

REPORT NUMBER: R&D-KAR-16-001

**MOVING BARRIER TO VEHICLE CRASH TEST IN SUPPORT OF NHTSA'S
FRONTAL OBLIQUE OFFSET PROGRAM
OBLIQUE MOVING DEFORMABLE BARRIER INTO LEFT FRONT OF A**

**MAZDA MOTOR CORPORATION
2016 MAZDA CX-5**

NHTSA No: R20165411

**PREPARED BY:
KARCO ENGINEERING, LLC.
9270 HOLLY ROAD
ADELANTO, CA 92301**



MAY 27, 2016

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
VEHICLE SAFETY RESEARCH
1200 NEW JERSEY AVE, SE, ROOM W46-446
WASHINGTON, D.C. 20590**

This publication is distributed by the U.S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United States Government does not endorse products or manufacturers.

Prepared By: 
Mr. Robert S. Ramos, Project Engineer
KARCO Engineering, LLC.

Reviewed By: 
Mr. Michael L. Dunlap, Director of Operations
KARCO Engineering, LLC.

Approved By: 
Mr. Frank D. Richardson, Program Manager
KARCO Engineering, LLC.

Approval Date: May 27, 2016

FINAL REPORT ACCEPTANCE BY OCWS:


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

Date: 


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

Date: 

TECHNICAL REPORT DOCUMENTATION PAGE

1. Report No. R&D-KAR-16-001	2. Government Accession No.	3. Recipient's Catalog No.																																							
4. Title and Subtitle Report for Frontal Oblique Offset Program Testing of a 2016 Mazda CX-5 NHTSA No. R20165411		5. Report Date May 27, 2016																																							
		6. Performing Organization Code KAR																																							
7. Authors Mr. Robert S. Ramos, Project Engineer, KARCO Mr. Frank Richardson, Program Manager, KARCO		8. Performing Organization Report No. TR-P35229-01-NC																																							
9. Performing Organization Name and Address KARCO Engineering, LLC. 9270 Holly Rd. Adelanto, CA 92301		10. Work Unit No.																																							
		11. Contract or Grant No. DTNH22-14-D-00360																																							
12. Sponsoring Agency Name and Address U. S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Research 1200 New Jersey Ave., SE, Room W46-446 Washington, D.C. 20590		13. Type of Report and Period Covered Final Test Report, April 19 - May 27, 2016																																							
		14. Sponsoring Agency Code NVS-321																																							
15. Supplementary Notes																																									
16. Abstract A test was conducted in accordance with Contract DTNH22-14-D-00360, Task Order #0001. The test consisted of an Oblique Moving Deformable Barrier (OMDB) traveling at a target speed of 90.1 km/h into a stationary 2016 Mazda CX-5. The struck vehicle was positioned 15 degrees relative to the moving barrier which impacted 35% of the left side of the vehicle. The test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and foot well intrusion performance. The test was conducted at the KARCO Engineering, LLC. facility in Adelanto, California on April 19, 2016. The OMDB impact velocity was 90.65 km/h and the ambient temperature at the test vehicle at the time of impact was 32°C. The target vehicle post-test maximum crush was 730 mm. The test vehicle's performance was as follows: <table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th>Driver THOR</th> <th>Passenger THOR</th> </tr> <tr> <th>Result</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₁₅)</td> <td></td> <td>163.56</td> <td>196.86</td> </tr> <tr> <td>Brain Injury Criteria (BrIC)</td> <td></td> <td>0.65</td> <td>0.53</td> </tr> <tr> <td>Peak Neck Tension</td> <td>N</td> <td>1736.00</td> <td>833.91</td> </tr> <tr> <td>Peak Chest Deflection</td> <td>mm</td> <td>44.91</td> <td>31.64</td> </tr> <tr> <td>Peak Abdomen Deflection</td> <td>mm</td> <td>-69.29</td> <td>-63.97</td> </tr> <tr> <td>Peak Resultant Acetabulum Force</td> <td>N</td> <td>1898.43</td> <td>3449.84</td> </tr> <tr> <td>Peak Femur Force</td> <td>N</td> <td>-2928.96</td> <td>-3084.38</td> </tr> <tr> <td>Peak Tibia Index</td> <td></td> <td>0.92</td> <td>0.86</td> </tr> </tbody> </table>				Measurement Description	Units	Driver THOR	Passenger THOR	Result	Result	Head Injury Criteria (HIC ₁₅)		163.56	196.86	Brain Injury Criteria (BrIC)		0.65	0.53	Peak Neck Tension	N	1736.00	833.91	Peak Chest Deflection	mm	44.91	31.64	Peak Abdomen Deflection	mm	-69.29	-63.97	Peak Resultant Acetabulum Force	N	1898.43	3449.84	Peak Femur Force	N	-2928.96	-3084.38	Peak Tibia Index		0.92	0.86
Measurement Description	Units	Driver THOR	Passenger THOR																																						
		Result	Result																																						
Head Injury Criteria (HIC ₁₅)		163.56	196.86																																						
Brain Injury Criteria (BrIC)		0.65	0.53																																						
Peak Neck Tension	N	1736.00	833.91																																						
Peak Chest Deflection	mm	44.91	31.64																																						
Peak Abdomen Deflection	mm	-69.29	-63.97																																						
Peak Resultant Acetabulum Force	N	1898.43	3449.84																																						
Peak Femur Force	N	-2928.96	-3084.38																																						
Peak Tibia Index		0.92	0.86																																						
17. Key Words THOR Oblique Offset		18. Distribution Statement Copies of this report are available from:																																							
		National Highway Traffic Safety Administration Technical Reference Division 1200 New Jersey Ave., SE Washington, D.C. 20590																																							
19. Security Classification of this report UNCLASSIFIED	20. Security Classification of this page UNCLASSIFIED	21. No. of Pages 347	22. Price																																						

TABLE OF CONTENTS

<u>Section</u>		<u>Page</u>
1	Test Purpose and Procedure	1
2	Summary of Test Results	2
3	Occupant and Vehicle Information / Data Sheets	8
<u>Data Sheet</u>		<u>Page</u>
1	General Test and Vehicle Parameter Data	9
2	Seat Adjustment, Fuel System, and Steering Wheel	12
3	Dummy Longitudinal Clearance Dimensions	14
4	Dummy CMM Measurements Relative to VCS	15
5	Dummy Lateral Clearance Dimensions	16
6	Seat Belt Positioning Data	17
7	High-Speed Camera Locations and Data	18
8	Vehicle Instrumentation Data	20
9	Photographic Reference Target Locations	24
10	Test Vehicle Summary of Results	27
11	Post-Test Observations	28
12	Vehicle Profile Measurements	29
13	Accident Investigation Division Data	31
14	Vehicle Intrusion Measurements Relative to VCS	32
15	OMDB Crush Measurements	44
16	Summary of FMVSS 212, 219 (Partial), and 301 Data	45
17	FMVSS 301 Static Rollover Results	47
18	Dummy/Vehicle Temperature and Humidity Stabilization	48
<u>Appendix</u>		<u>Page</u>
A	Photographs	A
B	Vehicle and Dummy Response Data Traces	B
C	Dummy Calibration and Performance Verification Data Sheets	C

SECTION 1

TEST PURPOSE AND PROCEDURE

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

This 90.1 km/h (56 mph) Moving Barrier into a test vehicle is part of the Frontal Oblique Offset Impact Test outlined in Contract No. DTNH22-14-D-00360, Task Order #0001. The purpose of this test is to obtain vehicle crashworthiness and occupant restraint system performance data for consumer information purposes.

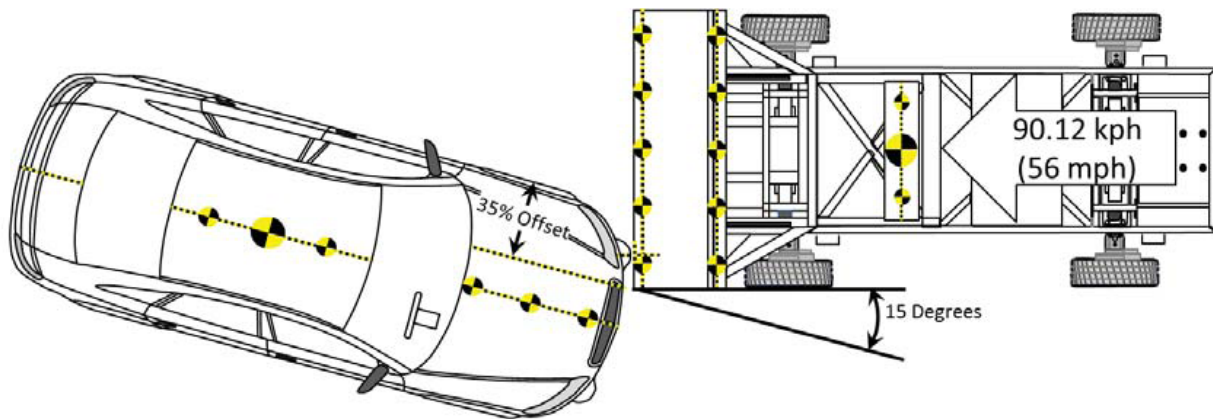
This test was conducted in accordance with the instructions set forth for a 15° angle, 35% offset moving barrier to vehicle impact, outlined in Contract No. DTNH22-14-D-00360, Task Order #0001. Data was obtained indicant of Federal Motor Vehicle Safety Standard FMVSS 208- Occupant Crash Protection, FMVSS 212 – Windshield Mounting, FMVSS 219 (partial) – Windshield Zone Intrusion, and FMVSS 301 – Fuel System Integrity, in addition to the requirements of Contract No. DTNH22-14-D-00360, Task Order #0001. The frontal oblique offset impact test was conducted in accordance with the NHTSA Office of Vehicle Safety Research Laboratory Test Procedure dated July 22, 2015.

SECTION 2

SUMMARY OF TEST RESULTS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

A 2016 Mazda CX-5 was impacted on the left front corner by an Oblique Moving Deformable Barrier (OMDB). This test vehicle was stationary and positioned at a target angle of 15° and at a target offset of 35% to the forward line of motion of the OMDB. The OMDB was towed down the test track in a full forward direction, without any crabbing, and at the targeted impact velocity of 90.1 km/h (56.0 mph) into the test vehicle. The test vehicle's mass was 1,788.0 kg (3,941.8 lbs), and the OMDB's mass was 2,496.5 kg (5,503.7 lbs). The test was performed at KARCO Engineering, LLC. on April 19, 2016.



The test was documented by three (3) real time and fifteen (15) high-speed video cameras. Camera locations and other pertinent data are located in Data Sheet No. 7 of this report. Pre and post – test photographs of the test vehicle, OMDB, and test setup were taken using a digital still camera. Photographic documentation of the test is presented in Appendix A of this report.

One 50% adult male THOR-50M anthropomorphic test device (ATD) (Serial No. DO9798) was seated in the left, front (P1 -Driver's) seating position and one 50% adult male THOR-50M ATD (Serial No. DL9207) was seated in the right front passenger seating position (P2). The driver and passenger were positioned according to instructions specified in the THOR seating procedures.

The driver was restrained with a 3 – point seat belt, frontal, curtain, and torso airbag. The passenger was restrained with a 3 – point seat belt and frontal airbag.

SECTION 2 ... (CONTINUED)
SUMMARY OF TEST RESULTS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

Two hundred fifty eight (258) channels of data from the two ATD's, test vehicle and OMDB were collected using Diversified Technical Systems, Inc. data acquisition systems. Appendix B contains dummy data plots, as well as vehicle and OMDB response data plots.

There was 100% total windshield retention. There appeared to be no intrusion into the protected zone of the windshield during any portion of the impact event. The maximum static crush of the vehicle was 730 mm at C1 to the left of the vehicle's centerline. The maximum crush of the structural bumper beam was 333 mm at B1, to the left of the vehicle's centerline.

All four vehicle doors remained closed and latched during the test. All doors remained operational after the impact event.

Structure observations include the following:

- Windshield had cracks throughout.
- The left front wheel was pushed into the A-Pillar.
- Hood bent inwards and the left front corner of the vehicle was damaged exposing part of the engine compartment.

The driver ATD's visible contact points were:

- Head contacted the frontal and curtain airbags and headrest.
- Torso contacted the frontal and torso/pelvis airbag, seatback, and the left arm contacted the door panel.
- Left knee contacted the knee bolster and the steering column.
- Right knee contacted the knee bolster and the steering column.

The right front passenger ATD's visible contact points were:

- Head contacted the frontal airbag and the headrest.
- Torso contacted the frontal airbag and the center instrument panel.
- Left knee contacted the glove box.
- Right knee contacted the glove box.

SECTION 2 ... (CONTINUED)
SUMMARY OF TEST RESULTS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

Primary Impact Data

Measured Parameter	Units	Value
OMDB Velocity at Impact	km/h	90.65
OMDB Test Weight	kg	2496.5
OMDB Maximum Static Crush	mm	450.3
Vehicle Test Weight	kg	1788.0
Actual Vehicle Angle	Degrees	15.7
Vehicle Maximum Static Crush	mm	730
Vertical Offset from Target Point (+ down / -up)*	mm	-10
Lateral Offset from Target Point (+ left / -right)*	mm	-2
Number of Data Channels		258
Number of Real-Time Cameras		3
Number of High-Speed Cameras		15

*Offsets are in relation to the vehicle coordinate system.

Dummy Contacts

Description	Driver	Picture Ref.	Passenger	Picture Ref.
Dummy Type	THOR, S/N: DO9798		THOR, S/N: DL9207	
Head Contact	Frontal and Curtain Airbags, Headrest	A-44, A-45	Frontal Airbag, Headrest	A-65, A-66
Upper Torso Contact	Frontal and Torso/Pelvis Airbag, Seatback, Left Arm Contacted Door Panel	A-45, A-46	Frontal Airbag, Left Arm Contacted Center Console, Right Arm Contacted the Door Panel, Seatback	A-66, A-67
Lower Torso Contact	Torso/Pelvis Airbag, Seatback	A-46	None	N/A
Left Knee Contact	Knee Bolster, Steering Column	A-46	Glove Box	A-67
Right Knee Contact	Knee Bolster, Steering Column	A-46	Glove Box	A-67

SECTION 2 ... (CONTINUED)
SUMMARY OF TEST RESULTS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

Data Anomalies

Channel Description	Explanation
Driver Abdomen Left DGIR Displacement, Questionable spikes throughout	Could not reproduce. Suspected poor internal grounding.
Driver Left Foot Z Acceleration, Channel was not installed	Sensor was not received in working condition. Sensor was not used in the test.
Driver Shoulder Belt Upper Force, Channel failed at 47.4 ms	The sensor wire was cut during the test.
Passenger Femur Right X Force, Questionable spikes between 92.8 to 289.3 ms	Could not reproduce. Suspected poor internal grounding.
Passenger Femur Right Y Force, Questionable spikes between 92.8 to 289.3 ms	Could not reproduce. Suspected poor internal grounding.

SECTION 2 ... (CONTINUED)
SUMMARY OF TEST RESULTS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

PRELIMINARY INJURY SUMMARY : DRIVER
Driver: Thor Serial No. DO9798 Injury Summary

Location	Description	Units	Source	Max	Min
Head	HIC 15ms		Compute	163.56	
	Brain Injury Criteria (BrIC)		Compute	0.65	
	Head Rotational Velocity X	deg/s	60	652.89	-1214.75
	Head Rotational Velocity Y	deg/s	60	923.07	-1431.62
	Head Rotational Velocity Z	deg/s	60	869.28	-684.34
Neck	Upper Neck Z-axis Force	N	1000	1736.00	-45.01
	Upper Neck Y-axis Moment	Nm	600	5.16	-17.70
Chest	Upper Left IR-TRACC - X Deflection	mm	Diadem	20.41	
	Upper Right IR-TRACC - X Deflection	mm	Diadem	44.91	
	Lower Left IR-TRACC X - Deflection	mm	Diadem	25.67	
	Lower Right IR-TRACC X - Deflection	mm	Diadem	35.63	
Abdomen	Lower Left IR-TRACC X - Deflection	mm	Diadem	707.89	-39.88
	Lower Right IR-TRACC X - Deflection	mm	Diadem	0.76	-69.29
Acetabulum	Left Acetabulum Resultant Force	N	Compute	1368.84	
	Right Acetabulum Resultant Force	N	Compute	1898.43	
Femur	Left Femur Force, FZ	N	600	379.59	-2928.96
	Right Femur Force, FZ	N	600	548.14	-1697.59
Tibia	Left Upper Tibia, FZ	N	600	57.43	-1129.95
	Left Upper Tibia, Index		Compute	0.46	
	Right Upper Tibia, FZ	N	600	224.83	-1616.87
	Right Upper Tibia, Index		Compute	0.78	
	Left Lower Tibia, FZ	N	600	230.45	-2153.23
	Left Lower Tibia, Index		Compute	0.35	
	Right Lower Tibia, FZ	N	600	61.88	-2633.47
	Right Lower Tibia, Index		Compute	0.92	
Ankle	Left Ankle Rotation, RX	deg	180	8.16	-14.75
	Left Ankle Rotation, RY	deg	180	28.90	-21.15
	Left Ankle Dorsiflexion, MY	Nm	Compute	27.62	
	Left Ankle In/Eversion Moment, MX	Nm	Compute	-17.95	
	Right Ankle Rotation, RX	deg	180	19.36	-32.65
	Right Ankle Rotation, RY	deg	180	14.84	-10.75
	Right Ankle Dorsiflexion, MY	Nm	Compute	79.50	
	Right Ankle In/Eversion Moment, MX	Nm	Compute	-131.09	
Anomalies: 1) Questionable spikes throughout.					

*DIAdem-THOR Processing Software v2.6.

SECTION 2 ... (CONTINUED)
SUMMARY OF TEST RESULTS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

PRELIMINARY INJURY SUMMARY : PASSENGER
Passenger: Thor Serial No. DL9207 Injury Summary

Location	Description	Units	Source	Max	Min
Head	HIC 15ms		Compute	196.86	
	Brain Injury Criteria (BrIC)		Compute	0.53	
	Head Rotational Velocity X	deg/s	60	921.69	-1074.97
	Head Rotational Velocity Y	deg/s	60	828.30	-1088.18
	Head Rotational Velocity Z	deg/s	60	725.55	-288.37
Neck	Upper Neck Z-axis Force	N	1000	833.91	-42.14
	Upper Neck Y-axis Moment	Nm	600	6.40	-17.70
Chest	Upper Left IR-TRACC - X Deflection	mm	Diadem	31.64	
	Upper Right IR-TRACC - X Deflection	mm	Diadem	26.87	
	Lower Left IR-TRACC X - Deflection	mm	Diadem	22.70	
	Lower Right IR-TRACC X - Deflection	mm	Diadem	14.33	
Abdomen	Lower Left IR-TRACC X - Deflection	mm	Diadem	0.37	-63.97
	Lower Right IR-TRACC X - Deflection	mm	Diadem	0.50	-54.13
Acetabulum	Left Acetabulum Resultant Force	N	Compute	1720.69	
	Right Acetabulum Resultant Force	N	Compute	2297.70	
Femur	Left Femur Force, FZ	N	600	236.61	-3084.38
	Right Femur Force, FZ	N	600	528.29	-835.96
Tibia	Left Upper Tibia, FZ	N	600	119.29	-2419.53
	Left Upper Tibia, Index		Compute	0.67	
	Right Upper Tibia, FZ	N	600	254.49	-1568.35
	Right Upper Tibia, Index		Compute	0.84	
	Left Lower Tibia, FZ	N	600	183.83	-3105.37
	Left Lower Tibia, Index		Compute	0.67	
	Right Lower Tibia, FZ	N	600	233.21	-2118.48
	Right Lower Tibia, Index		Compute	0.86	
Ankle	Left Ankle Rotation, RX	deg	180	17.97	-32.71
	Left Ankle Rotation, RY	deg	180	4.97	-23.86
	Left Ankle Dorsiflexion, MY	Nm	Compute	48.36	
	Left Ankle In/Eversion Moment, MX	Nm	Compute	-80.70	
	Right Ankle Rotation, RX	deg	180	24.04	-35.38
	Right Ankle Rotation, RY	deg	180	0.00	-19.20
	Right Ankle Dorsiflexion, MY	Nm	Compute	40.65	
	Right Ankle In/Eversion Moment, MX	Nm	Compute	193.22	
Anomalies:					

*DIAdem-THOR Processing Software v2.6.

SECTION 3

OCCUPANT AND VEHICLE INFORMATION / DATA SHEETS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

CONVERSION FACTORS

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	miles/hr	km/hr	1.609344
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.574
Pressure	Tire Pressures	lbf/in ²	kPa	6.895
Temperature	General Use	°F	°C	$=(T_f - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf-ft	N•m	1.355

DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

TEST VEHICLE INFORMATION AND OPTIONS

NHTSA Number	R20165411
Model Year	2016
Make	Mazda
Model	CX-5
Body Style	SUV
VIN	JM3KE4BY4G0672553
Body Color	Sonic Silver Metallic
Odometer Reading (km / mi)	229 / 142
Engine Displacement (L)	2.5
Type / No. of Cylinders	Inline 4
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	6
Overdrive	Yes
Final Drive	AWD
Roof Rack	No
Sunroof / T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes
Automatic Door Locks (ADLs)	Yes

Traction Control System	Yes
Power Steering	Yes
Power Window Auto-Reverse	Yes
Driver Frontal Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	Yes
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Front Pass. Frontal Airbag	Yes
Front Pass. Curtain Airbag	Yes
Front Pass. Head/Torso Airbag	No
Front Pass. Torso Airbag	No
Front Pass. Torso/Pelvis Airbag	Yes
Front Pass. Pelvis Airbag	No
Front Pass. Knee Airbag	No
Driver Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Front Pass. Seat Belt Pretensioner	Yes
Front Pass. Load Limiter	Yes
Other Safety Restraint	No

Does Owner's Manual provide instructions to turn off automatic door locks?

Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Mazda Motor Corporation
Date of Manufacture	May-15

GVWR (kg)	2071
GAWR Front (kg)	1056
GAWR Rear (kg)	1018

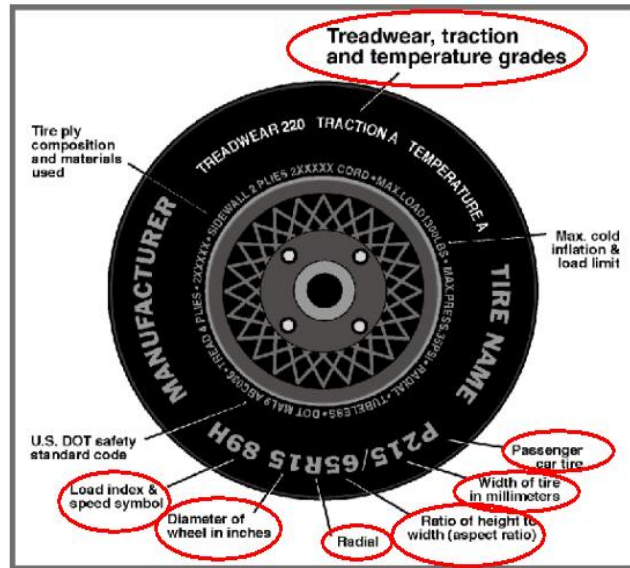
VEHICLE SEATING AND CAPACITY WEIGHT INFORMATION

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench		
Designated Seating Capacity	2	3		5
Capacity Weight (VCW) (kg)				385.0
DSC x 68.04 (kg)				340.2
Cargo Weight (RCLW) (kg)				44.8

DATA SHEET NO. 1 ... (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16



Measured Parameter	Front	Rear
Max. Tire Pressure (kpa)	300	300
Cold Pressure (kPa)	230	230
Recommended Tire Size	P225/65R17	P225/65R17
Tire Size on Vehicle	P225/65R17	P225/65R17
Tire Manufacturer	Yokohama	Yokohama
Tire Model	Geolander G91	Geolander G91
Treadware	280	280
Traction Grade	B	B
Temperature Grade	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 2 Steel, 1 Nylon	2 Polyester, 2 Steel, 1 Nylon
Load Index/Speed Symbol	100H	100H
Tire Material	Polyester, Steel, Nylon	Polyester, Steel, Nylon
DOT Safety Code Left	FDF5 PC5 2115	FDF5 PC5 2015
DOT Safety Code Right	FDF5 PC5 2015	FDF5 PC5 2015

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

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

TEST VEHICLE WEIGHTS

	Units	As Delivered Weights (UVW)			As Tested Weights (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	464.0	339.0		477.0	413.0	
Right	kg	429.5	315.0		475.0	423.0	
Ratio	%	57.7%	42.3%	100.0%	53.2%	46.8%	100.0%
Total	kg	893.5	654.0	1547.5	952.0	836.0	1788.0

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1547.5
Weight of 2 THOR ATDs	kg	194.2
Rated Cargo/Luggage Weight (RCLW)	kg	44.8
Calculated Vehicle Target Weight (TVTW)	kg	1786.5

TEST VEHICLE ATTITUDES

Condition	Units	LF	RF	LR	RR	CG Aft of Front Axle
As Delivered	mm	875	877	888	896	1134
As Tested	mm	862	864	857	862	1254
Post-Test	mm	N/A	835	820	942	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2683
Total Vehicle Length at Left Side	mm	3930
Total Vehicle Length at Centerline	mm	4530
Total Vehicle Length at Right Side	mm	3942
Weight of Ballast/Equipment in Cargo Area	kg	147.0
Weight of Vehicle Components Removed	kg	114.5
Amount of Stoddard Solvent in Fuel Tank	L	53.86

VEHICLE COMPONENTS REMOVED TO MEET TEST WEIGHT:

Rear Fascia (3.5 kg), Rear Trim (6.0 kg), Rear Hatch (26.0 kg), Spare Tire and Tools (21.0 kg),
Rear Seats (26.0 kg), Rear Door Trim and Windows (10.5 kg), Rear Bumper Beam (9.5 kg),
Muffler (12.0 kg)

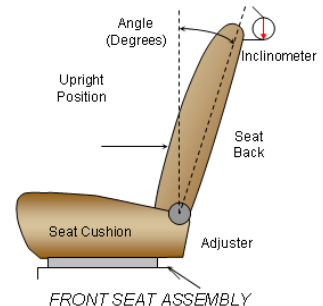
DATA SHEET NO. 2

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

NOMINAL DESIGN RIDING POSITION

The driver seat back was set to the manufacturer's designated angle listed in FORM 1 but was moved rearward per THOR seating procedure to level the head. The passenger seat back was set to the manufacturer's designated angle listed in FORM 1 but was moved rearward per THOR seating procedure to level the head.

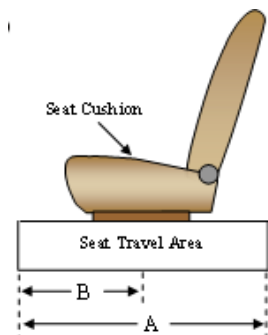


SEAT BACK ANGLE

Seating Position	Unit	OSCAR Position	After ATD Positioning
Driver Seat Back Angle	Degrees	6.6	8.7
Passenger Seat Back Angle	Degrees	5.6	7.6

SEAT FORE / AFT POSITIONING

The total seat travel is measured from the forward most position to the rear most position at its mid angle position. Both the driver and passenger seats were initially positioned to the closest detent forward of 25 mm, rearward of mid position. The seat was then moved as far forward as possible where the ATD did not contact any interior panels, up to mid position.



SEAT FORE/AFT POSITIONS

Seating Position	Total Fore/Aft Travel	Placed in Position #
Driver Seat	27 (0-26)	13
Passenger Seat	27 (0-26)	15

SEAT BELT UPPER ANCHORAGE

The seat belt upper anchorage is positioned to the manufacturer's design position for a 50th percentile adult male ATD for the driver and passenger. Position "H" is the uppermost position, followed by position "M1" and "M2." Position "L" is the lowermost position.

SEAT BELT UPPER ANCHORAGES

Seating Position	Total No. of Positions	Placed in Position
Driver Seat	4	H
Passenger Seat	4	H

DATA SHEET NO. 2 ... (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL

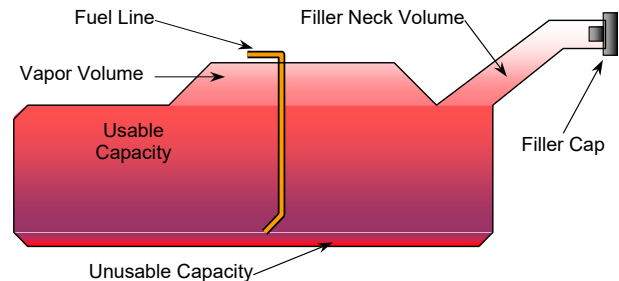
Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

FUEL TANK CAPACITY

Description	Liters
Usable Capacity of "Standard Tank"	57.91
Usable Capacity of "Optional Tank"	
93% of Usable Capacity	53.86
Actual Amount of Stoddard Solvent Used	53.86
1/3 of Usable Capacity	19.30

FUEL PUMP

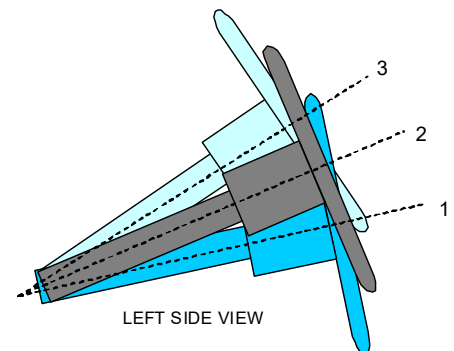
Fuel was evacuated according to the specifications provided by the manufacturer in Form 1. The electric fuel pump operates when the ignition is in the 'On' position and the engine is running.



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. A digital inclinometer is used to measure a plate which is placed across the rim of the steering wheel for angular measurements. A tape measure is used to measure telescoping steering wheel travel.



STEERING COLUMN ASSEMBLY

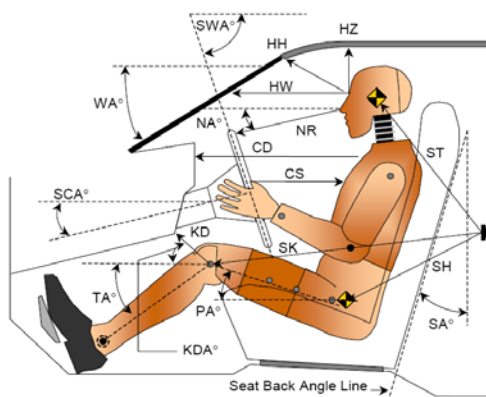
STEERING COLUMN POSITIONING

	Degrees	Fore-Aft Position (mm)
Lowermost Position, No. 1	23.5	106
Geometric Center Position, No. 2	25.8	129.5
Uppermost Position, No. 3	28.1	153
Telescoping Steering Wheel Travel		47
Test Position	25.8	129.5

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16



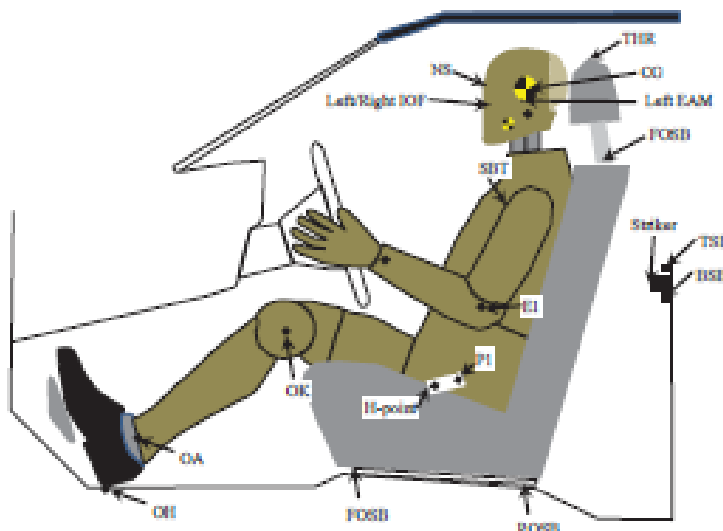
LEFT SIDE VIEW

Code	Measurement Description	Driver S/N# D09798		Passenger S/N# DL9207	
		Length (mm)	Angle (°)	Length (mm)	Angle (°)
WA°	Windshield Angle		32.1		
SWA°	Steering Wheel Angle		64.2		
SCA°	Steering Column Angle		25.8		
SA°	Seat Back Angle (On Headrest Post)		8.7		7.6
HZ	Head to Roof	240	90.0	227	90.0
HH	Head to Header	430	23.9	429	22.0
HW	Head to Windshield	721	0.1	703	0.0
NR	Nose to Rim	484	11.7		
CD	Chest to Dash	581	9.0	630	0.0
CS	Chest to Steering Hub	338	0.0		
RA	Rim to Abdomen	198	0.1		
KDL	Left Knee to Dash	105	20.0	82	28.3
KDR	Right Knee to Dash			113	31.6
PA°	Pelvic Angle		35.1		34.6
TA°	Tibia Angle		53.4		46.4
SK	Striker to Knee	671	2.2	696	5.4
ST	Striker to Head	617	85.9	625	87.3
SH	Striker to H-Point	340	29.0	313	28.4
HAX°	Head Angle (X)		0.4		0.3
HAY°	Head Angle (Y)		-10.4		-7.7
TAX°	T6 Angle (X)		-0.4		-0.2
TAY°	T6 Angle (Y)		22.3		23.9
TAX°	T1 Angle (X)		0.0		0.0
TAY°	T1 Angle (Y)		1.1		0.5
TAX°	T12 Angle (X)		-0.3		-0.2
TAY°	T12 Angle (Y)		32.1		32.9
PAX°	Pelvis Angle (X)		-0.1		0.0
PAY°	Pelvis Angle (Y)		35.1		34.6

DATA SHEET NO. 4

DUMMY CMM MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

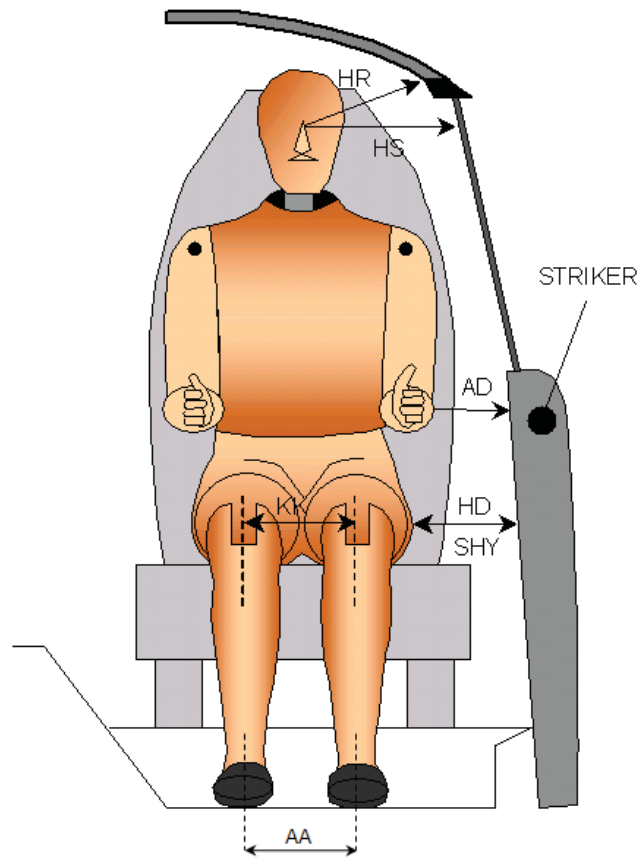


Description	Units	Driver S/N# DO9798			Passenger S/N# DL9207		
		X	Y	Z	X	Y	Z
Head CG	mm	2112	-451	-745	2101	452	-755
Nasion	mm	2208	-372	-740	2197	373	-756
Tip of Nose	mm	2203	-371	-701	2194	374	-717
Tip of Chin	mm	2183	-372	-605	2178	373	-619
Left EAM	mm	2114	-447	-717			
Right EAM	mm				2107	450	-727
Left IOF	mm	2199	-405	-703	2189	341	-718
Right IOF	mm	2200	-339	-702	2190	406	-718
Outboard Elbow	mm	2320	-594	-293	2272	653	-263
H-Point	mm	2322	-613	-102	2307	631	-115
H-Point Tool	mm	2246	-618	-128	2232	634	-143
Outboard Knee Bolt	mm	2710	-587	-214	2725	557	-178
Inboard Knee Bolt	mm	2720	-283	-228	2726	317	-182
Outboard Ankle Bolt	mm	2960	-578	123	3013	525	125
Inboard Ankle Bolt	mm	2955	-260	120	3018	314	118
Outer Heel Point	mm	2985	-551	256	2990	484	258
Inboard Heel Point	mm	2924	-228	263	2988	273	256
Striker Top Bolt	mm	2045	-800	-254	2046	801	-255
Striker Bottom Bolt	mm	2047	-802	-219	2048	802	-219
Center Tip of Striker	mm	2075	-803	-239	2077	804	-239
Front Outboard Seat Anchor Bolt	mm	2546	-608	161	2552	611	160
Rear Outboard Seat Anchor Bolt	mm	2103	-607	185	2107	610	185
Outboard Head Restraint Post	mm	1888	-451	-619	1876	456	-626
Center of Steering Wheel	mm	2585	-368	-442			

DATA SHEET NO. 5

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

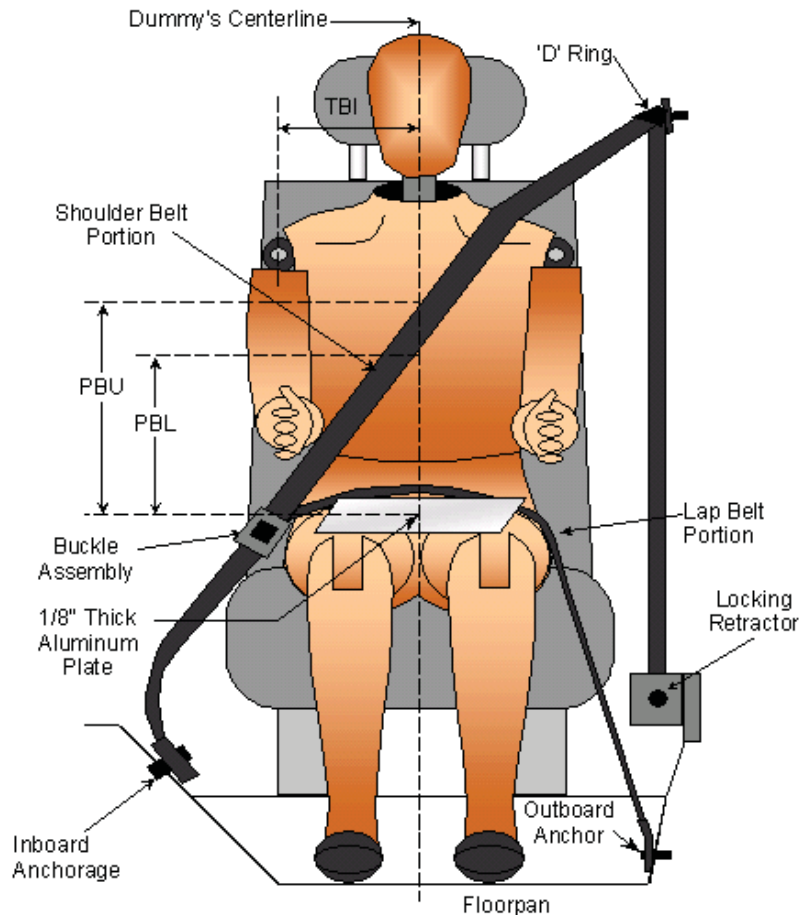


DUMMY LATERAL CLEARANCE DIMENSION INFORMATION

Code	Measurement Description	Units	Driver	Passenger
AD	Arm to Door	mm	166	37
HD	H-Point to Door	mm	151	126
HR	Head to Side Header	mm	221	215
HS	Head to Side Window	mm	359	351
KK	Knee to Knee	mm	304	240
SHY	Striker to H-Point (Y Direction)	mm	190	173
AA	Ankle to Ankle	mm	318	211

DATA SHEET NO. 6
SEAT BELT POSITIONING DATA

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16



FRONT VIEW OF DUMMY

SEAT BELT POSITIONING MEASUREMENTS

Code	Measurement Description	Units	Driver	Passenger
PBU	Top Surface of Aluminum Plate to Belt Upper Edge	mm	326	329
PBL	Top Surface of Aluminum Plate to Belt Lower Edge	mm	244	242

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder Belt Length as Measured on ATD	mm	893	920
Lap Belt Length as Measured on ATD	mm	1058	1095
Remainder of Belt on Reel	mm	929	902
Total Belt Length for Continuous Webbing Systems	mm	2880	2917

HIGH SPEED CAMERA LOCATIONS AND DATA

NHTSA No. R20165411

Test Date: 04/19/16

The diagram illustrates the experimental setup for the car crash test. A car is positioned on a track, facing a barrier and a truck-like structure. Various sensors and cameras are labeled with numbers 8, 9, 11, 12, 13, and 14. Dimensions A and B are indicated for the barrier and truck structure.

Code	Units	Measurement
A	mm	3531
B	mm	4409
C	mm	15795
D	mm	12739
E	mm	15385

DATA SHEET NO. 7 ... (CONTINUED)**HIGH SPEED CAMERA LOCATIONS AND DATA**

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

CAMERA LOCATIONS AND DATA

No.	View	Coordinates (mm)			Lens Length (mm)	Operating Frame Rate (fps)
		X	Y	Z		
1a	Real-Time Vehicle Movement	1435	16149	545	Zoom	30
1b	Real-Time Impact View	-11241	-6898	666	Zoom	30
2	Onboard Passenger Over Shoulder	7559	-225	1432	12	1000
3	Onboard Driver Lower Leg	6535	-442	498	8	1000
4	Onboard Driver Over Shoulder	7544	-879	1341	14	1000
5	Onboard Center Driver Passenger	7741	-583	1432	6.5	1000
6	Right Side of OMDB View	4692	16040	695	50	1000
7	Left Side of Test Vehicle	3835	15634	613	50	1000
8	Oblique Overhead Driver Motion View	16437	21994	1043	85	1000
9	Oblique Rear View of Test Vehicle	7459	10104	5670	50	1000
10	Final Impact of the Vehicle	51395	-10894	4159	20	1000
11	Right Side of Test Vehicle	20734	-18865	725	50	1000
12	Left Side of OMDB View	4389	-13400	1131	35	1000
13	Front of Test Vehicle and OMDB	-10896	-6134	855	85	1000
14	Impact Point View	4589	-946	5551	35	1000
15	Overhead of OMDB View	4613	-548	5598	14	1000
16	Overhead View of Test Vehicle	7331	-740	5178	20	1000

Reference:

+X = From Back of OMDB to front of OMDB

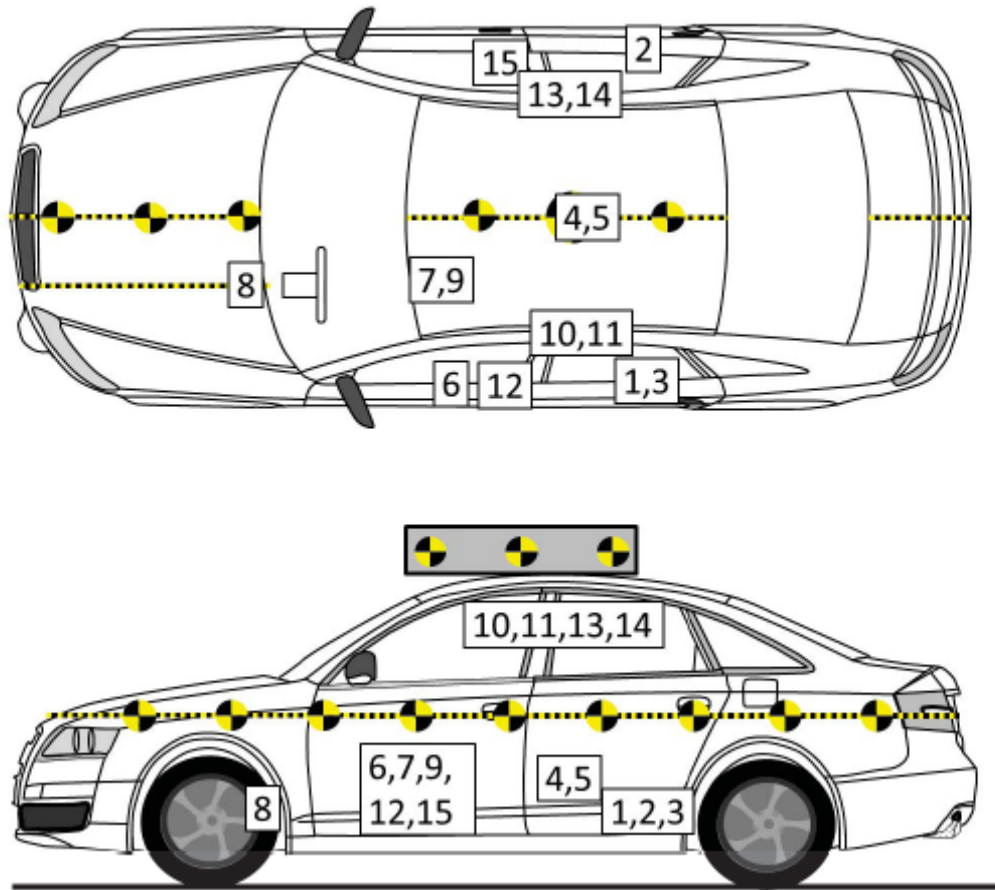
+Y = Right of monorail center

+Z = Up from ground

*All measurements accurate to ± 6 mm

DATA SHEET NO. 8
VEHICLE INSTRUMENTATION DATA

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS RELATIVE TO VCS

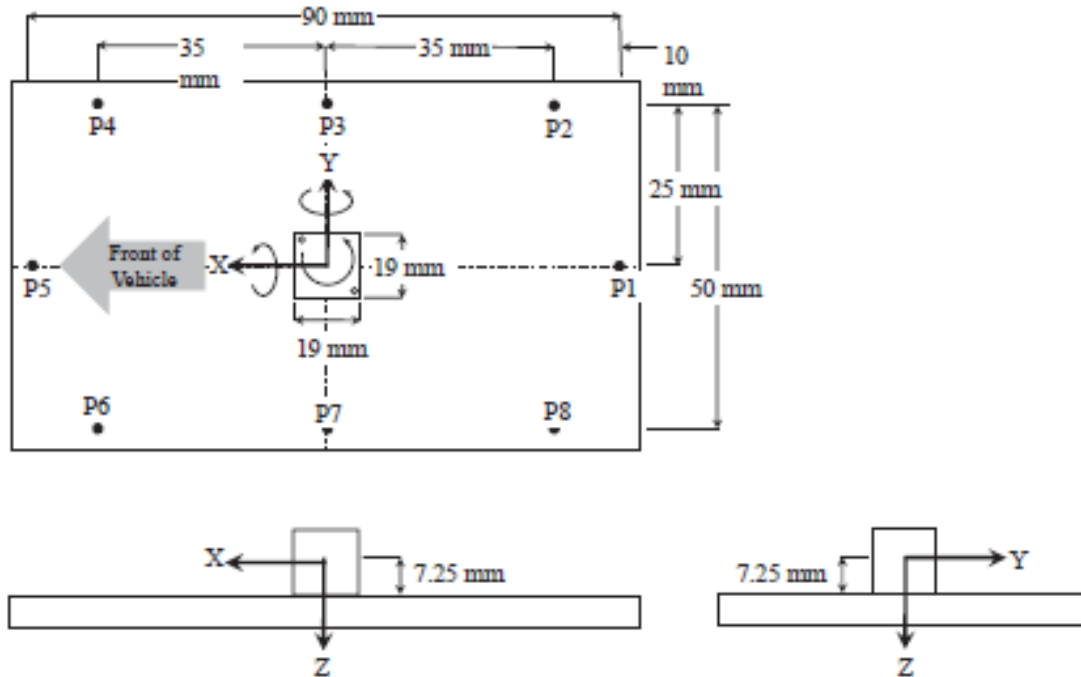
Loc. No.	Sensor Description	Axes	Coordinates (mm)		
			X	Y	Z
1	Left Rear Sill	X, Y	1778	-693	177
2	Right Rear Sill	X, Y	1778	693	175
3	Left Rear Sill Redundant	X, Y	1756	-691	177
4, 5	Vehicle CG	X, Y, Z	1828	0	94
6	Left Side Seat Track	X, Y, Z	2287	-602	208
7	Left Side String Pot	N/A	3291	-328	157
8	Left Side Toe Pan	X, Y, Z	3353	-367	66
9	Left Side Thigh Bar	X, Z	2352	-369	42

DATA SHEET NO. 8 ... (CONTINUED)

VEHICLE INSTRUMENTATION DATA

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

ANGULAR RATE SENSOR MOUNTING PLATE RELATIVE TO VCS



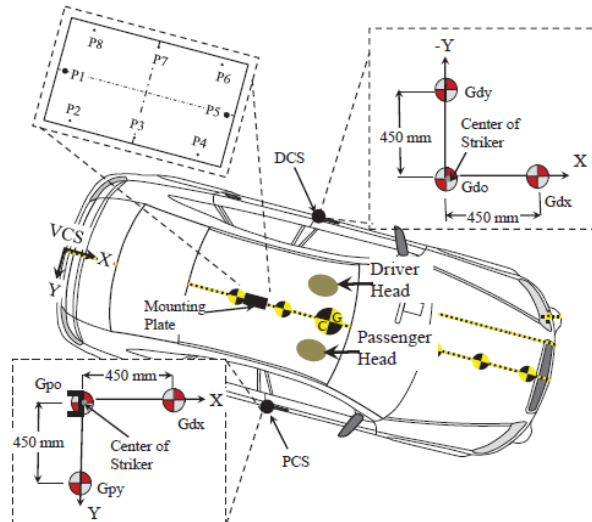
ARS MOUNTING PLATE - VEHICLE COORDINATE SYSTEM

No.	Description	Units	X	Y	Z
P1	Plate Point 1	mm	1783	0	110
P2	Plate Point 2	mm	1793	25	110
P3	Plate Point 3	mm	1828	25	110
P4	Plate Point 4	mm	1863	25	110
P5	Plate Point 5	mm	1873	0	110
P6	Plate Point 6	mm	1863	-25	110
P7	Plate Point 7	mm	1828	-25	110
P8	Plate Point 8	mm	1793	-25	110

DATA SHEET NO. 8 ... (CONTINUED)

VEHICLE INSTRUMENTATION DATA

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16



ARS MOUNTING PLATE & ATD'S HEAD POINTS RELATIVE TO GLOBAL COORDINATE SYSTEMS

Description	DRIVER DCS			PASSENGER PCS		
	X (mm)	Y (mm)	Z (mm)	X (mm)	Y (mm)	Z (mm)
Go	0	0	0	0	0	0
Gx	451	1	8	448	-3	2
Gy	2	-448	7	-2	448	6
P1	-460	705	-482	-47	-842	-486
P2	-456	732	-481	-44	-815	-486
P3	-423	741	-482	-10	-806	-486
P4	-389	750	-482	24	-797	-487
P5	-373	728	-482	40	-819	-487
P6	-376	702	-482	36	-846	-486
P7	-410	693	-482	3	-855	-486
P8	-443	684	-482	-31	-864	-487
Left CG	-25	355	-1336	184	-476	-1352
Right CG	-65	509	-1335	143	-322	-1351
Left EAM	-24	359	-1309			
Right EAM				150	-323	-1323
Left IOF	47	422	-1294	257	-407	-1315
Right IOF	31	485	-1294	241	-345	-1314
Nasion	47	456	-1332	256	-374	-1352

DATA SHEET NO. 8 ... (CONTINUED)

VEHICLE INSTRUMENTATION DATA

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411

Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

No.	Description	Axes	Units	Positive Direction		Negative Direction	
				Max	Time (ms)	Min	Time (ms)
1	Left Rear Sill Acceleration	X	g's	2.7	139.7	-42.6	40.6
		Y	g's	24.2	42.8	-4.4	11.1
2	Right Rear Sill Acceleration	X	g's	3.4	144.7	-44.9	43.3
		Y	g's	21.2	42.6	-3.7	71.6
3	Left Rear Sill Redundant Acceleration	X	g's	2.9	140.4	-40.8	40.7
		Y	g's	23.9	42.9	-4.4	11.2
4	Vehicle CG Acceleration	X	g's	3.4	143.8	-37.1	45.6
		Y	g's	34.7	41.7	-4.5	12.3
		Z	g's	20.4	47.6	-18.1	19.4
5	Driver Seat Track Acceleration	X	g's	3.3	139.7	-40.7	40.8
		Y	g's	34.1	42.2	-3.3	11.4
		Z	g's	17.2	56.2	-18.8	70.4
6	Driver Seat Thigh Bar Acceleration	X	g's	5.5	22.6	-42.2	42.4
		Z	g's	23.7	50.8	-19.9	70.3
7	Driver Floor Pan Acceleration	X	g's	15.4	72.1	-131.5	40.3
		Y	g's	23.1	49.9	-26.4	41.3
		Z	g's	18.5	36.0	-69.6	41.1
8	Vehicle CG Angular Rate	X	deg/s	612.0	44.0	-183.2	59.1
		Y	deg/s	132.6	41.5	-224.4	58.6
		Z	deg/s	124.3	45.3	-26.6	11.9
9	Driver Shoulder Belt Displacement		mm	109.6	22.0	-42.3	104.5
10	Driver Shoulder Belt Upper Force		N	3068.6	44.0	-106.5	51.6
11	Driver Lap Belt Force		N	4406.4	60.1	-31.6	11.8
12	Passenger Shoulder Belt Displacement		mm	74.1	21.2	-260.6	116.5
13	Passenger Shoulder Belt Upper Force		N	3549.4	47.3	-70.0	284.6
14	Passenger Lap Belt Force		N	6260.0	61.5	-28.4	12.1
15	Driver Floor Pan Deflection	X	mm	7.3	85.8	-34.5	264.2

Note: See Appendix B for all vehicle data plots

TIME TO FIRE RESTRAINT TIMING

No.	Description	Units	Time to Fire (ms)
1	Driver Front Airbag Stage 1 Monitor	A	8.7
2	Driver Front Airbag Stage 2 Monitor	A	13.7
3	Driver Curtain Airbag Monitor	A	41.2
4	Driver Seat Airbag Monitor	A	Did Not Register Firing Time
5	Driver Retractor Pretensioner Monitor	A	8.7
6	Driver Anchor Pretensioner Monitor	A	15.7
7	Passenger Front Airbag Stage 1 Monitor	A	8.7
8	Passenger Front Airbag Stage 2 Monitor	A	28.7
9	Passenger Curtain Airbag Monitor	A	Did Not Fire
10	Passenger Seat Airbag Monitor	A	Did Not Fire
11	Passenger Retractor Pretensioner Monitor	A	8.7
12	Passenger Anchor Pretensioner Monitor	A	16.0

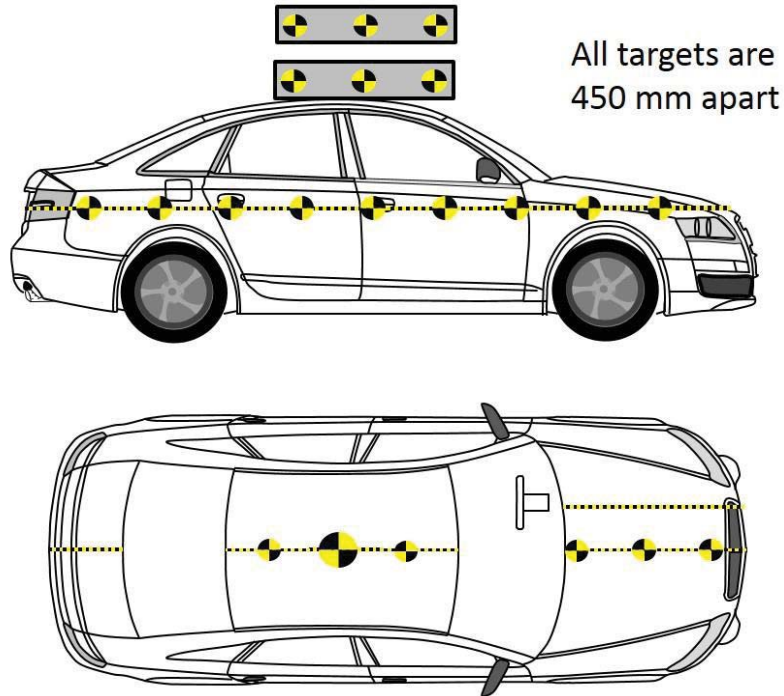
*The measurement indicates the time the voltage changed.

DATA SHEET NO. 9

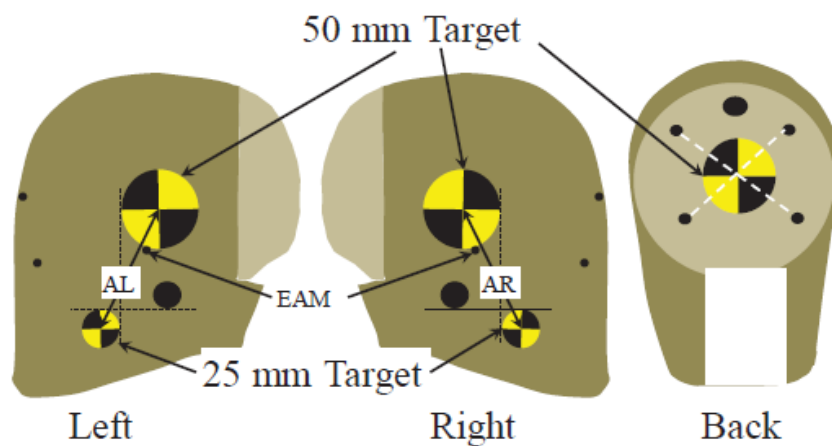
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

VEHICLE TARGETS



ATD HEAD TARGETS



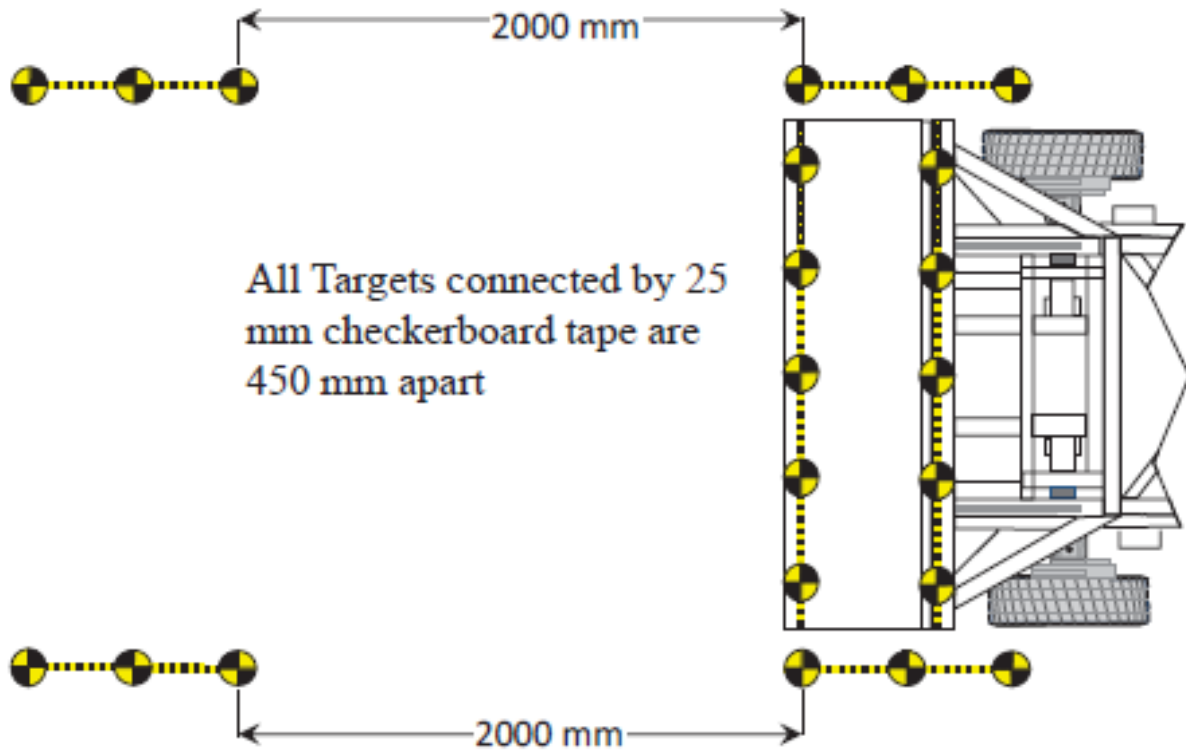
Target	Units	Measurement
AL	mm	91
AR	mm	91

DATA SHEET NO. 9 ... (CONTINUED)

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

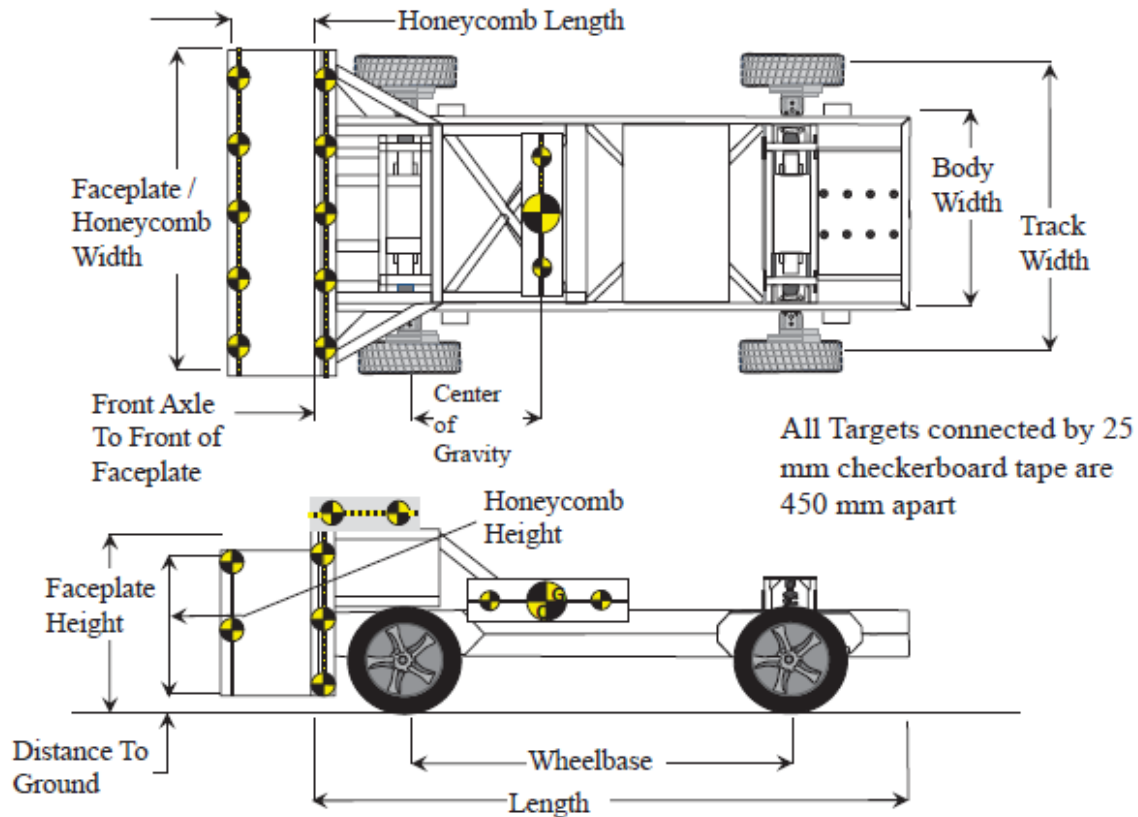
GROUND TARGETS LOCATED IN REFERENCE TO OMDB



DATA SHEET NO. 9 ... (CONTINUED)

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16



Item	Units	Value	Item	Units	Value
Honeycomb Width	mm	2207	Faceplate Height	mm	1183
Honeycomb Length	mm	609	Faceplate to Ground	mm	83
Honeycomb Height	mm	955	Wheelbase	mm	2593
Left Front Axle to Front Faceplate	mm	601	Cart Length	mm	3987
Right Front Axle to Front Faceplate	mm	601	Body Width	mm	1302
Front Axle to CG	mm	988	Track Width	mm	1914

OMDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	769.0	474.5	1243.5
Right	kg	776.5	476.5	1253.0
Ratio	%	61.9%	38.1%	100.0%
Totals	kg	1545.5	951.0	2496.5

Note: All targets on the OMDB honeycomb are 450 mm apart.

DATA SHEET NO. 10**TEST VEHICLE SUMMARY OF RESULTS**

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

INSTRUMENTATION

Instrumentation	Number of Channels Collected
Driver Dummy Sensors	105
Passenger Dummy Sensors	105
Vehicle Structure Sensors	27
SRS Inductive Pickups	12
OMDB Cart Accelerometers	9
Total	258

CAMERA COVERAGE

Type of Camera	Number of Channels Collected
High-Speed Vehicle Onboard	4
High-Speed Off-Board	11
Real-Time Panning	3
Total	18

DATA SHEET NO. 11
POST TEST OBSERVATIONS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

TEST DUMMY INFORMATION AND CONTACT

Description	Driver	Passenger
Dummy Type/Serial No.	THOR DO9798	THOR DL9207
Lower Leg Type	LX	LX
Lower Leg Serial No.	LX655 / LX654	LX0045 / LX0046
Head Contact	Frontal & Curtain Airbag, Headrest	Frontal Airbag, Headrest
Upper Torso Contact	Front & Torso / Pelvis Airbag, Door Panel, Seatback	Frontal Airbag, Center Instrument Panel
Lower Torso Contact	Torso / Pelvis Airbag, Seatback	Frontal Airbag
Left Knee Contact	Knee Bolster, Steering Column	Glovebox
Right Knee Contact	Knee Bolster, Steering Column	Glovebox

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Locked / Unlocked Doors	Unlocked	Unlocked
Front Door Opening	Remained closed and latched, operational	Remained closed and latched, operational
Rear Door Opening	Remained closed and latched, operational	Remained closed and latched, operational
Seat Track Shift (mm)	0	0
Seat Back Failure	None	None
Glazing Damage	None	None

POST TEST STRUCTURAL OBSERVATIONS

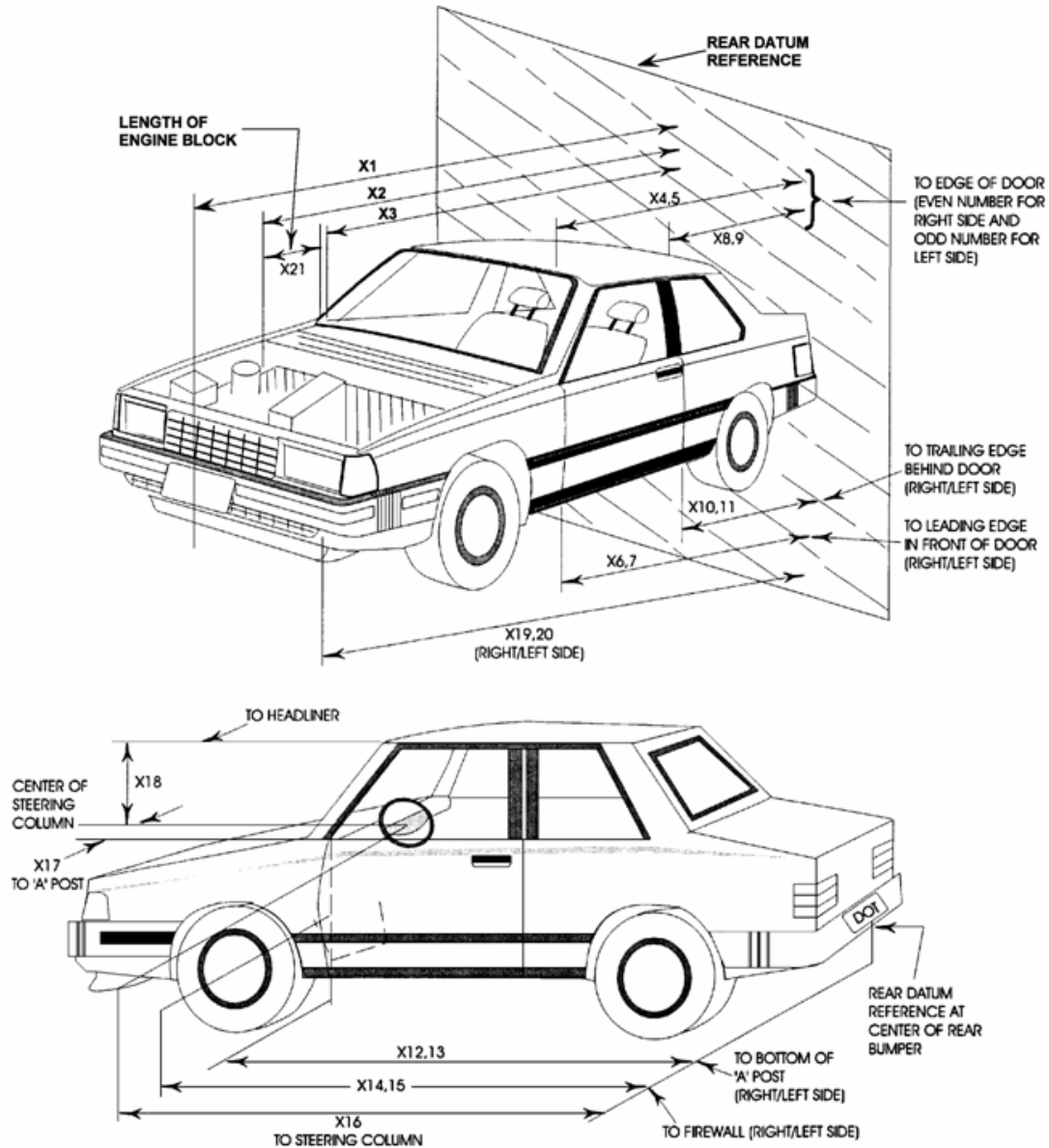
Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Good
Windshield Damage	Broken
Window Damage	None
Other Notable Effects	Left front wheel was pushed into the A-Pillar. Glazing spread apart and split on the driver edge.

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Driver		Passenger	
	Installed	Operated	Installed	Operated
Front Airbag	Yes	Yes	Yes	Yes
Side Airbag 1 (Curtain)	Yes	Yes	Yes	No
Side Airbag 2 (Torso/Pelvis)	Yes	Yes	Yes	No
Knee Airbag	No		No	
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes

DATA SHEET NO. 12
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16



DATA SHEET NO. 12 ... (CONTINUED)**VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

No.	Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	4530	4223	-307
2	Rear Surface of Vehicle to Front of Engine	4050	3953	-97
3	RSOV to Firewall	3325	3313	-12
4	RSOV to Upper Leading Edge of Right Door	3082	3080	-2
5	RSOV to Upper Leading Edge of Left Door	3081	3065	-16
6	RSOV to Lower Leading Edge of Right Door	3076	3065	-11
7	RSOV to Lower Leading Edge of Left Door	3074	3075	1
8	RSOV to Upper Trailing Edge of Right Door	1990	1988	-2
9	RSOV to Upper Trailing Edge of Left Door	1991	1989	-2
10	RSOV to Lower Trailing Edge of Right Door	2022	2013	-9
11	RSOV to Lower Trailing Edge of Left Door	2020	2020	0
12	RSOV to Bottom of A-Pillar, Right Side	3056	3018	-38
13	RSOV to Bottom of A-Pillar, Left Side	3048	3021	-27
14	RSOV to Firewall, Right Side	3303	3316	13
15	RSOV to Firewall, Left Side	3301	3160	-141
16	RSOV to Steering Column	2564	2578	14
17	Center of Steering Column to A-Pillar	390	385	-5
18	Center of Steering Column to Headliner	460	440	-20
19	RSOV to Right Side of Front Bumper	3932	3911	-21
20	RSOV to Left Side of Front Bumper	3930	3421	-509
21	Length of Engine Block	580	580	0
RD	RSOV to Right Side of Dash Panel	2833	2808	-25
CD	RSOV to Center of Dash Panel	2720	2684	-36
LD	RSOV to Left Side of Dash Panel	2830	2806	-24

All measurements in millimeters.

DATA SHEET NO. 13

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

VEHICLE INFORMATION

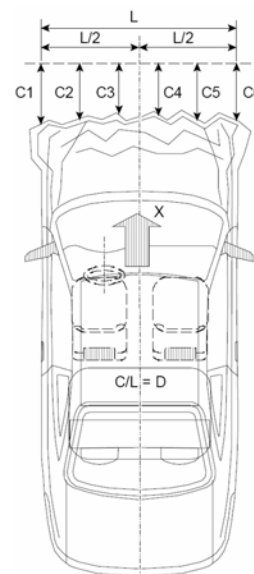
VIN: JM3KE4BY4G0672553 Wheelbase (mm): 2683
 Vehicle Size Category: SUV Test Weight (kg): 1788.0

ACCELEROMETER DATA

Accelerometer Locations: Vehicle CG
 Cal. Procedure/Interval: Drop Test / 6 months
 Integration Algorithm: NHTSA Standard
 Linearity: Good
 Impact Velocity (km/h): 90.65
 Velocity Change (km/h): 51.98

CRUSH PROFILE

Collision Deformation Classification: 12FYEW4
 Midpoint of Damage: C1
 Damage Region Length (mm): 1550
 Impact Mode: Frontal 15° Angle, 35% Left



Crush Measurements: Bumper Cover

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush Zone 1 at Left Side	mm	250	980	730
C2	Crush Zone 2 at Left Side	mm	95	718	623
C3	Crush Zone 3 at Left Side	mm	20	391	371
C4	Crush Zone 4 at Right Side	mm	20	214	194
C5	Crush Zone 5 at Right Side	mm	93	105	12
C6	Crush Zone 6 at Right Side	mm	250	265	15
L	C1 to C6	mm	1550		

Crush Measurements: Bumper Beam

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
B1	Bumper Beam 1 at Left Side	mm	4348	4015	-333
B2	Bumper Beam 2 at Left Side	mm	4376	4078	-298
B3	Bumper Beam 3 at Left Side	mm	4404	4141	-263
B4	Bumper Beam 4 at Left Side	mm	4416	4201	-215
B5	Bumper Beam 5 at Right Side	mm	4420	4249	-171
B6	Bumper Beam 6 at Right Side	mm	4417	4291	-126
B7	Bumper Beam 7 at Right Side	mm	4405	4325	-80
B8	Bumper Beam 8 at Right Side	mm	4378	4343	-34
B9	Bumper Beam 9 at Right Side	mm	4349	4361	12
L	B1 to B9	mm	1012	937	-76

Note: Bumper Beam Measurements are taken relative to VCS.

DATA SHEET NO. 14

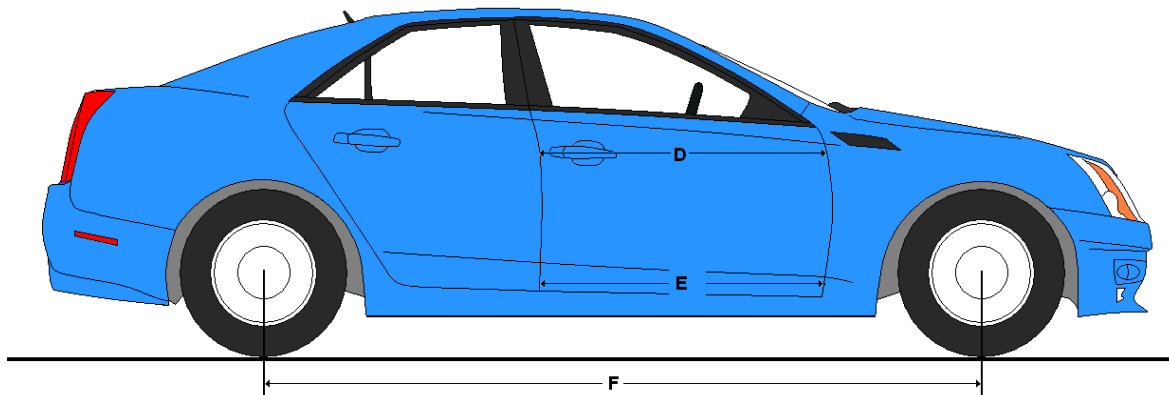
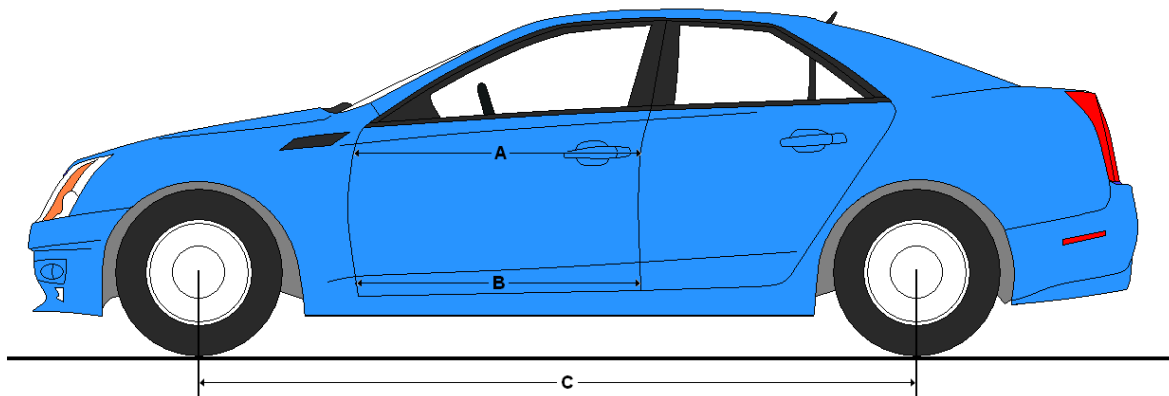
VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411

Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Driver Side Upper	mm	869	864	-5
B	Driver Side Lower	mm	721	719	-2
D	Passenger Side Upper	mm	871	868	-3
E	Passenger Side Lower	mm	718	720	2

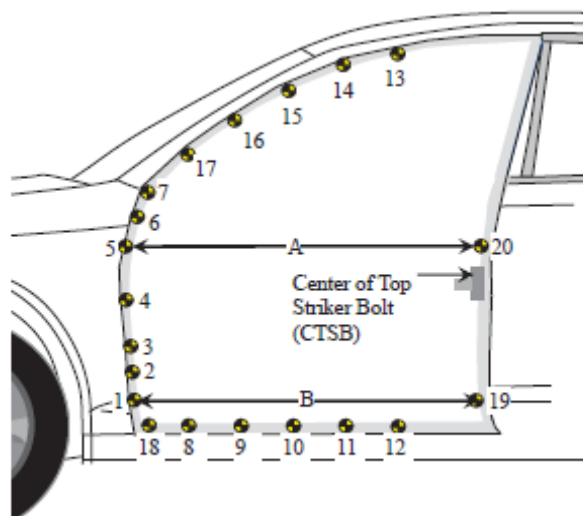


DATA SHEET NO. 14 ... (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

DRIVER SIDE DOOR SILL INTRUSIONS



Point	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2955	-757	94	2955	-742	81	0	14	-13
2	2967	-751	19	2966	-740	8	-1	11	-11
3	2962	-748	-55	2960	-742	-63	-2	5	-7
4	2950	-744	-206	2948	-747	-216	-3	-4	-10
5	2939	-747	-356	2934	-757	-366	-4	-10	-10
6	2934	-750	-431	2929	-764	-441	-5	-13	-10
7	2925	-752	-506	2921	-768	-515	-4	-15	-9
8	2805	-759	168	2806	-744	160	1	14	-8
9	2655	-759	168	2658	-746	159	3	13	-9
10	2505	-759	168	2507	-748	161	2	12	-7
11	2355	-759	158	2359	-749	153	4	10	-5
12	2205	-757	60	2207	-749	56	2	8	-4
13	2355	-628	-869	2354	-634	-878	-1	-6	-9
14	2469	-648	-828	2469	-655	-839	0	-7	-11
15	2583	-671	-776	2582	-681	-787	-1	-9	-11
16	2697	-698	-709	2695	-709	-720	-2	-11	-11
17	2811	-723	-634	2808	-737	-645	-2	-13	-11
18	2880	-758	161	2881	-744	152	1	15	-10
19	2234	-758	94	2236	-749	90	2	9	-4
20	2069	-745	-356	2070	-743	-359	1	3	-3

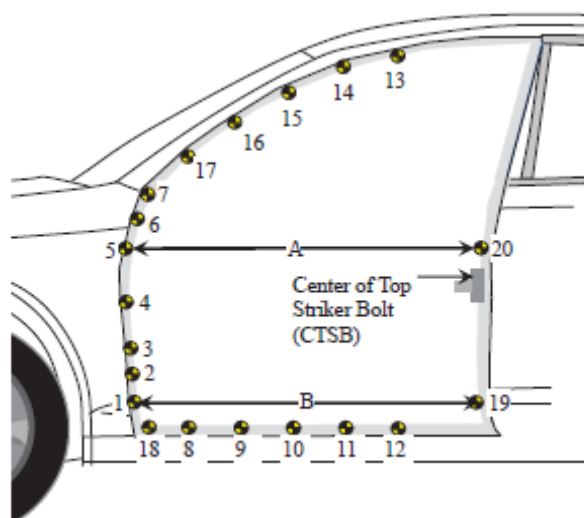
All measurements in millimeters.

DATA SHEET NO. 14 ... (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

PASSENGER SIDE DOOR SILL INTRUSIONS



Point	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2955	761	94	2952	784	105	-3	24	11
2	2964	755	19	2960	779	29	-4	24	10
3	2962	751	-56	2958	775	-49	-5	24	7
4	2950	748	-206	2946	770	-193	-5	22	13
5	2940	751	-356	2935	772	-349	-5	21	7
6	2936	753	-431	2930	773	-423	-5	20	9
7	2926	755	-506	2923	774	-495	-3	19	11
8	2805	763	167	2801	784	176	-5	22	10
9	2656	763	166	2651	783	174	-5	20	9
10	2505	763	166	2499	781	174	-7	18	8
11	2355	764	157	2351	779	164	-4	16	7
12	2205	761	57	2199	774	62	-6	13	5
13	2355	629	-869	2356	631	-856	1	2	13
14	2470	648	-830	2470	652	-817	1	4	13
15	2584	673	-776	2582	679	-764	-2	6	12
16	2698	699	-711	2697	709	-698	-1	10	12
17	2812	725	-635	2809	739	-625	-3	14	11
18	2880	762	160	2876	785	172	-4	22	11
19	2237	763	95	2232	777	102	-5	14	8
20	2069	747	-355	2067	755	-348	-2	7	8

All measurements in millimeters.

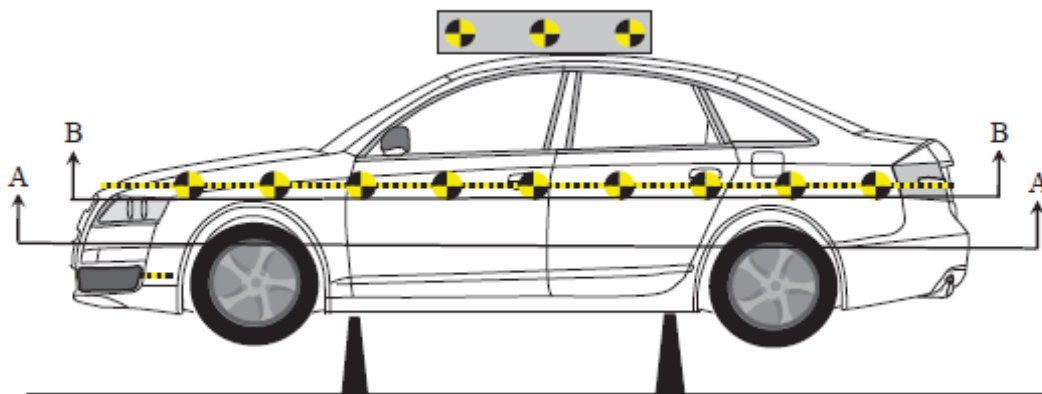
DATA SHEET NO. 14 ... (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

VEHICLE EXTERIOR CRUSH PROFILE

SECTION A-A



Point	Pre-Test (mm)		
	X	Y	Z
1	5	-1	64
2	30	299	63
3	102	601	64
4	400	881	64
5	1600	903	64
6	2000	913	63
7	2400	915	64
8	2800	910	63
9	4028	906	64
10	4201	848	63
11	4275	710	63
12	4434	516	64
13	4460	434	64
14	4490	296	63
15	4507	202	64
16	4524	84	65
17	4532	-1	64
18	4521	-102	63
19	4507	-202	64
20	4478	-360	64

Point	Post-Test (mm)		
	X	Y	Z
1	1906	-900	63
2	1504	-897	63
3	2191	-899	63
4	2081	-898	63
5	2291	-898	63
6	2304	-900	63
7	2388	-897	64
8	2683	-895	64
9	2702	-897	62
10	2810	-895	65
11	2899	-894	63
12	3144	-1005	64
13	3182	-907	62
14	3194	-764	63
15	3630	-601	61
16	3350	-579	65
17	3511	-514	63
18	3609	-431	65
19	4003	-302	65
20	4025	-279	63

DATA SHEET NO. 14 ... (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

VEHICLE EXTERIOR CRUSH PROFILE

SECTION A-A ... (CONTINUED)

Point	Pre-Test (mm)		
	X	Y	Z
21	4440	-492	64
22	4333	-639	63
23	4206	-847	63
24	4120	-885	64
25	3125	-912	63
26	2700	-911	63
27	2301	-914	64
28	1900	-908	64
29	1500	-903	64
30	300	-833	63
31	102	-599	64
32	29	-299	65
33	5	-1	64

Point	Post-Test (mm)		
	X	Y	Z
21	4016	-249	64
22	4058	-162	64
23	4113	-68	63
24	4152	30	64
25	4197	120	65
26	4306	244	64
27	4329	335	64
28	4351	469	64
29	4362	539	63
30	4288	576	65
31	4152	700	64
32	3923	877	65
33	3431	937	63
34	3134	932	63
35	3050	935	63
36	3044	934	64
37	2952	932	63
38	2869	931	64
39	2719	930	64
40	2611	930	63
41	2575	928	64
42	2491	929	64
43	2386	929	63
44	2228	929	65
45	2153	926	64
46	2059	927	64
47	1965	922	63
48	1595	912	63

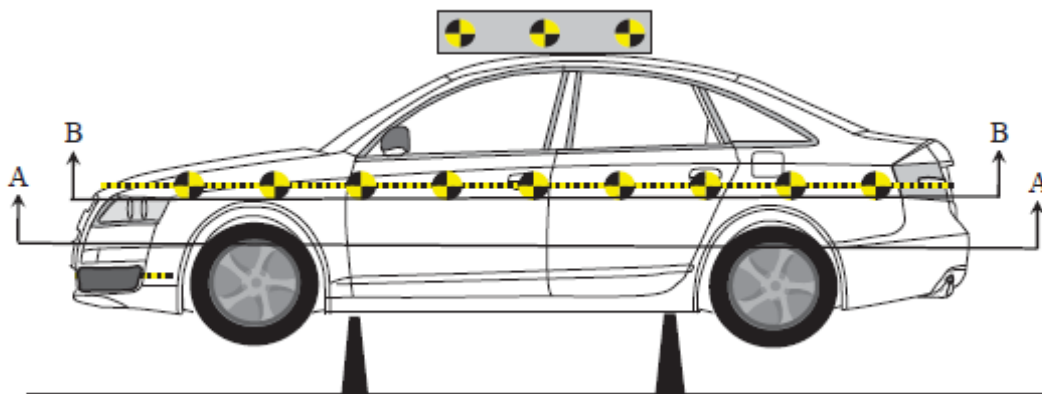
DATA SHEET NO. 14 ... (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

VEHICLE EXTERIOR CRUSH PROFILE

SECTION B-B



Point	Pre-Test (mm)		
	X	Y	Z
1	76	1	-239
2	88	299	-238
3	145	603	-238
4	400	850	-239
5	799	922	-238
6	1200	921	-238
7	1601	906	-238
8	2000	911	-239
9	2401	911	-239
10	2800	909	-239
11	3200	914	-239
12	3523	922	-238
13	3600	919	-238
14	3738	916	-240
15	3974	892	-238
16	4001	879	-239
17	4195	807	-239
18	4321	633	-238
19	4372	537	-238
20	4459	375	-239

Point	Post-Test (mm)		
	X	Y	Z
1	1102	-916	-238
2	1502	-900	-238
3	1906	-906	-238
4	2015	-908	-239
5	2200	-912	-238
6	2294	-914	-239
7	2333	-913	-238
8	2440	-914	-239
9	2611	-914	-238
10	2699	-915	-238
11	2740	-915	-238
12	2889	-917	-239
13	3006	-917	-239
14	3044	-1052	-238
15	3075	-1029	-238
16	3146	-1040	-236
17	3119	-939	-237
18	3243	-834	-239
19	3323	-736	-238
20	3412	-670	-237

DATA SHEET NO. 14 ... (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

VEHICLE EXTERIOR CRUSH PROFILE

SECTION B-B ... (CONTINUED)

Point	Pre-Test (mm)		
	X	Y	Z
21	4485	282	-239
22	4503	181	-239
23	4507	104	-238
24	4525	-1	-239
25	4527	-38	-239
26	4508	-123	-238
27	4493	-241	-238
28	4461	-365	-239
29	4395	-491	-238
30	4368	-541	-238
31	4317	-638	-238
32	4276	-708	-239
33	4231	-771	-239
34	4124	-850	-239
35	4051	-873	-239
36	3974	-893	-238
37	3900	-906	-238
38	3794	-910	-239
39	3717	-917	-238
40	3126	-912	-240
41	2701	-910	-238
42	2300	-911	-239
43	1899	-909	-238
44	1501	-902	-238
45	1100	-918	-239
46	701	-913	-239
47	300	-801	-239
48	145	-600	-238
49	88	-300	-239
50	76	1	-239

Point	Post-Test (mm)		
	X	Y	Z
21	3404	-573	-238
22	3530	-463	-238
23	3611	-397	-239
24	3701	-294	-238
25	3768	-266	-238
26	3854	-198	-236
27	3904	-163	-239
28	3972	-108	-239
29	4053	-39	-238
30	4105	66	-238
31	4176	197	-239
32	4260	319	-239
33	4121	435	-237
34	4134	560	-236
35	4134	577	-239
36	4021	668	-237
37	3925	930	-239
38	3720	952	-238
39	3632	952	-239
40	3483	952	-239
41	3211	941	-238
42	3201	939	-239
43	3053	934	-238
44	2842	931	-240
45	2793	930	-238
46	2691	930	-239
47	2589	929	-237
48	2446	928	-238
49	2316	927	-239
50	2216	925	-237
51	2152	922	-239
52	2119	923	-237
53	2020	921	-240
54	1573	913	-239
55	1362	914	-239

DATA SHEET NO. 14 ... (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

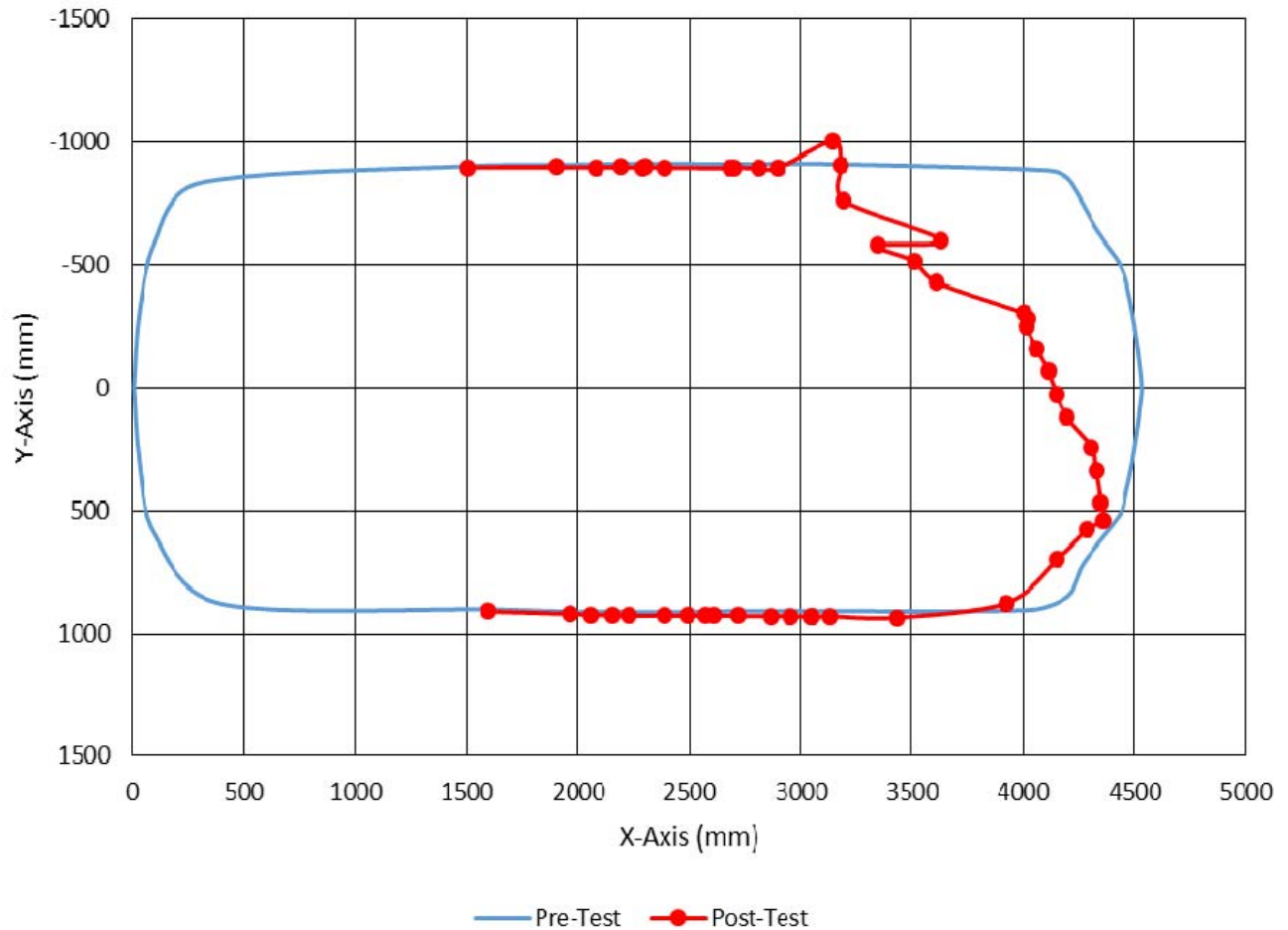
Test Vehicle: 2016 Mazda CX-5

NHTSA No. R20165411

Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

Test Date: 04/19/16

VEHICLE EXTERIOR CRUSH PROFILE
SECTION A-A



DATA SHEET NO. 14 ... (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

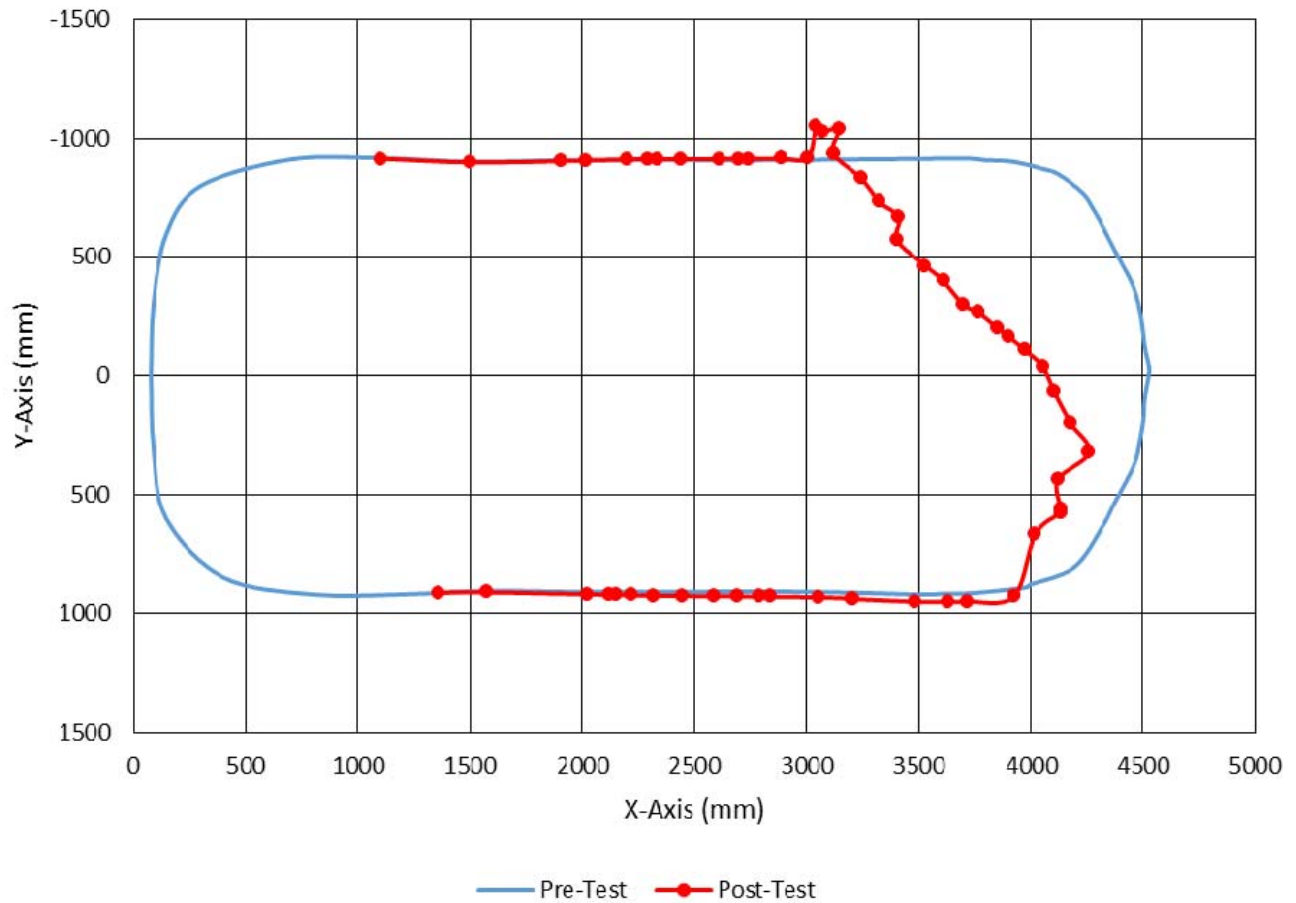
Test Vehicle: 2016 Mazda CX-5

NHTSA No. R20165411

Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

Test Date: 04/19/16

VEHICLE EXTERIOR CRUSH PROFILE
SECTION B-B



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

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

STRUCTURAL BUMPER BEAM POINTS

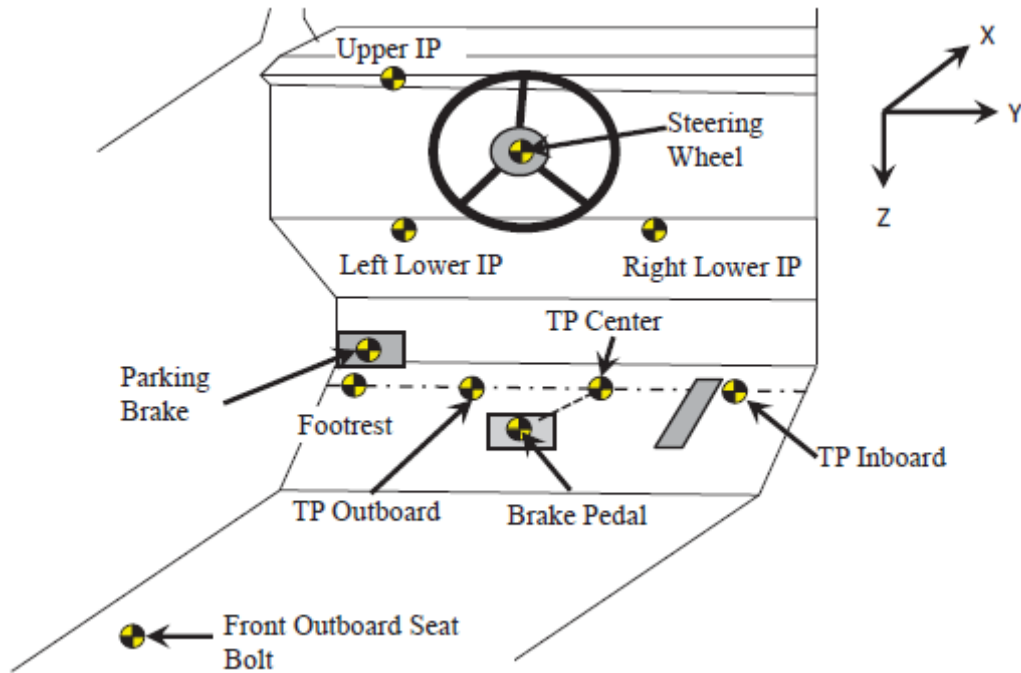
Point	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
B1	4348	-509	64	4015	-367	-106	-333	141	-170
B2	4376	-381	63	4078	-257	-90	-298	125	-153
B3	4404	-255	63	4141	-147	-71	-263	108	-135
B4	4416	-129	64	4201	-36	-53	-215	92	-117
B5	4420	-3	63	4249	78	-33	-171	80	-96
B6	4417	124	64	4291	196	-14	-126	72	-78
B7	4405	250	63	4325	318	4	-80	68	-59
B8	4378	377	64	4343	443	26	-34	66	-38
B9	4349	504	63	4361	569	46	12	66	-17

DATA SHEET NO. 14 ... (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

DRIVER FLOOR PAN MEASUREMENTS



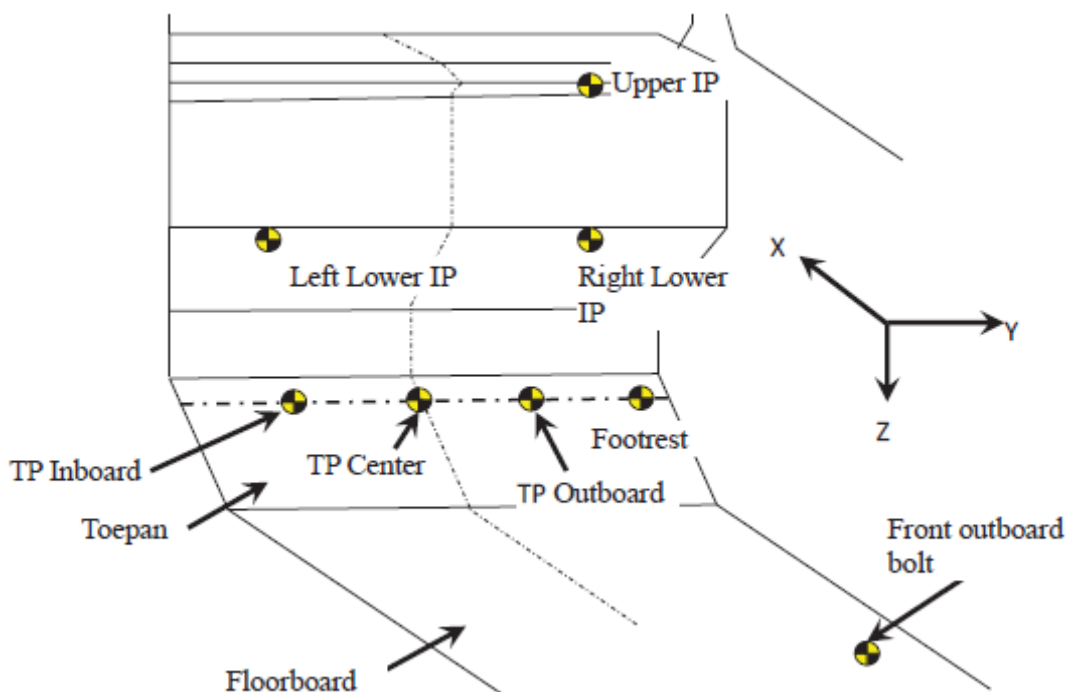
Intrusion Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
TP Inboard	3348	-177	94	3311	-195	64	-38	-18	-29
TP Center	3359	-326	94	3277	-306	58	-82	21	-36
TP Outboard	3309	-477	94	3246	-430	56	-62	47	-37
TP Footrest	3217	-577	93	3193	-544	72	-23	33	-21
Brake Pedal	3072	-326	94	3137	-340	106	64	-13	12
Left Lower IP	2833	-518	-195	2832	-525	-211	-1	-6	-16
Right Lower IP	2832	-217	-196	2826	-225	-203	-6	-7	-7
Upper IP	2782	-518	-320	2774	-527	-351	-8	-8	-31
Steering Wheel	2585	-368	-442	2568	-423	-480	-17	-55	-38
Front Outboard Bolt	2546	-608	161	2549	-592	153	3	17	-8
Emergency Brake									

DATA SHEET NO. 14 ... (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS RELATIVE TO VCS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

PASSENGER FLOOR PAN MEASUREMENTS



Intrusion Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
TP Inboard	3336	221	95	3280	289	62	-56	69	-33
TP Center	3359	371	94	3353	402	107	-6	31	12
TP Outboard	3252	520	94	3252	547	105	0	27	11
TP Footrest	3197	621	95	3198	648	107	1	26	12
Left Lower IP	2804	220	-193	2845	215	-190	40	-5	2
Right Lower IP	2845	521	-193	2861	517	-185	17	-3	8
Upper IP	2778	521	-380	2769	523	-371	-9	2	8
Front Outboard Bolt	2550	611	159	2545	628	168	-4	17	9

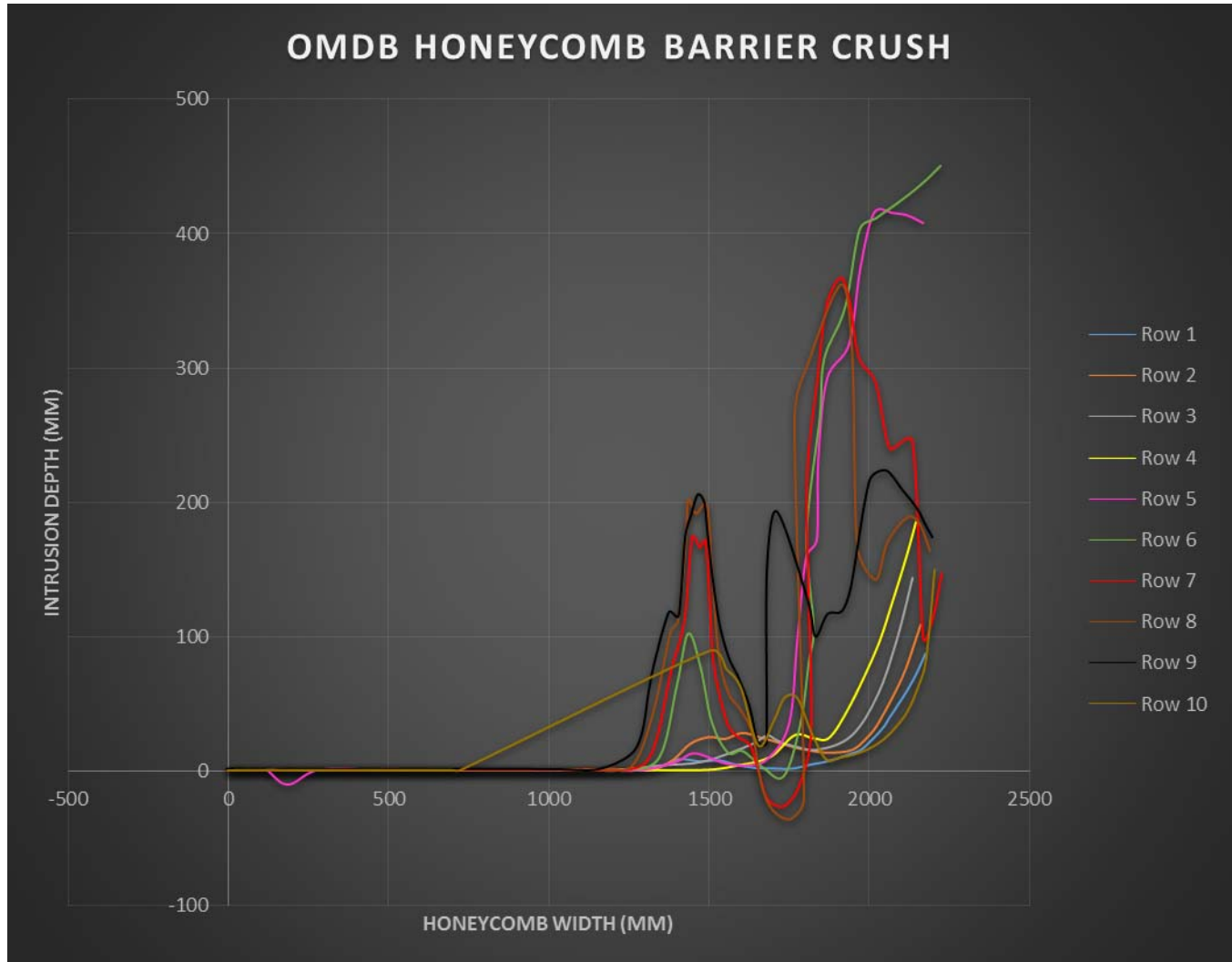
DATA SHEET NO. 15
OMDB CRUSH MEASUREMENTS

Test Vehicle: 2016 Mazda CX-5

NHTSA No. R20165411

Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

Test Date: 04/19/16



DATA SHEET NO. 16

SUMMARY OF FMVSS 212, 219 (PARTIAL), AND 301 DATA

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411

Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

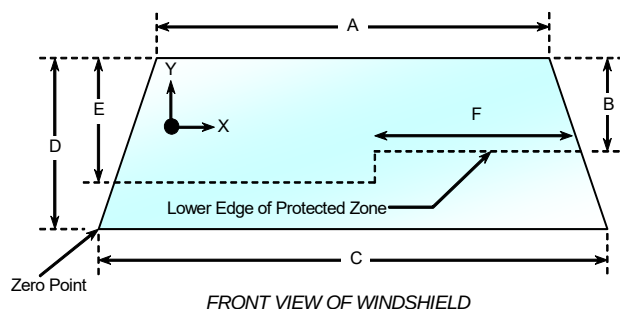
Windshield Mounting Details: Windshield glass is secured to the vehicle frame with plastic molding and rubber cement.

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

Temperature of windshield molding during test: 21.0° C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2231	2231	100.0%
Right Side	2231	2231	100.0%
Total	4462	4462	100.0%



Item	Units	Value
A	mm	1245
B	mm	399
C	mm	1505
D	mm	856
E	mm	511
F	mm	475

AREAS 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.
- B. Provide Coordinates of the area beneath the protected zone that the inner surface of the windshield was penetrated by a vehicle component.

X	Y

X	Y

DATA SHEET NO. 16 ... (CONTINUED)

SUMMARY OF FMVSS 212, 219 (PARTIAL), AND 301 DATA

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 32.0° C Test Time: 4:29 PM

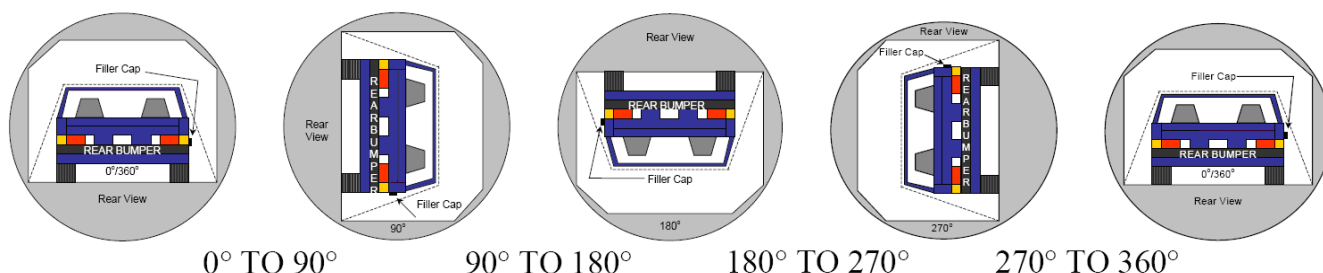
Stoddard Solvent Spillage Measurements

- A. From impact until vehicle motion ceases: 0 oz.
(Maximum allowable = 1 oz.)
- B. For the 5 minute period after motion ceases: 0 oz.
(Maximum allowable = 5 oz.)
- C. For the following 25 minutes: 0 oz.
(Maximum allowable = 1 oz./minute)
- D. Spillage: There was no Stoddard solvent spillage.

DATA SHEET NO. 17

FMVSS 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16



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: There was no Stoddard solvent spillage.

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° To 90°	83	300	383
90° To 180°	82	300	382
180° To 270°	77	300	377
270° To 360°	81	300	381

FMVSS 301 SPILLAGE TABLE

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

SOLVENT SPILLAGE LOCATION TABLE

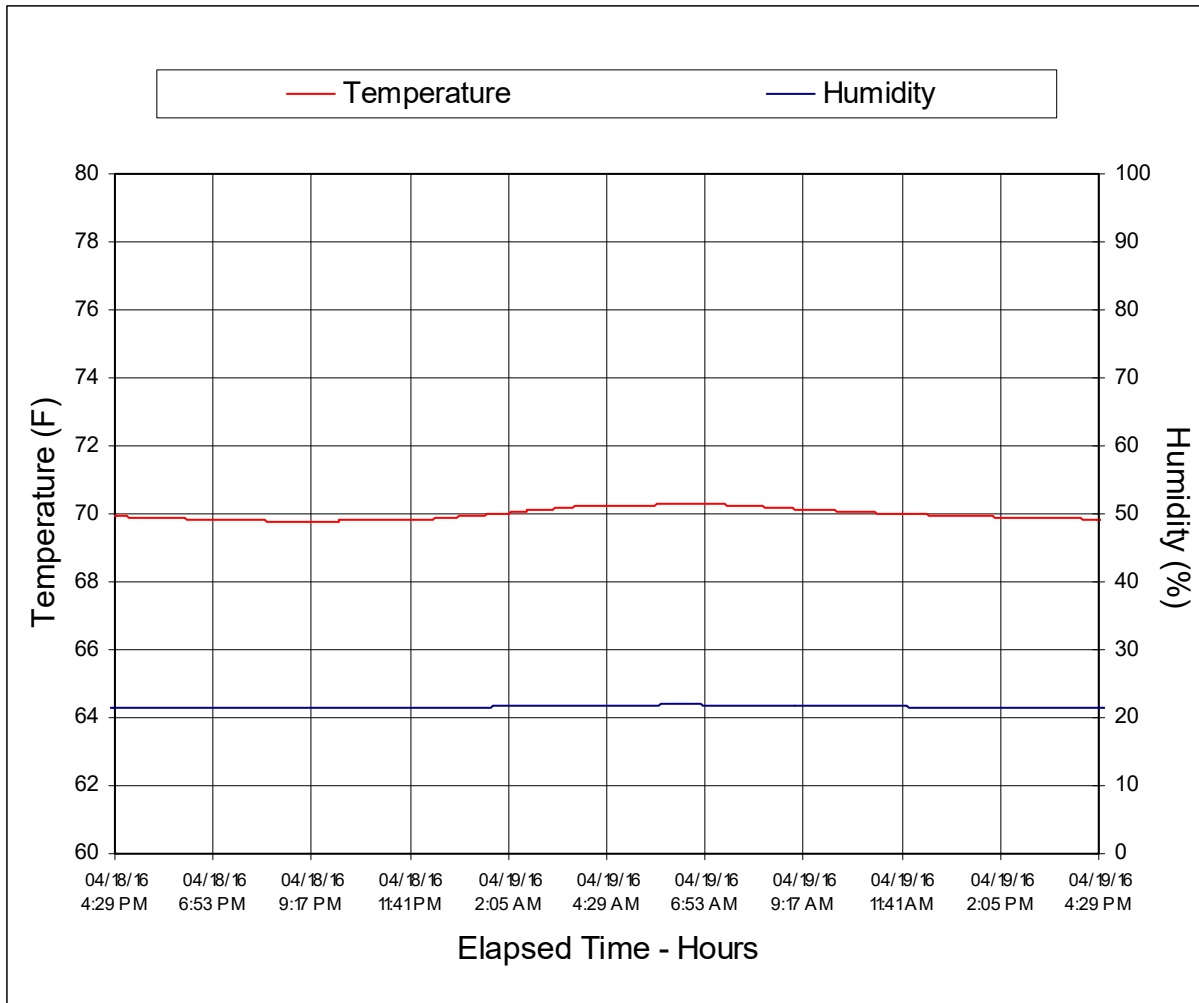
Test Phase	Spillage Location
0° To 90°	
90° To 180°	
180° To 270°	
270° To 360°	

DATA SHEET NO. 18

DUMMY/VEHICLE TEMPERATURE AND HUMIDITY STABILIZATION

Test Vehicle: 2016 Mazda CX-5 NHTSA No. R20165411

Test Program: NHTSA R&D Left Oblique Offset 15deg/35% Test Date: 04/19/16



APPENDIX A
PHOTOGRAPHS

Table of Photographs

NO.	Description	Page
1	As-Delivered Right Front 3-4 View of Test Vehicle	A-6
2	As-Delivered Left Rear 3-4 View of Test Vehicle	A-6
3	Test Vehicle Certification Label	A-7
4	Test Vehicle Tire Placard	A-7
5	Pre-Test Front View of Test Vehicle	A-8
6	Post-Test Front View of Test Vehicle	A-8
7	Pre-Test Left Front 3-4 View of Test Vehicle	A-9
8	Post-Test Left Front 3-4 View of Test Vehicle	A-9
9	Pre-Test Left Side View of Test Vehicle	A-10
10	Post-Test Left Side View of Test Vehicle	A-10
11	Pre-Test Left Rear 3-4 View of Test Vehicle	A-11
12	Post-Test Left Rear 3-4 View of Test Vehicle	A-11
13	Pre-Test Rear View of Test Vehicle	A-12
14	Post-Test Rear View of Test Vehicle	A-12
15	Pre-Test Right Rear 3-4 View of Test Vehicle	A-13
16	Post-Test Right Rear 3-4 View of Test Vehicle	A-13
17	Pre-Test Right Side View of Test Vehicle	A-14
18	Post-Test Right Side View of Test Vehicle	A-14
19	Pre-Test Right Front 3-4 View of Test Vehicle	A-15
20	Post-Test Right Front 3-4 View of Test Vehicle	A-15
21	Monroney Label Photograph	A-16
22	Pre-Test Overhead View of OMDB Against Target Vehicle at Ideal Impact Point	A-16
23	Pre-Test Left Side View of OMDB Against Target Vehicle at Ideal Impact Point	A-17
24	Pre-Test Right Side View of OMDB Against Target Vehicle at Ideal Impact Point	A-17
25	Pre-Test Close-up View of Impact Point	A-18
26	Post-Test Close-up View of Impact Point	A-18
27	Post-Test Vehicle Overhead View	A-19
28	Pre-Test Close-up View of Driver Door Latch	A-19
29	Post-Test Close-up View of Driver Door Latch	A-20
30	Pre-Test Close-up View of Passenger Door Latch	A-20
31	Post-Test Close-up View of Passenger Door Latch	A-21
32	Pre-Test Windshield View	A-21
33	Post-Test Windshield View	A-22
34	Pre-Test View of Driver Inner Door Panel	A-22
35	Post-Test View of Driver Inner Door Panel	A-23
36	Pre-Test View of Passenger Inner Door Panel	A-23
37	Post-Test View of Passenger Inner Door Panel	A-24
38	Pre-Test Overall View of Driver Knee Bolster	A-24
39	Post-Test Overall View of Driver Knee Bolster	A-25
40	Pre-Test Left Side View of Driver Knee Bolster	A-25
41	Post-Test Left Side View of Driver Knee Bolster	A-26
42	Pre-Test Right Side View of Driver Knee Bolster	A-26
43	Post-Test Right Side View of Driver Knee Bolster	A-27
44	Pre-Test View of Driver Floor Pan at Left Sill Level	A-27
45	Post-Test View of Driver Floor Pan at Left Sill Level	A-28
46	Pre-Test View of Driver Floor Pan at Mid Seat Level	A-28
47	Post-Test View of Driver Floor Pan at Mid Seat Level	A-29
48	Pre-Test View of Driver Floor Pan at Right Side	A-29
49	Post-Test View of Driver Floor Pan at Right Side	A-30
50	Pre-Test Driver Front Windshield View	A-30
51	Post-Test Driver Front Windshield View	A-31
52	Pre-Test Left Side View of Driver and Interior	A-31
53	Post-Test Left Side View of Driver and Interior	A-32
54	Pre-Test Left Side Driver Window View	A-32
55	Post-Test Left Side Driver Window View	A-33
56	Pre-Test Right Side View of Driver and Interior	A-33
57	Post-Test Right Side View of Driver and Interior	A-34

Table of Photographs

NO.	Description	Page
58	Pre-Test View of Driver Door Clearance	A-34
59	Post-Test View of Driver Door Clearance	A-35
60	Pre-Test View of Parking Brake	A-35
61	Pre-Test Driver Seat Fore Aft Markings	A-36
62	Post-Test Driver Seat Fore Aft Markings	A-36
63	Pre-Test Driver Seat Back Markings	A-37
64	Pre-Test Overhead View of Driver Thighs on Seat	A-37
65	Pre-Test Driver Adjustable D-Ring	A-38
66	Post-Test Driver Adjustable D-Ring	A-38
67	Pre-Test Driver Feet	A-39
68	Post-Test Driver Feet	A-39
69	Pre-Test View of Driver Right Knee and Bolster	A-40
70	Post-Test View of Driver Right Knee and Bolster	A-40
71	Pre-Test View of Driver Left Knee and Bolster	A-41
72	Post-Test View of Driver Left Knee and Bolster	A-41
73	Pre-Test View of Driver Abdomen	A-42
74	Post-Test View of Driver Abdomen	A-42
75	Pre-Test Left Side View of Steering Wheel	A-43
76	Post-Test Left Side View of Steering Wheel	A-43
77	Post-Test View of Driver Head Contact with Front Airbag	A-44
78	Post-Test View of Driver Head Contact with Curtain Airbag	A-44
79	Post-Test View of Driver Head Contact with Vehicle Interior	A-45
80	Post-Test View of Driver Body Contact with Vehicle Interior - A	A-45
81	Post-Test View of Driver Body Contact with Vehicle Interior - B	A-46
82	Post-Test View of Driver Leg Contact with Vehicle Interior	A-46
83	Pre-Test Overall View of Passenger Knee Bolster	A-47
84	Post-Test Overall View of Passenger Knee Bolster	A-47
85	Pre-Test Left Side View of Passenger Knee Bolster	A-48
86	Post-Test Left Side View of Passenger Knee Bolster	A-48
87	Pre-Test Right Side View of Passenger Knee Bolster	A-49
88	Post-Test Right Side View of Passenger Knee Bolster	A-49
89	Pre-Test View of Passenger Floor Pan at Right Sill Level	A-50
90	Post-Test View of Passenger Floor Pan at Right Sill Level	A-50
91	Pre-Test View of Passenger Floor Pan at Mid Seat Level	A-51
92	Post-Test View of Passenger Floor Pan at Mid Seat Level	A-51
93	Pre-Test View of Passenger Floor Pan at Left View	A-52
94	Post-Test View of Passenger Floor Pan at Left View	A-52
95	Pre-Test Passenger Front Windshield View	A-53
96	Post-Test Passenger Front Windshield View	A-53
97	Pre-Test Left Side Passenger and Interior View	A-54
98	Post-Test Left Side Passenger and Interior View	A-54
99	Pre-Test Right Side Passenger Window View	A-55
100	Post-Test Right Side Passenger Window View	A-55
101	Pre-Test Right Side Passenger and Interior View	A-56
102	Post-Test Right Side Passenger and Interior View	A-56
103	Pre-Test View of Passenger Door Clearance	A-57
104	Post-Test View of Passenger Door Clearance	A-57
105	Pre-Test Passenger Seat Fore-Aft Markings	A-58
106	Post-Test Passenger Seat Fore-Aft Markings	A-58
107	Pre-Test Passenger Seat Back Markings	A-59
108	Pre-Test Overhead View of Passenger Thighs on Seat	A-59
109	Pre-Test Passenger Adjustable D-Ring	A-60
110	Post-Test Passenger Adjustable D-Ring	A-60
111	Pre-Test View of Passenger Feet	A-61
112	Post-Test View of Passenger Feet	A-61
113	Pre-Test View of Passenger Right Knee and Bolster	A-62
114	Post-Test View of Passenger Right Knee and Bolster	A-62

Table of Photographs

NO.	Description	Page
115	Pre-Test View of Passenger Left Knee and Bolster	A-63
116	Post-Test View of Passenger Left Knee and Bolster	A-63
117	Pre-Test View of Passenger Abdomen	A-64
118	Post-Test View of Passenger Abdomen	A-64
119	Post-Test View of Passenger Head Contact with Front Airbag	A-65
120	Post-Test View of Passenger Head Contact with Curtain Airbag	A-65
121	Post-Test View of Passenger Head Contact with Interior	A-66
122	Post-Test View of Passenger Body Contact with Interior - A	A-66
123	Post-Test View of Passenger Body Contact with Interior - B	A-67
124	Post-Test View of Passenger Leg Contact with Vehicle Interior	A-67
125	Pre-Test Ballast Locations	A-68
126	Post-Test Speed Trap Readout	A-68
127	Pre-Test View of Fuel Filler Cap	A-69
128	Post-Test View of Fuel Filler Cap	A-69
129	Pre-Test Engine Compartment View	A-70
130	Post-Test Engine Compartment View	A-70
131	Pre-Test View of Front Underbody (Perpendicular to Vehicle)	A-71
132	Post-Test View of Front Underbody (Perpendicular to Vehicle)	A-71
133	Pre-Test View of Mid Underbody (Perpendicular to Vehicle)	A-72
134	Post-Test View of Mid Underbody (Perpendicular to Vehicle)	A-72
135	Pre-Test View of Rear Underbody (Perpendicular to Vehicle)	A-73
136	Post-Test View of Rear Underbody (Perpendicular to Vehicle)	A-73
137	Pre-Test View of Front Axle	A-74
138	Post-Test View of Front Axle	A-74
139	Pre-Test Bumper to Rail Attachments and Crush Initiators	A-75
140	Post-Test Bumper to Rail Attachments and Crush Initiators	A-75
141	Pre-Test Left Side Impact Rail	A-76
142	Post-Test Left Side Impact Rail	A-76
143	Pre-Test Left Front 3-4 View of Driver Wheel Well	A-77
144	Post-Test Left Front 3-4 View of Driver Wheel Well	A-77
145	Pre-Test Left Side View of Driver Wheel Well	A-78
146	Post-Test Left Side View of Driver Wheel Well	A-78
147	Pre-Test Left Rear 3-4 View of Driver Wheel Well	A-79
148	Post-Test Left Rear 3-4 View of Driver Wheel Well	A-79
149	Pre-Test Driver Close-up View of Suspension	A-80
150	Post-Test Driver Close-up View of Suspension	A-80
151	Pre-Test Left Side Tie Rod and Sway Bar Attachment Points	A-81
152	Post-Test Left Side Tie Rod and Sway Bar Attachment Points	A-81
153	Pre-Test Right Front 3-4 View of Passenger Wheel Well	A-82
154	Post-Test Right Front 3-4 View of Passenger Wheel Well	A-82
155	Pre-Test Right Side View of Passenger Wheel Well	A-83
156	Post-Test Right Side View of Passenger Wheel Well	A-83
157	Pre-Test Right Rear 3-4 View of Passenger Wheel Well	A-84
158	Post-Test Right Rear 3-4 View of Passenger Wheel Well	A-84
159	Pre-Test Passenger Close-up View of Suspension	A-85
160	Post-Test Passenger Close-up View of Suspension	A-85
161	Pre-Test Right Side Tie Rod and Sway Bar Attachment Points	A-86
162	Post-Test Right Side Tie Rod and Sway Bar Attachment Points	A-86
163	Pre-Test Left Side View of OMDB Impactor Face	A-87
164	Post-Test Left Side View of OMDB Impactor Face	A-87
165	Pre-Test Right Side View of OMDB Impactor Face	A-88
166	Post-Test Right Side View of OMDB Impactor Face	A-88
167	Pre-Test Top View of OMDB Impactor Face	A-89
168	Post-Test Top View of OMDB Impactor Face	A-89
169	Pre-Test Front View of OMDB Impactor Face	A-90
170	Post-Test Front View of OMDB Impactor Face	A-90
171	Pre-Test Right Side View of OMDB	A-91

Table of Photographs

NO.	Description	Page
172	Post-Test Right Side View of OMDB	A-91
173	Pre-Test Left Side View of OMDB	A-92
174	Post-Test Left Side View of OMDB	A-92
175	Pre-Test OMDB & Vehicle, Right Side	A-93
176	Post-Test OMDB & Vehicle, Right Side	A-93
177	Pre-Test OMDB & Vehicle, Left Side	A-94
178	Post-Test OMDB & Vehicle, Left Side	A-94
179	Pre-Test OMDB & Vehicle, Top View	A-95
180	Post-Test OMDB & Vehicle, Top View	A-95
181	Pre-Test OMDB & Vehicle Alignment	A-96
182	FMVSS No. 301 Static Rollover 0 Degrees	A-96
183	FMVSS No. 301 Static Rollover 90 Degrees	A-97
184	FMVSS No. 301 Static Rollover 180 Degrees	A-97
185	FMVSS No. 301 Static Rollover 270 Degrees	A-98
186	FMVSS No. 301 Static Rollover 360 Degrees	A-98
187	Impact Event	A-99



FIGURE 1. As Delivered Right Front 3-4 View of Test Vehicle



FIGURE 2. As Delivered Left Rear 3-4 View of Test Vehicle



FIGURE 3. Test Vehicle Certification Label



FIGURE 4. Test Vehicle Tire Placard



FIGURE 5. Pre-Test Front View of Test Vehicle

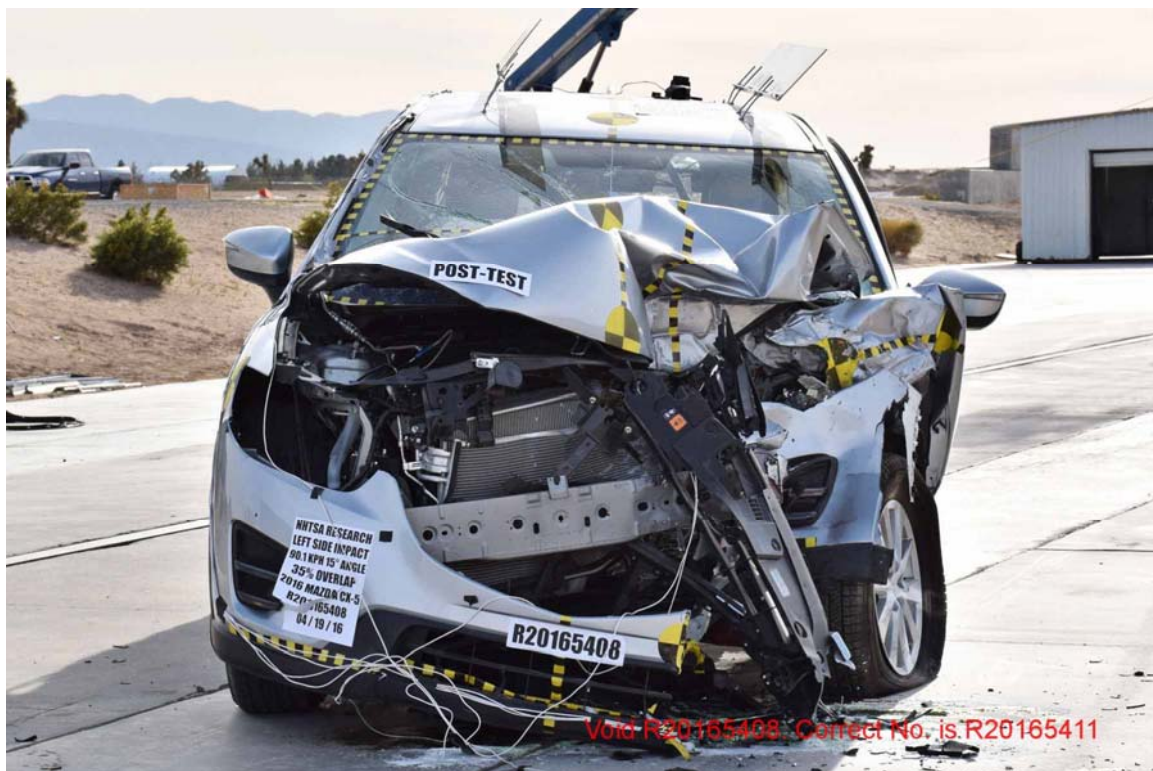


FIGURE 6. Post-Test Front View of Test Vehicle



FIGURE 7. Pre-Test Left Front 3-4 View of Test Vehicle



FIGURE 8. Post-Test Left Front 3-4 View of Test Vehicle



FIGURE 9. Pre-Test Left Side View of Test Vehicle



FIGURE 10. Post-Test Left Side View of Test Vehicle



FIGURE 11. Pre-Test Left Rear 3-4 View of Test Vehicle



FIGURE 12. Post-Test Left Rear 3-4 View of Test Vehicle

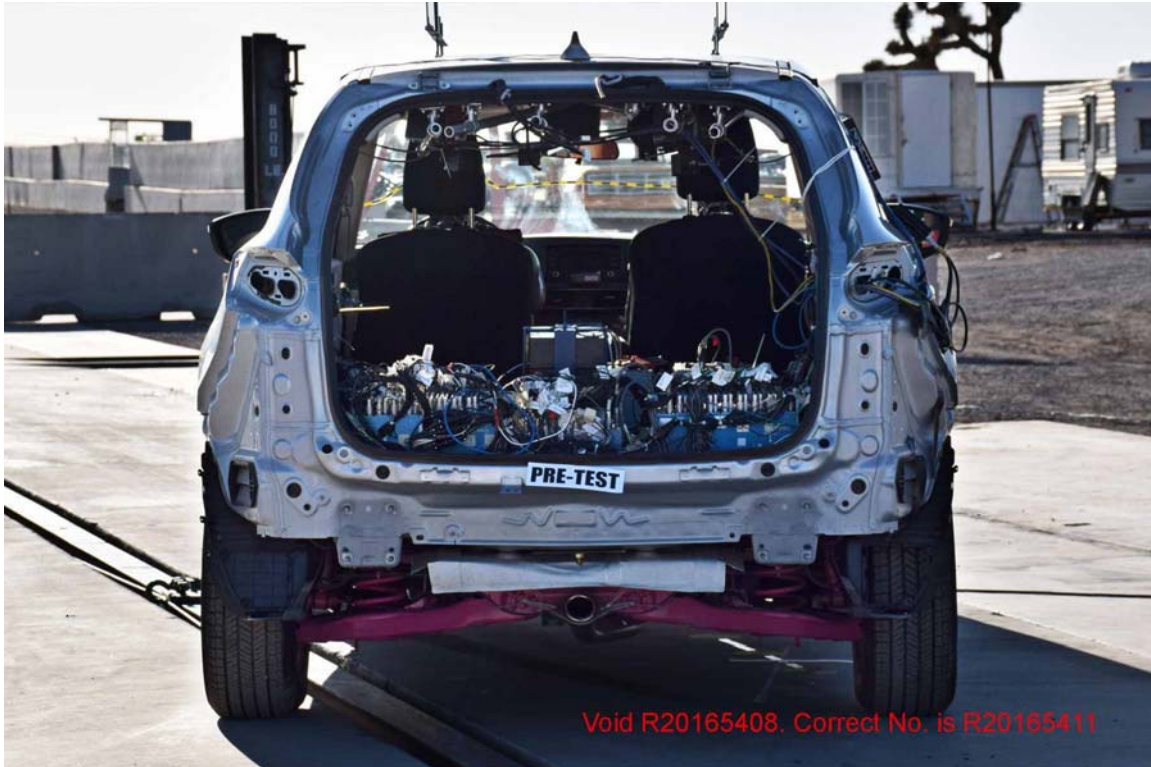


FIGURE 13. Pre-Test Rear View of Test Vehicle

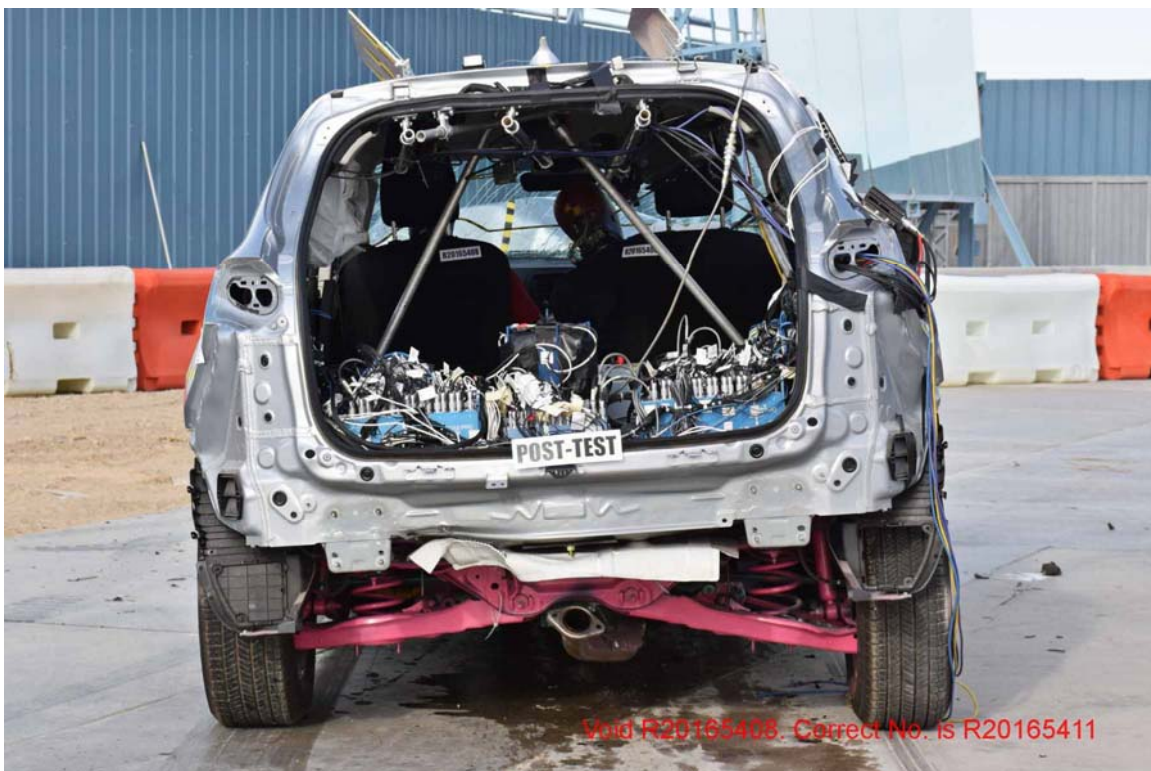


FIGURE 14. Post-Test Rear View of Test Vehicle



FIGURE 15. Pre-Test Right Rear 3-4 View of Test Vehicle



FIGURE 16. Post-Test Right Rear 3-4 View of Test Vehicle



FIGURE 17. Pre-Test Right Side View of Test Vehicle



FIGURE 18. Post-Test Right Side View of Test Vehicle



FIGURE 19. Pre-Test Right Front 3-4 View of Test Vehicle



FIGURE 20. Post-Test Right Front 3-4 View of Test Vehicle

mazda

SKYACTIV TECHNOLOGY

Scan for Vehicle Info and offers

2016 CX-5
 Model: 2016 CX-5 SPORT ALL WHEEL DRIVE
 Exterior Color: SONIC SILVER METALIC
 Interior Color: BLACK

Fuel Economy and Environment
 Fuel Economy: 26 MPG (combined city/hwy), 24 city, 30 highway
 3.8 gallons per 100 miles
 Annual fuel cost: \$1,750
 You save \$250 in fuel costs over 5 years compared to the average new vehicle.

