

REPORT NUMBER: NCAP-MGA-24-021

**NEW CAR ASSESSMENT PROGRAM (NCAP)
Frontal Barrier Impact Test**

**GENERAL MOTORS DE MEXICO, S. DE R.L. DE C.V.
2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
NHTSA No.: M20240110**

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



Test Date: July 30, 2024

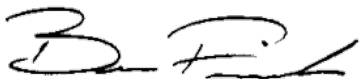
Final Report Date: December 20, 2024

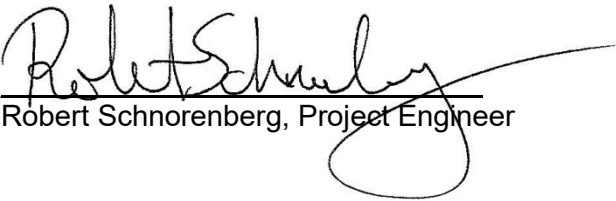
FINAL REPORT

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

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof.

If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared by: 
Ben Fischer, Program Manager

Approved by: 
Robert Schnorenberg, Project Engineer

Approval Date: December 20, 2024

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No. NCAP-MGA-24-021	2. Government Accession No.	3. Recipient's Catalog No.																																																							
4. Title and Subtitle Final Report of New Car Assessment Program Frontal Impact Testing and FMVSS No. 305 Indicant Testing of a 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV, NHTSA No.: M20240110		5. Report Date December 20, 2024																																																							
		6. Performing Organization Code MGA																																																							
7. Author(s) Ben Fischer, Program Manager		8. Performing Organization Report No. NCAP-MGA-24-021																																																							
9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105		10. Work Unit No.																																																							
		11. Contract or Grant No. 693JJ919D000006																																																							
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards (NRM-110) 1200 New Jersey Ave, SE Washington, D.C. 20590		13. Type of Report and Period Covered Final Test Report July 30, 2024 to December 20, 2024																																																							
		14. Sponsoring Agency Code NRM-110																																																							
15. Supplementary Notes																																																									
16. Abstract A 56.3 km/h NCAP Frontal Rigid Barrier Impact Test was conducted on a 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV in accordance with the specifications of the Office of Crashworthiness Standards Laboratory Procedure for NCAP Full Frontal Rigid Barrier Impact Testing. The test was conducted at MGA Research Corporation in Burlington, Wisconsin on July 30, 2024. The impact velocity of the vehicle was 56.72 km/h and the ambient temperature at the barrier face at the time of impact was 21.6°C. The target vehicle post-test maximum crush was 392 mm located to the left of the vehicle centerline. The test vehicle's performance was as follows: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD</th> <th colspan="2">Passenger ATD</th> </tr> <tr> <th>Threshold</th> <th>Result</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₁₅)</td> <td></td> <td>700</td> <td>199.440</td> <td>700</td> <td>336.457</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>23.334</td> <td>52</td> <td>15.887</td> </tr> <tr> <td>Nij</td> <td></td> <td>1</td> <td>0.194</td> <td>1</td> <td>0.351</td> </tr> <tr> <td>Neck Tension</td> <td>N</td> <td>4170</td> <td>686.269</td> <td>2620</td> <td>775.764</td> </tr> <tr> <td>Neck Compression</td> <td>N</td> <td>4000</td> <td>86.006</td> <td>2520</td> <td>172.475</td> </tr> <tr> <td>Left Femur Force</td> <td>N</td> <td>10008</td> <td>523.346</td> <td>6805</td> <td>862.807</td> </tr> <tr> <td>Right Femur Force</td> <td>N</td> <td>10008</td> <td>766.089</td> <td>6805</td> <td>789.520</td> </tr> </tbody> </table>						Measurement Description	Units	Driver ATD		Passenger ATD		Threshold	Result	Threshold	Result	Head Injury Criteria (HIC ₁₅)		700	199.440	700	336.457	Maximum Chest Compression	mm	63	23.334	52	15.887	Nij		1	0.194	1	0.351	Neck Tension	N	4170	686.269	2620	775.764	Neck Compression	N	4000	86.006	2520	172.475	Left Femur Force	N	10008	523.346	6805	862.807	Right Femur Force	N	10008	766.089	6805	789.520
Measurement Description	Units	Driver ATD		Passenger ATD																																																					
		Threshold	Result	Threshold	Result																																																				
Head Injury Criteria (HIC ₁₅)		700	199.440	700	336.457																																																				
Maximum Chest Compression	mm	63	23.334	52	15.887																																																				
Nij		1	0.194	1	0.351																																																				
Neck Tension	N	4170	686.269	2620	775.764																																																				
Neck Compression	N	4000	86.006	2520	172.475																																																				
Left Femur Force	N	10008	523.346	6805	862.807																																																				
Right Femur Force	N	10008	766.089	6805	789.520																																																				
17. Key Words 56.3 km/h (35 mph) Full Frontal Rigid Barrier Impact Test New Car Assessment Program (NCAP)			18. Distribution Statement 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 Unclassified	20. Security Classification of Page Unclassified	21. No. of Pages 209	22. Price																																																						

TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	Purpose and Summary of Test	1
2	Occupant and Vehicle Information / Data Sheets	3
<u>Data Sheet No.</u>		<u>Page No.</u>
1	General Test and Vehicle Parameter Data	4
2	Seat Adjustment, Fuel System, and Steering Wheel Data	8
3	Dummy Longitudinal Clearance Dimensions	10
4	Dummy Lateral Clearance Dimensions	11
5	Seat Belt Positioning Data	12
6	High-Speed Camera Locations and Data	13
7	Vehicle Accelerometer Locations	15
8	Photographic Reference Target Locations	16
9	Load Cell Locations on Fixed Barrier	17
10	Test Vehicle Summary of Results	18
11	Post-Test Observations	19
12	Vehicle Profile Measurements	20
13	Accident Investigation Division Data	22
14	Vehicle Intrusion Measurements	23
15	Summary of Indicant FMVSS No. 212 and FMVSS No. 219 (Partial) Data	25
16	FMVSS No. 301 Barrier Impact and Static Rollover Results	26
17	Dummy/Vehicle Temperature Stabilization Data	28
305-1	General Test and Vehicle Parameter Data for Indicant FMVSS No. 305 Testing	29
305-2	Pre-Impact Data for Indicant FMVSS No. 305 Testing	30
305-3	Pre-Impact Electrical Isolation Measurements and Calculations for Indicant FMVSS No. 305 Testing	31
305-4	Post-Impact Data for Indicant FMVSS No. 305 Testing	33
305-5	Static Rollover Test Data for Indicant FMVSS No. 305 Testing	36
<u>Appendix</u>		
A	Photographs	A
B	Dummy Response Data Traces	B
C	Dummy Qualification and Performance Verification	C
D	Test Equipment and Instrumentation Calibration	D

SECTION 1 PURPOSE AND SUMMARY OF TEST

PURPOSE

This 56.3 km/h frontal barrier impact test is part of the Vehicle Barrier Impact Testing Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under contract number 693JJ919D000006. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for consumer information purposes.

The 56.3 km/h frontal barrier impact was conducted in accordance with the Office of Crashworthiness Standards Laboratory Procedure for NCAP Full Frontal Rigid Barrier Impact Testing.

SUMMARY

A load cell barrier consisting of 176 load cells was impacted by a 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV at a velocity of 56.72 km/h. The test was performed at MGA Research Corporation on July 30, 2024. Pre-test and post-test photographs of the vehicle and dummies can be found in Appendix A.

Two (2) real-time cameras and sixteen (16) high-speed cameras were used to document the frontal barrier impact event. Camera locations and other pertinent camera information can be found in this report.

One Part 572E 50th percentile male anthropomorphic test device (ATD), was placed in the driver seating position and one Part 572O 5th percentile female test device (ATD) was placed in the right-front passenger seating position according to dummy placement instructions specified in the Laboratory Procedure for NCAP Full Frontal Rigid Barrier Impact Testing.

Both ATDs were fully instrumented with head, chest and pelvis tri-axial accelerometers, chest displacement potentiometers, upper neck transducers, right/left femur load cells, and lower leg instrumentation. Seat belt load cells were installed on the driver's and passenger's lap and shoulder belts to measure dummy torso and pelvic section loading.

The driver (position 1) ATD (Serial No. 064) and the right-front passenger (position 2) ATD (Serial No. 142) were qualified previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C of this report.

The 282 channels of data were recorded on a data acquisition system. Appendix B contains the dummy response data traces.

There was 100 percent windshield retention and no intrusion into the protected zone of the windshield during the event. There was no battery electrolyte leakage and no loss of high-voltage battery isolation after the event or during any phase of the static rollover.

The maximum static crush of the vehicle was 392 mm located to the left of the vehicle centerline and both the driver and passenger side doors remained closed during the impact event and were operable after the impact.

The driver's visible contact points were as follows: The driver's head contacted the airbag. The driver's head also contacted the headrest. The driver's knees contacted the knee airbag.

The passenger's visible contact points were as follows: The passenger's head contacted the airbag. The passenger's head also contacted the headrest. The passenger's knees contacted the knee airbag.

The occupant data is summarized below:

ATD position	HIC₁₅	Nij	Neck Tension (N)	Neck Comp. (N)	3ms Chest Clip (g)	Chest Disp. (mm)	Left Femur (N)	Right Femur (N)
Driver (50 th)	199.440	0.194	686.269	86.006	39.998	23.334	523.346	766.089
Passenger (5 th)	336.457	0.351	775.764	172.475	42.399	15.887	862.807	789.520

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

TEST NOTES

None.

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

SECTION 2
OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA No.	M20240110	Traction Control System (TCS)	Yes
Model Year	2024	Power Steering	Yes
Make	Chevrolet	Power Window Auto-Reverse	Yes
Model	Equinox EV 2LT AWD	Driver Frontal Airbag	Yes
Body Style	5-Door SUV	Driver Curtain Airbag	Yes
VIN	3GN7DLRR1RS241049	Driver Head/Torso Airbag	No
Body Color	Radiant Red	Driver Torso Airbag	No
Odometer (km/mi)	11 km / 7 mi	Driver Torso/Pelvis Airbag	Yes
Engine Displacement (L)		Driver Pelvis Airbag	No
Type/No. Cylinders	Electric	Driver Knee Airbag	Yes
Engine Placement	Lateral	Front Pass. Frontal Airbag	Yes
Transmission Type	Automatic	Front Pass. Curtain Airbag	Yes
Transmission Speeds	1	Front Pass. Head/Torso Airbag	No
Overdrive		Front Pass. Torso Airbag	No
Final Drive	AWD	Front Pass. Torso/Pelvis Airbag	Yes
Roof Rack	No	Front Pass. Pelvis Airbag	No
Sunroof/T-Top	No	Front Pass. Knee Airbag	Yes
Running Boards	No	Driver Pretensioner	Yes
Tilt Steering Wheel	Yes	Driver Load Limiter	Yes
Power Seats	Driver	Front Pass. Pretensioner	Yes
Anti-Lock Brakes (ABS)	Yes	Front Pass. Load Limiter	Yes
Automatic Door Locks (ADLs)	Yes	Other	N/A

Does owner's manual provide instructions to turn off automatic door locks?	No
--	----

DATA FROM CERTIFICATION LABEL

Manufactured By	GENERAL MOTORS DE MEXICO, S. DE R.L. DE C.V.	GVWR (kg)	2850
Date of Manufacture	04/24	GAWR Front (kg)	1450
		GAWR Rear (kg)	1510

VEHICLE SEATING AND WEIGHT CAPACITY DATA

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Contoured		
Designated Seating Capacity (DSC)	2	3		5
Capacity Weight (VCW) (kg)				556
Cargo Weight (RCLW) (kg)				136

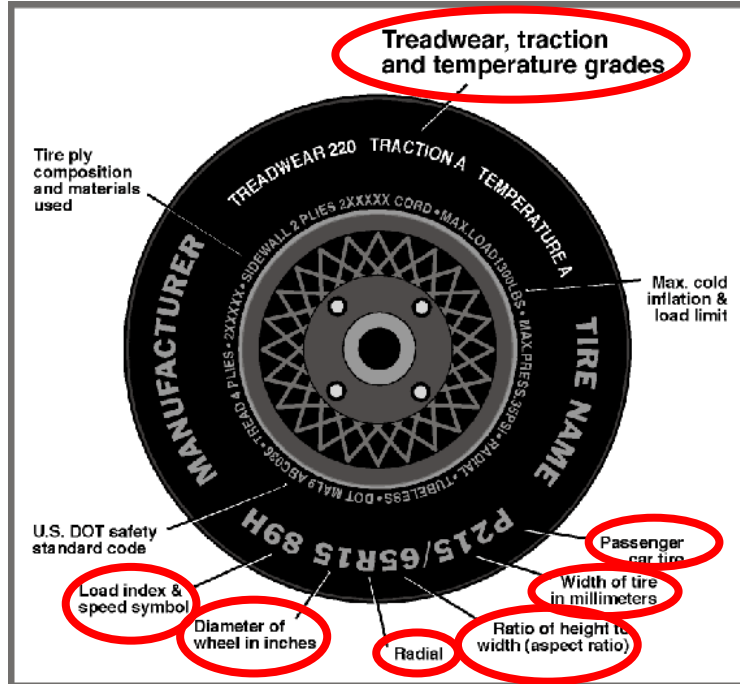
* Rated Cargo and Luggage Weight (RCLW) limited to maximum of 300 lbs (136 kg).

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024

VEHICLE TIRE INFORMATION



Measured Parameter	Front	Rear
Max. Tire Pressure (kPa)	350	350
Cold Pressure (kPa)	290	290
Recommended Tire Size	245/55R19	245/55R19
Tire Size on Vehicle	245/55R19	245/55R19
Tire Manufacturer	Michelin	Michelin
Tire Model	Primacy	Primacy
Treadwear	540	540
Traction	B	B
Temperature Grade	B	B
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 2 Steel, 1 Polyamide	2 Polyester, 2 Steel, 1 Polyamide
Load Index/Speed Symbol	103H	103H
Tire Material	Rubber	Rubber
DOT Safety Code Left	031CH 01BX 0924	031CH 01BX 0924
DOT Safety Code Right	031CH 01BX 0724	031CH 01BX 0924

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	569.0	560.0		592.5	672.0	
Right	kg	606.5	521.0		633.0	627.0	
Ratio	%	52.1%	47.9%		48.5%	51.5%	
Totals	kg	1175.5	1081.0	2256.5	1225.5	1299.0	2524.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	2256.5
Weight of 1 P572E ATD & 1 P572O ATD	kg	141
Rated Cargo/Luggage Weight (RCLW)	kg	136
Calculated Test Vehicle Target Weight (TVTW)	kg	2533.5

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	813	819	830	820	1417
As Tested	mm	807	807	795	800	1522
Post Test	mm	907	850	842	757	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2958
Total Vehicle Length at Left Side	mm	4586
Total Vehicle Length at Centerline	mm	4835
Total Vehicle Length at Right Side	mm	4587
Weight of Ballast in Cargo Area	kg	70
Weight of Vehicle Components Removed	kg	26
Amount of Stoddard Solvent in Fuel Tank	L	

List of components removed to meet test weight: None.

List of components removed for instrumentation, data box, and equipment installation: Cargo area carpet/trim/divider, jack and tools, front underbody plastic, tow hook.

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
Test Date: 7/30/2024

TARGET VEHICLE STRUCTURAL MEASUREMENT

	Elements	Pre-Test (mm)
1	Total Length	4835
2	Total Width	1900
3	Bumper Top Height	581
4	Bumper Bottom Height	462
5	Longitudinal Member Top Height	592
6	Distance between Longitudinal Members	795
7	Longitudinal Member Width	120
8	Engine Top Height	867
9	Engine Bottom Height	237
10	Engine and Gearbox Width	370
11	Front Bumper-Engine Distance	418
12	Front Shock Absorber Fixing Height	973
13	Bonnet Leading Edge Height	872
14	Front Shock Absorber Fixing Width	1216
15	Front Bumper – Front Axle Distance	676
16	Front Axle – A-Pillar Distance	647
17	A-Pillar – B-Pillar Distance	1118
18	B-Pillar – Rear Axle Distance	1193
19	B-Pillar – C-Pillar Distance	1096
20	Roof Sill Bottom Height	1411
21	Roof Sill Top Height	1495
22	Floor Sill Bottom Height	236
23	Floor Sill Top Height	405

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

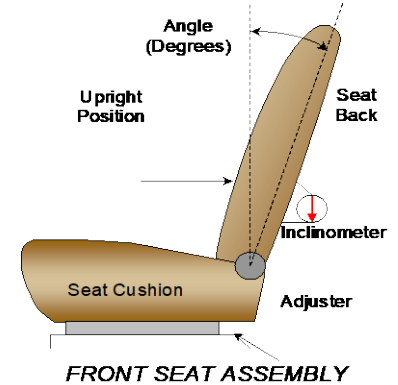
Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024

NOMINAL DESIGN RIDING POSITION

The driver seat back is positioned as close as possible to the manufacturer's design angle. For the passenger seat back, seat back is adjusted following Appendix F, "Driver & Passenger Dummy Seating & Positioning Procedures" in the NCAP Test Procedure dated May 2018.

	Degrees
Driver Seat Back Angle	-13.2° on outboard headrest post
Passenger Seat Back Angle	-20.7° on outboard headrest post



SEAT FORE/AFT POSITIONS

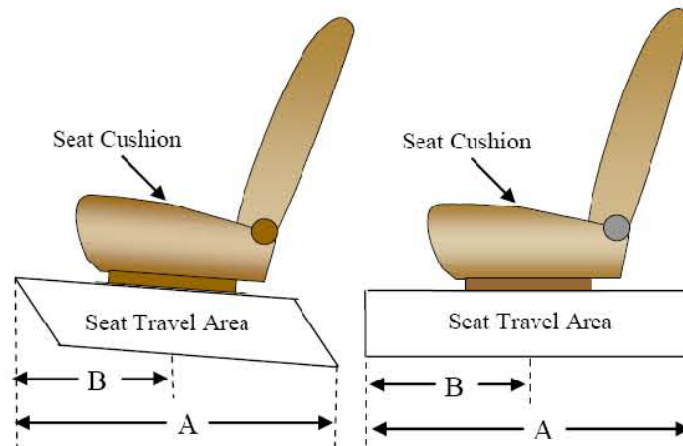
The driver and passenger seat fore/aft positions are adjusted following Appendix F, "Driver & Passenger Dummy Seating & Positioning Procedures" in the NCAP Test Procedure dated May 2018.

	Total Fore/Aft Travel	Placed in Position #
Driver Seat	324 mm	162 mm
Passenger Seat	260 mm / 27 detents (1st as 1)	0 mm / 0th detent (1st as 0)

SEAT BELT UPPER ANCHORAGES

The seat belt upper anchorages are set following the manufacturer's specified position as listed in Form 1.

	Total # of Positions	Placed in Position #
Driver Seat	4 (1st as 1)	0 (1st as 0)
Passenger Seat	4 (1st as 1)	0 (1st as 0)



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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

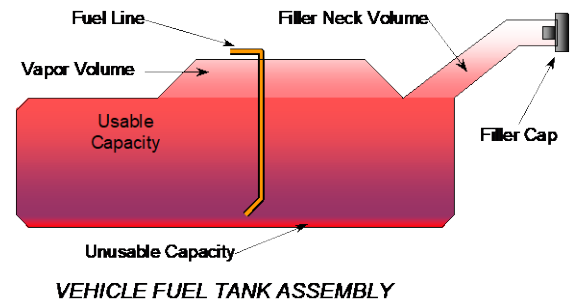
NHTSA No.: M20240110
 Test Date: 7/30/2024

FUEL TANK CAPACITY DATA

	Liters
Usable Capacity of "Standard Tank"	
Usable Capacity of "Optional Tank"	
92-94% of Usable Capacity	
Actual Amount of Solvent used	
1/3 of Usable Capacity	

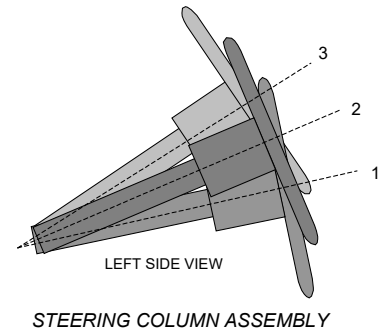
FUEL PUMP

Electric vehicle.



STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed on the plate and the angle is measured.



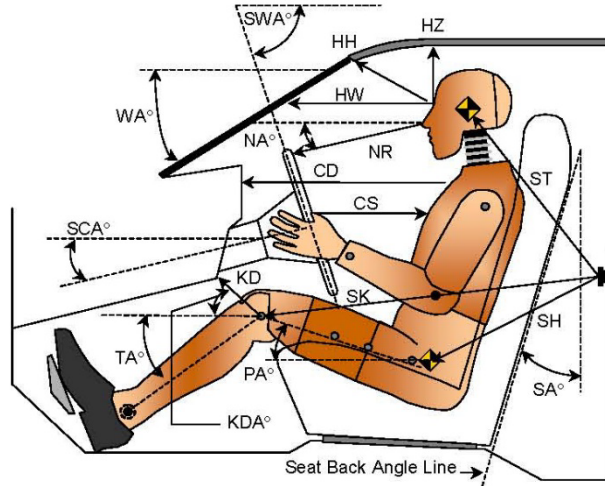
STEERING COLUMN POSITION

	Degrees	Fore/Aft Position (mm)
Lowermost Position 1	70.8	
Geometric Center Position 2	68.8	
Uppermost Position 3	66.7	
Telescoping Steering Wheel Travel		44
Test Position	68.8	22

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024



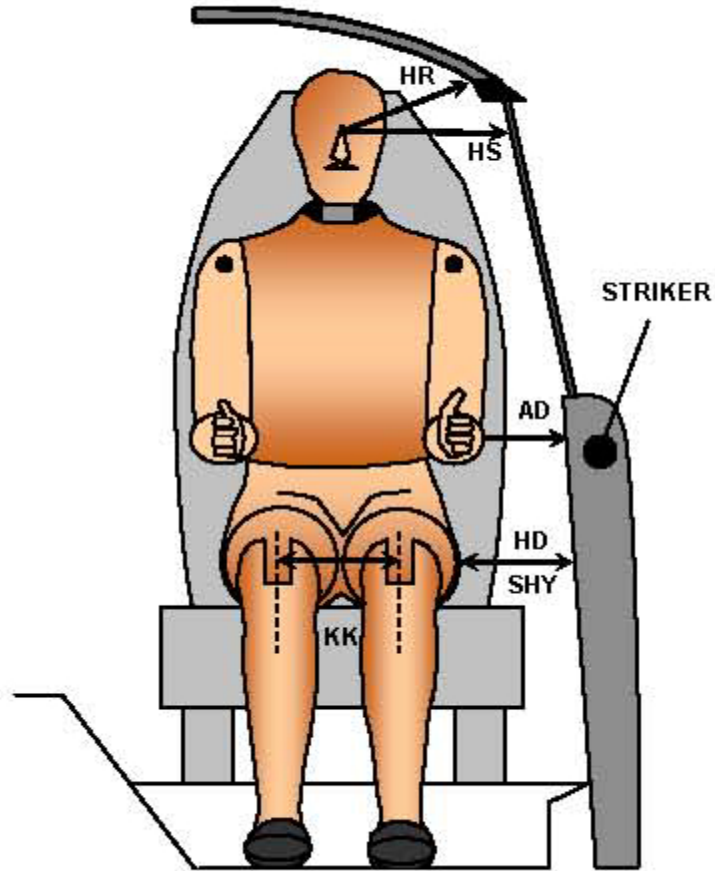
LEFT SIDE VIEW

Code	Measurement Description	Driver		Passenger	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		23.3		
SWA°	Steering Wheel Angle		68.8		
SCA°	Steering Column Angle		21.2		
SA°	Seat Back Angle		-13.2		-20.7
HZ	Head to Roof (Z)	196	90	211	90
HH	Head to Header	415	26.3	330	44.8
HW	Head to Windshield	844	0	800	0
NR	Nose to Rim	408	5.9		
CD	Chest to Dash	613		386	
CS	Chest to Steering Hub	339	1.4		
RA	Rim to Abdomen	213	0		
KDL	Left Knee to Dash	215	26.8	141	48.3
KDR	Right Knee to Dash	207	19.6	135	34.3
PA°	Pelvic Angle		24.5		21.6
TA°	Tibia Angle		36.3		42.9
SK	Striker to Knee	581	95.0	682	95.8
ST	Striker to Head	484	8.5	474	26.7
SH	Striker to H-Point	268	129.8	375	112.2

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024



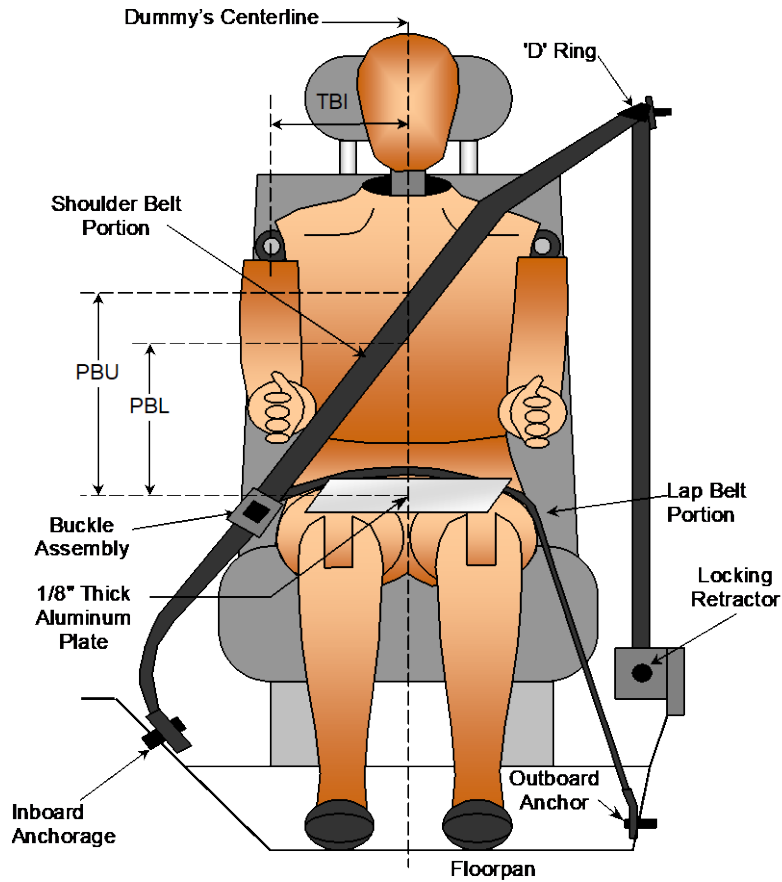
FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Driver	Passenger
AD	Arm to Door	mm	158	97
HD	H-Point to Door	mm	167	210
HR	Head to Side Header	mm	222	289
HS	Head to Side Window	mm	359	356
KK	Knee to Knee	mm	359	233
SHY	Striker to H-Point (Y Direction)	mm	250	280
AA	Ankle to Ankle	mm	367	175

DATA SHEET NO. 5 SEAT BELT POSITIONING DATA

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024



FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU - Top surface of reference to belt upper edge	mm	340	270
PBL - Top surface of reference to belt lower edge	mm	250	190

BELT LENGTH DATA

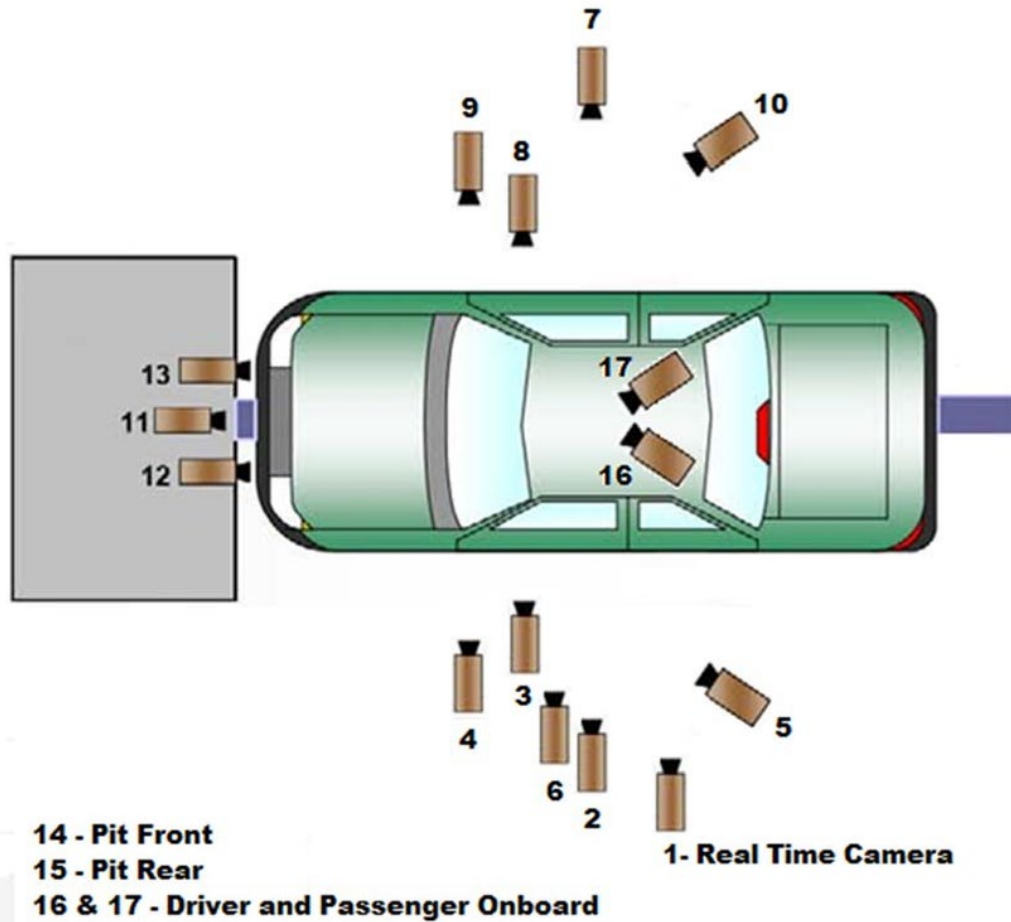
Measurement Description	Units	Driver	Passenger
Shoulder Belt Length as measured on ATD	mm	575	910
Lap Belt Length as measured on ATD	mm	800	680
Remainder of belt on reel	mm	565	350
Total Belt Length for Continuous Webbing Systems	mm	2480	2480

DATA SHEET NO. 6
HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
Test Date: 7/30/2024

CAMERA POSITIONS FOR FRONTAL IMPACTS



***Camera locations are approximate and not to scale*

DATA SHEET NO. 6 (CONTINUED)
HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
Test Date: 7/30/2024

CAMERA LOCATIONS

No.	Camera View	Coordinates* (mm)			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Overall					30
2	Left Overall	-2290	-6000	-1535	16	1000
3	Driver Close-Up	-1835	-6450	-2095	50	1000
4	Left Front Half	-1425	-5880	-1455	24	1000
5	Left Angle	-7100	-5560	-2205	75	1000
6	Steering Column	-1325	-5980	-1270	50	1000
7	Right Overall	-2085	6150	-1545	16	1000
8	Passenger Close-Up	-1525	6255	-2080	50	1000
9	Right Front Half	-1150	5740	-1490	24	1000
10	Right Angle	-7110	5290	-2135	75	1000
11	Windshield	150	0	-2310	16	1000
12	Driver Windshield	200	-370	-2230	25	1000
13	Passenger Windshield	200	370	-2230	25	1000
14	Pit Front	-1060	0	3340	24	1000
15	Pit Rear	-3305	0	3340	24	1000
16	Driver Onboard				12	1000
17	Passenger Onboard				12	1000
18	Real-Time Pan View					30

*COORDINATES:

+X = forward of impact plane

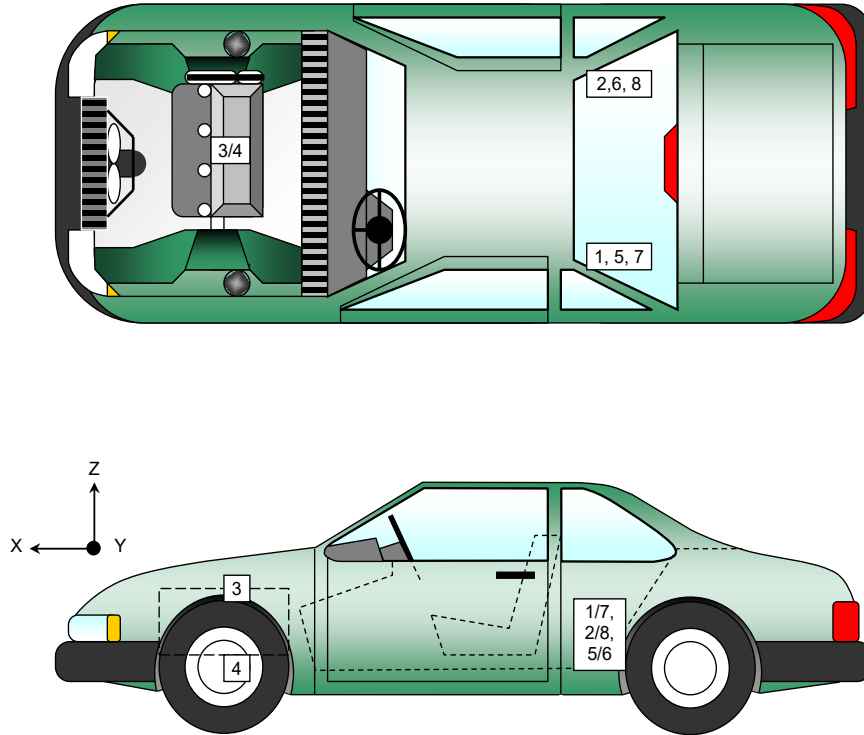
+Y = right of monorail centerline

+Z = below ground level

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
Test Date: 7/30/2024



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Left Rear Crossmember Accelerometer – X Direction	1809	-351	-366
2	Right Rear Crossmember Accelerometer – X Direction	3249	298	-364
3	Engine Top X	4158	-10	-876
4	Engine Bottom X	3974	-31	-240
5	Left Rear Crossmember Accelerometer – Z Direction	1809	-351	-366
6	Right Rear Crossmember Accelerometer – Z Direction	3249	298	-364
7	Left Rear Crossmember Accelerometer Redundant – X Direction	1809	-351	-366
8	Right Rear Crossmember Accelerometer Redundant – X Direction	3249	298	-364

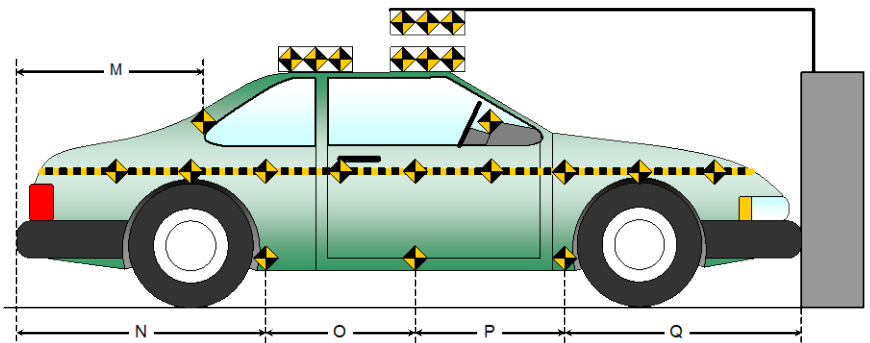
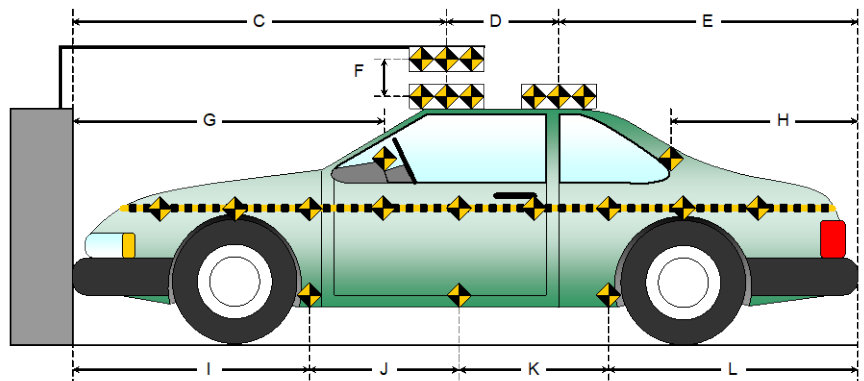
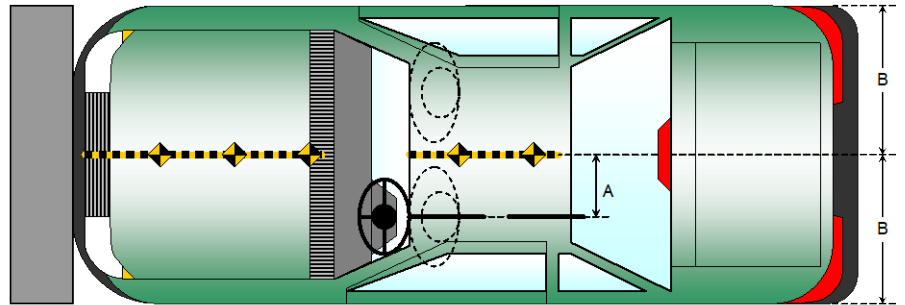
Reference Points: X - Rear Surface of Vehicle (+ forward)
Y - Vehicle Centerline (+ to right)
Z - Ground Plane (+ down)

DATA SHEET NO. 8 **PHOTOGRAPHIC REFERENCE TARGET LOCATIONS**

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024

Item	Value (mm)
A	382
B	950
C	2478
D	608
E	1749
F	243
G	
H	1110
I	1437
J	945
K	933
L	1519
M	1116
N	1517
O	932
P	947
Q	1438



DATA SHEET NO. 9 **LOAD CELL LOCATIONS ON FIXED BARRIER**

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024

ADVANCED RESEARCH LOAD CELL BARRIER

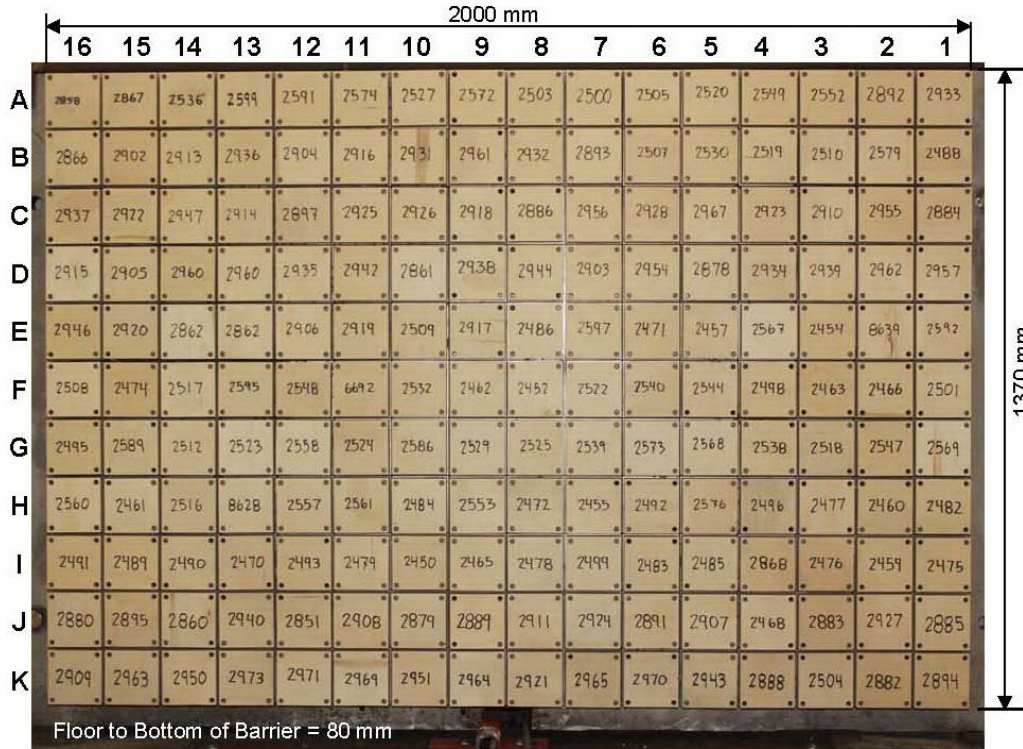


Photo for Reference Only

Centerline

A-16	A-15	A-14	A-13	A-12	A-11	A-10	A-09	A-08	A-07	A-06	A-05	A-04	A-03	A-02	A-01
B-16	B-15	B-14	B-13	B-12	B-11	B-10	B-09	B-08	B-07	B-06	B-05	B-04	B-03	B-02	B-01
C-16	C-15	C-14	C-13	C-12	C-11	C-10	C-09	C-08	C-07	C-06	C-05	C-04	C-03	C-02	C-01
D-16	D-15	D-14	D-13	D-12	D-11	D-10	D-09	D-08	D-07	D-06	D-05	D-04	D-03	D-02	D-01
E-16	E-15	E-14	E-13	E-12	E-11	E-10	E-09	E-08	E-07	E-06	E-05	E-04	E-03	E-02	E-01
F-16	F-15	F-14	F-13	F-12	F-11	F-10	F-09	F-08	F-07	F-06	F-05	F-04	F-03	F-02	F-01
G-16	G-15	G-14	G-13	G-12	G-11	G-10	G-09	G-08	G-07	G-06	G-05	G-04	G-03	G-02	G-01
H-16	H-15	H-14	H-13	H-12	H-11	H-10	H-09	H-08	H-07	H-06	H-05	H-04	H-03	H-02	H-01
I-16	I-15	I-14	I-13	I-12	I-11	I-10	I-09	I-08	I-07	I-06	I-05	I-04	I-03	I-02	I-01
J-16	J-15	J-14	J-13	J-12	J-11	J-10	J-09	J-08	J-07	J-06	J-05	J-04	J-03	J-02	J-01
K-16	K-15	K-14	K-13	K-12	K-11	K-10	K-09	K-08	K-07	K-06	K-05	K-04	K-03	K-02	K-01

Load Cells are 121 mm x 121 mm with a 7 mm gap in between each load cell.

DATA SHEET NO. 10
TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
Test Date: 7/30/2024

INSTRUMENTATION

Instrumentation	Number of Channels Collected
Driver Dummy Data Channels	49
Passenger Dummy Data Channels	49
Vehicle Structure Accelerometers	8
Barrier Channels	176
Total	282

CAMERA COVERAGE

Type of Camera	Number Used in this Test
High-Speed Vehicle Onboard	2
High-Speed Offboard	14
Real-Time	2
Total	18

DATA SHEET NO. 11
POST-TEST OBSERVATIONS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
Test Date: 7/30/2024

TEST DUMMY INFORMATION AND CONTACT LOCATIONS

Description	Driver	Passenger
Dummy Type / Serial No.	HIII 50% / 064	HIII 5% / 142
Head Contact	Frontal Airbag, Headrest	Frontal Airbag, Headrest
Upper Torso Contact	Frontal Airbag	Frontal Airbag
Lower Torso Contact	None	None
Left Knee Contact	Knee Airbag	Knee Airbag
Right Knee Contact	Knee Airbag	Knee Airbag

DOOR OPENING, TRUNK OPENING, AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Locked/Unlocked Doors	Doors were locked	Doors were locked
Front Door Opening	Remained closed and unlocked; opened without tools	Remained closed and unlocked; opened without tools
Rear Door Opening	Remained closed and unlocked; opened without tools	Remained closed and unlocked; opened without tools
Trunk/Hatch/Tailgate Opening	Remained closed; opened without tools	
Seat Track Shift (mm)	0	0
Seat Back Movement	None	None

OTHER VEHICLE POST-TEST OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Windshield Damage	None
Window Damage	None
Other Notable Effects	RF tire deflated

VEHICLE REBOUND FROM BARRIER

Measured Parameter	Units	Value
Left Side	mm	1375
Center	mm	1365
Right Side	mm	1410
Average	mm	1383

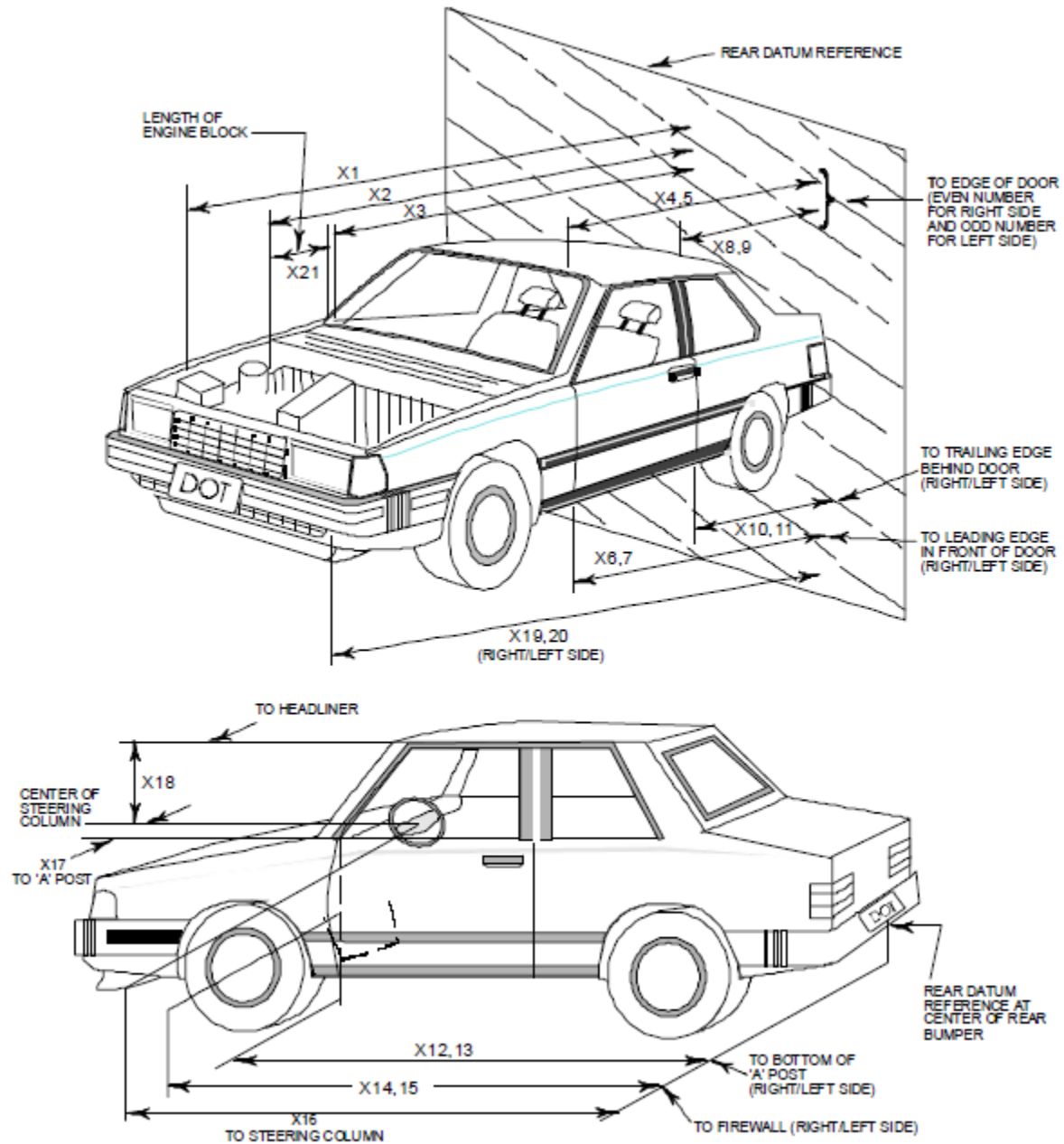
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Driver		Passenger	
	Mounted	Deployed	Mounted	Deployed
Frontal Airbag	Yes	Yes	Yes	Yes
Curtain Side Airbag	Yes	Yes	Yes	Yes
Torso/Pelvis Side Airbag	Yes	No	Yes	No
Knee Airbag	Yes	Yes	Yes	Yes
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes		Yes	
Other				

DATA SHEET NO. 12 VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024



DATA SHEET NO. 12 (CONTINUED)
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
Test Date: 7/30/2024

No.	Measurement Description	Pre-Test	Post-Test	Change
1	Total Length of Vehicle at Centerline	4835	4442	-393
2	RSOV to Front of Engine	4191	3924	-267
3	RSOV to Firewall	3869	3872	3
4	RSOV to Upper Leading Edge of Right Door	3337	3336	-1
5	RSOV to Upper Leading Edge of Left Door	3337	3333	-4
6	RSOV to Lower Leading Edge of Right Door	3344	3343	-1
7	RSOV to Lower Leading Edge of Left Door	3346	3342	-4
8	RSOV to Upper Trailing Edge of Right Door	2158	2155	-3
9	RSOV to Upper Trailing Edge of Left Door	2157	2153	-4
10	RSOV to Lower Trailing Edge of Right Door	2210	2209	-1
11	RSOV to Lower Trailing Edge of Left Door	2211	2209	-2
12	RSOV to Bottom of "A" Post of Right Side	3318	3316	-2
13	RSOV to Bottom of "A" Post of Left Side	3397	3396	-1
14	RSOV to Firewall, Right Side	3866	3867	1
15	RSOV to Firewall, Left Side	3865	3863	-2
16	RSOV to Steering Column	2811	2904	93
17	Center of Steering Column to "A" Post	261	263	2
18	Center of Steering Column to Headliner	453	483	30
19	RSOV to Right Side of Front Bumper	4587	4271	-316
20	RSOV to Left Side of Front Bumper	4586	4248	-338
21	Length of Engine Block	381	381	0
RD	RSOV to Right Side of Dash Panel	2989	2988	-1
CD	RSOV to Center of Dash Panel	2981	2979	-2
LD	RSOV to Left Side of Dash Panel	2986	2985	-1

All dimensions in mm

DATA SHEET NO. 13
ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
Test Date: 7/30/2024

VEHICLE INFORMATION

VIN: 3GN7DLRR1RS241049
Vehicle Size Category: MPV

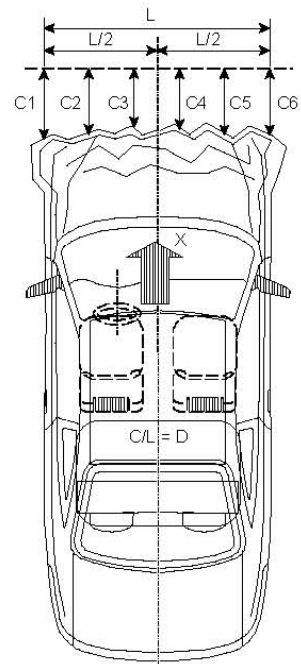
Wheelbase (mm): 2958
Test Weight (kg): 2524.5

ACCELEROMETER DATA

Accelerometer Locations: As per Data Sheet No. 7
Cal. Procedure/Interval: MGA Procedure / 6 month
Integration Algorithm: Trapezoidal
Linearity: > 99%
Impact Velocity (km/h): 56.72
Velocity Change (km/h): 68.2
Time of Separation (msec) 92

CRUSH PROFILE

Collision Deformation Classification: 12FDEW3
Midpoint of Damage: Centerline
Damage Region Length (mm): 1546
Impact Mode: Frontal



No.	Measurement Description	Units	Pre-Test	Post-Test	Exterior Crush
C1	Crush zone 1 at left side	mm	2414	2750	336
C2	Crush zone 2 at left side	mm	2235	2625	390
C3	Crush zone 3 at left side	mm	2180	2572	392
C4	Crush zone 4 at right side	mm	2179	2565	386
C5	Crush zone 5 at right side	mm	2234	2602	368
C6	Crush zone 6 at right side	mm	2413	2727	314
L	C1 TO C6	mm	1546	1579	-33

DATA SHEET NO. 14
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
Test Program: NCAP Frontal Barrier Impact Test

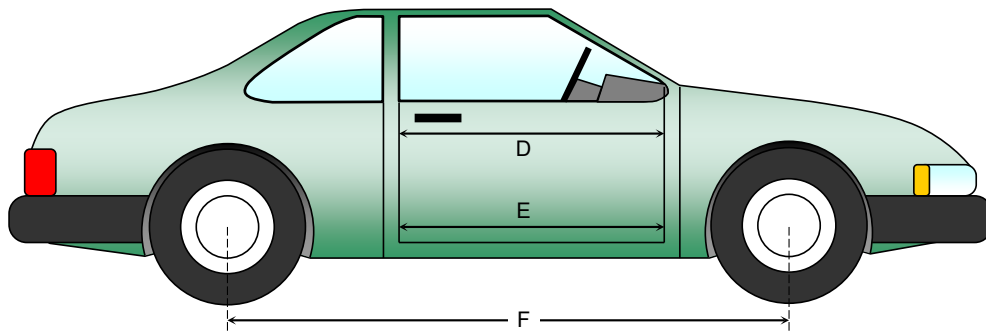
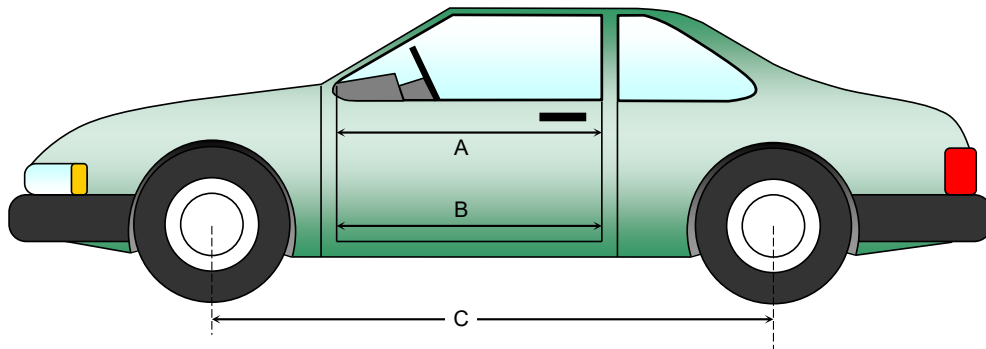
NHTSA No.: M20240110
Test Date: 7/30/2024

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Change
A	Left Side Upper	mm	1043	1043	0
B	Left Side Lower	mm	949	950	1
D	Right Side Upper	mm	1054	1054	0
E	Right Side Lower	mm	982	982	0

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Change
C	Left Side Wheelbase	mm	2958	2832	-126
F	Right Side Wheelbase	mm	2958	2854	-104



DATA SHEET NO. 14 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

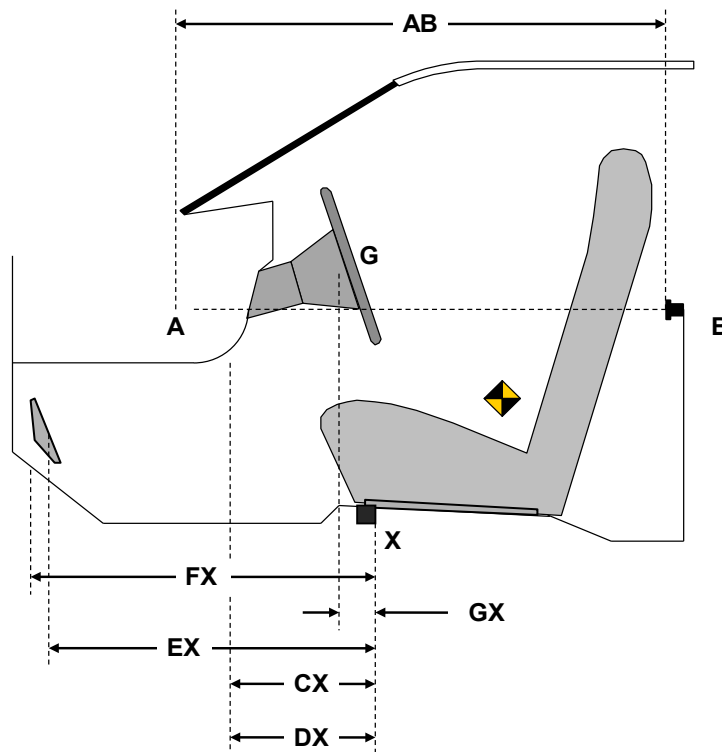
Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Change
AB	Door Opening (Inside Window Jam)	mm	833	831	-2
CX	Left Knee Bolster to X	mm	366	367	1
DX	Right Knee Bolster to X	mm	379	381	2
EX	Brake Pedal to X	mm	553	517	-36
FX	Foot Rest to X	mm	605	609	4
GX	Center of Steering Column Wheel Hub to X	mm	75	172	97

X = Front of Seat Track (stationary)



DRIVER COMPARTMENT

DATA SHEET NO. 15
SUMMARY OF INDICANT FMVSS NO. 212 AND FMVSS NO. 219 (PARTIAL) DATA

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024

WINDSHIELD MOUNTING DETAILS

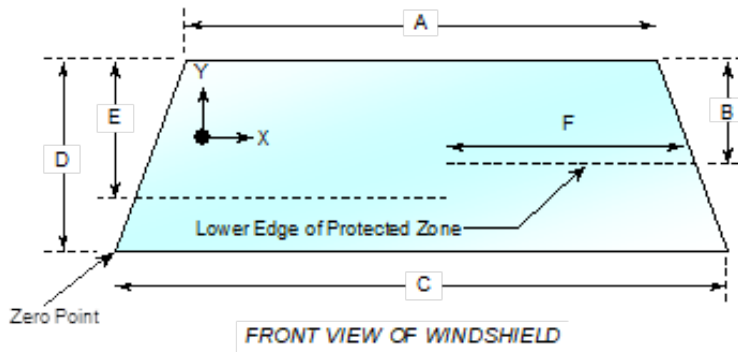
Windshield glass is secured to the vehicle frame with a rubber trim and glue.

The standard requires that the post-test retention measurement be a minimum of 75 percent of the pre-test total periphery measurement for vehicles not equipped with occupant passive restraints and 50 percent for each side of the windshield for vehicles which are equipped with occupant passive restraints.

Temperature of windshield molding during test: 21.6°C.

