

REPORT NUMBER: NCAP-MGA-25-010

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

**NISSAN MOTOR CO., LTD.
2025 Nissan Frontier SV Crew Cab LWB 4x4 4-Door Pickup Truck
NHTSA No.: M20255203**

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



Test Date: January 13, 2025

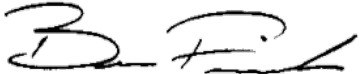
Final Report Date: March 26, 2025

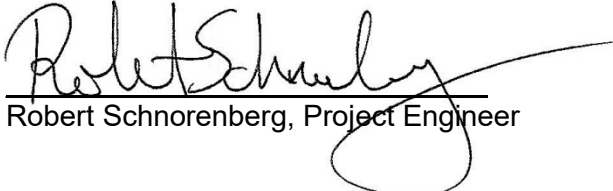
FINAL REPORT

**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**

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Prepared by: 
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Approved by: 
Robert Schnorenberg, Project Engineer

Approval Date: March 26, 2025

FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

Date: _____

TECHNICAL REPORT DOCUMENTATION PAGE

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|---|--|---|--|---------------|----------|-------------------------|-------|------------|--|---------------|--|-----------|--------|-----------|--------|---|--|-----|---------|-----|---------|---------------------------|----|----|--------|----|--------|-----|--|---|-------|---|-------|--------------|---|------|----------|------|----------|------------------|---|------|---------|------|---------|------------------|---|-------|----------|------|---------|-------------------|---|-------|----------|------|---------|
| 4. Title and Subtitle Final Report of New Car Assessment Program Frontal Impact Testing of a 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup 4-Door Pickup Truck, NHTSA No.: M20255203 | | 5. Report Date March 26, 2025 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 9. Performing Organization Name and Address MGA Research Corporation 5000 Warren Road Burlington, WI 53105 | | 10. Work Unit No. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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| 15. Supplementary Notes | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 16. Abstract A 56.3 km/h NCAP Frontal Rigid Barrier Impact Test was conducted on a 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup 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 January 13, 2025. The impact velocity of the vehicle was 56.42 km/h and the ambient temperature at the barrier face at the time of impact was 21.3°C. The target vehicle post-test maximum crush was 545 mm located to the right of the vehicle centerline. The test vehicle's performance was as follows: | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| <table border="1" style="width: 100%; border-collapse: collapse;"> <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>414.439</td> <td>700</td> <td>390.665</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>34.587</td> <td>52</td> <td>20.336</td> </tr> <tr> <td>Nij</td> <td></td> <td>1</td> <td>0.340</td> <td>1</td> <td>0.399</td> </tr> <tr> <td>Neck Tension</td> <td>N</td> <td>4170</td> <td>2047.641</td> <td>2620</td> <td>1247.389</td> </tr> <tr> <td>Neck Compression</td> <td>N</td> <td>4000</td> <td>639.719</td> <td>2520</td> <td>361.676</td> </tr> <tr> <td>Left Femur Force</td> <td>N</td> <td>10008</td> <td>1956.438</td> <td>6805</td> <td>870.394</td> </tr> <tr> <td>Right Femur Force</td> <td>N</td> <td>10008</td> <td>3152.170</td> <td>6805</td> <td>897.121</td> </tr> </tbody> </table> | | | | | | Measurement Description | Units | Driver ATD | | Passenger ATD | | Threshold | Result | Threshold | Result | Head Injury Criteria (HIC ₁₅) | | 700 | 414.439 | 700 | 390.665 | Maximum Chest Compression | mm | 63 | 34.587 | 52 | 20.336 | Nij | | 1 | 0.340 | 1 | 0.399 | Neck Tension | N | 4170 | 2047.641 | 2620 | 1247.389 | Neck Compression | N | 4000 | 639.719 | 2520 | 361.676 | Left Femur Force | N | 10008 | 1956.438 | 6805 | 870.394 | Right Femur Force | N | 10008 | 3152.170 | 6805 | 897.121 |
| Measurement Description | Units | Driver ATD | | Passenger ATD | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | Threshold | Result | Threshold | Result | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Head Injury Criteria (HIC ₁₅) | | 700 | 414.439 | 700 | 390.665 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Maximum Chest Compression | mm | 63 | 34.587 | 52 | 20.336 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Nij | | 1 | 0.340 | 1 | 0.399 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Neck Tension | N | 4170 | 2047.641 | 2620 | 1247.389 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Neck Compression | N | 4000 | 639.719 | 2520 | 361.676 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Left Femur Force | N | 10008 | 1956.438 | 6805 | 870.394 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Right Femur Force | N | 10008 | 3152.170 | 6805 | 897.121 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 17. Key Words 35 mph Frontal 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
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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 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup at a velocity of 56.42 km/h. The test was performed at MGA Research Corporation on January 13, 2025. 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.

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 102 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 Stoddard Solvent leakage after the event or during any phase of the static rollover.

The maximum static crush of the vehicle was 545 mm located to the right 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) | 414.439 | 0.340 | 2047.641 | 639.719 | 50.388 | 34.587 | 1956.438 | 3152.170 |
| Passenger (5 th) | 390.665 | 0.399 | 1247.389 | 361.676 | 50.813 | 20.336 | 870.394 | 897.121 |

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

TEST NOTES

Driver Shoulder and Lap Belt load cells were not installed.

Passenger Shoulder and Lap Belt load cells were not installed.

All large vehicle placards indicated incorrect test of January 13, 2024. Actual test date was January 13, 2025.

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: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025

TEST VEHICLE INFORMATION AND OPTIONS

| | | | |
|-----------------------------|--------------------------|---------------------------------|-----|
| NHTSA No. | M20255203 | Traction Control System (TCS) | Yes |
| Model Year | 2025 | Power Steering | Yes |
| Make | Nissan | Power Window Auto-Reverse | Yes |
| Model | Frontier SV Crew Cab LWB | Driver Frontal Airbag | Yes |
| Body Style | 4-Door Pickup Truck | Driver Curtain Airbag | Yes |
| VIN | 1N6ED1FK9SN616193 | Driver Head/Torso Airbag | No |
| Body Color | Gun Metallic | Driver Torso Airbag | No |
| Odometer (km/mi) | 24 km / 15 mi | Driver Torso/Pelvis Airbag | Yes |
| Engine Displacement (L) | 3.8 | Driver Pelvis Airbag | No |
| Type/No. Cylinders | V6 | Driver Knee Airbag | Yes |
| Engine Placement | Longitudinal | Front Pass. Frontal Airbag | Yes |
| Transmission Type | Automatic | Front Pass. Curtain Airbag | Yes |
| Transmission Speeds | 9 | Front Pass. Head/Torso Airbag | No |
| Overdrive | Yes | 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 Only | 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 | NISSAN MOTOR CO., LTD. | GVWR (kg) | 2727 |
| | | GAWR Front (kg) | 1495 |
| Date of Manufacture | 10/24 | GAWR Rear (kg) | 1558 |

VEHICLE SEATING AND WEIGHT CAPACITY DATA

| Measured Parameter | Front | Rear | Third | Total |
|-----------------------------------|--------|-------------|-------|-------|
| Type of Seats | Bucket | Split Bench | | |
| Designated Seating Capacity (DSC) | 2 | 3 | | 5 |
| Capacity Weight (VCW) (kg) | | | | 544 |
| Cargo Weight (RCLW) (kg) | | | | 136 |

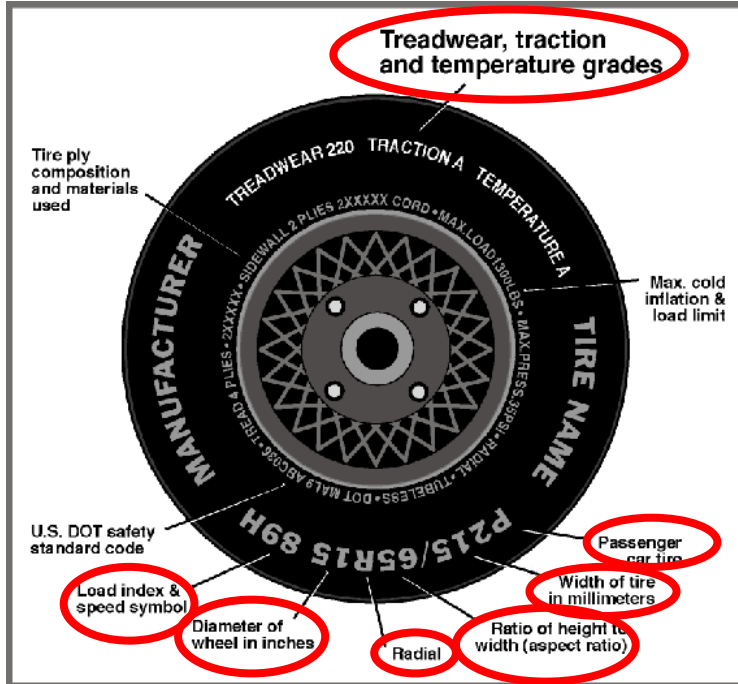
* Rated Cargo and Luggage Weight (RCLW) limited to maximum of 300 lbs (136 kg).

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

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025

VEHICLE TIRE INFORMATION



| Measured Parameter | Front | Rear |
|--------------------------|-----------------------------------|-----------------------------------|
| Max. Tire Pressure (kPa) | 350 | 350 |
| Cold Pressure (kPa) | 240 | 240 |
| Recommended Tire Size | 265/65R17 | 265/65R17 |
| Tire Size on Vehicle | 265/65R17 | 265/65R17 |
| Tire Manufacturer | Michelin | Michelin |
| Tire Model | Primacy LTX | Primacy LTX |
| Treadwear | 540 | 540 |
| Traction | A | A |
| 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 | 112T | 112T |
| Tire Material | Rubber | Rubber |
| DOT Safety Code Left | 1M3LV 02RX 3924 | 1M3LV 02RX 3824 |
| DOT Safety Code Right | 1M3LV 02RX 3924 | 1M3LV 02RX 3824 |

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

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025

TEST VEHICLE WEIGHTS

| | Units | As Delivered (UVW) | | | As Tested (ATW) | | |
|--------|-------|--------------------|-------|--------|-----------------|--------|--------|
| | | Front | Rear | Total | Front | Rear | Total |
| Left | kg | 629.5 | 471.5 | | 657.0 | 579.0 | |
| Right | kg | 612.0 | 468.0 | | 643.5 | 572.5 | |
| Ratio | % | 56.9% | 43.1% | | 53.0% | 47.0% | |
| Totals | kg | 1241.5 | 939.5 | 2181.0 | 1300.5 | 1151.5 | 2452.0 |

TARGET TEST WEIGHT CALCULATION

| Measured Parameter | Units | Value |
|--|-------|--------|
| Total Delivered Weight (UVW) | kg | 2181.0 |
| Weight of 1 P572E ATD & 1 P572O ATD | kg | 141 |
| Rated Cargo/Luggage Weight (RCLW) | kg | 136 |
| Calculated Test Vehicle Target Weight (TVTW) | kg | 2458.0 |

TEST VEHICLE ATTITUDES AND CG

| | Units | LF | RF | LR | RR | CG (aft of front axle) |
|--------------|-------|-----|-----|-----|-----|------------------------|
| As Delivered | mm | 877 | 881 | 908 | 900 | 1531 |
| As Tested | mm | 867 | 871 | 875 | 879 | 1669 |
| Post Test | mm | 816 | 825 | 883 | 873 | |

GENERAL TEST VEHICLE DATA

| Measurement Description | Units | Value |
|---|-------|-------|
| Total Vehicle Wheel Base | mm | 3555 |
| Total Vehicle Length at Left Side | mm | 5584 |
| Total Vehicle Length at Centerline | mm | 5711 |
| Total Vehicle Length at Right Side | mm | 5581 |
| Weight of Ballast in Cargo Area | kg | 69 |
| Weight of Vehicle Components Removed | kg | 0 |
| Amount of Stoddard Solvent in Fuel Tank | L | 74.2 |

List of components removed to meet test weight: None.

List of components removed for instrumentation, data box, and equipment installation: None.

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

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025

TARGET VEHICLE STRUCTURAL MEASUREMENT

| | Elements | Pre-Test (mm) |
|----|---------------------------------------|----------------------|
| 1 | Total Length | 5711 |
| 2 | Total Width | 1796 |
| 3 | Bumper Top Height | 781 |
| 4 | Bumper Bottom Height | 653 |
| 5 | Longitudinal Member Top Height | 559 |
| 6 | Distance between Longitudinal Members | 818 |
| 7 | Longitudinal Member Width | 62 |
| 8 | Engine Top Height | 1000 |
| 9 | Engine Bottom Height | 373 |
| 10 | Engine and Gearbox Width | 516 |
| 11 | Front Bumper-Engine Distance | 752 |
| 12 | Front Shock Absorber Fixing Height | 712 |
| 13 | Bonnet Leading Edge Height | 1127 |
| 14 | Front Shock Absorber Fixing Width | 951 |
| 15 | Front Bumper – Front Axle Distance | 849 |
| 16 | Front Axle – A-Pillar Distance | 668 |
| 17 | A-Pillar – B-Pillar Distance | 1053 |
| 18 | B-Pillar – Rear Axle Distance | 1834 |
| 19 | B-Pillar – C-Pillar Distance | 936 |
| 20 | Roof Sill Bottom Height | 1586 |
| 21 | Roof Sill Top Height | 1682 |
| 22 | Floor Sill Bottom Height | 334 |
| 23 | Floor Sill Top Height | 486 |

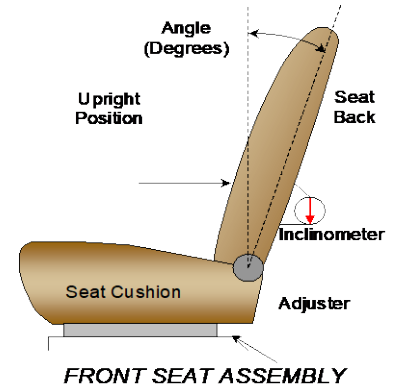
DATA SHEET NO. 2
SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL DATA

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025

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 | 6.4° on outboard headrest post |
| Passenger Seat Back Angle | 3.7° on outboard headrest post |

SEAT FORE/AFT POSITIONS

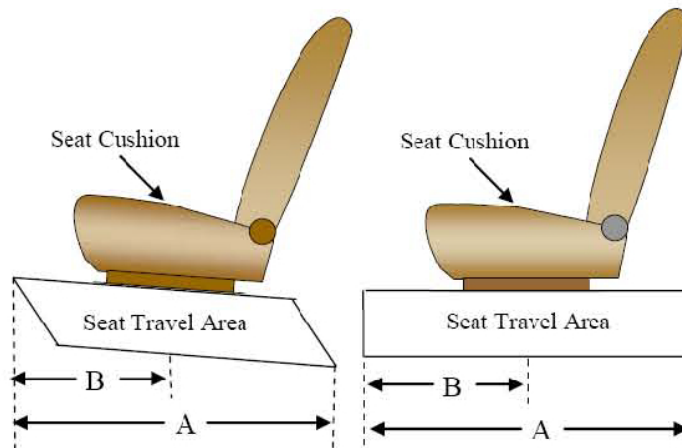
The driver and passenger seat fore/aft positions are adjusted following Appendix F, “Driver & Passenger Dummy Seating & Positioning Procedures” in the NCAP Test Procedure dated May 2018.

| | Total Fore/Aft Travel | Placed in Position # |
|----------------|--------------------------------|------------------------------|
| Driver Seat | 224 mm | 112 mm |
| Passenger Seat | 210 mm / 22 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: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

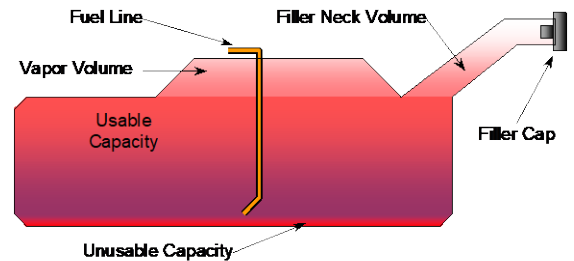
NHTSA No.: M20255203
 Test Date: 1/13/2025

FUEL TANK CAPACITY DATA

| | Liters |
|------------------------------------|---------------|
| Usable Capacity of "Standard Tank" | 79.9 |
| Usable Capacity of "Optional Tank" | |
| 92-94% of Usable Capacity | 73.5 to 75.1 |
| Actual Amount of Solvent used | 74.2 |
| 1/3 of Usable Capacity | 26.6 |

FUEL PUMP

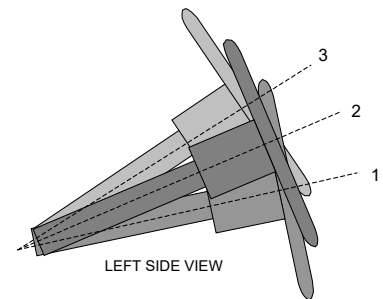
The vehicle is equipped with an electronic fuel pump. The fuel pump will run when the engine is running. The pump will also briefly run when the ignition key is turned to the "on" position. The filler neck is located on the driver's side.



VEHICLE FUEL TANK ASSEMBLY

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 ASSEMBLY

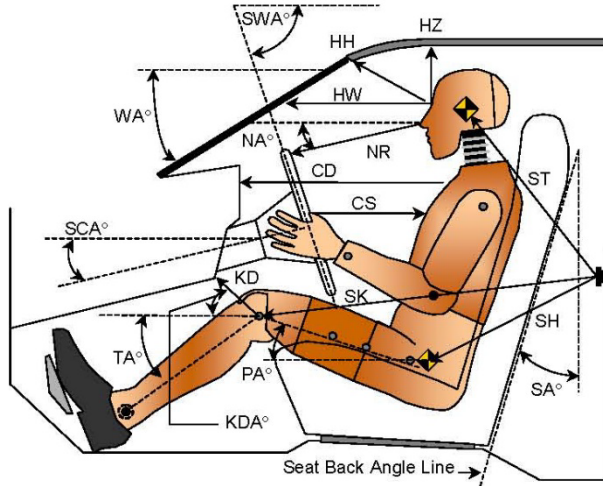
STEERING COLUMN POSITION

| | Degrees | Fore/Aft Position (mm) |
|-----------------------------------|----------------|-------------------------------|
| Lowermost Position 1 | 71.7 | |
| Geometric Center Position 2 | 69.1 | |
| Uppermost Position 3 | 66.4 | |
| Telescoping Steering Wheel Travel | | 37 |
| Test Position | 69.1 | 19 |

**DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS**

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025



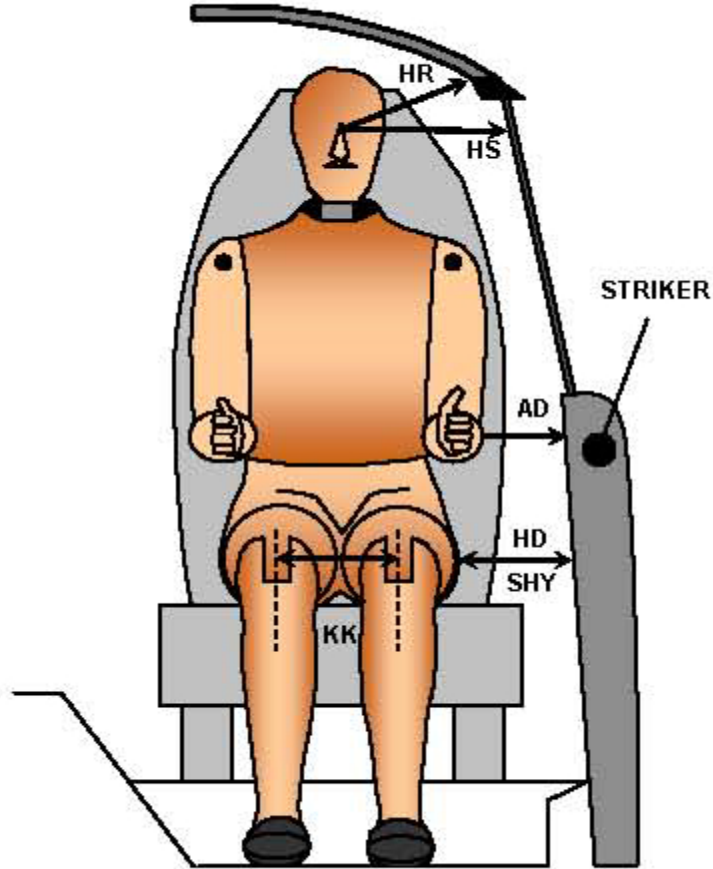
LEFT SIDE VIEW

| Code | Measurement Description | Driver | | Passenger | |
|------|-------------------------|-------------|-----------|-------------|-----------|
| | | Length (mm) | Angle (°) | Length (mm) | Angle (°) |
| WA° | Windshield Angle | | 31.6 | | |
| SWA° | Steering Wheel Angle | | 69.1 | | |
| SCA° | Steering Column Angle | | 20.9 | | |
| SA° | Seat Back Angle | | 6.4 | | 3.7 |
| HZ | Head to Roof (Z) | 171 | 90 | 221 | 90 |
| HH | Head to Header | 368 | 22.9 | 327 | 43.6 |
| HW | Head to Windshield | 612 | 0 | 615 | 0 |
| NR | Nose to Rim | 358 | 13.1 | | |
| CD | Chest to Dash | 509 | | 396 | |
| CS | Chest to Steering Hub | 273 | 8.0 | | |
| RA | Rim to Abdomen | 156 | 0 | | |
| KDL | Left Knee to Dash | 152 | 30.2 | 81 | 61.9 |
| KDR | Right Knee to Dash | 111 | 40.6 | 106 | 51.4 |
| PA° | Pelvic Angle | | 22.4 | | 19.8 |
| TA° | Tibia Angle | | 45.8 | | 47.5 |
| SK | Striker to Knee | 615 | 93.0 | 674 | 90.5 |
| ST | Striker to Head | 596 | 11.1 | 549 | 23.5 |
| SH | Striker to H-Point | 244 | 107.1 | 349 | 101.0 |

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

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025



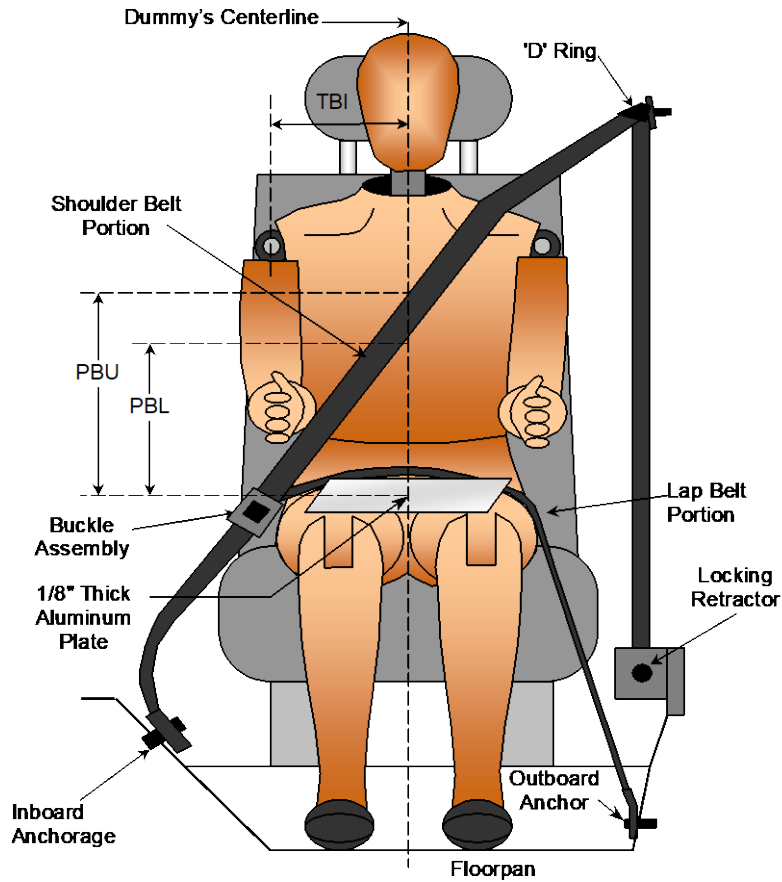
FRONT VIEW OF DUMMY

| Code | Measurement Description | Units | Driver | Passenger |
|------|----------------------------------|-------|--------|-----------|
| AD | Arm to Door | mm | 99 | 49 |
| HD | H-Point to Door | mm | 125 | 163 |
| HR | Head to Side Header | mm | 248 | 234 |
| HS | Head to Side Window | mm | 326 | 336 |
| KK | Knee to Knee | mm | 354 | 232 |
| SHY | Striker to H-Point (Y Direction) | mm | 217 | 252 |
| AA | Ankle to Ankle | mm | 348 | 172 |

**DATA SHEET NO. 5
SEAT BELT POSITIONING DATA**

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025



FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

| Measurement Description | Units | Driver | Passenger |
|---|-------|--------|-----------|
| PBU - Top surface of reference to belt upper edge | mm | 360 | 290 |
| PBL - Top surface of reference to belt lower edge | mm | 290 | 190 |

BELT LENGTH DATA

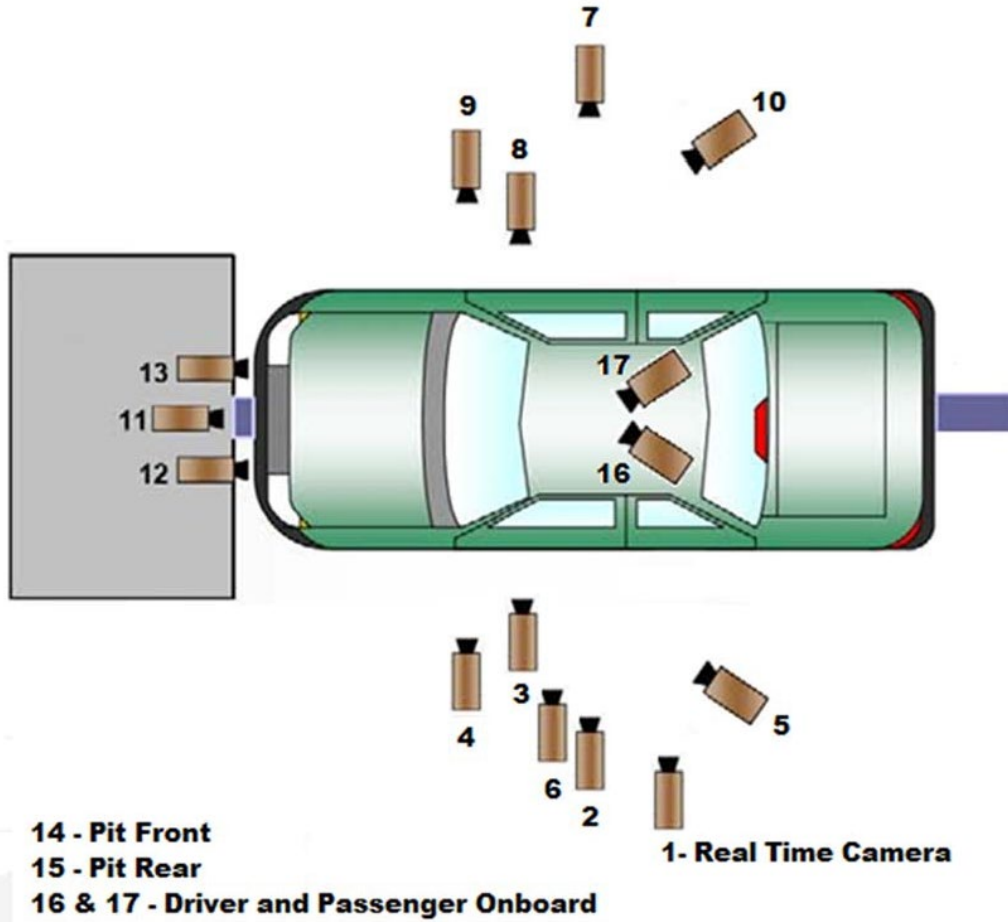
| Measurement Description | Units | Driver | Passenger |
|--|-------|--------|-----------|
| Shoulder Belt Length as measured on ATD | mm | 827 | 855 |
| Lap Belt Length as measured on ATD | mm | 675 | 690 |
| Remainder of belt on reel | mm | 428 | 265 |
| Total Belt Length for Continuous Webbing Systems | mm | 2510 | 2390 |

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

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
Test Date: 1/13/2025

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: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025

CAMERA LOCATIONS

| No. | Camera View | Coordinates* (mm) | | | Lens (mm) | Speed (fps) |
|-----|------------------------|-------------------|-------|-------|-----------|-------------|
| | | X | Y | Z | | |
| 1 | Real-Time Left Overall | | | | | 30 |
| 2 | Left Overall | -2980 | -5750 | -1340 | 12 | 1000 |
| 3 | Driver Close-Up | -1640 | -7040 | -2170 | 50 | 1000 |
| 4 | Left Front Half | -1280 | -5700 | -1380 | 24 | 1000 |
| 5 | Left Angle | -7510 | -5860 | -2170 | 75 | 1000 |
| 6 | Steering Column | -1040 | -5470 | -1220 | 50 | 1000 |
| 7 | Right Overall | -2660 | 5600 | -1320 | 12 | 1000 |
| 8 | Passenger Close-Up | -1740 | 6930 | -2200 | 50 | 1000 |
| 9 | Right Front Half | -1280 | 5580 | -1410 | 24 | 1000 |
| 10 | Right Angle | -7640 | 5450 | -2260 | 75 | 1000 |
| 11 | Windshield | -100 | 0 | -2310 | 12 | 1000 |
| 12 | Driver Windshield | -50 | -370 | -2230 | 25 | 1000 |
| 13 | Passenger Windshield | -50 | 370 | -2230 | 25 | 1000 |
| 14 | Pit Front | -1080 | 0 | 3340 | 24 | 1000 |
| 15 | Pit Rear | -3240 | 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

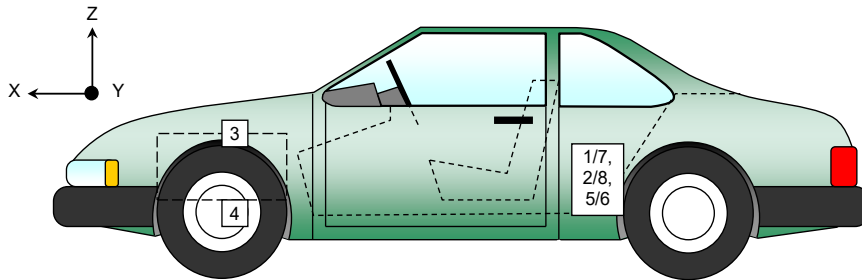
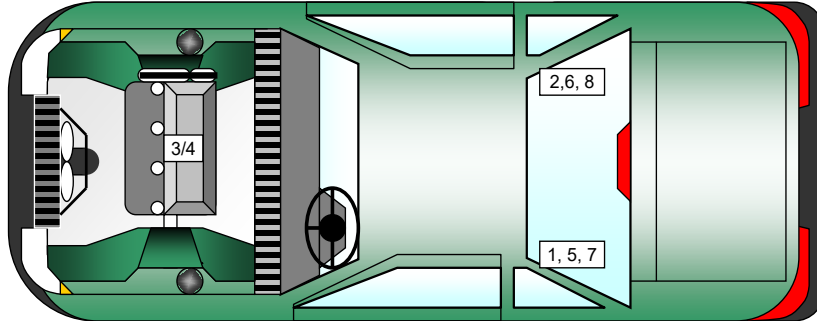
+Y = right of monorail centerline

+Z = below ground level

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

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

| No. | Accelerometer Location | Measurements (mm) | | |
|-----|--|-------------------|------|-------|
| | | X | Y | Z |
| 1 | Left Rear Crossmember Accelerometer – X Direction | 2825 | -523 | -539 |
| 2 | Right Rear Crossmember Accelerometer – X Direction | 2820 | 560 | -552 |
| 3 | Engine Top X | 4734 | 82 | -1089 |
| 4 | Engine Bottom X | 4668 | -22 | -224 |
| 5 | Left Rear Crossmember Accelerometer – Z Direction | 2825 | -523 | -539 |
| 6 | Right Rear Crossmember Accelerometer – Z Direction | 2820 | 560 | -552 |
| 7 | Left Rear Crossmember Accelerometer Redundant – X Direction | 2825 | -523 | -539 |
| 8 | Right Rear Crossmember Accelerometer Redundant – X Direction | 2820 | 560 | -552 |

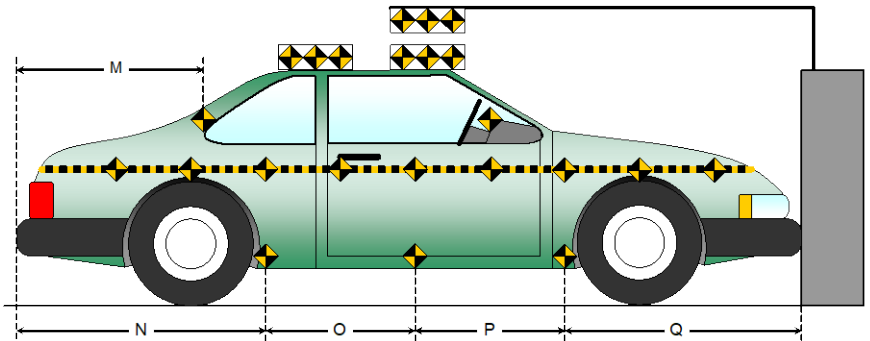
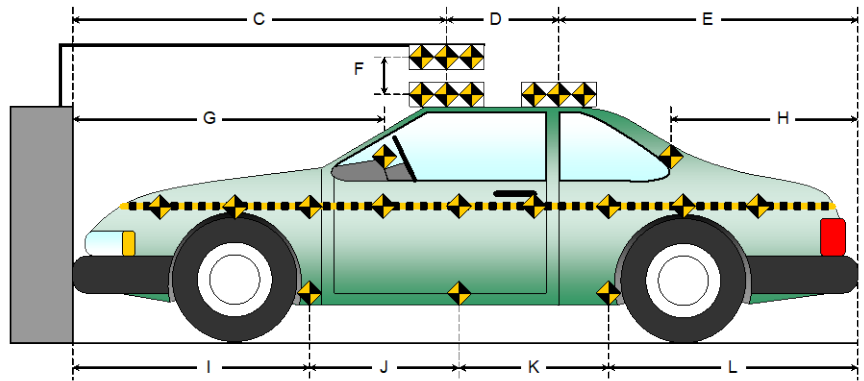
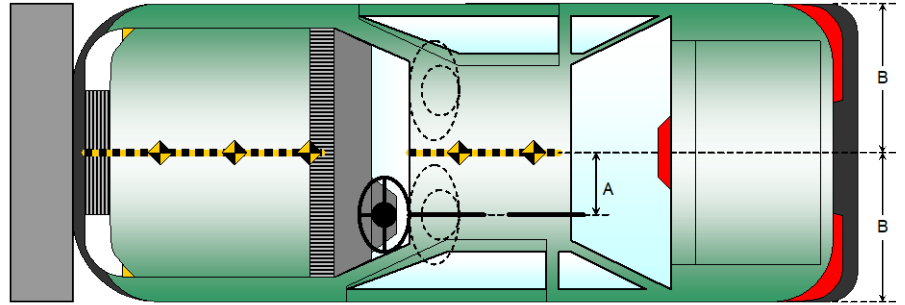
Reference Points: X - Rear Surface of Vehicle (+ forward)
 Y - Vehicle Centerline (+ to right)
 Z - Ground Plane (+ down)

DATA SHEET NO. 8
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025

| Item | Value (mm) |
|------|------------|
| A | 400 |
| B | 898 |
| C | 2397 |
| D | 609 |
| E | 2705 |
| F | 118 |
| G | |
| H | 2175 |
| I | 1460 |
| J | 989 |
| K | 999 |
| L | 2263 |
| M | 2172 |
| N | 2264 |
| O | 814 |
| P | 1172 |
| Q | 1461 |



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

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025

ADVANCED RESEARCH LOAD CELL BARRIER

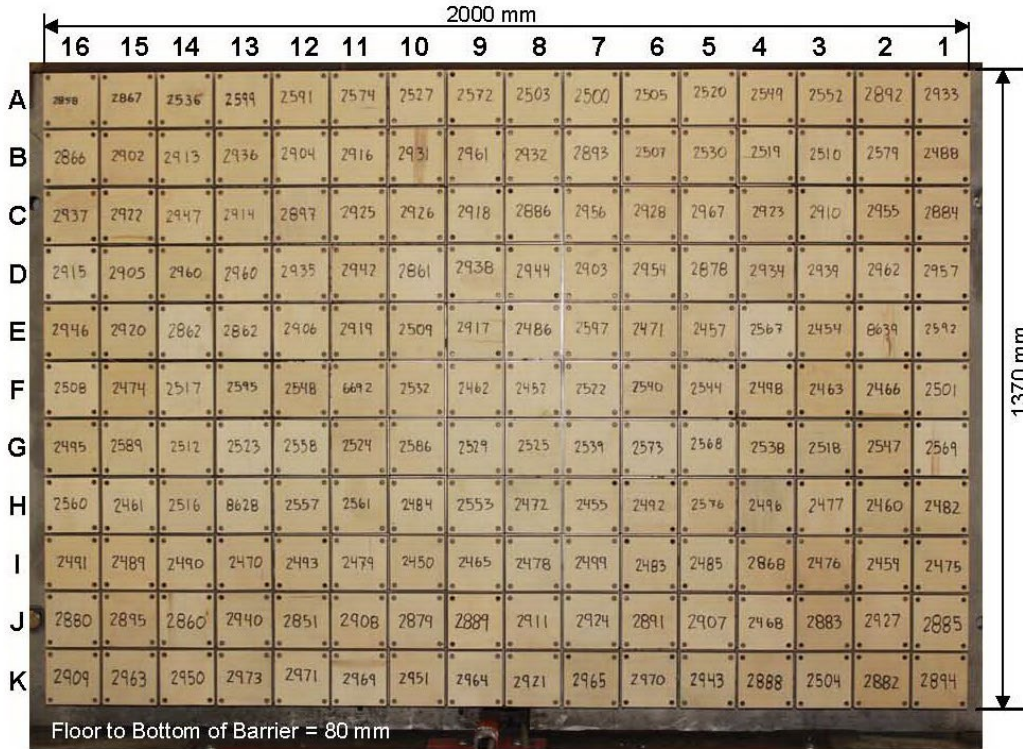


Photo for Reference Only

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: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025

INSTRUMENTATION

| Instrumentation | Number of Channels Collected |
|----------------------------------|------------------------------|
| Driver Dummy Data Channels | 47 |
| Passenger Dummy Data Channels | 47 |
| Vehicle Structure Accelerometers | 8 |
| Barrier Channels | 0 |
| Total | 102 |

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: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025

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 pre-test | Doors were locked pre-test |
| Front Door Opening | Remained closed and locked; opened without tools | Remained closed and locked; opened without tools |
| Rear Door Opening | Remained closed and locked; opened without tools | Remained closed and locked; 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 | Cracked along bottom edge |
| Window Damage | None |
| Other Notable Effects | None |

VEHICLE REBOUND FROM BARRIER

| Measured Parameter | Units | Value |
|--------------------|-------|-------|
| Left Side | mm | 660 |
| Center | mm | 598 |
| Right Side | mm | 618 |
| Average | mm | 625 |

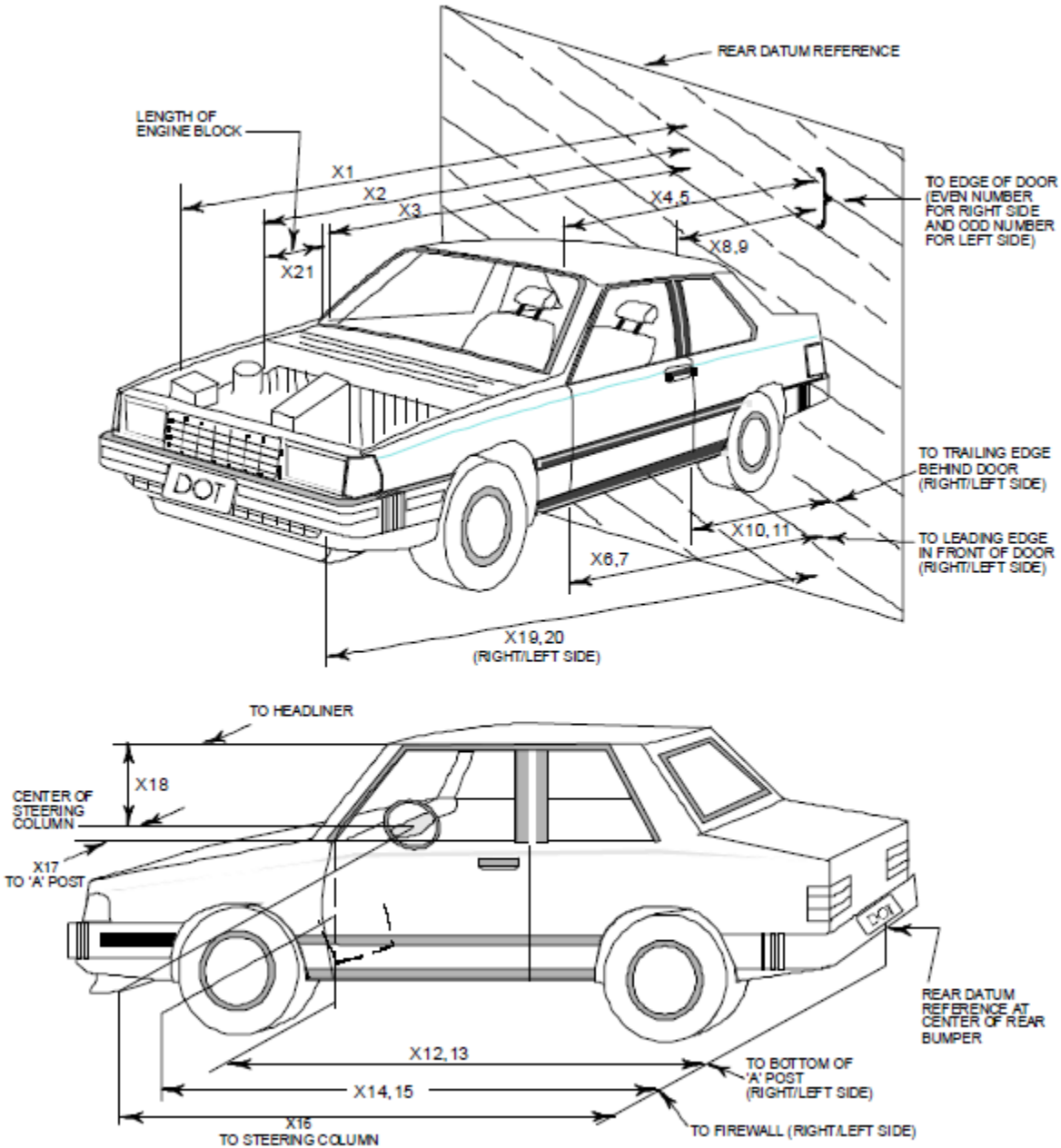
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

| Restraint Type | Driver | | Passenger | |
|--------------------------|---------|----------|-----------|----------|
| | Mounted | Deployed | Mounted | Deployed |
| Frontal Airbag | Yes | Yes | Yes | Yes |
| Curtain Side Airbag | Yes | No | Yes | No |
| 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 | Yes | Yes |
| Other | | | | |

DATA SHEET NO. 12 VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025



DATA SHEET NO. 12 (CONTINUED)
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025

| No. | Measurement Description | Pre-Test | Post-Test | Change |
|-----|---|----------|-----------|--------|
| 1 | Total Length of Vehicle at Centerline | 5711 | 5187 | -524 |
| 2 | RSOV to Front of Engine | 4893 | 4754 | -139 |
| 3 | RSOV to Firewall | 4516 | 4444 | -72 |
| 4 | RSOV to Upper Leading Edge of Right Door | 4209 | 4193 | -16 |
| 5 | RSOV to Upper Leading Edge of Left Door | 4213 | 4203 | -10 |
| 6 | RSOV to Lower Leading Edge of Right Door | 4078 | 4071 | -7 |
| 7 | RSOV to Lower Leading Edge of Left Door | 4081 | 4078 | -3 |
| 8 | RSOV to Upper Trailing Edge of Right Door | 3074 | 3061 | -13 |
| 9 | RSOV to Upper Trailing Edge of Left Door | 3076 | 3069 | -7 |
| 10 | RSOV to Lower Trailing Edge of Right Door | 3037 | 3030 | -7 |
| 11 | RSOV to Lower Trailing Edge of Left Door | 3039 | 3036 | -3 |
| 12 | RSOV to Bottom of "A" Post of Right Side | 4250 | 4237 | -13 |
| 13 | RSOV to Bottom of "A" Post of Left Side | 4251 | 4238 | -13 |
| 14 | RSOV to Firewall, Right Side | 4583 | 4569 | -14 |
| 15 | RSOV to Firewall, Left Side | 4584 | 4574 | -10 |
| 16 | RSOV to Steering Column | 3656 | 3698 | 42 |
| 17 | Center of Steering Column to "A" Post | 242 | 236 | -6 |
| 18 | Center of Steering Column to Headliner | 449 | 401 | -48 |
| 19 | RSOV to Right Side of Front Bumper | 5581 | 5079 | -502 |
| 20 | RSOV to Left Side of Front Bumper | 5584 | 5160 | -424 |
| 21 | Length of Engine Block | 335 | 335 | 0 |
| RD | RSOV to Right Side of Dash Panel | 3928 | 3927 | -1 |
| CD | RSOV to Center of Dash Panel | 3919 | 3916 | -3 |
| LD | RSOV to Left Side of Dash Panel | 3930 | 3926 | -4 |

All dimensions in mm

DATA SHEET NO. 13
ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
Test Program: NCAP Frontal Barrier Impact Test

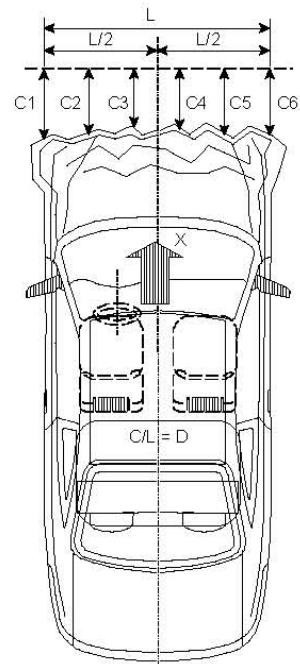
NHTSA No.: M20255203
Test Date: 1/13/2025

VEHICLE INFORMATION

| | | | |
|------------------------|--------------------------|-------------------|---------------|
| VIN: | <u>1N6ED1FK9SN616193</u> | Wheelbase (mm): | <u>3555</u> |
| Vehicle Size Category: | <u>Truck</u> | Test Weight (kg): | <u>2452.0</u> |

ACCELEROMETER DATA

| | |
|---------------------------|--------------------------------|
| Accelerometer Locations: | <u>As per Data Sheet No. 7</u> |
| Cal. Procedure/Interval: | <u>MGA Procedure / 6 month</u> |
| Integration Algorithm: | <u>Trapezoidal</u> |
| Linearity: | <u>> 99%</u> |
| Impact Velocity (km/h): | <u>56.42</u> |
| Velocity Change (km/h): | <u>66.2</u> |
| Time of Separation (msec) | <u>109</u> |



CRUSH PROFILE

| | |
|---------------------------------------|-------------------|
| Collision Deformation Classification: | <u>12FDEW3</u> |
| Midpoint of Damage: | <u>Centerline</u> |
| Damage Region Length (mm): | <u>1225</u> |
| Impact Mode: | <u>Frontal</u> |

| No. | Measurement Description | Units | Pre-Test | Post-Test | Exterior Crush |
|-----|----------------------------|-------|----------|-----------|----------------|
| C1 | Crush zone 1 at left side | mm | 1416 | 1840 | 424 |
| C2 | Crush zone 2 at left side | mm | 1313 | 1804 | 491 |
| C3 | Crush zone 3 at left side | mm | 1291 | 1812 | 521 |
| C4 | Crush zone 4 at right side | mm | 1291 | 1831 | 540 |
| C5 | Crush zone 5 at right side | mm | 1312 | 1857 | 545 |
| C6 | Crush zone 6 at right side | mm | 1419 | 1921 | 502 |
| L | C1 TO C6 | mm | 1225 | 1239 | -14 |

**DATA SHEET NO. 14
VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

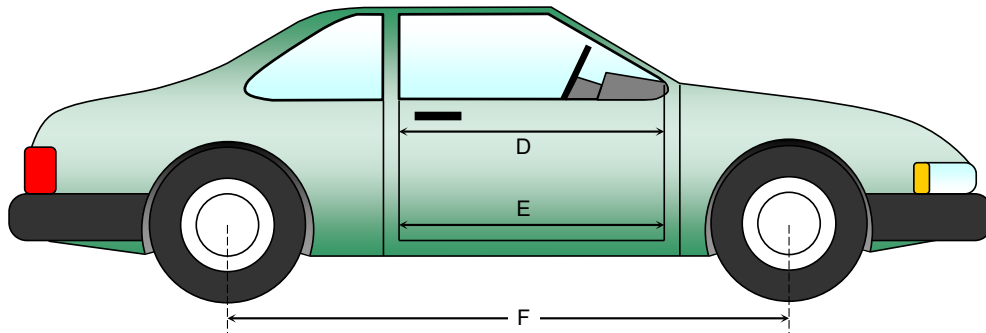
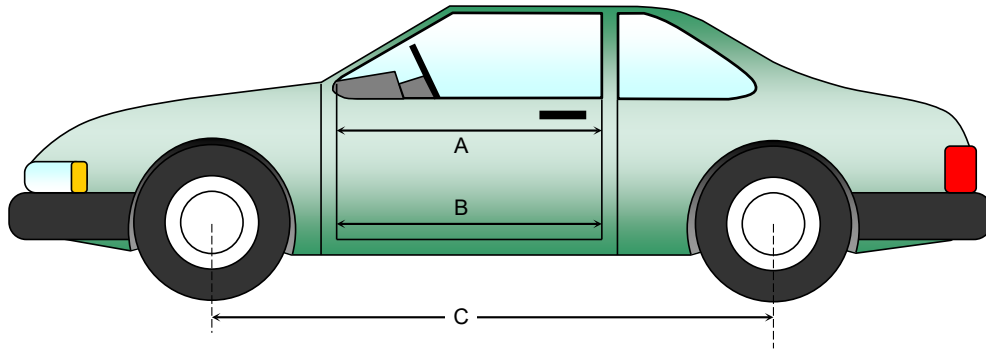
NHTSA No.: M20255203
 Test Date: 1/13/2025

DOOR OPENING WIDTH

| Item | Description | Units | Pre-Test | Post-Test | Change |
|------|------------------|-------|----------|-----------|--------|
| A | Left Side Upper | mm | 1001 | 1002 | 1 |
| B | Left Side Lower | mm | 946 | 945 | -1 |
| D | Right Side Upper | mm | 1005 | 1005 | 0 |
| E | Right Side Lower | mm | 949 | 948 | -1 |

WHEELBASE MEASUREMENTS

| Item | Description | Units | Pre-Test | Post-Test | Change |
|------|----------------------|-------|----------|-----------|--------|
| C | Left Side Wheelbase | mm | 3555 | 3445 | -110 |
| F | Right Side Wheelbase | mm | 3548 | 3459 | -89 |



**DATA SHEET NO. 14 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS**

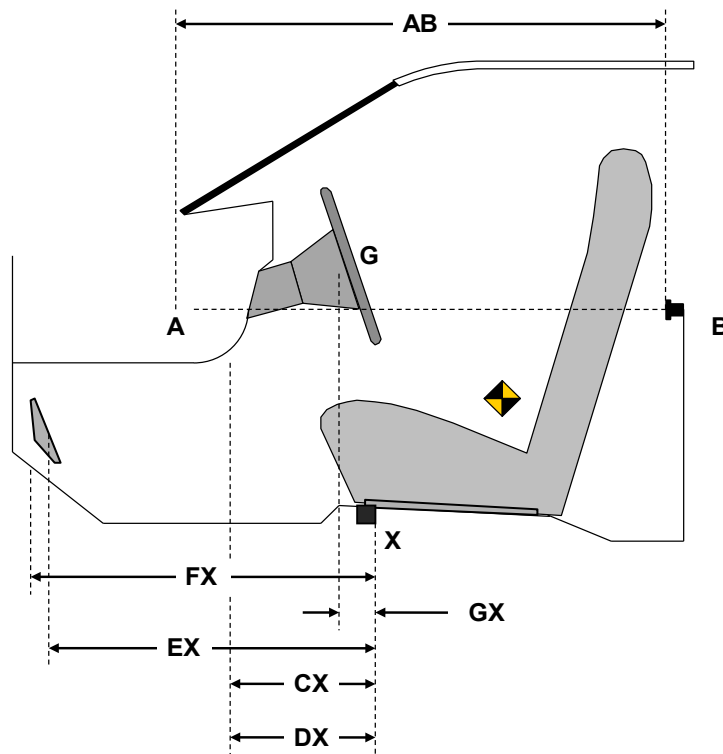
Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025

DRIVER COMPARTMENT INTRUSION

| Item | Description | Units | Pre-Test | Post-Test | Change |
|------|--|-------|----------|-----------|--------|
| AB | Door Opening (Inside Window Jam) | mm | 721 | 721 | 0 |
| CX | Left Knee Bolster to X | mm | 236 | 242 | 6 |
| DX | Right Knee Bolster to X | mm | 218 | 231 | 13 |
| EX | Brake Pedal to X | mm | 521 | 514 | -7 |
| FX | Foot Rest to X | mm | 563 | 551 | -12 |
| GX | Center of Steering Column Wheel Hub to X | mm | -12 | 38 | 50 |

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: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025

WINDSHIELD MOUNTING DETAILS

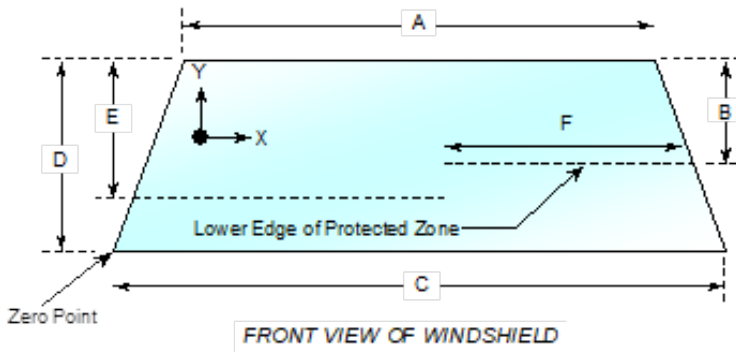
Windshield glass is secured to the vehicle frame with a rubber trim and glue.