Gasoline Vehicle
 Fuel Economy & Greenhouse Gas Rating: 6 (out of 10)
 Smog Rating: 5 (out of 10)

PARTS CONTENT INFORMATION:
 FOR VEHICLES IN THIS COUNTRY: U.S./CANADIAN PARTS CONTENT: 0%
 MAJOR SOURCES OF FOREIGN PARTS CONTENT: JAPAN 95%
 NOTE: PARTS CONTENT DOES NOT INCLUDE FINAL ASSEMBLY DISTRIBUTION OR OTHER NON-PARTS COSTS.
 FOR THIS VEHICLE: FINAL ASSEMBLY POINT: HIROSHIMA, JAPAN
 COUNTRY OF ORIGIN: JAPAN
 TRANSMISSION: JAPAN

STANDARD EQUIPMENT
 ENGINE/MECHANICAL FEATURES:
 • SKYACTIV-G 2.5L ENGINE
 • SKYACTIV-DRIVE GSD SPORT MODE AT
 • 184 HORSEPOWER, 185 LB-FT TORQUE
 • ALL-WHEEL DRIVE
 EXTERIOR FEATURES:
 • 17-INCH ALLOY WHEELS
 • 225/55 R17 ALL-SEASON TIRES
 • VARIABLE INTERMITTENT WIPERS
 • FIXED-INTERMITTENT REAR WIPER
 • POWER MIRRORS WITH TURN LAMPS
 INTERIOR FEATURES:
 • 5-PASSENGER SEATING
 • TILT & TELESCOPIC STEERING COLUMN
 • STEERING WHEEL W/ AUDIO/CRUISE CONTROLS
 • POWER AUTOMATIC DOOR LOCKS
 • POWER WINDOWS W/D RIVER ONE-TOUCH
 • CLOTH TRIMMED SPORT SEAT'S
 • 6-WAY MANUAL DRIVER'S SEAT
 • MID TRIP COMPUTER
 • ELECTRONIC PARKING BRAKE
 SAFETY AND SECURITY FEATURES:
 • 6-SPEAKER 180-WATT PREMIUM AUDIO
 • 360° BLIND-SPOT MONITORING
 • 24-HOUR ROADSIDE ASSISTANCE
 • 5-PASSENGER 3-POINT SAFETY BELTS
 • LATCH CHILD SAFETY SEAT ANCHORS
 • ANTI-LOCK BRAKE SYSTEM (ABS)
 • ANTI-THIEF ENGINE IMMOBILIZER
 • TIRE PRESSURE MONITORING SYSTEM
 • SKYACTIV BODY - RING STRUCTURE
 • 4-WHEEL DISC BRAKES
 • ELECTRIC POWER ASSISTED STEERING
 • INDEPENDENT FRONT/REAR SUSPENSION
 • FRONT & REAR STABILIZER BARS
 • HALOGEN HEADLIGHTS
 • DAYTIME RUNNING LIGHTS
 • BRIGHT FINISH EXHAUST OUTLETS
 • REAR ROOF SPOILER
 • ROOF MOUNTED SHARK FIN ANTENNA
 • REMOTE KEYLESS ENTRY
 • PUSH BUTTON ENGINE START
 • AIR CONDITIONING W/ POLLEN FILTER
 • AM/FM/CD/MP3 4-SPEAKER AUDIO
 • AUXILIARY JACK & USB AUDIO INPUT
 • BLUETOOTH HANDS FREE PHONE/AUDIO
 • DUAL MIRROR MIRRORS
 • CENTER ARMREST W/ COVERED STORAGE
 • 60/40 SPLIT FOLD-DOWN REAR SEAT
 • CARPETED FLOOR MATS

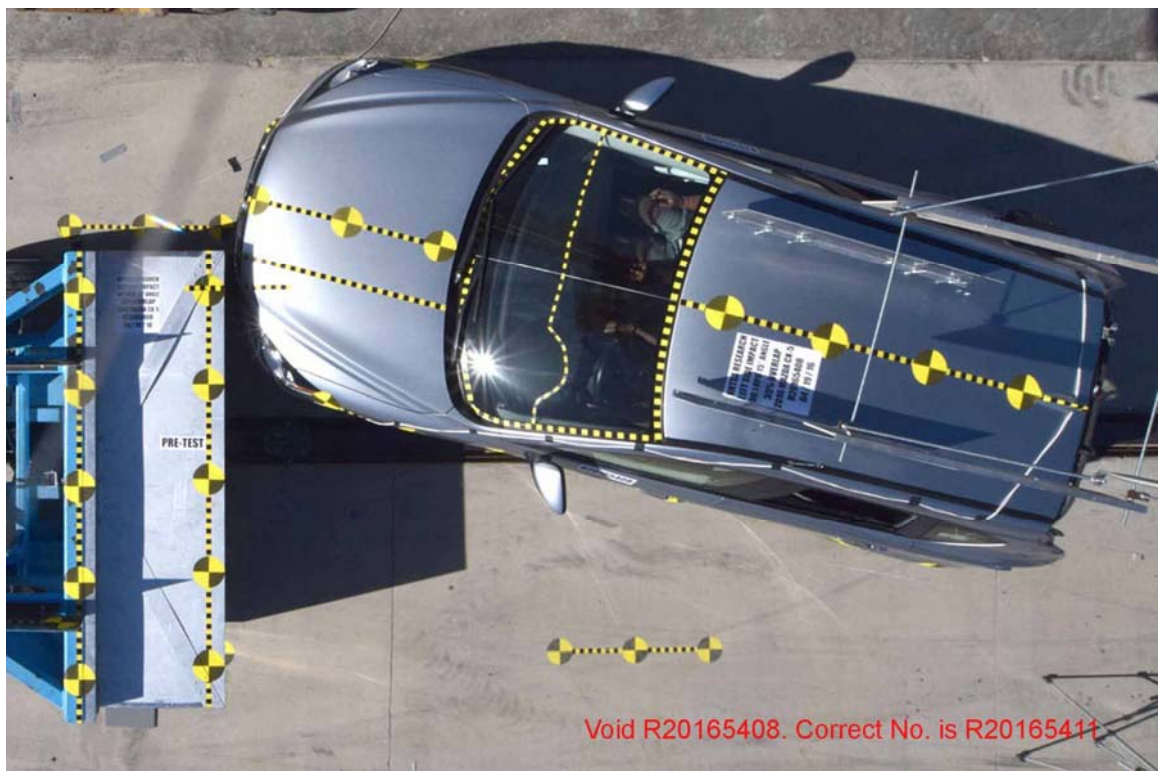
GOVERNMENT 5-STAR SAFETY RATINGS
 Overall Vehicle Score: Not Rated
 Based on the combined ratings of frontal, side and rollover.
 Should ONLY be compared to other vehicles of similar size and weight.
 Frontal Crash: Not Rated
 Driver Passenger: Not Rated
 Side Crash: Front seat: ★★★★★, Rear seat: ★★★★★
 Rollover: ★★★★★
 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

SOLD TO: 60175
 SIERRA MAZDA
 510 E. NORRIS DRIVE
 OTTAWA, IL 61350
 SHIP TO: 60175
 SIERRA MAZDA
 510 E. NORRIS DRIVE
 OTTAWA, IL 61350
 LP
 JM3KE4BY4G0672553
 CX5-SP-3A-KA3P14D-1A-1A-20150827
 Mazda Logo

MSRP \$24,445
 Total Vehicle and Options \$24,445
 Delivery, Processing and Handling Fee \$485
 Total MSRP \$25,325

Void R20165408. Correct No. is R20165411

FIGURE 21. Monroney Label Photograph



Void R20165408. Correct No. is R20165411

FIGURE 22. Pre-Test Overhead View of OMDb Against Target Vehicle at Ideal Impact Point



FIGURE 23. Pre-Test Left Side View of OMDB Against Target Vehicle at Ideal Impact Point



FIGURE 24. Pre-Test Right Side View of OMDB Against Target Vehicle at Ideal Impact Point



FIGURE 25. Pre-Test Close-up View of Impact Point



FIGURE 26. Post-Test Close-up View of Impact Point





FIGURE 29. Post-Test Close-up View of Driver Door Latch



FIGURE 30. Pre-Test Close-up View of Passenger Door Latch



FIGURE 31. Post-Test Close-up View of Passenger Door Latch



FIGURE 32. Pre-Test Windshield View



FIGURE 33. Post-Test Windshield View



FIGURE 34. Pre-Test View of Driver Inner Door Panel



FIGURE 35. Post-Test View of Driver Inner Door Panel



FIGURE 36. Pre-Test View of Passenger Inner Door Panel



FIGURE 37. Post-Test View of Passenger Inner Door Panel



FIGURE 38. Pre-Test Overall View of Driver Knee Bolster



FIGURE 39. Post-Test Overall View of Driver Knee Bolster



FIGURE 40. Pre-Test Left Side View of Driver Knee Bolster



FIGURE 41. Post-Test Left Side View of Driver Knee Bolster



FIGURE 42. Pre-Test Right Side View of Driver Knee Bolster



FIGURE 43. Post-Test Right Side View of Driver Knee Bolster



FIGURE 44. Pre-Test View of Driver Floor Pan at Left Sill Level



FIGURE 45. Post-Test View of Driver Floor Pan at Left Sill Level



FIGURE 46. Pre-Test View of Driver Floor Pan at Mid Seat Level



FIGURE 47. Post-Test view of Driver Floor Pan at Mid Seat Level



FIGURE 48. Pre-Test View of Driver Floor Pan at Right Side



FIGURE 49. Post-Test View of Driver Floor Pan at Right Side



FIGURE 50. Pre-Test Driver Front Windshield View



FIGURE 51. Post-Test Driver Front Windshield View



FIGURE 52. Pre-Test Left Side View of Driver and Interior



FIGURE 53. Post-Test Left Side View of Driver and Interior



FIGURE 54. Pre-Test Left Side Driver Window View



FIGURE 55. Post-Test Left Side Driver Window View



FIGURE 56. Pre-Test Right Side View of Driver and Interior



FIGURE 57. Post-Test Right Side View of Driver and Interior



FIGURE 58. Pre-Test View of Driver Door Clearance



FIGURE 59. Post-Test View of Driver Door Clearance



FIGURE 60. Pre-Test View of Parking Brake



FIGURE 61. Pre-Test Driver Seat Fore Aft Markings



FIGURE 62. Post-Test Driver Seat Fore Aft Markings



FIGURE 63. Pre-Test Driver Seat Back Markings



FIGURE 64. Pre-Test Overhead View of Driver Thighs on Seat



FIGURE 65. Pre-Test Driver Adjustable D-Ring



FIGURE 66. Post-Test Driver Adjustable D-Ring



FIGURE 67. Pre-Test Driver Feet



FIGURE 68. Post-Test Driver Feet



FIGURE 69. Pre-Test View of Driver Right Knee and Bolster



FIGURE 70. Post-Test View of Driver Right Knee and Bolster



FIGURE 71. Pre-Test View of Driver Left Knee and Bolster



FIGURE 72. Post-Test View of Driver Left Knee and Bolster



FIGURE 73. Pre-Test View of Driver Abdomen



FIGURE 74. Post-Test View of Driver Abdomen



FIGURE 75. Pre-Test Left Side View of Steering Wheel



FIGURE 76. Post-Test Left Side View of Steering Wheel



FIGURE 77. Post-Test View of Driver Head Contact with Front Airbag



FIGURE 78. Post-Test View of Driver Head Contact with Curtain Airbag



FIGURE 79. Post-Test View of Driver Head Contact with Vehicle Interior



FIGURE 80. Post-Test View of Driver Body Contact with Vehicle Interior - A



FIGURE 81. Post-Test View of Driver Body Contact with Vehicle Interior - B



FIGURE 82. Post-Test View of Driver Leg Contact with Vehicle Interior

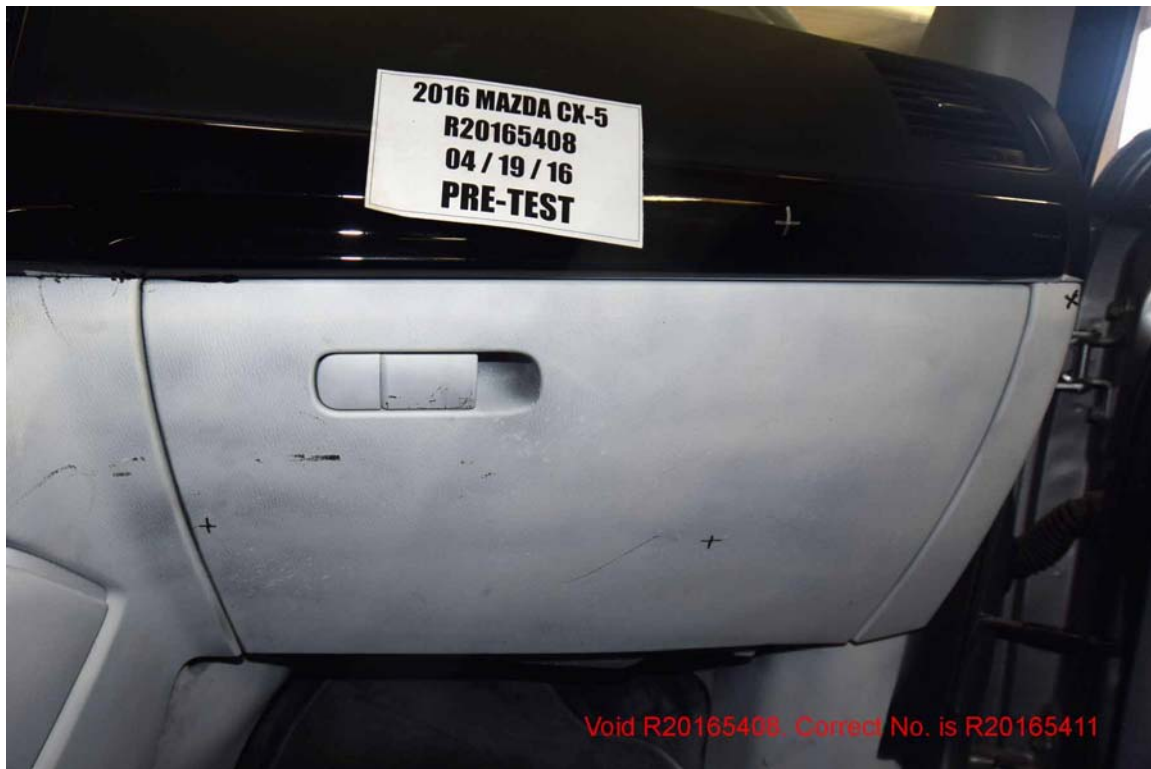


FIGURE 83. Pre-Test Overall View of Passenger Knee Bolster



FIGURE 84. Post-Test Overall View of Passenger Knee Bolster



FIGURE 85. Pre-Test Left Side View of Passenger Knee Bolster



FIGURE 86. Post-Test Left Side View of Passenger Knee Bolster



FIGURE 87. Pre-Test Right Side View of Passenger Knee Bolster



FIGURE 88. Post-Test Right Side View of Passenger Knee Bolster



FIGURE 89. Pre-Test View of Passenger Floor Pan at Right Sill Level



FIGURE 90. Post-Test View of Passenger Floor Pan at Right Sill Level



FIGURE 91. Pre-Test View of Passenger Floor Pan at Mid seat Level



FIGURE 92. Post-Test view of Passenger Floor Pan at Mid Seat Level



FIGURE 93. Pre-Test View of Passenger Floor Pan at Left view



FIGURE 94. Post-Test View of Passenger Floor Pan at Left View



FIGURE 95. Pre-Test Passenger Front Windshield View



FIGURE 96. Post-Test Passenger Front Windshield View



FIGURE 97. Pre-Test Left Side Passenger and Interior View



FIGURE 98. Post-Test Left Side Passenger and Interior View



FIGURE 99. Pre-Test Right Side Passenger Window View



FIGURE 100. Post-Test Right Side Passenger Window View



FIGURE 101. Pre-Test Right Side Passenger and Interior View



FIGURE 102. Post-Test Right Side Passenger and Interior View



FIGURE 103. Pre-Test View of Passenger Door Clearance



FIGURE 104. Post-Test View of Passenger Door Clearance



FIGURE 105. Pre-Test Passenger Seat Fore-Aft Markings



FIGURE 106. Post-Test Passenger Seat Fore-Aft Markings



FIGURE 107. Pre-Test Passenger Seat Back Markings



FIGURE 108. Pre-Test Overhead View of Passenger Thighs on Seat



FIGURE 109. Pre-Test Passenger Adjustable D-Ring



FIGURE 110. Post-Test Passenger Adjustable D-Ring



FIGURE 111. Pre-Test View of Passenger Feet



FIGURE 112. Post-Test View of Passenger Feet



FIGURE 113. Pre-Test View of Passenger Right Knee and Bolster

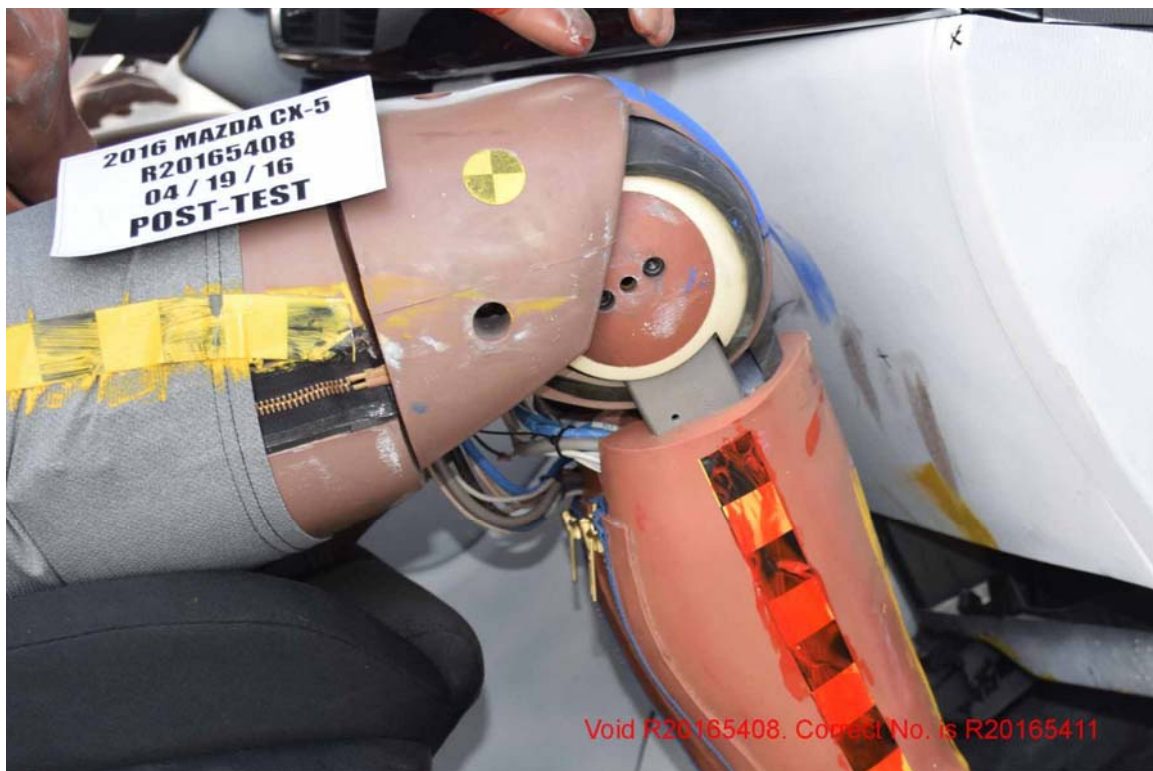


FIGURE 114. Post-Test View of Passenger Right Knee and Bolster



FIGURE 115. Pre-Test View of Passenger Left Knee and Bolster



FIGURE 116. Post-Test View of Passenger Left Knee and Bolster



FIGURE 117. Pre-Test View of Passenger Abdomen



FIGURE 118. Post-Test View of Passenger Abdomen



FIGURE 119. Post-Test View of Passenger Head Contact with Front Airbag

Photograph Not Applicable

Void R20165408. Correct No. is R20165411

FIGURE 120. Post-Test View of Passenger Head Contact with Curtain Airbag



FIGURE 121. Post-Test View of Passenger Head Contact with Interior



FIGURE 122. Post-Test View of Passenger Body Contact with Interior - A



FIGURE 123. Post-Test View of Passenger Body Contact with Interior - B



FIGURE 124. Post-Test View of Passenger Leg Contact with Vehicle Interior

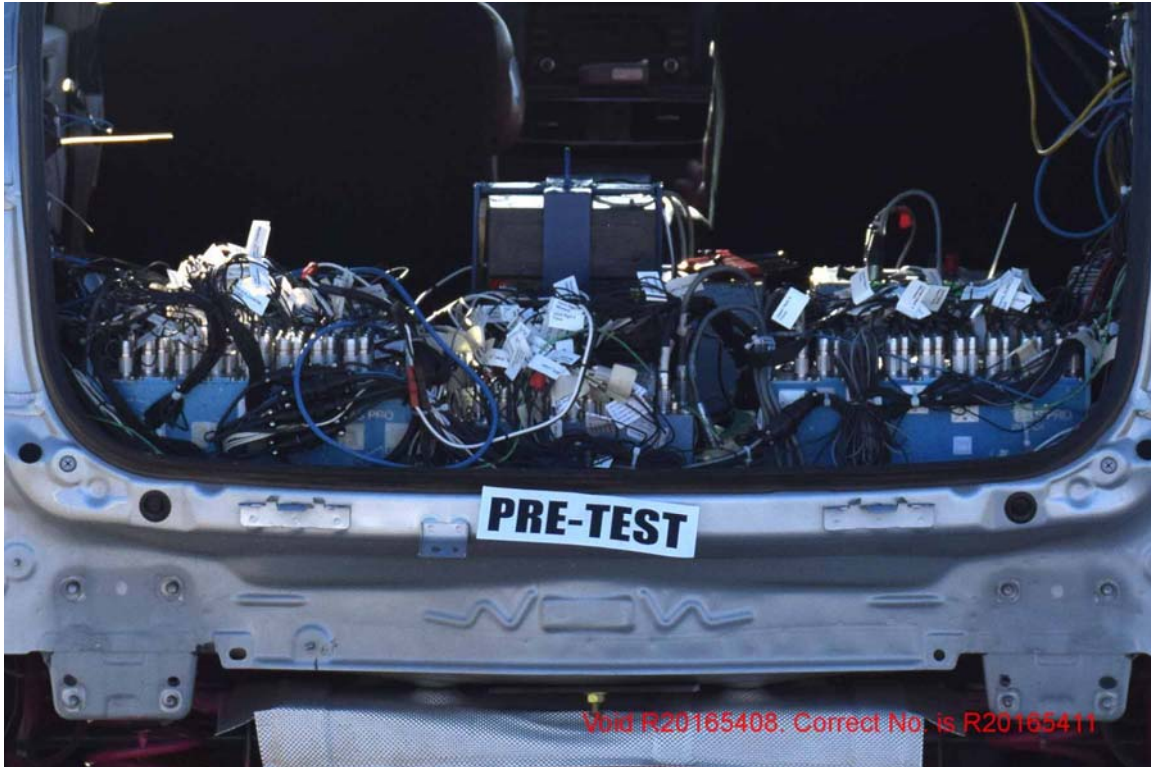


FIGURE 125. Pre-Test Ballast Locations

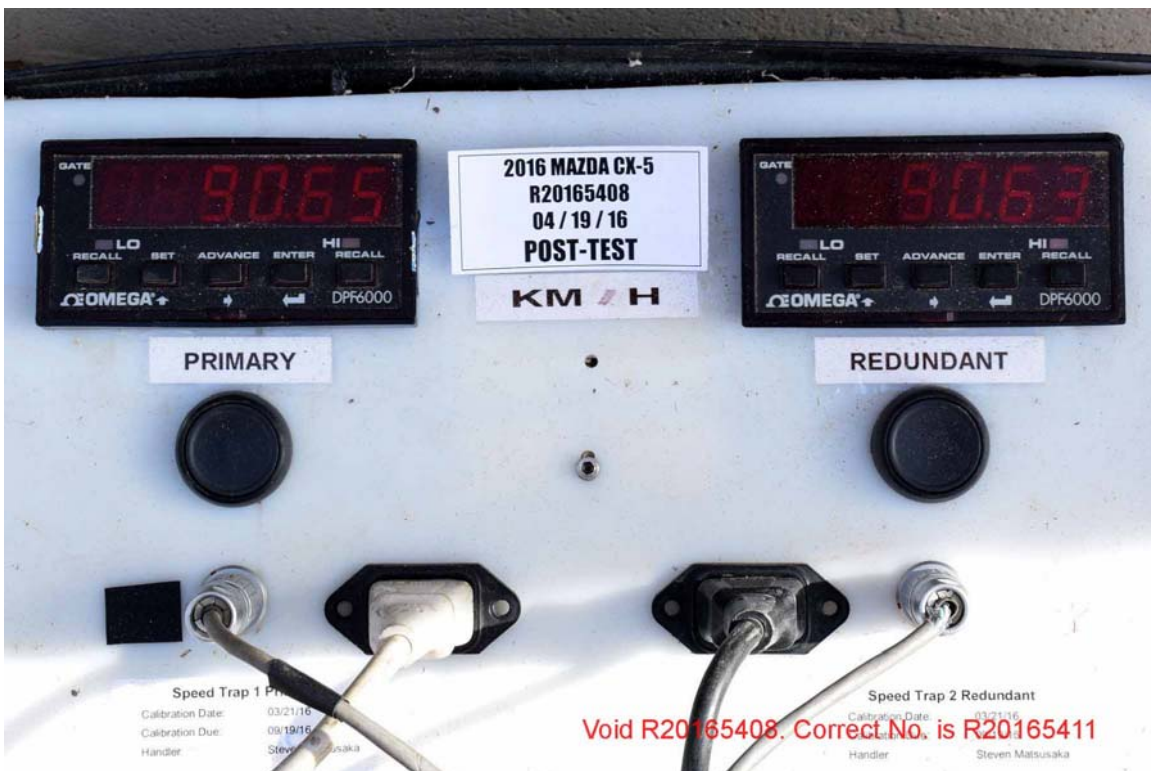


FIGURE 126. Post-Test Speed Trap Readout



FIGURE 127. Pre-Test View of Fuel Filler Cap

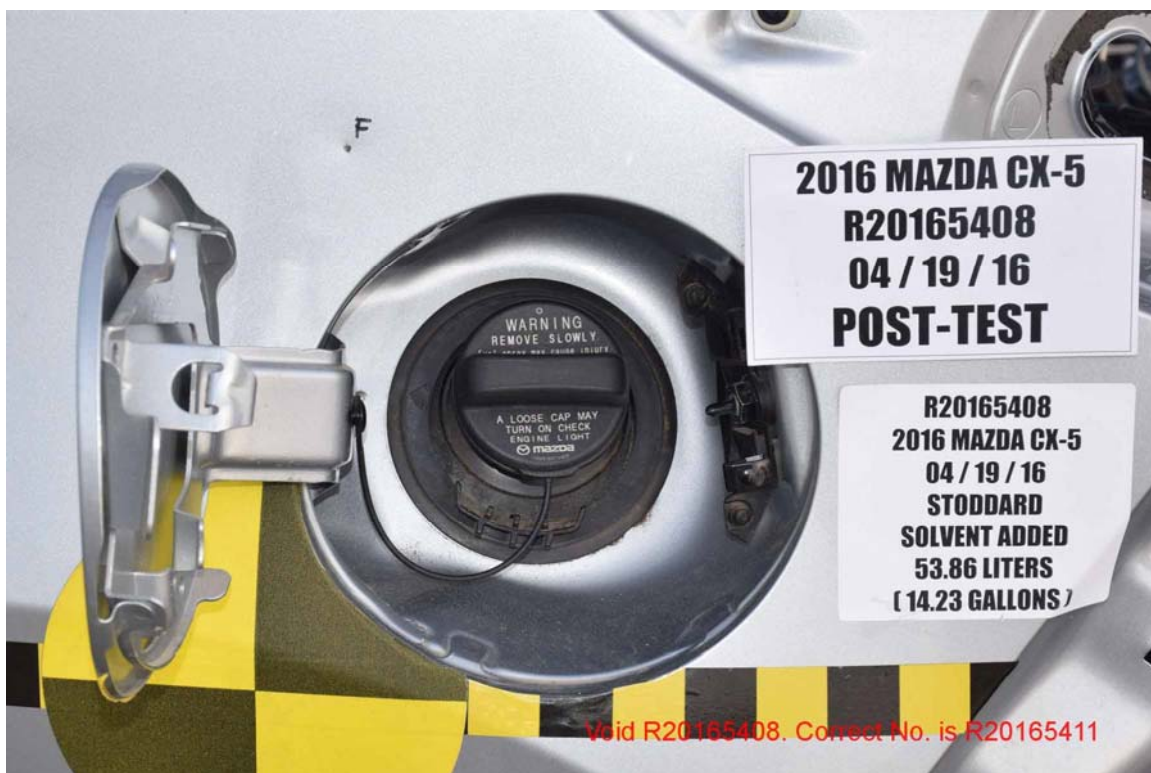


FIGURE 128. Post-Test View of Fuel Filler Cap

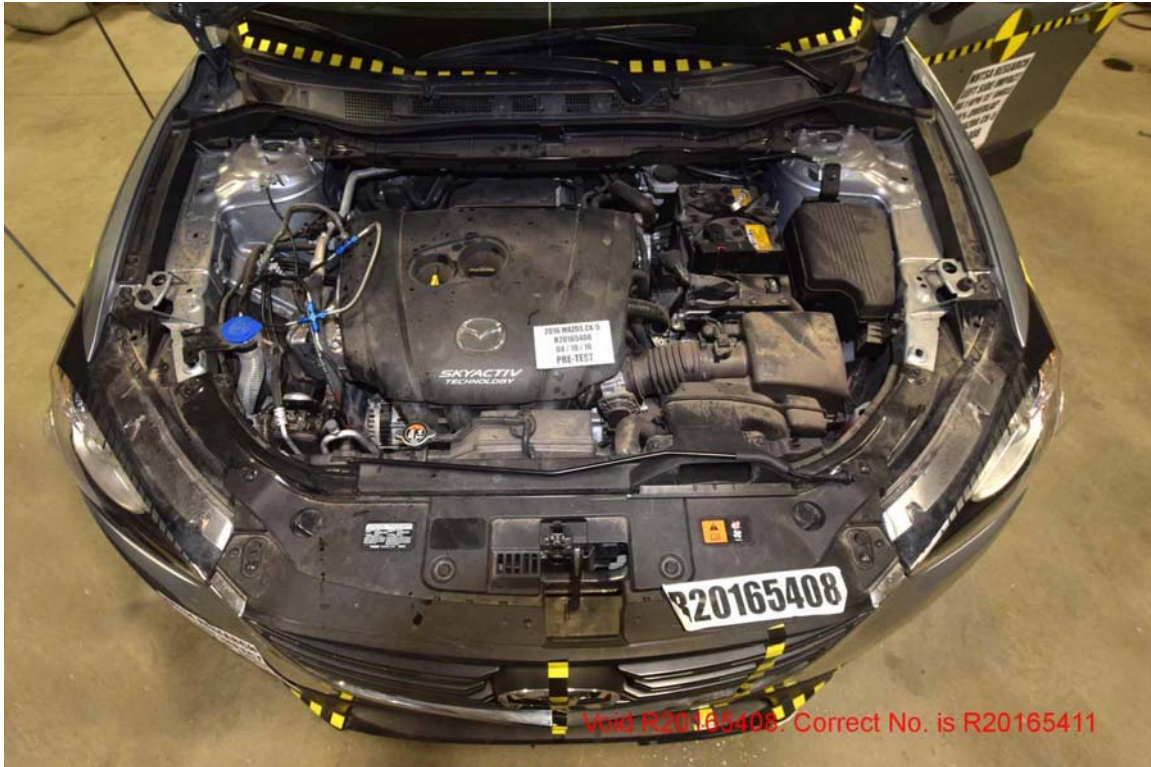


FIGURE 129. Pre-Test Engine Compartment View



FIGURE 130. Post-Test Engine Compartment View



FIGURE 131. Pre-Test View of Front Underbody (Perpendicular to Vehicle)



FIGURE 132. Post-Test View of Front Underbody (Perpendicular to Vehicle)



FIGURE 133. Pre-Test View of Mid Underbody (Perpendicular to Vehicle)



FIGURE 134. Post-Test View of Mid Underbody (Perpendicular to Vehicle)

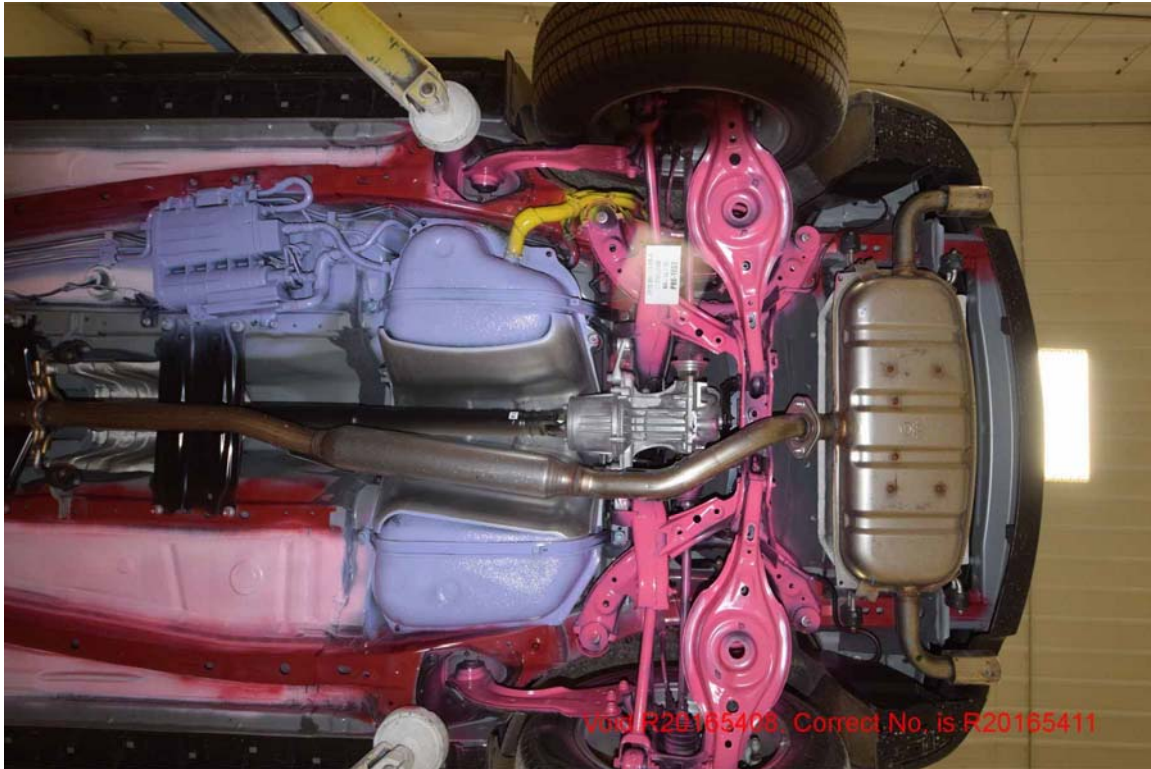


FIGURE 135. Pre-Test View of Rear Underbody (Perpendicular to Vehicle)



FIGURE 136. Post-Test View of Rear Underbody (perpendicular to vehicle)



FIGURE 137. Pre-Test View of Front Axle



FIGURE 138. Post-Test View of Front Axle



FIGURE 139. Pre-Test Bumper to Rail Attachments and Crush Initiators



FIGURE 140. Post-Test Bumper to Rail Attachments and Crush Initiators



FIGURE 141. Pre-Test Left Side Impact Rail



FIGURE 142. Post-Test Left Side Impact Rail

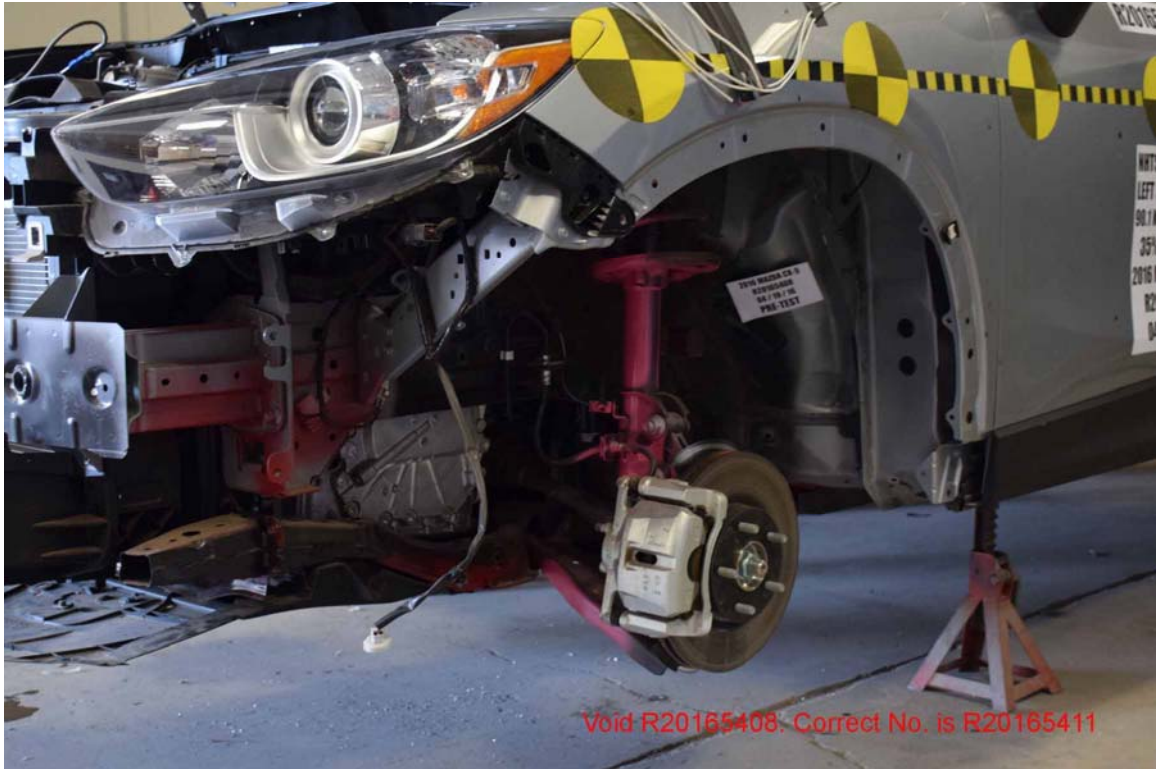


FIGURE 143. Pre-Test Left Front $\frac{3}{4}$ View of Driver Wheel Well



FIGURE 144. Post-Test Left Front $\frac{3}{4}$ View of Driver Wheel Well



FIGURE 145. Pre-Test Left Side View of Driver Wheel Well



FIGURE 146. Post-Test Left Side View of Driver Wheel Well



FIGURE 147. Pre-Test Left Rear $\frac{3}{4}$ View of the Driver Wheel Well



FIGURE 148. Post-Test Left Rear $\frac{3}{4}$ View of the Driver Wheel Well



FIGURE 149. Pre-Test Driver Close-up View of Suspension



FIGURE 150. Post-Test Driver Close-up View of Suspension



FIGURE 151. Pre-Test Left Side Tie Rod and Sway Bar Attachment Points



FIGURE 152. Post-Test Left Side Tie Rod and Sway Bar Attachment Points



FIGURE 153. Pre-Test Right Front $\frac{3}{4}$ View of Passenger Wheel Well



FIGURE 154. Post-Test Right Front $\frac{3}{4}$ View of Passenger Wheel Well



FIGURE 155. Pre-Test Right Side View of Passenger Wheel Well



FIGURE 156. Post-Test Right Side View of Passenger Wheel Well



FIGURE 157. Pre-Test Right Rear $\frac{3}{4}$ View of the Passenger Wheel Well



FIGURE 158. Post-Test Right Rear $\frac{3}{4}$ View of the Passenger Wheel Well



FIGURE 159. Pre-Test Passenger Close-up View of Suspension



FIGURE 160. Post-Test Passenger Close-up View of Suspension



FIGURE 161. Pre-Test Right Side Tie Rod and Sway Bar Attachment Points



FIGURE 162. Post-Test Right Side Tie Rod and Sway Bar Attachment Points



FIGURE 163. Pre-Test Left Side View of OMDB Impactor Face



FIGURE 164. Post-Test Left Side View of OMDB Impactor Face



FIGURE 165. Pre-Test Right Side View of OMDB Impactor Face



FIGURE 166. Post-Test Right Side View of OMDB Impactor Face



FIGURE 167. Pre-Test Top View of OMDB Impactor Face



FIGURE 168. Post-Test Top View of OMDB Impactor Face



FIGURE 169. Pre-Test Front View of OMDB Impactor Face



FIGURE 170. Post-Test Front View of OMDB Impactor Face



FIGURE 171. Pre-Test Right Side View of OMDB

Photograph Not Available

Void R20165408. Correct No. is R20165411

FIGURE 172. Post-Test Right Side View of OMDB



FIGURE 173. Pre-Test Left Side View of OMDB

Photograph Not Available

Void R20165408. Correct No. is R20165411

FIGURE 174. Post-Test Left Side View of OMDB



FIGURE 175. Pre-Test OMDB & Vehicle, Right Side



FIGURE 176. Post-Test OMDB & Vehicle, Right Side



FIGURE 177. Pre-Test OMDB & Vehicle, Left Side

Photograph Not Available

Void R20165408. Correct No. is R20165411

FIGURE 178. Post-Test OMDB & Vehicle, Left Side



FIGURE 179. Pre-Test OMDB & Vehicle, Top View



FIGURE 180. Post-Test OMDB & Vehicle, Top View



FIGURE 181. Pre-Test OMDB & Vehicle Alignment

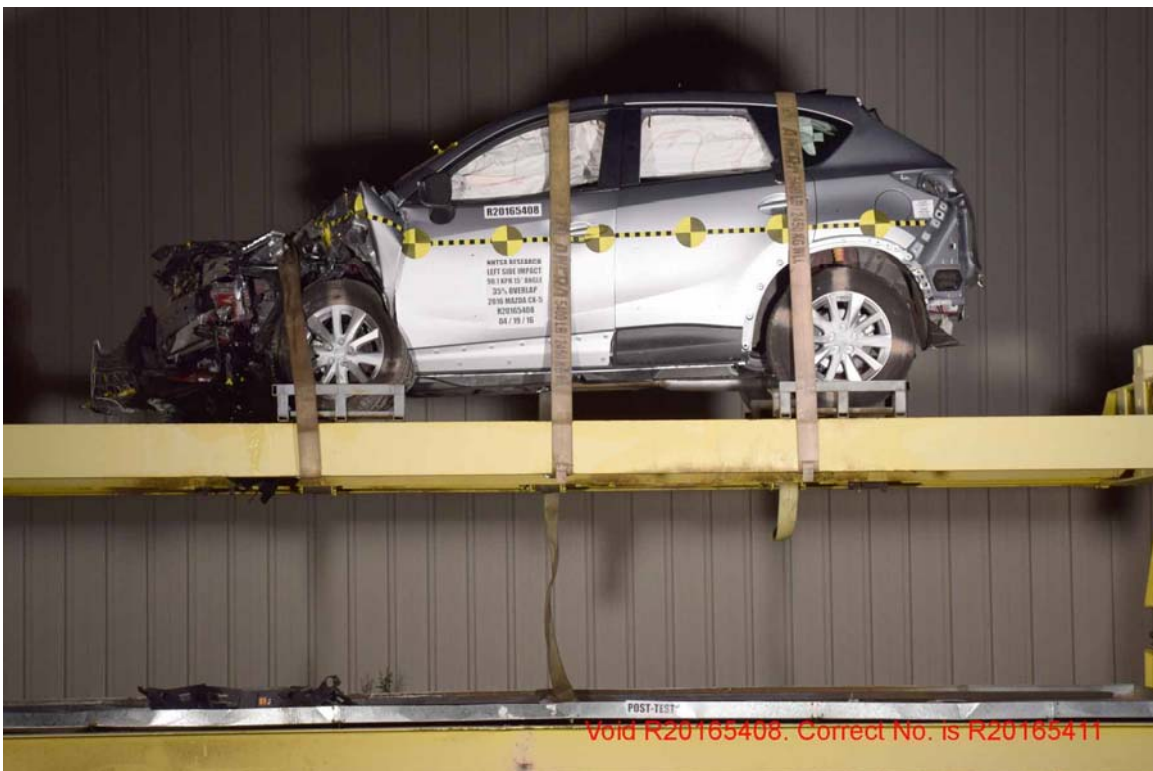


FIGURE 182. FMVSS No. 301 Static Rollover 0 Degrees

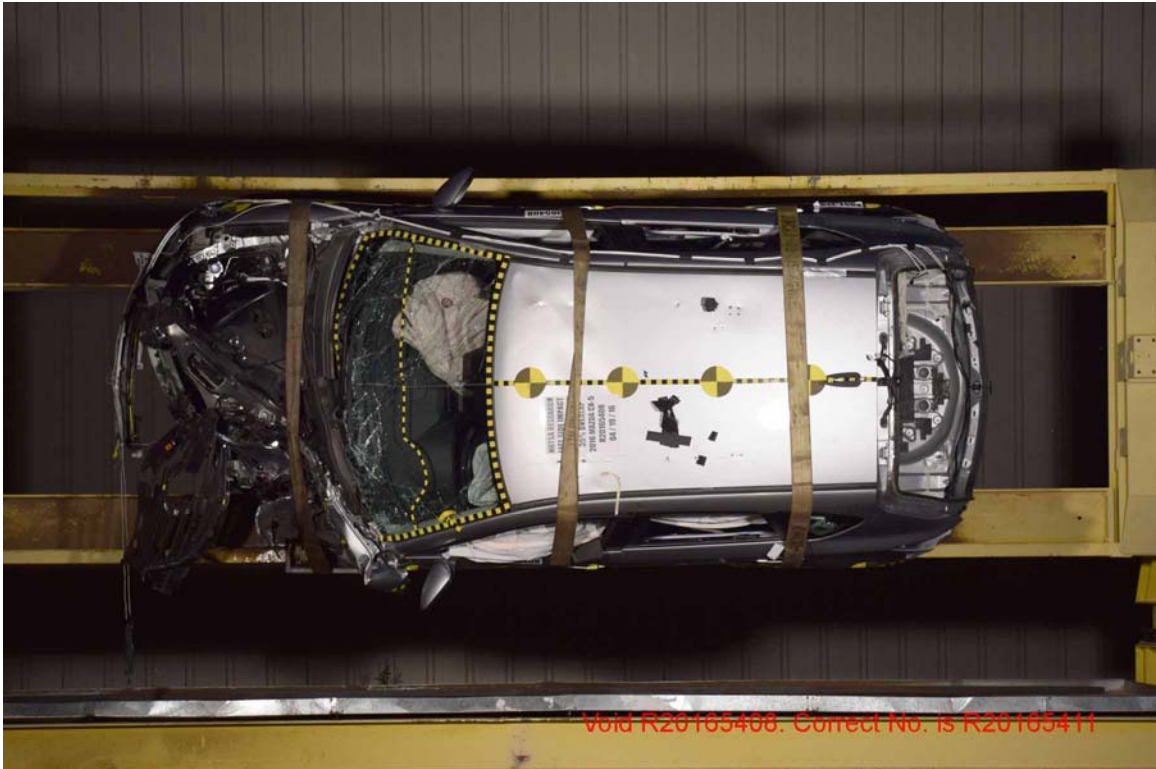


FIGURE 183. FMVSS No. 301 Static Rollover 90 Degrees



FIGURE 184. FMVSS No. 301 Static Rollover 180 Degrees



FIGURE 185. FMVSS No. 301 Static Rollover 270 Degrees

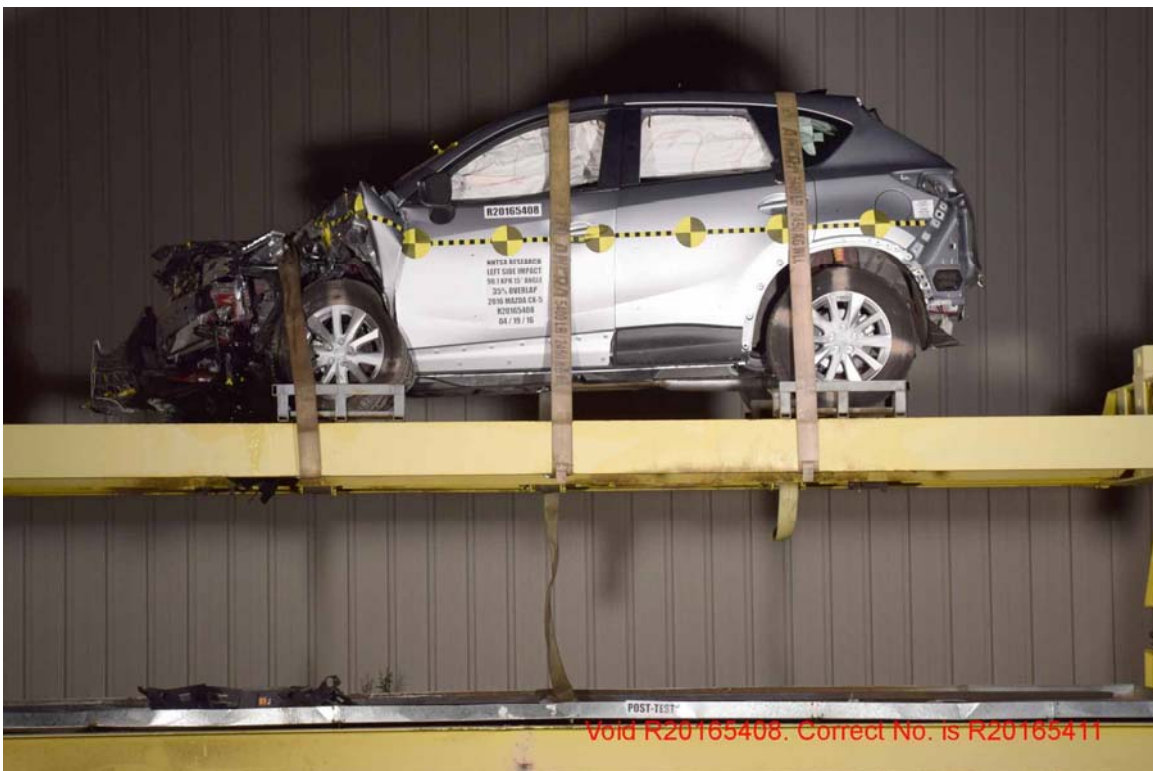


FIGURE 186. FMVSS No. 301 Static Rollover 360 Degrees



FIGURE 187. Impact Event

APPENDIX B
VEHICLE AND DUMMY RESPONSE DATA TRACES

Table of Data Plots

NO.	Description	Page
Plot 1	V2P1 Head CG X Acceleration	B-8
Plot 2	V2P1 Head CG Y Acceleration	B-8
Plot 3	V2P1 Head CG Z Acceleration	B-8
Plot 4	V2P1 Head CG Angular Velocity About X	B-8
Plot 5	V2P1 Head CG Angular Velocity About Y	B-9
Plot 6	V2P1 Head CG Angular Velocity About Z	B-9
Plot 7	V2P1 Upper Neck X Force	B-9
Plot 8	V2P1 Upper Neck Y Force	B-9
Plot 9	V2P1 Upper Neck Z Force	B-10
Plot 10	V2P1 Upper Neck X Moment	B-10
Plot 11	V2P1 Upper Neck Y Moment	B-10
Plot 12	V2P1 Upper Neck Z Moment	B-10
Plot 13	V2P1 Lower Neck X Force	B-11
Plot 14	V2P1 Lower Neck Y Force	B-11
Plot 15	V2P1 Lower Neck Z Force	B-11
Plot 16	V2P1 Lower Neck X Moment	B-11
Plot 17	V2P1 Lower Neck Y Moment	B-12
Plot 18	V2P1 Lower Neck Z Moment	B-12
Plot 18	V2P1 Front Neck Spring Tower Load Cell	B-12
Plot 20	V2P1 Rear Neck Spring Tower Load Cell	B-12
Plot 21	V2P1 Occipital Condyle Rotation Potentiometer	B-13
Plot 22	V2P1 Upper Left DGIR X Displacement	B-13
Plot 23	V2P1 Upper Left DGIR Y Rotation	B-13
Plot 24	V2P1 Upper Left DGIR Z Rotation	B-13
Plot 25	V2P1 Upper Right DGIR X Displacement	B-14
Plot 26	V2P1 Upper Right DGIR Y Rotation	B-14
Plot 27	V2P1 Upper Right DGIR Z Rotation	B-14
Plot 28	V2P1 Lower Left DGIR X Displacement	B-14
Plot 29	V2P1 Lower Left DGIR Y Rotation	B-15
Plot 30	V2P1 Lower Left DGIR Z Rotation	B-15
Plot 31	V2P1 Lower Right DGIR X Displacement	B-15
Plot 32	V2P1 Lower Right DGIR Y Rotation	B-15
Plot 33	V2P1 Lower Right DGIR Z Rotation	B-16
Plot 34	V2P1 Spine Force X	B-16
Plot 35	V2P1 Spine Force Y	B-16
Plot 36	V2P1 Spine Force Z	B-16
Plot 37	V2P1 Spine Moment X	B-17
Plot 38	V2P1 Spine Moment Y	B-17
Plot 39	V2P1 T6 X Acceleration	B-17
Plot 40	V2P1 T6 Y Acceleration	B-17
Plot 41	V2P1 T6 Z Acceleration	B-18
Plot 42	V2P1 T1 X Acceleration	B-18
Plot 43	V2P1 T1 Y Acceleration	B-18
Plot 44	V2P1 T1 Z Acceleration	B-18
Plot 45	V2P1 Abdomen Left DGIR X Displacement	B-19
Plot 46	V2P1 Abdomen Left DGIR Y Rotation	B-19
Plot 47	V2P1 Abdomen Left DGIR Z Rotation	B-19
Plot 48	V2P1 Abdomen Right DGIR X Displacement	B-19
Plot 49	V2P1 Abdomen Right DGIR Y Rotation	B-20
Plot 50	V2P1 Abdomen Right DGIR Z Rotation	B-20
Plot 51	V2P1 Acetabulum Left X Force	B-20
Plot 52	V2P1 Acetabulum Left Y Force	B-20
Plot 53	V2P1 Acetabulum Left Z Force	B-21
Plot 54	V2P1 Acetabulum Right X Force	B-21
Plot 55	V2P1 Acetabulum Right Y Force	B-21
Plot 56	V2P1 Acetabulum Right Z Force	B-21
Plot 57	V2P1 Pelvis X Acceleration	B-22

Table of Data Plots

NO.	Description	Page
Plot 58	V2P1 Pelvis Y Acceleration	B-22
Plot 59	V2P1 Pelvis Z Acceleration	B-22
Plot 60	V2P1 ASIS Left X Force	B-22
Plot 61	V2P1 ASIS Left Y Moment	B-23
Plot 62	V2P1 ASIS Right X Force	B-23
Plot 63	V2P1 ASIS Right Y Moment	B-23
Plot 64	V2P1 Femur Left X Force	B-23
Plot 65	V2P1 Femur Left Y Force	B-24
Plot 66	V2P1 Femur Left Z Force	B-24
Plot 67	V2P1 Femur Left X Moment	B-24
Plot 68	V2P1 Femur Left Y Moment	B-24
Plot 69	V2P1 Femur Right X Force	B-25
Plot 70	V2P1 Femur Right Y Force	B-25
Plot 71	V2P1 Femur Right Z Force	B-25
Plot 72	V2P1 Femur Right X Moment	B-25
Plot 73	V2P1 Femur Right Y Moment	B-26
Plot 74	V2P1 Knee Left X Displacement	B-26
Plot 75	V2P1 Knee Right X Displacement	B-26
Plot 76	V2P1 Upper Tibia Left Z Force	B-26
Plot 77	V2P1 Upper Tibia Left X Moment	B-27
Plot 78	V2P1 Upper Tibia Left Y Moment	B-27
Plot 79	V2P1 Upper Tibia Right Z Force	B-27
Plot 80	V2P1 Upper Tibia Right X Moment	B-27
Plot 81	V2P1 Upper Tibia Right Y Moment	B-28
Plot 82	V2P1 Lower Tibia Left X Force	B-28
Plot 83	V2P1 Lower Tibia Left Y Force	B-28
Plot 84	V2P1 Lower Tibia Left Z Force	B-28
Plot 85	V2P1 Lower Tibia Left X Moment	B-29
Plot 86	V2P1 Lower Tibia Left Y Moment	B-29
Plot 87	V2P1 Lower Tibia Right X Force	B-29
Plot 88	V2P1 Lower Tibia Right Y Force	B-29
Plot 89	V2P1 Lower Tibia Right Z Force	B-30
Plot 90	V2P1 Lower Tibia Right X Moment	B-30
Plot 91	V2P1 Lower Tibia Right Y Moment	B-30
Plot 92	V2P1 Mid Tibia Left X Acceleration	B-30
Plot 93	V2P1 Mid Tibia Left Y Acceleration	B-31
Plot 94	V2P1 Mid Tibia Right X Acceleration	B-31
Plot 95	V2P1 Mid Tibia Right Y Acceleration	B-31
Plot 96	V2P1 Foot Left X Acceleration	B-31
Plot 97	V2P1 Foot Left Z Acceleration	B-32
Plot 98	V2P1 Foot Right X Acceleration	B-32
Plot 99	V2P1 Foot Right Z Acceleration	B-32
Plot 100	V2P1 Ankle Left X Rotation	B-32
Plot 101	V2P1 Ankle Left Y Rotation	B-33
Plot 102	V2P1 Ankle Left Z Rotation	B-33
Plot 103	V2P1 Ankle Right X Rotation	B-33
Plot 104	V2P1 Ankle Right Y Rotation	B-33
Plot 105	V2P1 Ankle Right Z Rotation	B-34
Plot 106	V2 Driver Lap Belt Force	B-34
Plot 107	V2 Driver Shoulder Belt Upper Force	B-34
Plot 108	V2 Driver Shoulder Belt Displacement	B-34
Plot 109	V2P2 Head CG X Acceleration	B-35
Plot 110	V2P2 Head CG Y Acceleration	B-35
Plot 111	V2P2 Head CG Z Acceleration	B-35
Plot 112	V2P2 Head CG Angular Velocity About X	B-35
Plot 113	V2P2 Head CG Angular Velocity About Y	B-36
Plot 114	V2P2 Head CG Angular Velocity About Z	B-36
Plot 115	V2P2 Upper Neck X Force	B-36
Plot 116	V2P2 Upper Neck Y Force	B-36

Table of Data Plots

NO.	Description	Page
Plot 117	V2P2 Upper Neck Z Force	B-37
Plot 118	V2P2 Upper Neck X Moment	B-37
Plot 119	V2P2 Upper Neck Y Moment	B-37
Plot 120	V2P2 Upper Neck Z Moment	B-37
Plot 121	V2P2 Lower Neck X Force	B-38
Plot 122	V2P2 Lower Neck Y Force	B-38
Plot 123	V2P2 Lower Neck Z Force	B-38
Plot 124	V2P2 Lower Neck X Moment	B-38
Plot 125	V2P2 Lower Neck Y Moment	B-39
Plot 126	V2P2 Lower Neck Z Moment	B-39
Plot 127	V2P2 Front Neck Spring Tower Load Cell	B-39
Plot 128	V2P2 Rear Neck Spring Tower Load Cell	B-39
Plot 129	V2P2 Occipital Condyle Rotation Potentiometer	B-40
Plot 130	V2P2 Upper Left DGIR X Displacement	B-40
Plot 131	V2P2 Upper Left DGIR Y Rotation	B-40
Plot 132	V2P2 Upper Left DGIR Z Rotation	B-40
Plot 133	V2P2 Upper Right DGIR X Displacement	B-41
Plot 134	V2P2 Upper Right DGIR Y Rotation	B-41
Plot 135	V2P2 Upper Right DGIR Z Rotation	B-41
Plot 136	V2P2 Lower Left DGIR X Displacement	B-41
Plot 137	V2P2 Lower Left DGIR Y Rotation	B-42
Plot 138	V2P2 Lower Left DGIR Z Rotation	B-42
Plot 139	V2P2 Lower Right DGIR X Displacement	B-42
Plot 140	V2P2 Lower Right DGIR Y Rotation	B-42
Plot 141	V2P2 Lower Right DGIR Z Rotation	B-43
Plot 142	V2P2 Spine Force X	B-43
Plot 143	V2P2 Spine Force Y	B-43
Plot 144	V2P2 Spine Force Z	B-43
Plot 145	V2P2 Spine Moment X	B-44
Plot 146	V2P2 Spine Moment Y	B-44
Plot 147	V2P2 T6 X Acceleration	B-44
Plot 148	V2P2 T6 Y Acceleration	B-44
Plot 149	V2P2 T6 Z Acceleration	B-45
Plot 150	V2P2 T1 X Acceleration	B-45
Plot 151	V2P2 T1 Y Acceleration	B-45
Plot 152	V2P2 T1 Z Acceleration	B-45
Plot 153	V2P2 Abdomen Left DGIR X Displacement	B-46
Plot 154	V2P2 Abdomen Left DGIR Y Rotation	B-46
Plot 155	V2P2 Abdomen Left DGIR Z Rotation	B-46
Plot 156	V2P2 Abdomen Right DGIR X Displacement	B-46
Plot 157	V2P2 Abdomen Right DGIR Y Rotation	B-47
Plot 158	V2P2 Abdomen Right DGIR Z Rotation	B-47
Plot 159	V2P2 Acetabulum Left X Force	B-47
Plot 160	V2P2 Acetabulum Left Y Force	B-47
Plot 161	V2P2 Acetabulum Left Z Force	B-48
Plot 162	V2P2 Acetabulum Right X Force	B-48
Plot 163	V2P2 Acetabulum Right Y Force	B-48
Plot 164	V2P2 Acetabulum Right Z Force	B-48
Plot 165	V2P2 Pelvis X Acceleration	B-49
Plot 166	V2P2 Pelvis Y Acceleration	B-49
Plot 167	V2P2 Pelvis Z Acceleration	B-49
Plot 168	V2P2 ASIS Left X Force	B-49
Plot 169	V2P2 ASIS Left Y Moment	B-50
Plot 170	V2P2 ASIS Right X Force	B-50
Plot 171	V2P2 ASIS Right Y Moment	B-50
Plot 172	V2P2 Femur Left X Force	B-50
Plot 173	V2P2 Femur Left Y Force	B-51
Plot 174	V2P2 Femur Left Z Force	B-51
Plot 175	V2P2 Femur Left X Moment	B-51

Table of Data Plots

NO.	Description	Page
Plot 176	V2P2 Femur Left Y Moment	B-51
Plot 177	V2P2 Femur Right X Force	B-52
Plot 178	V2P2 Femur Right Y Force	B-52
Plot 179	V2P2 Femur Right Z Force	B-52
Plot 180	V2P2 Femur Right X Moment	B-52
Plot 181	V2P2 Femur Right Y Moment	B-53
Plot 182	V2P2 Knee Left X Displacement	B-53
Plot 183	V2P2 Knee Right X Displacement	B-53
Plot 184	V2P2 Upper Tibia Left Z Force	B-53
Plot 185	V2P2 Upper Tibia Left X Moment	B-54
Plot 186	V2P2 Upper Tibia Left Y Moment	B-54
Plot 187	V2P2 Upper Tibia Right Z Force	B-54
Plot 188	V2P2 Upper Tibia Right X Moment	B-54
Plot 189	V2P2 Upper Tibia Right Y Moment	B-55
Plot 190	V2P2 Lower Tibia Left X Force	B-55
Plot 191	V2P2 Lower Tibia Left Y Force	B-55
Plot 192	V2P2 Lower Tibia Left Z Force	B-55
Plot 193	V2P2 Lower Tibia Left X Moment	B-56
Plot 194	V2P2 Lower Tibia Left Y Moment	B-56
Plot 195	V2P2 Lower Tibia Right X Force	B-56
Plot 196	V2P2 Lower Tibia Right Y Force	B-56
Plot 197	V2P2 Lower Tibia Right Z Force	B-57
Plot 198	V2P2 Lower Tibia Right X Moment	B-57
Plot 199	V2P2 Lower Tibia Right Y Moment	B-57
Plot 200	V2P2 Mid Tibia Left X Acceleration	B-57
Plot 201	V2P2 Mid Tibia Left Y Acceleration	B-58
Plot 202	V2P2 Mid Tibia Right X Acceleration	B-58
Plot 203	V2P2 Mid Tibia Right Y Acceleration	B-58
Plot 204	V2P2 Foot Left X Acceleration	B-58
Plot 205	V2P2 Foot Left Z Acceleration	B-59
Plot 206	V2P2 Foot Right X Acceleration	B-59
Plot 207	V2P2 Foot Right Z Acceleration	B-59
Plot 208	V2P2 Ankle Left X Rotation	B-59
Plot 209	V2P2 Ankle Left Y Rotation	B-60
Plot 210	V2P2 Ankle Left Z Rotation	B-60
Plot 211	V2P2 Ankle Right X Rotation	B-60
Plot 212	V2P2 Ankle Right Y Rotation	B-60
Plot 213	V2P2 Ankle Right Z Rotation	B-61
Plot 214	V2 Passenger Lap Belt Force	B-61
Plot 215	V2 Passenger Shoulder Belt Upper Force	B-61
Plot 216	V2 Passenger Shoulder Belt Displacement	B-61
Plot 217	V2 Left Rear Sill X Acceleration	B-62
Plot 218	V2 Left Rear Sill Y Acceleration	B-62
Plot 219	V2 Left Rear Sill Redundant X Acceleration	B-62
Plot 220	V2 Left Rear Sill Redundant Y Acceleration	B-62
Plot 221	V2 Right Rear Sill X Acceleration	B-63
Plot 222	V2 Right Rear Sill Y Acceleration	B-63
Plot 223	V2 Vehicle CG X Acceleration	B-63
Plot 224	V2 Vehicle CG Y Acceleration	B-63
Plot 225	V2 Vehicle CG Z Acceleration	B-64
Plot 226	V2 Vehicle CG Angular Rate X	B-64
Plot 227	V2 Vehicle CG Angular Rate Y	B-64
Plot 228	V2 Vehicle CG Angular Rate Z	B-64
Plot 229	V2 Driver Seat Track X Acceleration	B-65
Plot 230	V2 Driver Seat Track Y Acceleration	B-65
Plot 231	V2 Driver Seat Track Z Acceleration	B-65
Plot 232	V2 Driver Seat Thigh Bar X Acceleration	B-65
Plot 233	V2 Driver Seat Thigh Bar Z Acceleration	B-66
Plot 234	V2 Driver Floor Pan X Acceleration	B-66

Table of Data Plots

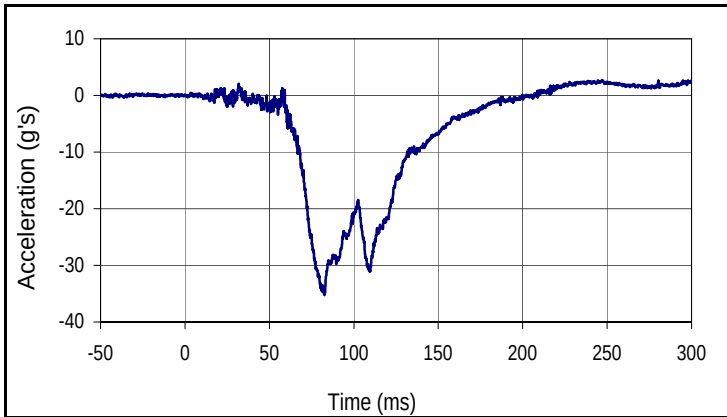
NO.	Description	Page
Plot 235	V2 Driver Floor Pan Y Acceleration	B-66
Plot 236	V2 Driver Floor Pan Z Acceleration	B-66
Plot 237	V2 Driver Floor Pan X Deflection	B-67
Plot 238	Driver Front Airbag Stage 1 Monitor	B-67
Plot 239	Driver Front Airbag Stage 2 Monitor	B-67
Plot 240	Driver Curtain Airbag Monitor	B-67
Plot 241	Driver Seat Airbag Monitor	B-68
Plot 242	Driver Retractor Pretensioner Monitor	B-68
Plot 243	Driver Anchor Pretensioner Monitor	B-68
Plot 244	Passenger Front Airbag Stage 1 Monitor	B-68
Plot 245	Passenger Front Airbag Stage 2 Monitor	B-69
Plot 246	Passenger Curtain Airbag Monitor	B-69
Plot 247	Passenger Seat Airbag Monitor	B-69
Plot 248	Passenger Retractor Pretensioner Monitor	B-69
Plot 249	Passenger Anchor Pretensioner Monitor	B-70
Plot 250	V1 OMDB CG X Acceleration	B-70
Plot 251	V1 OMDB CG Y Acceleration	B-70
Plot 252	V1 OMDB CG Z Acceleration	B-70
Plot 253	V1 OMDB CG Angular Rate X	B-71
Plot 254	V1 OMDB CG Angular Rate Y	B-71
Plot 255	V1 OMDB CG Angular Rate Z	B-71
Plot 256	V1 OMDB Rear C/L X Acceleration	B-71
Plot 257	V1 OMDB Rear C/L Y Acceleration	B-72
Plot 258	V1 OMDB Rear C/L Z Acceleration	B-72
Plot 259	V2P1 Fx on head acting through the O.C. joint only	B-72
Plot 260	V2P1 Fz on head acting through the O.C. joint only	B-72
Plot 261	V2P1 My on head acting through the O.C. joint only	B-73
Plot 262	V2P1 Fx on head acting through the total neck section	B-73
Plot 263	V2P1 Fy on head acting through the total neck section	B-73
Plot 264	V2P1 Fz on head acting through the total neck section	B-73
Plot 265	V2P1 Mx on head acting through the total neck section	B-74
Plot 266	V2P1 My on head acting through the total neck section	B-74
Plot 267	V2P1 Mz on head acting through the total neck section	B-74
Plot 267	V2P1 Chest Left Upper Dx	B-74
Plot 268	V2P1 Chest Left Upper Dy	B-75
Plot 269	V2P1 Chest Left Upper Dz	B-75
Plot 270	V2P1 Chest Left Upper Resultant	B-75
Plot 271	V2P1 Chest Right Upper Dx	B-75
Plot 272	V2P1 Chest Right Upper Dy	B-76
Plot 273	V2P1 Chest Right Upper Dz	B-76
Plot 274	V2P1 Chest Right Upper Resultant	B-76
Plot 275	V2P1 Chest Left Lower Dx	B-76
Plot 276	V2P1 Chest Left Lower Dy	B-77
Plot 277	V2P1 Chest Left Lower Dz	B-77
Plot 278	V2P1 Chest Left Lower Resultant	B-77
Plot 279	V2P1 Chest Right Lower Dx	B-77
Plot 280	V2P1 Chest Right Lower Dy	B-78
Plot 281	V2P1 Chest Right Lower Dz	B-78
Plot 283	V2P1 Chest Right Lower Resultant	B-78
Plot 284	V2P1 Abdomen Left Lower Dx	B-78
Plot 285	V2P1 Abdomen Left Lower Dy	B-79
Plot 286	V2P1 Abdomen Left Lower Dz	B-79
Plot 287	V2P1 Abdomen Left Lower Resultant	B-79
Plot 288	V2P1 Abdomen Right Lower Dx	B-79
Plot 289	V2P1 Abdomen Right Lower Dy	B-80
Plot 290	V2P1 Abdomen Right Lower Dz	B-80
Plot 291	V2P1 Abdomen Right Lower Resultant	B-80
Plot 292	V2P2 Fx on head acting through the O.C. joint only	B-80
Plot 293	V2P2 Fz on head acting through the O.C. joint only	B-81

Table of Data Plots

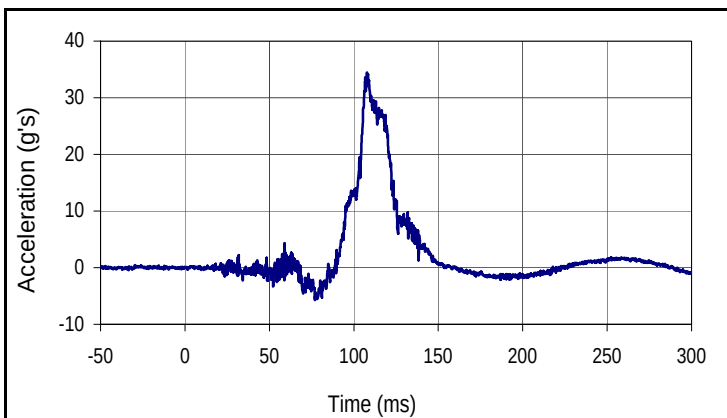
NO.	Description	Page
Plot 294	V2P2 My on head acting through the O.C. joint only	B-81
Plot 295	V2P2 Fx on head acting through the total neck section	B-81
Plot 296	V2P2 Fy on head acting through the total neck section	B-81
Plot 297	V2P2 Fz on head acting through the total neck section	B-82
Plot 298	V2P2 Mx on head acting through the total neck section	B-82
Plot 299	V2P2 My on head acting through the total neck section	B-82
Plot 300	V2P2 Mz on head acting through the total neck section	B-82
Plot 301	V2P2 Chest Left Upper Dx	B-83
Plot 302	V2P2 Chest Left Upper Dy	B-83
Plot 303	V2P2 Chest Left Upper Dz	B-83
Plot 304	V2P2 Chest Left Upper Resultant	B-83
Plot 305	V2P2 Chest Right Upper Dx	B-84
Plot 306	V2P2 Chest Right Upper Dy	B-84
Plot 307	V2P2 Chest Right Upper Dz	B-84
Plot 308	V2P2 Chest Right Upper Resultant	B-84
Plot 309	V2P2 Chest Left Lower Dx	B-85
Plot 310	V2P2 Chest Left Lower Dy	B-85
Plot 311	V2P2 Chest Left Lower Dz	B-85
Plot 312	V2P2 Chest Left Lower Resultant	B-85
Plot 313	V2P2 Chest Right Lower Dx	B-86
Plot 314	V2P2 Chest Right Lower Dy	B-86
Plot 315	V2P2 Chest Right Lower Dz	B-86
Plot 316	V2P2 Chest Right Lower Resultant	B-86
Plot 317	V2P2 Abdomen Left Lower Dx	B-87
Plot 318	V2P2 Abdomen Left Lower Dy	B-87
Plot 319	V2P2 Abdomen Left Lower Dz	B-87
Plot 320	V2P2 Abdomen Left Lower Resultant	B-87
Plot 321	V2P2 Abdomen Right Lower Dx	B-88
Plot 322	V2P2 Abdomen Right Lower Dy	B-88
Plot 323	V2P2 Abdomen Right Lower Dz	B-88
Plot 324	V2P2 Abdomen Right Lower Resultant	B-88

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

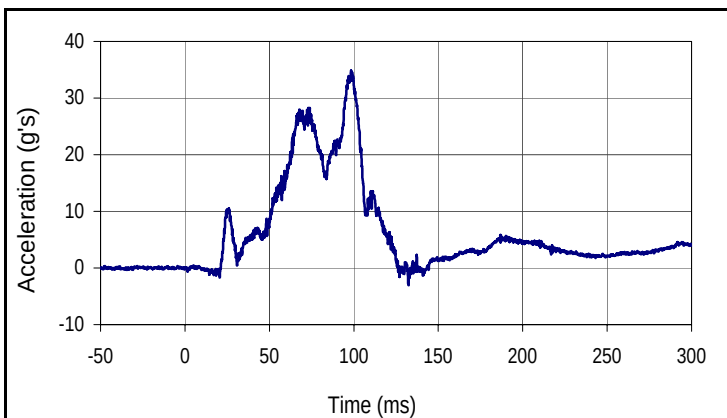
NHTSA No.: R20165411
 Test Date: 4/19/16



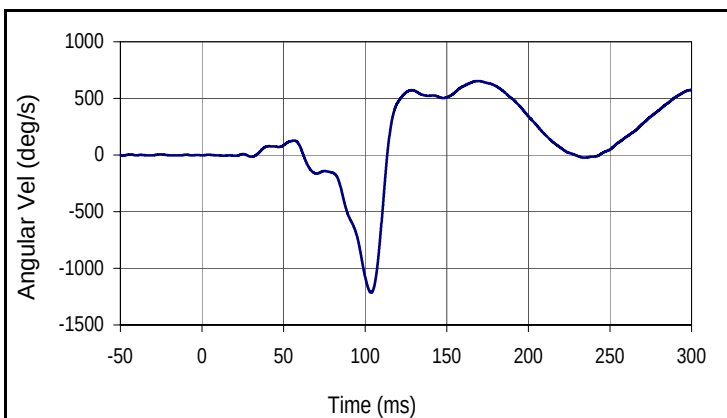
Curve Description			
V2P1 Head CG X Acceleration			
Plot No.		SAE Class	Units
001		1000	g's
Max	Time	Min	Time
2.7	247.2	-35.3	82.6



Curve Description			
V2P1 Head CG Y Acceleration			
Plot No.		SAE Class	Units
002		1000	g's
Max	Time	Min	Time
34.5	107.8	-5.7	76.9



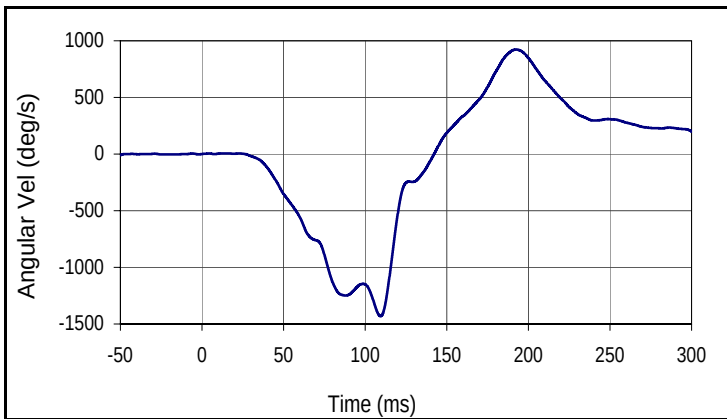
Curve Description			
V2P1 Head CG Z Acceleration			
Plot No.		SAE Class	Units
003		1000	g's
Max	Time	Min	Time
34.9	98.4	-3.1	132.4



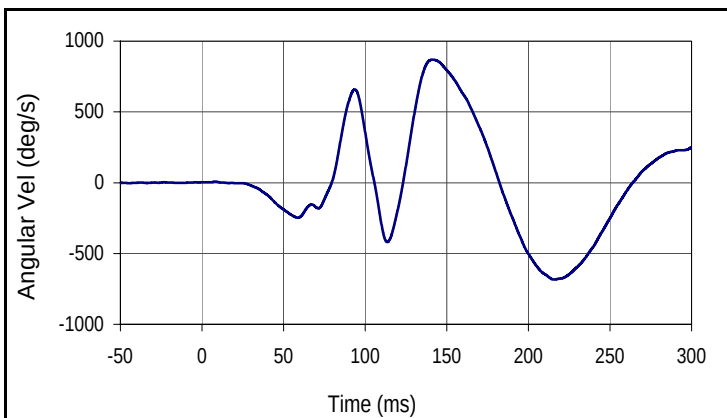
Curve Description			
V2P1 Head CG Angular Velocity About X			
Plot No.		SAE Class	Units
004		60	deg/s
Max	Time	Min	Time
652.9	169.3	-1214.7	103.6

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

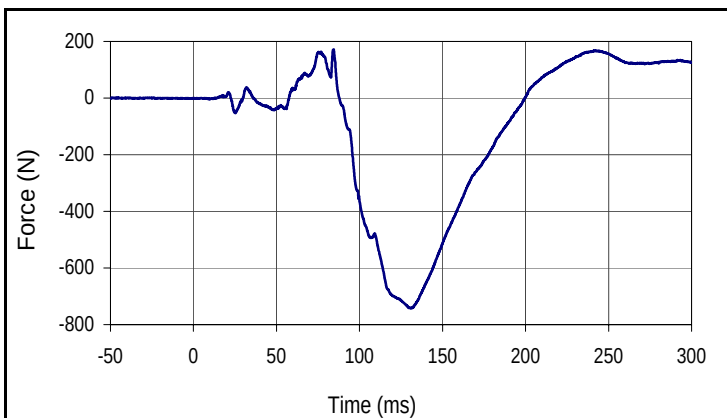
NHTSA No.: R20165411
 Test Date: 4/19/16



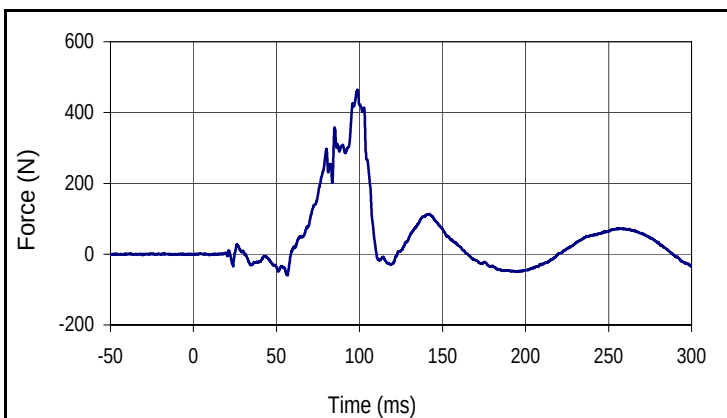
Curve Description			
V2P1 Head CG Angular Velocity About Y			
Plot No.		SAE Class	Units
005		60	deg/s
Max	Time	Min	Time
923.1	192.4	-1431.6	109.4



Curve Description			
V2P1 Head CG Angular Velocity About Z			
Plot No.		SAE Class	Units
006		60	deg/s
Max	Time	Min	Time
869.3	141.3	-684.3	215.8



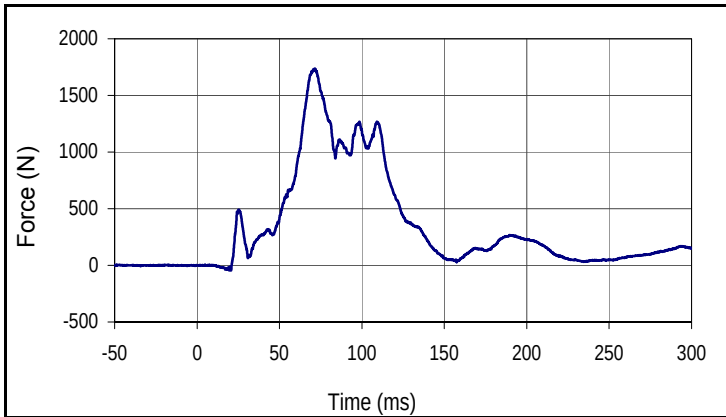
Curve Description			
V2P1 Upper Neck X Force			
Plot No.		SAE Class	Units
007		1000	N
Max	Time	Min	Time
172.0	84.4	-742.4	131.3



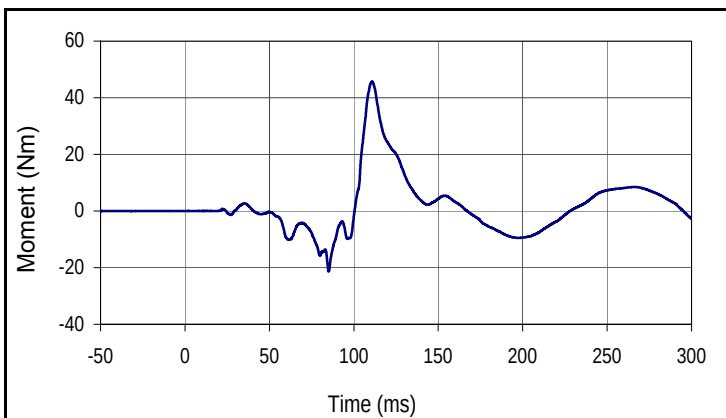
Curve Description			
V2P1 Upper Neck Y Force			
Plot No.		SAE Class	Units
008		1000	N
Max	Time	Min	Time
464.2	98.7	-60.1	56.6

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

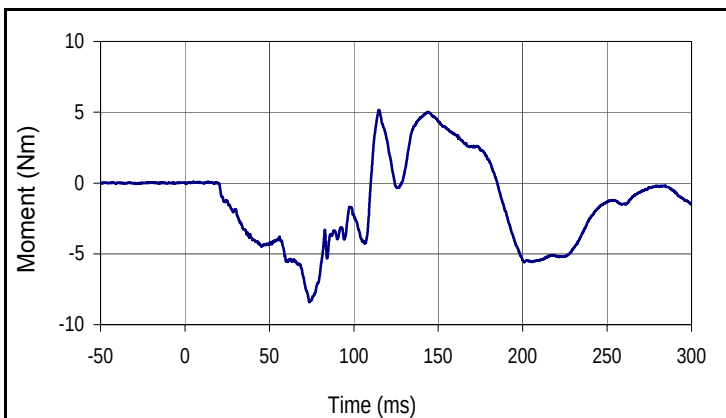
NHTSA No.: R20165411
 Test Date: 4/19/16



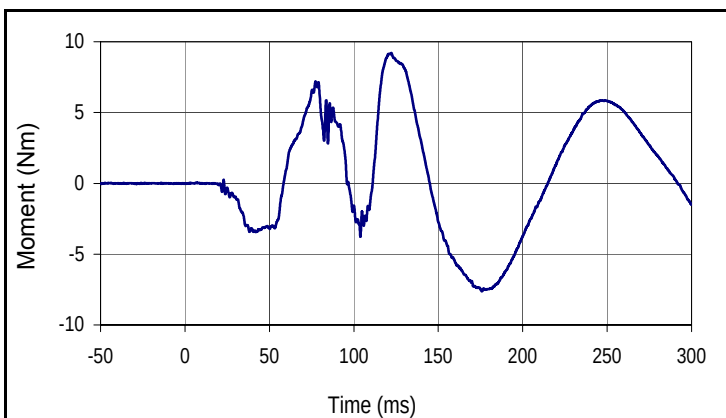
Curve Description			
V2P1 Upper Neck Z Force			
Plot No.		SAE Class	Units
009		1000	N
Max	Time	Min	Time
1736.0	71.5	-45.0	19.5



Curve Description			
V2P1 Upper Neck X Moment			
Plot No.		SAE Class	Units
010		600	Nm
Max	Time	Min	Time
45.7	110.8	-21.4	85.1



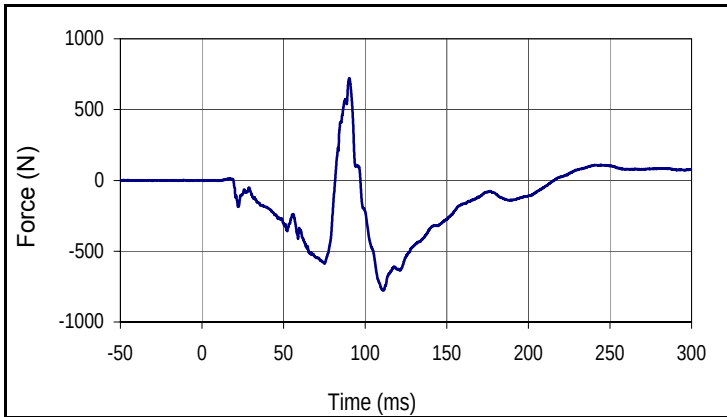
Curve Description			
V2P1 Upper Neck Y Moment			
Plot No.		SAE Class	Units
011		600	Nm
Max	Time	Min	Time
5.2	115.0	-8.4	73.7



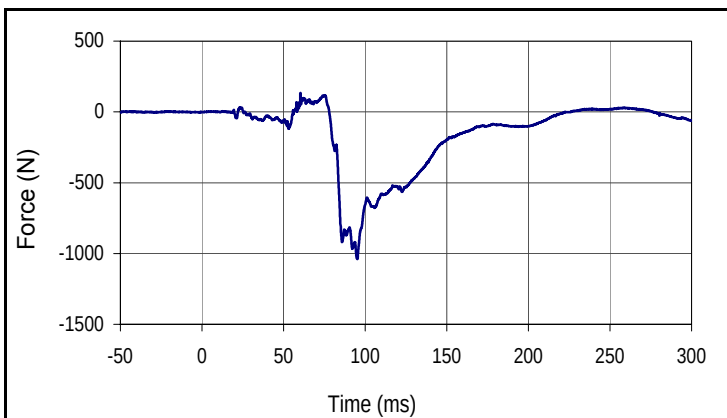
Curve Description			
V2P1 Upper Neck Z Moment			
Plot No.		SAE Class	Units
012		600	Nm
Max	Time	Min	Time
9.2	122.2	-7.6	175.8

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

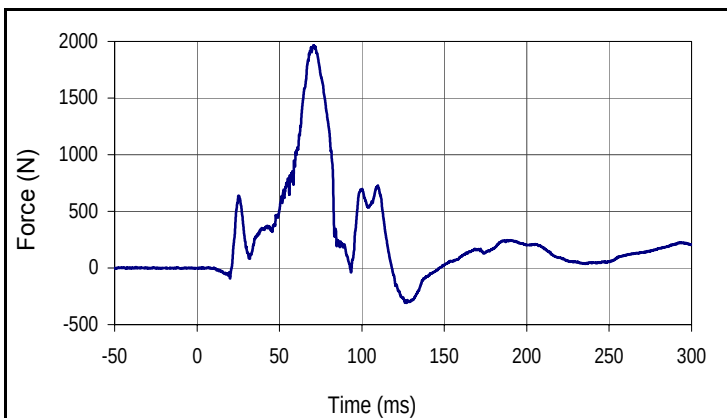
NHTSA No.: R20165411
 Test Date: 4/19/16



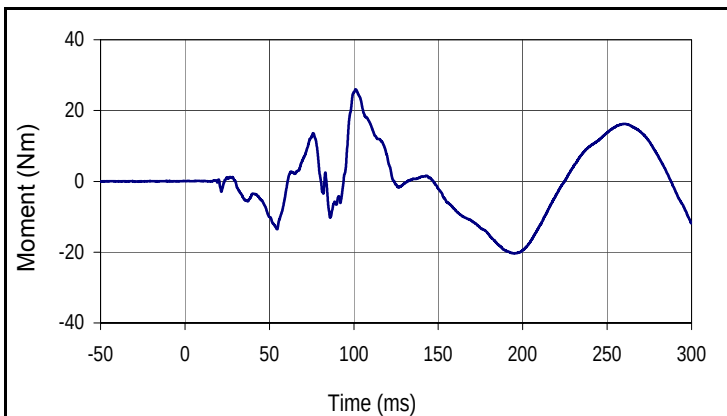
Curve Description			
V2P1 Lower Neck X Force			
Plot No.		SAE Class	Units
013		1000	N
Max	Time	Min	Time
721.2	90.3	-776.0	110.8



Curve Description			
V2P1 Lower Neck Y Force			
Plot No.		SAE Class	Units
014		1000	N
Max	Time	Min	Time
132.9	60.3	-1039.6	95.2



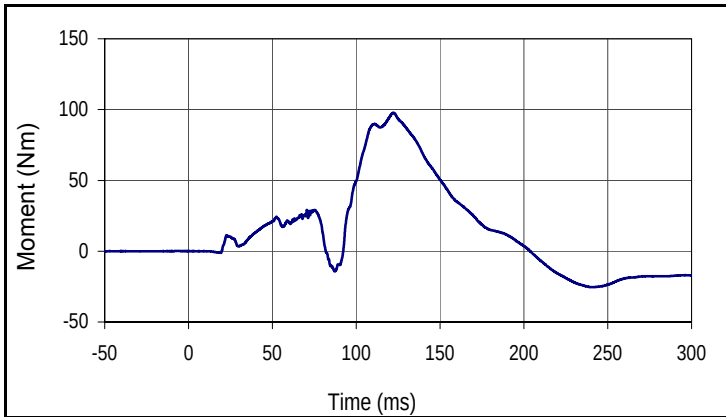
Curve Description			
V2P1 Lower Neck Z Force			
Plot No.		SAE Class	Units
015		1000	N
Max	Time	Min	Time
1965.0	70.8	-308.9	127.3



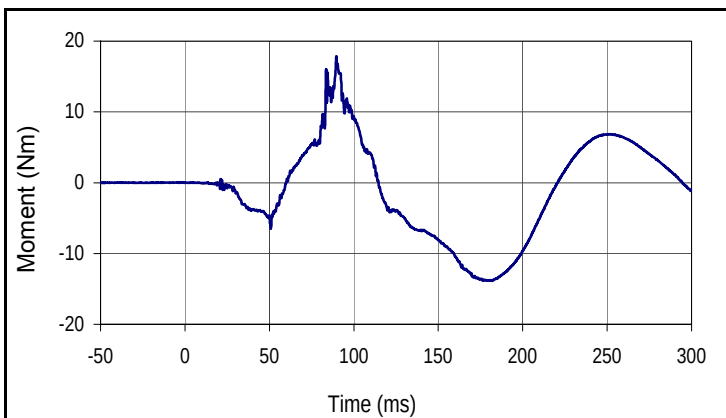
Curve Description			
V2P1 Lower Neck X Moment			
Plot No.		SAE Class	Units
016		600	Nm
Max	Time	Min	Time
26.0	101.1	-20.4	194.8

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

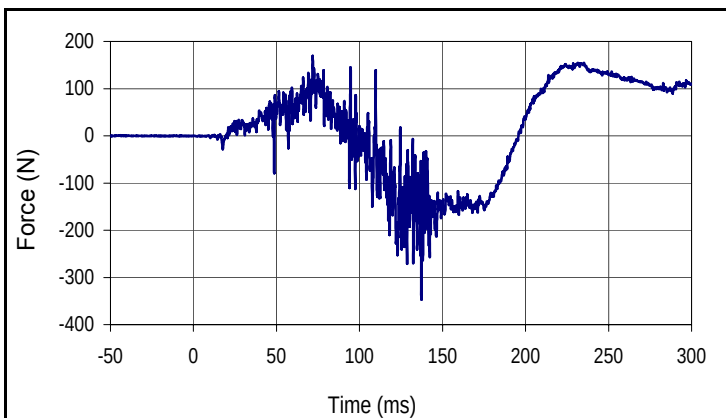
NHTSA No.: R20165411
 Test Date: 4/19/16



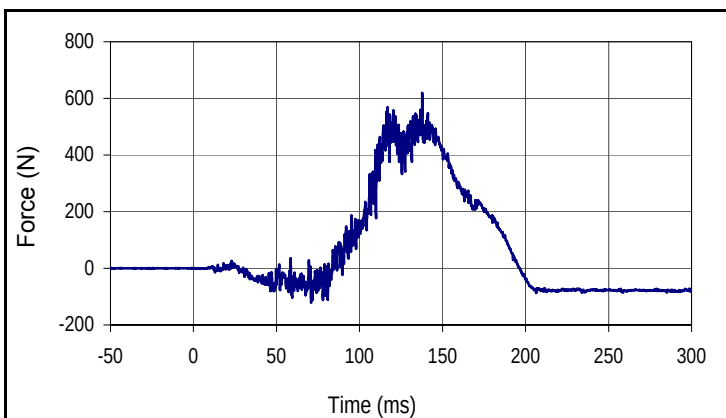
Curve Description			
V2P1 Lower Neck Y Moment			
Plot No.		SAE Class	Units
017		600	Nm
Max	Time	Min	Time
97.7	122.2	-25.4	240.9



Curve Description			
V2P1 Lower Neck Z Moment			
Plot No.		SAE Class	Units
018		600	Nm
Max	Time	Min	Time
17.8	89.6	-13.9	182.3



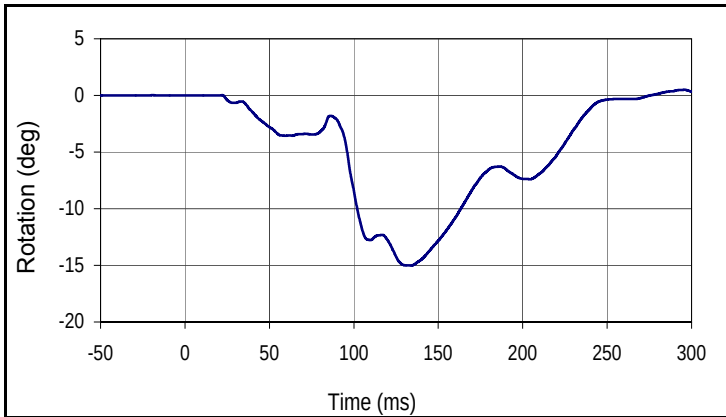
Curve Description			
V2P1 Front Neck Spring Tower Z Force			
Plot No.		SAE Class	Units
019		1000	N
Max	Time	Min	Time
169.5	71.9	-345.6	137.3



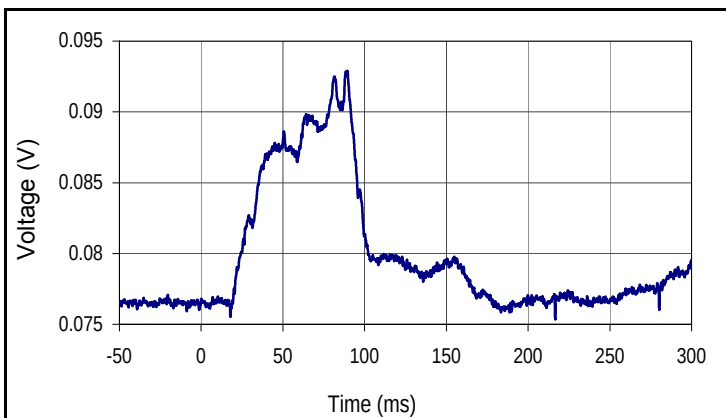
Curve Description			
V2P1 Rear Neck Spring Tower Z Force			
Plot No.		SAE Class	Units
020		1000	N
Max	Time	Min	Time
618.4	137.8	-121.0	70.9

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

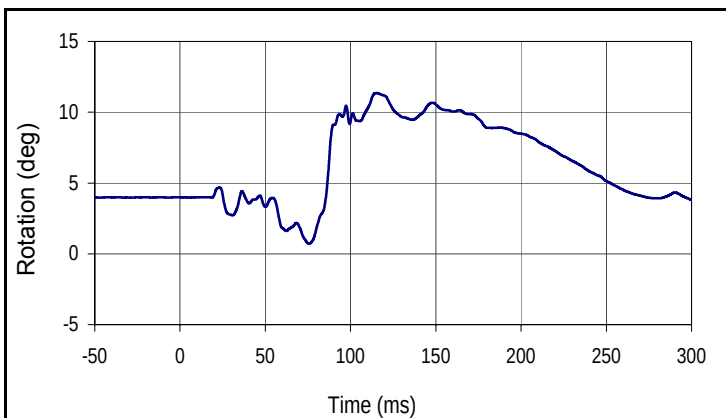
NHTSA No.: R20165411
 Test Date: 4/19/16



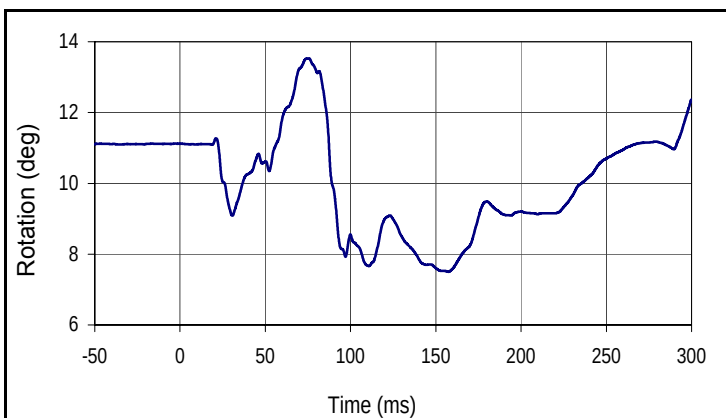
Curve Description			
V2P1 Occipital Condyle Rotational Potentiometer			
Plot No.		SAE Class	Units
021		180	deg
Max	Time	Min	Time
0.5	295.9	-15.0	134.1



Curve Description			
V2P1 Upper Left DGIR X Displacement			
Plot No.		SAE Class	Units
022		600	V
Max	Time	Min	Time
0.1	89.5	0.1	216.6



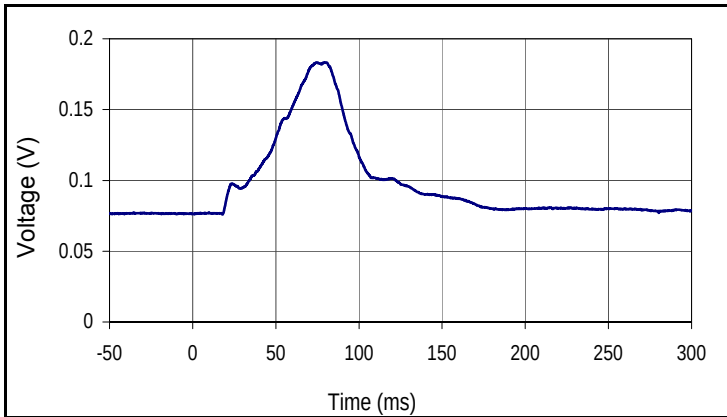
Curve Description			
V2P1 Upper Left DGIR Y Rotation			
Plot No.		SAE Class	Units
023		180	deg
Max	Time	Min	Time
11.4	115.6	0.7	75.8



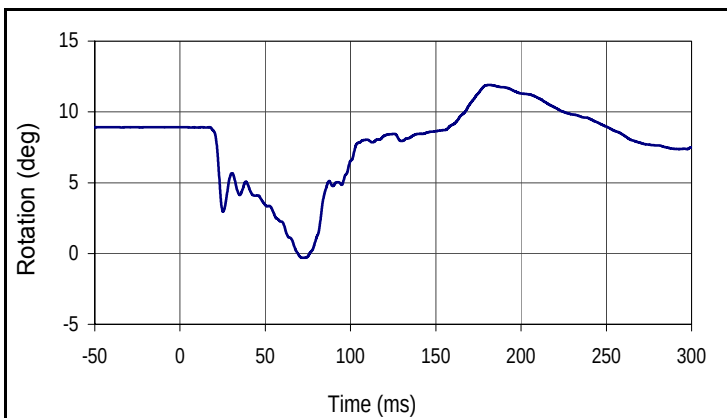
Curve Description			
V2P1 Upper Left DGIR Z Rotation			
Plot No.		SAE Class	Units
024		180	deg
Max	Time	Min	Time
13.5	75.4	7.5	157.5

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

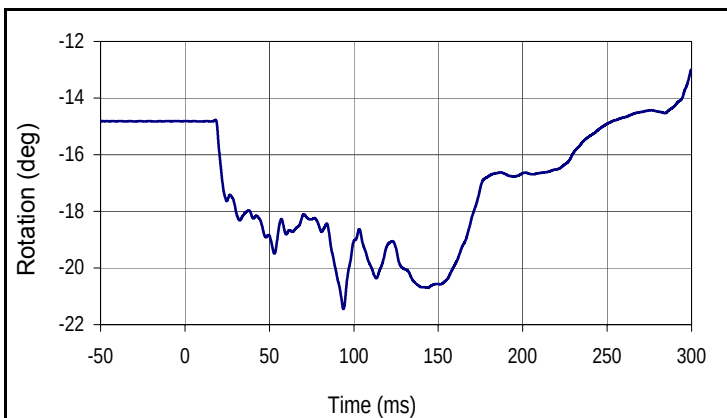
NHTSA No.: R20165411
 Test Date: 4/19/16



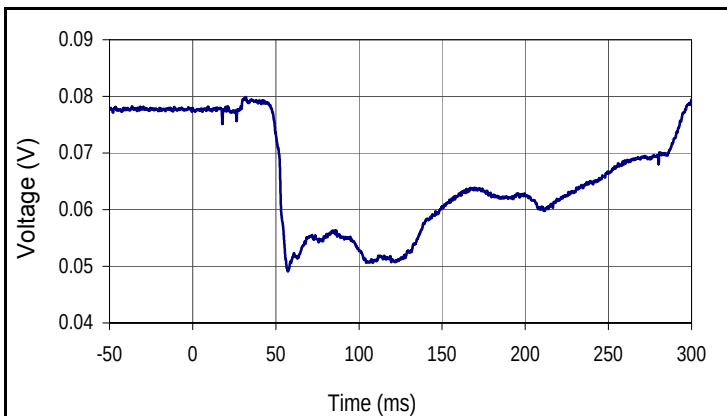
Curve Description			
V2P1 Upper Right DGIR X Displacement			
Plot No.		SAE Class	Units
025		600	V
Max	Time	Min	Time
0.2	74.7	0.1	18.0



Curve Description			
V2P1 Upper Right DGIR Y Rotation			
Plot No.		SAE Class	Units
026		180	deg
Max	Time	Min	Time
11.9	180.9	-0.3	72.0



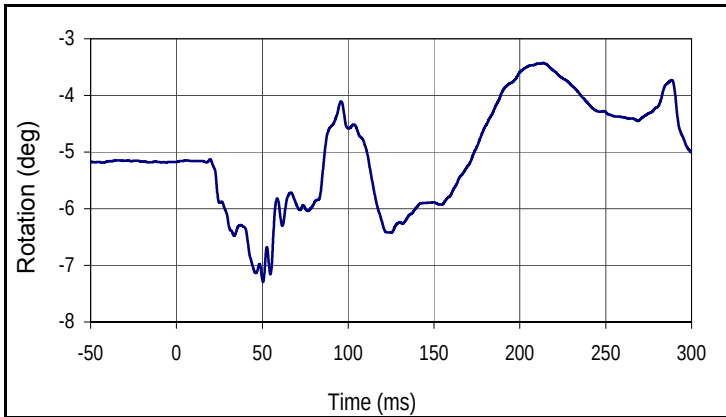
Curve Description			
V2P1 Upper Right DGIR Z Rotation			
Plot No.		SAE Class	Units
027		180	deg
Max	Time	Min	Time
-13.0	299.9	-21.4	93.9



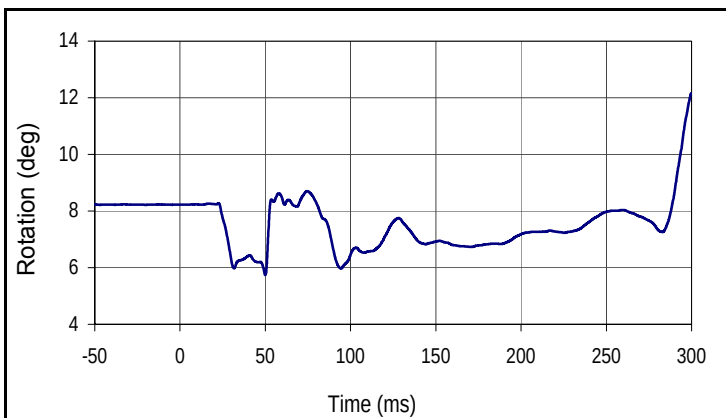
Curve Description			
V2P1 Lower Left DGIR X Displacement			
Plot No.		SAE Class	Units
028		600	V
Max	Time	Min	Time
0.1	31.9	0.0	57.3

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

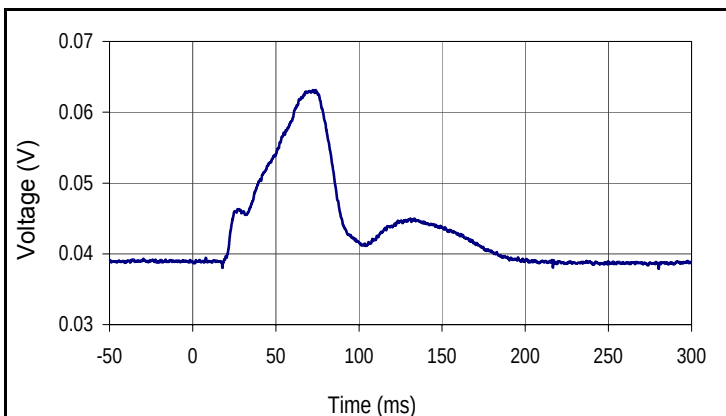
NHTSA No.: R20165411
 Test Date: 4/19/16



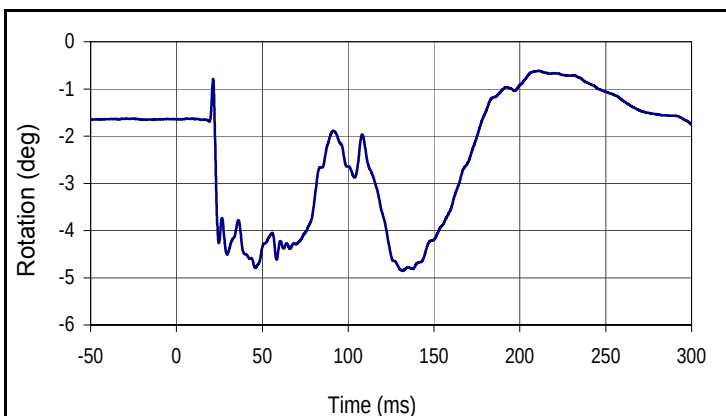
Curve Description			
V2P1 Lower Left DGIR Y Rotation			
Plot No.		SAE Class	Units
029		180	deg
Max	Time	Min	Time
-3.4	213.7	-7.3	50.4



Curve Description			
V2P1 Lower Left DGIR Z Rotation			
Plot No.		SAE Class	Units
030		180	deg
Max	Time	Min	Time
12.2	299.9	5.7	50.0



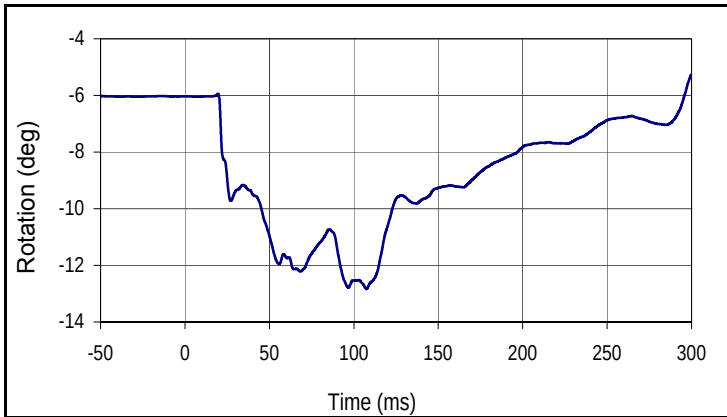
Curve Description			
V2P1 Lower Right DGIR X Displacement			
Plot No.		SAE Class	Units
031		600	V
Max	Time	Min	Time
0.1	74.1	0.0	280.2



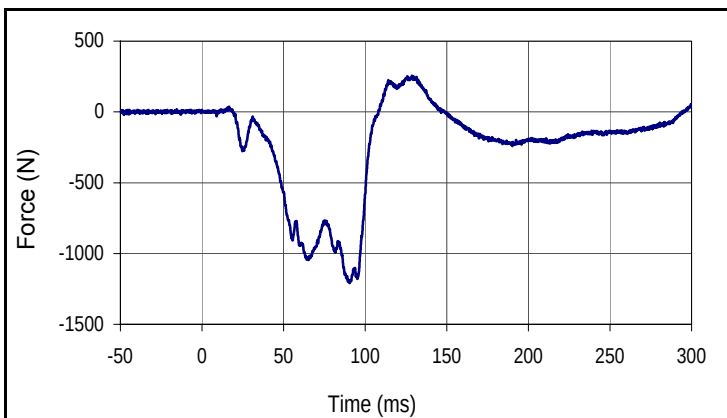
Curve Description			
V2P1 Lower Right DGIR Y Rotation			
Plot No.		SAE Class	Units
032		180	deg
Max	Time	Min	Time
-0.6	211.3	-4.9	131.7

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

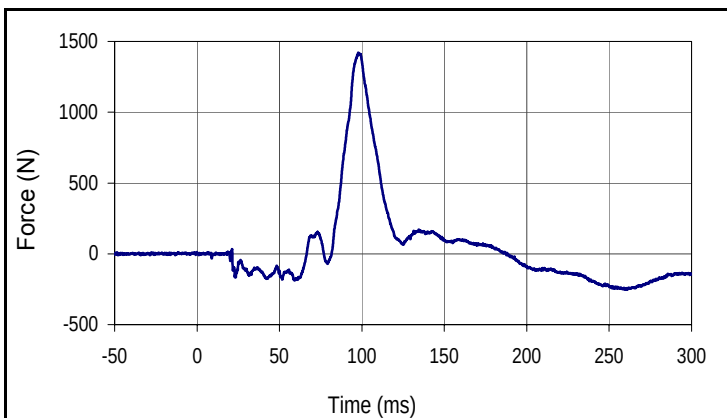
NHTSA No.: R20165411
 Test Date: 4/19/16



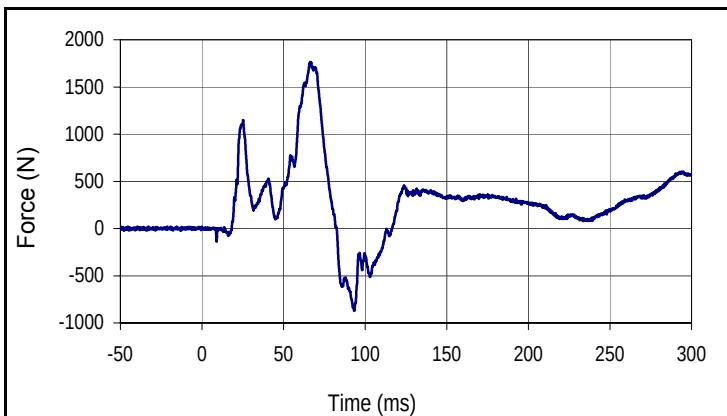
Curve Description			
V2P1 Lower Right DGIR Z Rotation			
Plot No.		SAE Class	Units
033		180	deg
Max	Time	Min	Time
-5.3	299.9	-12.8	107.5



Curve Description			
V2P1 Spine Force X			
Plot No.		SAE Class	Units
034		1000	N
Max	Time	Min	Time
255.4	128.7	-1208.7	90.4



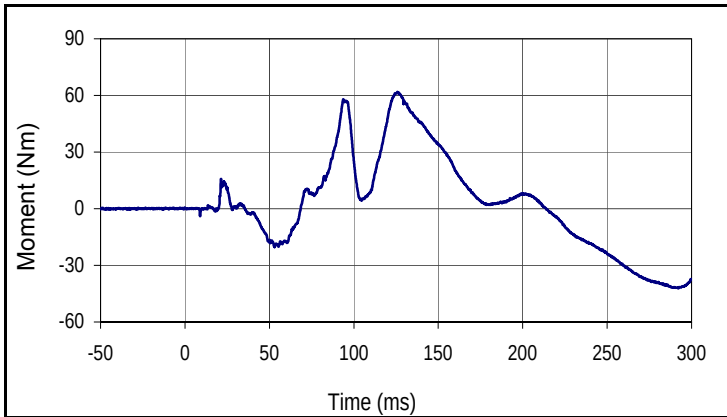
Curve Description			
V2P1 Spine Force Y			
Plot No.		SAE Class	Units
035		1000	N
Max	Time	Min	Time
1420.4	97.8	-252.2	260.2



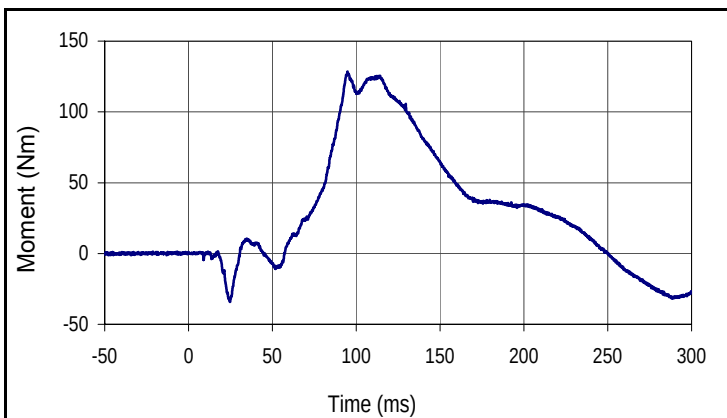
Curve Description			
V2P1 Spine Force Z			
Plot No.		SAE Class	Units
036		1000	N
Max	Time	Min	Time
1763.3	66.5	-870.5	93.4

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

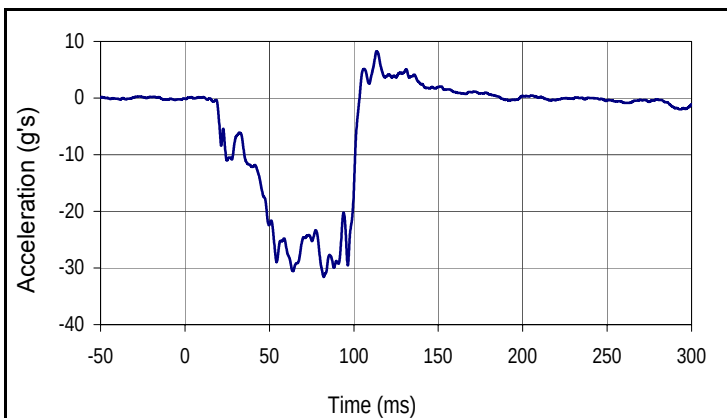
NHTSA No.: R20165411
 Test Date: 4/19/16



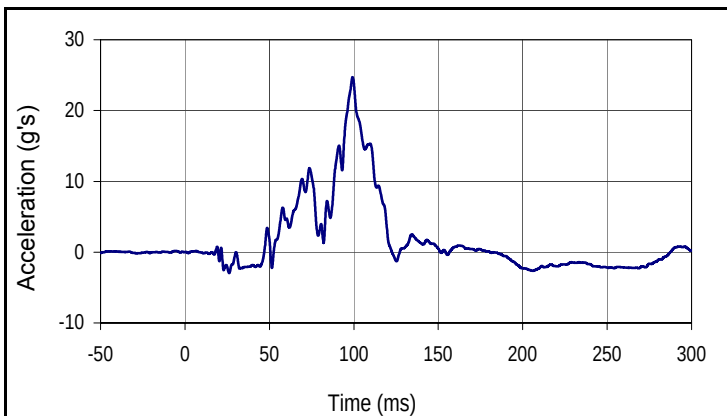
Curve Description			
V2P1 Spine Moment X			
Plot No.		SAE Class	Units
037		1000	Nm
Max	Time	Min	Time
61.8	125.8	-42.1	292.2



Curve Description			
V2P1 Spine Moment Y			
Plot No.		SAE Class	Units
038		1000	Nm
Max	Time	Min	Time
128.4	94.8	-34.1	24.8



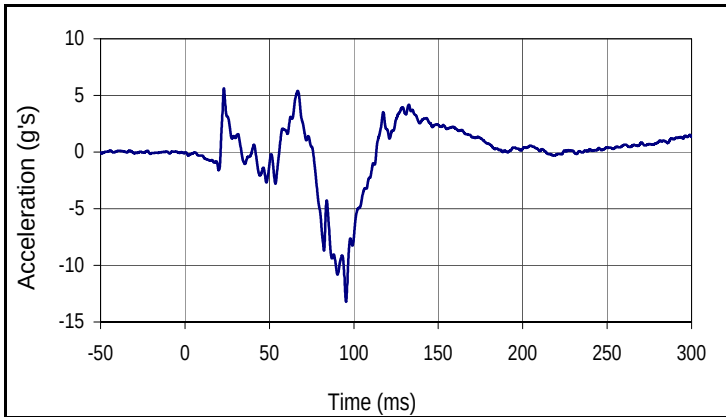
Curve Description			
V2P1 T6 X Acceleration			
Plot No.		SAE Class	Units
039		180	g's
Max	Time	Min	Time
8.3	113.5	-31.6	82.1



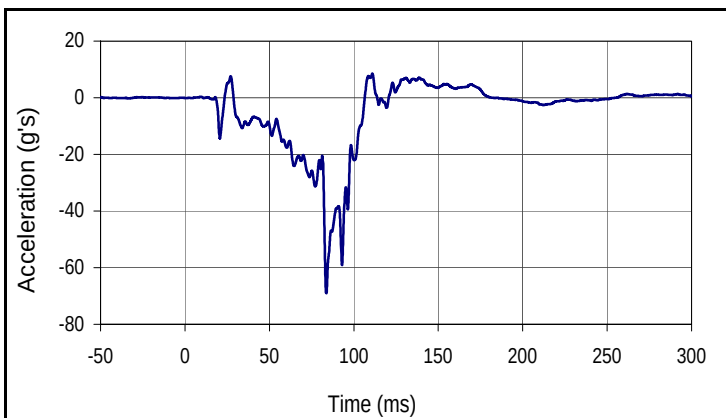
Curve Description			
V2P1 T6 Y Acceleration			
Plot No.		SAE Class	Units
040		180	g's
Max	Time	Min	Time
24.7	99.3	-2.9	26.2

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

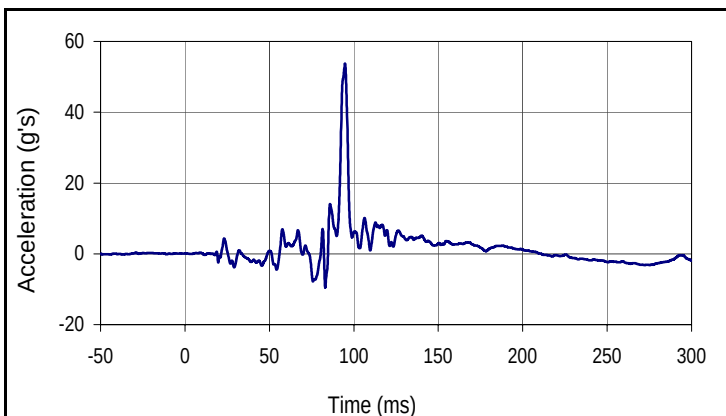
NHTSA No.: R20165411
 Test Date: 4/19/16



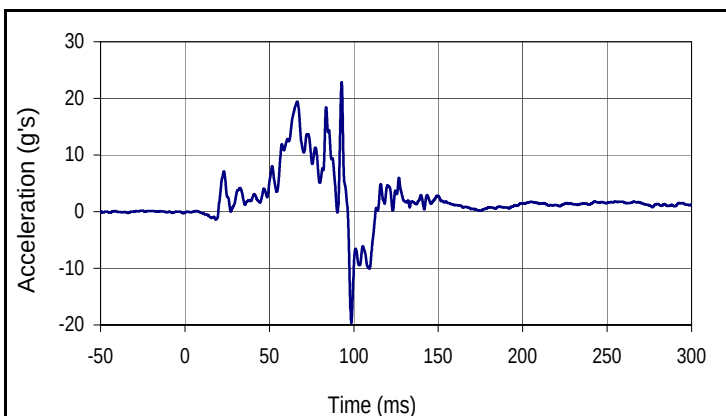
Curve Description			
V2P1 T6 Z Acceleration			
Plot No.		SAE Class	Units
041		180	g's
Max	Time	Min	Time
5.6	23.1	-13.2	95.4



Curve Description			
V2P1 T1 X Acceleration			
Plot No.		SAE Class	Units
042		180	g's
Max	Time	Min	Time
8.5	110.9	-69.1	83.7



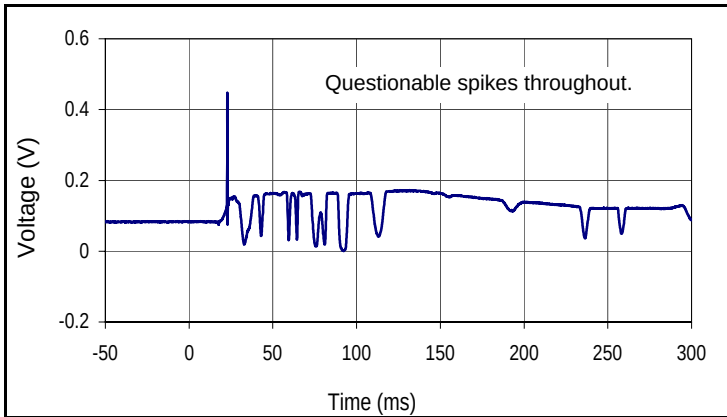
Curve Description			
V2P1 T1 Y Acceleration			
Plot No.		SAE Class	Units
043		180	g's
Max	Time	Min	Time
53.8	94.8	-9.6	83.1



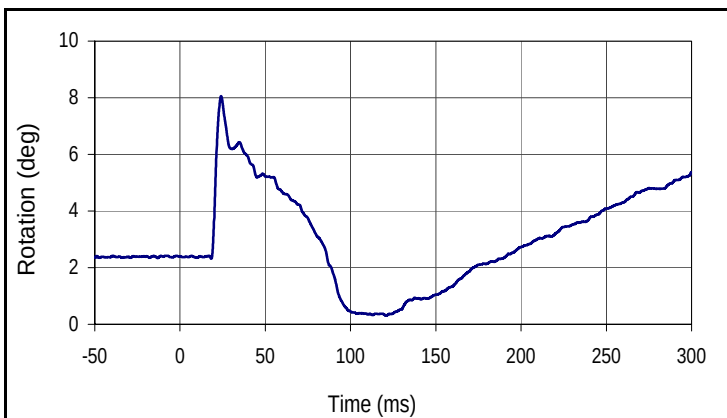
Curve Description			
V2P1 T1 Z Acceleration			
Plot No.		SAE Class	Units
044		180	g's
Max	Time	Min	Time
22.9	92.8	-19.6	98.5

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

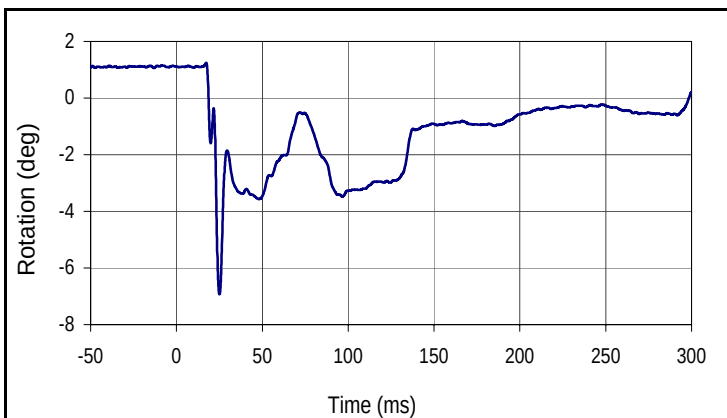
NHTSA No.: R20165411
 Test Date: 4/19/16



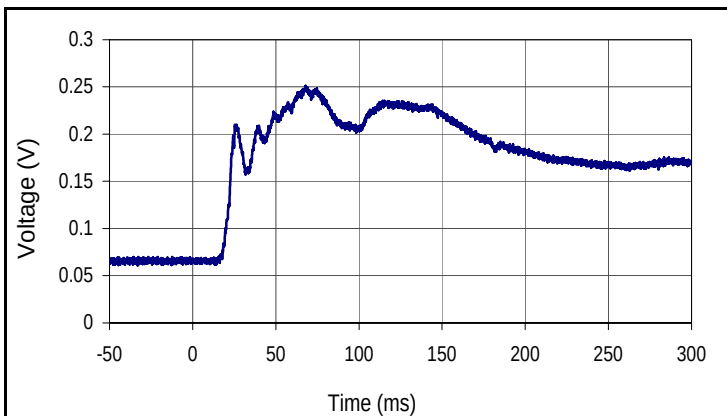
Curve Description			
V2P1 Abdomen Left DGIR X Displacement			
Plot No.		SAE Class	Units
045		600	V
Max	Time	Min	Time
0.4	22.8	0.0	92.2



Curve Description			
V2P1 Abdomen Left DGIR Y Rotation			
Plot No.		SAE Class	Units
046		180	deg
Max	Time	Min	Time
8.1	24.1	0.3	120.8



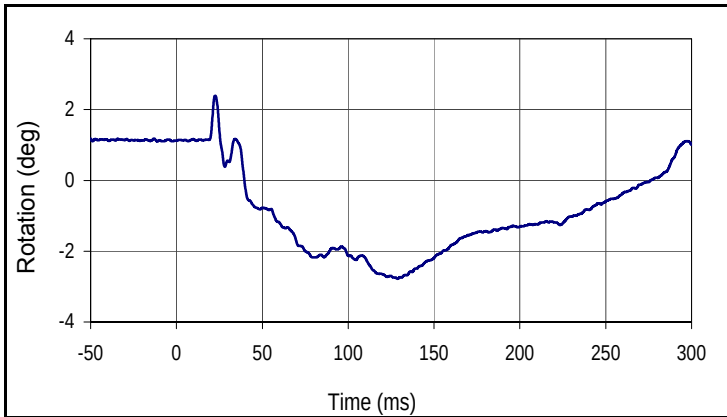
Curve Description			
V2P1 Abdomen Left DGIR Z Rotation			
Plot No.		SAE Class	Units
047		180	deg
Max	Time	Min	Time
1.2	17.3	-6.9	25.1



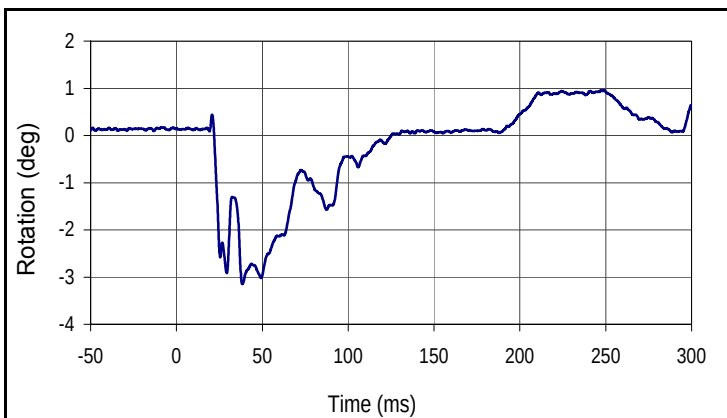
Curve Description			
V2P1 Abdomen Right DGIR X Displacement			
Plot No.		SAE Class	Units
048		600	V
Max	Time	Min	Time
0.3	67.9	0.1	-12.8

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

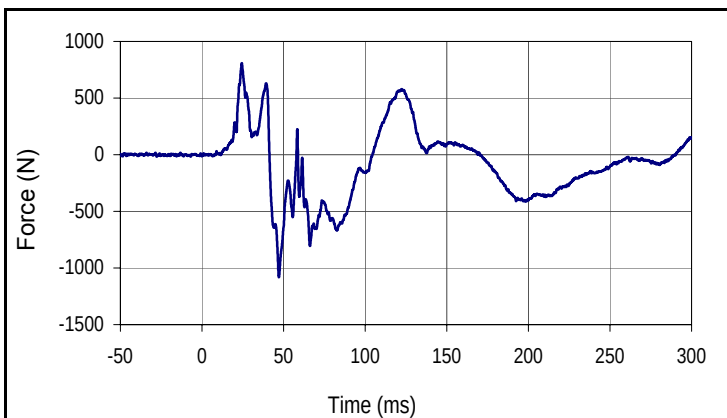
NHTSA No.: R20165411
 Test Date: 4/19/16



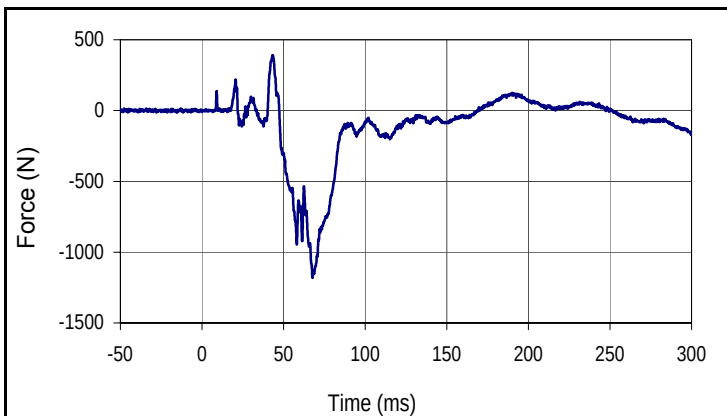
Curve Description			
V2P1 Abdomen Right DGIR Y Rotation			
Plot No.		SAE Class	Units
049		180	deg
Max	Time	Min	Time
2.4	22.6	-2.8	128.7



Curve Description			
V2P1 Abdomen Right DGIR Z Rotation			
Plot No.		SAE Class	Units
050		180	deg
Max	Time	Min	Time
1.0	247.3	-3.1	38.3



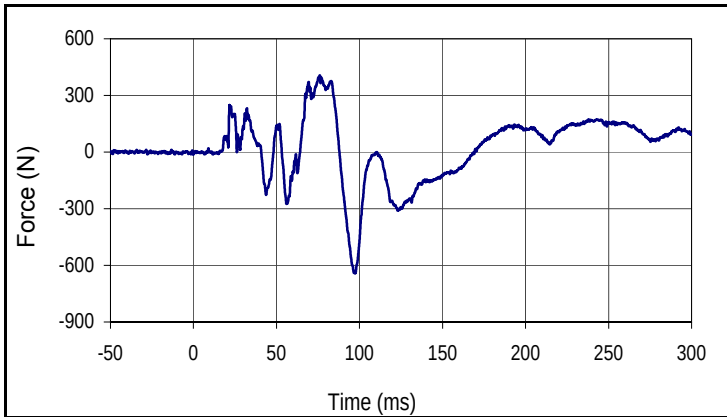
Curve Description			
V2P1 Acetabulum Left X Force			
Plot No.		SAE Class	Units
051		600	N
Max	Time	Min	Time
807.2	24.4	-1081.1	47.1



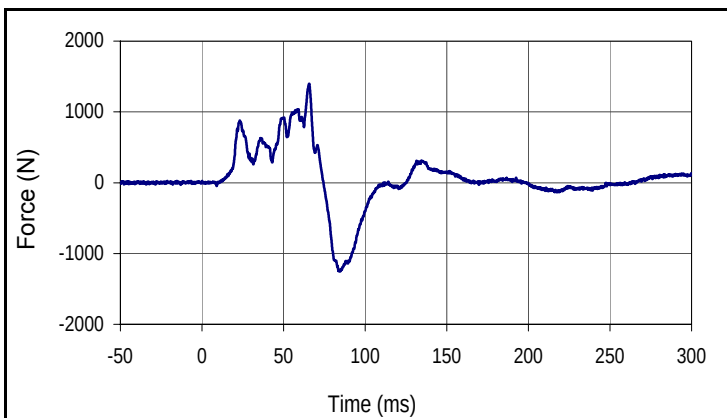
Curve Description			
V2P1 Acetabulum Left Y Force			
Plot No.		SAE Class	Units
052		600	N
Max	Time	Min	Time
391.5	43.3	-1180.7	67.8

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

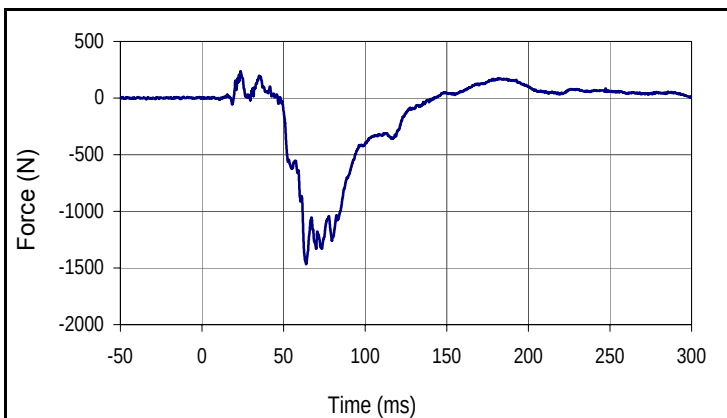
NHTSA No.: R20165411
 Test Date: 4/19/16



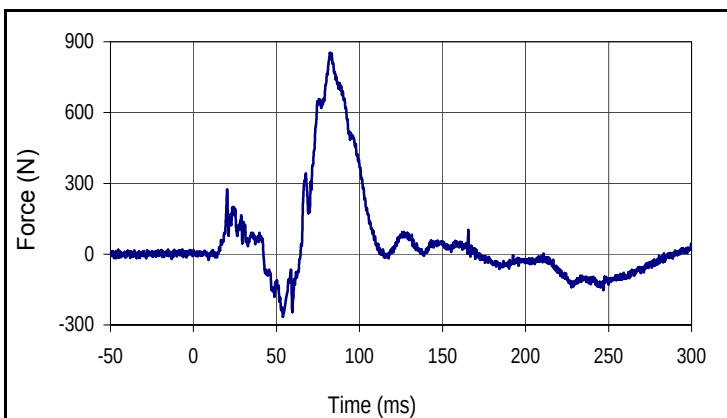
Curve Description			
V2P1 Acetabulum Left Z Force			
Plot No.		SAE Class	Units
053		600	N
Max	Time	Min	Time
407.3	76.1	-642.8	97.3



Curve Description			
V2P1 Acetabulum Right X Force			
Plot No.		SAE Class	Units
054		600	N
Max	Time	Min	Time
1400.9	65.7	-1255.0	84.7



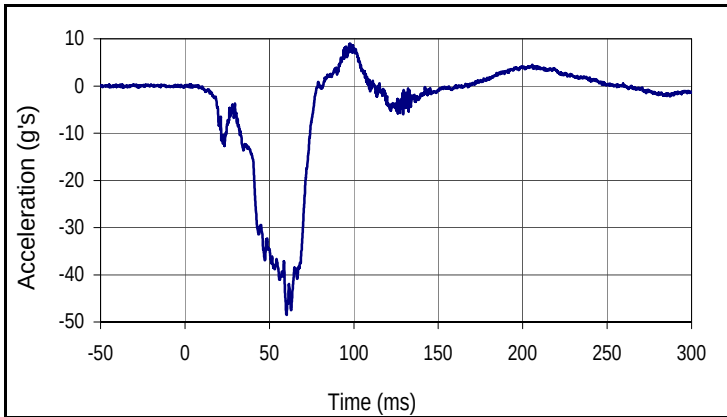
Curve Description			
V2P1 Acetabulum Right Y Force			
Plot No.		SAE Class	Units
055		600	N
Max	Time	Min	Time
237.6	23.7	-1467.3	63.9



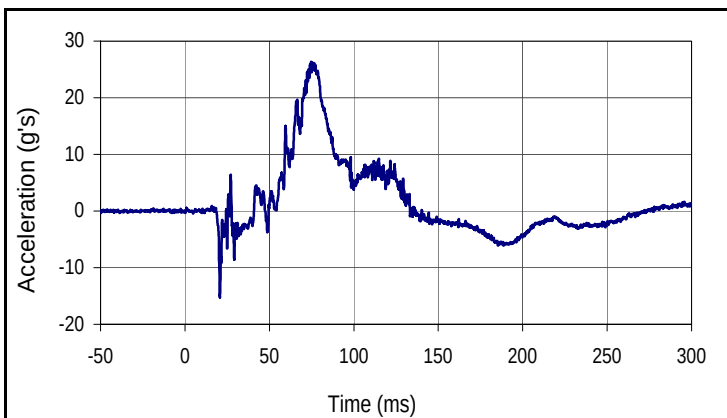
Curve Description			
V2P1 Acetabulum Right Z Force			
Plot No.		SAE Class	Units
056		600	N
Max	Time	Min	Time
854.3	82.2	-266.1	53.8

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

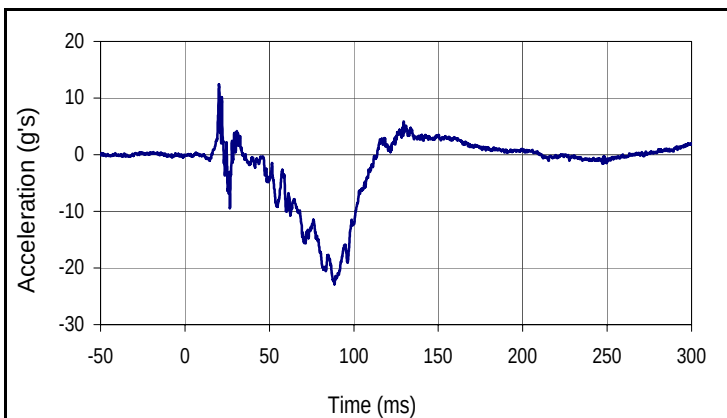
NHTSA No.: R20165411
 Test Date: 4/19/16



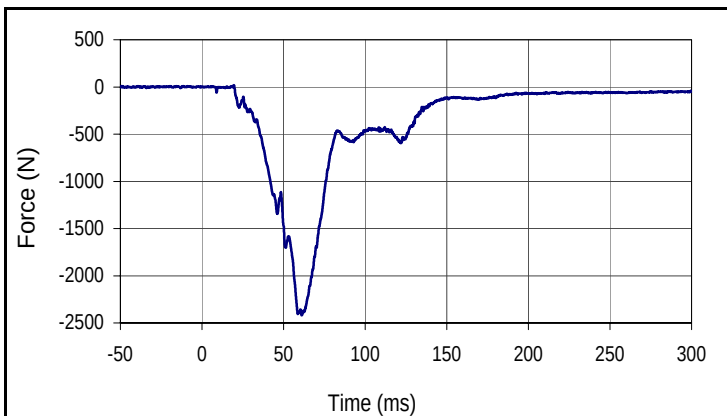
Curve Description			
V2P1 Pelvis X Acceleration			
Plot No.		SAE Class	Units
057		1000	g's
Max	Time	Min	Time
9.0	97.9	-48.5	60.2



Curve Description			
V2P1 Pelvis Y Acceleration			
Plot No.		SAE Class	Units
058		1000	g's
Max	Time	Min	Time
26.3	74.7	-15.2	20.6



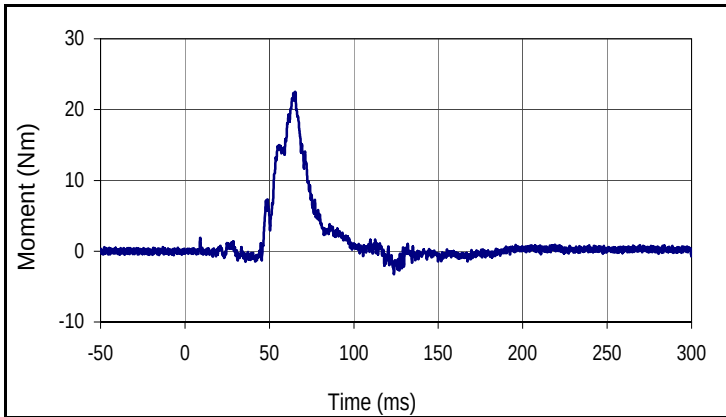
Curve Description			
V2P1 Pelvis Z Acceleration			
Plot No.		SAE Class	Units
059		1000	g's
Max	Time	Min	Time
12.5	20.2	-22.9	88.6



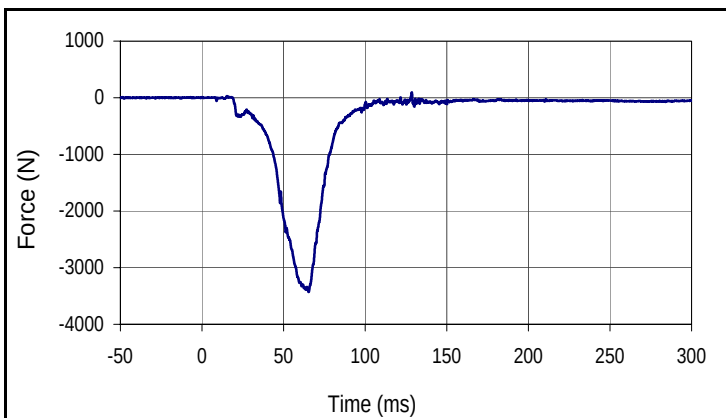
Curve Description			
V2P1 ASIS Left X Force			
Plot No.		SAE Class	Units
060		600	N
Max	Time	Min	Time
17.6	19.6	-2419.7	61.1

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

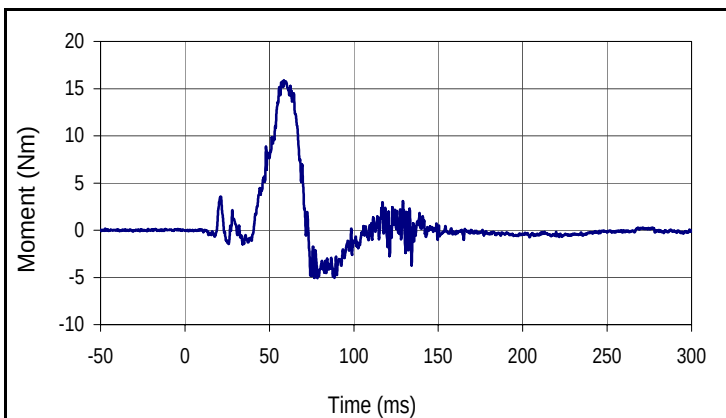
NHTSA No.: R20165411
 Test Date: 4/19/16



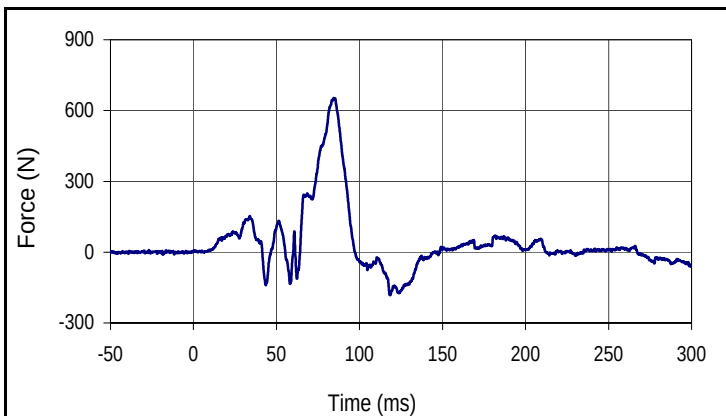
Curve Description			
V2P1 ASIS Left Y Moment			
Plot No.		SAE Class	Units
061		600	Nm
Max	Time	Min	Time
22.5	65.3	-3.3	123.8



Curve Description			
V2P1 ASIS Right X Force			
Plot No.		SAE Class	Units
062		600	N
Max	Time	Min	Time
97.4	128.6	-3431.5	65.3