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% of Retention
Left Side	2368	2368	100
Right Side	2368	2368	100
Total	4736	4736	100



Item	Units	Value
A	mm	1228
B	mm	635
C	mm	1564
D	mm	972
E	mm	629
F	mm	490

AREA OF PROTECTED ZONE FAILURES

A. Provide coordinates of the area that the protected zone was penetrated more than 0.25 inches by a vehicle component other than one that is normally in contact with the windshield. **None**

X	Y

B. Provide coordinates of the area beneath the protected zone that the inner surface of the windshield was penetrated by a vehicle component. **None**

X	Y

DATA SHEET NO. 16
FMVSS NO. 301 BARRIER IMPACT AND STATIC ROLLOVER RESULTS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
Test Date: 7/30/2024

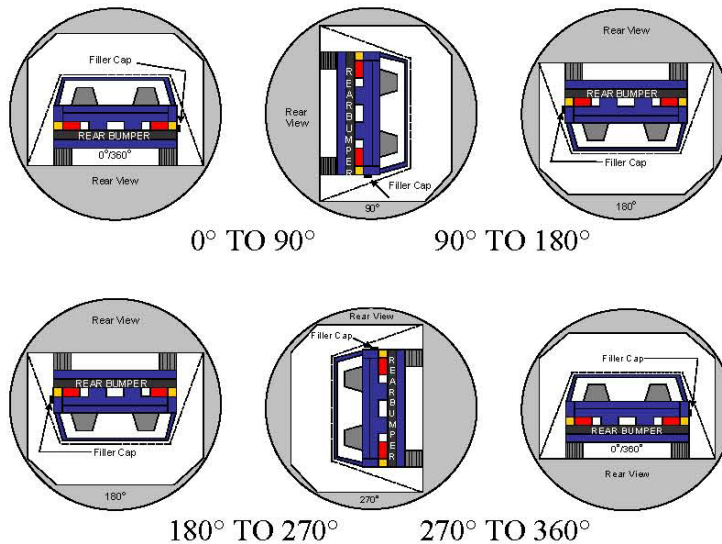
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21.6°C

Test Time: 10:52 a.m.

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

FMVSS 301 STATIC ROLLOVER RESULTS



1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage: **None**

SOLVENT COLLECTION TIME TABLE IN SECONDS

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

DATA SHEET NO. 16 (CONTINUED)
FMVSS NO. 301 BARRIER IMPACT AND STATIC ROLLOVER RESULTS

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024

FMVSS 301 SPILLAGE TABLE (UNITS IN OUNCES)

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

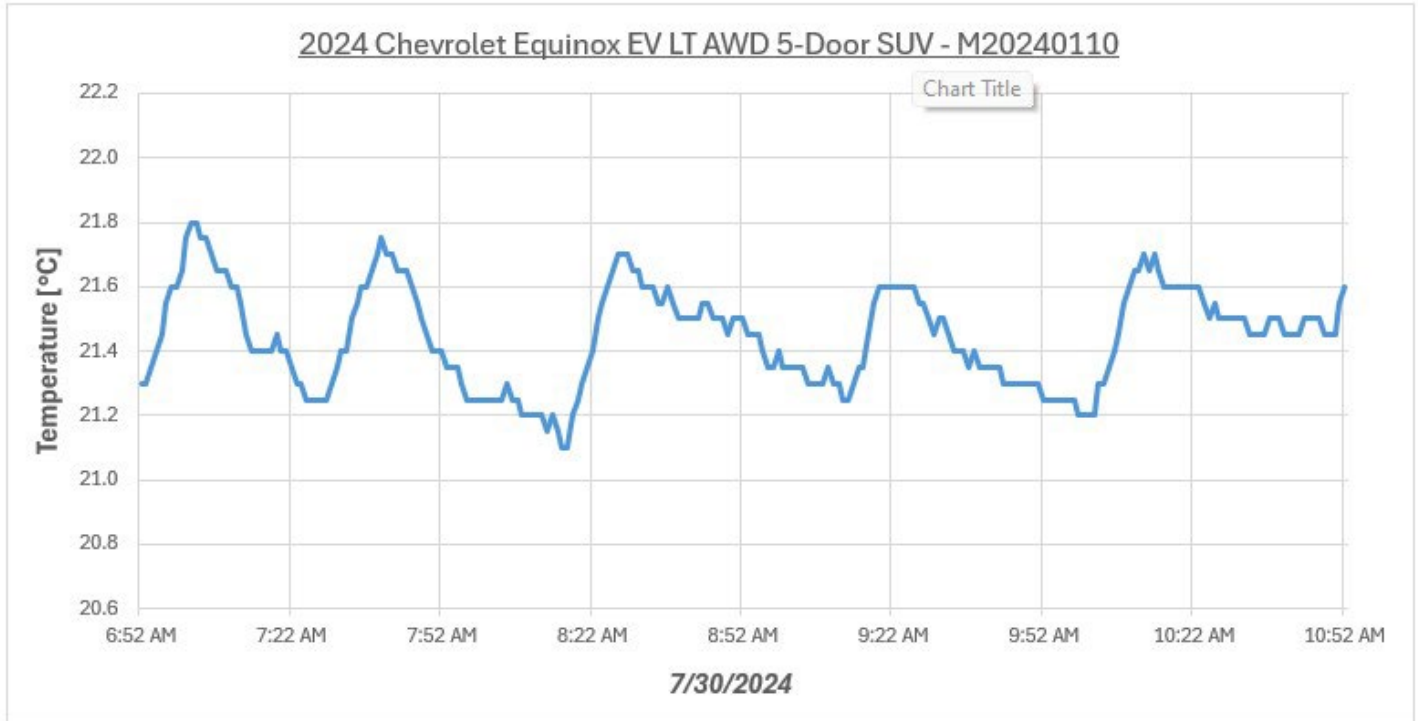
SOLVENT SPILLAGE LOCATION TABLE

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

DATA SHEET NO. 17
DUMMY/VEHICLE TEMPERATURE STABILIZATION DATA

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024



Serial #	Description	Maximum	Average	Minimum	Units
W1443497	VSC Start Room A - Temp (1038)	21.80	21.44	21.10	°C

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
Test Date: 7/30/2024

ELECTRIC VEHICLE PROPULSION SYSTEM

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

PROPULSION BATTERY SYSTEM DATA

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

PROPULSION BATTERY STATE OF CHARGE

<i>For all battery types:</i>	
Voltage range corresponding to useable energy of the battery:	
Minimum State of Charge	
Maximum State of Charge	335 V
95% of Maximum State of Charge	318 V
Test Voltage - No less than 95% of maximum State of Charge	330.2 V
<i>For batteries that are rechargeable ONLY by an energy source on the vehicle:</i>	
Voltage range corresponding to useable energy of the battery:	
Minimum State of Charge	
Maximum State of Charge	
Test Voltage – Maximum practicable State of Charge within Normal Operating Range	

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
Test Date: 7/30/2024

VEHICLE CHASSIS GROUND POINT(S) LOCATION(S)

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

PROPULSION BATTERY SYSTEM

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

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024

VOLTMETER INFORMATION

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

PROPULSION BATTERY VOLTAGE

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

Vb	V	330.2
----	---	-------

ELECTRIC ISOLATION MEASUREMENTS
PROPULSION BATTERY TO VEHICLE CHASSIS

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

V1	V	149.2
V2	V	154.1

PROPULSION BATTERY TO VEHICLE CHASSIS ACROSS RESISTOR

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

Ro	Ω	226,100
----	---	---------

V1' Pre-Impact	V	33.1
V2' Pre-Impact	V	49.2

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024

ELECTRICAL ISOLATION CALCULATIONS

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

$R_{i1} = R_o (1 + V_2/V_1) [(V_1 - V_1')/V_1']$		
Ri1 Pre-Impact	Ω	1,612,161
$R_{i2} = R_o (1 + V_1/V_2) [(V_2 - V_2')/V_2']$		
Ri2 Pre-Impact	Ω	948,813
$R_i = \text{The lesser of } R_{i1} \text{ and } R_{i2}$		
Ri Pre-Impact	Ω	948,813
$R_i / V_b = \text{Electrical Isolation Value} / \text{Nominal Battery Voltage}$		
Ri / Vb Pre-Impact	Ω	2,873

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

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

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
Test Date: 7/30/2024

VOLTMETER INFORMATION

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

ELECTRICAL ISOLATION MEASUREMENTS

Vb Post-Impact	V	3.59
----------------	---	------

V1 Post-Impact	V	0.00	Impact Time	2	Minutes	1	Seconds
V2 Post-Impact	V	3.59		2	Minutes	4	Seconds
V1' Post-Impact	V	0.00		2	Minutes	17	Seconds
V2' Post-Impact	V	3.55		2	Minutes	11	Seconds

Ro	Ω	226,100
----	---	---------

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024

ELECTRICAL ISOLATION CALCULATIONS

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

$R_{i1} = R_o (1 + V_2/V_1) [(V_1 - V_1')/V_1']$							
Ri1 Post-Impact	Ω	Zero Volts	Impact Time	2	Minutes	17	Seconds
$R_{i2} = R_o (1 + V_1/V_2) [(V_2 - V_2')/V_2']$							
Ri2 Post-Impact	Ω	2,548	Impact Time	2	Minutes	11	Seconds
$R_i = \text{The lesser of } R_{i1} \text{ and } R_{i2}$							
Ri Post-Impact	Ω	2,548	Impact Time	2	Minutes	11	Seconds
$R_i / V_b = \text{Electrical Isolation Value} / \text{Nominal Battery Voltage}$							
Ri / Vb Post-Impact	Ω	710	Impact Time	2	Minutes	11	Seconds

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

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

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
Test Date: 7/30/2024

PROPULSION BATTERY SYSTEM COMPONENTS

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

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

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

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

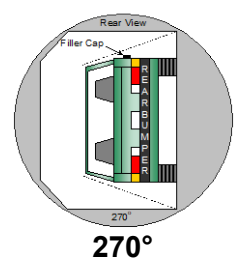
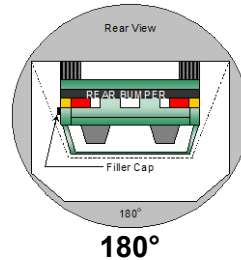
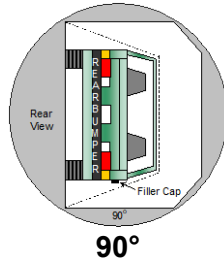
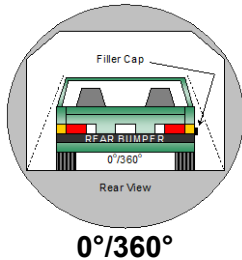
	Yes (Fail)	No
Is the Propulsion Battery Electrolyte Spillage visible in the passenger compartment?		X

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024

PROPULSION BATTERY SYSTEM COMPONENTS



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	50	sec	5	min	6	min	50	sec	7	min
90° - 180°	1	min	50	sec	5	min	6	min	50	sec	7	min
180° - 270°	1	min	47	sec	5	min	6	min	47	sec	7	min
270° - 360°	1	min	51	sec	5	min	6	min	51	sec	7	min

TEST VEHICLE PROPULSION BATTERY ELECTROLYTE SPILLAGE

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

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

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

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
Test Date: 7/30/2024

VOLTMETER INFORMATION

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

ELECTRICAL ISOLATION MEASUREMENTS

Vb Post-Impact	V	3.58
Ro	Ω	226,100

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

	Voltage	Units	Test Phase	Time			
V1	0.00	V	0°		min		sec
	0.00		90°	2		57	
	0.00		180°	3		14	
	0.00		270°	2		50	
	0.00		360°	3		27	
V2	3.58	V	0°		min		sec
	3.58		90°	3		2	
	3.58		180°	3		19	
	3.58		270°	2		55	
	3.58		360°	3		31	
V1'	0.00	V	0°		min		sec
	0.00		90°	3		17	
	0.00		180°	3		33	
	0.00		270°	3		12	
	0.00		360°	3		44	
V2'	3.53	V	0°		min		sec
	3.53		90°	3		9	
	3.54		180°	3		25	
	3.47		270°	3		5	
	3.54		360°	3		36	

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

Test Vehicle: 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20240110
 Test Date: 7/30/2024

ELECTRICAL ISOLATION CALCULATIONS

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

	Voltage	Units	Test Phase	Time		
Ri1 = Ro (1 + V2/V1) [(V1-V1')/V1']						
Ri1	Zero Volts	Ω	0°			sec
	Zero Volts		90°	3	17	
	Zero Volts		180°	3	33	
	Zero Volts		270°	3	12	
	Zero Volts		360°	3	44	
Ri2 = Ro (1 + V1/V2) [(V2-V2')/V2']						
Ri2	3,203	Ω	0°			sec
	3,203		90°	3	9	
	2,555		180°	3	25	
	7,167		270°	3	5	
	2,555		360°	3	36	
Ri = The lesser of Ri1 and Ri2						
Ri	3,203	Ω	0°			sec
	3,203		90°	3	9	
	2,555		180°	3	25	
	7,167		270°	3	5	
	2,555		360°	3	36	
Ri / Vb = Electrical Isolation Value / Nominal Battery Voltage						
Ri / Vb	895	Ω/V	0°			sec
	895		90°	3	9	
	714		180°	3	25	
	2,002		270°	3	5	
	714		360°	3	36	

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

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

**APPENDIX A
PHOTOGRAPHS**

TABLE OF PHOTOGRAPHS

		<u>Page No.</u>
Photo No. 001	Load Cell Location	A-1
Photo No. 002	Pre-Test Load Cell Wall	A-1
Photo No. 003	Post-Test Load Cell Wall	A-2
Photo No. 004	Manufacturer's Label	A-2
Photo No. 005	Tire Placard	A-3
Photo No. 006	2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV Frontal As Delivered	A-3
Photo No. 007	Left Rear 3-4 View, As Received	A-4
Photo No. 008	Pre-Test Front View of Test Vehicle	A-4
Photo No. 009	Post-Test Front View of Test Vehicle	A-5
Photo No. 010	Pre-Test Left View of Test Vehicle	A-5
Photo No. 011	Post-Test Left View of Test Vehicle	A-6
Photo No. 012	Pre-Test Right View of Test Vehicle	A-6
Photo No. 013	Post-Test Right View of Test Vehicle	A-7
Photo No. 014	Pre-Test Right Front 3-4 View	A-7
Photo No. 015	Post-Test Right Front 3-4 View	A-8
Photo No. 016	Pre-Test Left Rear 3-4 View	A-8
Photo No. 017	Post-Test Left Rear 3-4 View	A-9
Photo No. 018	Pre-Test Windshield View	A-9
Photo No. 019	Post-Test Windshield View	A-10
Photo No. 020	Pre-Test Engine Compartment View	A-10
Photo No. 021	Post-Test Engine Compartment View	A-11
Photo No. 022	Pre-Test Fuel Filler Cap View	A-11
Photo No. 023	Post-Test Fuel Filler Cap View	A-12
Photo No. 024	Pre-Test Front Underbody View	A-12
Photo No. 025	Post-Test Front Underbody View	A-13
Photo No. 026	Pre-Test Rear Underbody View	A-13
Photo No. 027	Post-Test Rear Underbody View	A-14
Photo No. 028	Pre-Test Dummy Cable Routing	A-14
Photo No. 029	Post-Test Dummy Cable Routing	A-15

Photo No. 030	Pre-Test Driver Dummy Front View	A-15
Photo No. 031	Post-Test Driver Dummy Front View	A-16
Photo No. 032	Pre-Test Driver Dummy Window View	A-16
Photo No. 033	Post-Test Driver Dummy Window View	A-17
Photo No. 034	Pre-Test Driver Dummy and Vehicle Interior View	A-17
Photo No. 035	Post-Test Driver Dummy and Vehicle Interior View	A-18
Photo No. 036	Pre-Test Driver's Seat Fore-Aft Markings	A-18
Photo No. 037	Post-Test Driver's Seat Fore-Aft Markings	A-19
Photo No. 038	Pre-Test View of Belt Anchorage for Driver Dummy	A-19
Photo No. 039	Post-Test View of Belt Anchorage for Driver Dummy	A-20
Photo No. 040	Pre-Test View of Belt Buckle and Latch Plate for Driver Dummy	A-20
Photo No. 041	Post-Test View of Belt Buckle and Latch Plate for Driver Dummy	A-21
Photo No. 042	Pre-Test Driver Dummy Feet	A-21
Photo No. 043	Post-Test Driver Dummy Feet	A-22
Photo No. 044	Pre-Test Driver's Side Knee Bolster	A-22
Photo No. 045	Post-Test Driver's Side Knee Bolster	A-23
Photo No. 046	Pre-Test Driver's Side Floorpan	A-23
Photo No. 047	Post-Test Driver's Side Floorpan	A-24
Photo No. 048	Post-Test Driver Dummy Face	A-24
Photo No. 049	Post-Test Driver Dummy Contact with Airbag	A-25
Photo No. 050	Post-Test Driver Dummy Contact with Headrest	A-25
Photo No. 051	Pre-Test View of the Steering Wheel	A-26
Photo No. 052	Post-Test View of the Steering Wheel	A-26
Photo No. 053	Pre-Test Passenger Dummy Front View	A-27
Photo No. 054	Post-Test Passenger Dummy Front View	A-27
Photo No. 055	Pre-Test Passenger Dummy Window View	A-28
Photo No. 056	Post-Test Passenger Dummy Window View	A-28
Photo No. 057	Pre-Test Passenger Dummy and Vehicle Interior	A-29
Photo No. 058	Post-Test Passenger Dummy and Vehicle Interior	A-29
Photo No. 059	Pre-Test Passenger's Seat Fore-Aft Markings	A-30

		<u>Page No.</u>
Photo No. 060	Post-Test Passenger's Seat Fore-Aft Markings	A-30
Photo No. 061	Pre-Test View of Belt Anchorage for Passenger Dummy	A-31
Photo No. 062	Post-Test View of Belt Anchorage for Passenger Dummy	A-31
Photo No. 063	Pre-Test View of Belt Buckle and Latch Plate for Passenger Dummy	A-32
Photo No. 064	Post-Test View of Belt Buckle and Latch Plate for Passenger Dummy	A-32
Photo No. 065	Pre-Test Passenger Dummy Feet	A-33
Photo No. 066	Post-Test Passenger Dummy Feet	A-33
Photo No. 067	Pre-Test Passenger's Side Knee Bolster	A-34
Photo No. 068	Post-Test Passenger's Side Knee Bolster	A-34
Photo No. 069	Pre-Test Passenger's Side Floorpan	A-35
Photo No. 070	Post-Test Passenger's Side Floorpan	A-35
Photo No. 071	Post-Test Passenger Dummy Face	A-36
Photo No. 072	Post-Test Passenger Dummy Contact with Airbag	A-36
Photo No. 073	Post-Test Passenger Dummy Contact with Headrest	A-37
Photo No. 074	Photograph of Ballast Installed in Vehicle	A-37
Photo No. 075	Post-Test Stoddard Solvent Spillage Location View	A-38
Photo No. 076	Post-Test Speed Trap Read-Out	A-38
Photo No. 077	Vehicle at 0 Degree on Static Rollover Device	A-39
Photo No. 078	Vehicle at 90 Degrees on Static Rollover Device	A-39
Photo No. 079	Vehicle at 180 Degrees on Static Rollover Device	A-40
Photo No. 080	Vehicle at 270 Degrees on Static Rollover Device	A-40
Photo No. 081	Vehicle at 360 Degrees on Static Rollover Device	A-41
Photo No. 082	2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV Frontal Impact Event	A-41
Photo No. 083	Monroney Label Photograph	A-42
Photo No. 305-01	Auxiliary Power Module Warning Label	A-42
Photo No. 305-02	Power Inverter Warning Label	A-43
Photo No. 305-03	First Responder Warning Label	A-43
Photo No. 305-04	First Responder Warning Location	A-44
Photo No. 305-05	Other Vehicle Label(s) Related to Electrical Propulsion System	A-44
Photo No. 305-06	Manual High Voltage Service Disconnect in Place	A-45

		<u>Page No.</u>
Photo No. 305-07	Manual High Voltage Service Disconnect Removed	A-45
Photo No. 305-08	Manual High Voltage Service Disconnect Removed	A-46
Photo No. 305-09	Pre-Impact View of Propulsion Battery	A-46
Photo No. 305-10	Post-Impact Front View of Propulsion Battery	A-47
Photo No. 305-11	Post-Impact Rear View of Propulsion Battery	A-47
Photo No. 305-12	Pre-Impact View of Battery Box(s) or Container(s) Which Holds Individual Battery Modules	A-48
Photo No. 305-13	Post-Impact View of Battery Box(s) or Container(s) Which Holds Individual Battery Modules	A-48
Photo No. 305-14	Pre-Impact View of Propulsion Battery Module(s)	A-49
Photo No. 305-15	Post-Impact View of Propulsion Battery Module(s)	A-49
Photo No. 305-16	Pre-Impact View of Electric Propulsion Drive	A-50
Photo No. 305-17	Post-Impact View of Electric Propulsion Drive	A-50
Photo No. 305-18	Pre-Impact View of High Voltage Interconnect(s)	A-51
Photo No. 305-19	Pre-Impact View Propulsion Battery Venting System(s)	A-51
Photo No. 305-20	Pre-Impact View of Other Visible Electric Propulsion Components	A-52
Photo No. 305-21	Pre-Impact View of Ground Lead Attached	A-52
Photo No. 305-22	Pre-Impact View of High Voltage Leads Attached	A-53
Photo No. 305-23	Pre-Impact Close-Up View of High Voltage Leads Attached	A-53
Photo No. 305-24	Pre-Impact View of Installed Test Interface Port	A-54
Photo No. 305-25	Post-Impact View of Installed Test Interface Port	A-54
Photo No. 305-26	Pre-Impact View of Other Test Devices	A-55
Photo No. 305-27	Post-Impact View of Other Test Devices	A-55
Photo No. 305-28	FMVSS No. 305 Static Rollover at 90 Degrees	A-56
Photo No. 305-29	FMVSS No. 305 Static Rollover at 180 Degrees	A-56
Photo No. 305-30	FMVSS No. 305 Static Rollover at 270 Degrees	A-57
Photo No. 305-31	FMVSS No. 305 Static Rollover at 360 Degrees	A-57
Photo No. 305-32	Pre-Impact View of the Vehicle Passenger Compartment Adjacent to Propulsion Battery	A-58
Photo No. 305-33	Post-Impact View of the Vehicle Passenger Compartment Adjacent to Propulsion Battery	A-58
Photo No. 305-34	Post-Impact Propulsion Battery System Mounting and/or Intrusion Failure(s)	A-59

Page No.

Photo No. 305-35	Post-Impact View of Battery Component Intrusion	A-59
Photo No. 305-36	Post-Impact View of Battery Module Movement or Retention Loss	A-60
Photo No. 305-37	Post-Impact View of Propulsion Battery Electrolyte Spillage Location	A-60
Photo No. 305-38	Post-Test View of Propulsion Battery Electrolyte Spillage Location	A-61



Photo No. 001 - Load Cell Location



Photo No. 002 - Pre-Test Load Cell Wall



Photo No. 003 - Post-Test Load Cell Wall



Photo No. 004 - Manufacturer's Label



Photo No. 005 - Tire Placard



Photo No. 006 - 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV Frontal As Delivered



Photo No. 007 - Left Rear 3-4 View, As Received



Photo No. 008 - Pre-Test Front View of Test Vehicle



Photo No. 009 - Post-Test Front View of Test Vehicle



Photo No. 010 - Pre-Test Left View of Test Vehicle



Photo No. 011 - Post-Test Left View of Test Vehicle



Photo No. 012 - Pre-Test Right View of Test Vehicle



Photo No. 013 - Post-Test Right View of Test Vehicle



Photo No. 014 - Pre-Test Right Front 3-4 View



Photo No. 015 - Post-Test Right Front 3-4 View



Photo No. 016 - Pre-Test Left Rear 3-4 View



Photo No. 017 - Post-Test Left Rear 3-4 View



Photo No. 018 - Pre-Test Windshield View



Photo No. 019 - Post-Test Windshield View



Photo No. 020 - Pre-Test Engine Compartment View



Photo No. 021 - Post-Test Engine Compartment View

PHOTOGRAPH NOT APPLICABLE

Photo No. 022 - Pre-Test Fuel Filler Cap View

PHOTOGRAPH NOT APPLICABLE

Photo No. 023 - Post-Test Fuel Filler Cap View

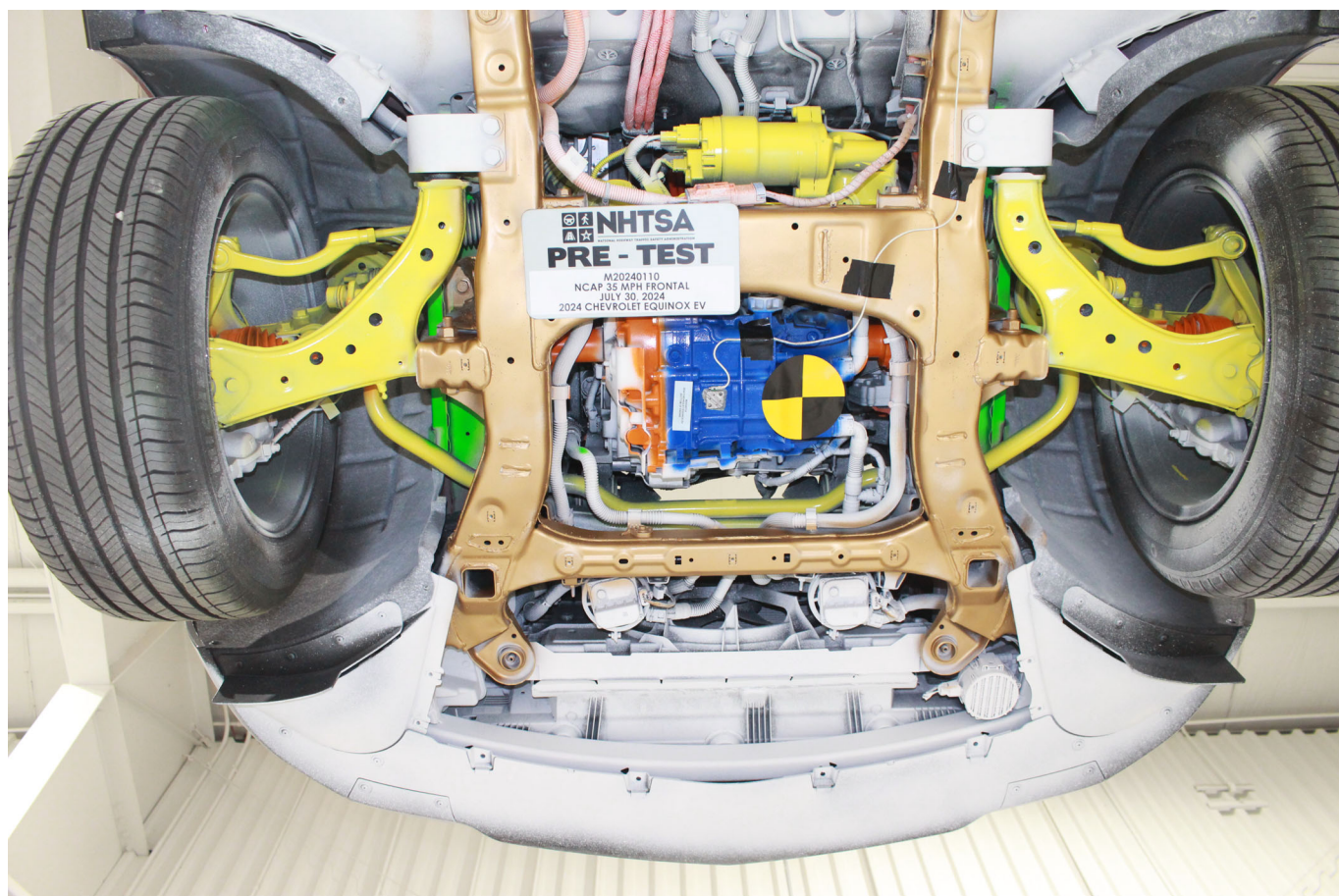


Photo No. 024 - Pre-Test Front Underbody View

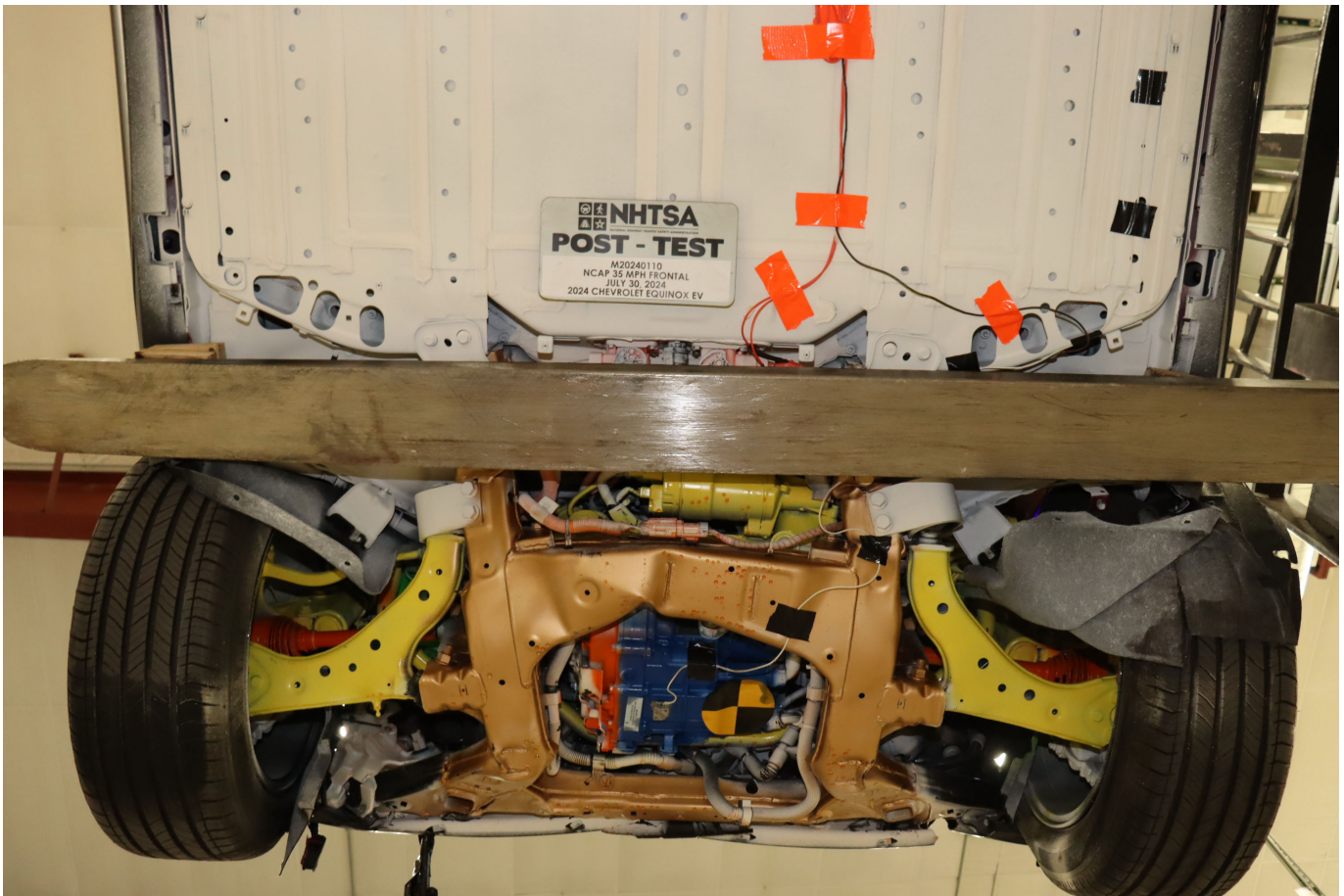


Photo No. 025 - Post-Test Front Underbody View

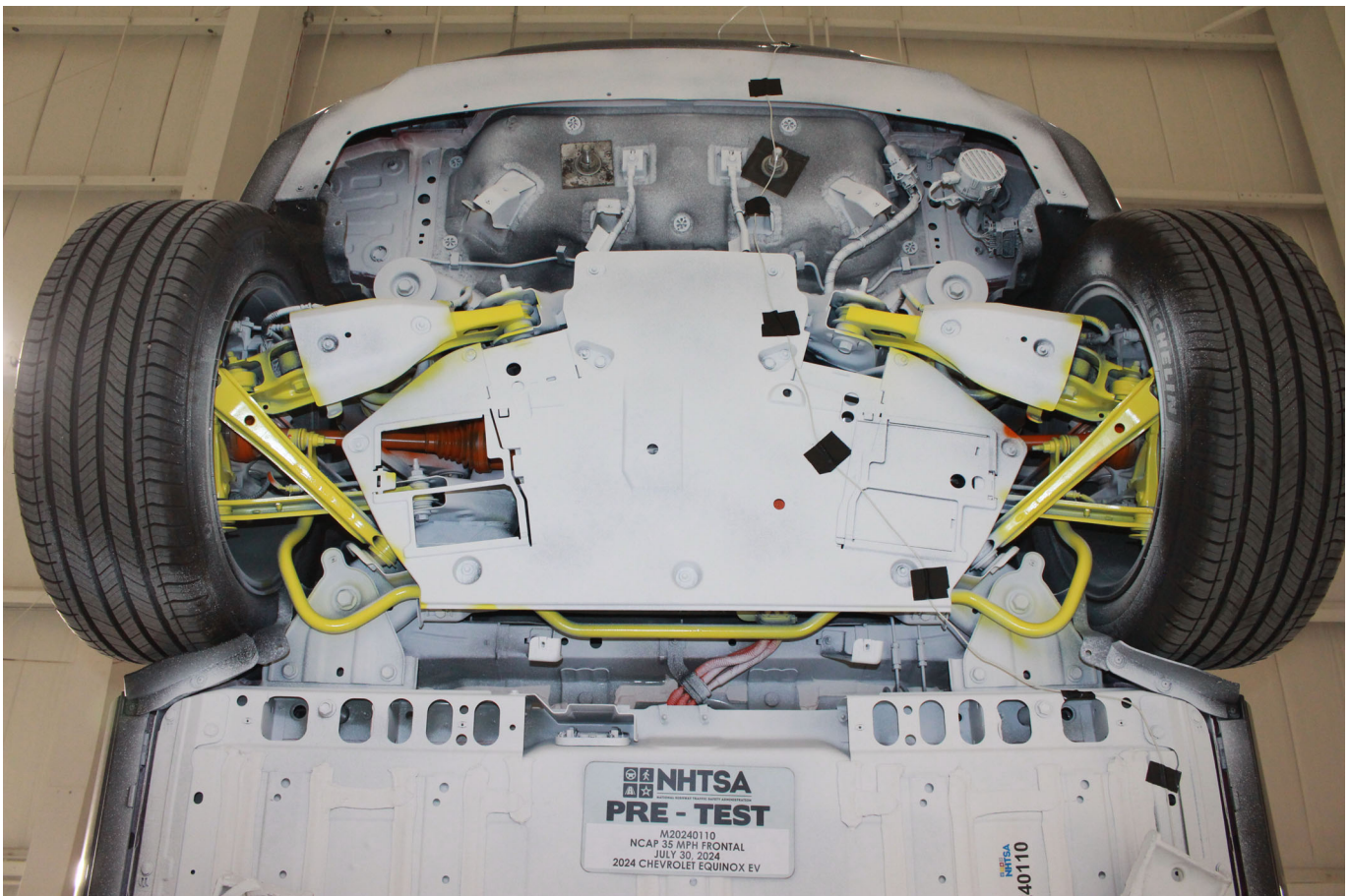


Photo No. 026 - Pre-Test Rear Underbody View

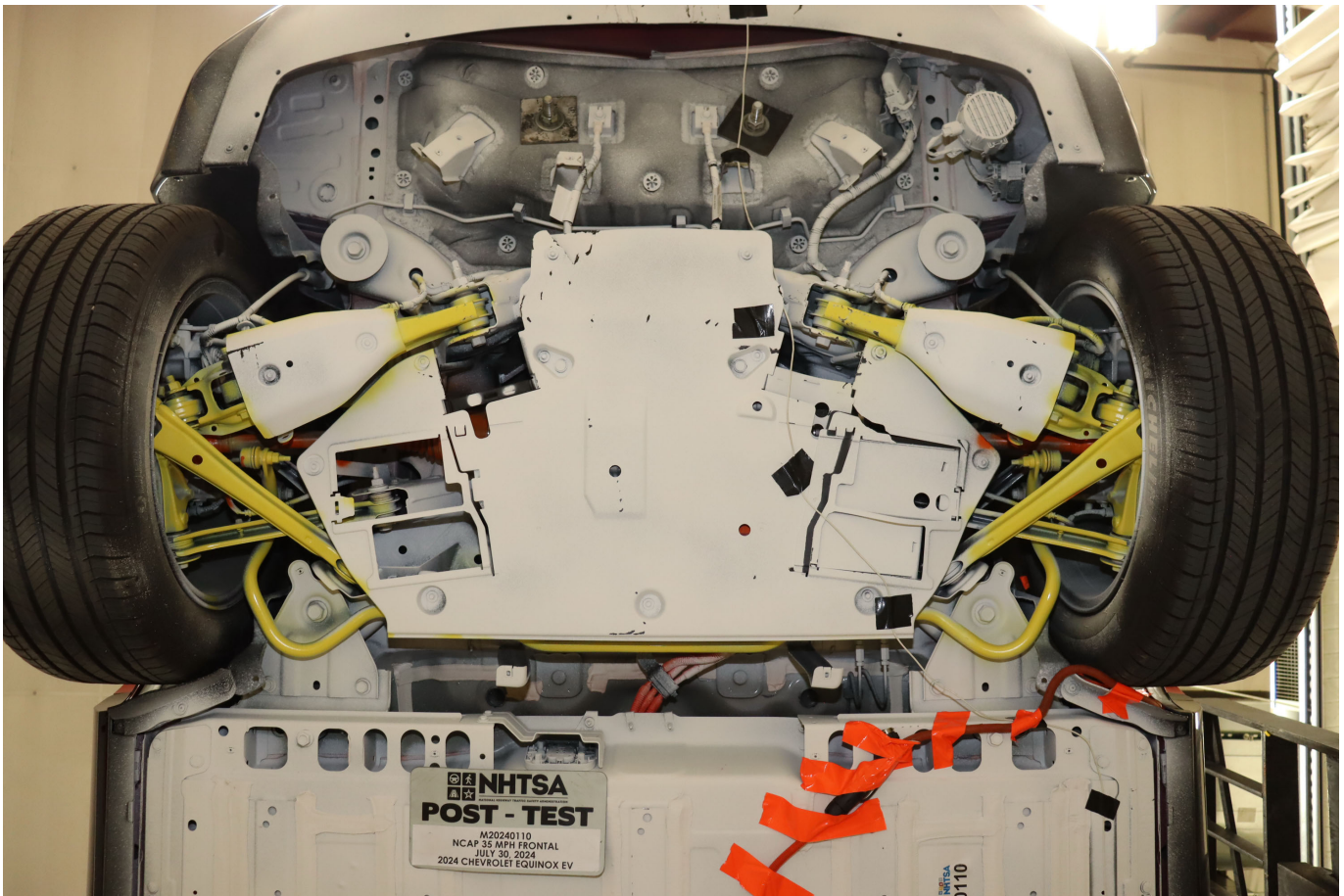


Photo No. 027 - Post-Test Rear Underbody View



Photo No. 028 - Pre-Test Dummy Cable Routing



Photo No. 029 - Post-Test Dummy Cable Routing



Photo No. 030 - Pre-Test Driver Dummy Front View



Photo No. 031 - Post-Test Driver Dummy Front View



Photo No. 032 - Pre-Test Driver Dummy Window View



Photo No. 033 - Post-Test Driver Dummy Window View



Photo No. 034 - Pre-Test Driver Dummy and Vehicle Interior View



Photo No. 035 - Post-Test Driver Dummy and Vehicle Interior View



Photo No. 036 - Pre-Test Driver's Seat Fore-Aft Markings



Photo No. 037 - Post-Test Driver's Seat Fore-Aft Markings



Photo No. 038 - Pre-Test View of Belt Anchorage for Driver Dummy



Photo No. 039 - Post-Test View of Belt Anchorage for Driver Dummy



Photo No. 040 - Pre-Test View of Belt Buckle and Latch Plate for Driver Dummy



Photo No. 041 - Post-Test View of Belt Buckle and Latch Plate for Driver Dummy



Photo No. 042 - Pre-Test Driver Dummy Feet



Photo No. 043 - Post-Test Driver Dummy Feet



Photo No. 044 - Pre-Test Driver's Side Knee Bolster



Photo No. 045 - Post-Test Driver's Side Knee Bolster



Photo No. 046 - Pre-Test Driver's Side Floorpan



Photo No. 047 - Post-Test Driver's Side Floorpan

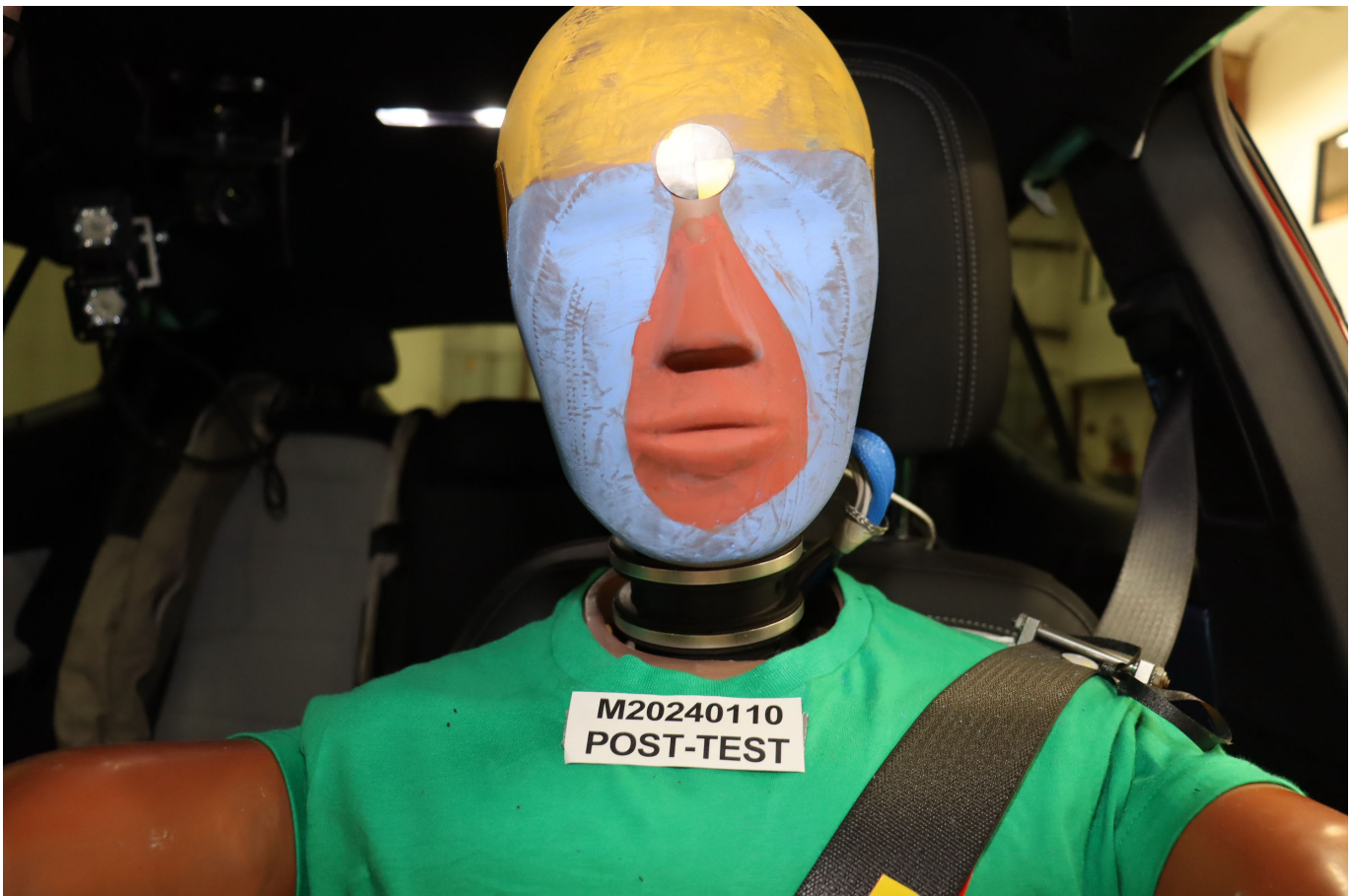


Photo No. 048 - Post-Test Driver Dummy Face



Photo No. 049 - Post-Test Driver Dummy Contact with Airbag



Photo No. 050 - Post-Test Driver Dummy Contact with Headrest



Photo No. 051 - Pre-Test View of the Steering Wheel



Photo No. 052 - Post-Test View of the Steering Wheel



Photo No. 053 - Pre-Test Passenger Dummy Front View



Photo No. 054 - Post-Test Passenger Dummy Front View



Photo No. 055 - Pre-Test Passenger Dummy Window View



Photo No. 056 - Post-Test Passenger Dummy Window View



Photo No. 057 - Pre-Test Passenger Dummy and Vehicle Interior View



Photo No. 058 - Post-Test Passenger Dummy and Vehicle Interior View



Photo No. 059 - Pre-Test Passenger's Seat Fore-Aft Markings



Photo No. 060 - Post-Test Passenger's Seat Fore-Aft Markings



Photo No. 061 - Pre-Test View of Belt Anchorage for Passenger Dummy



Photo No. 062 - Post-Test View of Belt Anchorage for Passenger Dummy



Photo No. 063 - Pre-Test View of Belt Buckle and Latch Plate for Passenger Dummy



Photo No. 064 - Post-Test View of Belt Buckle and Latch Plate for Passenger Dummy



Photo No. 065 - Pre-Test Passenger Dummy Feet



Photo No. 066 - Post-Test Passenger Dummy Feet



Photo No. 067 - Pre-Test Passenger's Side Knee Bolster



Photo No. 068 - Post-Test Passenger's Side Knee Bolster



Photo No. 069 - Pre-Test Passenger's Side Floorpan



Photo No. 070 - Post-Test Passenger's Side Floorpan



Photo No. 071 - Post-Test Passenger Dummy Face



Photo No. 072 - Post-Test Passenger Dummy Contact with Airbag



Photo No. 073 - Post-Test Passenger Dummy Contact with Headrest



Photo No. 074 - Photograph of Ballast Installed in Vehicle

PHOTOGRAPH NOT APPLICABLE

Photo No. 075 - Post-Test Stoddard Solvent Spillage Location View



Photo No. 076 - Post-Test Speed Trap Read-Out

PHOTOGRAPH NOT APPLICABLE

Photo No. 077 - Vehicle at 0 Degrees on Static Rollover Device

PHOTOGRAPH NOT APPLICABLE

Photo No. 078 - Vehicle at 90 Degrees on Static Rollover Device

PHOTOGRAPH NOT APPLICABLE

Photo No. 079 - Vehicle at 180 Degrees on Static Rollover Device

PHOTOGRAPH NOT APPLICABLE

Photo No. 080 - Vehicle at 270 Degrees on Static Rollover Device

PHOTOGRAPH NOT APPLICABLE

Photo No. 081 - Vehicle at 360 Degrees on Static Rollover Device



Photo No. 082 - 2024 Chevrolet Equinox EV 2LT AWD 5-Door SUV Frontal Impact Event



2024 EQUINOX EV 2LT

EXTERIOR: RADIANT RED TINT COAT
INTERIOR: SKY COOL GRAY



STANDARD EQUIPMENT

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

OWNER BENEFITS

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

PERFORMANCE & MECHANICAL

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

150KW DC FAST CHARGE CAPABLE

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

CONNECTIVITY & TECHNOLOGY

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

INTERIOR

- EVOTEX SEATING SURFACES
- DRIVER 8-WAY POWER SEAT

WITH 4-WAY LUMBAR

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

EXTERIOR

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

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

SAFETY & SECURITY

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

MANUFACTURER'S SUGGESTED RETAIL PRICE

STANDARD VEHICLE PRICE \$41,900.00

Visit us at www.chevy.com

OPTIONS & PRICING

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

EAWD 3,300.00
RADIANT RED TINT COAT 495.00

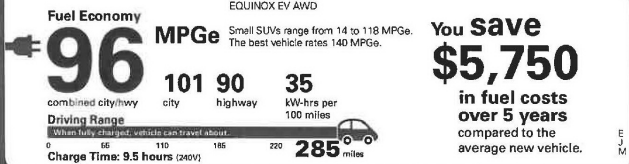
TOTAL OPTIONS \$3,795.00
TOTAL VEHICLE & OPTIONS \$45,695.00
DESTINATION CHARGE 1,395.00

TOTAL VEHICLE PRICE* \$47,090.00

EPA DOT Fuel Economy and Environment



Electric Vehicle



GOVERNMENT 5-STAR SAFETY RATINGS

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

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

PARTS CONTENT INFORMATION

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

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

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

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

© 2024 General Motors LLC
GM_BL_PROD_0043 - 10/23/2023



Equipped with the safety and security of OnStar.
Visit onstar.com for details.

onstar.com/en/evnvcv

ORDER NO DJNBS1 SALES CODE E
SALES MODEL CODE 1MB4S
DEALER NO 14505
FINAL ASSEMBLY:
RAMOS ARIZPE, CZ MEXICO
VIN 3GN7DLR1RS241049 REISSUE
DEALER TO WHOM DELIVERED
SPORT CHEVROLET COMPANY, LLC
3101 AUTOMOBILE BLVD
SILVER SPRING, MD 20904-4999



