REPORT NUMBER: R&D-CAL-15-006

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

2015 Honda Fit

90.1KPH, 15 DEGREE ANGLE, 35% OVERLAP

TEST DATE: 9/30/2015

NHTSA No: R20155377

CALSPAN CORPORATION
TRANSPORTATION TEST OPERATIONS
P.O. BOX 400
BUFFALO, NEW YORK 14225

FINAL REPORT SUBMITTED:

May 19, 2016

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Vehicle safety Research
1200 New Jersey Ave, SE
Room W46-446
Washington, DC 20590

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

Prepared by: Vanessa Hansen Date: May 19, 2016
Vanessa Hansen, Test Engineer

Approved by: Edward Dutton Date: May 19, 2016
Edward J. Dutton, Operations Manager
Transportation Test Operations

FINAL REPORT ACCEPTANCE BY VEHICLE SAFETY RESEARCH, OFFICE OF STRUCTURAL AND RESTRAINTS RESEARCH DIVISION:

_____

Date: _____

_____
TOM, Vehicle Crash Testing
NHTSA, Office of Structures and Restraints Research

Date: _____

TECHNICAL REPORT STANDARD TITLE PAGE

1. *Report No.* R&D-CAL-15-006	**2. *Government Accession No.***	**3. *Recipient's Catalog No.***
4. *Title and Subtitle* Report for Frontal Oblique Offset Program Testing of a 2015 Honda Fit hatchback NHTSA No.: R20155377		**5. *Report Date*** 5/19/2016 **6. *Performing Organization Code*** CAL
7. *Author(s)* Vanessa Hansen, Test Engineer Ed Dutton, Operations Manager		**8. *Performing Organization Report No.*** CAL-DOT-2015-006
9. *Performing Organization Name and Address* Calspan Corporation 4455 Genesee Street Buffalo, New York 14225		**10. *Work Unit No.*** **11. *Contract or Grant No.*** DTNH22-14-D-00359
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, DC 20590		**13. *Type of Report and Period Covered*** Final Report, 5/19/2016 **14. *Sponsoring Agency Code*** NVS-321
15. *Supplementary Notes*		

16. *Abstract*

A test was conducted in accordance with Contract DTNH22-14-D-00359. The Test consisted of a Oblique Moving Deformable Barrier (OMDB) traveling at a target speed of 90.12 kph into a stationary 2015 Honda Fit hatchback. The struck vehicle was positioned 15 degrees relative to the moving barrier and impacted 35% of the right 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 Calspan Corporation's Transportation Test Operation's facility in Buffalo, New York on September 30, 2015. The OMDB impact velocity was 90.09 kph and the ambient temperature at the test vehicle at the time of impact was 21°C. The target vehicle post-test maximum crush was 621 mm. The test vehicle's performance was as follows:

Measurement Description	Units	Driver THOR	Pass. THOR
Head Injury Criteria (HIC_{15})	N/A	201.30	401.88
Brain Injury Criteria (BrIC)	N/A	1.79	1.12
Peak Neck Tension	mm	1699.07	2528.31
Peak Resultant Chest Deflection	N/A	44.59	56.24
Peak Abdomen Deflection	N	-54.94	-71.60
Peak Resultant Acetabulum force	N	1911.57	3228.58
Peak Femur Force	N	-2699.23	-3220.85
Right Tibia Index	N	0.70	0.62

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, DC 20590

19. *Security Classif. (of this report)* UNCLASSIFIED	**20. *Security Classif. (of this page)*** UNCLASSIFIED	**21. *No. of Pages***	**22. *Price***

Form DOT F1700.7 (8-69)

DISCLAIMER

The contents of this report relate only to the specific product evaluated under the specific test conditions, as defined within this report. The findings and conclusions are those of the author(s) and not necessarily those of Calspan Corporation. For the purposes of this report, Calspan Corporation provided test services only and was not involved with the consulting, design or manufacture of any product. Calspan Corporation does not endorse products or manufacturers. Further, Calspan Corporation (to include: any of its affiliates, parent companies or subsidiaries) assumes no liability associated with the contents of this report or the use of this report.

Prepared by: Vanessa Hansen, Project Engineer — Date: May 19, 2016

Approved by: Edward J. Dutton, Test Engineer Director, Transportation Test Operations — Date: May 19, 2016

TABLE OF CONTENTS

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

Section		Page No.
1	Purpose of Test	1-1
2	Summary of Test	2-1
	Crash Vehicle Summary	2-3
	Preliminary Injury Summary: Driver	2-5
	Preliminary Injury Summary: Front Right Passenger	2-6
3	Data Sheets	3-1

Data Sheet No.		Page No.
1	General Test and Vehicle Parameter Data	3-2
2	Seat Adjustment, Fuel System, and Steering Wheel	3-6
3	Dummy Longitudinal Clearance Dimensions	3-8
4	Dummy Lateral Clearance Dimensions	3-10
5	Seat Belt Positioning Data	3-11
6	High-Speed Camera Locations and Data	3-12
7	Vehicle Instrumentation Data	3-15
8	Photographic Reference Target Locations	3-18
9	Test Vehicle Summary of Results	3-25
10	Post-Test Observations	3-26
11	Vehicle Profile Measurements	3-27
12	Accident Investigation Division Data	3-29
13	Vehicle Intrusion Measurements	3-30
14	OMDB Crush Measurements	3-47
15	Summary of FMVSS 212, 219 (Partial), and 301 Data	3-48
	Windshield Periphery Measurements	3-48
	Areas of Protected Zone Failures	3-48
	Fuel System Integrity Post Impact Data	3-49
16	FMVSS 301 Static Rollover Results	3-50
17	Dummy / Vehicle Temperature Stabilization	3-51

Appendix		Page No.
A	Photographs	A-1
B	Vehicle & Dummy Response Data Traces	B-1
C	Part 572 E/O Dummy Calibration and Performance Verification Data Sheets	C-1

SECTION 1
PURPOSE OF TEST

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

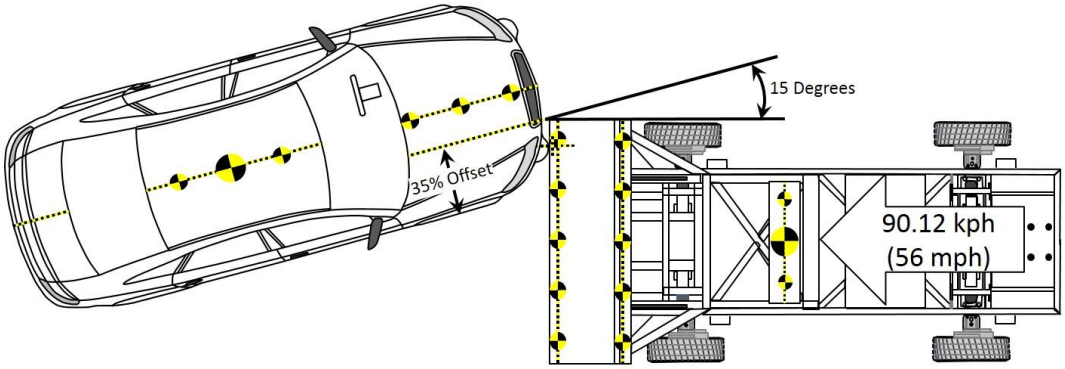
This 90.12 kph (56 mph) Moving Barrier into a test vehicle is part of the Frontal Offset Test outlined in Contract No. DTNH22-14-D-00359, Task Order 0001. The purpose of this test is to obtain vehicle crashworthiness and occupant restraint system performance data for consumer information purposes.

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-00359, 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-00359, Task Order 0001.

SECTION 2
SUMMARY OF TEST

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

A 2015 Honda Fit hatchback was impacted on the right 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 90.12 kph (56.0 mph) into the test vehicle. The test vehicle's mass was 1,383 kg (3,049 lbs), and the OMDB's mass was 2519 kg (5,552 lbs). The test was conducted by Calspan Corporation on September 30, 2015.



The test was documented by two (2) real time and fifteen (15) high-speed video cameras. Camera locations and other pertinent data are located in Data Sheet No. 6 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-NT anthropomorphic test device (ATD) (Serial No. 015) was seated in the left, front (P1 -Driver's) seating position and one 50% adult male THOR-NT adult male ATD (Serial No. 016) 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 and frontal airbag. The passenger was restrained with a 3 – point seat belt, a frontal, curtain, and torso airbags. The driver's curtain and torso airbags were disabled.

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

There was 86.7% total windshield retention, with 94.2% and 79.2% retention on the left and right sides, respectively. 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 525 mm at C5 to the right of the vehicle's centerline. The maximum crush of the structural bumper beam was 525 mm at B8, to the right of the vehicle's centerline. Full vehicle measurements are presented in Section 3 of this report.

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 with minor separation.
- The A-Pillar and B-Pillar Buckled during impact
- Hood bent inwards and exposed part of the engine compartment
- Right front viewing window shattered during impact

The driver ATD's visible contact points were:

- Head contacted the frontal airbag and passengers upper torso
- Torso contacted the frontal airbag
- Left Knee contacted the knee bolster
- Right Knee contacted the knee bolster

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

- Head contacted the frontal and curtain airbag and headrest
- Torso contacted the frontal airbag, and right shoulder/arm contacted the torso airbag and passenger door
- Knees contacted the glove box

SECTION 2 (CONTINUED)
CRASH VEHICLE SUMMARY

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

Primary Impact Data

Measured Parameter	Units	Value
OMDB Velocity at Impact	kph	90.09
OMDB Test Weight	kg	2519
OMDB Maximum Static Crush	mm	209
Vehicle Test Weight	kg	1383
Actual Vehicle Angle	degrees	15
Vehicle Maximum Static Crush	mm	621
Vertical Offset from Target Point (+ down / - up)*	mm	-10
Lateral Offset from Target Point (+ left / - right)*	mm	+4
Number of Data Channels		258
Number of Real-Time Cameras		2
Number of High-Speed Cameras		15

*Offsets are in relation to the vehicle coordinate system.

Dummy Contacts

	Driver	Picture Ref.	Passenger	Picture Ref.
Dummy Type	THOR, S/N: 015		THOR, S/N: 016	
Head Contact	Front Airbag, Passenger Front Airbag, Passenger upper torso	A49-A51	Front & Curtain Airbag, Headrest	A70-A72
Upper Torso Contact	Front Airbag	N/A	Front Airbag, Driver's Head	N/A
Lower Torso Contact	None	N/A	None	N/A
Side Torso Contact	Right Arm contacts instrument panel	N/A	Shoulder/Arm contacted torso airbag and door	N/A
Left Knee Contact	Knee Bolster	A28	Glove Box	A52
Right Knee Contact	Knee Bolster	A28	Glove Box	A52

Data Anamolies

CHANNEL DESCRIPTION	EXPLANATION
Driver Knee Left X Displacement, Channel Failed	Known bad channel – waiting for replacement part
Passenger DGIR Upper Right X Displacement,Questionable spikes 39.8ms to 134ms	Appears to be electrical noise consistent through most IRTRACC channels
Passenger DGIR Lower Right X Displacement,Questionable spikes 48.3ms to 106ms	Appears to be electrical noise consistent through most IRTRACC channels
Passenger Abdomen Left DGIR X Displacement,Questionable spikes 67.6ms to 81.8ms	A male pin was pushed out inside the amphenol connector
Passenger Acetabular Left Z Force,Questionable spike at 44.2ms	A wire broke off a pin inside the amphenol connector
Driver Lap Force,Questionable spikes throughout	None
Passenger Front Airbag Stage 2 Monitor, Questionable Data Throughout	None

PRELIMINARY INJURY SUMMARY: Driver

Test Vehicle: R20155377-2015 Honda Fit NHTSA No.: R20155377
Test Program: NHTSA R&D Right Oblique Offset 15deg/35% Test Date: 9/30/2015

Driver: THOR Serial No. 015 Injury Summary

Location	Description	Unit	Source	Max	Min
Head	HIC 15ms		Compute	201.30	
	Brain Injury Criteria (BrIC)		Compute	1.79	
	Head Rotational Velocity X	Deg/s	60	2548.80	-892.62
	Head Rotational Velocity Y	Deg/s	60	1529.59	-1686.86
	Head Rotational Velocity Z	Deg/s	60	1371.33	-3862.01
Neck	Upper Neck Z-axis Force	N	1000	1699.07	-218.69
	Upper Neck Y-axis Moment	Nm	Thortest	26.79	-30.40
Chest	Upper Left Resultant Chest Deflection	mm	Thortest	21.13	
	Upper Right Resultant Chest Deflection	mm	Thortest	44.59	
	Lower Left Resultant Chest Deflection	mm	Thortest	17.16	
	Lower Right Resultant Chest Deflection	mm	Thortest	31.81	
Abdomen	Lower Left X-axis Deflection	mm	Thortest	0.04	-54.20
	Lower Right X-axis Deflection	mm	Thortest	0.00	-54.94
Acetabulum	Left Acetabulum Resultant Force	N	Compute	1911.57	0.08
	Right Acetabulum Resultant Force	N	Compute	1312.51	0.04
Femur	Left Femur Force, FZ	N	600	221.56	-2072.05
	Right Femur Force, FZ	N	600	510.61	-2699.23
Tibia	Left Upper Tibia, FZ	N	600	451.28	-1239.43
	Left Upper Tibia Index		Compute	0.44	
	Right Upper Tibia, FZ	N	600	532.27	-1696.45
	Right Upper Tibia Index		Compute	0.70	
	Left Lower Tibia, FZ	N	600	350.97	-2508.86
	Left Lower Tibia Index		Compute	0.57	
	Right Lower Tibia, FZ	N	600	445.35	-3338.55
	Right Lower Tibia Index		Compute	0.64	
Ankle	Left Ankle Rotation, RX	Deg	180	42.14	-23.72
	Left Ankle Rotation, RY	Deg	180	14.74	-8.64
	Left Ankle Dorsiflexion Moment, MY	Nm	Compute	11.96	-34.21
	Left Ankle In/Eversion Moment, MX	Nm	Compute	122.38	-22.48
	Right Ankle Rotation, RX	Deg	180	8.60	-28.87
	Right Ankle Rotation, RY	Deg	180	31.20	-11.40
	Right Ankle Dorsiflexion Moment, MY	Nm	Compute	65.41	-56.50
	Right Ankle In/Eversion Moment, MX	Nm	Compute	105.01	-32.51

Anomalies:
None

PRELIMINARY INJURY SUMMARY: Right Front Passenger

Test Vehicle: R20155377-2015 Honda Fit NHTSA No.: R20155377
Test Program: NHTSA R&D Right Oblique Offset 15deg/35% Test Date: 9/30/2015

Right Front Passenger: THOR Serial No. 016 Injury Summary

Location	Description	Unit	Source	Max	Min
Head	HIC 15ms		Compute	401.88	
	Brain Injury Criteria (BrIC)		Compute	1.12	
	Head Rotational Velocity X	Deg/s	60	2286.15	-894.27
	Head Rotational Velocity Y	Deg/s	60	1023.65	-2274.56
	Head Rotational Velocity Z	Deg/s	60	410.56	-1531.81
Neck	Upper Neck Z-axis Force	N	1000	2528.31	-168.24
	Upper Neck Y-axis Moment	Nm	Thortest	26.16	-18.31
Chest	Upper Left Resultant Chest Deflection	mm	Thortest	56.24	
	Upper Right Resultant Chest Deflection	mm	Thortest	35.94(1)	
	Lower Left Resultant Chest Deflection	mm	Thortest	45.45	
	Lower Right Resultant Chest Deflection	mm	Thortest	16.91(2)	
Abdomen	Lower Left X-axis Deflection	mm	Thortest	-0.00(3)	-71.60(3)
	Lower Right X-axis Deflection	mm	Thortest	1.79(4)	-59.78(4)
Acetabulum	Left Acetabulum Resultant Force	N	Compute	3228.58(5)	0.05(5)
	Right Acetabulum Resultant Force	N	Compute	1463.93	0.09
Femur	Left Femur Force, FZ	N	600	1191.52	-3220.85
	Right Femur Force, FZ	N	600	436.00	-3125.22
Tibia	Left Upper Tibia, FZ	N	600	726.40	-1707.44
	Left Upper Tibia Index		Compute	0.52	
	Right Upper Tibia, FZ	N	600	107.66	-839.08
	Right Upper Tibia Index		Compute	0.62	
	Left Lower Tibia, FZ	N	600	86.53	-3404.89
	Left Lower Tibia Index		Compute	0.51	
	Right Lower Tibia, FZ	N	600	7.24	-2181.99
	Right Lower Tibia Index		Compute	0.57	
Ankle	Left Ankle Rotation, RX	Deg	180	15.80	-20.61
	Left Ankle Rotation, RY	Deg	180	31.41	-8.23
	Left Ankle Dorsiflexion Moment, MY	Nm	Compute	61.82	-46.44
	Left Ankle In/Eversion Moment, MX	Nm	Compute	56.19	-17.10
	Right Ankle Rotation, RX	Deg	180	29.65	-0.78
	Right Ankle Rotation, RY	Deg	180	31.64	-10.07
	Right Ankle Dorsiflexion Moment, MY	Nm	Compute	49.82	-40.13
	Right Ankle In/Eversion Moment, MX	Nm	Compute	68.05	-8.91

Anomalies:

1) Questionable spikes 39.8ms to 134ms
2) Questionable spikes 48.3ms to 106ms
3) Questionable spikes 67.6ms to 81.8ms
4) Questionable spike at 170ms
5) Questionable data from 27ms to 31ms

SECTION 3
DATA SHEETS

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

Data Sheet No.		Page No.
1	General Test and Vehicle Parameter Data	3-2
2	Seat Adjustment, Fuel System, and Steering Wheel	3-6
3	Dummy Longitudinal Clearance Dimensions	3-8
4	Dummy Lateral Clearance Dimensions	3-10
5	Seat Belt Positioning Data	3-11
6	High-Speed Camera Locations and Data	3-12
7	Vehicle Instrumentation Data	3-15
8	Photographic Reference Target Locations	3-18
9	Test Vehicle Summary of Results	3-25
10	Post-Test Observations	3-26
11	Vehicle Profile Measurements	3-27
12	Accident Investigation Division Data	3-29
13	Vehicle Intrusion Measurements	3-30
14	OMDB Crush Measurements	3-47
15	Summary of FMVSS 212, 219 (Partial), and 301 Data	3-48
	Windshield Periphery Measurements	3-48
	Areas of Protected Zone Failures	3-48
	Fuel System Integrity Post Impact Data	3-49
16	FMVSS 301 Static Rollover Results	3-50
17	Dummy / Vehicle Temperature Stabilization	3-51

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

VEHICLE INFORMATION

NHTSA No.	R20155377
Model Year	2015
Make	Honda
Model	Fit
Body Style	5 Door Hatch
VIN	3HGGK5G59FM766551
Body Color	Black
Odometer Reading (km/mi)	256 km / 159 mi
Engine Displacement. (L)	1.5
Type/No. Cylinders	I4
Engine Placement	Transverse
Transmission Type	Manual
Transmission Speeds	6-Speed
Overdrive	Yes
Final Drive	FWD
Roof Rack	No
Sunroof/T-Top	No
Running Boards	No
Tilt Steering Wheel	Yes
Power Seats	No
Anti-Lock Brakes (ABS)	Yes
All-Wheel Drive (AWD)	No
Traction Control System (TCS)	Yes

VEHICLE OPTIONS

Auto-Leveling System	No
Automatic Door Locks (ADL)	Yes
Power Window Auto-Reverse	No
Other Optional Feature	-
Driver Front Airbag	Yes
Driver Curtain Airbag	Yes
Driver Head/Torso Airbag	No
Driver Torso Airbag	Yes
Driver Torso/Pelvis Airbag	No
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Pass. Front Airbag	Yes
Pass. Curtain Airbag	Yes
Pass. Head/Torso Airbag	No
Pass. Torso Airbag	Yes
Pass. Torso/Pelvis Airbag	No
Pass. Pelvis Airbag	No
Pass. Knee Airbag	No
Driver Seat Belt Pretensioner	Yes
Pass. Seat Belt Pretensioner	Yes
Driver Load Limiter	Yes
Pass. Load Limiter	Yes
Other Safety Restraint	-

Does owner's manual provide instructions to turn off automatic door locks? **Yes**

DATA FROM CERTIFICATION LABEL

Manufactured By	Honda De Mexico S.A. De C.V.
Date of Manufacture	01/15

GVWR (kg)	1525
GAWR Front (kg)	803
GAWR Rear (kg)	722

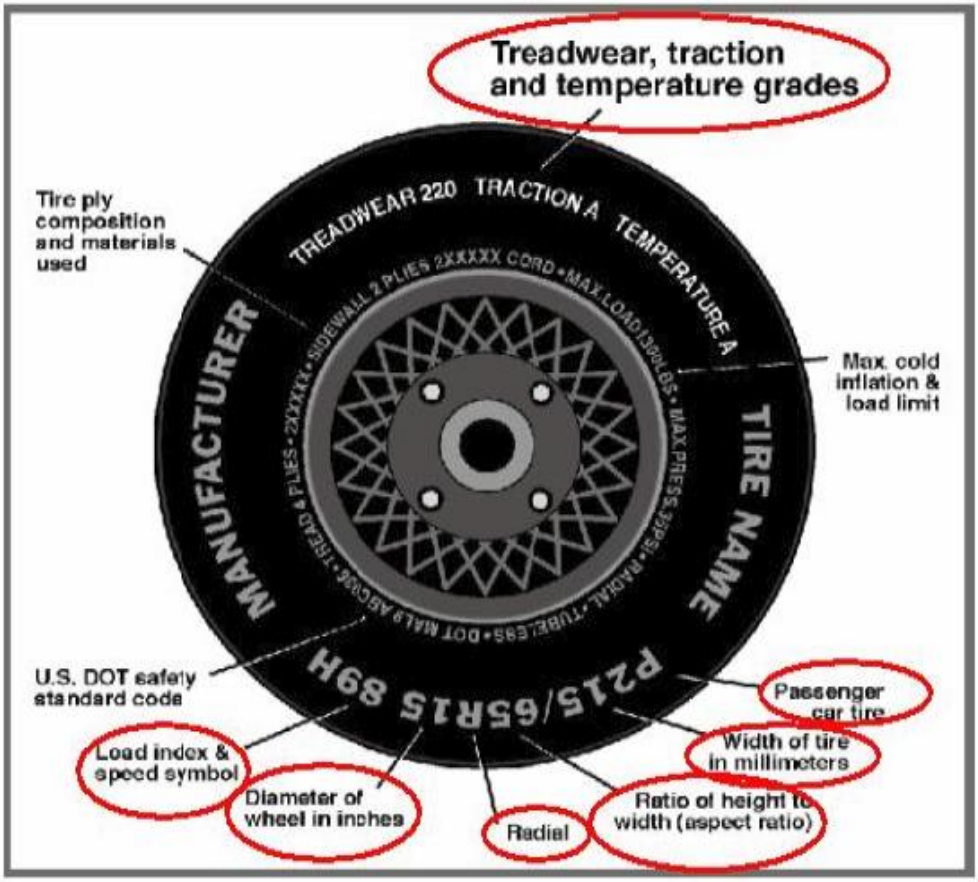
VEHICLE SEATING AND WEIGHT CAPACITY

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench	--	
Number of Occupants	2	3	--	5
Capacity Wt. (VCW) (kg)				385
Cargo Wt. (RCLW) (kg)				44.8

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

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

Collect items circled in red, tire manufacturer, and tire name.



Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	230	230
Recommended Tire Size	R185/60R15	R185/60R15
Tire Size on Vehicle	R185/60R15	R185/60R15
Tire Manufacturer	Firestone	Firestone
Tire Model	FR740	FR740
Treadwear	400	400
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	1 Polyester, 2 Steel, 1 Nylon	1 Polyester, 2 Steel, 1 Nylon
Load Index/Speed Symbol	84T	84T
Tire Material	Rubber	Rubber
DOT Safety Code Right	CJJ2814	CJJ2814
DOT Safety Code Left	CJJ2814	CJJ2814

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

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	364	208		406	296	
Right	kg	339	226		369	312	
Ratio	%	62%	38%		56%	44%	
Totals	kg	703	434	1137	775	608	1383

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1137
Weight of 2 THOR ATDs	kg	190
Rated Cargo/Luggage Weight (RCLW)	kg	44.8
Calculated Vehicle Target Weight (TVTW)	kg	1371.8

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	648	646	663	655	966
As Tested	mm	629	629	621	626	1113
Post Test	mm	678	665	657	673	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2532
Total Vehicle Length at Left Side	mm	3996
Total Vehicle Length at Centerline	mm	4065
Total Vehicle Length at Right Side	mm	3995
Weight of Ballast in Cargo Area	kg	0
Weight of Vehicle Components Removed	kg	56
Amount of Stoddard Solvent in Fuel Tank	L	13.4

LIST OF COMPONENTS REMOVED TO MEET TEST WEIGHT:

Trunk carpeting, spare tire, jack, tail lights, rear seats, rear door windows and skins,
And side view mirrors.

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

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

TARGET VEHICLE STRUCTURAL MEASUREMENT

	Elements		Pre-Test
1	Total Length	mm	4065
2	Total Width	mm	1694
3*	Bumper Top Height	mm	548
4*	Bumper Bottom Height	mm	441
5*	Longitudinal Member Top Height	mm	550
6	Distance Between Longitudinal Members	mm	1069
7	Longitudinal Member Width	mm	83
8*	Engine Top Height	mm	828
9*	Engine Bottom Height	mm	240
10	Engine and Gearbox Width	mm	552
11	Front Bumper-Engine Distance	mm	502
12*	Front Shock Absorber Fixing Height	mm	908
13*	Bonnet Leading Edge Height	mm	780
14	Front Shock Absorber Fixing Width	mm	1115
15	Front Bumper – Front Axle Distance	mm	811
16	Front Axle – A Pillar Distance	mm	183
17	A-Pillar – B-Pillar Distance	mm	1334
18	B-Pillar – Rear Axle Distance	mm	1013
19	B-Pillar – C-Pillar Distance	mm	911
20*	Roof Sill Bottom Height	mm	1424
21*	Roof Sill Top Height	mm	1455
22*	Floor Sill Bottom Height	mm	297
23*	Floor Sill Top Height	mm	387

*Note: Height measurements are in reference to the ground.

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

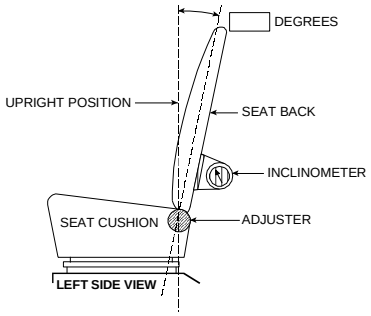
Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

NORMAL DESIGN RIDING POSITION

For adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.

Driver seat: The driver seat back was positioned according to the Nominal Design Riding position listed in FORM 1 and THOR Seating Procedure.

Passenger Seat: The passenger seat back was positioned according to the Nominal Design Riding position listed in FORM 1 and THOR Seating Procedure.



FRONT SEAT ASSEMBLY

	UNIT	FORM 1 POSITION	AFTER ATD POSITIONING
Driver Seat Back Angle	deg	1.0	0.6
Passenger Seat Back Angle	deg	1.0	1.0

SEAT FORE/AFT POSITIONS

Describe the method used of determining seat fore/aft positions. The driver's seat was positioned at its mid height position and at the mid-point of fore/aft travel. The passenger's seat was positioned at the mid-point of fore/aft travel.

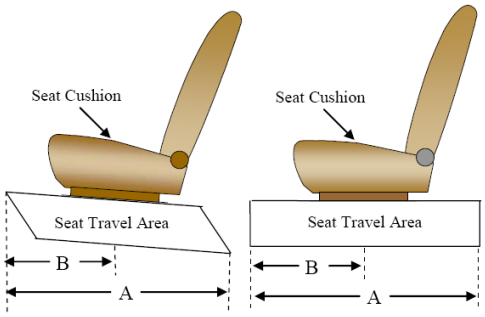
	Total Fore/Aft Travel	Placed in Position #
Driver Seat	35	19*
Passenger Seat	35	21*

*Position of seat travel was adjusted for THOR positioning.

SEAT BELT UPPER ANCHORAGES

Describe the method of positioning seat belt upper anchorages. Belt anchorages were moved along the full range of motion, and marked on the B-Pillar to their respective possible positions. Photographic evidence can be found in Appendix A of this report. Zero is defined as the upper-most position.

	Total # of Positions	Placed in Position #
Driver Seat	4	0
Passenger Seat	4	0



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

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset
NHTSA No.: R20155377
Test Date: 9/30/2015

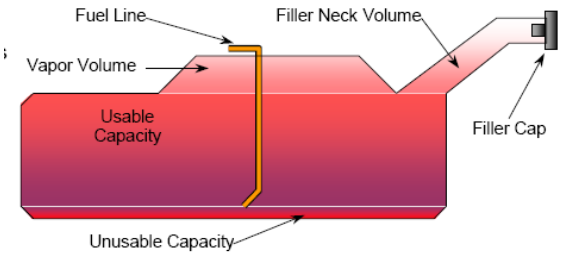
FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	40.1
Usable Capacity of "Optional Tank"	
93% of Usable Capacity	37.3
Actual Amount of Solvent Used	13.4
1/3 of Usable Capacity	13.4

FUEL PUMP

Describe the fuel system - what type of fuel pump, details about how it operates, etc.

Fuel evacuated according to the specifications provided by the manufacturer in Form 1. Electric fuel pump operates when the ignition is in the 'on' position and the engine is running. The fuel filler neck is located above the left rear wheel.

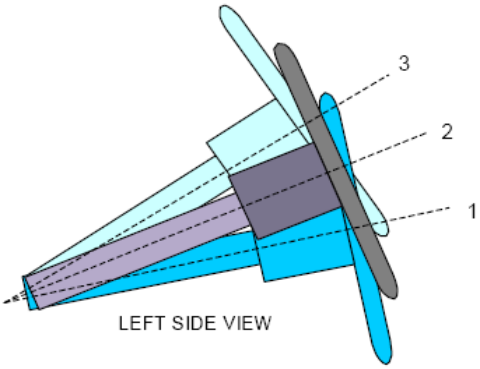


VEHICLE FUEL TANK ASSEMBLY

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. Describe how this measurement was taken.

The steering wheel was adjusted to the midpoint of tilt angle range and the midpoint of the telescoping travel



STEERING COLUMN ASSEMBLY

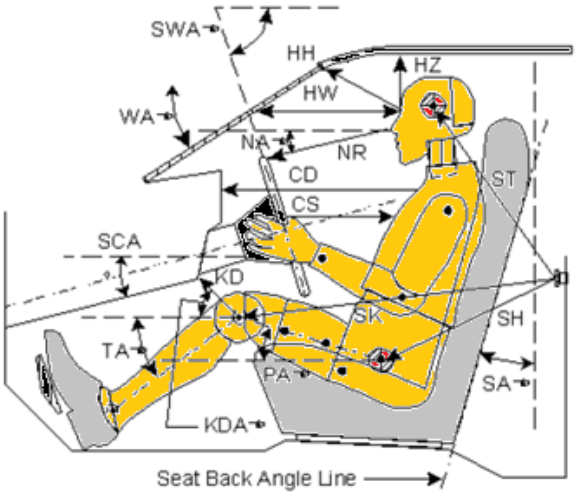
STEERING COLUMN POSITIONS

	Tilt (degrees)	Fore/Aft Position (mm)
Lowermost position No. 1	24.6	
Geometric center position No. 2	27.1	
Uppermost position No. 3	29.6	
Telescoping Steering Wheel Travel		40
Test Position	27.1	20

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

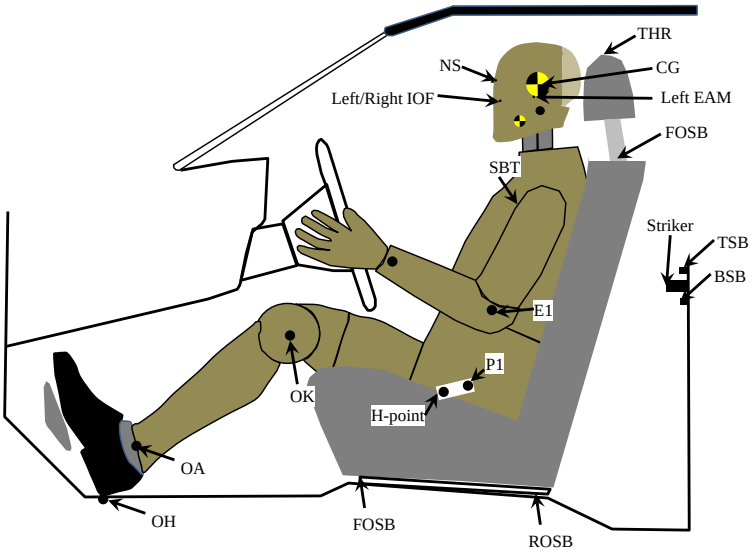
NHTSA No.: R20155377
Test Date: 9/30/2015



Code	Measurement Description	Driver (Serial # THOR 015)		Passenger (Serial # THOR 016)	
		Length (mm)	Angle(°)	Length (mm)	Angle (°)
WAº	Windshield Angle		25.5		
SWAº	Steering Wheel Angle		27.0		
SCAº	Steering Column Angle		63.0		
SAº	Seat Back Angle (on headrest post)		0.6		1.0
SAº	Seat Back Angle		19.1		18.6
HZ	Head to Roof (Z)	188	90	195	90
HH	Head to Header	398	19	415	20.4
HW	Head to Windshield	704	0	745	0
NR	Nose to Rim	513	19.6	687	31.5
CD	Chest to Dash	610		560	
CS	Chest to Steering Hub	387	9.5		
RA	Rim to Abdomen	176	0		
KDL	Left Knee to Dash	102	27.5	82	29.5
KDR	Right Knee to Dash	75	48.9	97	31.5
PAº	Pelvic Angle		31.7		32.0
TAº	Tibia Angle		50.8		53.1
SK	Striker to Knee	624	5.5	617	5
ST	Striker to Head	592	87.3	579	89.1
SH	Striker to H-Point	243	16.5	226	17.5
HAX˚	Head Angle (X)		-0.5		0.0
HAY˚	Head Angle (Y)		-2.1		-2.5
TAX˚	T6 Angle (X)		-2.2		0.1
TAY˚	T6 Angle (Y)		23.6		20.0
TAX˚	T1 (X)		-1.3		0.5
TAY˚	T1 (Y)		1.2		0.4
TAX˚	T12 (X)		-0.6		-1.0
TAY˚	T12 (Y)		31.1		29.2

DATA SHEET NO.3 (CONTINUED)
DUMMY CMM MEASUREMENTS

Test Vehicle: 2015 Honda Fit hatchback NHTSA No.: R20155377
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset Test Date: 9/30/2015