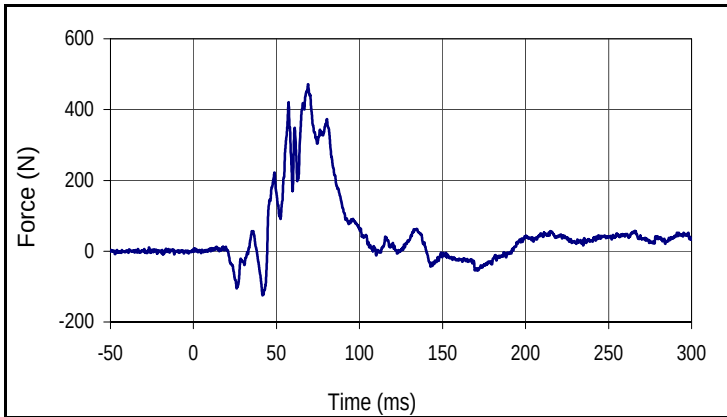
Curve Description			
V2P1 ASIS Right Y Moment			
Plot No.		SAE Class	Units
063		600	Nm
Max	Time	Min	Time
15.9	58.6	-5.1	78.4



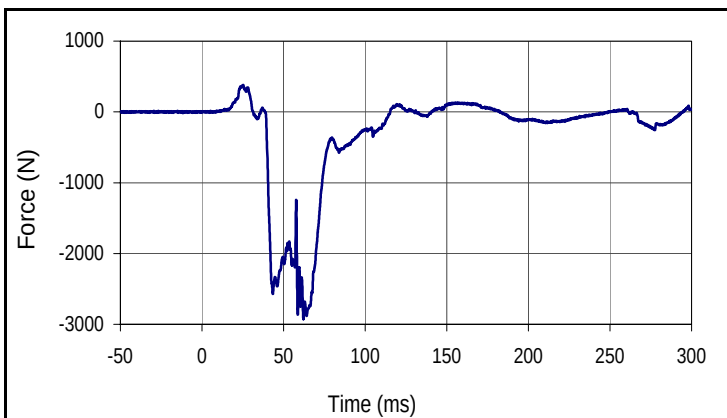
Curve Description			
V2P1 Left Femur X Force			
Plot No.		SAE Class	Units
064		600	N
Max	Time	Min	Time
652.8	84.5	-182.0	118.5

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

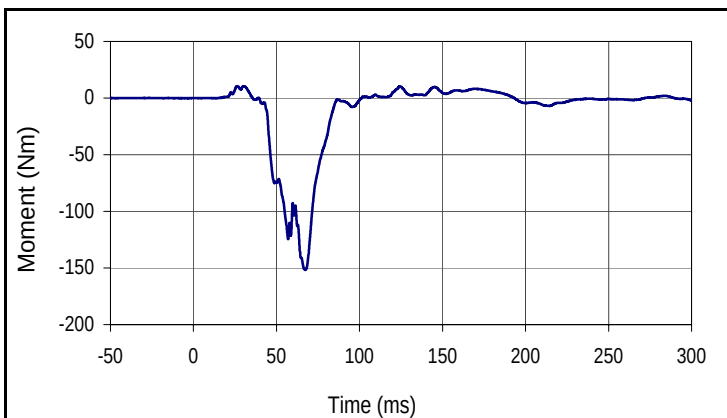
NHTSA No.: R20165411
 Test Date: 4/19/16



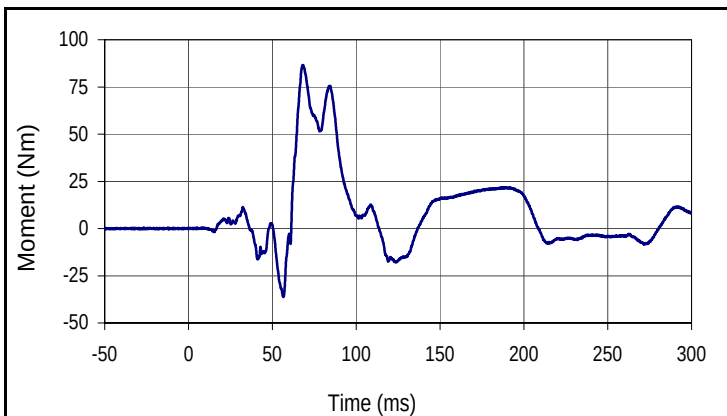
Curve Description			
V2P1 Femur Left Y Force			
Plot No.		SAE Class	Units
065		600	N
Max	Time	Min	Time
471.8	69.1	-125.0	41.6



Curve Description			
V2P1 Femur Left Z Force			
Plot No.		SAE Class	Units
066		600	N
Max	Time	Min	Time
379.6	25.1	-2929.0	62.2



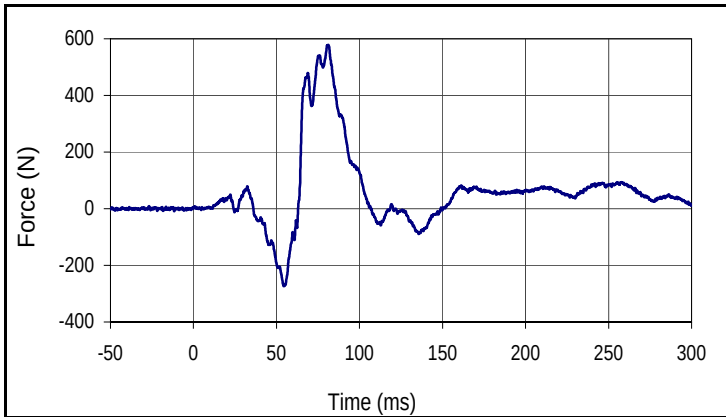
Curve Description			
V2P1 Femur Left X Moment			
Plot No.		SAE Class	Units
067		600	Nm
Max	Time	Min	Time
10.6	26.4	-151.8	67.4



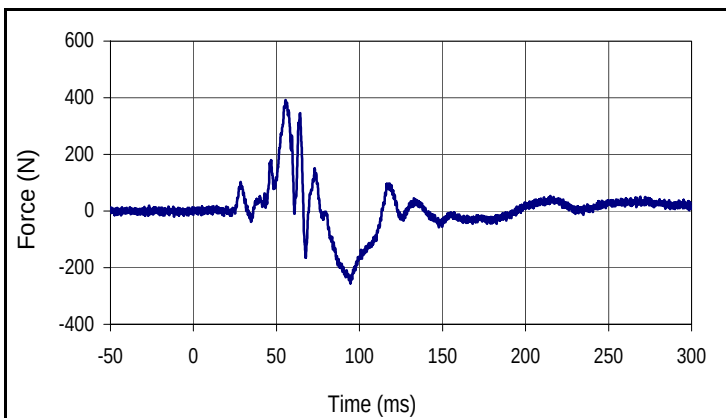
Curve Description			
V2P1 Femur Left Y Moment			
Plot No.		SAE Class	Units
068		600	Nm
Max	Time	Min	Time
86.6	68.3	-36.2	56.5

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

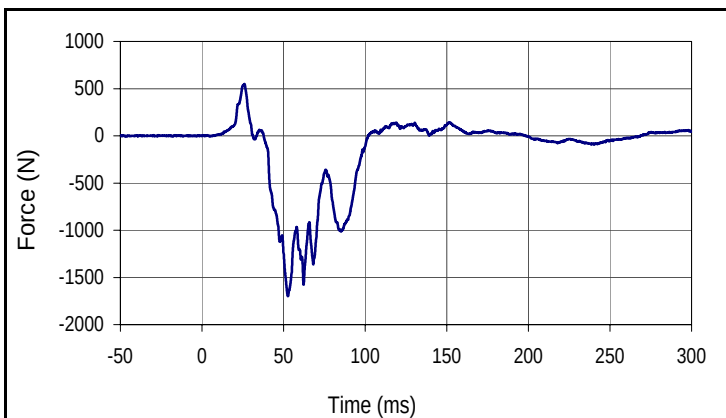
NHTSA No.: R20165411
 Test Date: 4/19/16



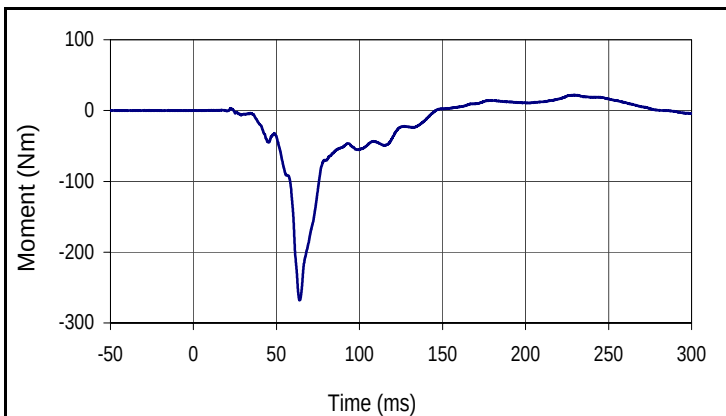
Curve Description			
V2P1 Femur Right X Force			
Plot No.		SAE Class	Units
069		600	N
Max	Time	Min	Time
578.2	81.1	-273.7	54.4



Curve Description			
V2P1 Femur Right Y Force			
Plot No.		SAE Class	Units
070		600	N
Max	Time	Min	Time
391.8	55.5	-255.7	94.6



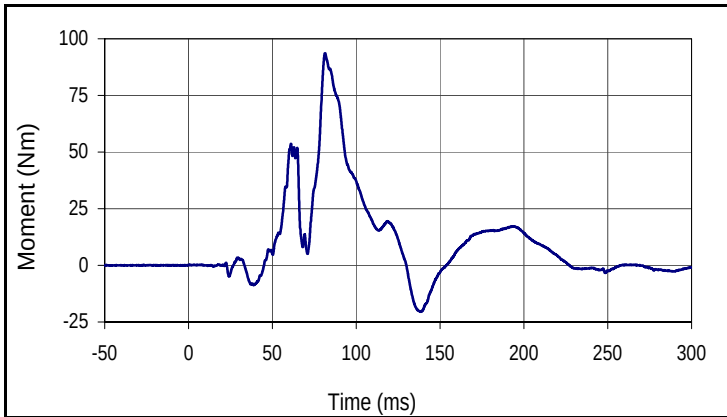
Curve Description			
V2P1 Femur Right Z Force			
Plot No.		SAE Class	Units
071		600	N
Max	Time	Min	Time
548.1	26.0	-1697.6	52.7



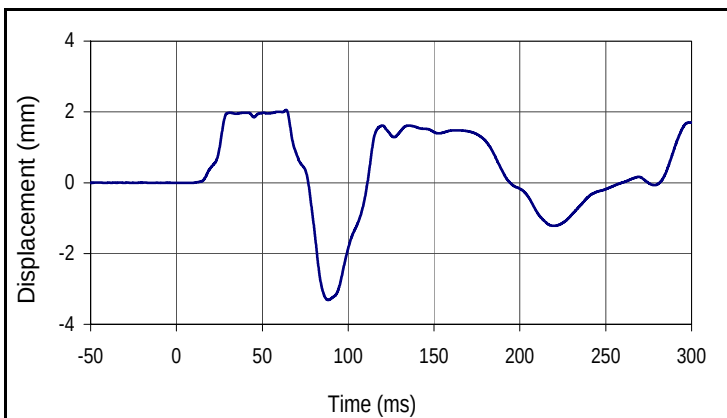
Curve Description			
V2P1 Femur Right X Moment			
Plot No.		SAE Class	Units
072		600	Nm
Max	Time	Min	Time
22.1	229.5	-267.8	64.0

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

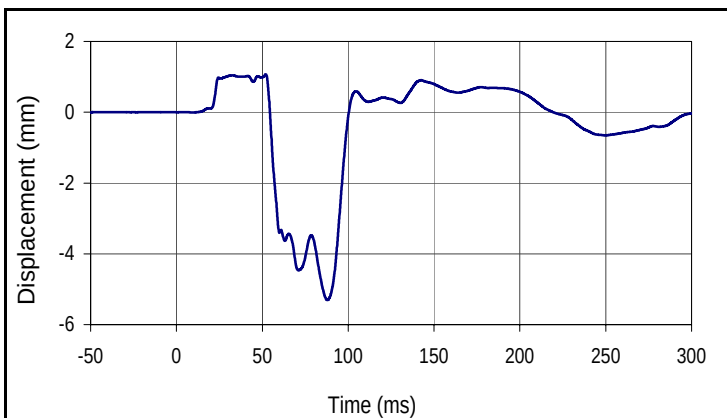
NHTSA No.: R20165411
 Test Date: 4/19/16



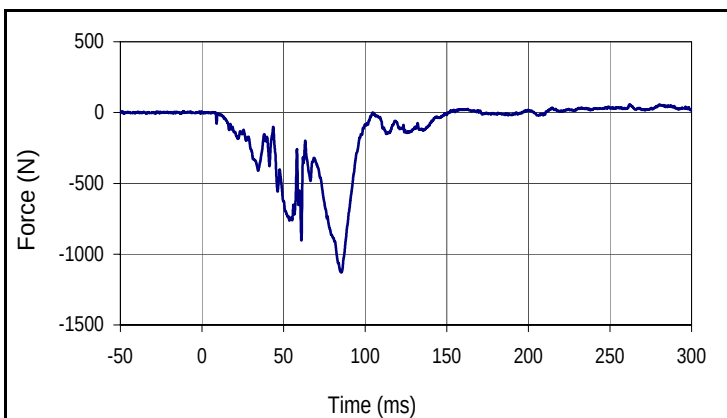
Curve Description			
V2P1 Femur Right Y Moment			
Plot No.		SAE Class	Units
073		600	Nm
Max	Time	Min	Time
93.7	81.4	-20.5	138.4



Curve Description			
V2P1 Knee Left X Displacement			
Plot No.		SAE Class	Units
074		180	mm
Max	Time	Min	Time
2.1	63.9	-3.3	88.4



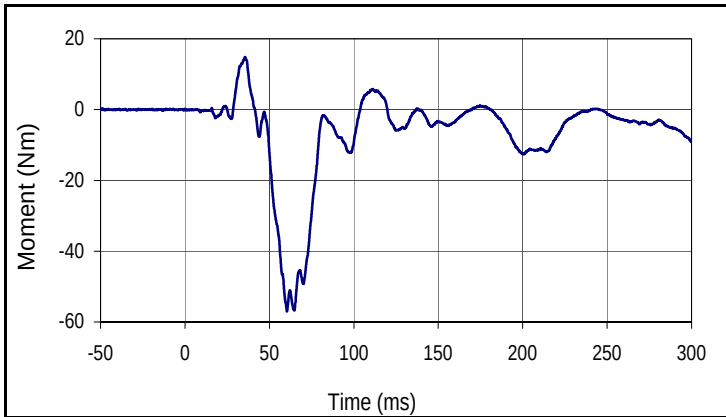
Curve Description			
VSP1 Knee Right X Displacement			
Plot No.		SAE Class	Units
075		180	mm
Max	Time	Min	Time
1.1	52.0	-5.3	87.9



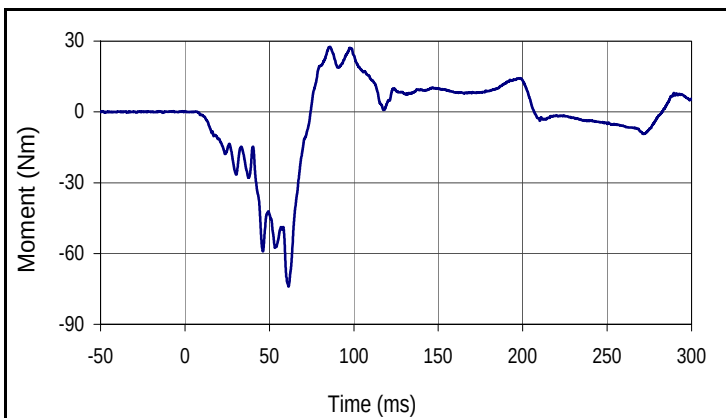
Curve Description			
V2P1 Upper Tibia Left Z Force			
Plot No.		SAE Class	Units
076		600	N
Max	Time	Min	Time
57.4	280.4	-1130.0	85.3

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

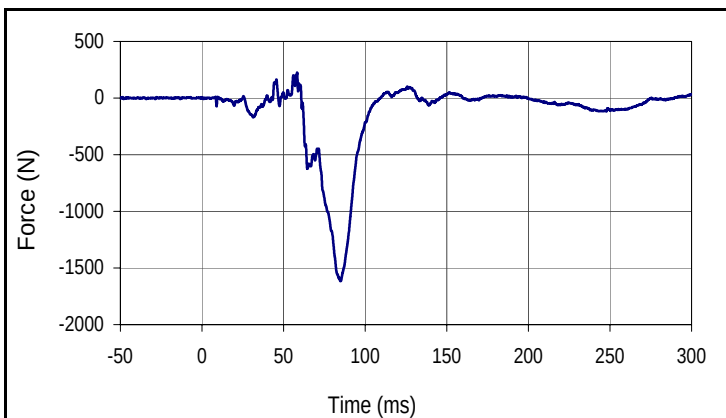
NHTSA No.: R20165411
 Test Date: 4/19/16



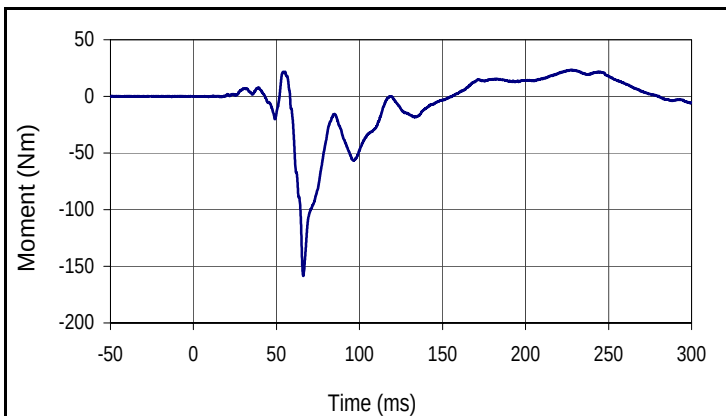
Curve Description			
V2P1 Upper Tibia Left X Moment			
Plot No.		SAE Class	Units
077		600	Nm
Max	Time	Min	Time
14.9	35.6	-57.1	60.4



Curve Description			
V2P1 Upper Tibia Left Y Moment			
Plot No.		SAE Class	Units
078		600	Nm
Max	Time	Min	Time
27.5	85.9	-73.9	61.4



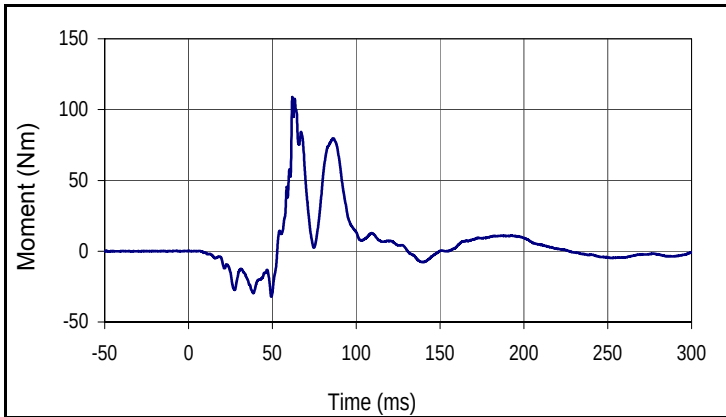
Curve Description			
V2P1 Upper Tibia Right Z Force			
Plot No.		SAE Class	Units
079		600	N
Max	Time	Min	Time
224.8	58.3	-1616.9	84.9



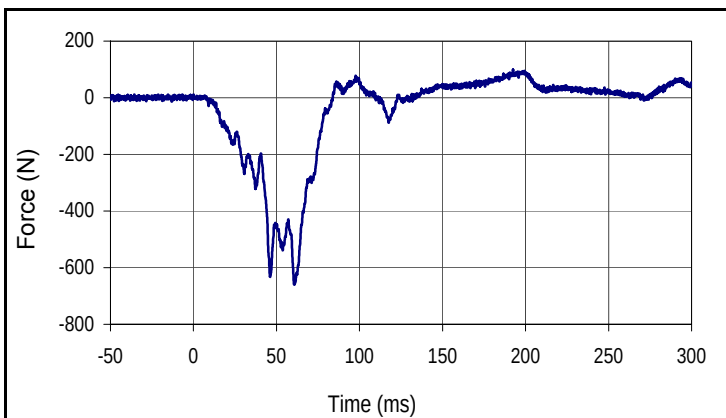
Curve Description			
V2P1 Upper Tibia Right X Moment			
Plot No.		SAE Class	Units
080		600	Nm
Max	Time	Min	Time
23.5	228.3	-158.6	66.2

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

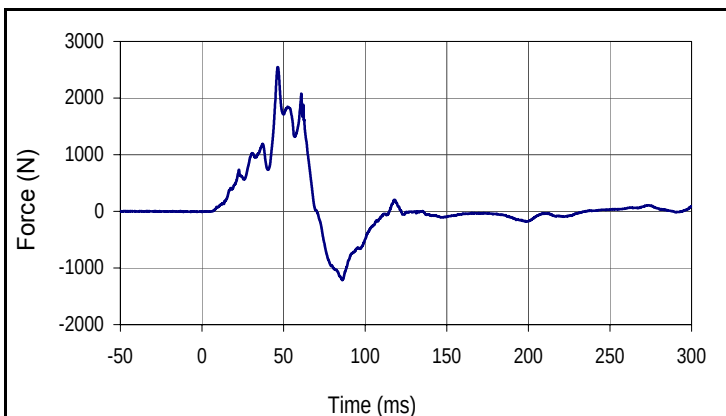
NHTSA No.: R20165411
 Test Date: 4/19/16



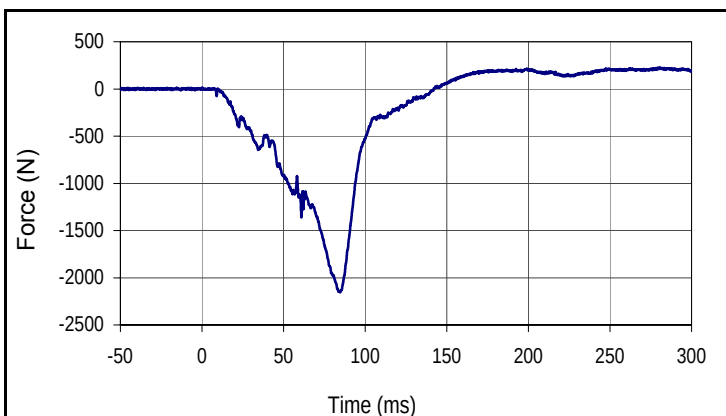
Curve Description			
V2P1 Upper Tibia Right Y Moment			
Plot No.		SAE Class	Units
081		600	Nm
Max	Time	Min	Time
108.8	61.9	-32.2	49.4



Curve Description			
V2P1 Lower Tibia Left X Force			
Plot No.		SAE Class	Units
082		600	N
Max	Time	Min	Time
100.0	192.5	-659.8	60.7



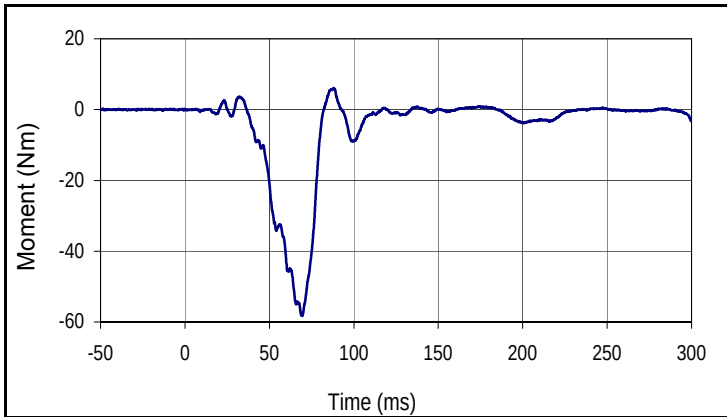
Curve Description			
V2P1 Lower Tibia Left Y Force			
Plot No.		SAE Class	Units
083		600	N
Max	Time	Min	Time
2545.8	46.5	-1212.0	86.0



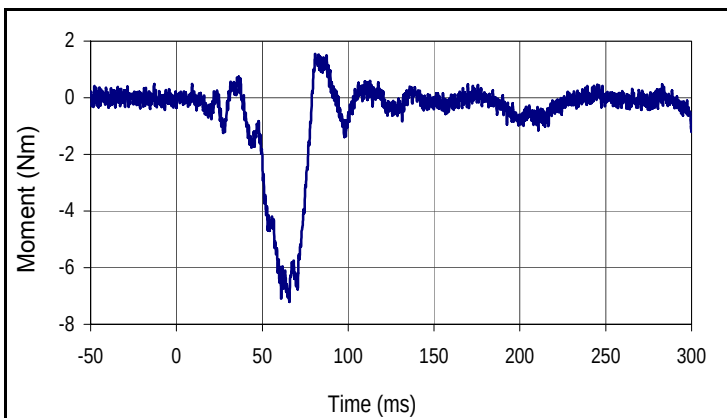
Curve Description			
V2P1 Lower Tibia Left Z Force			
Plot No.		SAE Class	Units
084		600	N
Max	Time	Min	Time
230.4	280.4	-2153.2	84.7

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

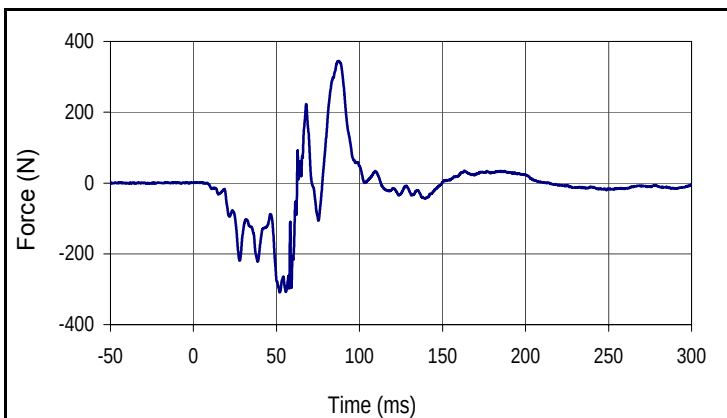
NHTSA No.: R20165411
 Test Date: 4/19/16



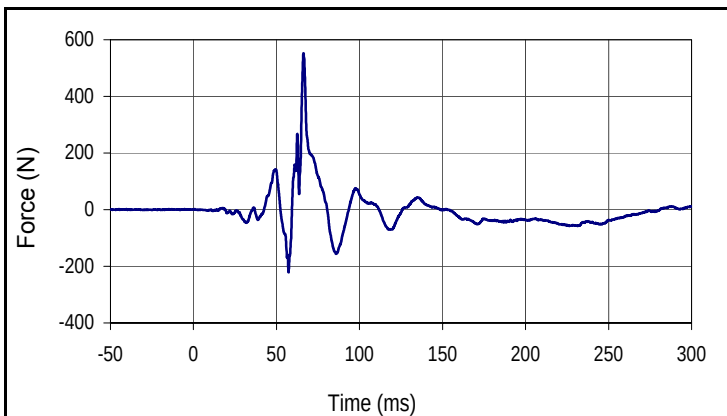
Curve Description			
V2P1 Lower Tibia Left X Moment			
Plot No.		SAE Class	Units
085		600	Nm
Max	Time	Min	Time
6.1	88.0	-58.3	69.3



Curve Description			
V2P1 Lower Tibia Left Y Moment			
Plot No.		SAE Class	Units
086		600	Nm
Max	Time	Min	Time
1.5	80.8	-7.2	65.8



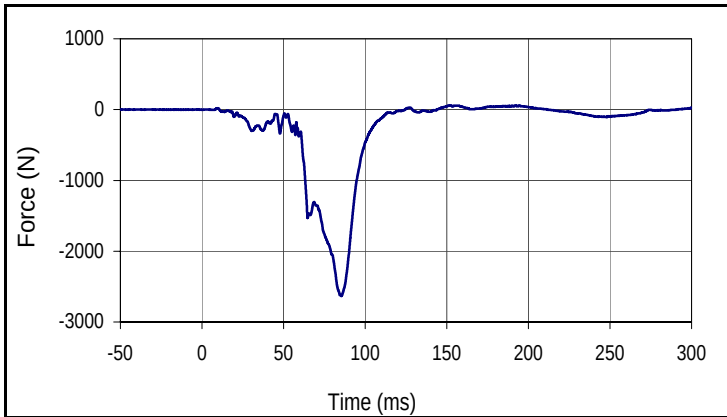
Curve Description			
V2P1 Lower Tibia Right X Force			
Plot No.		SAE Class	Units
087		600	N
Max	Time	Min	Time
345.0	87.6	-308.4	51.9



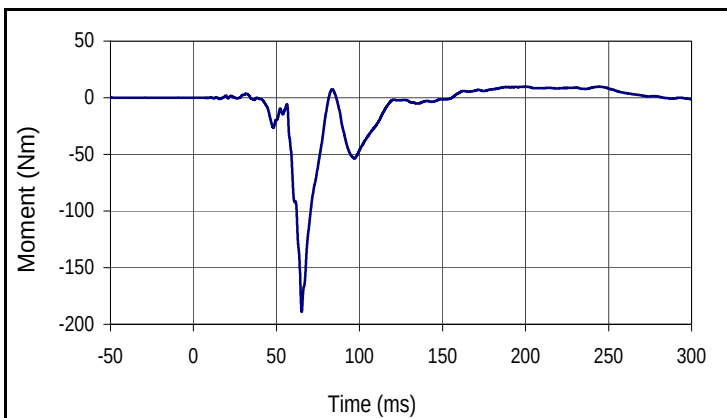
Curve Description			
V2P1 Lower Tibia Right Y Force			
Plot No.		SAE Class	Units
088		600	N
Max	Time	Min	Time
553.0	66.3	-221.2	57.3

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

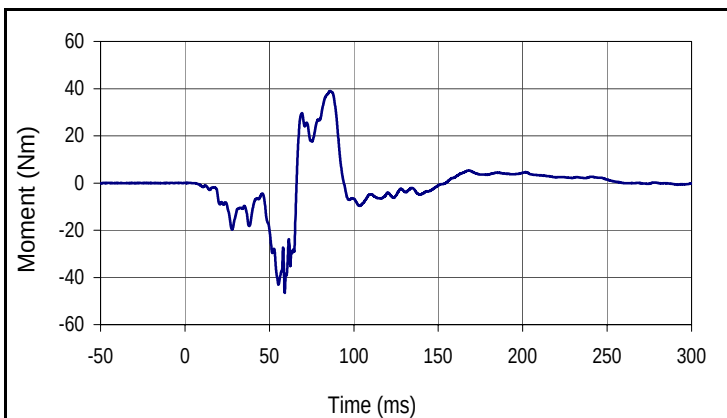
NHTSA No.: R20165411
 Test Date: 4/19/16



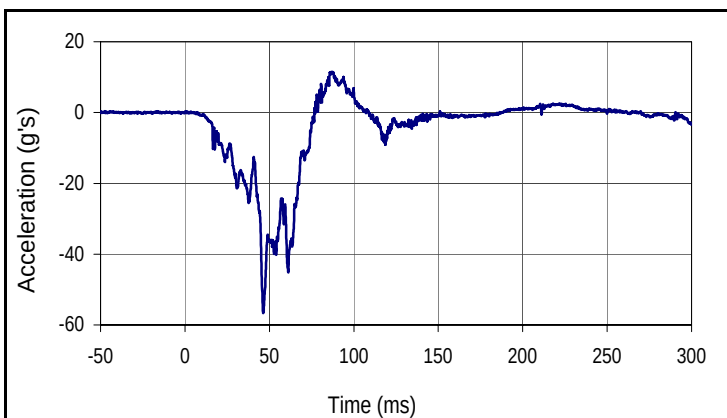
Curve Description			
V2P1 Lower Tibia Right Z Force			
Plot No.		SAE Class	Units
089		600	N
Max	Time	Min	Time
61.9	192.3	-2633.5	85.4



Curve Description			
V2P1 Lower Tibia Right X Moment			
Plot No.		SAE Class	Units
090		600	Nm
Max	Time	Min	Time
9.8	244.5	-189.1	65.2



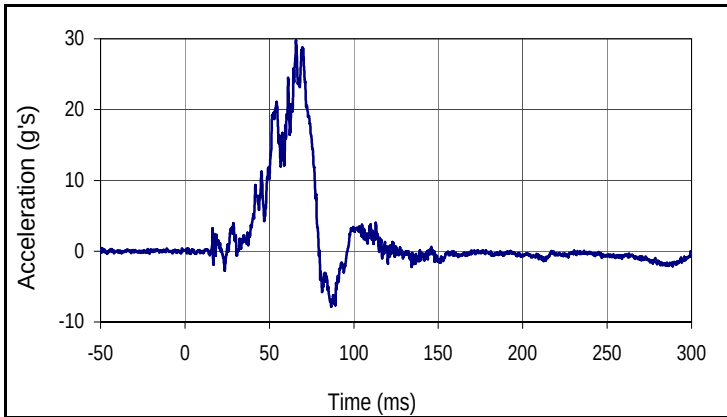
Curve Description			
V2P1 Lower Tibia Right Y Moment			
Plot No.		SAE Class	Units
091		600	Nm
Max	Time	Min	Time
39.0	86.1	-46.5	59.1



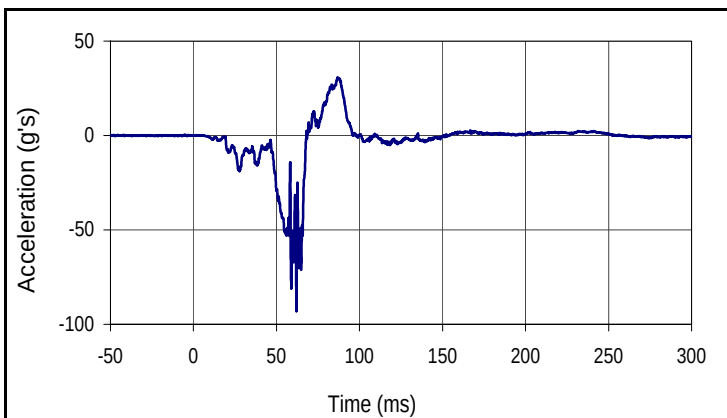
Curve Description			
V2P1 Leg Left X Acceleration			
Plot No.		SAE Class	Units
092		1000	g's
Max	Time	Min	Time
11.5	86.7	-56.7	46.3

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

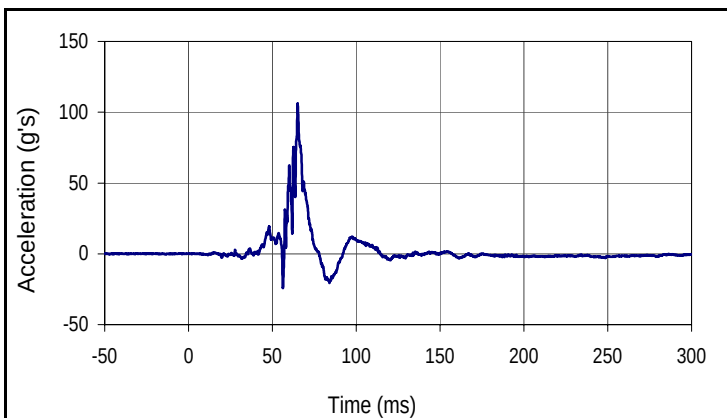
NHTSA No.: R20165411
 Test Date: 4/19/16



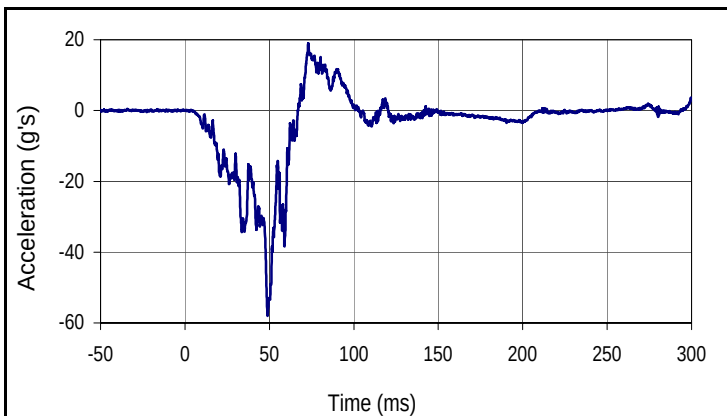
Curve Description			
V2P1 Leg Left Y Acceleration			
Plot No.		SAE Class	Units
093		1000	g's
Max	Time	Min	Time
29.8	65.7	-7.8	86.6



Curve Description			
V2P1 Leg Right X Acceleration			
Plot No.		SAE Class	Units
094		1000	g's
Max	Time	Min	Time
30.8	86.8	-93.1	62.0



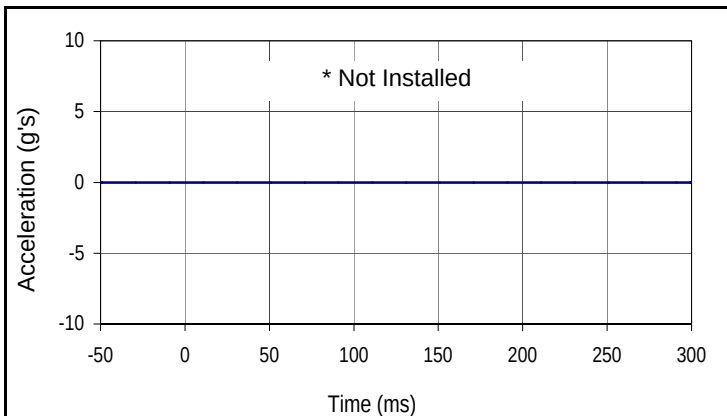
Curve Description			
V2P1 Leg Right Y Acceleration			
Plot No.		SAE Class	Units
095		1000	g's
Max	Time	Min	Time
106.1	65.1	-24.2	56.3



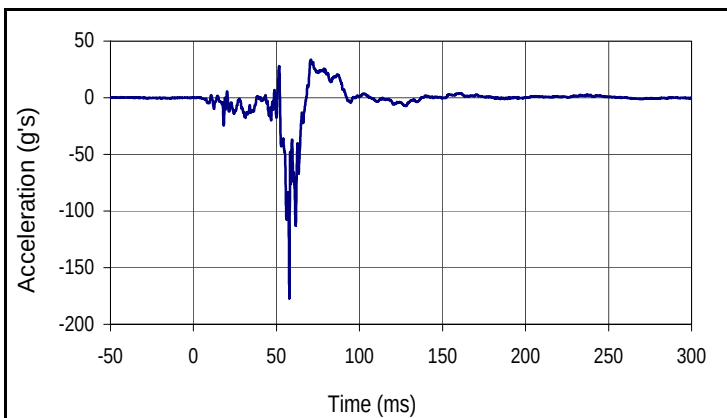
Curve Description			
V2P1 Foot Left X Acceleration			
Plot No.		SAE Class	Units
096		1000	g's
Max	Time	Min	Time
19.0	73.0	-58.0	48.9

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

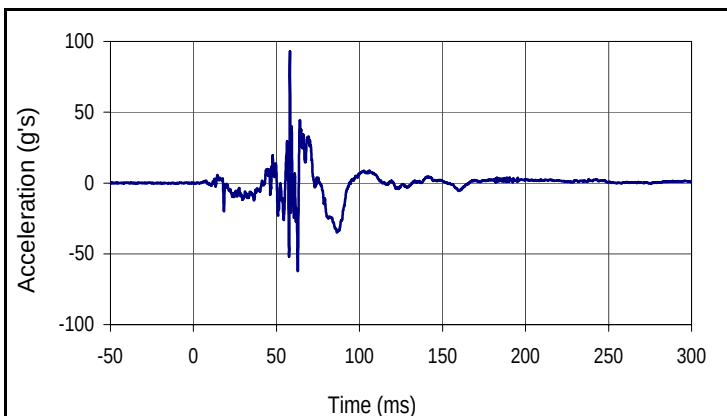
NHTSA No.: R20165411
 Test Date: 4/19/16



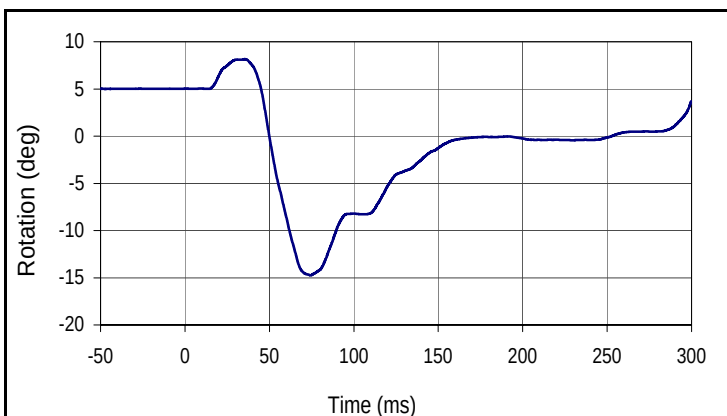
Curve Description			
V2P1 Foot Left Z Acceleration			
Plot No.		SAE Class	Units
097		1000	g's
Max	Time	Min	Time
0.0	-20.0	0.0	-20.0



Curve Description			
V2P1 Foot Right X Acceleration			
Plot No.		SAE Class	Units
098		1000	g's
Max	Time	Min	Time
33.7	70.7	-176.8	57.8



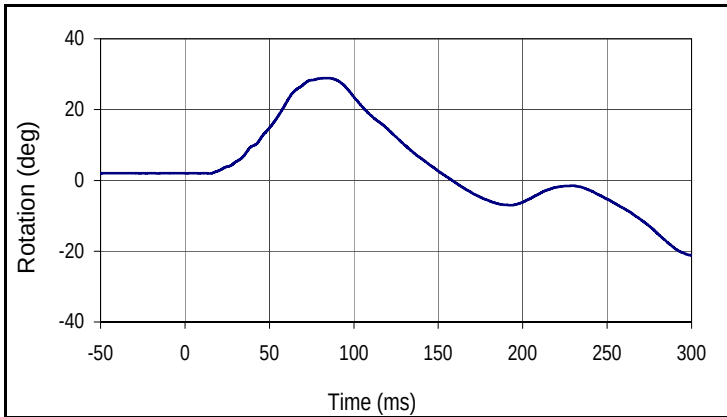
Curve Description			
V2P1 Foot Right Z Acceleration			
Plot No.		SAE Class	Units
099		1000	g's
Max	Time	Min	Time
92.9	58.1	-62.2	62.8



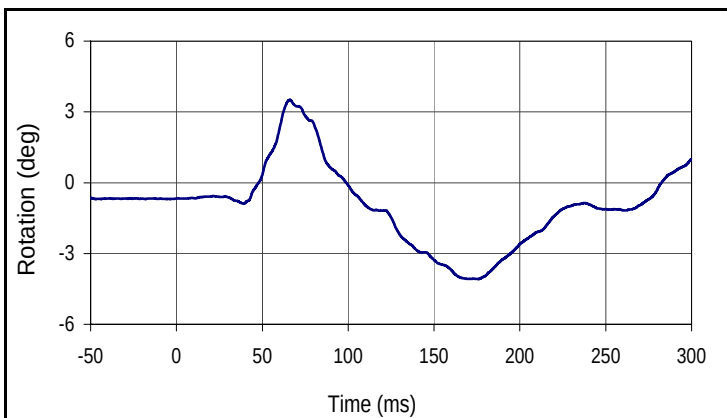
Curve Description			
V2P1 Ankle Left X Rotation			
Plot No.		SAE Class	Units
100		180	deg
Max	Time	Min	Time
8.2	35.5	-14.7	74.4

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

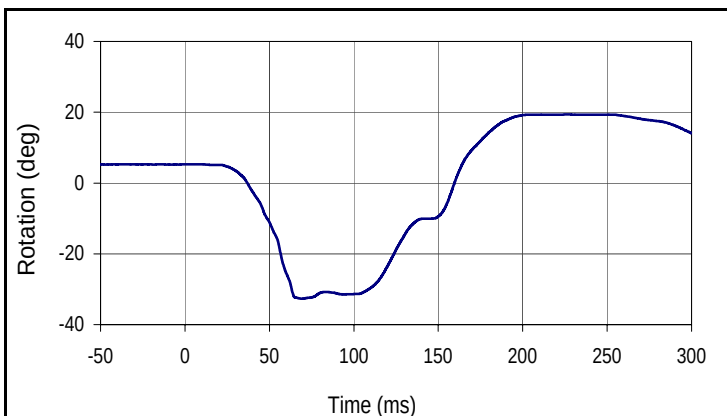
NHTSA No.: R20165411
 Test Date: 4/19/16



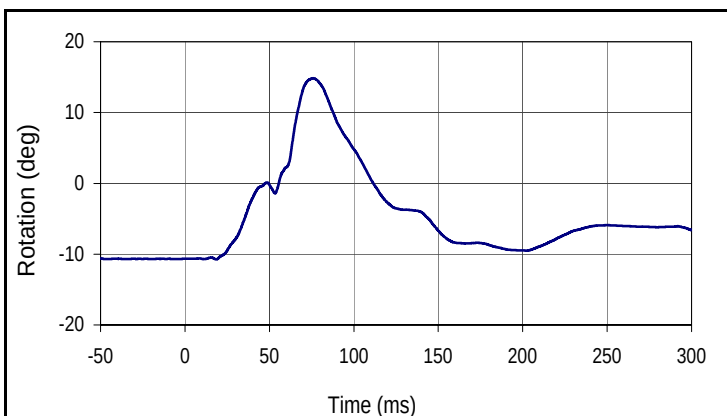
Curve Description			
V2P1 Ankle Left Y Rotation			
Plot No.		SAE Class	Units
101		180	deg
Max	Time	Min	Time
28.9	84.1	-21.1	299.9



Curve Description			
V2P1 Ankle Left Z Rotation			
Plot No.		SAE Class	Units
102		180	deg
Max	Time	Min	Time
3.5	66.1	-4.1	175.8



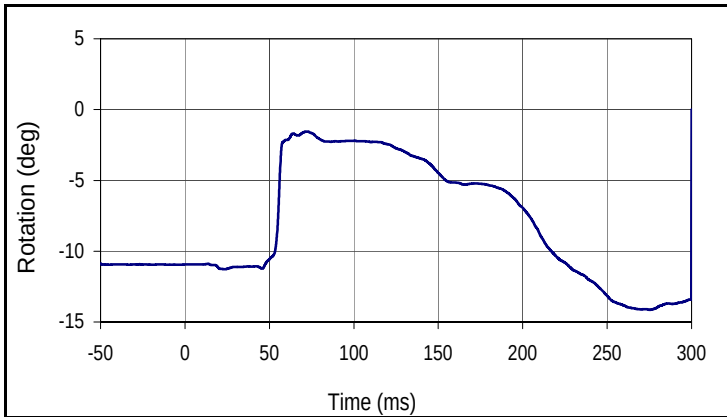
Curve Description			
V2P1 Ankle Right X Rotation			
Plot No.		SAE Class	Units
103		180	deg
Max	Time	Min	Time
19.4	227.4	-32.6	69.6



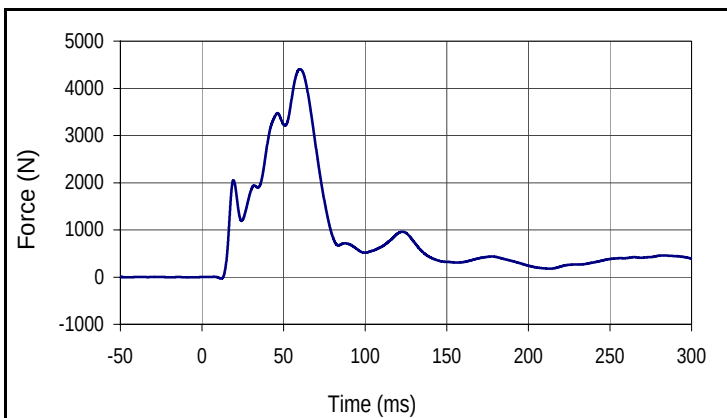
Curve Description			
V2P1 Ankle Right Y Rotation			
Plot No.		SAE Class	Units
104		180	deg
Max	Time	Min	Time
14.8	76.0	-10.8	18.5

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

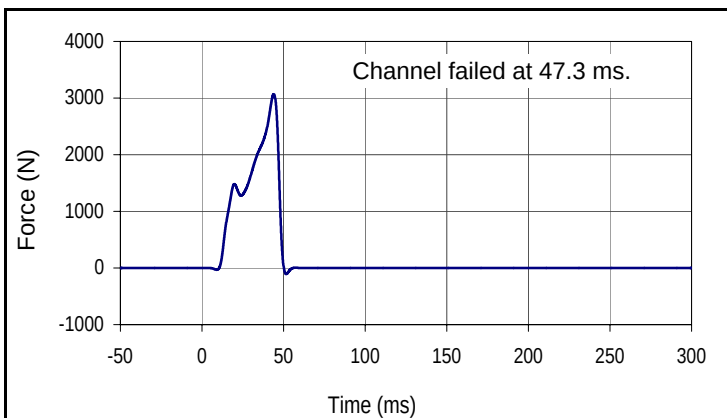
NHTSA No.: R20165411
 Test Date: 4/19/16



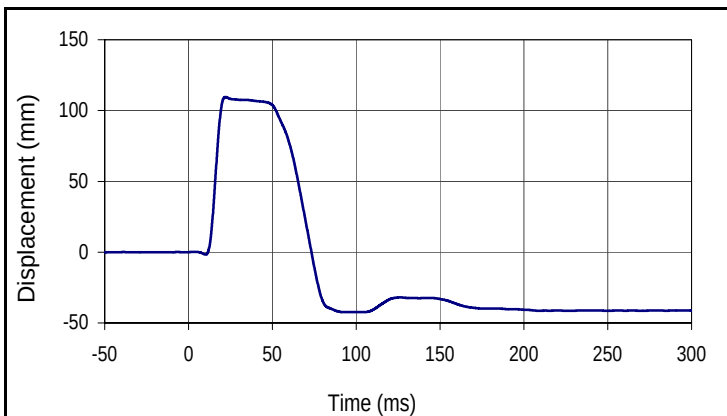
Curve Description			
V2P1 Right Ankle Z Rotation			
Plot No.		SAE Class	Units
105		180	deg
Max	Time	Min	Time
-1.5	72.1	-14.1	275.4



Curve Description			
V2 Driver Lap Belt Force			
Plot No.		SAE Class	Units
106		60	N
Max	Time	Min	Time
4406.4	60.1	-31.6	11.8



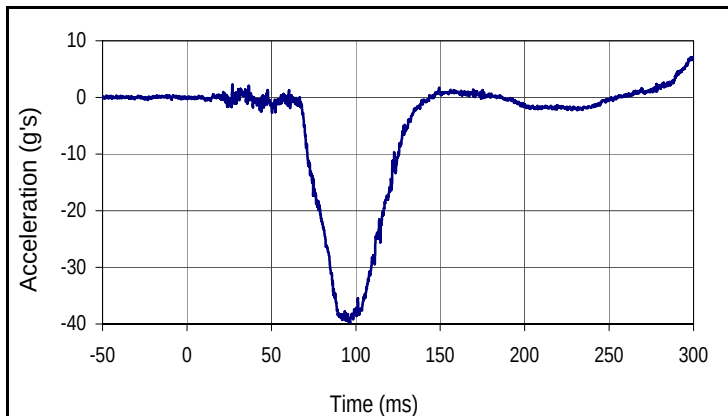
Curve Description			
V2 Driver Shoulder Belt Upper Force			
Plot No.		SAE Class	Units
107		60	N
Max	Time	Min	Time
3068.6	44.0	-106.5	51.6



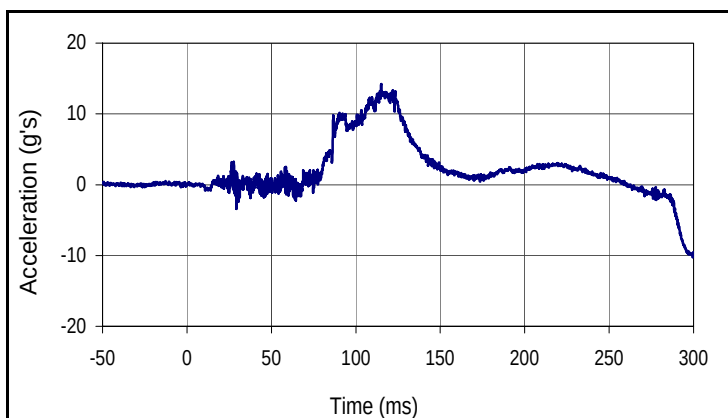
Curve Description			
V2 Driver Shoulder Belt Displacement			
Plot No.		SAE Class	Units
108		60	mm
Max	Time	Min	Time
109.6	22.0	-42.3	104.5

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

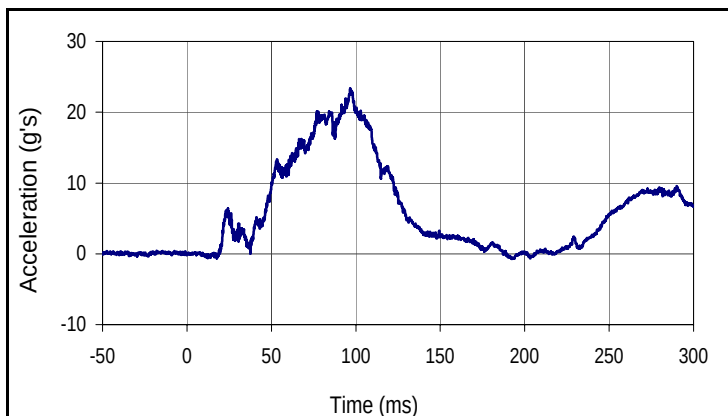
NHTSA No.: R20165411
 Test Date: 4/19/16



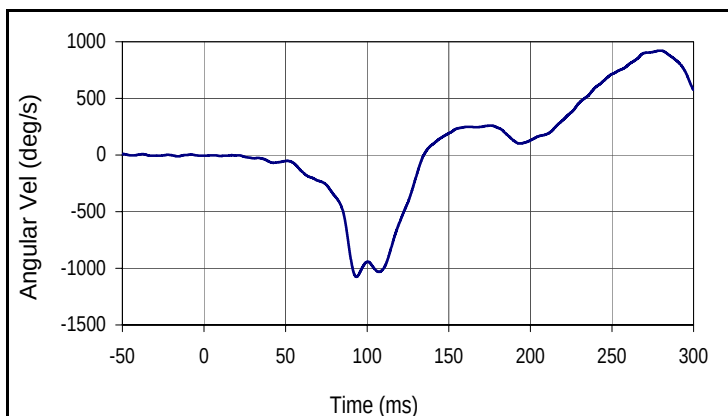
Curve Description			
V2P2 Head CG X Acceleration			
Plot No.		SAE Class	Units
109		1000	g's
Max	Time	Min	Time
7.1	298.5	-39.8	96.5



Curve Description			
V2P2 Head CG Y Acceleration			
Plot No.		SAE Class	Units
110		1000	g's
Max	Time	Min	Time
14.2	115.0	-10.3	299.6



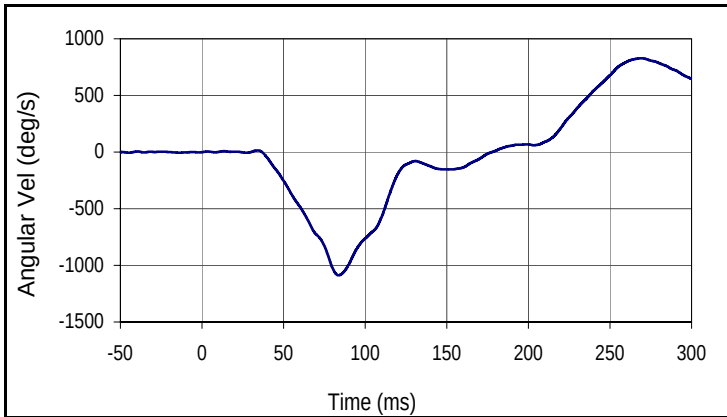
Curve Description			
V2P2 Head CG Z Acceleration			
Plot No.		SAE Class	Units
111		1000	g's
Max	Time	Min	Time
23.4	96.6	-0.7	192.4



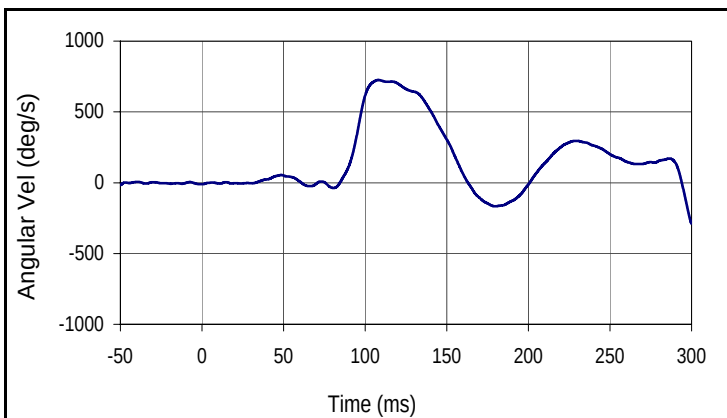
Curve Description			
V2P2 Head CG Angular Velocity About X			
Plot No.		SAE Class	Units
112		60	deg/s
Max	Time	Min	Time
921.7	279.7	-1075.0	93.4

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

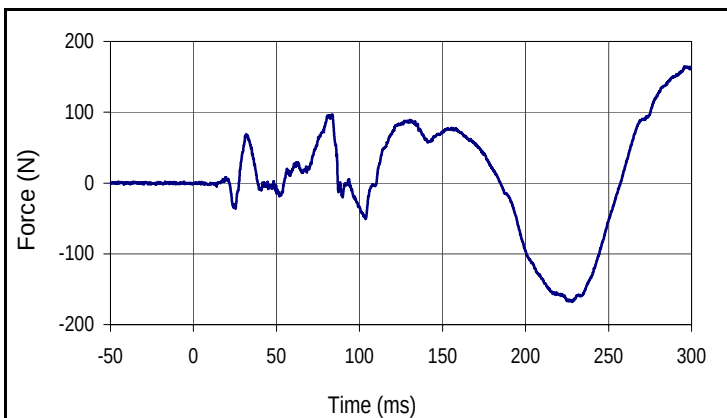
NHTSA No.: R20165411
 Test Date: 4/19/16



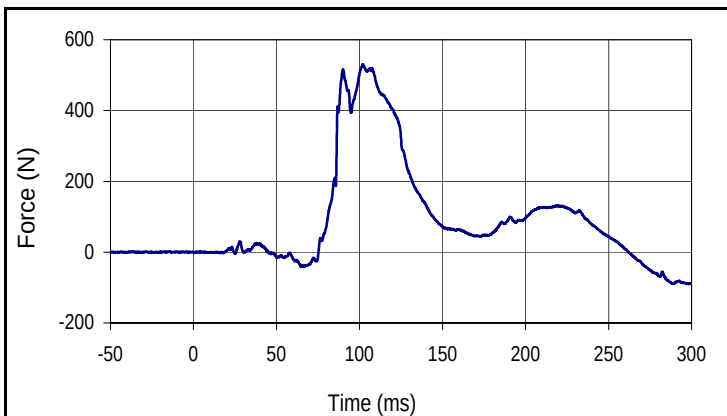
Curve Description			
V2P2 Head CG Angular Velocity About Y			
Plot No.		SAE Class	Units
113		60	deg/s
Max	Time	Min	Time
828.3	268.9	-1088.2	83.8



Curve Description			
V2P2 Head CG Angular Velocity About Z			
Plot No.		SAE Class	Units
114		60	deg/s
Max	Time	Min	Time
725.5	108.1	-288.4	299.9



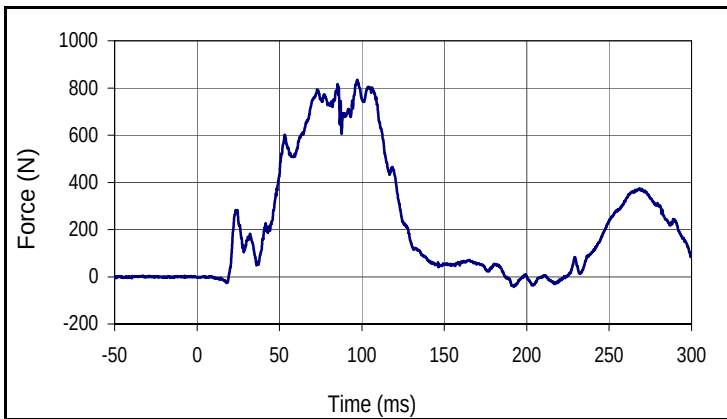
Curve Description			
V2P2 Upper Neck X Force			
Plot No.		SAE Class	Units
115		1000	N
Max	Time	Min	Time
164.9	295.6	-168.0	228.3



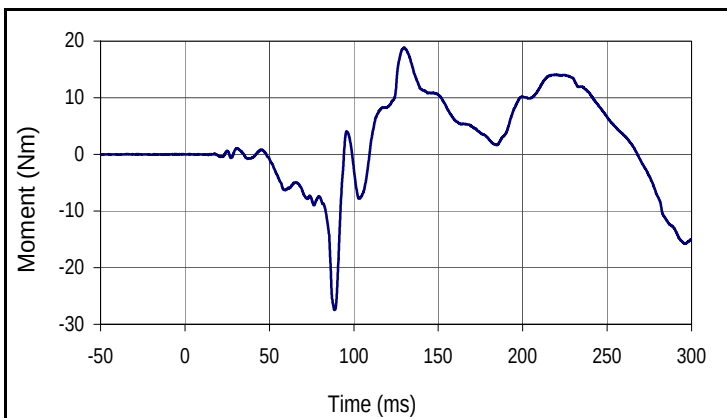
Curve Description			
V2P2 Upper Neck Y Force			
Plot No.		SAE Class	Units
116		1000	N
Max	Time	Min	Time
531.5	102.0	-90.3	298.1

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

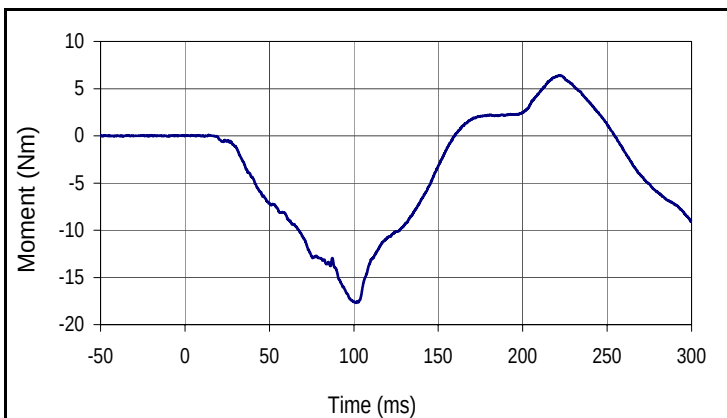
NHTSA No.: R20165411
 Test Date: 4/19/16



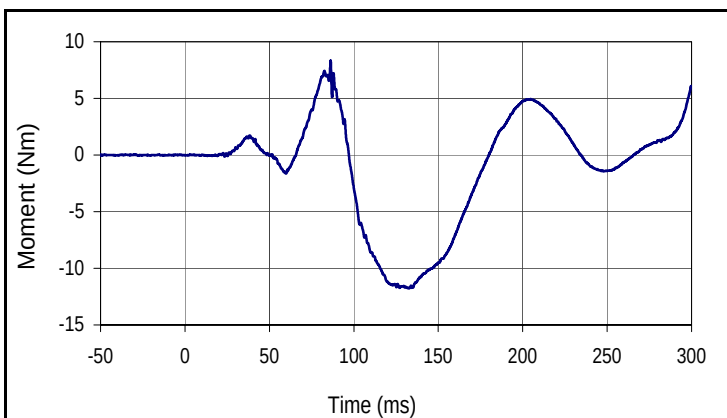
Curve Description			
V2P2 Upper Neck Z Force			
Plot No.		SAE Class	Units
117		1000	N
Max	Time	Min	Time
833.9	97.3	-42.1	192.2



Curve Description			
V2P2 Upper Neck X Moment			
Plot No.		SAE Class	Units
118		600	Nm
Max	Time	Min	Time
18.9	130.0	-27.5	88.6



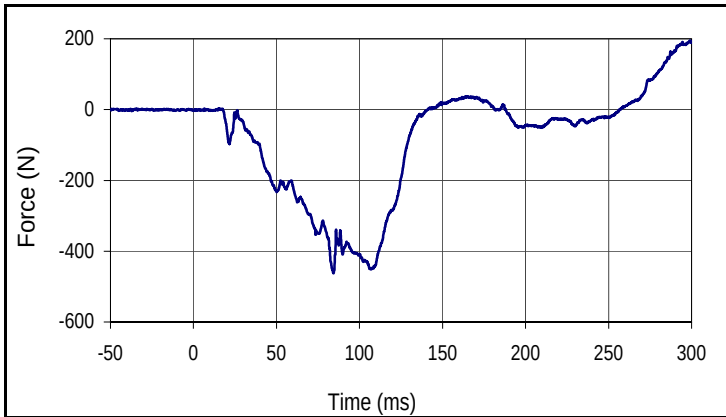
Curve Description			
V2P2 Upper Neck Y Moment			
Plot No.		SAE Class	Units
119		600	Nm
Max	Time	Min	Time
6.4	222.7	-17.7	101.2



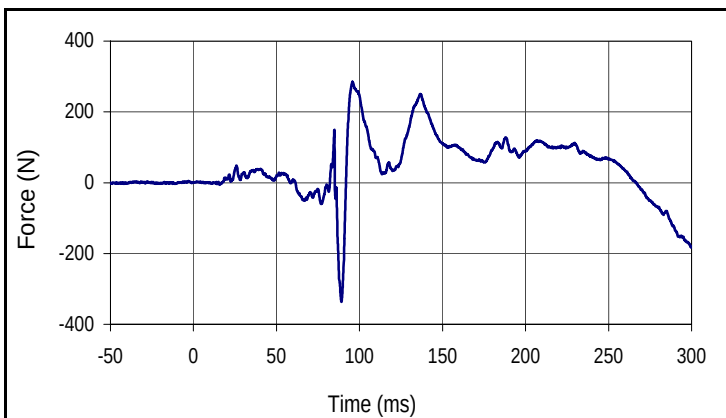
Curve Description			
V2P2 Upper Neck Z Moment			
Plot No.		SAE Class	Units
120		600	Nm
Max	Time	Min	Time
8.3	86.3	-11.8	132.7

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

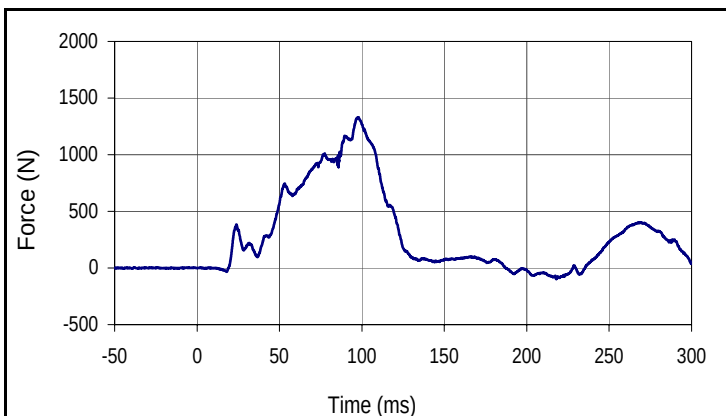
NHTSA No.: R20165411
 Test Date: 4/19/16



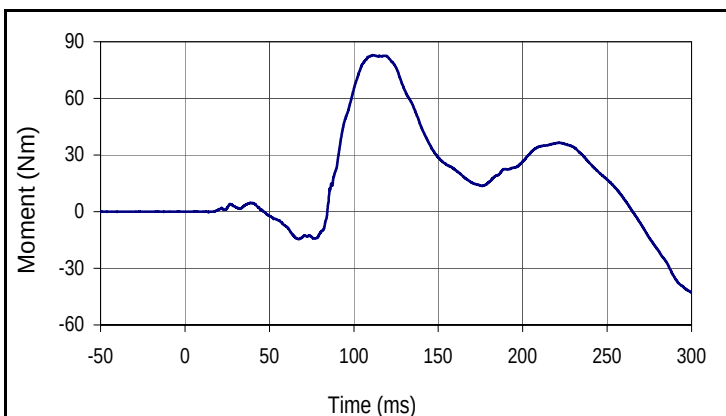
Curve Description			
V2P2 Lower Neck X Force			
Plot No.		SAE Class	Units
121		1000	N
Max	Time	Min	Time
195.1	299.1	-462.6	84.4



Curve Description			
V2P2 Lower Neck Y Force			
Plot No.		SAE Class	Units
122		1000	N
Max	Time	Min	Time
284.9	95.8	-336.7	89.1



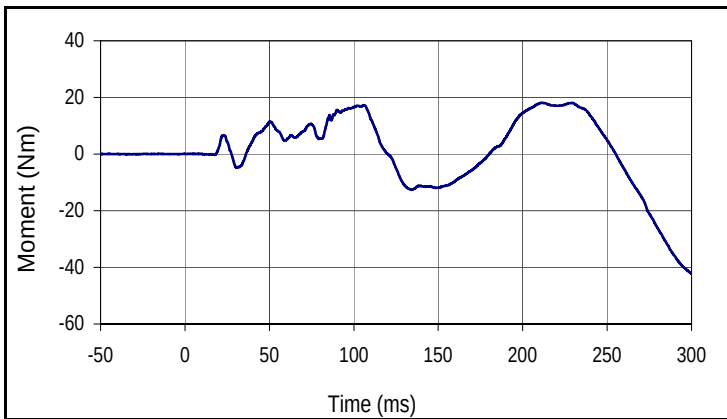
Curve Description			
V2P2 Lower Neck Z Force			
Plot No.		SAE Class	Units
123		1000	N
Max	Time	Min	Time
1329.5	97.9	-98.1	217.9



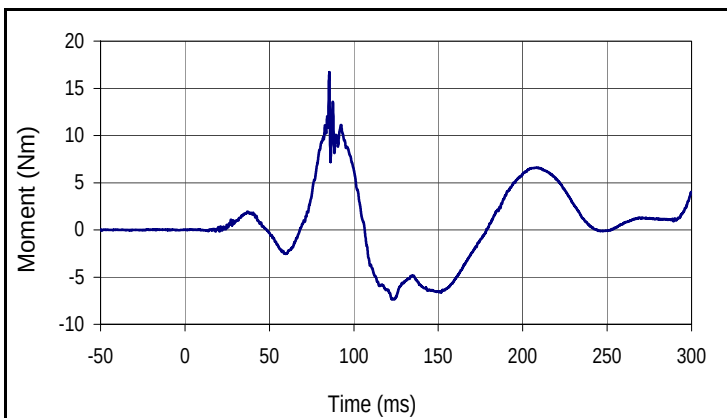
Curve Description			
V2P2 Lower Neck X Moment			
Plot No.		SAE Class	Units
124		600	Nm
Max	Time	Min	Time
82.9	111.3	-42.6	299.9

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

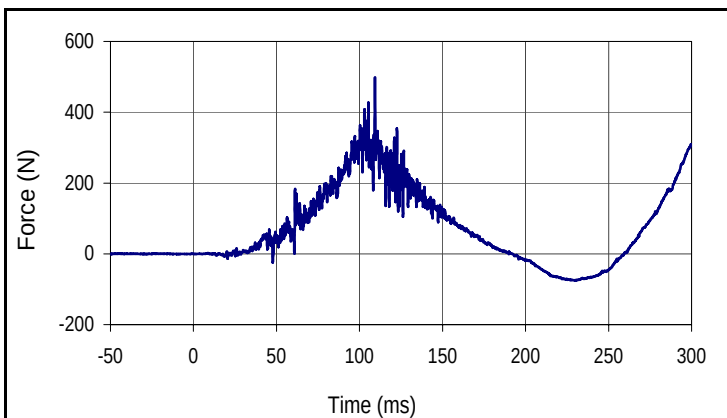
NHTSA No.: R20165411
 Test Date: 4/19/16



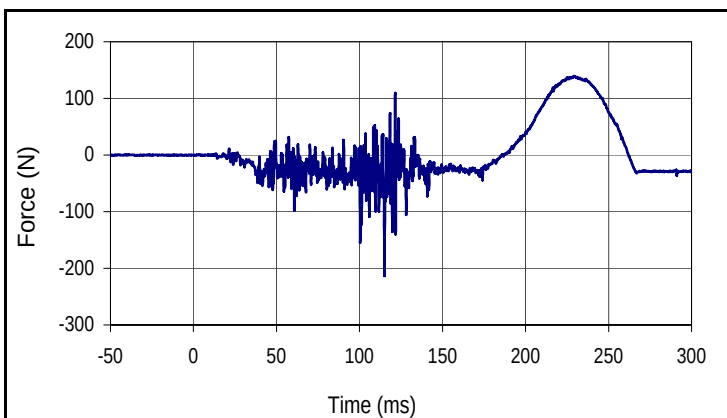
Curve Description			
V2P2 Lower Neck Y Moment			
Plot No.		SAE Class	Units
125		600	Nm
Max	Time	Min	Time
18.1	211.1	-42.2	299.9



Curve Description			
V2P2 Lower Neck Z Moment			
Plot No.		SAE Class	Units
126		600	Nm
Max	Time	Min	Time
16.7	85.4	-7.4	122.7



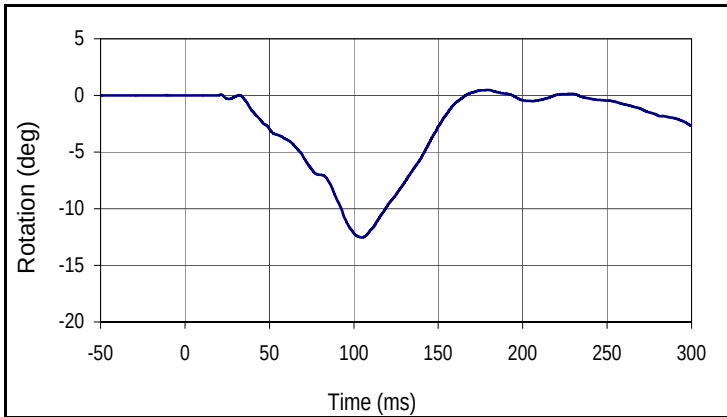
Curve Description			
V2P2 Front Neck Spring Tower Load Cell			
Plot No.		SAE Class	Units
127		1000	N
Max	Time	Min	Time
498.9	109.3	-75.6	230.3



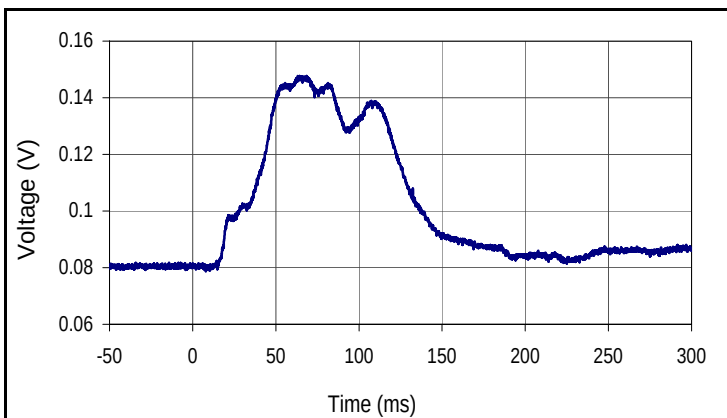
Curve Description			
V2P2 Rear Neck Spring Tower Load Cell			
Plot No.		SAE Class	Units
128		1000	N
Max	Time	Min	Time
139.3	229.2	-213.3	115.0

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

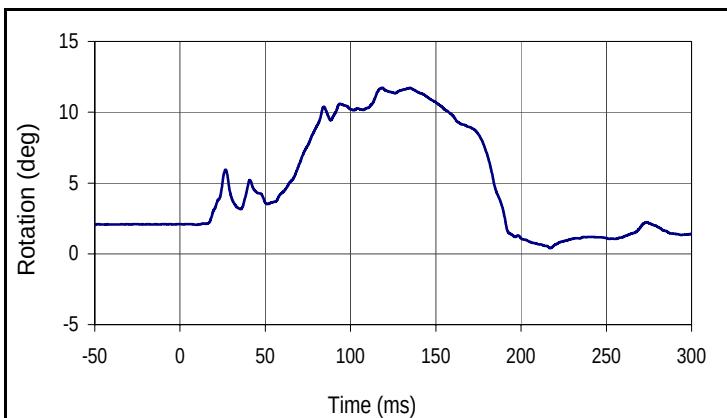
NHTSA No.: R20165411
 Test Date: 4/19/16



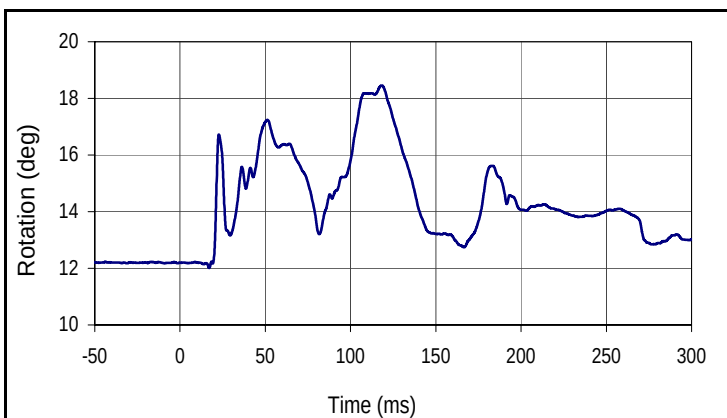
Curve Description			
V2P2 Occipital Condyle Rotation Potentiometer			
Plot No.		SAE Class	Units
129		180	deg
Max	Time	Min	Time
0.5	179.6	-12.5	104.9



Curve Description			
V2P2 Upper Left DGIR X Displacement			
Plot No.		SAE Class	Units
130		600	V
Max	Time	Min	Time
0.15	63.2	0.08	8.0



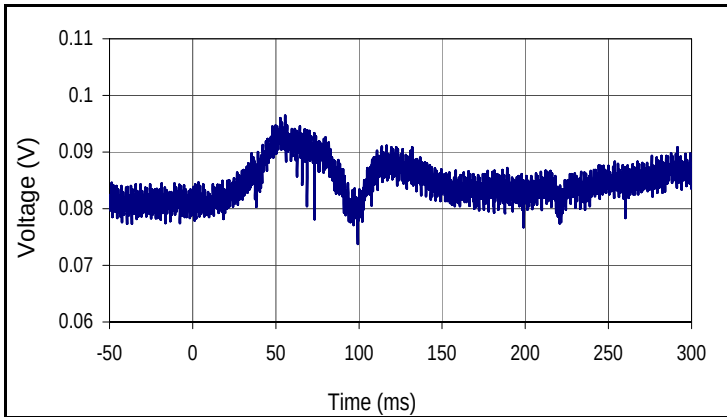
Curve Description			
V2P2 Upper Left DGIR Y Rotation			
Plot No.		SAE Class	Units
131		180	deg
Max	Time	Min	Time
11.7	118.6	0.39	217.1



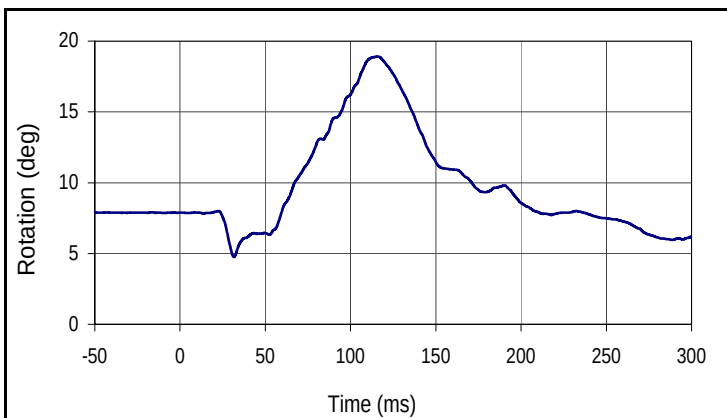
Curve Description			
V2P2 Upper Left DGIR Z Rotation			
Plot No.		SAE Class	Units
132		180	deg
Max	Time	Min	Time
18.5	118.3	12.0	17.1

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

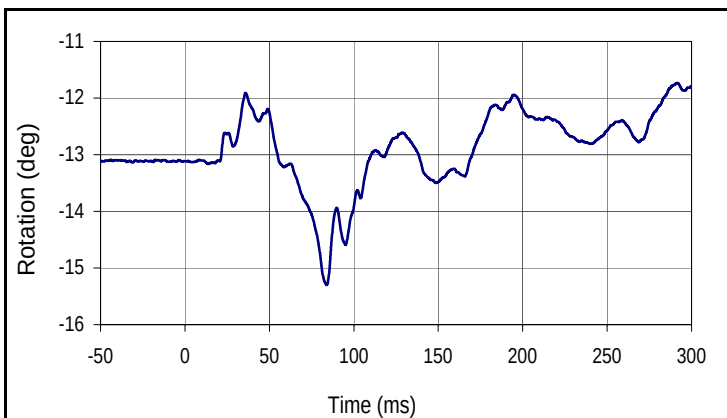
NHTSA No.: R20165411
 Test Date: 4/19/16



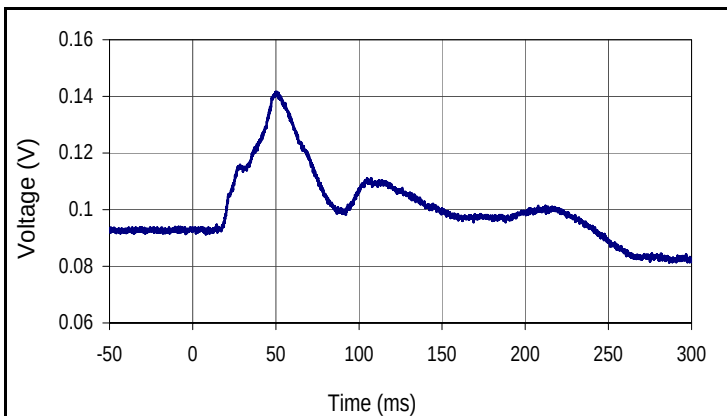
Curve Description			
V2P2 Upper Right DGIR X Displacement			
Plot No.		SAE Class	Units
133		600	V
Max	Time	Min	Time
0.10	55.7	0.07	99.3



Curve Description			
V2P2 Upper Right DGIR Y Rotation			
Plot No.		SAE Class	Units
134		180	deg
Max	Time	Min	Time
18.9	116.0	4.8	31.6



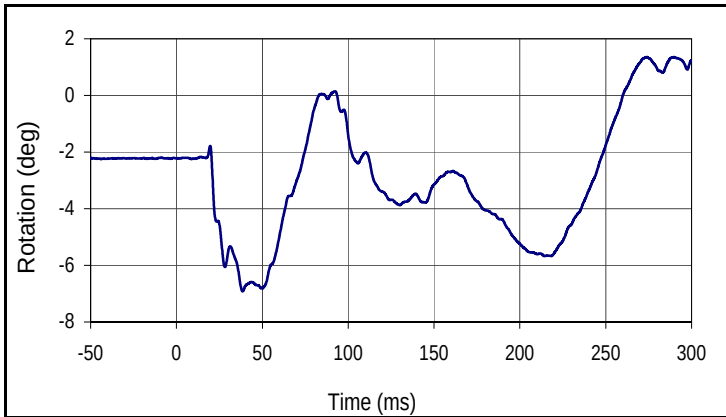
Curve Description			
V2P2 Upper Right DGIR Z Rotation			
Plot No.		SAE Class	Units
135		180	deg
Max	Time	Min	Time
-11.7	291.8	-15.3	83.9



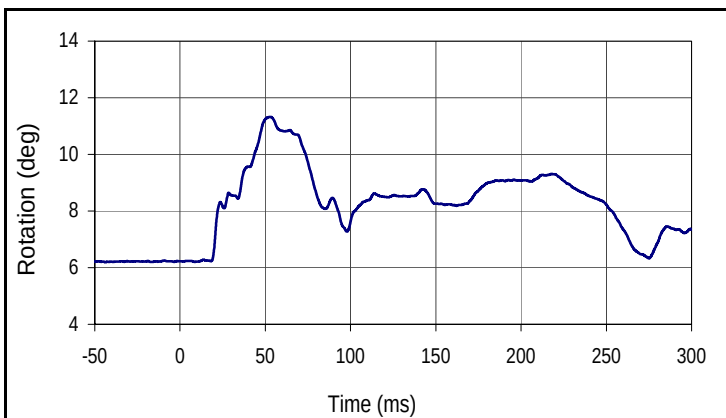
Curve Description			
V2P2 Lower Left DGIR X Displacement			
Plot No.		SAE Class	Units
136		600	V
Max	Time	Min	Time
0.14	49.8	0.08	286.5

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

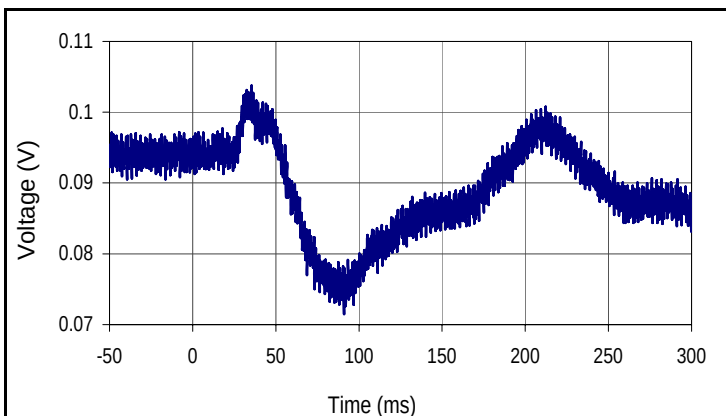
NHTSA No.: R20165411
 Test Date: 4/19/16



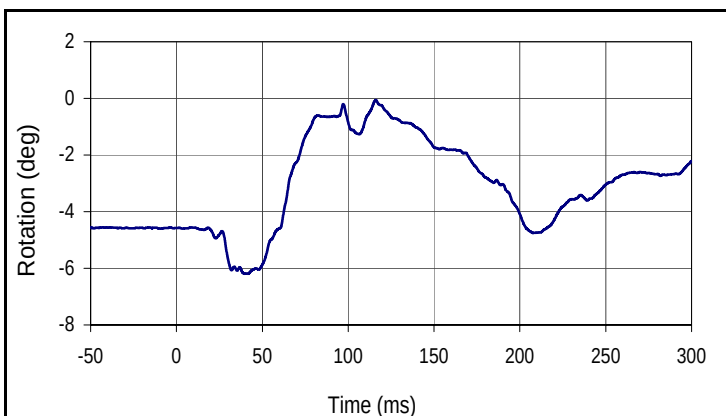
Curve Description			
V2P2 Lower Left DGIR Y Rotation			
Plot No.		SAE Class	Units
137		180	deg
Max	Time	Min	Time
1.4	273.9	-6.9	38.6



Curve Description			
V2P2 Lower Left DGIR Z Rotation			
Plot No.		SAE Class	Units
138		180	deg
Max	Time	Min	Time
11.3	52.8	6.2	-43.8



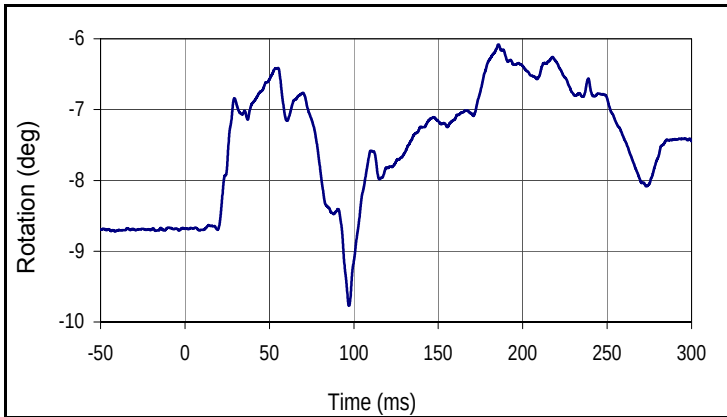
Curve Description			
V2P2 Lower Right DGIR X Displacement			
Plot No.		SAE Class	Units
139		600	V
Max	Time	Min	Time
0.10	35.4	0.07	91.0



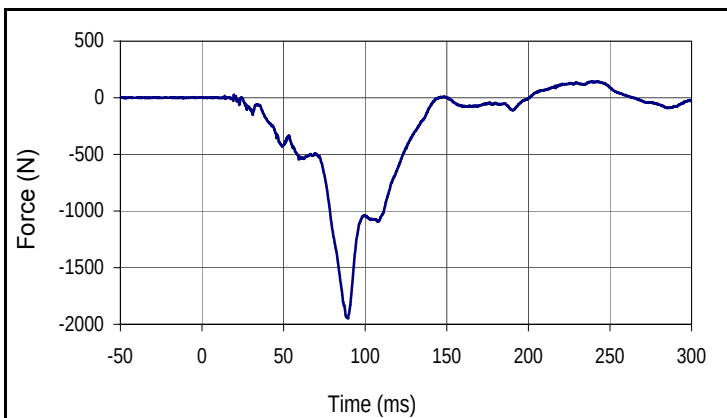
Curve Description			
V2P2 Lower Right DGIR Y Rotation			
Plot No.		SAE Class	Units
140		180	deg
Max	Time	Min	Time
-0.1	116.1	-6.2	41.7

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

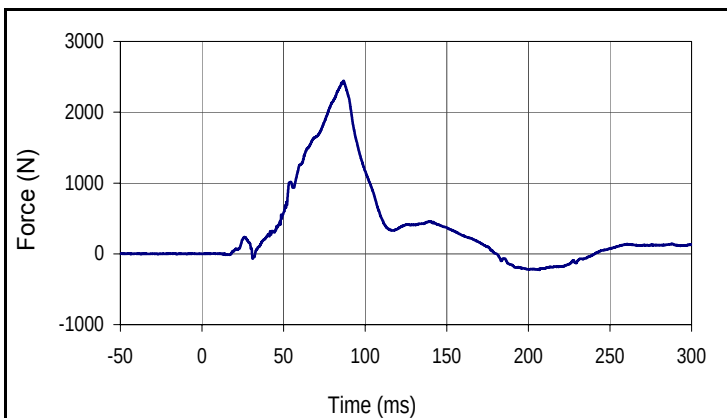
NHTSA No.: R20165411
 Test Date: 4/19/16



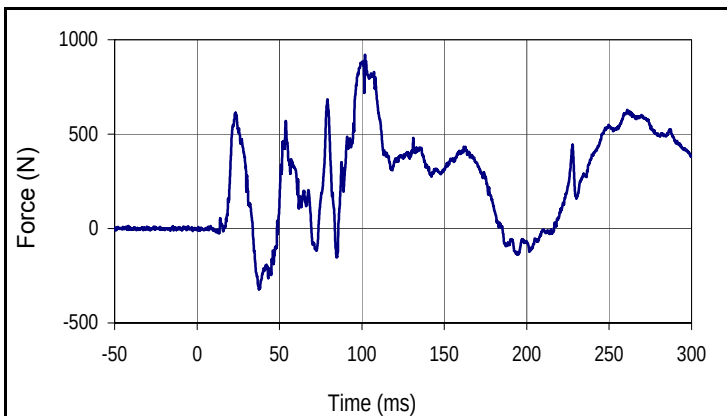
Curve Description			
V2P2 Lower Right DGIR Z Rotation			
Plot No.		SAE Class	Units
141		180	deg
Max	Time	Min	Time
-6.1	185.7	-9.8	97.2



Curve Description			
V2P2 T12 Force X			
Plot No.		SAE Class	Units
142		1000	N
Max	Time	Min	Time
145.1	239.3	-1948.1	89.5



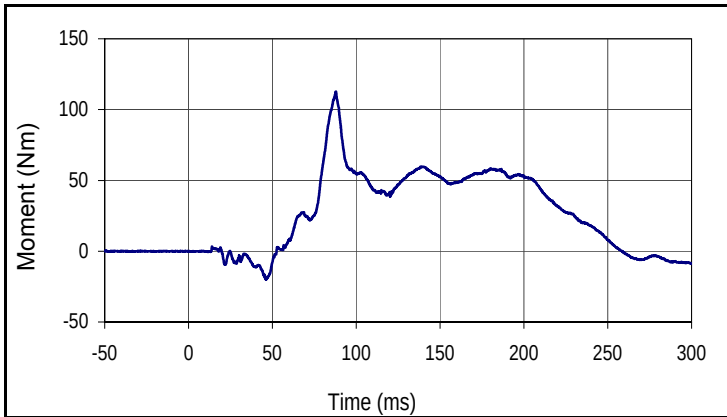
Curve Description			
V2P2 T12 Force Y			
Plot No.		SAE Class	Units
143		1000	N
Max	Time	Min	Time
2442.6	86.8	-229.0	206.8



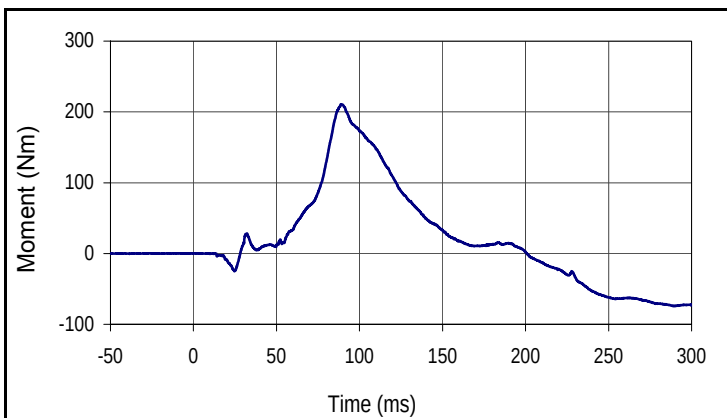
Curve Description			
V2P2 T12 Force Z			
Plot No.		SAE Class	Units
144		1000	N
Max	Time	Min	Time
920.4	101.8	-321.9	37.6

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

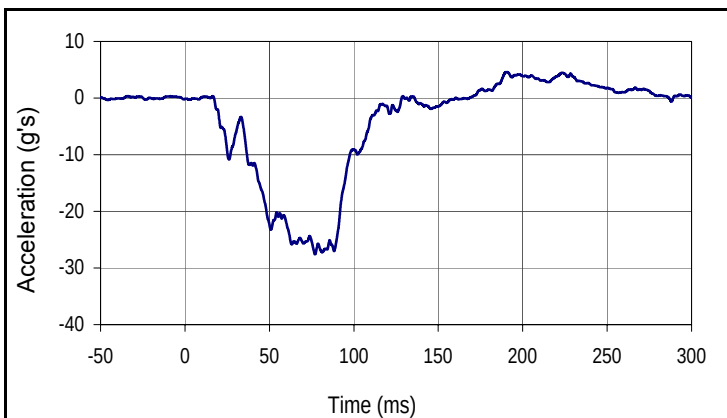
NHTSA No.: R20165411
 Test Date: 4/19/16



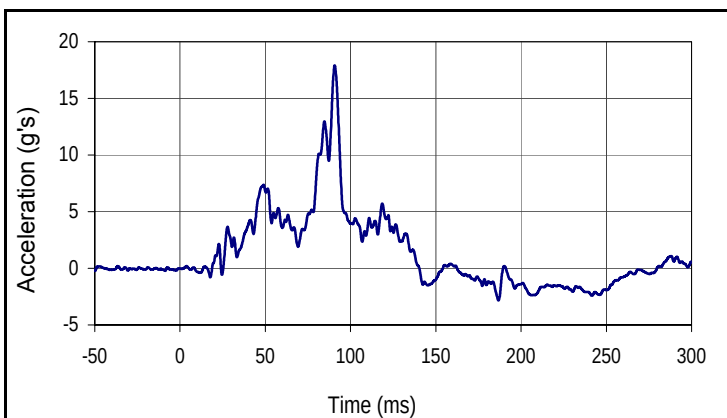
Curve Description			
V2P2 T12 Moment X			
Plot No.		SAE Class	Units
145		1000	Nm
Max	Time	Min	Time
112.7	87.9	-20.1	46.2



Curve Description			
V2P2 T12 Moment Y			
Plot No.		SAE Class	Units
146		1000	Nm
Max	Time	Min	Time
210.6	89.4	-74.2	290.0



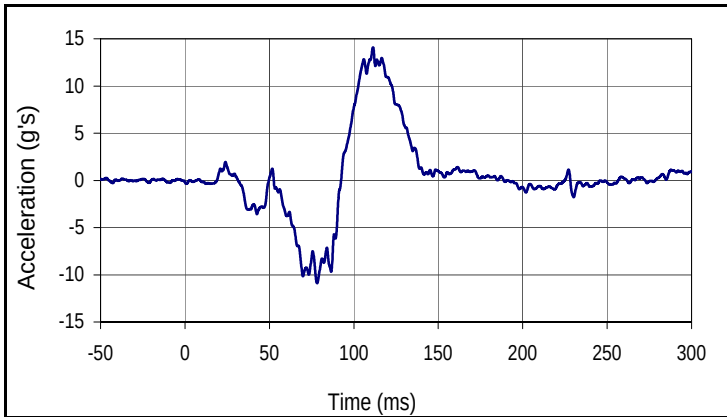
Curve Description			
V2P2 T6 X Acceleration			
Plot No.		SAE Class	Units
147		180	g's
Max	Time	Min	Time
4.6	190.3	-27.6	77.0



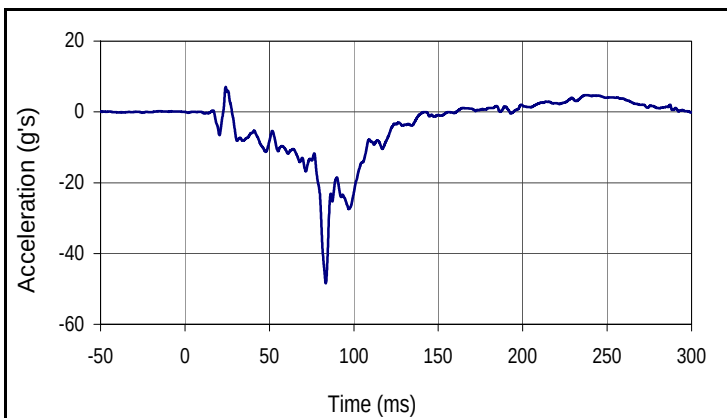
Curve Description			
V2P2 T6 Y Acceleration			
Plot No.		SAE Class	Units
148		180	g's
Max	Time	Min	Time
17.9	90.7	-2.8	186.7

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

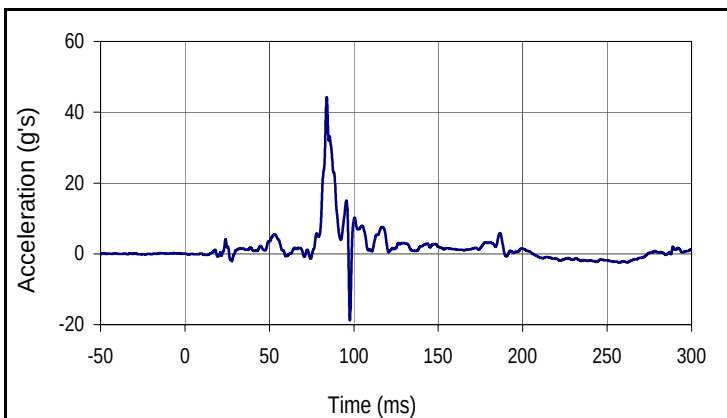
NHTSA No.: R20165411
 Test Date: 4/19/16



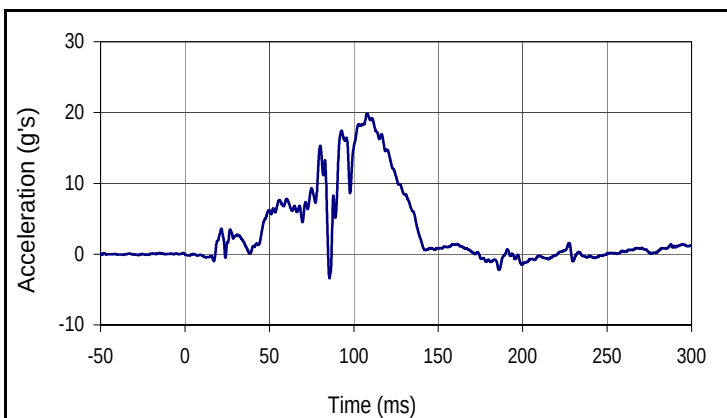
Curve Description			
V2P2 T6 Z Acceleration			
Plot No.		SAE Class	Units
149		180	g's
Max	Time	Min	Time
14.1	111.4	-10.9	78.2



Curve Description			
V2P2 T1 X Acceleration			
Plot No.		SAE Class	Units
150		180	g's
Max	Time	Min	Time
7.1	24.1	-48.4	83.4



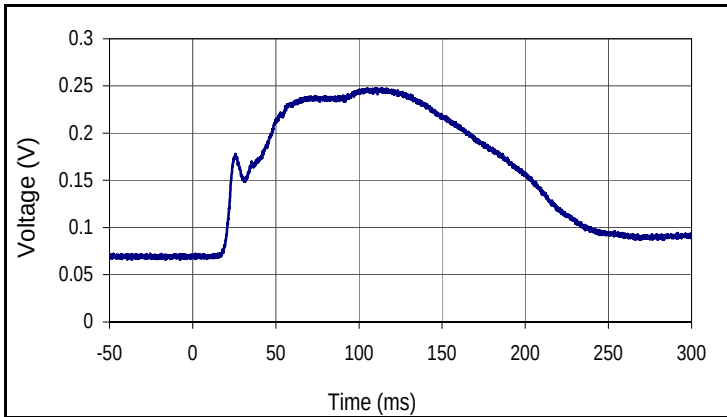
Curve Description			
V2P2 T1 Y Acceleration			
Plot No.		SAE Class	Units
151		180	g's
Max	Time	Min	Time
44.3	83.9	-18.7	97.7



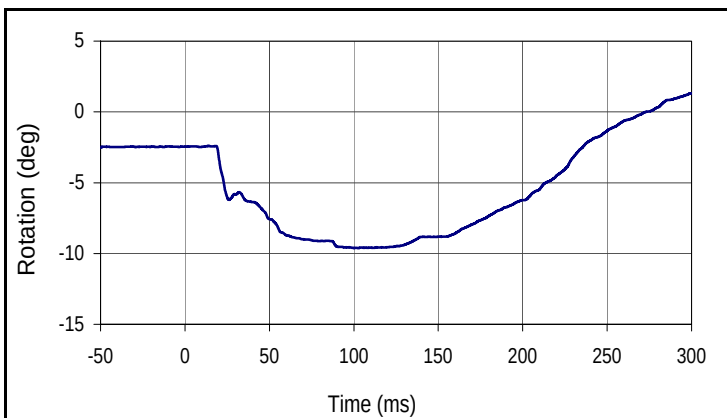
Curve Description			
V2P2 T1 Z Acceleration			
Plot No.		SAE Class	Units
152		180	g's
Max	Time	Min	Time
19.8	107.9	-3.4	85.5

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

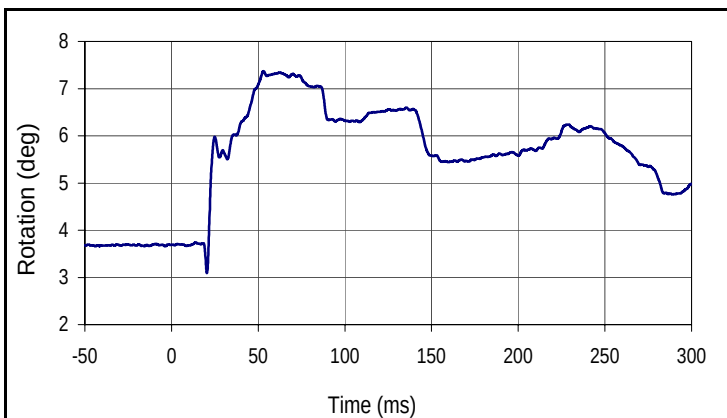
NHTSA No.: R20165411
 Test Date: 4/19/16



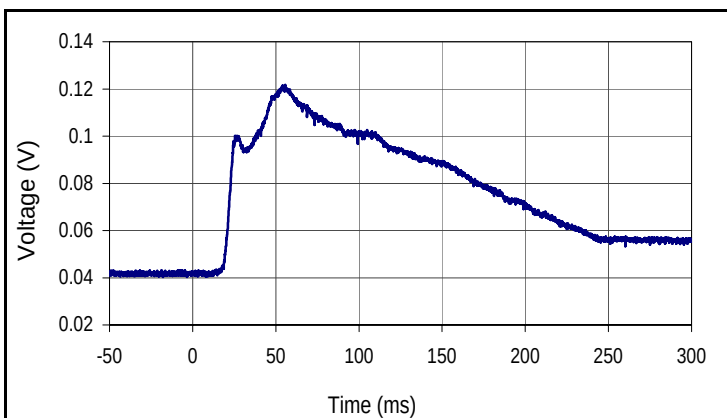
Curve Description			
V2P2 Abdomen Left DGIR X Displacement			
Plot No.		SAE Class	Units
153		600	V
Max	Time	Min	Time
0.25	113.7	0.07	-16.3



Curve Description			
V2P2 Abdomen Left DGIR Y Rotation			
Plot No.		SAE Class	Units
154		180	deg
Max	Time	Min	Time
1.3	299.6	-9.6	102.7



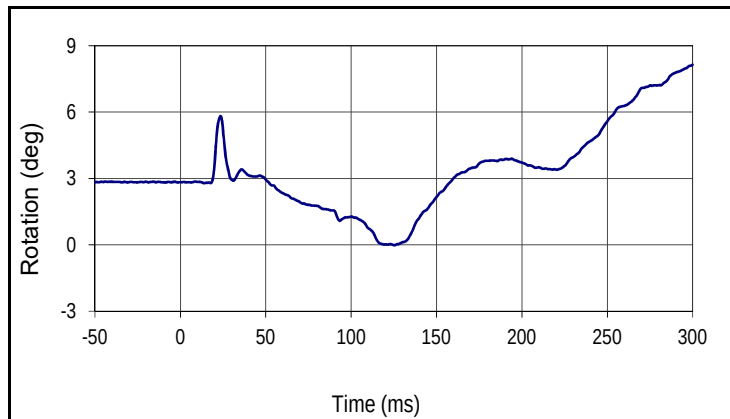
Curve Description			
V2P2 Abdomen Left DGIR Z Rotation			
Plot No.		SAE Class	Units
155		180	deg
Max	Time	Min	Time
7.4	53.0	3.1	20.4



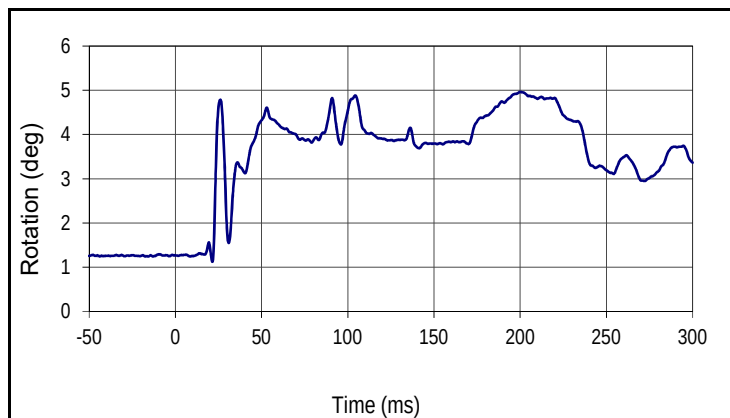
Curve Description			
V2P2 Abdomen Right DGIR X Displacement			
Plot No.		SAE Class	Units
156		600	V
Max	Time	Min	Time
0.12	55.7	0.04	-17.9

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

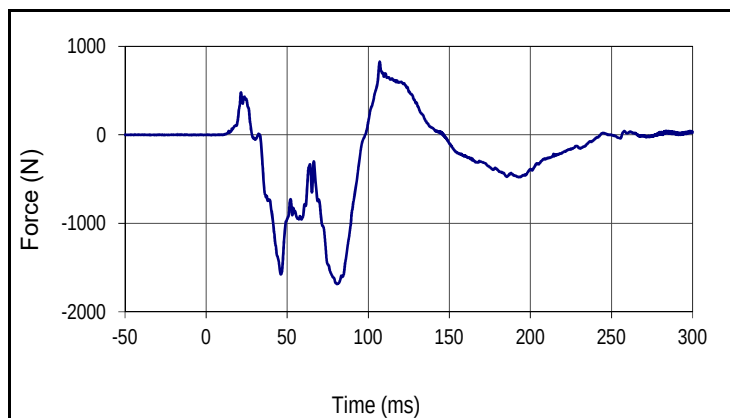
NHTSA No.: R20165411
 Test Date: 4/19/2016



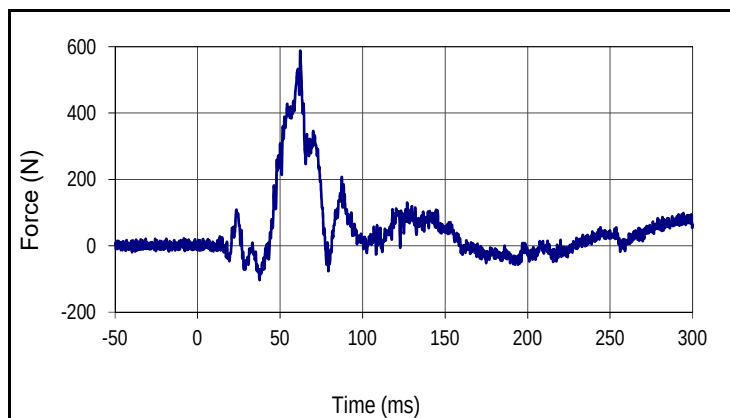
Curve Description			
V2P2 Abdomen Right DGIR Y Rotation			
Plot No.		SAE Class	Units
157		180	deg
Max	Time	Min	Time
8.1	299.9	0.0	125.3



Curve Description			
V2P2 Abdomen Right DGIR Z Rotation			
Plot No.		SAE Class	Units
158		180	deg
Max	Time	Min	Time
5.0	199.9	1.1	21.5



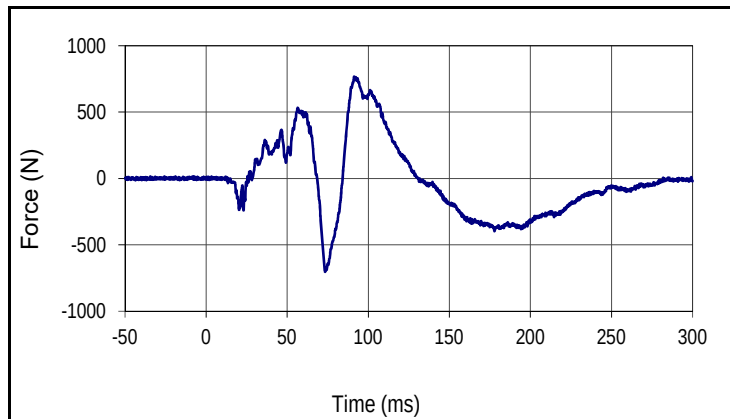
Curve Description			
V2P2 Acetabulum Left X Force			
Plot No.		SAE Class	Units
159		600	N
Max	Time	Min	Time
826.5	107.1	-1686.4	80.7



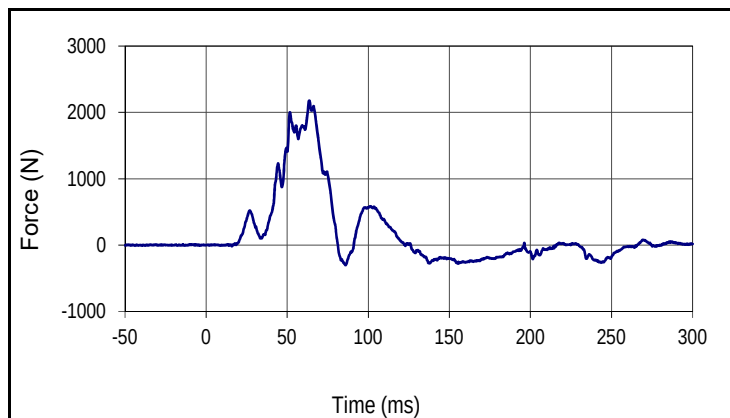
Curve Description			
V2P2 Acetabulum Left Y Force			
Plot No.		SAE Class	Units
160		600	N
Max	Time	Min	Time
588.0	62.2	-103.5	37.6

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

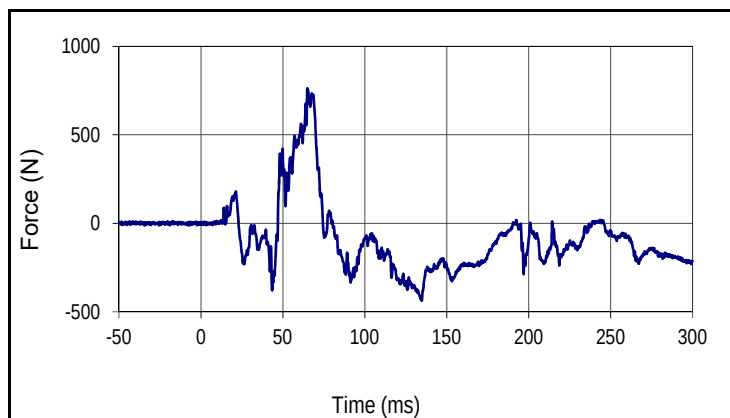
NHTSA No.: R20165411
 Test Date: 4/19/2016



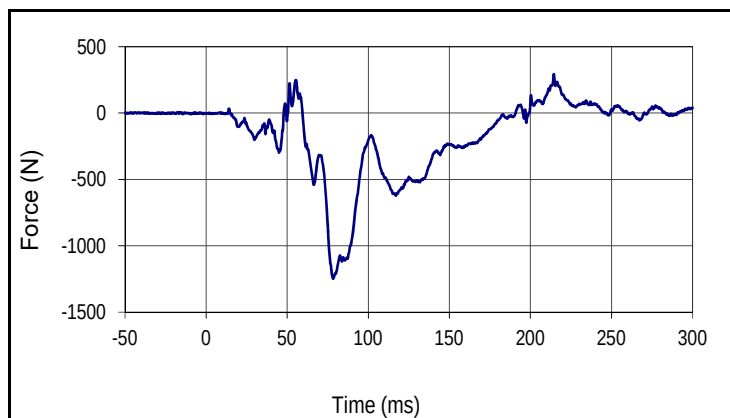
Curve Description			
V2P2 Acetabulum Left Z Force			
Plot No.		SAE Class	Units
161		600	N
Max	Time	Min	Time
767.5	91.3	-703.6	73.4



Curve Description			
V2P2 Acetabulum Right X Force			
Plot No.		SAE Class	Units
162		600	N
Max	Time	Min	Time
2177.6	63.7	-302.2	86.0



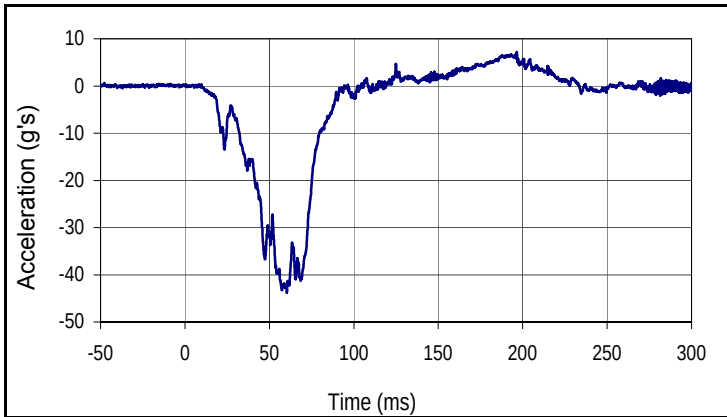
Curve Description			
V2P2 Acetabulum Right Y Force			
Plot No.		SAE Class	Units
163		600	N
Max	Time	Min	Time
762.6	65.0	-437.5	134.7



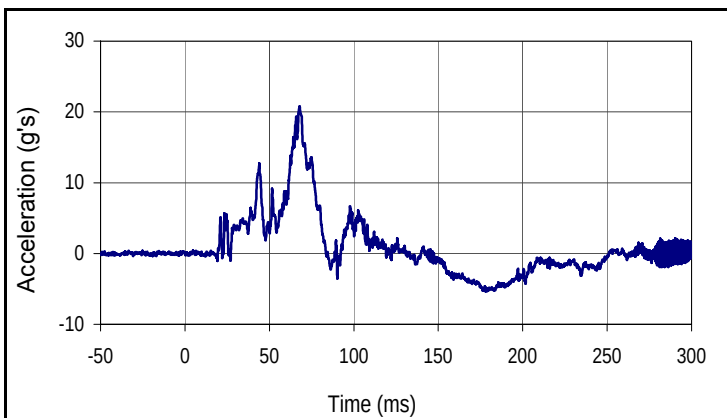
Curve Description			
V2P2 Acetabulum Right Z Force			
Plot No.		SAE Class	Units
164		600	N
Max	Time	Min	Time
292.9	214.4	-1248.9	78.3

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

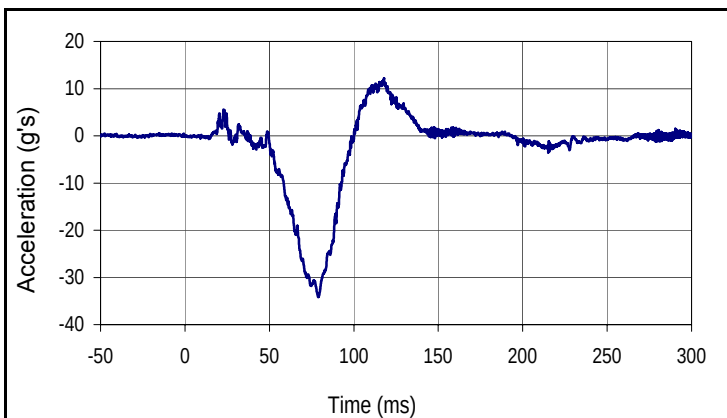
NHTSA No.: R20165411
 Test Date: 4/19/16



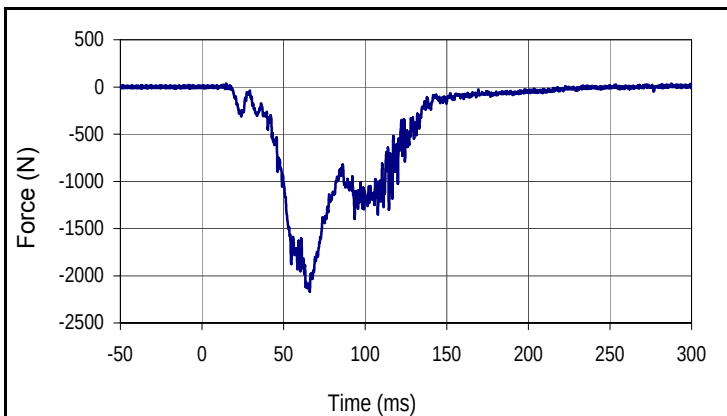
Curve Description			
V2P2 Pelvis X Acceleration			
Plot No.		SAE Class	Units
165		1000	g's
Max	Time	Min	Time
7.2	196.5	-43.8	60.3



Curve Description			
V2P2 Pelvis Y Acceleration			
Plot No.		SAE Class	Units
166		1000	g's
Max	Time	Min	Time
20.8	67.9	-5.3	178.8



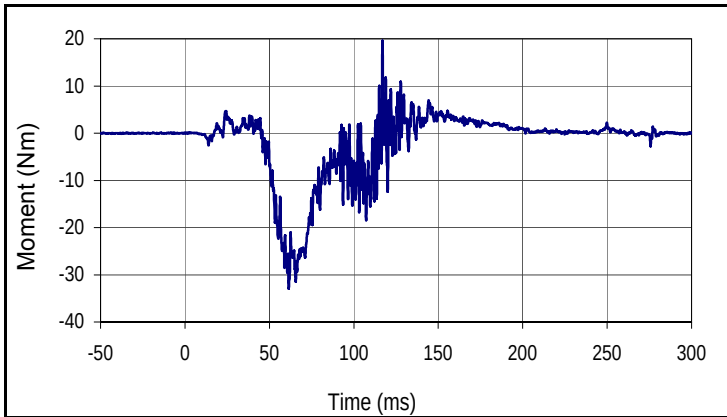
Curve Description			
V2P2 Pelvis Z Acceleration			
Plot No.		SAE Class	Units
167		1000	g's
Max	Time	Min	Time
12.2	117.8	-34.2	78.9



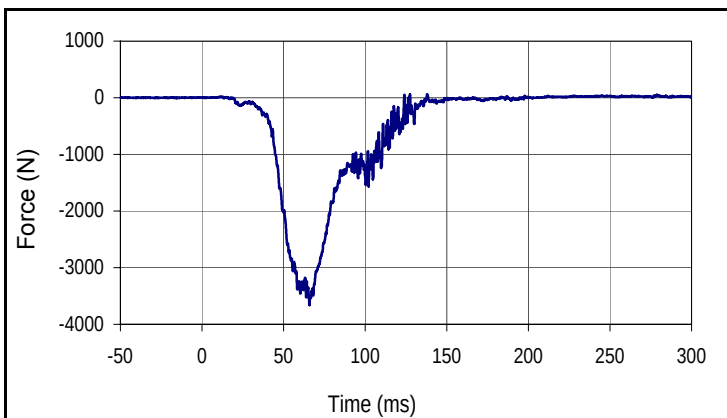
Curve Description			
V2P2 ASIS Left X Force			
Plot No.		SAE Class	Units
168		600	N
Max	Time	Min	Time
36.3	287.5	-2166.6	66.0

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

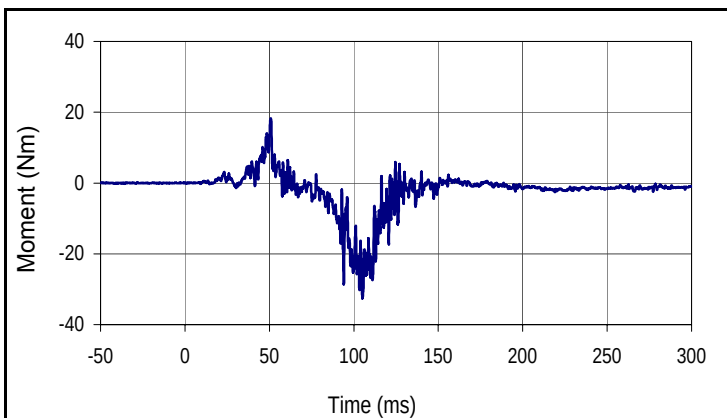
NHTSA No.: R20165411
 Test Date: 4/19/16



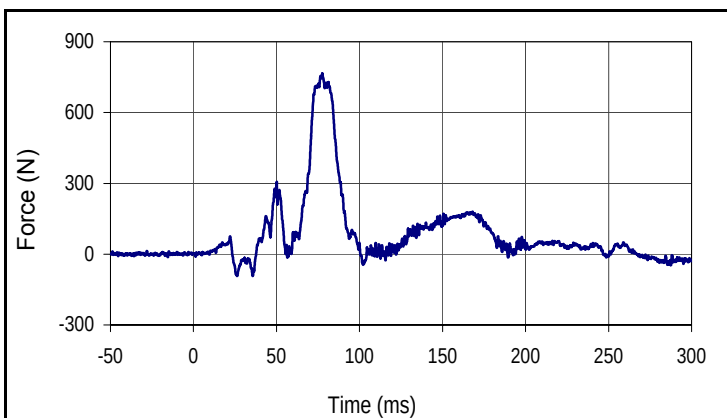
Curve Description			
V2P2 ASIS Left Y Moment			
Plot No.		SAE Class	Units
169		600	Nm
Max	Time	Min	Time
19.5	117.0	-32.9	61.5



Curve Description			
V2P2 ASIS Right X Force			
Plot No.		SAE Class	Units
170		600	N
Max	Time	Min	Time
61.0	138.0	-3661.2	65.8



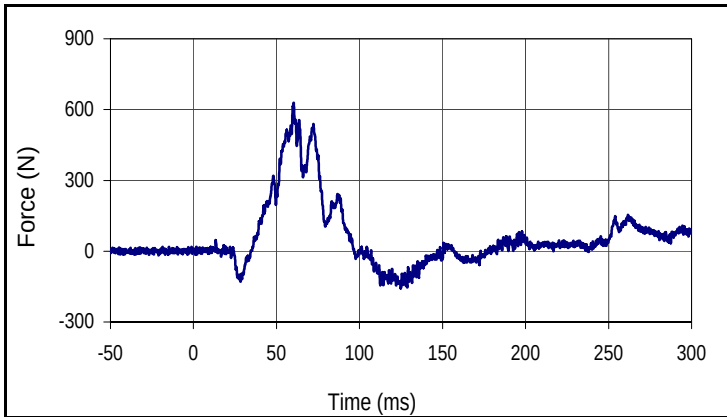
Curve Description			
V2P2 ASIS Right Y Moment			
Plot No.		SAE Class	Units
171		600	Nm
Max	Time	Min	Time
18.2	50.9	-32.6	105.1



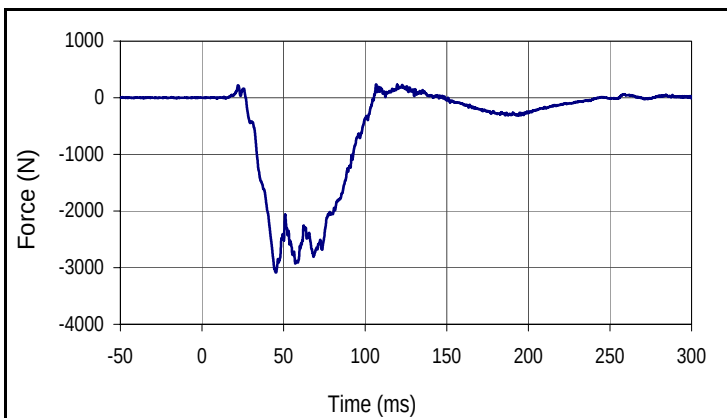
Curve Description			
V2P2 Femur Left X Force			
Plot No.		SAE Class	Units
172		600	N
Max	Time	Min	Time
765.5	77.6	-93.2	35.7

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

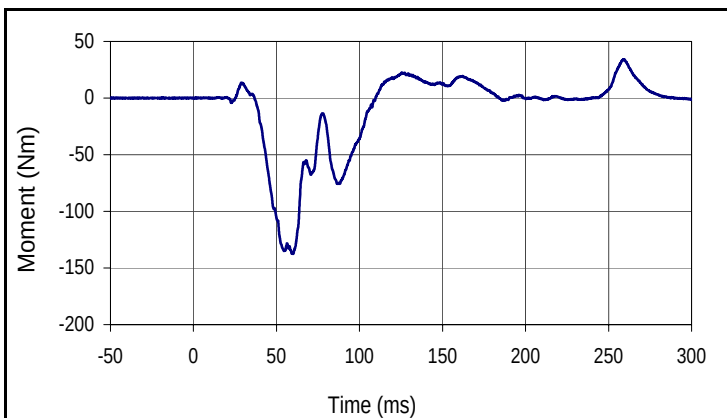
NHTSA No.: R20165411
 Test Date: 4/19/16



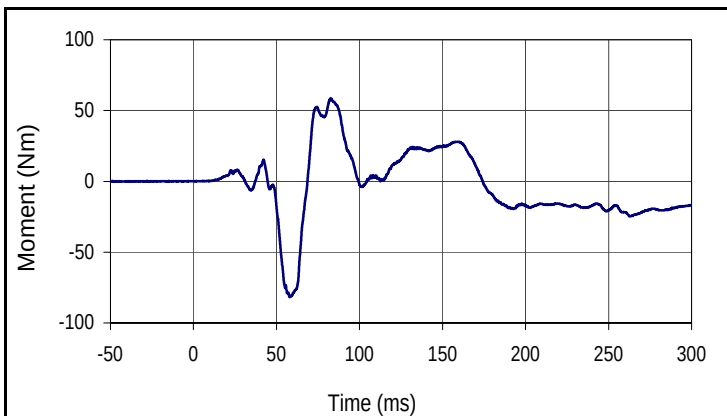
Curve Description			
V2P2 Femur Left Y Force			
Plot No.		SAE Class	Units
173		600	N
Max	Time	Min	Time
628.4	60.4	-157.0	124.9



Curve Description			
V2P2 Femur Left Z Force			
Plot No.		SAE Class	Units
174		600	N
Max	Time	Min	Time
236.6	106.7	-3084.4	45.4



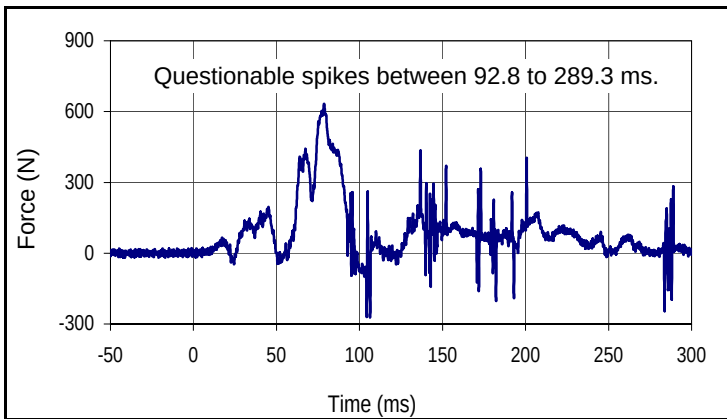
Curve Description			
V2P2 Femur Left X Moment			
Plot No.		SAE Class	Units
175		600	Nm
Max	Time	Min	Time
34.2	258.9	-137.5	60.0



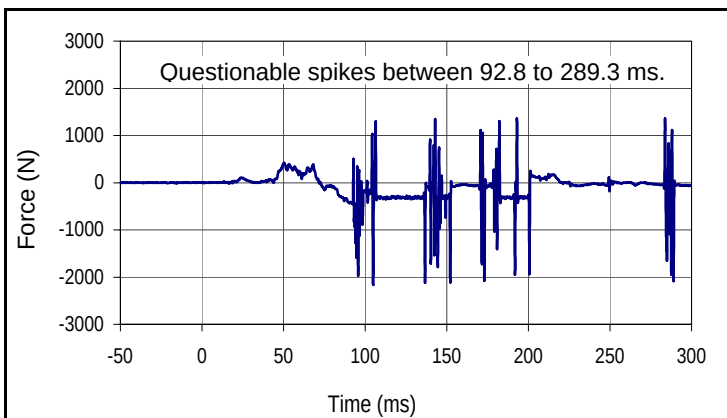
Curve Description			
V2P2 Femur Left Y Moment			
Plot No.		SAE Class	Units
176		600	Nm
Max	Time	Min	Time
58.6	82.7	-81.8	58.1

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

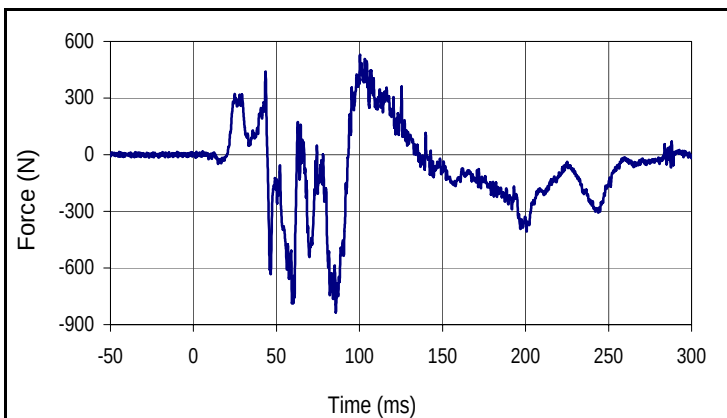
NHTSA No.: R20165411
 Test Date: 4/19/16



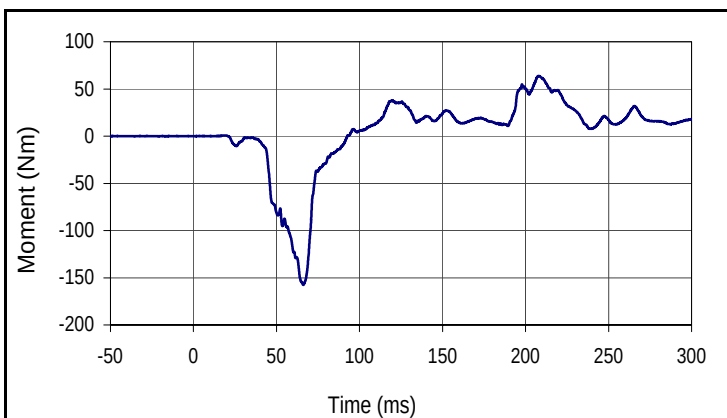
Curve Description			
V2P2 Femur Right X Force			
Plot No.		SAE Class	Units
177		600	N
Max	Time	Min	Time
633.5	78.7	-272.0	106.4



Curve Description			
V2P2 Femur Right Y Force			
Plot No.		SAE Class	Units
178		600	N
Max	Time	Min	Time
1359.8	193.0	-2156.2	104.9



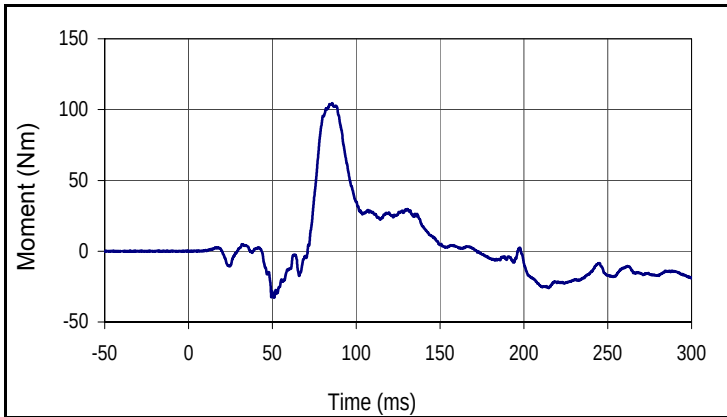
Curve Description			
V2P2 Femur Right Z Force			
Plot No.		SAE Class	Units
179		600	N
Max	Time	Min	Time
528.3	100.3	-836.0	85.7



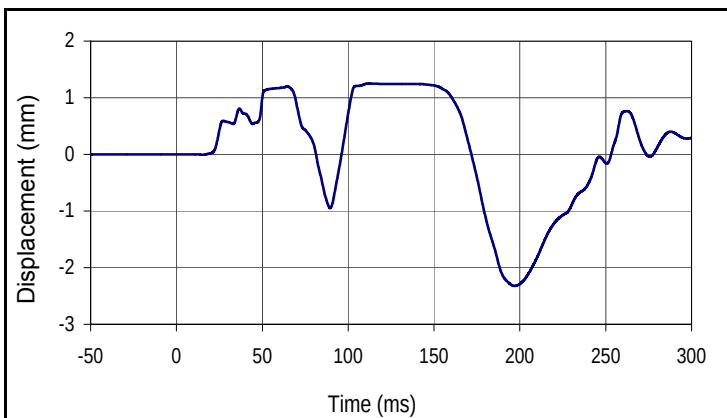
Curve Description			
V2P2 Femur Right X Moment			
Plot No.		SAE Class	Units
180		600	Nm
Max	Time	Min	Time
63.7	207.7	-157.6	66.2

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

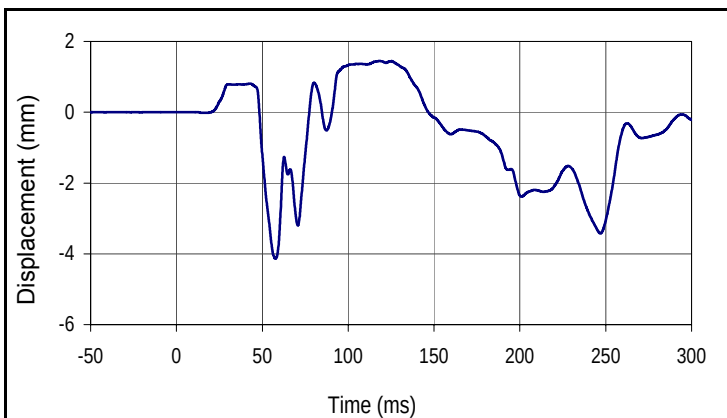
NHTSA No.: R20165411
 Test Date: 4/19/16



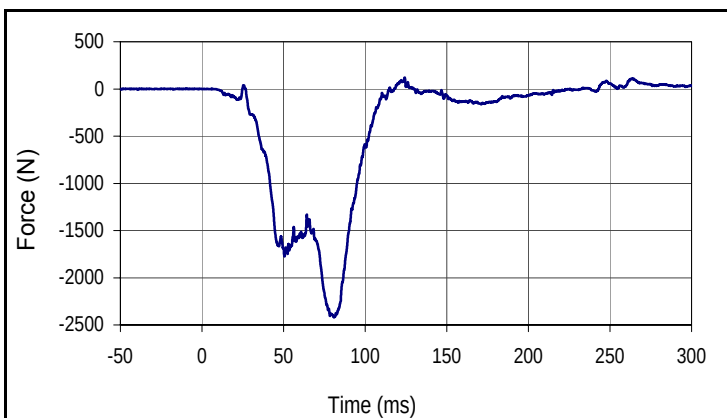
Curve Description			
V2P2 Femur Right Y Moment			
Plot No.		SAE Class	Units
181		600	Nm
Max	Time	Min	Time
104.5	85.7	-32.8	51.1



Curve Description			
V2P2 Knee Left X Displacement			
Plot No.		SAE Class	Units
182		180	mm
Max	Time	Min	Time
1.3	112.3	-2.3	196.8



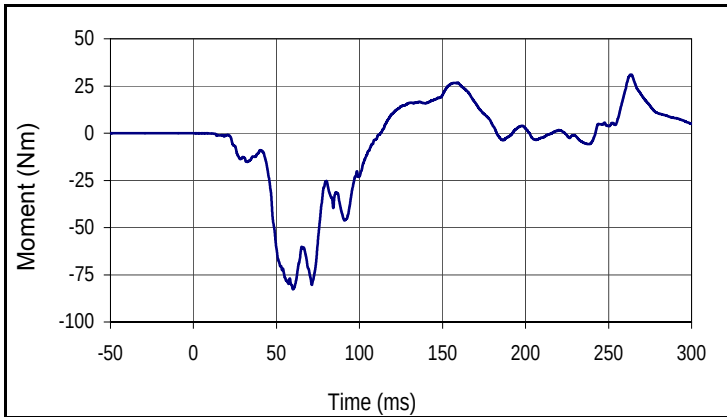
Curve Description			
V2P2 Knee Right X Displacement			
Plot No.		SAE Class	Units
183		180	mm
Max	Time	Min	Time
1.5	118.1	-4.1	57.6



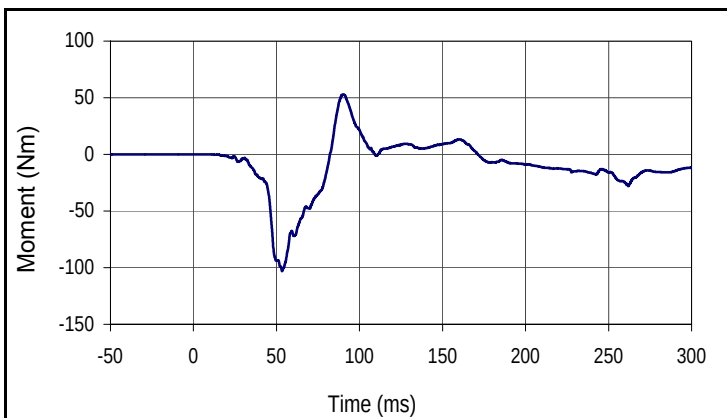
Curve Description			
V2P2 Upper Tibia Left Z Force			
Plot No.		SAE Class	Units
184		600	N
Max	Time	Min	Time
119.3	124.2	-2419.5	80.9

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

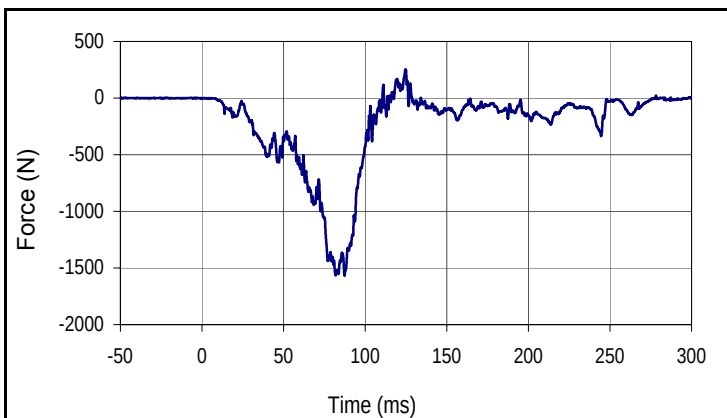
NHTSA No.: R20165411
 Test Date: 4/19/16



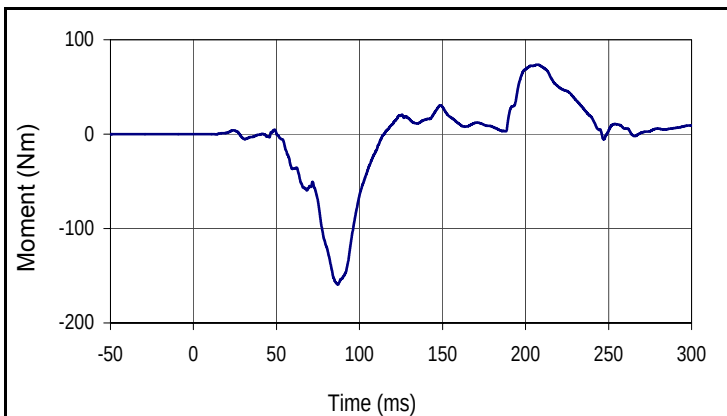
Curve Description			
V2P2 Upper Tibia Left X Moment			
Plot No.		SAE Class	Units
185		600	Nm
Max	Time	Min	Time
31.1	263.7	-82.7	60.0



Curve Description			
V2P2 Upper Tibia Left Y Moment			
Plot No.		SAE Class	Units
186		600	Nm
Max	Time	Min	Time
52.7	90.1	-103.0	53.4



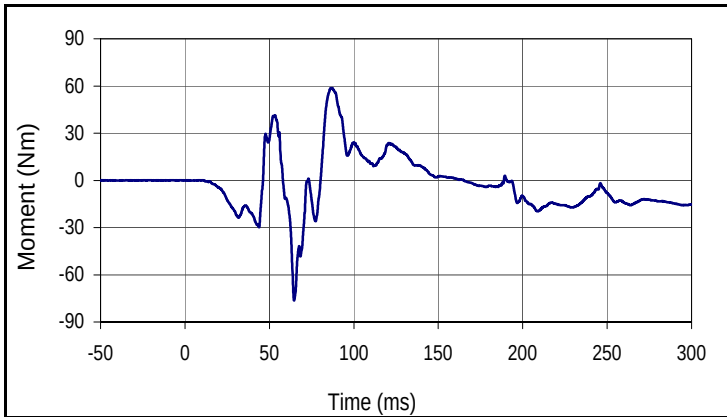
Curve Description			
V2P2 Upper Tibia Right Z Force			
Plot No.		SAE Class	Units
187		600	N
Max	Time	Min	Time
254.5	124.8	-1568.4	87.3



