REPORT NUMBER: SideNCAPMDB-MGA-25-008

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

TOYOTA MOTOR CORPORATION
2025 Toyota Corolla Hybrid LE 4-Door Sedan
NHTSA No.: M20255101

MGA RESEARCH CORPORATION
5000 Warren Road
Burlington, WI 53105

Test Date: January 8, 2025

Final Report Date: March 20, 2025

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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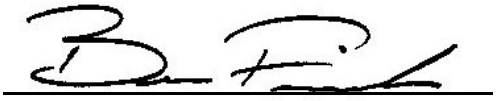
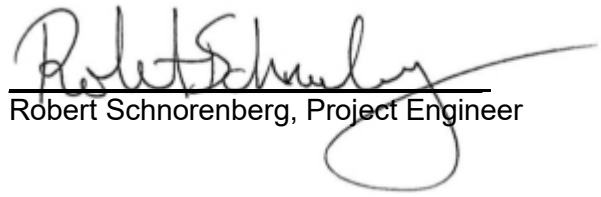
Prepared by: 
Ben Fischer, Program Manager

Approved by: 
Robert Schnorenberg, Project Engineer

Approval Date: March 20, 2025

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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SideNCAPMDB-MGA-25-008		

4. Title and Subtitle	5. Report Date
Final Report of New Car Assessment Program Side Impact MDB Testing and FMVSS No. 305 Indicant Testing of 2025 Toyota Corolla Hybrid LE 4-Door Sedan, NHTSA No.: M20255101	March 20, 2025
	6. Performing Organization Code MGA
7. Author(s) Ben Fischer, Program Manager	**8. Performing Organization Report No.** SideNCAPMDB-MGA-25-008
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105	**10. Work Unit No.**
	11. Contract or Grant No. 693JJ920D000017
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards (NRM-100) 1200 New Jersey Ave, SE Washington, D.C. 20590	**13. Type of Report and Period Covered:** Final Test Report January 8, 2025 to March 20, 2025
	14. Sponsoring Agency Code NRM-100

15. Supplementary Notes

16. Abstract

A 55/28 km/h 90° Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2025 Toyota Corolla Hybrid LE 4-Door Sedan 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 January 8, 2025.

The impact velocity of the Moving Deformable Barrier (MDB) was 62.17 km/h, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.5°C. The target vehicle post-test maximum crush was 181 mm at level 3. The test vehicle's performance was as follows:

Measurement Description	Units	Driver ATD (ES-2re)	
		Threshold	Result
Head Injury Criteria (HIC_{36})		1000	91.601
Maximum Thorax Rib Deflection	mm	44	26.311
Total Abdominal Force	N	2500	727.972
Pubic Symphysis Force	N	6000	1238.486
Resultant Lower Spine Acceleration	g	82*	34.010

Measurement Description	Units	Passenger ATD (SID-IIs)	
		Threshold	Result
Head Injury Criteria (HIC_{36})		1000	153.317
Resultant Lower Spine Acceleration	g	82	46.368
Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2823.952
Maximum Thoracic Rib Deflection	mm	38*	28.132
Maximum Abdomen Rib Deflection	mm	45*	16.245

*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.

17. Key Words	***18. Distribution Statement***
New Car Assessment Program (NCAP) Side Impact MDB ES-2re SID-IIs	Copies of this report are available from: National Highway Traffic Safety Administration Technical Information Services Division 1200 New Jersey Ave, SE Washington, DC 20590

19. Security Classification of Report	20. Security Classification of Page	21. No. of Pages	22. Price
Unclassified	Unclassified	260	

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SECTION 1
PURPOSE AND SUMMARY OF TEST

PURPOSE

This moving deformable barrier side impact test is part of the MY 2025 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 2025 Toyota Corolla Hybrid LE 4-Door Sedan. 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 2025 Toyota Corolla Hybrid LE 4-Door Sedan was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 62.17 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 January 8, 2025. 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	91.601
Maximum Thorax Rib Deflection	mm	44	26.311
Total Abdominal Force	N	2500	727.972
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Resultant Lower Spine Acceleration	g	82*	34.010

Measurement Description	Units	Passenger ATD (SID-IIs)	
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Head Injury Criteria (HIC_{36})		1000	153.317
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Total Pelvic Force (sum of acetabular and iliac forces)	N	5525	2823.952
Maximum Thoracic Rib Deflection	mm	38*	28.132
Maximum Abdomen Rib Deflection	mm	45*	16.245

*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	Yes	Yes
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.

SECTION 2
OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20255101	Traction Control System (TCS)	Yes
Model Year	2025	Auto-Leveling System	No
Make	Toyota	Automatic Door Locks (ADL)	Yes
Model	Corolla Hybrid LE	Power Window Auto-Reverse	Yes
Body Style	4-Door Sedan	Other Optional Feature	No
VIN	JTDBCMFE8SJ038552	Driver Front Airbag	Yes
Body Color	Classic Silver Metallic	Driver Curtain Airbag	Yes
Odometer Reading (km/mi)	5 km / 3 mi	Driver Head/Torso Airbag	No
Engine Displacement (L)	1.8	Driver Torso Airbag	No
Type/No. Cylinders	Inline 4	Driver Torso/Pelvis Airbag	Yes
Engine Placement	Lateral	Driver Pelvis Airbag	No
Transmission Type	Automatic	Driver Knee Airbag	Yes
Transmission Speeds	CVT	Rear Pass. Curtain Airbag	Yes
Overdrive	Yes	Rear Pass. Head/Torso Airbag	No
Final Drive	FWD	Rear Pass. Torso Airbag	No
Roof Rack	No	Rear Pass. Torso/Pelvis Airbag	Yes
Sunroof/T-Top	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	No	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?	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	TOYOTA MOTOR CORPORATION	GVWR (kg)	1844
Date of Manufacture	09/24	GAWR Front (kg)	1050
Vehicle Type	Passenger Car	GAWR Rear (kg)	971

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total	
Designated Seating Capacity (DSC)	2	3		5	
Capacity Weight (VCW) (kg)				390	(A)
DSC x 68 kg				340	(B)
Rated Cargo and Luggage Weight (RCLW) (kg)				42	(A-B)

* Rated Cargo and Luggage Weight (RCLW) reduced by 8 kg to account for Load Carrying Capacity Reduction Label.

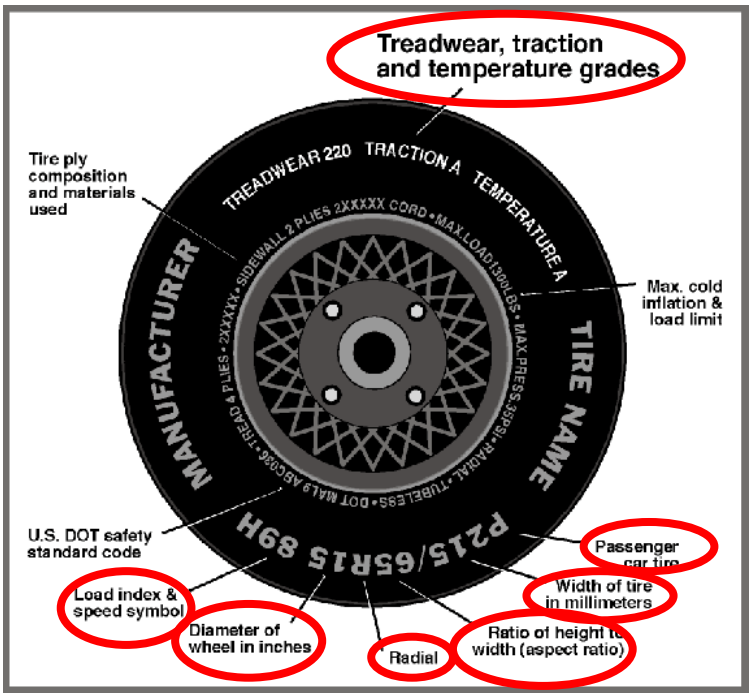
VEHICLE SEAT TYPE

Seating Location	Type of Seat Pan				Type of Seat Back		
	Bucket	Bench	Split Bench	Contoured	Fixed	Adjustable w/ Lever	Adjustable 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: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	240	230
Recommended Tire Size	205/55R16	205/55R16
Tire Size on Vehicle	205/55R16	205/55R16
Tire Manufacturer	Dunlop	Dunlop
Tire Model	Enasave 01 A/S	Enasave 01 A/S
Treadwear	340	340
Traction	B	B
Temperature Grade	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Polyamide	1 Polyester, 2 Steel, 1 Polyamide
Load Index/Speed Symbol	91H	91H
Tire Material	Rubber	Rubber
DOT Safety Code Left	EV8K 3MMR 3624	EV8K 3MMR 3724
DOT Safety Code Right	EV8K 3MMR 3624	EV8K 3MMR 3624

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

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

TEST VEHICLE TIRE PRESSURES

	Units	LF	RF	LR	RR
As Delivered	kPa	250	250	250	250
Tire Placard	kPa	240	240	230	230
Owner's Manual	kPa	240	240	230	230
As Tested	kPa	240	240	230	230

MDB TIRE SPECIFICATIONS

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

TEST VEHICLE AXLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)			Fully Loaded		
		Front	Rear	Total	Front	Rear	Total	Front	Rear	Total
Left	kg	441.0	266.0		485.5	331.0		480.0	341.5	
Right	kg	399.0	278.5		409.5	323.0		402.0	332.0	
Ratio	%	60.7%	39.3%		57.8%	42.2%		56.7%	43.3%	
Totals	kg	840.0	544.5	1384.5	895.0	654.0	1549.0	882.0	673.5	1555.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value	
Total Delivered Weight (UVW)	kg	1384.5	(A)
Sum of Actual Weight of 2 P572 ATDs Used	kg	129	(B)
Rated Cargo/Luggage Weight (RCLW)	kg	42	(C)
Calculated Test Vehicle Target Weight (TVTW)	kg	1555.5	(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	669	665	Yes
Right Front	mm	673	668	Yes
Right Rear	mm	675	678	Yes
Left Rear	mm	666	658	Yes
Vehicle CG (Aft of Front Axle)	mm	1169	1140	
Vehicle CG (Left (+) / Right (-) from Longitudinal Centerline)	mm	43	41	

* 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

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

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

WEIGHT OF BALLAST AND VEHICLE COMPONENTS REMOVED TO MEET TVTW

Component Description	Units	Weight
Weight of Ballast Added	kg	
Components Removed: RF headrest, LR/RR taillight, rear bumper and fascia	kg	11

TEST SURFACE MARKINGS

	Units	Distance from 63° Impact Angle Line
Fore 25 mm Target	mm	877
Aft 25 mm Target	mm	881
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: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

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	14.2	17.1
Front Passenger Seat	Fixed	Fixed	Fixed
Front Center Seat			
Struck Side Rear Seat	Fixed	Fixed	Fixed
Non-Struck Side Rear Seat	Fixed	Fixed	Fixed
Rear Center Seat	Fixed	Fixed	Fixed

SEAT HEIGHT AND ANGLE

Seat	As-Tested SCRL Angle (Mid) (°)	As-Tested SCRP Height (mm)	SCRP Height Position	SCRP Height (mm)		
				Rear-Most	Mid	Forward-Most
Driver Seat	17.1	Fixed	Max	Fixed	Fixed	Fixed
			Mid	Fixed	Fixed	Fixed
			Min	Fixed	Fixed	Fixed
Front Passenger Seat	Fixed	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

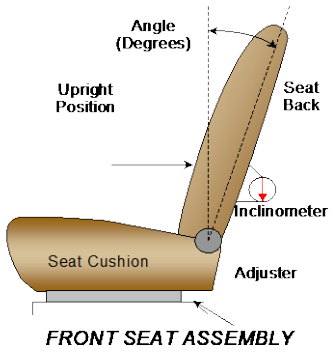
Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

SEAT FORE/AFT POSITIONS

Seat	Total Fore/Aft Travel		Test Position from Forward-Most Position	
	mm	Detents (1st as 1)	mm	Detent (1st as 0)
Driver Seat	260	27	130	13
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.



FRONT SEAT ASSEMBLY

Seat	Total Seat Back Angle Range		Test Position from Vertical	
	Degrees	Detents (1st as 1)	Degrees	Detent (1st as 0)
Driver Seat	51.8	27	4.8	5
Front Passenger Seat	51.4	27	3.8	5
Front Center Seat				
Struck Side Rear Seat	Fixed		N/A	
Non-Struck Side Rear Seat	Fixed		N/A	
Rear Center Seat	Fixed		N/A	

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: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

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

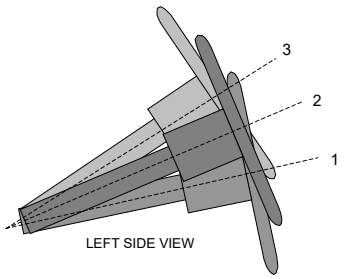
The driver's head restraint is adjusted to the highest and most full forward in-use position. The struck-side rear passenger's head restraint is adjusted to the lowest and most full forward in-use position.

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

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.

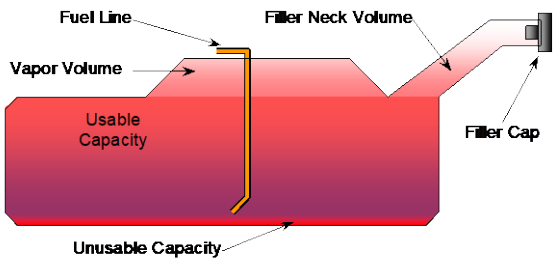
	Wheel Angle (°)	Fore/Aft Position (mm)
Lowermost, Position 1	71.5	
Geometric Center, Position 2	69.5	
Uppermost, Position 3	67.4	
Telescoping Steering Wheel Travel		42
Test Position	69.5	21



STEERING COLUMN ASSEMBLY

FUEL PUMP

The vehicle is equipped with an electronic fuel pump. The fuel pump will run when the engine is running. The pump will also briefly run when the ignition key is turned to the "on" position. The filler neck is located on the driver's side.



VEHICLE FUEL TANK ASSEMBLY

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

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

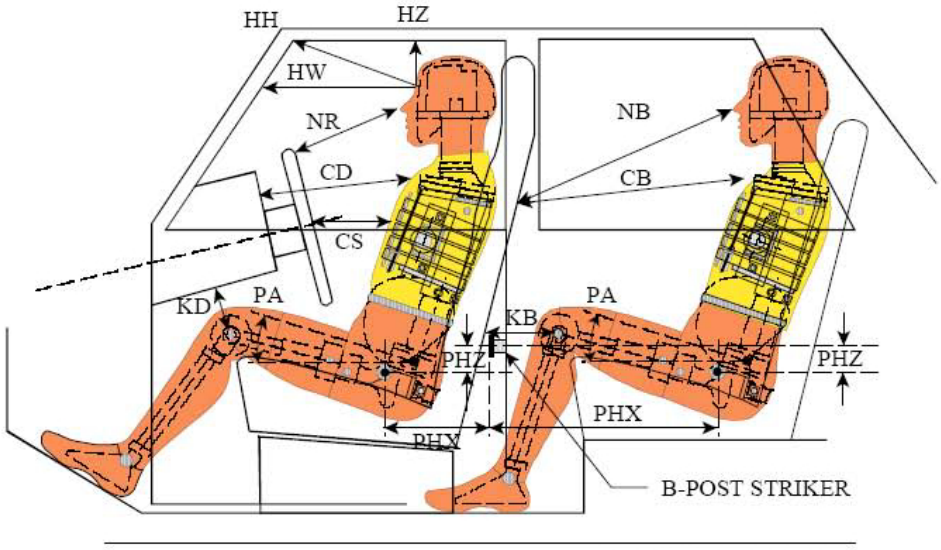
FUEL TANK CAPACITY DATA

	Liters
Usable Capacity of Standard Tank (see S1 - Vehicle Setup Information)	42.4
Usable Capacity of Optional Tank (see S1 - Vehicle Setup Information)	
Usable Capacity of Standard Tank as Specified in Owner's Manual	43.2
Usable Capacity of Optional Tank as Specified in Owner's Manual	
93% of Usable Capacity	39.4
Actual Amount of Solvent Used	39.4
1/3 of Usable Capacity	14.1

Is the actual amount of solvent used in the test equal to 93% ± 1%
of the Usable Capacity stated in S1 - Vehicle Setup Information? **YES**

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan
Test Program: NCAP Side MDB Impact Test
NHTSA No.: M20255101
Test Date: 1/8/2025



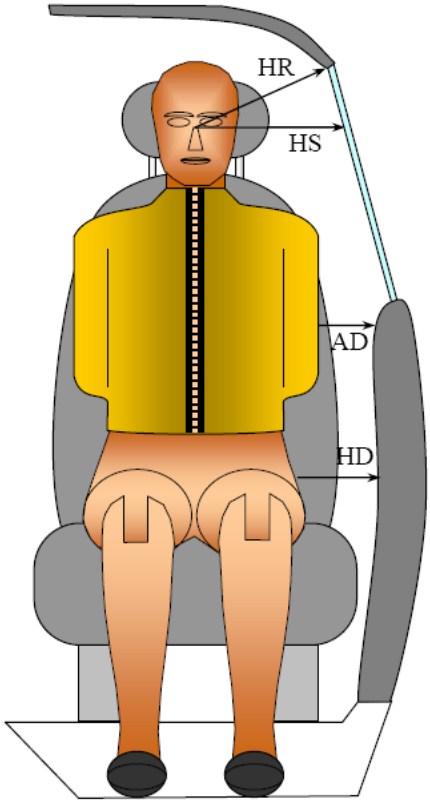
NOTE: 2-DOOR VEHICLE SHOWN. REAR DUMMY PHX & PHZ MEASUREMENTS FOR A 4-DOOR VEHICLE WOULD USE THE C-POST STRIKER AS A REFERENCE POINT

LEFT SIDE VIEW

Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length (mm)	Angle (°)	Length (mm)	Angle (°)
HH		Head to Header	412	12.5		
HW		Head to Windshield	657	0		
HZ	HZ	Head to Roof Liner	139	90	228	90
NR	NB	Nose to Rim/Seat Back	451	16.4	581	9.3
CD	CB	Chest to Dashboard/Seat Back	556	5.9	559	5.2
CS		Chest to Steering Wheel	371	11.4		
KDL	KBL	Left Knee to Dash/Seat Back	151	53.2	271	23.7
KDR	KBR	Right Knee to Dash/Seat Back	146	53.2	266	27.4
PAX	PAX	Pelvic Tilt Angle X		26.4		32.2
PAY	PAY	Pelvic Tilt Angle Y		-0.9		-0.5
PHX	PHX	Hip Point to Striker (X-Axis)	190		254	
PHZ	PHZ	Hip Point to Striker (Z-Axis)	195		302	

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

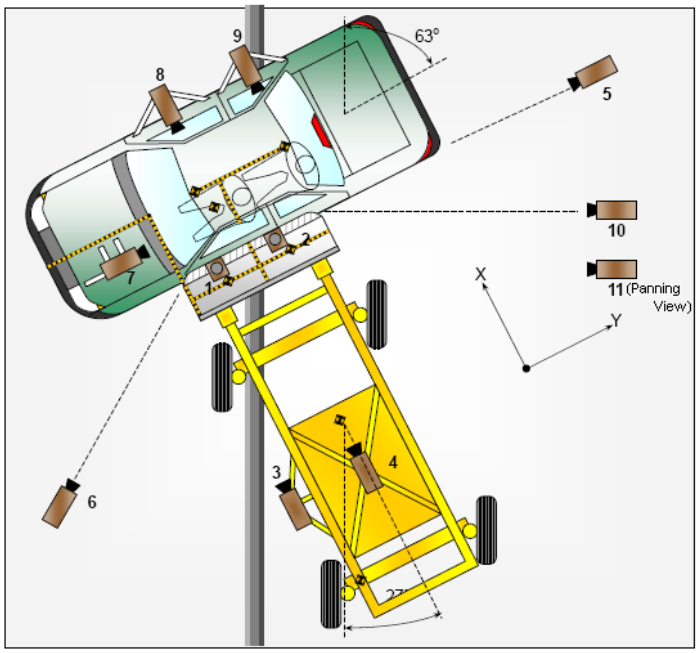
Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan
Test Program: NCAP Side MDB Impact Test
NHTSA No.: M20255101
Test Date: 1/8/2025



Code	Measurement Description	Driver	Passenger
		Length (mm)	
HR	Head to Side Header	166	258
HS	Head to Side Window	290	369
AD	Arm to Door	98	166
HD	Hip Point to Door	150	182

DATA SHEET NO. 5
CAMERA AND INSTRUMENTATION DATA

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025



CAMERA LOCATIONS AND DATA

No.	Camera View	Coordinates* (mm)			Lens (mm)	Frame Rate (fps)
		X	Y	Z		
1	Overhead Overall	755	1380	-4775	8.5	1000
2	Overhead Close-Up	195	840	-4815	20	1000
3	Left Impact Point (MDB)				50	1000
4	Side Overall (MDB)				16	1000
5	Rear	-30	6795	-1505	24	1000
6	Left Front	1945	-5175	-1510	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

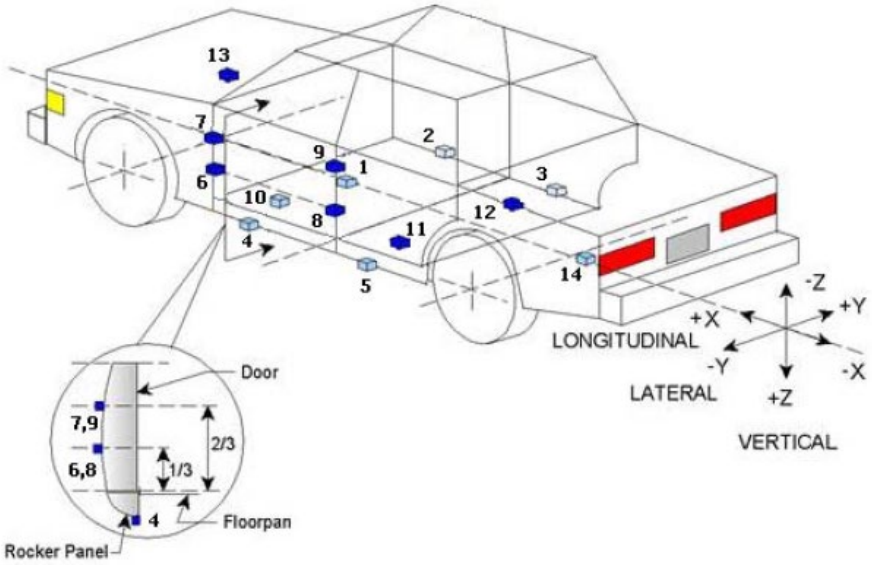
Reference: Impact Point projected to Ground; +X = To Front of MDB, + Y = To Right of MDB, +Z = Down
*All measurements accurate to ±6 mm

INSTRUMENTATION

	Number of Channels
Driver Dummy	16
Passenger Dummy	19
Vehicle Structure	23
MDB Accelerometers	5
Total	63

DATA SHEET NO. 6
TEST VEHICLE ACCELEROMETER LOCATIONS

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025



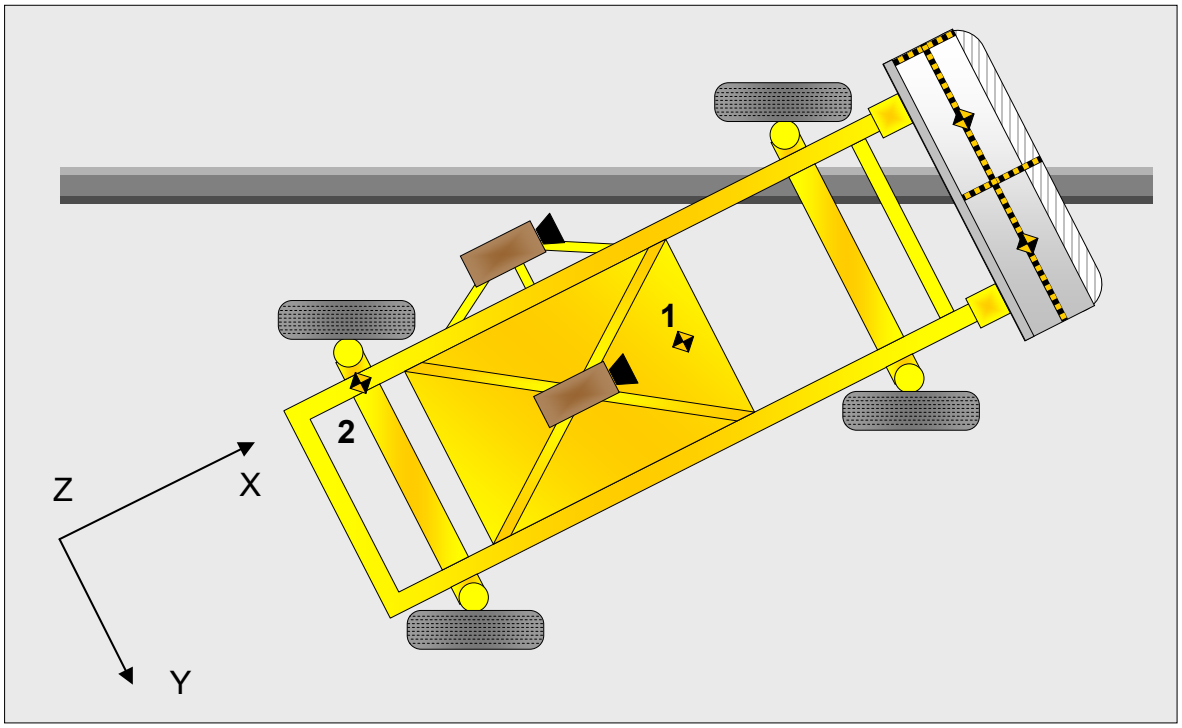
TEST VEHICLE ACCELEROMETER LOCATIONS

No.	ID	Coordinates (mm)		
		X	Y	Z
1	Vehicle CG	2561	-8	-350
2	Right Sill at Front Seat	2585	708	-173
3	Right Sill at Rear Seat	1551	708	-183
4	Left Sill at Front Door	2608	-705	-166
5	Left Sill at Rear Door	1553	-706	-176
6	Left Lower A-Post	3122	-813	-479
7	Left Middle A-Post	3138	-807	-710
8	Left Lower B-Post	2036	-703	-509
9	Left Middle B-Post	2012	-688	-688
10	Front Seat Track	2212	-406	-231
11	Rear Seat Structure	1829	-342	-205
12	Rt. Rear Occ. Compartment	1827	345	-215
13	Engine Block	3846	-45	-783
14	Rear Above Axle	893	-1	-491

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: 2025 Toyota Corolla Hybrid LE 4-Door Sedan
Test Program: NCAP Side MDB Impact Test
NHTSA No.: M20255101
Test Date: 1/8/2025



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	1398

DATA SHEET NO. 8
POST-TEST OBSERVATIONS

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat Dummy (ES-2re)	Rear Seat Dummy (SID-IIs)
Face	Curtain Airbag	Curtain Airbag, Center Seatback
Top of Head	Curtain Airbag, Headliner	Curtain Airbag, Center Headrest
Left Side of Head	Curtain Airbag, Headliner	Curtain Airbag
Back of Head	Curtain Airbag, Headliner, Headrest	Curtain Airbag, Center Seatback/Headrest
Left Shoulder	None	Side Torso/Pelvis Airbag, Seatback
Upper Torso	Side Torso/Pelvis Airbag, Seatback	Seatback
Lower Torso	Side Torso/Pelvis Airbag, Seatback	Side Torso/Pelvis Airbag, Seatback
Left Hip	Side Torso/Pelvis Airbag	None
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	
Total Separation from Vehicle at Hinges or Latches	No	No	No	No	
Latch or Hinge Systems Pulled Out of Their Anchorages	No	No	No	No	
Disengaged from Latched Position	No	No	No	No	
Latch Separated from Striker	No	No	No	No	
Jammed Shut	Yes	Yes	No	No	
If Door Opened at Striker, Record Width of Opening at Striker (mm)					

POST-TEST SEAT PERFORMANCE

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

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No
Sill Separation	No
Windshield Damage	No
Side Window Damage	LF, LR windows broken
Other Notable Effects	None

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

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Struck Side Driver		Struck Side 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	Yes	Yes
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		2700
Vertical Impact Reference Line (Aft of Front Axle) (Intended Impact Point)	mm		410
Actual Impact Point (Aft of Front Axle)	mm		416
Horizontal Offset (+forward / -rearward)	mm	+/- 50 of intended impact point	-6
Vertical Offset (+down / -up)	mm	+/- 20 of intended impact point	1

DATA SHEET NO. 9
MDB SUMMARY OF RESULTS

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan
Test Program: NCAP Side MDB Impact Test
NHTSA No.: M20255101
Test Date: 1/8/2025

MDB SPECIFICATIONS

Measurement Description	Length (mm)
Overall Width of Framework Carriage	1250
Overall Length Including Honeycomb Face	4119
Wheelbase of Framework Carriage	2588
CG Location aft of Front Axle	1125

MDB WEIGHTS

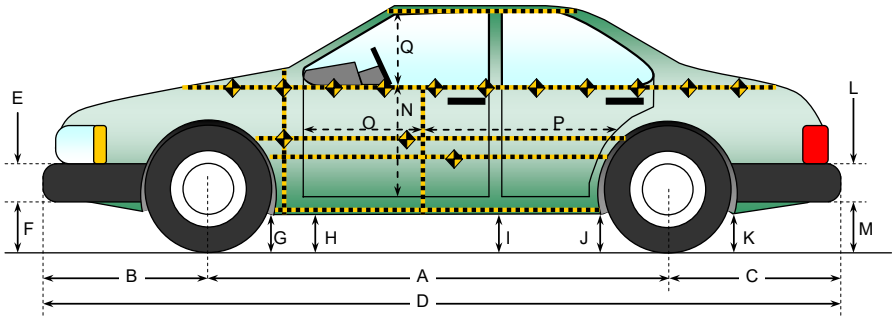
	Units	Front Axle	Rear Axle	Total
Left	kg	393.4	297.1	
Right	kg	378.0	295.8	
Ratio	%	56.5	43.5	
Totals	kg	771.4	592.9	1364.4

SPEED AND ANGLE AT IMPACT DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	62.17
Trap No. 2 Velocity (Redundant)	km/h	61.1 to 62.7	62.19
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.7
MDB Forward Line of Motion to Target Vehicle CL	degrees	62.5 to 63.5	62.9
MDB Crabbed Angle to MDB Forward Line of Motion	degrees	26 to 28	26.7

DATA SHEET NO. 10
TEST VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan
Test Program: NCAP Side MDB Impact Test
NHTSA No.: M20255101
Test Date: 1/8/2025



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

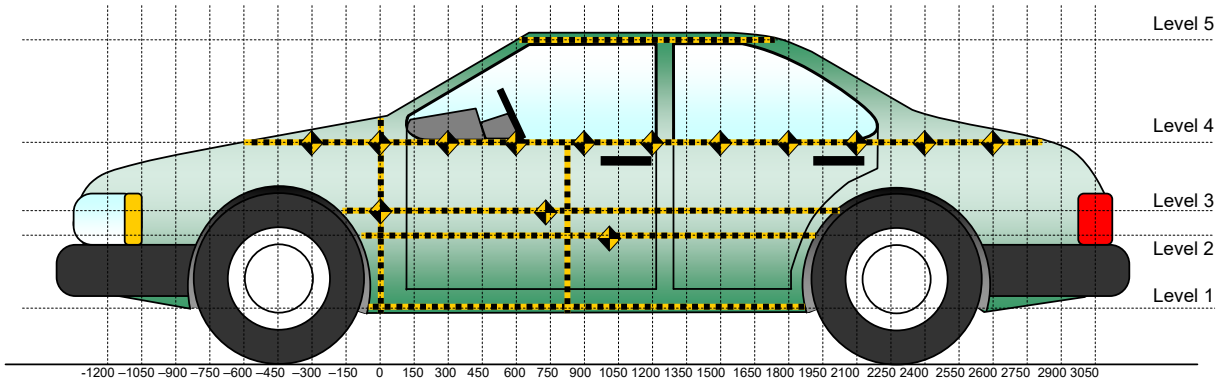
LEFT SIDE VIEW

VEHICLE PRE- AND POST-TEST MEASUREMENT INFORMATION

Code	Measurement Description	Pre-Test	Post-Test	Change
A	Wheelbase	2700	2692	-8
B	Front Axle to FSOV	930	933	3
C	Rear Axle to RSOV	944	946	2
D	Total Length at Centerline	4573	4571	-2
E	Front Bumper Thickness	93	93	0
F	Front Bumper Bottom to Ground	431	425	-6
G	Sill Height at Front Wheel Well	165	159	-6
H	Sill Height at Front Door Leading Edge	154	154	0
I	Sill Height at B Pillar	162	168	6
J1	Sill Height at Rear Wheel Well	147	147	0
J2	Pinch Weld Height at Rear Wheel Well	165	161	-4
K	Sill Height Aft of Rear Wheel Well	202	227	25
L	Rear Bumper Thickness	95	100	5
M	Rear Bumper Bottom to Ground	422	451	29
N	Sill Height to Window Bottom Sill	676	581	-95
O	Front Door Leading Edge to Impact CL	838	806	-32
P	Rear Door Trailing Edge to Impact CL	1050	989	-61
Q	Front Window Opening	410	431	21
R	Right Side Length	3830	3830	0
S	Left Side Length	3832	3824	-8
T	Vehicle Width at B Post	1774	1625	-149
U	Front Wheel Track Width	1527		
V	Rear Wheel Track Width	1513		

DATA SHEET NO. 11
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025



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	280	80	1050
2	Occupant H-Point	486	173	900
3	Mid Door	585	180	600
4	Window Sill	875	148	1650
5	Window Top	1352	8	1350

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

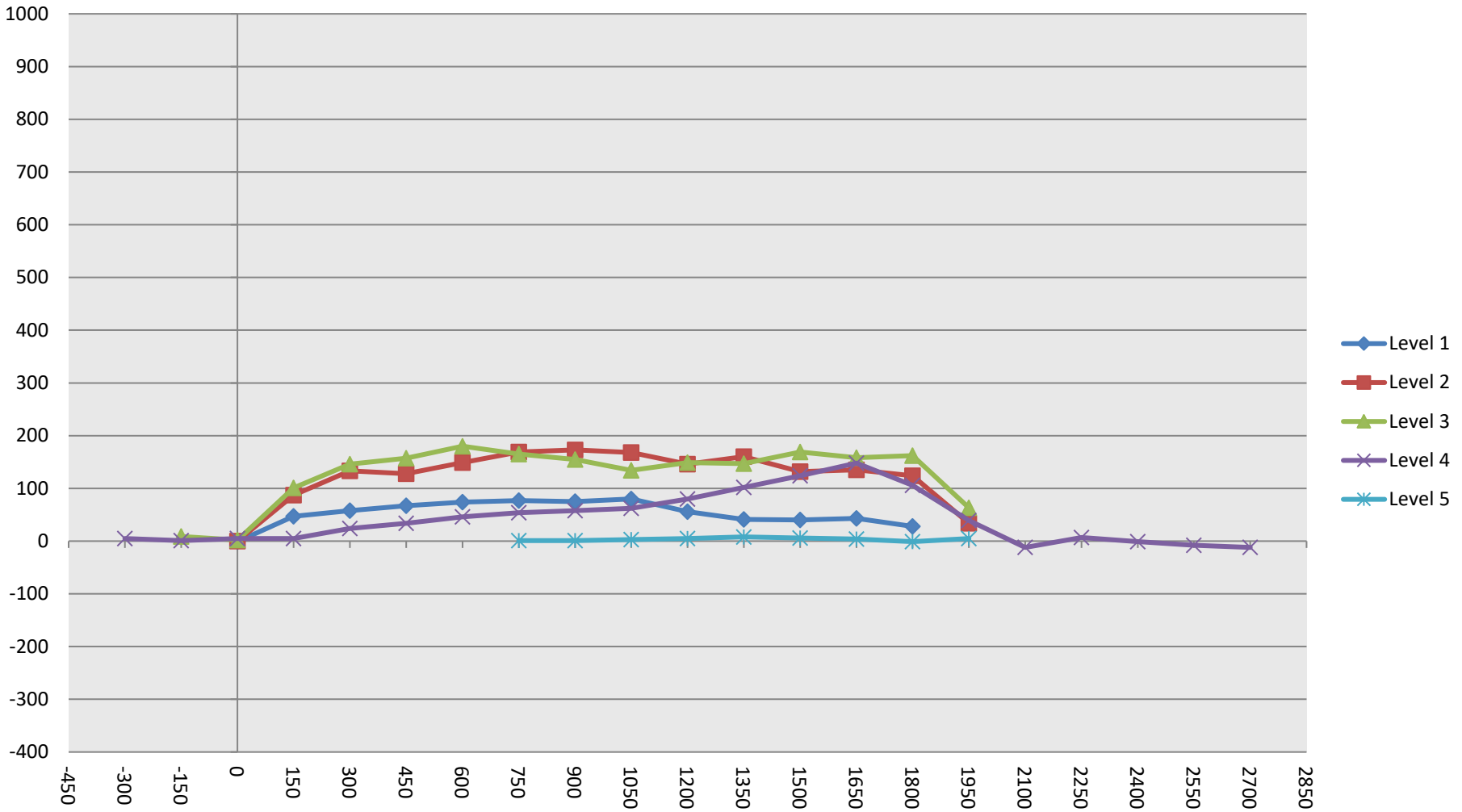
Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

	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				767					762					5	
-150			890	783				881	782				9	1	
0	875	887	885	793		876	887	883	788		-1	0	2	5	
150	864	882	885	799		817	795	784	794		47	87	101	5	
300	866	880	885	809		808	747	739	785		58	133	146	24	
450	871	878	886	823		804	750	729	789		67	128	157	34	
600	874	878	887	835		800	729	707	789		74	149	180	46	
750	875	878	888	846	553	798	709	723	792	552	77	169	165	54	1
900	873	878	889	853	572	798	705	734	795	571	75	173	155	58	1
1050	872	878	888	855	582	792	710	754	793	579	80	168	134	62	3
1200	868	877	887	856	585	812	731	738	776	580	56	146	149	80	5
1350	863	874	885	852	586	822	714	738	750	578	41	160	147	102	8
1500	859	871	881	846	584	819	739	712	722	578	40	132	169	124	6
1650	860	868	877	841	579	817	733	719	693	575	43	135	158	148	4
1800	861	870	874	836	565	833	746	712	730	566	28	124	162	106	-1
1950		885	882	814	536		851	819	775	531		34	63	39	5
2100				823					835					-12	
2250				814					807					7	
2400				805					806					-1	
2550				790					798					-8	
2700				775					787					-12	
2850															
3000															
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.

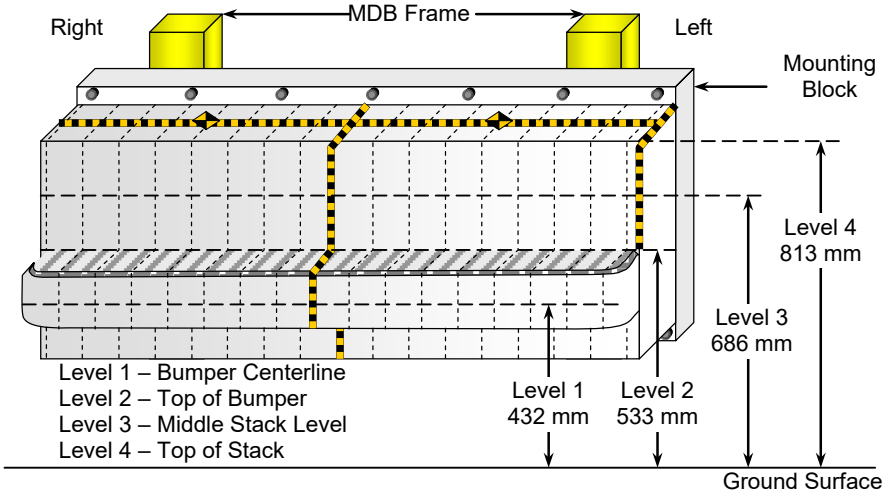
DATA SHEET NO. 11 (CONTINUED)
TEST VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025



DATA SHEET NO. 12
MDB EXTERIOR STATIC CRUSH MEASUREMENTS

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025



FRONT VIEW

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE

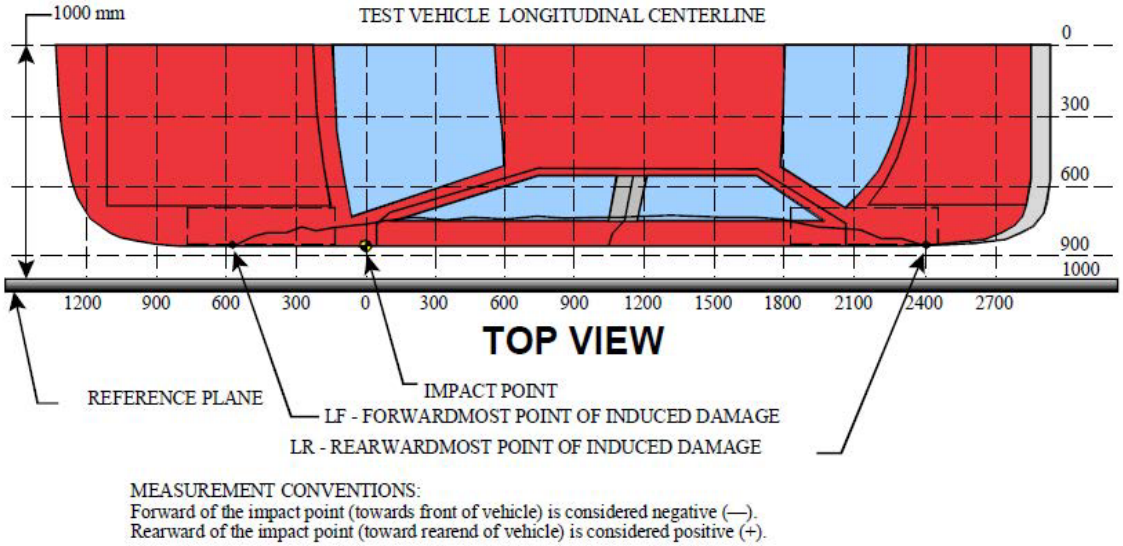
Vertical Location			From Centerline		Maximum Crush (mm)
Row	Description	Height (mm)	Distance (mm)	Direction	
A	Center of Bumper	432	800	Left	219
B	Top of Bumper	533	800	Left	145
C	Mid-Level	686	800	Left	117
D	Top of Stack	813	800	Left	153

DEFORMABLE BARRIER STATIC CRUSH

Stack Level	Distance Right of Center (mm)								C_L	Distance Left of Center (mm)							
	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
4	28	2	8	21	36	59	96	95	87	73	82	83	75	81	99	119	153
3	34	19	18	22	27	49	73	80	53	35	28	26	29	40	56	70	117
2	125	125	121	114	91	83	96	98	96	100	110	116	117	119	124	133	145
1	185	187	177	168	164	164	162	162	161	161	160	160	161	163	171	191	219

DATA SHEET NO. 13
VEHICLE AND MDB DAMAGE PROFILE DISTANCES

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan
NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test
Test Date: 1/8/2025



MEASUREMENT CONVENTIONS:
Forward of the impact point (towards front of vehicle) is considered negative (—).
Rearward of the impact point (toward rearend of vehicle) is considered positive (+).

VEHICLE DAMAGE PROFILE DISTANCES

DPD	Distance from Impact Point (mm)	Level	Post-Test (mm)	Pre-Test (mm)	Max. Static Crush (mm)
1	1950	3	181	118	63
2	1466	3	282	118	164
3	1062	3	240	112	128
4	653	3	294	113	181
5	233	3	252	115	137
6	-150	3	119	110	9

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	661	476	185
2	480 mm right of center	1	637	463	174
3	160 mm right of center	1	621	463	158
4	160 mm left of center	1	614	463	151
5	480 mm left of center	1	640	463	177
6	800 mm left of center	1	695	476	219

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

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan
NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test
Test Date: 1/8/2025

Test Time: 11:20 am
Temperature: 21.5°C

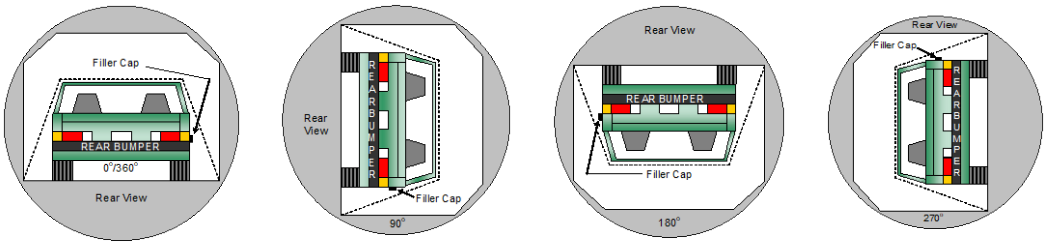
A. From impact until vehicle motion ceases: (Maximum Allowable = 1 ounce) 0.0 oz.

B. For the 5 minute period after motion ceases: (Maximum Allowable = 5 ounces) 0.0 oz.

C. For the following 25 minutes: (Maximum Allowable = 1 ounce / minute) None

D. Spillage Details: None

FMVSS 301 STATIC ROLLOVER DATA



0°/360° 90° 180° 270°

ROLLOVER SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	111	300	411
90° to 180°	111	300	411
180° to 270°	107	300	407
270° to 360°	110	300	410

FMVSS 301 ROLLOVER SPILLAGE TABLE (UNITS IN OUNCES)

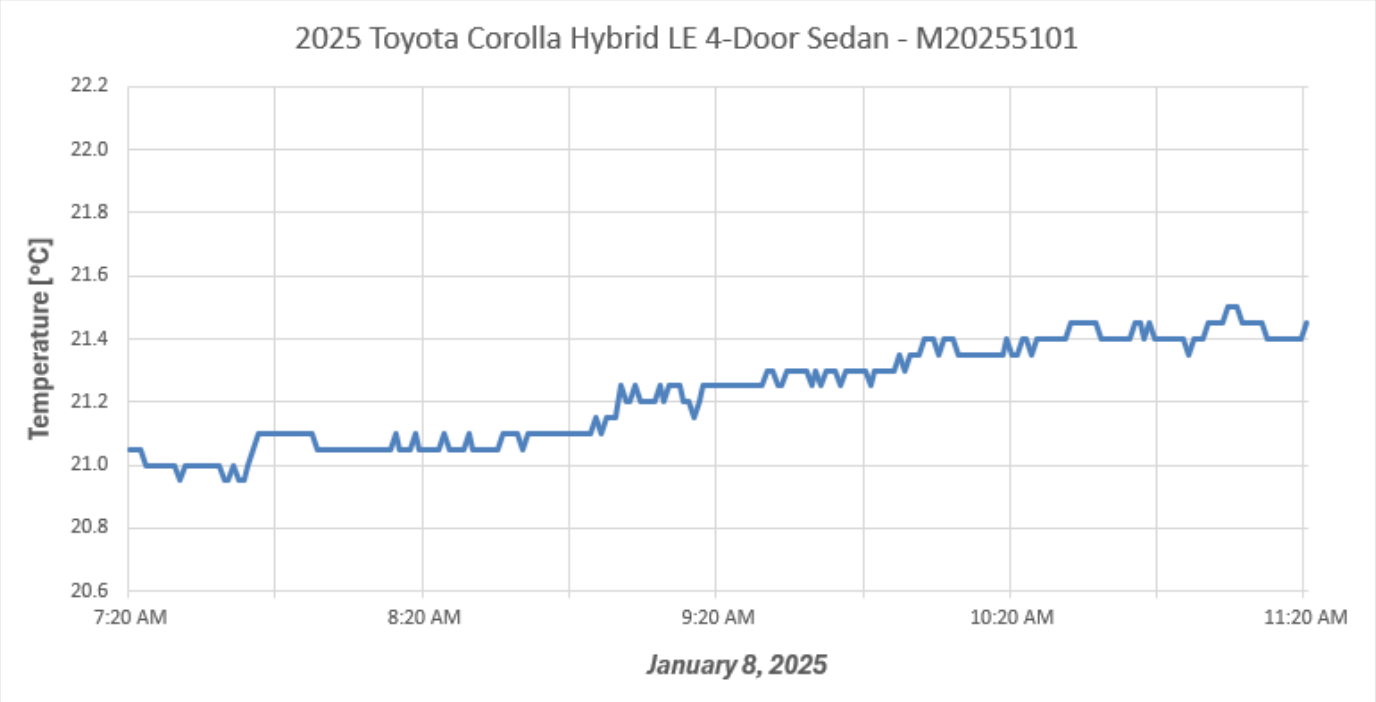
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0° to 90°	0.0	0.0	0.0	
90° to 180°	0.0	0.0	0.0	
180° to 270°	0.0	0.0	0.0	
270° to 360°	0.0	0.0	0.0	

ROLLOVER SOLVENT SPILLAGE LOCATION TABLE

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

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

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025



Serial #	Description	Maximum	Average	Minimum	Units
W2425691	VSC North Hall - Temp (3016)	21.50	21.23	20.95	°C

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

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

ELECTRIC VEHICLE PROPULSION SYSTEM

	Units	Observations and Conclusions
Type of Electric Vehicle		Gas-Electric Hybrid
Propulsion Battery Type		Li-ION
Nominal Voltage	V	207.2
Physical Location of Automatic Propulsion Battery Disconnect		Inside of the traction battery
Auxiliary Battery Type		LN1

PROPULSION BATTERY SYSTEM DATA

	Units		Observations and Conclusions
Electrolyte Fluid Type			Flammable liquid
Electrolyte Fluid Specific Gravity	g/L		1.232
Electrolyte Fluid Kinematic Viscosity	cSt		3.6
Electrolyte Fluid Color			Clear
Propulsion Battery Coolant Type, Color, Specific Gravity (if applicable)			Air-Cooled
Location of Battery Modules		X	Inside Passenger Compartment
			Outside Passenger Compartment
			The high-voltage battery is located below the 2nd row seat cushion.

PROPULSION BATTERY STATE OF CHARGE

For all battery types:	
Voltage range corresponding to **useable energy** of the battery:	
Minimum State of Charge	
Maximum State of Charge	
95% of Maximum State of Charge	
Test Voltage - No less than 95% of maximum State of Charge	
For batteries that are rechargeable ONLY by an energy source on the vehicle:	
Voltage range corresponding to **useable energy** of the battery:	
Minimum State of Charge	151.2 V
Maximum State of Charge	233.8 V
Test Voltage – Maximum practicable State of Charge within Normal Operating Range	211.8 V

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

Test Vehicle:	2025 Toyota Corolla Hybrid LE 4-Door Sedan	NHTSA No.:	M20255101
Test Program:	NCAP Side MDB Impact Test	Test Date:	1/8/2025

VEHICLE CHASSIS GROUND POINT(S) LOCATION(S)

Details of Vehicle Chassis Ground Point(s) & Location(s)	Traction battery case mount

PROPULSION BATTERY SYSTEM

Details of Electric Energy Storage/Conversion System Test Points	Connected at + and – terminal ends of propulsion system
Additional Comments	None

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

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

VOLTMETER INFORMATION

	Units	Observations and Conclusions
Make		
Model		
Serial Number		
Internal Impedance Value	MΩ	
Resolution	V	
Last Calibration Date		

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	

ELECTRIC ISOLATION MEASUREMENTS
PROPULSION BATTERY TO VEHICLE CHASSIS

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

V1	V	
V2	V	

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	

V1' Pre-Impact	V	
V2' Pre-Impact	V	

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

Test Vehicle:	2025 Toyota Corolla Hybrid LE 4-Door Sedan	NHTSA No.:	M20255101
Test Program:	NCAP Side MDB Impact Test	Test Date:	1/8/2025

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.

Ri1 = Ro (1 + V2/V1) [(V1-V1’)/V1’]		
Ri1 Pre-Impact	Ω	
Ri2 = Ro (1 + V1/V2) [(V2-V2’)/V2’]		
Ri2 Pre-Impact	Ω	
Ri = The lesser of Ri1 and Ri2		
Ri Pre-Impact	Ω	
Ri / Vb = Electrical Isolation Value / Nominal Battery Voltage		
Ri / Vb Pre-Impact	Ω	

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

	Yes	No (Fail)
Is the measured Electrical Isolation Value ≥ 500 Ω/V?		
Additional Comments	Not Applicable, vehicle was certified to FMVSS No. 305 S5.3(c).	

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

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

VOLTMETER INFORMATION

	Units	Observations and Conclusions
Make		
Model		
Serial Number		
Internal Impedance Value	MΩ	
Resolution	V	
Last Calibration Date		

ELECTRICAL ISOLATION MEASUREMENTS

Vb Post-Impact	V	

V1 Post-Impact	V		Impact Time		Minutes		Seconds
V2 Post-Impact	V				Minutes		Seconds
V1' Post-Impact	V				Minutes		Seconds
V2' Post-Impact	V				Minutes		Seconds

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

Test Vehicle:	2025 Toyota Corolla Hybrid LE 4-Door Sedan	NHTSA No.:	M20255101
Test Program:	NCAP Side MDB Impact Test	Test Date:	1/8/2025

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.

Ri1 = Ro (1 + V2/V1) [(V1-V1')/V1']							
Ri1 Post-Impact	Ω		Impact Time		Minutes		Seconds
Ri2 = Ro (1 + V1/V2) [(V2-V2')/V2']							
Ri2 Post-Impact	Ω		Impact Time		Minutes		Seconds
Ri = The lesser of Ri1 and Ri2							
Ri Post-Impact	Ω		Impact Time		Minutes		Seconds
Ri / Vb = Electrical Isolation Value / Nominal Battery Voltage							
Ri / Vb Post-Impact	Ω/V		Impact Time		Minutes		Seconds

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

	Yes	No (Fail)
Is the measured Electrical Isolation Value ≥ 500 Ω/V?		
Additional Comments	Not Applicable, vehicle was certified to FMVSS No. 305 S5.3(c).	

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

Test Vehicle:	2025 Toyota Corolla Hybrid LE 4-Door Sedan	NHTSA No.:	M20255101
Test Program:	NCAP Side MDB Impact Test	Test Date:	1/8/2025

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

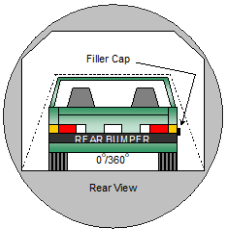
	Yes (Fail)	No
Has an outside Propulsion Battery Component intruded into the passenger compartment?		X

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

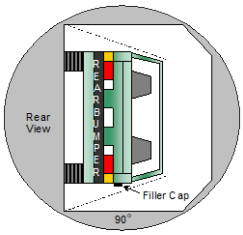
DATA SHEET NO. 305-5
STATIC ROLLOVER TEST DATA
FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

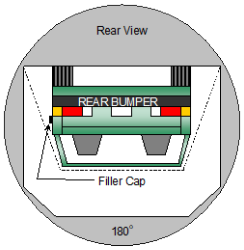
PROPULSION BATTERY SYSTEM COMPONENTS



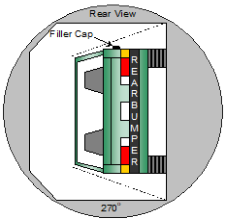
0°/360°



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	51	sec	5	min	6	min	51	sec	7	min
90° - 180°	1	min	51	sec	5	min	6	min	51	sec	7	min
180° - 270°	1	min	47	sec	5	min	6	min	47	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: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

VOLTMETER INFORMATION

	Units	Observations and Conclusions
Make		
Model		
Serial Number		
Internal Impedance Value	MΩ	
Resolution	V	
Last Calibration Date		

ELECTRICAL ISOLATION MEASUREMENTS

Vb Post-Impact	V	

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		V	0°		min		sec
			90°				
			180°				
			270°				
			360°				
V2		V	0°		min		sec
			90°				
			180°				
			270°				
			360°				
V1'		V	0°		min		sec
			90°				
			180°				
			270°				
			360°				
V2'		V	0°		min		sec
			90°				
			180°				
			270°				
			360°				

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

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

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		Ω	0°		min		sec
			90°				
			180°				
			270°				
			360°				
Ri2 = Ro (1 + V1/V2) [(V2-V2')/V2']							
Ri2		Ω	0°		min		sec
			90°				
			180°				
			270°				
			360°				
Ri = The lesser of Ri1 and Ri2							
Ri		Ω	0°		min		sec
			90°				
			180°				
			270°				
			360°				
Ri / Vb = Electrical Isolation Value / Nominal Battery Voltage							
Ri / Vb		Ω/V	0°		min		sec
			90°				
			180°				
			270°				
			360°				

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

	Yes	No (Fail)
Is the measured Electrical Isolation Value ≥ 500 Ω/V?		
Additional Comments	Not Applicable, vehicle was certified to FMVSS No. 305 S5.3(c).	

DATA SHEET NO. 305A-1
EVALUATE PROTECTION FROM DIRECT CONTACT WITH HIGH VOLTAGES SOURCES FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

For each data point where the IPXXB probe is used to evaluate electrical protection from direct contact with high voltage sources, provide a thumbnail photo and be as descriptive of the locations as possible. If an apparent failure is detected, include a photograph showing the direct contact between probe and the high voltage source and/or the probe lamp being illuminated.

POST-CRASH / PRE-ROLLOVER

Description of Evaluated Location	Probe Contact with High Voltage Source		Probe Lamp Illuminated	
	Yes, Fail	No, Pass	Yes, Fail	No, Pass
High-Voltage Battery to Electrical Ground		X		X
Inverter to Electrical Ground		X		X
High-Voltage Battery to Inverter		X		X

STATIC ROLLOVER

Description of Evaluated Location	Probe Contact with High Voltage Source		Probe Lamp Illuminated	
	Yes, Fail	No, Pass	Yes, Fail	No, Pass
High-Voltage Battery to Electrical Ground		X		X
Inverter to Electrical Ground		X		X
High-Voltage Battery to Inverter		X		X

POST-ROLLOVER

Description of Evaluated Location	Probe Contact with High Voltage Source		Probe Lamp Illuminated	
	Yes, Fail	No, Pass	Yes, Fail	No, Pass
High-Voltage Battery to Electrical Ground		X		X
Inverter to Electrical Ground		X		X
High-Voltage Battery to Inverter		X		X

DATA SHEET NO. 305A-2
EVALUATE PROTECTION AGAINST INDIRECT CONTACT WITH HIGH VOLTAGE SOURCES USING A RESISTANCE TESTER OR DC POWER SUPPLY, VOLTMETER AND AMMETER FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

For any measuring points where protection against indirect contact with high voltage sources is evaluated, provide a thumbnail photo and be as descriptive of the locations as possible. If an apparent failure is detected, include a photograph showing the locations in question and the related measured values. If the resistance is calculated using separately measured resistances, describe each measurement and the final calculation as separate entries in the table below.

Measuring Path	Pass	Fail
BC: *Between exposed conductive parts of the electrical protection barrier of the high voltage source and the electrical chassis.*	< 0.1 Ω	≥ 0.1 Ω
BB: *Between exposed conductive parts of the electrical protection barrier of the high voltage source and any other simultaneously reachable exposed conductive parts of the electrical protection barriers within 2.5 meters.*	< 0.2 Ω	≥ 0.2 Ω

POST-CRASH / PRE-ROLLOVER

Description of Evaluated Location	Measuring Path	Method 2 ONLY		Methods 1 & 2	Pass *or* Fail
	BC *or* **BB**	**Voltage** (V) Volts	**Current** (I) Amps	**Resistance** (R=V/I) Ω	
High-Voltage Battery to Electrical Ground	BC			0.0000	Pass
Inverter to Electrical Ground	BC			0.0013	Pass
High-Voltage Battery to Inverter	BB			0.0000	Pass

STATIC ROLLOVER

Description of Evaluated Location	Measuring Path	Method 2 ONLY		Methods 1 & 2	Pass *or* Fail
	BC *or* **BB**	**Voltage** (V) Volts	**Current** (I) Amps	**Resistance** (R=V/I) Ω	
High-Voltage Battery to Electrical Ground	BC			0.0061	Pass
Inverter to Electrical Ground	BC			0.0000	Pass
High-Voltage Battery to Inverter	BB			0.0000	Pass

* Final resistance values reported after subtracting the resistance of the measurement device extensions.

DATA SHEET NO. 305A-2 (CONTINUED)
EVALUATE PROTECTION AGAINST INDIRECT CONTACT WITH HIGH VOLTAGE SOURCES USING A RESISTANCE TESTER OR DC POWER SUPPLY, VOLTMETER AND AMMETER FOR INDICANT FMVSS NO. 305 TESTING

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

For any measuring points where protection against indirect contact with high voltage sources is evaluated, provide a thumbnail photo and be as descriptive of the locations as possible. If an apparent failure is detected, include a photograph showing the locations in question and the related measured values. If the resistance is calculated using separately measured resistances, describe each measurement and the final calculation as separate entries in the table below.

Measuring Path	Pass	Fail
BC: *Between exposed conductive parts of the electrical protection barrier of the high voltage source and the electrical chassis.*	< 0.1 Ω	≥ 0.1 Ω
BB: *Between exposed conductive parts of the electrical protection barrier of the high voltage source and any other simultaneously reachable exposed conductive parts of the electrical protection barriers within 2.5 meters.*	< 0.2 Ω	≥ 0.2 Ω

POST-ROLLOVER

Description of Evaluated Location	Measuring Path	Method 2 ONLY		Methods 1 & 2	Pass *or* Fail
	BC *or* **BB**	**Voltage** (V) Volts	**Current** (I) Amps	**Resistance** (R=V/I) Ω	
High-Voltage Battery to Electrical Ground	BC			0.0000	Pass
Inverter to Electrical Ground	BC			0.0000	Pass
High-Voltage Battery to Inverter	BB			0.0000	Pass

* Final resistance values reported after subtracting the resistance of the measurement device extensions.

DATA SHEET NO. 305A-3
DETERMINE VOLTAGE BETWEEN EXPOSED CONDUCTIVE PARTS OF ELECTRICAL PROTECTION BARRIERS AND THE ELECTRICAL CHASSIS AND BETWEEN EXPOSED PARTS OF ELECTRICAL PROTECTION BARRIERS

Test Vehicle: 2025 Toyota Corolla Hybrid LE 4-Door Sedan NHTSA No.: M20255101
Test Program: NCAP Side MDB Impact Test Test Date: 1/8/2025

For each data point where the voltage between exposed conductive parts of electrical protection barriers and the electrical chassis and between exposed conductive parts of electrical protection barriers is determined, provide a thumbnail photo and be as descriptive of the locations as possible. If an apparent failure is detected, include a photograph showing the locations in question and the related measured values.

Measuring Path	Pass	Fail
BC: *Between exposed conductive parts of the electrical protection barrier of the high voltage source and the electrical chassis.*	≤ 30 VAC ≤ 60 VDC	> 30 VAC > 60 VDC
BB: *Between exposed conductive parts of the electrical protection barrier of the high voltage source and any other simultaneously reachable exposed conductive parts of the electrical protection barriers within 2.5 meters.*	≤ 30 VAC ≤ 60 VDC	> 30 VAC > 60 VDC

POST-CRASH / PRE-ROLLOVER

Description of Evaluated Location	Measuring Path	Measured Voltage		Pass *or* Fail
	BC *or* **BB**	**VAC** (V) Volts	**VDC** (V) Volts	
High-Voltage Battery to Electrical Ground	BC	0.0	0.0	Pass
Inverter to Electrical Ground	BC	0.0	0.0	Pass
High-Voltage Battery to Inverter	BB	0.0	0.0	Pass

STATIC ROLLOVER

Description of Evaluated Location	Measuring Path	Measured Voltage		Pass *or* Fail
	BC *or* **BB**	**VAC** (V) Volts	**VDC** (V) Volts	
High-Voltage Battery to Electrical Ground	BC	0.0	0.0	Pass
Inverter to Electrical Ground	BC	0.0	0.0	Pass
High-Voltage Battery to Inverter	BB	0.0	0.0	Pass

POST-ROLLOVER

Description of Evaluated Location	Measuring Path	Measured Voltage		Pass *or* Fail
	BC *or* **BB**	**VAC** (V) Volts	**VDC** (V) Volts	
High-Voltage Battery to Electrical Ground	BC	0.0	0.0	Pass
Inverter to Electrical Ground	BC	0.0	0.0	Pass
High-Voltage Battery to Inverter	BB	0.0	0.0	Pass

APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

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

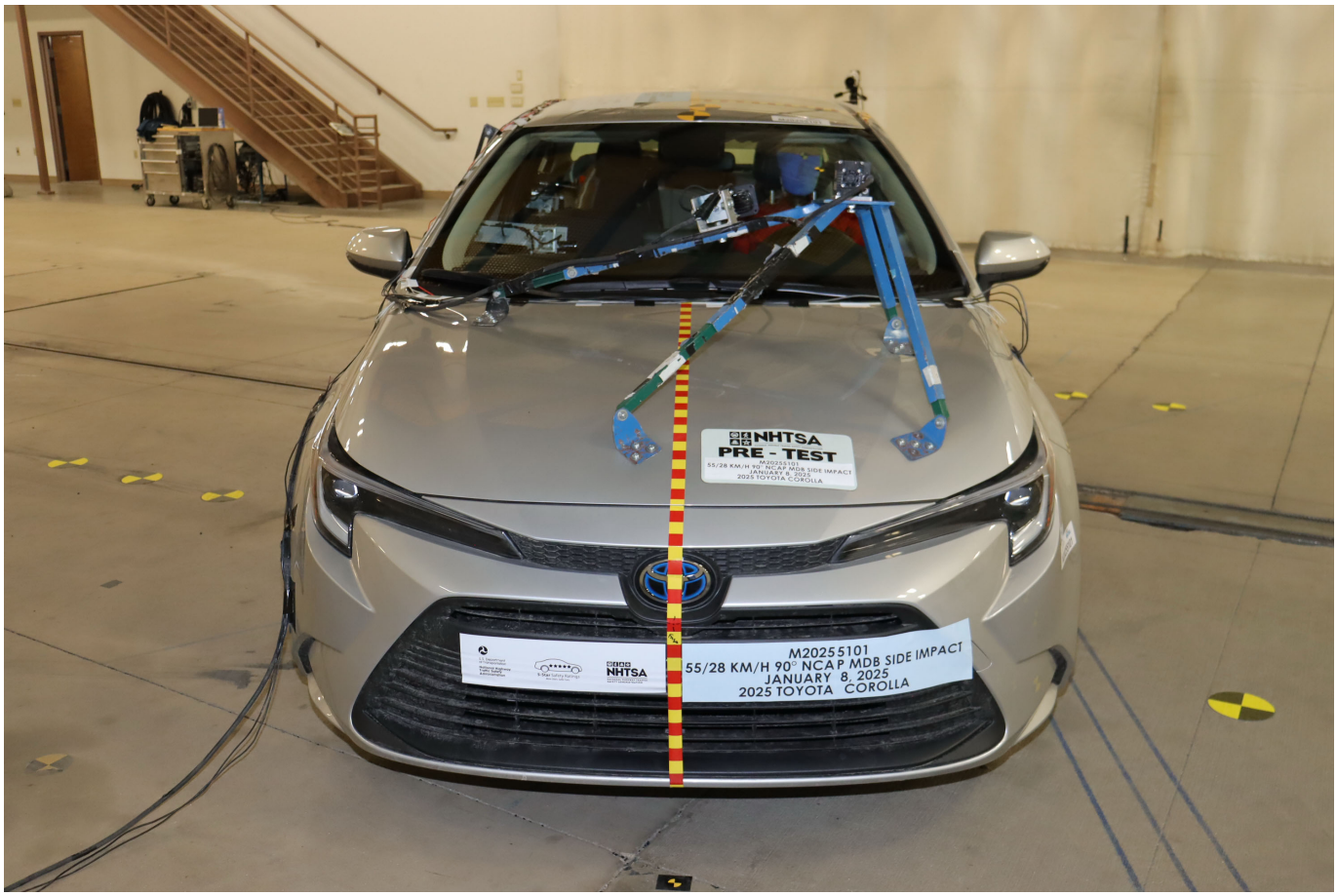


Photo No. 003 - Pre-Test Frontal View of Test Vehicle

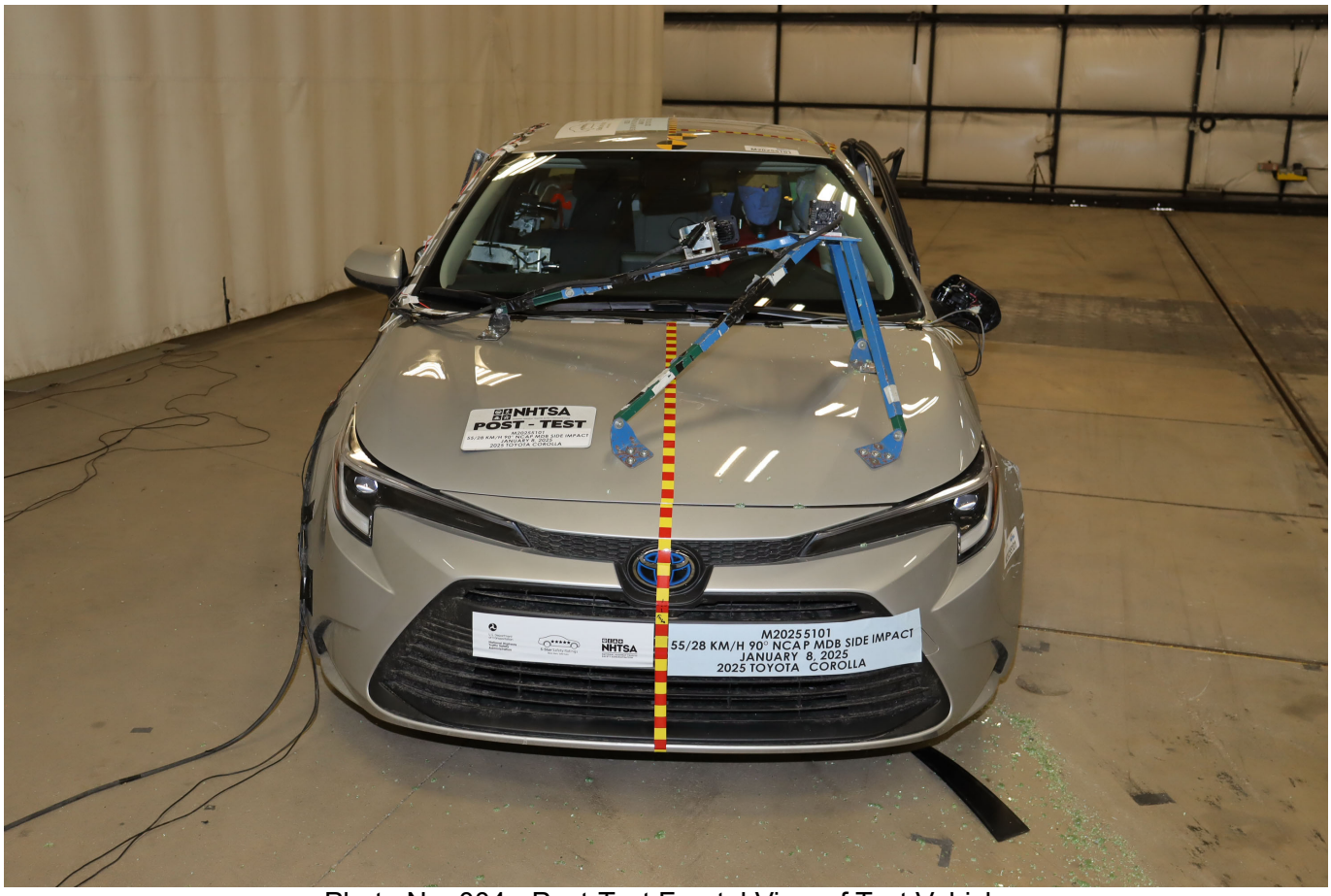


Photo No. 004 - Post-Test Frontal View of Test Vehicle

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

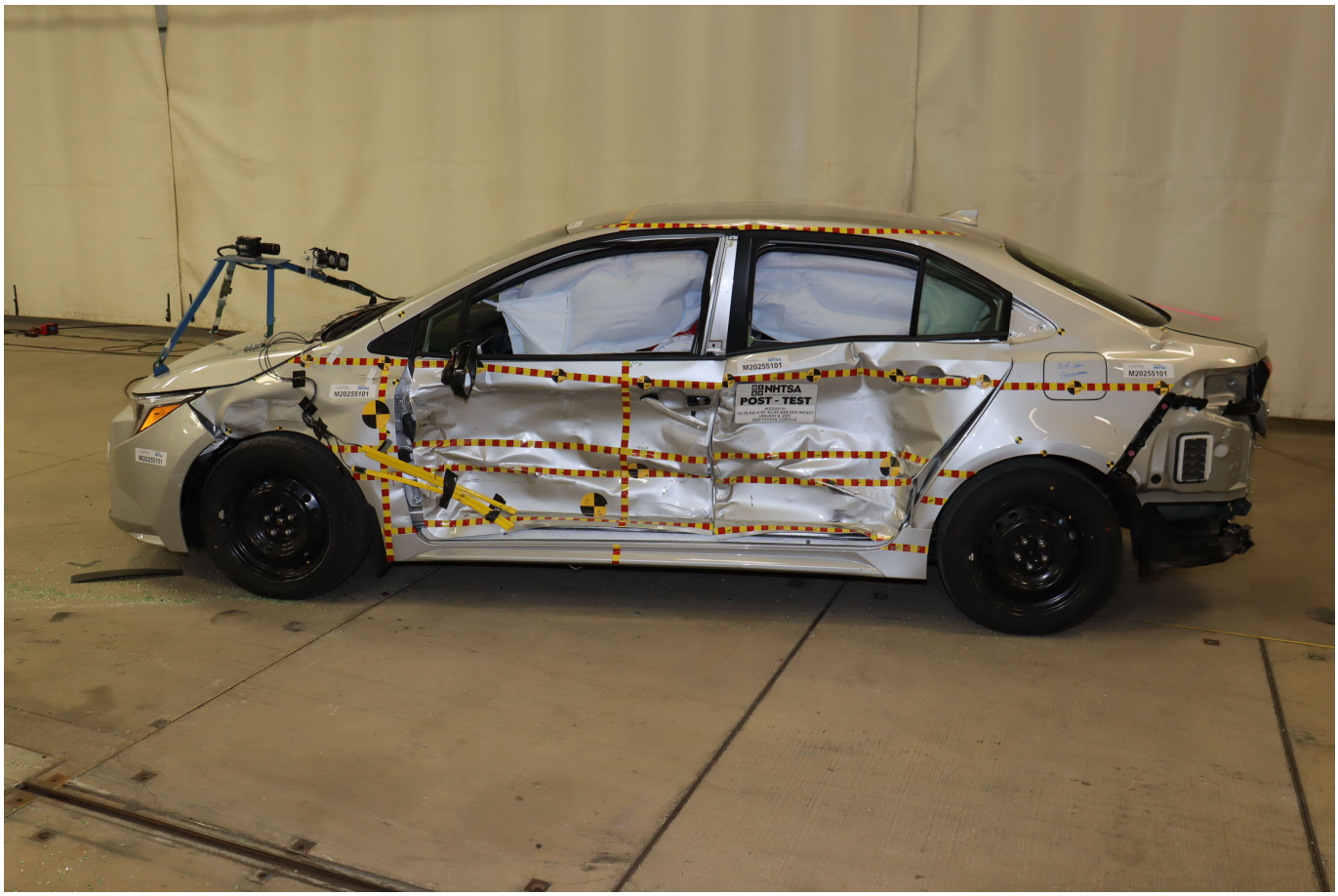


Photo No. 008 - Post-Test Left Side View of Test Vehicle

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

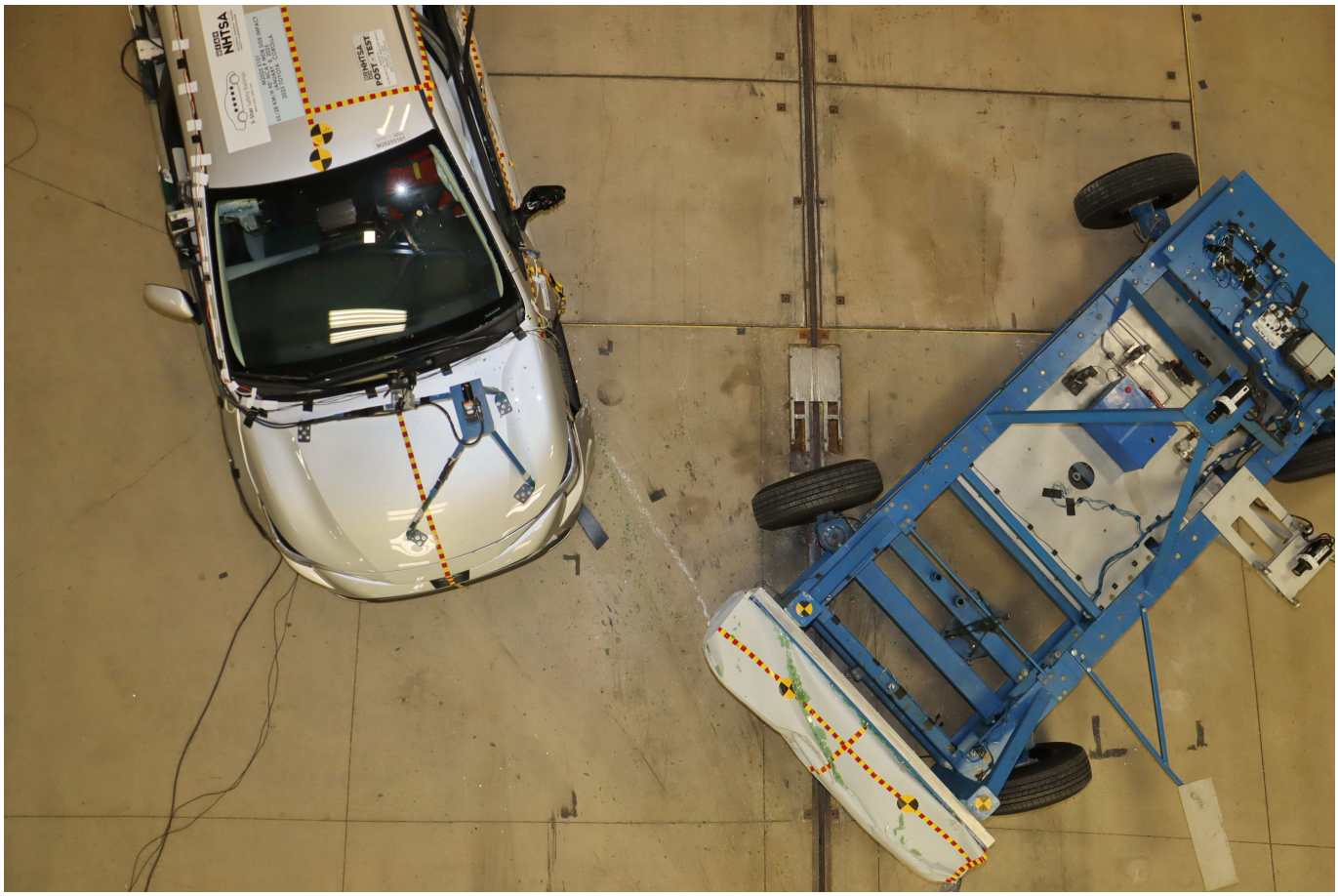


Photo No. 016 - Post-Test Overhead View of Test Area

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

PHOTOGRAPH NOT APPLICABLE

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

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

PHOTOGRAPH NOT APPLICABLE

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

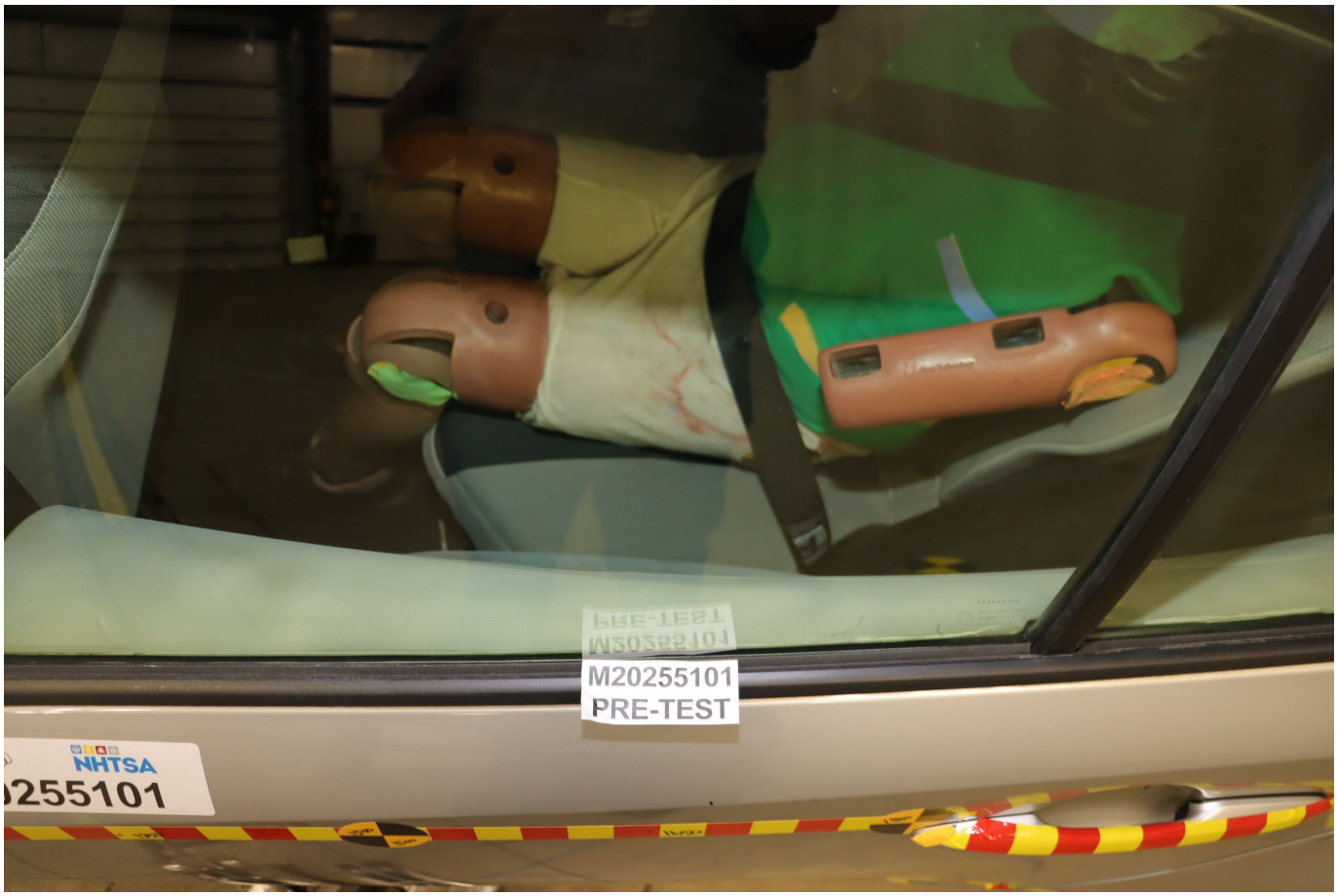


Photo No. 069 - Pre-Test Rear Passenger Dummy and Door Clearance View

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

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

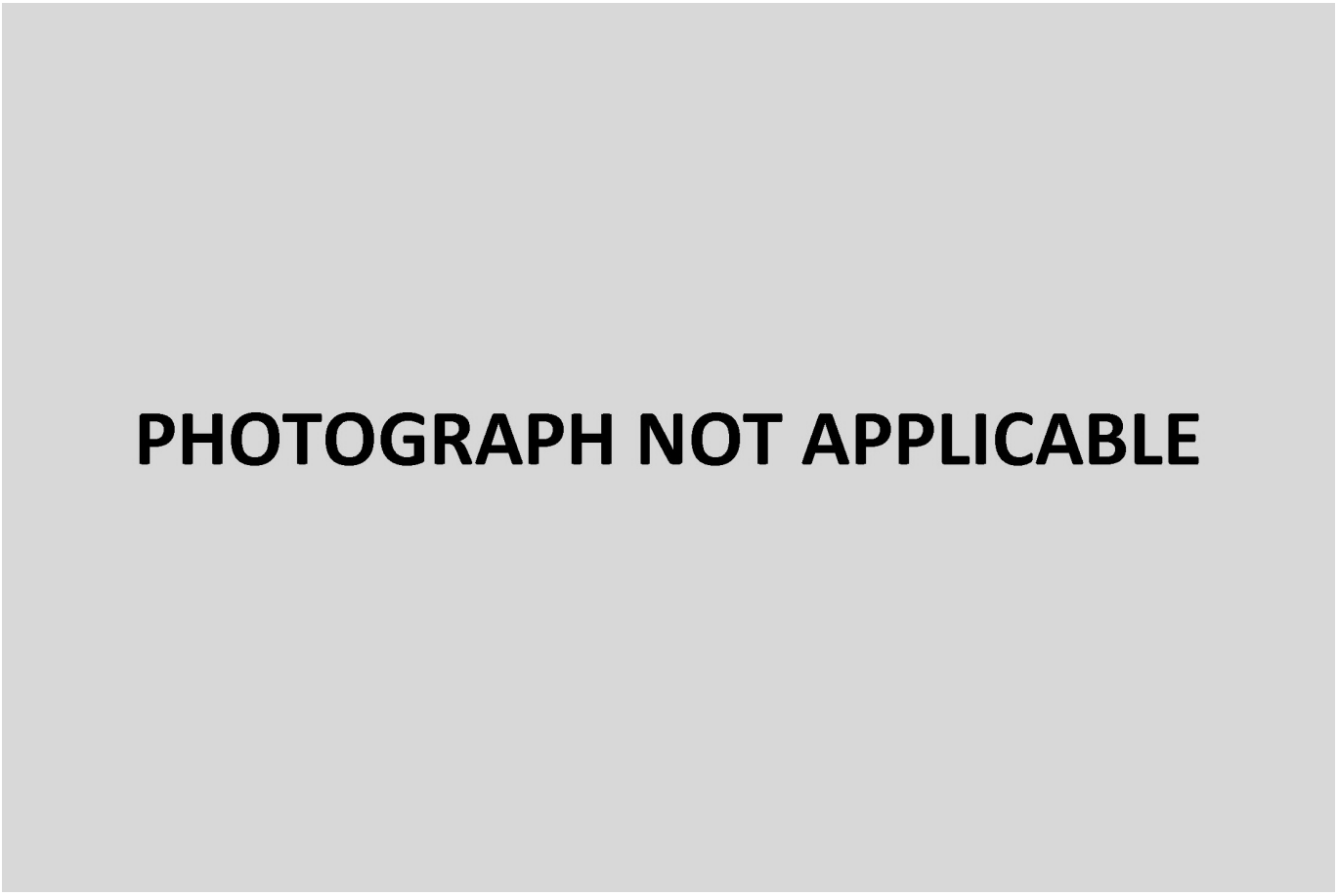


Photo No. 079 - Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Vehicle Interior View

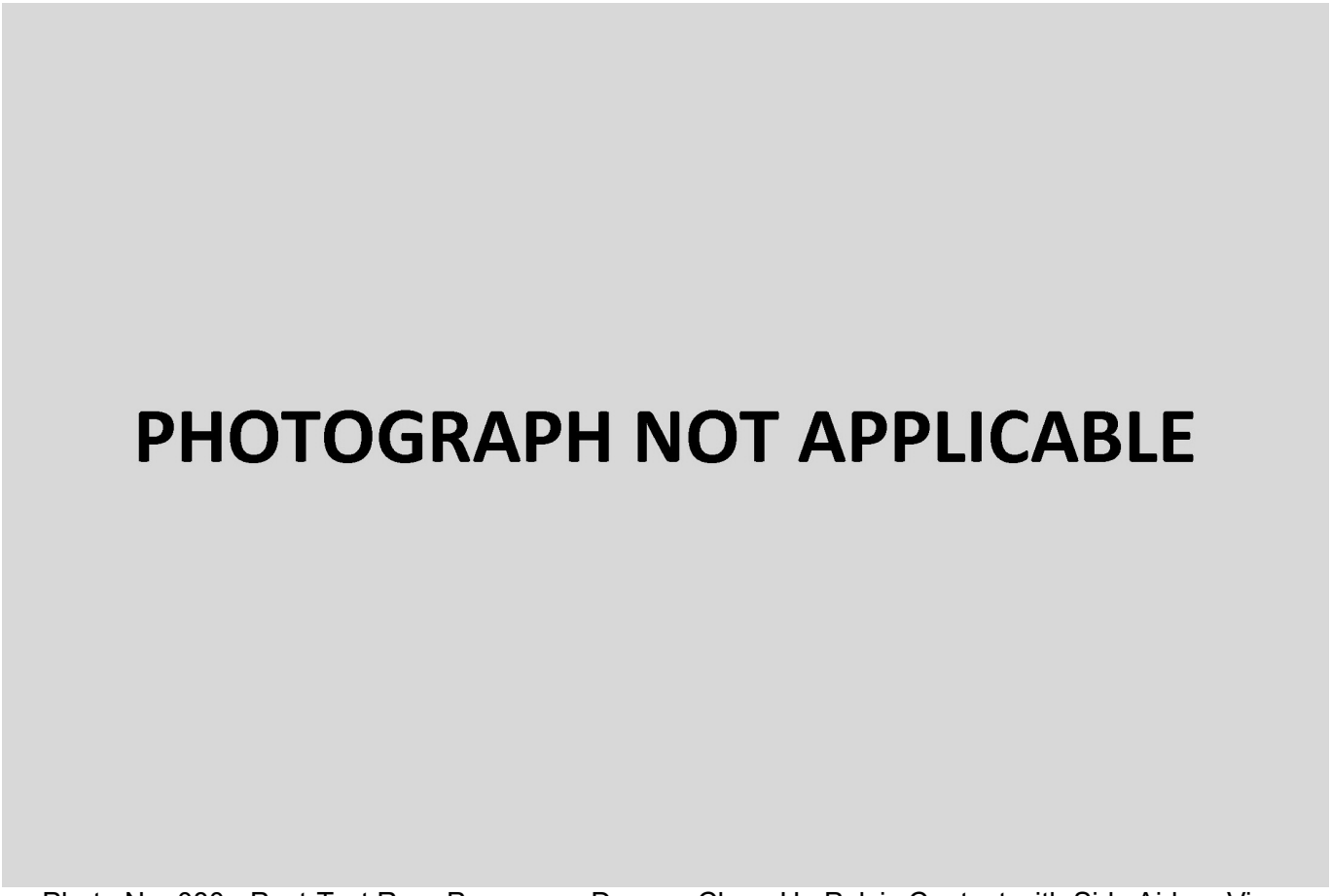


Photo No. 080 - Post-Test Rear Passenger Dummy Close-Up Pelvis Contact with Side Airbag View