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: 21.3°C.

WINDSHIELD PERIPHERY MEASUREMENTS

| Measurement | Pre-Test (mm) | Post-Test (mm) | % of Retention |
|-------------|---------------|----------------|----------------|
| Left Side | 2878 | 2878 | 100 |
| Right Side | 2878 | 2878 | 100 |
| Total | 5756 | 5756 | 100 |



| Item | Units | Value |
|------|-------|-------|
| A | mm | 1175 |
| B | mm | 356 |
| C | mm | 1480 |
| D | mm | 775 |
| E | mm | 430 |
| F | mm | 460 |

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: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025

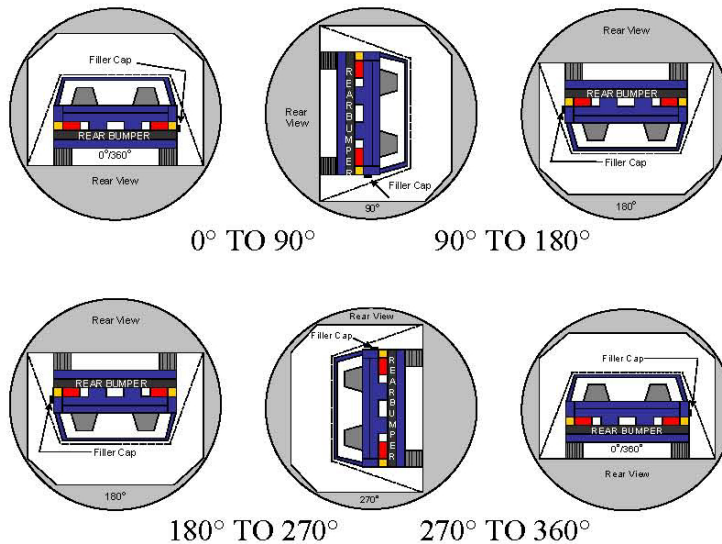
FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 21.3°C

Test Time: 11:14 a.m.

- A. From impact until vehicle motion ceases: (Maximum Allowable = 1 ounce) 0.0 oz.
 B. For the 5 minute period after motion ceases: (Maximum Allowable = 5 ounces) 0.0 oz.
 C. For the following 25 minutes: (Maximum Allowable = 1 ounce / minute) None
 D. Spillage Details: None

FMVSS 301 STATIC ROLLOVER 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° | 110 | 300 | 410 |
| 90° to 180° | 112 | 300 | 412 |
| 180° to 270° | 108 | 300 | 408 |
| 270° to 360° | 111 | 300 | 411 |

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

Test Vehicle: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025

FMVSS 301 SPILLAGE TABLE (UNITS IN OUNCES)

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

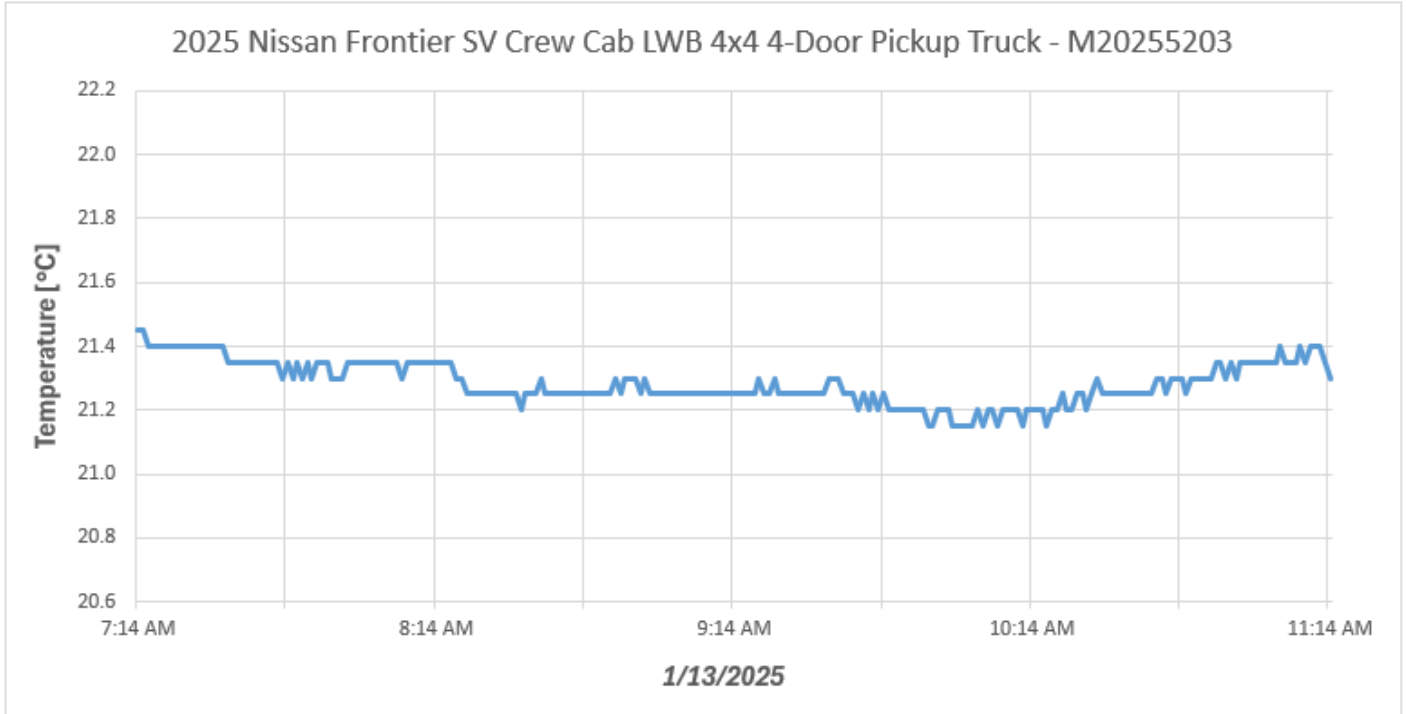
SOLVENT SPILLAGE LOCATION TABLE

| 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: 2025 Nissan Frontier SV Crew Cab LWB 4x4 Pickup
 Test Program: NCAP Frontal Barrier Impact Test

NHTSA No.: M20255203
 Test Date: 1/13/2025



| Serial # | Description | Maximum | Average | Minimum | Units |
|----------|--------------------------------|---------|---------|---------|-------|
| W1443497 | VSC Start Room A - Temp (1038) | 21.45 | 21.28 | 21.15 | °C |

**APPENDIX A
PHOTOGRAPHS**

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PHOTOGRAPH NOT APPLICABLE

Photo No. 001 - Load Cell Location

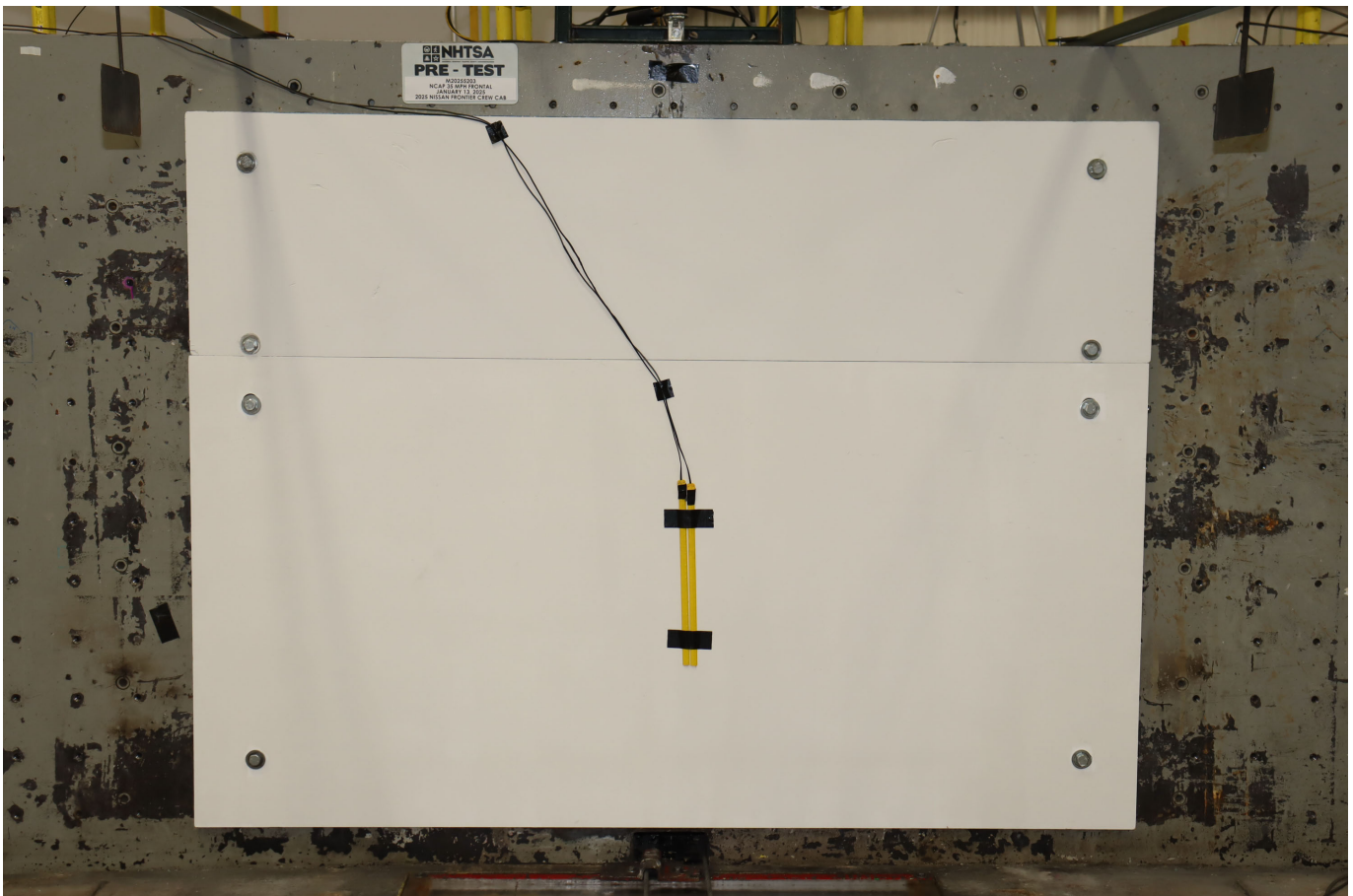


Photo No. 002 - Pre-Test Load Cell Wall

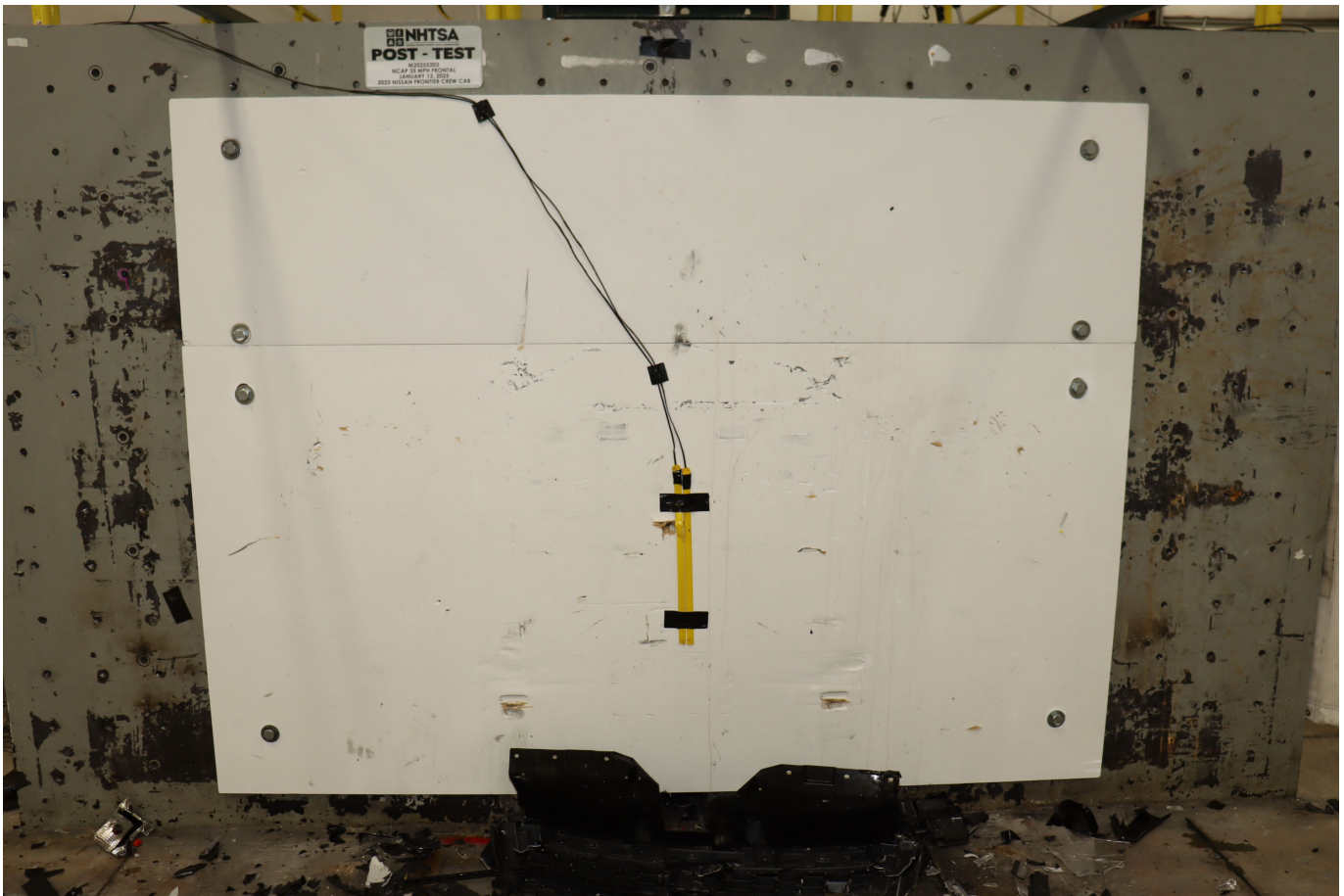


Photo No. 003 - Post-Test Load Cell Wall



Photo No. 004 - Manufacturer's Label



Photo No. 005 - Tire Placard



Photo No. 006 - 2025 Nissan Frontier SV Crew Cab LWB 4x4 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



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



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

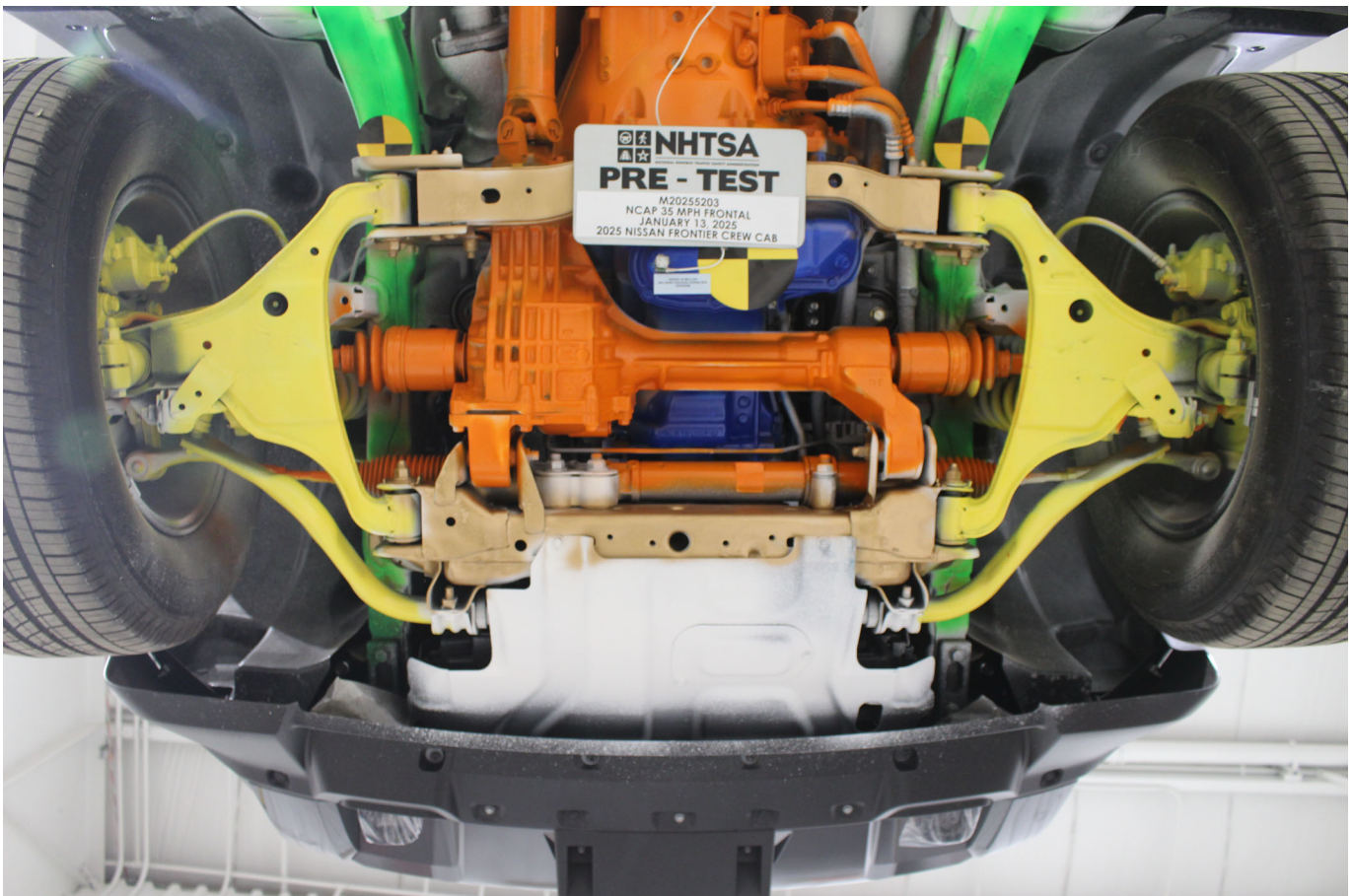


Photo No. 024 - Pre-Test Front Underbody View

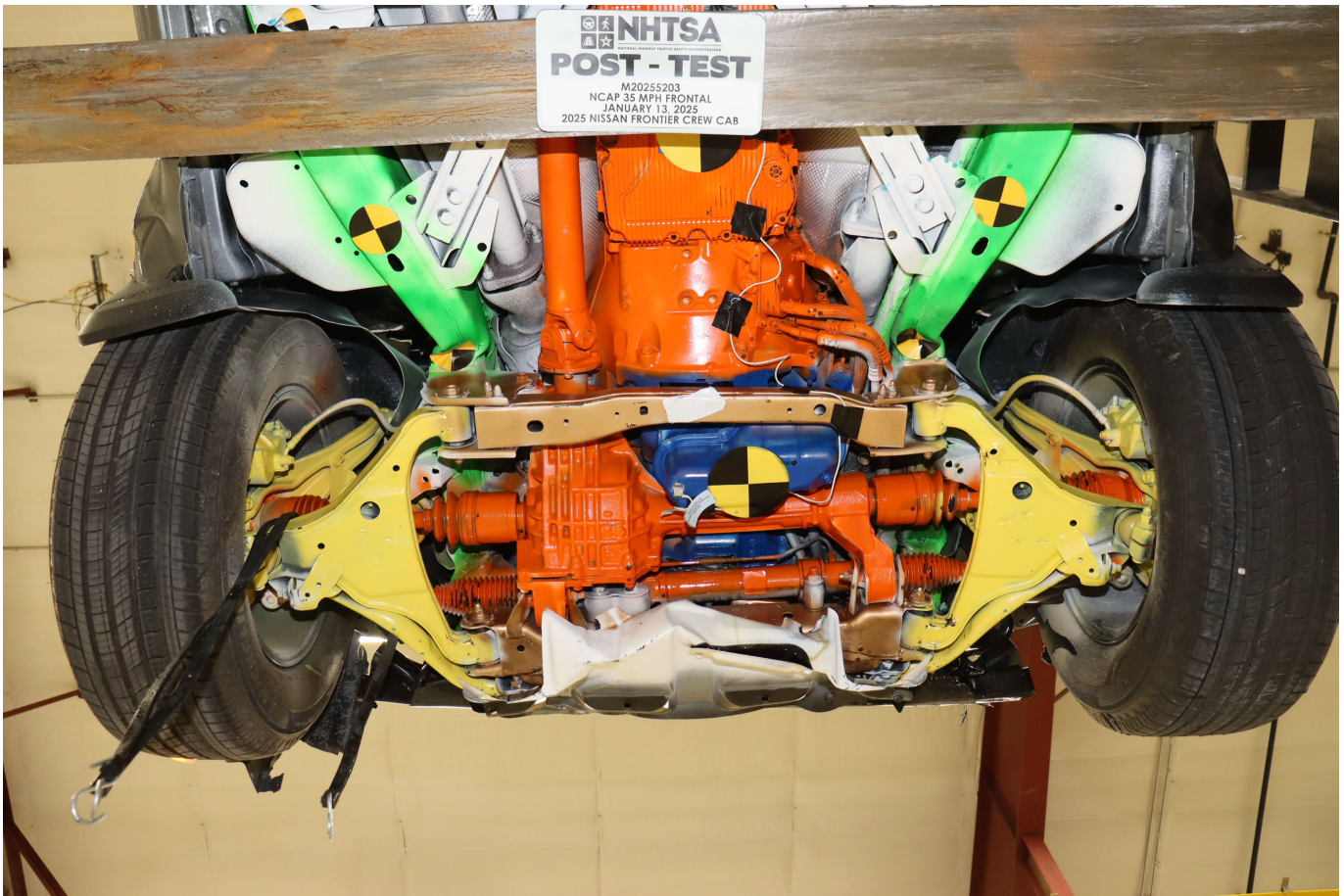


Photo No. 025 - Post-Test Front Underbody View

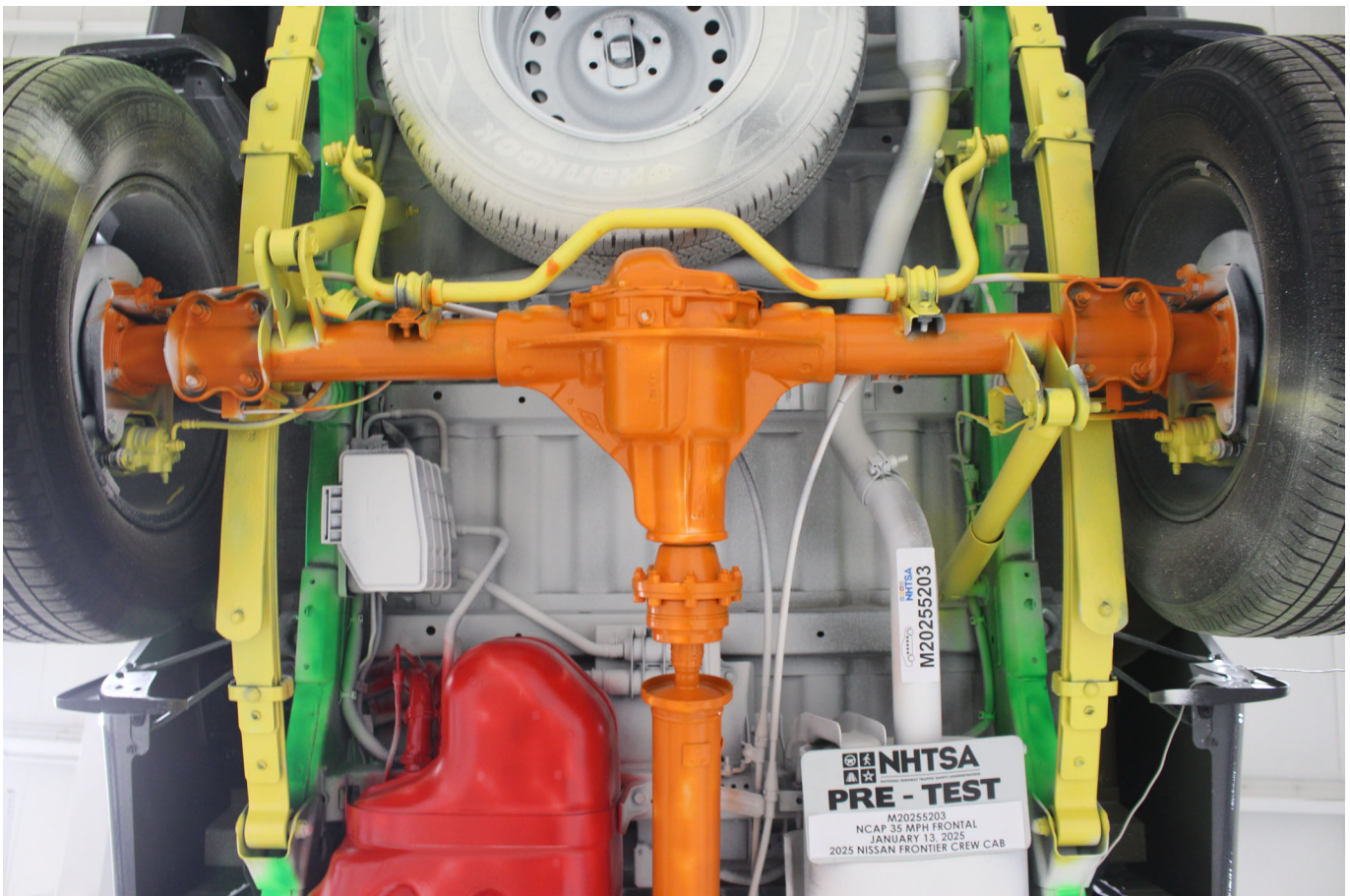


Photo No. 026 - Pre-Test Rear Underbody View



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

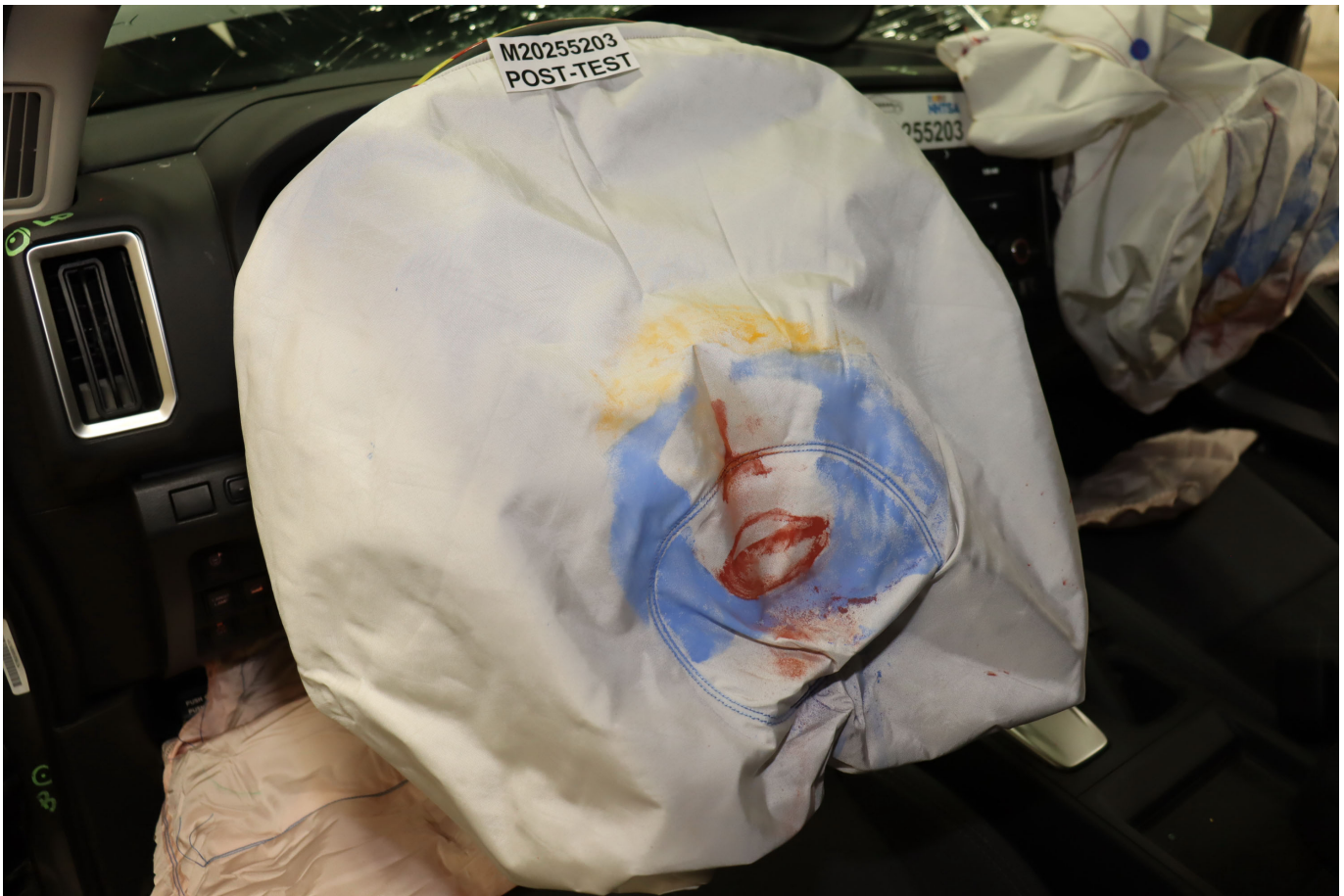


Photo No. 049 - Post-Test Driver Dummy Contact with Airbag



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



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



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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

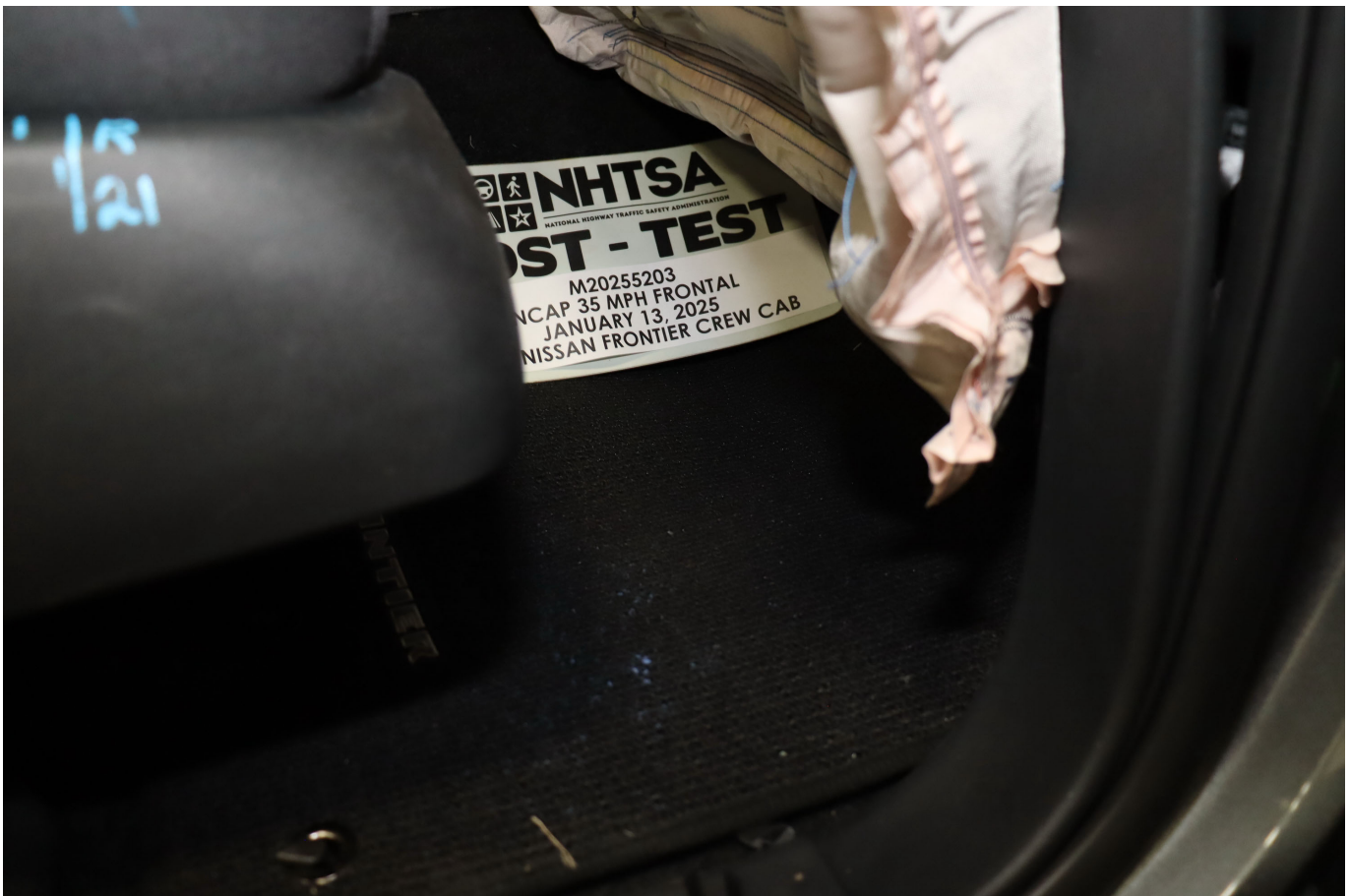


Photo No. 070 - Post-Test Passenger's Side Floorpan



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



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



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



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



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



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



Photo No. 082 - 2025 Nissan Frontier SV Crew Cab LWB 4x4 Frontal Impact Event



2025 NISSAN FRONTIER SV CREW CAB LWB 4x4 AUTOMATIC V6



Scan QR code for general model information & options

Standard Equipment Included at No Extra Charge

NISSAN MAINTENANCE CARE

3 scheduled oil changes incl. within 2 Yrs/24,000 Miles (whichever occurs first)+
3.6L V6 Engine
310 Horsepower & 281 lb.-ft. Torque
9-speed Automatic Transmission
Active Brake Limited Slip (ABLS)
2-Speed Transfer Case with 4HI & 4LO

SAFETY & SECURITY

Nissan Advanced Air Bag System
Vehicle Security System
Tire Pressure Monitoring System (TPMS) with Easy Fill Tire Alert
Automatic Emergency Braking with Pedestrian Detection
Intelligent Forward Collision Warning (I-FCW)
Intelligent Driver Alertness (I-DA)
Lane Departure Warning (LDW)
Blind Spot Warning (BSW)
Rear Cross Traffic Alert (RCTA)
Rear Sonar System
Rear Automatic Braking (RAB)
High Beam Assist (HBA)
Intelligent Cruise Control (ICC)

AUDIO & INFOTAINMENT

NissanConnect®
12.3" Color Touch-Screen Display+
Wireless Apple CarPlay®+
Wireless Android Auto™+
Bluetooth® Hands-free Phone System+
Bluetooth® Streaming (Audio/Text Message)+
Voice Recognition for Audio Features+
Sirius® Eyes Free+
SiriusXM® Radio+
Wi-Fi Hotspot+
NissanConnect® Services
6 Speakers
(2) Illuminated USB Connections (1 Type-A, 1 Type-C)
(2) Rear USB Connections (Charge Only) (1 Type-A, 1 Type-C)

COMFORT & CONVENIENCE

7" Advanced Drive-Assist® Display
Trailer Sway Control+
Manual-Tilt & Telescoping Steering Wheel with Audio & ICC Controls
2nd Row Underseat Storage
6-way Power Driver Seat with 2-way Power Lumbar
4-way Manual Adjustable Passenger Seat
Power Door Locks w/ Remote Keyless Entry
Intelligent Auto Headlights
Hill Start Assist
Hill Descent Control

EXTERIOR

17" Alloy Wheels
Steel Front Skid Plate
Halogen Headlamps
Dampened and Locking Tailgate
Bed Rail Protectors
Cargo/Bed Illumination
Cargo Tie-Down Hooks
Dual Power Outside Mirrors
Front Tow Hooks
Sliding Rear Glass

+See dealer for terms, conditions, and limitations.

++Towing capability varies by configuration. See Nissan towing guide and owner's manual for additional information.

+++Optional equipment replaces standard where applicable.

| | |
|---|--------------------|
| Manufacturer's Suggested Retail Base Price: | \$39,590.00 |
| Options Included by Manufacturer | |
| TELEMATICS CREDIT | 170.00CR |
| Remove: NissanConnect® Services+++ | |
| Remove: Wi-Fi Hotspot+++ | |
| Remove: Sunglass Holder+++ | |
| SLIDING REAR GLASS CREDIT | 155.00CR |
| Fixed Rear Glass+++ | |
| SPLASH GUARDS | 255.00 |
| CARPETED FLOOR MATS | 205.00 |
| ACCY REMOTE ENGINE STARTER | 375.00 |
| TOW PACKAGE: HITCH, TOW HARNESS | 525.00 |
| DESTINATION CHARGES | 1,510.00 |
| Total | \$42,135.00 |

*Does not include dealer installed options and accessories, local taxes or license fees. This label has been applied to this vehicle.

EPA DOT Fuel Economy and Environment Gasoline Vehicle

Fuel Economy

STANDARD PICKUP TRUCKS range from 12 to 84 MPG. The best vehicle rates 140 MPG.

19 MPG
combined city/hwy

17 MPG
city

21 MPG
highway

5.3 gallons per 100 miles

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

Annual fuel cost \$2,750

Fuel Economy & Greenhouse Gas Rating (tailpipe only) **Smog Rating** (tailpipe only)

1 4 10 1 5 10
Best Best

This vehicle emits 470 grams CO₂ per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also create emissions. Learn more at fuelconomy.gov.

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

fuelconomy.gov
Calculate personalized estimates and compare vehicles

Smartphone QR Code

GOVERNMENT 5-STAR SAFETY RATINGS

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

| | | | |
|--|----------------------|-----------|-----------|
| Frontal Crash | Driver Passenger | Not Rated | Not Rated |
| Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight. | | | |
| Side Crash | Front seat Rear seat | Not Rated | Not Rated |
| Based on the risk of injury in a side impact. | | | |
| Rollover | | Not Rated | |
| Based on the risk of rollover in a single-vehicle crash. | | | |

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

PARTS CONTENT INFORMATION FOR VEHICLES IN THIS CARLINE:

U.S./CANADIAN PARTS CONTENT: 40%
MAJOR SOURCES OF FOREIGN PARTS CONTENT: JAPAN: 20%

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

FOR THIS VEHICLE:
FINAL ASSEMBLY POINT: CANTON, MS, USA
COUNTRY OF ORIGIN: ENGINE: US
TRANSMISSION: JAPAN

This Vehicle qualifies for Nissan's **Security+Plus Extended Protection Plan**

The only service agreement backed by Nissan Extended Services North America!
Ask your dealer for details, or call 1-800-NISSAN-1 for more information

Dealer:
MATTHEWS NISSAN
3101 VESTAL PKWY E
VESTAL, NY 13850

VIN: 1N8ED1FK32N616193 EXT: GUN METALLIC
MDL: 33215-616193 KAD-G INT: CHARCOAL
OPT: C-H03J01C03K32L93N10T92 EMS: 50 STATE EMISSIONS

Photo No. 083 - Monroney Label Photograph

APPENDIX B
DUMMY RESPONSE DATA TRACES

TABLE OF DATA PLOTS

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| 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 |
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| Figure No. 18. | Driver Right Femur Force vs. Time | B-6 |
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| Figure No. 20. | Passenger Head Y Acceleration vs. Time | B-7 |
| Figure No. 21. | Passenger Head Z Acceleration vs. Time | B-7 |
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| Figure No. 26. | Passenger Chest Z Acceleration vs. Time | B-9 |
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| 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 |

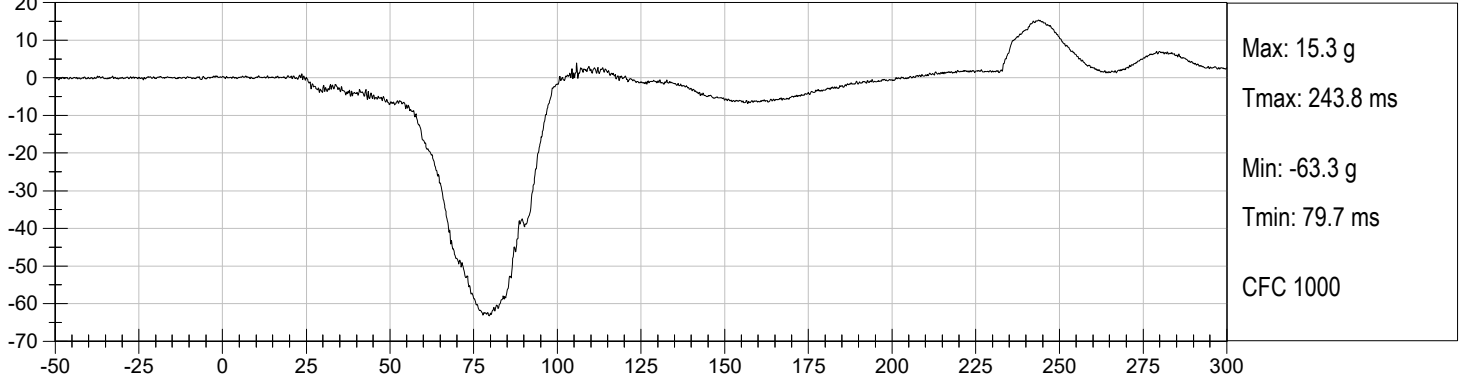
The following additional dummy and vehicle response data can be found in the R&D section of the NHTSA website at www.nhtsa.gov

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

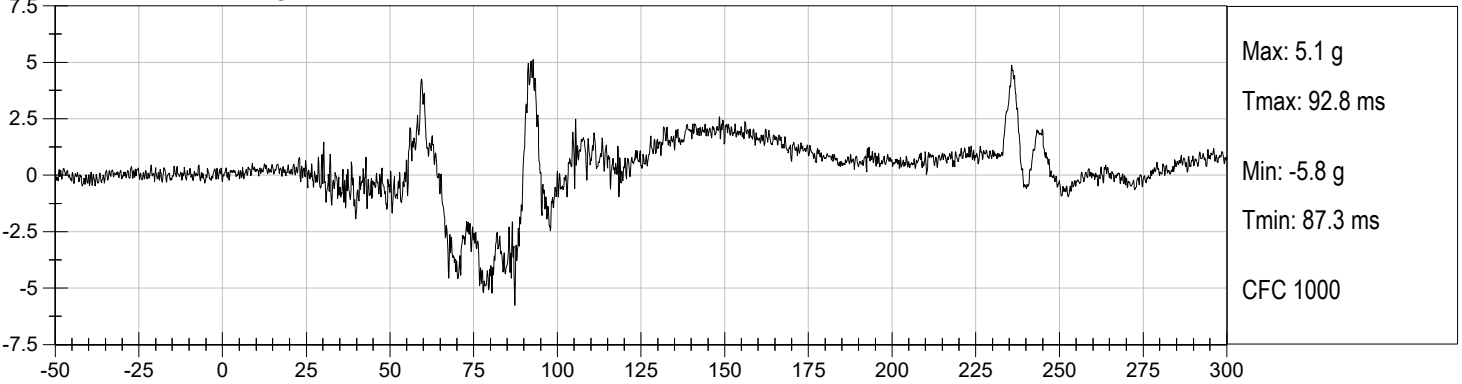
Driver Left Upper Tibia Force Z
Driver Left Lower Tibia Moment X
Driver Left Lower Tibia Moment Y
Driver Left Lower Tibia Force Z
Driver Right Upper Tibia Moment X
Driver Right Upper Tibia Moment Y
Driver Right Upper Tibia Force Z
Driver Right Lower Tibia Moment X
Driver Right Lower Tibia Moment Y
Driver 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

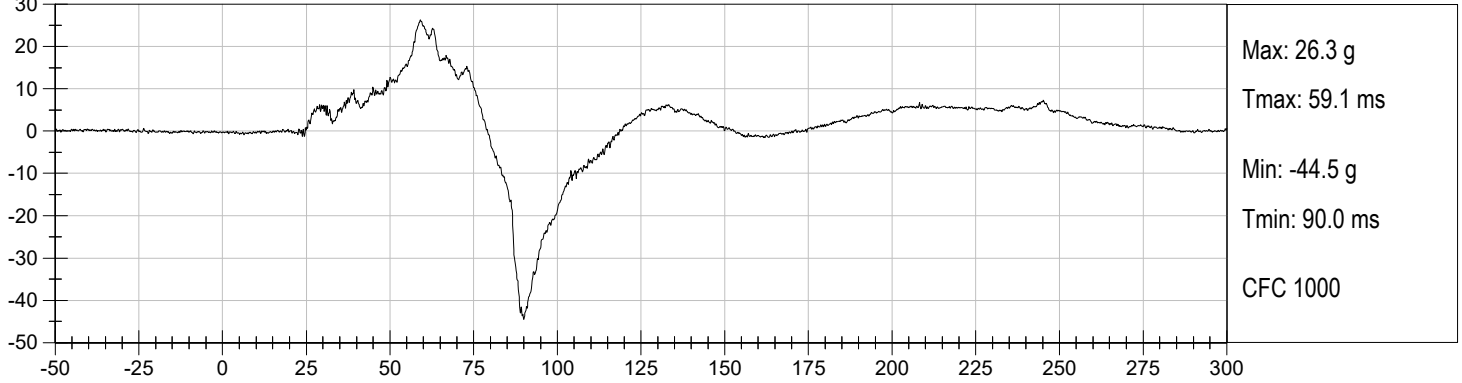
DRIVER HEAD X (g) vs Time (ms)



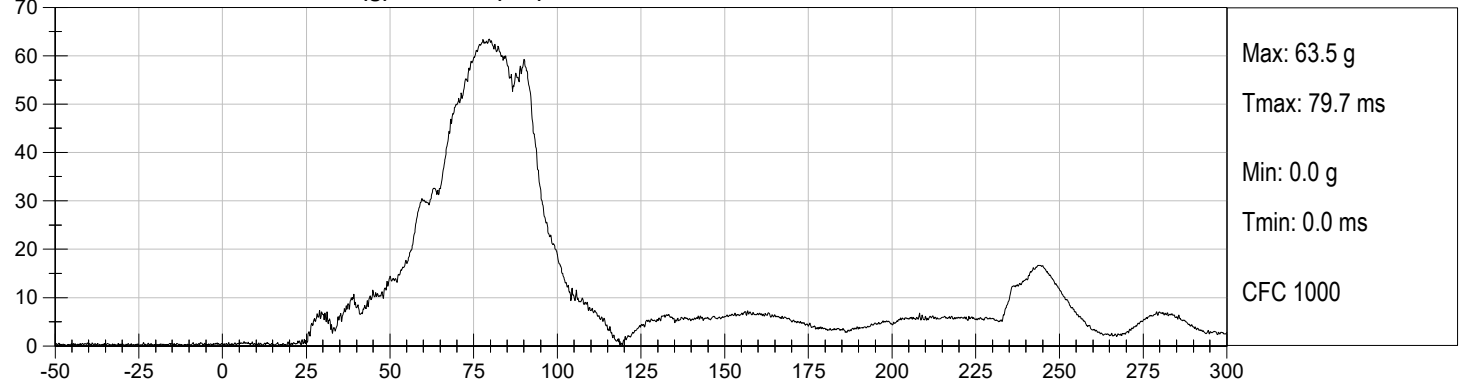
DRIVER HEAD Y (g) vs Time (ms)



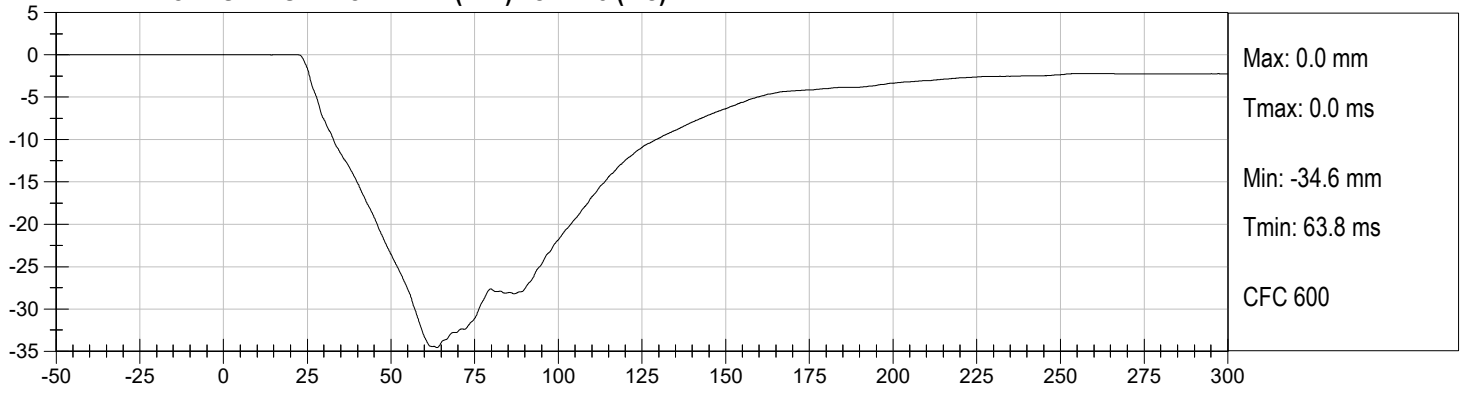
DRIVER HEAD Z (g) vs Time (ms)