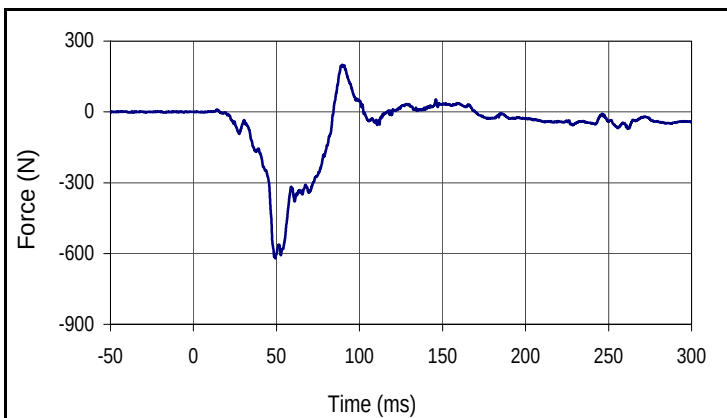
Curve Description			
V2P2 Upper Tibia Right X Moment			
Plot No.		SAE Class	Units
188		600	Nm
Max	Time	Min	Time
73.5	206.8	-159.5	87.1

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

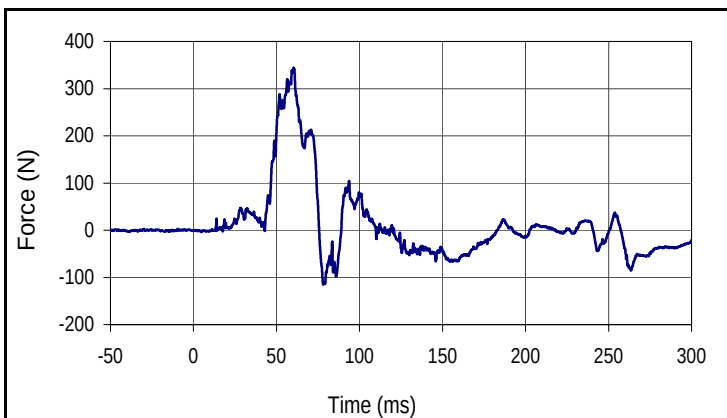
NHTSA No.: R20165411
 Test Date: 4/19/16



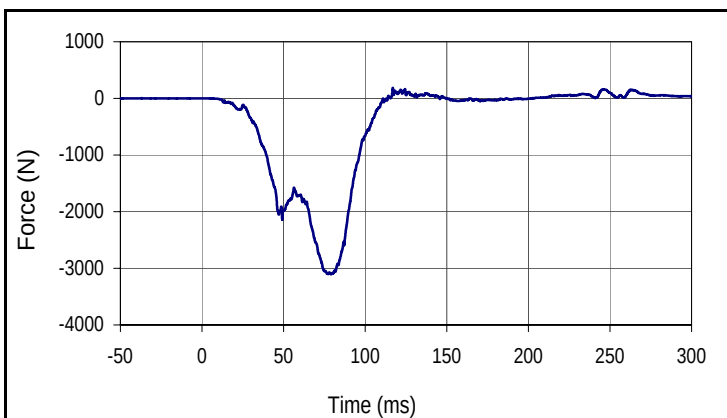
Curve Description			
V2P2 Upper Tibia Right Y Moment			
Plot No.		SAE Class	Units
189		600	Nm
Max	Time	Min	Time
58.7	87.3	-76.3	64.6



Curve Description			
V2P2 Lower Tibia Left X Force			
Plot No.		SAE Class	Units
190		600	N
Max	Time	Min	Time
199.9	89.6	-620.8	49.3



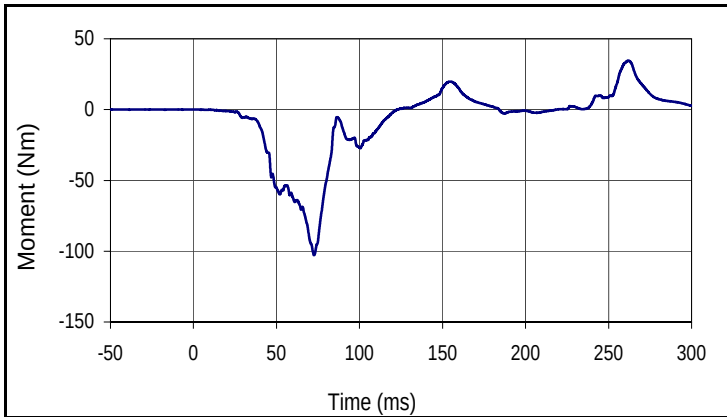
Curve Description			
V2P2 Lower Tibia Left Y Force			
Plot No.		SAE Class	Units
191		600	N
Max	Time	Min	Time
344.3	60.3	-115.4	78.2



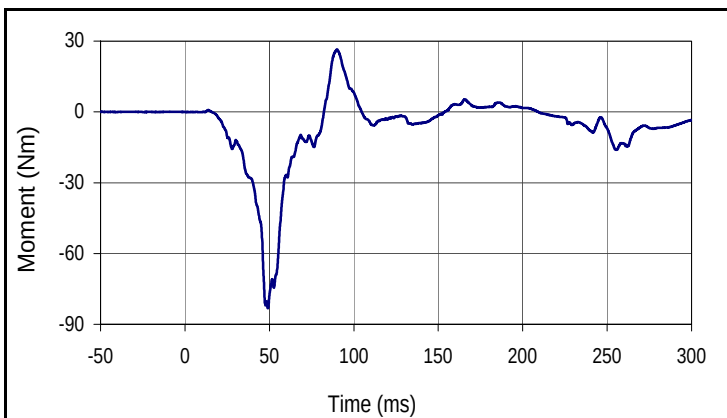
Curve Description			
V2P2 Lower Tibia Left Z Force			
Plot No.		SAE Class	Units
192		600	N
Max	Time	Min	Time
183.8	116.9	-3105.4	79.1

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

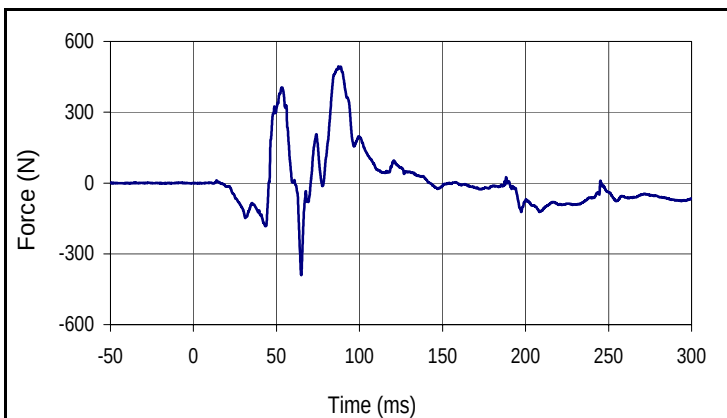
NHTSA No.: R20165411
 Test Date: 4/19/16



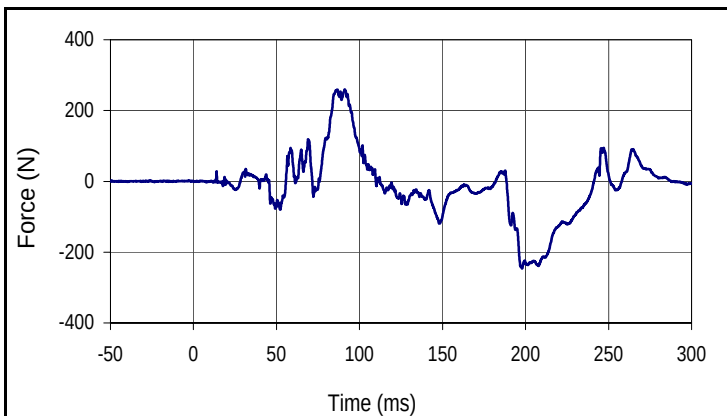
Curve Description			
V2P2 Lower Tibia Left X Moment			
Plot No.		SAE Class	Units
193		600	Nm
Max	Time	Min	Time
34.7	261.8	-102.9	72.6



Curve Description			
V2P2 Lower Tibia Left Y Moment			
Plot No.		SAE Class	Units
194		600	Nm
Max	Time	Min	Time
26.5	90.1	-83.3	49.2



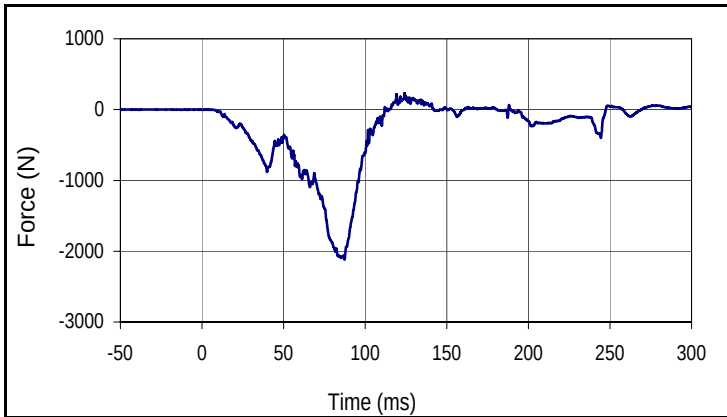
Curve Description			
V2P2 Lower Tibia Right X Force			
Plot No.		SAE Class	Units
195		600	N
Max	Time	Min	Time
494.6	87.4	-389.6	64.9



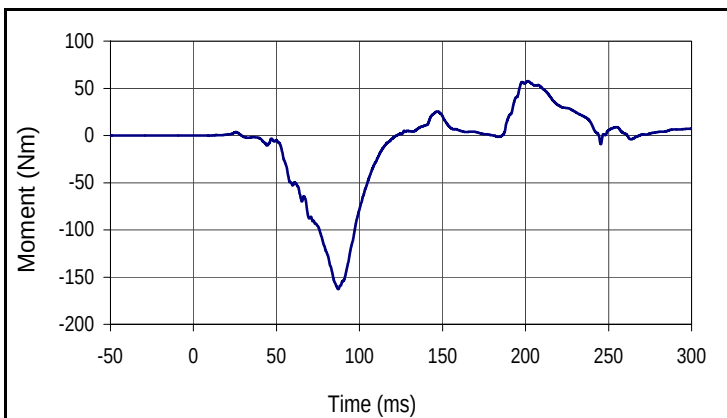
Curve Description			
V2P2 Lower Tibia Right Y Force			
Plot No.		SAE Class	Units
196		600	N
Max	Time	Min	Time
259.7	91.1	-245.9	197.9

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

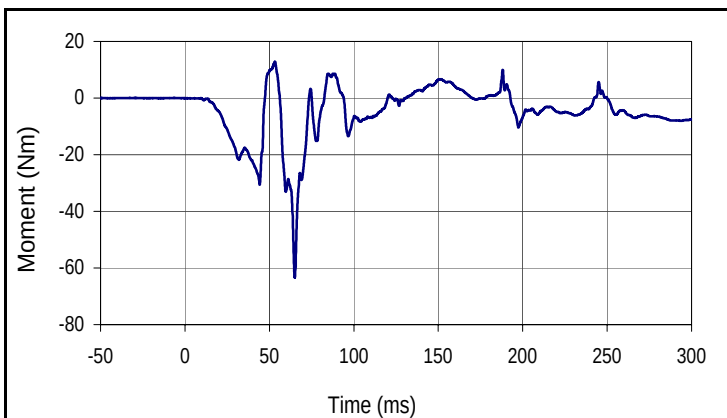
NHTSA No.: R20165411
 Test Date: 4/19/16



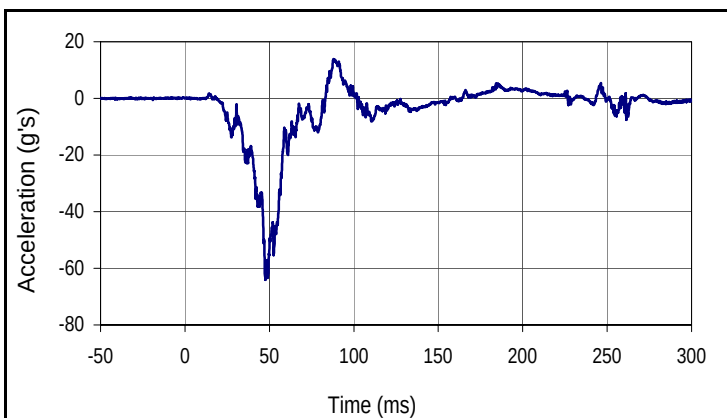
Curve Description			
V2P2 Lower Tibia Right Z Force			
Plot No.		SAE Class	Units
197		600	N
Max	Time	Min	Time
233.2	124.2	-2118.5	87.4



Curve Description			
V2P2 Lower Tibia Right X Moment			
Plot No.		SAE Class	Units
198		600	Nm
Max	Time	Min	Time
57.6	201.5	-162.8	87.3



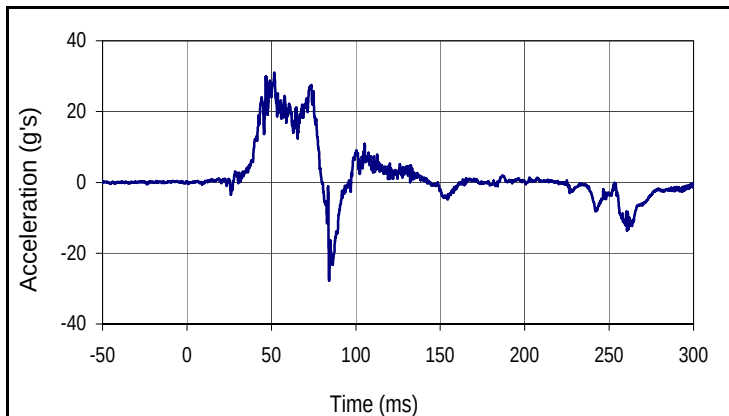
Curve Description			
V2P2 Lower Tibia Right Y Moment			
Plot No.		SAE Class	Units
199		600	Nm
Max	Time	Min	Time
12.8	53.3	-63.3	65.1



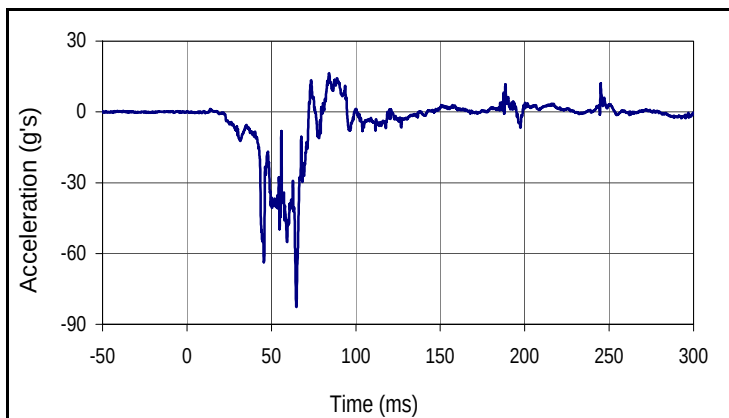
Curve Description			
V2P2 Mid Tibia Left X Acceleration			
Plot No.		SAE Class	Units
200		1000	g's
Max	Time	Min	Time
13.9	87.9	-64.0	47.6

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

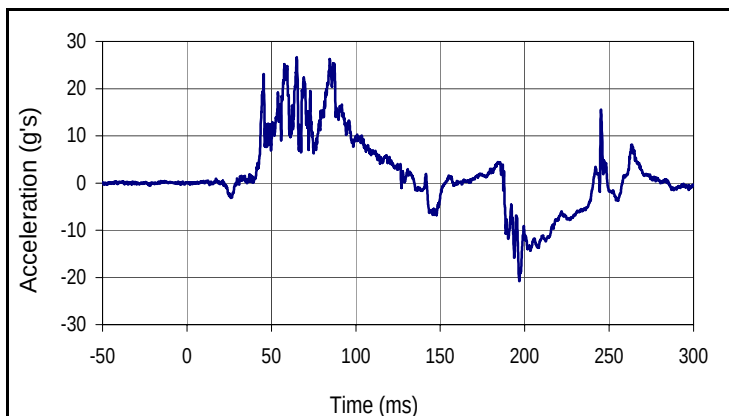
NHTSA No.: R20165411
 Test Date: 4/19/16



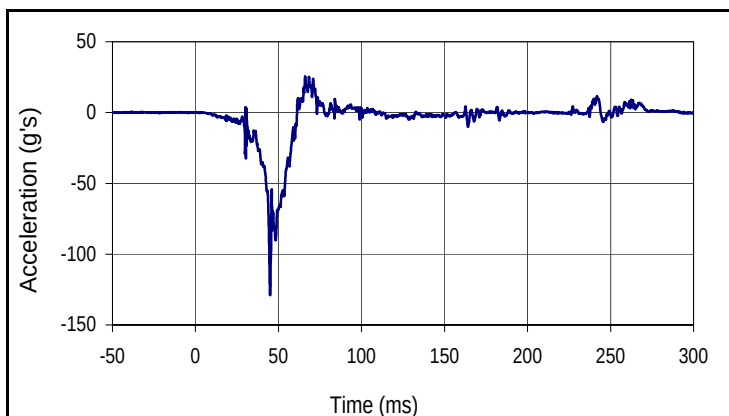
Curve Description			
V2P2 Mid Tibia Left Y Acceleration			
Plot No.		SAE Class	Units
201		1000	g's
Max	Time	Min	Time
31.0	51.7	-27.7	84.2



Curve Description			
V2P2 Mid Tibia Right X Acceleration			
Plot No.		SAE Class	Units
202		1000	g's
Max	Time	Min	Time
16.4	84.1	-82.7	64.8



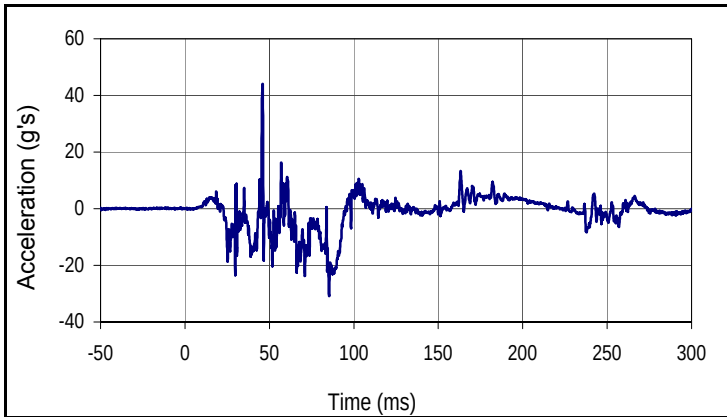
Curve Description			
V2P2 Mid Tibia Right Y Acceleration			
Plot No.		SAE Class	Units
203		1000	g's
Max	Time	Min	Time
26.7	65.0	-20.8	196.9



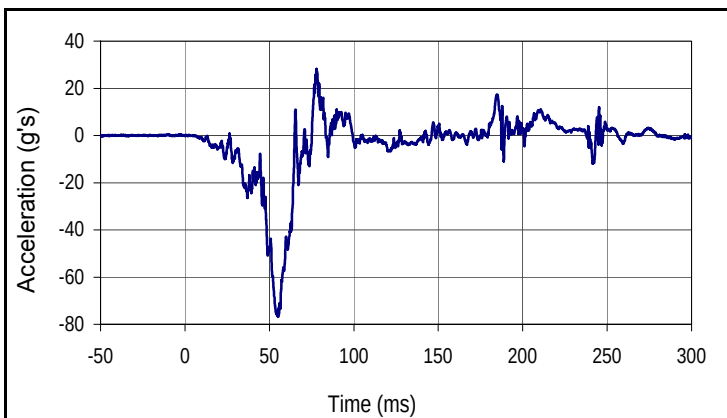
Curve Description			
V2P2 Foot Left X Acceleration			
Plot No.		SAE Class	Units
204		1000	g's
Max	Time	Min	Time
25.4	66.1	-129.0	45.0

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

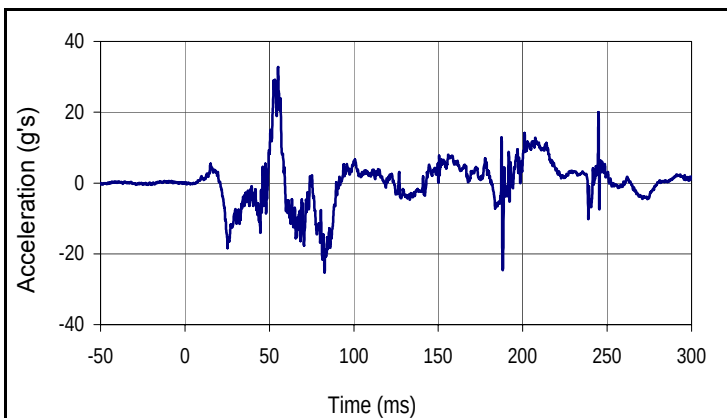
NHTSA No.: R20165411
 Test Date: 4/19/16



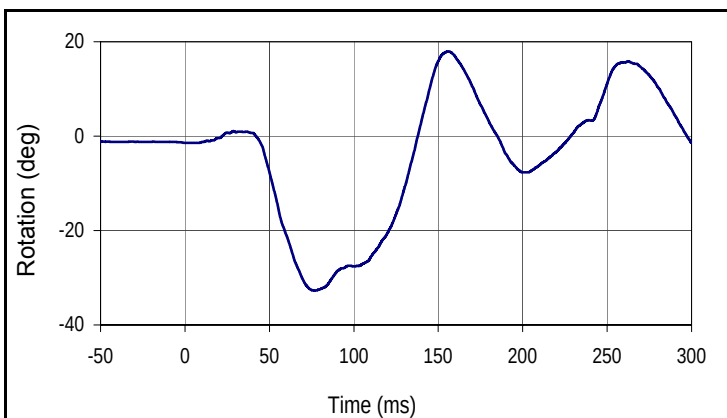
Curve Description			
V2P2 Foot Left Z Acceleration			
Plot No.		SAE Class	Units
205		1000	g's
Max	Time	Min	Time
44.1	46.0	-30.9	85.3



Curve Description			
V2P2 Foot Right X Acceleration			
Plot No.		SAE Class	Units
206		1000	g's
Max	Time	Min	Time
28.2	78.0	-76.7	55.1



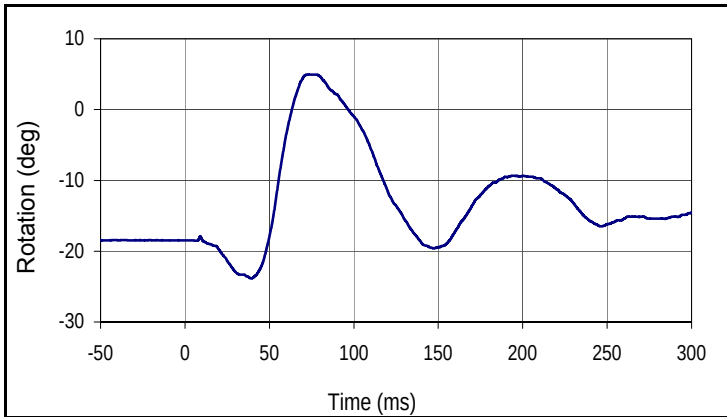
Curve Description			
V2P2 Foot Right Z Acceleration			
Plot No.		SAE Class	Units
207		1000	g's
Max	Time	Min	Time
32.8	55.1	-25.2	82.7



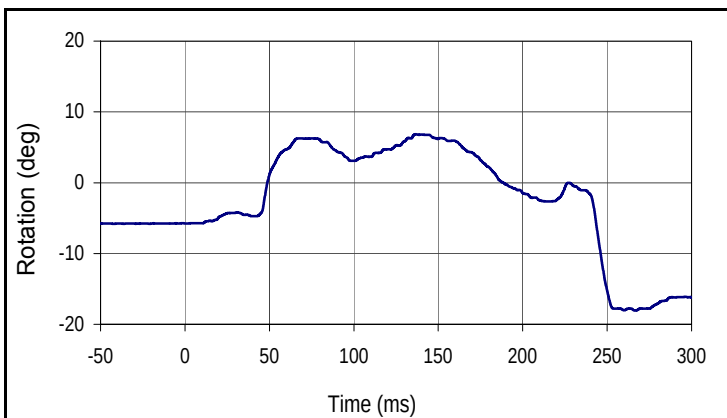
Curve Description			
V2P2 Ankle Left X Rotation			
Plot No.		SAE Class	Units
208		180	deg
Max	Time	Min	Time
18.0	155.9	-32.7	76.5

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

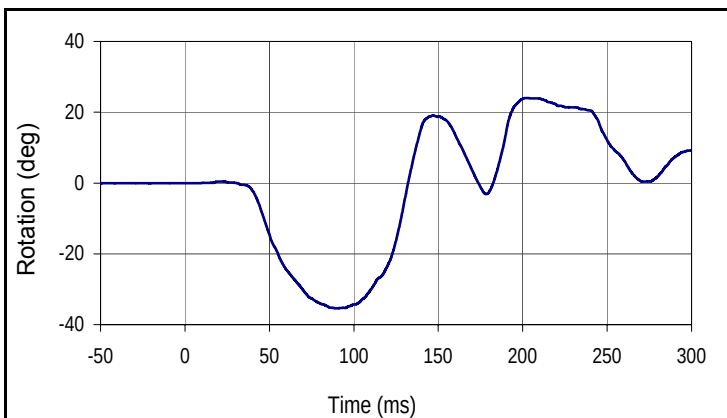
NHTSA No.: R20165411
 Test Date: 4/19/16



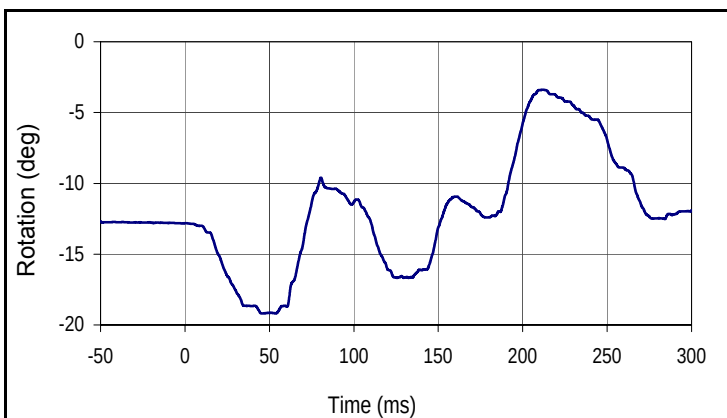
Curve Description			
V2P2 Ankle Left Y Rotation			
Plot No.		SAE Class	Units
209		180	deg
Max	Time	Min	Time
5.0	73.0	-23.9	39.3



Curve Description			
V2P2 Ankle Left Z Rotation			
Plot No.		SAE Class	Units
210		180	deg
Max	Time	Min	Time
6.8	136.6	-18.1	266.7



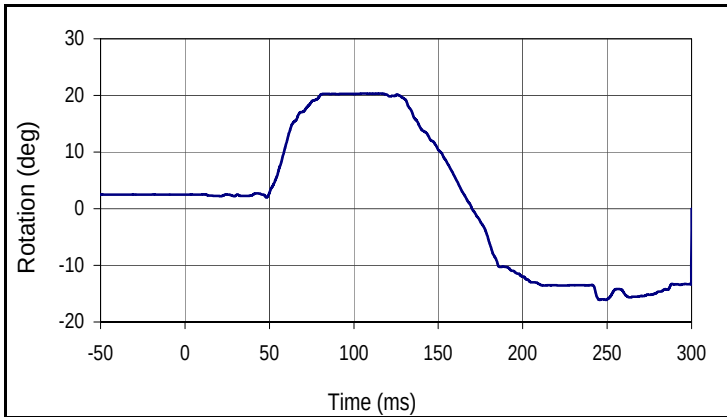
Curve Description			
V2P2 Ankle Right X Rotation			
Plot No.		SAE Class	Units
211		180	deg
Max	Time	Min	Time
24.0	201.9	-35.4	89.7



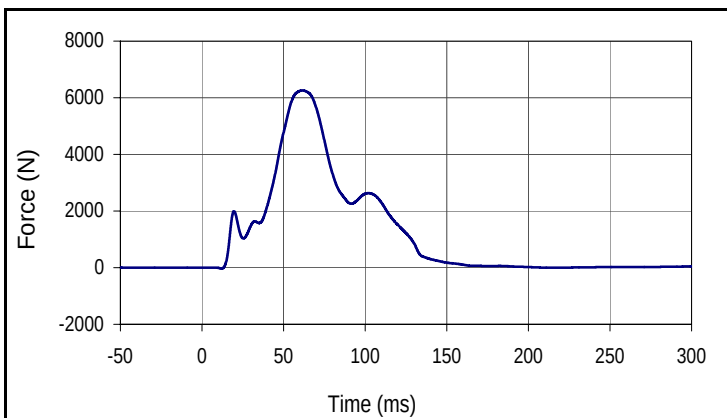
Curve Description			
V2P2 Ankle Right Y Rotation			
Plot No.		SAE Class	Units
212		180	deg
Max	Time	Min	Time
-3.4	212.0	-19.2	45.3

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

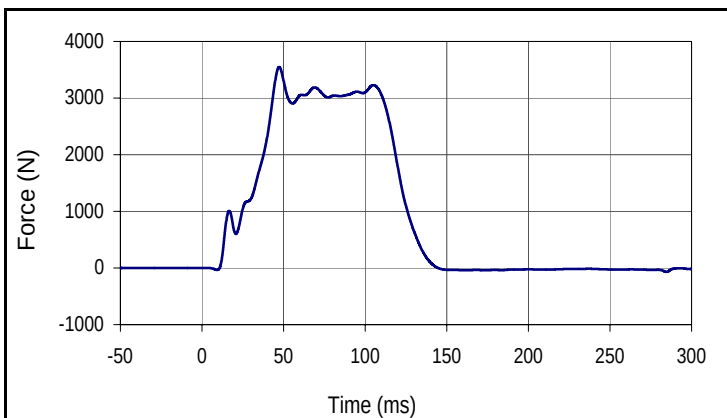
NHTSA No.: R20165411
 Test Date: 4/19/16



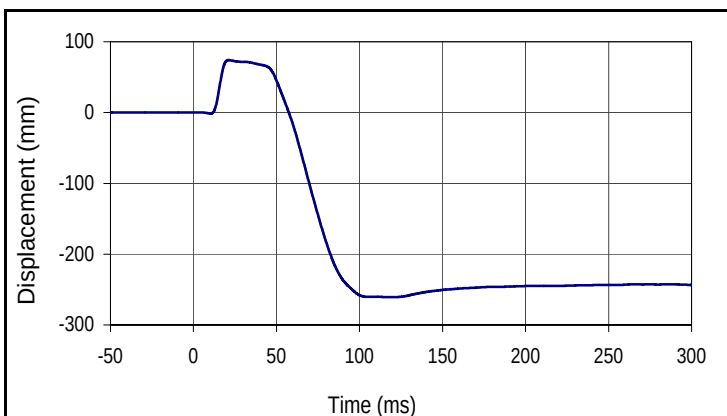
Curve Description			
V2P2 Ankle Right Z Rotation			
Plot No.		SAE Class	Units
213		180	deg
Max	Time	Min	Time
20.4	104.7	-16.1	245.6



Curve Description			
V2 Passenger Lap Belt Force			
Plot No.		SAE Class	Units
214		60	N
Max	Time	Min	Time
6260.0	61.5	-28.4	12.1



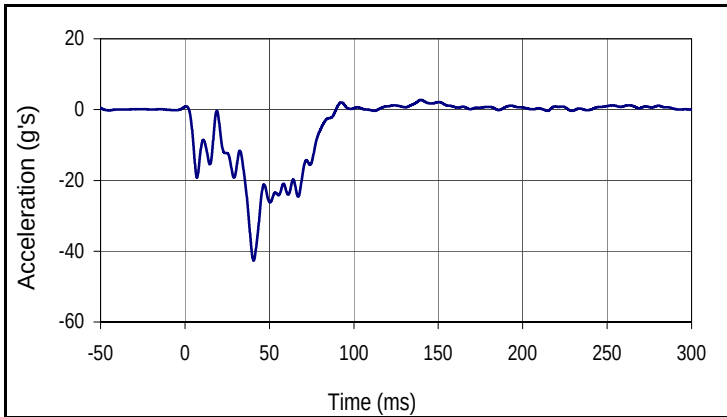
Curve Description			
V2 Passenger Shoulder Belt Upper Force			
Plot No.		SAE Class	Units
215		60	N
Max	Time	Min	Time
3549.4	47.3	-70.0	284.6



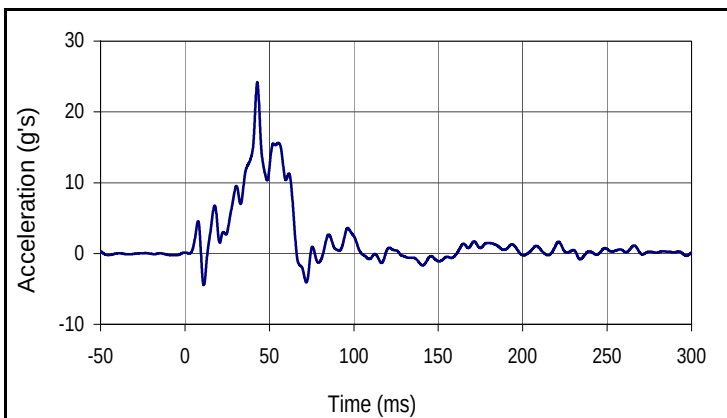
Curve Description			
V2 Passenger Shoulder Belt Displacement			
Plot No.		SAE Class	Units
216		60	mm
Max	Time	Min	Time
74.1	21.2	-260.6	116.5

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

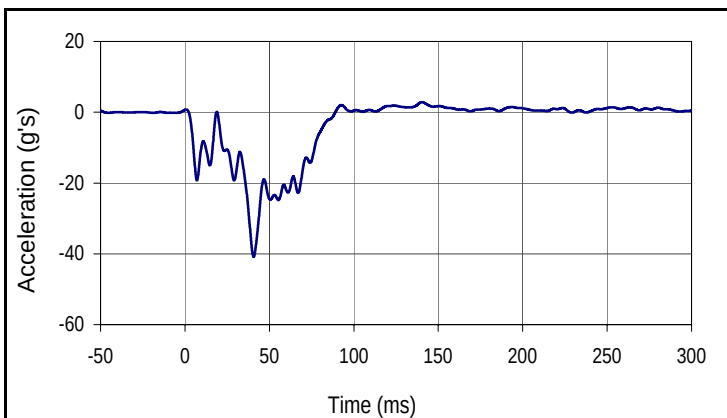
NHTSA No.: R20165411
 Test Date: 4/19/16



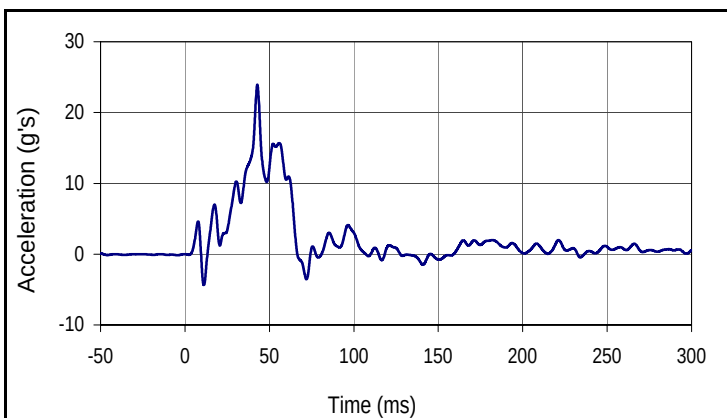
Curve Description			
V2 Left Rear Sill X Acceleration			
Plot No.		SAE Class	Units
217		60	g's
Max	Time	Min	Time
2.7	139.7	-42.6	40.6



Curve Description			
V2 Left Rear Sill Y Acceleration			
Plot No.		SAE Class	Units
218		60	g's
Max	Time	Min	Time
24.2	42.8	-4.4	11.1



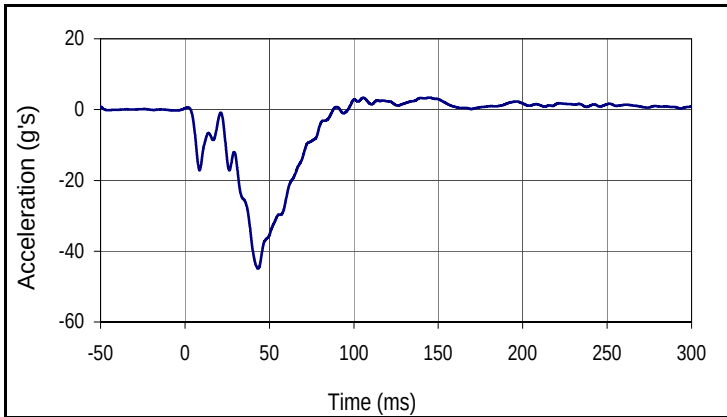
Curve Description			
V2 Left Rear Sill Redundant X Acceleration			
Plot No.		SAE Class	Units
219		60	g's
Max	Time	Min	Time
2.9	140.4	-40.8	40.7



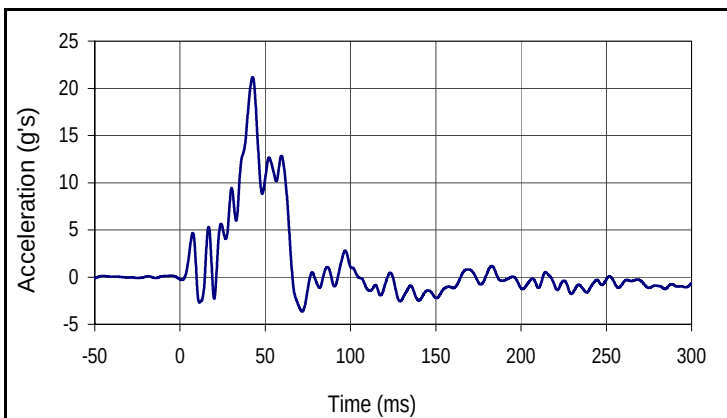
Curve Description			
V2 Left Rear Sill Redundant Y Acceleration			
Plot No.		SAE Class	Units
220		60	g's
Max	Time	Min	Time
23.9	42.9	-4.4	11.2

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

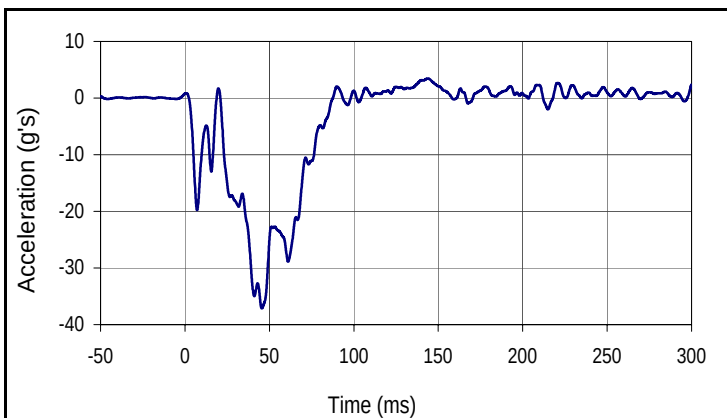
NHTSA No.: R20165411
 Test Date: 4/19/16



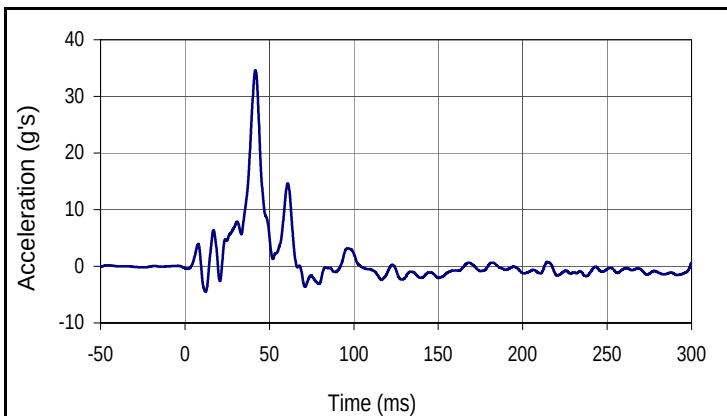
Curve Description			
V2 Right Rear Sill X Acceleration			
Plot No.		SAE Class	Units
221		60	g's
Max	Time	Min	Time
3.4	144.7	-44.9	43.3



Curve Description			
V2 Right Rear Sill Y Acceleration			
Plot No.		SAE Class	Units
222		60	g's
Max	Time	Min	Time
21.2	42.6	-3.7	71.6



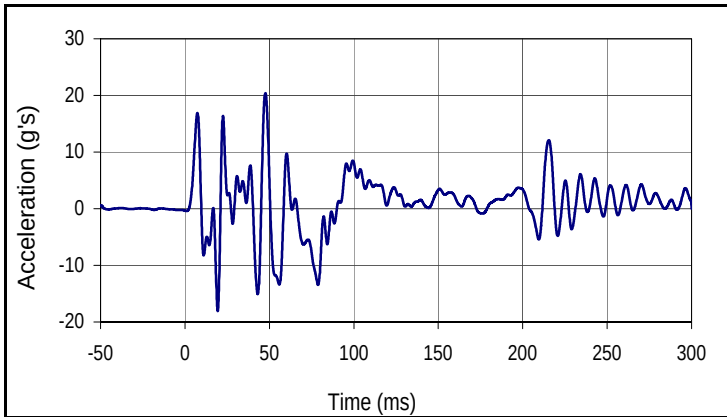
Curve Description			
V2 Vehicle CG X Acceleration			
Plot No.		SAE Class	Units
223		60	g's
Max	Time	Min	Time
3.4	143.8	-37.1	45.6



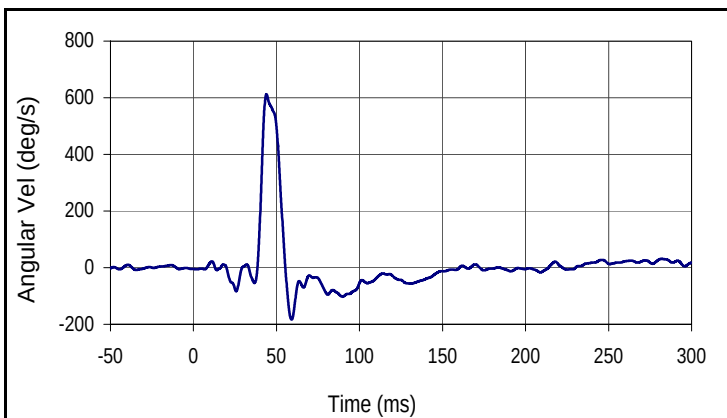
Curve Description			
V2 Vehicle CG Y Acceleration			
Plot No.		SAE Class	Units
224		60	g's
Max	Time	Min	Time
34.7	41.7	-4.5	12.3

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

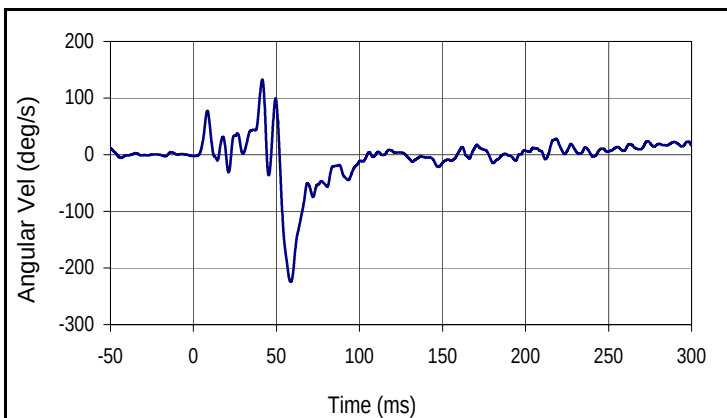
NHTSA No.: R20165411
 Test Date: 4/19/16



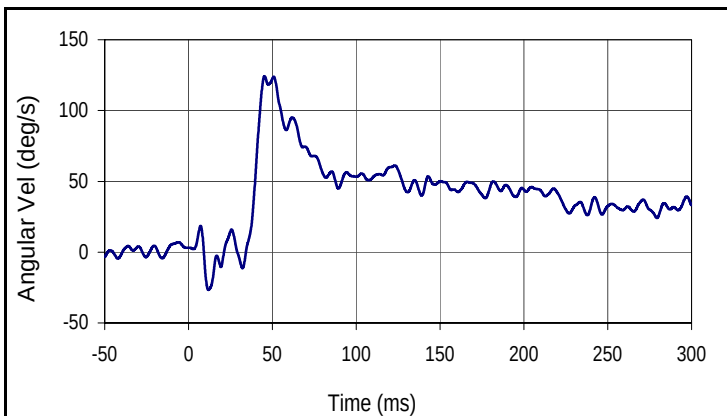
Curve Description			
V2 Vehicle CG Z Acceleration			
Plot No.		SAE Class	Units
225		60	g's
Max	Time	Min	Time
20.4	47.6	-18.1	19.4



Curve Description			
V2 Vehicle CG Angular Rate X			
Plot No.		SAE Class	Units
226		60	deg/s
Max	Time	Min	Time
612.0	44.0	-183.2	59.1



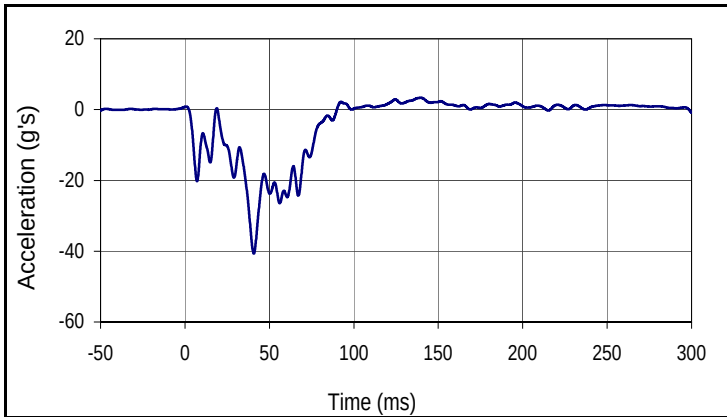
Curve Description			
V2 Vehicle CG Angular Rate Y			
Plot No.		SAE Class	Units
227		60	deg/s
Max	Time	Min	Time
132.6	41.5	-224.4	58.6



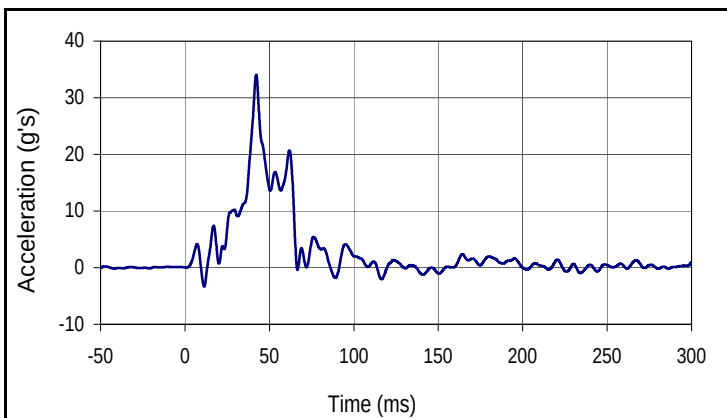
Curve Description			
V2 Vehicle CG Angular Rate Z			
Plot No.		SAE Class	Units
228		60	deg/s
Max	Time	Min	Time
124.3	45.3	-26.6	11.9

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

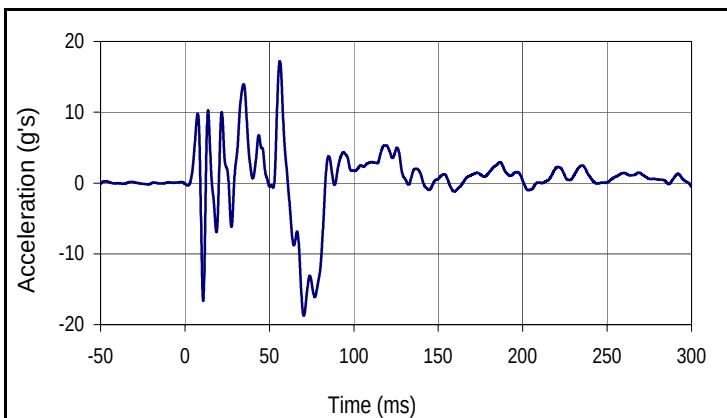
NHTSA No.: R20165411
 Test Date: 4/19/16



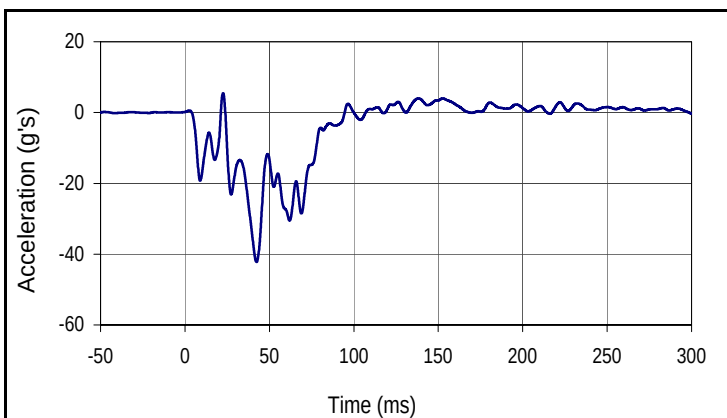
Curve Description			
V2 Driver Seat Track X Acceleration			
Plot No.		SAE Class	Units
229		60	g's
Max	Time	Min	Time
3.3	139.7	-40.7	40.8



Curve Description			
V2 Driver Seat Track Y Acceleration			
Plot No.		SAE Class	Units
230		60	g's
Max	Time	Min	Time
34.1	42.2	-3.3	11.4



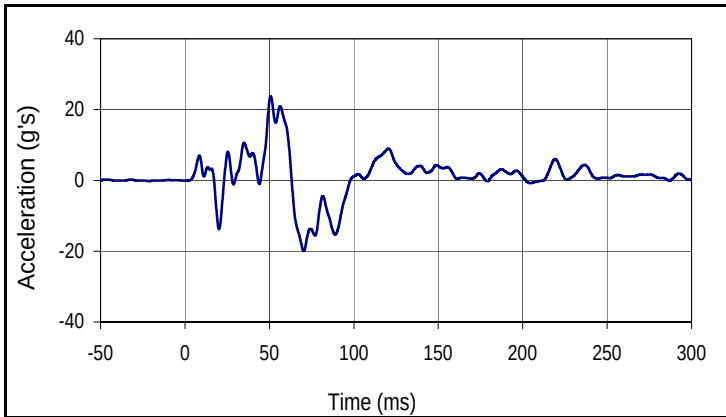
Curve Description			
V2 Driver Seat Track Z Acceleration			
Plot No.		SAE Class	Units
231		60	g's
Max	Time	Min	Time
17.2	56.2	-18.8	70.4



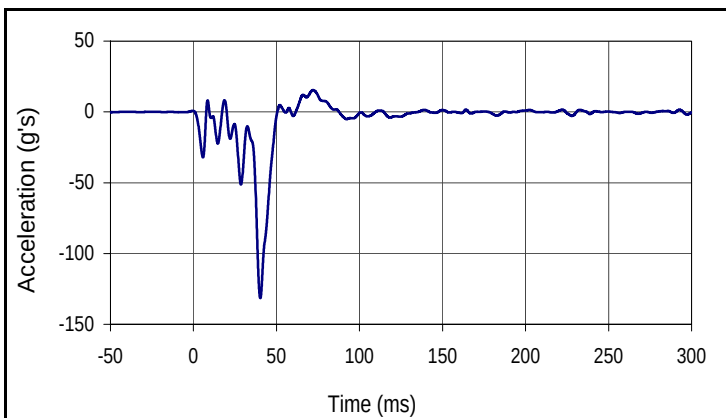
Curve Description			
V2 Driver Seat Thigh Bar X Acceleration			
Plot No.		SAE Class	Units
232		60	g's
Max	Time	Min	Time
5.5	22.6	-42.2	42.4

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

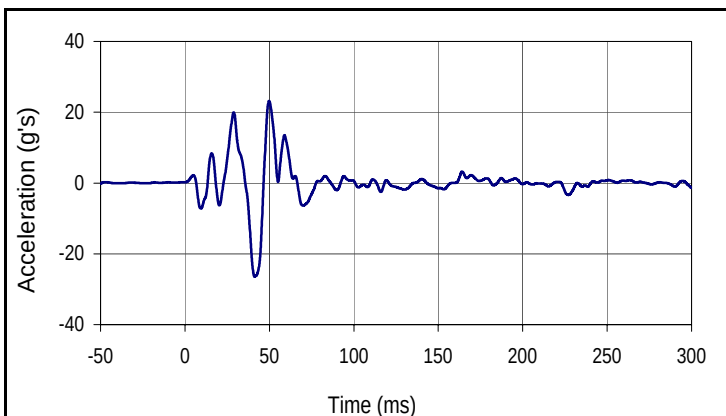
NHTSA No.: R20165411
 Test Date: 4/19/16



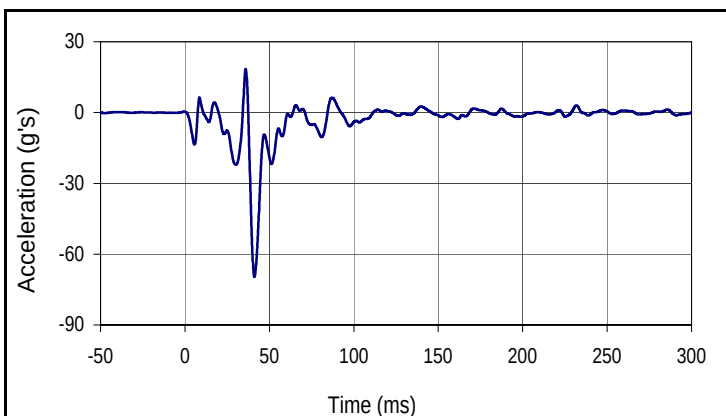
Curve Description			
V2 Driver Seat Thigh Bar Z Acceleration			
Plot No.		SAE Class	Units
233		60	g's
Max	Time	Min	Time
23.7	50.8	-19.9	70.3



Curve Description			
V2 Driver Floor Pan X Acceleration			
Plot No.		SAE Class	Units
234		60	g's
Max	Time	Min	Time
15.4	72.1	-131.5	40.3



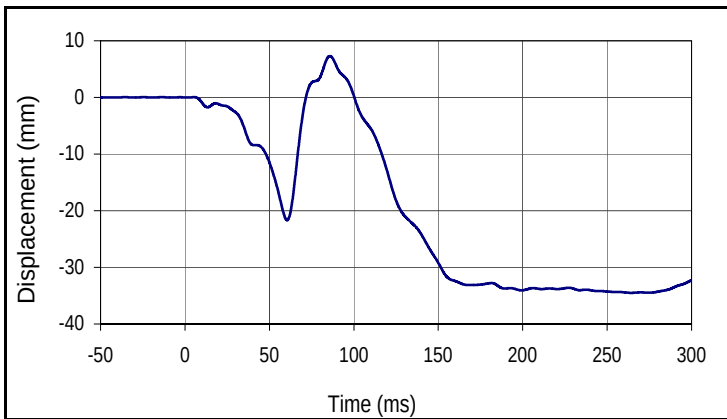
Curve Description			
V2 Driver Floor Pan Y Acceleration			
Plot No.		SAE Class	Units
235		60	g's
Max	Time	Min	Time
23.1	49.9	-26.4	41.3



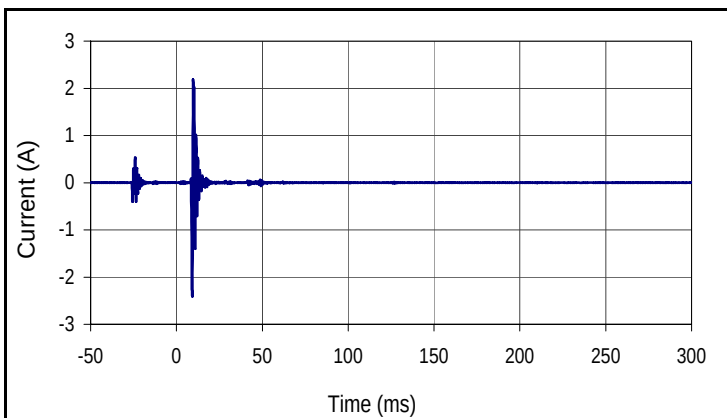
Curve Description			
V2 Driver Floor Pan Z Acceleration			
Plot No.		SAE Class	Units
236		60	(g's)
Max	Time	Min	Time
18.5	36.0	-69.6	41.1

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

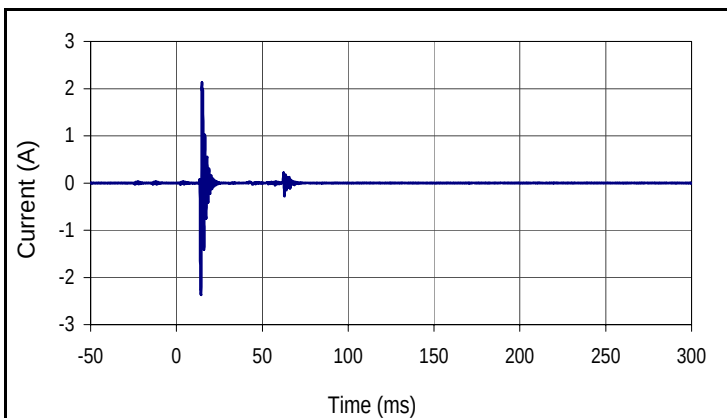
NHTSA No.: R20165411
 Test Date: 4/19/16



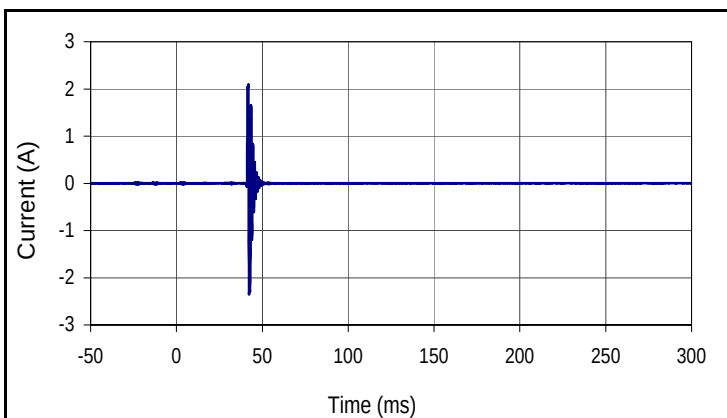
Curve Description			
V2 Driver Floor Pan X Deflection			
Plot No.		SAE Class	Units
237		60	mm
Max	Time	Min	Time
7.3	85.8	-34.5	264.2



Curve Description			
V2 Driver Front Airbag Stage 1 Monitor - Time to fire: 8.7 ms			
Plot No.		SAE Class	Units
238		1000	A
Max	Time	Min	Time
2.2	9.7	-2.4	9.2



Curve Description			
V2 Driver Front Airbag Stage 2 Monitor -Time to fire: 13.7 ms			
Plot No.		SAE Class	Units
239		1000	A
Max	Time	Min	Time
2.1	14.8	-2.4	14.3



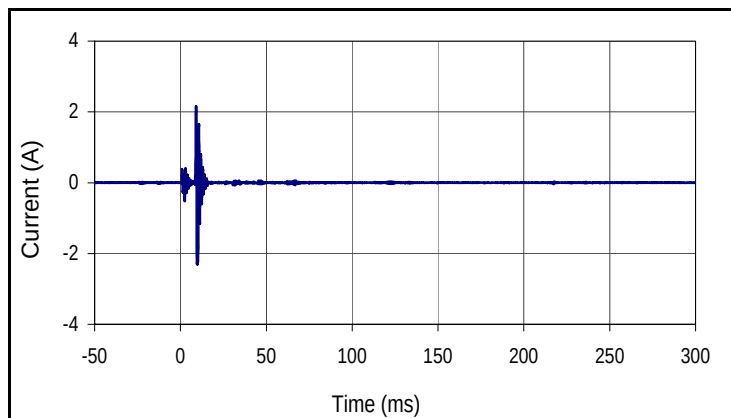
Curve Description			
V2 Driver Curtain Airbag Monitor -Time to fire: 41.2 ms			
Plot No.		SAE Class	Units
240		1000	A
Max	Time	Min	Time
2.1	41.8	-2.3	42.3

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

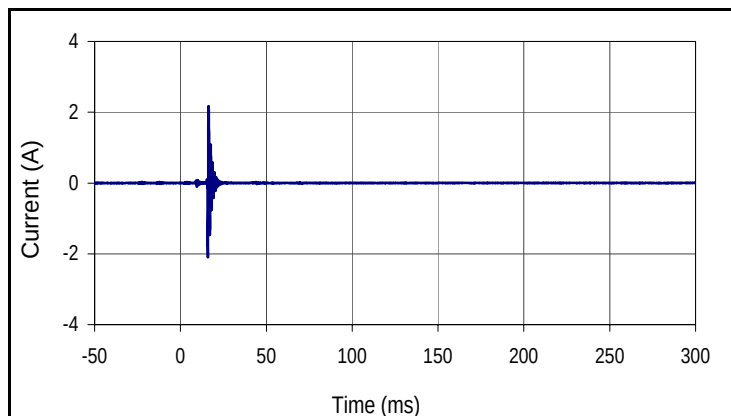
NHTSA No.: R20165411
 Test Date: 4/19/16



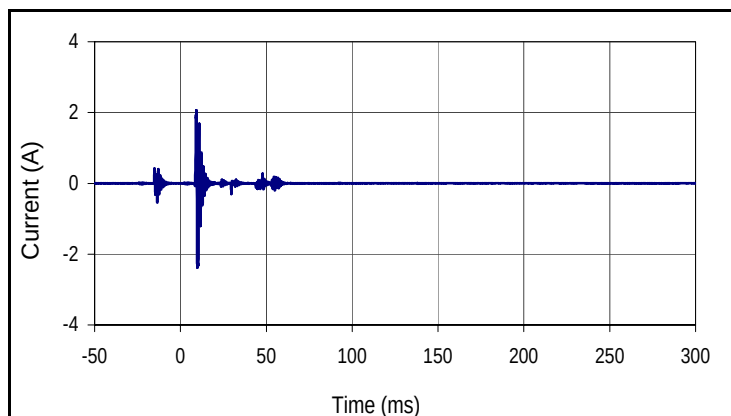
Curve Description			
V2 Driver Seat Airbag Monitor - Time to fire:			
Plot No.		SAE Class	Units
241		1000	A
Max	Time	Min	Time
0.1	41.3	-0.1	42.0



Curve Description			
V2 Driver Retractor Pretensioner Monitor - Time to fire: 8.7 ms			
Plot No.		SAE Class	Units
242		1000	A
Max	Time	Min	Time
2.2	9.1	-2.3	10.1



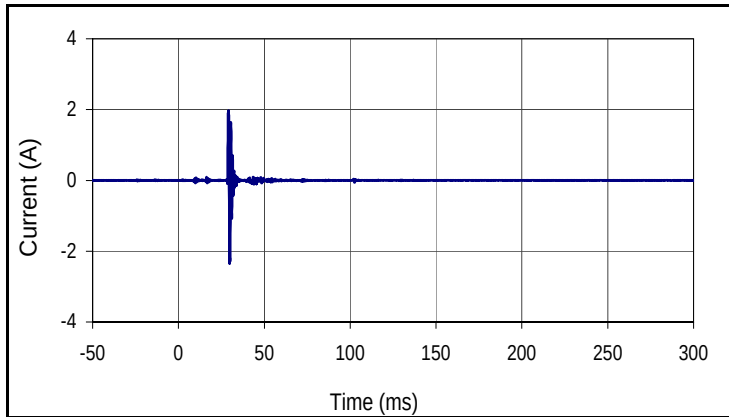
Curve Description			
V2 Driver Anchor Pretensioner Monitor - Time to fire: 15.7 ms			
Plot No.		SAE Class	Units
243		1000	A
Max	Time	Min	Time
2.2	16.4	-2.1	15.9



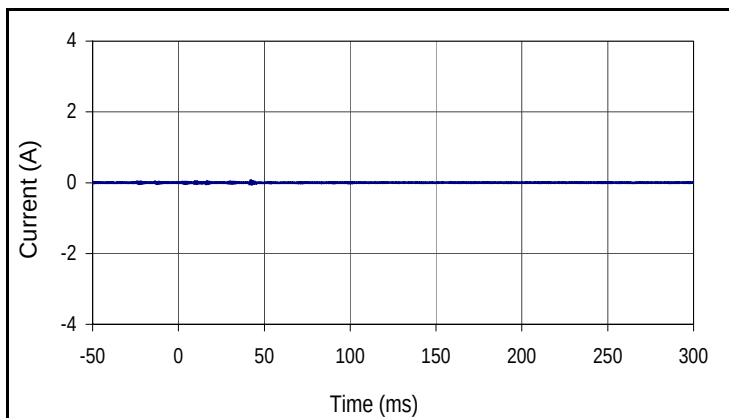
Curve Description			
V2 Passenger Front Airbag Stage 1 Monitor - Time to fire: 8.7 ms			
Plot No.		SAE Class	Units
244		1000	A
Max	Time	Min	Time
2.1	9.3	-2.4	9.8

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

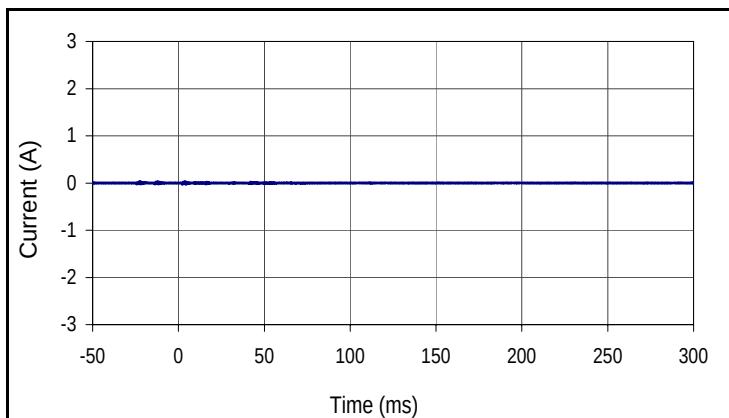
NHTSA No.: R20165411
 Test Date: 4/19/16



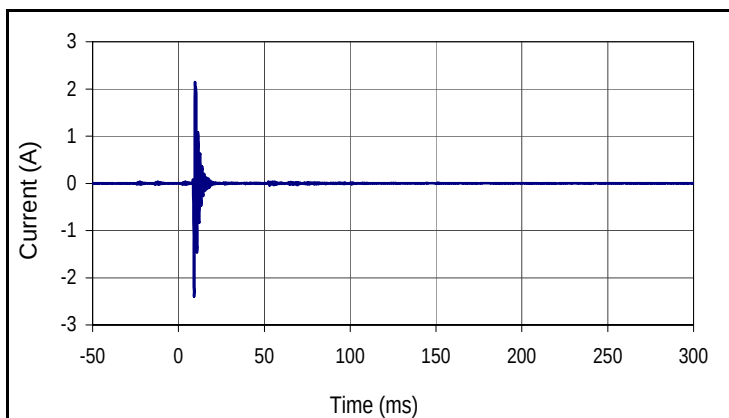
Curve Description			
V2 Passenger Front Airbag Stage 2 Monitor - Time to fire: 28.7 ms			
Plot No.		SAE Class	Units
245		1000	A
Max	Time	Min	Time
2.0	29.2	-2.3	29.7



Curve Description			
V2 Passenger Curtain Airbag Monitor - Time to fire: Did Not Fire			
Plot No.		SAE Class	Units
246		1000	A
Max	Time	Min	Time
0.1	42.2	-0.1	42.8



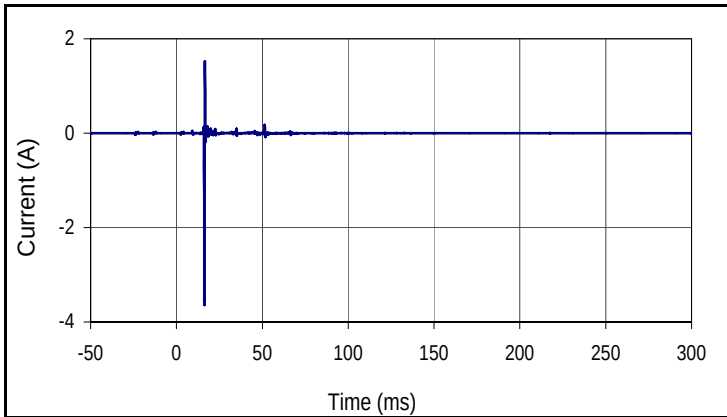
Curve Description			
V2 Passenger Seat Airbag Monitor - Time to fire: Did Not Fire			
Plot No.		SAE Class	Units
247		1000	A
Max	Time	Min	Time
0.0	3.9	0.0	2.3



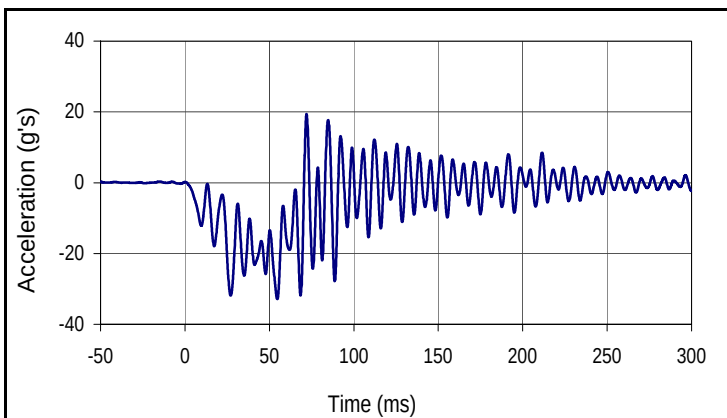
Curve Description			
V2 Passenger Retractor Pretensioner Monitor - Time to fire: 8.7 ms			
Plot No.		SAE Class	Units
248		1000	A
Max	Time	Min	Time
2.1	9.7	-2.4	9.1

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

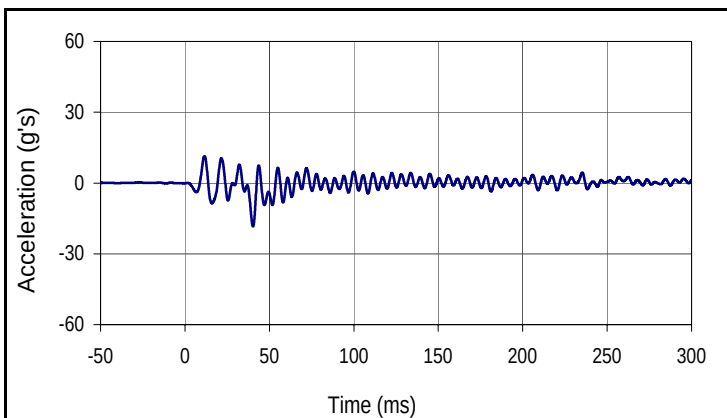
NHTSA No.: R20165411
 Test Date: 4/19/16



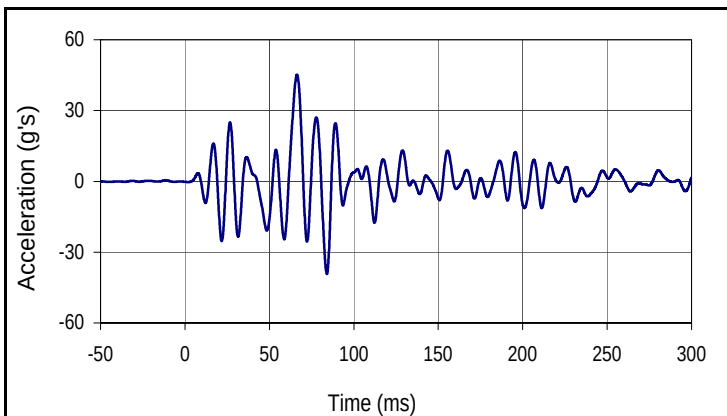
Curve Description			
V2 Passenger Anchor Pretensioner Monitor - Time to fire: 16.0 ms.			
Plot No.		SAE Class	Units
249		1000	A
Max	Time	Min	Time
1.5	16.6	-3.6	16.3



Curve Description			
V1 OMDB CG X Acceleration			
Plot No.		SAE Class	Units
250		60	g's
Max	Time	Min	Time
19.4	72.0	-32.9	54.7



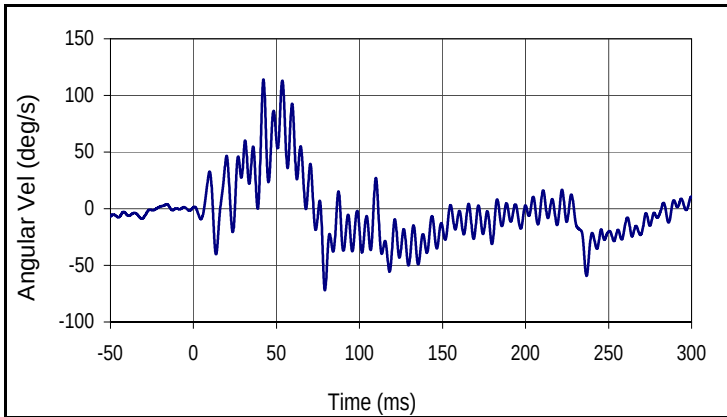
Curve Description			
V1 OMDB CG Y Acceleration			
Plot No.		SAE Class	Units
251		60	g's
Max	Time	Min	Time
11.4	11.6	-18.4	40.3



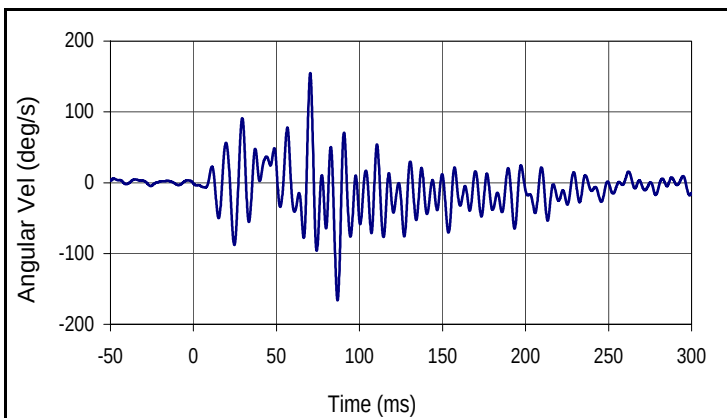
Curve Description			
V1 OMDB CG Z Acceleration			
Plot No.		SAE Class	Units
252		60	g's
Max	Time	Min	Time
45.2	66.4	-39.3	84.0

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

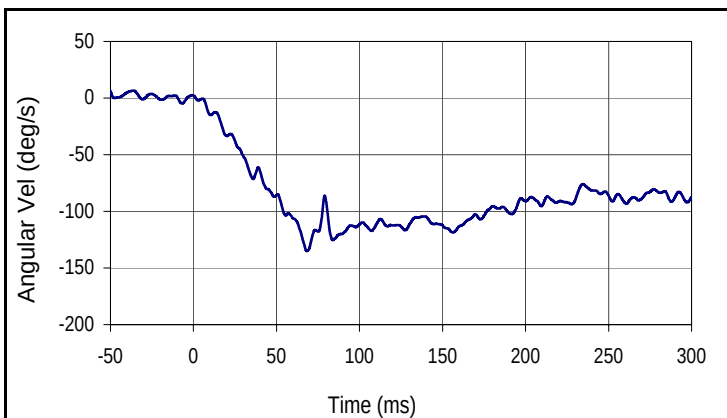
NHTSA No.: R20165411
 Test Date: 4/19/16



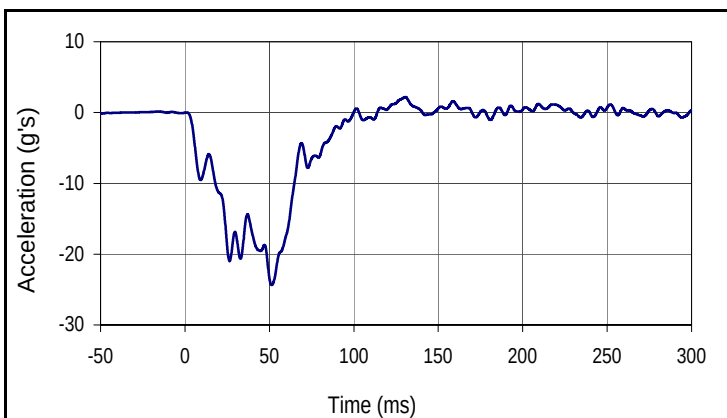
Curve Description			
V1 OMDB Angular Rate X			
Plot No.		SAE Class	Units
253		60	deg/s
Max	Time	Min	Time
114.2	42.2	-72.1	79.2



Curve Description			
V1 OMDB Angular Rate Y			
Plot No.		SAE Class	Units
254		60	deg/s
Max	Time	Min	Time
154.8	70.3	-166.2	86.8



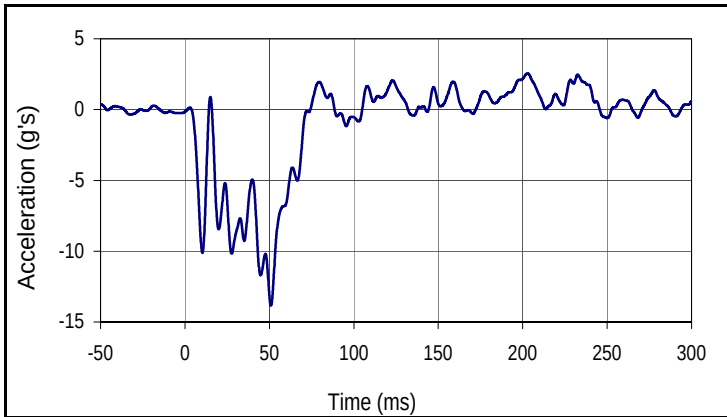
Curve Description			
V1 OMDB Angular Rate Z			
Plot No.		SAE Class	Units
255		60	deg/s
Max	Time	Min	Time
2.5	-0.8	-135.1	68.2



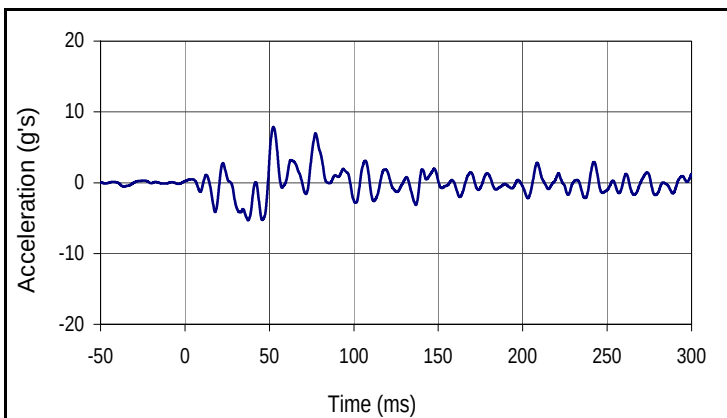
Curve Description			
V1 OMDB Rear C/L X Acceleration			
Plot No.		SAE Class	Units
256		60	g's
Max	Time	Min	Time
2.2	130.5	-24.3	51.4

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

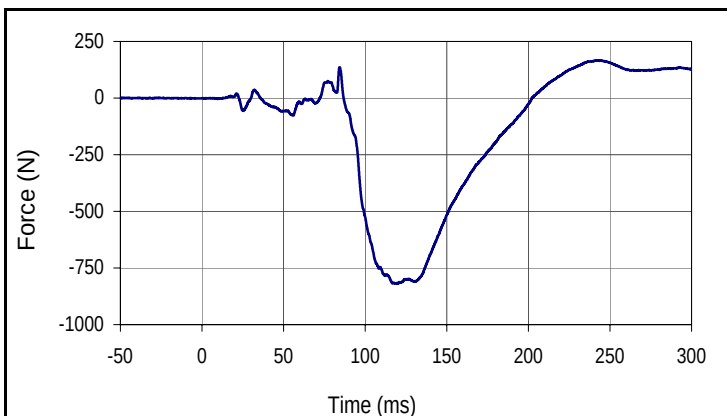
NHTSA No.: R20165411
 Test Date: 4/19/16



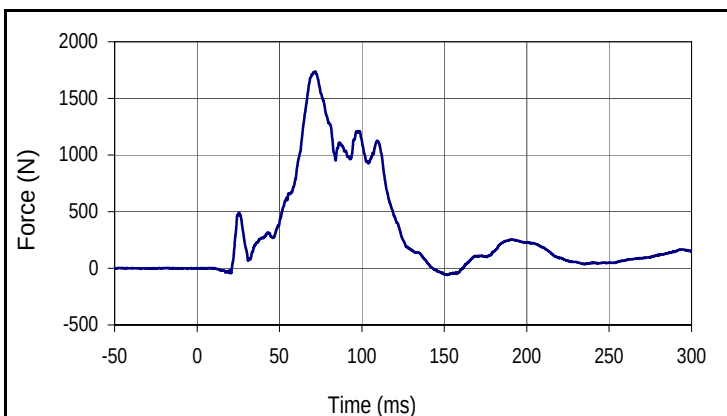
Curve Description			
V1 OMDB Rear C/L Y Acceleration			
Plot No.		SAE Class	Units
257		60	g's
Max	Time	Min	Time
2.6	202.9	-13.8	50.9



Curve Description			
V1 OMDB Rear C/L Z Acceleration			
Plot No.		SAE Class	Units
258		60	g's
Max	Time	Min	Time
7.9	52.4	-5.3	37.4



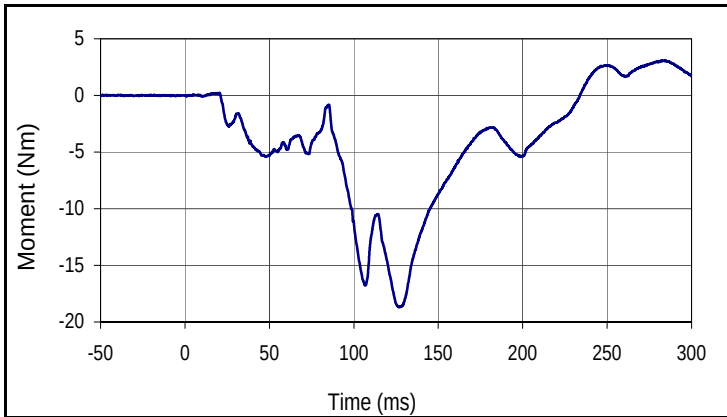
Curve Description			
V2P1 Fx on head acting through O.C joint only			
Plot No.		SAE Class	Units
259		1000	N
Max	Time	Min	Time
166.7	241.7	-818.6	118.5



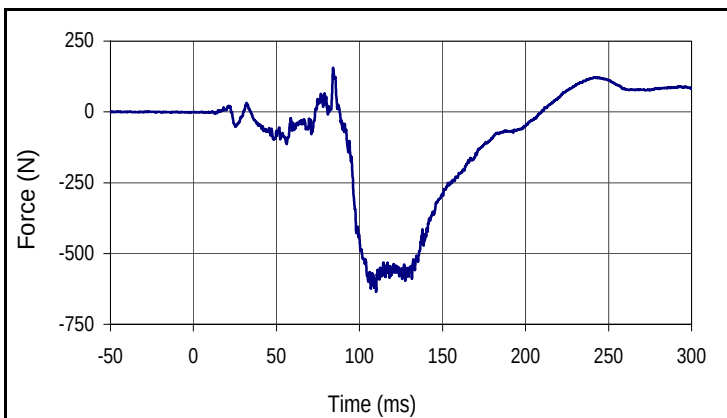
Curve Description			
V2P1 Fz on head acting through O.C joint only			
Plot No.		SAE Class	Units
260		1000	N
Max	Time	Min	Time
1736.7	71.7	-58.5	151.8

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

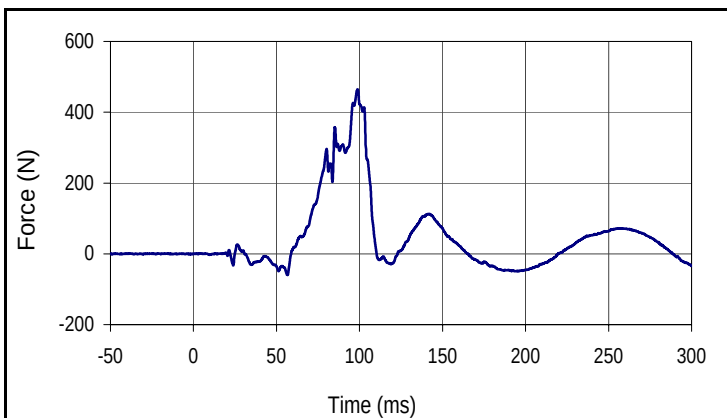
NHTSA No.: R20165411
 Test Date: 4/19/16



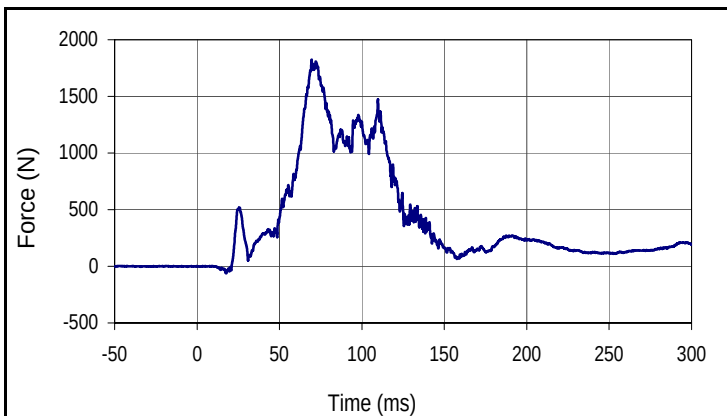
Curve Description			
V2P1 My on head acting through O.C joint only			
Plot No.		SAE Class	Units
261		600	Nm
Max	Time	Min	Time
3.1	284.5	-18.7	127.0



Curve Description			
V2P1 Fx on Head acting through total neck section			
Plot No.		SAE Class	Units
262		1000	N
Max	Time	Min	Time
156.1	84.1	-634.7	110.0



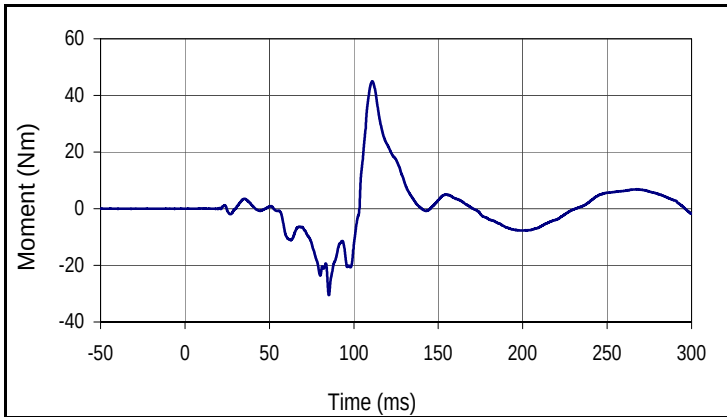
Curve Description			
V2P1 Fy on Head acting through total neck section			
Plot No.		SAE Class	Units
263		1000	N
Max	Time	Min	Time
464.3	98.9	-60.1	56.7



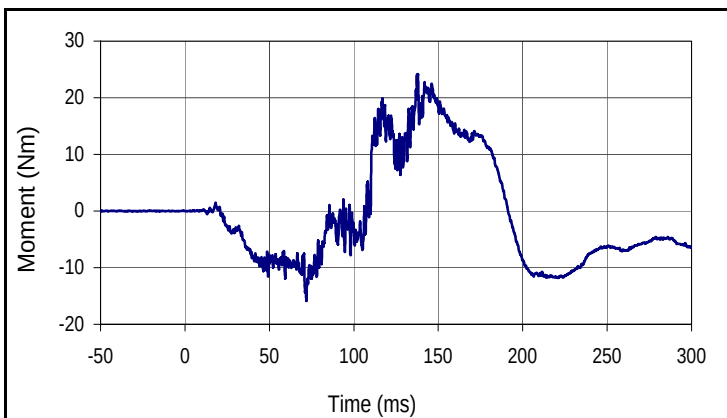
Curve Description			
V2P1 Fz on Head acting through total neck section			
Plot No.		SAE Class	Units
264		1000	N
Max	Time	Min	Time
1825.9	69.5	-62.4	17.7

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

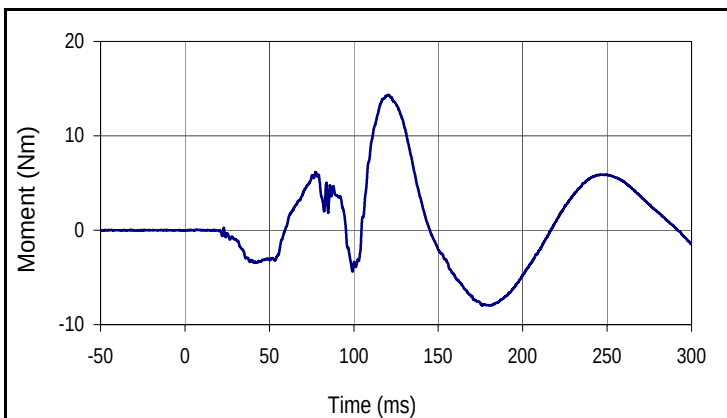
NHTSA No.: R20165411
 Test Date: 4/19/16



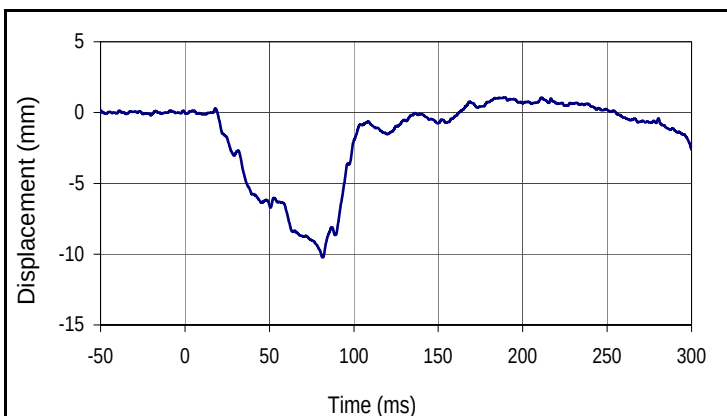
Curve Description			
V2P1 Mx on Head acting through total neck section			
Plot No.		SAE Class	Units
265		600	Nm
Max	Time	Min	Time
45.0	110.9	-30.5	85.2



Curve Description			
V2P1 My on Head acting through total neck section			
Plot No.		SAE Class	Units
266		600	Nm
Max	Time	Min	Time
24.2	137.9	-15.9	71.9



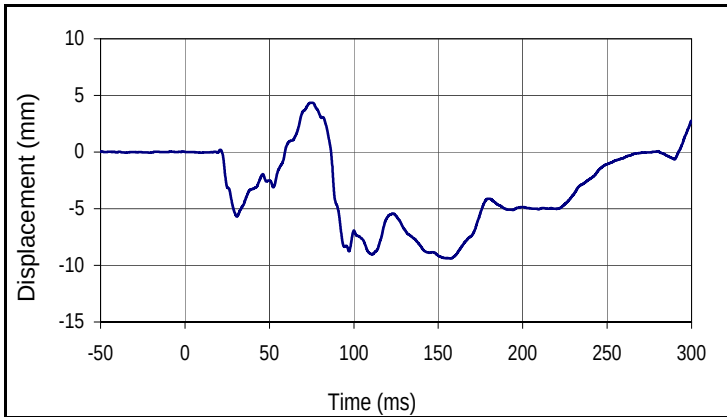
Curve Description			
V2P1 Mz on Head acting through total neck section			
Plot No.		SAE Class	Units
267		600	Nm
Max	Time	Min	Time
14.4	120.4	-8.0	176.0



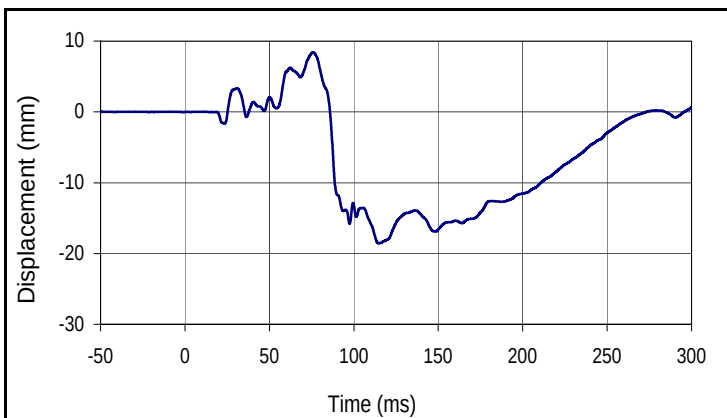
Curve Description			
V2P1 Chest Left Upper Dx			
Plot No.		SAE Class	Units
268		180	mm
Max	Time	Min	Time
1.1	188.9	-10.2	81.6

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

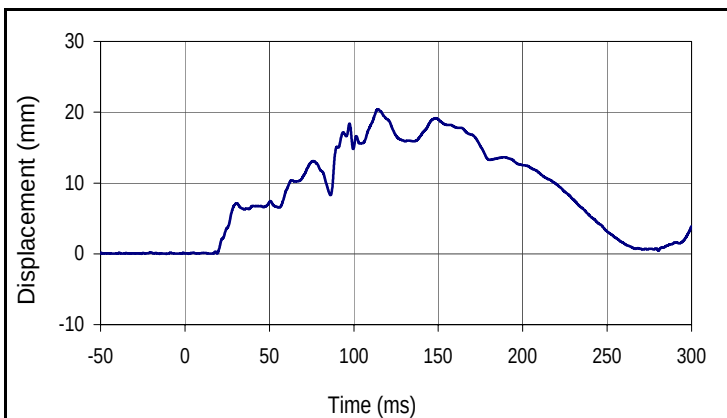
NHTSA No.: R20165411
 Test Date: 4/19/16



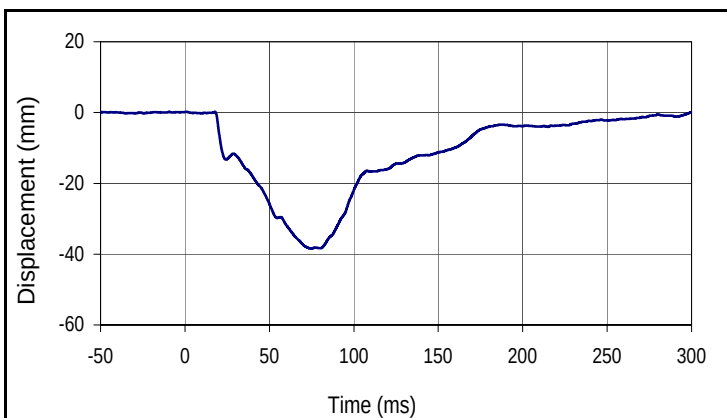
Curve Description			
V2P1 Chest Left Upper Dy			
Plot No.		SAE Class	Units
269		180	mm
Max	Time	Min	Time
4.4	75.5	-9.4	157.3



Curve Description			
V2P1 Chest Left Upper Dz			
Plot No.		SAE Class	Units
270		180	mm
Max	Time	Min	Time
8.4	75.9	-18.5	114.7



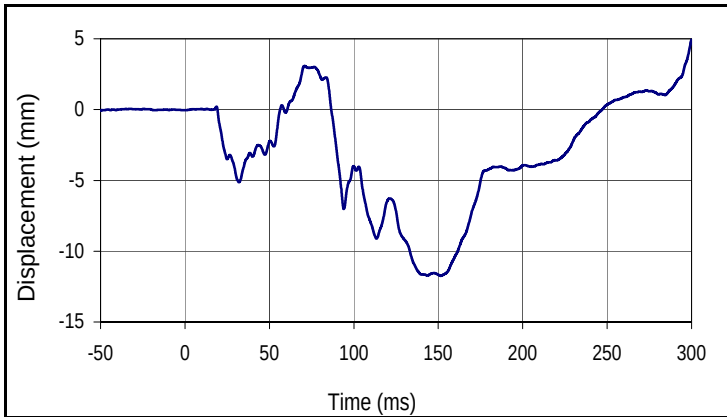
Curve Description			
V2P1 Chest Left Upper Resultant			
Plot No.		SAE Class	Units
271		180	mm
Max	Time	Min	Time
20.4	114.2	0.0	-11.0



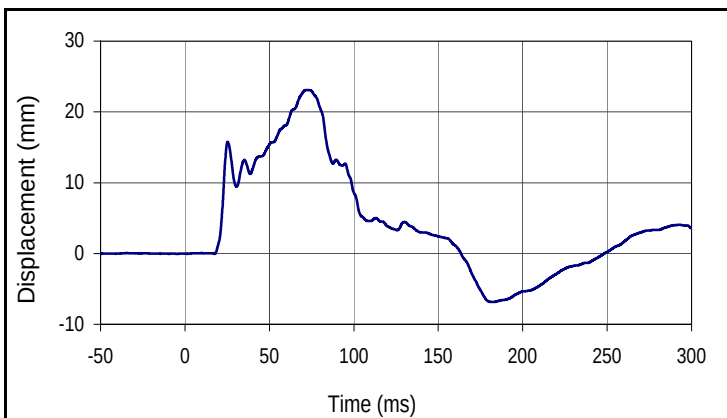
Curve Description			
V2P1 Chest Right Upper Dx			
Plot No.		SAE Class	Units
272		180	mm
Max	Time	Min	Time
0.2	1.0	-38.4	74.7

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

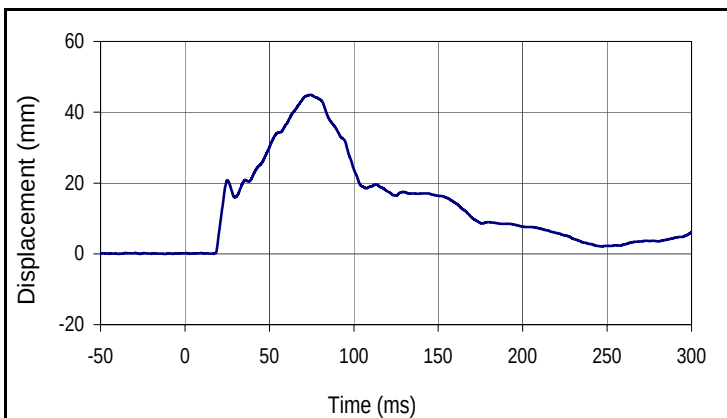
NHTSA No.: R20165411
 Test Date: 4/19/16



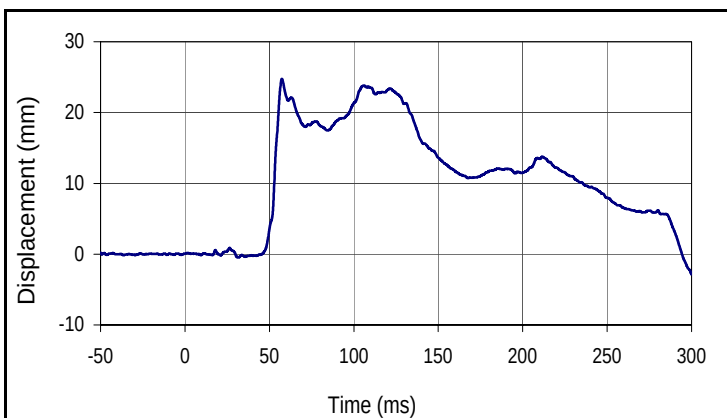
Curve Description			
V2P1 Chest Right Upper Dy			
Plot No.		SAE Class	Units
273		180	mm
Max	Time	Min	Time
4.9	299.9	-11.7	151.5



Curve Description			
V2P1 Chest Right Upper Dz			
Plot No.		SAE Class	Units
274		180	mm
Max	Time	Min	Time
23.1	72.1	-6.8	181.2



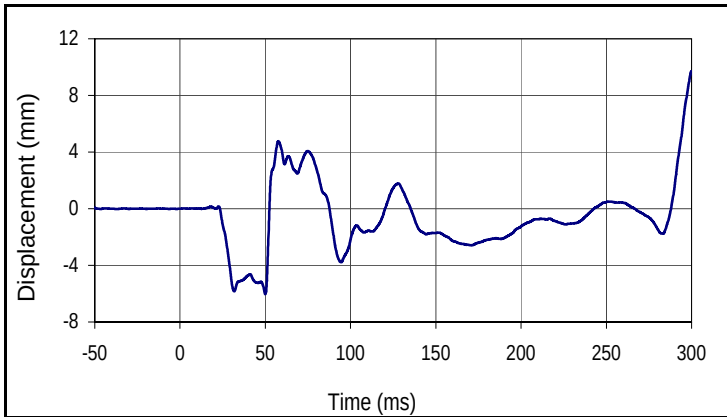
Curve Description			
V2P1 Chest Right Upper Resultant			
Plot No.		SAE Class	Units
275		180	mm
Max	Time	Min	Time
44.9	74.4	0.0	-19.8



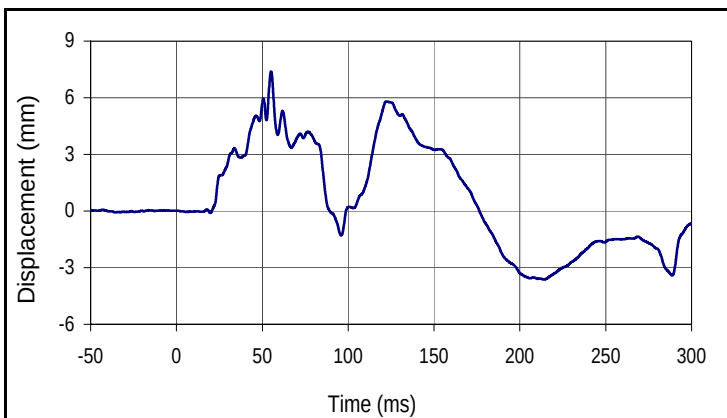
Curve Description			
V2P1 Chest Left Lower Dx			
Plot No.		SAE Class	Units
276		180	mm
Max	Time	Min	Time
24.8	57.4	-2.9	299.9

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

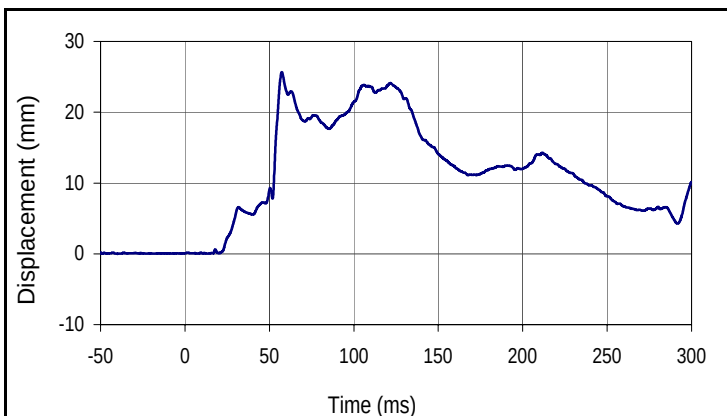
NHTSA No.: R20165411
 Test Date: 4/19/16



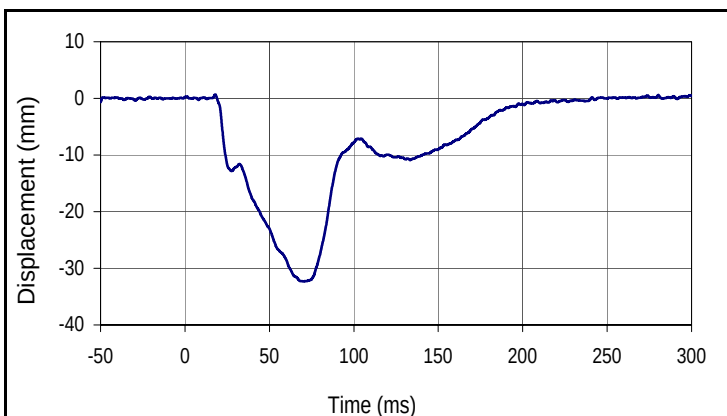
Curve Description			
V2P1 Chest Left Lower Dy			
Plot No.		SAE Class	Units
277		180	mm
Max	Time	Min	Time
9.7	299.9	-6.0	50.0



Curve Description			
V2P1 Chest Left Lower Dz			
Plot No.		SAE Class	Units
278		180	mm
Max	Time	Min	Time
7.4	55.1	-3.6	213.9



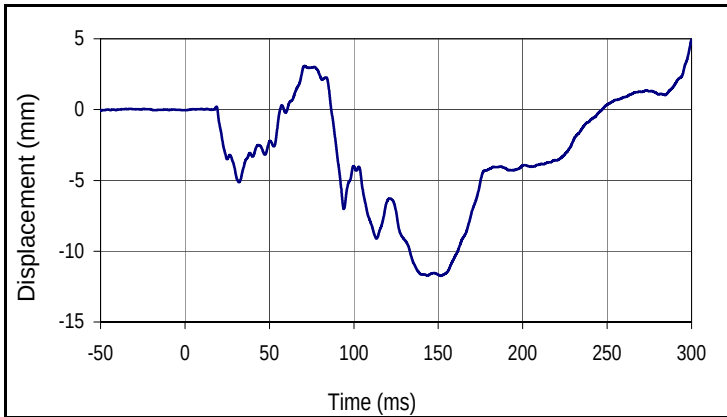
Curve Description			
V2P1 Chest Left Lower Resultant			
Plot No.		SAE Class	Units
279		180	mm
Max	Time	Min	Time
25.7	57.4	0.0	-11.4



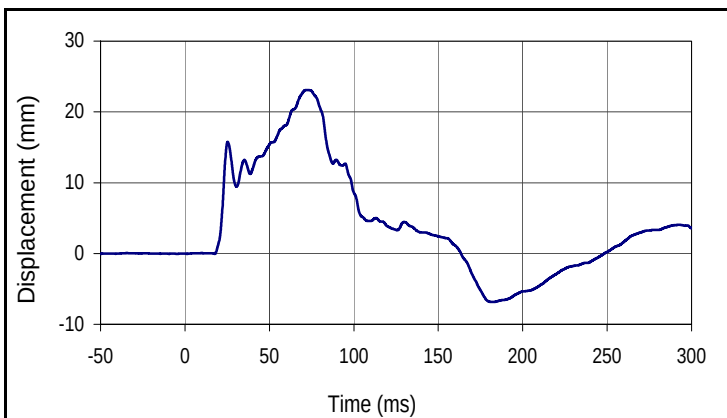
Curve Description			
V2P1 Chest Right Lower Dx			
Plot No.		SAE Class	Units
280		180	mm
Max	Time	Min	Time
0.7	18.0	-32.3	70.3

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

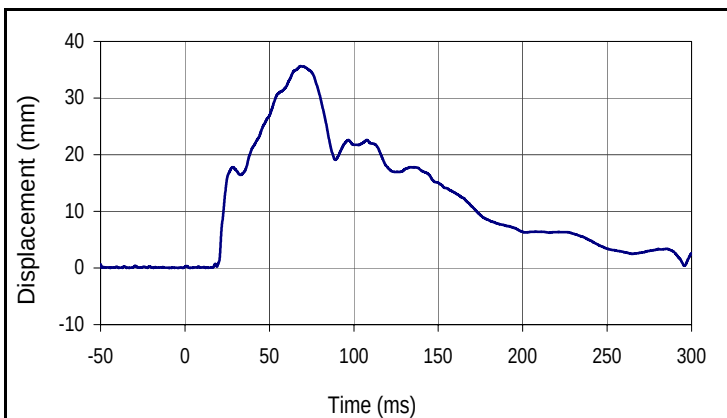
NHTSA No.: R20165411
 Test Date: 4/19/16



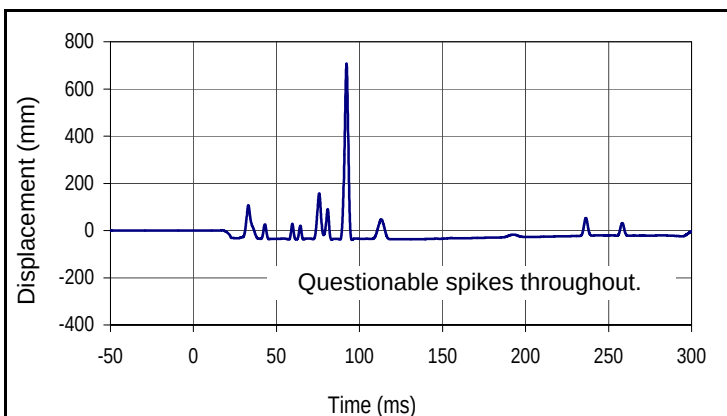
Curve Description			
V2P1 Chest Right Lower Dy			
Plot No.		SAE Class	Units
281		180	mm
Max	Time	Min	Time
4.9	299.9	-11.7	151.5



Curve Description			
V2P1 Chest Right Lower Dz			
Plot No.		SAE Class	Units
282		180	mm
Max	Time	Min	Time
23.1	72.1	-6.8	181.2



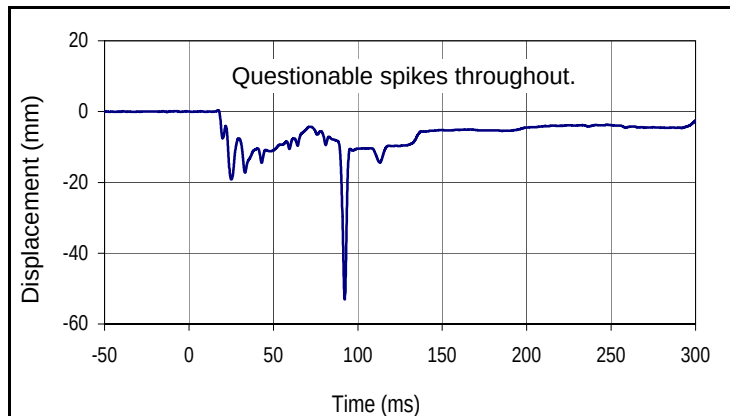
Curve Description			
V2P1 Chest Right Lower Resultant			
Plot No.		SAE Class	Units
283		180	mm
Max	Time	Min	Time
35.6	68.4	0.0	3.2



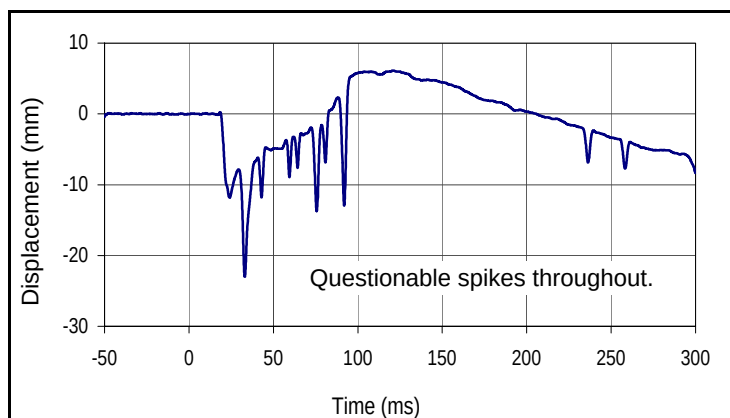
Curve Description			
V2P1 Abdomen Left Lower DX			
Plot No.		SAE Class	Units
284		180	mm
Max	Time	Min	Time
707.9	92.2	-39.9	95.5

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

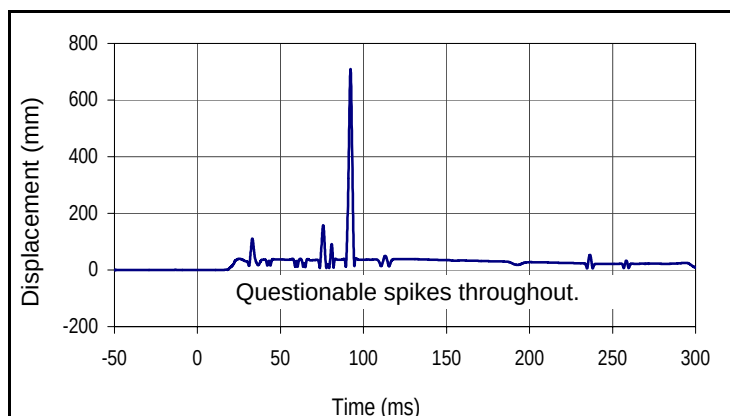
NHTSA No.: R20165411
 Test Date: 4/19/16



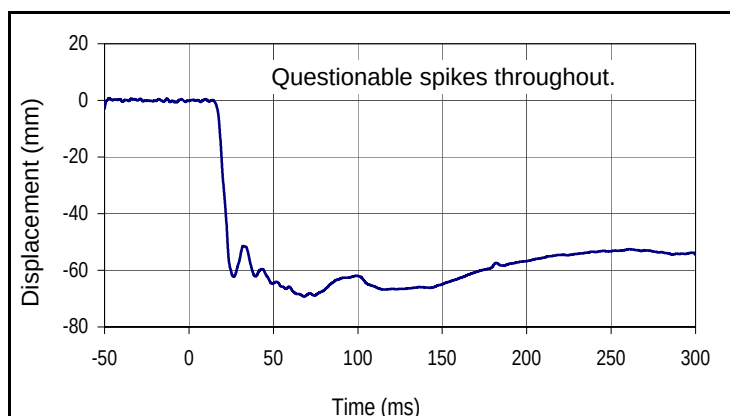
Curve Description			
V2P1 Adbomen Left Lower Dy			
Plot No.		SAE Class	Units
285		180	mm
Max	Time	Min	Time
0.4	17.4	-53.0	92.2



Curve Description			
V2P1 Abdomen Left Lower Dz			
Plot No.		SAE Class	Units
286		180	mm
Max	Time	Min	Time
6.1	120.9	-23.0	33.1



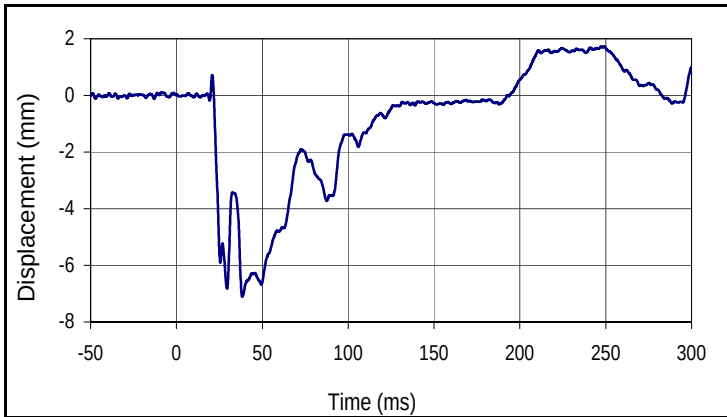
Curve Description			
V2P1 Abdomen Left Lower Resultant			
Plot No.		SAE Class	Units
287		180	mm
Max	Time	Min	Time
710.0	92.2	0.0	-6.2



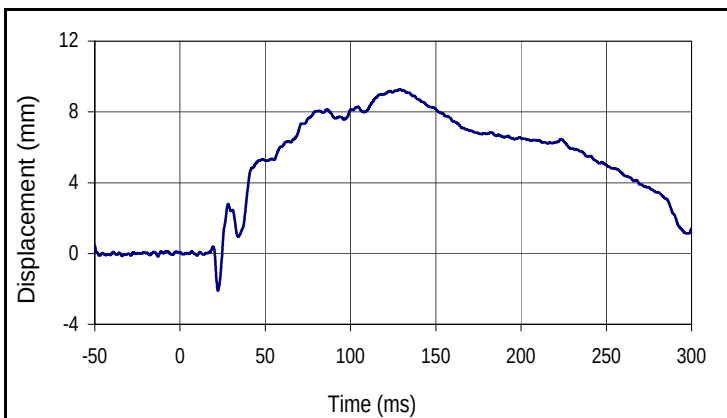
Curve Description			
V2P1 Abdomen Right Lower Dx			
Plot No.		SAE Class	Units
288		180	mm
Max	Time	Min	Time
0.7	-13.0	-69.3	68.0

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

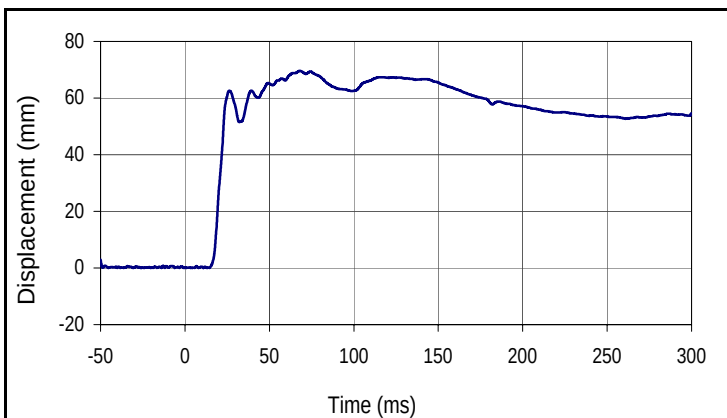
NHTSA No.: R20165411
 Test Date: 4/19/16



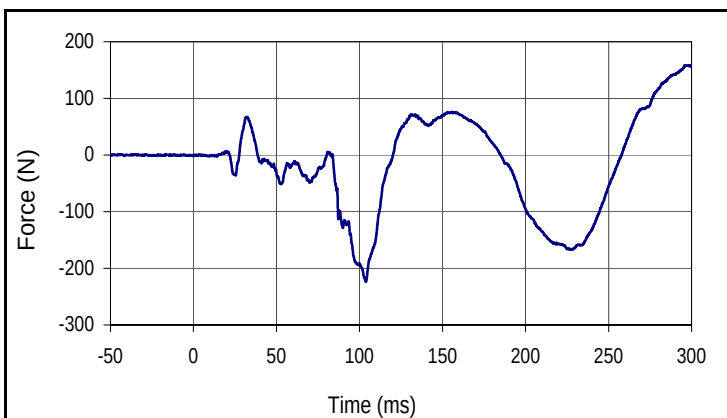
Curve Description			
V2P1 Abdomen Right Lower Dy			
Plot No.		SAE Class	Units
289		180	mm
Max	Time	Min	Time
1.7	247.4	-7.1	38.4



Curve Description			
V2P1 Abdomen Right Lower Dz			
Plot No.		SAE Class	Units
290		180	mm
Max	Time	Min	Time
9.3	128.8	-2.1	22.2



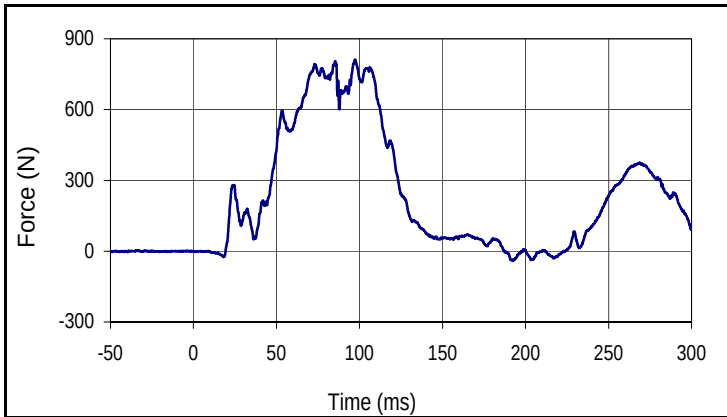
Curve Description			
V2P1 Abdomen Right Lower Resultant			
Plot No.		SAE Class	Units
291		180	mm
Max	Time	Min	Time
69.7	68.0	0.0	0.8



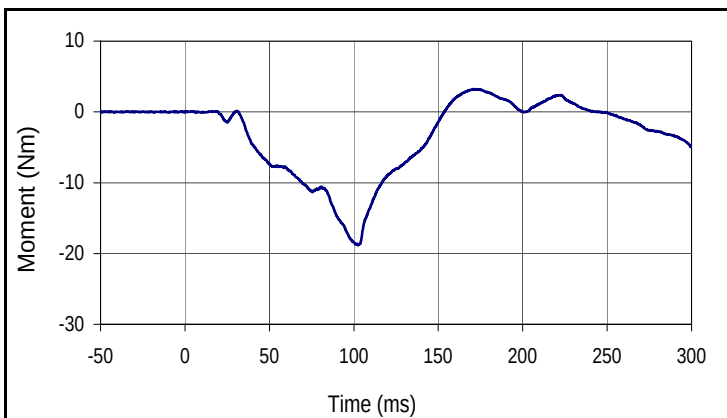
Curve Description			
V2P2 Fx on head acting through O.C joint only			
Plot No.		SAE Class	Units
292		1000	N
Max	Time	Min	Time
158.9	298.8	-223.5	103.8

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

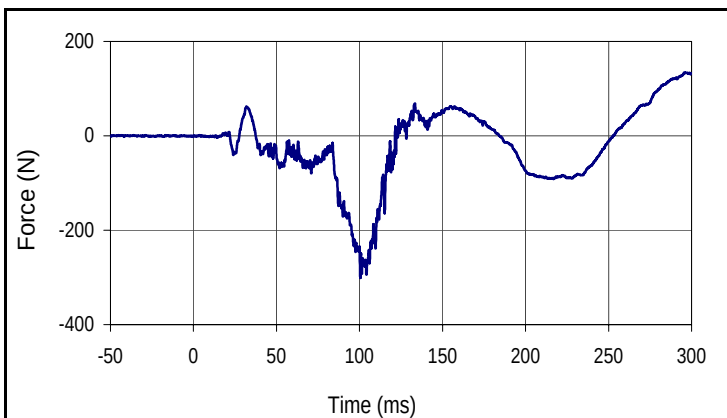
NHTSA No.: R20165411
 Test Date: 4/19/16



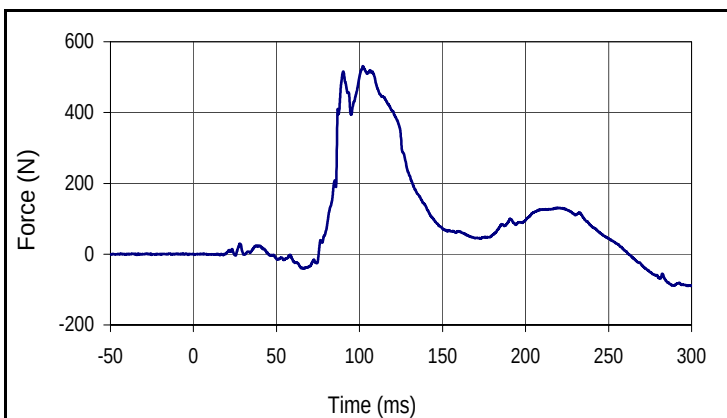
Curve Description			
V2P2 Fz on head acting through O.C joint only			
Plot No.		SAE Class	Units
293		1000	N
Max	Time	Min	Time
811.4	97.3	-41.7	192.4



Curve Description			
V2P2 My on head acting through O.C joint only			
Plot No.		SAE Class	Units
294		600	Nm
Max	Time	Min	Time
3.2	170.9	-18.8	102.6



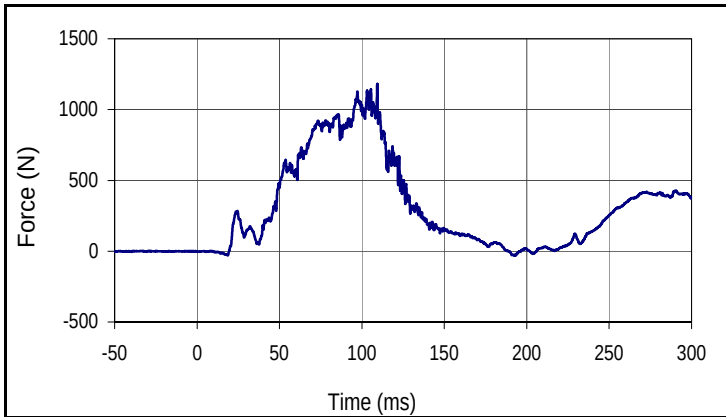
Curve Description			
V2P2 Fx on Head acting through total neck section			
Plot No.		SAE Class	Units
295		1000	N
Max	Time	Min	Time
134.5	295.8	-300.8	100.5



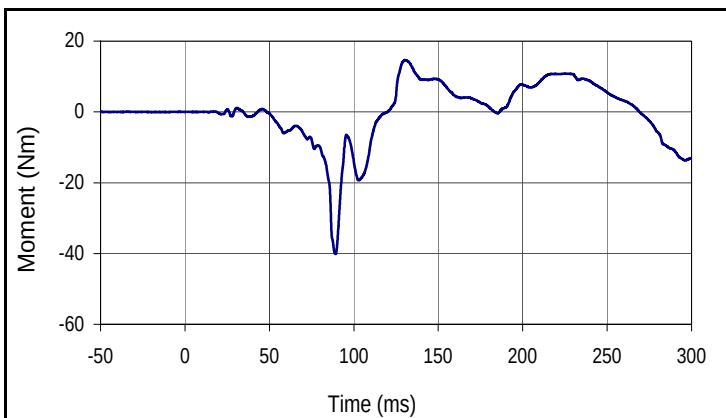
Curve Description			
V2P2 Fy on Head acting through total neck section			
Plot No.		SAE Class	Units
296		1000	N
Max	Time	Min	Time
531.0	102.1	-89.8	298.1

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

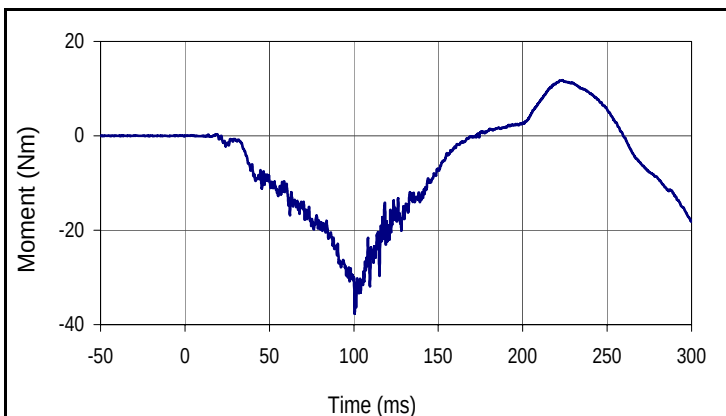
NHTSA No.: R20165411
 Test Date: 4/19/16



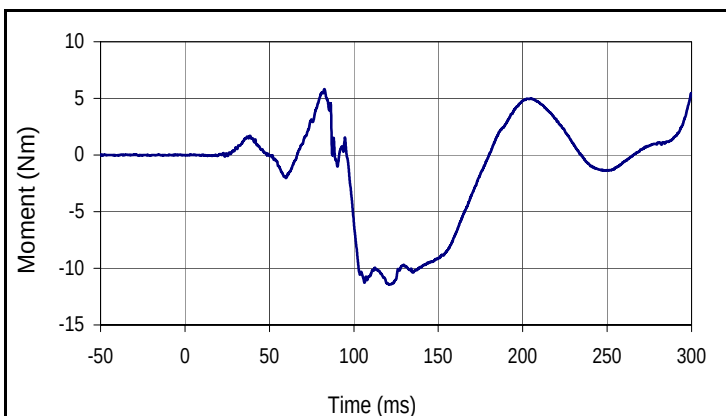
Curve Description			
V2P2 Fz on Head acting through total neck section			
Plot No.		SAE Class	Units
297		1000	N
Max	Time	Min	Time
1181.2	109.3	-32.3	192.4



Curve Description			
V2P2 Mx on Head acting through total neck section			
Plot No.		SAE Class	Units
298		600	Nm
Max	Time	Min	Time
14.7	130.1	-40.1	89.1



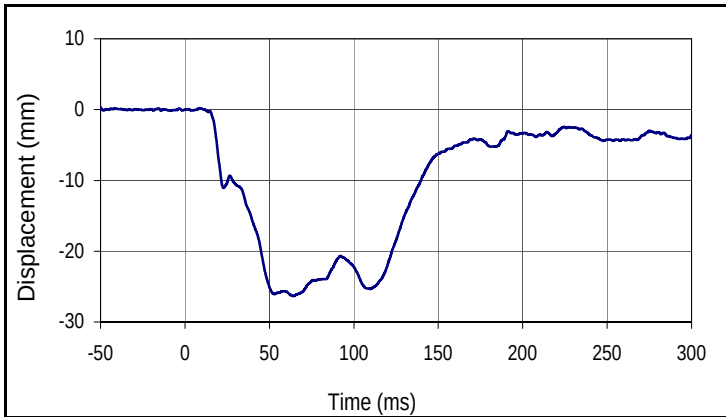
Curve Description			
V2P2 My on Head acting through total neck section			
Plot No.		SAE Class	Units
299		600	Nm
Max	Time	Min	Time
11.8	223.6	-37.7	100.5



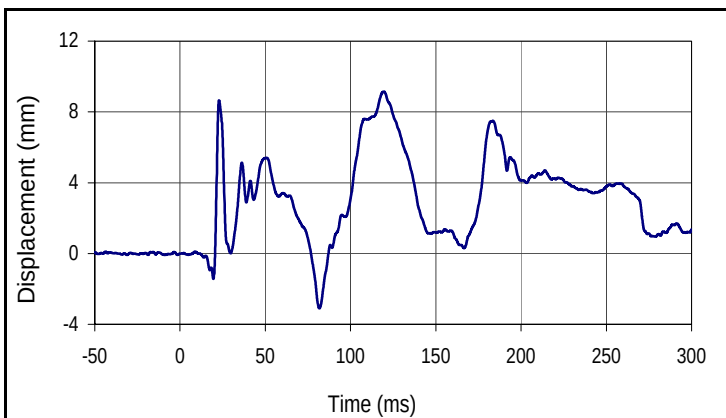
Curve Description			
V2P2 Mz on Head acting through total neck section			
Plot No.		SAE Class	Units
300		600	Nm
Max	Time	Min	Time
5.8	82.6	-11.4	120.8

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

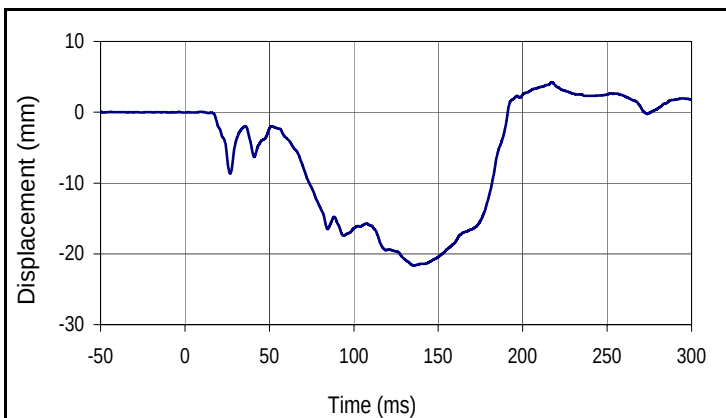
NHTSA No.: R20165411
 Test Date: 4/19/16



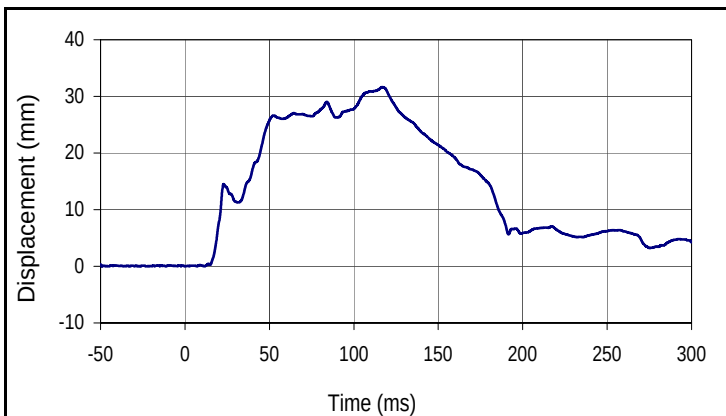
Curve Description			
V2P2 Chest Left Upper Dx			
Plot No.		SAE Class	Units
301		180	mm
Max	Time	Min	Time
0.2	8.9	-26.4	64.4



Curve Description			
V2P2 Chest Left Upper Dy			
Plot No.		SAE Class	Units
302		180	mm
Max	Time	Min	Time
9.1	119.4	-3.1	81.7



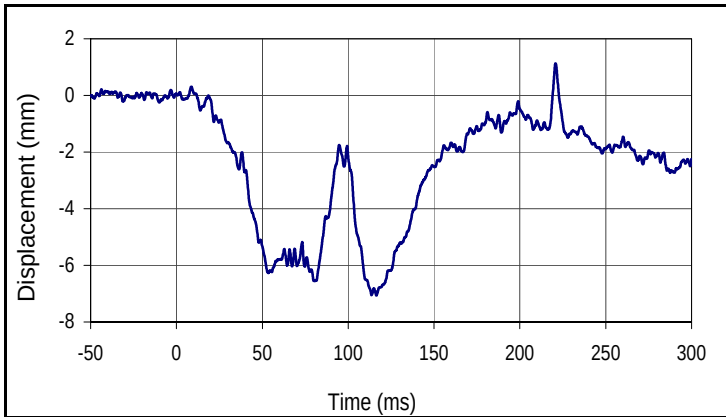
Curve Description			
V2P2 Chest Left Upper Dz			
Plot No.		SAE Class	Units
303		180	mm
Max	Time	Min	Time
4.2	217.2	-21.7	135.4



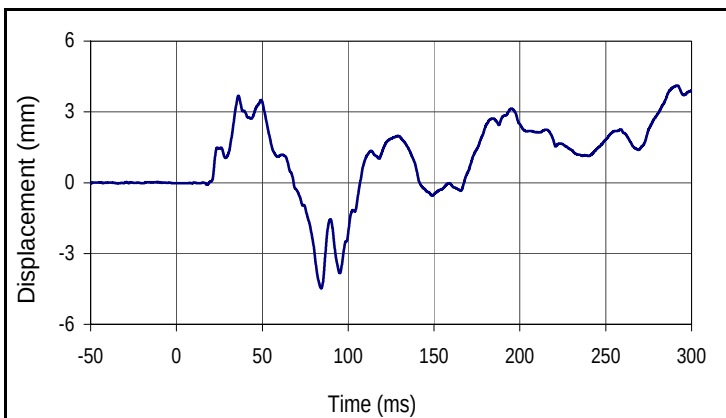
Curve Description			
V2P2 Chest Left Upper Resultant			
Plot No.		SAE Class	Units
304		180	mm
Max	Time	Min	Time
31.6	116.9	0.0	-11.1

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

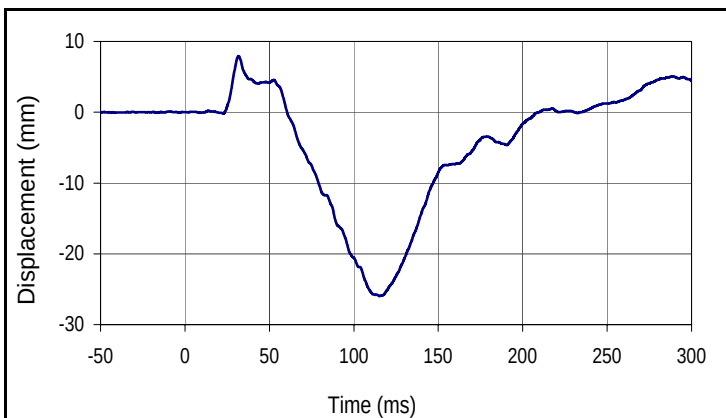
NHTSA No.: R20165411
 Test Date: 4/19/16



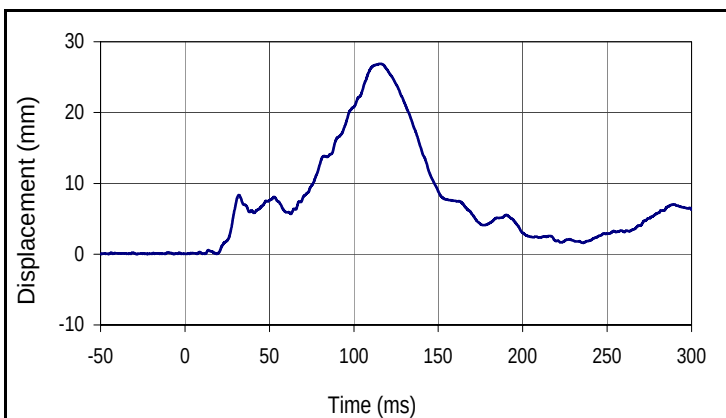
Curve Description			
V2P2 Chest Right Upper Dx			
Plot No.		SAE Class	Units
305		180	mm
Max	Time	Min	Time
1.1	220.8	-7.1	116.5



Curve Description			
V2P2 Chest Right Upper Dy			
Plot No.		SAE Class	Units
306		180	mm
Max	Time	Min	Time
4.1	291.8	-4.5	84.3



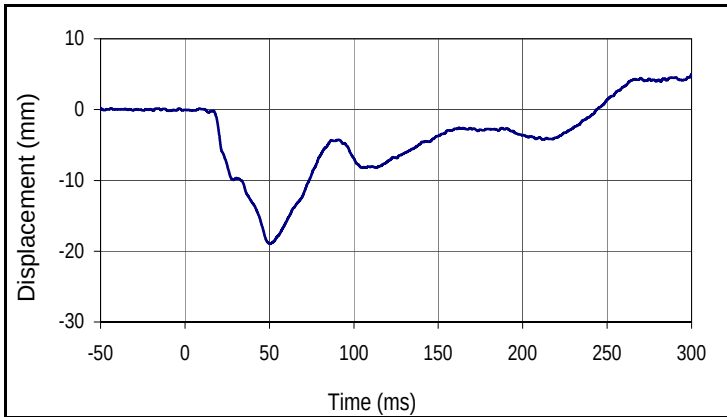
Curve Description			
V2P2 Chest Right Upper Dz			
Plot No.		SAE Class	Units
307		180	mm
Max	Time	Min	Time
7.9	31.7	-26.0	115.1



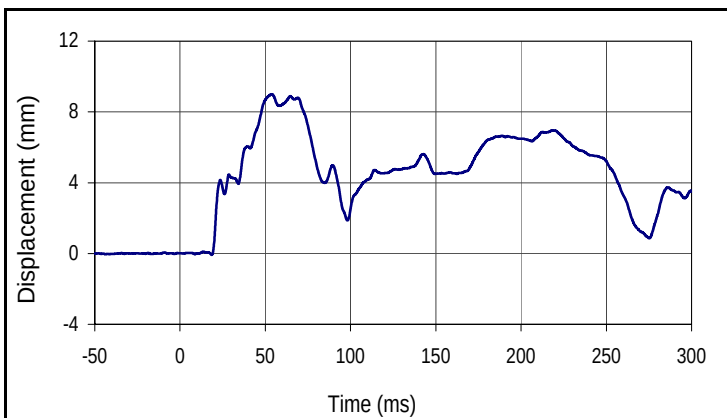
Curve Description			
V2P2 Chest Right Upper Resultant			
Plot No.		SAE Class	Units
308		180	mm
Max	Time	Min	Time
26.9	115.8	0.0	-6.7

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

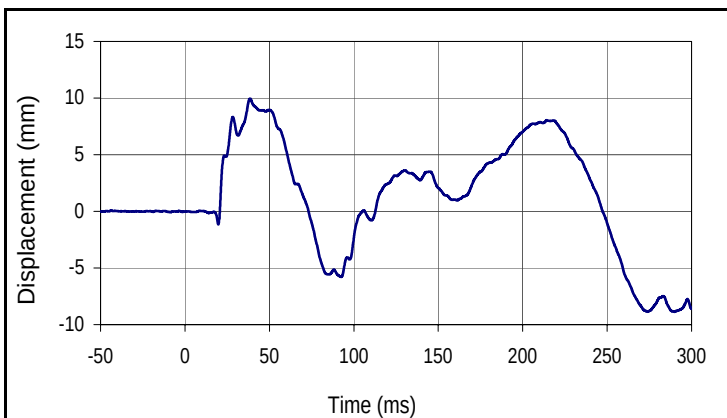
NHTSA No.: R20165411
 Test Date: 4/19/16



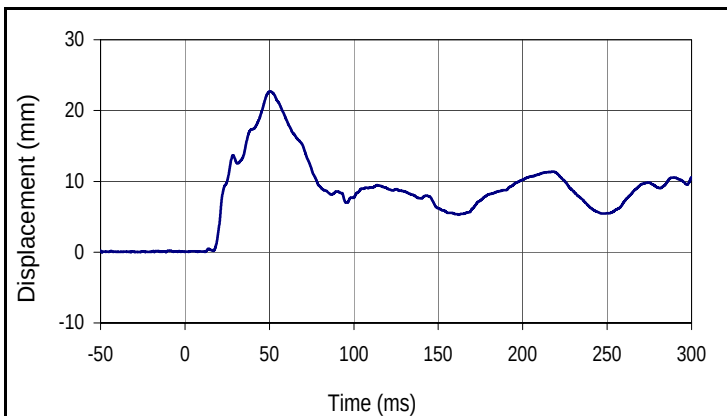
Curve Description			
V2P2 Chest Left Lower Dx			
Plot No.		SAE Class	Units
309		180	mm
Max	Time	Min	Time
5.0	299.9	-19.0	50.3



Curve Description			
V2P2 Chest Left Lower Dy			
Plot No.		SAE Class	Units
310		180	mm
Max	Time	Min	Time
9.0	53.9	-0.1	18.6



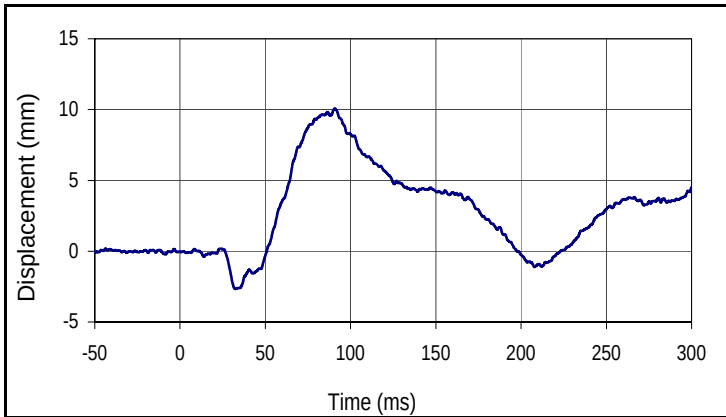
Curve Description			
V2P2 Chest Left Lower Dz			
Plot No.		SAE Class	Units
311		180	mm
Max	Time	Min	Time
9.9	38.6	-8.9	289.8



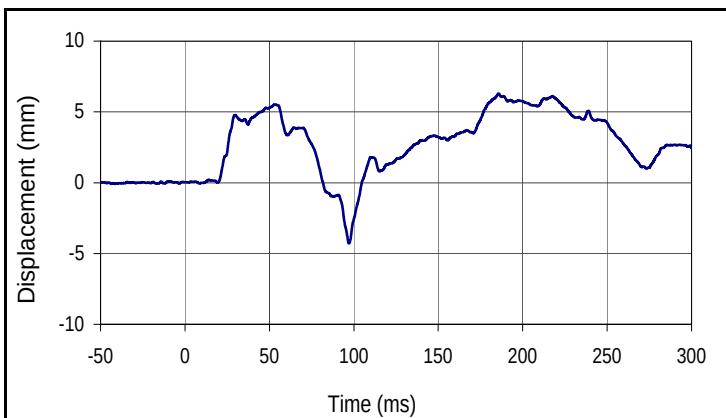
Curve Description			
V2P2 Chest Left Lower Resultant			
Plot No.		SAE Class	Units
312		180	mm
Max	Time	Min	Time
22.7	50.4	0.0	-11.2