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

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

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

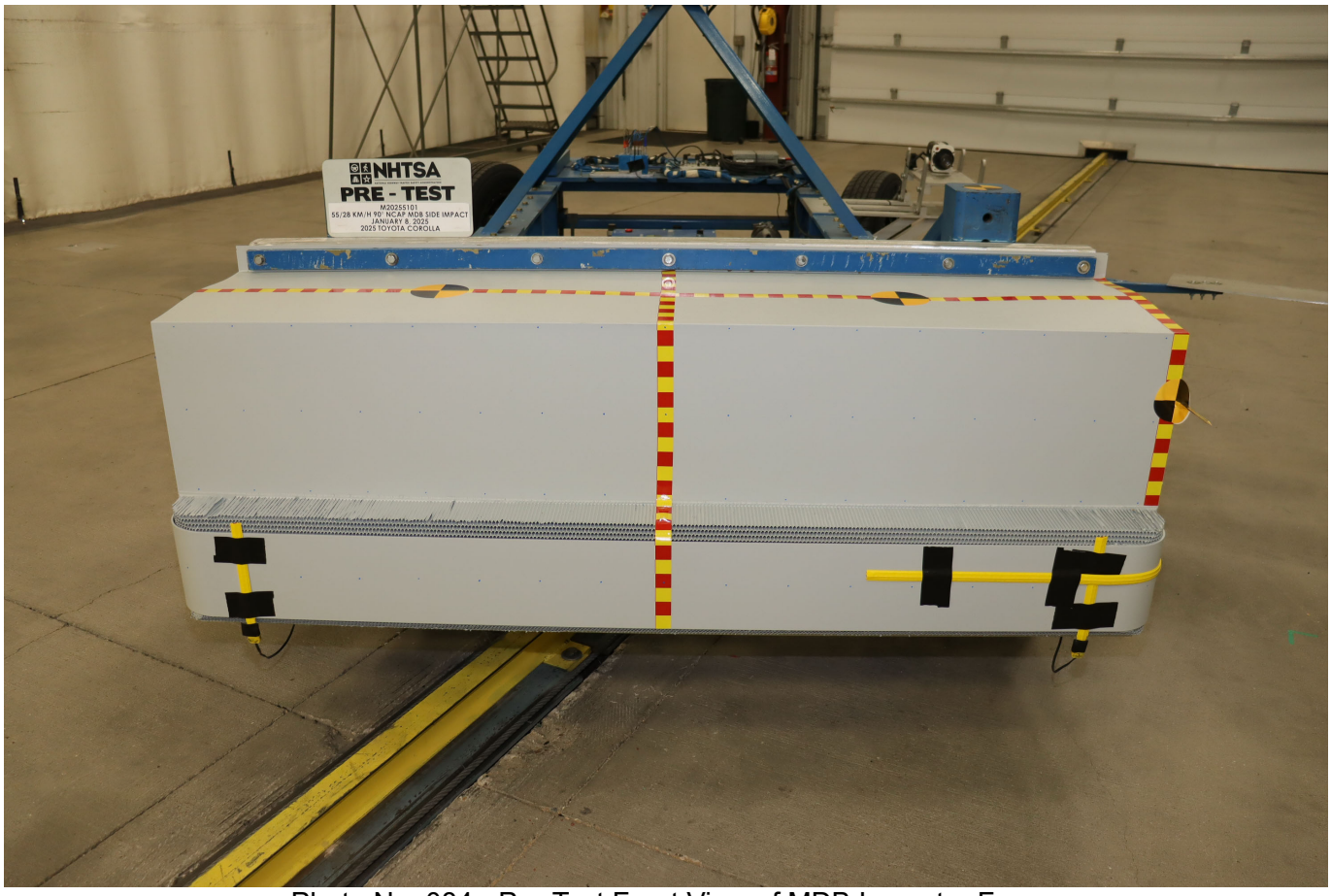


Photo No. 084 - Pre-Test Front View of MDB Impactor Face

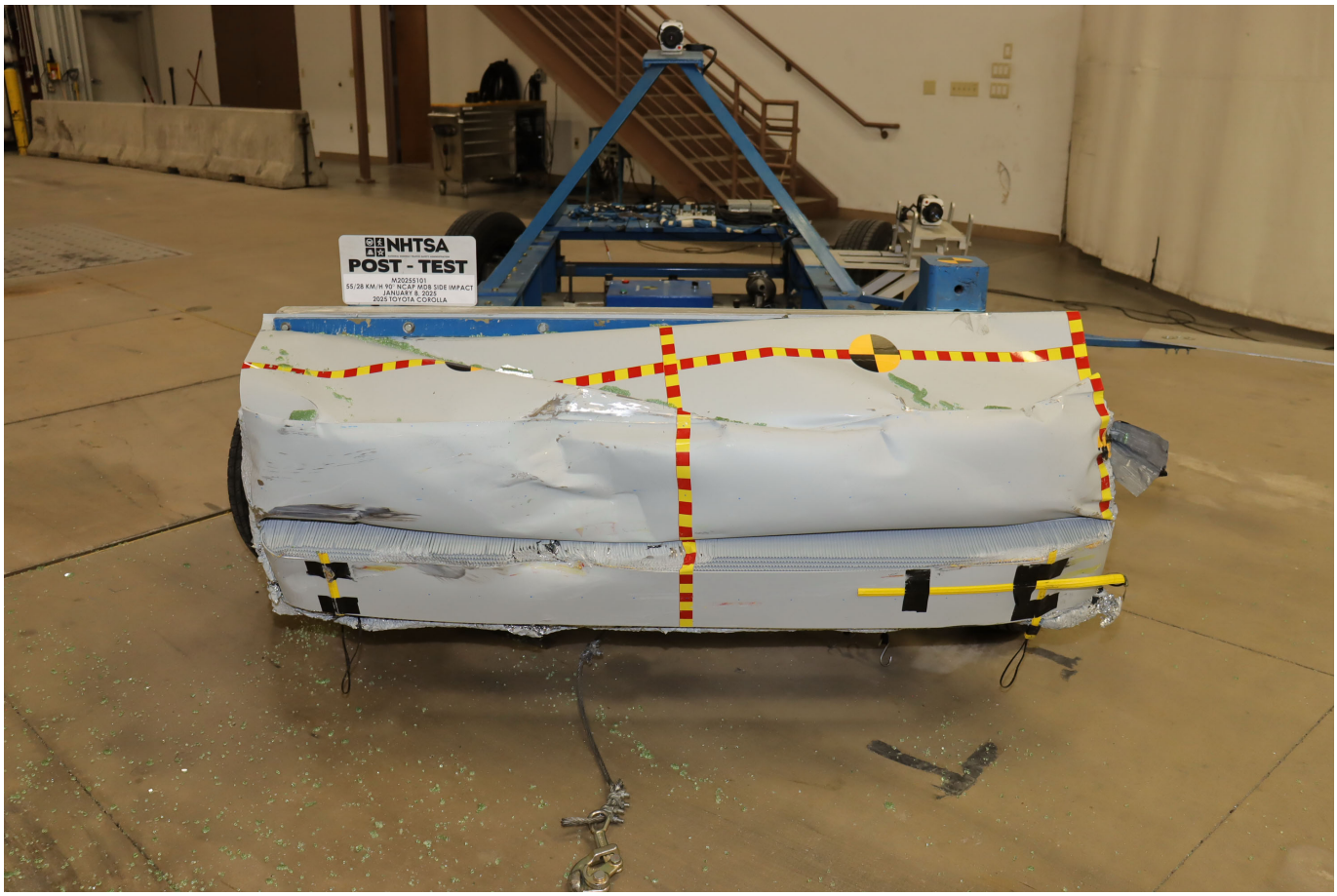


Photo No. 085 - Post-Test Front View of MDB Impactor Face

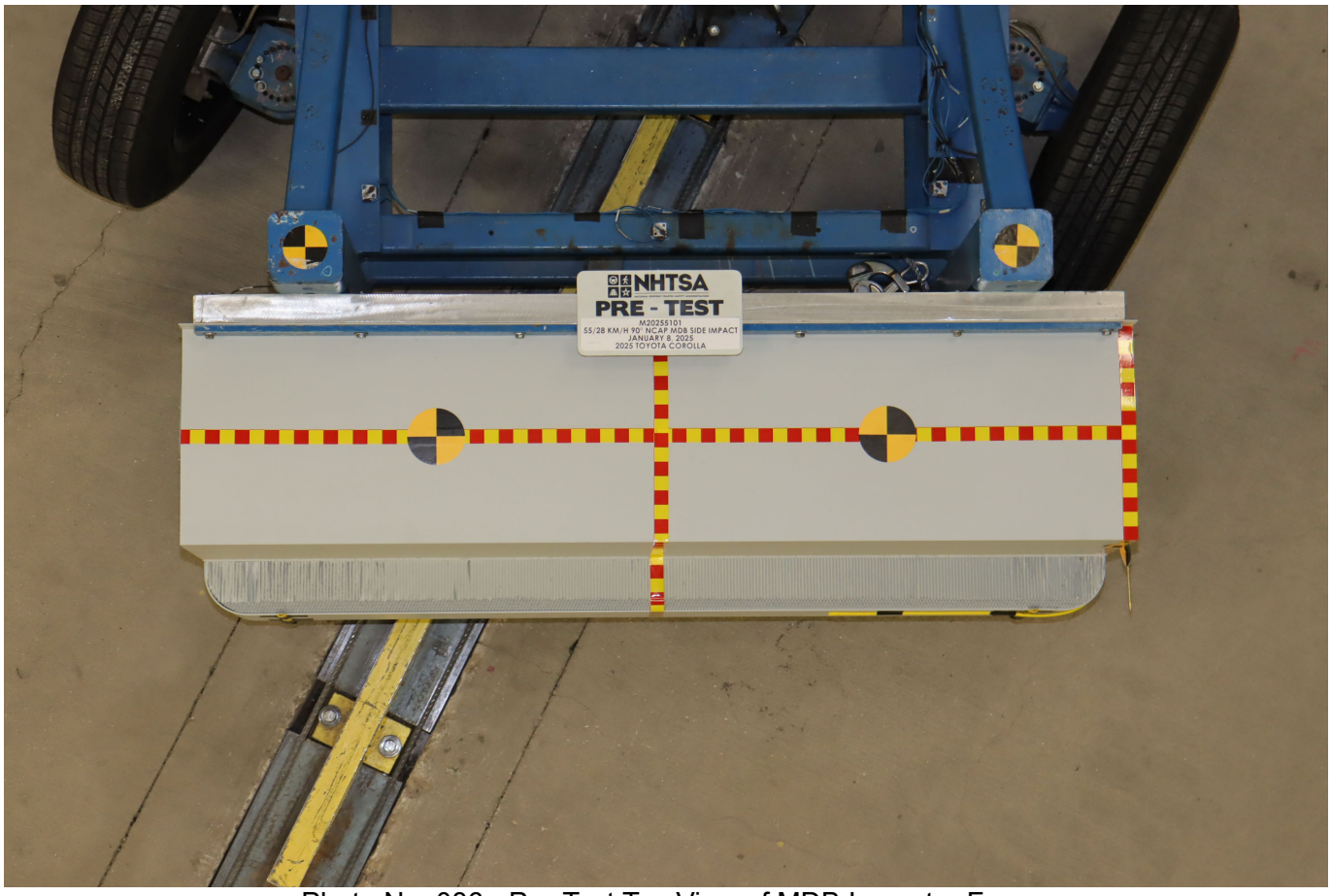


Photo No. 086 - Pre-Test Top View of MDB Impactor Face

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

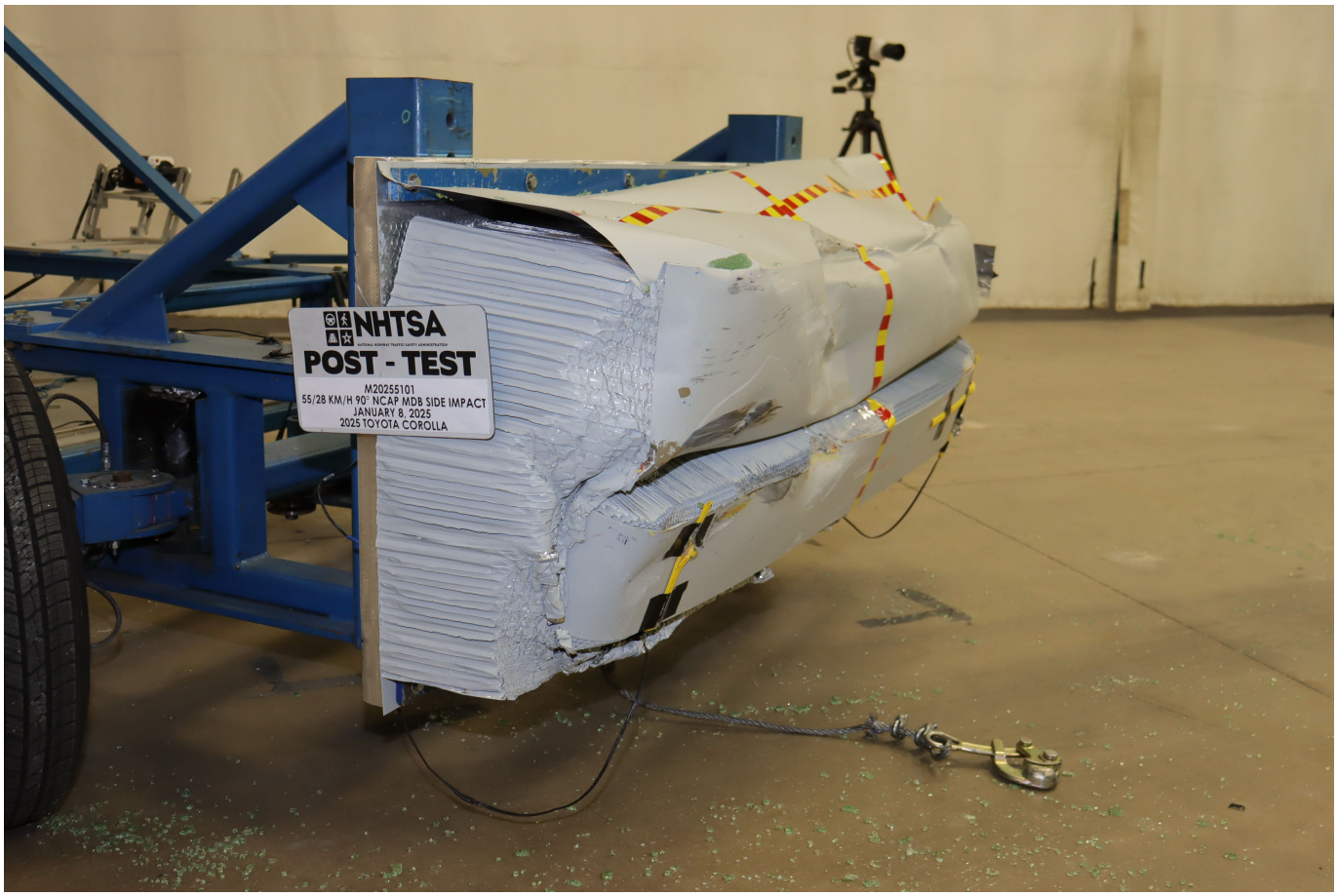


Photo No. 091 - Post-Test Right Side View of MDB Impactor Face

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. 093a - Close-Up View of Vehicle Load Carrying Capacity Reduction Label

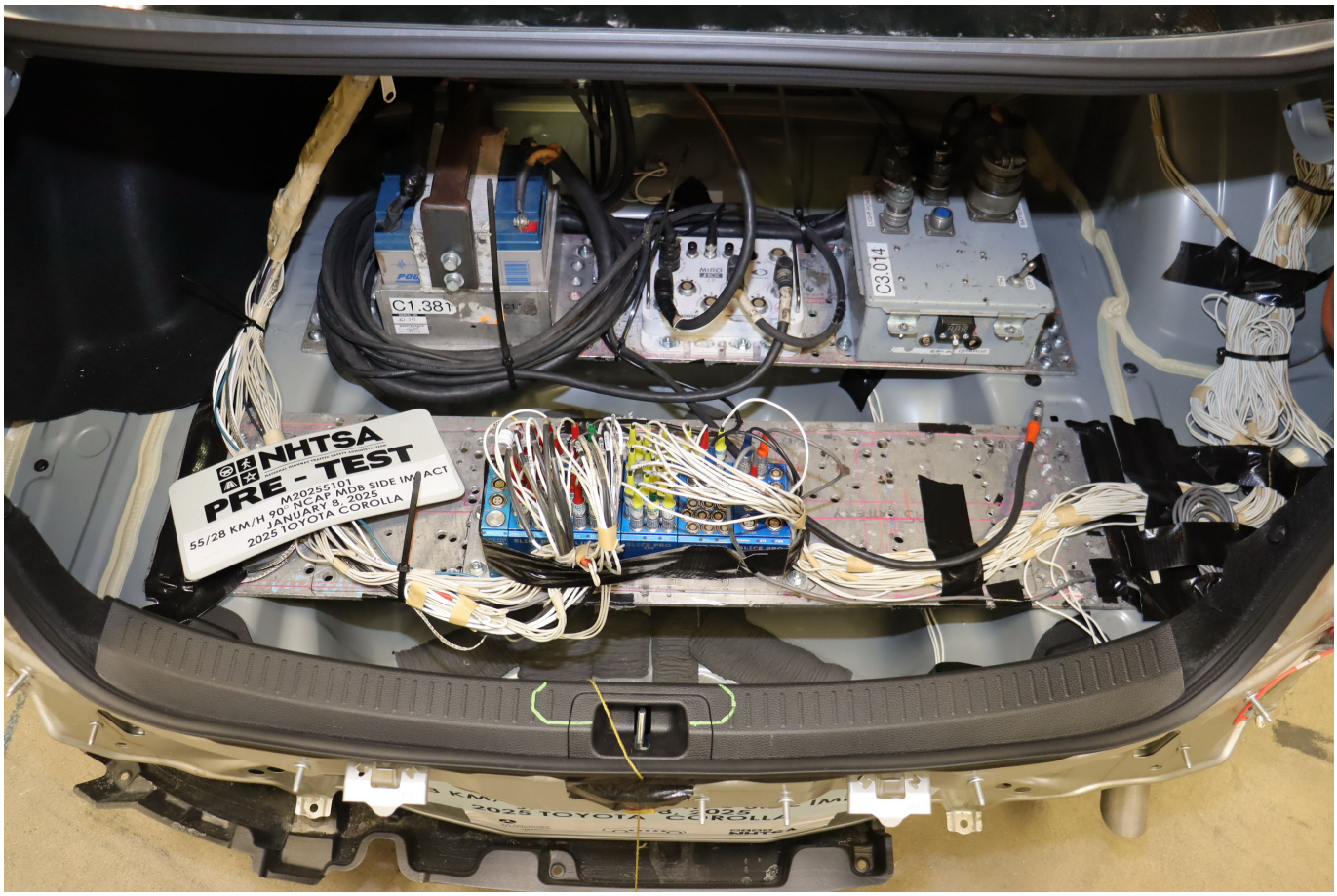


Photo No. 094 - Pre-Test Ballast View

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

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

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

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

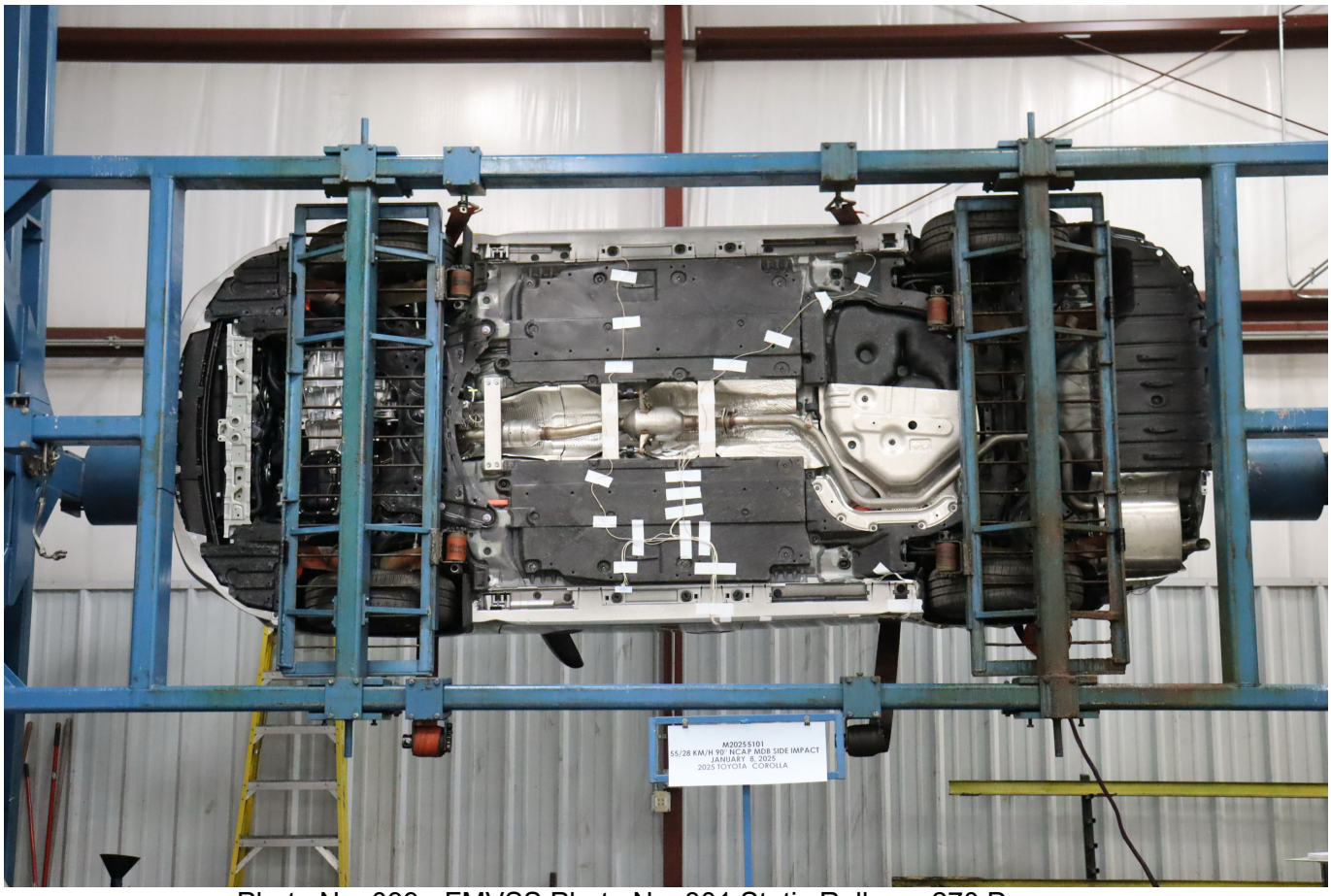


Photo No. 099 - FMVSS Photo No. 301 Static Rollover 270 Degrees

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

Photo No. 101 - Impact Event

TOYOTA

DESC.: COROLLA HYBRID LE SEDAN
VIN: JTDBCMFE8SJ038552
YR/MDL: 2025/1882A
CLR: CLASSIC SILVER MET/GRAPHITE (01F7/10)
FINAL ASSEMBLY POINT: TOYOTA, AICHI, JAPAN

GOVERNMENT 5-STAR SAFETY RATINGS

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

Frontal Crash Driver ★★★★★ Passenger ★★★★★
Based on the risk of injury in a frontal impact.
Should ONLY be compared to other vehicles of similar size and weight.

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

Rollover ★★★★
Based on the risk of rollover in a single-vehicle crash.

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

STANDARD EQUIPMENT
UNLESS REPLACED BY OPTIONAL EQUIPMENT

MECHANICAL & PERFORMANCE
- Hybrid Engine: 1.8L 4-cyl Dual VVT-i, Elec Continuously Variable Trans (ECVT)

SAFETY & CONVENIENCE
- Toyota Safety Sense 3.0 w/Pre-Collision
- Backup Camera
- Star Safety System
- Remote Keyless Entry System
- Connected Services Capable. 4G Network Dependent. See Toyota.com for Details.

EXTERIOR
- 16-in. Steel Wheels w/ Cover
- Black Front Grille
- Automatic LED Headlights with DRLs

INTERIOR
- 8-in. Toyota Audio Multimedia w/ 6-Speakers, Wireless Apple CarPlay and Android Auto Compatibility
- SiriusXM w/3-Month Trial
- Automatic Climate Control
- Fabric-Trimmed Seats
- 60/40 Split Fold-Down Rear Seat

For Full Product Details:
Please Visit Toyota.com/CorollaHybrid

Full Tank of Gas

BASE MANUFACTURER'S SUGGESTED RETAIL PRICE $23,625.00

OPTIONAL EQUIPMENT

FE	50 State Emissions	
2T.	All Weather Floor Liner Package:Tub Style Liner	299.00
MF.	Mudguards	155.00
D5.	Door Edge Guards	160.00

EPA DOT Fuel Economy and Environment — Gasoline Vehicle

Fuel Economy
50 MPG
Compacts range from 17 to 105 MPG. The best vehicle rates 140 MPGe.
53 city
46 highway
combined city/hwy
2.0 gallons per 100 miles

You save $4,250 in fuel costs over 5 years compared to the average new vehicle.

Annual fuel cost $1,050

Fuel Economy & Greenhouse Gas Rating (tailpipe only) 8 (1–10, Best)
Smog Rating (tailpipe only) 6 (1–10, Best)
This vehicle emits 176 grams CO_2 per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also create emissions; learn more at fueleconomy.gov.

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 28 MPG and costs $8,500 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at $3.50 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fueleconomy.gov
Calculate personalized estimates and compare vehicles

Smartphone QR Code

MANUFACTURER'S SUGGESTED RETAIL PRICE* $24,239.00
DELIVERY, PROCESSING AND HANDLING FEE 1,135.00
TOTAL SUGGESTED RETAIL PRICE $25,374.00

*Manufacturer's suggested retail price excludes delivery processing and handling fees, license and title fees, applicable federal, state and local taxes, and dealer and distributor options and accessories.

Delivered by Truck to: 31113
GAULT TOYOTA
2205 NORTH ST
ENDICOTT NY13760

TML2E1N1S0F0W0

Photo No. 102 - Monroney Label

Head restraints

Head restraints are provided for all seats.

WARNING

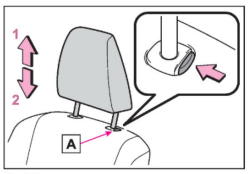
■Head restraint precautions

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

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

Adjusting a head restraint

■ **Front seats**



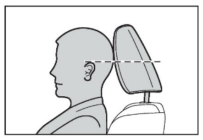
1 Up
Pull the head restraints up.
2 Down
Push the head restraint down while pressing the lock release button A.

■ **Rear seats**

Head restraints cannot be adjusted or removed.

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

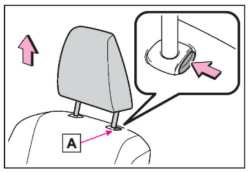
Make sure that the head restraints are adjusted so that the center of the head restraint is closest to the top of your ears.



Removing the head restraints

■ **Front seats**

Pull the head restraint up while pressing the lock release button A.



■ **Rear seats**

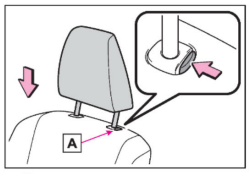
Head restraints cannot be adjusted or removed.

Installing the head restraints

■ **Front seats**

Align the head restraint with the installation holes and push it down to the lock position.

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



■ **Rear seats**

Head restraints cannot be adjusted or removed.

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

PHOTOGRAPH NOT APPLICABLE

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

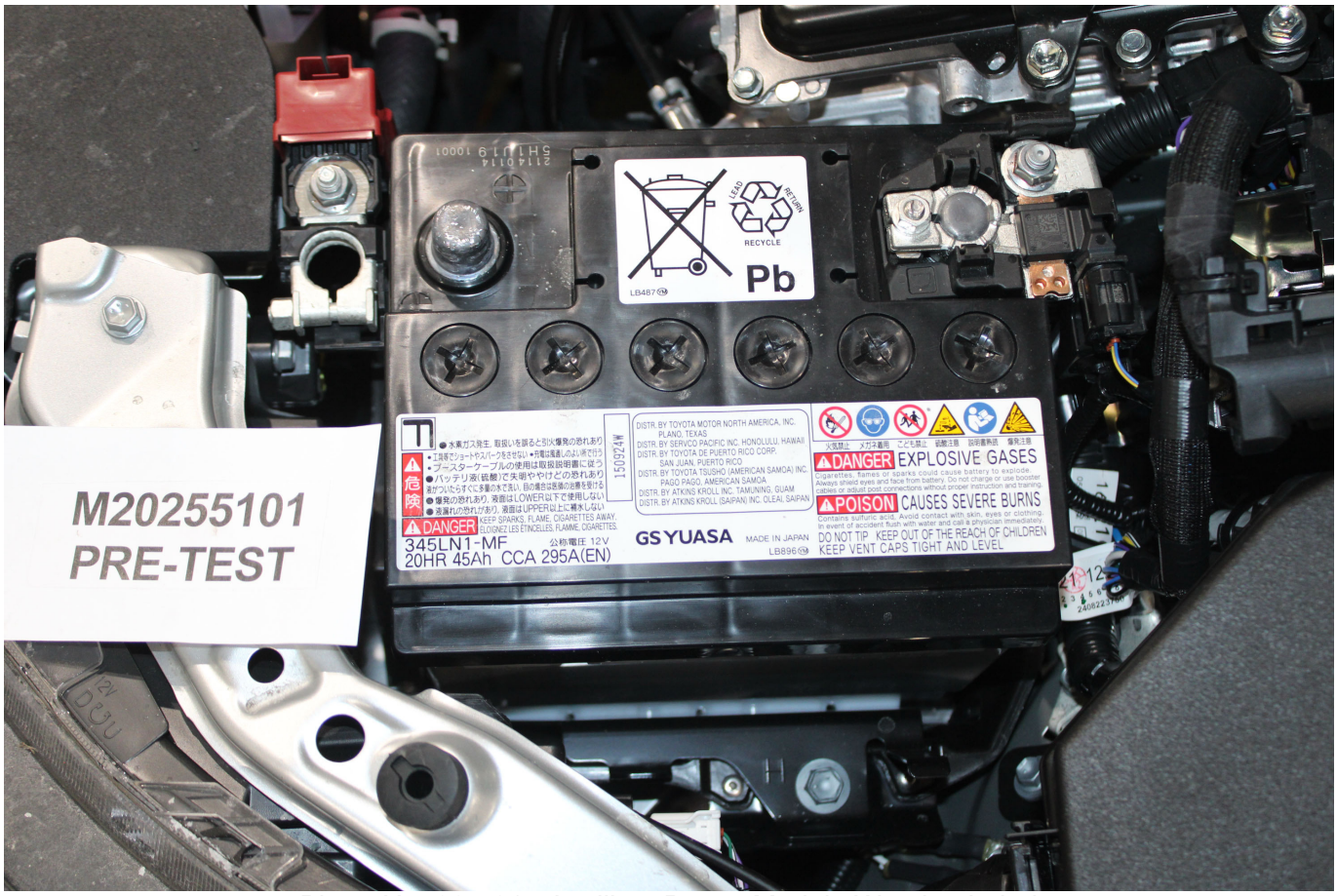


Photo No. 305-01 - Auxiliary Power Module Warning Label

Photo No. 305-02 - Power Inverter Warning Label

Photo No. 305-03 - First Responder Warning Label

PHOTOGRAPH NOT AVAILABLE

Photo No. 305-04 - First Responder Warning Location

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

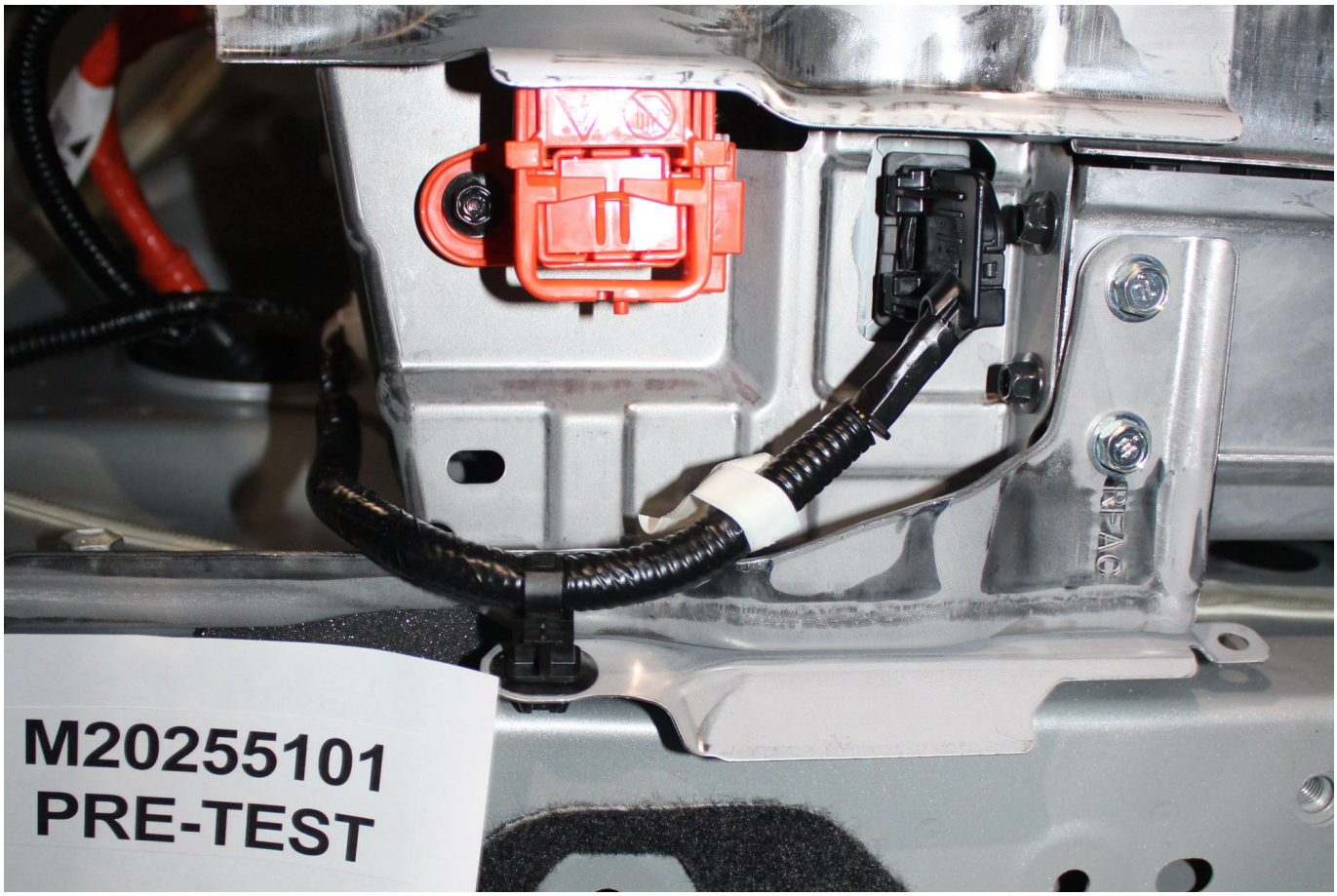


Photo No. 305-06 - Manual High Voltage Service Disconnect in Place

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

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

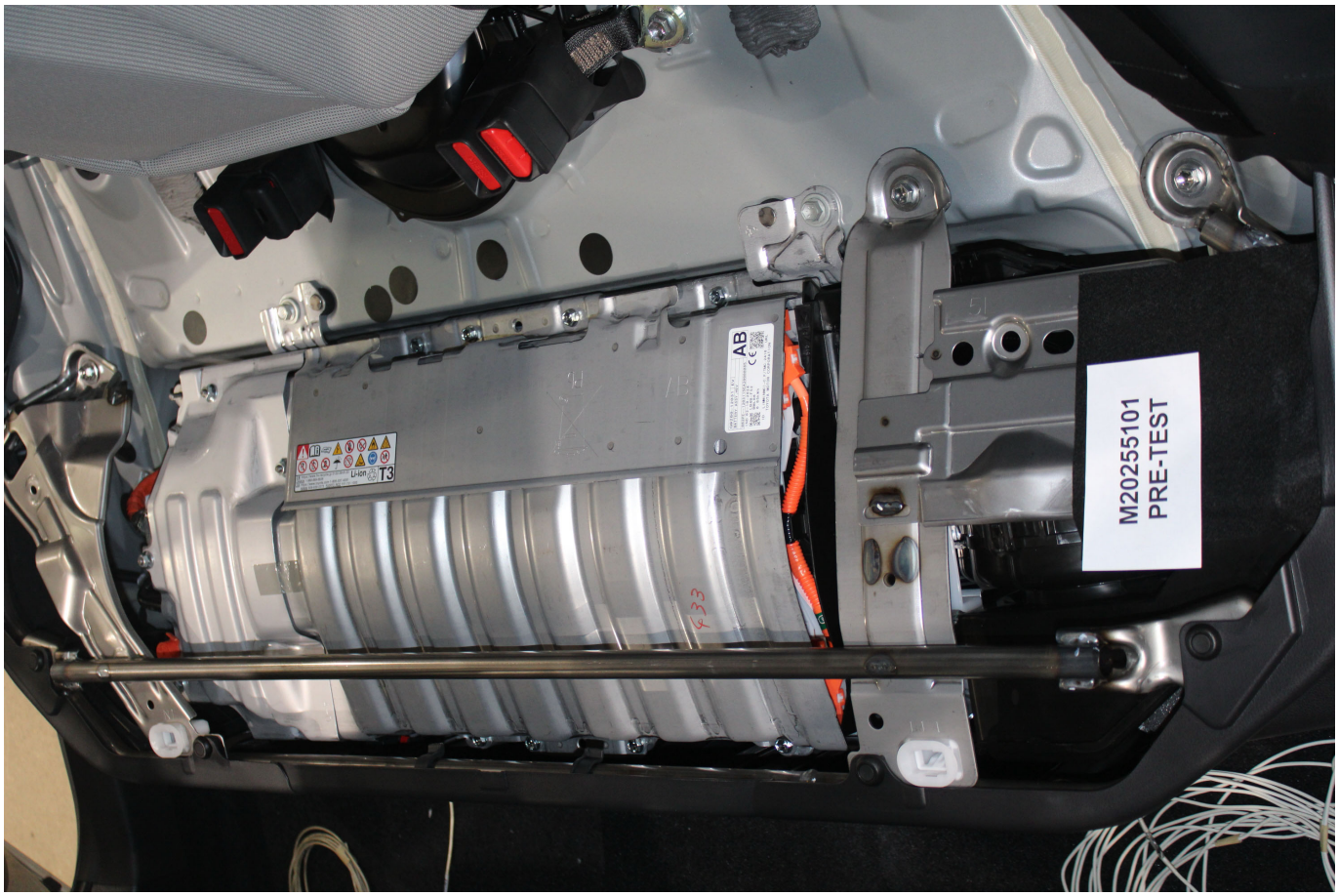


Photo No. 305-09 - Pre-Impact View of Propulsion Battery

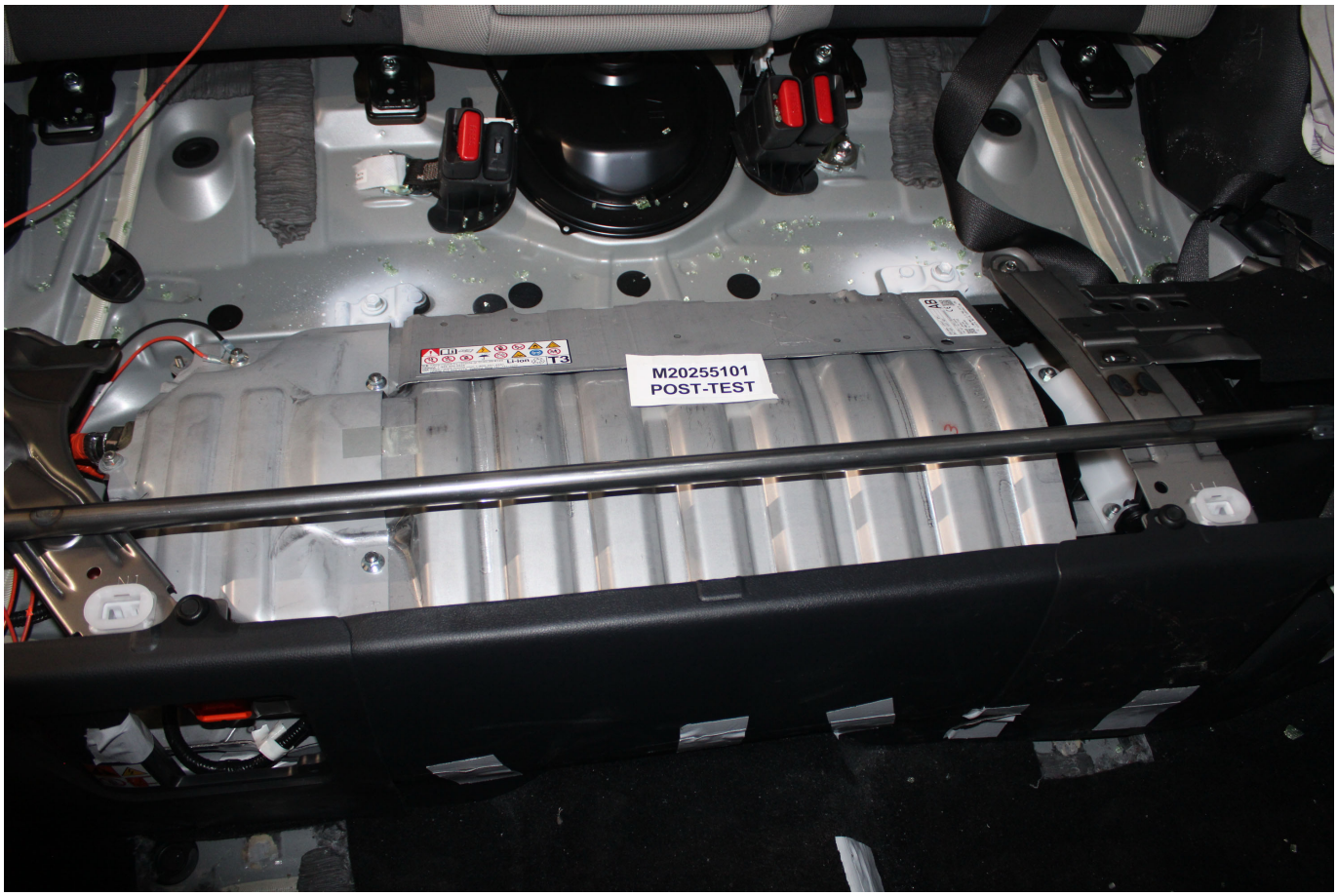


Photo No. 305-10 - Post-Impact Front View of Propulsion Battery

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

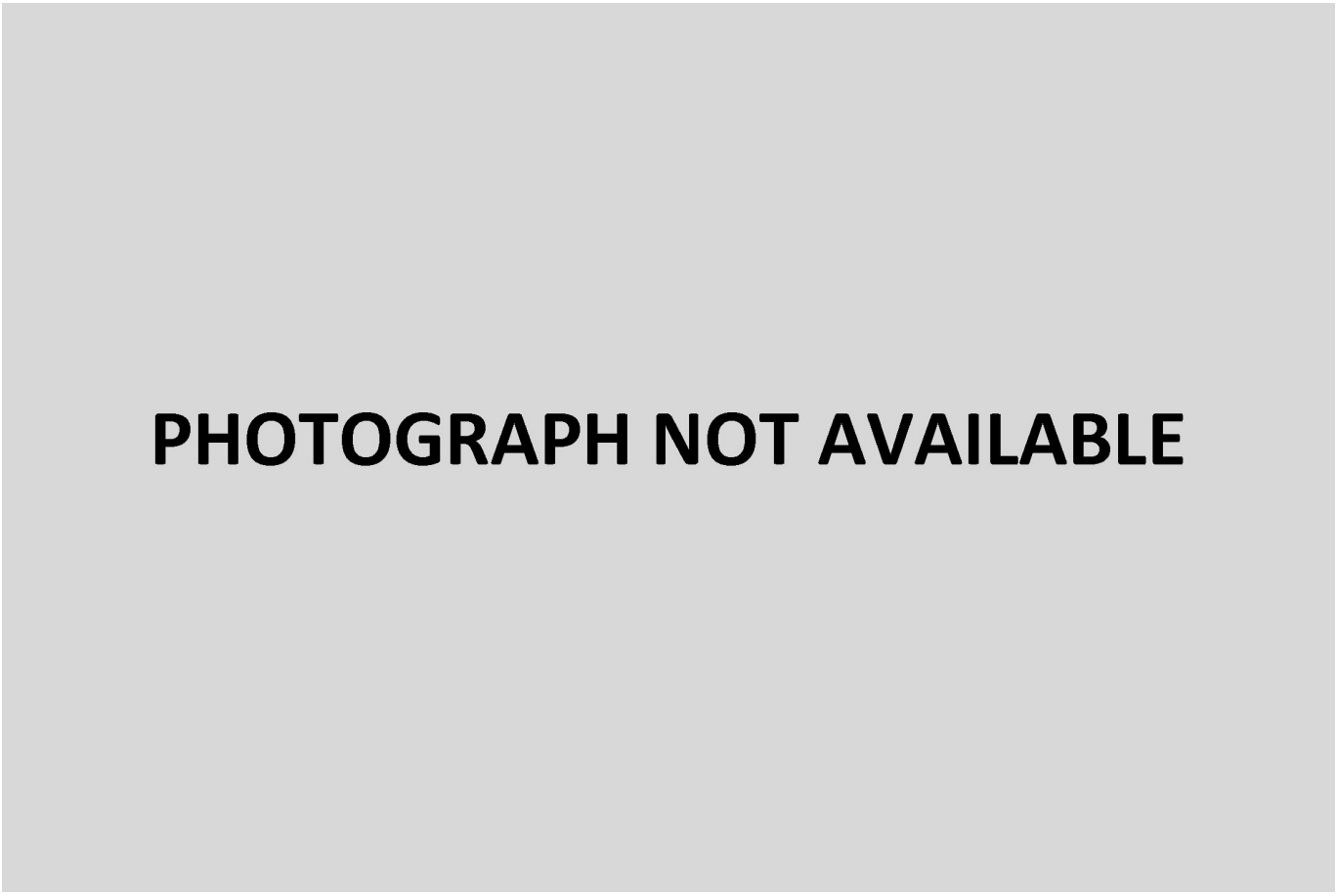


Photo No. 305-12 - Pre-Impact View of Battery Box(s) or Container(s) Which Holds Individual Battery Modules

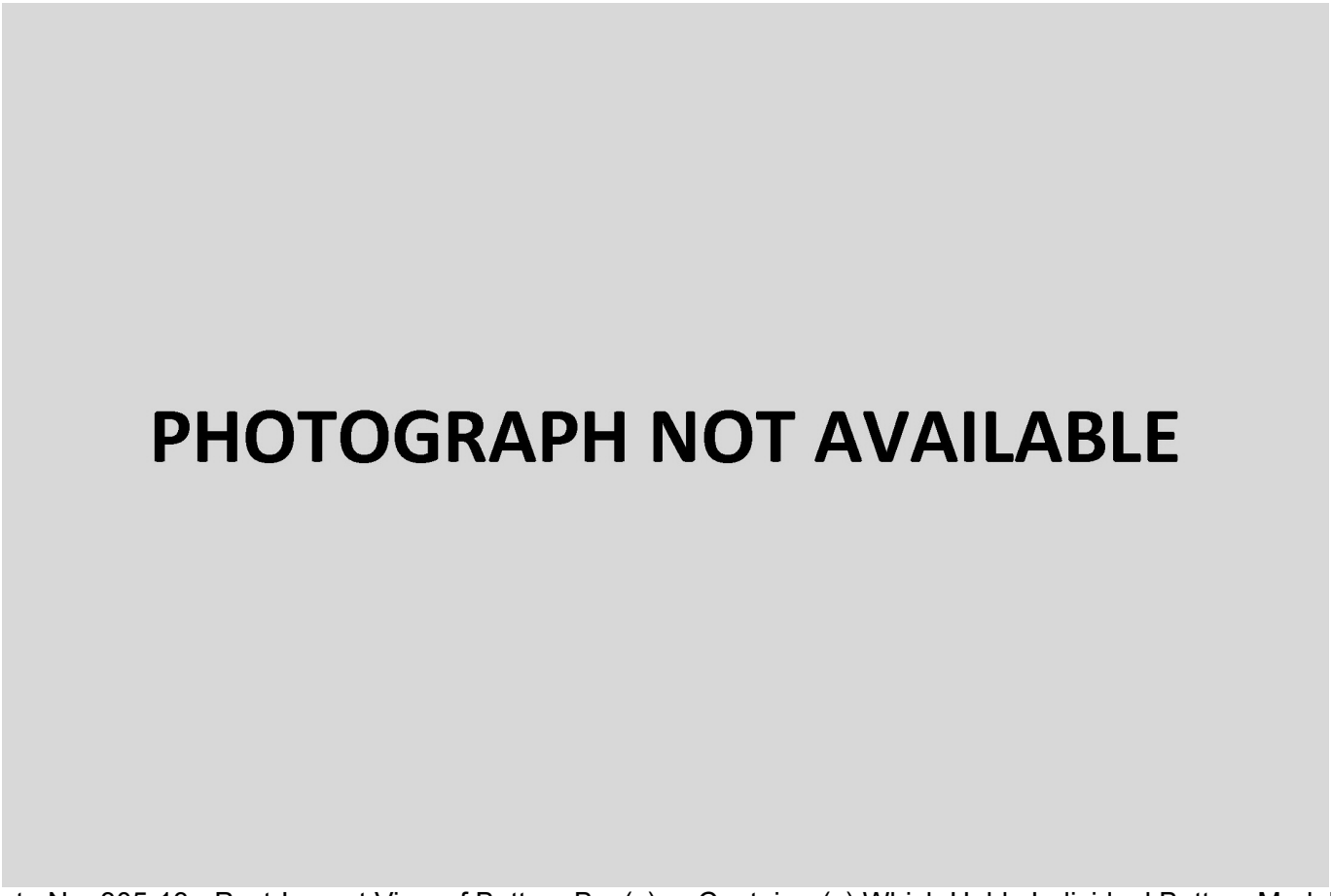


Photo No. 305-13 - Post-Impact View of Battery Box(s) or Container(s) Which Holds Individual Battery Modules

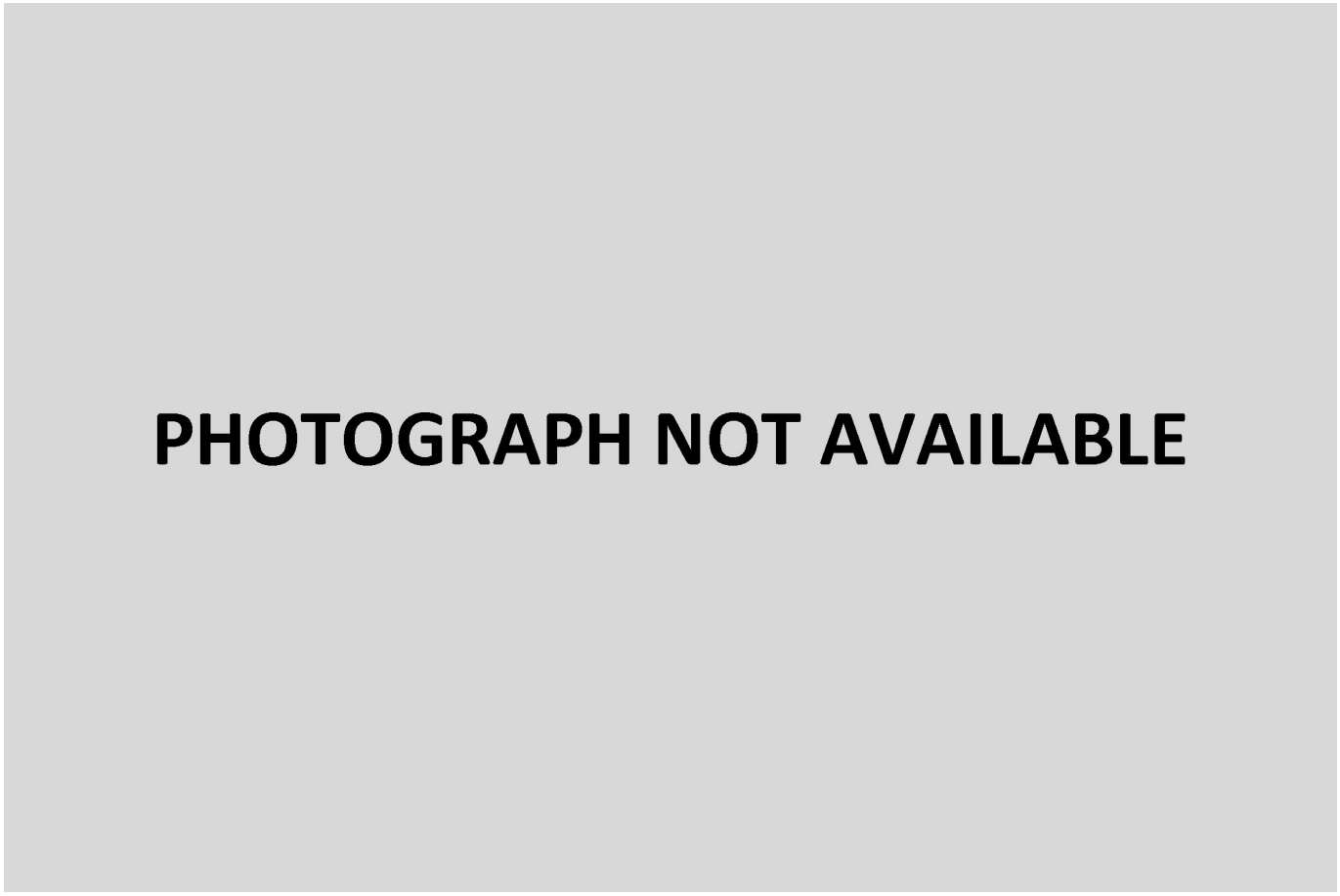


Photo No. 305-14 - Pre-Impact View of Propulsion Battery Module(s)

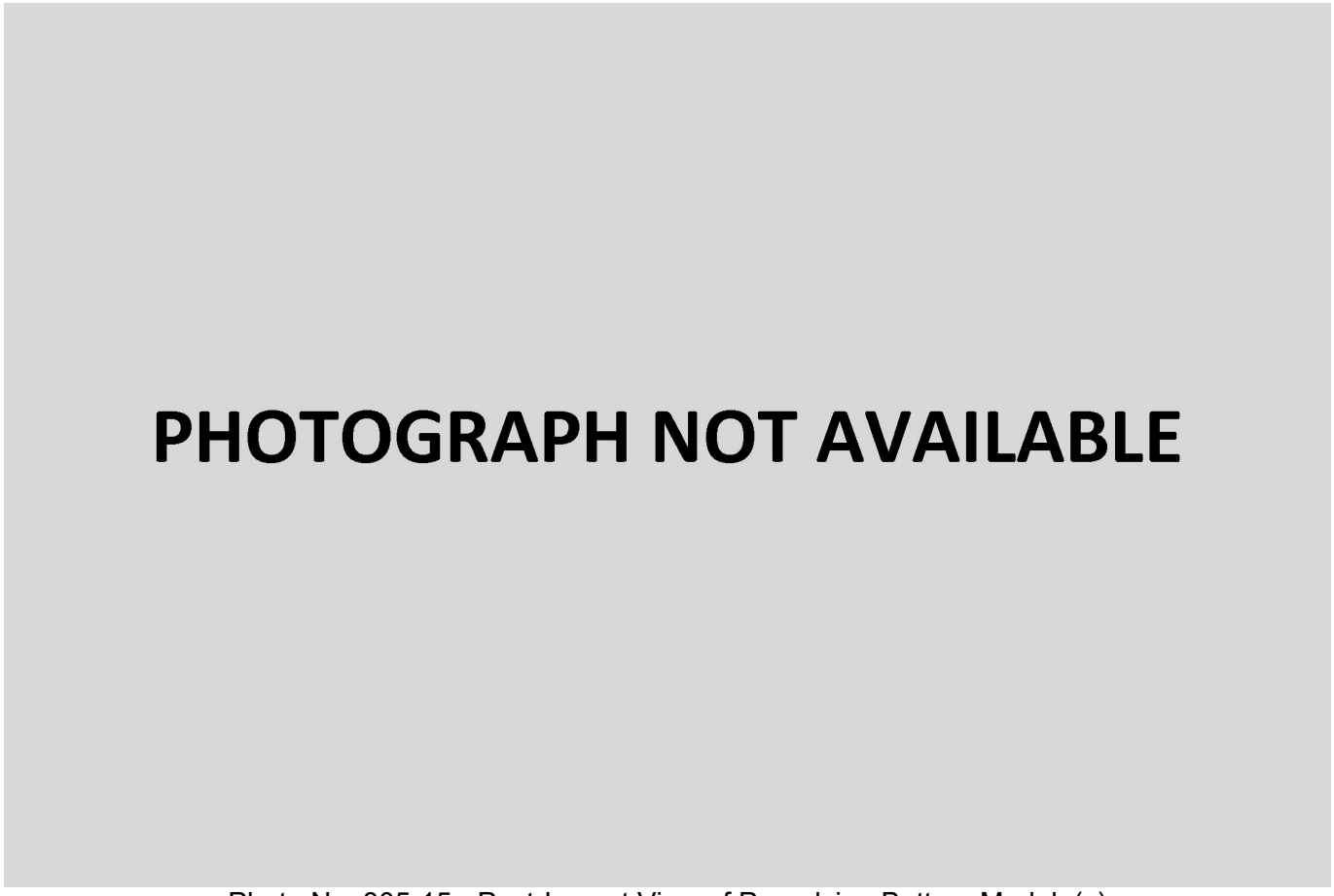


Photo No. 305-15 - Post-Impact View of Propulsion Battery Module(s)

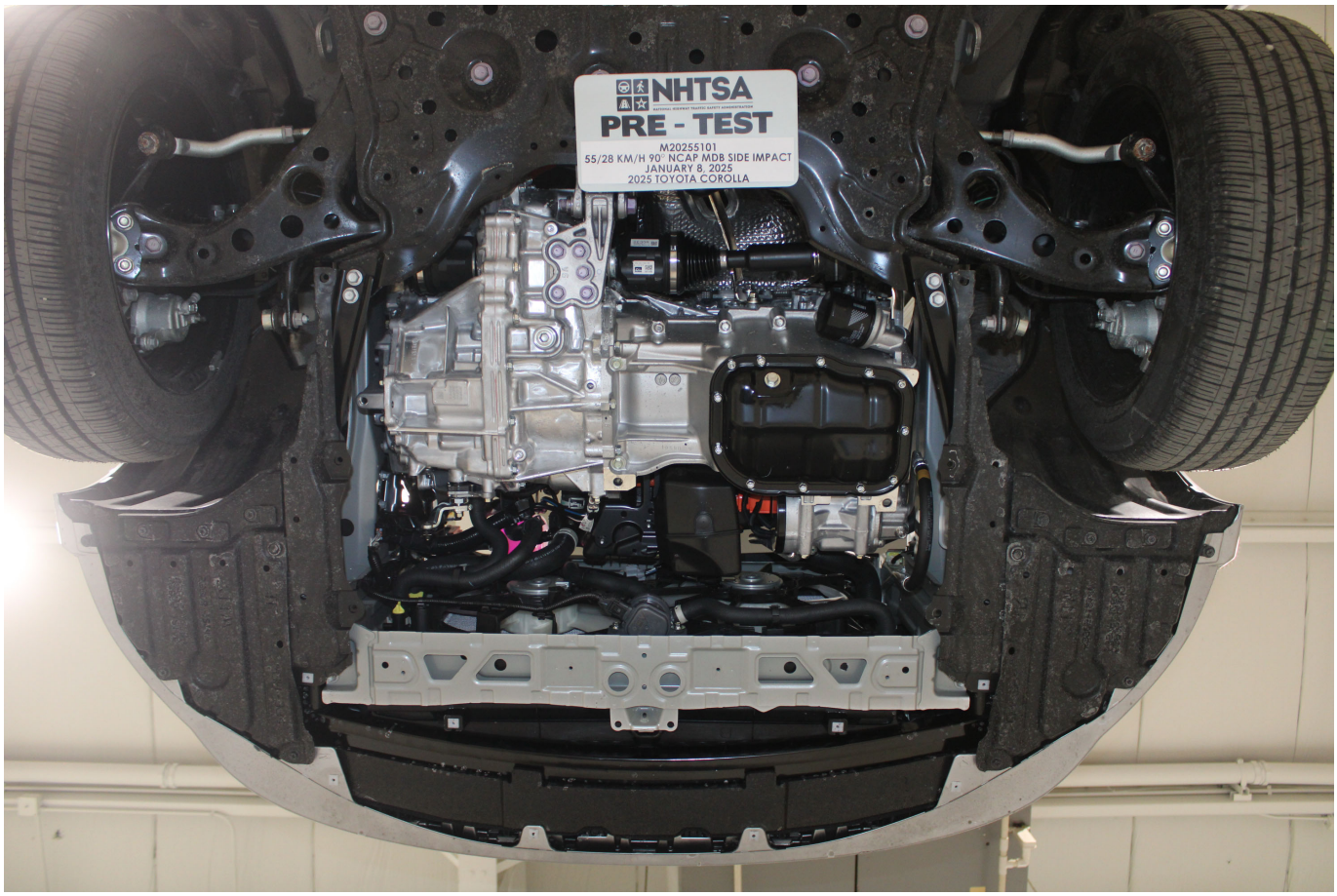


Photo No. 305-16 - Pre-Impact View of Electric Propulsion Drive

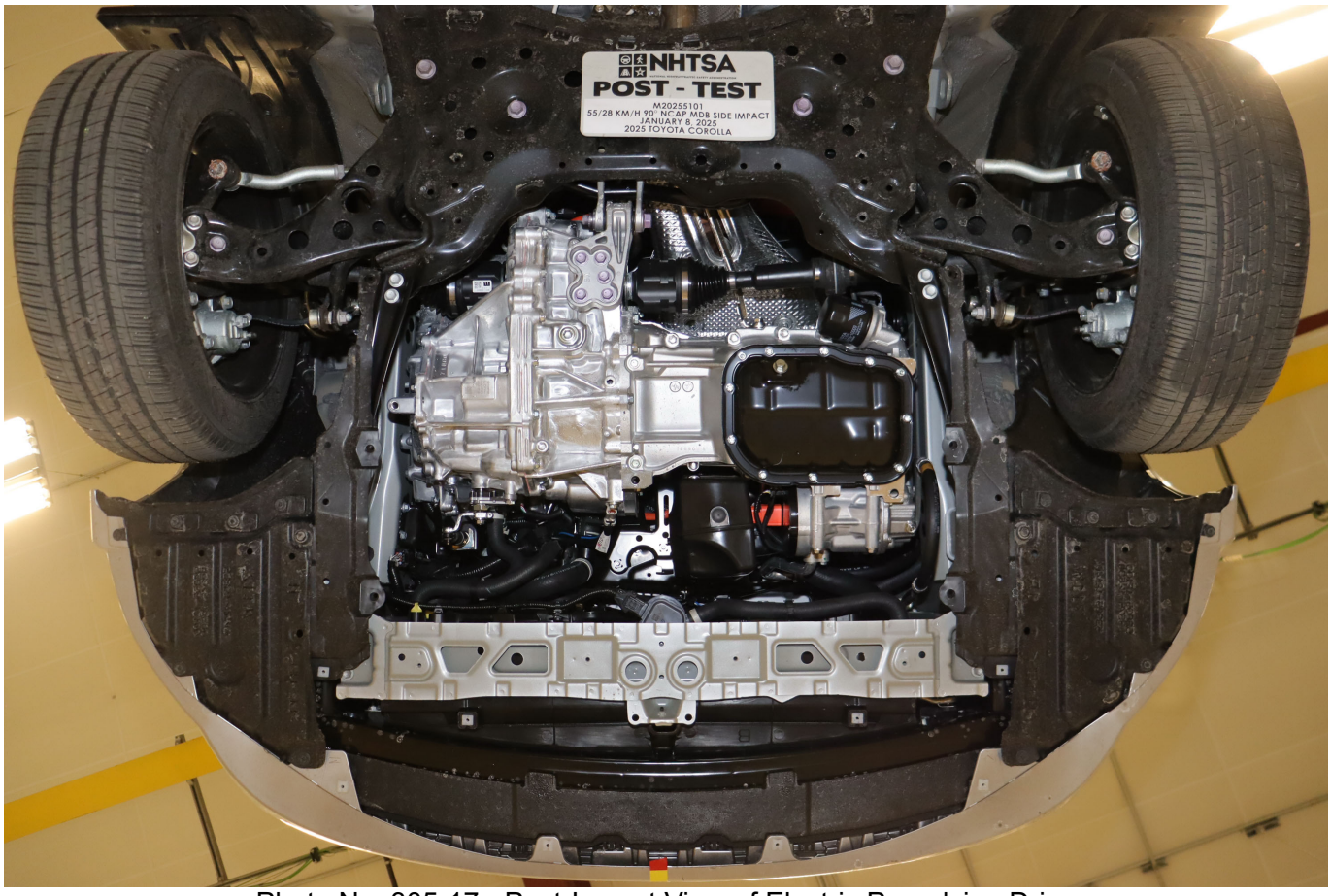


Photo No. 305-17 - Post-Impact View of Electric Propulsion Drive

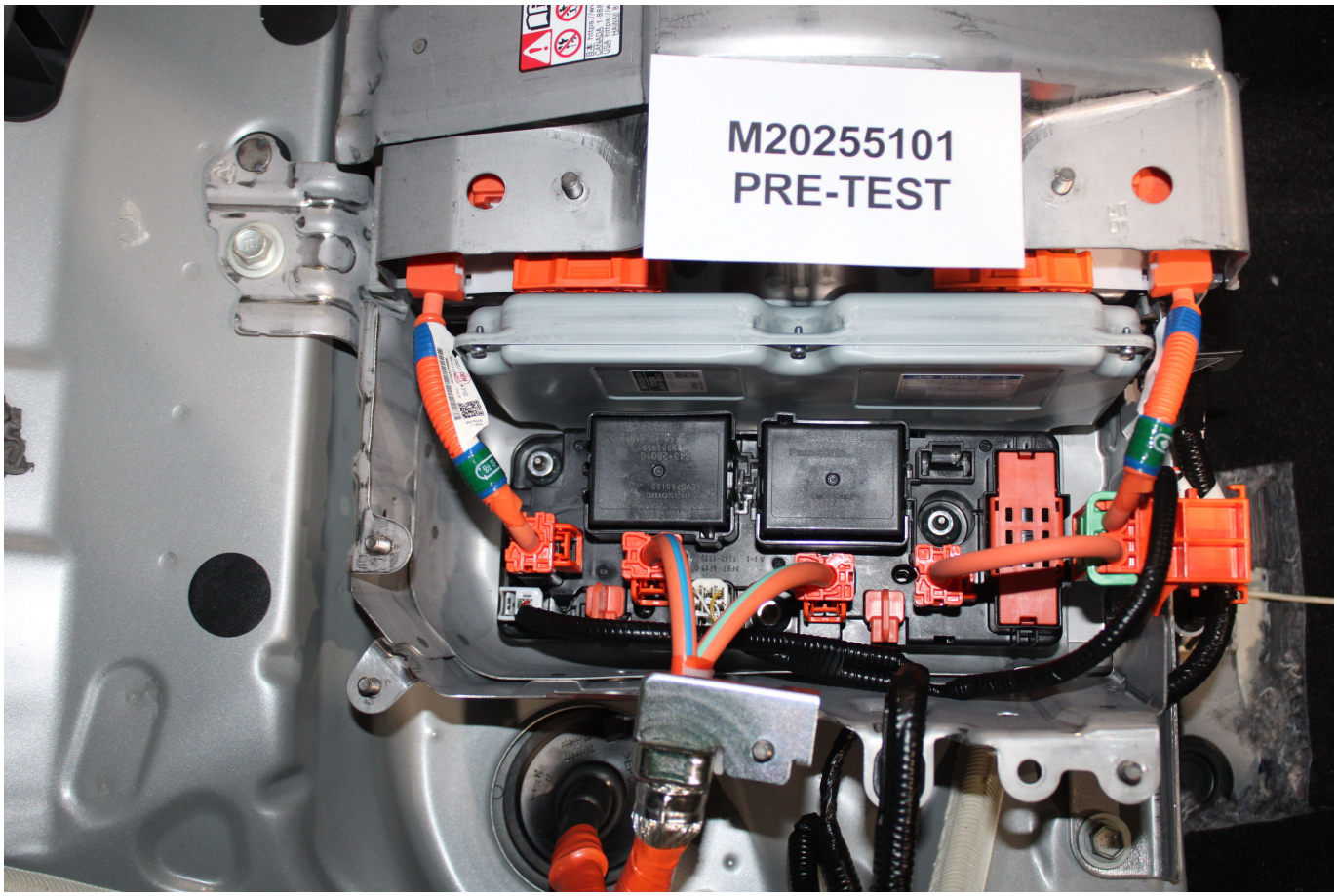


Photo No. 305-18 - Pre-Impact View of High Voltage Interconnect(s)

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

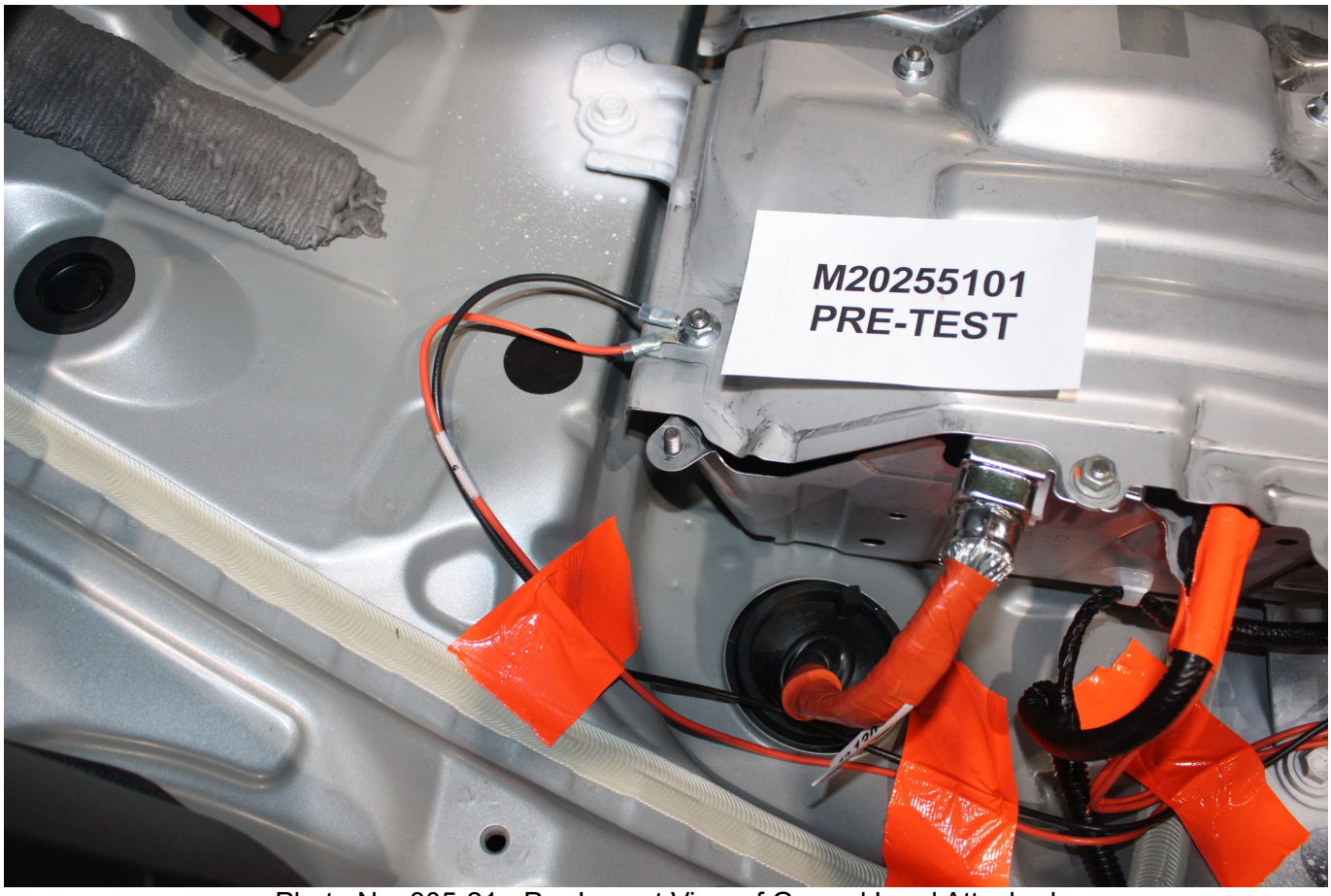


Photo No. 305-21 - Pre-Impact View of Ground Lead Attached

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

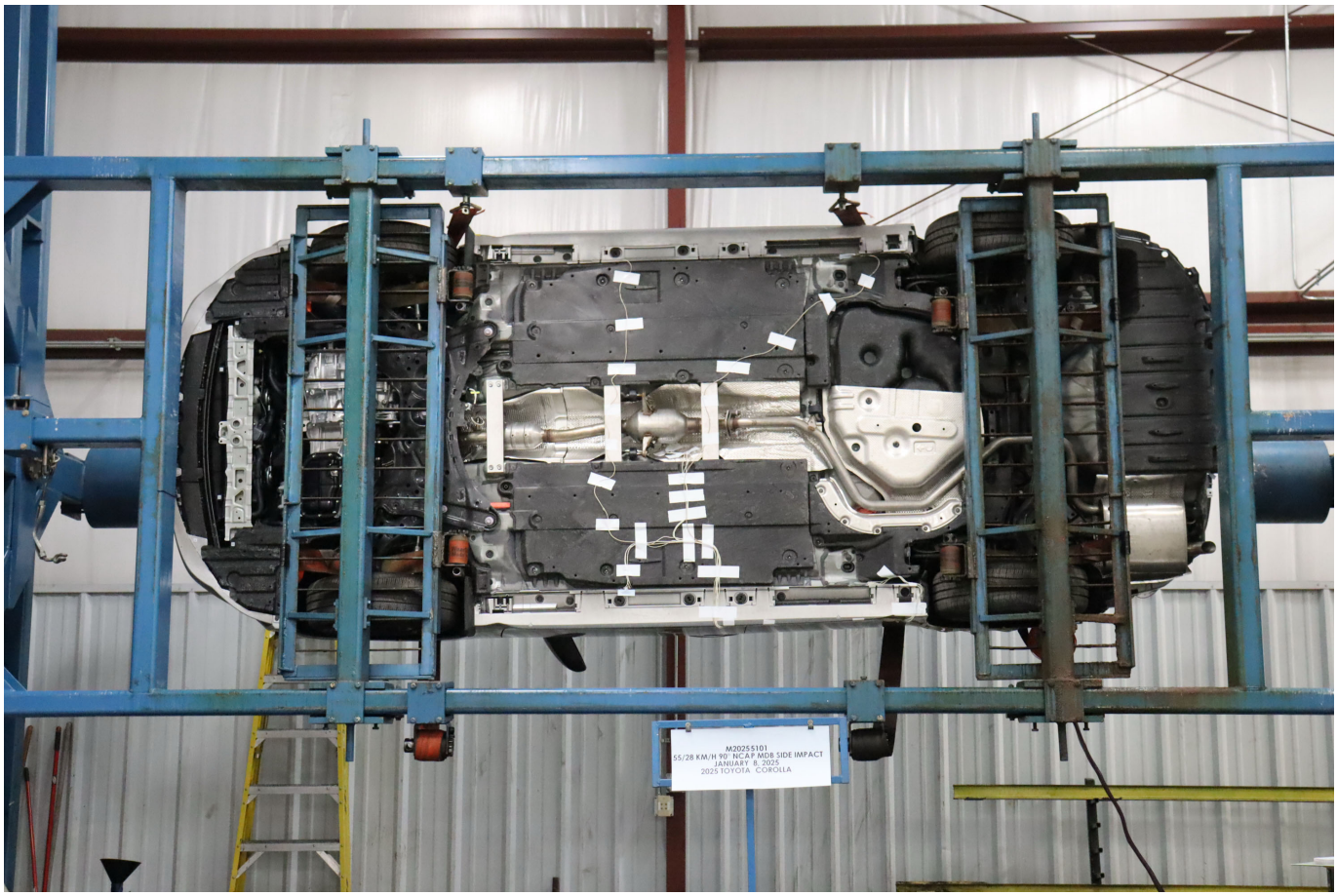


Photo No. 305-30 - FMVSS No. 305 Static Rollover at 270 Degrees

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

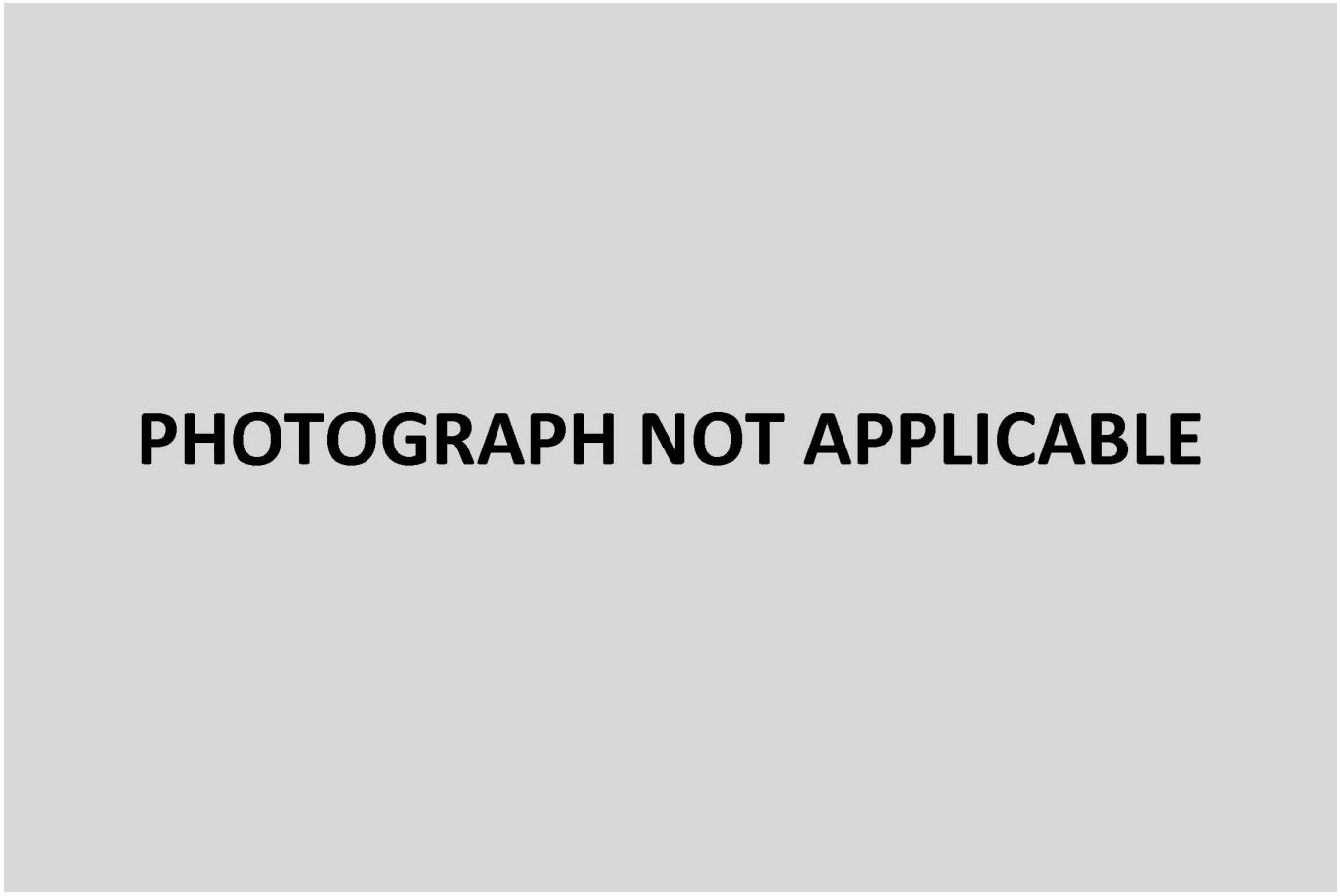


Photo No. 305-34 - Post-Impact Propulsion Battery System Mounting and-or Intrusion Failure(s)

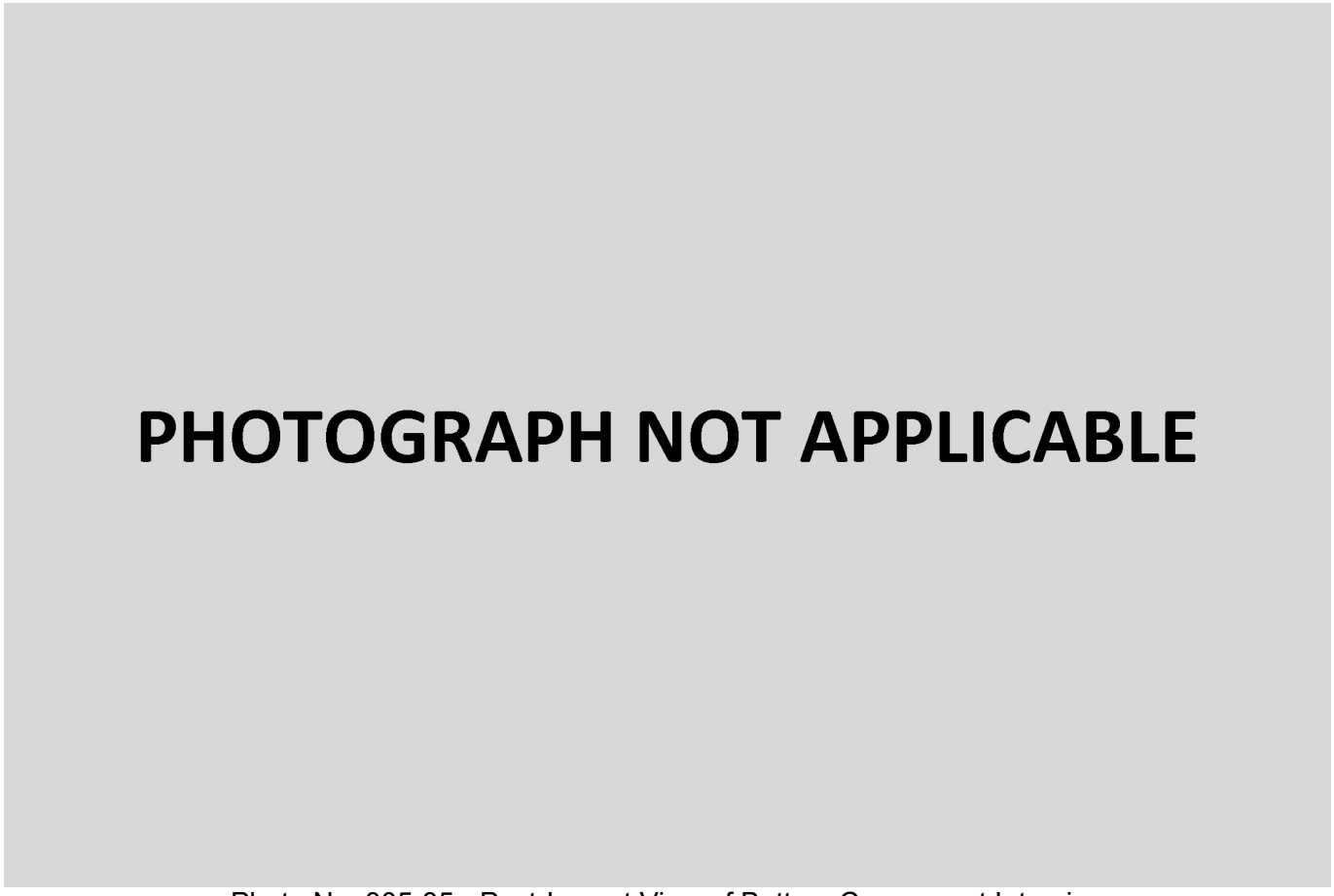


Photo No. 305-35 - Post-Impact View of Battery Component Intrusion

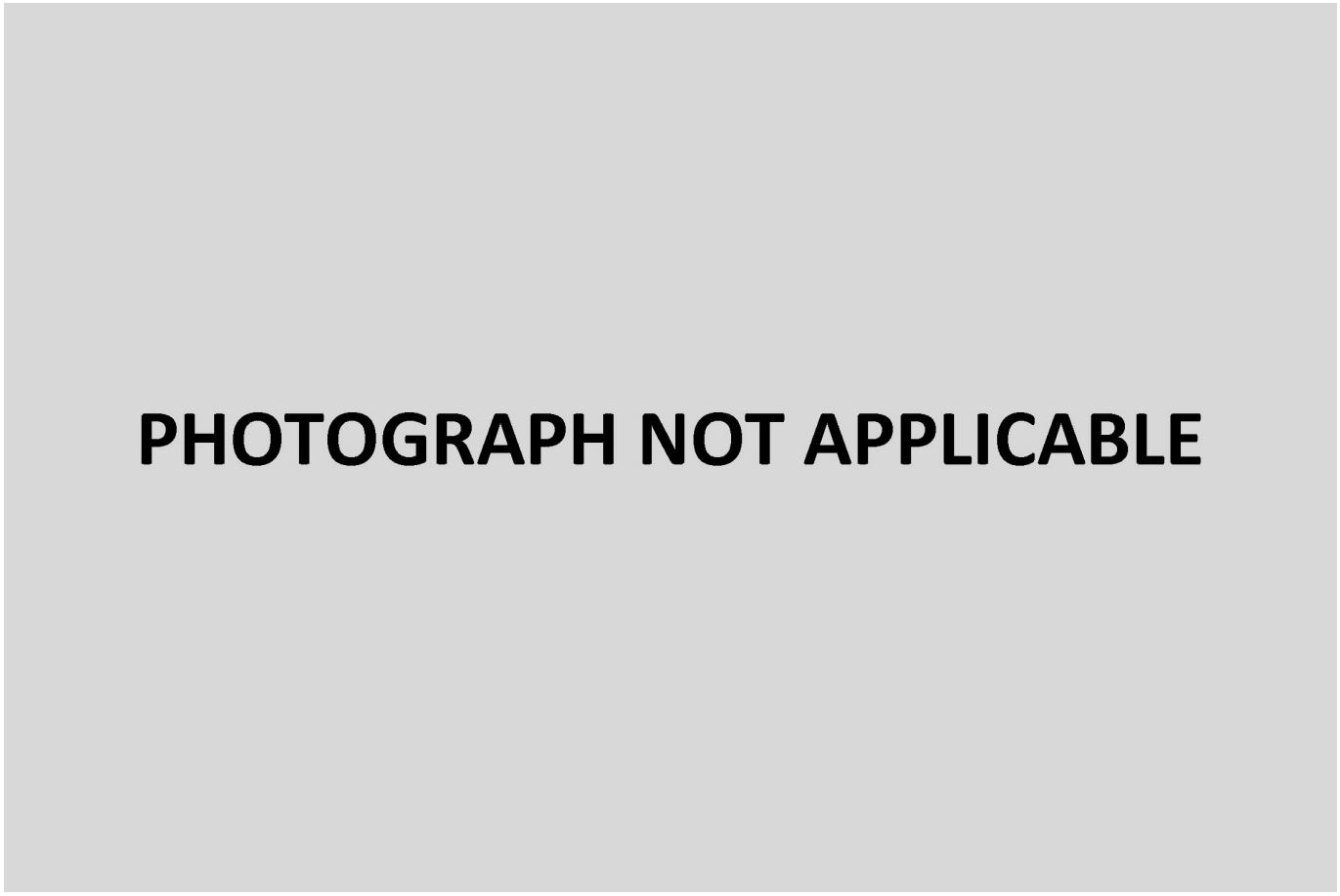


Photo No. 305-36 - Post-Impact View of Battery Module Movement or Retention Loss

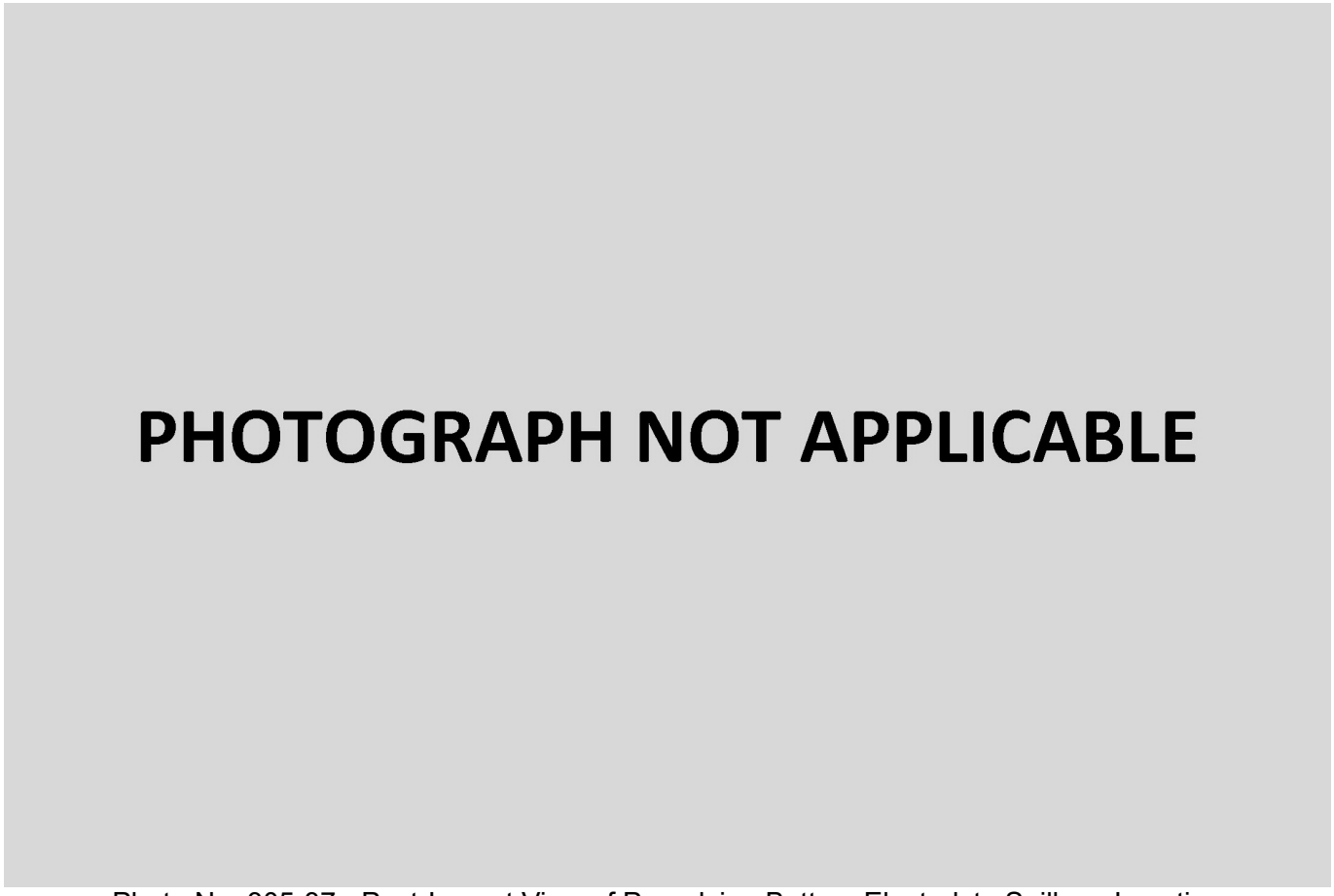


Photo No. 305-37 - Post-Impact View of Propulsion Battery Electrolyte Spillage Location

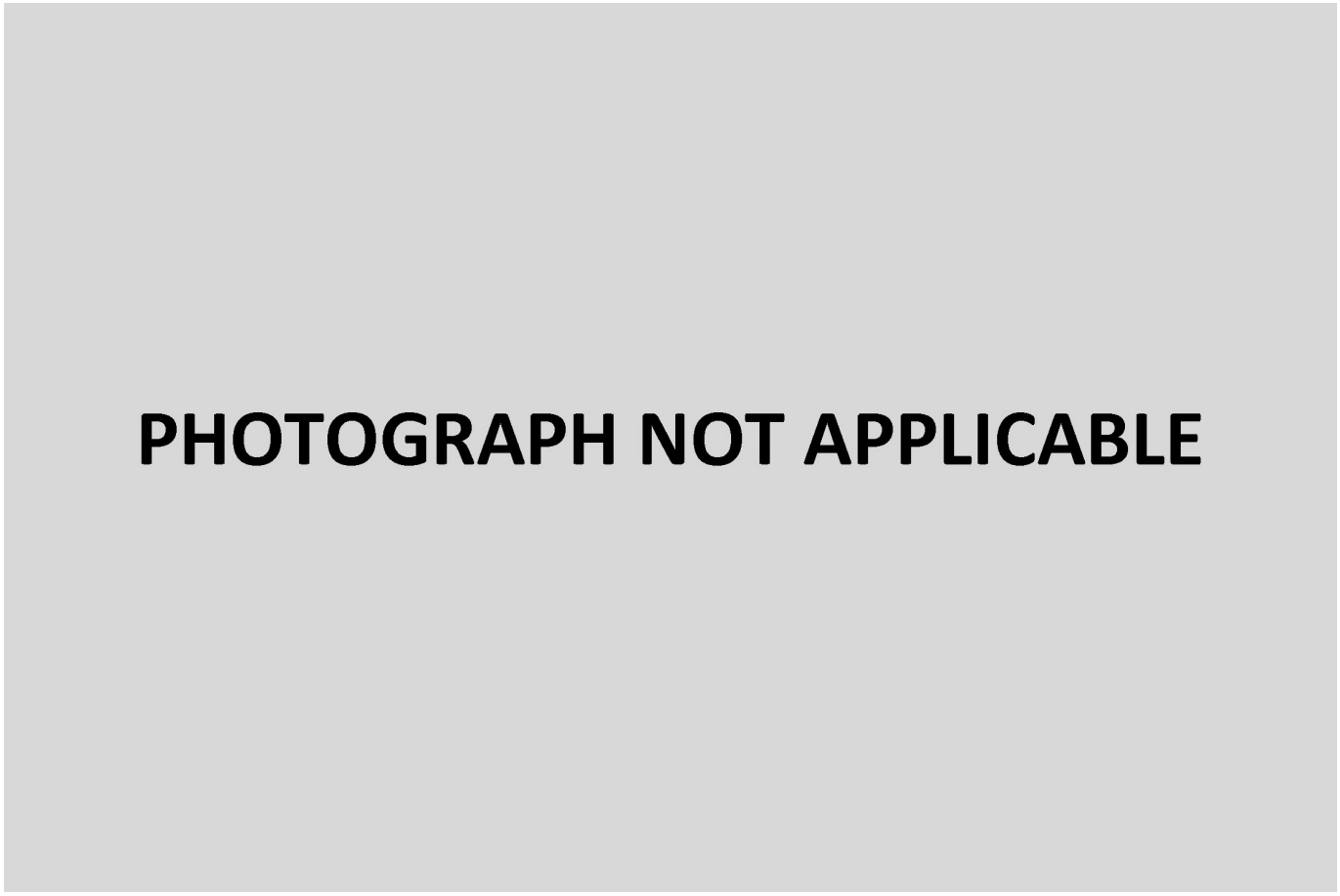


Photo No. 305-38 - Post-Test View of Propulsion Battery Electrolyte Spillage Location

APPENDIX B
DUMMY RESPONSE DATA PLOTS

TABLE OF DATA PLOTS
Driver Dummy Instrumentation Plots

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

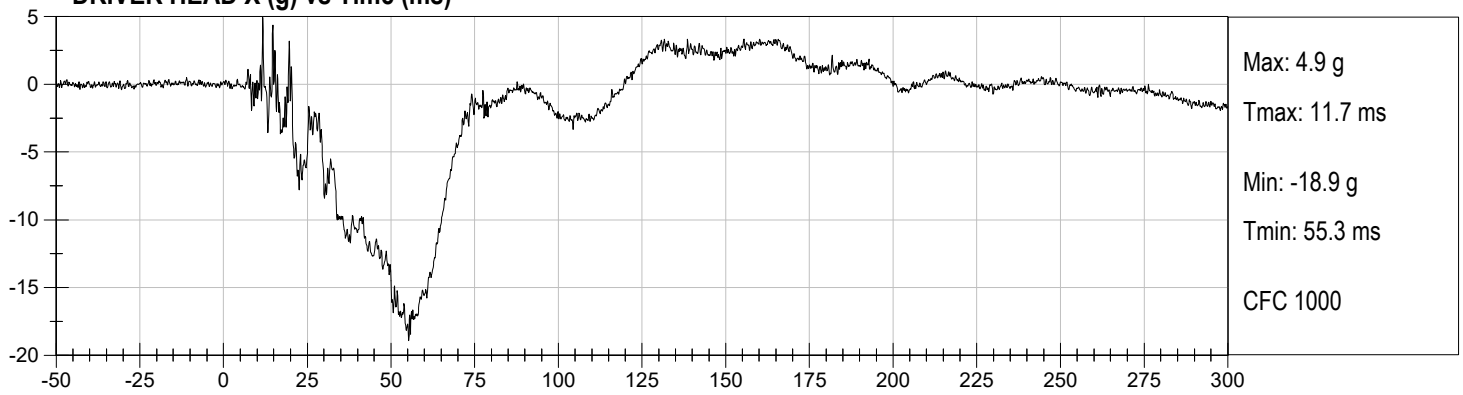
MDB Rear Acceleration (X)

MDB Rear Acceleration (Y)

