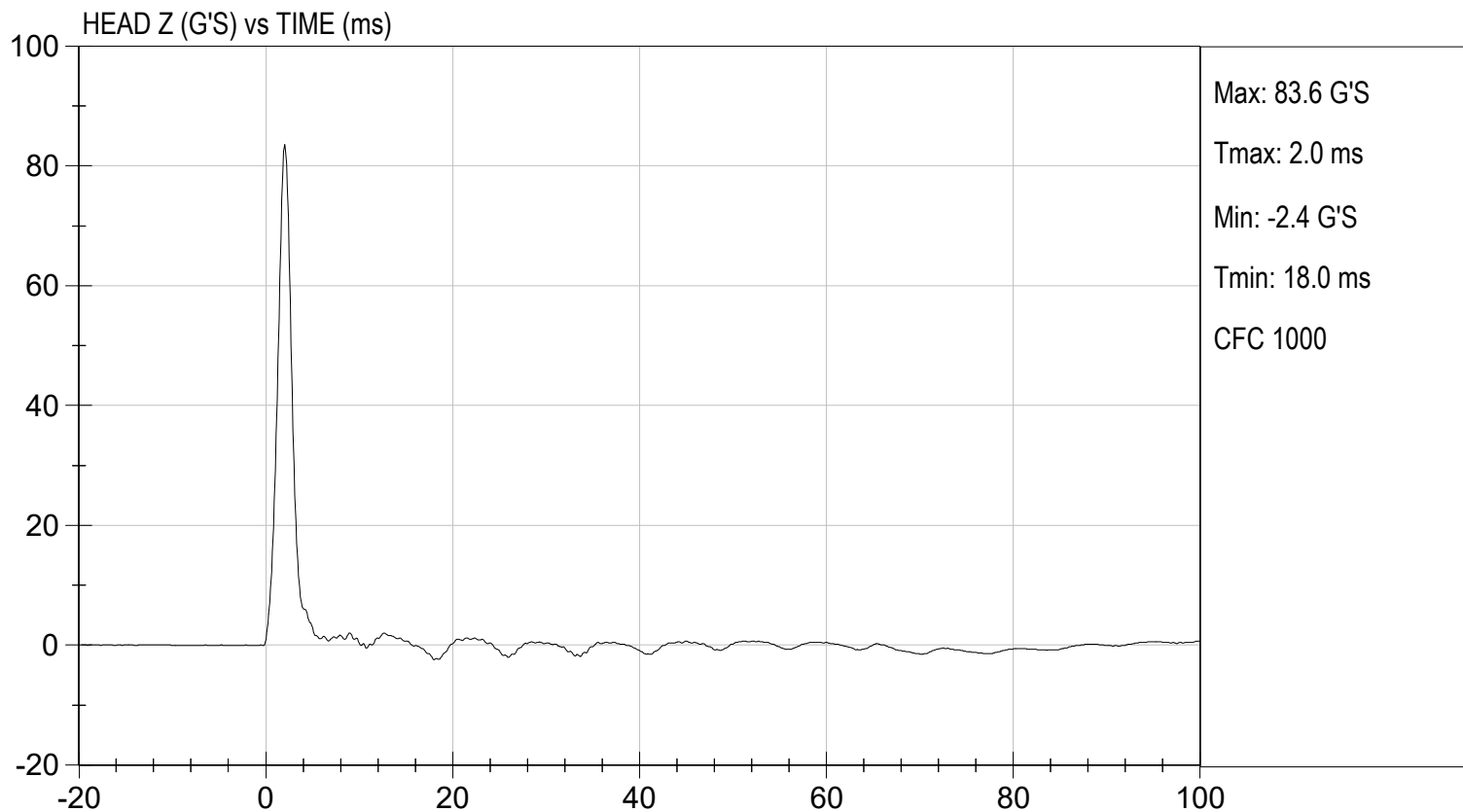
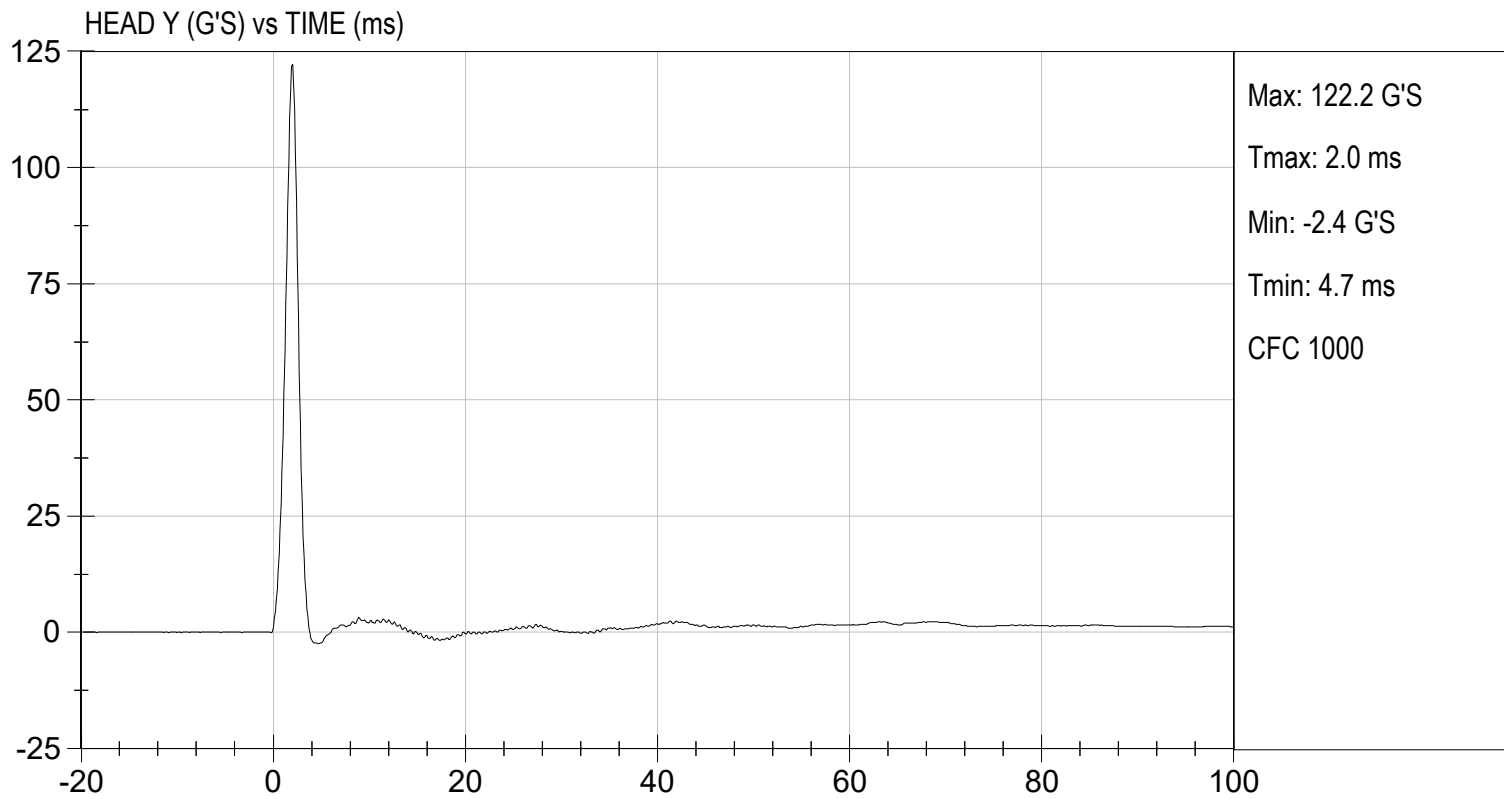
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	56	Pass
Peak Resultant Acceleration	G's	125 to 155	148	Pass
Peak Longitudinal Acceleration	G's	<= +/- 15.0	9.6	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 15% of peak	Yes	Pass
Overall Test Results				Pass


Laboratory Technician

08/01/2024
Test Date


Approved By





MGA RESEARCH CORPORATION
NECK PENDULUM TEST
ES-2re DUMMY

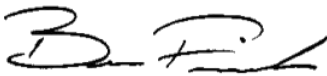
ATD Serial No: F032

Test I.D: D241932

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity		%	10 to 70	54	Pass
Pendulum Speed		m/s	3.30 to 3.50	3.46	Pass
Pendulum Velocity	1 ms	m/s	-0.05 to 0.00	-0.01	Pass
	3 ms	m/s	-0.25 to -0.375	-0.34	Pass
	14 ms	m/s	-3.20 to -3.70	-3.51	Pass
	17 ms	m/s	>= -3.70	-3.62	Pass
Maximum Flexion Angle		deg	49.0 to 59.0	52.9	Pass
Time of Maximum Flexion Angle		ms	54.0 to 66.0	60.0	Pass
Head Rotation Decay Time to 0 Degree		ms	53.0 to 88.0	62.7	Pass
Overall Results				Pass	


 Laboratory Technician

08/01/2024
 Test Date

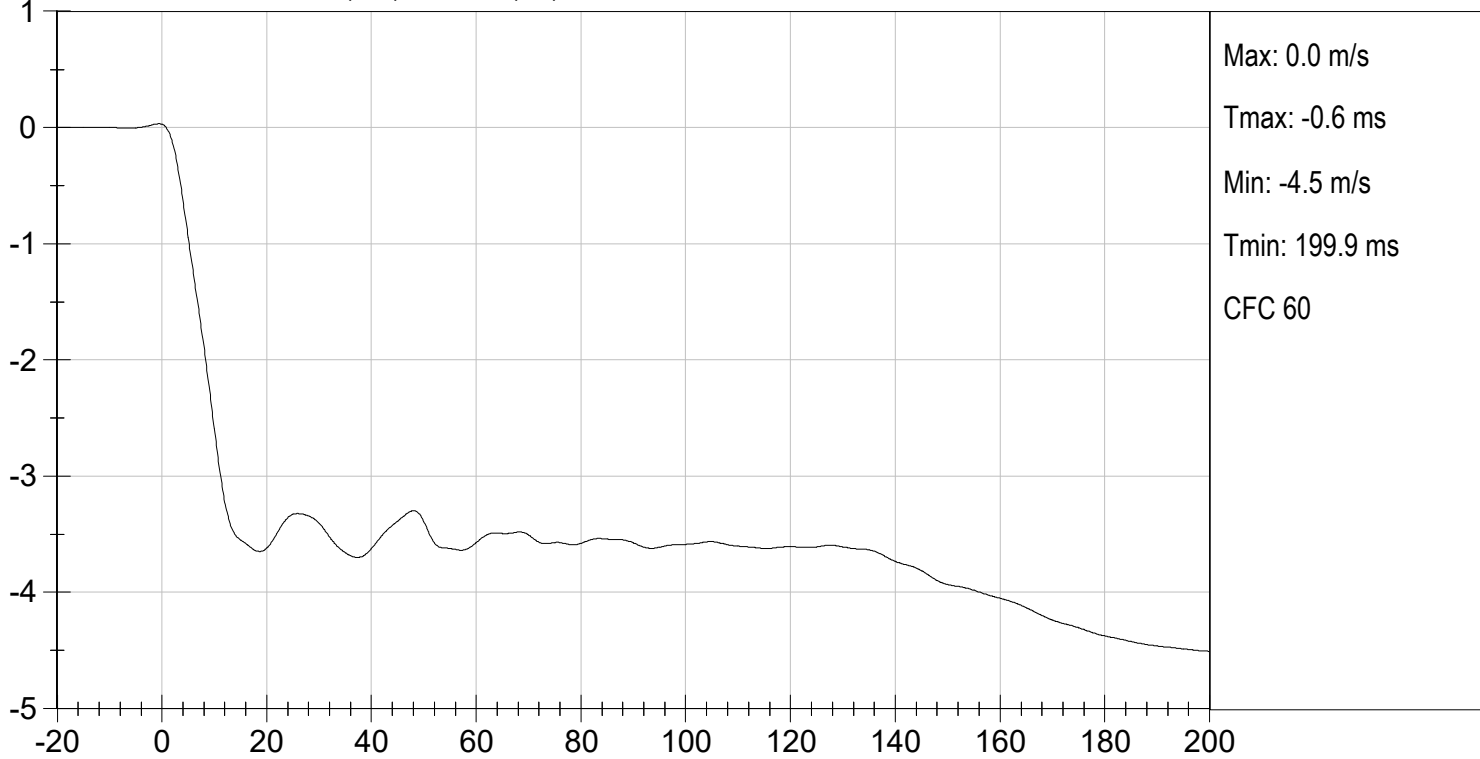

 Approved By



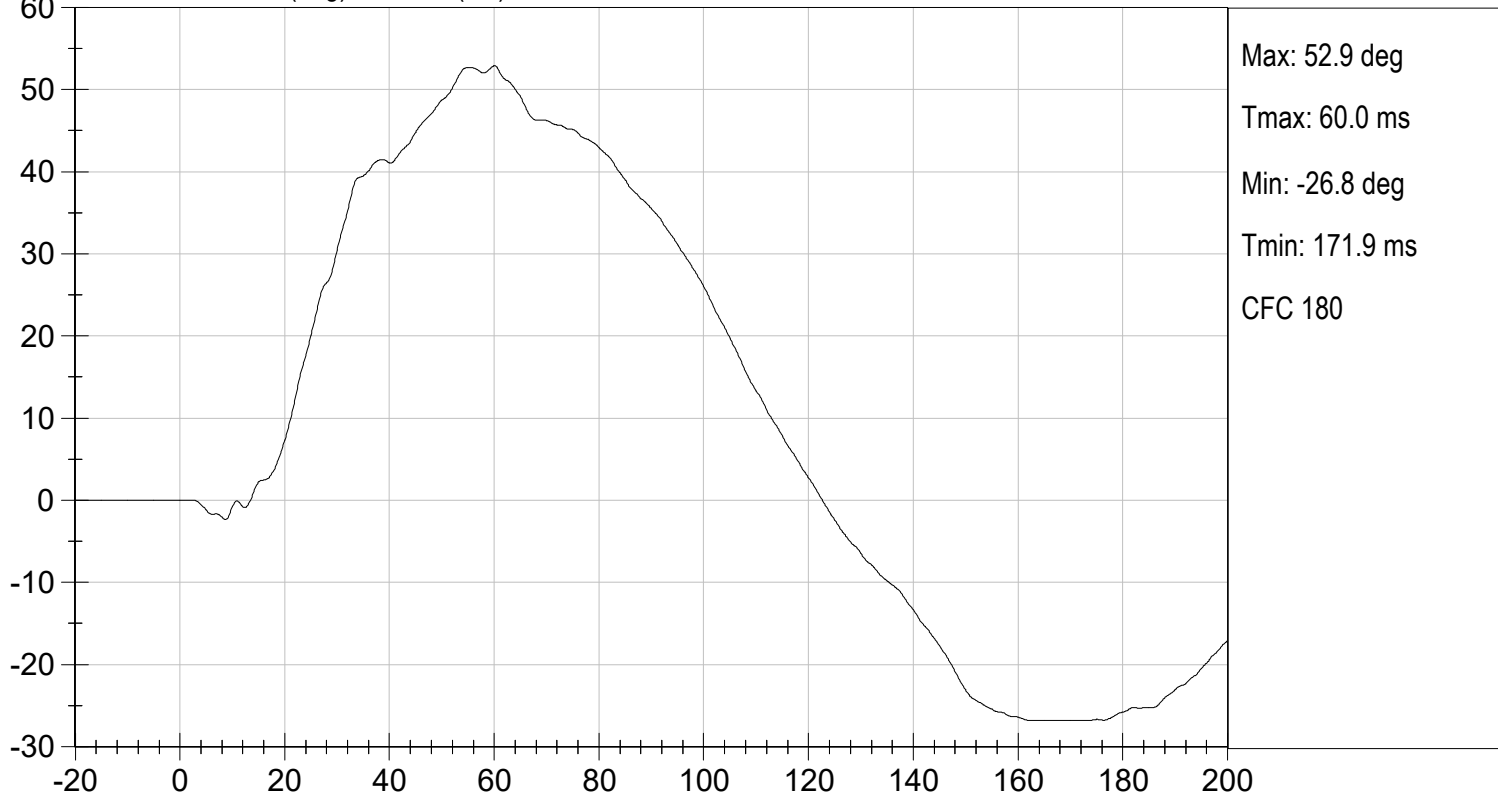
TEST DESC: NECK BENDING
VELOCITY: 11.34 ft/s, 3.46 m/s

TEST DATE: 08/01/2024
TEST #: D241932

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



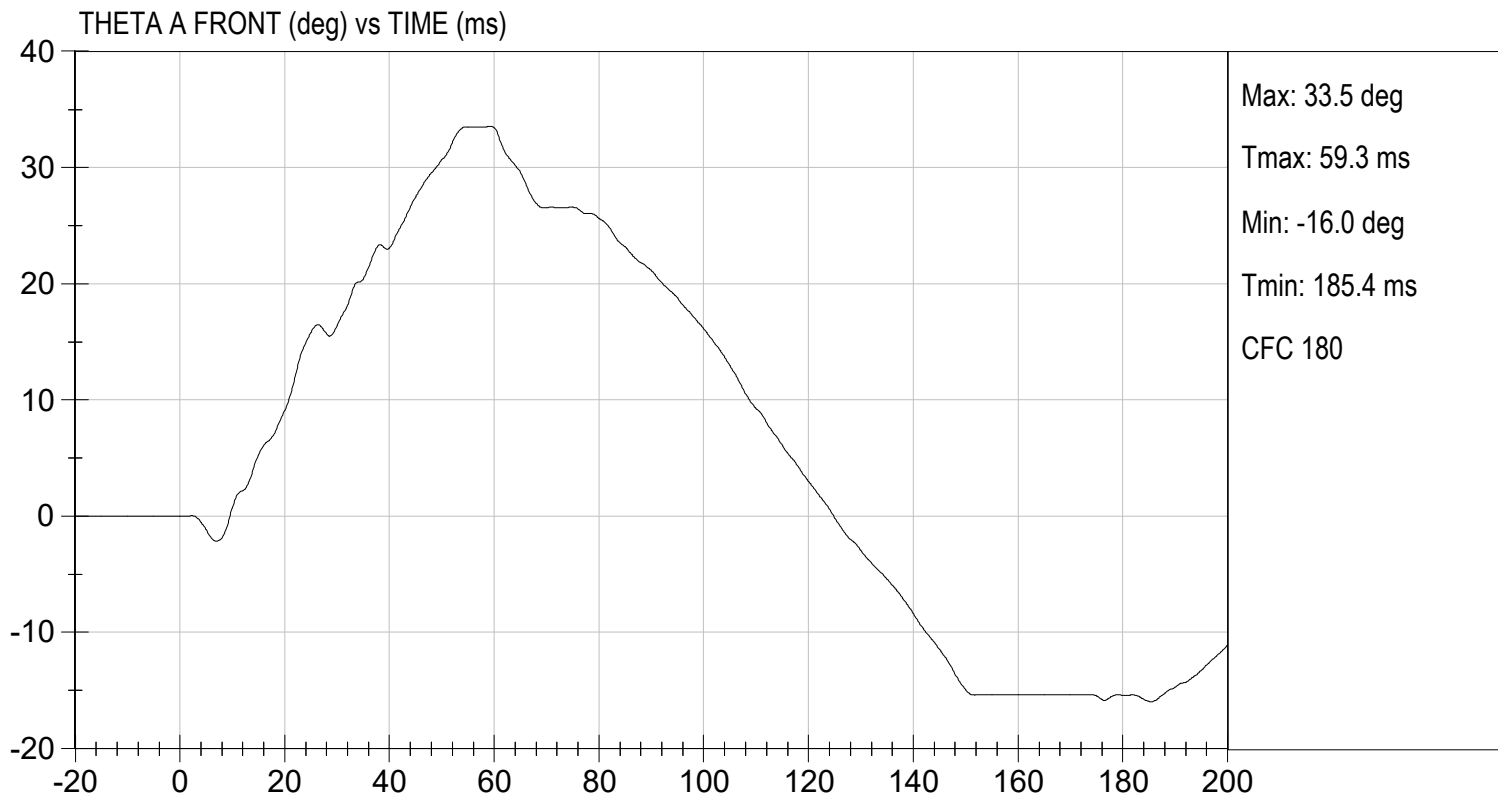
FLEXION ANGLE (deg) vs TIME (ms)





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

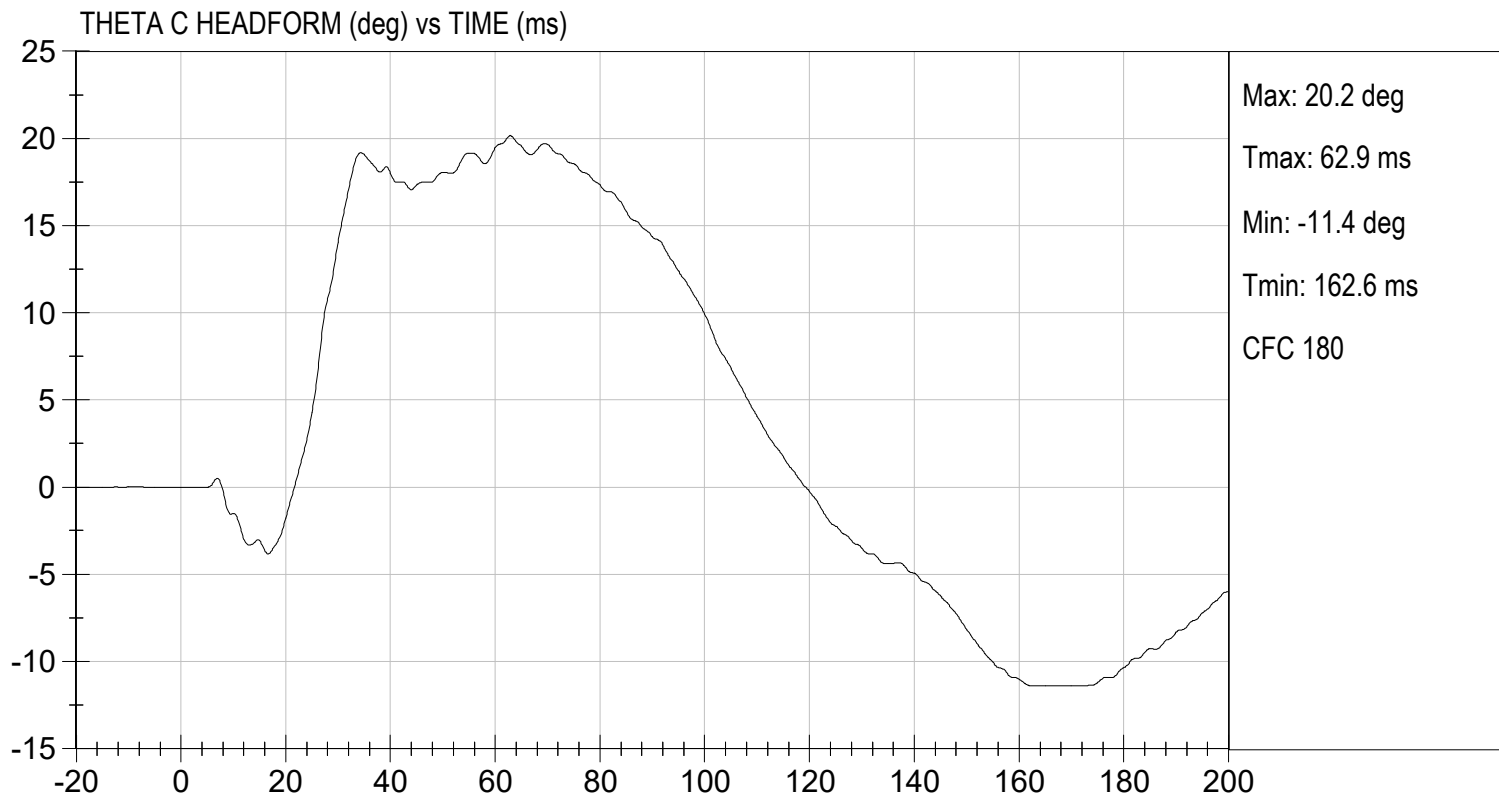
TEST DATE: 08/01/2024
TEST #: D241932





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

TEST DATE: 08/01/2024
TEST #: D241932



MGA RESEARCH CORPORATION

SHOULDER IMPACT TEST

ES-2re DUMMY

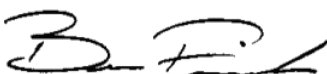
ATD Serial No: F032

Test I.D: D241933

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Pendulum Speed	m/s	4.20 to 4.40	4.2	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	8.6	Pass
Overall Test Results			Pass	


Laboratory Technician

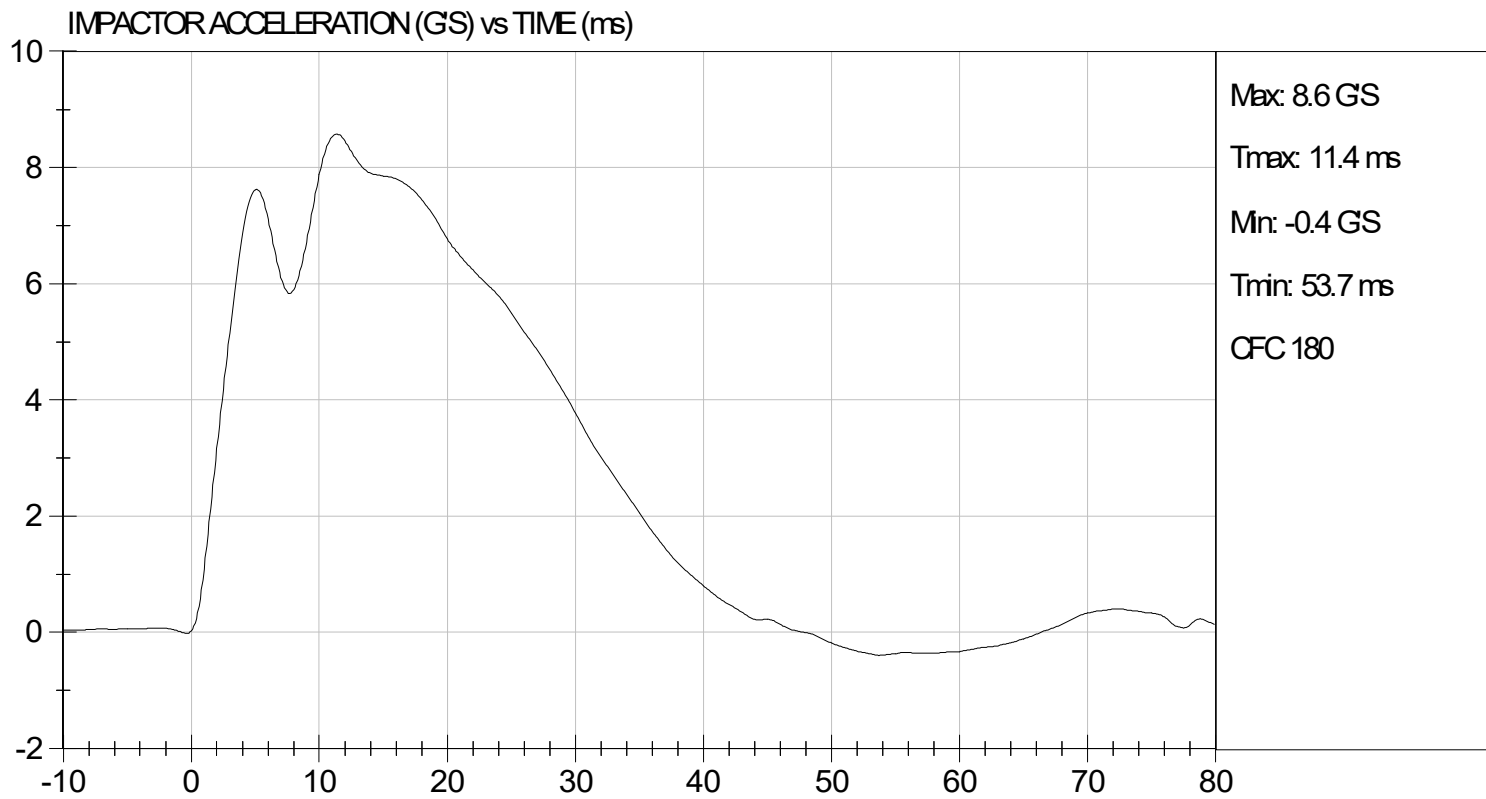
08/01/2024
Test Date


Approved By



TEST DESC: SHOULDER IMPACT
VELOCITY: 13.77 ft/s, 4.2 m/s

TEST DATE: 08/01/2024
TEST #: D241933



MGA RESEARCH CORPORATION

UPPER RIB TEST

ES-2re DUMMY

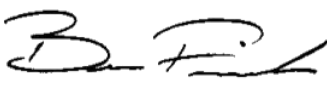
ATD Serial No: F032

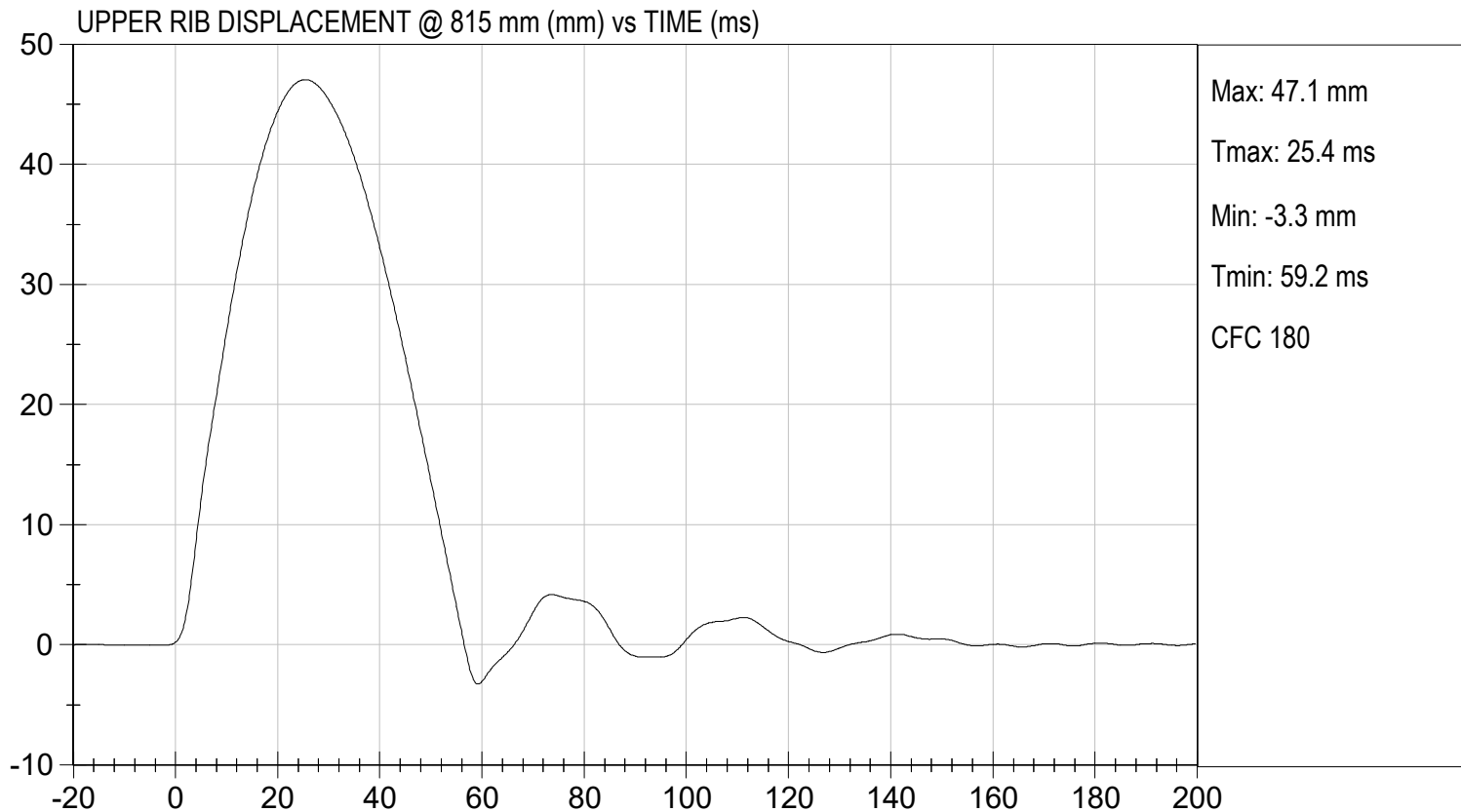
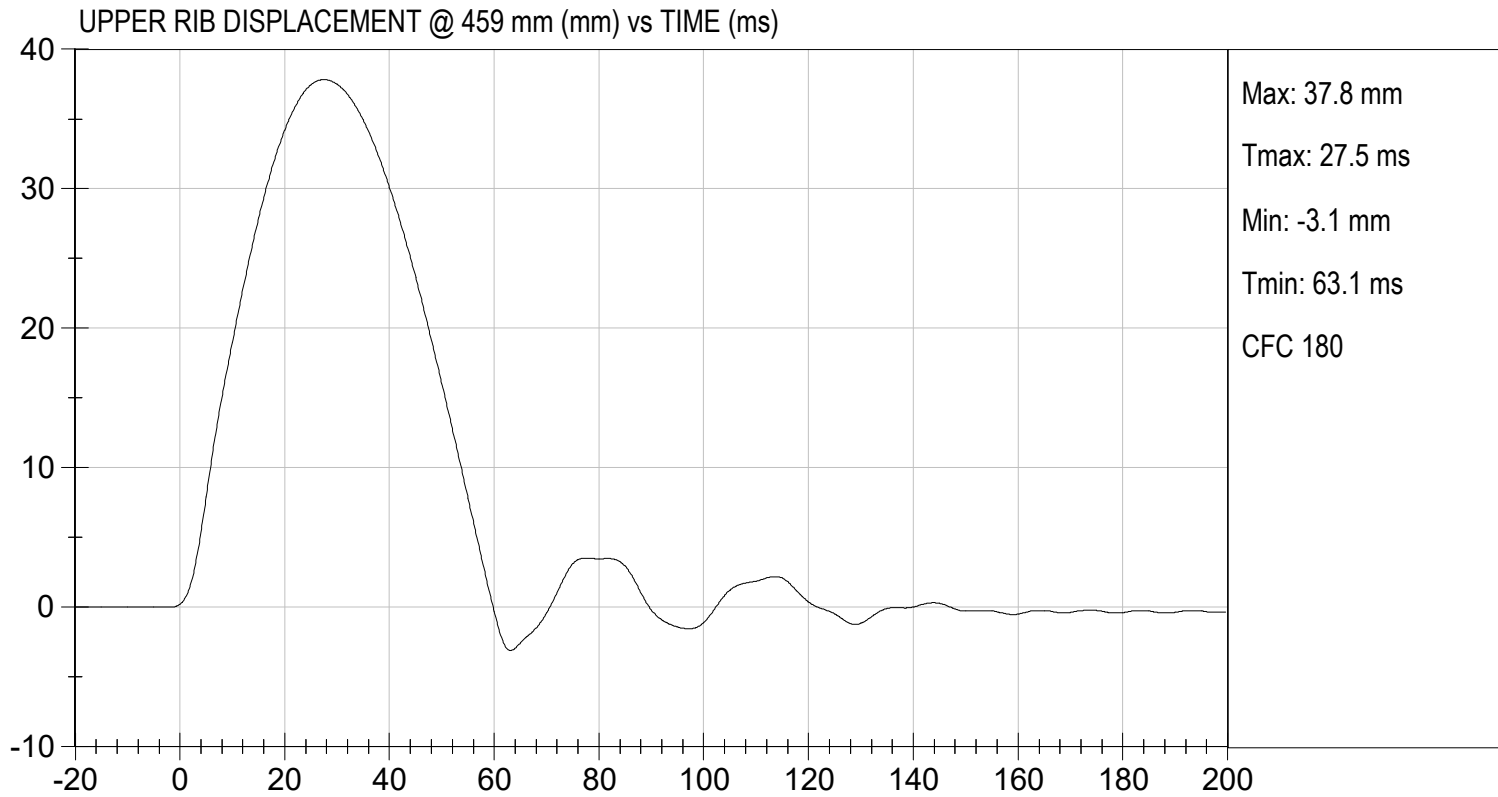
Test I.D: D241934

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	53	Pass
Displacement at 459 mm	mm	36.0 to 40.0	37.8	Pass
Displacement at 815 mm	mm	46.0 to 51.0	47.1	Pass
Overall Test Results			Pass	


Laboratory Technician

08/01/2024
Test Date


Approved By



MGA RESEARCH CORPORATION

MID RIB TEST

ES-2re DUMMY

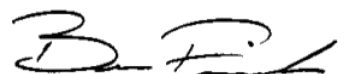
ATD Serial No: F032

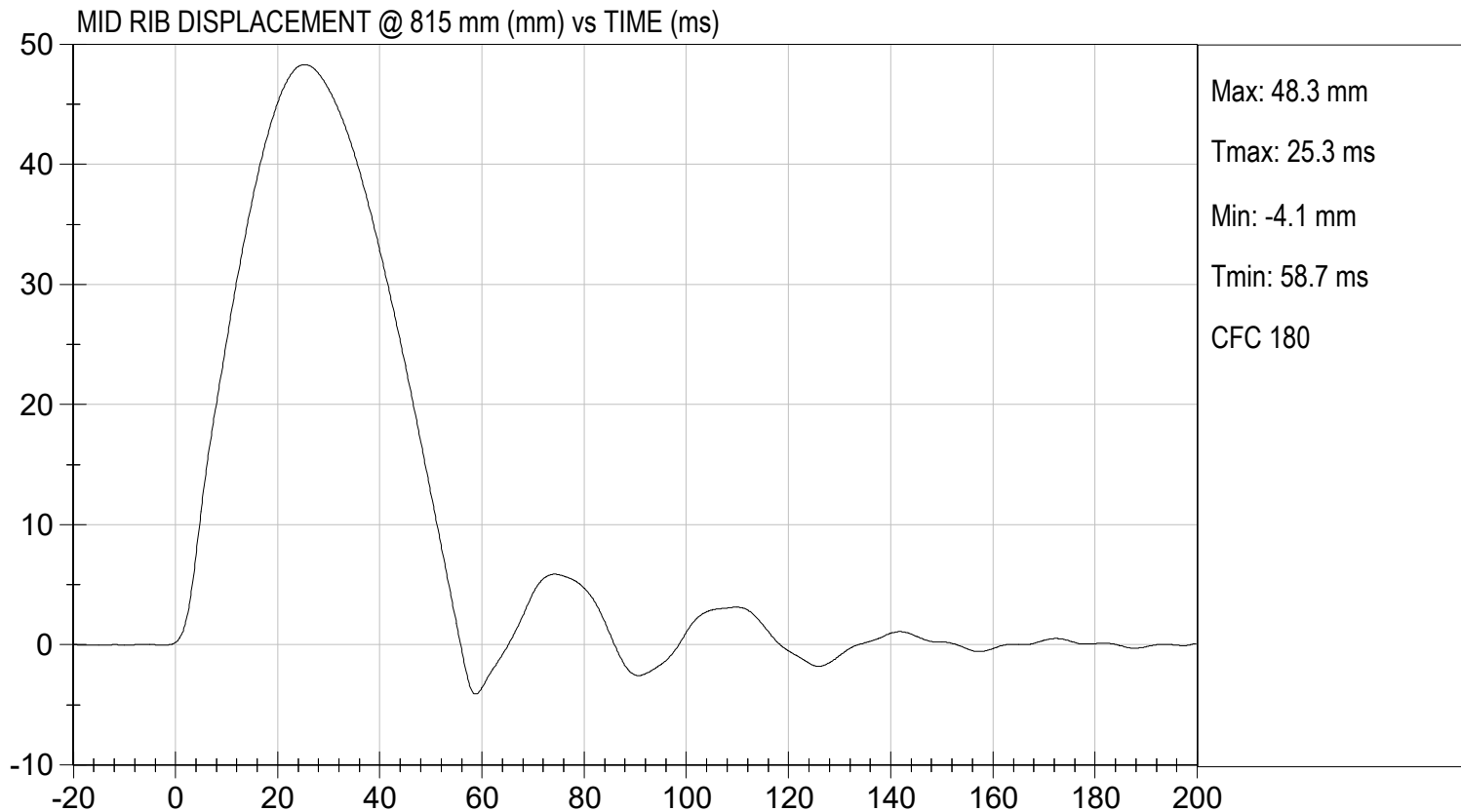
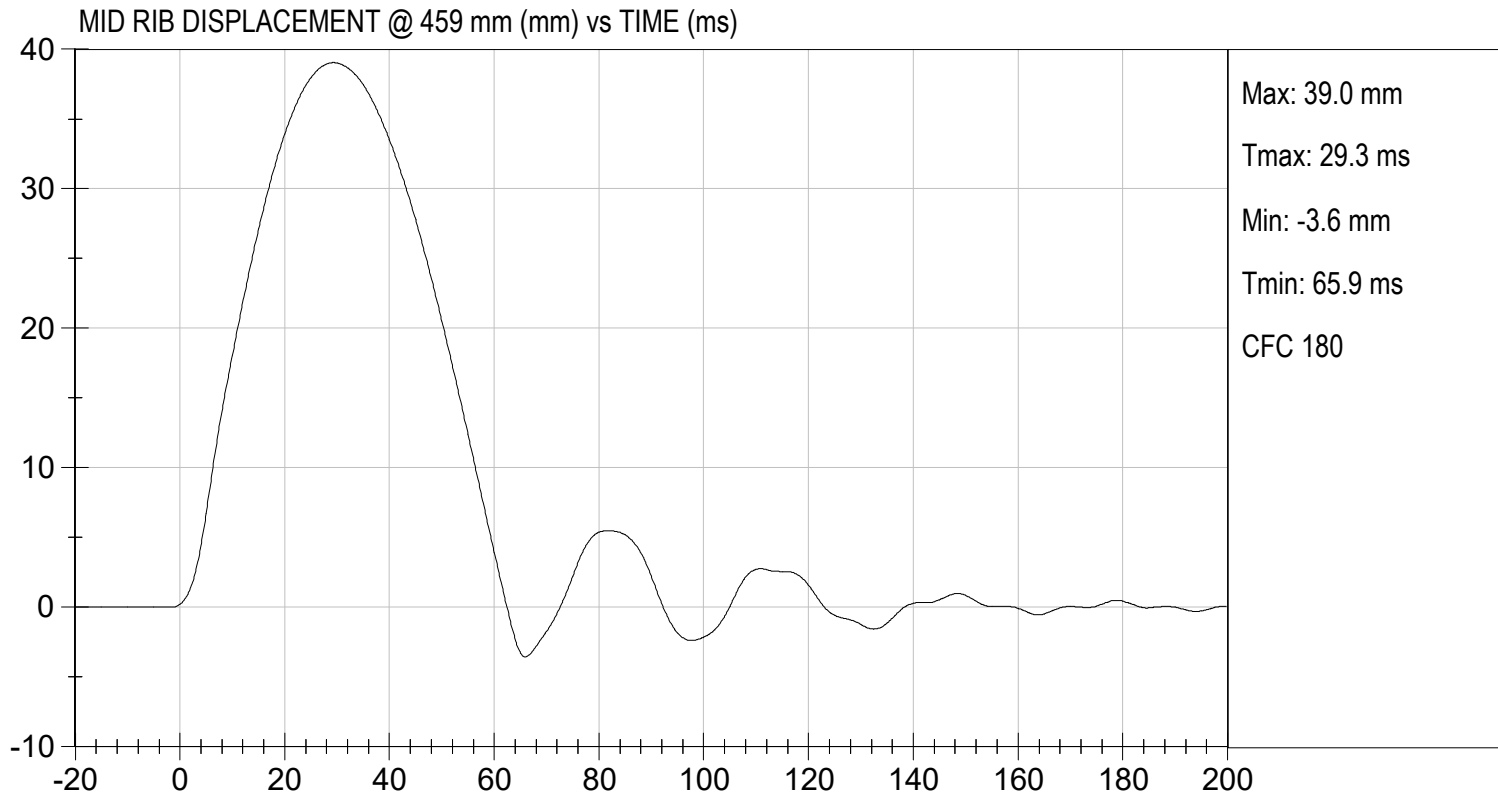
Test I.D: D241935

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	53	Pass
Displacement at 459 mm	mm	36.0 to 40.0	39.0	Pass
Displacement at 815 mm	mm	46.0 to 51.0	48.3	Pass
Overall Test Results			Pass	