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

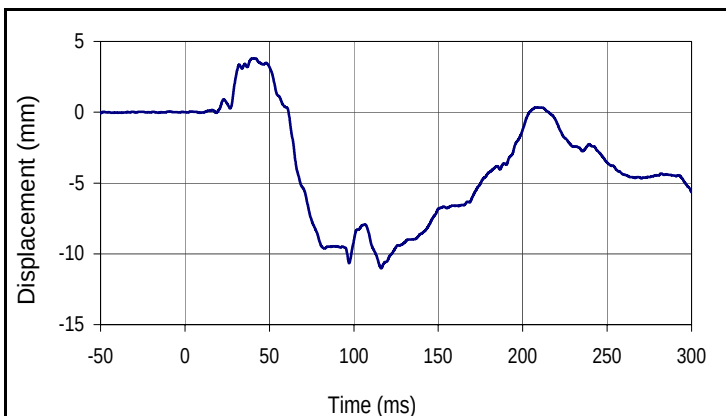
NHTSA No.: R20165411
 Test Date: 4/19/16



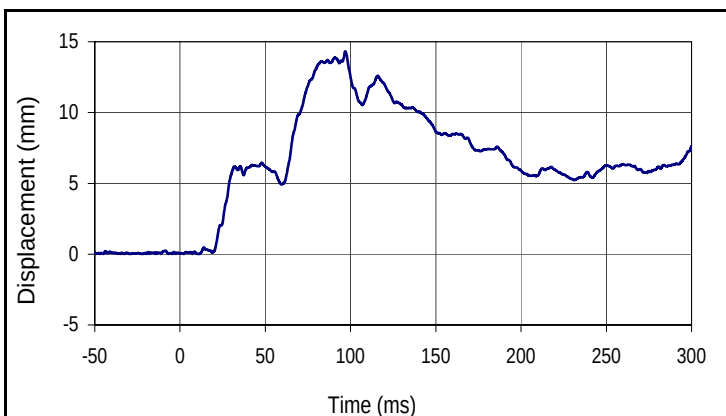
Curve Description			
V2P2 Chest Right Lower Dx			
Plot No.		SAE Class	Units
313		180	mm
Max	Time	Min	Time
10.1	90.9	-2.7	32.5



Curve Description			
V2P2 Chest Right Lower Dy			
Plot No.		SAE Class	Units
314		180	mm
Max	Time	Min	Time
6.3	185.8	-4.3	97.1



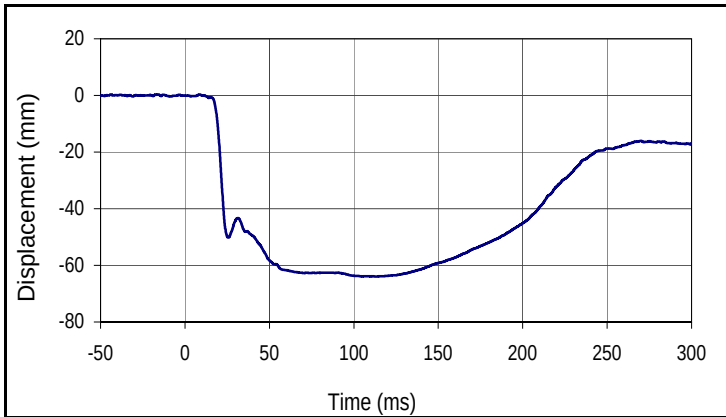
Curve Description			
V2P2 Chest Right Lower Dz			
Plot No.		SAE Class	Units
315		180	mm
Max	Time	Min	Time
3.8	41.7	-11.0	116.2



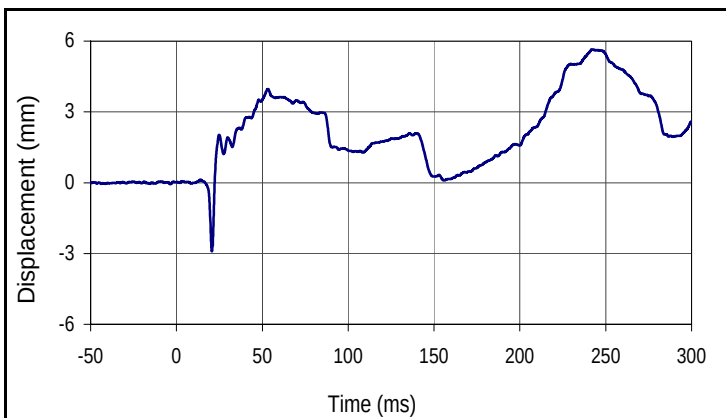
Curve Description			
V2P2 Chest Right Lower Resultant			
Plot No.		SAE Class	Units
316		180	mm
Max	Time	Min	Time
14.3	96.9	0.0	2.1

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

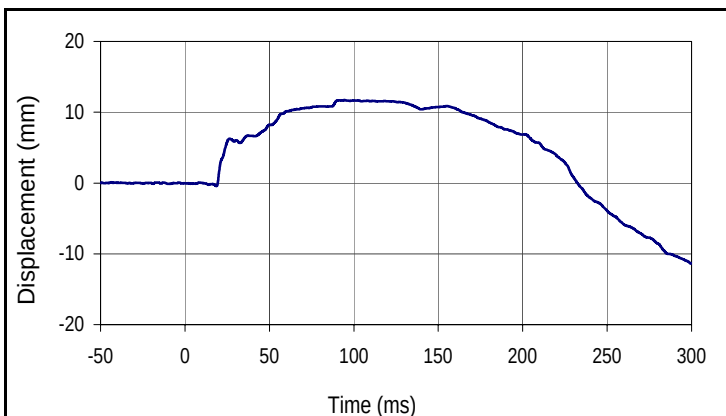
NHTSA No.: R20165411
 Test Date: 4/19/16



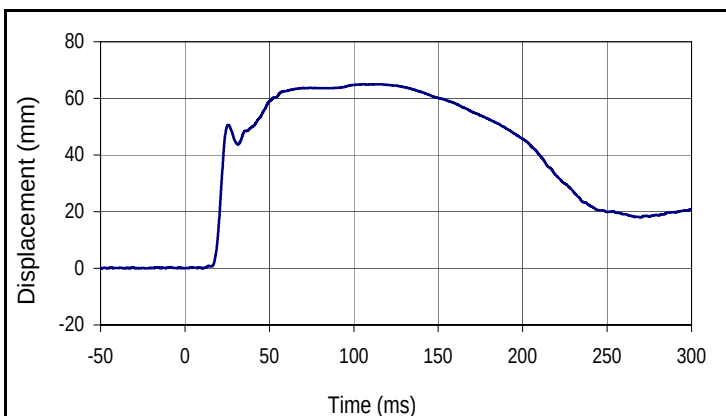
Curve Description			
V2P2 Abdomen Left Lower Dx			
Plot No.		SAE Class	Units
317		180	mm
Max	Time	Min	Time
0.4	8.7	-64.0	113.5



Curve Description			
V2P2 Abdomen Left Lower Dy			
Plot No.		SAE Class	Units
318		180	mm
Max	Time	Min	Time
5.7	242.2	-2.9	20.7



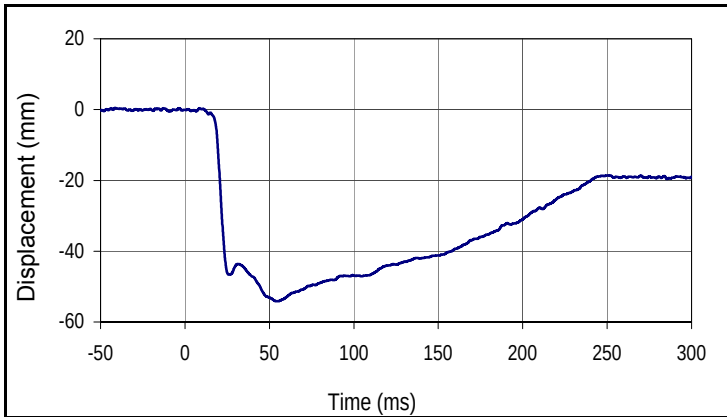
Curve Description			
V2P2 Abdomen Left Lower Dz			
Plot No.		SAE Class	Units
319		180	mm
Max	Time	Min	Time
11.7	94.5	-11.3	299.7



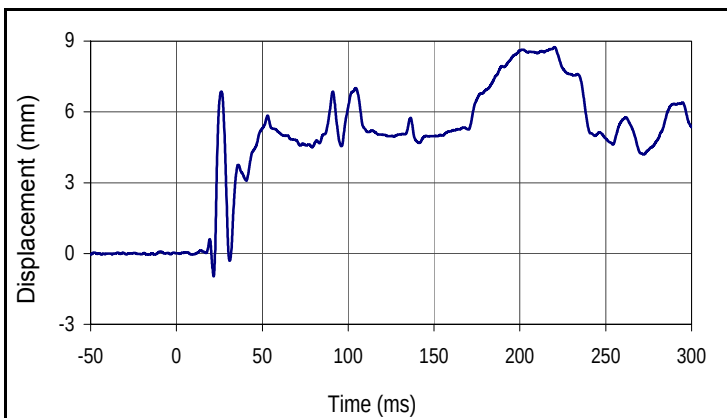
Curve Description			
V2P2 Abdomen Left Lower Resultant			
Plot No.		SAE Class	Units
320		180	mm
Max	Time	Min	Time
65.0	113.5	0.0	-11.4

Test Vehicle: 2016 Mazda CX-5
 Test Program: NHTSA R&D Left Oblique Offset 15deg/35%

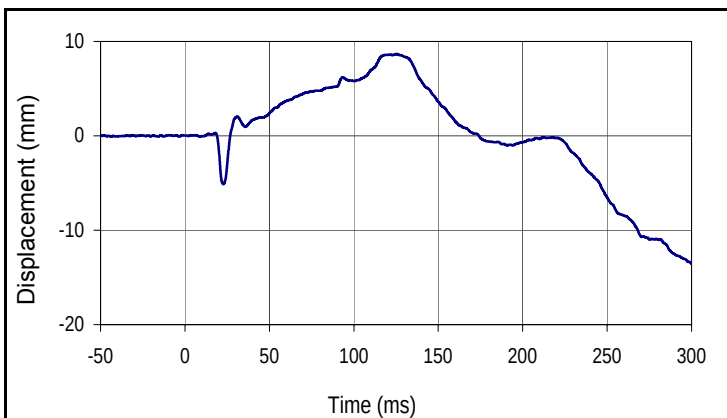
NHTSA No.: R20165411
 Test Date: 4/19/16



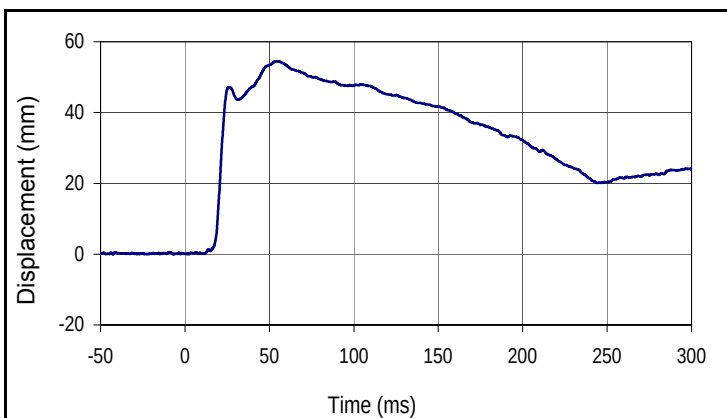
Curve Description			
V2P2 Abdomen Right Lower Dx			
Plot No.		SAE Class	Units
321		180	mm
Max	Time	Min	Time
0.4	-3.5	-54.1	54.0



Curve Description			
V2P2 Abdomen Right Lower Dy			
Plot No.		SAE Class	Units
322		180	mm
Max	Time	Min	Time
8.7	220.2	-1.0	21.7



Curve Description			
V2P2 Abdomen Right Lower Dz			
Plot No.		SAE Class	Units
323		180	mm
Max	Time	Min	Time
8.7	125.4	-13.5	299.9



Curve Description			
V2P2 Abdomen Right Lower Resultant			
Plot No.		SAE Class	Units
324		180	mm
Max	Time	Min	Time
54.5	53.9	0.0	-6.5

APPENDIX C
DUMMY CALIBRATION AND PERFORMANCE VERIFICATION DATA SHEETS

APPENDIX C
Dummy Calibration Data

Table C-1 : Dummy Information

Type	Serial Number
Thor 50th Male	DO9798
Thor 50th Male	DL9207

Table C-2: THOR Ankle Zero Offset Information

Thor 50th Male S/N DO9798					
LFTX	LFTY	LFTZ	RFTX	RFTY	RFTZ
Left Ankle X	Left Ankle Y	Left Ankle Z	Right Ankle X	Right Ankle Y	Right Ankle Z
2.400	-13.500	24.700	3.500	-13.800	-39.120

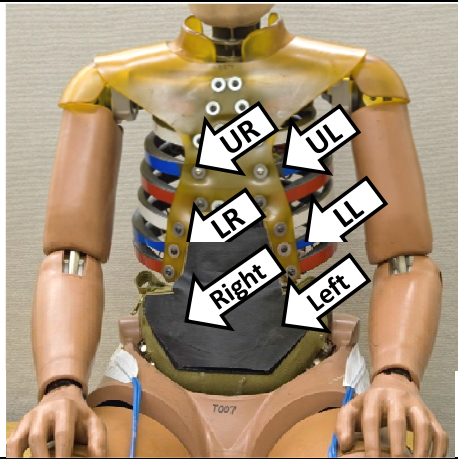
Thor 50th Male S/N DL9207					
LFTX	LFTY	LFTZ	RFTX	RFTY	RFTZ
Left Ankle X	Left Ankle Y	Left Ankle Z	Right Ankle X	Right Ankle Y	Right Ankle Z
-0.490	-12.260	-44.000	1.580	-13.300	-41.900

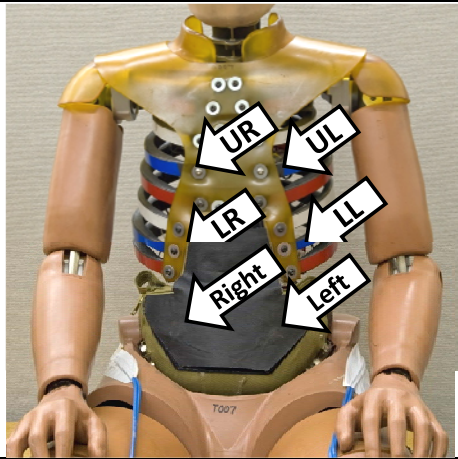
Sensor Location	Axis	Measurement	Manufacturer	Model Number	Serial Number	Rated Full Scale	Sensitivity	Sensitivity Units
Head CG	X	Linear Acceleration	Endevco	7264	P52001	2000	0.019660000	mV/V/g
Head CG	Y	Linear Acceleration	Endevco	7264	P51697	2000	0.022130000	mV/V/g
Head CG	Z	Linear Acceleration	Endevco	7264	P75155	2000	0.017940000	mV/V/g
Head	X	Rotational Acceleration	DTS	ARS 18k	ARS6733	18k	0.094300000	mV/deg/sec
Head	Y	Rotational Acceleration	DTS	ARS 18k	ARS4071	18k	0.093090000	mV/deg/sec
Head	Z	Rotational Acceleration	DTS	ARS 18k	ARS4719	18k	0.093040000	mV/deg/sec
Occipital Condyle	Y	Rotational Displacement	Sternice	9945	DK5913	180	3.045160000	mV/V/deg
Neck Spring Front	Z	Force	Humanetics	6005JFL	93	4448.22	0.000524209	mV/V/N
Neck Spring Rear	Z	Force	Humanetics	6005JFL	132	4448.20	0.000484300	mV/V/N
Upper Neck	X	Force	Humanetics	10380J14	DS9758	8896.4	0.000232948	mV/V/N
Upper Neck	Y	Force	Humanetics	10380J14	DS9758	8896.4	0.000230385	mV/V/N
Upper Neck	Z	Force	Humanetics	10380J14	DS9758	13344.7	0.000087038	mV/V/N
Upper Neck	X	Moment	Humanetics	10380J14	DS9758	282.5	0.005889558	mV/V/Nm
Upper Neck	Y	Moment	Humanetics	10380J14	DS9758	282.5	0.005962478	mV/V/Nm
Upper Neck	Z	Moment	Humanetics	10380J14	DS9758	282.5	0.009477876	mV/V/Nm
Lower Neck	X	Force	Humanetics	10381J14	DK3607	13344.7	0.000168500	mV/V/N
Lower Neck	Y	Force	Humanetics	10381J14	DK3607	13344.7	0.000168700	mV/V/N
Lower Neck	Z	Force	Humanetics	10381J14	DK3607	13344.7	0.000068800	mV/V/N
Lower Neck	X	Moment	Humanetics	10381J14	DK3607	451.9	0.004012500	mV/V/Nm
Lower Neck	Y	Moment	Humanetics	10381J14	DK3607	451.9	0.004072100	mV/V/Nm
Lower Neck	Z	Moment	Humanetics	10381J14	DK3607	226.0	0.006723800	mV/V/Nm
T1	X	Linear Acceleration	Endevco	7264	P63843	2000	0.023560000	mV/V/g
T1	Y	Linear Acceleration	Endevco	7264	P52008	2000	0.018940000	mV/V/g
T1	Z	Linear Acceleration	Endevco	7264	P51636	2000	0.021720000	mV/V/g
T6	X	Linear Acceleration	Endevco	7264	P75156	2000	0.018200000	mV/V/g
T6	Y	Linear Acceleration	Endevco	7264	P84363	2000	0.019810000	mV/V/g
T6	Z	Linear Acceleration	Endevco	7264	P51715	2000	0.017920000	mV/V/g
Thorax UL	X	Displacement	Humanetics	IF-364-C-R3	DQ2255	87	31.685400000	mm/V
Thorax UL	Y	Rotational Displacement	Sternice	9945	DM4779	150	3.039700000	mV/V/deg
Thorax UL	Z	Rotational Displacement	Sternice	9945	DM4778	150	3.047000000	mV/V/deg
Thorax UR	X	Displacement	Humanetics	IF-364-C-R3	DQ2254	87	30.649300000	mm/V
Thorax UR	Y	Rotational Displacement	Sternice	9945	DM4774	150	3.041200000	mV/V/deg
Thorax UR	Z	Rotational Displacement	Sternice	9945	DM4775	150	3.062600000	mV/V/deg
Thorax LL	X	Displacement	Humanetics	IF-364-C-R3	DK3866	87	30.525600000	mm/V
Thorax LL	Y	Rotational Displacement	Sternice	9945	DJ5455	150	3.047000000	mV/V/deg
Thorax LL	Z	Rotational Displacement	Sternice	9945	DJ5454	150	3.051300000	mV/V/deg
Thorax LR	X	Displacement	Humanetics	IF-364-C-R3	DK3865	87	28.983900000	mm/V
Thorax LR	Y	Rotational Displacement	Sternice	9945	DJ5453	150	3.059300000	mV/V/deg
Thorax LR	Z	Rotational Displacement	Sternice	9945	DJ5452	150	3.050600000	mV/V/deg
Abdomen Right	X	Displacement	Humanetics	9910	DI4779	117	36.574900000	mm/V
Abdomen Right	Y	Rotational Displacement	Sternice	9945	DJ5445	60	3.059600000	mV/V/deg
Abdomen Right	Z	Rotational Displacement	Sternice	9945	DJ5446	30	3.072100000	mV/V/deg
Abdomen Left	X	Displacement	Humanetics	9910	183	117	35.438500000	mm/V
Abdomen Left	Y	Rotational Displacement	Sternice	9945	DJ5443	60	3.029500000	mV/V/deg
Abdomen Left	Z	Rotational Displacement	Sternice	9945	DJ5444	30	2.990900000	mV/V/deg
T12	X	Force	Humanetics	10415J14	DQ5600	13344.7	0.000146140	mV/V/N
T12	Y	Force	Humanetics	10415J14	DQ5600	13344.7	0.000145676	mV/V/N
T12	Z	Force	Humanetics	10415J14	DQ5600	17792.9	0.000060665	mV/V/N
T12	X	Moment	Humanetics	10415J14	DQ5600	677.9	0.002202095	mV/V/Nm
T12	Y	Moment	Humanetics	10415J14	DQ5600	903.9	0.001909614	mV/V/Nm
Acetabulum RT	X	Force	Humanetics	10670J14	DL9552	22241.1	0.000118254	mV/V/N
Acetabulum RT	Y	Force	Humanetics	10670J14	DL9552	13344.7	0.000060024	mV/V/N
Acetabulum RT	Z	Force	Humanetics	10670J14	DL9552	13344.7	0.000160828	mV/V/N
Acetabulum LT	X	Force	Humanetics	10530J14	DM1945	22241.2	0.000119449	mV/V/N
Acetabulum LT	Y	Force	Humanetics	10530J14	DM1945	13344.7	0.000060451	mV/V/N
Acetabulum LT	Z	Force	Humanetics	10530J14	DM1945	13344.7	0.000163750	mV/V/N
Left Femur	X	Force	Humanetics	W50-71010	DK0842	15000	0.000143527	mV/V/N
Left Femur	Y	Force	Humanetics	W50-71010	DK0842	15000	0.000143547	mV/V/N
Left Femur	Z	Force	Humanetics	W50-71010	DK0842	15000	0.000072553	mV/V/N
Left Femur	X	Moment	Humanetics	W50-71010	DK0842	350	0.006399714	mV/V/Nm
Left Femur	Y	Moment	Humanetics	W50-71010	DK0842	350	0.006497429	mV/V/Nm
Left Femur	Z	Moment	Humanetics	W50-71010	DK0842	300	0.009042333	mV/V/Nm
Right Femur	X	Force	Humanetics	W50-71010	DK3608	15000	0.000144093	mV/V/N
Right Femur	Y	Force	Humanetics	W50-71010	DK3608	15000	0.000144113	mV/V/N
Right Femur	Z	Force	Humanetics	W50-71010	DK3608	15000	0.000072907	mV/V/N
Right Femur	X	Moment	Humanetics	W50-71010	DK3608	350	0.006456857	mV/V/Nm
Right Femur	Y	Moment	Humanetics	W50-71010	DK3608	350	0.006419143	mV/V/Nm

Sensor Location	Axis	Measurement	Manufacturer	Model Number	Serial Number	Rated Full Scale	Sensitivity	Sensitivity Units
Right Femur	Z	Moment	Humanetics	W50-71010	DK3608	300	0.009165667	mV/V/Nm
ASIS Left	X	Force	Humanetics	9490JFL	77	13000	0.000068500	mV/V/N
ASIS Left	Y	Moment	Humanetics	9490JFL	77	325	0.003816615	mV/V/Nm
ASIS Right	X	Force	Humanetics	9490JFL	DJ5524	13000	0.000071238	mV/V/N
ASIS Right	Y	Moment	Humanetics	9490JFL	DJ5524	325	0.003790769	mV/V/Nm
Pelvis	X	Linear Acceleration	Endevco	7264	P58747	2000	0.018510000	mV/V/g
Pelvis	Y	Linear Acceleration	Endevco	7264	P52004	2000	0.021010000	mV/V/g
Pelvis	Z	Linear Acceleration	Endevco	7264	P71875	2000	0.020680000	mV/V/g
Upper Tibia	Z	Force	Denton	10390J14	DQ5734	11100.0	0.0000954	mv/v/N
Upper Tibia	X	Moment	Denton	10390J14	DQ5734	395.4	0.0074627	mv/v/Nm
Upper Tibia	Y	Moment	Denton	10390J14	DQ5734	395.4	0.0075024	mv/v/Nm
Lower Tibia	X	Force	Denton	9329J	DQ9684	11120.5	0.0001773	mv/v/N
Lower Tibia	Y	Force	Denton	9329J	DQ9684	11120.5	0.0001749	mv/v/N
Lower Tibia	Z	Force	Denton	9329J	DQ9684	11120.5	0.0000976	mv/v/N
Lower Tibia	X	Moment	Denton	9329J	DQ9684	395.4	0.0076980	mv/v/Nm
Lower Tibia	Y	Moment	Denton	9329J	DQ9684	395.4	0.0076547	mv/v/Nm
Ankle	X	Rotational Displacement	SFERNICE	ECO50ESC10	001	180	3.04010	mv/v/deg
Ankle	Y	Rotational Displacement	SFERNICE	ECO50ESC10	002	180	3.03620	mv/v/deg
Ankle	Z	Rotational Displacement	SFERNICE	ECO50ESC10	003	180	3.04490	mv/v/deg
Knee	X	Displacement	Space Age	150-0121V	13073814	30	23.32260	mv/v/mm
Leg	X	Linear Acceleration	Endevco	7264C	P79626	2000	0.02106	mv/v/g
Leg	Y	Linear Acceleration	Endevco	7264C	P74953	2000	0.01785	mv/v/g
Foot	X	Linear Acceleration	Endevco	7264C	P49441	2000	0.01789	mv/v/g
Foot	Z	Linear Acceleration	Endevco	7264C	P80272	2000	0.01955	mv/v/g
Upper Tibia	Z	Force	Denton	10390J14	DQ5598	11100	0.0000953	mv/v/N
Upper Tibia	X	Moment	Denton	10390J14	DQ5598	395.4	0.0074668	mv/v/Nm
Upper Tibia	Y	Moment	Denton	10390J14	DQ5598	395.4	0.0074712	mv/v/Nm
Lower Tibia	X	Force	Denton	9329J	DQ9685	11120.5	0.0001731	mv/v/N
Lower Tibia	Y	Force	Denton	9329J	DQ9685	11120.5	0.0001704	mv/v/N
Lower Tibia	Z	Force	Denton	9329J	DQ9685	11120.5	0.0000962	mv/v/N
Lower Tibia	X	Moment	Denton	9329J	DQ9685	395.4	0.0075356	mv/v/Nm
Lower Tibia	Y	Moment	Denton	9329J	DQ9685	395.4	0.0075951	mv/v/Nm
Ankle	X	Rotational Displacement	SFERNICE	ECO50ESC10	004	300	3.05800	mv/v/deg
Ankle	Y	Rotational Displacement	SFERNICE	ECO50ESC10	005	300	3.04000	mv/v/deg
Ankle	Z	Rotational Displacement	SFERNICE	ECO50ESC10	006	300	3.03620	mv/v/deg
Knee	X	Displacement	Space Age	150-0121V	13073811	30	23.23130	mv/v/mm
Leg	X	Linear Acceleration	Endevco	7264C	P81386	2000	0.01775	mv/v/g
Leg	Y	Linear Acceleration	Endevco	7264C	P52069	2000	0.01906	mv/v/g
Foot	X	Linear Acceleration	Endevco	7264C	P64131	2000	0.01921	mv/v/g
Foot	Z	Linear Acceleration	Endevco	7264C	P51725	2000	0.02140	mv/v/g

Sensor Location	Axis	Measurement	Manufacturer	Model Number	Serial Number	Rated Full Scale	Sensitivity	Sensitivity Units
Head CG	X	Linear Acceleration	Endevco	7264	P82183	2000	0.017690000	mV/V/g
Head CG	Y	Linear Acceleration	Endevco	7264	P81384	2000	0.017600000	mV/V/g
Head CG	Z	Linear Acceleration	Endevco	7264	P81797	2000	0.019350000	mV/V/g
Head	X	Rotational Acceleration	DTS	18K ARS	ARS4740	18000	0.091430000	mV/deg/sec
Head	Y	Rotational Acceleration	DTS	18K ARS	ARS4737	18000	0.095640000	mV/deg/sec
Head	Z	Rotational Acceleration	DTS	18K ARS	ARS4073	18000	0.093760000	mV/deg/sec
Skull Spring Front	Y	Force	Humanetics	10386J14	DO9740	4448.2	0.000512814	mV/V/N
Skull Spring Rear	Z	Force	Humanetics	10386J14	DO9741	4448.2	0.000508183	mV/V/N
Condyle Pot	Z	Rotation	Humanetics	9945	DK5911	180	3.021000000	mV/V/deg
Upper Neck	X	Force	Humanetics	10380J14	DP3956	8896.4	0.000224158	mV/V/N
Upper Neck	Y	Force	Humanetics	10380J14	DP3956	8896.4	0.000227755	mV/V/N
Upper Neck	Z	Force	Humanetics	10380J14	DP3956	13344.7	0.00085255	mV/V/N
Upper Neck	X	Moment	Humanetics	10380J14	DP3956	282.5	0.005819469	mV/V/Nm
Upper Neck	Y	Moment	Humanetics	10380J14	DP3956	282.5	0.005983009	mV/V/Nm
Upper Neck	Z	Moment	Humanetics	10380J14	DP3956	282.5	0.009425133	mV/V/Nm
Lower Neck	X	Force	Humanetics	10381J14	DP4780	13344.7	0.000173709	mV/V/N
Lower Neck	Y	Force	Humanetics	10381J14	DP4780	13344.7	0.000174489	mV/V/N
Lower Neck	Z	Force	Humanetics	10381J14	DP4780	13344.7	0.000070575	mV/V/N
Lower Neck	X	Moment	Humanetics	10381J14	DP4780	451.9	0.004108210	mV/V/Nm
Lower Neck	Y	Moment	Humanetics	10381J14	DP4780	451.9	0.004146714	mV/V/Nm
Lower Neck	Z	Moment	Humanetics	10381J14	DP4780	226	0.006740265	mV/V/Nm
T1	X	Linear Acceleration	Endevco	7264	P79630	2000	0.020870000	mV/V/g
T1	Y	Linear Acceleration	Endevco	7264	P78880	2000	0.019820000	mV/V/g
T1	Z	Linear Acceleration	Endevco	7264	P82758	2000	0.018610000	mV/V/g
Upper Left Thorax	X	Voltage	Humanetics	IF-364-C-R3	DS6355			
Upper Left Thorax	Y	Rotation	Humanetics	9945	DI2382	180	2.978800000	mV/V/deg
Upper Left Thorax	Z	Rotation	Humanetics	9945	DI2383	180	3.007300000	mV/V/deg
Upper Right Thorax	X	Voltage	Humanetics	IF-364-C-R3	DI2613			
Upper Right Thorax	Y	Rotation	Humanetics	9945	DI7753	180	3.035900000	mV/V/deg
Upper Right Thorax	Z	Rotation	Humanetics	9945	DI7752	180	3.052400000	mV/V/deg
Lower Left Thorax	X	Voltage	Humanetics	IF-364-C-R3	DS6353			
Lower Left Thorax	Y	Rotation	Humanetics	9945	DM4781	180	3.001400000	mV/V/deg
Lower Left Thorax	Z	Rotation	Humanetics	9945	DS4092	180	3.072500000	mV/V/deg
Lower Right Thorax	X	Voltage	Humanetics	IF-364-C-R3	DS6354			
Lower Right Thorax	Y	Rotation	Humanetics	9945	DM4776	180	3.004900000	mV/V/deg
Lower Right Thorax	Z	Rotation	Humanetics	9945	DM4777	180	2.994700000	mV/V/deg
T6	X	Linear Acceleration	Endevco	7264	P49229	2000	0.018010000	mV/V/g
T6	Y	Linear Acceleration	Endevco	7264	P49215	2000	0.016950000	mV/V/g
T6	Z	Linear Acceleration	Endevco	7264	P52122	2000	0.017050000	mV/V/g
Thoracic Spine	X	Force	Humanetics	10415J14	DP2984	13344.7	0.000146365	mV/V/N
Thoracic Spine	Y	Force	Humanetics	10415J14	DP2984	13344.7	0.000147107	mV/V/N
Thoracic Spine	Z	Force	Humanetics	10415J14	DP2984	17792.9	0.000060193	mV/V/N
Thoracic Spine	X	Moment	Humanetics	10415J14	DP2984	677.9	0.002146039	mV/V/Nm
Thoracic Spine	Y	Moment	Humanetics	10415J14	DP2984	903.9	0.001914371	mV/V/Nm
Abdomen Left	Z	Voltage	Humanetics	9910	DQ2303			
Abdomen Left	X	Rotation	Humanetics	9945	DS8363	150	3.024100000	mV/V/deg
Abdomen Left	Y	Rotation	Humanetics	9945	DS8361	150	3.047400000	mV/V/deg
Abdomen Right	Z	Voltage	Humanetics	9910	DM2641			
Abdomen Right	X	Rotation	Humanetics	9945	DS4094	150	3.012300000	mV/V/deg
Abdomen Right	Y	Rotation	Humanetics	9945	DS4121	150	3.021800000	mV/V/deg
Acetabulum Right	X	Force	Humanetics	10670J14	DP3835	22241.1	0.000118506	mV/V/N
Acetabulum Right	Y	Force	Humanetics	10670J14	DP3835	13344.7	0.000059342	mV/V/N
Acetabulum Right	Z	Force	Humanetics	10670J14	DP3835	13344.7	0.000161173	mV/V/N
Acetabulum Left	X	Force	Humanetics	10530J14	DP4639	22241.1	0.000121280	mV/V/N
Acetabulum Left	Y	Force	Humanetics	10530J14	DP4639	13344.7	0.000059432	mV/V/N
Acetabulum Left	Z	Force	Humanetics	10530J14	DP4639	13344.7	0.000165871	mV/V/N
Pelvis	X	Linear Acceleration	Endevco	7264	P83434	2000	0.017540000	mV/V/g
Pelvis	Y	Linear Acceleration	Endevco	7264	P82752	2000	0.018310000	mV/V/g
Pelvis	Z	Linear Acceleration	Endevco	7264	P80296	2000	0.019410000	mV/V/g
ASIS Right	X	Force	Humanetics	10387J14	DP5091	13000	0.000065215	mV/V/N
ASIS Right	Y	Moment	Humanetics	10387J14	DP5091	325	0.003697538	mV/V/Nm
ASIS Left	Z	Force	Humanetics	10387J14	DP5092	13000	0.000067323	mV/V/N
ASIS Left	X	Moment	Humanetics	10387J14	DP5092	325	0.003688923	mV/V/Nm
Femur Left	Y	Force	Denton	W50-7101051	DM4975	15000	0.000143700	mV/V/N
Femur Left	Z	Force	Denton	W50-7101051	DM4975	15000	0.000143600	mV/V/N
Femur Left	X	Force	Denton	W50-7101051	DM4975	15000	0.000072700	mV/V/N
Femur Left	Y	Moment	Denton	W50-7101051	DM4975	350	0.006601400	mV/V/Nm
Femur Left	Z	Moment	Denton	W50-7101051	DM4975	350	0.006642000	mV/V/Nm
Femur Left	X	Moment	Denton	W50-7101051	DM4975	300	0.008961300	mV/V/Nm
Femur Right	Y	Force	Denton	W50-7101051	DM4976	15000	0.000142600	mV/V/N

Sensor Location	Axis	Measurement	Manufacturer	Model Number	Serial Number	Rated Full Scale	Sensitivity	Sensitivity Units
Femur Right	X	Force	Denton	W50-7101051	DM4976	15000	0.000142900	mV/V/N
Femur Right	Y	Force	Denton	W50-7101051	DM4976	15000	0.000072200	mV/V/N
Femur Right	X	Moment	Denton	W50-7101051	DM4976	350	0.006505700	mV/V/Nm
Femur Right	Y	Moment	Denton	W50-7101051	DM4976	350	0.006488900	mV/V/Nm
Femur Right	Z	Moment	Denton	W50-7101051	DM4976	300	0.008811600	mV/V/Nm
Upper Tibia	Z	Moment	Denton	4353J	75	395	0.00749000	mv/v/Nm
Upper Tibia	X	Moment	Denton	4353J	75	395	0.00747580	mv/v/Nm
Lower Tibia	Y	Force	Denton	4929J	166	11100	0.00017560	mv/v/N
Lower Tibia	X	Force	Denton	4929J	166	11100	0.00017130	mv/v/N
Lower Tibia	Y	Force	Denton	4929J	166	11100	0.00009950	mv/v/N
Lower Tibia	Z	Moment	Denton	4929J	166	395	0.00742480	mv/v/Nm
Lower Tibia	X	Moment	Denton	4929J	166	395	0.00737260	mv/v/Nm
Ankle	Y	Rotational Displacement	Contelec	PD210-4B	0528	180	3.20220	mv/v/deg
Ankle	X	Rotational Displacement	Contelec	PD210-4B	0526	180	3.15530	mv/v/deg
Ankle	Y	Rotational Displacement	Contelec	PD210-4B	0527-1	180	3.16060	mv/v/deg
Knee	Z	Displacement	Space Age	150-0121VL	021033	30	23.25080	mv/v/mm
Leg	X	Linear Acceleration	Endevco	7264C	P82744	2000	0.01827	mv/v/g
Leg	X	Linear Acceleration	Endevco	7264C	P82322	2000	0.01726	mv/v/g
Foot	X	Linear Acceleration	Endevco	7264C	P83340	2000	0.02038	mv/v/g
Foot	Z	Linear Acceleration	Endevco	7264C	P83339	2000	0.01990	mv/v/g
Upper Tibia	Z	Moment	Denton	4353J	97	395	0.00733320	mv/v/Nm
Upper Tibia	X	Moment	Denton	4353J	97	395	0.00739800	mv/v/Nm
Lower Tibia	Y	Force	Denton	4929J	121	11100	0.00017510	mv/v/N
Lower Tibia	X	Force	Denton	4929J	121	11100	0.00017180	mv/v/N
Lower Tibia	Y	Force	Denton	4929J	121	11100	0.00009580	mv/v/N
Lower Tibia	Z	Moment	Denton	4929J	121	395	0.00739650	mv/v/Nm
Lower Tibia	X	Moment	Denton	4929J	121	395	0.00744720	mv/v/Nm
Ankle	Y	Rotational Displacement	Contelec	PD210-4B	0523	180	3.17860	mv/v/deg
Ankle	X	Rotational Displacement	Contelec	PD210-4B	0524	180	3.19060	mv/v/deg
Ankle	Y	Rotational Displacement	Contelec	PD210-4B	0525	180	3.18790	mv/v/deg
Knee	Z	Displacement	Space Age	150-0121V	C2102639B	33	24.09410	mv/v/mm
Leg	X	Linear Acceleration	Endevco	7264C	P77996	2000	0.01803	mv/v/g
Leg	X	Linear Acceleration	Endevco	7264C	P64094	2000	0.02214	mv/v/g
Foot	X	Linear Acceleration	Endevco	7264C	P74950	2000	0.01782	mv/v/g
Foot	Z	Linear Acceleration	Endevco	7264C	P51684	2000	0.01953	mv/v/g

Thoracic and Abdominal IR-TRACC															
				<table><tr><th>Channel</th><th>Motion</th></tr><tr><td>DX</td><td>Push inward</td></tr><tr><td>RY</td><td>Push upward</td></tr><tr><td>RZ</td><td>Push rightward</td></tr></table>				Channel	Motion	DX	Push inward	RY	Push upward	RZ	Push rightward
Channel	Motion														
DX	Push inward														
RY	Push upward														
RZ	Push rightward														
Upper Right Thorax				Upper Left Thorax											
Channel	Initial Value	Expected Polarity	Recorded Polarity	Channel	Initial Value	Expected Polarity	Recorded Polarity								
DX (V)	.0753	+	+	DX (V)	.0750	+	+								
RY (Deg)	-9.0597	+	-	RY (Deg)	4.0288	+	+								
RZ (Deg)	14.916	+	-	RZ (Deg)	10.982	+	+								
Lower Right Thorax				Lower Left Thorax											
Channel	Initial Value	Expected Polarity	Recorded Polarity	Channel	Initial Value	Expected Polarity	Recorded Polarity								
DX (V)	.0384	+	+	DX (V)	.0777	+	+								
RY (Deg)	1.6636	+	-	RY (Deg)	-5.2941	+	+								
RZ (Deg)	-6.002	+	+	RZ (Deg)	8.1343	+	+								
Abdomen Right				Abdomen Left											
Channel	Initial Value	Expected Polarity	Recorded Polarity	Channel	Initial Value	Expected Polarity	Recorded Polarity								
DX (V)	0.628	+	+	DX (V)	0.0826	+	+								
RY (Deg)	-1.1338	+	-	RY (Deg)	2.4808	+	+								
RZ (Deg)	.1804	+	+	RZ (Deg)	1.1542	+	+								

Thoracic and Abdominal IR-TRACC															
				<table><tr><th>Channel</th><th>Motion</th></tr><tr><td>DX</td><td>Push inward</td></tr><tr><td>RY</td><td>Push upward</td></tr><tr><td>RZ</td><td>Push rightward</td></tr></table>				Channel	Motion	DX	Push inward	RY	Push upward	RZ	Push rightward
Channel	Motion														
DX	Push inward														
RY	Push upward														
RZ	Push rightward														
Upper Right Thorax				Upper Left Thorax											
Channel	Initial Value	Expected Polarity	Recorded Polarity	Channel	Initial Value	Expected Polarity	Recorded Polarity								
DX (V)	.0796	+	+	DX (V)	.0784	+	+								
RY (Deg)	-7.880	+	-	RY (Deg)	2.010	+	+								
RZ (Deg)	12.701	+	-	RZ (Deg)	-12.550	+	-								
Lower Right Thorax				Lower Left Thorax											
Channel	Initial Value	Expected Polarity	Recorded Polarity	Channel	Initial Value	Expected Polarity	Recorded Polarity								
DX (V)	.0940	+	+	DX (V)	.0940	+	+								
RY (Deg)	4.693	+	-	RY (Deg)	-2.315	+	+								
RZ (Deg)	-8.572	+	+	RZ (Deg)	6.3395	+	+								
Abdomen Right				Abdomen Left											
Channel	Initial Value	Expected Polarity	Recorded Polarity	Channel	Initial Value	Expected Polarity	Recorded Polarity								
DX (V)	0.0415	+	+	DX (V)	0.0671	+	+								
RY (Deg)	-3.003	+	-	RY (Deg)	-2.447	+	+								
RZ (Deg)	1.099	+	+	RZ (Deg)	3.705	+	+								

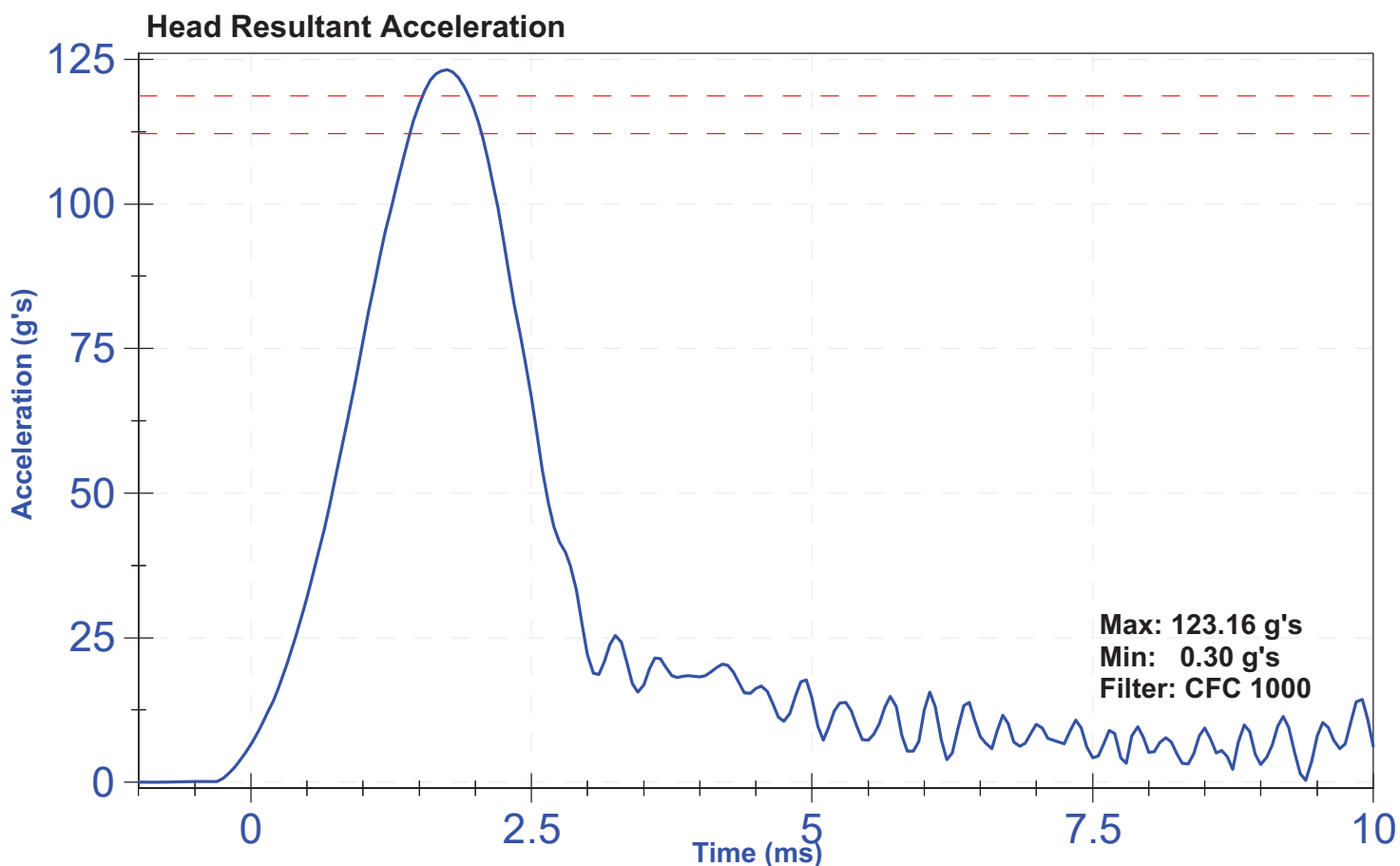
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

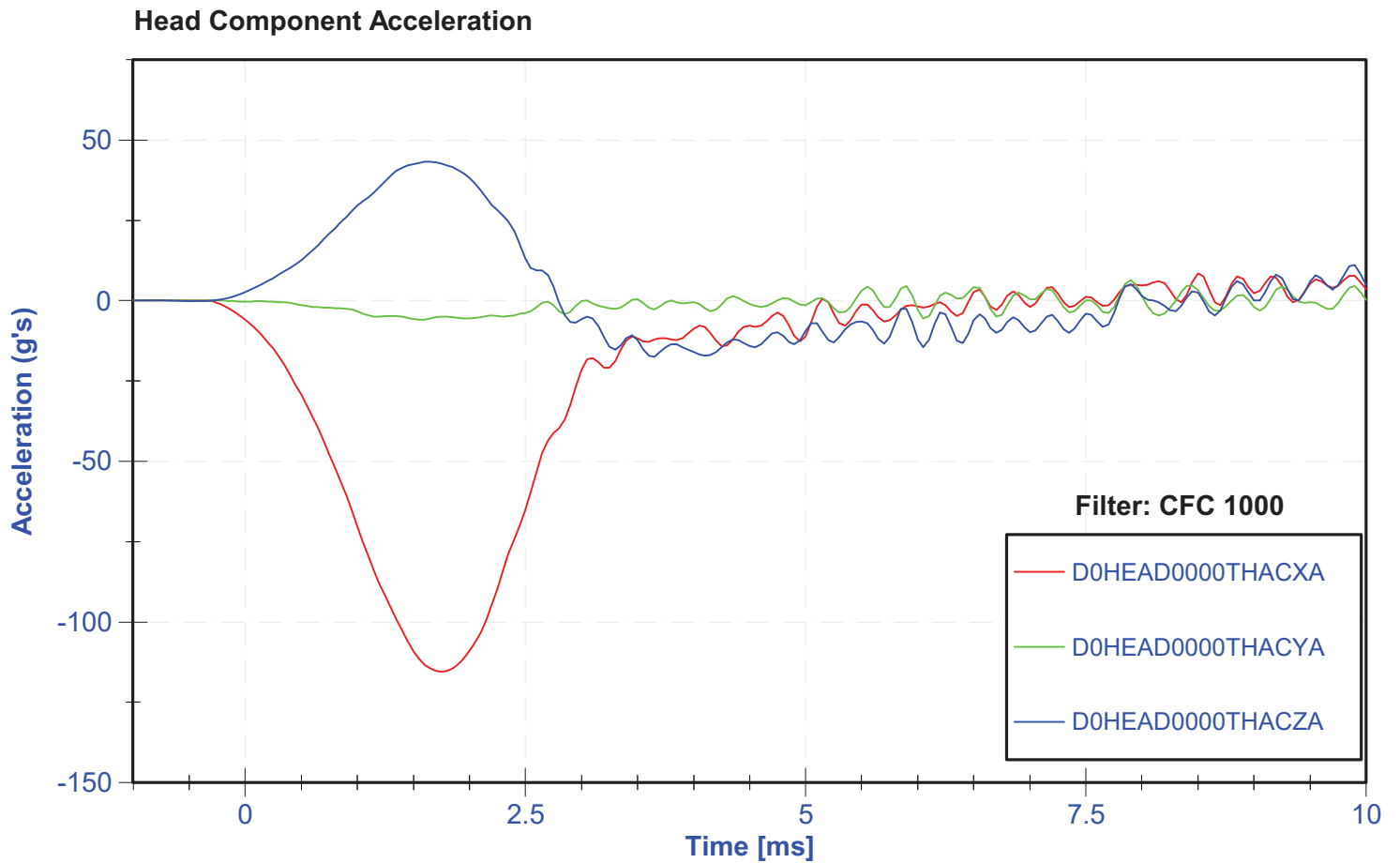
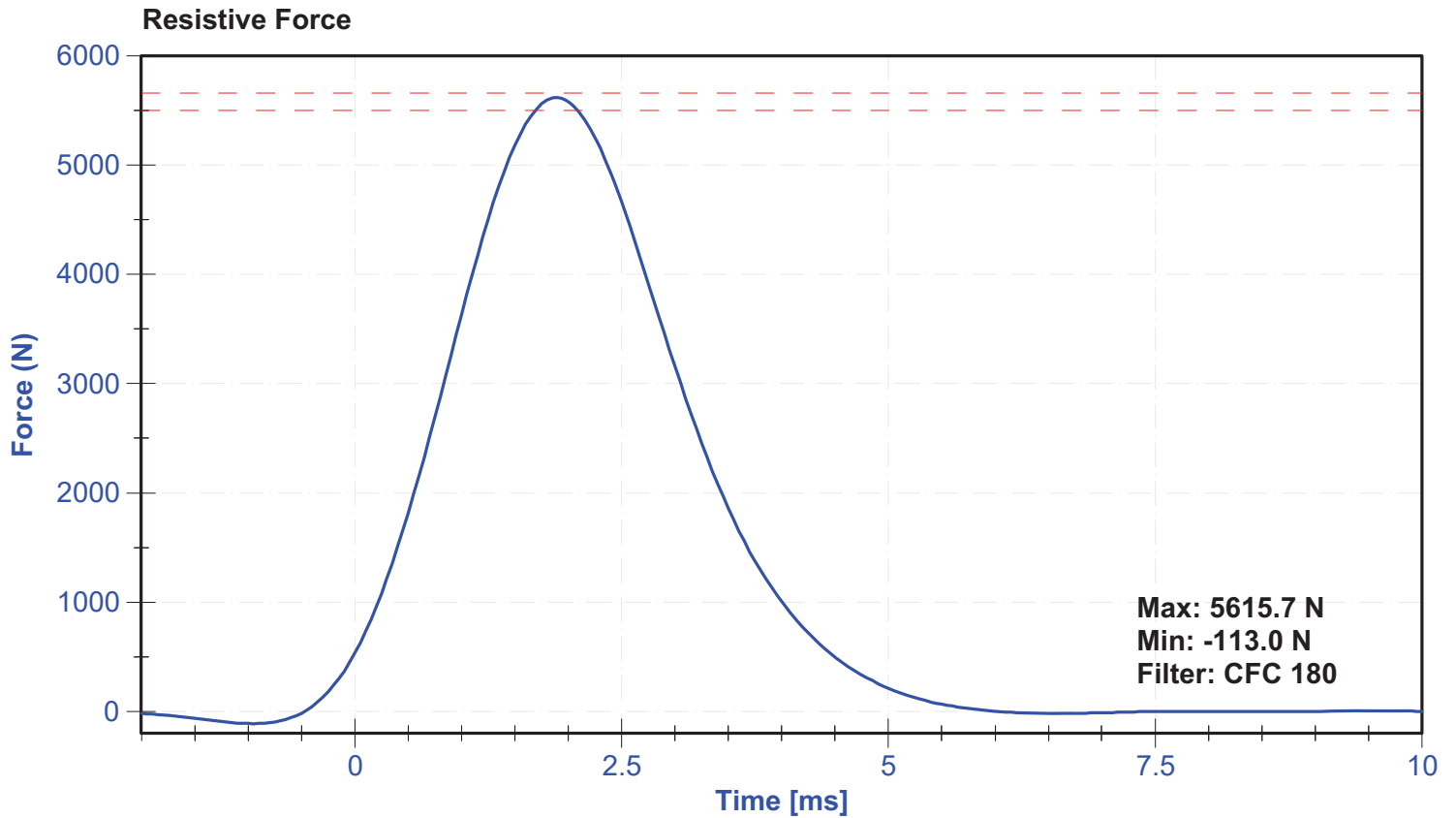
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	33.1	Pass
Impact Velocity	1.95	2.05	m/s	1.958	Pass
Probe Force	5498	5660	N	5615.7	Pass
Resultant Acceleration	112.2	118.7	g's	123.16	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Head X Accel	Endevco 7264	AC-P52001	9/24/2015	3/24/2016
Head Y Accel	Endevco 7264	AC-P51697	9/28/2015	3/28/2016
Head Z Accel	Endevco 7264	AC-P75155	9/24/2015	3/24/2016
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016





ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DP9798	Laboratory Supervisor	M. Goehle

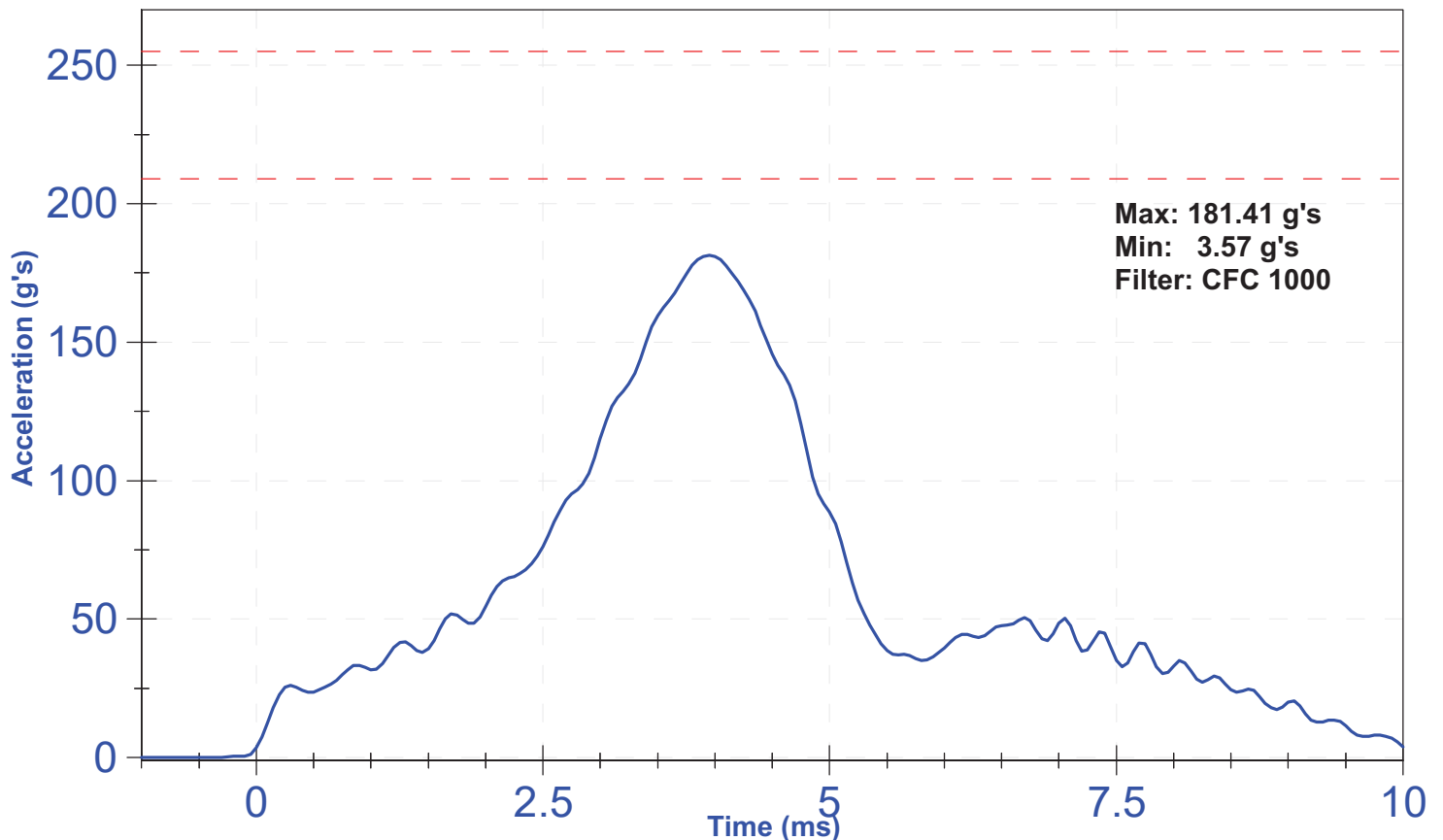
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	34.9	Pass
Impact Velocity	6.68	6.78	m/s	6.728	Pass
Probe Force	9067	11082	N	8860.2	Fail
Resultant Acceleration	209	255	g's	181.4	Fail

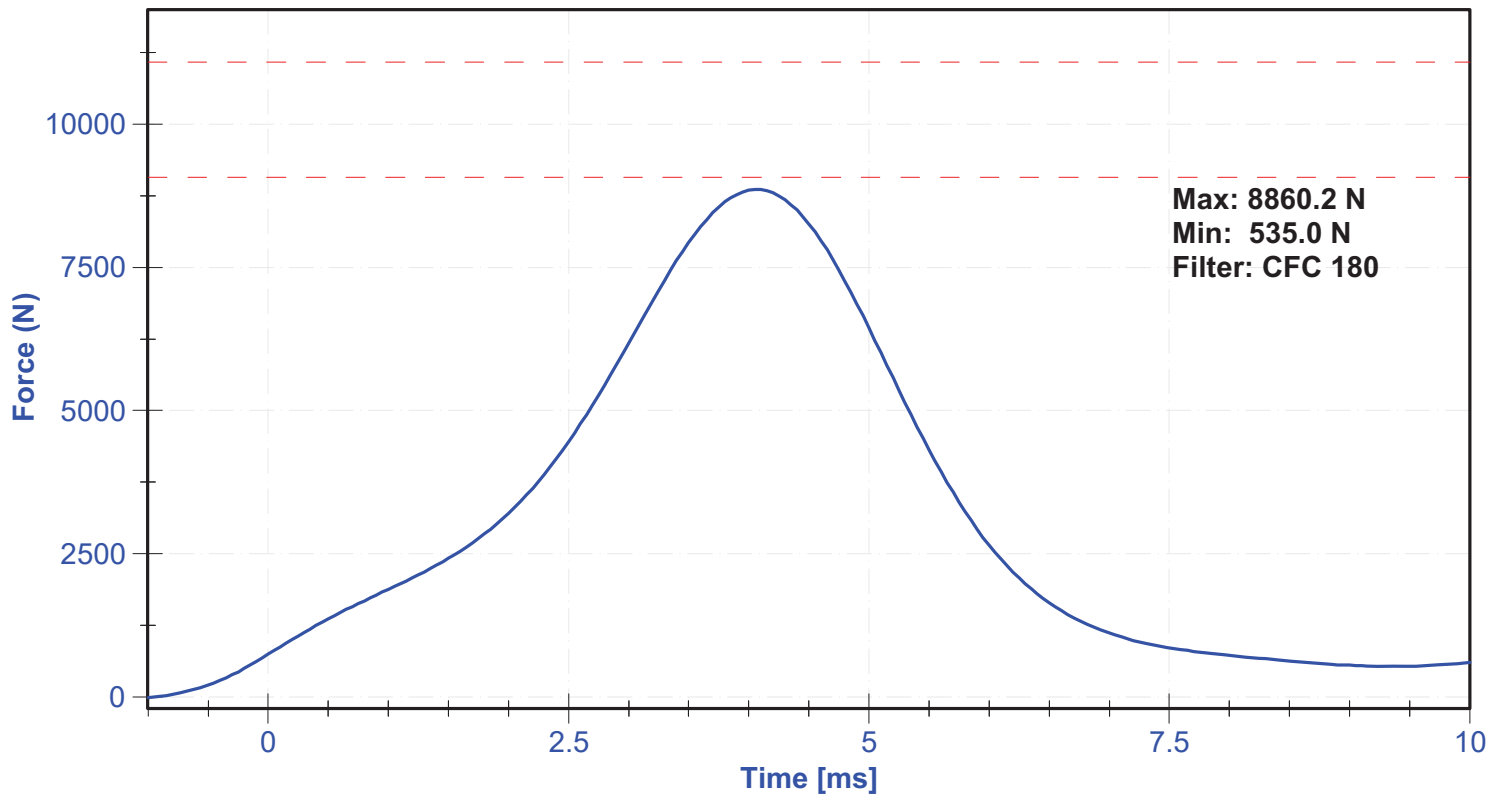
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Head X Accel	Endevco 7264	AC-P52001	9/24/2015	3/24/2016
Head Y Accel	Endevco 7264	AC-P51697	9/28/2015	3/28/2016
Head Z Accel	Endevco 7264	AC-P75155	9/24/2015	3/24/2016
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016

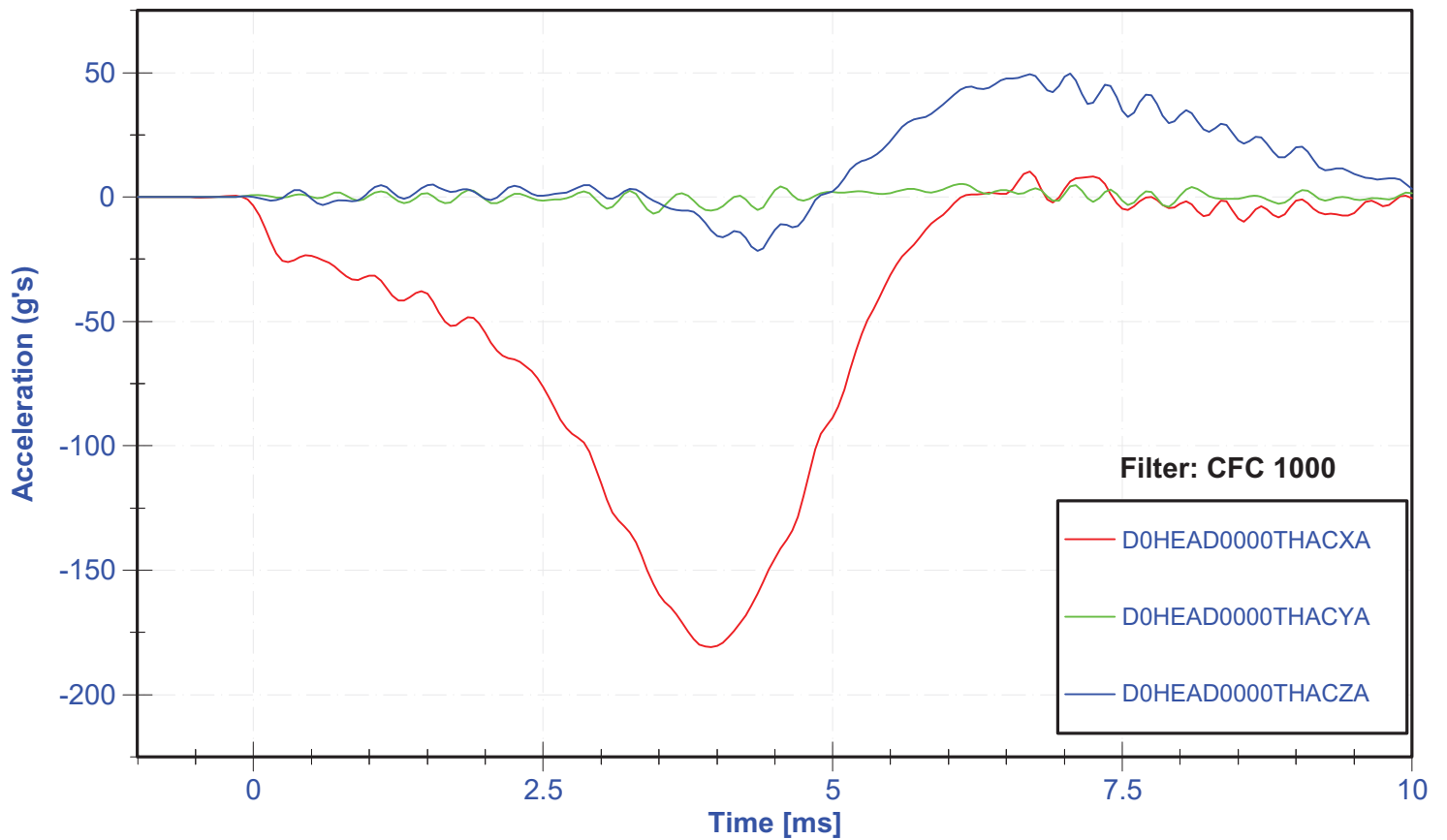
Head Resultant Acceleration



Resistive Force



Head Component Acceleration



ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

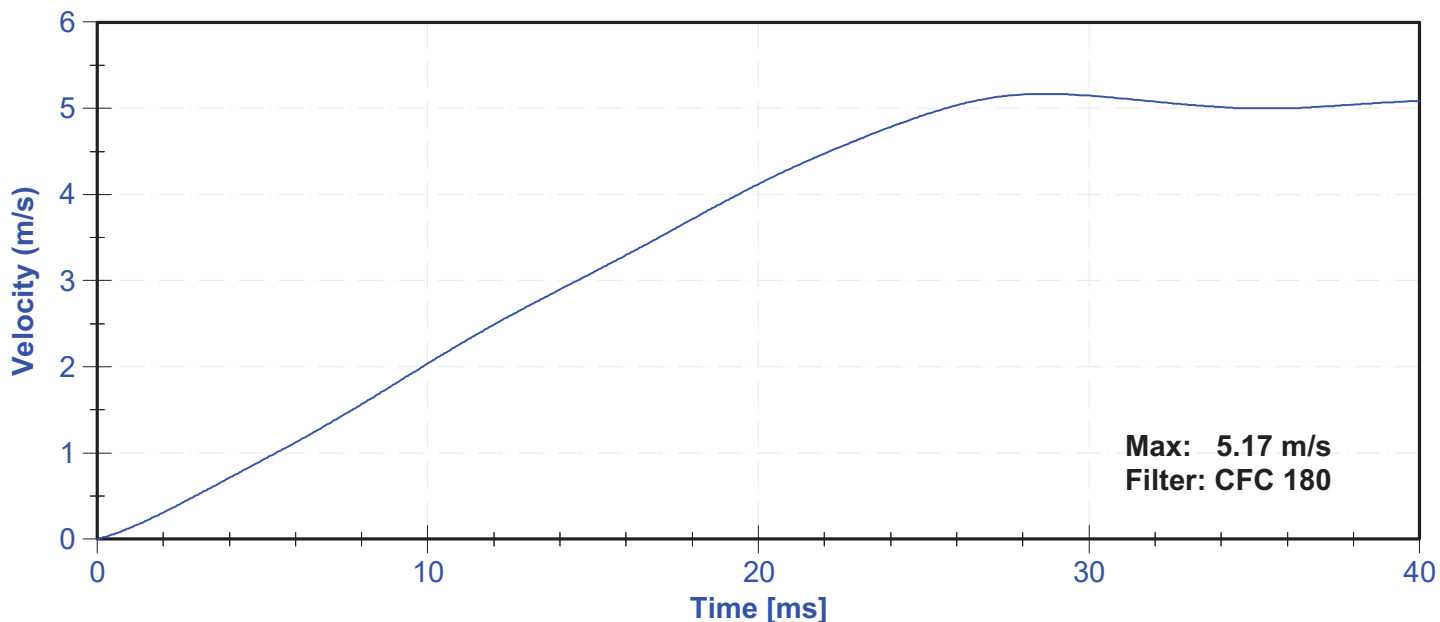
Results

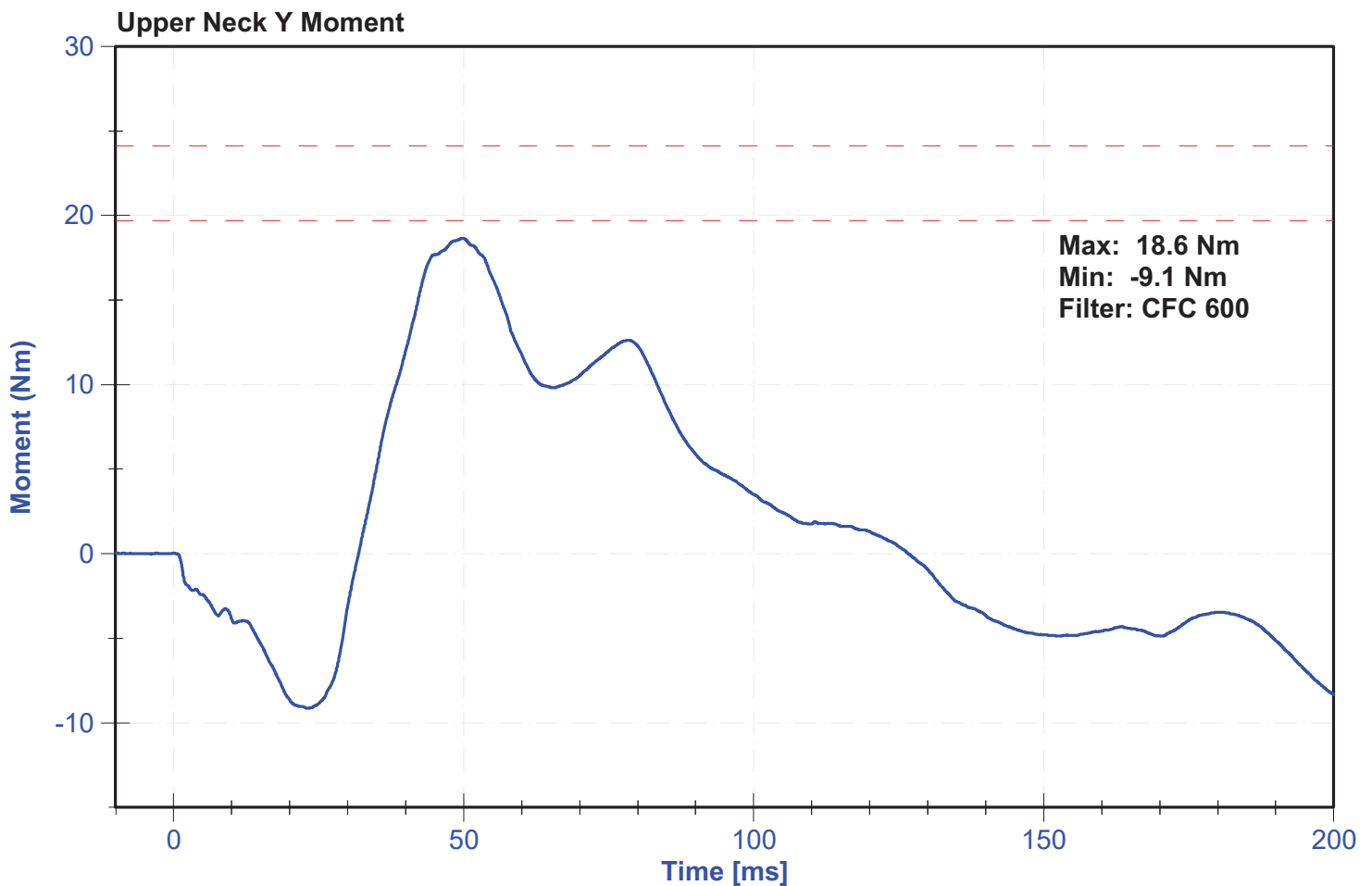
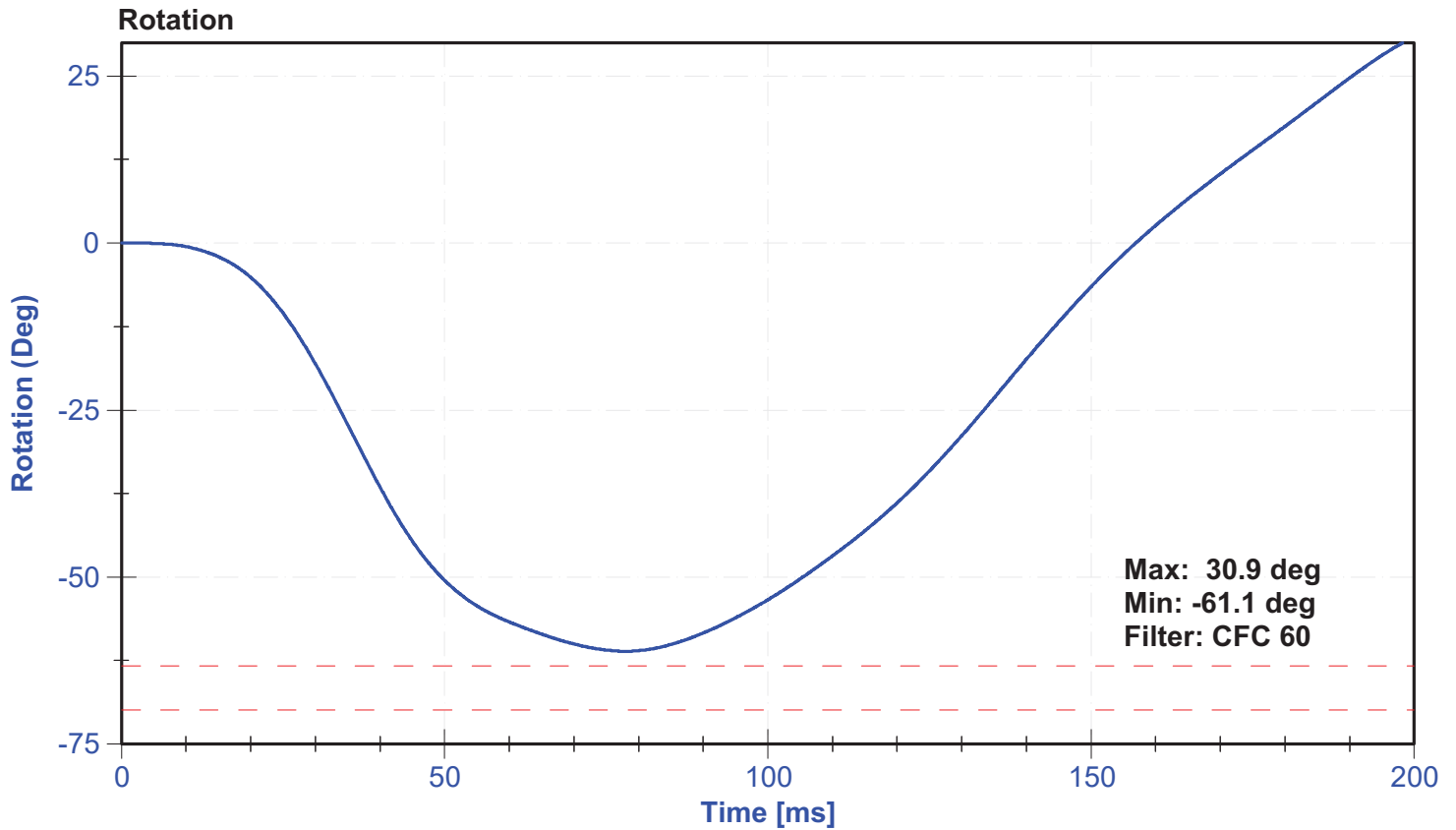
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.5	Pass
Humidity	10	70	%	26.4	Pass
Velocity	4.95	5.05	m/s	5.015	Pass
Pendulum Impulse at 8ms	1.49	1.85	m/s	1.567	Pass
Pendulum Impulse at 16ms	3.08	3.86	m/s	3.297	Pass
Pendulum Impulse at 24ms	4.48	5.26	m/s	4.784	Pass
Peak Upper Neck Y Moment	19.7	24.1	Nm	18.64	Fail
Peak Upper Neck X Force	-1592	-1302	N	-1495.5	Pass
Maximum Upper Neck Z Force	877	1072	N	998.4	Pass
First Peak Rear Neck Cable Force	1115	1282	N	1183.8	Pass
Peak Head Y Angular Rate	-1935	-1675	deg/s	-1724.0	Pass
Peak Head Y Rotation	-69.9	-63.3	deg	-61.11	Fail
Rotation Decay Time to Zero	83.0	86.2	ms	79.00	Fail

Transducer Calibrations

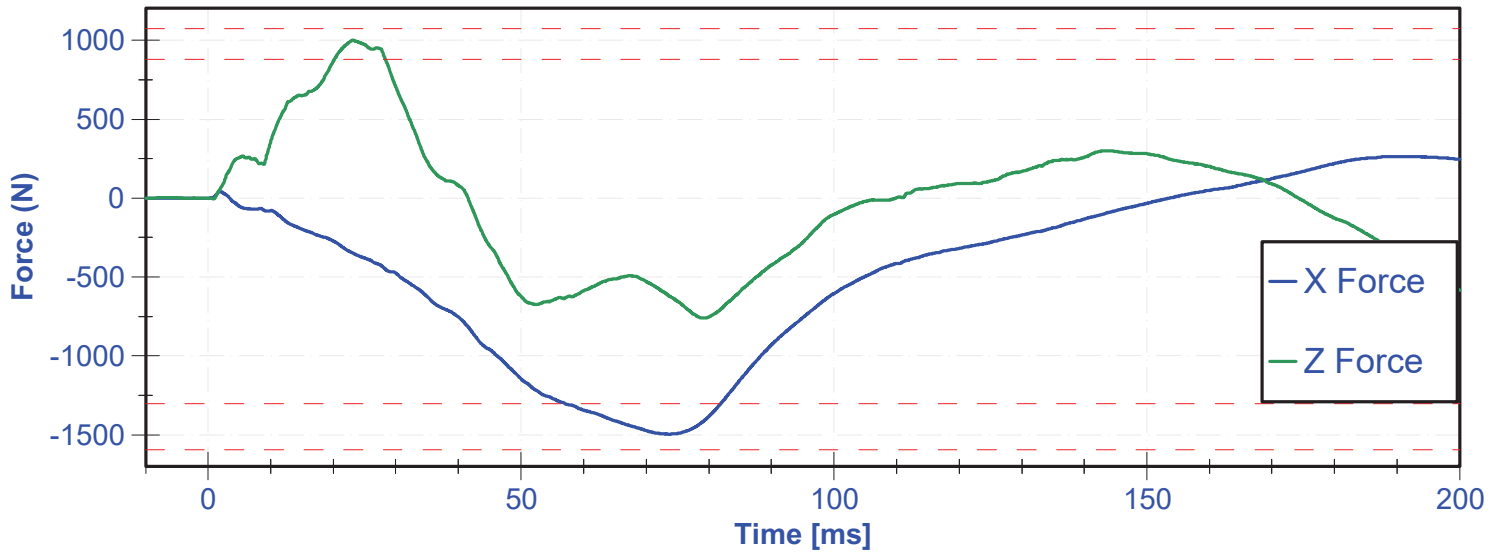
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5F3	5/7/2015	5/6/2016
Upper Neck Load Cell	Humanetics 10380J14	LC-DS9758 Fx	12/3/2015	12/2/2016
Rear Neck Cable Load Cell	Humanetics 6005JFL	LC-132	9/17/2015	9/16/2016
Pendulum ARS	DTS ARS-PRO-8K	ARS-6419	1/19/2016	1/18/2017
Head Y ARS	DTS ARS 18k	ARS-4071	3/31/2015	3/30/2016

Pendulum Pulse

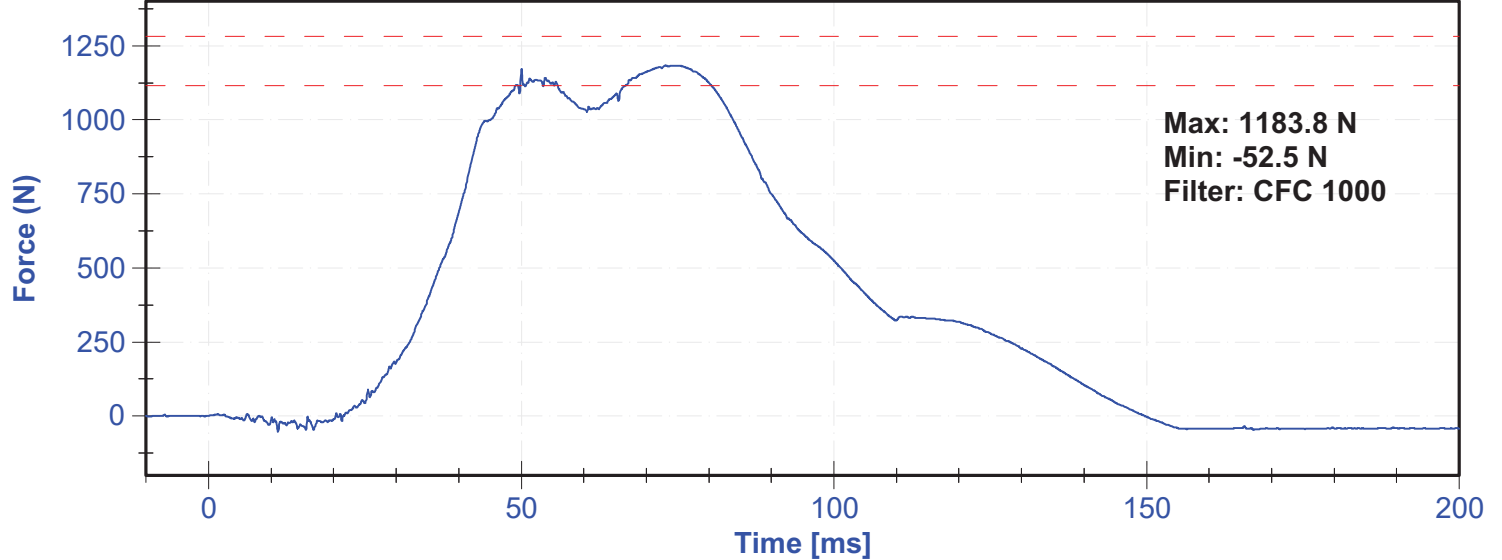




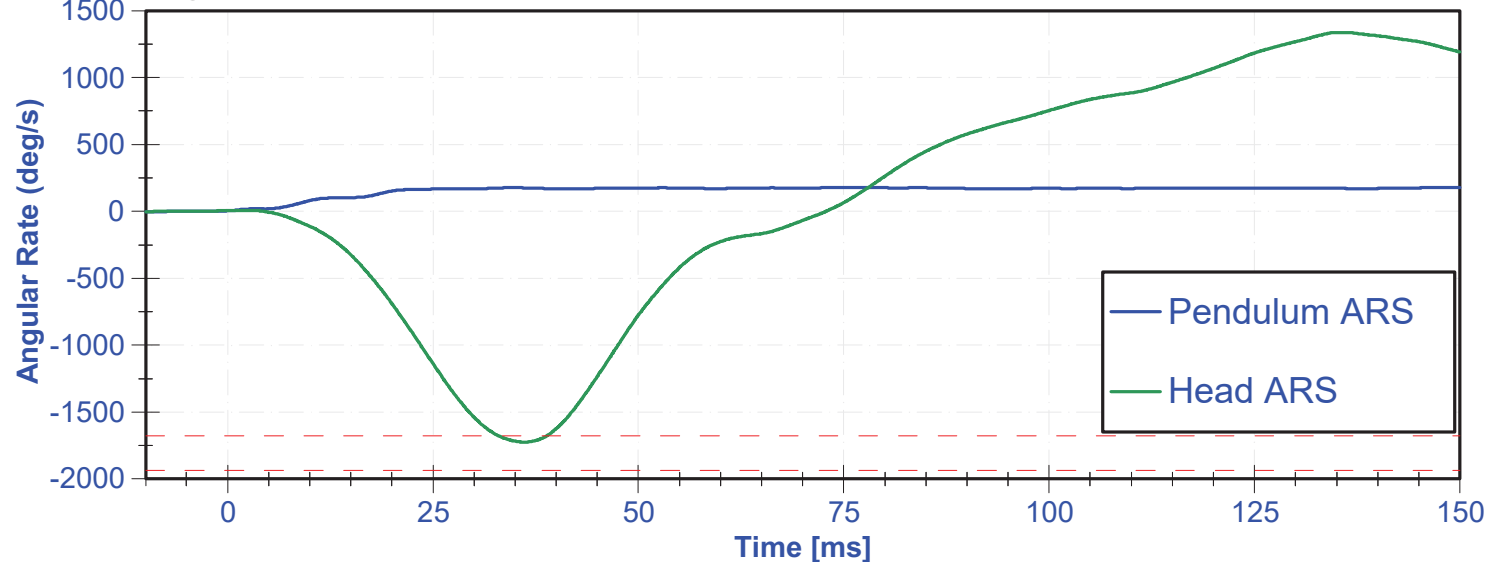
Upper Neck Force



Rear Neck Cable Z Force



Angular Rate Sensors



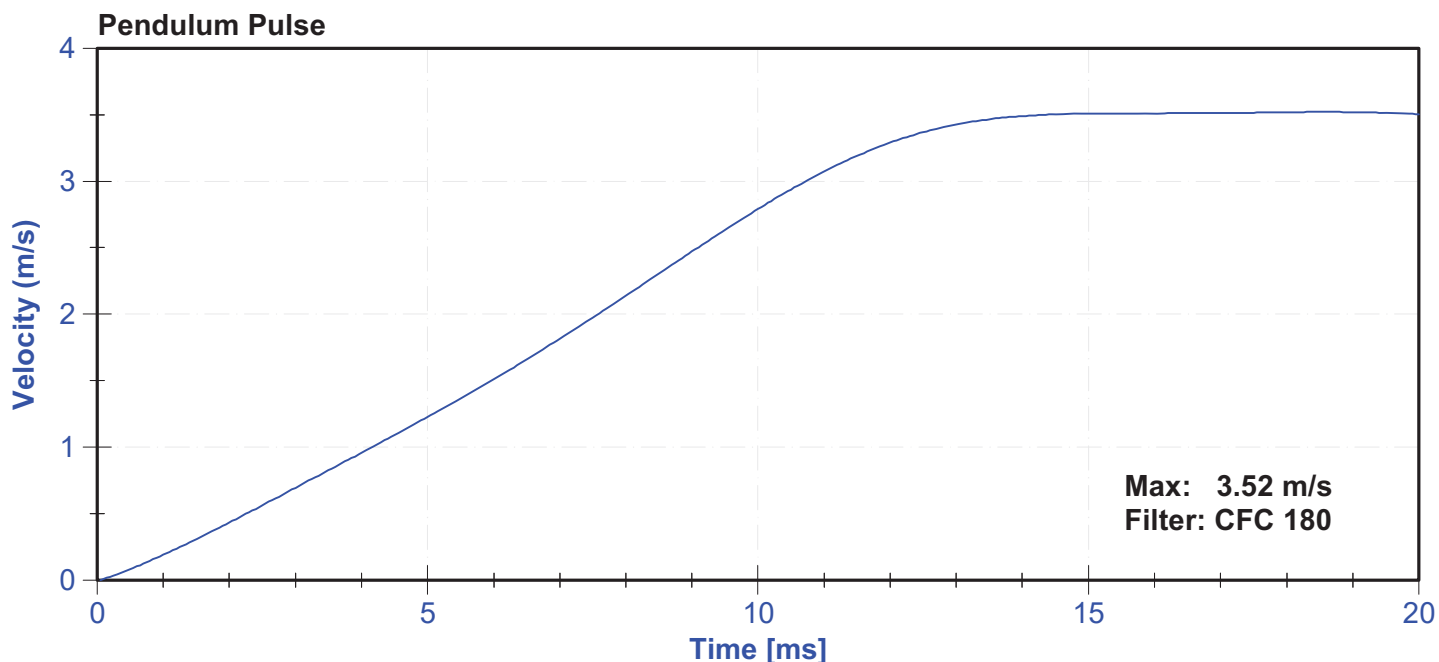
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

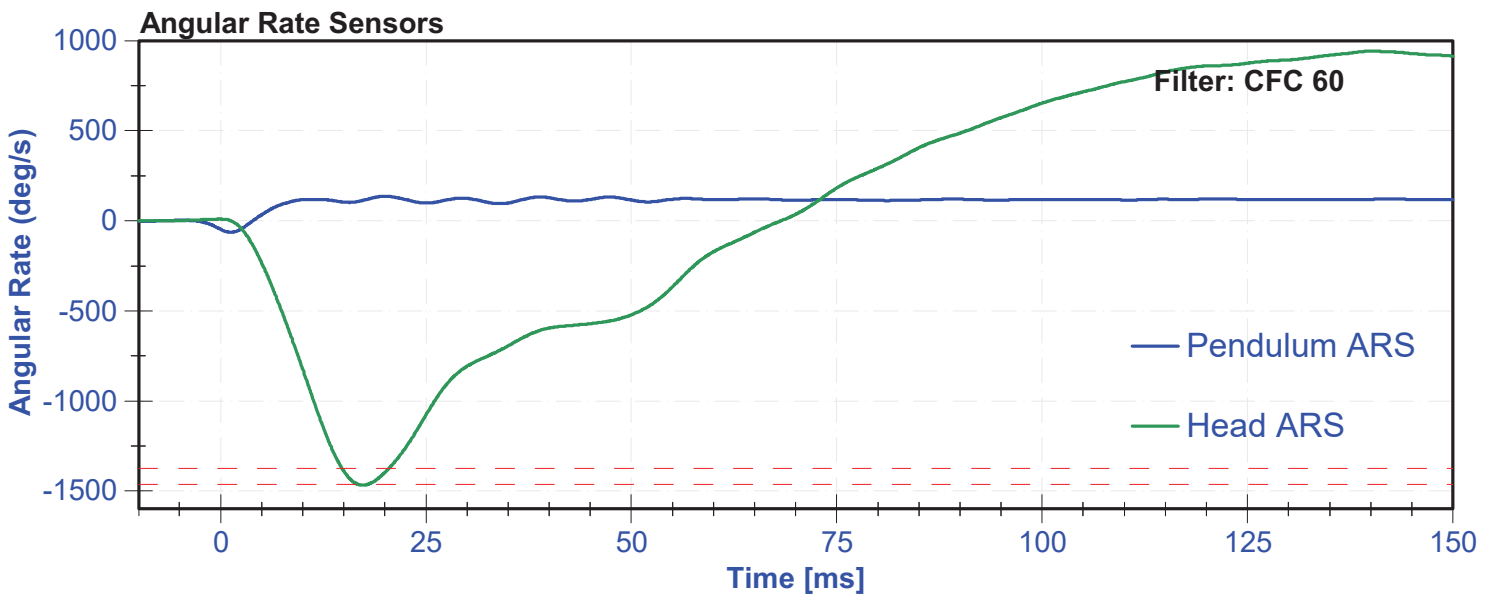
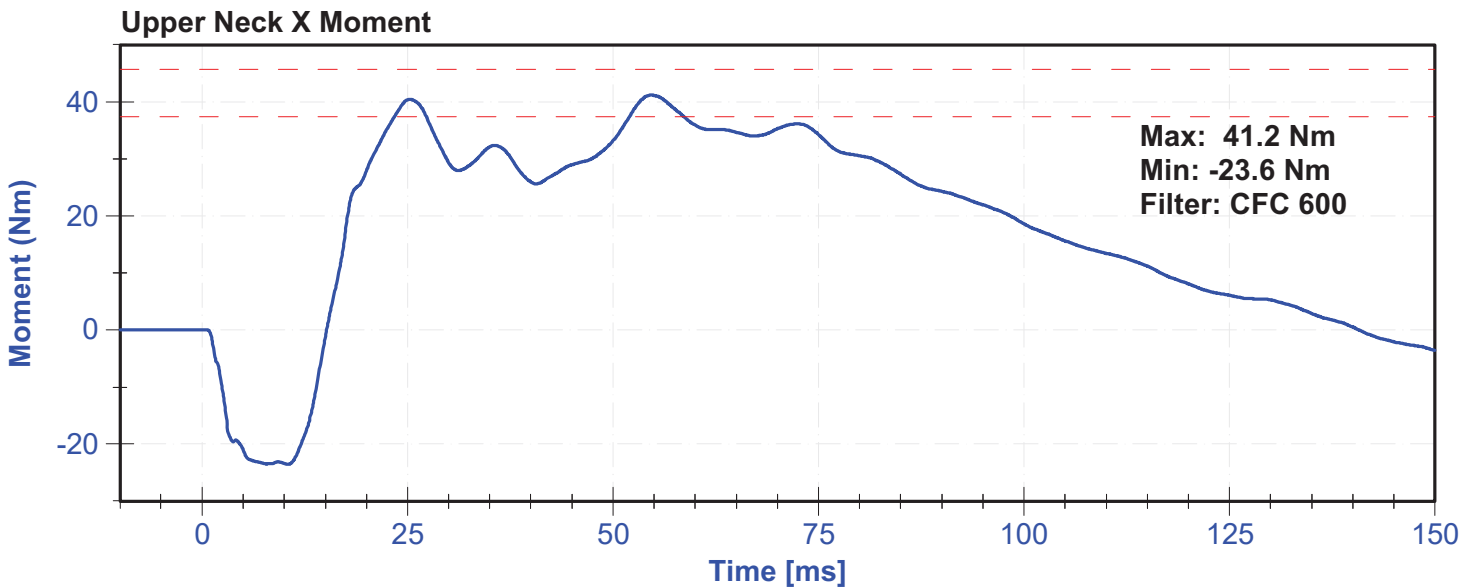
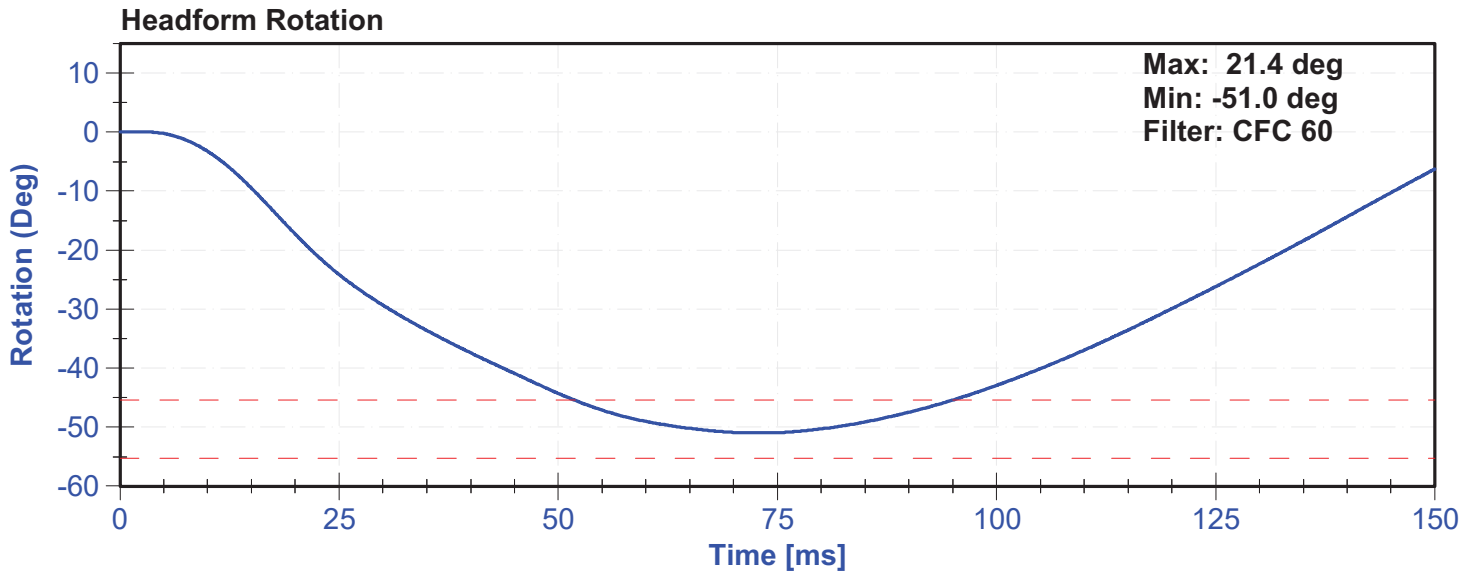
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	25.7	Pass
Velocity	3.35	3.45	m/s	3.418	Pass
Pendulum Impulse at 4ms	0.89	1.08	m/s	0.958	Pass
Pendulum Impulse at 8ms	2.04	2.36	m/s	2.139	Pass
Pendulum Impulse at 12ms	3.21	3.46	m/s	3.289	Pass
Peak Upper Neck X Moment after 40ms	37.4	45.7	Nm	41.19	Pass
Peak Head X Angular Rate	-1462	-1375	deg/s	-1468.1	Fail
Peak Head X Rotation	-55.3	-45.4	deg	-50.98	Pass
Rotational Decay Time to Zero	83.7	90.9	ms	85.10	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5F3	5/7/2015	5/6/2016
Upper Neck Load Cell	Humanetics 10380JI4	LC-DS9758 Mx	12/3/2015	12/2/2016
Pendulum ARS	DTS ARS-PRO-8K	ARS-6419	1/19/2016	1/18/2017
Head X ARS	DTS ARS 18k	ARS-6733	4/27/2015	4/26/2016





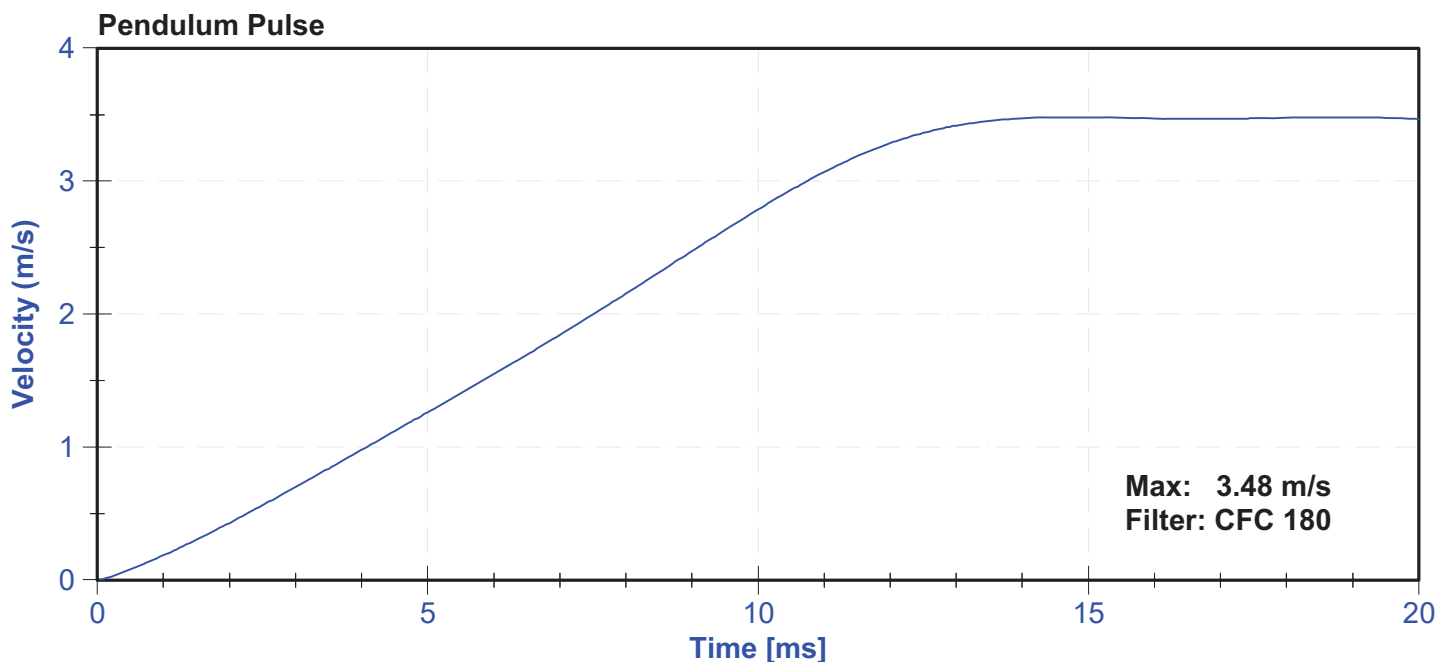
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

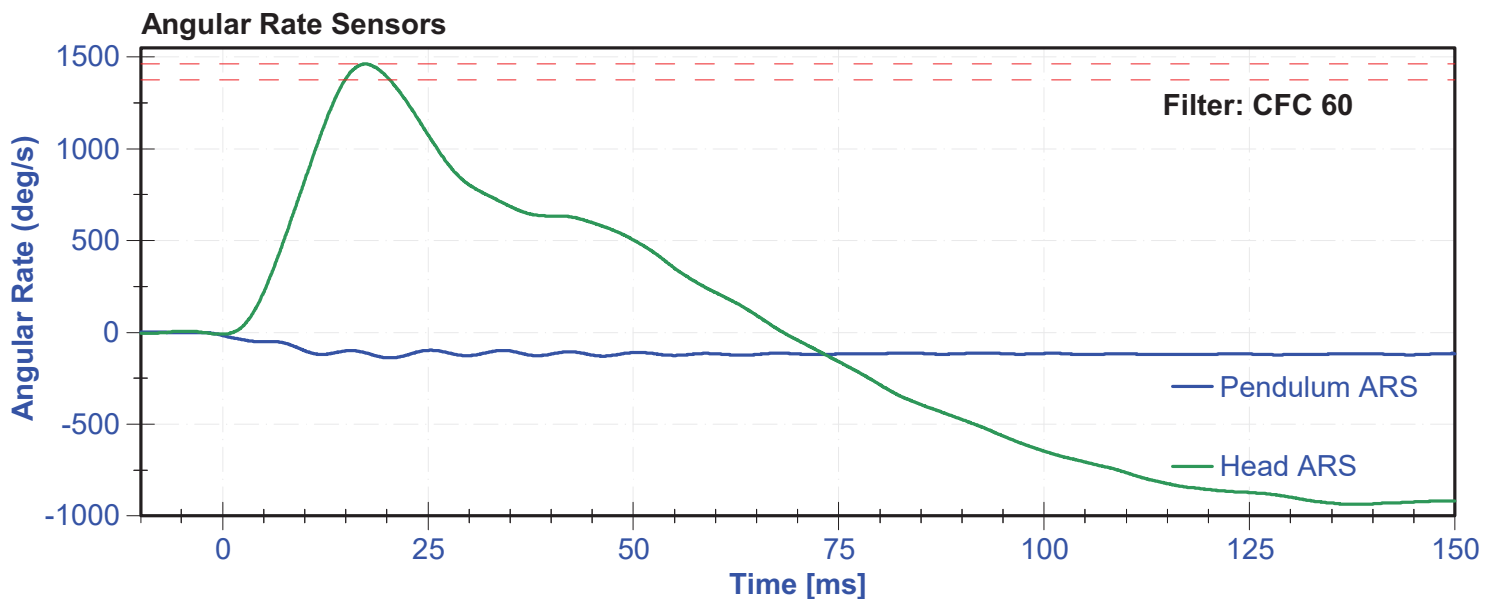
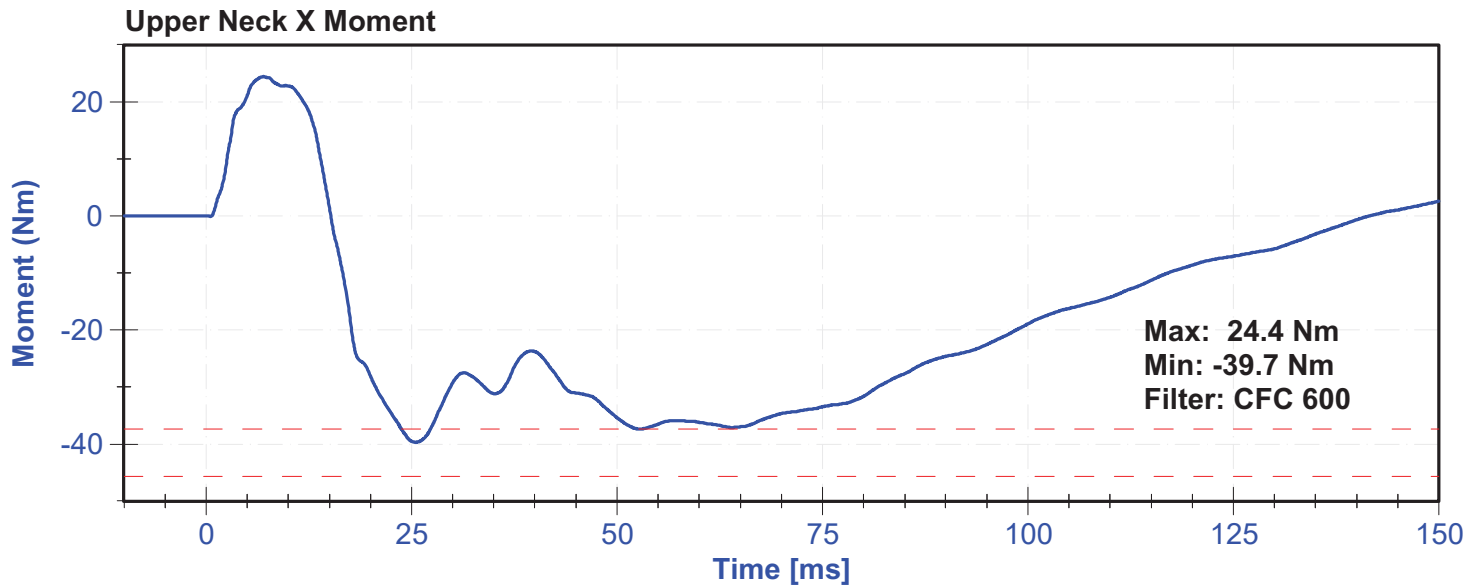
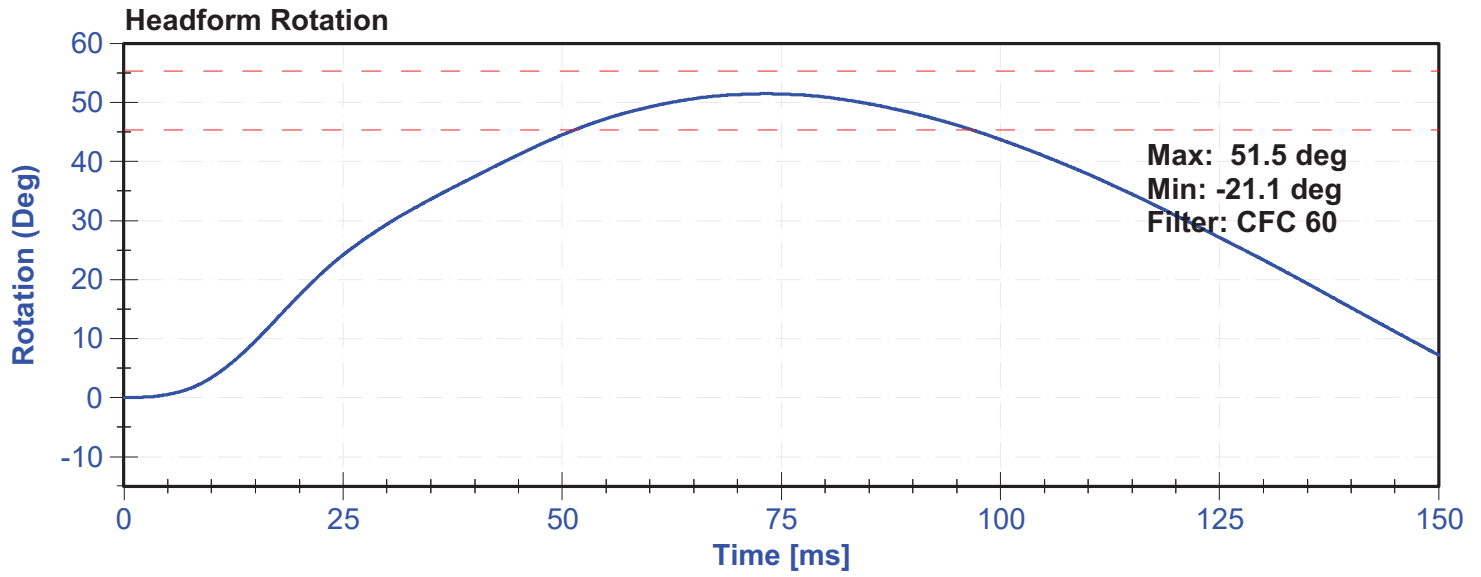
Results

Test Parameter	Minimum Specificatio	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	25.7	Pass
Velocity	3.35	3.45	m/s	3.40	Pass
Pendulum Impulse at 4ms	0.89	1.08	m/s	0.978	Pass
Pendulum Impulse at 8ms	2.04	2.36	m/s	2.153	Pass
Pendulum Impulse at 12ms	3.21	3.46	m/s	3.285	Pass
Peak Upper Neck X Moment after 40ms	-45.7	-37.4	Nm	-37.38	Fail
Peak Head X Angular Rate	1375	1462	deg/s	1460.6	Pass
Peak Head X Rotation	45.4	55.3	deg	51.48	Pass
Rotation Decay Time to Zero	83.7	90.9	ms	85.80	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5F3	5/7/2015	5/6/2016
Upper Neck Load Cell	Humanetics 10380J14	LC-DS9758 Mx	12/3/2015	12/2/2016
Pendulum ARS	DTS ARS-PRO-8K	ARS-6419	1/19/2016	1/18/2017
Head X ARS	DTS ARS 18k	ARS-6733	4/27/2015	4/26/2016





ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

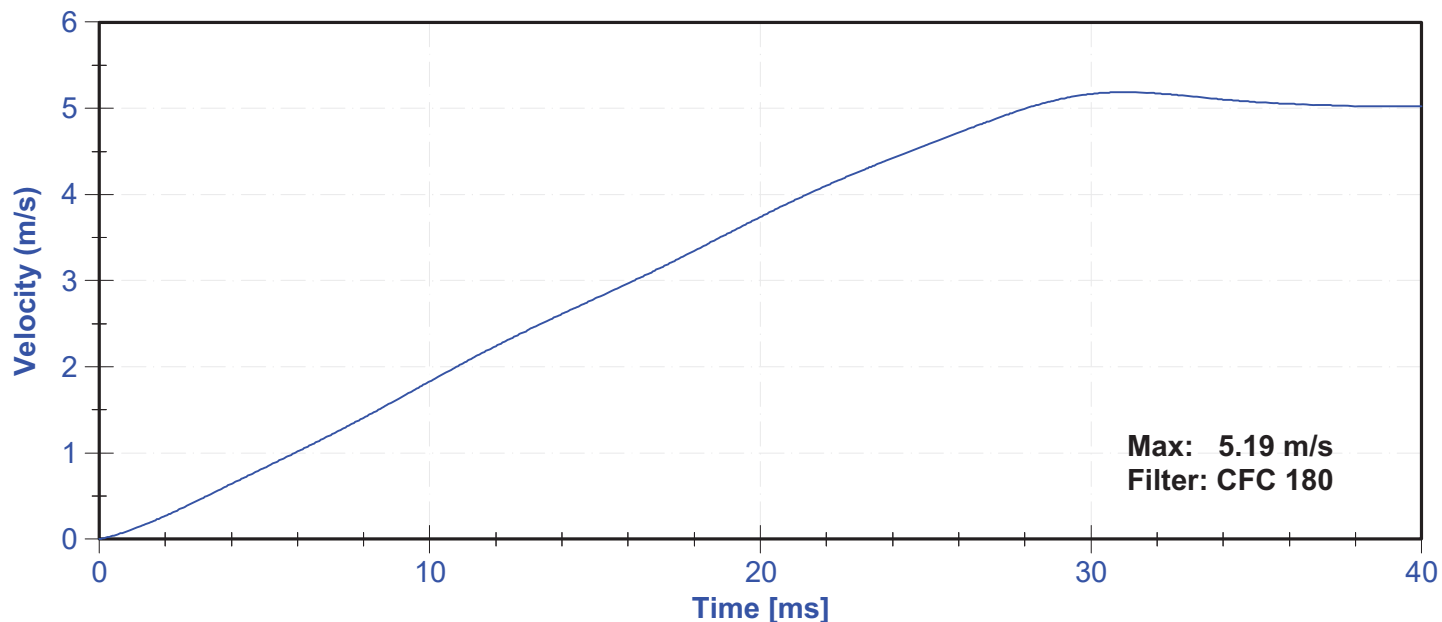
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	26.6	Pass
Velocity	4.95	5.05	m/s	5.015	Pass
Pendulum Impulse at 10ms	1.76	1.91	m/s	1.831	Pass
Pendulum Impulse at 20ms	3.50	3.75	m/s	3.740	Pass
Pendulum Impulse at 30ms	4.88	5.20	m/s	5.167	Pass
Peak Upper Neck Y Moment	-21.3	-17.5	Nm	-17.85	Pass
Peak Upper Neck X Force	967	1182	N	1229.0	Fail
Peak Upper Neck Z Force	-2893	-2603	N	-2538.6	Fail
Peak Front Neck Cable Force	2482	2809	N	2735.0	Pass
Peak Head Y Angular Rate	1907	2043	deg/s	2009.6	Pass
Peak Head Y Rotation	57.6	64.2	deg	40.90	Fail
Rotational Decay Time to Zero	79.3	82.5	ms	54.75	Fail

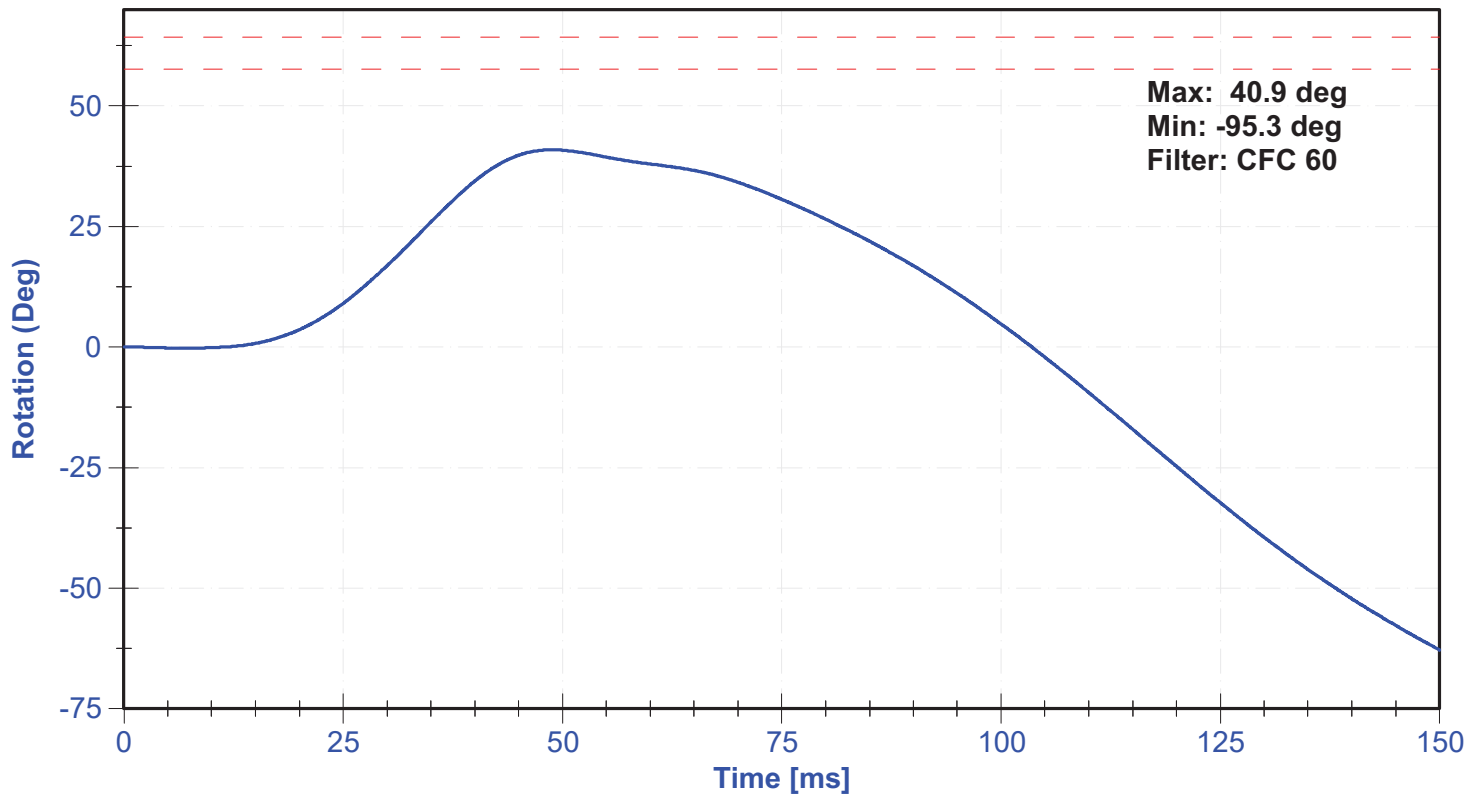
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5F3	5/7/2015	5/6/2016
Upper Neck Load Cell	Humanetics 10380JL4	LC-DS9758 Fx	12/3/2015	12/2/2016
Fr Neck Cable Load	Humanetics 6005JFL	LC-93	9/3/2015	9/2/2016
Pendulum ARS	DTS ARS-PRO-8K	ARS-6419	1/19/2016	1/18/2017
Head ARS Y-Axis	DTS ARS 18k	ARS-4071	3/31/2015	3/30/2016

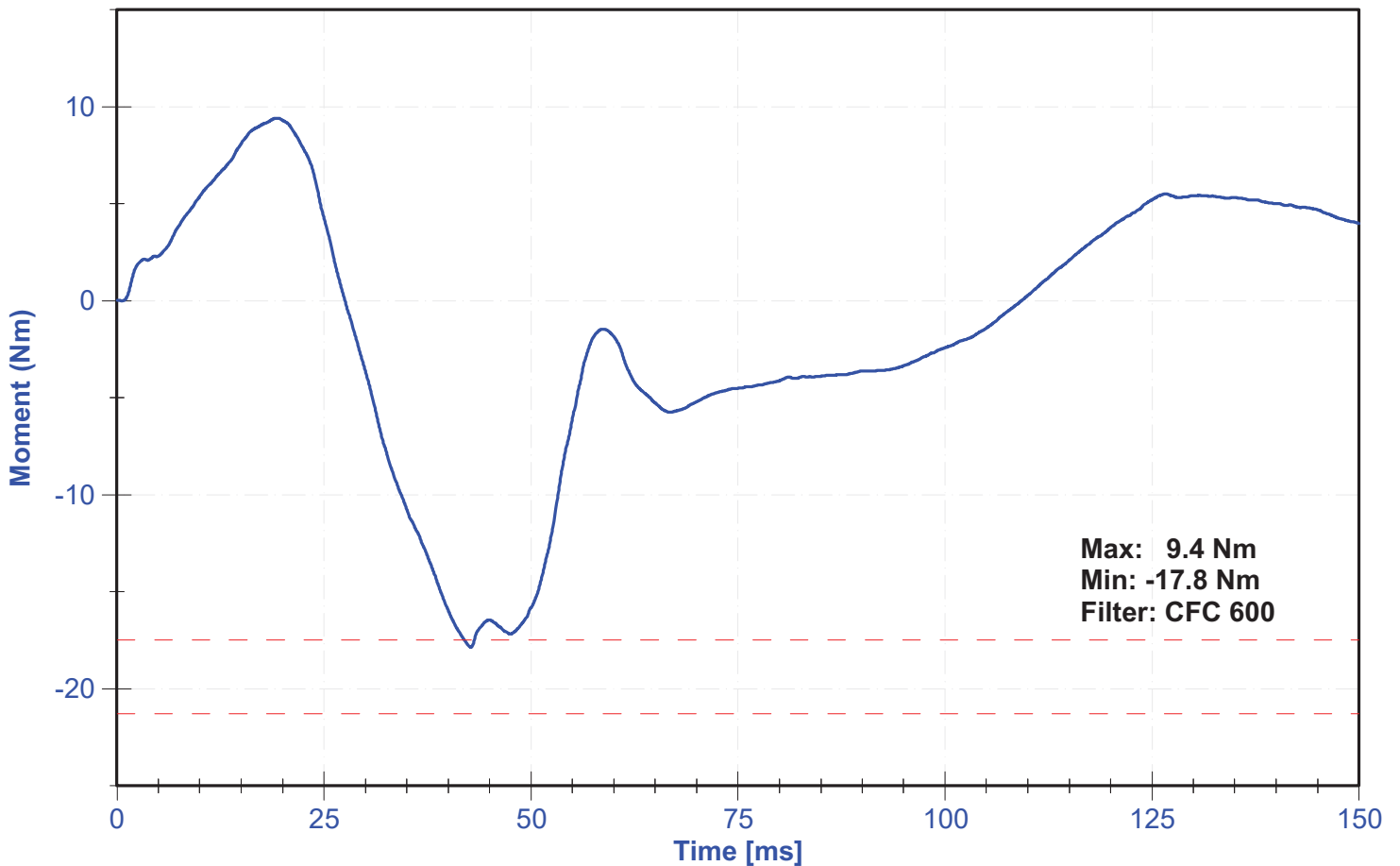
Pendulum Pulse



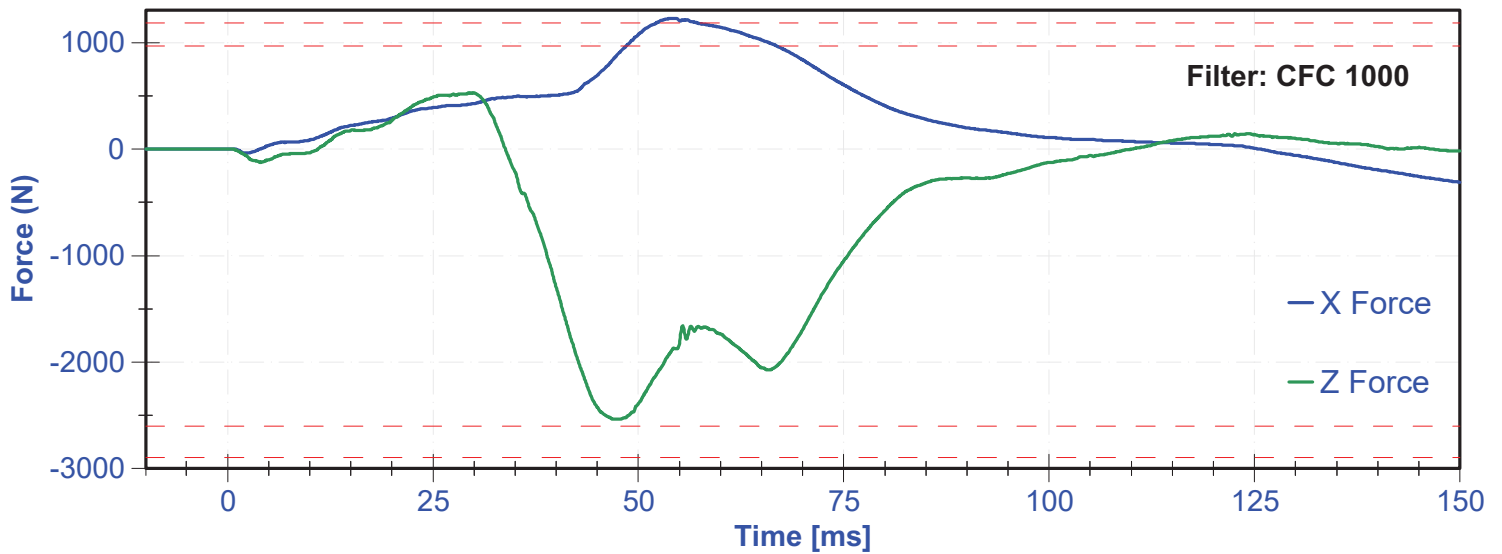
Headform Rotation



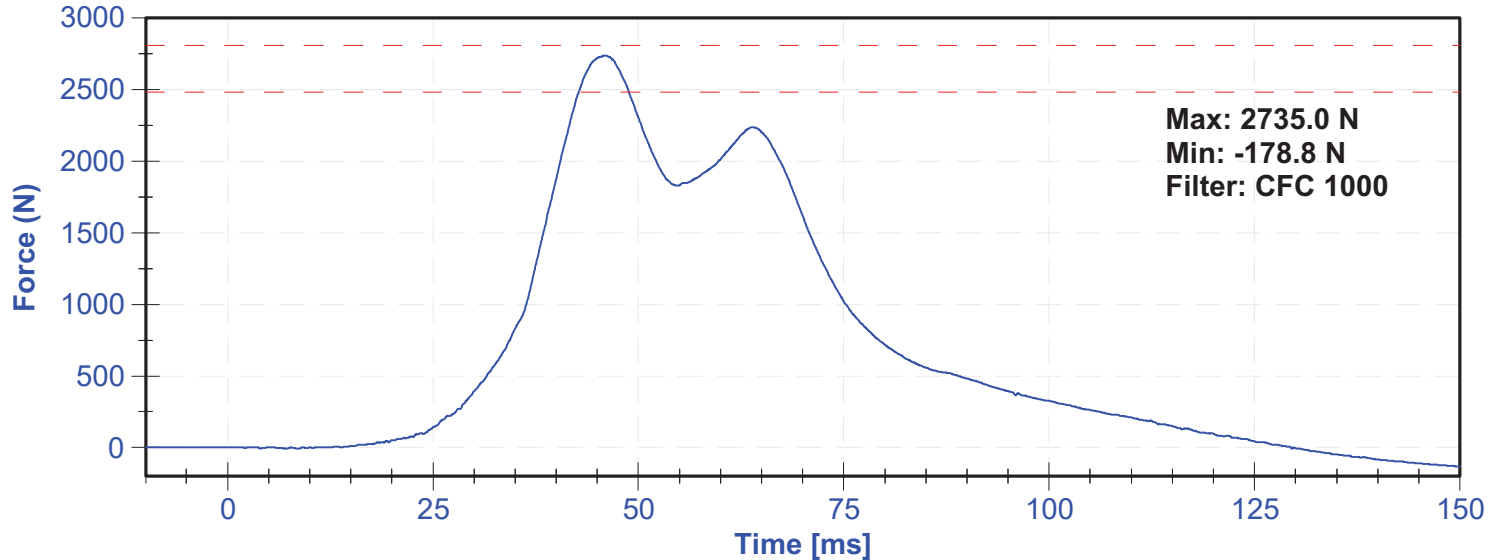
Upper Neck Y Moment



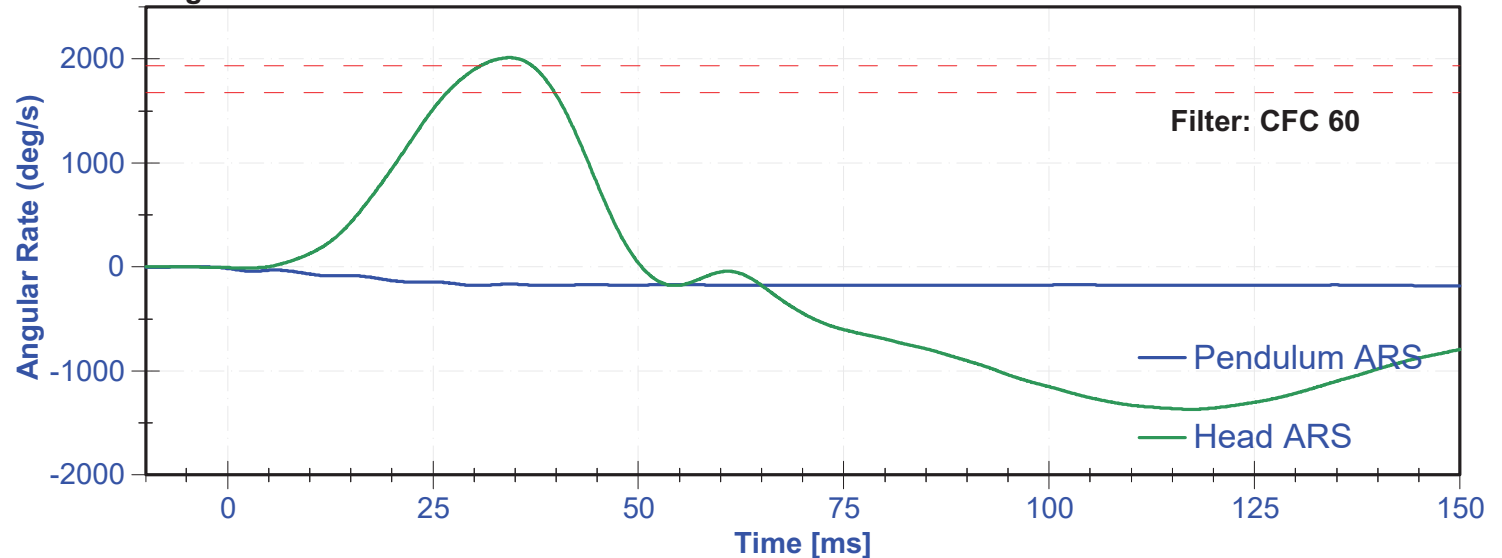
Upper Neck Force



Rear Neck Cable Z Force



Angular Rate Sensors



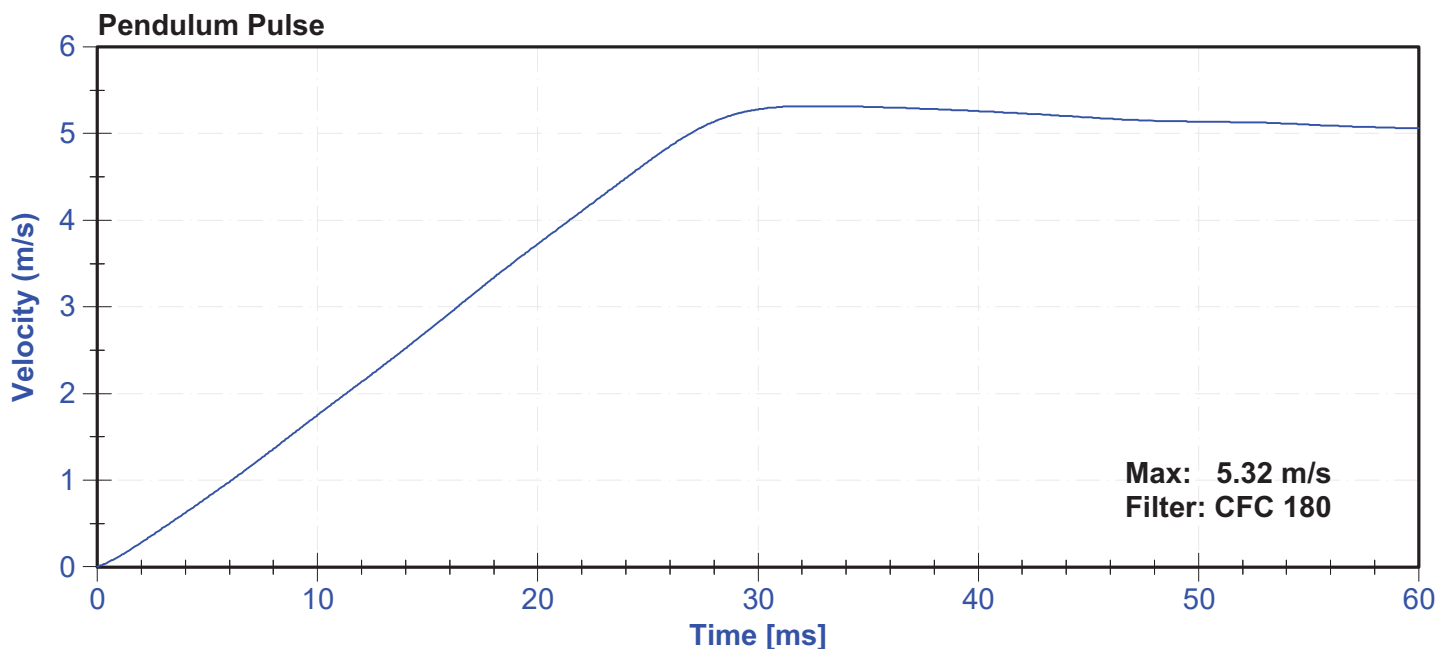
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

Results

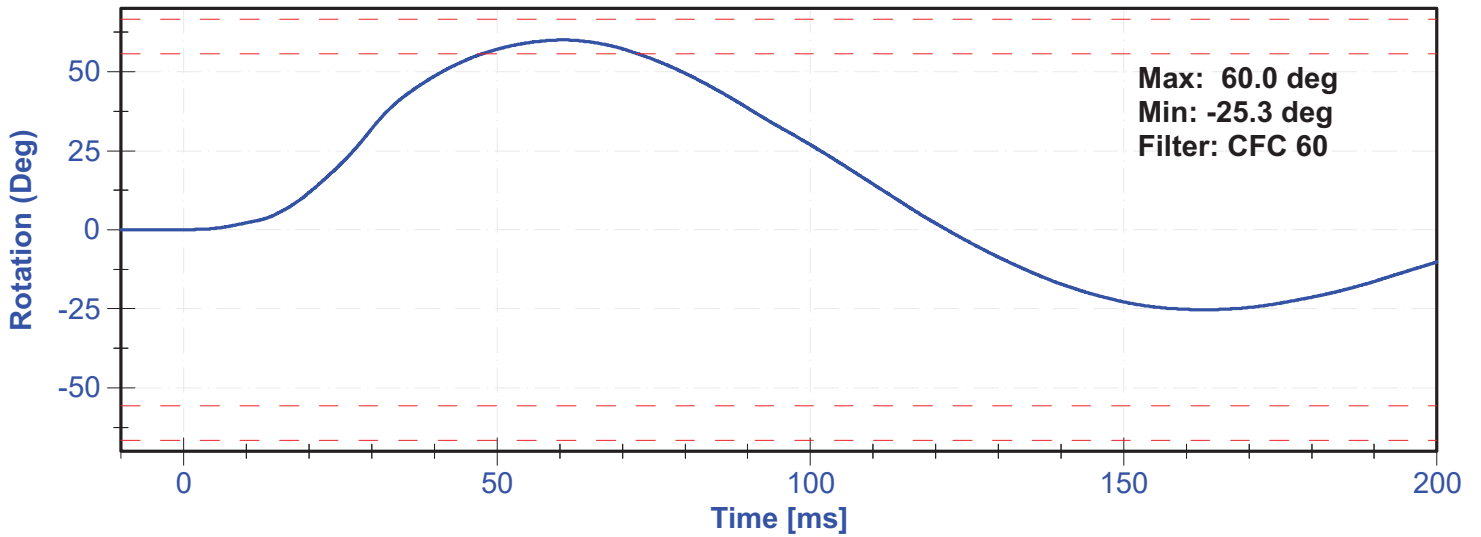
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	22.1	Pass
Humidity	10	70	%	13.9	Pass
Velocity	4.95	5.05	m/s	5.045	Pass
Pendulum Impulse at 10ms	1.72	1.98	m/s	1.753	Pass
Pendulum Impulse at 15ms	2.67	2.97	m/s	2.723	Pass
Pendulum Impulse at 20ms	3.59	3.98	m/s	3.727	Pass
Pendulum Impulse at 25ms	4.43	4.92	m/s	4.673	Pass
Peak Upper Neck Z Moment	32.6	38.3	Nm	35.71	Pass
Peak Neck Axial Rotation	55.6	66.6	deg	60.01	Pass
Rotation Decay Time to Zero	58.0	61.6	ms	61.25	Pass
Peak Upper Neck Angular Velocity	1559	1709	deg/s	1643.1	Pass

Transducer Calibrations

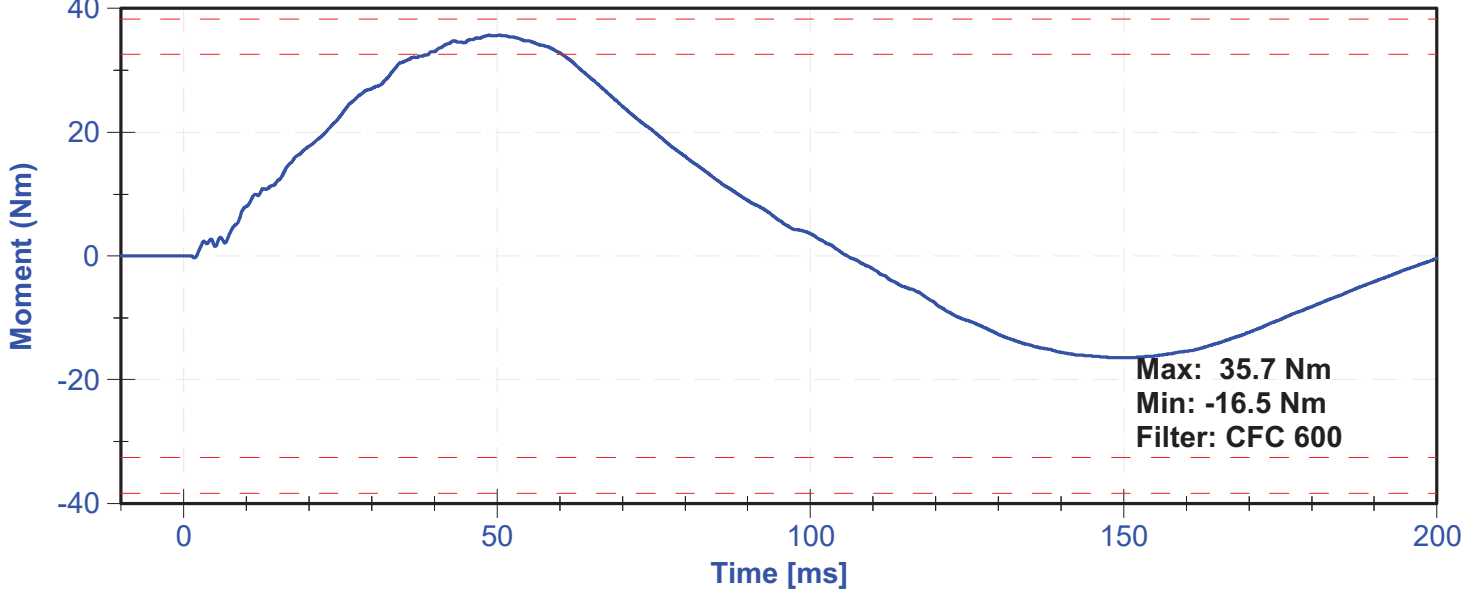
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5F3	5/7/2015	5/6/2016
Neck Fixture Potentiometer	Servo 14CB1-3615	DS-0001	10/21/2015	10/20/2016
Upper Neck Load Cell	Humanetics 10380JI4	LC-DS9758 Mz	12/3/2015	12/2/2016
Upper Neck ARS	DTS ARS PRO-18K	ARS-9097	9/30/2015	9/29/2016



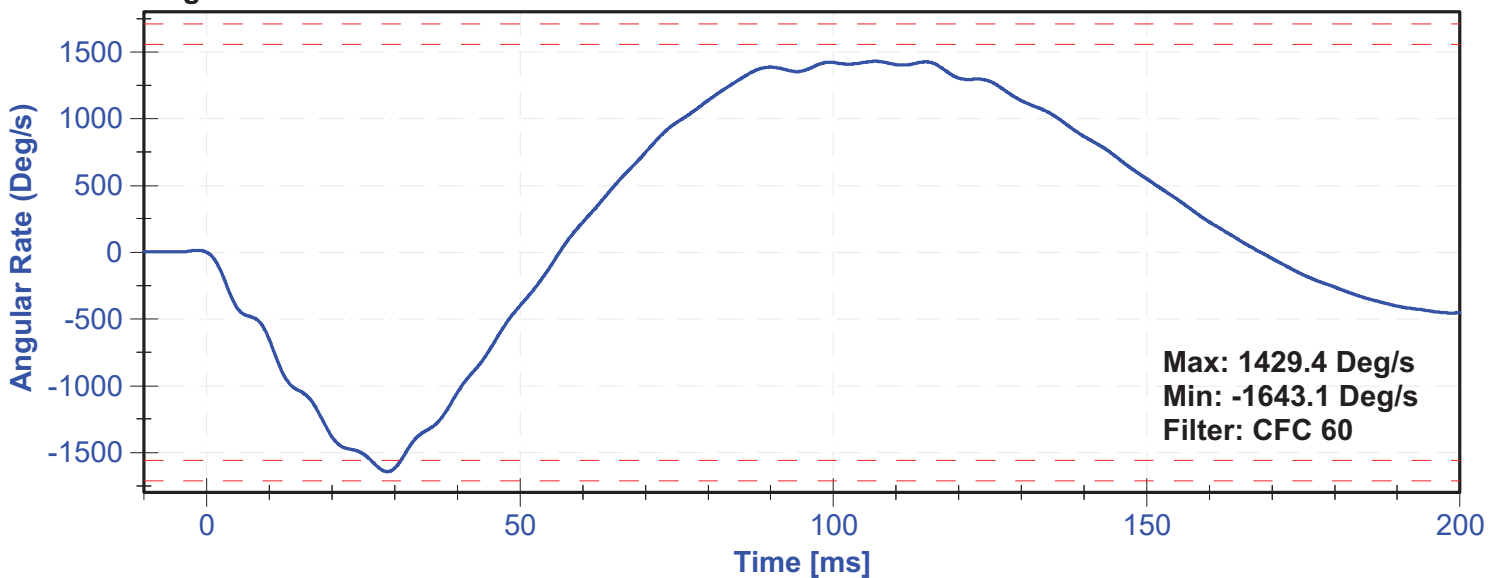
Axial Rotation



Moment



Angular Rate



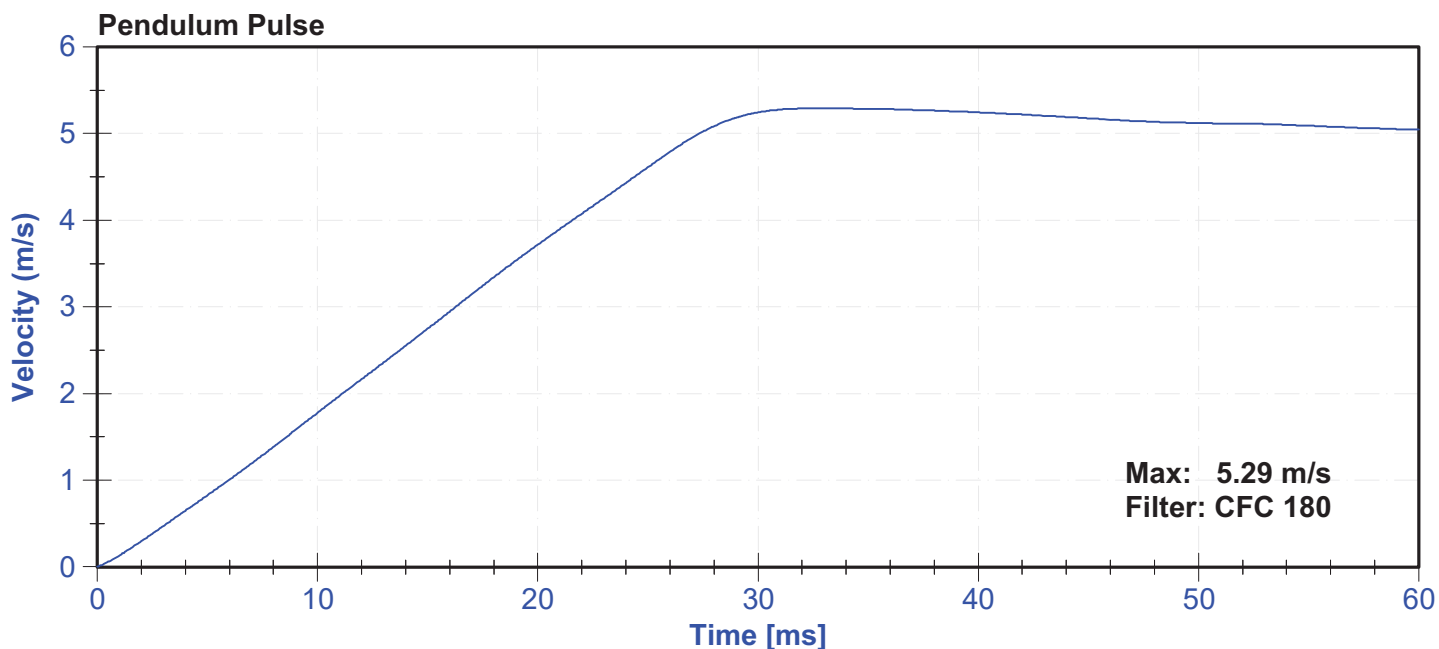
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