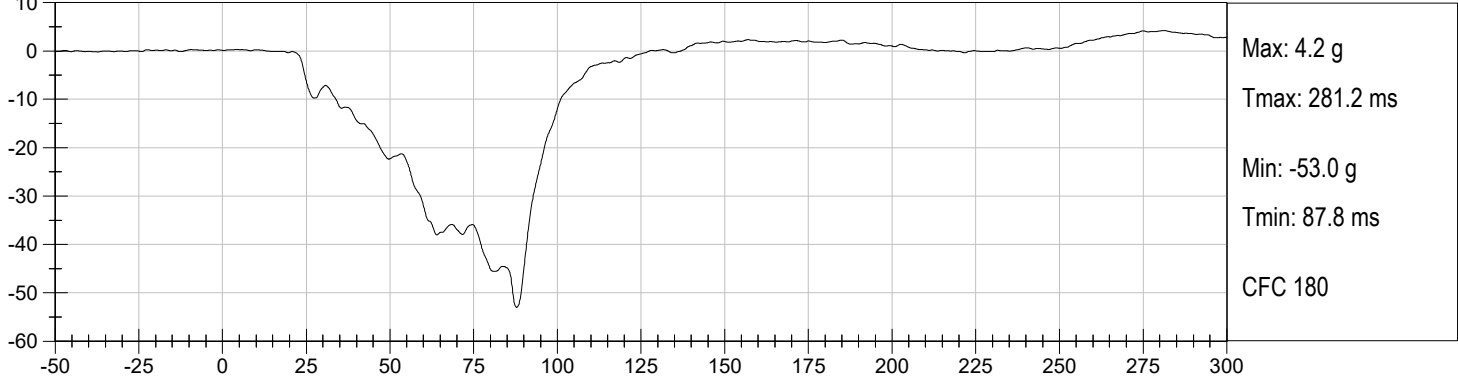
DRIVER HEAD Resultant (g) vs Time (ms)



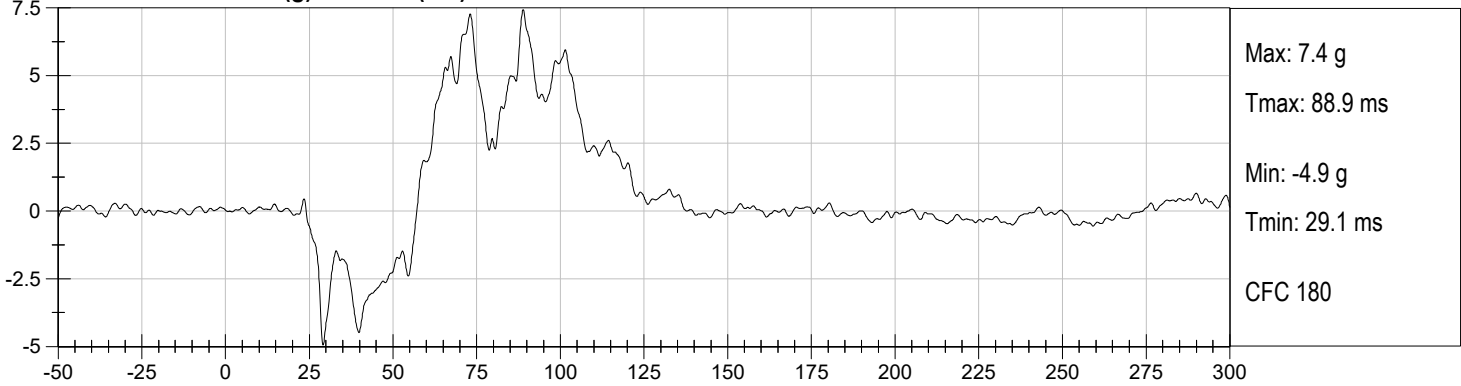
DRIVER CHEST DISPLACEMENT (mm) vs Time (ms)



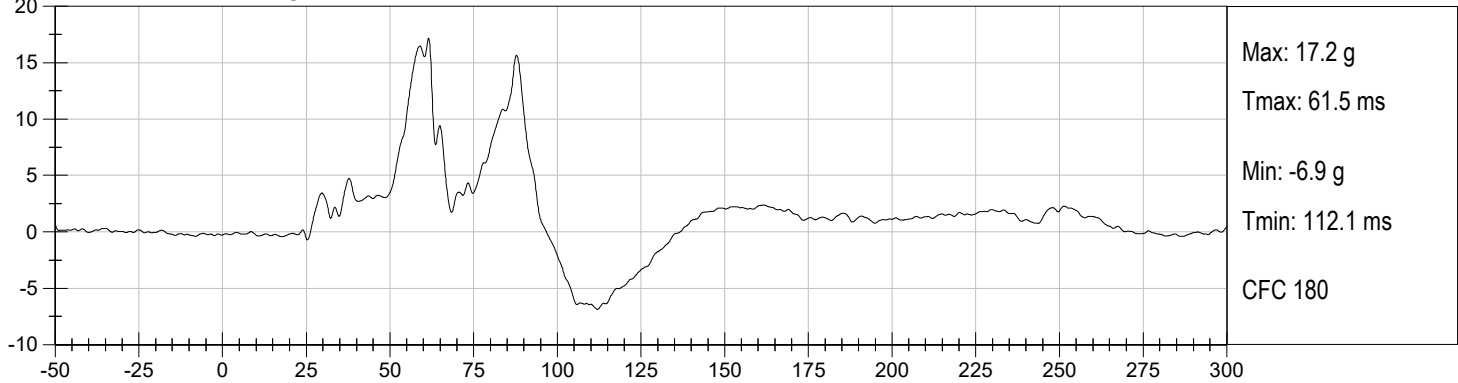
DRIVER CHEST X (g) vs Time (ms)



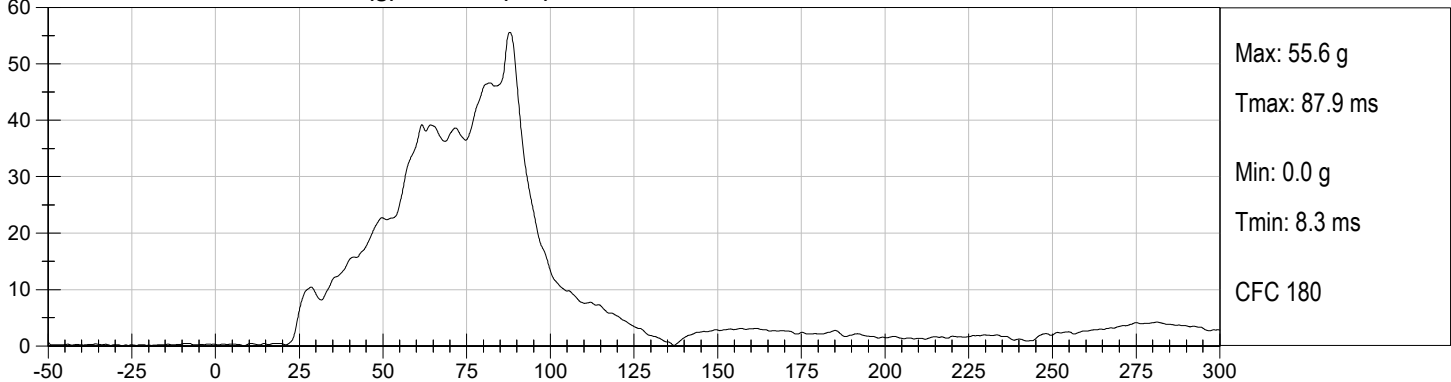
DRIVER CHEST Y (g) vs Time (ms)



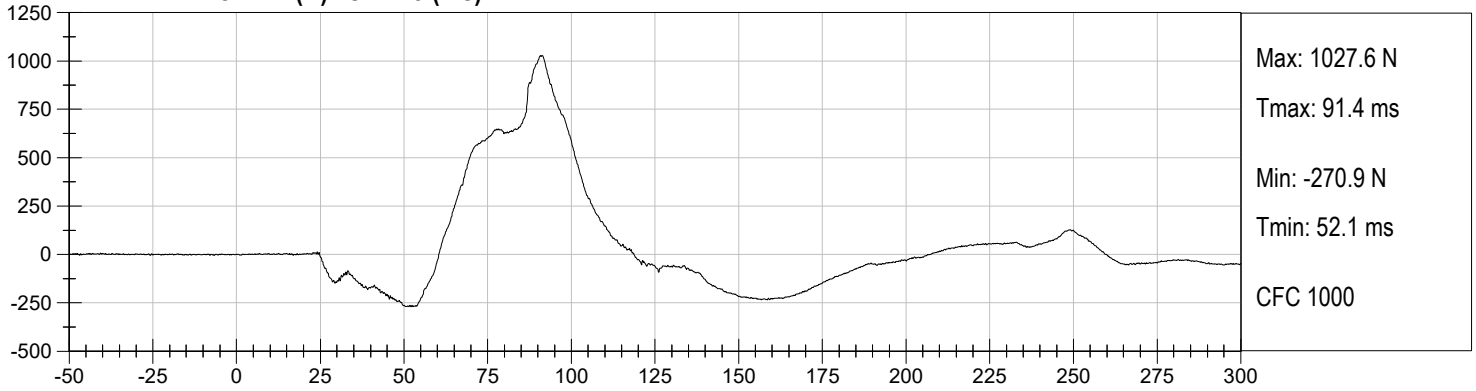
DRIVER CHEST Z (g) vs Time (ms)



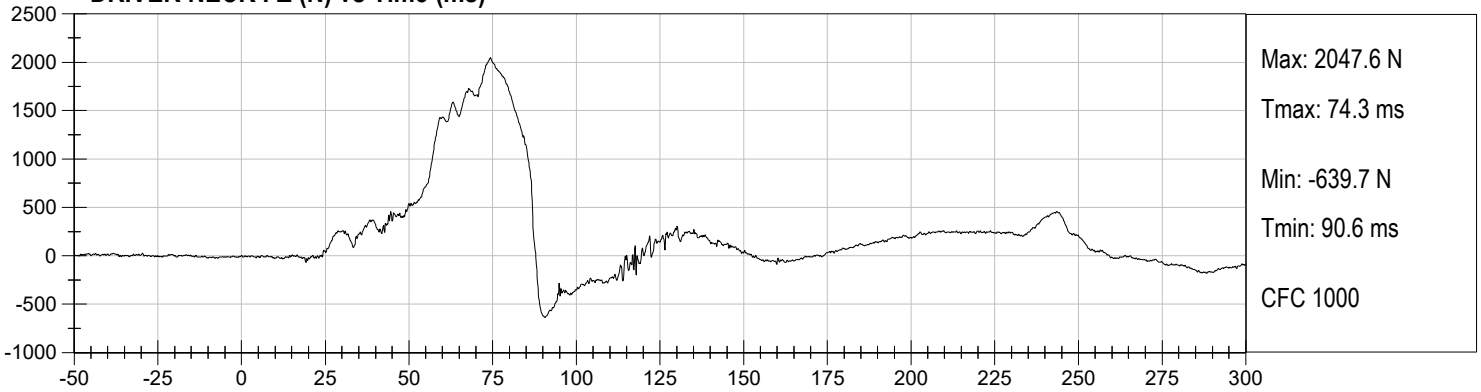
DRIVER CHEST Resultant (g) vs Time (ms)



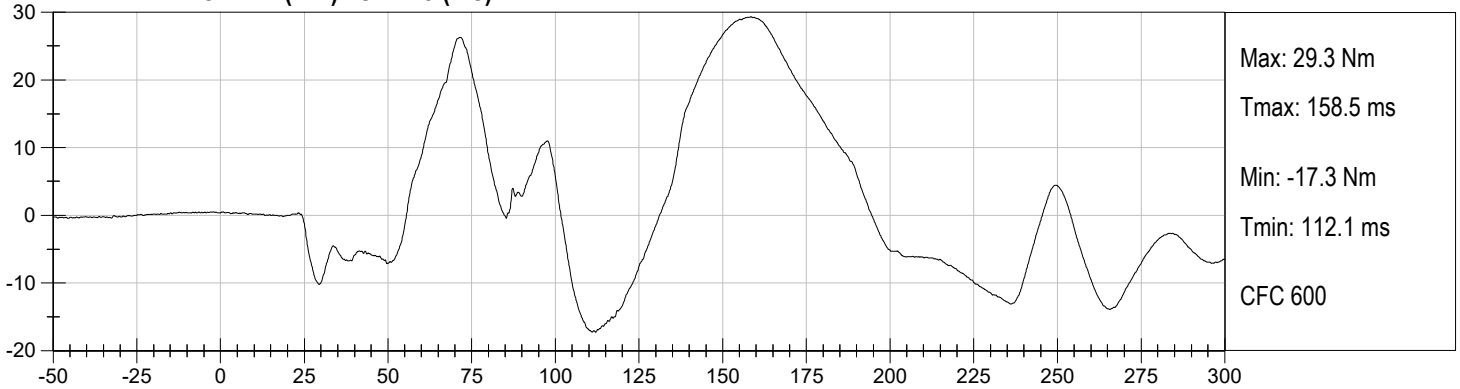
DRIVER NECK FX (N) vs Time (ms)

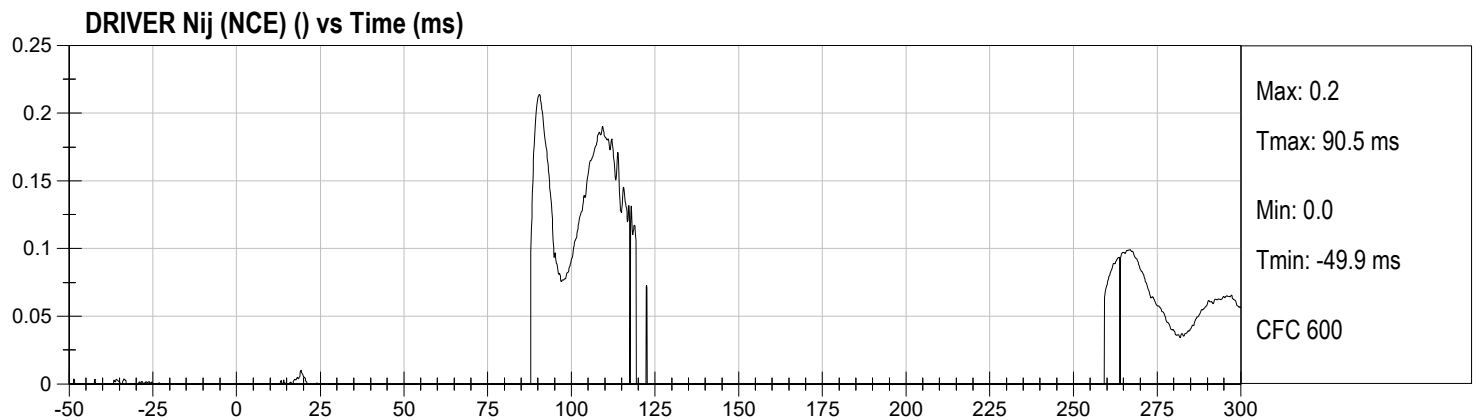
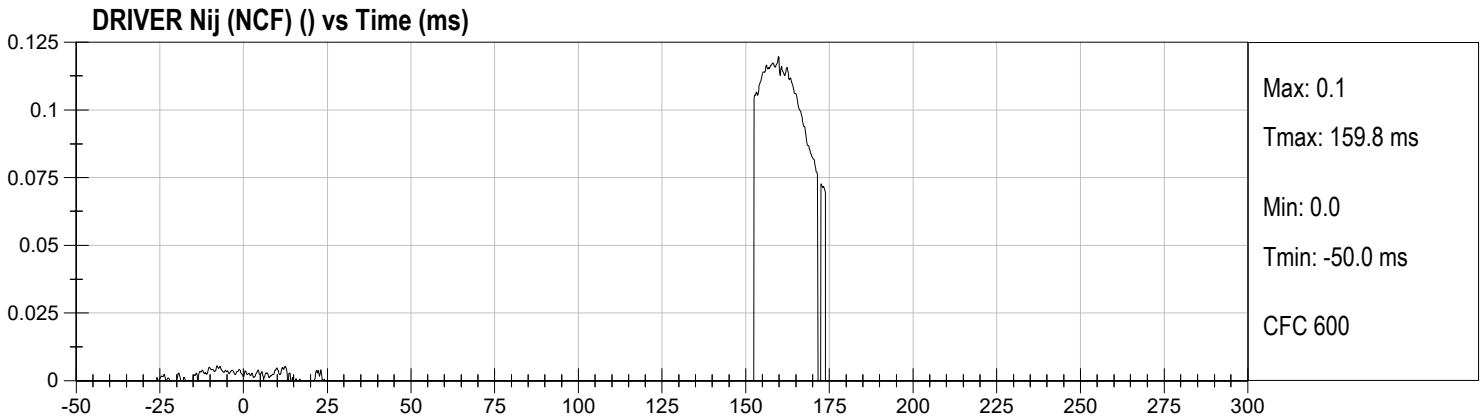
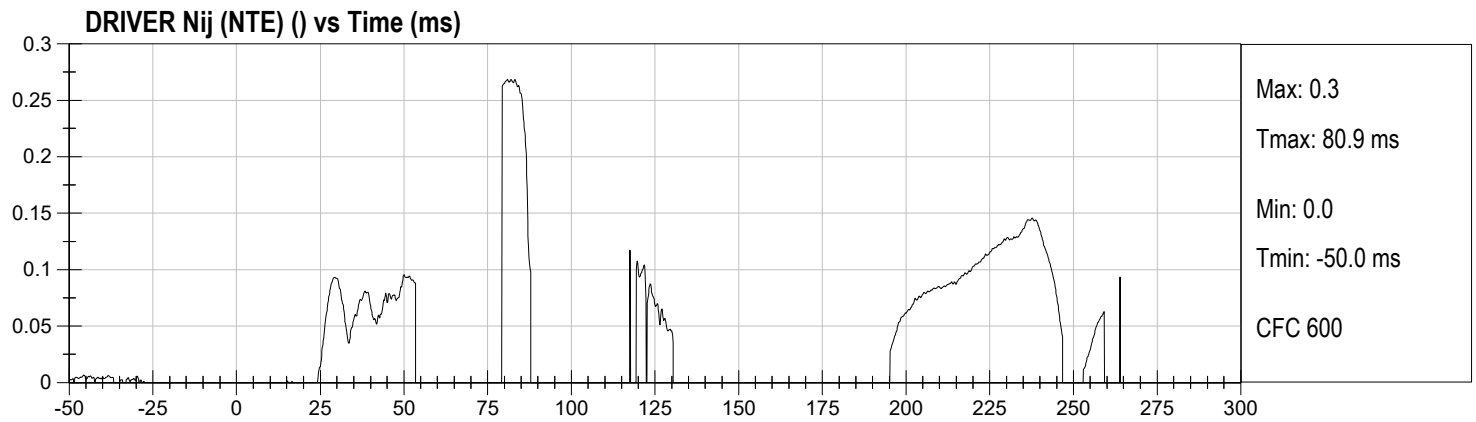
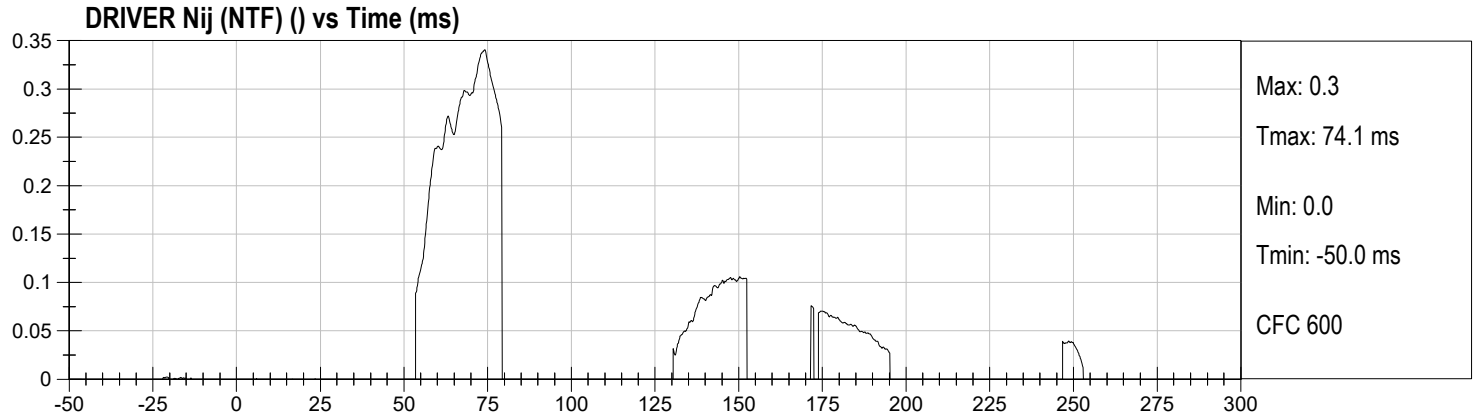


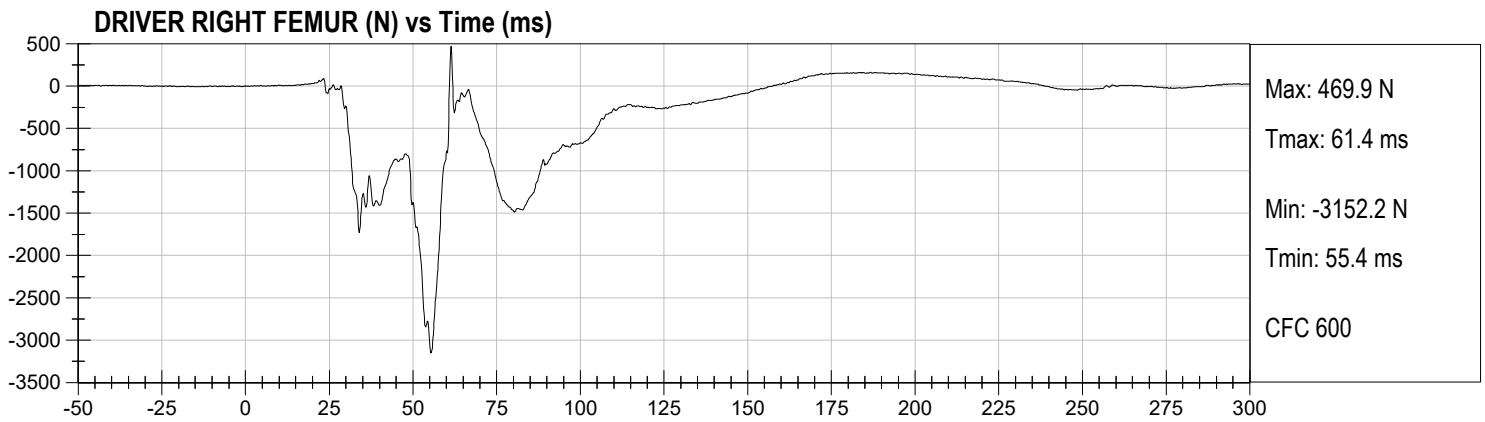
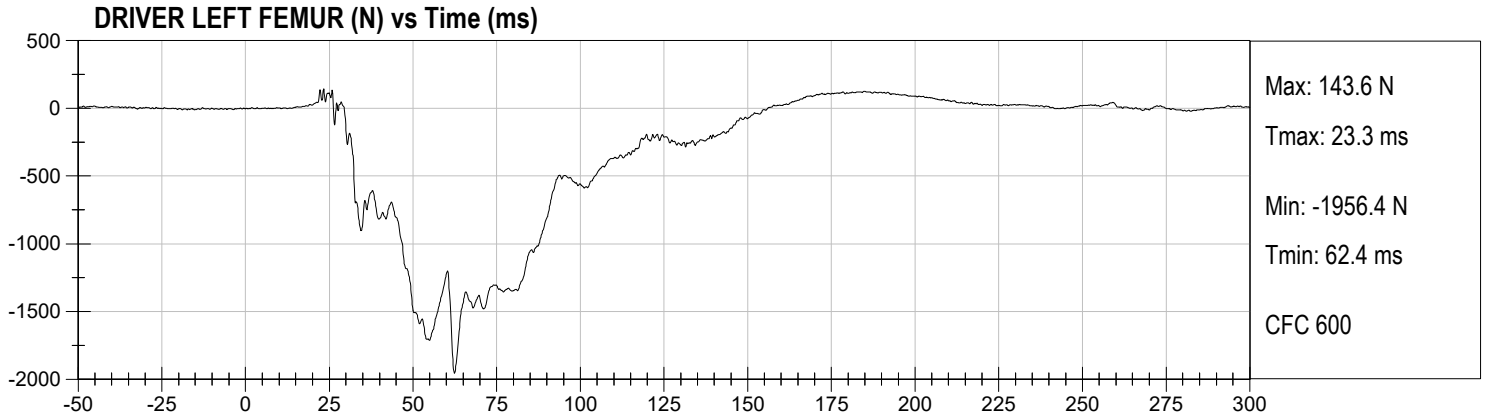
DRIVER NECK FZ (N) vs Time (ms)



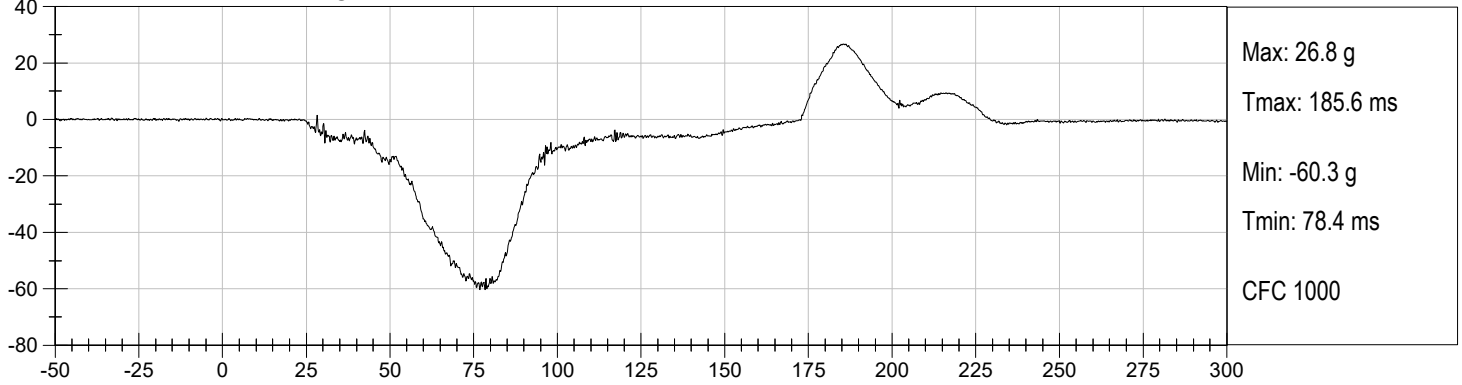
DRIVER NECK MY (Nm) vs Time (ms)



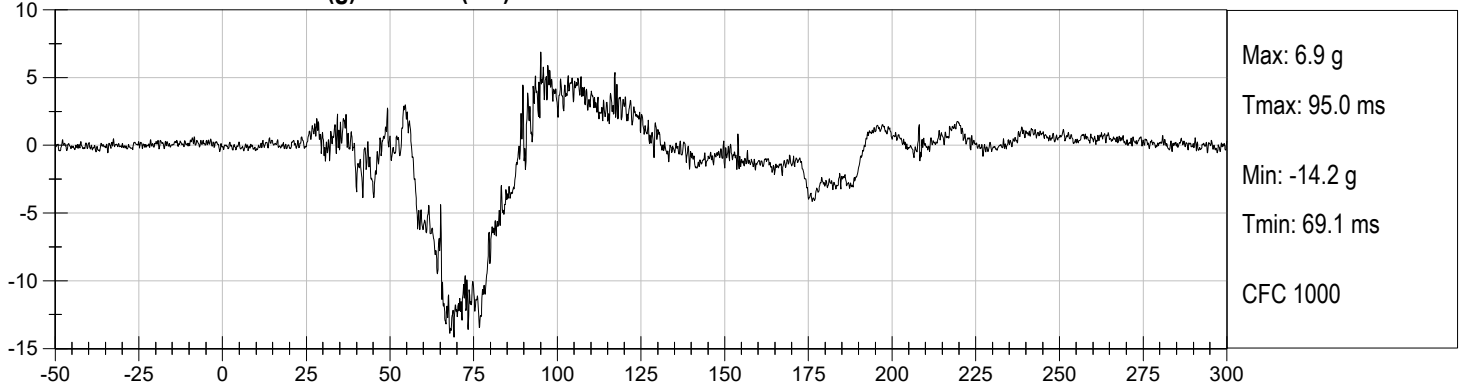




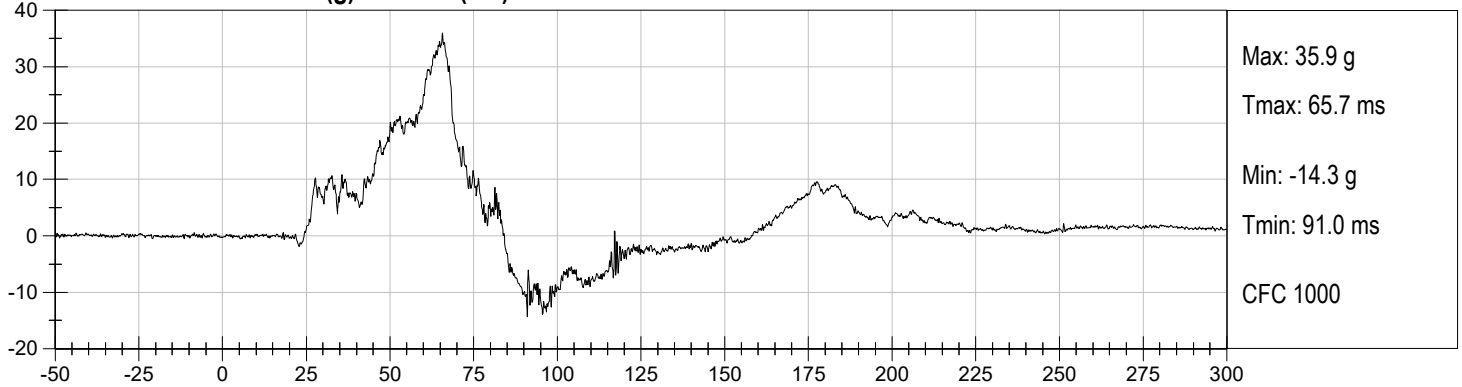
PASSENGER HEAD X (g) vs Time (ms)



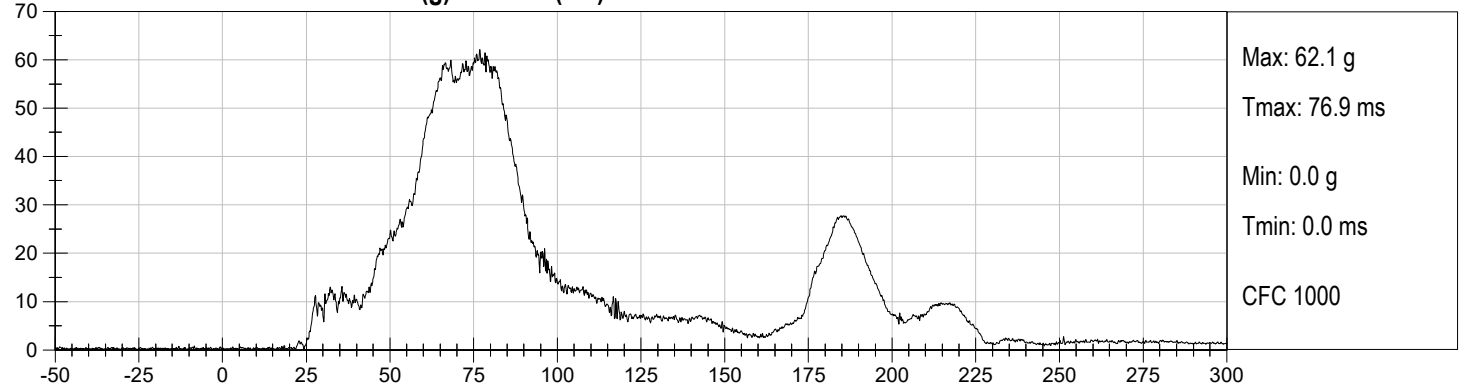
PASSENGER HEAD Y (g) vs Time (ms)



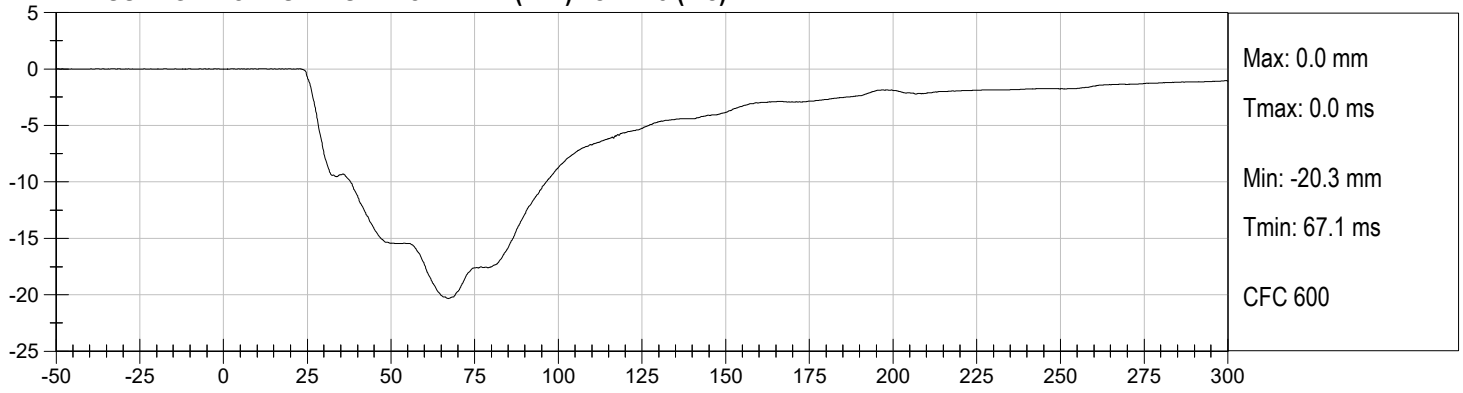
PASSENGER HEAD Z (g) vs Time (ms)



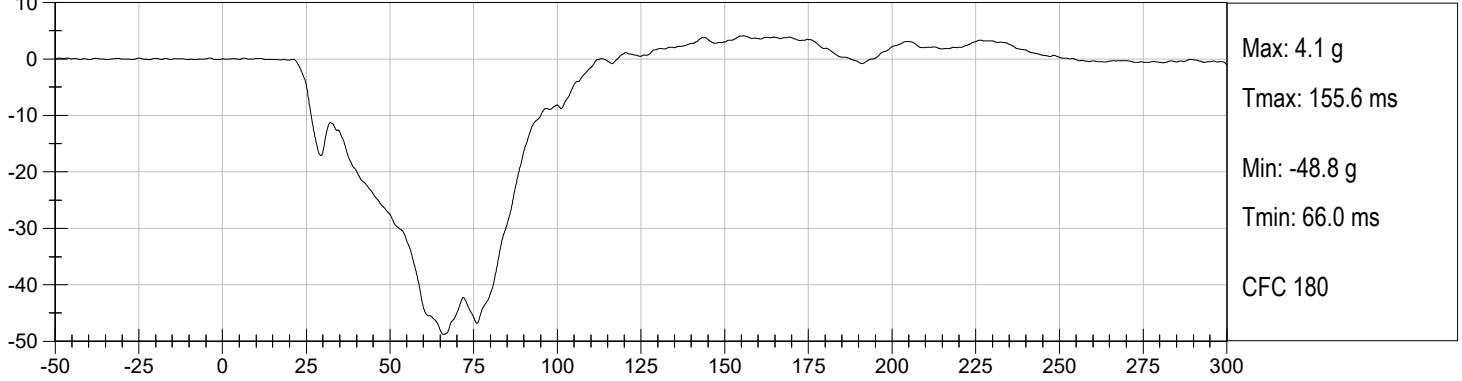
PASSENGER HEAD Resultant (g) vs Time (ms)



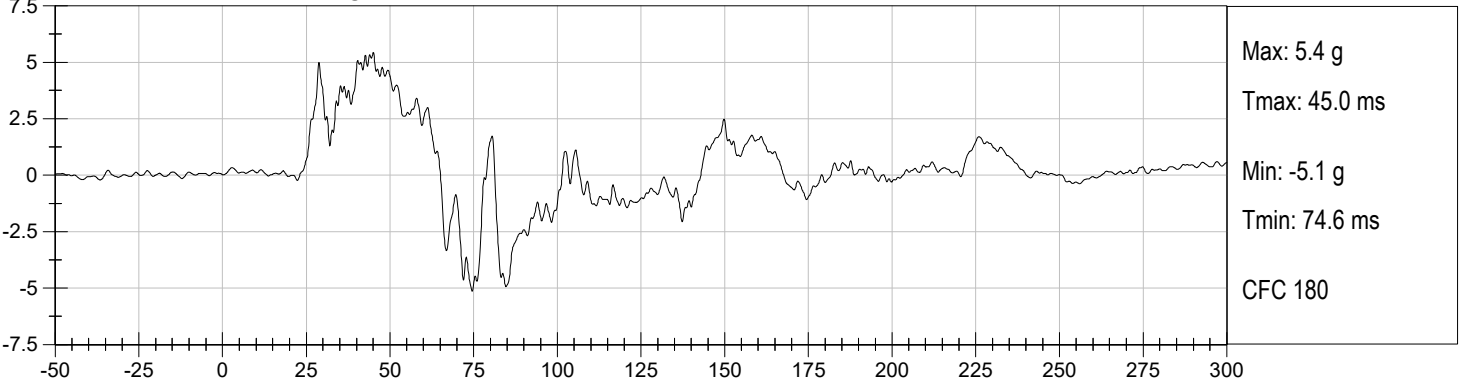
PASSENGER CHEST DISPLACEMENT (mm) vs Time (ms)



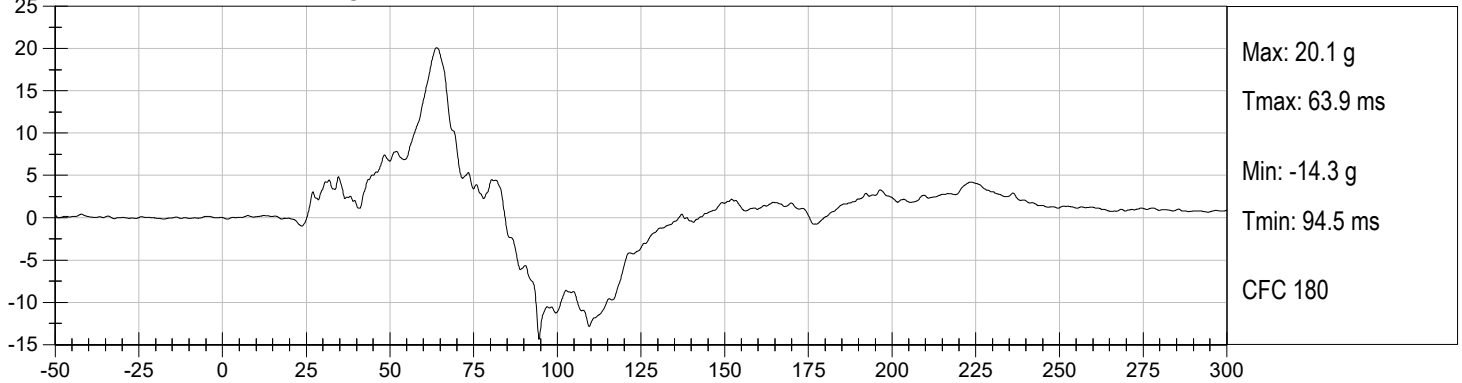
PASSENGER CHEST X (g) vs Time (ms)



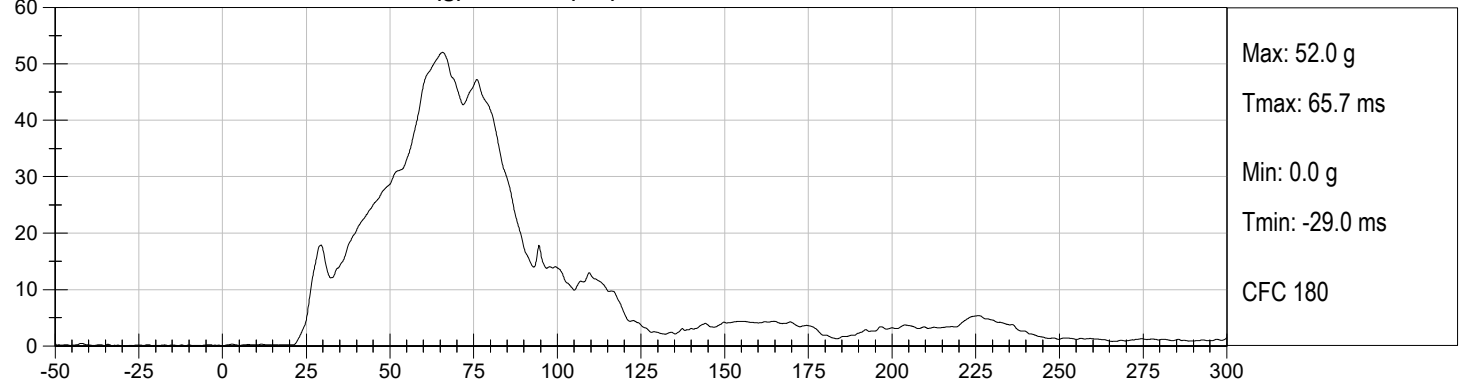
PASSENGER CHEST Y (g) vs Time (ms)

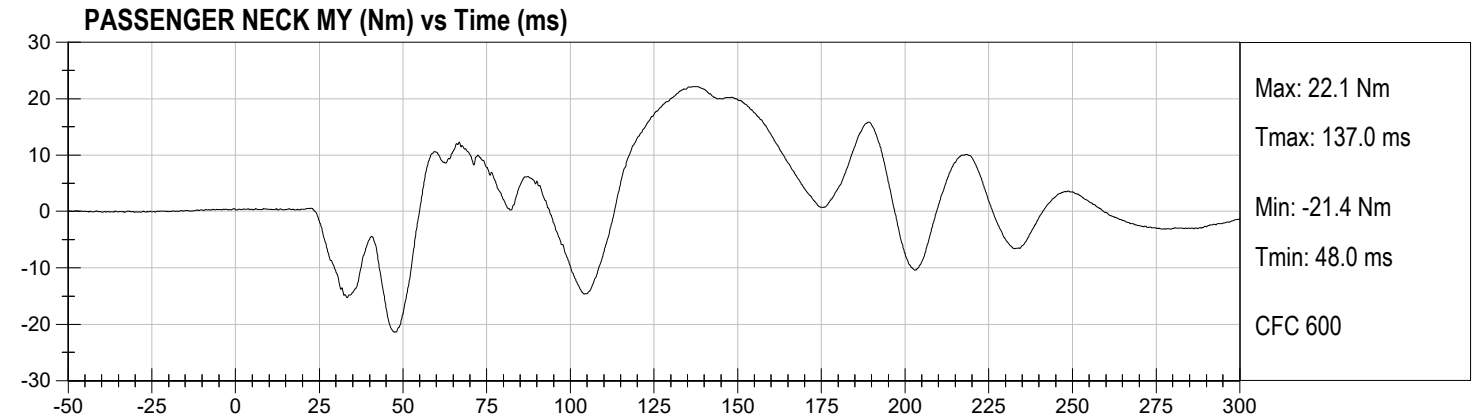
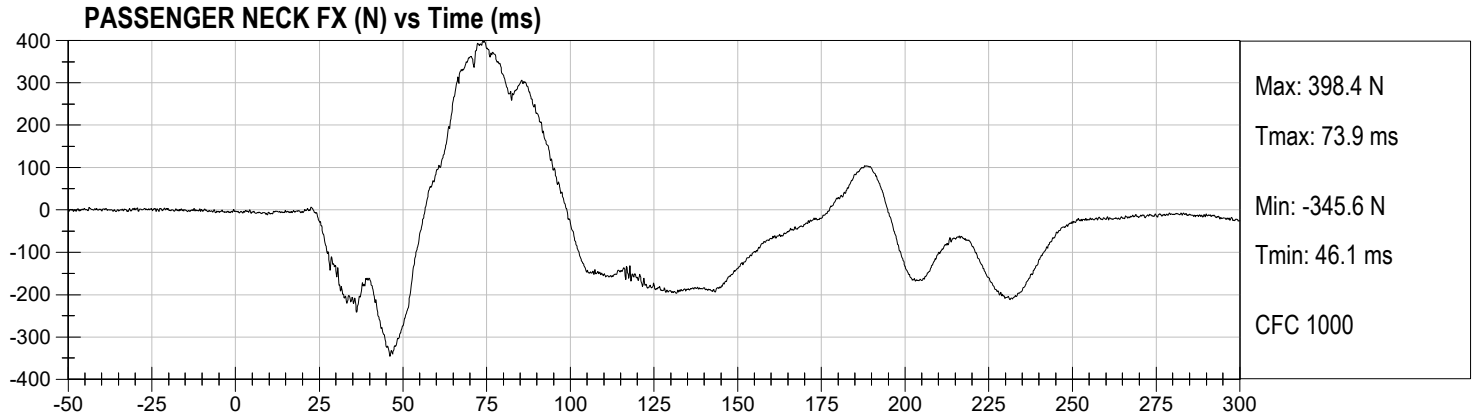


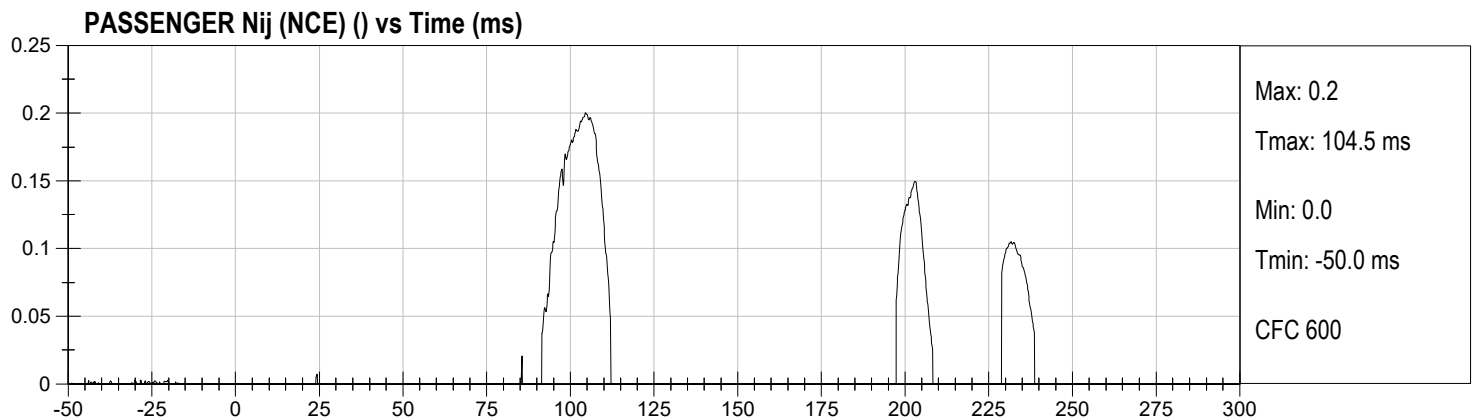
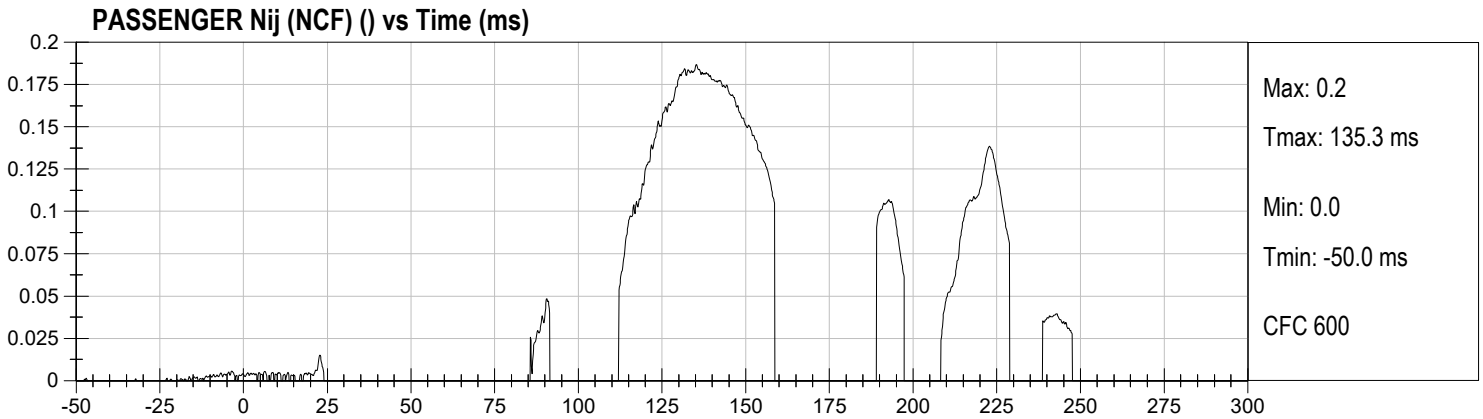
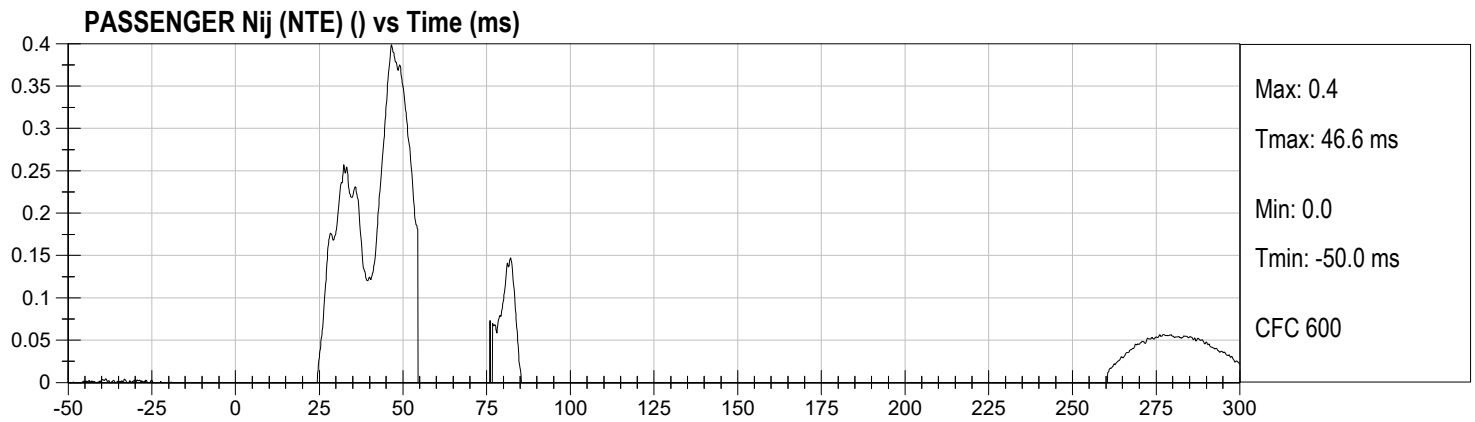
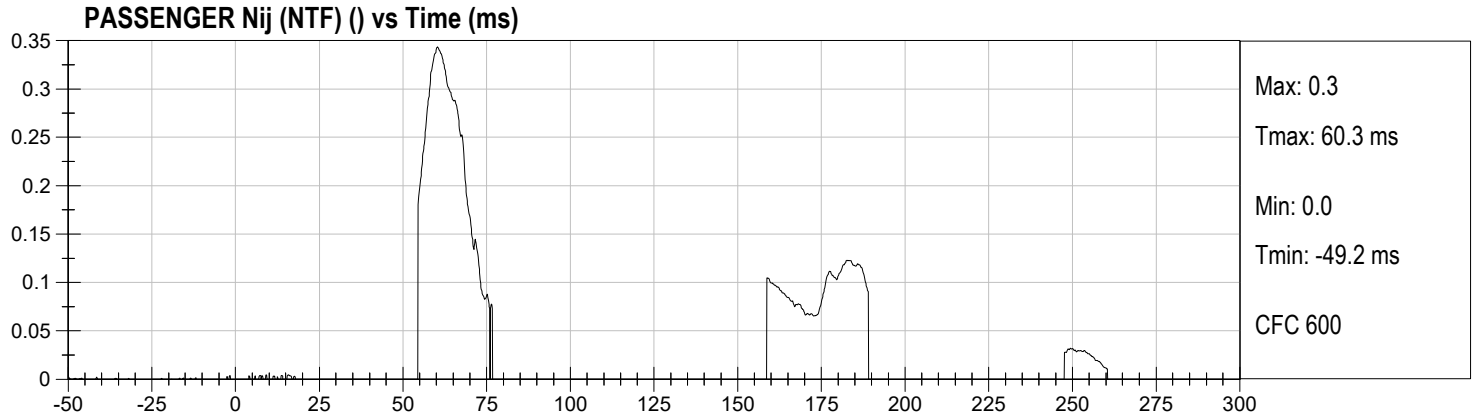
PASSENGER CHEST Z (g) vs Time (ms)