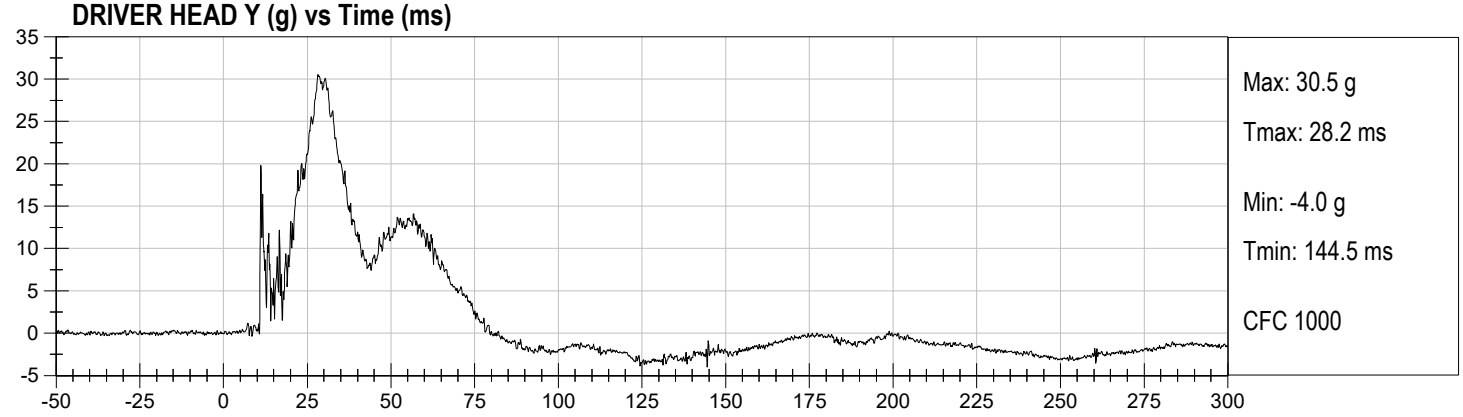
Left MDB Contact Switch

Right MDB Contact Switch

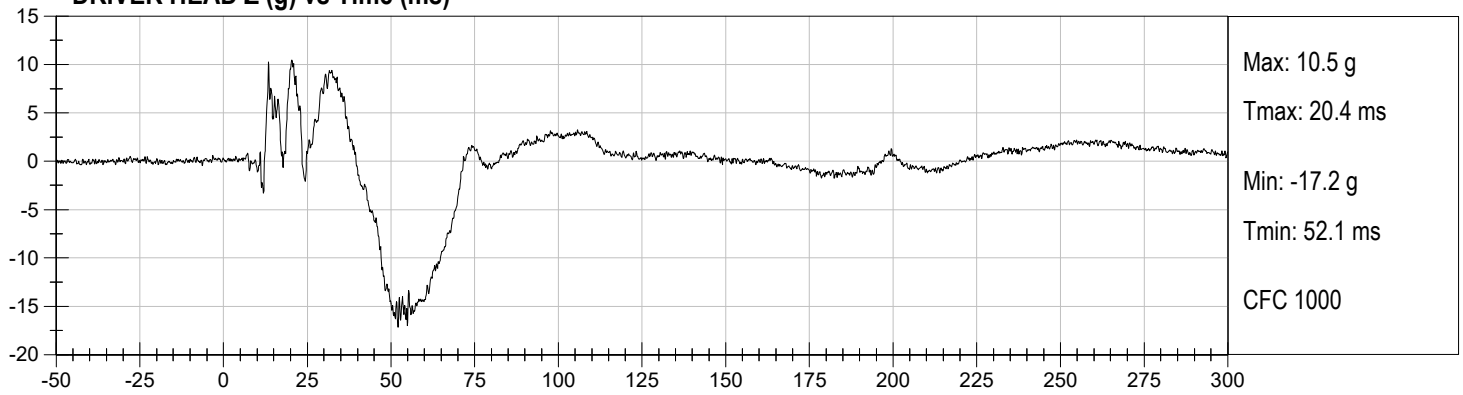
DRIVER HEAD X (g) vs Time (ms)



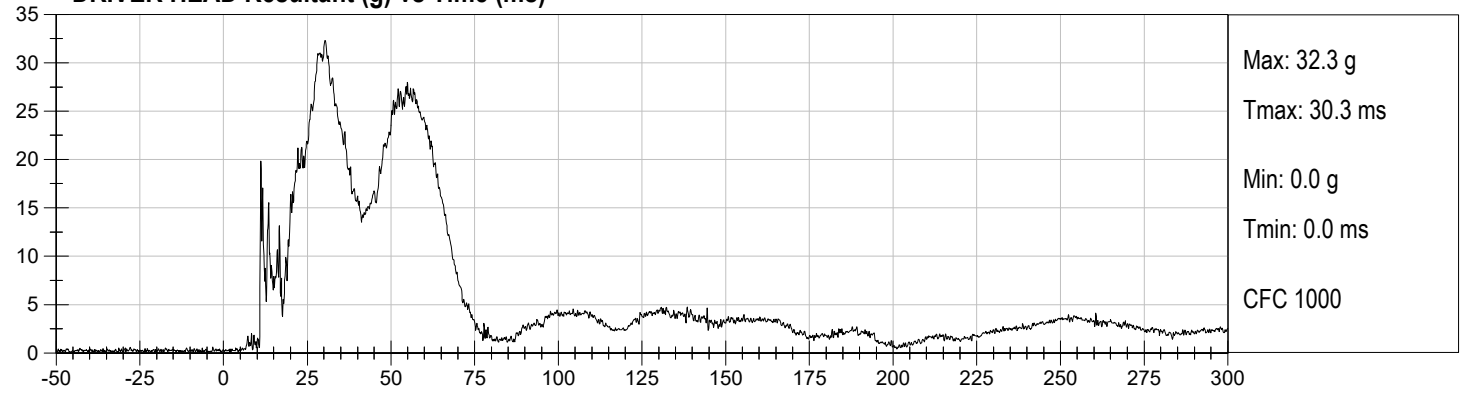
DRIVER HEAD Y (g) vs Time (ms)



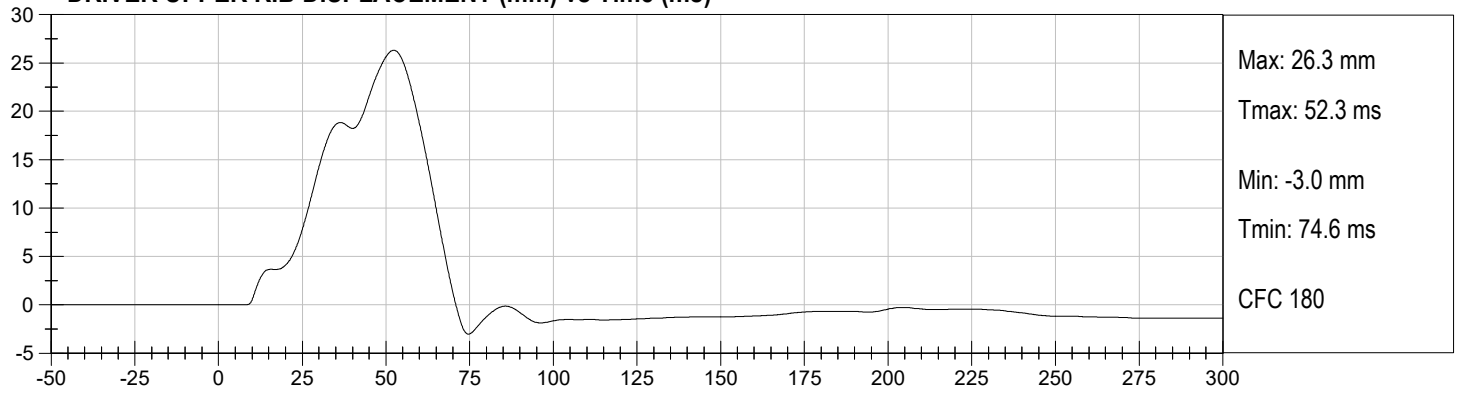
DRIVER HEAD Z (g) vs Time (ms)



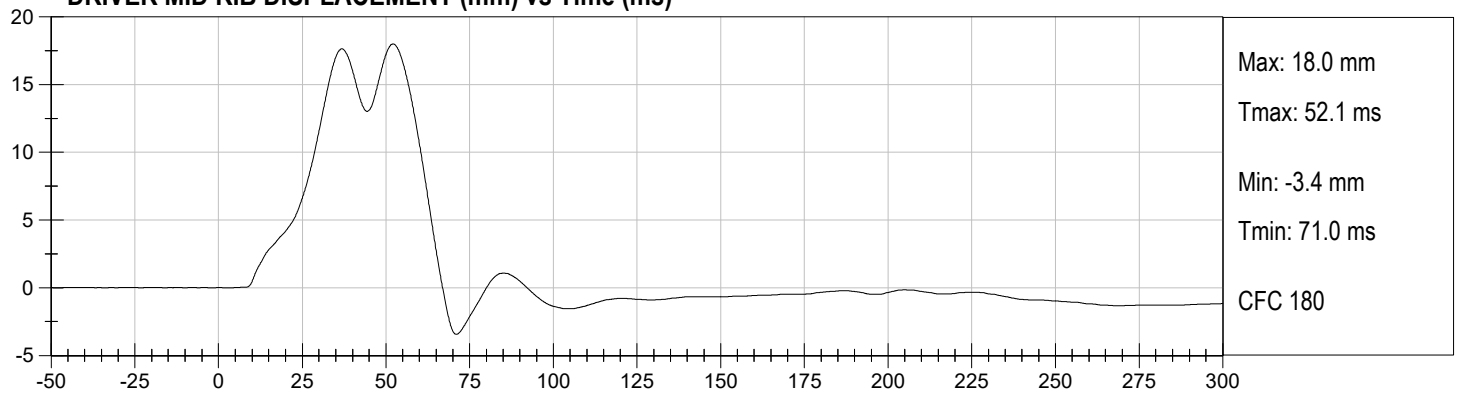
DRIVER HEAD Resultant (g) vs Time (ms)



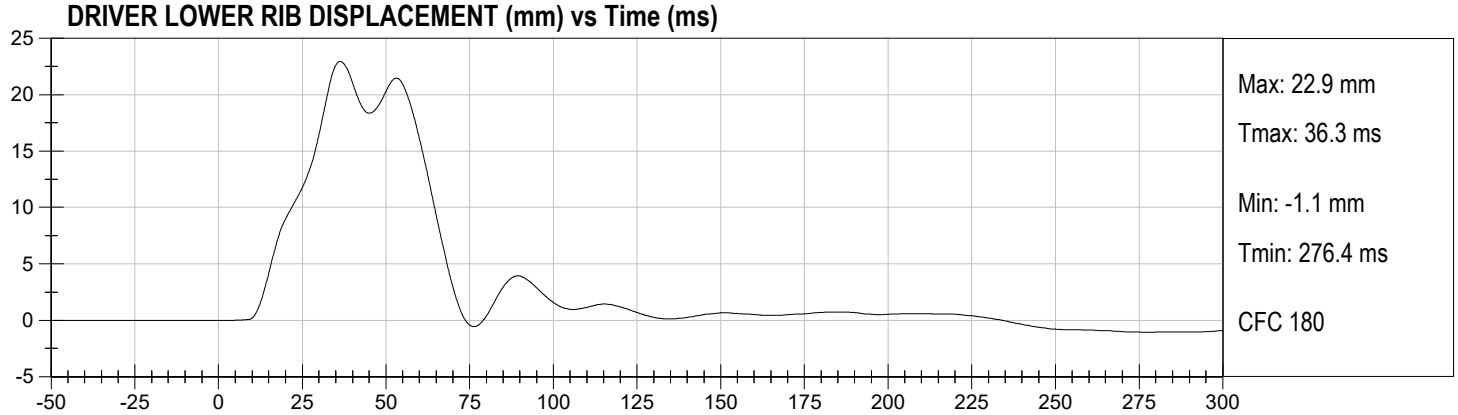
DRIVER UPPER RIB DISPLACEMENT (mm) vs Time (ms)



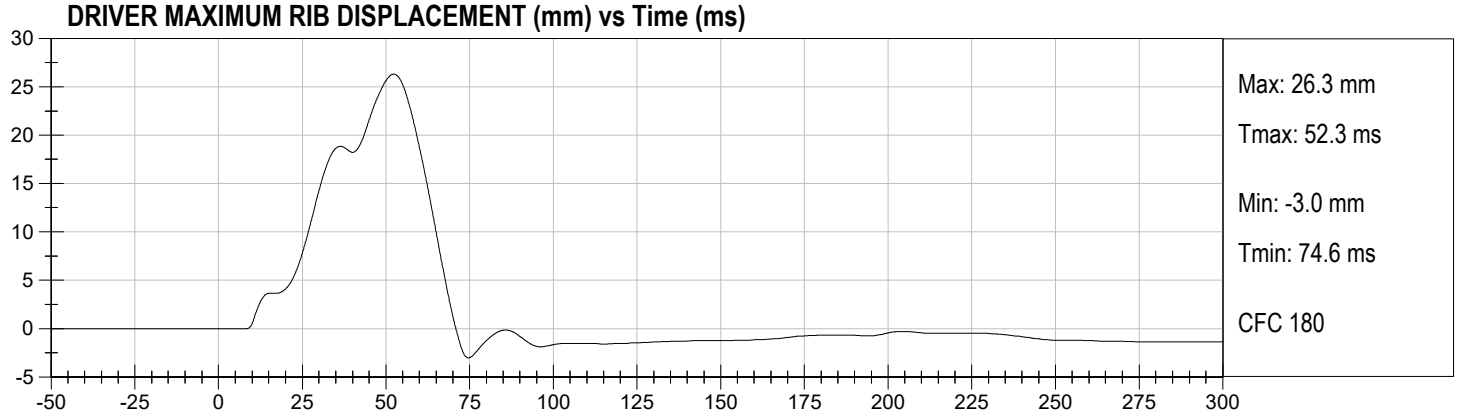
DRIVER MID RIB DISPLACEMENT (mm) vs Time (ms)



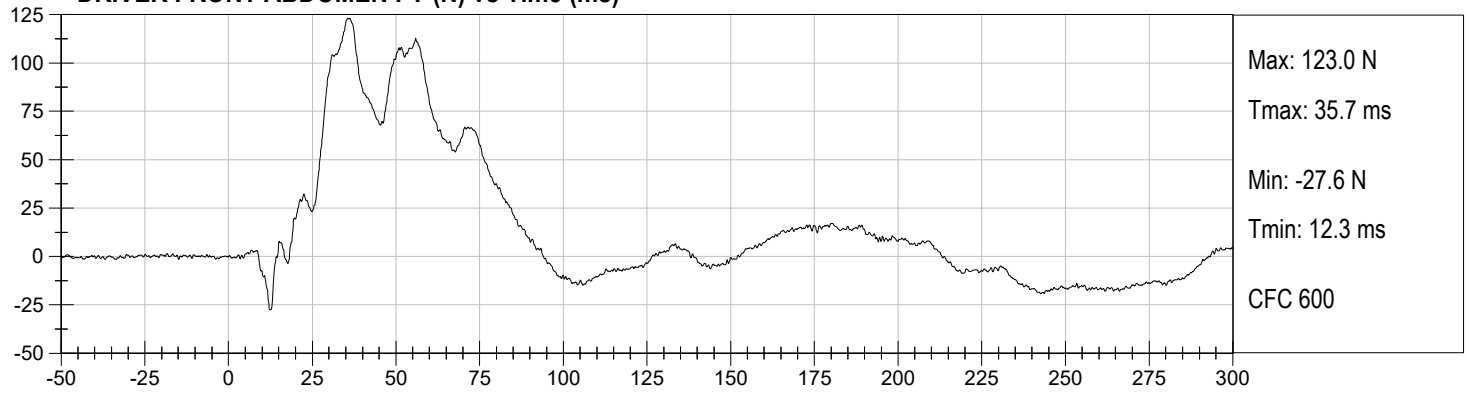
DRIVER LOWER RIB DISPLACEMENT (mm) vs Time (ms)



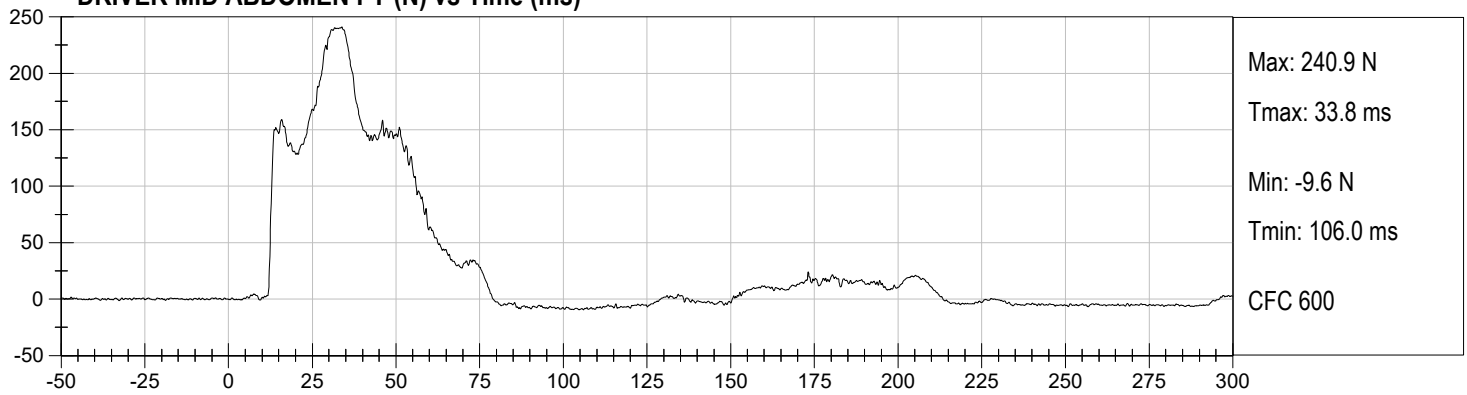
DRIVER MAXIMUM RIB DISPLACEMENT (mm) vs Time (ms)



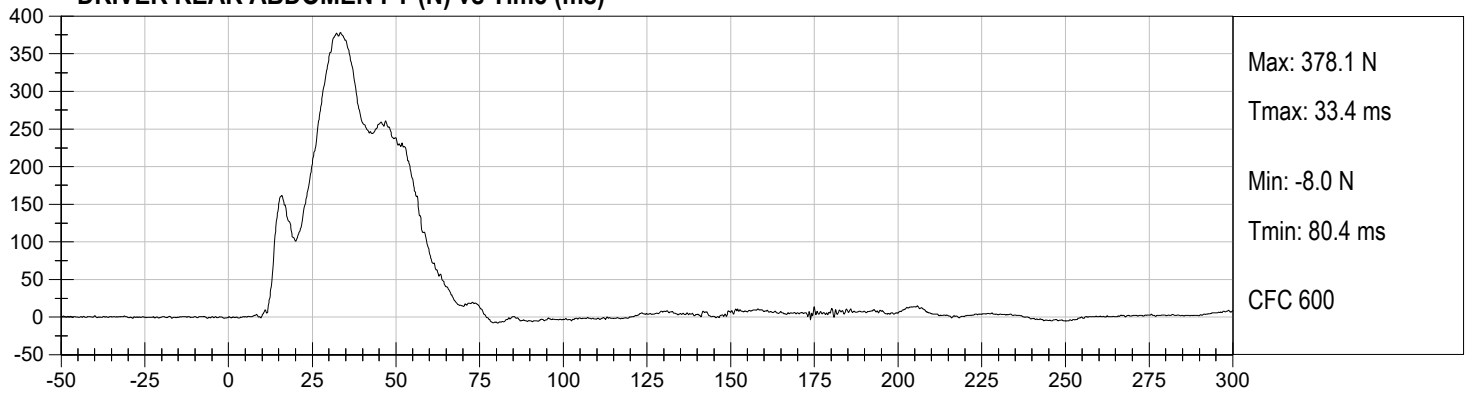
DRIVER FRONT ABDOMEN FY (N) vs Time (ms)



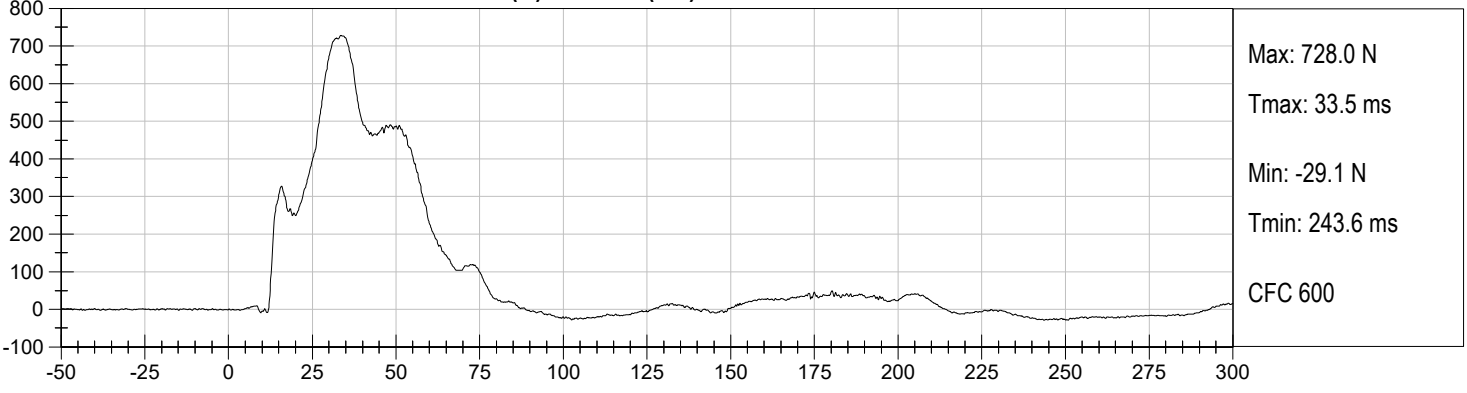
DRIVER MID ABDOMEN FY (N) vs Time (ms)



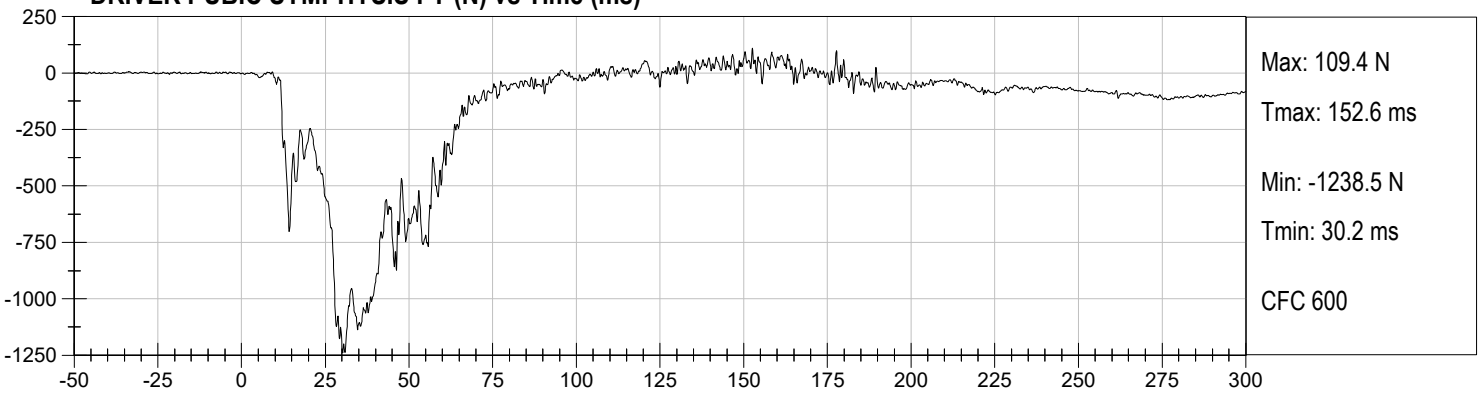
DRIVER REAR ABDOMEN FY (N) vs Time (ms)



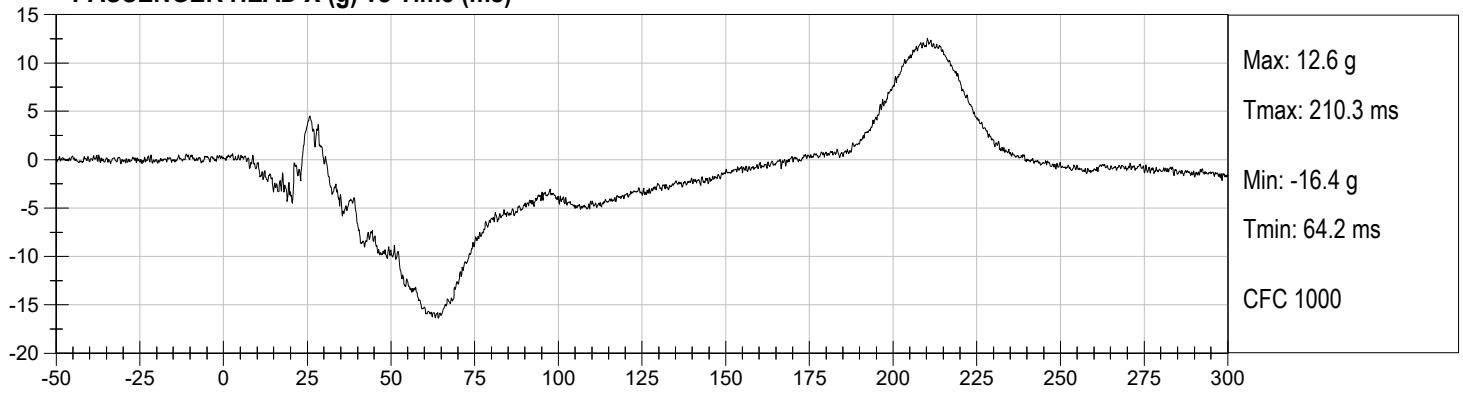
DRIVER SUMMED ABDOMEN FORCE (N) vs Time (ms)



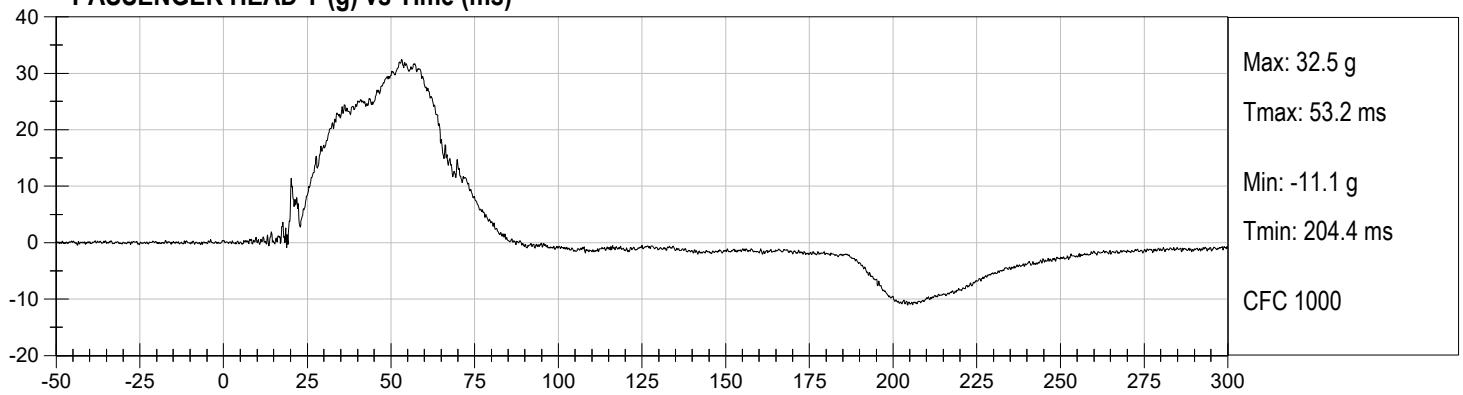
DRIVER PUBIC SYMPHYSIS FY (N) vs Time (ms)



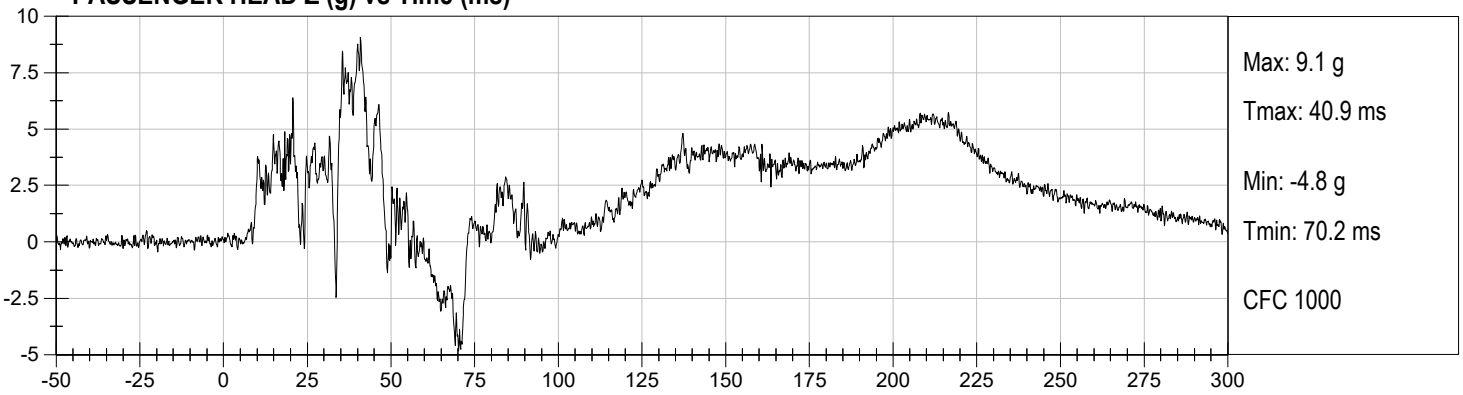
PASSENGER HEAD X (g) vs Time (ms)



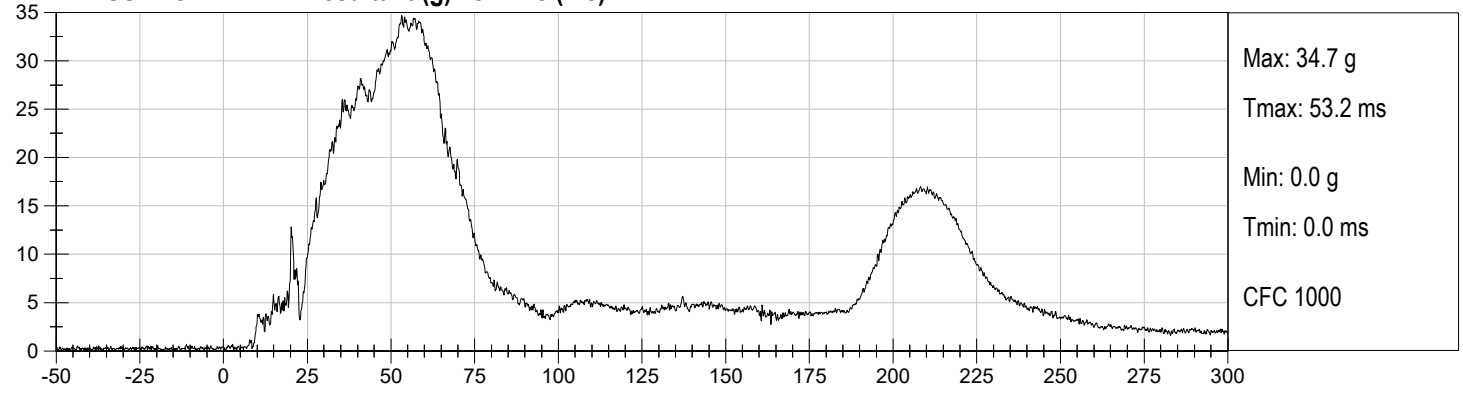
PASSENGER HEAD Y (g) vs Time (ms)



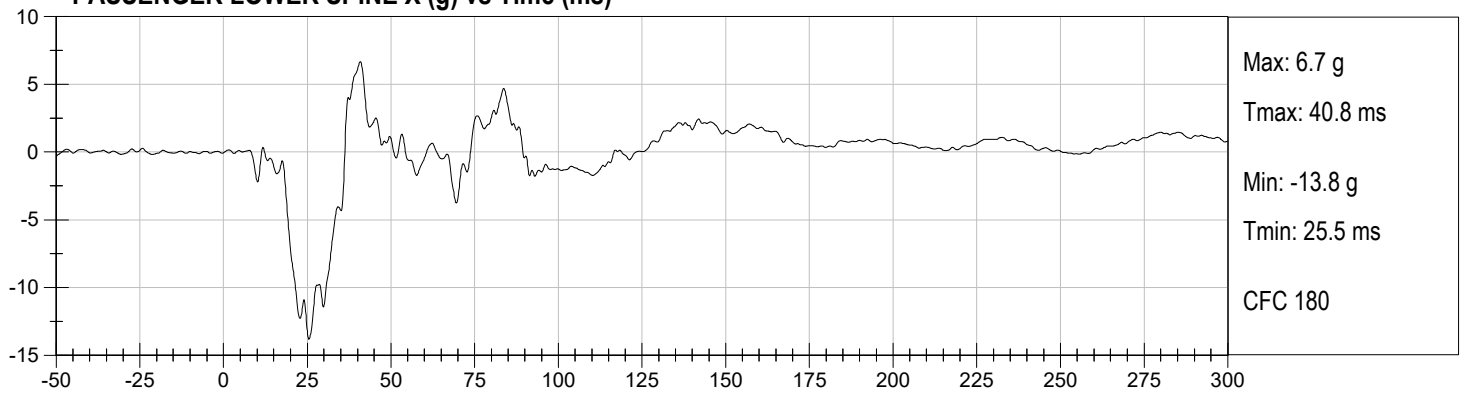
PASSENGER HEAD Z (g) vs Time (ms)



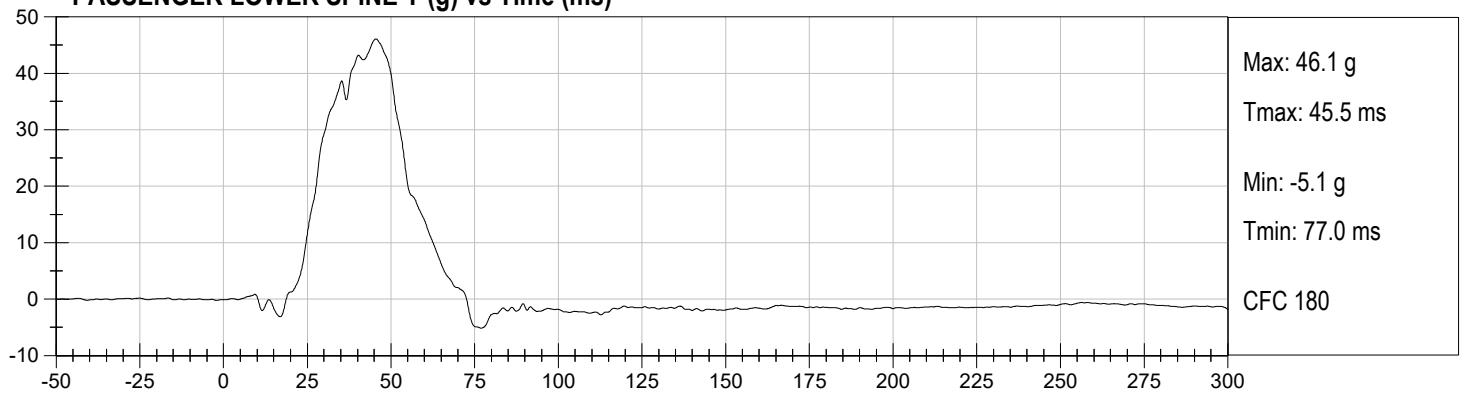
PASSENGER HEAD Resultant (g) vs Time (ms)



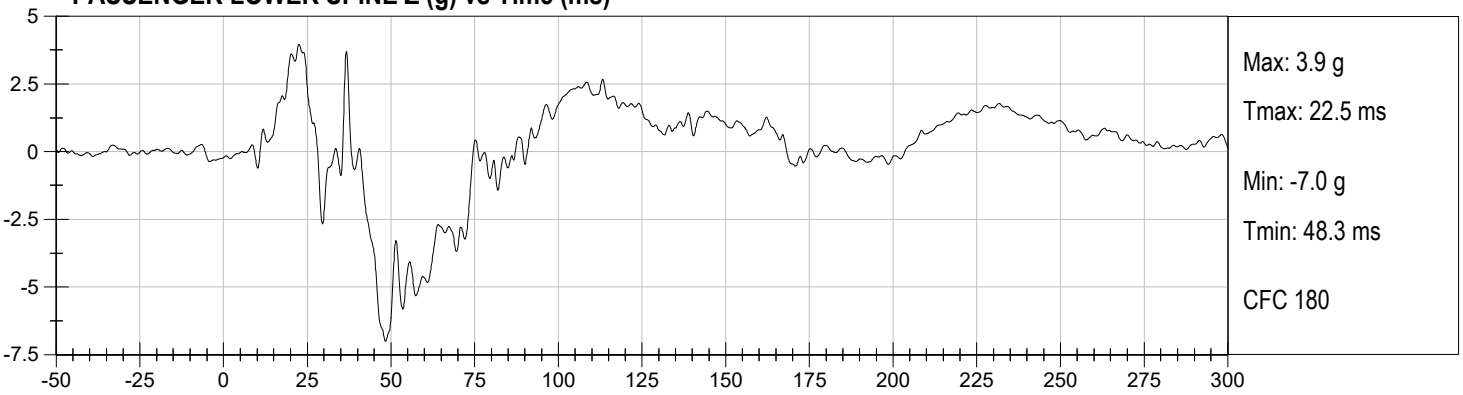
PASSENGER LOWER SPINE X (g) vs Time (ms)



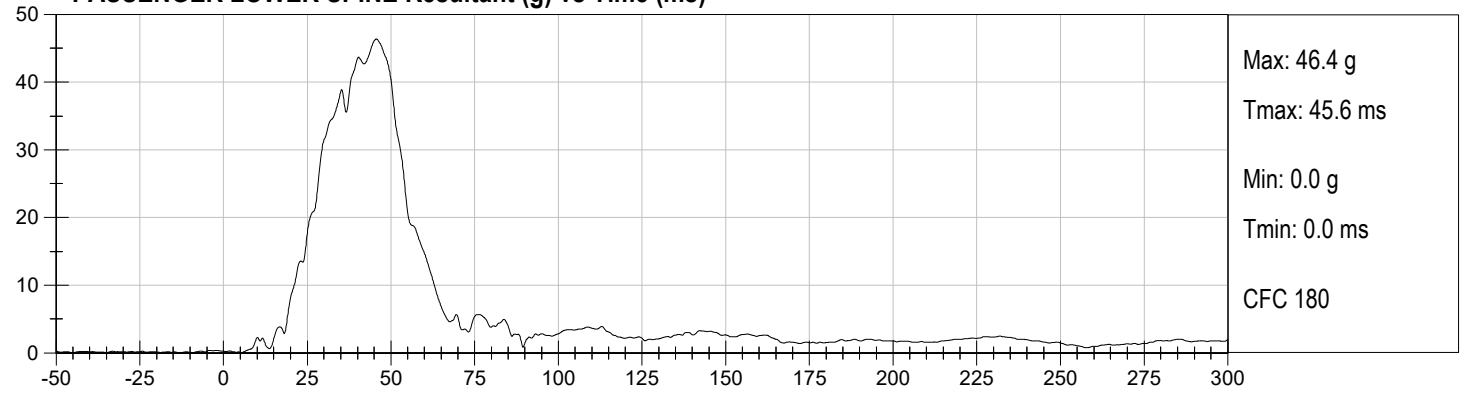
PASSENGER LOWER SPINE Y (g) vs Time (ms)



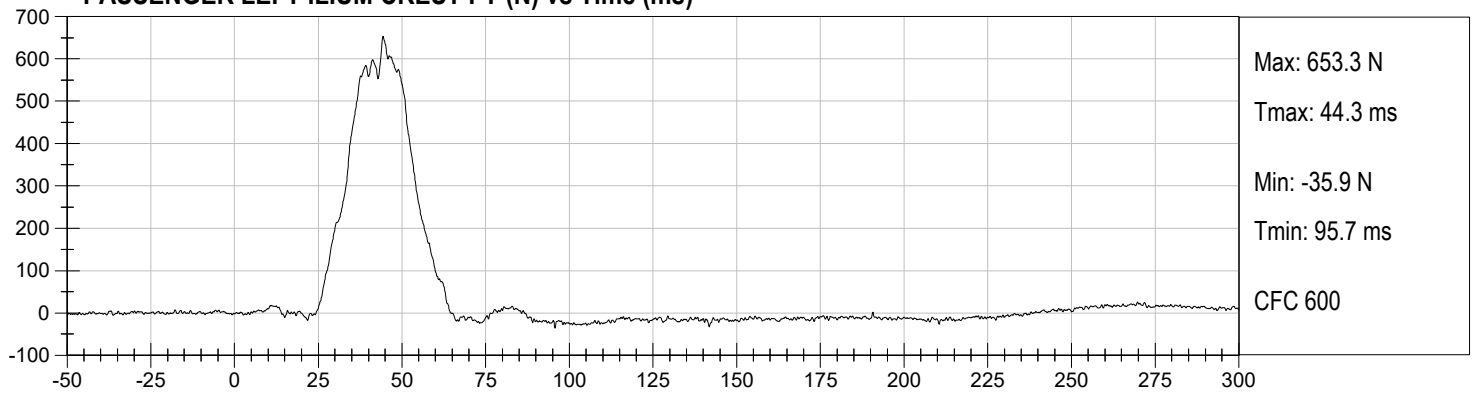
PASSENGER LOWER SPINE Z (g) vs Time (ms)



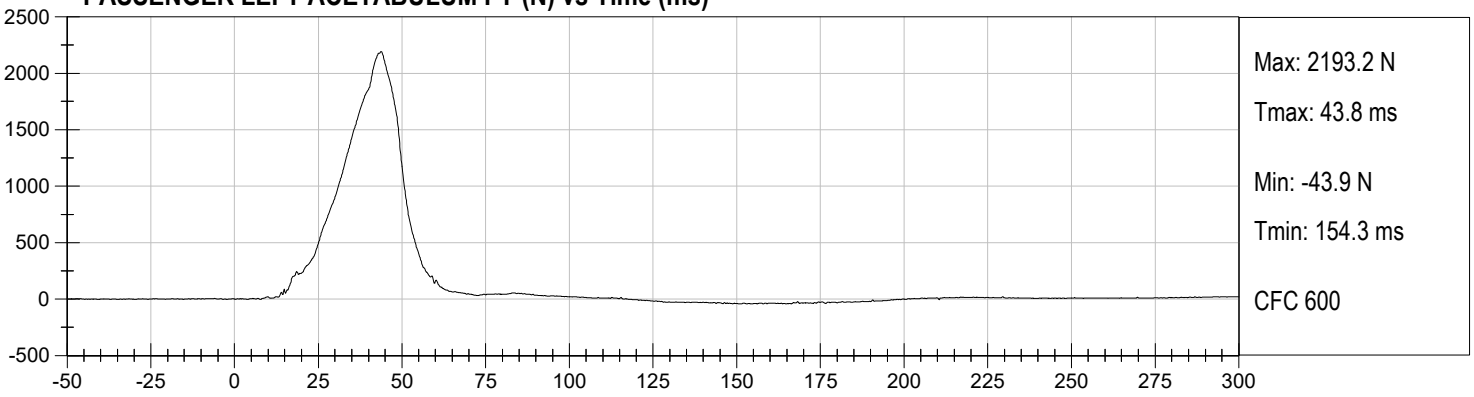
PASSENGER LOWER SPINE Resultant (g) vs Time (ms)



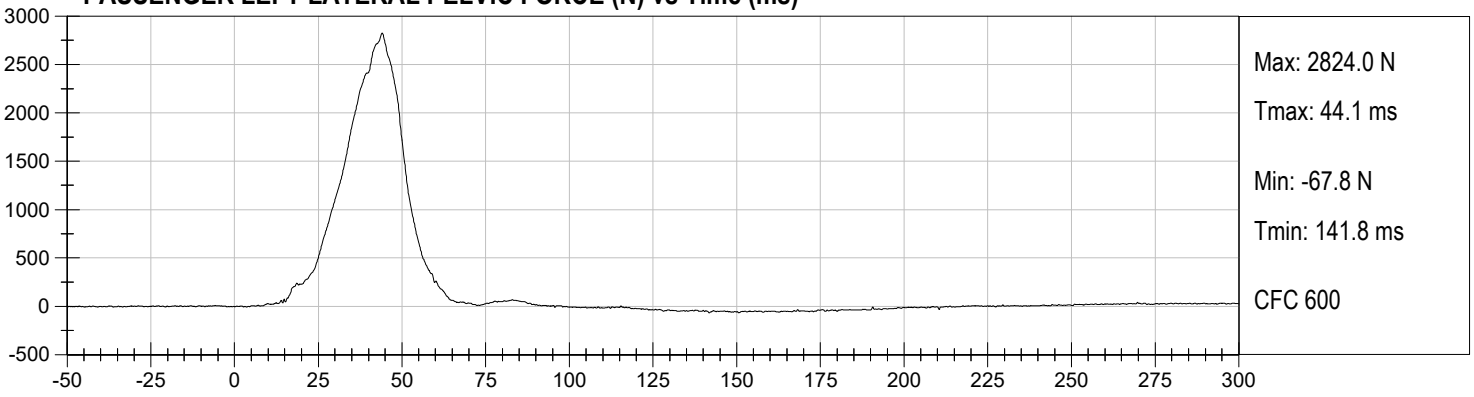
PASSENGER LEFT ILIUM CREST FY (N) vs Time (ms)



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

MGA RESEARCH CORPORATION

HEAD DROP TEST

ES-2re DUMMY

ATD Serial No: F032 **Test ID:** D243101

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	25	Pass
Peak Resultant Acceleration	G's	125 to 155	134	Pass
Peak Longitudinal Acceleration	G's	<= +/- 15.0	7.6	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 15% of peak	Yes	Pass
		Overall Test Results		Pass

Laboratory Technician

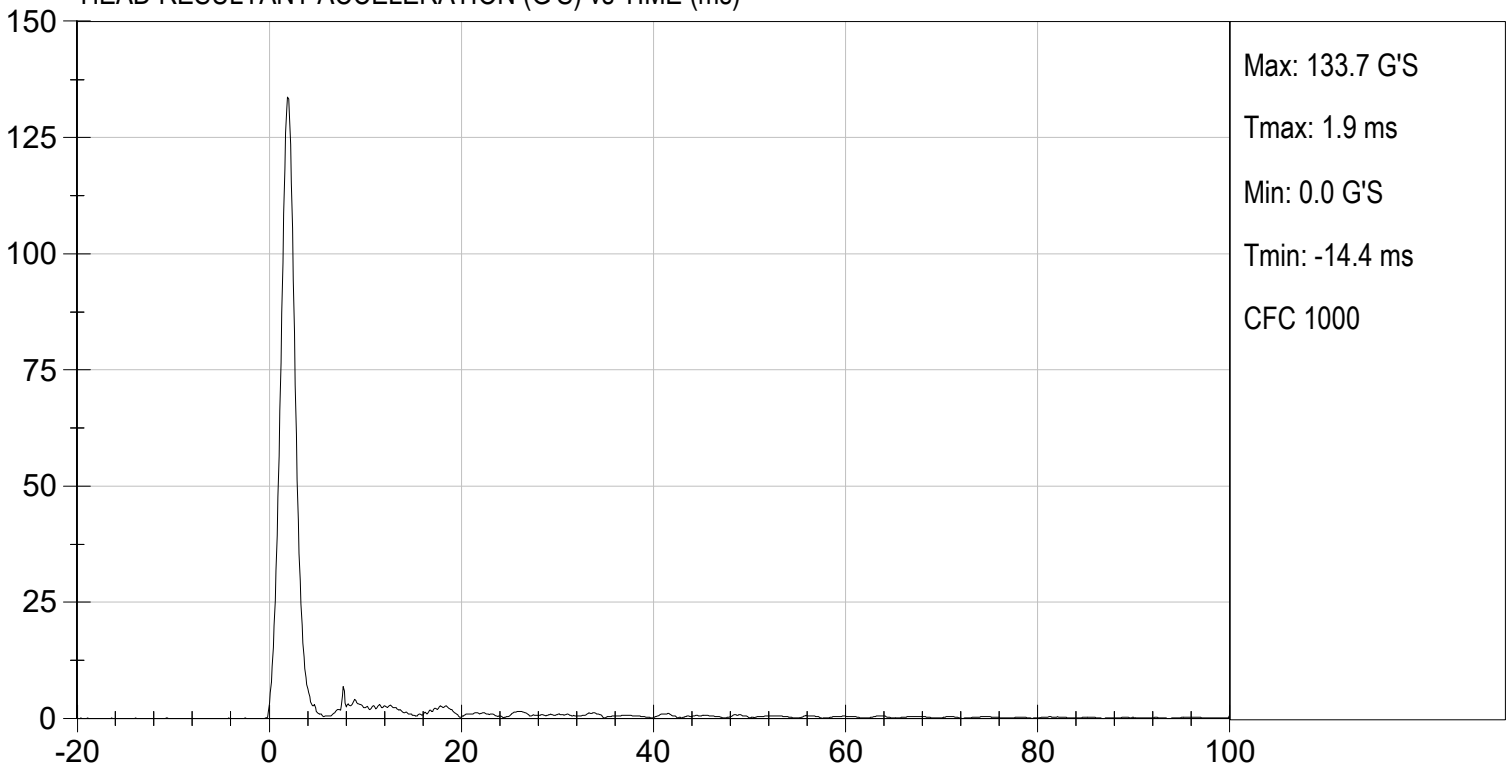
12/04/2024
Test Date

Approved By

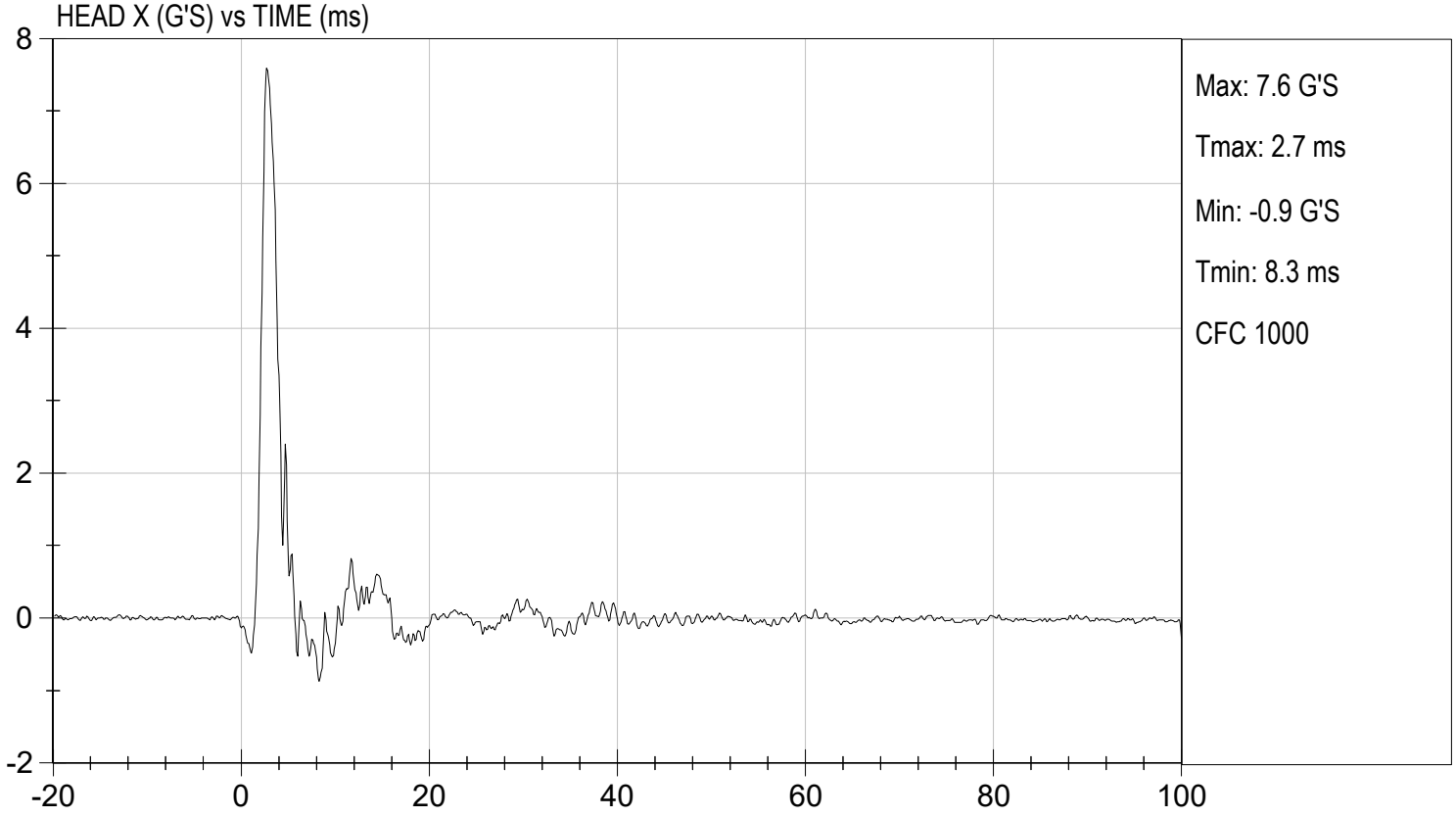
TEST DESC: HEAD DROP

TEST DATE: 12/04/2024
TEST #: D243101

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

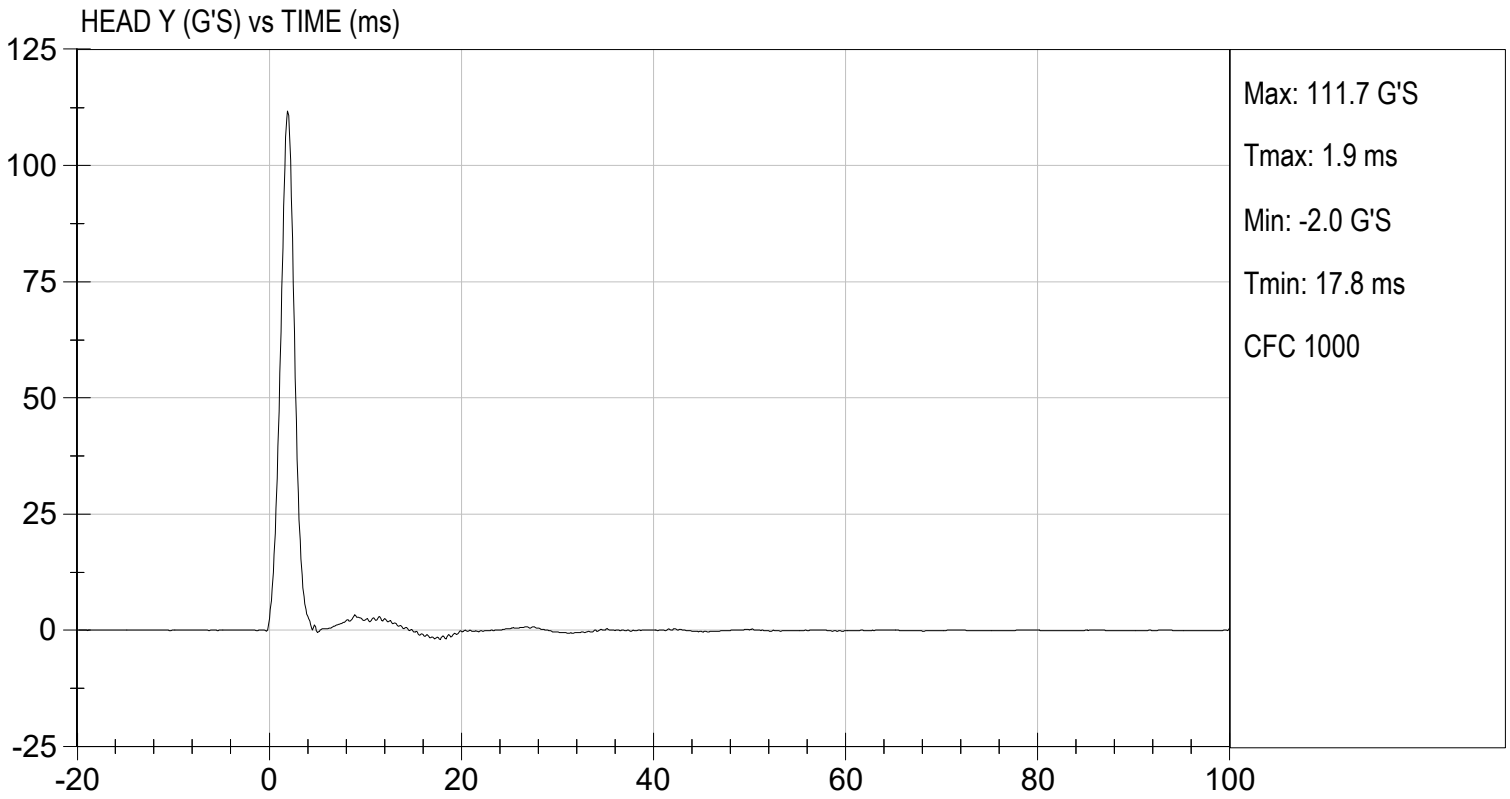


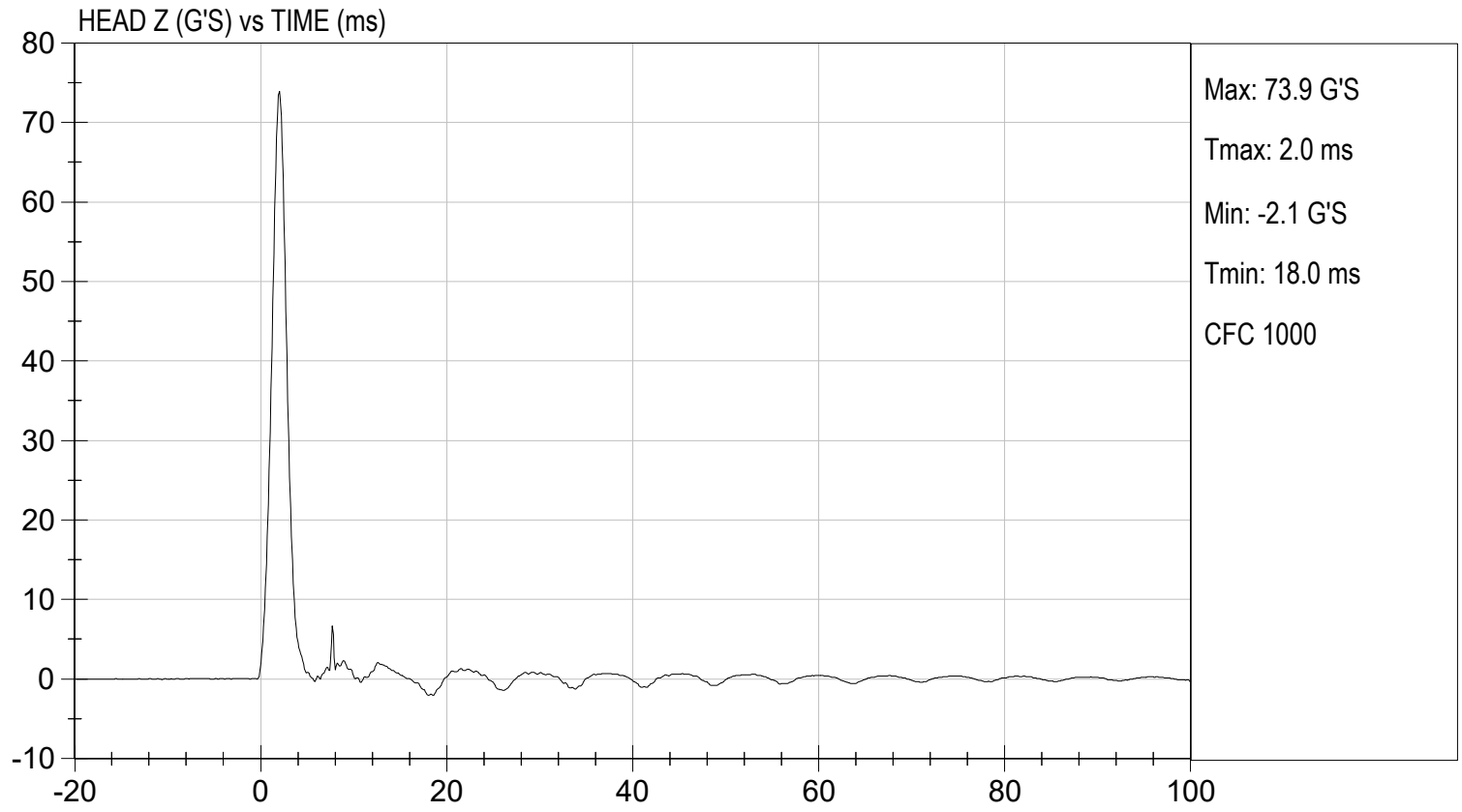
HEAD X (G'S) vs TIME (ms)



TEST DESC: HEAD DROP

TEST DATE: 12/04/2024
TEST #: D243101





MGA RESEARCH CORPORATION

NECK PENDULUM TEST

ES-2re DUMMY

ATD Serial No: F032 **Test I.D:** D243102

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity		%	10 to 70	25	Pass
Pendulum Speed		m/s	3.30 to 3.50	3.43	Pass
Pendulum Velocity	1 ms	m/s	-0.05 to 0.00	-0.01	Pass
	3 ms	m/s	-0.25 to -0.375	-0.33	Pass
	14 ms	m/s	-3.20 to -3.70	-3.50	Pass
	17 ms	m/s	>= -3.70	-3.61	Pass
Maximum Flexion Angle		deg	49.0 to 59.0	53.3	Pass
Time of Maximum Flexion Angle		ms	54.0 to 66.0	60.4	Pass
Head Rotation Decay Time to 0 Degree		ms	53.0 to 88.0	63.0	Pass
			Overall Results		Pass

Laboratory Technician

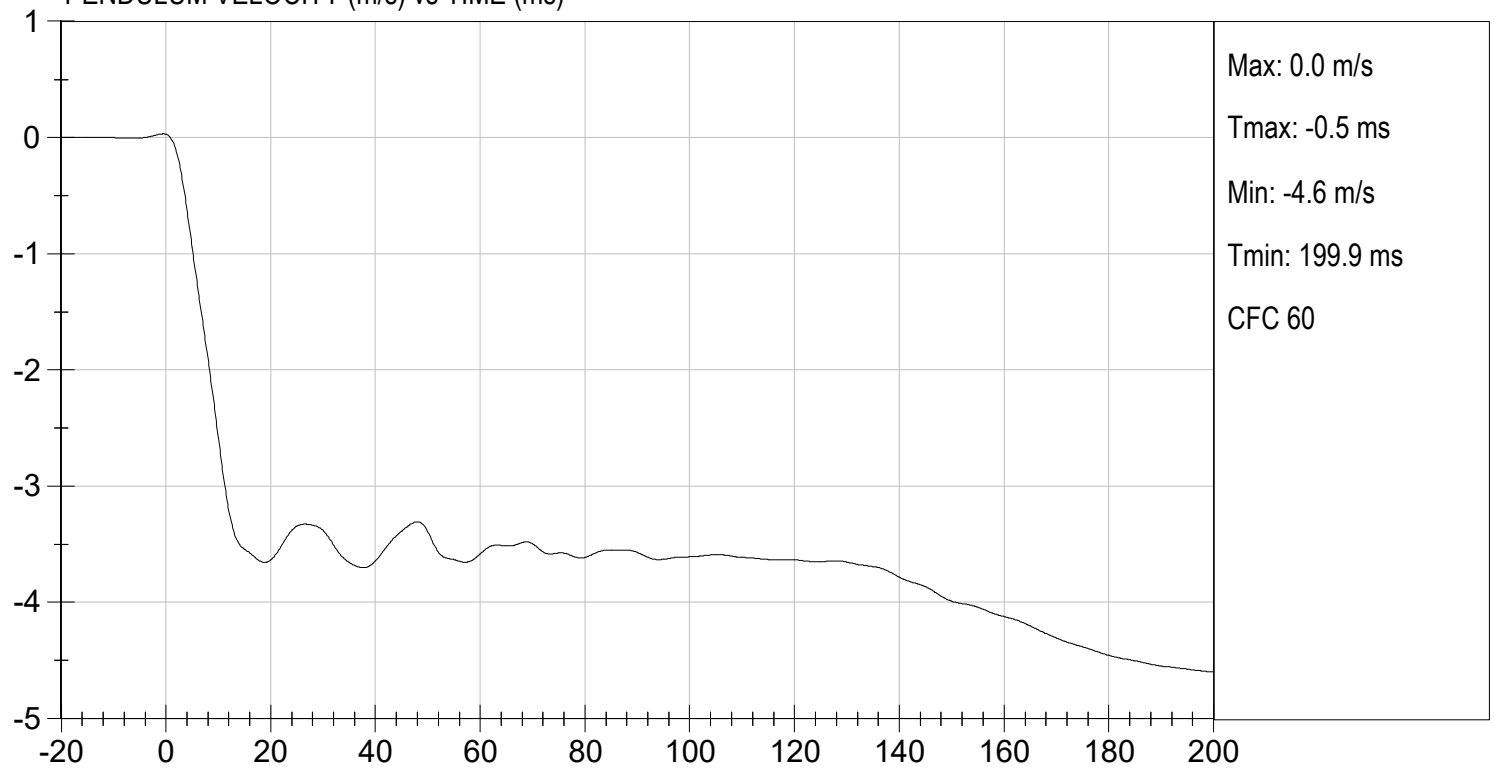
12/04/2024
Test Date

Approved By

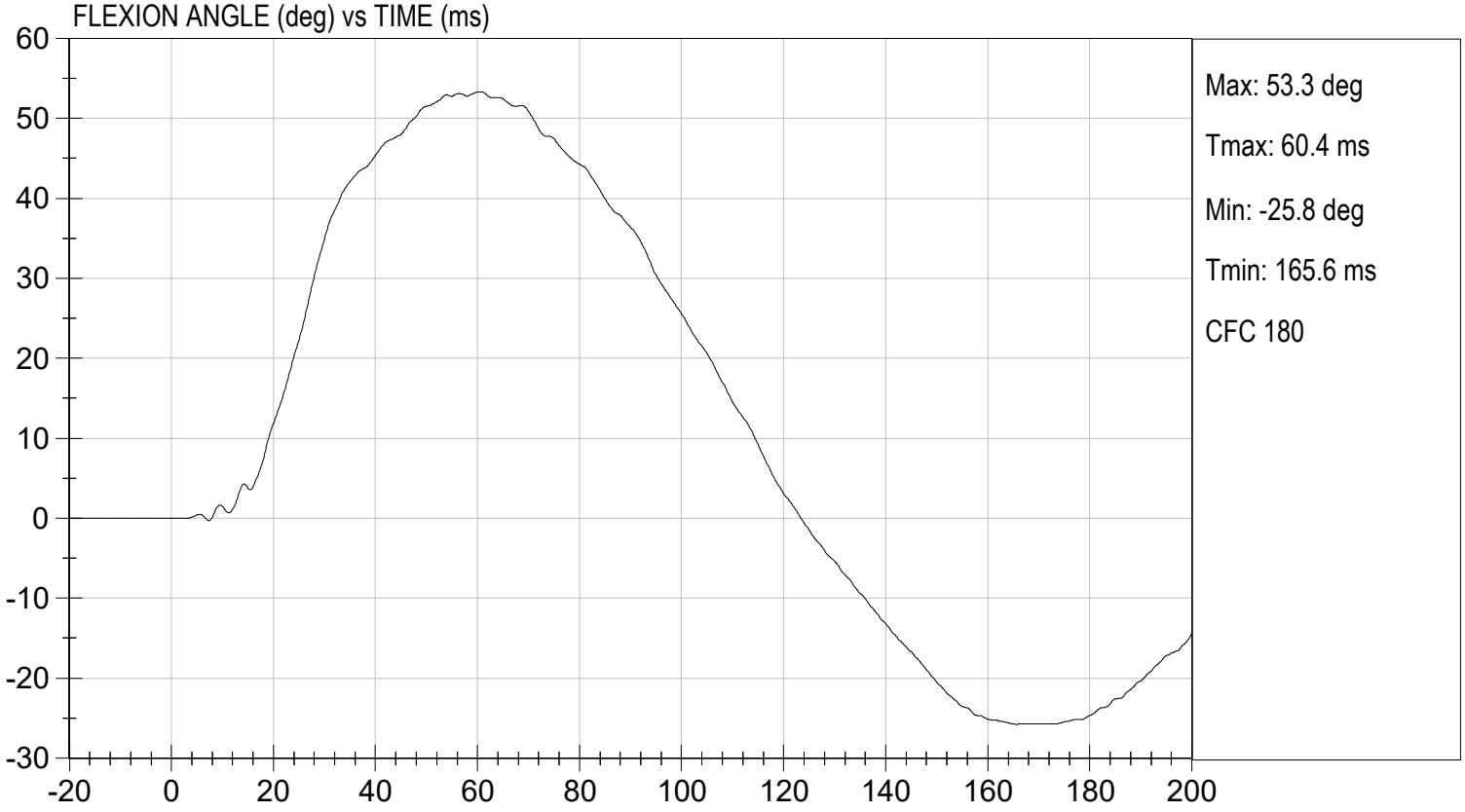
TEST DESC: NECK BENDING
VELOCITY: 11.26 ft/s, 3.43 m/s

TEST DATE: 12/04/2024
TEST #: D243102

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

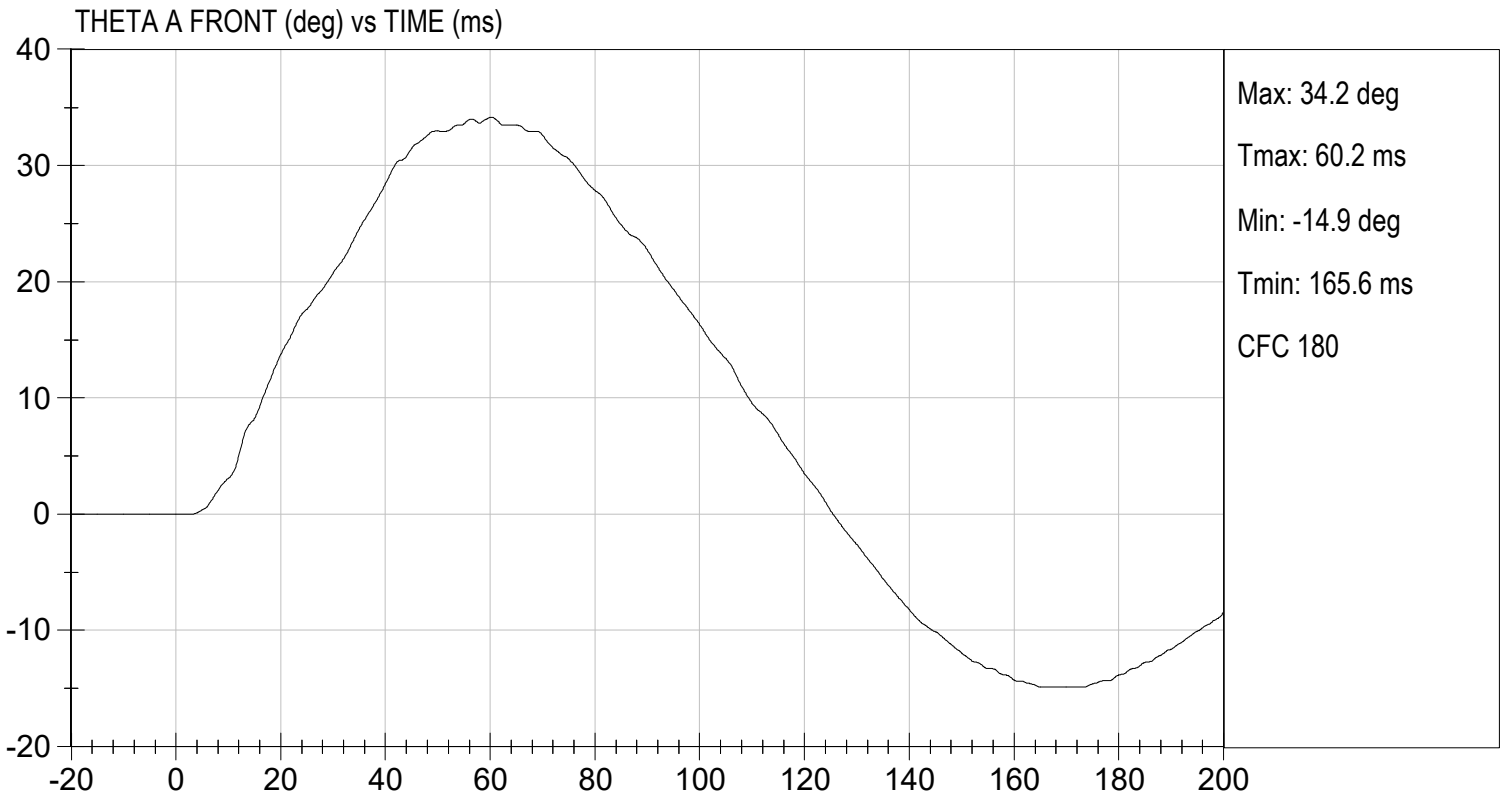


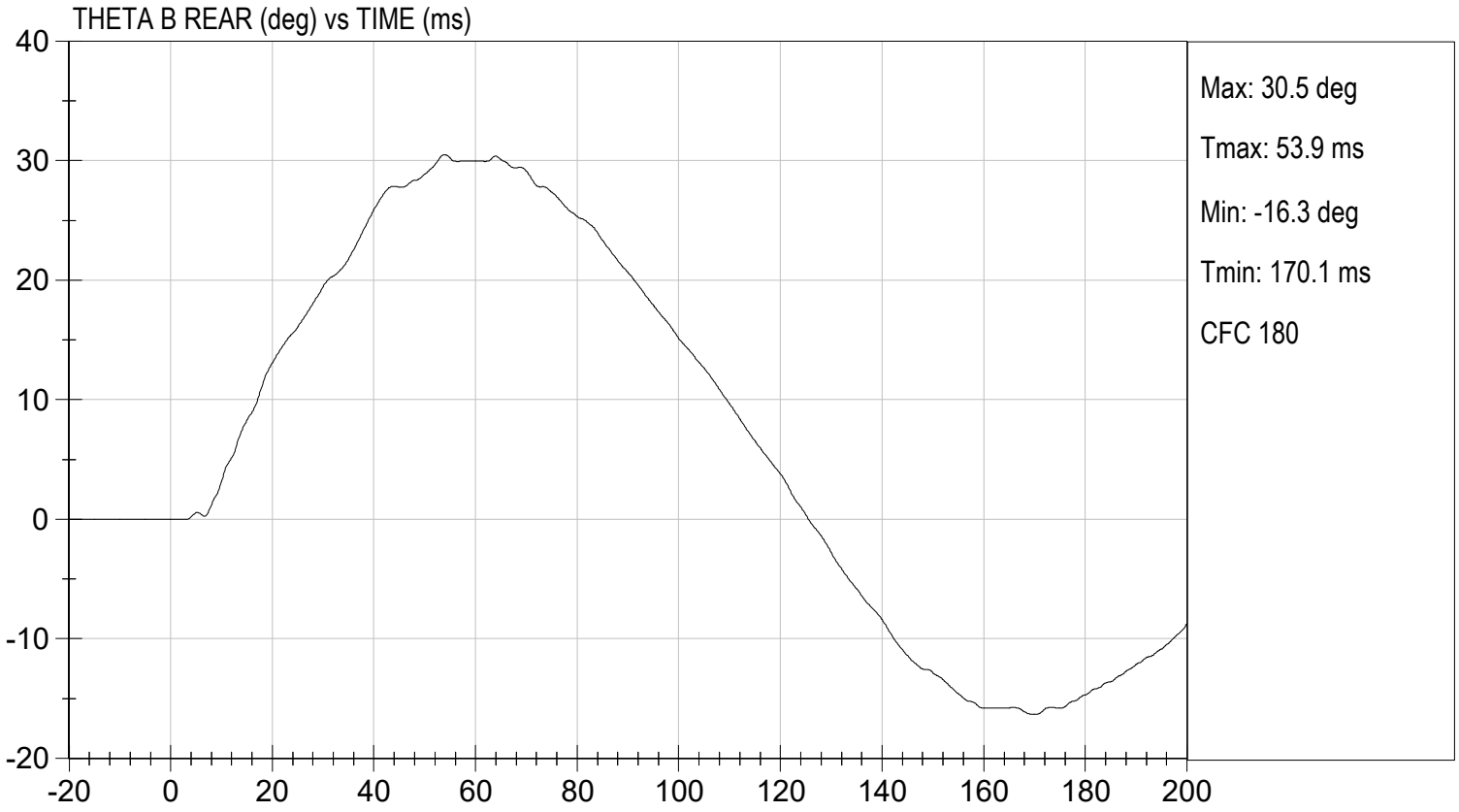
FLEXION ANGLE (deg) vs TIME (ms)



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

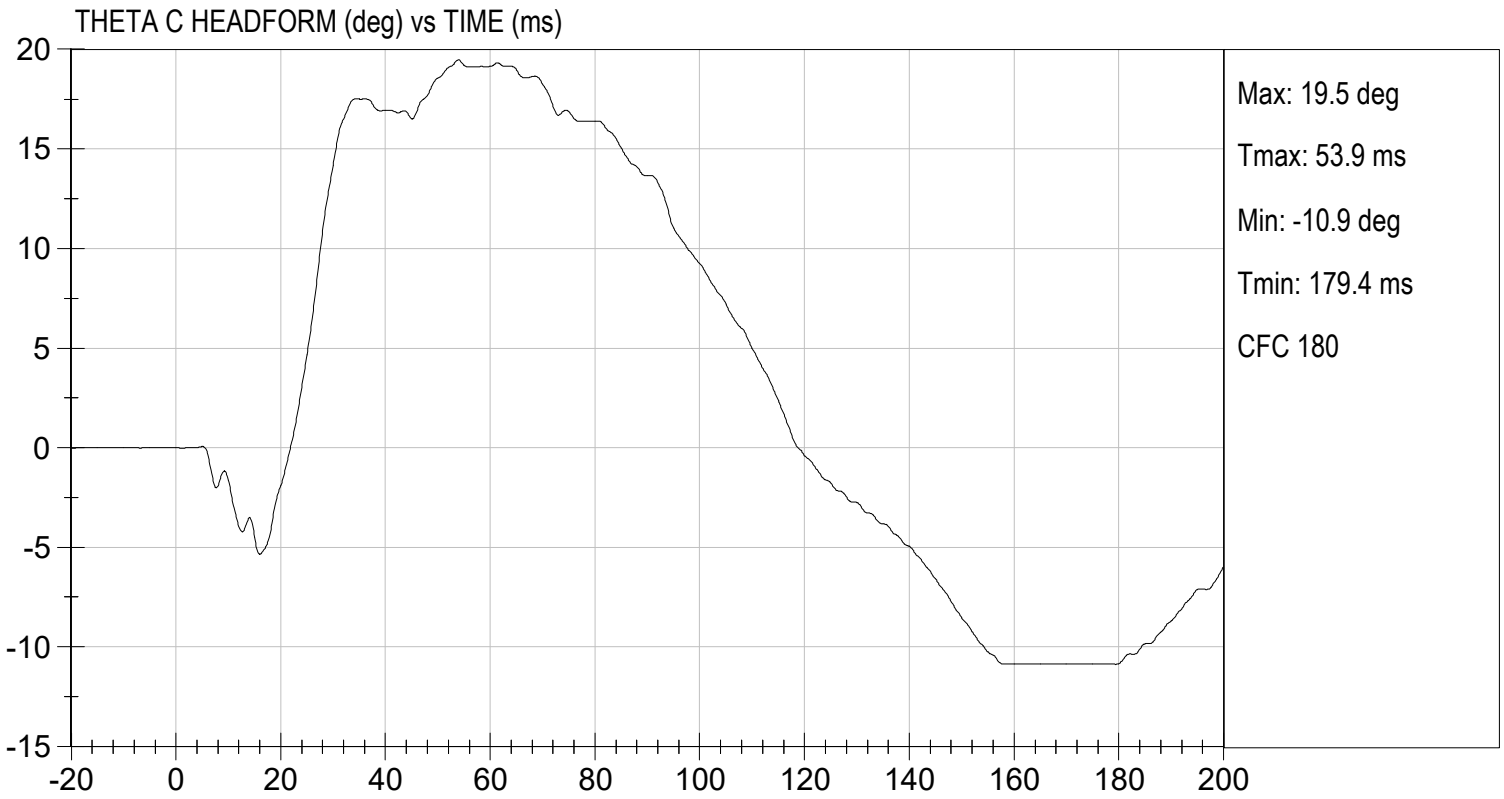
TEST DATE: 12/04/2024
TEST #: D243102





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

TEST DATE: 12/04/2024
TEST #: D243102



MGA RESEARCH CORPORATION

SHOULDER IMPACT TEST

ES-2re DUMMY

ATD Serial No: F032 **Test I.D:** D243103

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	25	Pass
Pendulum Speed	m/s	4.20 to 4.40	4.2	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	9.1	Pass
		Overall Test Results		Pass

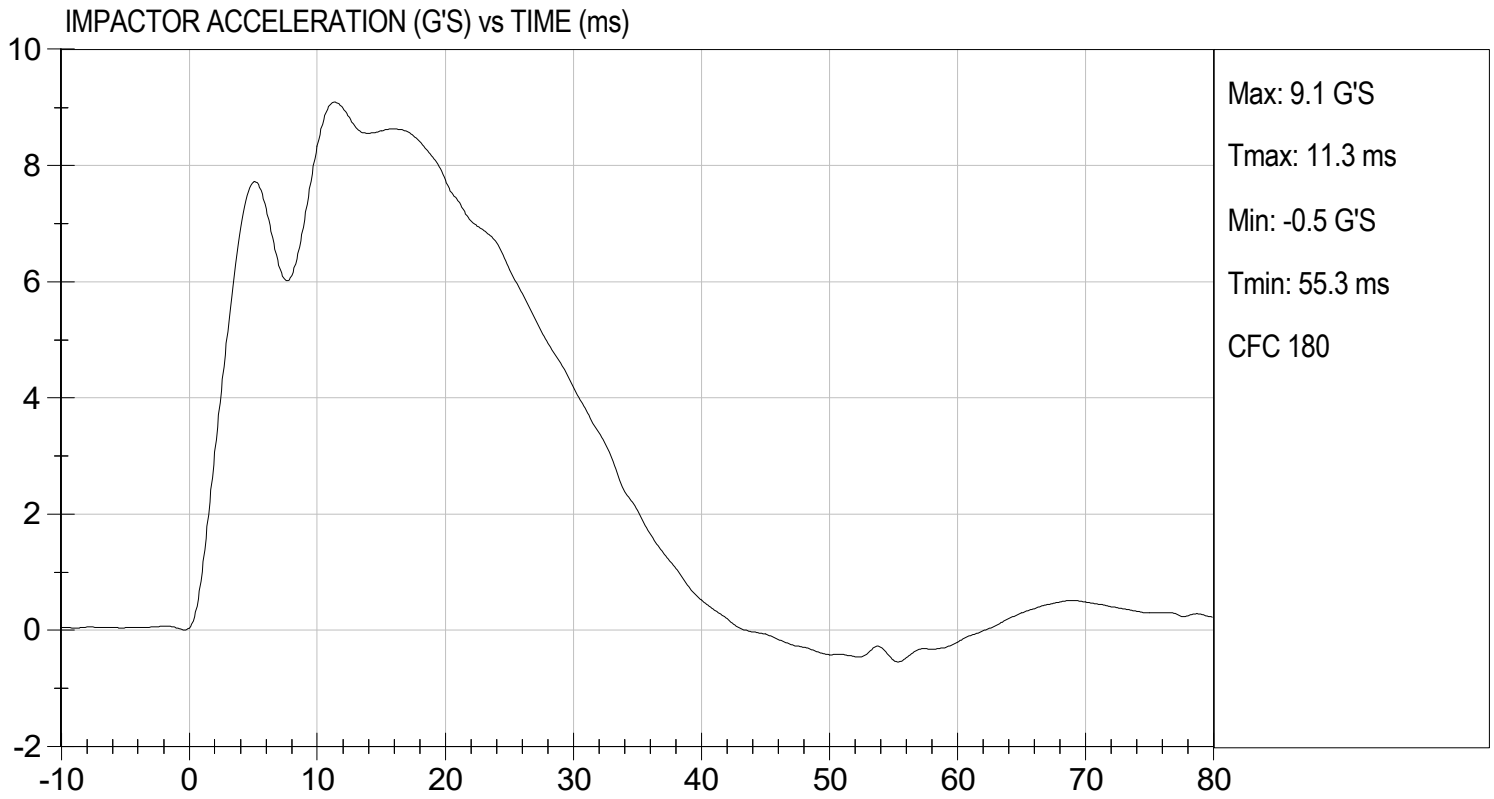
Laboratory Technician

12/04/2024
Test Date

Approved By

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

TEST DATE: 12/04/2024
TEST #: D243103



MGA RESEARCH CORPORATION

UPPER RIB TEST

ES-2re DUMMY

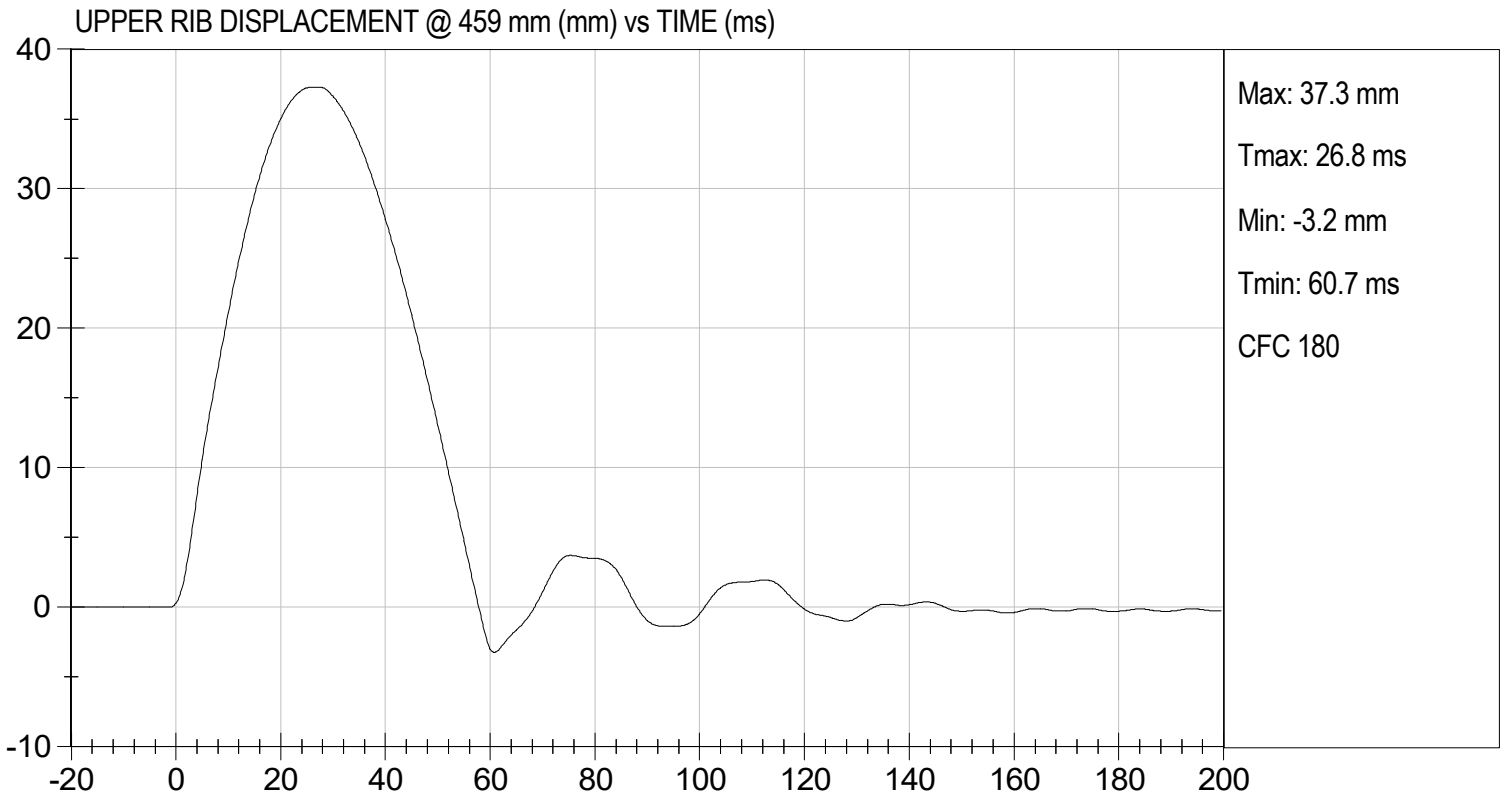
ATD Serial No: F032 **Test I.D:** D243104

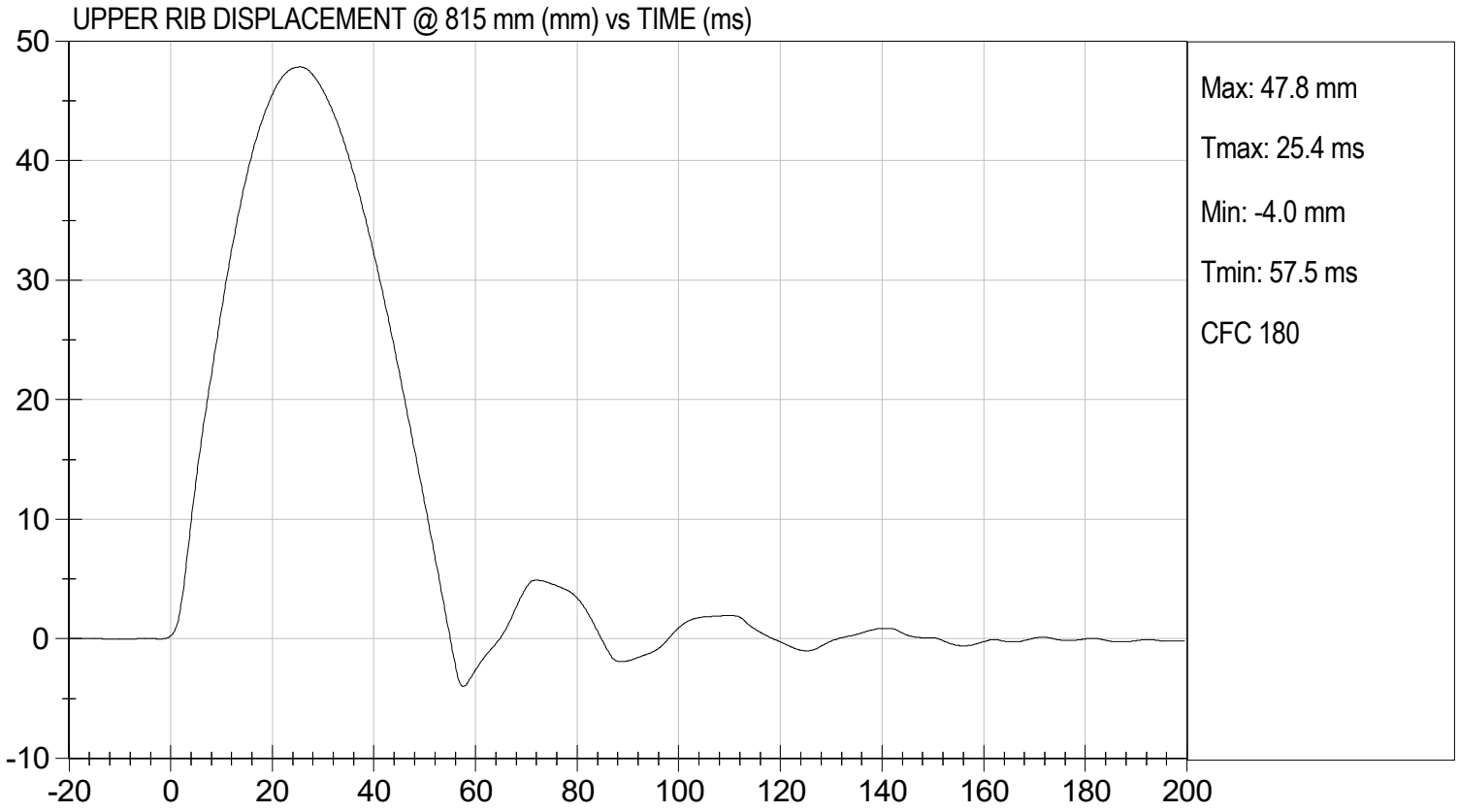
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	25	Pass
Displacement at 459 mm	mm	36.0 to 40.0	37.3	Pass
Displacement at 815 mm	mm	46.0 to 51.0	47.8	Pass
		Overall Test Results		Pass

Laboratory Technician

12/04/2024
Test Date

Approved By


UPPER RIB DISPLACEMENT @ 459 mm (mm) vs TIME (ms)
40
30
20
10
0
-10
-20
0
20
40
60
80
100
120
140
160
180
200
Max: 37.3 mm
Tmax: 26.8 ms
Min: -3.2 mm
Tmin: 60.7 ms
CFC 180


UPPER RIB DISPLACEMENT @ 815 mm (mm) vs TIME (ms)
50
40
30
20
10
0
-10
-20
0
20
40
60
80
100
120
140
160
180
200
Max: 47.8 mm
Tmax: 25.4 ms
Min: -4.0 mm
Tmin: 57.5 ms
CFC 180