Results

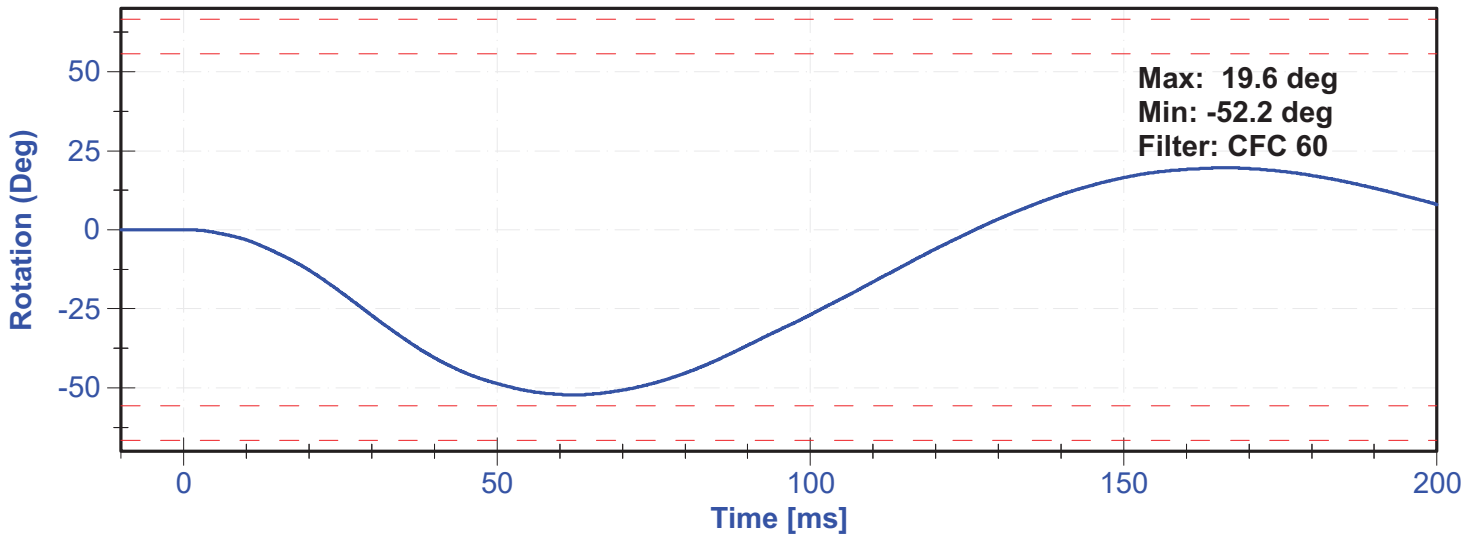
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	23.7	Pass
Velocity	4.95	5.05	m/s	5.045	Pass
Pendulum Impulse at 10ms	1.72	1.98	m/s	1.779	Pass
Pendulum Impulse at 15ms	2.67	2.97	m/s	2.748	Pass
Pendulum Impulse at 20ms	3.59	3.98	m/s	3.719	Pass
Pendulum Impulse at 25ms	4.43	4.92	m/s	4.610	Pass
Peak Upper Neck Z Moment	32.6	38.3	Nm	34.85	Pass
Peak Neck Axial Rotation	55.6	66.6	deg	52.19	Fail
Rotation Decay Time to Zero	58.0	61.6	ms	48.70	Fail
Peak Upper Neck Angular Velocity	1559	1709	deg/s	1634.1	Pass

Transducer Calibrations

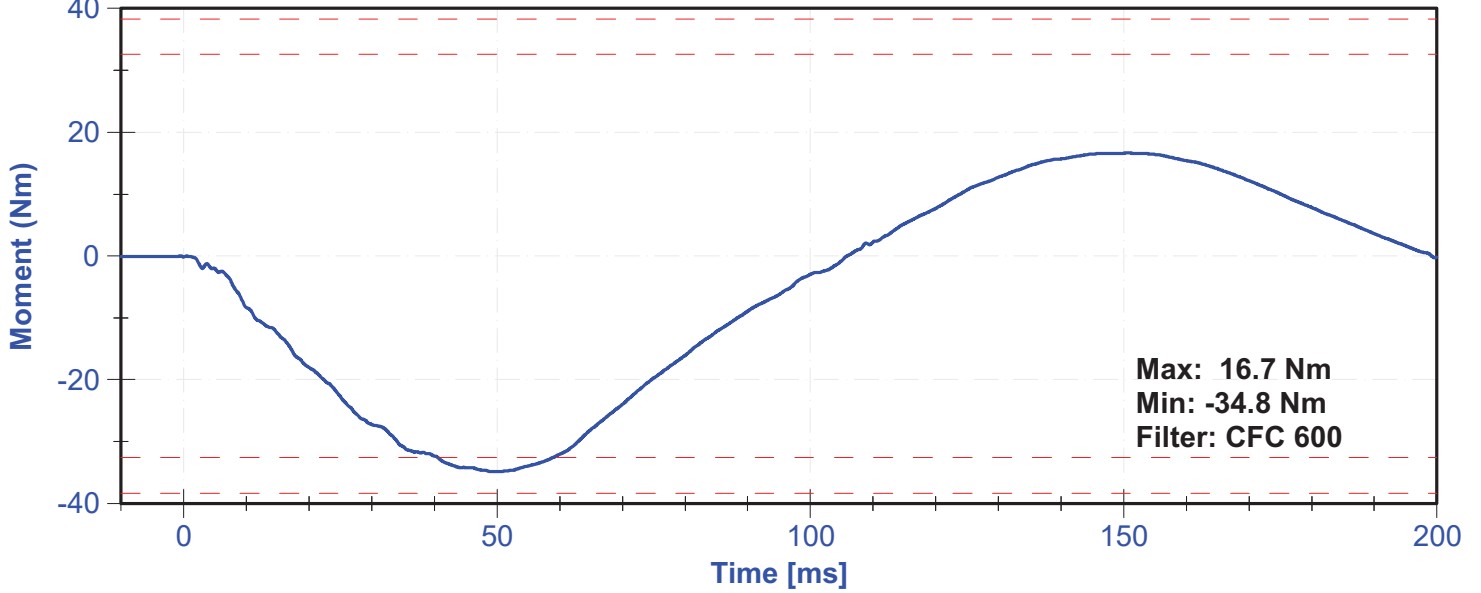
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5F3	5/7/2015	5/6/2016
Neck Fixture Potentiometer	Servo 14CB1-3615	DS-0001	10/21/2015	10/20/2016
Upper Neck Load Cell	Humanetics 10380JI4	LC-DS9758 Mz	12/3/2015	12/2/2016
Upper Neck ARS	DTS ARS-PRO-8K	ARS-6424	1/19/2016	1/18/2017



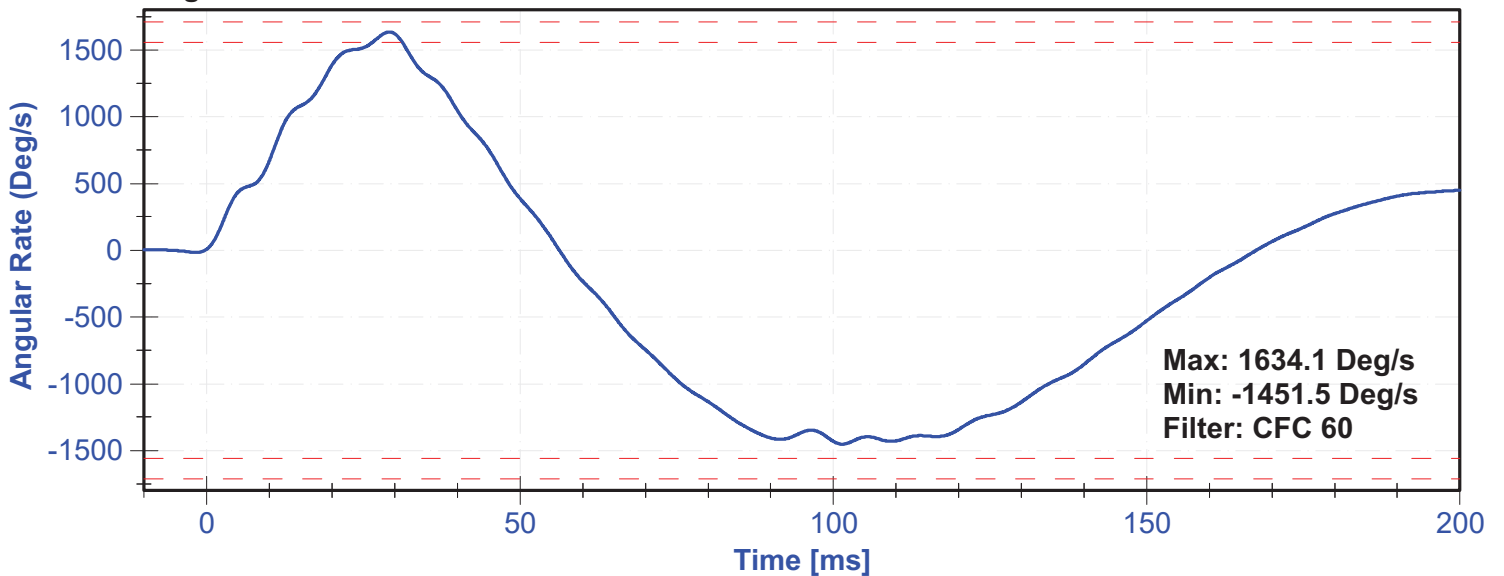
Axial Rotation



Moment



Angular Rate



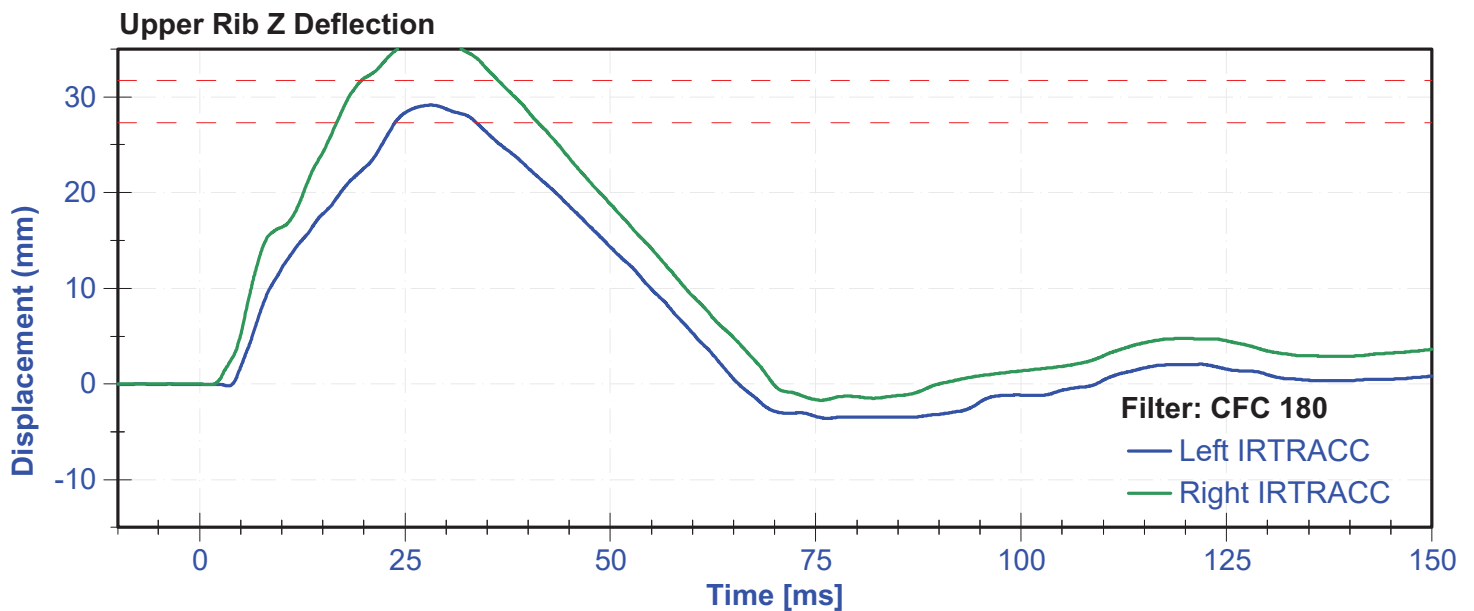
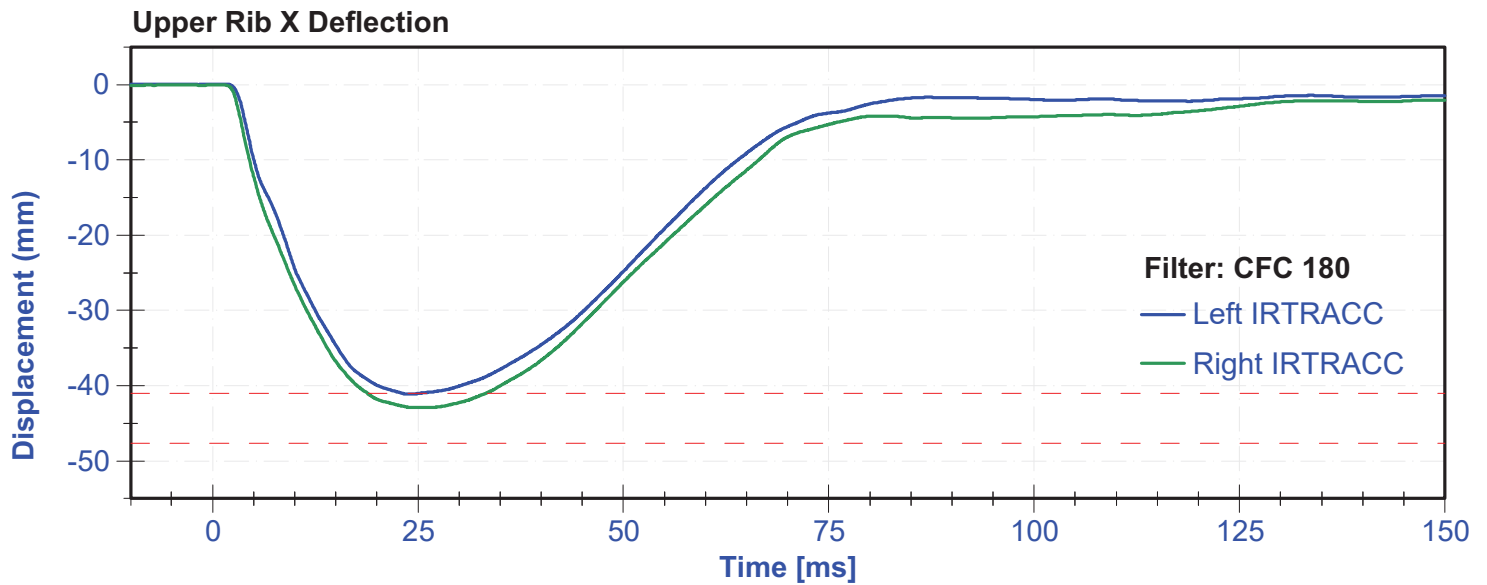
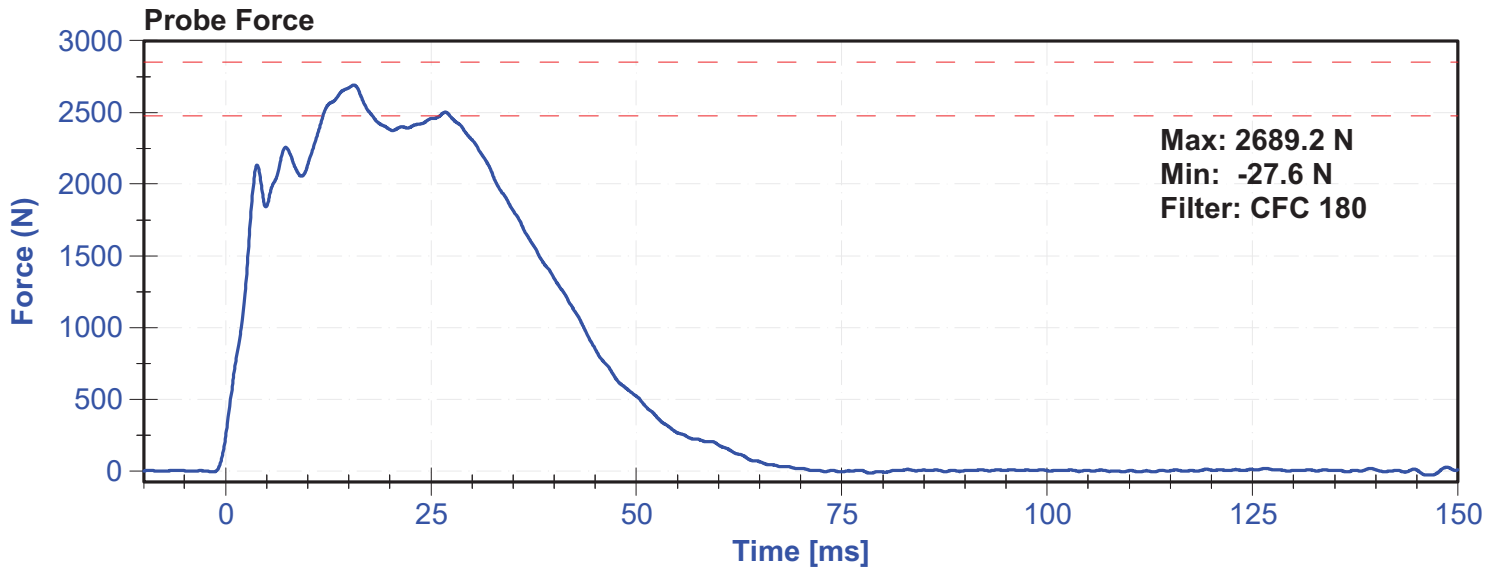
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

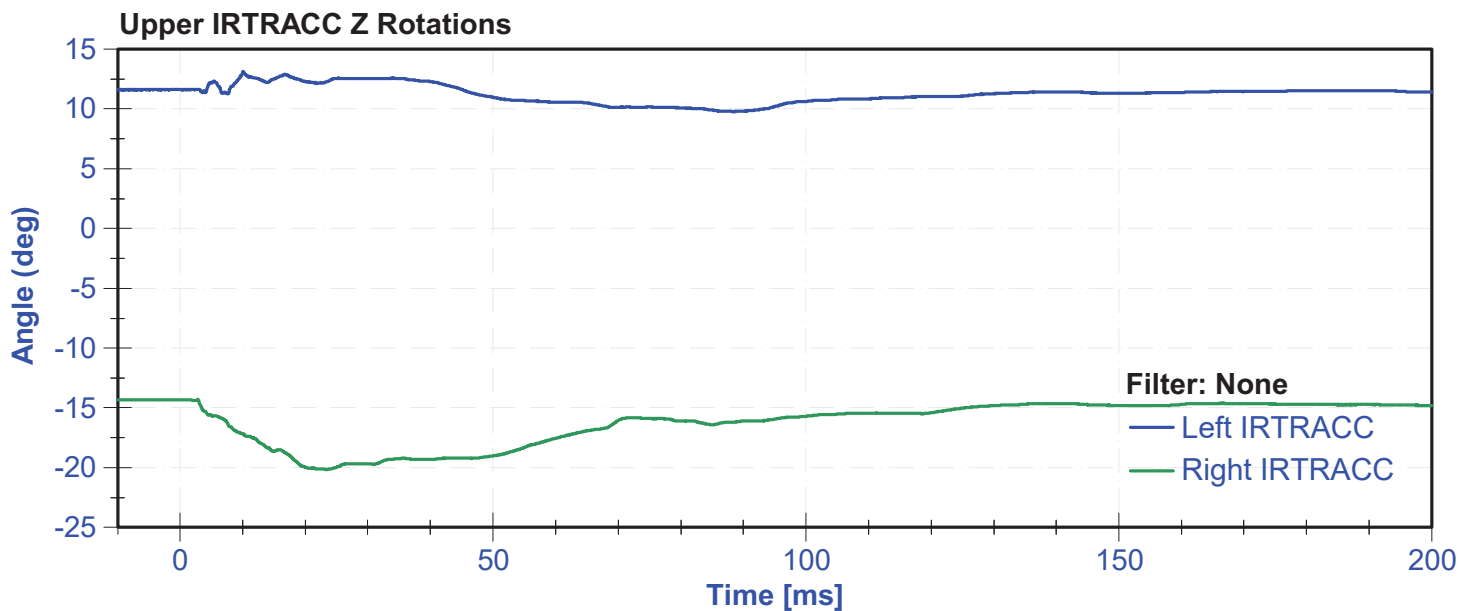
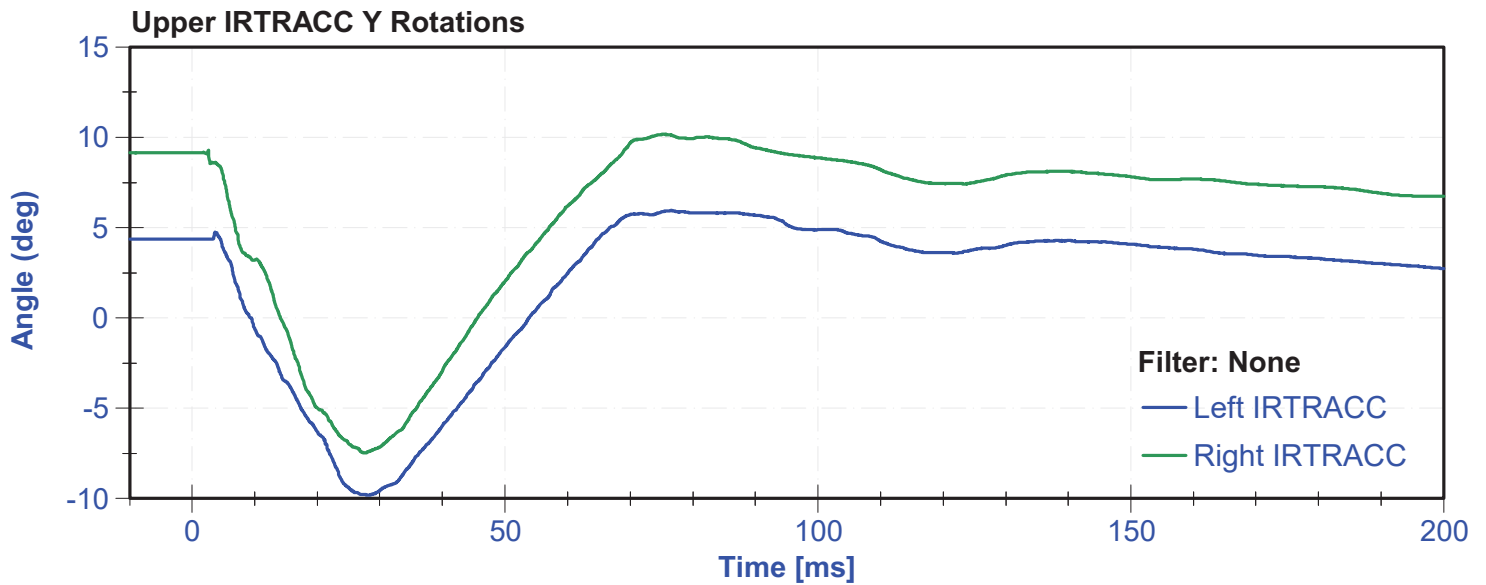
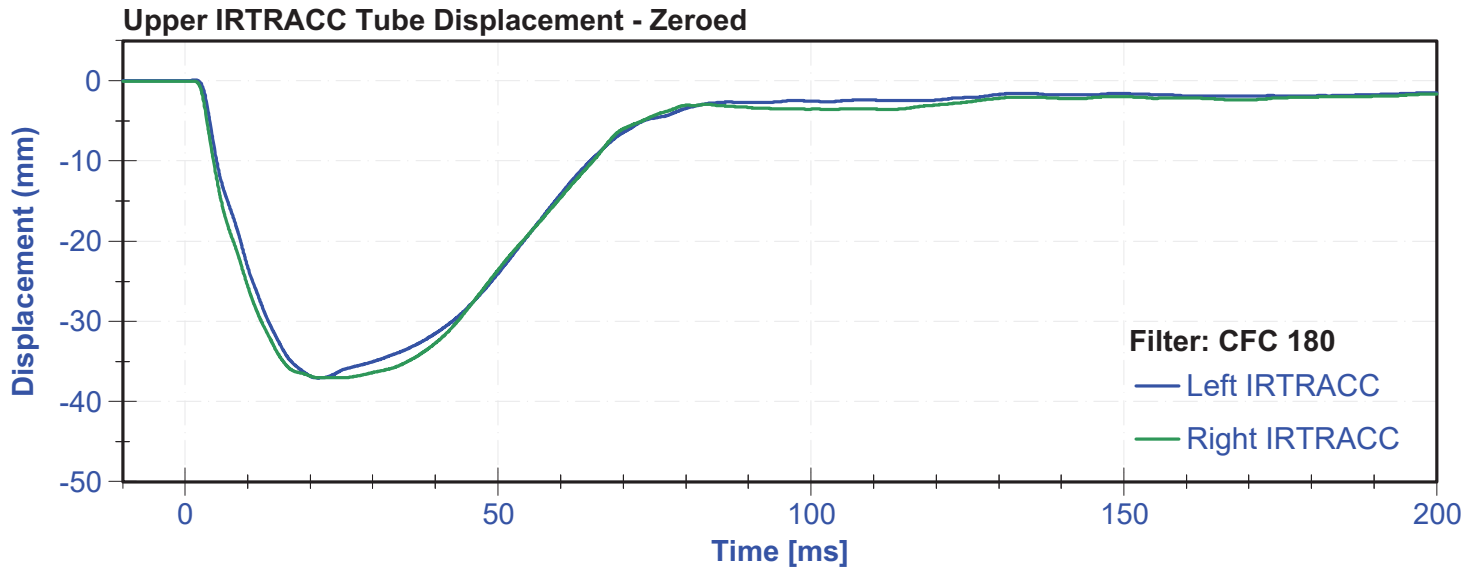
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	20.7	Pass
Humidity	10	70	%	36.8	Pass
Impact Velocity	4.25	4.35	m/s	4.342	Pass
Probe Force	2474	2850	N	2689.2	Pass
Upper Left X Rib Deflection	-47.6	-41.0	mm	-41.14	Pass
Upper Right X Rib Deflection	-47.6	-41.0	mm	-42.90	Pass
Left/Right X Rib Deviation	-7.00	7.00	mm	1.760	Pass
Upper Left Z Rib Deflection	27.3	31.7	mm	29.15	Pass
Upper Right Z Rib Deflection	27.3	31.7	mm	36.40	Fail
Left/Right Z Rib Deviation	-7.00	7.00	mm	-7.254	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016
Upper Left IRTRACC	Humanetics IF-364-C-R3	DS-DQ2255	4/8/2015	4/7/2016
Upper Left Y Potentiometer	Sfernice 9945	DS-DM4779	4/8/2015	4/7/2016
Upper Left Z Potentiometer	Sfernice 9945	DS-DM4778	4/8/2015	4/7/2016
Upper Right IRTRACC	Humanetics IF-364-C-R3	DS-DQ2254	4/8/2015	4/7/2016
Upper Right Y Potentiometer	Sfernice 9945	DS-DM4774	4/8/2015	4/7/2016
Upper Right Z Potentiometer	Sfernice 9945	DS-DM4775	4/8/2015	4/7/2016





ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

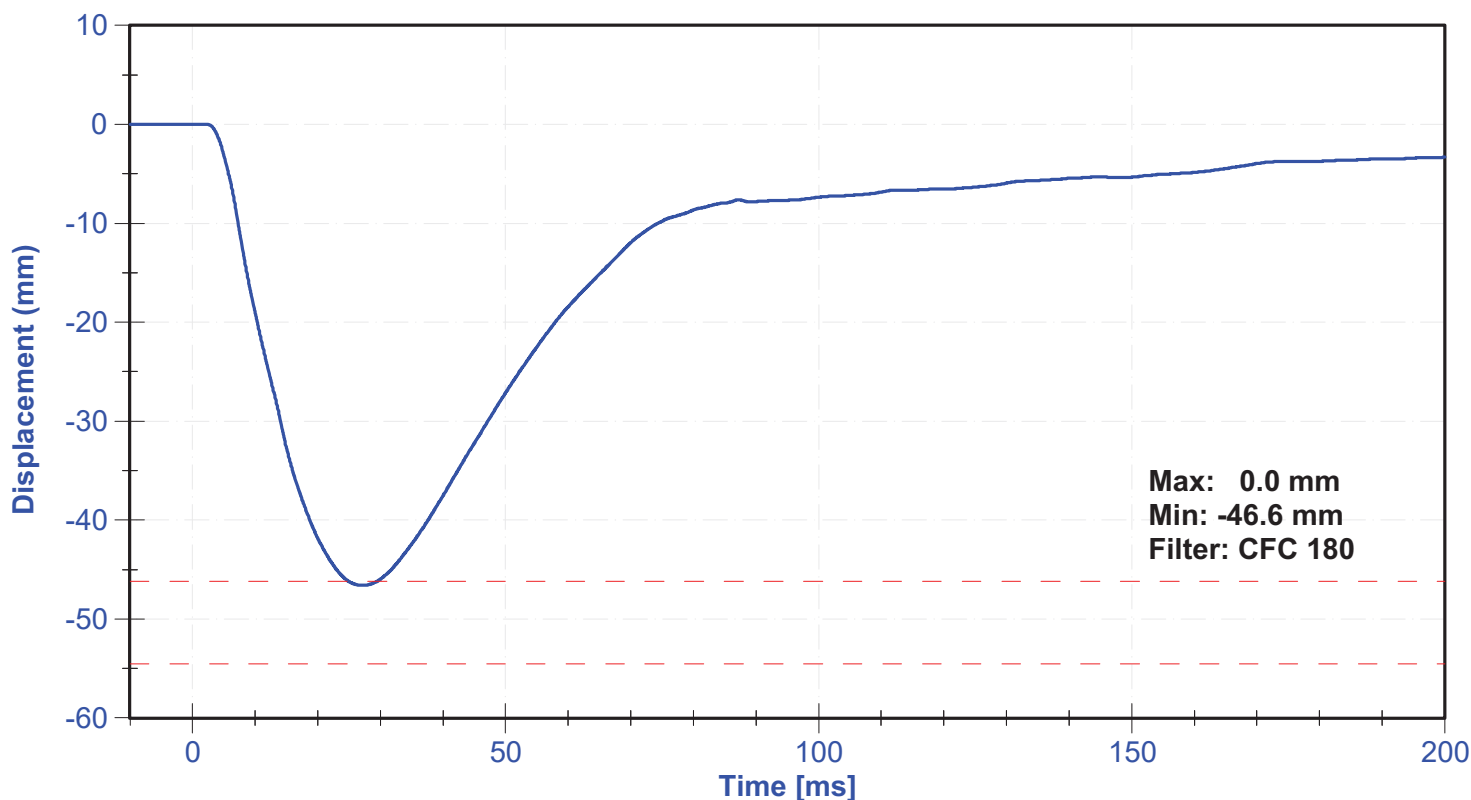
Results

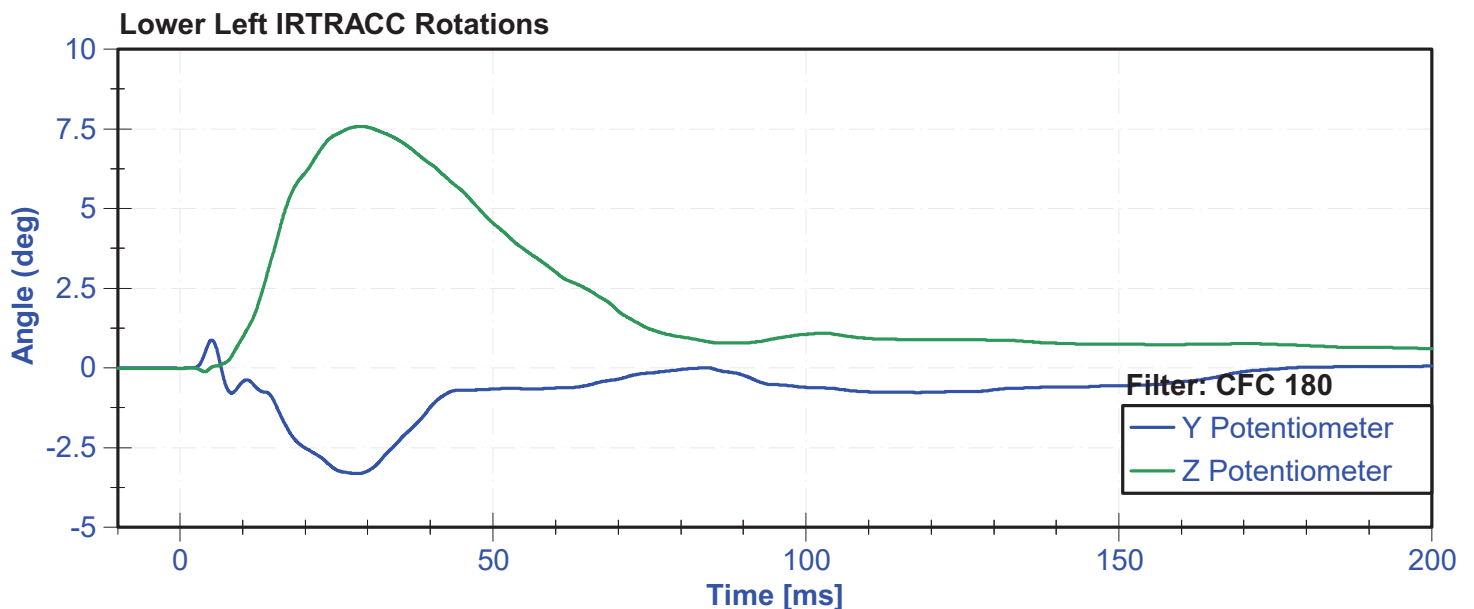
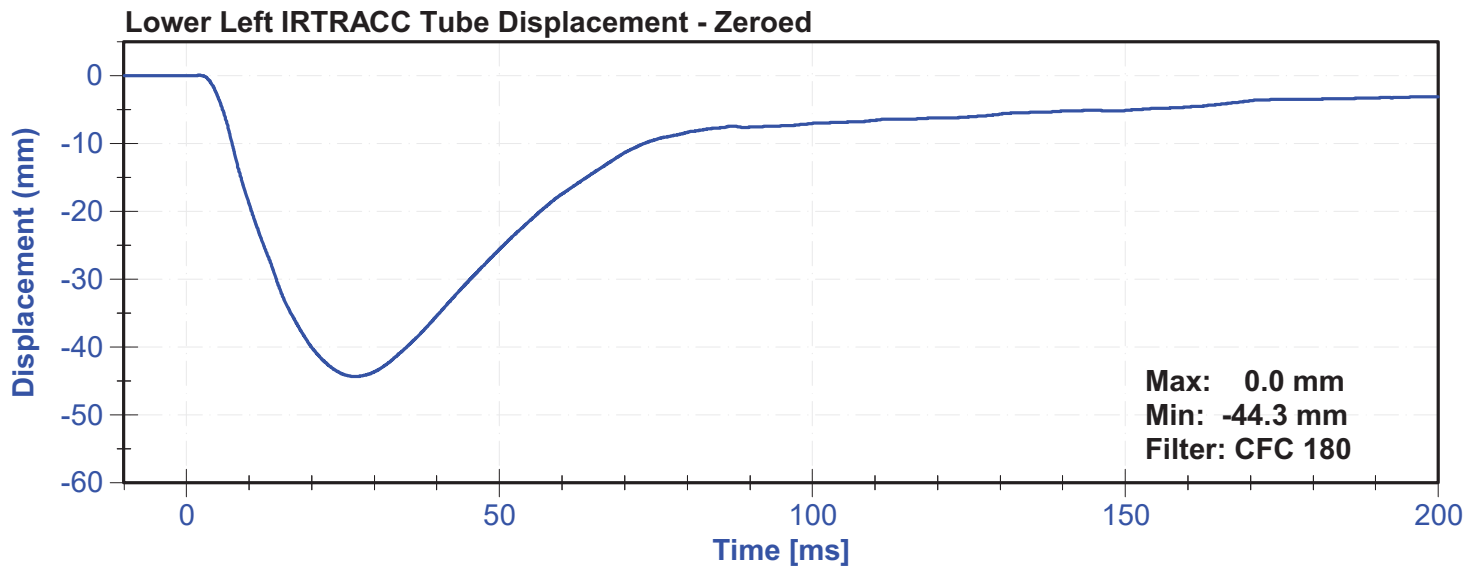
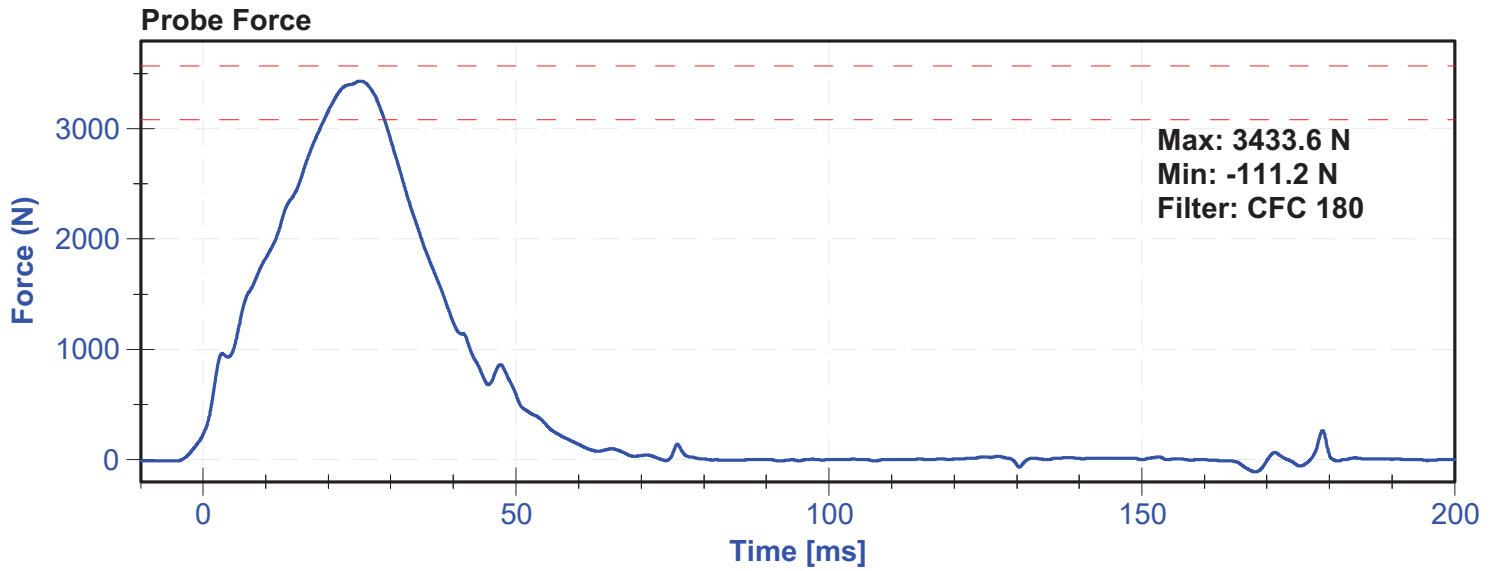
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	40.4	Pass
Impact Velocity	4.25	4.35	m/s	4.311	Pass
Peak Left X Rib Deflection	-54.5	-46.2	mm	-46.61	Pass
Probe Force during Peak Deflection	3083	3571	N	3433.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016
Lower Left IRTRACC	Humanetics IF-364-C-R3	DS-DK3866	4/8/2015	4/7/2016
Lower Left Y Potentiometer	Sfernice 9945	DS-DJ5455	4/8/2015	4/7/2016
Lower Left Z Potentiometer	Sfernice 9945	DS-DJ5454	4/8/2015	4/7/2016

Lower Left Rib X Deflection





ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

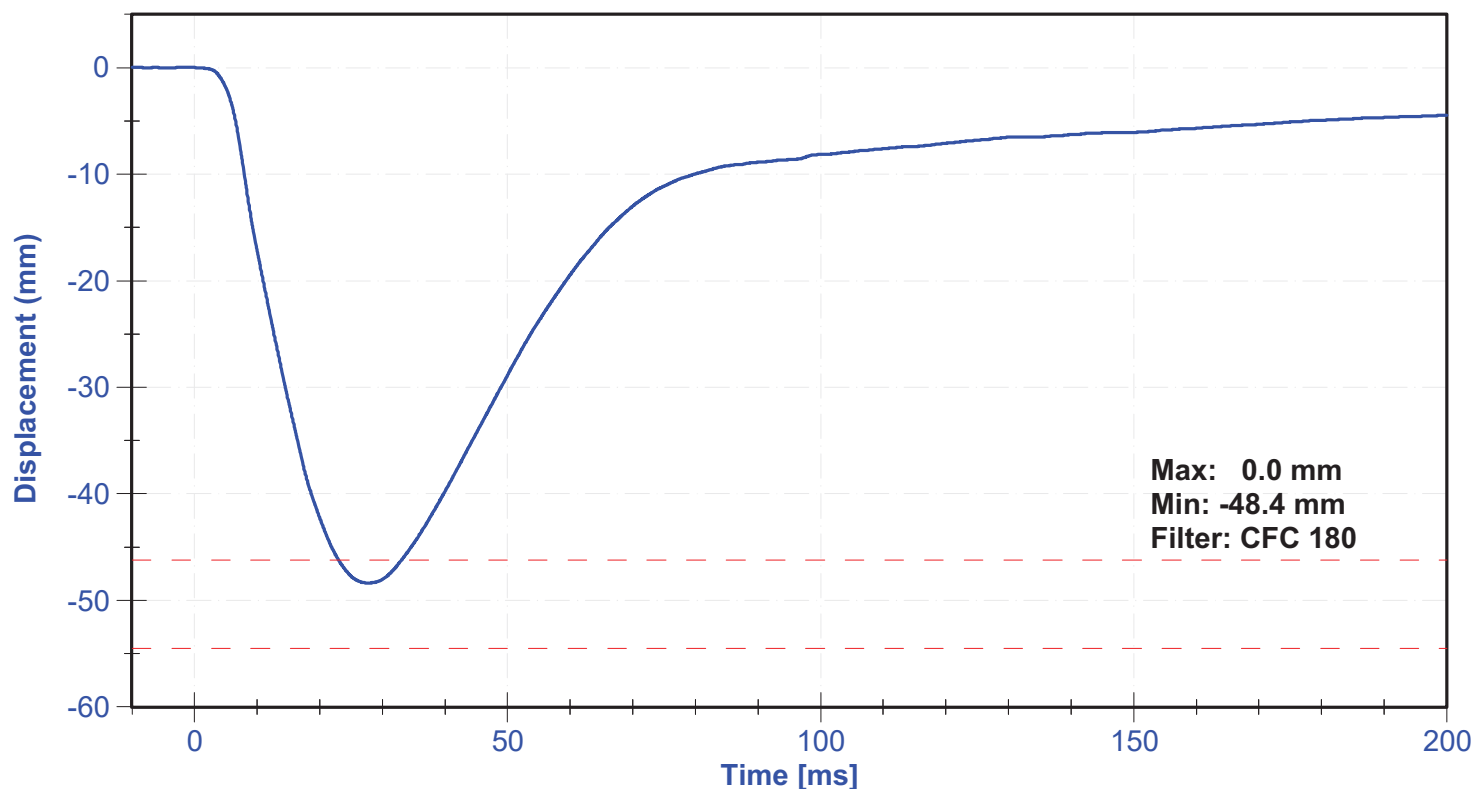
Results

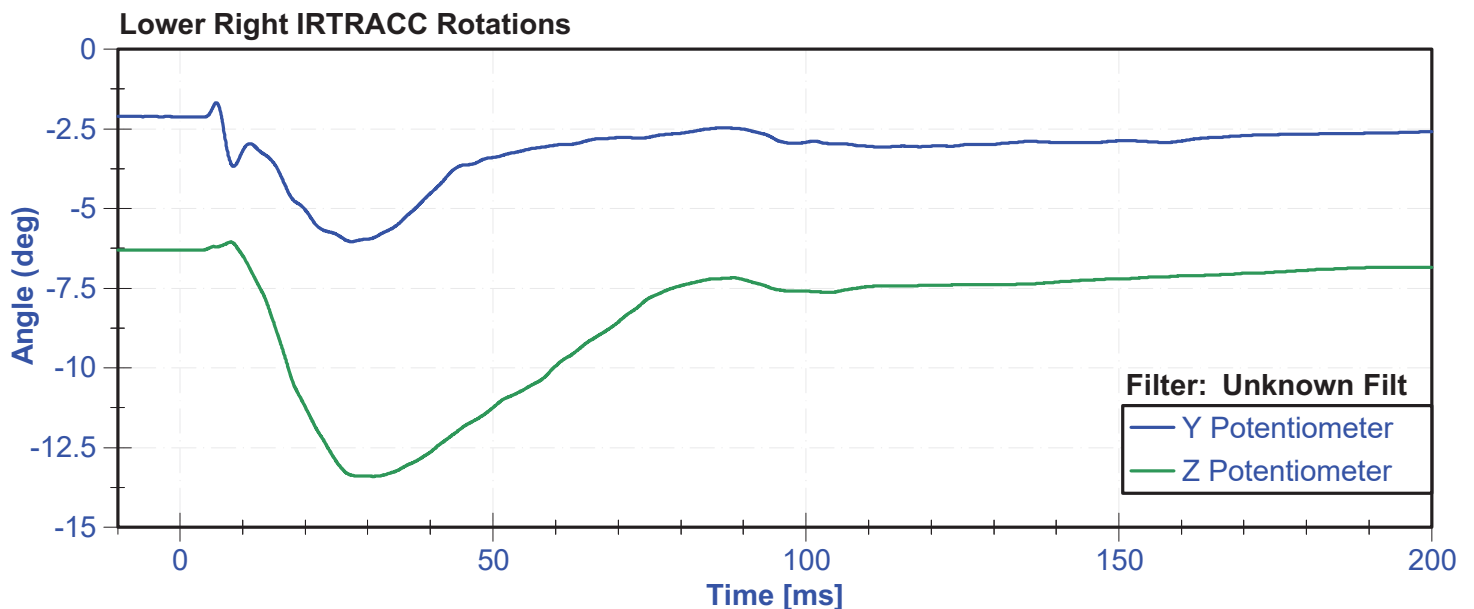
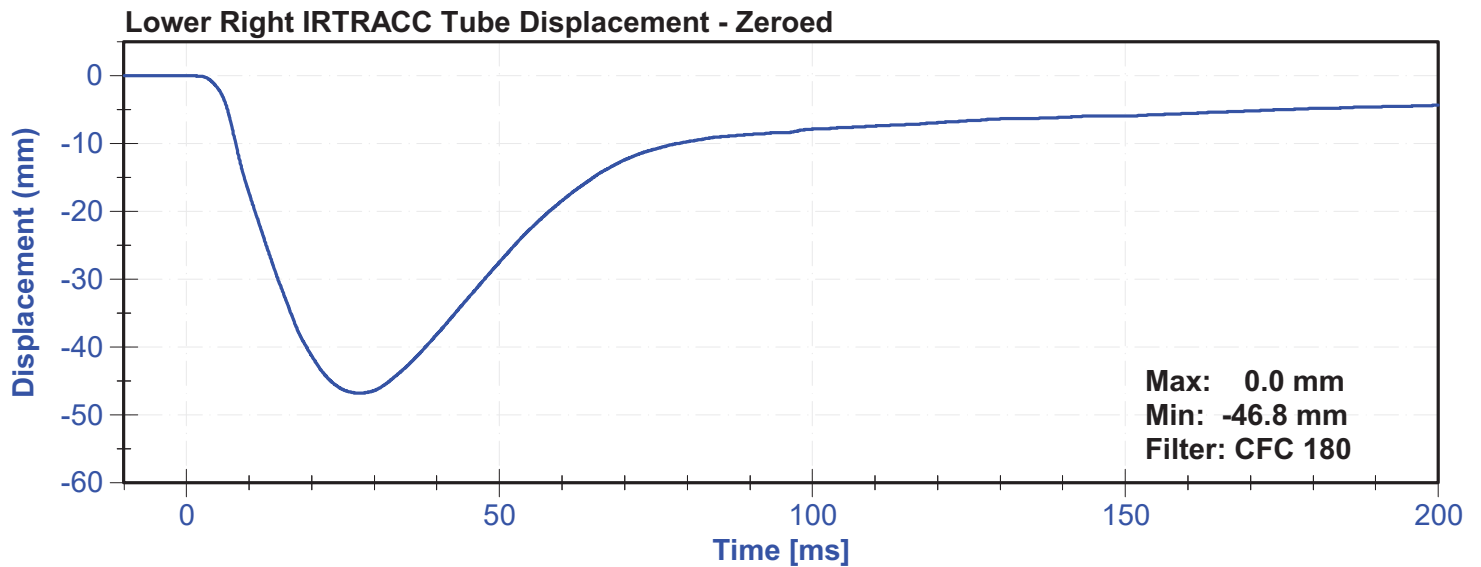
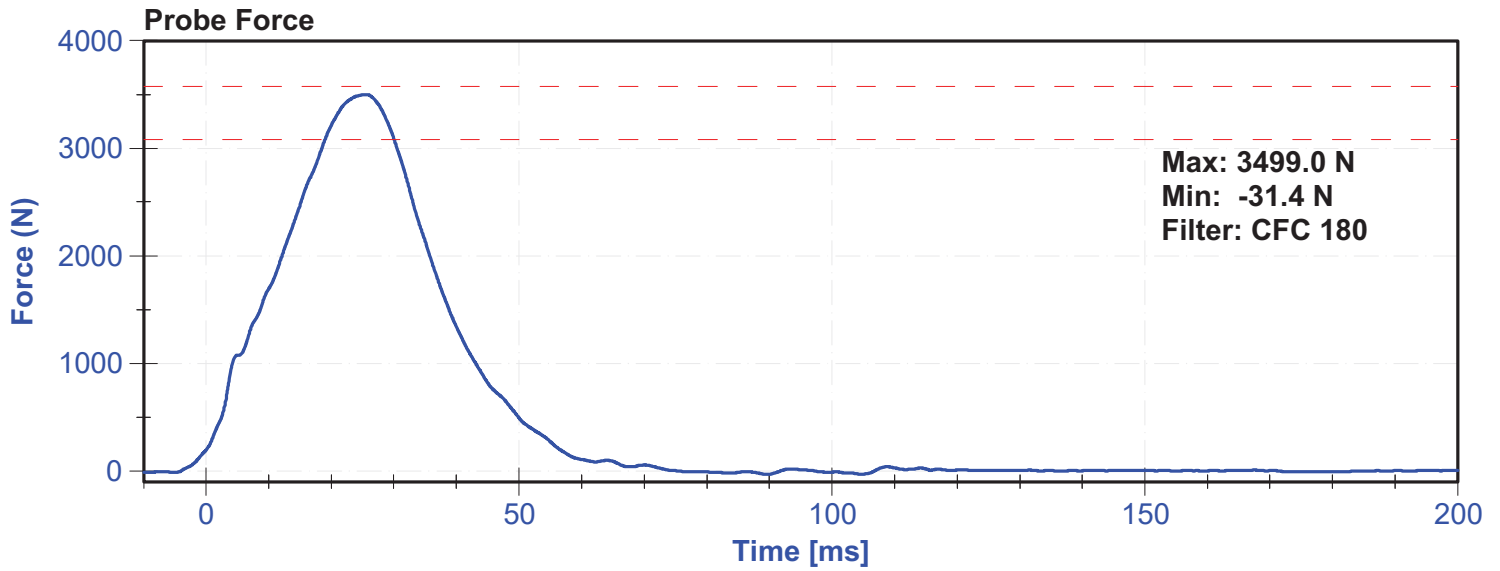
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	37.7	Pass
Impact Velocity	4.25	4.35	m/s	4.323	Pass
Peak Right X Rib Deflection	-54.5	-46.2	mm	-48.37	Pass
Probe Force during Peak Deflection	3083	3571	N	3499.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016
Lower Right IRTRACC	Humanetics IF-364-C-R3	DS-DK3865	4/8/2015	4/7/2016
Lower Right Y Potentiometer	Sfernice 9945	DS-DJ5453	4/8/2015	4/7/2016
Lower Right Z Potentiometer	Sfernice 9945	DS-DJ5452	4/8/2015	4/7/2016

Lower Right Rib X Deflection





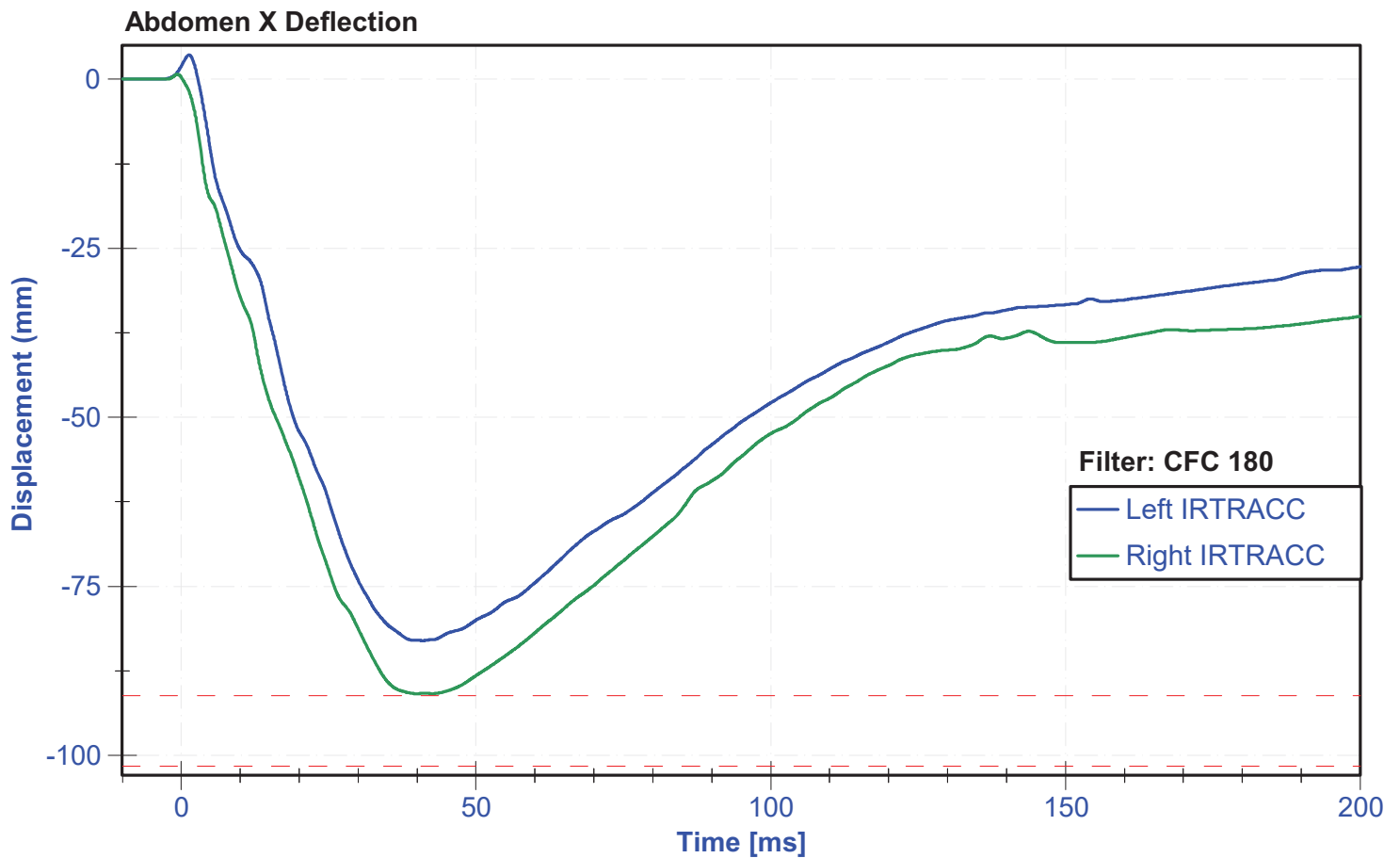
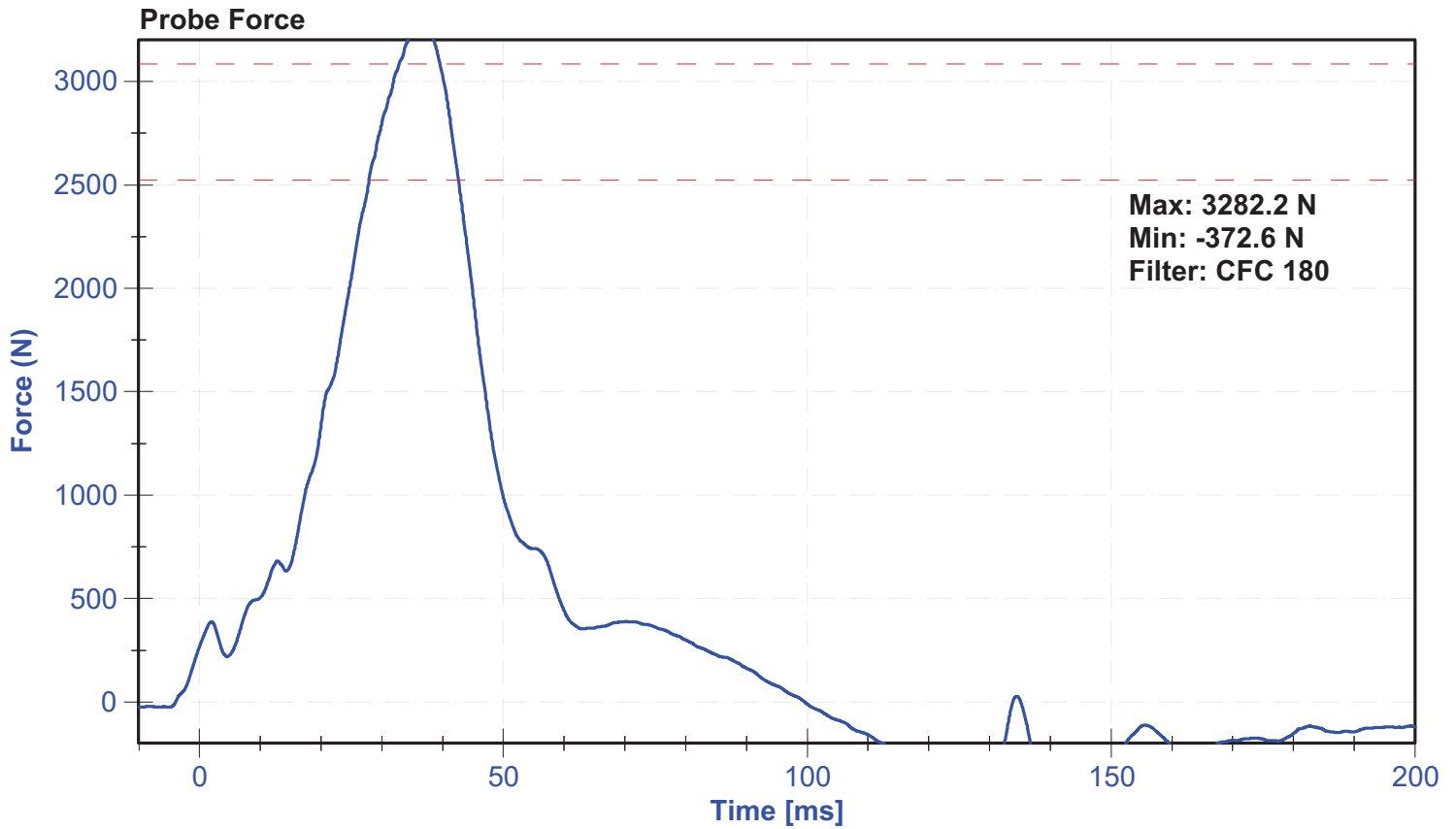
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

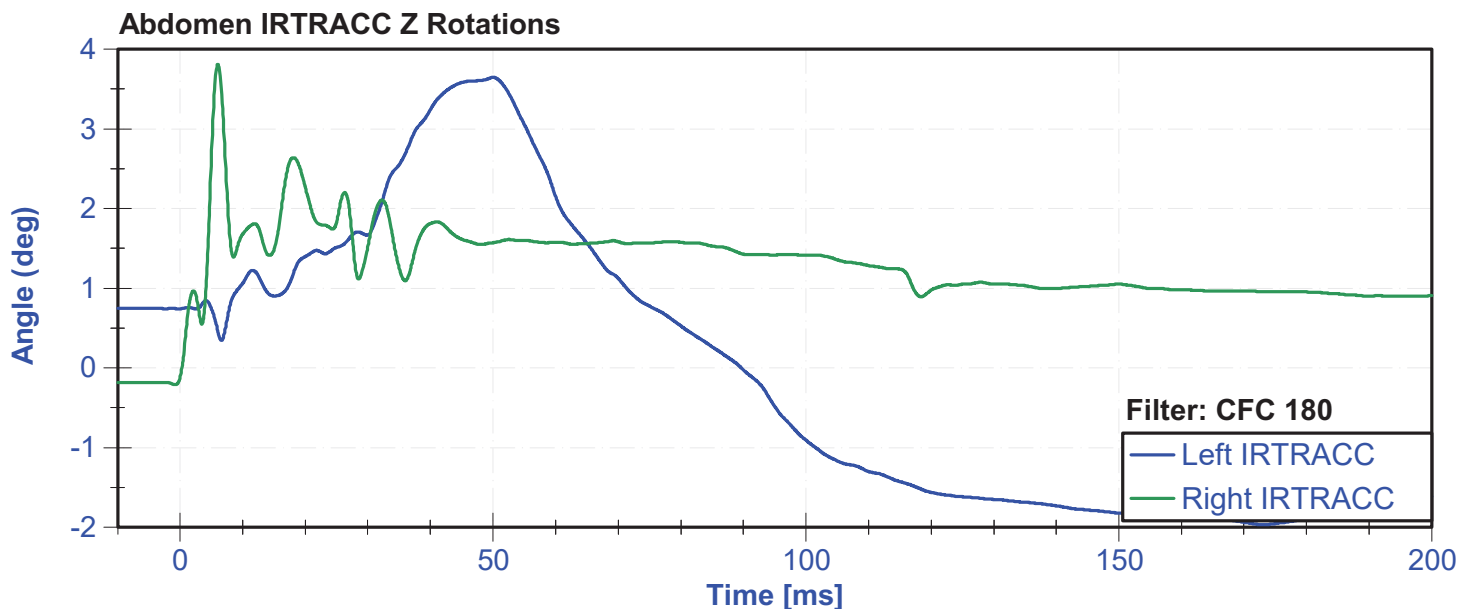
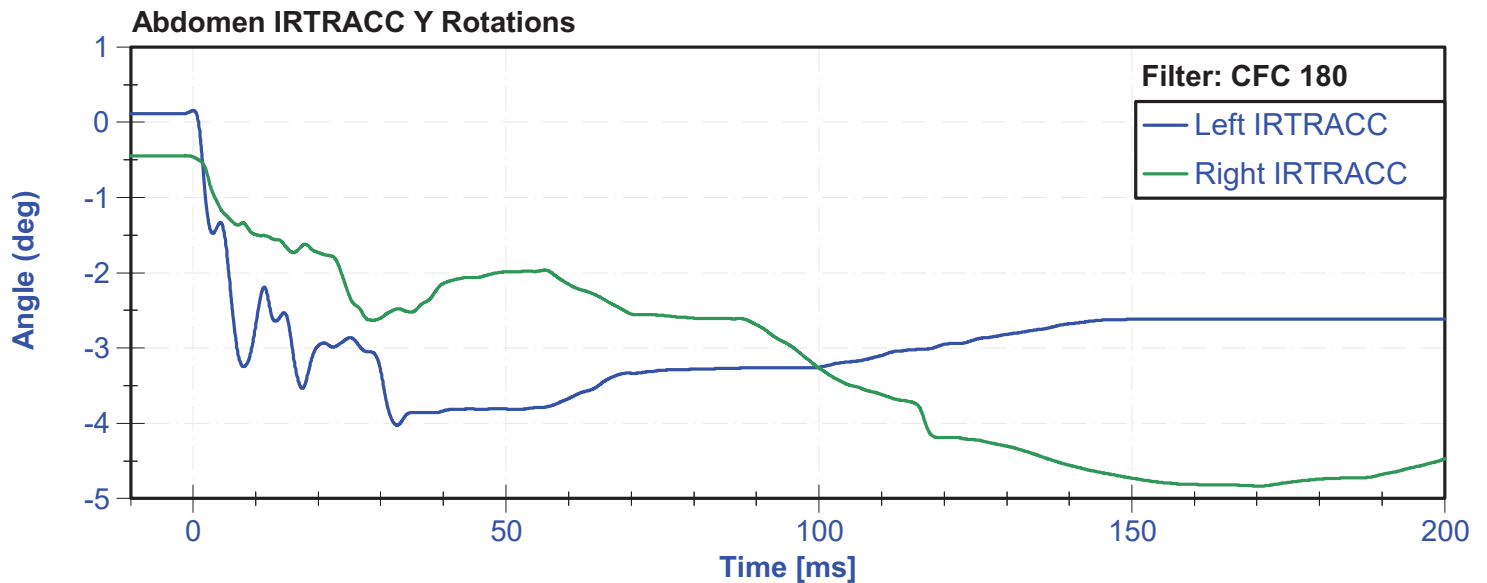
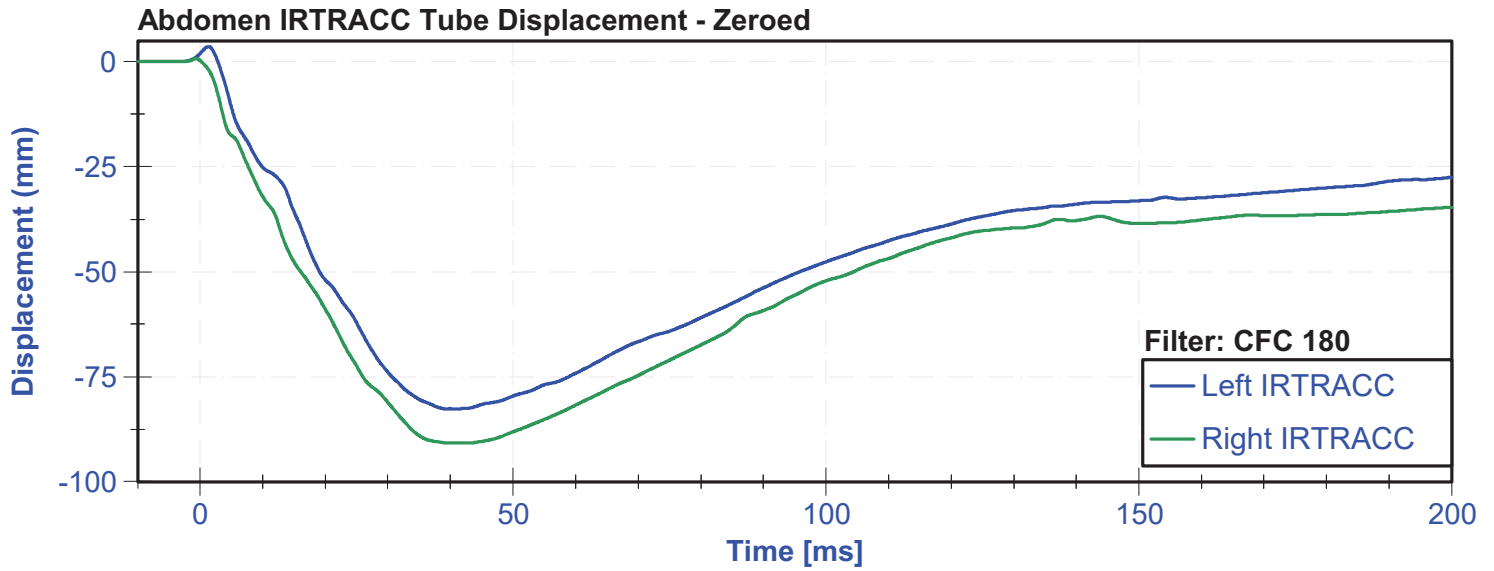
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	15.3	Pass
Impact Velocity	3.25	3.35	m/s	3.309	Pass
Probe Force	2523	3083	N	3282.2	Fail
Left Abdomen X Deflection	-101.6	-91.2	mm	-83.02	Fail
Right Abdomen X Deflection	-101.6	-91.2	mm	-90.87	Fail
Left/Right X Deviation	-7.00	7.00	mm	7.843	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accel	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Abdomen Left IRTRACC	Humanetics 9910	DS-183	3/9/2015	3/8/2016
Abdomen Left Y Potentiometer	Sfernice 9945	DS-DJ5443	5/18/2015	5/17/2016
Abdomen Left Z Potentiometer	Sfernice 9945	DS-DJ5444	5/18/2015	5/17/2016





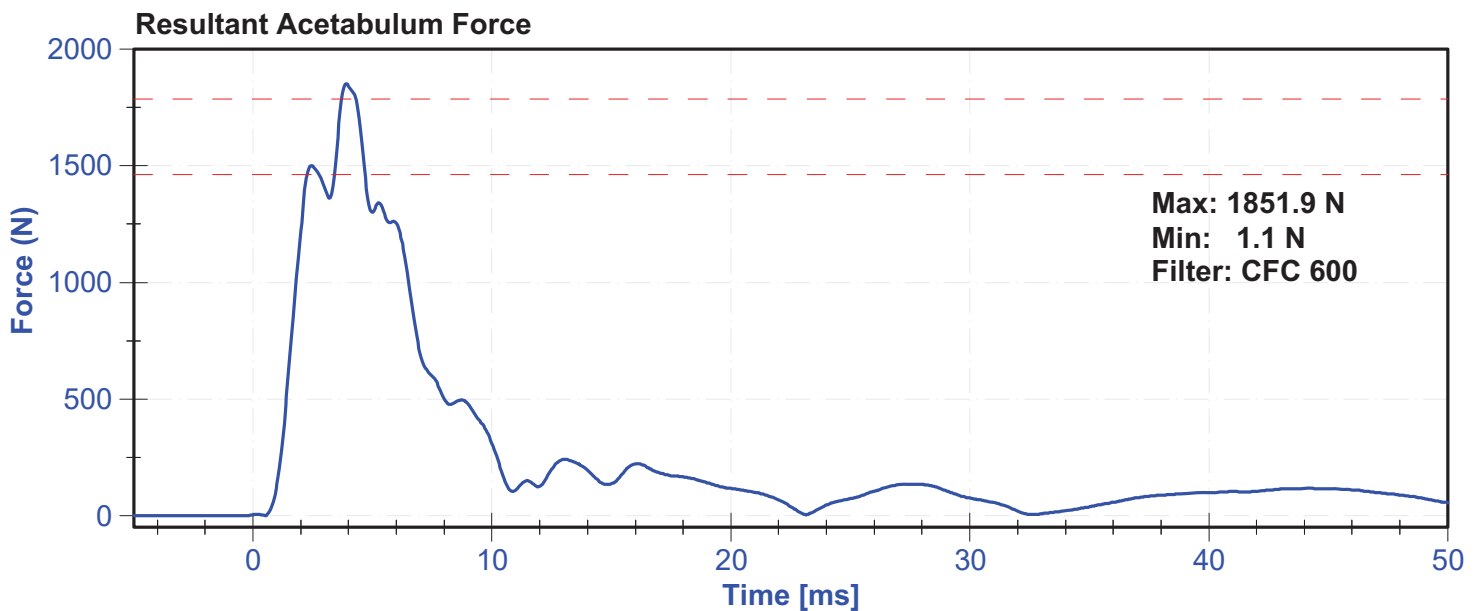
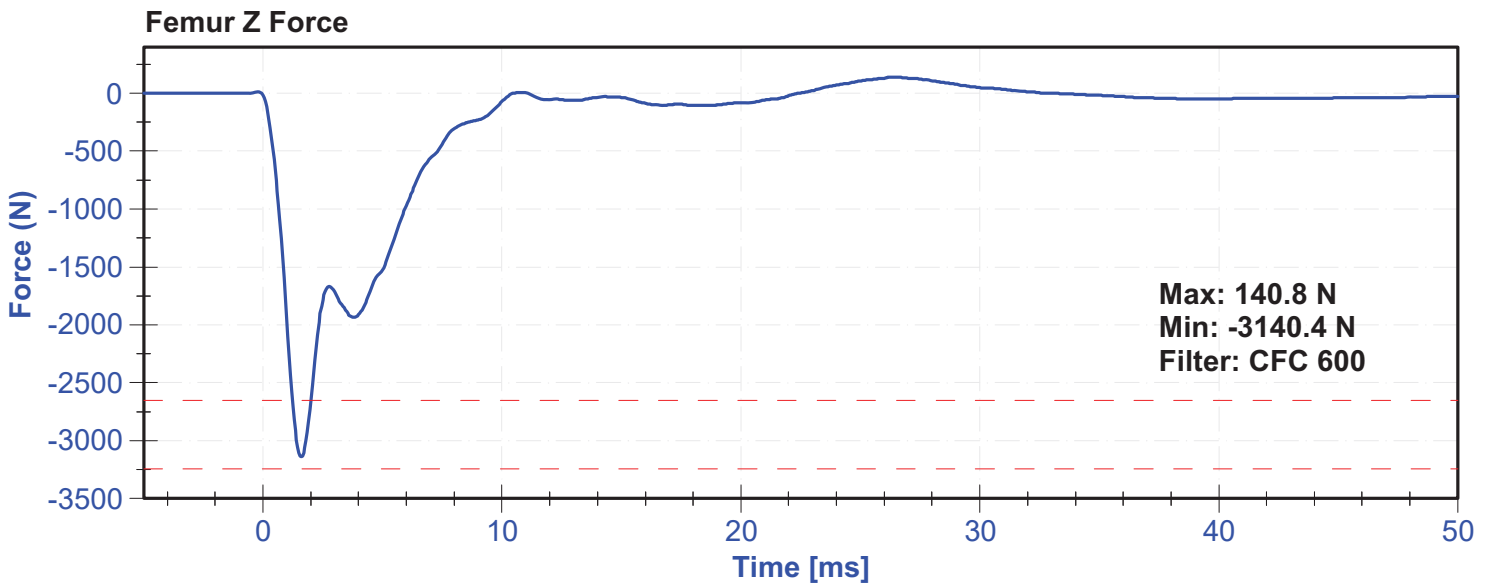
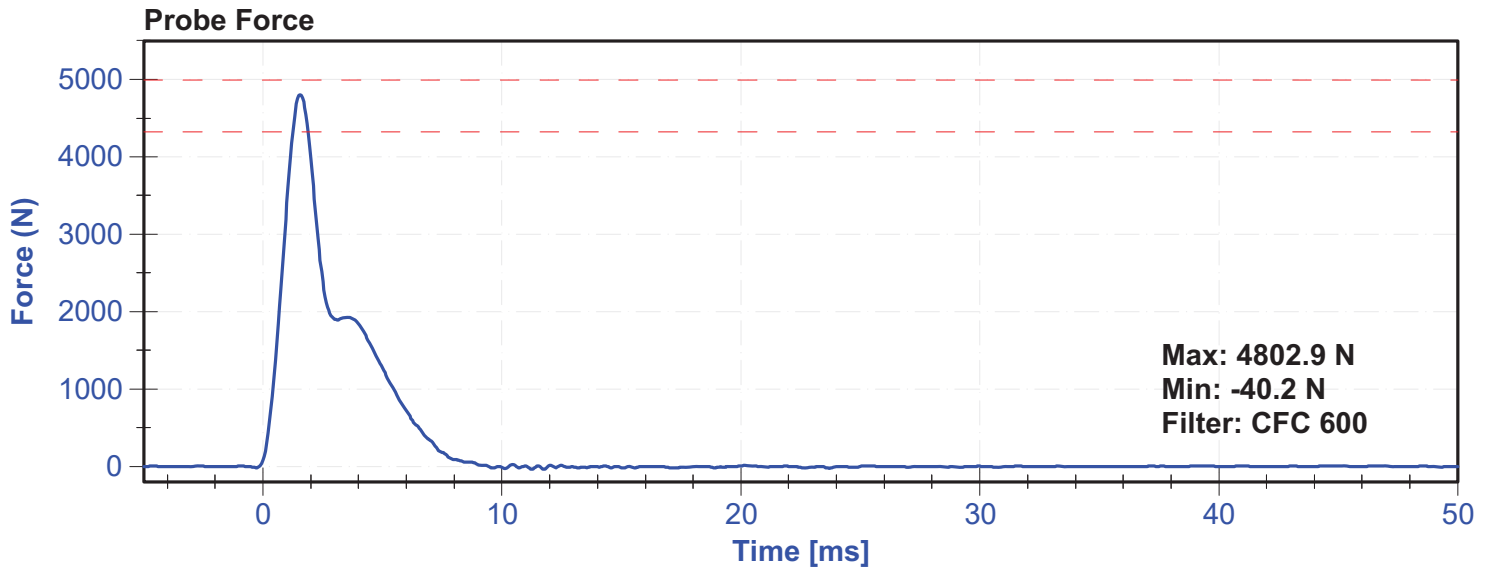
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	39.5	Pass
Impact Velocity	2.55	2.65	m/s	2.566	Pass
Probe Force	4318	4989	N	4802.9	Pass
Peak Femur Z Force	-3241	-2652	N	-3140.45	Pass
Peak Resultant Acetabulum Force	1462	1787	N	1851.86	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016
Left Femur Load Cell	Humanetics W50-71010	LC-DK0842 Fz	2/11/2016	2/10/2017
Left Acetabulum Load Cell	Humanetics 10530JI4	LC-DM1945 Fx	3/7/2016	3/7/2017



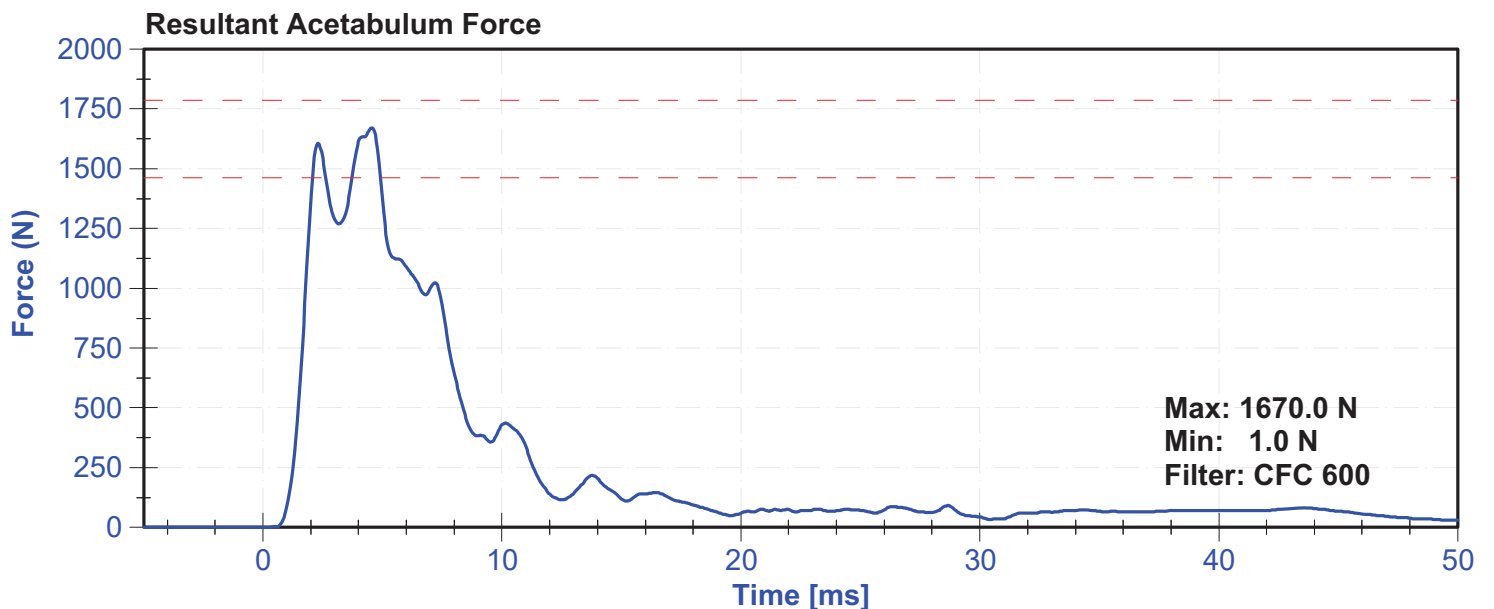
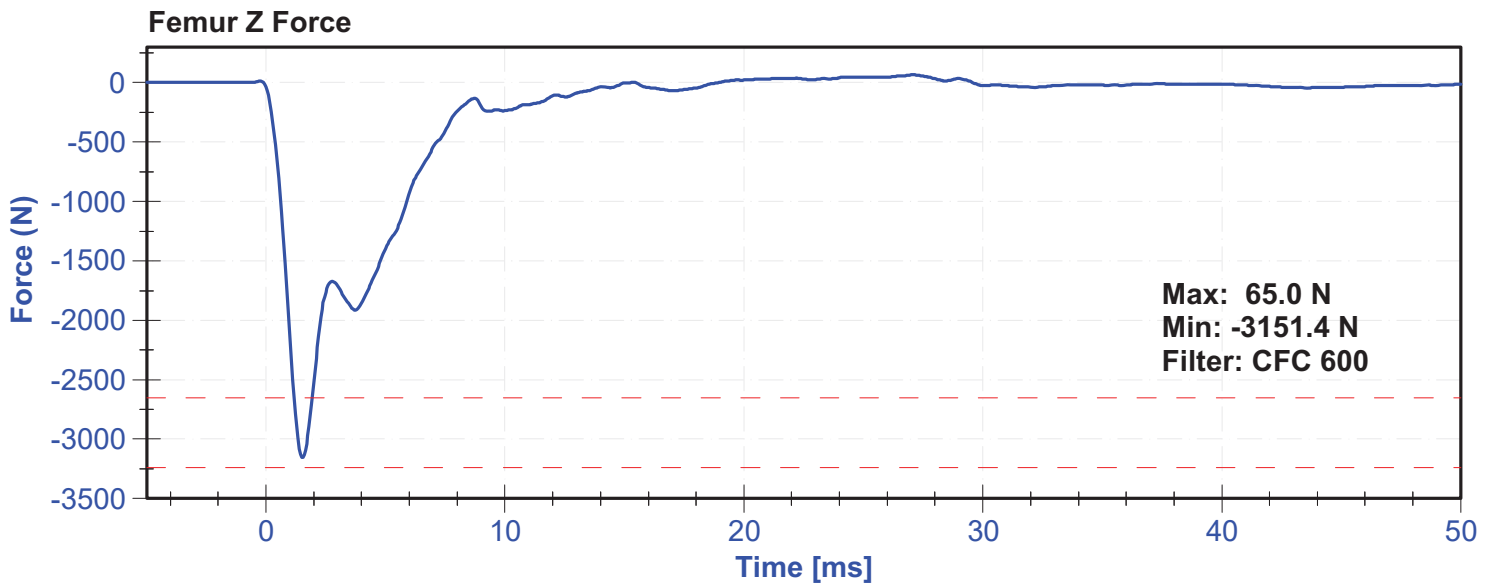
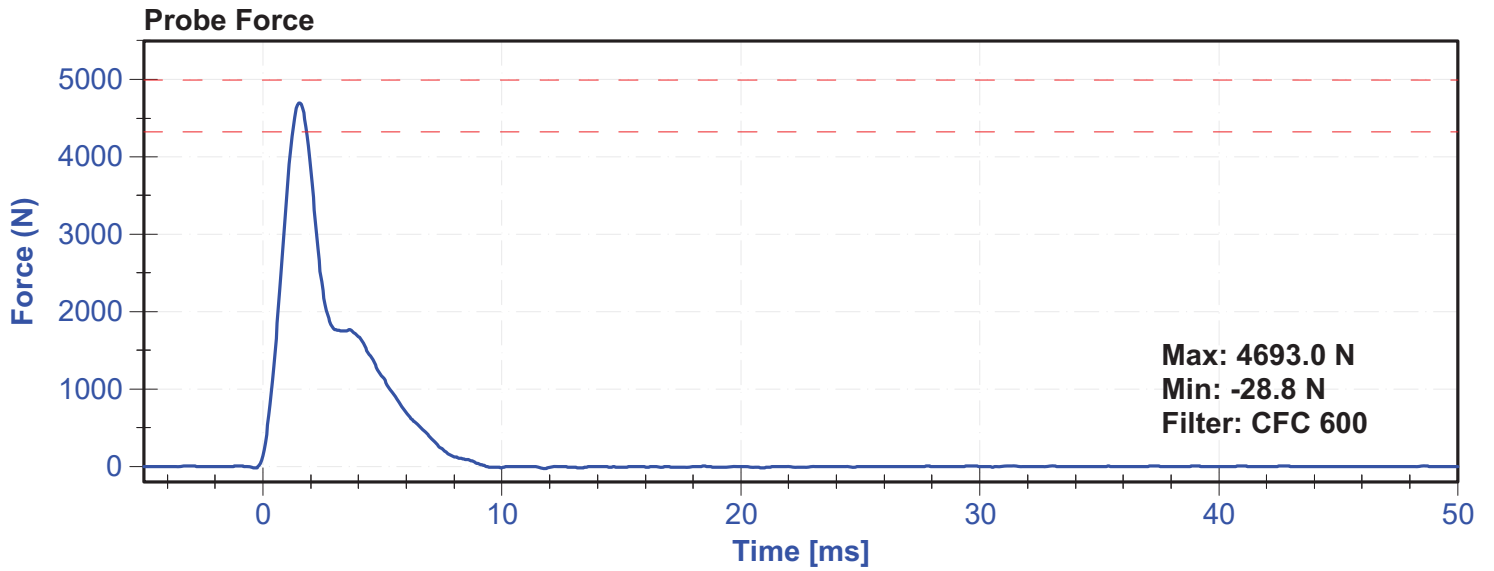
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.1	Pass
Humidity	10	70	%	40.0	Pass
Impact Velocity	2.55	2.65	m/s	2.569	Pass
Probe Force	4318	4989	N	4693.0	Pass
Peak Femur Z Force	-3241	-2652	N	-3151.43	Pass
Peak Resultant Acetabulum Force	1462	1787	N	1670.05	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016
Left Femur Load Cell	Humanetics W50-71010	LC-DK3608 Fz	3/3/2016	3/3/2017
Left Acetabulum Load Cell	Humanetics 10670JI4	LC-DL9552 Fx	3/7/2016	3/7/2017



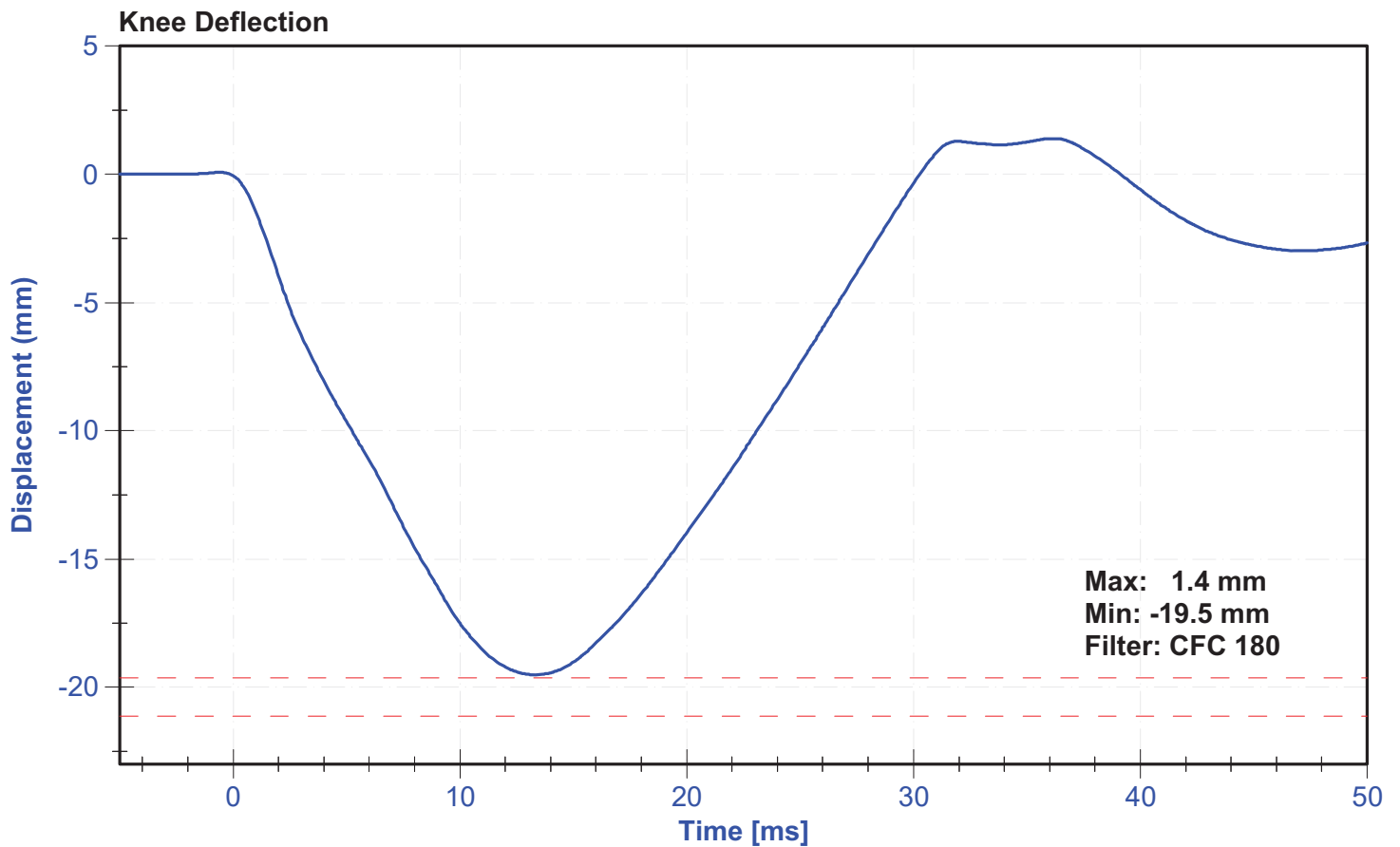
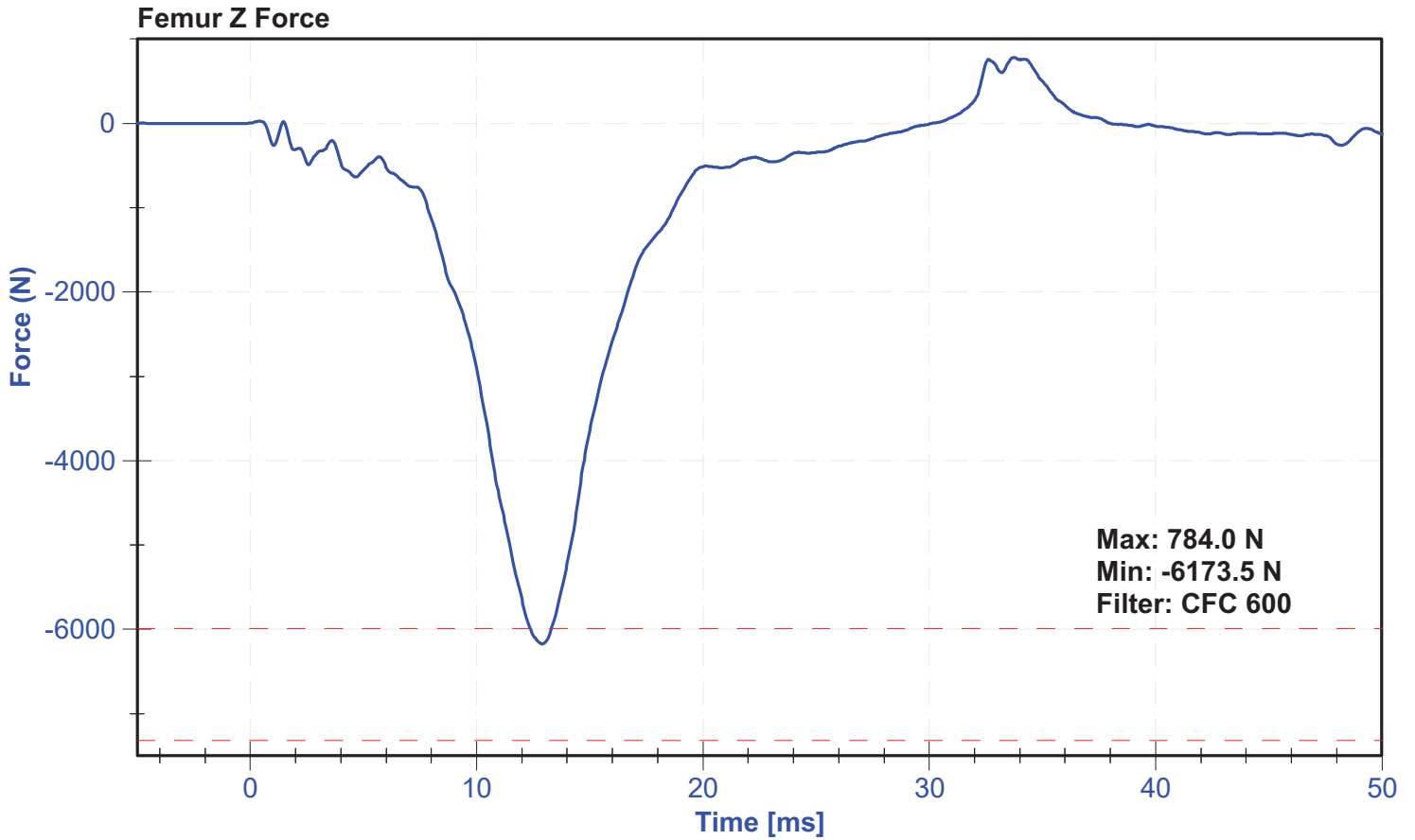
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	42.9	Pass
Impact Velocity	2.15	2.25	m/s	2.238	Pass
Peak Femur Z Force	-7317	-5987	N	-6173.5	Pass
Knee Deflection at Peak Force	-21.12	-19.62	mm	-19.51	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016
Femur Load Cell	Humanetics W50-71010	LC-DK0842 Fz	2/11/2016	2/10/2017
Knee Potentiometer	Space Age 150-0121V	DS-13073811	6/24/2015	6/23/2016



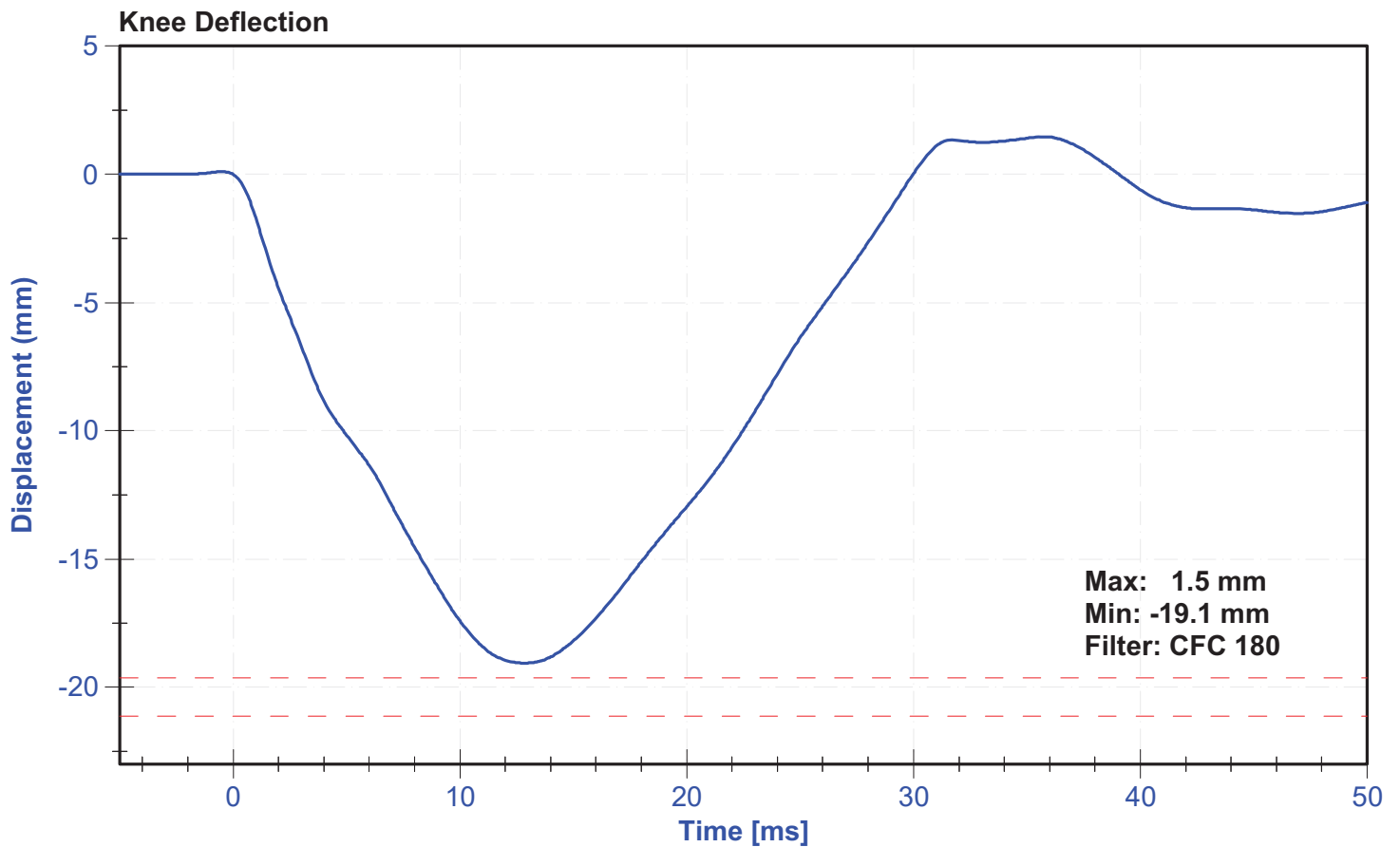
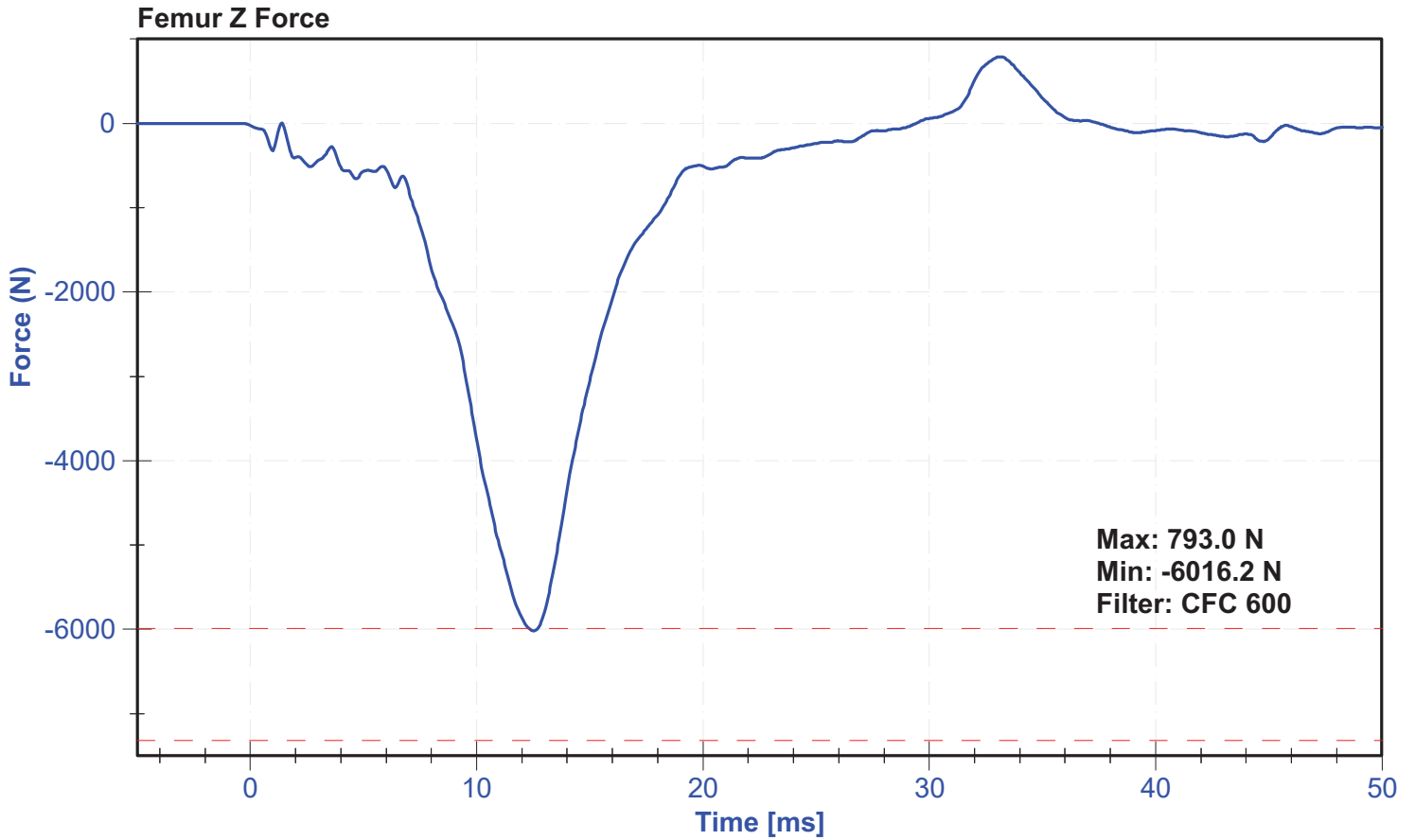
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.4	Pass
Humidity	10	70	%	40.9	Pass
Impact Velocity	2.15	2.25	m/s	2.243	Pass
Peak Femur Z Force	-7317	-5987	N	-6016.2	Pass
Knee Deflection at Peak Force	-21.12	-19.62	mm	-19.06	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016
Femur Load Cell	Humanetics W50-71010	LC-DK3608 Fz	3/3/2016	3/3/2017
Knee Potentiometer	Space Age 150-0121V	DS-13073814	6/24/2015	6/23/2016



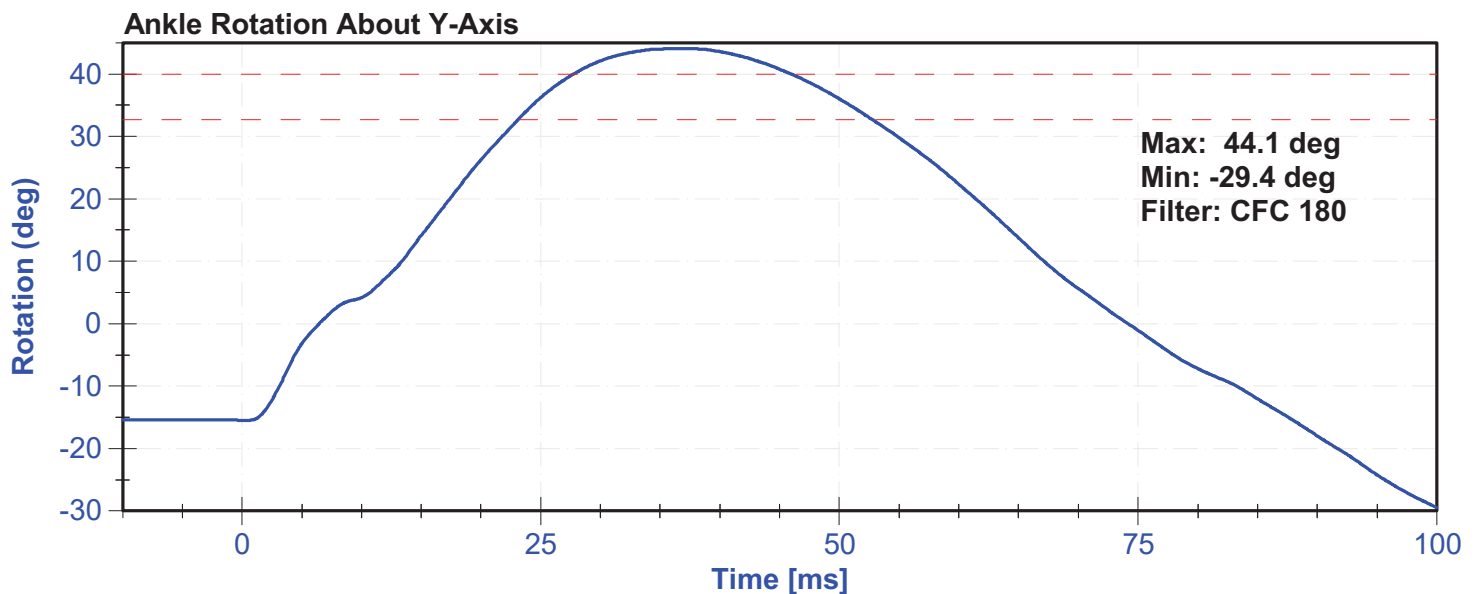
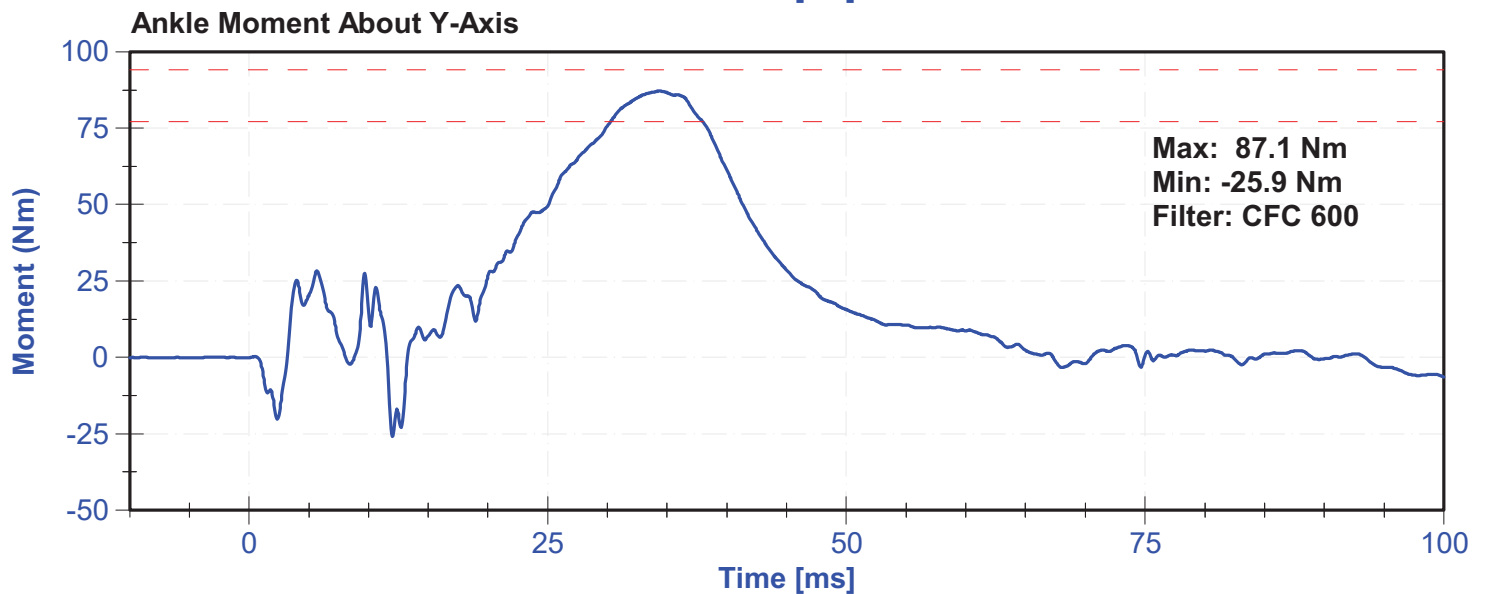
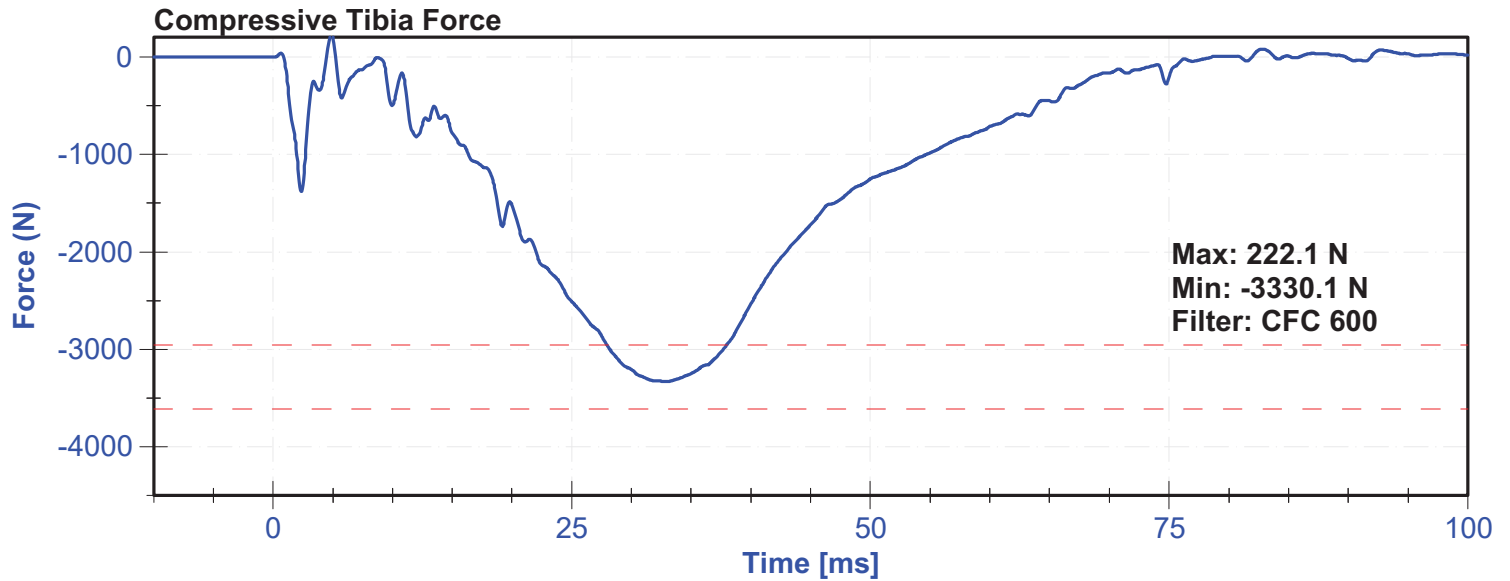
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	28.1	Pass
Velocity	4.9	5.1	m/s	4.961	Pass
Lower Tibia Compressive Force	-3613	-2956	N	-3330.1	Pass
Peak Moment about Y-Axis	77.1	94.2	Nm	87.13	Pass
Peak Rotation about Y-Axis	32.7	39.9	deg	44.05	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 9329J	LC-DQ9685 Fz	5/5/2015	5/4/2016
Ankle Y Potentiometer	SFERNICE ECO50ESC10	DS-ANKL005	5/27/2015	5/26/2016



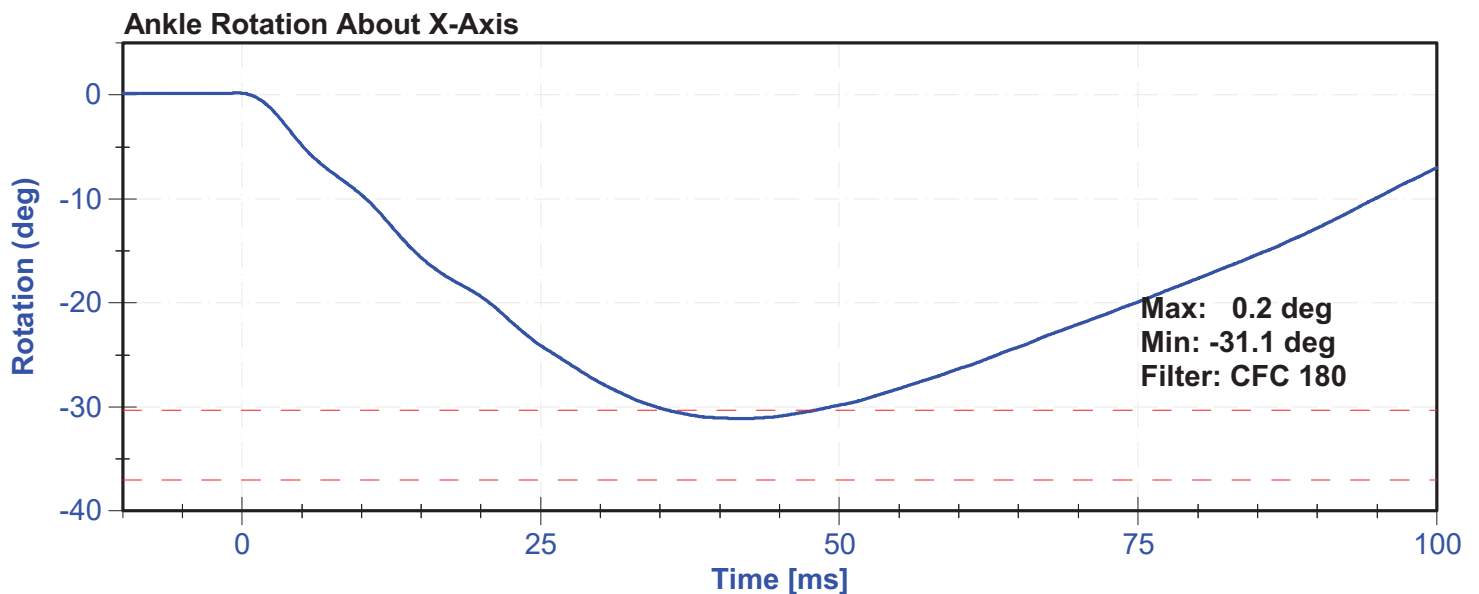
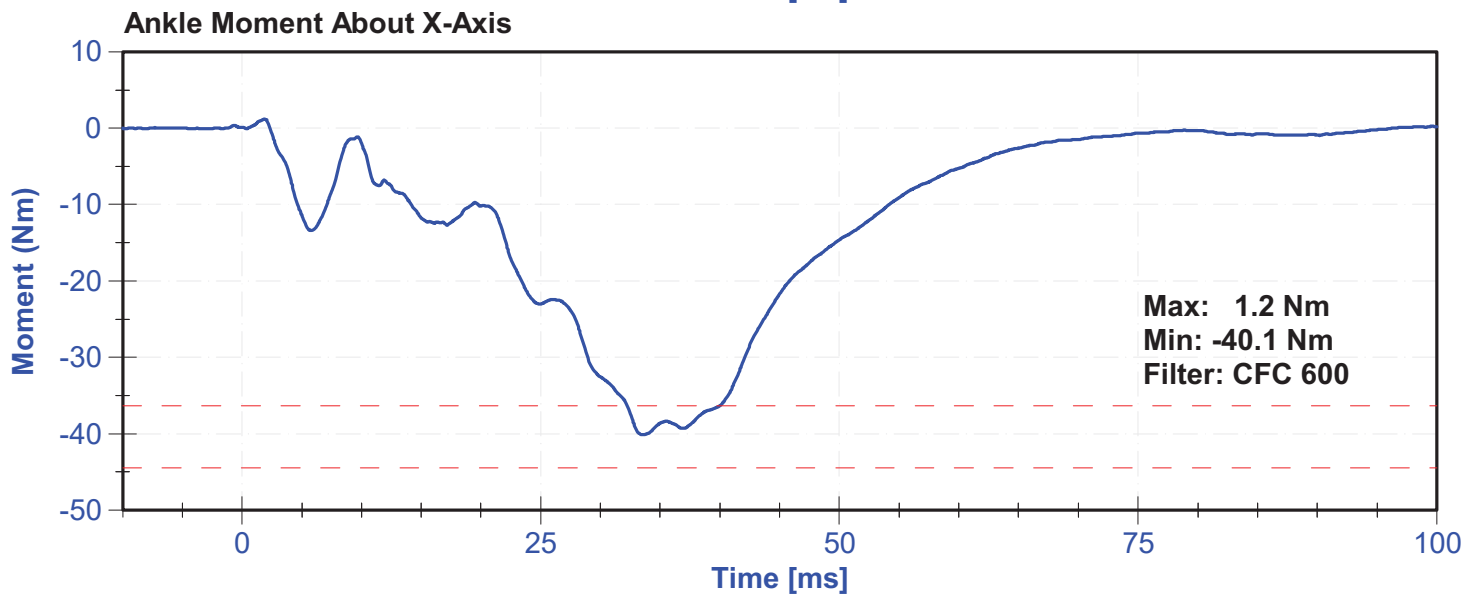
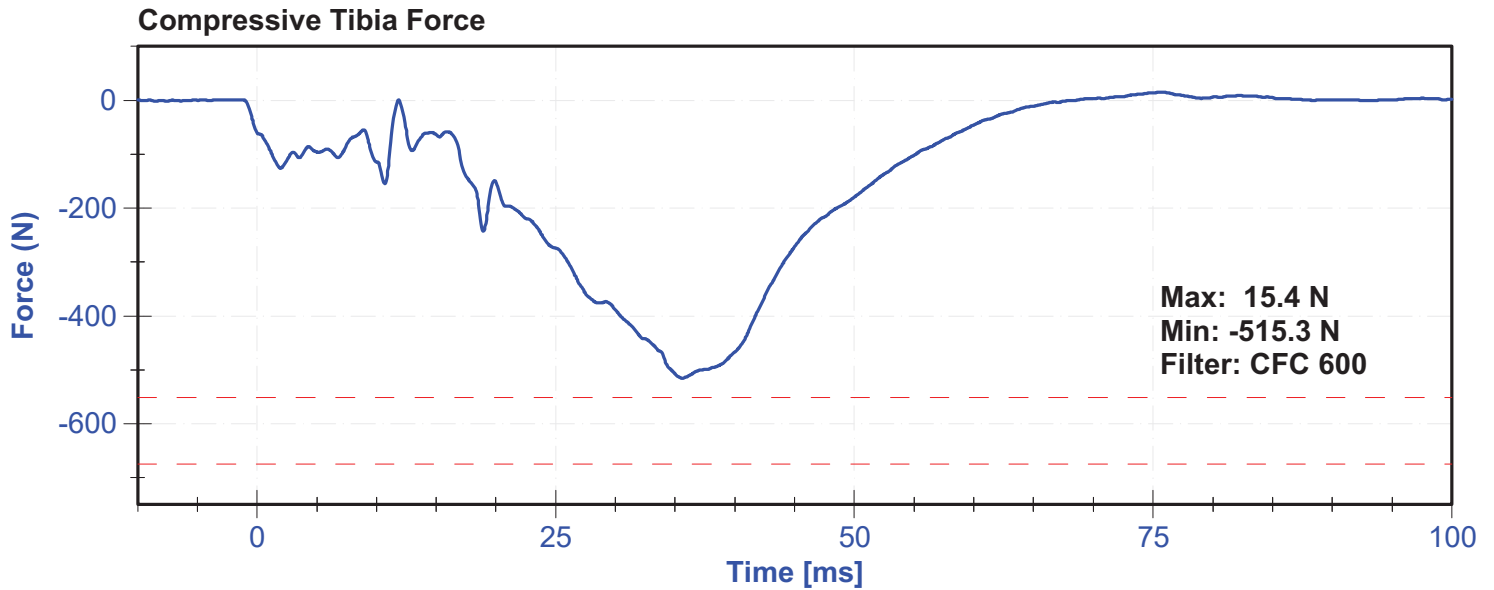
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.7	Pass
Humidity	10	70	%	27.0	Pass
Velocity	1.9	2.1	m/s	2.003	Pass
Lower Tibia Compressive Force	-675	-552	N	-515.3	Fail
Peak Moment about X-Axis	-44.4	-36.3	Nm	-40.12	Pass
Peak Rotation about X-Axis	-37.0	-30.3	deg	-31.10	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 9329J	LC-DQ9685 Fz	5/5/2015	5/4/2016
Ankle Y Potentiometer	SFERNICE ECO50ESC10	DS-ANKL004	5/27/2015	5/26/2016



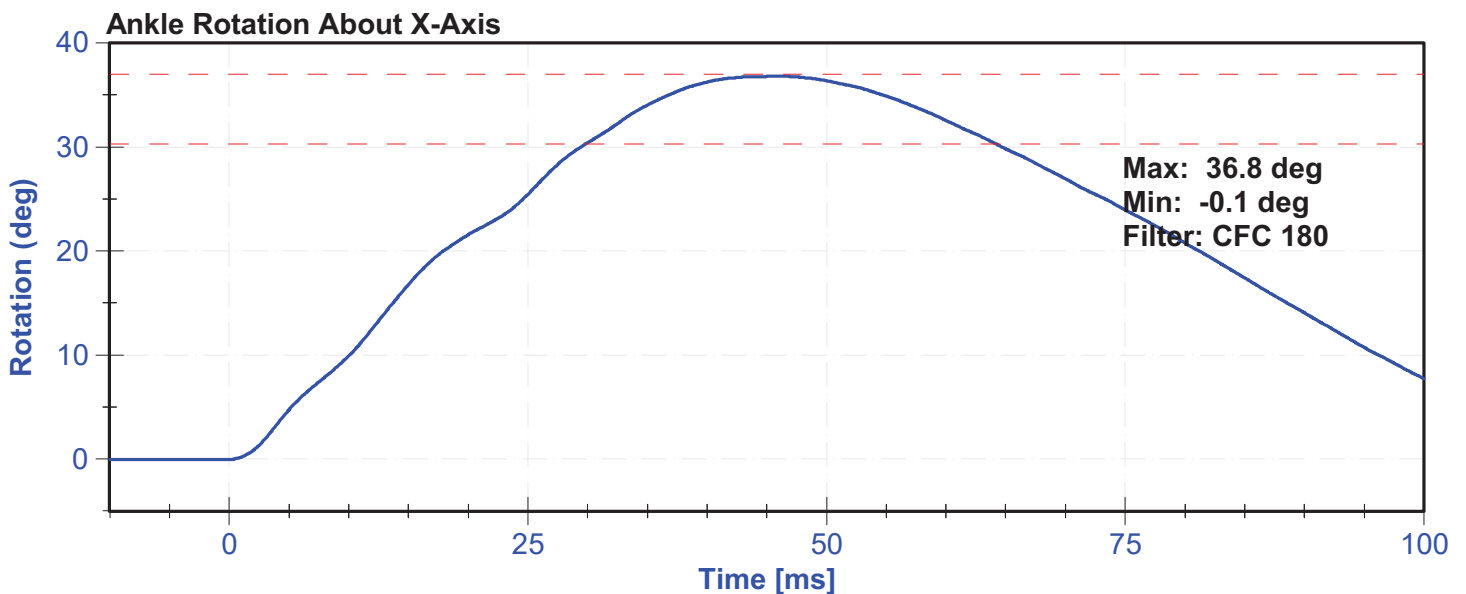
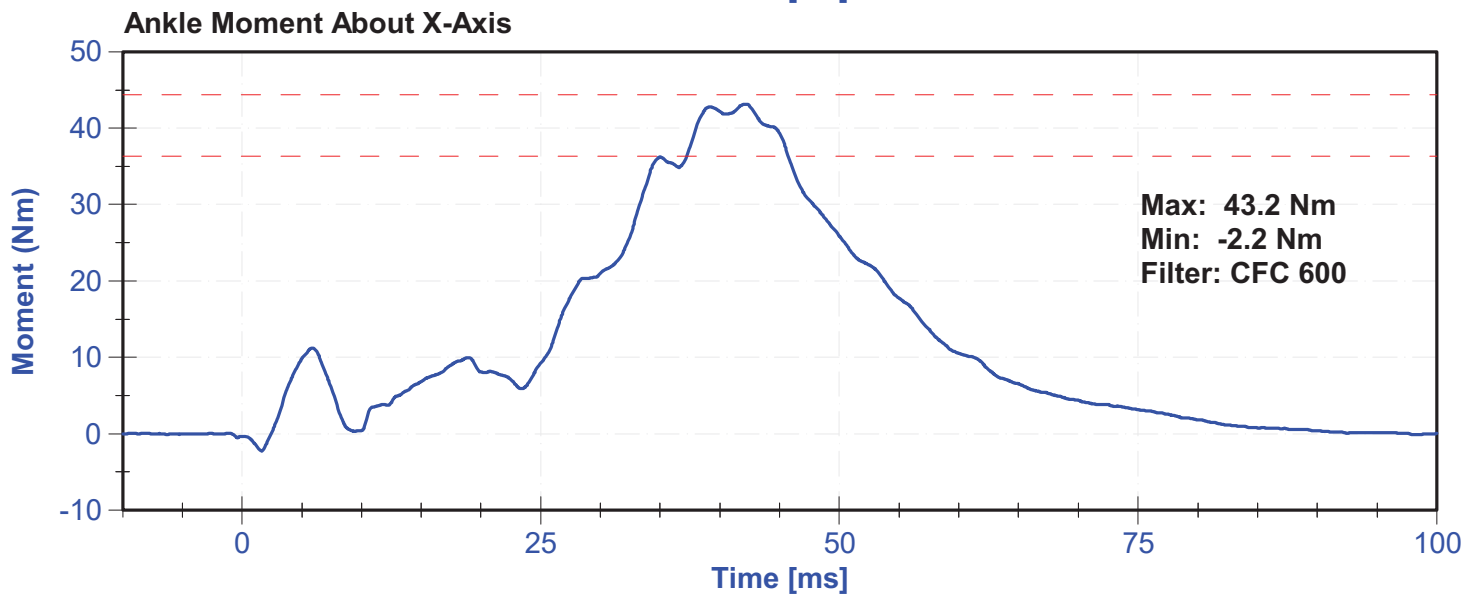
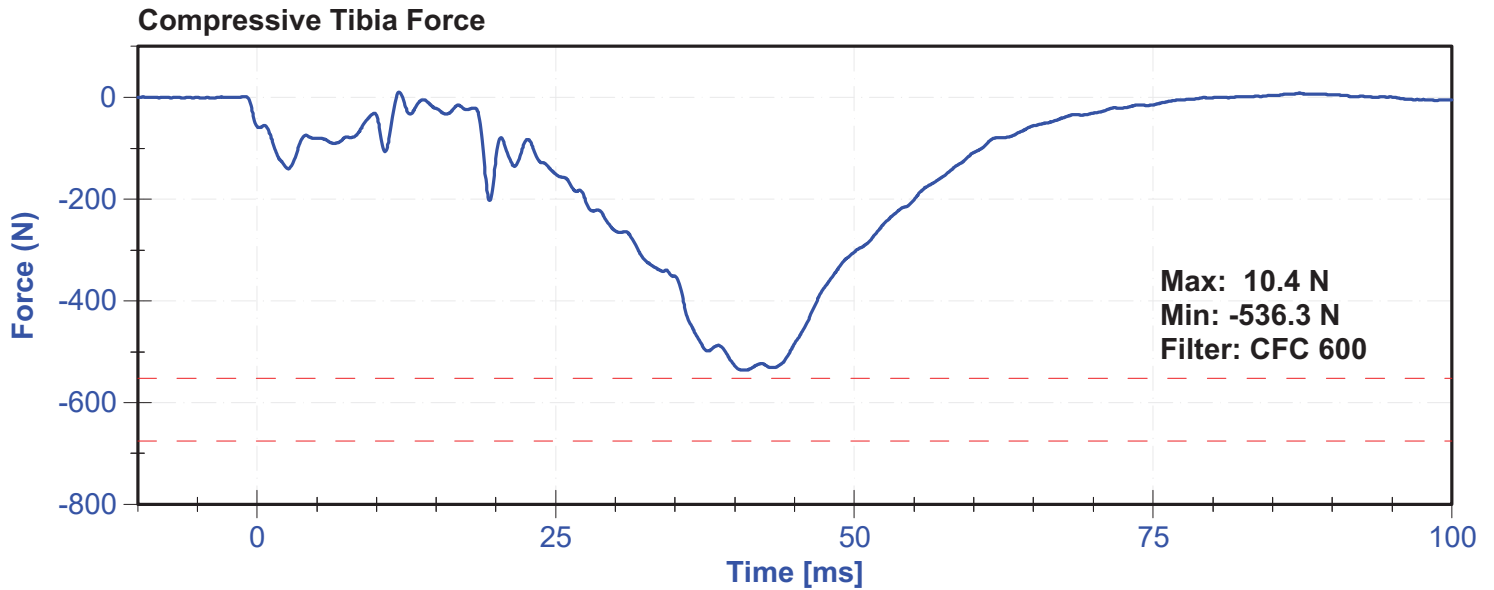
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.7	Pass
Humidity	10	70	%	27.0	Pass
Velocity	1.9	2.1	m/s	1.984	Pass
Lower Tibia Compressive Force	-675	-552	N	-536.3	Fail
Peak Moment about X-Axis	36.3	44.4	Nm	43.16	Pass
Peak Rotation about X-Axis	30.3	37.0	deg	36.79	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 9329J	LC-DQ9685 Fz	5/5/2015	5/4/2016
Ankle Y Potentiometer	SFERNICE ECO50ESC10	DS-ANKL004	5/27/2015	5/26/2016



ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

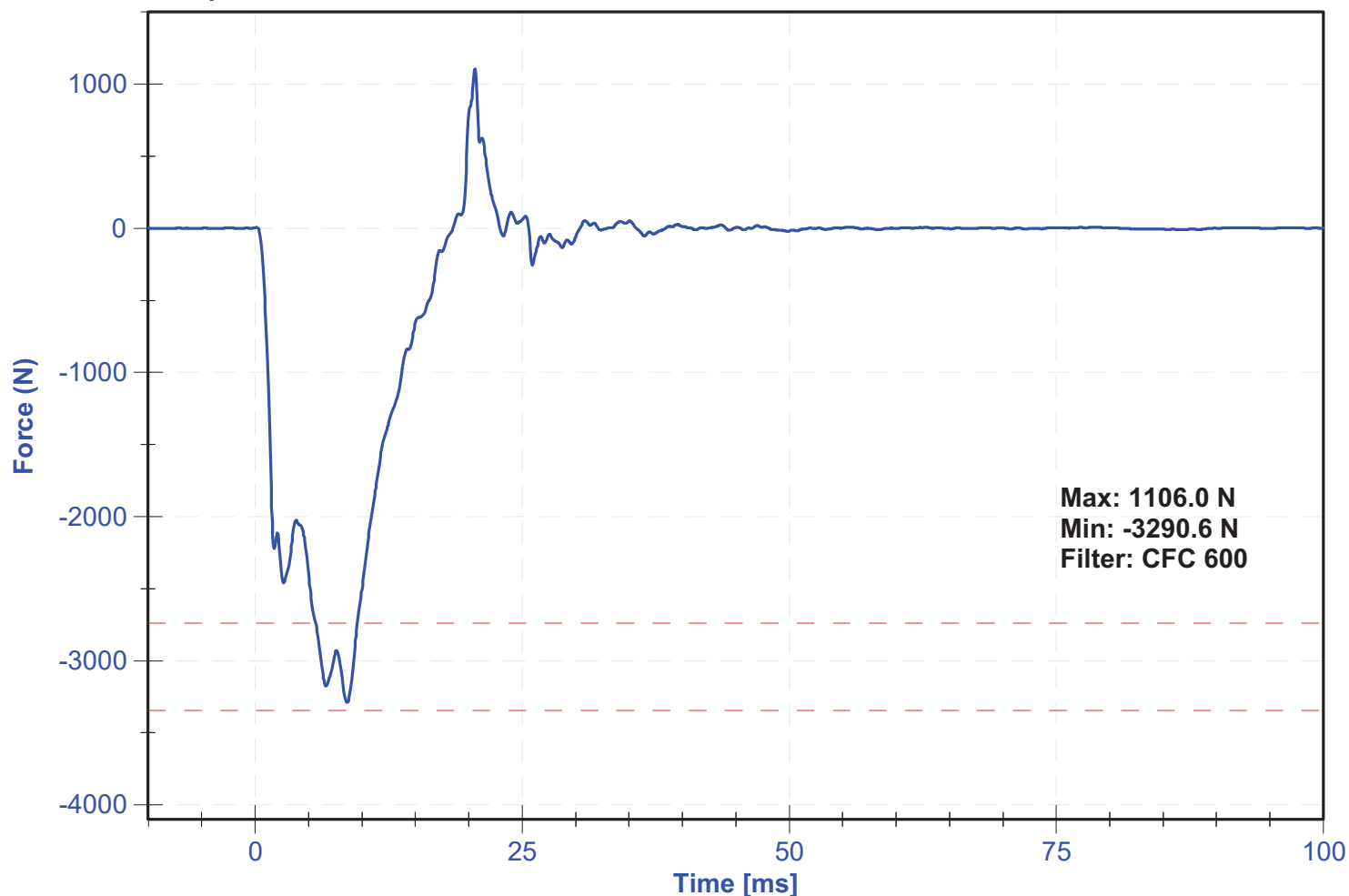
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	27.8	Pass
Velocity	3.9	4.1	m/s	4.019	Pass
Lower Tibia Compressive Force	-3346	-2738	N	-3290.6	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 9329J	LC-DQ9685 Fz	5/5/2015	5/4/2016

Compressive Tibia Force



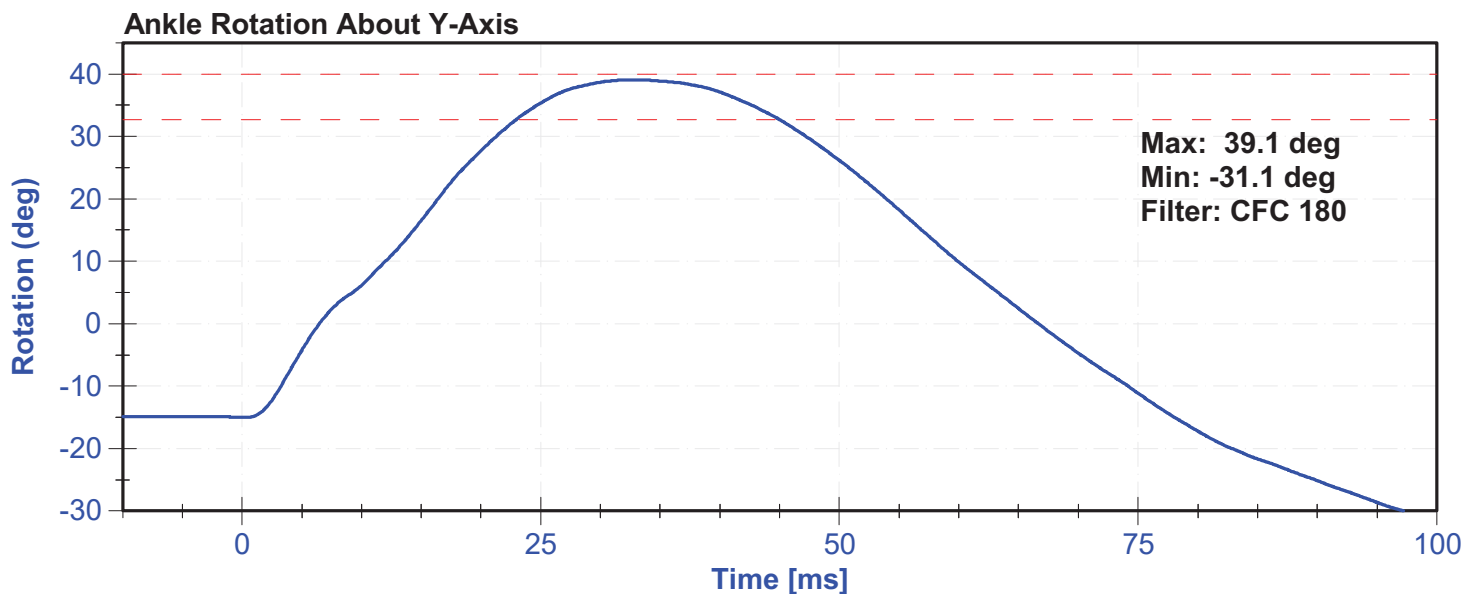
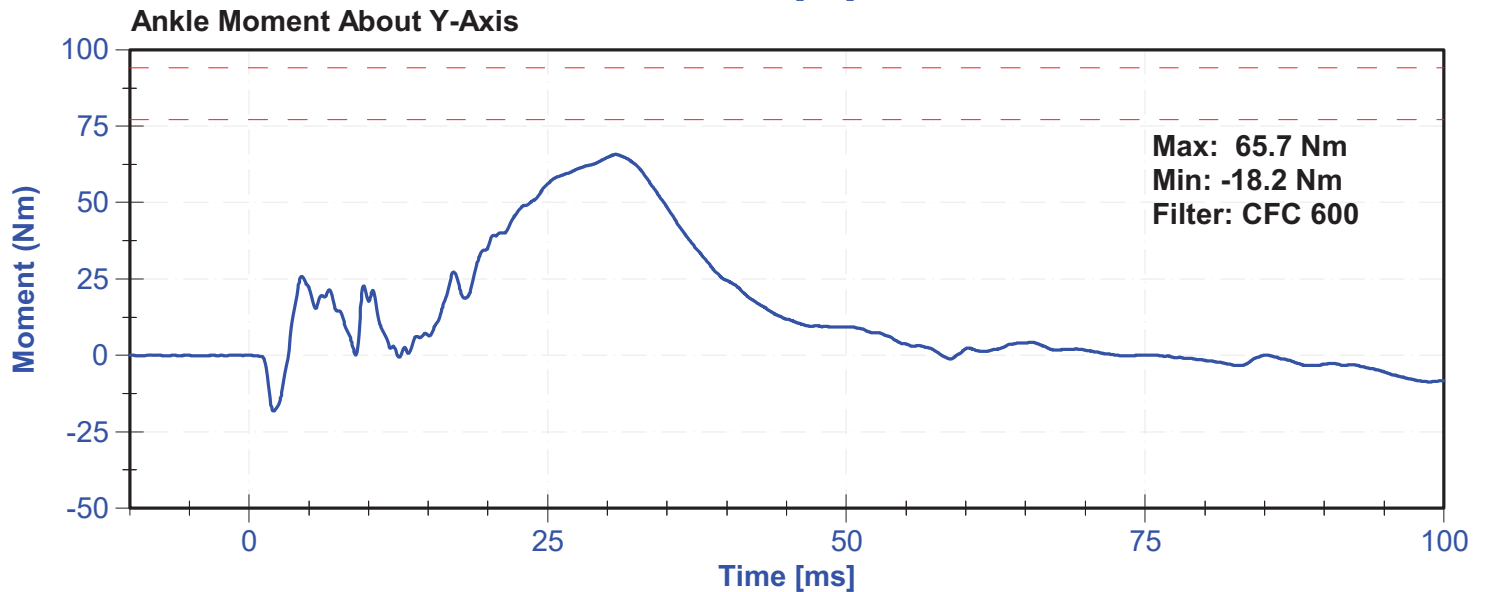
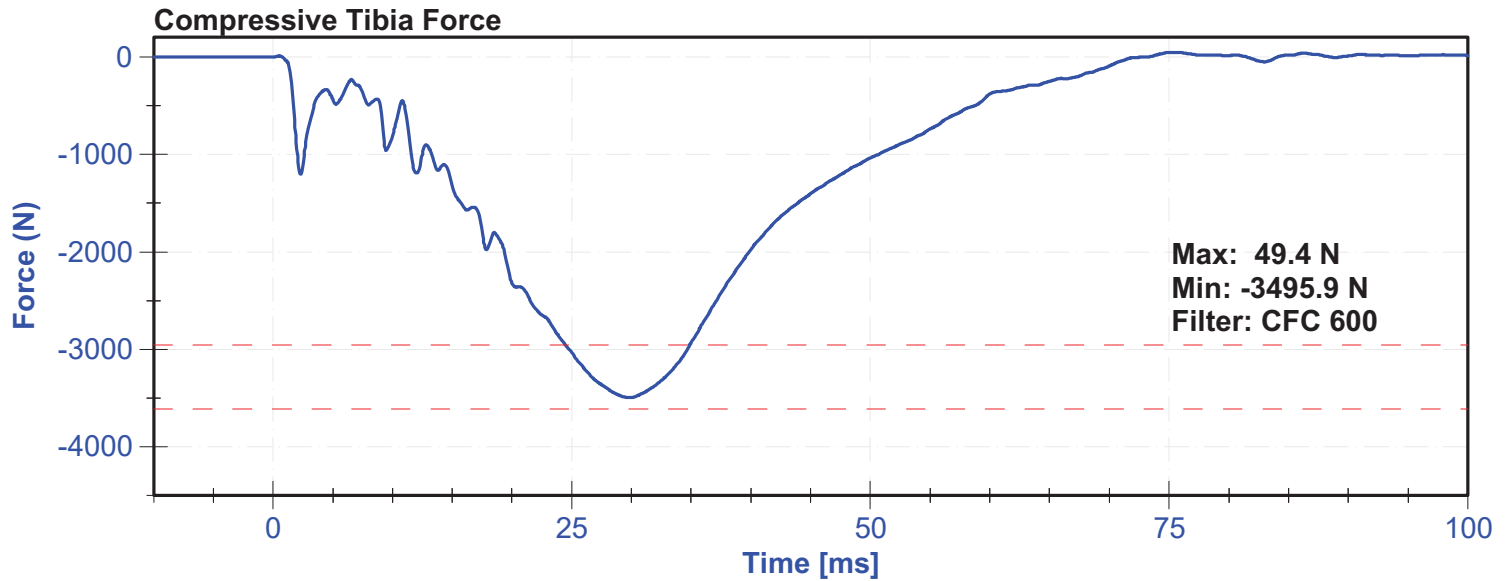
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	25.7	Pass
Velocity	4.9	5.1	m/s	5.040	Pass
Lower Tibia Compressive Force	-3613	-2956	N	-3495.9	Pass
Peak Moment about Y-Axis	77.1	94.2	Nm	65.72	Fail
Peak Rotation about Y-Axis	32.7	39.9	deg	39.05	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 9329J	LC-DQ9684 Fz	4/13/2015	4/12/2016
Ankle Y Potentiometer	SFERNICE ECO50ESC10	DS-ANKL002	4/2/2015	4/1/2016