Laboratory Technician

08/01/2024
Test Date


Approved By



MGA RESEARCH CORPORATION

LOWER RIB TEST

ES-2re DUMMY

ATD Serial No: F032

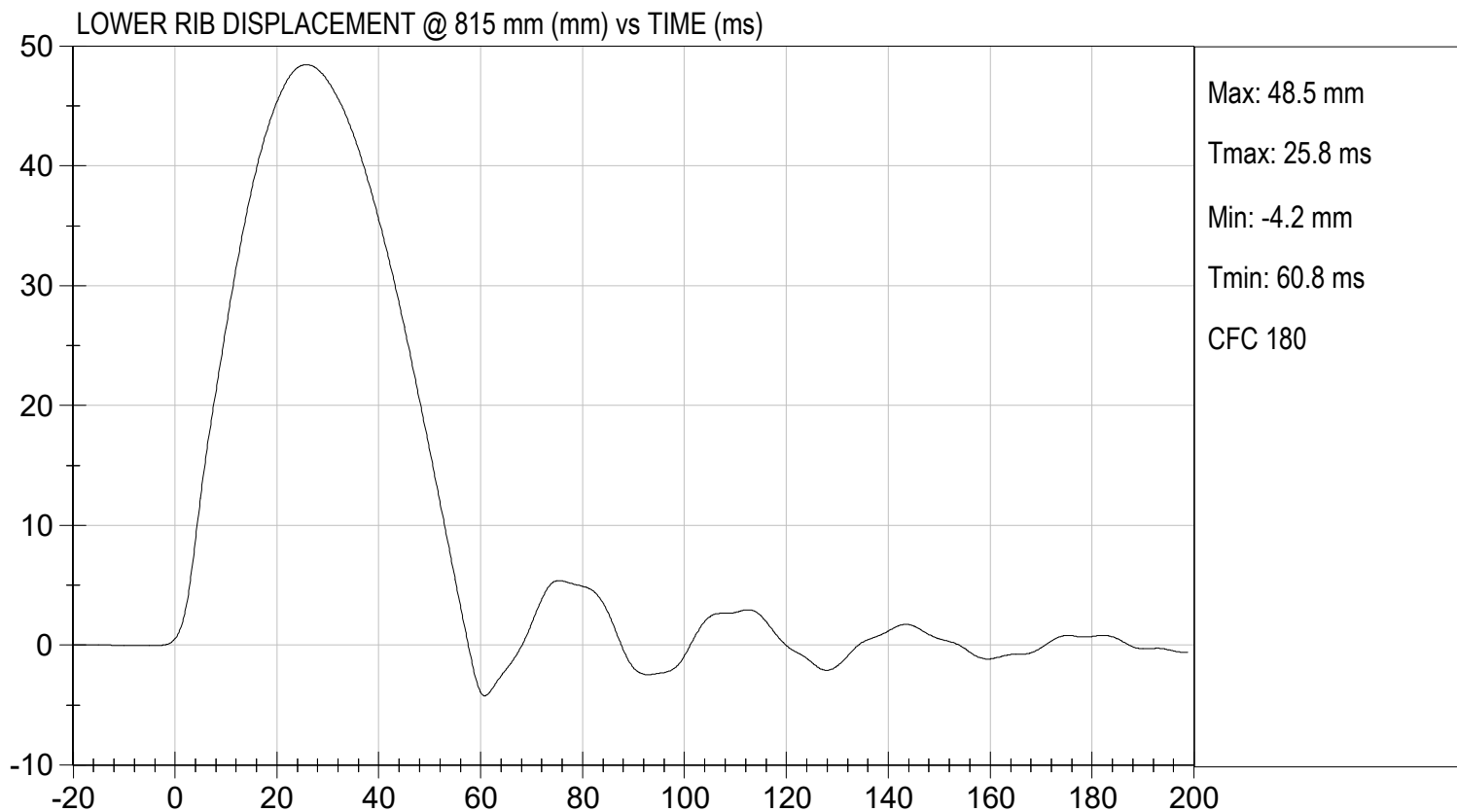
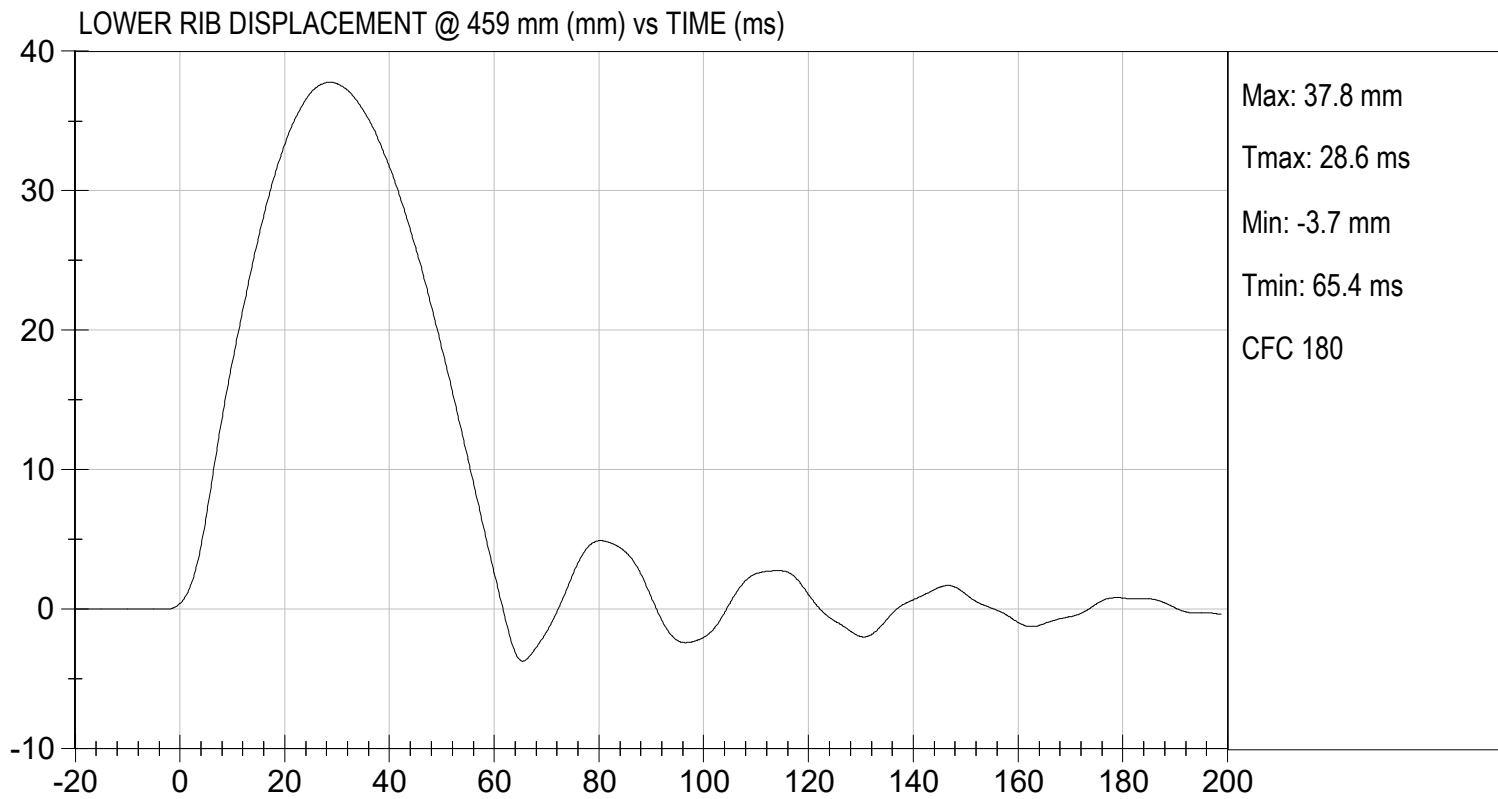
Test I.D: D241936

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	53	Pass
Displacement at 459 mm	mm	36.0 to 40.0	37.8	Pass
Displacement at 815 mm	mm	46.0 to 51.0	48.5	Pass
Overall Test Results			Pass	


Laboratory Technician

08/01/2024
Test Date


Approved By



MGA RESEARCH CORPORATION**ABDOMEN TEST****ES-2re DUMMY****ATD Serial No:** F032**Test I.D:** D241937

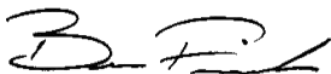
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Probe Speed	m/s	3.90 to 4.10	4.01	Pass
Maximum Impactor Force	N	4000 to 4800	4234	Pass
Time of Maximum Impactor Force	ms	10.6 to 13.0	12.3	Pass
Maximum Total Abdomen Force	N	2200 to 2700	2294	Pass
Time of Maximum Abdomen Force	ms	10.0 to 12.3	11.1	Pass
Overall Test Results				Pass



Laboratory Technician

08/01/2024

Test Date

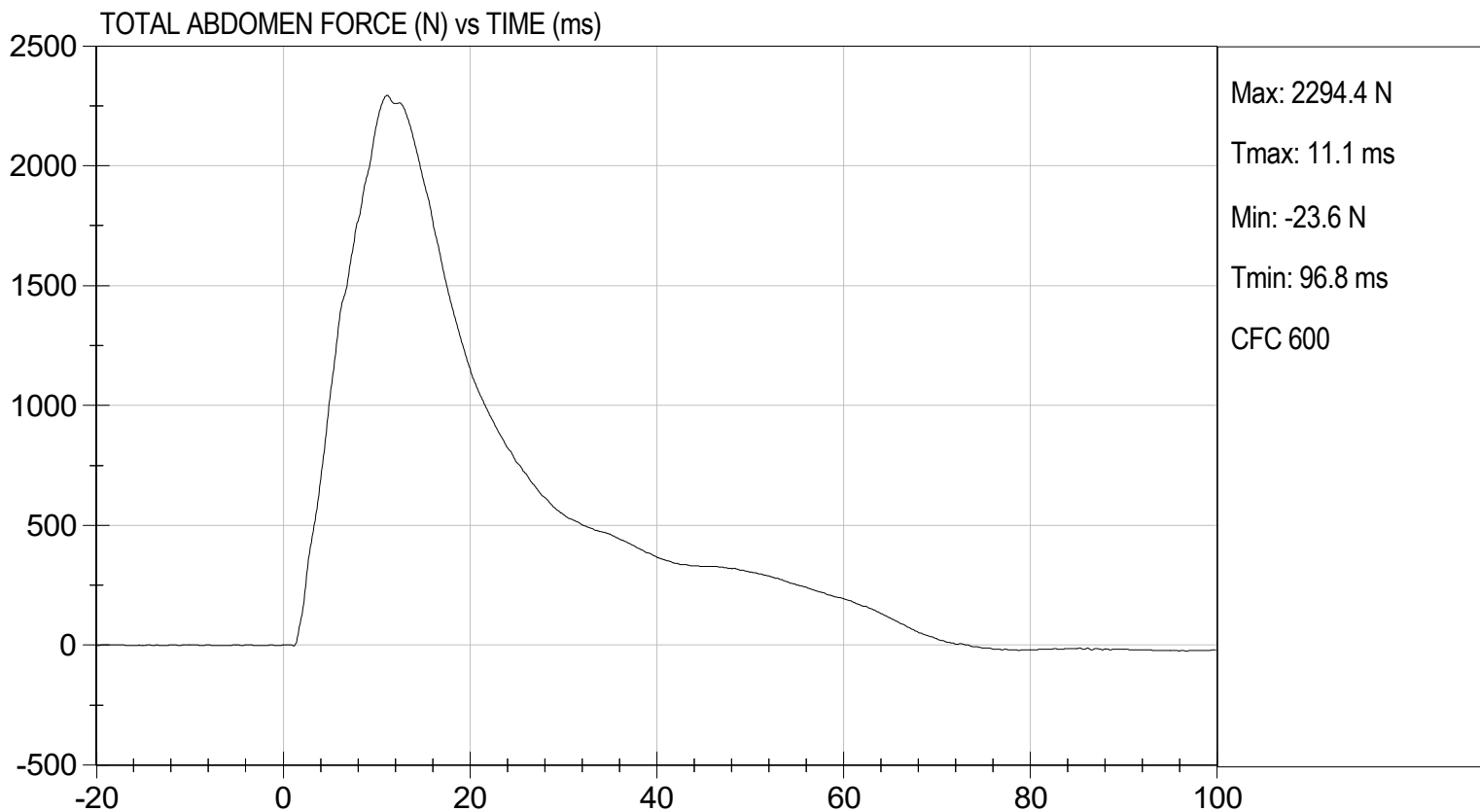
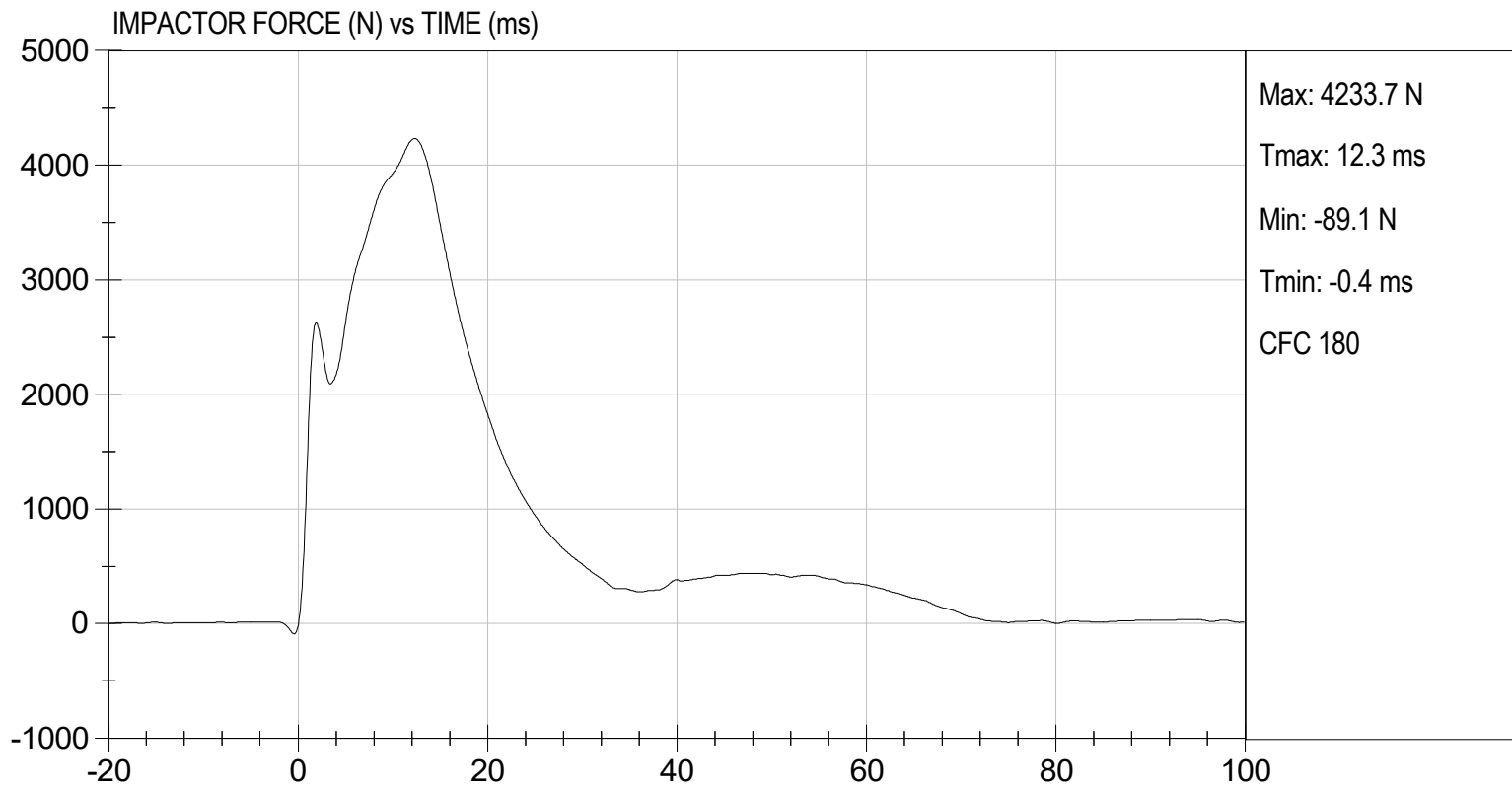


Approved By



TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.15 ft/s, 4.01 m/s

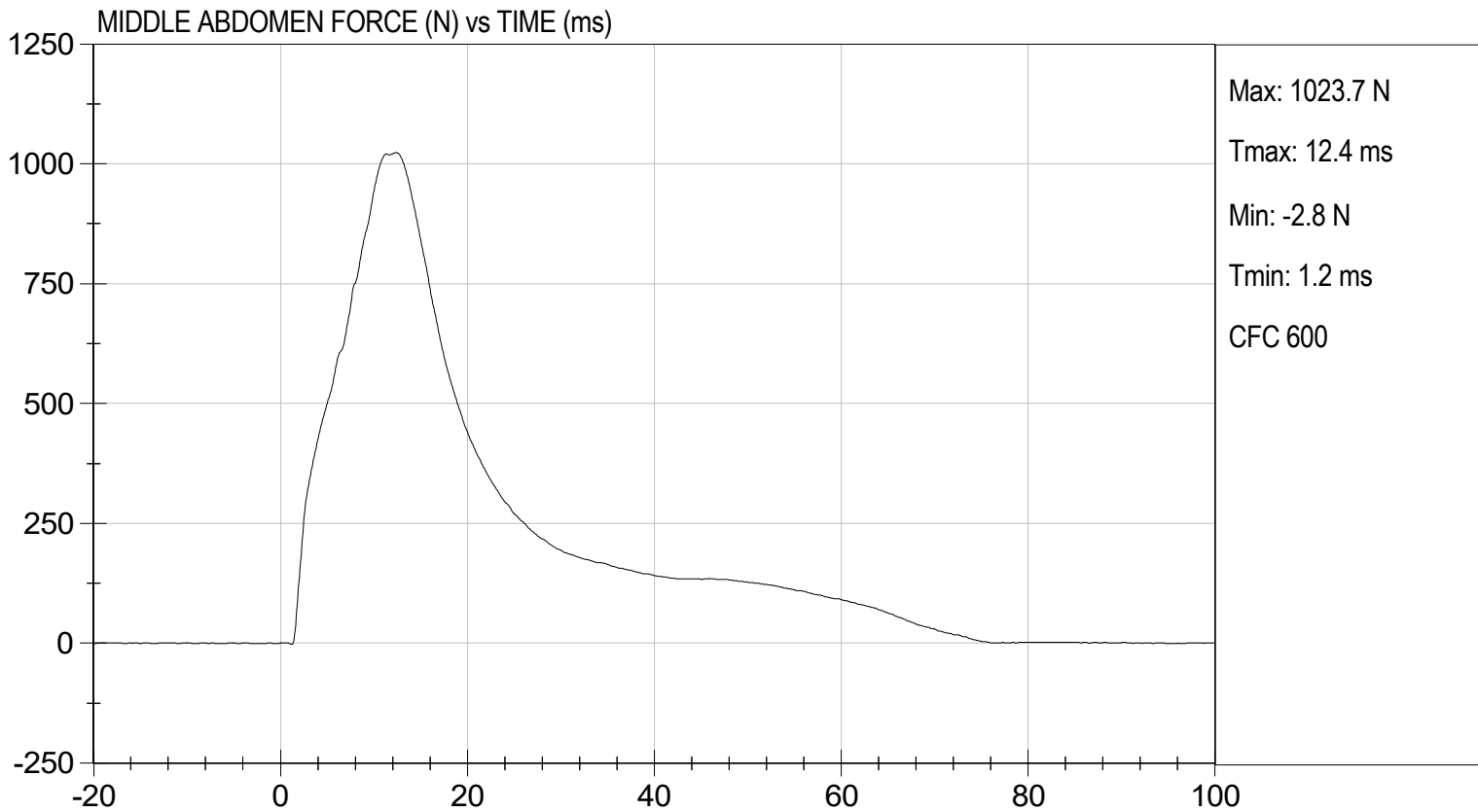
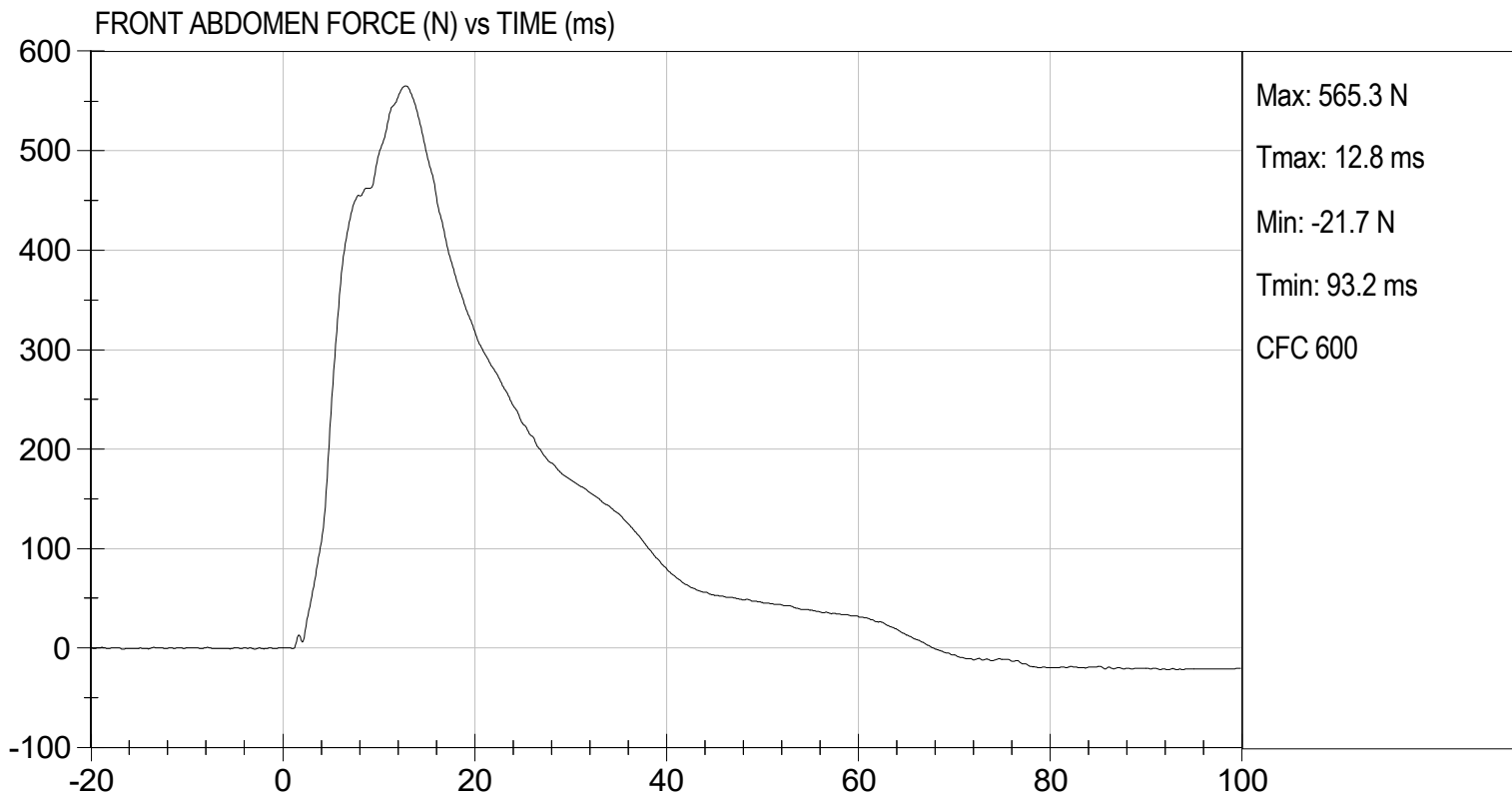
TEST DATE: 08/01/2024
TEST #: D241937





TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.15 ft/s, 4.01 m/s

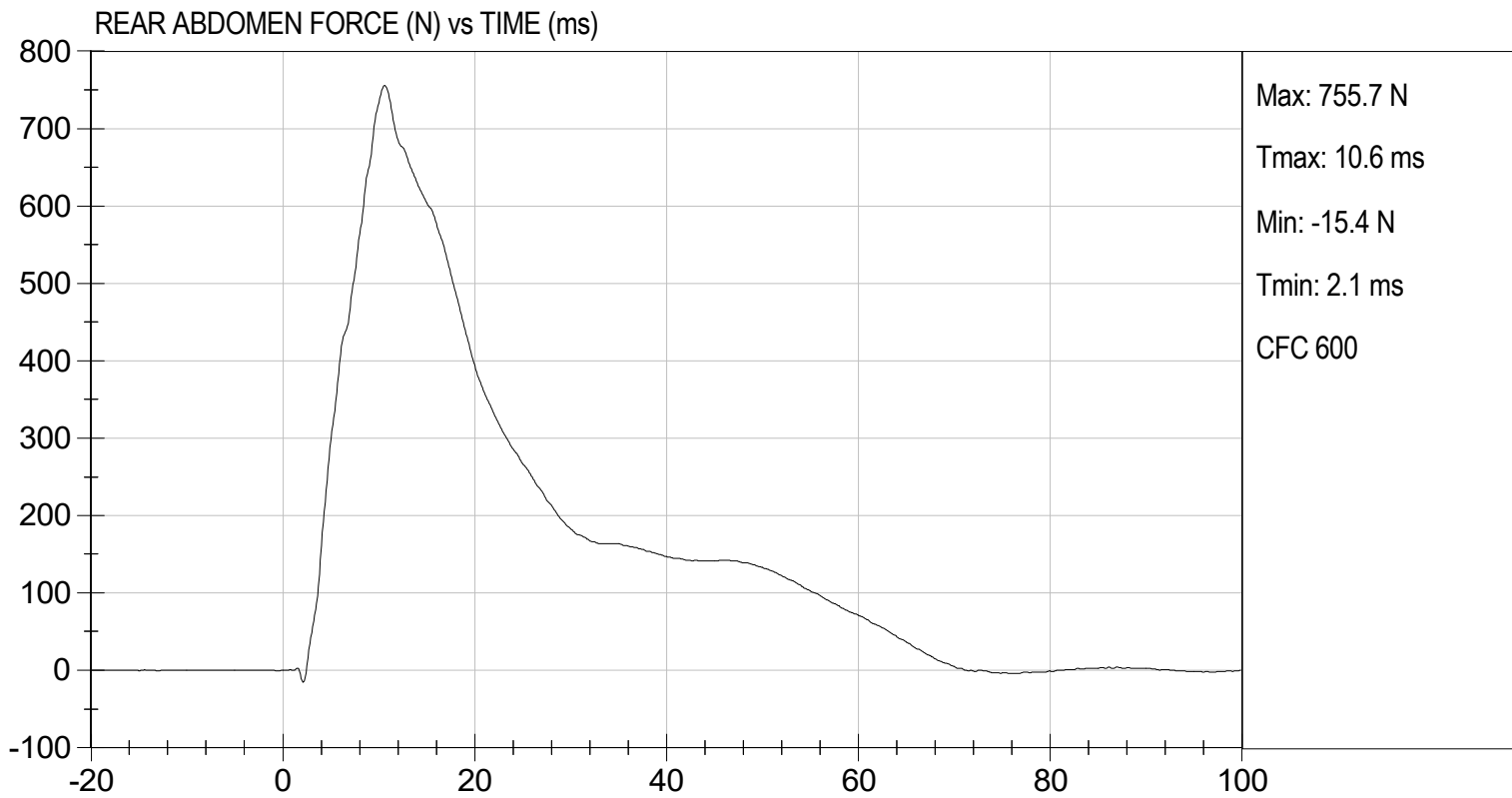
TEST DATE: 08/01/2024
TEST #: D241937





TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.15 ft/s, 4.01 m/s

TEST DATE: 08/01/2024
TEST #: D241937



MGA RESEARCH CORPORATION

LUMBAR SPINE TEST

ES-2re DUMMY

ATD Serial No: F032

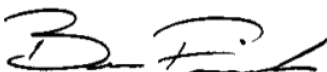
Test I.D: D241938

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	55	Pass
Pendulum Speed		m/s	5.95 to 6.15	6.12	Pass
Pendulum Velocity	1 ms	m/s	-0.05 to 0.00	-0.01	Pass
	3.7 ms	m/s	-0.425 to -0.24	-0.407	Pass
	27 ms	m/s	-6.50 to -5.80	-5.99	Pass
	30 ms	m/s	>= -6.50	-6.28	Pass
Maximum Flexion Angle		deg	45.0 to 55.0	46.3	Pass
Time of Maximum Flexion Angle		ms	39.0 to 53.0	46.2	Pass
Headform Rotation Decay to Initial Position		ms	37 to 57	41	Pass
Overall Results				Pass	


 Laboratory Technician

08/01/2024

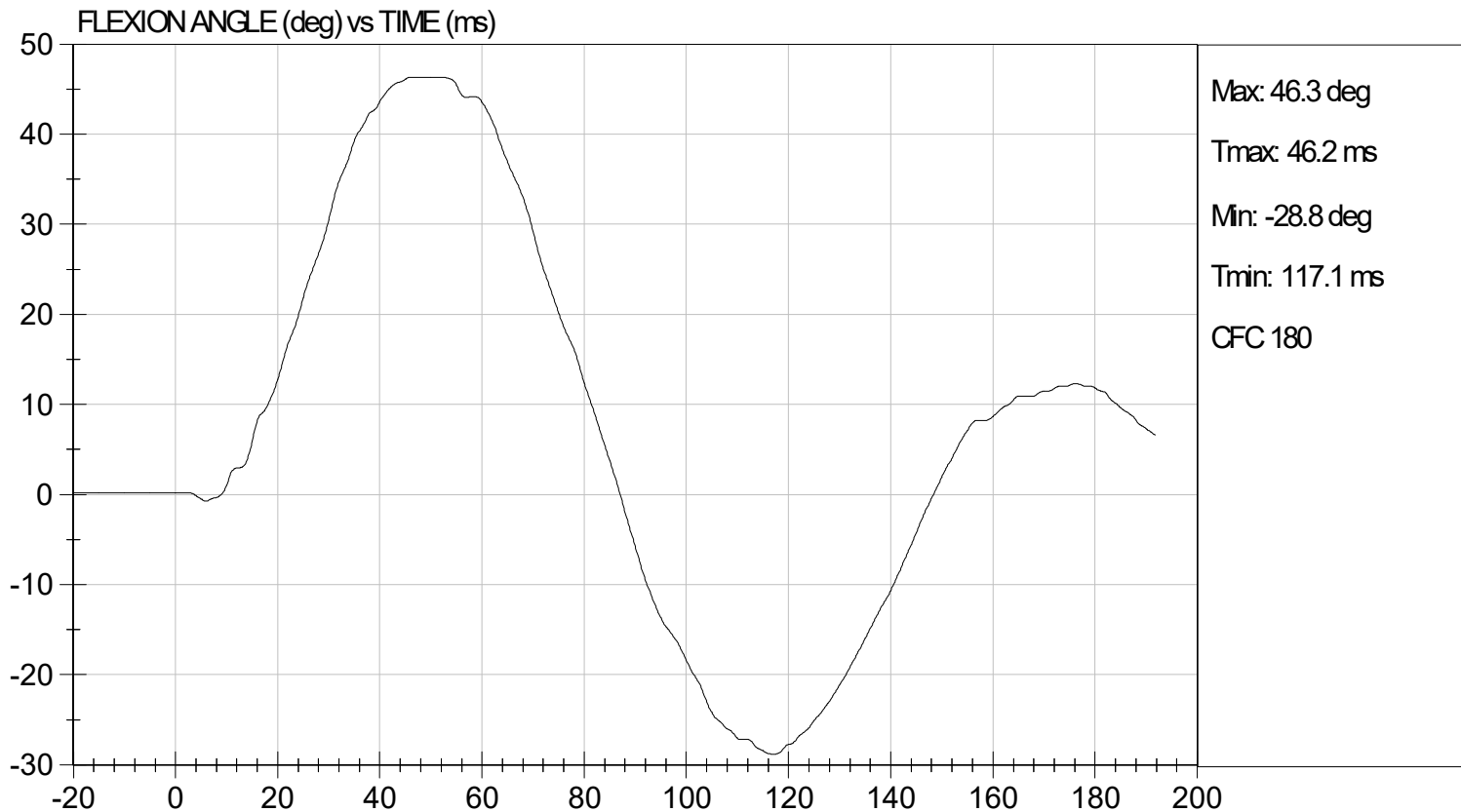
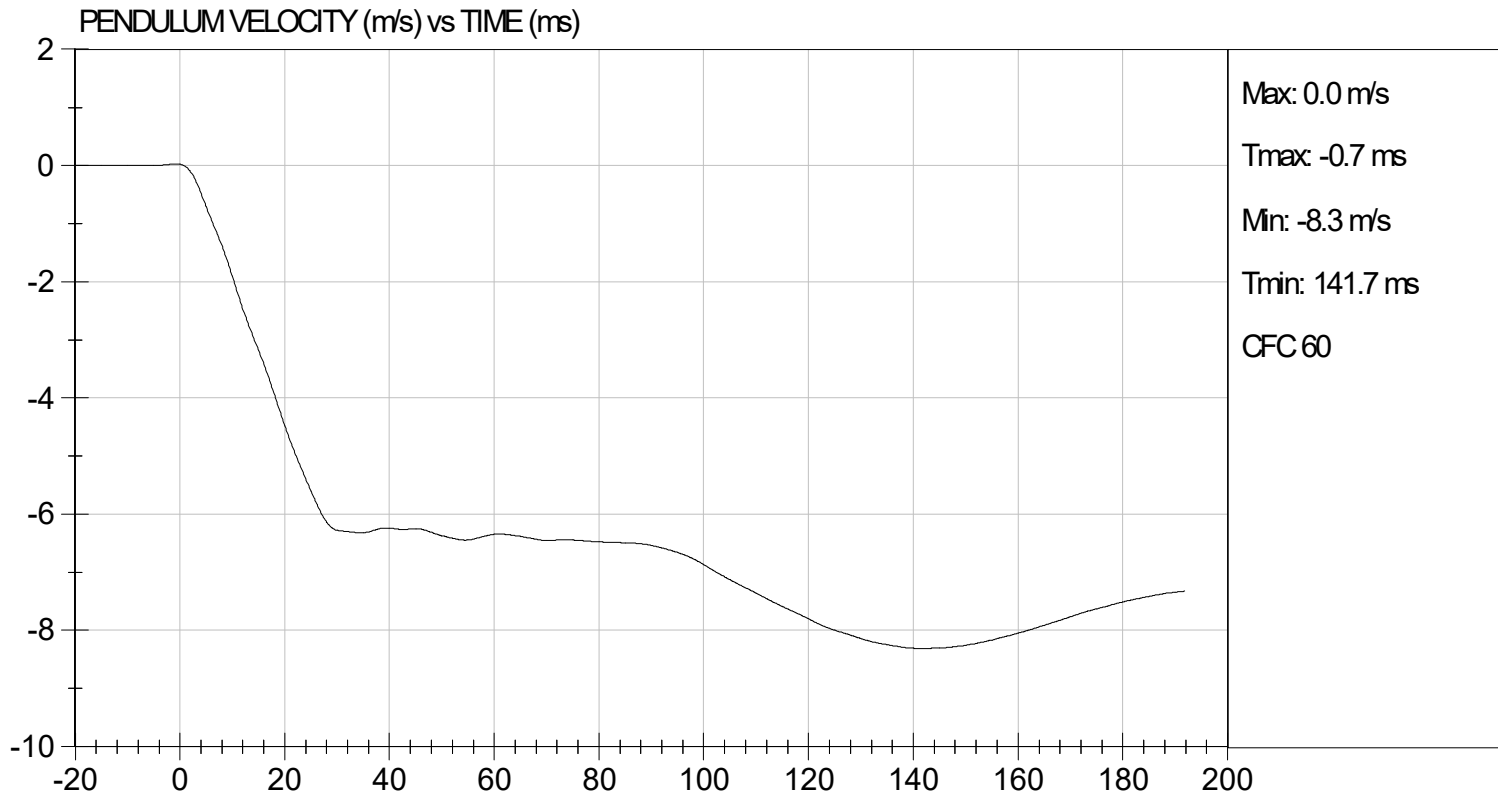
Test Date


 Approved By



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

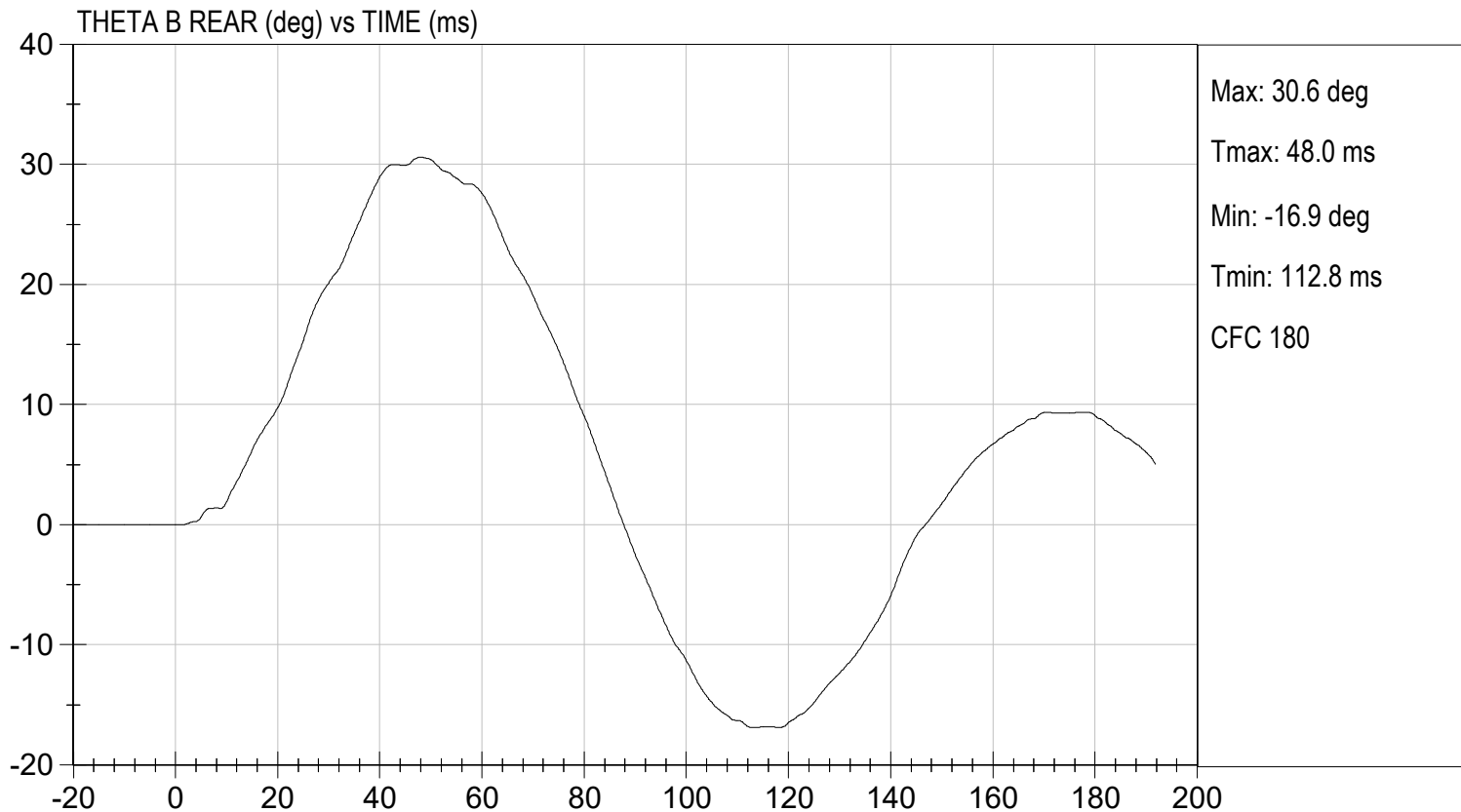
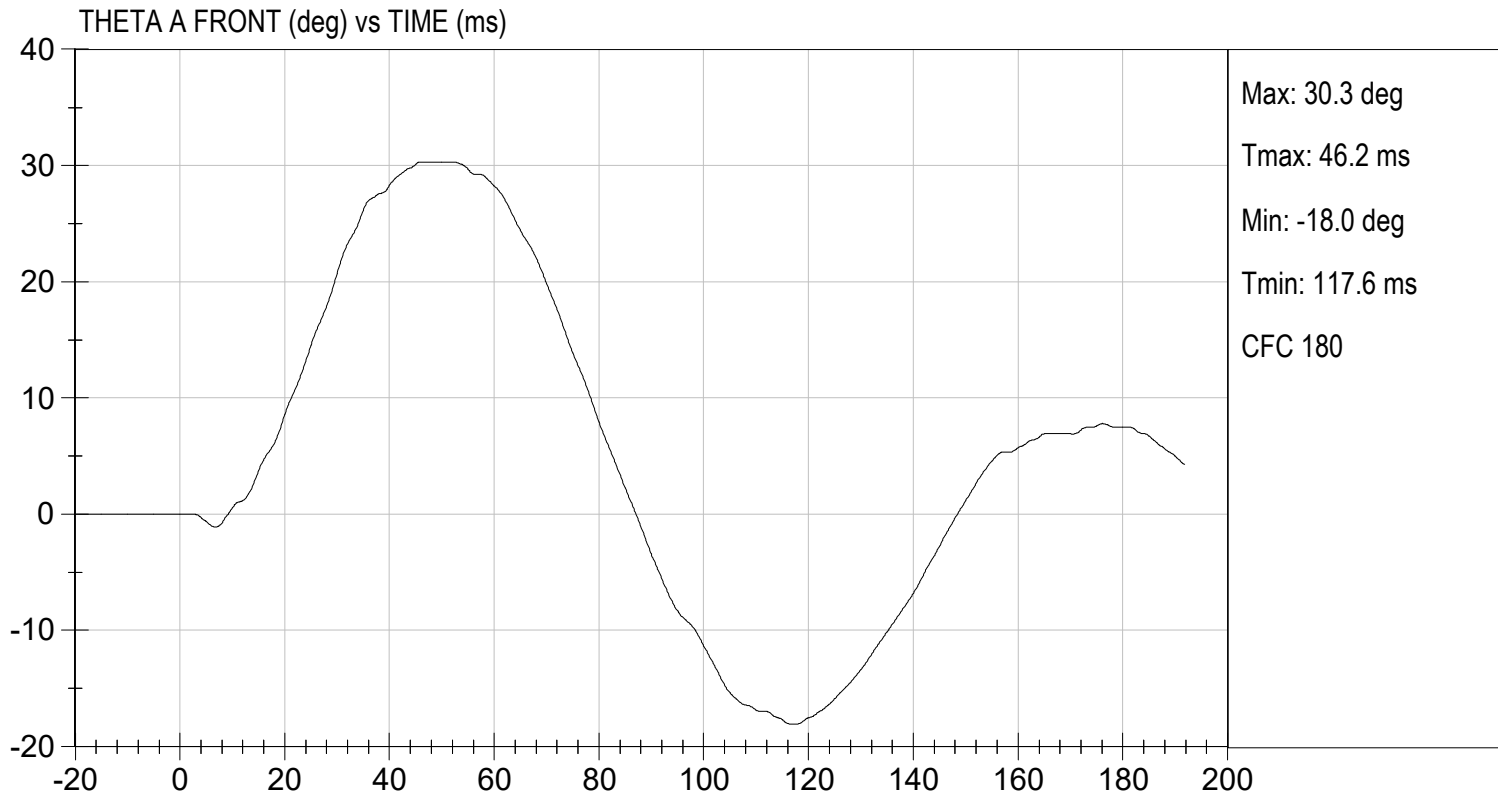
TEST DATE: 08/01/2024
TEST #: D241938





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

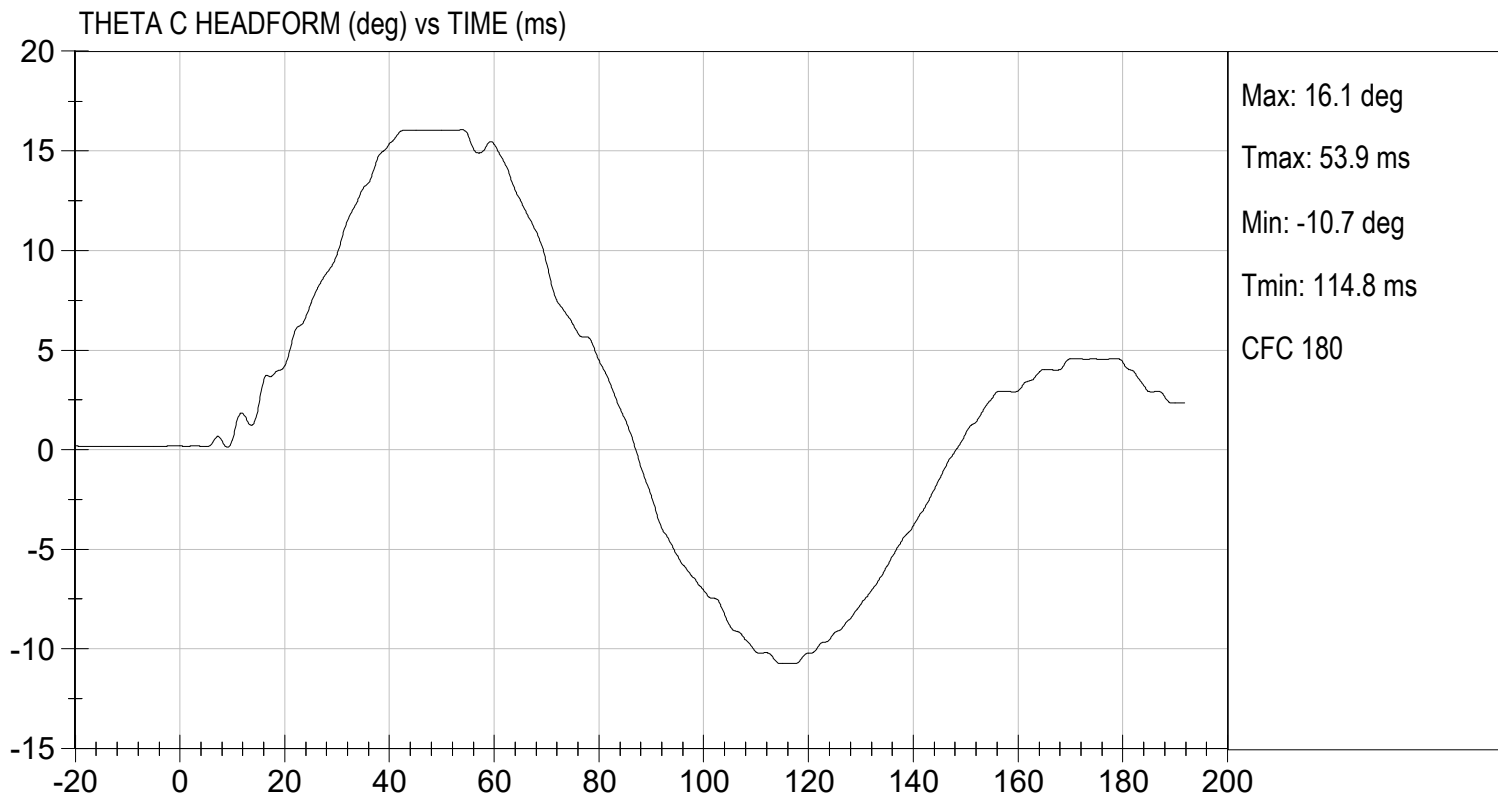
TEST DATE: 08/01/2024
TEST #: D241938





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

TEST DATE: 08/01/2024
TEST #: D241938

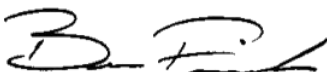


MGA RESEARCH CORPORATION**PELVIS TEST****ES-2re DUMMY****ATD Serial No:** F032**Test I.D:** D241939

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Probe Speed	m/s	4.20 to 4.40	4.34	Pass
Maximum Impactor Force	N	4700 to 5400	4945	Pass
Time of Maximum Impactor Force	ms	11.8 to 16.1	13.3	Pass
Maximum Pubic Force	N	1230 to 1590	1245	Pass
Time of Maximum Pubic Force	ms	12.2 to 17.0	13.4	Pass
Overall Test Results				Pass