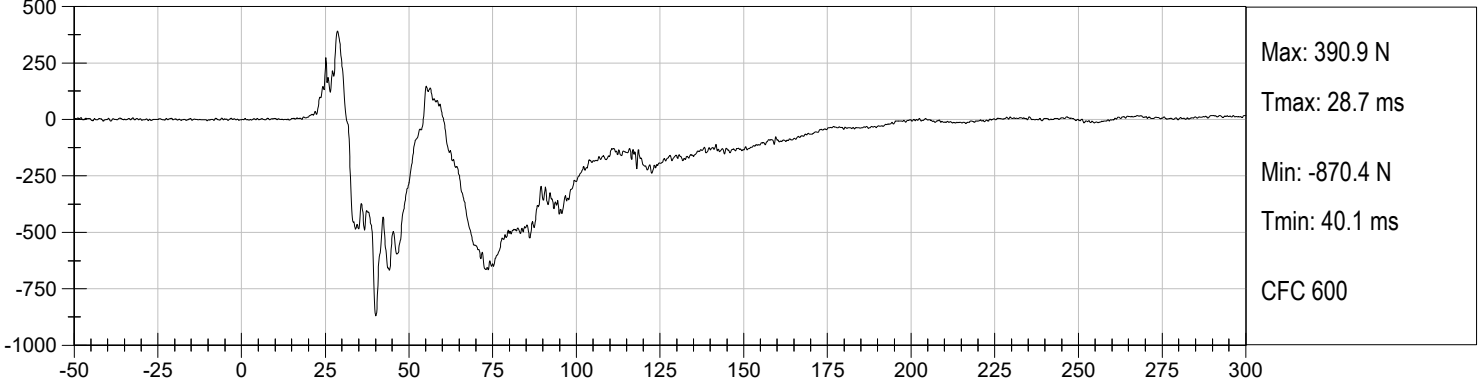
PASSENGER CHEST Resultant (g) vs Time (ms)



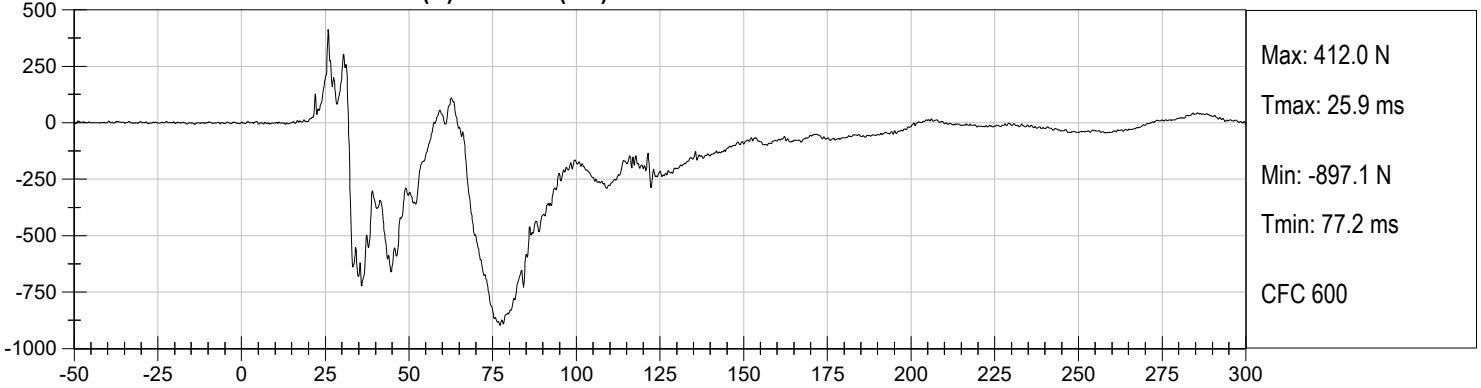




PASSENGER LEFT FEMUR (N) vs Time (ms)



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

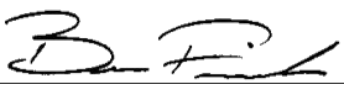
ATD Serial No: 064

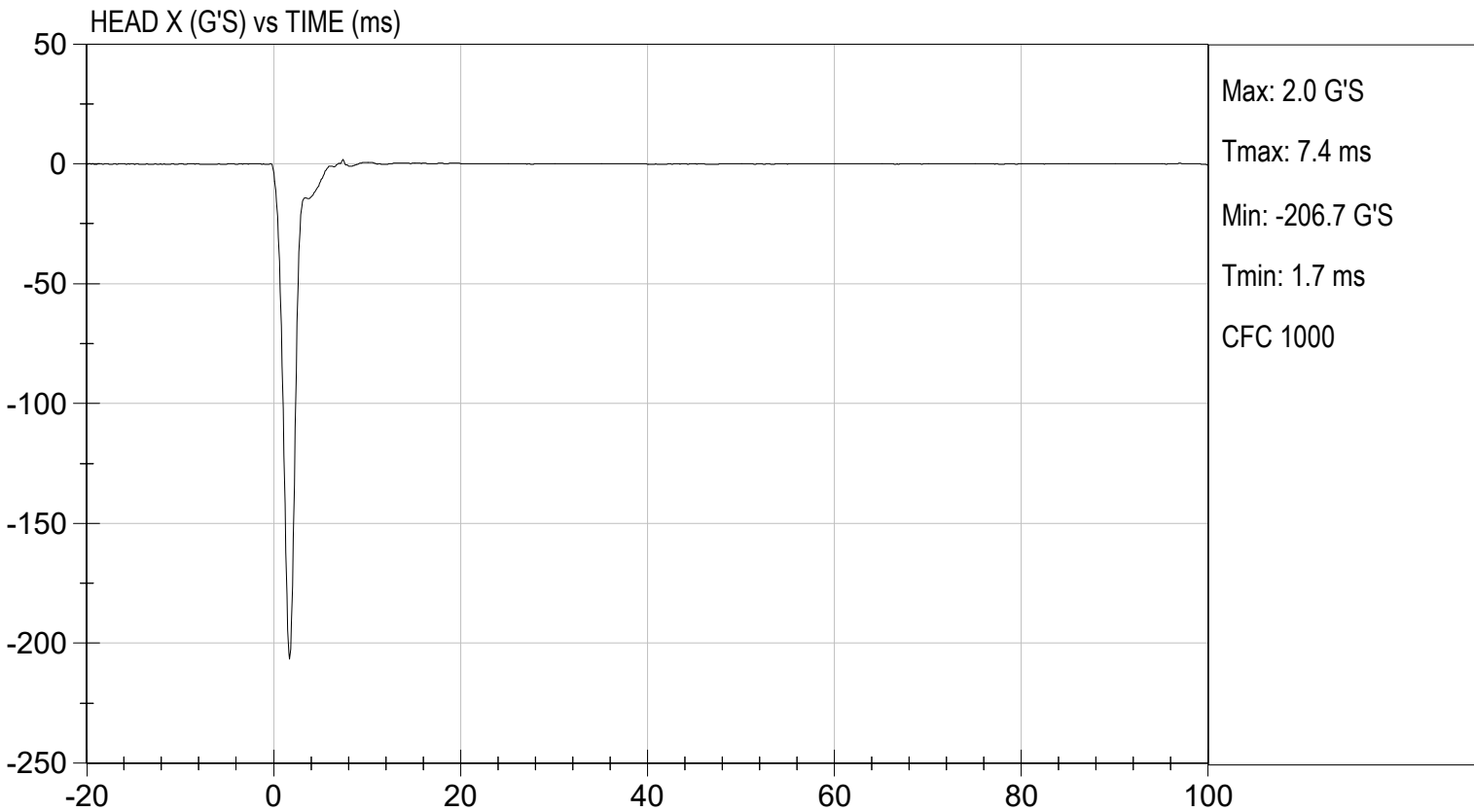
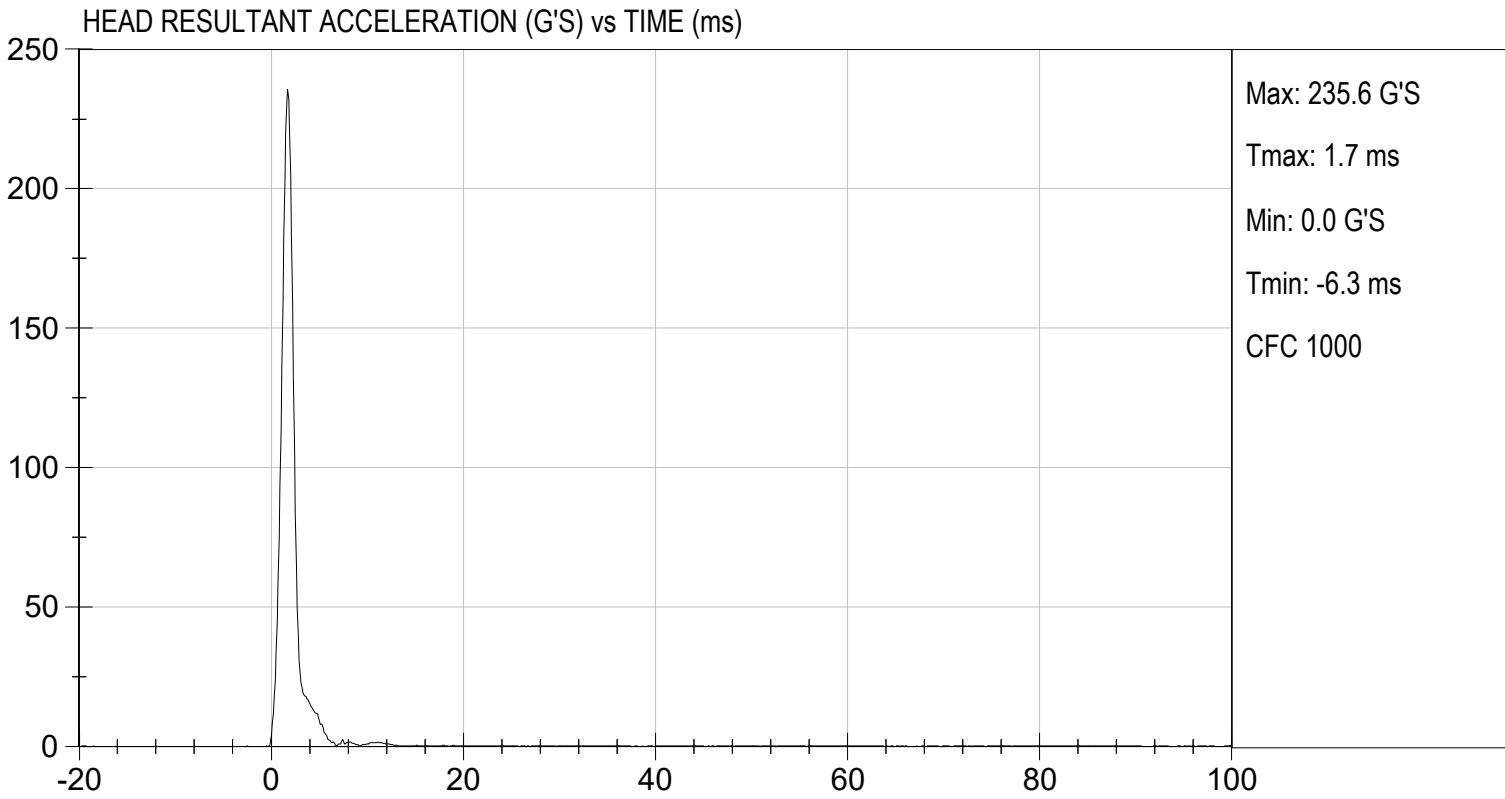
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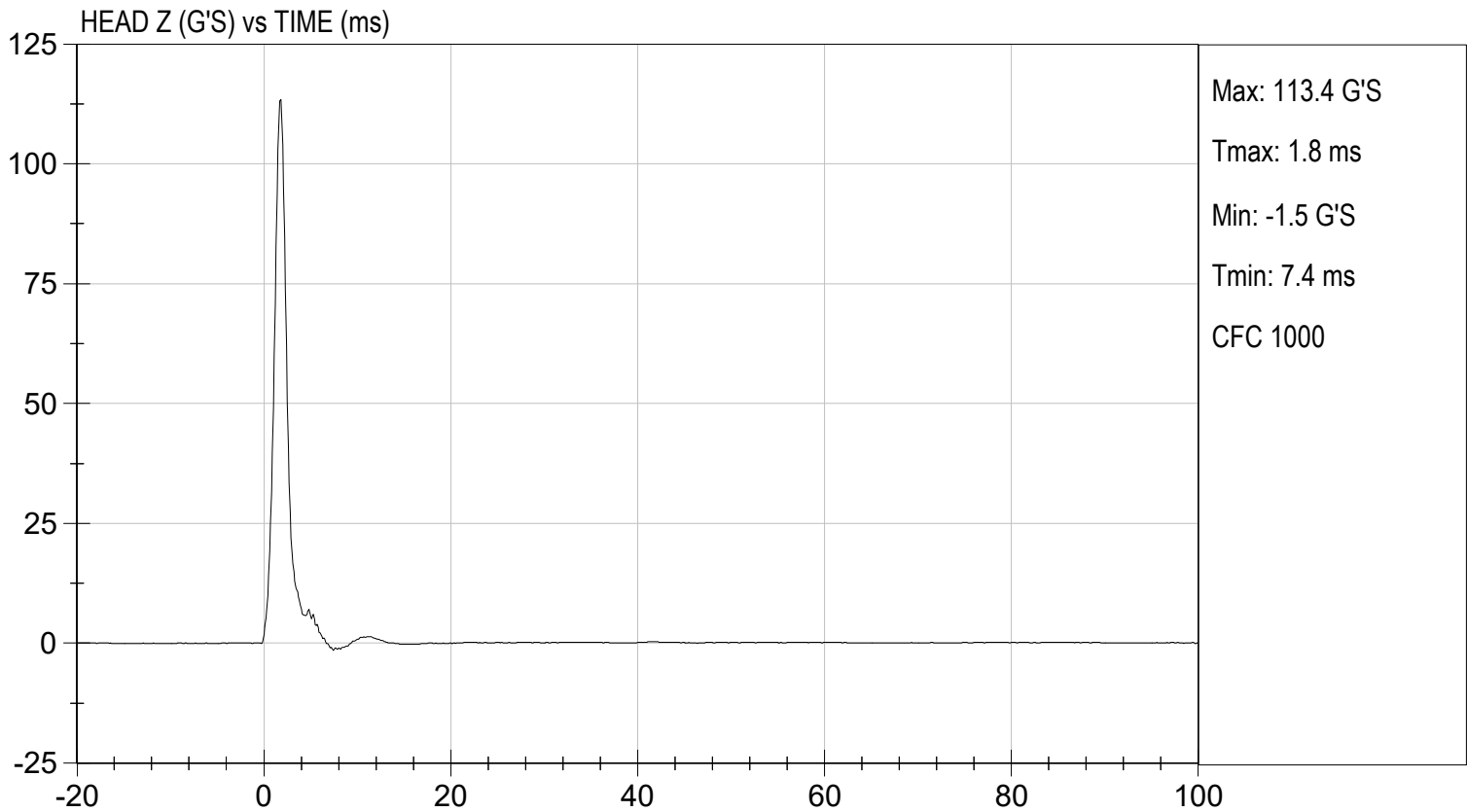
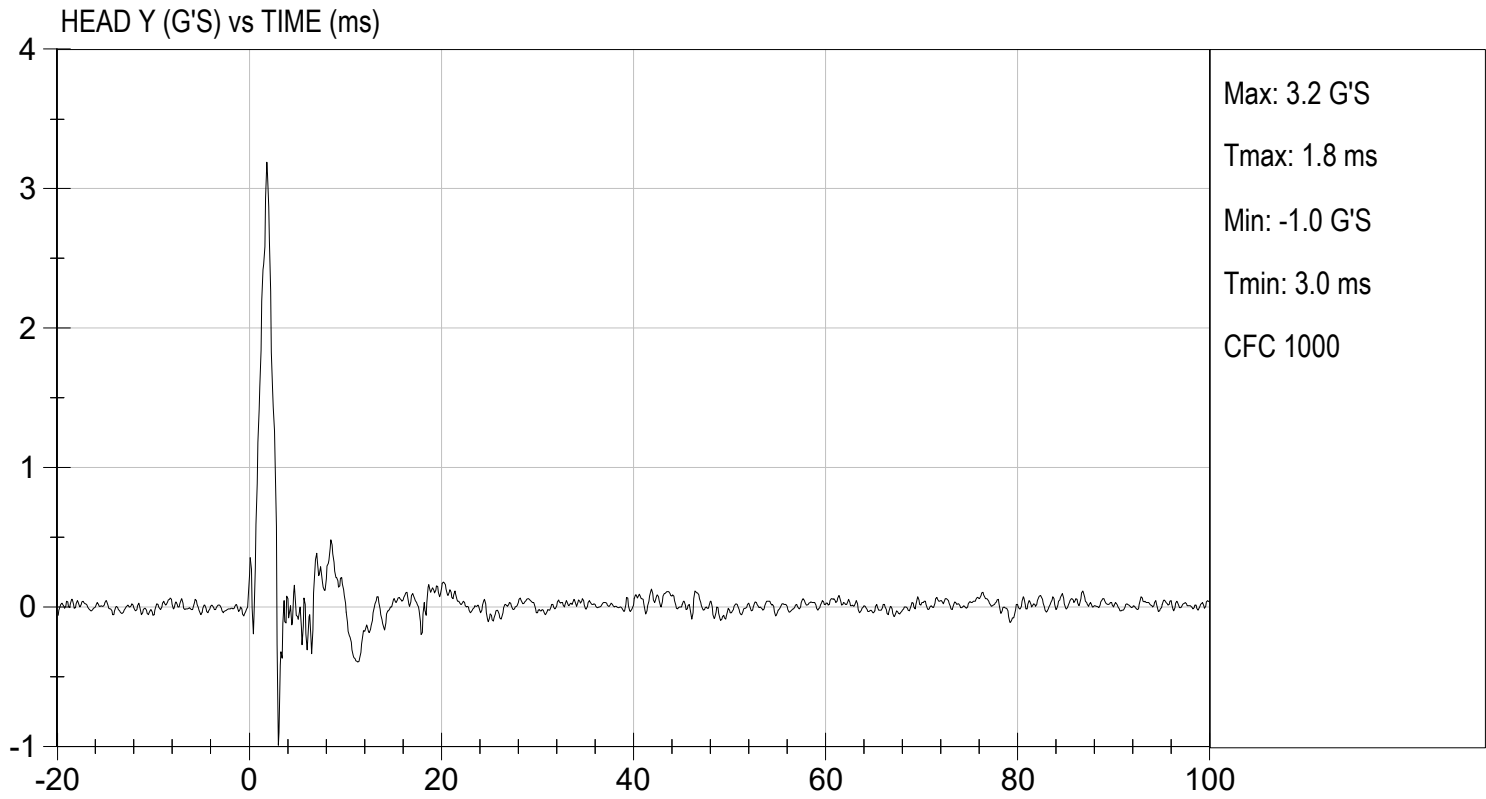
| Tested Parameter | Units | Specification | Result | Pass/Fail |
|------------------------------|-------|--------------------|--------|-----------|
| Laboratory Temperature | deg C | 18.9 to 25.6 | 21.8 | Pass |
| Laboratory Relative Humidity | % | 10 to 70 | 37 | Pass |
| Peak Resultant Acceleration | G's | 225 to 275 | 236 | Pass |
| Peak Lateral Acceleration | G's | <= +/- 15.0 | 3.2 | Pass |
| Unimodal | N/A | Yes | Yes | Pass |
| Oscillations | N/A | within 10% of peak | Yes | Pass |
| Overall Test Results | | | | Pass |


 Laboratory Technician

12/16/2024
 Test Date


 Approved By






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

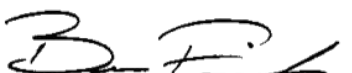
ATD Serial No: 064

Test I.D.: D243202

| 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 | 33 | Pass |
| Pendulum Velocity | | m/s | 6.89 to 7.13 | 6.96 | Pass |
| Pendulum Deceleration | 10 ms | G's | 22.50 to 27.50 | 23.35 | Pass |
| | 20 ms | G's | 17.60 to 22.60 | 20.51 | Pass |
| | 30 ms | G's | 12.50 to 18.50 | 14.90 | Pass |
| Peak Pendulum Deceleration After 30 ms | | G's | <= 29.0 | 14.8 | Pass |
| Deceleration Decay Time to Cross 5 G's | | ms | 34.0 to 42.0 | 39.5 | Pass |
| Maximum "D" Plane Rotation | Maximum | Deg | 64.0 to 78.0 | 71.6 | Pass |
| | Time | ms | 57.0 to 64.0 | 59.3 | Pass |
| "D" Plane Rotation Decay Time To Zero Crossing | | ms | 113.0 to 128.0 | 113.9 | Pass |
| Moment About Occipital Condyle | Maximum | Nm | 88.1 to 108.5 | 101.5 | Pass |
| | Time | ms | 47.0 to 58.0 | 51.1 | Pass |
| Positive Moment Decay Time To Zero Crossing | | ms | 97.0 to 107.0 | 97.5 | Pass |
| Overall Test Results | | | | | Pass |

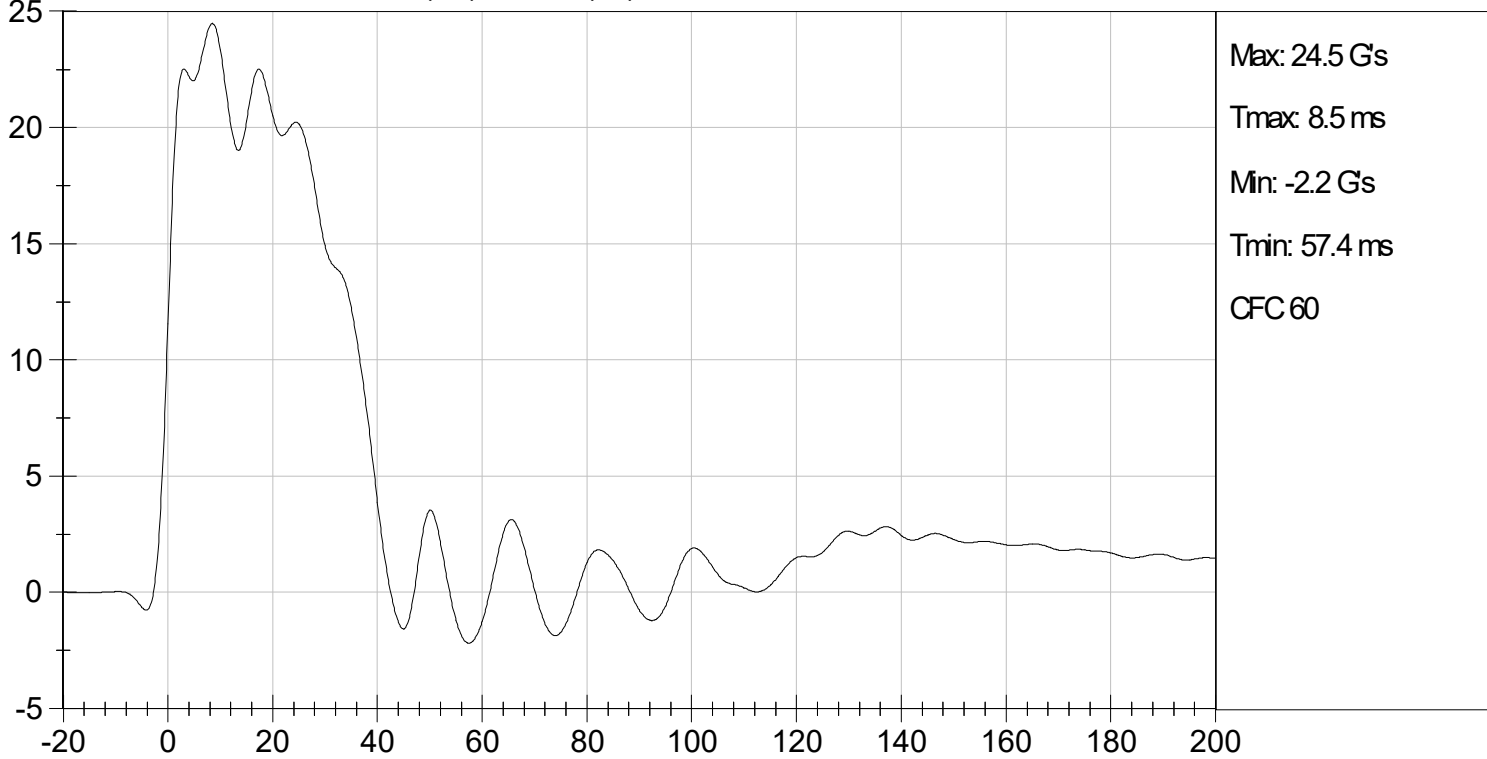

Laboratory Technician

12/17/2024
Test Date

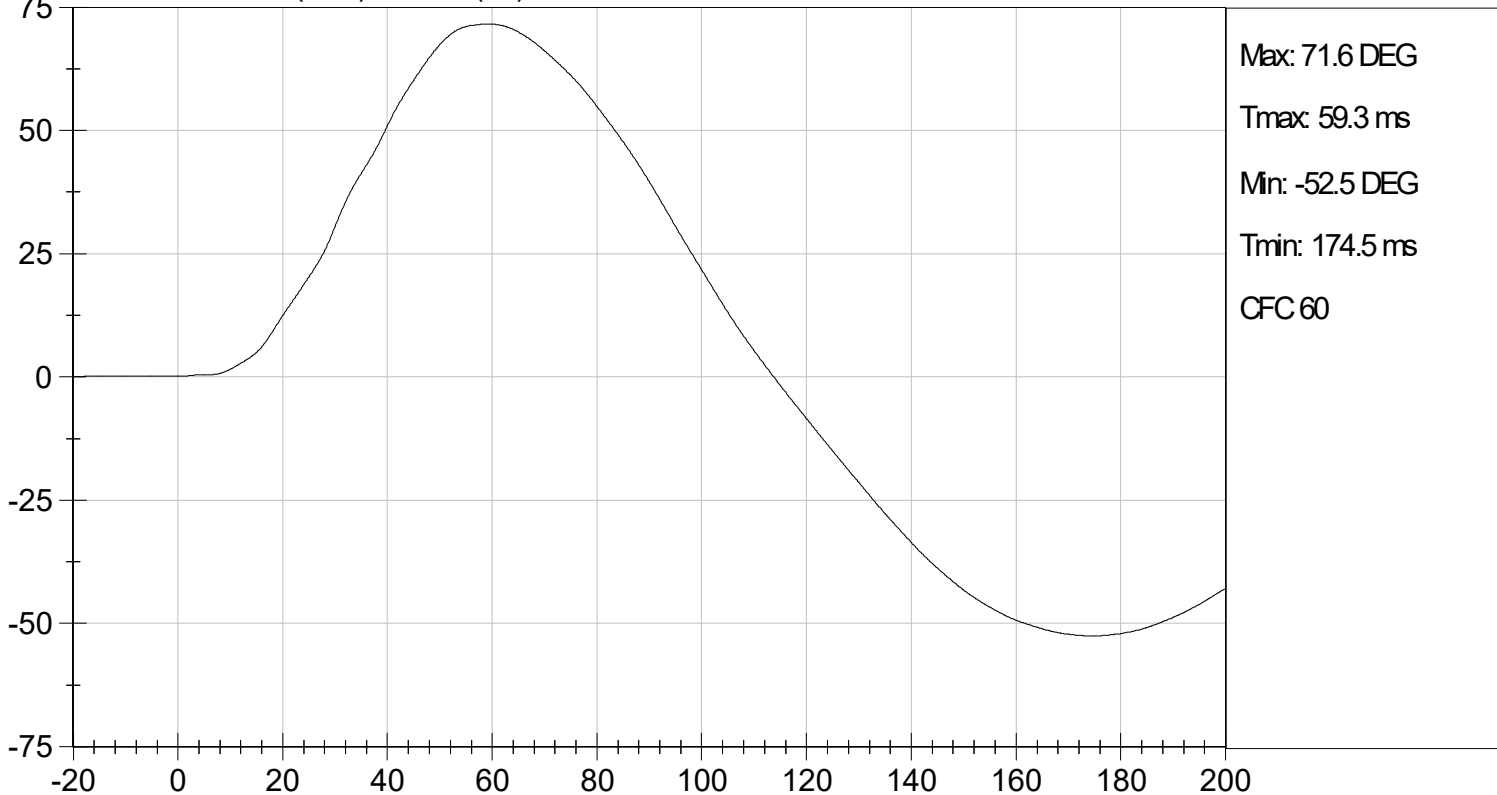

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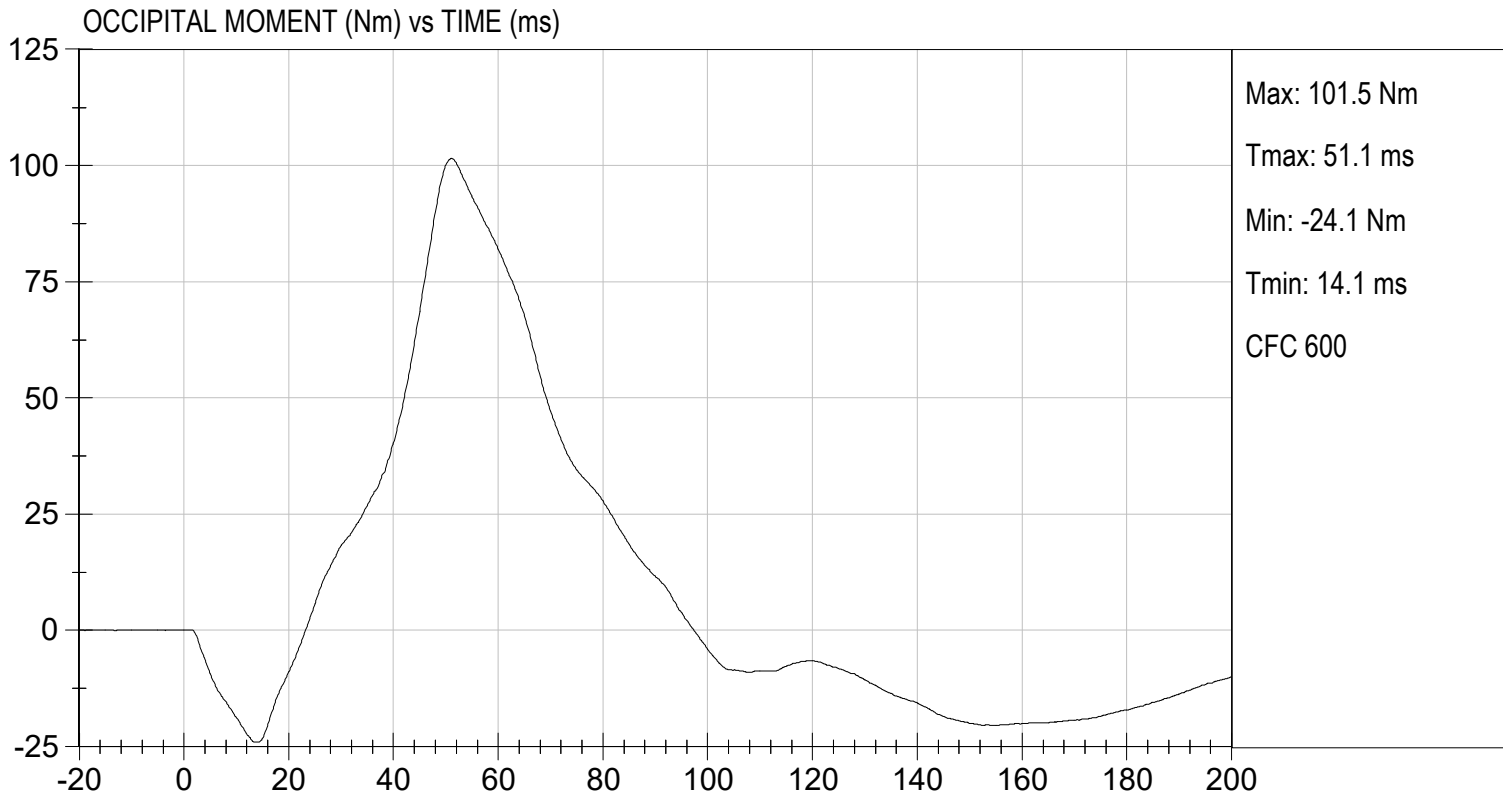


PENDULUM DECELERATION (Gs) vs TIME (ms)



NECK ROTATION (DEG) vs TIME (ms)






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

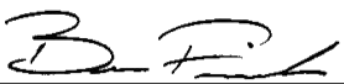
ATD Serial No: 064

Test I.D.: D243203

| 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 | 32 | Pass |
| Pendulum Velocity | | m/s | 5.95 to 6.19 | 5.98 | Pass |
| Pendulum Deceleration | 10 ms | G's | 17.20 to 21.20 | 18.63 | Pass |
| | 20 ms | G's | 14.00 to 19.00 | 15.39 | Pass |
| | 30 ms | G's | 11.00 to 16.00 | 12.91 | 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 | 42.7 | Pass |
| Maximum "D" Plane Rotation | Maximum | Degrees | 81.0 to 106.0 | 97.0 | Pass |
| | Time | ms | 72.0 to 82.0 | 79.8 | Pass |
| "D" Plane Rotation Decay Time To Zero Crossing | | ms | 147.0 to 174.0 | 158.9 | Pass |
| Moment About Occipital Condyle | Maximum | Nm | -52.9 to -79.9 | -56.7 | Pass |
| | Time | ms | 65.0 to 79.0 | 76.7 | Pass |
| Negative Moment Decay Time To Zero Crossing | | ms | 120.0 to 148.0 | 143.4 | Pass |
| Overall Test Results | | | | | Pass |

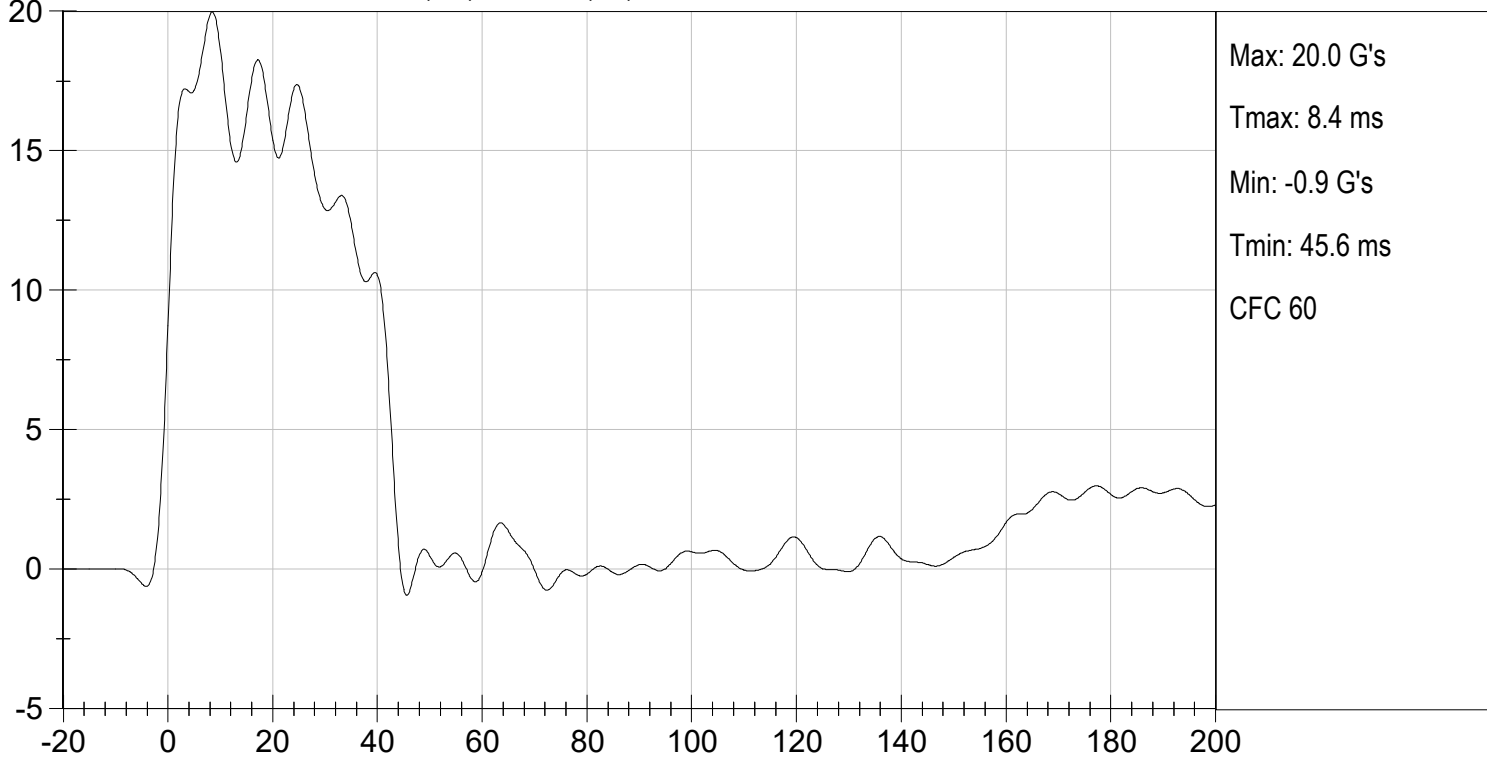

Laboratory Technician

12/17/2024
Test Date

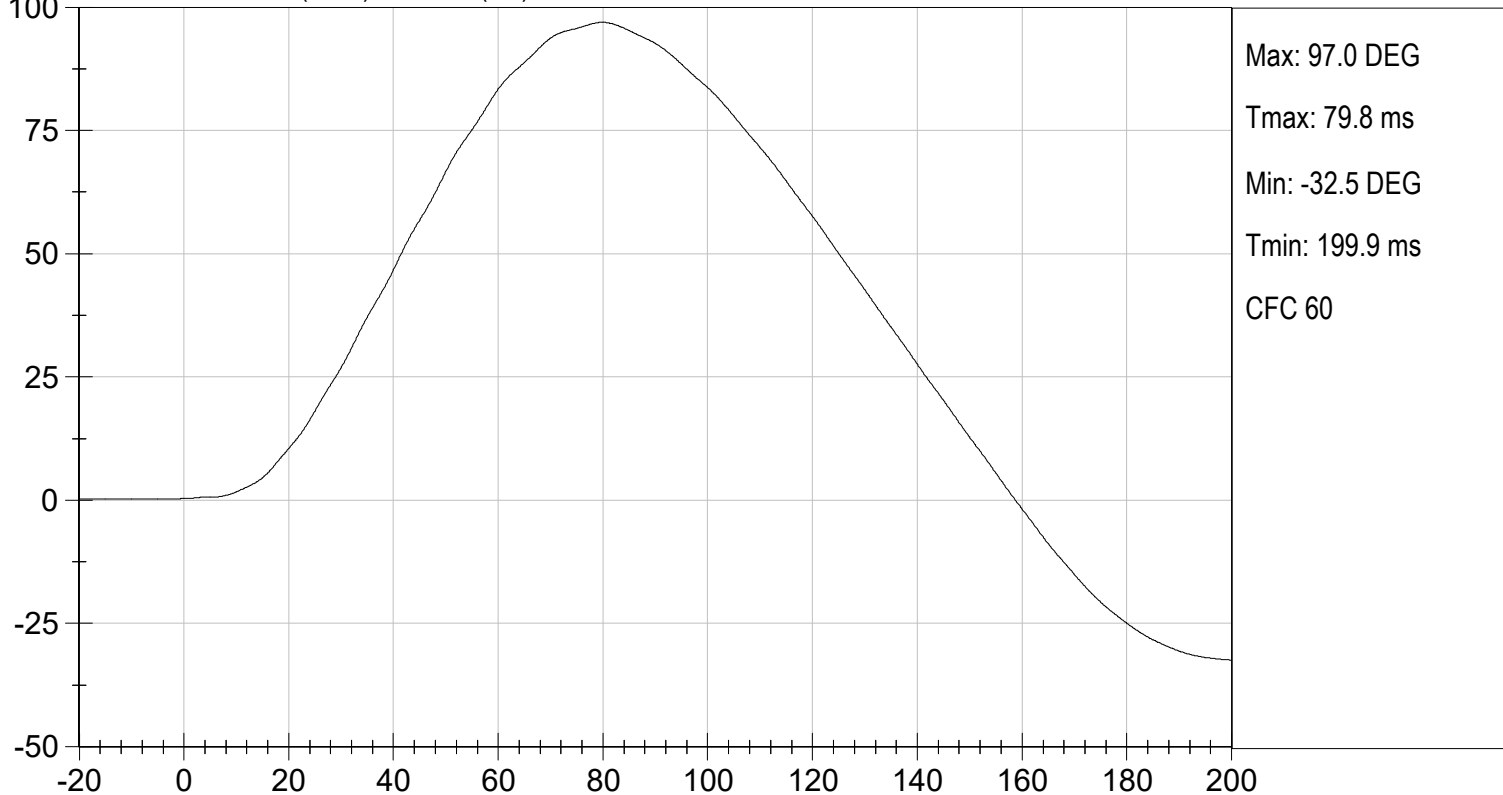

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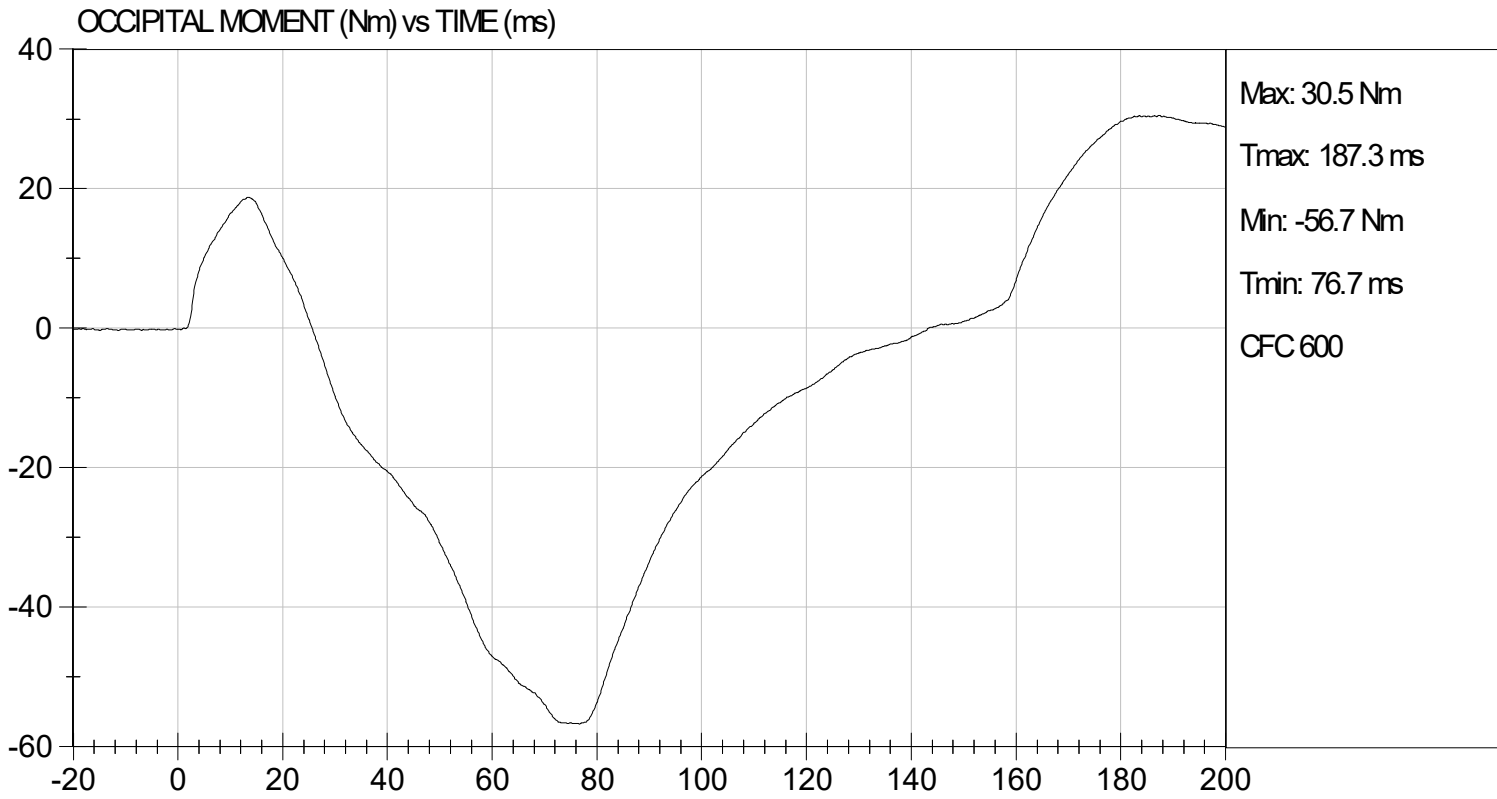


PENDULUM DECELERATION (G's) vs TIME (ms)



NECK ROTATION (DEG) vs TIME (ms)






MGA RESEARCH CORPORATION
THORAX IMPACT
HYBRID III 50TH PERCENTILE MALE


ATD Serial No: 064

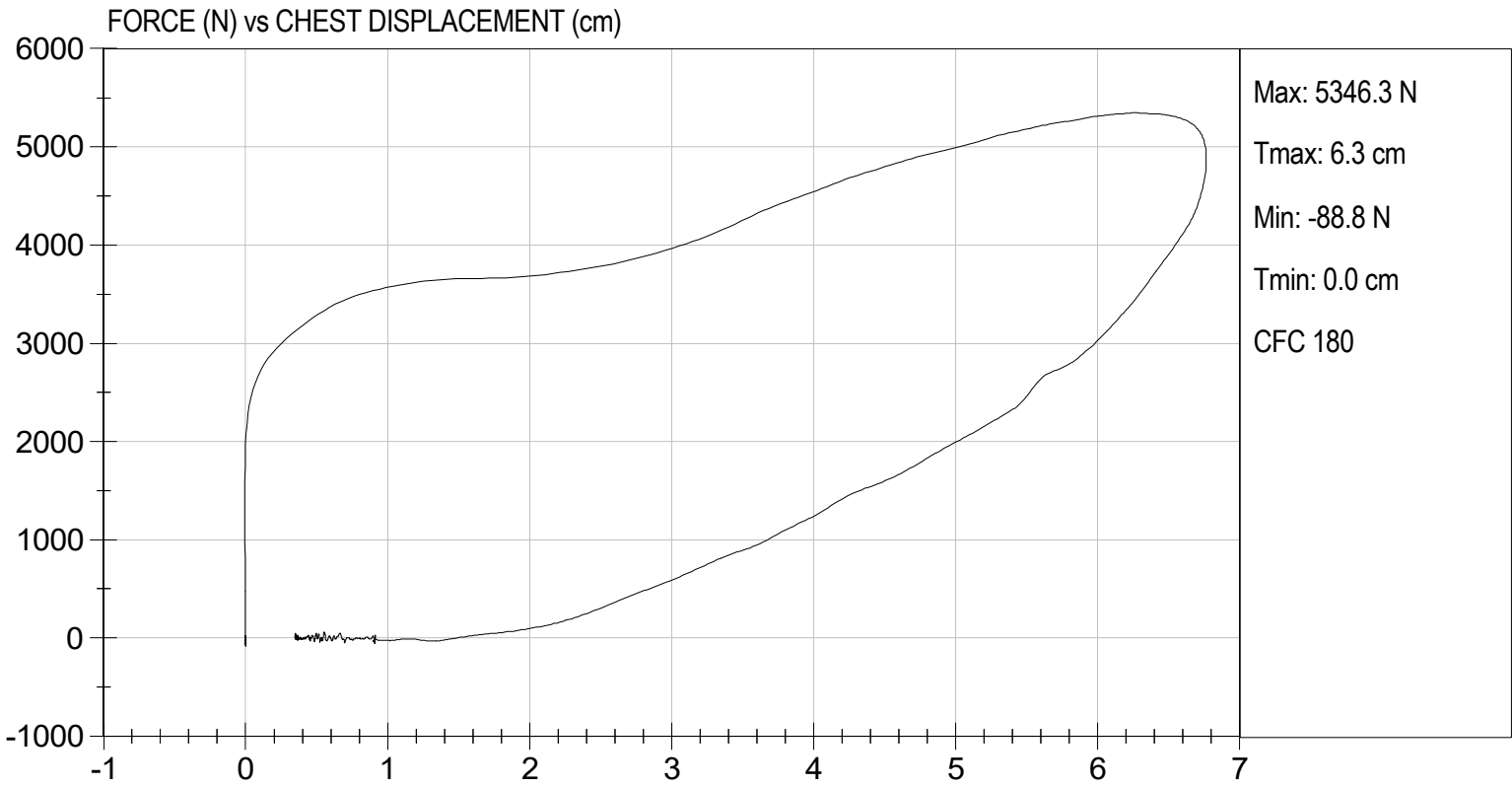
Test I.D: D243204

| Tested Parameter | Units | Specification | Result | Pass/Fail |
|------------------------------|-------|---------------|--------|-------------|
| Laboratory Temperature | deg C | 20.6 to 22.2 | 21.6 | Pass |
| Laboratory Relative Humidity | % | 10 to 70 | 36 | Pass |
| Probe Velocity | m/s | 6.58 to 6.82 | 6.68 | Pass |
| Peak Probe Force | N | 5159 to 5893 | 5,346 | Pass |
| Peak Sternum Displacement | cm | 6.35 to 7.26 | 6.77 | Pass |
| Internal Hysteresis | % | 69 to 85 | 72 | Pass |
| Overall Test Results | | | | Pass |