MGA RESEARCH CORPORATION

MID RIB TEST

ES-2re DUMMY

ATD Serial No: F032 **Test I.D:** D243105

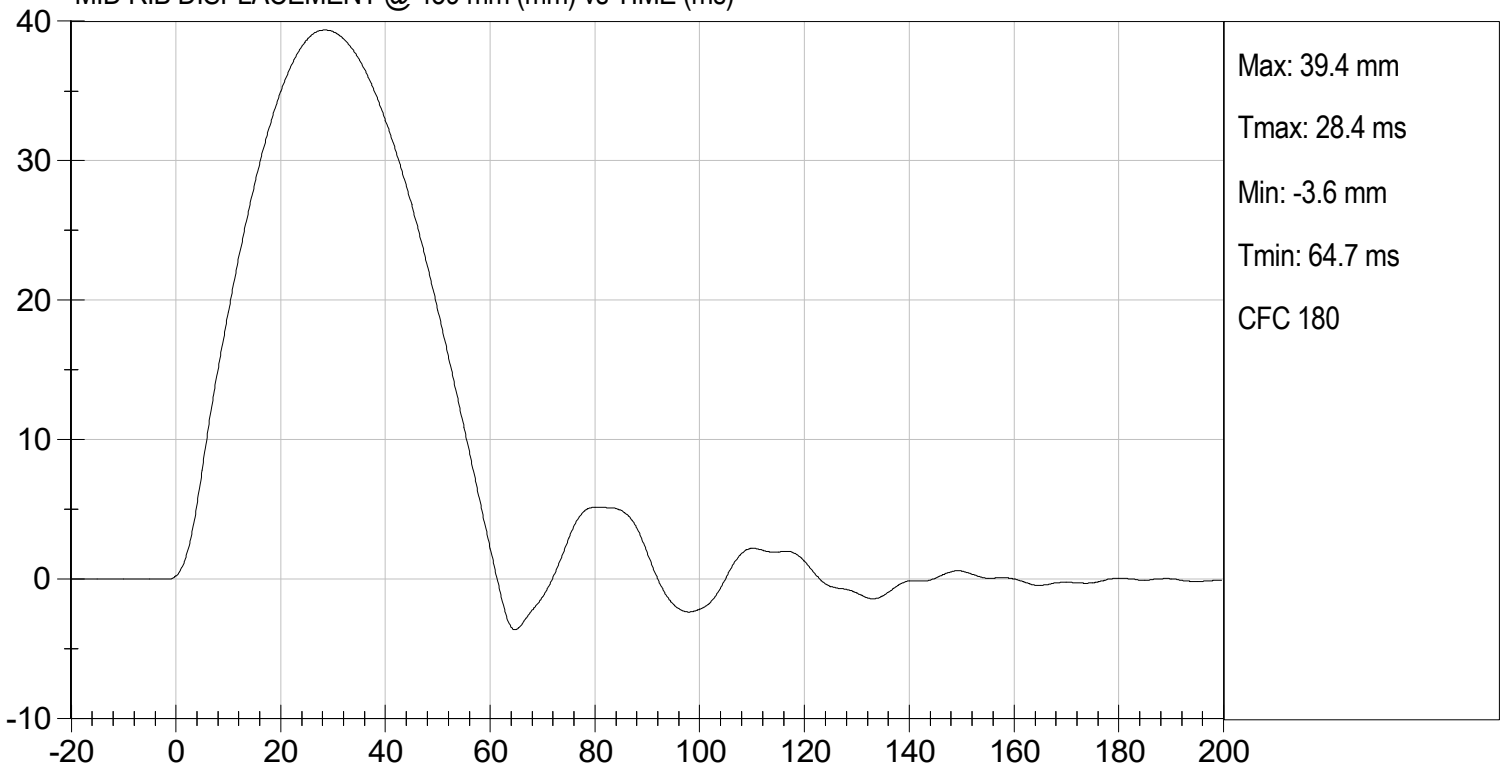
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	25	Pass
Displacement at 459 mm	mm	36.0 to 40.0	39.4	Pass
Displacement at 815 mm	mm	46.0 to 51.0	48.9	Pass
		Overall Test Results		Pass

Laboratory Technician

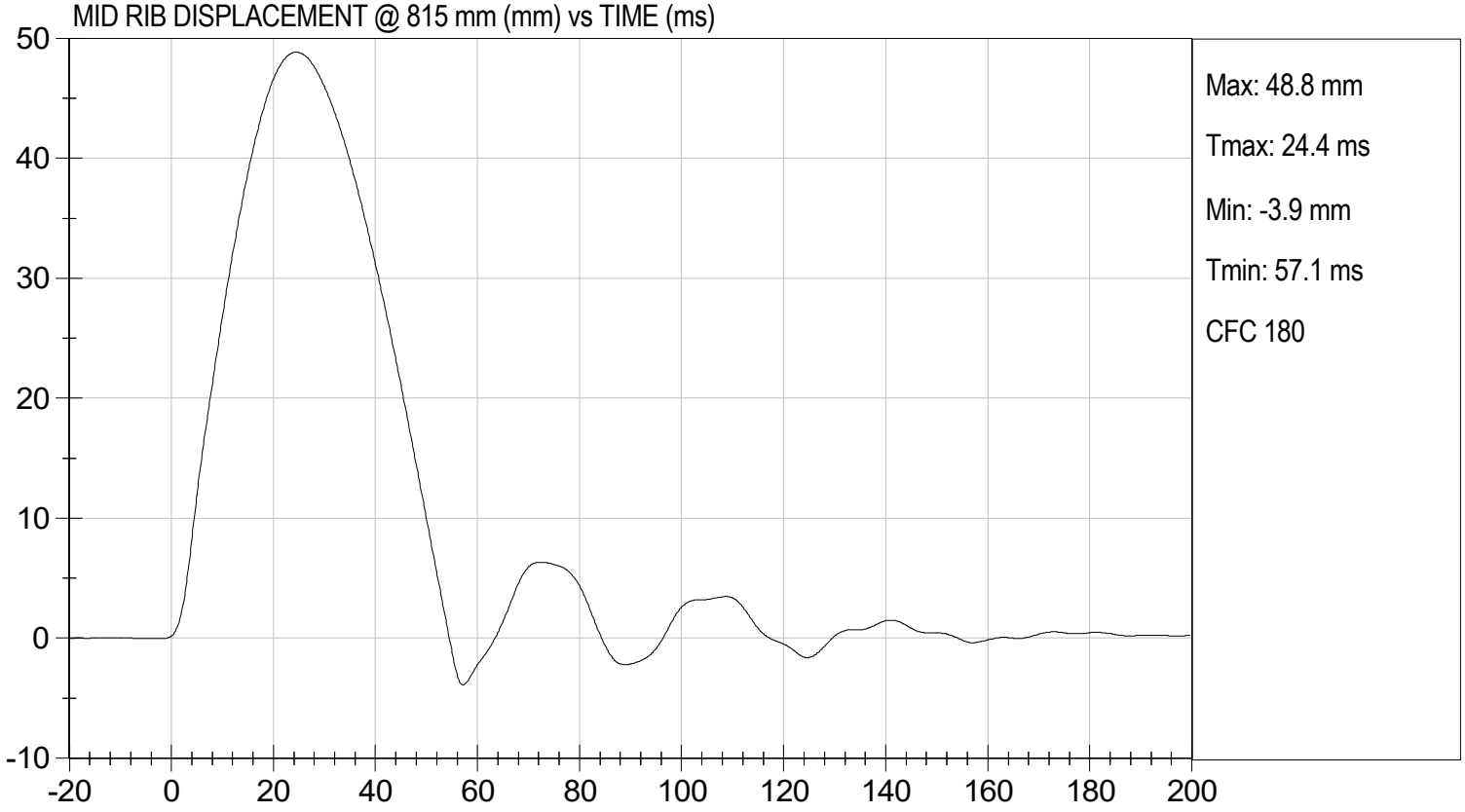
12/04/2024
Test Date

Approved By

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



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



MGA RESEARCH CORPORATION

LOWER RIB TEST

ES-2re DUMMY

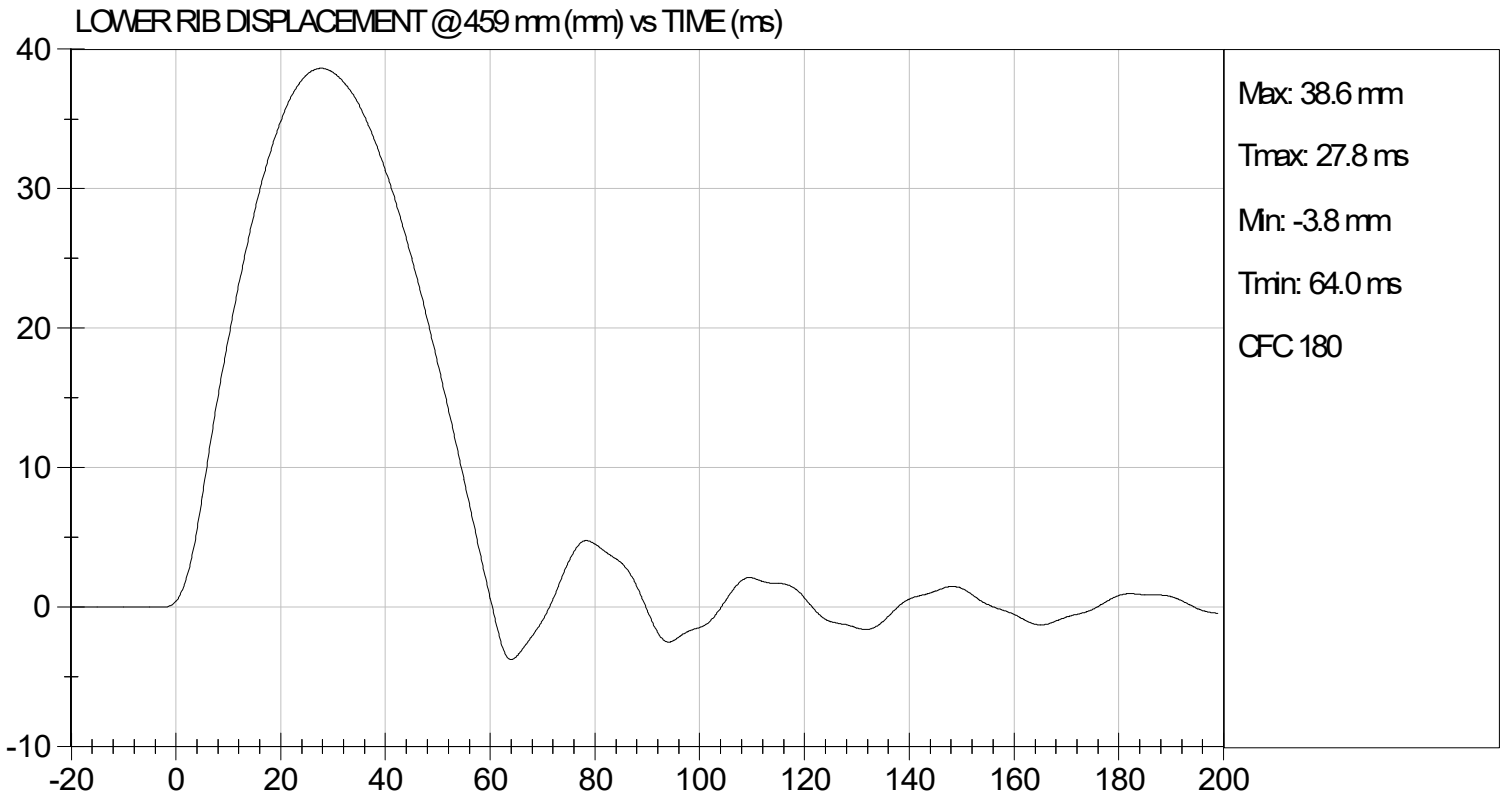
ATD Serial No: F032 **Test I.D:** D243106

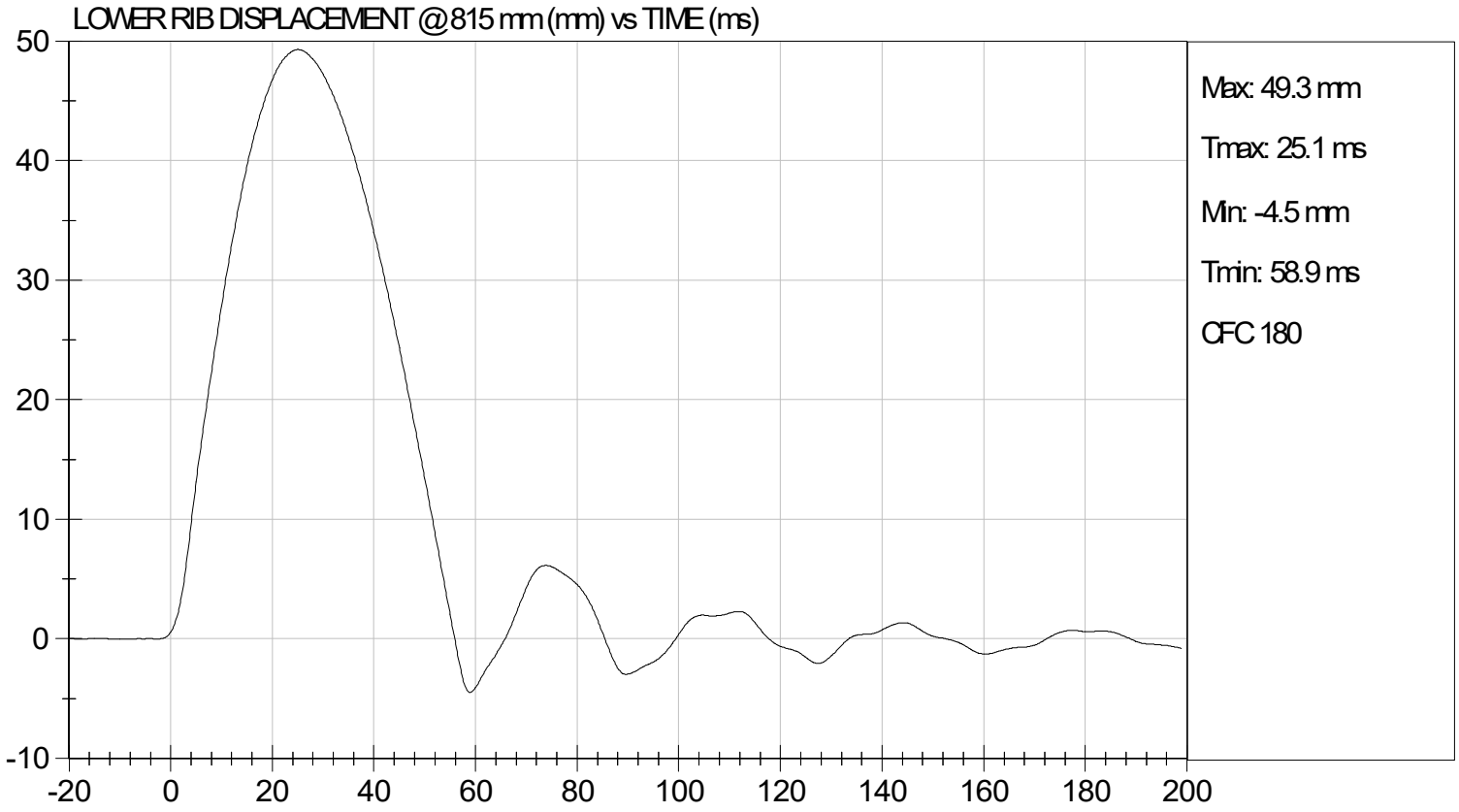
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	25	Pass
Displacement at 459 mm	mm	36.0 to 40.0	38.6	Pass
Displacement at 815 mm	mm	46.0 to 51.0	49.3	Pass
		Overall Test Results		Pass

Laboratory Technician

12/04/2024
Test Date

Approved By


LOWER RIB DISPLACEMENT @459 mm (mm) vs TIME (ms)
40
30
20
10
0
-10
-20
0
20
40
60
80
100
120
140
160
180
200
Max: 38.6 mm
Tmax: 27.8 ms
Min: -3.8 mm
Tmin: 64.0 ms
CFC 180


LOWER RIB DISPLACEMENT @815 mm (mm) vs TIME (ms)
50
40
30
20
10
0
-10
-20
0
20
40
60
80
100
120
140
160
180
200
Max: 49.3 mm
Tmax: 25.1 ms
Min: -4.5 mm
Tmin: 58.9 ms
CFC 180

MGA RESEARCH CORPORATION

ABDOMEN TEST

ES-2re DUMMY

ATD Serial No: F032 **Test I.D:** D243107

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Probe Speed	m/s	3.90 to 4.10	4.01	Pass
Maximum Impactor Force	N	4000 to 4800	4403	Pass
Time of Maximum Impactor Force	ms	10.6 to 13.0	11.1	Pass
Maximum Total Abdomen Force	N	2200 to 2700	2308	Pass
Time of Maximum Abdomen Force	ms	10.0 to 12.3	10.1	Pass
		Overall Test Results		Pass

Laboratory Technician

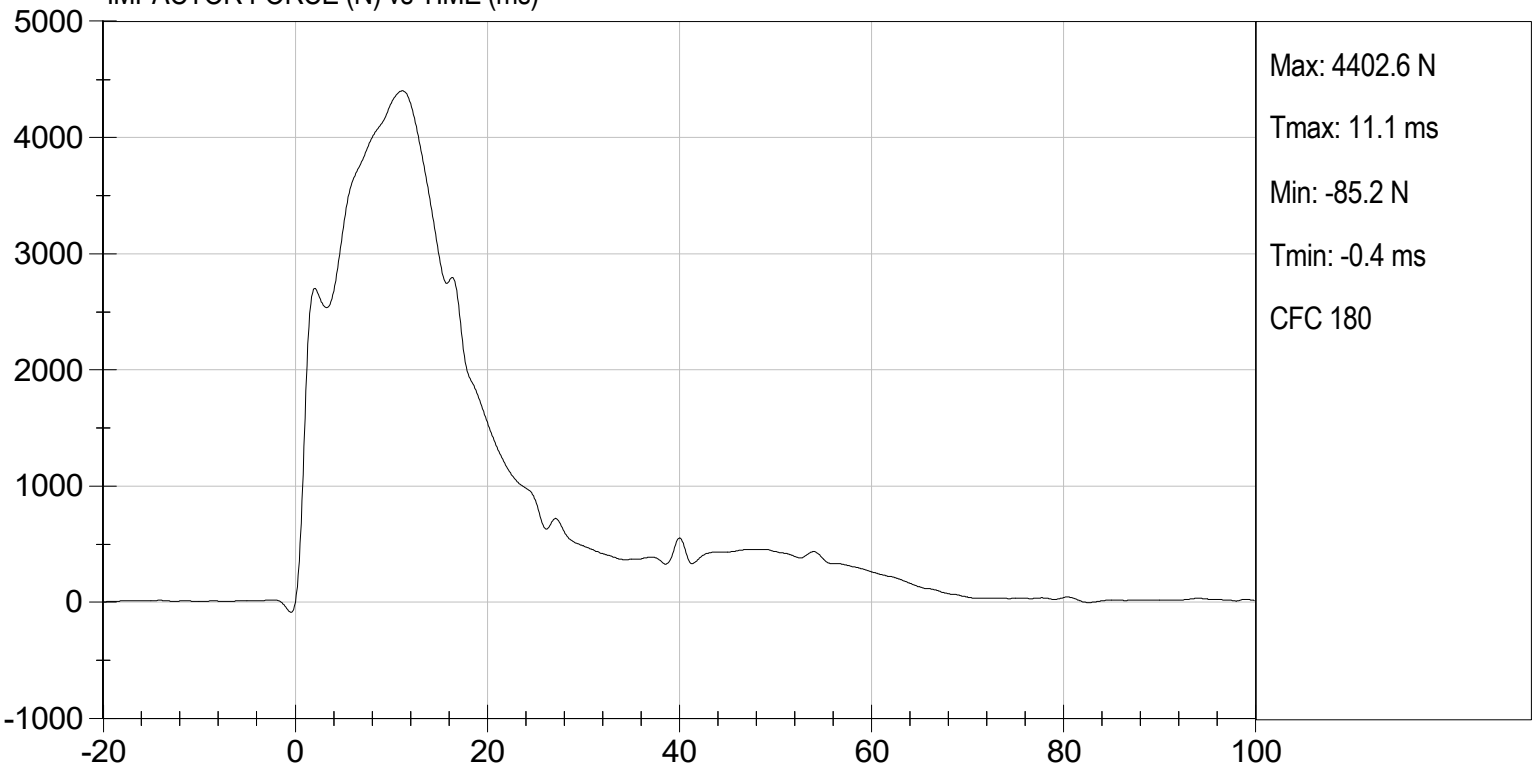
12/04/2024
Test Date

Approved By

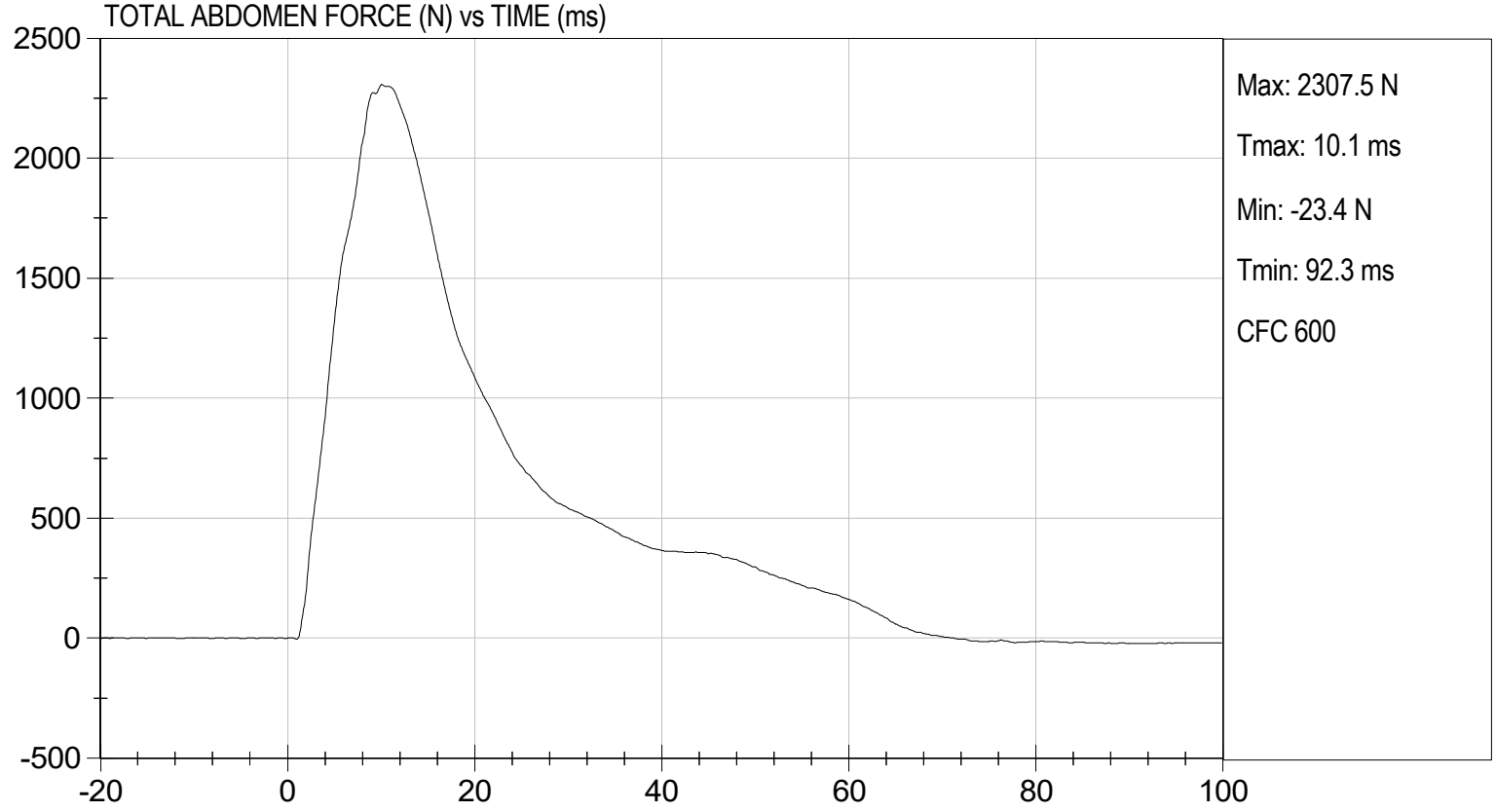
TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.15 ft/s, 4.01 m/s

TEST DATE: 12/04/2024
TEST #: D243107

IMPACTOR FORCE (N) vs TIME (ms)



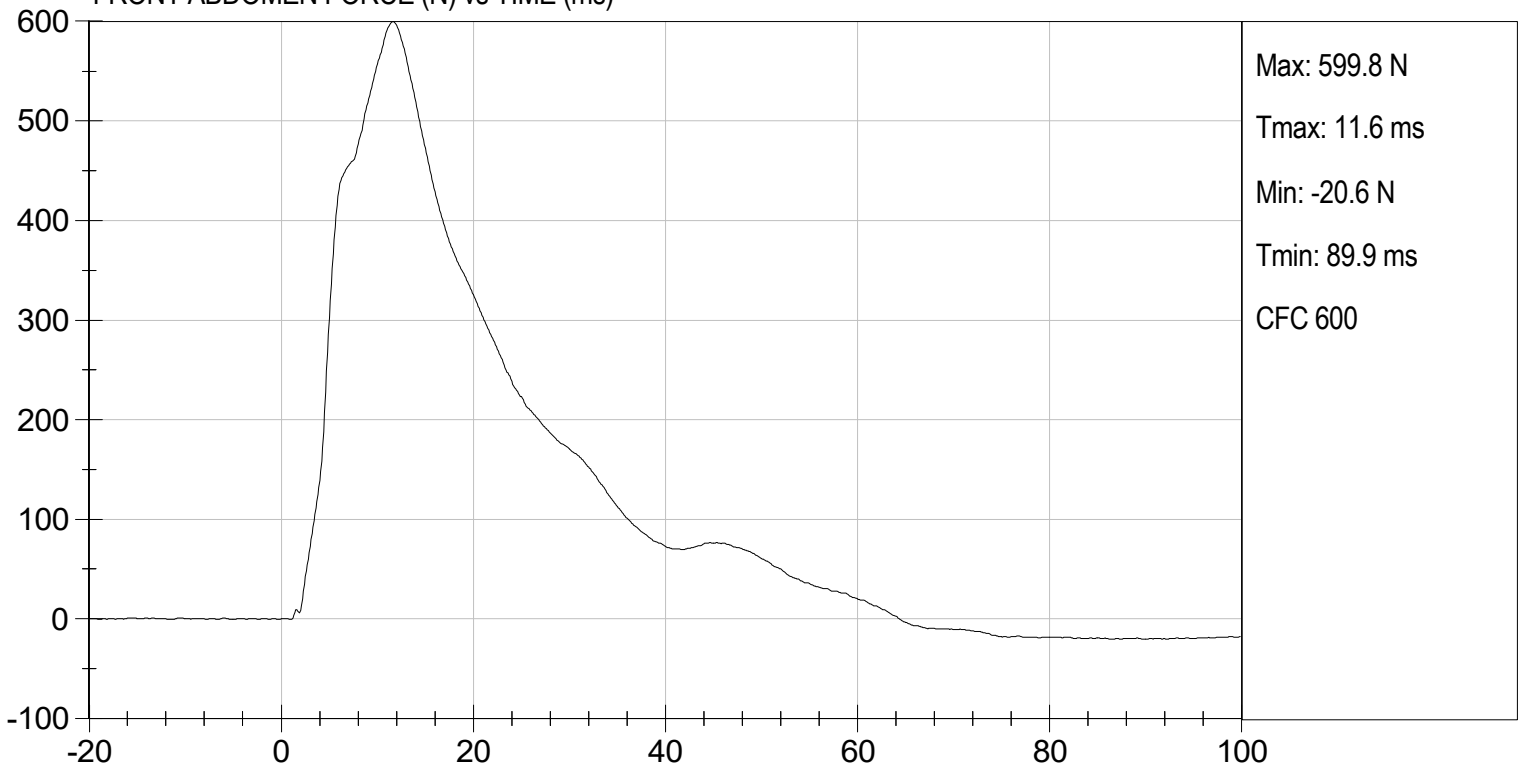
TOTAL ABDOMEN FORCE (N) vs TIME (ms)



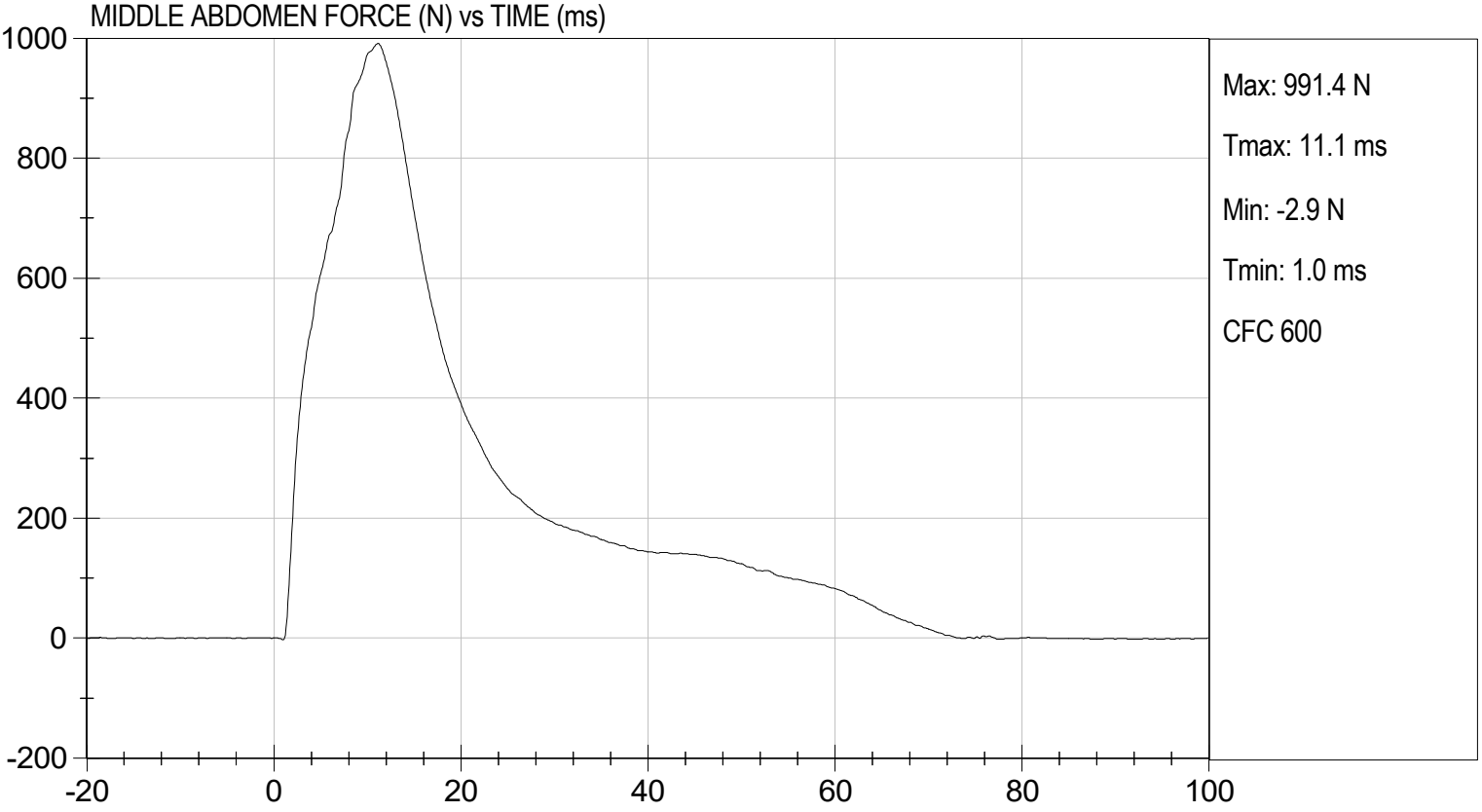
TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.15 ft/s, 4.01 m/s

TEST DATE: 12/04/2024
TEST #: D243107

FRONT ABDOMEN FORCE (N) vs TIME (ms)

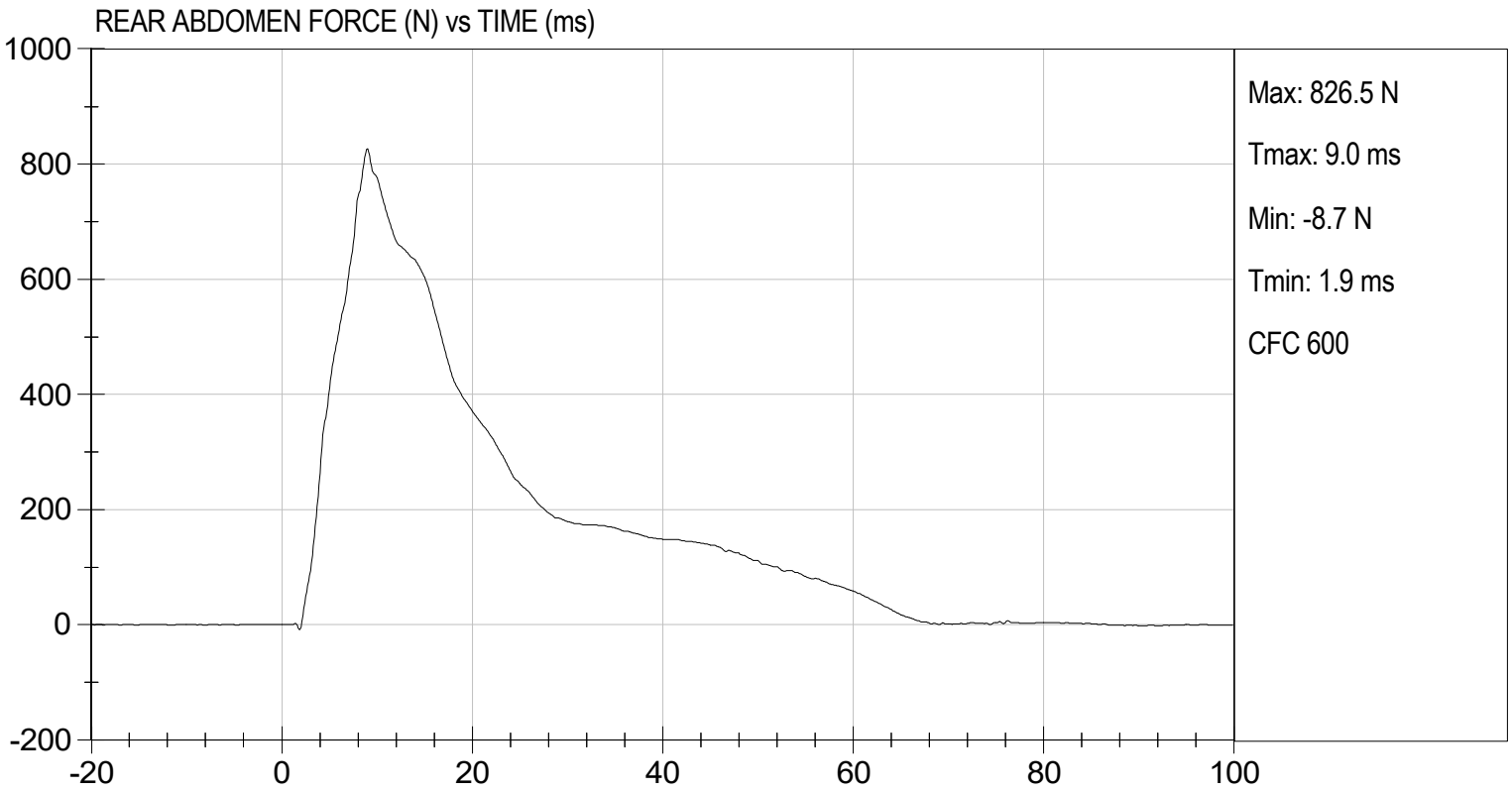


MIDDLE ABDOMEN FORCE (N) vs TIME (ms)



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

TEST DATE: 12/04/2024
TEST #: D243107



MGA RESEARCH CORPORATION

LUMBAR SPINE TEST

ES-2re DUMMY

ATD Serial No: F032 **Test I.D:** D243108

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity		%	10 to 70	25	Pass
Pendulum Speed		m/s	5.95 to 6.15	6.05	Pass
Pendulum Velocity	1 ms	m/s	-0.05 to 0.00	-0.03	Pass
	3.7 ms	m/s	-0.425 to -0.24	-0.407	Pass
	27 ms	m/s	-6.50 to -5.80	-5.95	Pass
	30 ms	m/s	>= -6.50	-6.28	Pass
Maximum Flexion Angle		deg	45.0 to 55.0	48.3	Pass
Time of Maximum Flexion Angle		ms	39.0 to 53.0	47.0	Pass
Headform Rotation Decay to Initial Position		ms	37 to 57	40	Pass
			Overall Results		Pass

Laboratory Technician

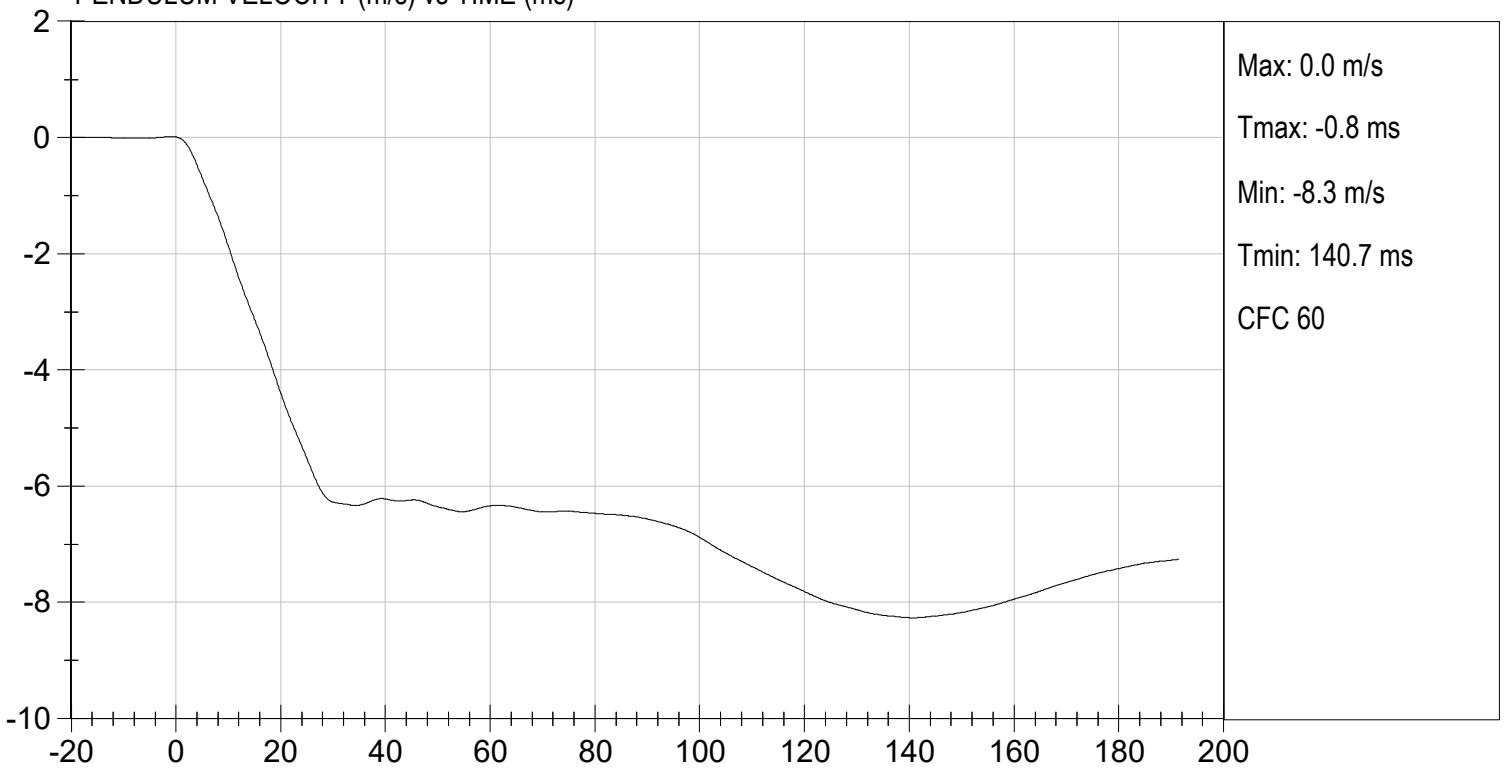
12/04/2024
Test Date

Approved By

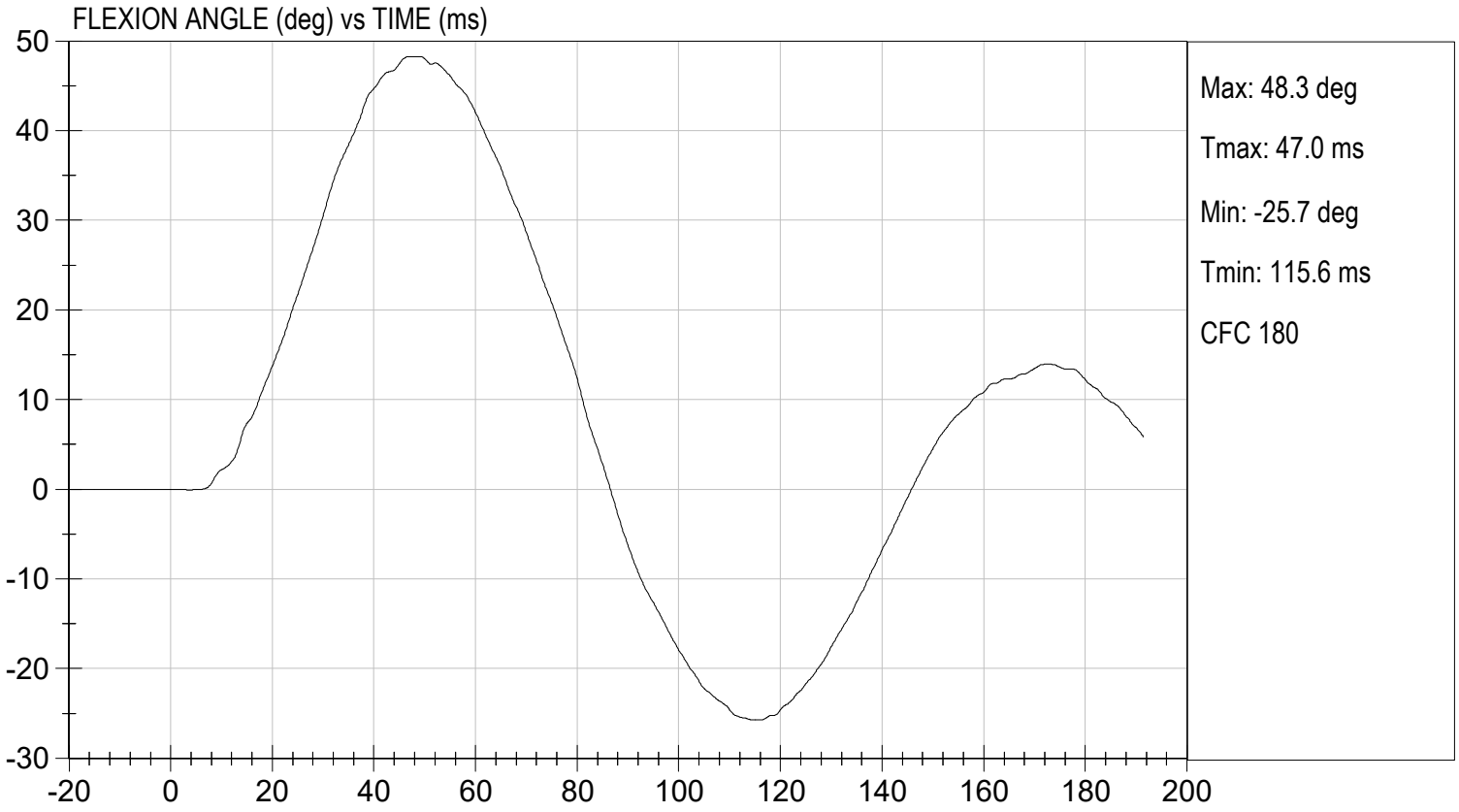
TEST DESC: LUMBAR BENDING
VELOCITY: 19.84 ft/s, 6.05 m/s

TEST DATE: 12/04/2024
TEST #: D243108

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

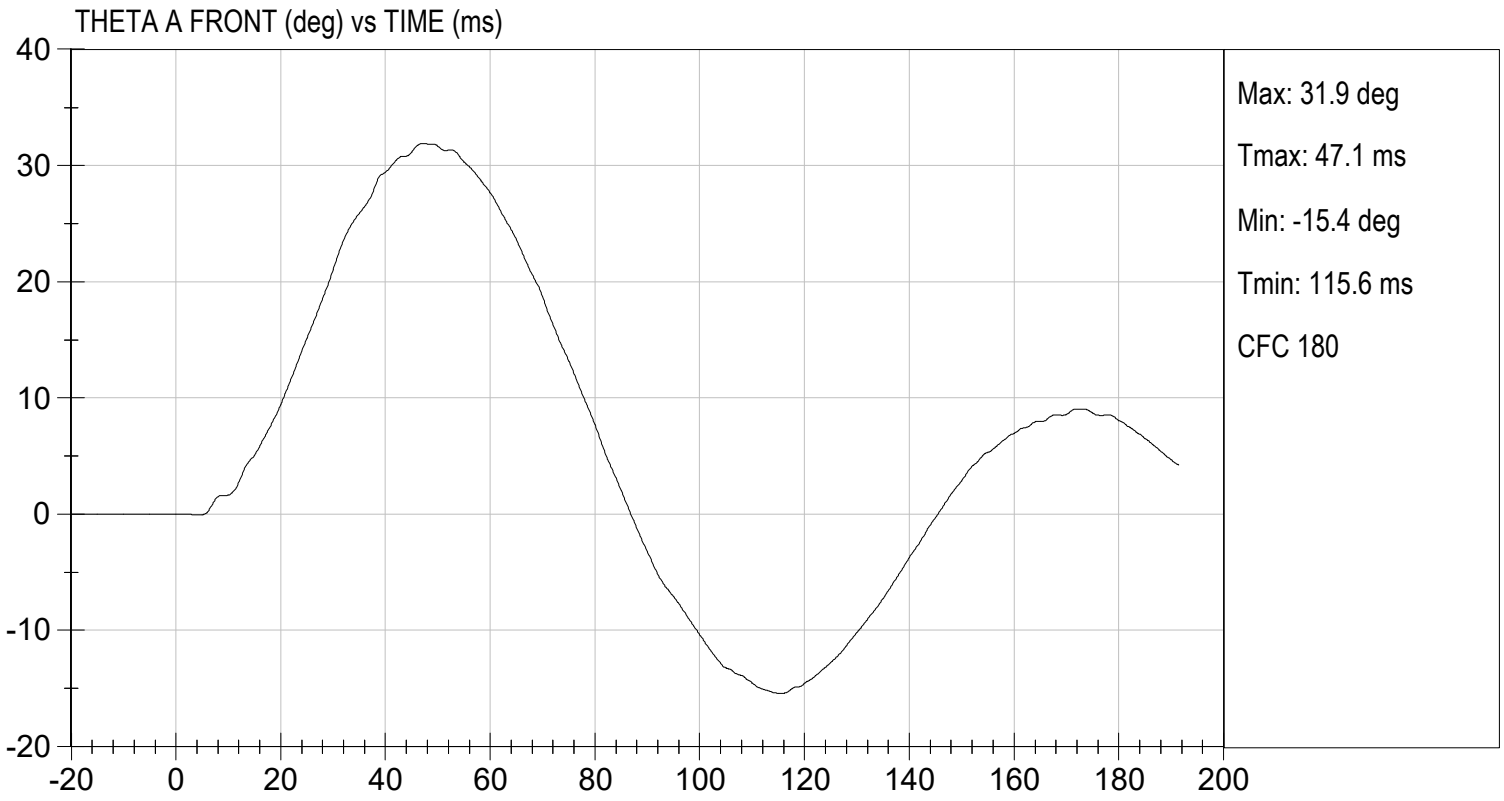


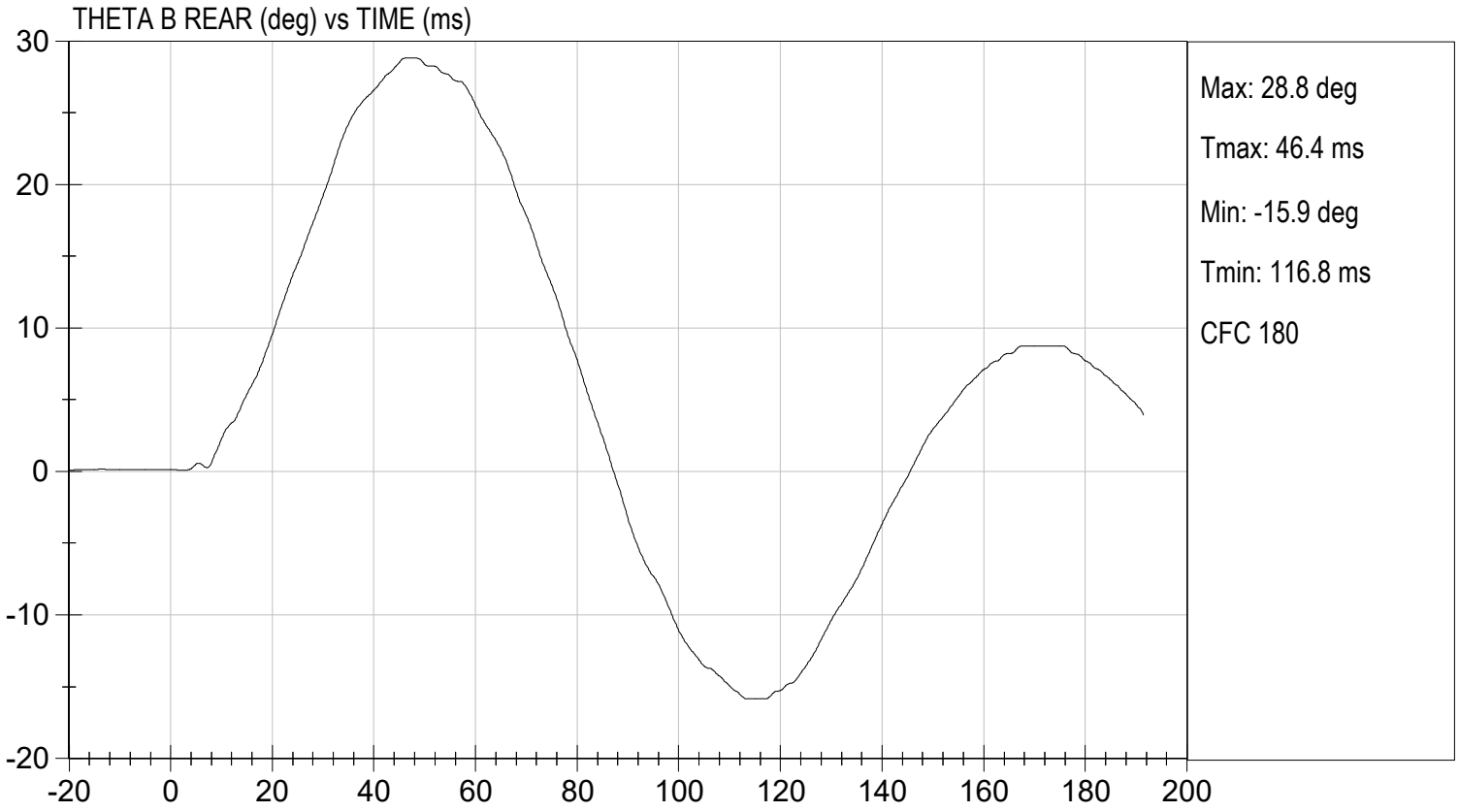
FLEXION ANGLE (deg) vs TIME (ms)



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

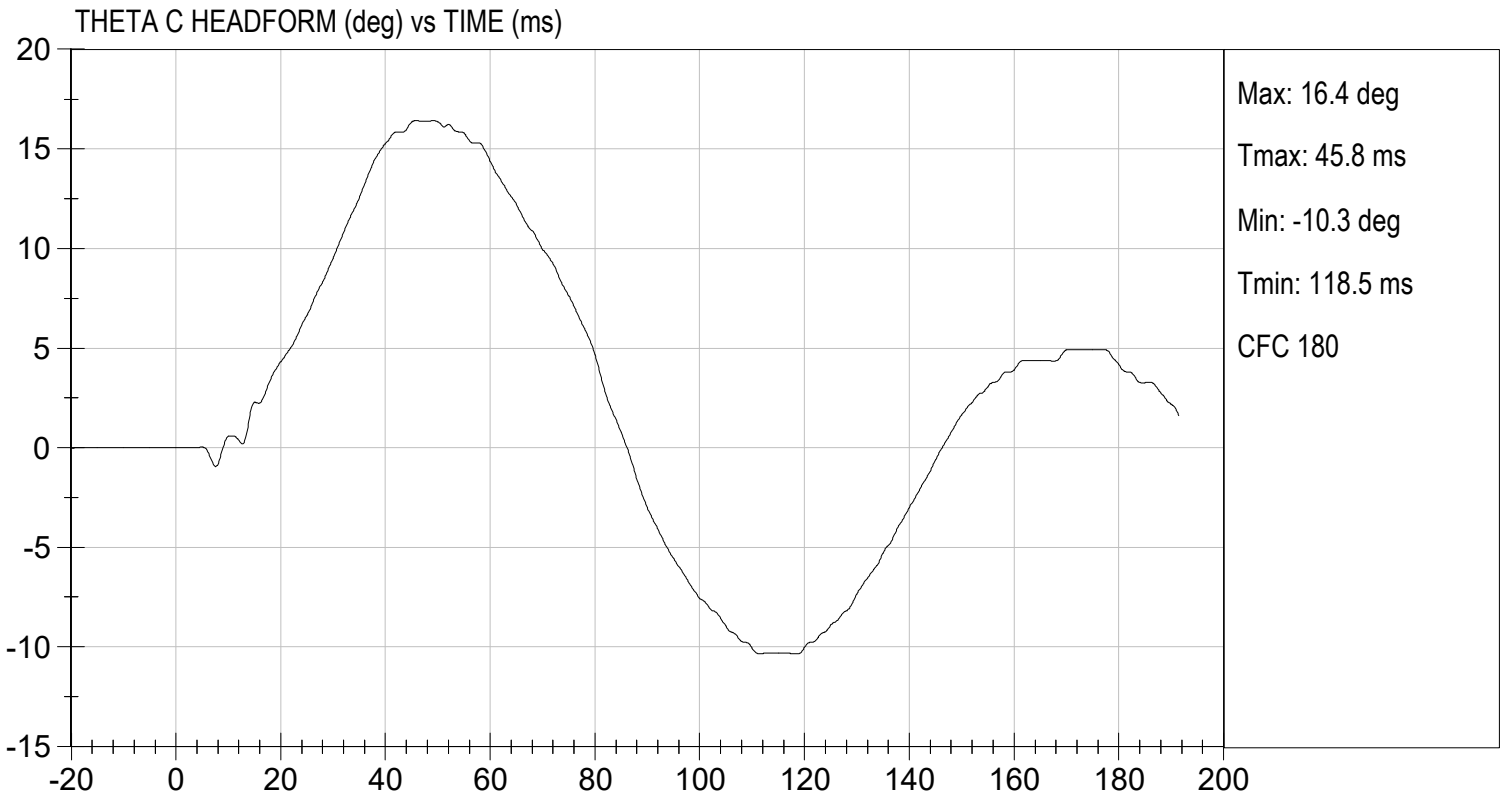
TEST DATE: 12/04/2024
TEST #: D243108





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

TEST DATE: 12/04/2024
TEST #: D243108



MGA RESEARCH CORPORATION

PELVIS TEST

ES-2re DUMMY

ATD Serial No: F032 **Test I.D:** D243109

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Probe Speed	m/s	4.20 to 4.40	4.34	Pass
Maximum Impactor Force	N	4700 to 5400	5015	Pass
Time of Maximum Impactor Force	ms	11.8 to 16.1	12.5	Pass
Maximum Pubic Force	N	1230 to 1590	1278	Pass
Time of Maximum Pubic Force	ms	12.2 to 17.0	13.5	Pass
		Overall Test Results		Pass

Laboratory Technician

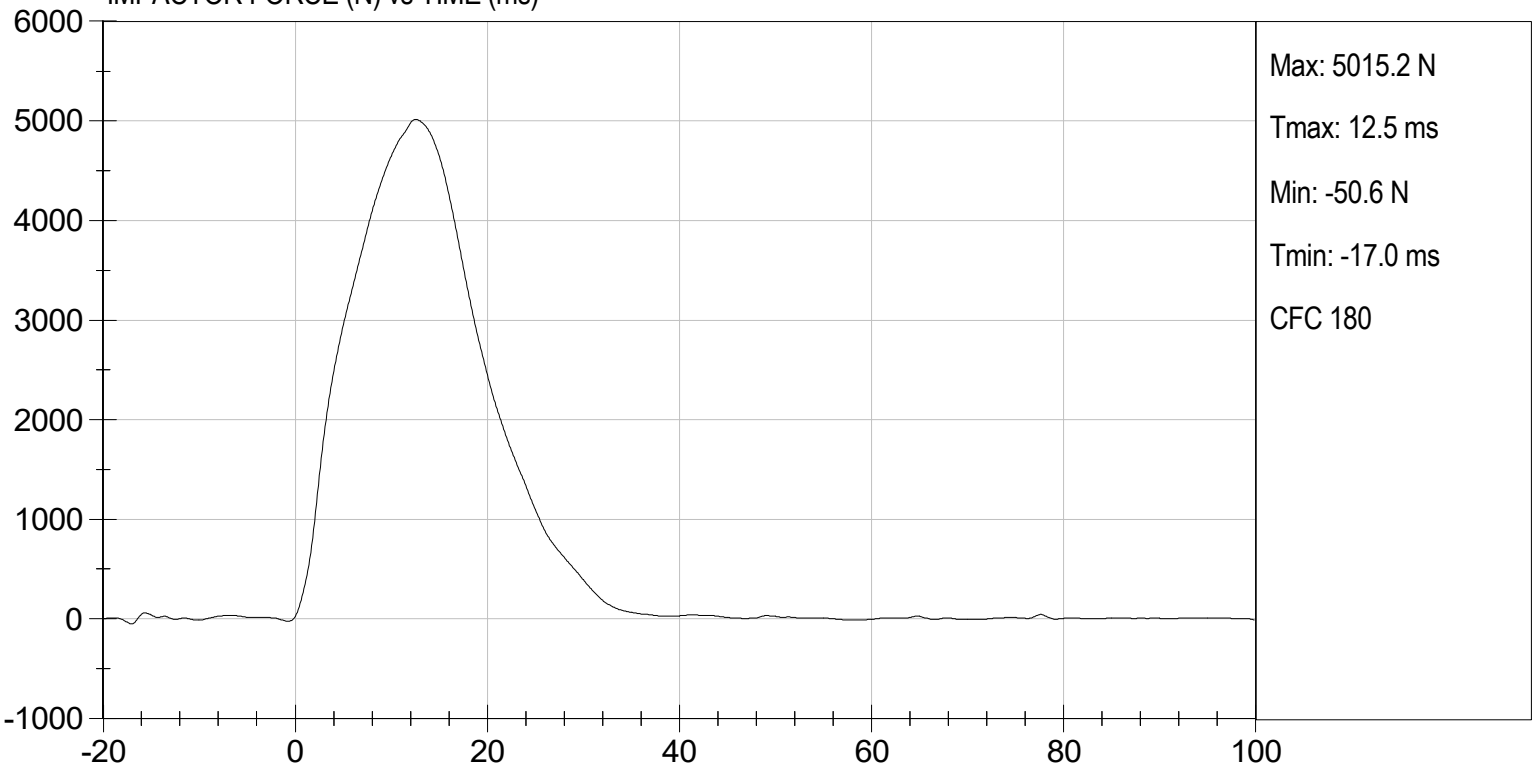
12/04/2024
Test Date

Approved By

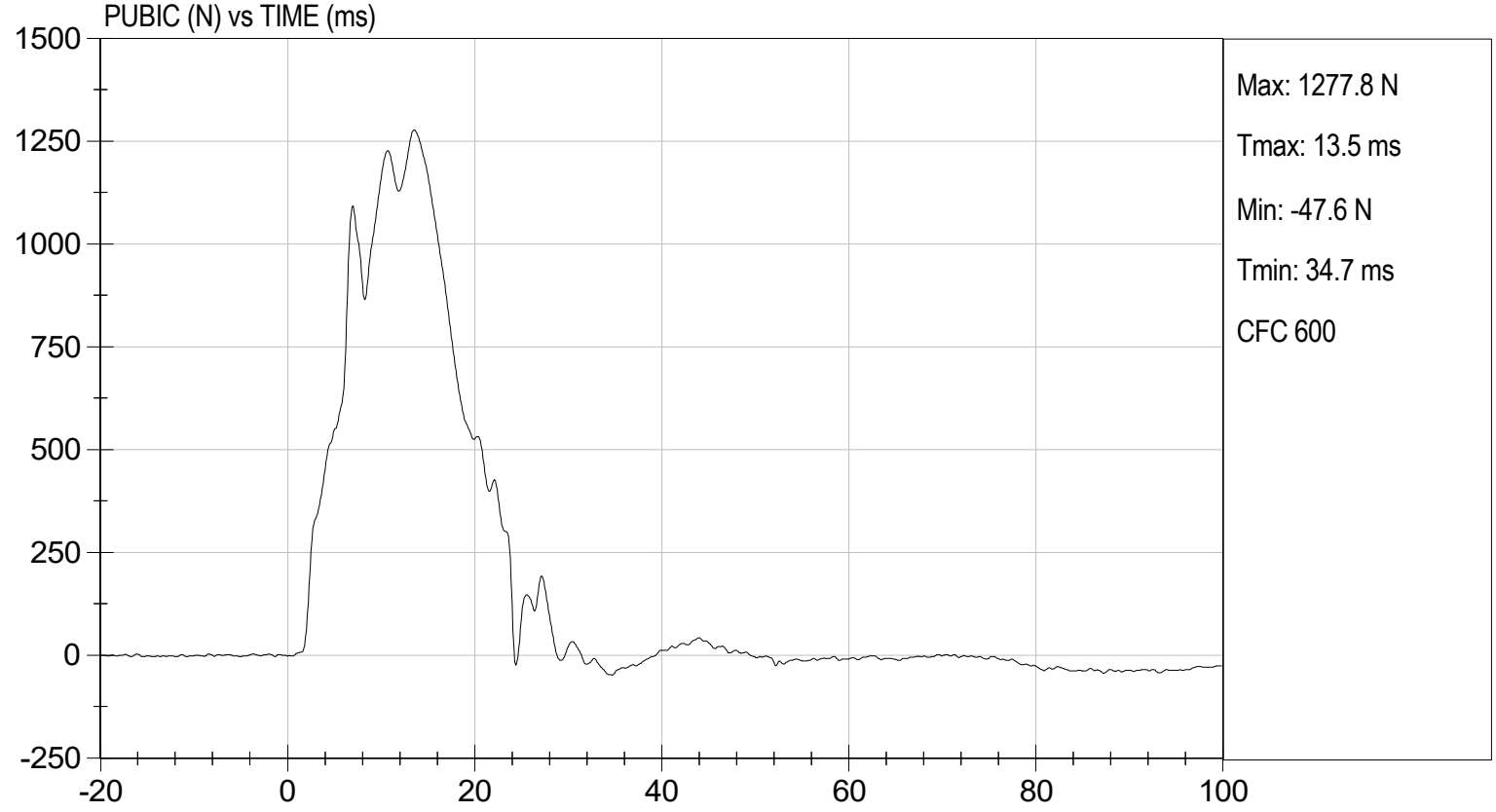
TEST DESC: PELVIS IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 12/04/2024
TEST #: D243109

IMPACTOR FORCE (N) vs TIME (ms)



PUBIC (N) vs TIME (ms)



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

ES-2re DUMMY

ATD Serial No: F032 **Test I.D:** D243100

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.7	Pass
Humidity	%	10 to 70	24	Pass
Probe Speed	m/s	5.40 to 5.60	5.40	Pass
Maximum Impactor Force (after 6 ms)	N	5100 to 6200	5834	Pass
Upper Rib Displacement	mm	34.0 to 41.0	36.6	Pass
Middle Rib Displacement	mm	37.0 to 45.0	39.2	Pass
Lower Rib Displacement	mm	37.0 to 44.0	37.8	Pass
		Overall Test Results		Pass

Laboratory Technician

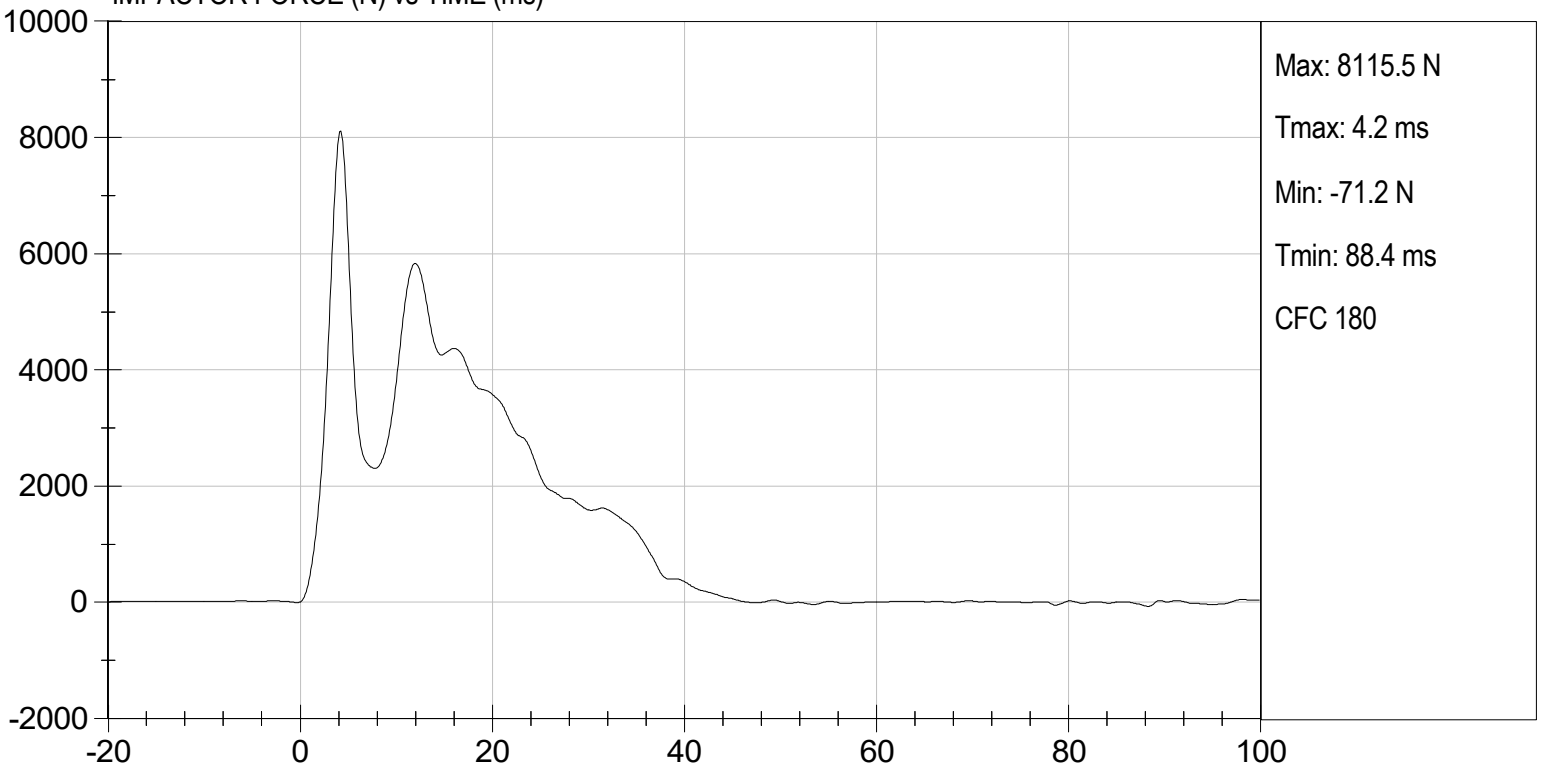
12/04/2024
Test Date

Approved By

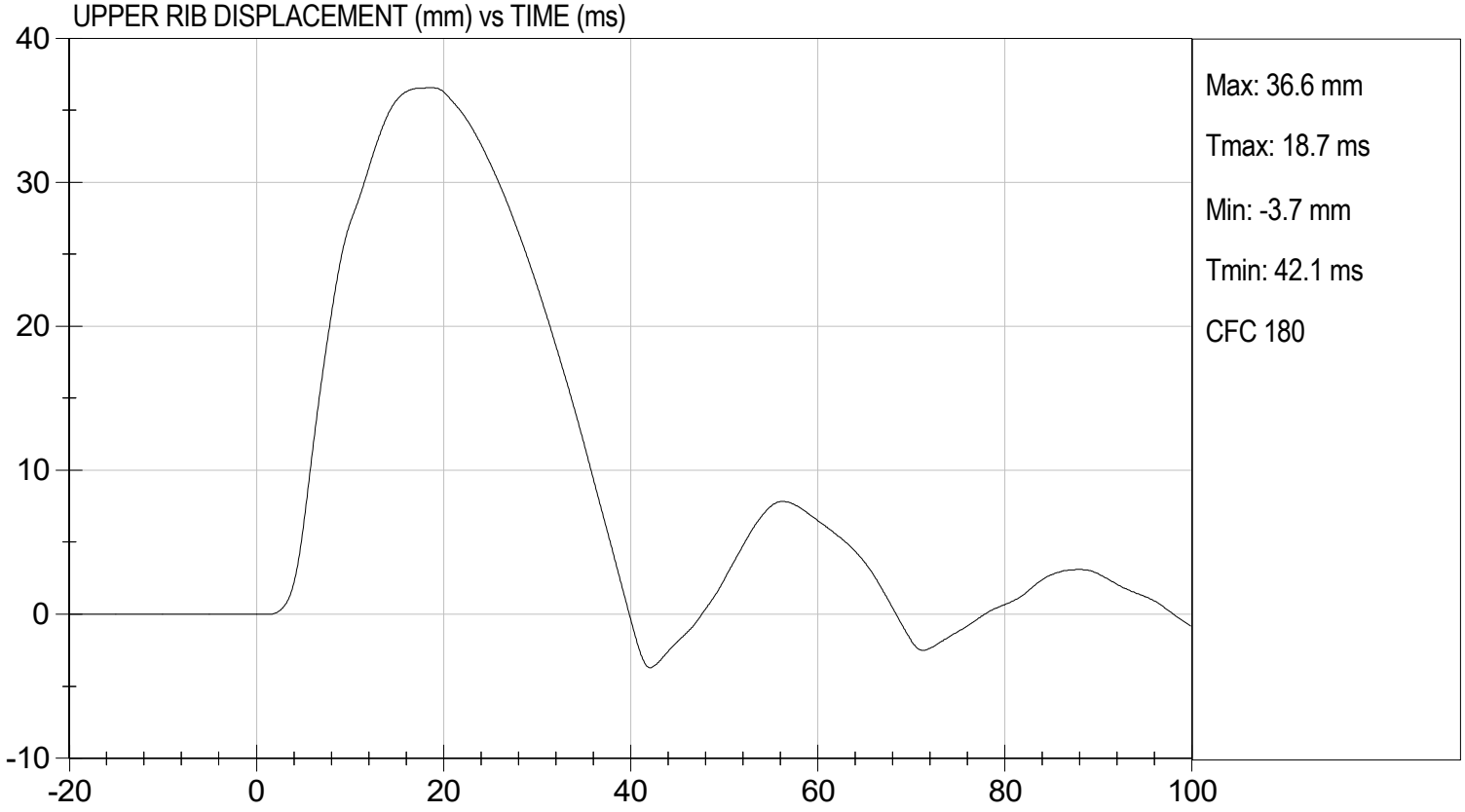
TEST DESC: THORAX IMPACT
VELOCITY: 17.73 ft/s, 5.40 m/s

TEST DATE: 12/04/2024
TEST #: D243100

IMPACTOR FORCE (N) vs TIME (ms)



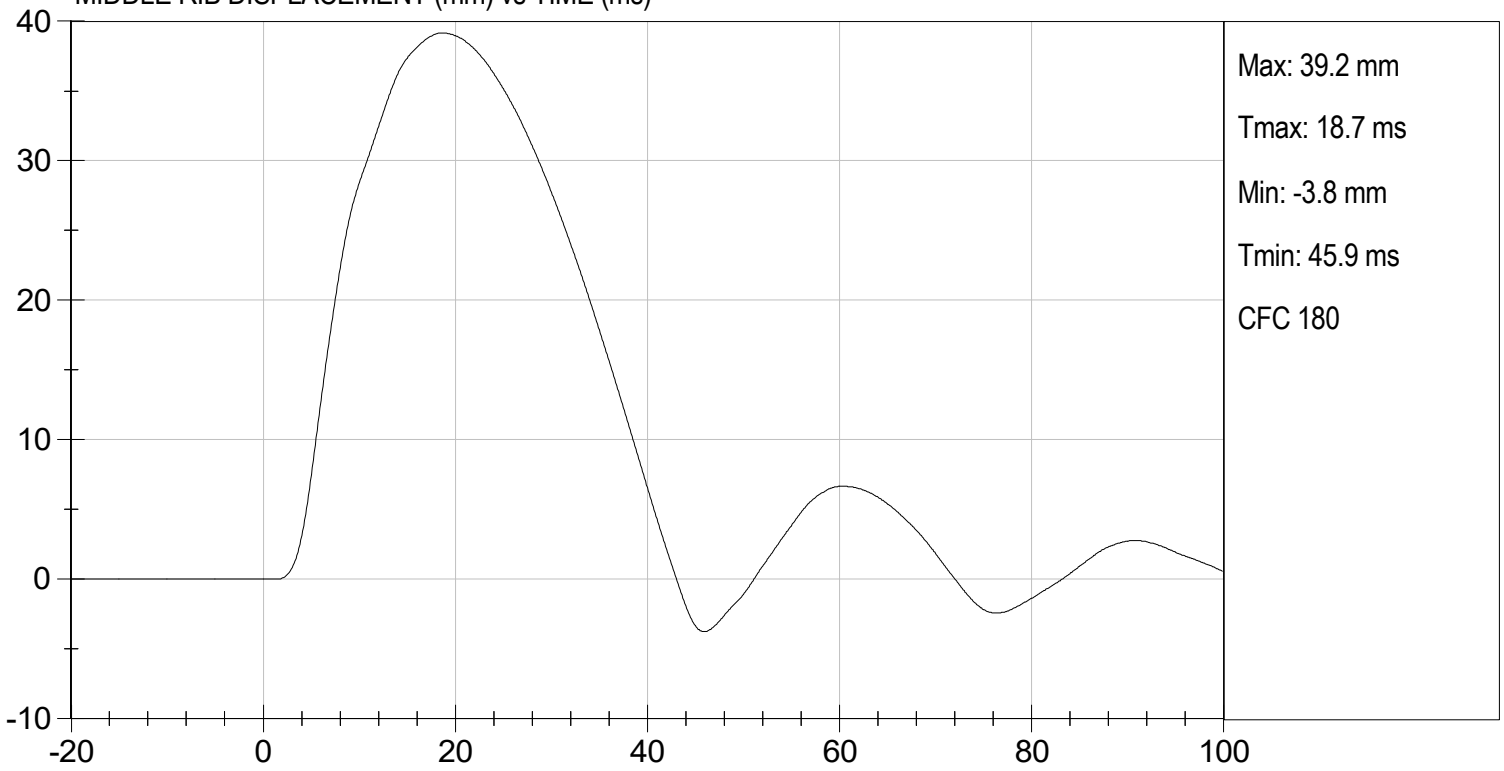
UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



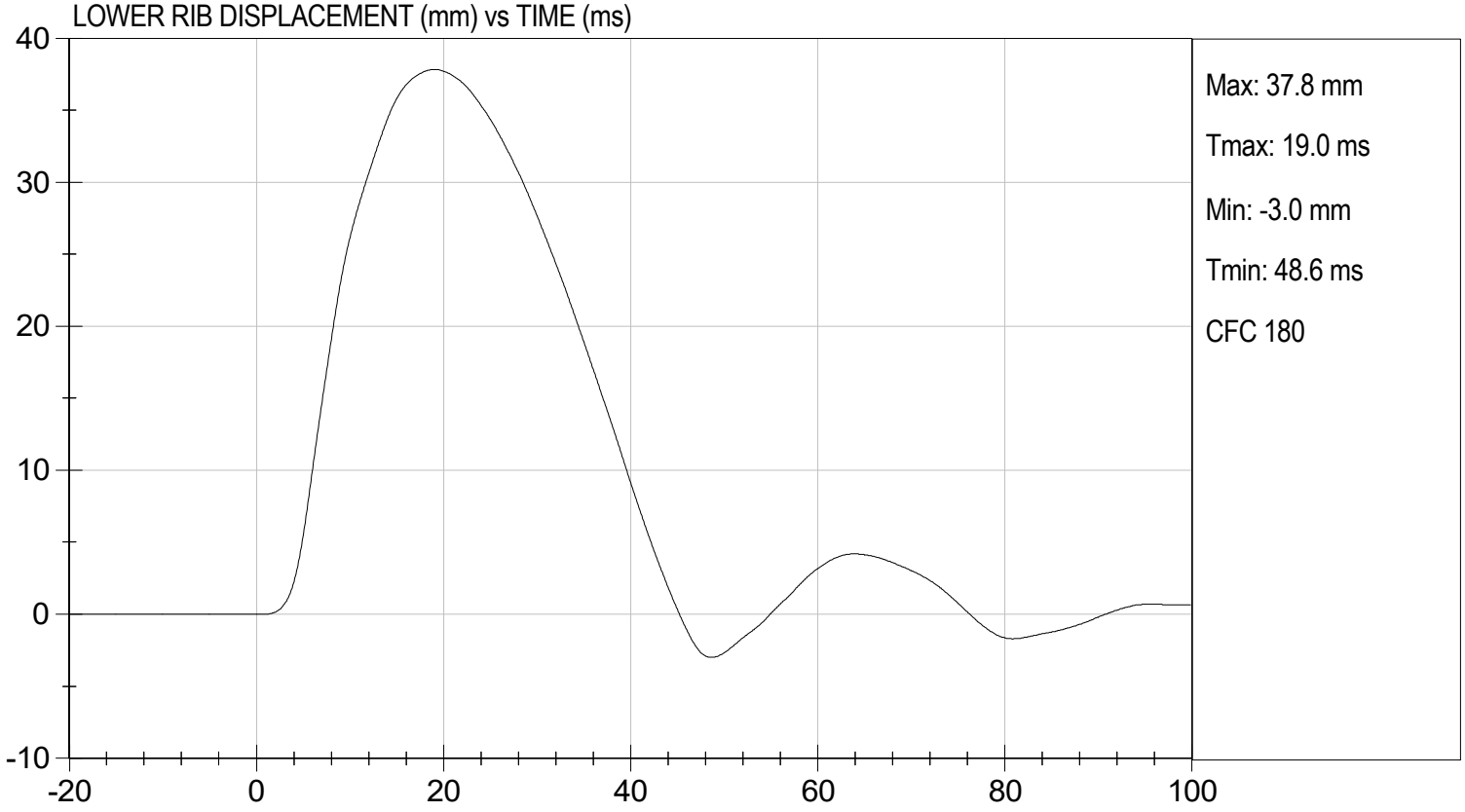
TEST DESC: THORAX IMPACT
VELOCITY: 17.73 ft/s, 5.40 m/s

TEST DATE: 12/04/2024
TEST #: D243100

MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



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: F032 **Test ID:** D250081

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	34	Pass
Peak Resultant Acceleration	G's	125 to 155	140	Pass
Peak Longitudinal Acceleration	G's	<= +/- 15.0	6.9	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 15% of peak	Yes	Pass
		Overall Test Results		Pass

Laboratory Technician

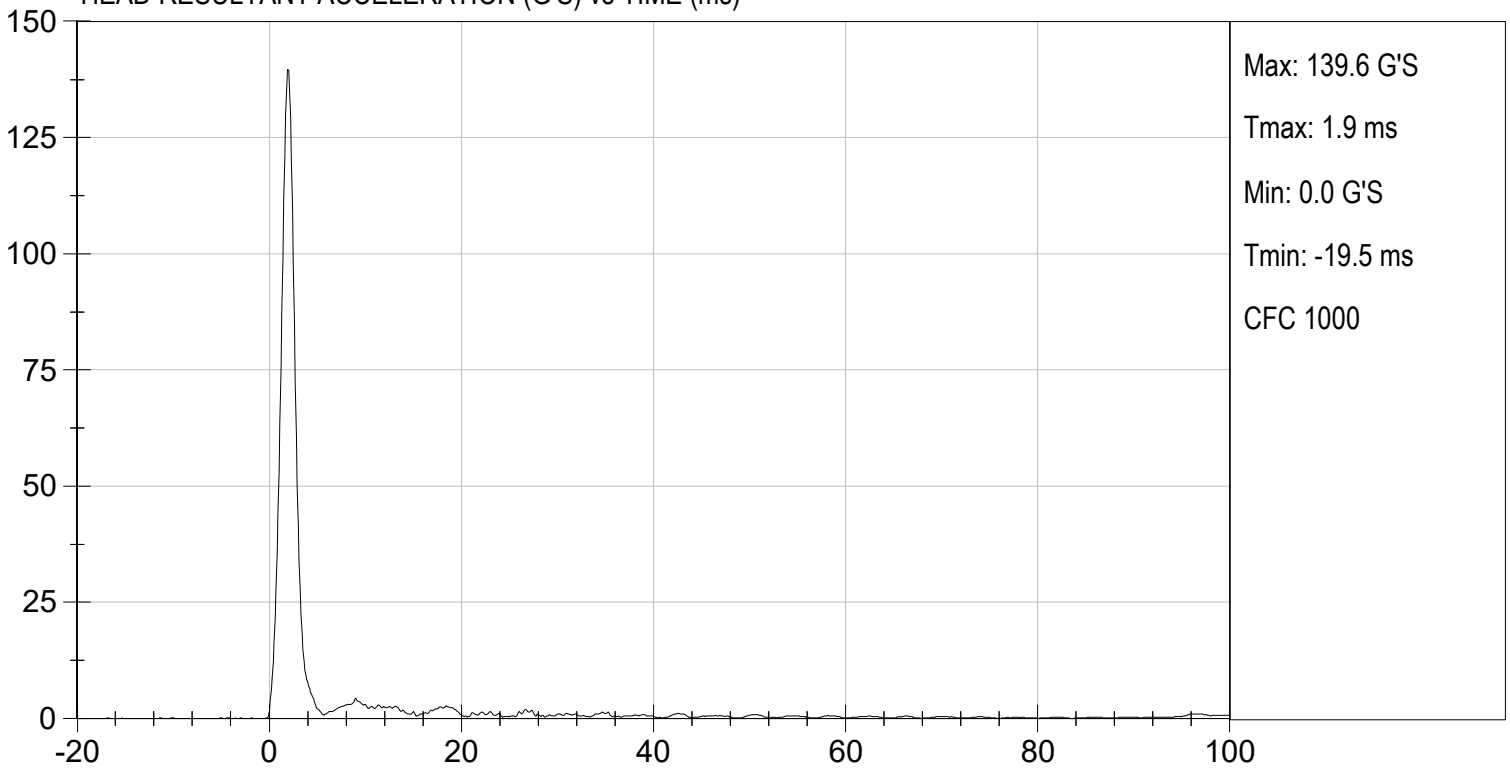
01/09/2025
Test Date

Approved By

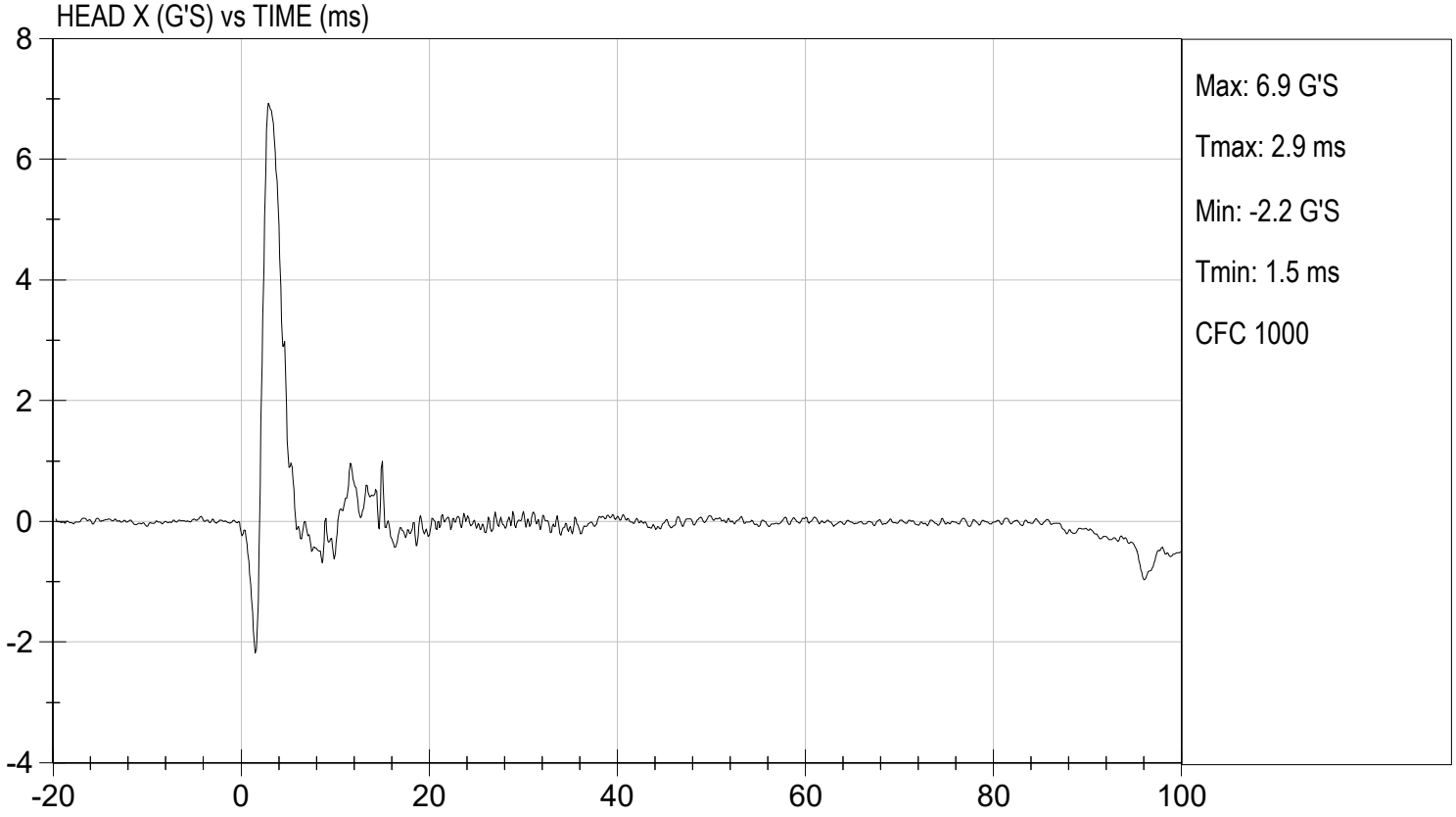
TEST DESC: HEAD DROP

TEST DATE: 01/09/2025
TEST #: D250081

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



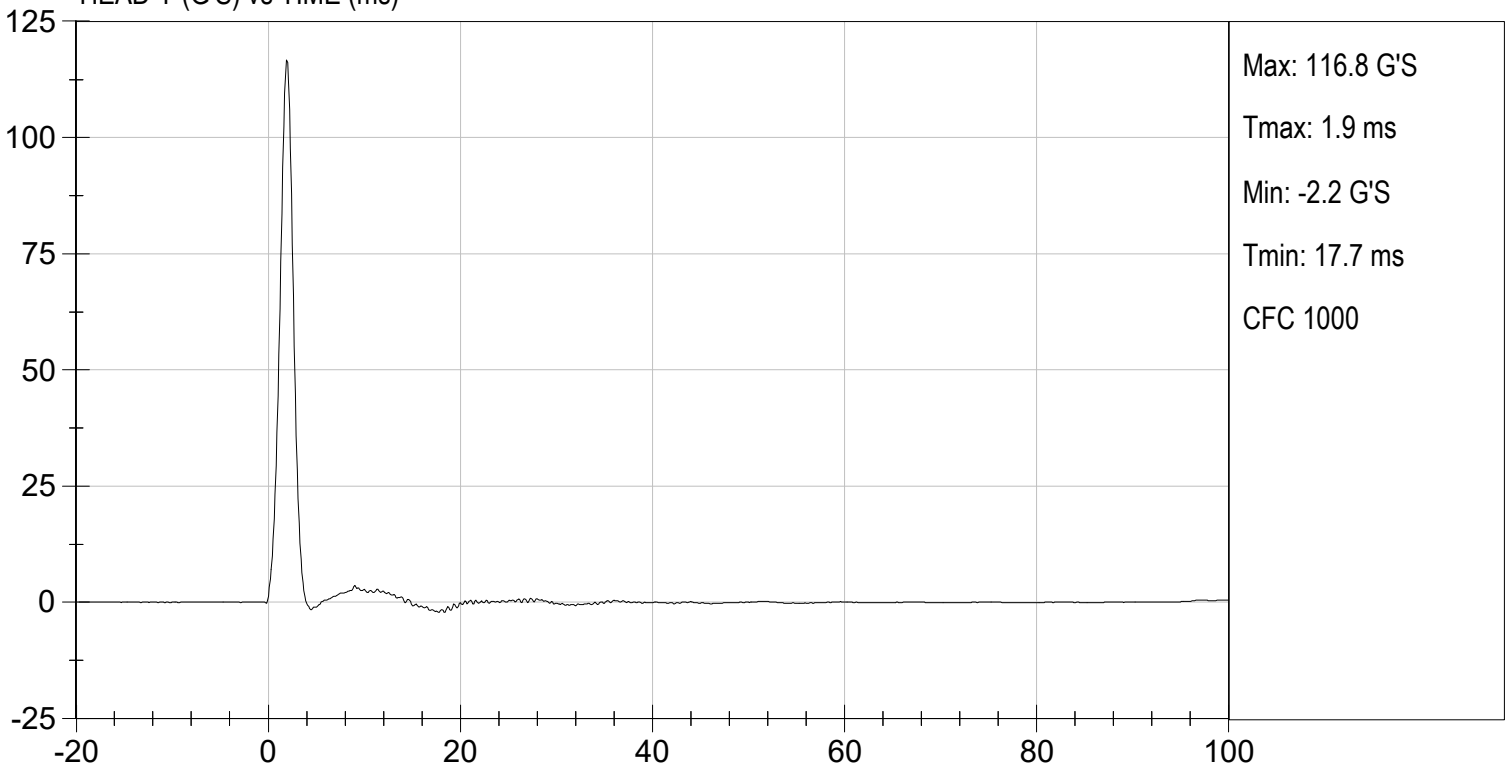
HEAD X (G'S) vs TIME (ms)



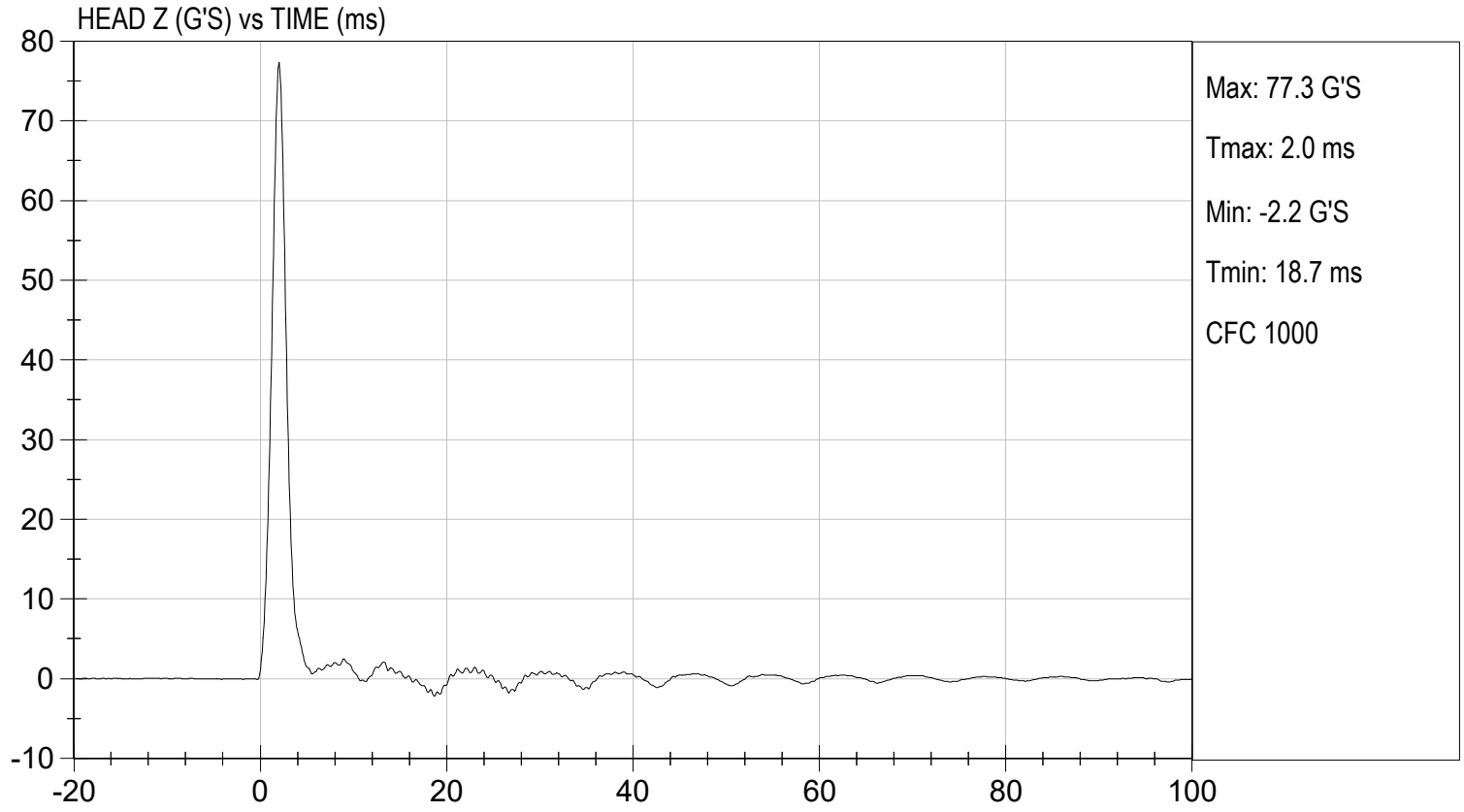
TEST DESC: HEAD DROP

TEST DATE: 01/09/2025
TEST #: D250081

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



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



MGA RESEARCH CORPORATION

NECK PENDULUM TEST

ES-2re DUMMY

ATD Serial No: F032 **Test I.D:** D250082

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity		%	10 to 70	29	Pass
Pendulum Speed		m/s	3.30 to 3.50	3.46	Pass
Pendulum Velocity	1 ms	m/s	-0.05 to 0.00	-0.01	Pass
	3 ms	m/s	-0.25 to -0.375	-0.32	Pass
	14 ms	m/s	-3.20 to -3.70	-3.53	Pass
	17 ms	m/s	>= -3.70	-3.66	Pass
Maximum Flexion Angle		deg	49.0 to 59.0	51.9	Pass
Time of Maximum Flexion Angle		ms	54.0 to 66.0	56.0	Pass
Head Rotation Decay Time to 0 Degree		ms	53.0 to 88.0	65.3	Pass
			Overall Results		Pass