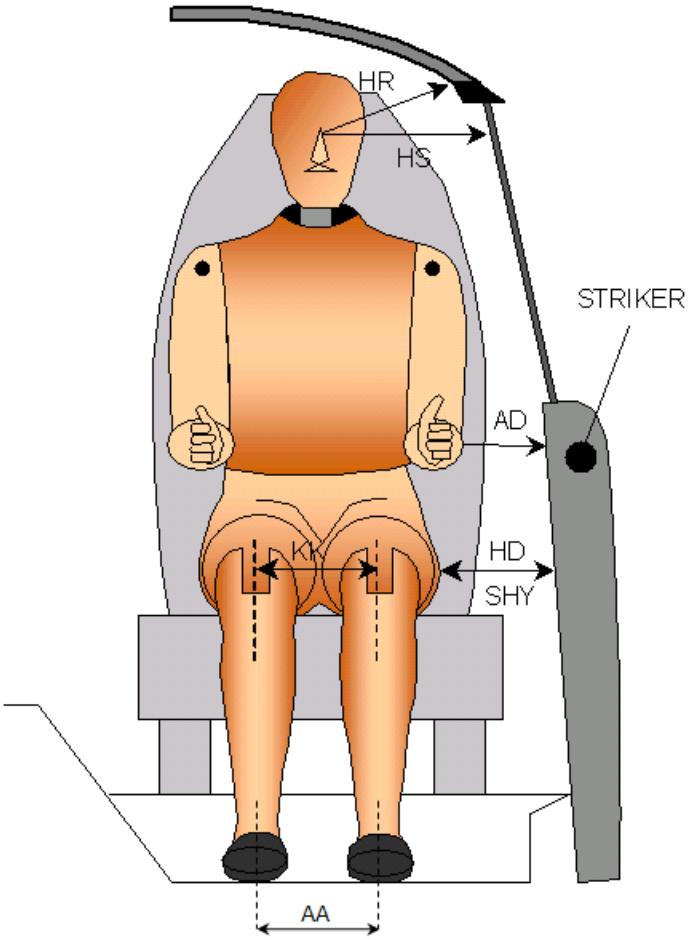
Description	Units	Driver			Passenger		
		X	Y	Z	X	Y	Z
Head CG	mm	1870	-416	-728	1853	415	-719
Nasion	mm	1968	-342	-734	1949	341	-726
Tip of Nose	mm	1969	-340	-699	1951	341	-689
Tip of Chin	mm	1962	-340	-598	1940	340	-588
Left EAM	mm	1876	-412	-699	1865	263	-692
Right EAM	mm	1882	-267	-696	1860	410	-692
Left IOF	mm	1962	-374	-696	1947	307	-688
Right IOF	mm	1965	-311	-695	1945	372	-688
Outboard Elbow	mm	2090	-559	-275	1993	611	-184
H-Point	mm	2076	-532	-67	2059	534	-73
H-Point Tool	mm	2003	-577	-98	1983	583	-98
Outboard Knee Bolt	mm	2464	-573	-196	2458	518	-197
Inboard Knee Bolt	mm	2491	-254	-192	2458	306	-195
Outboard Ankle Bolt	mm	2730	-575	128	2717	520	129
Outer Heel Point	mm	2743	-566	264	2699	481	268
Inboard Heel Point	mm	2742	-190	267	2699	276	267
Striker Top Bolt	mm	1806	-741	-153	1807	741	-156
Striker Bottom Bolt	mm	1808	-741	-117	1808	742	-121
Center Tip of Striker	mm	1843	-742	-137	1843	740	-141
Front Outboard Seat Anchor Bolt	mm	2364	-562	156	2364	564	156
Rear Outboard Seat Anchor Bolt	mm	1821	-557	242	1821	560	240
Outboard Head Restraint Post	mm	1683	-414	-542	1664	417	-537
Top of Head Restraint	mm	1727	-340	-832	1713	339	-829
Center of Steering Wheel	mm	2373	-334	-415			

Reference point:

+X – From the rear of the vehicle to the front of the vehicle
+Y – From the left side of the vehicle to the right side of the vehicle
+Z – From the top of the vehicle to the bottom of the vehicle

DATA SHEET NO. 4
DUMMY LATERAL CLEARANCE DIMENSIONS

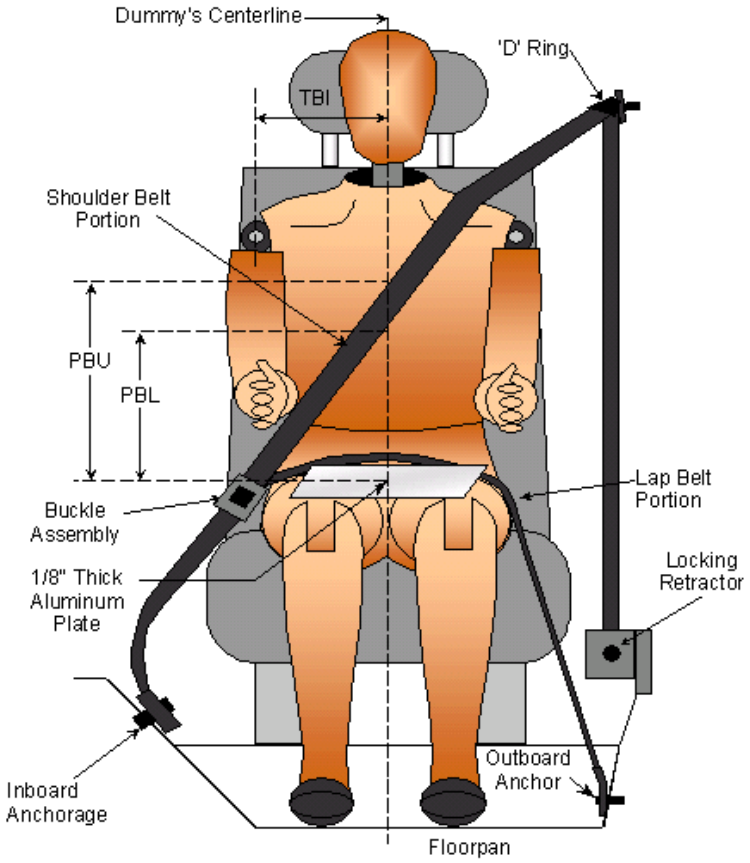
Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015



Code	Description	Units	Driver	Passenger
AD	Arm to Door	mm	125	33
HD	H-Point to Door	mm	135	93
HR	Head to Side Header	mm	197	199
HS	Head to Side Window	mm	318	325
KK	Knee to Knee	mm	375	253
SHY	Striker to H-Point (Y Direction)	mm	230	220
AA	Ankle to Ankle	mm	350	211

DATA SHEET NO. 5
SEAT BELT POSITIONING DATA

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU — Top surface of reference to belt upper edge	mm	385	330
PBL — Top surface of reference to belt lower edge	mm	310	265

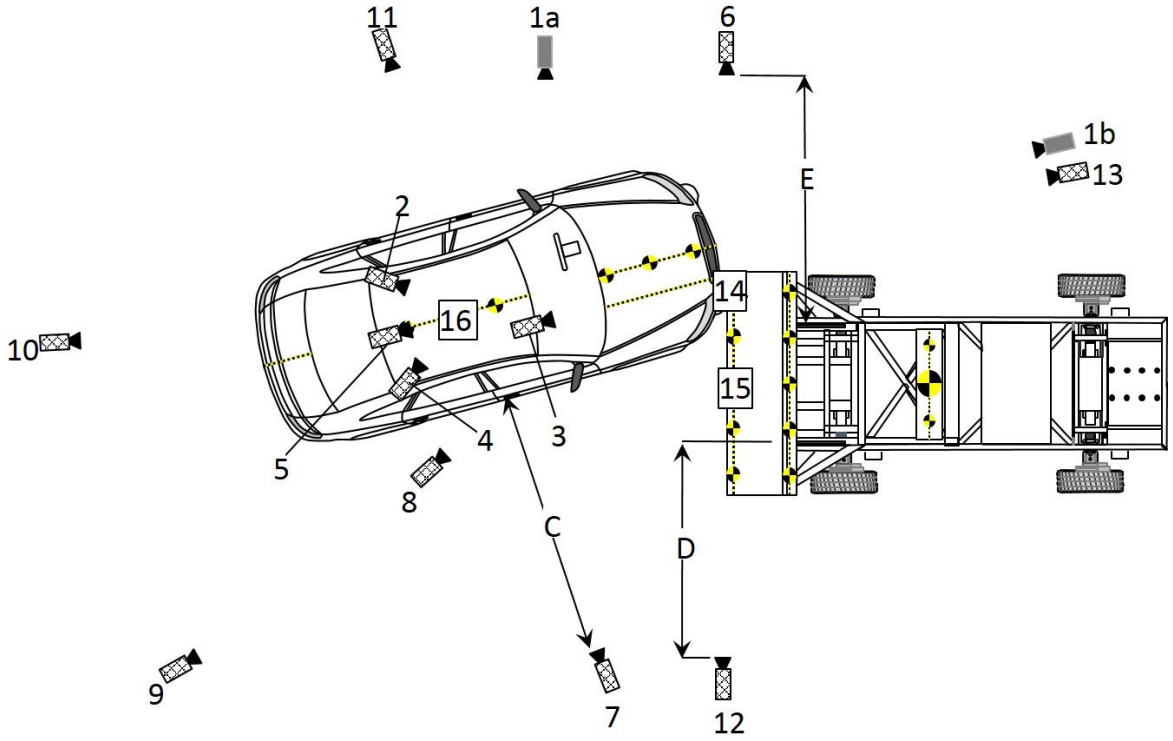
BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	830	845
Lap Belt Length as measured on ATD	mm	743	565
Remainder of belt on reel	mm	777	940
Total belt length for continuous webbing systems	mm	2350	2350

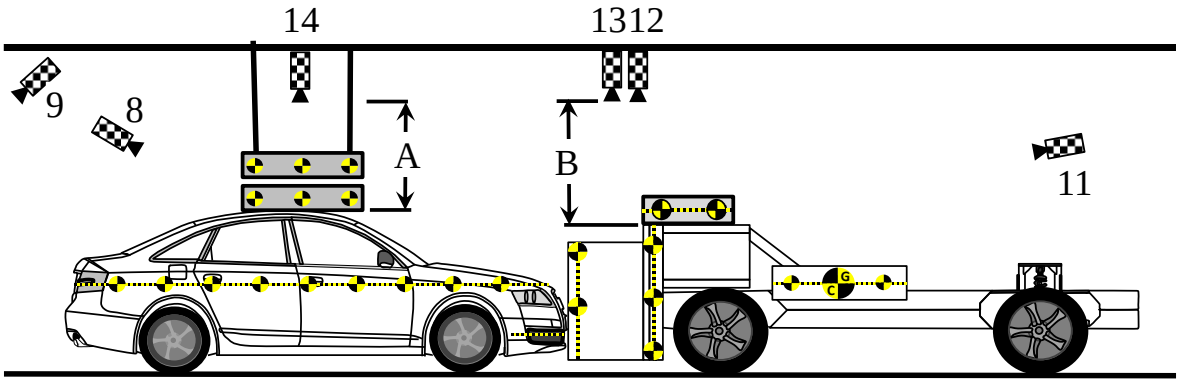
DATA SHEET NO. 6
HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

HORIZONTAL LOCATION



VERTICAL LOCATION



A	mm	3778
B	mm	4139
C	mm	7839
D	mm	8162
E	mm	8164

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

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

CAMERA LOCATIONS

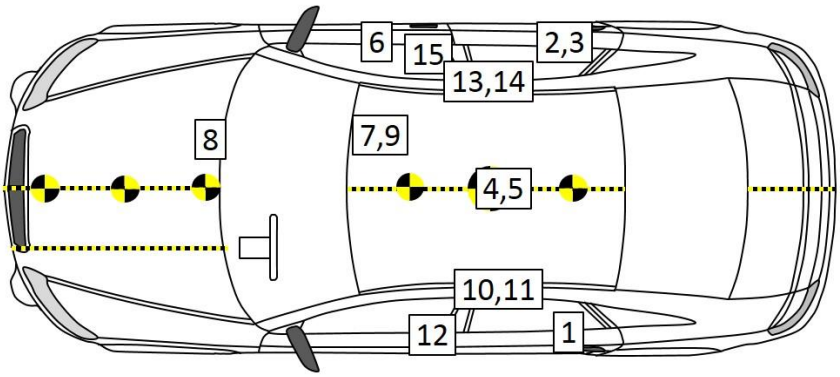
No.	Camera View	Location (mm)			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Side	--	--	--	Zoom	60
2	Onboard Passenger Movement	7361	822	1217	12.5	1000
3	Onboard Passenger Lower Leg*	N/A				
4	Onboard Driver Movement	7306	386	1217	12.5	1000
5	Onboard Centerline	7447	564	1161	8	1000
6	Passenger Interaction	4920	9211	1068	20	1000
7	Driver Interaction	5794	-7858	1471	28	1000
8	Target Vehicle Left Side Perpendicular (High)	8308	2288	3595	28	1000
9	Target Vehicle Driver Motion	12938	-6939	2520	24-70	1000
10	Rear View of Vehicle and OMDB	28750	0	3421	14	1000
11	Right Side Target Vehicle and OMDB	11155	9121	2714	24-70	1000
12	Front of Vehicle and OMDB	4907	-9247	1072	24	1000
13	Close-Up Impact Point	1242	3722	1251	28	1000
14	Overhead Impact Point View	4865	-1115	4733	28	1000
15	Overhead Vehicle View	7369	0	5327	15	1000
16	Overhead OMDB View	4678	0	5327	15	1000

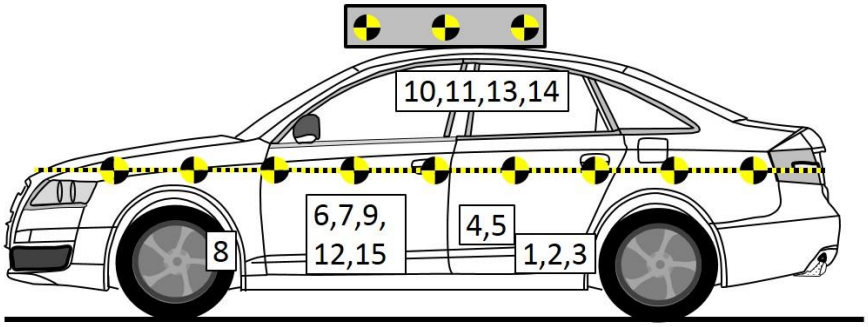
*Onboard camera not installed due to lack of room inside the vehicle toepan compartment

Reference Point:
+X – From back of OMDB to front of OMDB
+Y – Right of monorail center
+Z – Up from ground

DATA SHEET NO. 7
VEHICLE INSTRUMENTATION DATA

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015





VEHICLE ACCELEROMETER PRE-TEST LOCATIONS RELATIVE TO VCS

No.	Accelerometer Location	Axes	Units	Measurements (mm)		
				X	Y	Z
1	Left Rear Sill	X,Y	mm	1418	-686	192
2	Right Rear Sill	X,Y	mm	1410	691	178
3	Right Rear Sill Redundant	X,Y	mm	1423	695	179
4	Vehicle CG	X,Y,Z	mm	1553	0	208
5	Vehicle CG Angular Displacement	X	mm	1564	0	211
		Y	mm	1553	11	210
		Z	mm	1553	0	208
6	Right Side Seat Track	X,Y,Z	mm	2048	500	187
8	Right Side Toe Pan	X,Y,Z	mm	3046	401	12
7	Right Side String Pot	N/A	mm	2912	339	183

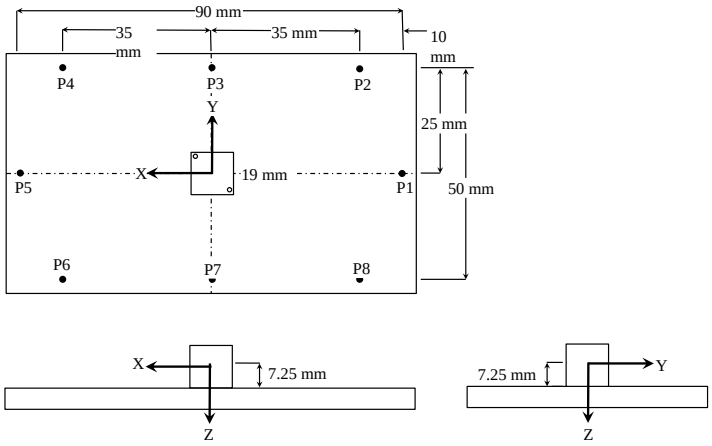
Reference point:

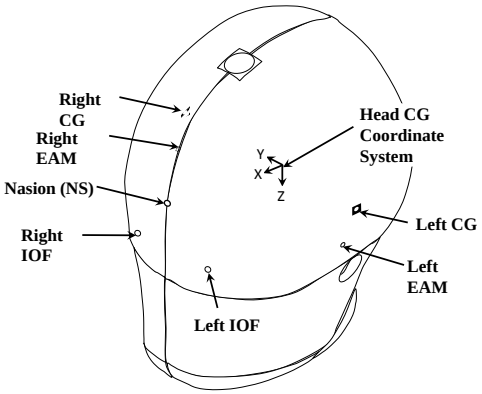
+X – From the rear of the vehicle to the front of the vehicle
+Y – From the left side of the vehicle to the right side of the vehicle
+Z – From the top of the vehicle to the bottom of the vehicle

DATA SHEET NO. 7 (Continued)
VEHICLE INSTRUMENTATION DATA

Test Vehicle: 2015 Honda Fit hatchback — NHTSA No.: R20155377
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset — Test Date: 9/30/2015

ANGULAR RATE SENSOR MOUNTING PLATE & THOR HEAT POINT DEFINITIONS



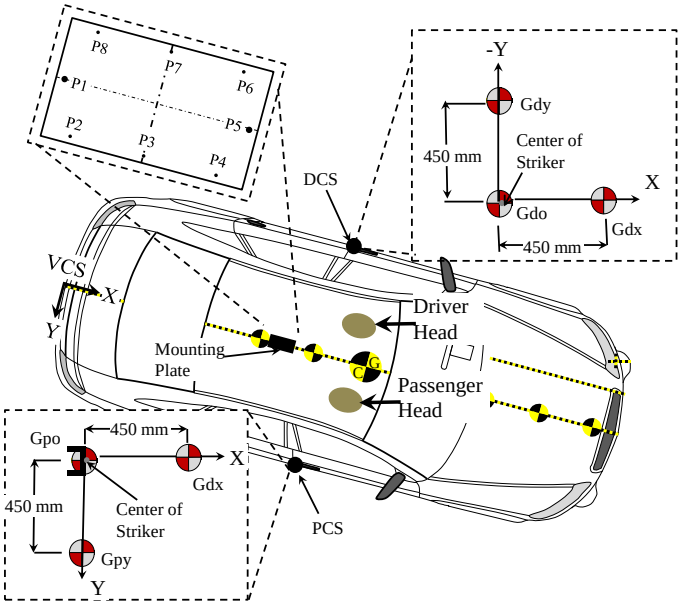


ARS MOUNTING PLATE - VEHICLE COORDINATE SYSTEM					
No.	Description	Units	Measurements (mm)		
			X	Y	Z
P1	Plate Point 1	mm	1508	0	223
P2	Plate Point 2	mm	1518	25	223
P3	Plate Point 3	mm	1553	25	223
P4	Plate Point 4	mm	1588	25	223
P5	Plate Point 5	mm	1598	0	223
P6	Plate Point 6	mm	1588	-25	223
P7	Plate Point 7	mm	1553	-25	223
P8	Plate Point 8	mm	1518	-25	223

HEAD POINTS IN RELATION TO HEAD CG COORDINATE SYSTEM				
Description	Units	X	Y	Z
CG	mm	0	0	0
Left CG	mm	0	-77	0
Right CG	mm	0	77	0
Left EAM	mm	7	-72	27
Right EAM	mm	7	72	27
Left IOF	mm	89	-32	28
Right IOF	mm	89	32	28
Nasion	mm	92	0	-10

DATA SHEET NO. 7 (Continued)
VEHICLE INSTRUMENTATION DATA

Test Vehicle: 2015 Honda Fit hatchback | NHTSA No.: R20155377
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset | Test Date: 9/30/2015



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

DESCRIPTION	DRIVER DCS			PASS. PCS		
	X	Y	Z	X	Y	Z
G_o	0	0	0	0	0	0
G_x	451	0	0	-450	0	0
G_y	-2	-451	1	1	-450	-1
P1	-103	791	-269	488	641	-269
P2	-87	813	-269	472	619	-269
P3	-53	803	-269	438	629	-269
P4	-20	794	-269	405	638	-269
P5	-17	767	-269	402	665	-269
P6	-33	746	-269	418	686	-269
P7	-67	755	-270	452	677	-269
P8	-100	764	-269	485	668	-269
Left CG	139	295	-1220			
Right CG				48	328	-1211
Left EAM	146	298	-1191			
Right EAM				43	335	-1183
Left IOF	239	312	-1188	-15	457	-1180
Right IOF	258	372	-1187	-29	394	-1180
Nasion	253	342	-1226	-25	425	-1218

DATA SHEET NO. 7 (CONTINUED)
VEHICLE INSTRUMENTATION DATA

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

No.	Description	Axes	Units	Positive Direction		Negative Direction	
				Max	Time (ms)	Max	Time (ms)
1	Left Rear Sill	X	g	2.14	105.00	-40.05	38.70
		Y	g	7.75	37.55	-11.80	47.60
2	Right Rear Sill	X	g	2.24	115.40	-56.04	35.55
		Y	g	2.09	16.55	-21.91	43.65
3	Impact Side Rear Sill Redundant	X	g	2.45	112.80	-55.93	35.55
		Y	g	2.19	107.75	-23.70	43.65
4	Vehicle CG Acceleration	X	g	3.10	89.70	-41.57	45.40
		Y	g	1.74	117.95	-21.49	48.25
		Z	g	17.33	51.40	-9.78	36.80
5	Impact Side Seat Track	X	g	6.63	84.80	-63.20	36.45
		Y	g	5.30	43.50	-25.85	48.15
		Z	g	31.29	43.90	-17.44	48.95
6	Impact Side Seat Crossmember	X	g	6.31	84.80	-50.05	36.95
		Z	g	33.02	38.25	-32.81	51.65
7	Impact Side Toepan	X	g	66.47	18.50	-150.65	31.95
		Y	g	21.84	19.35	-65.67	32.50
		Z	g	58.27	43.35	-52.08	27.10
8	Angular Rate Sensors	X	Deg/s	185.13	33.00	-41.95	45.75
		Y	Deg/s	75.04	28.00	-113.17	51.50
		Z	Deg/s	22.28	21.60	-55.94	300.00
9	Driver Shoulder Displacement		mm	29.44	25.80	-239.50	89.65
10	Driver Shoulder Belt		N	4237.63	47.05	-10.60	15.70
11	Driver Lap Belt		N	8048.31	57.40	-48.99	11.85
12	Passenger Shoulder Displacement		mm	61.90	29.40	-109.55	96.10
13	Passenger Shoulder Belt		N	6444.35	70.85	-46.44	126.15
14	Passenger Lap Belt		N	6240.04	62.90	-23.82	136.55
15	Impact Side Floor String Pot		mm	0.05	0.10	-95.10	64.80

Note: See Appendix B for all vehicle data plots.

TIME TO FIRE RESTRAINT TIMING

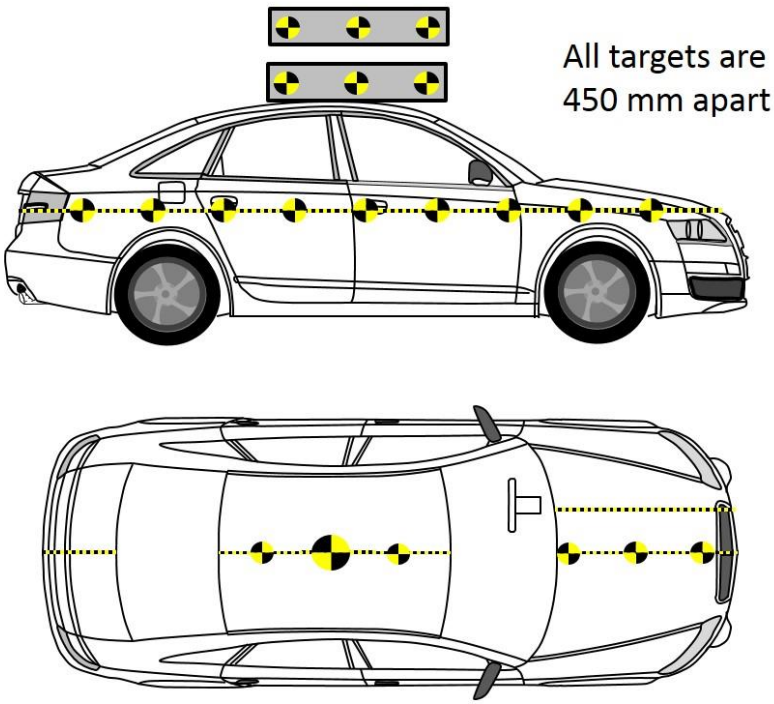
No.	Description	Axes	Units	Time to Fire (ms)
1	Driver Air Bag Squib 1	*	A	18.05
2	Driver Air Bag Squib 2	*	A	38.05
3	Driver Curtain Airbag	*	A	Did not fire
4	Driver Torso Airbag	*	A	Did not fire
5	Driver Knee Airbag	*	A	N/A
6	Driver Pretensioner	*	A	16.05
7	Passenger Air Bag Squib 1	*	A	16.05
8	Passenger Air Bag Squib 2	*	A	Did not fire
9	Passenger Curtain Airbag	*	A	35.05
10	Passenger Torso Airbag	*	A	35.30
11	Passenger Knee Airbag	*	A	N/A
12	Passenger Pretensioner	*	A	16.05

* The measurement indicates the time the voltage changed

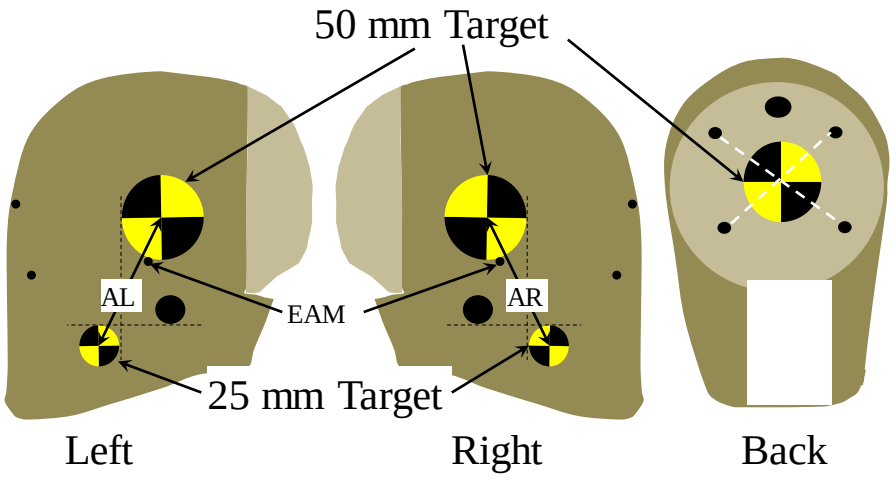
DATA SHEET NO. 8
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

VEHICLE TARGETS



ATD HEAD TARGETS

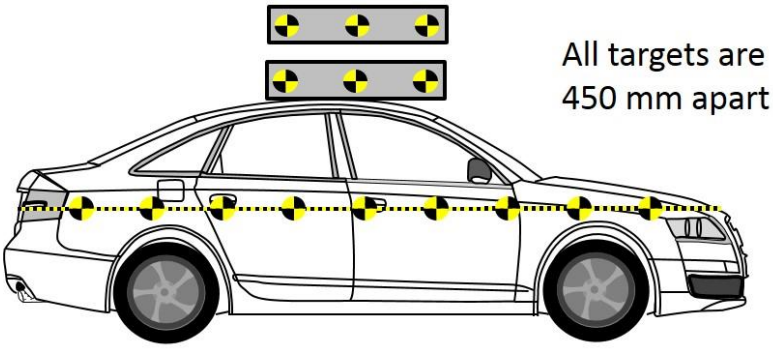


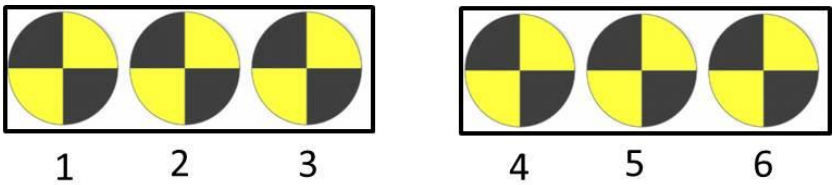
Target	Measurement
AL	85 mm
AR	85 mm

DATA SHEET NO. 8 (CONTINUED)
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset
NHTSA No.: R20155377
Test Date: 9/30/2015

OVERHEAD TARGET BARS





Vertical Target Plane 1 (Driver's Side)

Vertical Target Plane 2 (Passenger Side)

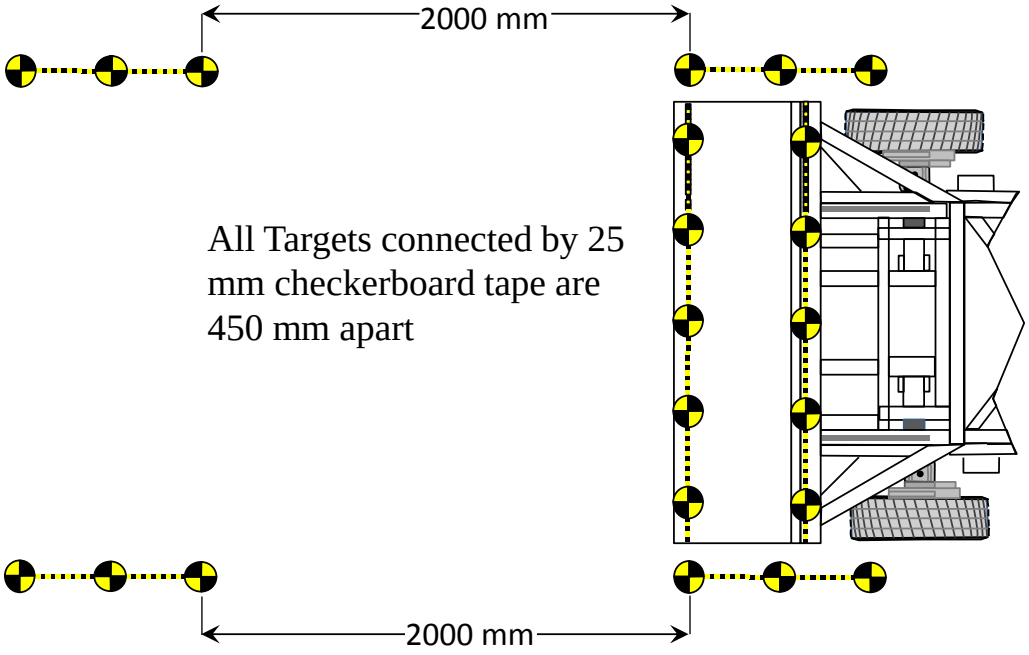
Target	Units	X	Y	Z
1	mm	2129	-346	-1341
2	mm	1675	-341	-1336
3	mm	1226	-328	-1333
4	mm	2149	321	-1330
5	mm	1700	317	-1334
6	mm	1245	306	-1332

Reference point:
+X – From the rear of the vehicle to the front of the vehicle
+Y – From the left side of the vehicle to the right side of the vehicle
+Z – From the top of the vehicle to the bottom of the vehicle

DATA SHEET NO. 8 (CONTINUED)
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

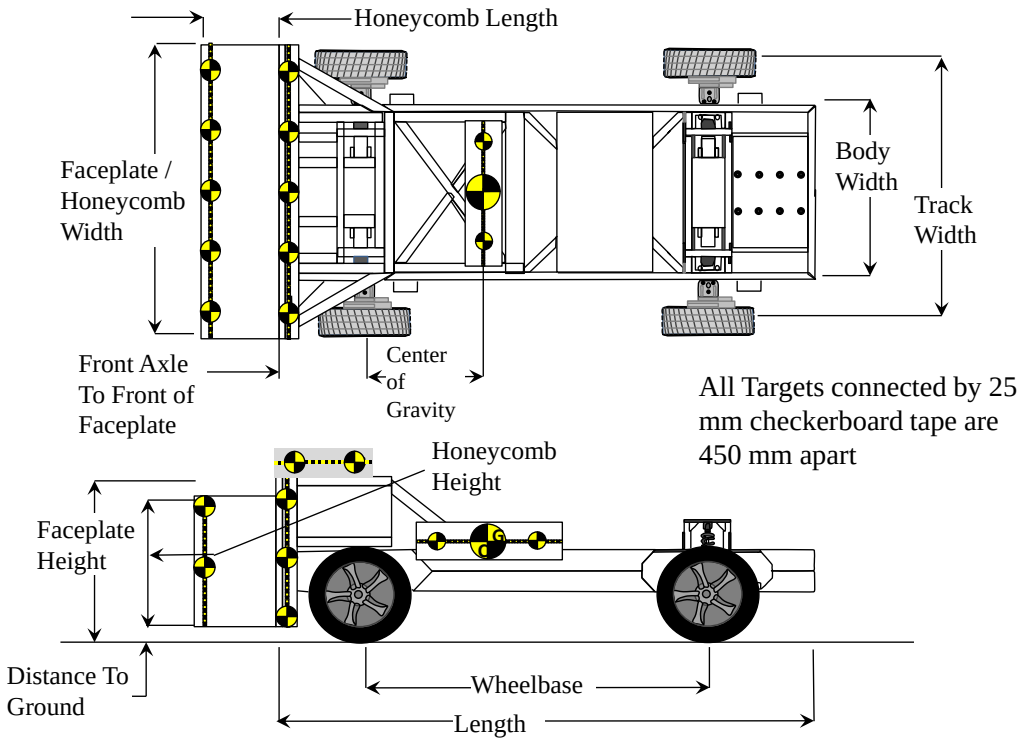
GROUND TARGETS LOCATED IN REFERENCE TO OMDB



DATA SHEET NO. 8 (CONTINUED)
OMDB PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015



Item	Units	Value	Item	Units	Value
Honeycomb Width	mm	2205	Faceplate Height	mm	1184
Honeycomb Length	mm	605	Faceplate to Ground	mm	80
Honeycomb Height	mm	947	Wheelbase	mm	2589
Left Front Axle to Front Faceplate	mm	600	Cart Length	mm	3993
Right Front Axle to Front Faceplate	mm	601	Body Width	mm	1301
Front Axle to CG	mm	926	Track Width	mm	1884

	Units	Front Axle	Rear Axle	Total
Left	kg	826	434	1260
Right	kg	792	467	1259
Ratio	%	64%	36%	
Total	kg	1618	901	2519
CG Aft of Front Axle	mm			926

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

DATA SHEET NO. 9
TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

INSTRUMENTATION

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

CAMERA COVERAGE

Type of Camera	Number Used in this Test
High-Speed Vehicle Onboard	4
High-Speed Off-board	11
Real-Time Panning	2
Total	17

DATA SHEET NO. 10
POST TEST OBSERVATIONS

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

TEST DUMMY INFORMATION AND CONTACT LOCATIONS

Description	Driver	Right Front Passenger
Dummy Type/Serial No.	THOR015	THOR016
Lower Leg Type	LX	LX
Lower Leg Serial No.	LX0038/LX0039	LX0018/ LX0019
Head Contact	Front Airbag, passenger front airbag, passenger upper toso	Front & Curtain airbag, headrest
Upper Torso Contact	Front airbag, shoulder/arm contacted instrument panel	Front Airbag, Driver Head, Shoulder/Arm contacted door and torso airbag
Lower Torso Contact	None	None
Left Knee Contact	Knee Bolster	Glove Box
Right Knee Contact	Knee Bolster	Glove Box

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Right Front Passenger
Locked/Unlocked Doors	Unlocked	Unlocked
Front Door Opening	Closed & Operational	Closed & Operational
Rear Door Opening	Closed & Operational	Closed & Operational
Seat Track Shift (mm)	0	0
Seat Back Failure	No	No
Glazing Damage	None	Small viewing window shattered

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions	Photo Taken (Y/N)
Pillar Performance	Remained in Good Condition	Y
Windshield Damage	Cracks throughout with minor separation	Y
Window Damage	Right Front Passenger viewing window shattered	Y
Other Notable Effects	None	--

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Driver (Occupant 1)		Right Front Passenger (Occupant 2)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	Yes	Yes	Yes
Curtain Airbag	Yes	Disabled	Yes	Yes
Torso Airbag	Yes	Disabled	Yes	Yes
Knee Airbag	No	N/A	No	N/A
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes
Other				

DATA SHEET NO. 11 (CONTINUED)
VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	mm	4065	3698	367
2	Rear Surface of Vehicle (RSOV) to Front of Engine	mm	3563	3354	209
3	RSOV to Firewall	mm	3330	3286	44
4	RSOV to Upper Leading Edge of Right Door	mm	2794	2785	9
5	RSOV to Upper Leading Edge of Left Door	mm	2794	2791	3
6	RSOV to Lower Leading Edge of Right Door	mm	2791	2778	13
7	RSOV to Lower Leading Edge of Left Door	mm	2792	2792	-1
8	RSOV to Upper Trailing Edge of Right Door	mm	1747	1746	1
9	RSOV to Upper Trailing Edge of Left Door	mm	1746	1744	2
10	RSOV to Lower Trailing Edge of Right Door	mm	1768	1778	-10
11	RSOV to Lower Trailing Edge of Left Door	mm	1765	1766	-2
12	RSOV to Bottom of “A” Post of Right Side	mm	2991	2994	-3
13	RSOV to Bottom of “A” Post of Left Side	mm	2992	2989	3
14	RSOV to Firewall, Right Side	mm	3296	3055	241
15	RSOV to Firewall, Left Side	mm	3297	3296	1
16	RSOV to Steering Column	mm	2378	2393	-15
17	Center of Steering Column to “A” Post	mm	291	283	8
18	Center of Steering Column to Headliner	mm	442	411	31
19	RSOV to Right Side of Front Bumper	mm	4029	3543	486
20	RSOV to Left Side of Front Bumper	mm	4028	4007	21
21	Length of Engine Block	mm	275	210	65
RD	RSOV to Right Side of Dash Panel	mm	2530	2458	72
CD	RSOV to Center of Dash Panel	mm	2524	2506	18
LD	RSOV to Left Side of Dash Panel	mm	2556	2559	-3