 Laboratory Technician

12/16/2024
 Test Date


 Approved By



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

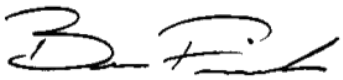
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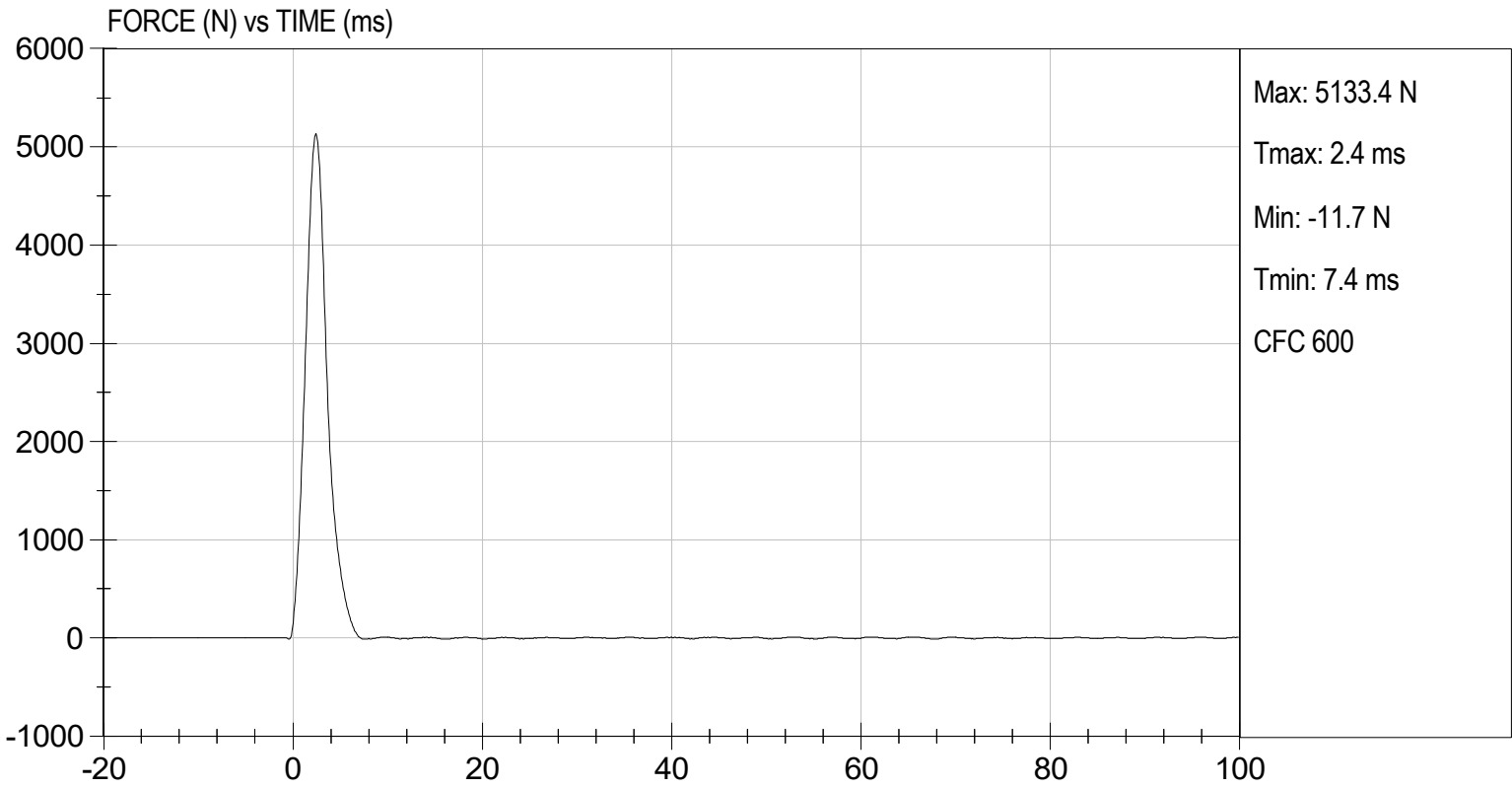
Test I.D: D243205

| 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 | 34 | Pass |
| Probe Velocity | m/s | 2.07 to 2.13 | 2.10 | Pass |
| Peak Probe Force | N | 4715 to 5782 | 5,133 | Pass |
| Overall Test Results | | | | Pass |


Laboratory Technician

12/17/2024
Test Date


Approved By



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

ATD Serial No: 064

Test I.D: D243206

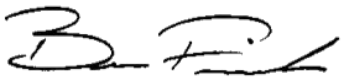
| Tested Parameter | Units | Specification | Result | Pass/Fail |
|------------------------------|-------|---------------|----------------------|-----------|
| Laboratory Temperature | deg C | 18.9 to 25.6 | 21.5 | Pass |
| Laboratory Relative Humidity | % | 10 to 70 | 34 | Pass |
| Probe Velocity | m/s | 2.07 to 2.13 | 2.10 | Pass |
| Peak Probe Force | N | 4715 to 5782 | 5,093 | Pass |
| | | | Overall Test Results | Pass |



Laboratory Technician

12/17/2024

Test Date

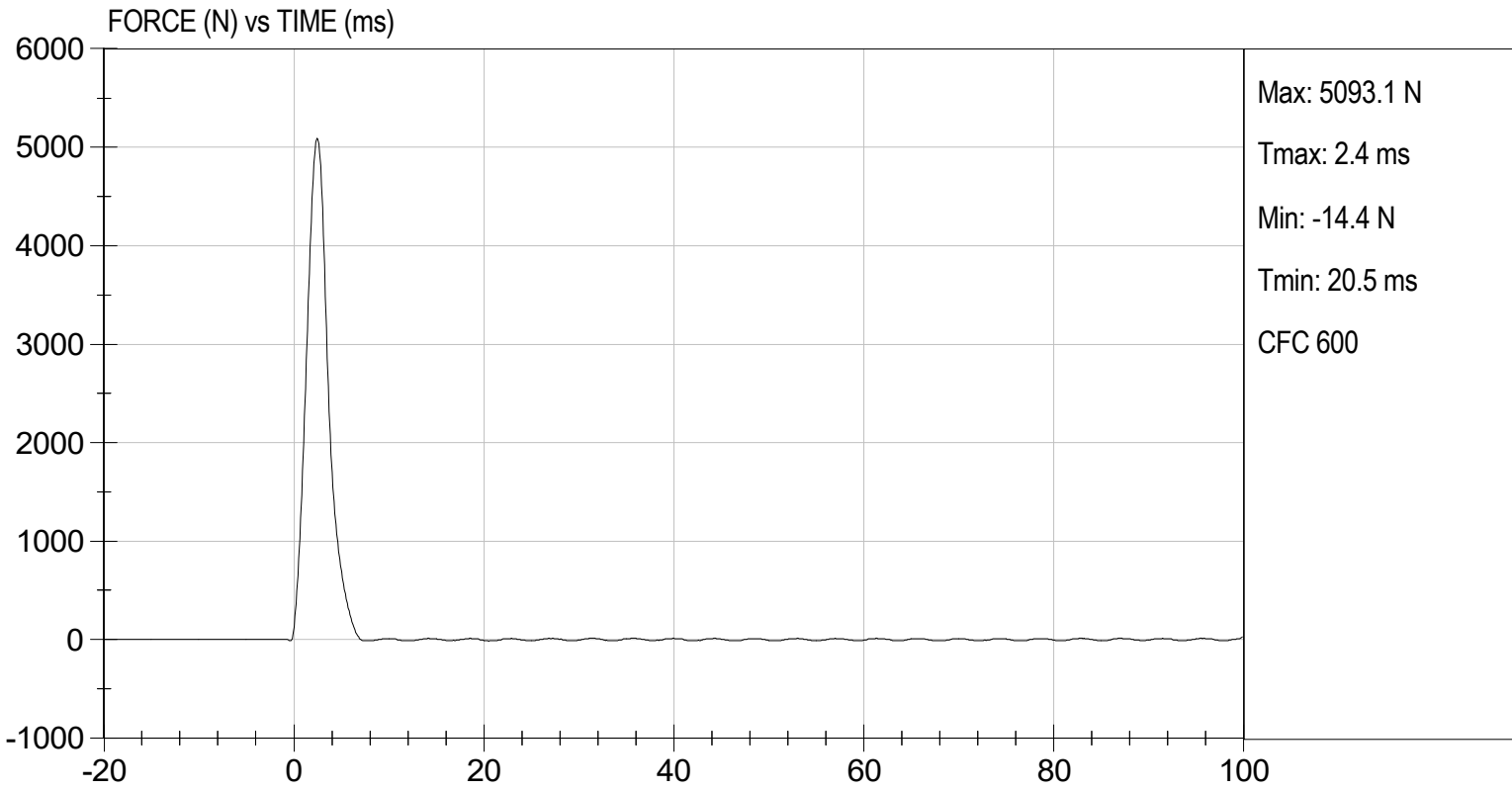


Approved By



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

TEST DATE: 12/17/2024
TEST #: D243206



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

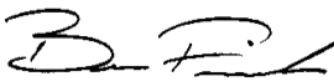
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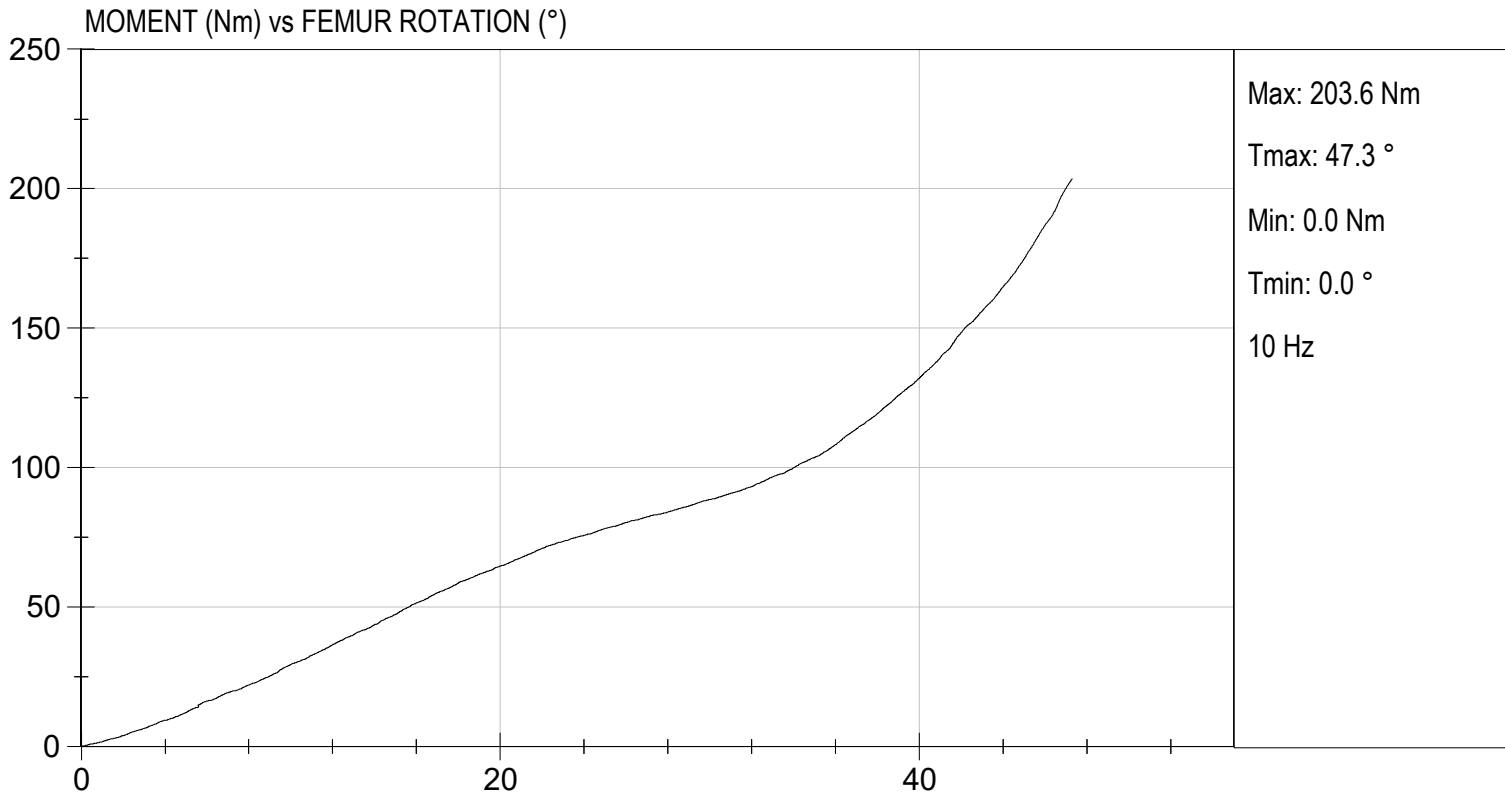
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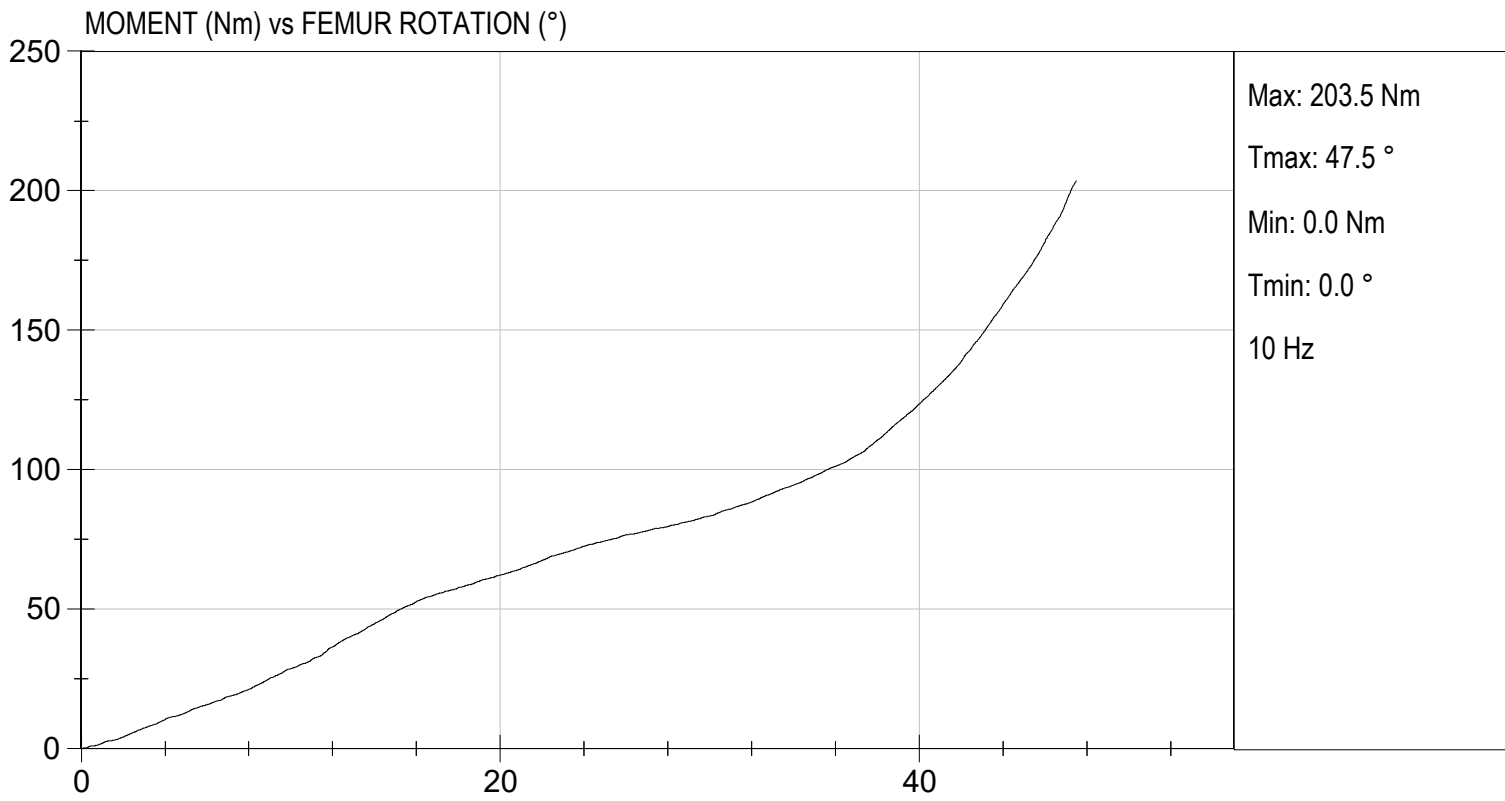
| Tested Parameter | Units | Specification | Result | | Pass/Fail |
|------------------------------|-------|-------------------------------------|--------|------|-----------|
| | | | Right | Left | |
| Laboratory Temperature | deg C | 18.9 to 25.6 | 21.8 | 21.8 | Pass |
| Laboratory Relative Humidity | % | 10 to 70 | 37 | 37 | Pass |
| Rotation Rate | deg/s | 5.0 to 10.0 | 6.4 | 6.5 | Pass |
| 30 Degrees | Nm | 94.9 Nm Max | 88.5 | 83.4 | Pass |
| 150 ft-lbf / 203.4 Nm | Deg | 40.0 to 50.0 Degree Max Rotation | 47.3 | 47.5 | Pass |
| Overall Test Results | | | | | Pass |


 Laboratory Technician

12/16/2024
 Test Date


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QUALIFICATION TEST RESULTS

POST-TEST

HYBRID III 50TH PERCENTILE MALE - DRIVER ATD

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

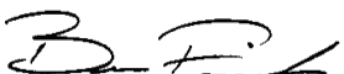
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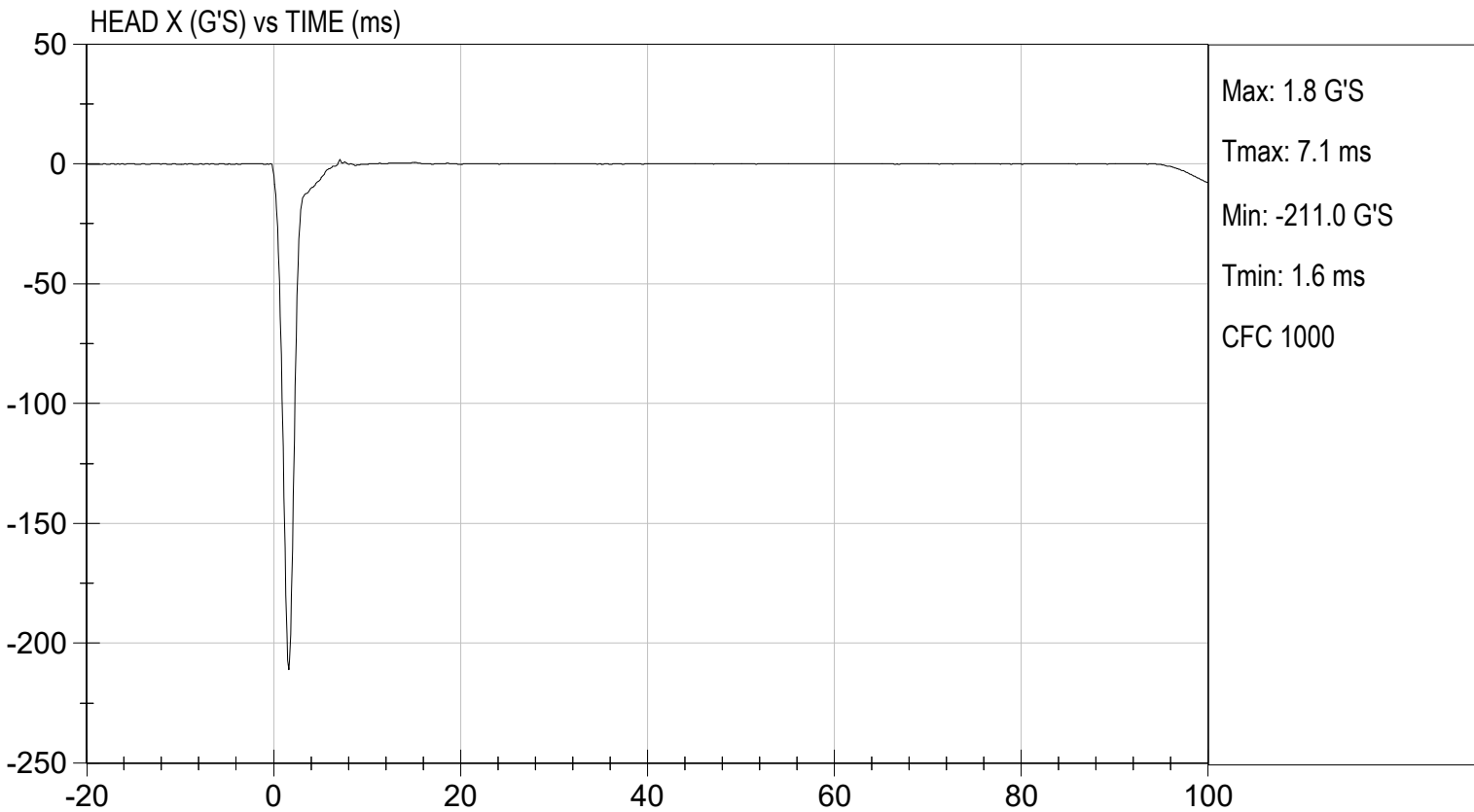
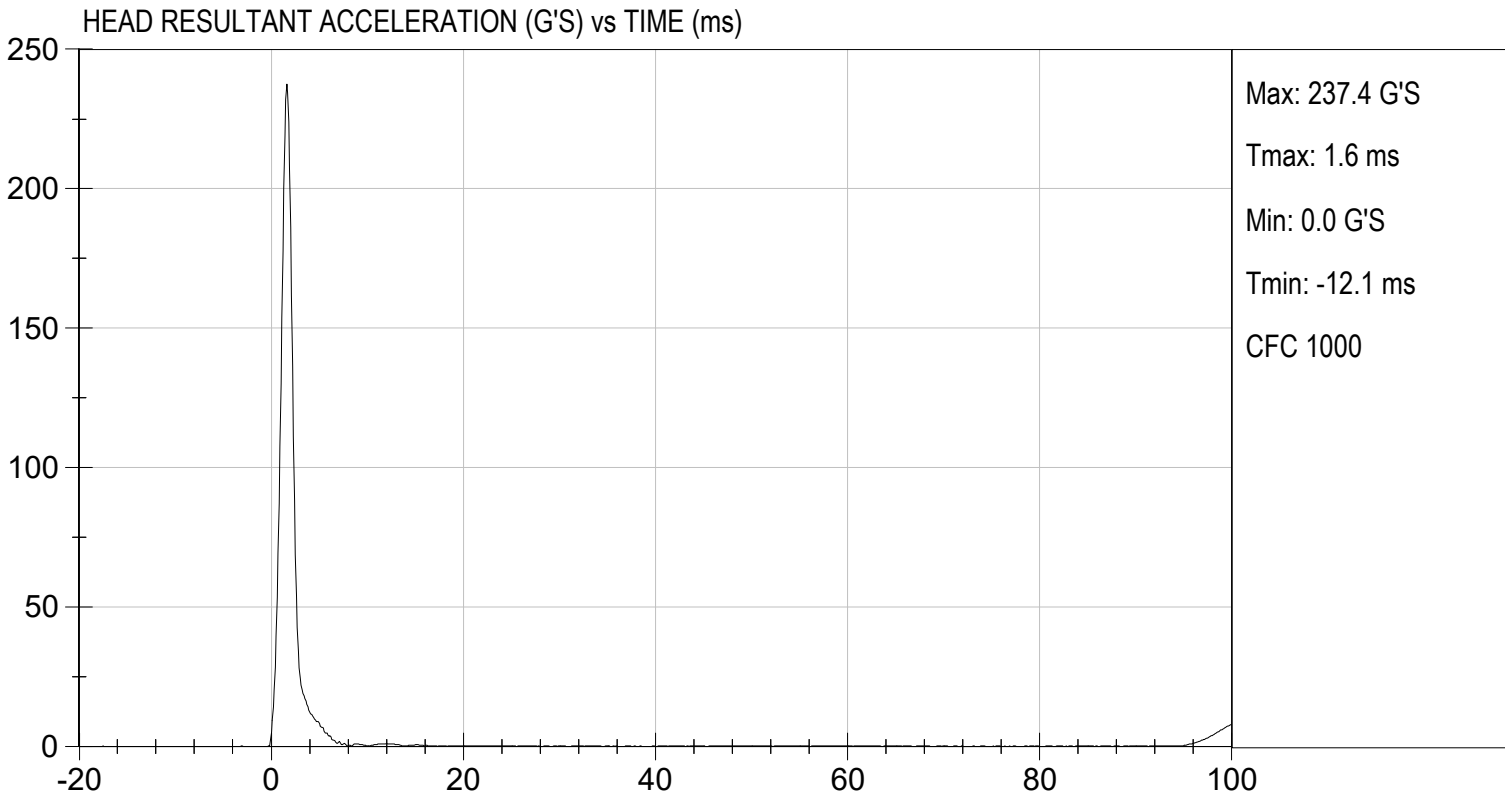
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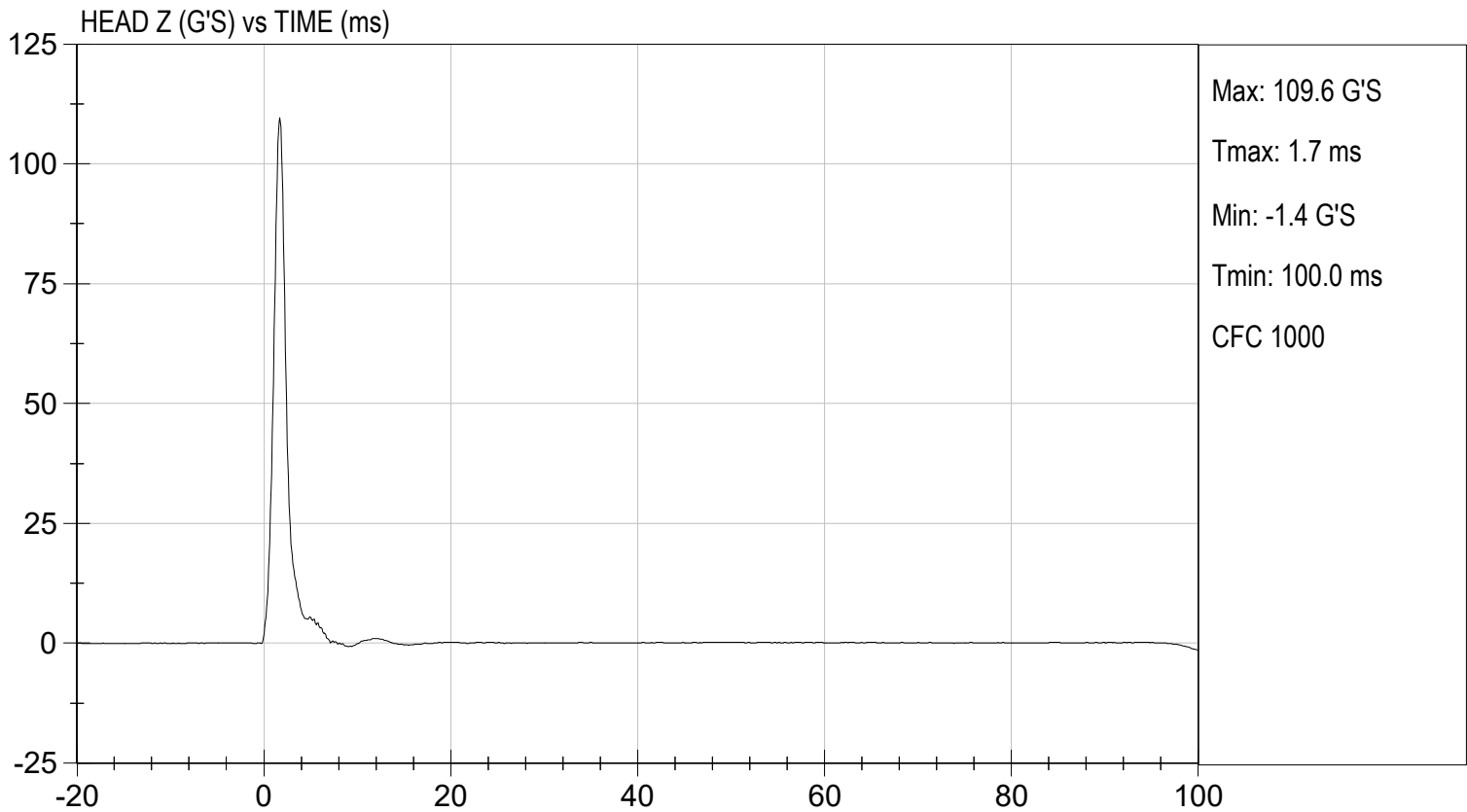
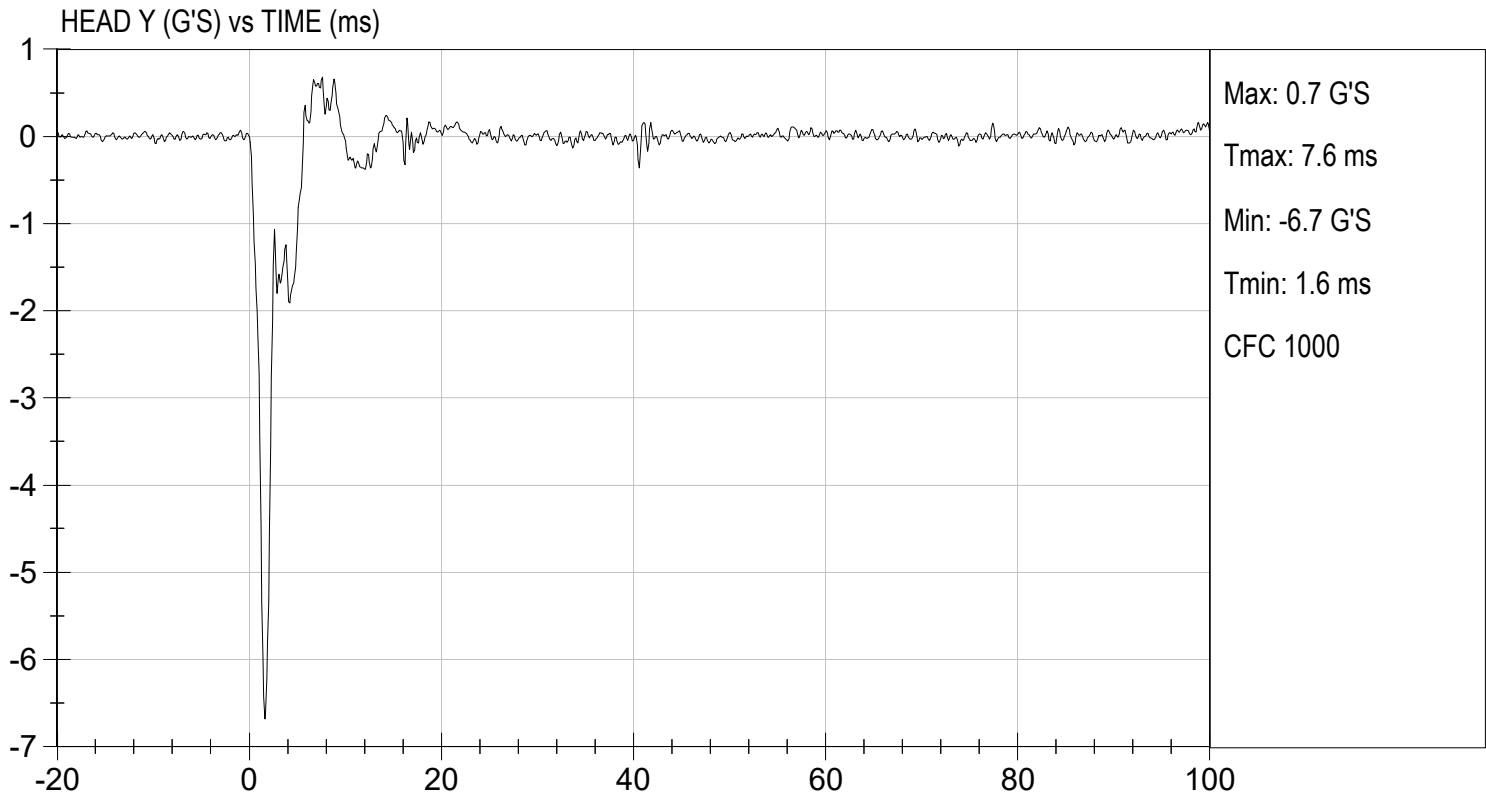
| Tested Parameter | Units | Specification | Result | Pass/Fail |
|------------------------------|-------|--------------------|--------|-------------|
| Laboratory Temperature | deg C | 18.9 to 25.6 | 21.2 | Pass |
| Laboratory Relative Humidity | % | 10 to 70 | 25 | Pass |
| Peak Resultant Acceleration | G's | 225 to 275 | 237 | Pass |
| Peak Lateral Acceleration | G's | <= +/- 15.0 | -6.7 | Pass |
| Unimodal | N/A | Yes | Yes | Pass |
| Oscillations | N/A | within 10% of peak | Yes | Pass |
| Overall Test Results | | | | Pass |


 Laboratory Technician

01/14/2025
 Test Date


 Approved By





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

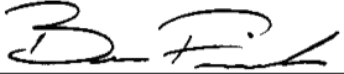
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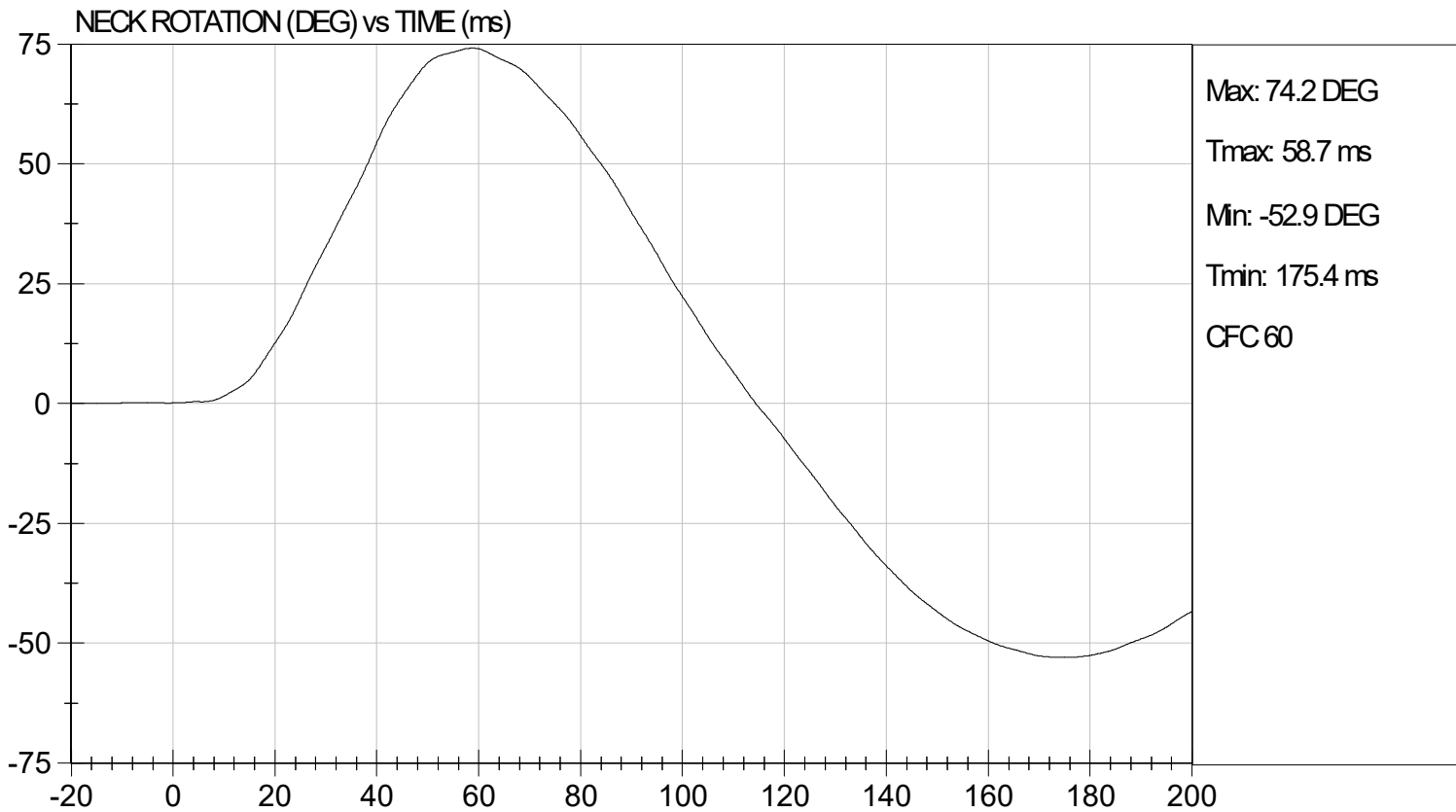
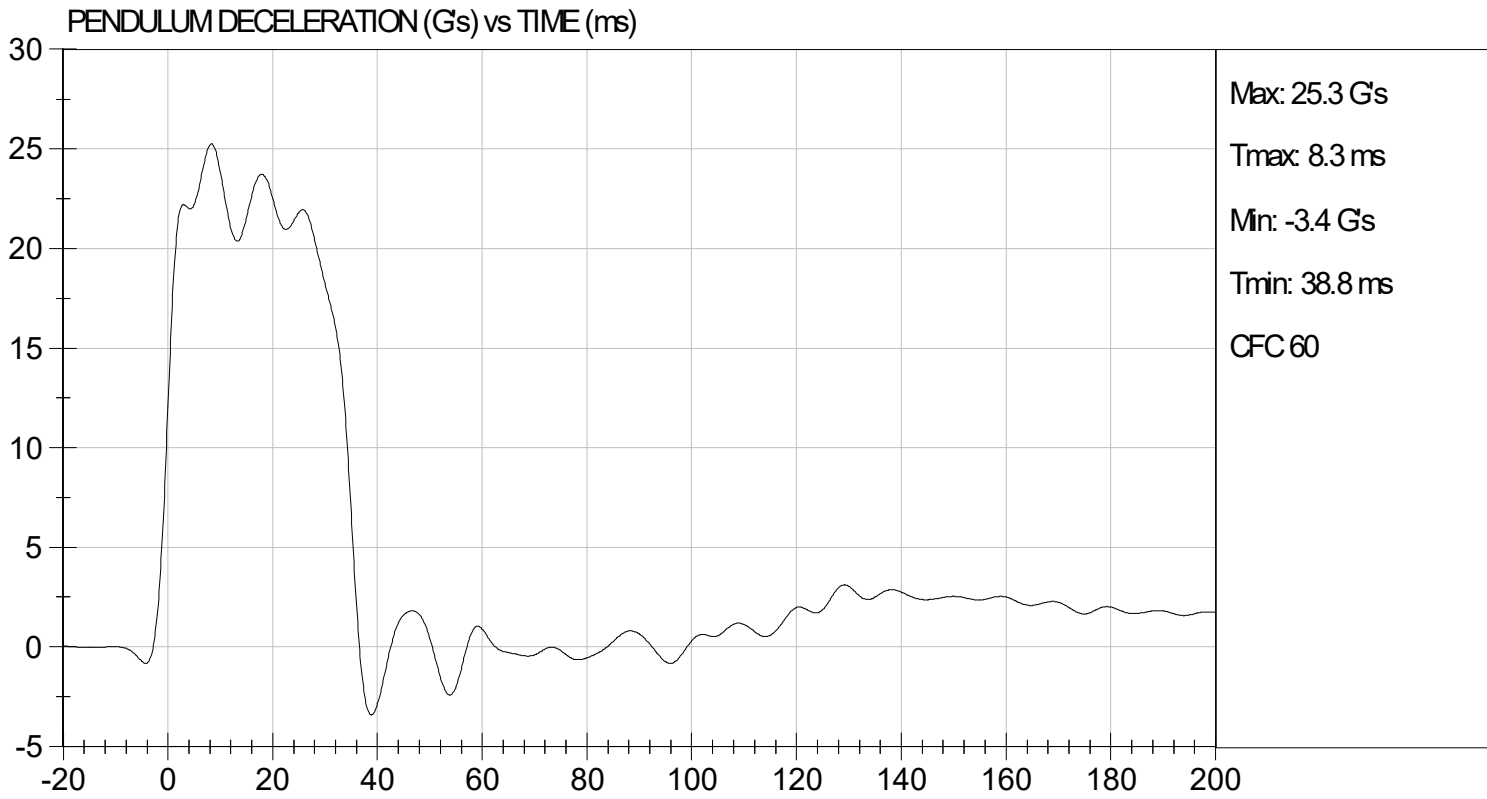
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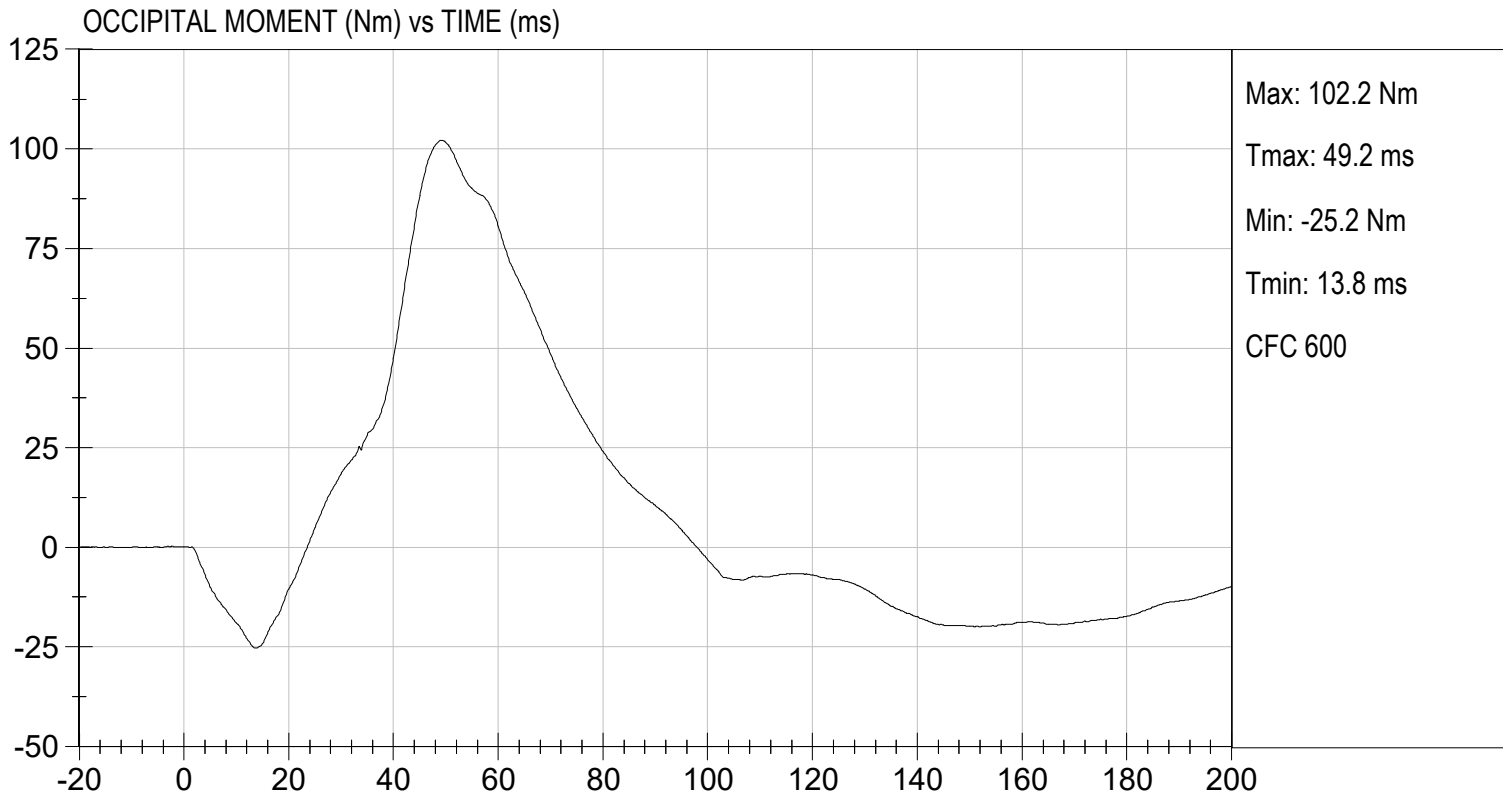
| Tested Parameter | | Units | Specification | Result | Pass/Fail |
|--|---------|-------|----------------|--------|-----------|
| Laboratory Temperature | | deg C | 20.6 to 22.2 | 21.2 | Pass |
| Laboratory Relative Humidity | | % | 10 to 70 | 24 | Pass |
| Pendulum Velocity | | m/s | 6.89 to 7.13 | 6.96 | Pass |
| Pendulum Deceleration | 10 ms | G's | 22.50 to 27.50 | 23.82 | Pass |
| | 20 ms | G's | 17.60 to 22.60 | 22.49 | Pass |
| | 30 ms | G's | 12.50 to 18.50 | 18.22 | Pass |
| Peak Pendulum Deceleration After 30 ms | | G's | <= 29.0 | 18.1 | Pass |
| Deceleration Decay Time to Cross 5 G's | | ms | 34.0 to 42.0 | 35.4 | Pass |
| Maximum "D" Plane Rotation | Maximum | Deg | 64.0 to 78.0 | 74.2 | Pass |
| | Time | ms | 57.0 to 64.0 | 58.7 | Pass |
| "D" Plane Rotation Decay Time To Zero Crossing | | ms | 113.0 to 128.0 | 114.5 | Pass |
| Moment About Occipital Condyle | Maximum | Nm | 88.1 to 108.5 | 102.2 | Pass |
| | Time | ms | 47.0 to 58.0 | 49.2 | Pass |
| Positive Moment Decay Time To Zero Crossing | | ms | 97.0 to 107.0 | 98.1 | Pass |
| Overall Test Results | | | | | Pass |


 Laboratory Technician

01/14/2025
 Test Date


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

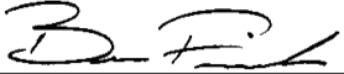
ATD Serial No: 064

Test I.D.: D250133

| 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 | 24 | Pass |
| Pendulum Velocity | | m/s | 5.95 to 6.19 | 5.97 | Pass |
| Pendulum Deceleration | 10 ms | G's | 17.20 to 21.20 | 20.09 | Pass |
| | 20 ms | G's | 14.00 to 19.00 | 17.50 | Pass |
| | 30 ms | G's | 11.00 to 16.00 | 13.43 | 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 | 39.7 | Pass |
| Maximum "D" Plane Rotation | Maximum | Degrees | 81.0 to 106.0 | 99.6 | Pass |
| | Time | ms | 72.0 to 82.0 | 79.4 | Pass |
| "D" Plane Rotation Decay Time To Zero Crossing | | ms | 147.0 to 174.0 | 158.6 | Pass |
| Moment About Occipital Condyle | Maximum | Nm | -52.9 to -79.9 | -61.5 | Pass |
| | Time | ms | 65.0 to 79.0 | 72.7 | Pass |
| Negative Moment Decay Time To Zero Crossing | | ms | 120.0 to 148.0 | 145.2 | Pass |
| Overall Test Results | | | | | Pass |