Laboratory Technician

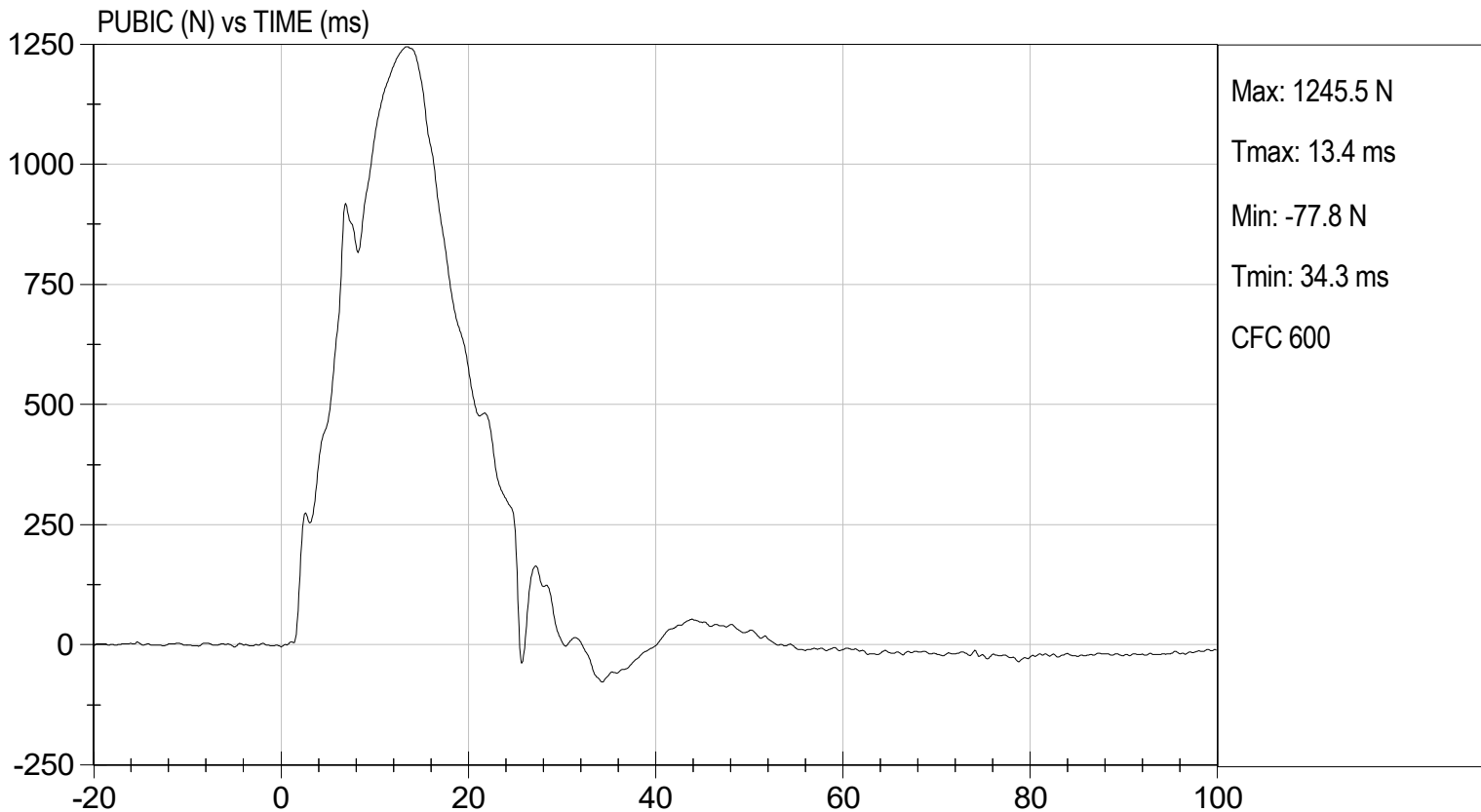
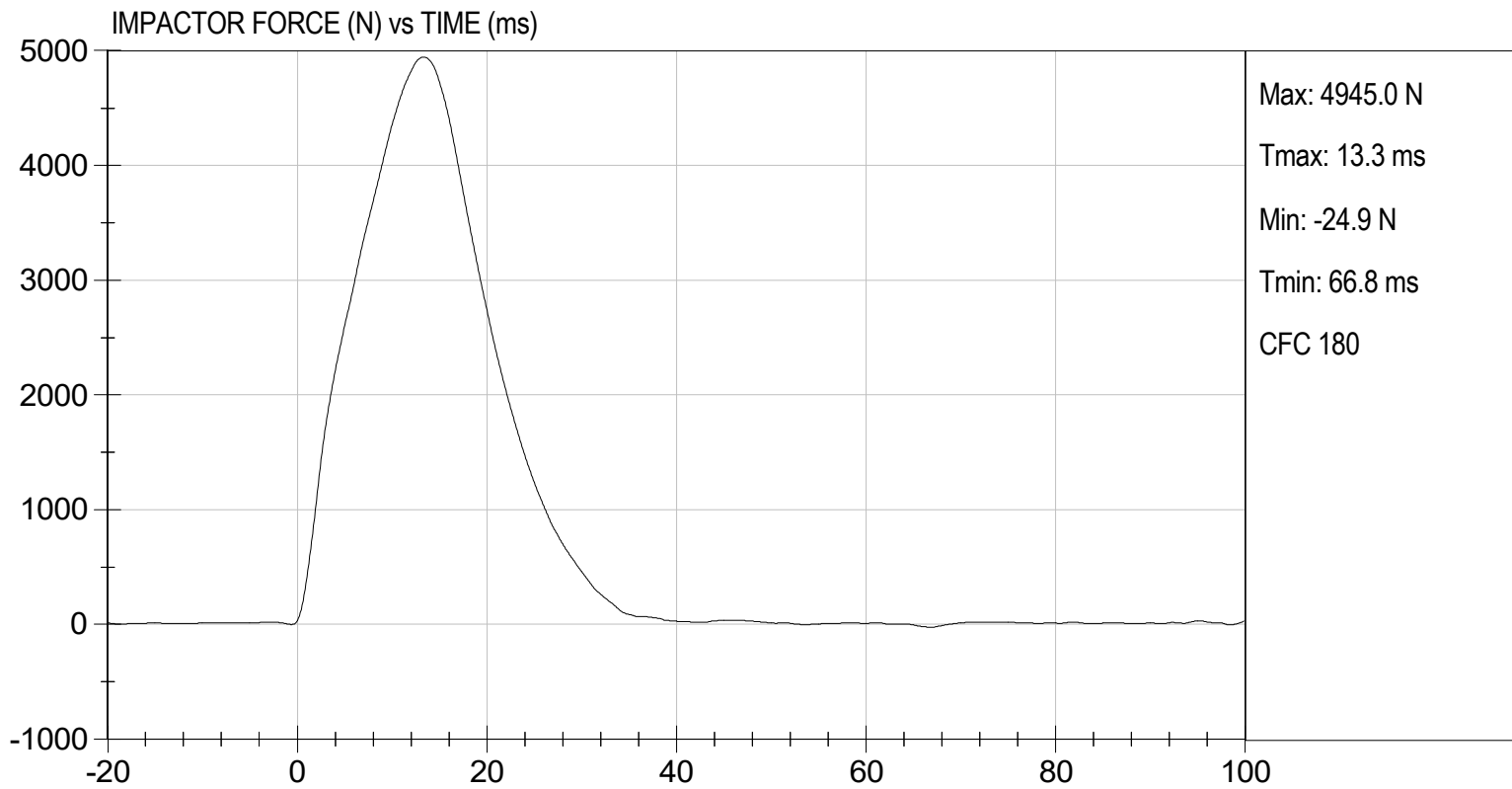
08/01/2024
Test Date


Approved By



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

TEST DATE: 08/01/2024
TEST #: D241939



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

ES-2re DUMMY

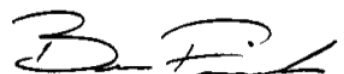
ATD Serial No: F032

Test I.D: D241930

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	46	Pass
Probe Speed	m/s	5.40 to 5.60	5.40	Pass
Maximum Impactor Force (after 6 ms)	N	5100 to 6200	5903	Pass
Upper Rib Displacement	mm	34.0 to 41.0	37.5	Pass
Middle Rib Displacement	mm	37.0 to 45.0	39.2	Pass
Lower Rib Displacement	mm	37.0 to 44.0	37.3	Pass
Overall Test Results			Pass	


Laboratory Technician

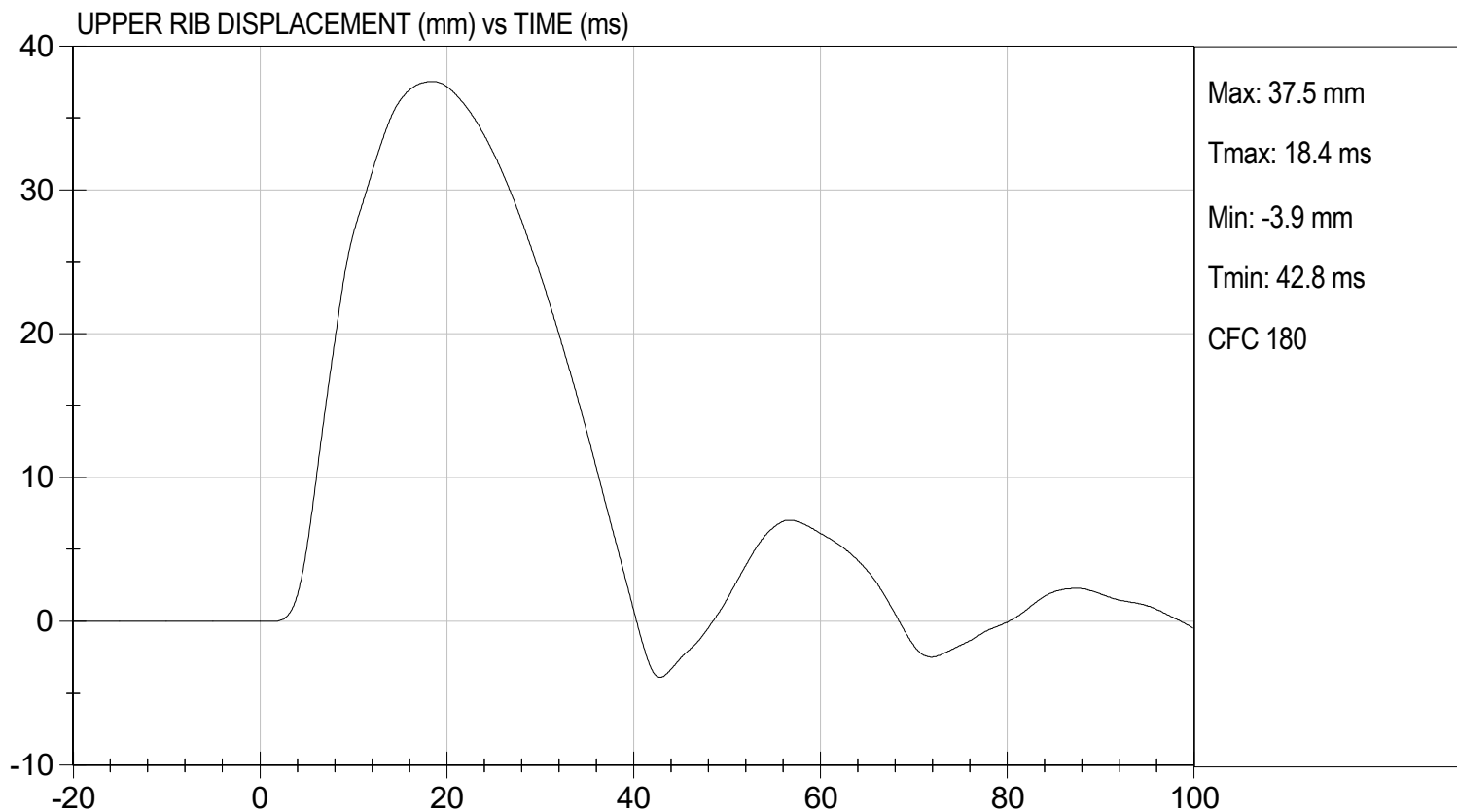
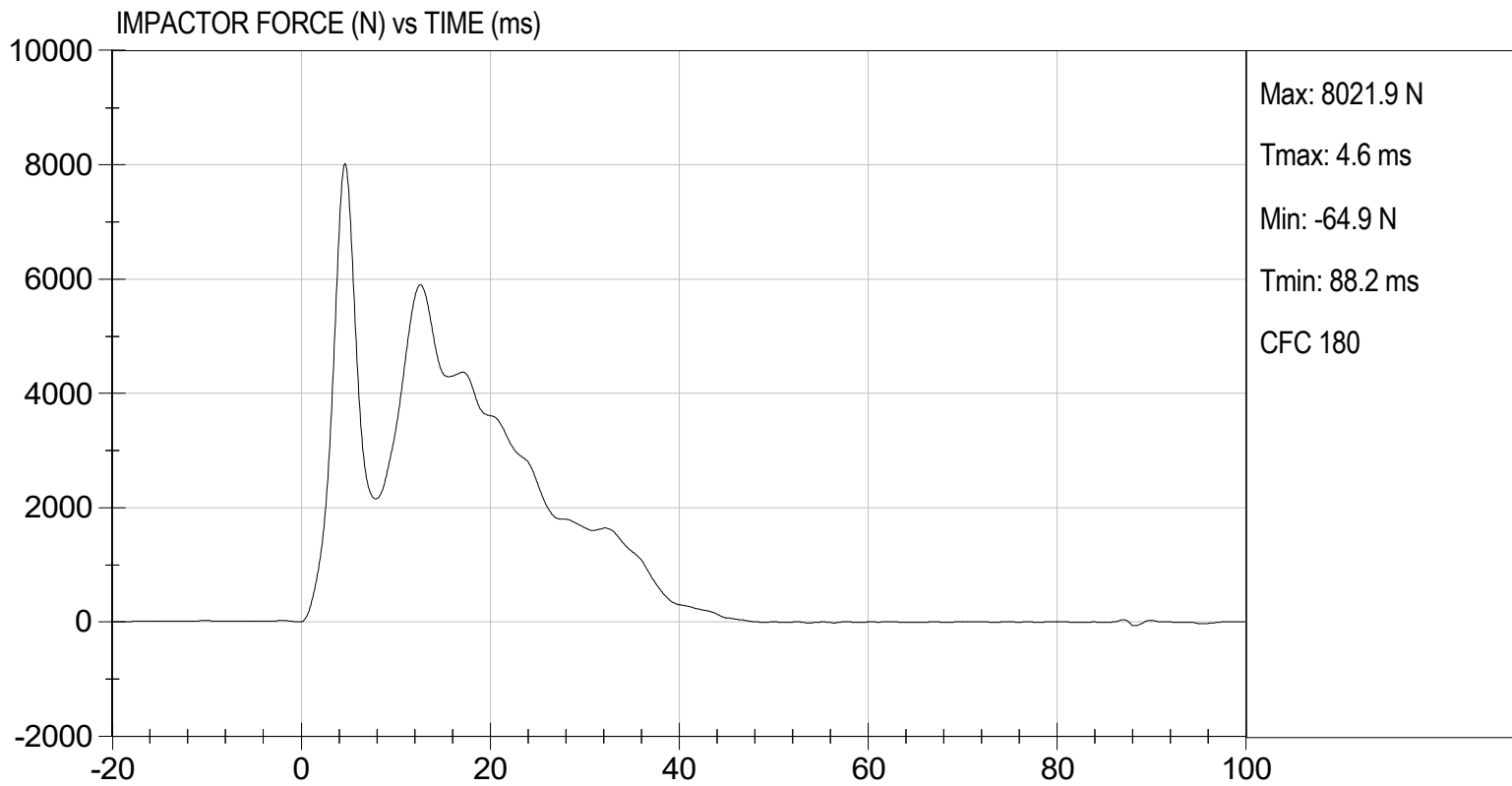
08/01/2024
Test Date


Approved By



TEST DESC: THORAX IMPACT
VELOCITY: 17.73 ft/s, 5.40 m/s

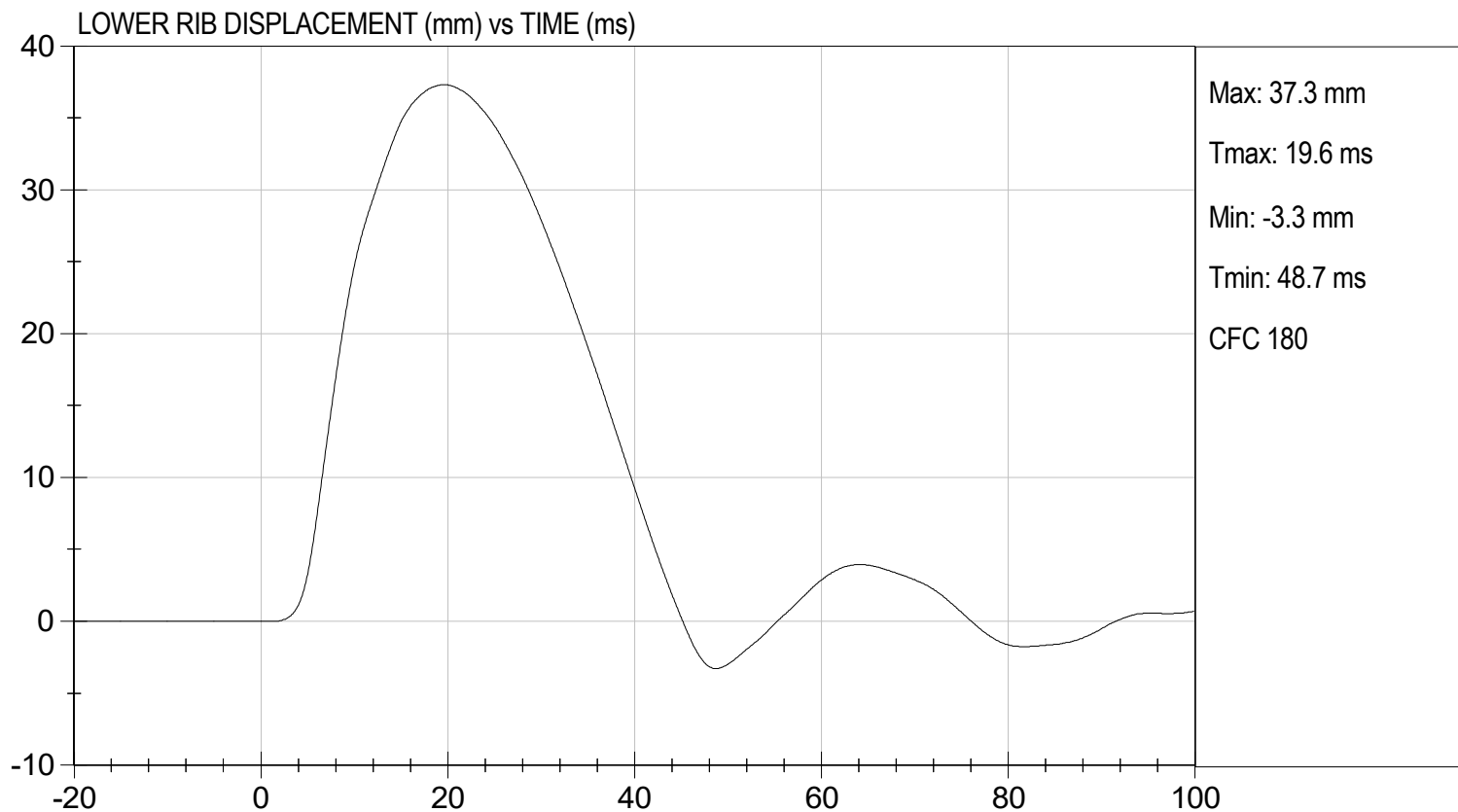
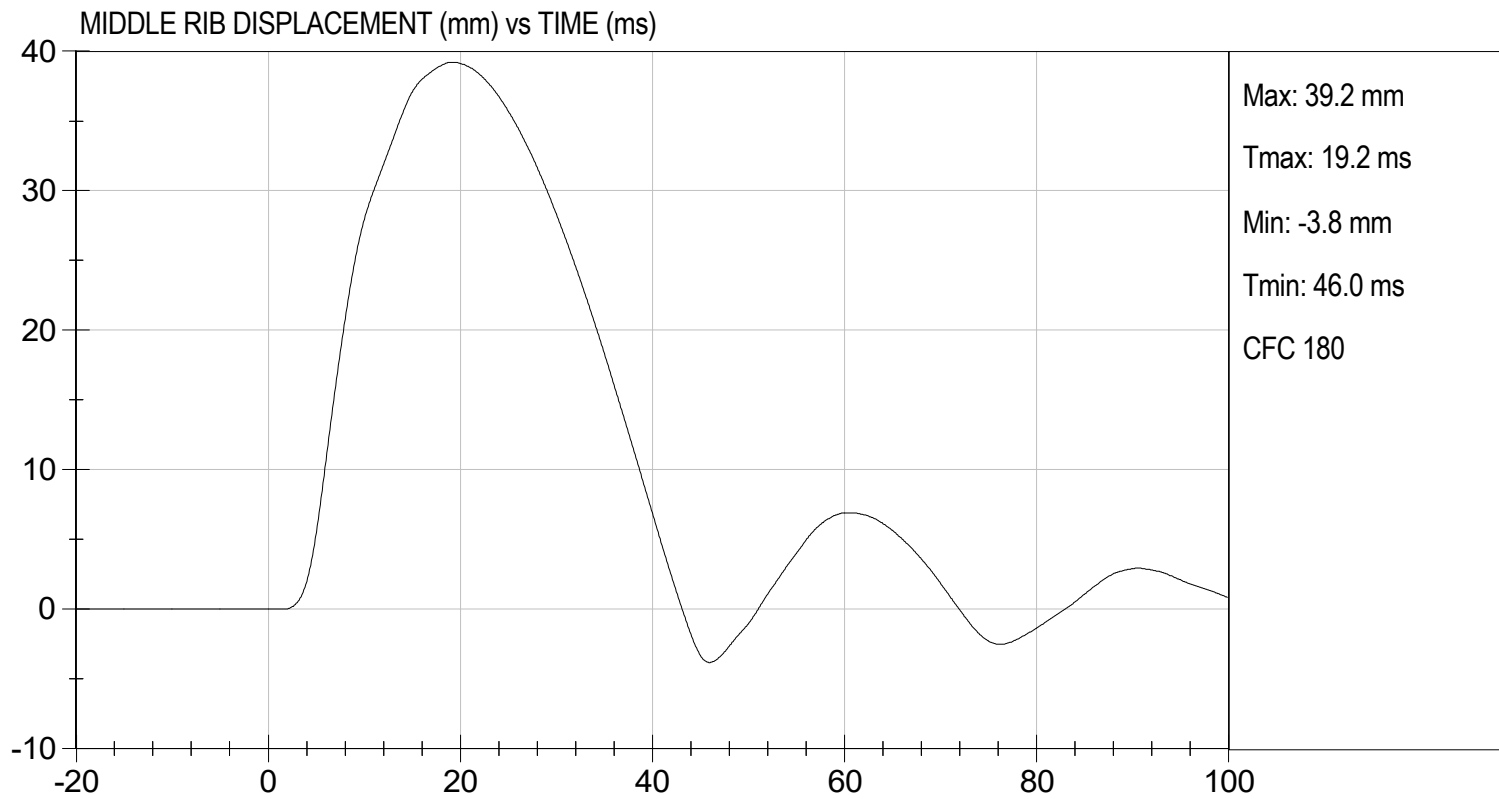
TEST DATE: 08/01/2024
TEST #: D241930





TEST DESC: THORAX IMPACT
VELOCITY: 17.73 ft/s, 5.40 m/s

TEST DATE: 08/01/2024
TEST #: D241930



QUALIFICATION TEST RESULTS

PRE-TEST

SID-IIS 5TH PERCENTILE FEMALE - PASSENGER 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

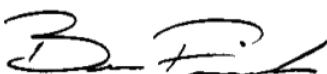
Test ID: D241791

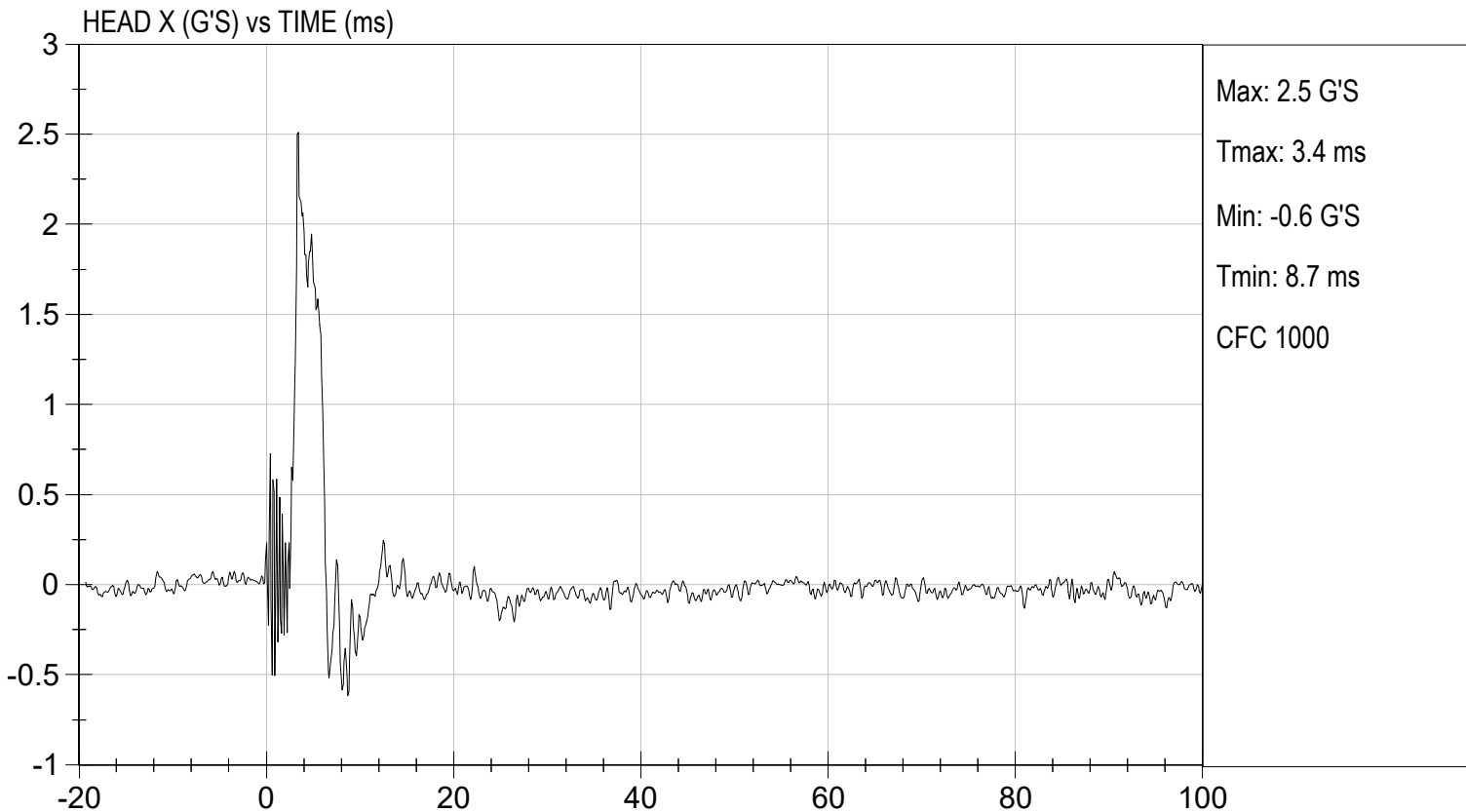
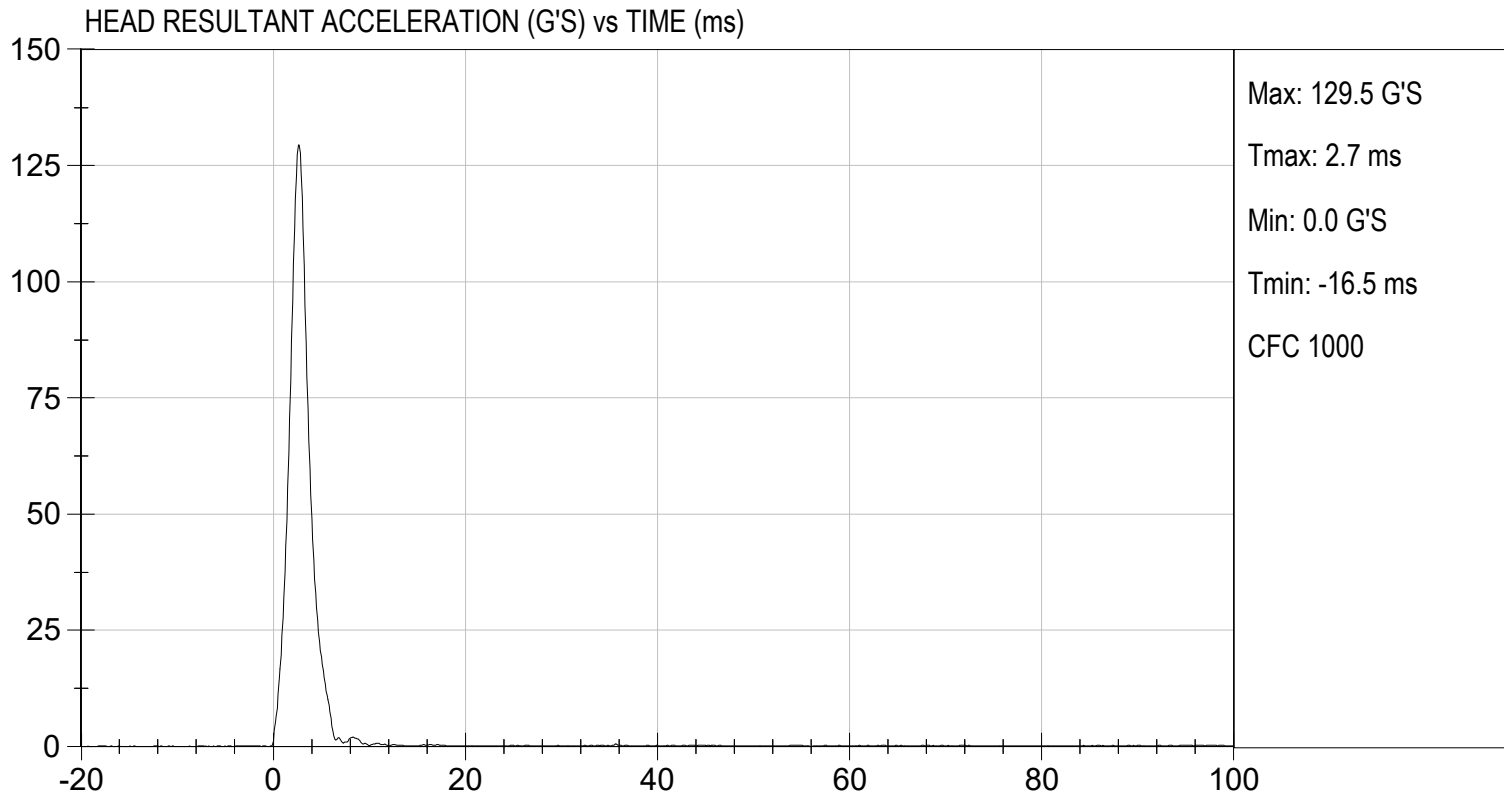
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	44	Pass
Peak Resultant Acceleration	G's	115 to 137	130	Pass
Peak Longitudinal Acceleration	G's	+/- 15	2.5	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results				Pass

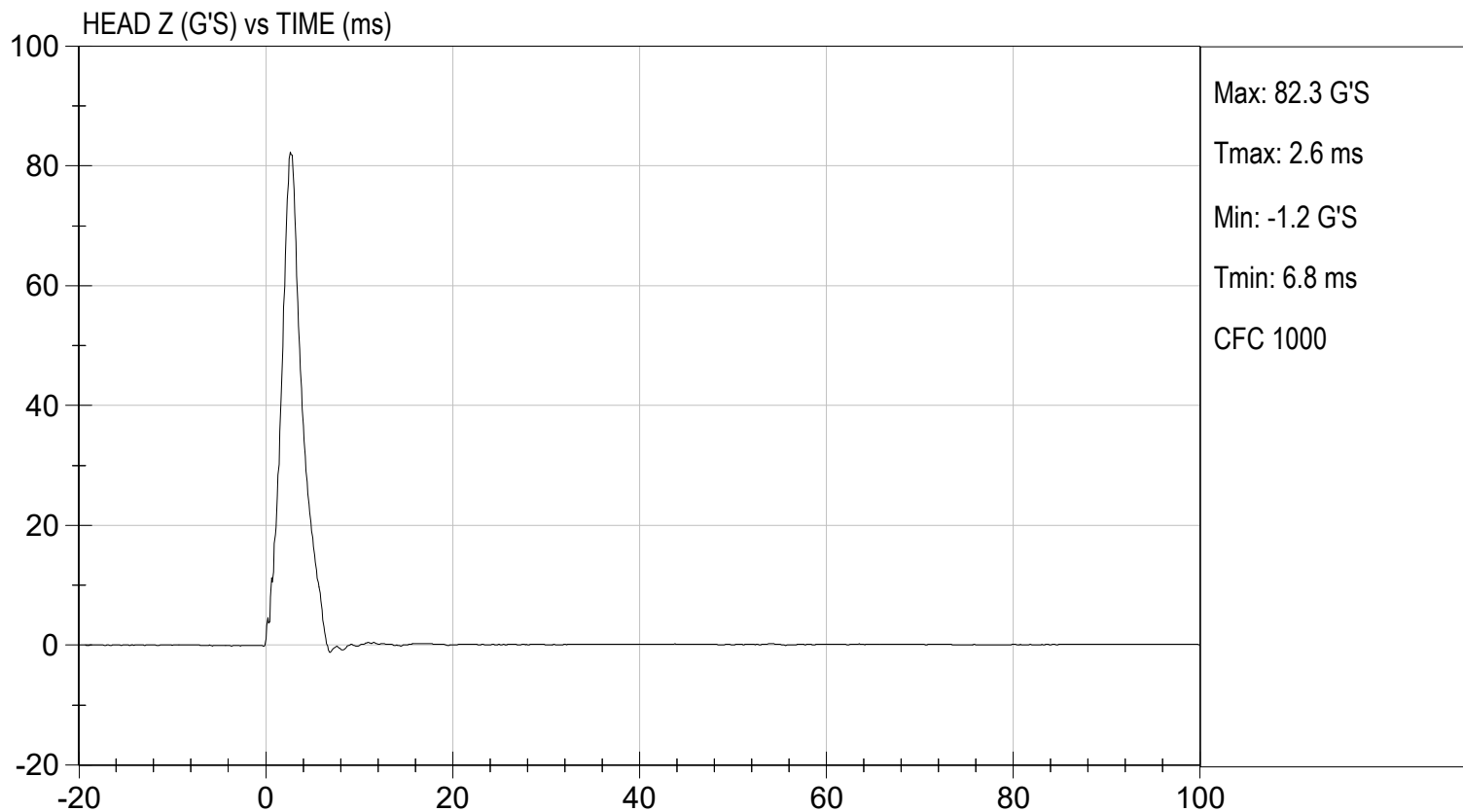
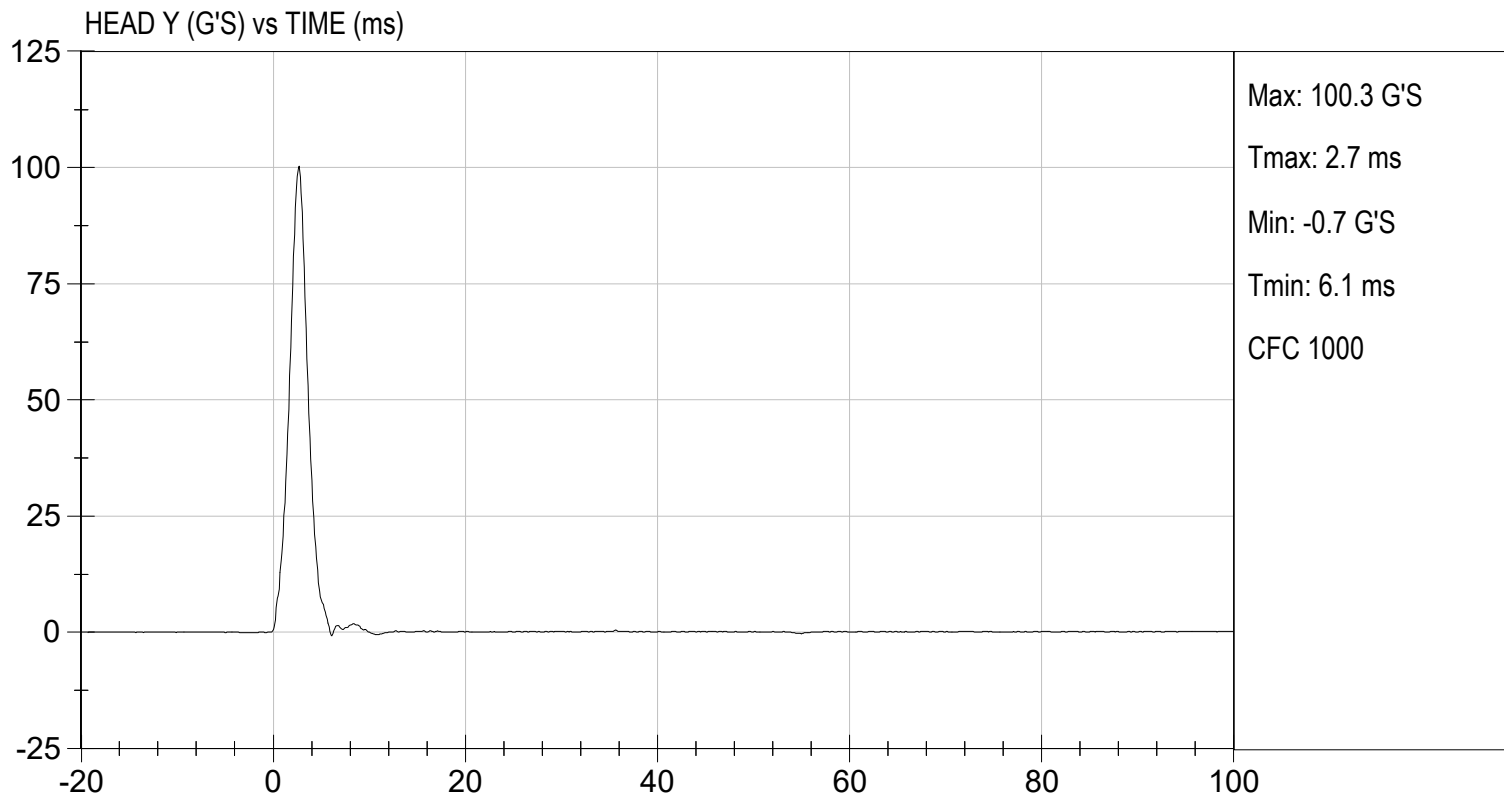

Laboratory Technician

07/17/2024

Test Date


Approved By



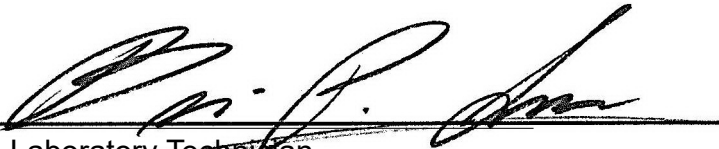


MGA RESEARCH CORPORATION
LATERAL NECK PENDULUM TEST
SID-Its BUILD LEVEL D DUMMY

ATD Serial No: 296

Test I.D: D241792

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.3	Pass
Humidity		%	10 to 70	44	Pass
Impact Velocity		m/s	5.51 to 5.63	5.52	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.29	Pass
	15 ms	m/s	3.30 to 4.10	3.59	Pass
	20 ms	m/s	4.40 to 5.40	5.07	Pass
	25 ms	m/s	5.40 to 6.10	5.70	Pass
	25-100 ms	m/s	5.50 to 6.20	5.74	Pass
Maximum D-Plane Rotation		deg	71 to 81	78	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	67	Pass
Maximum Occipital Condyle Moment		Nm	-44 to -36	-40	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	121	Pass
Overall Test Results					Pass


Laboratory Technician

07/17/2024

Test Date

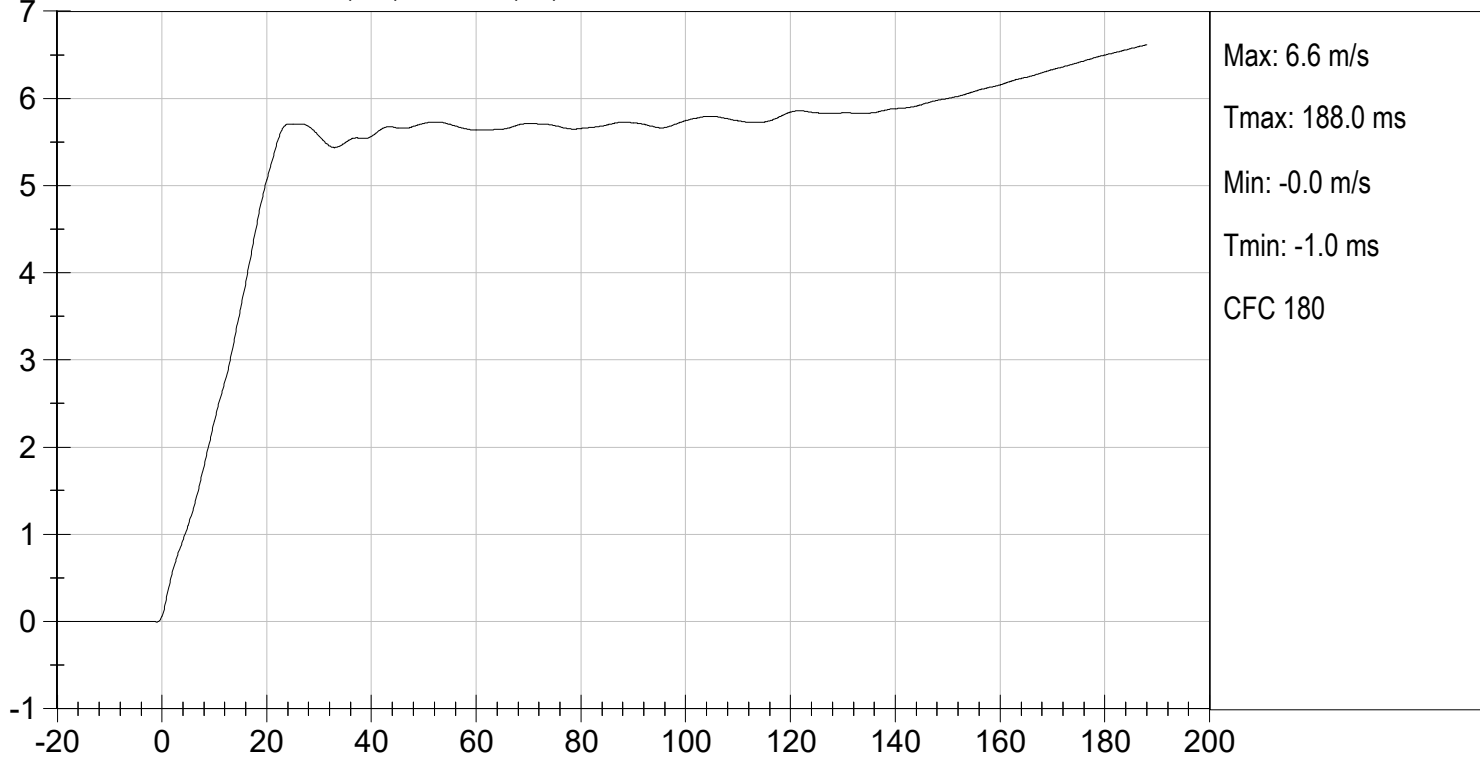

Approved By



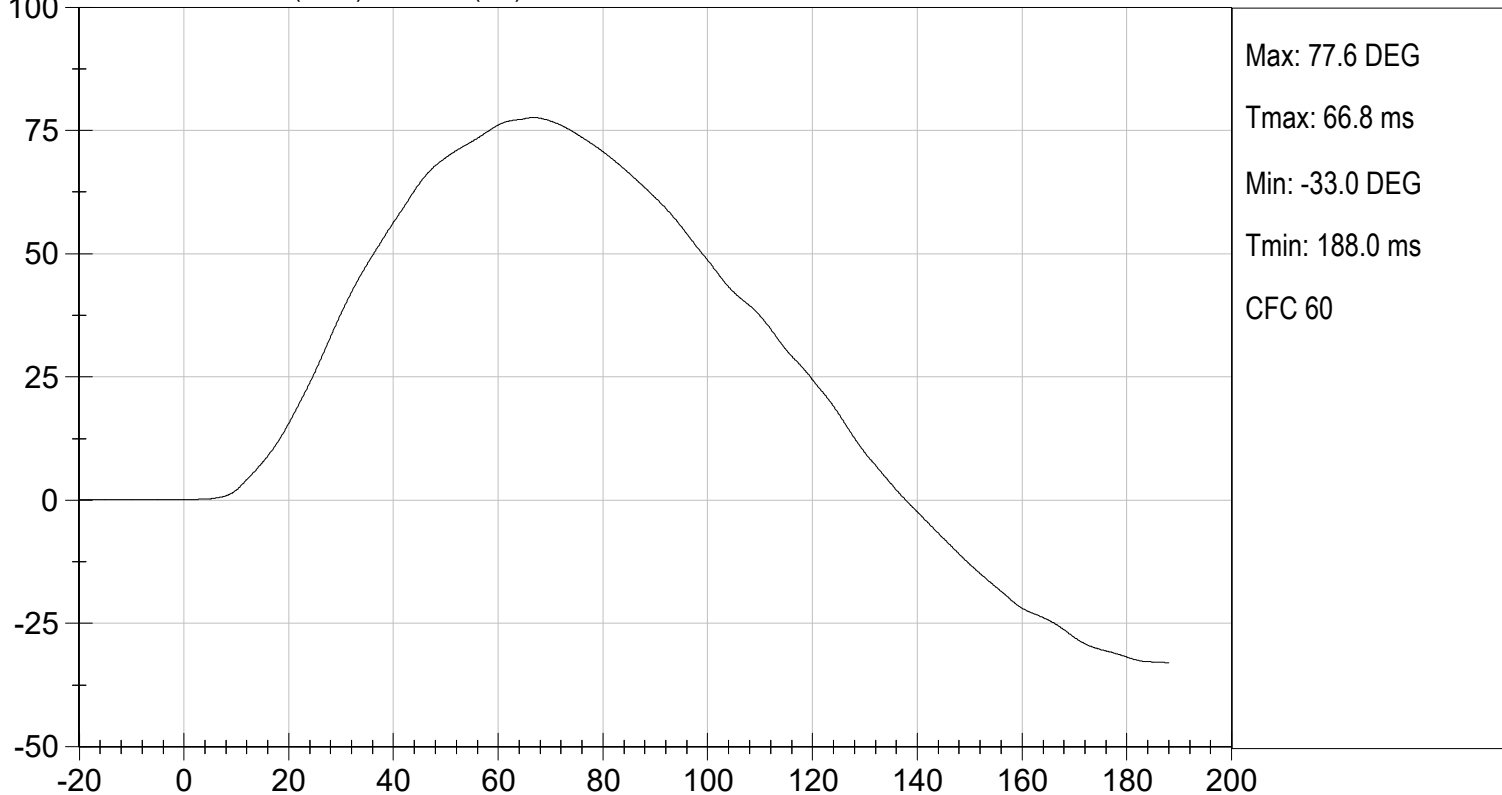
TEST DESC: NECK BENDING
VELOCITY: 18.12 ft/s, 5.52 m/s

TEST DATE: 07/17/2024
TEST #: D241792

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



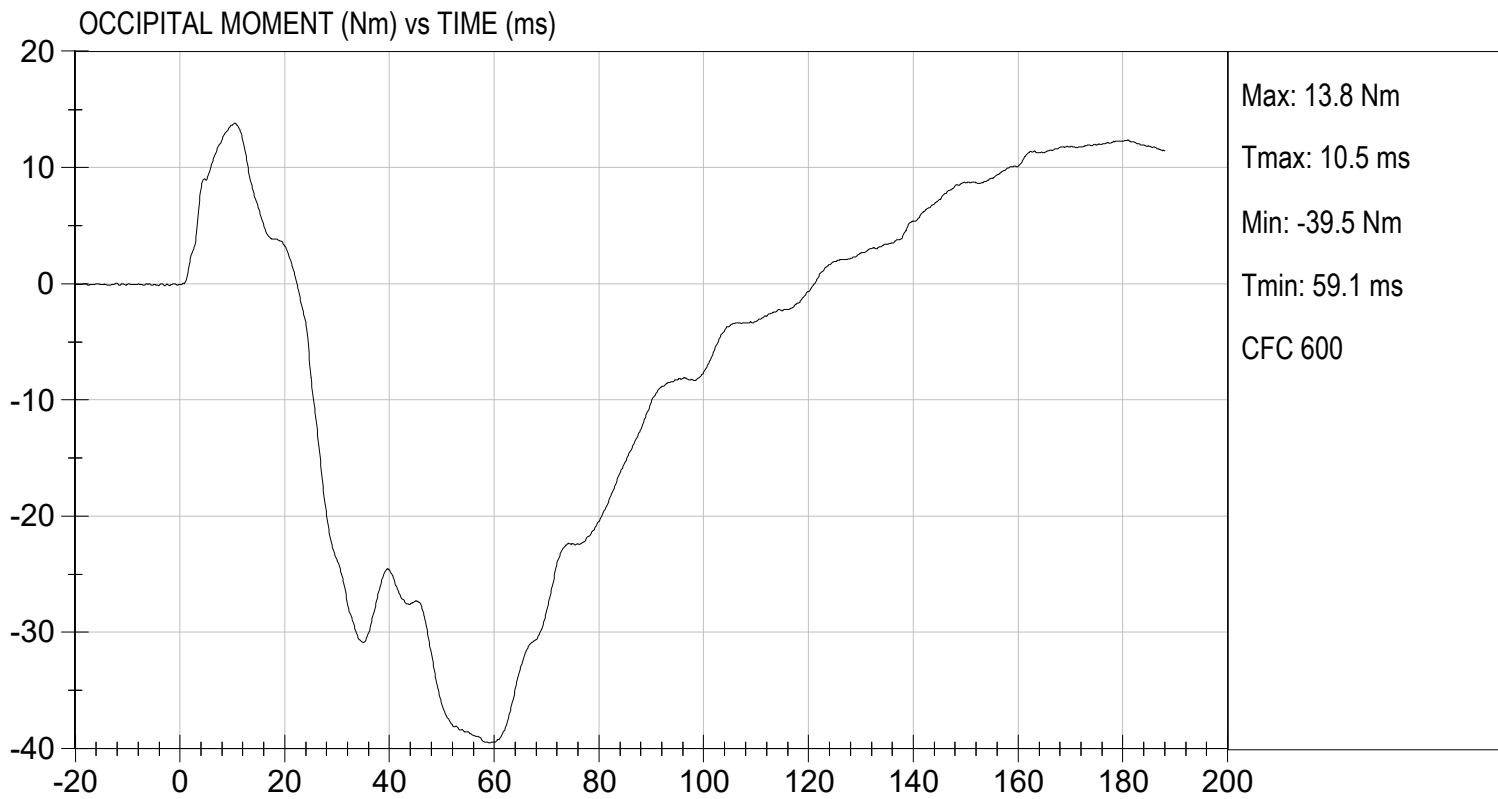
FLEXION ANGLE (DEG) vs TIME (ms)