Photo No. 083 - Monroney Label Photograph



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



Photo No. 305-02 - Power Inverter Warning Label



Photo No. 305-03 - First Responder Warning Label



Photo No. 305-04 - First Responder Warning Location

PHOTOGRAPH NOT APPLICABLE

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



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



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

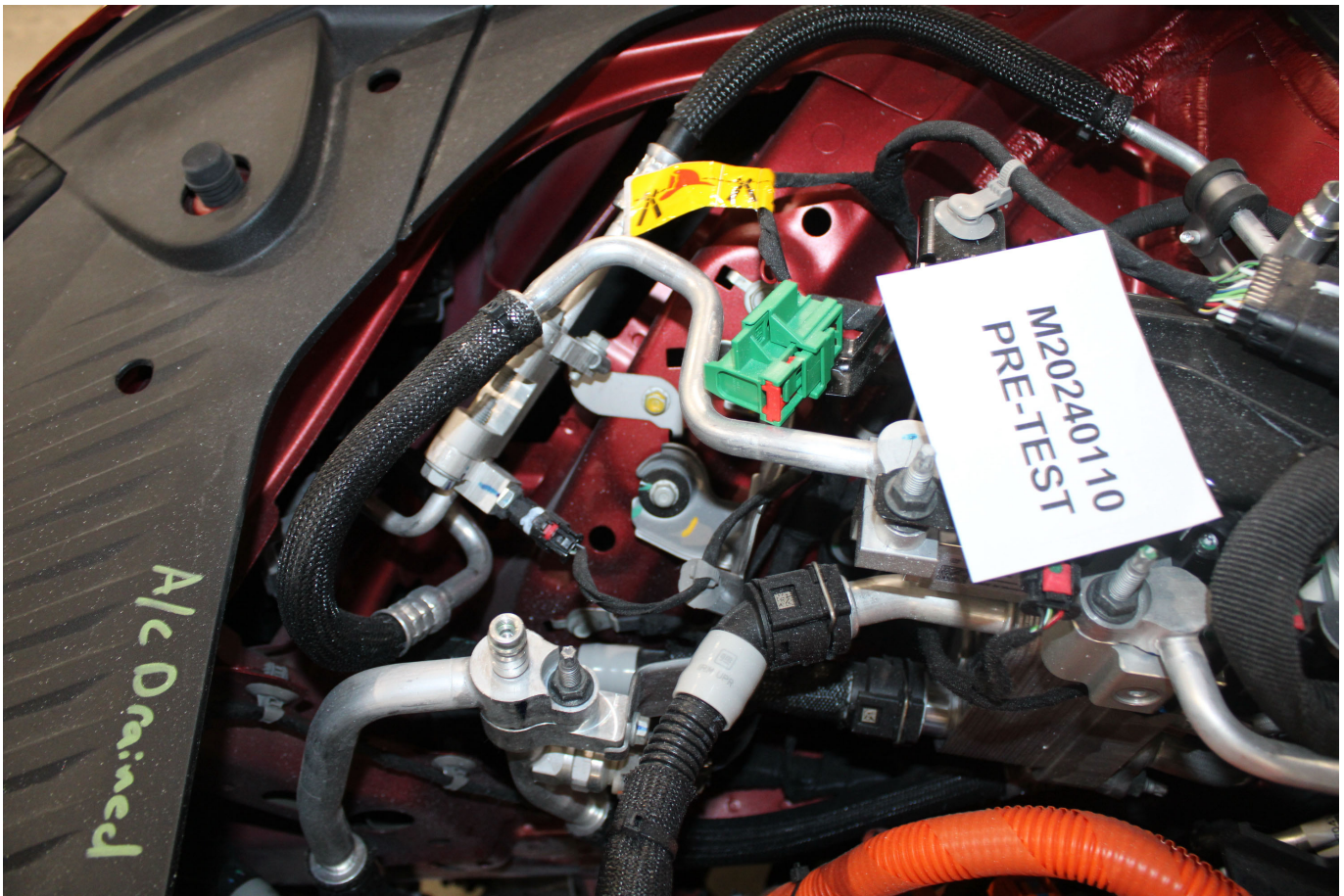


Photo No. 305-08 - Manual High Voltage Service Disconnect Removed



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

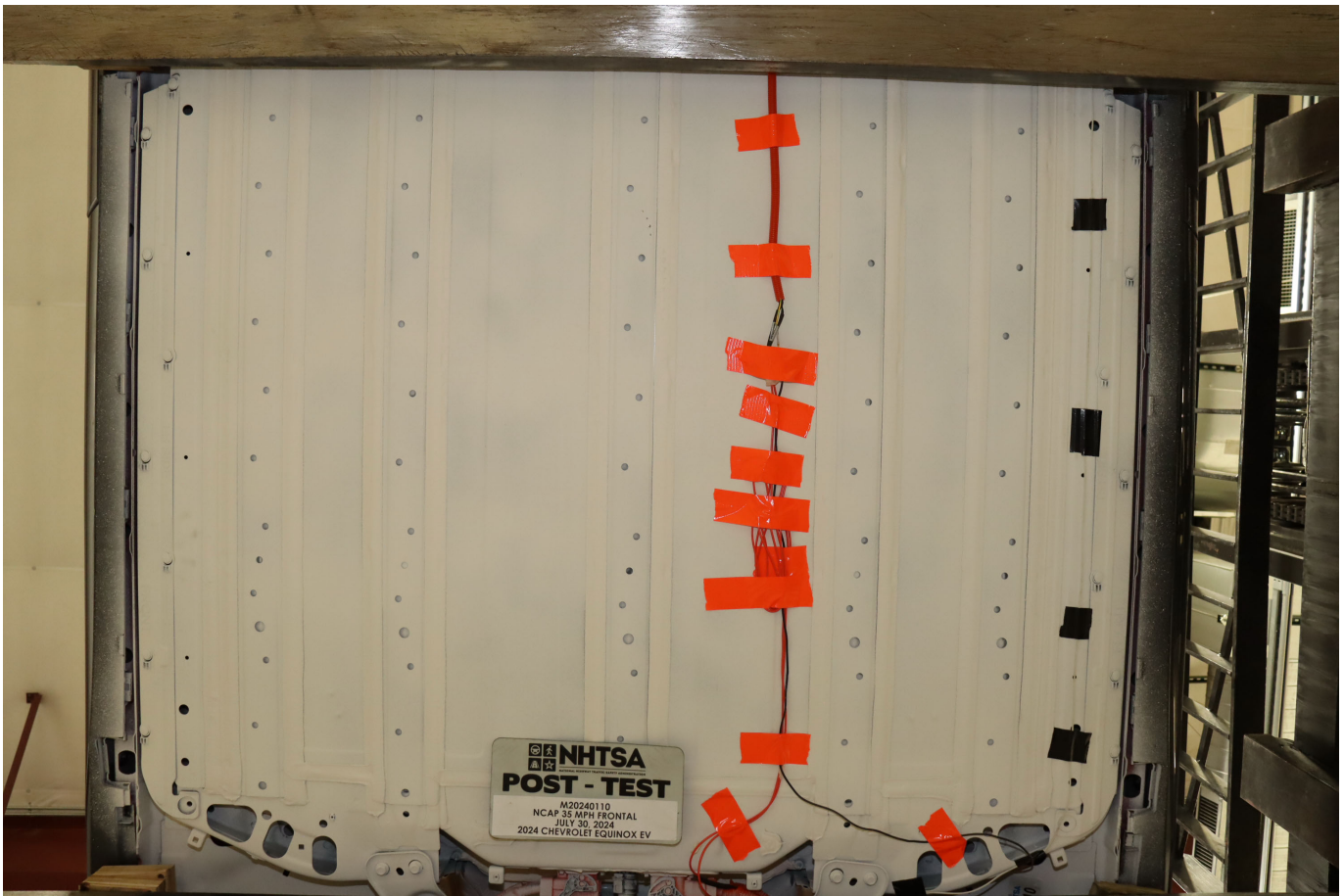


Photo No. 305-10 - Post-Impact Front View of Propulsion Battery

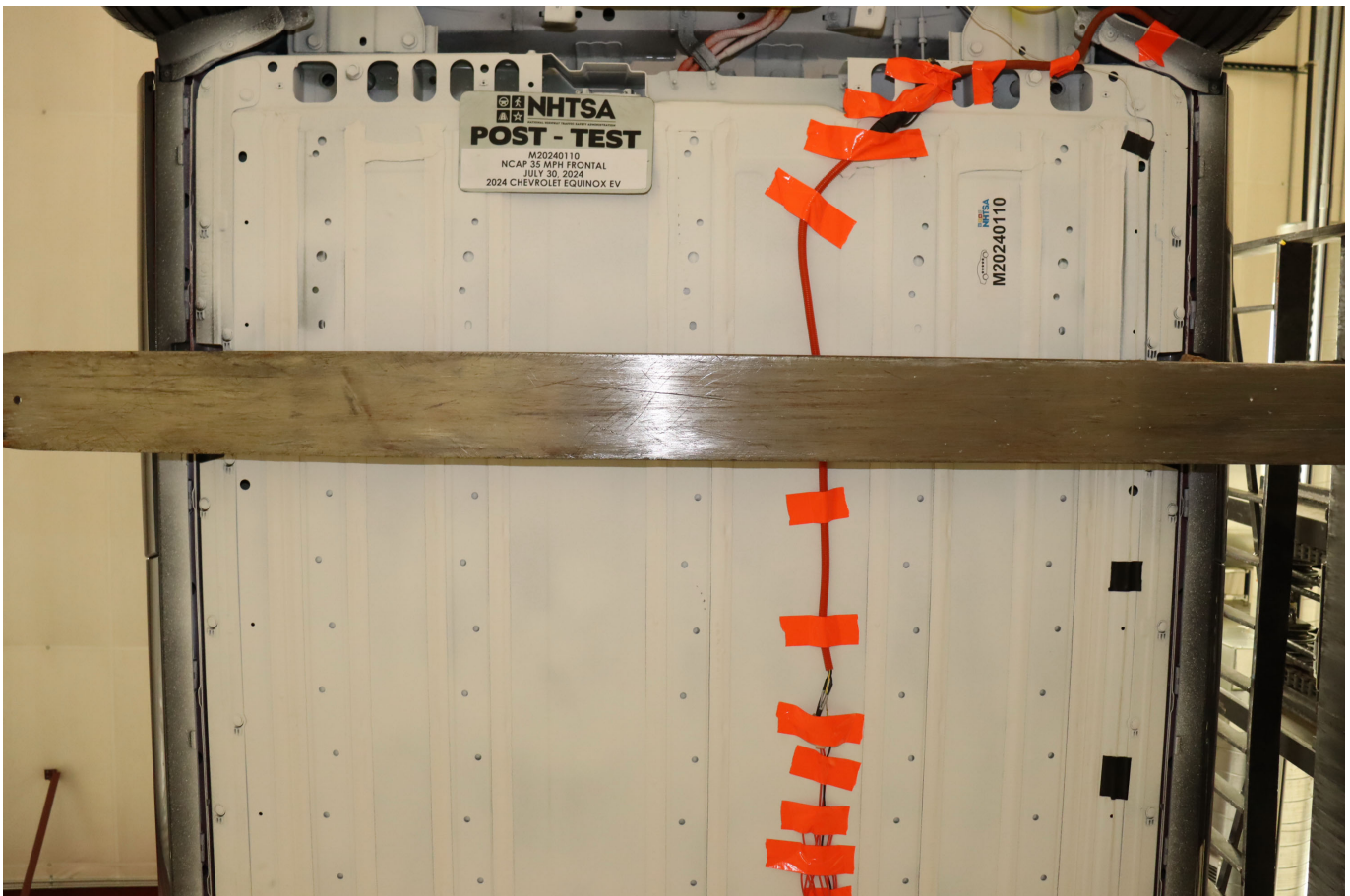


Photo No. 305-11 - Post-Impact Rear View of Propulsion Battery

PHOTOGRAPH NOT AVAILABLE

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

PHOTOGRAPH NOT AVAILABLE

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

PHOTOGRAPH NOT AVAILABLE

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

PHOTOGRAPH NOT AVAILABLE

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

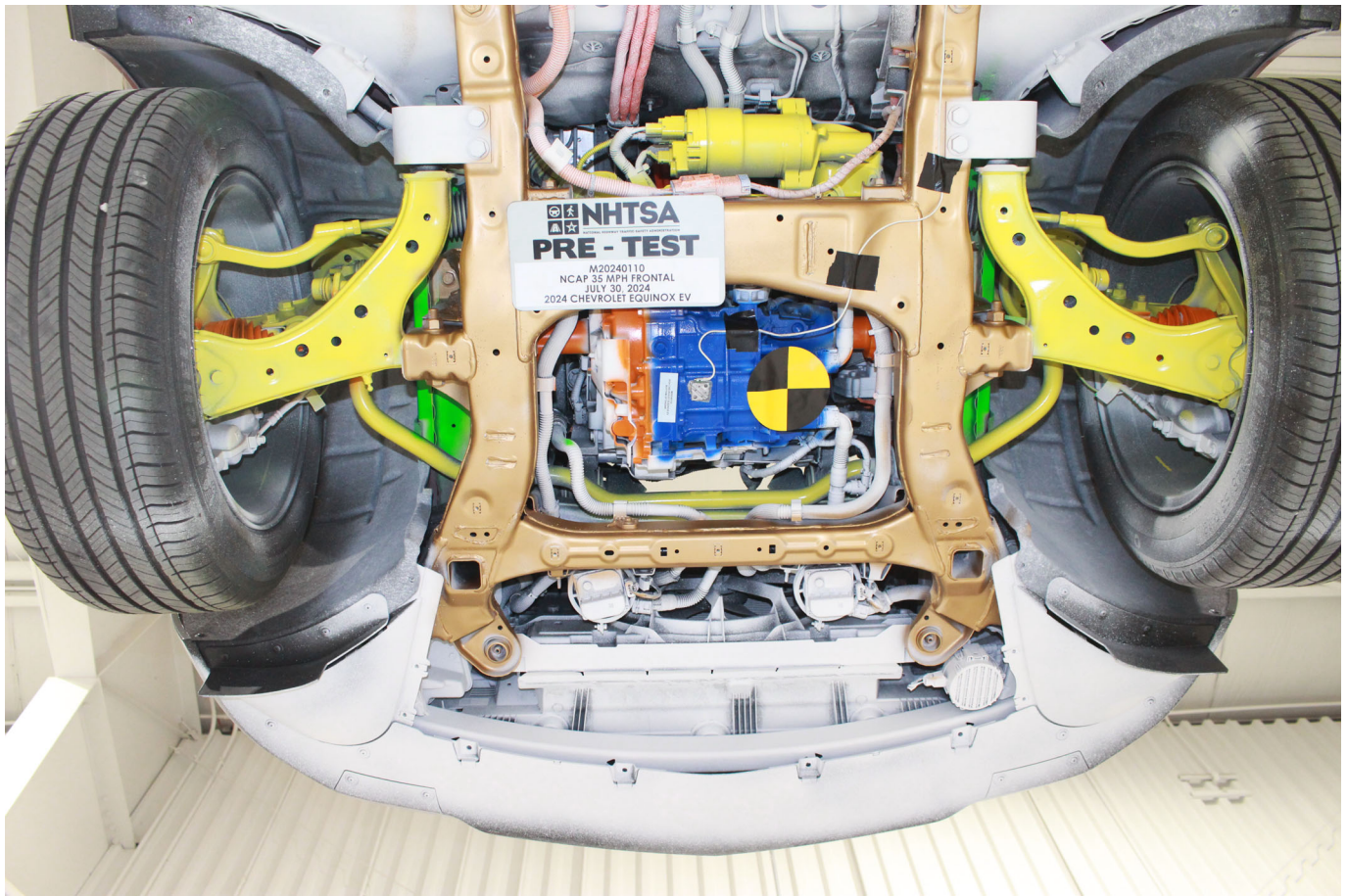


Photo No. 305-16 - Pre-Impact View of Electric Propulsion Drive

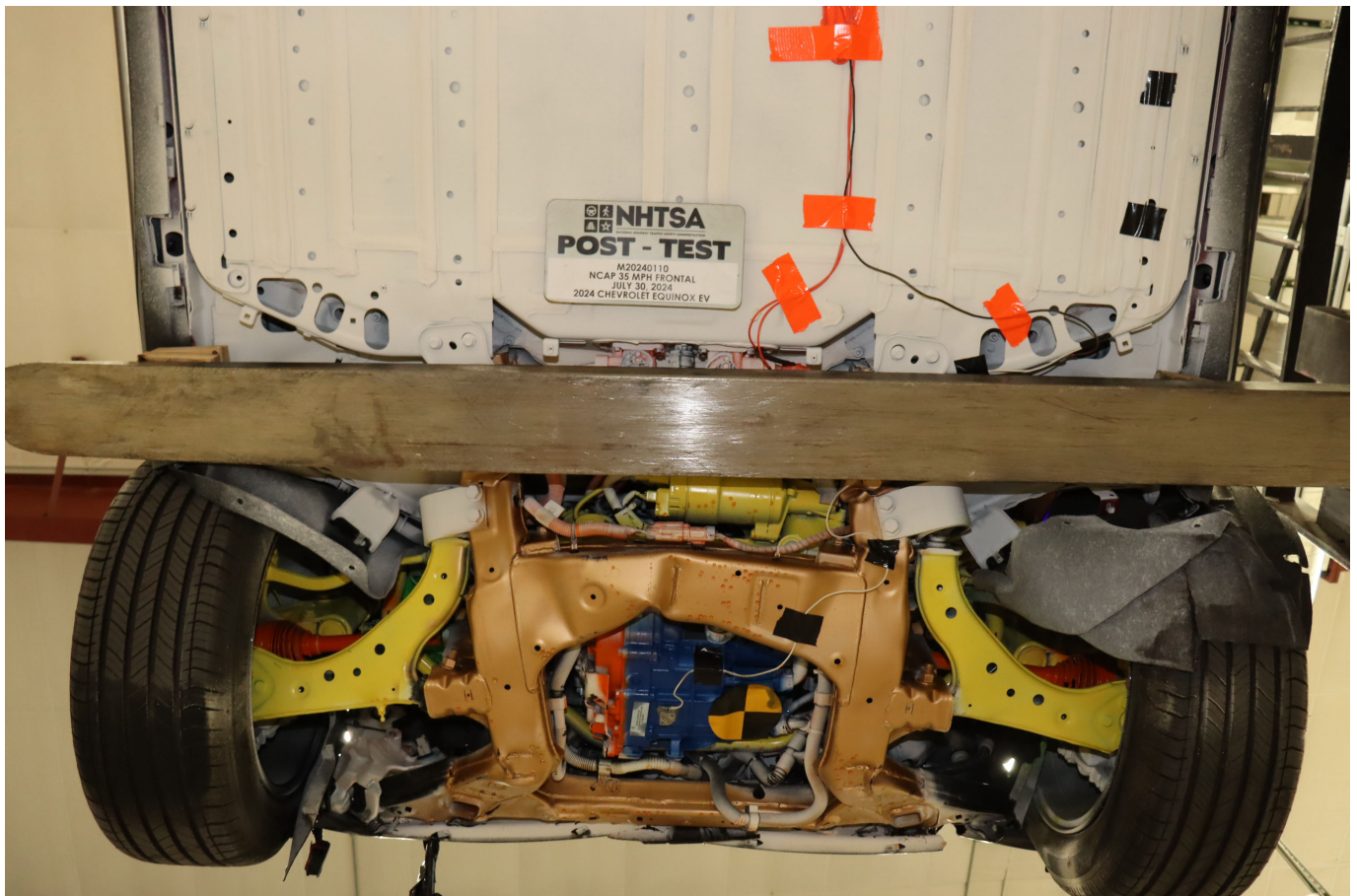


Photo No. 305-17 - Post-Impact View of Electric Propulsion Drive

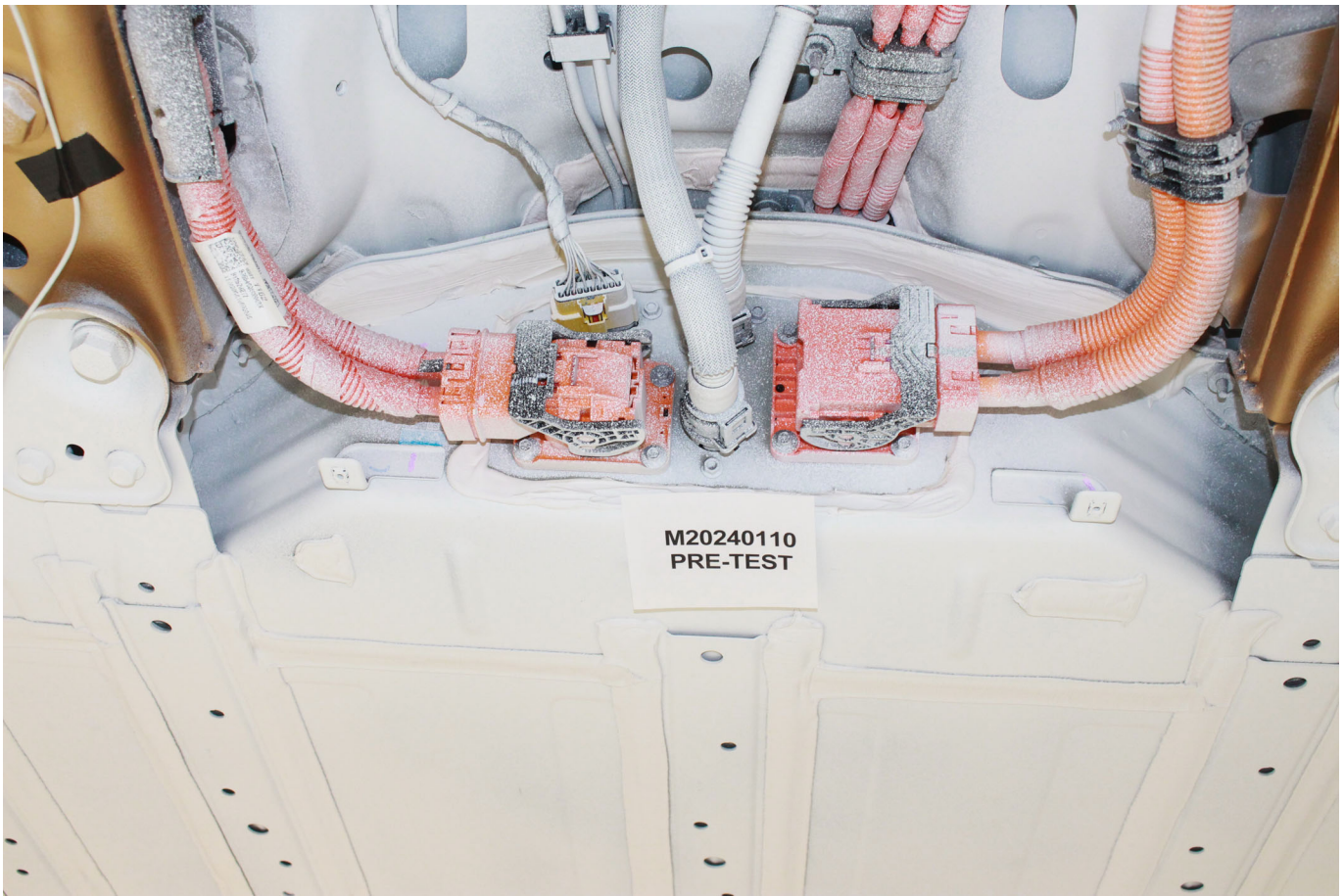


Photo No. 305-18 - Pre-Impact View of High Voltage Interconnect(s)

PHOTOGRAPH NOT APPLICABLE

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

PHOTOGRAPH NOT APPLICABLE

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



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

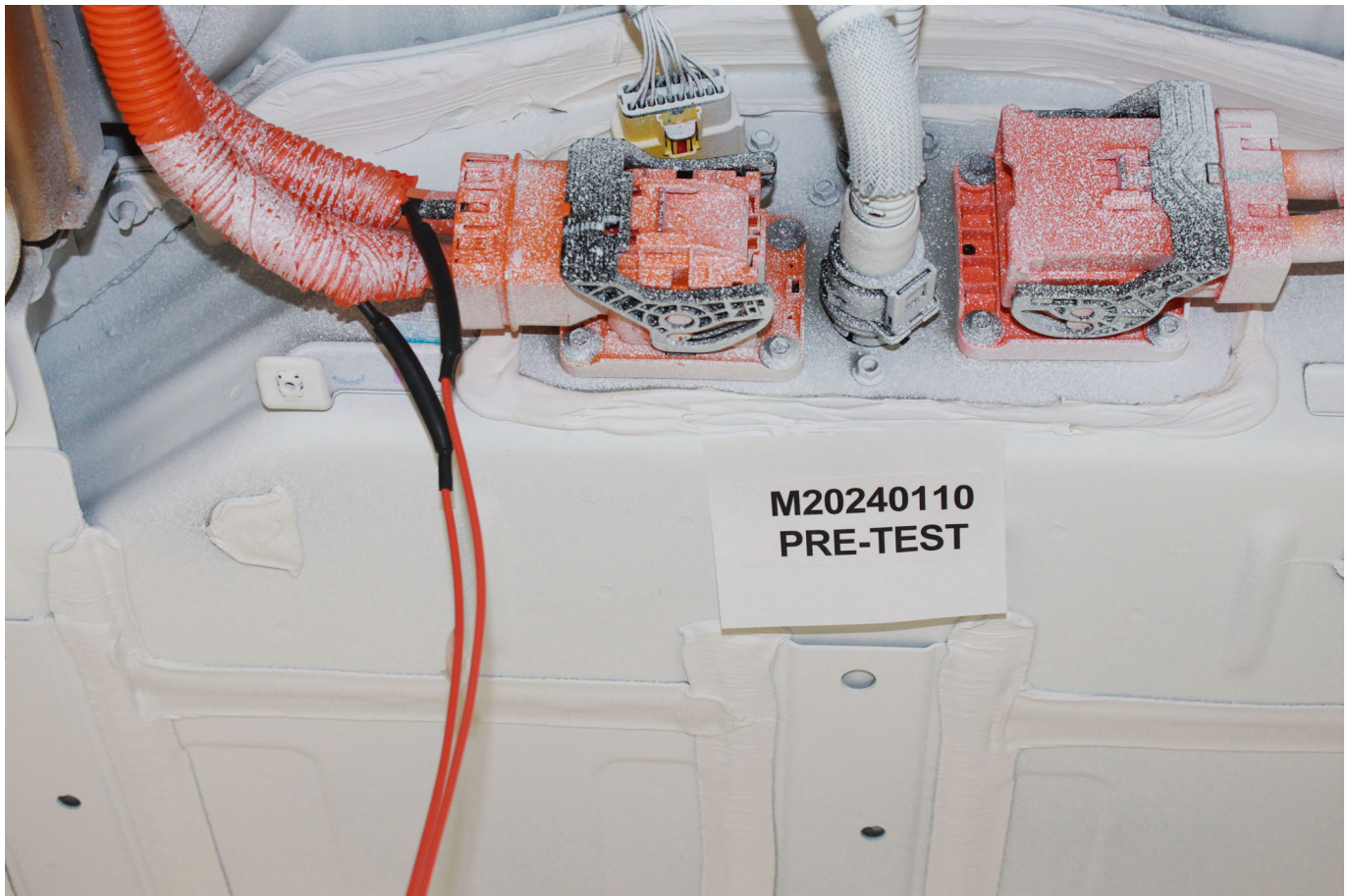


Photo No. 305-22 - Pre-Impact View of High Voltage Leads Attached



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



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



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



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



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

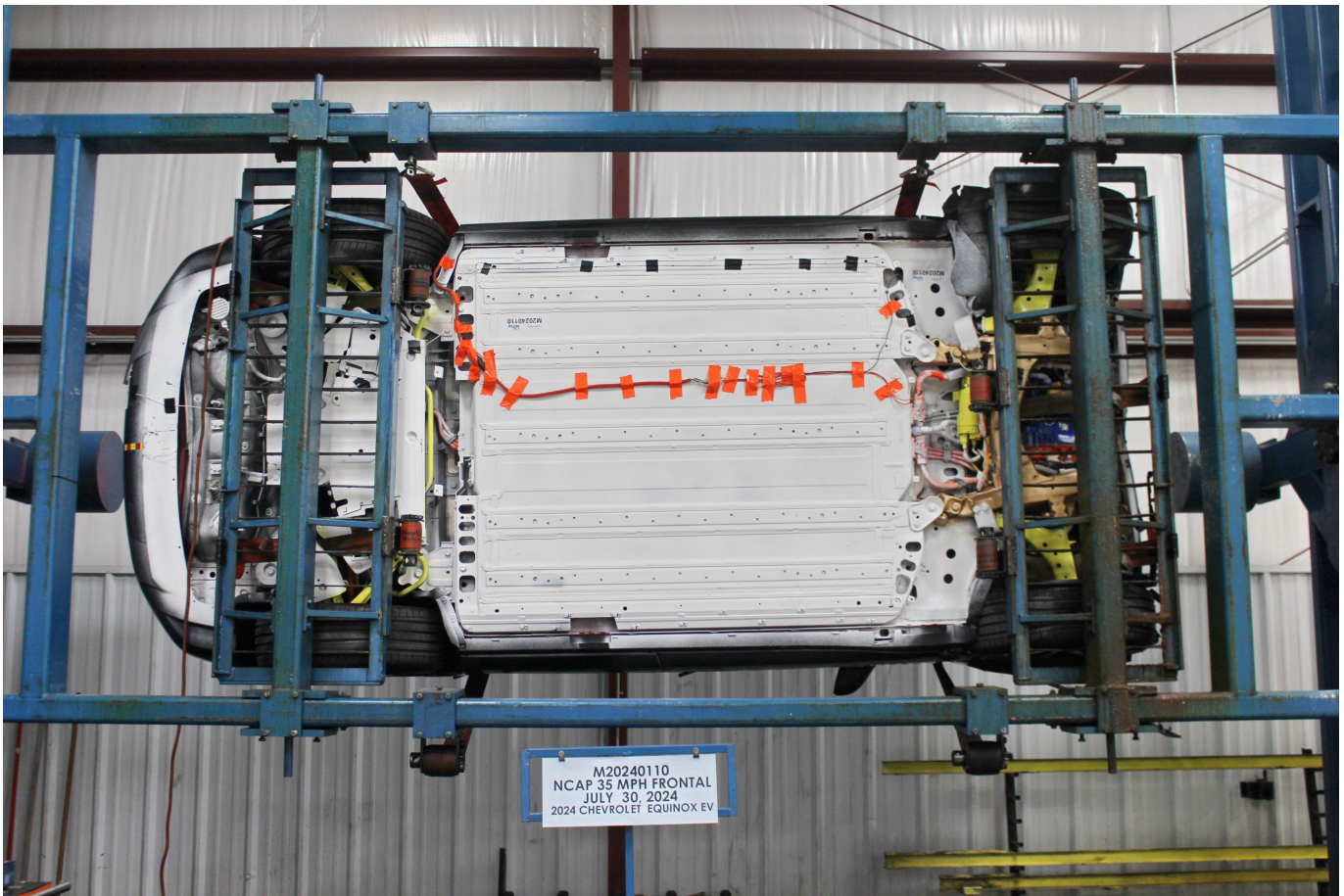


Photo No. 305-28 - FMVSS No. 305 Static Rollover at 90 Degrees



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



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



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



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



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

PHOTOGRAPH NOT APPLICABLE

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

PHOTOGRAPH NOT APPLICABLE

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

PHOTOGRAPH NOT APPLICABLE

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

PHOTOGRAPH NOT APPLICABLE

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

PHOTOGRAPH NOT APPLICABLE

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

APPENDIX B
DUMMY RESPONSE DATA TRACES

TABLE OF DATA PLOTS

Page No.

List of Data Plots Provided in the Test Report

Figure No. 1.	Driver Head X Acceleration vs. Time	B-1
Figure No. 2.	Driver Head Y Acceleration vs. Time	B-1
Figure No. 3.	Driver Head Z Acceleration vs. Time	B-1
Figure No. 4.	Driver Head Resultant Acceleration vs. Time	B-1
Figure No. 5.	Driver Chest Displacement vs. Time	B-2
Figure No. 6.	Driver Chest X Acceleration vs. Time	B-3
Figure No. 7.	Driver Chest Y Acceleration vs. Time	B-3
Figure No. 8.	Driver Chest Z Acceleration vs. Time	B-3
Figure No. 9.	Driver Chest Resultant Acceleration vs. Time	B-3
Figure No. 10.	Driver Neck Force X vs. Time	B-4
Figure No. 11.	Driver Neck Force Z vs. Time	B-4
Figure No. 12.	Driver Neck Moment Y vs. Time	B-4
Figure No. 13.	Driver Nij (NTF) vs. Time	B-5
Figure No. 14.	Driver Nij (NTE) vs. Time	B-5
Figure No. 15.	Driver Nij (NCF) vs. Time	B-5
Figure No. 16.	Driver Nij (NCE) vs. Time	B-5
Figure No. 17.	Driver Left Femur Force vs. Time	B-6
Figure No. 18.	Driver Right Femur Force vs. Time	B-6
Figure No. 19.	Passenger Head X Acceleration vs. Time	B-7
Figure No. 20.	Passenger Head Y Acceleration vs. Time	B-7
Figure No. 21.	Passenger Head Z Acceleration vs. Time	B-7
Figure No. 22.	Passenger Head Resultant Acceleration vs. Time	B-7
Figure No. 23.	Passenger Chest Displacement vs. Time	B-8
Figure No. 24.	Passenger Chest X Acceleration vs. Time	B-9
Figure No. 25.	Passenger Chest Y Acceleration vs. Time	B-9
Figure No. 26.	Passenger Chest Z Acceleration vs. Time	B-9
Figure No. 27.	Passenger Chest Resultant Z Acceleration vs. Time	B-9

	<u>Page No.</u>
Figure No. 28. Passenger Neck Force X vs. Time	B-10
Figure No. 29. Passenger Neck Force Z vs. Time	B-10
Figure No. 30. Passenger Neck Moment Y vs. Time	B-10
Figure No. 31. Passenger Nij (NTF) vs. Time	B-11
Figure No. 32. Passenger Nij (NTE) vs. Time	B-11
Figure No. 33. Passenger Nij (NCF) vs. Time	B-11
Figure No. 34. Passenger Nij (NCE) vs. Time	B-11
Figure No. 35. Passenger Left Femur Force vs. Time	B-12
Figure No. 36. Passenger Right Femur Force vs. Time	B-12

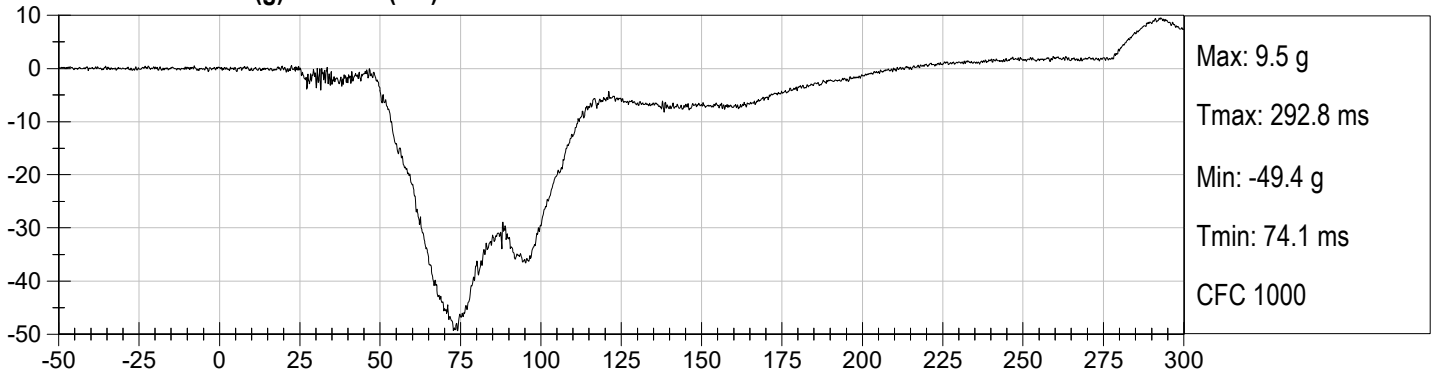
The following additional dummy and vehicle response data can be found in the R&D section of the NHTSA website at www.nhtsa.gov

Driver Head X Redundant
 Driver Head Y Redundant
 Driver Head Z Redundant
 Driver Head Angular Velocity X
 Driver Head Angular Velocity Y
 Driver Head Angular Velocity Z
 Driver Upper Neck Force Y
 Driver Upper Neck Moment X
 Driver Upper Neck Moment Z
 Driver Chest X Redundant
 Driver Chest Y Redundant
 Driver Chest Z Redundant
 Driver Pelvis X
 Driver Pelvis Y
 Driver Pelvis Z
 Driver Left Femur Redundant
 Driver Right Femur Redundant
 Driver Left Upper Tibia Moment X
 Driver Left Upper Tibia Moment Y

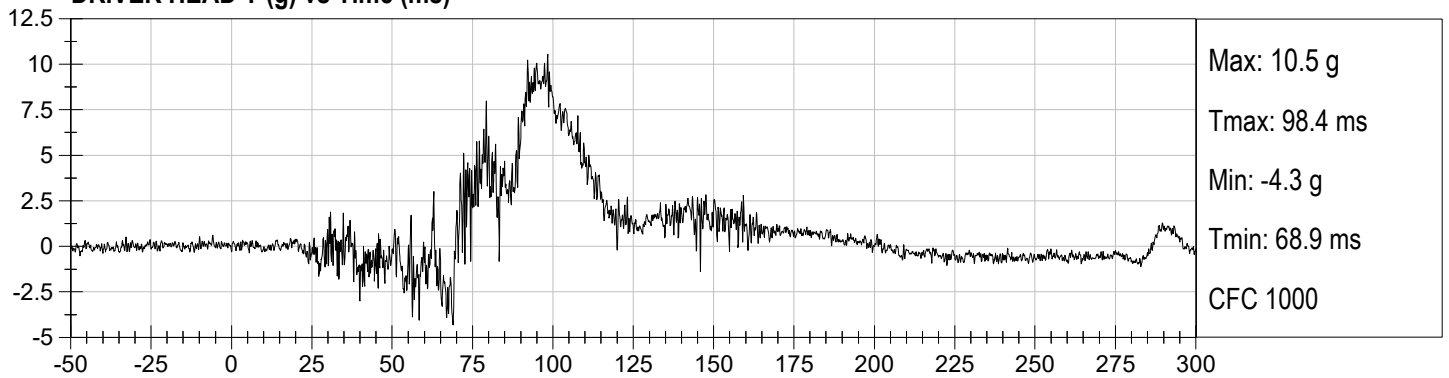
Driver Left Upper Tibia Force Z
Driver Left Lower Tibia Moment X
Driver Left Lower Tibia Moment Y
Driver Left Lower Tibia Force Z
Driver Right Upper Tibia Moment X
Driver Right Upper Tibia Moment Y
Driver Right Upper Tibia Force Z
Driver Right Lower Tibia Moment X
Driver Right Lower Tibia Moment Y
Driver Right Lower Tibia Force Z
Driver Left Foot Fore Z
Driver Left Foot Aft X
Driver Left Foot Aft Z
Driver Right Foot Fore Z
Driver Right Foot Aft X
Driver Right Foot Aft Z
Driver Lap Belt Force
Driver Shoulder Belt Force
Passenger Head X Redundant
Passenger Head Y Redundant
Passenger Head Z Redundant
Passenger Head Angular Velocity X
Passenger Head Angular Velocity Y
Passenger Head Angular Velocity Z
Passenger Upper Neck Force Y
Passenger Upper Neck Moment X
Passenger Upper Neck Moment Z
Passenger Chest X Redundant
Passenger Chest Y Redundant
Passenger Chest Z Redundant
Passenger Pelvis X
Passenger Pelvis Y

Passenger Pelvis Z
Passenger Left Femur Redundant
Passenger Right Femur Redundant
Passenger Left Upper Tibia Moment X
Passenger Left Upper Tibia Moment Y
Passenger Left Upper Tibia Force Z
Passenger Left Lower Tibia Moment X
Passenger Left Lower Tibia Moment Y
Passenger Left Lower Tibia Force Z
Passenger Right Upper Tibia Moment X
Passenger Right Upper Tibia Moment Y
Passenger Right Upper Tibia Force Z
Passenger Right Lower Tibia Moment X
Passenger Right Lower Tibia Moment Y
Passenger Right Lower Tibia Force Z
Passenger Left Foot Fore Z
Passenger Left Foot Aft X
Passenger Left Foot Aft Z
Passenger Right Foot Fore Z
Passenger Right Foot Aft X
Passenger Right Foot Aft Z
Passenger Lap Belt Force
Passenger Shoulder Belt Force
Left Rear Seat Crossmember X
Right Rear Seat Crossmember X
Vehicle Engine Top X
Vehicle Engine Bottom X
Left Rear Seat Crossmember Z
Right Rear Seat Crossmember Z
Left Rear Seat Crossmember Xr
Right Rear Seat Crossmember Xr
Advanced Research Load Cell Barrier – 528 channels

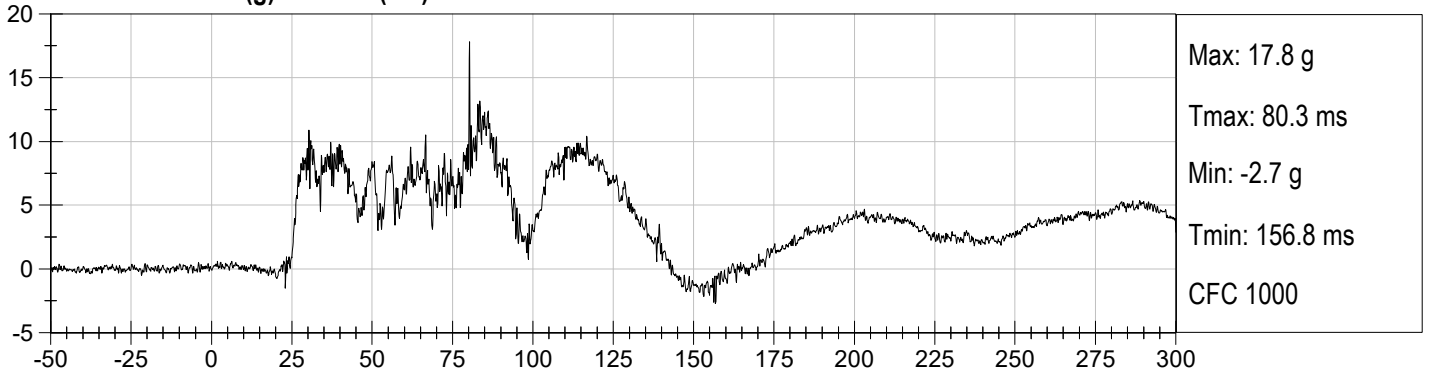
DRIVER HEAD X (g) vs Time (ms)



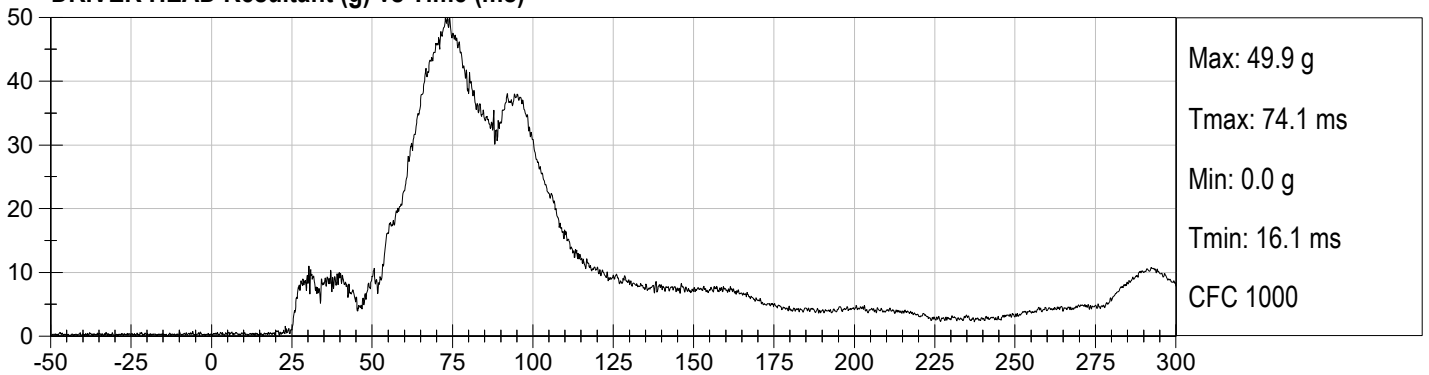
DRIVER HEAD Y (g) vs Time (ms)

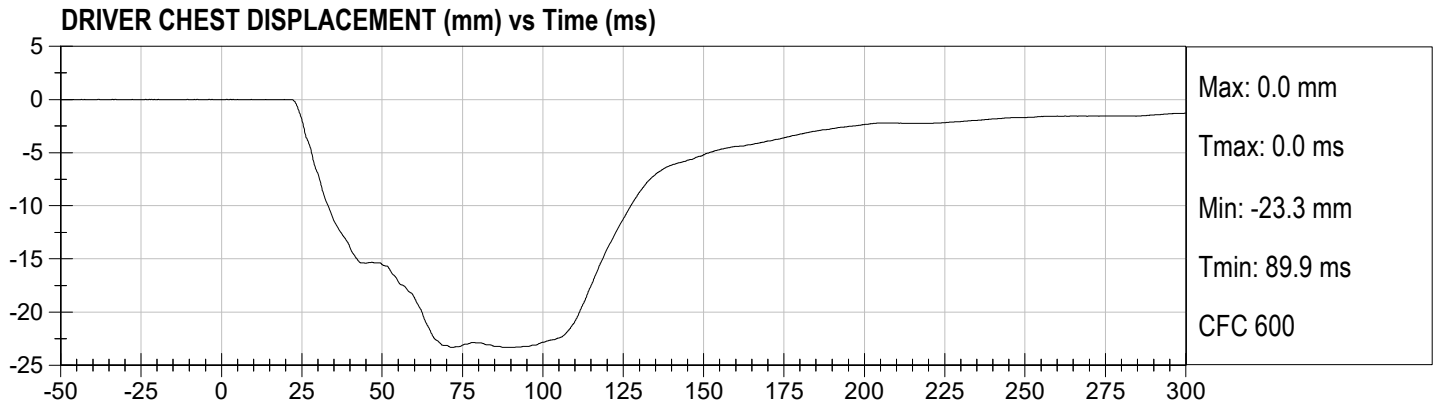


DRIVER HEAD Z (g) vs Time (ms)

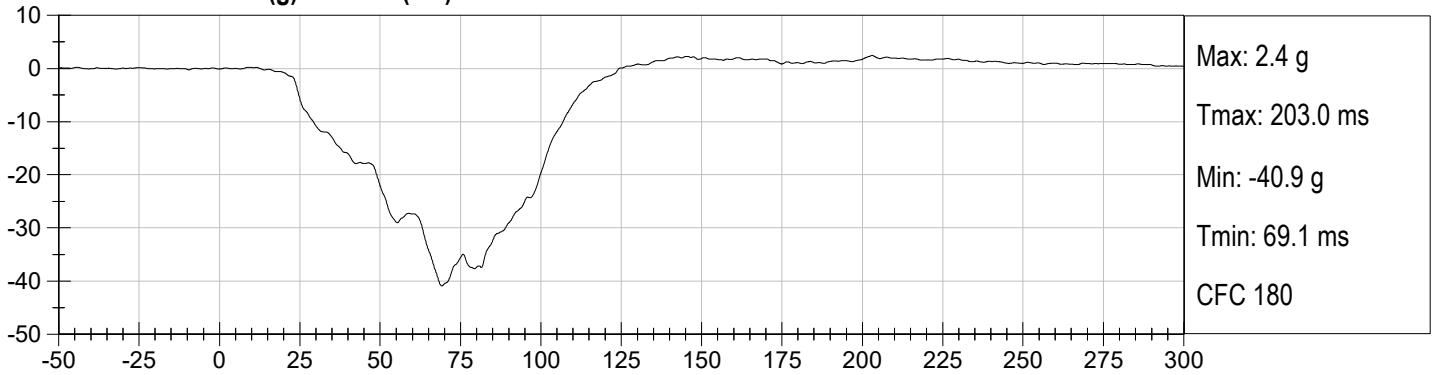


DRIVER HEAD Resultant (g) vs Time (ms)

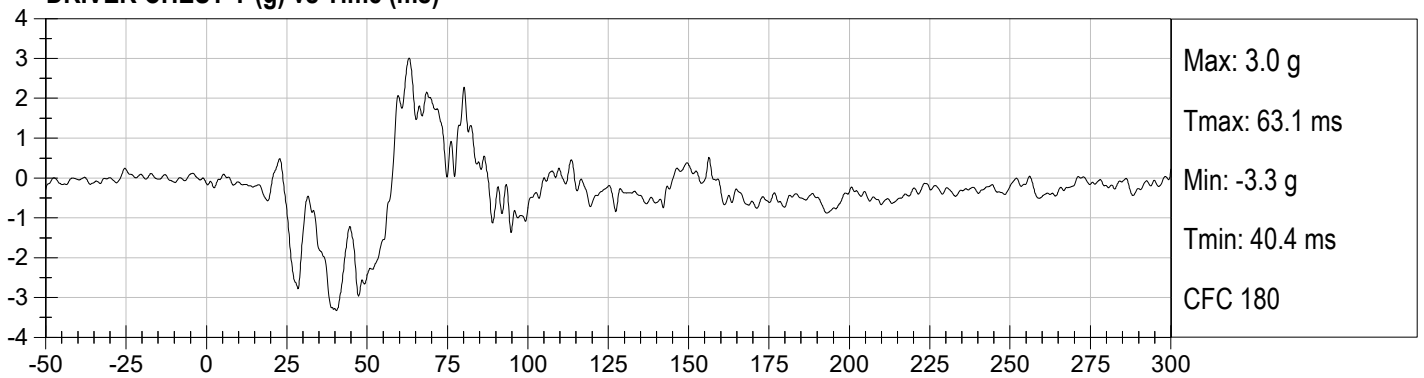




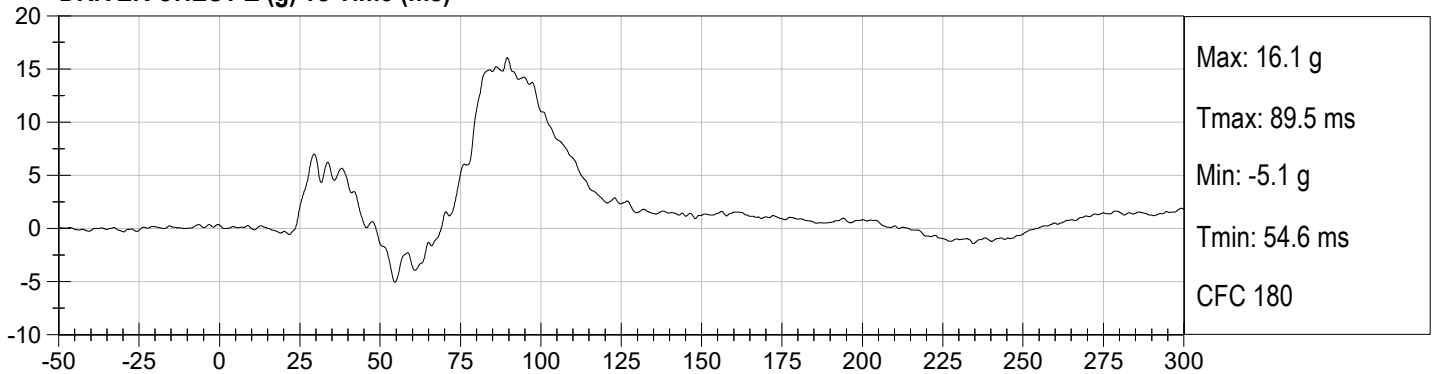
DRIVER CHEST X (g) vs Time (ms)



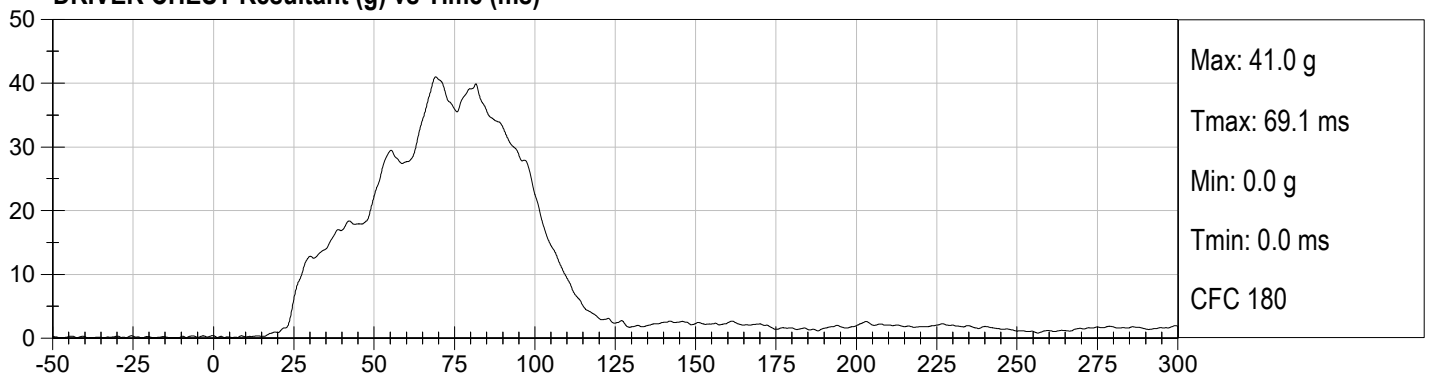
DRIVER CHEST Y (g) vs Time (ms)

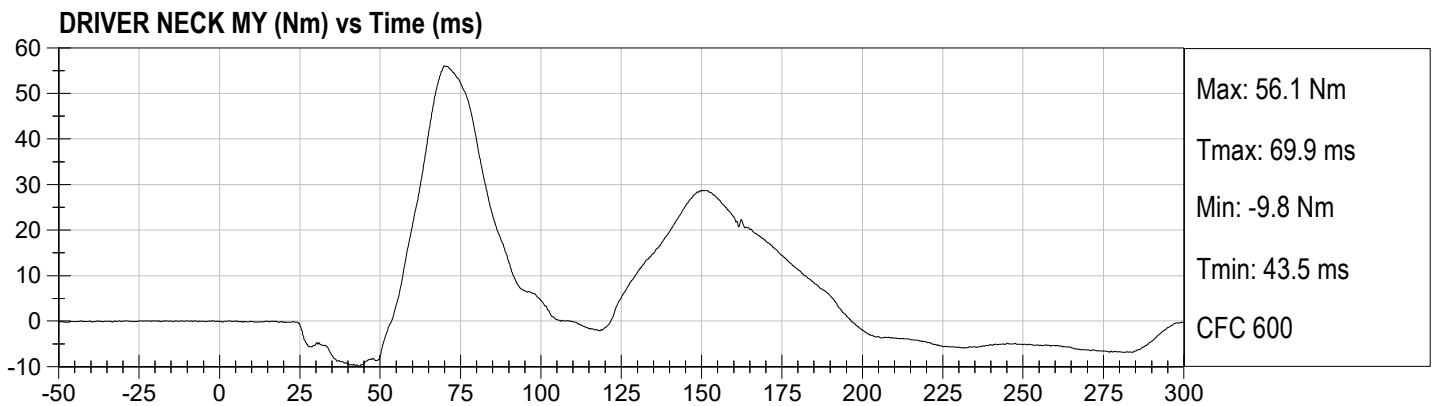
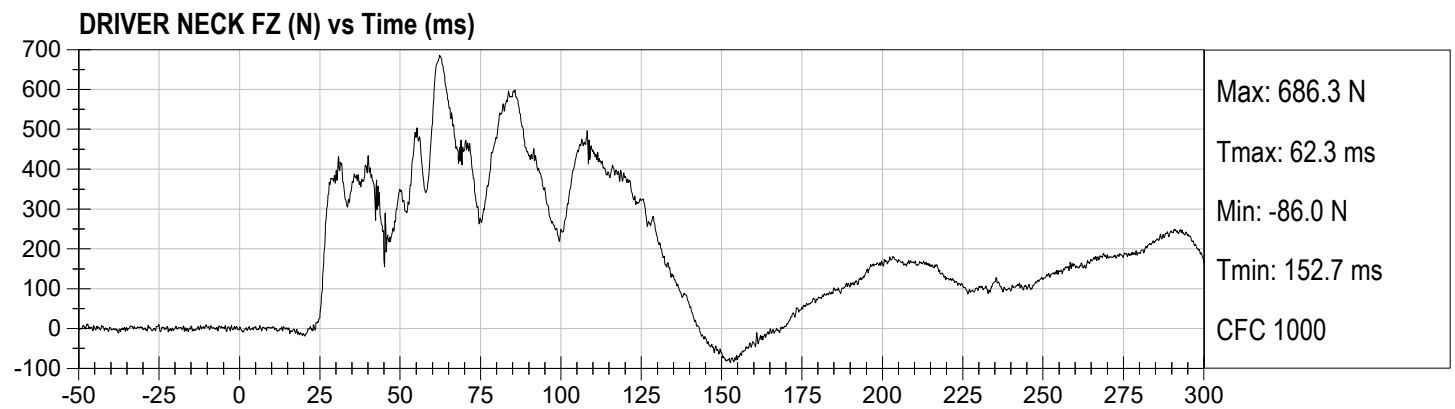
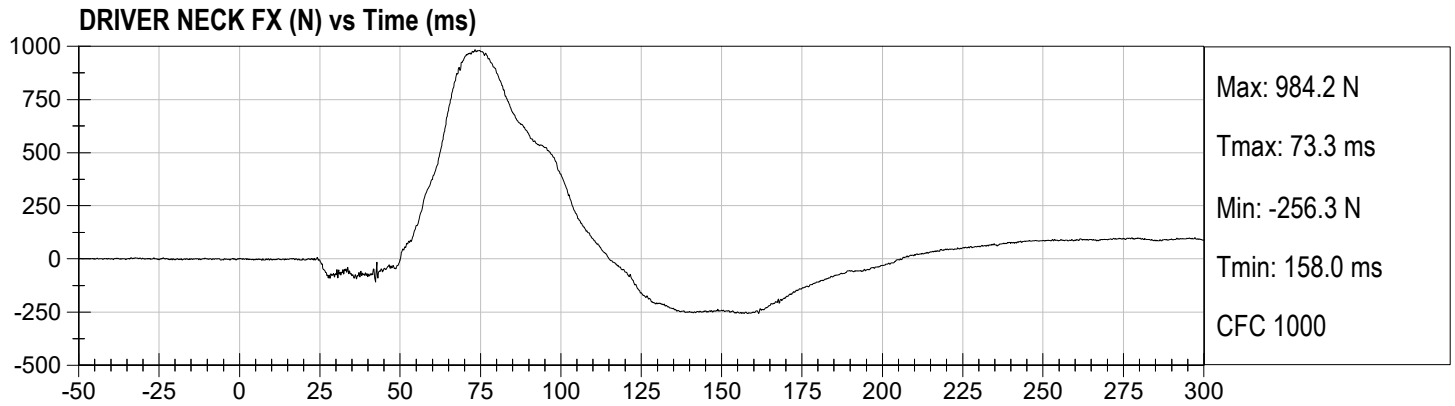


DRIVER CHEST Z (g) vs Time (ms)

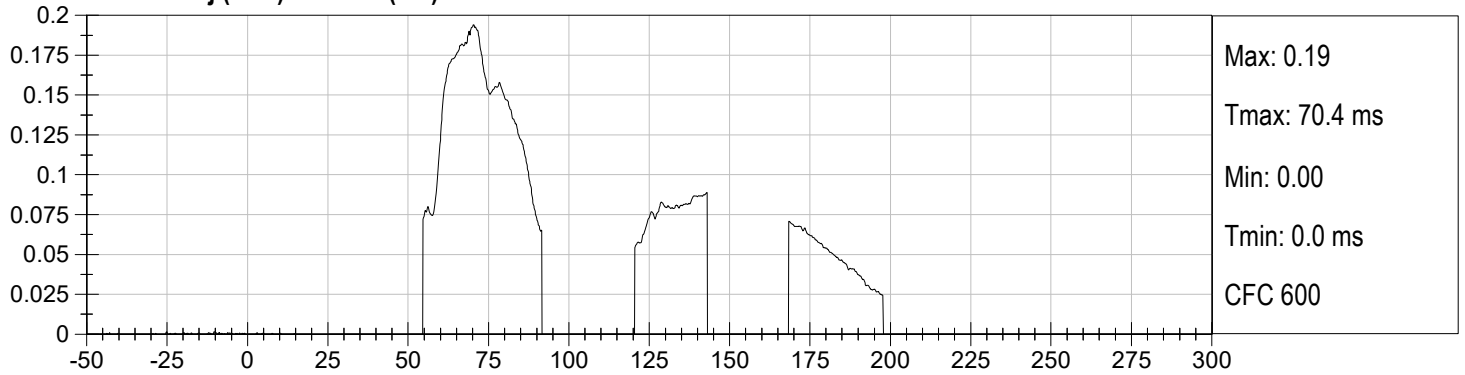


DRIVER CHEST Resultant (g) vs Time (ms)

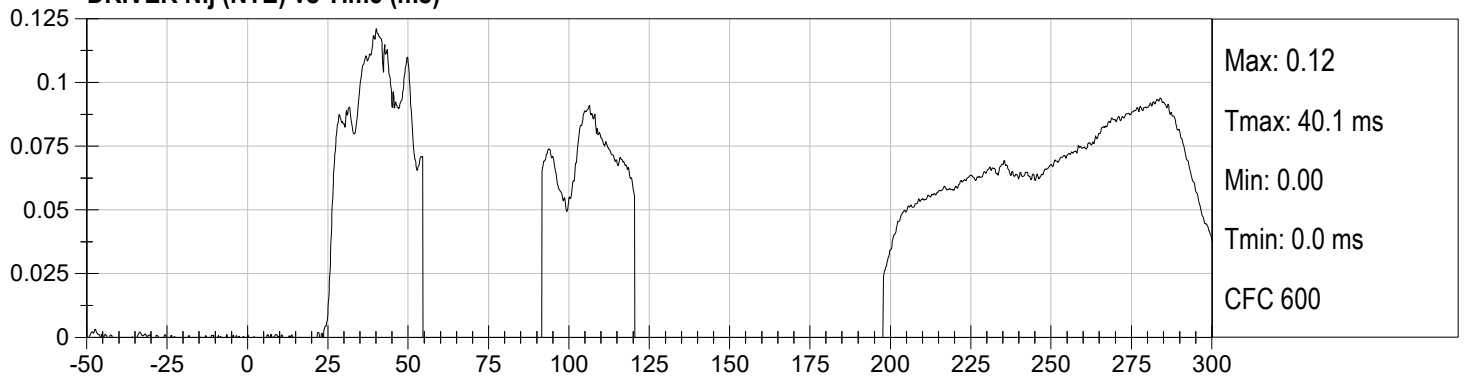




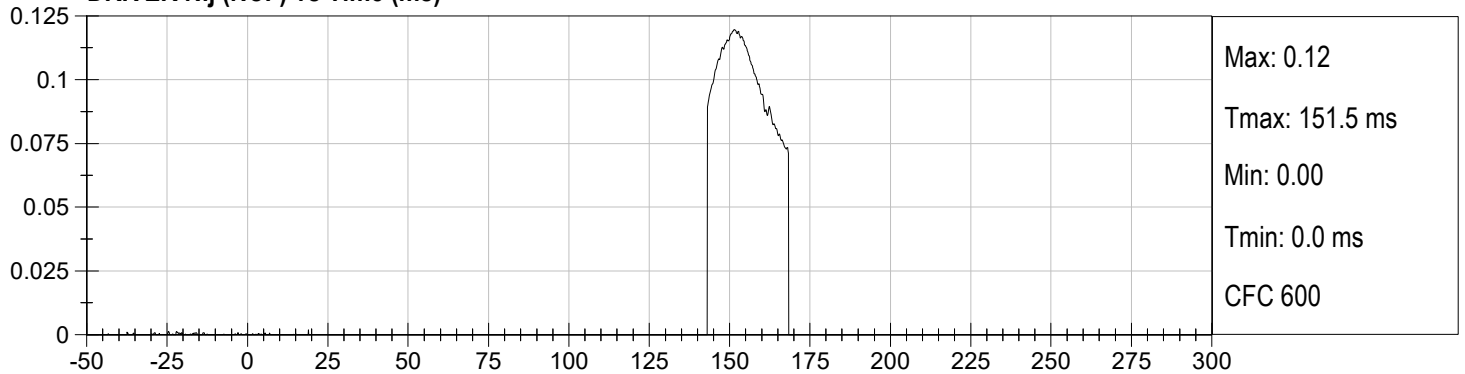
DRIVER Nij (NTF) vs Time (ms)



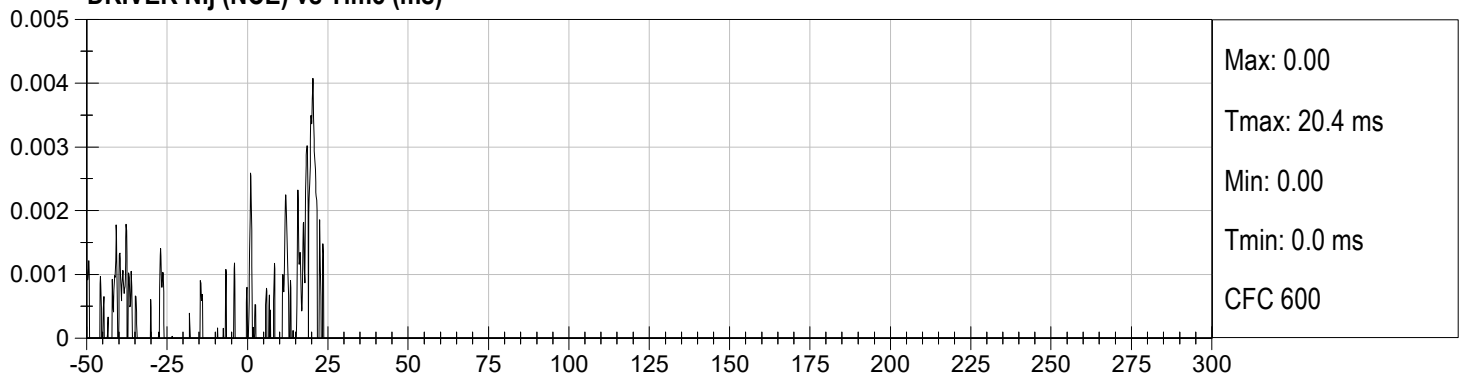
DRIVER Nij (NTE) vs Time (ms)



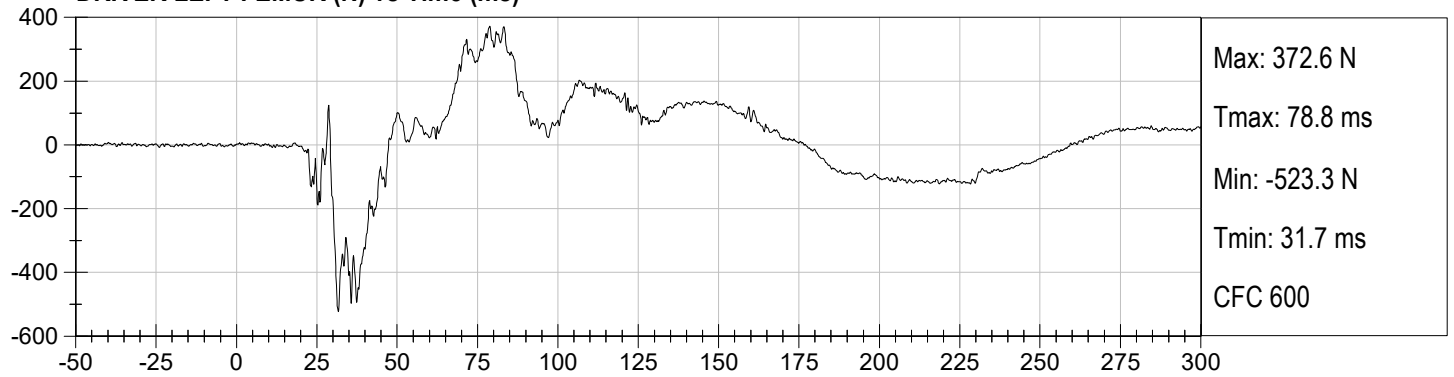
DRIVER Nij (NCF) vs Time (ms)