Laboratory Technician

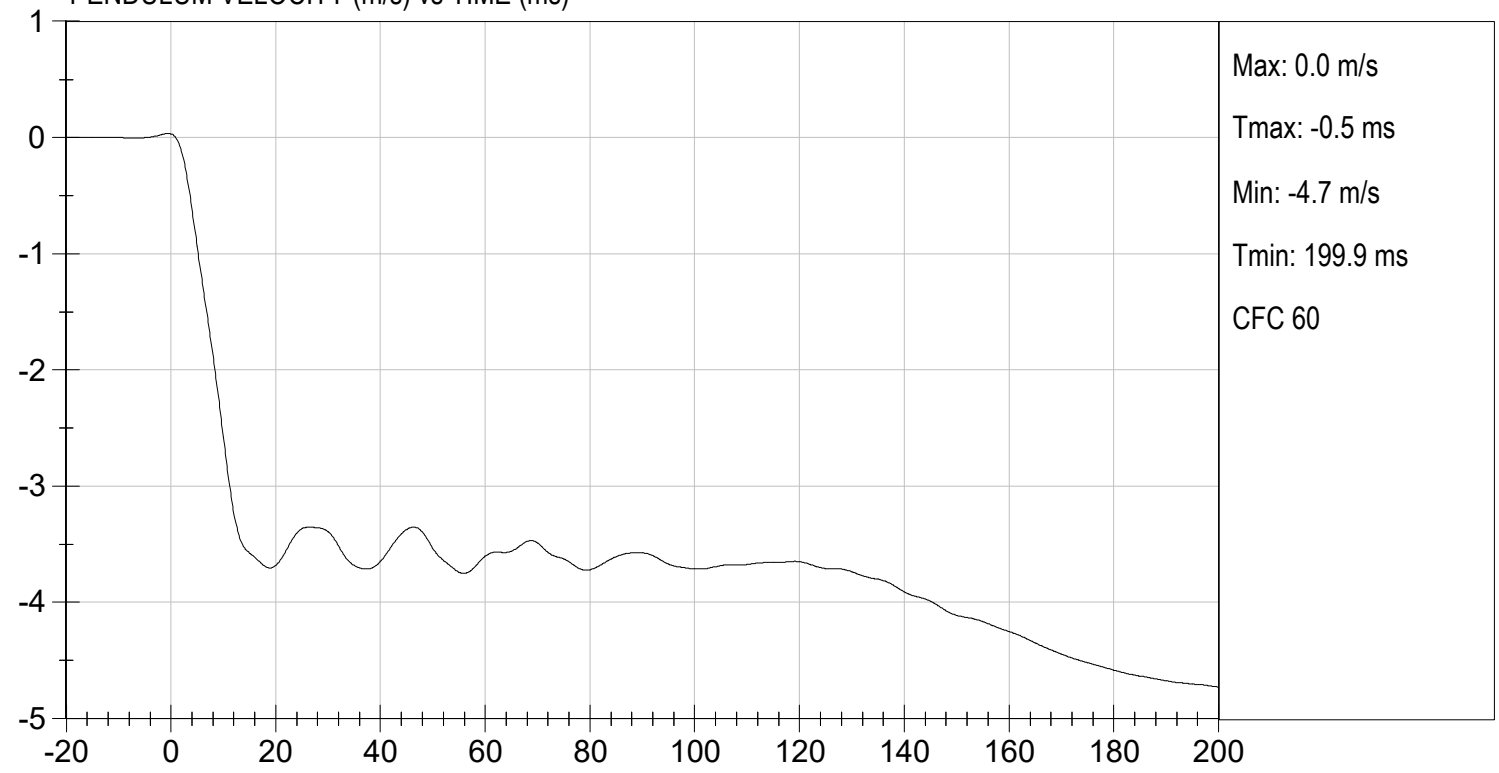
01/09/2025
Test Date

Approved By

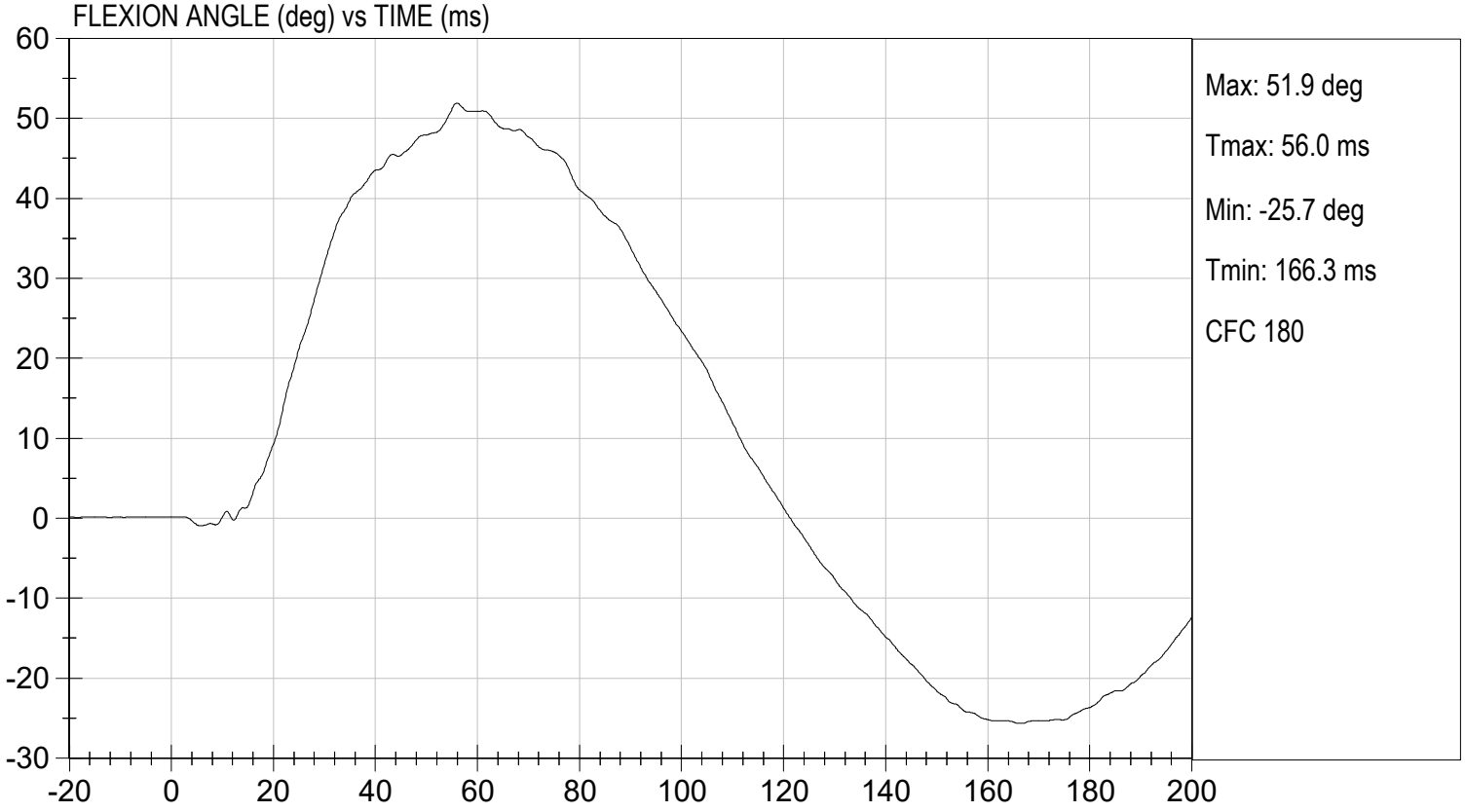
TEST DESC: NECK BENDING
VELOCITY: 11.34 ft/s, 3.46 m/s

TEST DATE: 01/09/2025
TEST #: D250082

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

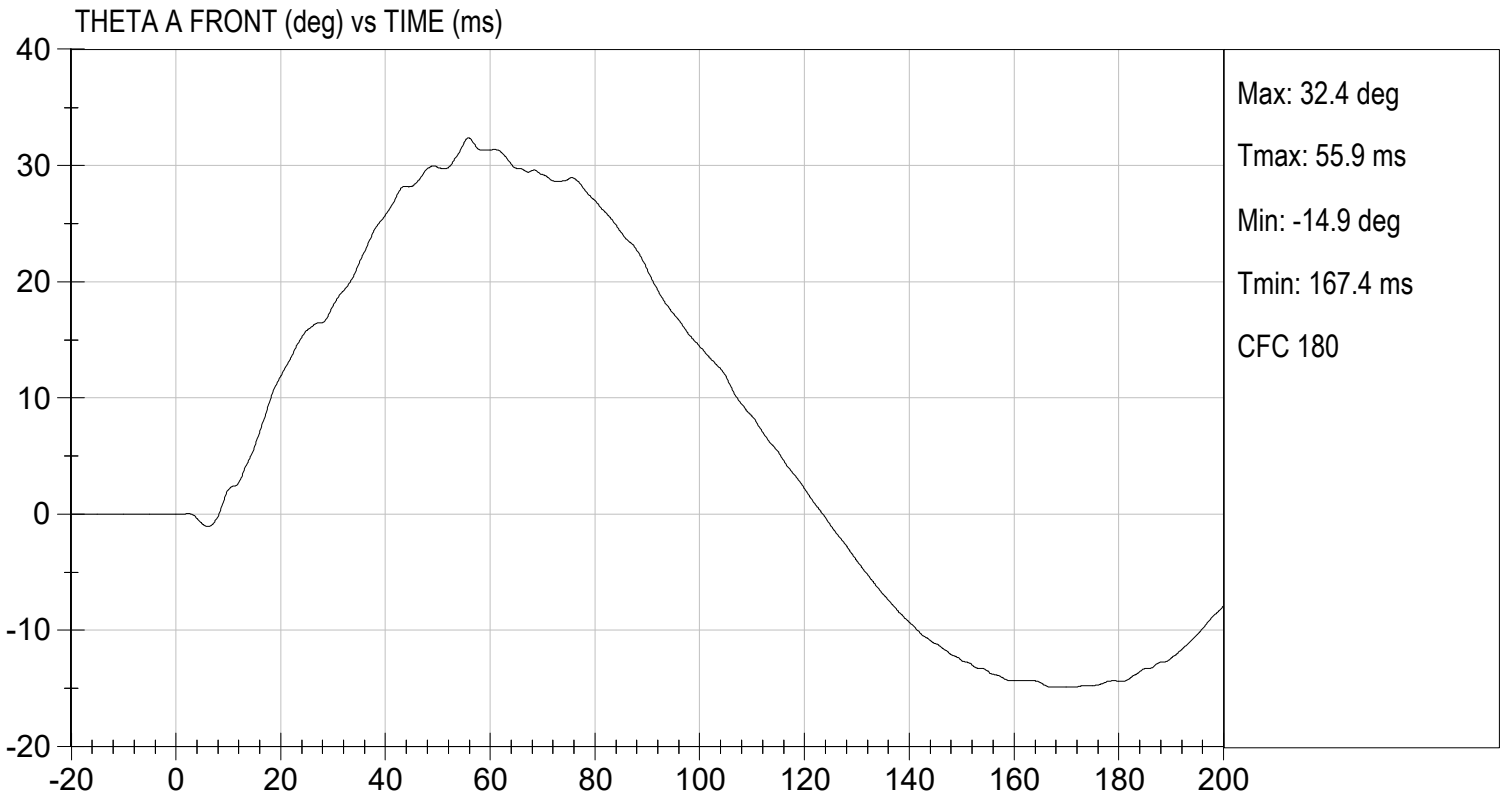


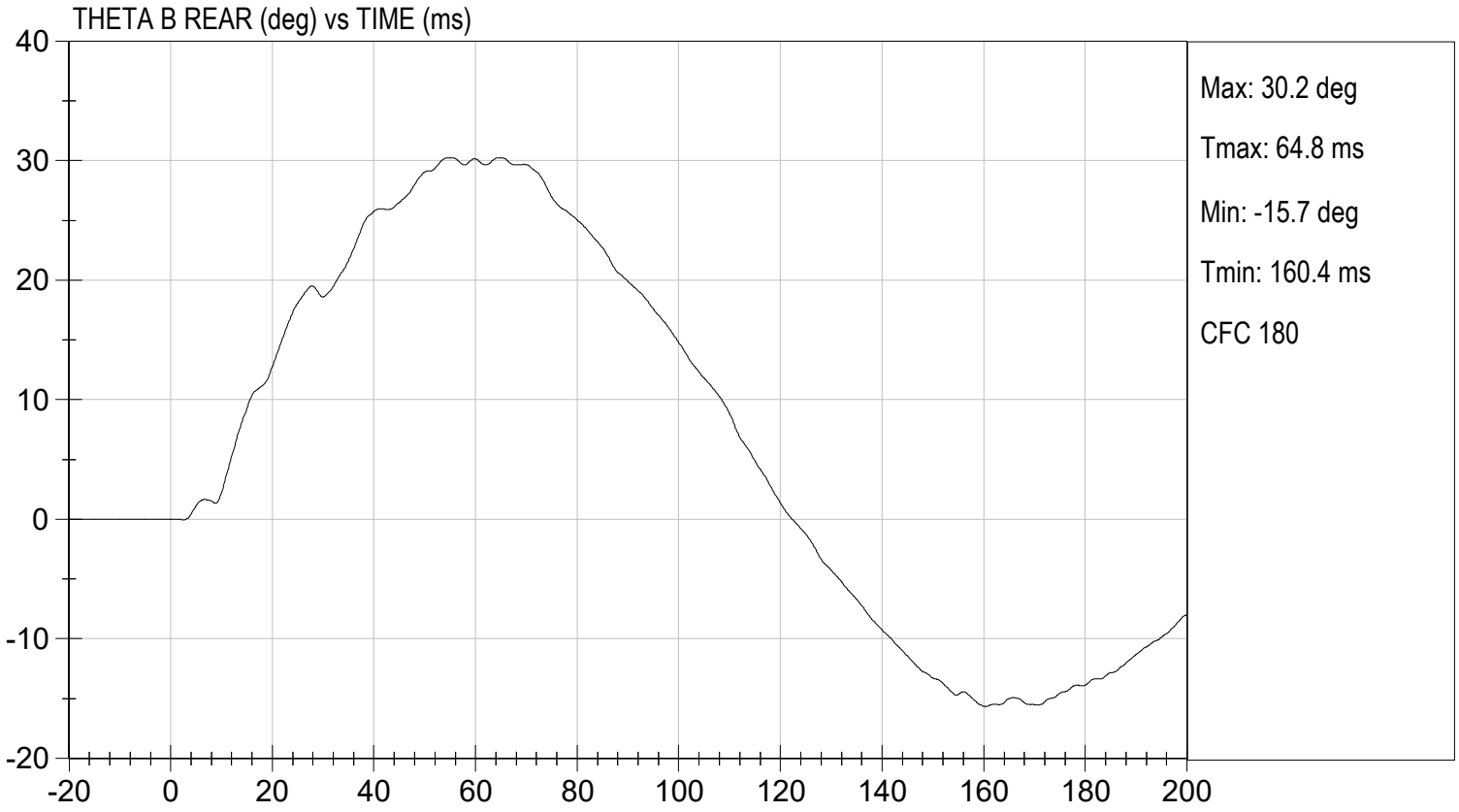
FLEXION ANGLE (deg) vs TIME (ms)



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

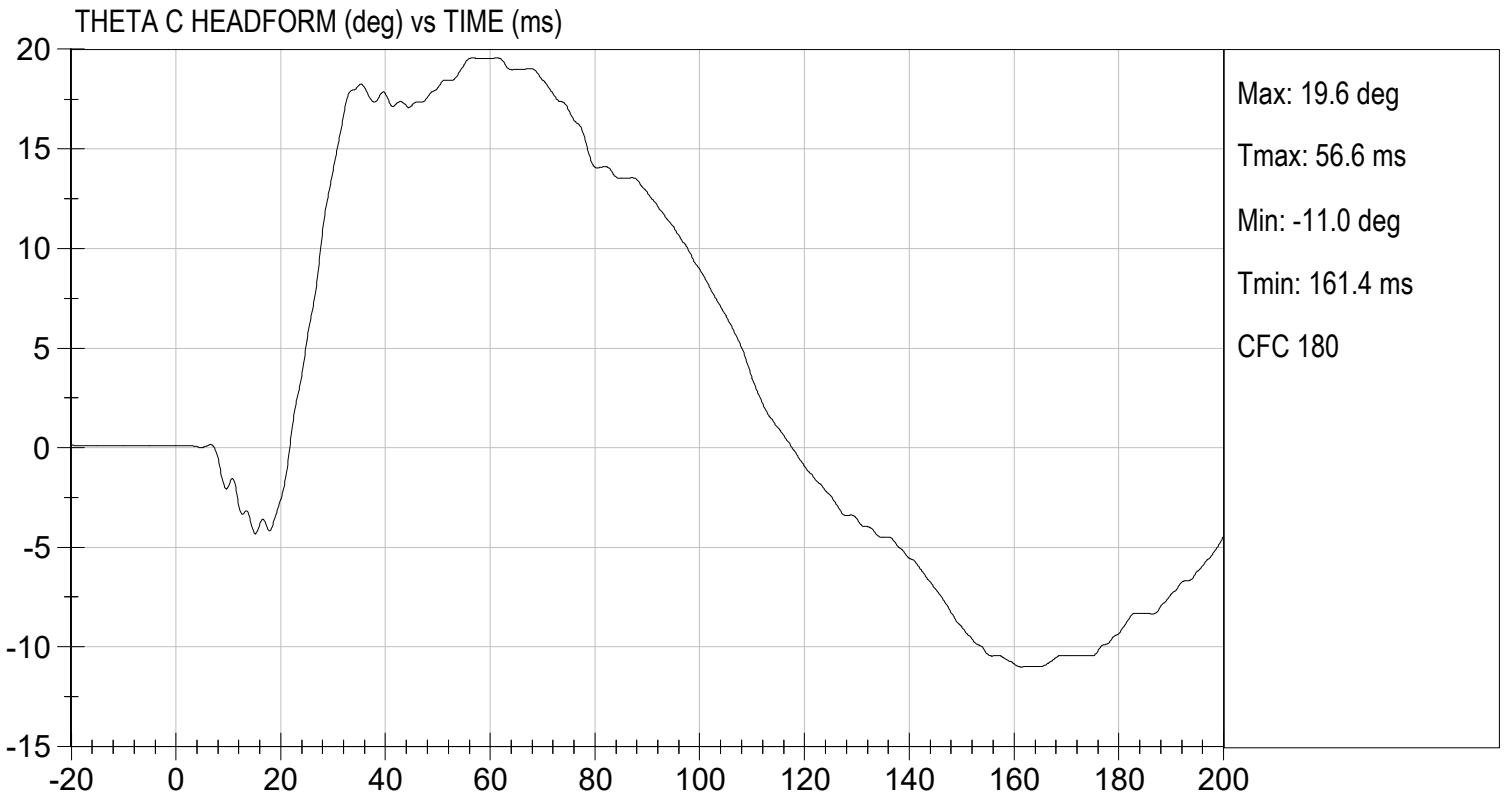
TEST DATE: 01/09/2025
TEST #: D250082





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

TEST DATE: 01/09/2025
TEST #: D250082



MGA RESEARCH CORPORATION

SHOULDER IMPACT TEST

ES-2re DUMMY

ATD Serial No: F032 **Test I.D:** D250083

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	34	Pass
Pendulum Speed	m/s	4.20 to 4.40	4.2	Pass
Peak Impactor Acceleration	G's	7.5 to 10.5	9.1	Pass
		Overall Test Results		Pass

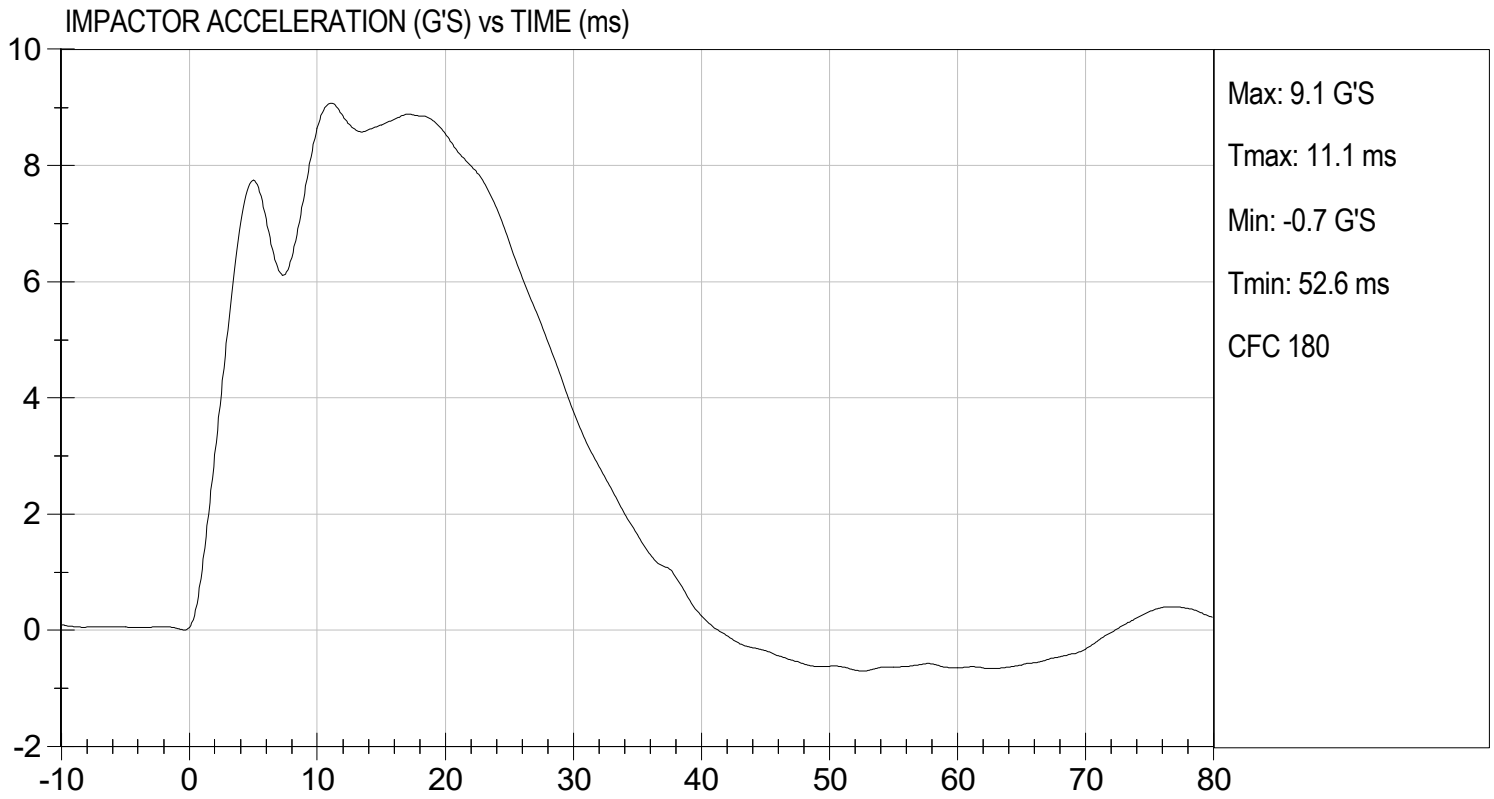
Laboratory Technician

01/09/2025
Test Date

Approved By

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

TEST DATE: 01/09/2025
TEST #: D250083



MGA RESEARCH CORPORATION

UPPER RIB TEST

ES-2re DUMMY

ATD Serial No: F032 **Test I.D:** D250084

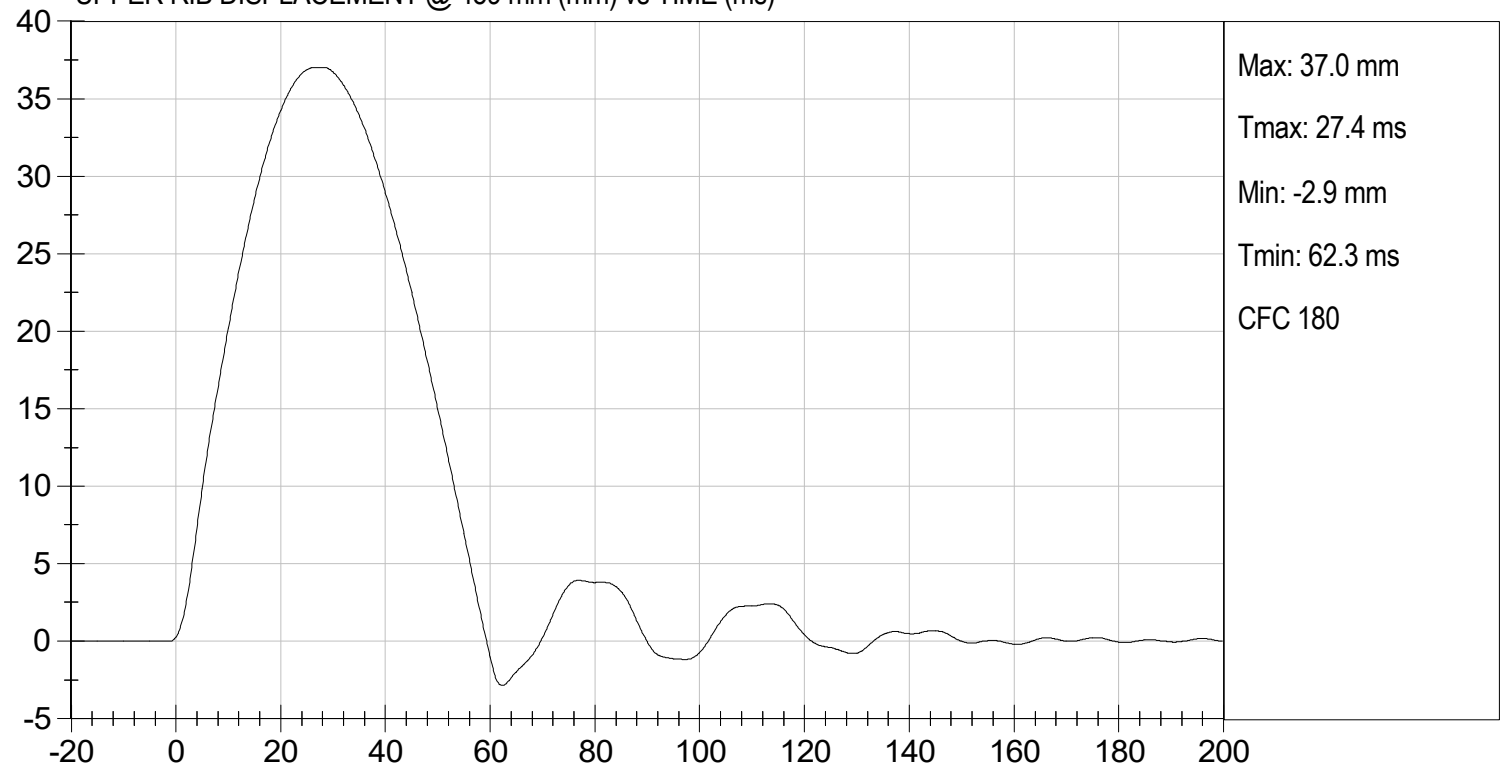
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Displacement at 459 mm	mm	36.0 to 40.0	37.0	Pass
Displacement at 815 mm	mm	46.0 to 51.0	48.0	Pass
		Overall Test Results		Pass

Laboratory Technician

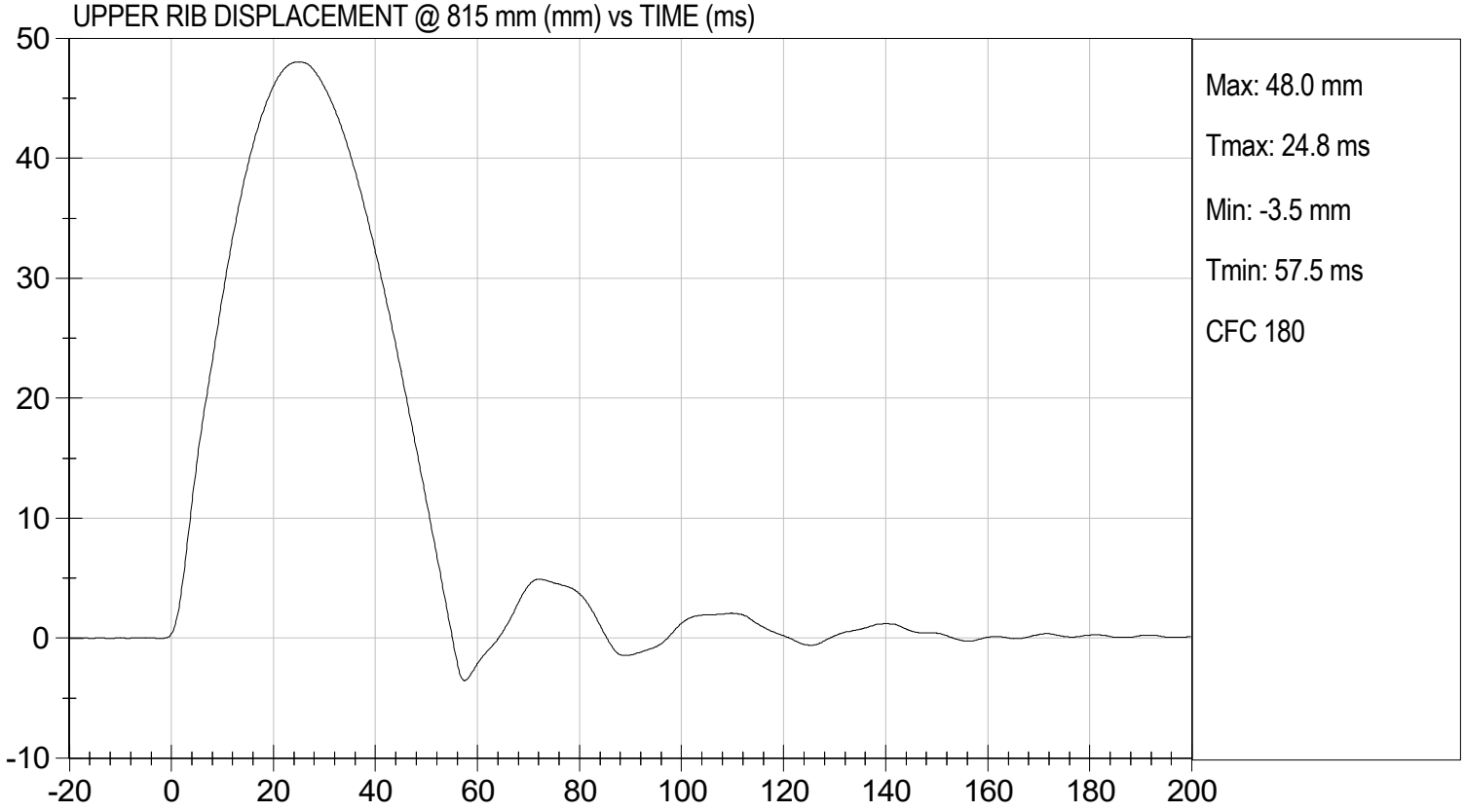
01/09/2025
Test Date

Approved By

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



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



MGA RESEARCH CORPORATION

MID RIB TEST

ES-2re DUMMY

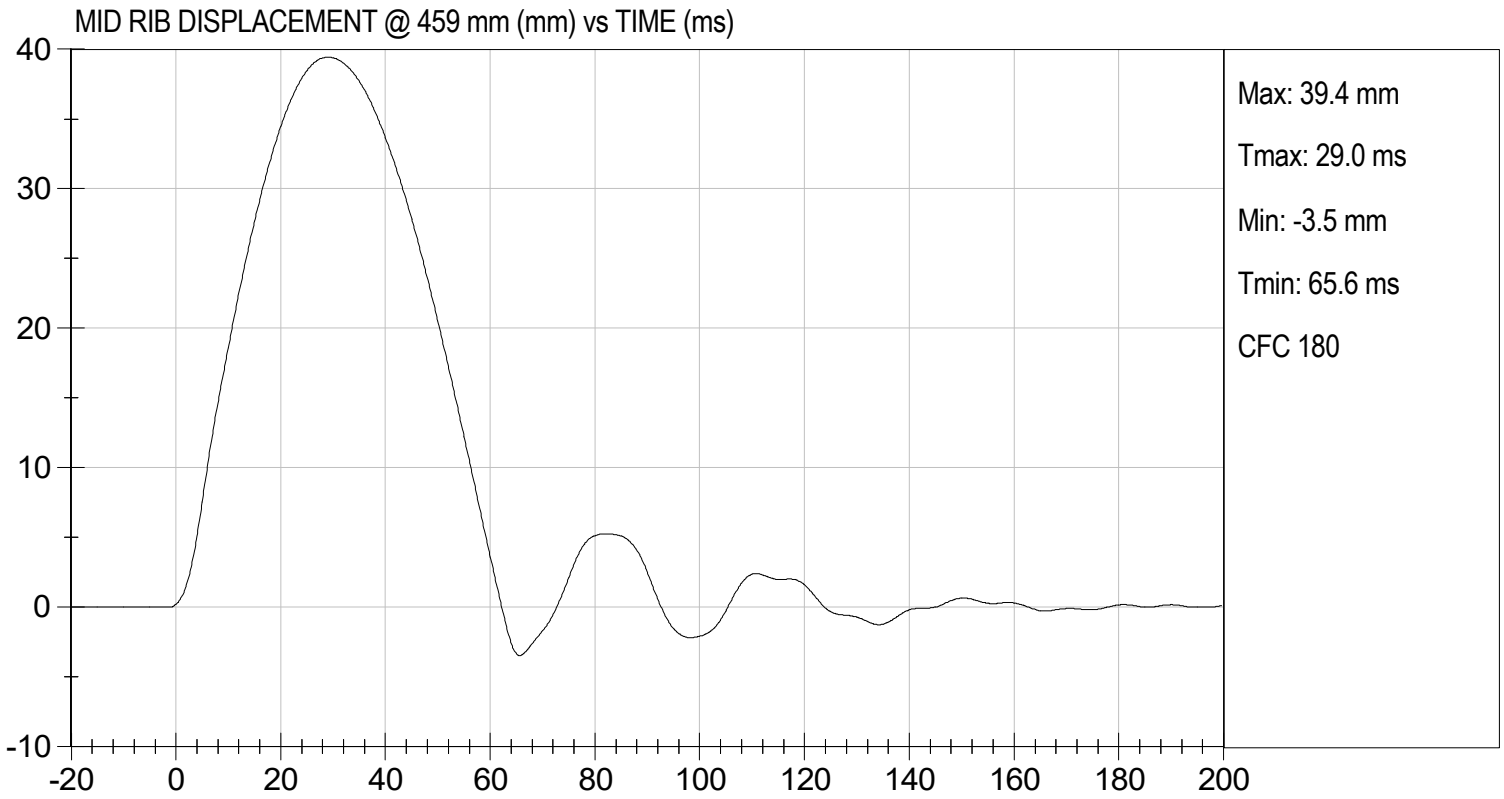
ATD Serial No: F032 **Test I.D:** D250085

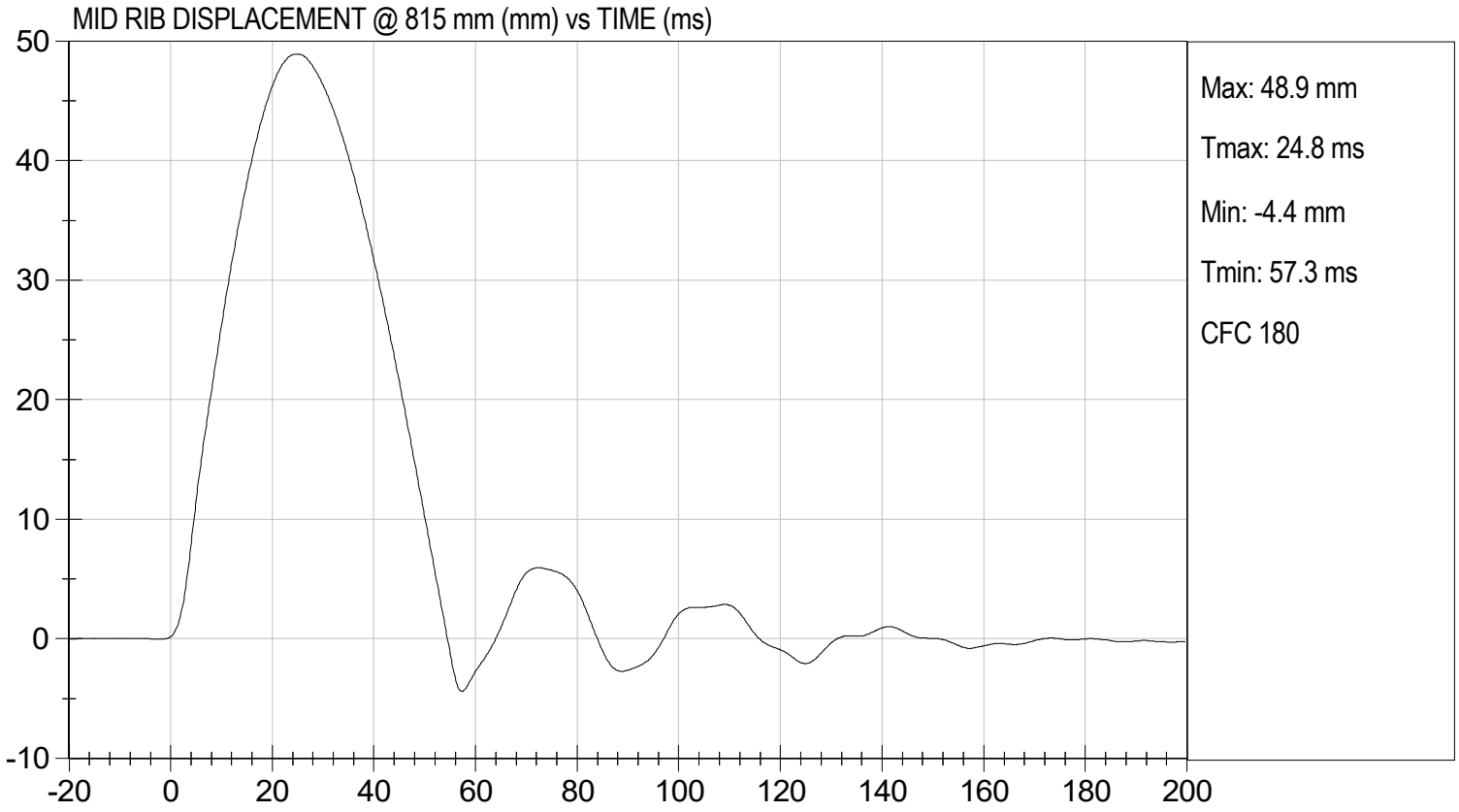
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Displacement at 459 mm	mm	36.0 to 40.0	39.4	Pass
Displacement at 815 mm	mm	46.0 to 51.0	48.9	Pass
		Overall Test Results		Pass

Laboratory Technician

01/09/2025
Test Date

Approved By


MID RIB DISPLACEMENT @ 459 mm (mm) vs TIME (ms)
40
30
20
10
0
-10
-20
0
20
40
60
80
100
120
140
160
180
200
Max: 39.4 mm
Tmax: 29.0 ms
Min: -3.5 mm
Tmin: 65.6 ms
CFC 180


MID RIB DISPLACEMENT @ 815 mm (mm) vs TIME (ms)
50
40
30
20
10
0
-10
-20
0
20
40
60
80
100
120
140
160
180
200
Max: 48.9 mm
Tmax: 24.8 ms
Min: -4.4 mm
Tmin: 57.3 ms
CFC 180

MGA RESEARCH CORPORATION

LOWER RIB TEST

ES-2re DUMMY

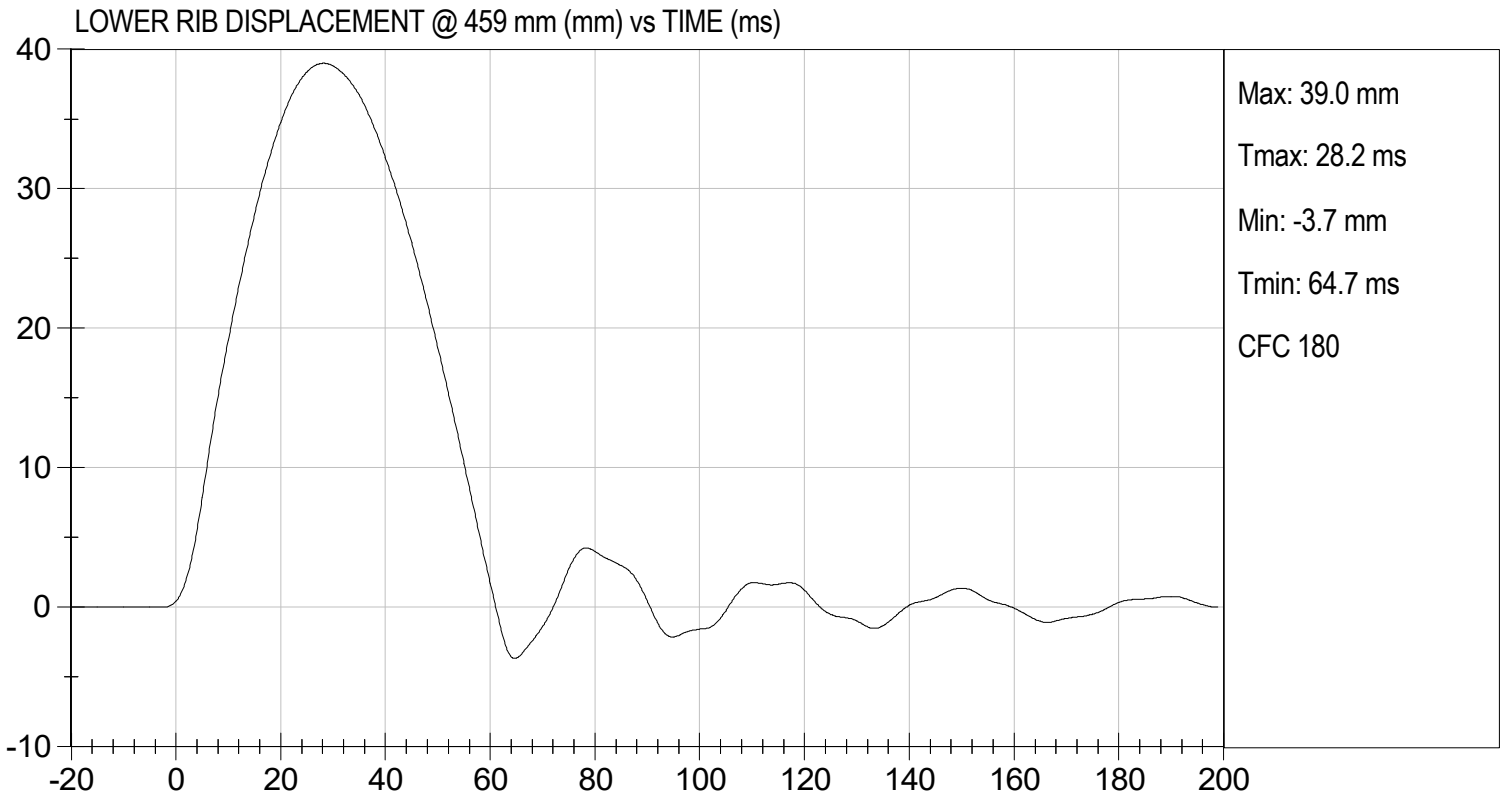
ATD Serial No: F032 **Test I.D:** D250086

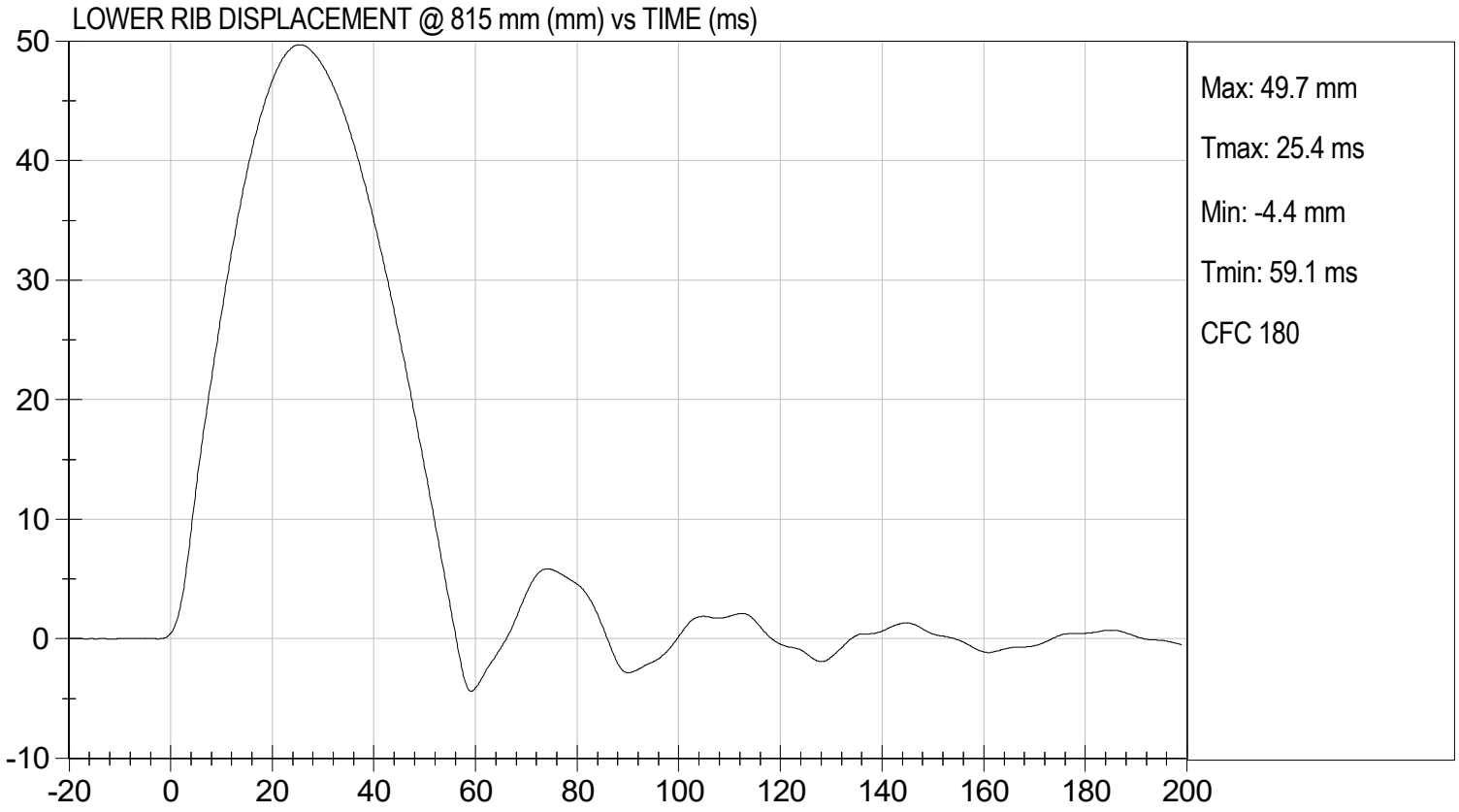
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	33	Pass
Displacement at 459 mm	mm	36.0 to 40.0	39.0	Pass
Displacement at 815 mm	mm	46.0 to 51.0	49.7	Pass
		Overall Test Results		Pass

Laboratory Technician

01/09/2025
Test Date

Approved By


LOWER RIB DISPLACEMENT @ 459 mm (mm) vs TIME (ms)
40
30
20
10
0
-10
-20
0
20
40
60
80
100
120
140
160
180
200
Max: 39.0 mm
Tmax: 28.2 ms
Min: -3.7 mm
Tmin: 64.7 ms
CFC 180


LOWER RIB DISPLACEMENT @ 815 mm (mm) vs TIME (ms)
50
40
30
20
10
0
-10
-20
0
20
40
60
80
100
120
140
160
180
200
Max: 49.7 mm
Tmax: 25.4 ms
Min: -4.4 mm
Tmin: 59.1 ms
CFC 180

MGA RESEARCH CORPORATION

ABDOMEN TEST

ES-2re DUMMY

ATD Serial No: F032 **Test I.D:** D250087

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	35	Pass
Probe Speed	m/s	3.90 to 4.10	4.10	Pass
Maximum Impactor Force	N	4000 to 4800	4453	Pass
Time of Maximum Impactor Force	ms	10.6 to 13.0	11.3	Pass
Maximum Total Abdomen Force	N	2200 to 2700	2383	Pass
Time of Maximum Abdomen Force	ms	10.0 to 12.3	10.6	Pass
		Overall Test Results		Pass

Laboratory Technician

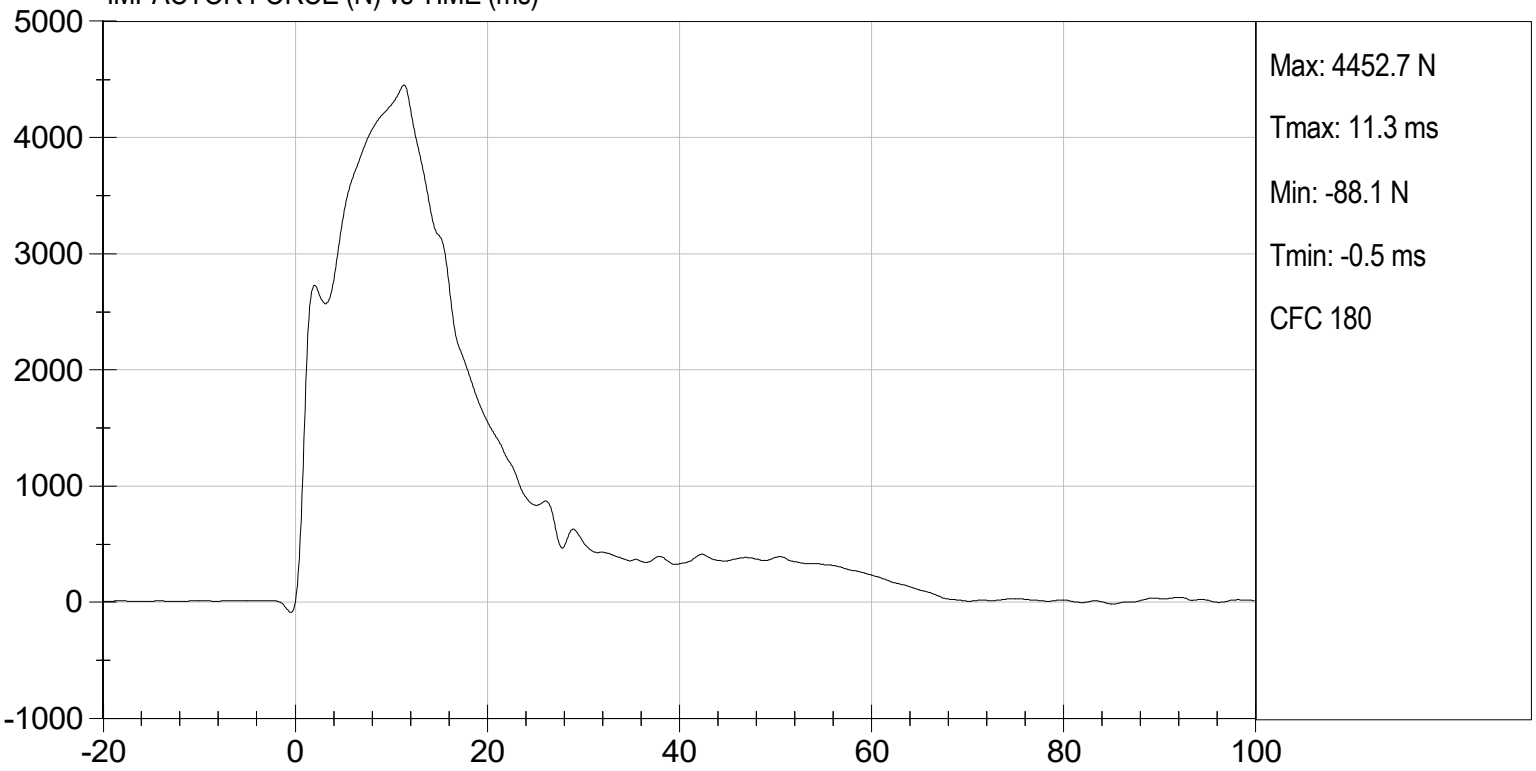
01/09/2025
Test Date

Approved By

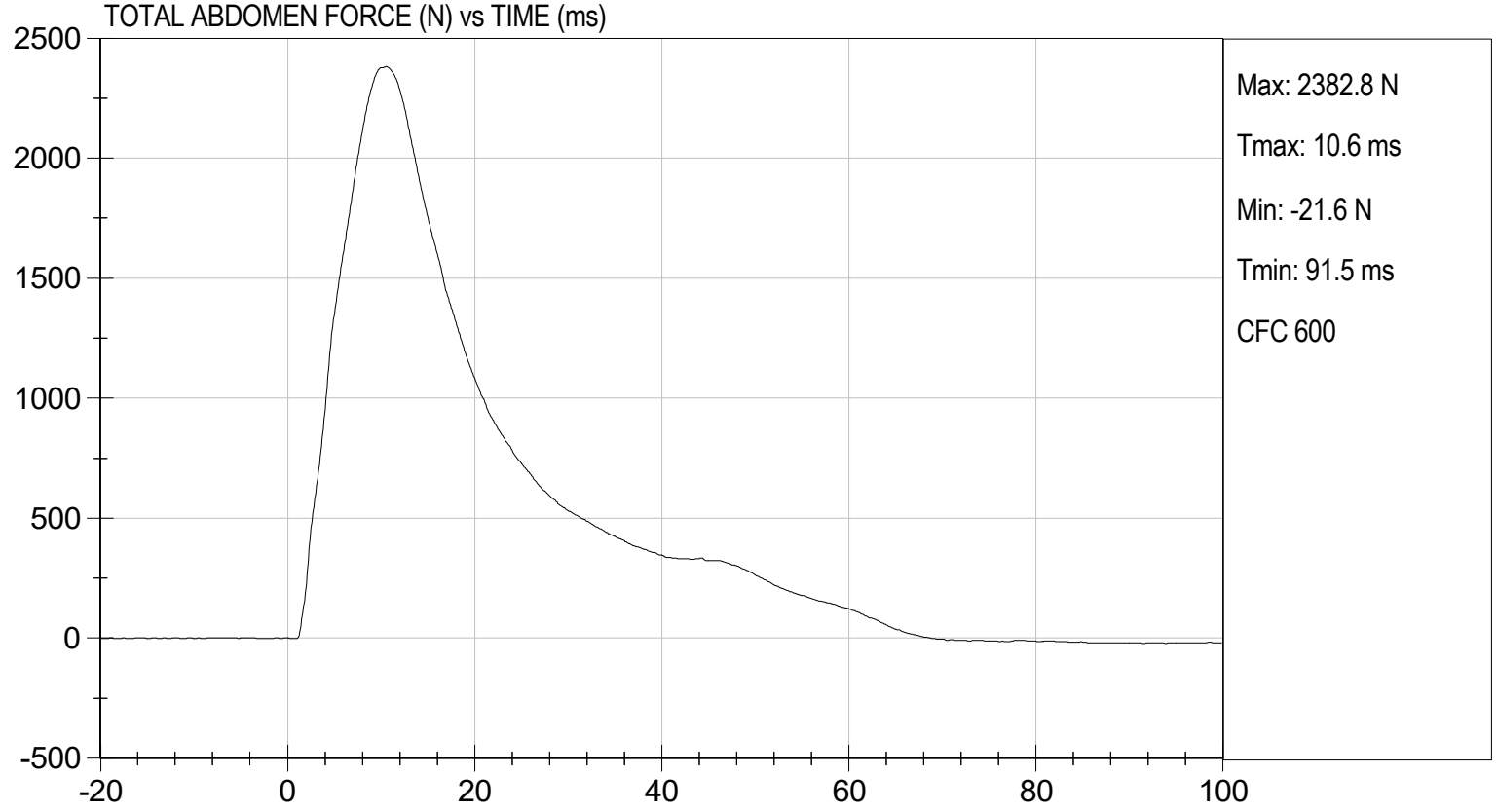
TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.44 ft/s, 4.10 m/s

TEST DATE: 01/09/2025
TEST #: D250087

IMPACTOR FORCE (N) vs TIME (ms)



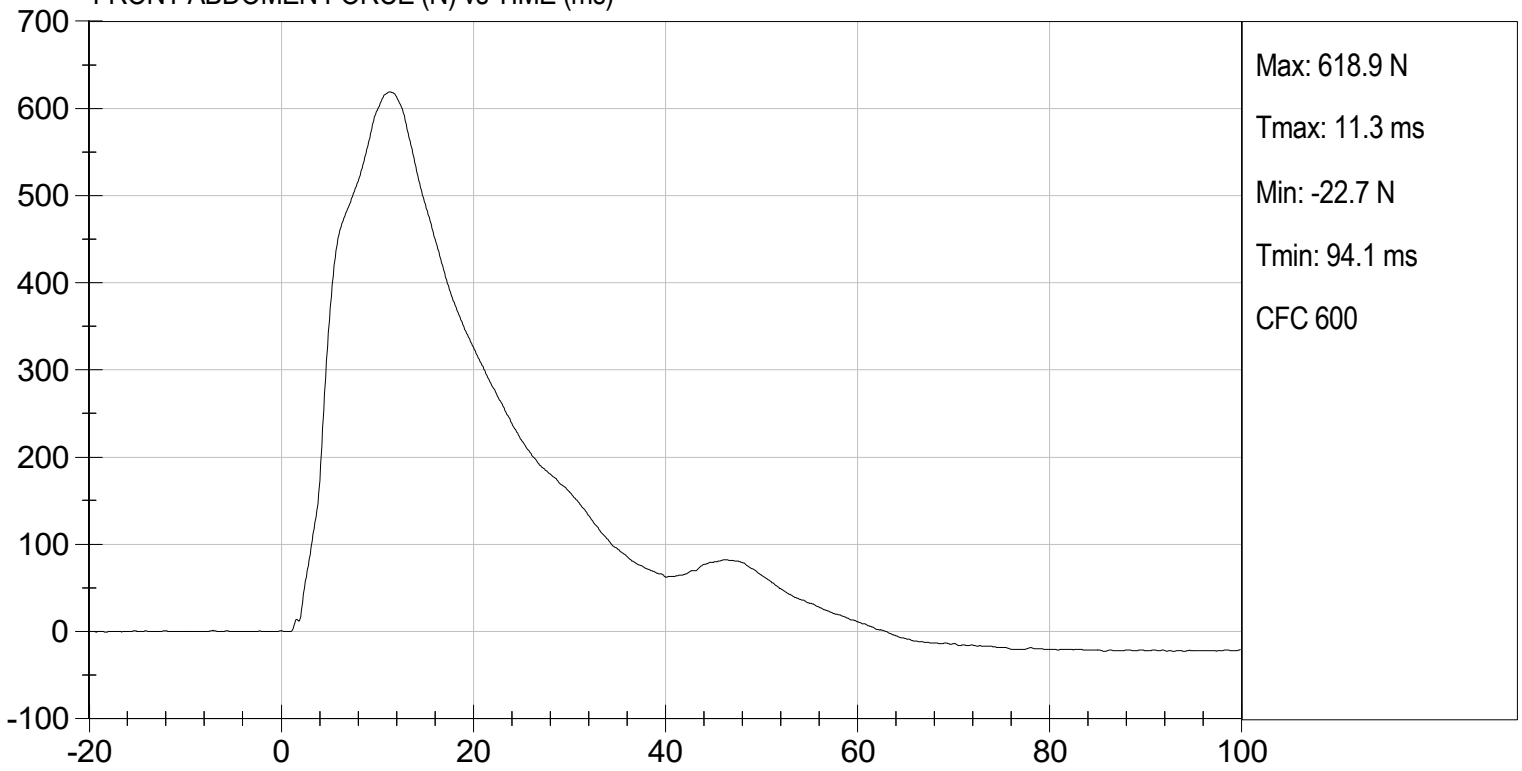
TOTAL ABDOMEN FORCE (N) vs TIME (ms)



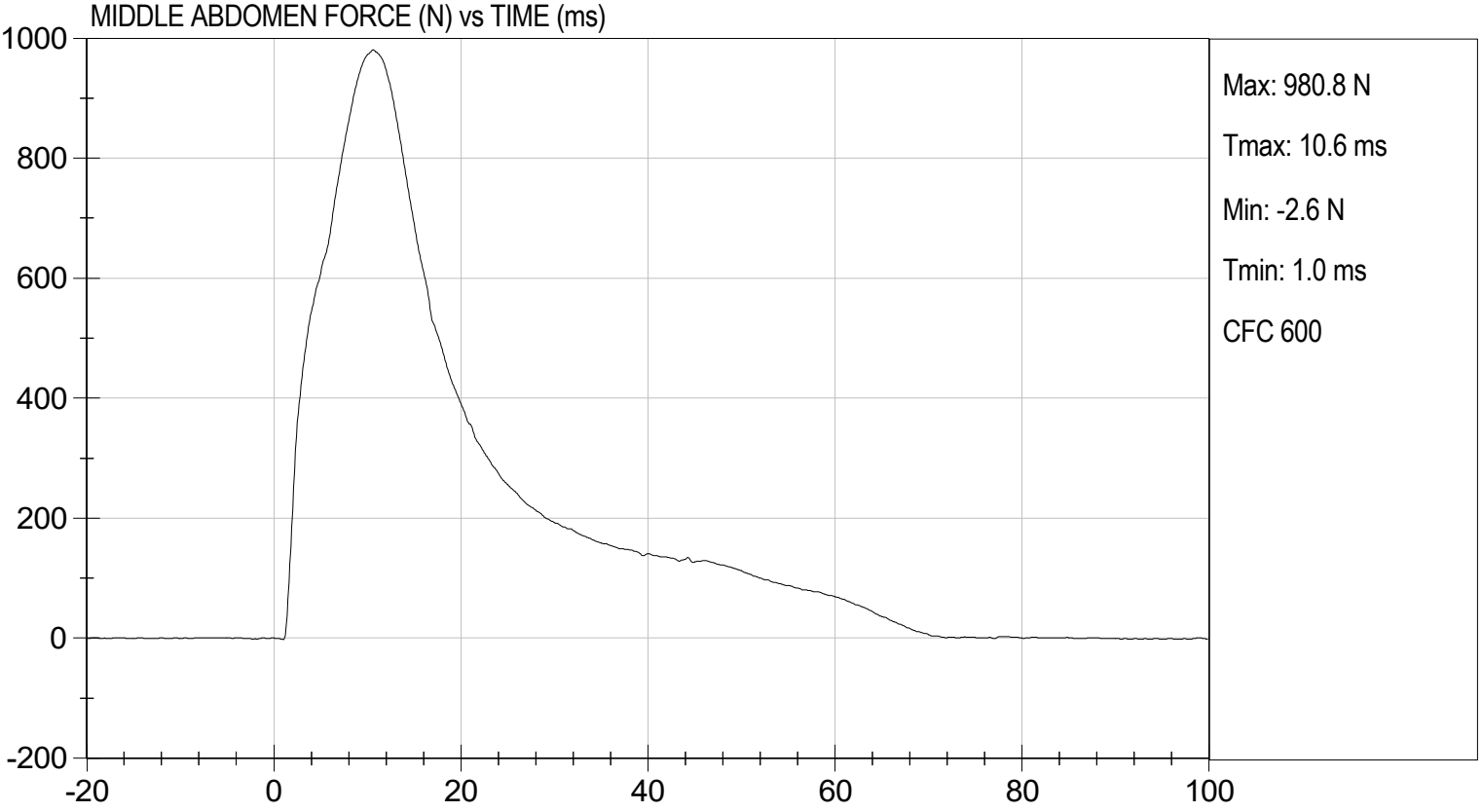
TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.44 ft/s, 4.10 m/s

TEST DATE: 01/09/2025
TEST #: D250087

FRONT ABDOMEN FORCE (N) vs TIME (ms)

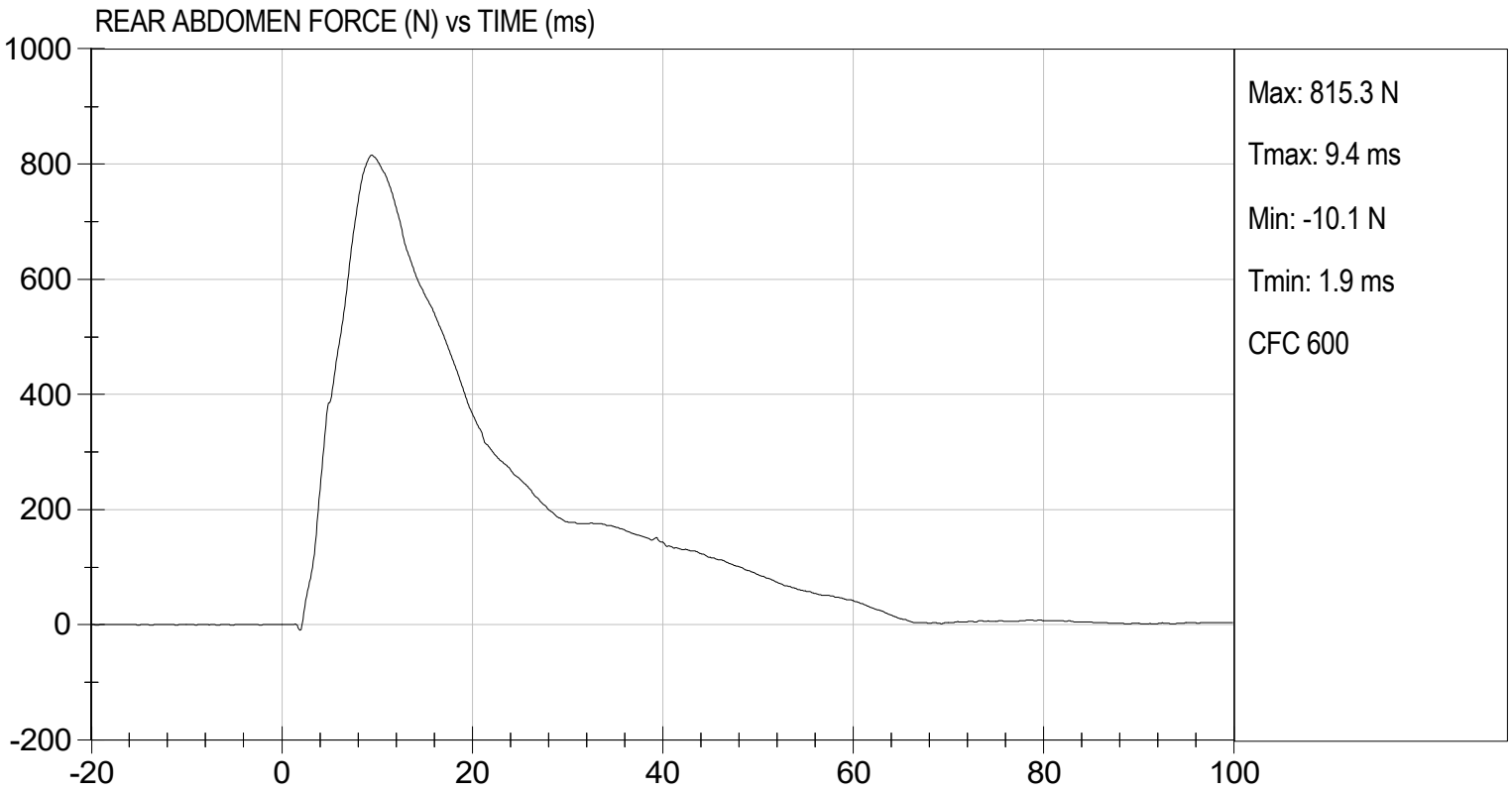


MIDDLE ABDOMEN FORCE (N) vs TIME (ms)



TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.44 ft/s, 4.10 m/s

TEST DATE: 01/09/2025
TEST #: D250087



MGA RESEARCH CORPORATION

LUMBAR SPINE TEST

ES-2re DUMMY

ATD Serial No: F032 **Test I.D:** D250088

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity		%	10 to 70	29	Pass
Pendulum Speed		m/s	5.95 to 6.15	6.05	Pass
Pendulum Velocity	1 ms	m/s	-0.05 to 0.00	-0.01	Pass
	3.7 ms	m/s	-0.425 to -0.24	-0.406	Pass
	27 ms	m/s	-6.50 to -5.80	-6.13	Pass
	30 ms	m/s	>= -6.50	-6.31	Pass
Maximum Flexion Angle		deg	45.0 to 55.0	48.8	Pass
Time of Maximum Flexion Angle		ms	39.0 to 53.0	49.2	Pass
Headform Rotation Decay to Initial Position		ms	37 to 57	39	Pass
			Overall Results		Pass

Laboratory Technician

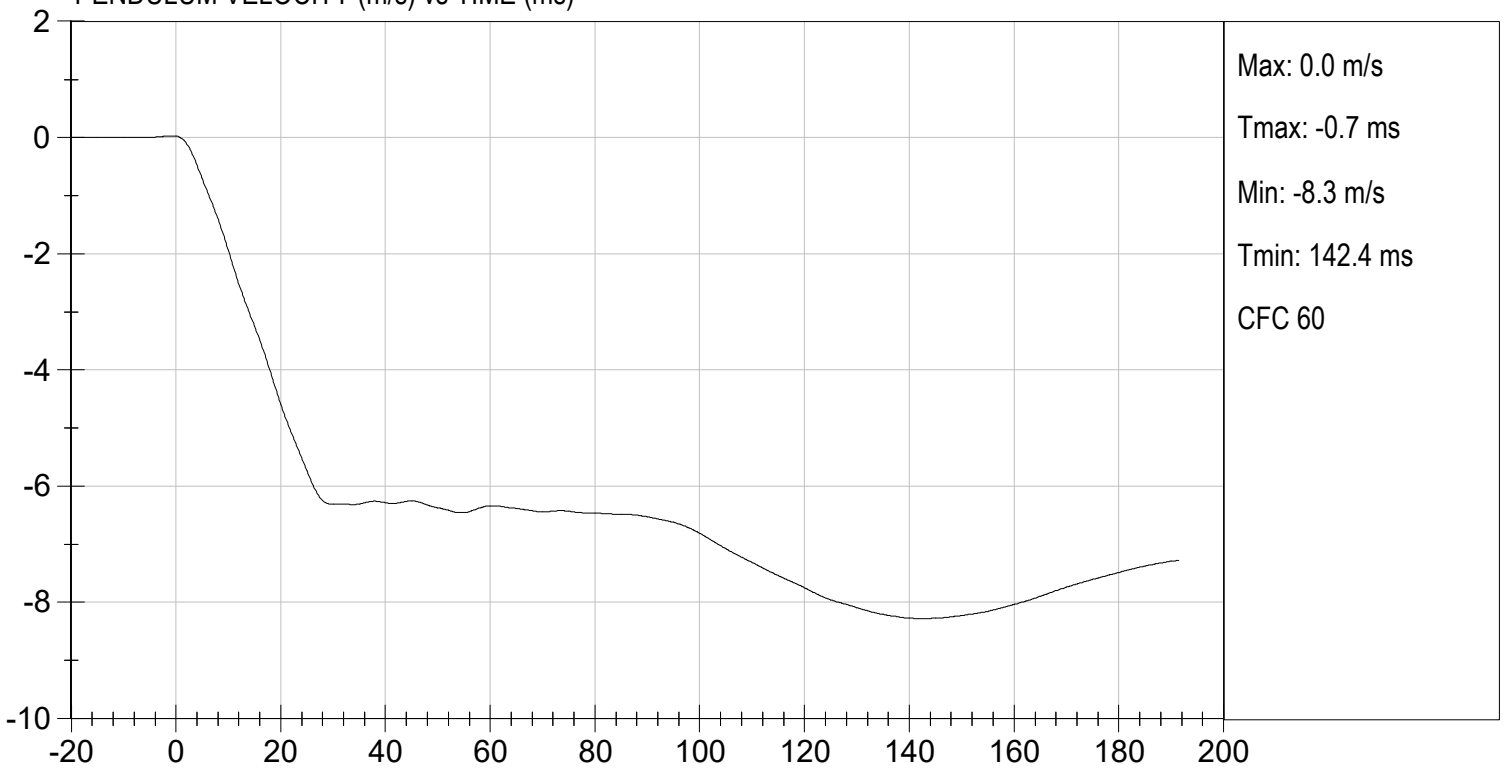
01/09/2025
Test Date

Approved By

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

TEST DATE: 01/09/2025
TEST #: D250088

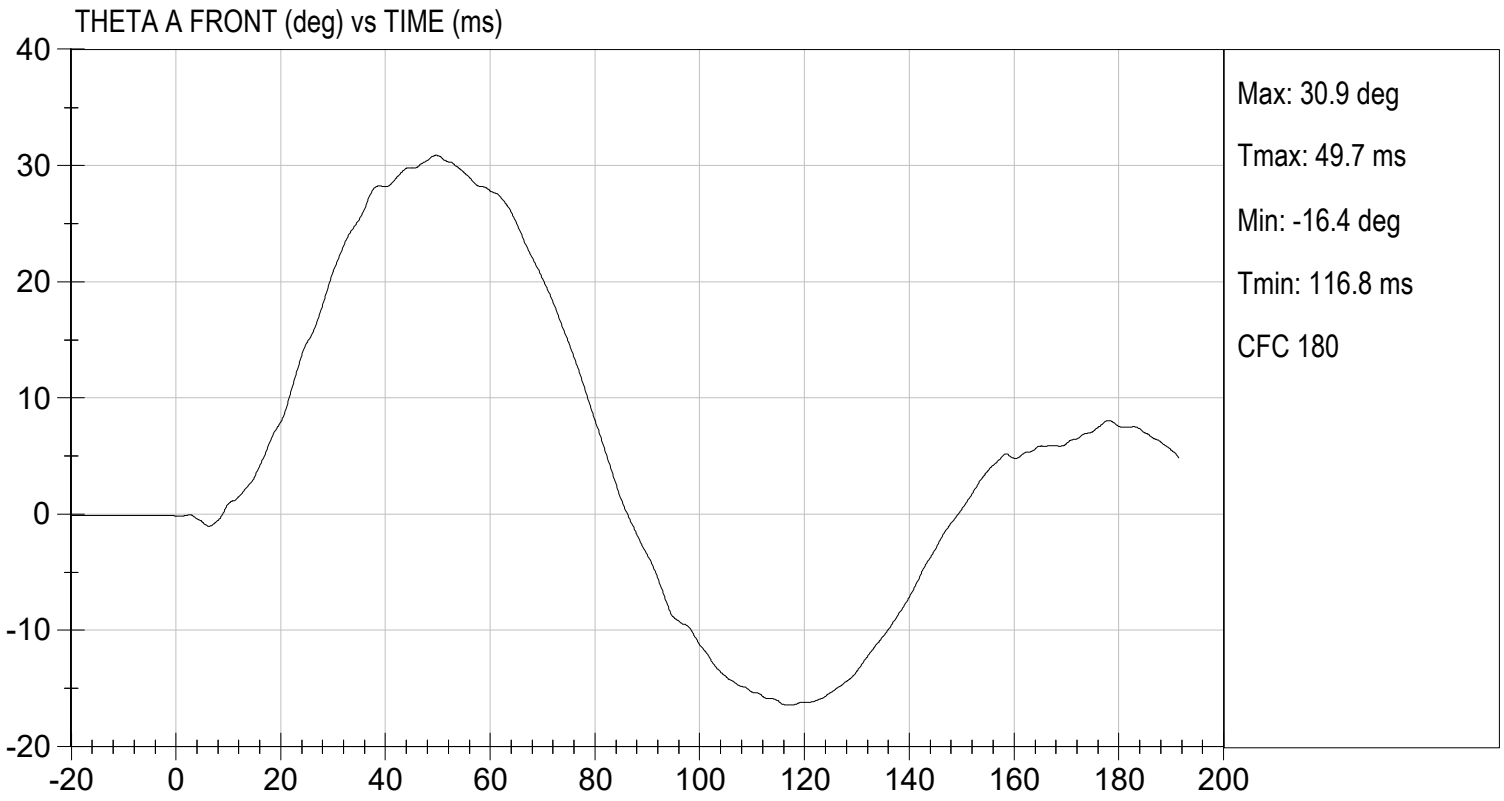
PENDULUM VELOCITY (m/s) vs TIME (ms)

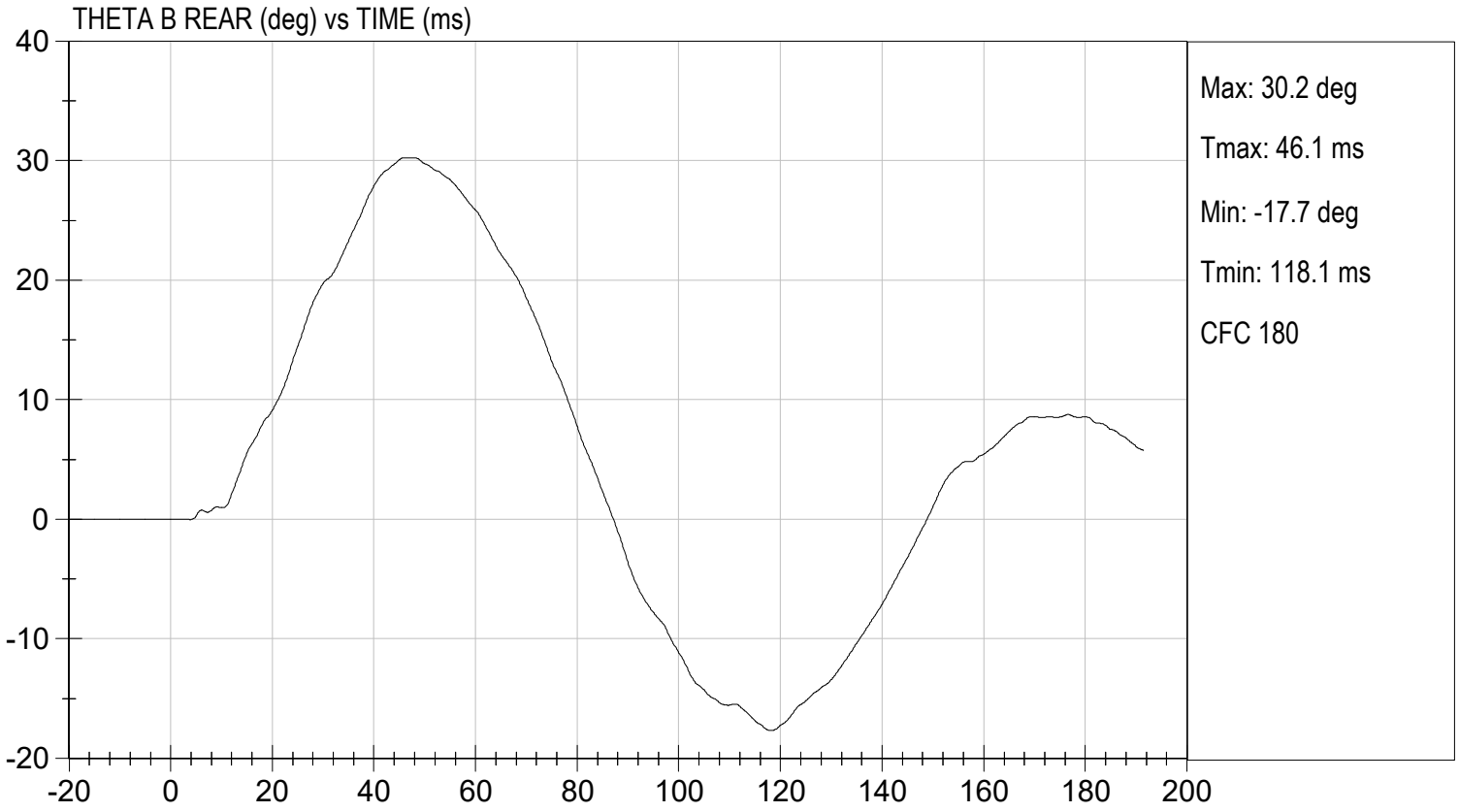


FLEXION ANGLE (deg) vs TIME (ms)

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

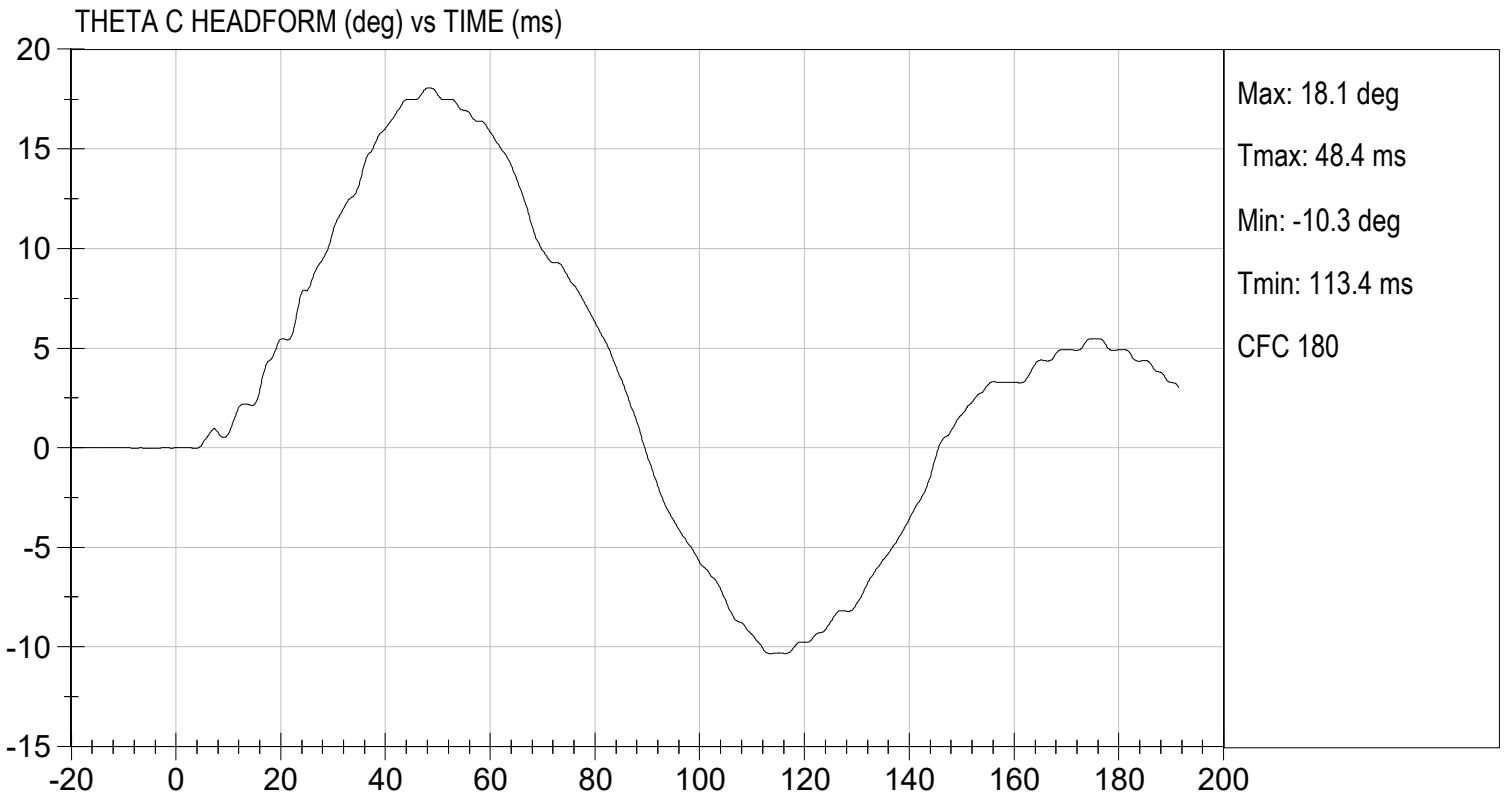
TEST DATE: 01/09/2025
TEST #: D250088





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

TEST DATE: 01/09/2025
TEST #: D250088



MGA RESEARCH CORPORATION

PELVIS TEST

ES-2re DUMMY

ATD Serial No: F032 **Test I.D:** D250089

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	35	Pass
Probe Speed	m/s	4.20 to 4.40	4.30	Pass
Maximum Impactor Force	N	4700 to 5400	5058	Pass
Time of Maximum Impactor Force	ms	11.8 to 16.1	11.8	Pass
Maximum Pubic Force	N	1230 to 1590	1256	Pass
Time of Maximum Pubic Force	ms	12.2 to 17.0	12.9	Pass
		Overall Test Results		Pass

Laboratory Technician

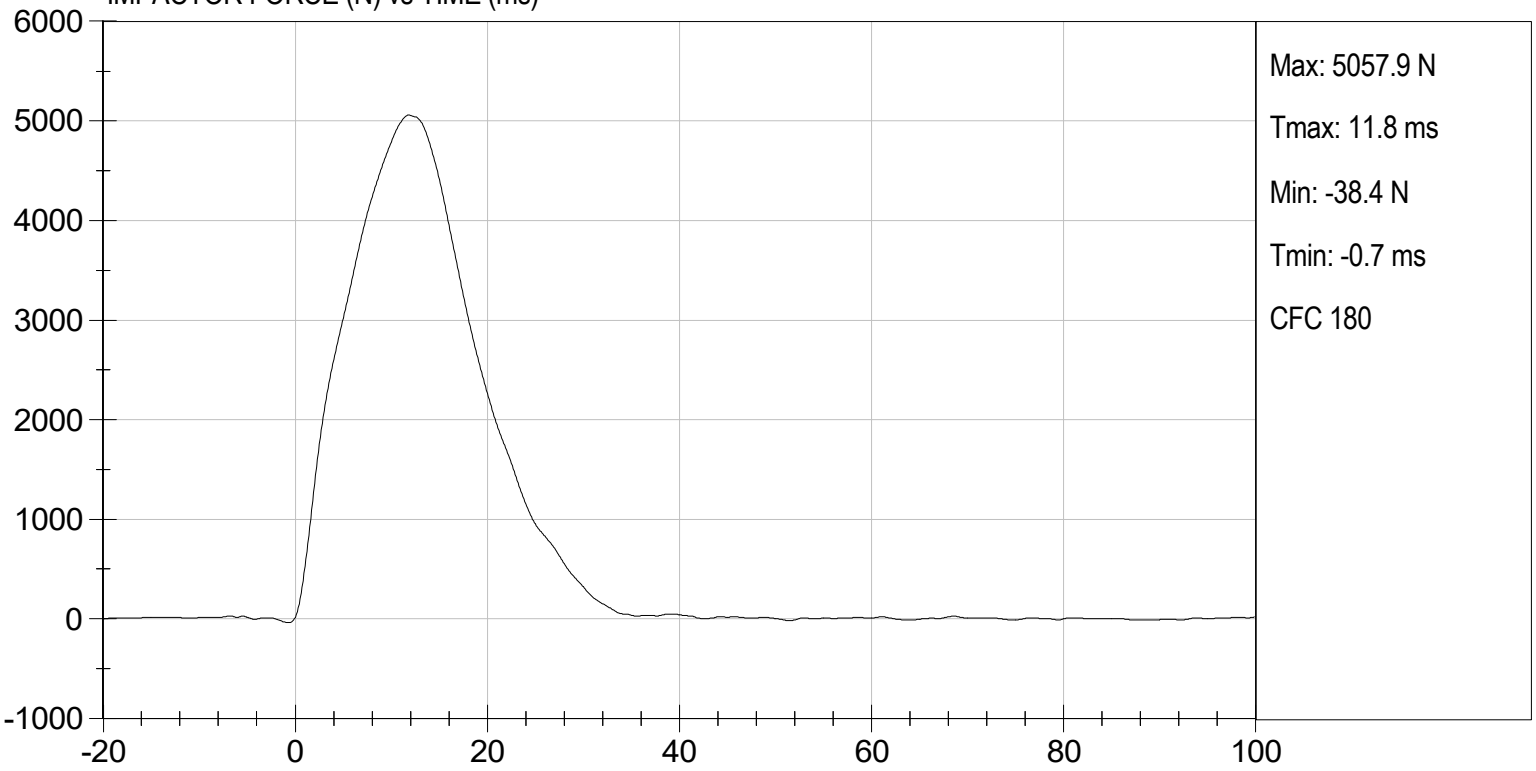
01/09/2025
Test Date

Approved By

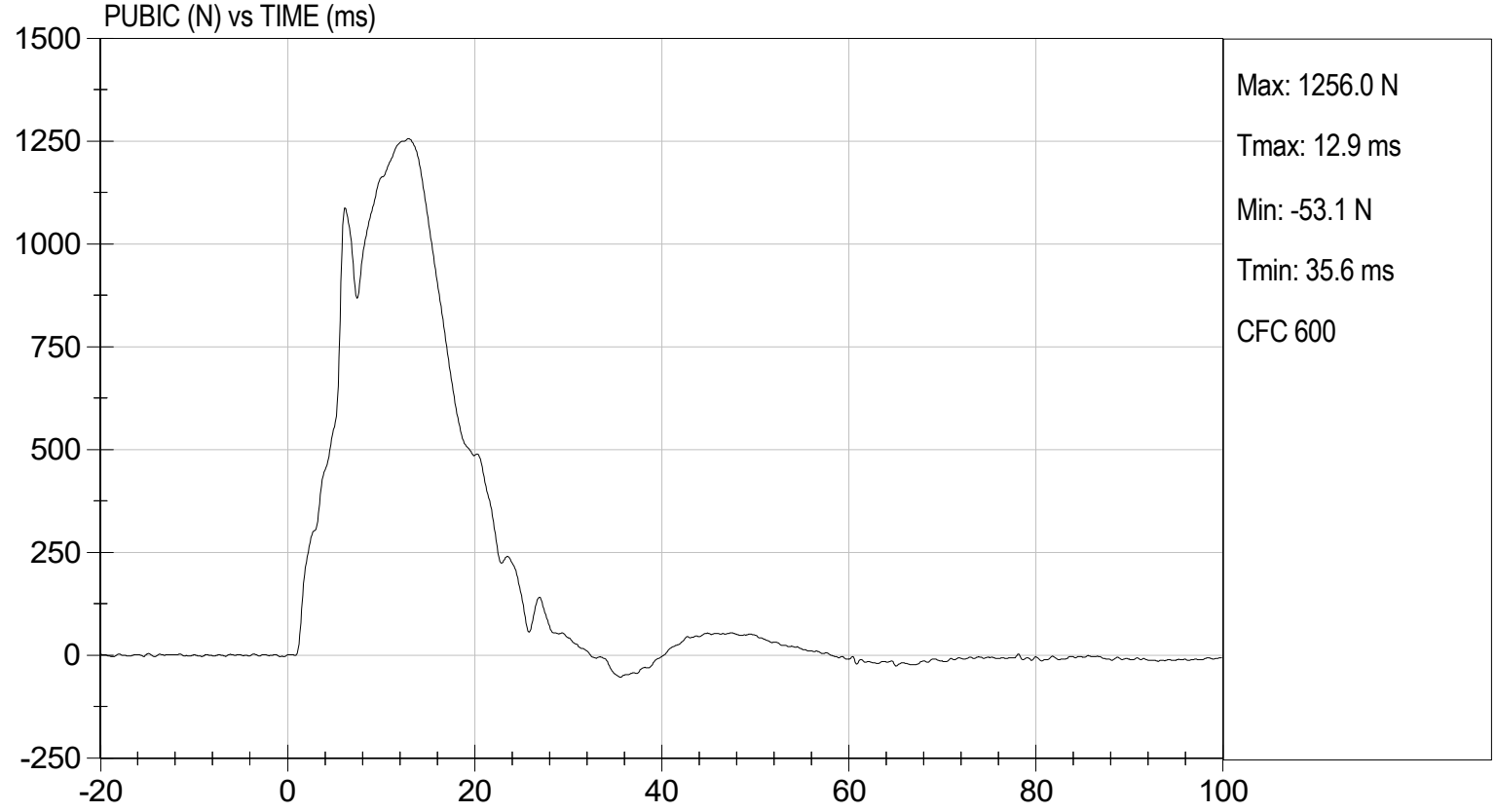
TEST DESC: PELVIS IMPACT
VELOCITY: 14.12 ft/s, 4.3 m/s

TEST DATE: 01/09/2025
TEST #: D250089

IMPACTOR FORCE (N) vs TIME (ms)



PUBIC (N) vs TIME (ms)



MGA RESEARCH CORPORATION

THORAX IMPACT TEST

ES-2re DUMMY

ATD Serial No: F032 **Test I.D:** D250080

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	35	Pass
Probe Speed	m/s	5.40 to 5.60	5.40	Pass
Maximum Impactor Force (after 6 ms)	N	5100 to 6200	5490	Pass
Upper Rib Displacement	mm	34.0 to 41.0	38.0	Pass
Middle Rib Displacement	mm	37.0 to 45.0	40.5	Pass
Lower Rib Displacement	mm	37.0 to 44.0	39.0	Pass
		Overall Test Results		Pass