TEST DESC: NECK BENDING
VELOCITY: 18.12 ft/s, 5.52 m/s

TEST DATE: 07/17/2024
TEST #: D241792



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

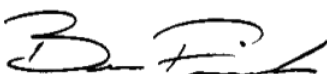
ATD Serial No: 296

Test ID: D241793

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	45	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	30	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	20	Pass
Overall Test Results			Pass	


Laboratory Technician

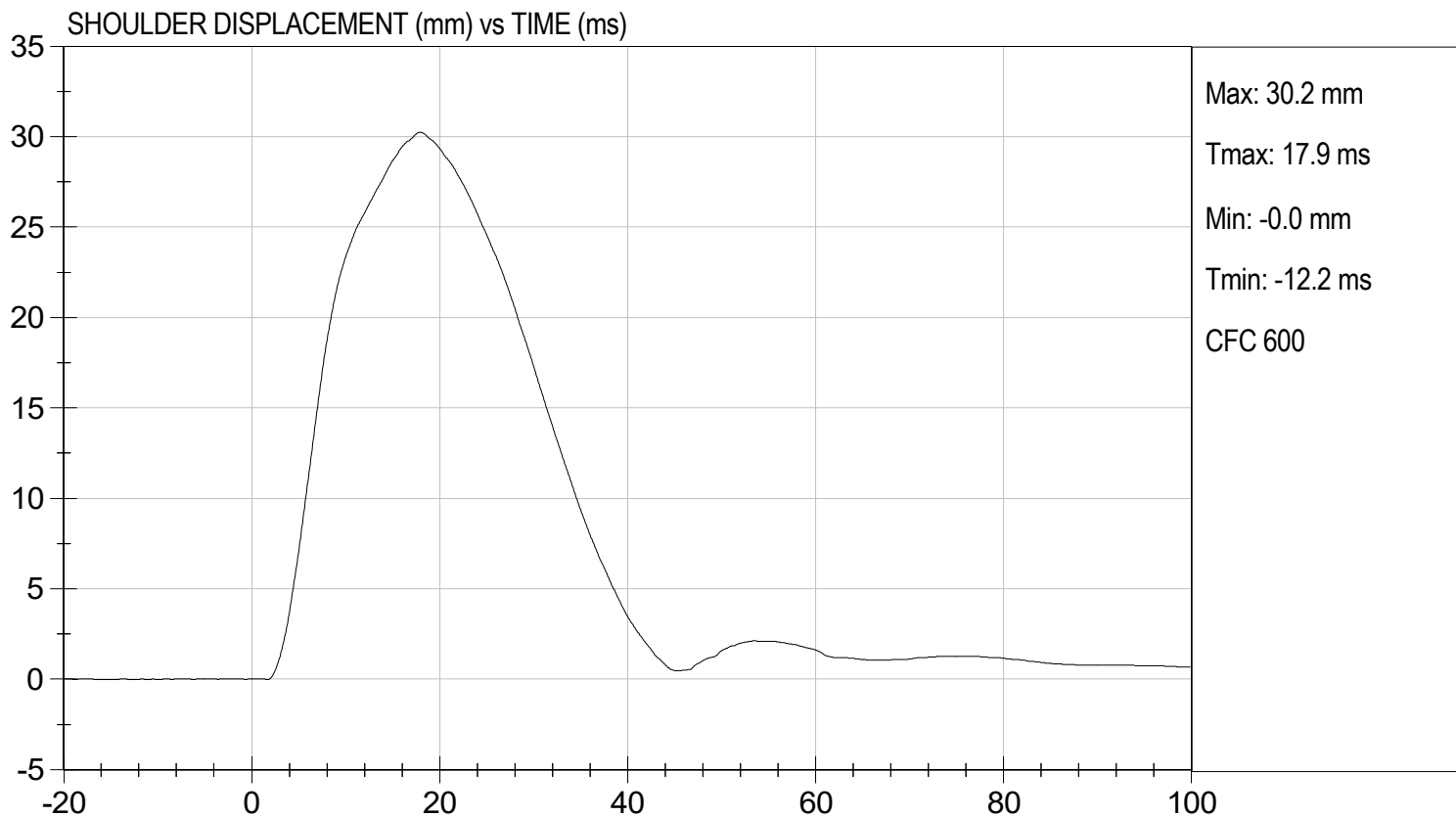
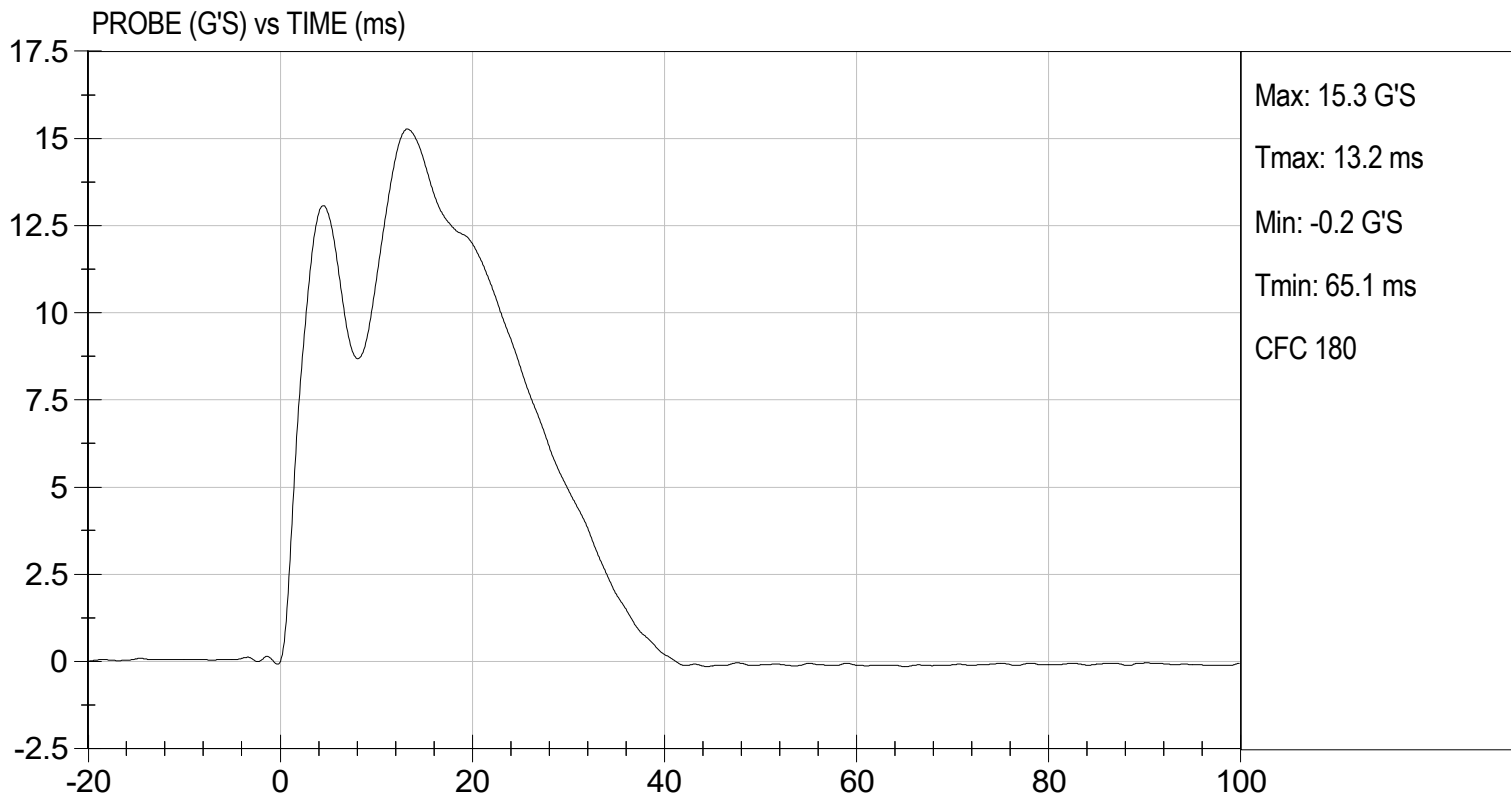
07/17/2024
Test Date


Approved By



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

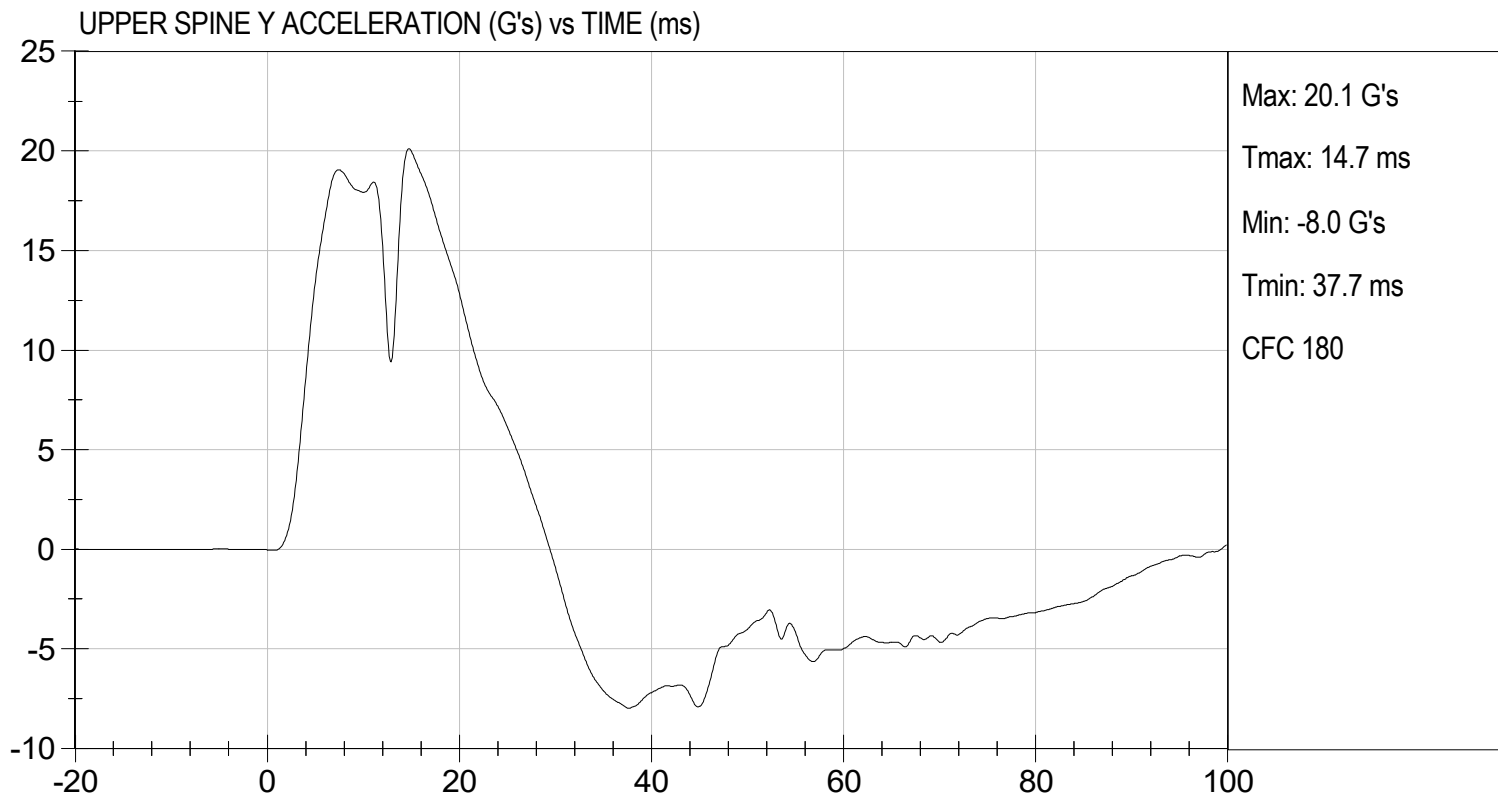
TEST DATE: 07/17/2024
TEST #: D241793





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

TEST DATE: 07/17/2024
TEST #: D241793



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

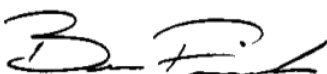
ATD Serial No: 296

Test I.D: D241794

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	45	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	30 to 36	34	Pass
Shoulder Displacement	mm	31 to 40	36	Pass
Upper Rib Displacement	mm	25 to 32	28	Pass
Middle Rib Displacement	mm	30 to 36	31	Pass
Lower Rib Displacement	mm	32 to 38	33	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	39	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	34	Pass
Overall Test Results				Pass


Laboratory Technician

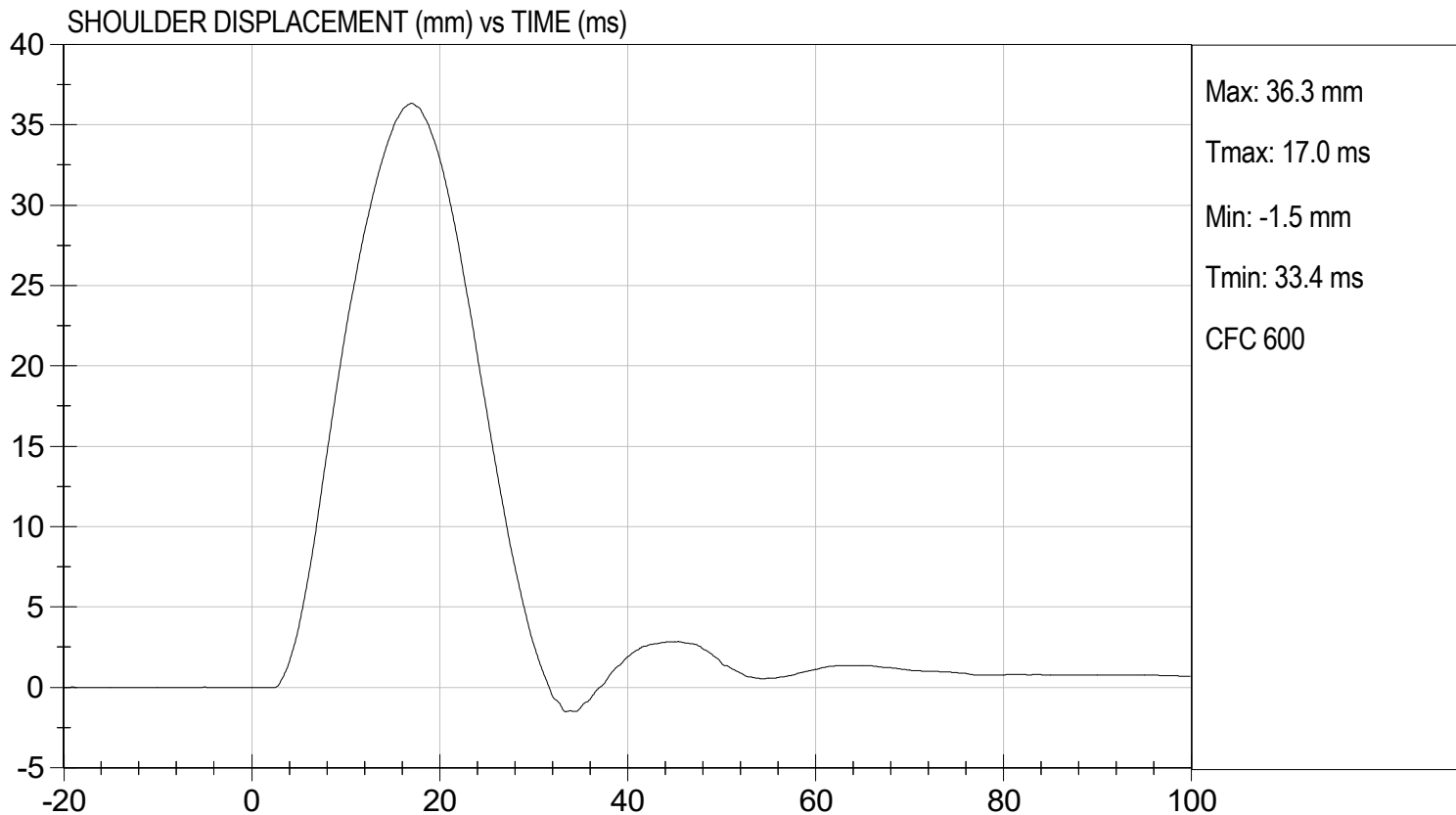
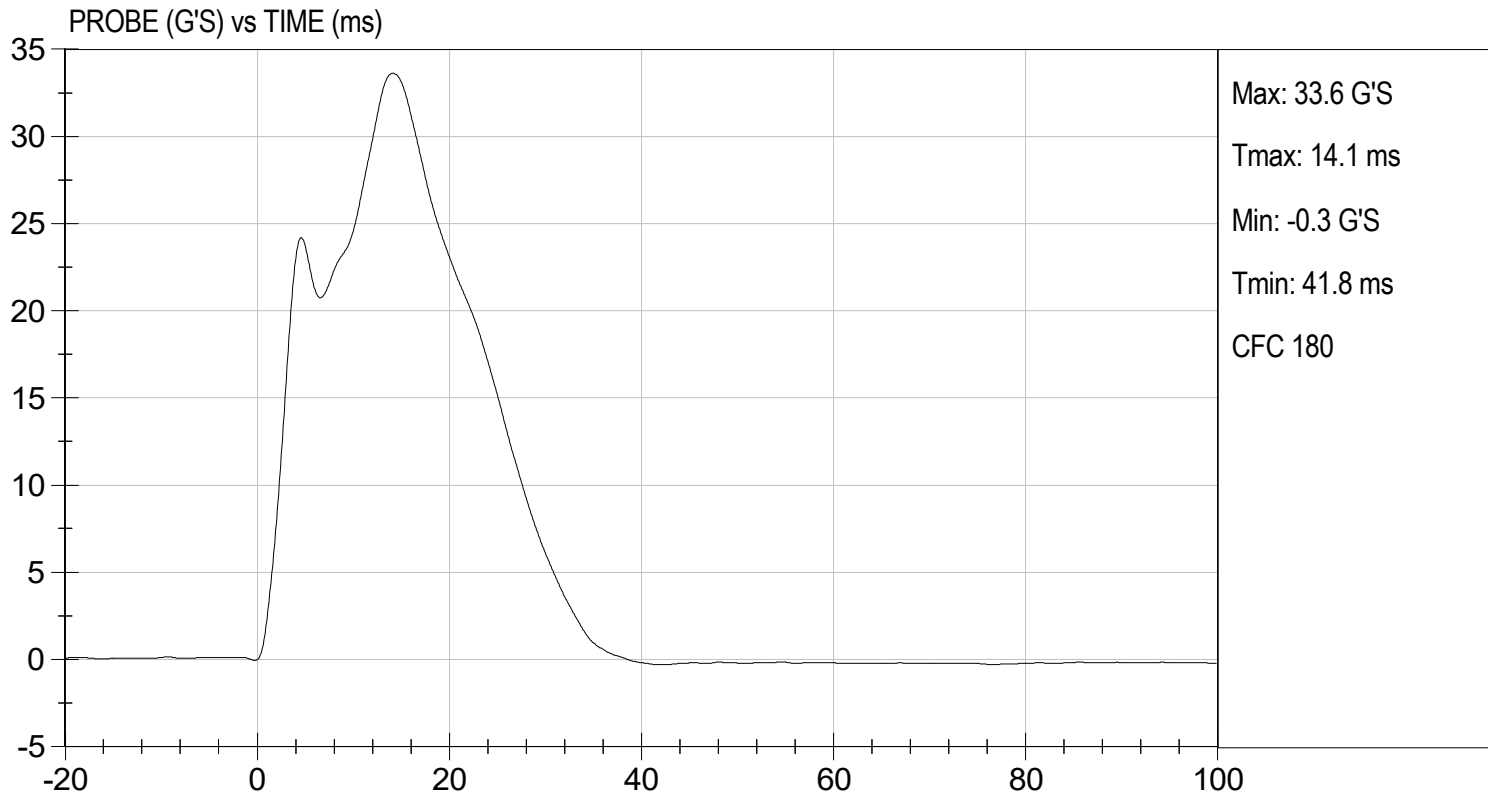
07/17/2024
Test Date


Approved By



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

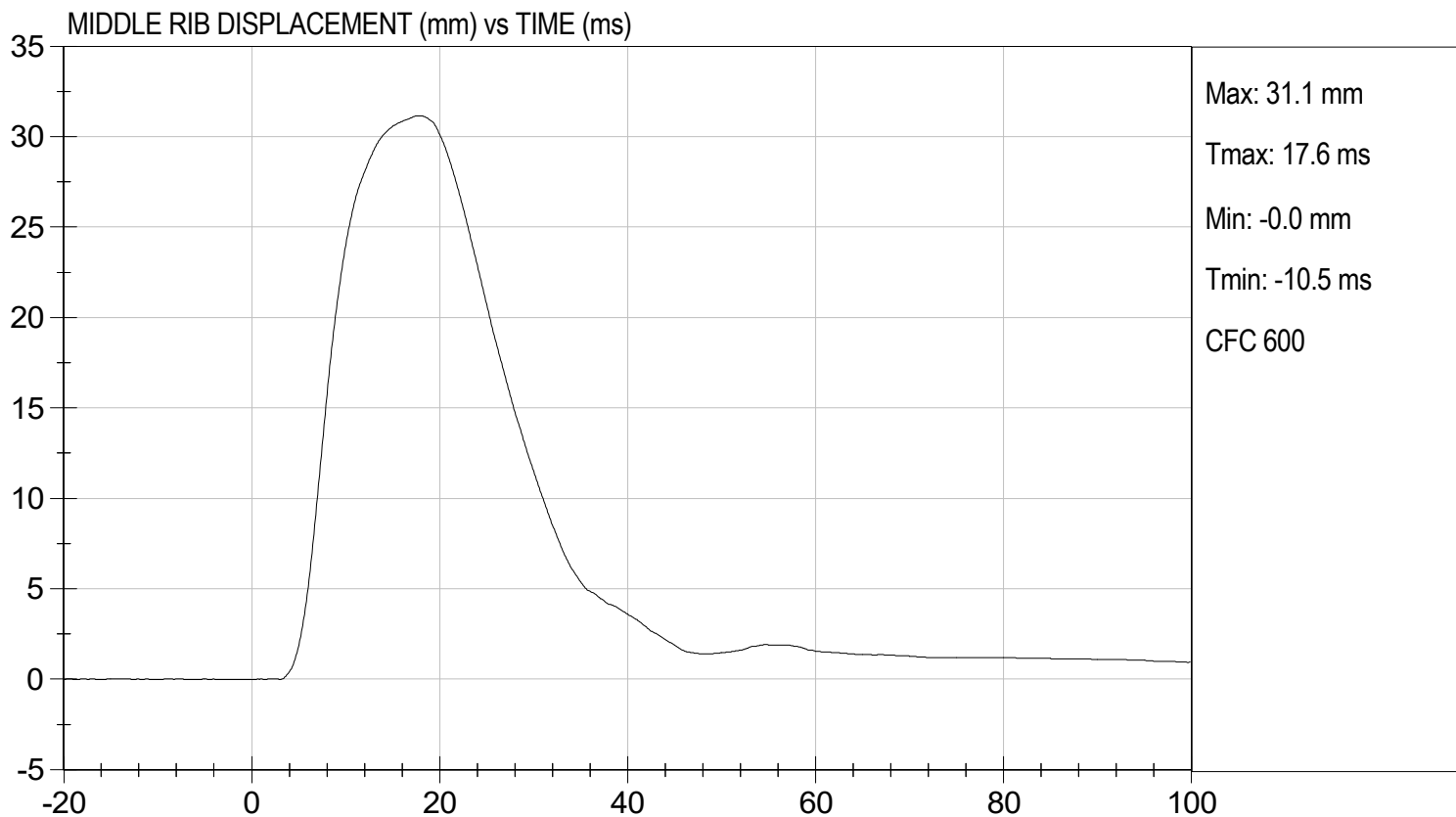
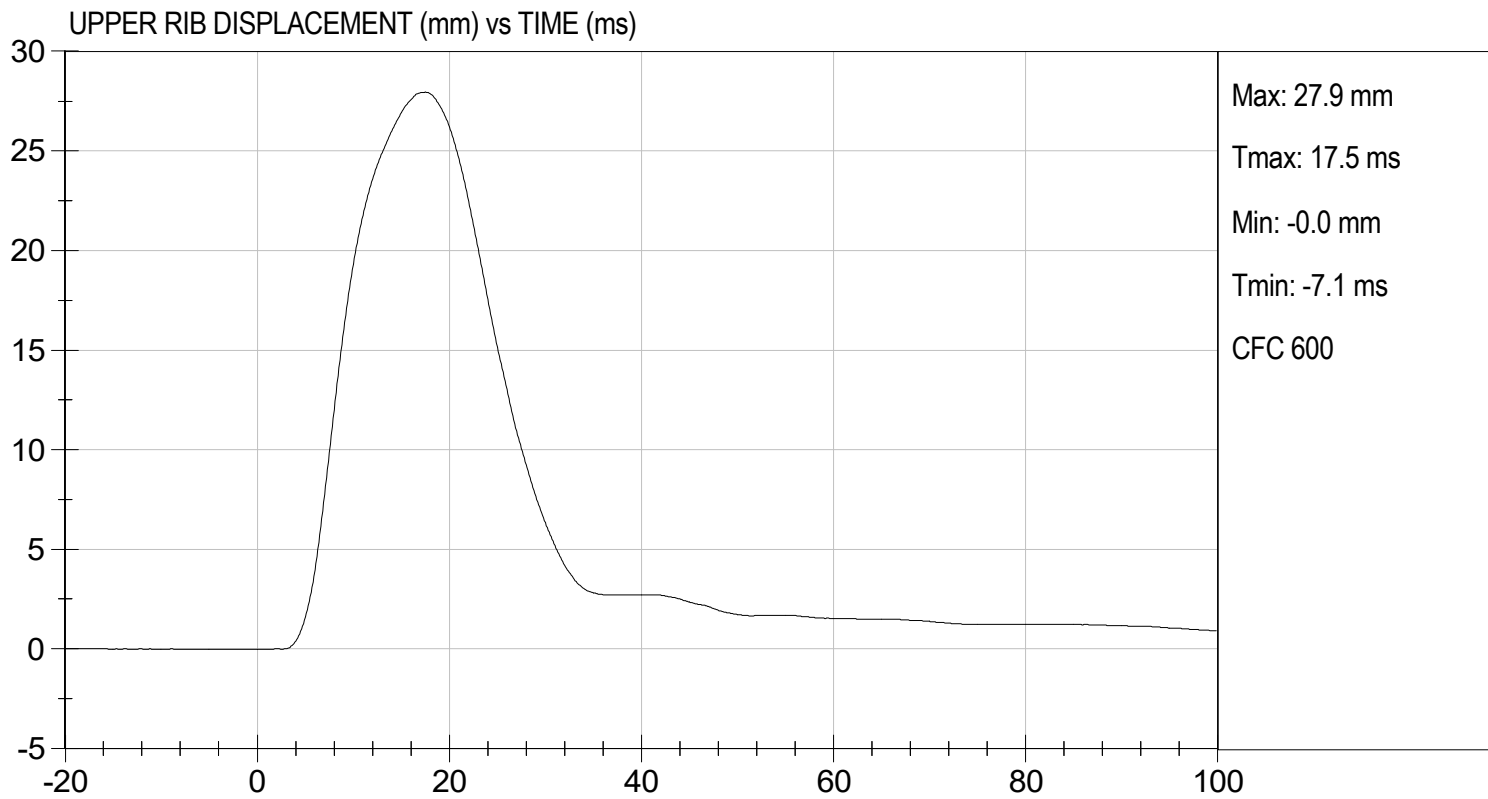
TEST DATE: 07/17/2024
TEST #: D241794





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

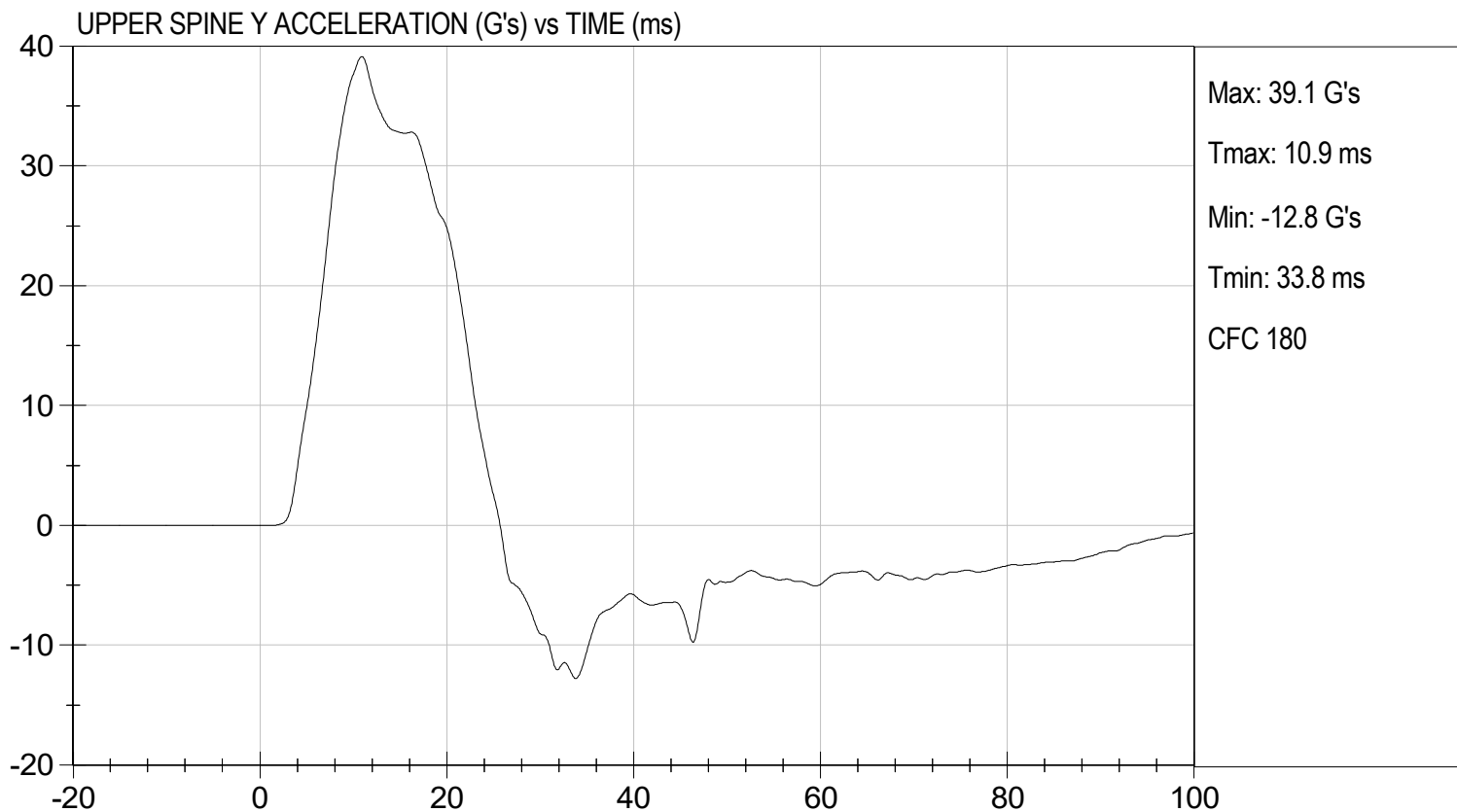
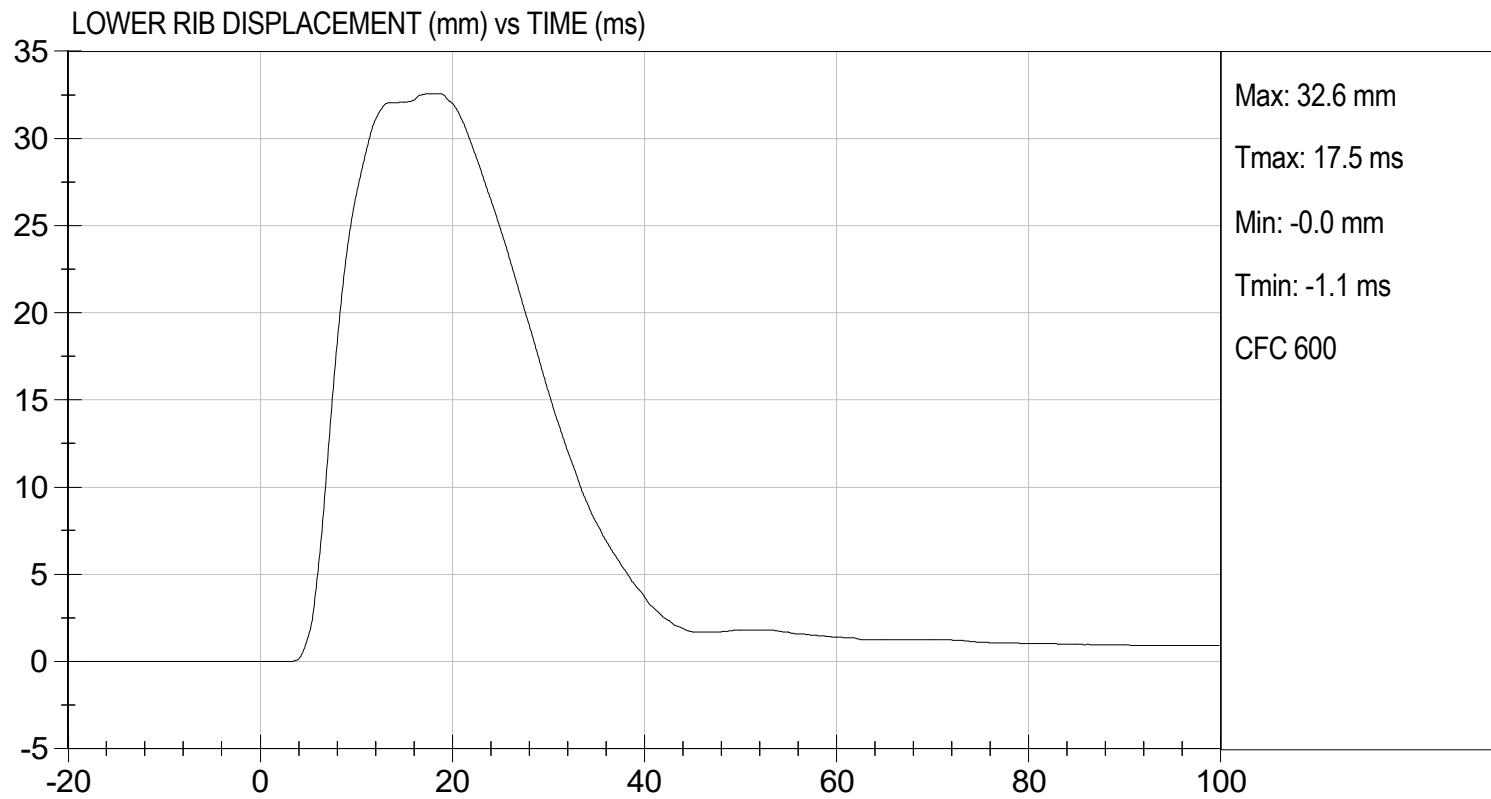
TEST DATE: 07/17/2024
TEST #: D241794





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

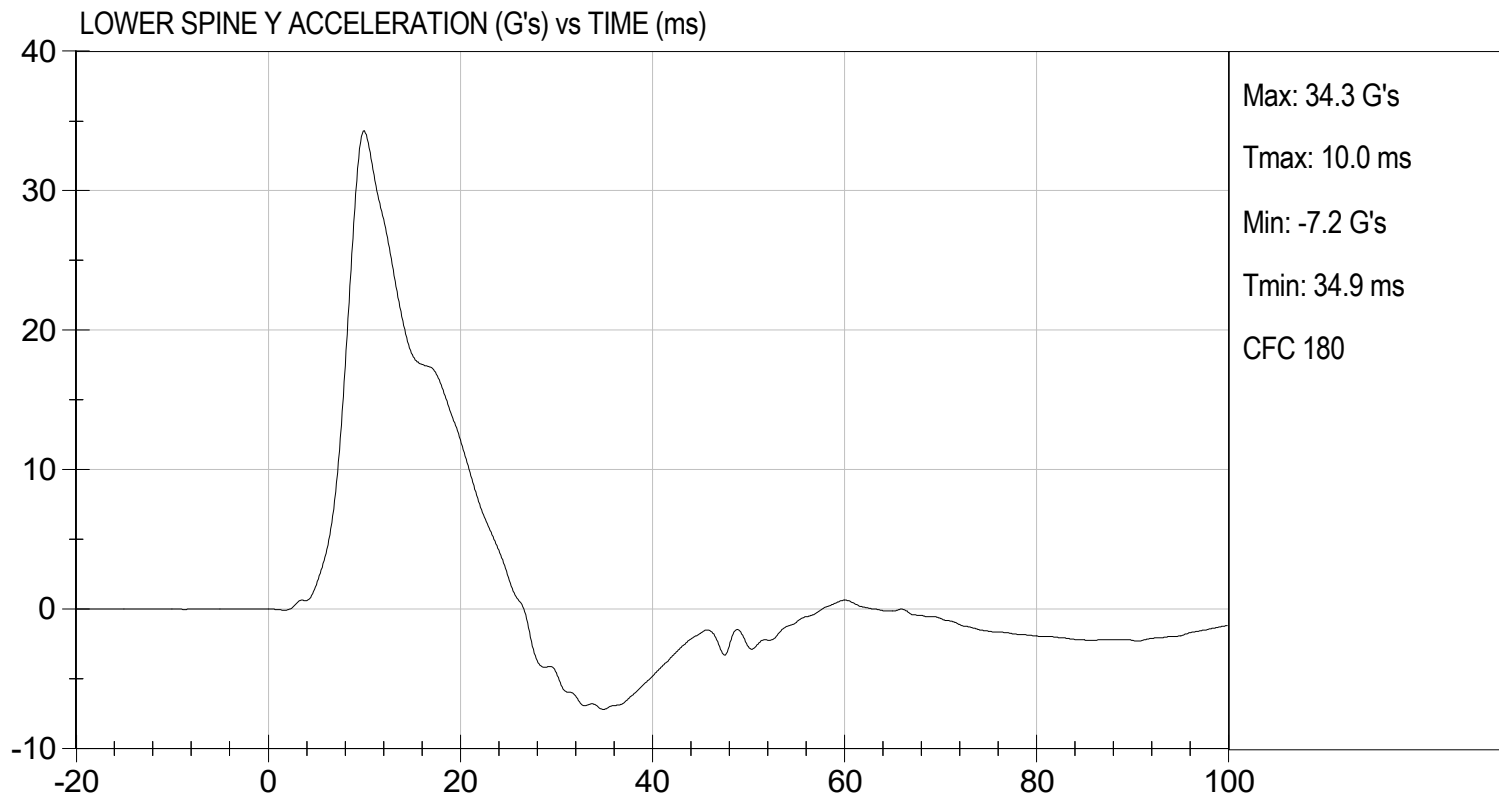
TEST DATE: 07/17/2024
TEST #: D241794





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

TEST DATE: 07/17/2024
TEST #: D241794



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

ATD Serial No: 296

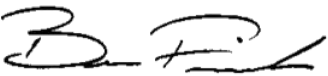
Test I.D: D241795

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	46	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	14 to 18	16	Pass
Upper Rib Displacement	mm	32 to 40	37	Pass
Middle Rib Displacement	mm	39 to 45	43	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

07/17/2024

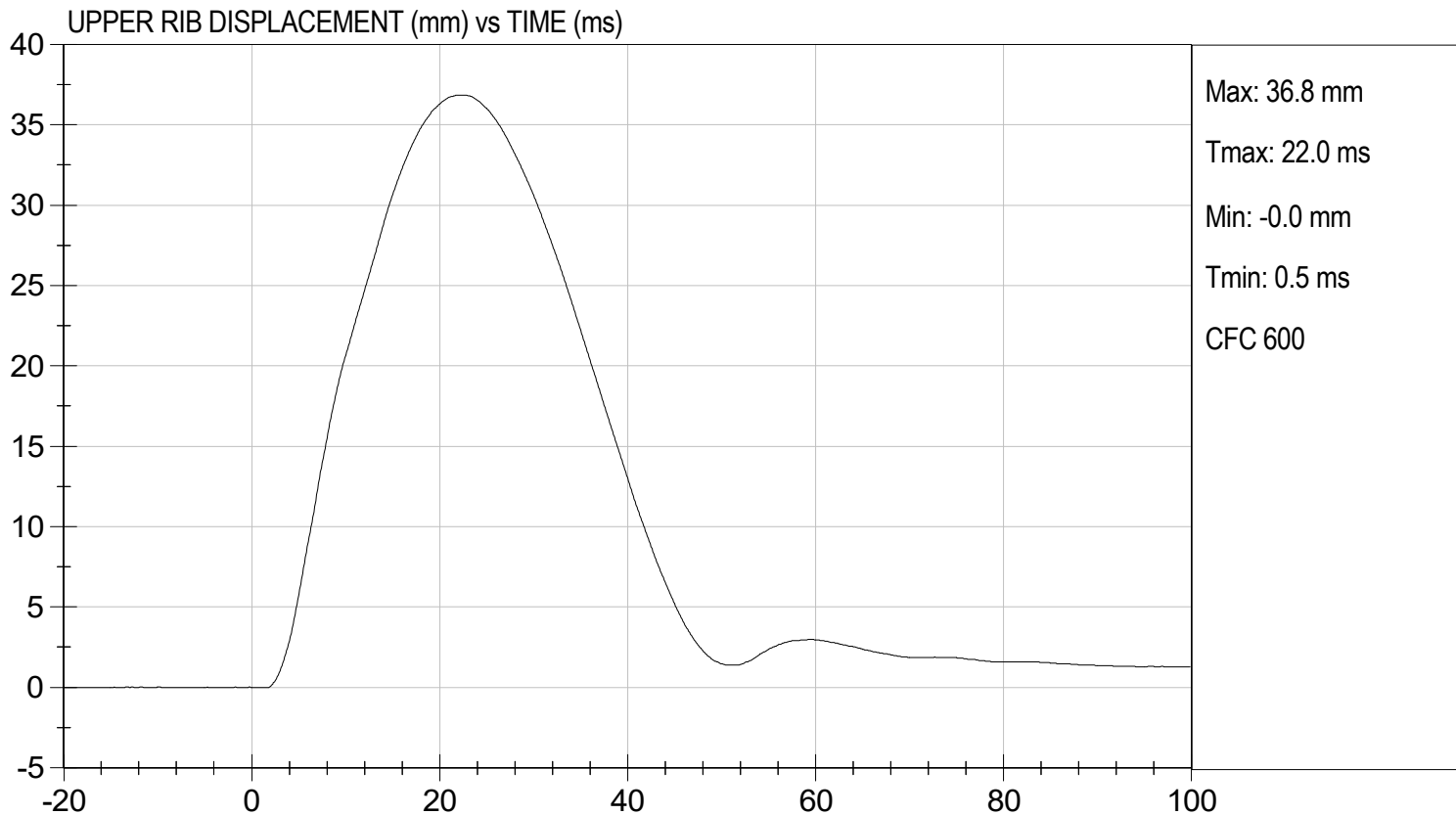
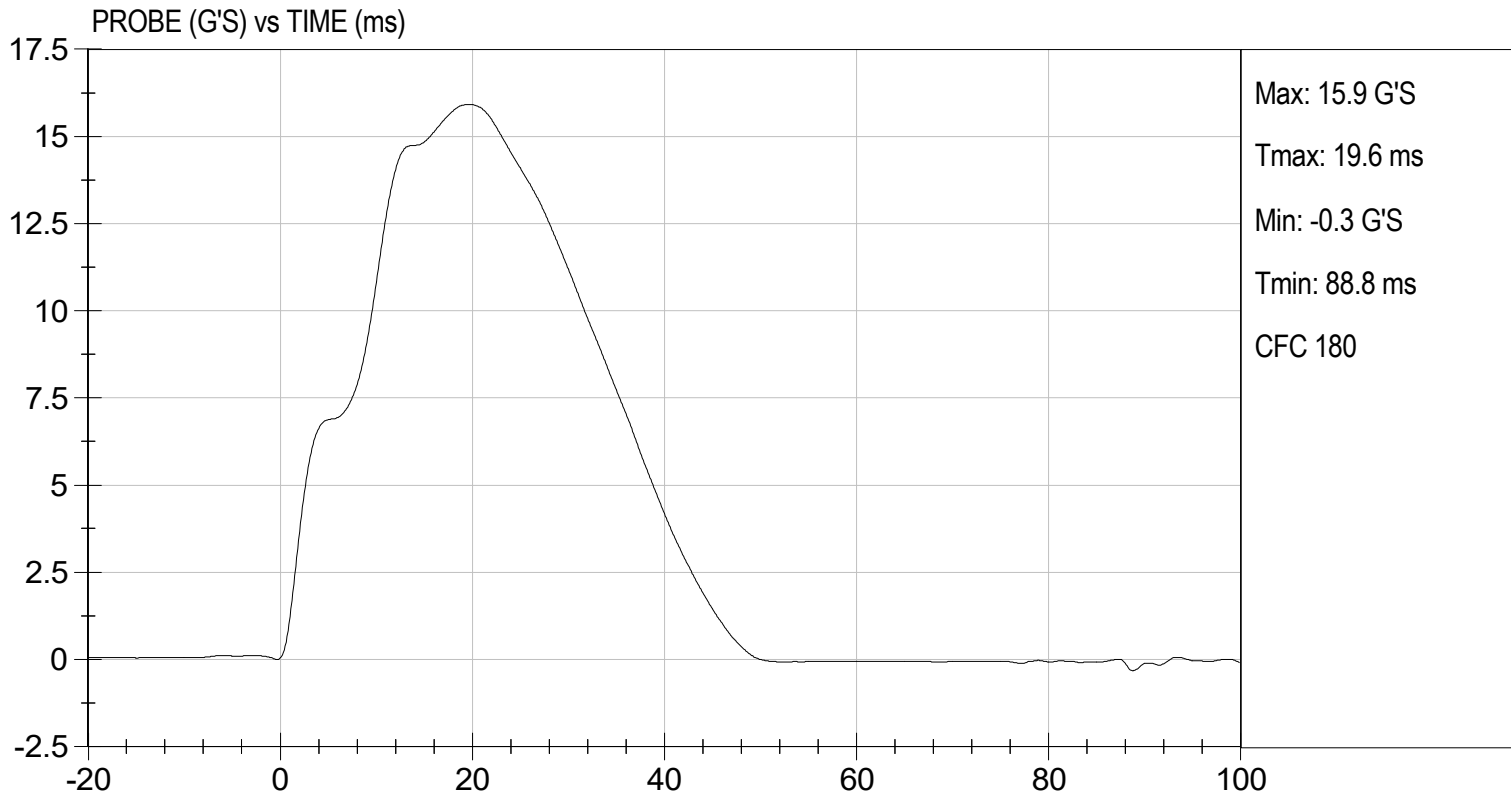
Test Date