UR* = Unrecoverable Data Point

DATA SHEET NO. 12
ACCIDENT INVESTIGATION DIVISION DATA

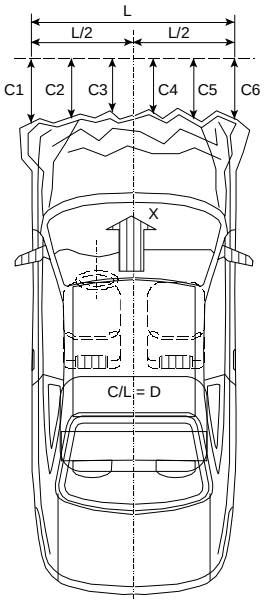
Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

VEHICLE INFORMATION

VIN:	3HGGK5G59FM766551	Wheelbase (mm):	2532
Vehicle Size Category:	Passenger	Test Weight (kg):	1383

ACCELEROMETER DATA

Accelerometer Locations:	As Described in Data Sheet No. 7
Cal. Procedure/Interval:	Calspan Procedure / 6 month
Integration Algorithm:	Trapezoidal
Linearity:	> 99%
Impact Velocity (kph):	90.09
Velocity Change (kph):	90.09



CRUSH PROFILE

Collision Deformation Classification:	12FREE6
Midpoint of Damage:	C5
Damage Region Length (mm):	1376
Impact Mode:	Frontal 15˚ Angle, 35% Right Offset

Crush Measurements: Bumper Cover

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	3886	4008	-122
C2	Crush zone 2 at left side	mm	4032	3973	59
C3	Crush zone 3 at left side	mm	4058	3795	263
C4	Crush zone 4 at right side	mm	4059	3590	469
C5	Crush zone 5 at right side	mm	4034	3509	525
C6	Crush zone 6 at right side	mm	3889	3426	463
L	C1 to C6	mm	1376	1237	139

Crush Measurements: Bumper Cover Removed

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
B1	Bumper Beam 1 at left side	mm	3924	3960	36
B2	Bumper Beam 2 at left side	mm	4006	3935	-71
B3	Bumper Beam 3 at left side	mm	4026	3854	-172
B4	Bumper Beam 4 at left side	mm	4039	3769	-270
B5	Bumper Beam 5 at right side	mm	4043	3677	-366
B6	Bumper Beam 6 at right side	mm	4038	3570	-468
B7	Bumper Beam 7 at right side	mm	4025	3448	-577
B8	Bumper Beam 8 at right side	mm	4006	3385	-621
B9	Bumper Beam 9 at right side	mm	3923	3325	-598
L	B1 to B9	mm	1114	908	206

DATA SHEET NO. 13
VEHICLE INTRUSION MEASUREMENTS

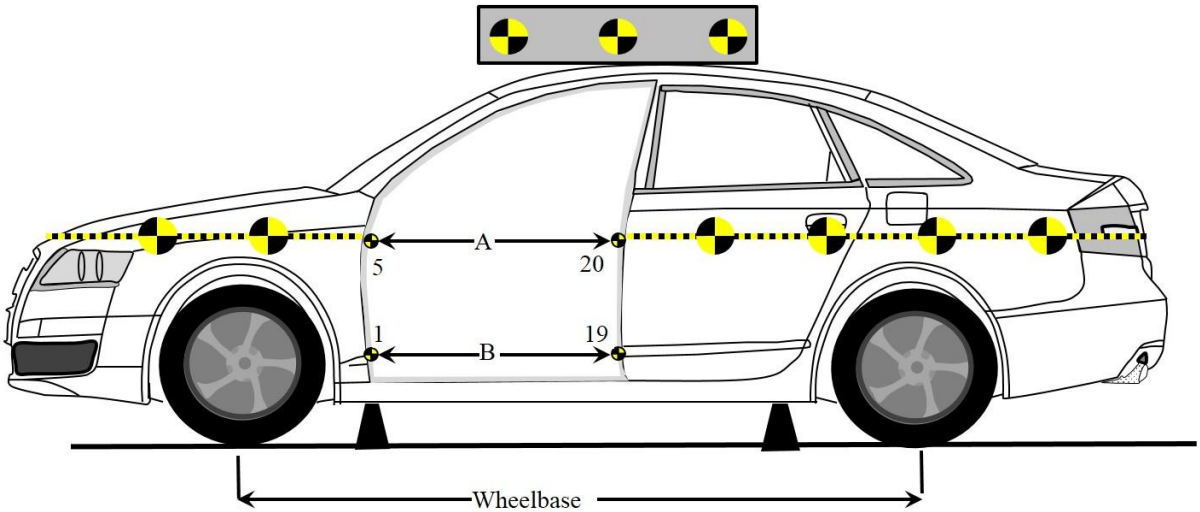
Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	785	782	-3
B	Left Side Lower	mm	779	777	-2
D	Right Side Upper	mm	787	757	-30
E	Right Side Lower	mm	773	748	-25

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2532	2525	-7
F	Right Side Wheelbase	mm	2532	2329	-203



DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

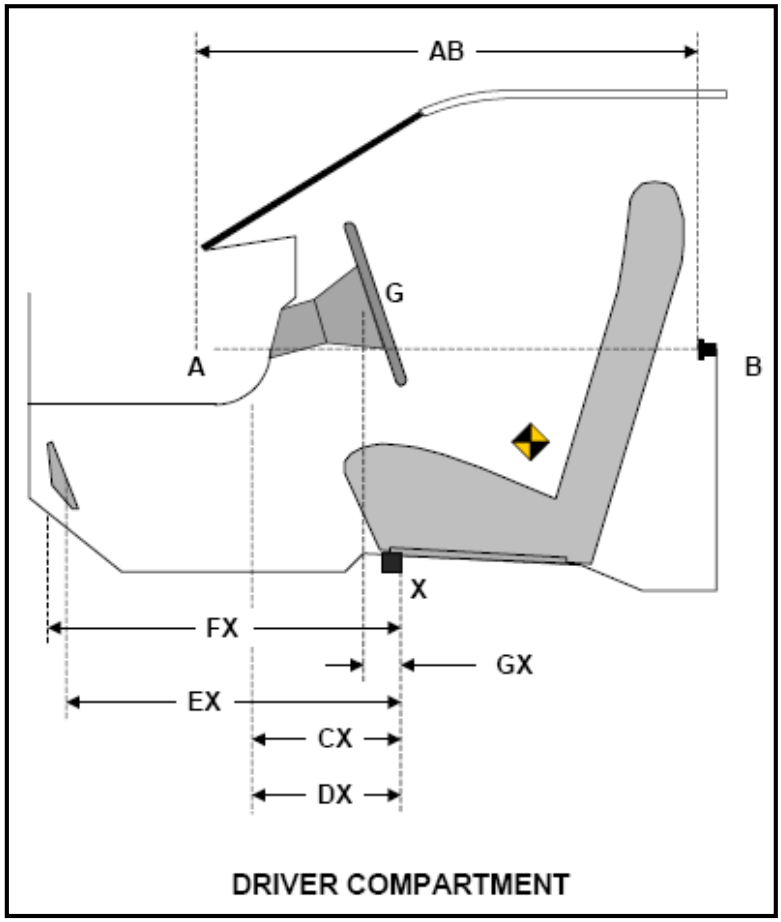
Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	777	777	0
CX	Left Knee Bolster to X	mm	200	199	-1
DX	Right Knee Bolster to X	mm	193	233	40
EX	Brake Pedal to X	mm	483	443	-40
FX	Foot Rest to X	mm	580	581	1
GX	Center of Steering Column Wheel Hub to X	mm	8	17	9

X = Front of Seat Track (Stationary)

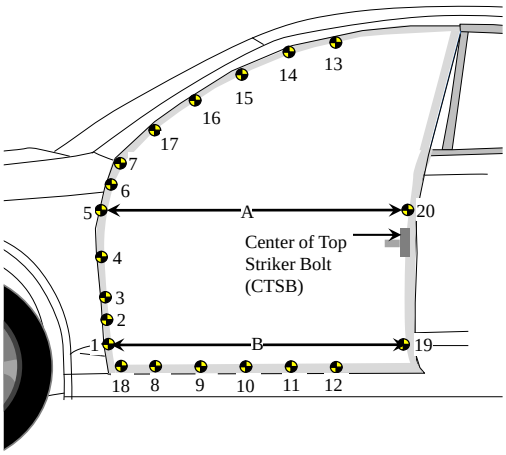


DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

DRIVER SIDE DOOR SILL INTRUSIONS



+X – From the rear of the vehicle to the front of the vehicle
+Y – From the left side of the vehicle to the right side of the vehicle
+Z – From the top of the vehicle to the bottom of the vehicle

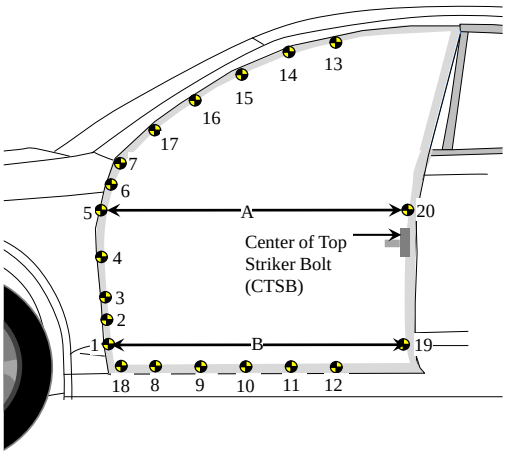
Point	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2738	-709	93	2738	-750	81	0	-41	-12
2	2740	-706	17	2737	-744	7	-3	-38	-10
3	2727	-705	-59	2728	-738	-68	1	-33	-9
4	2686	-707	-208	2686	-736	-218	0	-29	-10
5	2623	-709	-359	2622	-727	-368	-1	-18	-9
6	2607	-702	-435	2605	-715	-443	-2	-13	-8
7	2590	-687	-508	2591	-700	-515	1	-13	-7
17	2564	-652	-633	2561	-657	-638	-3	-5	-5
16	2503	-616	-722	2502	-619	-726	-1	-3	-4
15	2384	-604	-763	2385	-602	-767	1	2	-4
14	2260	-589	-797	2261	-583	-800	1	6	-3
13	2139	-579	-825	2140	-570	-826	1	9	-1
20	1839	-687	-359	1840	-692	-364	1	-5	-5
19	1961	-705	92	1961	-729	84	0	-24	-8
12	1990	-706	124	1991	-731	116	1	-25	-8
11	2140	-707	161	2140	-737	154	0	-30	-7
10	2291	-709	162	2292	-742	153	1	-33	-9
9	2491	-710	162	2491	-747	153	0	-37	-9
8	2590	-710	162	2591	-748	152	1	-38	-10
18	2682	-710	155	2681	-751	144	-1	-41	-11

DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

PASSENGER SIDE DOOR SILL INTRUSIONS



+X – From the rear of the vehicle to the front of the vehicle
+Y – From the left side of the vehicle to the right side of the vehicle
+Z – From the top of the vehicle to the bottom of the vehicle

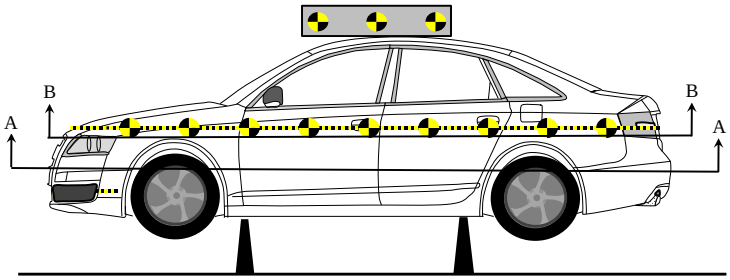
Point	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2736	708	92	2708	722	83	-28	14	-9
2	2737	706	17	2705	719	4	-32	13	-13
3	2727	703	-61	2694	718	-72	-33	15	-11
4	2688	704	-208	2655	731	-221	-33	27	-13
5	2623	706	-357	2594	741	-368	-29	35	-11
6	2605	694	-434	2576	736	-447	-29	42	-13
7	2590	683	-508	2567	707	-525	-23	24	-17
17	2563	646	-627	2564	643	-634	1	-3	-7
16	2499	609	-723	2499	612	-732	0	3	-9
15	2378	597	-765	2379	600	-772	1	3	-7
14	2261	584	-798	2261	588	-805	0	4	-7
13	2137	574	-825	2136	577	-830	-1	3	-5
20	1837	686	-359	1837	686	-358	0	0	1
19	1961	706	91	1960	706	94	-1	0	3
12	1990	706	122	1987	708	123	-3	2	1
11	2136	711	158	2133	707	161	-3	-4	3
10	2287	709	158	2283	707	162	-4	-2	4
9	2437	710	159	2435	707	164	-2	-3	5
8	2589	710	160	2585	710	168	-4	0	8
18	2679	709	153	2664	705	160	-15	-4	7

DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

VEHICLE EXTERIOR CRUSH PROFILE
SECTION A-A



Reference point:

+X – From the rear of the vehicle to the front of the vehicle
+Y – From the left side of the vehicle to the right side of the vehicle
+Z – From the top of the vehicle to the bottom of the vehicle

Point	Pre-Test			Point	Post-Test		
	X	Y	Z		X	Y	Z
1	1771	-828	54	1	1770	-845	53
2	1925	-829	53	2	1858	-847	54
3	2105	-831	54	3	2034	-852	53
4	2300	-832	53	4	2240	-857	54
5	2497	-834	54	5	2412	-862	53
6	2703	-839	53	6	2587	-867	53
7	2917	-845	54	7	2755	-876	54
8	3577	-839	53	8	2819	-880	53
9	3692	-816	53	9	2857	-884	53
10	3816	-768	53	10	2917	-885	53
11	3910	-674	54	11	3048	-889	53
12	4017	-501	54	12	3388	-952	53
13	4038	-375	54	13	3476	-952	54
14	4054	-223	54	14	3668	-831	53
15	4059	-57	53	15	3735	-792	53
16	4059	127	53	16	3714	-768	53
17	4046	309	54	17	3682	-628	53
18	4033	412	54	18	3746	-543	53
19	4024	464	54	19	3873	-529	54
20	4000	537	53	20	3929	-519	54
21	3919	658	54	21	3973	-583	53
22	3836	748	53	22	3985	-472	53
23	3774	786	54	23	3957	-422	54
24	3689	815	54	24	3889	-331	53
25	3574	838	54	25	3783	-271	53

DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

VEHICLE EXTERIOR CRUSH PROFILE
SECTION A-A (Continued)

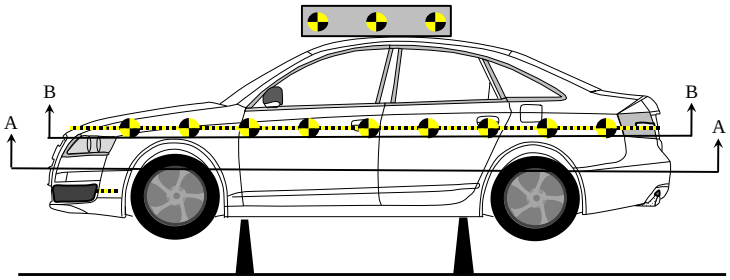
Point	Pre-Test			Point	Post-Test		
	X	Y	Z		X	Y	Z
26	2920	846	54	26	3687	-162	54
27	2872	846	53	27	3568	-38	53
28	2788	842	53	28	3445	71	53
29	2694	838	53	29	3412	164	54
30	2581	835	53	30	3388	229	54
31	2499	833	53	31	3354	307	53
32	2334	832	53	32	3235	462	54
33	2230	831	53	33	3227	561	53
34	2159	831	53	34	3243	669	53
35	2088	831	53	35	3077	662	53
36	1983	830	54	36	2927	765	53
37	1919	830	54	37	2864	853	53
38	1858	829	53	38	2812	821	53
39	1821	829	53	39	2682	826	53
40	1770	829	54	40	2483	838	54
				41	2187	822	54
				42	1963	815	54
				43	1778	810	54

DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

VEHICLE EXTERIOR CRUSH PROFILE
SECTION B-B



Reference point:

+X – From the rear of the vehicle to the front of the vehicle
+Y – From the left side of the vehicle to the right side of the vehicle
+Z – From the top of the vehicle to the bottom of the vehicle

Point	Pre-Test			Point	Post-Test		
	X	Y	Z		X	Y	Z
1	1785	-848	-173	1	1784	-856	-174
2	1927	-846	-173	2	1932	-859	-174
3	2131	-843	-173	3	2141	-860	-173
4	2359	-839	-174	4	2385	-861	-173
5	2591	-837	-174	5	2581	-862	-173
6	2770	-844	-173	6	2762	-870	-173
7	2944	-847	-173	7	2925	-871	-174
8	3121	-850	-174	8	3103	-874	-173
9	3324	-849	-173	9	3261	-868	-174
10	3489	-833	-173	10	3474	-869	-173
11	3552	-818	-173	11	3536	-857	-174
12	3732	-707	-173	12	3567	-820	-173
13	3817	-569	-174	13	3612	-807	-173
14	3897	-388	-173	14	3807	-459	-173
15	3941	-256	-174	15	3847	-422	-173
16	3955	-90	-173	16	3809	-371	-173
17	3955	82	-173	17	3751	-275	-173
18	3944	234	-173	18	3552	-91	-173
19	3886	419	-174	19	3423	49	-173
20	3832	542	-174	20	3356	167	-173
21	3769	649	-173	21	3290	287	-173
22	3715	733	-173	22	3237	390	-173
23	3659	781	-173	23	3098	538	-173
24	3598	802	-173	24	3070	595	-174
25	3493	830	-174	25	3050	657	-173

DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

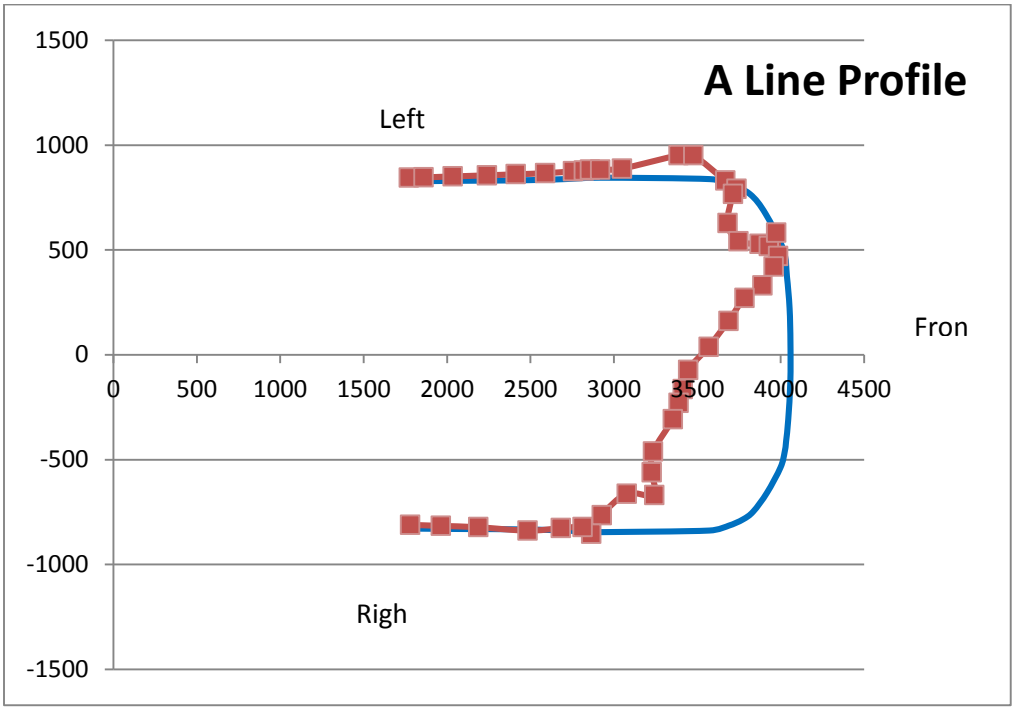
VEHICLE EXTERIOR CRUSH PROFILE
SECTION B-B (Continued)

Point	Pre-Test			Point	Post-Test		
	X	Y	Z		X	Y	Z
26	3389	844	-173	26	2969	732	-173
27	3302	846	-173	27	2884	828	-174
28	3175	848	-173	28	2823	842	-174
29	3099	848	-173	29	2769	831	-173
30	2976	846	-173	30	2656	831	-173
31	2948	845	-173	31	2571	834	-174
32	2908	845	-172	32	2396	838	-174
33	2849	843	-173	33	2165	840	-173
34	2769	842	-173	34	1956	842	-174
35	2718	838	-174	35	1788	841	-174
36	2598	835	-173				
37	2520	835	-173				
38	2383	837	-173				
39	2266	839	-174				
40	2180	841	-174				
41	2065	844	-174				
42	2014	845	-173				
43	1940	846	-173				
44	1885	847	-173				
45	1808	847	-174				
46	1781	847	-174				

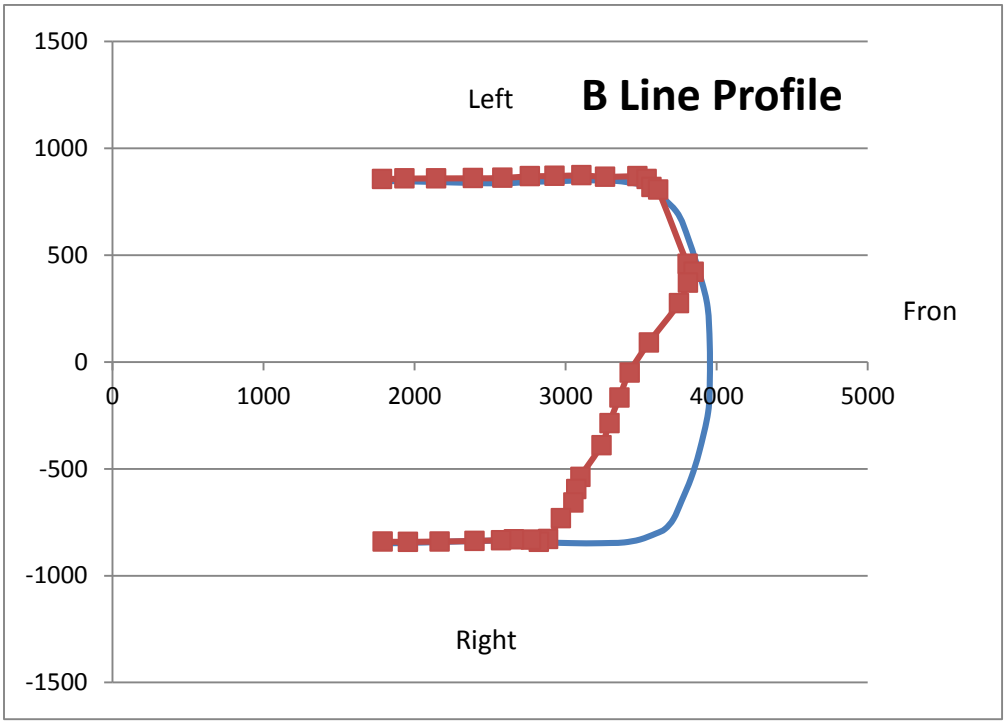
DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

VEHICLE EXTERIOR CRUSH PROFILE
SECTION A-A



SECTION B-B



DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

STRUCTURAL BUMPER BEAM POINTS

	Point	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
		X	Y	Z	X	Y	Z	X	Y	Z
Structural Bumper Beam	B1	3924	-559	55	3960	-541	21	36	18	-34
	B2	4006	-429	56	3935	-391	7	-71	38	-49
	B3	4026	-286	55	3854	-273	-2	-172	13	-57
	B4	4039	-146	55	3769	-159	-10	-270	-13	-65
	B5	4043	-4	56	3677	-53	-18	-366	-49	-74
	B6	4038	140	56	3570	43	-24	-468	-97	-80
	B7	4025	283	55	3448	118	-29	-577	-165	-84
	B8	4006	426	55	3385	245	-37	-621	-181	-92
	B9	3923	555	55	3325	367	-45	-598	-188	-100

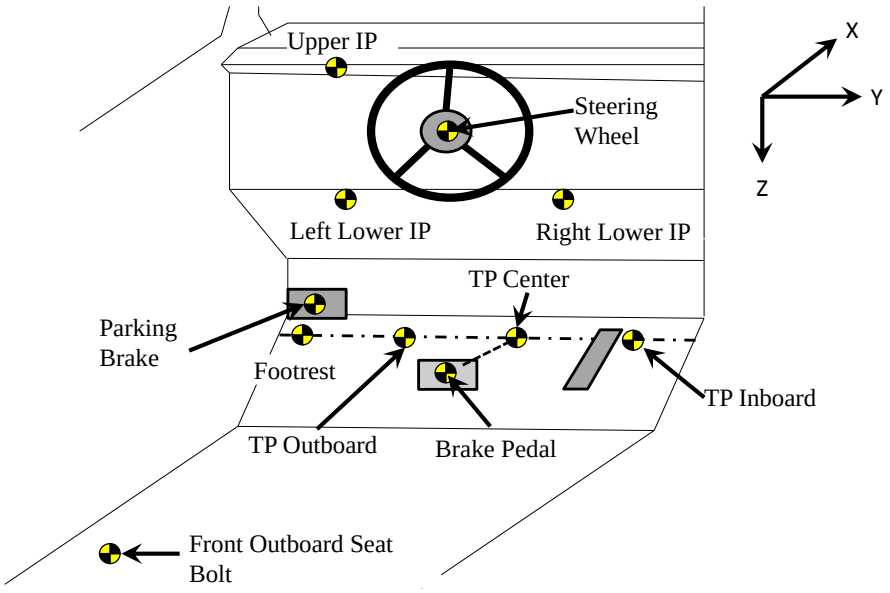
Reference point:
+X – From the rear of the vehicle to the front of the vehicle
+Y – From the left side of the vehicle to the right side of the vehicle
+Z – From the top of the vehicle to the bottom of the vehicle

DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

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	3007	-146	93	2932	-217	91	75	71	3
TP Center	3054	-292	96	3024	-334	84	31	42	12
TP Outboard	3028	-450	90	3026	-496	84	2	46	6
TP Footrest	2945	-549	91	2951	-593	88	-5	45	3
Brake Pedal	2847	-299	92	2813	-328	90	34	29	2
Left Lower IP	2565	-484	-222	2569	-501	-229	-5	17	7
Right Lower IP	2558	-184	-220	2602	-228	-238	-45	45	18
Upper IP	2547	-583	-305	2549	-606	-313	-1	22	8
Steering Wheel	2373	-334	-415	2387	-349	-438	14	-15	-23
Front Outboard Bolt	2364	-562	156	2370	-590	157	-6	28	-1
Emergency Brake									

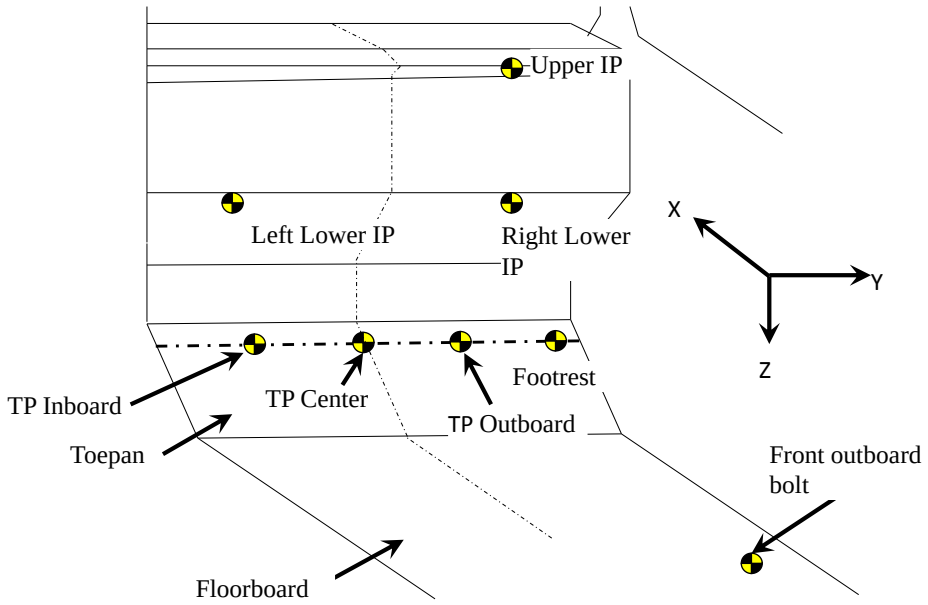
Reference point:
- +X – From the rear of the vehicle to the front of the vehicle
- +Y – From the left side of the vehicle to the right side of the vehicle
- +Z – From the top of the vehicle to the bottom of the vehicle

DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015

PASSENGER FLOOR PAN MEASUREMENTS



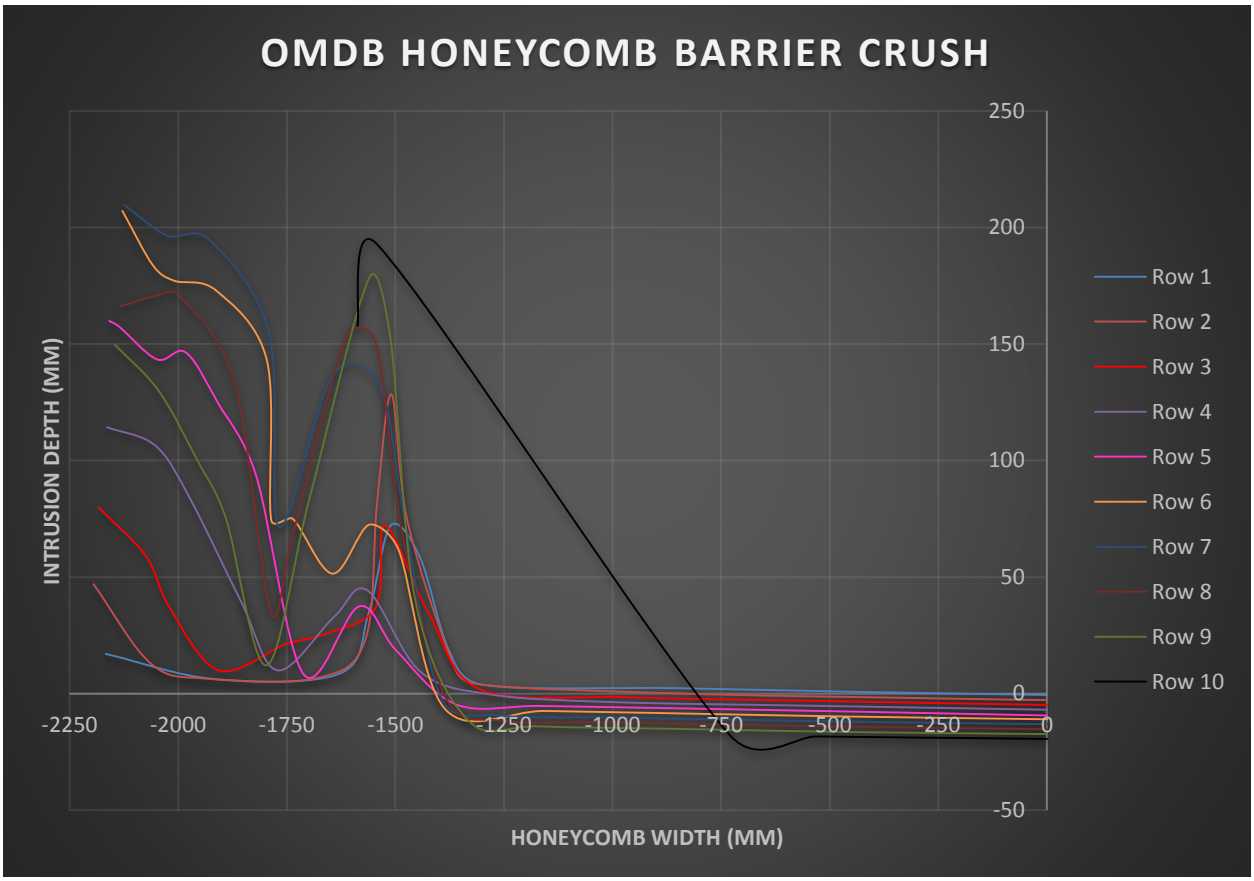
Intrusion Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
TP Inboard	3000	190	92	2899	158	103	101	32	-11
TP Center	3025	342	91	2861	296	70	165	46	21
TP Outboard	2988	492	93	2855	449	67	133	44	26
TP Footrest	2896	592	93	2796	560	86	100	32	8
Left Lower IP	2545	191	-201	2516	171	-214	29	19	13
Right Lower IP	2572	490	-204	2512	471	-232	60	19	28
Upper IP	2529	593	-369	2463	562	-379	67	30	10
Front Outboard Bolt	2364	564	156	2365	559	171	-1	5	-15

Reference point:

+X – From the rear of the vehicle to the front of the vehicle
+Y – From the left side of the vehicle to the right side of the vehicle
+Z – From the top of the vehicle to the bottom of the vehicle

DATA SHEET NO.14
OMDB CRUSH MEASUREMENTS

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015



DATA SHEET NO. 15
SUMMARY OF FMVSS 212, 219 (PARTIAL), AND 301 DATA

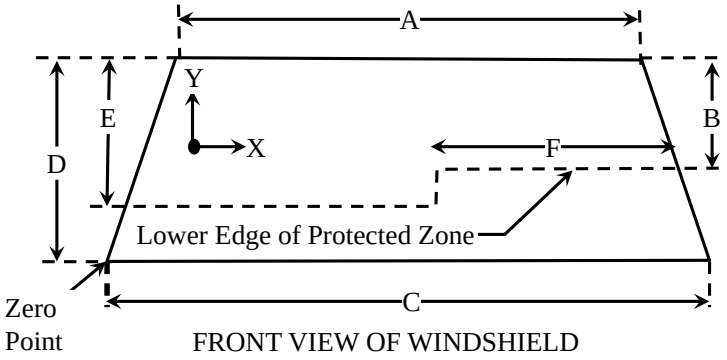
Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

Please provide windshield mounting details. A 0.8 mm trim surrounds the top and side of windshield while a plastic shroud is on the bottom.
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: 21ºC

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2165	2040	94.2%
Right Side	2150	1715	79.2%
Total	4315	3755	86.7%



Item	Units	Value
A	mm	1060
B	mm	547
C	mm	1350
D	mm	960
E	mm	585
F	mm	500

AREAS OF PROTECTED ZONE FAILURES

A. Provide coordinates of the area that the protected zone was penetrated more than .25 inches by a vehicle component other than one that is normally in contact with the windshield.