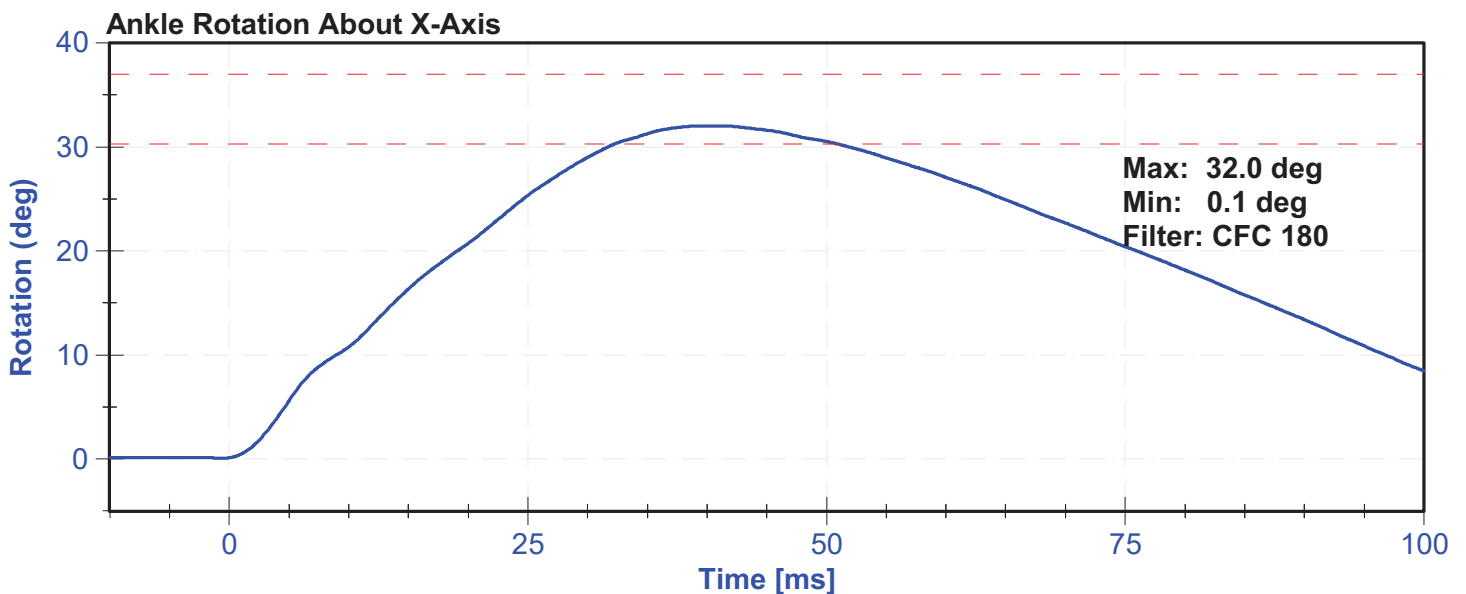
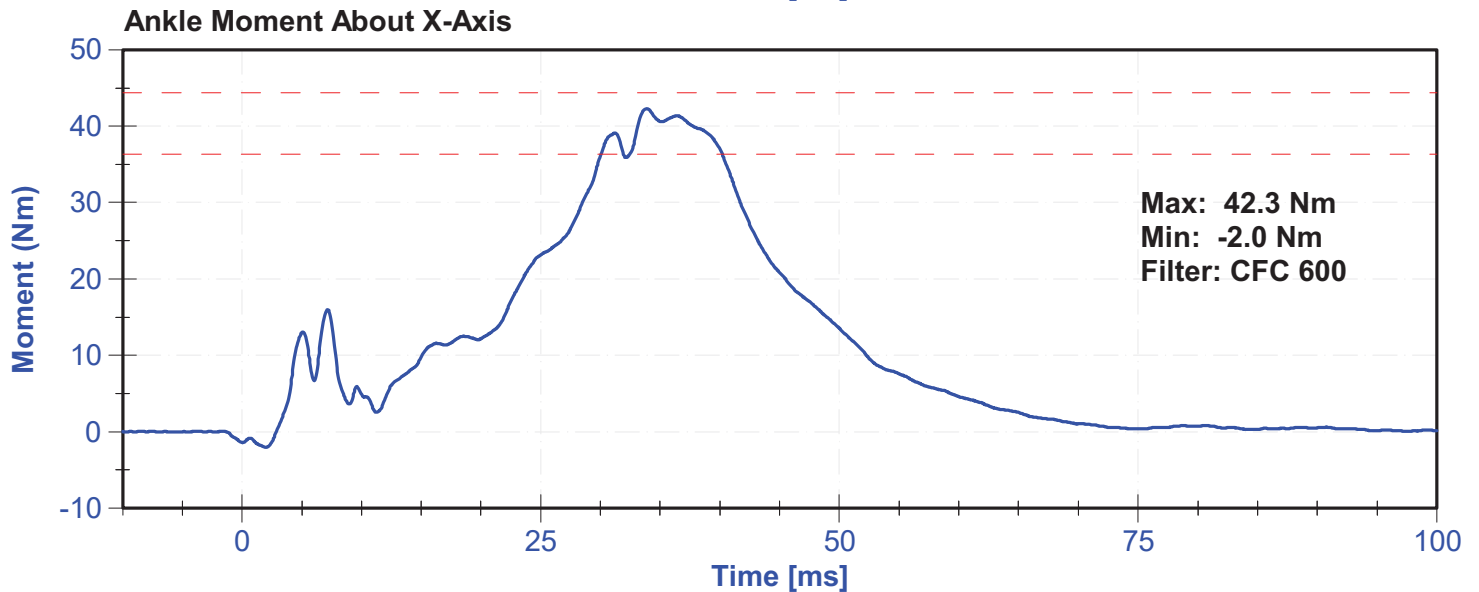
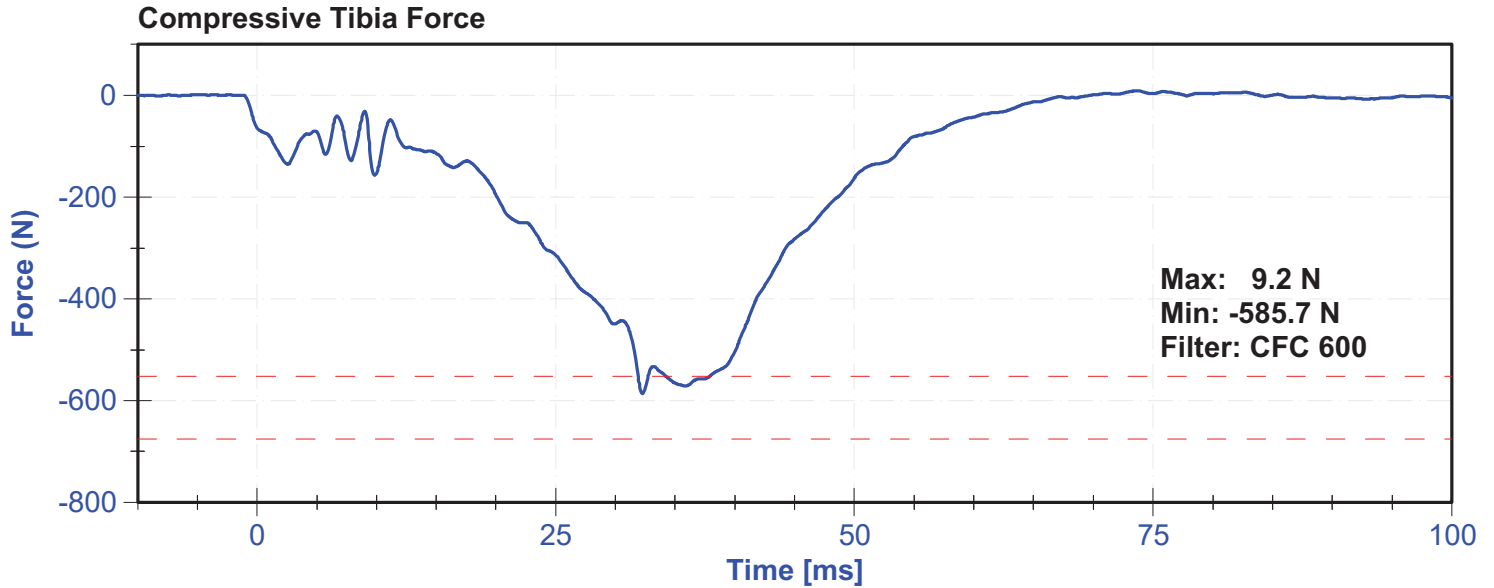
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	27.2	Pass
Velocity	1.9	2.1	m/s	2.035	Pass
Lower Tibia Compressive Force	-675	-552	N	-585.7	Pass
Peak Moment about X-Axis	36.3	44.4	Nm	42.28	Pass
Peak Rotation about X-Axis	30.3	37.0	deg	31.98	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 9329J	LC-DQ9684 Fz	4/13/2015	4/12/2016
Ankle Y Potentiometer	SFERNICE ECO50ESC10	DS-ANKL001	4/2/2015	4/1/2016



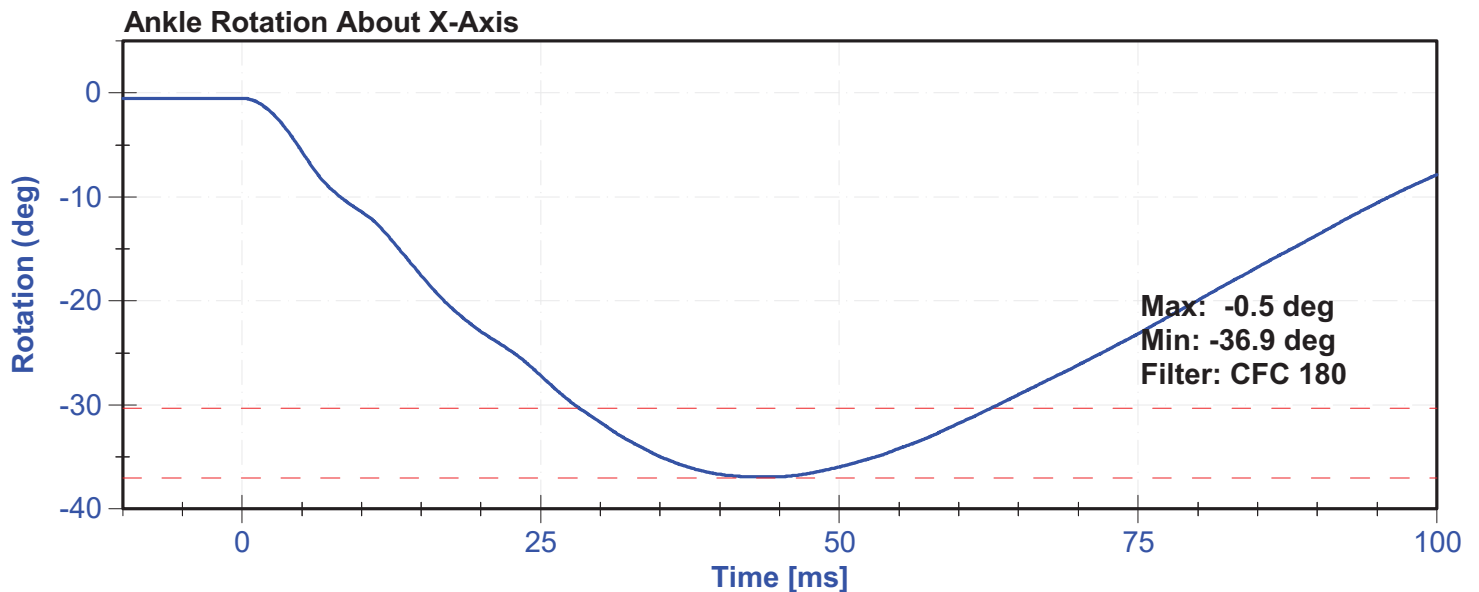
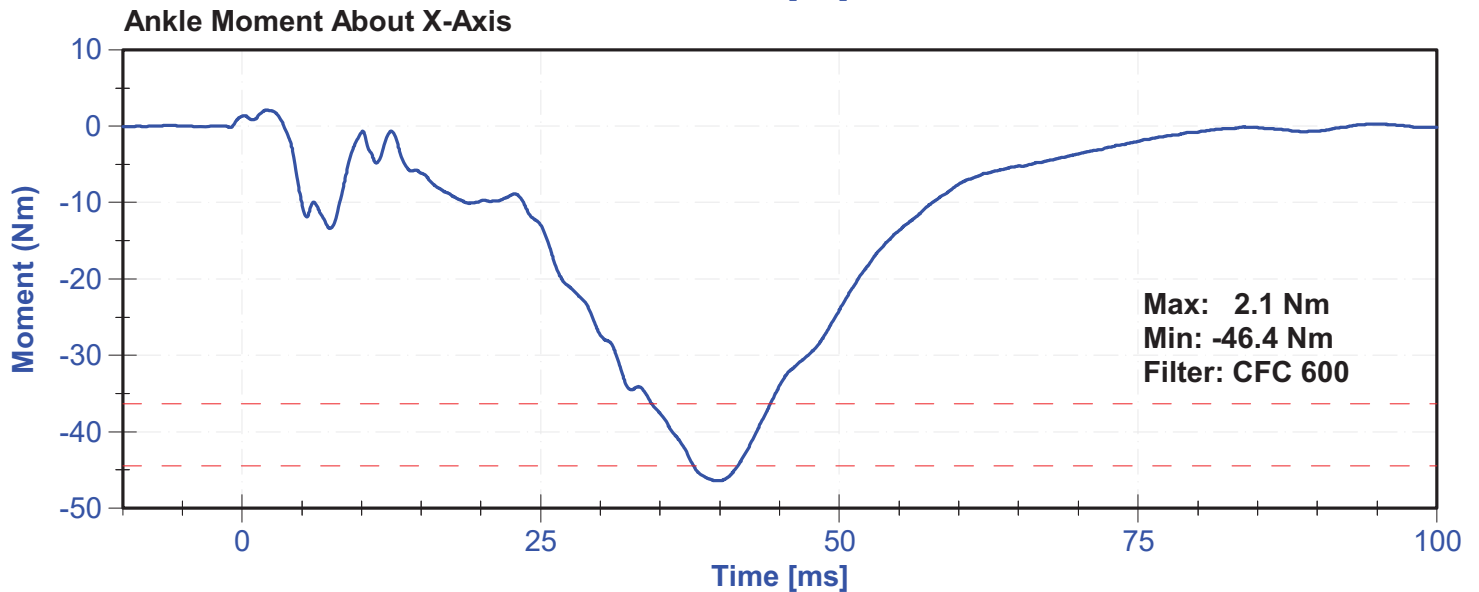
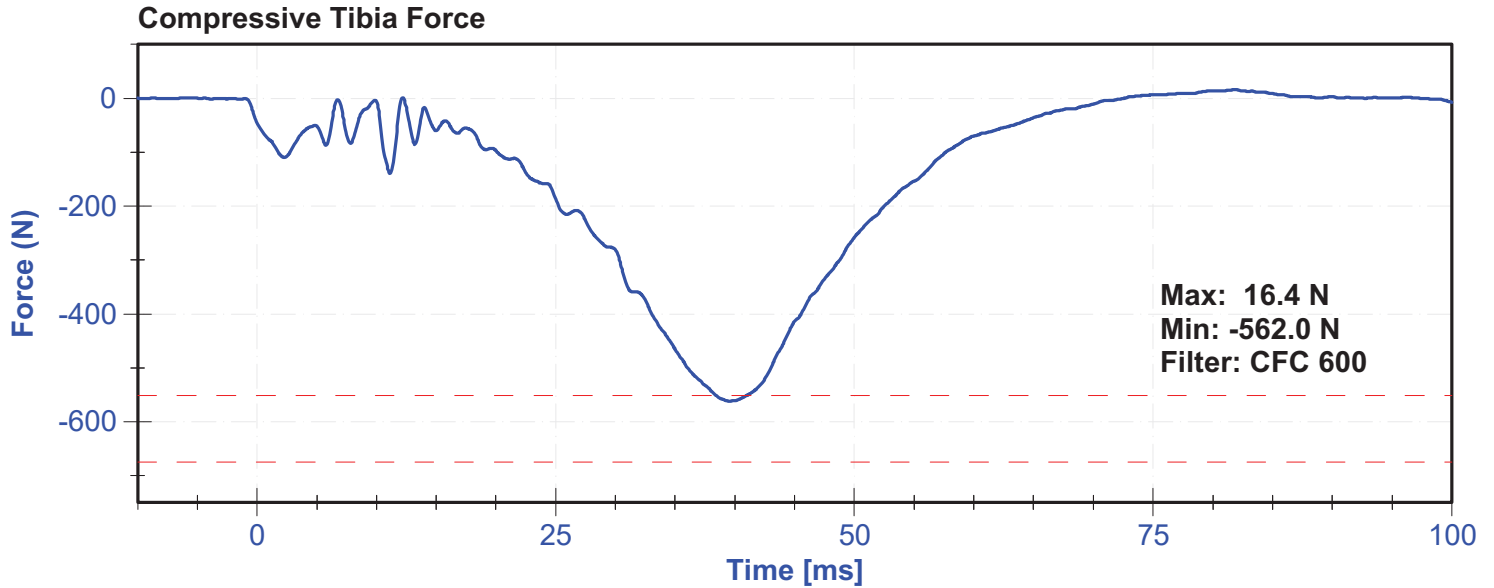
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	26.5	Pass
Velocity	1.9	2.1	m/s	2.016	Pass
Lower Tibia Compressive Force	-675	-552	N	-562.0	Pass
Peak Moment about X-Axis	-44.4	-36.3	Nm	-46.42	Fail
Peak Rotation about X-Axis	-37.0	-30.3	deg	-36.90	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 9329J	LC-DQ9684 Fz	4/13/2015	4/12/2016
Ankle Y Potentiometer	SFERNICE ECO50ESC10	DS-ANKL001	4/2/2015	4/1/2016



ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DO9798	Laboratory Supervisor	M. Goehle

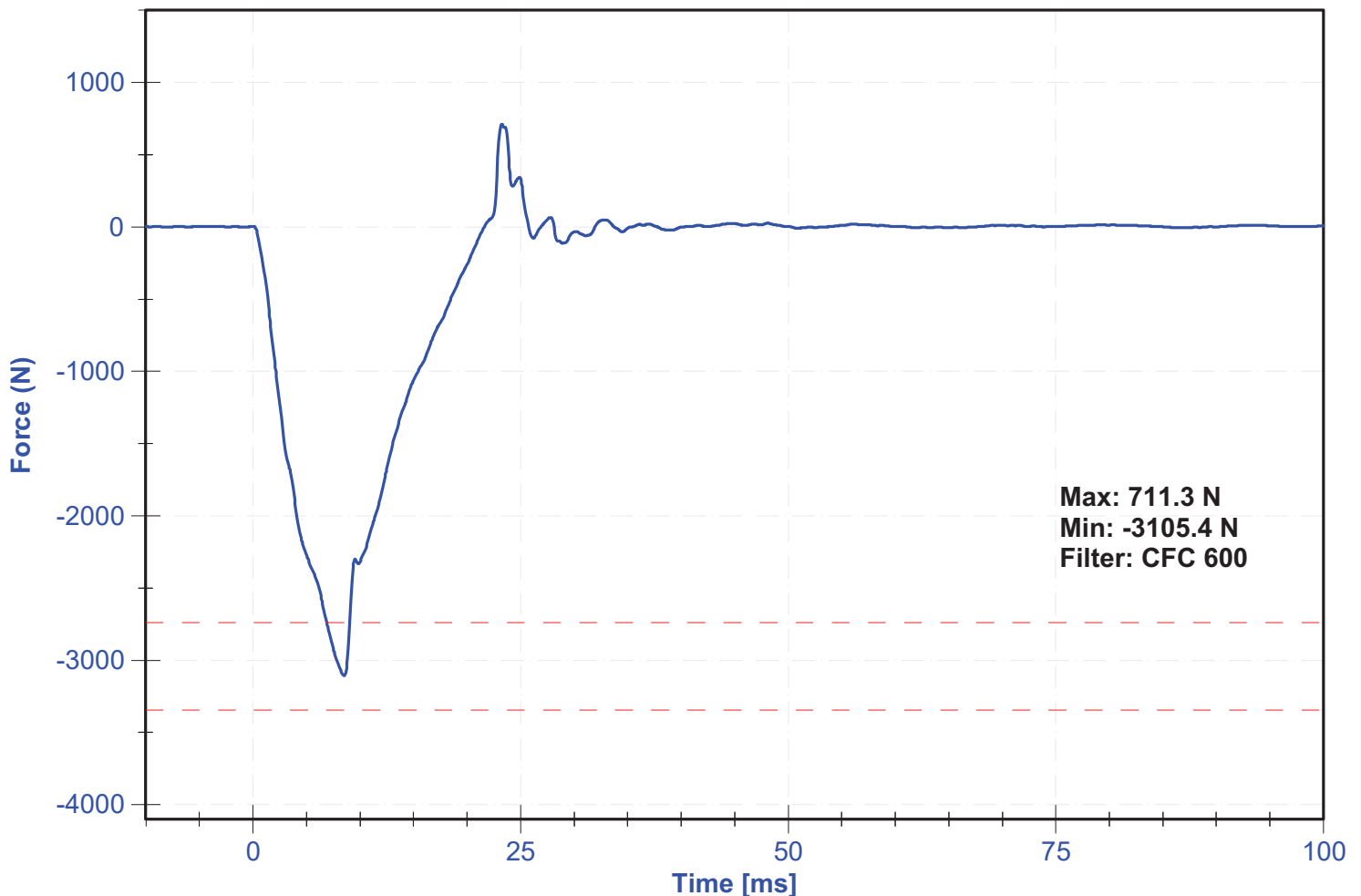
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	24.2	Pass
Velocity	3.9	4.1	m/s	4.071	Pass
Lower Tibia Compressive Force	-3346	-2738	N	-3105.4	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 9329J	LC-DQ9684 Fz	4/13/2015	4/12/2016

Compressive Tibia Force



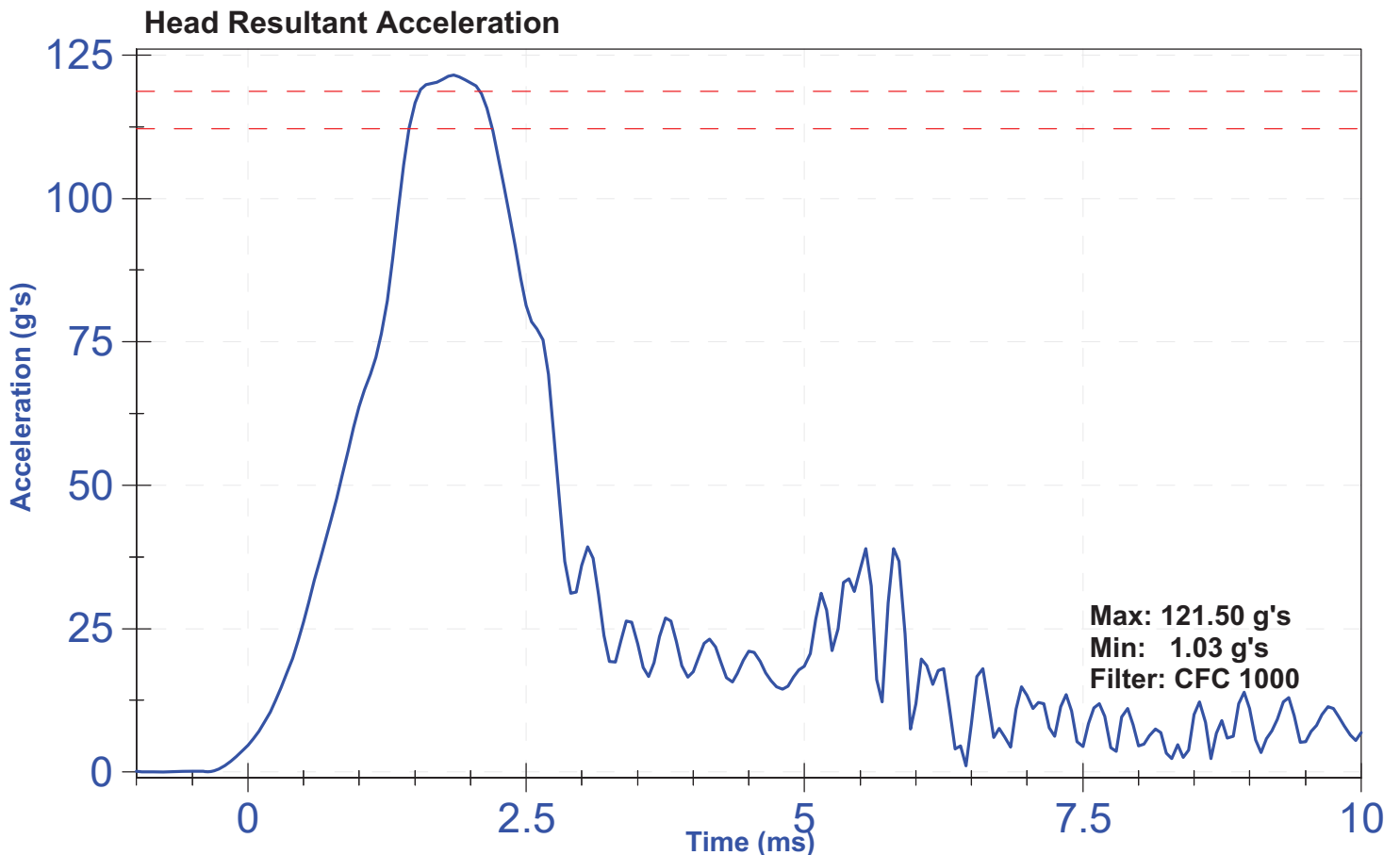
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

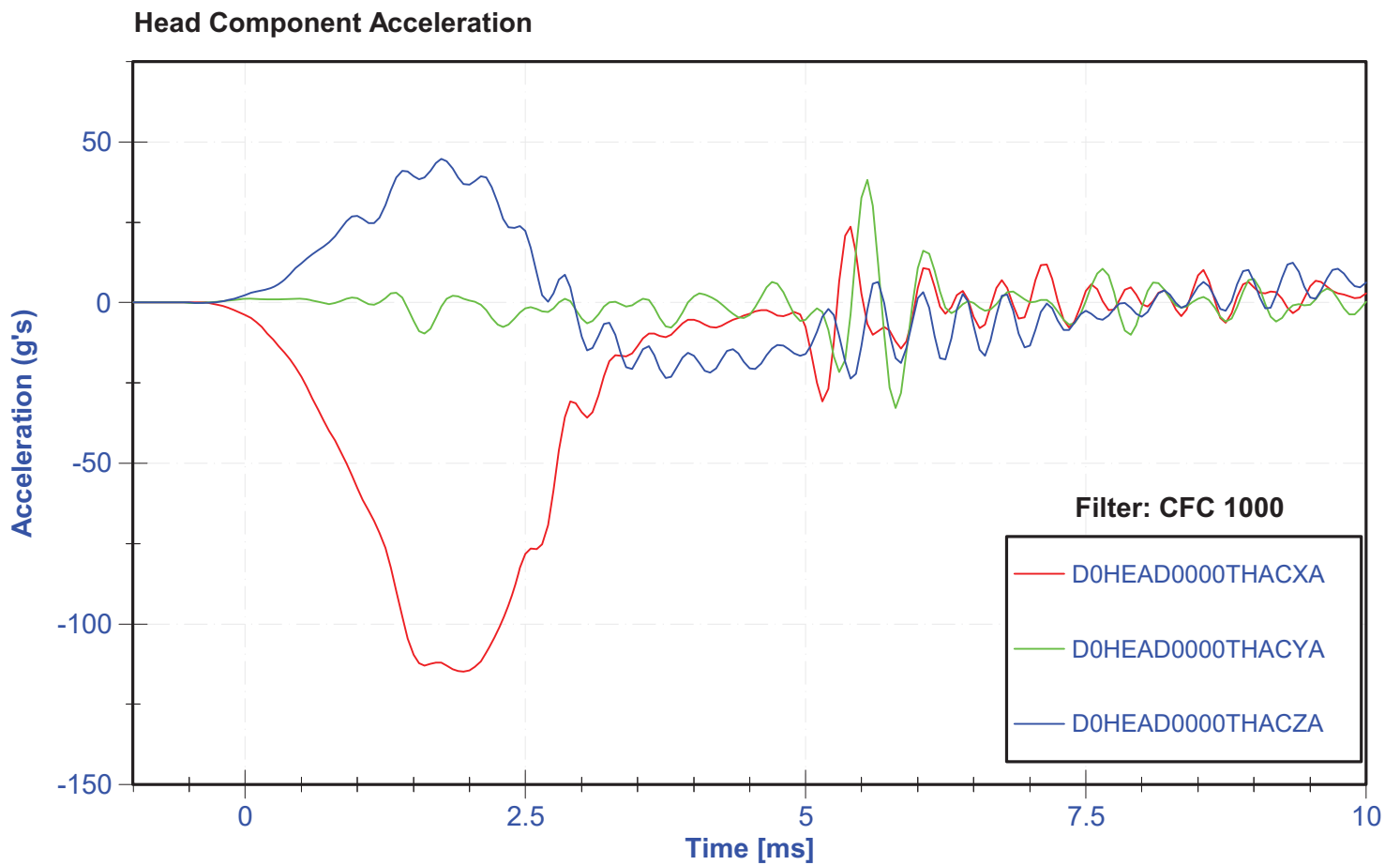
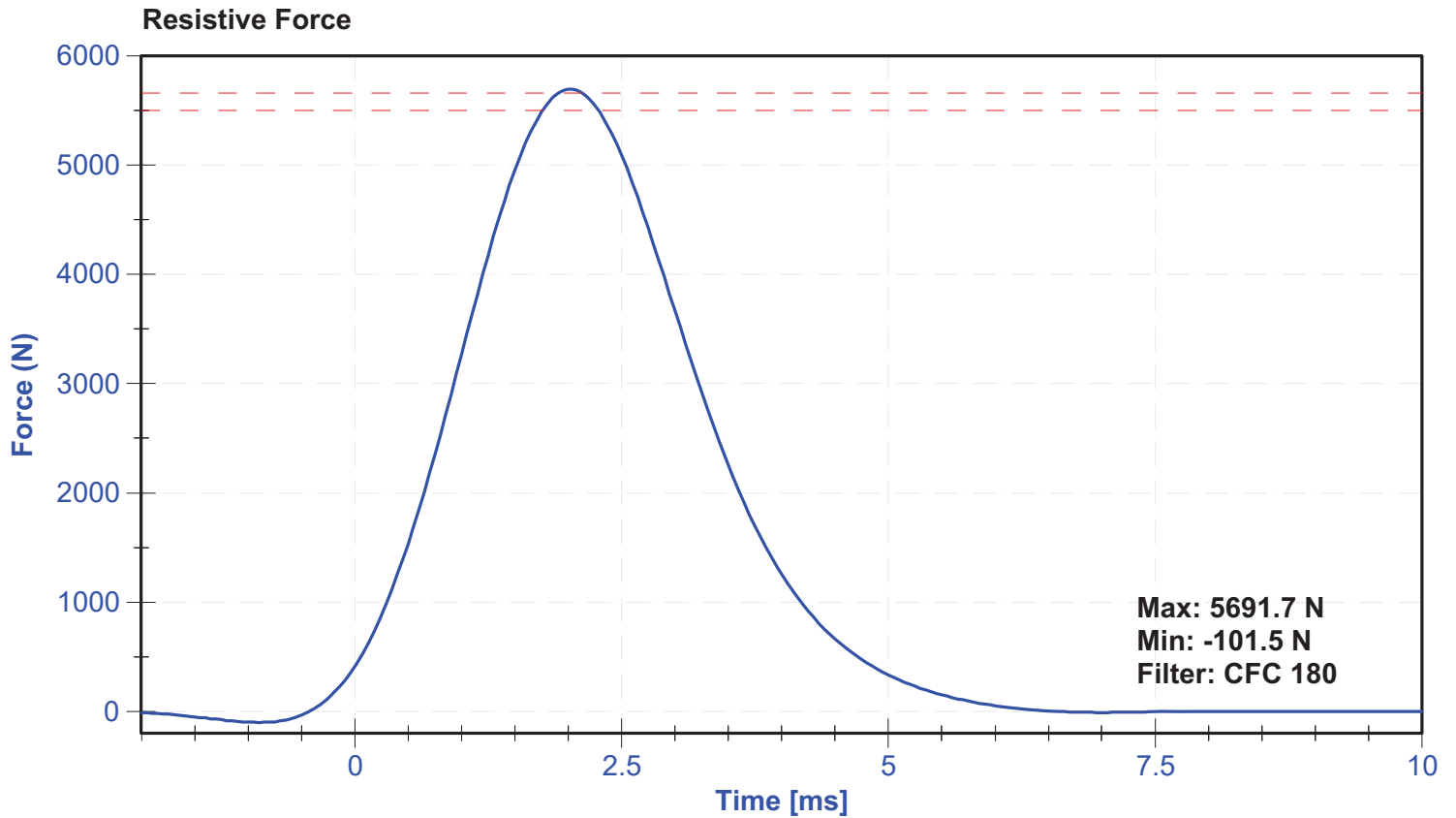
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	47.7	Pass
Impact Velocity	1.95	2.05	m/s	1.969	Pass
Probe Force	5498	5660	N	5691.7	Fail
Resultant Acceleration	112.2	118.7	g's	121.50	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Head X Accel	Endevco 7264	AC-P82183	4/3/2015	4/2/2016
Head Y Accel	Endevco 7264	AC-P81384	4/3/2015	4/2/2016
Head Z Accel	Endevco 7264	AC-P81797	4/3/2015	4/2/2016
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016





ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

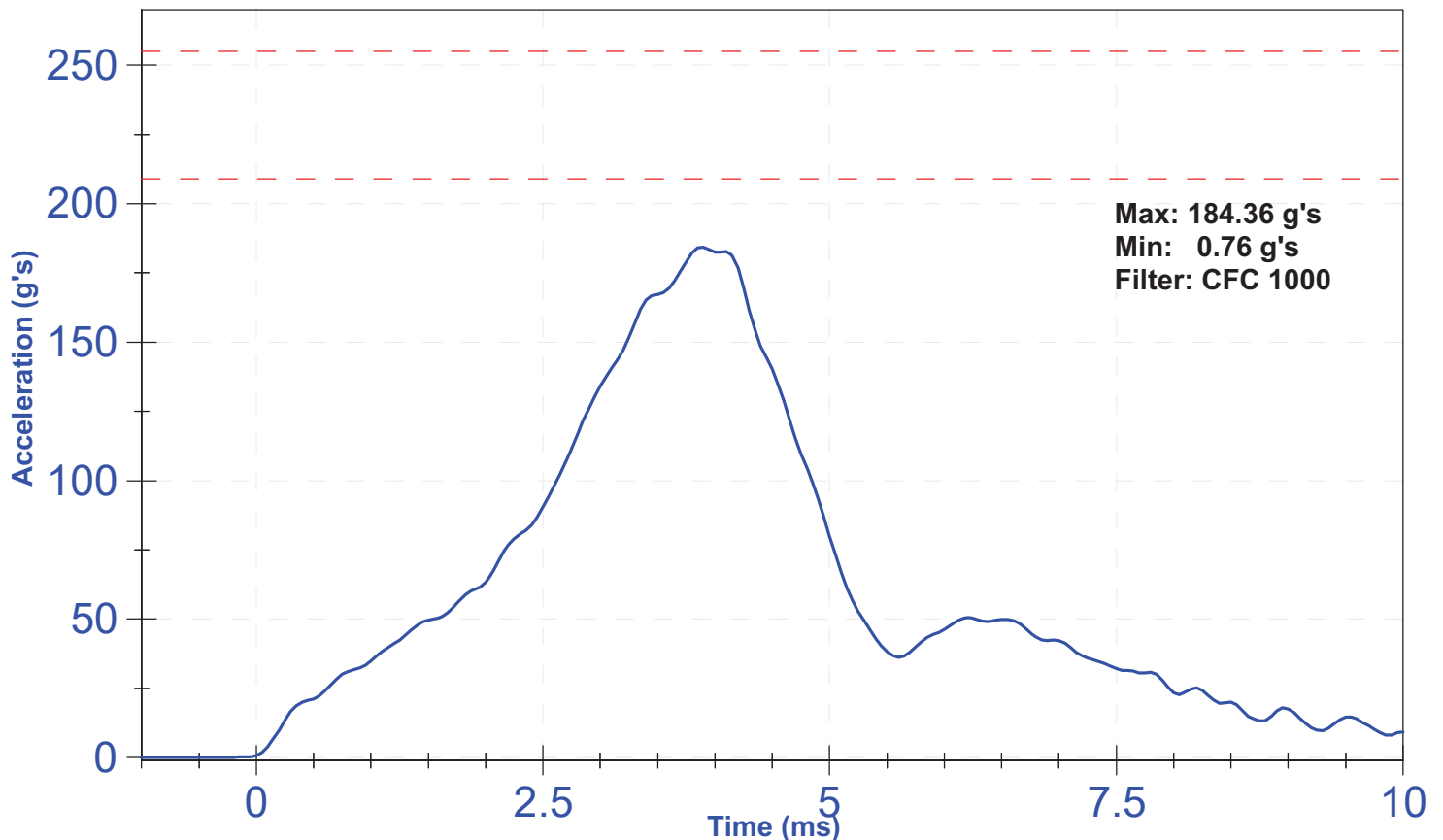
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.5	Pass
Humidity	10	70	%	39.7	Pass
Impact Velocity	6.68	6.78	m/s	6.728	Pass
Probe Force	9067	11082	N	9152.8	Pass
Resultant Acceleration	209	255	g's	184.4	Fail

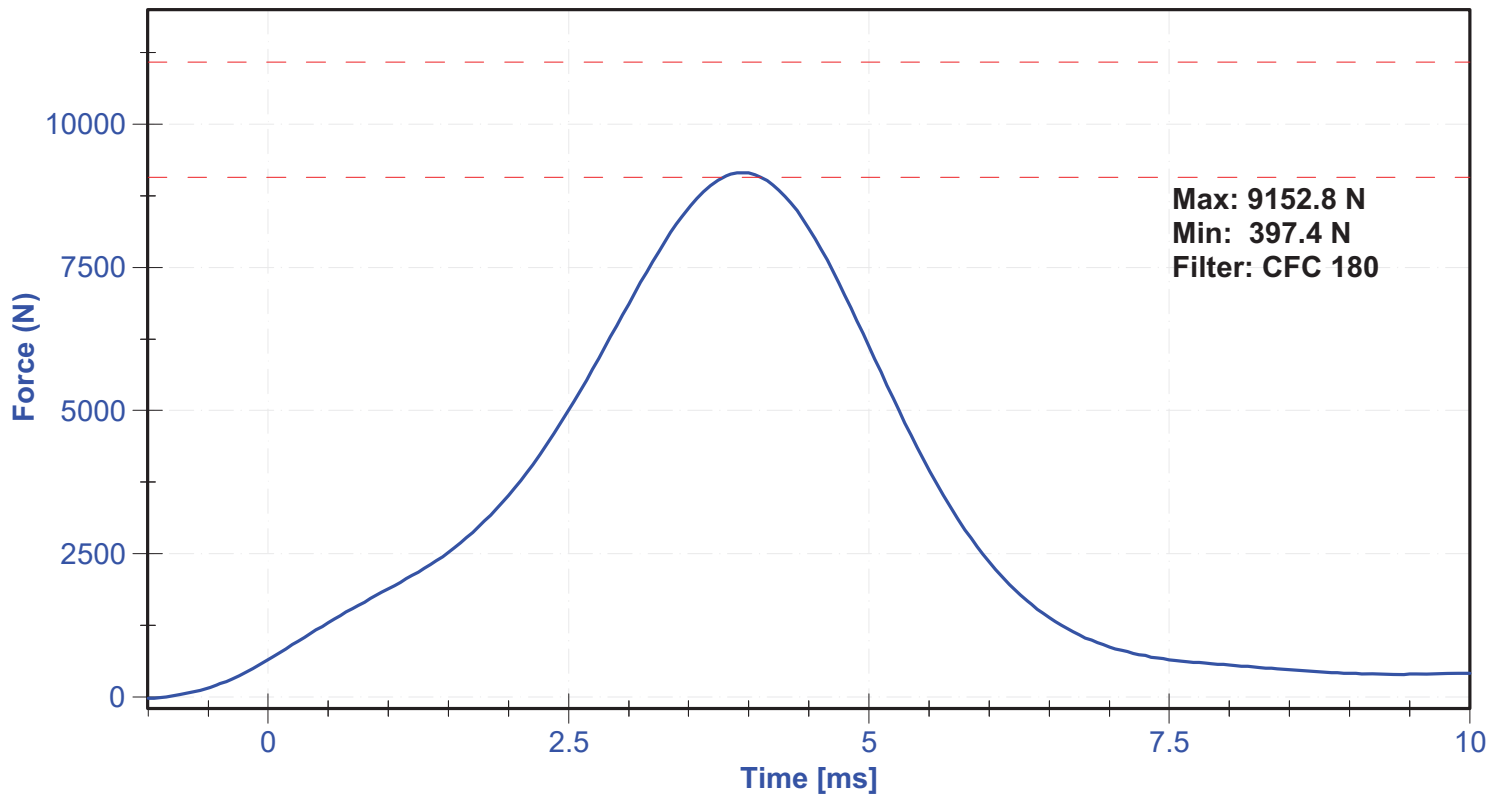
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Head X Accel	Endevco 7264	AC-P82183	4/3/2015	4/2/2016
Head Y Accel	Endevco 7264	AC-P81384	4/3/2015	4/2/2016
Head Z Accel	Endevco 7264	AC-P81797	4/3/2015	4/2/2016
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016

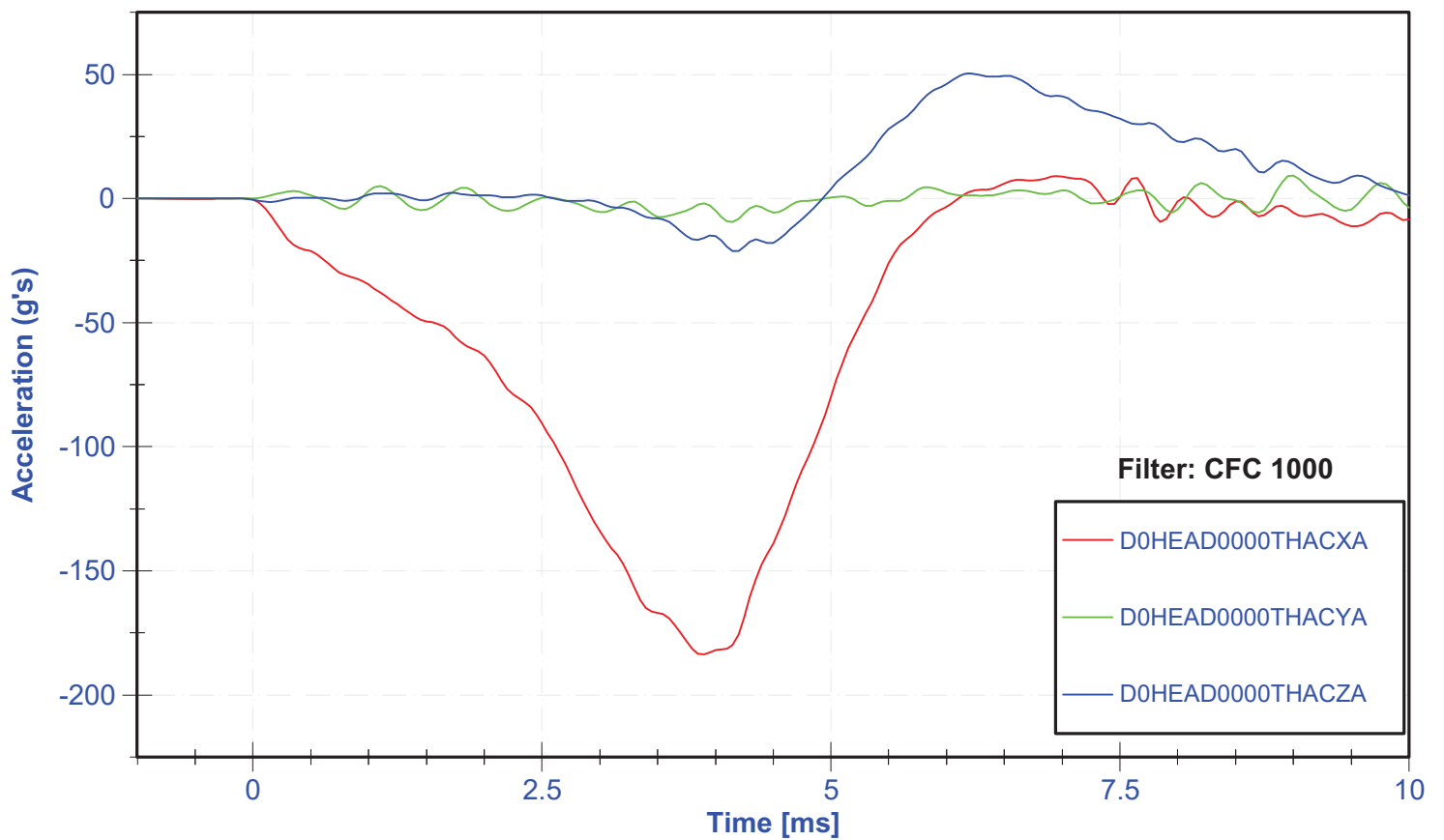
Head Resultant Acceleration



Resistive Force



Head Component Acceleration



ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

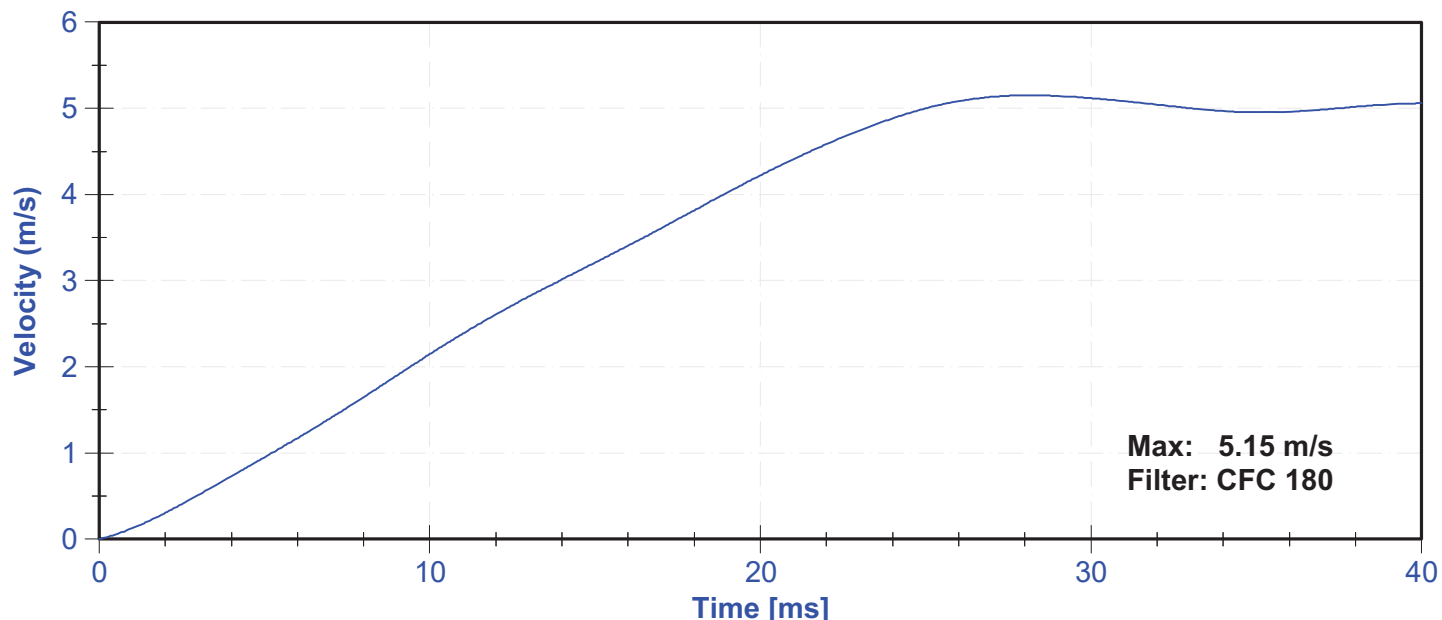
Results

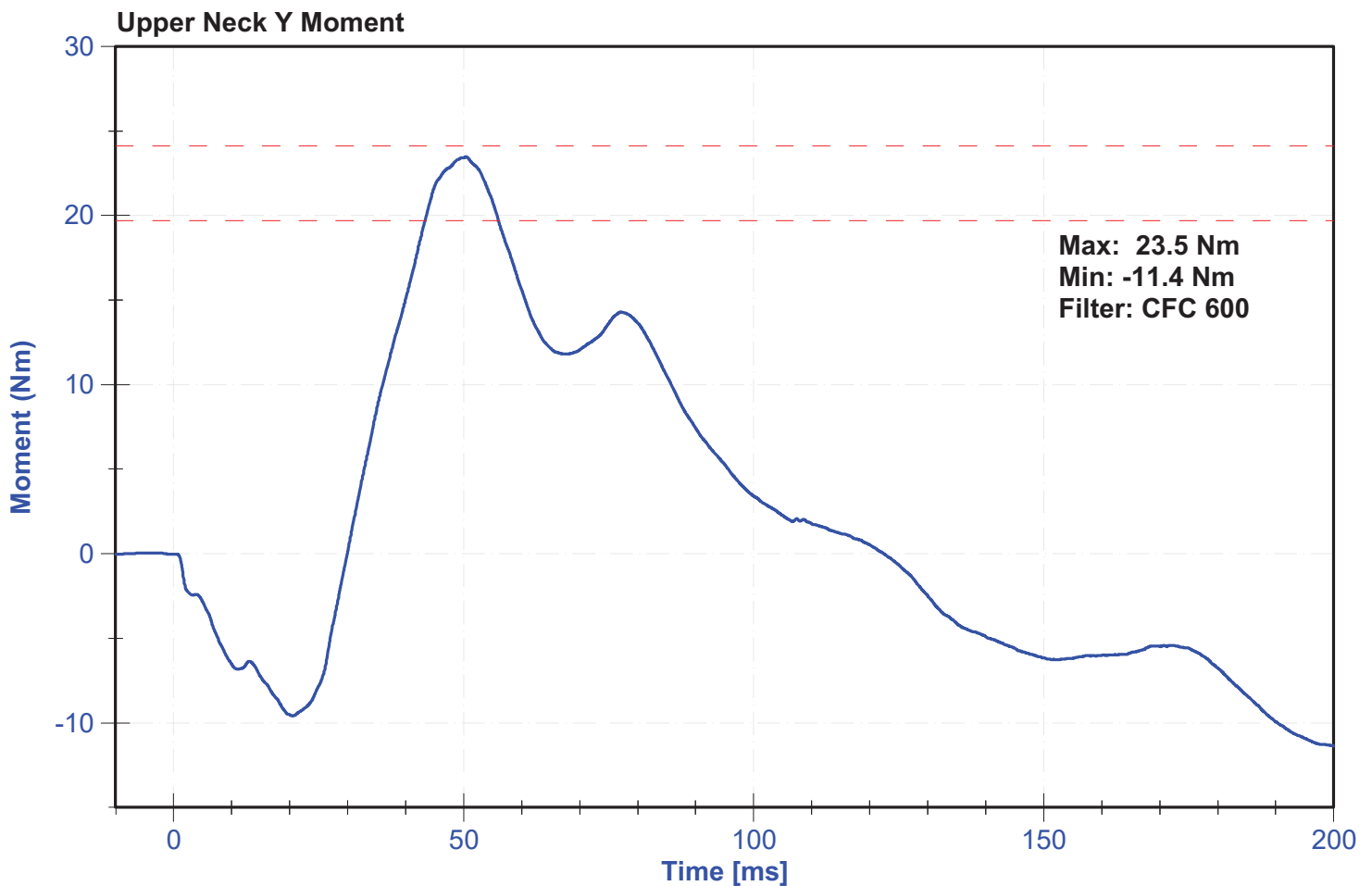
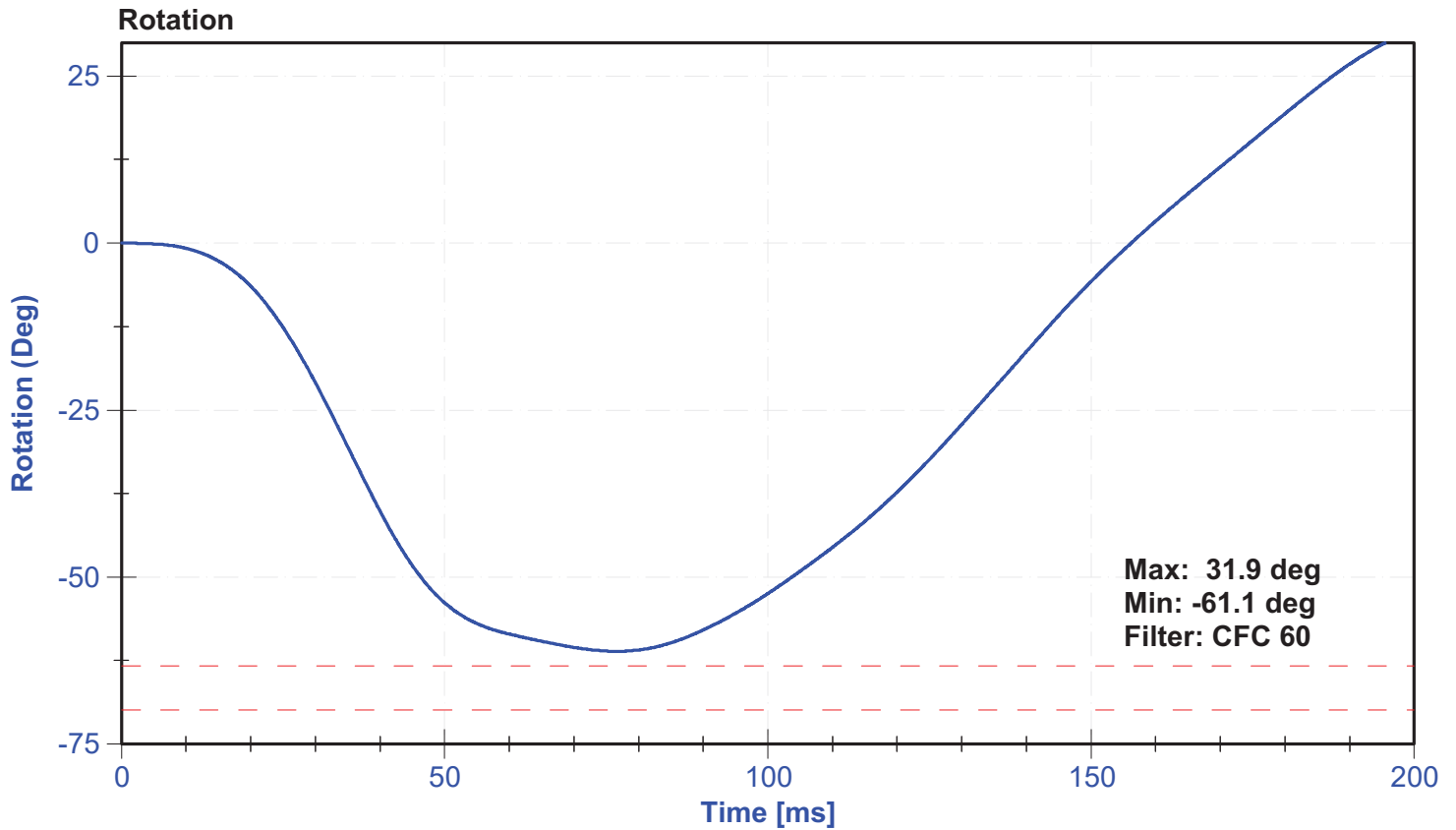
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.6	Pass
Humidity	10	70	%	37.6	Pass
Velocity	4.95	5.05	m/s	4.985	Pass
Pendulum Impulse at 8ms	1.49	1.85	m/s	1.649	Pass
Pendulum Impulse at 16ms	3.08	3.86	m/s	3.407	Pass
Pendulum Impulse at 24ms	4.48	5.26	m/s	4.883	Pass
Peak Upper Neck Y Moment	19.7	24.1	Nm	23.46	Pass
Peak Upper Neck X Force	-1592	-1302	N	-1327.3	Pass
Maximum Upper Neck Z Force	877	1072	N	1004.5	Pass
First Peak Rear Neck Cable Force	1115	1282	N	1230.9	Pass
Peak Head Y Angular Rate	-1935	-1675	deg/s	-1794.0	Pass
Peak Head Y Rotation	-69.9	-63.3	deg	-61.12	Fail
Rotation Decay Time to Zero	83.0	86.2	ms	79.60	Fail

Transducer Calibrations

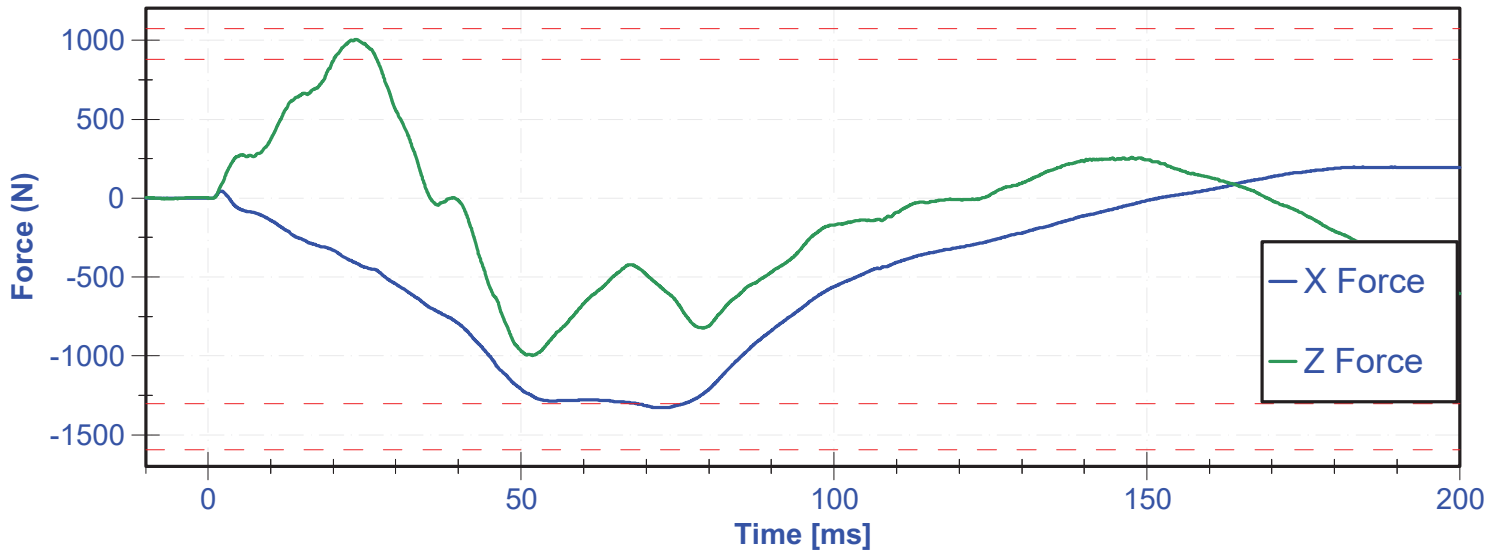
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5F3	5/7/2015	5/6/2016
Upper Neck Load Cell	Humanetics 10380JI4	LC-DP3956 Fx	3/5/2016	3/5/2017
Rear Neck Cable Load Cell	Humanetics 10386JI4	LC-DO9741	3/6/2016	3/6/2017
Pendulum ARS	DTS ARS-PRO-8K	ARS-6419	1/19/2016	1/18/2017
Head Y ARS	DTS ARS-18K	ARS-4737	3/30/2015	3/29/2016

Pendulum Pulse

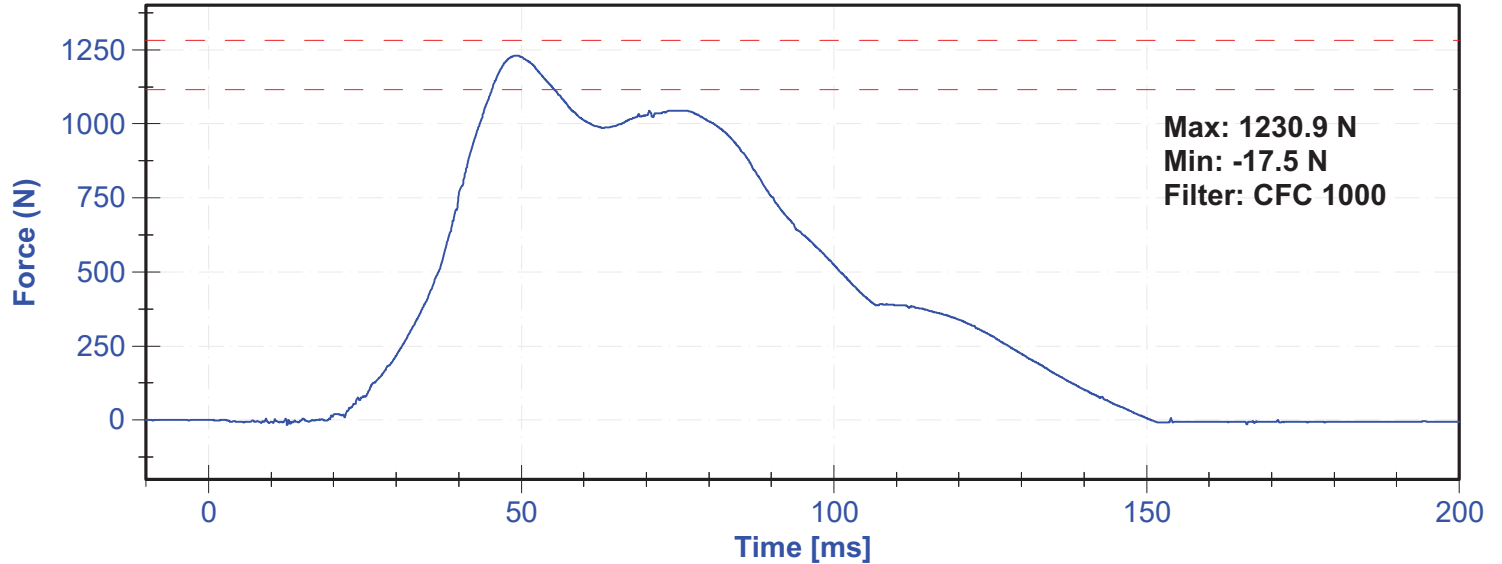




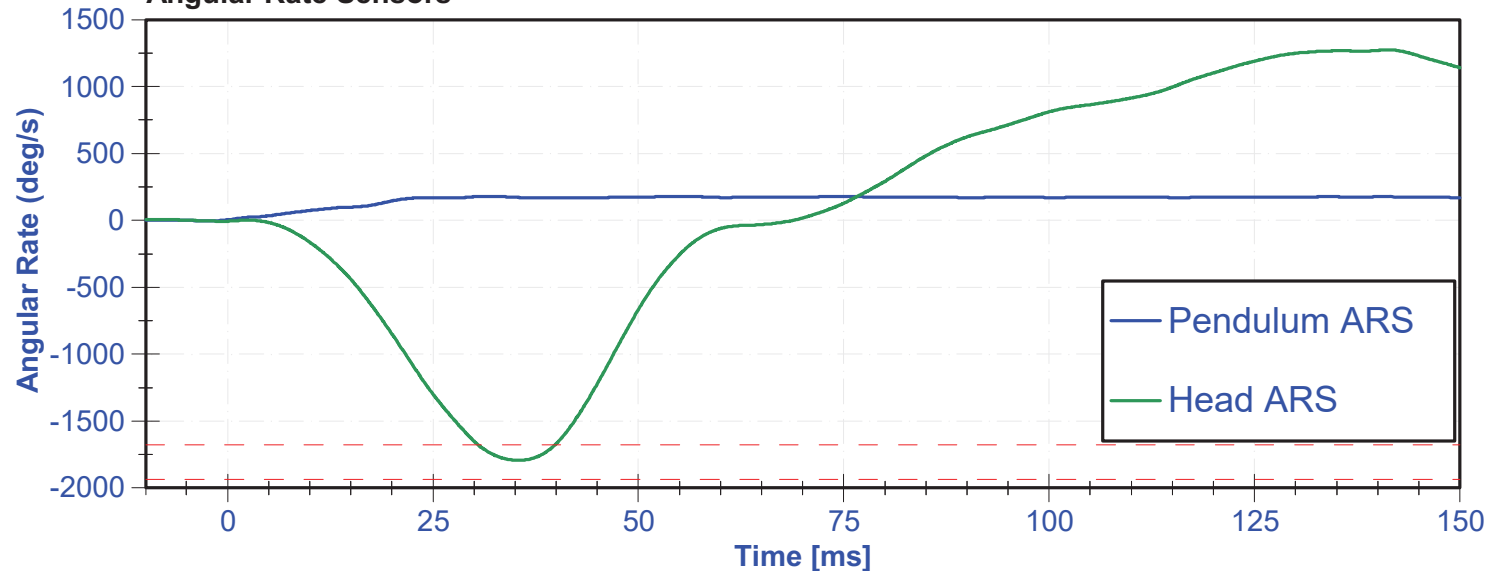
Upper Neck Force



Rear Neck Cable Z Force



Angular Rate Sensors



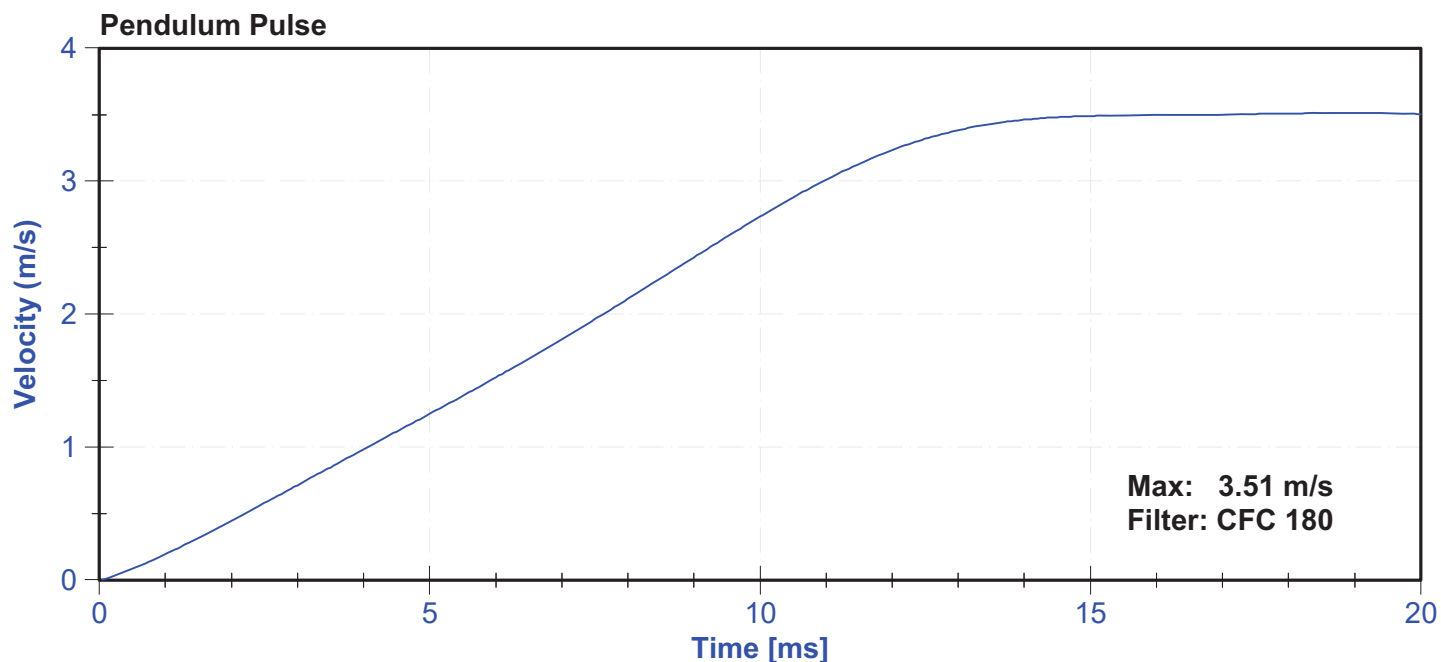
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

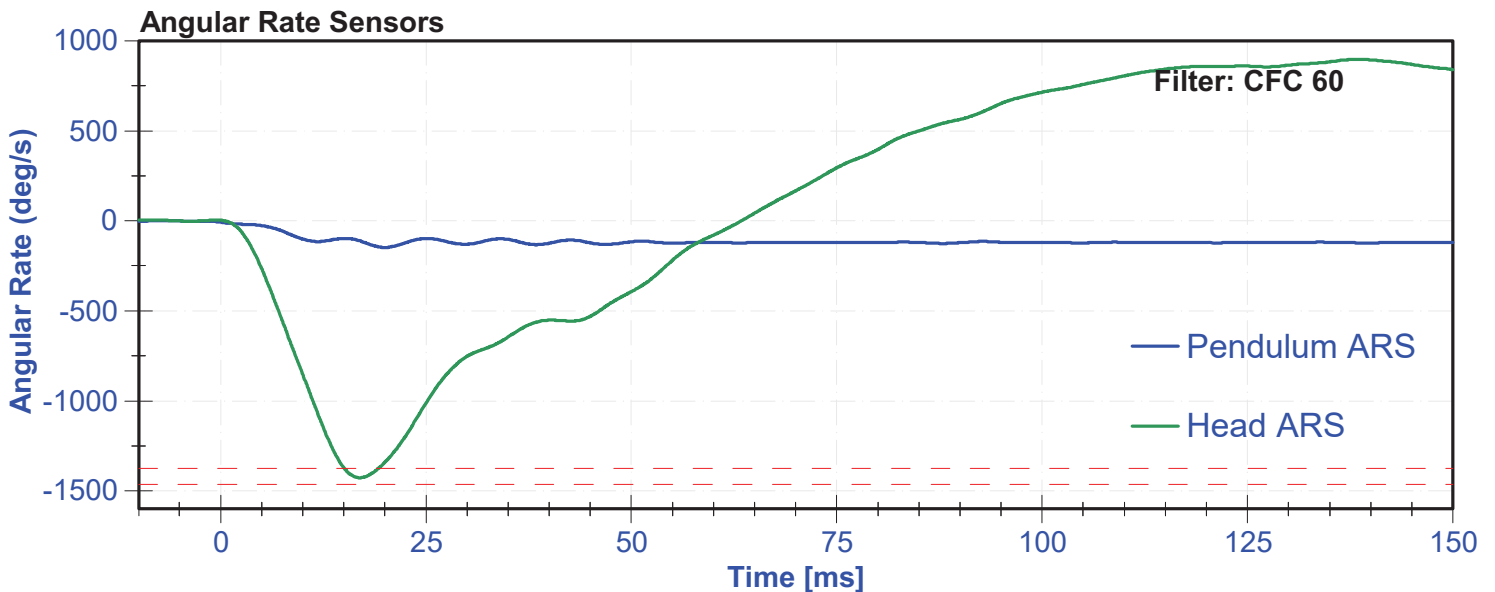
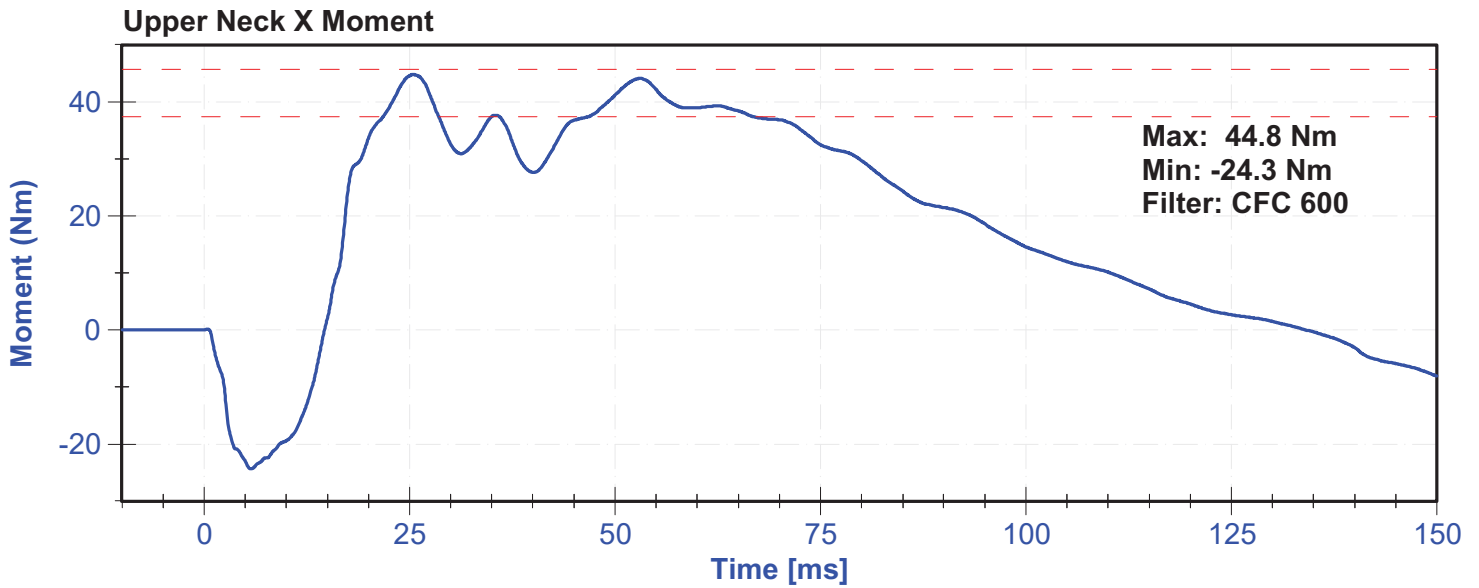
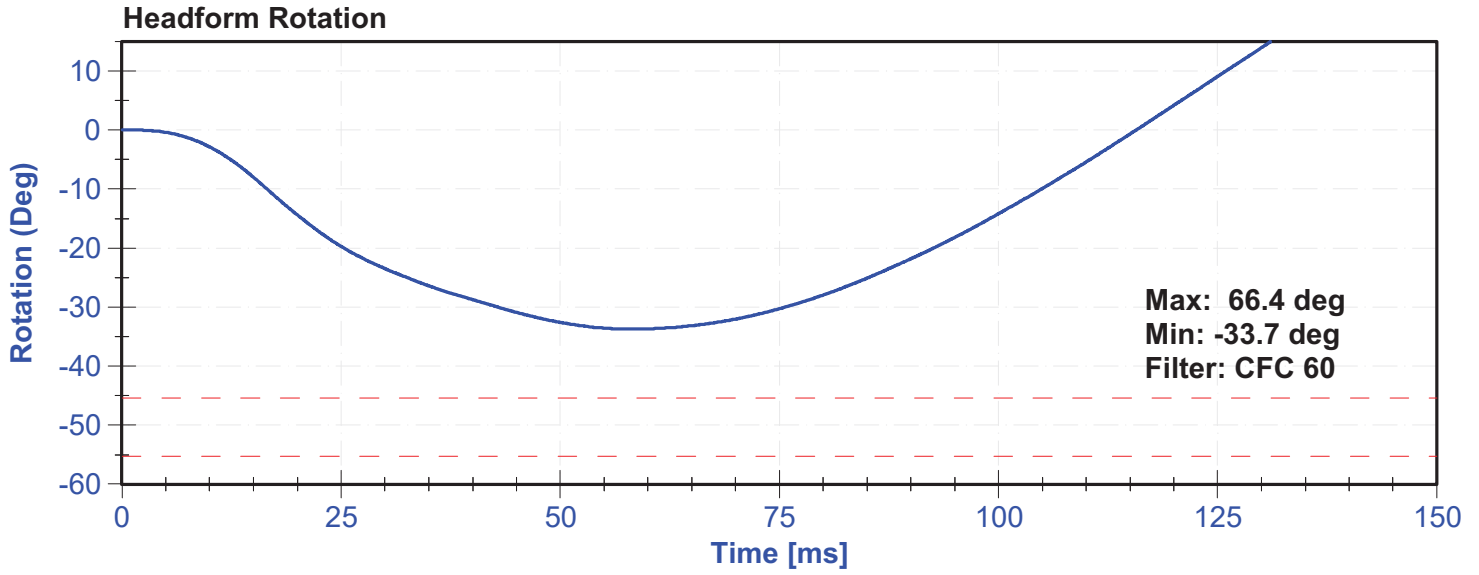
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.7	Pass
Humidity	10	70	%	38.5	Pass
Velocity	3.35	3.45	m/s	3.432	Pass
Pendulum Impulse at 4ms	0.89	1.08	m/s	0.983	Pass
Pendulum Impulse at 8ms	2.04	2.36	m/s	2.114	Pass
Pendulum Impulse at 12ms	3.21	3.46	m/s	3.233	Pass
Peak Upper Neck X Moment after 40ms	37.4	45.7	Nm	44.09	Pass
Peak Head X Angular Rate	-1462	-1375	deg/s	-1426.3	Pass
Peak Head X Rotation	-55.3	-45.4	deg	-33.70	Fail
Rotational Decay Time to Zero	83.7	90.9	ms	57.50	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5F3	5/7/2015	5/6/2016
Upper Neck Load Cell	Humanetics 10380J14	LC-DP3956 Mx	3/5/2016	3/5/2017
Pendulum ARS	DTS ARS-PRO-8K	ARS-6419	1/19/2016	1/18/2017
Head X ARS	DTS ARS-18K	ARS-4740	3/30/2015	3/29/2016





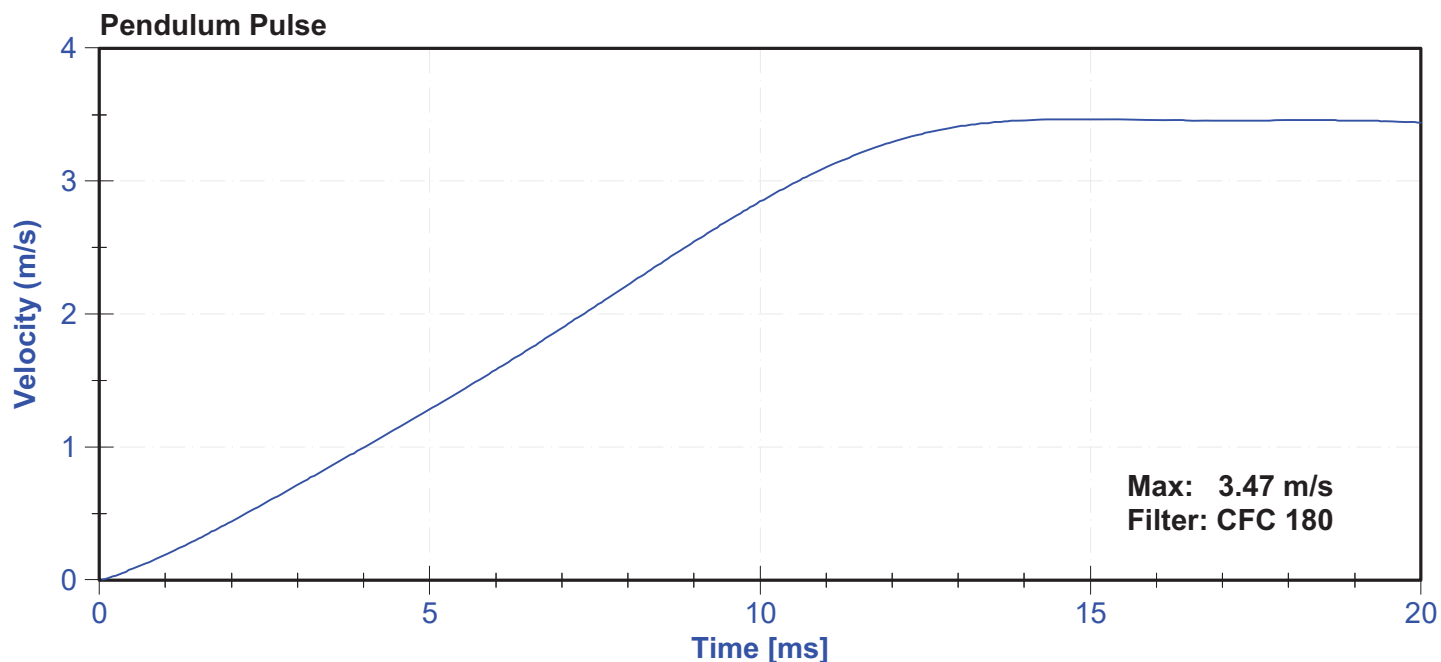
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

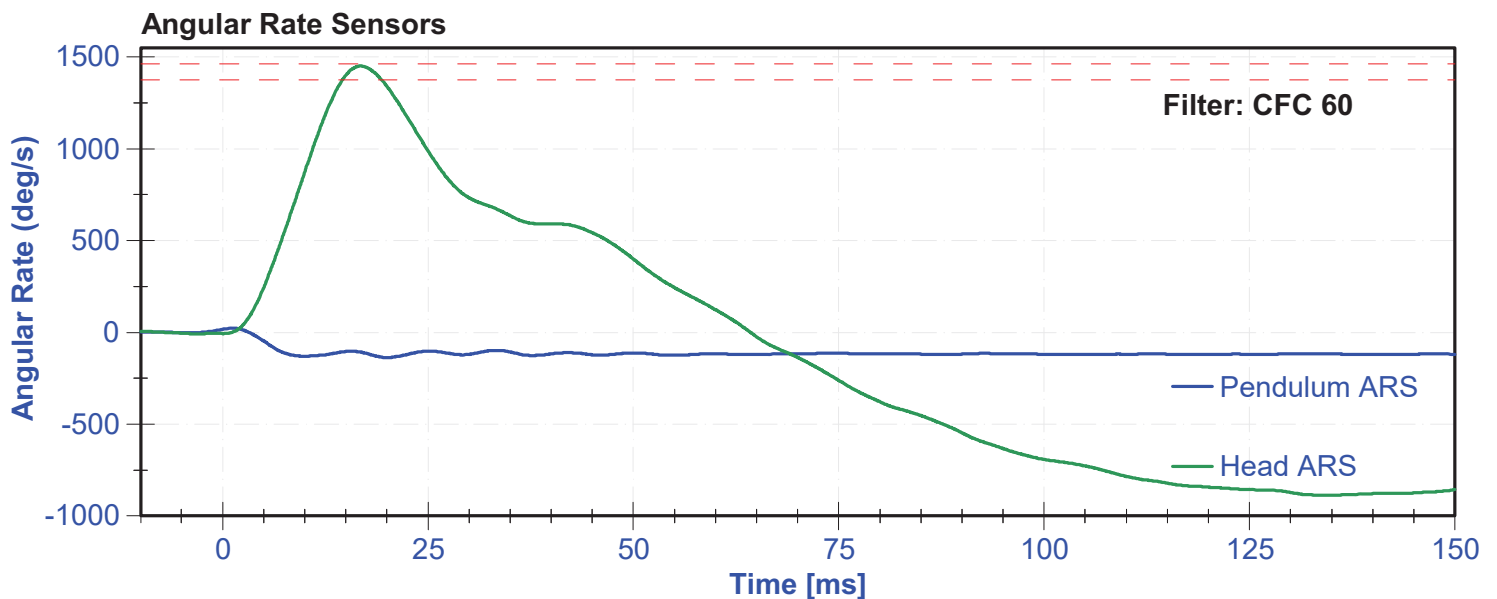
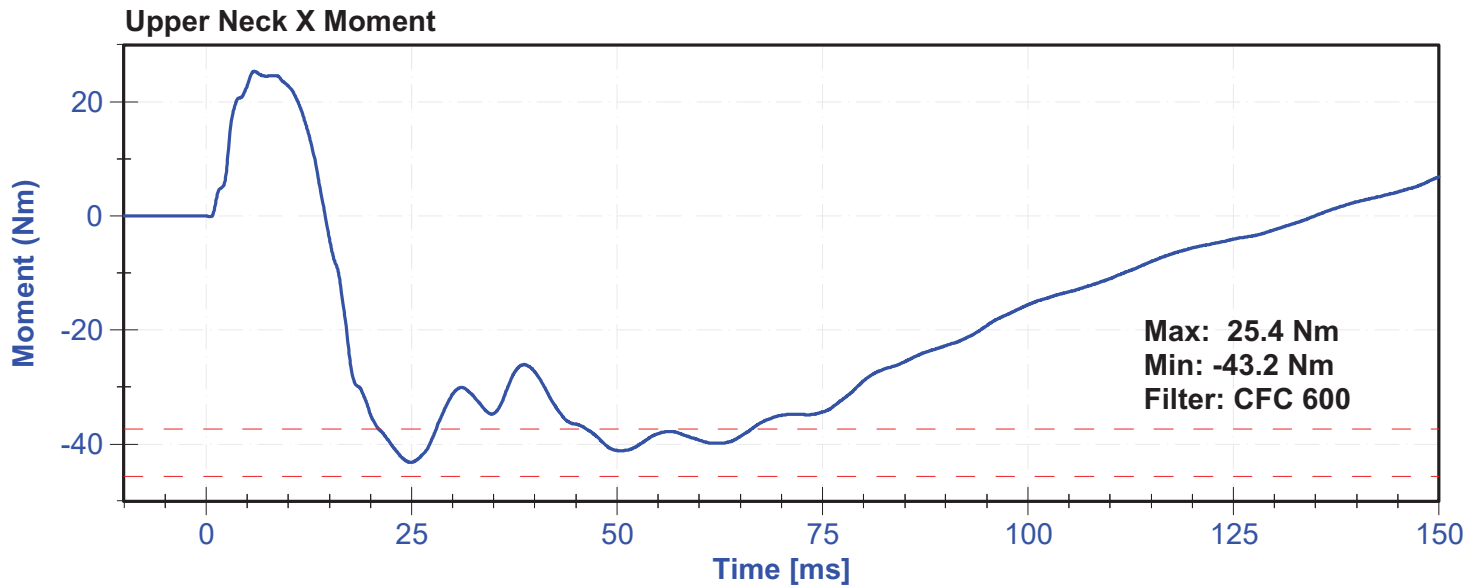
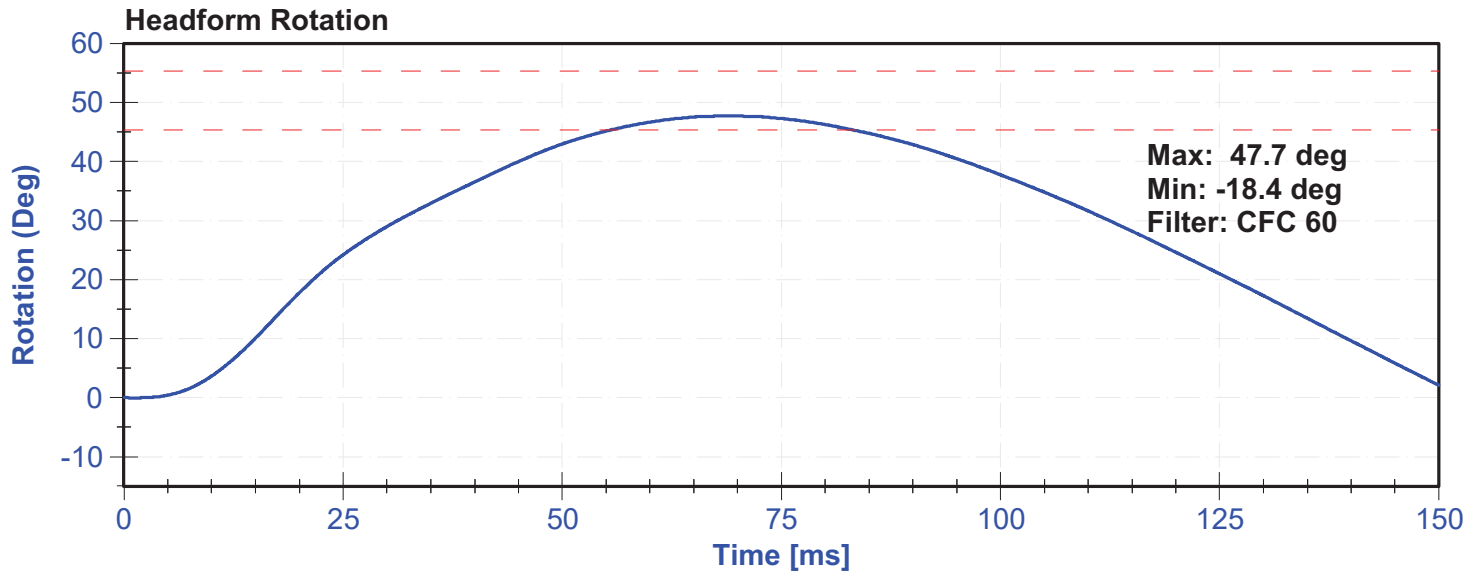
Results

Test Parameter	Minimum Specificatio	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.7	Pass
Humidity	10	70	%	39.0	Pass
Velocity	3.35	3.45	m/s	3.40	Pass
Pendulum Impulse at 4ms	0.89	1.08	m/s	0.997	Pass
Pendulum Impulse at 8ms	2.04	2.36	m/s	2.220	Pass
Pendulum Impulse at 12ms	3.21	3.46	m/s	3.294	Pass
Peak Upper Neck X Moment after 40ms	-45.7	-37.4	Nm	-41.21	Pass
Peak Head X Angular Rate	1375	1462	deg/s	1450.2	Pass
Peak Head X Rotation	45.4	55.3	deg	47.72	Pass
Rotation Decay Time to Zero	83.7	90.9	ms	83.95	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5F3	5/7/2015	5/6/2016
Upper Neck Load Cell	Humanetics 10380J14	LC-DP3956 Mx	3/5/2016	3/5/2017
Pendulum ARS	DTS ARS-PRO-8K	ARS-6419	1/19/2016	1/18/2017
Head X ARS	DTS ARS-18K	ARS-4740	3/30/2015	3/29/2016





ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

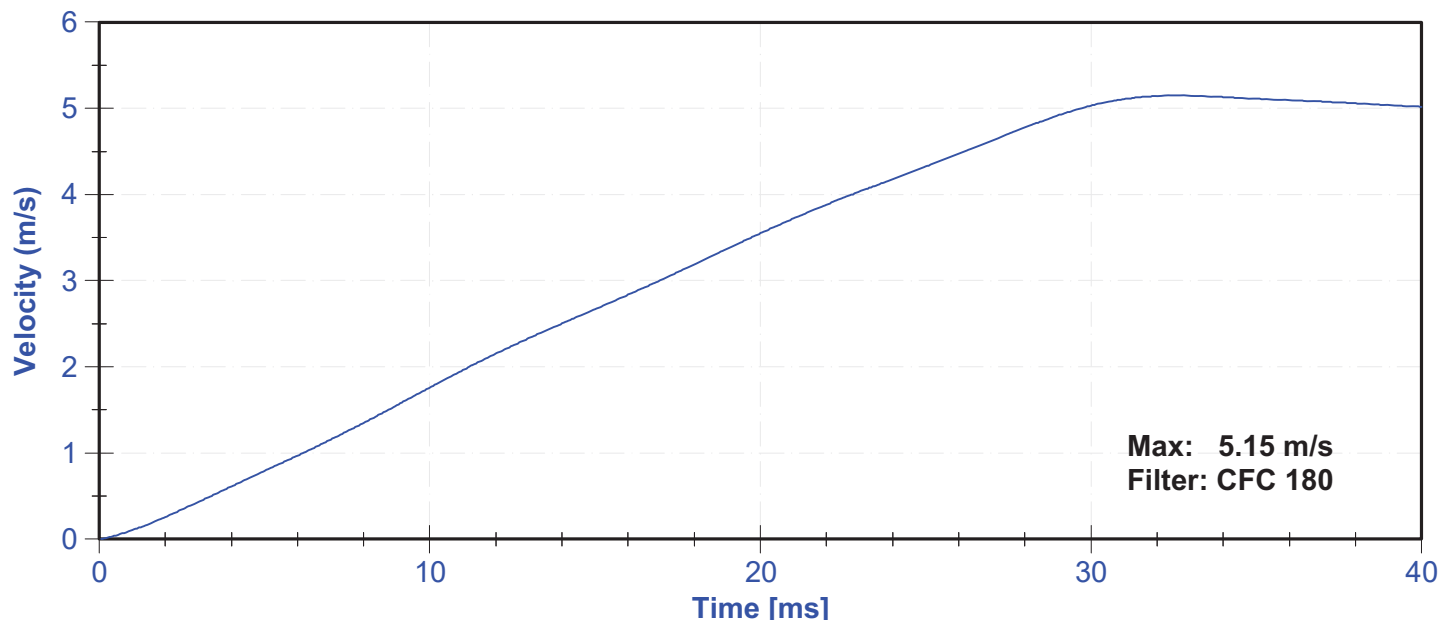
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.7	Pass
Humidity	10	70	%	38.1	Pass
Velocity	4.95	5.05	m/s	5.015	Pass
Pendulum Impulse at 10ms	1.76	1.91	m/s	1.761	Pass
Pendulum Impulse at 20ms	3.50	3.75	m/s	3.550	Pass
Pendulum Impulse at 30ms	4.88	5.20	m/s	5.030	Pass
Peak Upper Neck Y Moment	-21.3	-17.5	Nm	-23.06	Fail
Peak Upper Neck X Force	967	1182	N	1016.4	Pass
Peak Upper Neck Z Force	-2893	-2603	N	-2560.1	Fail
Peak Front Neck Cable Force	2482	2809	N	2388.4	Fail
Peak Head Y Angular Rate	1907	2043	deg/s	2024.9	Pass
Peak Head Y Rotation	57.6	64.2	deg	46.38	Fail
Rotational Decay Time to Zero	79.3	82.5	ms	54.75	Fail

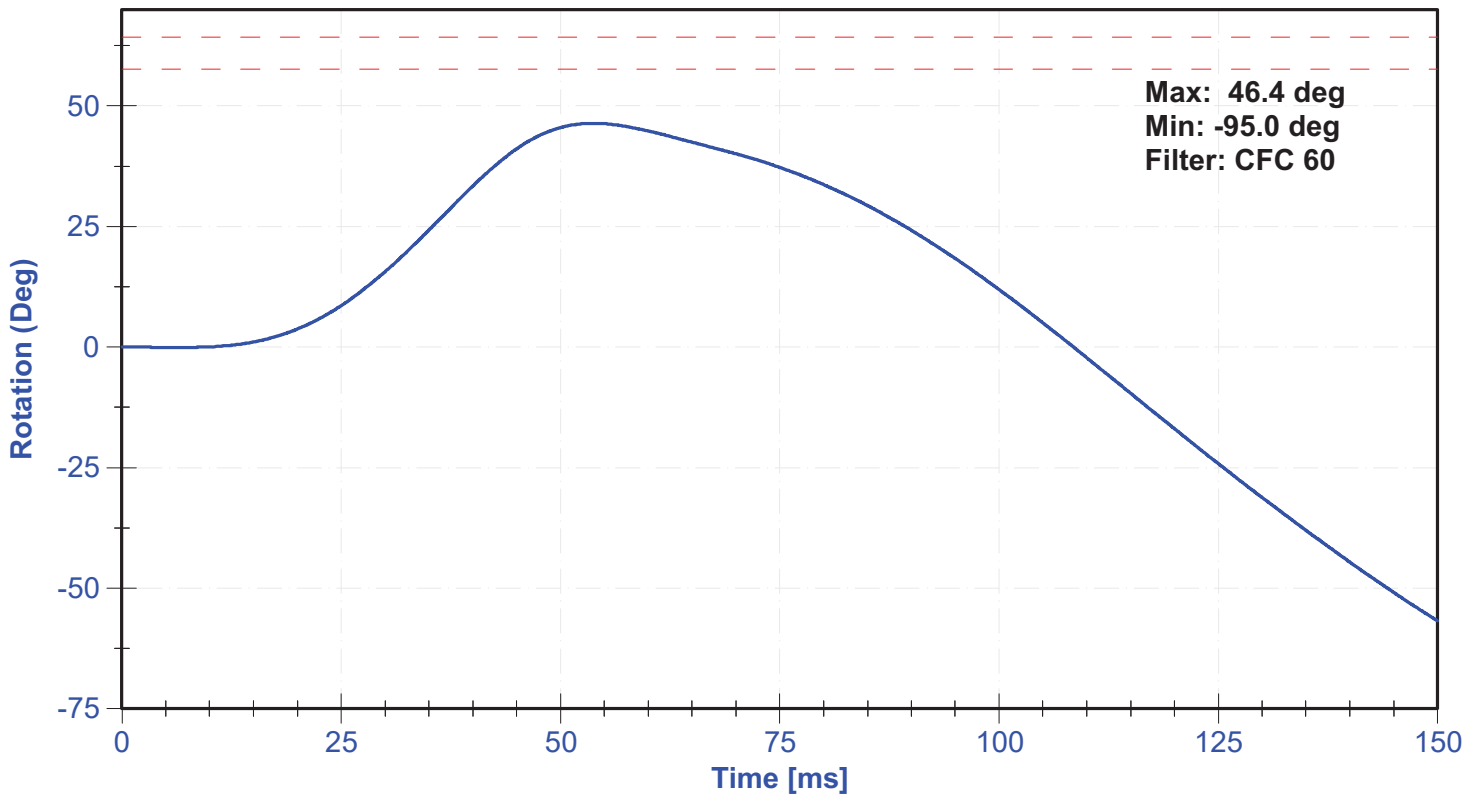
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5F3	5/7/2015	5/6/2016
Upper Neck Load Cell	Humanetics 10380J14	LC-DP3956 Fx	3/5/2016	3/5/2017
Fr Neck Cable Load	Humanetics 10386J14	LC-DO9740	3/6/2016	3/6/2017
Pendulum ARS	DTS ARS-PRO-8K	ARS-6419	1/19/2016	1/18/2017
Head ARS Y-Axis	DTS ARS-18K	ARS-4737	3/30/2015	3/29/2016

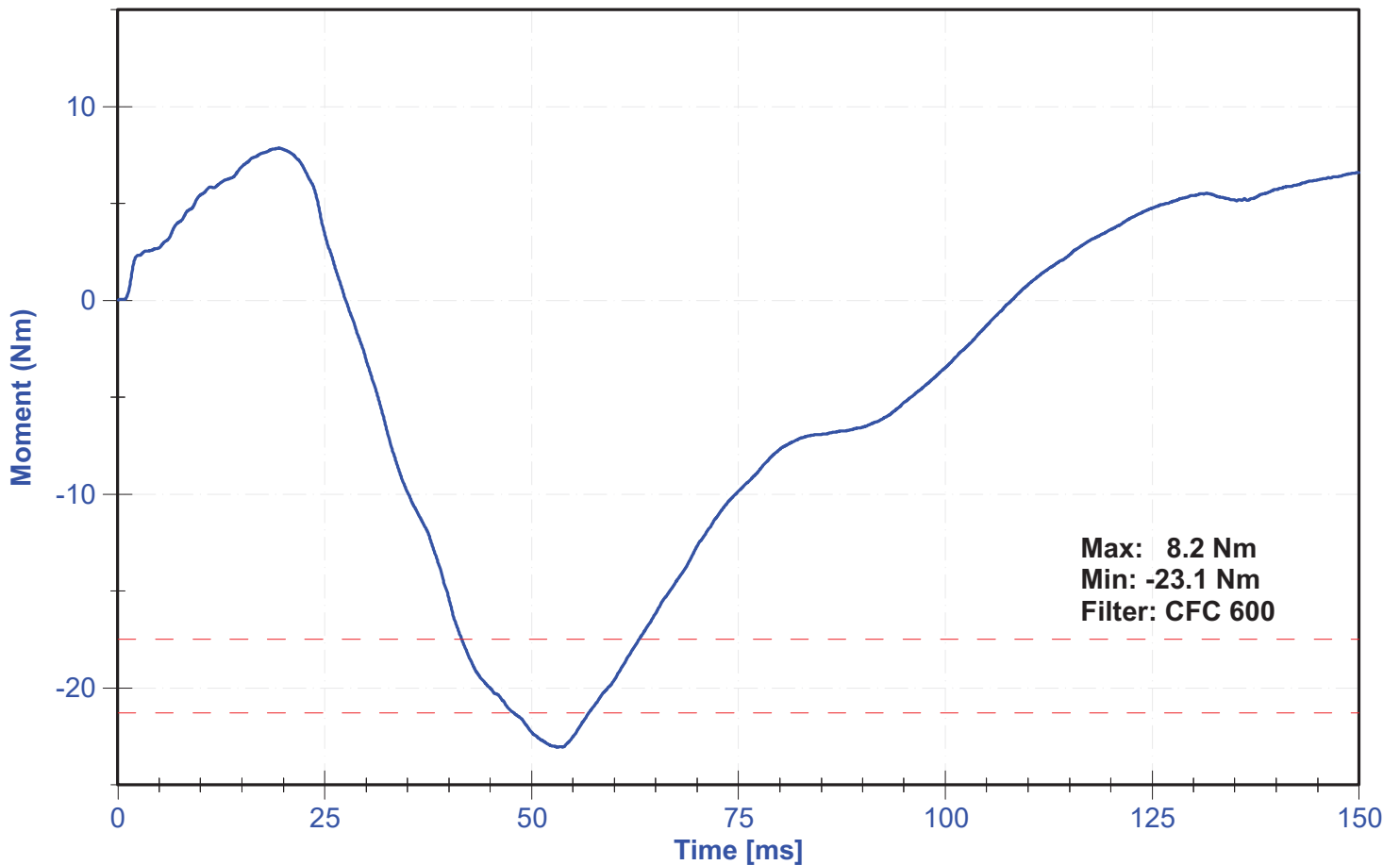
Pendulum Pulse



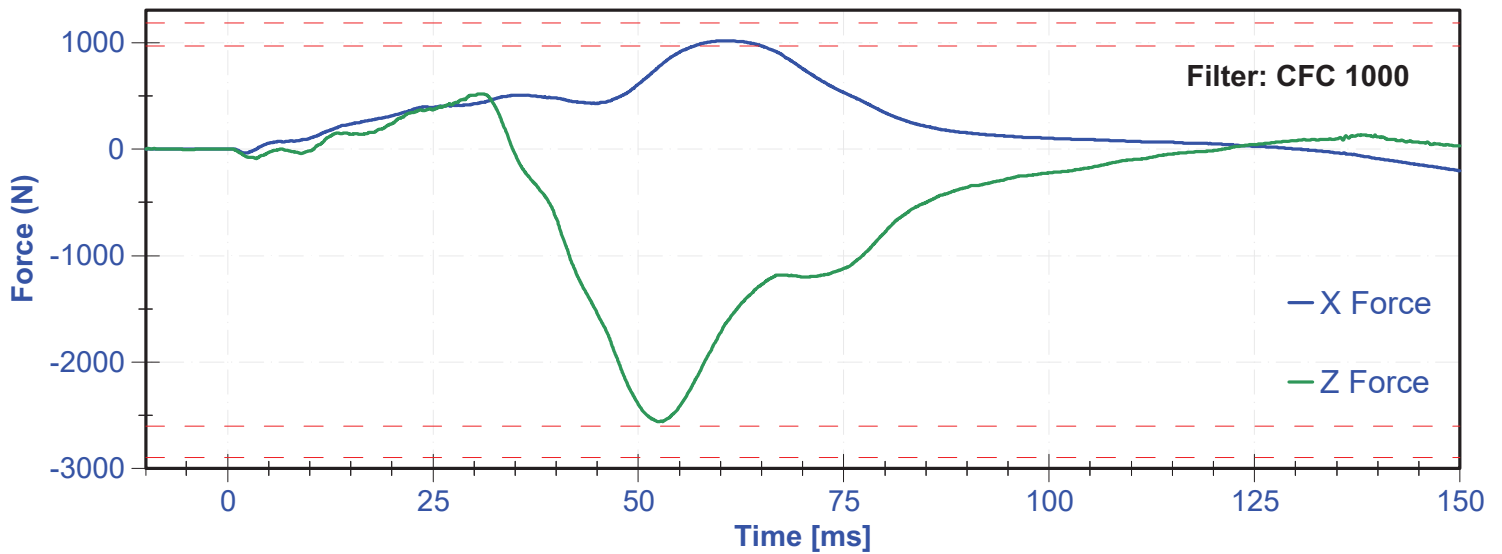
Headform Rotation



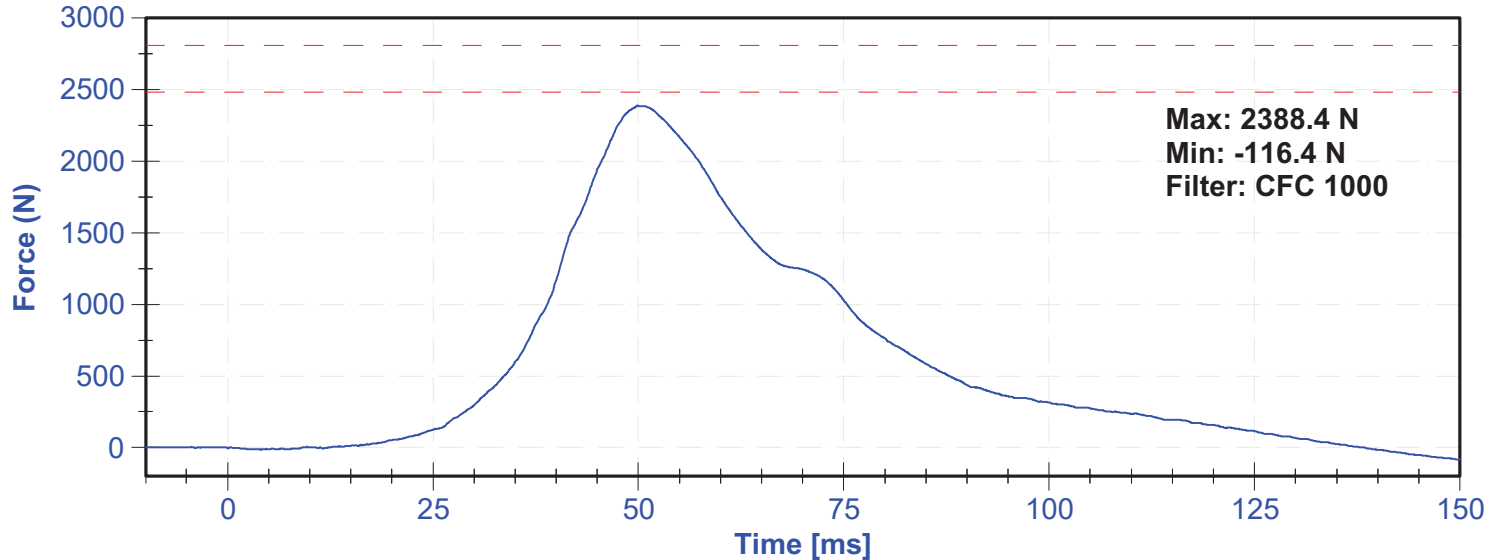
Upper Neck Y Moment



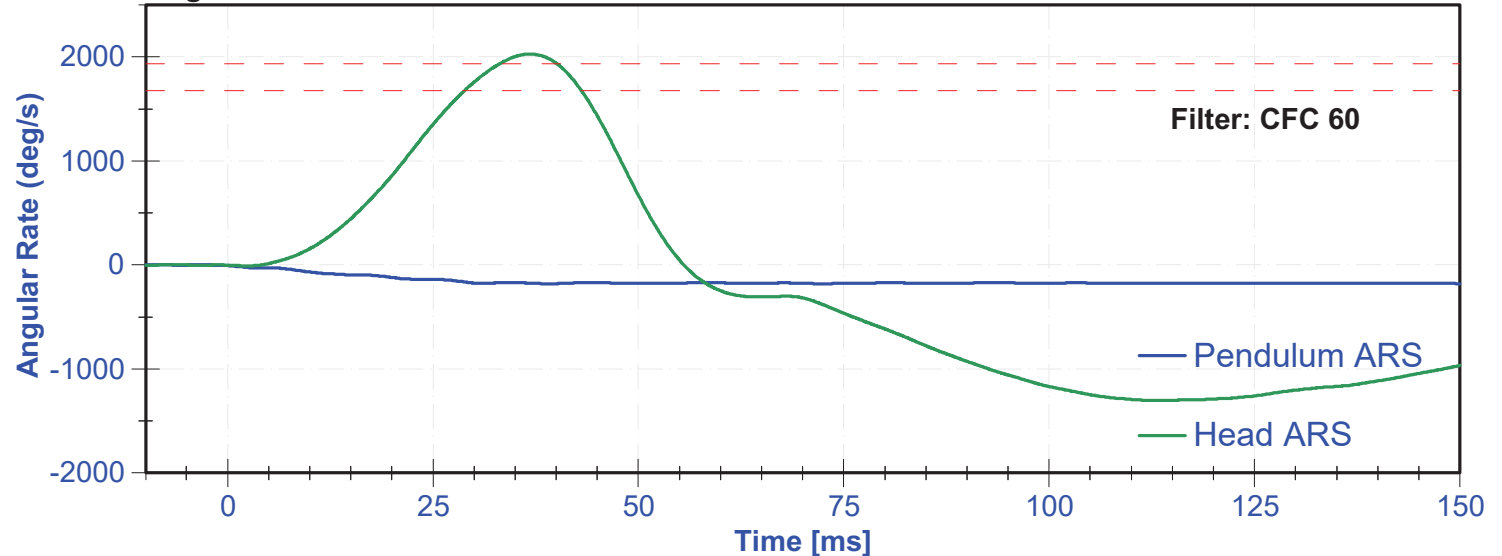
Upper Neck Force



Rear Neck Cable Z Force



Angular Rate Sensors



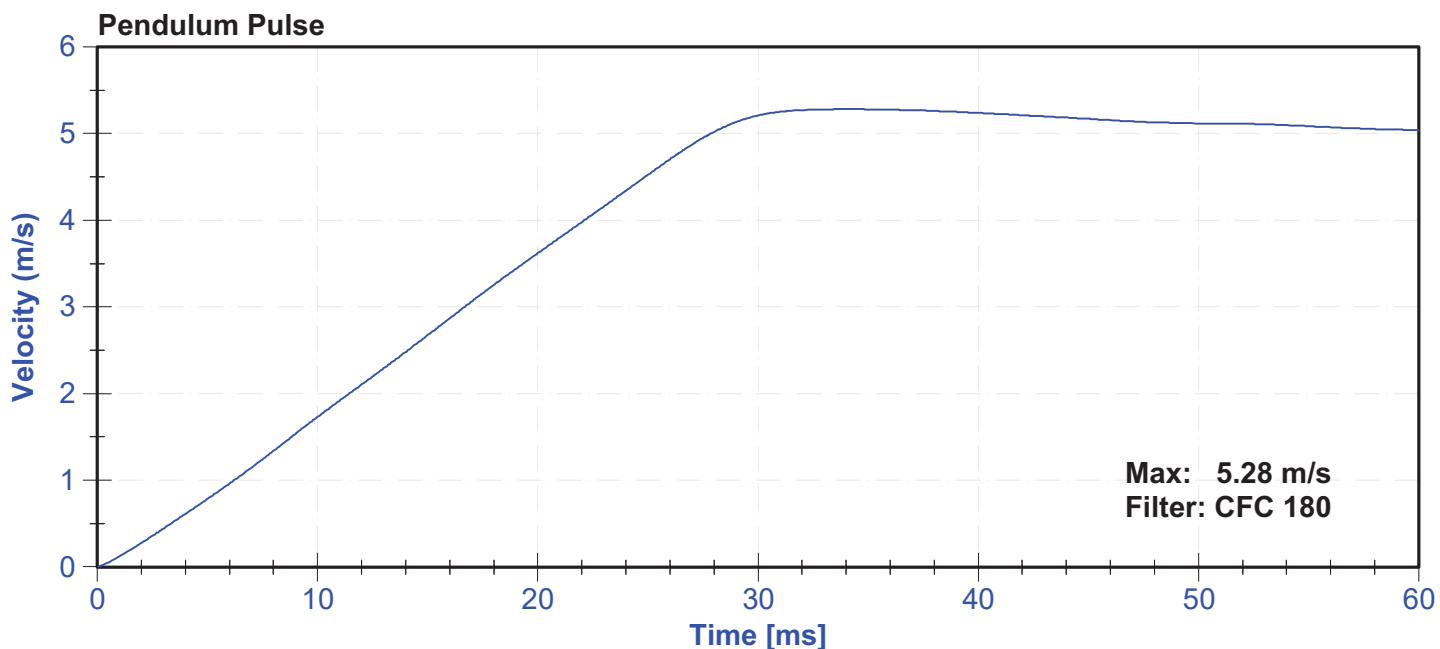
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

Results

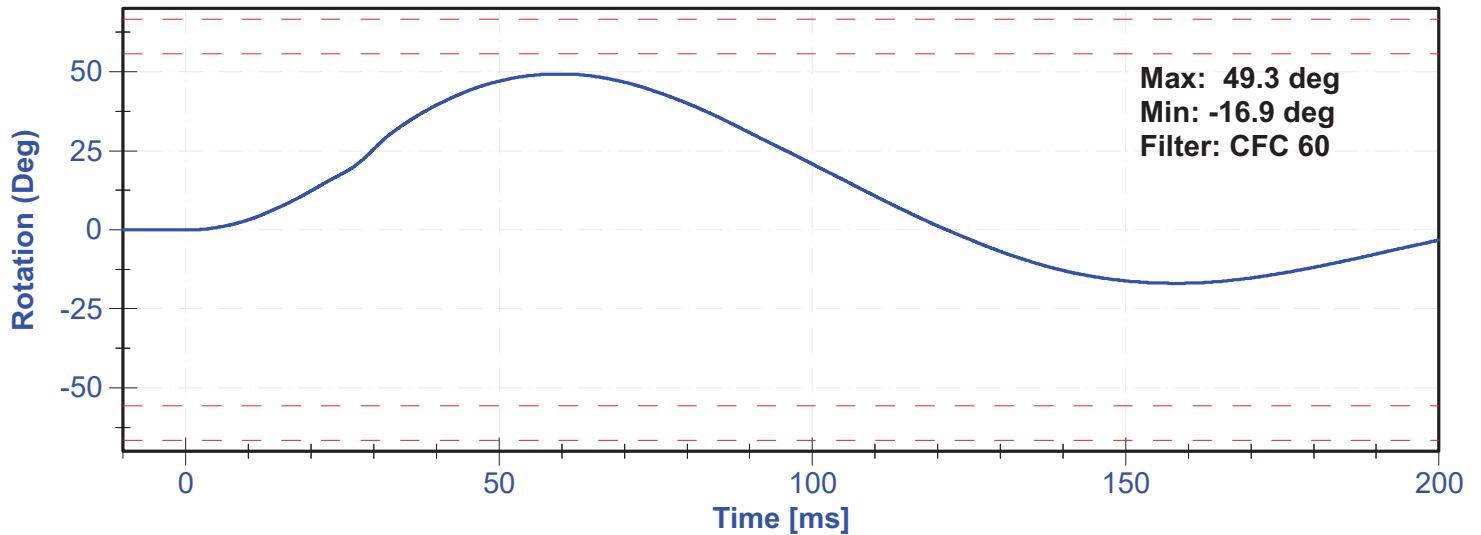
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.8	Pass
Humidity	10	70	%	39.0	Pass
Velocity	4.95	5.05	m/s	5.045	Pass
Pendulum Impulse at 10ms	1.72	1.98	m/s	1.730	Pass
Pendulum Impulse at 15ms	2.67	2.97	m/s	2.673	Pass
Pendulum Impulse at 20ms	3.59	3.98	m/s	3.619	Pass
Pendulum Impulse at 25ms	4.43	4.92	m/s	4.523	Pass
Peak Upper Neck Z Moment	32.6	38.3	Nm	36.82	Pass
Peak Neck Axial Rotation	55.6	66.6	deg	49.31	Fail
Rotation Decay Time to Zero	58.0	61.6	ms	61.65	Fail
Peak Upper Neck Angular Velocity	1559	1709	deg/s	1559.9	Pass

Transducer Calibrations

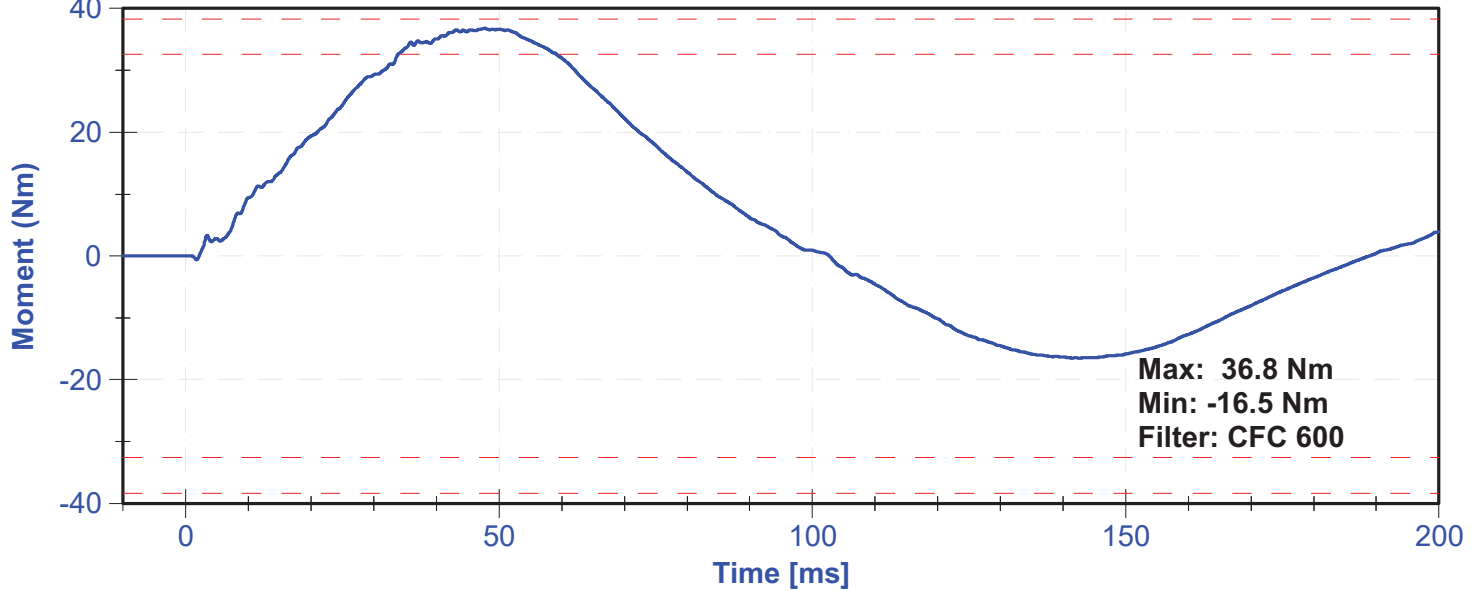
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5F3	5/7/2015	5/6/2016
Neck Fixture Potentiometer	Servo 14CB1-3615	DS-0001	10/21/2015	10/20/2016
Upper Neck Load Cell	Humanetics 10380J14	LC-DP3956 Mz	3/5/2016	3/5/2017
Upper Neck ARS	DTS ARS-PRO-8K	ARS-6424	1/19/2016	1/18/2017



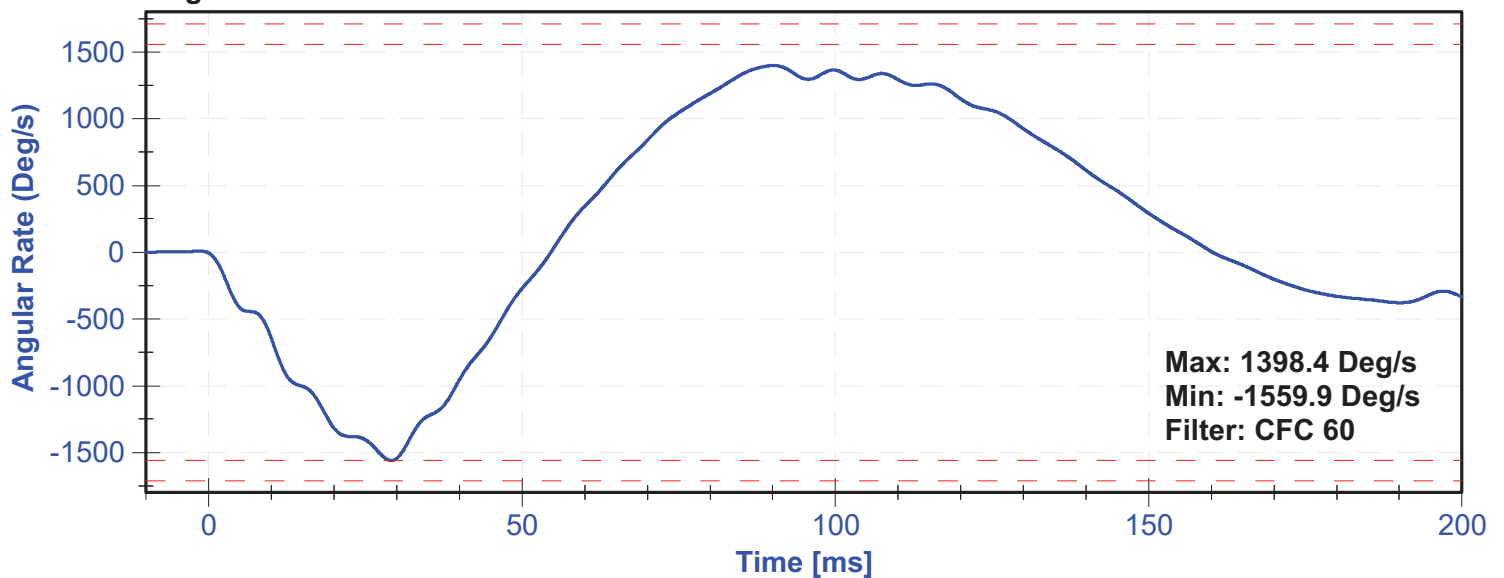
Axial Rotation



Moment



Angular Rate



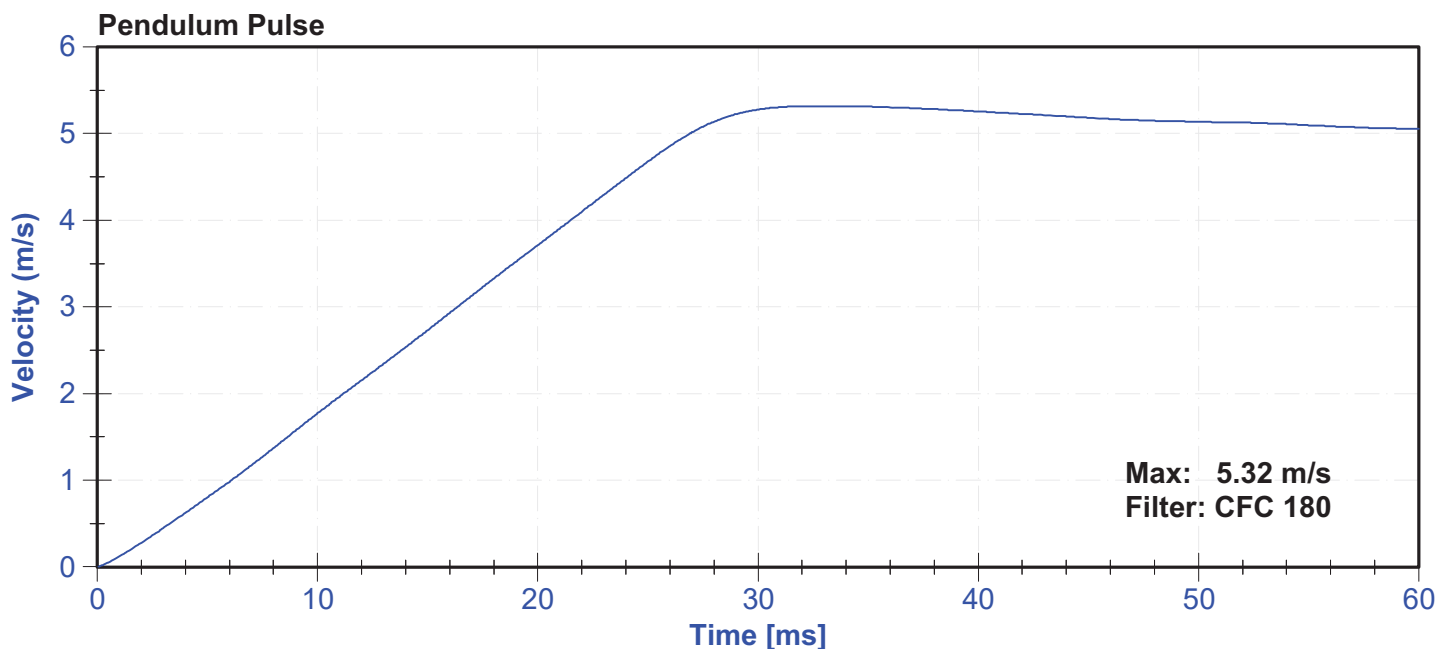
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

Results

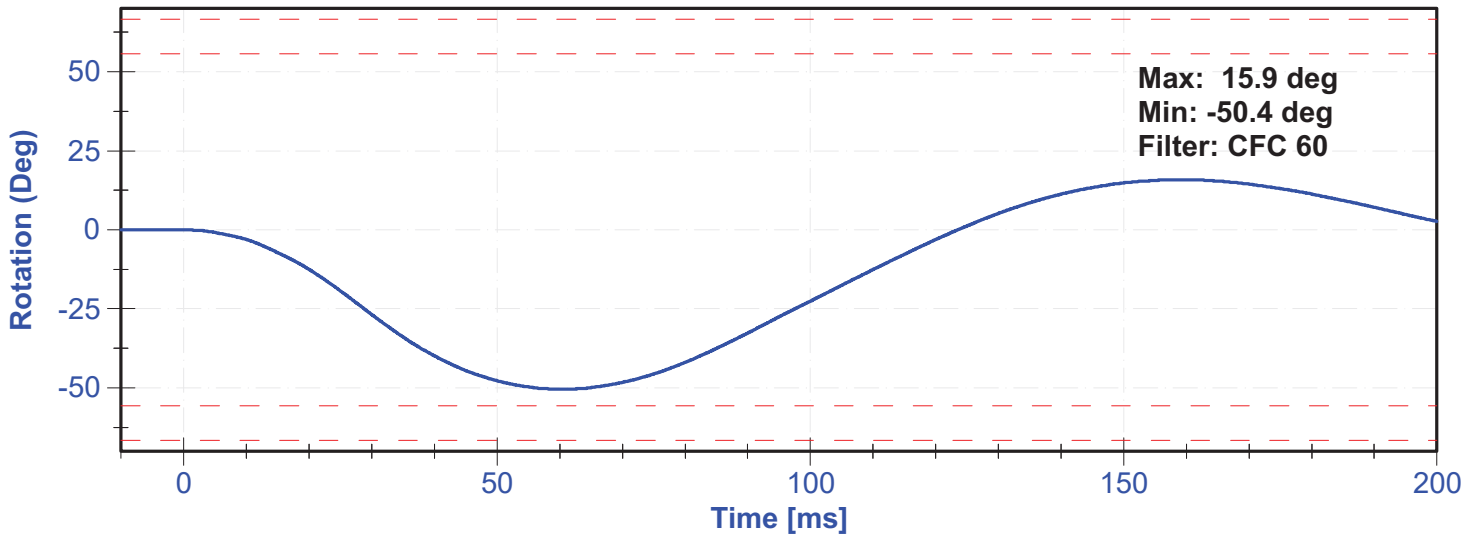
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.8	Pass
Humidity	10	70	%	39.2	Pass
Velocity	4.95	5.05	m/s	5.045	Pass
Pendulum Impulse at 10ms	1.72	1.98	m/s	1.772	Pass
Pendulum Impulse at 15ms	2.67	2.97	m/s	2.730	Pass
Pendulum Impulse at 20ms	3.59	3.98	m/s	3.712	Pass
Pendulum Impulse at 25ms	4.43	4.92	m/s	4.675	Pass
Peak Upper Neck Z Moment	32.6	38.3	Nm	36.84	Pass
Peak Neck Axial Rotation	55.6	66.6	deg	50.43	Fail
Rotation Decay Time to Zero	58.0	61.6	ms	47.15	Fail
Peak Upper Neck Angular Velocity	1559	1709	deg/s	1585.0	Pass

Transducer Calibrations

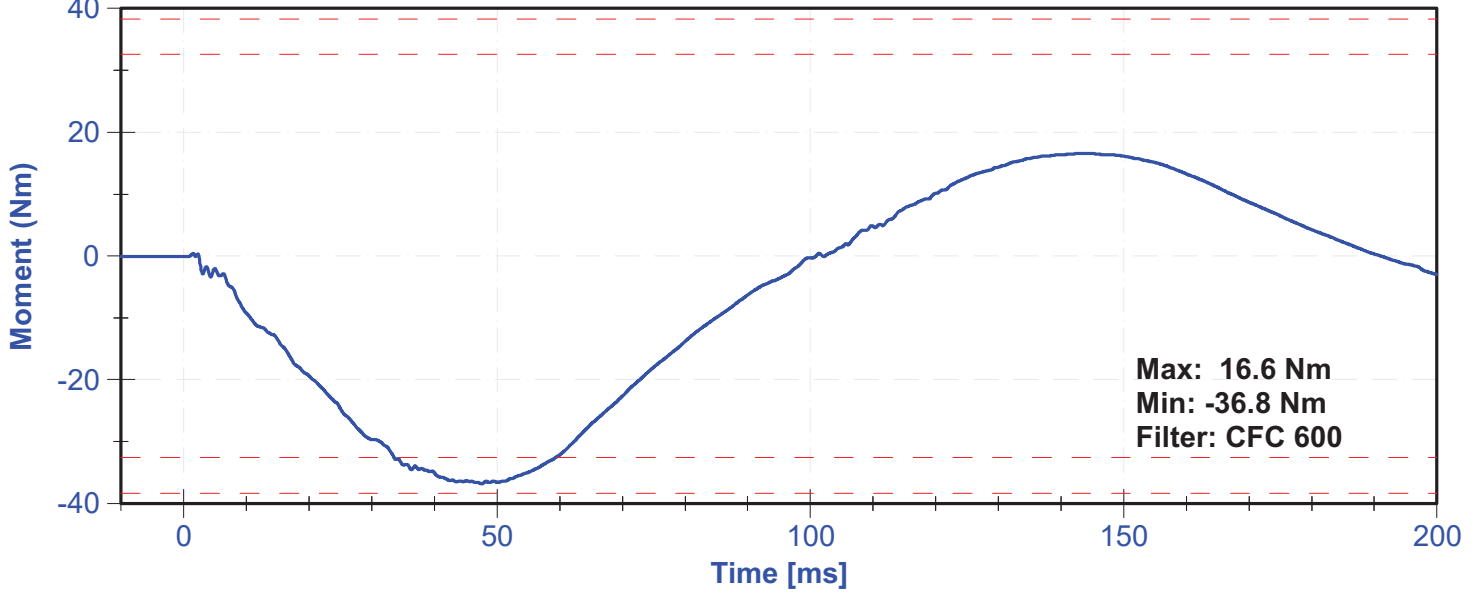
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-AH5F3	5/7/2015	5/6/2016
Neck Fixture Potentiometer	Servo 14CB1-3615	DS-0001	10/21/2015	10/20/2016
Upper Neck Load Cell	Humanetics 10380JI4	LC-DP3956 Mz	3/5/2016	3/5/2017
Upper Neck ARS	DTS ARS-PRO-8K	ARS-6424	1/19/2016	1/18/2017



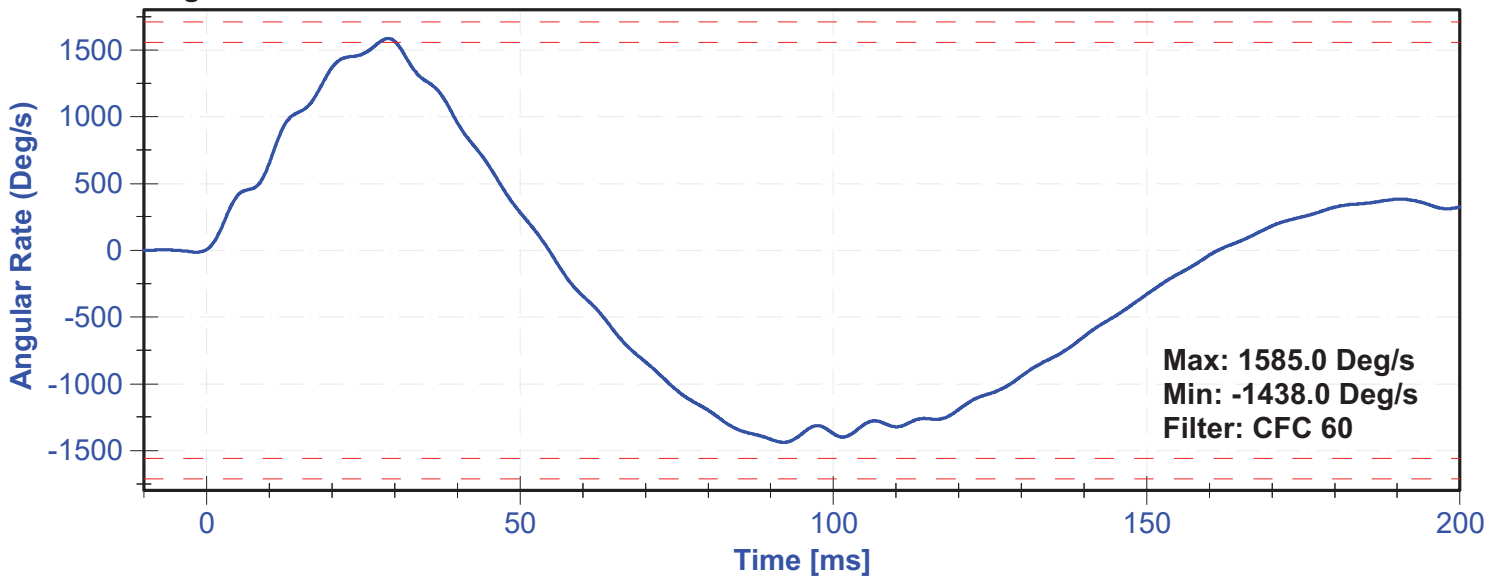
Axial Rotation



Moment



Angular Rate



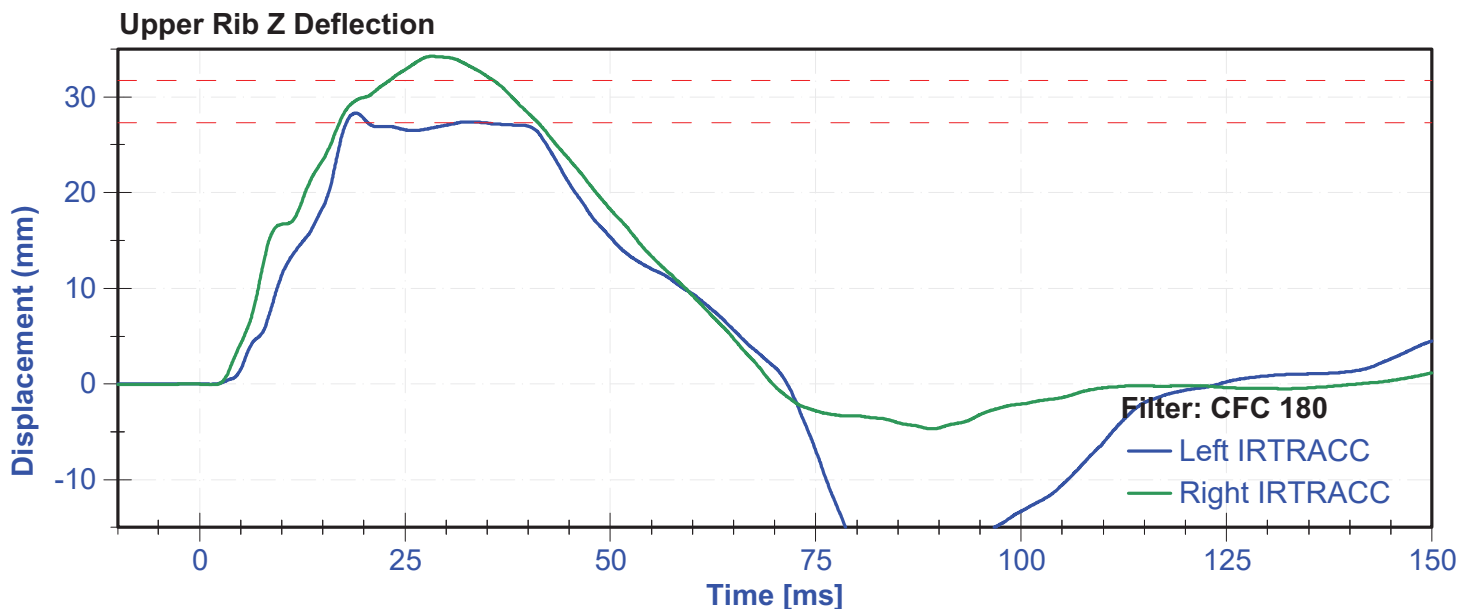
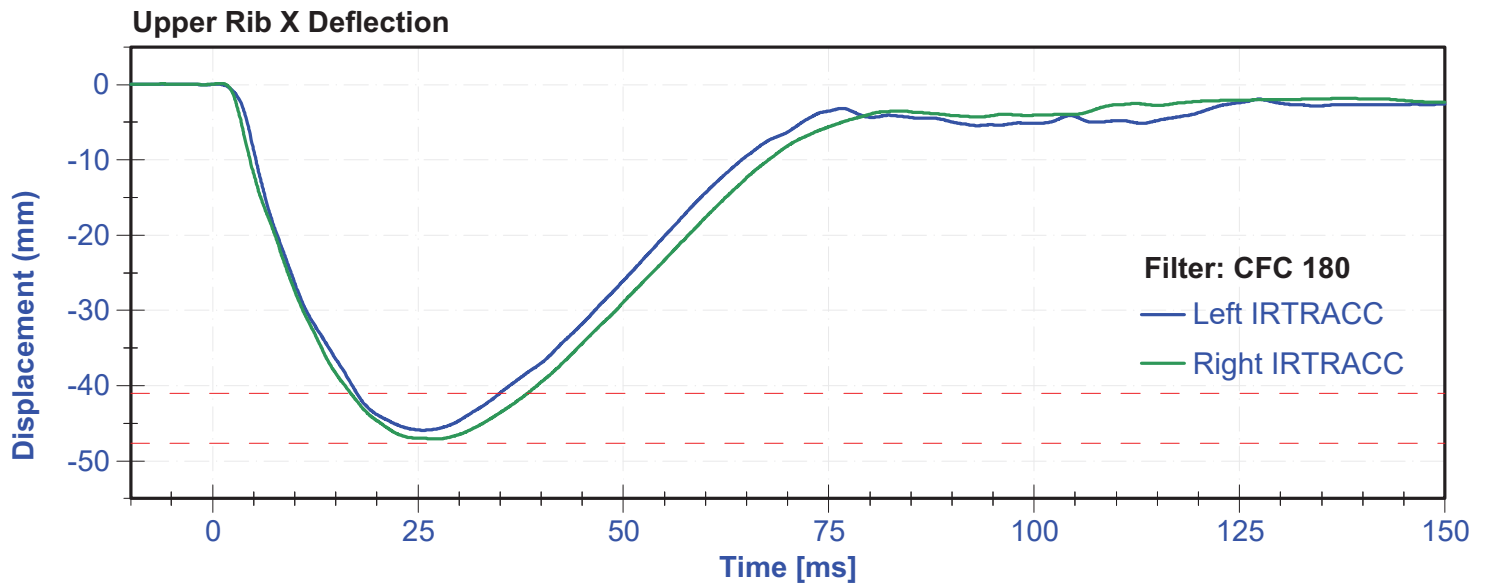
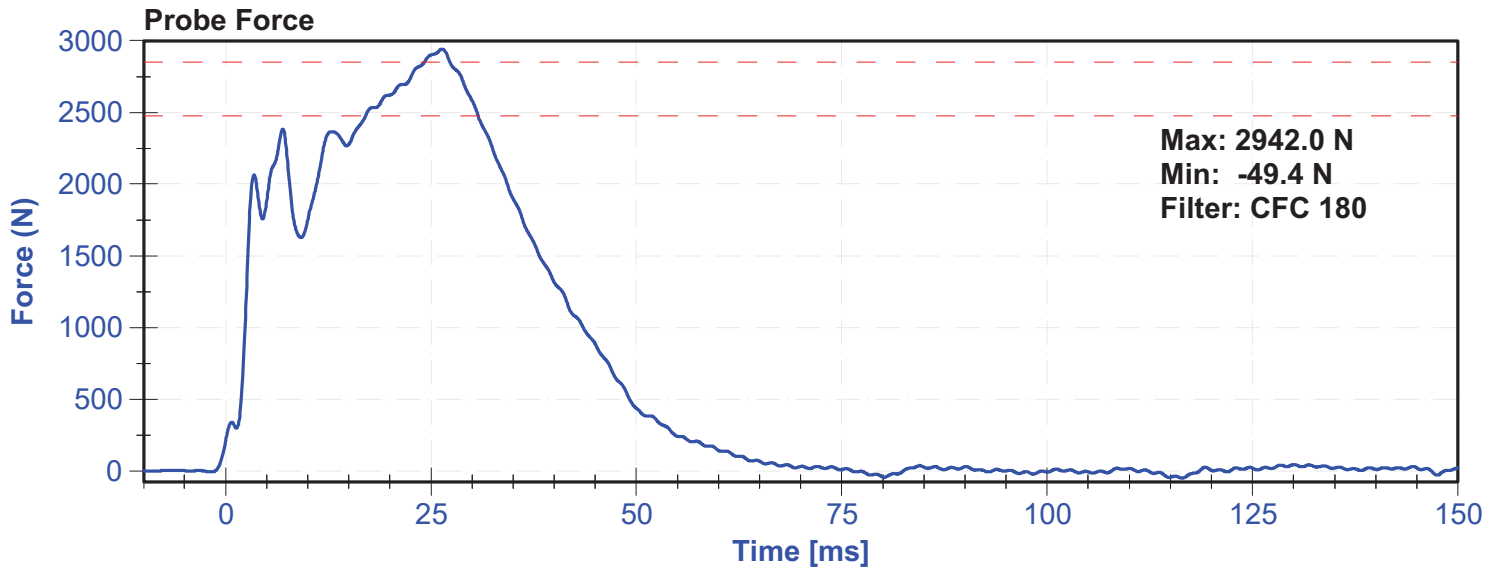
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