Approved By



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

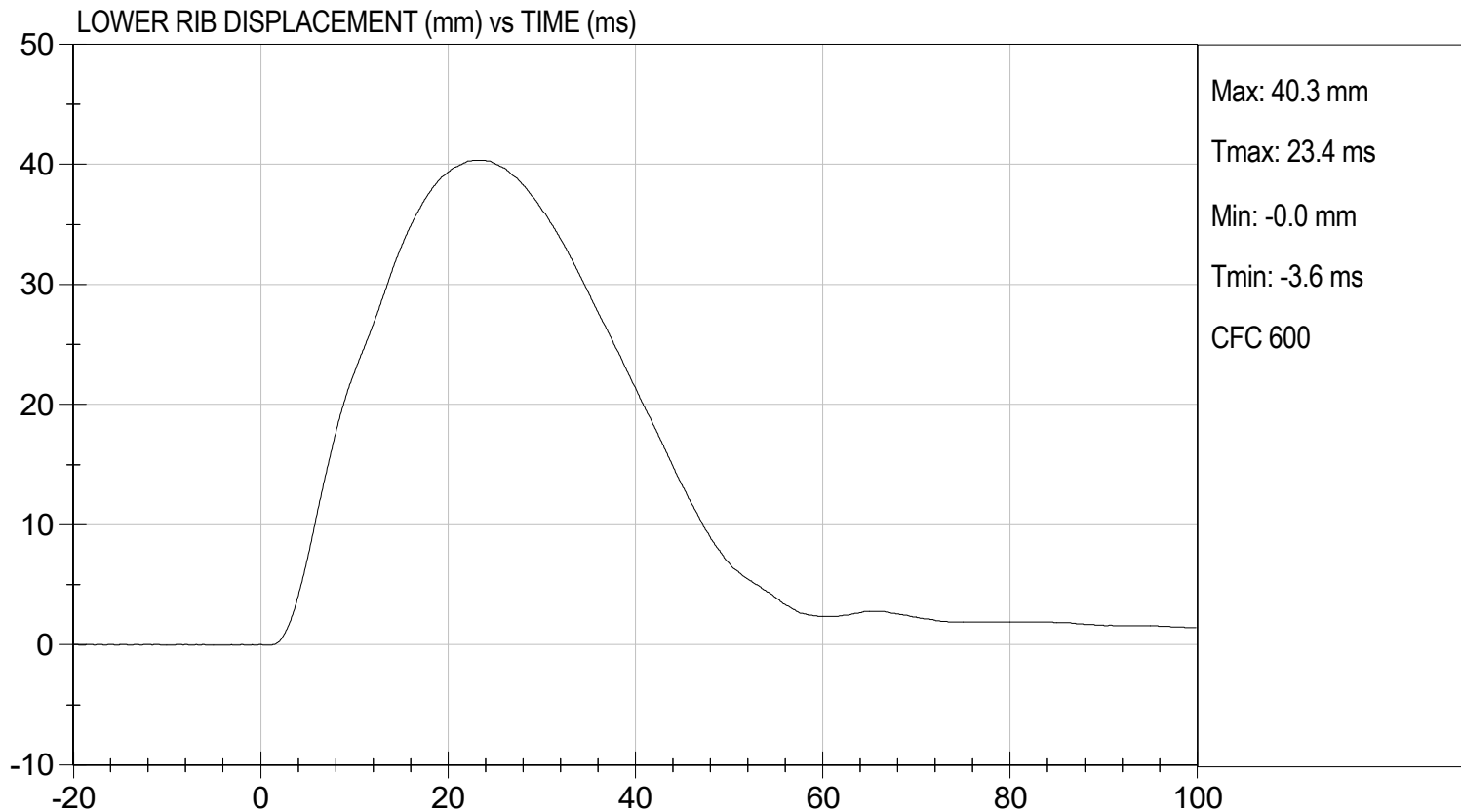
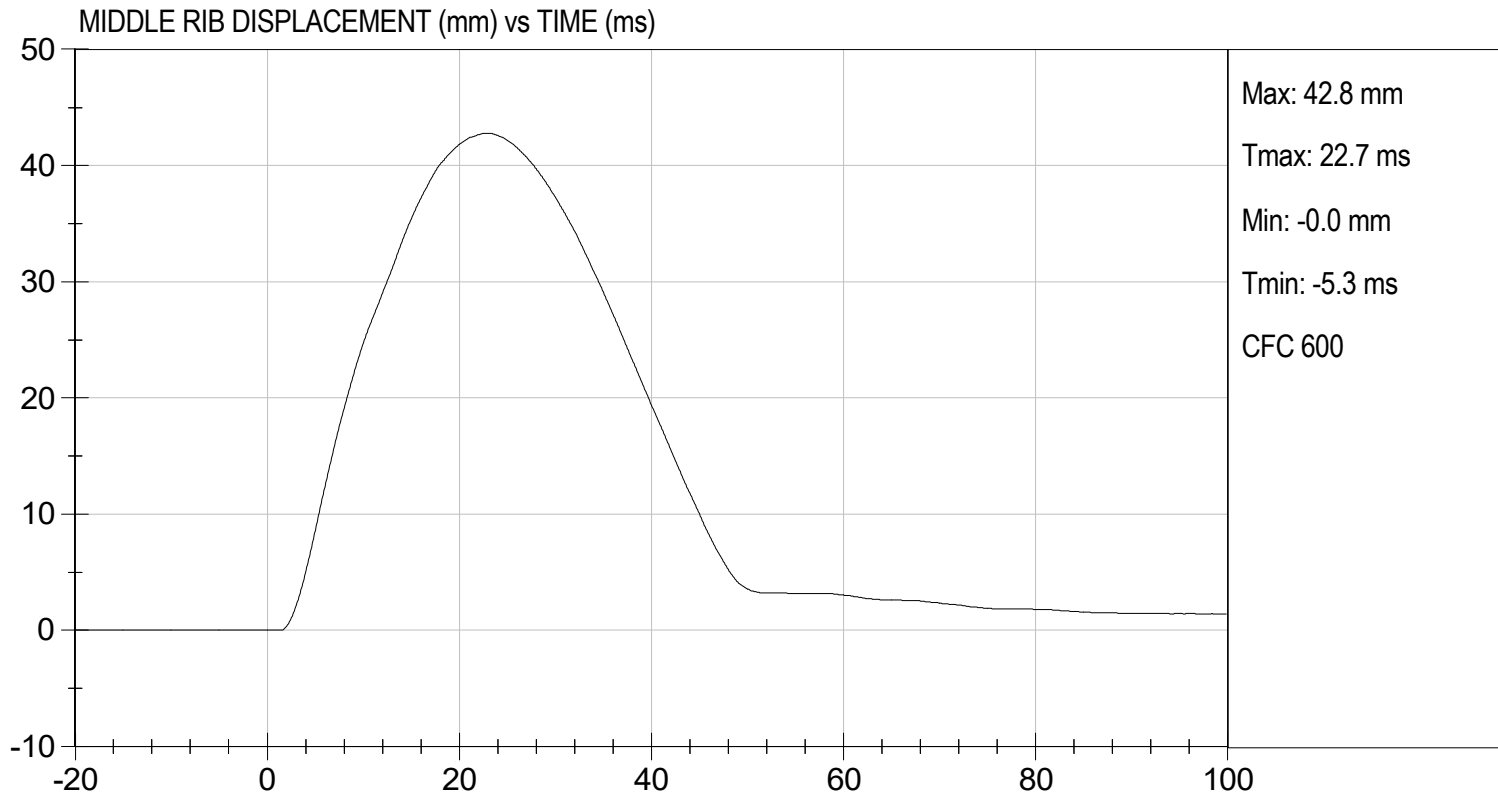
TEST DATE: 07/17/2024
TEST #: D241795





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

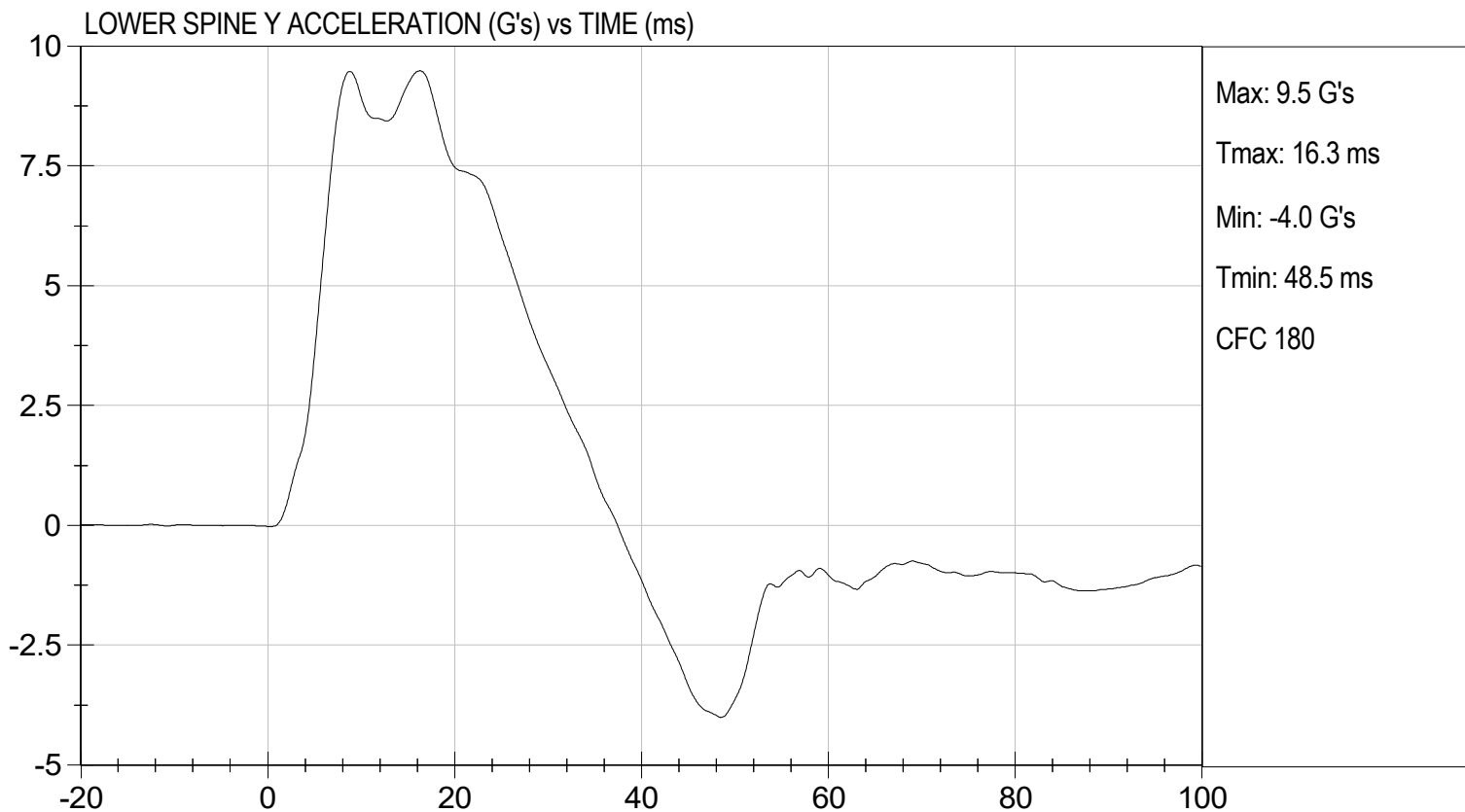
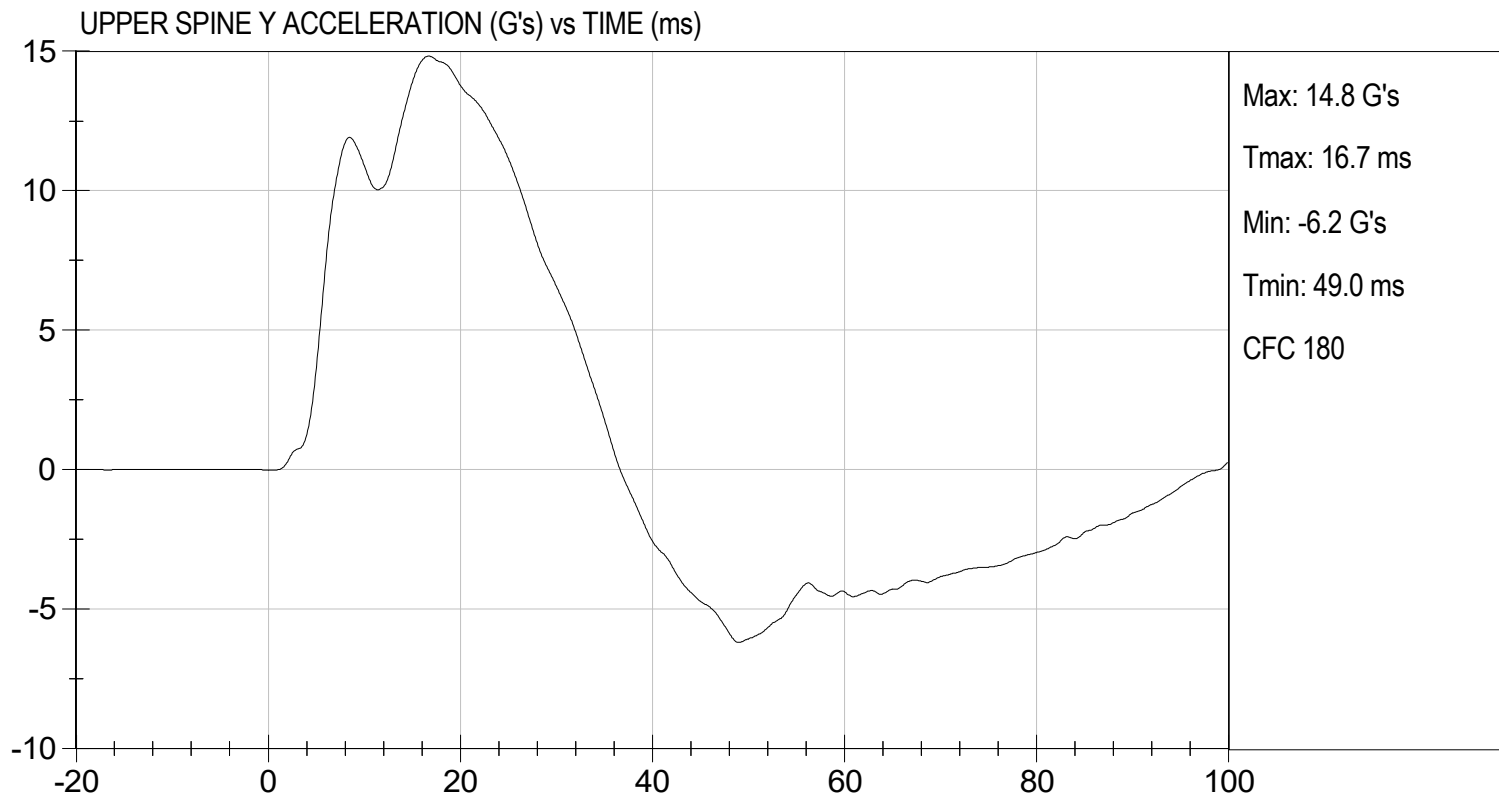
TEST DATE: 07/17/2024
TEST #: D241795





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

TEST DATE: 07/17/2024
TEST #: D241795



MGA RESEARCH CORPORATION

ABDOMINAL IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

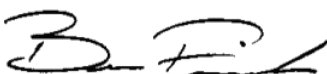
ATD Serial No: 296

Test I.D: D241796

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	46	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	42	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	38	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results				Pass


Laboratory Technician

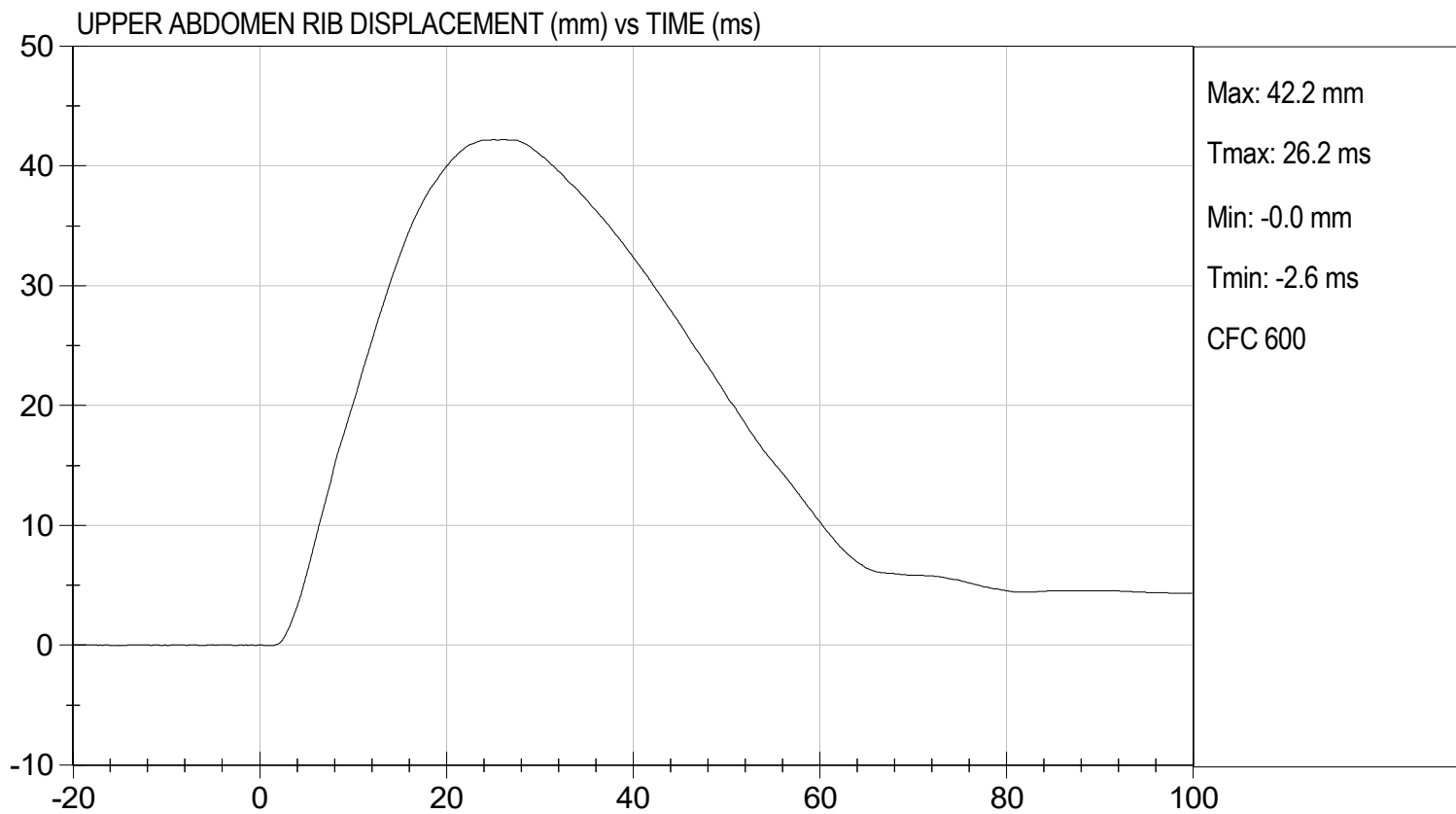
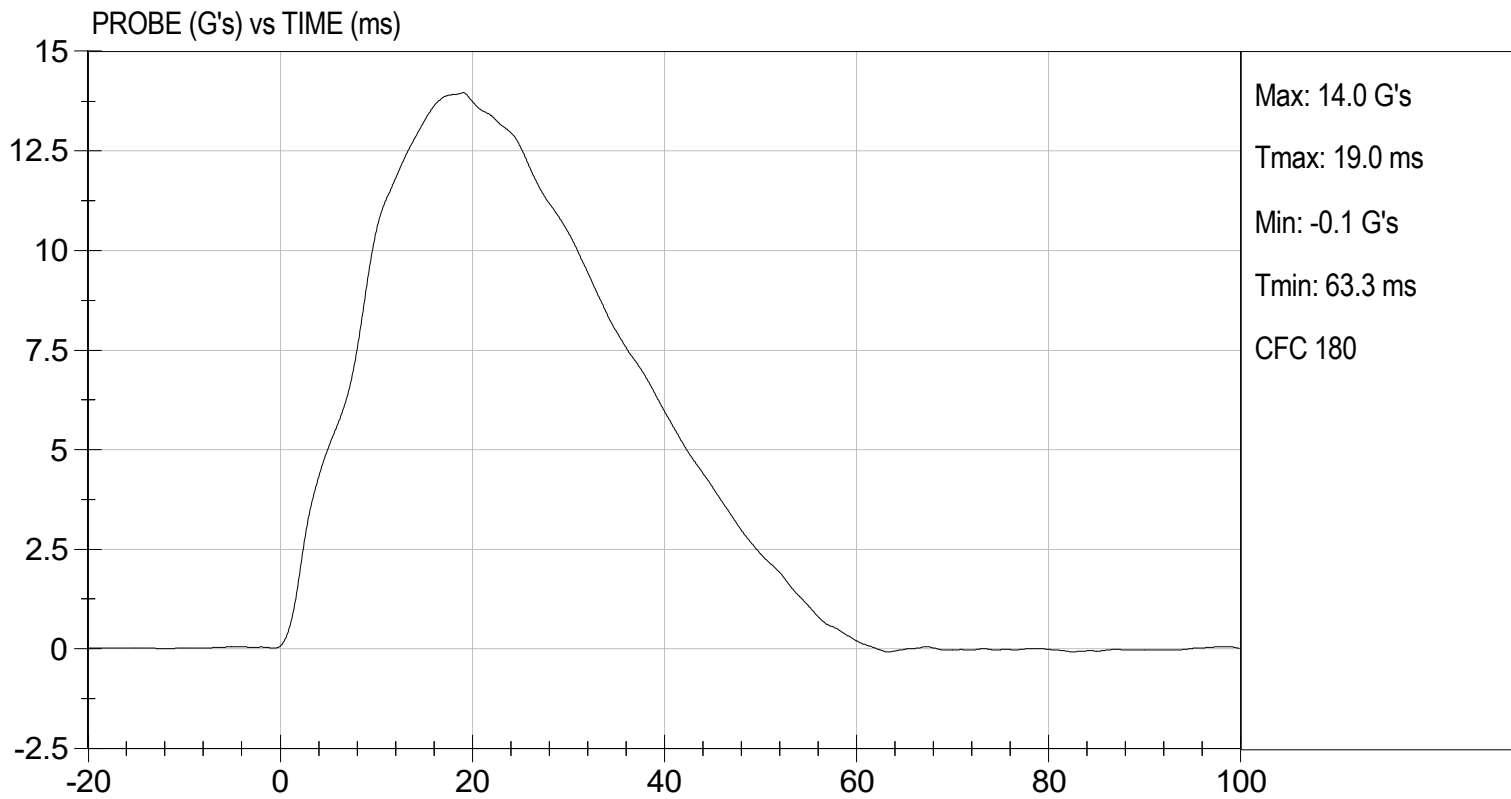
07/17/2024
Test Date


Approved By



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

TEST DATE: 07/17/2024
TEST #: D241796

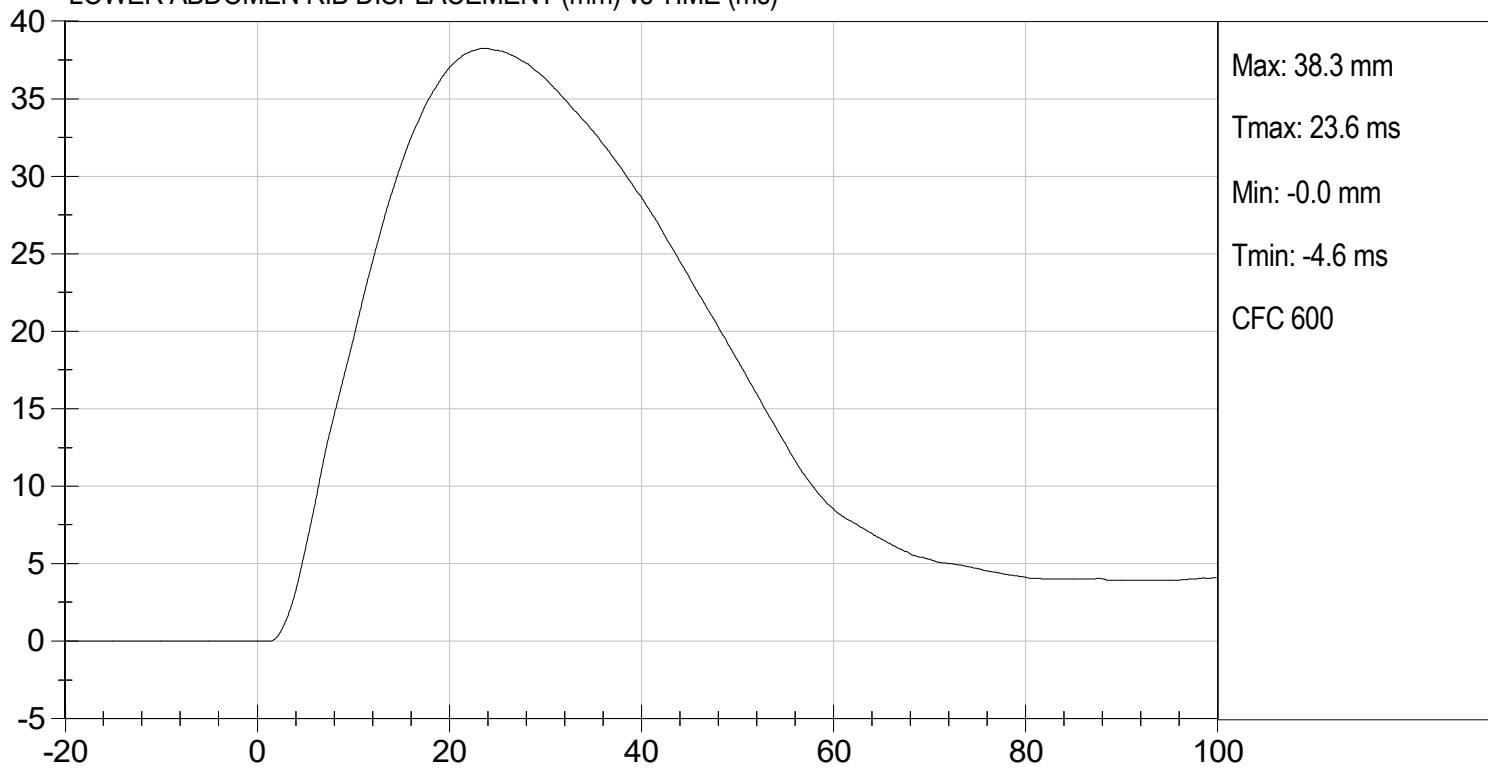




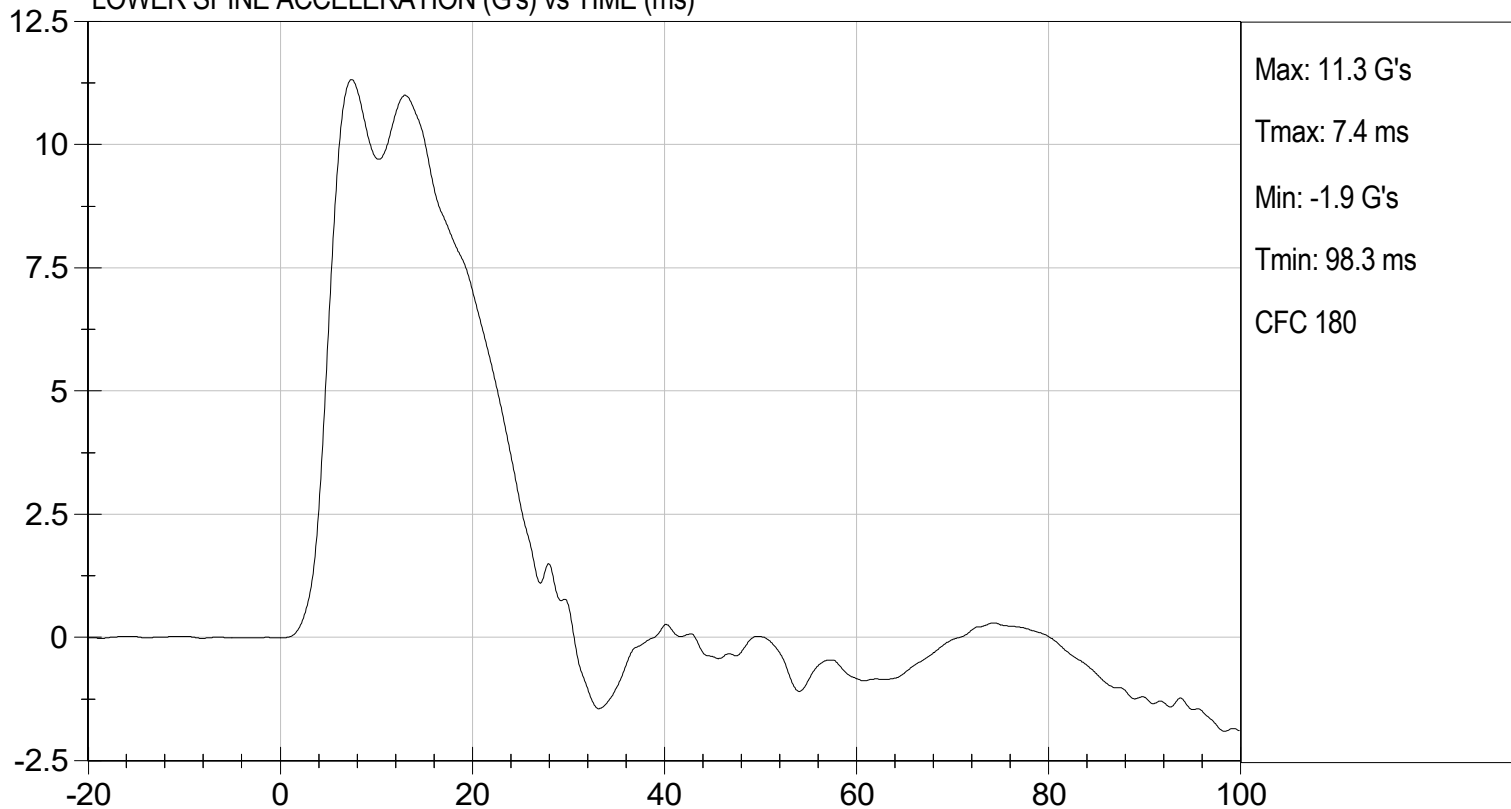
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.24 ft/s, 4.34 m/s

TEST DATE: 07/17/2024
TEST #: D241796

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



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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SID-Its BUILD LEVEL D DUMMY

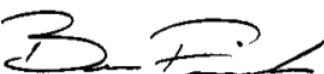
ATD Serial No: 296

Test I.D: D241797

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	46	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	38 to 47	42	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	40.7	Pass
Peak Acetabulum Force	N	3600 to 4300	4,027	Pass
Overall Test Results			Pass	


Laboratory Technician

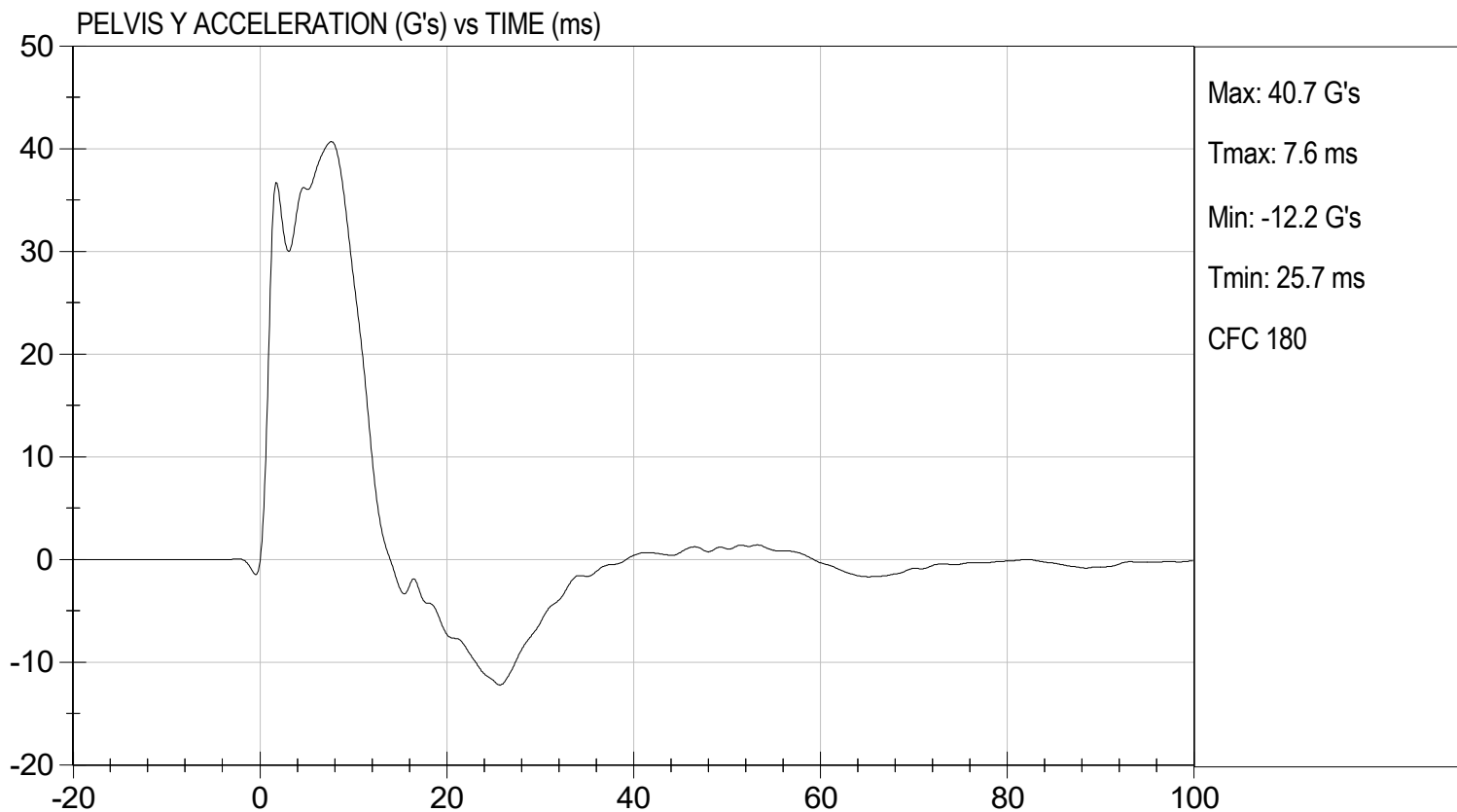
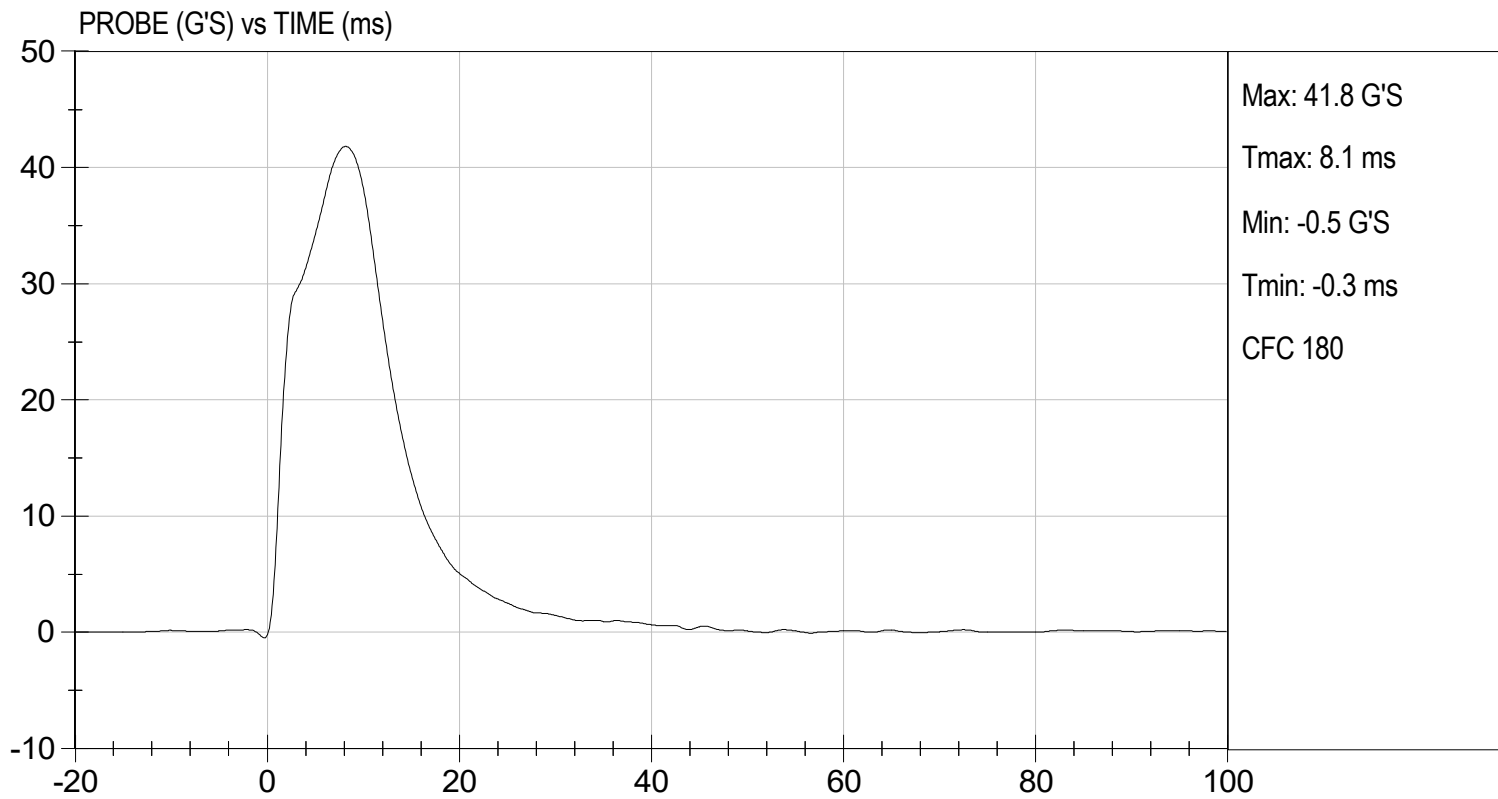
07/17/2024
Test Date


Approved By



TEST DESC: PELVIS IMPACT
VELOCITY: 22.22 ft/s, 6.77 m/s

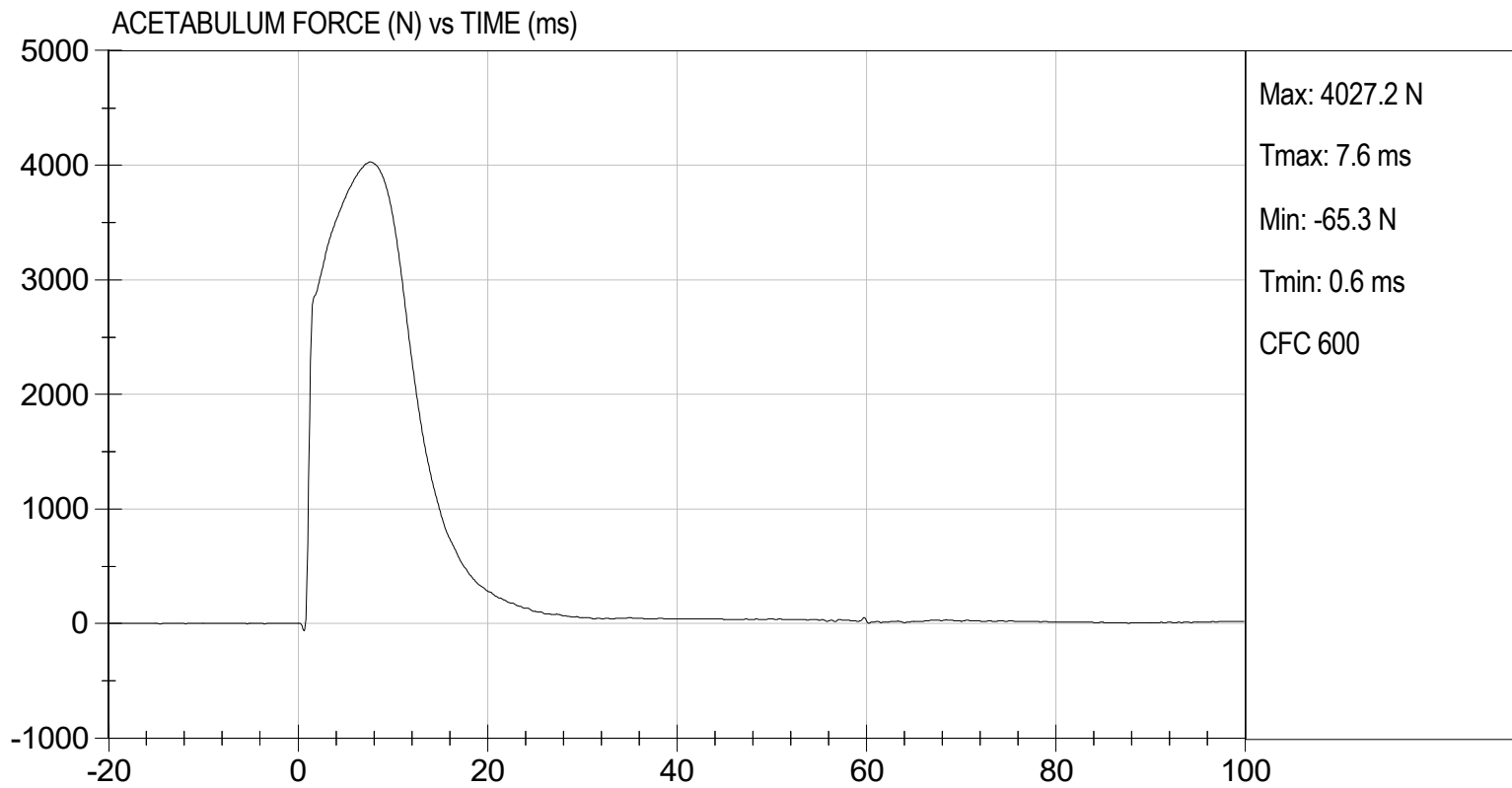
TEST DATE: 07/17/2024
TEST #: D241797





TEST DESC: PELVIS IMPACT
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 07/17/2024
TEST #: D241797



MGA RESEARCH CORPORATION

ILIAC IMPACT TEST

SID-Its BUILD LEVEL D DUMMY

ATD Serial No: 296

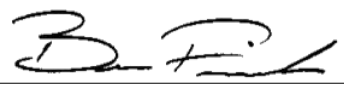
Test I.D: D241798

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	45	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	36 to 45	40	Pass
Pelvis Y Acceleration	G's	28 to 39	31	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,630	Pass
Overall Test Results			Pass	


Laboratory Technician

07/17/2024

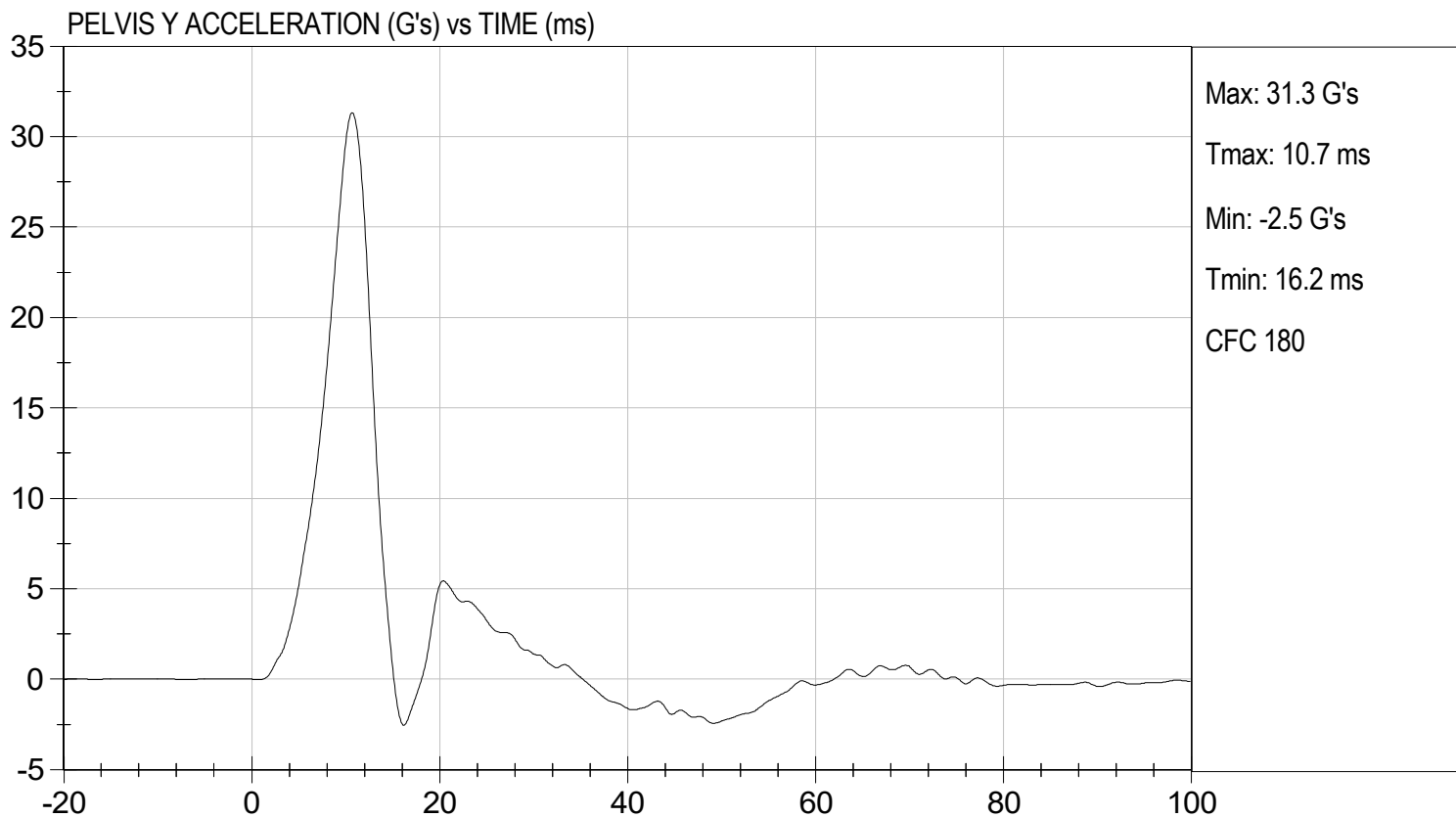
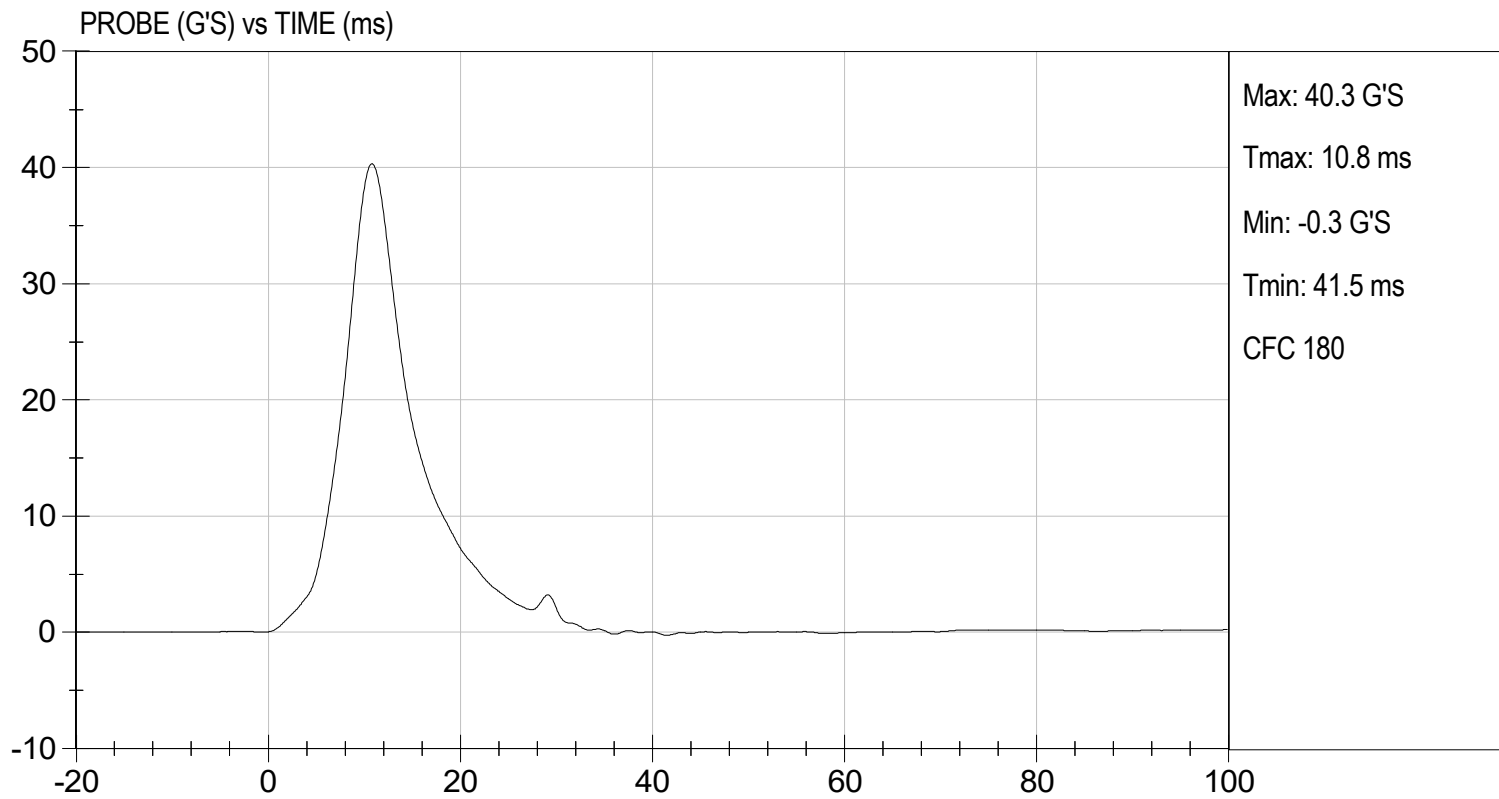
Test Date