- No penetration

X	Y

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

- No Penetration

X	Y

DATA SHEET NO. 15 (CONTINUED)
SUMMARY OF FMVSS 212, 219 (PARTIAL), AND 301 DATA

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Ambient Temperature at Test Vehicle Time of Impact: 21.1º C

Test Time: 5:00 PM

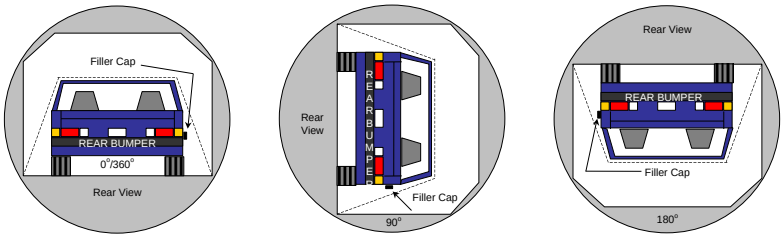
Stoddard Solvent Spillage Measurements

A.	From impact until vehicle motion ceases: (Maximum allowable = 1 oz.)	0	oz
B.	For the 5-minute period after motion ceases: (Maximum allowable = 5 oz.	0	oz
C.	For the following 25 minutes: (Maximum allowable = 1 oz./minute	0	oz
D.	Spillage	0	oz

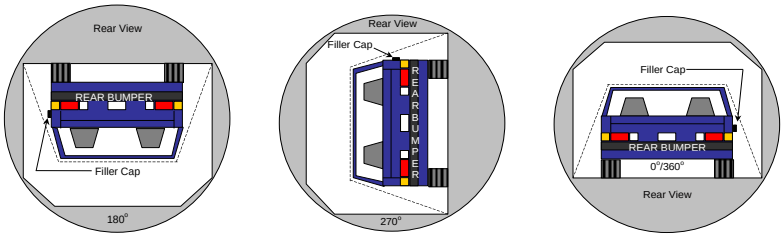
DATA SHEET NO. 16
FMVSS 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2015 Honda Fit hatchback
Test Program: R&D 90.1kph, 15° / 35% Right Oblique Offset

NHTSA No.: R20155377
Test Date: 9/30/2015



0° TO 90° 90° TO 180°



180° TO 270° 270° TO 360°

1. The specified fixture rollover rate for each 90° of rotation is 60 to 180 seconds.

2. The position hold time at each position is 300 seconds (minimum).

3. Details of Stoddard Solvent spillage: None

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	73	300	373
90° to 180°	62	300	362
180° to 270°	61	300	361
270° to 360°	68	300	368

FMVSS 301 SPILLAGE TABLE

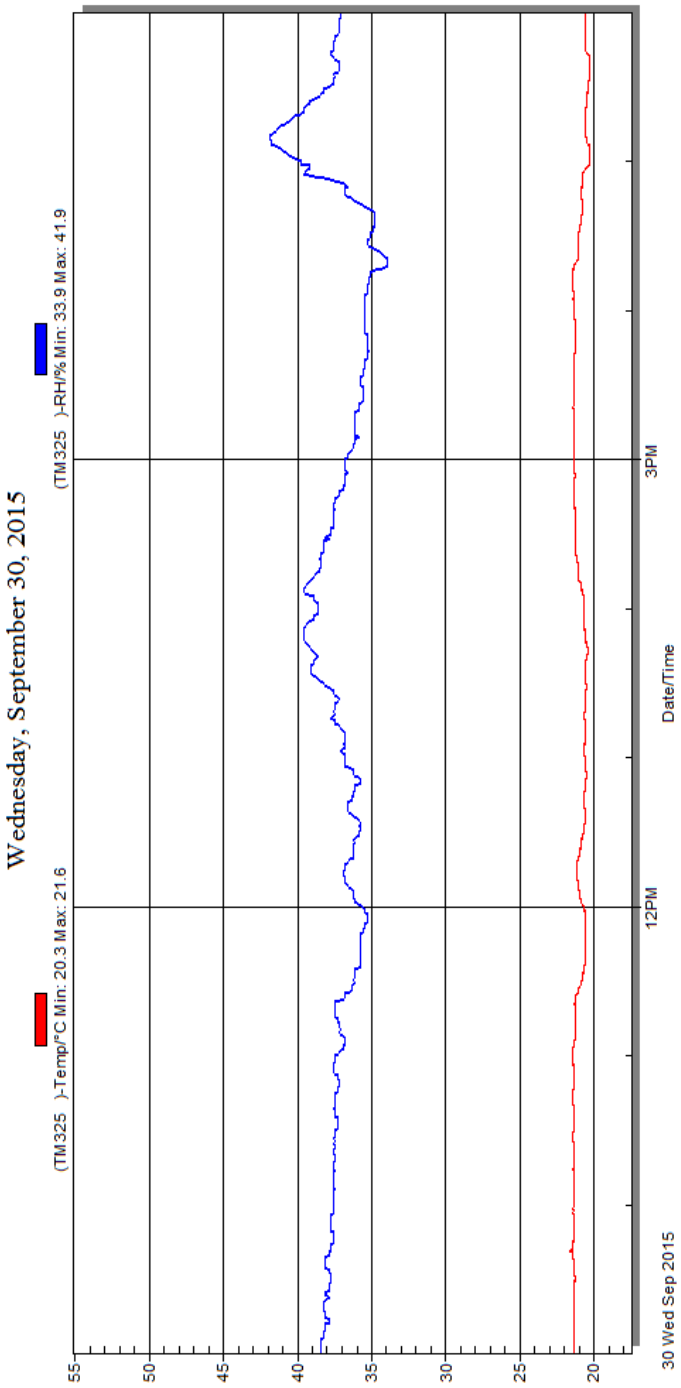
Test Phase	First 5 Minutes	Sixth Minute	Seventh Minute	Eighth Minute
0° to 90°	0	0	0	
90° to 180°	0	0	0	
180° to 270°	0	0	0	
270° to 360°	0	0	0	

SOLVENT SPILLAGE LOCATION TABLE

Test Phase	Spillage Location
0° to 90°	None
90° to 180°	None
180° to 270°	None
270° to 360°	None

DATA SHEET NO. 17
DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle:	2015 Honda Fit hatchback	NHTSA No.:	R20155377
Test Program:	R&D 90.1kph, 15° / 35% Right Oblique Offset	Test Date:	9/30/2015



Temperature Stabilization Chart/Data

APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS		
No.	Description	Page
1	As Delivered Right Front 3-4 View of Test Vehicle	A-9
2	As Delivered Left Rear 3-4 View of Test Vehicle	A-9
3	Test Vehicle Certification Label	A-10
4	Test Vehicle Tire Placard	A-10
5	Pre-Test Front View of Test Vehicle	A-11
6	Post-Test Front View of Test Vehicle	A-11
7	Pre-Test Left Front 3-4 View of Test Vehicle	A-12
8	Post-Test Left Front 3-4 View of Test Vehicle	A-12
9	Pre-Test Left Side View of Test Vehicle	A-13
10	Post-Test Left Side View of Test Vehicle	A-13
11	Pre-Test Left Rear 3-4 View of Test Vehicle	A-14
12	Post-Test Left Rear 3-4 View of Test Vehicle	A-14
13	Pre-Test Rear View of Test Vehicle	A-15
14	Post-Test Rear View of Test Vehicle	A-15
15	Pre-Test Right Rear 3-4 View of Test Vehicle	A-16
16	Post-Test Right Rear 3-4 View of Test Vehicle	A-16
17	Pre-Test Right Side View of Test Vehicle	A-17
18	Post-Test Right Side View of Test Vehicle	A-17
19	Pre-Test Right Front 3-4 View of Test Vehicle	A-18
20	Post-Test Right Front 3-4 View of Test Vehicle	A-18
21	Monroney Label Photograph	A-19
22	Pre-Test Overhead View of OMDB against target vehicle at ideal Impact Point	A-19
23	Pre-Test Left Side View of OMDB against target vehicle at ideal Impact Point	A-20
24	Pre-Test Right Side View of OMDB against target vehicle at ideal Impact Point	A-20
25	Pre-Test Close-up View of Impact Point	A-21
26	Post-Test Close-up View of Impact Point	A-21
27	Post-Test Vehicle Overhead View	A-22
28	Pre-Test Close-up View of Driver Door Latch	A-23
29	Post-Test Close-up View of Driver Door Latch	A-23
30	Pre-Test Close-up View of Passenger Door Latch	A-24

TABLE OF PHOTOGRAPHS (Continued)		
No.	Description	Page
31	Post-Test Close-up View of Passenger Door Latch	A-24
32	Pre-Test Windshield View	A-25
33	Post-Test Windshield View	A-25
34	Pre-Test View of Driver Inner Door Panel	A-26
35	Post-Test View of Driver Inner Door Panel	A-26
36	Pre-Test View of Passenger Inner Door Panel	A-27
37	Post-Test View of Passenger Inner Door Panel	A-27
38	Pre-Test Overall View of Driver Knee Bolsters	A-28
39	Post-Test Overall View of Driver Knee Bolsters	A-28
40	Pre-Test Left Side View of Driver Knee Bolsters	A-29
41	Post-Test Left Side View of Driver Knee Bolsters	A-29
42	Pre-Test Right Side View of Driver Knee Bolsters	A-30
43	Post-Test Right Side View of Driver Knee Bolsters	A-30
44	Pre-Test View of Driver Floor pan at Left sill level, w/carpet	A-31
45	Post-Test View of Driver Floor pan at Left sill level, w/carpet	A-31
46	Pre-Test View of Driver Floor pan at Mid seat level, w/carpet	A-32
47	Post-Test view of Driver Floor pan at Mid seat level, w/carpet	A-32
48	Pre-Test View of Driver Floor pan at Right sill level, w/carpet	A-33
49	Post-Test View of Driver Floor pan at Right sill level, w/carpet	A-33
50	Pre-Test Driver Front Windshield View	A-34
51	Post-Test Driver Front Windshield View	A-34
52	Pre-Test Left Side View of Driver and Interior	A-35
53	Post-Test Left Side View of Driver and Interior	A-35
54	Pre-Test Left Side Driver Window View	A-36
55	Post-Test Left Side Driver Window View	A-36
56	Pre-Test Right Side View of Driver and Interior	A-37
57	Post-Test Right Side View of Driver and Interior	A-37
58	Pre-Test View of Driver Door Clearance	A-38
59	Post-Test View of Driver Door Clearance	A-38

TABLE OF PHOTOGRAPHS (Continued)		
No.	Description	Page
60	Pre-Test View of Parking Brake	A-39
61	Pre-Test Driver Seat Fore Aft Markings	A-40
62	Post-Test Driver Seat Fore Aft Markings	A-40
63	Pre-Test Driver Seat Back Markings	A-41
64	Pre-Test Overhead View of Driver Thighs on Seat	A-41
65	Pre-Test Driver Adjustable D-ring	A-42
66	Post-Test Driver Adjustable D-ring	A-42
67	Pre-Test Driver Feet	A-43
68	Post-Test Driver Feet	A-43
69	Pre-Test View of Driver Right Knee and Bolster	A-44
70	Post-Test View of Driver Right Knee and Bolster	A-44
71	Pre-Test View of Driver Left Knee and Bolster	A-45
72	Post-Test View of Driver Left Knee and Bolster	A-45
73	Pre-Test View of Driver Abdomen	A-46
74	Post-Test View of Driver Abdomen	A-46
75	Pre-Test Left Side View of Steering Wheel set position	A-47
76	Post-Test Left Side View of Steering Wheel set position	A-47
77	Post-Test View of Driver Head Contact with Airbag – Front	A-48
78	Post-Test View of Driver Head Contact with Airbag – Curtain	A-48
79	Post-Test View of Driver Head Contact with Vehicle Interior – A	A-49
80	Post-Test View of Driver Head Contact with Vehicle Interior – B	A-49
81	Post-Test View of Driver Head Contact with Vehicle Interior – C	A-50
82	Pre-Test Overall View of Passenger Knee Bolsters	A-51
83	Post-Test Overall View of Passenger Knee Bolsters	A-51
84	Pre-Test Left Side View of Passenger Knee Bolsters	A-52
85	Post-Test Left Side View of Passenger Knee Bolsters	A-52
86	Pre-Test Right Side View of Passenger Knee Bolsters	A-53
87	Post-Test Right Side View of Passenger Knee Bolsters	A-53
88	Pre-Test View of Passenger Floor pan at Right sill level, w/carpet	A-54
89	Post-Test View of Passenger Floor pan at Right sill level, w/carpet	A-54

TABLE OF PHOTOGRAPHS (Continued)		
No.	Description	Page
90	Pre-Test View of Passenger Floor pan at Mid seat level, w/carpet	A-55
91	Post-Test view of Passenger Floor pan at Mid seat level, w/carpet	A-55
92	Pre-Test View of Passenger Floor pan at Left View, w/carpet	A-56
93	Post-Test View of Passenger Floor pan at Left View, w/carpet	A-56
94	Pre-Test Passenger Front Close-up View, Windshield	A-57
95	Post-Test Passenger Front Close-up View, Windshield	A-57
96	Pre-Test Left Side Passenger and Interior View	A-58
97	Post-Test Left Side Passenger and Interior View	A-58
98	Pre-Test Right Side Passenger Window View	A-59
99	Post-Test Right Side Passenger Window View	A-59
100	Pre-Test Right Side Passenger and Interior View	A-60
101	Post-Test Right Side Passenger and Interior View	A-60
102	Pre-Test View of Passenger Door Clearance	A-61
103	Post-Test View of Passenger Door Clearance	A-61
104	Pre-Test Passenger Seat Fore-Aft Markings	A-62
105	Post-Test Passenger Seat Fore-Aft Markings	A-62
106	Pre-Test Passenger Seat Back Markings	A-63
107	Pre-Test Overhead View of Passenger Thighs on seat	A-63
108	Pre-Test Passenger Adjustable D-ring	A-64
109	Post-Test Passenger Adjustable D-ring	A-64
110	Pre-Test View of Passenger Feet	A-65
111	Post-Test View of Passenger Feet	A-65
112	Pre-Test View of Passenger Right Knee and Bolster	A-66
113	Post-Test View of Passenger Right Knee and Bolster	A-66
114	Pre-Test View of Passenger Left Knee and Bolster	A-67
115	Post-Test View of Passenger Left Knee and Bolster	A-67
116	Pre-Test View of Passenger Abdomen	A-68
117	Post-Test View of Passenger Abdomen	A-68
118	Post-Test View of Passenger Head contact with Airbag – Front	A-69
119	Post-Test View of Passenger Head contact with Airbag – Curtain	A-69

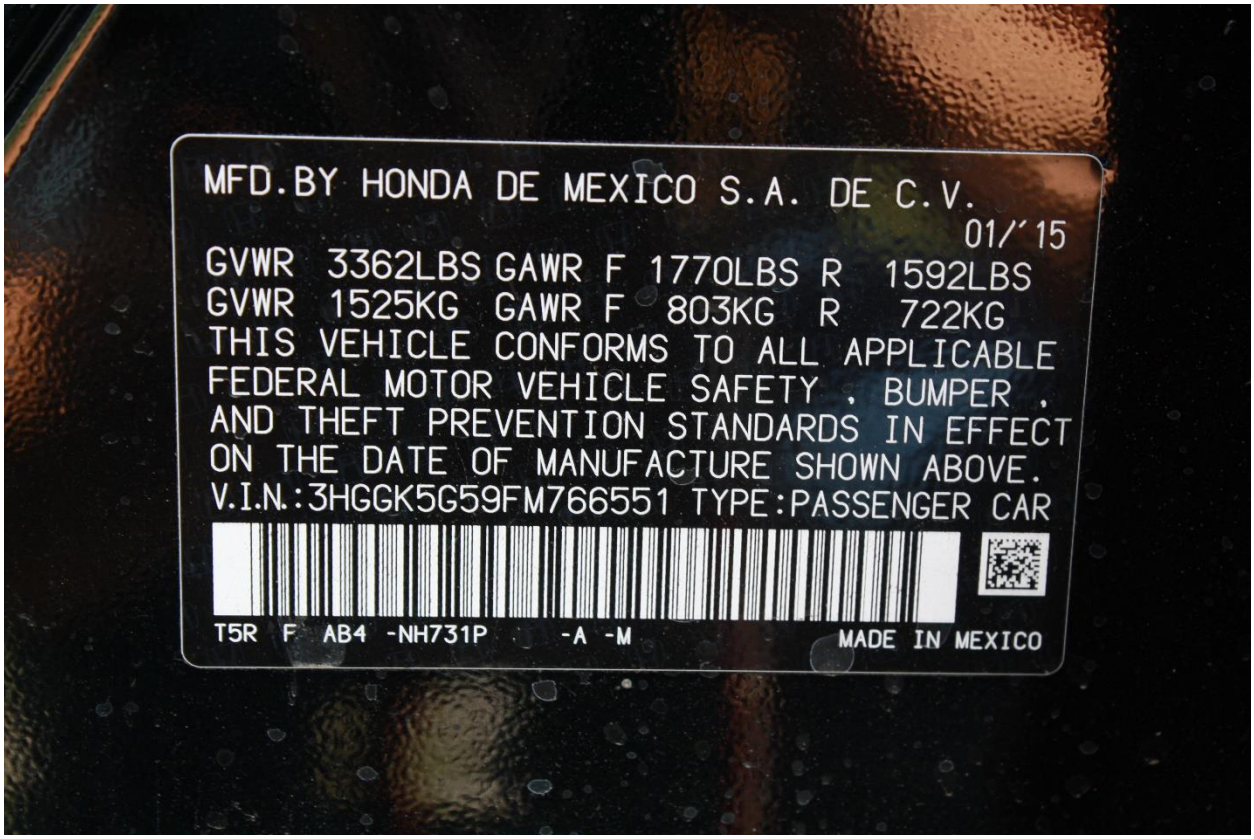
TABLE OF PHOTOGRAPHS (Continued)		
No.	Description	Page
120	Post-Test View of Passenger Head contact with Interior	A-70
121	Post-Test View of Passenger Body contact with Interior	A-70
122	Post-Test View of Passenger Head contact with Interior	A-71
123	Post-Test Passenger Contact With Glovebox	A-71
124	Pre-Test Ballast Locations	A-72
125	Post-Test Speed Trap Readout	A-72
126	Pre-Test View of Fuel Filler Cap	A-73
127	Post-Test View of Fuel Filler Cap	A-73
128	Pre-Test Engine Compartment View	A-74
129	Post-Test Engine Compartment View	A-74
130	Pre-Test Right Side Engine Compartment View	A-75
131	Post-Test Right Side Engine Compartment View	A-75
132	Pre-Test Left Side Engine Compartment View	A-76
133	Post-Test Left Side Engine Compartment View	A-76
134	Pre-Test View of Front Underbody (perpendicular to vehicle)	A-77
135	Post-Test View of Front Underbody (perpendicular to vehicle)	A-77
136	Pre-Test View of Mid Underbody (perpendicular to vehicle)	A-78
137	Post-Test View of Mid Underbody (perpendicular to vehicle)	A-78
138	Pre-Test View of Rear Underbody (perpendicular to vehicle)	A-79
139	Post-Test View of Rear Underbody (perpendicular to vehicle)	A-79
140	Pre-Test View of Steering rack and or sway bar	A-80
141	Post-Test View of Steering rack and or sway bar	A-80
142	Pre-Test Bumper to Rail Attachments and Crush Initiators	A-81
143	Post-Test Bumper to Rail Attachments and Crush Initiators	A-81
144	Post-Test View of Front Sub-Frame Deformation	A-82
145	Pre-Test Frame Rail with tire removed	A-83
146	Post-Test Frame Rail with tire removed	A-83
147	Pre-Test View of Front Driver Wheel Well with tire removed	A-84
148	Post-Test ¾ View of Front Driver Wheel Well w/ tire removed	A-84
149	Post-Test Side View of Front Driver Wheel Well w/ tire removed	A-85

TABLE OF PHOTOGRAPHS (Continued)		
No.	Description	Page
150	Post-Test Right Side 3/4 Rear View of the Front Driver Wheel Well w/ tire removed	A-85
151	Post-Test Looking Down at the Front Driver Shotgun	A-86
152	Post-Test Right Side ¾ View of Front Driver Shotgun	A-86
153	Post-Test Front Driver Close up View of Suspension w/ tire removed	A-87
154	Post-Test ¾ View of Front Passenger Wheel Well w/ tire removed	A-87
155	Post-Test Side View of Front Passenger Wheel Well w/ tire removed	A-88
156	Post-Test Right Side 3/4 Rear View of the Front Passenger Wheel Well w/ tire removed	A-88
157	Post-Test Looking Down at the Front Passenger Shotgun	A-89
158	Post-Test Right Side ¾ View of Front Passenger Shotgun	A-89
159	Post-Test Front Passenger Close up View of Suspension w/ tire removed	A-90
160	Post-Test View of Door Sill with door open-Struck Side	A-90
161	Post-Test View of Deformation of A pillar-Struck Side	A-91
162	Post-Test View of Deformation of B pillar-Struck Side	A-91
163	Post-Test View of Deformation of C pillar-Struck Side	A-92
164	Post-Test View of Wheel and/or Tire Deformation-Struck Side	A-92
165	Post-Test View of Deformation of Rocker or Post-Struck Side	A-93
166	Post-Test View of Windshield Separation	A-93
167	Pre-Test Left Side View of OMDB	A-94
168	Post-Test Left Side View of OMDB	A-94
169	Pre-Test Right Side View of OMDB	A-95
170	Post-Test Right Side View of OMDB	A-95
171	Pre-Test Top View of OMDB	A-96
172	Post-Test Top View of OMDB	A-96
173	Pre-Test Front View of OMDB	A-97
174	Post-Test Front View of OMDB	A-97
175	Pre-Test Left Front ¾ View of OMDB	A-98
176	Post-Test Left Front ¾ View of OMDB	A-98
177	Pre-Test Right Front ¾ View of OMDB	A-99
178	Post-Test Right Front ¾ View of OMDB	A-99
179	Pre-Test Right Side View of OMDB	A-100

TABLE OF PHOTOGRAPHS (Continued)		
No.	Description	Page
180	Post-Test Right Side View of OMDB	A-100
181	Pre-Test Left Side View of OMDB	A-101
182	Post-Test Left Side View of OMDB	A-101
183	Pre-Test OMDB & Vehicle, Right Side	A-102
184	Post-Test OMDB & Vehicle, Right Side	A-102
185	Pre-Test OMDB & Vehicle, Left Side	A-103
186	Post-Test OMDB & Vehicle, Left Side	A-103
187	Pre-Test OMDB & Vehicle, Top View	A-104
188	Post-Test OMDB & Vehicle, Top View	A-104
189	Pre-Test OMDB & Vehicle, Rear View	A-105
190	Post-Test OMDB & Vehicle, Rear View	A-105
191	Pre-Test OMDB & Vehicle, Front View	A-106
192	Post-Test OMDB & Vehicle, Front View	A-106
193	Pre-Test OMDB & Vehicle Alignment View	A-107
194	Vehicle at 0 Degrees on Static Rollover Device	A-107
195	Vehicle at 90 Degrees on Static Rollover Device	A-108
196	Vehicle at 180 Degrees on Static Rollover Device	A-108
197	Vehicle at 270 Degrees on Static Rollover Device	A-109
198	Vehicle at 360 Degrees on Static Rollover Device	A-109
199	Impact Photo	A-110
200	Pre-Test Vehicle Bumper Left Side View	A-111
201	Post-Test Vehicle Bumper Left Side View	A-111
202	Pre-Test Vehicle Bumper Left Front View	A-112
203	Post-Test Vehicle Bumper Left Front View	A-112
204	Pre-Test Vehicle Bumper Front View	A-113
205	Post-Test Vehicle Bumper Front View	A-113
206	Pre-Test Vehicle Bumper Right Side View	A-114
207	Post-Test Vehicle Bumper Right Side View	A-114
208	Pre-Test Vehicle Bumper Right Front View	A-115
209	Post-Test Vehicle Bumper Right Front View	A-115

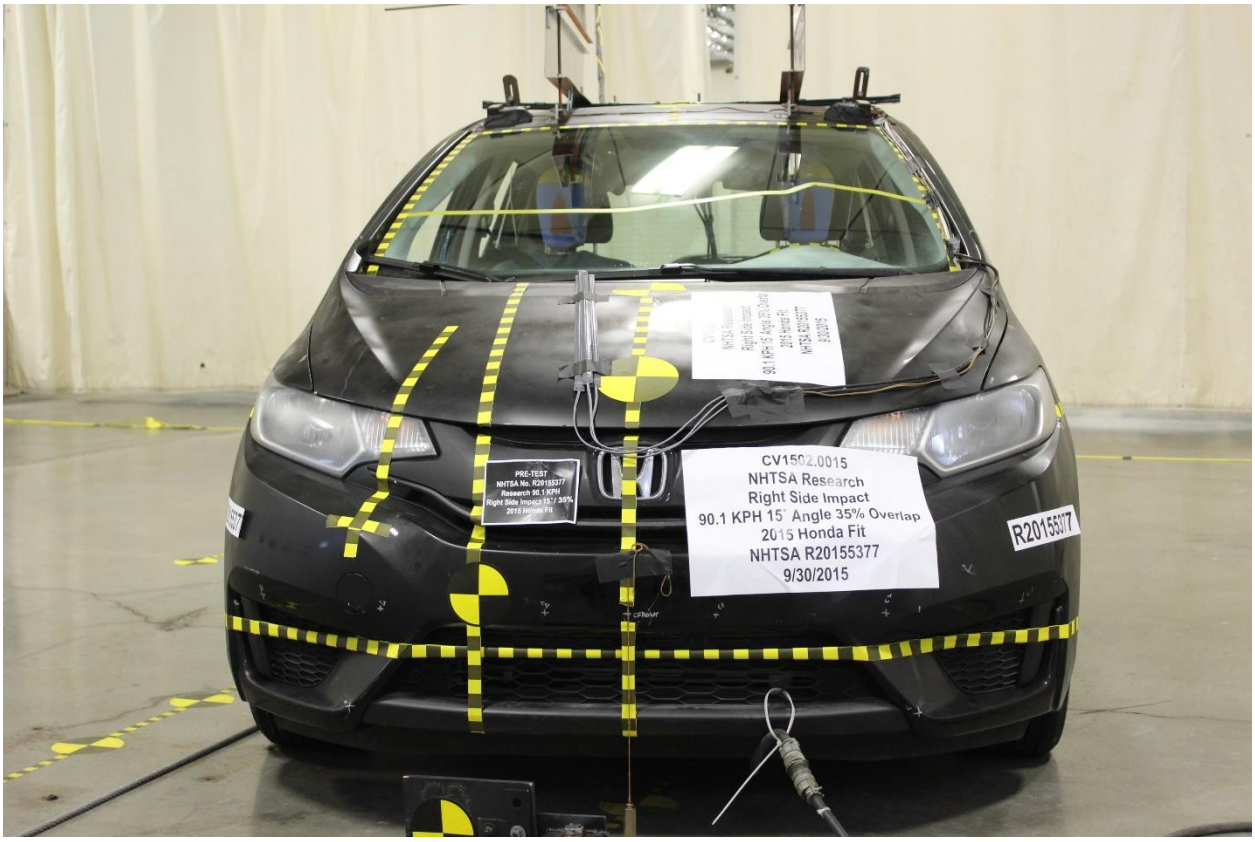
No. 001 As Delivered Right Front 3-4 View of Test Vehicle

No. 002 As Delivered Left Rear 3-4 View of Test Vehicle



No. 003 Test Vehicle Certification Label

No. 004 Test Vehicle Tire Placard



No. 005 Pre-Test Front View of Test Vehicle

No. 006 Post-Test Front View of Test Vehicle

No. 007 Pre-Test Left Front 3-4 View of Test Vehicle

No. 008 Post-Test Left Front 3-4 View of Test Vehicle

No. 009 Pre-Test Left Side View of Test Vehicle

No. 010 Post-Test Left Side View of Test Vehicle

No. 011 Pre-Test Left Rear 3-4 View of Test Vehicle

No. 012 Post-Test Left Rear 3-4 View of Test Vehicle

No. 013 Pre-Test Rear View of Test Vehicle

No. 014 Post-Test Rear View of Test Vehicle

No. 015 Pre-Test Right Rear 3-4 View of Test Vehicle

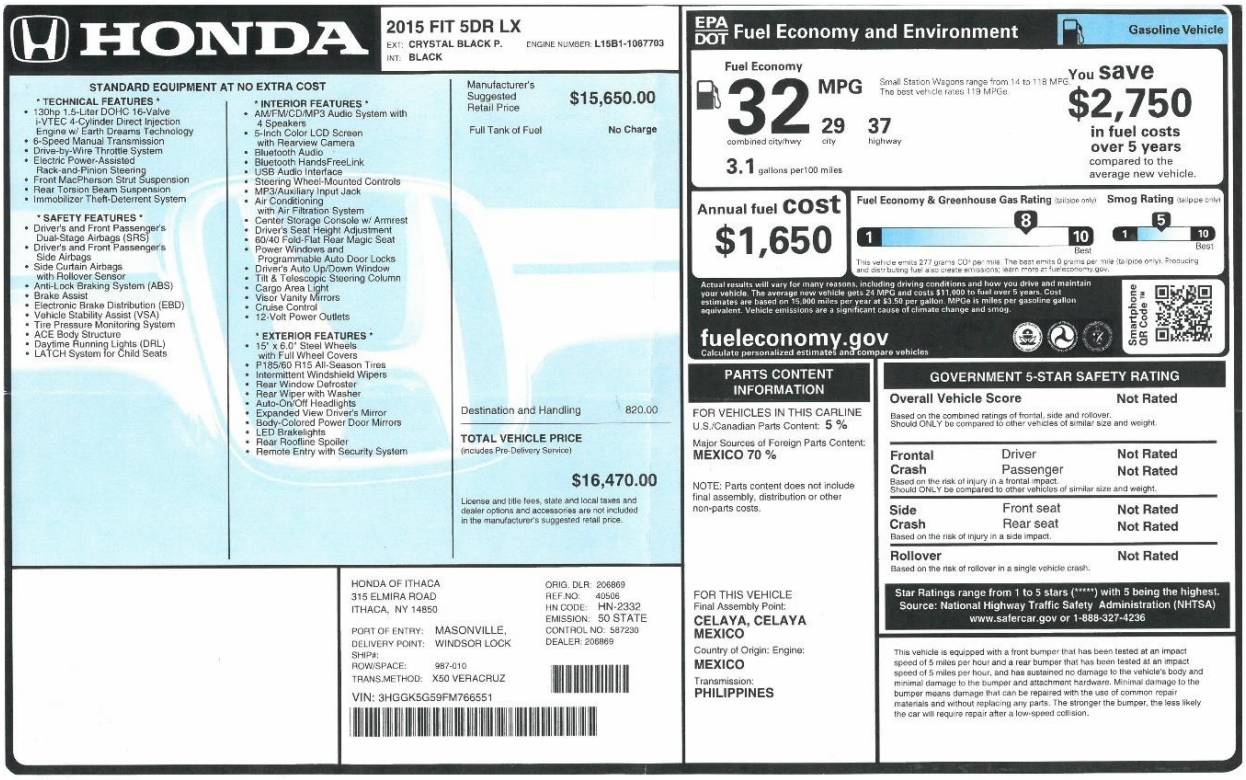
No. 016 Post-Test Right Rear 3-4 View of Test Vehicle

No. 017 Pre-Test Right Side View of Test Vehicle

No. 018 Post-Test Right Side View of Test Vehicle

No. 019 Pre-Test Right Front 3-4 View of Test Vehicle

No. 020 Post-Test Right Front 3-4 View of Test Vehicle



HONDA

2015 FIT 5DR LX
EXT: CRYSTAL BLACK P. ENGINE NUMBER: L15B1-1067703
INT: BLACK

STANDARD EQUIPMENT AT NO EXTRA COST

* TECHNICAL FEATURES *
- 130hp 1.5-Liter DOHC 16-Valve i-VTEC 4-Cylinder Direct Injection Engine w/ Earth Dreams Technology
- 6-Speed Manual Transmission
- Drive-by-Wire Throttle System
- Electric Power-Assisted Rack-and-Pinion Steering
- Front MacPherson Strut Suspension
- Rear Torsion Beam Suspension
- Immobilizer Theft-Deterrent System

* SAFETY FEATURES *
- Driver's and Front Passenger's Dual-Stage Airbags (SRS)
- Driver's and Front Passenger's Side Airbags
- Side Curtain Airbags with Rollover Sensor
- Anti-Lock Braking System (ABS)
- Brake Assist
- Electronic Brake Distribution (EBD)
- Vehicle Stability Assist (VSA)
- Tire Pressure Monitoring System
- ACE Body Structure
- Daytime Running Lights (DRL)
- LATCH System for Child Seats

* INTERIOR FEATURES *
- AM/FM/CD/MP3 Audio System with 4 Speakers
- 5-Inch Color LCD Screen with Rearview Camera
- Bluetooth Audio
- Bluetooth HandsFreeLink
- USB Audio Interface
- Steering Wheel-Mounted Controls
- MP3/Auxiliary Input Jack
- Air Conditioning with Air Filtration System
- Center Storage Console w/ Armrest
- Driver's Seat Height Adjustment
- 60/40 Fold-Flat Rear Magic Seat
- Power Windows and Programmable Auto Door Locks
- Driver's Auto Up/Down Window
- Tilt & Telescopic Steering Column
- Cargo Area Light
- Visor Vanity Mirrors
- Cruise Control
- 12-Volt Power Outlets

* EXTERIOR FEATURES *
- 15" x 6.0" Steel Wheels with Full Wheel Covers
- P185/60 R15 All-Season Tires
- Intermittent Windshield Wipers
- Rear Window Defroster
- Rear Wiper with Washer
- Auto-On/Off Headlights
- Expanded View Driver's Mirror
- Body-Colored Power Door Mirrors
- LED Brakelights
- Rear Roofline Spoiler
- Remote Entry with Security System

Manufacturer's Suggested Retail Price $15,650.00
Full Tank of Fuel No Charge
Destination and Handling 820.00
TOTAL VEHICLE PRICE (includes Pre-Delivery Service) $16,470.00
License and title fees, state and local taxes and dealer options and accessories are not included in the manufacturer's suggested retail price.

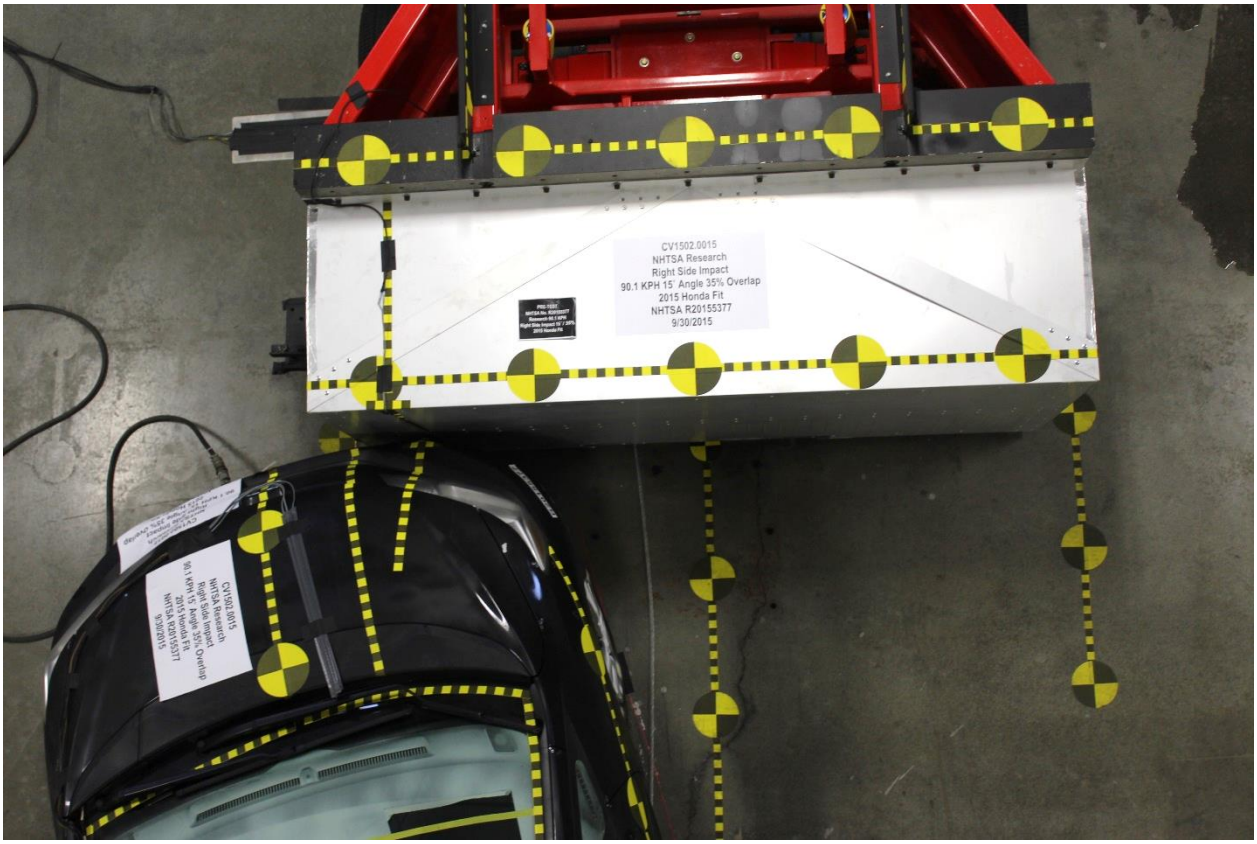
HONDA OF ITHACA
315 ELMIRA ROAD
ITHACA, NY 14850
PORT OF ENTRY: MASONVILLE,
DELIVERY POINT: WINDSOR LOCK
SHIP#:
ROW/SPACE: 987-010
TRANS.METHOD: X50 VERACRUZ
ORIG. DLR: 206869
REF.NO: 40506
HN CODE: HN-2332
EMISSION: 50 STATE
CONTROL NO: 587230
DEALER: 206869
VIN: 3HGGK5G59FM766551

EPA DOT Fuel Economy and Environment — Gasoline Vehicle
Fuel Economy 32 MPG combined city/hwy — 29 city — 37 highway
3.1 gallons per100 miles
Small Station Wagons range from 14 to 118 MPG. The best vehicle rates 119 MPGe.
You save $2,750 in fuel costs over 5 years compared to the average new vehicle.
Annual fuel cost $1,650
Fuel Economy & Greenhouse Gas Rating (tailpipe only) 8 (1–10 Best)
Smog Rating (tailpipe only) 5 (1–10 Best)
This vehicle emits 277 grams CO2 per mile. The best emits 0 grams per mile (tailpipe only). Producing and distributing fuel also create emissions; learn more at fueleconomy.gov.
Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 24 MPG and costs $11,000 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at $3.50 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.
fueleconomy.gov
Calculate personalized estimates and compare vehicles
Smartphone QR Code™

PARTS CONTENT INFORMATION
FOR VEHICLES IN THIS CARLINE
U.S./Canadian Parts Content: 5 %
Major Sources of Foreign Parts Content:
MEXICO 70 %
NOTE: Parts content does not include final assembly, distribution or other non-parts costs.
FOR THIS VEHICLE
Final Assembly Point:
CELAYA, CELAYA MEXICO
Country of Origin: Engine:
MEXICO
Transmission:
PHILIPPINES

GOVERNMENT 5-STAR SAFETY RATING
Overall Vehicle Score — Not Rated
Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.
Frontal Crash — Driver: Not Rated; Passenger: Not Rated
Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.
Side Crash — Front seat: Not Rated; Rear seat: Not Rated
Based on the risk of injury in a side impact.
Rollover — Not Rated
Based on the risk of rollover in a single vehicle crash.
Star Ratings range from 1 to 5 stars (*****) with 5 being the highest. Source: National Highway Traffic Safety Administration (NHTSA) www.safercar.gov or 1-888-327-4236
This vehicle is equipped with a front bumper that has been tested at an impact speed of 5 miles per hour and a rear bumper that has been tested at an impact speed of 5 miles per hour, and has sustained no damage to the vehicle's body and minimal damage to the bumper and attachment hardware. Minimal damage to the bumper means damage that can be repaired with the use of common repair materials and without replacing any parts. The stronger the bumper, the less likely the car will require repair after a low-speed collision.