Laboratory Technician

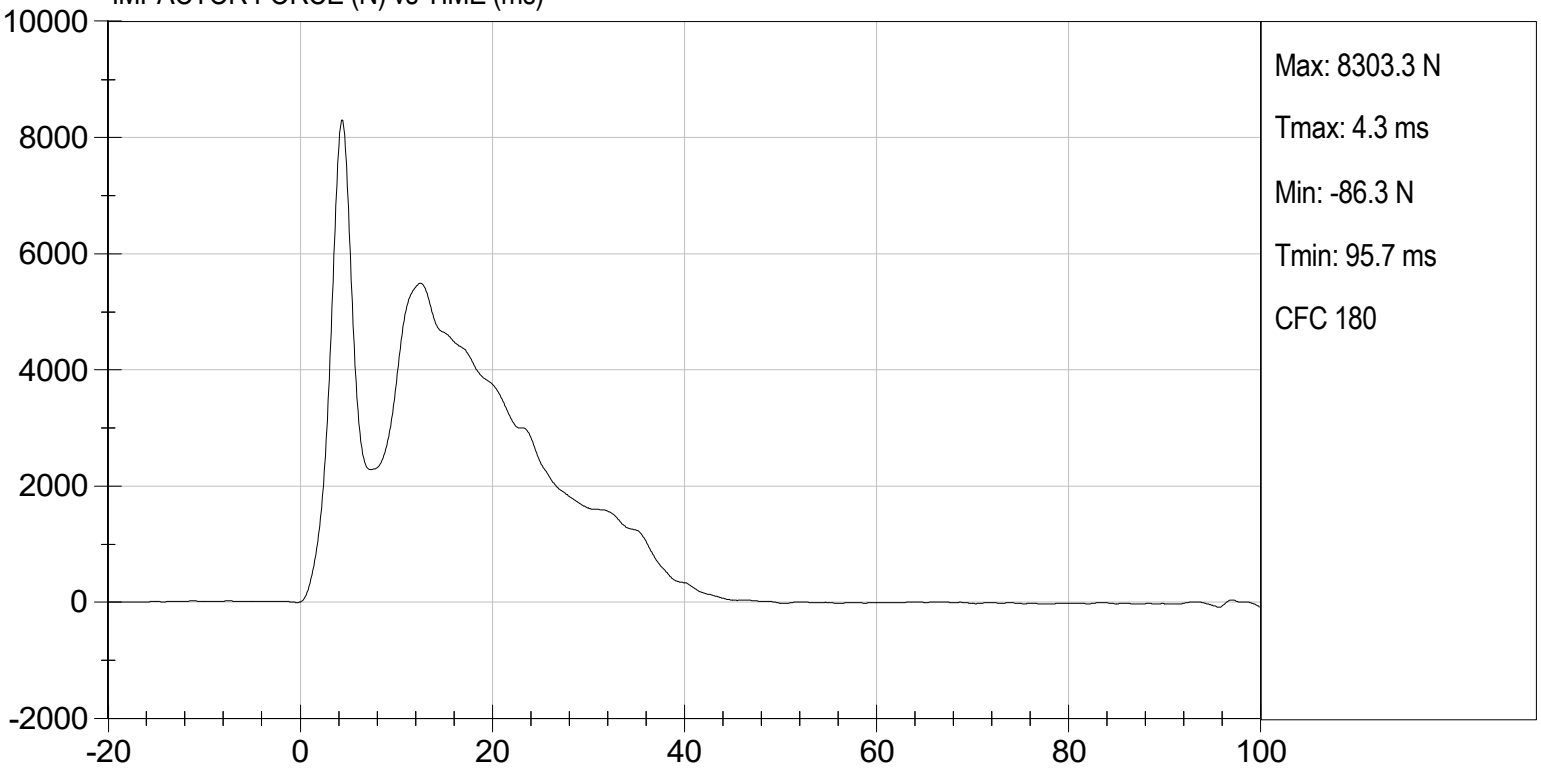
01/09/2025
Test Date

Approved By

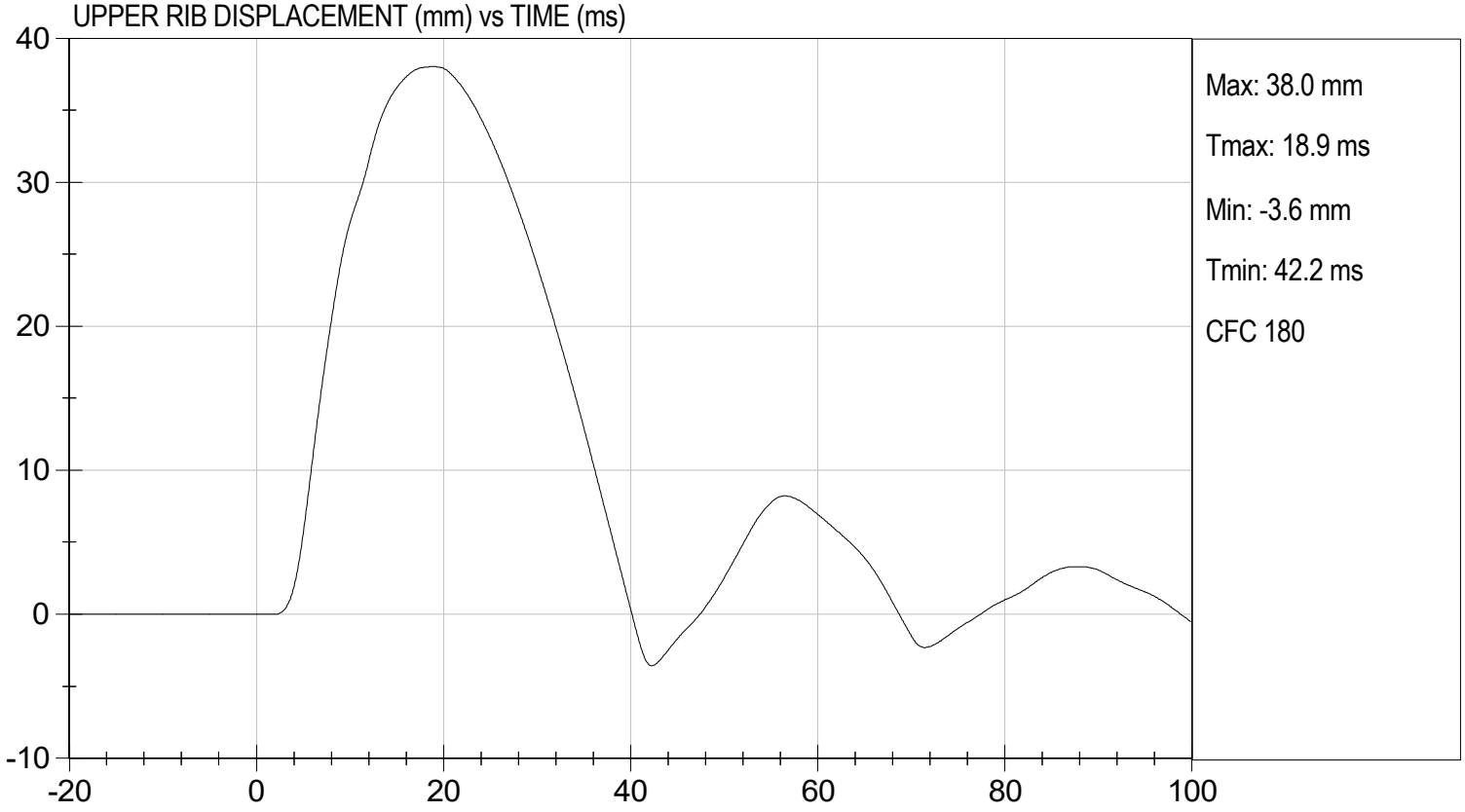
TEST DESC: THORAX IMPACT
VELOCITY: 17.73 ft/s, 5.40 m/s

TEST DATE: 01/09/2025
TEST #: D250080

IMPACTOR FORCE (N) vs TIME (ms)



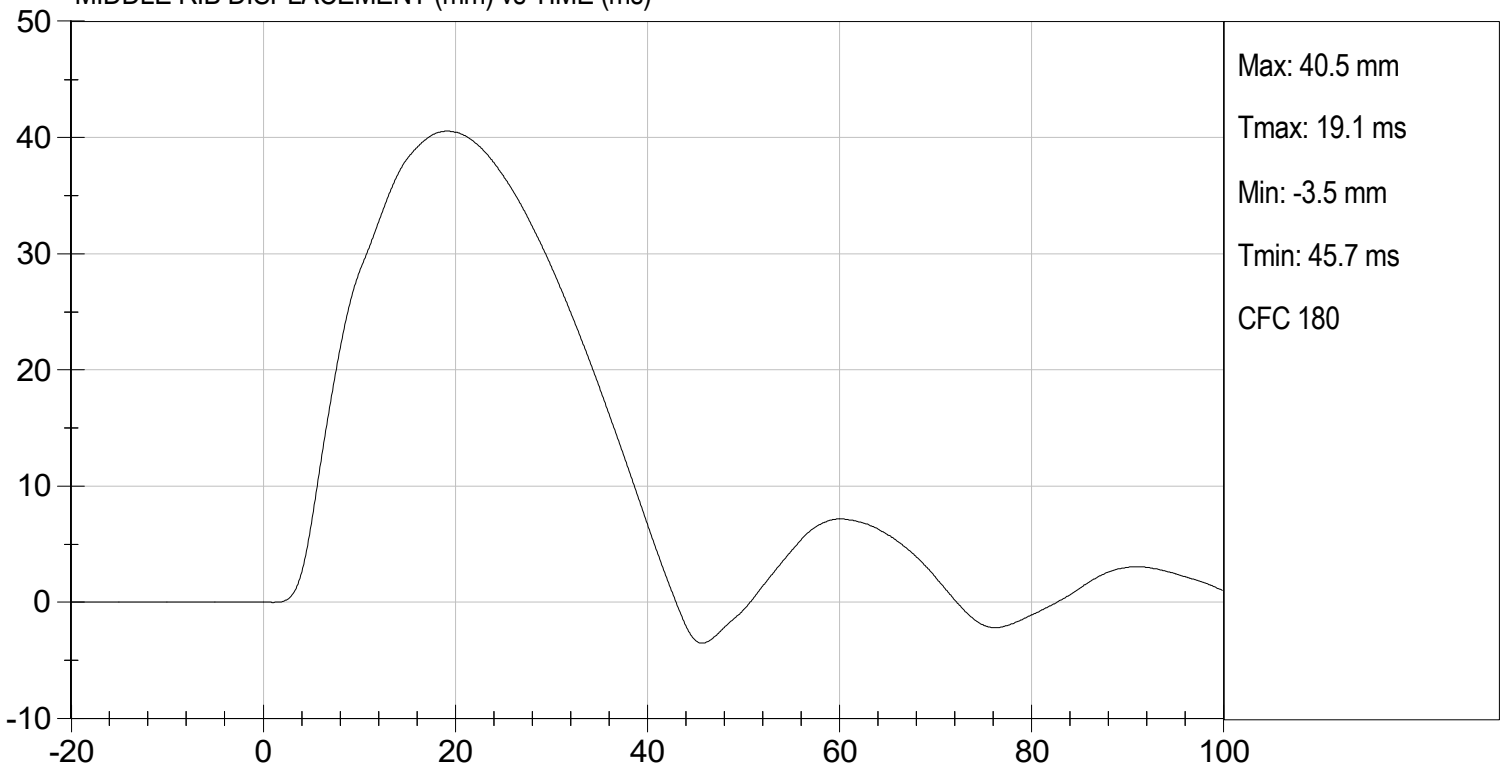
UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



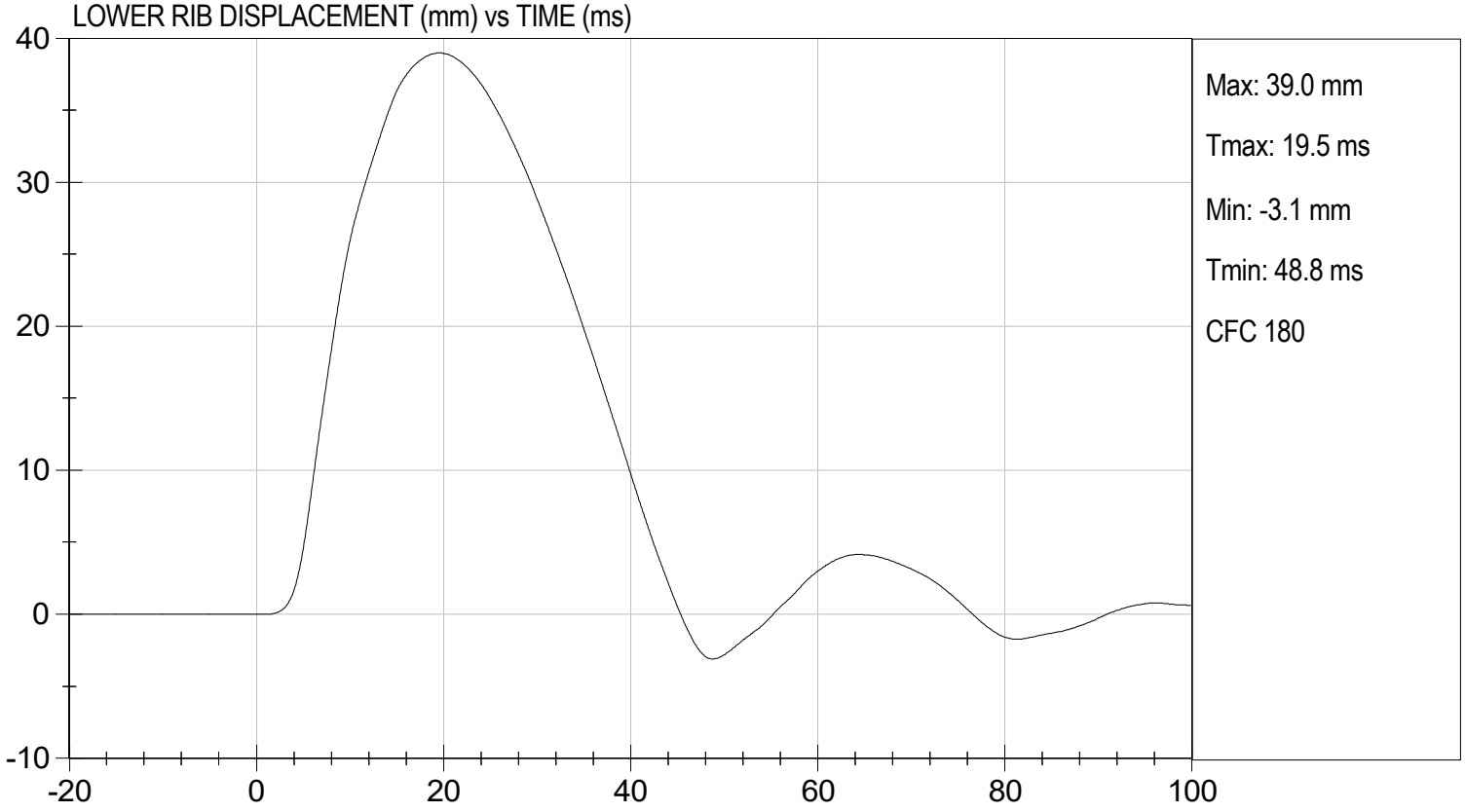
TEST DESC: THORAX IMPACT
VELOCITY: 17.73 ft/s, 5.40 m/s

TEST DATE: 01/09/2025
TEST #: D250080

MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



QUALIFICATION TEST RESULTS

PRE-TEST

SID-IIS 5TH PERCENTILE FEMALE - PASSENGER ATD

SID-IIsD External Measurements
SN: 306

No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	785	Pass
B	Shoulder Pivot Height	437 - 453	449	Pass
C	H-point Height	79 - 89	86	Pass
D	H-point from Seatback	141 - 151	147	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	120	Pass
G	Head Breadth	140 - 148	141	Pass
H	Head Back from Backline	40 - 46	45	Pass
I	Head Depth	178 - 188	182	Pass
J	Head Circumference	541 - 551	550	Pass
K	Buttock to Knee Length	514 - 540	538	Pass
L	Popliteal Height	343 - 369	349	Pass
M	Knee Pivot to Floor Height	392 - 409	394	Pass
N	Buttock Popliteal Length	416 - 442	435	Pass
O	Chest Depth w/o Jacket	195 - 211	198	Pass
P	Foot Length	216 - 232	222	Pass
Q	Hip Breadth (w/ pelvic plugs)	313 - 323	317	Pass
R	Arm Length	249 - 259	250	Pass
S	Knee Joint to Seatback	477 - 493	483	Pass
V	Shoulder Width	341 - 357	351	Pass
W	Foot Width	78 - 94	82	Pass
Y	Chest Circumference w/ jacket	851 - 881	863	Pass
Z	Waist Circumference	761 - 791	782	Pass

MGA RESEARCH CORPORATION

HEAD DROP TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test ID:** D243111

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.6	Pass
Laboratory Relative Humidity	%	10 to 70	19	Pass
Peak Resultant Acceleration	G's	115 to 137	129	Pass
Peak Longitudinal Acceleration	G's	+/- 15	-9.0	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
		Overall Test Results		Pass

Laboratory Technician

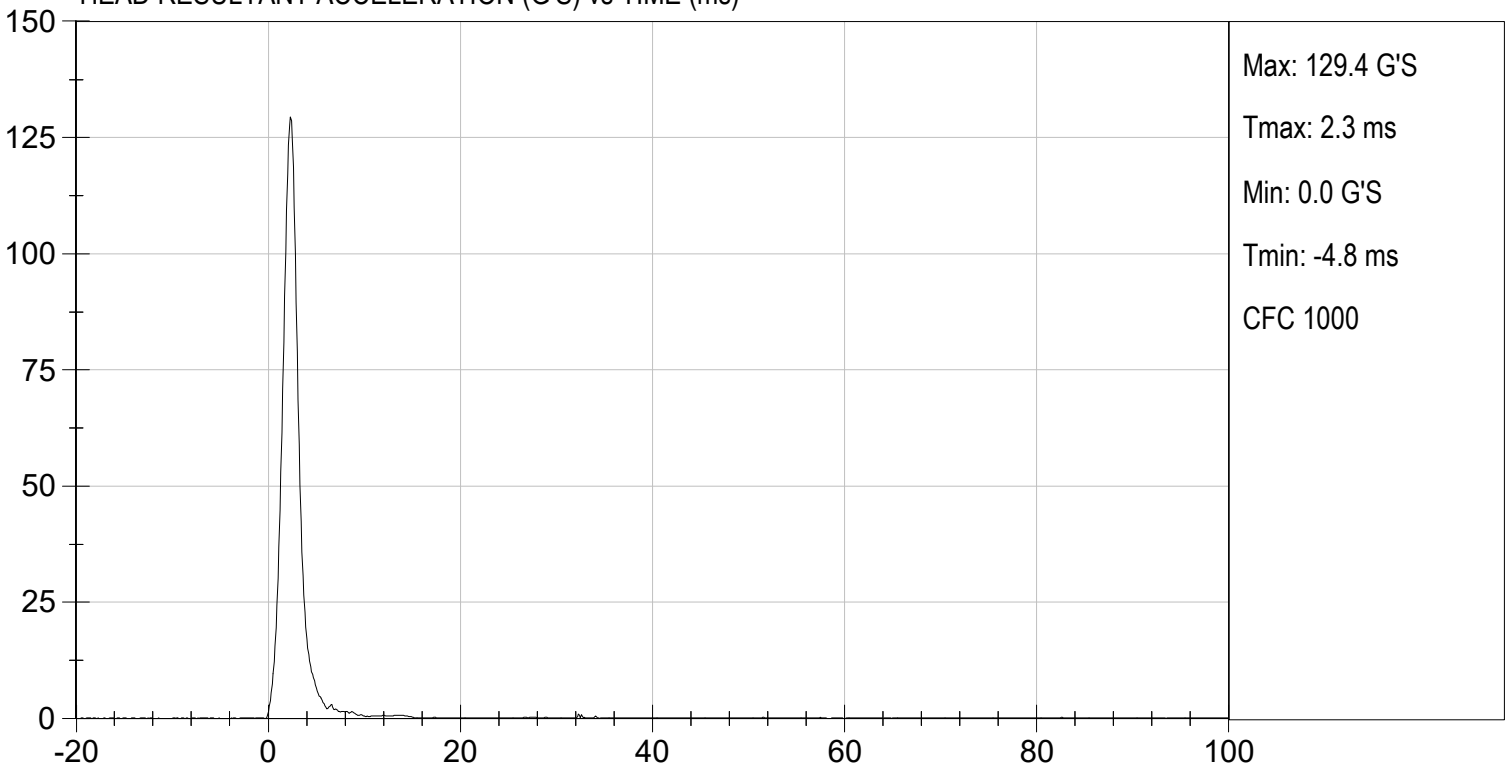
12/05/2024
Test Date

Approved By

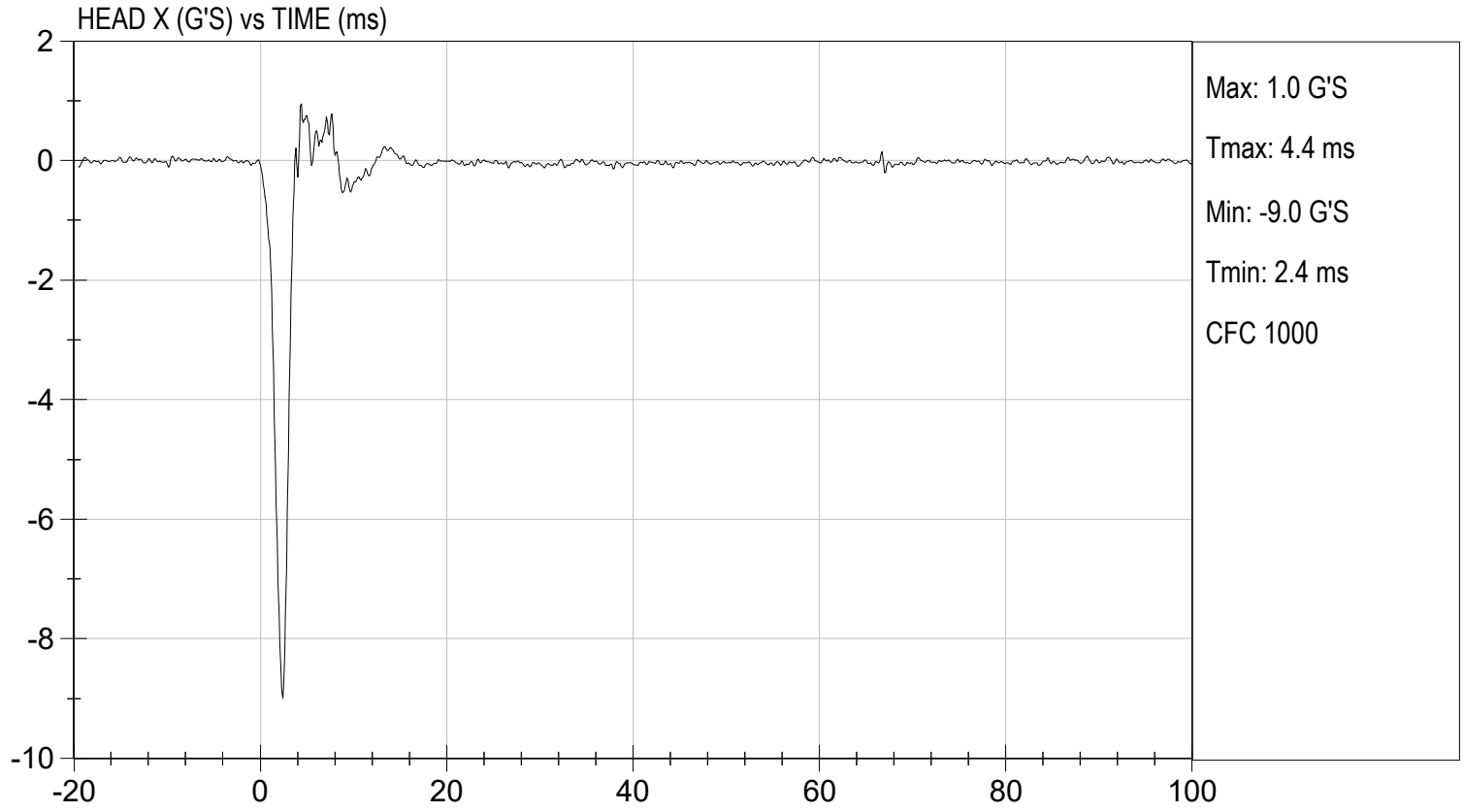
TEST DESC: HEAD DROP

TEST DATE: 12/05/2024
TEST #: D243111

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



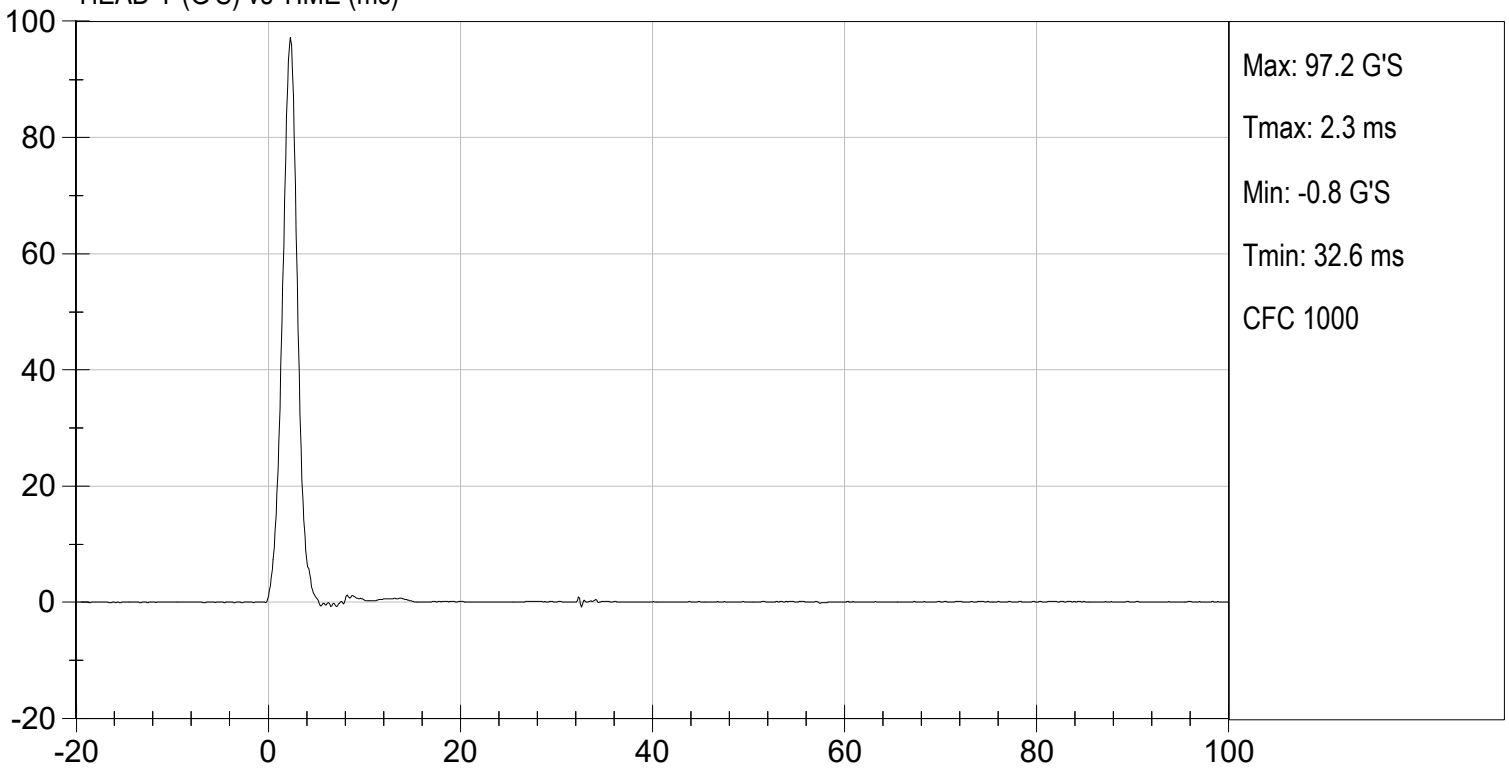
HEAD X (G'S) vs TIME (ms)



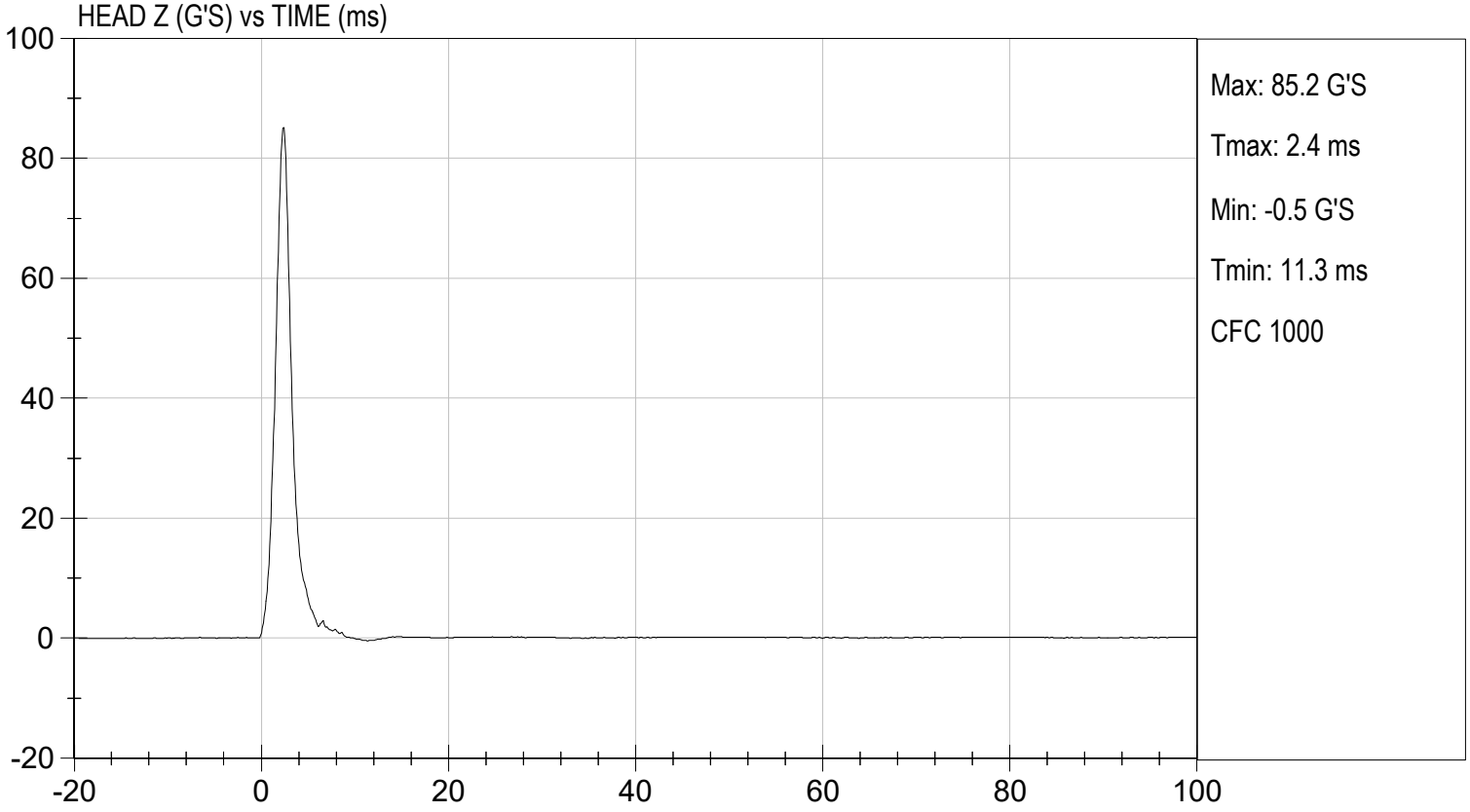
TEST DESC: HEAD DROP

TEST DATE: 12/05/2024
TEST #: D243111

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



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



MGA RESEARCH CORPORATION

LATERAL NECK PENDULUM TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test I.D:** D243112

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.6	Pass
Humidity		%	10 to 70	25	Pass
Impact Velocity		m/s	5.51 to 5.63	5.52	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.39	Pass
	15 ms	m/s	3.30 to 4.10	3.59	Pass
	20 ms	m/s	4.40 to 5.40	5.03	Pass
	25 ms	m/s	5.40 to 6.10	5.82	Pass
	25-100 ms	m/s	5.50 to 6.20	5.86	Pass
Maximum D-Plane Rotation		deg	71 to 81	75	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	65	Pass
Maximum Occipital Condyle Moment		Nm	-44 to -36	-38	Pass
Time of Moment Decay to 0 Nm		ms	102 to 126	119	Pass
			Overall Test Results		Pass

Laboratory Technician

12/05/2024

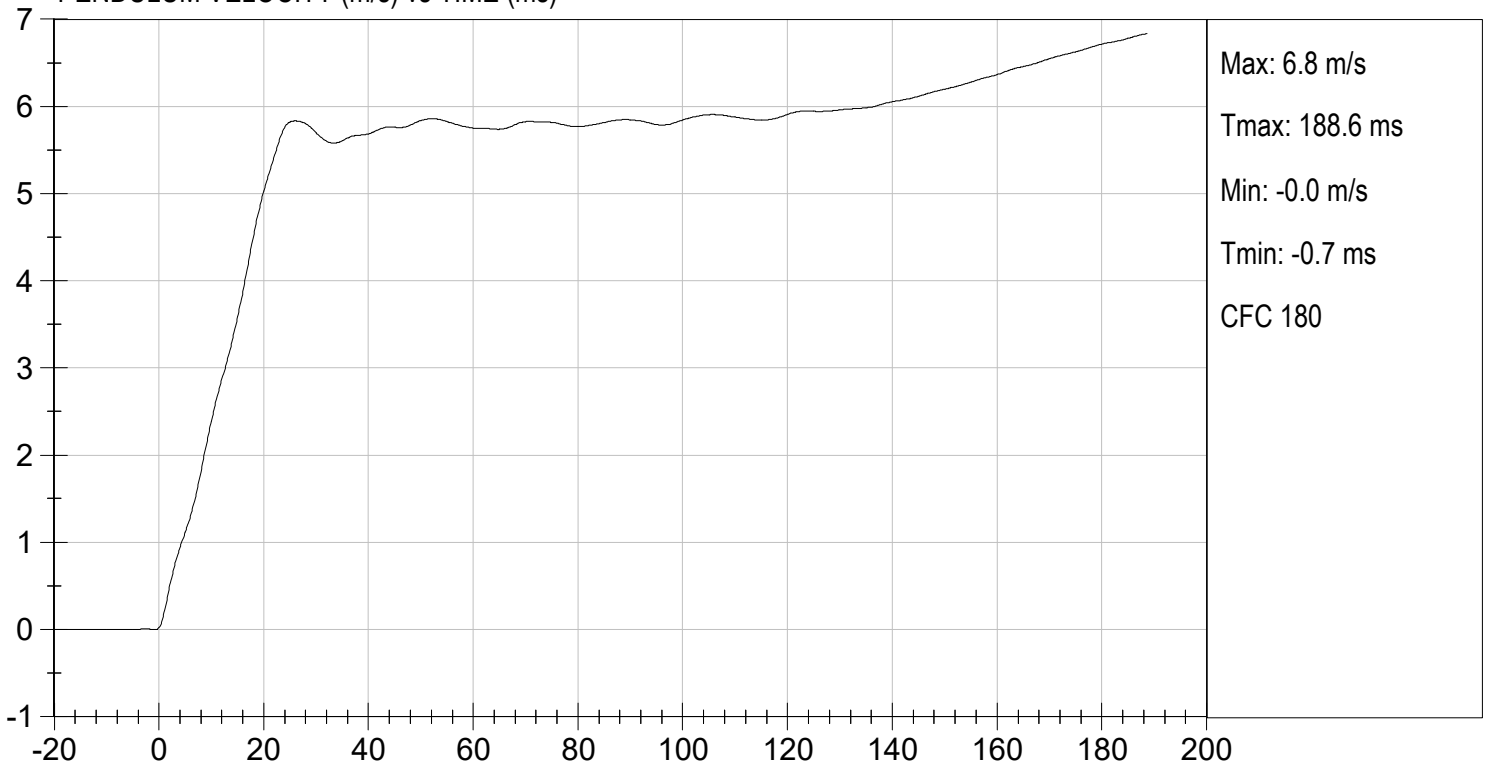
Test Date

Approved By

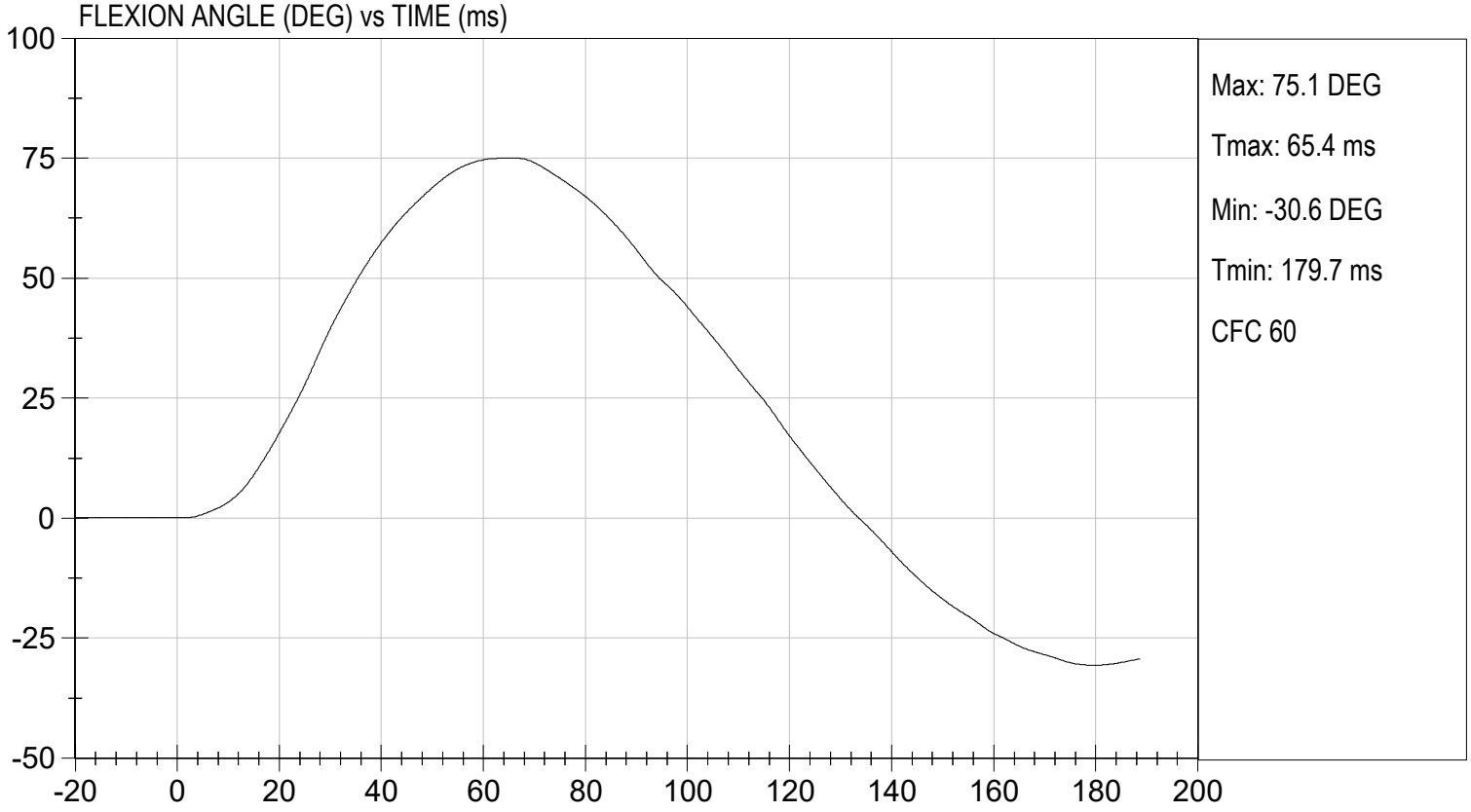
TEST DESC: NECK BENDING
VELOCITY: 18.12 ft/s, 5.52 m/s

TEST DATE: 12/05/2024
TEST #: D243112

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

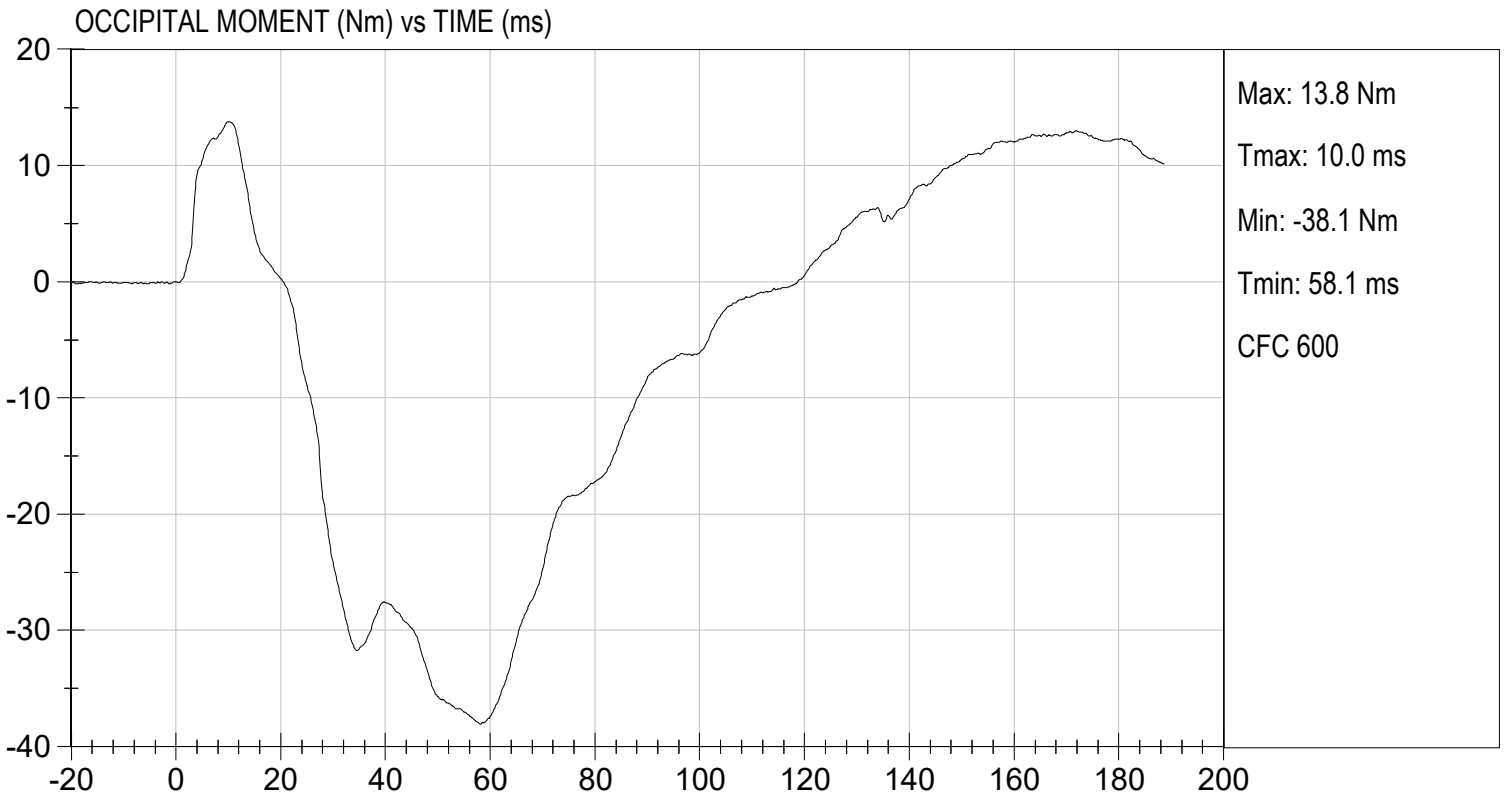


FLEXION ANGLE (DEG) vs TIME (ms)



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

TEST DATE: 12/05/2024
TEST #: D243112



MGA RESEARCH CORPORATION

SHOULDER IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test ID:** D243113

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	18	Pass
Impact Velocity	m/s	4.20 to 4.40	4.34	Pass
Maximum Probe Acceleration	G's	13 to 18	17	Pass
Shoulder Displacement	mm	28 to 37	31	Pass
Upper Spine (T1) Y Acceleration	G's	17 to 22	17	Pass
		Overall Test Results		Pass

Laboratory Technician

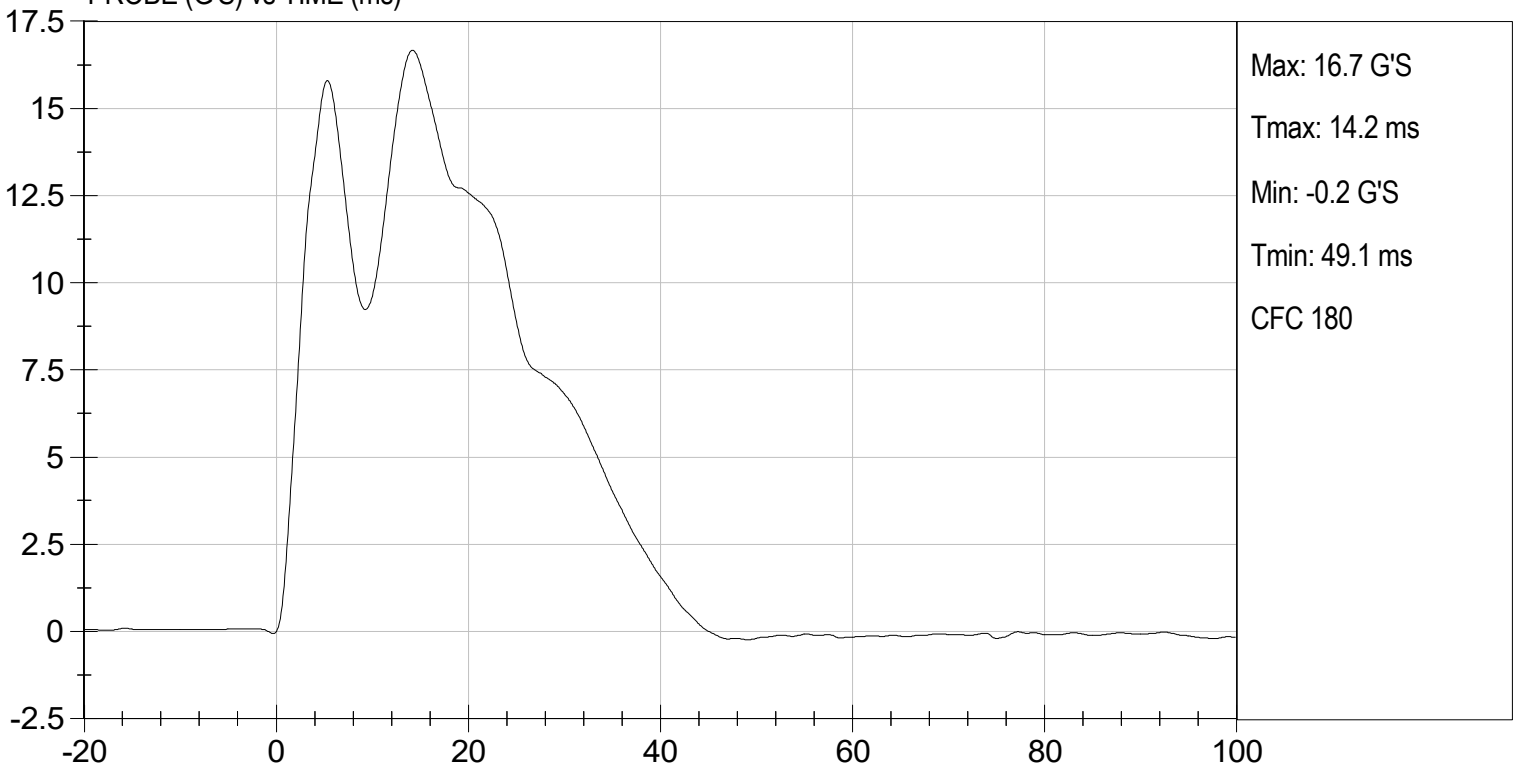
12/05/2024
Test Date

Approved By

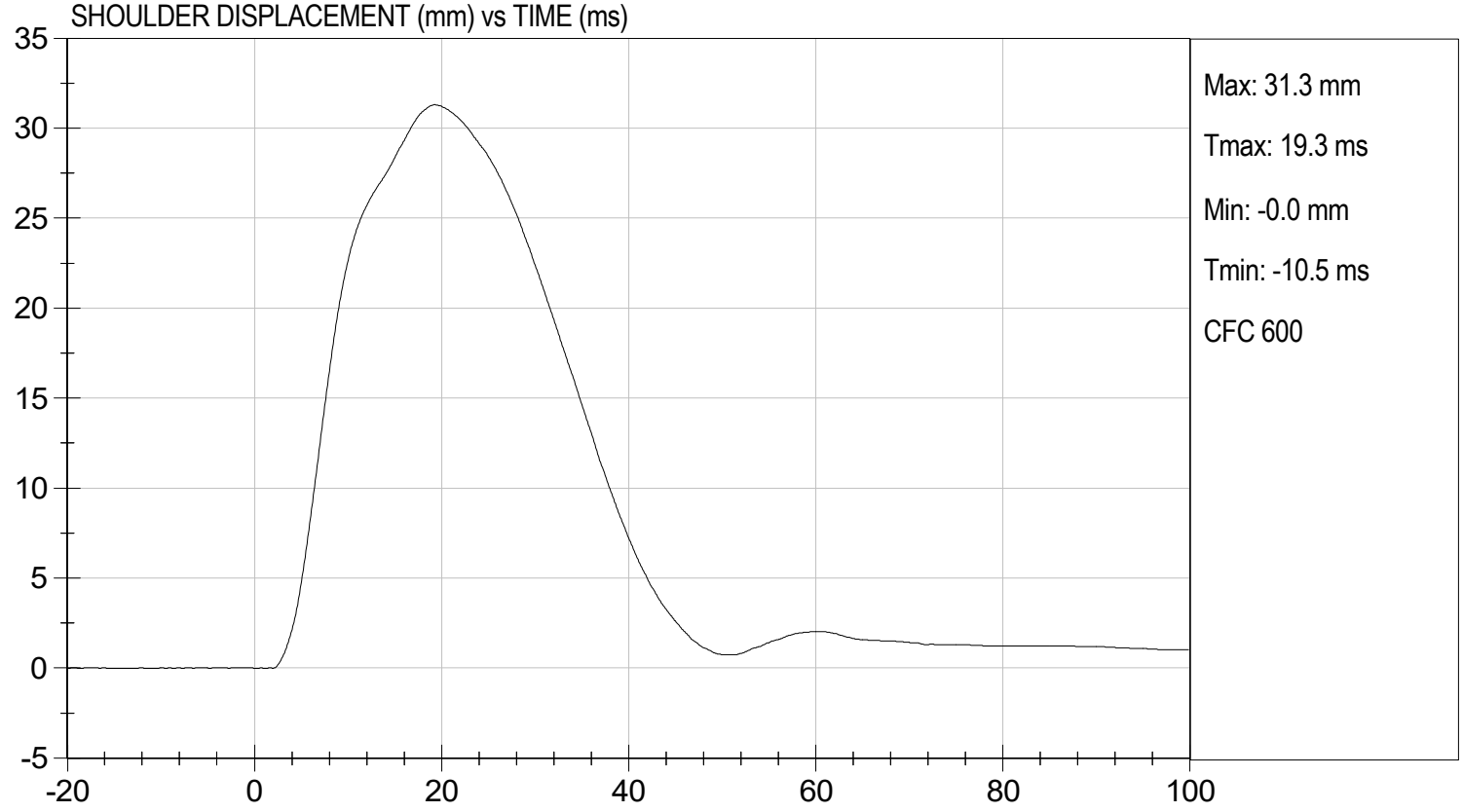
TEST DESC: SHOULDER IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 12/05/2024
TEST #: D243113

PROBE (G'S) vs TIME (ms)

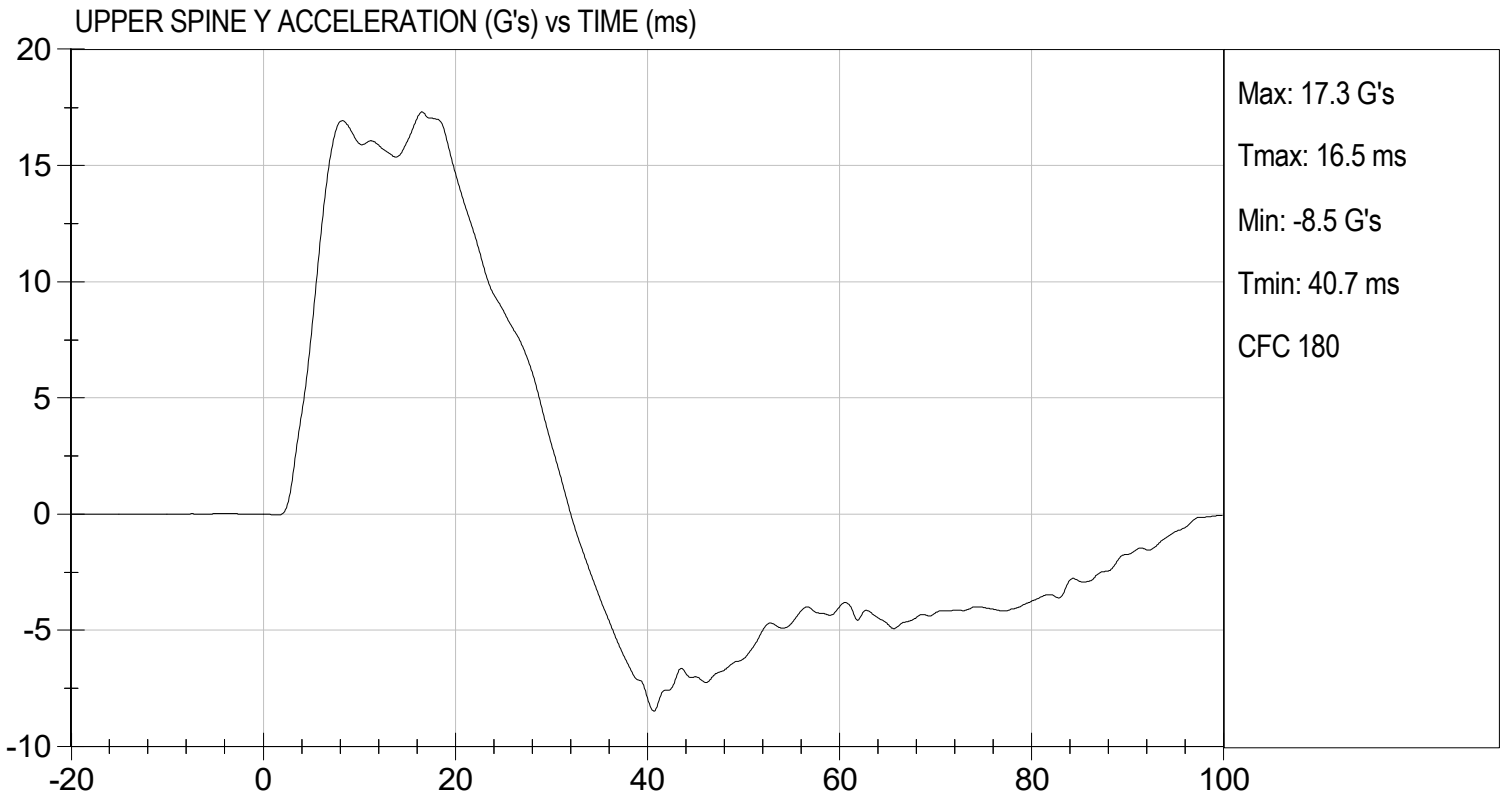


SHOULDER DISPLACEMENT (mm) vs TIME (ms)



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

TEST DATE: 12/05/2024
TEST #: D243113



MGA RESEARCH CORPORATION

THORAX (WITH ARM) IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test I.D:** D243114

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	18	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	30 to 36	32	Pass
Shoulder Displacement	mm	31 to 40	37	Pass
Upper Rib Displacement	mm	25 to 32	30	Pass
Middle Rib Displacement	mm	30 to 36	34	Pass
Lower Rib Displacement	mm	32 to 38	35	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	35	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	32	Pass
		Overall Test Results		Pass

Laboratory Technician

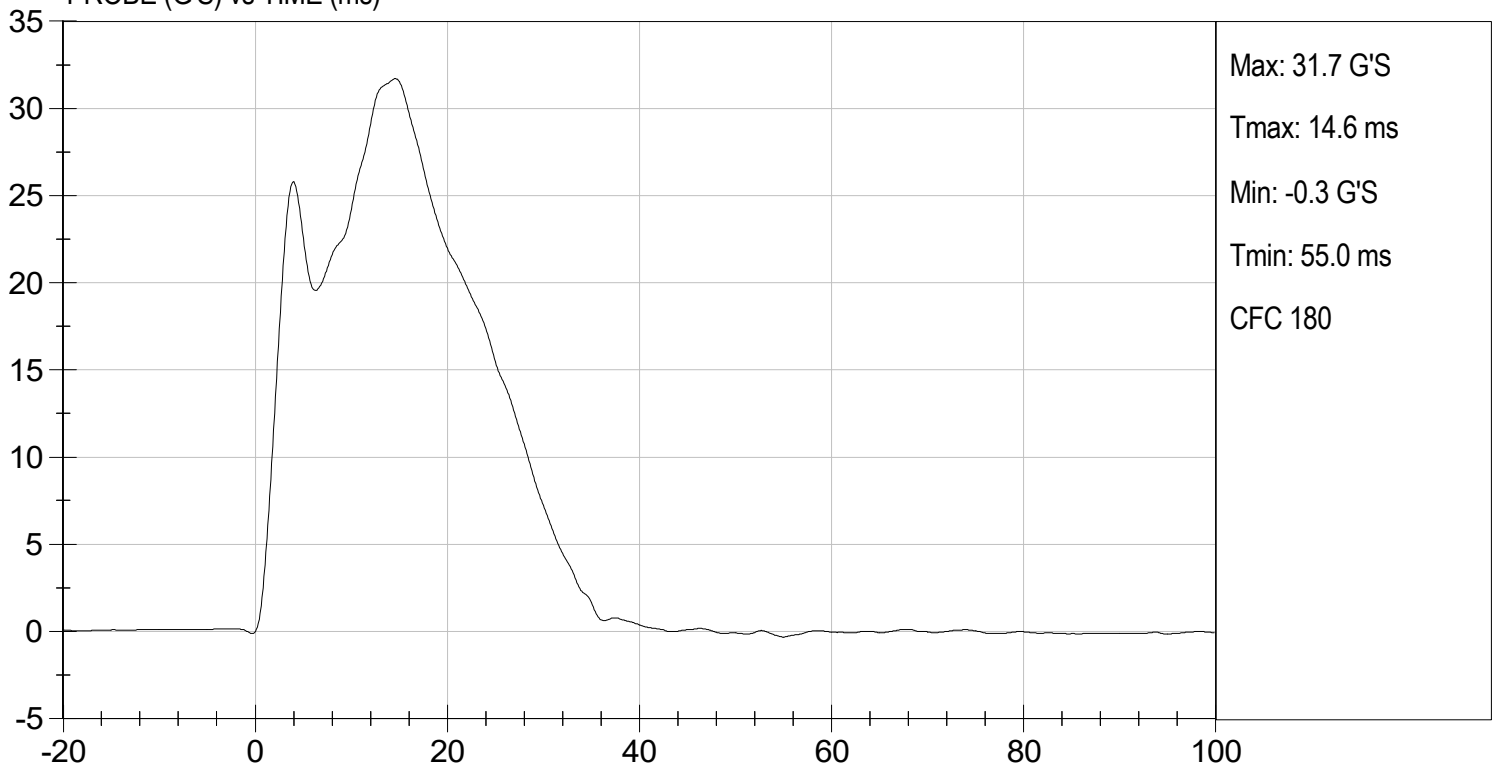
12/05/2024
Test Date

Approved By

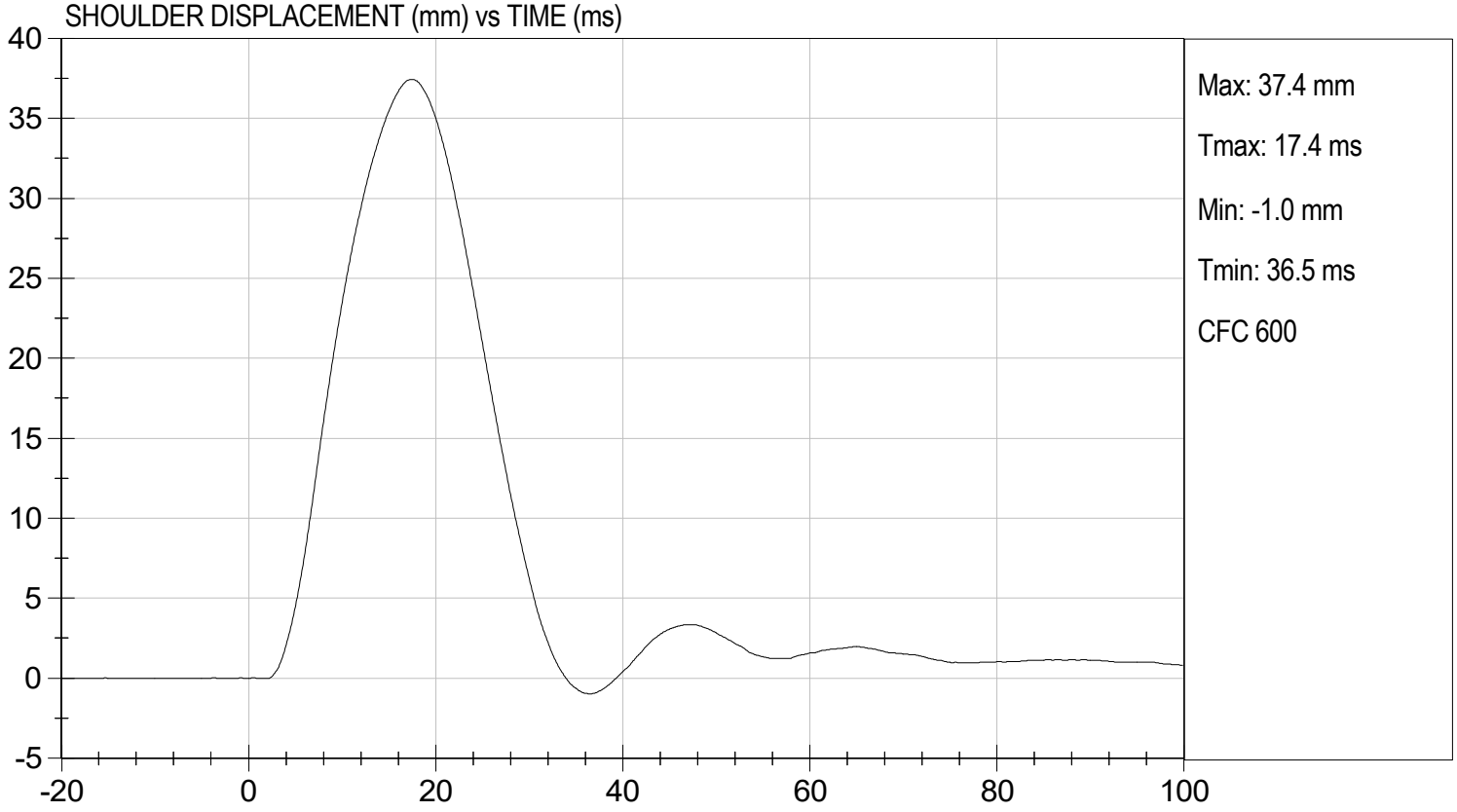
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 12/05/2024
TEST #: D243114

PROBE (G'S) vs TIME (ms)



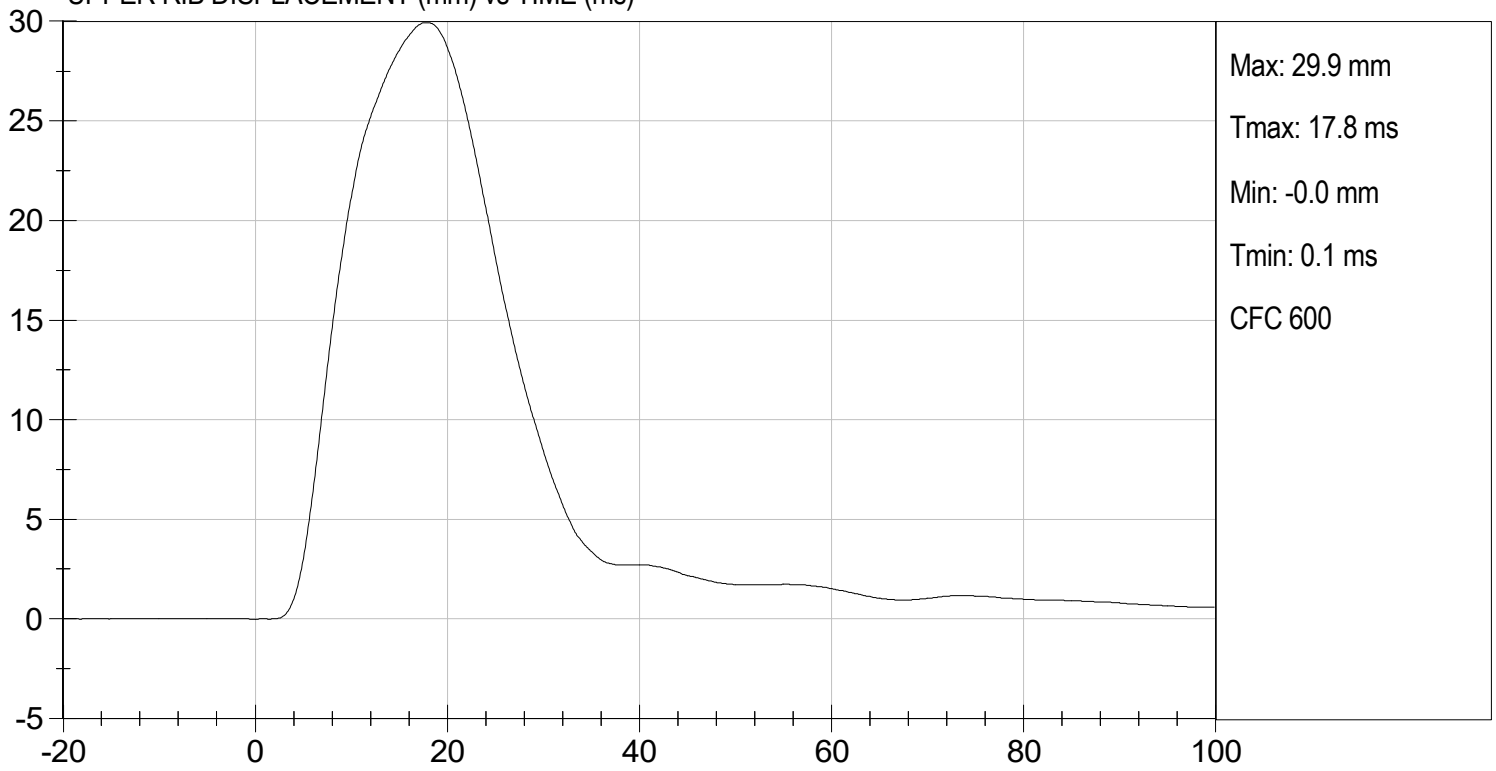
SHOULDER DISPLACEMENT (mm) vs TIME (ms)



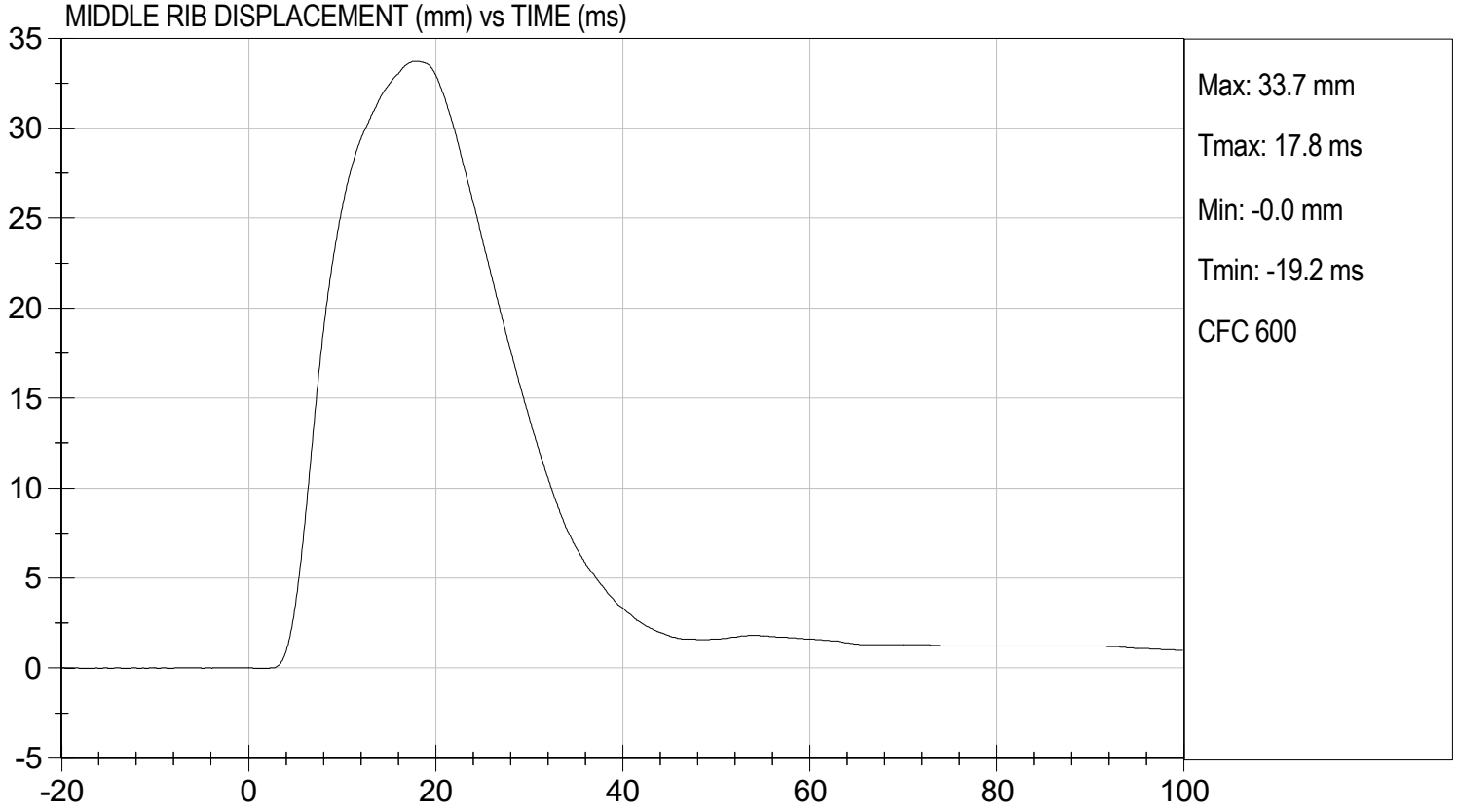
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 12/05/2024
TEST #: D243114

UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



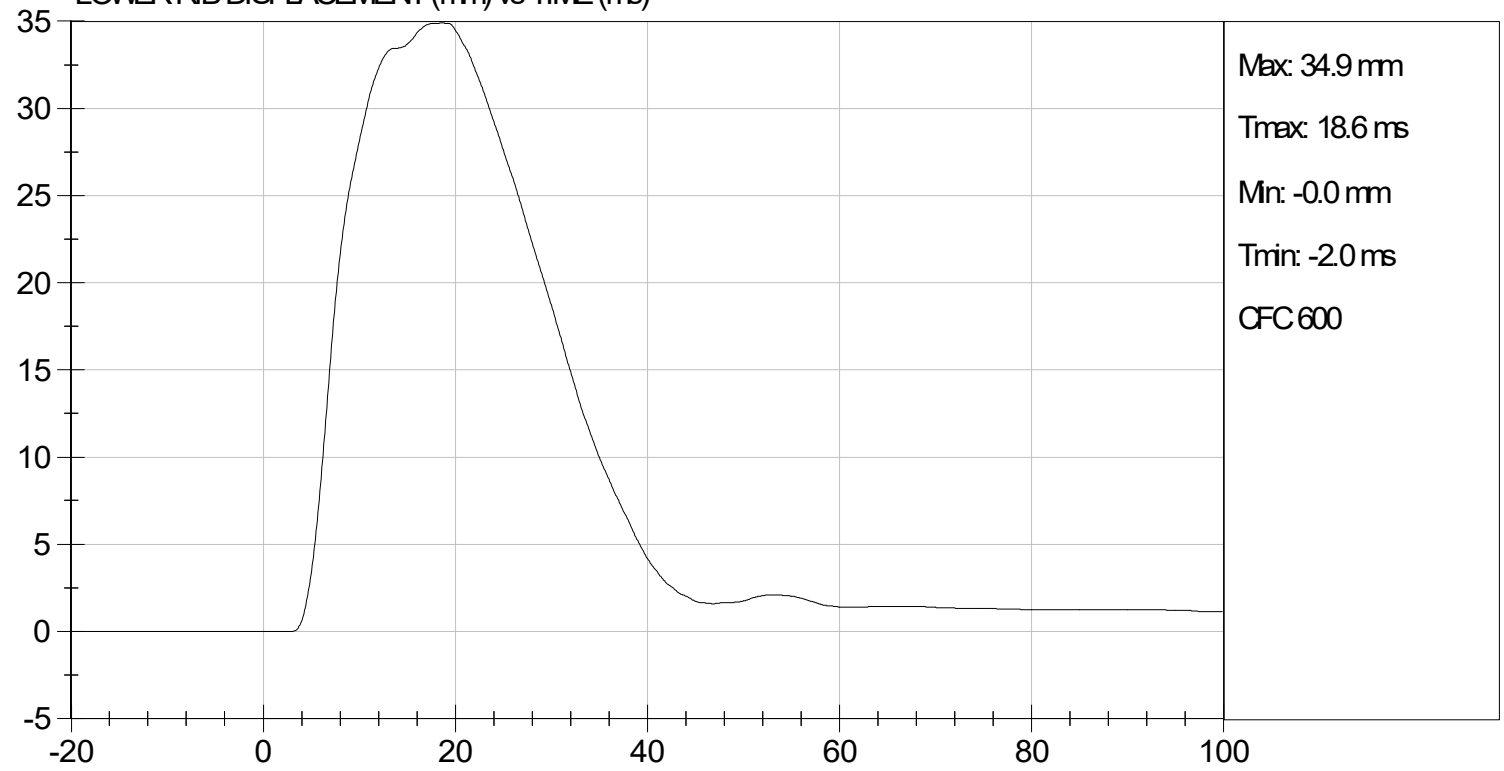
MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



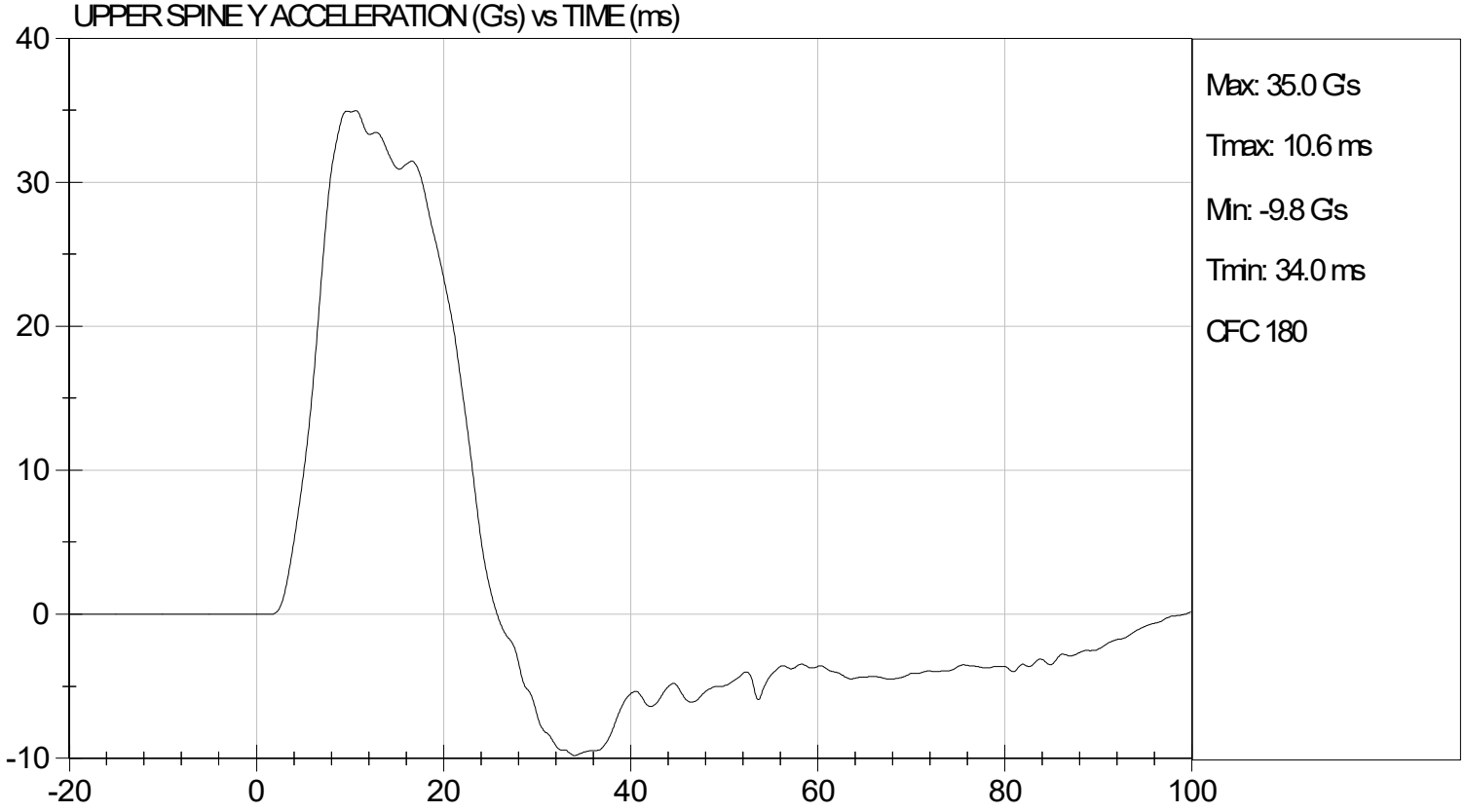
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 21.93 ft/s, 6.68 m/s

TEST DATE: 12/05/2024
TEST #: D243114

LOWER RIB DISPLACEMENT (mm) vs TIME (ms)

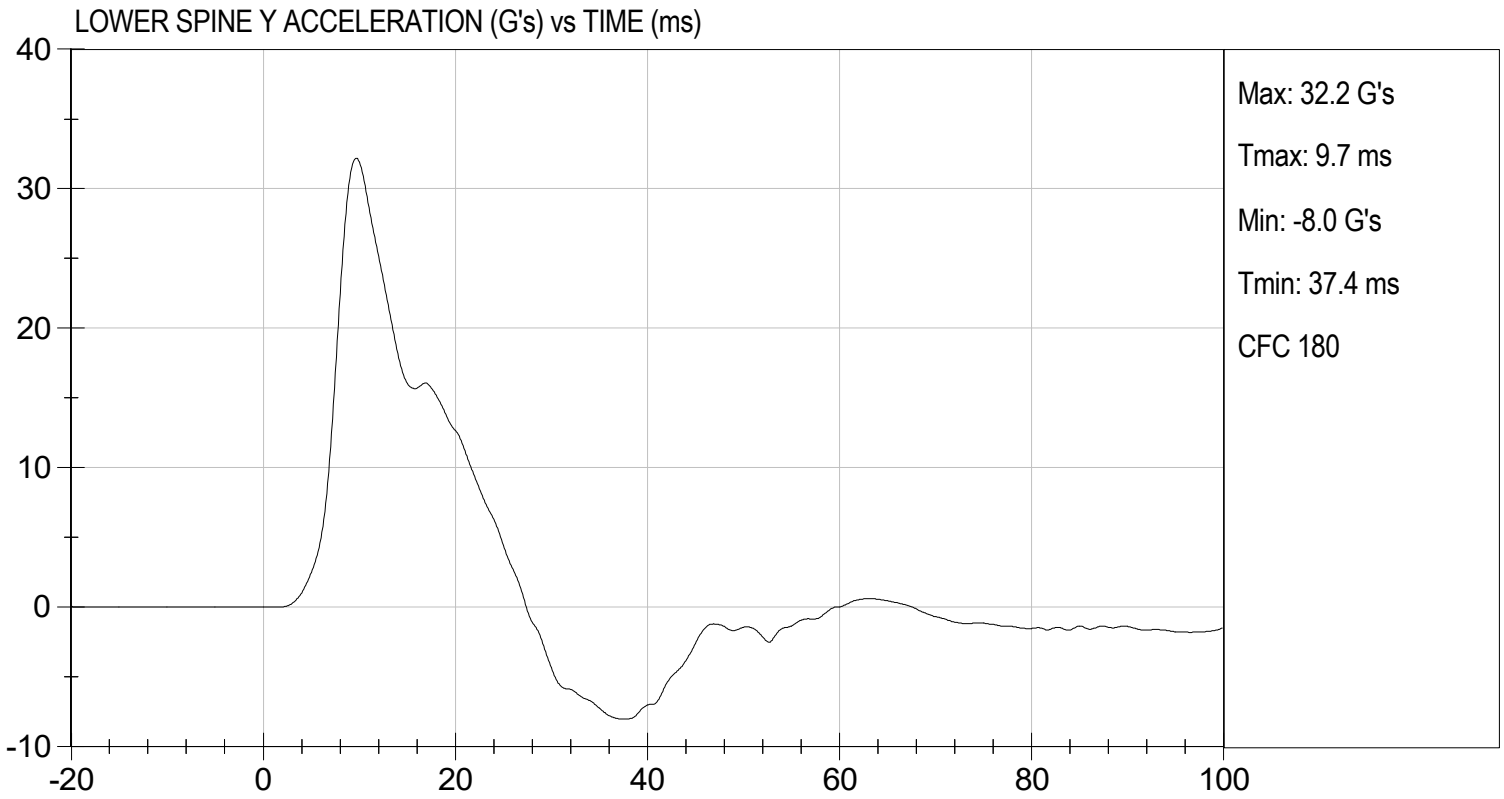


UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)



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

TEST DATE: 12/05/2024
TEST #: D243114



MGA RESEARCH CORPORATION

THORAX (WITHOUT ARM) IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test I.D:** D243115

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	18	Pass
Impact Velocity	m/s	4.20 to 4.40	4.20	Pass
Maximum Probe Acceleration	G's	14 to 18	18	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	14	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	9	Pass
		Overall Test Results		Pass

Laboratory Technician

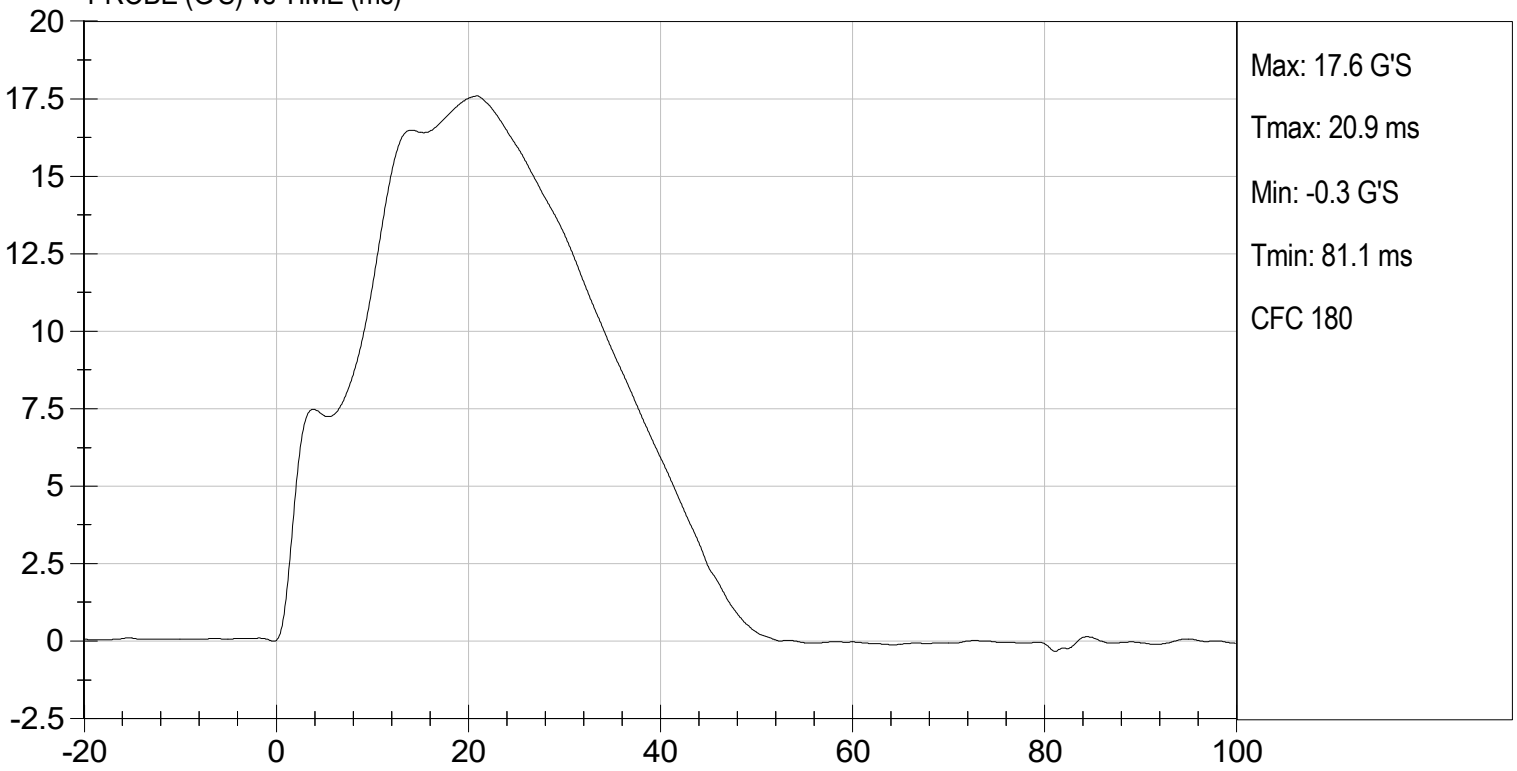
12/05/2024
Test Date

Approved By

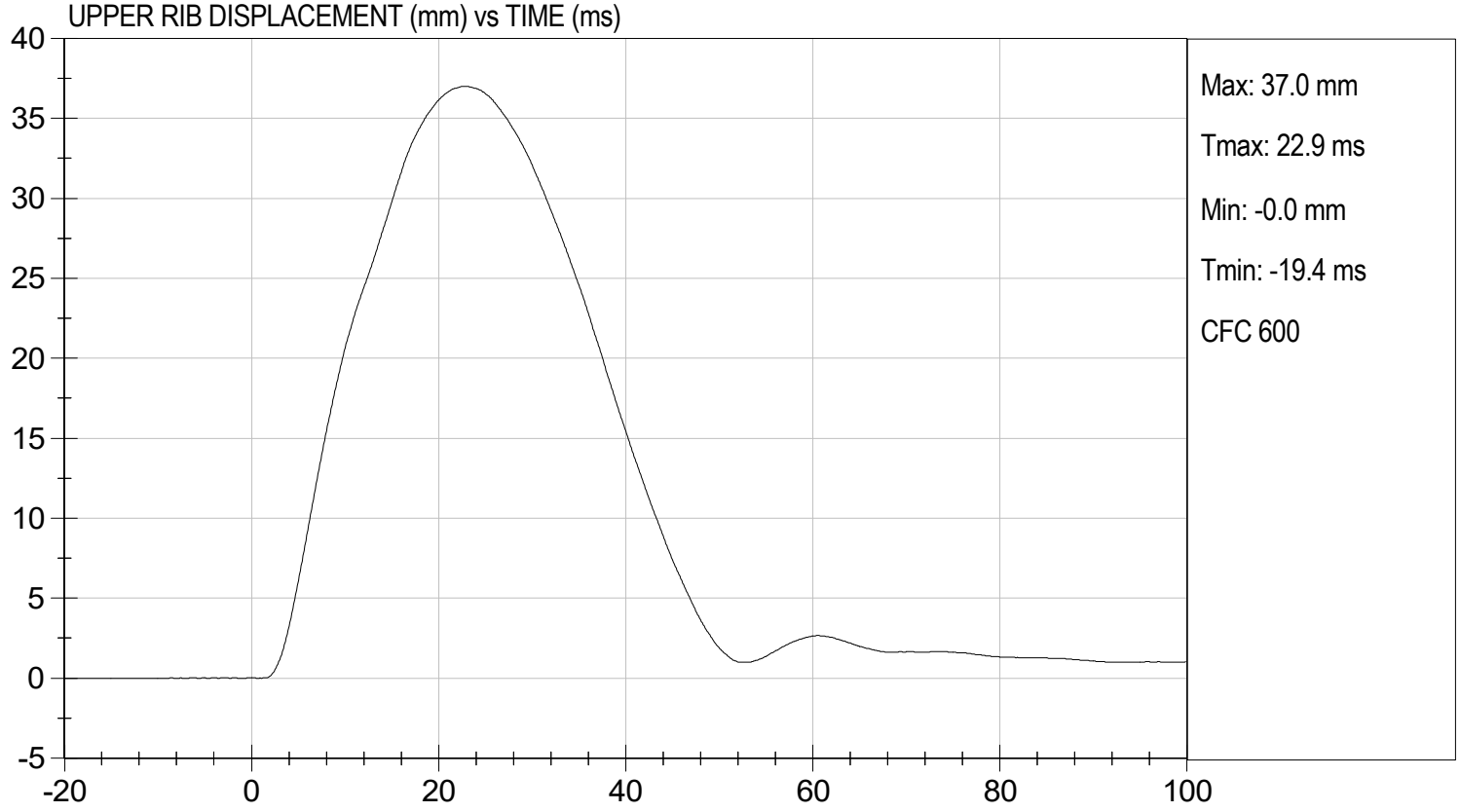
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 13.77 ft/s, 4.20 m/s

TEST DATE: 12/05/2024
TEST #: D243115

PROBE (G'S) vs TIME (ms)



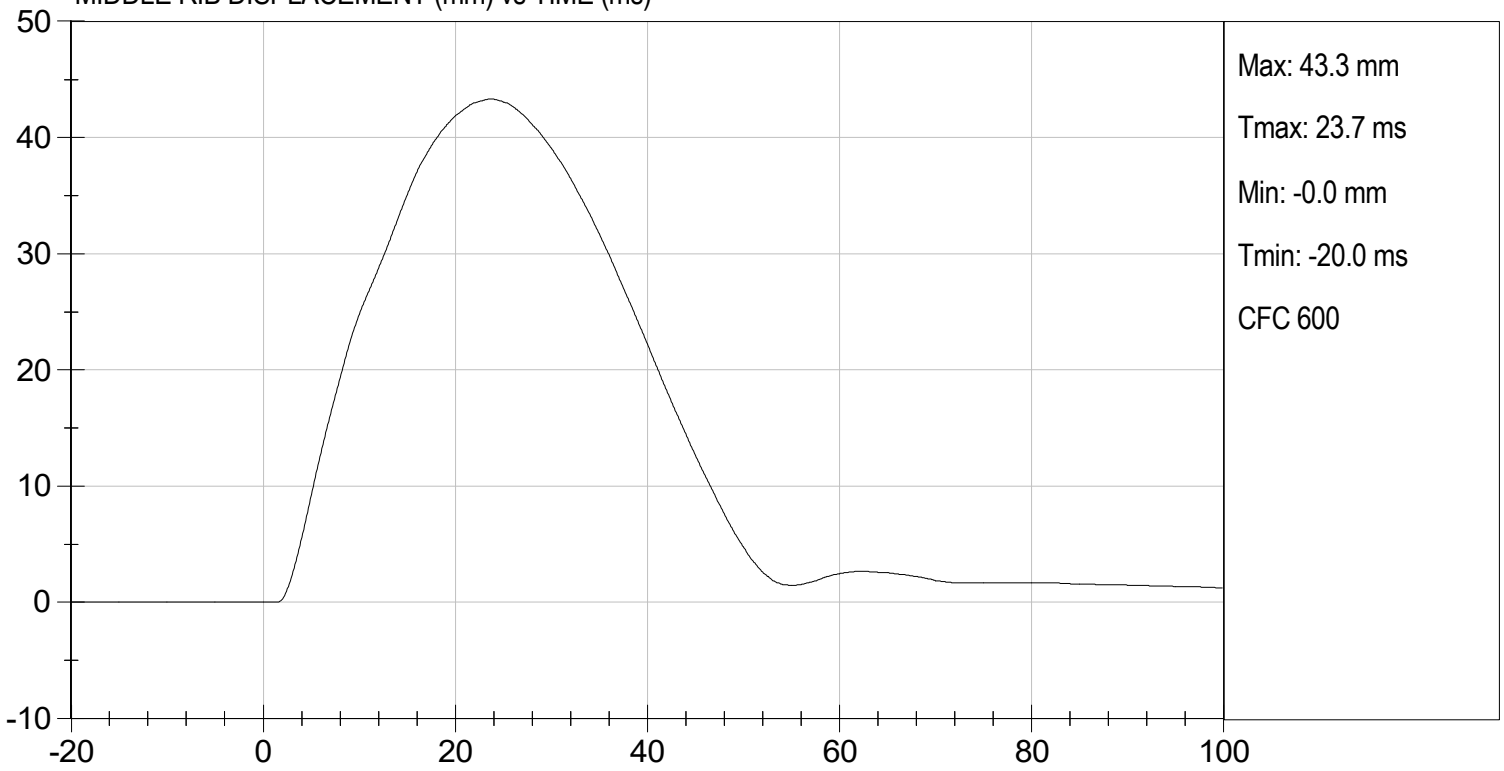
UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



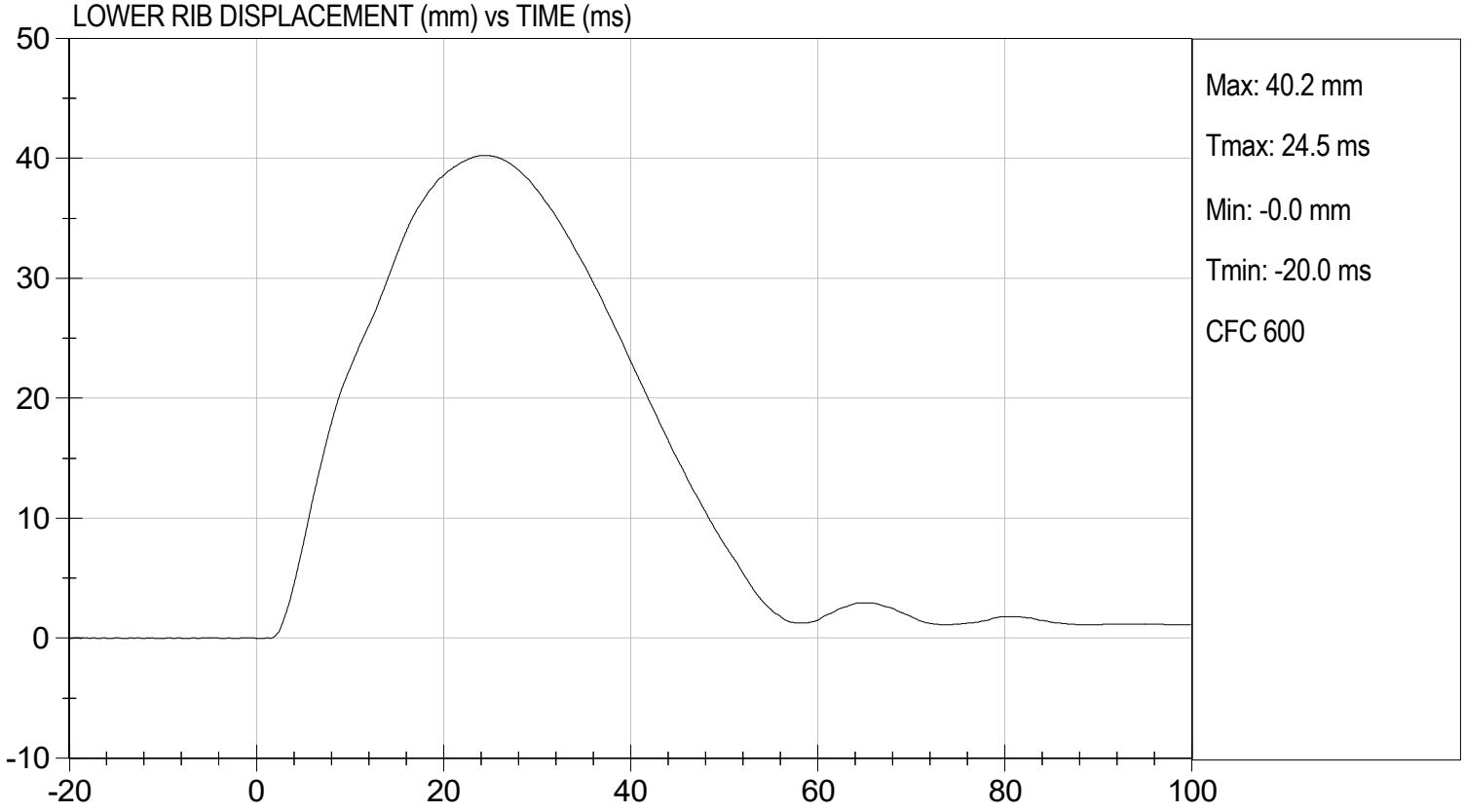
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 13.77 ft/s, 4.20 m/s