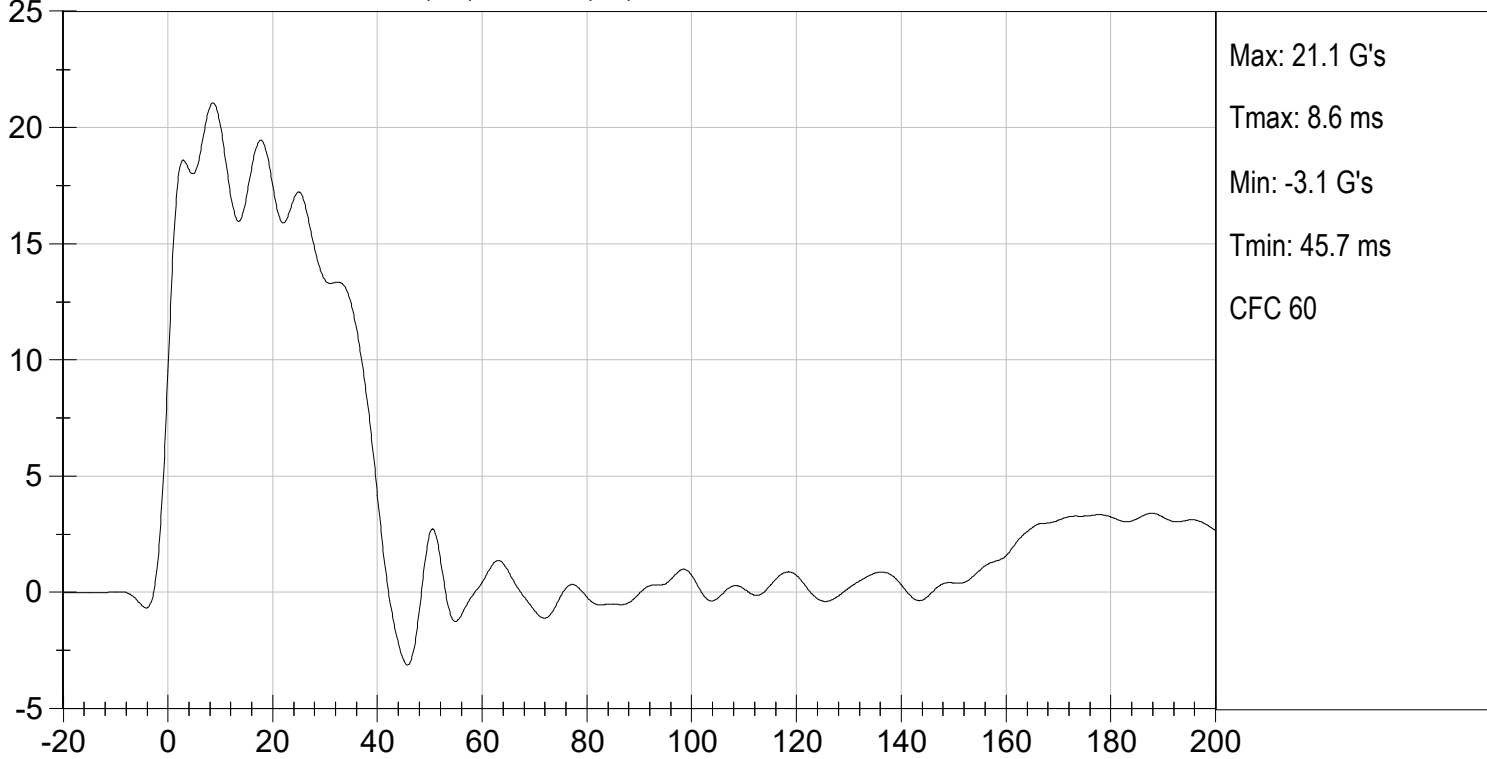

 Laboratory Technician

01/14/2025
 Test Date

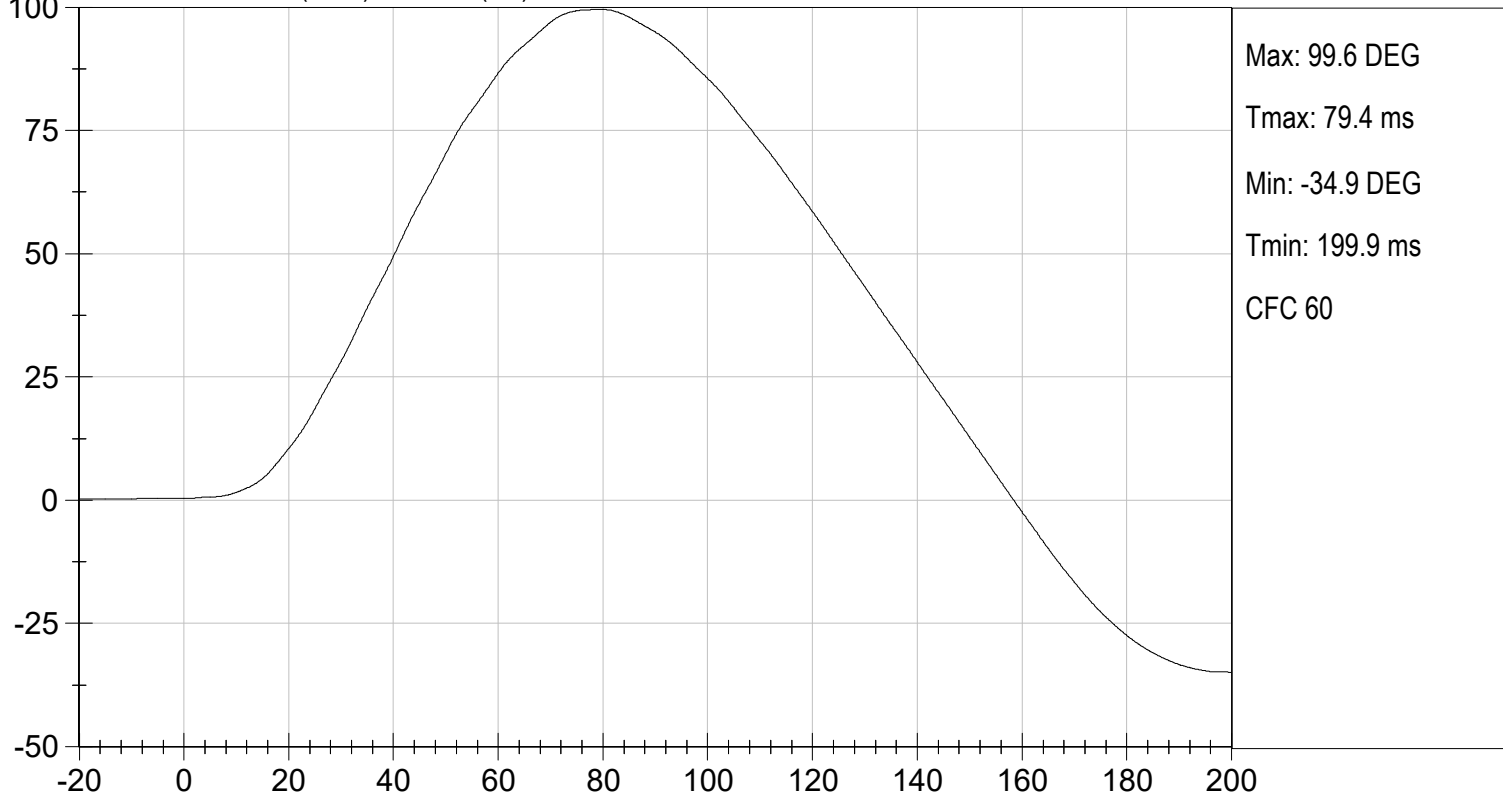

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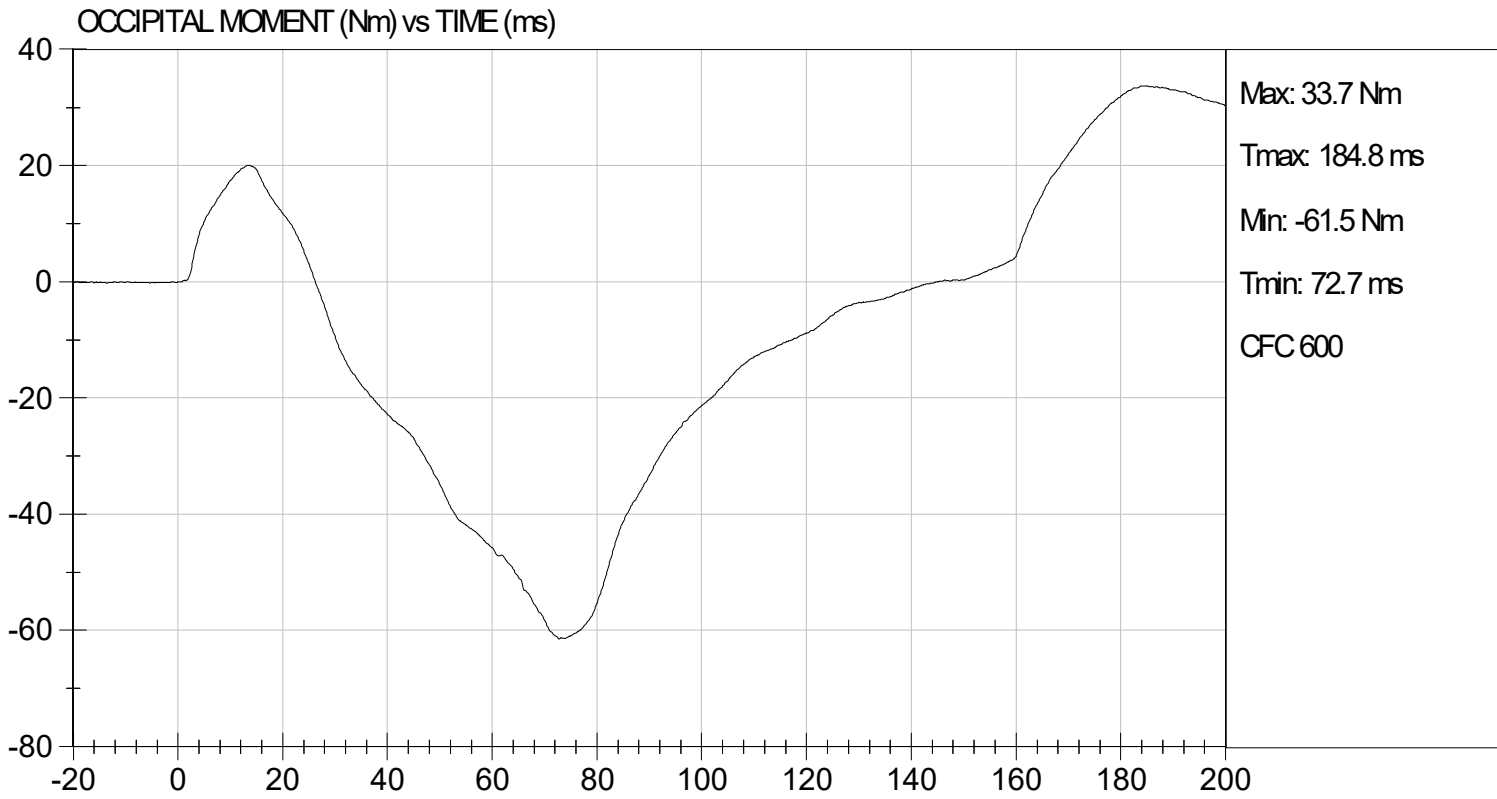


PENDULUM DECELERATION (G's) vs TIME (ms)



NECK ROTATION (DEG) vs TIME (ms)





MGA RESEARCH CORPORATION
THORAX IMPACT
HYBRID III 50TH PERCENTILE MALE

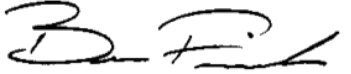
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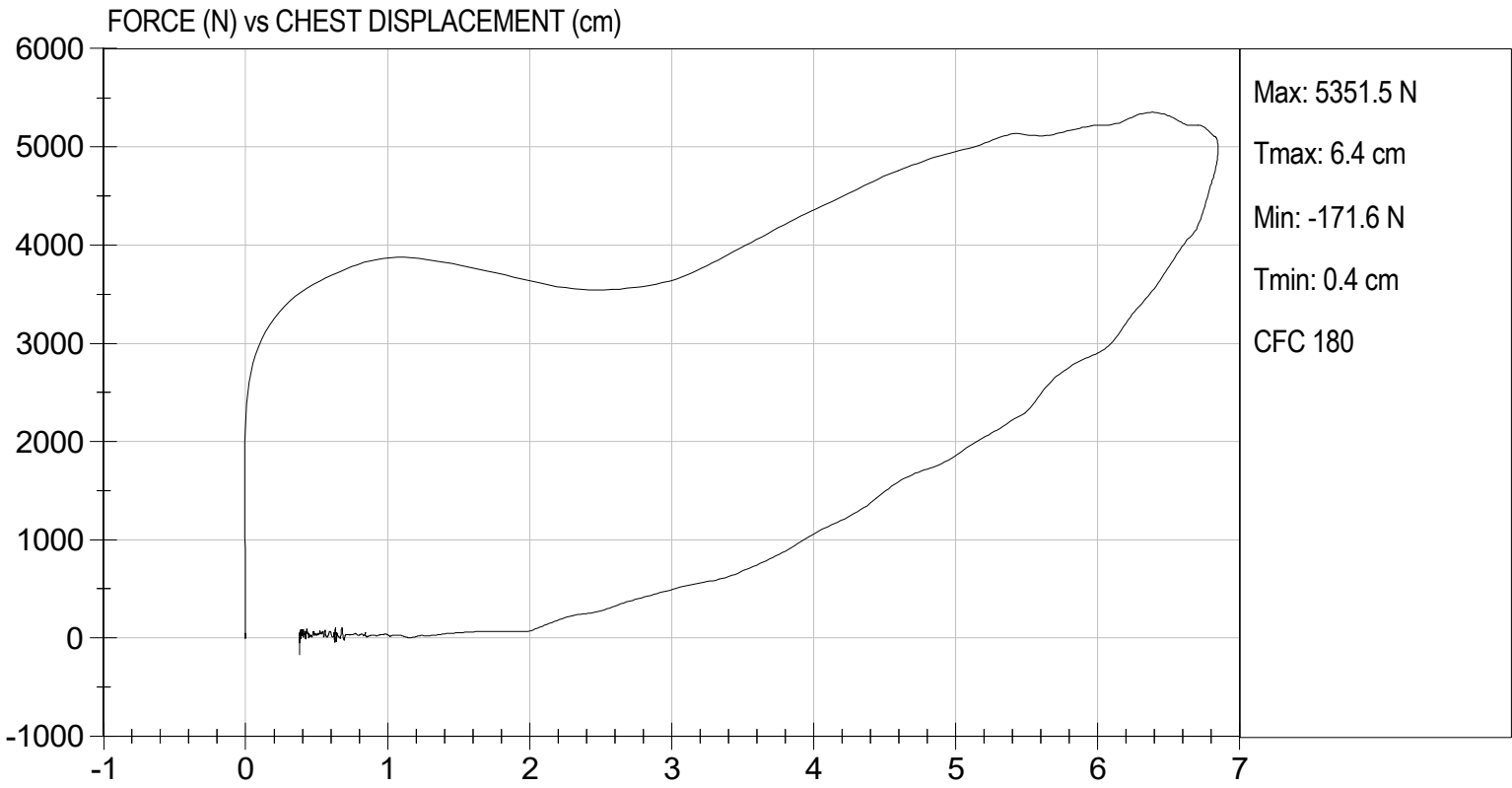
Test I.D.: D250134

| Tested Parameter | Units | Specification | Result | Pass/Fail |
|------------------------------|-------|---------------|--------|-------------|
| Laboratory Temperature | deg C | 20.6 to 22.2 | 21.2 | Pass |
| Laboratory Relative Humidity | % | 10 to 70 | 26 | Pass |
| Probe Velocity | m/s | 6.58 to 6.82 | 6.60 | Pass |
| Peak Probe Force | N | 5159 to 5893 | 5,351 | Pass |
| Peak Sternum Displacement | cm | 6.35 to 7.26 | 6.85 | Pass |
| Internal Hysteresis | % | 69 to 85 | 72 | Pass |
| Overall Test Results | | | | Pass |


 Laboratory Technician

01/14/2025
 Test Date


 Approved By



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

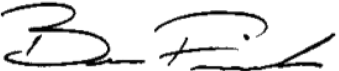
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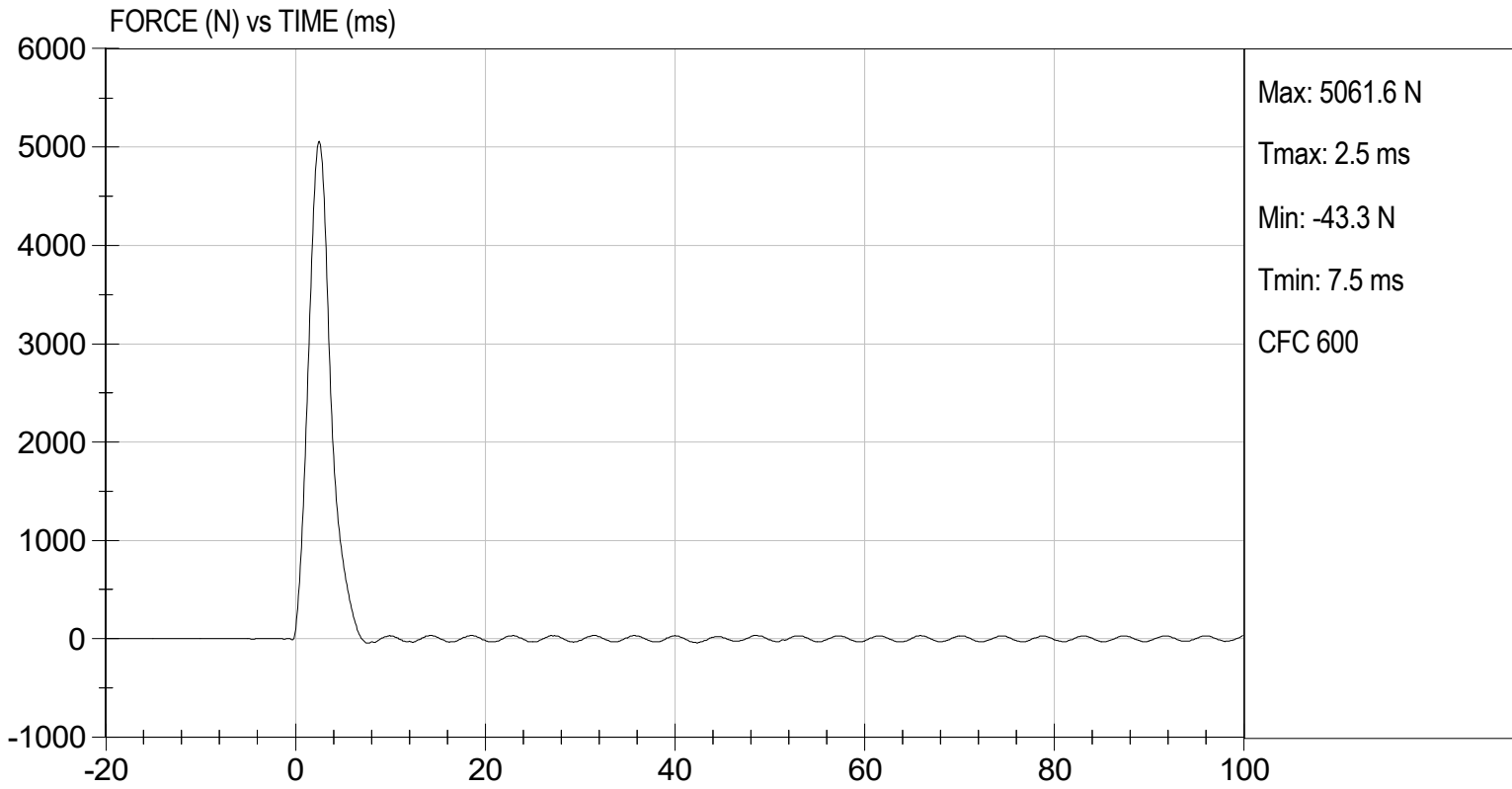
Test I.D: D250135

| Tested Parameter | Units | Specification | Result | Pass/Fail |
|------------------------------|-------|---------------|--------|-------------|
| Laboratory Temperature | deg C | 18.9 to 25.6 | 21.6 | Pass |
| Laboratory Relative Humidity | % | 10 to 70 | 24 | Pass |
| Probe Velocity | m/s | 2.07 to 2.13 | 2.10 | Pass |
| Peak Probe Force | N | 4715 to 5782 | 5,062 | Pass |
| Overall Test Results | | | | Pass |


 Laboratory Technician

01/14/2025
 Test Date


 Approved By



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

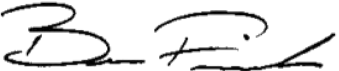
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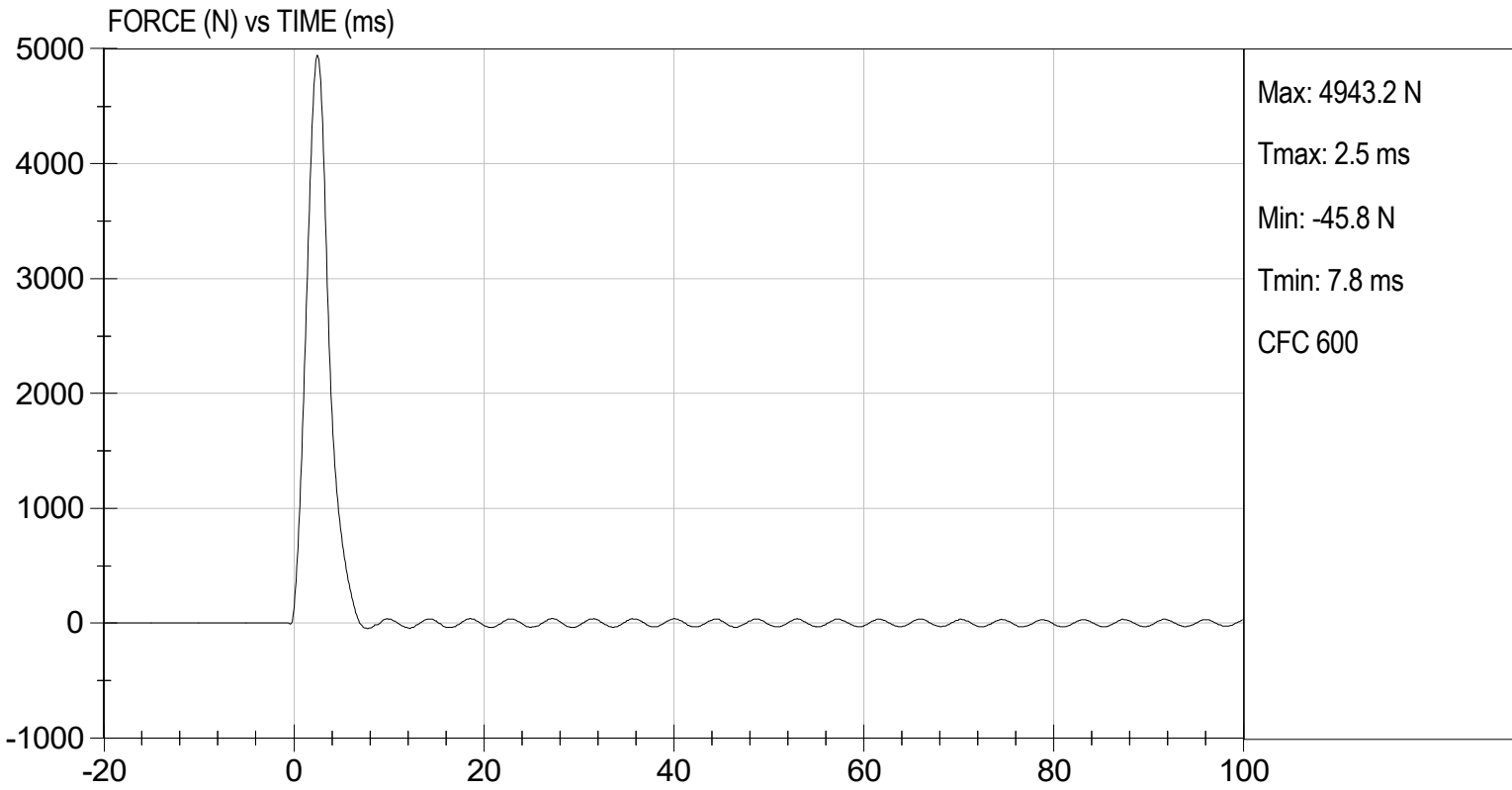
Test I.D: D250136

| Tested Parameter | Units | Specification | Result | Pass/Fail |
|------------------------------|-------|---------------|--------|-----------|
| Laboratory Temperature | deg C | 18.9 to 25.6 | 21.7 | Pass |
| Laboratory Relative Humidity | % | 10 to 70 | 24 | Pass |
| Probe Velocity | m/s | 2.07 to 2.13 | 2.10 | Pass |
| Peak Probe Force | N | 4715 to 5782 | 4,943 | Pass |
| Overall Test Results | | | | Pass |


Laboratory Technician

01/14/2025
Test Date


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

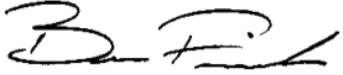
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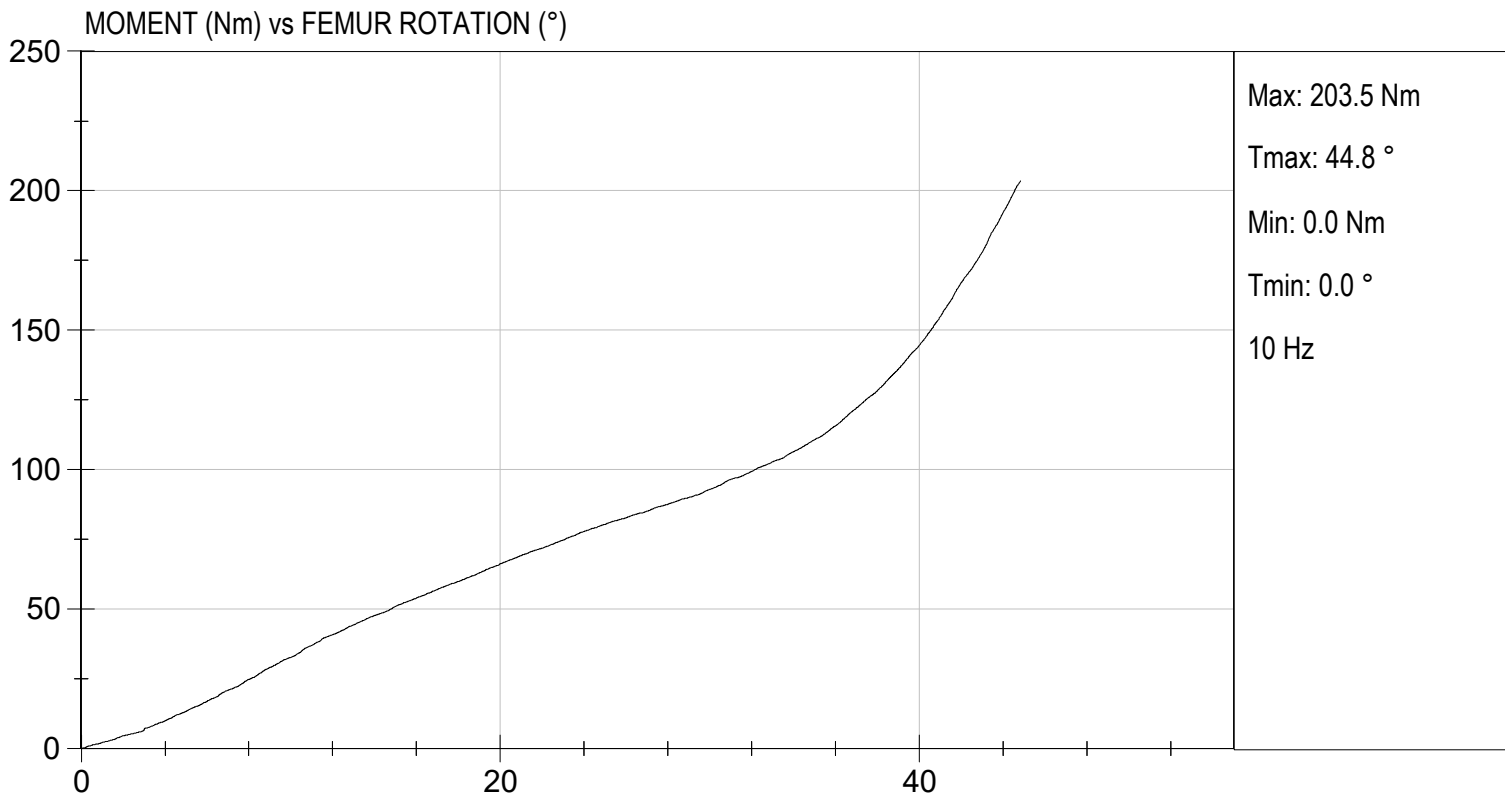
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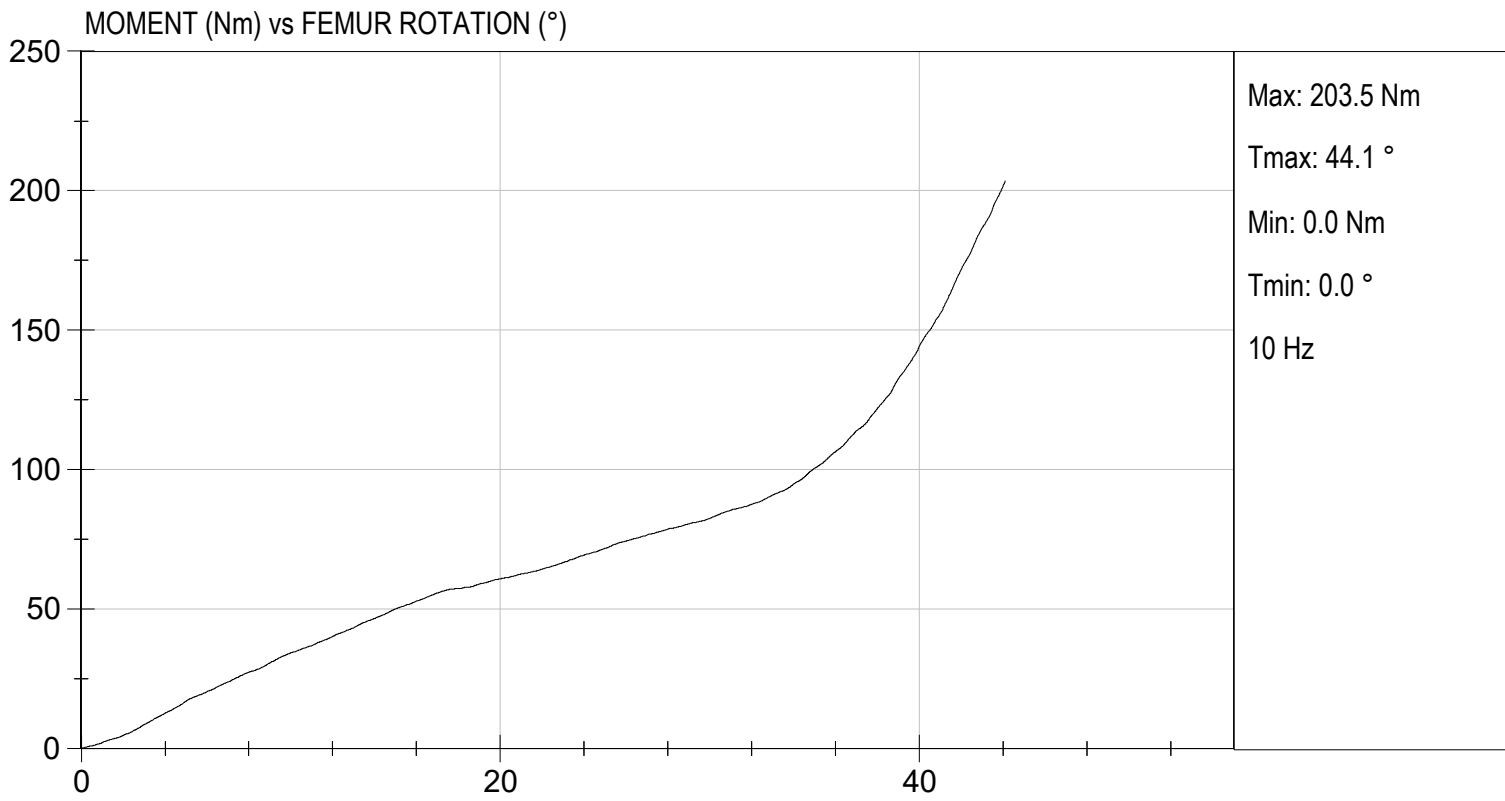
| Tested Parameter | Units | Specification | Result | | Pass/Fail |
|------------------------------|-------|-------------------------------------|--------|------|-----------|
| | | | Right | Left | |
| Laboratory Temperature | deg C | 18.9 to 25.6 | 21.6 | 21.6 | Pass |
| Laboratory Relative Humidity | % | 10 to 70 | 24 | 24 | Pass |
| Rotation Rate | deg/s | 5.0 to 10.0 | 6.4 | 6.5 | Pass |
| 30 Degrees | Nm | 94.9 Nm Max | 82.5 | 93.0 | Pass |
| 150 ft-lbf / 203.4 Nm | Deg | 40.0 to 50.0 Degree Max Rotation | 44.1 | 44.8 | Pass |
| Overall Test Results | | | | | Pass |


 Laboratory Technician

01/14/2025
 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 heel | 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

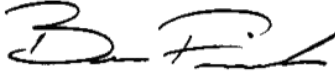
ATD Serial No: 142

Test ID: D243191

| Tested Parameter | Units | Specification | Result | Pass/Fail |
|------------------------------|-------|--------------------|--------|-------------|
| Laboratory Temperature | deg C | 18.9 to 25.6 | 21.8 | Pass |
| Laboratory Relative Humidity | % | 10 to 70 | 37 | Pass |
| Peak Resultant Acceleration | G's | 250 to 300 | 295 | Pass |
| Peak Lateral Acceleration | G's | <= +/- 15.0 | -8.7 | Pass |
| Unimodal | N/A | Yes | Yes | Pass |
| Oscillations | N/A | within 10% of peak | Yes | Pass |
| Overall Test Results | | | | Pass |

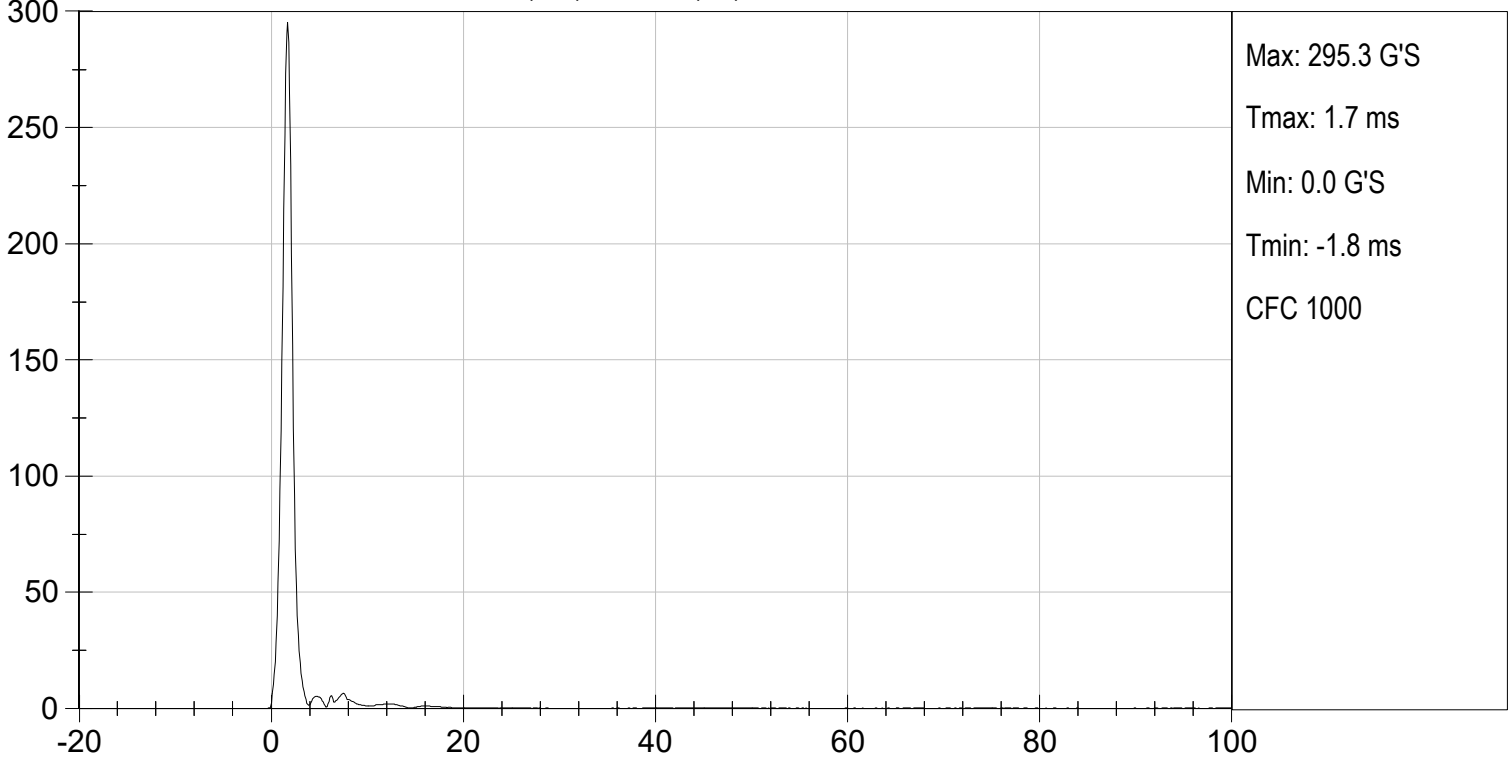

 Laboratory Technician

12/16/2024
 Test Date

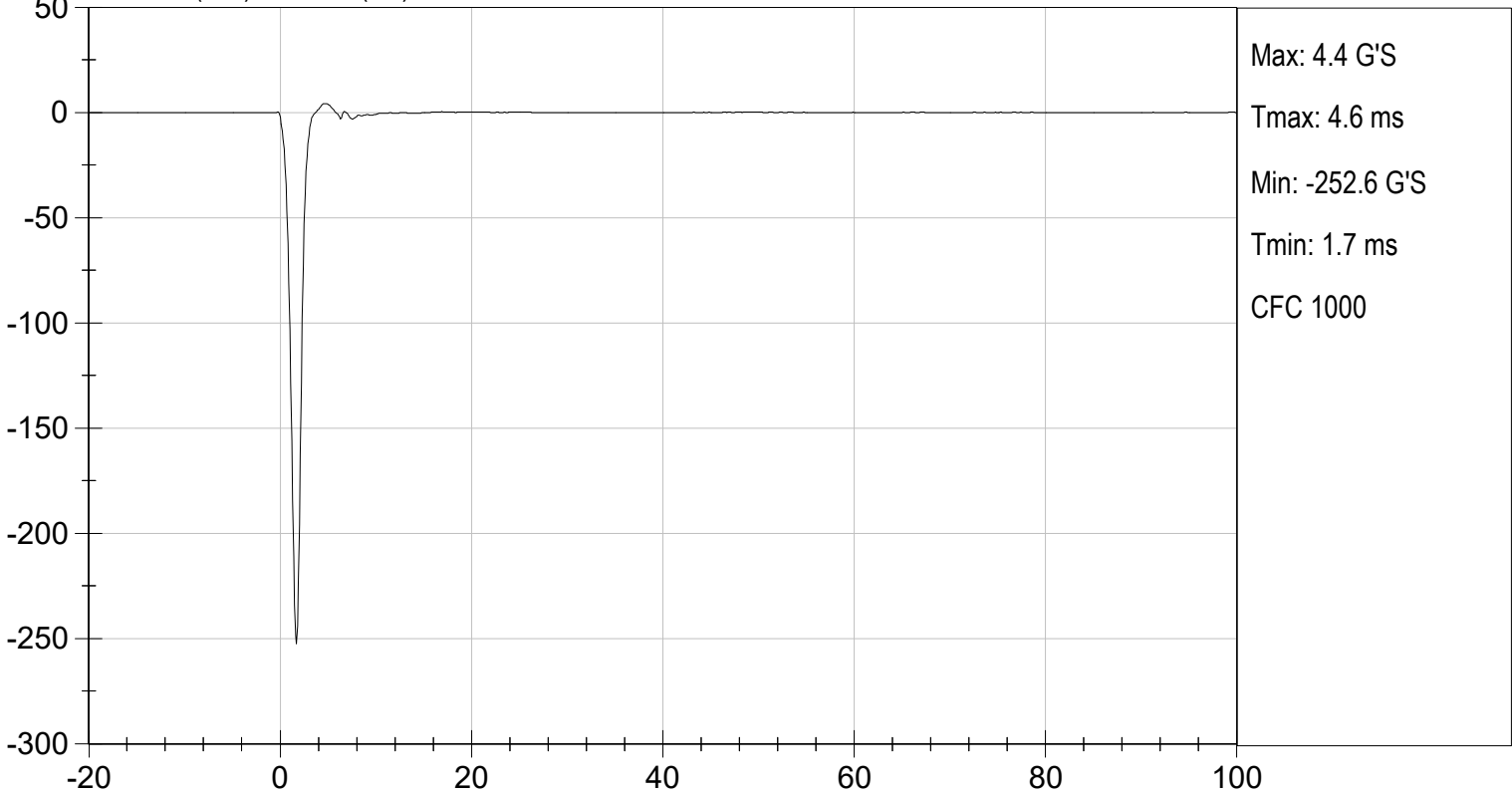

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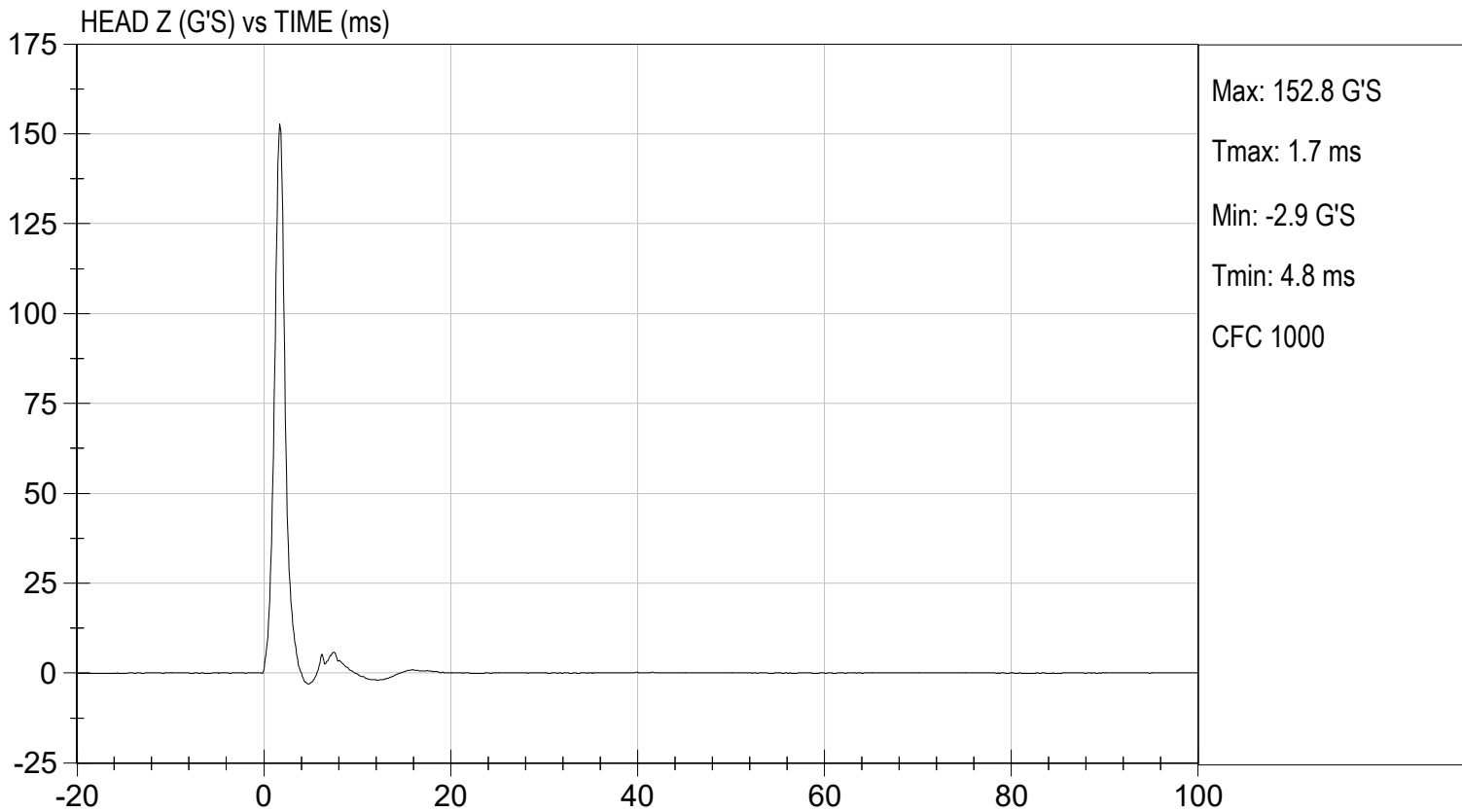
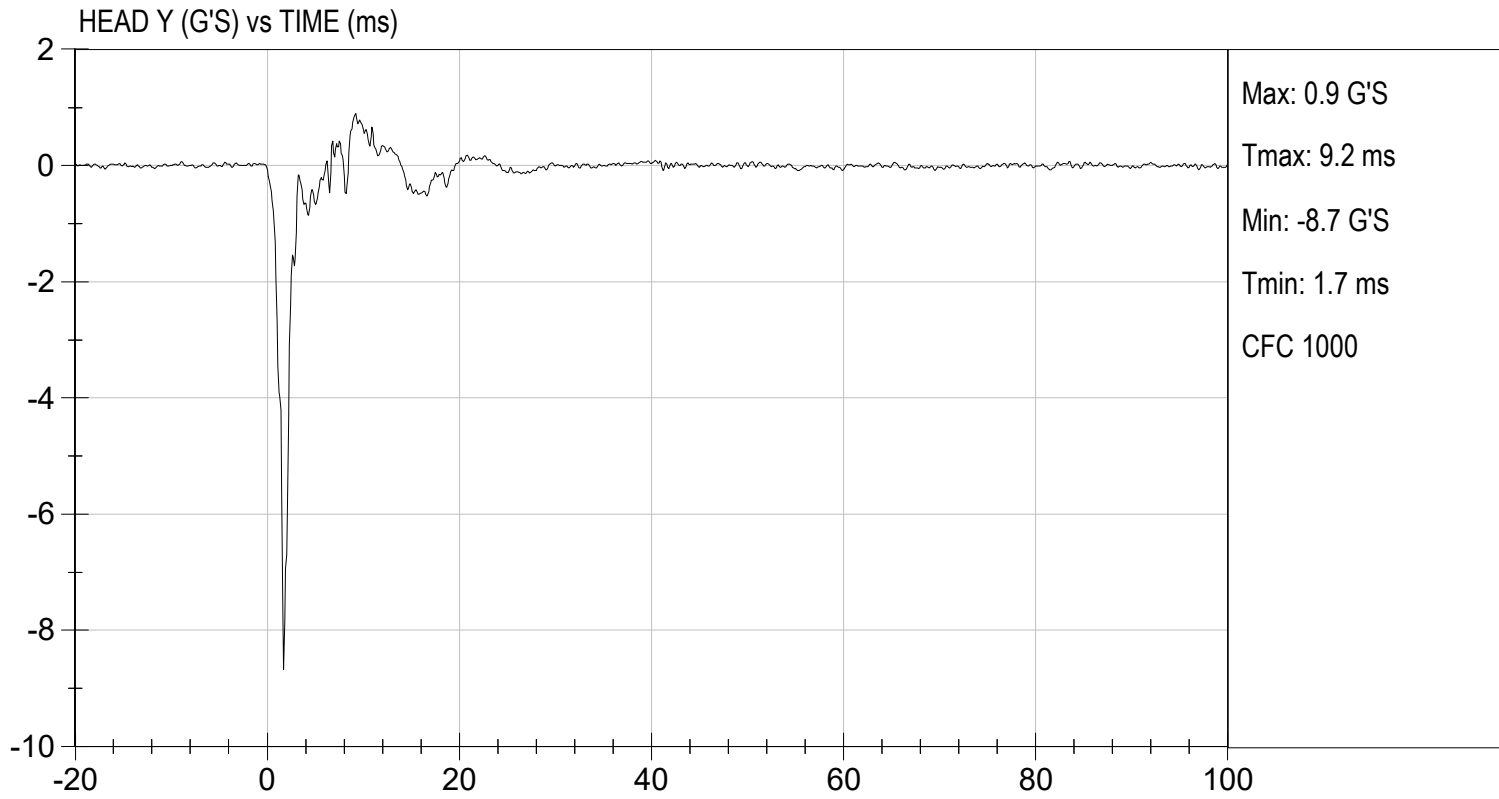


HEAD RESULTANT ACCELERATION (G'S) vs TIME (ms)



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





MGA RESEARCH CORPORATION

NECK FLEXION TEST

HYBRID III 5TH PERCENTILE


ATD Serial No: 142

Test I.D: D243192

| 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 | 33 | Pass |
| Pendulum Speed | | m/s | 6.89 to 7.13 | 7.06 | Pass |
| Pendulum Velocity | 10 ms | m/s | 2.1 to 2.5 | 2.4 | Pass |
| | 20 ms | m/s | 4.0 to 5.0 | 4.7 | Pass |
| | 30 ms | m/s | 5.8 to 7.0 | 6.9 | Pass |
| D Plane Rotation | Max | deg | 77 to 91 | 82 | Pass |
| Occipital Condyle Moment within Rotation Corridor | | Nm | 69 to 83 | 72 | Pass |
| Positive Moment Time Curve Decay to 10 Nm | | ms | 80 to 100 | 87 | Pass |
| Overall Results | | | | | Pass |

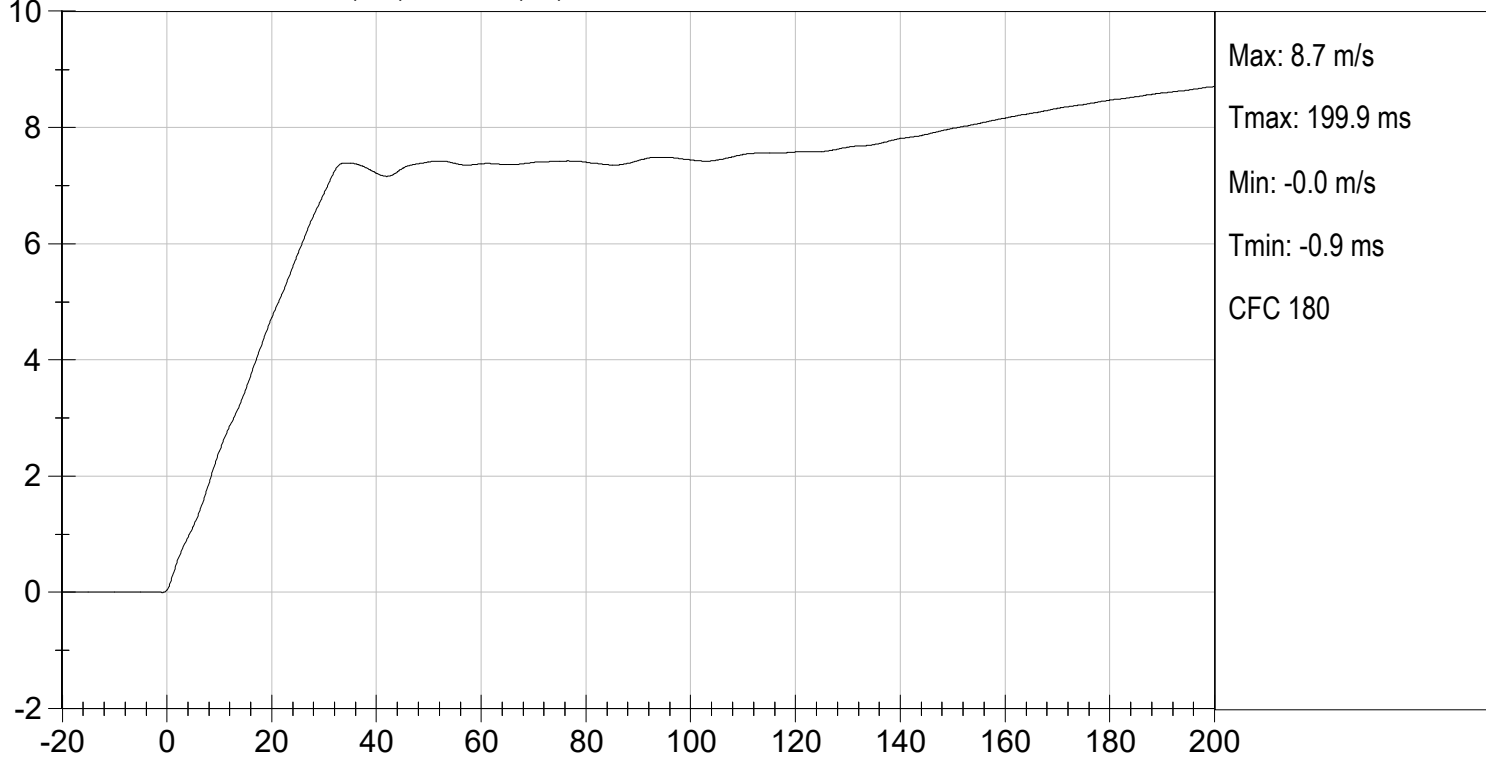

 Laboratory Technician

12/17/2024
 Test Date

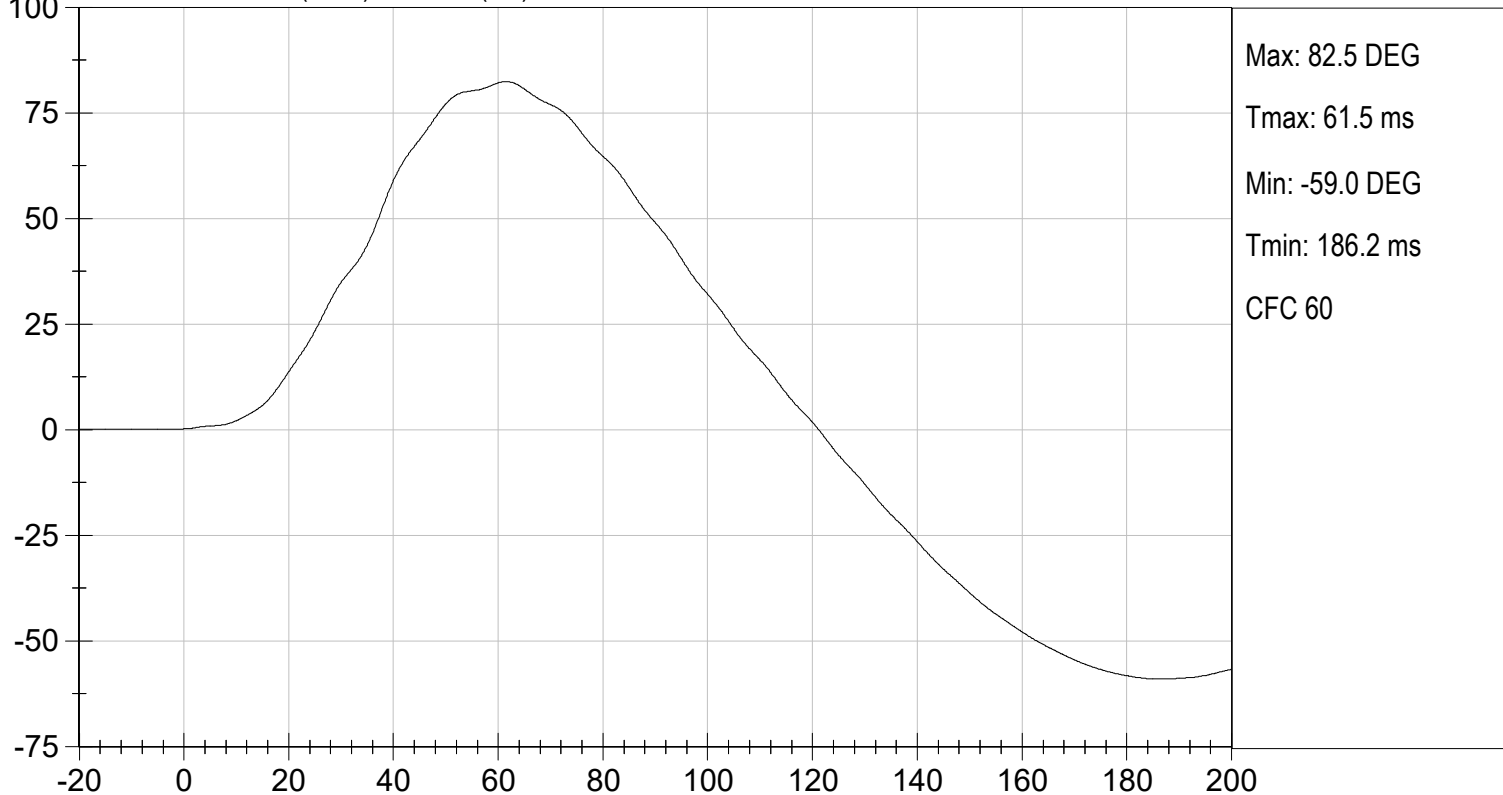

 Approved By

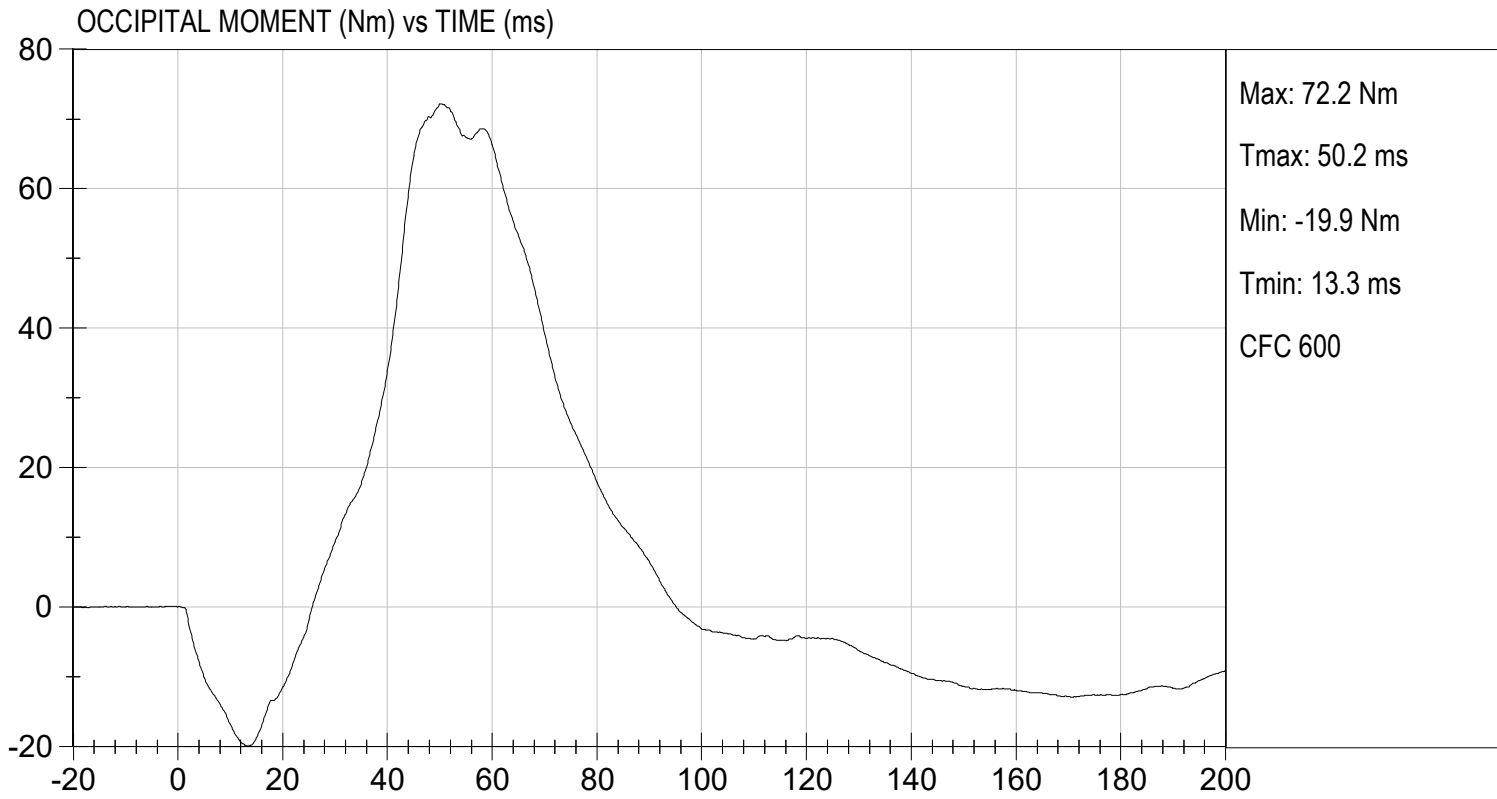


PENDULUM VELOCITY (m/s) vs TIME (ms)