No. 021 Monroney Label Photograph

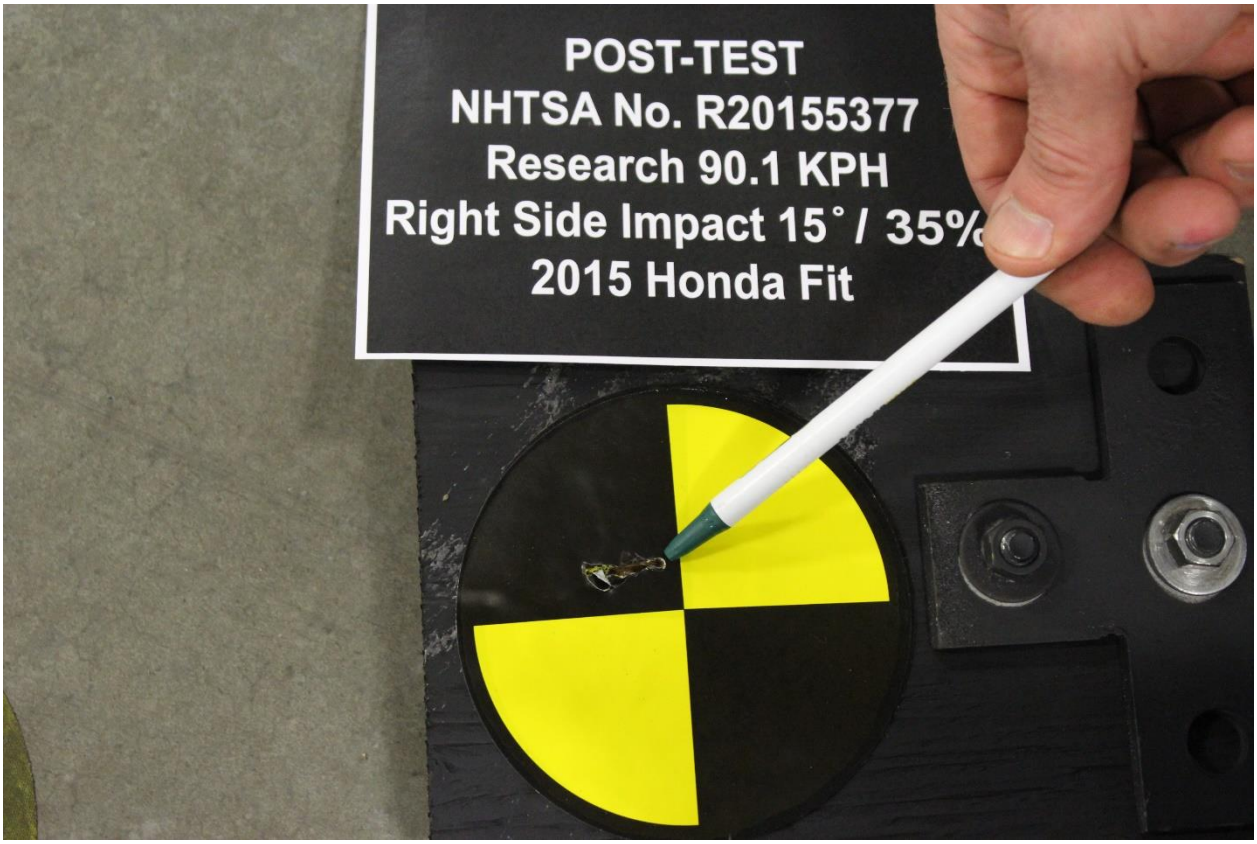


No. 022 Pre-Test Overhead View of OMDB against target vehicle at ideal Impact Point

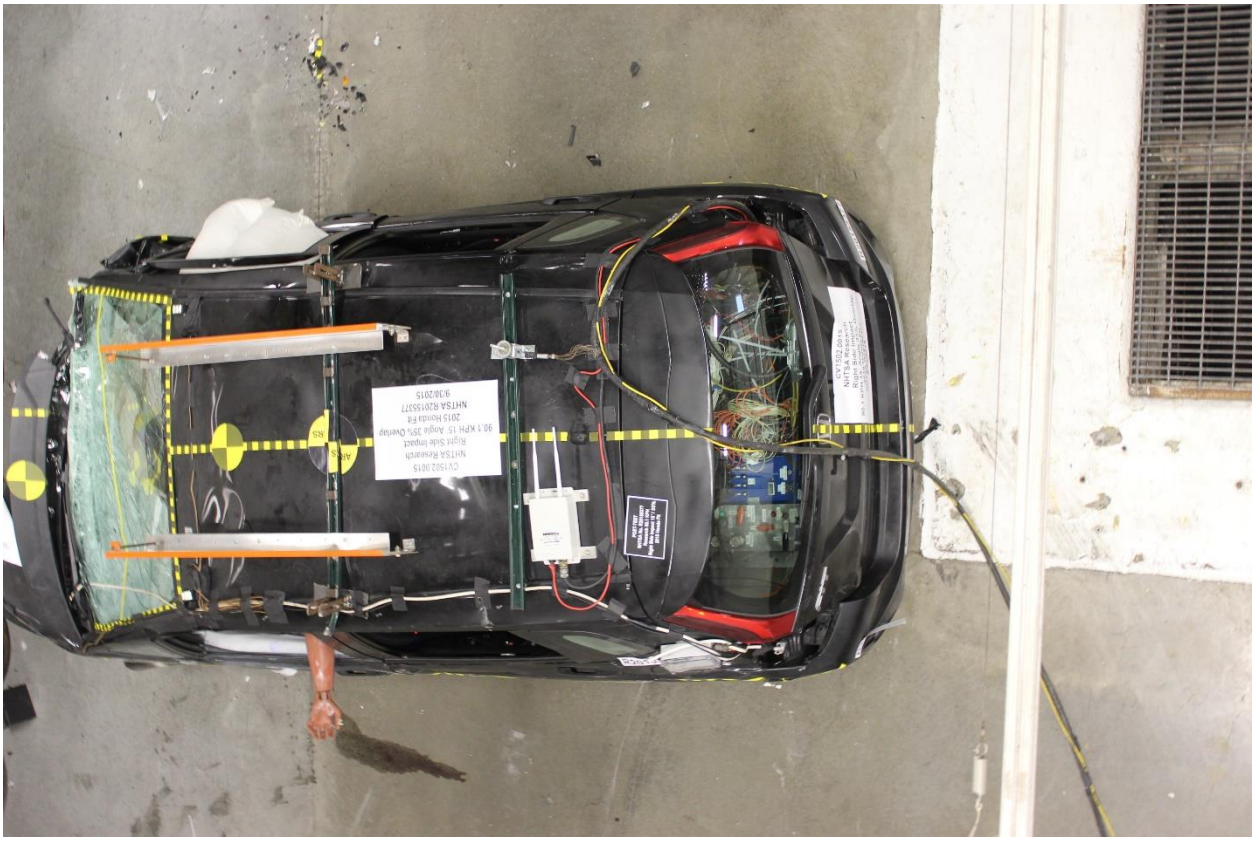
No. 023 Pre-Test Left Side View of OMDB against target vehicle at ideal Impact Point

No. 024 Pre-Test Right Side View of OMDB against target vehicle at ideal Impact Point

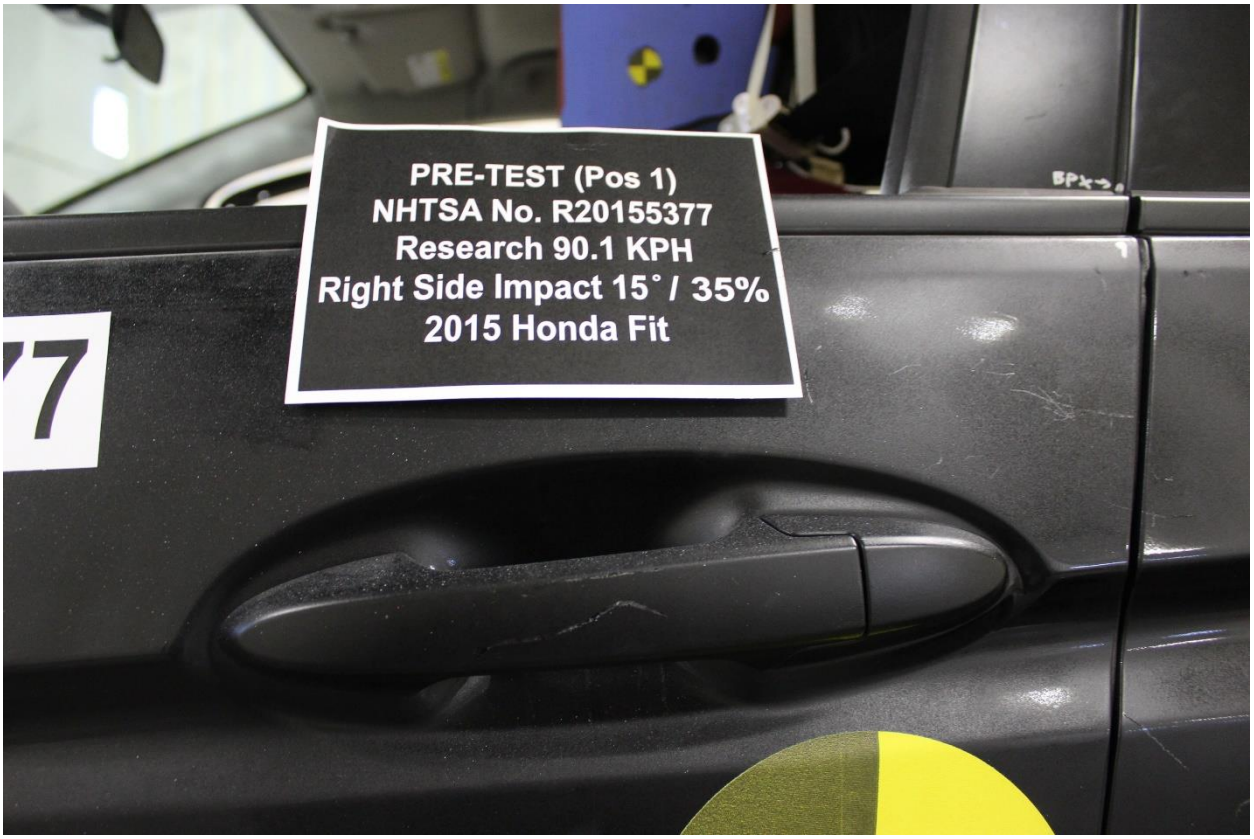
No. 025 Pre-Test Close-up View of Impact Point



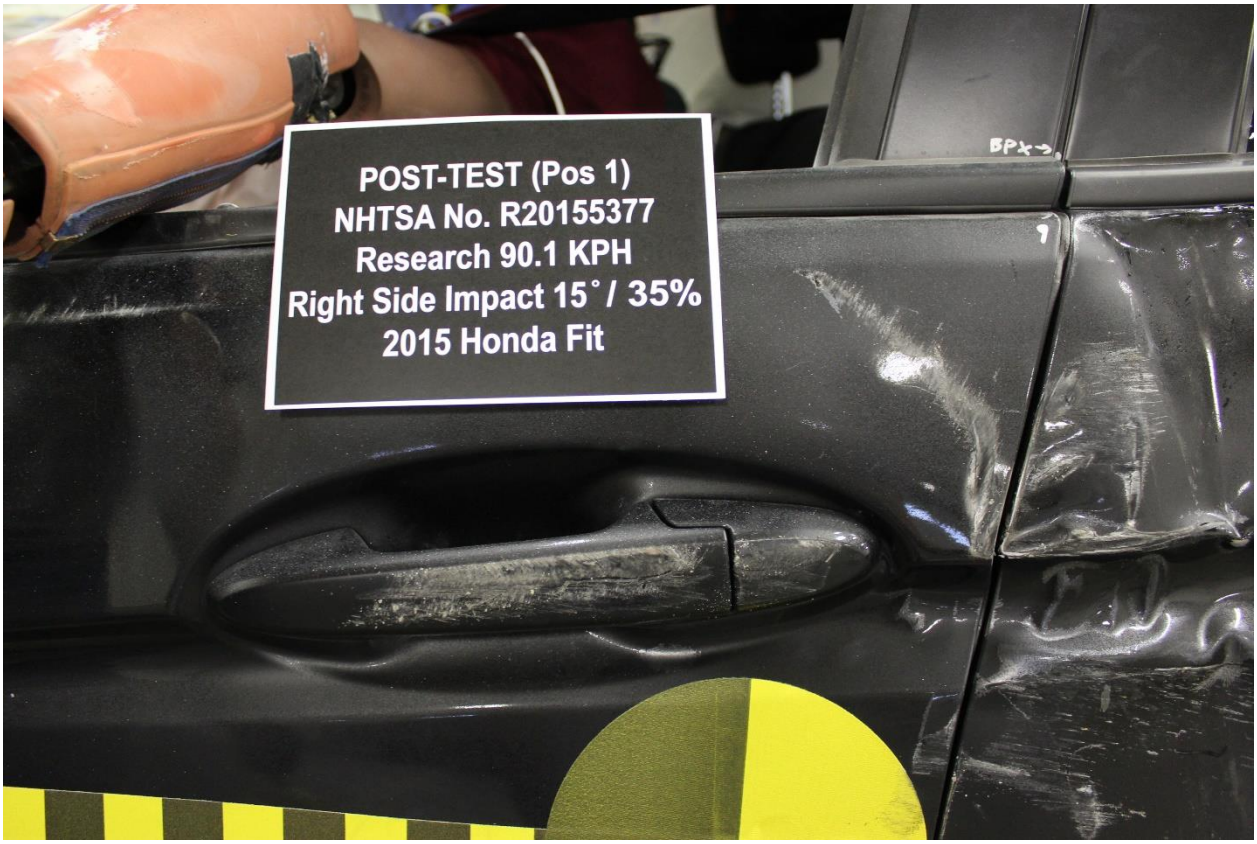
No. 026 Post-Test Close-up View of Impact Point



No. 027 Post-Test Vehicle Overhead View



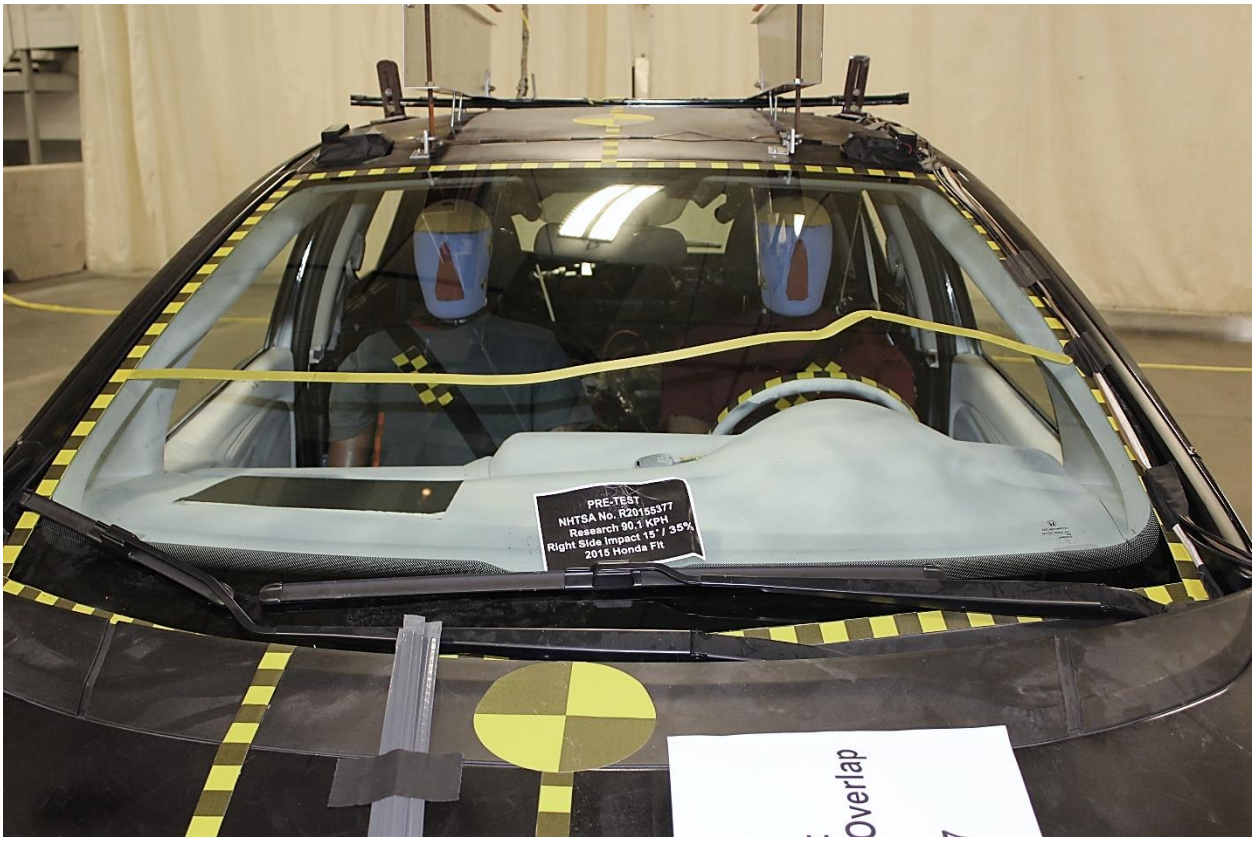
No. 028 Pre-Test Close-up View of Driver Door Latch



No. 029 Post-Test Close-up View of Driver Door Latch

No. 030 Pre-Test Close-up View of Passenger Door Latch

No. 031 Post-Test Close-up View of Passenger Door Latch



No. 032 Pre-Test Windshield View

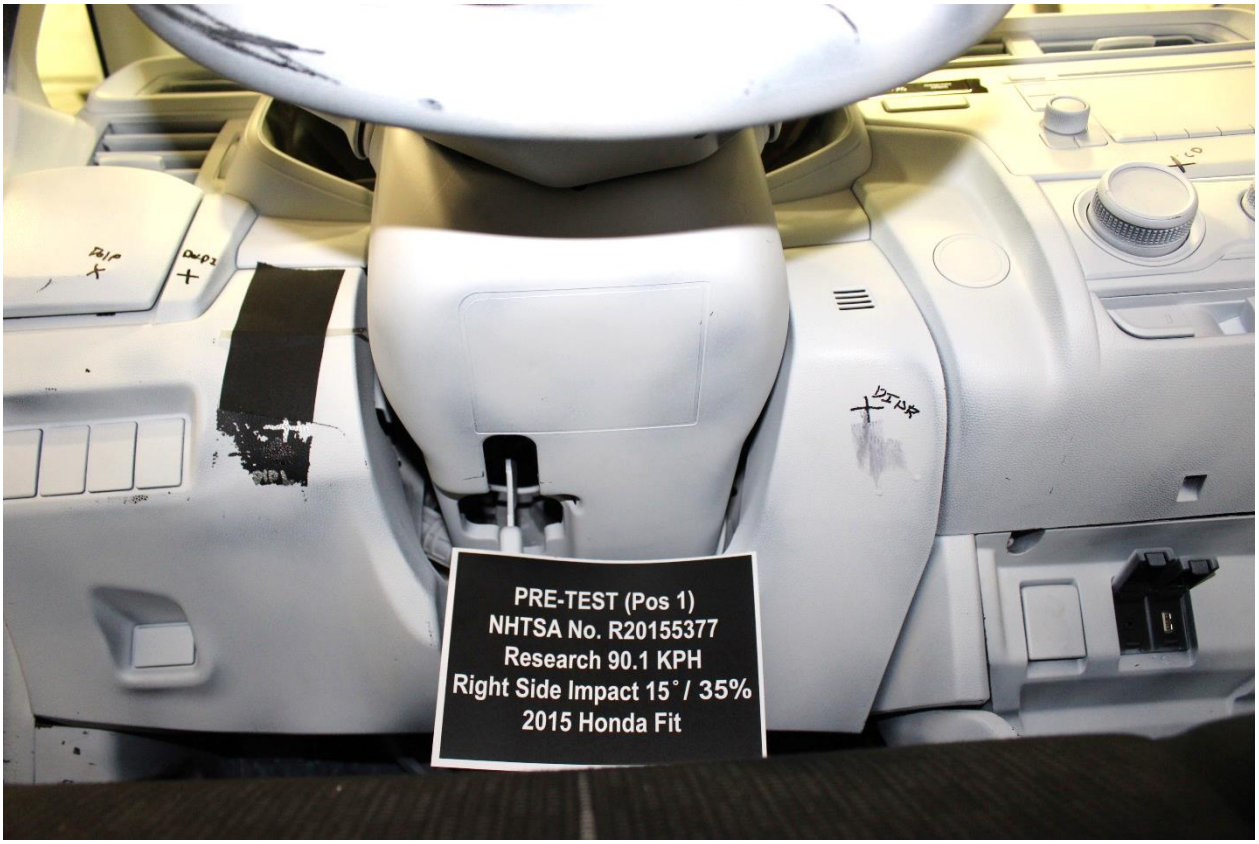
No. 033 Post-Test Windshield View

No. 034 Pre-Test View of Driver Inner Door Panel

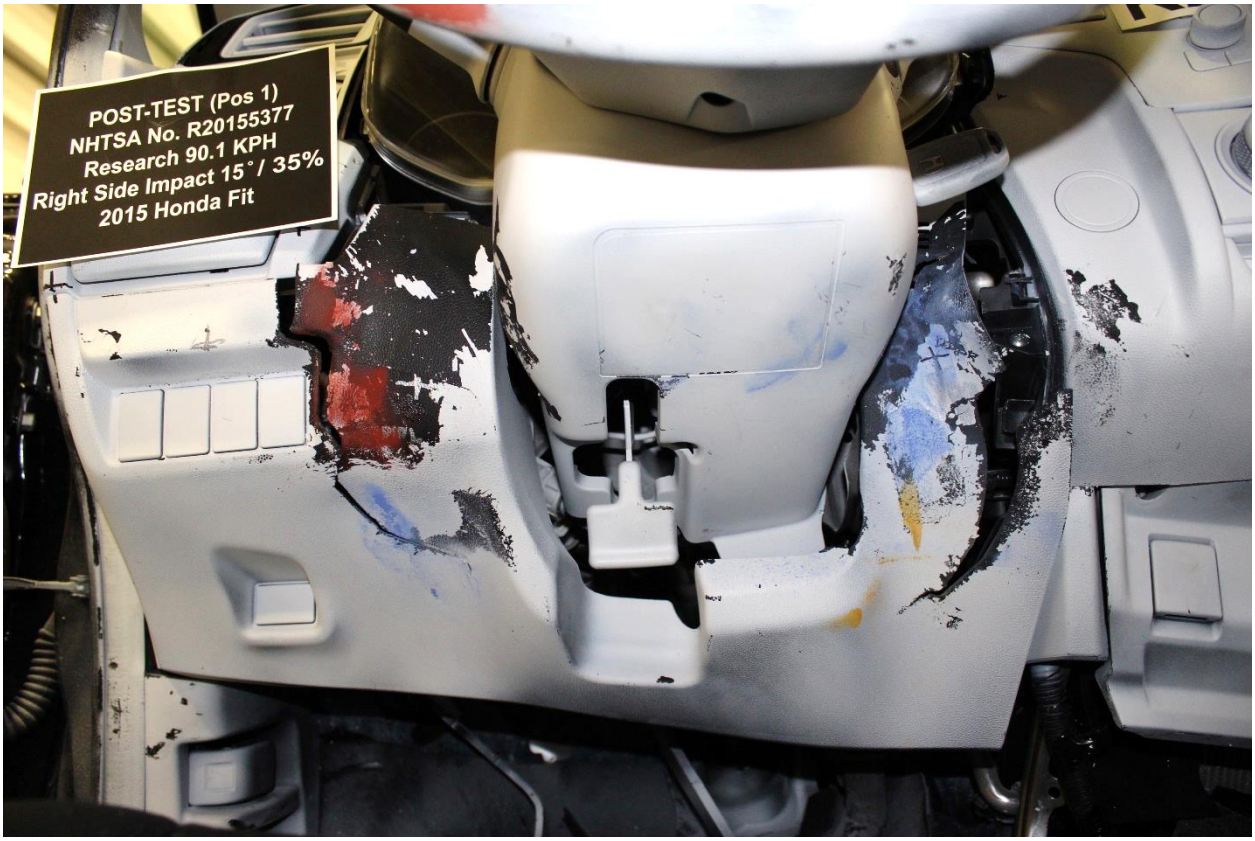
No. 035 Post-Test View of Driver Inner Door Panel

No. 036 Pre-Test View of Passenger Inner Door Panel

No. 037 Post-Test View of Passenger Inner Door Panel



No. 038 Pre-Test Overall View of Driver Knee Bolsters

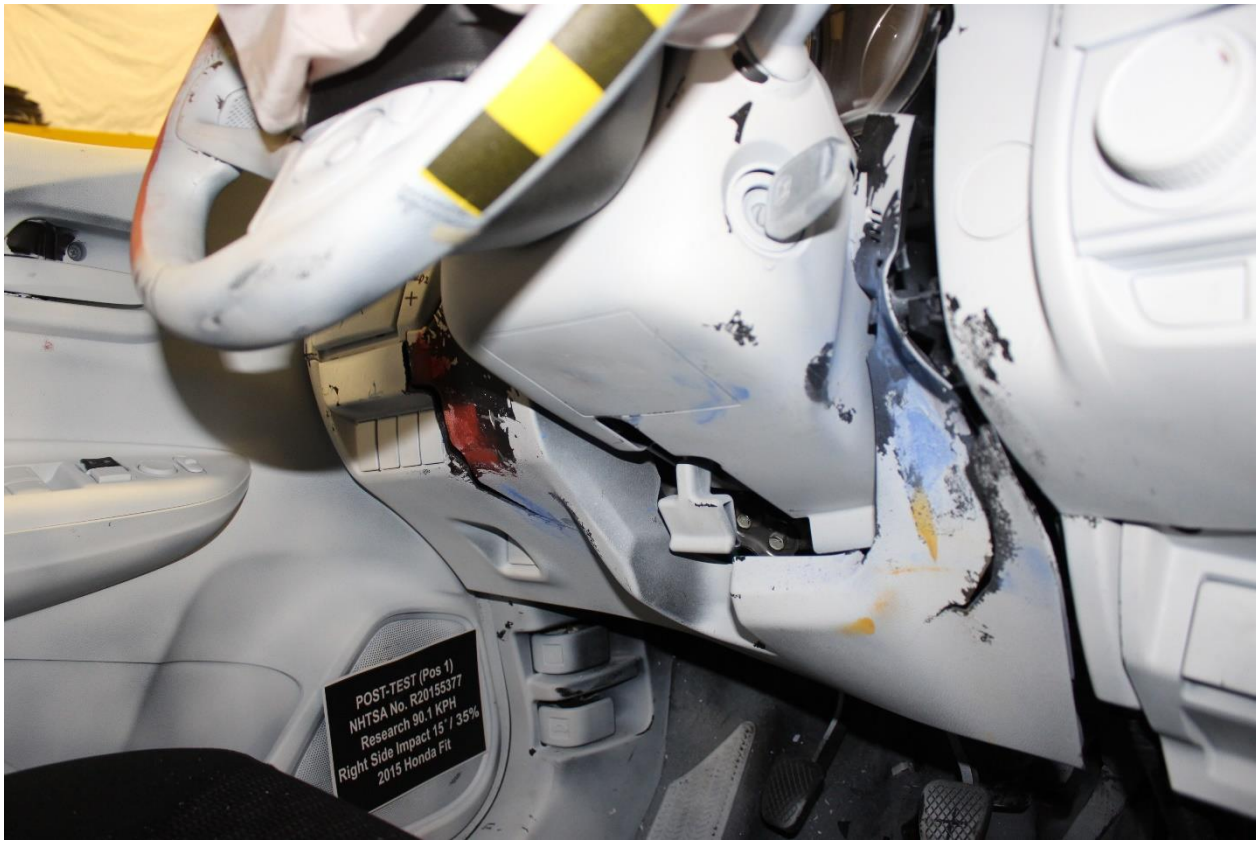


No. 039 Post-Test Overall View of Driver Knee Bolsters

No. 040 Pre-Test Left Side View of Driver Knee Bolsters

No. 041 Post-Test Left Side View of Driver Knee Bolsters

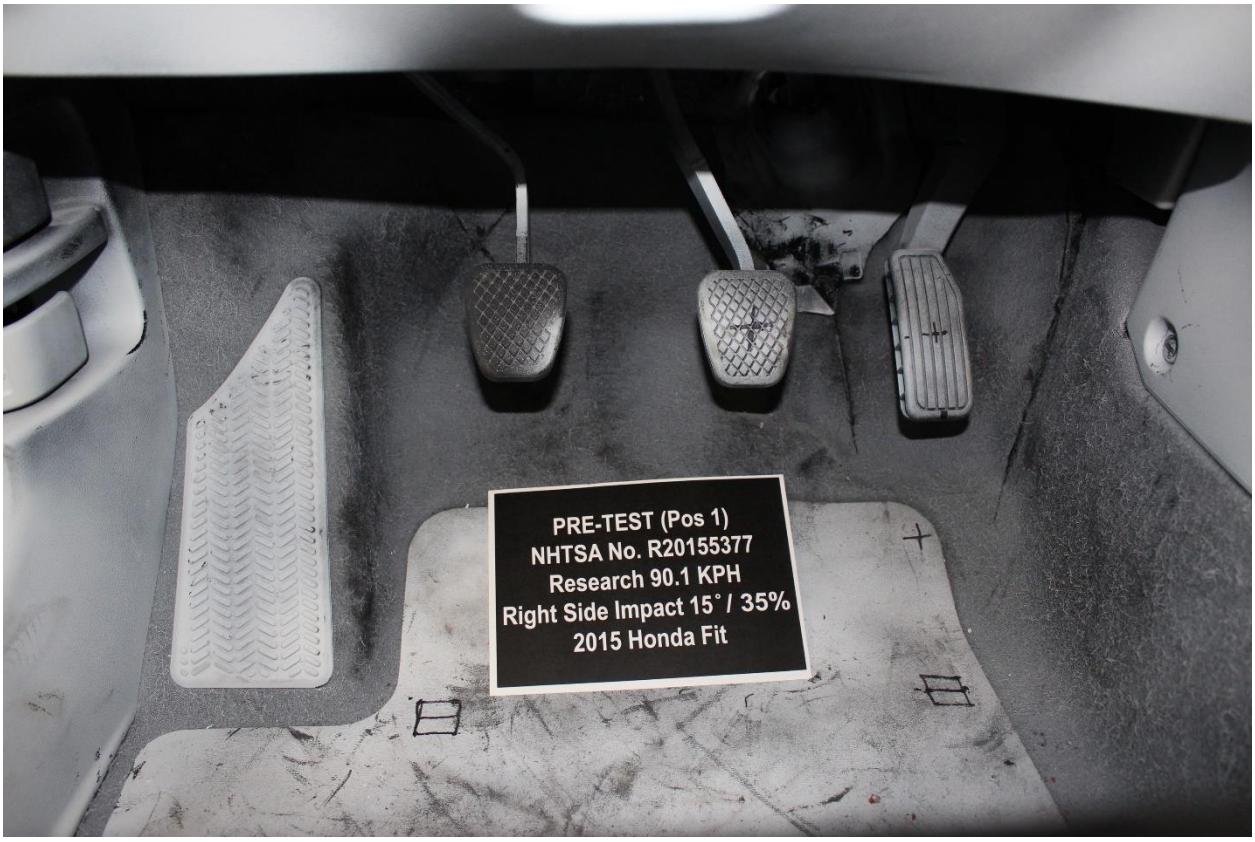
No. 042 Pre-Test Right Side View of Driver Knee Bolsters