TEST DATE: 12/05/2024
TEST #: D243115

MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



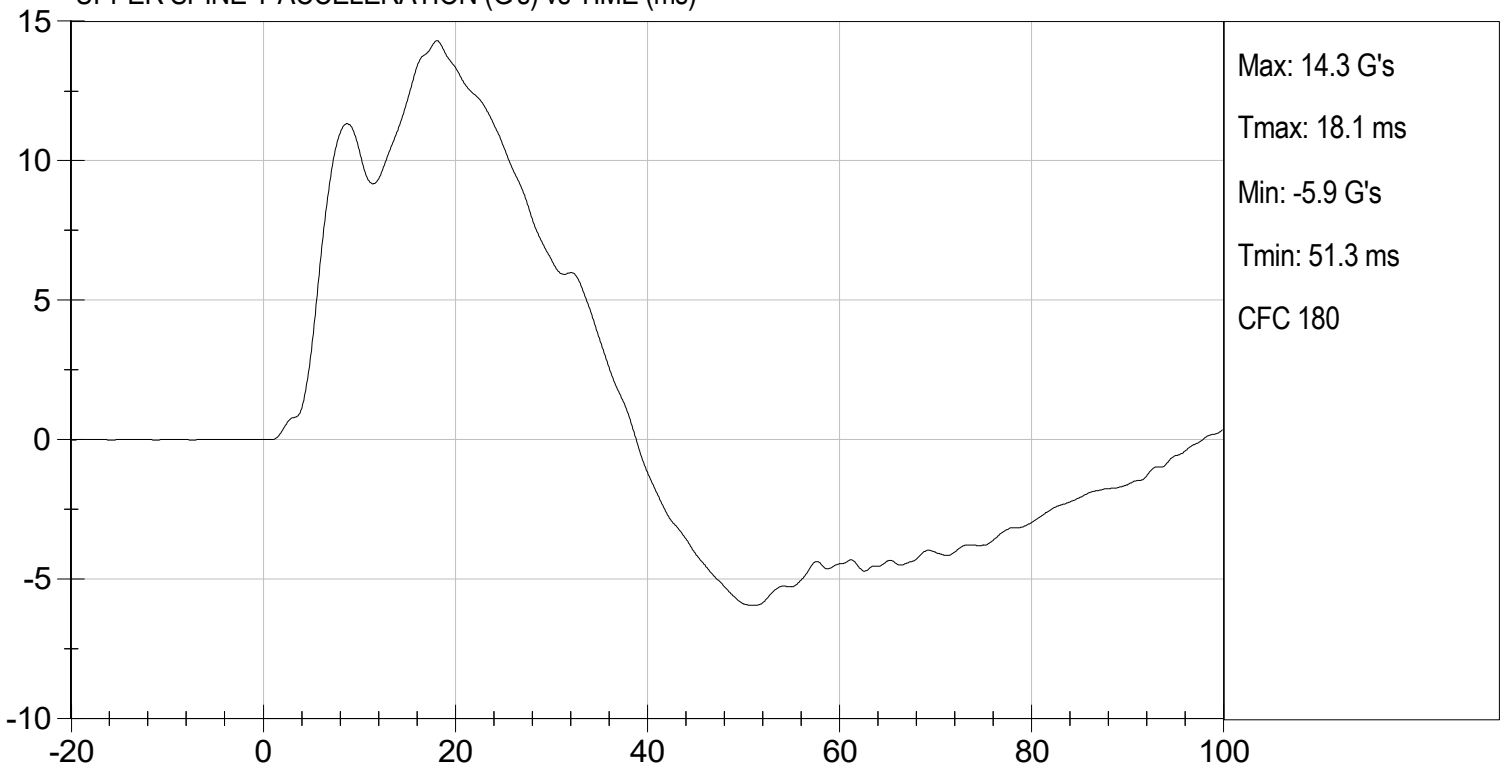
LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



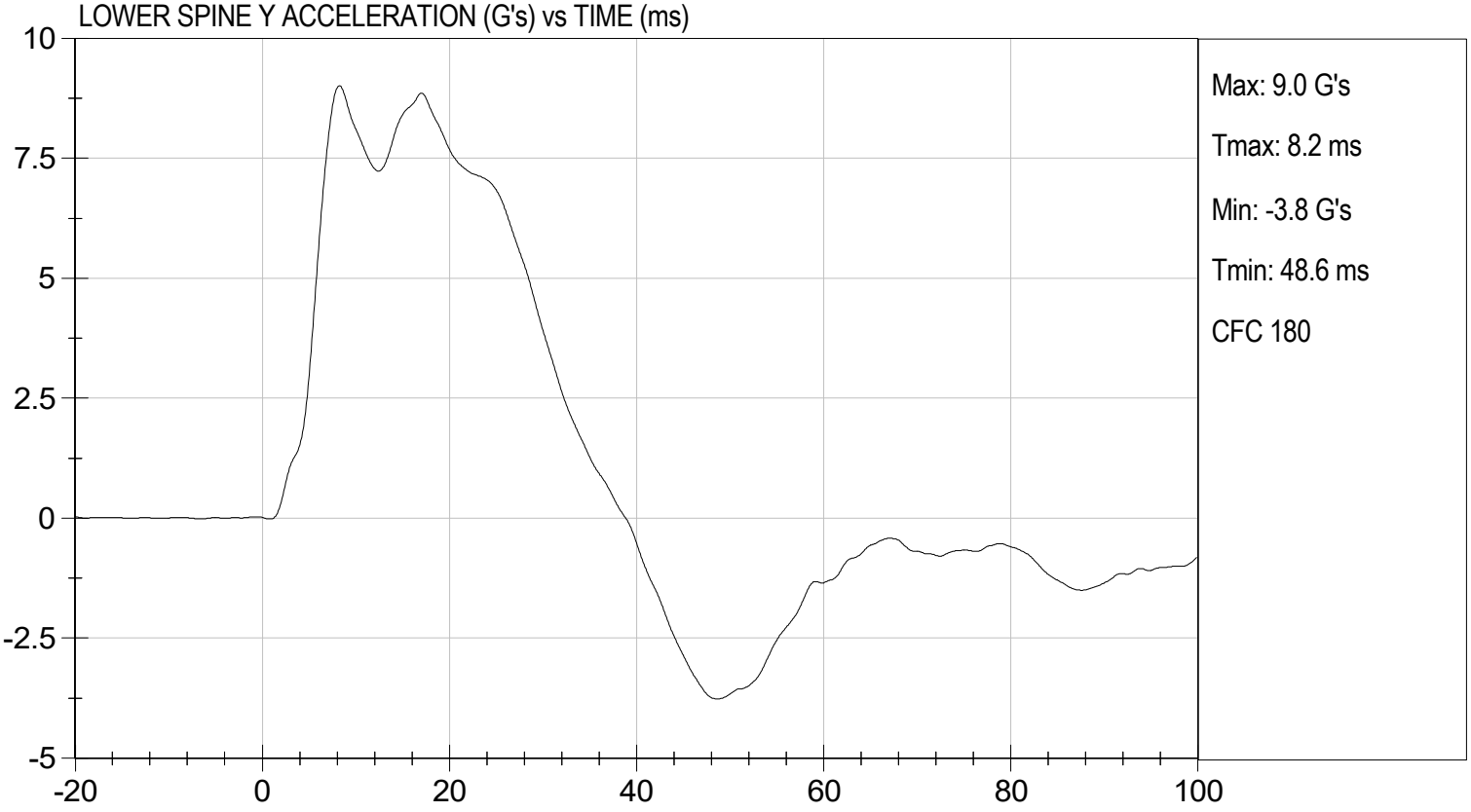
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 13.77 ft/s, 4.20 m/s

TEST DATE: 12/05/2024
TEST #: D243115

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



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



MGA RESEARCH CORPORATION

ABDOMINAL IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test I.D:** D243116

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.5	Pass
Humidity	%	10 to 70	18	Pass
Impact Velocity	m/s	4.20 to 4.40	4.23	Pass
Maximum Probe Acceleration	G's	12 to 16	13	Pass
Upper Abdomen Rib Displacement	mm	36 to 47	43	Pass
Lower Abdomen Rib Displacement	mm	33 to 44	39	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
		Overall Test Results		Pass

Laboratory Technician

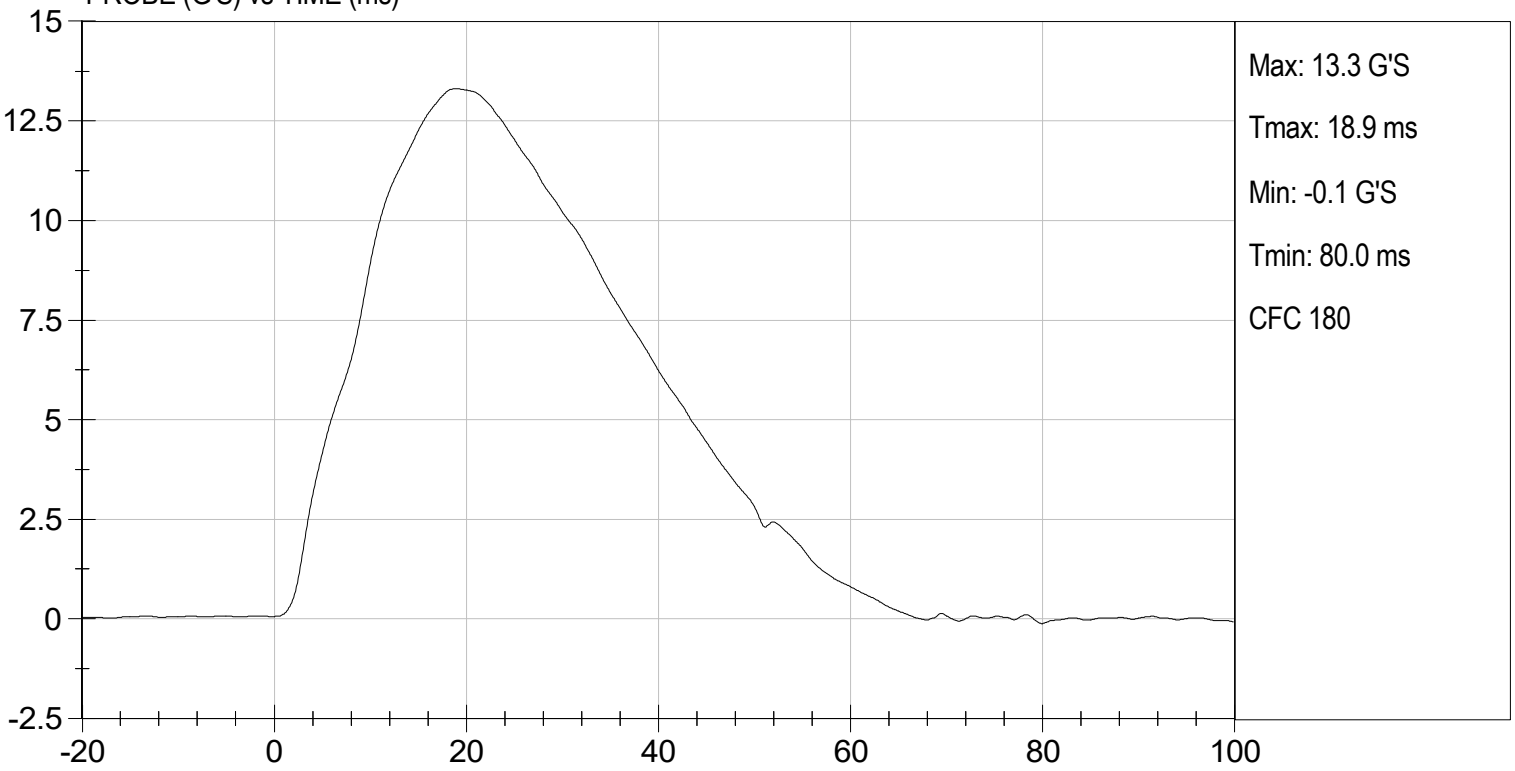
12/05/2024
Test Date

Approved By

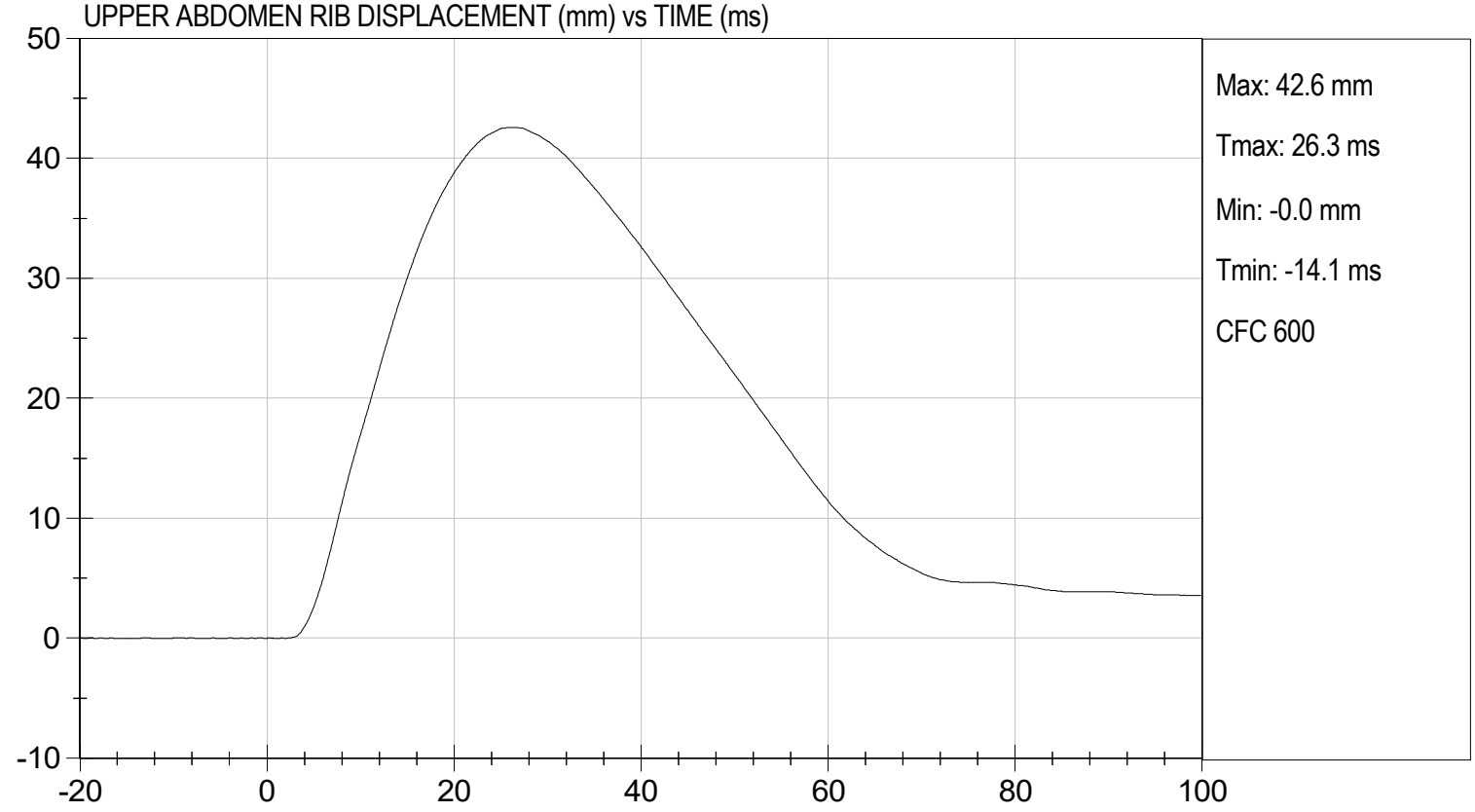
TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.89 ft/s, 4.23 m/s

TEST DATE: 12/05/2024
TEST #: D243116

PROBE (G'S) vs TIME (ms)



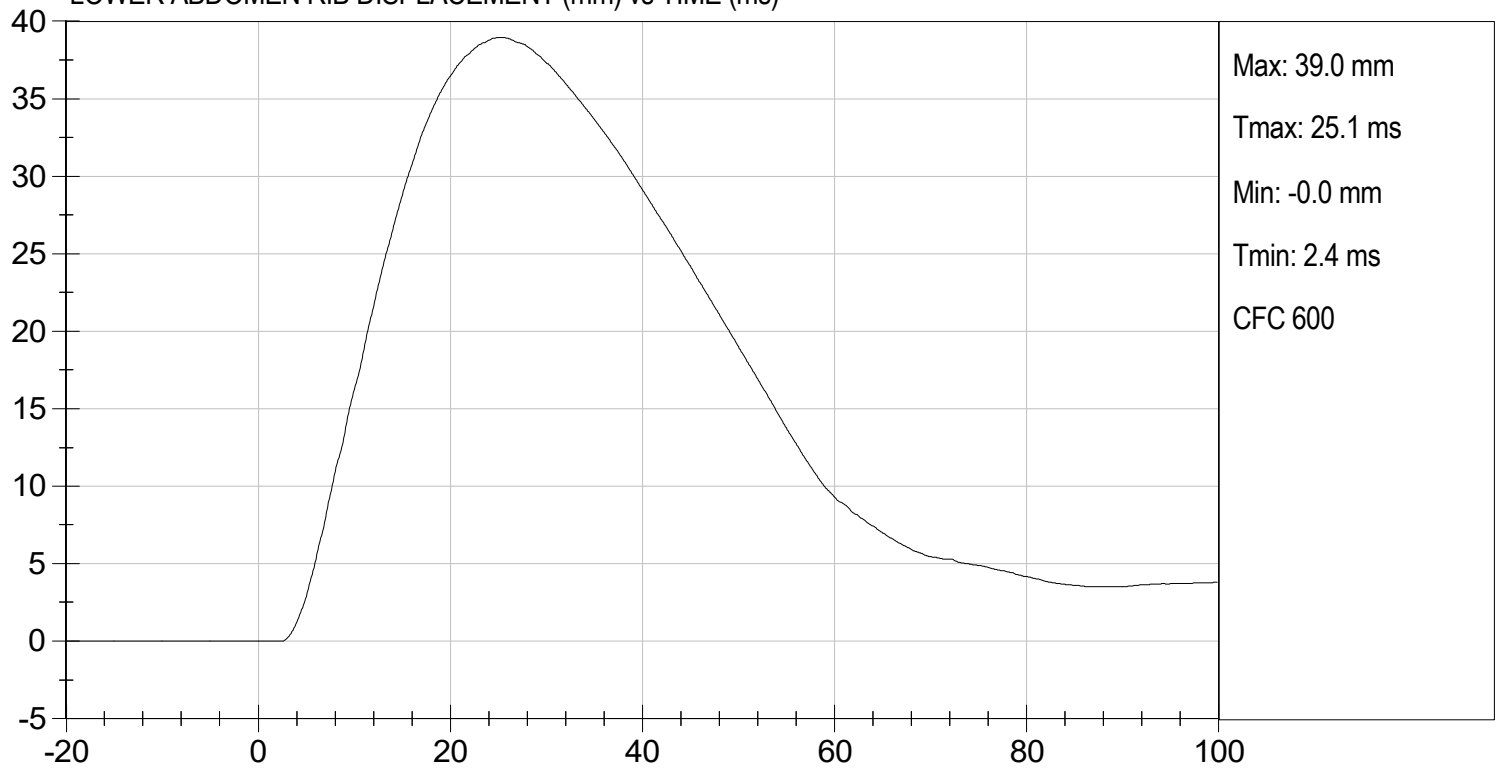
UPPER ABDOMEN RIB DISPLACEMENT (mm) vs TIME (ms)



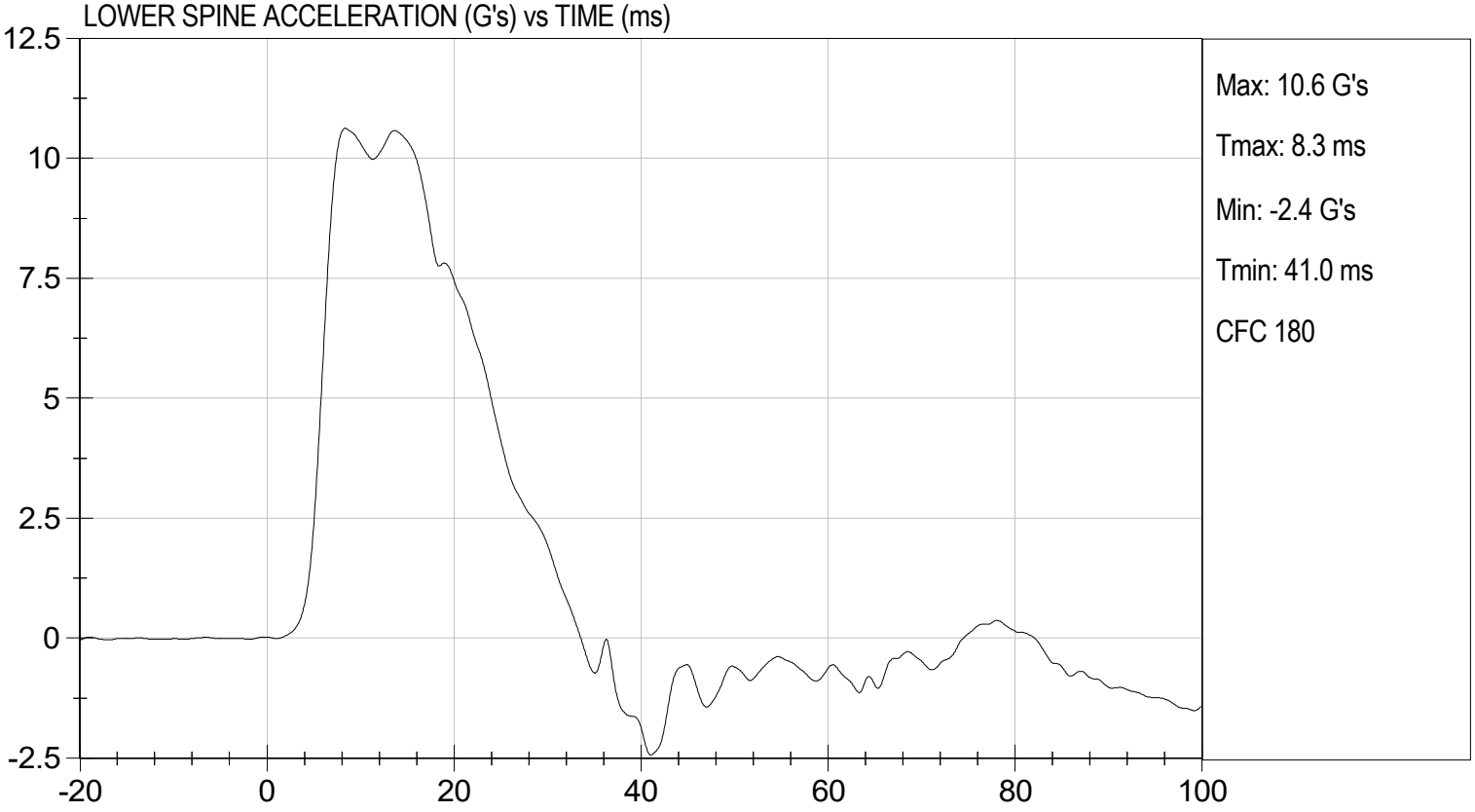
TEST DESC: ABDOMEN IMPACT
VELOCITY: 13.89 ft/s, 4.23 m/s

TEST DATE: 12/05/2024
TEST #: D243116

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



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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test I.D:** D243117

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	6.60 to 6.80	6.68	Pass
Maximum Probe Acceleration	G's	38 to 47	42	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	41.1	Pass
Peak Acetabulum Force	N	3600 to 4300	4,048	Pass
		Overall Test Results		Pass

Laboratory Technician

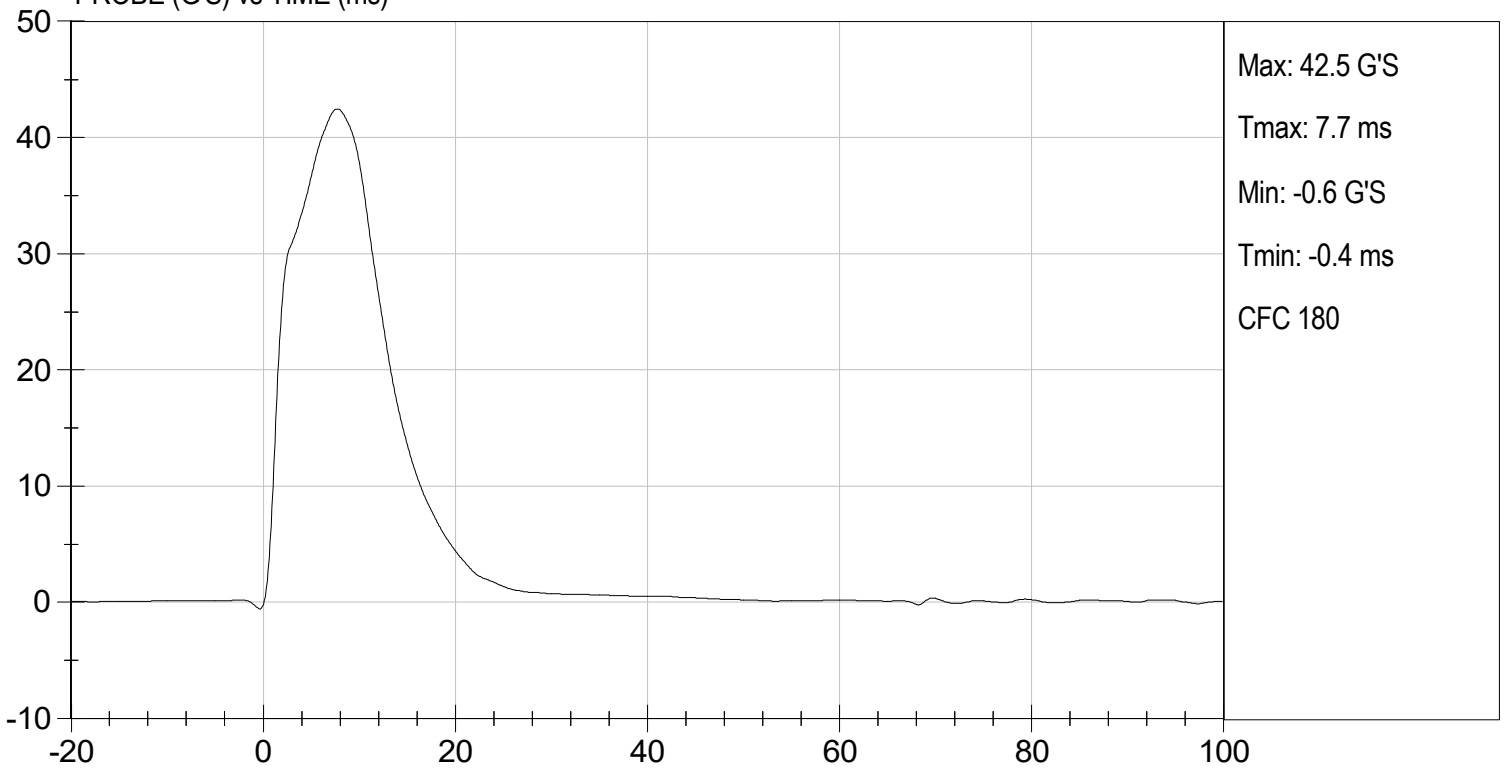
12/05/2024
Test Date

Approved By

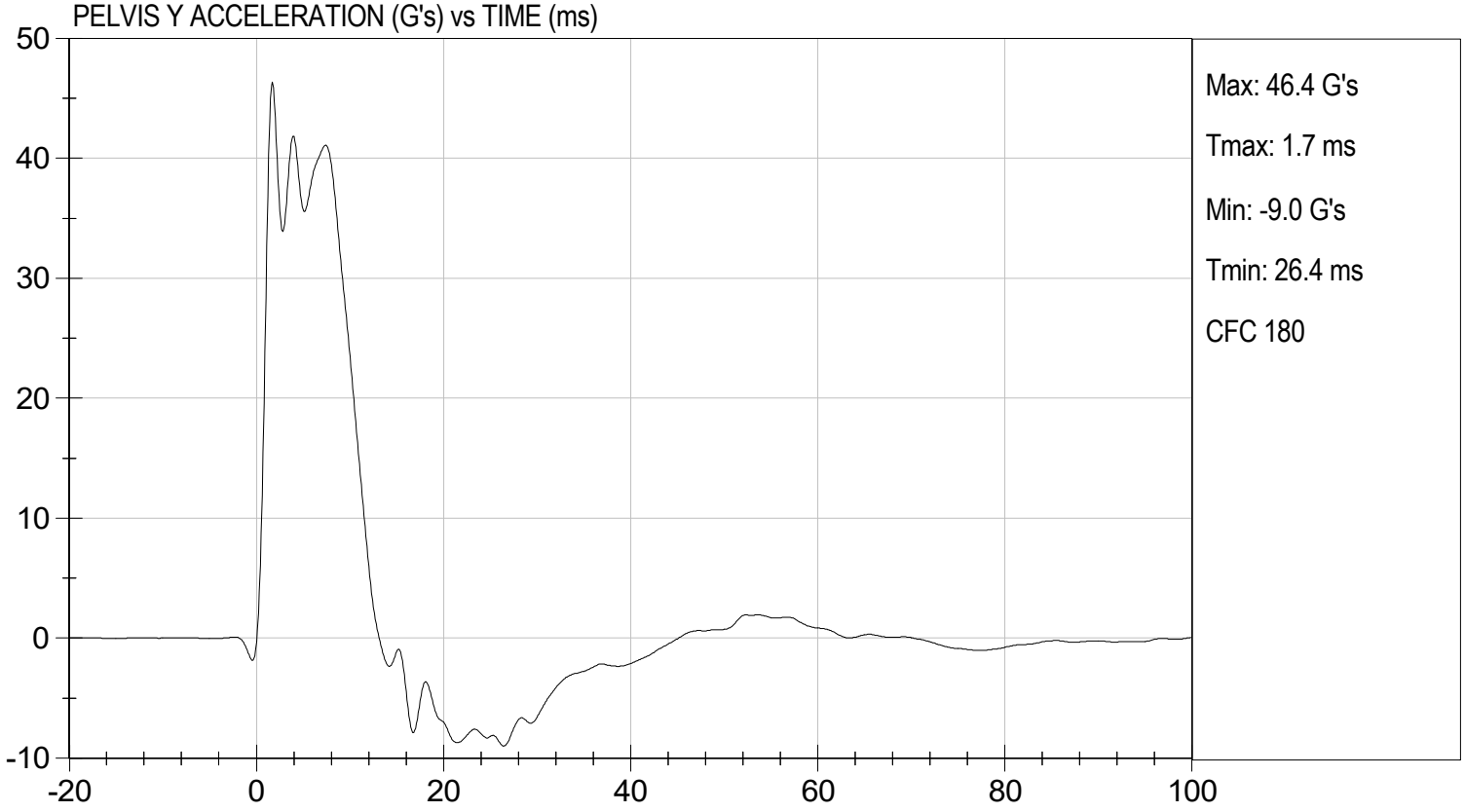
TEST DESC: PELVIS IMPACT
VELOCITY: 21.90 ft/s, 6.68 m/s

TEST DATE: 12/05/2024
TEST #: D243117

PROBE (G'S) vs TIME (ms)

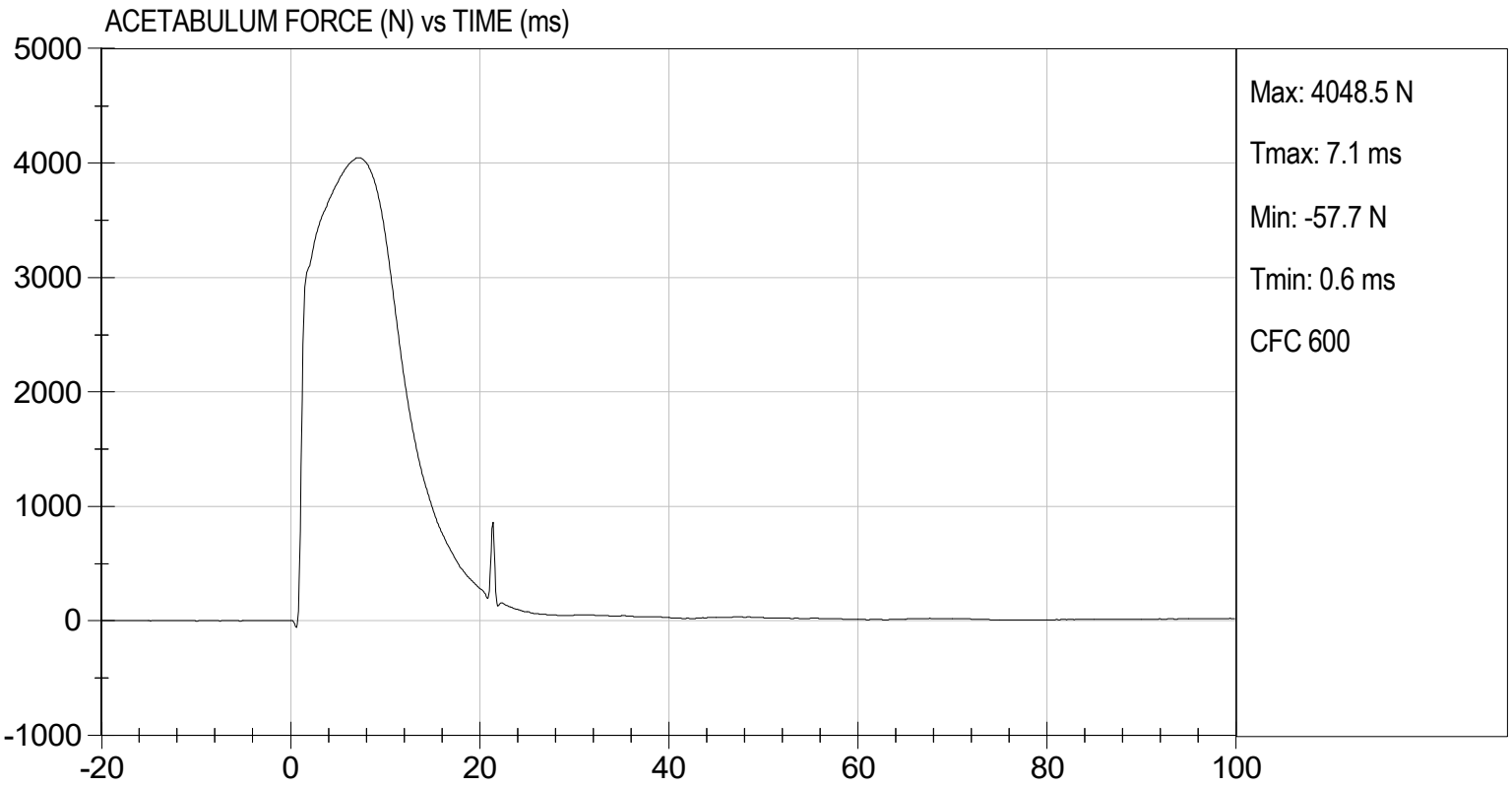


PELVIS Y ACCELERATION (G's) vs TIME (ms)



TEST DESC: PELVIS IMPACT
VELOCITY: 21.90 ft/s, 6.68 m/s

TEST DATE: 12/05/2024
TEST #: D243117



MGA RESEARCH CORPORATION

ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test I.D:** D243118

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.6	Pass
Humidity	%	10 to 70	19	Pass
Impact Velocity	m/s	4.20 to 4.40	4.30	Pass
Maximum Probe Acceleration	G's	36 to 45	42	Pass
Pelvis Y Acceleration	G's	28 to 39	34	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,922	Pass
		Overall Test Results		Pass

Laboratory Technician

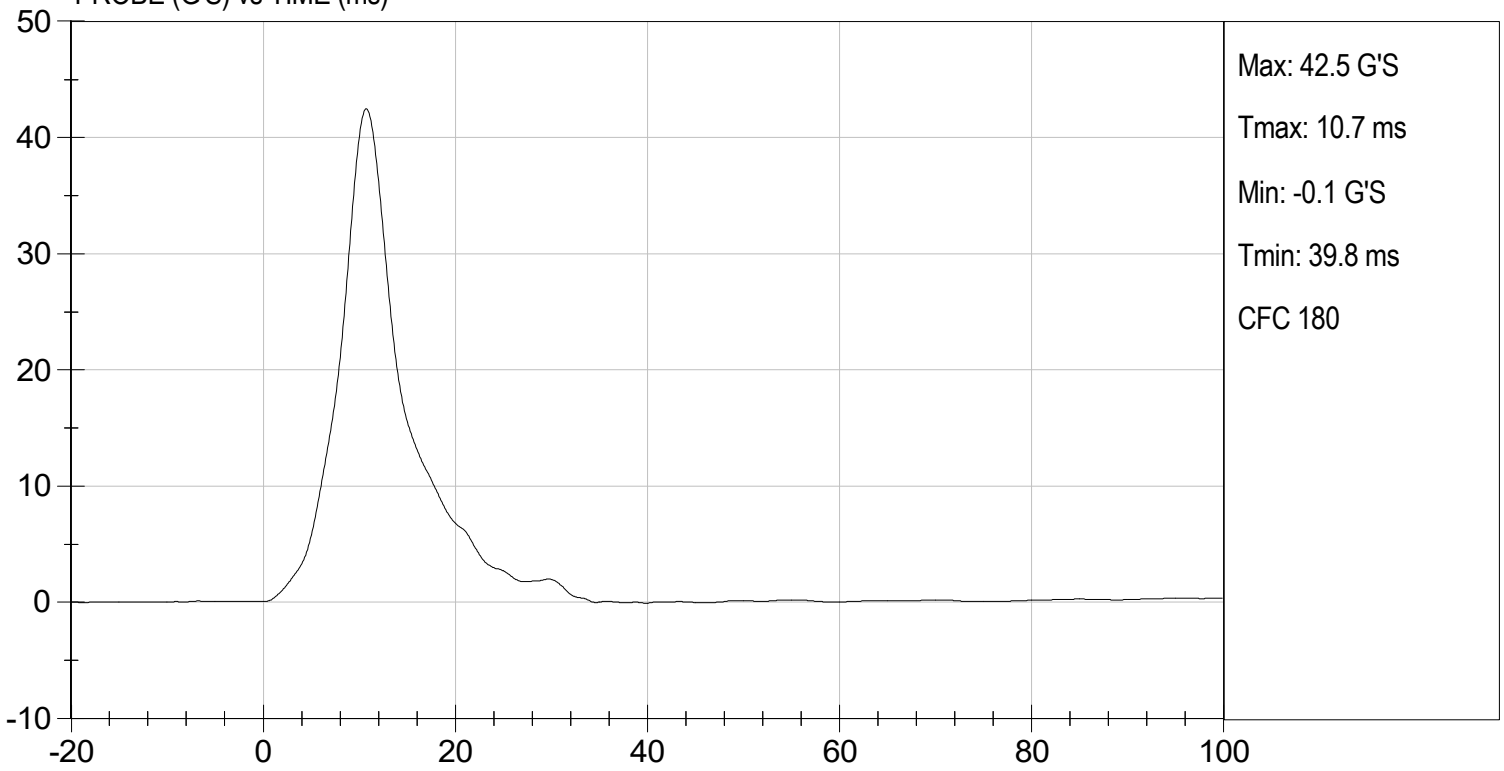
12/05/2024
Test Date

Approved By

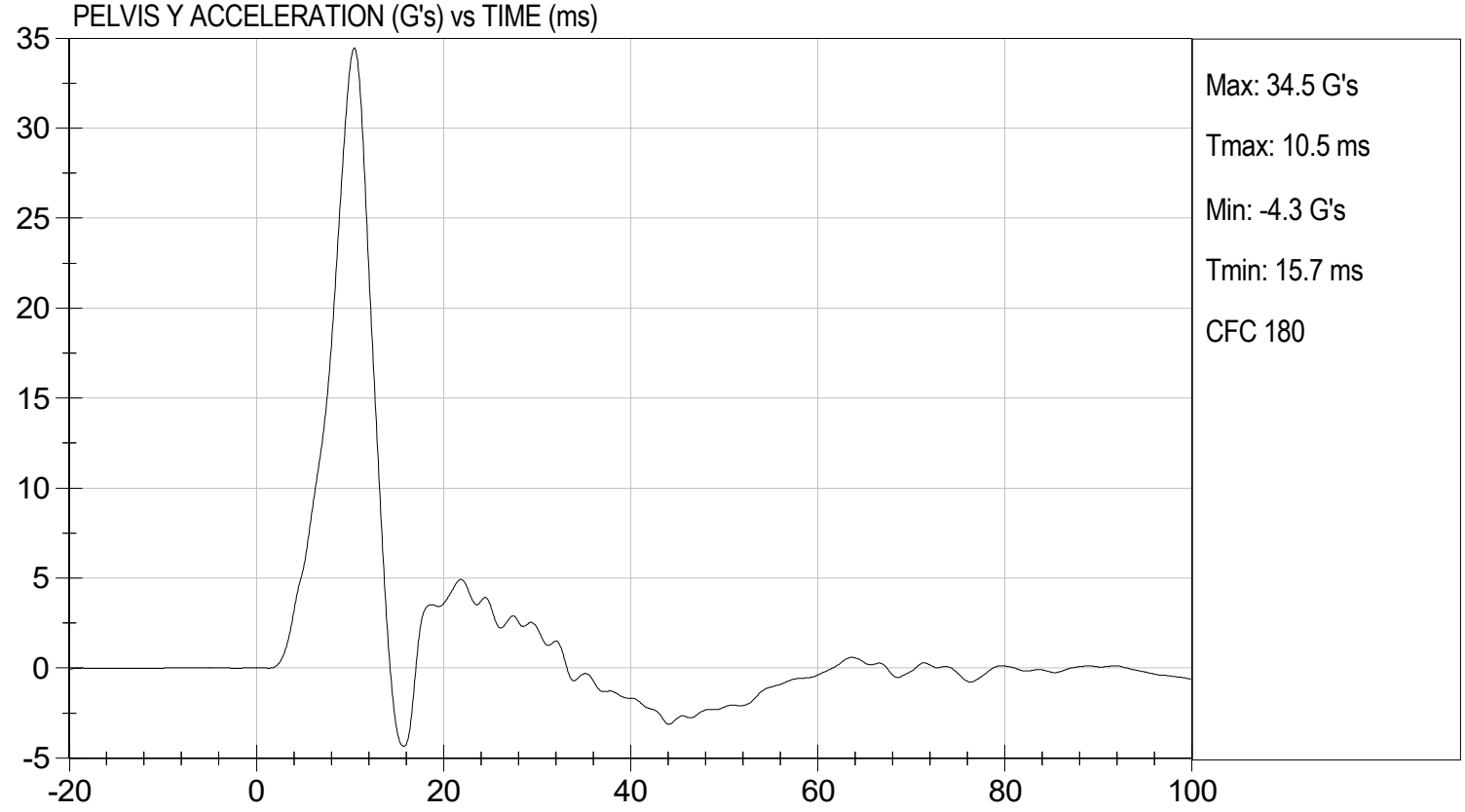
TEST DESC: ILLIAC
VELOCITY: 14.10 ft/s, 4.30 m/s

TEST DATE: 12/05/2024
TEST #: D243118

PROBE (G'S) vs TIME (ms)

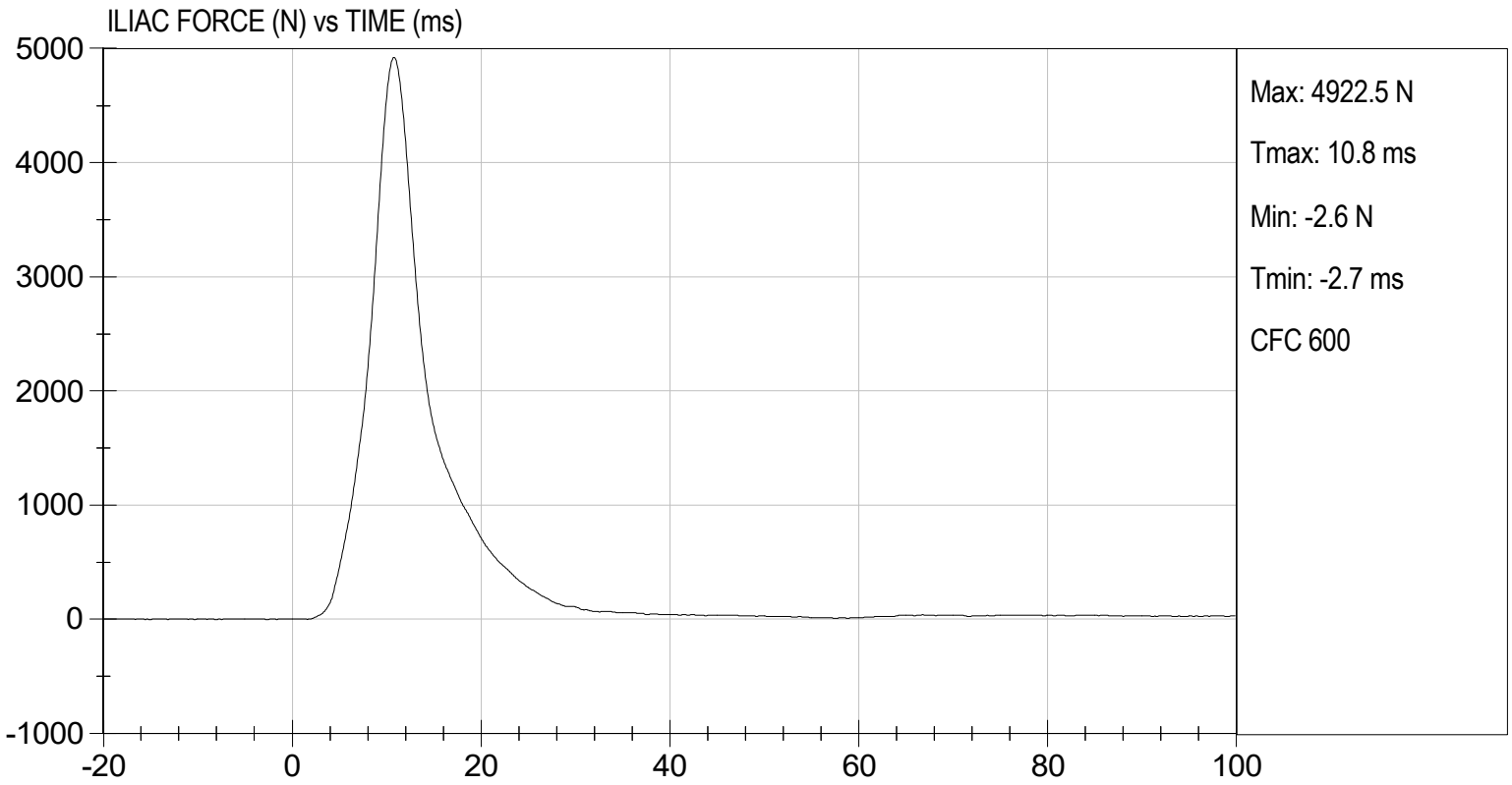


PELVIS Y ACCELERATION (G's) vs TIME (ms)



TEST DESC: ILLIAC
VELOCITY: 14.10 ft/s, 4.30 m/s

TEST DATE: 12/05/2024
TEST #: D243118



QUALIFICATION TEST RESULTS

POST-TEST

SID-IIS 5TH PERCENTILE FEMALE - PASSENGER ATD

SID-IIsD External Measurements
SN: 306

No.	Name	Spec. (mm)	Result	Pass/Fail
A	Sitting Height	772 - 788	785	Pass
B	Shoulder Pivot Height	437 - 453	449	Pass
C	H-point Height	79 - 89	86	Pass
D	H-point from Seatback	141 - 151	147	Pass
E	Shoulder Pivot from Backline	97 - 107	99	Pass
F	Thigh Clearance	119 -135	120	Pass
G	Head Breadth	140 - 148	141	Pass
H	Head Back from Backline	40 - 46	45	Pass
I	Head Depth	178 - 188	182	Pass
J	Head Circumference	541 - 551	550	Pass
K	Buttock to Knee Length	514 - 540	538	Pass
L	Popliteal Height	343 - 369	349	Pass
M	Knee Pivot to Floor Height	392 - 409	394	Pass
N	Buttock Popliteal Length	416 - 442	435	Pass
O	Chest Depth w/o Jacket	195 - 211	198	Pass
P	Foot Length	216 - 232	222	Pass
Q	Hip Breadth (w/ pelvic plugs)	313 - 323	317	Pass
R	Arm Length	249 - 259	250	Pass
S	Knee Joint to Seatback	477 - 493	483	Pass
V	Shoulder Width	341 - 357	351	Pass
W	Foot Width	78 - 94	82	Pass
Y	Chest Circumference w/ jacket	851 - 881	863	Pass
Z	Waist Circumference	761 - 791	782	Pass

MGA RESEARCH CORPORATION

HEAD DROP TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test ID:** D250091

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	31	Pass
Peak Resultant Acceleration	G's	115 to 137	118	Pass
Peak Longitudinal Acceleration	G's	+/- 15	-9.2	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	<15%	Yes	Pass
		Overall Test Results		Pass

Laboratory Technician

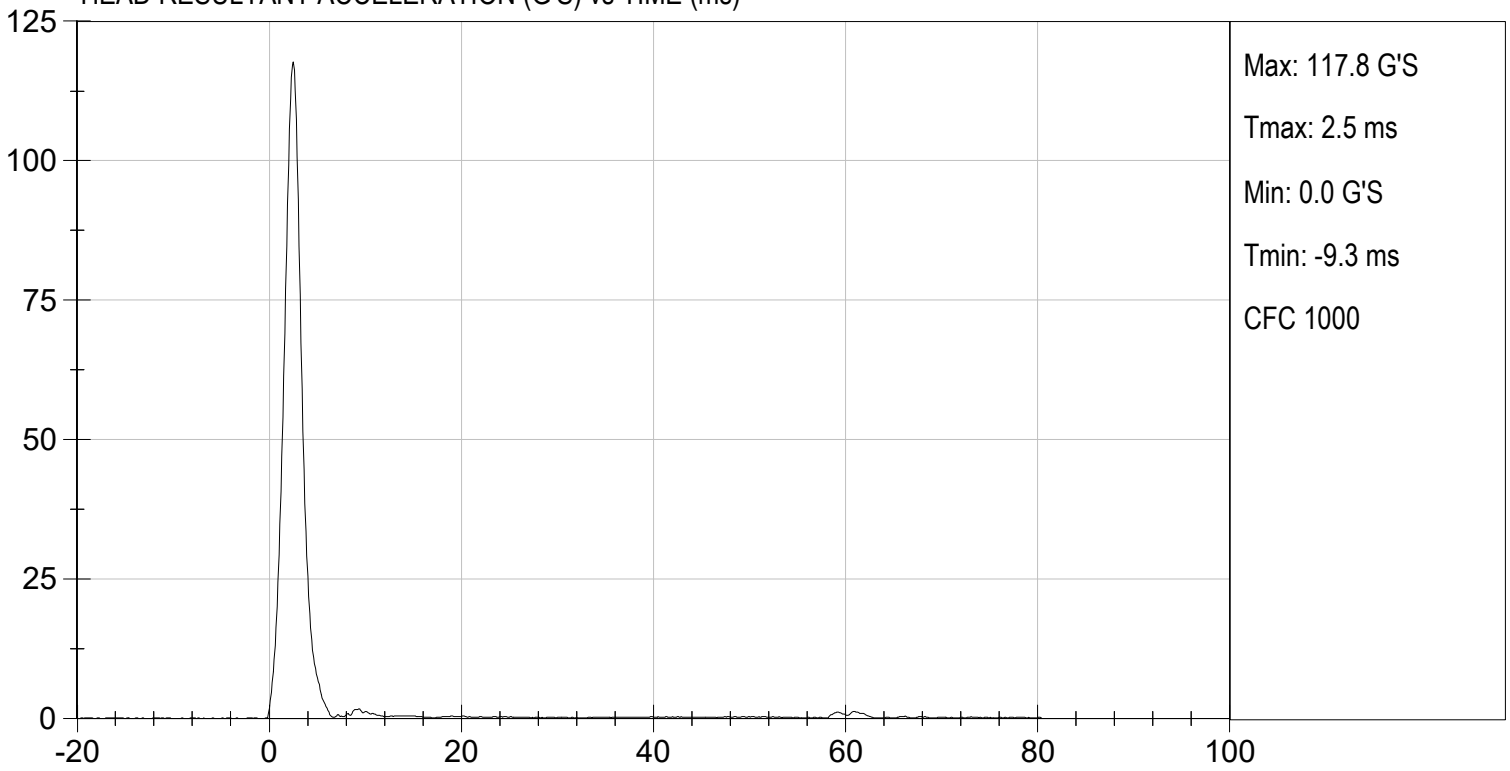
01/09/2025
Test Date

Approved By

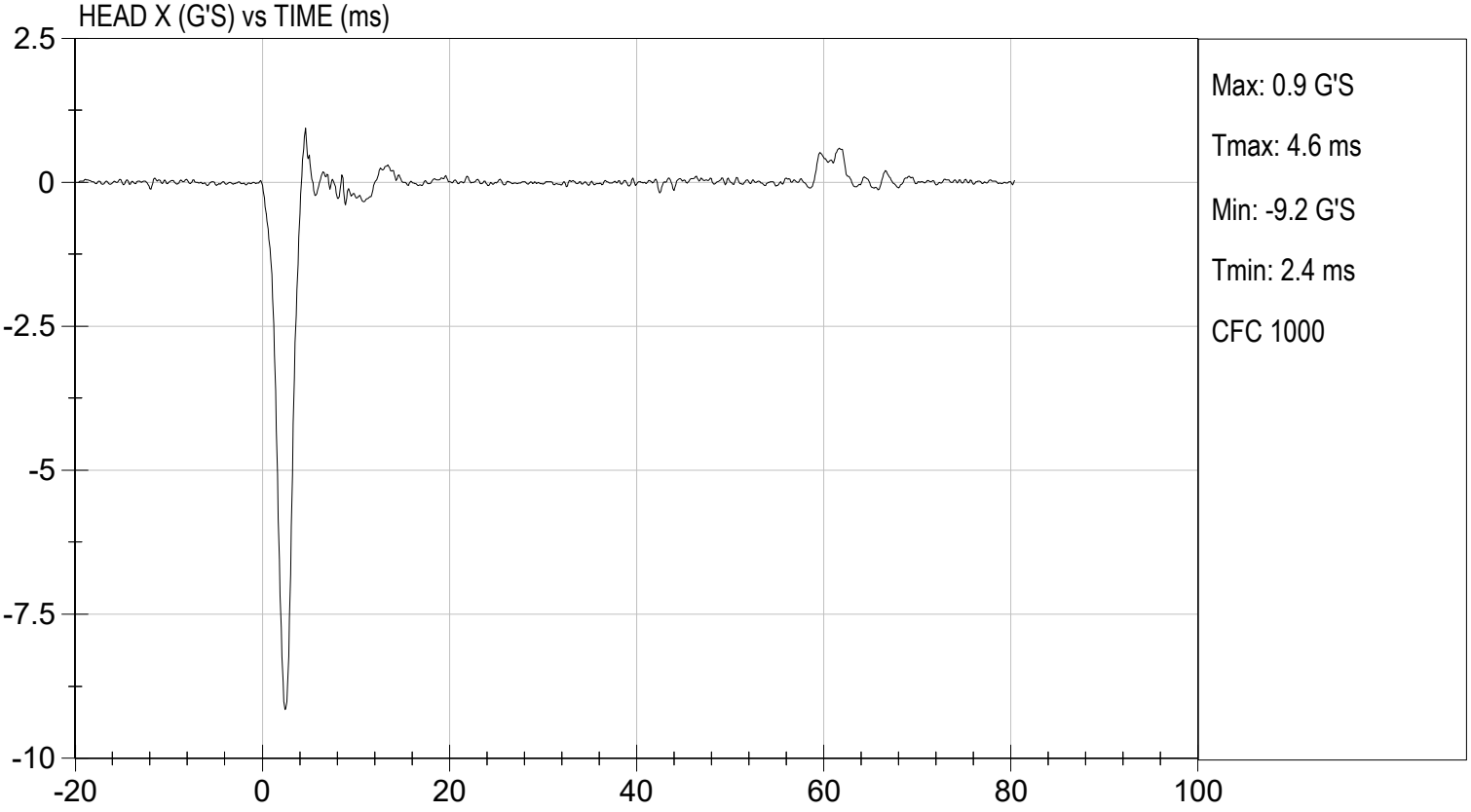
TEST DESC: HEAD DROP

TEST DATE: 01/09/2025
TEST #: D250091

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

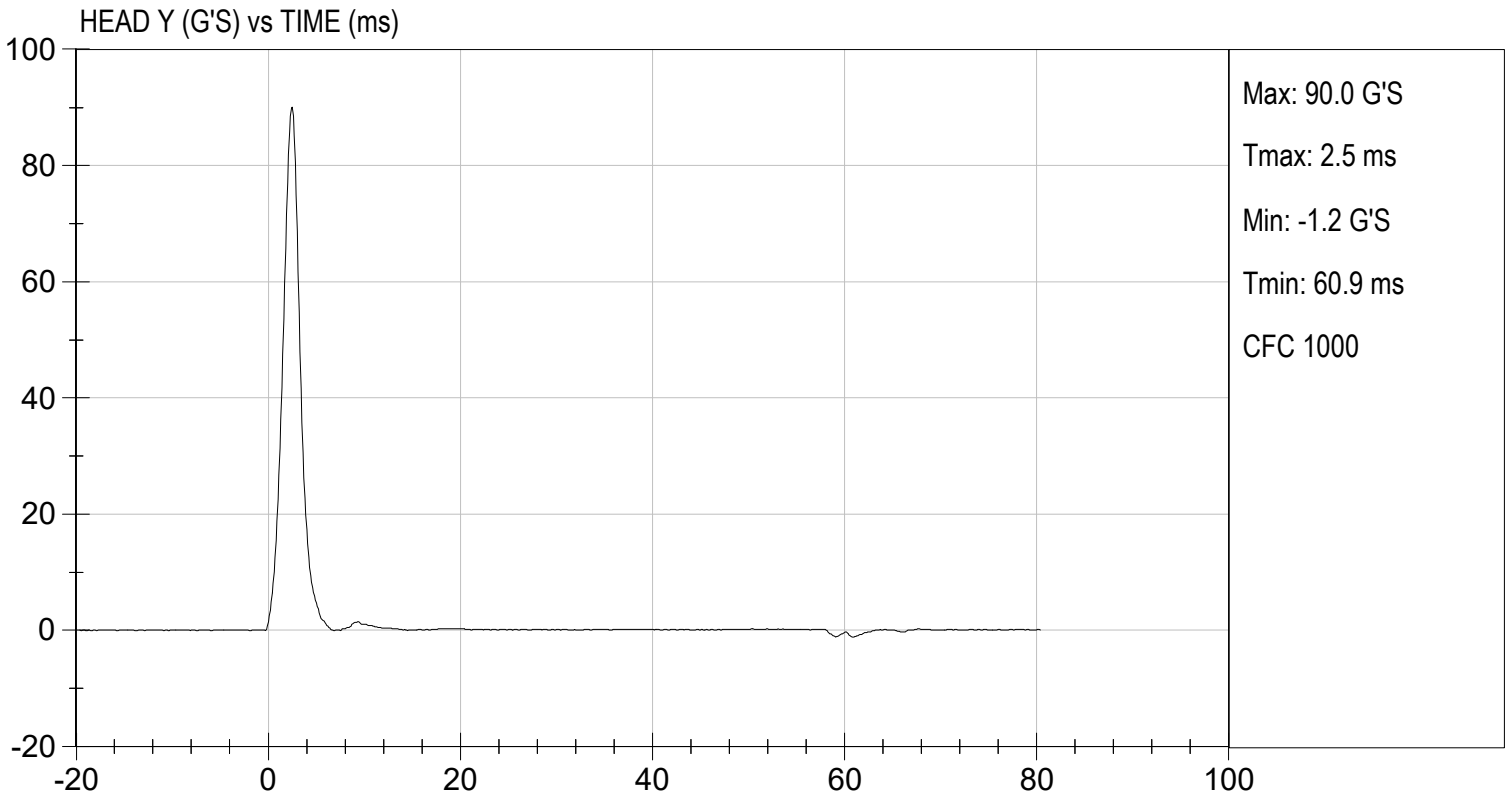


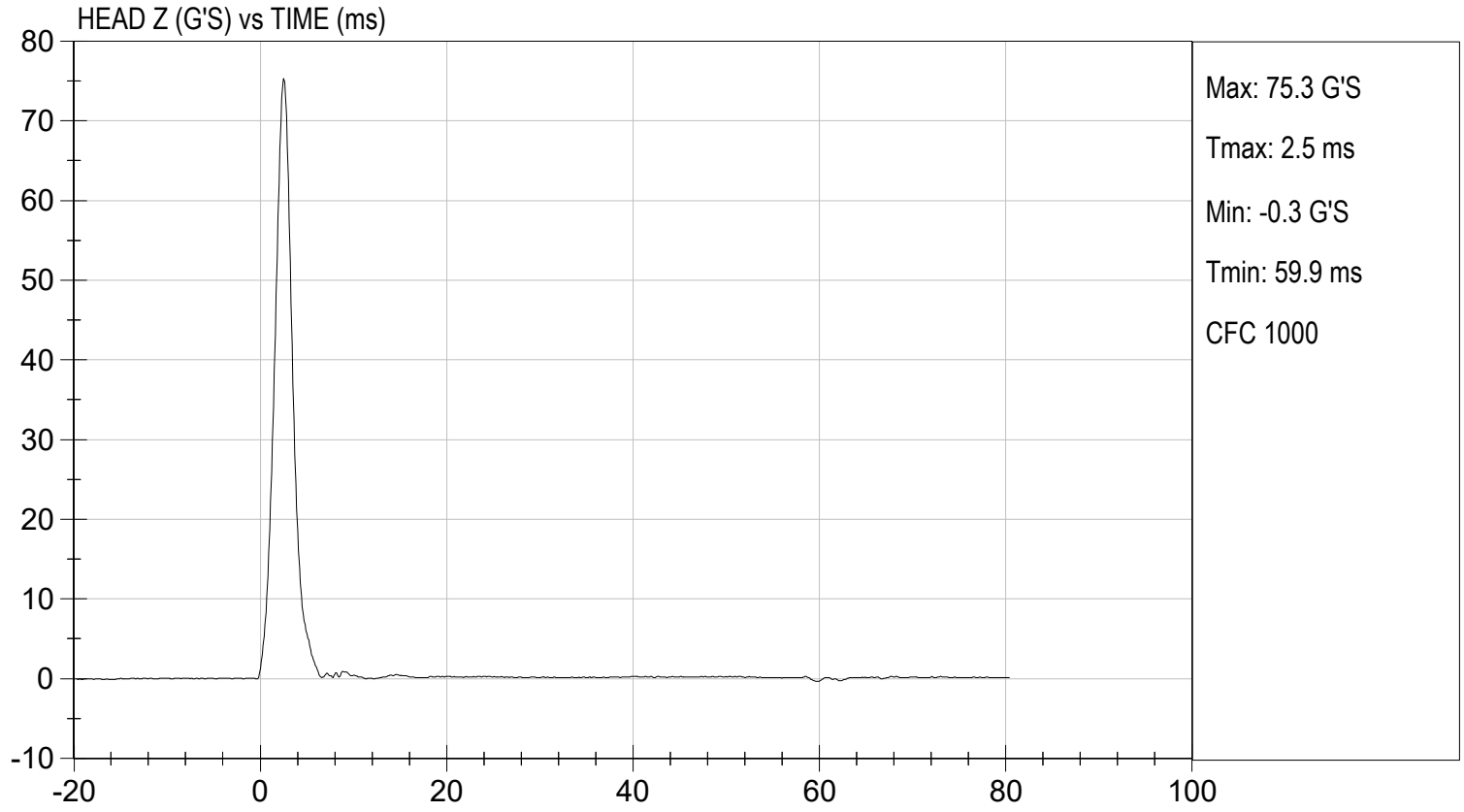
HEAD X (G'S) vs TIME (ms)



TEST DESC: HEAD DROP

TEST DATE: 01/09/2025
TEST #: D250091





MGA RESEARCH CORPORATION

LATERAL NECK PENDULUM TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test I.D:** D250092

Tested Parameter		Units	Specification	Result	Pass/Fail
Temperature		deg C	20.6 to 22.2	21.4	Pass
Humidity		%	10 to 70	34	Pass
Impact Velocity		m/s	5.51 to 5.63	5.53	Pass
Pendulum Velocity	10 ms	m/s	2.20 to 2.80	2.38	Pass
	15 ms	m/s	3.30 to 4.10	3.69	Pass
	20 ms	m/s	4.40 to 5.40	5.13	Pass
	25 ms	m/s	5.40 to 6.10	5.86	Pass
	25-100 ms	m/s	5.50 to 6.20	5.91	Pass
Maximum D-Plane Rotation		deg	71 to 81	76	Pass
Time of Maximum D-Plane Rotation		ms	50 to 70	65	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

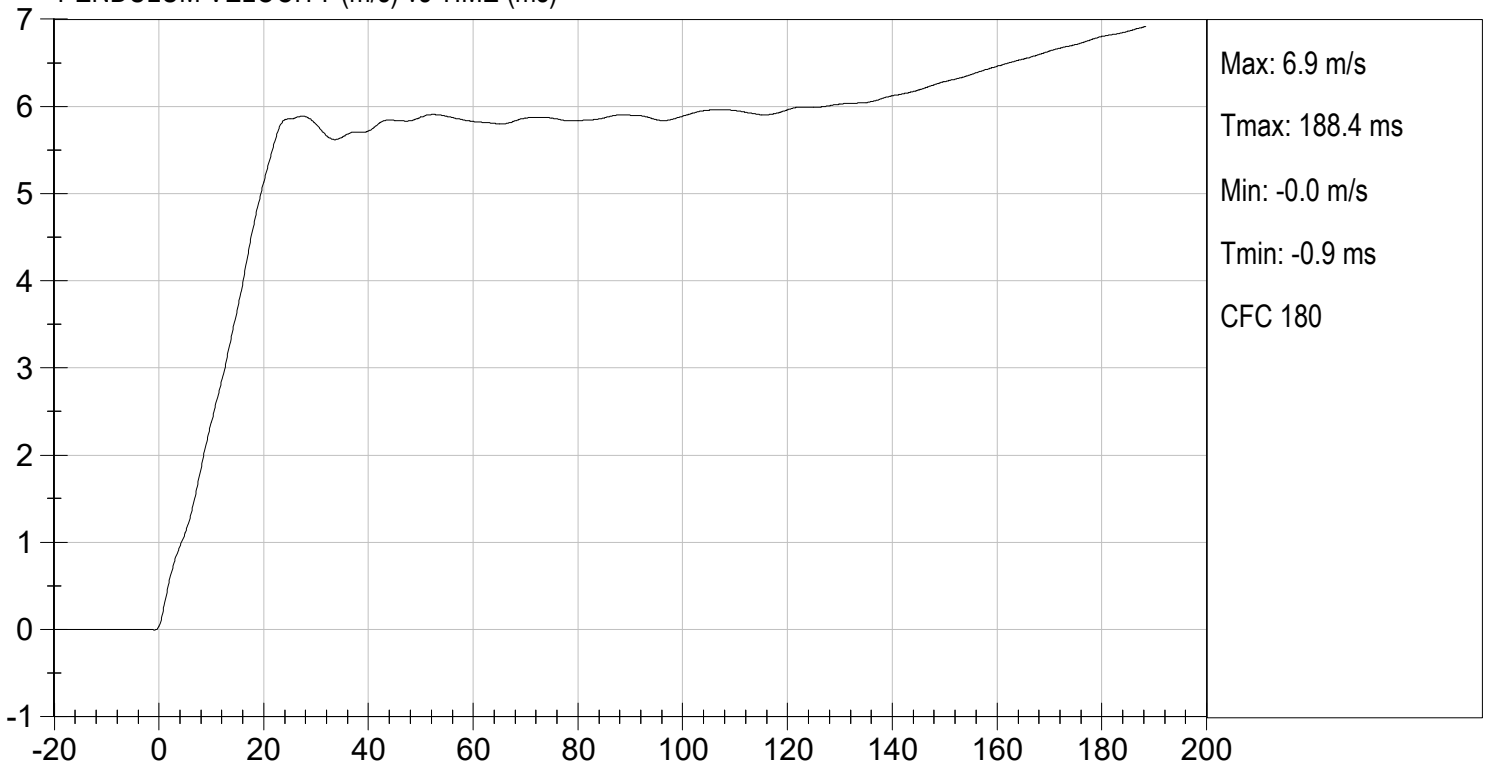
01/09/2025
Test Date

Approved By

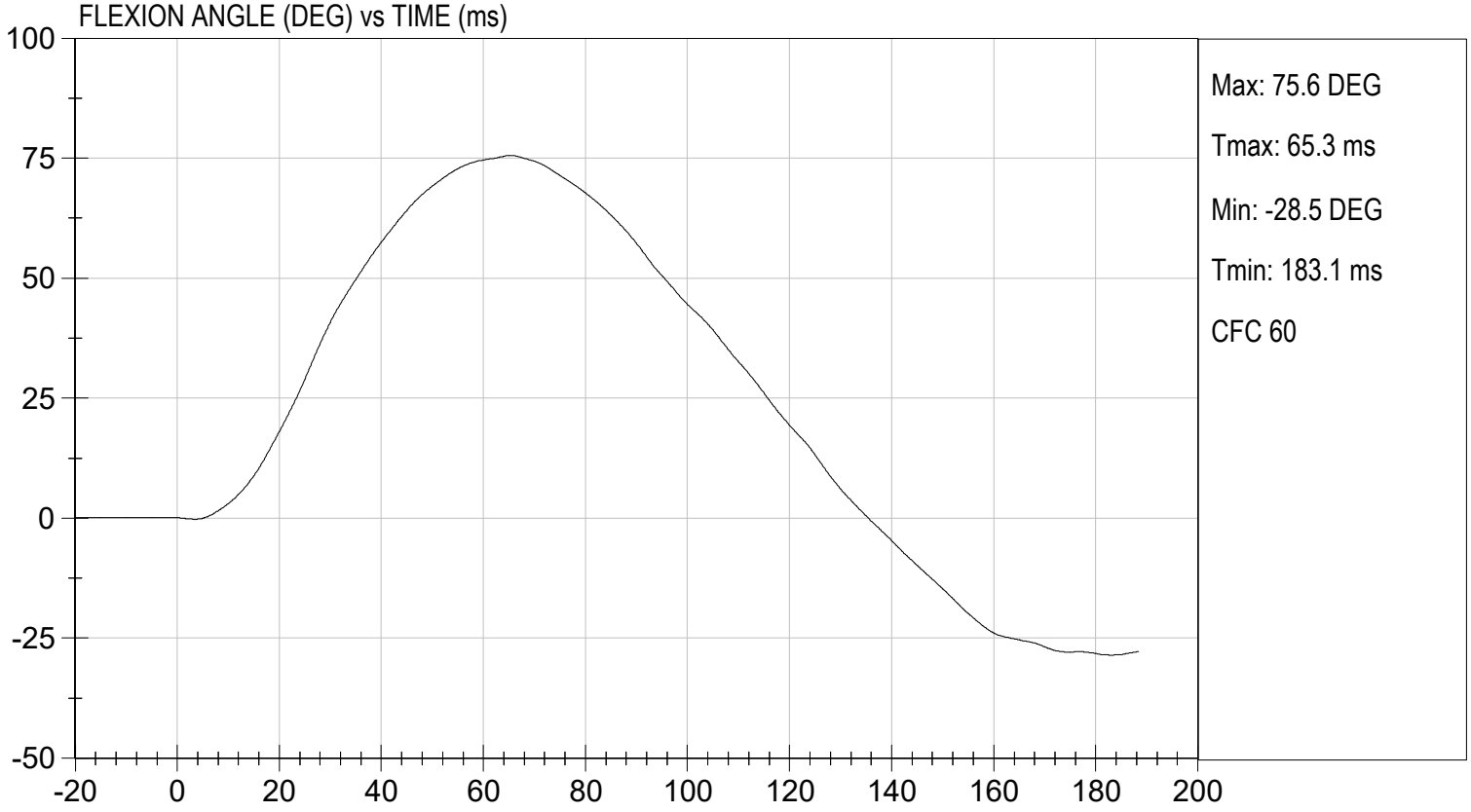
TEST DESC: NECK BENDING
VELOCITY: 18.15 ft/s, 5.53 m/s

TEST DATE: 01/09/2025
TEST #: D250092

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

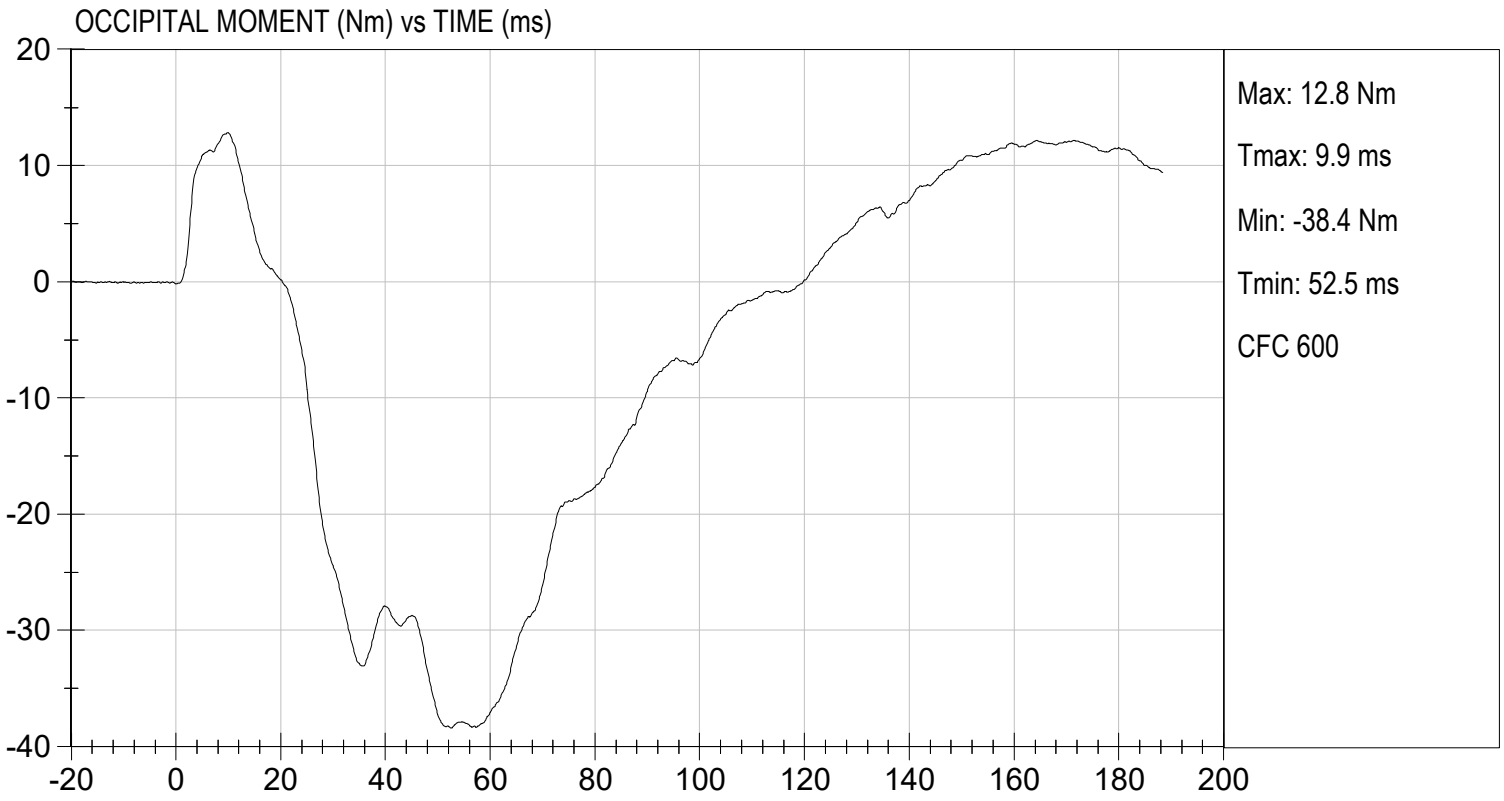


FLEXION ANGLE (DEG) vs TIME (ms)



TEST DESC: NECK BENDING
VELOCITY: 18.15 ft/s, 5.53 m/s

TEST DATE: 01/09/2025
TEST #: D250092



MGA RESEARCH CORPORATION

SHOULDER IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test ID:** D250093

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

Laboratory Technician

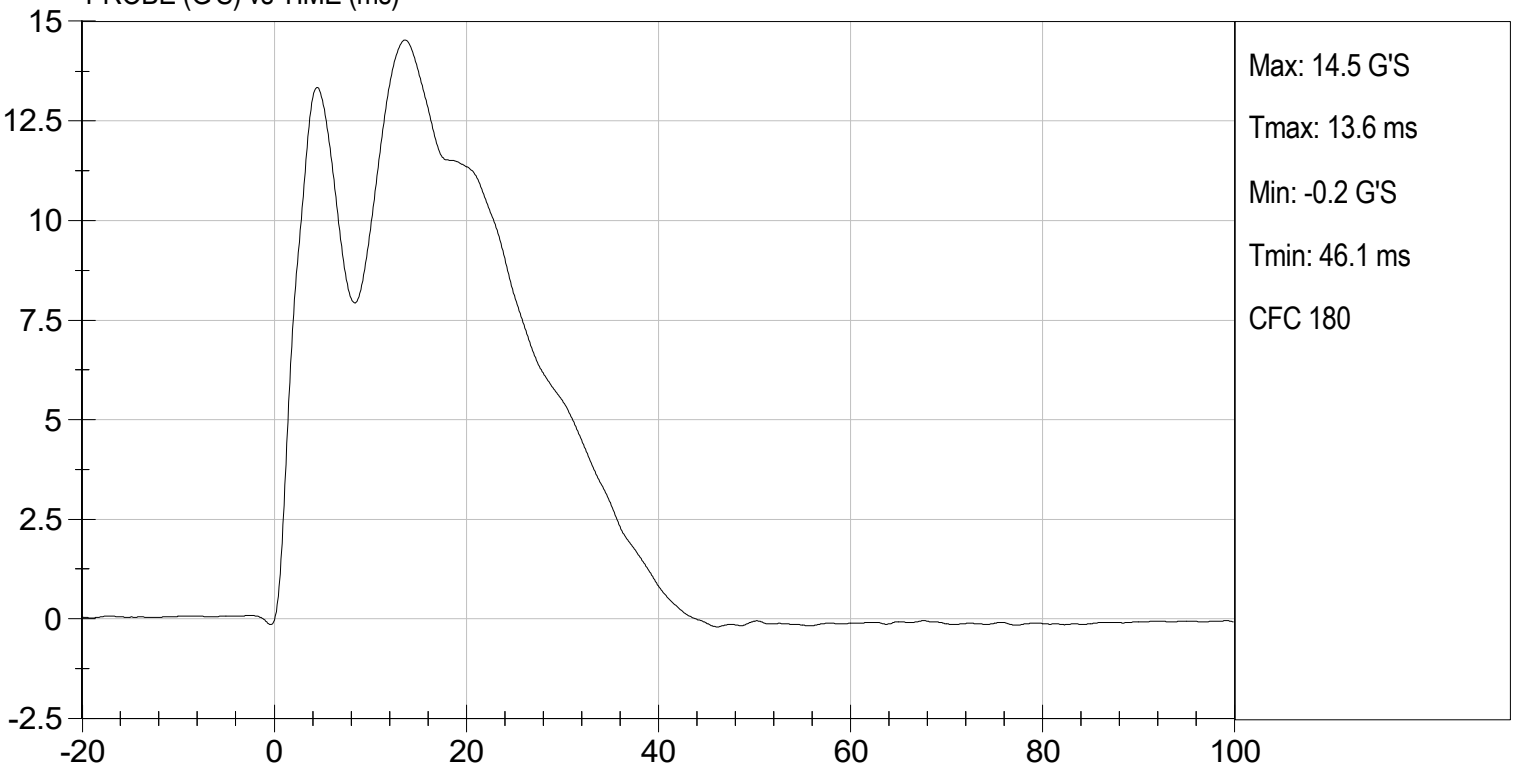
01/09/2025
Test Date

Approved By

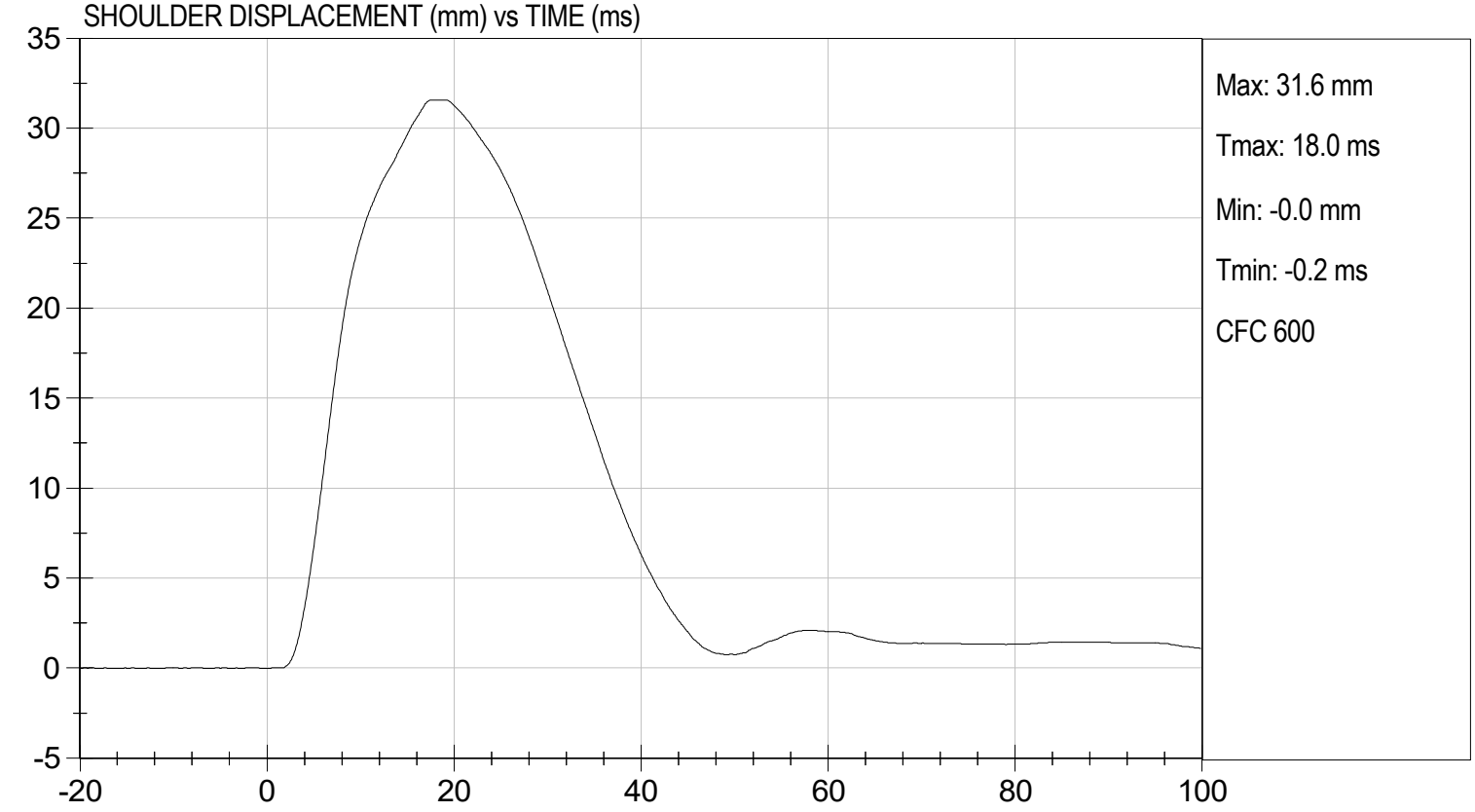
TEST DESC: SHOULDER IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 01/09/2025
TEST #: D250093

PROBE (G'S) vs TIME (ms)

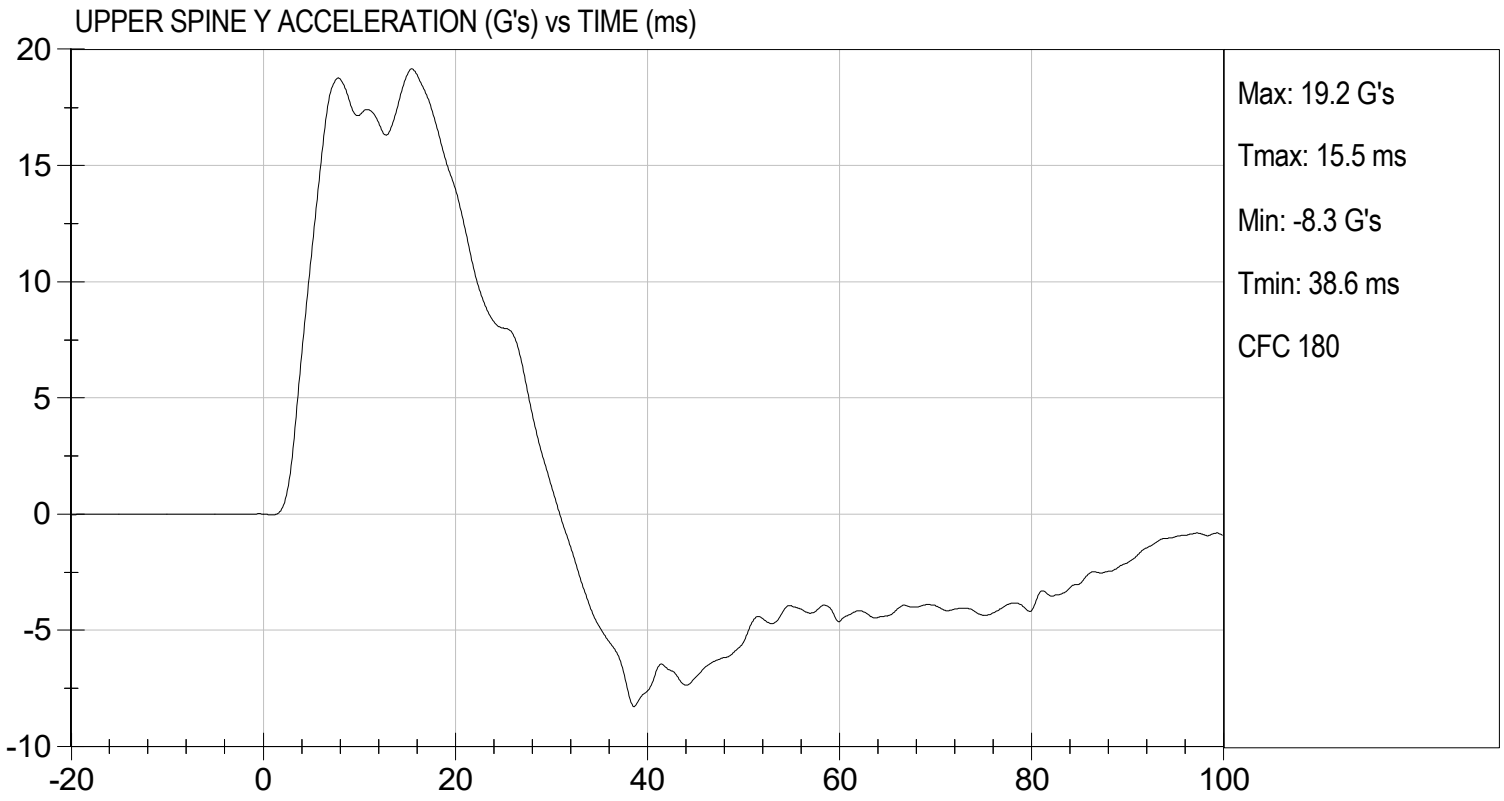


SHOULDER DISPLACEMENT (mm) vs TIME (ms)



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

TEST DATE: 01/09/2025
TEST #: D250093



MGA RESEARCH CORPORATION

THORAX (WITH ARM) IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test I.D:** D250094

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.2	Pass
Humidity	%	10 to 70	34	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	30 to 36	33	Pass
Shoulder Displacement	mm	31 to 40	37	Pass
Upper Rib Displacement	mm	25 to 32	29	Pass
Middle Rib Displacement	mm	30 to 36	33	Pass
Lower Rib Displacement	mm	32 to 38	34	Pass
Upper Spine (T1) Y Acceleration	G's	34 to 43	38	Pass
Lower Spine (T12) Y Acceleration	G's	29 to 37	33	Pass
		Overall Test Results		Pass

Laboratory Technician

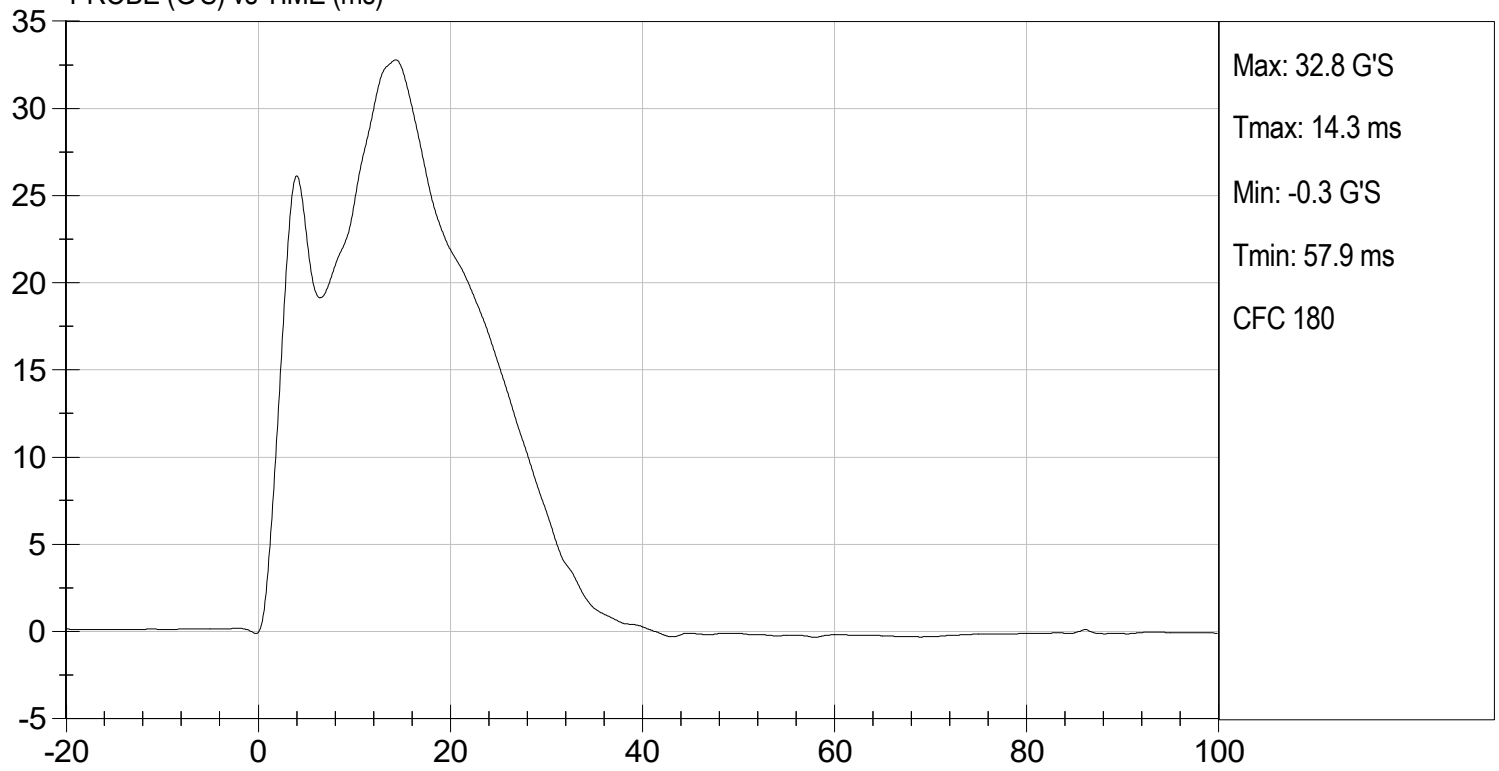
01/09/2025
Test Date

Approved By

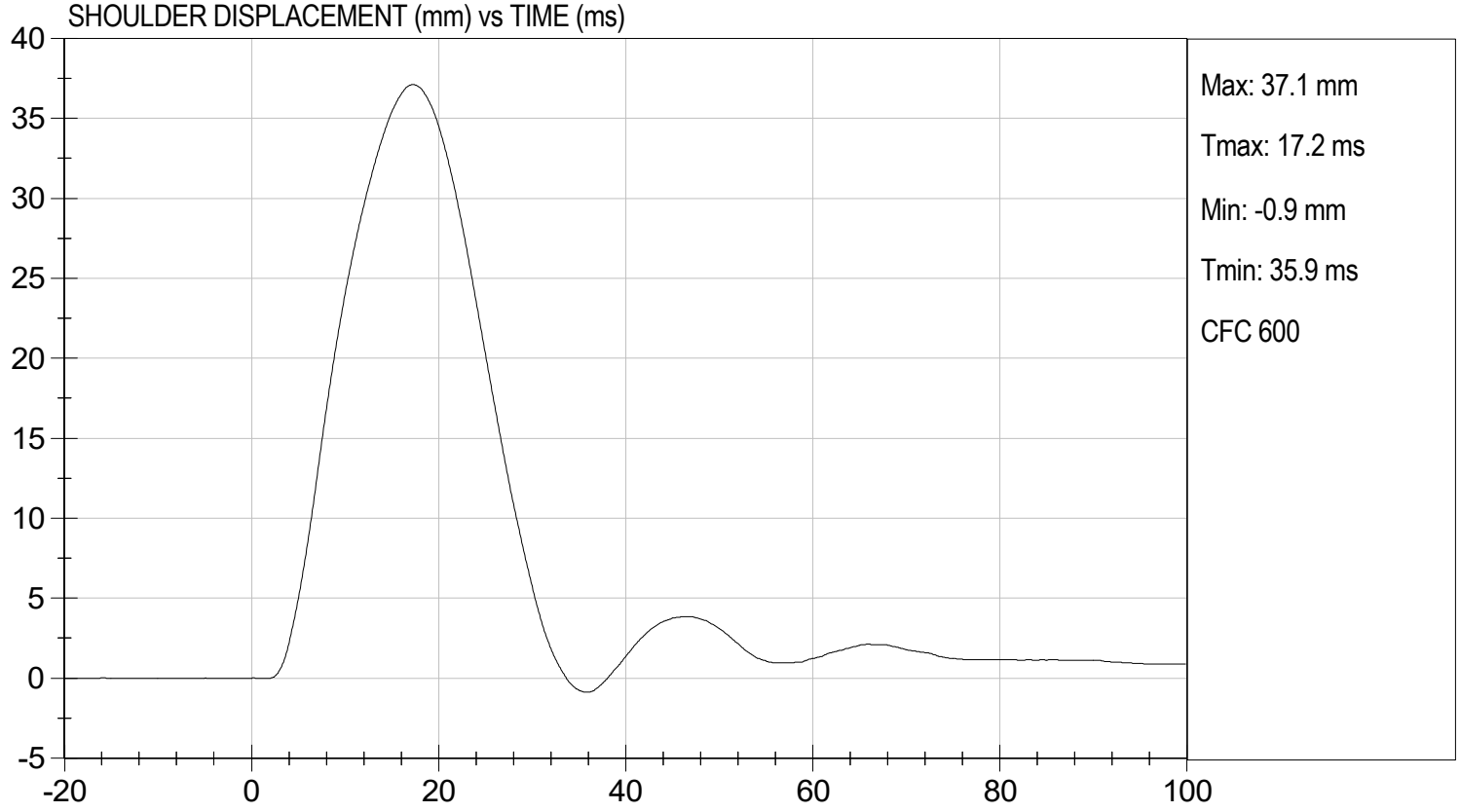
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 01/09/2025
TEST #: D250094