NECK ROTATION (DEG) vs TIME (ms)





MGA RESEARCH CORPORATION
NECK EXTENSION TEST
HYBRID III 5TH PERCENTILE

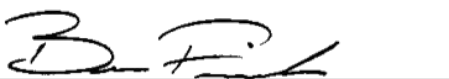
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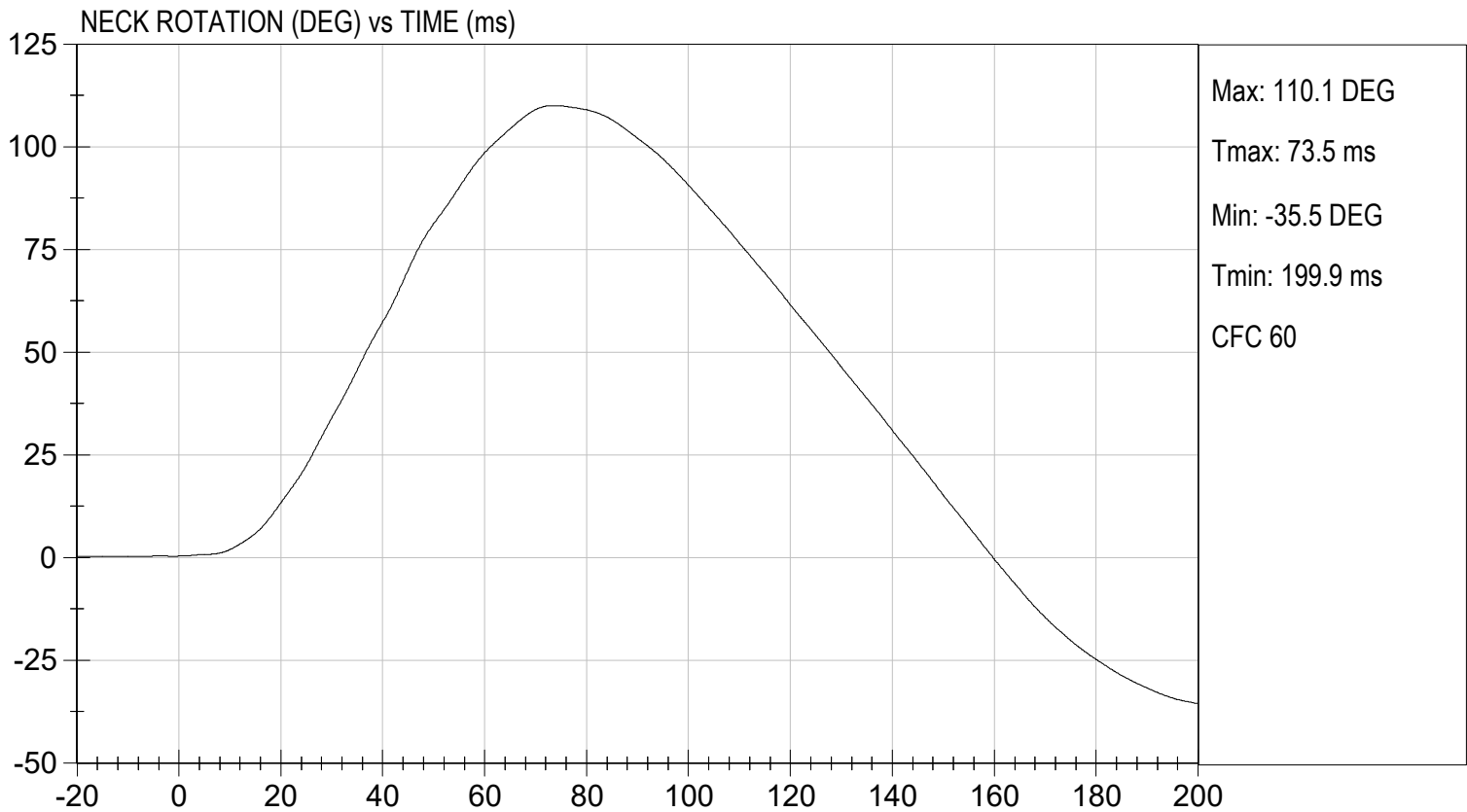
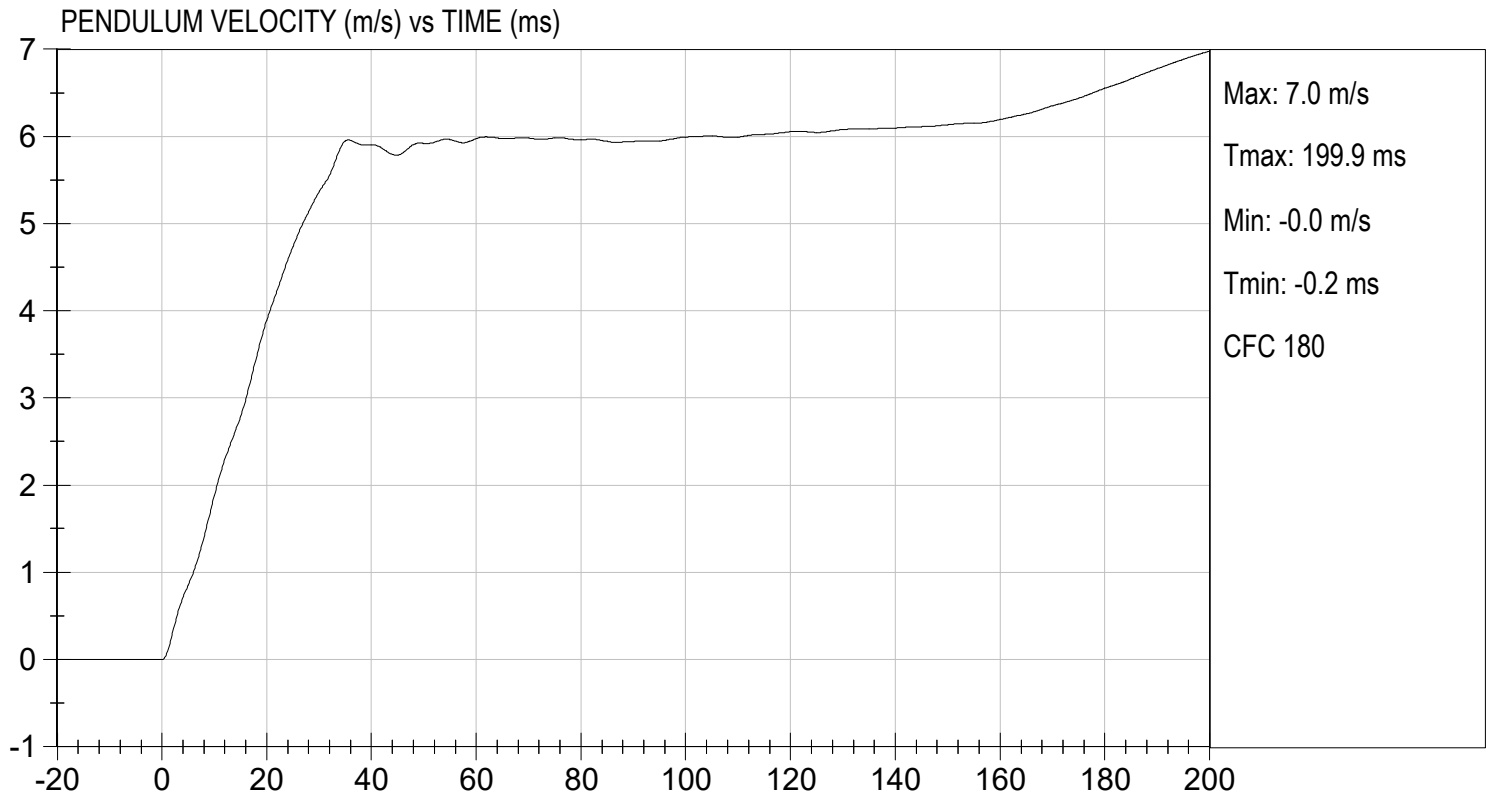
Test I.D.: D243193

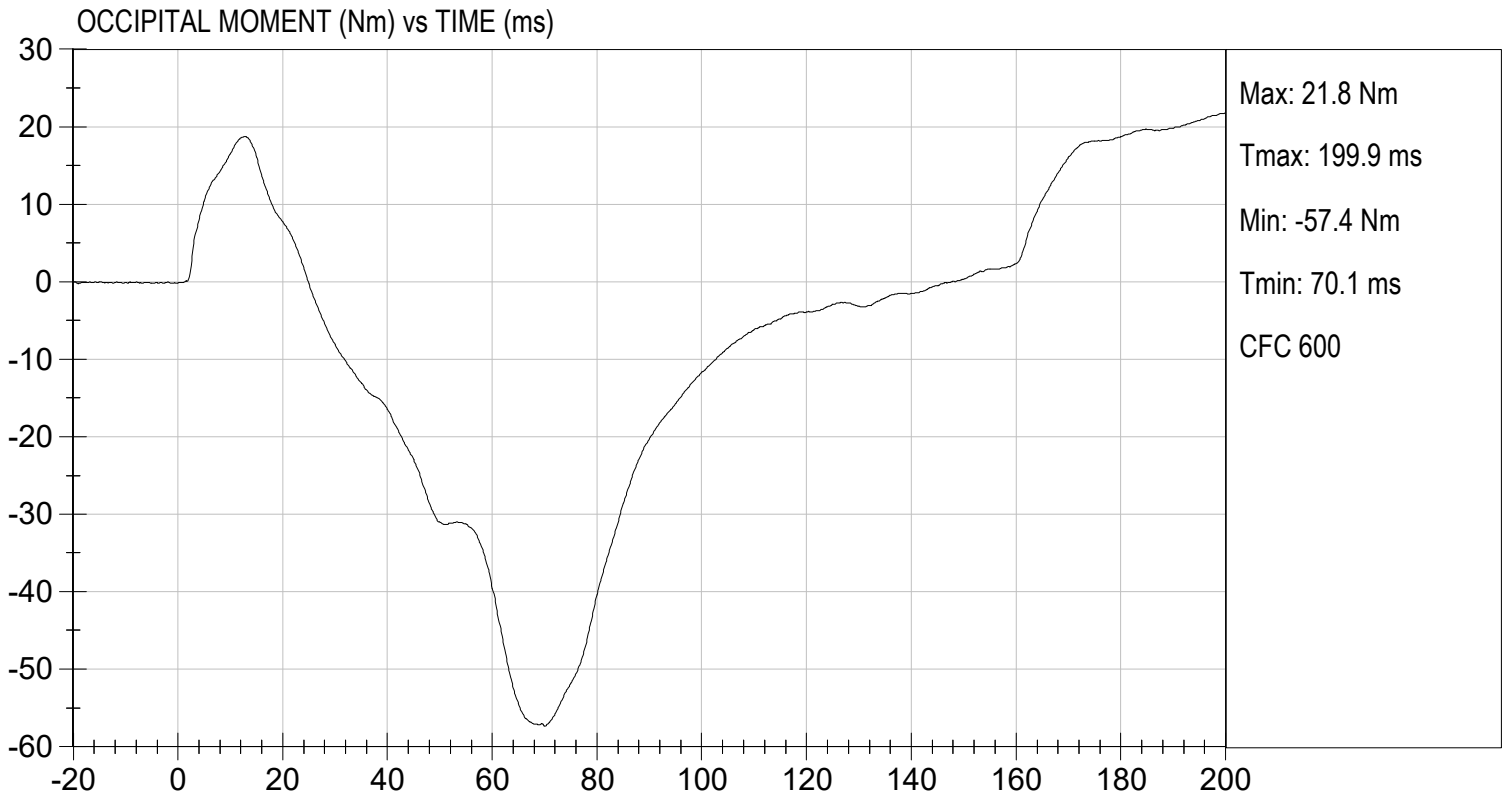
| Tested Parameter | | Units | Specification | Result | Pass/Fail |
|---|-------|-------|---------------|--------|-------------|
| Laboratory Temperature | | deg C | 20.6 to 22.2 | 21.5 | Pass |
| Laboratory Relative Humidity | | % | 10 to 70 | 33 | Pass |
| Pendulum Speed | | m/s | 5.95 to 6.19 | 6.12 | Pass |
| Pendulum Velocity | 10 ms | m/s | 1.5 to 1.9 | 1.88 | Pass |
| | 20 ms | m/s | 3.1 to 3.9 | 3.89 | Pass |
| | 30 ms | m/s | 4.6 to 5.6 | 5.4 | Pass |
| D Plane Rotation | Max | deg | 99 to 114 | 110 | Pass |
| Occipital Condyle Moment within Rotation Corridor | | Nm | -65 to -53 | -57 | Pass |
| Negative Moment Time Curve Decay to -10 Nm | | ms | 94 to 114 | 103 | Pass |
| Overall Results | | | | | Pass |


 Laboratory Technician

12/17/2024
 Test Date


 Approved By





MGA RESEARCH CORPORATION

THORAX IMPACT

HYBRID III 5TH PERCENTILE

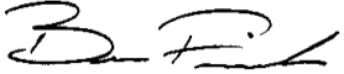
ATD Serial No: 142

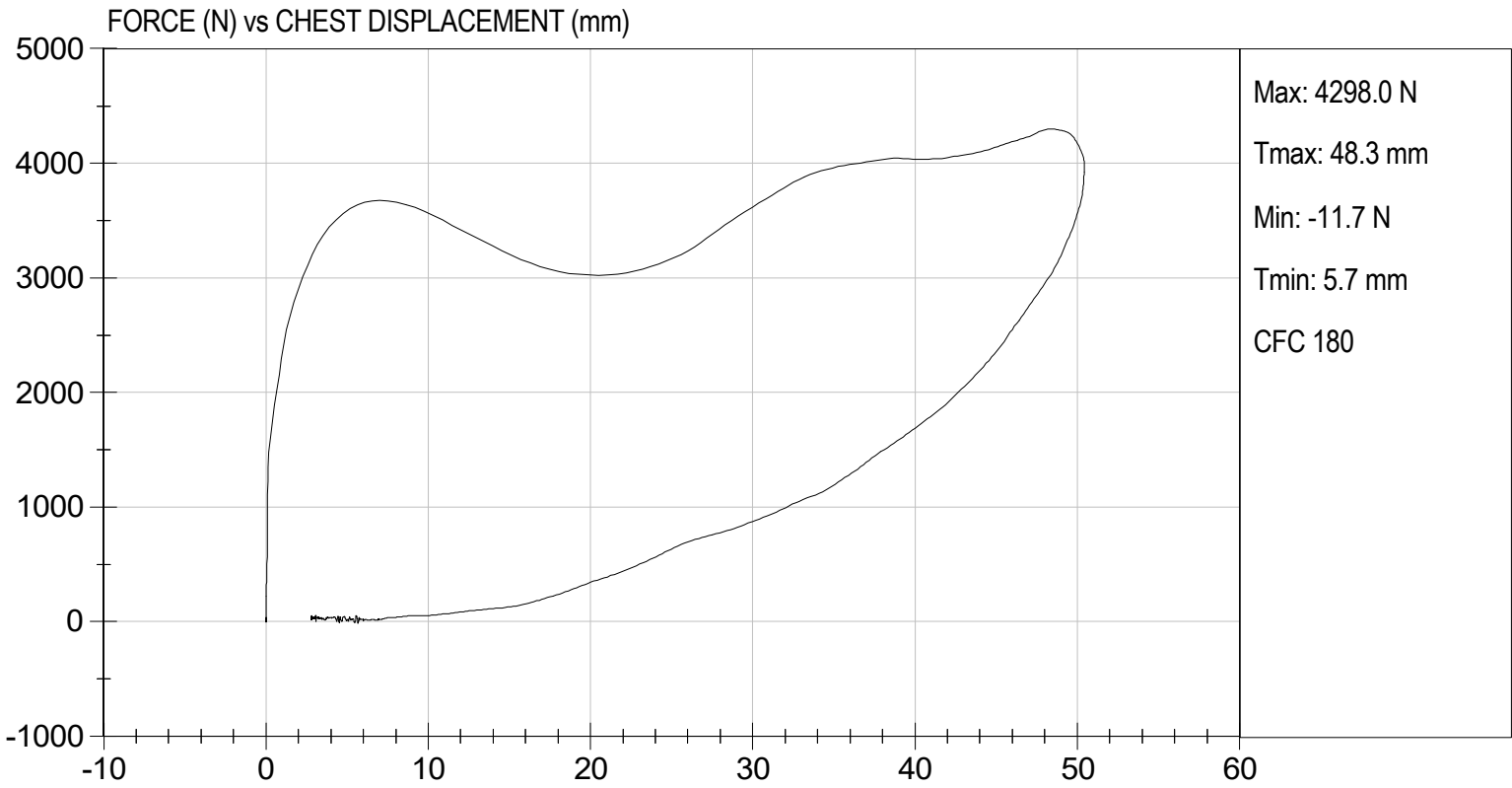
Test I.D: D243194

| Tested Parameter | Units | Specification | Result | Pass/Fail |
|---|-------|---------------|----------------------|-----------|
| Temperature | deg C | 20.6 to 22.2 | 21.6 | Pass |
| Relative Humidity | % | 10 to 70 | 36 | Pass |
| Probe Speed | m/s | 6.59 to 6.83 | 6.62 | Pass |
| Peak Deflection | mm | 50 to 58 | 50 | Pass |
| Peak Resistive Force w/in Deflection Corridor | N | 3900 to 4400 | 4169 | Pass |
| Internal Hysteresis | % | 69 to 85 | 74 | Pass |
| Peak Force 18 mm - 50 mm | N | <= 4600 | 4298 | Pass |
| | | | Overall Test Results | Pass |


Laboratory Technician

12/16/2024
Test Date


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MGA RESEARCH CORPORATION
RIGHT KNEE IMPACT TEST
HYBRID III 5TH PERCENTILE


ATD Serial No: 142

Test I.D: D243195

| 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 | 34 | Pass |
| Probe Speed | m/s | 2.07 to 2.13 | 2.10 | Pass |
| Maximum Force | N | 3450 to 4060 | 3942 | Pass |
| | | | Overall Test Results | Pass |


Laboratory Technician

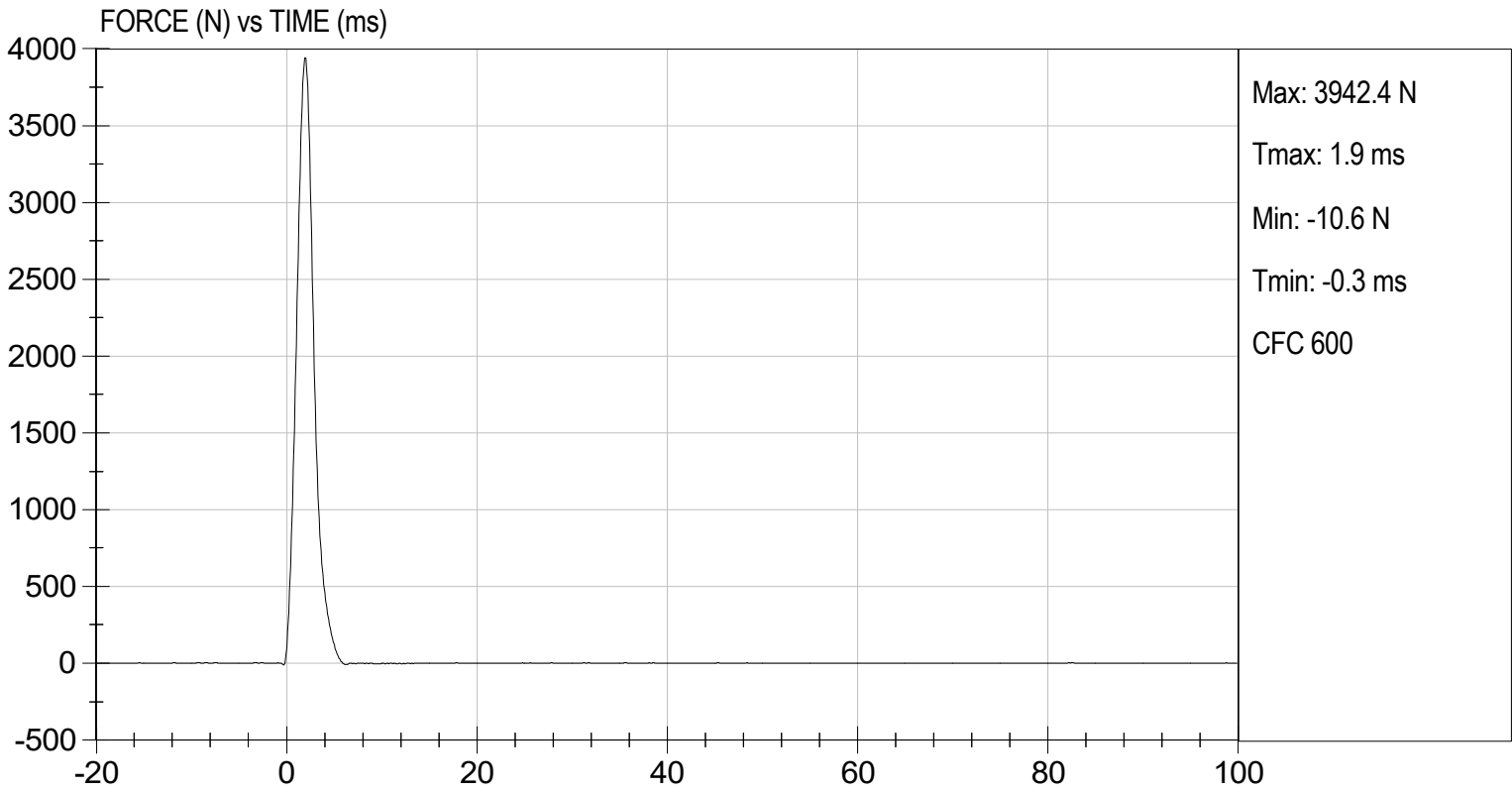
12/17/2024
Test Date


Approved By



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

TEST DATE: 12/17/2024
TEST #: D243195



MGA RESEARCH CORPORATION

LEFT KNEE IMPACT TEST

HYBRID III 5TH PERCENTILE

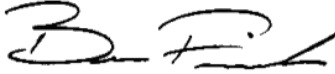
ATD Serial No: 142

Test I.D: D243196

| 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 | 34 | Pass |
| Probe Speed | m/s | 2.07 to 2.13 | 2.10 | Pass |
| Maximum Force | N | 3450 to 4060 | 3849 | Pass |
| | | | Overall Test Results | Pass |


Laboratory Technician

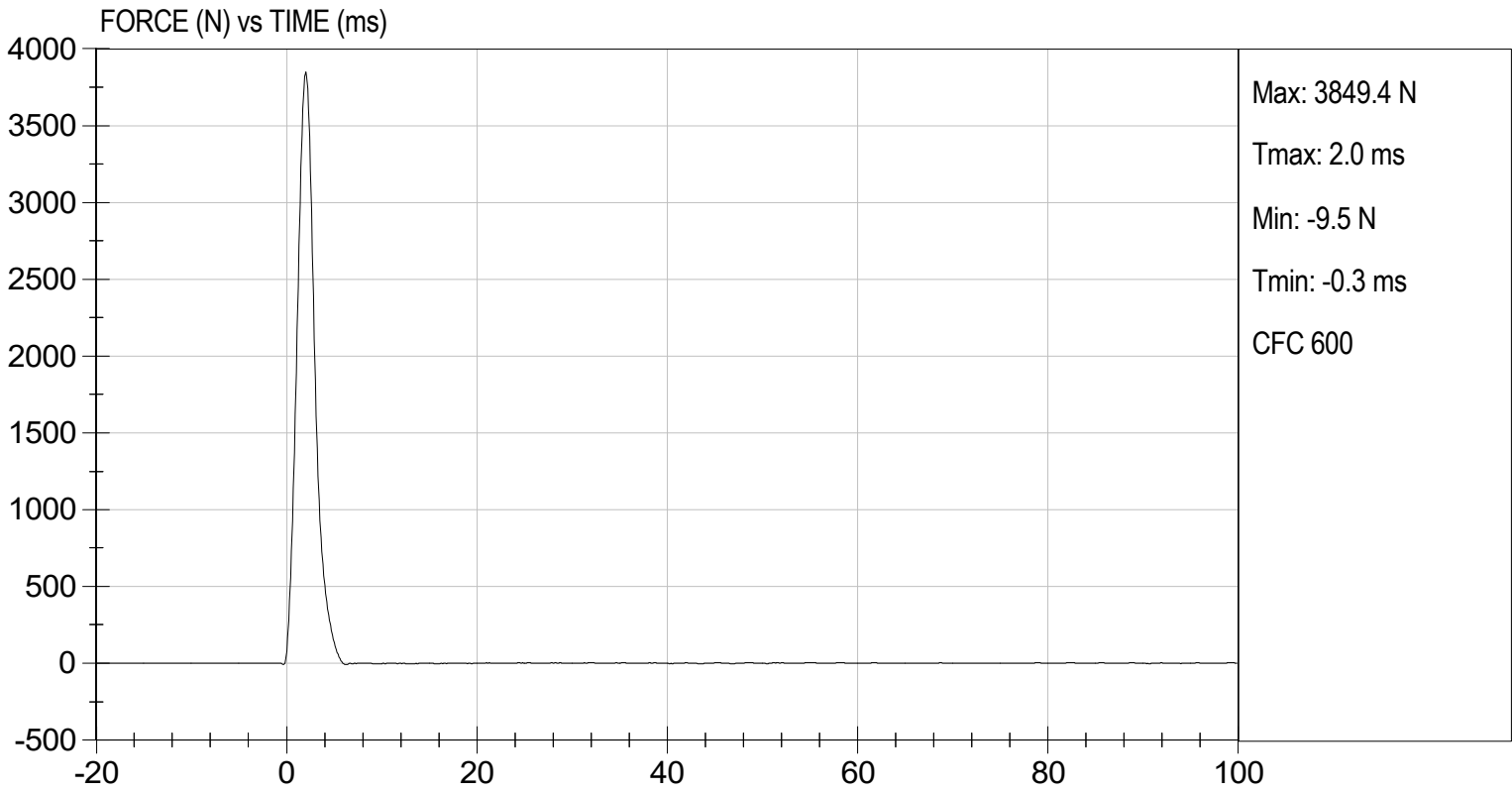
12/17/2024
Test Date


Approved By



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

TEST DATE: 12/17/2024
TEST #: D243196



MGA RESEARCH CORPORATION

TORSO FLEXION TEST

HYBRID III 5TH PERCENTILE

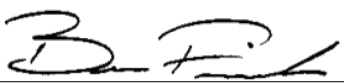
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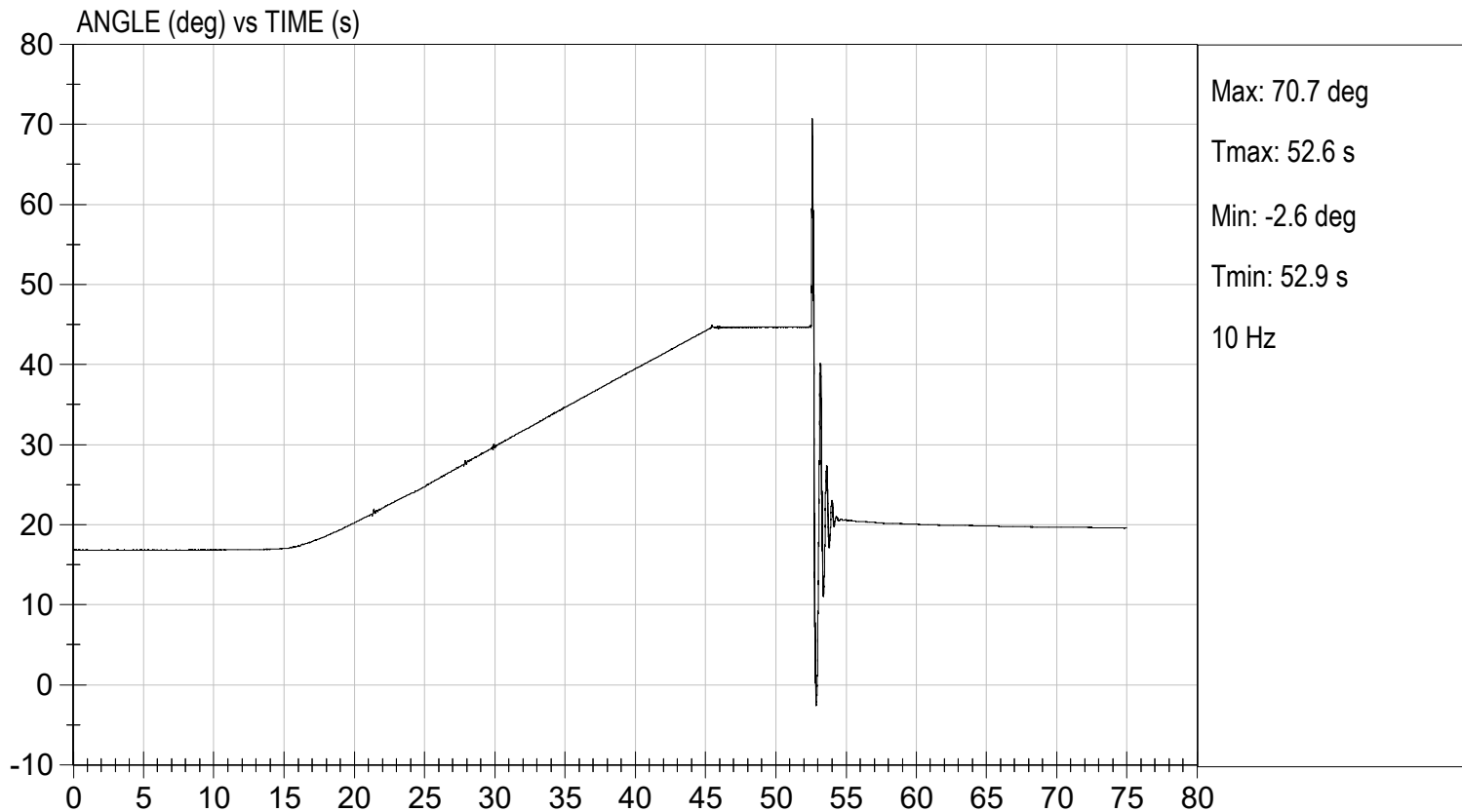
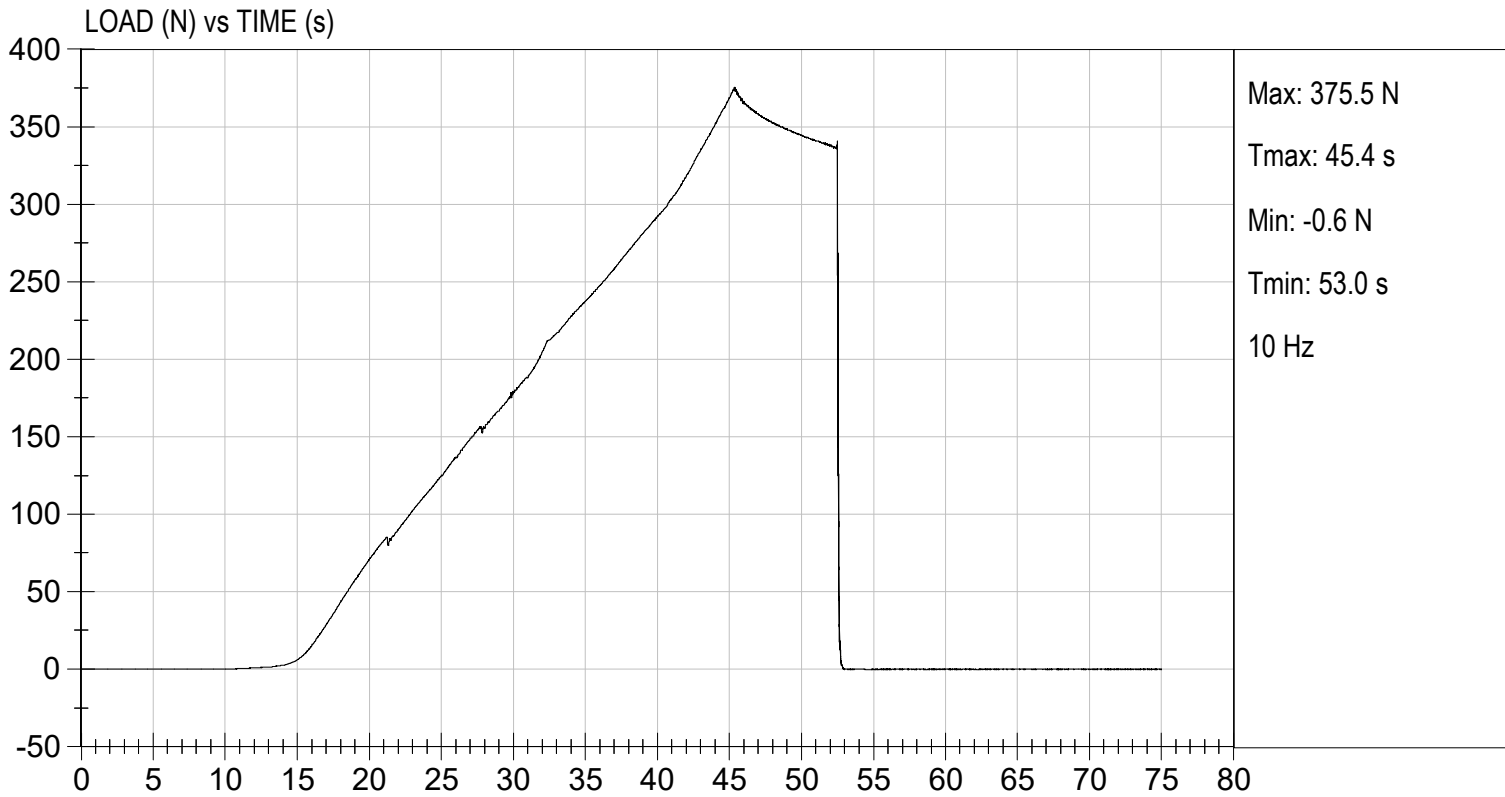
Test I.D: D243197

| Tested Parameter | Units | Specification | Result | Pass/Fail |
|------------------------------|-------|---------------|----------------|-----------|
| Laboratory Temperature | deg C | 18.9 to 25.6 | 21.8 | Pass |
| Laboratory Relative Humidity | % | 10 to 70 | 37 | Pass |
| Initial Angle | deg | 0 to 20 | 17 | Pass |
| Return Angle | deg | +/- 8 | 3 | Pass |
| Force at 45 deg | N | 320 to 390 | 376 | Pass |
| Upper Torso Deflection Rate | deg/s | 0.5 to 1.5 | 1.0 | Pass |
| | | | Overall Result | Pass |


Laboratory Technician

12/16/2024
Test Date


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QUALIFICATION TEST RESULTS

POST-TEST

HYBRID III 5TH PERCENTILE FEMALE - PASSENGER ATD

MGA RESEARCH CORPORATION
HEAD DROP TEST
HYBRID III 5TH PERCENTILE

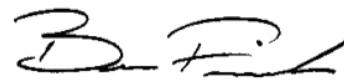
ATD Serial No: 142

Test ID: D250121

| 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 | 24 | Pass |
| Peak Resultant Acceleration | G's | 250 to 300 | 265 | Pass |
| Peak Lateral Acceleration | G's | <= +/- 15.0 | -5.3 | Pass |
| Unimodal | N/A | Yes | Yes | Pass |
| Oscillations | N/A | within 10% of peak | Yes | Pass |
| Overall Test Results | | | | Pass |

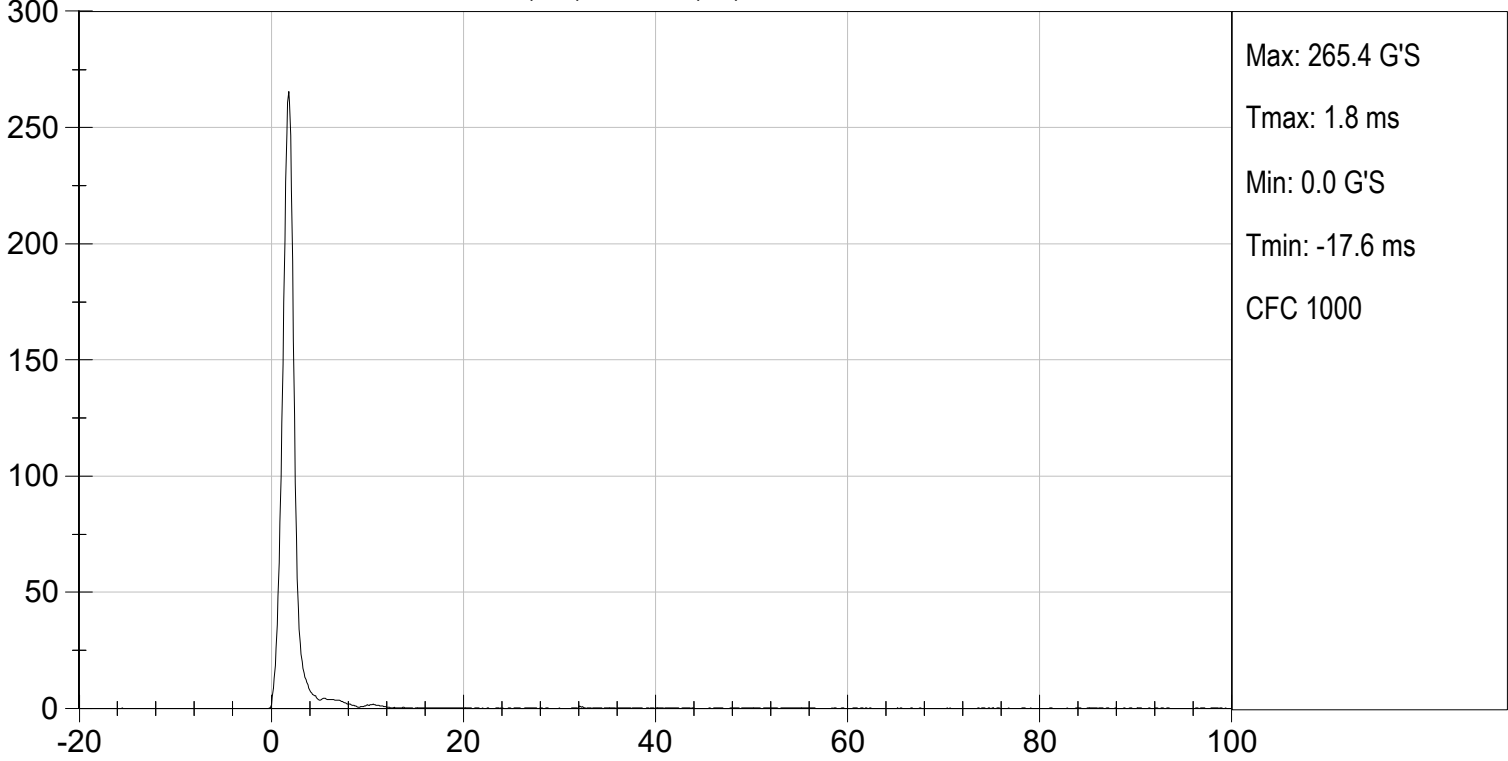

 Laboratory Technician

01/14/2025
 Test Date

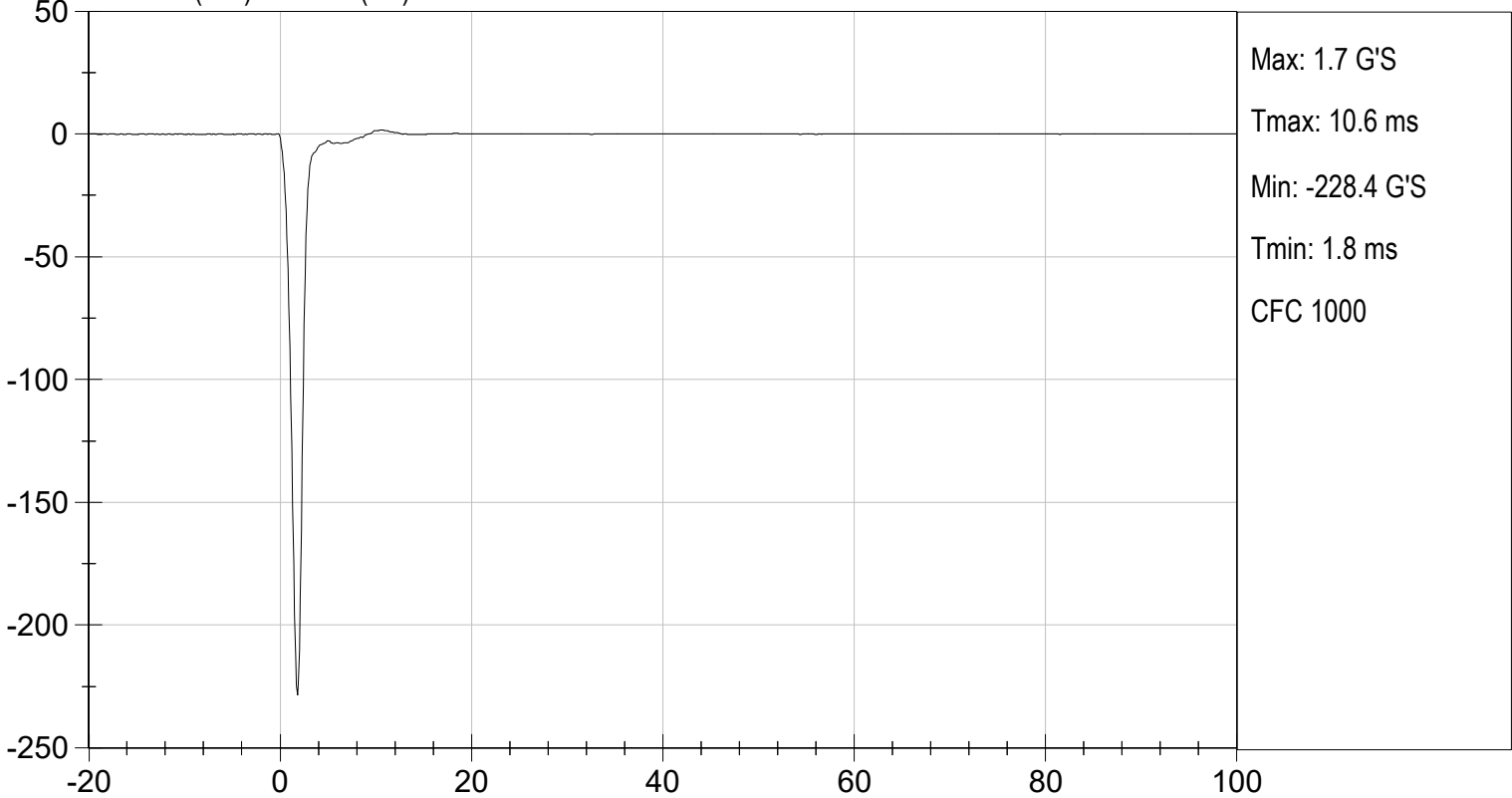

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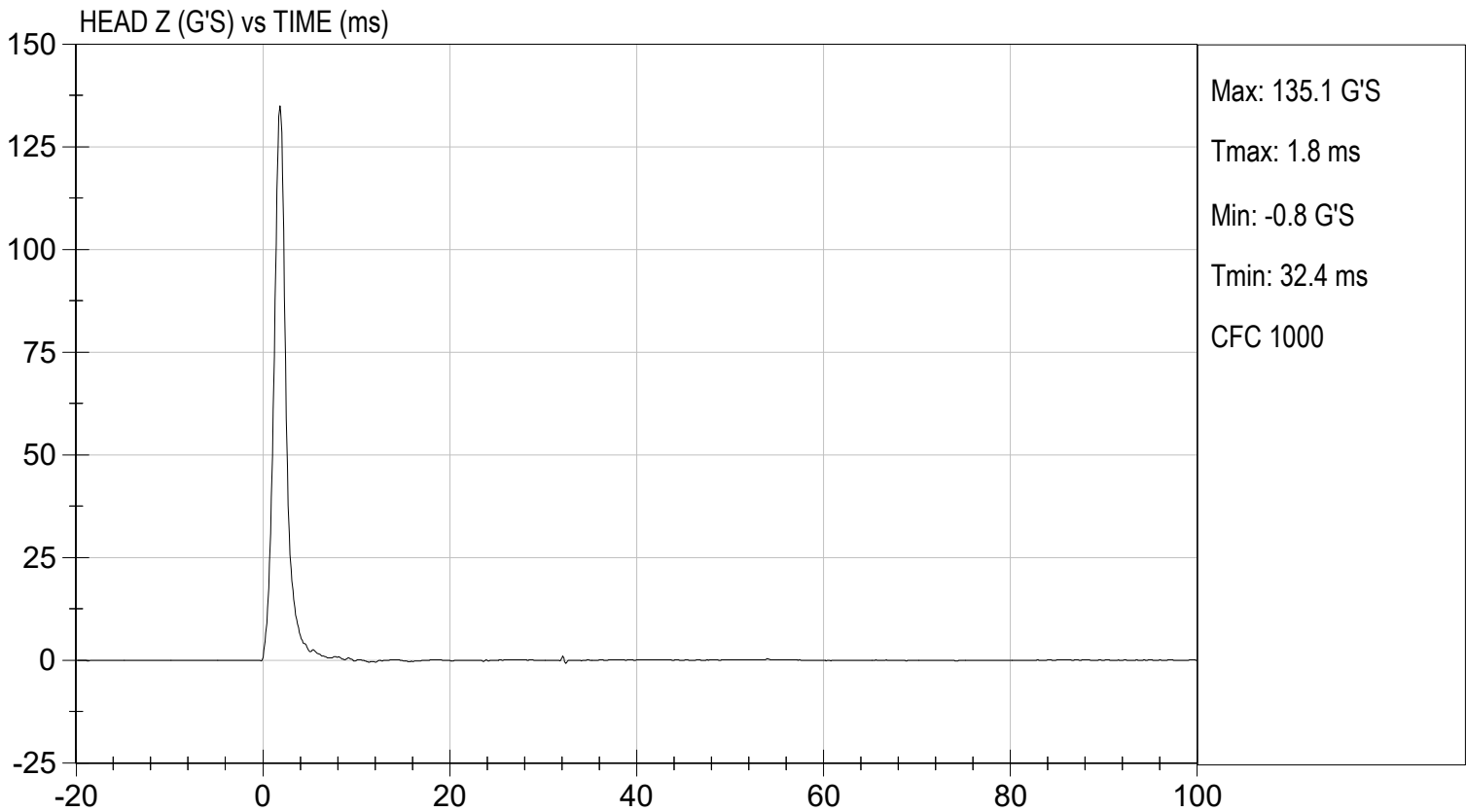
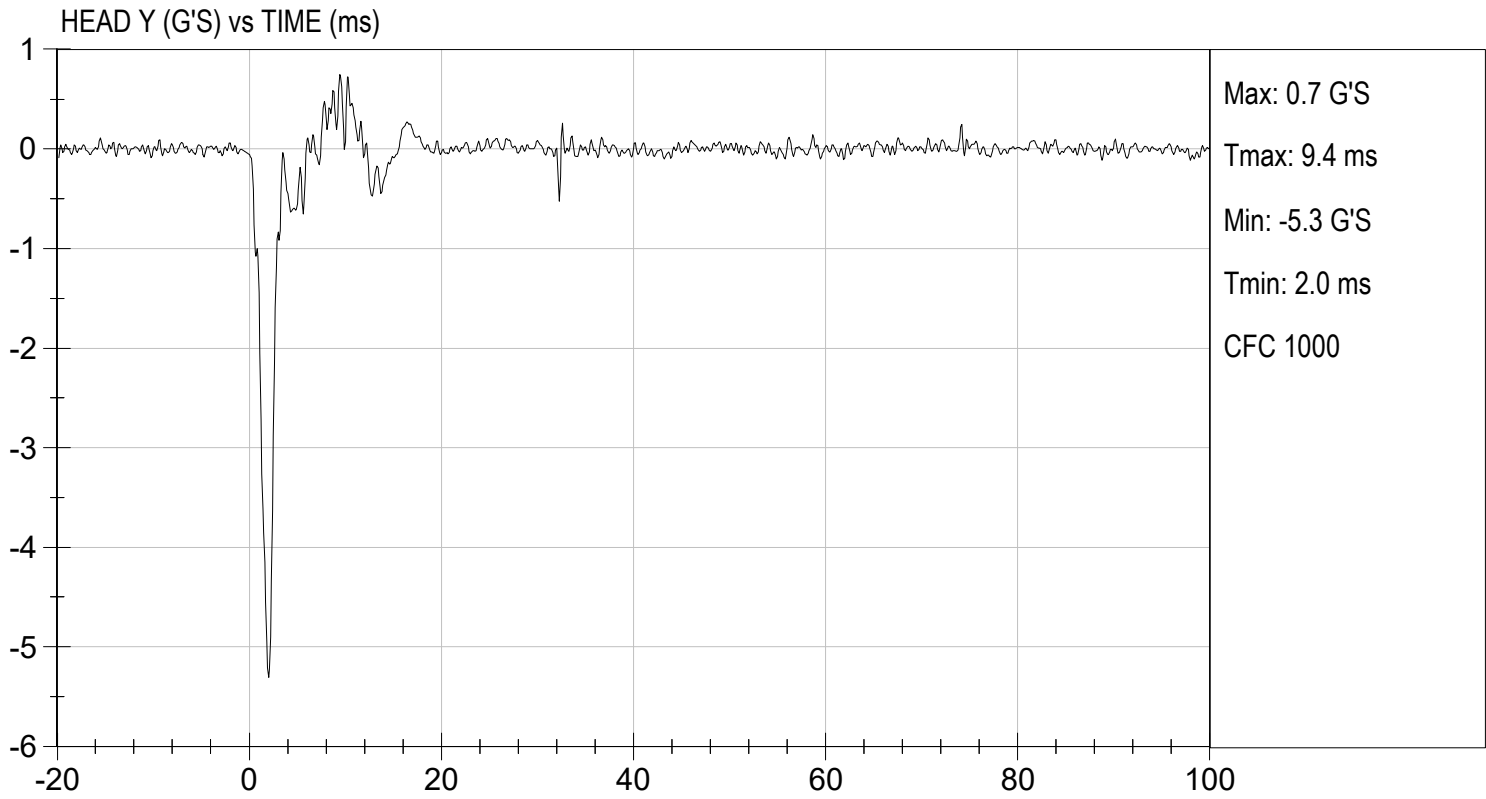