Approved By



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

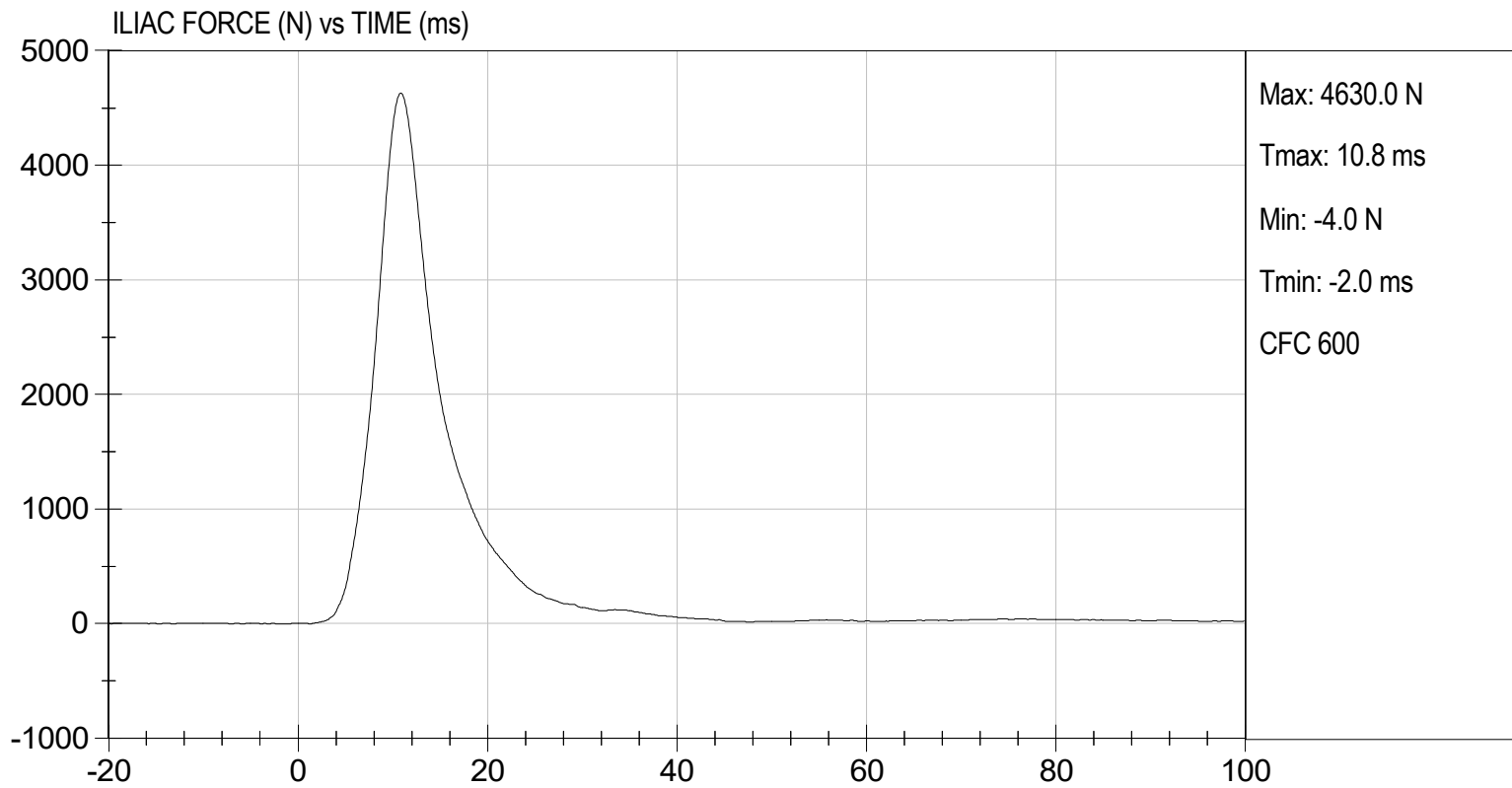
TEST DATE: 07/17/2024
TEST #: D241798





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

TEST DATE: 07/17/2024
TEST #: D241798



QUALIFICATION TEST RESULTS

POST-TEST

SID-IIS 5TH PERCENTILE FEMALE - PASSENGER 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

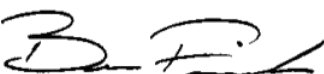
Test ID: D241941

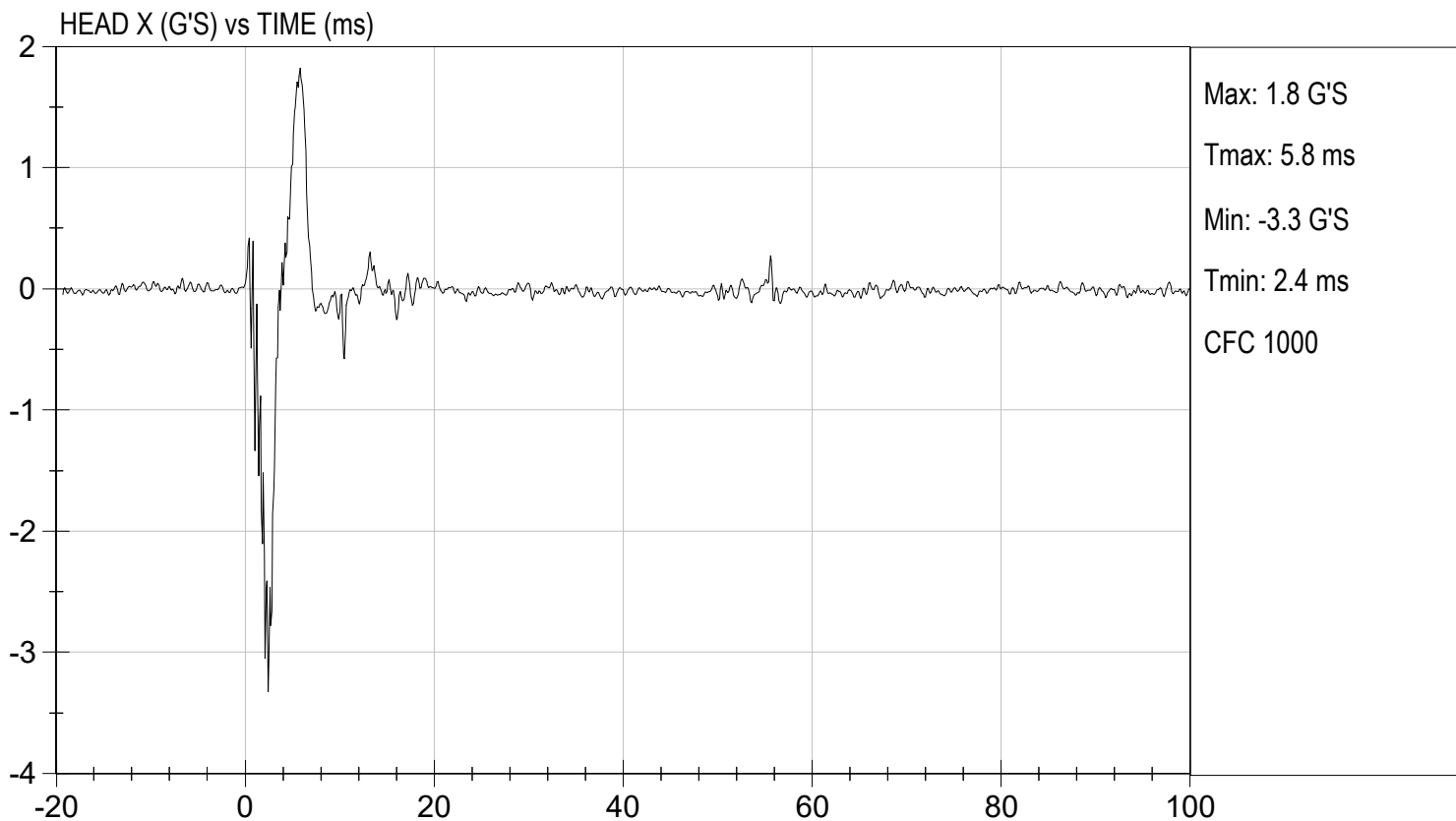
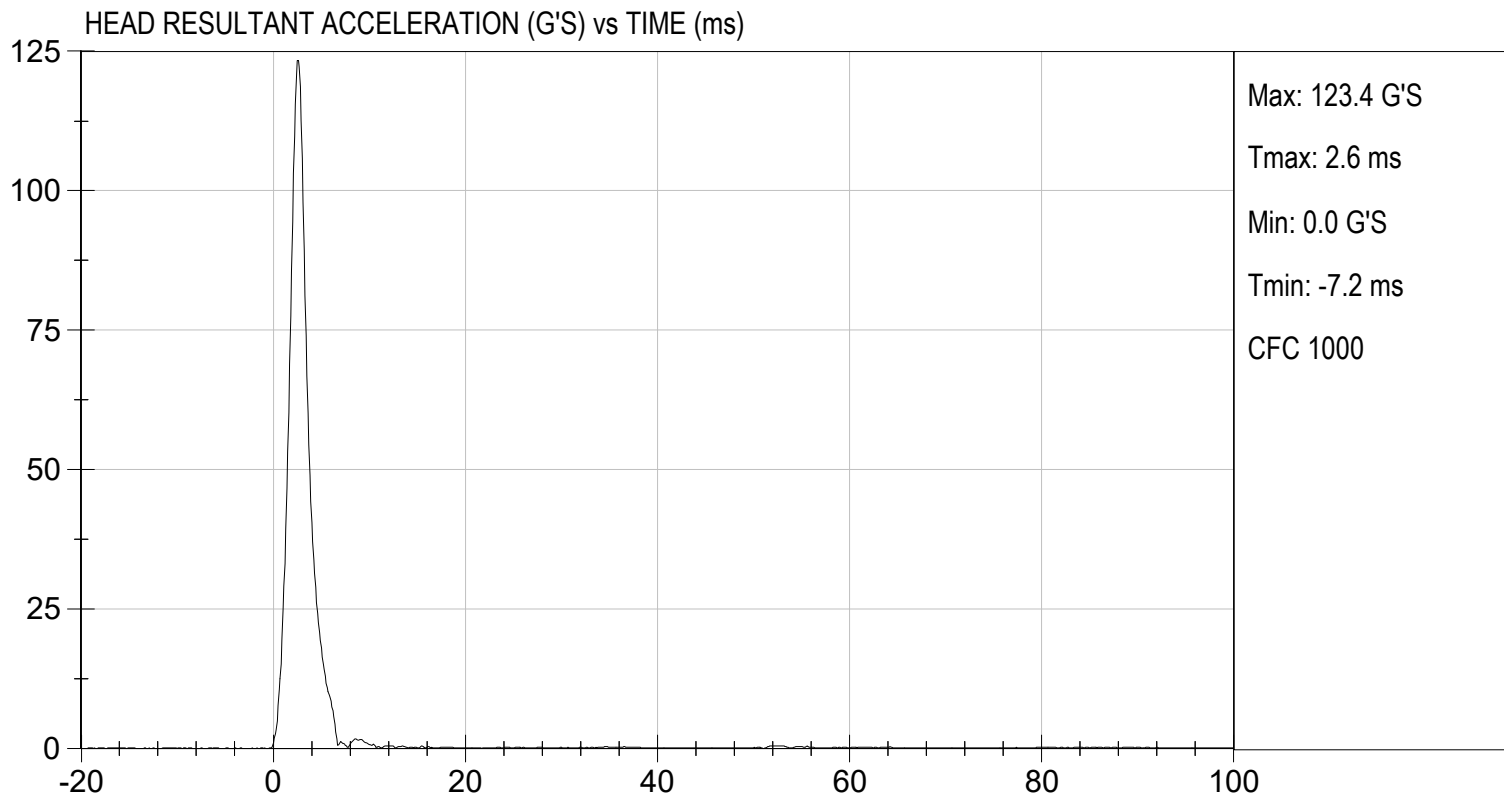
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	51	Pass
Peak Resultant Acceleration	G's	115 to 137	123	Pass
Peak Longitudinal Acceleration	G's	+/- 15	-3.3	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
Overall Test Results				Pass

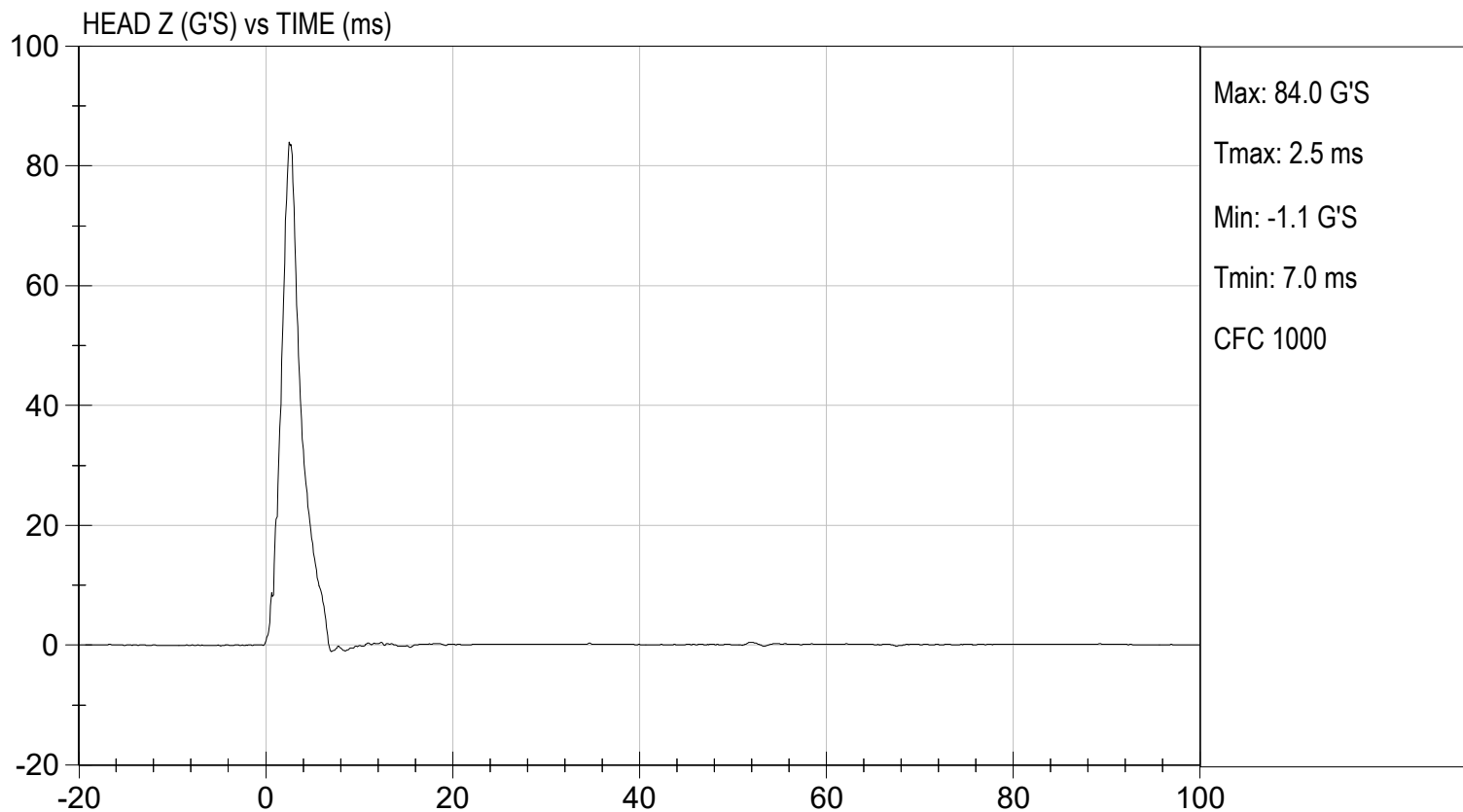
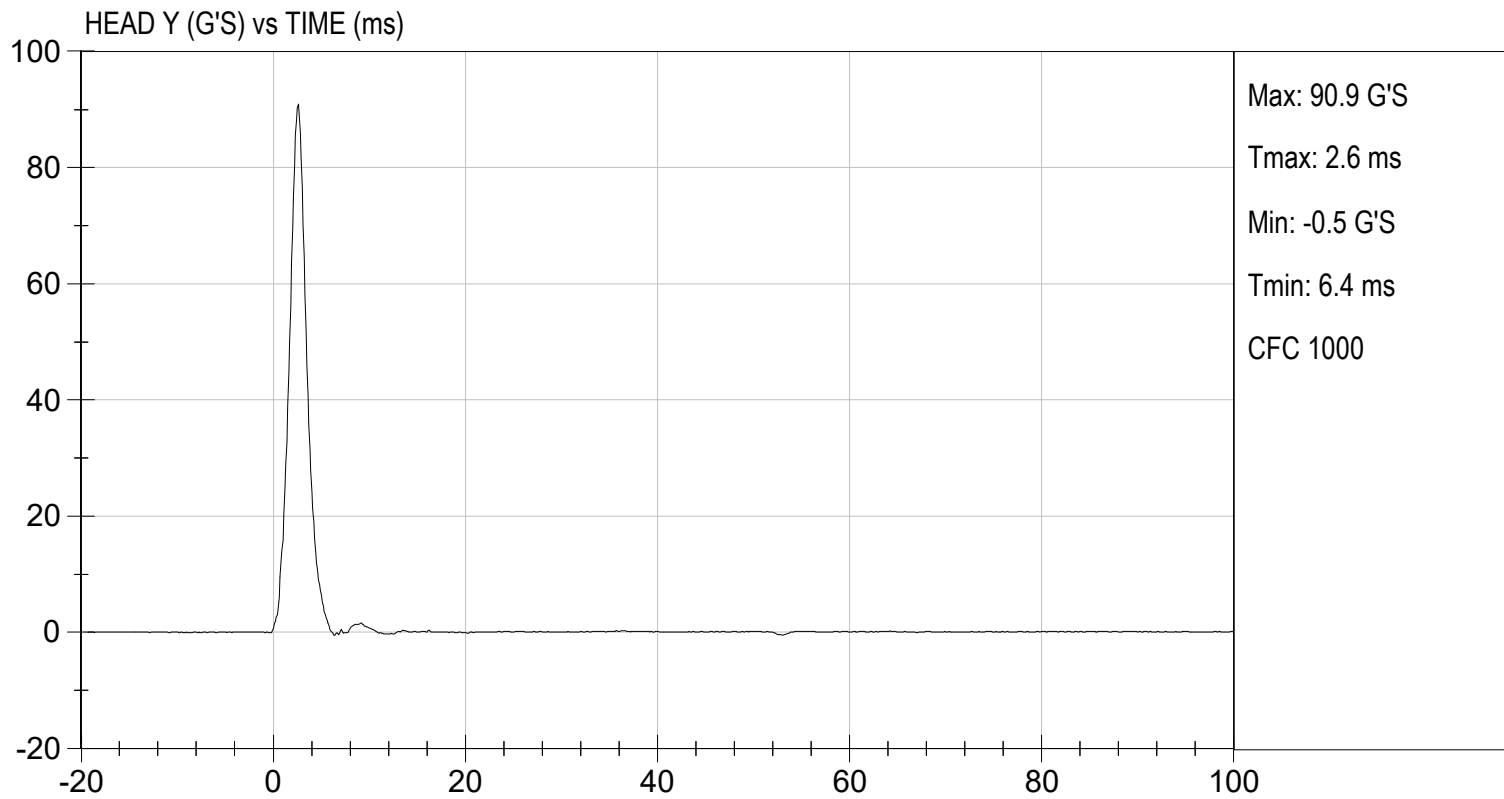

Laboratory Technician

08/01/2024

Test Date


Approved By





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

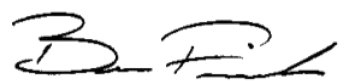
ATD Serial No: 296

Test I.D: D241942

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.3	Pass
Humidity		%	10 to 70	52	Pass
Impact Velocity		m/s	5.51 to 5.63	5.52	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.30	Pass
	15 ms	m/s	3.30 to 4.10	3.47	Pass
	20 ms	m/s	4.40 to 5.40	5.06	Pass
	25 ms	m/s	5.40 to 6.10	5.73	Pass
	25-100 ms	m/s	5.50 to 6.20	5.78	Pass
Maximum D-Plane Rotation		deg	71 to 81	74	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	64	Pass
Maximum Occipital Condyle Moment		Nm	-44 to -36	-38	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	120	Pass
Overall Test Results				Pass	


 Laboratory Technician

08/01/2024
 Test Date

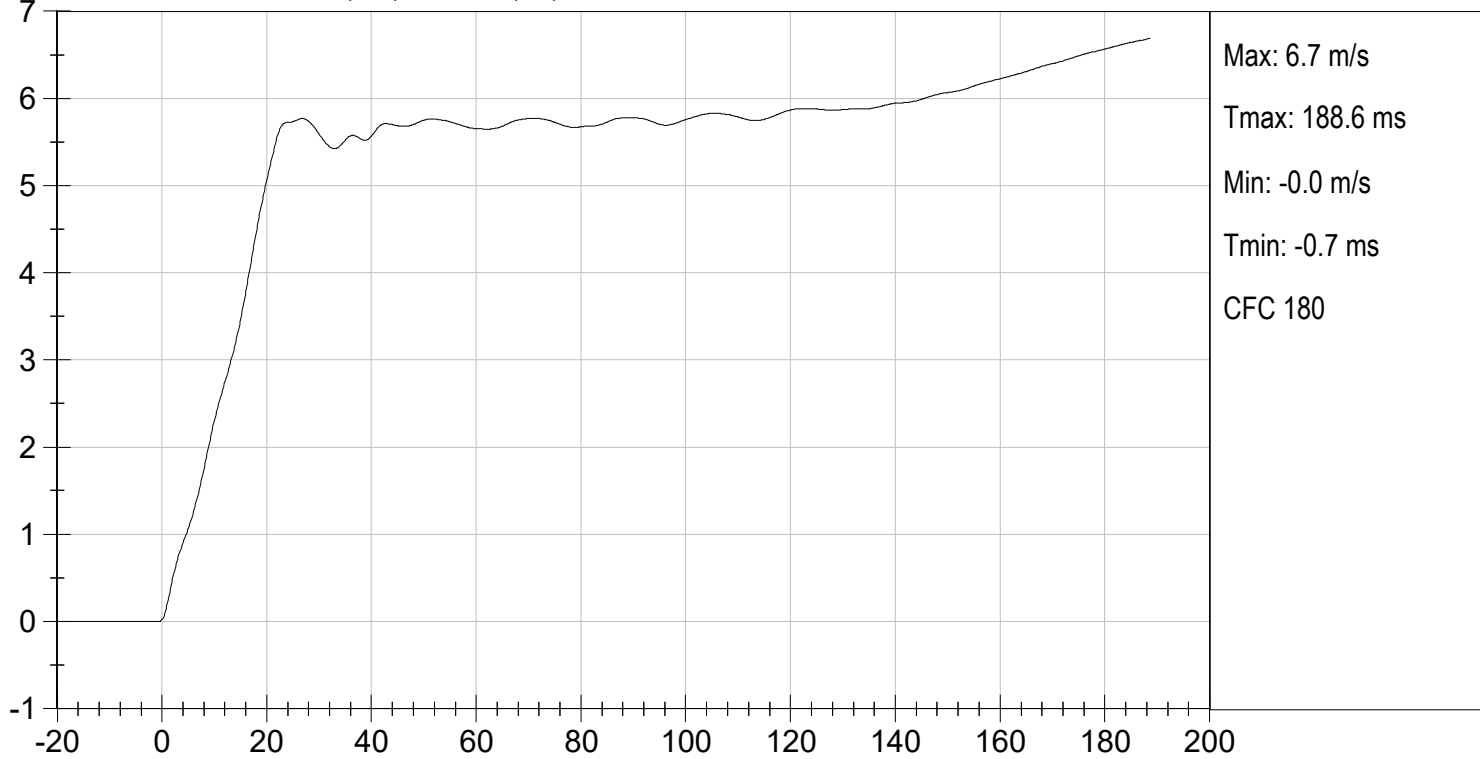

 Approved By



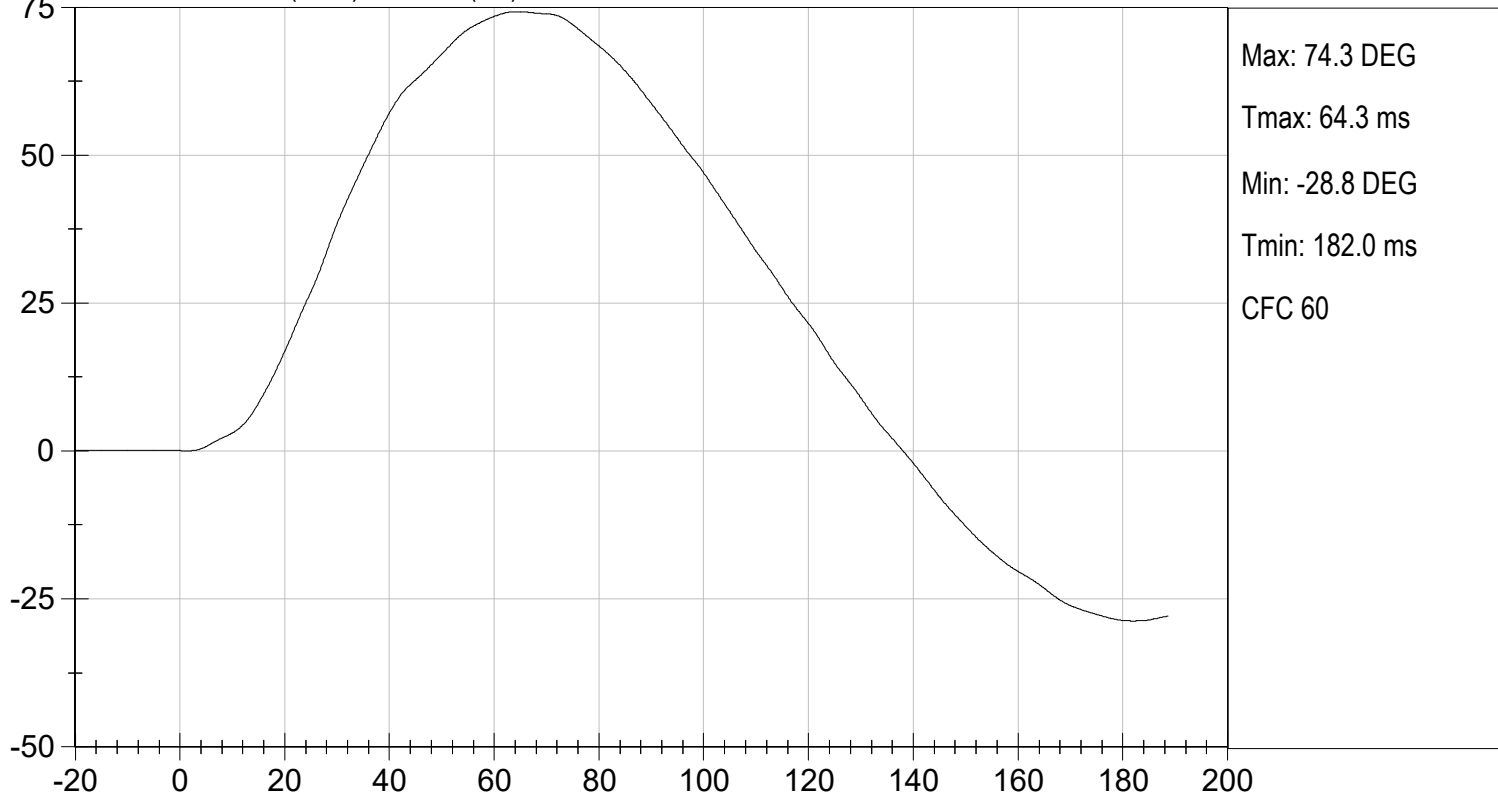
TEST DESC: NECK BENDING
VELOCITY: 18.12 ft/s, 5.52 m/s

TEST DATE: 08/01/2024
TEST #: D241942

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



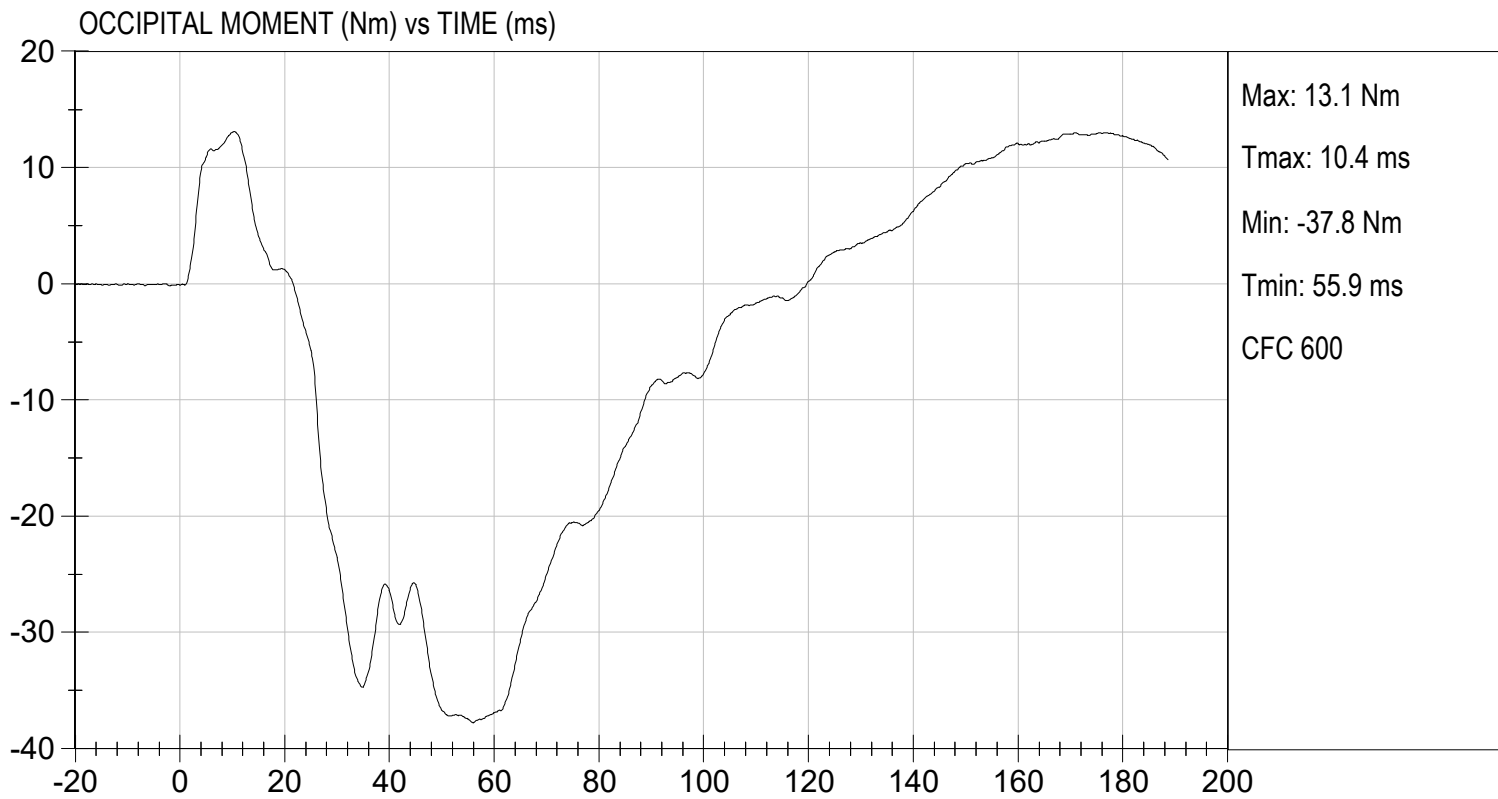
FLEXION ANGLE (DEG) vs TIME (ms)





TEST DESC: NECK BENDING
VELOCITY: 18.12 ft/s, 5.52 m/s

TEST DATE: 08/01/2024
TEST #: D241942



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

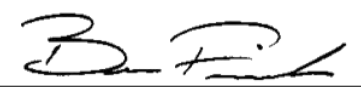
ATD Serial No: 296

Test ID: D241943

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	59	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	13 to 18	15	Pass
Shoulder Displacement	mm	28 to 37	30	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	20	Pass
Overall Test Results			Pass	


Laboratory Technician

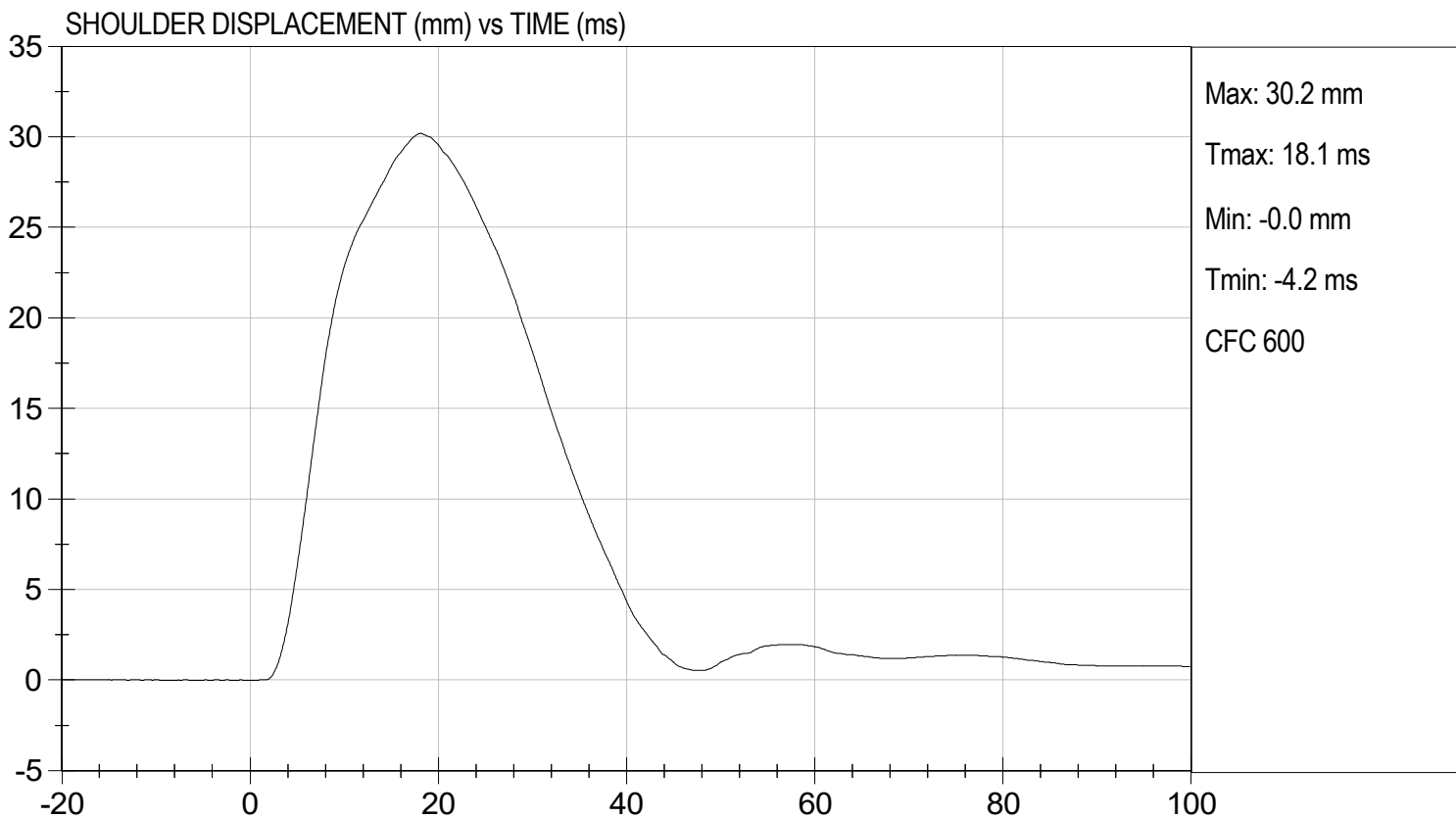
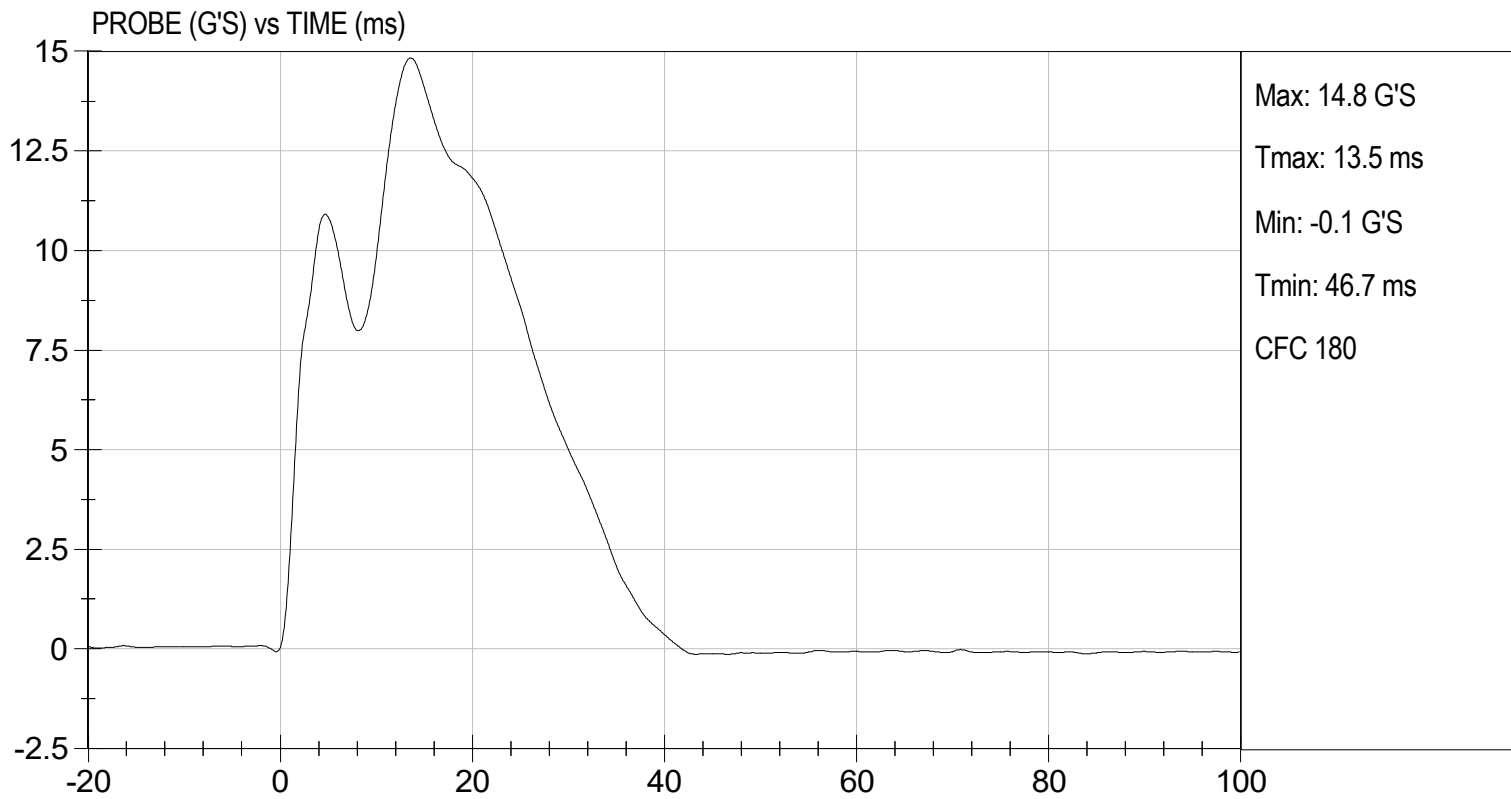
08/01/2024
Test Date


Approved By



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

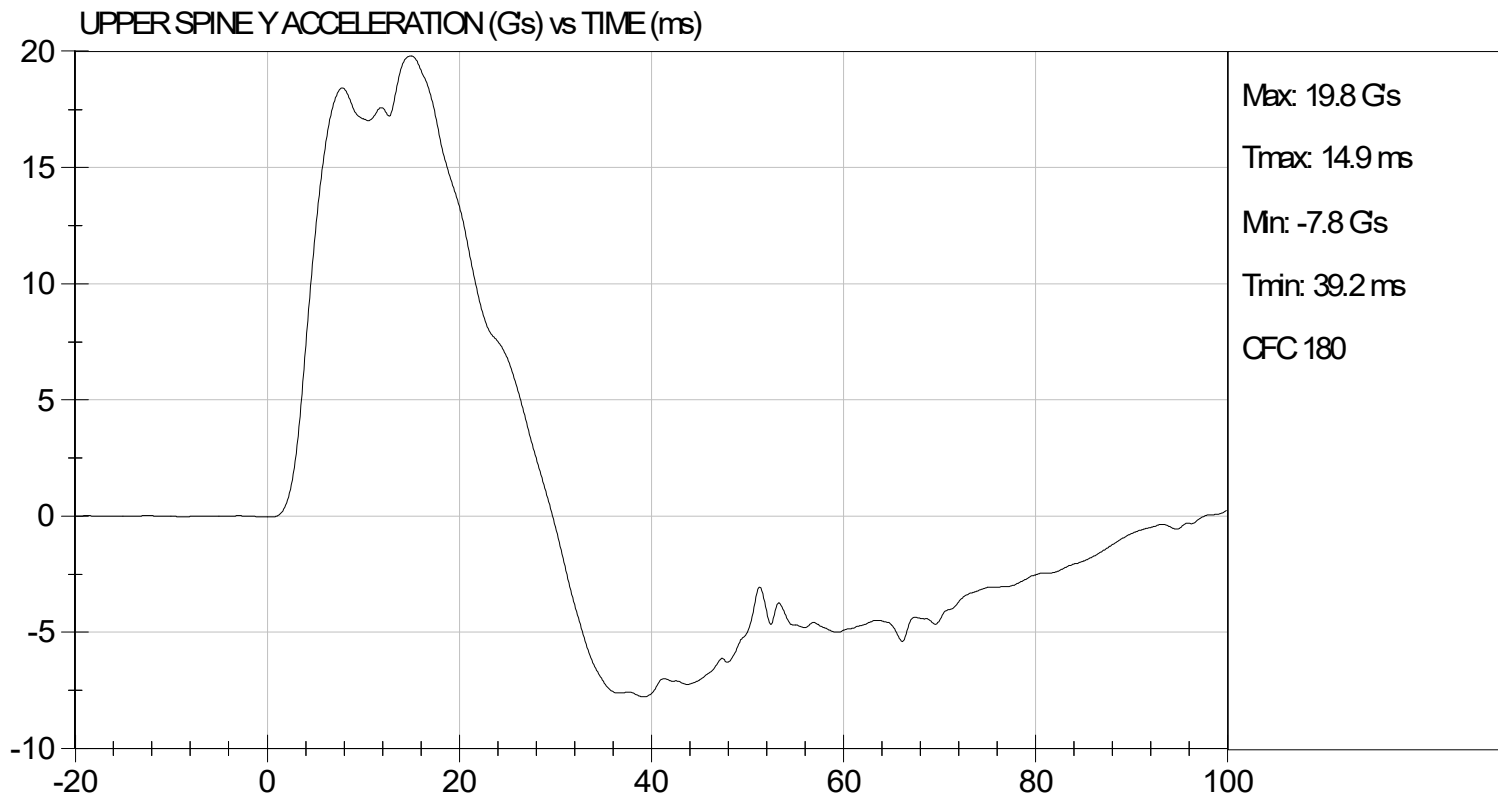
TEST DATE: 08/01/2024
TEST #: D241943





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

TEST DATE: 08/01/2024
TEST #: D241943



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

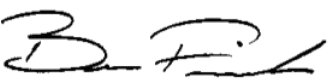
ATD Serial No: 296

Test I.D: D241944

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	56	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	30 to 36	34	Pass
Shoulder Displacement	mm	31 to 40	36	Pass
Upper Rib Displacement	mm	25 to 32	28	Pass
Middle Rib Displacement	mm	30 to 36	32	Pass
Lower Rib Displacement	mm	32 to 38	34	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	39	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	35	Pass
Overall Test Results				Pass