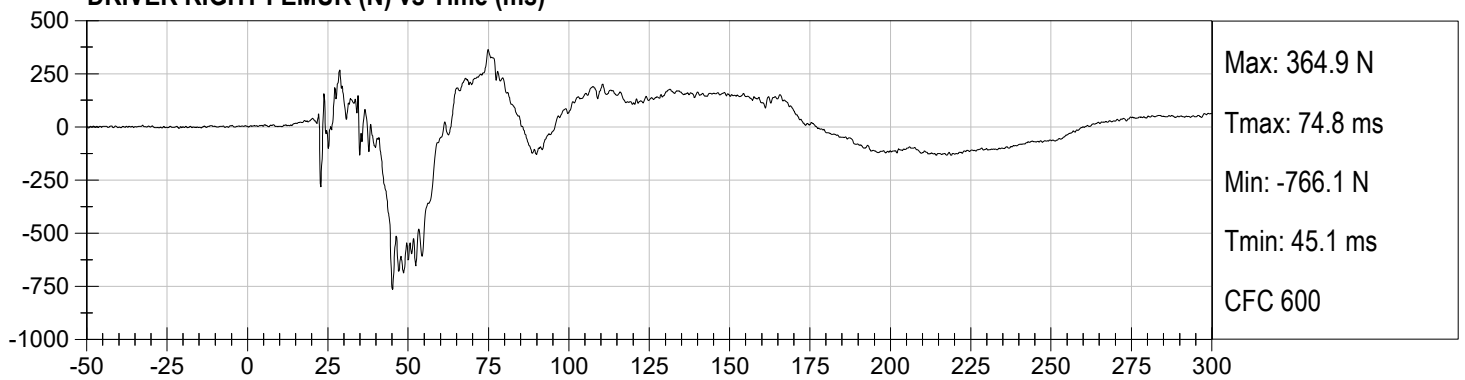
DRIVER Nij (NCE) vs Time (ms)



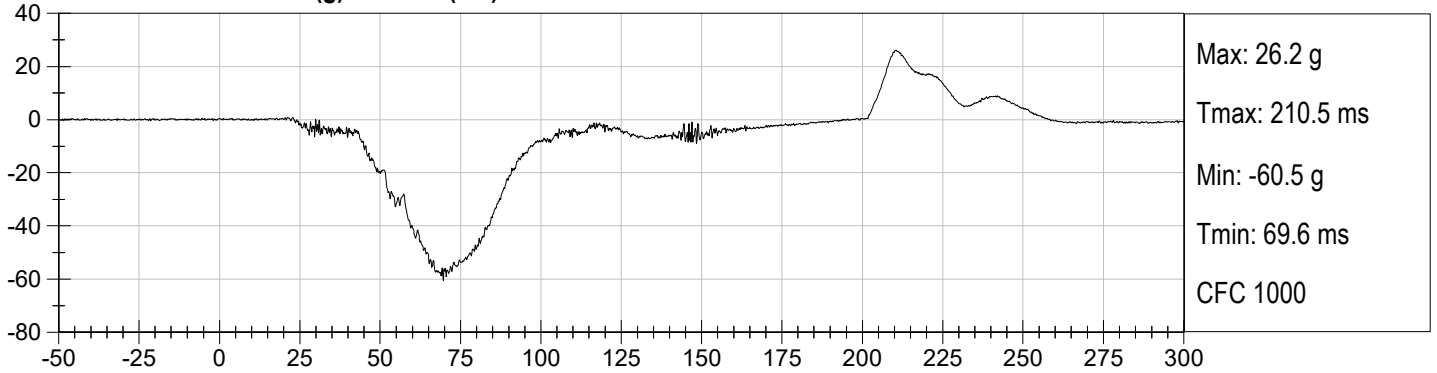
DRIVER LEFT FEMUR (N) vs Time (ms)



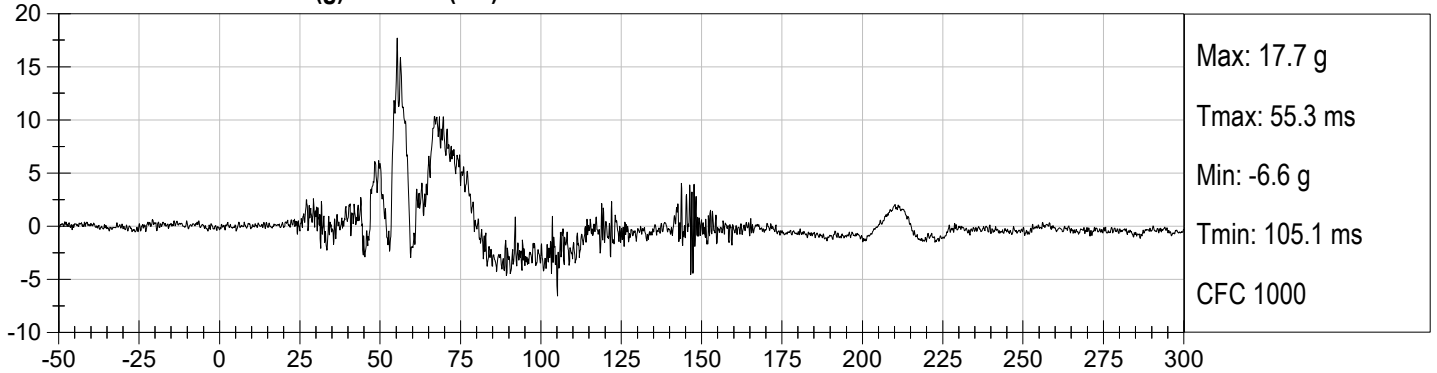
DRIVER RIGHT FEMUR (N) vs Time (ms)



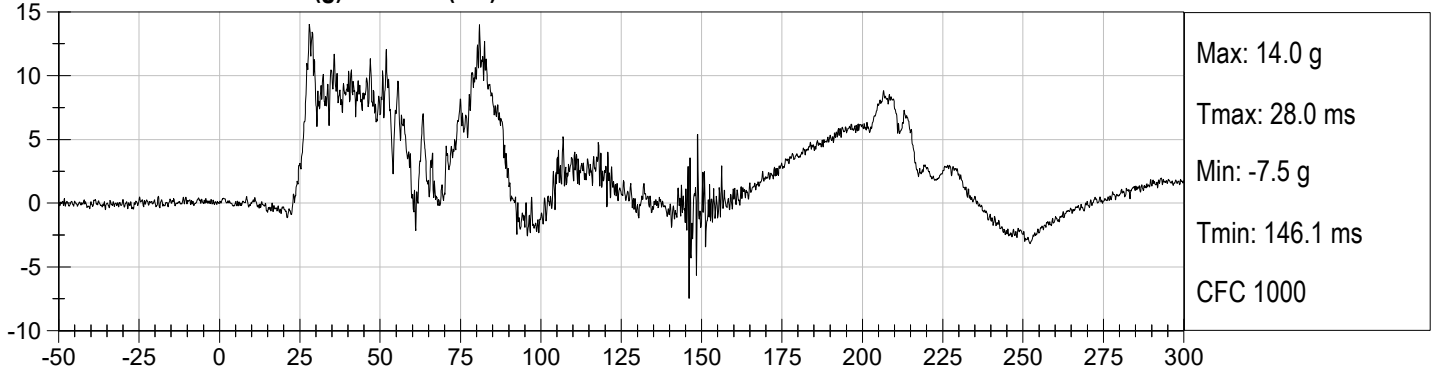
PASSENGER HEAD X (g) vs Time (ms)



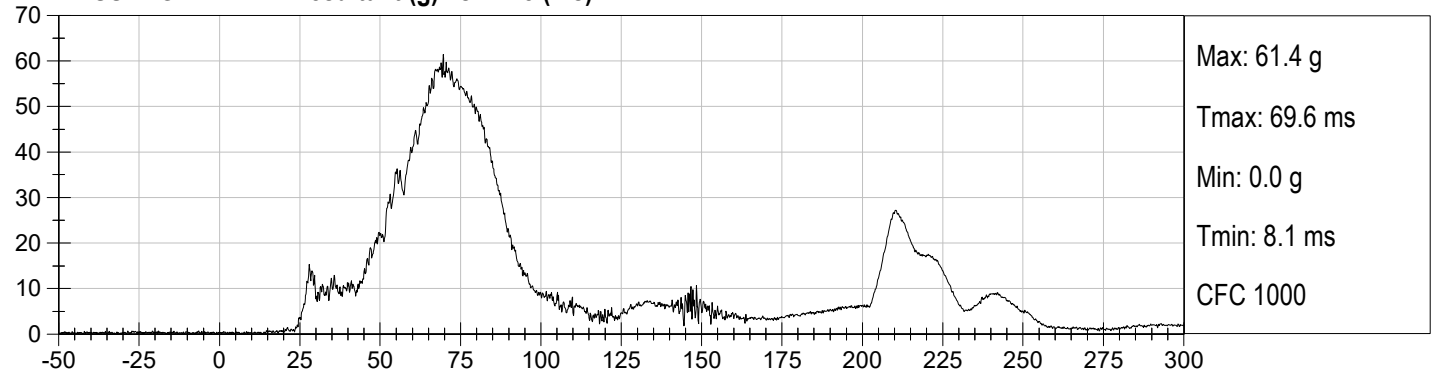
PASSENGER HEAD Y (g) vs Time (ms)

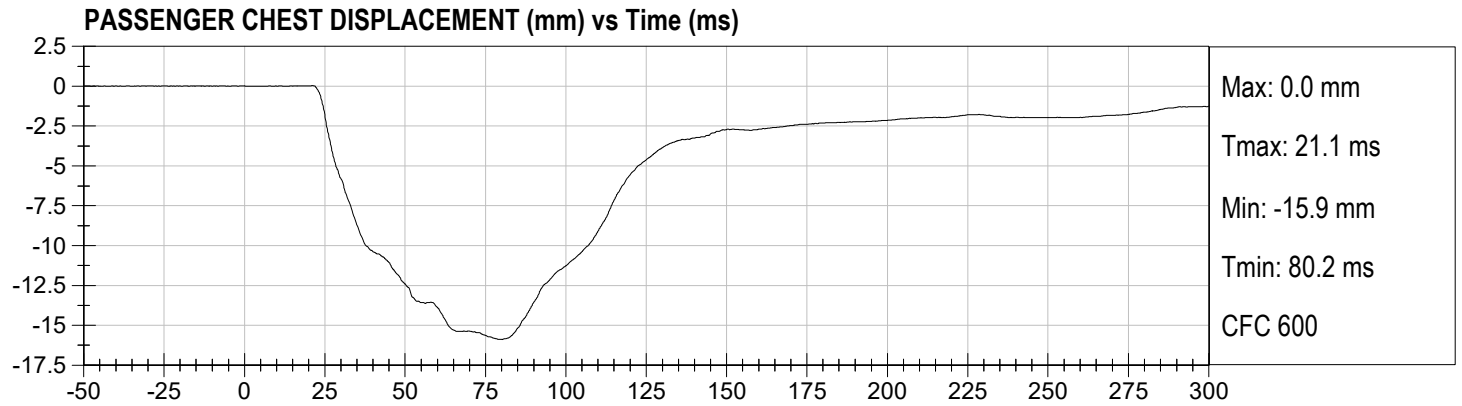


PASSENGER HEAD Z (g) vs Time (ms)

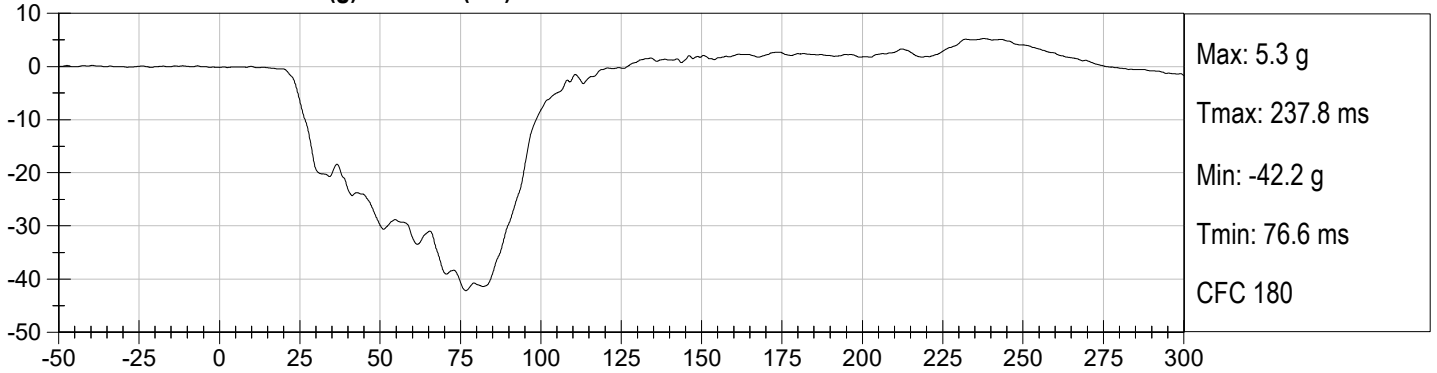


PASSENGER HEAD Resultant (g) vs Time (ms)

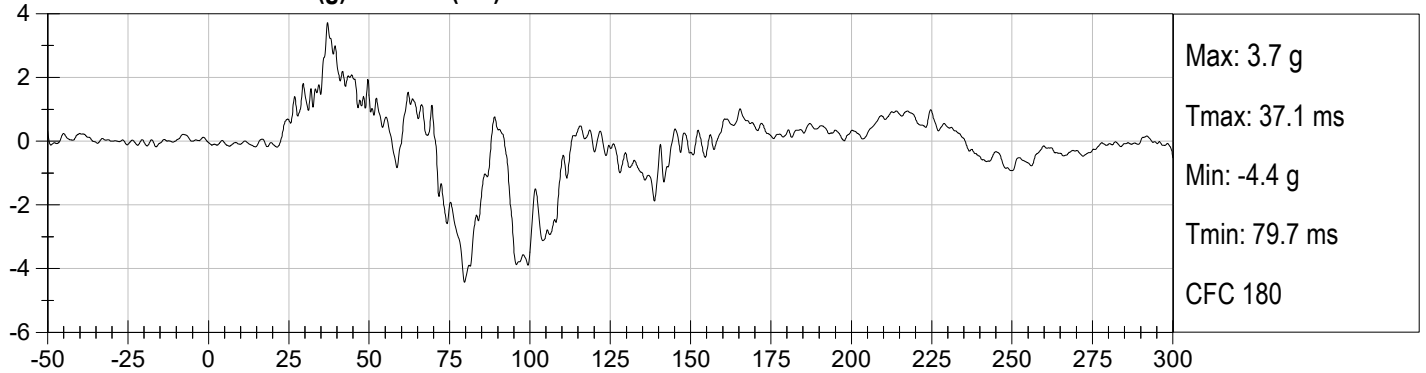




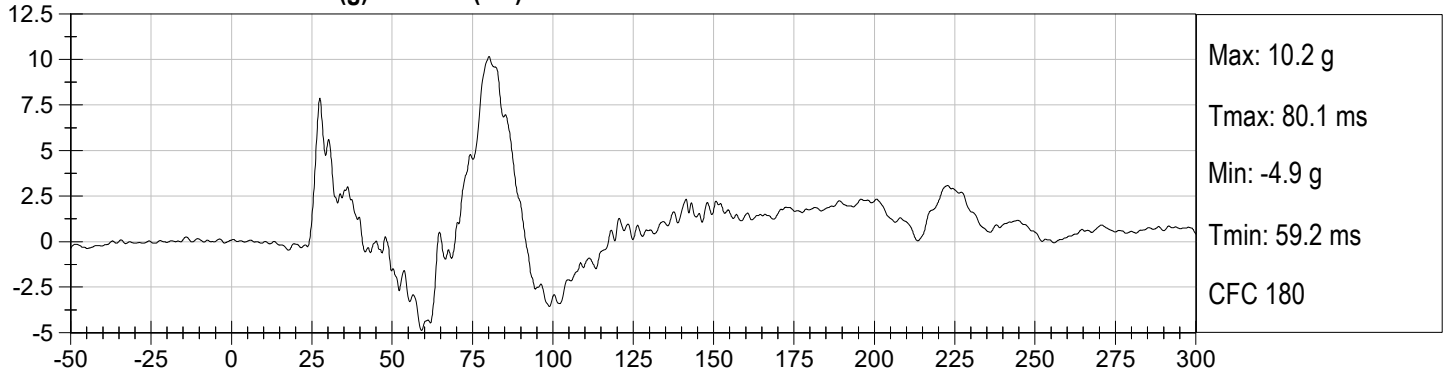
PASSENGER CHEST X (g) vs Time (ms)



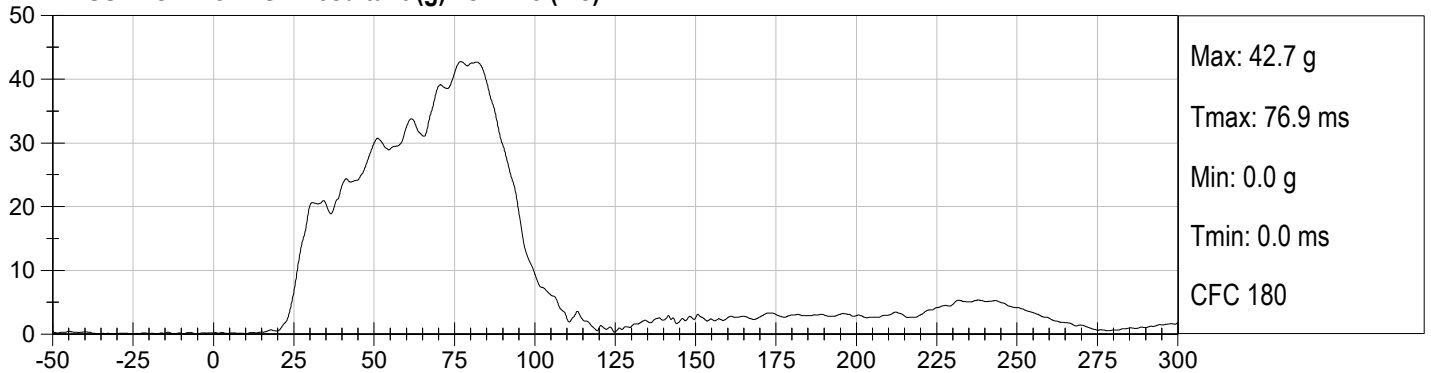
PASSENGER CHEST Y (g) vs Time (ms)



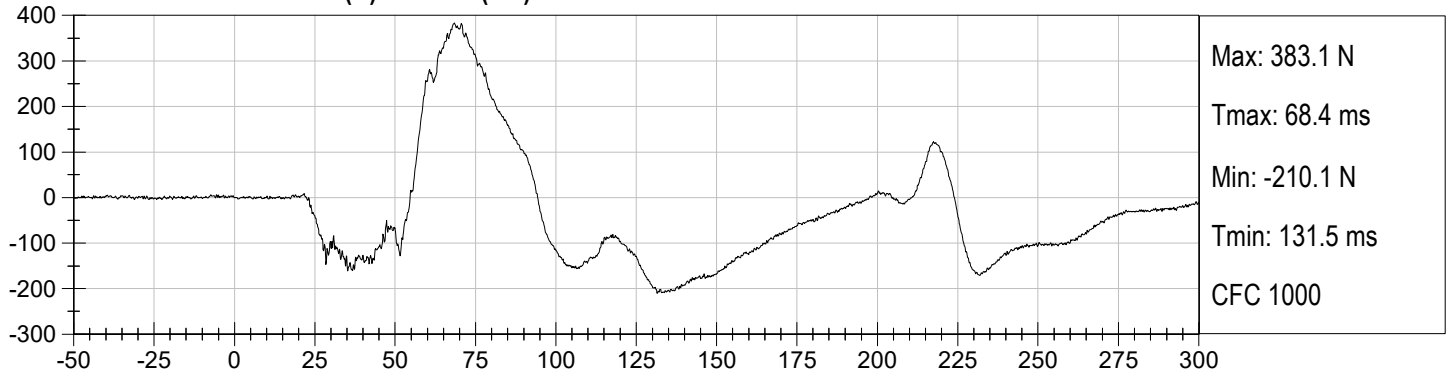
PASSENGER CHEST Z (g) vs Time (ms)



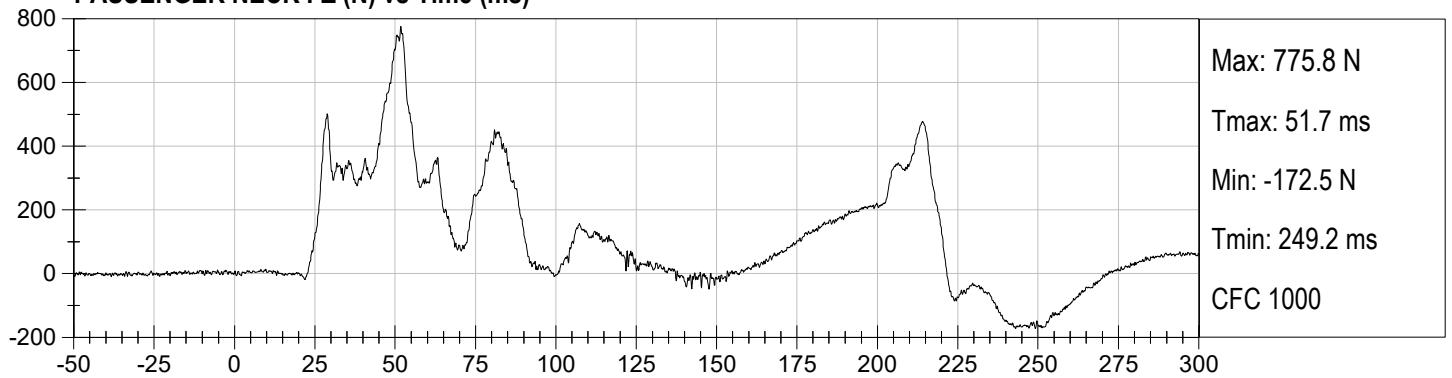
PASSENGER CHEST Resultant (g) vs Time (ms)



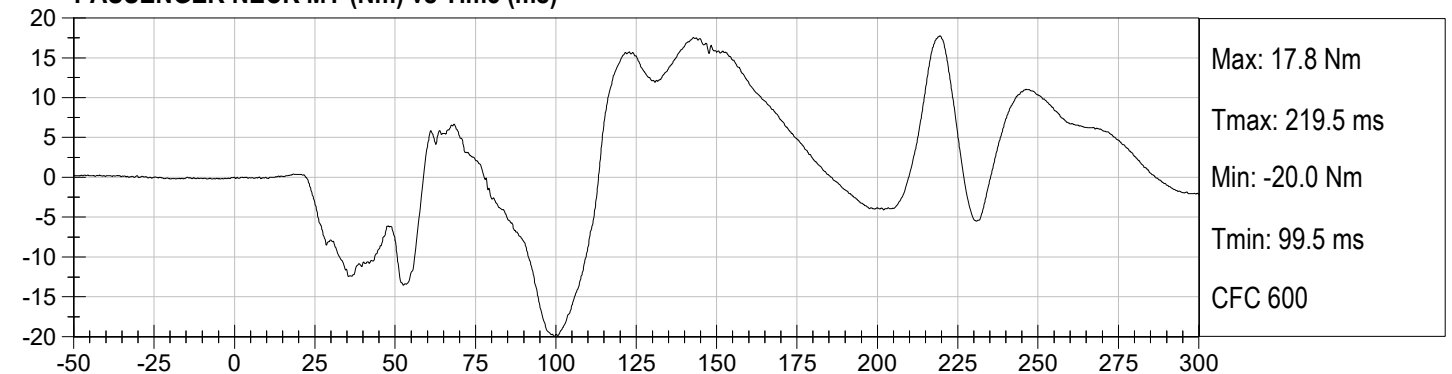
PASSENGER NECK FX (N) vs Time (ms)



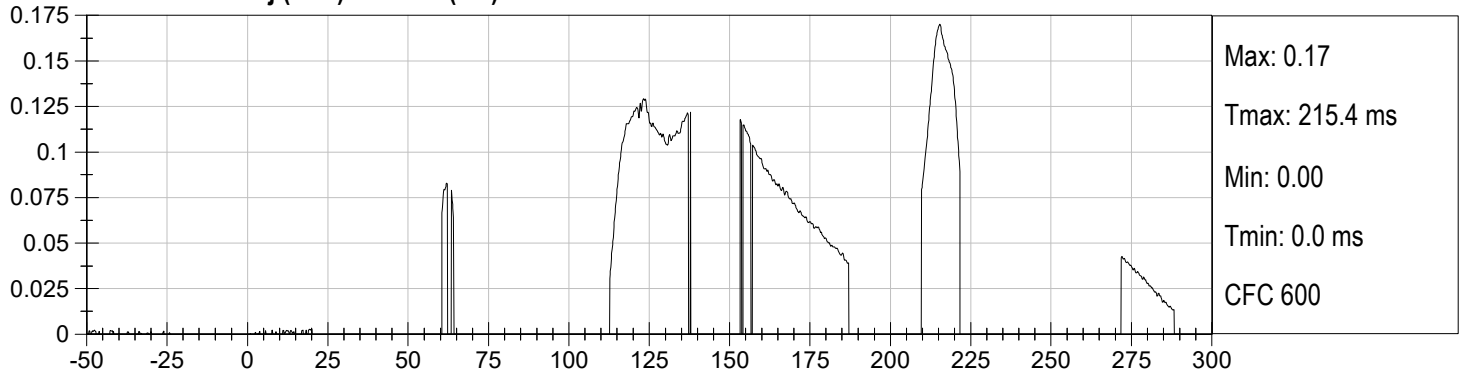
PASSENGER NECK FZ (N) vs Time (ms)



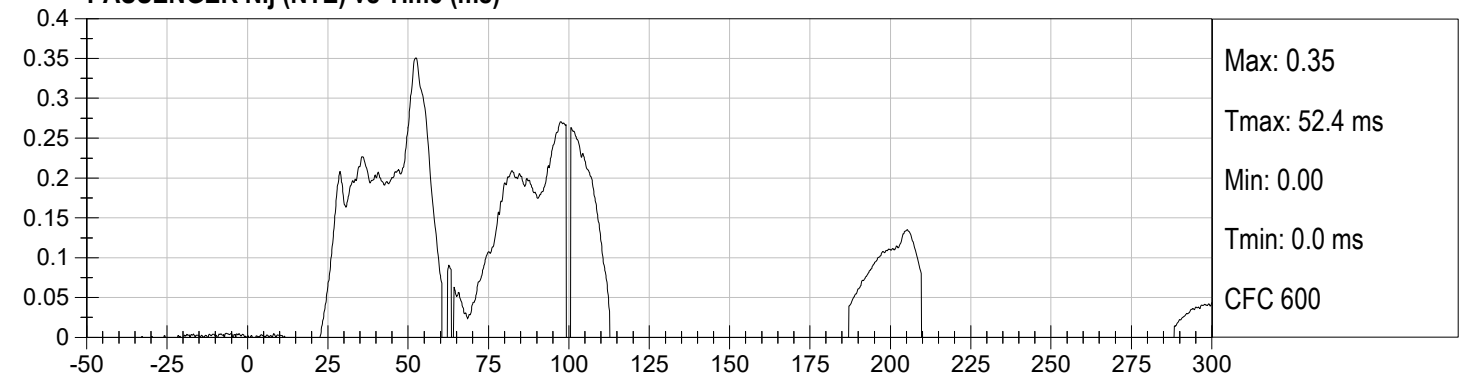
PASSENGER NECK MY (Nm) vs Time (ms)



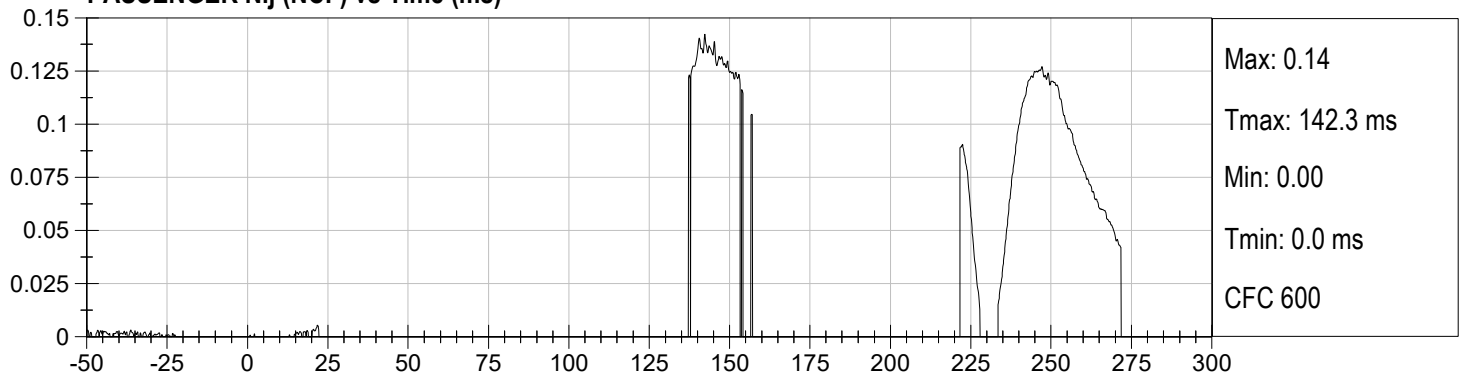
PASSENGER Nij (NTF) vs Time (ms)



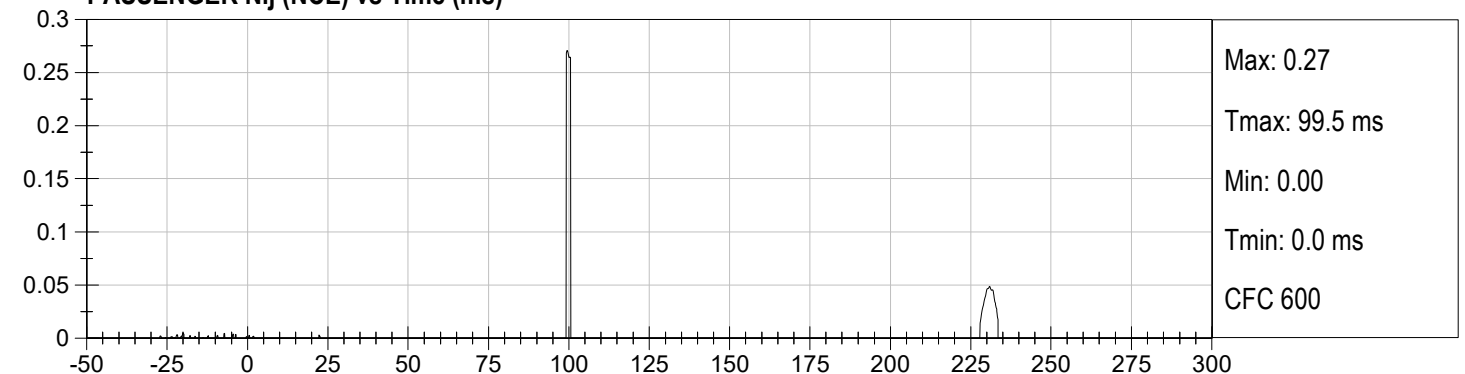
PASSENGER Nij (NTE) vs Time (ms)



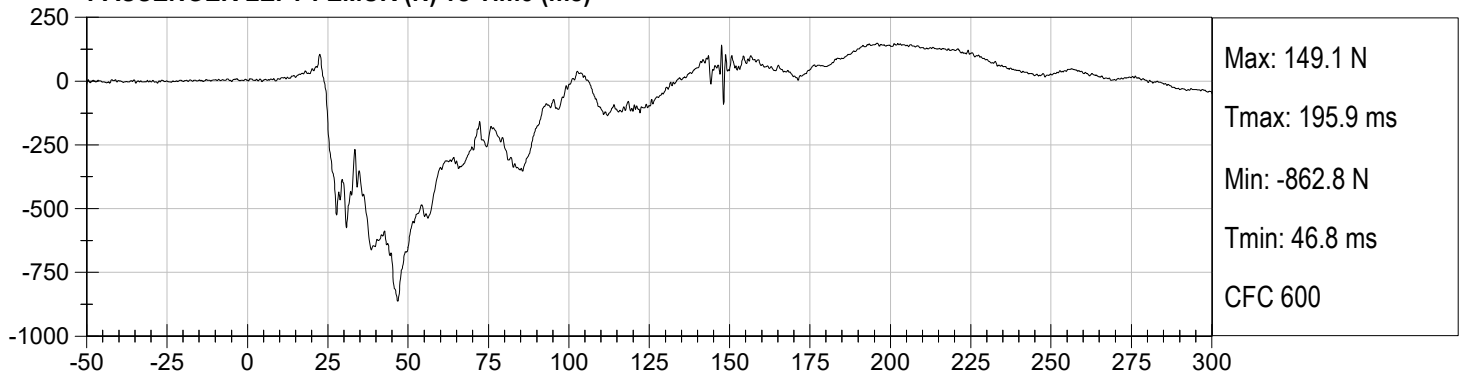
PASSENGER Nij (NCF) vs Time (ms)



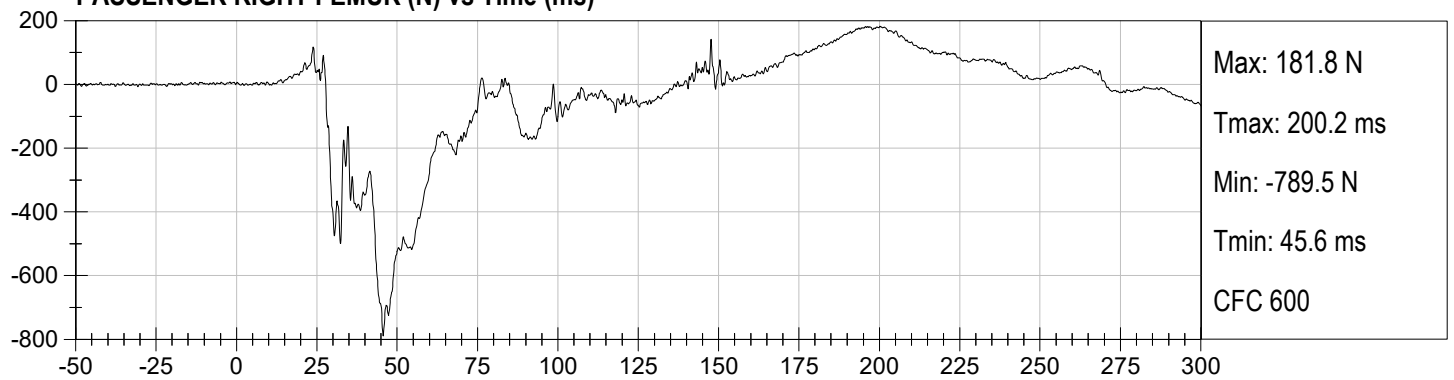
PASSENGER Nij (NCE) vs Time (ms)



PASSENGER LEFT FEMUR (N) vs Time (ms)



PASSENGER RIGHT FEMUR (N) vs Time (ms)



APPENDIX C
DUMMY QUALIFICATION AND PERFORMANCE VERIFICATION

QUALIFICATION TEST RESULTS

PRE-TEST

HYBRID III 50TH PERCENTILE MALE - DRIVER ATD

**Hybrid III 50th, External Measurements
SN: 064**

HYBRID III, PART 572, SUBPART E EXTERNAL DIMENSIONS				
DIMENSION	DESCRIPTION	DETAILS	ASSEMBLY DIMENSION (inches)	ACTUAL MEASUREMENT
A	TOTAL SITTING HEIGHT	Seat surface to highest point on top of the head.	34.6–35.0	34.71
B	SHOULDER PIVOT HEIGHT	Centerline of shoulder pivot bolt to the seat surface.	19.9-20.5	20.31
C	H-POINT HEIGHT	Reference	3.3-3.5	3.38
D	H-POINT LOCATION FROM BACKLINE	Reference	5.3-5.5	5.40
E	SHOULDER PIVOT FROM BACKLINE	Center of the shoulder clevis to the rear vertical surface of the fixture.	3.3-3.7	3.46
F	THIGH CLEARANCE	Measured at the highest point on the upper femur segment.	5.5-6.1	6.09
G	BACK OF ELBOW TO WRIST PIVOT	back of the elbow flesh to the wrist pivot in line with the elbow and wrist pivots	11.4-12.0	11.48
H	HEAD BACK TO BACKLINE	Back of Skull cap skin to seat rear vertical surface (Reference)	1.6-1.8	1.75
I	SHOULDER TO- ELBOW LENGTH	Measure from the highest point on top of the shoulder clevis to the lowest part of the flesh on the elbow in line with the elbow pivot bolt.	13.0-13.6	13.08
J	ELBOW REST HEIGHT	Measure from the flesh below the elbow pivot bolt to the seat surface.	7.5-8.3	8.13
K	BUTTOCK TO KNEE LENGTH	The forward most part of the knee flesh to the rear vertical surface of the fixture.	22.8-23.8	23.49
L	POPLITEAL HEIGHT	Seat surface to the plane of the horizontal plane of the bottom of the feet.	16.9-17.9	17.01
M	KNEE PIVOT HEIGHT	Centerline of knee pivot bolt to the horizontal plane of the bottom of the feet.	19.1-19.7	19.22
N	BUTTOCK POPLITEAL LENGTH	The rearmost surface of the lower leg to the same point on the rear surface of the buttocks used for dim. "K".	17.8-18.8	18.20

HYBRID III, SUBPART E EXTERIOR DIMENSIONS, continued				
DIMENSION	DESCRIPTION	DETAILS		ACTUAL MEASUREMENT
O	CHEST DEPTH WITHOUT JACKET	Measured 16.9-17.1 in. above seat surface	8.4-9.0	8.43
P	FOOT LENGTH	Tip of toe to rear of heel	9.9-10.5	10.33
V	SHOULDER BREADTH	Outside edges of right and left shoulder clevises	16.3-17.2	16.65
W	FOOT BREADTH	The widest part of the foot	3.6-4.2	3.94
Y	CHEST CIRCUMFERENCE (WITH CHEST JACKET)	Measured 16.9-17.1 in. above seat surface	38.2-39.4	39.25
Z	WAIST CIRCUMFERENCE	Measured 8.9-9.1 in. above seat surface	32.9-34.1	33.89
AA	REFERENCE LOCATION FOR MEASUREMENT OF CHEST CIRCUMFERENCE	Reference	16.9-17.1	17.00
BB	REFERENCE LOCATION FOR MEASUREMENT OF WAIST CIRCUMFERENCE	Reference	8.9-9.1	9.00

NOTE: THE H-POINT IS LOCATED 1.83 INCHES FORWARD AND 2.57 INCHES DOWN FROM THE CENTER OF THE PELVIS ANGLE REFERENCE HOLE.

MGA RESEARCH CORPORATION
HEAD DROP TEST
HYBRID III 50TH PERCENTILE MALE

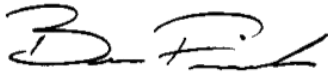
ATD Serial No: 064

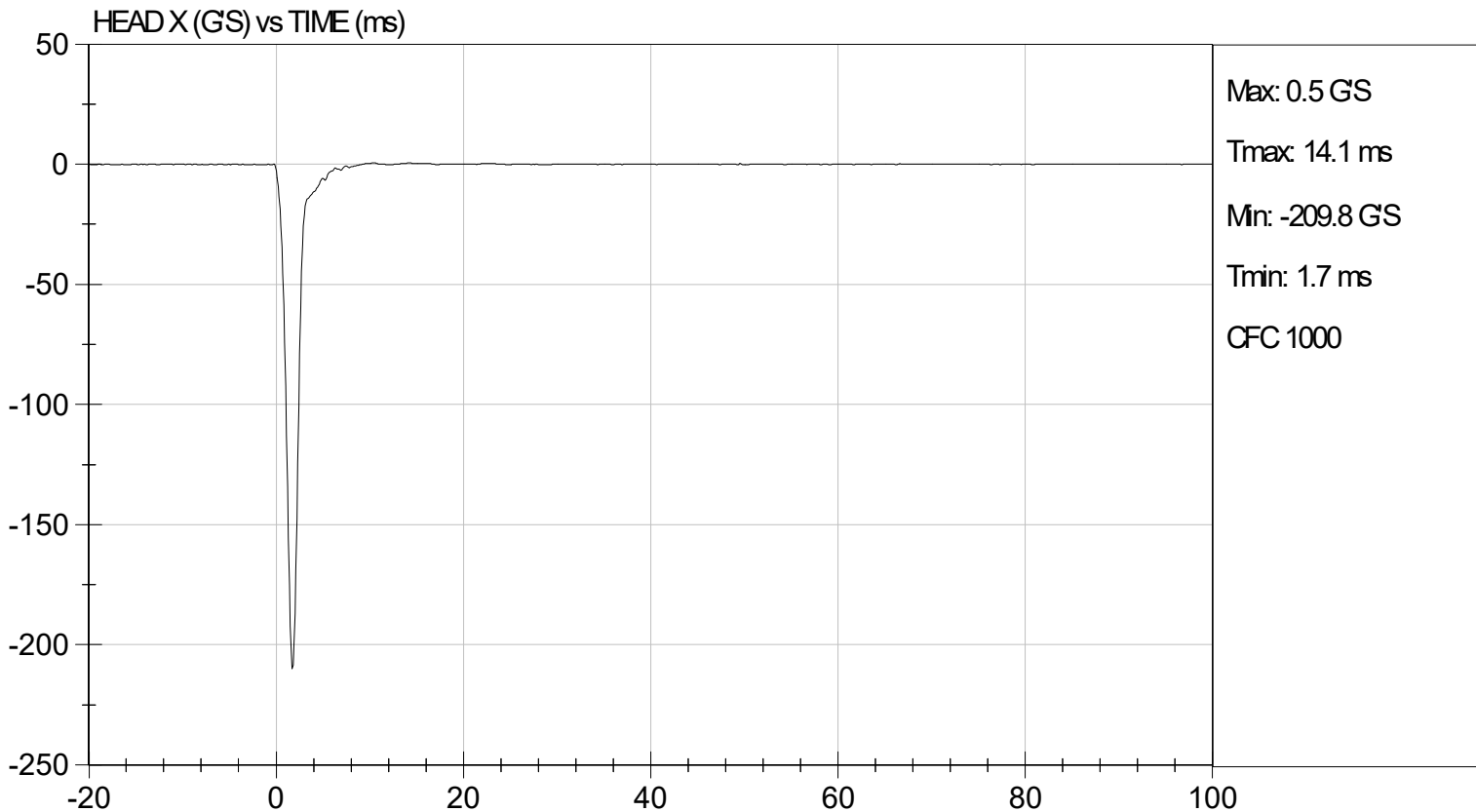
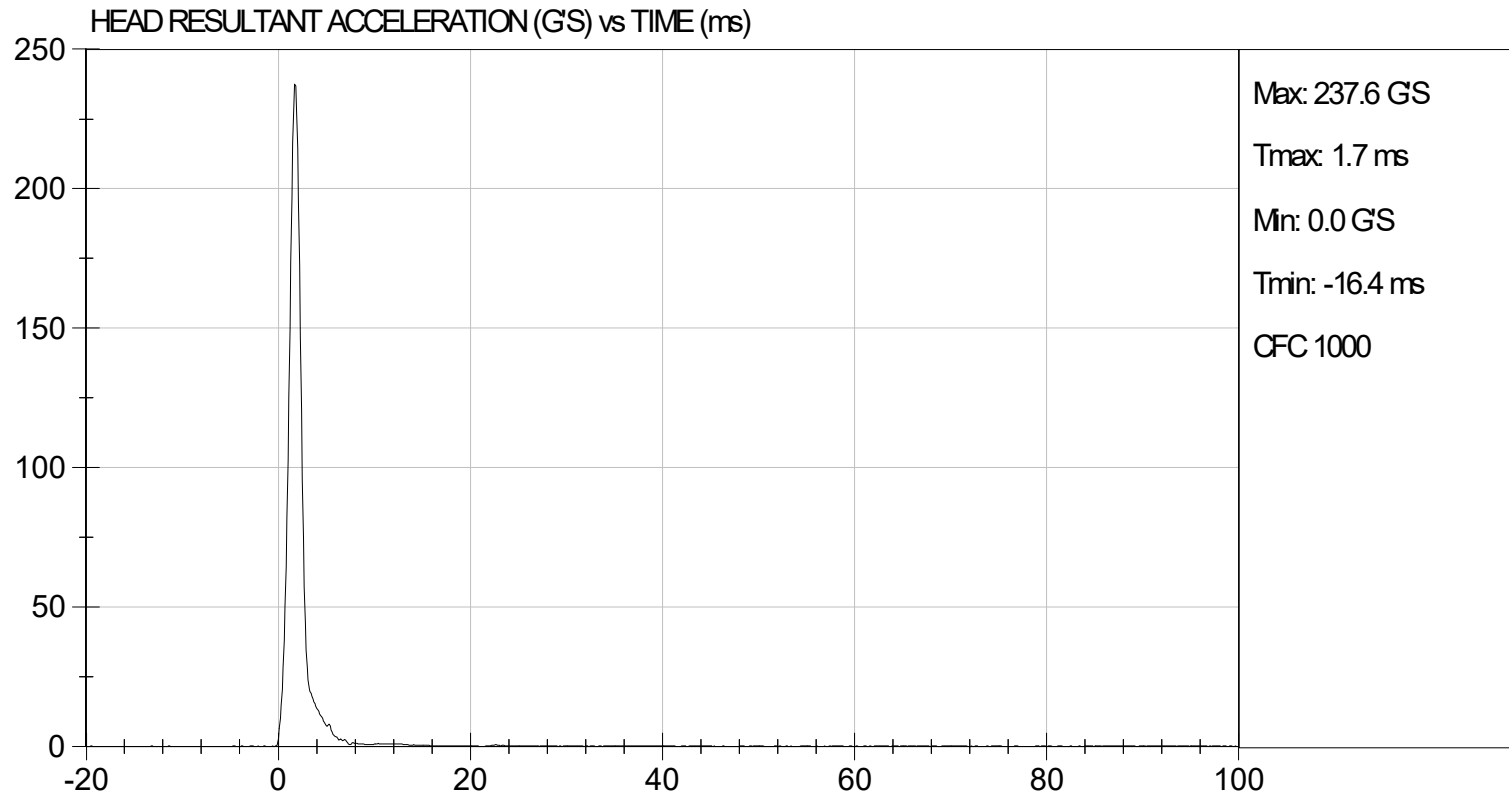
Test ID: D241761

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	44	Pass
Peak Resultant Acceleration	G's	225 to 275	238	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	4.2	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
			Overall Test Results	Pass


Laboratory Technician

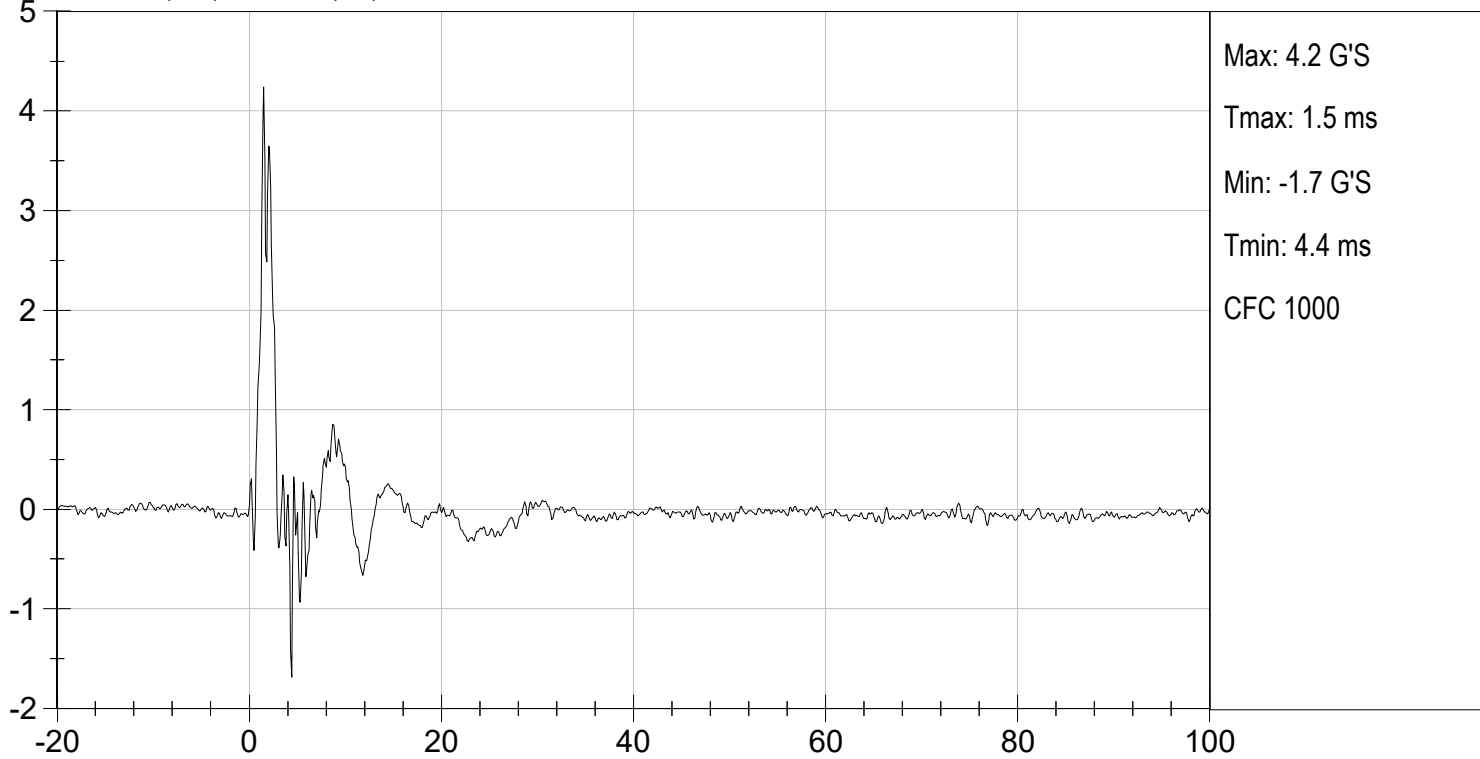
07/16/2024
Test Date


Approved By

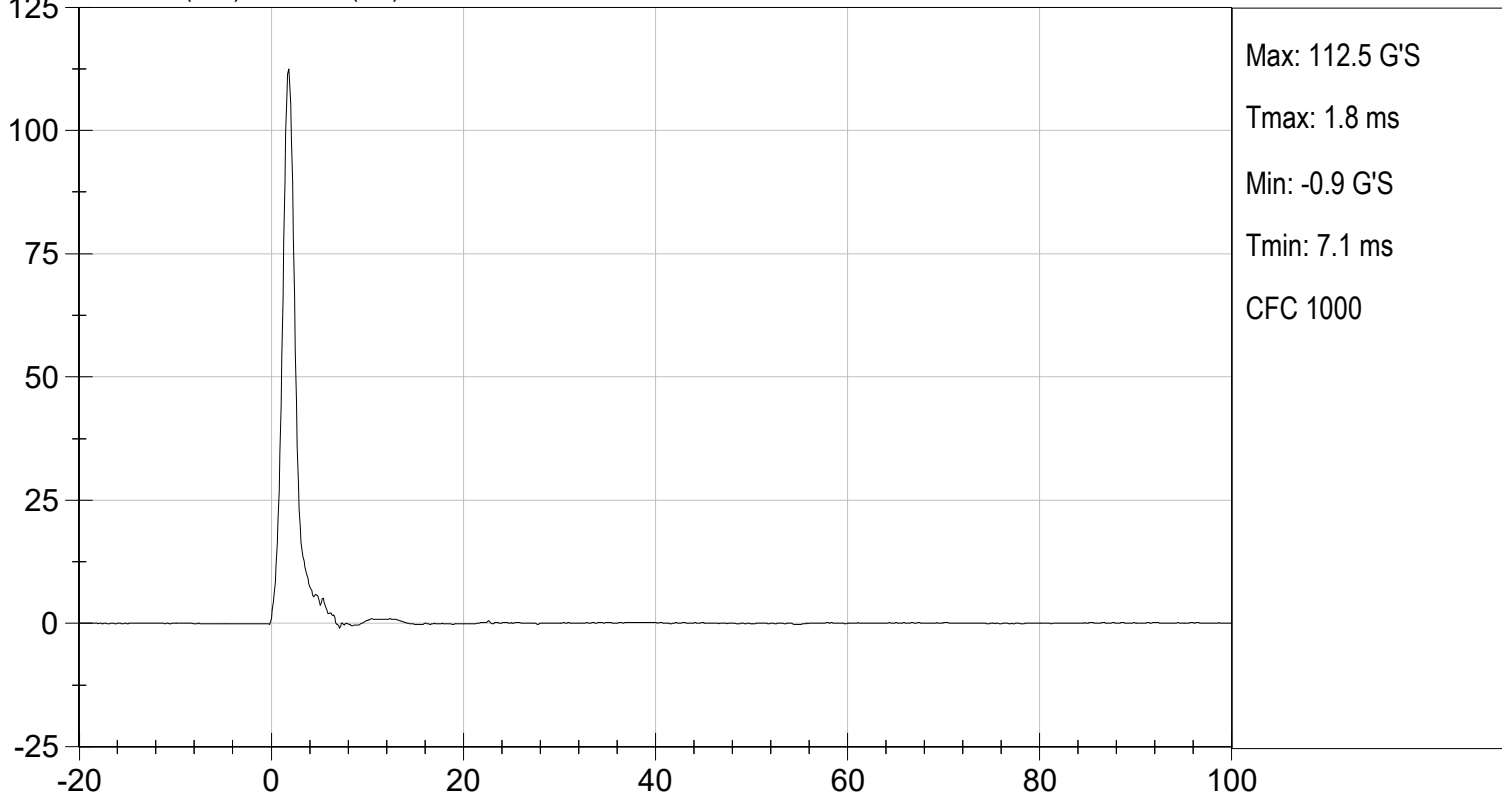




HEAD Y (G'S) vs TIME (ms)



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



MGA RESEARCH CORPORATION
NECK FLEXION TEST
HYBRID III 50TH PERCENTILE MALE

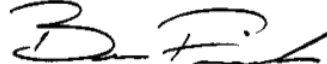
ATD Serial No: 064

Test I.D: D241762

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.4	Pass
Laboratory Relative Humidity		%	10 to 70	45	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.96	Pass
Pendulum Deceleration	10 ms	G's	22.50 to 27.50	26.25	Pass
	20 ms	G's	17.60 to 22.60	22.18	Pass
	30 ms	G's	12.50 to 18.50	16.12	Pass
Peak Pendulum Deceleration After 30 ms		G's	<= 29.0	16.1	Pass
Deceleration Decay Time to Cross 5 G's		ms	34.0 to 42.0	34.7	Pass
Maximum "D" Plane Rotation	Maximum	Deg	64.0 to 78.0	74.7	Pass
	Time	ms	57.0 to 64.0	57.9	Pass
"D" Plane Rotation Decay Time To Zero Crossing		ms	113.0 to 128.0	114.2	Pass
Moment About Occipital Condyle	Maximum	Nm	88.1 to 108.5	98.7	Pass
	Time	ms	47.0 to 58.0	47.3	Pass
Positive Moment Decay Time To Zero Crossing		ms	97.0 to 107.0	97.7	Pass
Overall Test Results					Pass


 Laboratory Technician

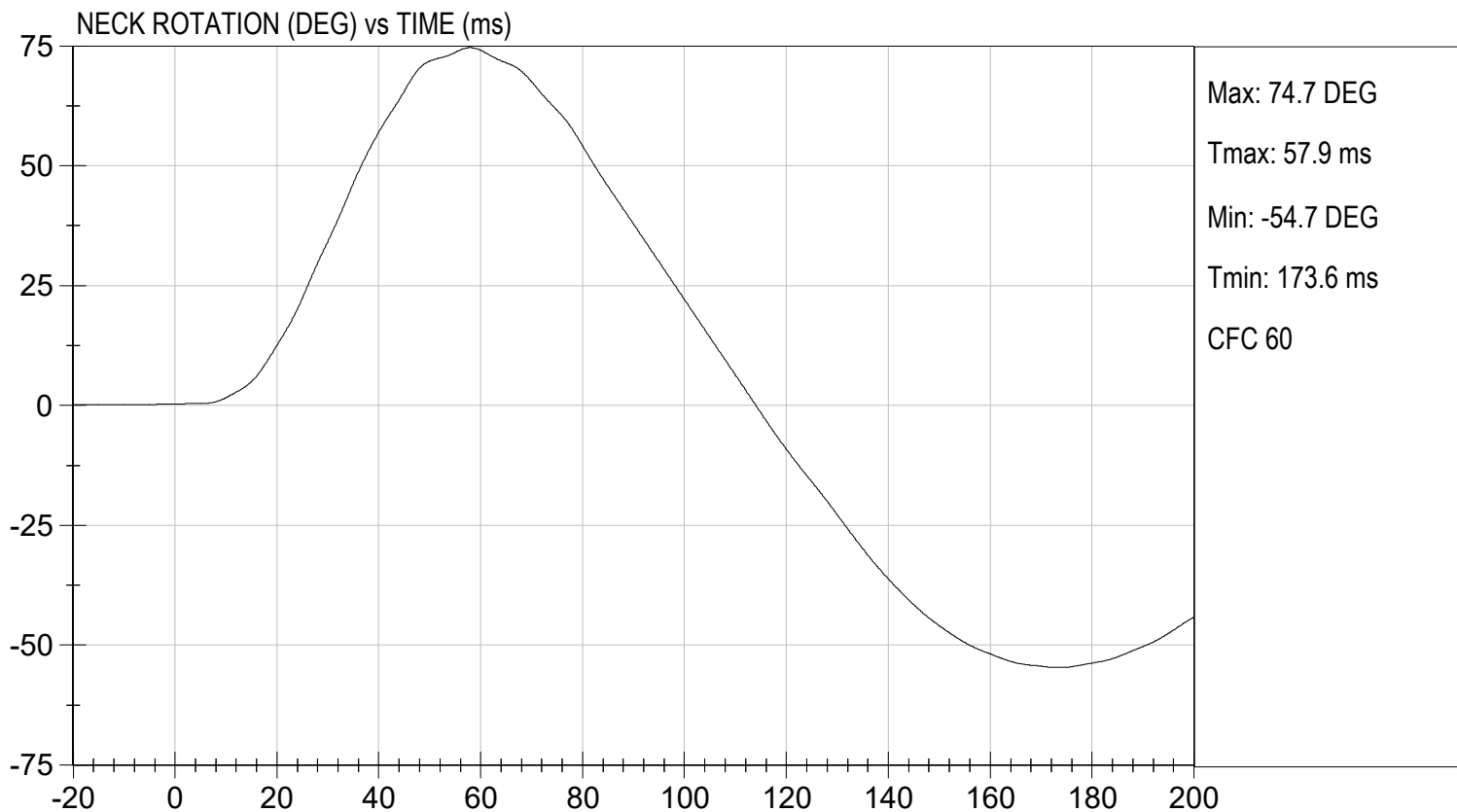
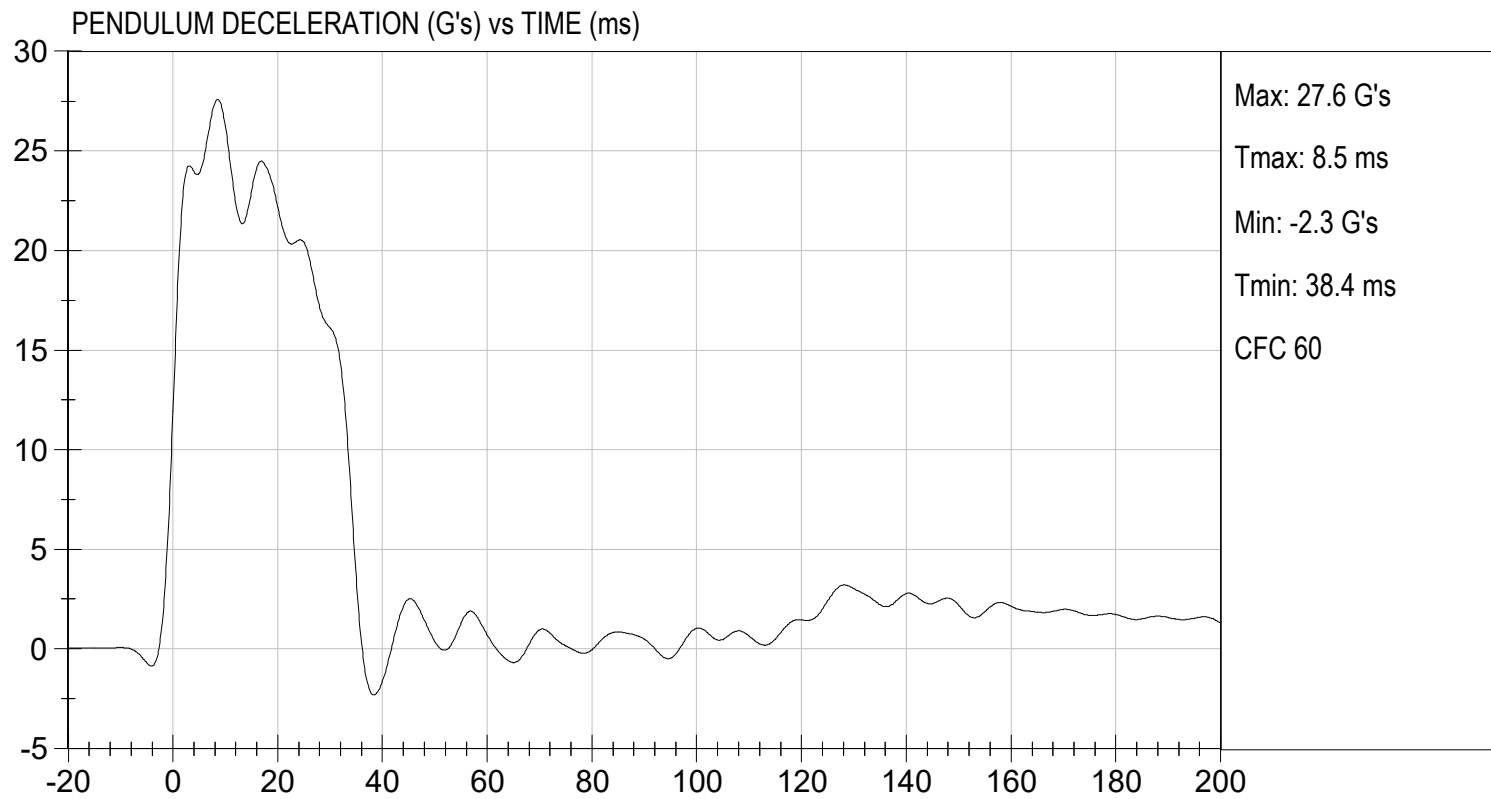
07/16/2024
 Test Date