No. 043 Post-Test Right Side View of Driver Knee Bolsters

No. 044 Pre-Test View of Driver Floor pan at Left sill level, w/carpet

No. 045 Post-Test View of Driver Floor pan at Left sill level, w/carpet

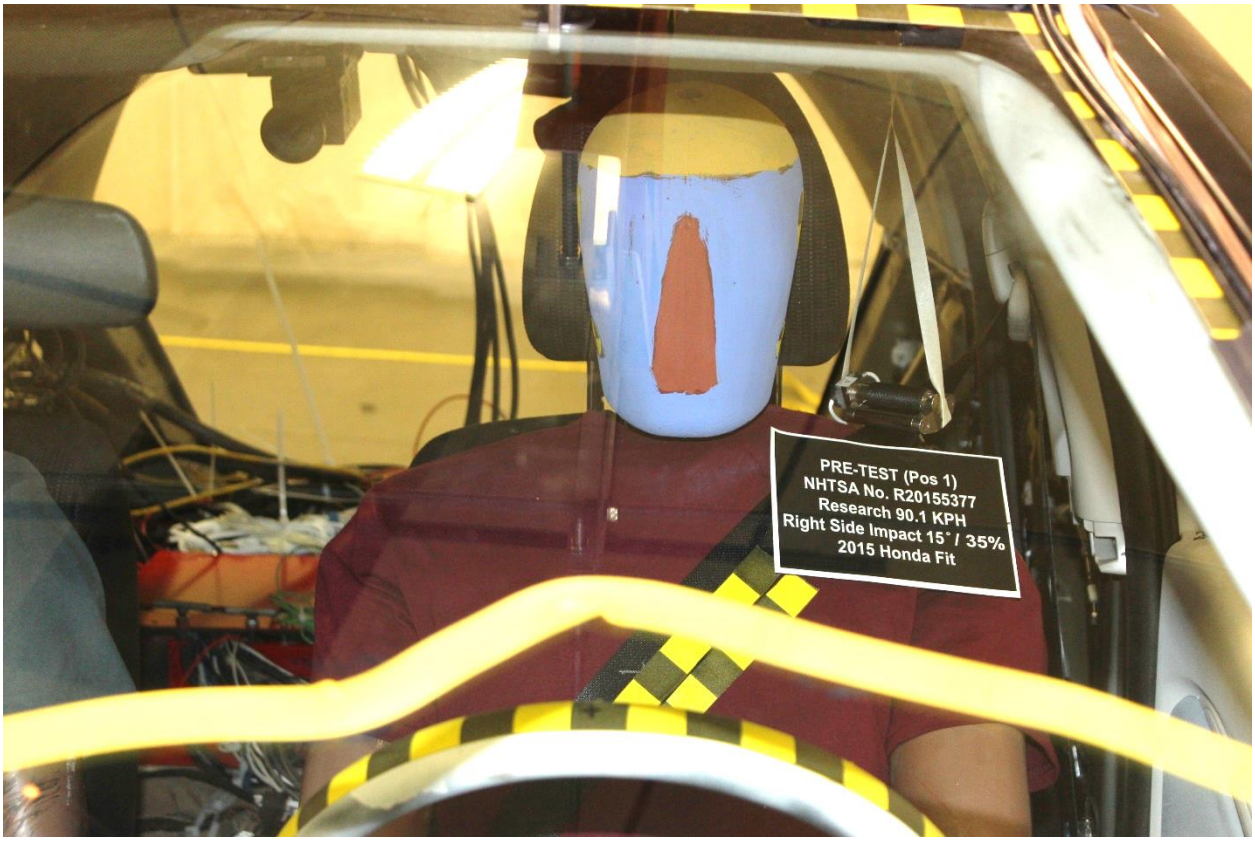


No. 046 Pre-Test View of Driver Floor pan at Mid seat level, w/carpet

No. 047 Post-Test view of Driver Floor pan at Mid seat level, w/carpet

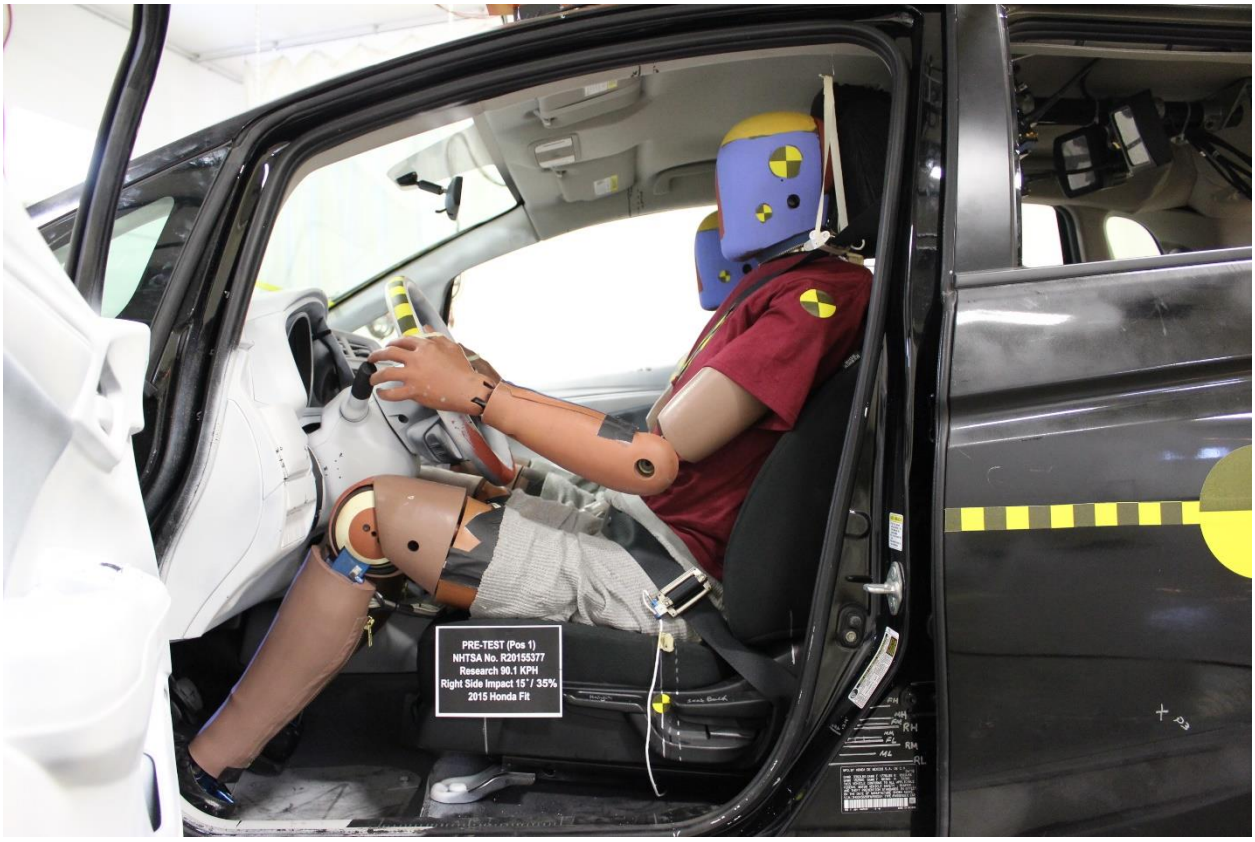
No. 048 Pre-Test View of Driver Floor pan at Right Side

No. 049 Post-Test View of Driver Floor pan at Right Side



No. 050 Pre-Test Driver Front Windshield View

No. 051 Post-Test Driver Front Windshield View



No. 052 Pre-Test Left Side View of Driver and Interior

No. 053 Post-Test Left Side View of Driver and Interior

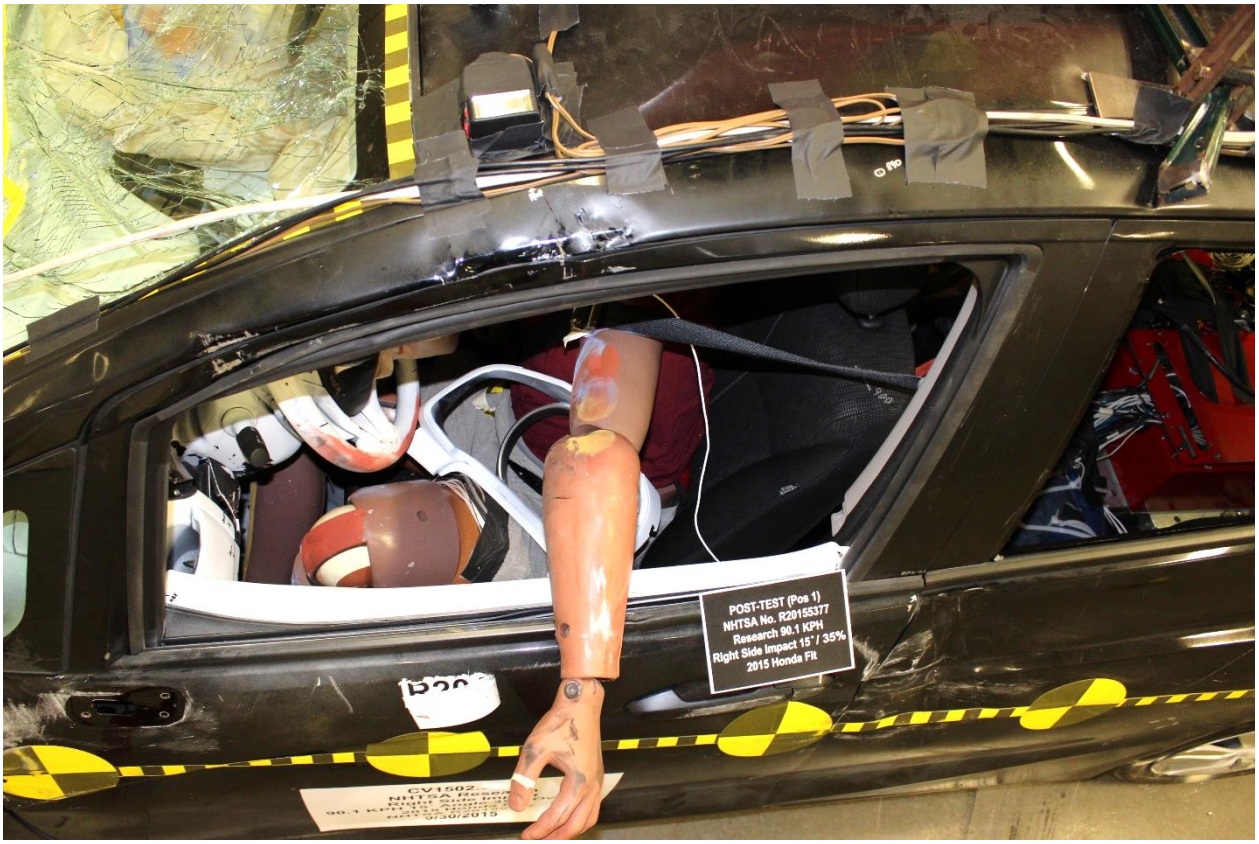
No. 054 Pre-Test Left Side Driver Window View

No. 055 Post-Test Left Side Driver Window View

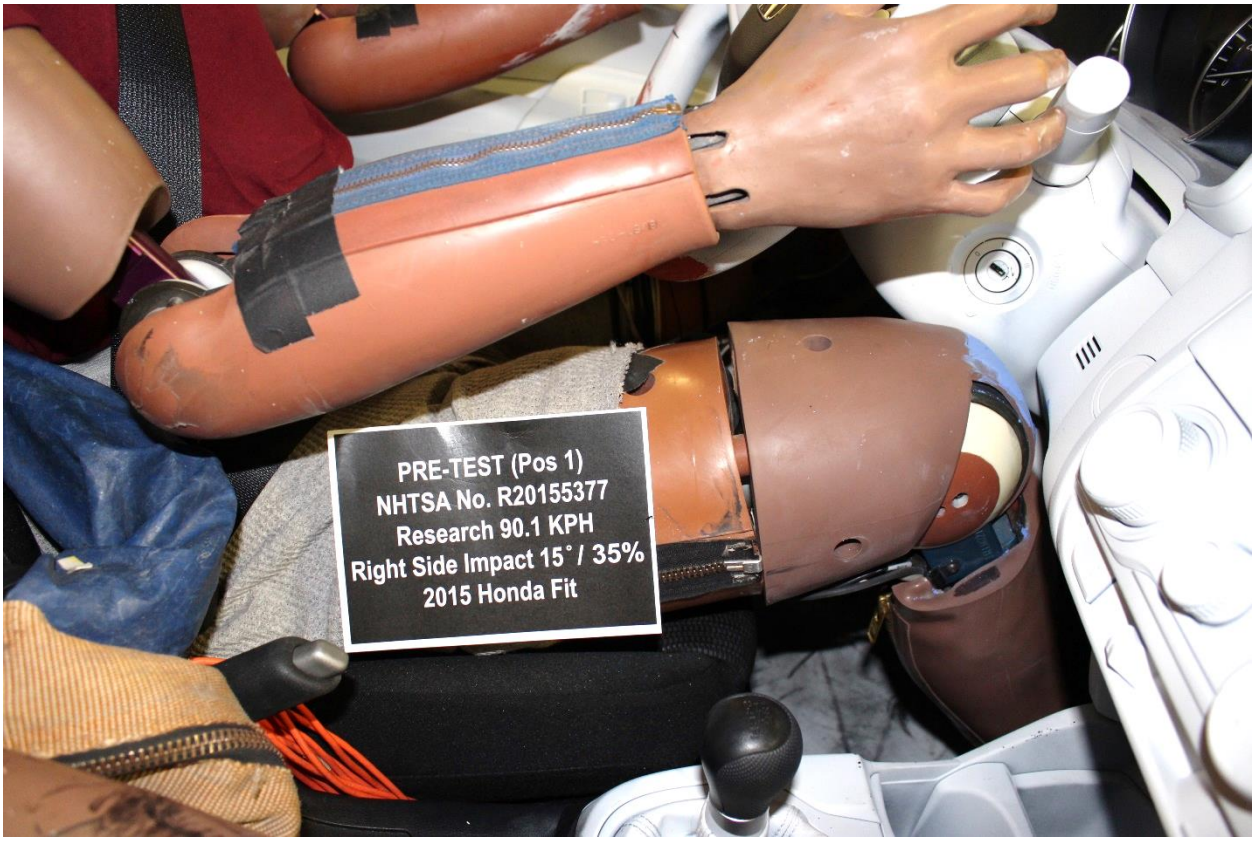
No. 056 Pre-Test Right Side View of Driver and Interior

No. 057 Post-Test Right Side View of Driver and Interior

No. 058 Pre-Test View of Driver Door Clearance



No. 059 Post-Test View of Driver Door Clearance



No. 060 Pre-Test View of Parking Brake

No. 061 Pre-Test Driver Seat Fore Aft Markings

No. 062 Post-Test Driver Seat Fore Aft Markings

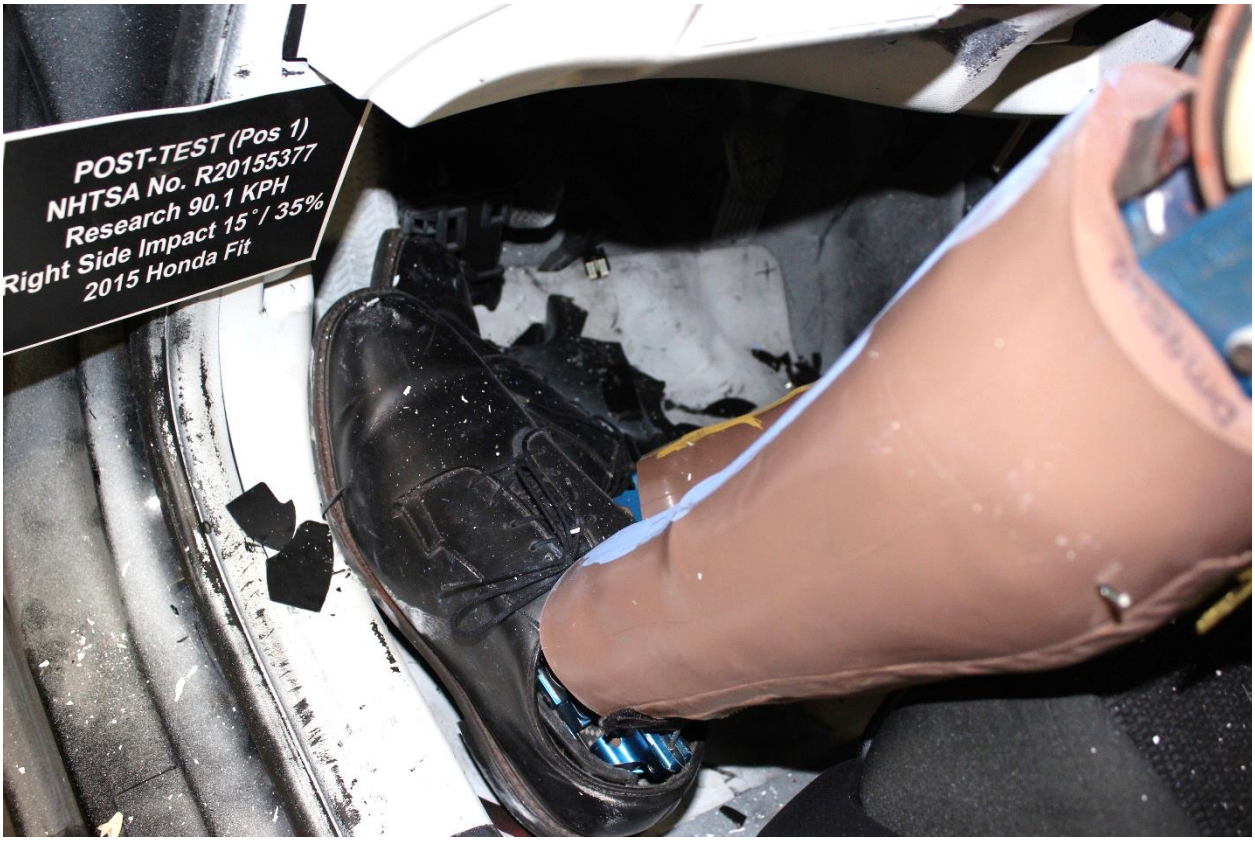
No. 063 Pre-Test Driver Seat Back Markings

No. 064 Pre-Test Overhead View of Driver Thighs on Seat

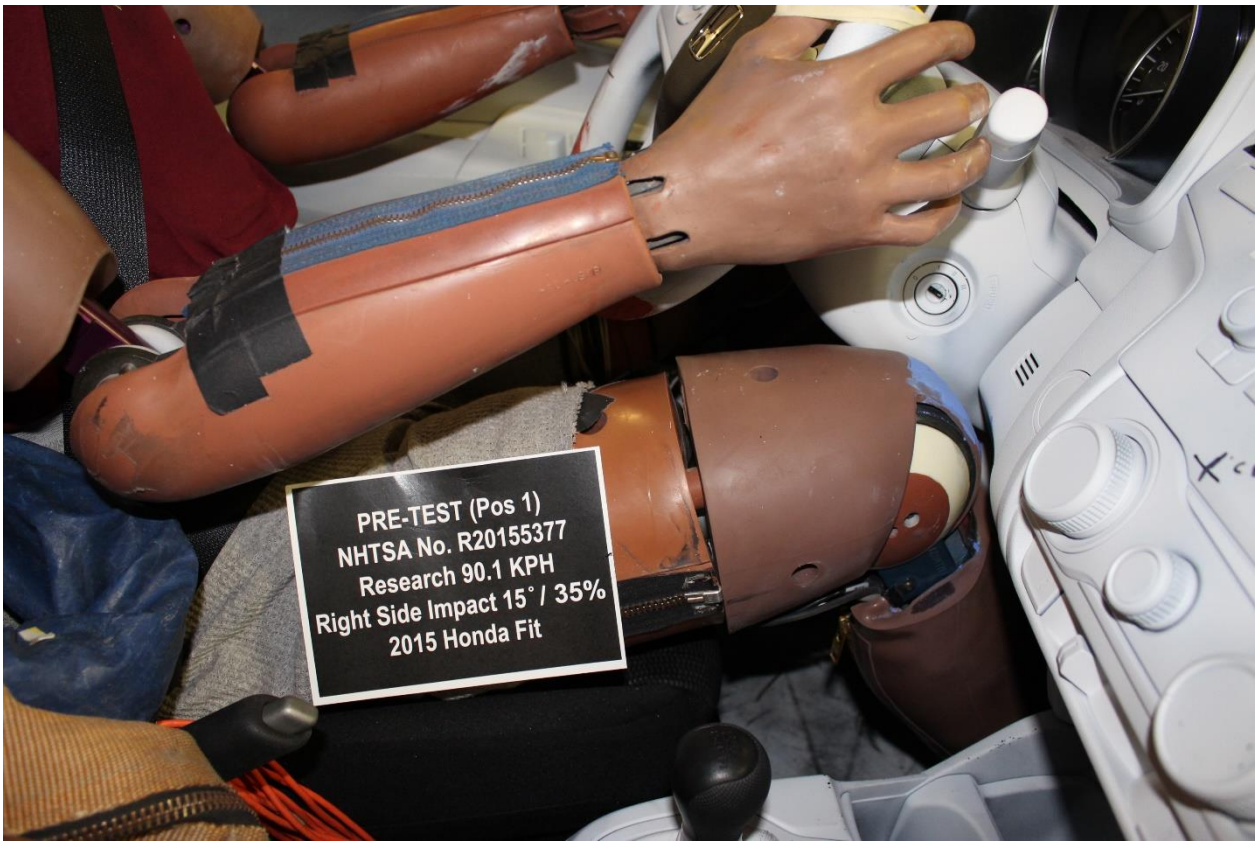
No. 065 Pre-Test Driver Adjustable D-Ring

No. 066 Post-Test Driver Adjustable D-Ring

No. 067 Pre-Test Driver Feet

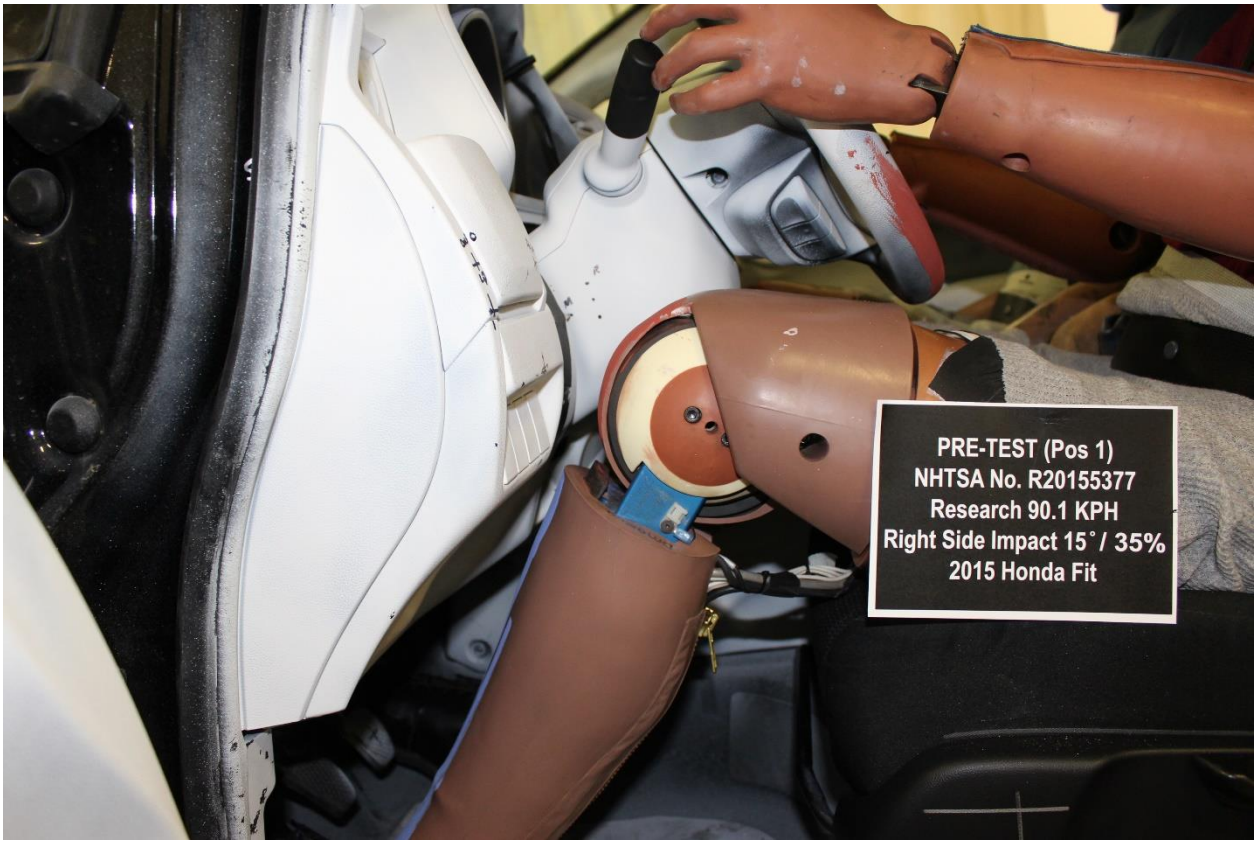


No. 068 Post-Test Driver Feet

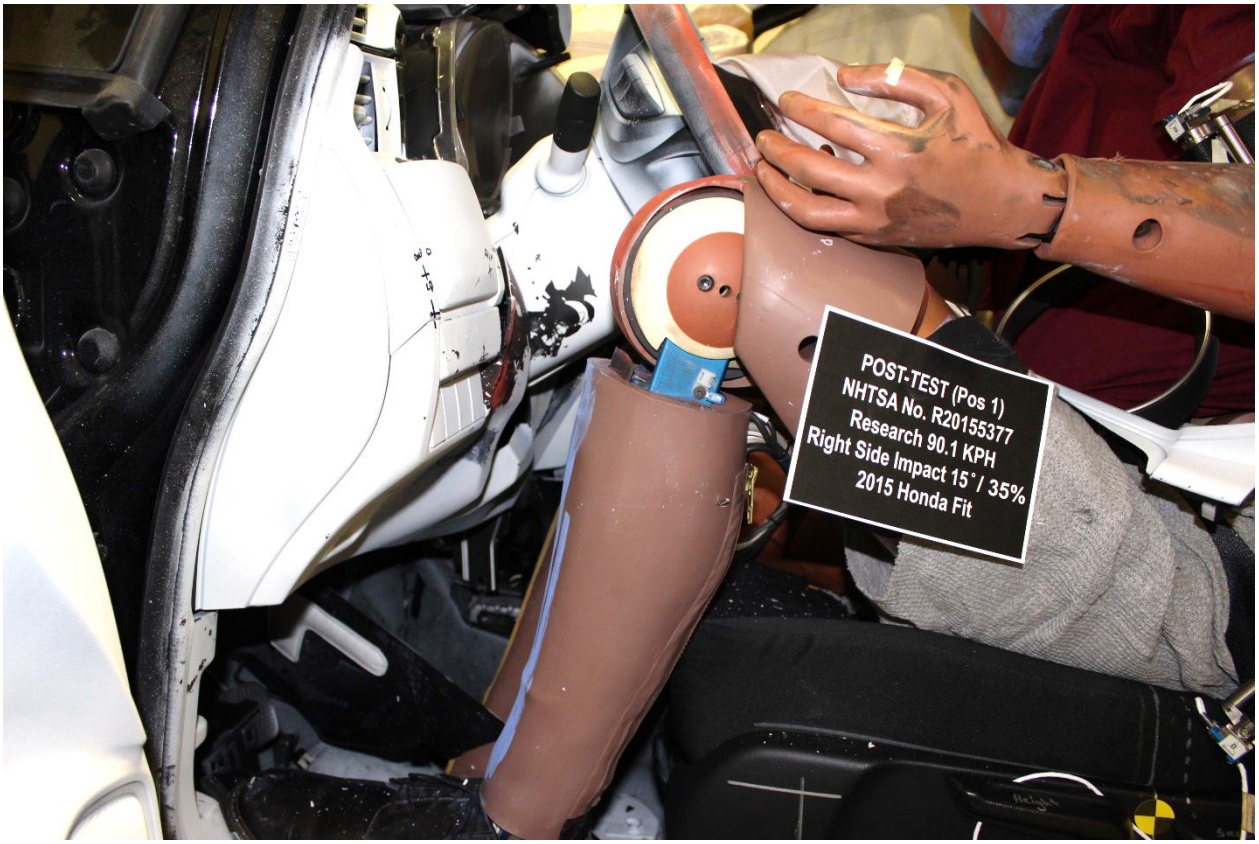


No. 069 Pre-Test View of Driver Right Knee and Bolster

No. 070 Post-Test View of Driver Right Knee and Bolster



No. 071 Pre-Test View of Driver Left Knee and Bolster



No. 072 Post-Test View of Driver Left Knee and Bolster

No. 073 Pre-Test View of Driver Abdomen

No. 074 Post-Test View of Driver Abdomen

No. 075 Pre-Test Left Side View of Steering Wheel set position

No. 076 Post-Test Left Side View of Steering Wheel set position

No. 077 Post-Test View of Driver Head Contact with Front Airbag

Photo Not Applicable

No. 078 Post-Test View of Driver Head Contact with Curtain Airbag

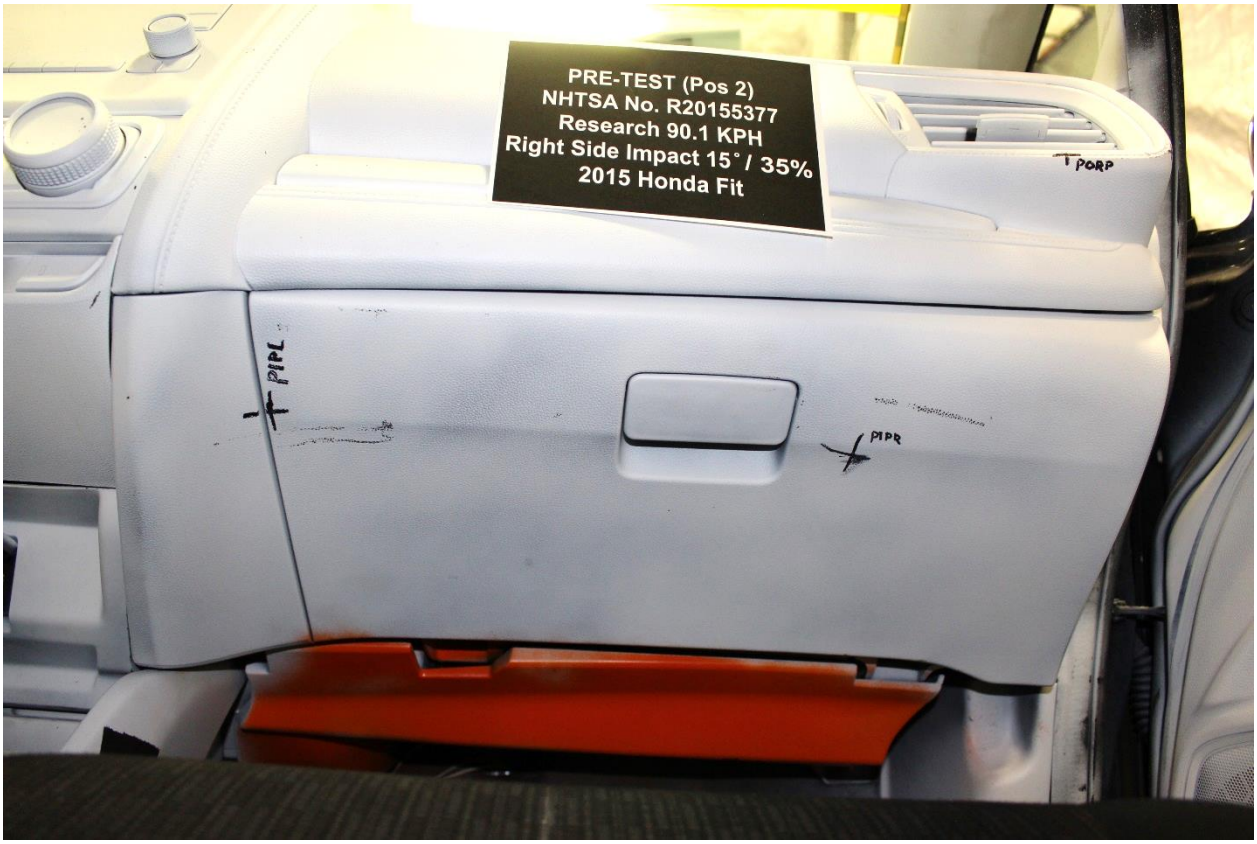
No. 079 Post-Test View of Driver Head Contact with Vehicle Interior – A

Photo Not Applicable

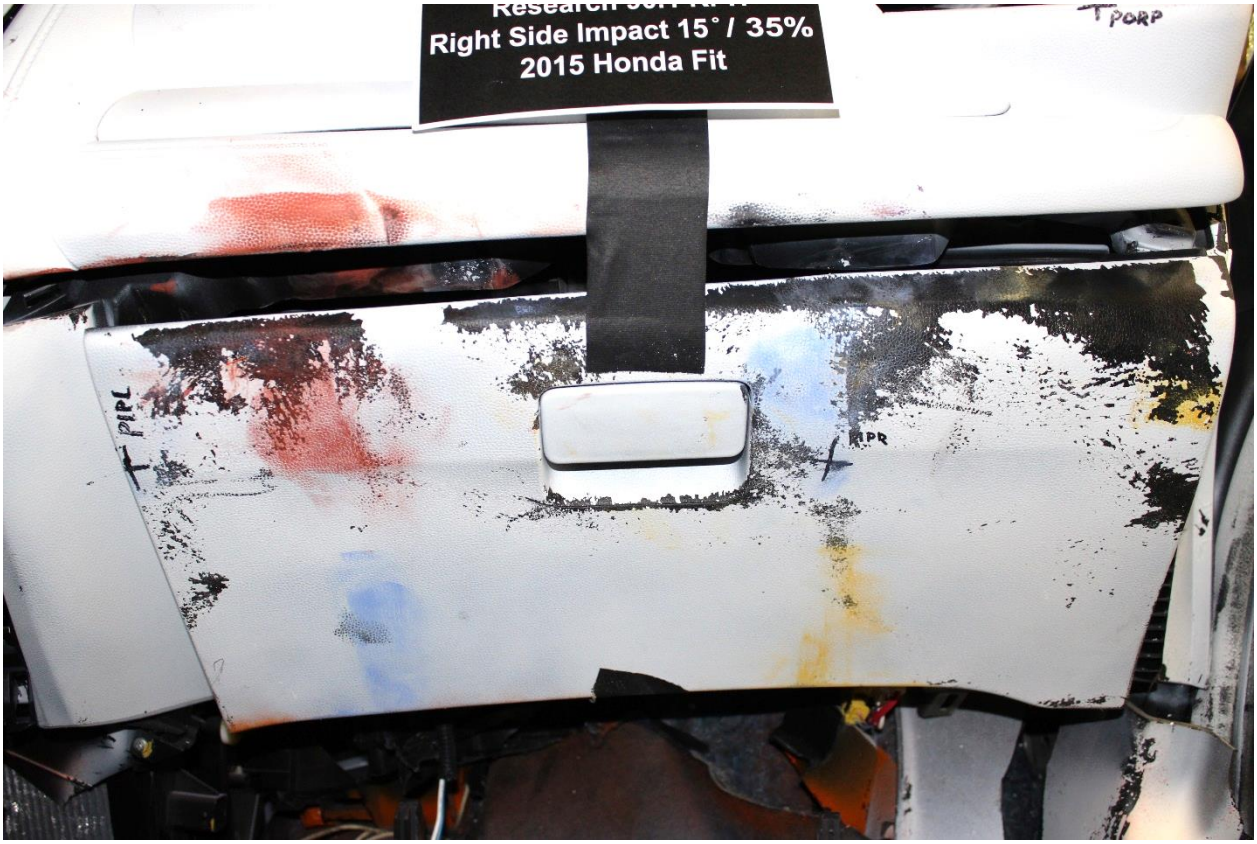
No. 080: Post-Test View of Driver Body Contact with Vehicle Interior - B

Photo Not Applicable

No. 081: Post-Test View of Driver Body Contact with Vehicle Interior - C



No. 082: Pre-Test Overall View of Passenger Knee Bolsters



No. 083: Post-Test Overall View of Passenger Knee Bolsters

No. 084: Pre-Test Left Side View of Passenger Knee Bolsters

No. 085: Post-Test Left Side View of Passenger Knee Bolsters

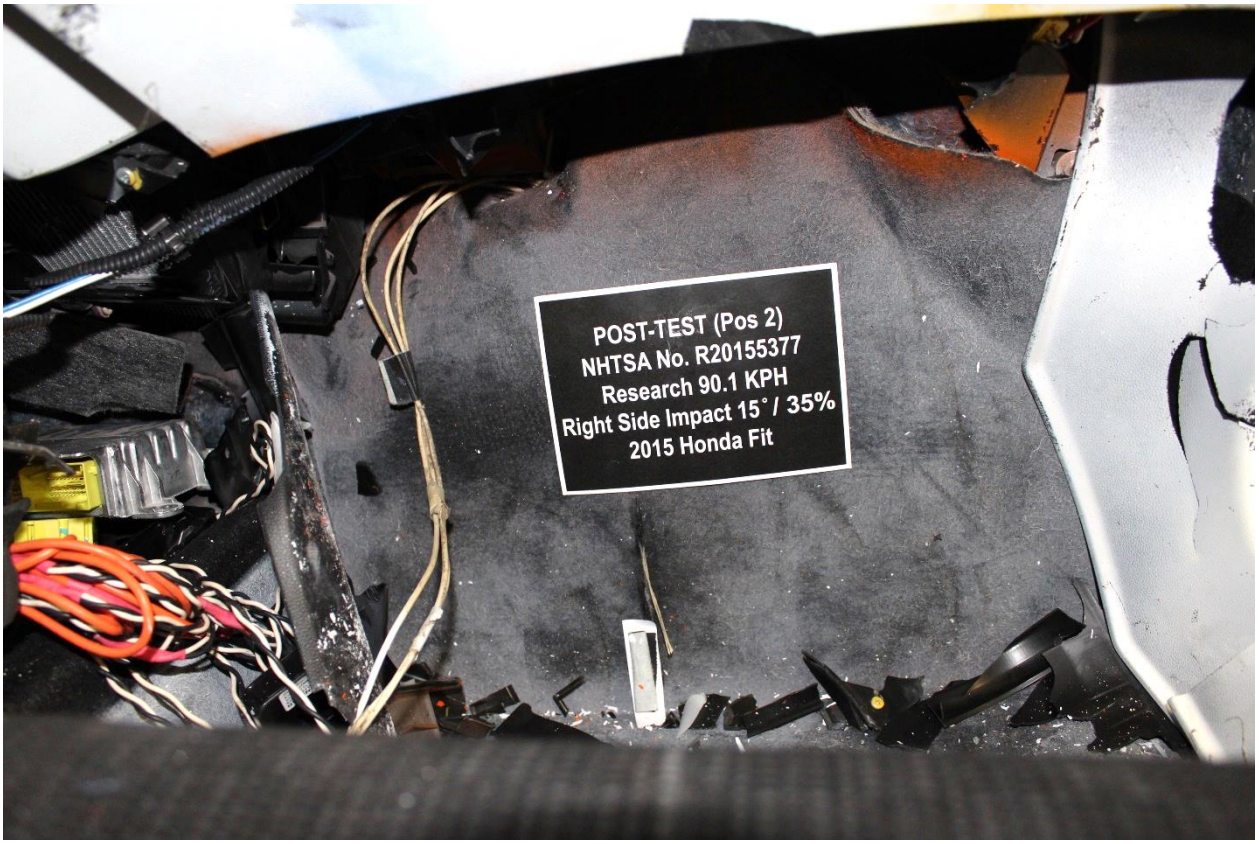
No. 086: Pre-Test Right Side View of Passenger Knee Bolsters