Laboratory Technician

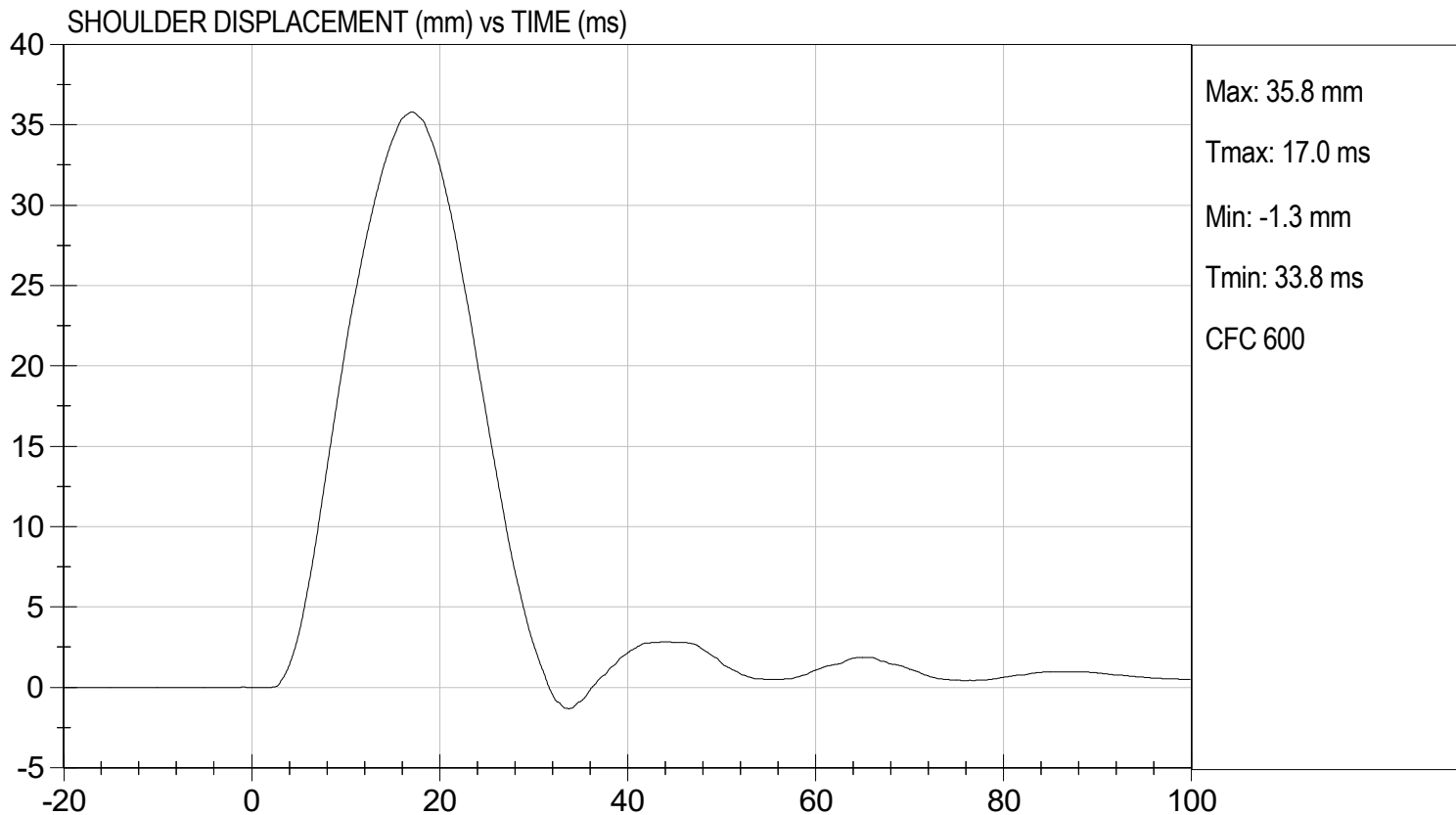
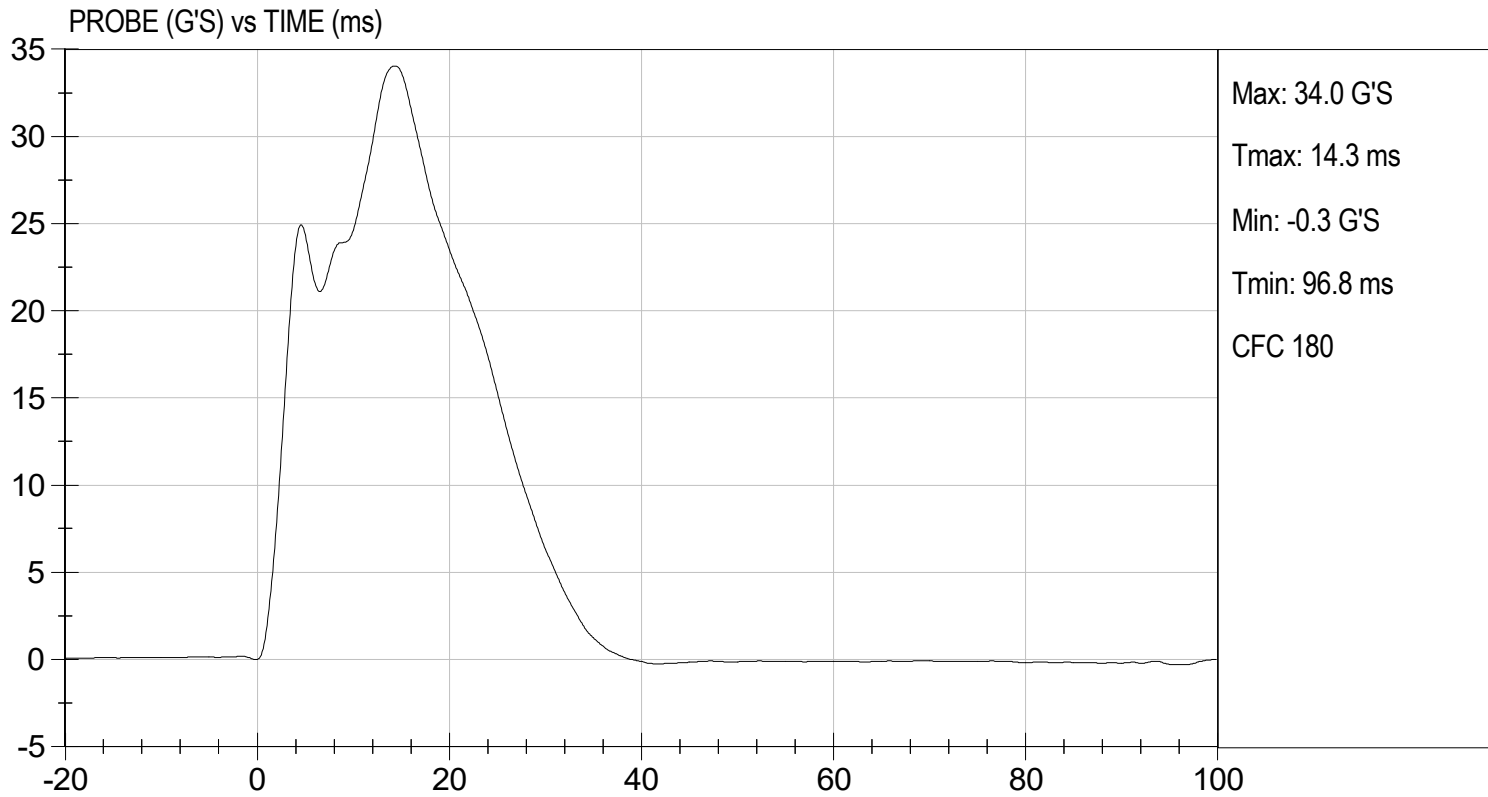
08/01/2024
Test Date

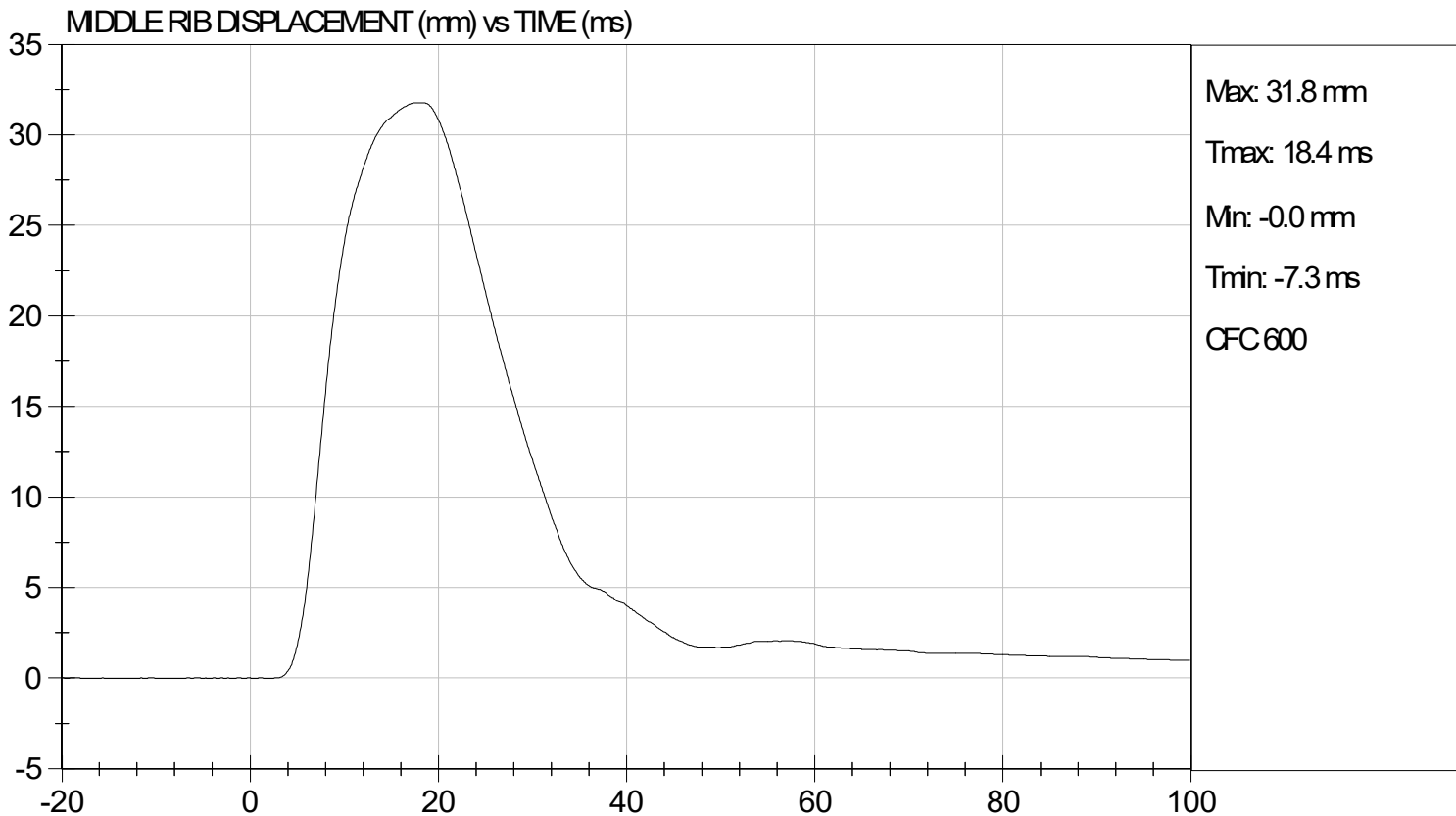
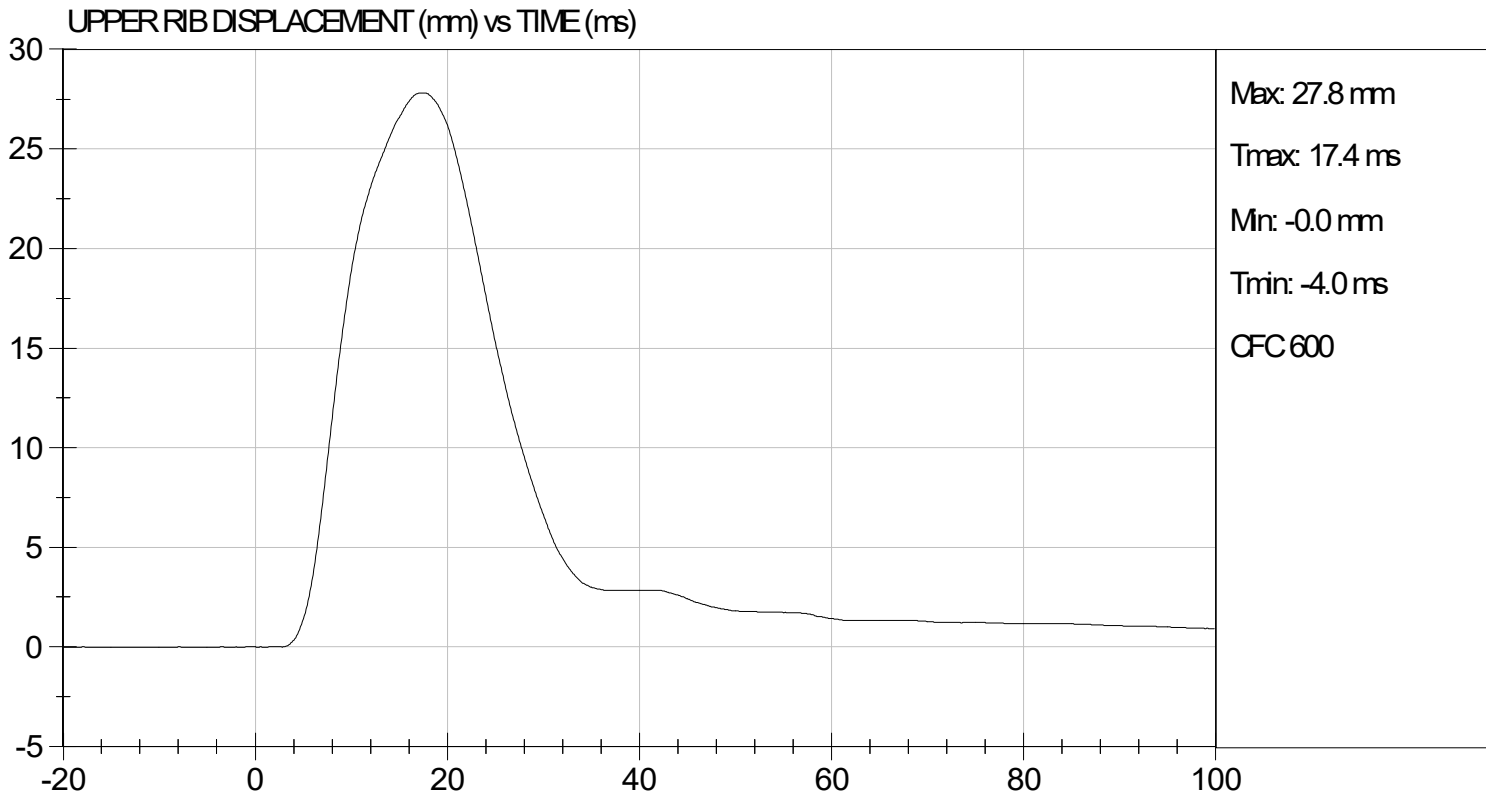

Approved By



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

TEST DATE: 08/01/2024
TEST #: D241944

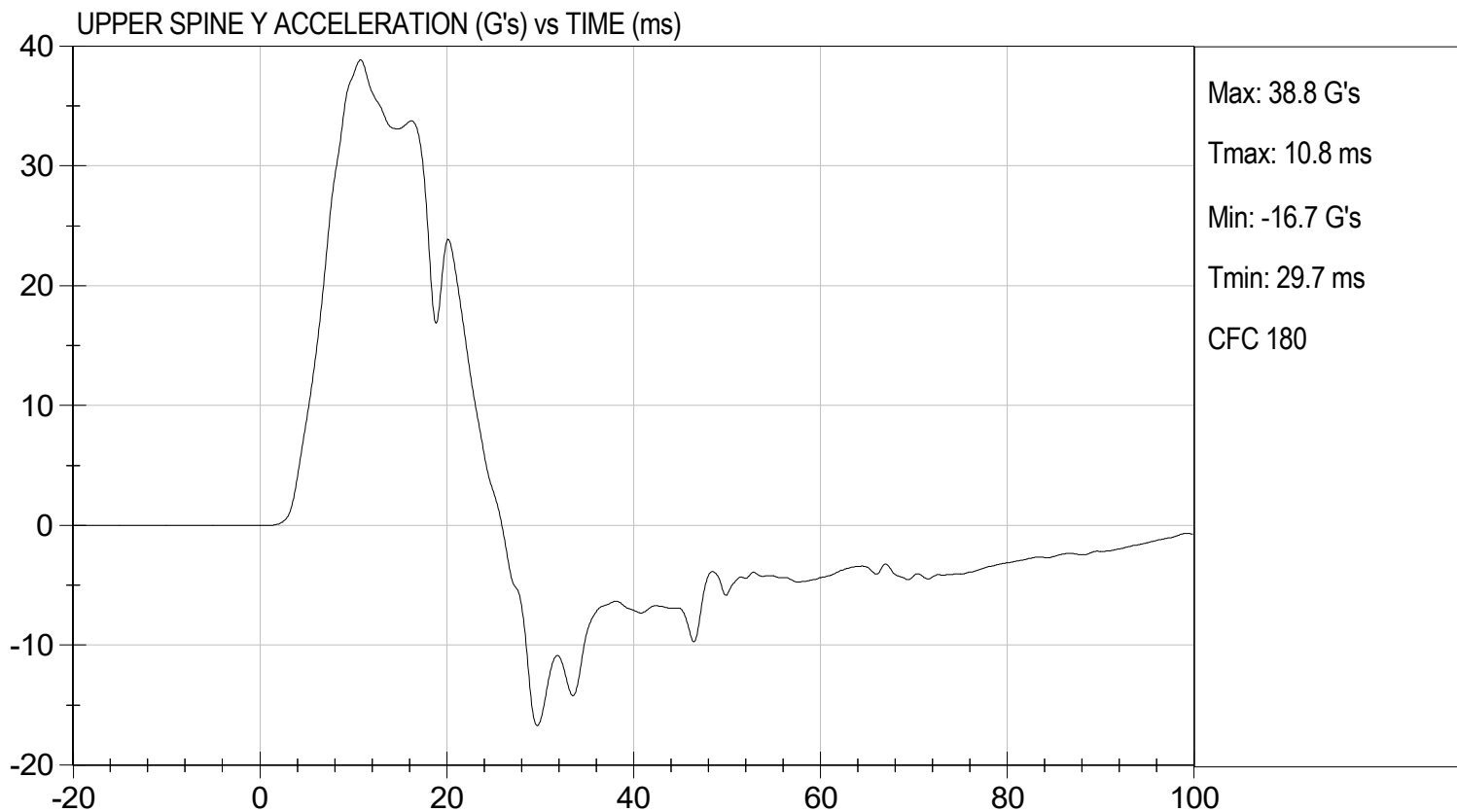
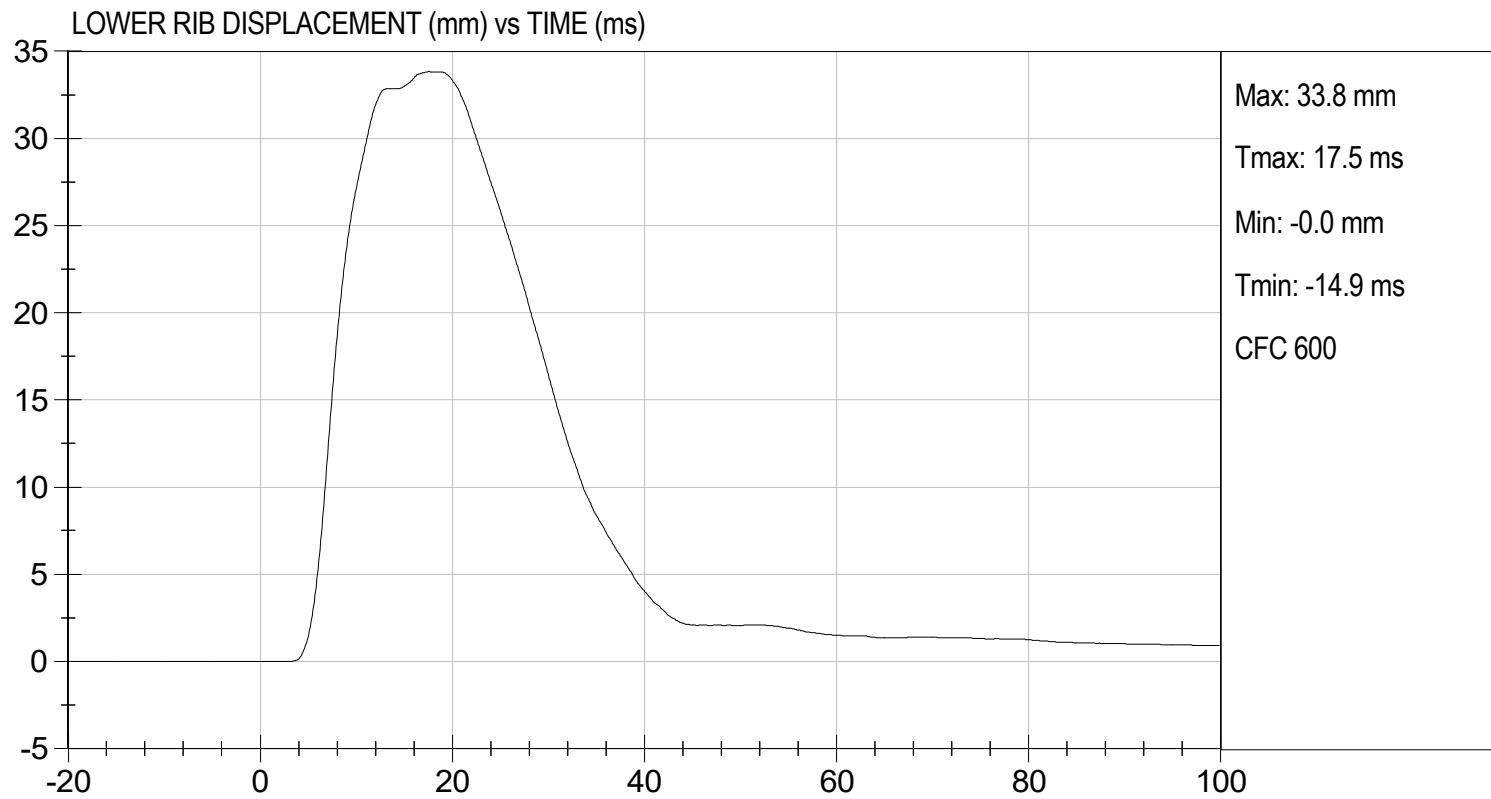






TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

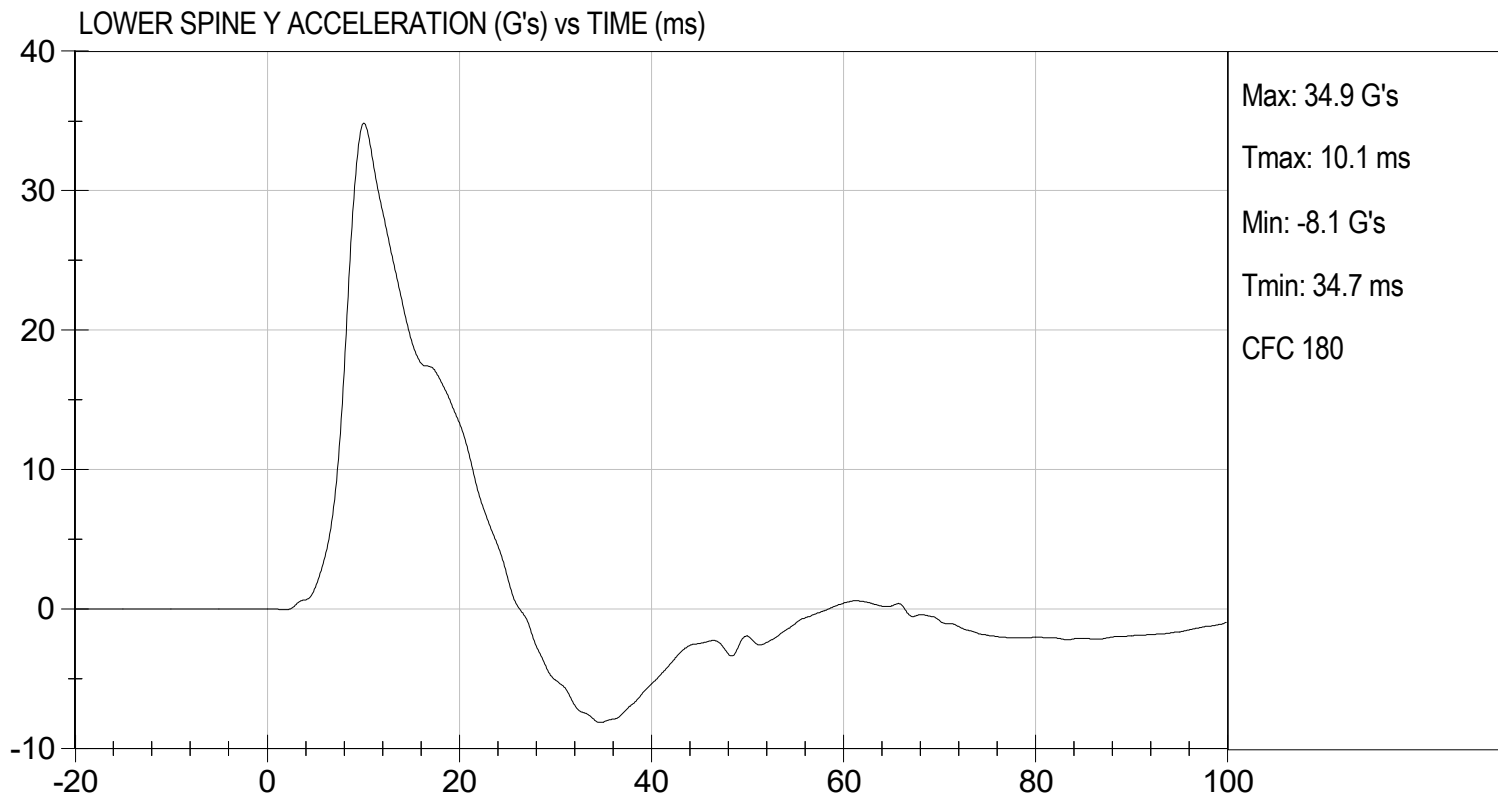
TEST DATE: 08/01/2024
TEST #: D241944





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

TEST DATE: 08/01/2024
TEST #: D241944



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

ATD Serial No: 296

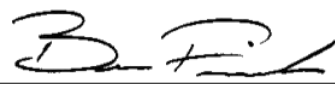
Test I.D: D241945

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	57	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	14 to 18	16	Pass
Upper Rib Displacement	mm	32 to 40	37	Pass
Middle Rib Displacement	mm	39 to 45	43	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

08/01/2024

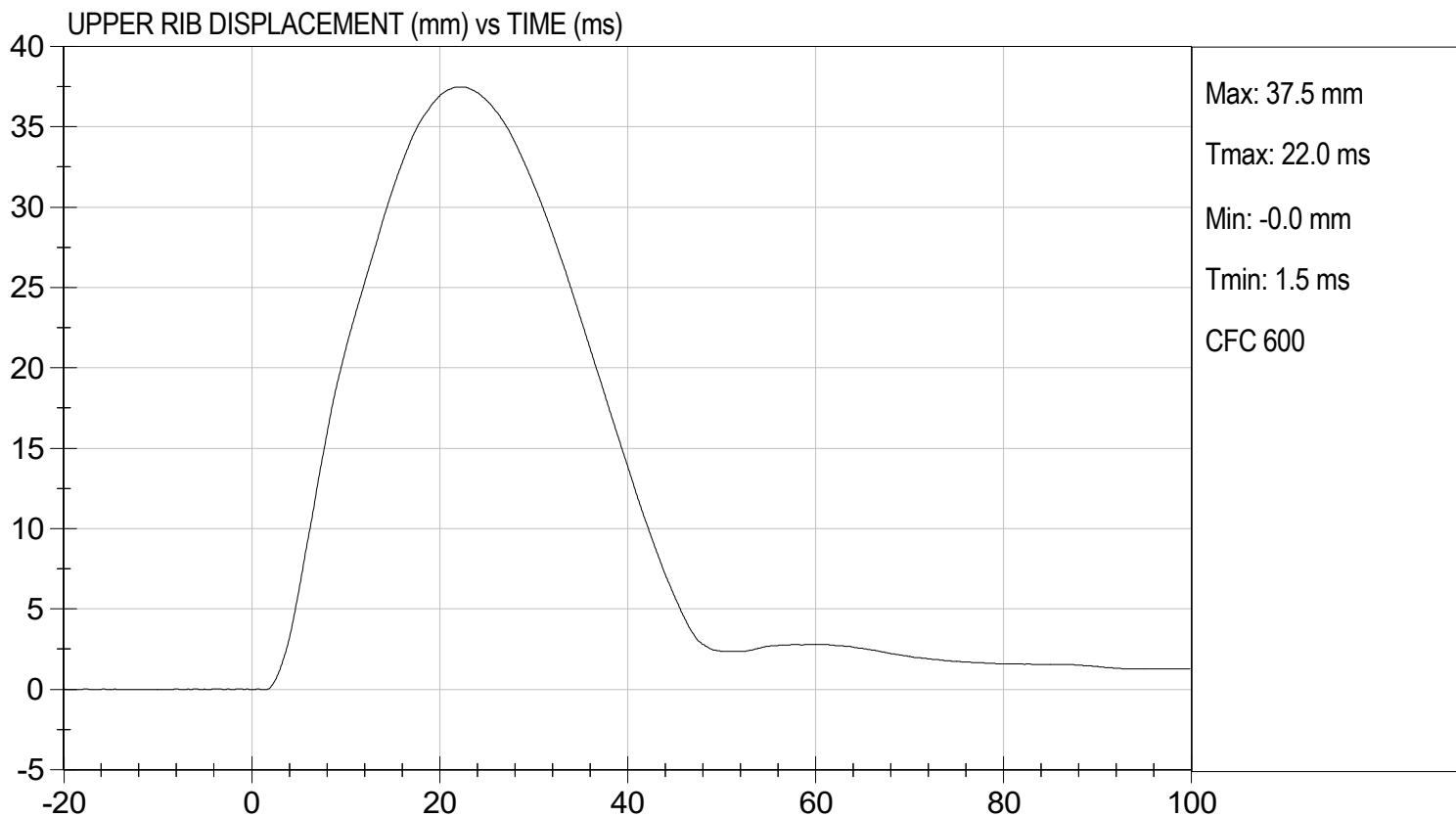
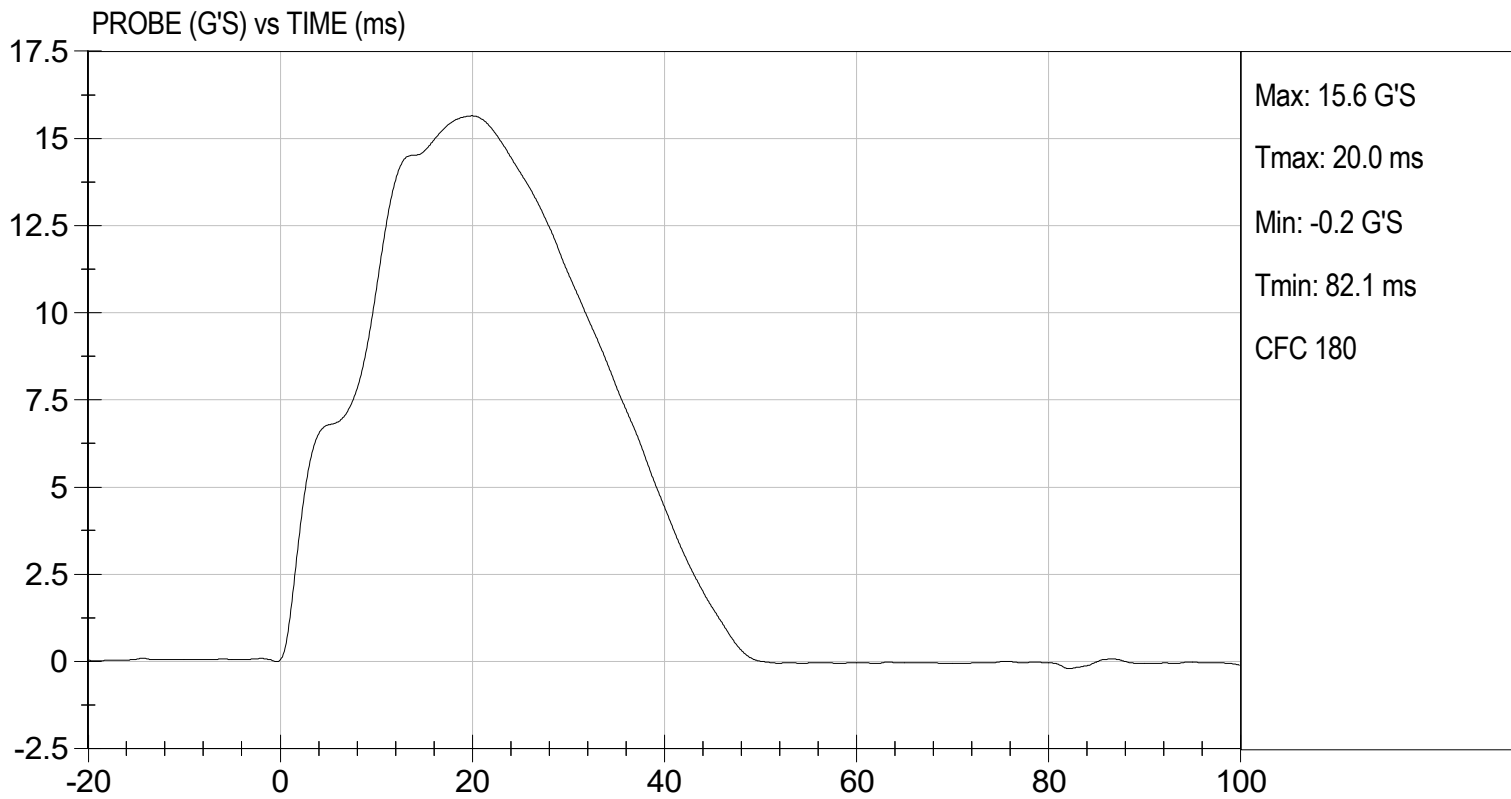
Test Date

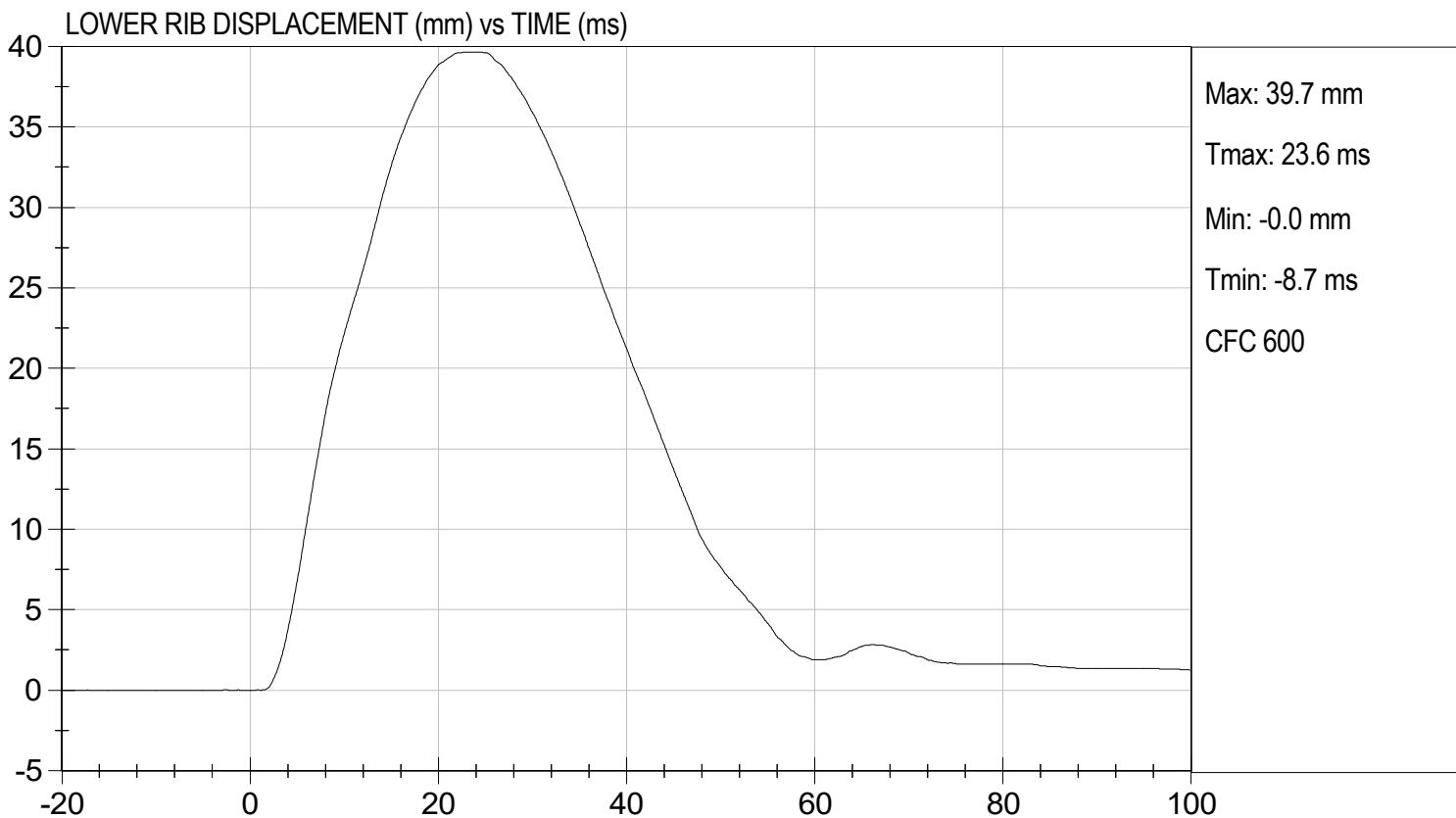
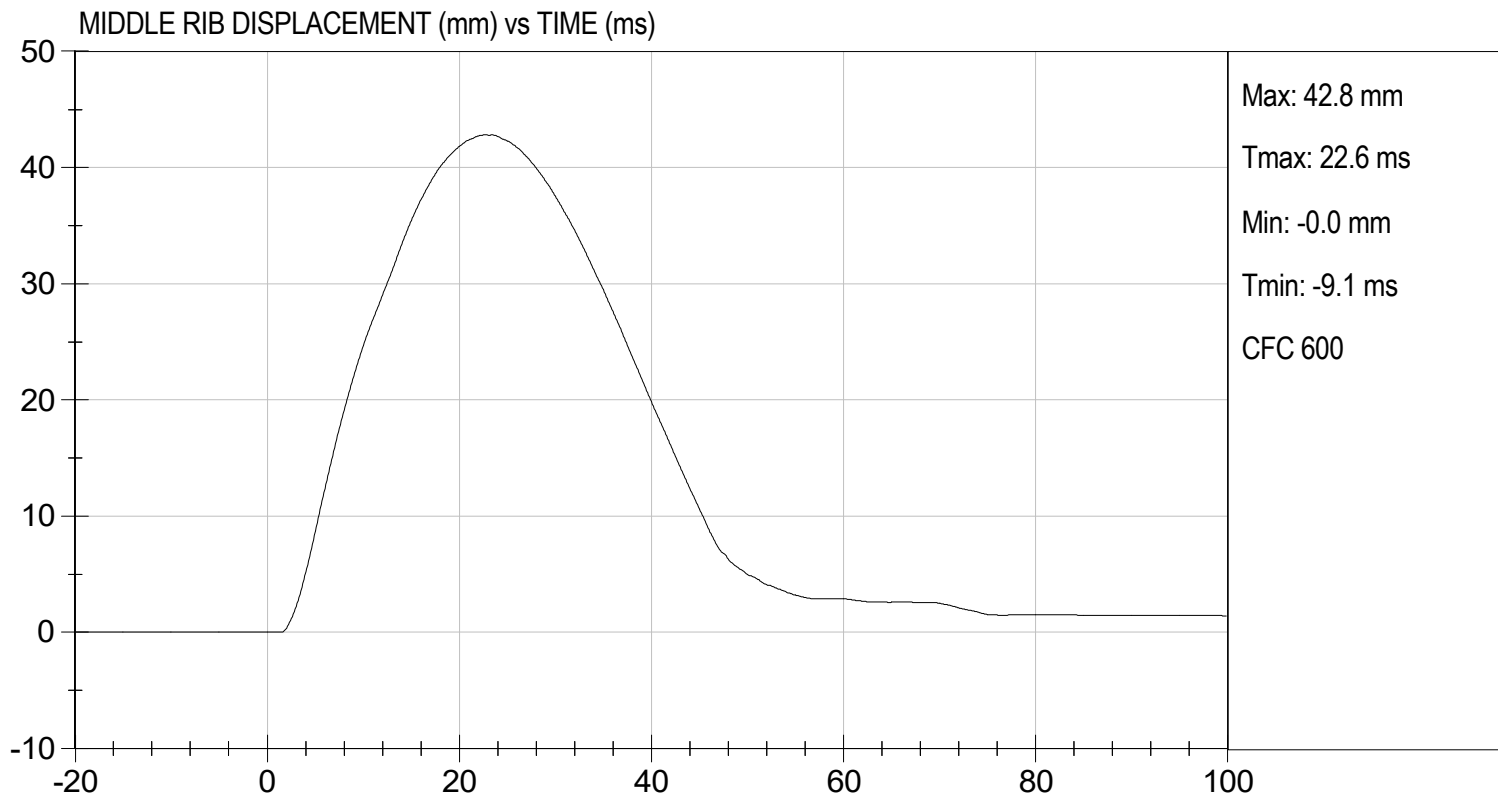

Approved By



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

TEST DATE: 08/01/2024
TEST #: D241945

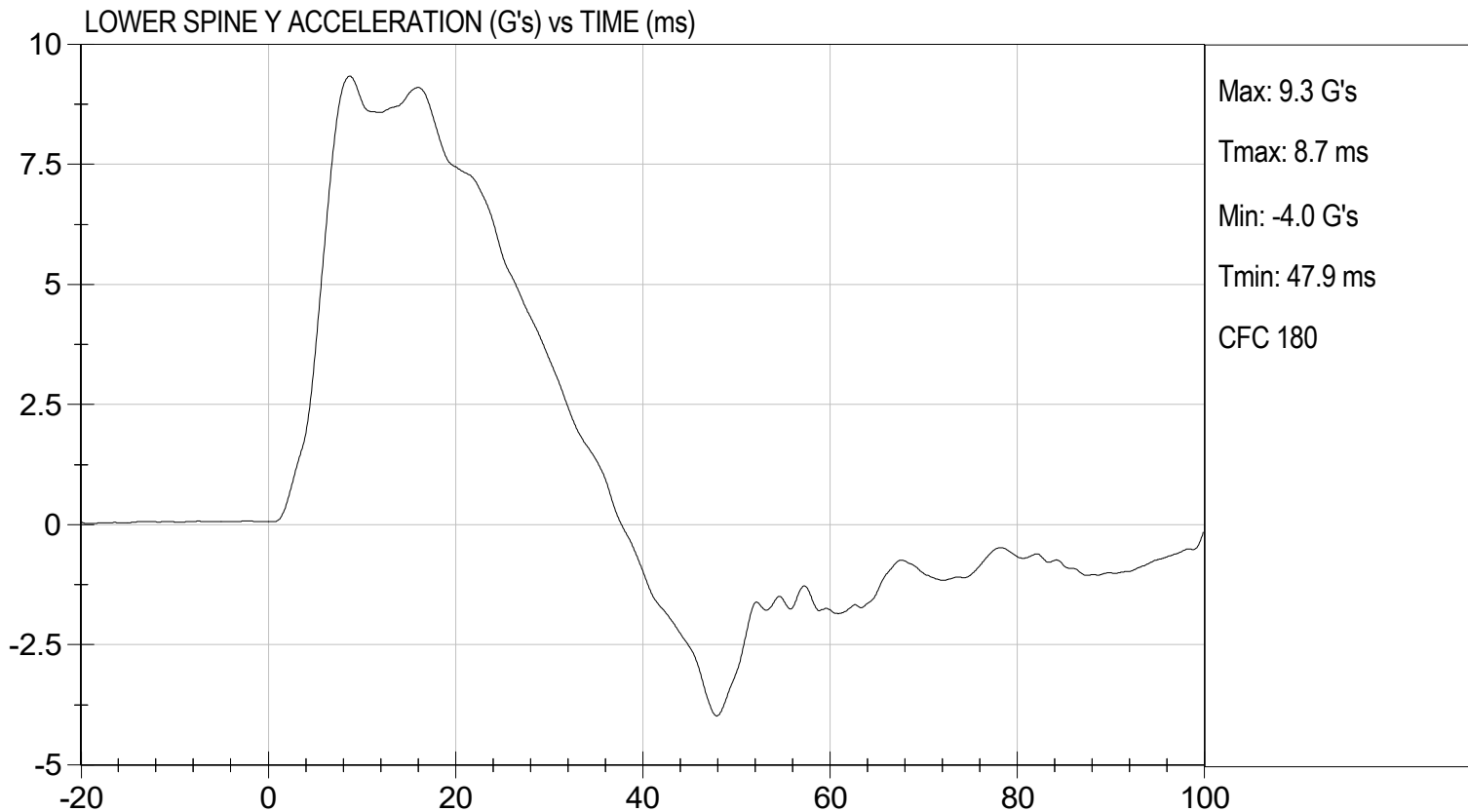
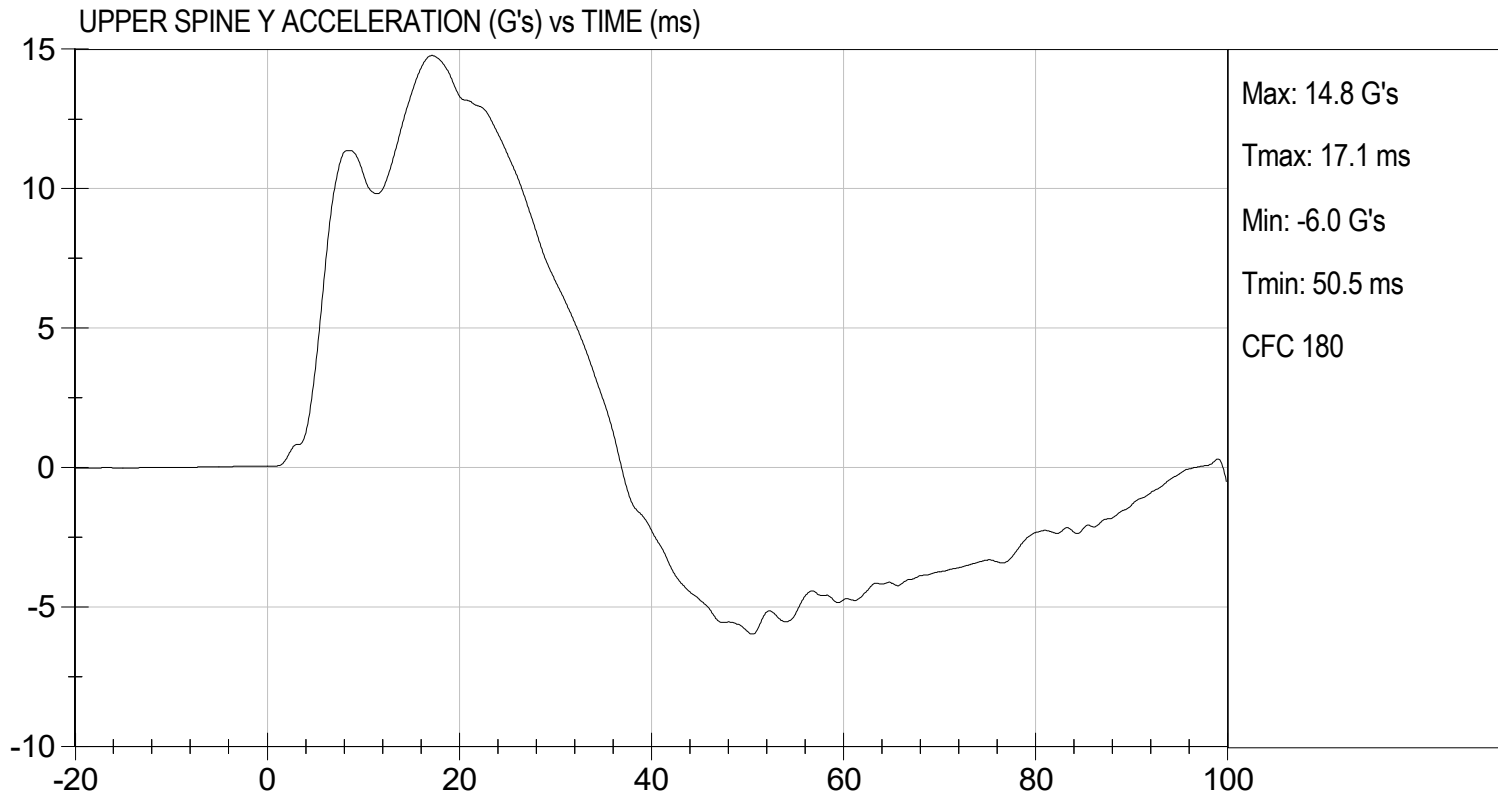






TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 14.12 ft/s, 4.30 m/s

TEST DATE: 08/01/2024
TEST #: D241945



MGA RESEARCH CORPORATION

ABDOMINAL IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

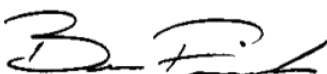
ATD Serial No: 296

Test I.D: D241946

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	57	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	43	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	36	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
Overall Test Results			Pass	