 Approved By



TEST DESC: NECK FLEXION
VELOCITY: 22.83 ft/s, 6.96 m/s

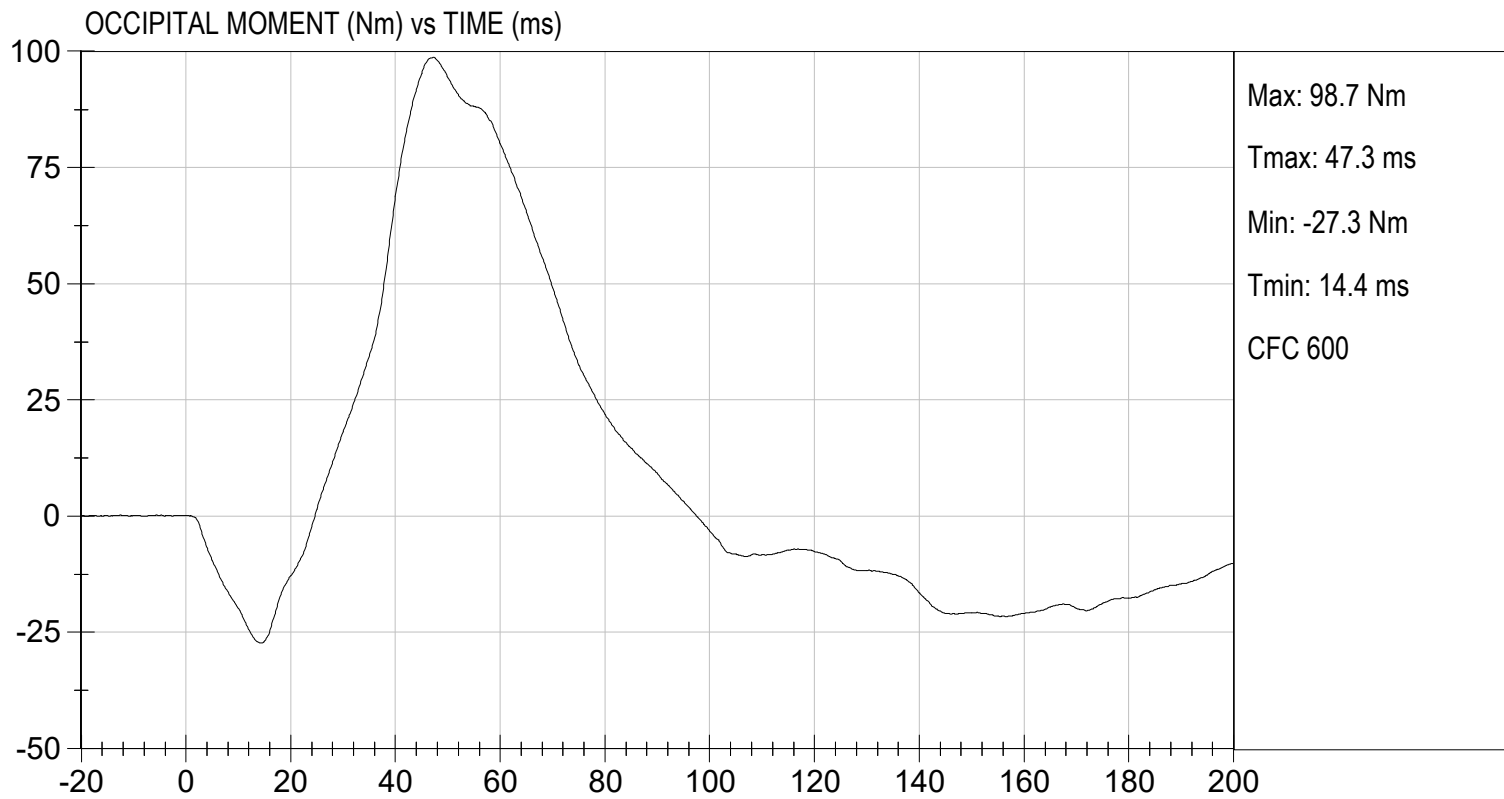
TEST DATE: 07/16/2024
TEST #: D241762





TEST DESC: NECK FLEXION
VELOCITY: 22.83 ft/s, 6.96 m/s

TEST DATE: 07/16/2024
TEST #: D241762



MGA RESEARCH CORPORATION
NECK EXTENSION TEST
HYBRID III 50TH PERCENTILE MALE

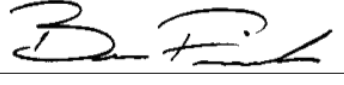
ATD Serial No: 064

Test I.D: D241763

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity		%	10 to 70	45	Pass
Pendulum Velocity		m/s	5.95 to 6.19	5.98	Pass
Pendulum Deceleration	10 ms	G's	17.20 to 21.20	19.57	Pass
	20 ms	G's	14.00 to 19.00	17.43	Pass
	30 ms	G's	11.00 to 16.00	13.40	Pass
Peak Pendulum Deceleration After 30 ms		G's	<= 22.0	13.4	Pass
Deceleration Decay Time to Cross 5 G's		ms	38.0 to 46.0	39.6	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	99.8	Pass
	Time	ms	72.0 to 82.0	76.6	Pass
"D" Plane Rotation Decay Time To Zero Crossing		ms	147.0 to 174.0	157.6	Pass
Moment About Occipital Condyle	Maximum	Nm	-52.9 to -79.9	-61.7	Pass
	Time	ms	65.0 to 79.0	72.7	Pass
Negative Moment Decay Time To Zero Crossing		ms	120.0 to 148.0	142.3	Pass
Overall Test Results					Pass


Laboratory Technician

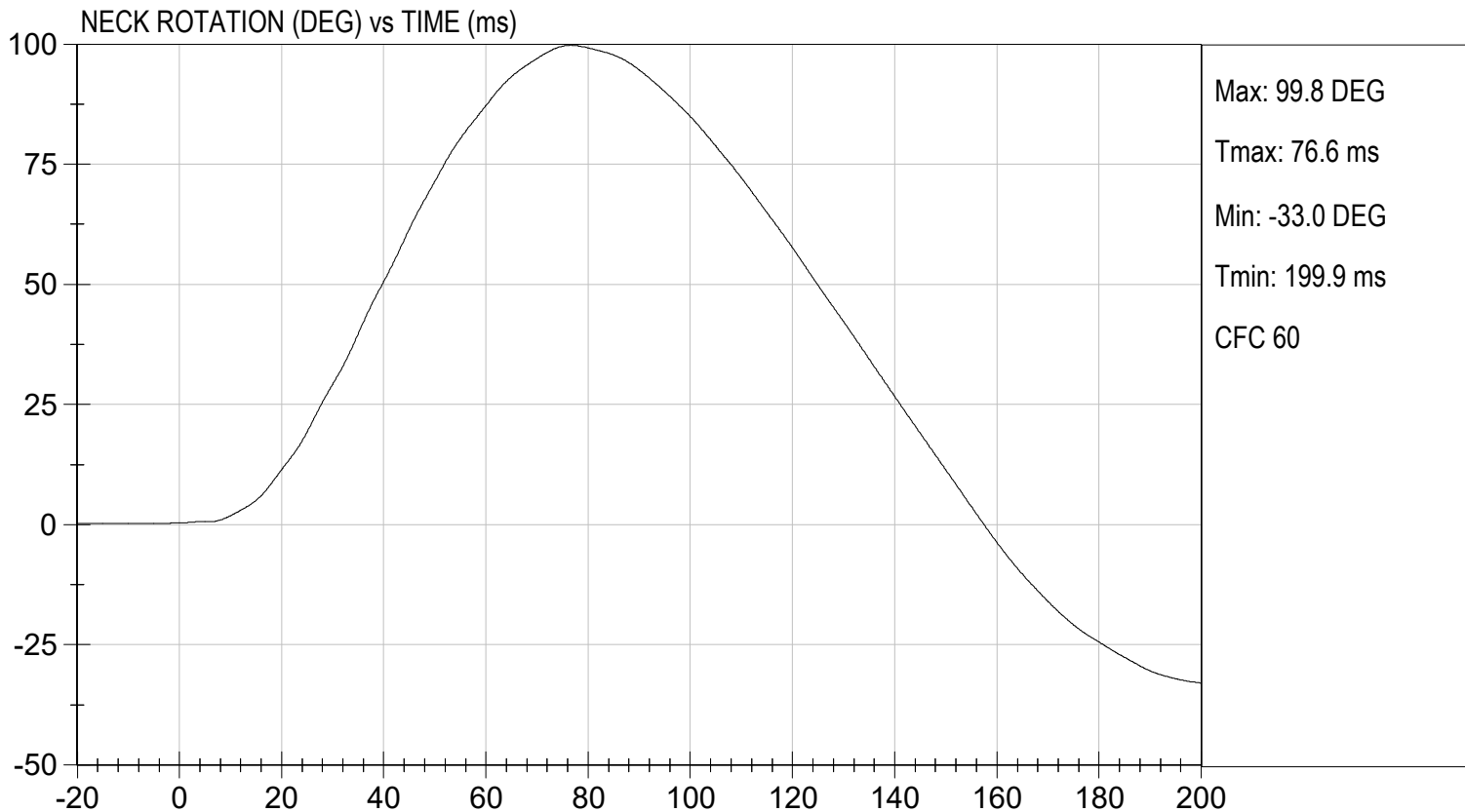
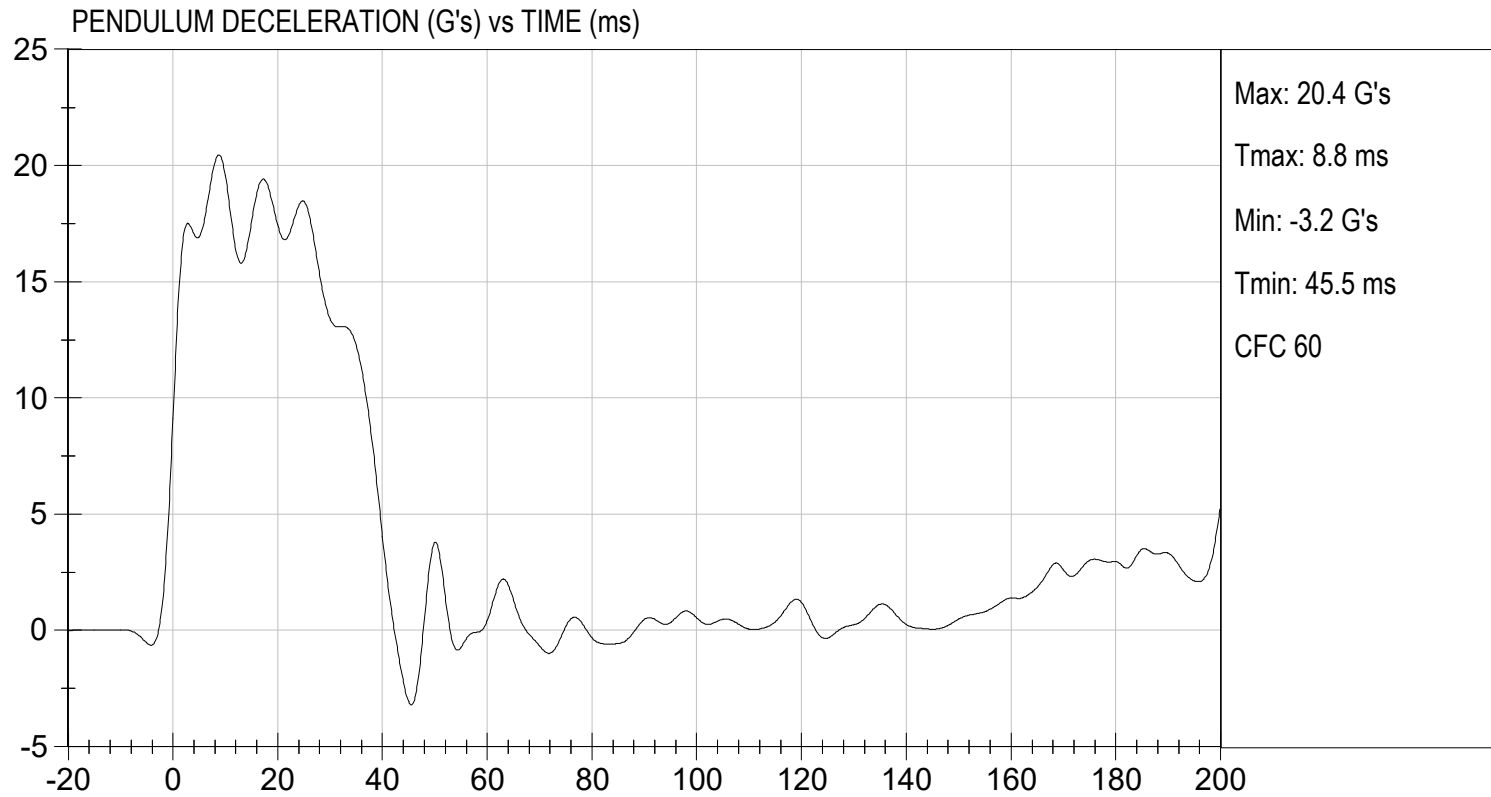
07/16/2024
Test Date


Approved By



TEST DESC: NECK EXTENSION
VELOCITY: 19.61 ft/s, 5.98 m/s

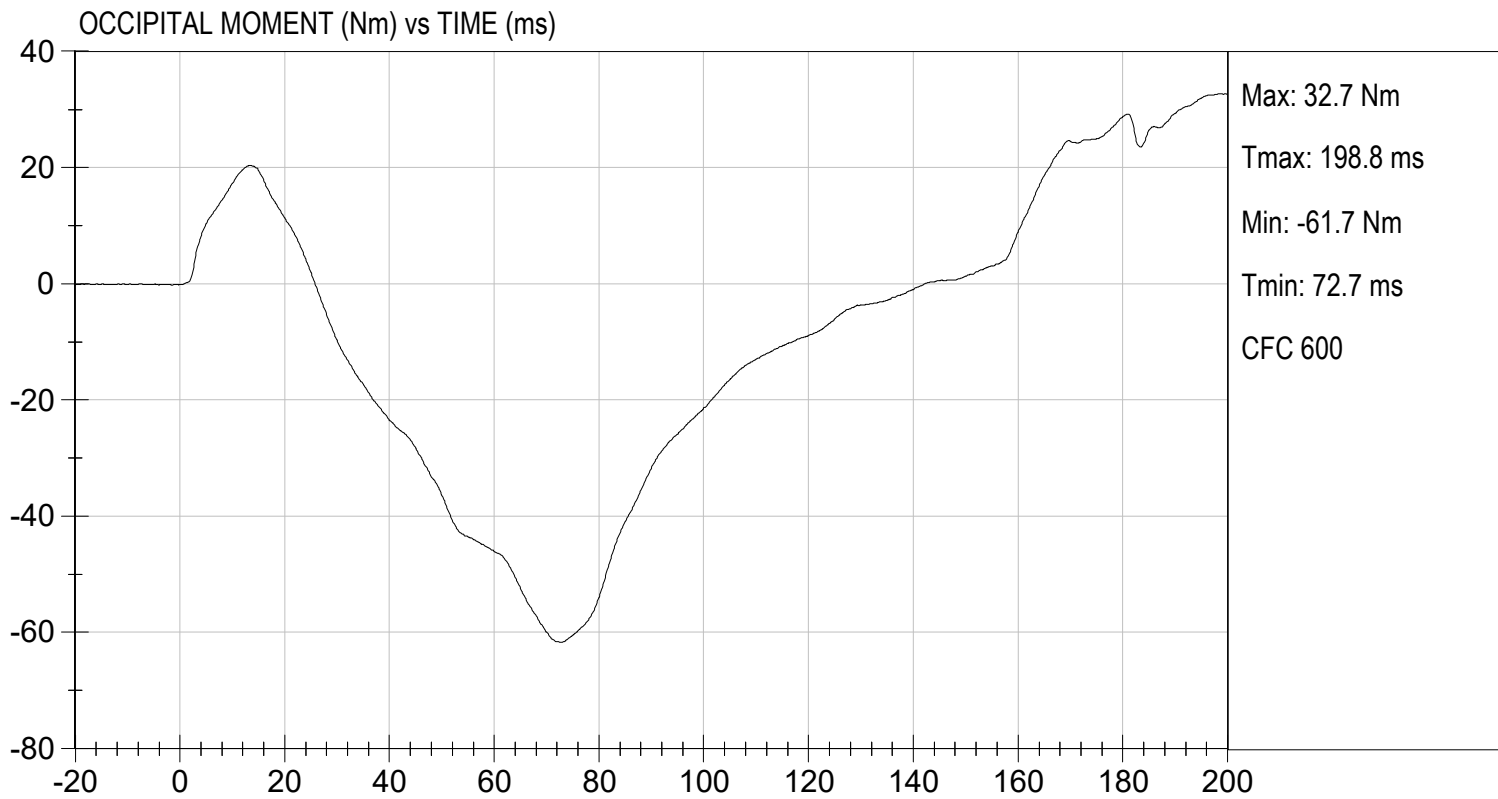
TEST DATE: 07/16/2024
TEST #: D241763





TEST DESC: NECK EXTENSION
VELOCITY: 19.61 ft/s, 5.98 m/s

TEST DATE: 07/16/2024
TEST #: D241763



MGA RESEARCH CORPORATION
THORAX IMPACT
HYBRID III 50TH PERCENTILE MALE

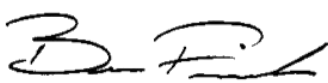
ATD Serial No: 064

Test I.D: D241764

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Probe Velocity	m/s	6.58 to 6.82	6.68	Pass
Peak Probe Force	N	5159 to 5893	5,261	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	7.04	Pass
Internal Hysteresis	%	69 to 85	72	Pass
			Overall Test Results	Pass


Laboratory Technician

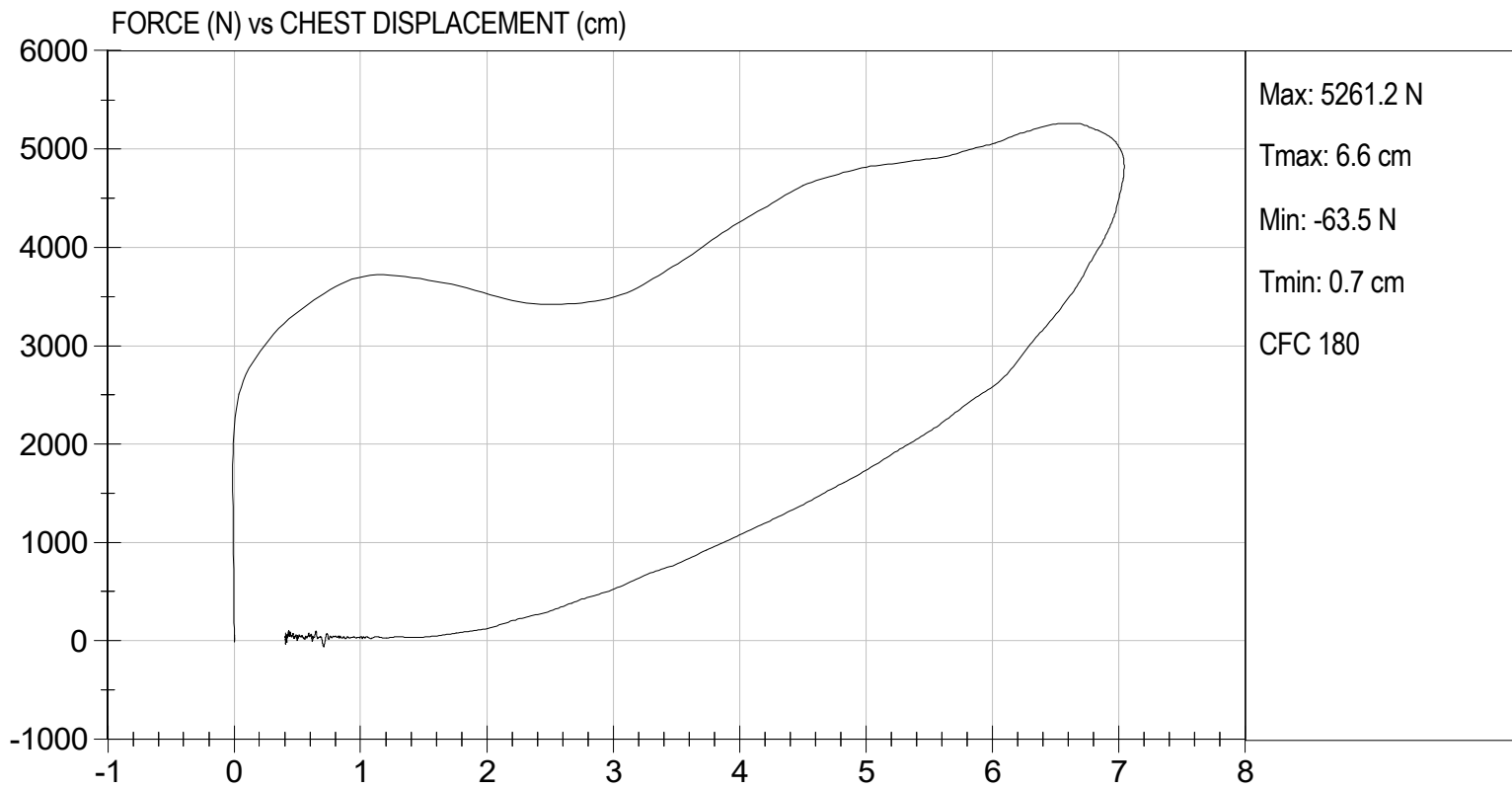
07/16/2024
Test Date


Approved By



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

TEST DATE: 07/16/2024
TEST #: D241764



MGA RESEARCH CORPORATION
RIGHT KNEE IMPACT TEST
HYBRID III 50TH PERCENTILE MALE

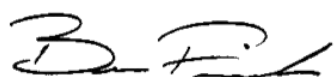
ATD Serial No: 064

Test I.D: D241765

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Probe Velocity	m/s	2.07 to 2.13	2.10	Pass
Peak Probe Force	N	4715 to 5782	4,815	Pass
Overall Test Results				Pass


Laboratory Technician

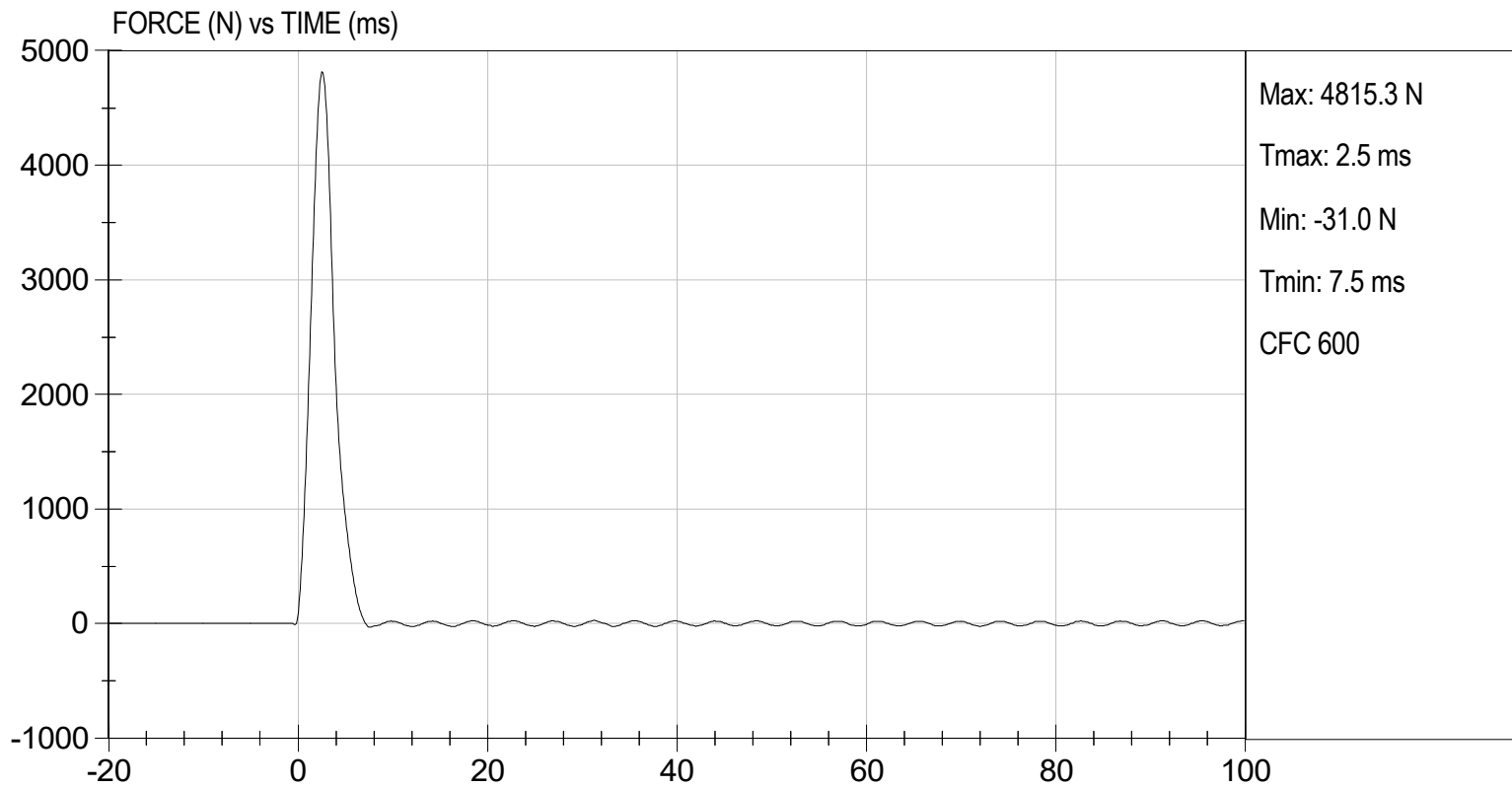
07/16/2024
Test Date


Approved By



TEST DESC: RIGHT KNEE
VELOCITY: 6.89 ft/s, 2.10 m/s

TEST DATE: 07/16/2024
TEST #: D241765



MGA RESEARCH CORPORATION
LEFT KNEE IMPACT TEST
HYBRID III 50TH PERCENTILE MALE

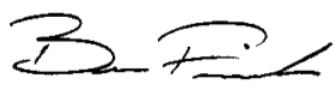
ATD Serial No: 064

Test I.D: D241766

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Probe Velocity	m/s	2.07 to 2.13	2.12	Pass
Peak Probe Force	N	4715 to 5782	4,771	Pass
Overall Test Results				Pass


Laboratory Technician

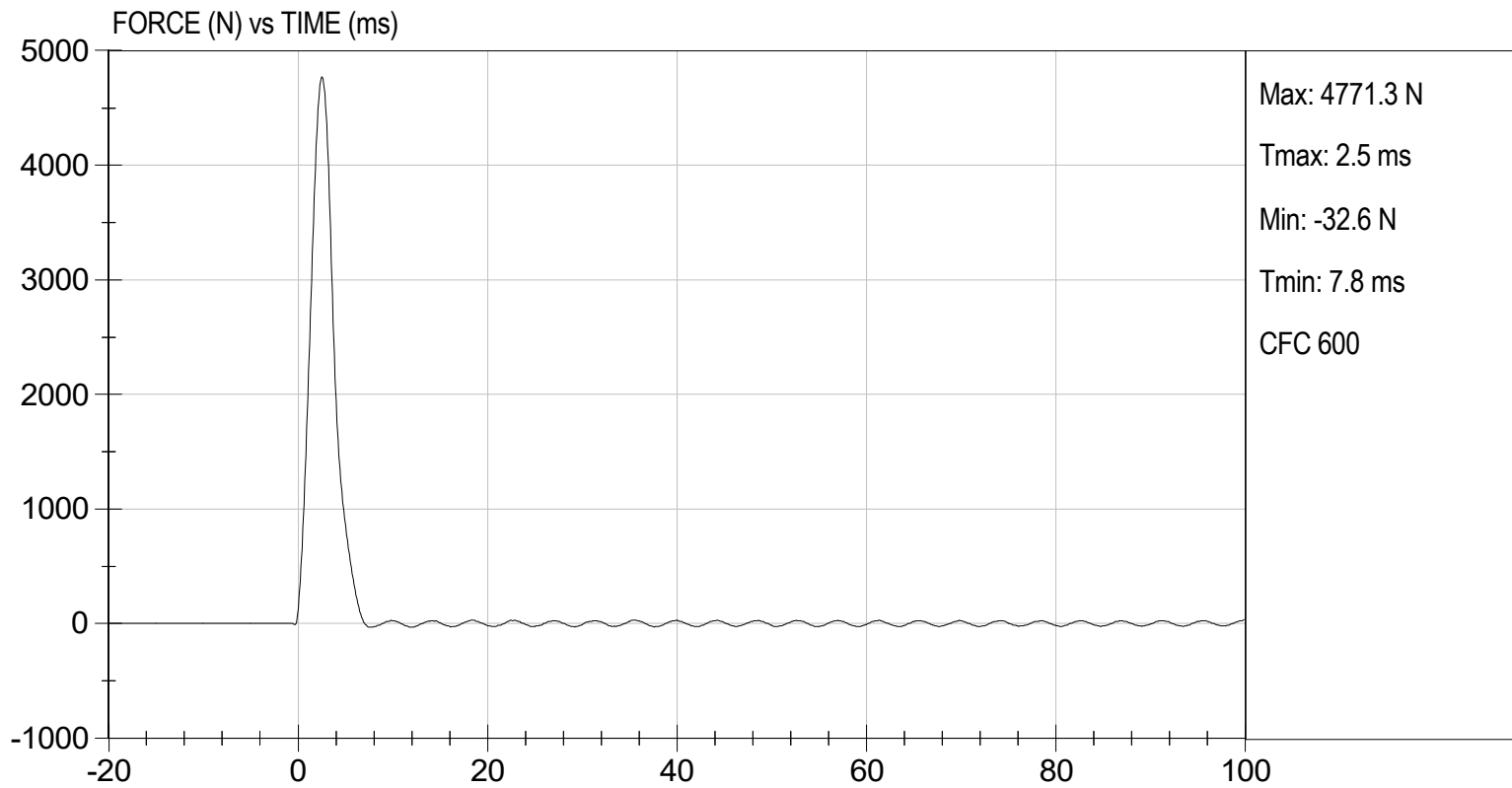
07/16/2024
Test Date


Approved By



TEST DESC: LEFT KNEE
VELOCITY: 6.94 ft/s, 2.12 m/s

TEST DATE: 07/16/2024
TEST #: D241766



MGA RESEARCH CORPORATION
HIP-FEMUR FLEXION TEST
HYBRID III 50TH PERCENTILE MALE

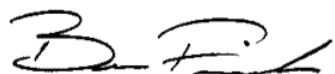
ATD Serial No: 064

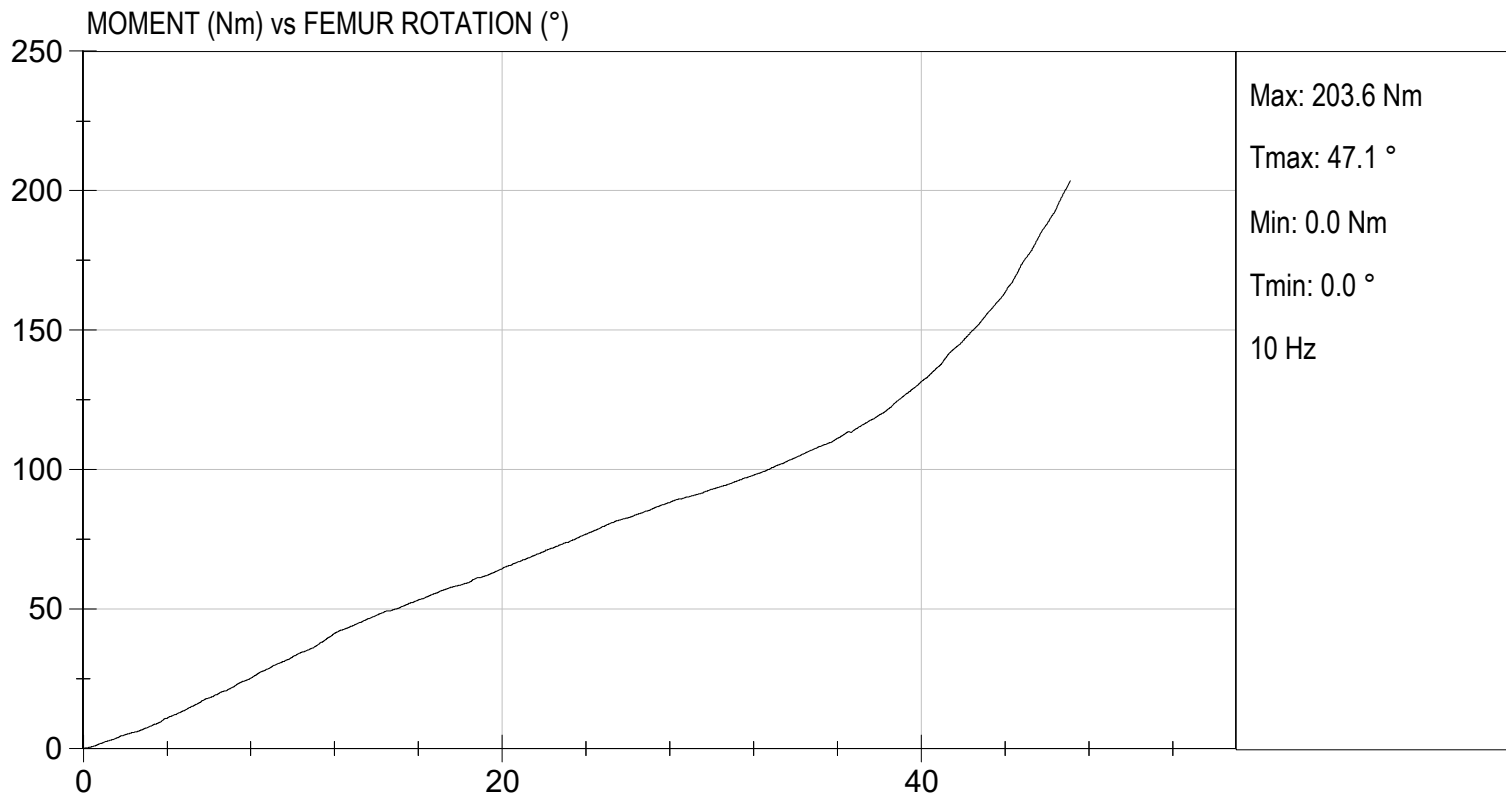
Test I.D: D241760

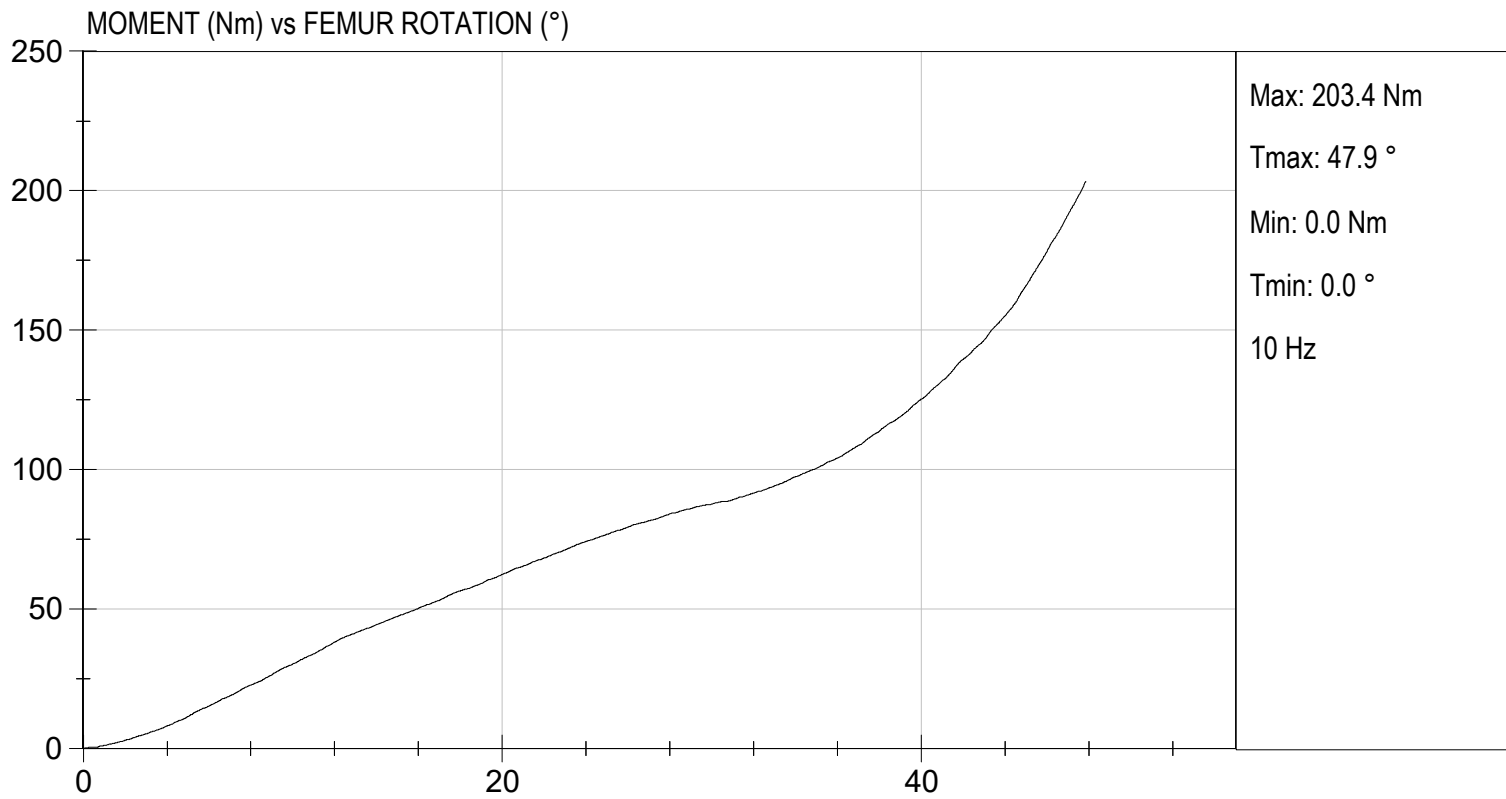
Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	21.3	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	46	46	Pass
Rotation Rate	deg/s	5.0 to 10.0	6.5	6.5	Pass
30 Degrees	Nm	94.9 Nm Max	93.0	87.7	Pass
150 ft-lbf / 203.4 Nm	Deg	40.0 to 50.0 Degree Max Rotation	47.1	47.9	Pass
Overall Test Results					Pass


 Laboratory Technician

07/16/2024
 Test Date


 Approved By





QUALIFICATION TEST RESULTS

POST-TEST

HYBRID III 50TH PERCENTILE MALE - DRIVER ATD

MGA RESEARCH CORPORATION
HEAD DROP TEST
HYBRID III 50TH PERCENTILE MALE

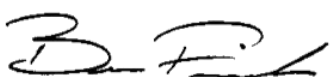
ATD Serial No: 064

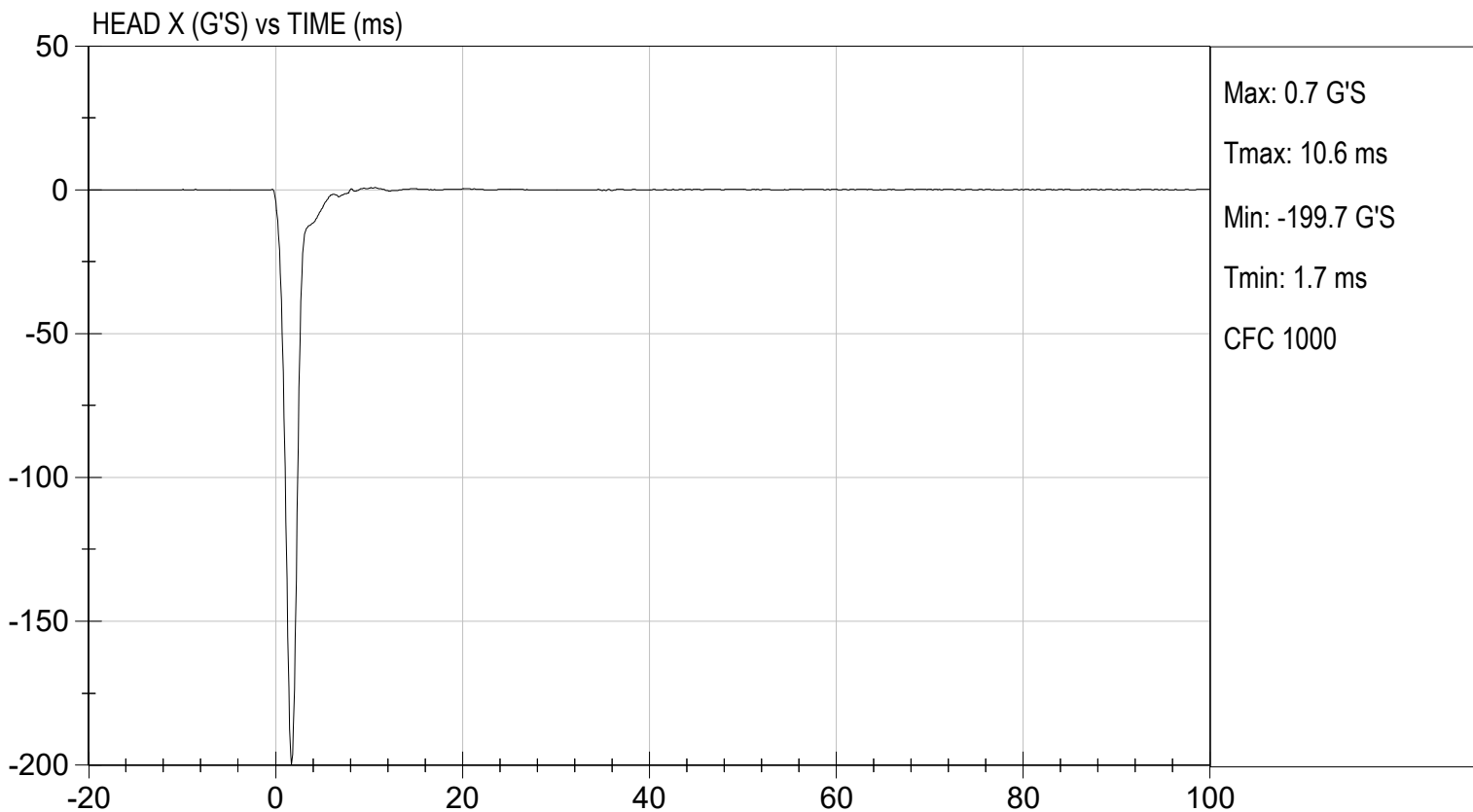
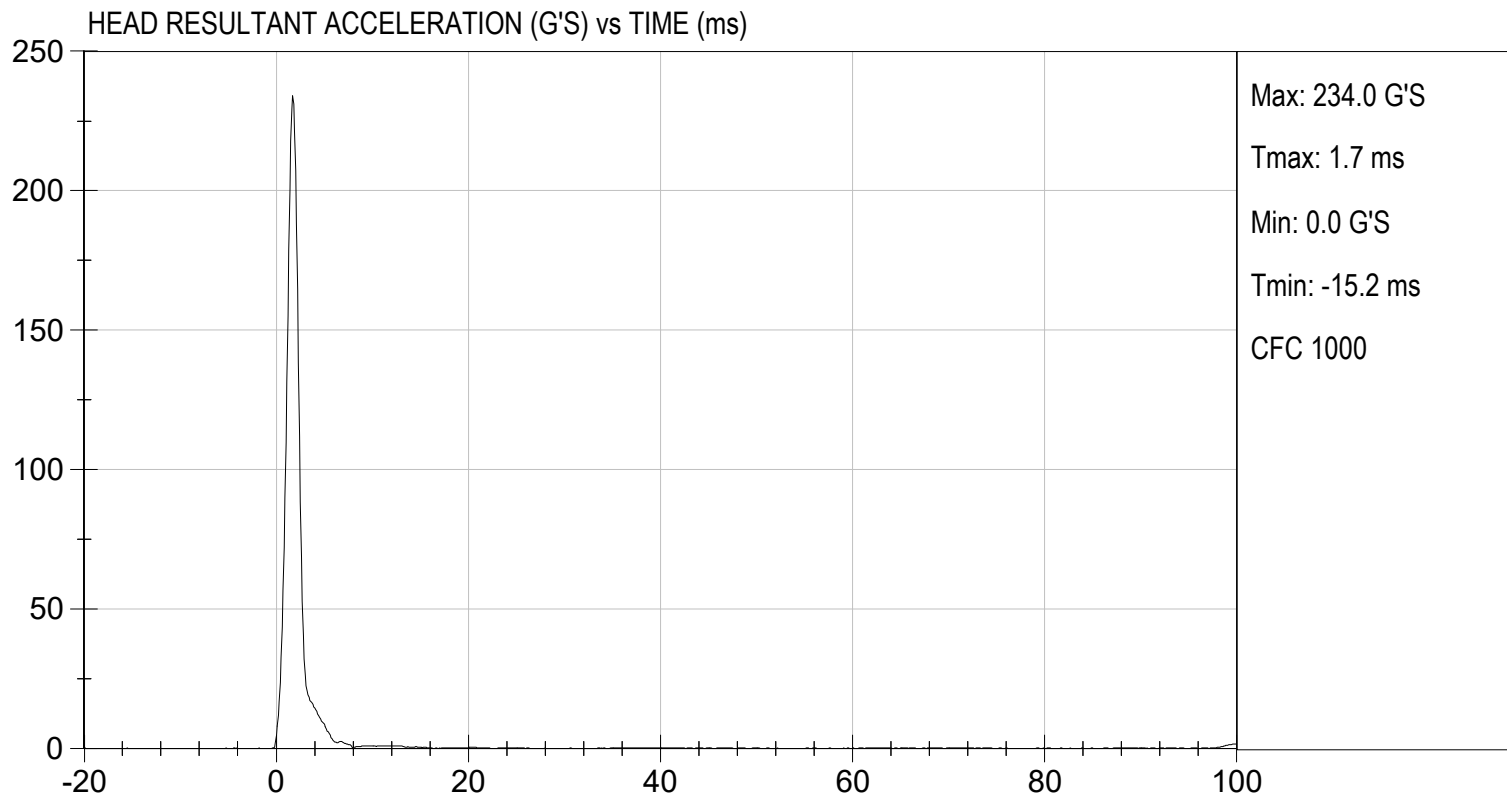
Test ID: D241911

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	47	Pass
Peak Resultant Acceleration	G's	225 to 275	234	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	3.9	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
			Overall Test Results	Pass


Laboratory Technician

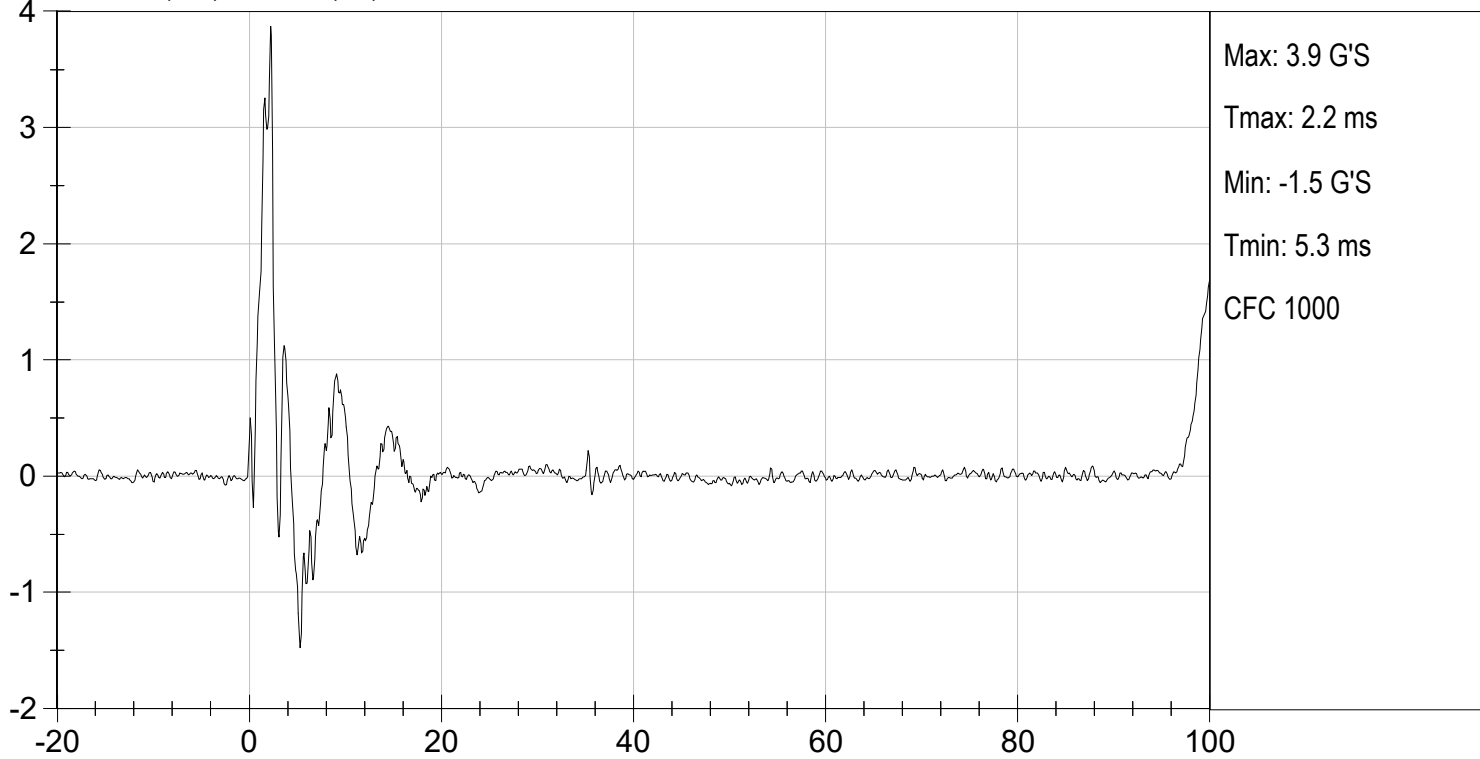
07/31/2024
Test Date


Approved By

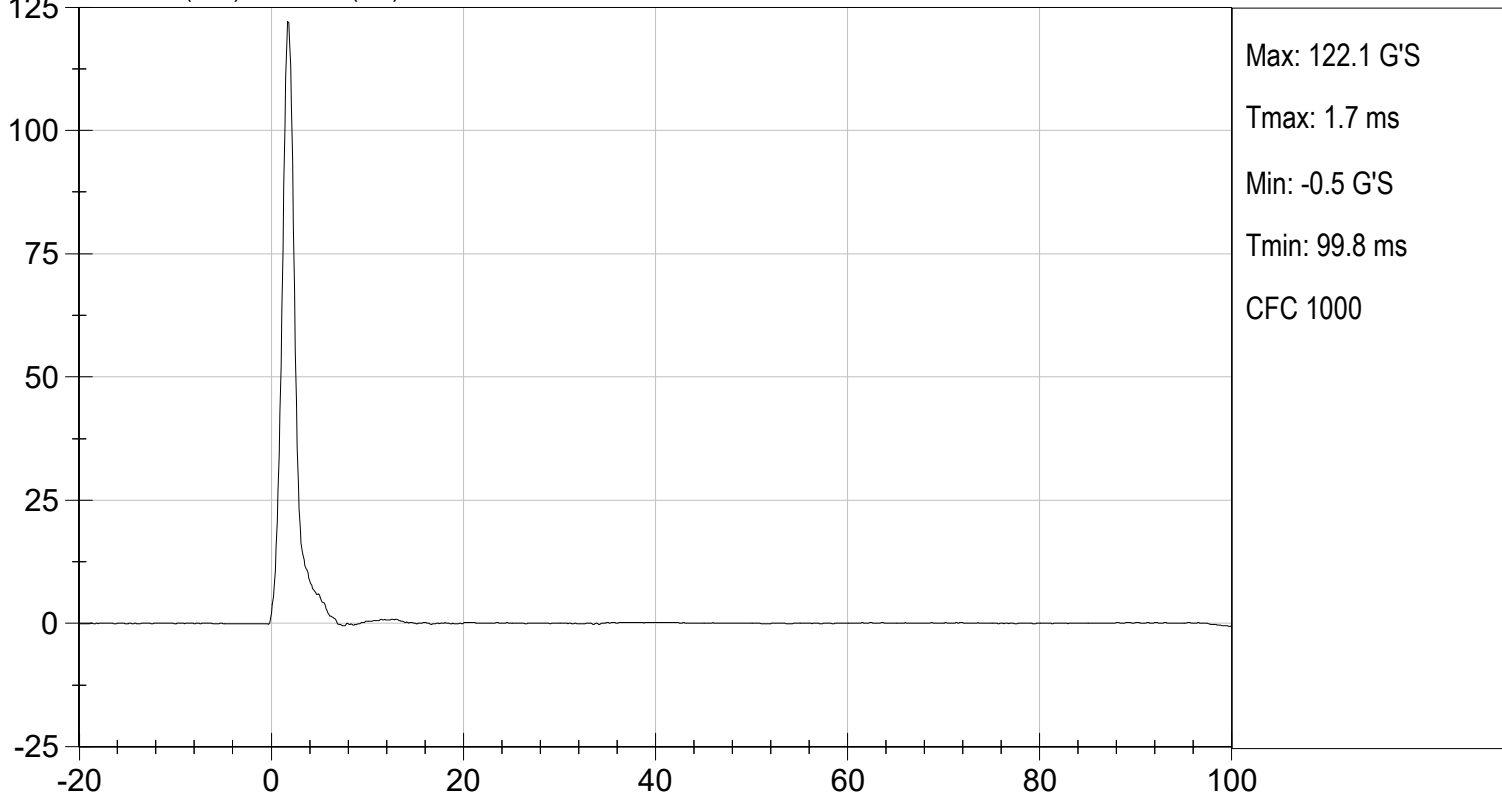




HEAD Y (G'S) vs TIME (ms)



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



MGA RESEARCH CORPORATION
NECK FLEXION TEST
HYBRID III 50TH PERCENTILE MALE

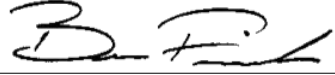
ATD Serial No: 064

Test I.D: D241912

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.3	Pass
Laboratory Relative Humidity		%	10 to 70	46	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.96	Pass
Pendulum Deceleration	10 ms	G's	22.50 to 27.50	22.78	Pass
	20 ms	G's	17.60 to 22.60	20.81	Pass
	30 ms	G's	12.50 to 18.50	15.21	Pass
Peak Pendulum Deceleration After 30 ms		G's	<= 29.0	15.1	Pass
Deceleration Decay Time to Cross 5 G's		ms	34.0 to 42.0	39.8	Pass
Maximum "D" Plane Rotation	Maximum	Deg	64.0 to 78.0	72.2	Pass
	Time	ms	57.0 to 64.0	58.2	Pass
"D" Plane Rotation Decay Time To Zero Crossing		ms	113.0 to 128.0	115.2	Pass
Moment About Occipital Condyle	Maximum	Nm	88.1 to 108.5	98.0	Pass
	Time	ms	47.0 to 58.0	51.7	Pass
Positive Moment Decay Time To Zero Crossing		ms	97.0 to 107.0	98.7	Pass
Overall Test Results					Pass