HEAD RESULTANT ACCELERATION (G'S) vs TIME (ms)



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





MGA RESEARCH CORPORATION

NECK FLEXION TEST

HYBRID III 5TH PERCENTILE

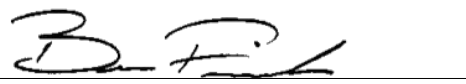
ATD Serial No: 142

Test I.D: D250122

| Tested Parameter | | Units | Specification | Result | Pass/Fail |
|---|-------|-------|---------------|--------|-----------|
| Laboratory Temperature | | deg C | 20.6 to 22.2 | 21.6 | Pass |
| Laboratory Relative Humidity | | % | 10 to 70 | 23 | Pass |
| Pendulum Speed | | m/s | 6.89 to 7.13 | 6.96 | Pass |
| Pendulum Velocity | 10 ms | m/s | 2.1 to 2.5 | 2.4 | Pass |
| | 20 ms | m/s | 4.0 to 5.0 | 4.7 | Pass |
| | 30 ms | m/s | 5.8 to 7.0 | 6.8 | 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 |

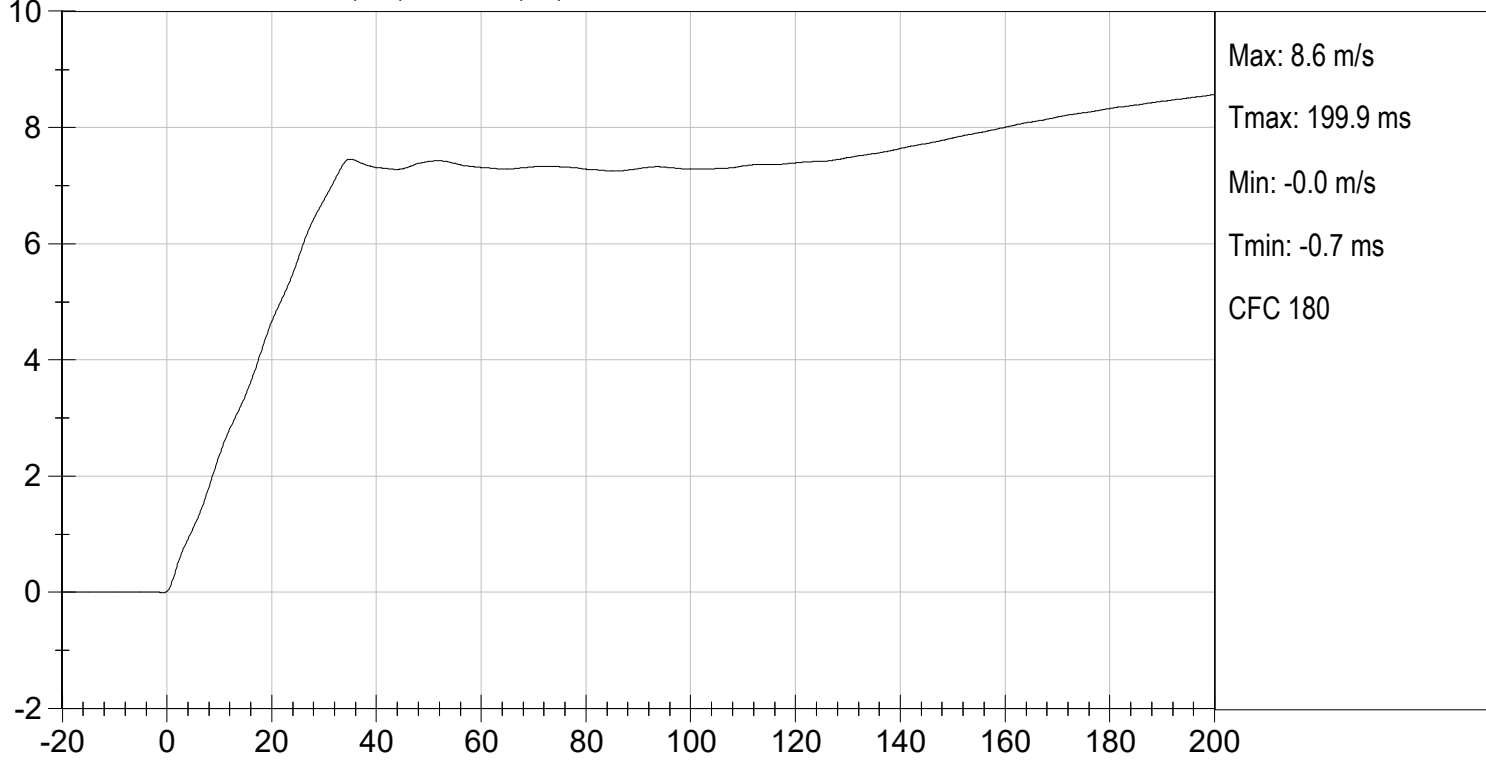

 Laboratory Technician

01/14/2025
 Test Date

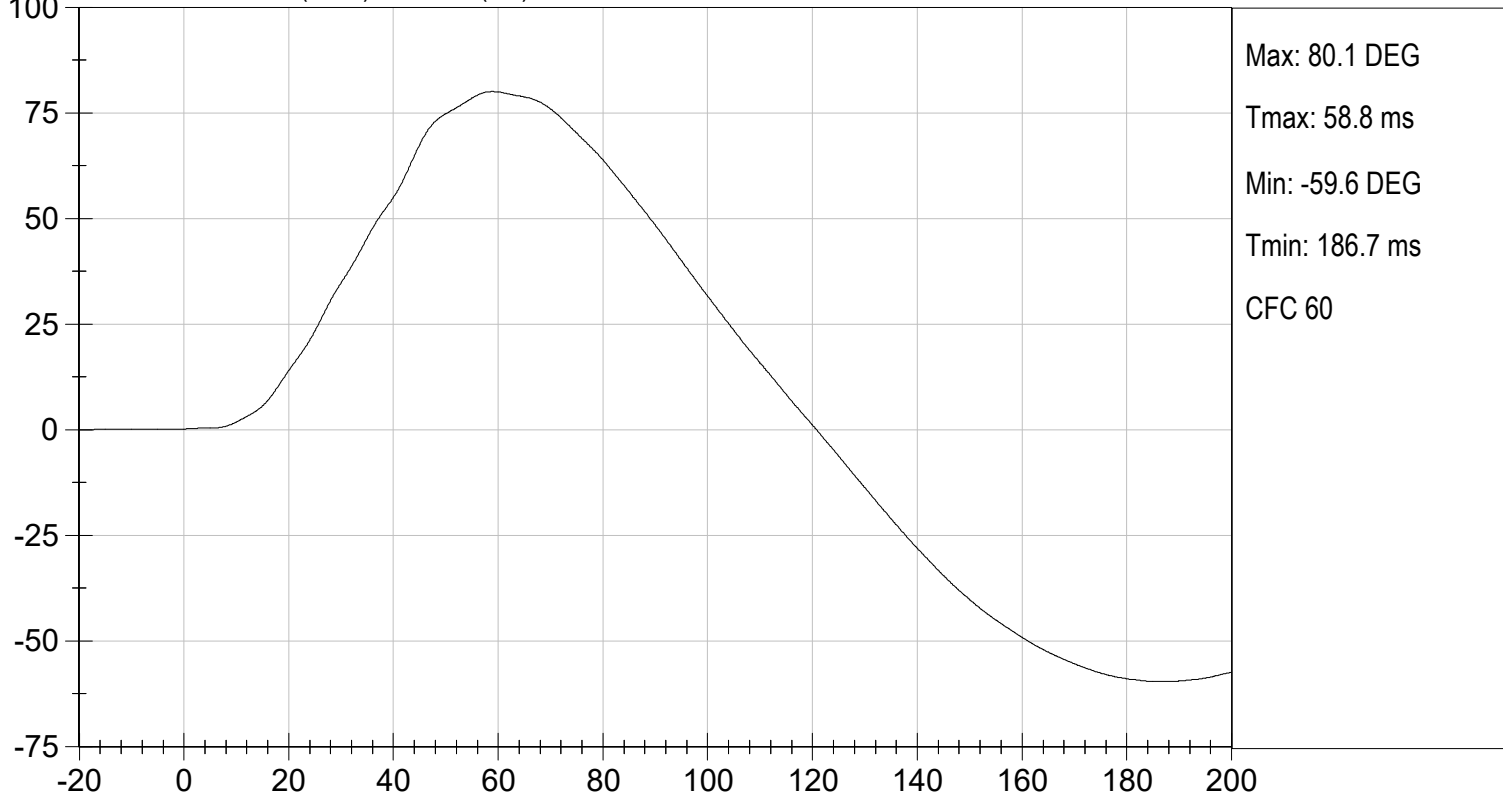

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PENDULUM VELOCITY (m/s) vs TIME (ms)



NECK ROTATION (DEG) vs TIME (ms)





MGA RESEARCH CORPORATION
NECK EXTENSION TEST
HYBRID III 5TH PERCENTILE


ATD Serial No: 142

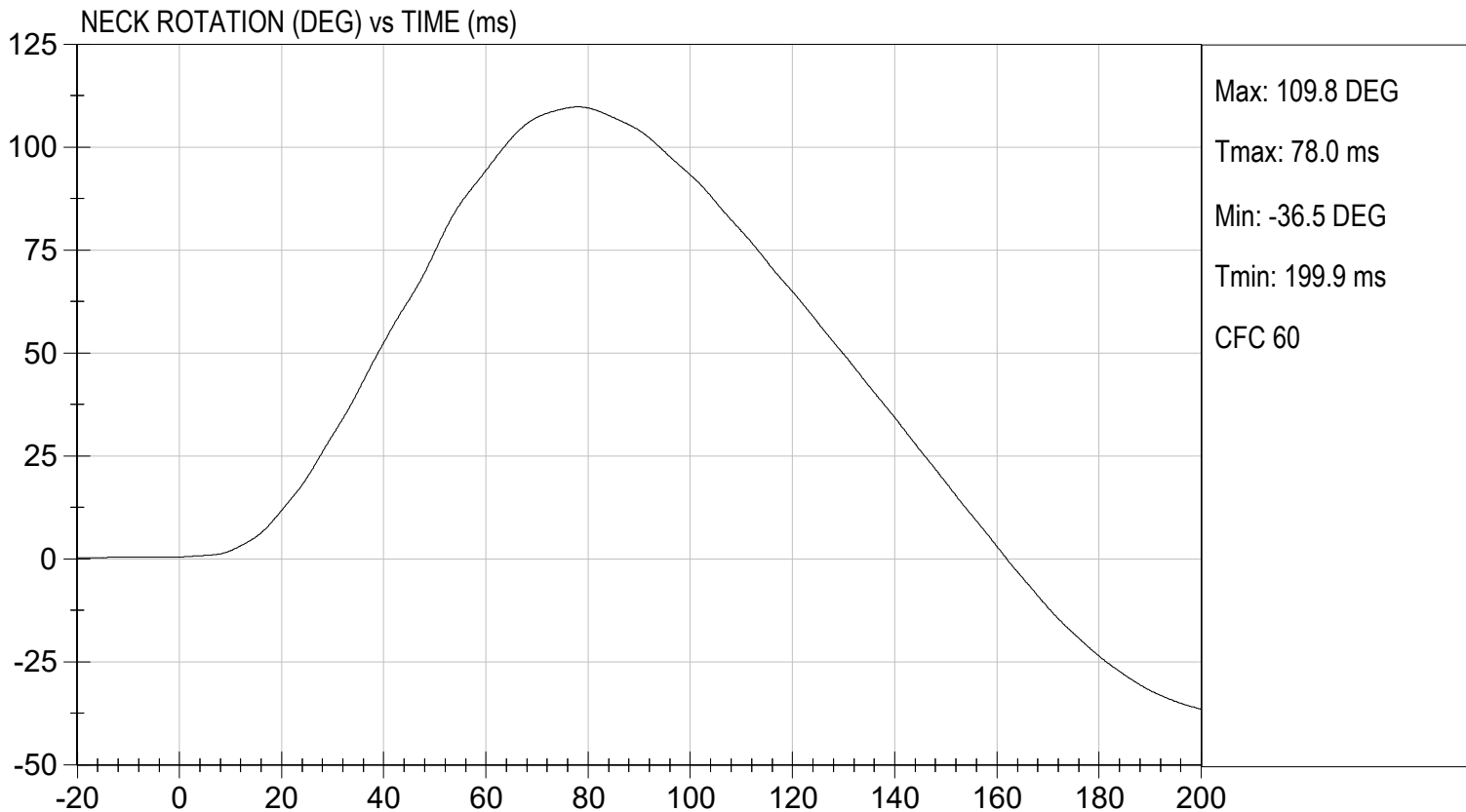
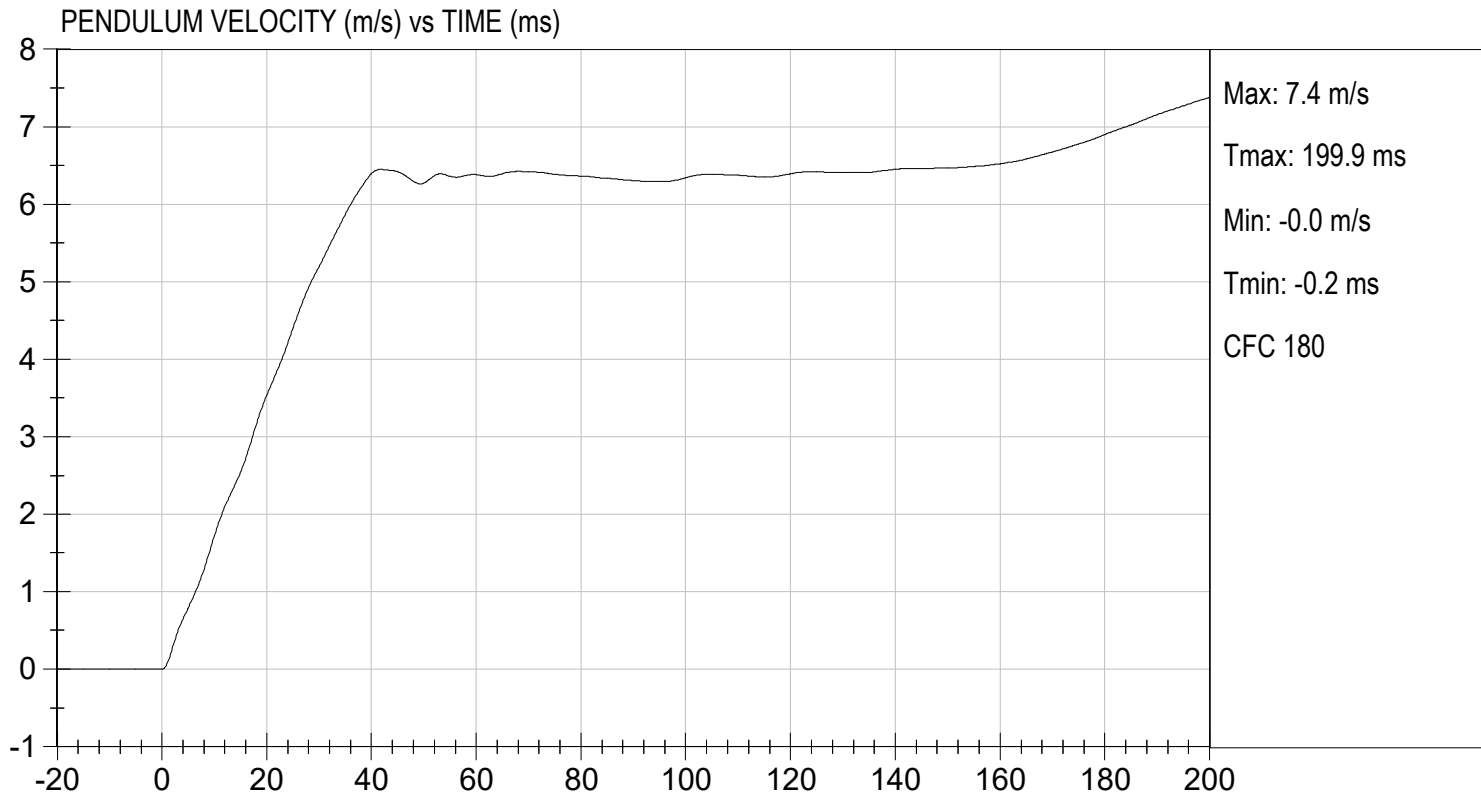
Test I.D.: D250123

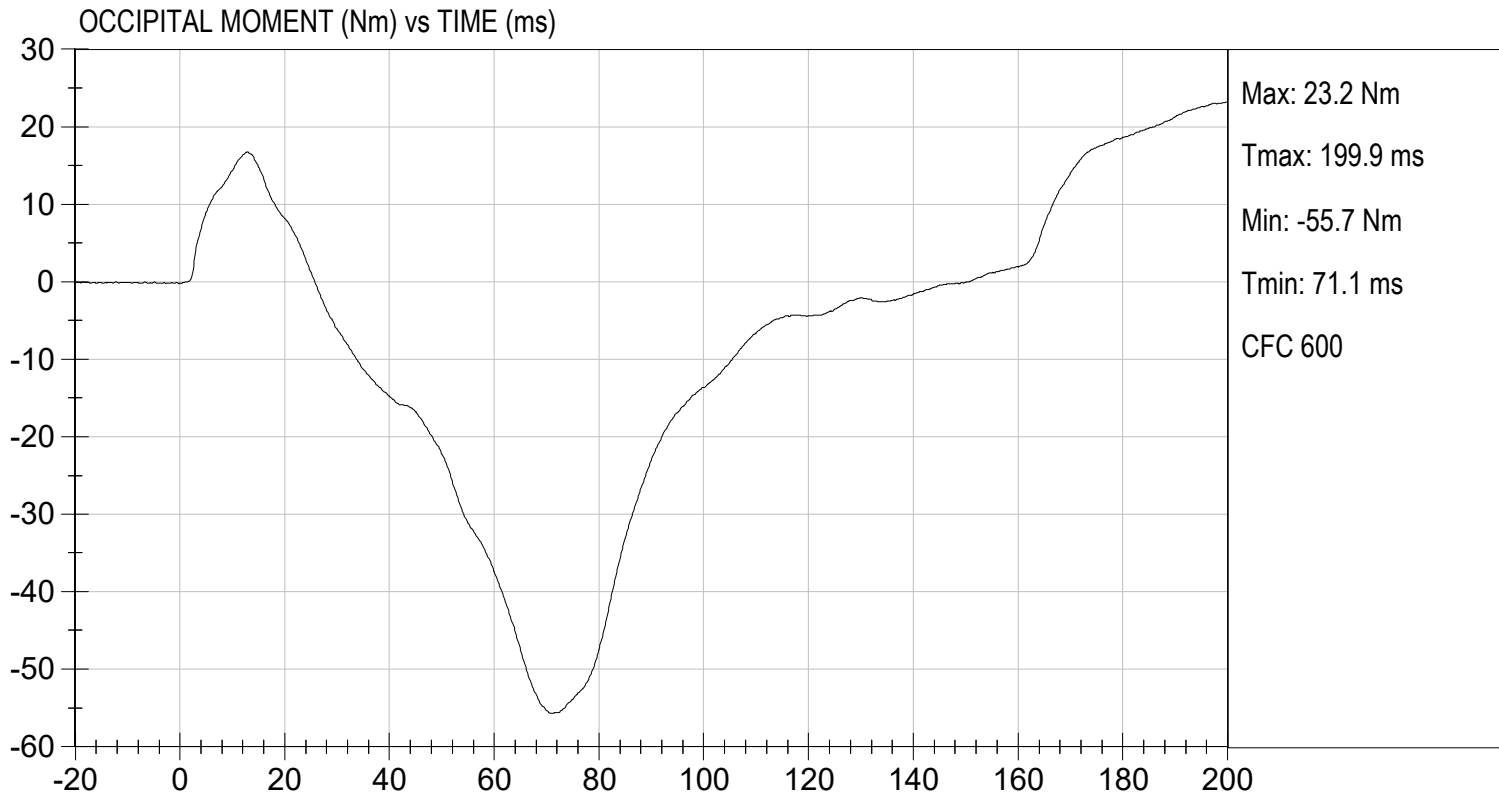
| Tested Parameter | | Units | Specification | Result | Pass/Fail |
|---|-------|-------|---------------|--------|-----------|
| Laboratory Temperature | | deg C | 20.6 to 22.2 | 21.4 | Pass |
| Laboratory Relative Humidity | | % | 10 to 70 | 23 | Pass |
| Pendulum Speed | | m/s | 5.95 to 6.19 | 5.98 | Pass |
| Pendulum Velocity | 10 ms | m/s | 1.5 to 1.9 | 1.7 | 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 | -56 | Pass |
| Negative Moment Time Curve Decay to -10 Nm | | ms | 94 to 114 | 106 | Pass |
| Overall Results | | | | | Pass |


 Laboratory Technician

01/14/2025
 Test Date


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THORAX IMPACT

HYBRID III 5TH PERCENTILE


ATD Serial No: 142

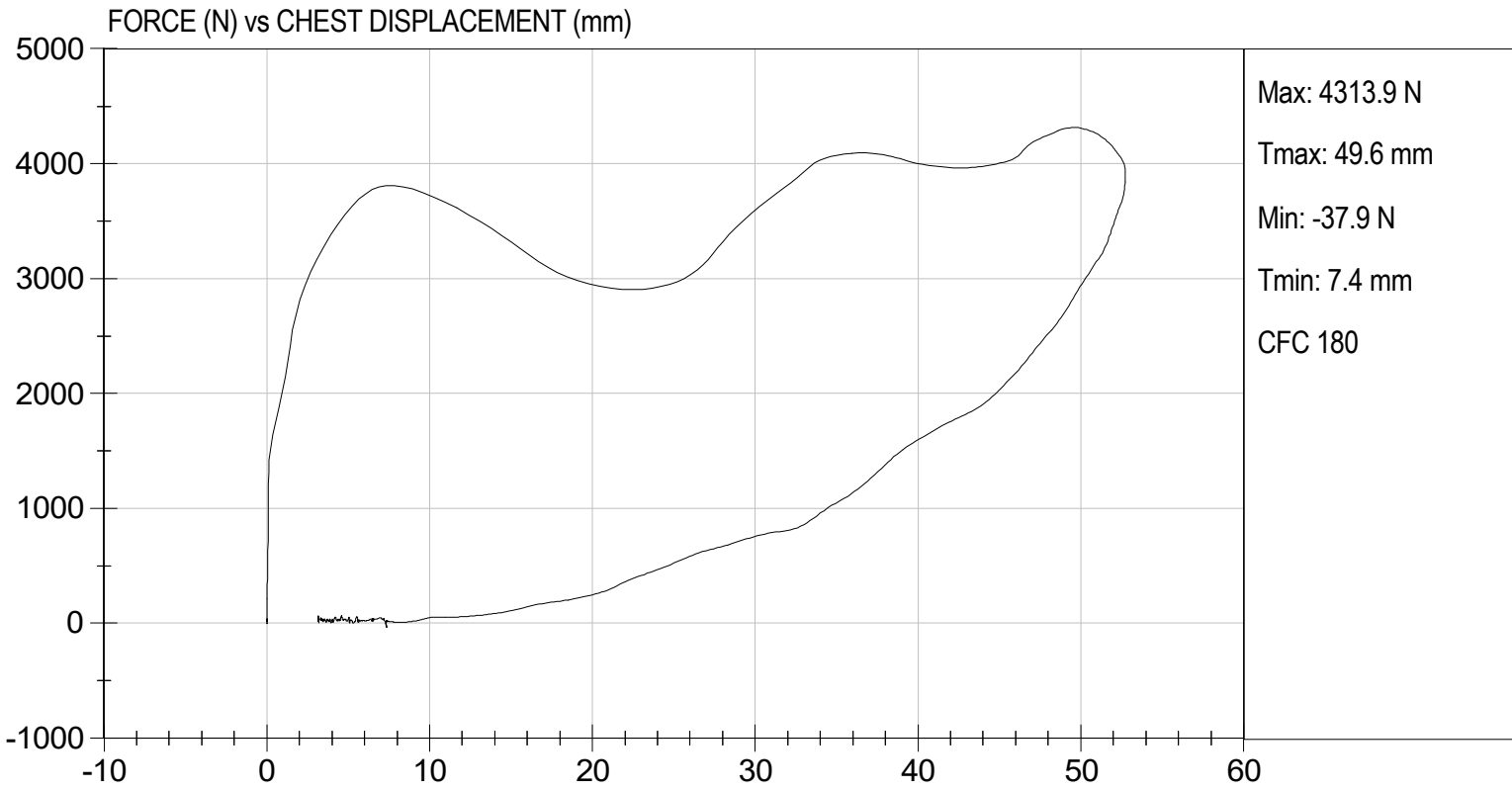
Test I.D: D250124

| Tested Parameter | Units | Specification | Result | Pass/Fail |
|---|-------|---------------|--------|-----------|
| Temperature | deg C | 20.6 to 22.2 | 21.5 | Pass |
| Relative Humidity | % | 10 to 70 | 24 | Pass |
| Probe Speed | m/s | 6.59 to 6.83 | 6.77 | Pass |
| Peak Deflection | mm | 50 to 58 | 53 | Pass |
| Peak Resistive Force w/in Deflection Corridor | N | 3900 to 4400 | 4305 | Pass |
| Internal Hysteresis | % | 69 to 85 | 75 | Pass |
| Peak Force 18 mm - 50 mm | N | <= 4600 | 4314 | Pass |
| Overall Test Results | | | | Pass |


Laboratory Technician

01/14/2025
Test Date


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MGA RESEARCH CORPORATION
RIGHT KNEE IMPACT TEST
HYBRID III 5TH PERCENTILE

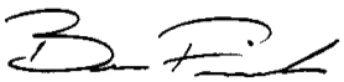
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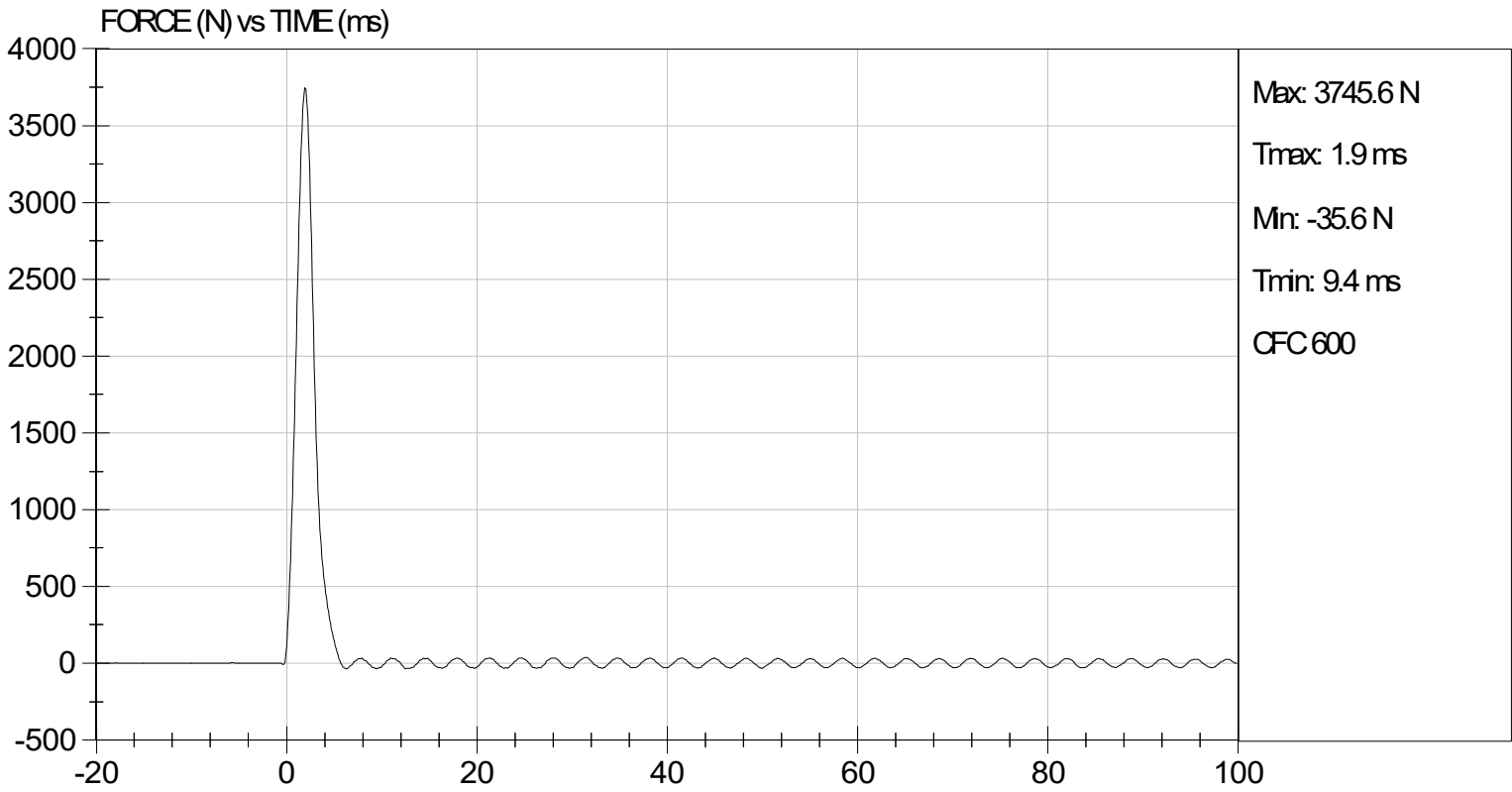
Test I.D: D250125

| 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 | 23 | Pass |
| Probe Speed | m/s | 2.07 to 2.13 | 2.10 | Pass |
| Maximum Force | N | 3450 to 4060 | 3746 | Pass |
| Overall Test Results | | | | Pass |


 Laboratory Technician

01/14/2025
 Test Date


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MGA RESEARCH CORPORATION

LEFT KNEE IMPACT TEST

HYBRID III 5TH PERCENTILE

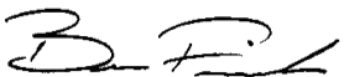
ATD Serial No: 142

Test I.D: D250126

| 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 | 23 | Pass |
| Probe Speed | m/s | 2.07 to 2.13 | 2.10 | Pass |
| Maximum Force | N | 3450 to 4060 | 3810 | Pass |
| Overall Test Results | | | | Pass |


Laboratory Technician

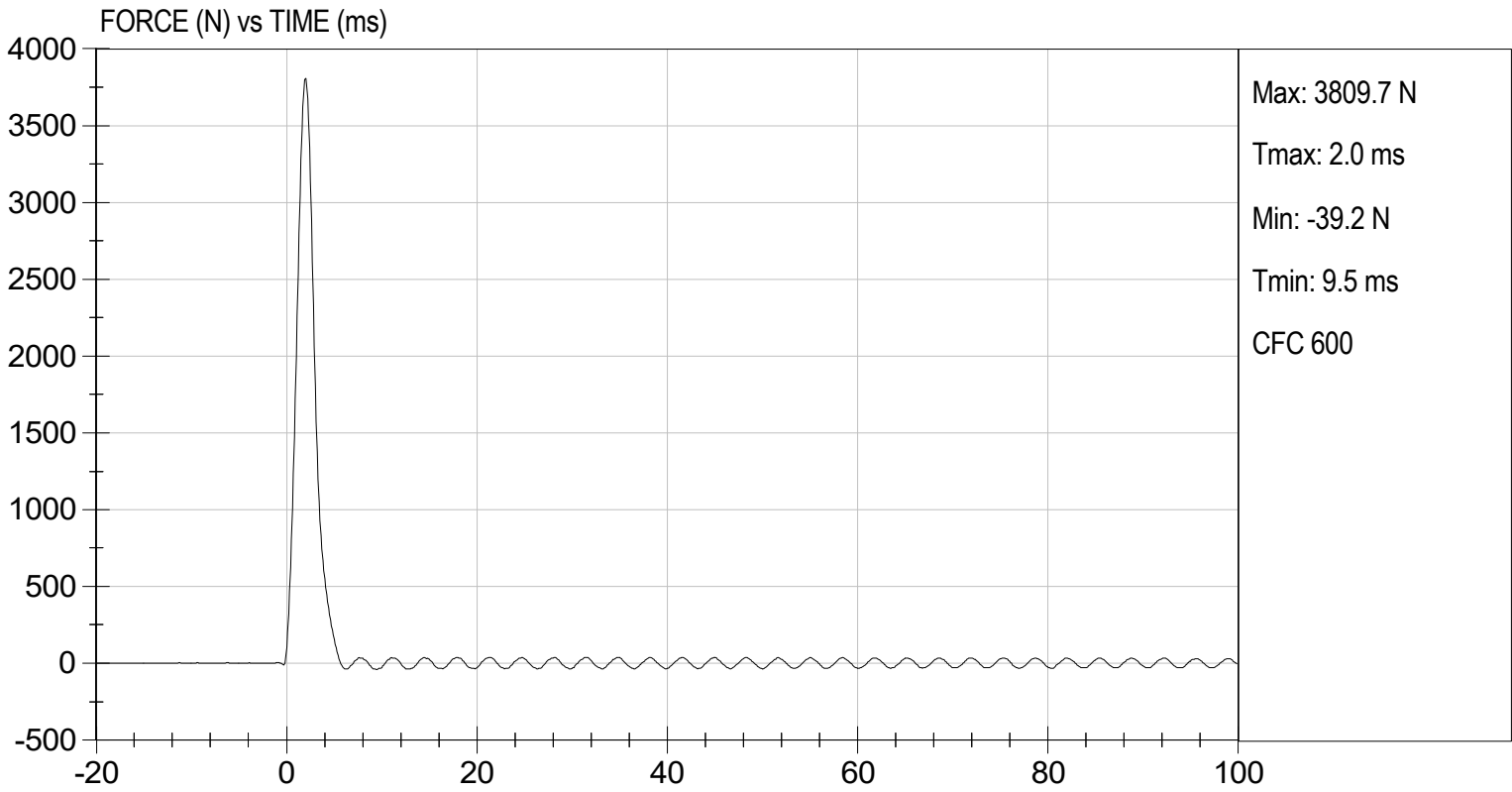
01/14/2025
Test Date


Approved By



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

TEST DATE: 01/14/2025
TEST #: D250126



MGA RESEARCH CORPORATION

TORSO FLEXION TEST

HYBRID III 5TH PERCENTILE


ATD Serial No: 142

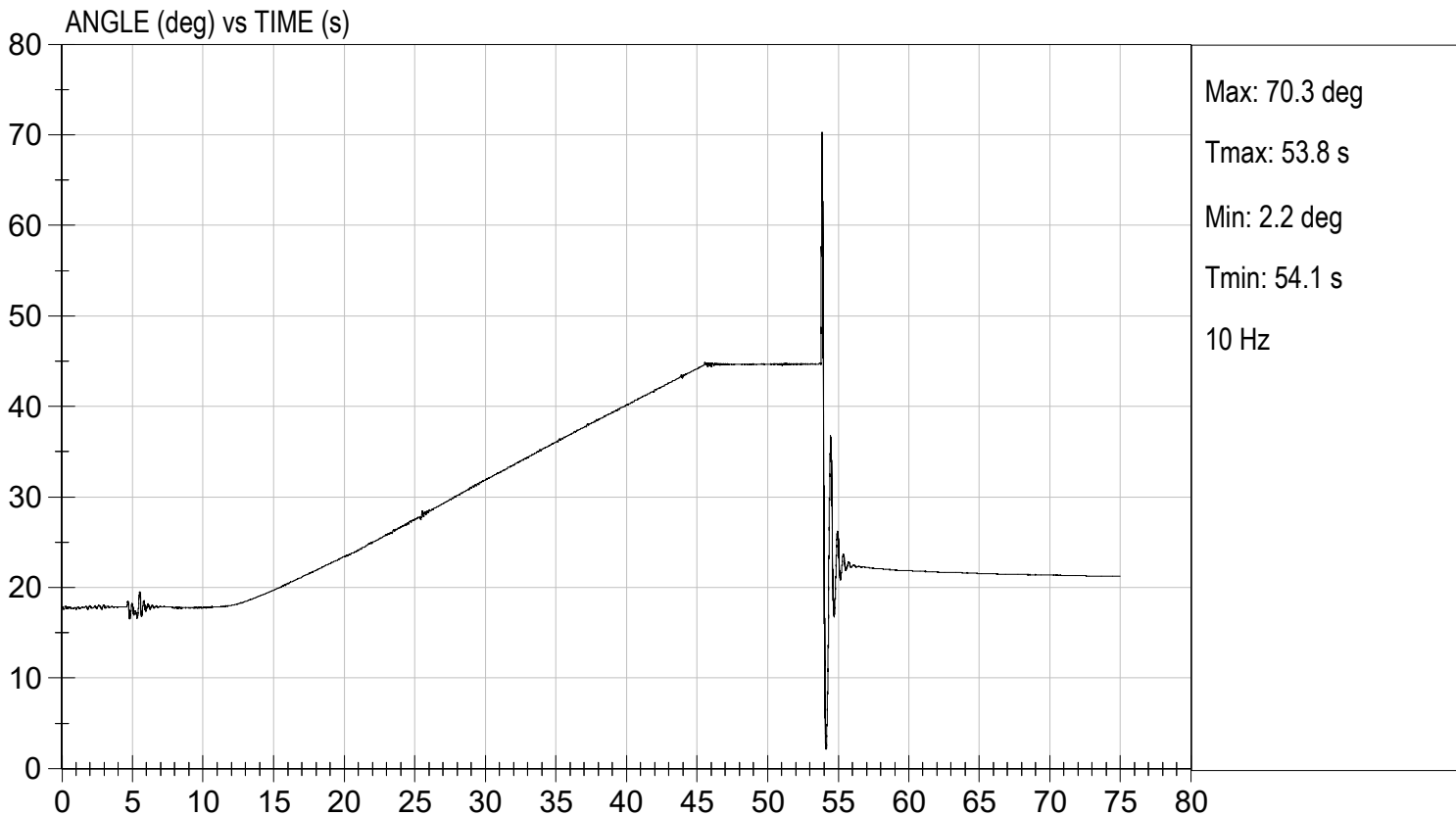
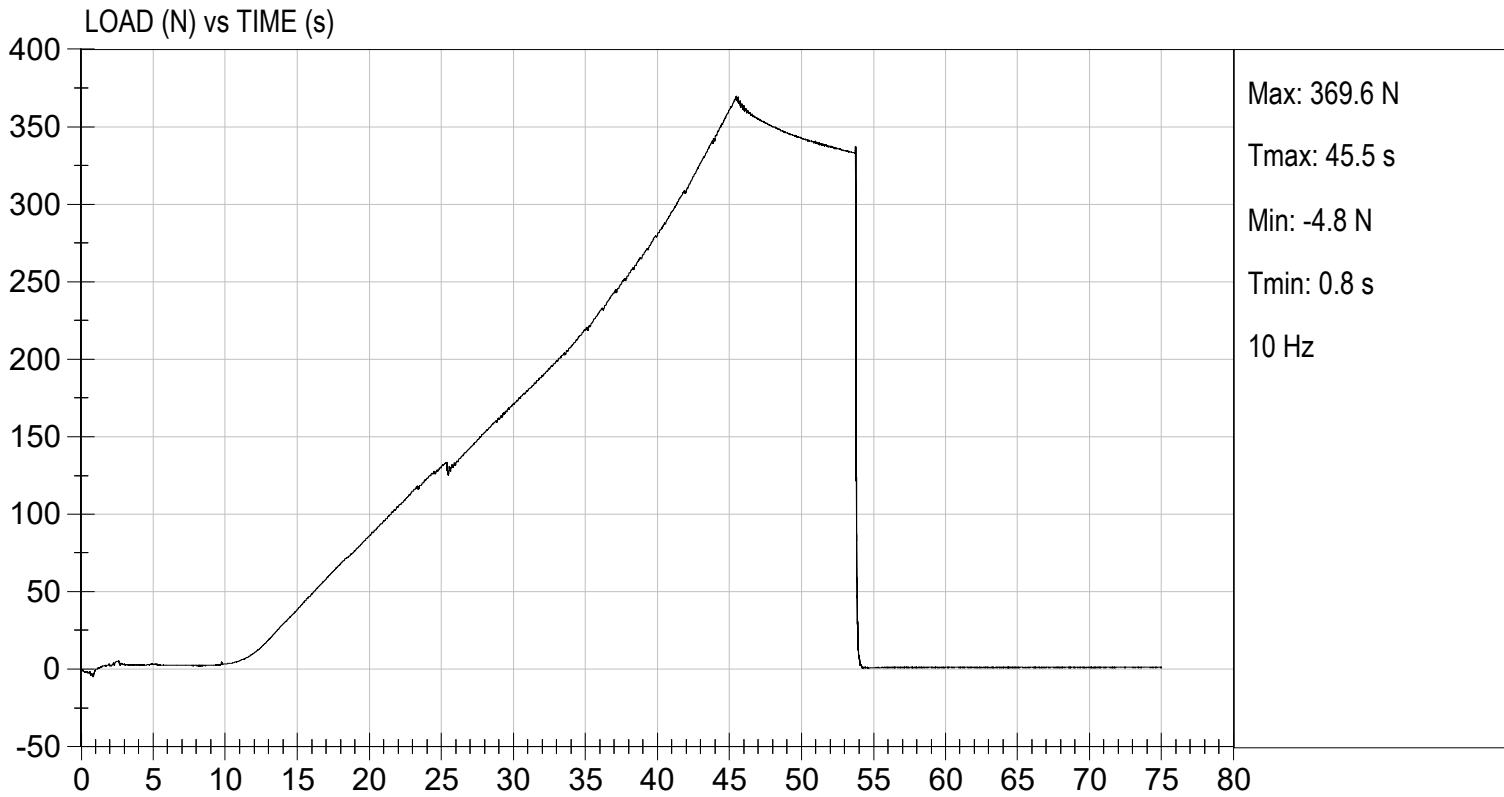
Test I.D: D250127

| Tested Parameter | Units | Specification | Result | Pass/Fail |
|------------------------------|-------|---------------|----------------|-----------|
| Laboratory Temperature | deg C | 18.9 to 25.6 | 21.6 | Pass |
| Laboratory Relative Humidity | % | 10 to 70 | 24 | Pass |
| Initial Angle | deg | 0 to 20 | 18 | Pass |
| Return Angle | deg | +/- 8 | 3 | Pass |
| Force at 45 deg | N | 320 to 390 | 370 | Pass |
| Upper Torso Deflection Rate | deg/s | 0.5 to 1.5 | 0.8 | Pass |
| | | | Overall Result | Pass |


Laboratory Technician

01/14/2025
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 | 11/19/2024 | |
| | | Y | P79743 | Endevco | 11/19/2024 | |
| | | Z | P79741 | Endevco | 11/19/2024 | |
| | Redundant | X | P79744 | Endevco | 11/19/2024 | |
| | | Y | P94834 | Endevco | 11/19/2024 | |
| | | Z | P94856 | Endevco | 11/19/2024 | |
| Head Angular Rate Sensors | | | X | ARS7502 | DTS | 07/31/2024 |
| | | | Y | ARS7524 | DTS | 07/31/2024 |
| | | | Z | ARS7547 | DTS | 07/31/2024 |
| Upper Neck Load Cell | | | Fx, Fy, Fz Mx, My, Mz | NG2022 | Denton | 05/24/2024 |
| Chest Accelerometers | Primary | X | P86793 | Endevco | 11/19/2024 | |
| | | Y | P88348 | Endevco | 11/19/2024 | |
| | | Z | P86792 | Endevco | 11/19/2024 | |
| | Redundant | X | P88667 | Endevco | 11/19/2024 | |
| | | Y | P94109 | Endevco | 11/19/2024 | |
| | | Z | P88666 | Endevco | 11/19/2024 | |
| Chest Potentiometer | | | X | 064 | Humanetics | 11/19/2024 |
| Pelvis Accelerometers | | | X | P97742 | Endevco | 11/19/2024 |
| | | | Y | P96038 | Endevco | 11/19/2024 |
| | | | Z | P95526 | Endevco | 11/19/2024 |
| Femur Load Cells | Right | Primary | Z | FG121P | Denton | 11/19/2024 |
| | | Redundant | Z | FG121R | Denton | 11/19/2024 |
| | Left | Primary | Z | FG122P | Denton | 11/19/2024 |
| | | Redundant | Z | FG122R | Denton | 11/19/2024 |
| Tibia Load Cells | Right | Upper | Mx, My, Fz | TG405FZ | Denton | 11/12/2024 |
| | | Lower | Mx, My, Fz | AG368FZ | Denton | 11/11/2024 |
| | Left | Upper | Mx, My, Fz | TG475FZ | Denton | 11/12/2024 |
| | | Lower | Mx, My, Fz | AG504FZ | Denton | 11/12/2024 |
| Foot Accelerometers | Right | Rear | X | T22486 | Endevco | 11/19/2024 |
| | | | Z | P97382 | Endevco | 11/19/2024 |
| | | Front | Z | P82120 | Endevco | 11/19/2024 |
| | Left | Rear | X | T16468 | Endevco | 11/19/2024 |
| | | | Z | T32154 | Endevco | 11/19/2024 |
| | | Front | Z | T32190 | Endevco | 11/19/2024 |
| Seat Belt Load Cells | | | Lap | | | |
| | | | Shoulder | | | |

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 | 10/29/2024 |
| | | | Y | P94800 | Endevco | 10/29/2024 |
| | | | Z | P94801 | Endevco | 10/29/2024 |
| | Redundant | | X | P94802 | Endevco | 10/29/2024 |
| | | | Y | P94803 | Endevco | 10/29/2024 |
| | | | Z | P97377 | Endevco | 10/29/2024 |
| Head Angular Rate Sensors | | | X | ARS7413 | DTS | 07/31/2024 |
| | | | Y | ARS7421 | DTS | 07/31/2024 |
| | | | Z | ARS7423 | DTS | 07/31/2024 |
| Upper Neck Load Cell | | | Fx, Fy, Fz Mx, My, Mz | NG2203 | Denton | 01/22/2024 |
| Chest Accelerometers | Primary | | X | P88719 | Endevco | 10/29/2024 |
| | | | Y | P94785 | Endevco | 10/29/2024 |
| | | | Z | P94793 | Endevco | 10/29/2024 |
| | Redundant | | X | P95322 | Endevco | 10/29/2024 |
| | | | Y | P95370 | Endevco | 10/29/2024 |
| | | | Z | T30901 | Endevco | 10/29/2024 |
| Chest Potentiometer | | | X | 142 | Humanetics | 10/29/2024 |
| Pelvis Accelerometers | | | X | P94798 | Endevco | 10/29/2024 |
| | | | Y | P82646 | Endevco | 10/29/2024 |
| | | | Z | P97705 | Endevco | 10/29/2024 |
| Femur Load Cells | Right | Primary | Z | FG126P | Denton | 10/29/2024 |
| | | Redundant | Z | FG126R | Denton | 10/29/2024 |
| | Left | Primary | Z | FG127P | Denton | 10/29/2024 |
| | | Redundant | Z | FG127R | Denton | 10/29/2024 |
| Tibia Load Cells | Right | Upper | Mx, My, Fz | TG467FZ | Denton | 01/22/2024 |
| | | Lower | Mx, My, Fz | AG500FZ | Denton | 01/22/2024 |
| | Left | Upper | Mx, My, Fz | TG478FZ | Denton | 01/22/2024 |
| | | Lower | Mx, My, Fz | AG491FZ | Denton | 01/22/2024 |
| Foot Accelerometers | Right | Rear | X | P94795 | Endevco | 10/29/2024 |
| | | | Z | P94796 | Endevco | 10/29/2024 |
| | | Front | Z | P94797 | Endevco | 10/29/2024 |
| | Left | Rear | X | P83167 | Endevco | 10/29/2024 |
| | | | Z | P83168 | Endevco | 10/29/2024 |
| | | Front | Z | P83169 | Endevco | 10/29/2024 |
| Seat Belt Load Cells | | | Lap | | | |
| | | | Shoulder | | | |

TABLE 3 – VEHICLE INSTRUMENTATION

| Instrument Location | | | Axis | Serial Number | Manufacturer | Calibration Date |
|--|-------|-----------|------|---------------|--------------|------------------|
| Crossmember / Rear Seat Accelerometers | Left | Primary | X | T39088 | Endevco | 08/13/2024 |
| | | | Z | T39071 | Endevco | 11/11/2024 |
| | | Redundant | X | T44175 | Endevco | 10/31/2024 |
| | Right | Primary | X | T40110 | Endevco | 07/30/2024 |
| | | | Z | T39025 | Endevco | 07/19/2024 |
| | | Redundant | X | A405049 | MSI | 09/25/2024 |
| Engine Accelerometers | | Top | X | T44152 | Endevco | 10/31/2024 |
| | | Bottom | X | T45139 | Endevco | 01/08/2025 |