No. 087: Post-Test Right Side View of Passenger Knee Bolsters

No. 088: Pre-Test View of Passenger Floor pan at Right sill level, w/carpet

No. 089: Post-Test View of Passenger Floor pan at Right sill level, w/carpet

No. 090: Pre-Test View of Passenger Floor pan at Mid seat level, w/carpet



No. 091: Post-Test view of Passenger Floor pan at Mid seat level, w/carpet

No. 092: Pre-Test View of Passenger Floor pan at Left view

No. 093: Post-Test View of Passenger Floor pan at Left View

No. 094: Pre-Test Passenger Front Close-up View, Windshield

No. 095: Post-Test Passenger Front Close-up View, Windshield

No. 096: Pre-Test Left Side Passenger and Interior View

No. 097: Post-Test Left Side Passenger and Interior View

No. 98: Pre-Test Right Side Passenger Window View

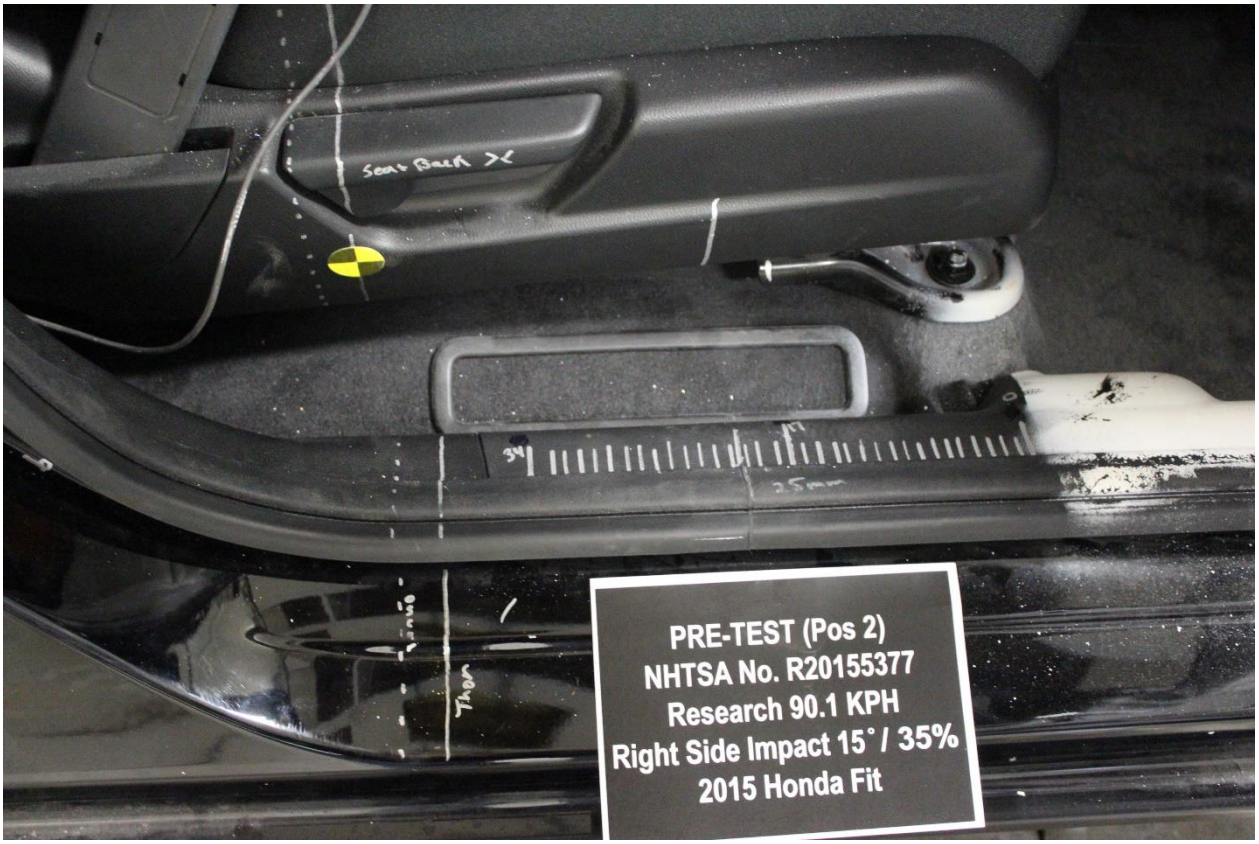
No. 99: Post-Test Right Side Passenger Window View

No. 100: Pre-Test Right Side Passenger and Interior View

No. 101: Post-Test Right Side Passenger and Interior View

No. 102: Pre-Test View of Passenger Door Clearance

No. 103: Post-Test View of Passenger Door Clearance

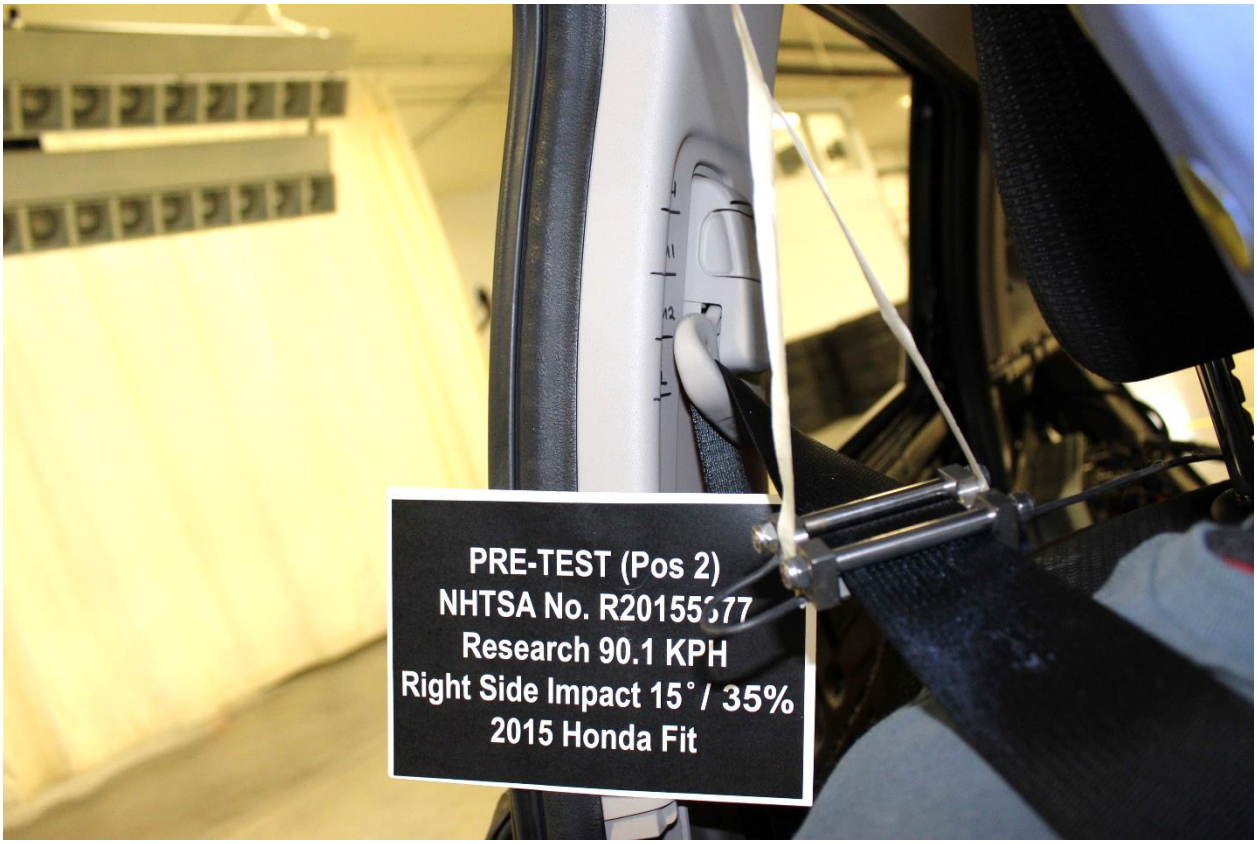


No. 104: Pre-Test Passenger Seat Fore-Aft Markings

No. 105: Post-Test Passenger Seat Fore-Aft Markings (plastic moved not seat)

No. 106: Pre-Test Passenger Seat Back Markings

No. 107: Pre-Test Overhead View of Passenger Thighs on seat

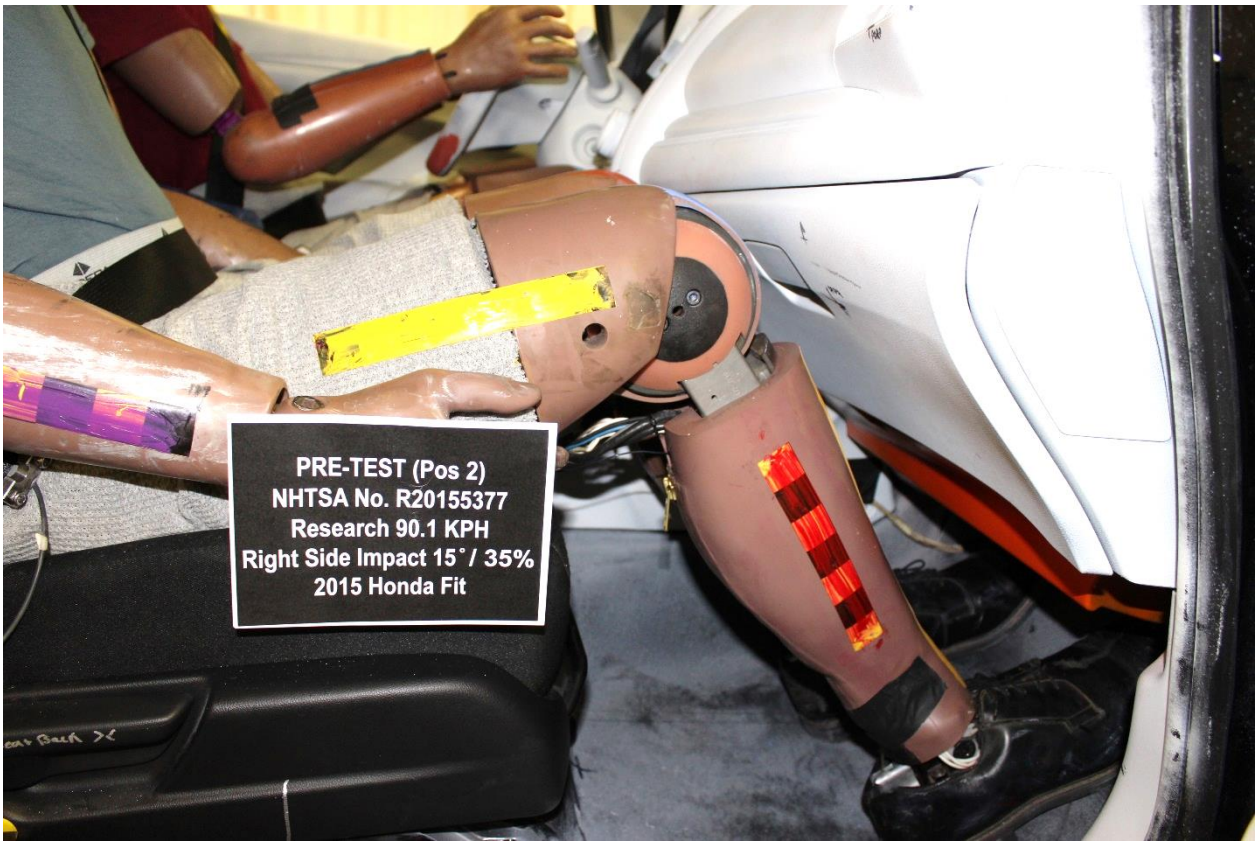


No. 108: Pre-Test Passenger Adjustable D-ring

No. 109: Post-Test Passenger Adjustable D-ring

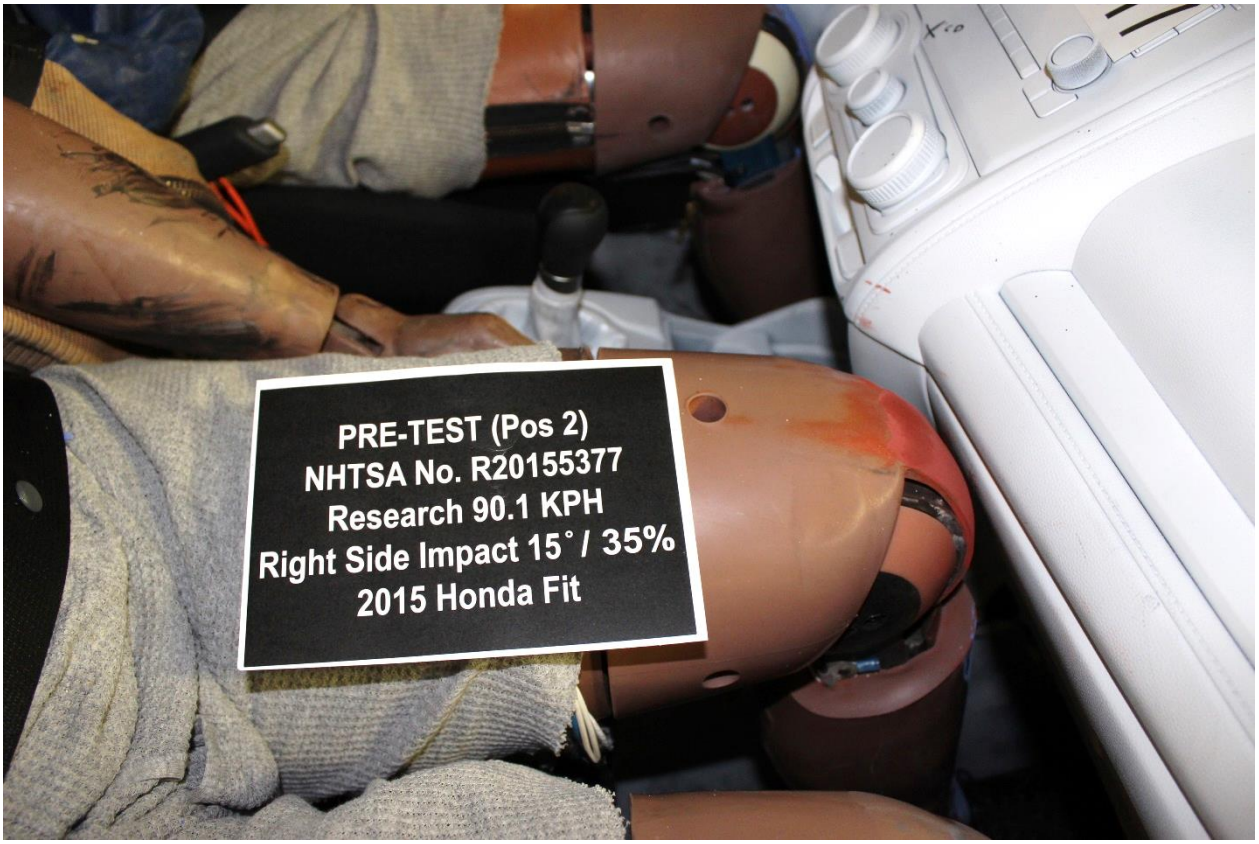
No. 110: Pre-Test View of Passenger Feet

No. 111: Post-Test View of Passenger Feet



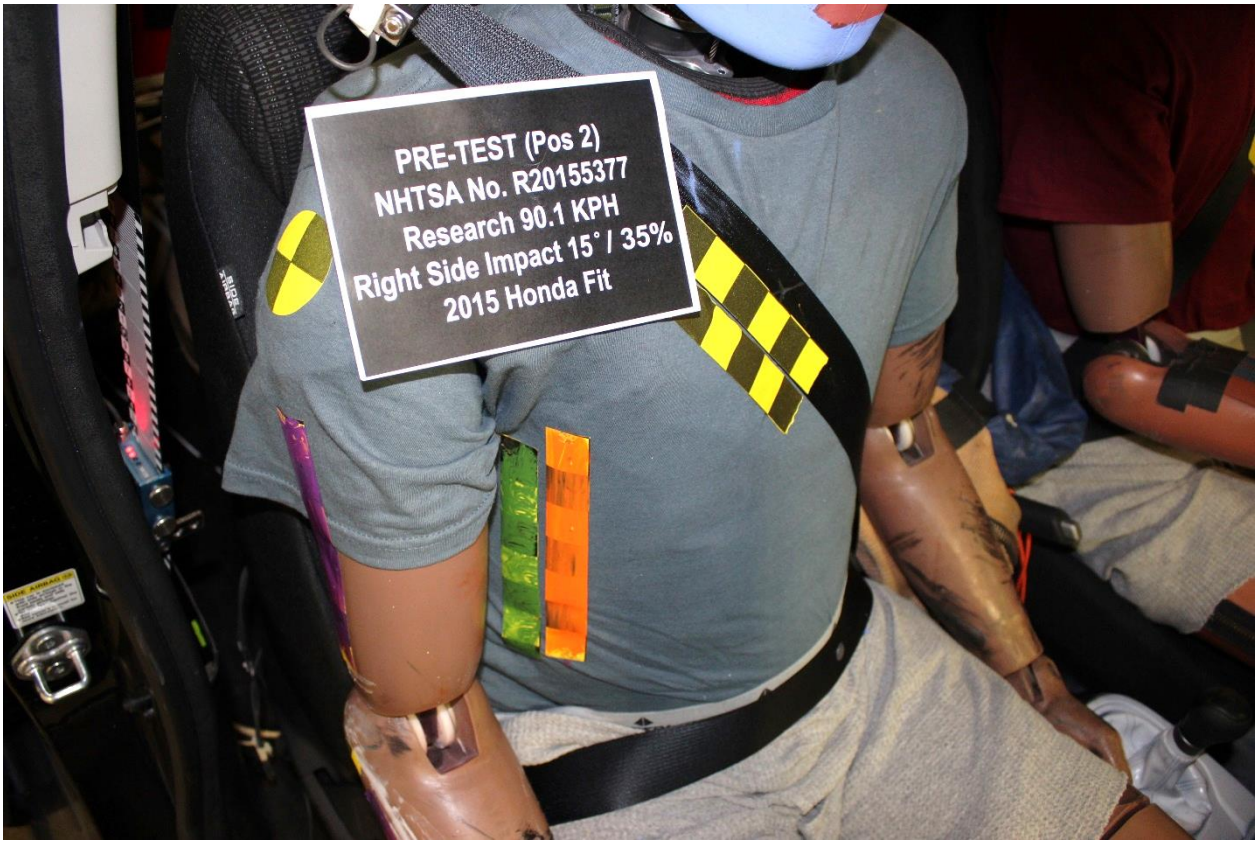
No. 112: Pre-Test View of Passenger Right Knee and Bolster

No. 113: Post-Test View of Passenger Right Knee and Bolster



No. 114: Pre-Test View of Passenger Left Knee and Bolster

No. 115: Post-Test View of Passenger Left Knee and Bolster

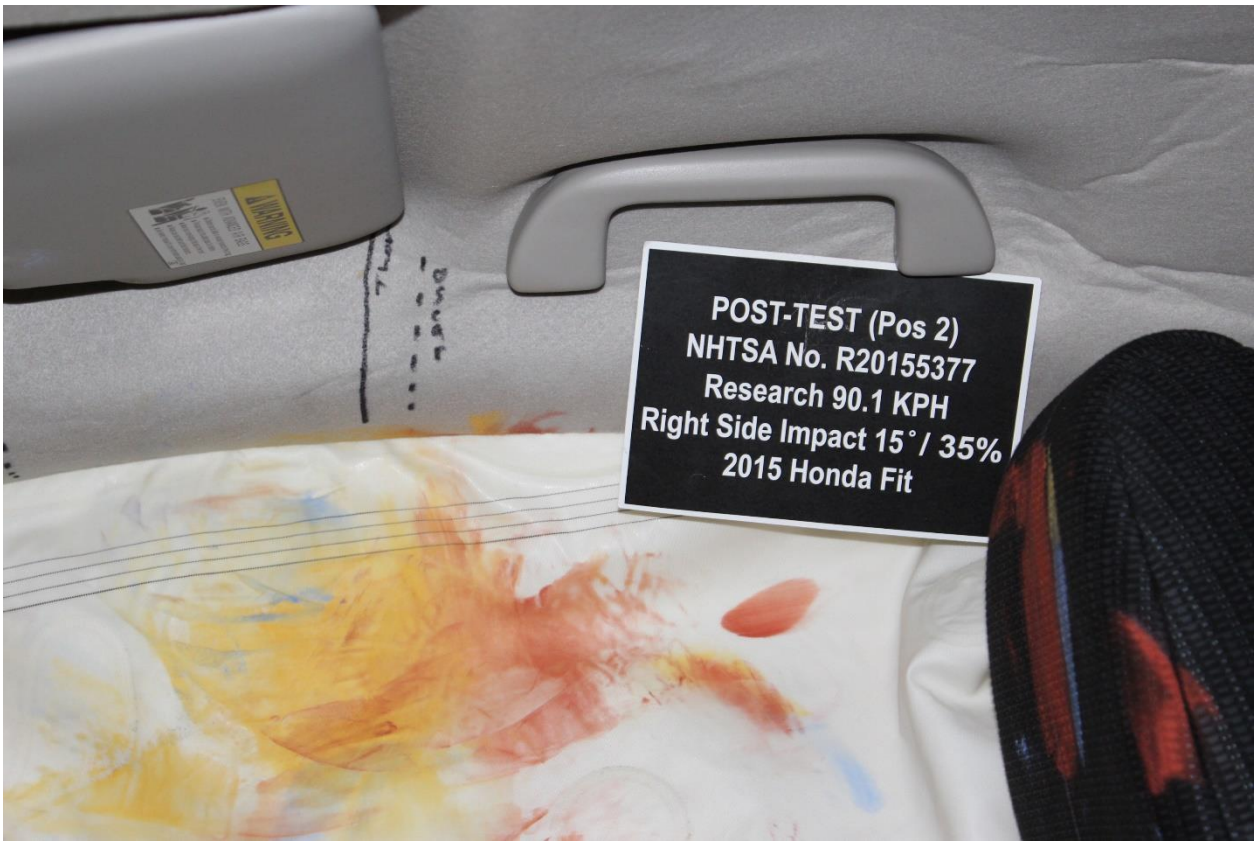


No. 116: Pre-Test View of Passenger Abdomen

No. 117: Post-Test View of Passenger Abdomen

No. 118: Post-Test View of Passenger Head contact with Airbag – Front

No. 119: Post-Test View of Passenger Head contact with Airbag - Curtain

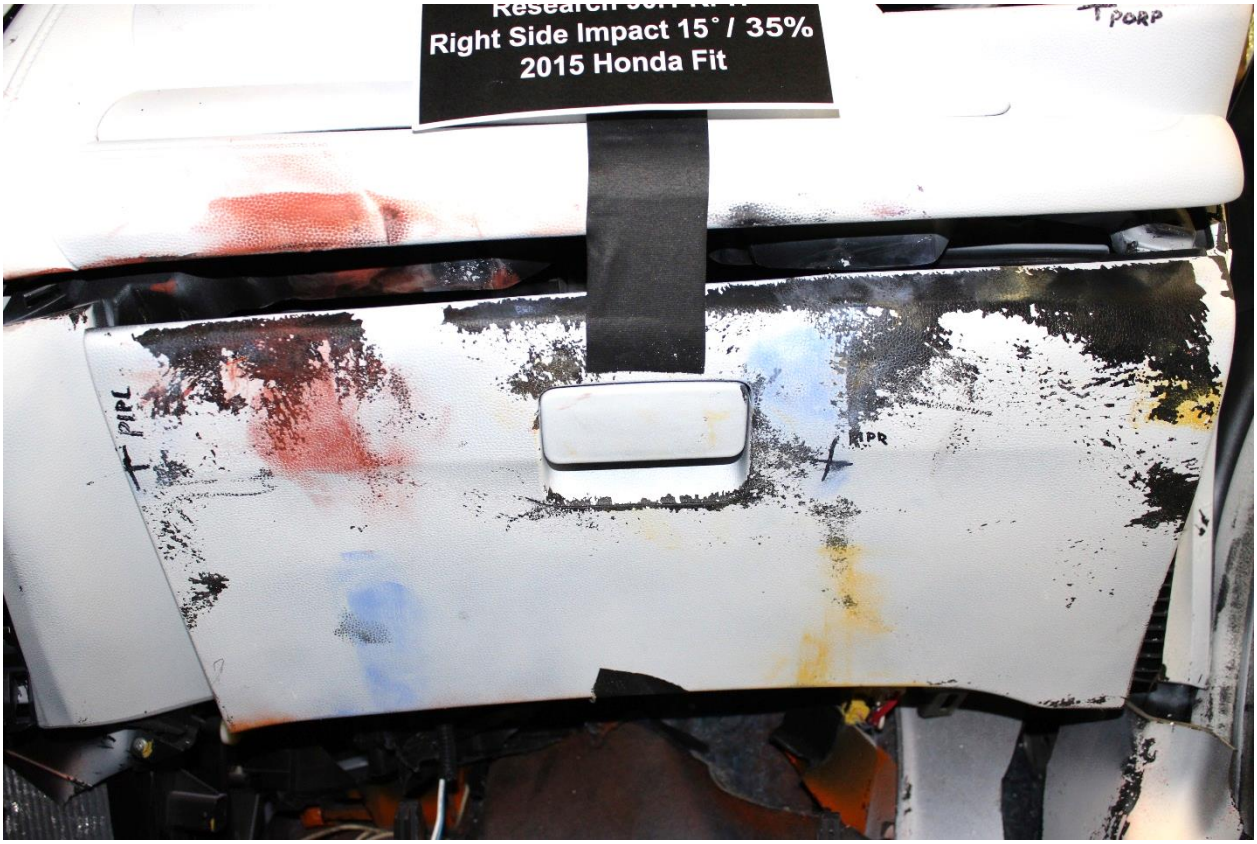


No. 120: Post-Test View of Passenger Head contact with Interior

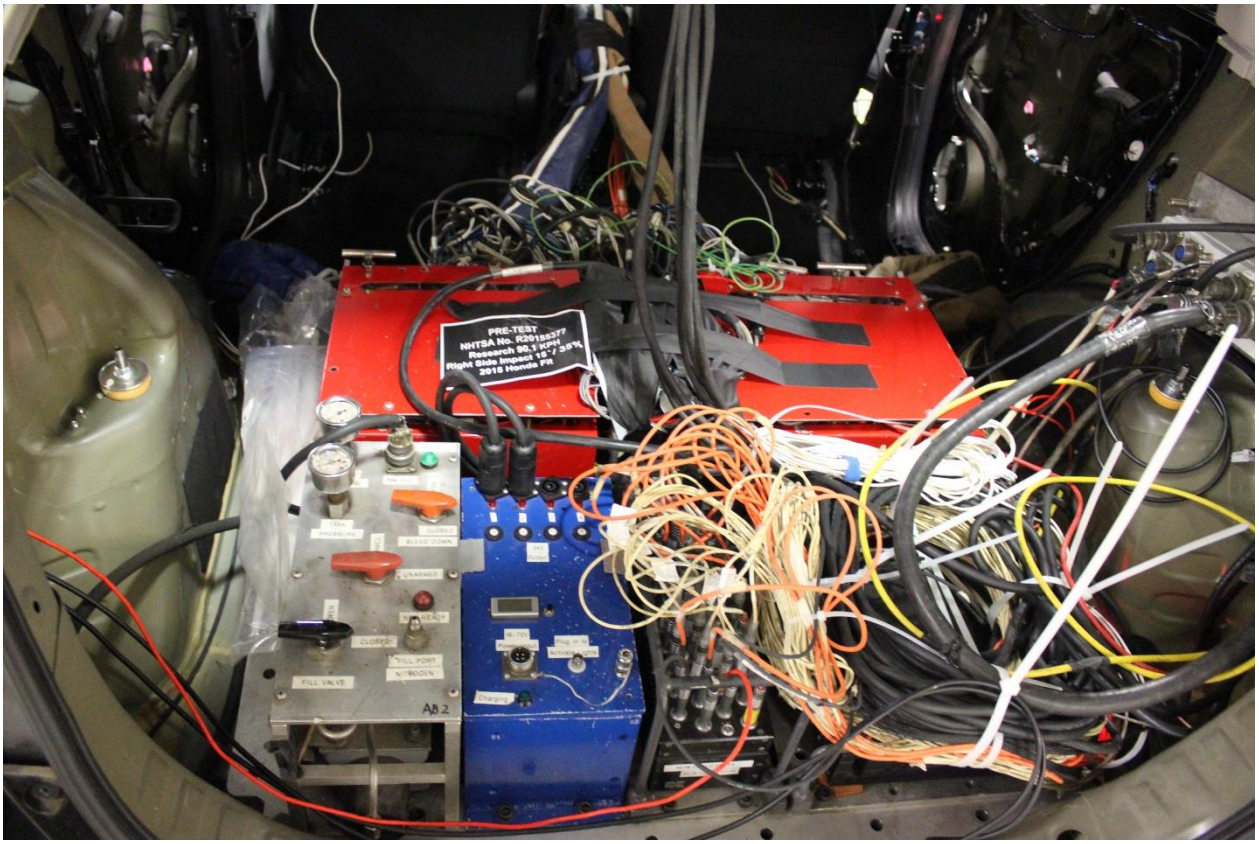
No. 121: Post-Test View of Passenger Body contact with Interior

Photo Not Applicable

No. 122: Post-Test View of Passenger Head contact with Interior

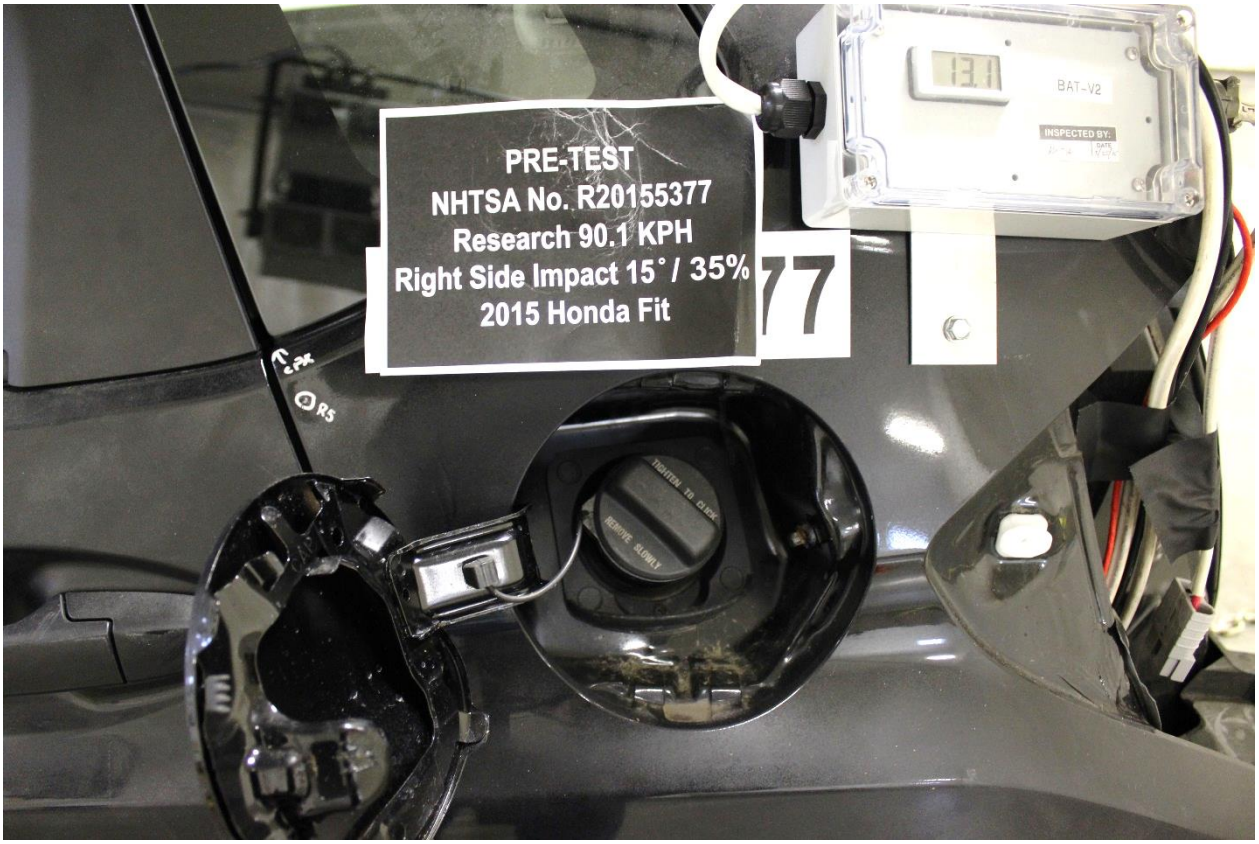


No. 123: Post-Test Passenger Contact With Glovebox



No. 124: Pre-Test Ballast Locations

No. 125: Post-Test Speed Trap Readout



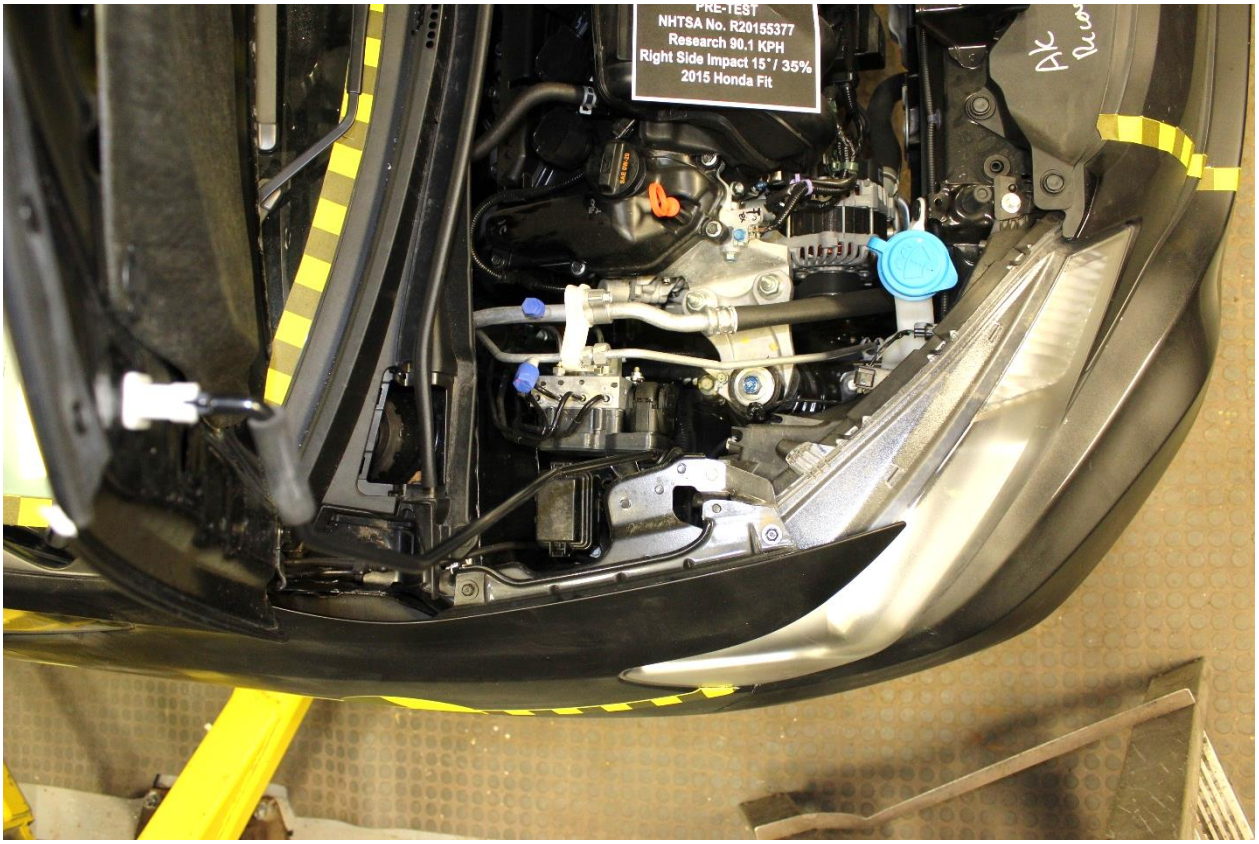
No. 126: Pre-Test View of Fuel Filler Cap