Laboratory Technician

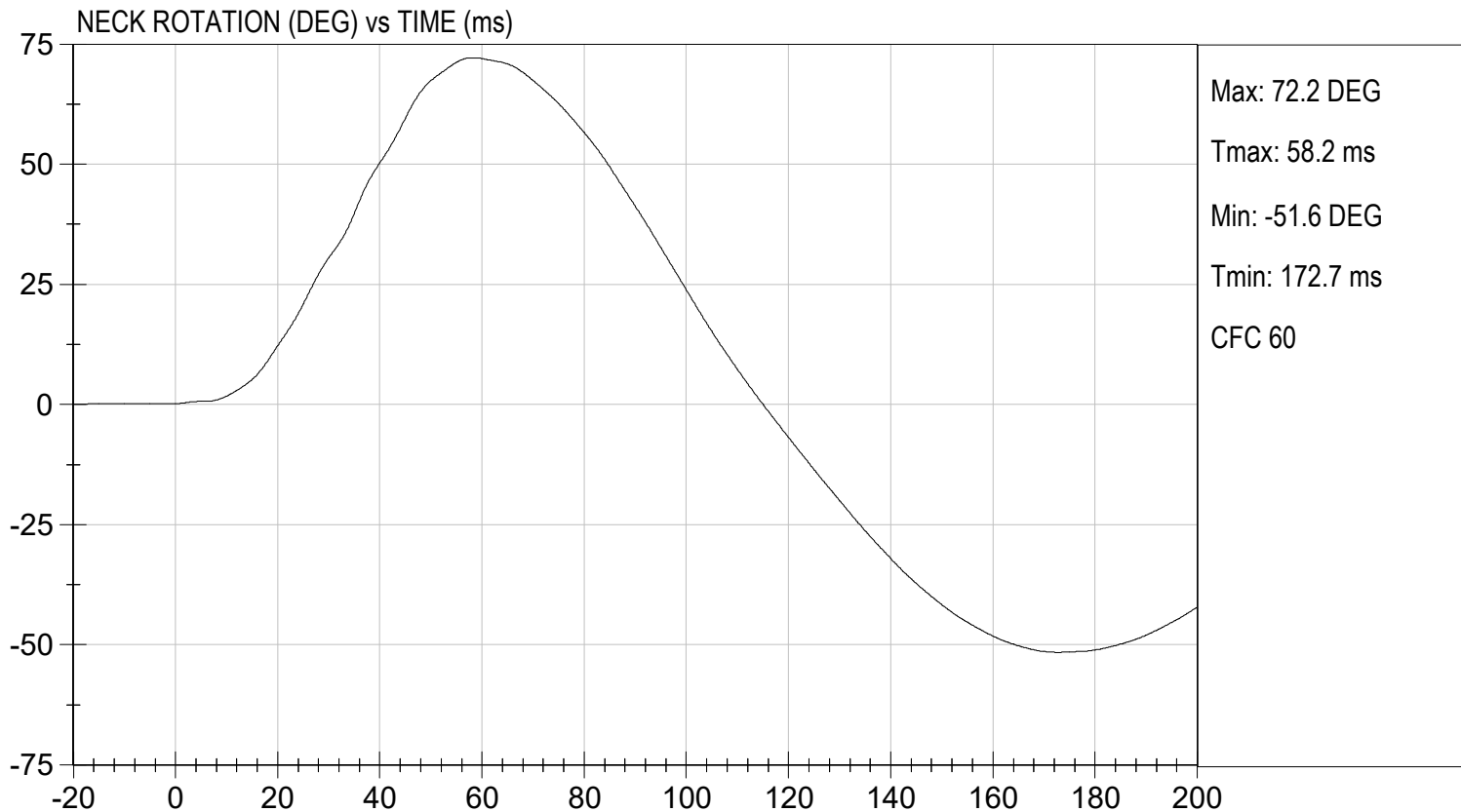
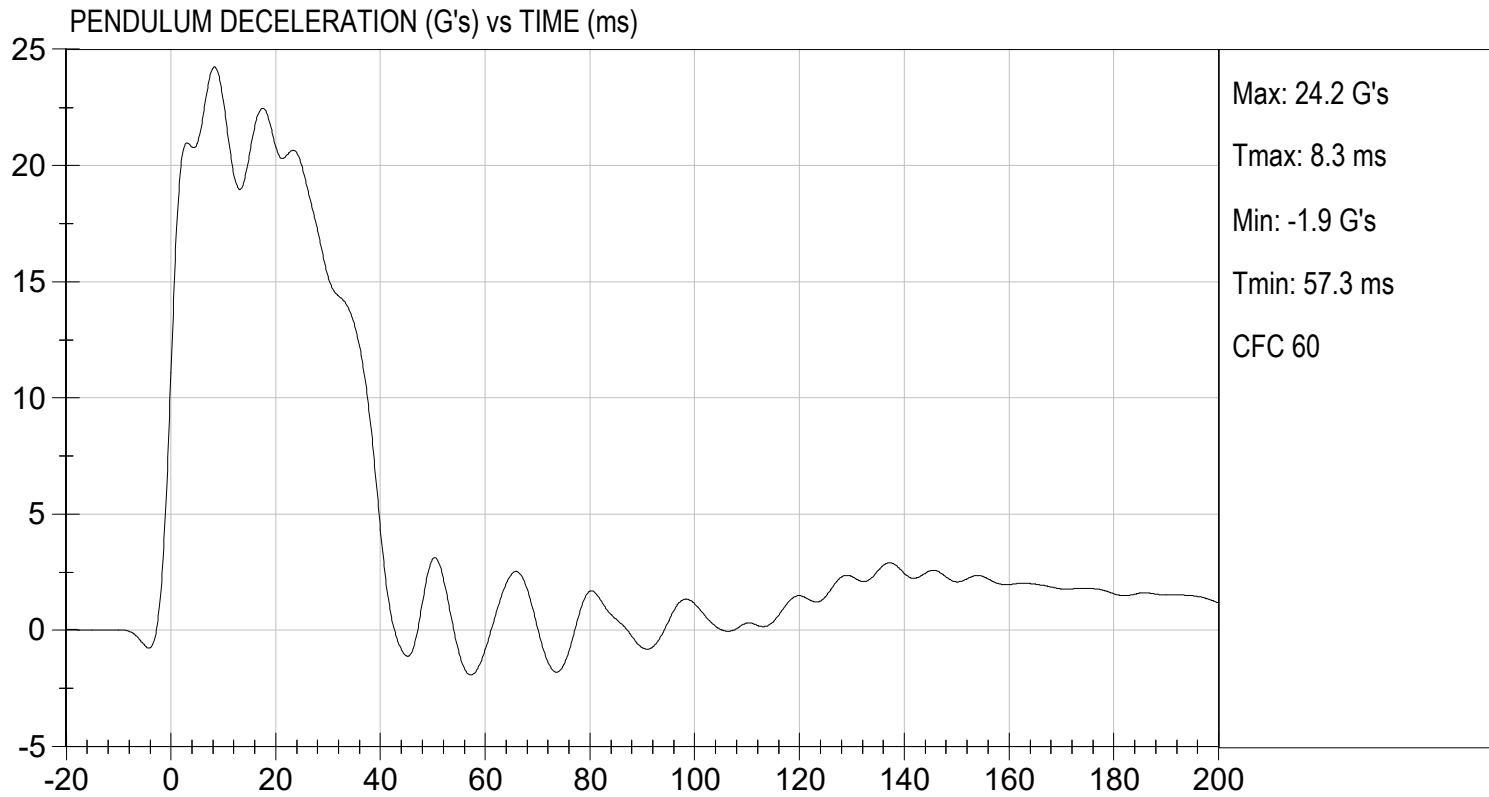
07/31/2024
Test Date


Approved By



TEST DESC: NECK FLEXION
VELOCITY: 22.83 ft/s, 6.96 m/s

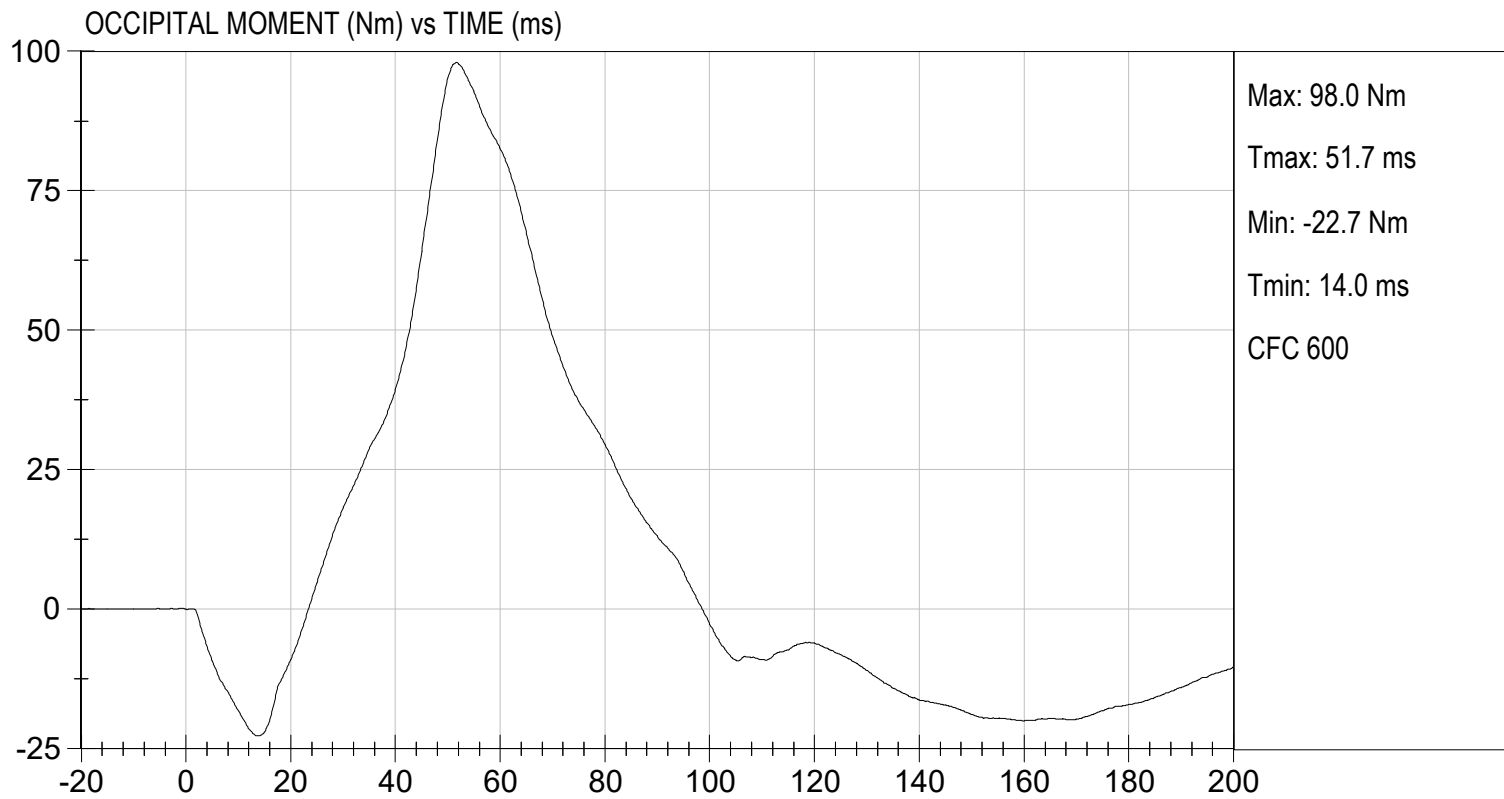
TEST DATE: 07/31/2024
TEST #: D241912





TEST DESC: NECK FLEXION
VELOCITY: 22.83 ft/s, 6.96 m/s

TEST DATE: 07/31/2024
TEST #: D241912



MGA RESEARCH CORPORATION
NECK EXTENSION TEST
HYBRID III 50TH PERCENTILE MALE

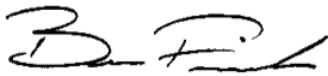
ATD Serial No: 064

Test I.D: D241913

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		deg C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	45	Pass
Pendulum Velocity		m/s	5.95 to 6.19	6.05	Pass
Pendulum Deceleration	10 ms	G's	17.20 to 21.20	19.77	Pass
	20 ms	G's	14.00 to 19.00	15.26	Pass
	30 ms	G's	11.00 to 16.00	14.32	Pass
Peak Pendulum Deceleration After 30 ms		G's	<= 22.0	14.6	Pass
Deceleration Decay Time to Cross 5 G's		ms	38.0 to 46.0	39.7	Pass
Maximum "D" Plane Rotation	Maximum	Degrees	81.0 to 106.0	97.1	Pass
	Time	ms	72.0 to 82.0	76.5	Pass
"D" Plane Rotation Decay Time To Zero Crossing		ms	147.0 to 174.0	156.0	Pass
Moment About Occipital Condyle	Maximum	Nm	-52.9 to -79.9	-62.2	Pass
	Time	ms	65.0 to 79.0	73.5	Pass
Negative Moment Decay Time To Zero Crossing		ms	120.0 to 148.0	142.0	Pass
Overall Test Results					Pass


 Laboratory Technician

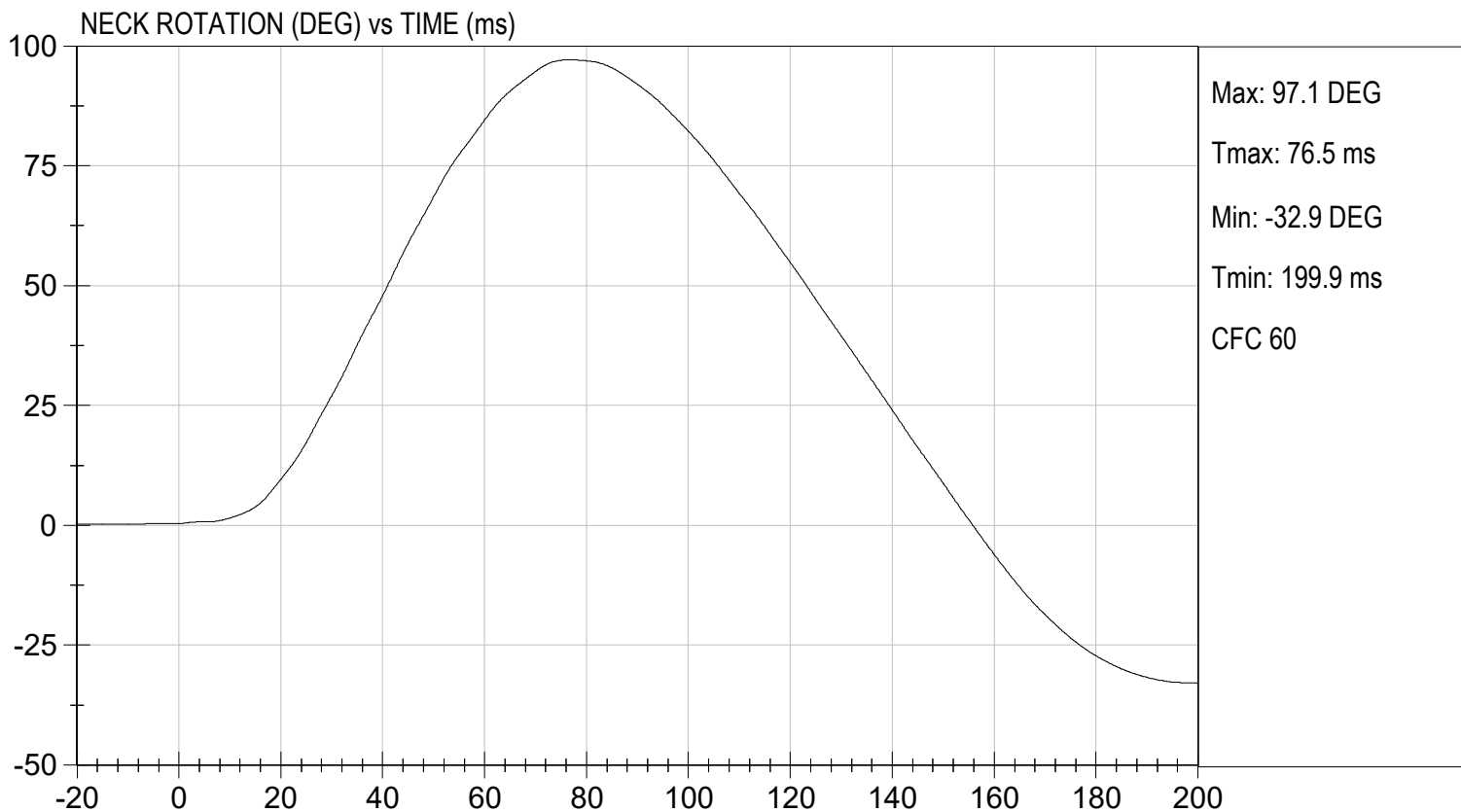
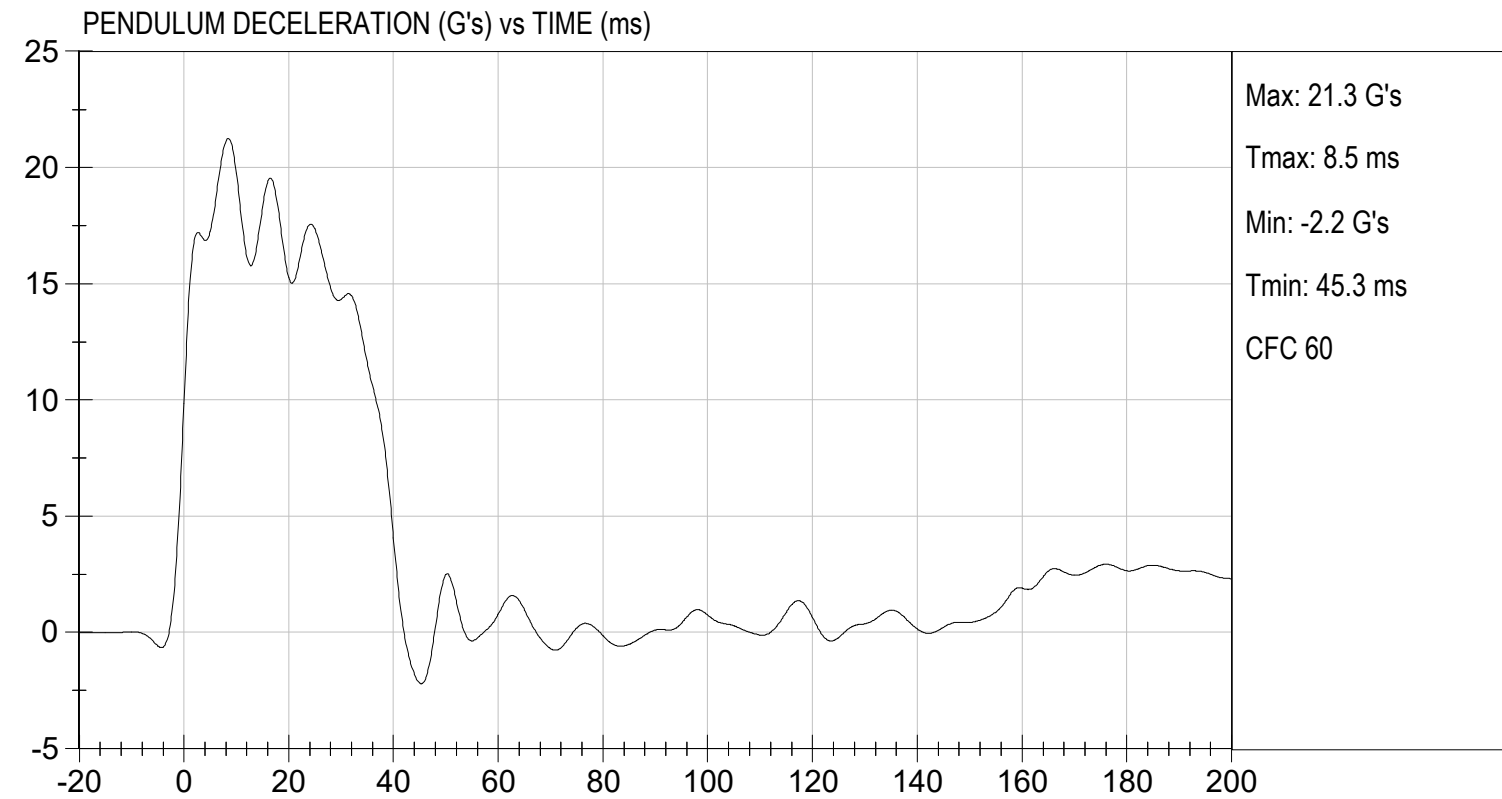
07/31/2024
 Test Date


 Approved By



TEST DESC: NECK EXTENSION
VELOCITY: 19.84 ft/s, 6.05 m/s

TEST DATE: 07/31/2024
TEST #: D241913





TEST DESC: NECK EXTENSION
VELOCITY: 19.84 ft/s, 6.05 m/s

TEST DATE: 07/31/2024
TEST #: D241913



MGA RESEARCH CORPORATION
THORAX IMPACT
HYBRID III 50TH PERCENTILE MALE

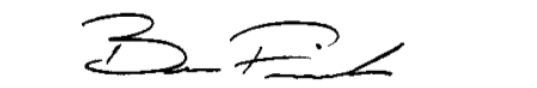
ATD Serial No: 064

Test I.D: D241914

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	48	Pass
Probe Velocity	m/s	6.58 to 6.82	6.68	Pass
Peak Probe Force	N	5159 to 5893	5,303	Pass
Peak Sternum Displacement	cm	6.35 to 7.26	7.05	Pass
Internal Hysteresis	%	69 to 85	71	Pass
			Overall Test Results	Pass


Laboratory Technician

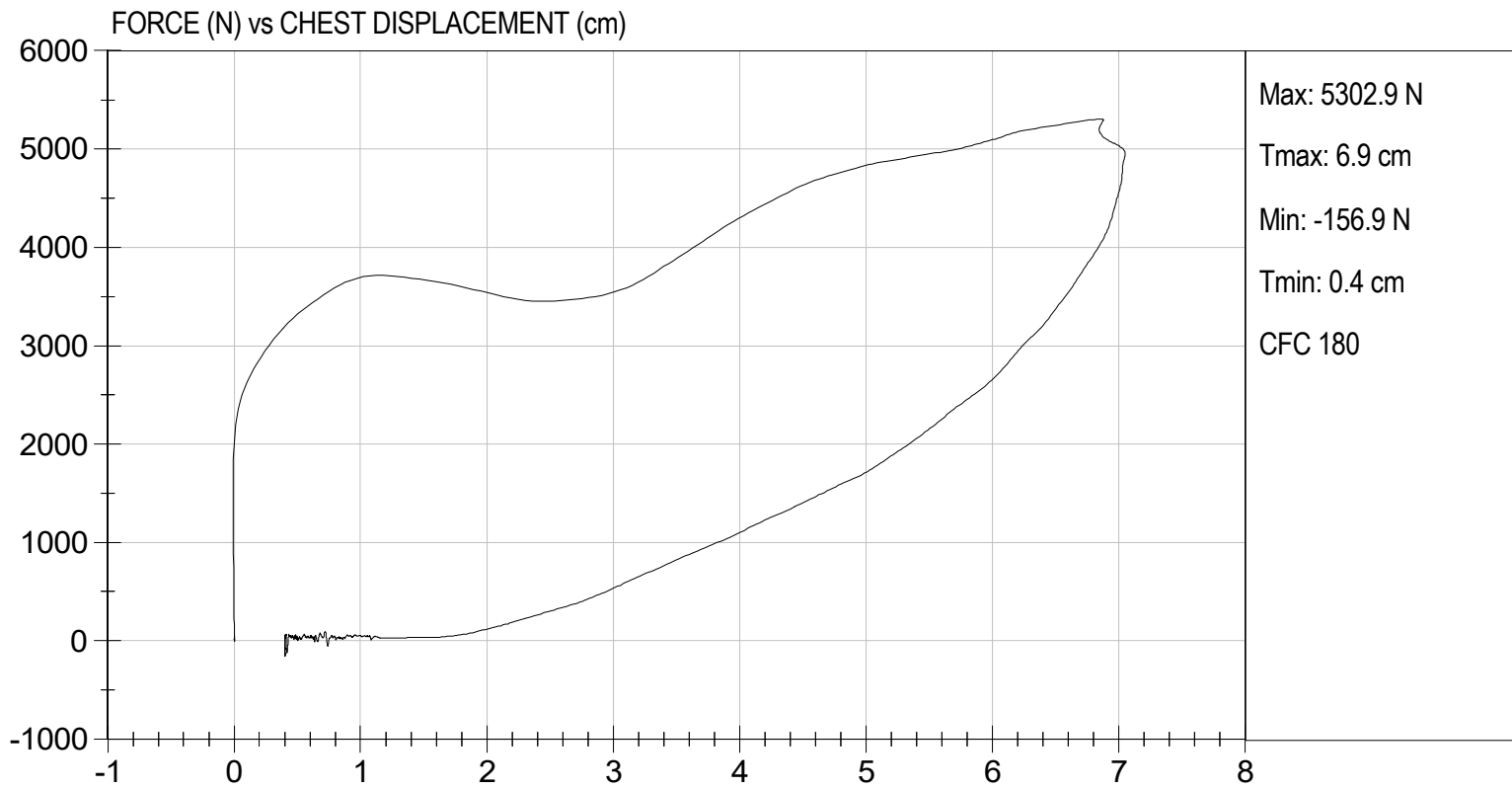
07/31/2024
Test Date


Approved By



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

TEST DATE: 07/31/2024
TEST #: D241914



MGA RESEARCH CORPORATION
RIGHT KNEE IMPACT TEST
HYBRID III 50TH PERCENTILE MALE

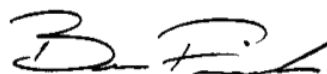
ATD Serial No: 064

Test I.D: D241915

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	47	Pass
Probe Velocity	m/s	2.07 to 2.13	2.11	Pass
Peak Probe Force	N	4715 to 5782	4,964	Pass
Overall Test Results				Pass


Laboratory Technician

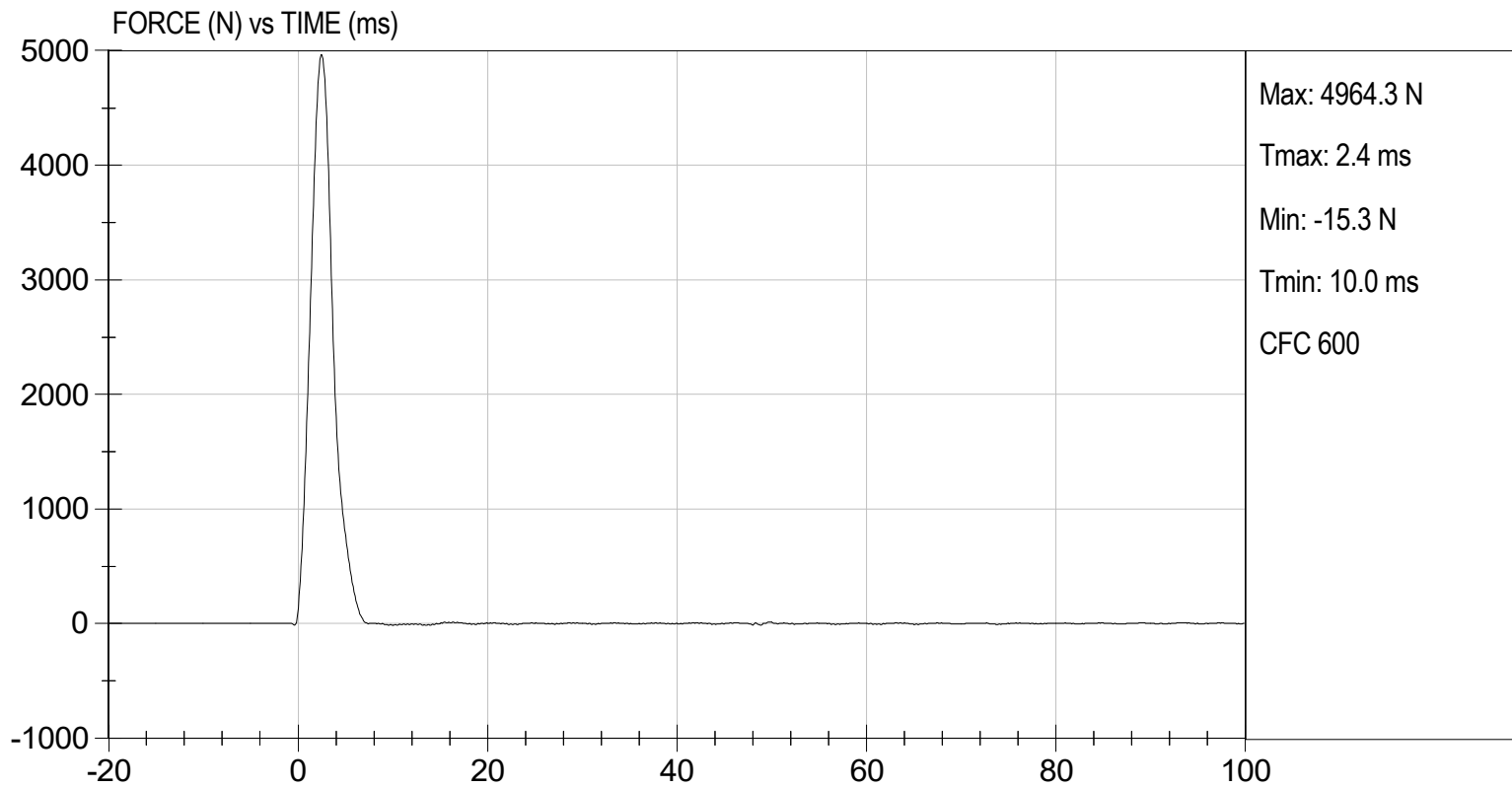
07/31/2024
Test Date


Approved By



TEST DESC: RIGHT KNEE
VELOCITY: 6.92 ft/s, 2.11 m/s

TEST DATE: 07/31/2024
TEST #: D241915



MGA RESEARCH CORPORATION
LEFT KNEE IMPACT TEST
HYBRID III 50TH PERCENTILE MALE

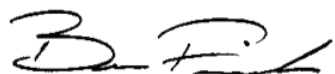
ATD Serial No: 064

Test I.D: D241916

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.5	Pass
Laboratory Relative Humidity	%	10 to 70	47	Pass
Probe Velocity	m/s	2.07 to 2.13	2.12	Pass
Peak Probe Force	N	4715 to 5782	4,884	Pass
			Overall Test Results	Pass


Laboratory Technician

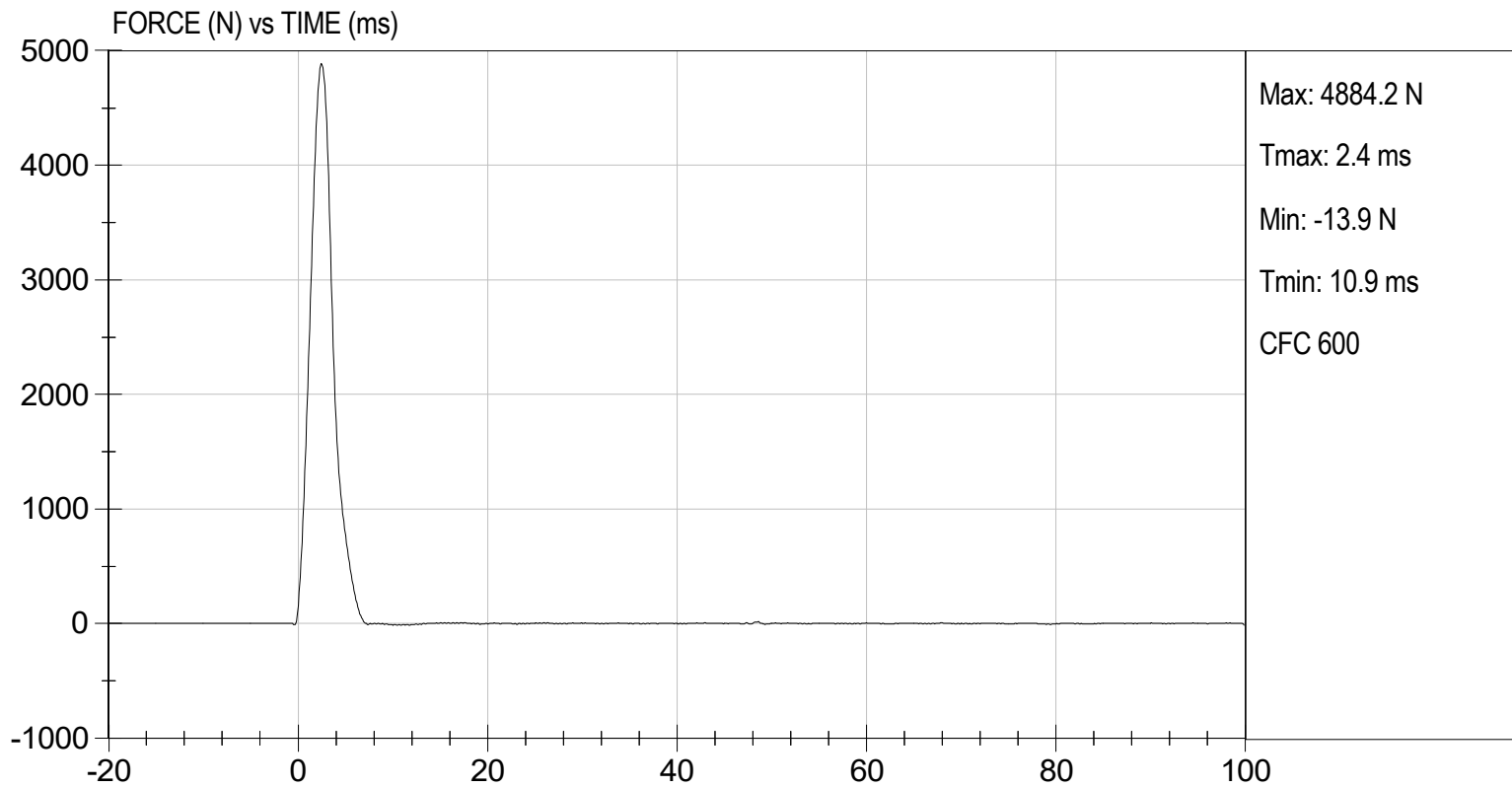
07/31/2024
Test Date


Approved By



TEST DESC: LEFT KNEE
VELOCITY: 6.94 ft/s, 2.12 m/s

TEST DATE: 07/31/2024
TEST #: D241916



MGA RESEARCH CORPORATION
HIP-FEMUR FLEXION TEST
HYBRID III 50TH PERCENTILE MALE

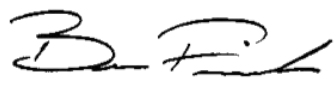
ATD Serial No: 064

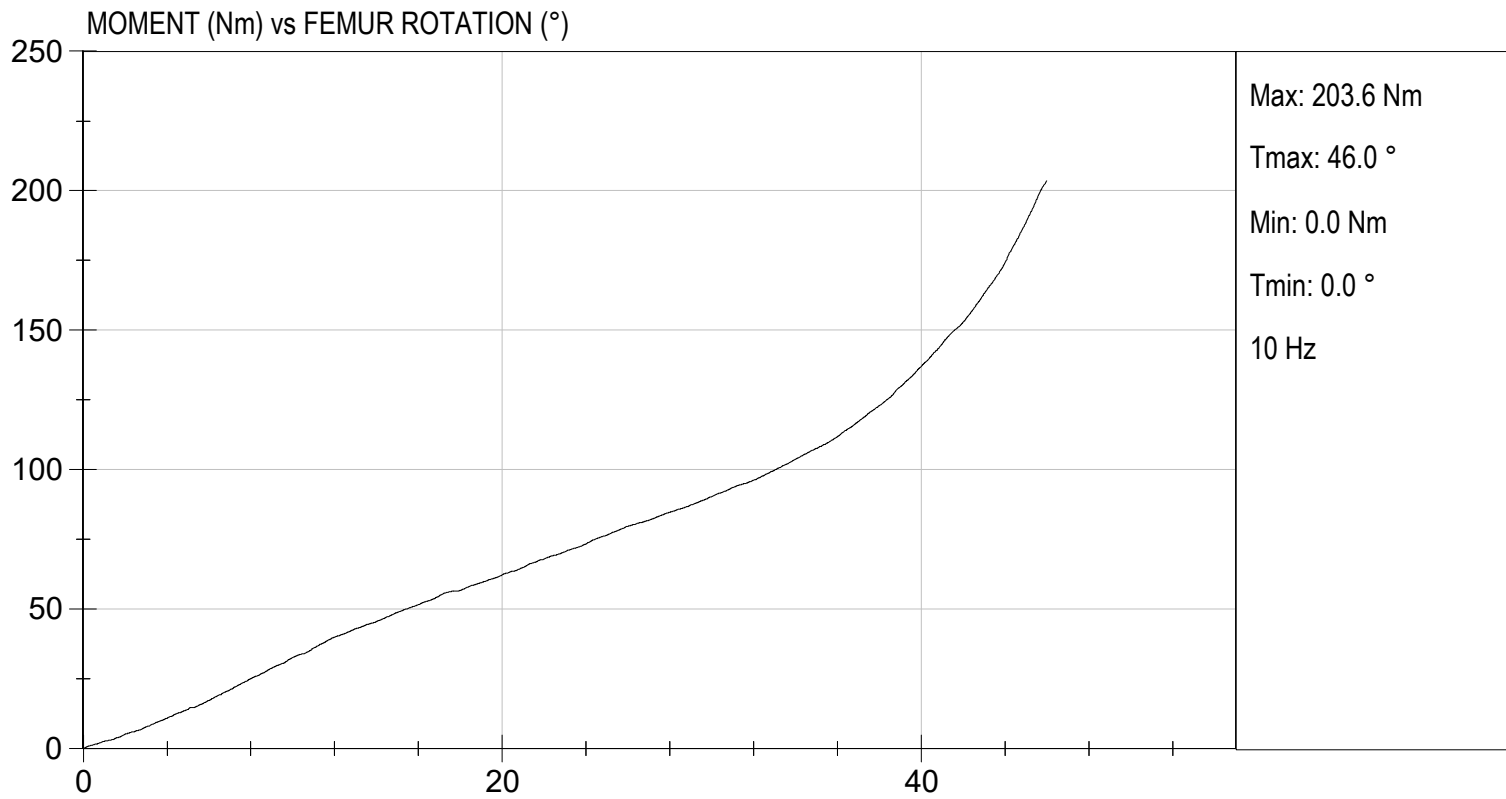
Test I.D: D241910

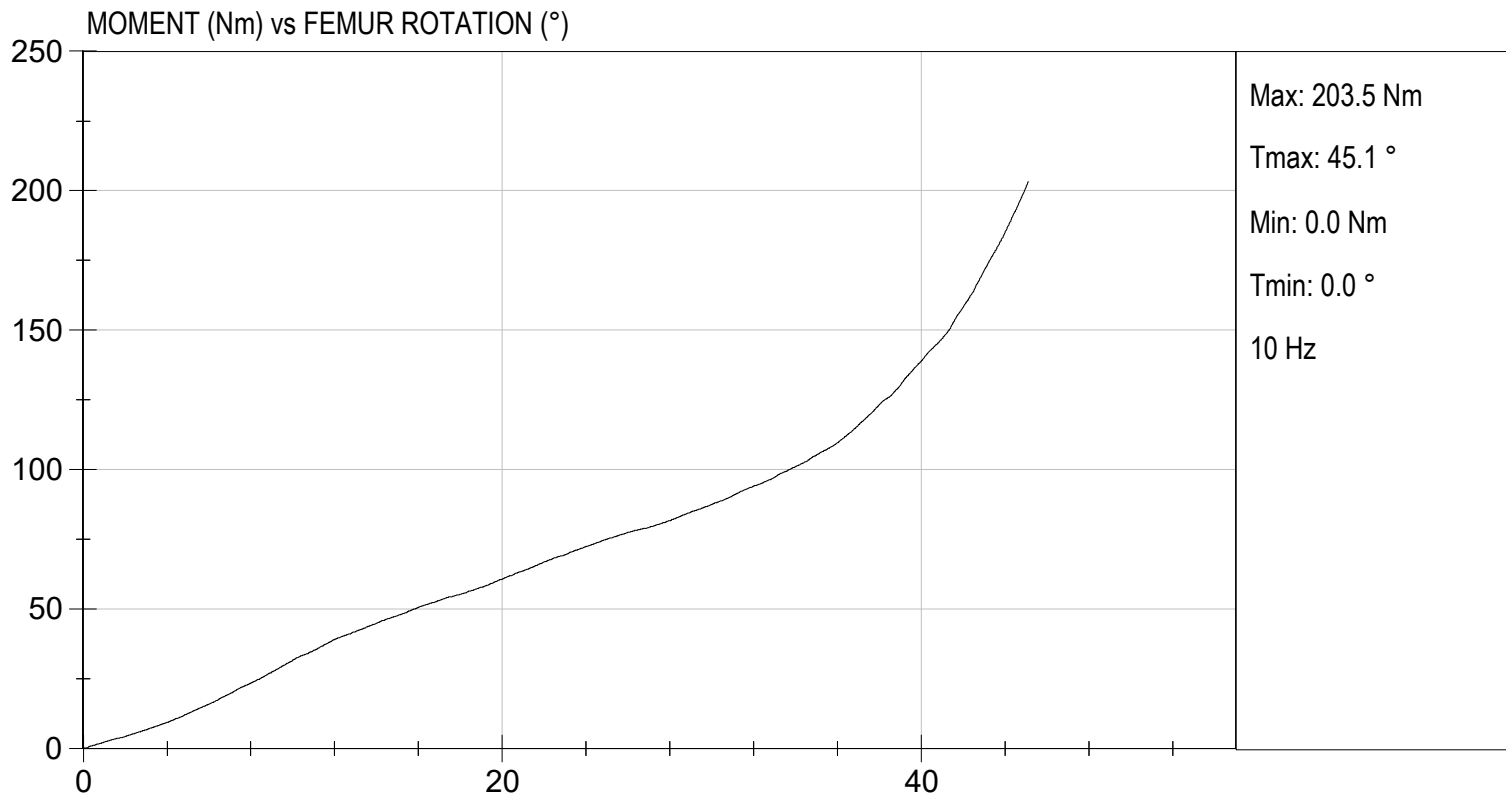
Tested Parameter	Units	Specification	Result		Pass/Fail
			Right	Left	
Laboratory Temperature	deg C	18.9 to 25.6	21.4	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	46	46	Pass
Rotation Rate	deg/s	5.0 to 10.0	6.6	6.5	Pass
30 Degrees	Nm	94.9 Nm Max	90.4	87.5	Pass
150 ft-lbf / 203.4 Nm	Deg	40.0 to 50.0 Degree Max Rotation	46.0	45.1	Pass
Overall Test Results					Pass


 Laboratory Technician

07/31/2024
 Test Date


 Approved By





QUALIFICATION TEST RESULTS

PRE-TEST

HYBRID III 5TH PERCENTILE FEMALE - PASSENGER ATD

Hybrid III, 5th External Measurements
SN: 142

HYBRID III, PART 572, SUBPART O EXTERNAL DIMENSIONS				
DIMENSION	DESCRIPTION	DETAILS	ASSEMBLY DIMENSION (mm)	ACTUAL MEASUREMENT
A	TOTAL SITTING HEIGHT	Seat surface to highest point on top of the head.	774.7-800.1	775.0
B	SHOULDER PIVOT HEIGHT	Centerline of shoulder pivot bolt to the seat surface.	431.8-457.2	438.2
C	H-POINT HEIGHT	Reference	81.3-86.3	81.8
D	H-POINT LOCATION FROM BACKLINE	Reference	144.8-149.8	148.3
E	SHOULDER PIVOT FROM BACKLINE	Center of the shoulder clevis to the rear vertical surface of the fixture.	68.6-83.8	83.0
F	THIGH CLEARANCE	Measured at the highest point on the upper femur segment.	119.4-134.6	124.4
G	BACK OF ELBOW TO WRIST PIVOT	back of the elbow flesh to the wrist pivot in line with the elbow and wrist pivots	243.9-259.1	245.2
H	HEAD BACK TO BACKLINE	Back of Skull cap skin to seat rear vertical surface (Reference)	43.2-48.2	43.4
I	SHOULDER TO- ELBOW LENGTH	Measure from the highest point on top of the shoulder clevis to the lowest part of the flesh on the elbow in line with the elbow pivot bolt.	276.8-297.2	281.1
J	ELBOW REST HEIGHT	Measure from the flesh below the elbow pivot bolt to the seat surface.	182.8-203.2	197.2
K	BUTTOCK TO KNEE LENGTH	The forward most part of the knee flesh to the rear vertical surface of the fixture.	520.7-546.1	537.2
L	POPLITEAL HEIGHT	Seat surface to the plane of the horizontal plane of the bottom of the feet.	355.6-376	358.8
M	KNEE PIVOT HEIGHT	Centerline of knee pivot bolt to the horizontal plane of the bottom of the feet.	393.7-419.1	403.1
N	BUTTOCK POPLITEAL LENGTH	The rearmost surface of the lower leg to the same point on the rear surface of the buttocks used for dim. "K".	414-439.4	435.2

HYBRID III, SUBPART O EXTERNAL DIMENSIONS, continued				
DIMENSION	DESCRIPTION	DETAILS	ASSEMBLY DIMENSION (mm)	ACTUAL MEASUREMENT
O	CHEST DEPTH WITHOUT JACKET	Measured 304.8 ± 5.1 mm above seat surface	175.3-190.5	181.2
P	FOOT LENGTH	Tip of toe to rear of heal	218.5-233.7	227.3
Q	STANDING HEIGHT	(THEORETICAL)	1501.1	N/A
R	BUTTOCK TO KNEE PIVOT LENGTH	The rear surface of the buttocks to the knee pivot bolt	457.2-482.6	475.0
S	HEAD BREADTH	The widest part of the head	137.1-147.3	138.6
T	HEAD DEPTH	Back of the head to the forehead	177.8-188	181.0
U	HIP BREADTH	The widest part of the hip	299.7-314.9	308.4
V	SHOULDER BREADTH	Outside edges of right and left shoulder clevises	350.5-365.7	362.1
W	FOOT BREADTH	The widest part of the foot	78.8-94	82.8
X	HEAD CIRCUMFERENCE	Measured at the point as in dim. "T"	528.3-548.7	545.2
Y	CHEST CIRCUMFERENCE (WITH CHEST JACKET)	Measured 345.4 ± 12.7 mm above seat surface	850.9-881.3	870.7
Z	WAIST CIRCUMFERENCE	Measured 165.1 ± 5.1 mm above seat surface	759.5-789.9	779.9
AA	REFERENCE LOCATION FOR MEASUREMENT OF CHEST CIRCUMFERENCE	Reference	332.7-358.1	350.1
BB	REFERENCE LOCATION FOR MEASUREMENT OF WAIST CIRCUMFERENCE	Reference	160.1-170.2	170.0

MGA RESEARCH CORPORATION
HEAD DROP TEST
HYBRID III 5TH PERCENTILE

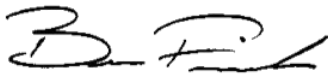
ATD Serial No: 142

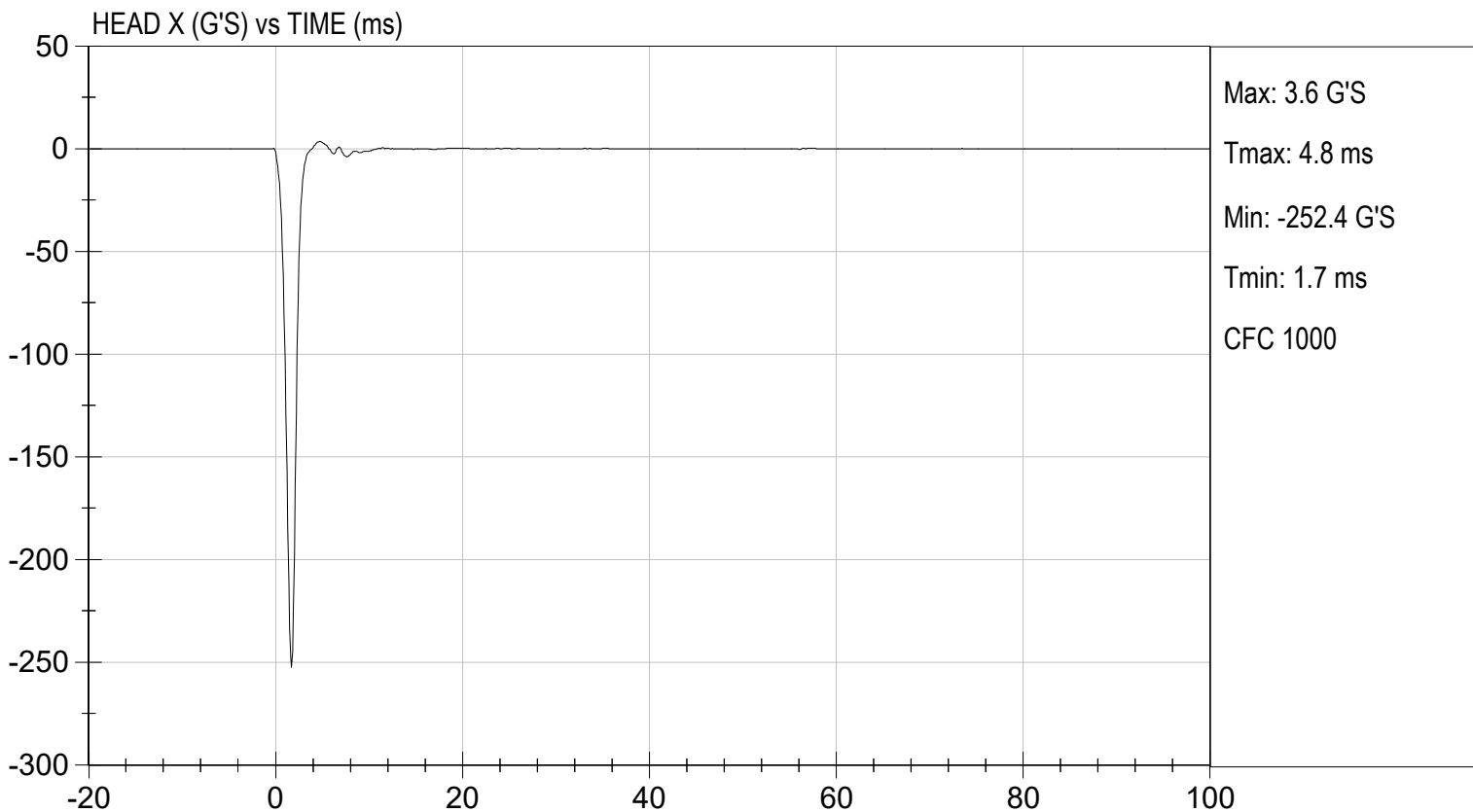
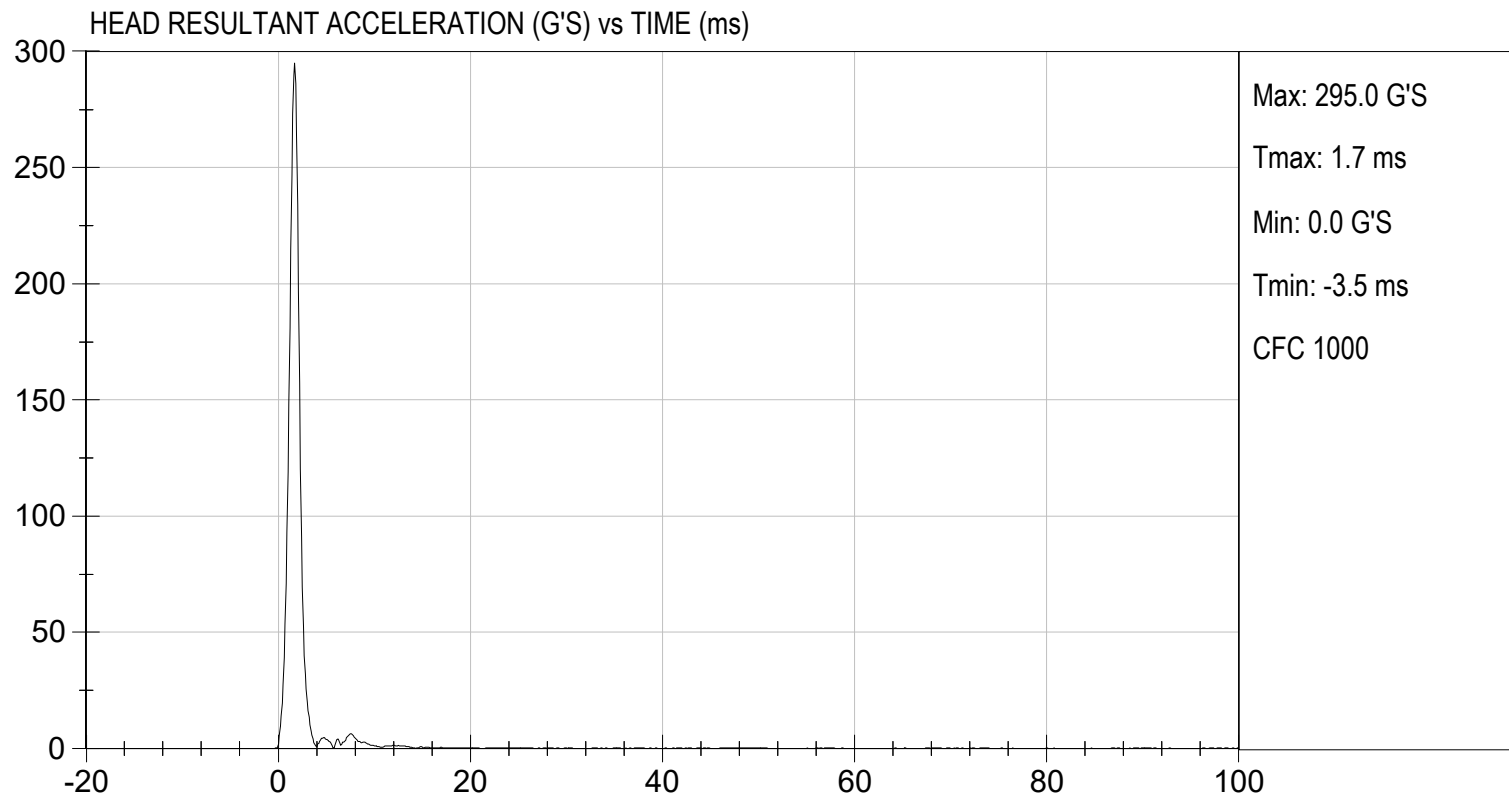
Test ID: D241751

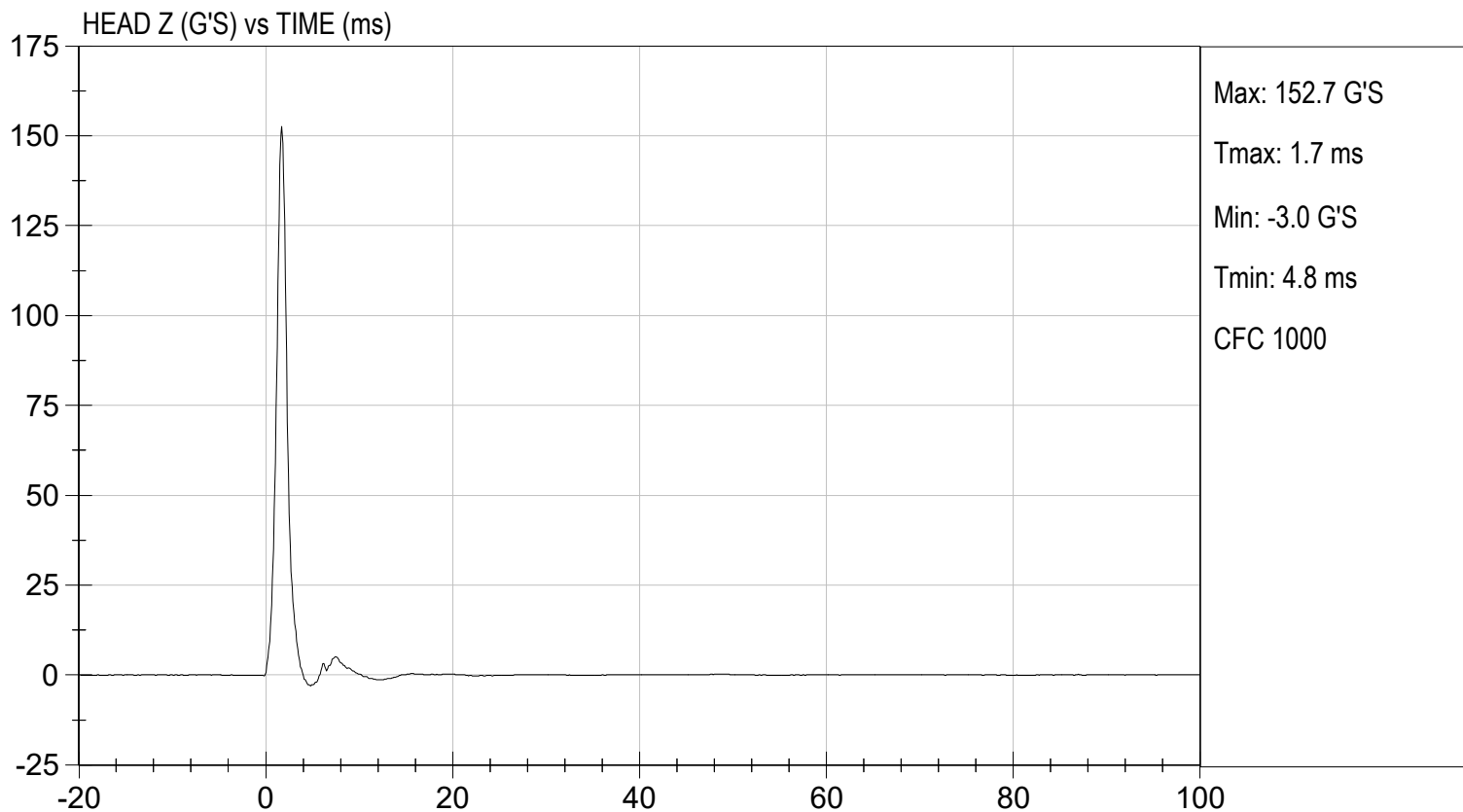
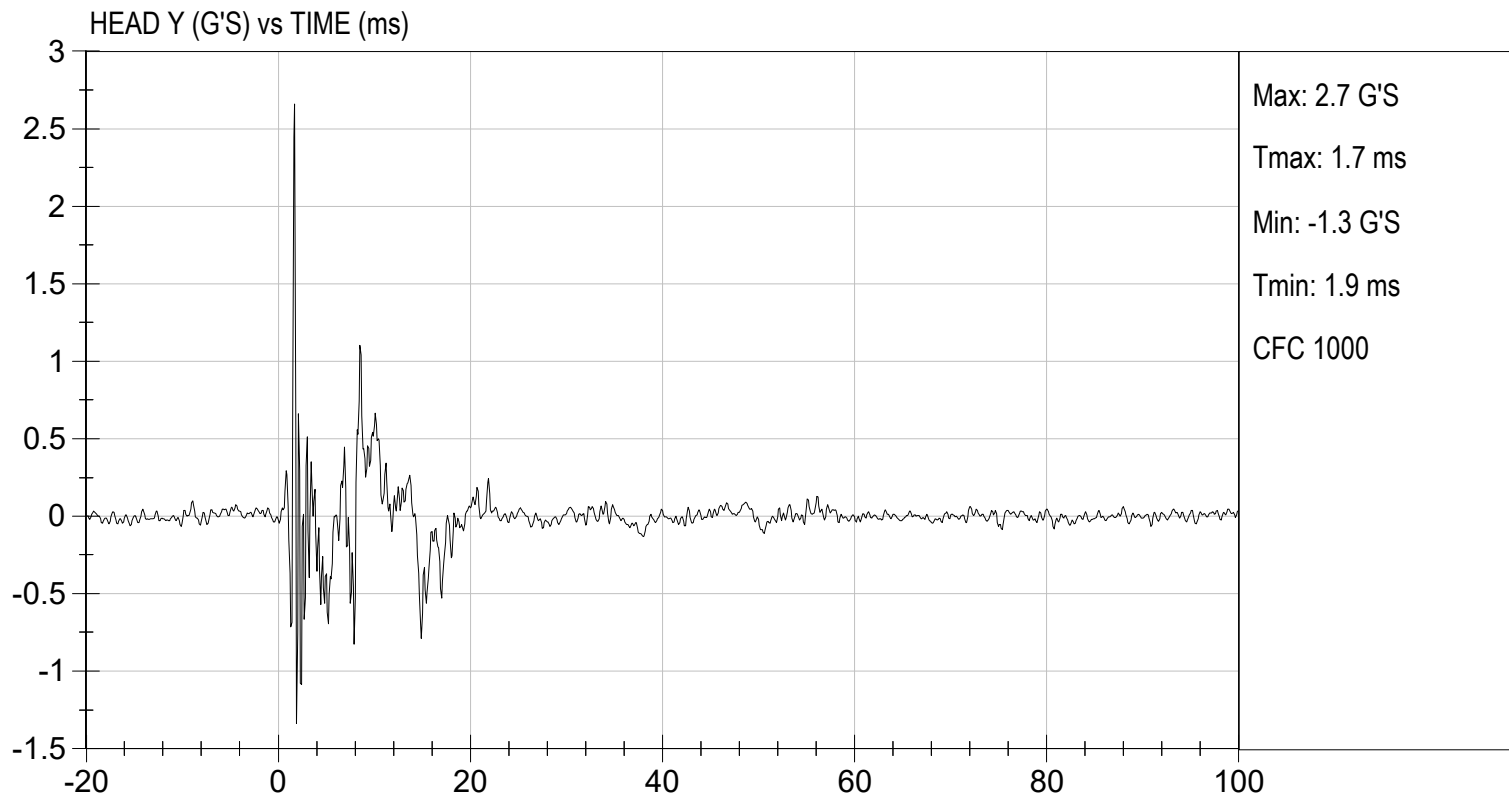
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.2	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Peak Resultant Acceleration	G's	250 to 300	295	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	2.7	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
Overall Test Results				Pass