Laboratory Technician

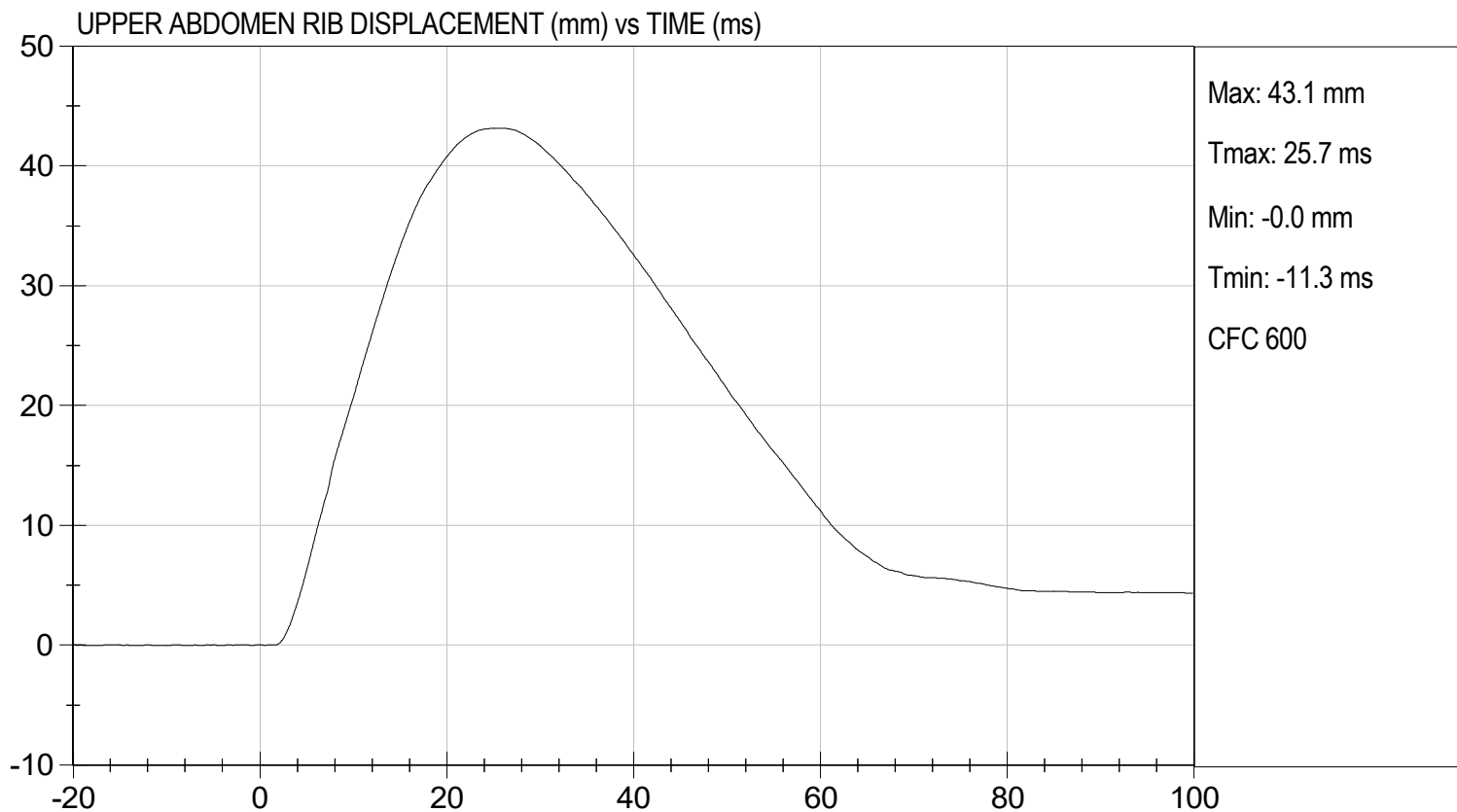
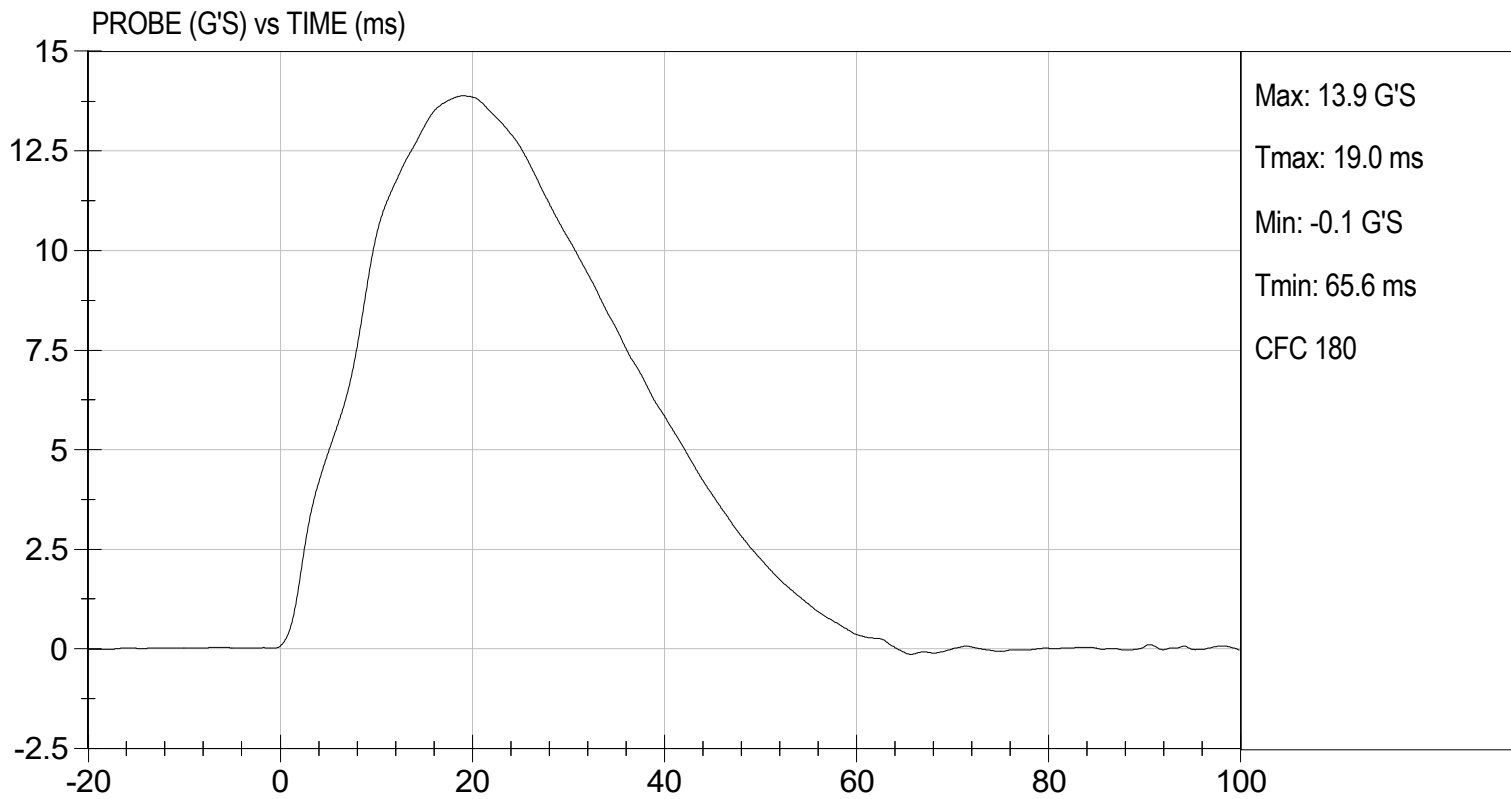
08/01/2024
Test Date


Approved By



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

TEST DATE: 08/01/2024
TEST #: D241946

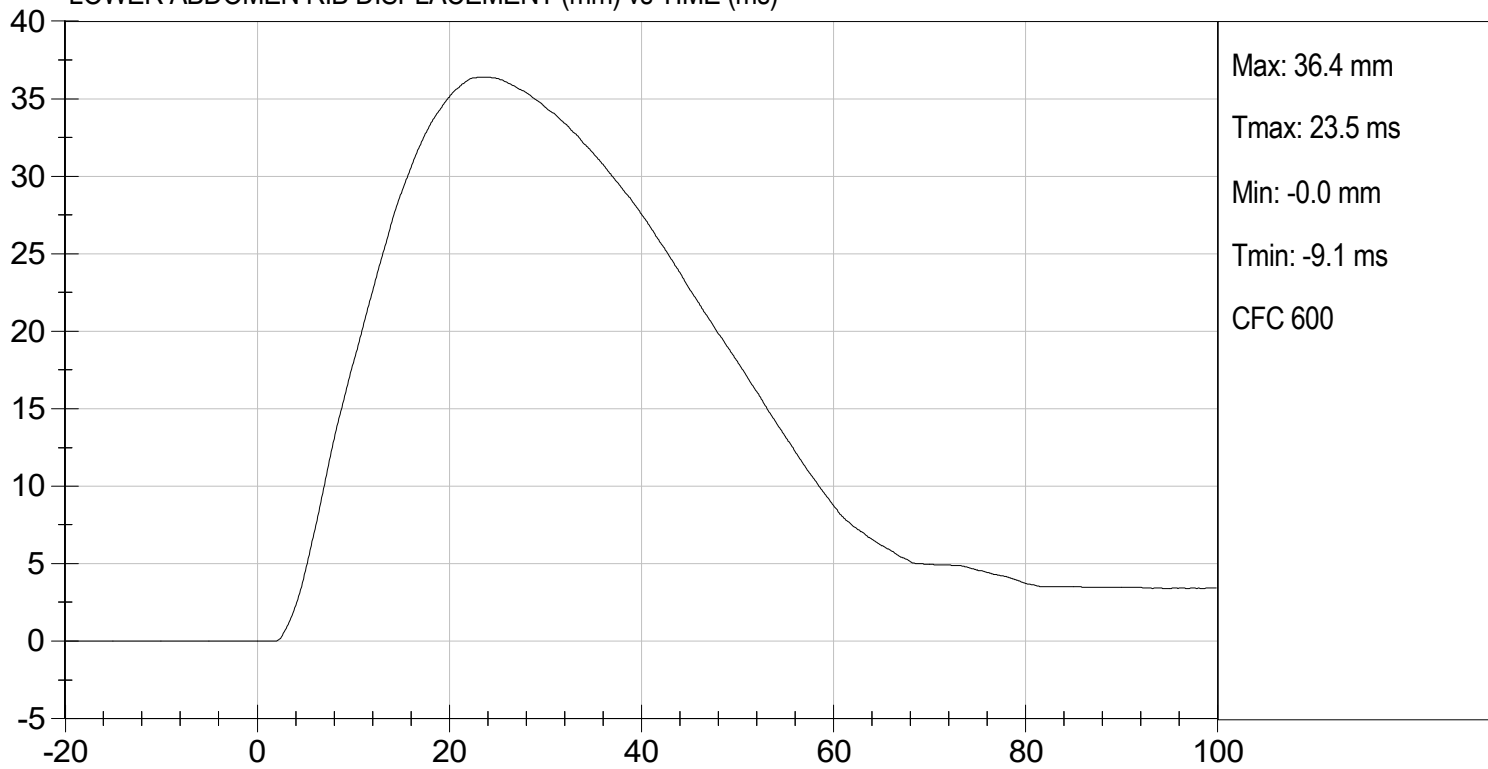




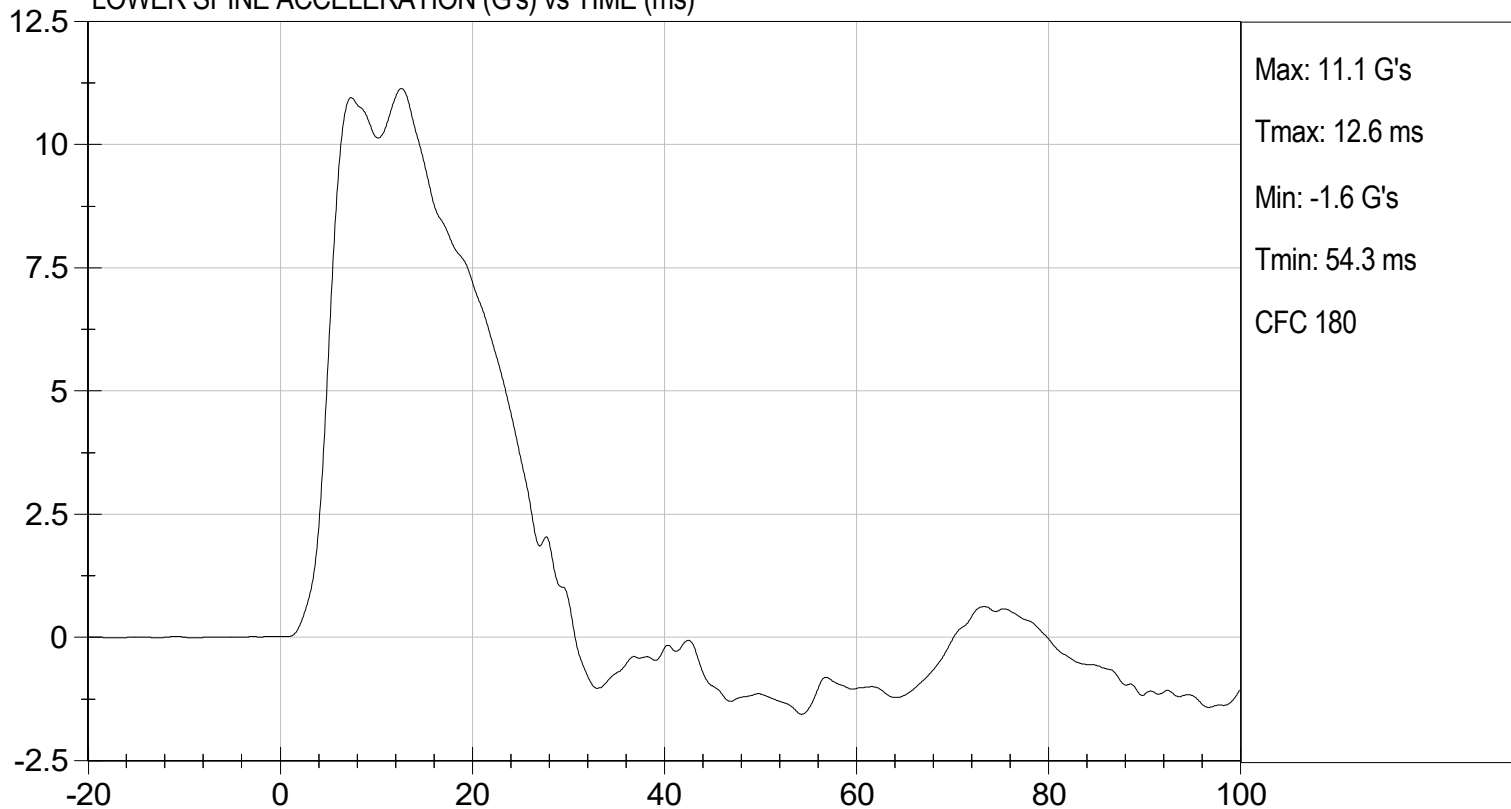
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 08/01/2024
TEST #: D241946

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



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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SID-Its BUILD LEVEL D DUMMY

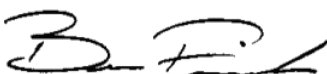
ATD Serial No: 296

Test I.D: D241947

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	59	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	38 to 47	43	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	40.6	Pass
Peak Acetabulum Force	N	3600 to 4300	4,094	Pass
Overall Test Results			Pass	


Laboratory Technician

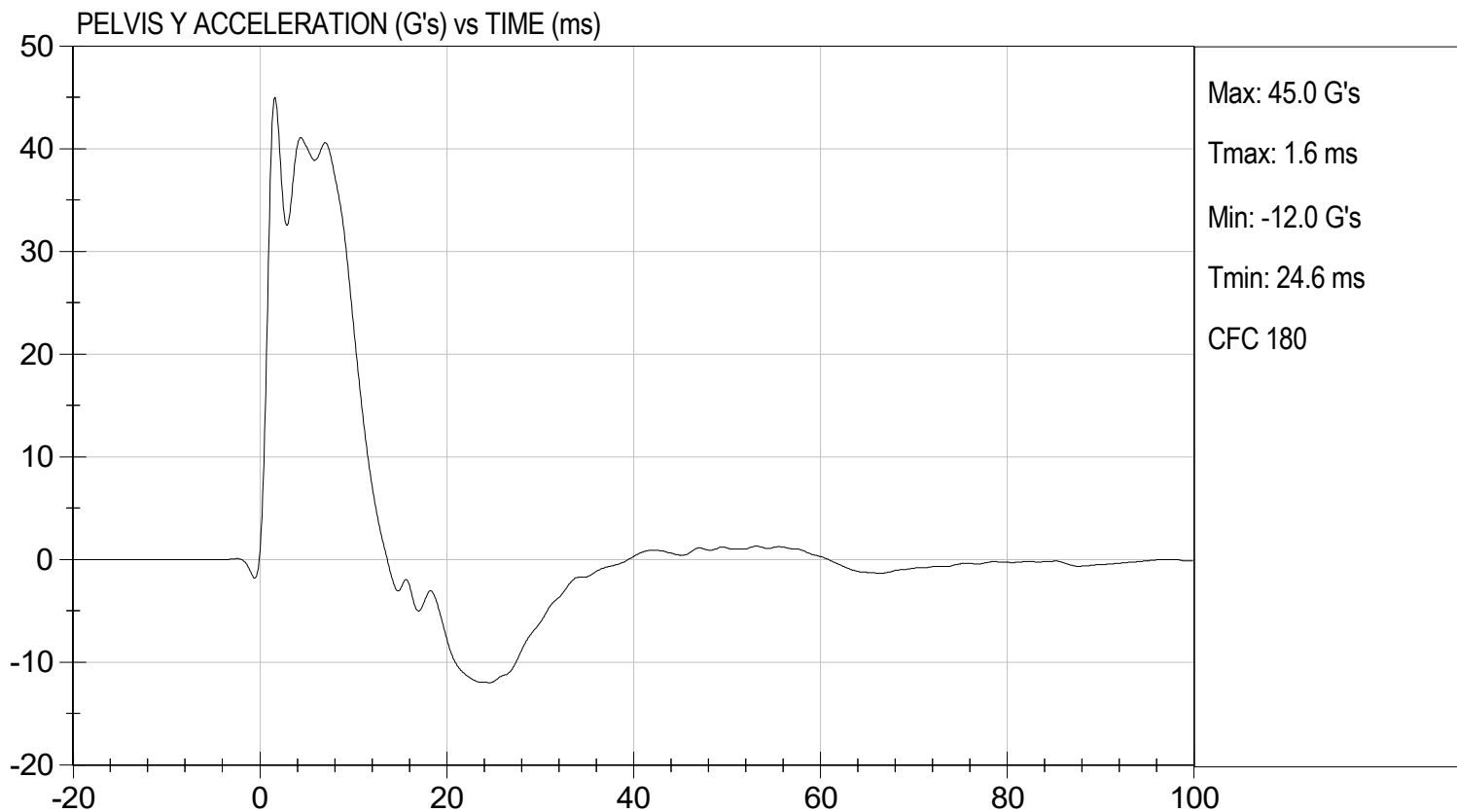
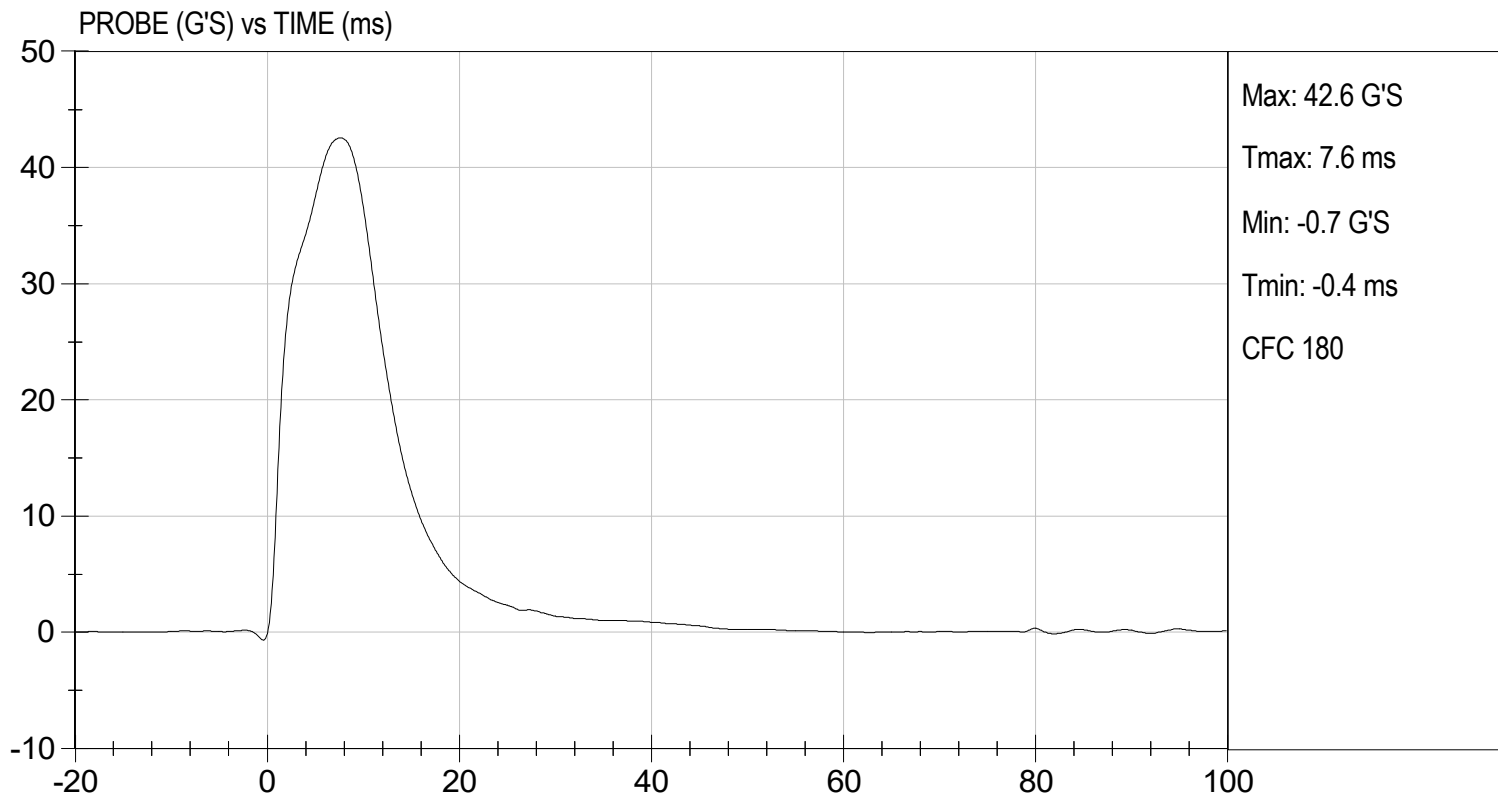
08/01/2024
Test Date


Approved By



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

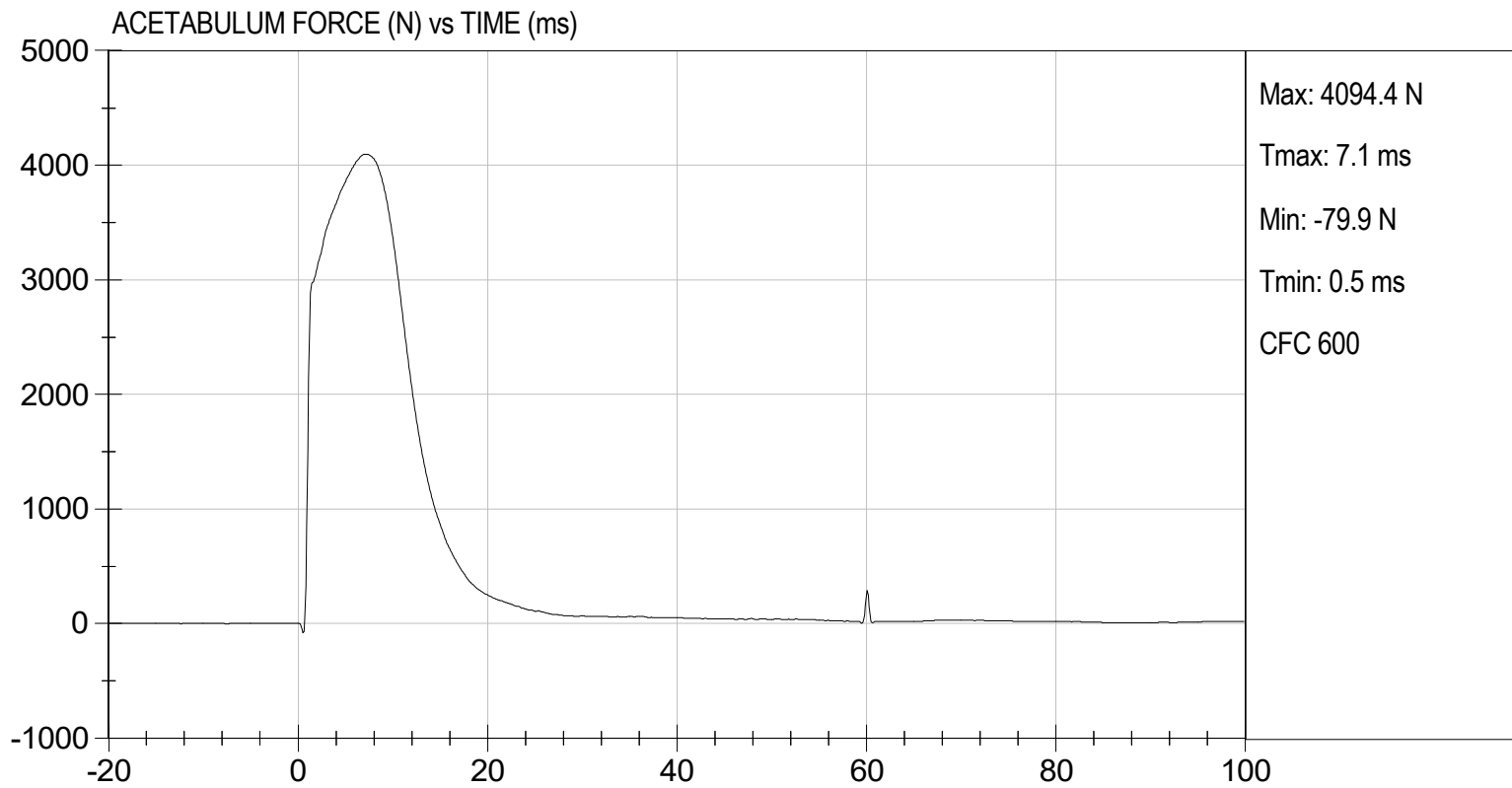
TEST DATE: 08/01/2024
TEST #: D241947





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

TEST DATE: 08/01/2024
TEST #: D241947



MGA RESEARCH CORPORATION

ILIAC IMPACT TEST

SID-Its BUILD LEVEL D DUMMY

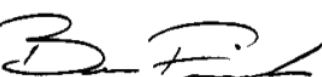
ATD Serial No: 296

Test I.D: D241948

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	47	Pass
Impact Velocity	m/s	4.20 to 4.40	4.38	Pass
Maximum Probe Acceleration	G's	36 to 45	40	Pass
Pelvis Y Acceleration	G's	28 to 39	31	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,607	Pass
			Overall Test Results	Pass


Laboratory Technician

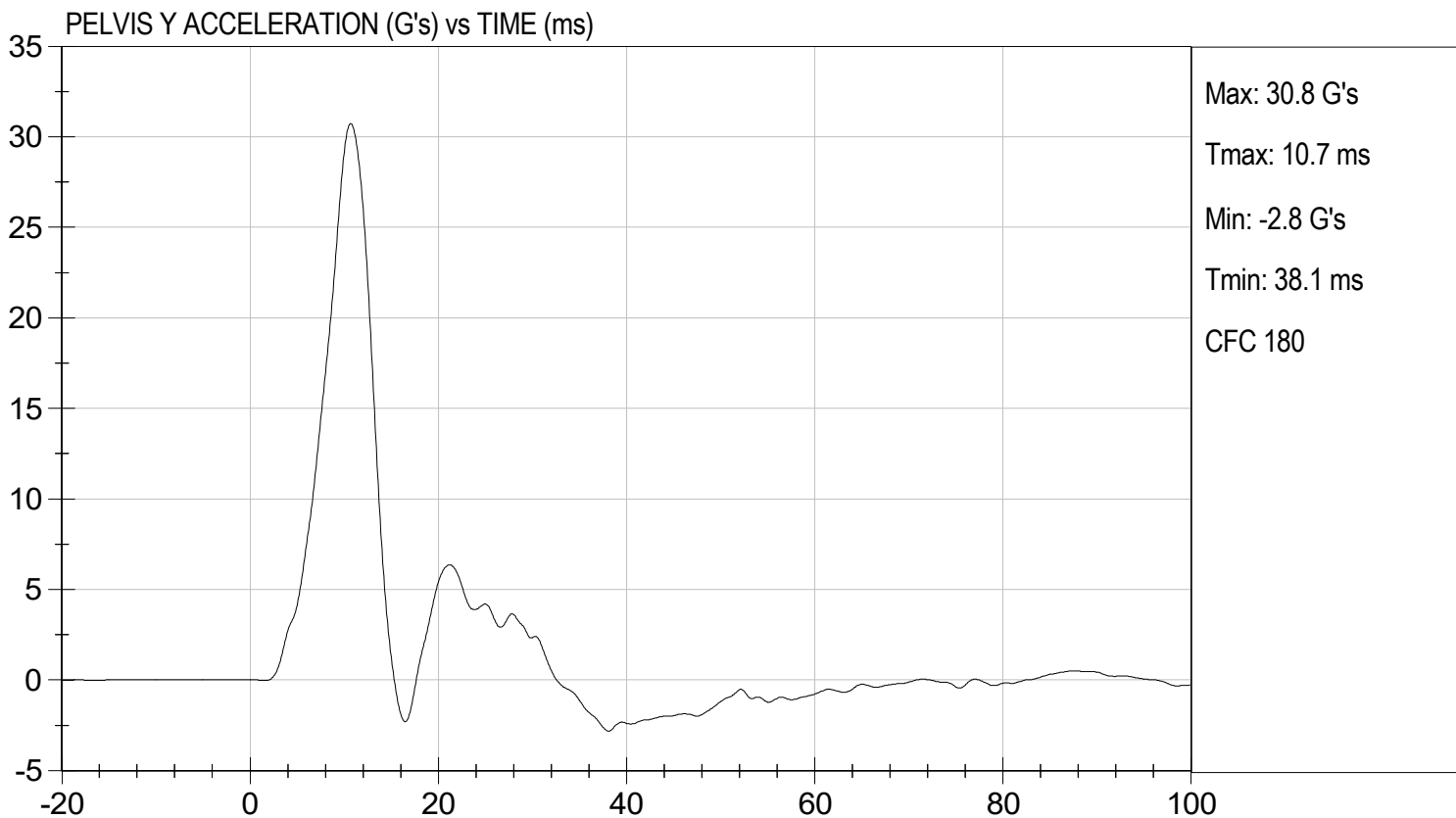
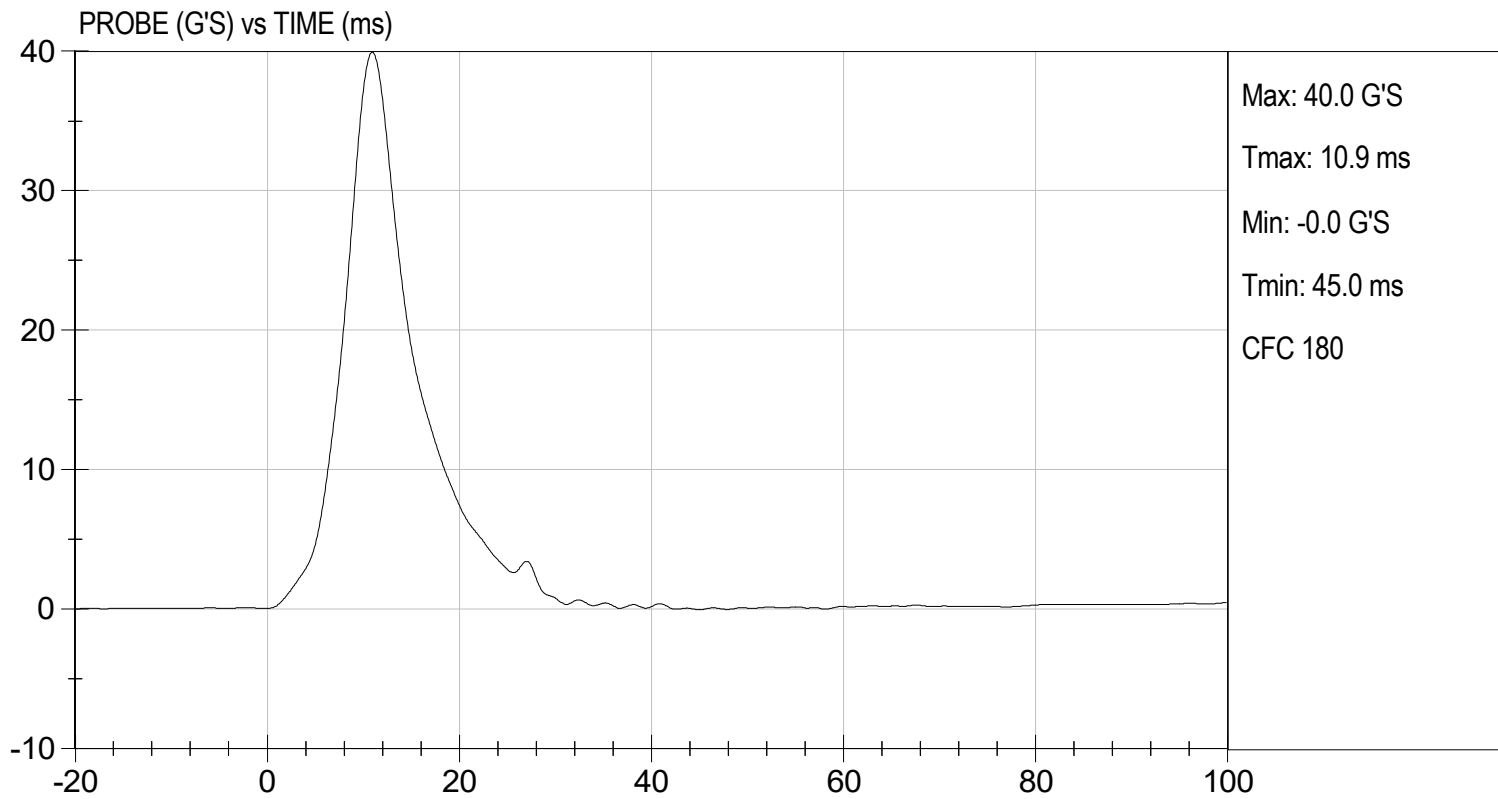
08/01/2024
Test Date


Approved By



TEST DESC: ILLIAC
VELOCITY: 14.37 ft/s, 4.38 m/s

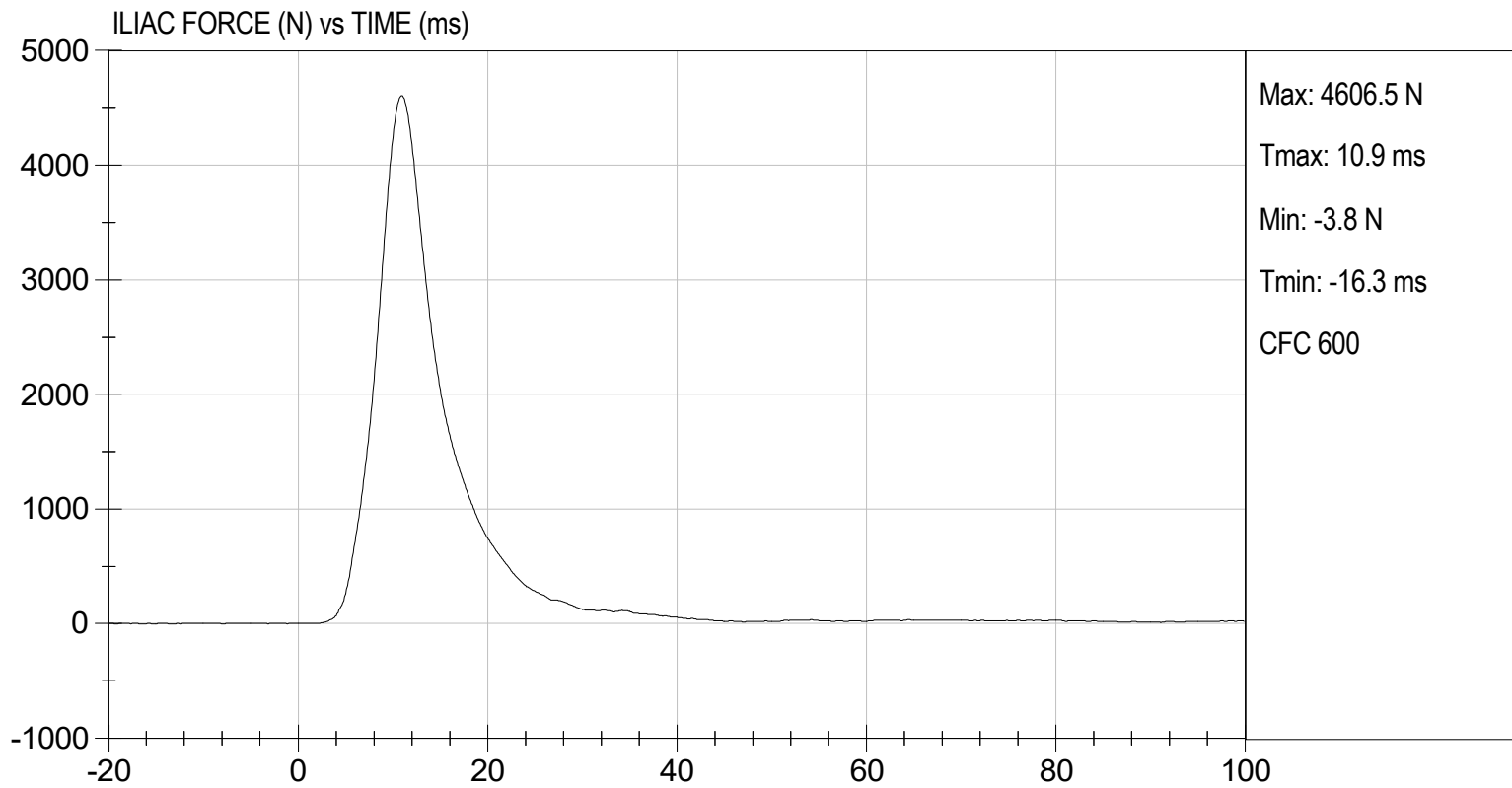
TEST DATE: 08/01/2024
TEST #: D241948





TEST DESC: ILLIAC
VELOCITY: 14.37 ft/s, 4.38 m/s

TEST DATE: 08/01/2024
TEST #: D241948





SID-ILs Pelvis Plug Certification Test

Plug S/N 17056

Test Number 23954

Report Number 24011

Test Date 8/21/2022 9:50:20 AM

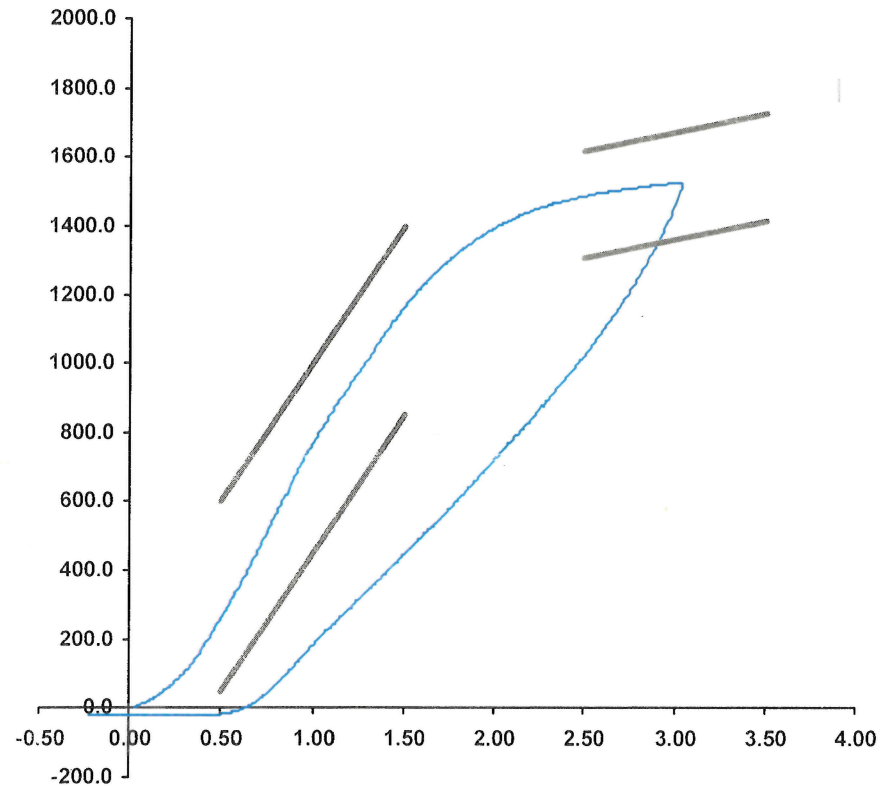
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	270	50	600
Force @ 1.5 mm (N)	1,168	850	1,400
Force @ 2.5 mm (N)	1,489	1,306	1,618
Force @ 3.0 mm (N)	1,527	1,361	1,673

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

Part Number 180-4450

Template No 107

21-Aug-22

SACO Research

By :

DC

Date :

8/21/22



SID-IIs Pelvis Plug Certification Test

Plug S/N 17054

Test Number 23952

Report Number 24009

Test Date 8/21/2022 9:46:37 AM

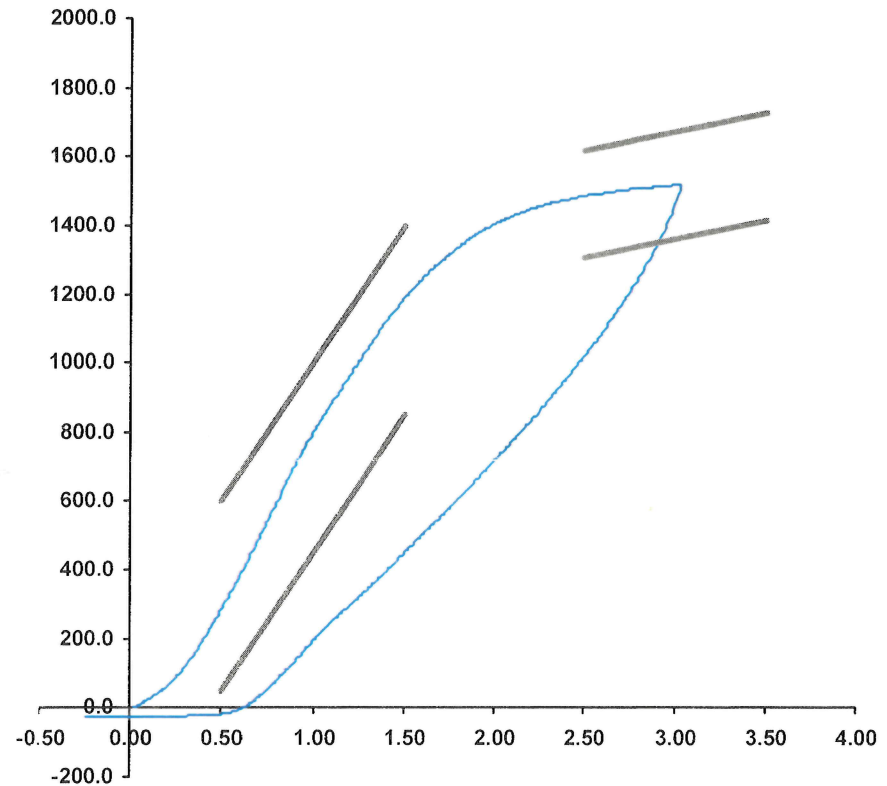
	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	291	50	600
Force @ 1.5 mm (N)	1,189	850	1,400
Force @ 2.5 mm (N)	1,487	1,306	1,618
Force @ 3.0 mm (N)	1,519	1,361	1,673

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

Part Number 180-4450

Template No 107

21-Aug-22

SACO Research

By :

DC

Date :

8/21/22

APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION

Table 1 – Dummy Instrumentation (ES-2re)

			ES-2re S/N F032		
			Serial Number	Manufacturer	Calibration Date
Head CG Accelerometers		X	P79568	Endevco	05/28/2024
		Y	P79569	Endevco	05/28/2024
		Z	T30941	Endevco	05/28/2024
		Xr	P86797	Endevco	05/28/2024
		Yr	P94957	Endevco	05/28/2024
		Zr	P97381	Endevco	05/28/2024
Thorax Rib Displacement Potentiometers	Upper	Y	G236	Honeywell	05/28/2024
	Middle	Y	G368	Honeywell	05/28/2024
	Lower	Y	G164	Honeywell	05/28/2024
Abdomen Load Cells	Forward	Y	ABG1513	Denton	02/22/2024
	Middle	Y	ABG1531	Denton	02/22/2024
	Rear	Y	ABG1536	Denton	02/22/2024
Lower Spine Accelerometers (T12)		X	P79574	Endevco	05/28/2024
		Y	T14094	Endevco	05/28/2024
		Z	P82603	Endevco	05/28/2024
Public Symphysis Load Cell		Y	PG462	Denton	02/22/2024

Table 2 – Dummy Instrumentation (SID-IIs)

			SID-IIs S/N 296			
			Serial Number	Manufacturer	Calibration Date	
Head CG Accelerometers			X	P82109	Endevco	06/11/2024
			Y	P94783	Endevco	06/11/2024
			Z	P94786	Endevco	06/11/2024
			Xr	P94938	Endevco	06/11/2024
			Yr	P96854	Endevco	06/11/2024
			Zr	P97386	Endevco	06/11/2024
Head Angular Rate Sensors			X	ARS7391	DTS	11/17/2023
			Y	ARS7402	DTS	11/17/2023
			Z	ARS7416	DTS	11/17/2023
Displacement Potentiometers	Thoracic Rib	Upper	Y	G012	Servo	06/10/2024
		Middle	Y	G1163	FTSS	06/10/2024
		Lower	Y	G1158	FTSS	06/10/2024
	Abdominal Rib	Upper	Y	G1146	FTSS	06/10/2024
		Lower	Y	G1126	FTSS	06/10/2024
Lower Spine Accelerometers (T12)			X	P79614	Endevco	06/11/2024
			Y	P79439	Endevco	06/11/2024
			Z	P79418	Endevco	06/11/2024
Acetabulum Load Cell			Y	ACG111	FTSS	02/22/2024
Iliac Wing Load Cell			Y	IWG226	FTSS	02/22/2024
Pelvis Plug (struck side)				17056	SACO	08/21/2022
Pelvis Plug (non-struck side)				17054	SACO	08/21/2022

Table 3 – Vehicle Instrumentation

			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	T40698	Endevco	05/08/2024
	Vehicle Center of Gravity	Y	T41184	Endevco	05/30/2024
	Vehicle Center of Gravity	Z	P94811	Endevco	06/12/2024
2	Right Sill at Front Seat	X	A416927	MSI	06/07/2024
	Right Sill at Front Seat	Y	T41122	Endevco	05/30/2024
	Right Sill at Front Seat	Z	A383497	MSI	06/06/2024
3	Right Sill at Rear Seat	X	T41183	Endevco	05/07/2024
	Right Sill at Rear Seat	Y	T41131	Endevco	05/07/2024
	Right Sill at Rear Seat	Z	T42847	Endevco	06/14/2024
4	Left Sill at Front Door	Y	T33476	Endevco	06/24/2024
5	Left Sill at Rear Door	Y	T41121	Endevco	07/01/2024
6	Left A-Post Lower	Y	A340265	MSI	05/02/2024
7	Left A-Post Middle	Y	A390896	MSI	05/06/2024
8	Left B-Post Lower	Y			
9	Left B-Post Middle	Y			
10	Front Seat Track	Y	T42829	Endevco	06/14/2024
11	Rear Seat Track or Structure	Y	T41771	Endevco	06/14/2024
12	Right Rear Occ. Compartment	Y	T39096	Endevco	07/17/2024
13	Engine Block	X	T39075	Endevco	05/28/2024
	Engine Block	Y	A305725	MSI	06/10/2024
14	Rear Floorpan Above Axle	X	T33443	Endevco	03/07/2024
	Rear Floorpan Above Axle	Y	T39049	Endevco	05/06/2024
	Rear Floorpan Above Axle	Z	A383149	MSI	05/02/2024

Table 4 – MDB Instrumentation

		Serial Number	Manufacturer	Calibration Date
MDB Center of Gravity	X	PCB1183D	PCB	03/15/2024
MDB Center of Gravity	Y	PCB1822D	PCB	03/15/2024
MDB Center of Gravity	Z	PCB1753D	PCB	03/15/2024
Left Frame at Rear Axle Centerline	X	PCB1438D	PCB	03/08/2024
Left Frame at Rear Axle Centerline	Y	PCB1653D	PCB	03/08/2024