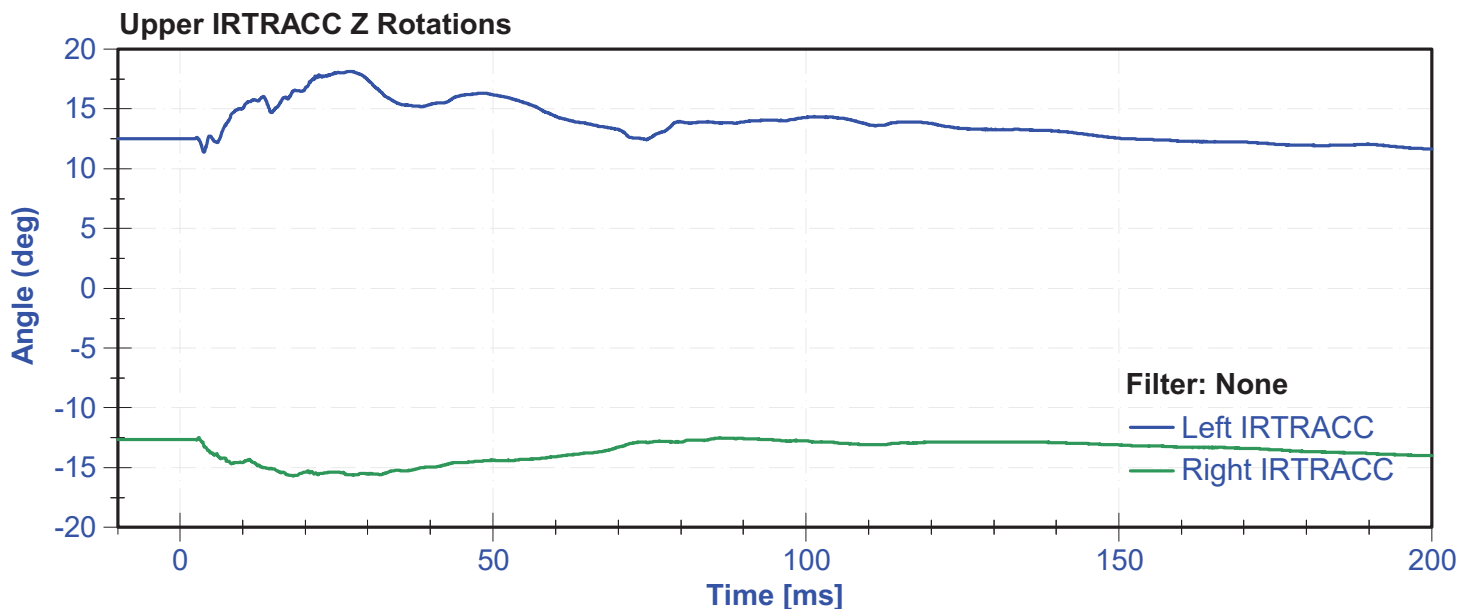
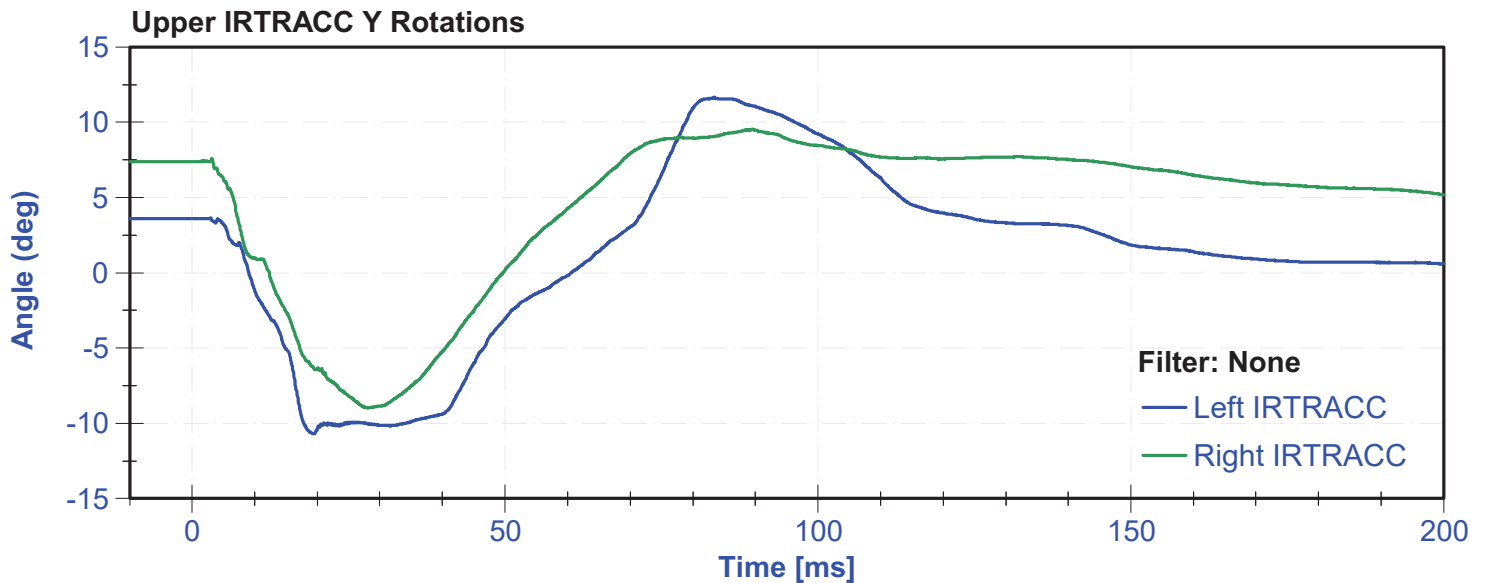
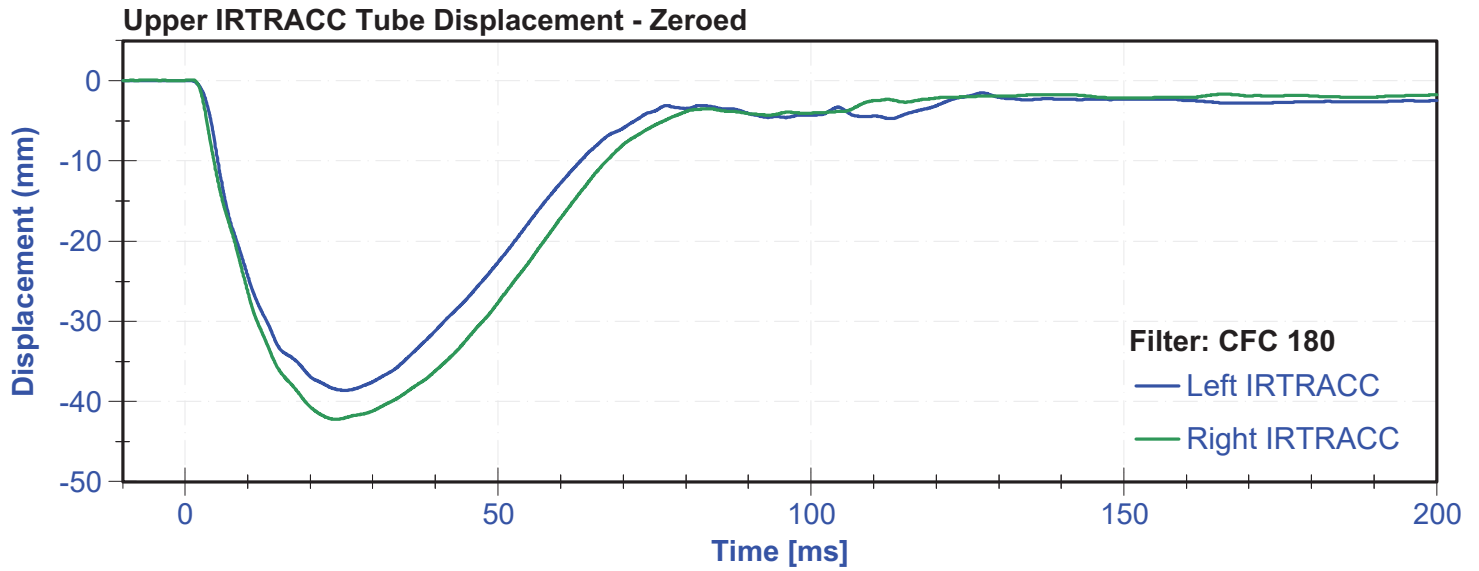
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	18.9	25.6	°C	21.1	Pass
Humidity	10	70	%	45.6	Pass
Impact Velocity	4.25	4.35	m/s	4.336	Pass
Probe Force	2474	2850	N	2942.0	Fail
Upper Left X Rib Deflection	-47.6	-41.0	mm	-45.91	Pass
Upper Right X Rib Deflection	-47.6	-41.0	mm	-47.06	Pass
Left/Right X Rib Deviation	-7.00	7.00	mm	1.152	Pass
Upper Left Z Rib Deflection	27.3	31.7	mm	28.31	Pass
Upper Right Z Rib Deflection	27.3	31.7	mm	34.25	Fail
Left/Right Z Rib Deviation	-7.00	7.00	mm	-5.941	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accelerometer	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016
Upper Left IRTRACC	Humanetics IF-364-C-R3	DS-DS6355	11/10/2015	11/9/2016
Upper Left Y Potentiometer	Humanetics 9945	DS-DI2382	4/8/2015	4/7/2016
Upper Left Z Potentiometer	Humanetics 9945	DS-DI2383	4/8/2015	4/7/2016
Upper Right IRTRACC	Humanetics IF-364-C-R3	DS-DJ2613	4/8/2015	4/7/2016
Upper Right Y Potentiometer	Humanetics 9945	DS-DI7753	4/9/2015	4/8/2016
Upper Right Z Potentiometer	Humanetics 9945	DS-DI7752	4/9/2015	4/8/2016





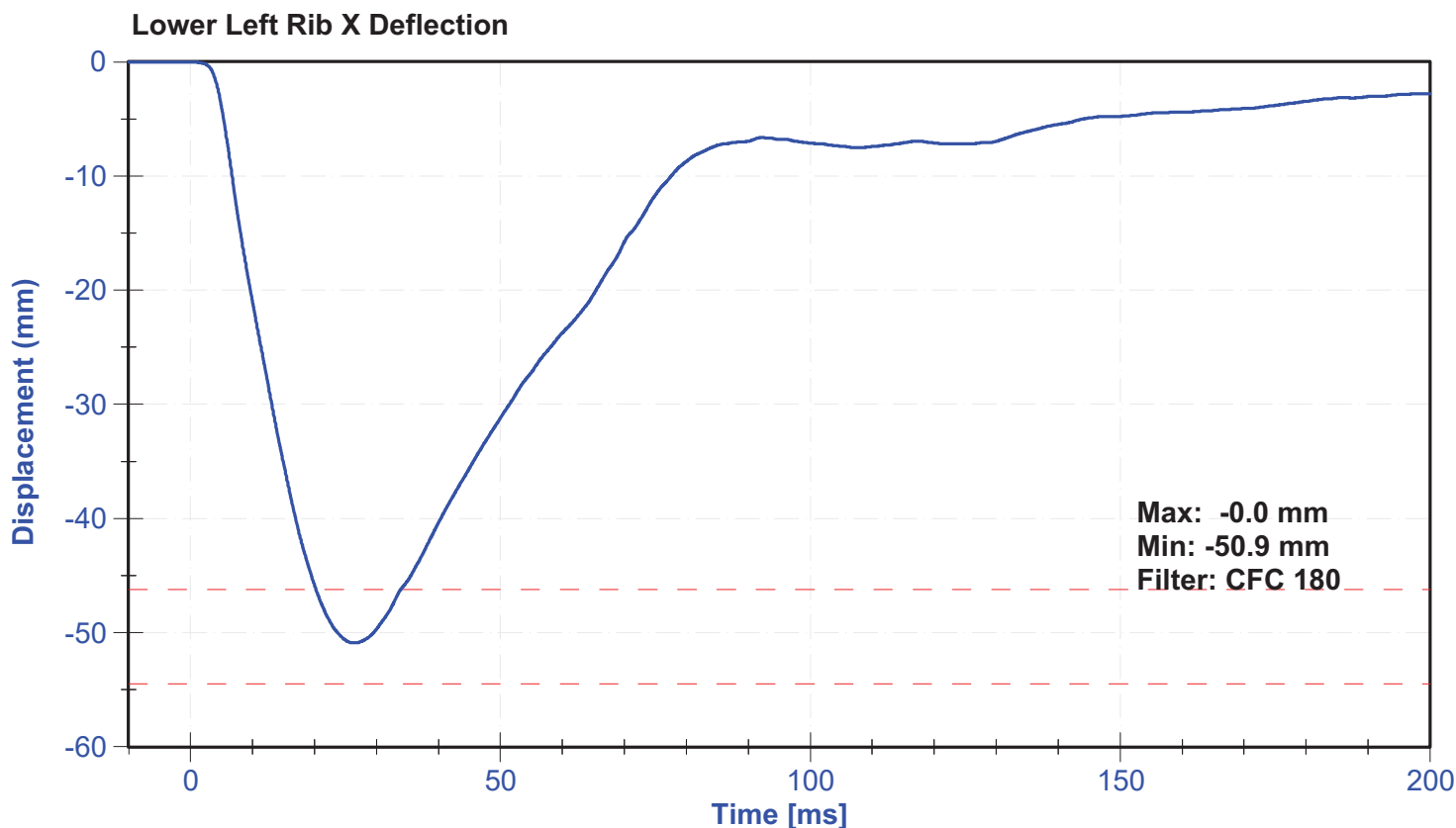
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

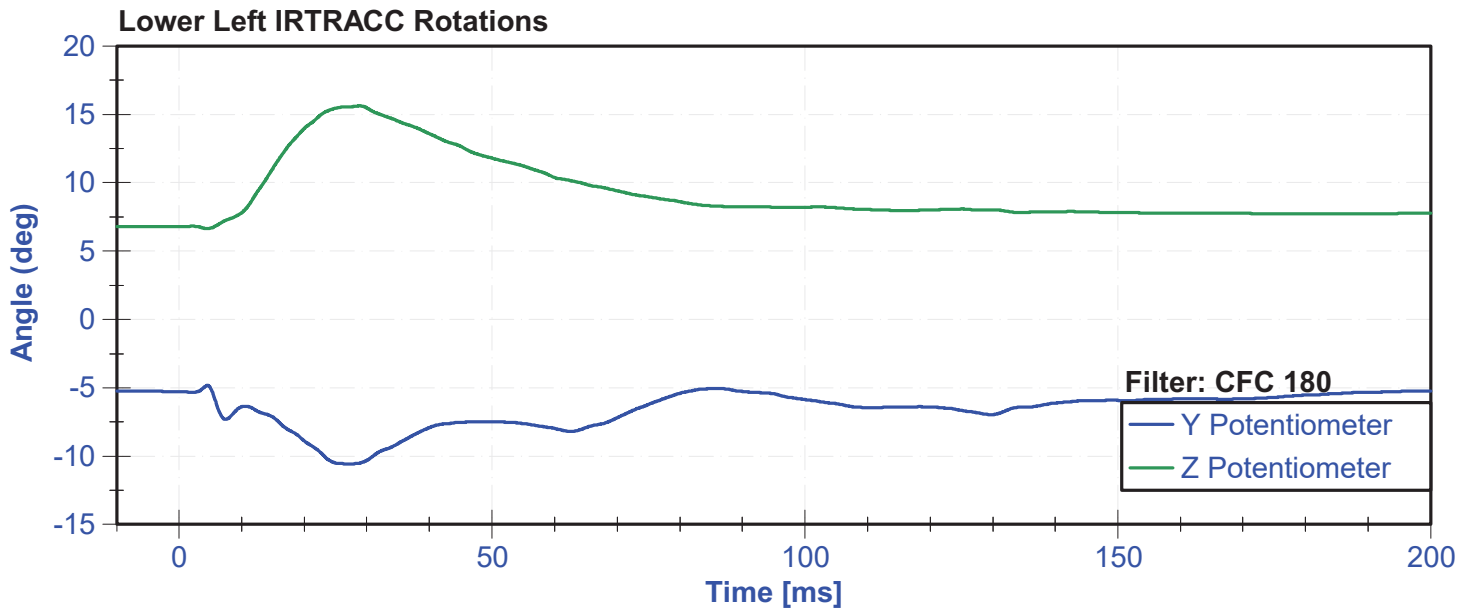
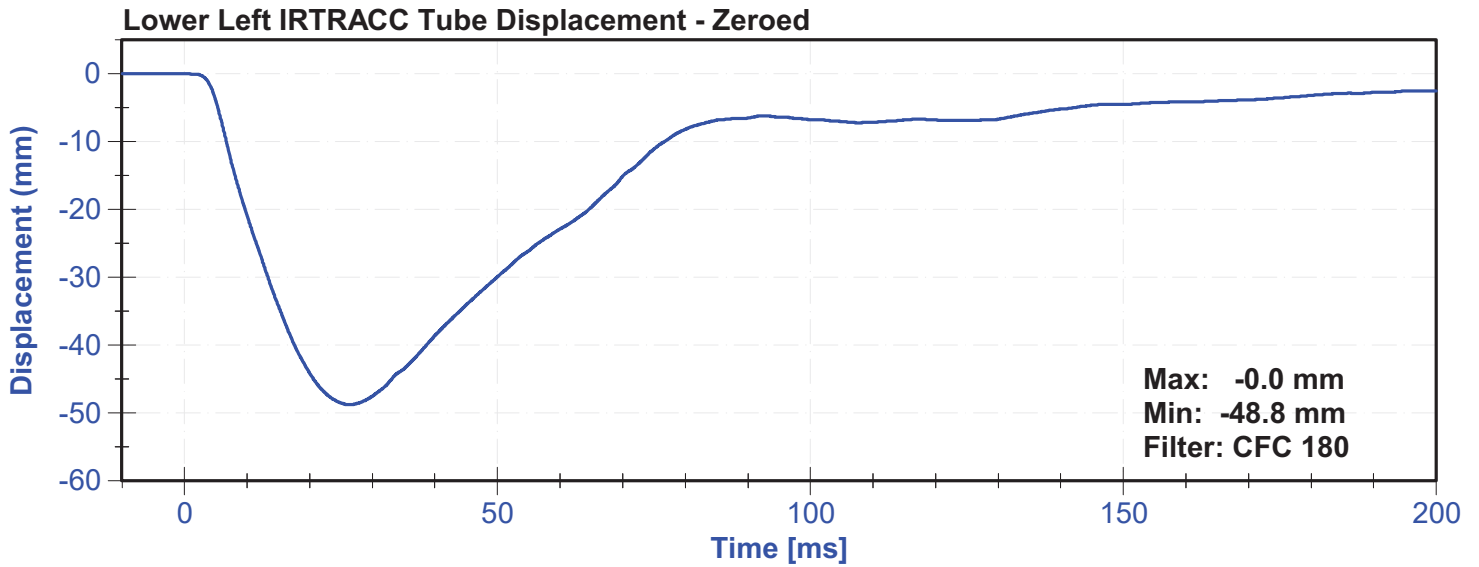
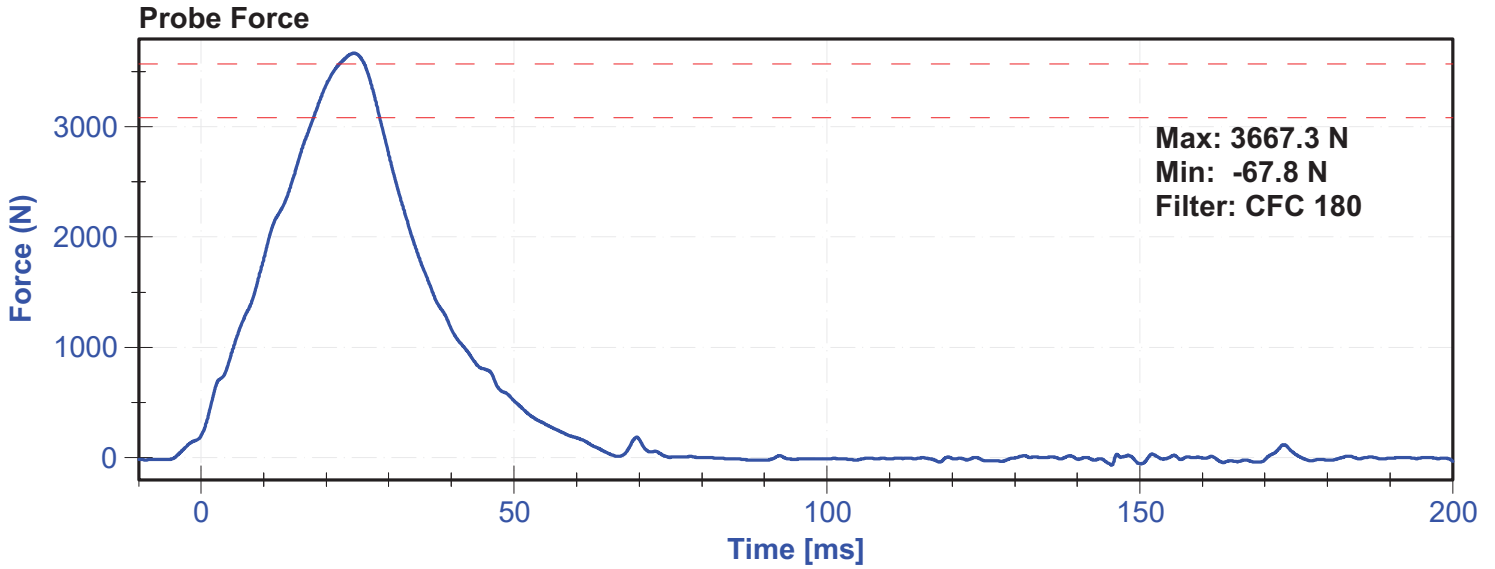
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	49.0	Pass
Impact Velocity	4.25	4.35	m/s	4.342	Pass
Peak Left X Rib Deflection	-54.5	-46.2	mm	-50.92	Pass
Probe Force during Peak Deflection	3083	3571	N	3667.3	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016
Lower Left IRTRACC	Humanetics IF-364-C-R3	DS-DS6353	11/10/2015	11/9/2016
Lower Left Y Potentiometer	Humanetics 9945	DS-DM4781	4/7/2015	4/6/2016
Lower Left Z Potentiometer	Humanetics 9945	DS-DS4092	4/7/2015	4/6/2016





ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

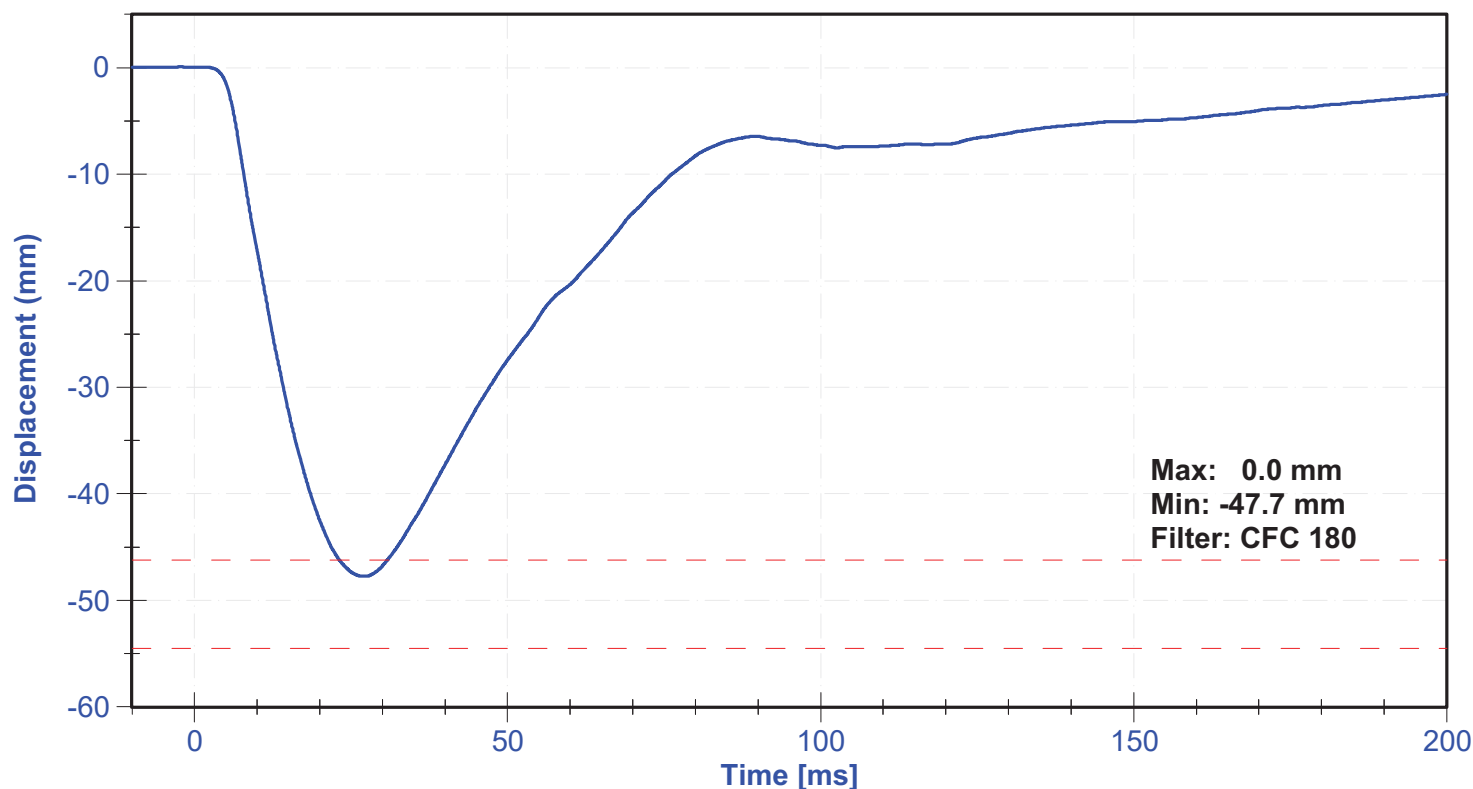
Results

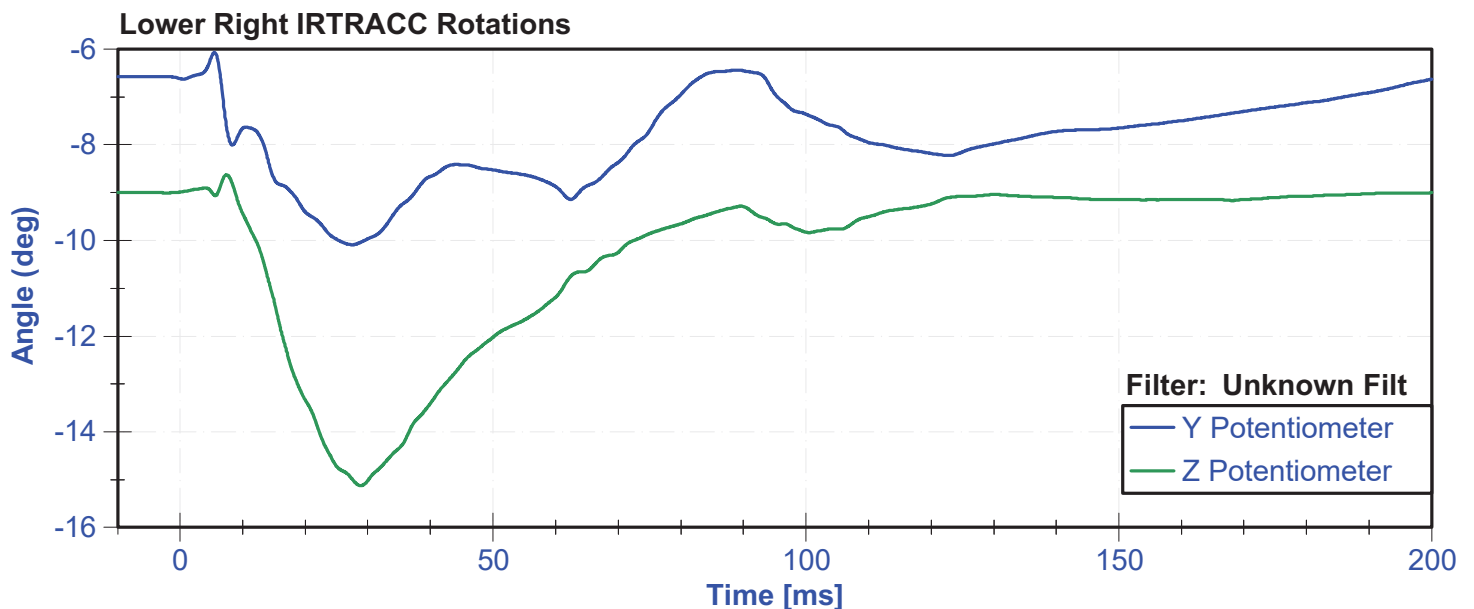
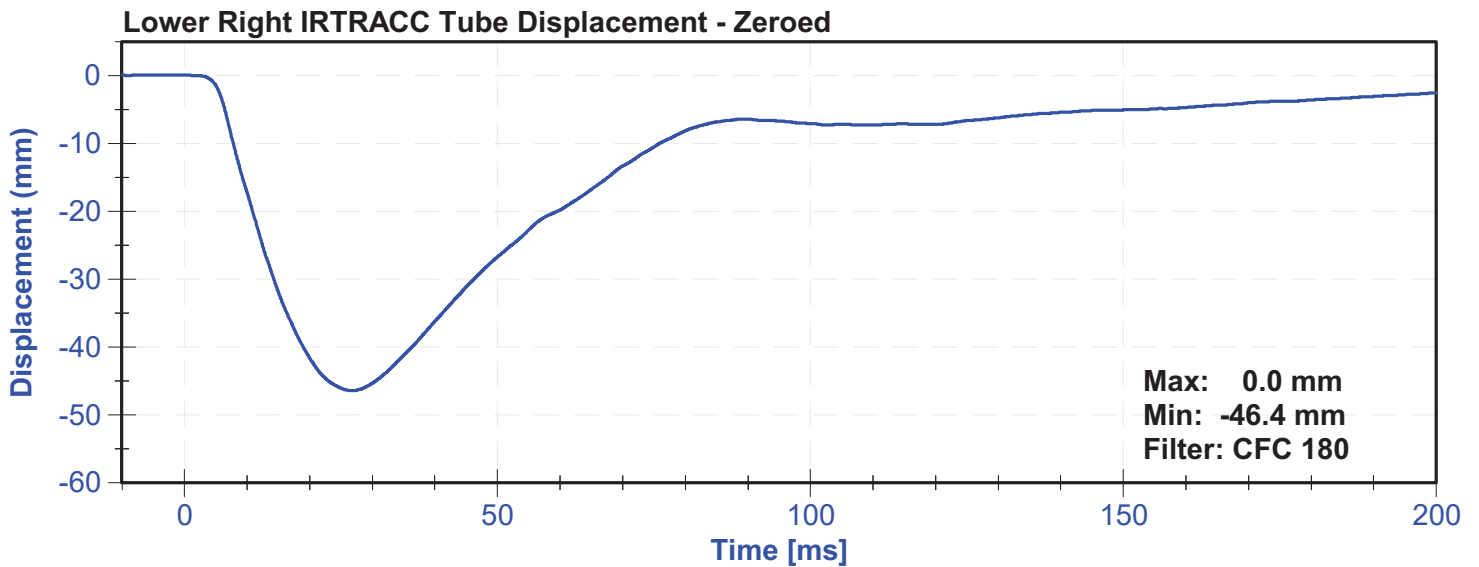
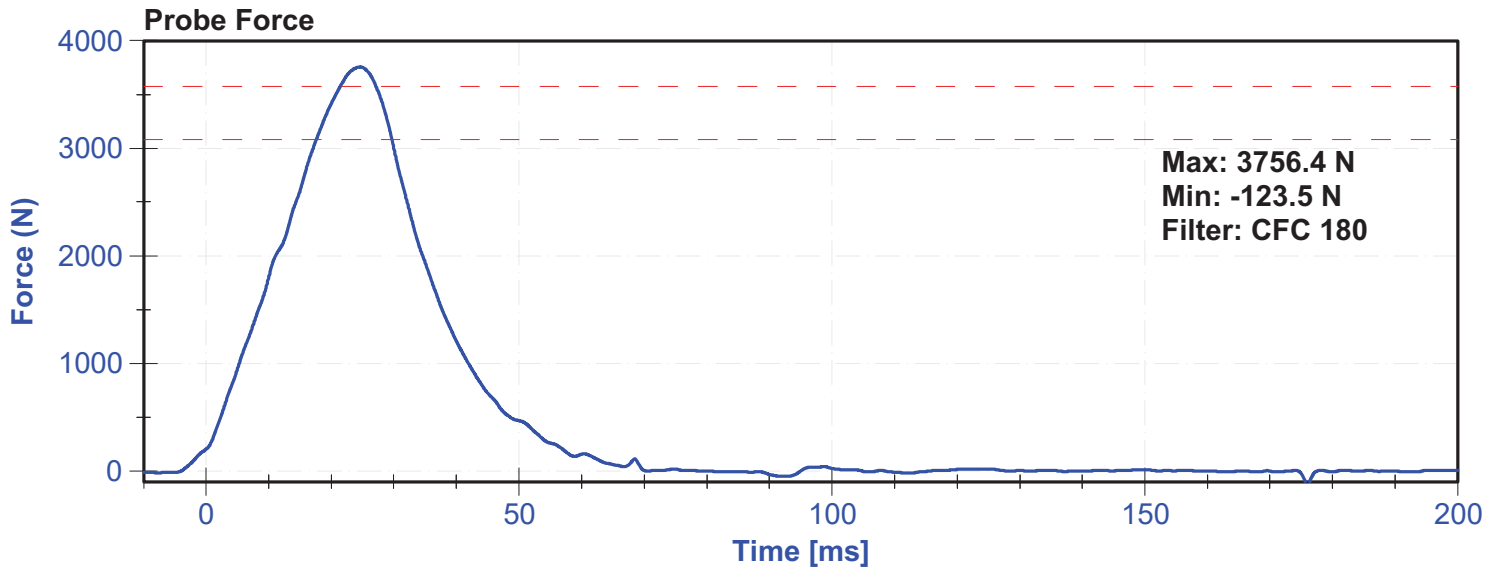
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	49.2	Pass
Impact Velocity	4.25	4.35	m/s	4.330	Pass
Peak Right X Rib Deflection	-54.5	-46.2	mm	-47.74	Pass
Probe Force during Peak Deflection	3083	3571	N	3756.4	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016
Lower Right IRTACC	Humanetics IF-364-C-R3	DS-DS6354	11/10/2015	11/9/2016
Lower Right Y Potentiometer	Humanetics 9945	DS-DM4776	4/7/2015	4/6/2016
Lower Right Z Potentiometer	Humanetics 9945	DS-DM4777	4/7/2015	4/6/2016

Lower Right Rib X Deflection





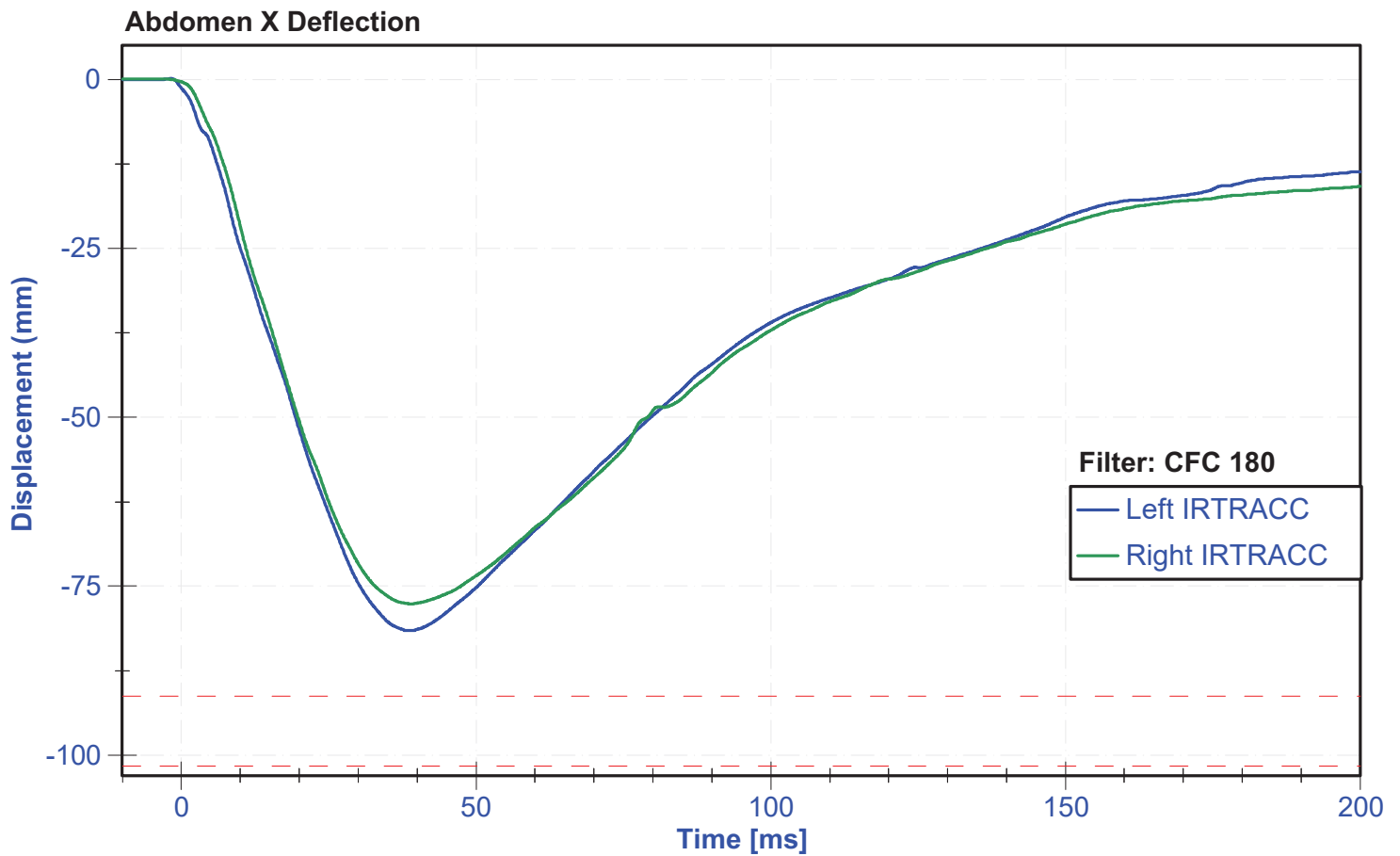
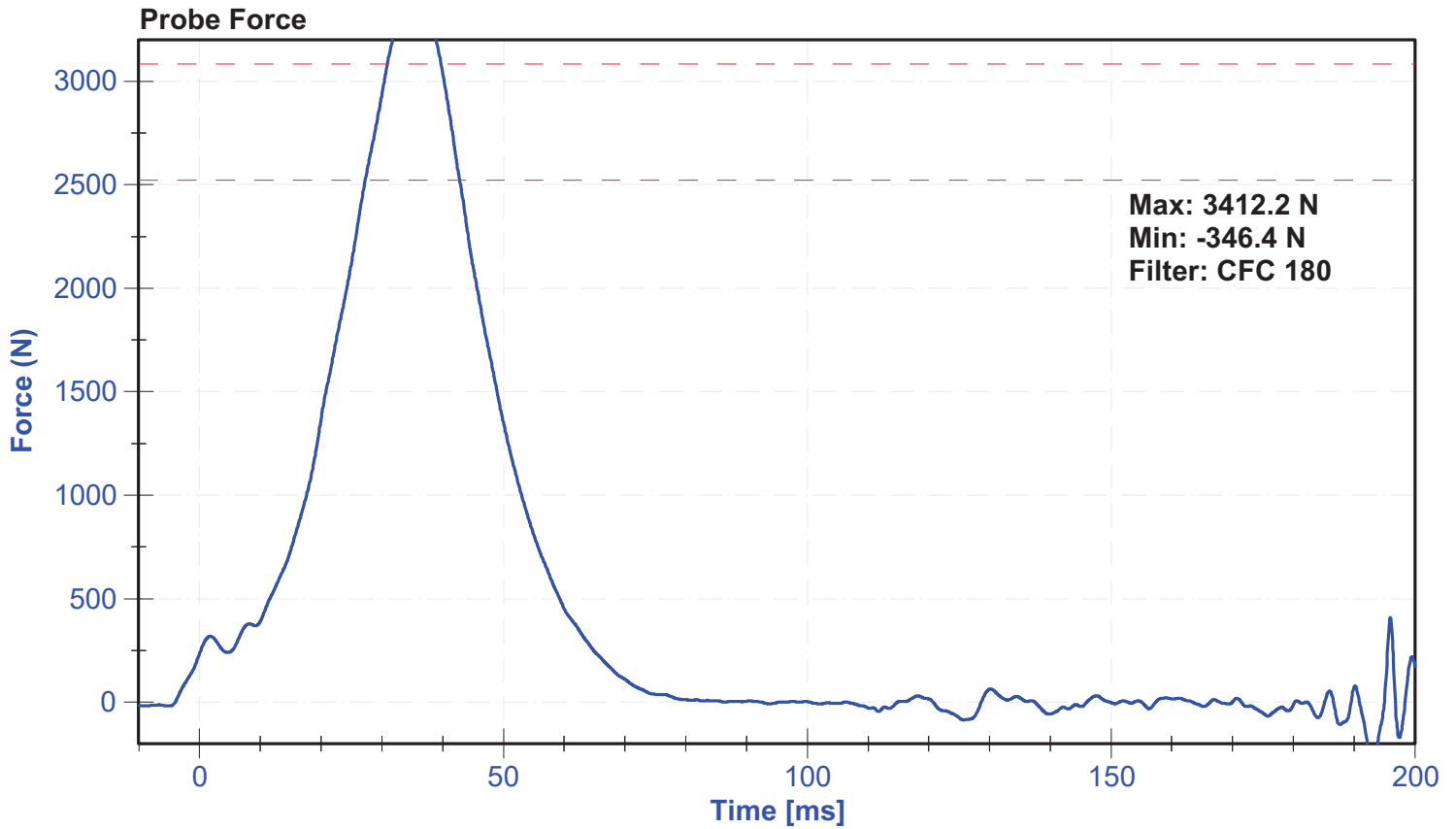
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

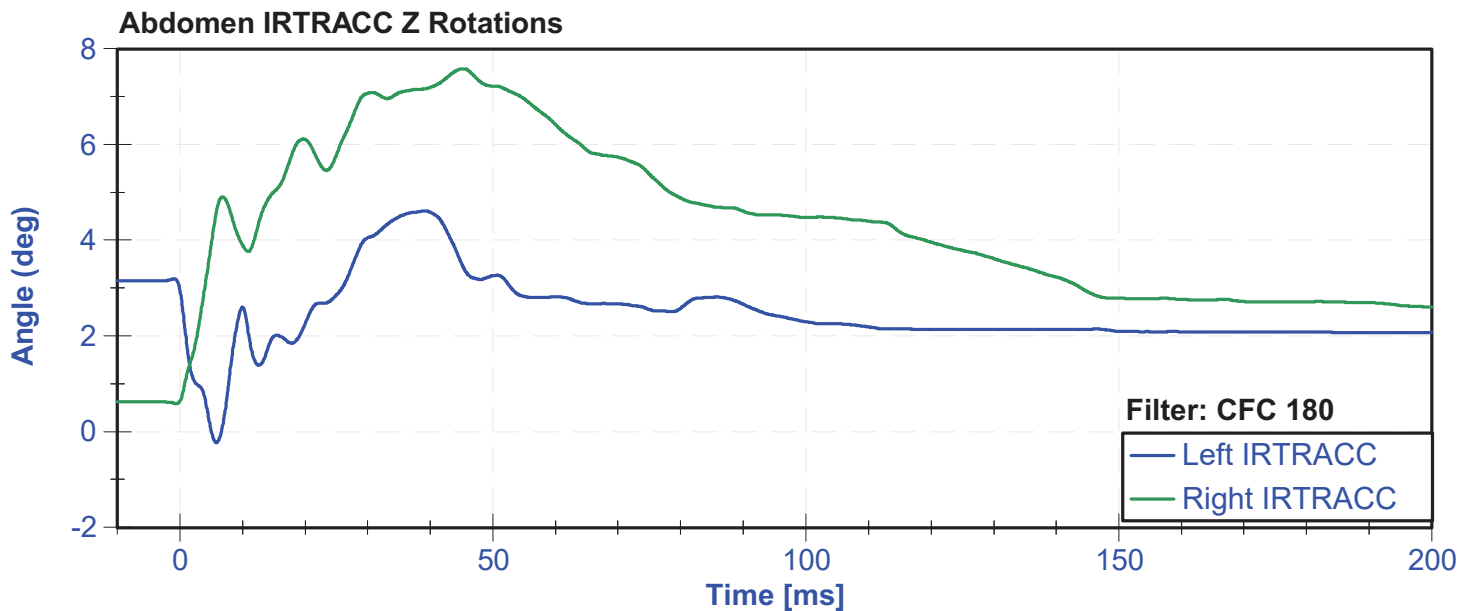
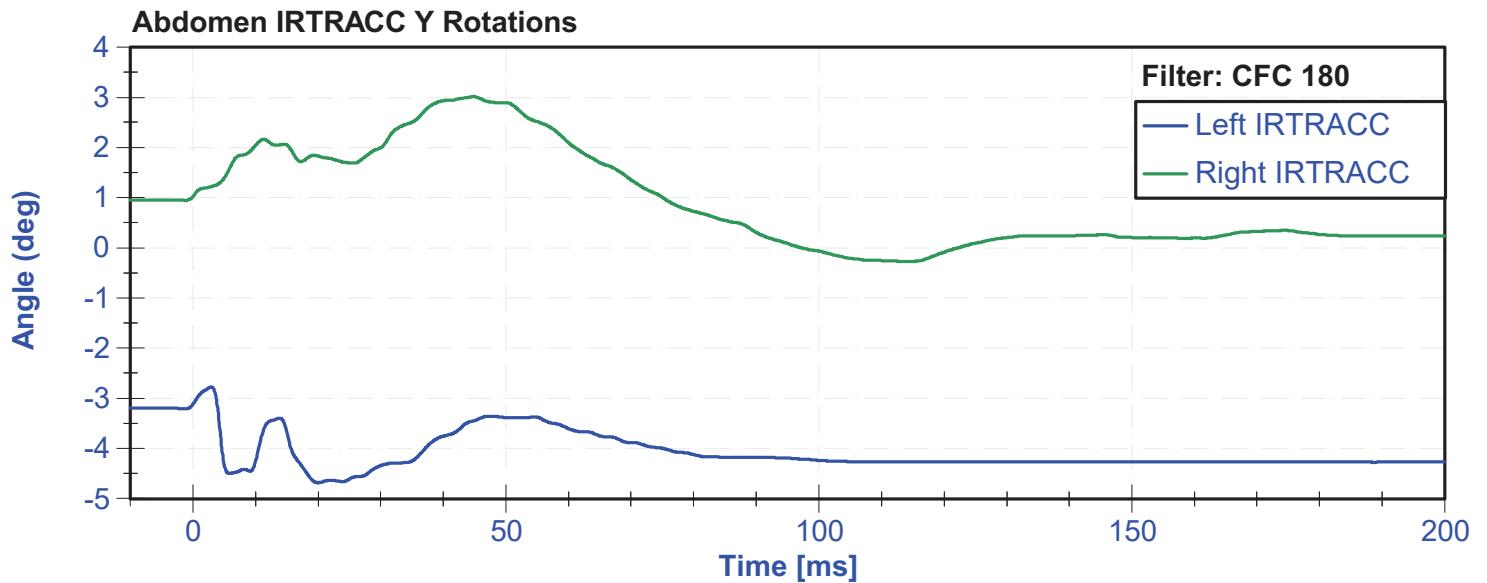
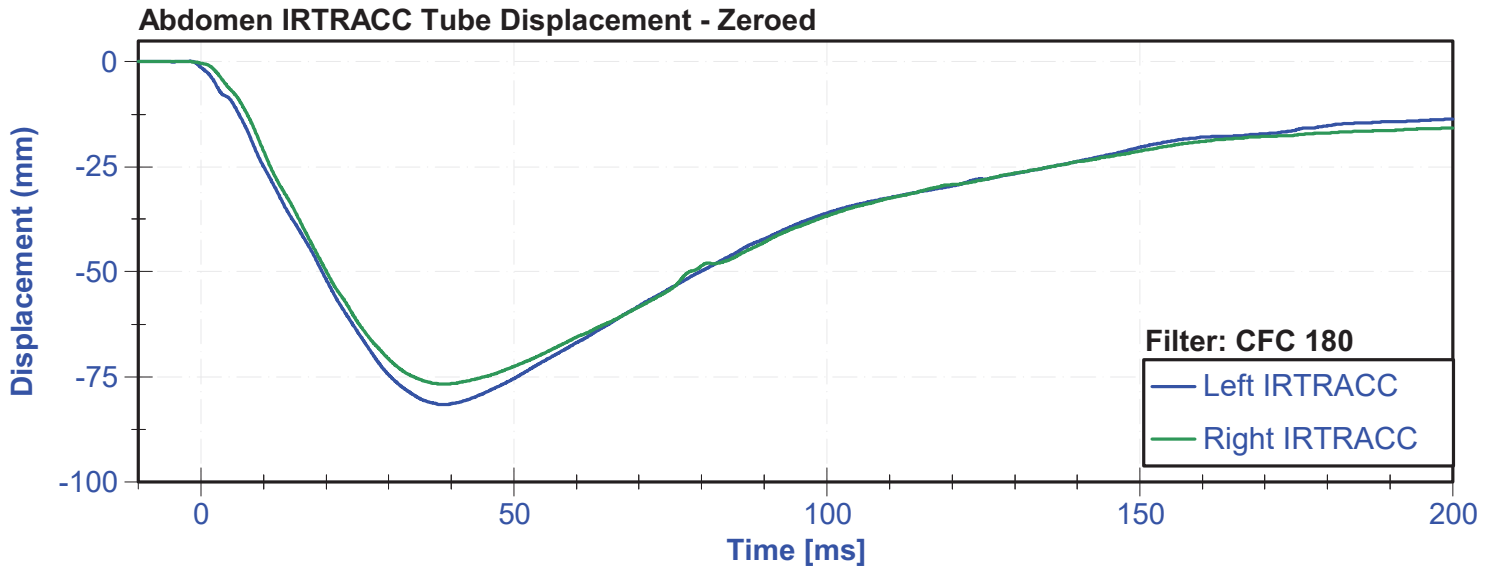
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	49.3	Pass
Impact Velocity	3.25	3.35	m/s	3.337	Pass
Probe Force	2523	3083	N	3412.2	Fail
Left Abdomen X Deflection	-101.6	-91.2	mm	-81.56	Fail
Right Abdomen X Deflection	-101.6	-91.2	mm	-77.57	Fail
Left/Right X Deviation	-7.00	7.00	mm	-3.991	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016
Abdomen Left IRTRACC	Humanetics 9910	DS-DQ2303	4/13/2015	4/12/2016
Abdomen Left Y Potentiometer	Humanetics 9945	DS-DS8363	12/16/2015	12/15/2016
Abdomen Left Z Potentiometer	Humanetics 9945	DS-DS8361	12/16/2015	12/15/2016





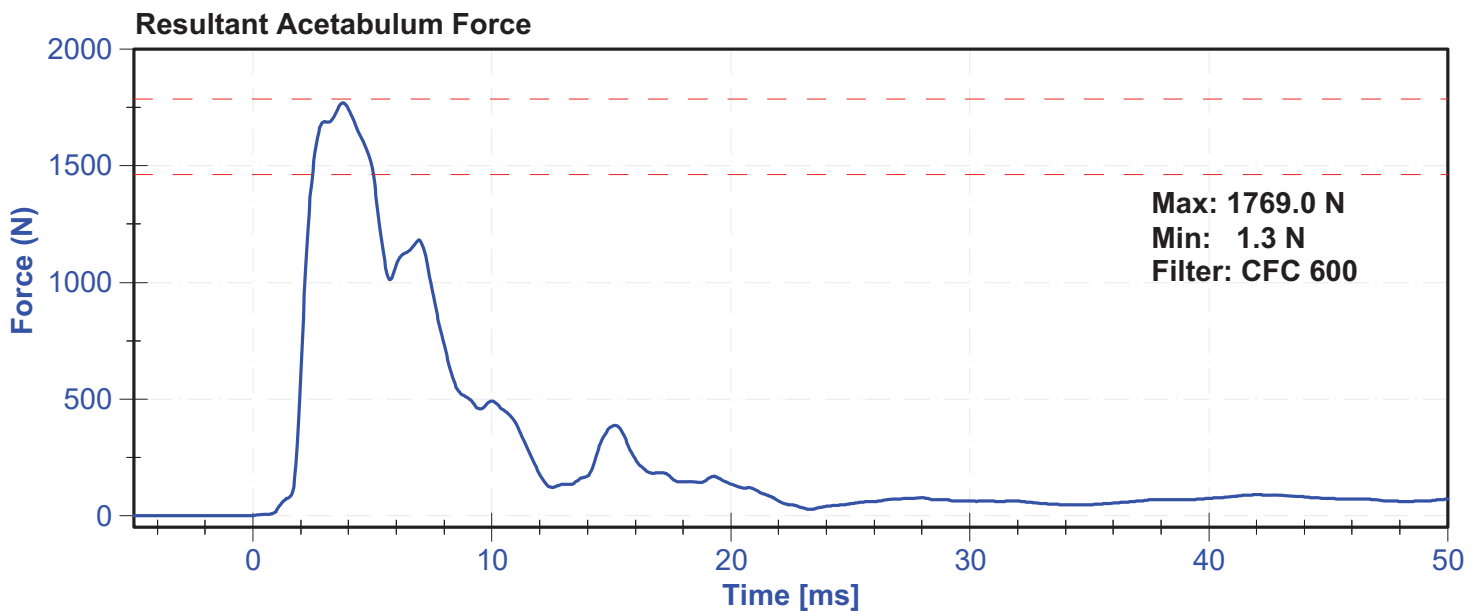
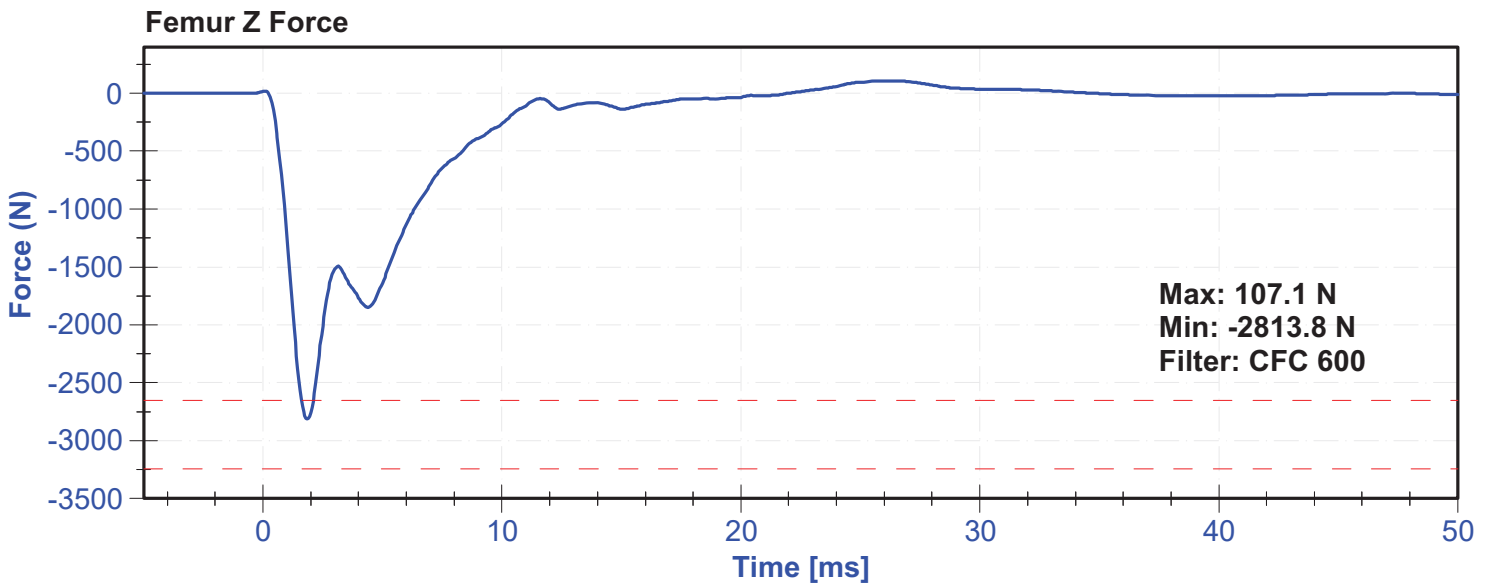
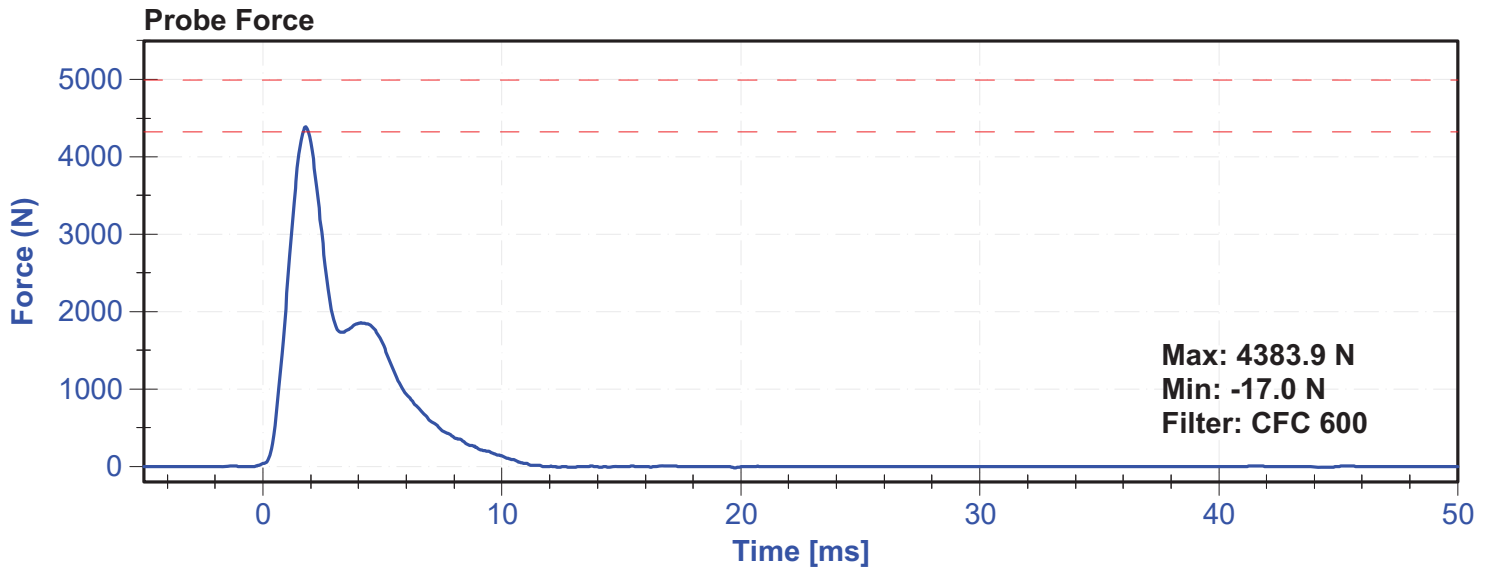
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.0	Pass
Humidity	10	70	%	41.3	Pass
Impact Velocity	2.55	2.65	m/s	2.612	Pass
Probe Force	4318	4989	N	4383.9	Pass
Peak Femur Z Force	-3241	-2652	N	-2813.80	Pass
Peak Resultant Acetabulum Force	1462	1787	N	1769.03	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016
Left Femur Load Cell	Denton W50-7101051	LC-DM4975 Fz	2/20/2016	2/19/2017
Left Acetabulum Load Cell	Humanetics 10530JI4	LC-DP4639 Fx	3/6/2016	3/6/2017



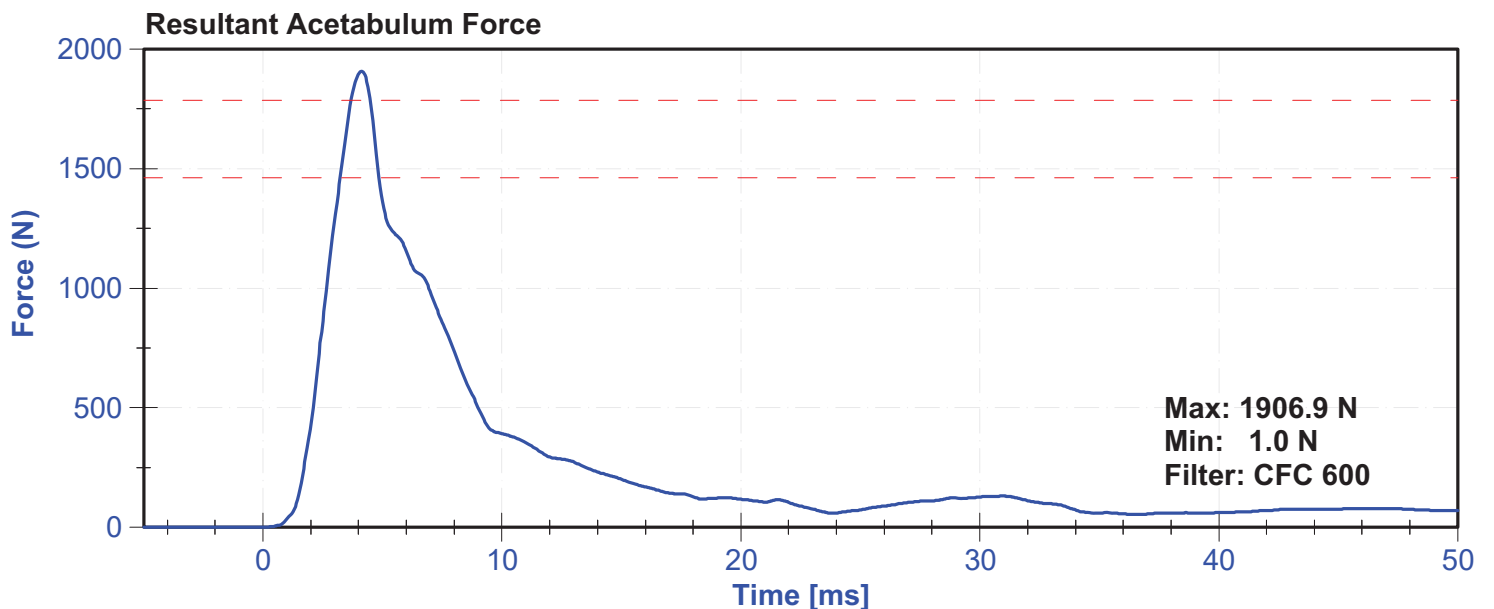
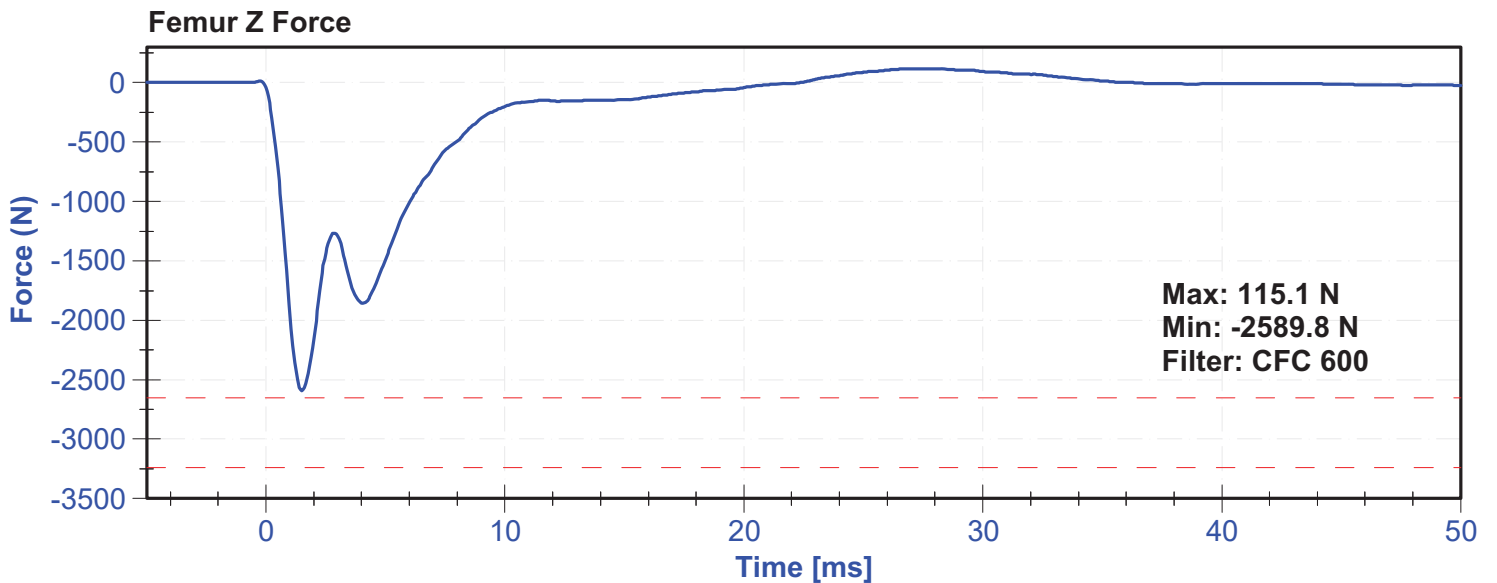
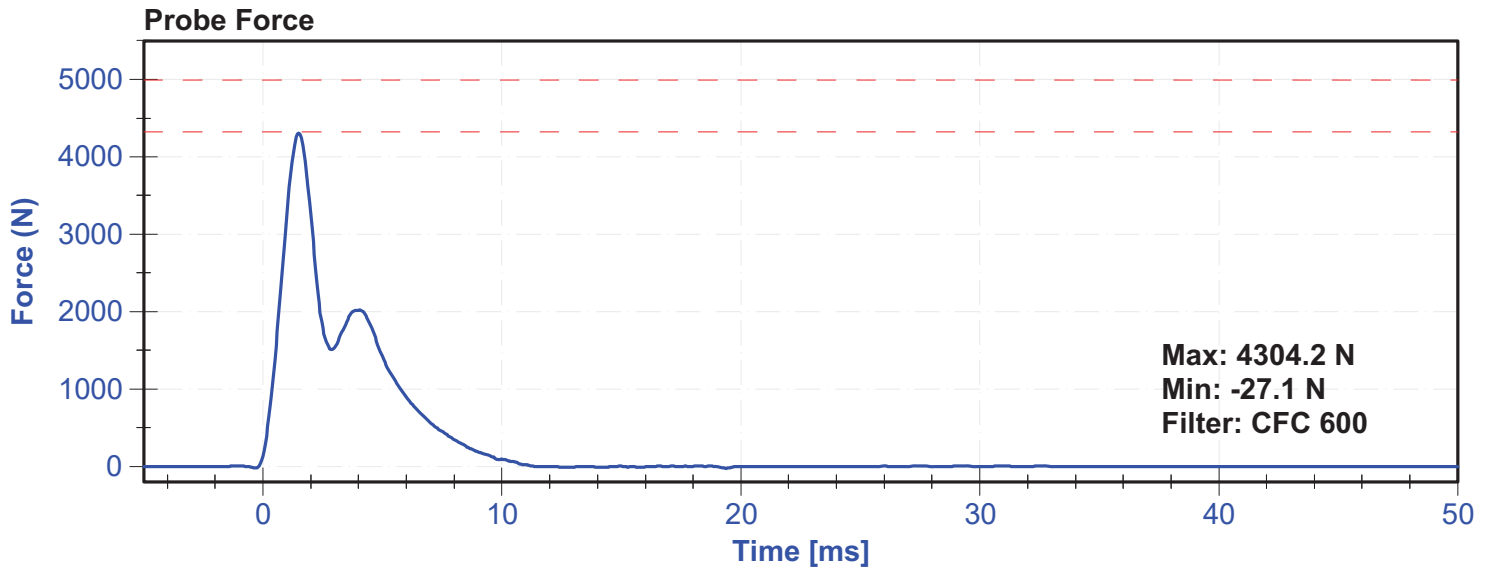
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.7	Pass
Humidity	10	70	%	40.0	Pass
Impact Velocity	2.55	2.65	m/s	2.598	Pass
Probe Force	4318	4989	N	4304.2	Fail
Peak Femur Z Force	-3241	-2652	N	-2589.84	Fail
Peak Resultant Acetabulum Force	1462	1787	N	1906.90	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016
Left Femur Load Cell	Denton W50-7101051	LC-DM4976 Fz	2/23/2016	2/22/2017
Left Acetabulum Load Cell	Humanetics 10670JI4	LC-DP3835 Fx	3/7/2016	3/7/2017



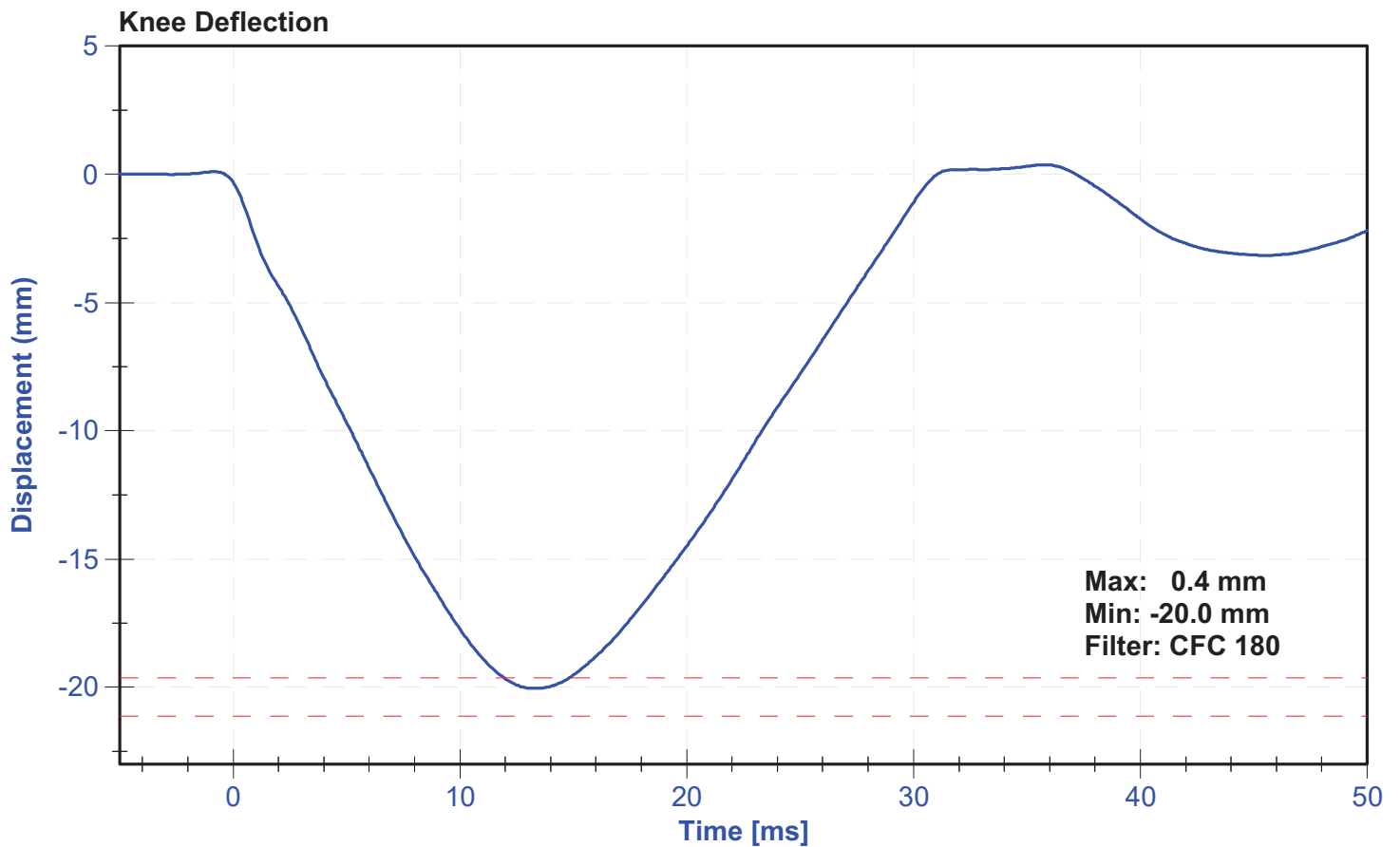
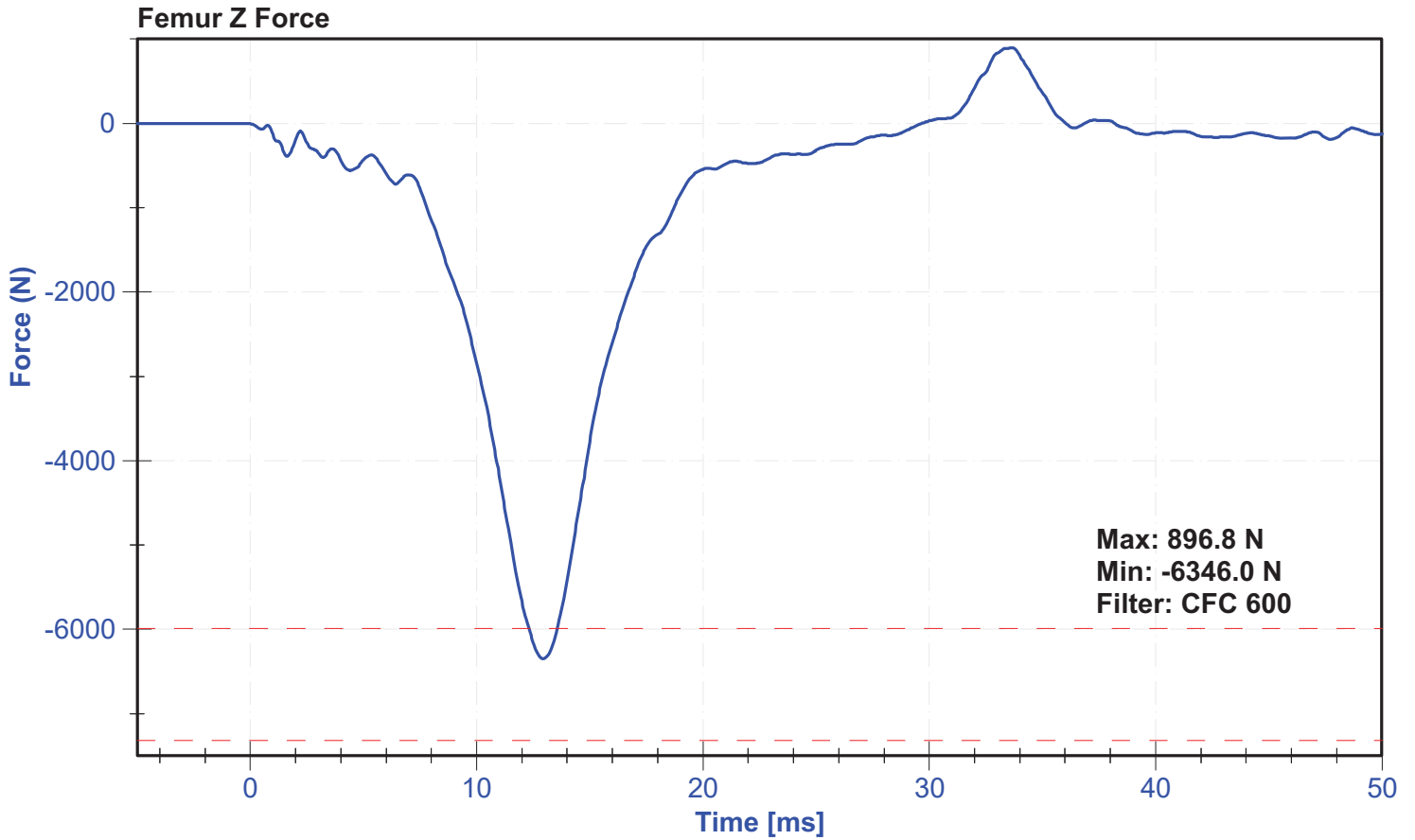
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	37.4	Pass
Impact Velocity	2.15	2.25	m/s	2.248	Pass
Peak Femur Z Force	-7317	-5987	N	-6346.0	Pass
Knee Deflection at Peak Force	-21.12	-19.62	mm	-20.05	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016
Femur Load Cell	Denton W50-7101051	LC-DM4975 Fz	2/20/2016	2/19/2017
Knee Potentiometer	Space Age 150-0121V	DS-C2102639B	2/17/2016	2/16/2017



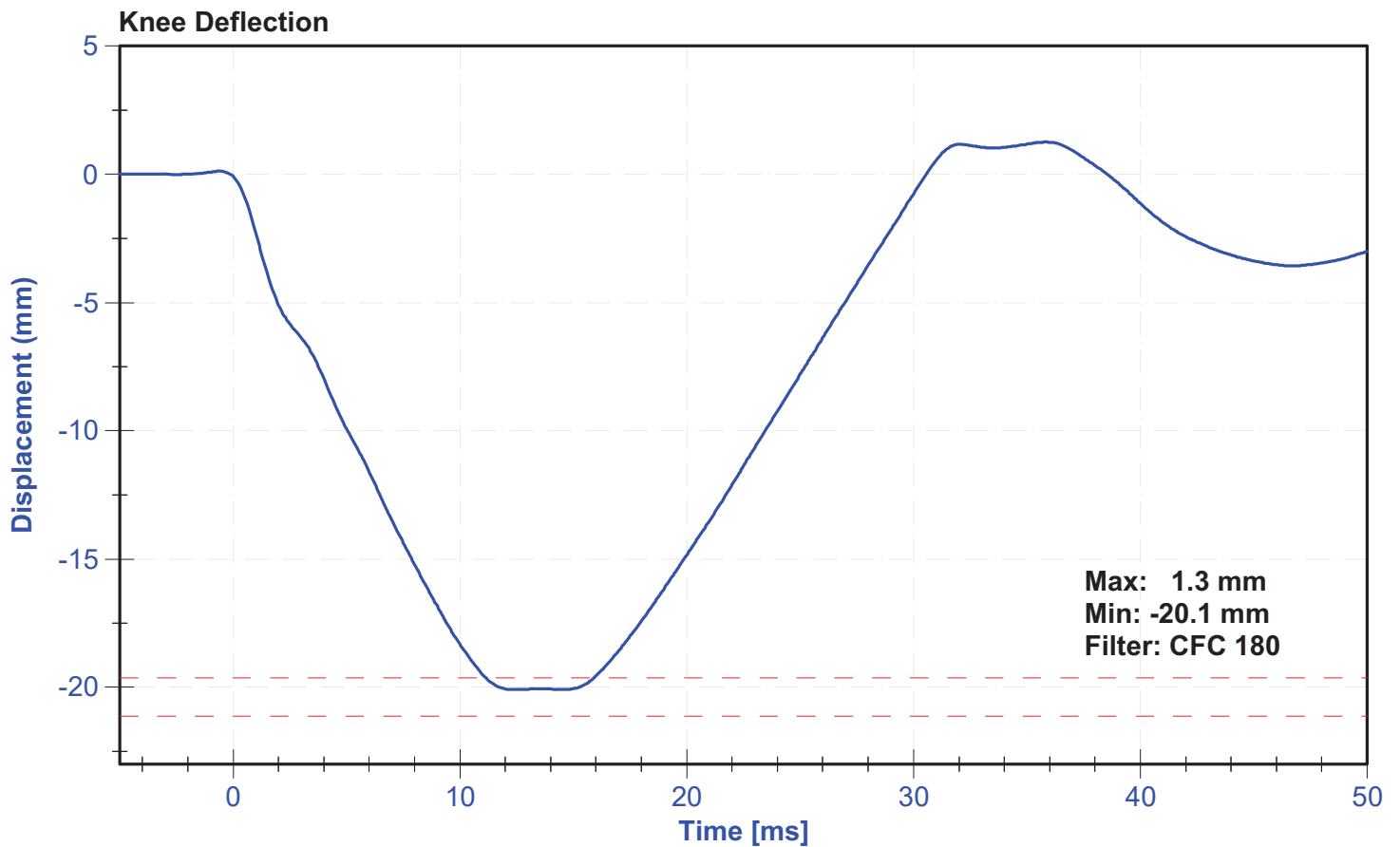
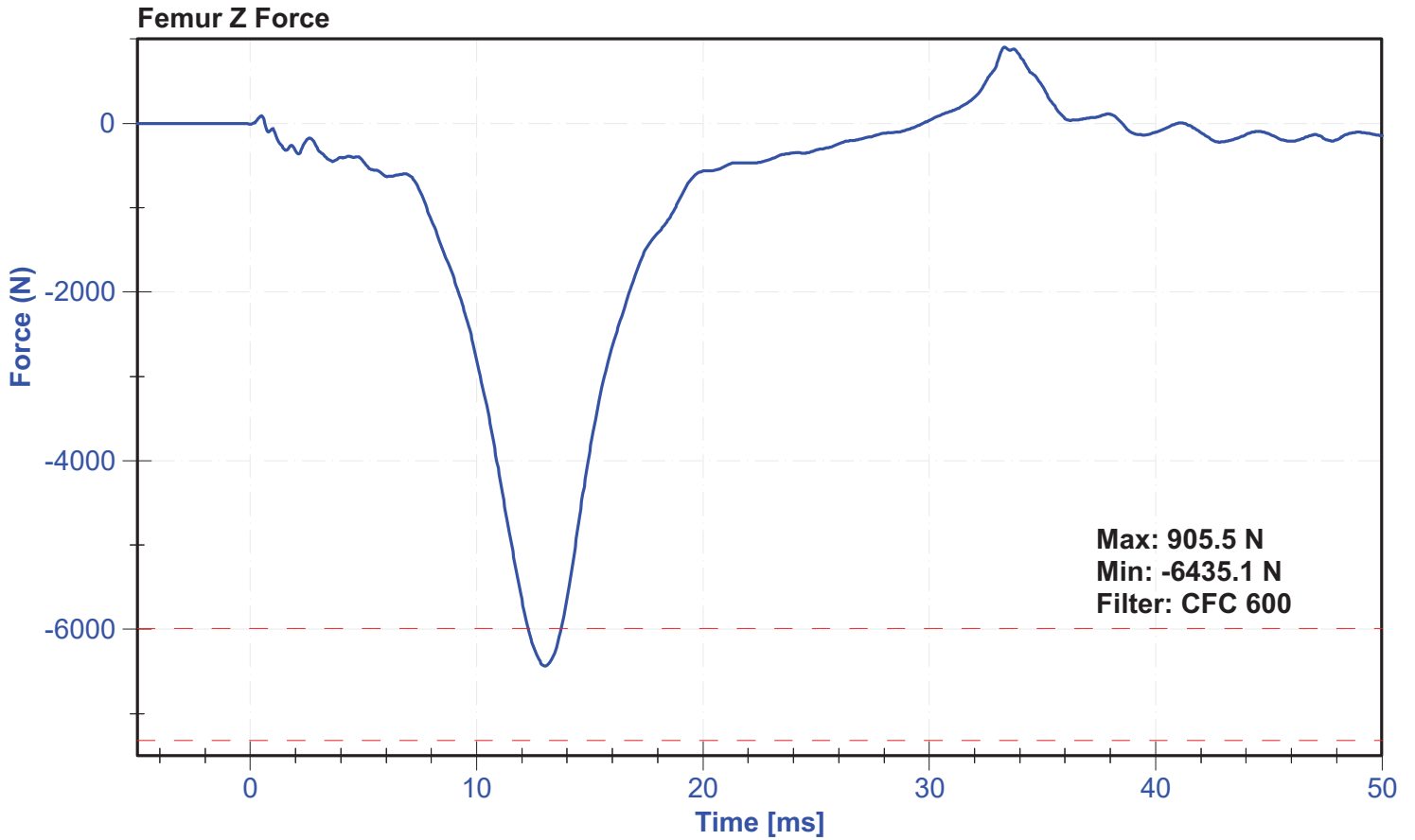
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	41.5	Pass
Impact Velocity	2.15	2.25	m/s	2.243	Pass
Peak Femur Z Force	-7317	-5987	N	-6435.1	Pass
Knee Deflection at Peak Force	-21.12	-19.62	mm	-20.09	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Probe Accel	ENDEVCO 7264CT	AC-P23155	1/13/2016	7/14/2016
Femur Load Cell	Denton W50-7101051	LC-DM4976 Fz	2/23/2016	2/22/2017
Knee Potentiometer	Space Age 150-0121VL	DS-021033	3/18/2015	3/17/2016



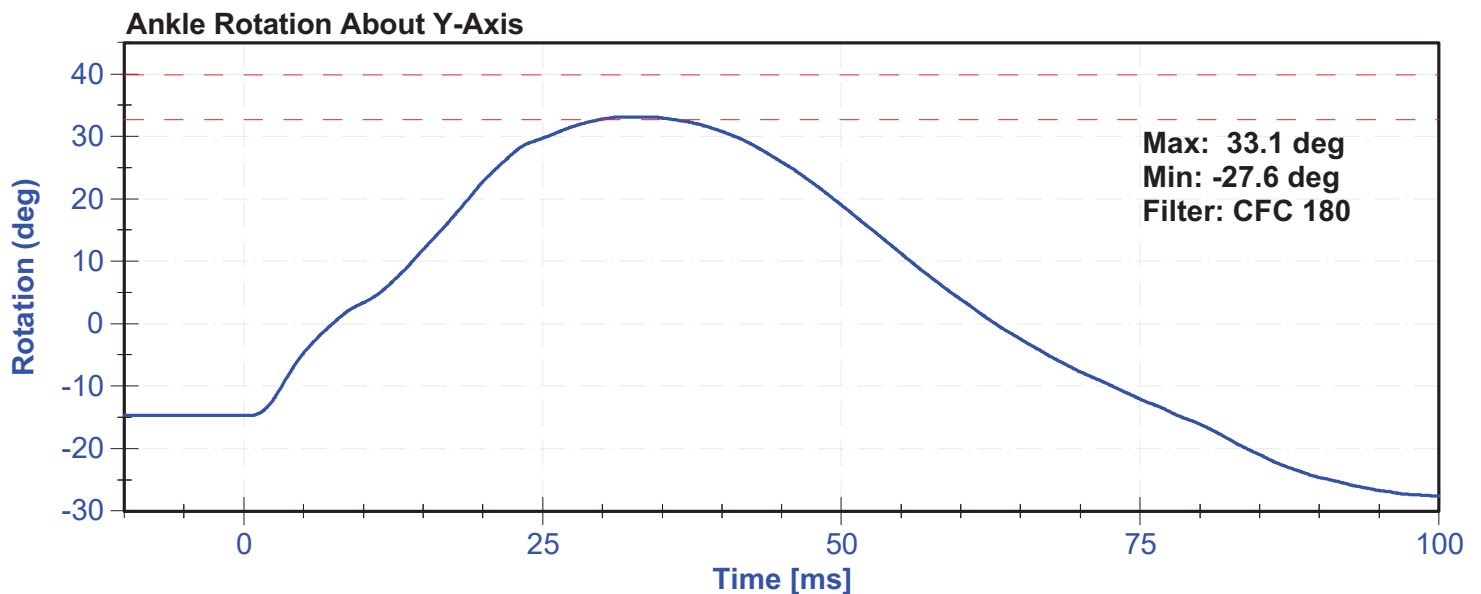
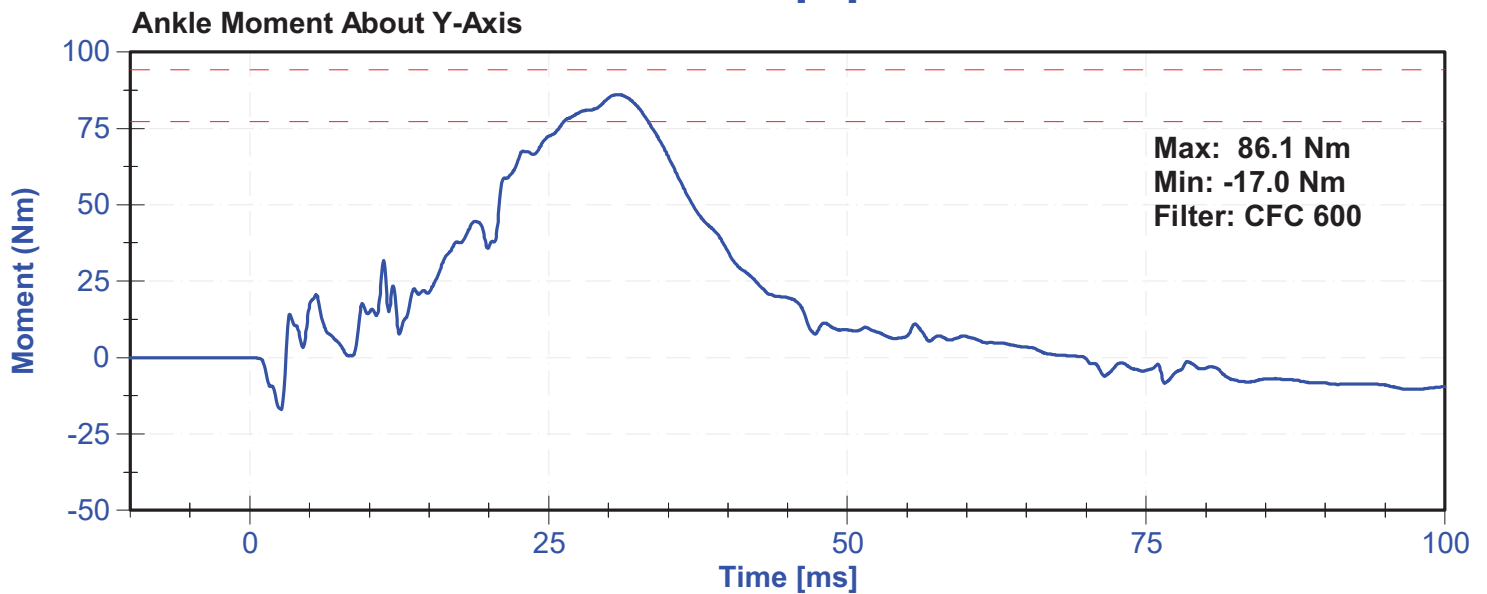
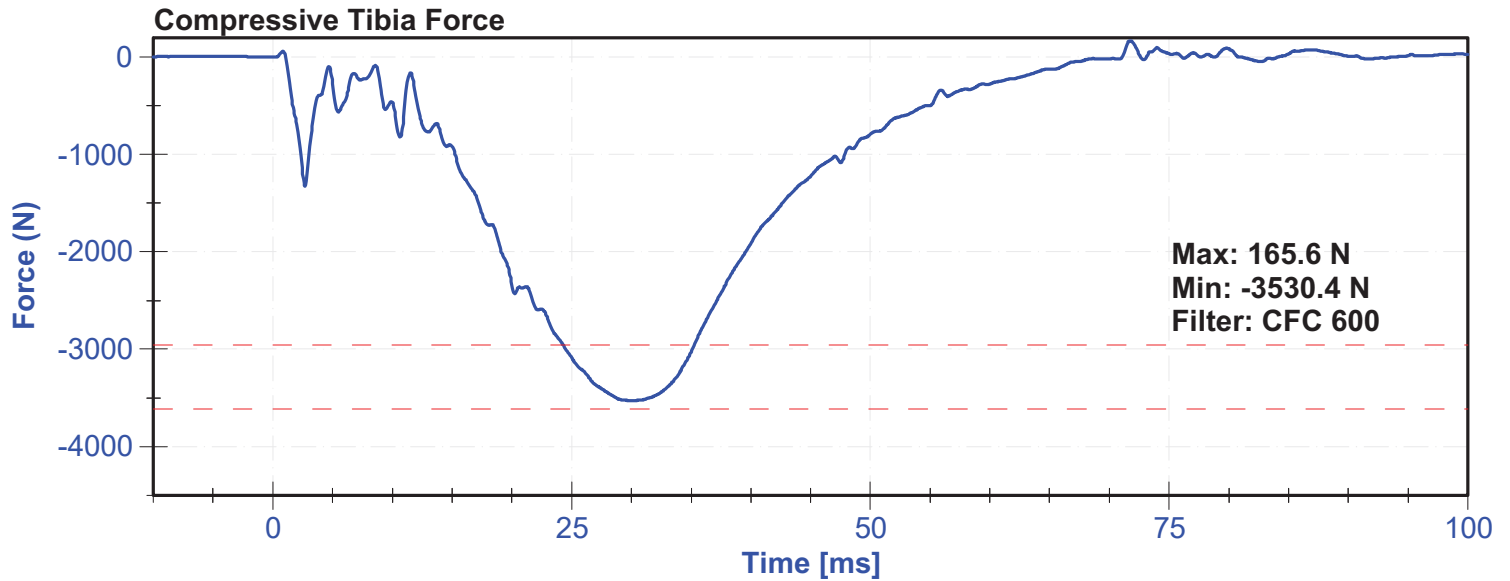
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	38.7	Pass
Velocity	4.9	5.1	m/s	4.961	Pass
Lower Tibia Compressive Force	-3613	-2956	N	-3530.4	Pass
Peak Moment about Y-Axis	77.1	94.2	Nm	86.10	Pass
Peak Rotation about Y-Axis	32.7	39.9	deg	33.05	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 4929J	LC-121 Fz	2/10/2016	2/9/2017
Ankle Y Potentiometer	Contelec PD210-4B	DS-0524	2/18/2016	2/17/2017



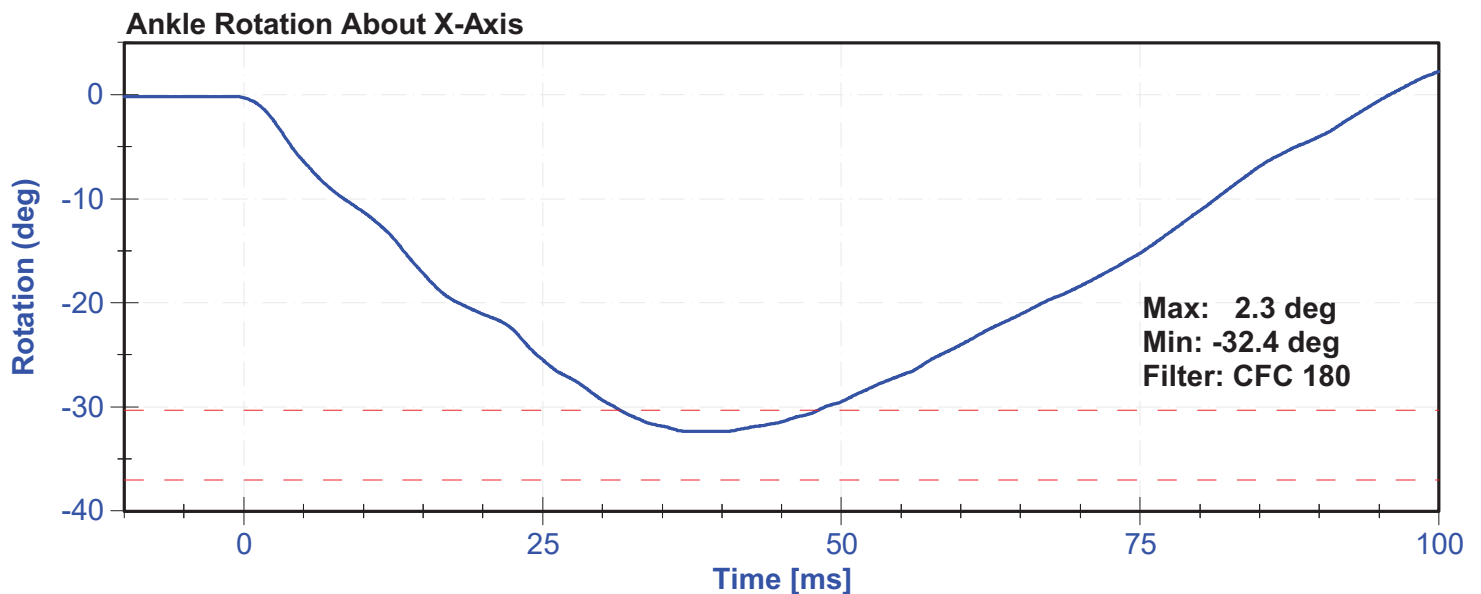
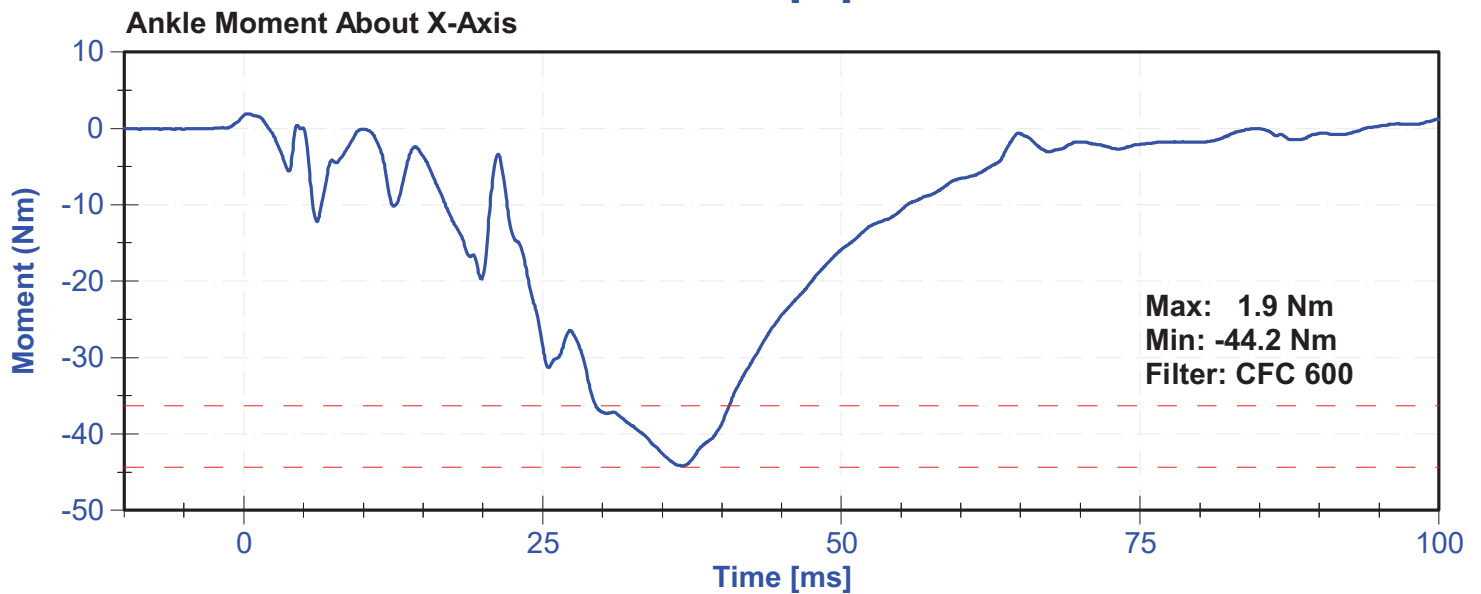
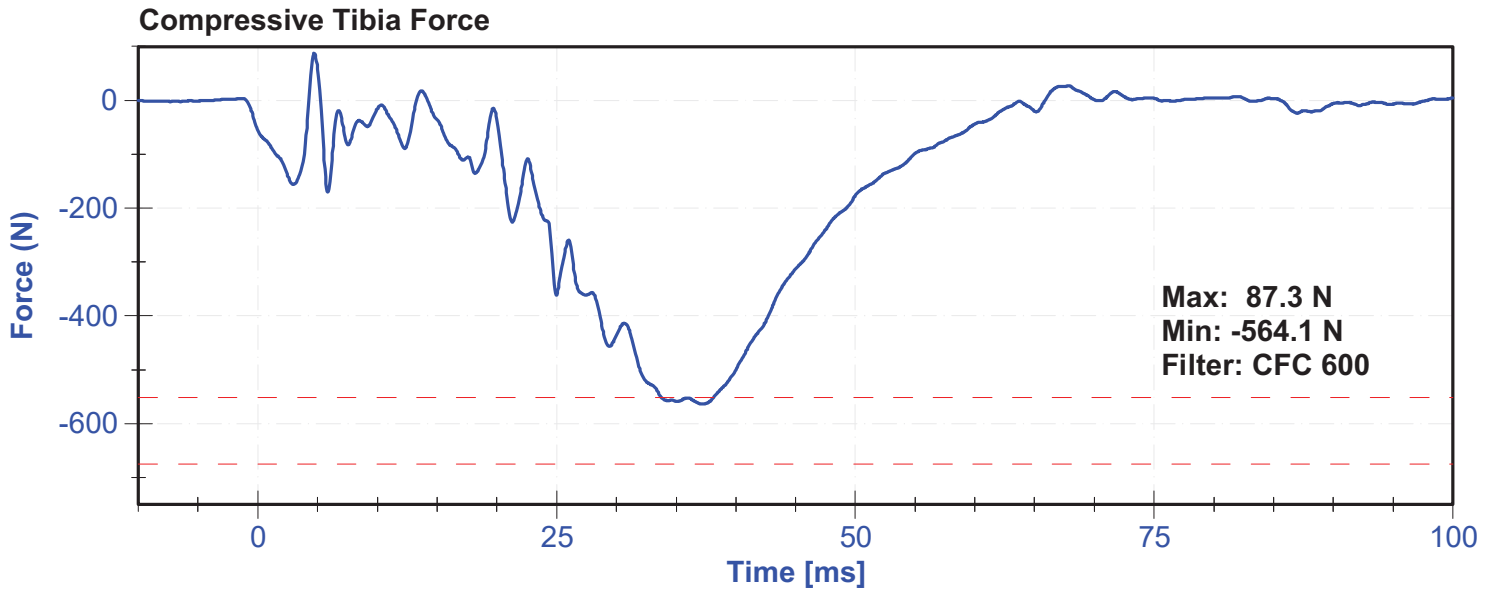
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	38.9	Pass
Velocity	1.9	2.1	m/s	1.924	Pass
Lower Tibia Compressive Force	-675	-552	N	-564.1	Pass
Peak Moment about X-Axis	-44.4	-36.3	Nm	-44.18	Pass
Peak Rotation about X-Axis	-37.0	-30.3	deg	-32.37	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 4929J	LC-121 Fz	2/10/2016	2/9/2017
Ankle Y Potentiometer	Contelec PD210-4B	DS-0525	2/18/2016	2/17/2017



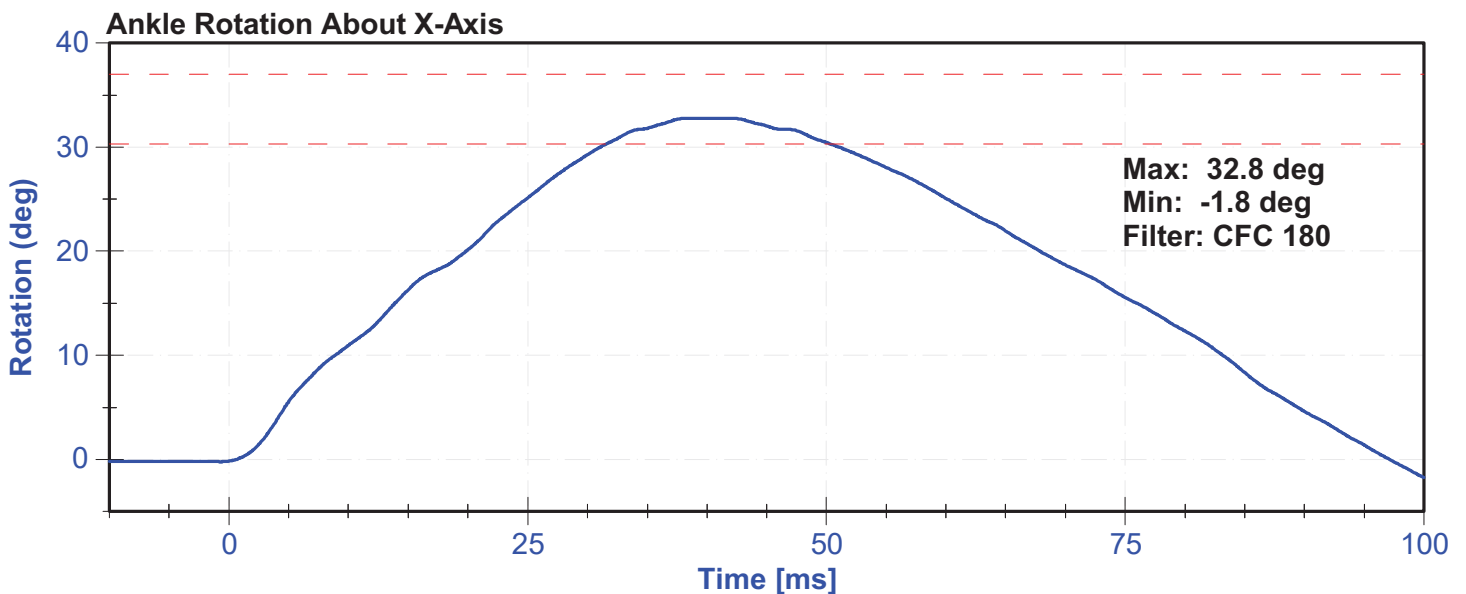
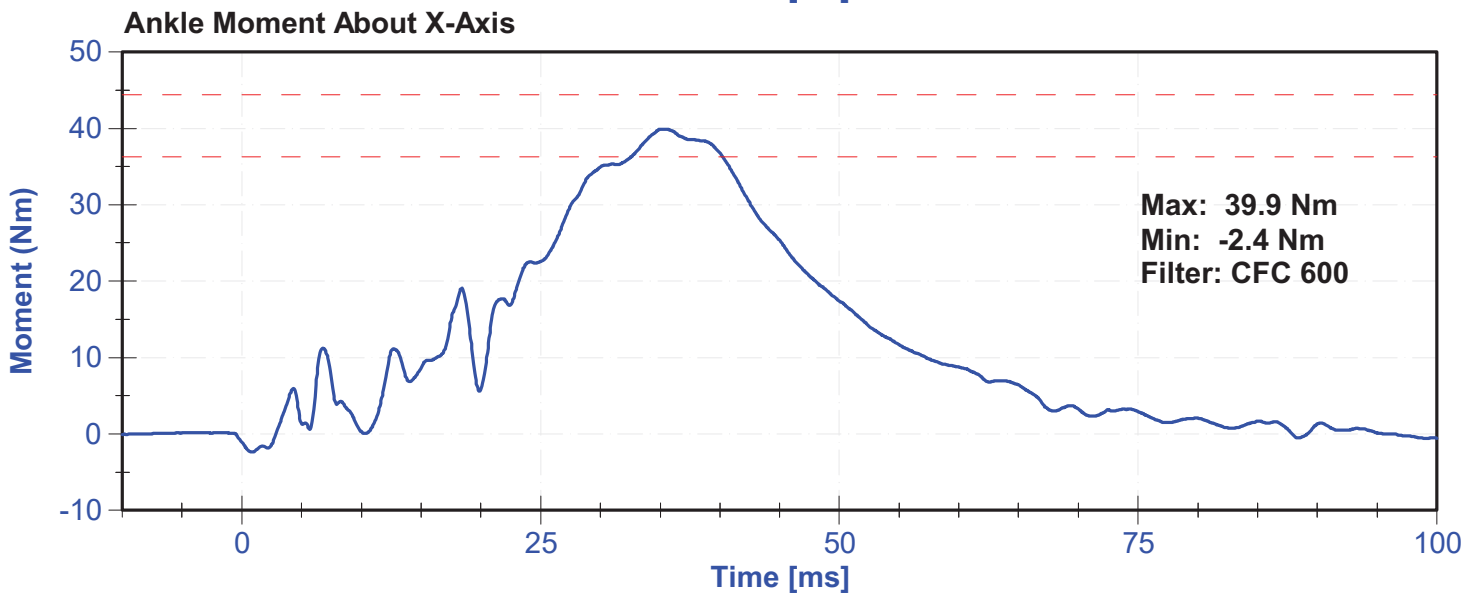
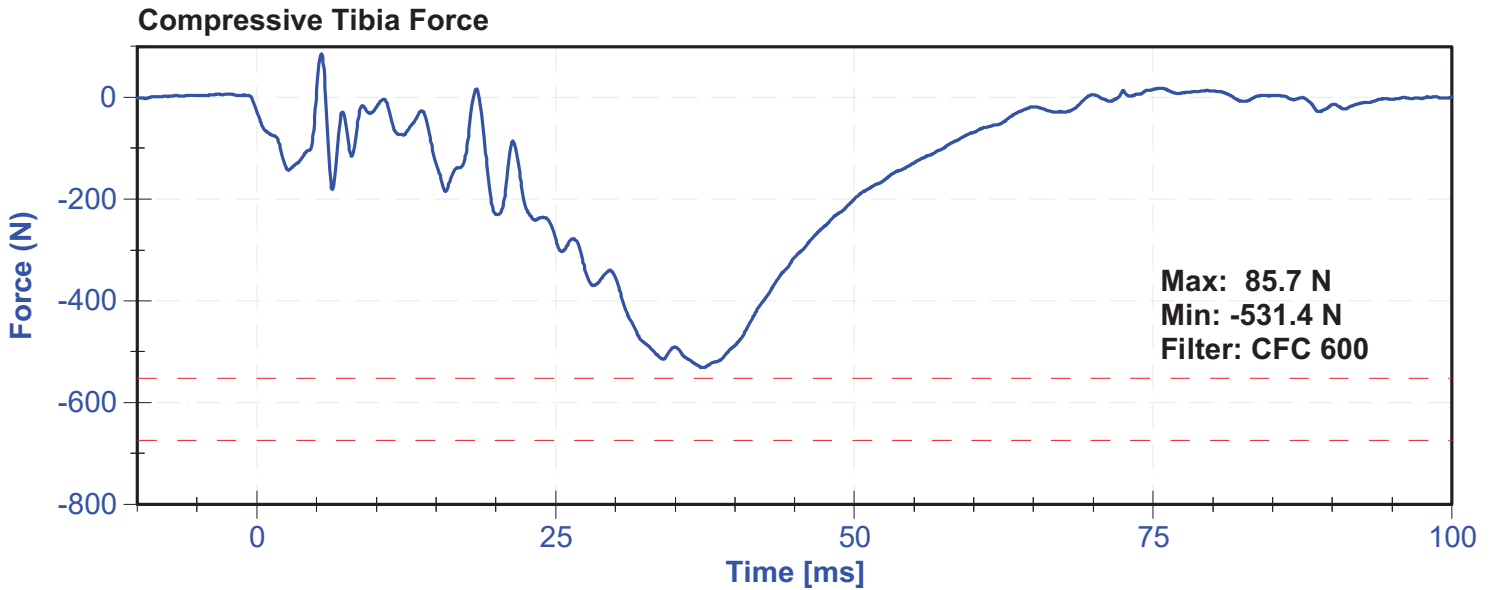
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	38.6	Pass
Velocity	1.9	2.1	m/s	1.991	Pass
Lower Tibia Compressive Force	-675	-552	N	-531.4	Fail
Peak Moment about X-Axis	36.3	44.4	Nm	39.90	Pass
Peak Rotation about X-Axis	30.3	37.0	deg	32.77	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 4929J	LC-121 Fz	2/10/2016	2/9/2017
Ankle Y Potentiometer	Contelec PD210-4B	DS-0525	2/18/2016	2/17/2017



ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

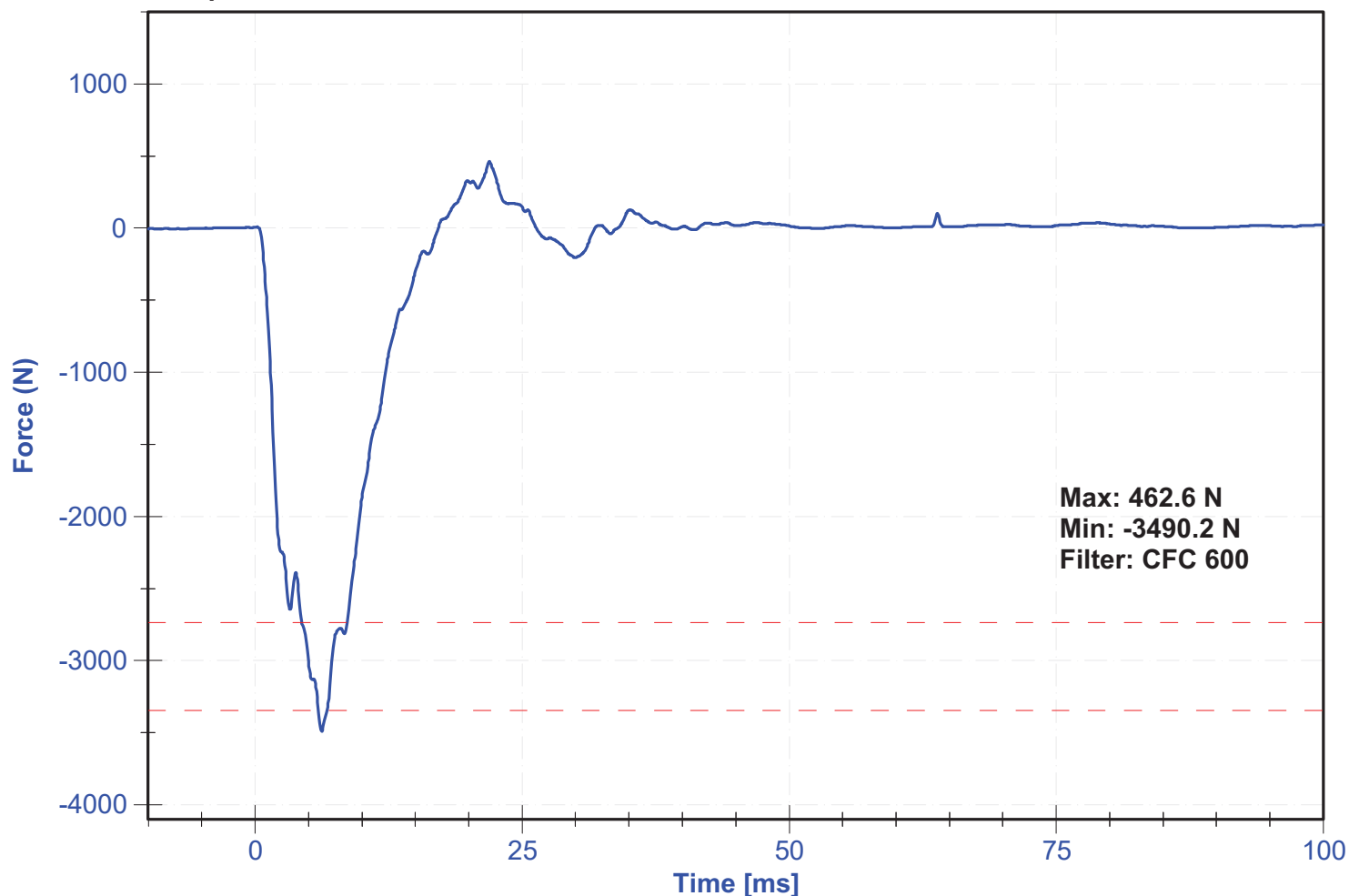
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.2	Pass
Humidity	10	70	%	38.5	Pass
Velocity	3.9	4.1	m/s	3.920	Pass
Lower Tibia Compressive Force	-3346	-2738	N	-3490.2	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 4929J	LC-121 Fz	2/10/2016	2/9/2017

Compressive Tibia Force



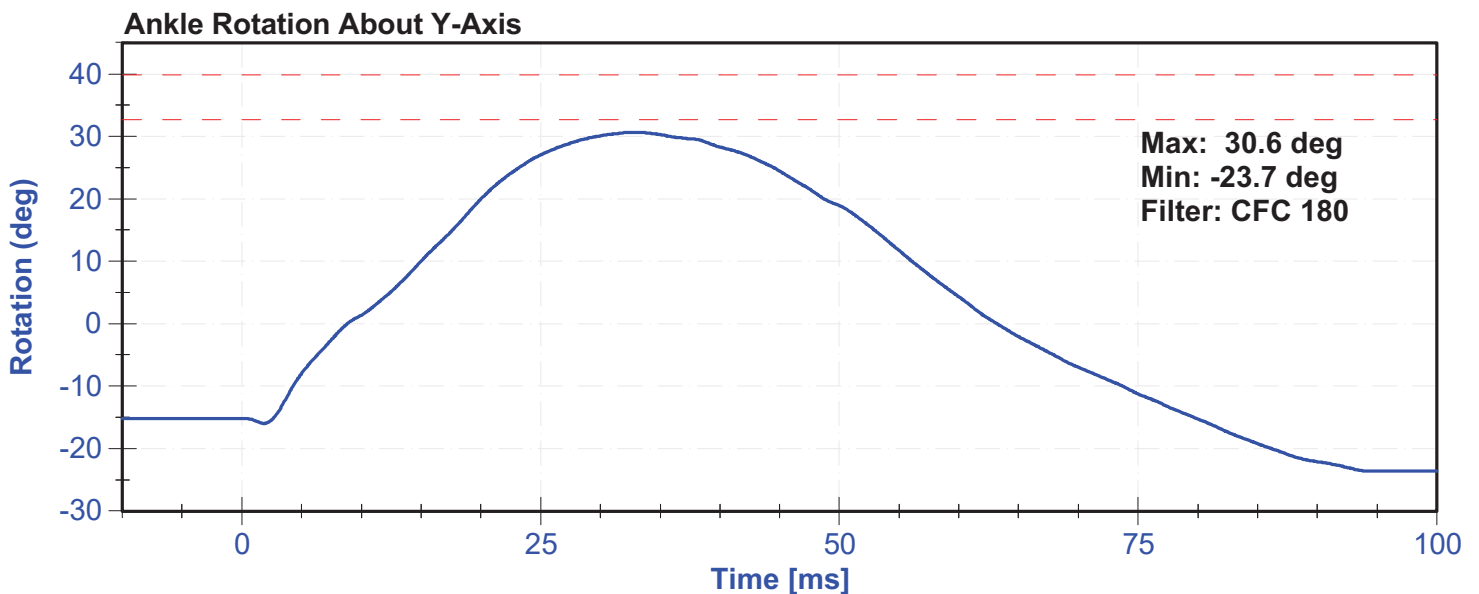
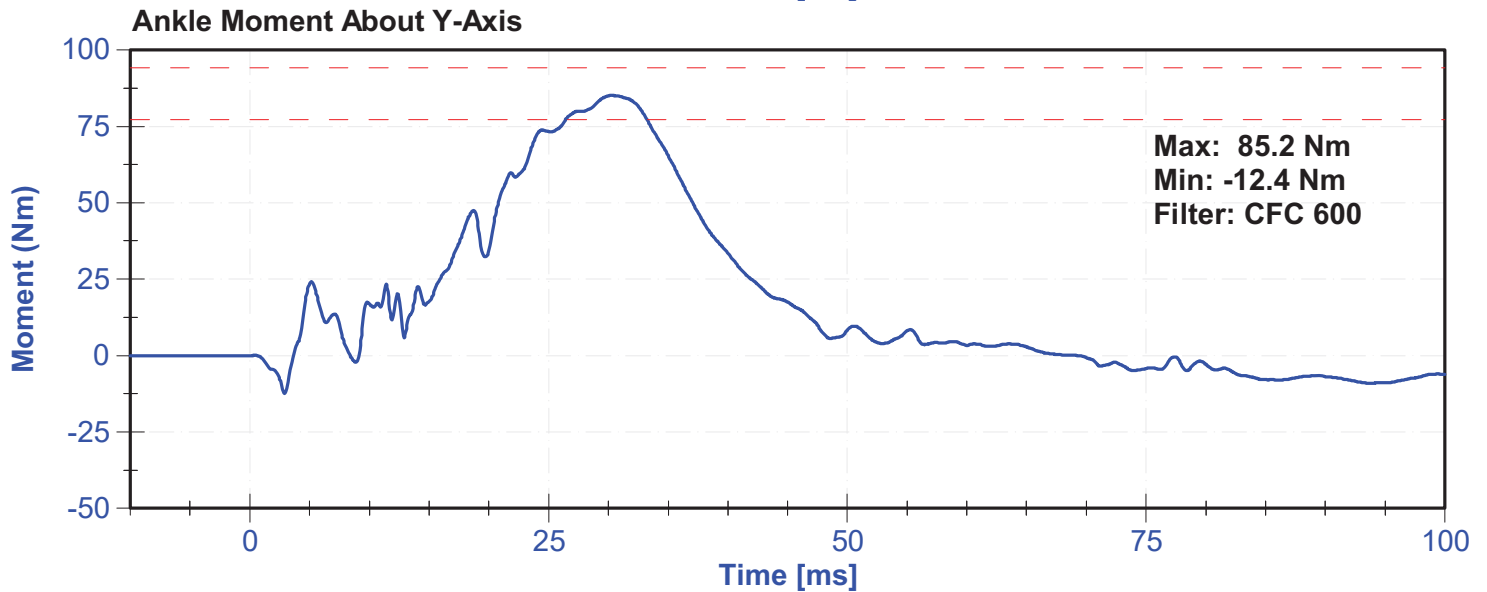
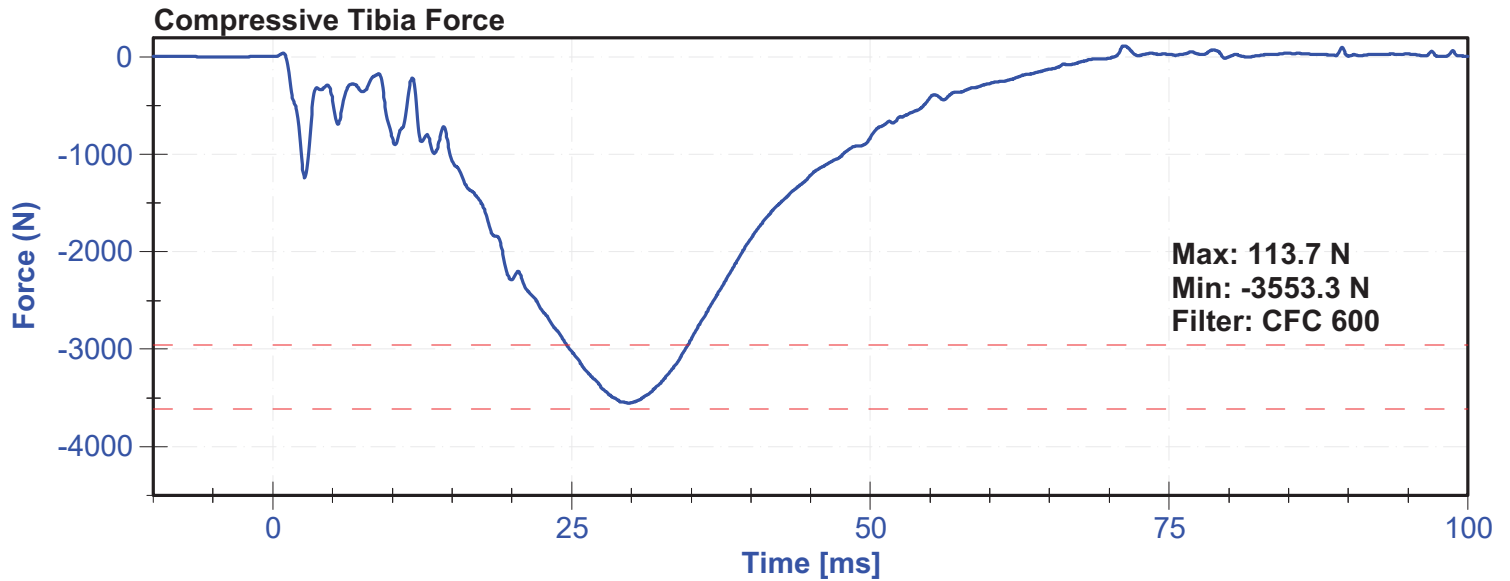
ATD Manufacturer	Humanertics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	40.5	Pass
Velocity	4.9	5.1	m/s	4.961	Pass
Lower Tibia Compressive Force	-3613	-2956	N	-3553.3	Pass
Peak Moment about Y-Axis	77.1	94.2	Nm	85.20	Pass
Peak Rotation about Y-Axis	32.7	39.9	deg	30.58	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 4929J	LC-166 Fz	2/9/2016	2/8/2017
Ankle Y Potentiometer	Contelec PD210-4B	DS-0526	2/19/2016	2/18/2017



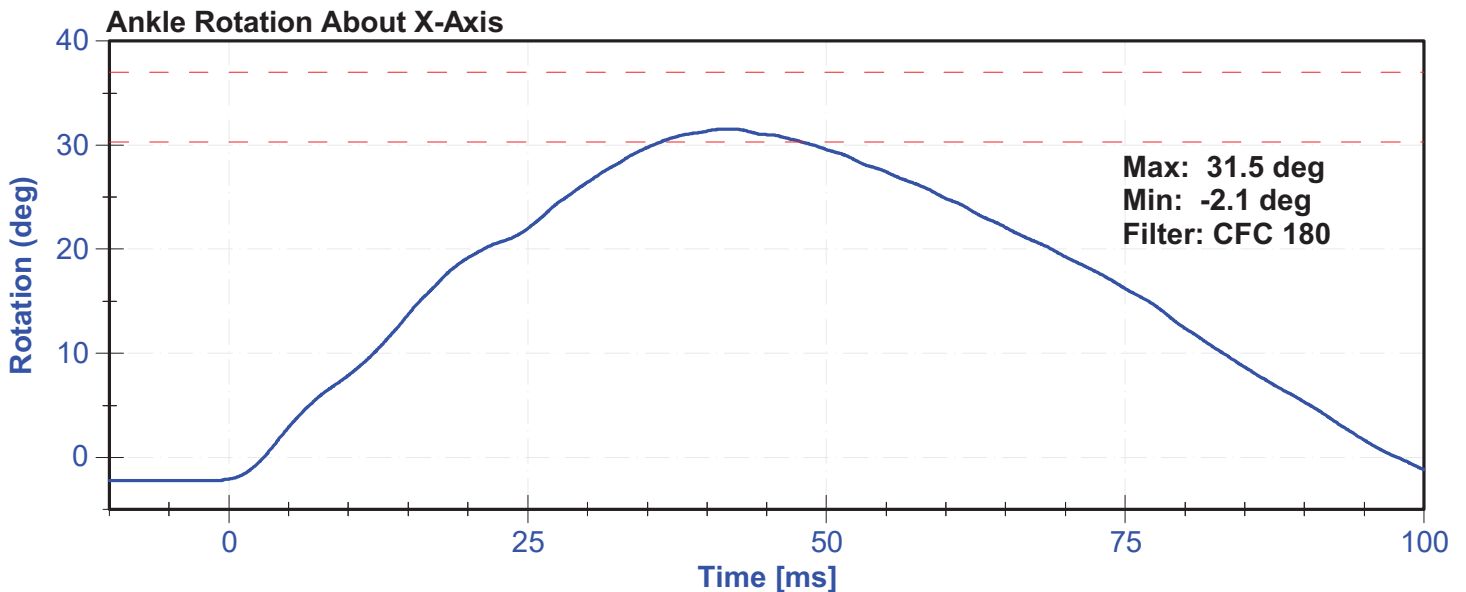
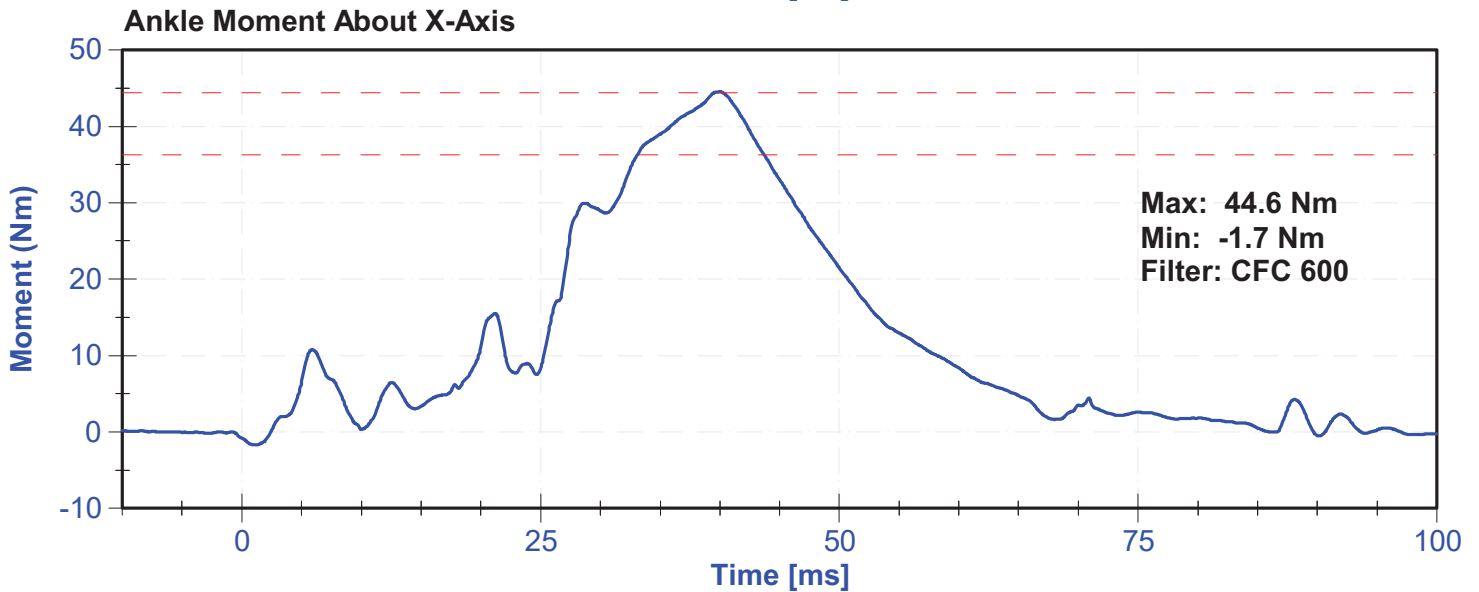
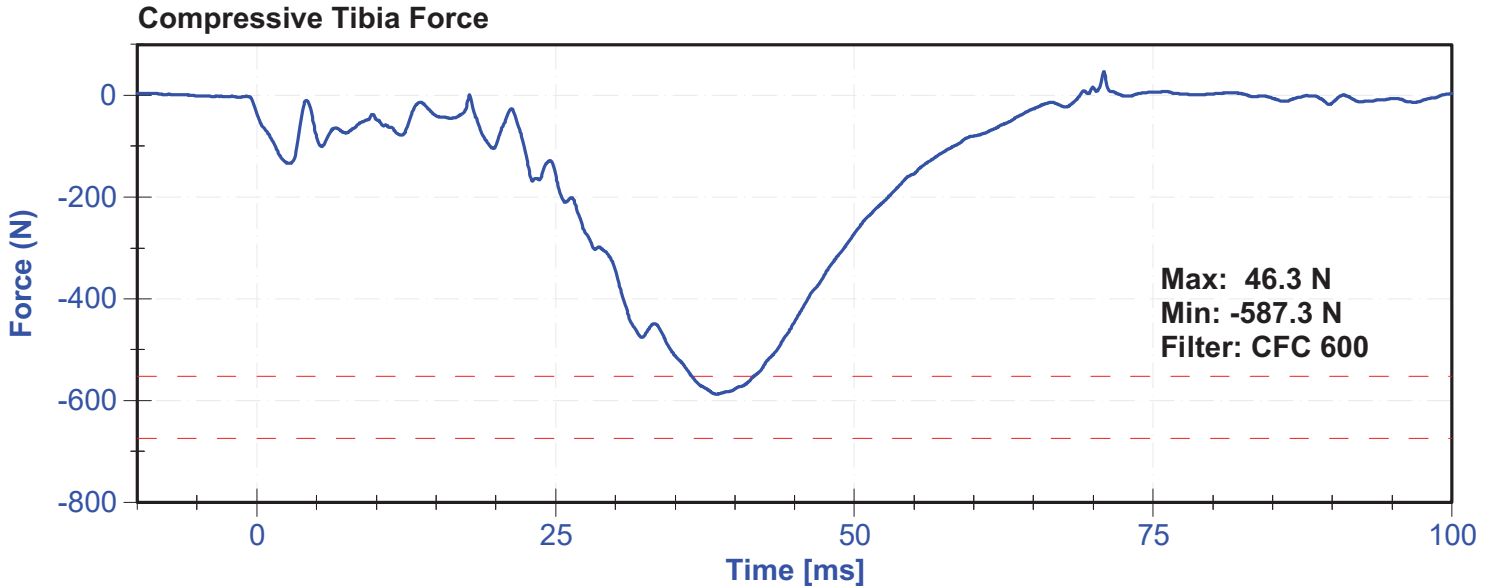
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	39.7	Pass
Velocity	1.9	2.1	m/s	1.924	Pass
Lower Tibia Compressive Force	-675	-552	N	-587.3	Pass
Peak Moment about X-Axis	36.3	44.4	Nm	44.56	Fail
Peak Rotation about X-Axis	30.3	37.0	deg	31.54	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 4929J	LC-166 Fz	2/9/2016	2/8/2017
Ankle Y Potentiometer	Contelec PD210-4B	DS-0528	2/19/2016	2/18/2017



ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	LX045	Laboratory Supervisor	M. Goehle

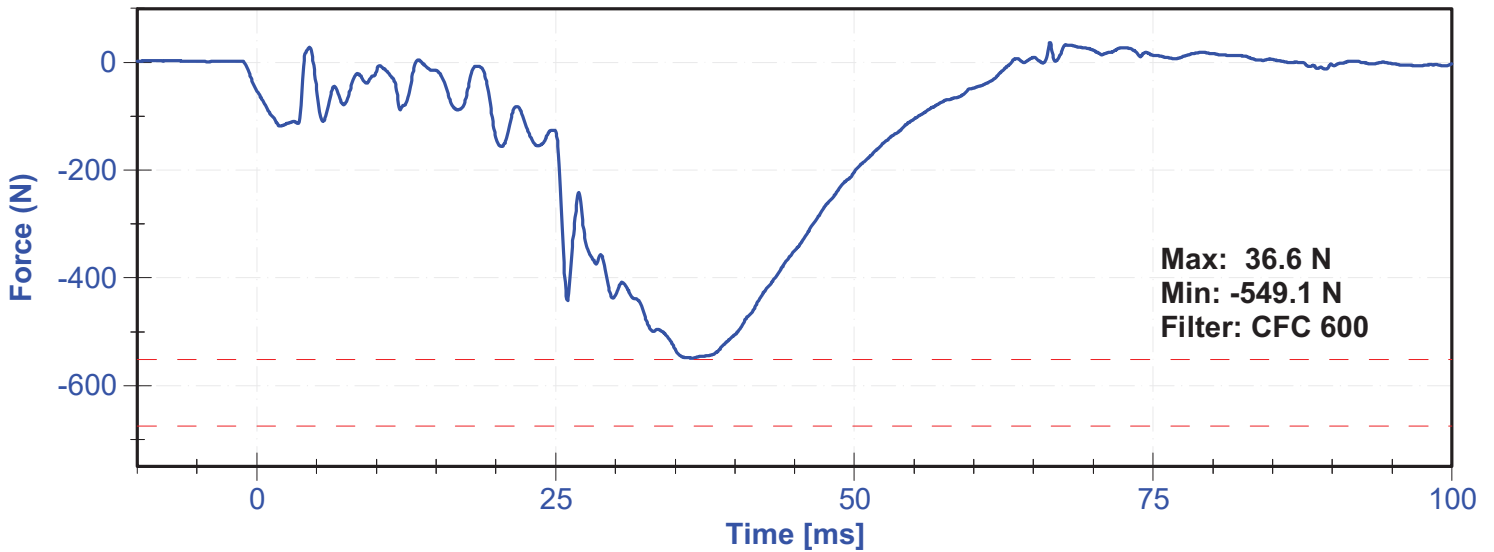
Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.8	Pass
Humidity	10	70	%	38.5	Pass
Velocity	1.9	2.1	m/s	1.924	Pass
Lower Tibia Compressive Force	-675	-552	N	-549.1	Fail
Peak Moment about X-Axis	-44.4	-36.3	Nm	-43.57	Pass
Peak Rotation about X-Axis	-37.0	-30.3	deg	-33.36	Pass

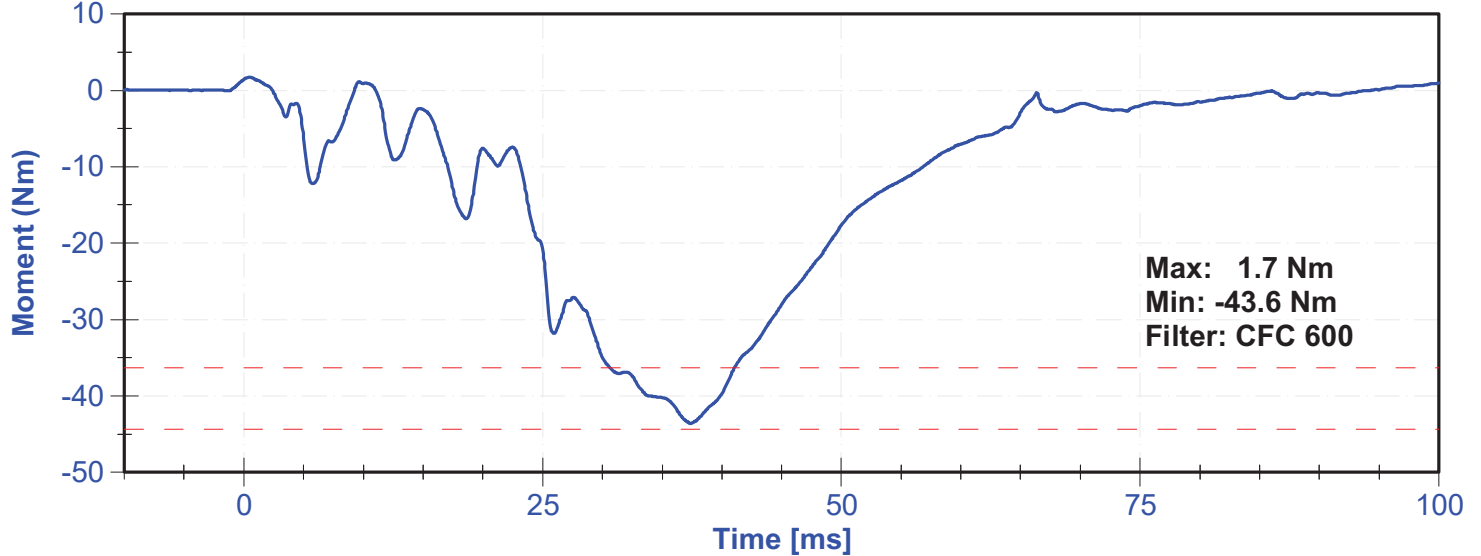
Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 4929J	LC-166 Fz	2/9/2016	2/8/2017
Ankle Y Potentiometer	Contelec PD210-4B	DS-0528	2/19/2016	2/18/2017

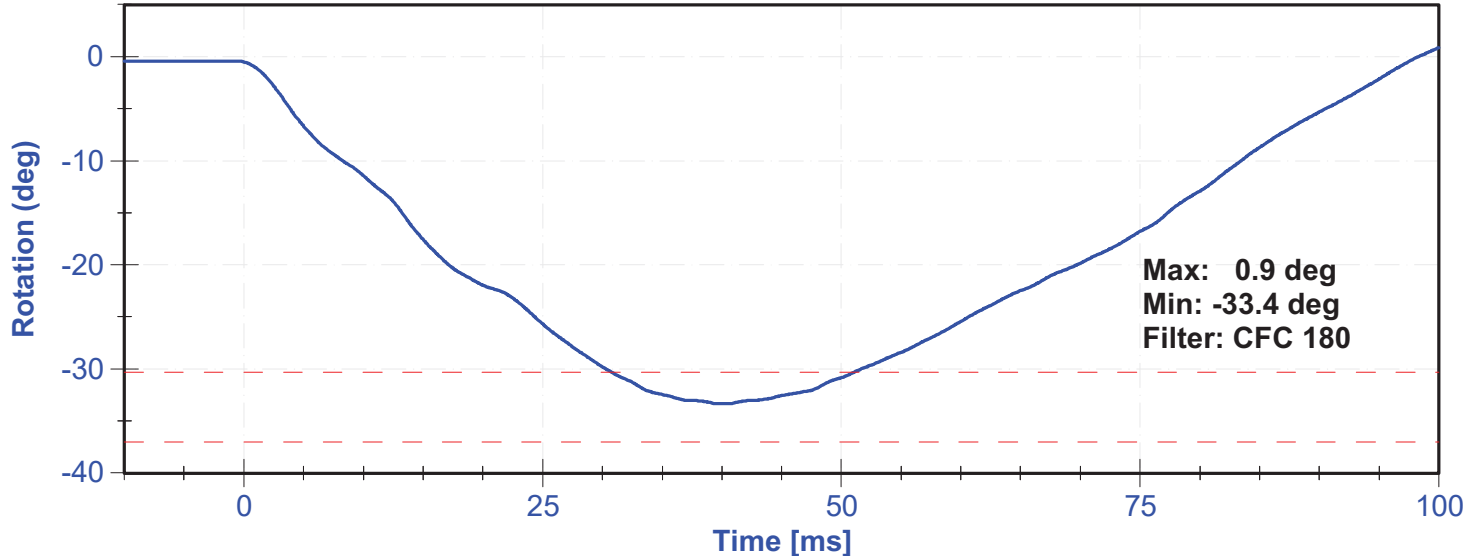
Compressive Tibia Force



Ankle Moment About X-Axis



Ankle Rotation About X-Axis



ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	DL9207	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.9	Pass
Humidity	10	70	%	50.1	Pass
Velocity	3.9	4.1	m/s	3.920	Pass
Lower Tibia Compressive Force	-3346	-2738	N	-3788.2	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7264CT	AC-P32227	8/27/2015	8/26/2016
Lower Tibia Load Cell	Denton 4929J	LC-166 Fz	2/9/2016	2/8/2017

Compressive Tibia Force