Laboratory Technician

07/16/2024
Test Date


Approved By





MGA RESEARCH CORPORATION

NECK FLEXION TEST

HYBRID III 5TH PERCENTILE

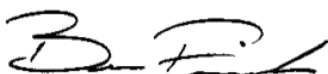
ATD Serial No: 142

Test I.D: D241752

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	46	Pass
Pendulum Speed		m/s	6.89 to 7.13	7.06	Pass
Pendulum Velocity	10 ms	m/s	2.1 to 2.5	2.3	Pass
	20 ms	m/s	4.0 to 5.0	4.3	Pass
	30 ms	m/s	5.8 to 7.0	6.4	Pass
D Plane Rotation	Max	deg	77 to 91	80	Pass
Occipital Condyle Moment within Rotation Corridor		Nm	69 to 83	73	Pass
Positive Moment Time Curve Decay to 10 Nm		ms	80 to 100	87	Pass
Overall Results					Pass


Laboratory Technician

07/16/2024
Test Date

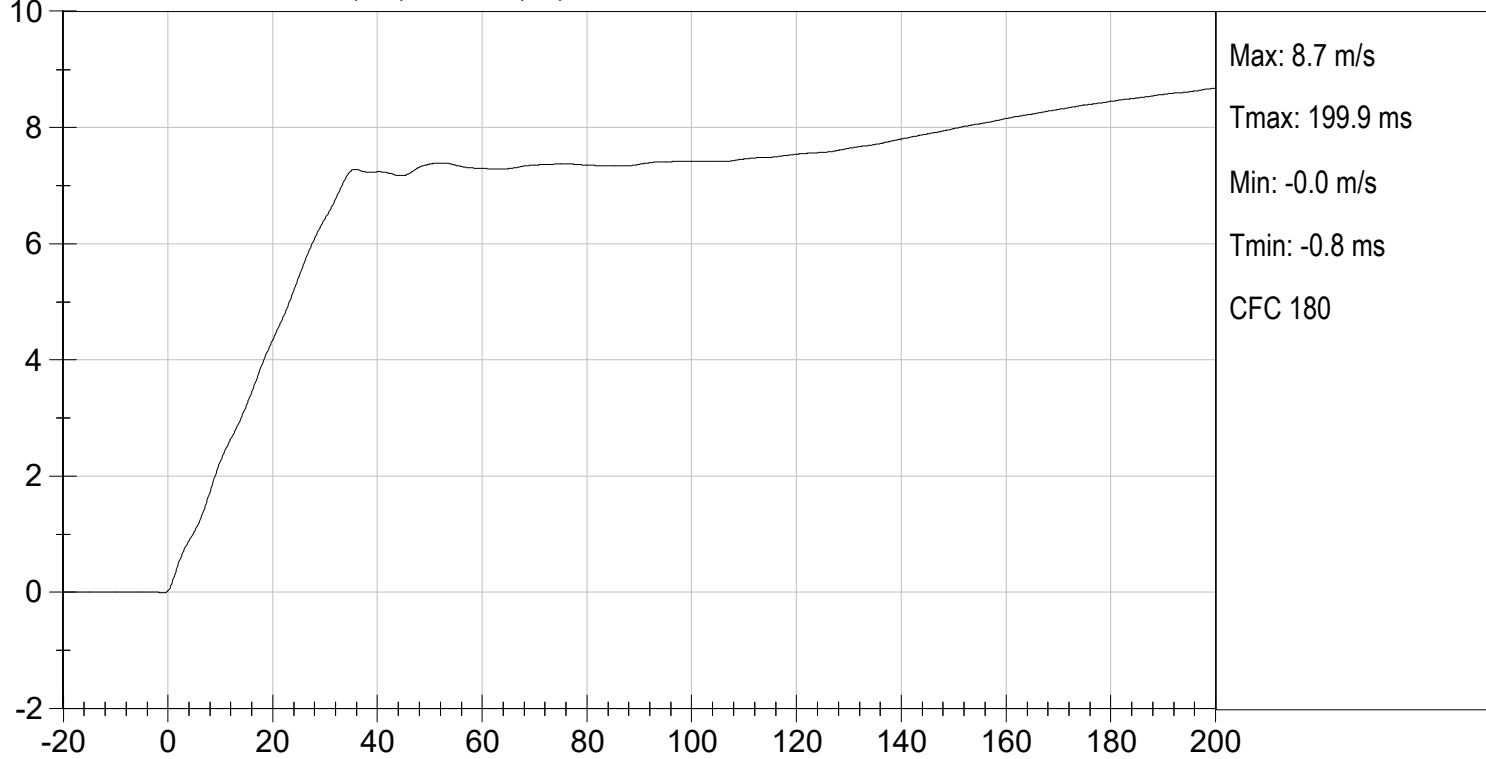

Approved By



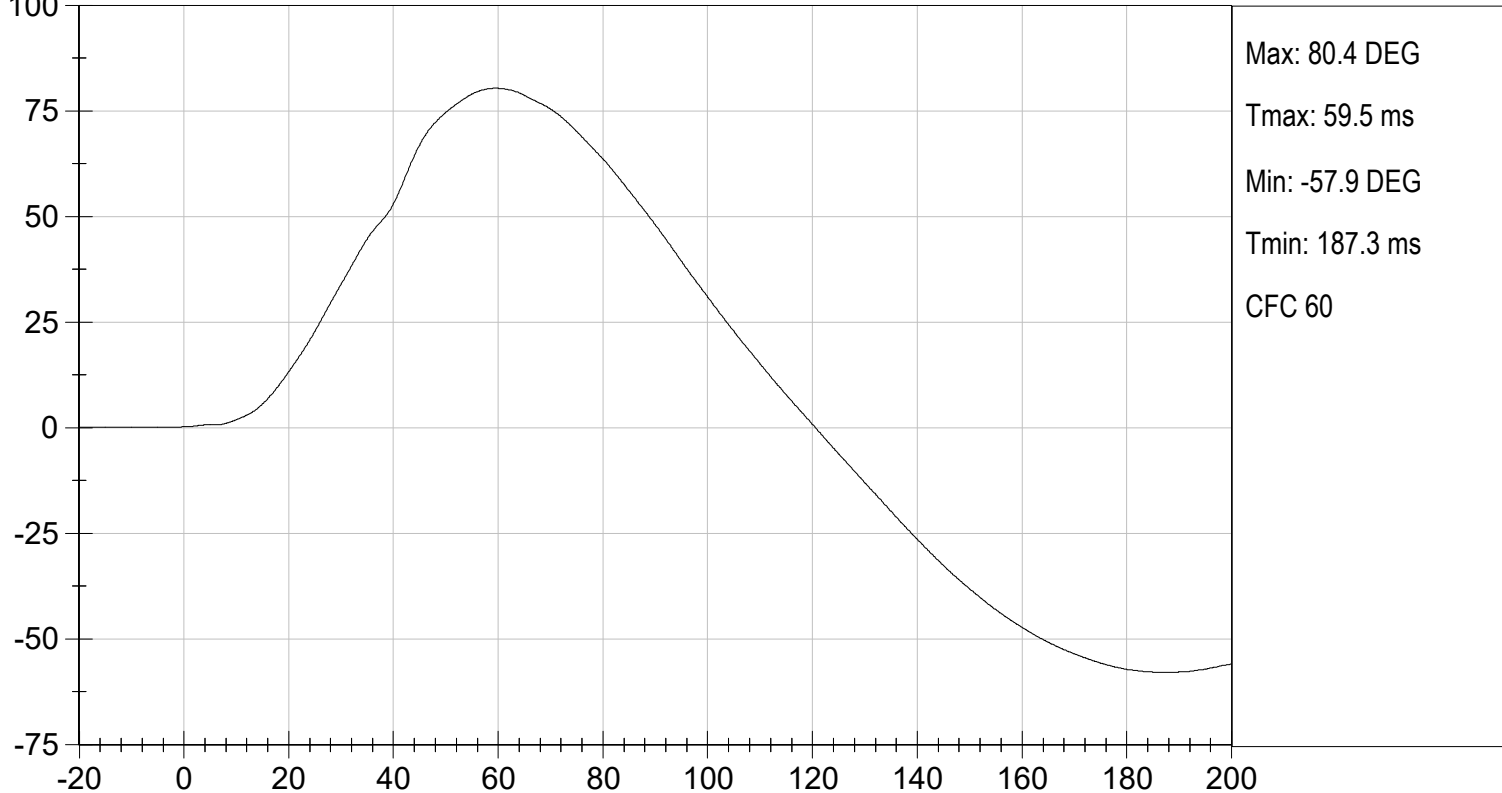
TEST DESC: NECK FLEXION
VELOCITY: 23.15 ft/s, 7.06 m/s

TEST DATE: 07/16/2024
TEST #: D241752

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



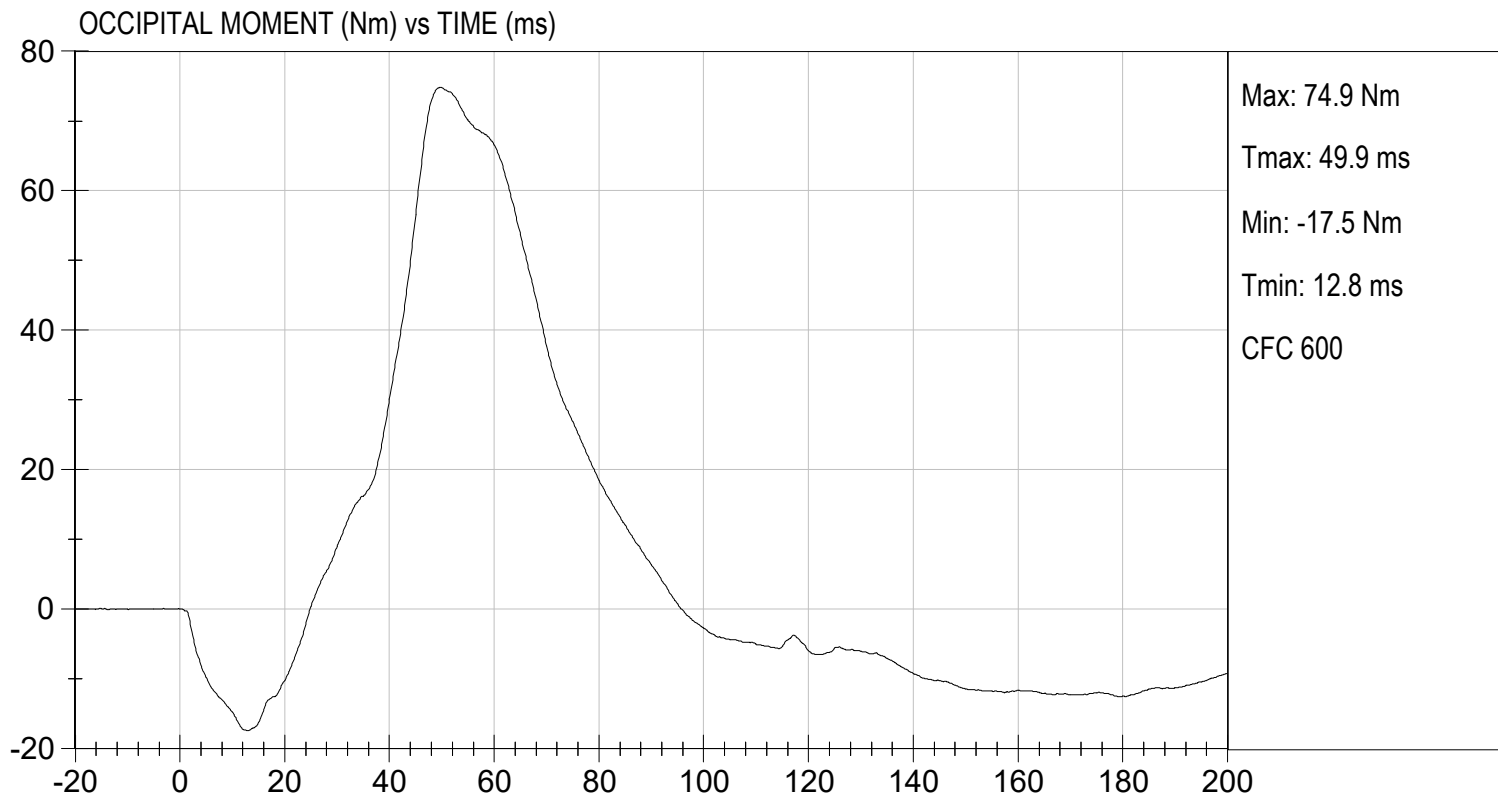
NECK ROTATION (DEG) vs TIME (ms)





TEST DESC: NECK FLEXION
VELOCITY: 23.15 ft/s, 7.06 m/s

TEST DATE: 07/16/2024
TEST #: D241752



MGA RESEARCH CORPORATION
NECK EXTENSION TEST
HYBRID III 5TH PERCENTILE

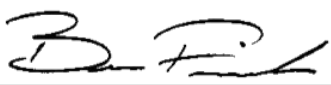
ATD Serial No: 142

Test I.D: D241753

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	46	Pass
Pendulum Speed		m/s	5.95 to 6.19	6.12	Pass
Pendulum Velocity	10 ms	m/s	1.5 to 1.9	1.8	Pass
	20 ms	m/s	3.1 to 3.9	3.5	Pass
	30 ms	m/s	4.6 to 5.6	5.2	Pass
D Plane Rotation	Max	deg	99 to 114	110	Pass
Occipital Condyle Moment within Rotation Corridor		Nm	-65 to -53	-55	Pass
Negative Moment Time Curve Decay to -10 Nm		ms	94 to 114	109	Pass
Overall Results					Pass


Laboratory Technician

07/16/2024
Test Date

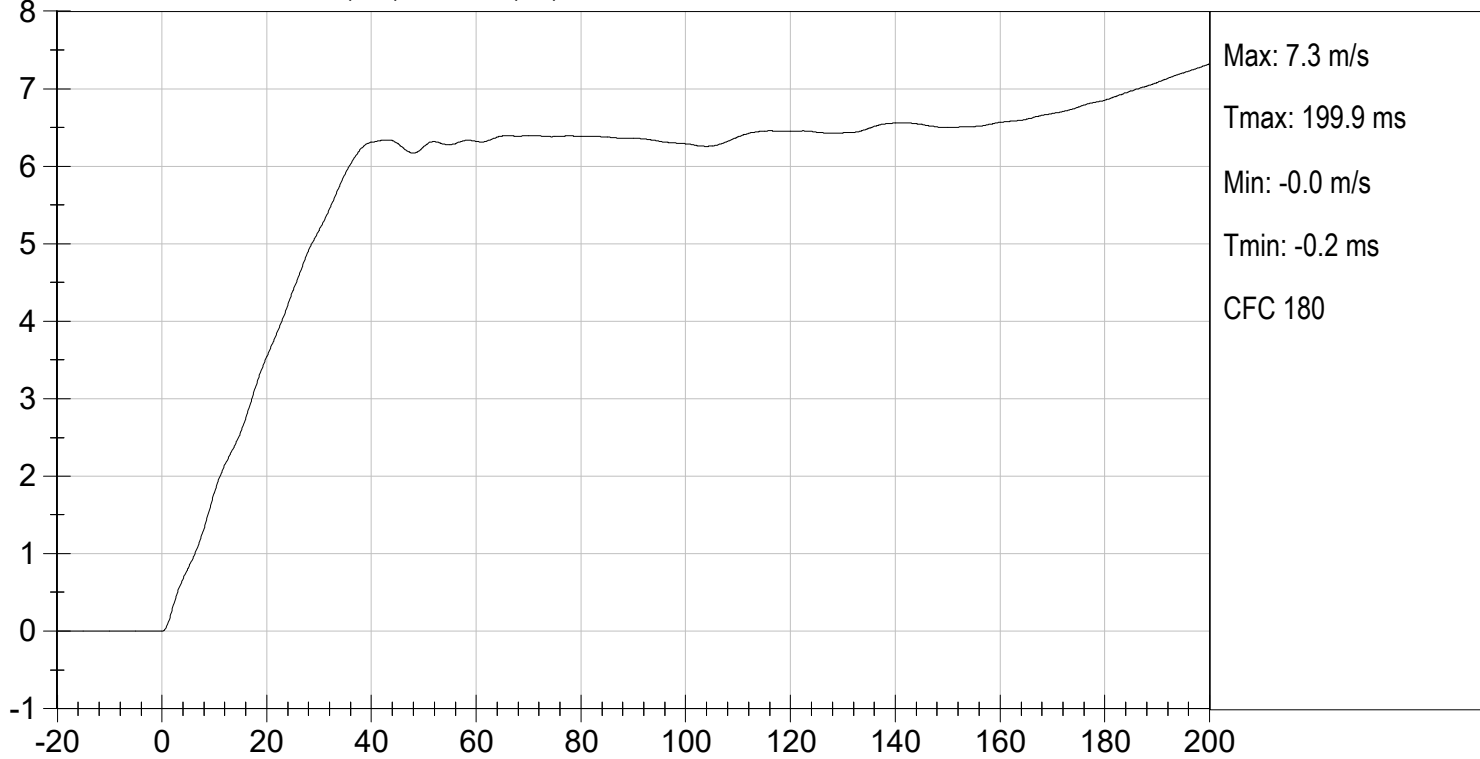

Approved By



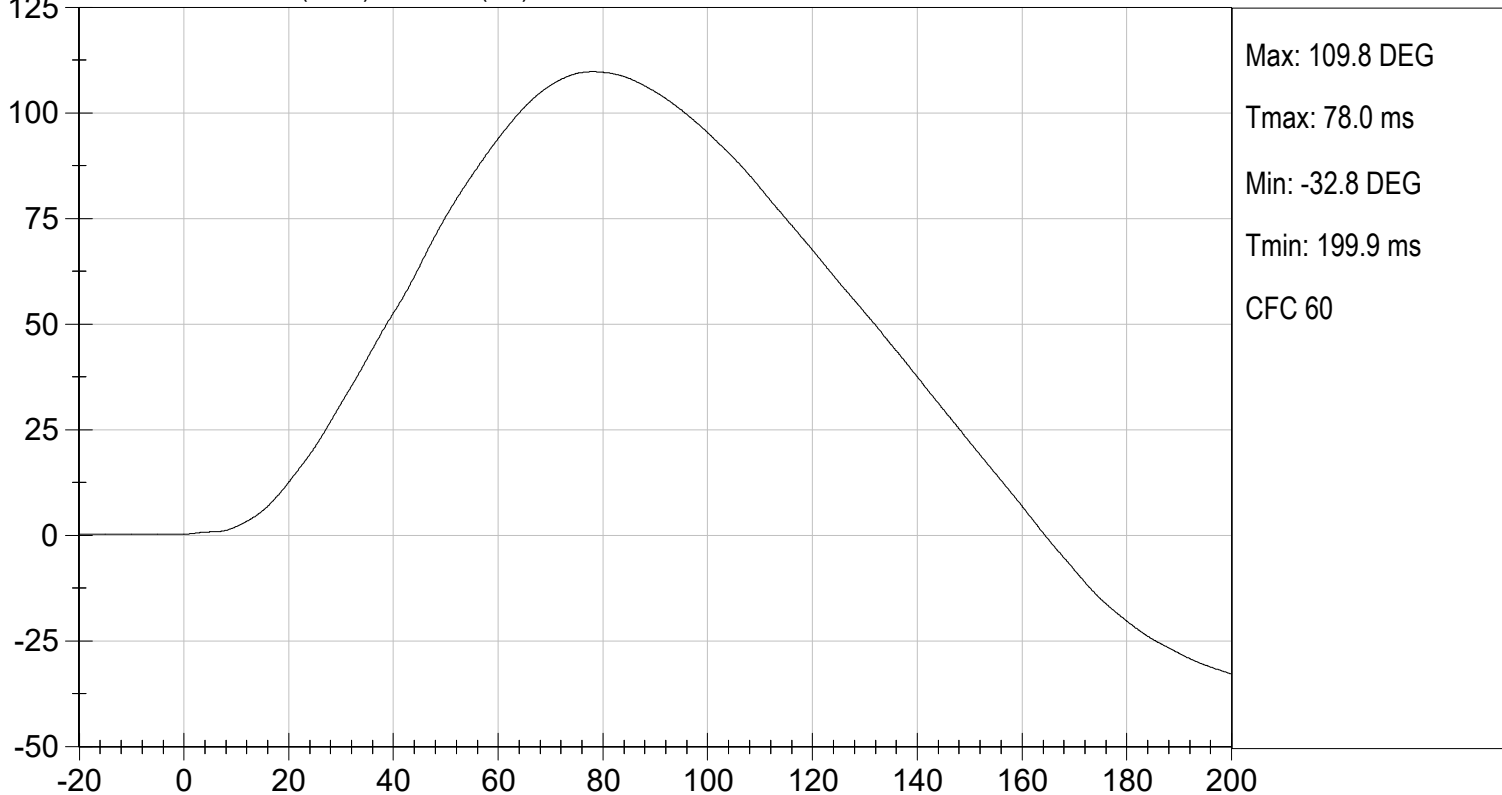
TEST DESC: NECK EXTENSION
VELOCITY: 20.08 ft/s, 6.12 m/s

TEST DATE: 07/16/2024
TEST #: D241753

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



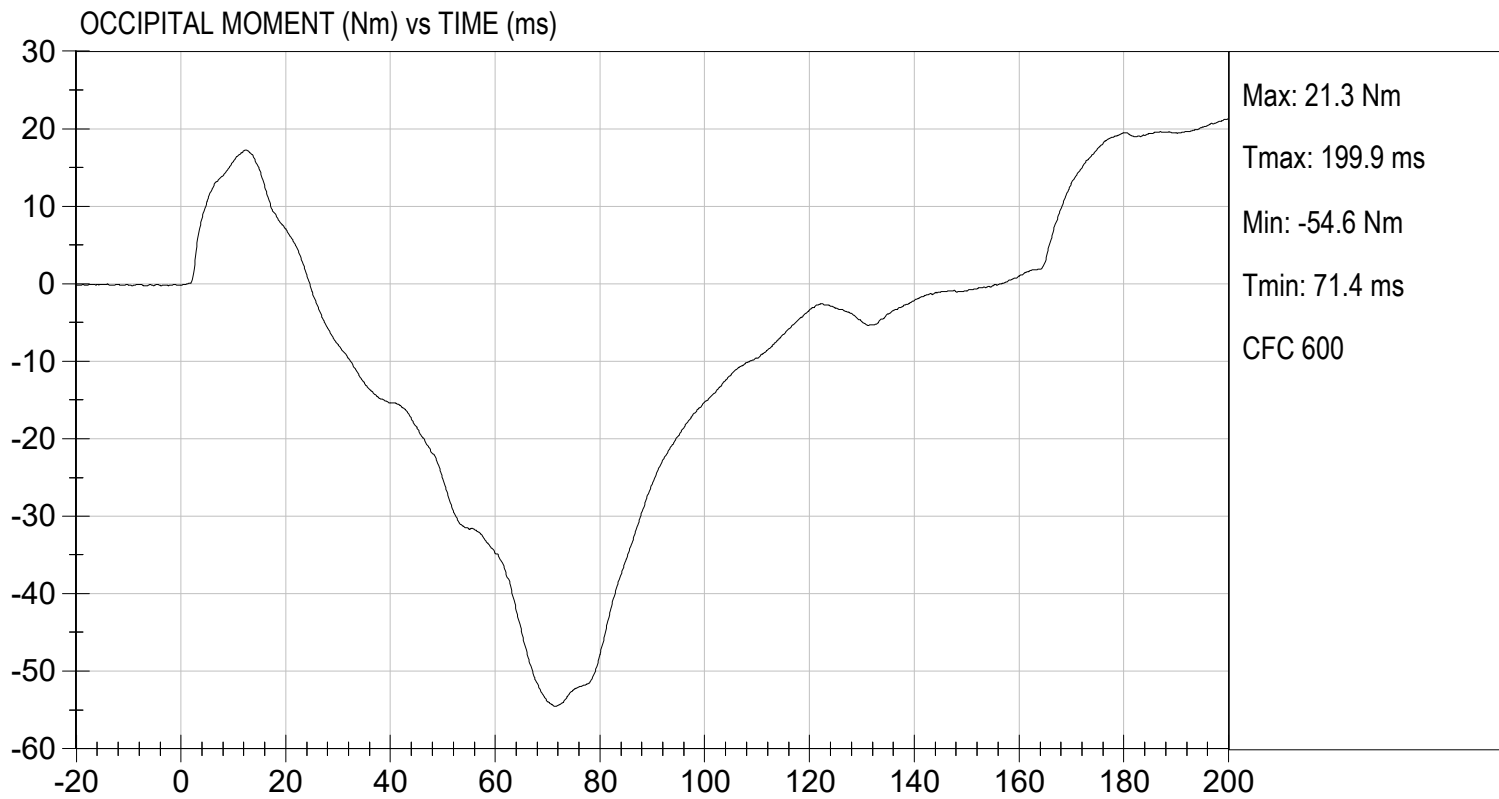
NECK ROTATION (DEG) vs TIME (ms)





TEST DESC: NECK EXTENSION
VELOCITY: 20.08 ft/s, 6.12 m/s

TEST DATE: 07/16/2024
TEST #: D241753



MGA RESEARCH CORPORATION

THORAX IMPACT

HYBRID III 5TH PERCENTILE

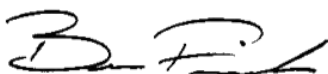
ATD Serial No: 142

Test I.D: D241754

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.4	Pass
Relative Humidity	%	10 to 70	48	Pass
Probe Speed	m/s	6.59 to 6.83	6.77	Pass
Peak Deflection	mm	50 to 58	51	Pass
Peak Resistive Force w/in Deflection Corridor	N	3900 to 4400	4225	Pass
Internal Hysteresis	%	69 to 85	75	Pass
Peak Force 18 mm - 50 mm	N	<= 4600	4275	Pass
			Overall Test Results	Pass


Laboratory Technician

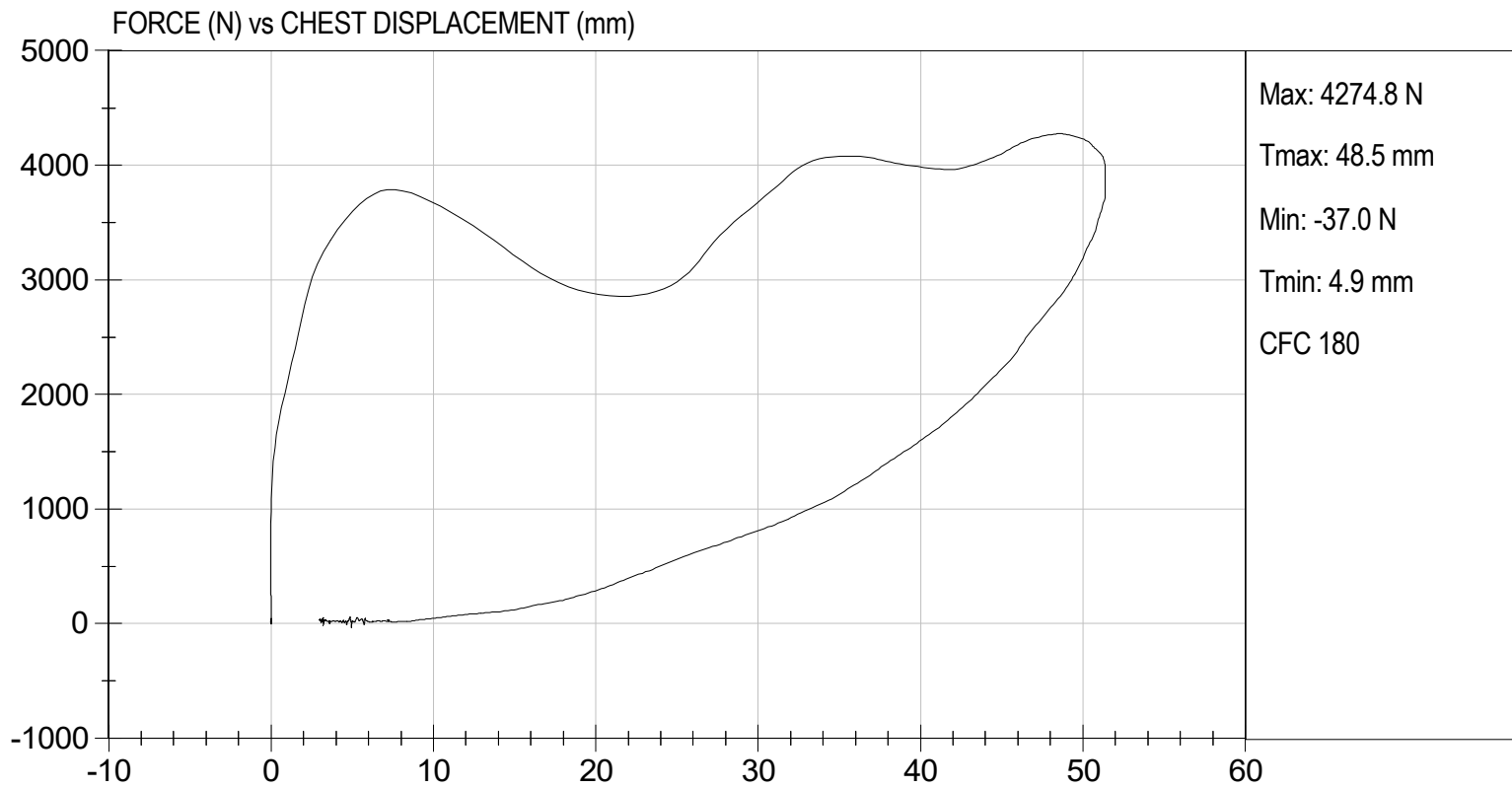
07/16/2024
Test Date


Approved By



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

TEST DATE: 07/16/2024
TEST #: D241754



MGA RESEARCH CORPORATION

RIGHT KNEE IMPACT TEST

HYBRID III 5TH PERCENTILE

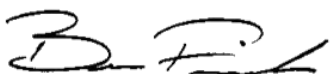
ATD Serial No: 142

Test I.D: D241755

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Probe Speed	m/s	2.07 to 2.13	2.13	Pass
Maximum Force	N	3450 to 4060	3616	Pass
Overall Test Results				Pass


Laboratory Technician

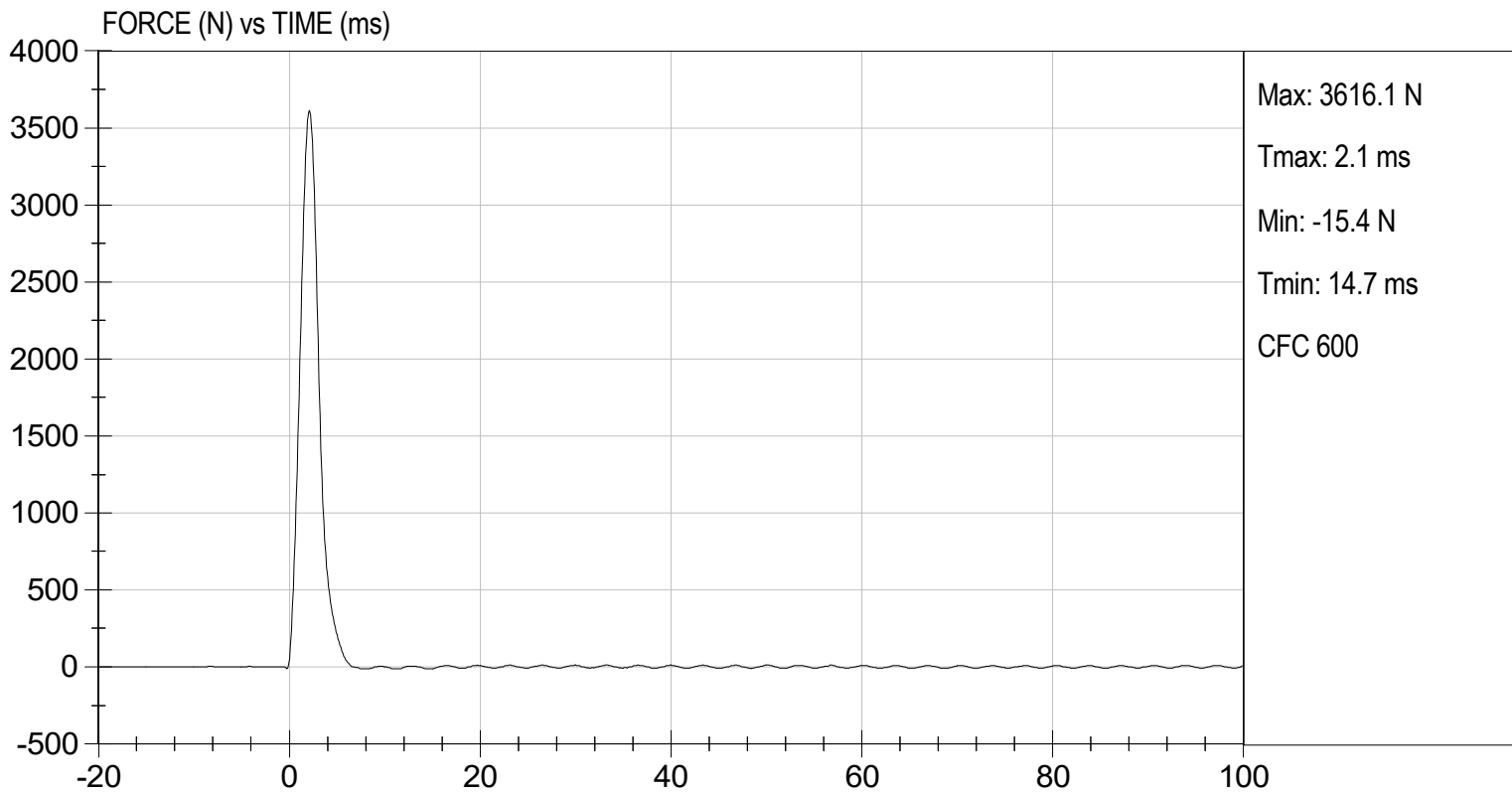
07/16/2024
Test Date


Approved By



TEST DESC: RIGHT KNEE
VELOCITY: 7.00 ft/s, 2.13 m/s

TEST DATE: 07/16/2024
TEST #: D241755



MGA RESEARCH CORPORATION

LEFT KNEE IMPACT TEST

HYBRID III 5TH PERCENTILE

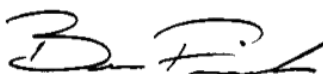
ATD Serial No: 142

Test I.D: D241756

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Probe Speed	m/s	2.07 to 2.13	2.11	Pass
Maximum Force	N	3450 to 4060	3603	Pass
Overall Test Results				Pass


Laboratory Technician

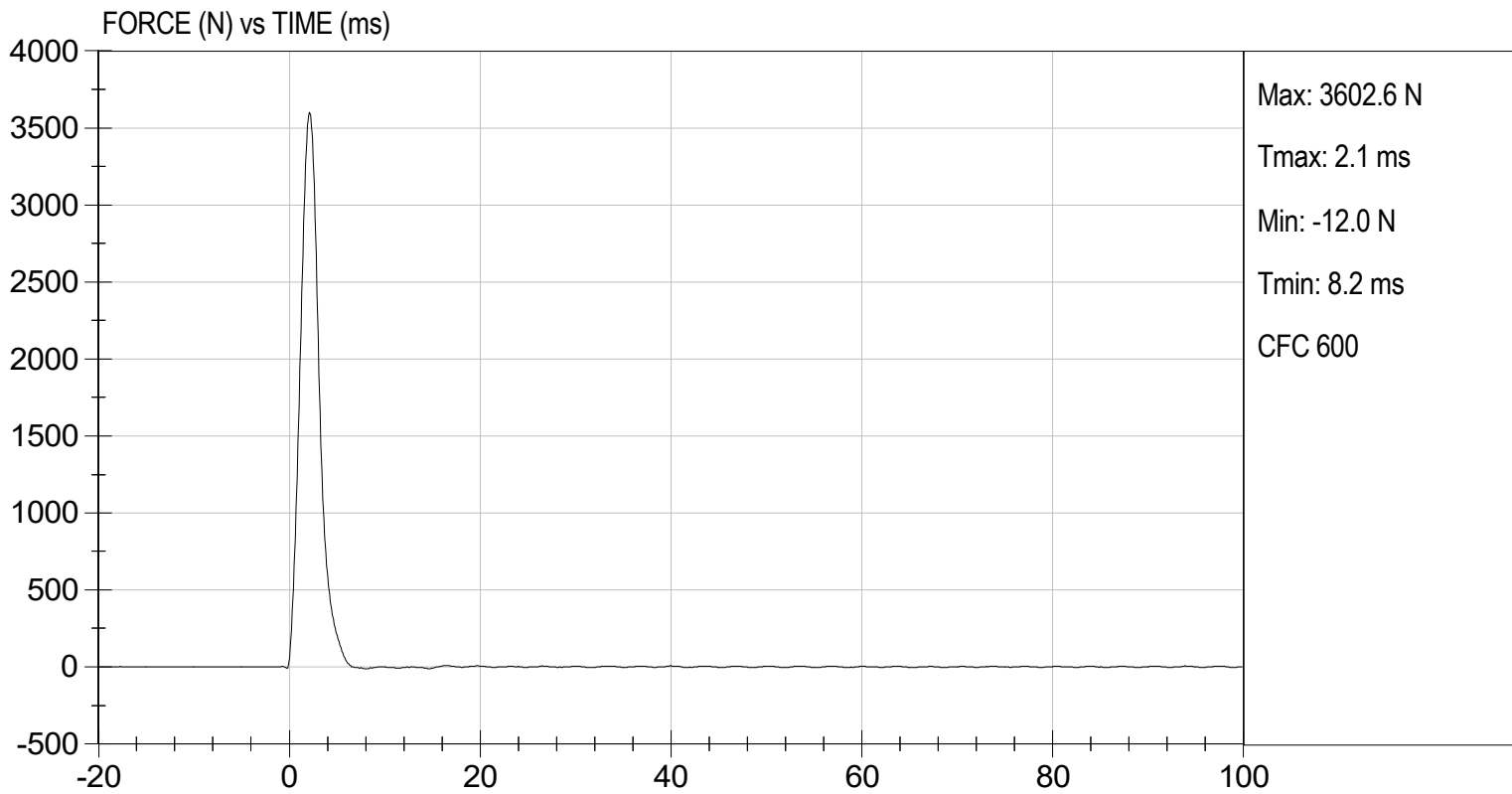
07/16/2024
Test Date


Approved By



TEST DESC: LEFT KNEE
VELOCITY: 6.92 ft/s, 2.11 m/s

TEST DATE: 07/16/2024
TEST #: D241756



MGA RESEARCH CORPORATION

TORSO FLEXION TEST

HYBRID III 5TH PERCENTILE

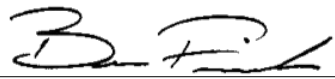
ATD Serial No: 142

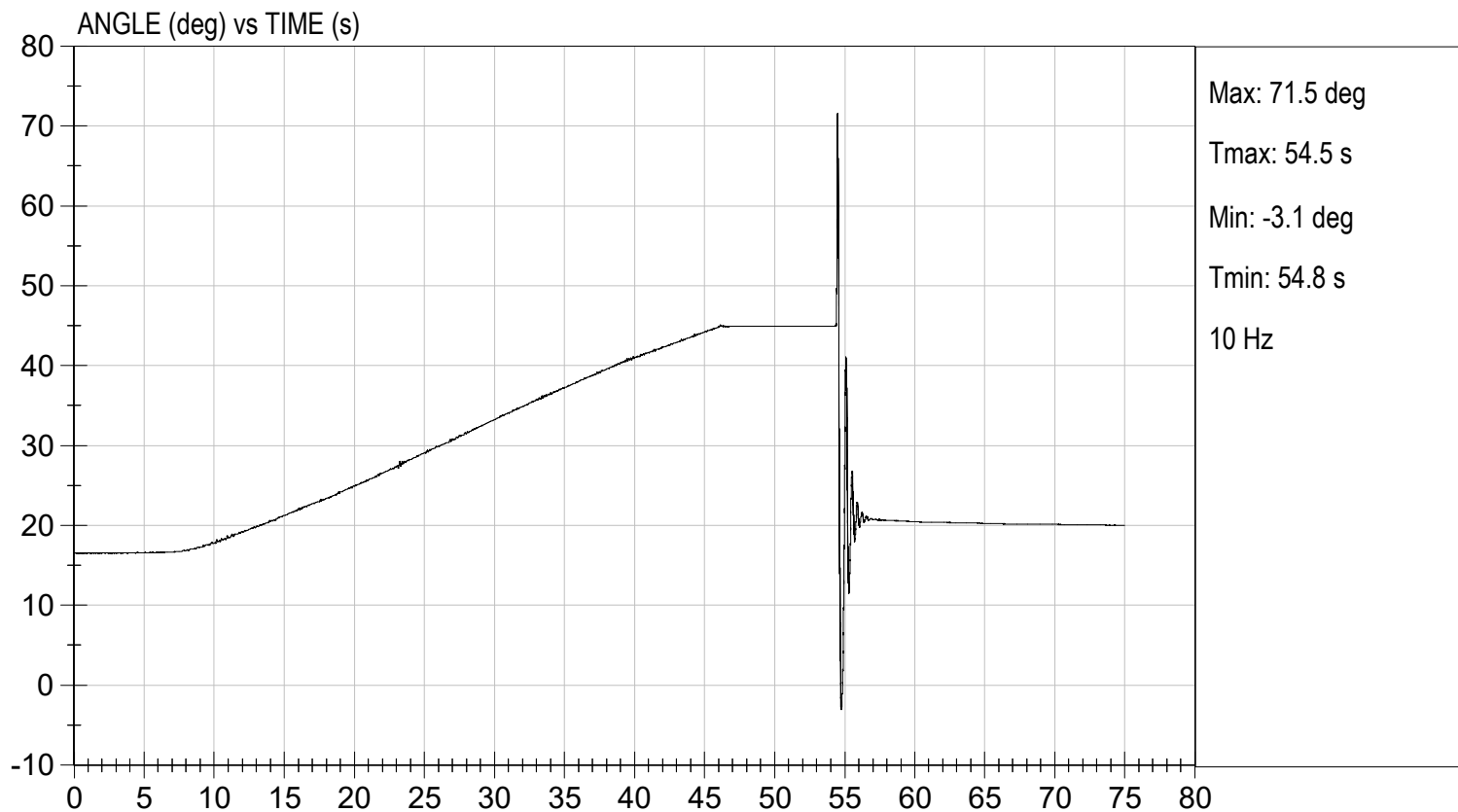
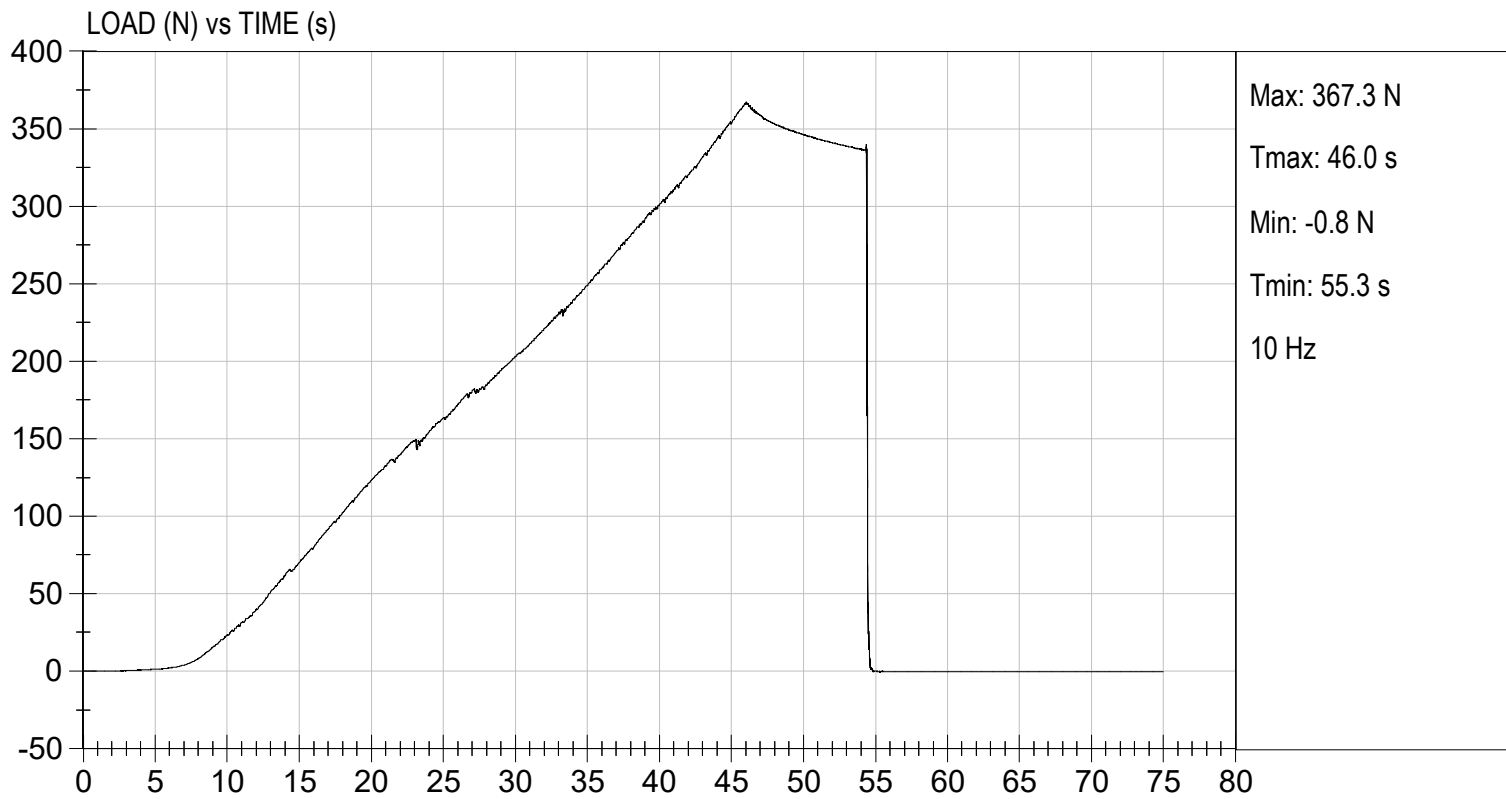
Test I.D: D241757

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	46	Pass
Initial Angle	deg	0 to 20	17	Pass
Return Angle	deg	+/- 8	4	Pass
Force at 45 deg	N	320 to 390	367	Pass
Upper Torso Deflection Rate	deg/s	0.5 to 1.5	0.8	Pass
Overall Result			Pass	


 Laboratory Technician

07/16/2024
 Test Date


 Approved By



QUALIFICATION TEST RESULTS

POST-TEST

HYBRID III 5TH PERCENTILE FEMALE - PASSENGER ATD

MGA RESEARCH CORPORATION

HEAD DROP TEST

HYBRID III 5TH PERCENTILE

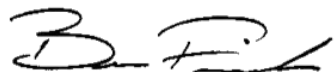
ATD Serial No: 142

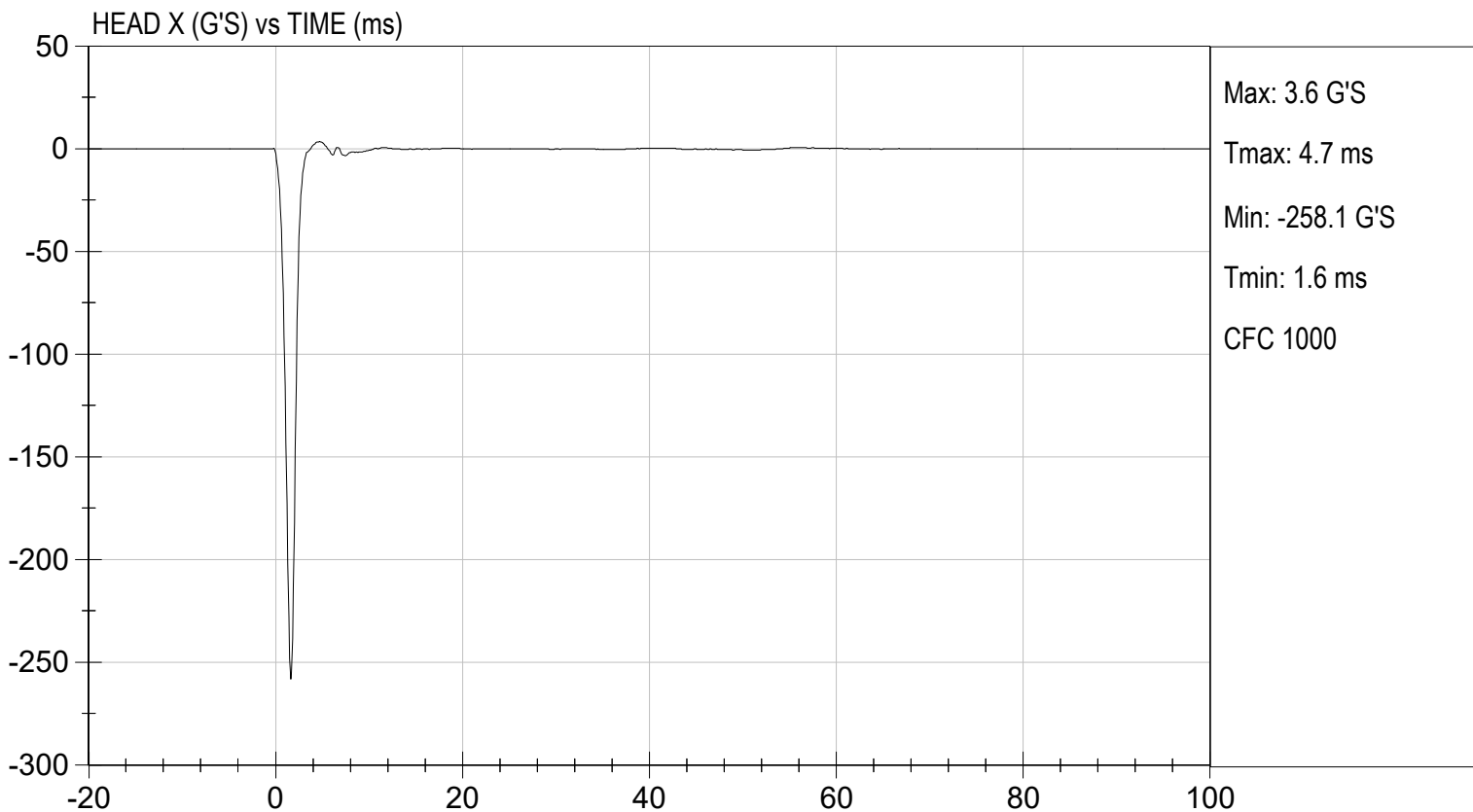
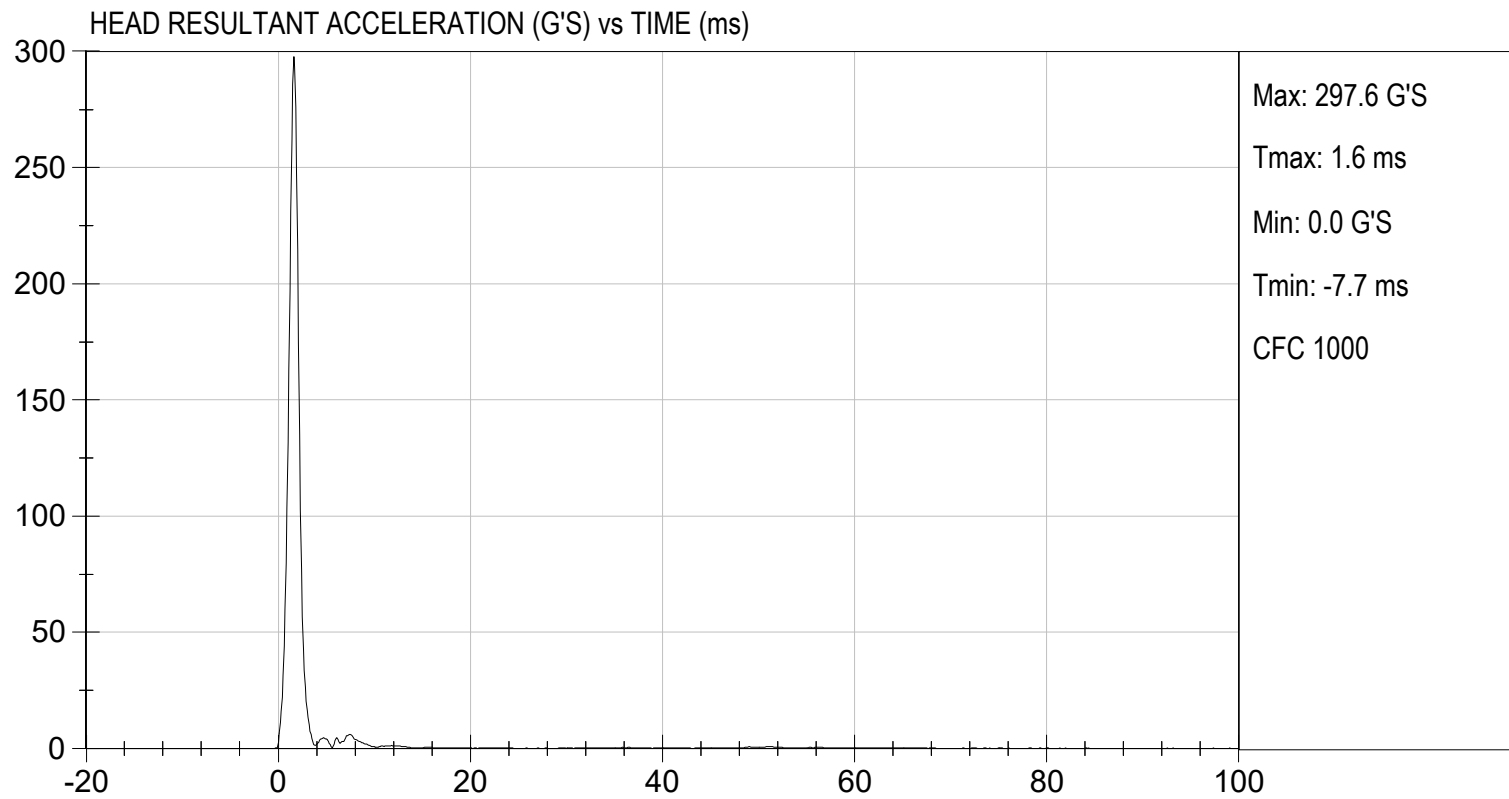
Test ID: D241901