PROBE (G'S) vs TIME (ms)



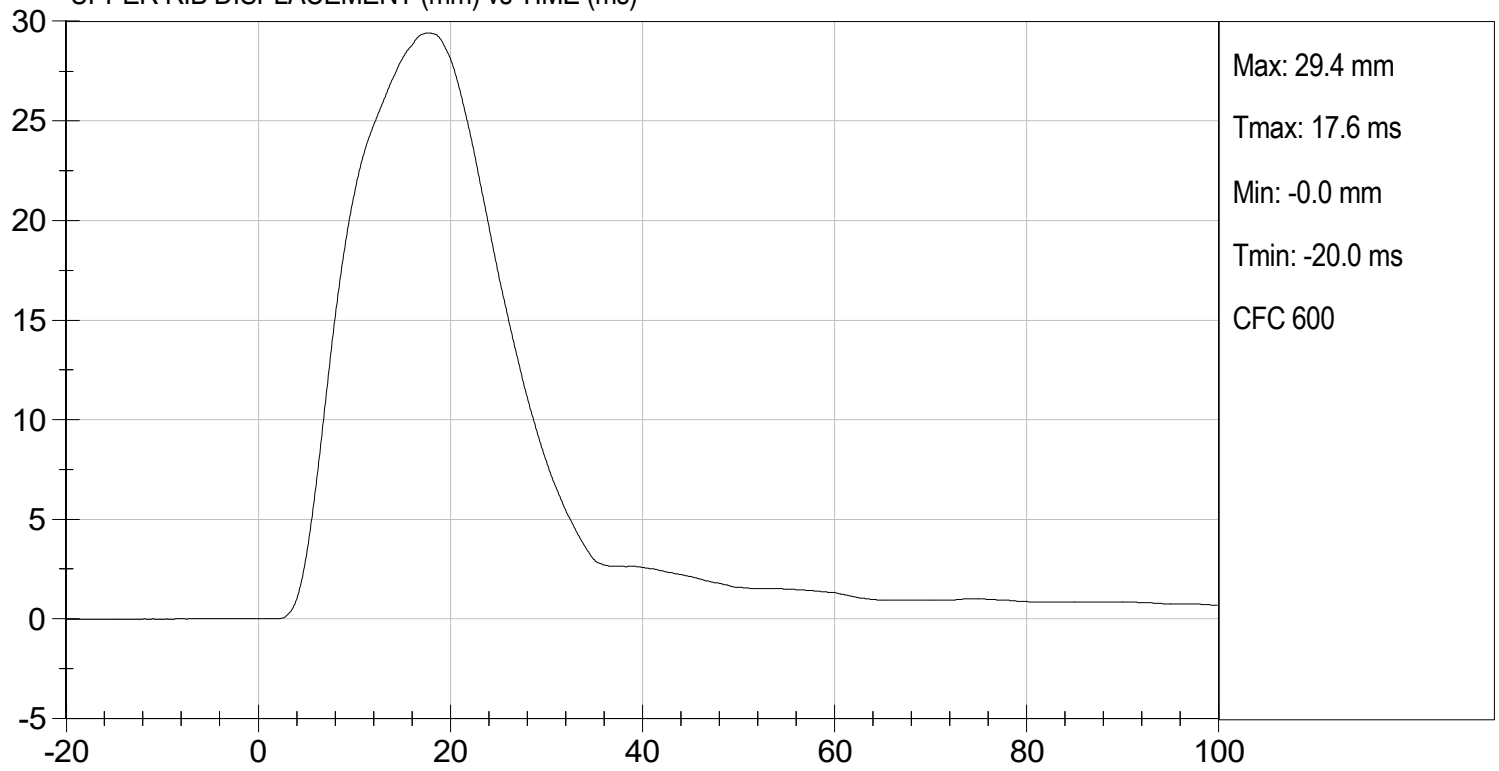
SHOULDER DISPLACEMENT (mm) vs TIME (ms)



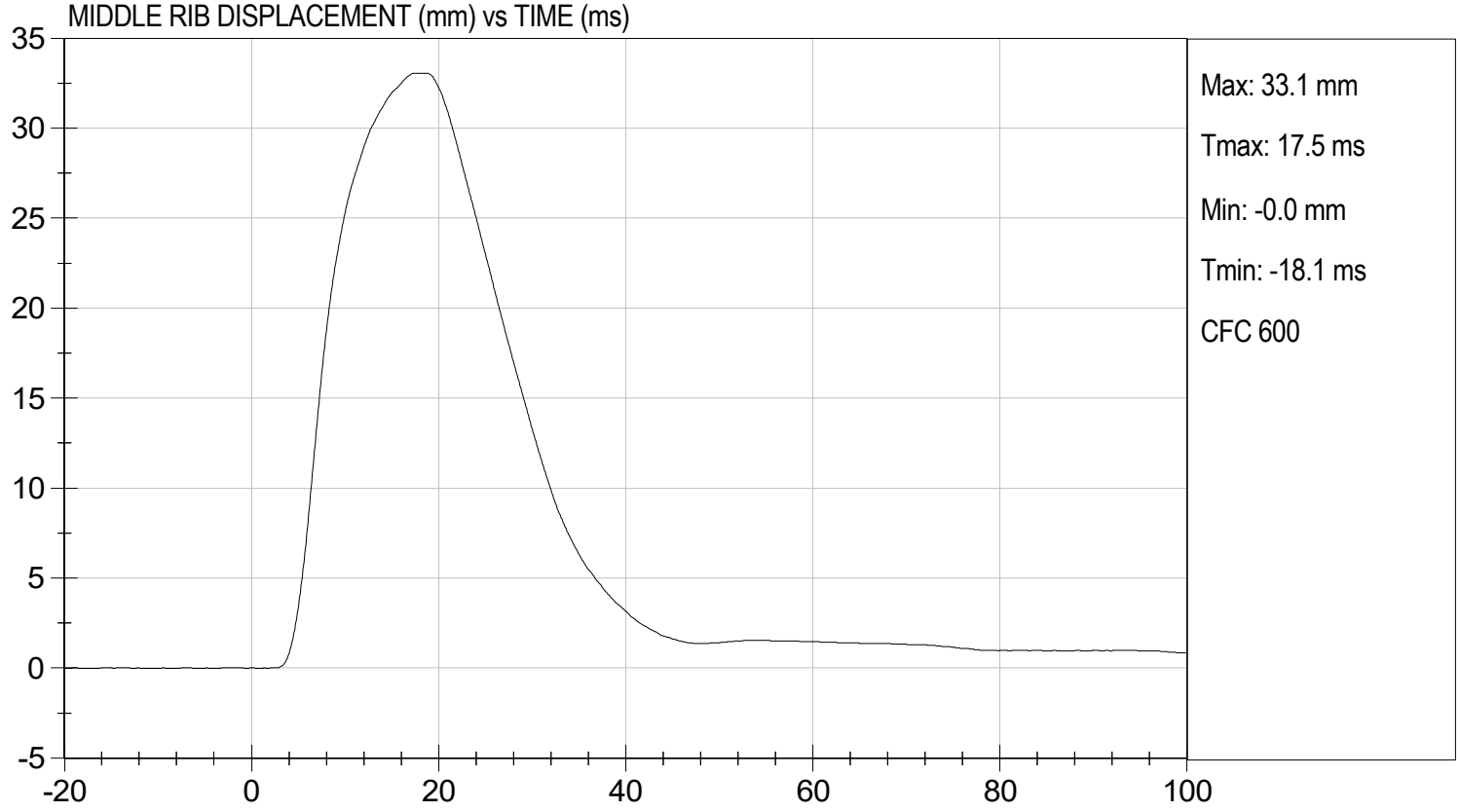
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 01/09/2025
TEST #: D250094

UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



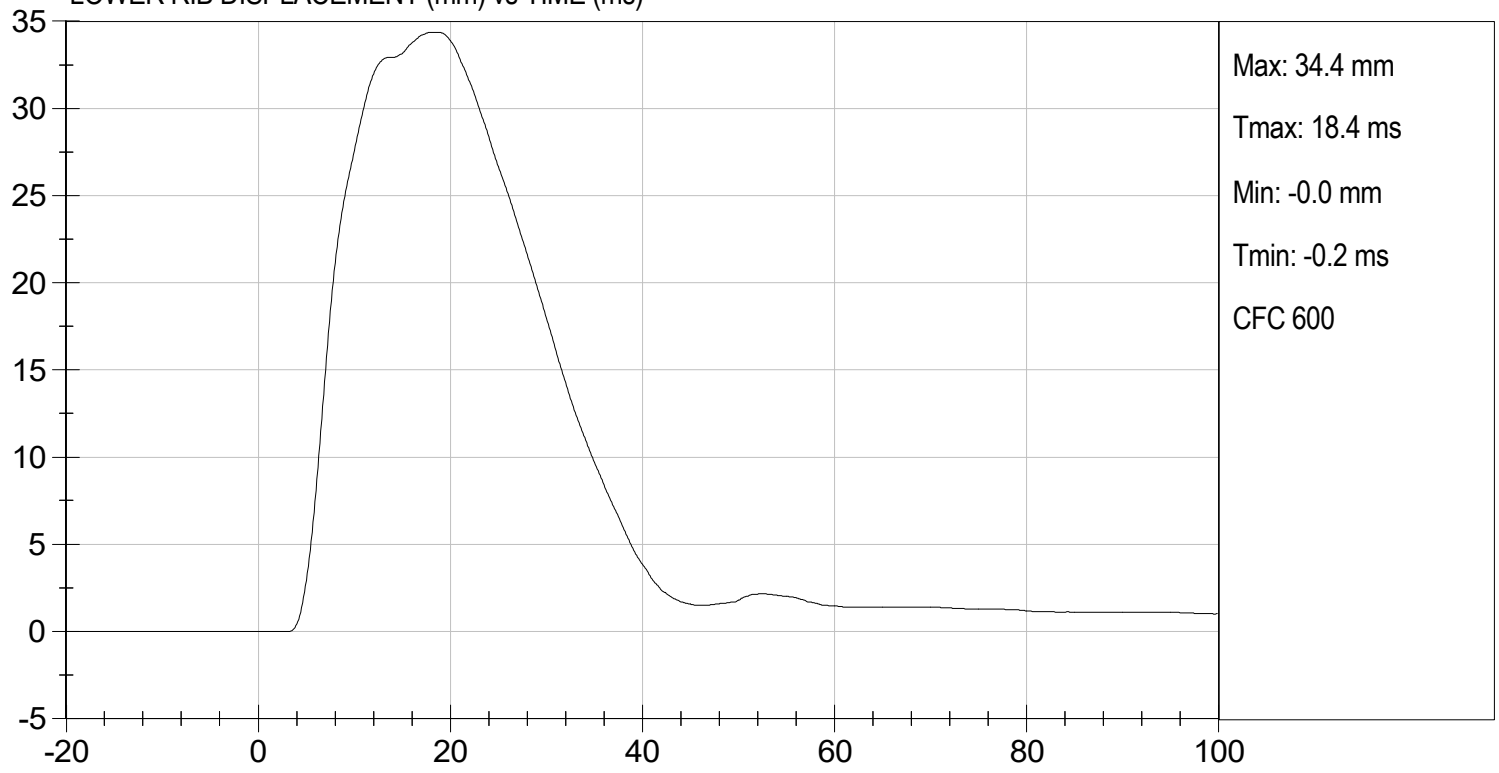
MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



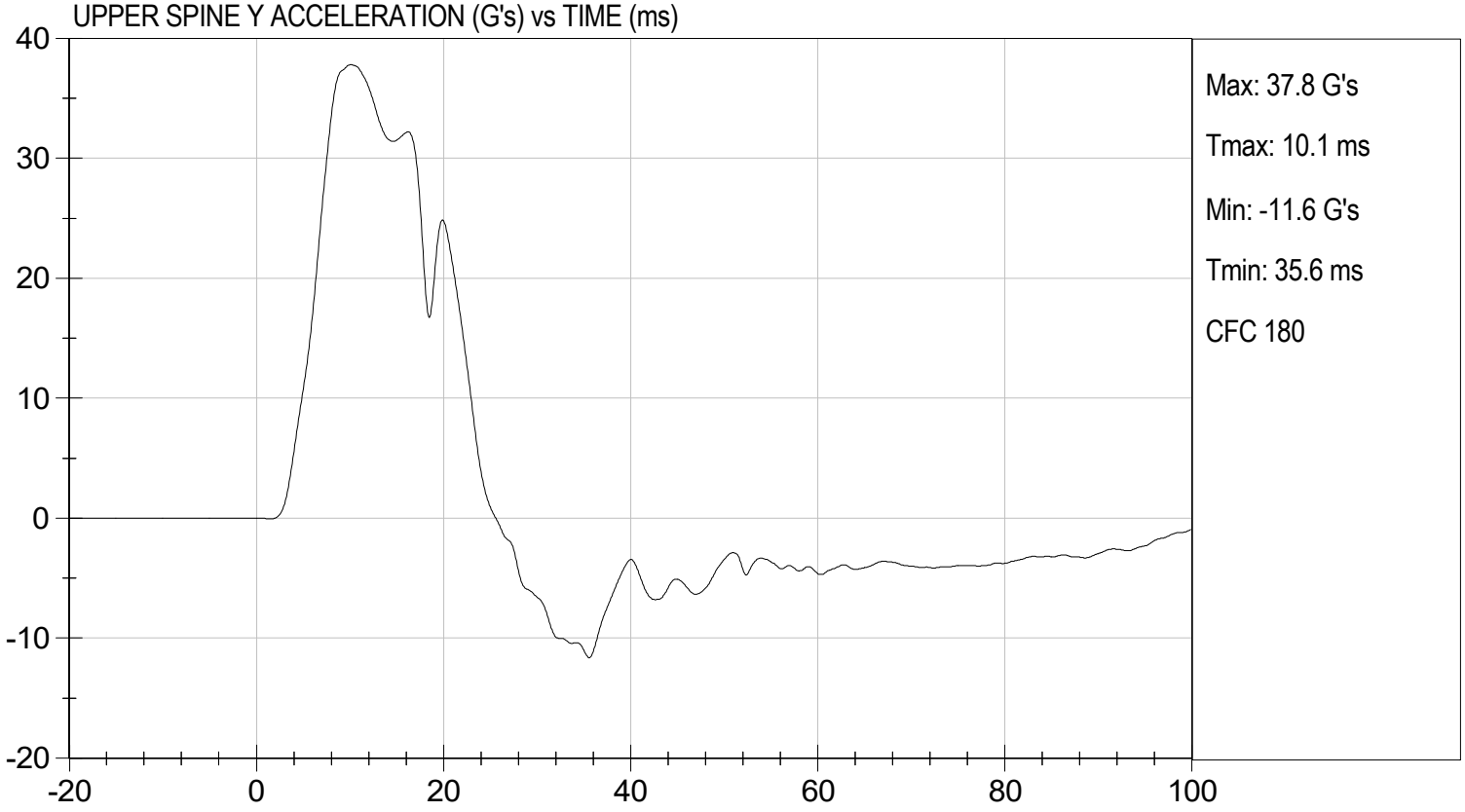
TEST DESC: THORAX IMPACT WITH ARM
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 01/09/2025
TEST #: D250094

LOWER RIB DISPLACEMENT (mm) vs TIME (ms)

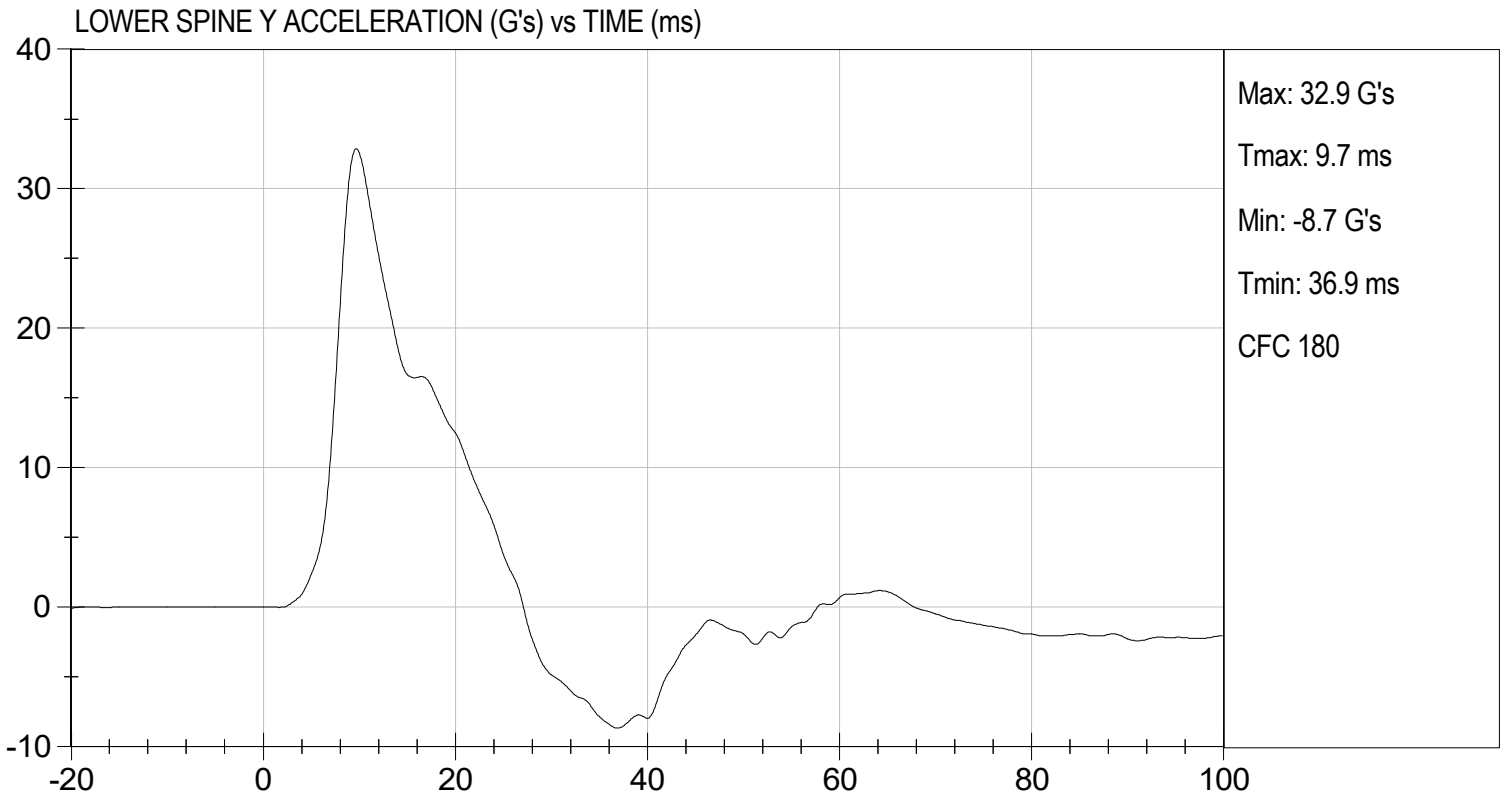


UPPER SPINE Y ACCELERATION (G's) vs TIME (ms)



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

TEST DATE: 01/09/2025
TEST #: D250094



MGA RESEARCH CORPORATION

THORAX (WITHOUT ARM) IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test I.D:** D250095

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	33	Pass
Impact Velocity	m/s	4.20 to 4.40	4.23	Pass
Maximum Probe Acceleration	G's	14 to 18	15	Pass
Upper Rib Displacement	mm	32 to 40	35	Pass
Middle Rib Displacement	mm	39 to 45	42	Pass
Lower Rib Displacement	mm	35 to 43	39	Pass
Upper Spine (T1) Y Acceleration	G's	13 to 17	14	Pass
Lower Spine (T12) Y Acceleration	G's	7 to 11	9	Pass
		Overall Test Results		Pass

Laboratory Technician

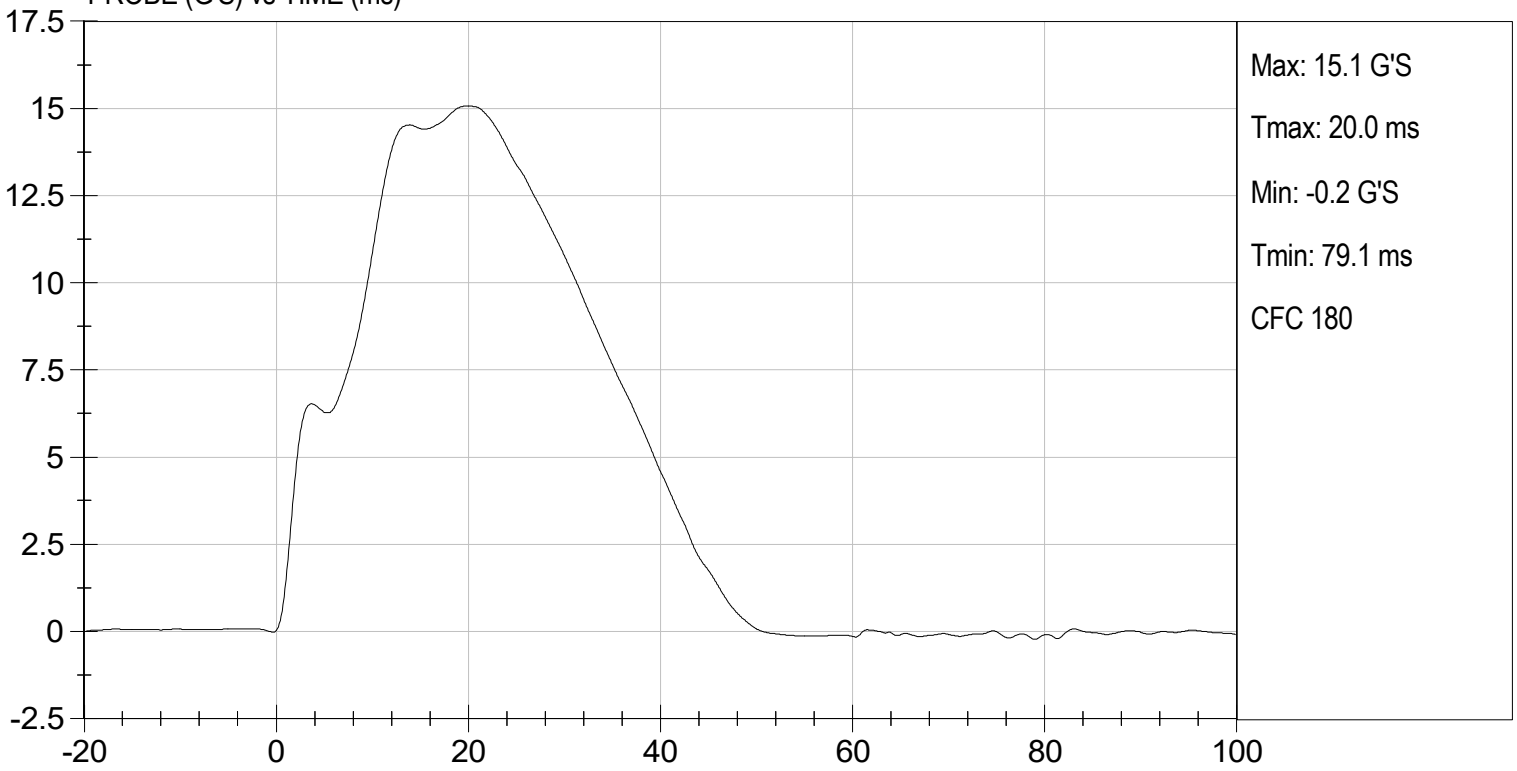
01/09/2025
Test Date

Approved By

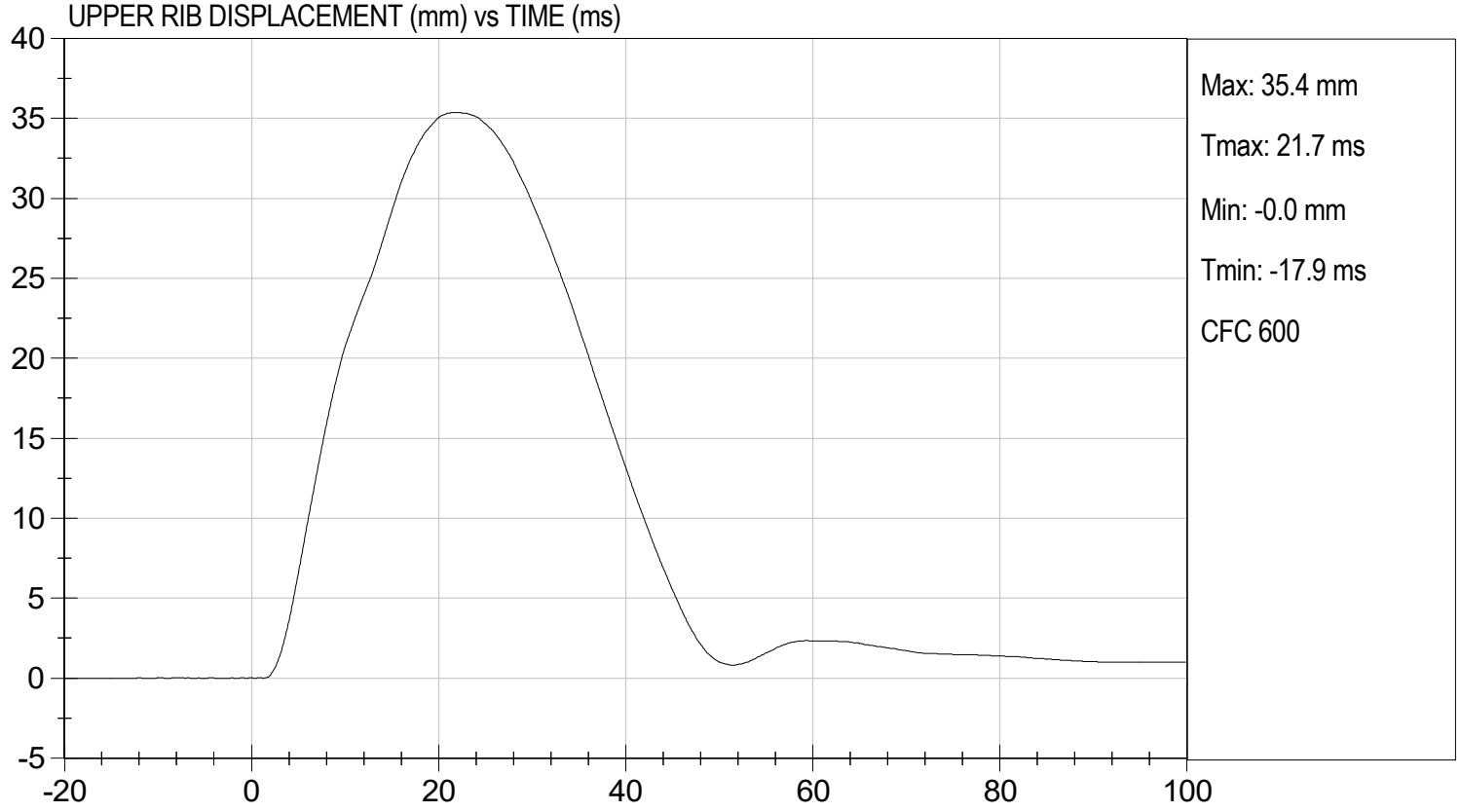
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 13.89 ft/s, 4.23 m/s

TEST DATE: 01/09/2025
TEST #: D250095

PROBE (G'S) vs TIME (ms)



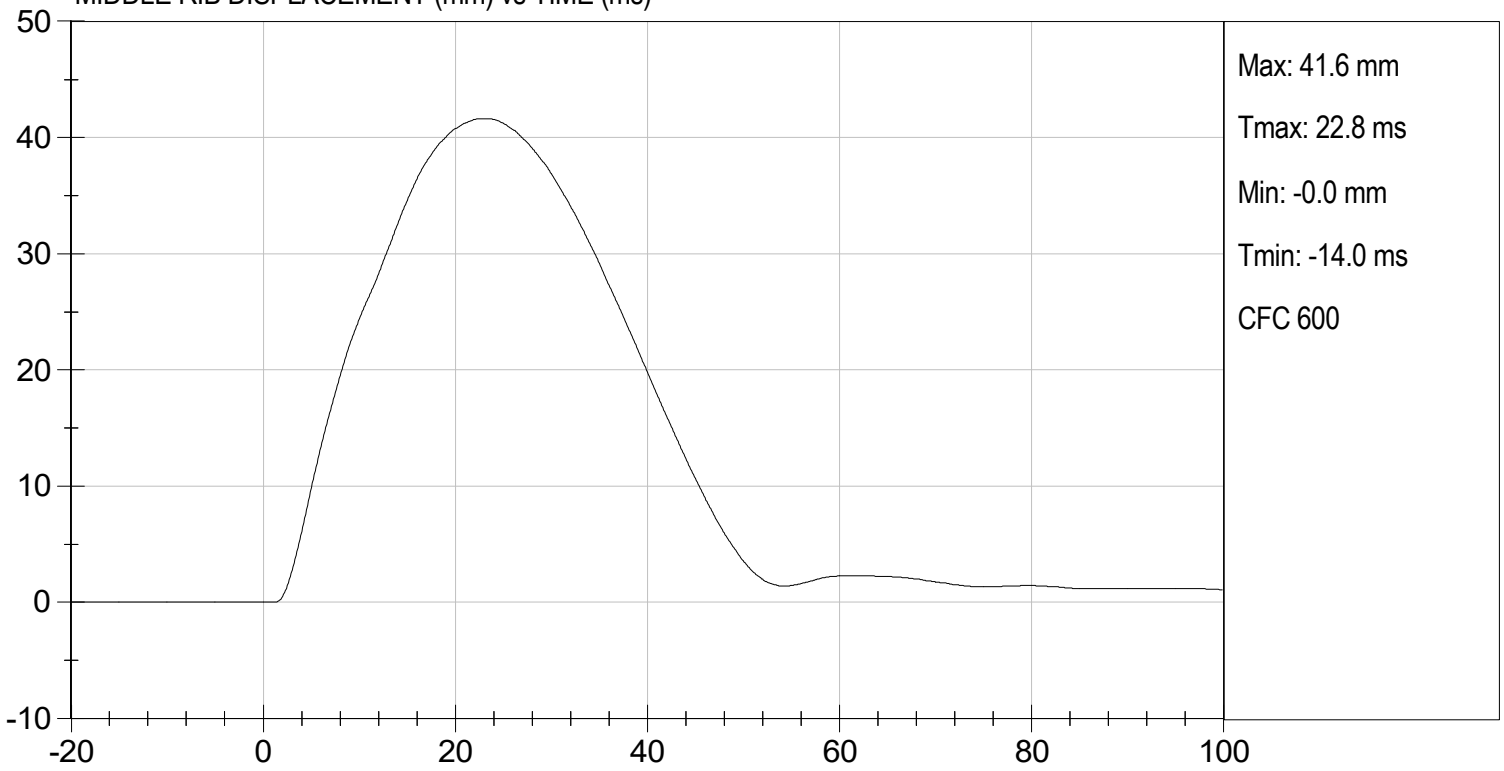
UPPER RIB DISPLACEMENT (mm) vs TIME (ms)



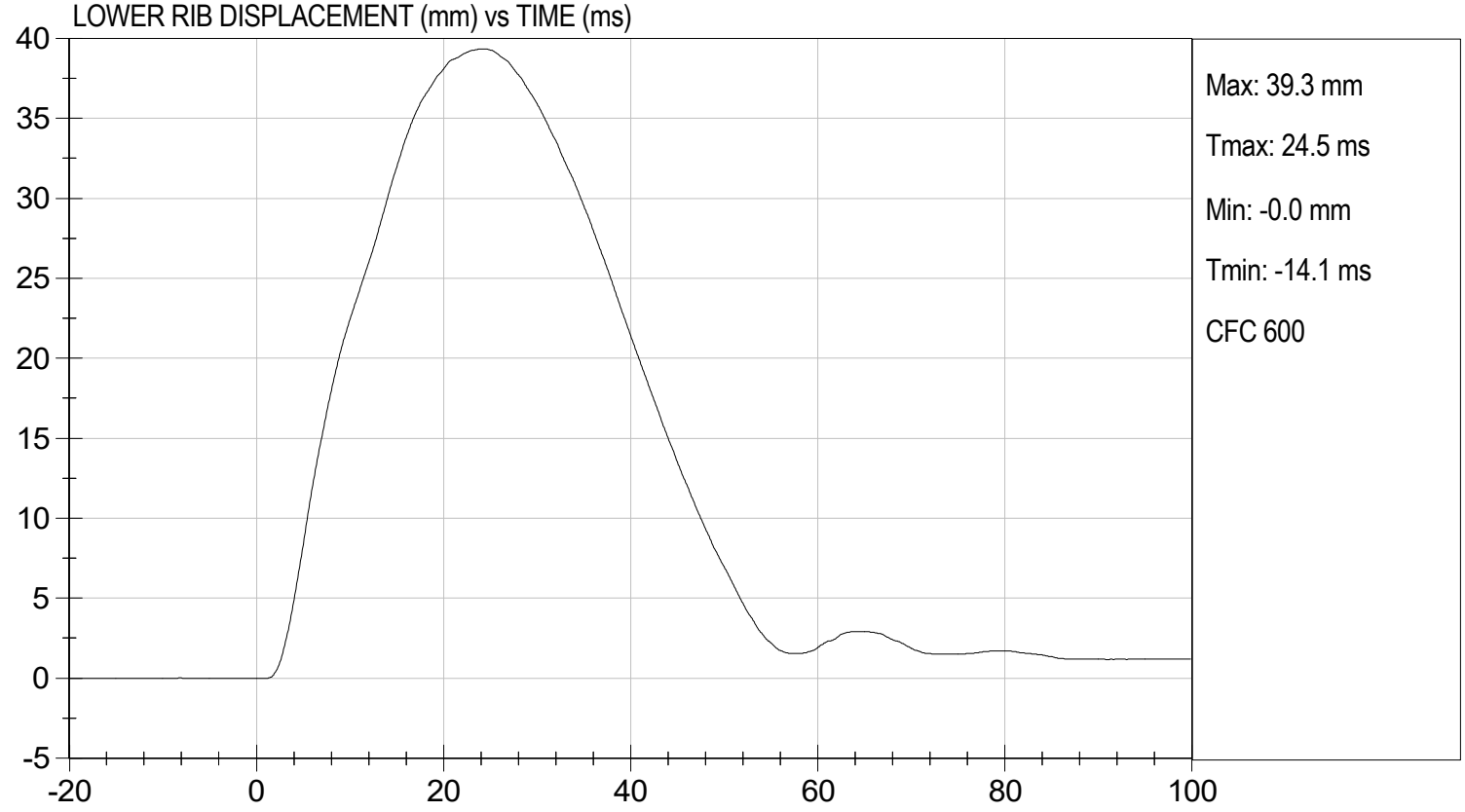
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 13.89 ft/s, 4.23 m/s

TEST DATE: 01/09/2025
TEST #: D250095

MIDDLE RIB DISPLACEMENT (mm) vs TIME (ms)



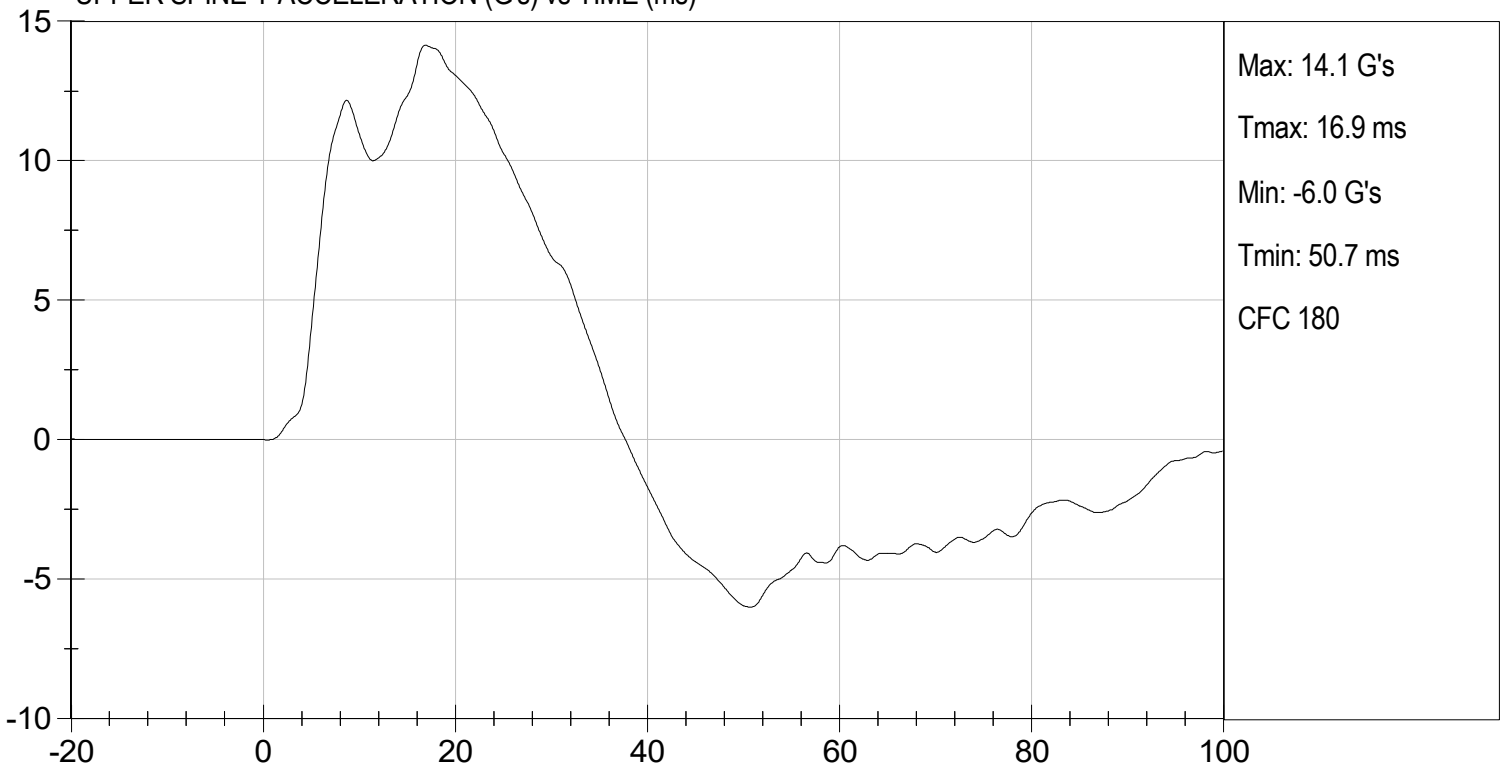
LOWER RIB DISPLACEMENT (mm) vs TIME (ms)



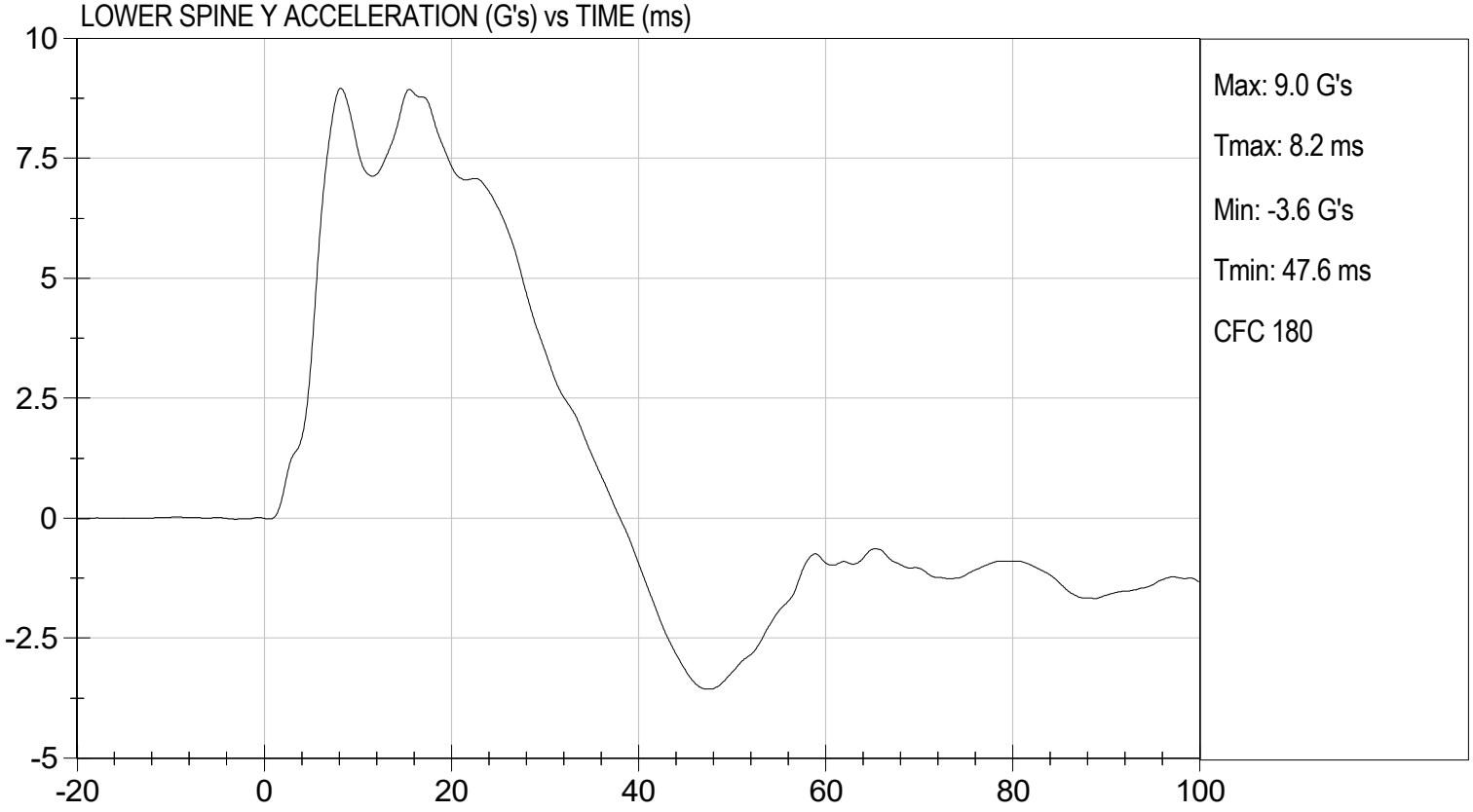
TEST DESC: THORAX IMPACT WITHOUT ARM
VELOCITY: 13.89 ft/s, 4.23 m/s

TEST DATE: 01/09/2025
TEST #: D250095

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



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



MGA RESEARCH CORPORATION

ABDOMINAL IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test I.D:** D250096

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.3	Pass
Humidity	%	10 to 70	33	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	37	Pass
Lower Spine (T12) Y Acceleration	G's	9 to 14	11	Pass
		Overall Test Results		Pass

Laboratory Technician

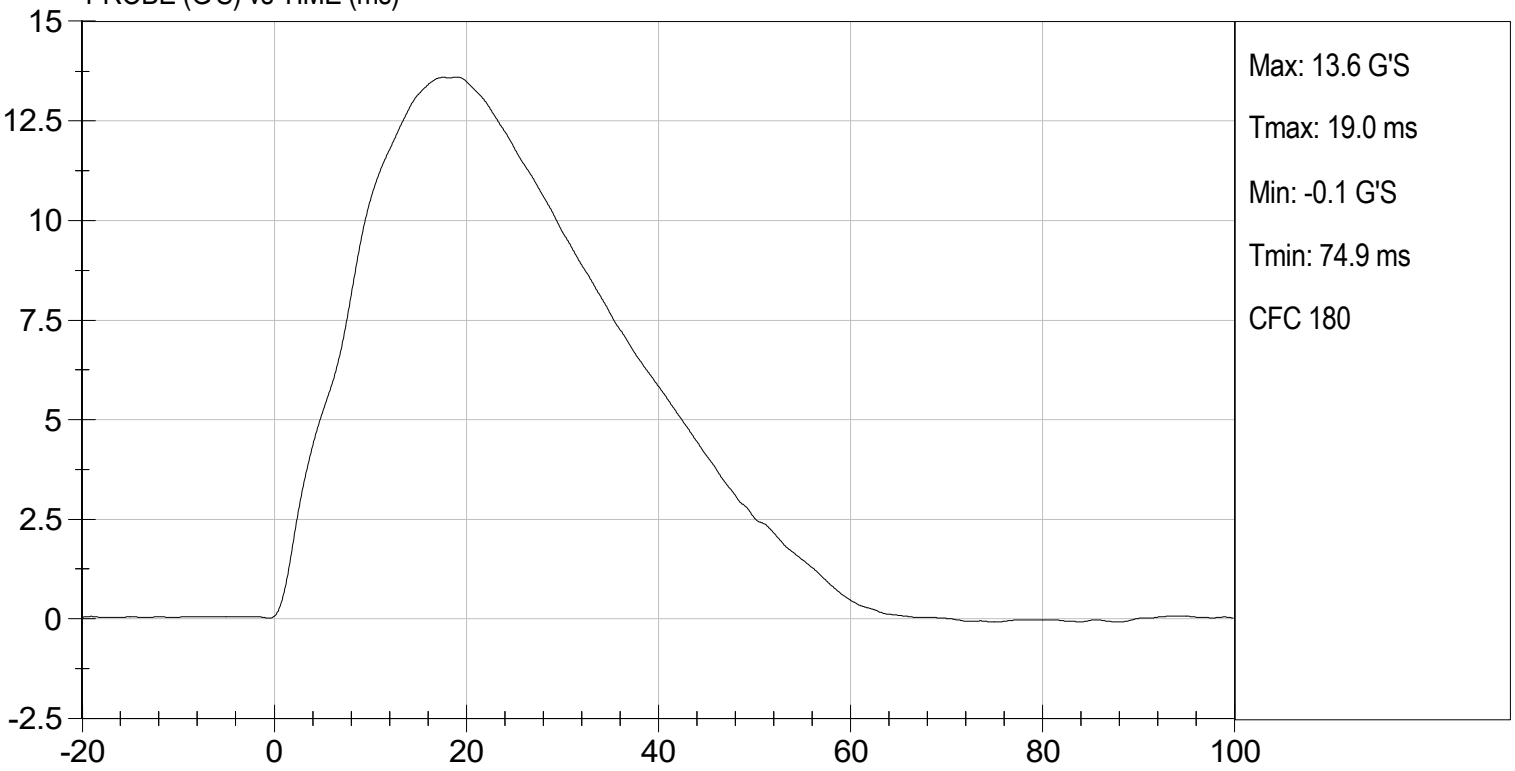
01/09/2025
Test Date

Approved By

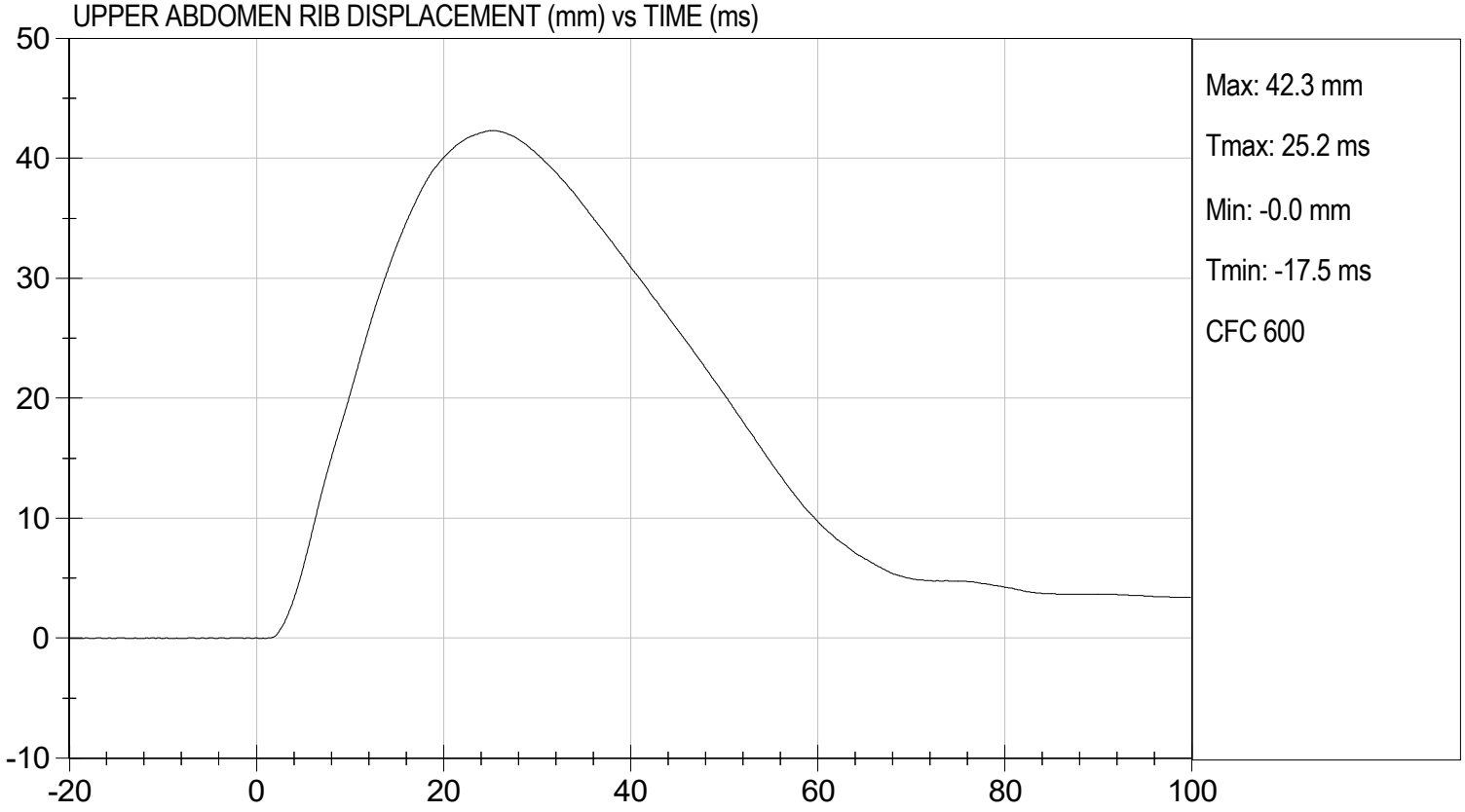
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 01/09/2025
TEST #: D250096

PROBE (G'S) vs TIME (ms)



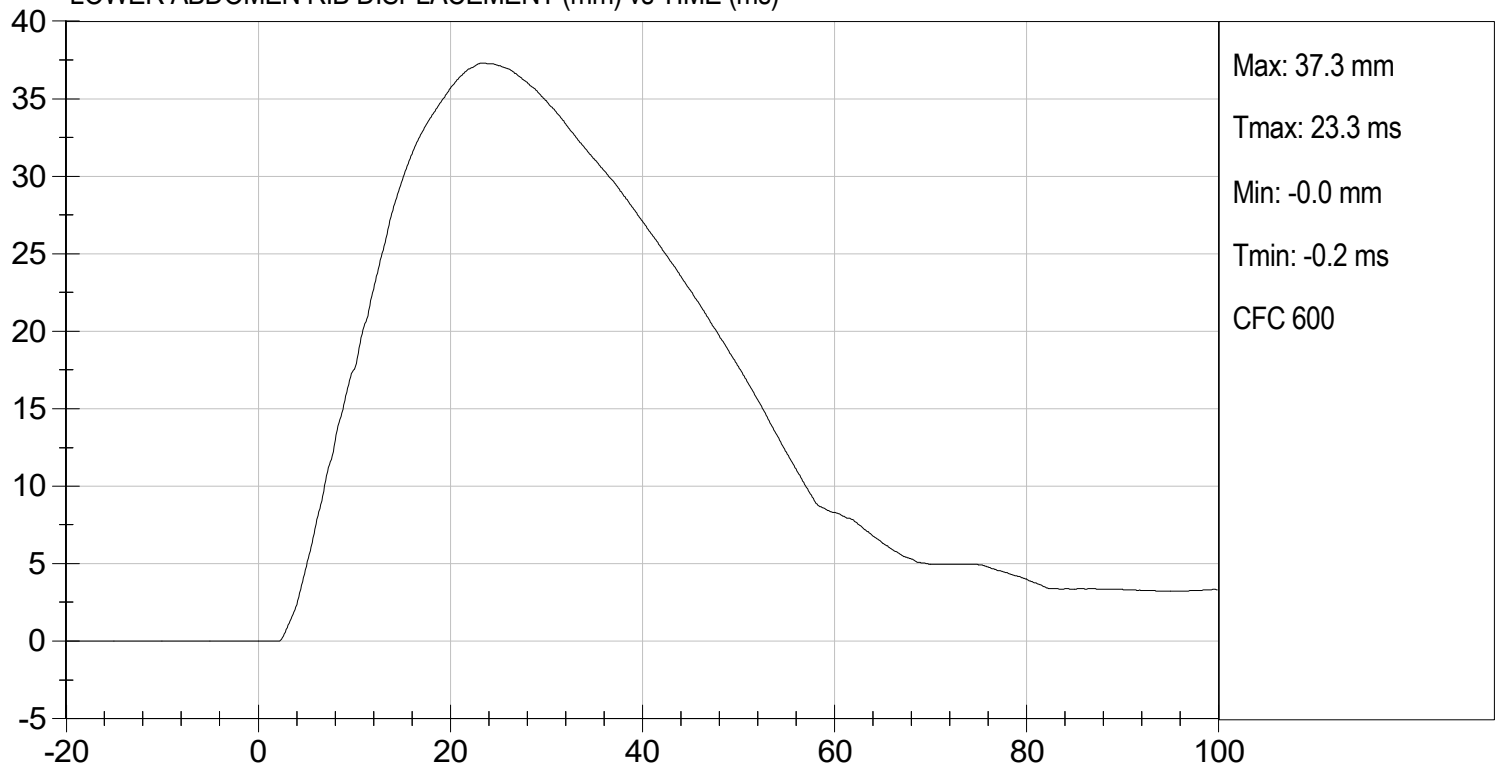
UPPER ABDOMEN RIB DISPLACEMENT (mm) vs TIME (ms)



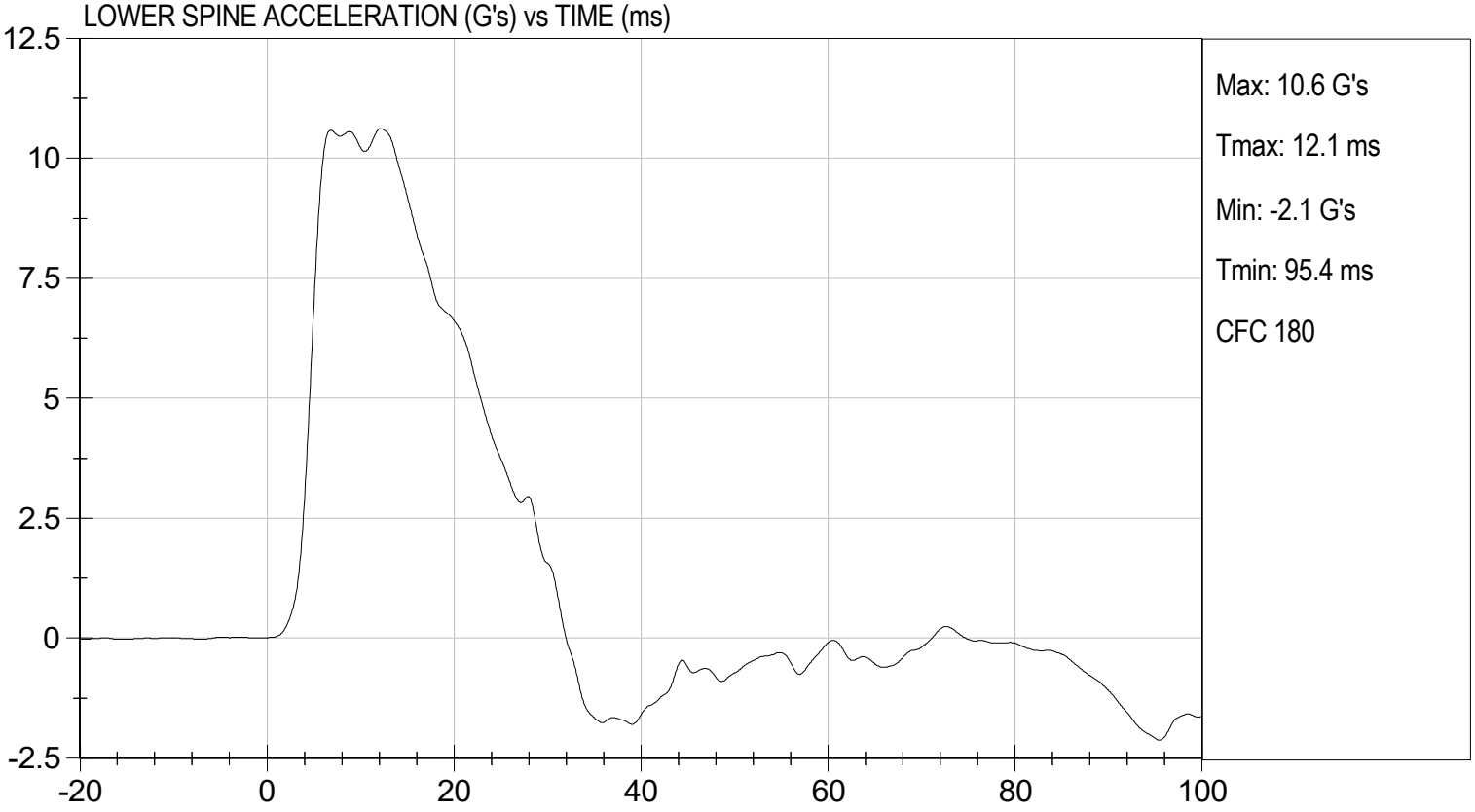
TEST DESC: ABDOMEN IMPACT
VELOCITY: 14.25 ft/s, 4.34 m/s

TEST DATE: 01/09/2025
TEST #: D250096

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



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



MGA RESEARCH CORPORATION

PELVIS IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test I.D:** D250097

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.1	Pass
Humidity	%	10 to 70	34	Pass
Impact Velocity	m/s	6.60 to 6.80	6.77	Pass
Maximum Probe Acceleration	G's	38 to 47	43	Pass
Pelvis Y Acceleration After 6 ms	G's	34 to 42	41.2	Pass
Peak Acetabulum Force	N	3600 to 4300	4,073	Pass
		Overall Test Results		Pass

Laboratory Technician

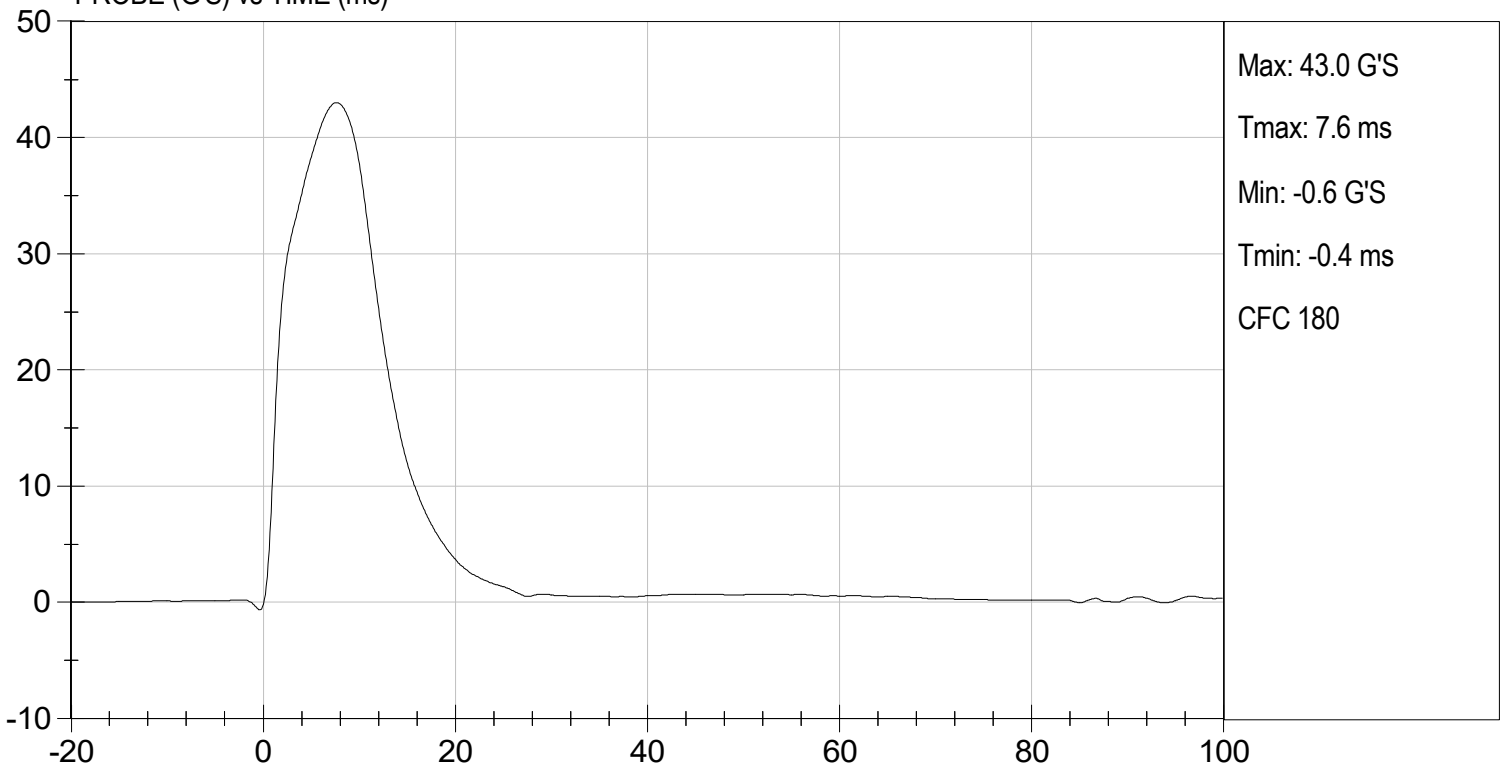
01/09/2025
Test Date

Approved By

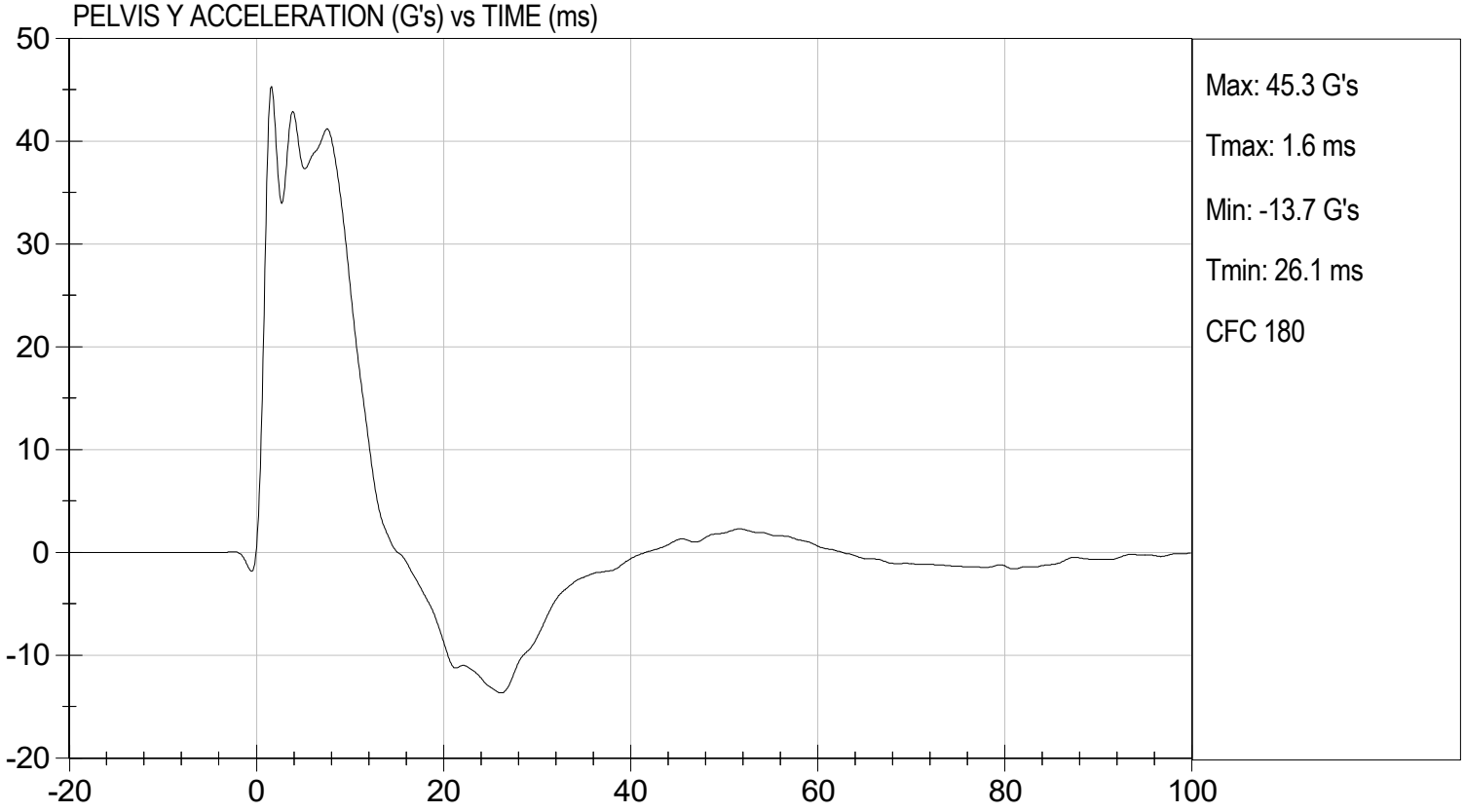
TEST DESC: PELVIS IMPACT
VELOCITY: 22.22 ft/s, 6.77 m/s

TEST DATE: 01/09/2025
TEST #: D250097

PROBE (G'S) vs TIME (ms)

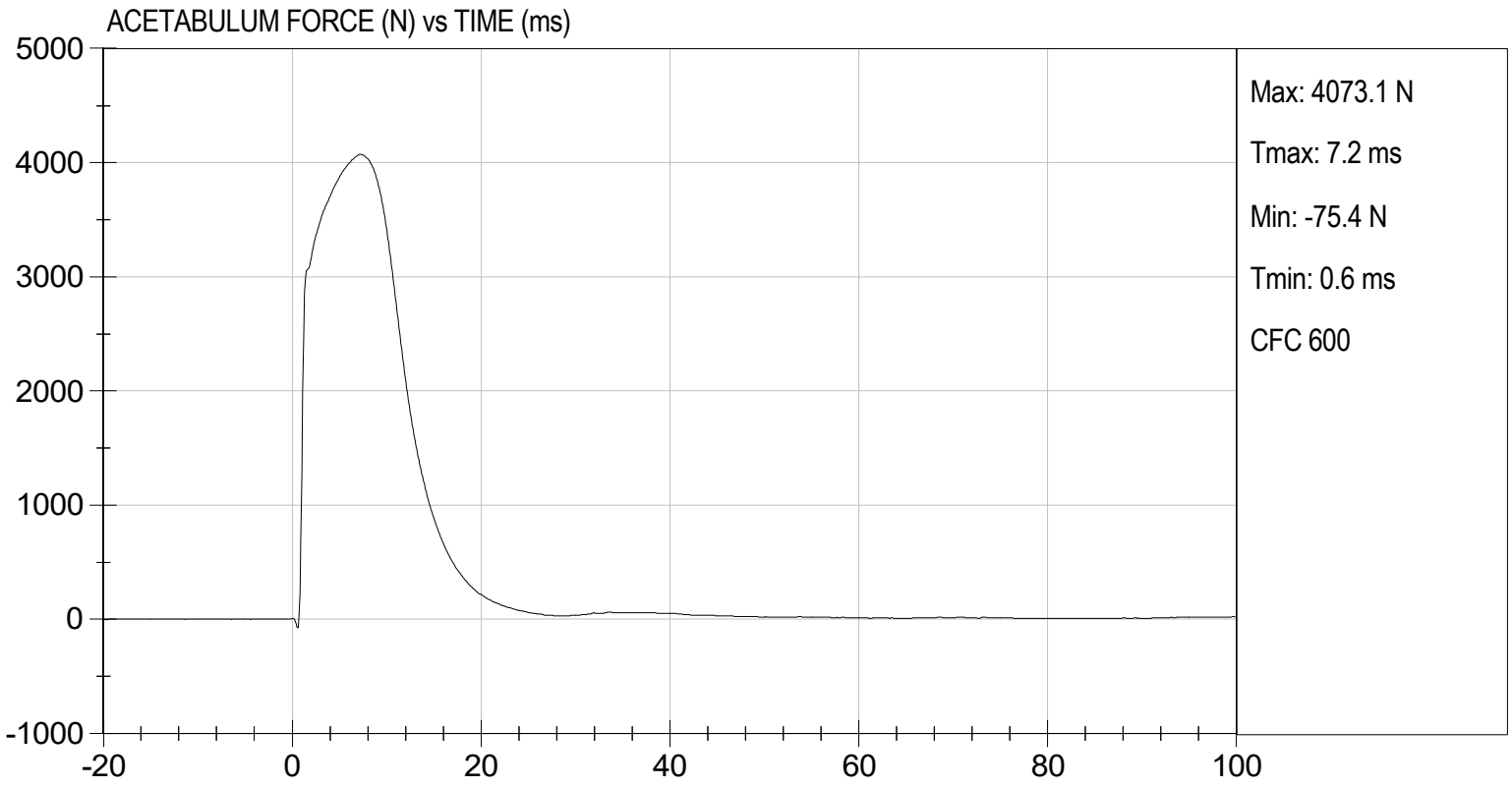


PELVIS Y ACCELERATION (G's) vs TIME (ms)



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

TEST DATE: 01/09/2025
TEST #: D250097



MGA RESEARCH CORPORATION

ILIAC IMPACT TEST

SID-IIs BUILD LEVEL D DUMMY

ATD Serial No: 306 **Test I.D:** D250098

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.4	Pass
Humidity	%	10 to 70	35	Pass
Impact Velocity	m/s	4.20 to 4.40	4.23	Pass
Maximum Probe Acceleration	G's	36 to 45	39	Pass
Pelvis Y Acceleration	G's	28 to 39	30	Pass
Peak Pelvis Iliac Force	N	4100 to 5100	4,381	Pass
		Overall Test Results		Pass

Laboratory Technician

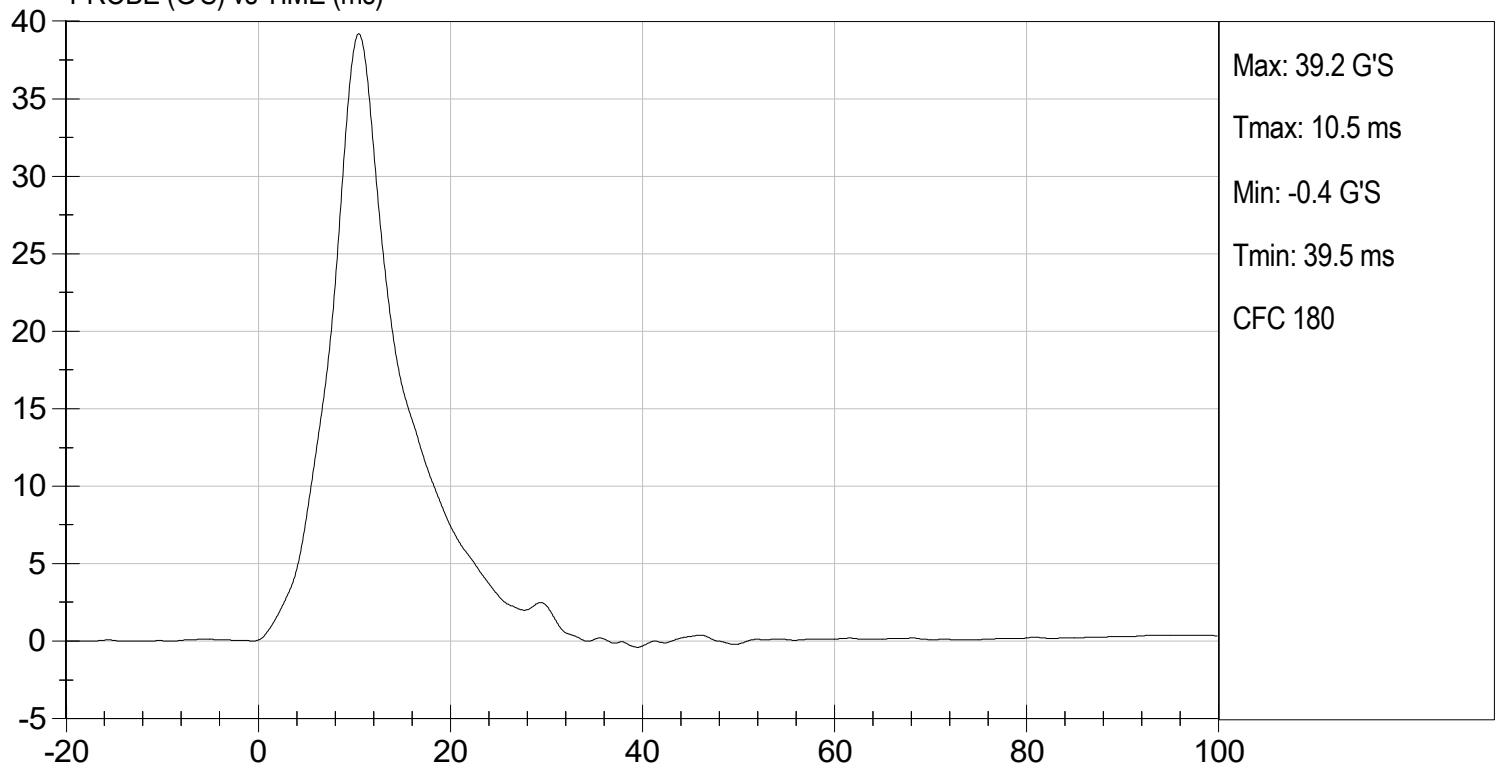
01/09/2025
Test Date

Approved By

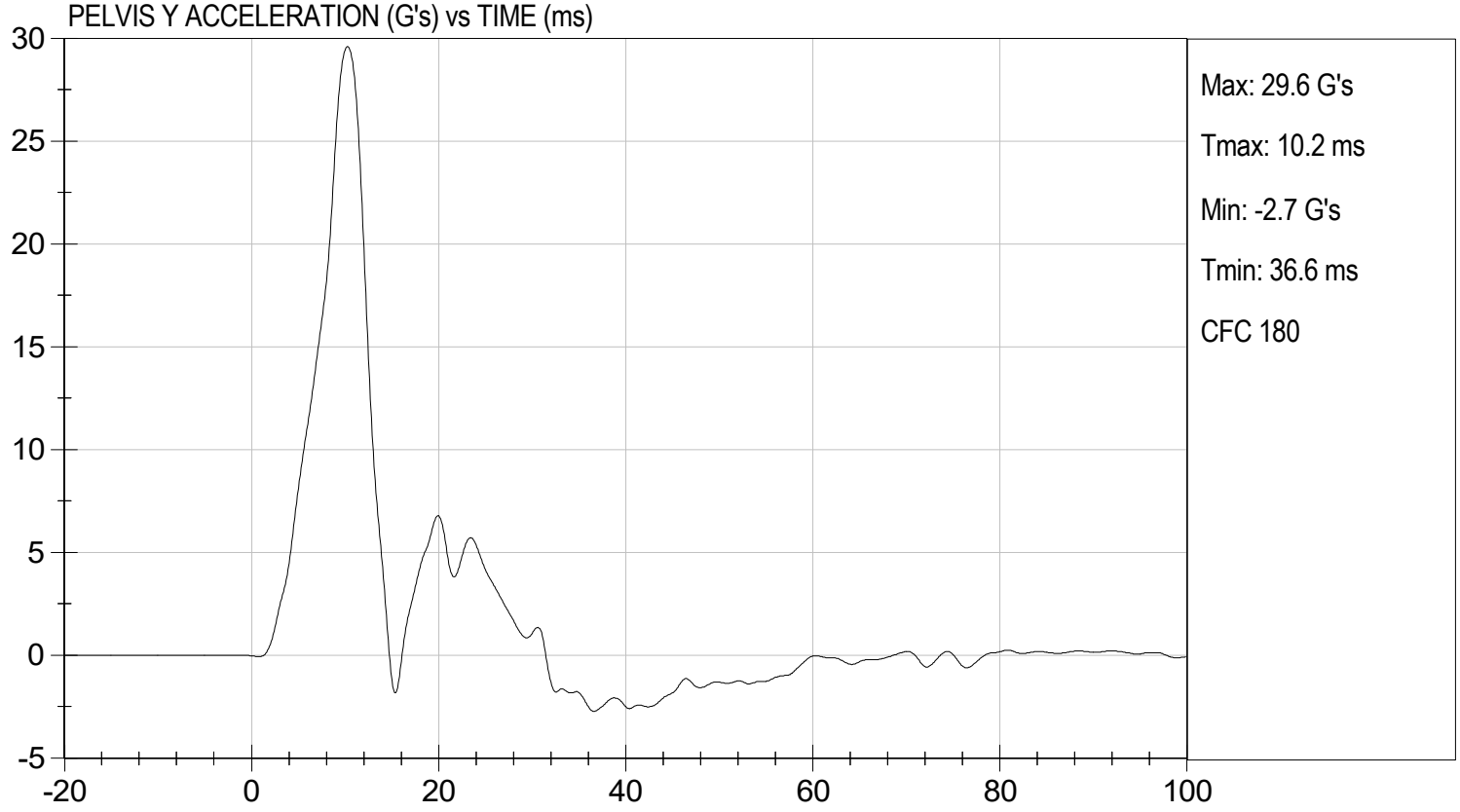
TEST DESC: ILLIAC
VELOCITY: 13.89 ft/s, 4.23 m/s

TEST DATE: 01/09/2025
TEST #: D250098

PROBE (G'S) vs TIME (ms)

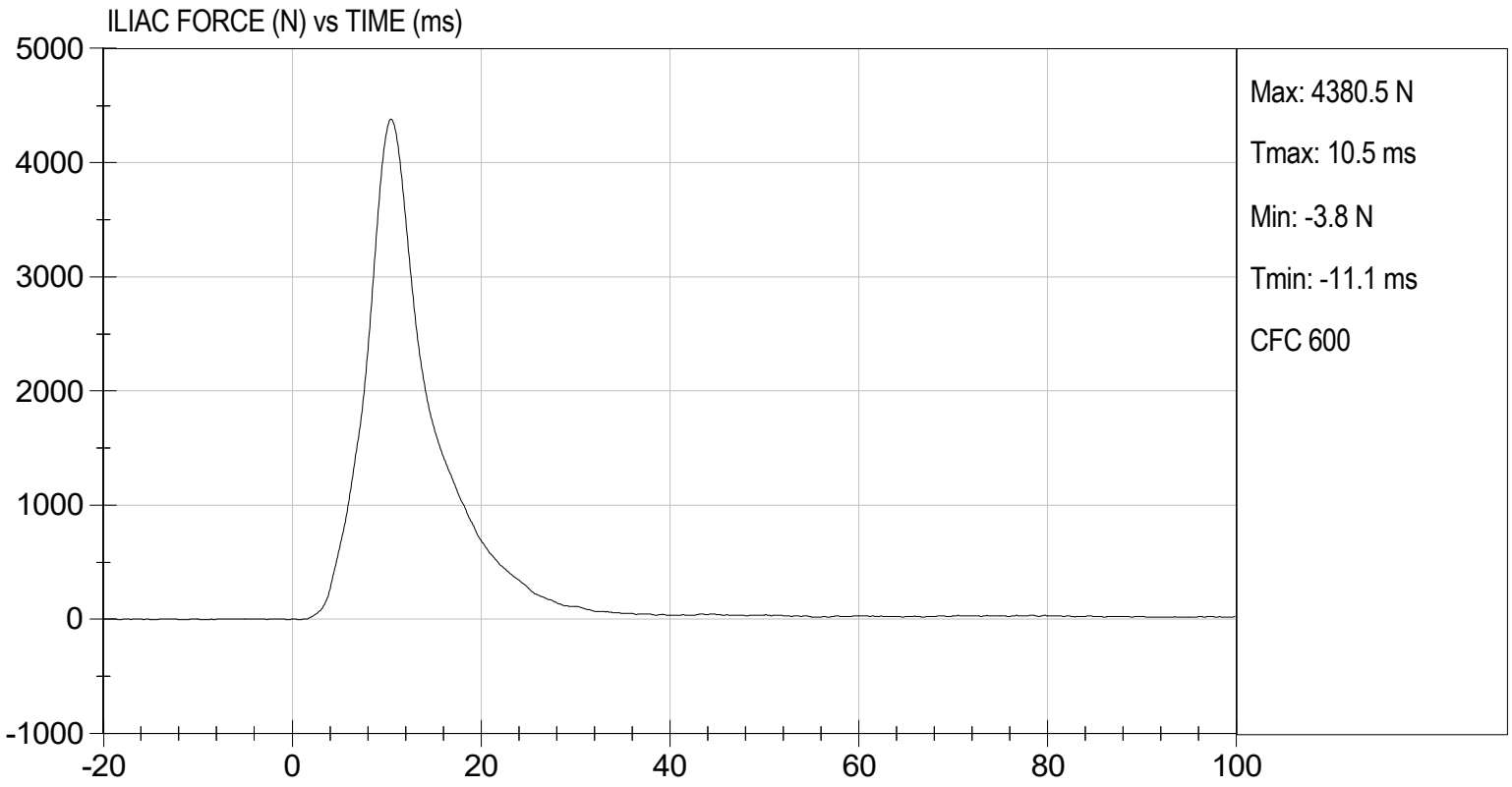


PELVIS Y ACCELERATION (G's) vs TIME (ms)



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

TEST DATE: 01/09/2025
TEST #: D250098

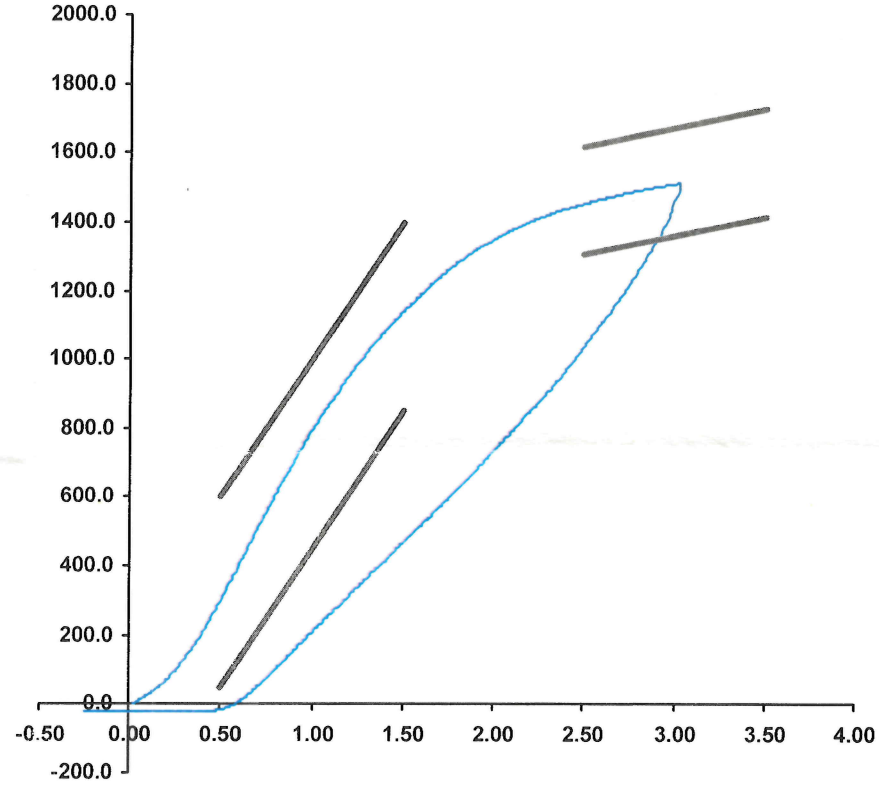


SID-IIs Pelvis Plug Certification Test

Plug S/N 16589
Test Number 23374
Report Number 23431
Test Date 7/20/2022 11:04:52 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	306	50	600
Force @ 1.5 mm (N)	1,145	850	1,400
Force @ 2.5 mm (N)	1,457	1,306	1,618
Force @ 3.0 mm (N)	1,511	1,361	1,673

Force (-N) vs Extension (-mm)



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:

Operator

Part Number 180-4450

Template No 107 20-Jul-22
SACO Research

By : DC Date : 7/20/22

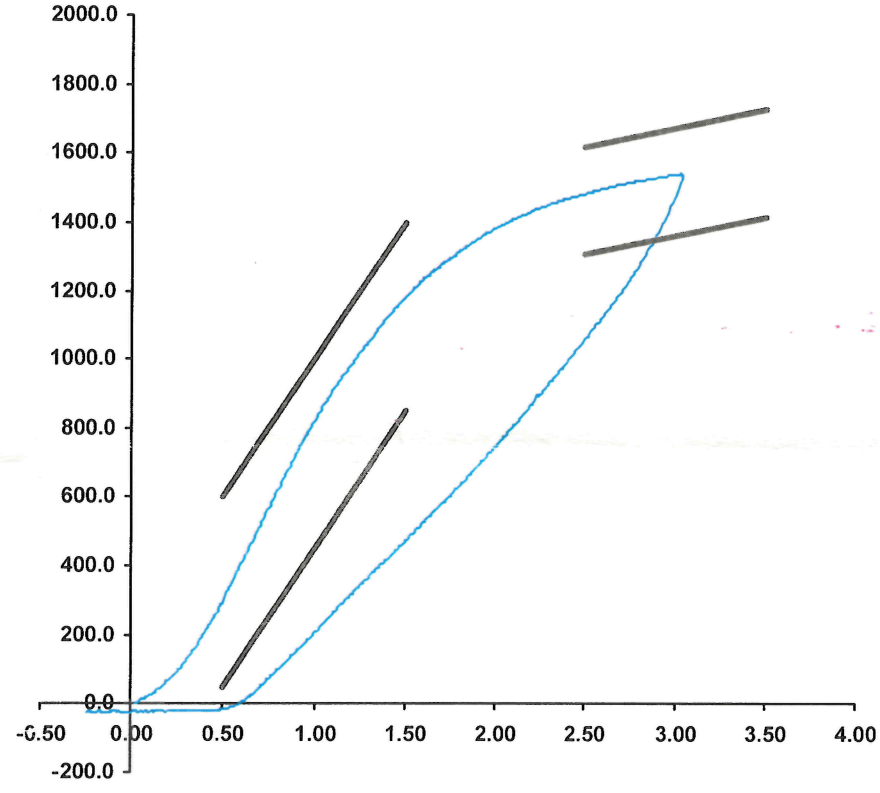
SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX

SID-IIs Pelvis Plug Certification Test

Plug S/N 16308
Test Number 22874
Report Number 22931
Test Date 5/20/2022 10:42:02 AM

	Test Results	Spec Min	Spec Max
Force @ 0.5 mm (N)	307	50	600
Force @ 1.5 mm (N)	1,182	850	1,400
Force @ 2.5 mm (N)	1,484	1,306	1,618
Force @ 3.0 mm (N)	1,539	1,361	1,673

Force (-N) vs Extension (-mm)



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:

Operator

Part Number 180-4450

Template No 107 20-May-22
SACO Research

By : DC Date : 5/20/2022

SACO Research 41735 Elm St, #401 Murrieta, CA 92562 Tel 310-694-2082 FAX

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	11/21/2024
		Y	P79569	Endevco	11/21/2024
		Z	T30941	Endevco	11/21/2024
		Xr	P86797	Endevco	11/21/2024
		Yr	P94957	Endevco	11/21/2024
		Zr	P97381	Endevco	11/21/2024
Thorax Rib Displacement Potentiometers	Upper	Y	G236	Honeywell	11/21/2024
	Middle	Y	G368	Honeywell	11/21/2024
	Lower	Y	G164	Honeywell	11/21/2024
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	11/21/2024
		Y	T14094	Endevco	11/21/2024
		Z	P82603	Endevco	11/21/2024
Public Symphysis Load Cell		Y	PG462	Denton	02/22/2024

Table 2 – Dummy Instrumentation (SID-IIs)

				SID-IIs S/N 306		
				Serial Number	Manufacturer	Calibration Date
Head CG Accelerometers			X	P79003	Endevco	12/10/2024
			Y	P79445	Endevco	12/10/2024
			Z	P79724	Endevco	12/10/2024
			Xr	P84999	Endevco	12/10/2024
			Yr	P85000	Endevco	12/10/2024
			Zr	P85001	Endevco	12/10/2024
Head Angular Rate Sensors			X	ARS7566	DTS	07/31/2024
			Y	ARS7586	DTS	07/31/2024
			Z	ARS7602	DTS	07/31/2024
Displacement Potentiometers	Thoracic Rib	Upper	Y	G033	FTSS	12/11/2024
		Middle	Y	G2403	Servo	12/11/2024
		Lower	Y	G1270	FTSS	12/11/2024
	Abdominal Rib	Upper	Y	G032	FTSS	12/11/2024
		Lower	Y	MJ5171	Medius	12/11/2024
Lower Spine Accelerometers (T12)			X	P96332	Endevco	12/10/2024
			Y	P96335	Endevco	12/10/2024
			Z	P96341	Endevco	12/10/2024
Acetabulum Load Cell			Y	ACG4285	FTSS	05/24/2024
Iliac Wing Load Cell			Y	IWG3023	FTSS	05/24/2024
Pelvis Plug (struck side)				16589	SACO	07/20/2022
Pelvis Plug (non-struck side)				16308	SACO	05/20/2022

Table 3 – Vehicle Instrumentation

			Serial Number	Manufacturer	Calibration Date
1	Vehicle Center of Gravity	X	T40729	Endevco	07/01/2024
	Vehicle Center of Gravity	Y	T41134	Endevco	12/04/2024
	Vehicle Center of Gravity	Z	T44153	Endevco	12/05/2024
2	Right Sill at Front Seat	X	T41207	Endevco	10/08/2024
	Right Sill at Front Seat	Y	T33138	Endevco	08/13/2024
	Right Sill at Front Seat	Z	T41210	Endevco	10/08/2024
3	Right Sill at Rear Seat	X	T43546	Endevco	10/10/2024
	Right Sill at Rear Seat	Y	T43534	Endevco	10/08/2024
	Right Sill at Rear Seat	Z	T44157	Endevco	10/31/2024
4	Left Sill at Front Door	Y	A383405	MSI	10/03/2024
5	Left Sill at Rear Door	Y	A305729	MSI	12/06/2024
6	Left A-Post Lower	Y	T41122	Endevco	09/11/2024
7	Left A-Post Middle	Y	T42847	Endevco	11/11/2024
8	Left B-Post Lower	Y	T44177	Endevco	10/31/2024
9	Left B-Post Middle	Y	T44171	Endevco	10/31/2024
10	Front Seat Track	Y	A337194	MSI	10/30/2024
11	Rear Seat Track or Structure	Y	T41780	Endevco	09/16/2024
12	Right Rear Occ. Compartment	Y	A383409	MSI	10/03/2024
13	Engine Block	X	T40107	Endevco	11/11/2024
	Engine Block	Y	T33412	Endevco	10/30/2024
14	Rear Floorpan Above Axle	X	T44145	Endevco	10/25/2024
	Rear Floorpan Above Axle	Y	T41171	Endevco	10/08/2024
	Rear Floorpan Above Axle	Z	T43539	Endevco	10/31/2024

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	03/15/2024
Left Frame at Rear Axle Centerline	Y	PCB1653D	PCB	03/15/2024