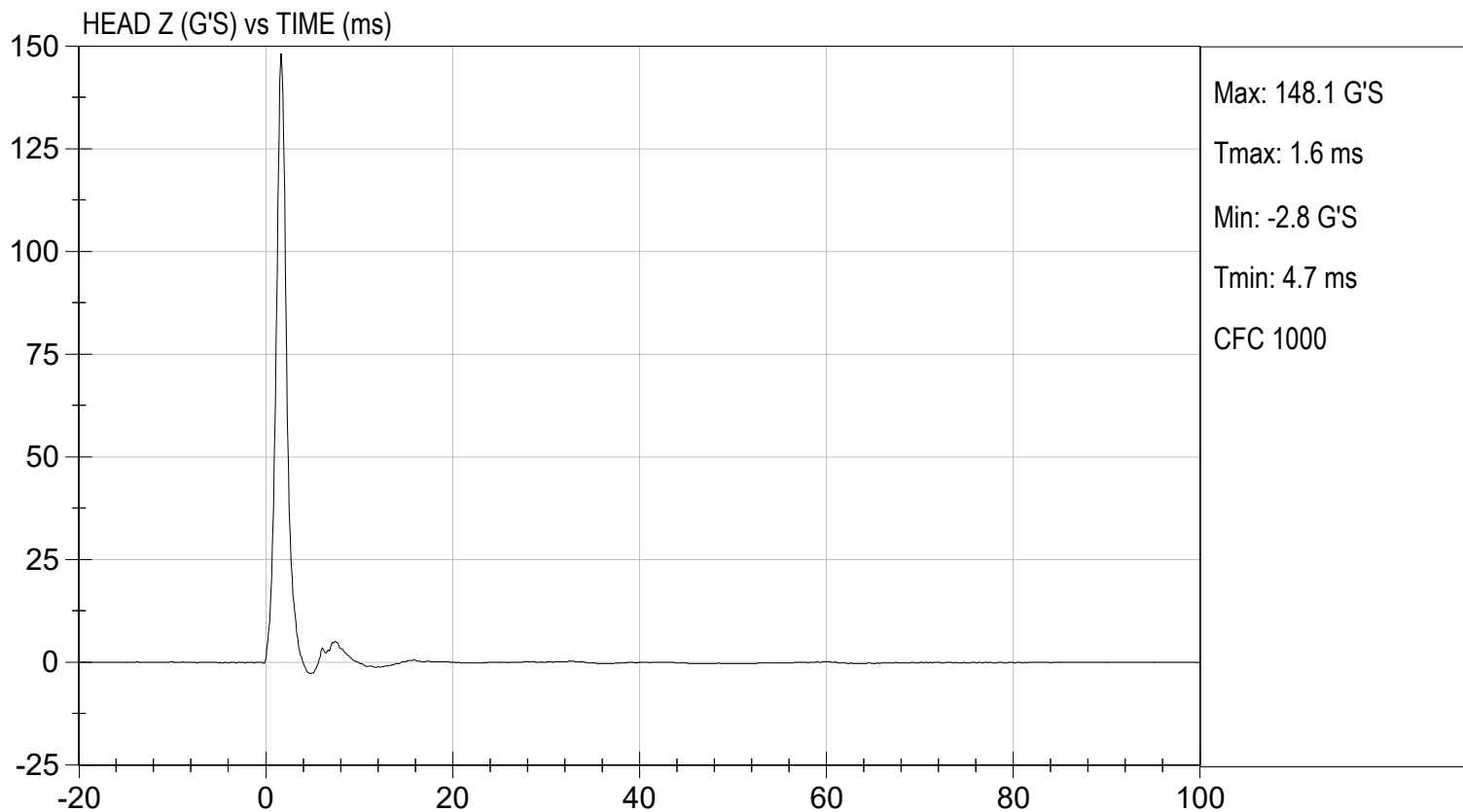
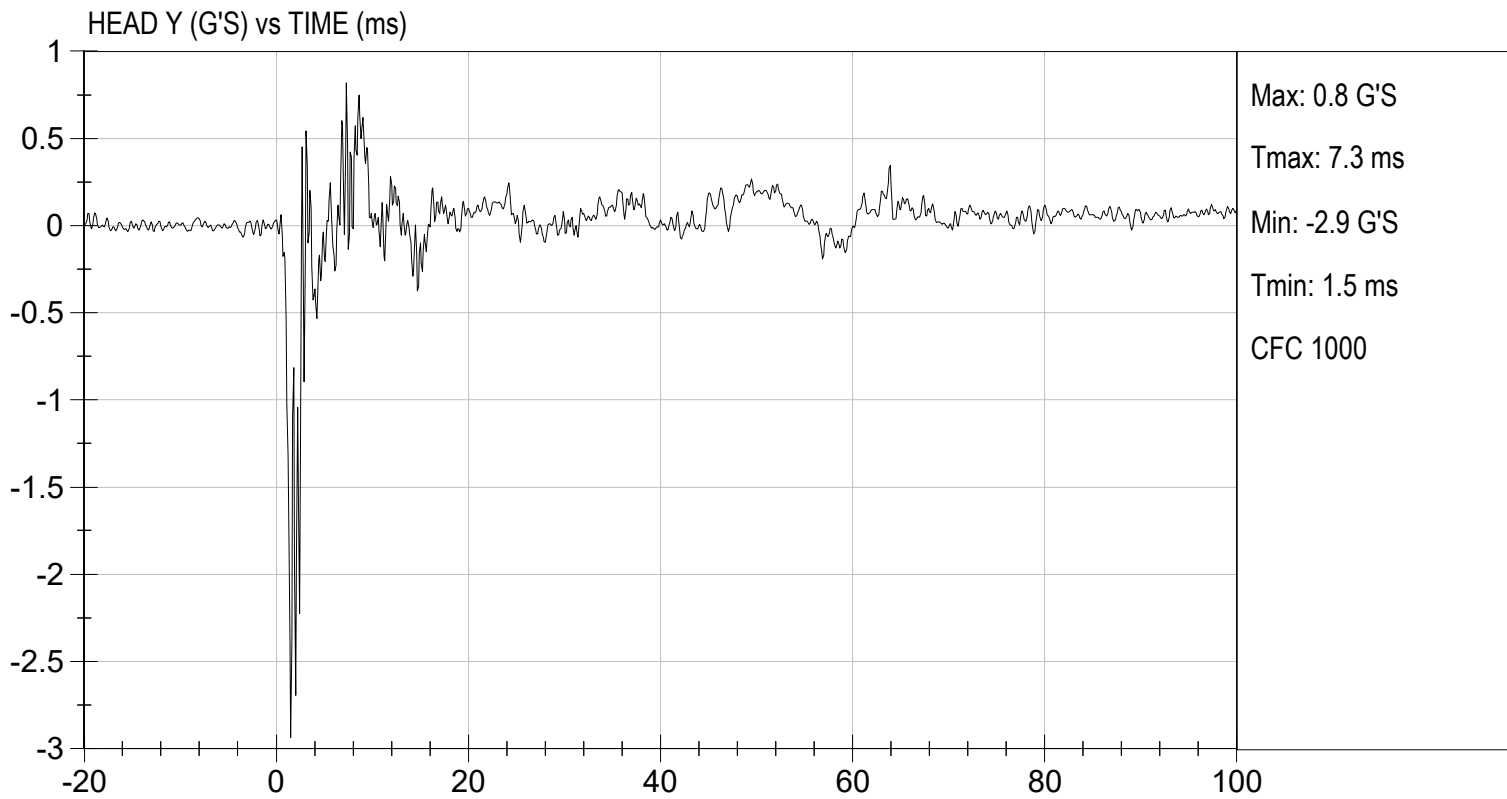
Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	49	Pass
Peak Resultant Acceleration	G's	250 to 300	298	Pass
Peak Lateral Acceleration	G's	<= +/- 15.0	-2.9	Pass
Unimodal	N/A	Yes	Yes	Pass
Oscillations	N/A	within 10% of peak	Yes	Pass
Overall Test Results				Pass


Laboratory Technician

07/31/2024
Test Date


Approved By





MGA RESEARCH CORPORATION

NECK FLEXION TEST

HYBRID III 5TH PERCENTILE

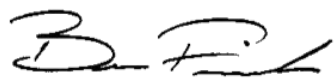
ATD Serial No: 142

Test I.D: D241902

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	47	Pass
Pendulum Speed		m/s	6.89 to 7.13	7.06	Pass
Pendulum Velocity	10 ms	m/s	2.1 to 2.5	2.1	Pass
	20 ms	m/s	4.0 to 5.0	4.3	Pass
	30 ms	m/s	5.8 to 7.0	6.6	Pass
D Plane Rotation	Max	deg	77 to 91	82	Pass
Occipital Condyle Moment within Rotation Corridor		Nm	69 to 83	73	Pass
Positive Moment Time Curve Decay to 10 Nm		ms	80 to 100	88	Pass
Overall Results					Pass


Laboratory Technician

07/31/2024
Test Date

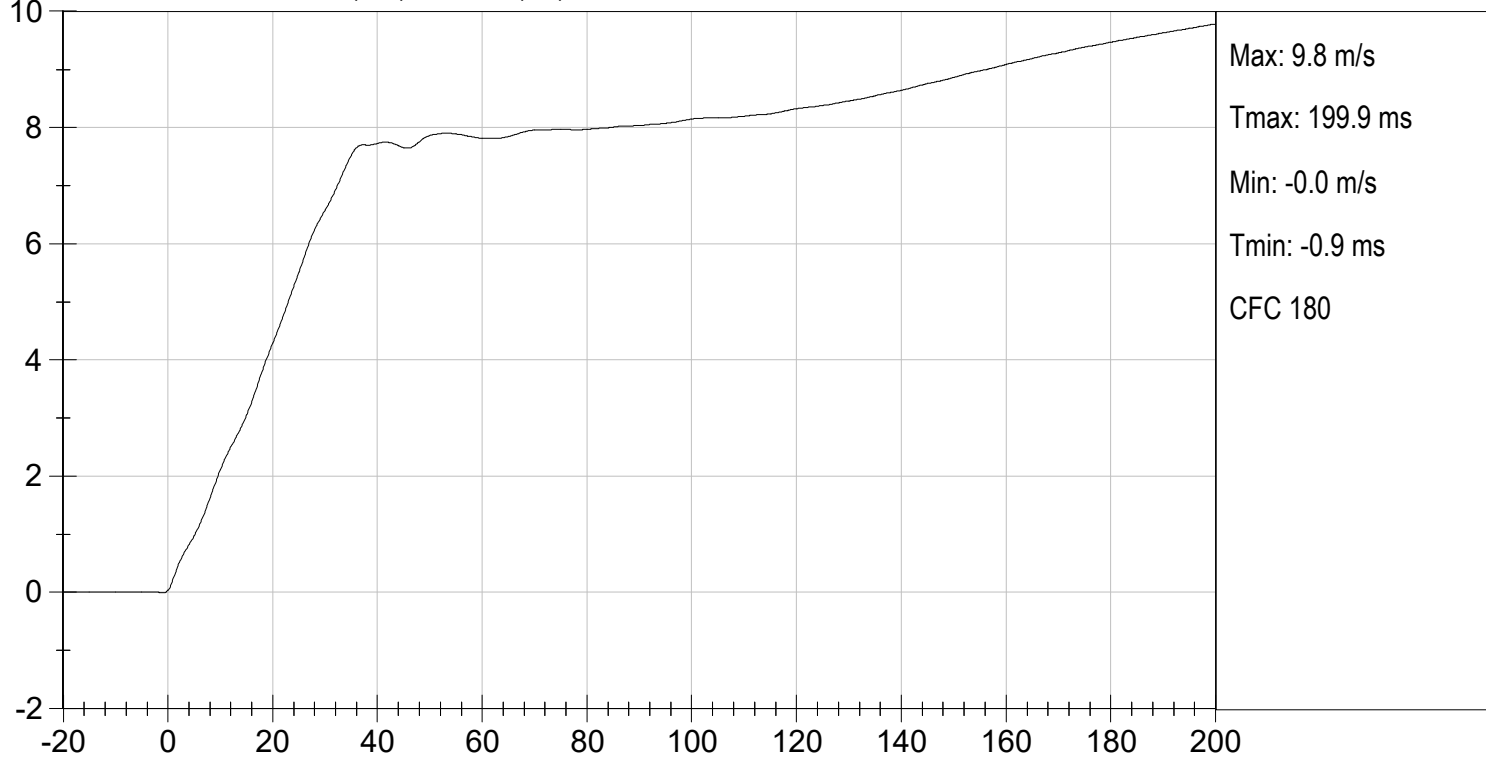

Approved By



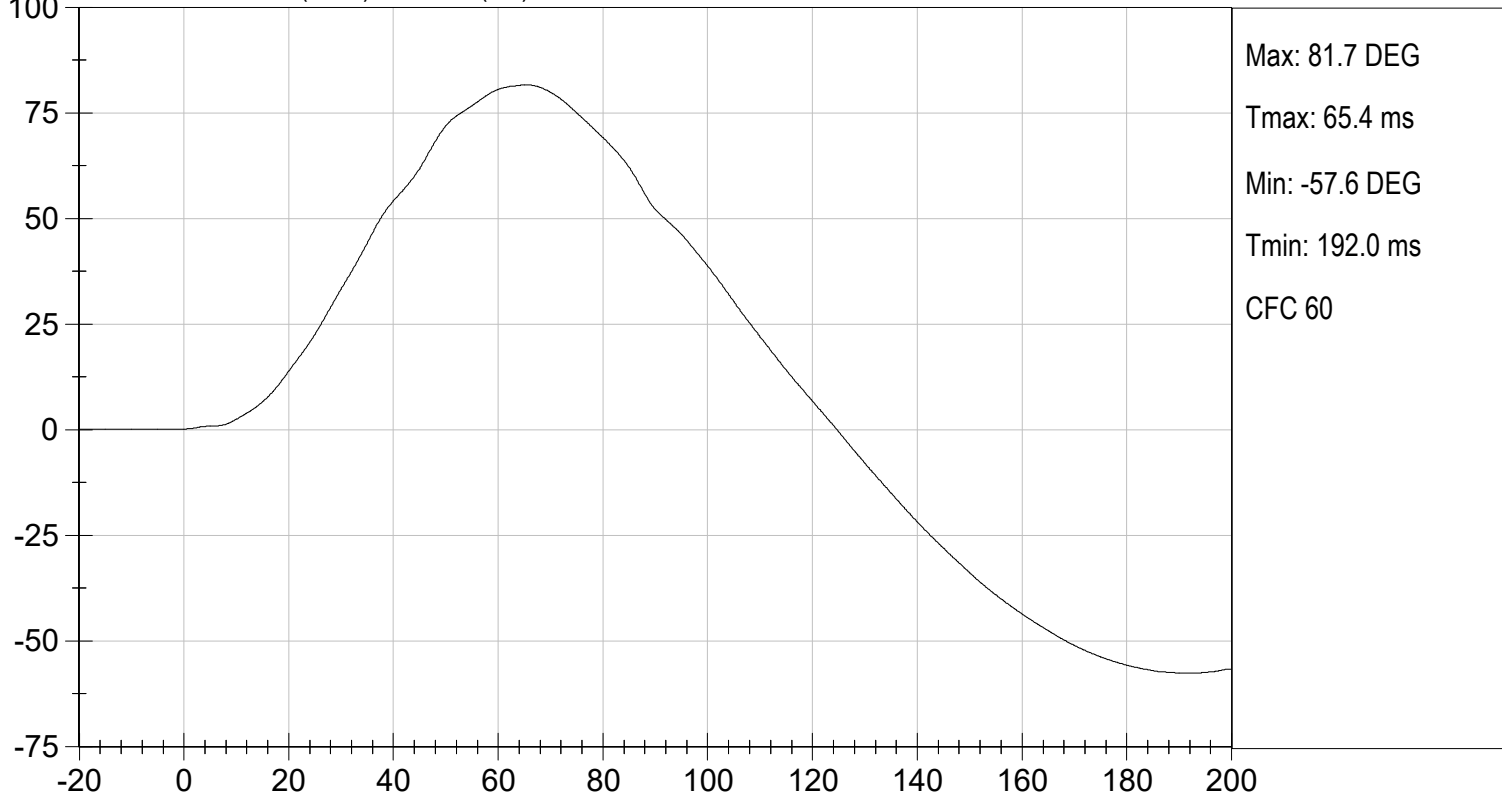
TEST DESC: NECK FLEXION
VELOCITY: 23.15 ft/s, 7.06 m/s

TEST DATE: 07/31/2024
TEST #: D241902

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



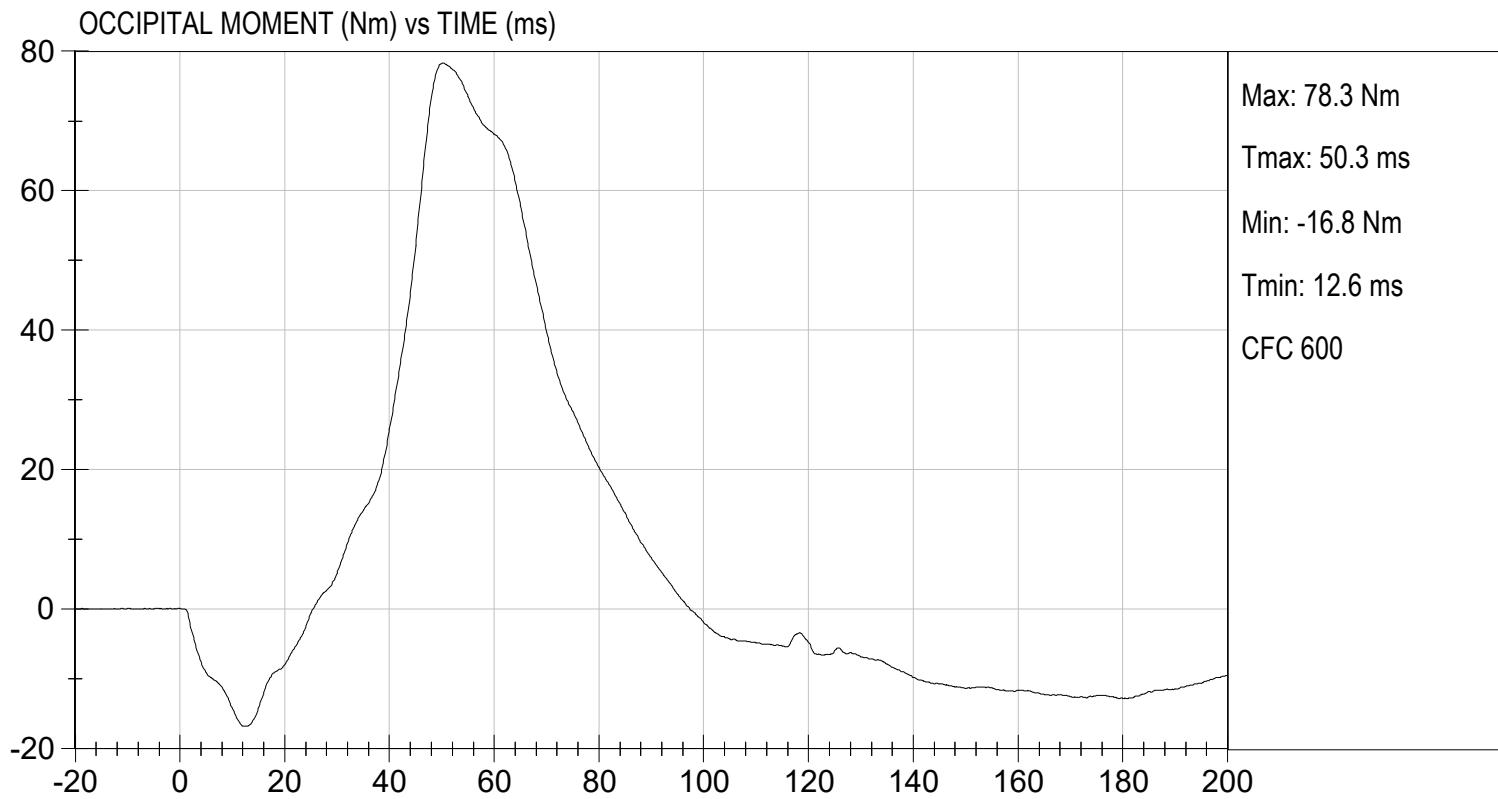
NECK ROTATION (DEG) vs TIME (ms)





TEST DESC: NECK FLEXION
VELOCITY: 23.15 ft/s, 7.06 m/s

TEST DATE: 07/31/2024
TEST #: D241902



MGA RESEARCH CORPORATION
NECK EXTENSION TEST
HYBRID III 5TH PERCENTILE

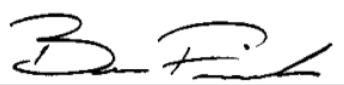
ATD Serial No: 142

Test I.D: D241903

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	50	Pass
Pendulum Speed		m/s	5.95 to 6.19	6.12	Pass
Pendulum Velocity	10 ms	m/s	1.5 to 1.9	1.6	Pass
	20 ms	m/s	3.1 to 3.9	3.3	Pass
	30 ms	m/s	4.6 to 5.6	4.8	Pass
D Plane Rotation	Max	deg	99 to 114	109	Pass
Occipital Condyle Moment within Rotation Corridor		Nm	-65 to -53	-54	Pass
Negative Moment Time Curve Decay to -10 Nm		ms	94 to 114	113	Pass
Overall Results					Pass


Laboratory Technician

07/31/2024
Test Date

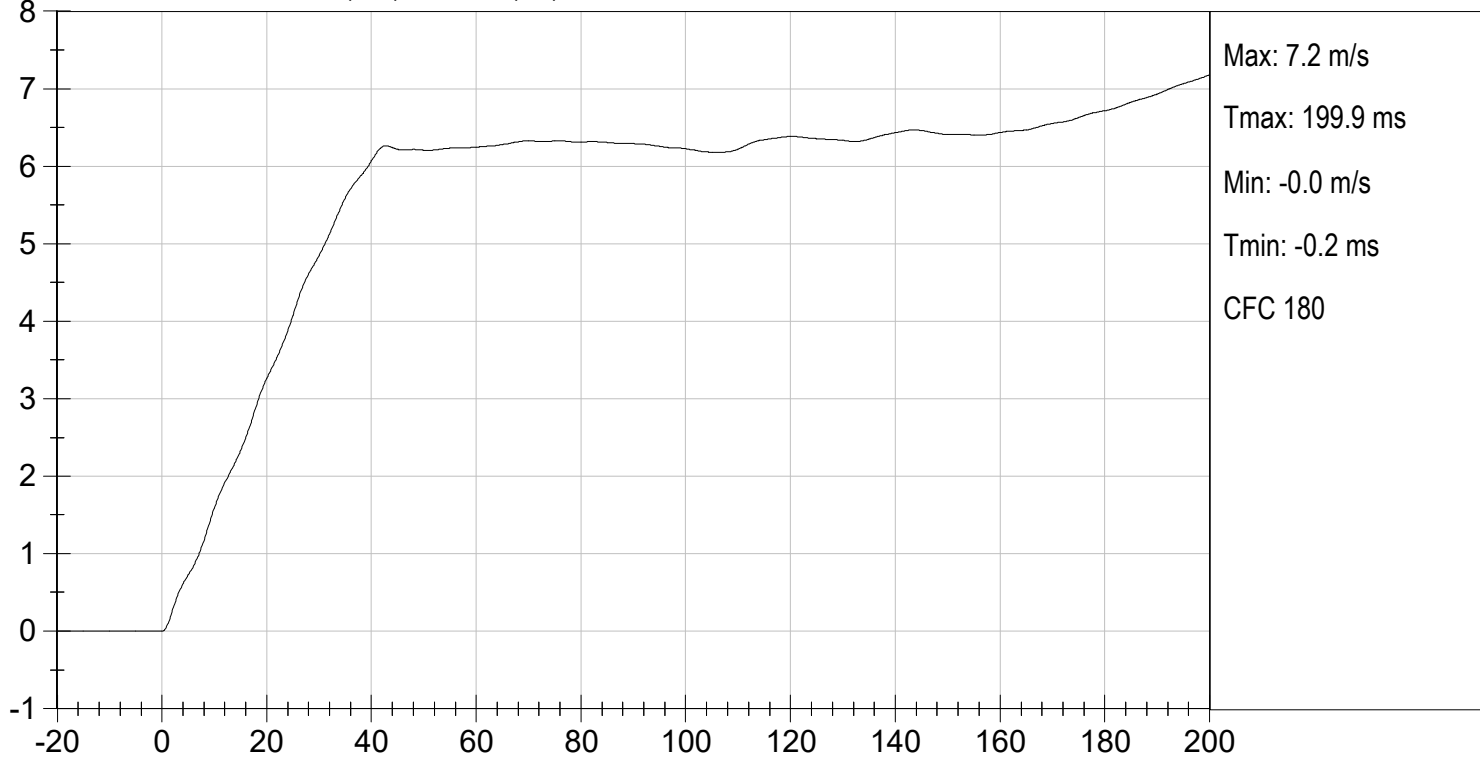

Approved By



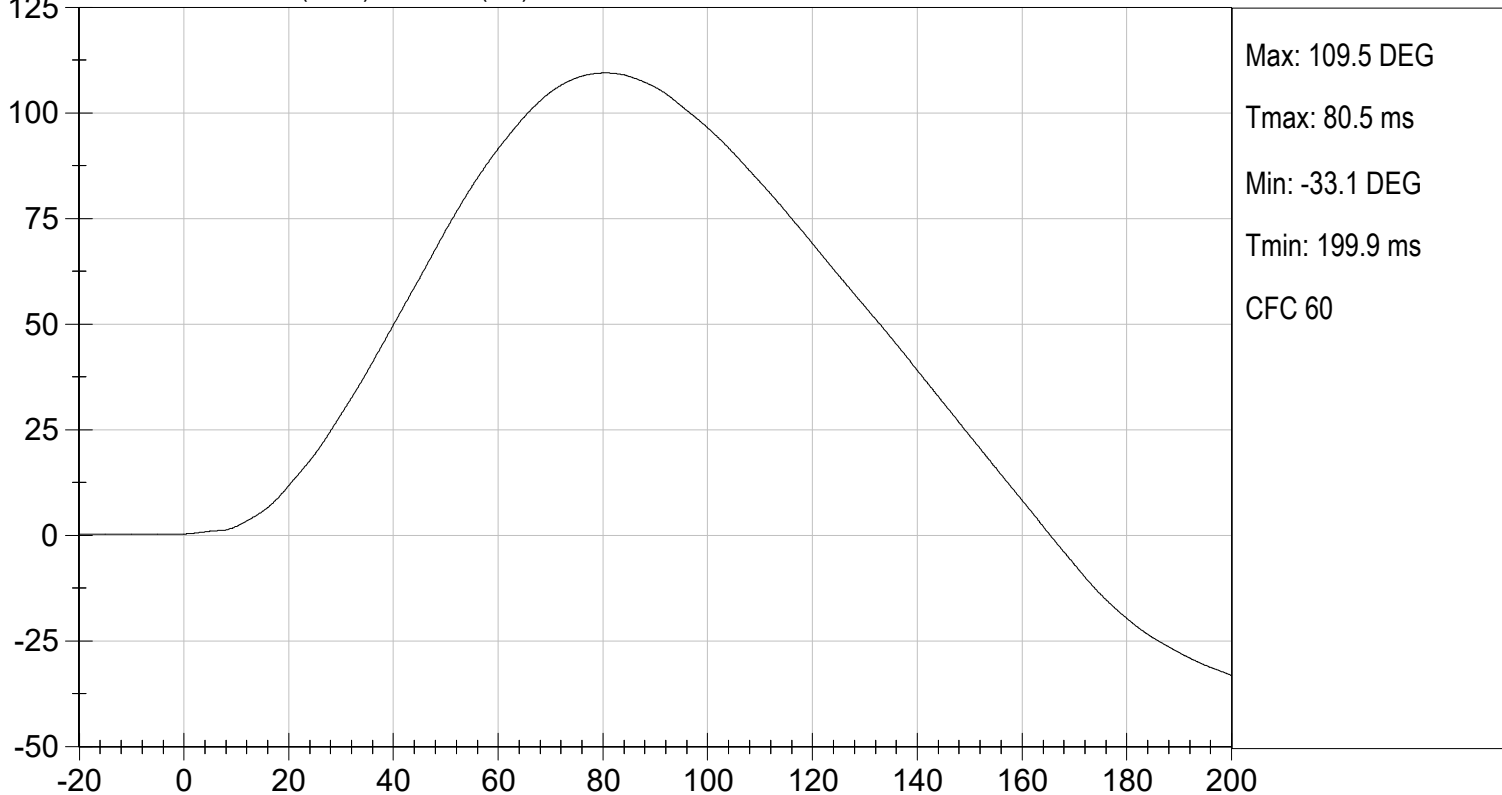
TEST DESC: NECK EXTENSION
VELOCITY: 20.08 ft/s, 6.12 m/s

TEST DATE: 07/31/2024
TEST #: D241903

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



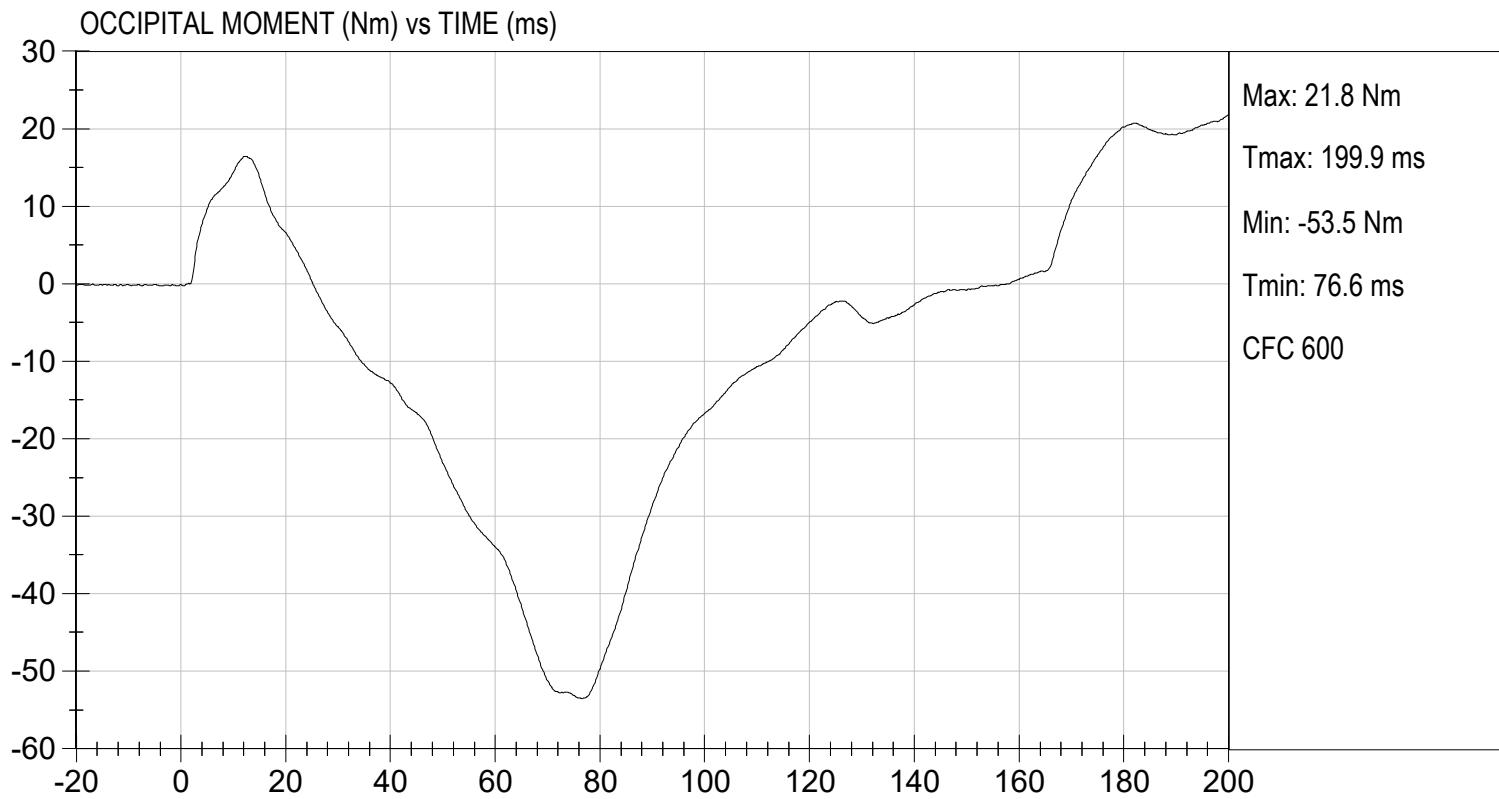
NECK ROTATION (DEG) vs TIME (ms)





TEST DESC: NECK EXTENSION
VELOCITY: 20.08 ft/s, 6.12 m/s

TEST DATE: 07/31/2024
TEST #: D241903



MGA RESEARCH CORPORATION

THORAX IMPACT

HYBRID III 5TH PERCENTILE

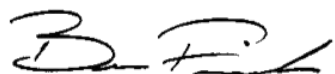
ATD Serial No: 142

Test I.D: D241904

Tested Parameter	Units	Specification	Result	Pass/Fail
Temperature	deg C	20.6 to 22.2	21.4	Pass
Relative Humidity	%	10 to 70	57	Pass
Probe Speed	m/s	6.59 to 6.83	6.77	Pass
Peak Deflection	mm	50 to 58	52	Pass
Peak Resistive Force w/in Deflection Corridor	N	3900 to 4400	4264	Pass
Internal Hysteresis	%	69 to 85	75	Pass
Peak Force 18 mm - 50 mm	N	<= 4600	4292	Pass
			Overall Test Results	Pass


Laboratory Technician

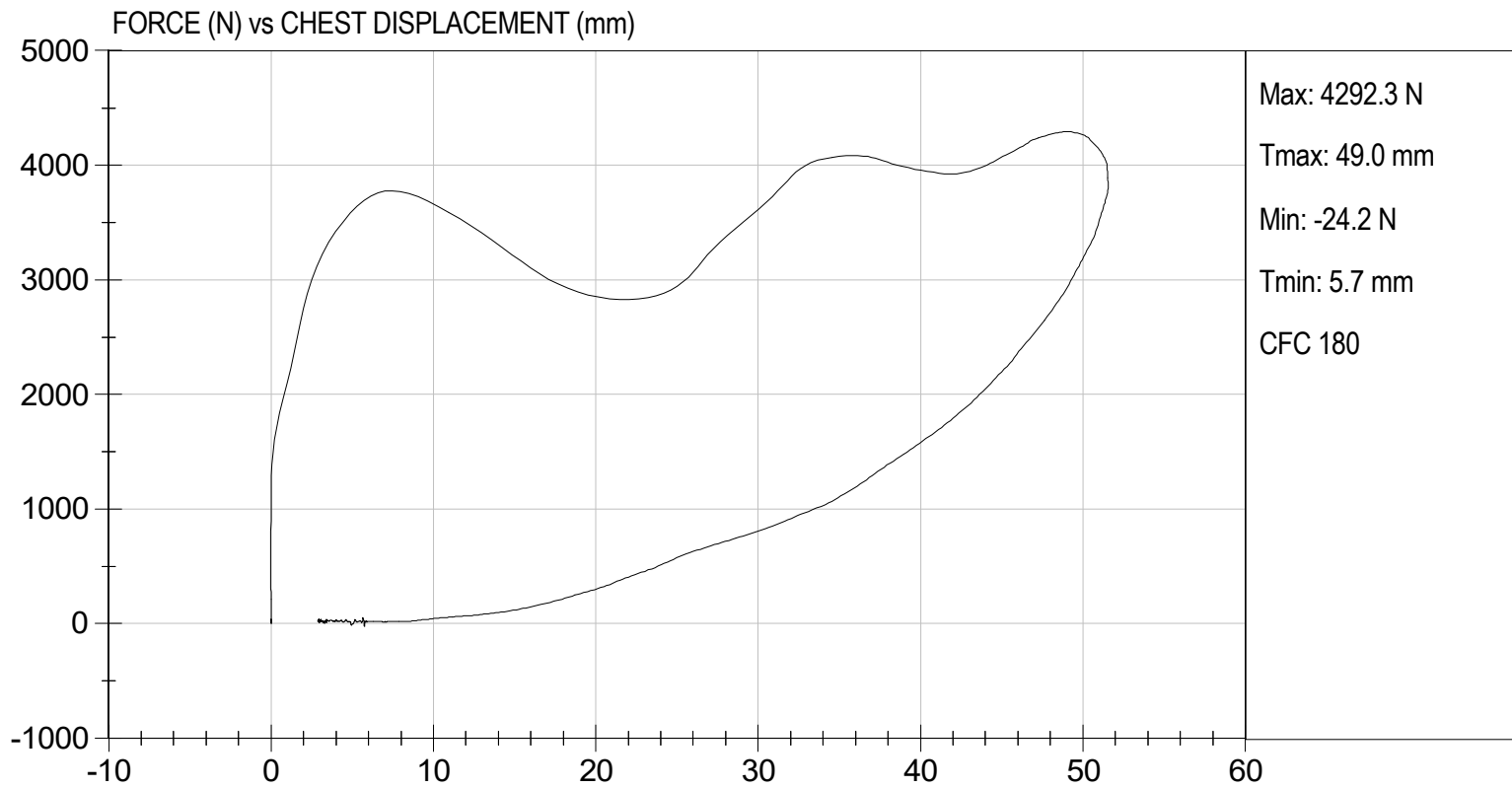
07/31/2024
Test Date


Approved By



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

TEST DATE: 07/31/2024
TEST #: D241904



MGA RESEARCH CORPORATION

RIGHT KNEE IMPACT TEST

HYBRID III 5TH PERCENTILE

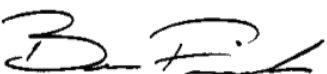
ATD Serial No: 142

Test I.D: D241905

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	56	Pass
Probe Speed	m/s	2.07 to 2.13	2.10	Pass
Maximum Force	N	3450 to 4060	3703	Pass
			Overall Test Results	Pass


Laboratory Technician

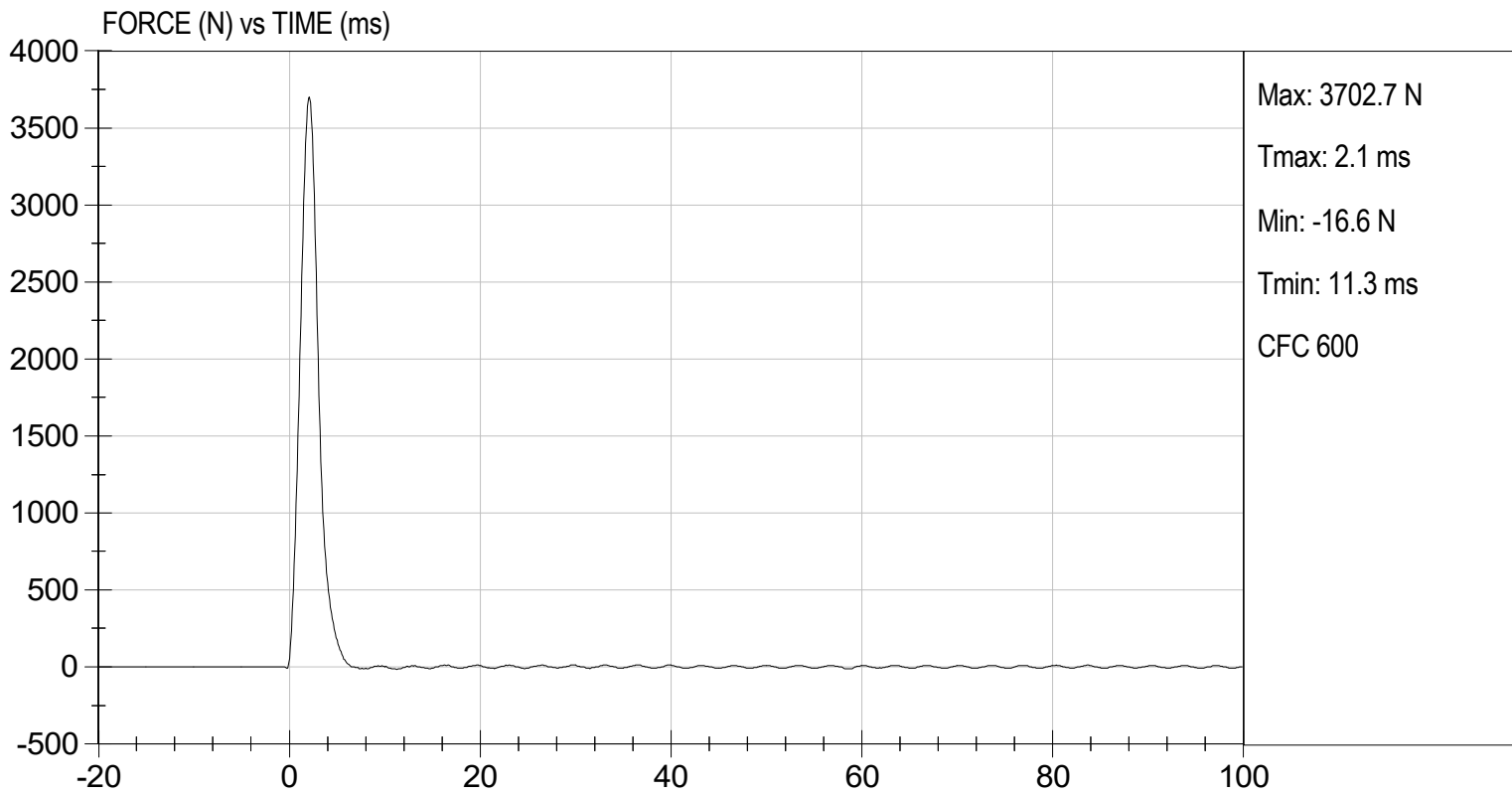
07/31/2024
Test Date


Approved By



TEST DESC: RIGHT KNEE
VELOCITY: 6.89 ft/s, 2.10 m/s

TEST DATE: 07/31/2024
TEST #: D241905



MGA RESEARCH CORPORATION

LEFT KNEE IMPACT TEST

HYBRID III 5TH PERCENTILE

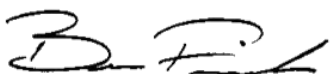
ATD Serial No: 142

Test I.D: D241906

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.3	Pass
Laboratory Relative Humidity	%	10 to 70	56	Pass
Probe Speed	m/s	2.07 to 2.13	2.10	Pass
Maximum Force	N	3450 to 4060	3729	Pass
			Overall Test Results	Pass


Laboratory Technician

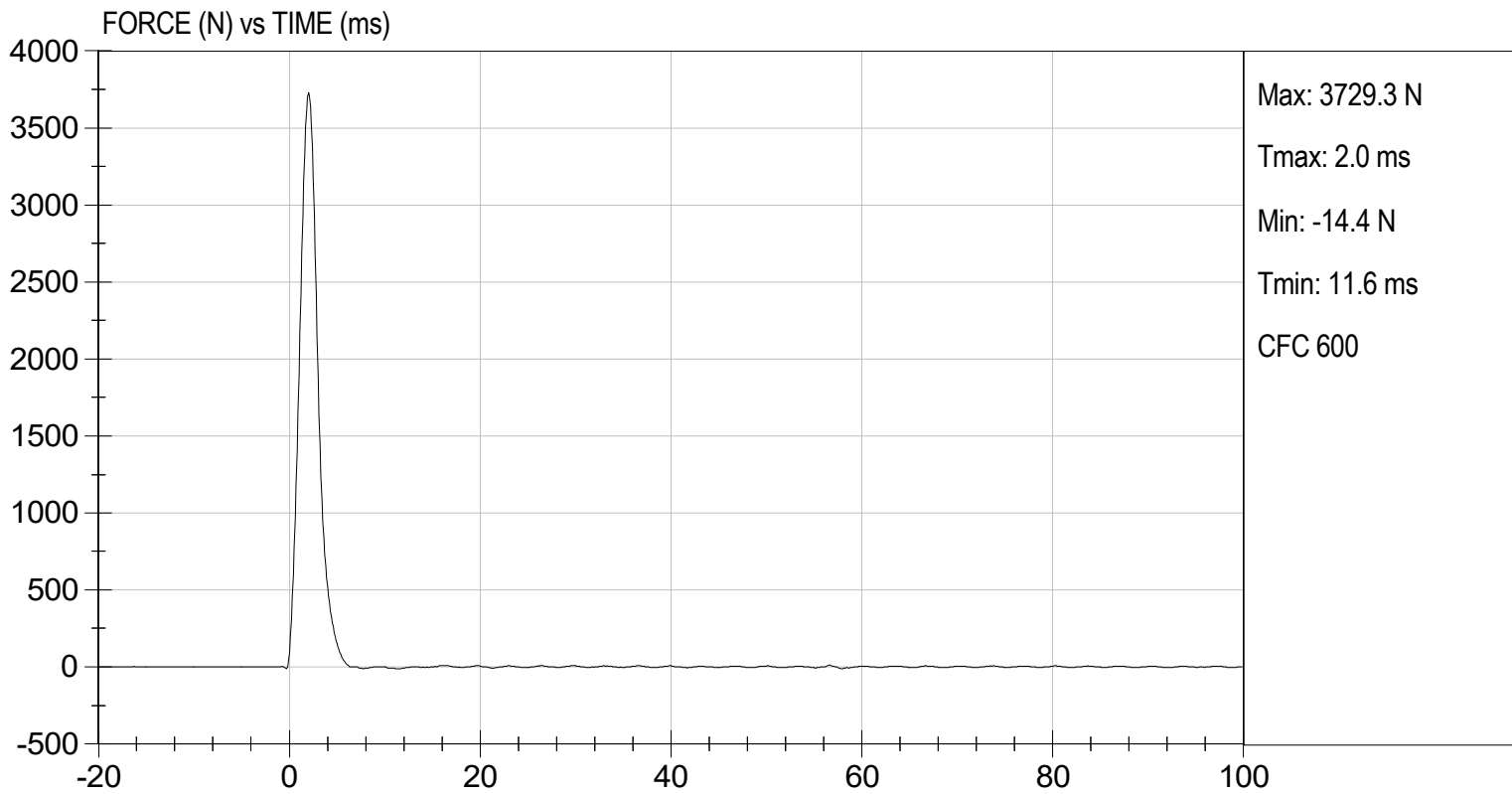
07/31/2024
Test Date


Approved By



TEST DESC: LEFT KNEE
VELOCITY: 6.89 ft/s, 2.10 m/s

TEST DATE: 07/31/2024
TEST #: D241906



MGA RESEARCH CORPORATION

TORSO FLEXION TEST

HYBRID III 5TH PERCENTILE

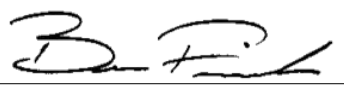
ATD Serial No: 142

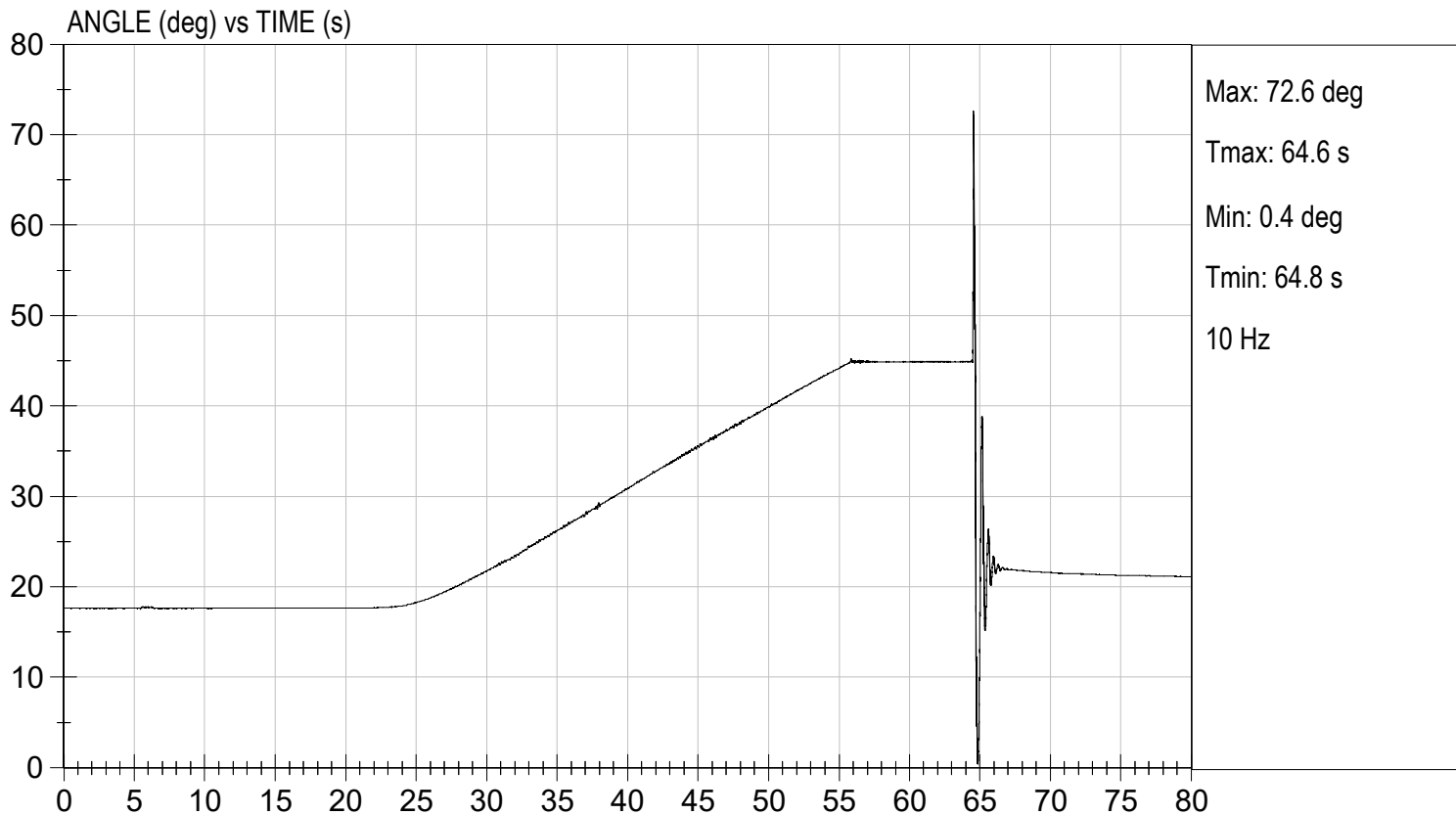
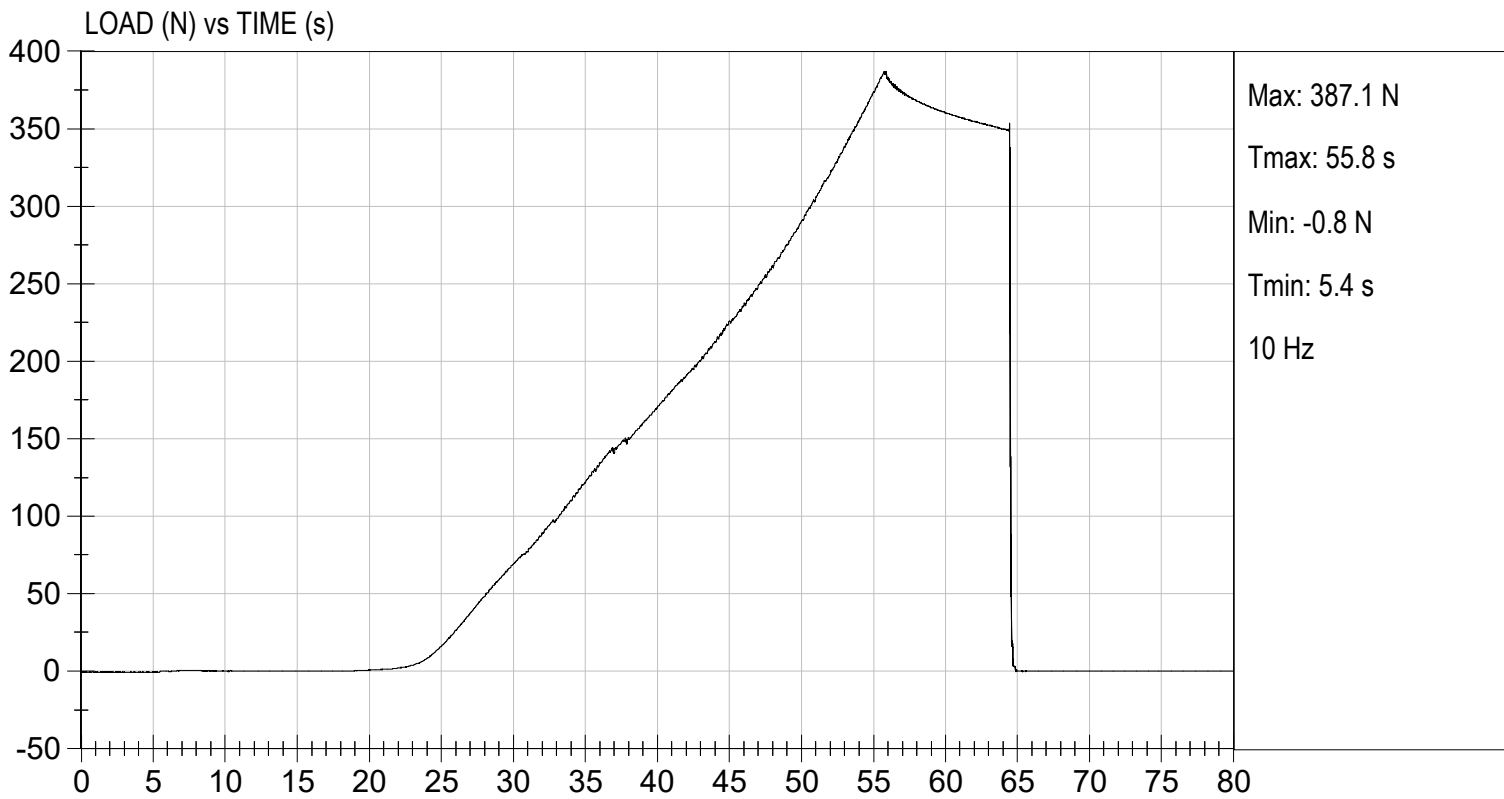
Test I.D: D241907

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	deg C	18.9 to 25.6	21.4	Pass
Laboratory Relative Humidity	%	10 to 70	55	Pass
Initial Angle	deg	0 to 20	18	Pass
Return Angle	deg	+/- 8	3	Pass
Force at 45 deg	N	320 to 390	387	Pass
Upper Torso Deflection Rate	deg/s	0.5 to 1.5	0.9	Pass
Overall Result			Pass	


Laboratory Technician

07/31/2024
Test Date


Approved By



APPENDIX D
TEST EQUIPMENT AND INSTRUMENTATION CALIBRATION

TABLE 1 – DRIVER DUMMY INSTRUMENTATION

Instrument Location			Axis	Hybrid III 50 th S/N 064		
				Serial Number	Manufacturer	Calibration Date
Head Accelerometers	Primary		X	T30960	Endevco	05/23/2024
			Y	P79743	Endevco	05/23/2024
			Z	P79741	Endevco	05/23/2024
	Redundant		X	P79744	Endevco	05/23/2024
			Y	P94834	Endevco	05/23/2024
			Z	P94856	Endevco	05/23/2024
Head Angular Rate Sensors			X	ARS7325	DTS	11/17/2023
			Y	ARS7340	DTS	11/17/2023
			Z	ARS7354	DTS	11/17/2023
Upper Neck Load Cell			Fx, Fy, Fz Mx, My, Mz	NG2022	Denton	05/24/2024
Chest Accelerometers	Primary		X	P86793	Endevco	05/23/2024
			Y	P88348	Endevco	05/23/2024
			Z	P86792	Endevco	05/23/2024
	Redundant		X	P88667	Endevco	05/23/2024
			Y	P94109	Endevco	05/23/2024
			Z	P88666	Endevco	05/23/2024
Chest Potentiometer			X	064	Humanetics	05/23/2024
Pelvis Accelerometers			X	P97742	Endevco	05/23/2024
			Y	P96038	Endevco	05/23/2024
			Z	P95526	Endevco	05/23/2024
Femur Load Cells	Right	Primary	Z	FG121P	Denton	05/22/2024
		Redundant	Z	FG121R	Denton	05/22/2024
	Left	Primary	Z	FG122P	Denton	05/22/2024
		Redundant	Z	FG122R	Denton	05/22/2024
Tibia Load Cells	Right	Upper	Mx, My, Fz	TG408	Denton	11/28/2023
		Lower	Mx, My, Fz	AG116	Denton	11/28/2023
	Left	Upper	Mx, My, Fz	TG480	Denton	11/28/2023
		Lower	Mx, My, Fz	AG502	Denton	11/28/2023
Foot Accelerometers	Right	Rear	X	T22486	Endevco	05/23/2024
			Z	P97382	Endevco	05/23/2024
		Front	Z	P82120	Endevco	05/23/2024
	Left	Rear	X	T16468	Endevco	05/23/2024
			Z	T32154	Endevco	05/23/2024
		Front	Z	T32190	Endevco	05/23/2024
Seat Belt Load Cells		Lap		SBG161	FTSS	08/22/2023
		Shoulder		SBG157	FTSS	08/22/2023

TABLE 2 – FRONT PASSENGER DUMMY INSTRUMENTATION

Instrument Location			Axis	Hybrid III 5 th S/N 142		
				Serial Number	Manufacturer	Calibration Date
Head Accelerometers	Primary		X	P94799	Endevco	04/15/2024
			Y	P94800	Endevco	04/15/2024
			Z	P94801	Endevco	04/15/2024
	Redundant		X	P94802	Endevco	04/15/2024
			Y	P94803	Endevco	04/15/2024
			Z	P97377	Endevco	04/15/2024
Head Angular Rate Sensors			X	ARS7371	DTS	11/17/2023
			Y	ARS7357	DTS	11/17/2023
			Z	ARS7366	DTS	11/17/2023
Upper Neck Load Cell			Fx, Fy, Fz Mx, My, Mz	NG2203	Denton	01/22/2024
Chest Accelerometers	Primary		X	P88719	Endevco	04/15/2024
			Y	P94785	Endevco	04/15/2024
			Z	P94793	Endevco	04/15/2024
	Redundant		X	P95322	Endevco	04/15/2024
			Y	P95370	Endevco	04/15/2024
			Z	T30901	Endevco	04/15/2024
Chest Potentiometer			X	142	Humanetics	04/15/2024
Pelvis Accelerometers			X	P94798	Endevco	04/15/2024
			Y	P82646	Endevco	04/15/2024
			Z	P97705	Endevco	04/15/2024
Femur Load Cells	Right	Primary	Z	FG126P	Denton	04/15/2024
		Redundant	Z	FG126R	Denton	04/15/2024
	Left	Primary	Z	FG127P	Denton	04/15/2024
		Redundant	Z	FG127R	Denton	04/15/2024
Tibia Load Cells	Right	Upper	Mx, My, Fz	TG467	Denton	01/22/2024
		Lower	Mx, My, Fz	AG500	Denton	01/22/2024
	Left	Upper	Mx, My, Fz	TG478	Denton	01/22/2024
		Lower	Mx, My, Fz	AG491	Denton	01/22/2024
Foot Accelerometers	Right	Rear	X	P94795	Endevco	04/16/2024
			Z	P94796	Endevco	04/16/2024
		Front	Z	P94797	Endevco	04/16/2024
	Left	Rear	X	P83167	Endevco	04/16/2024
			Z	P83168	Endevco	04/16/2024
		Front	Z	P83169	Endevco	04/15/2024
Seat Belt Load Cells		Lap		SBG273	FTSS	08/22/2023
		Shoulder		SBG272	FTSS	08/22/2023

TABLE 3 – VEHICLE INSTRUMENTATION

Instrument Location			Axis	Serial Number	Manufacturer	Calibration Date
Crossmember / Rear Seat Accelerometers	Left	Primary	X	T40086	Endevco	03/21/2024
			Z	T39047	Endevco	03/19/2024
		Redundant	X	T33138	Endevco	01/09/2024
	Right	Primary	X	A395038	MSI	02/14/2024
			Z	A391119	MSI	02/14/2024
		Redundant	X	A340266	MSI	02/14/2024
Engine Accelerometers		Top	X	A340611	MSI	07/19/2024
		Bottom	X	T41775	Endevco	06/27/2024