No. 127: Post-Test View of Fuel Filler Cap

No. 128: Pre-Test Engine Compartment View

Photo Not Available

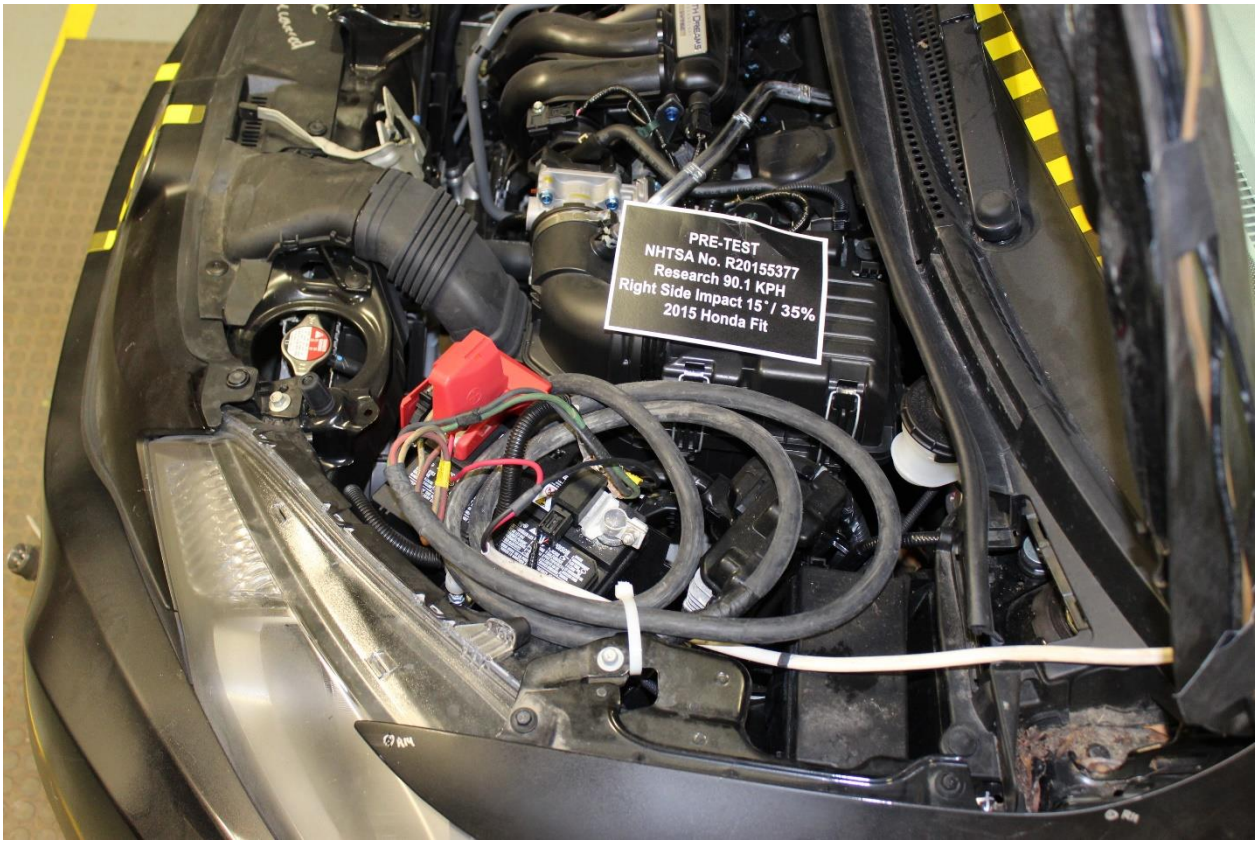
No. 129: Post-Test Engine Compartment View



No. 130: Pre-Test Right Side Engine Compartment View

Photo Not Available

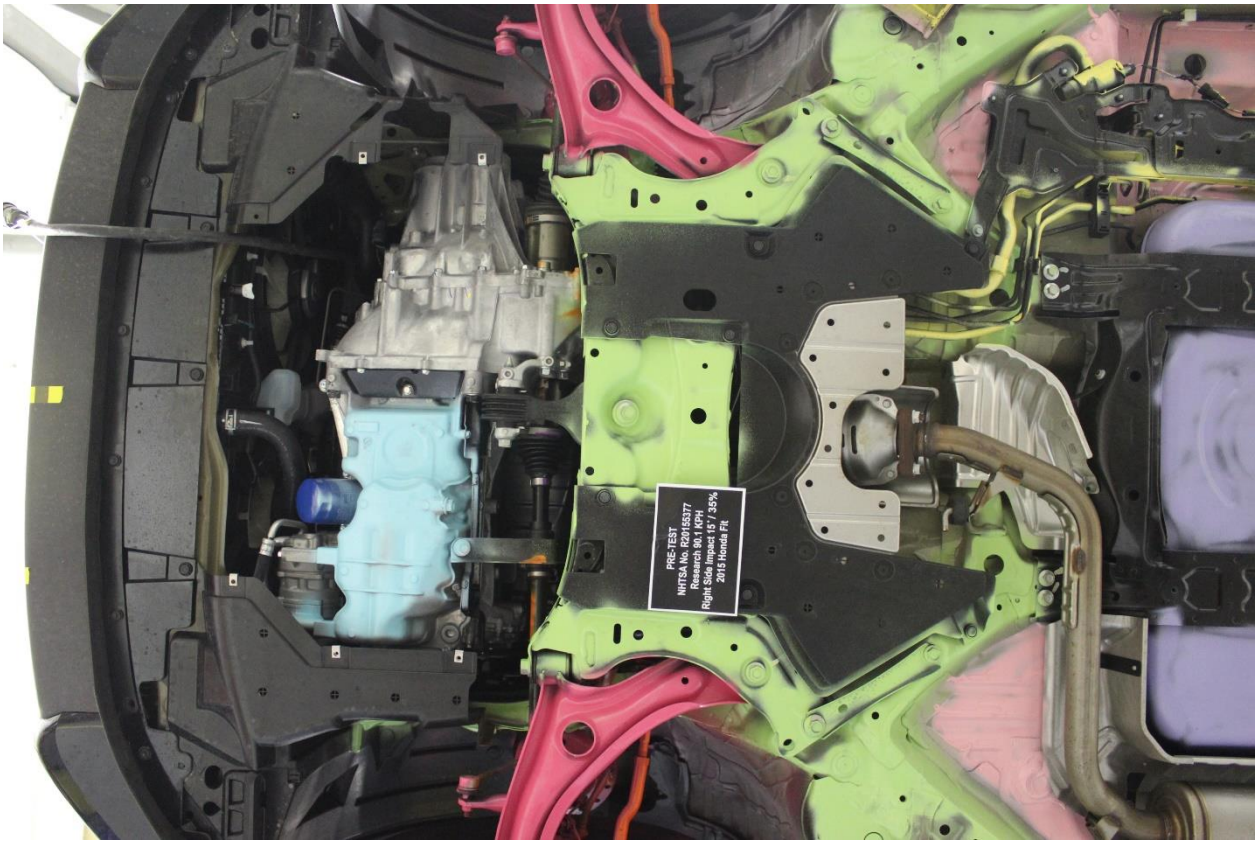
No. 131: Post-Test Right Side Engine Compartment View



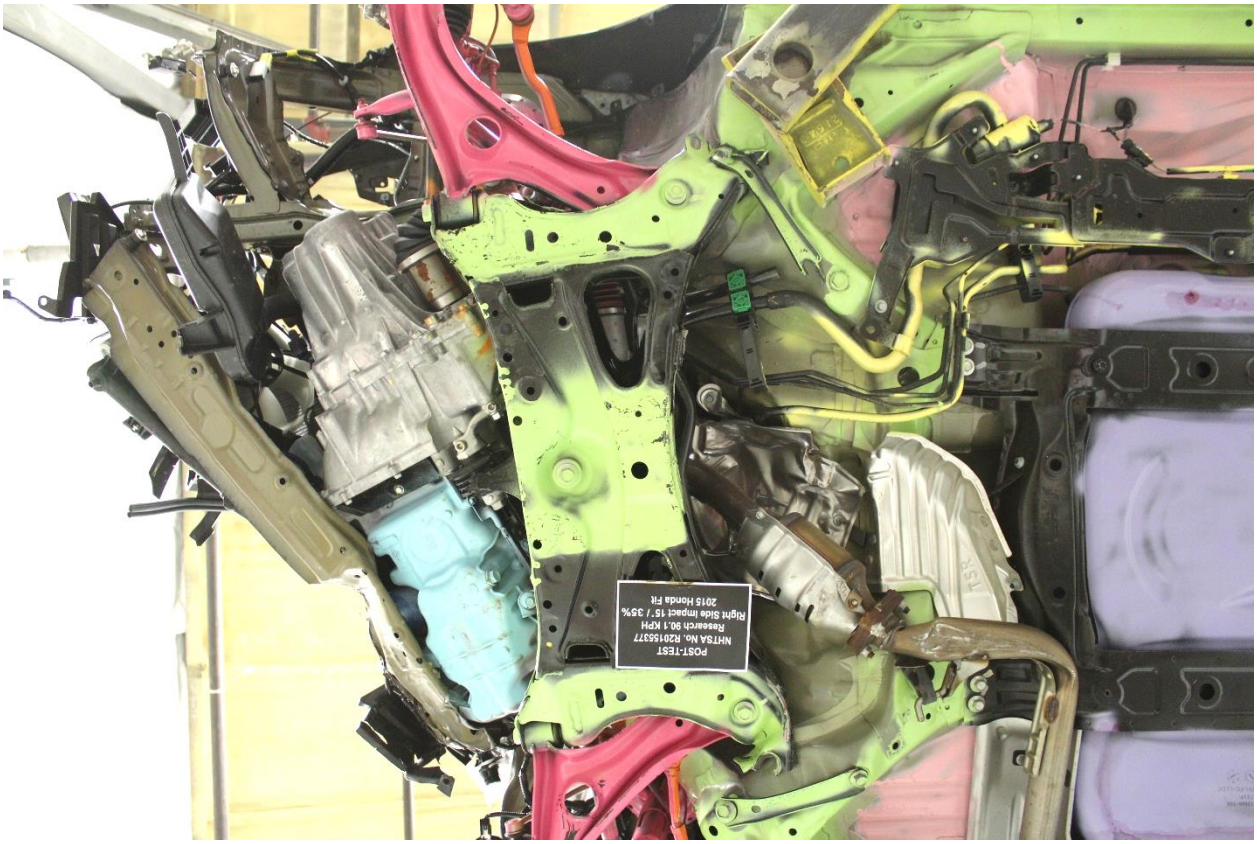
No. 132: Pre-Test Left Side Engine Compartment View

Photo Not Available

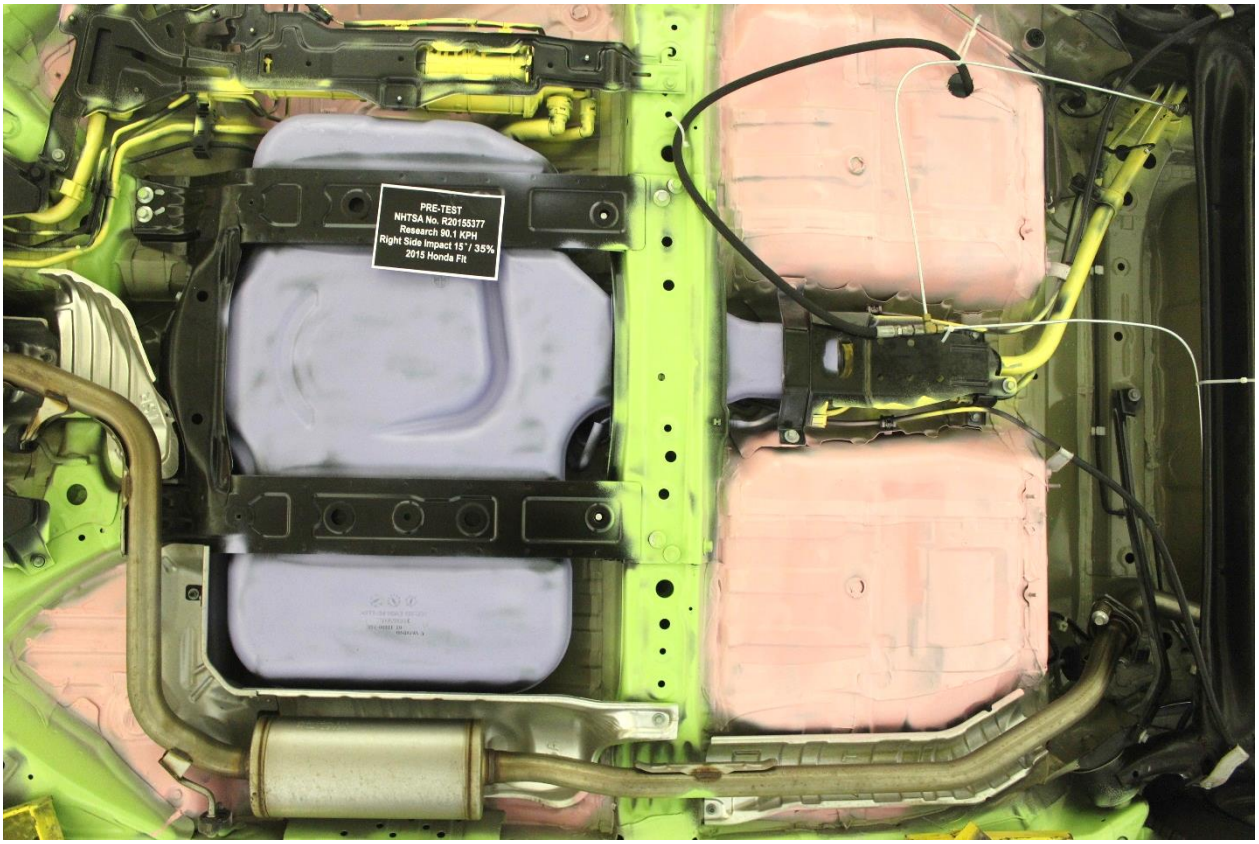
No. 133: Post-Test Left Side Engine Compartment View



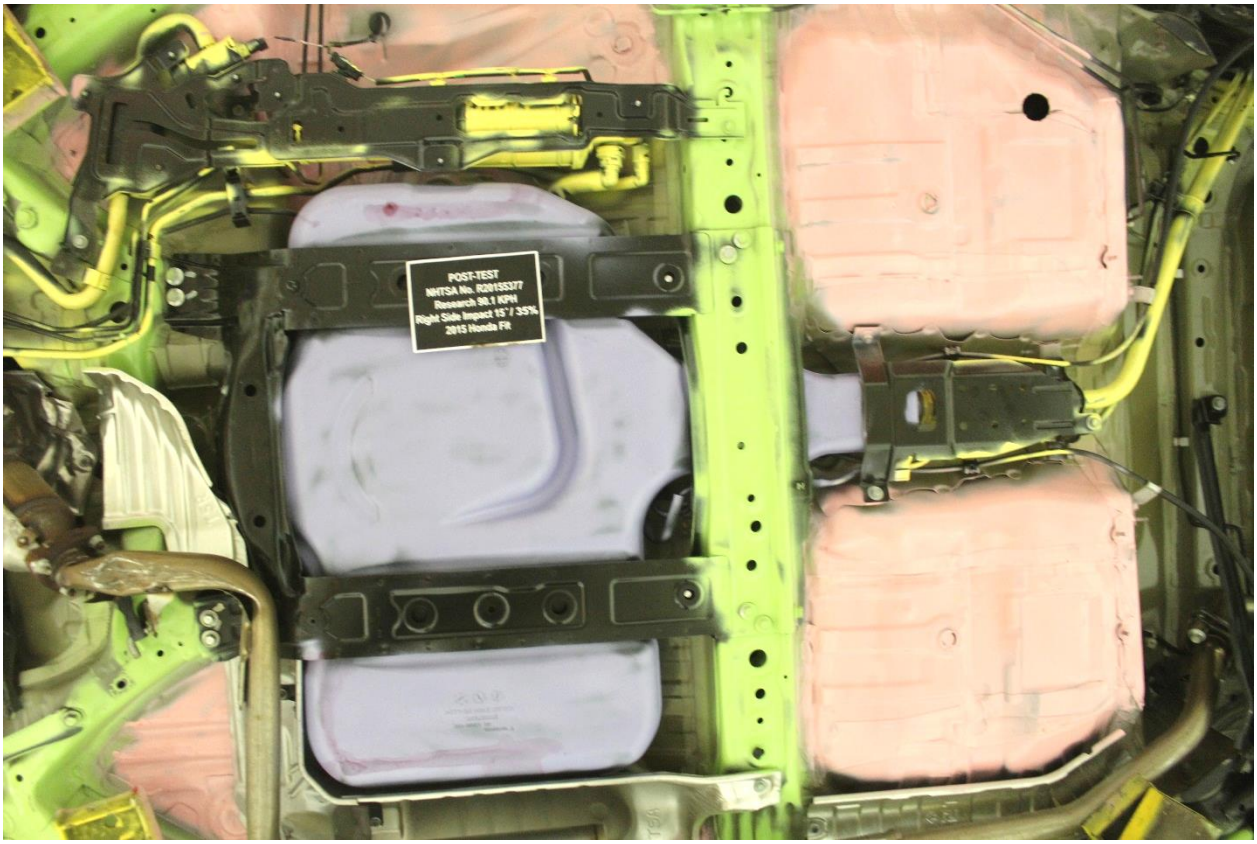
No. 134: Pre-Test View of Front Underbody (perpendicular to vehicle)



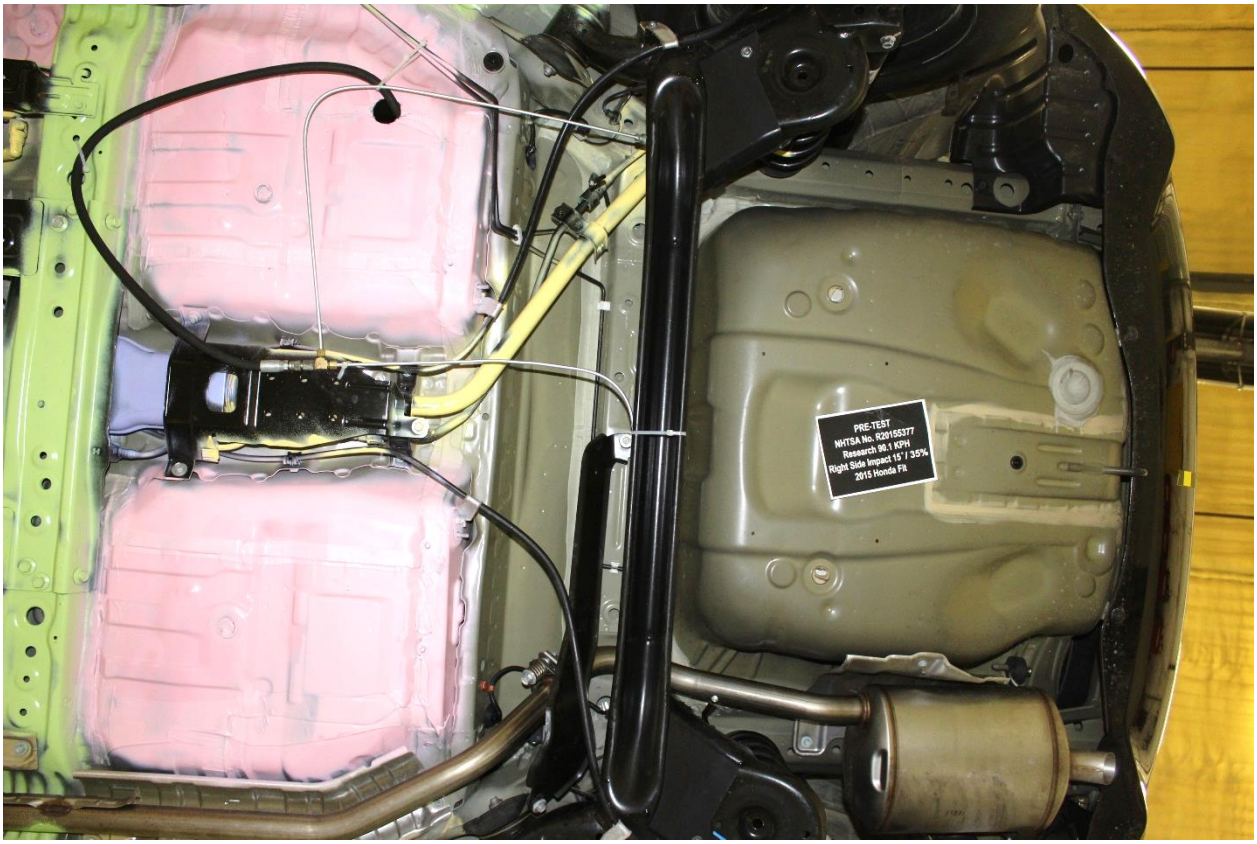
No. 135: Post-Test View of Front Underbody (perpendicular to vehicle)



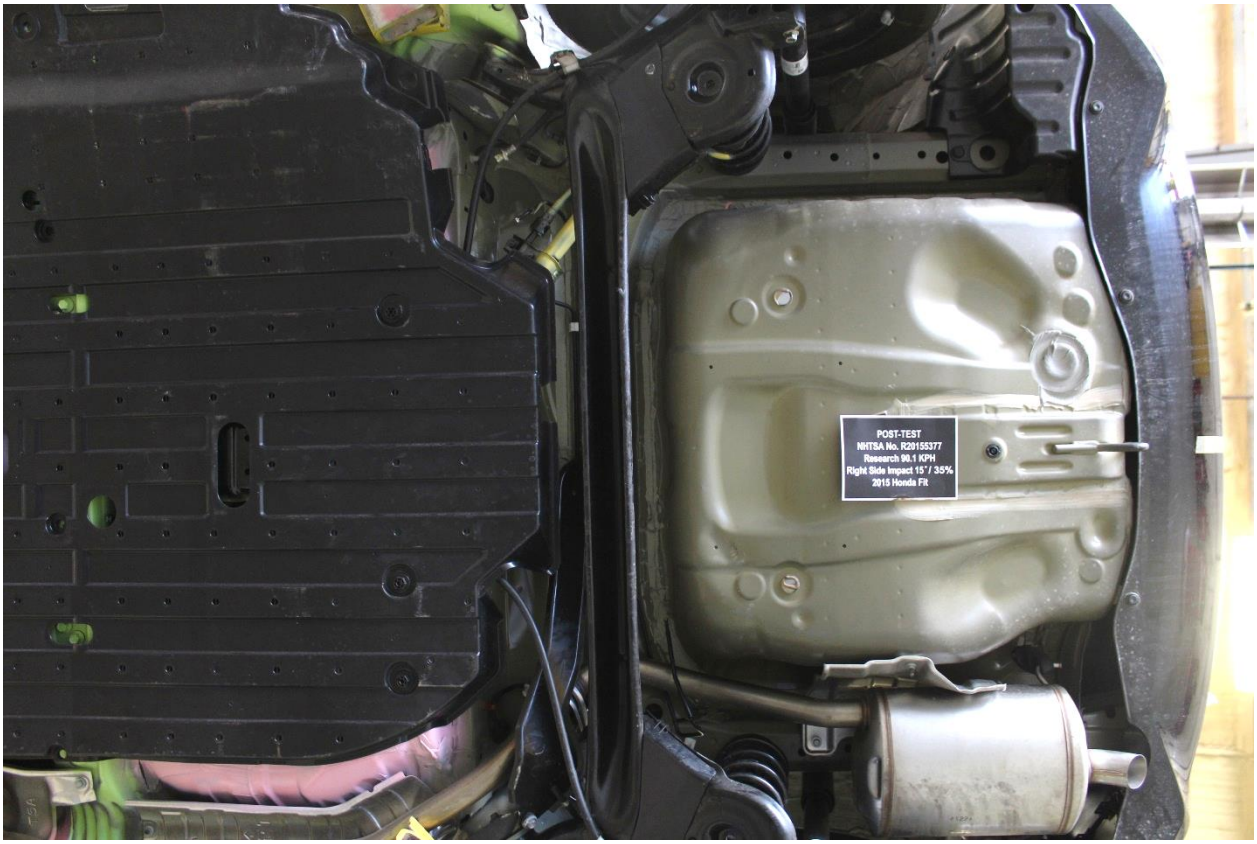
No. 136: Pre-Test View of Mid Underbody (perpendicular to vehicle)



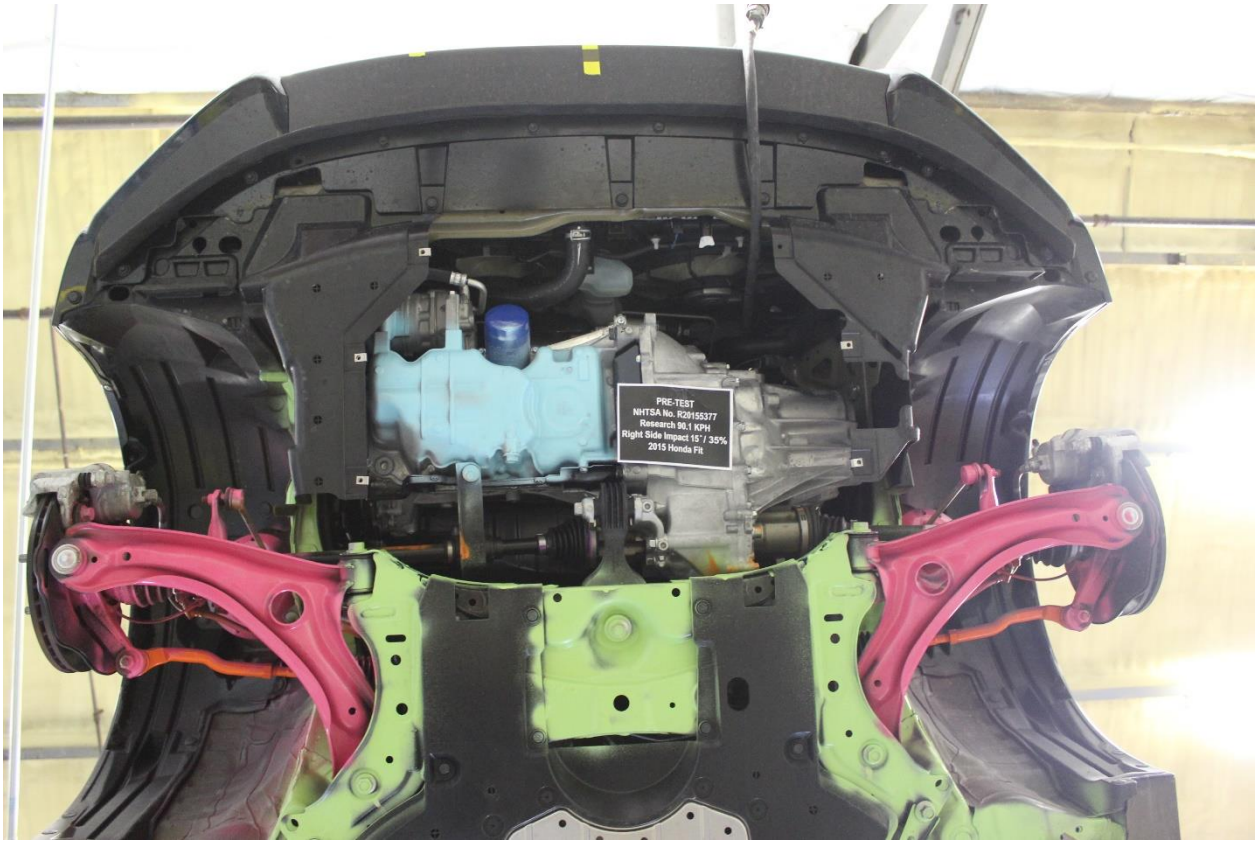
No. 137: Post-Test View of Mid Underbody (perpendicular to vehicle)



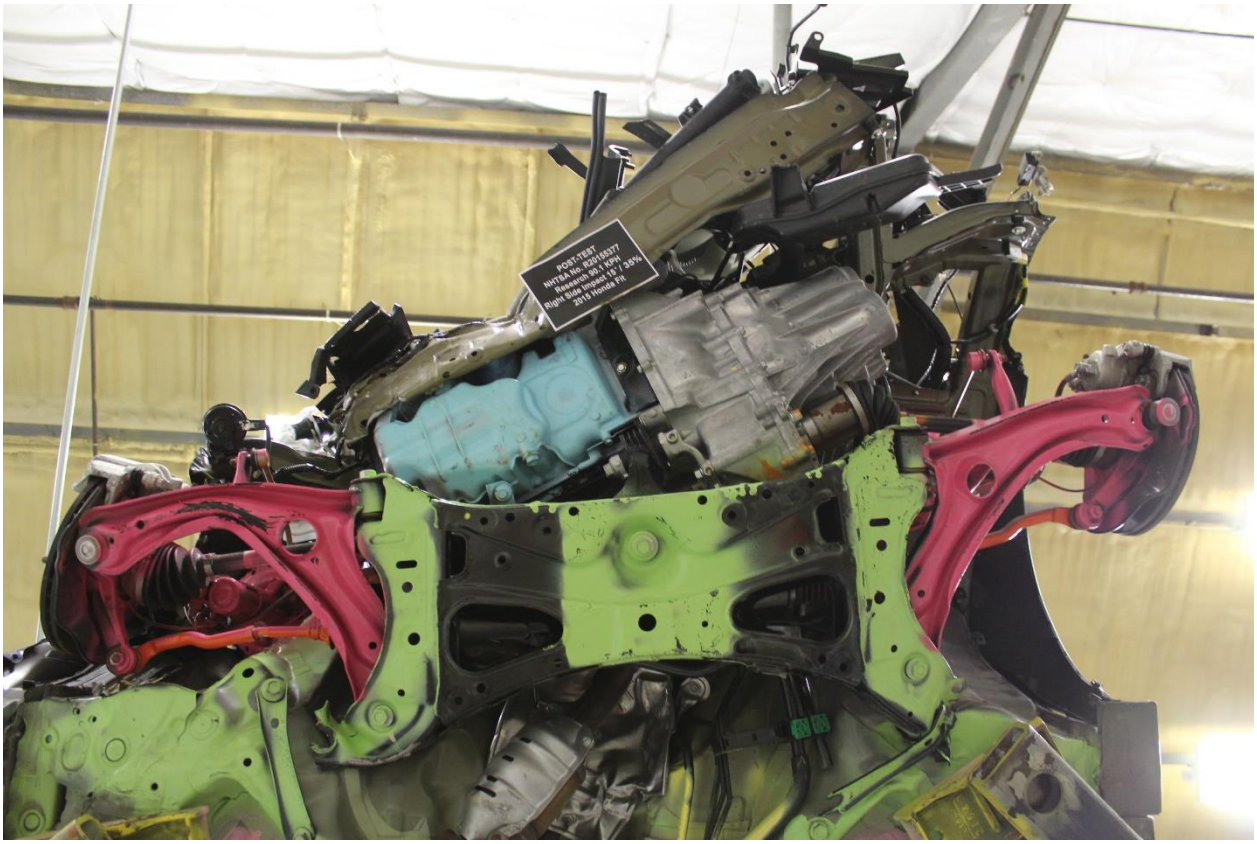
No. 138: Pre-Test View of Rear Underbody (perpendicular to vehicle)



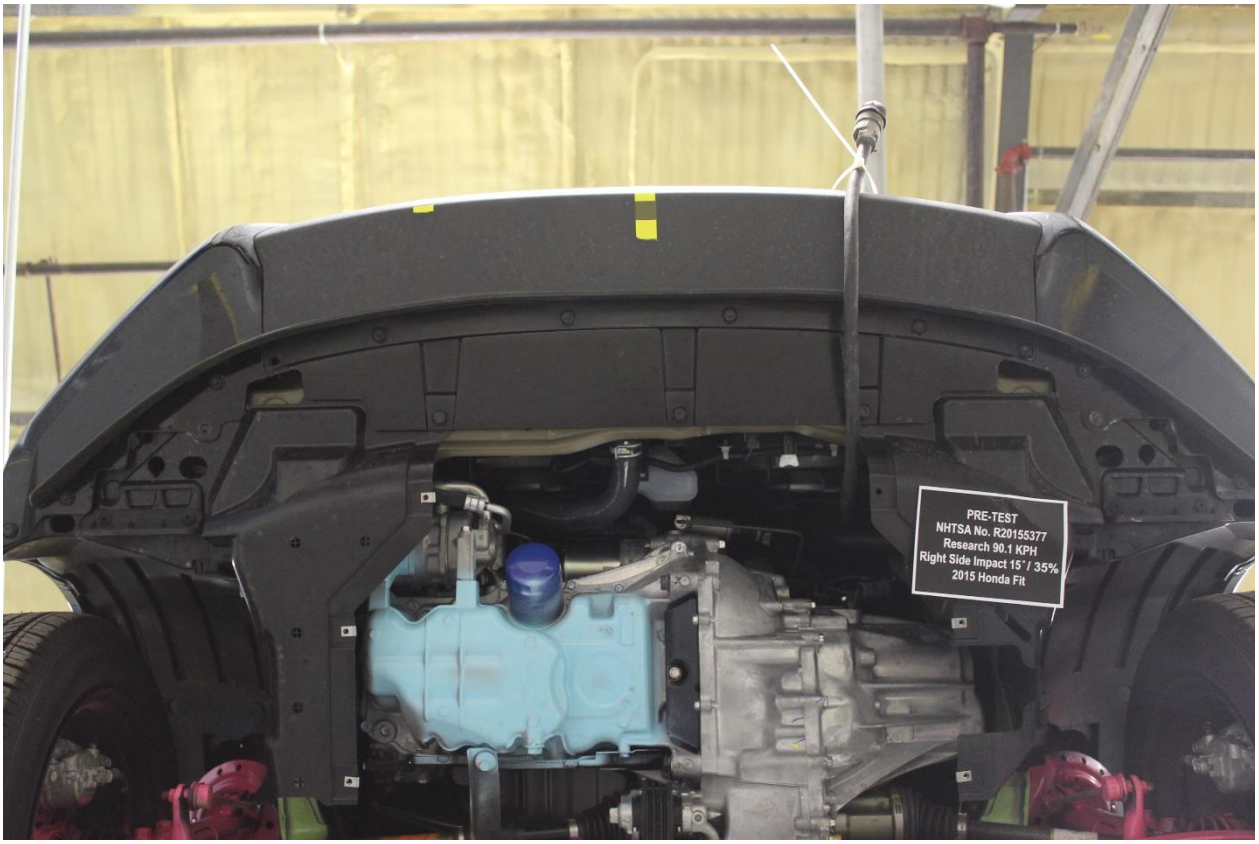
No. 139: Post-Test View of Rear Underbody (perpendicular to vehicle)



No. 140: Pre-Test View of Steering rack and or sway bar

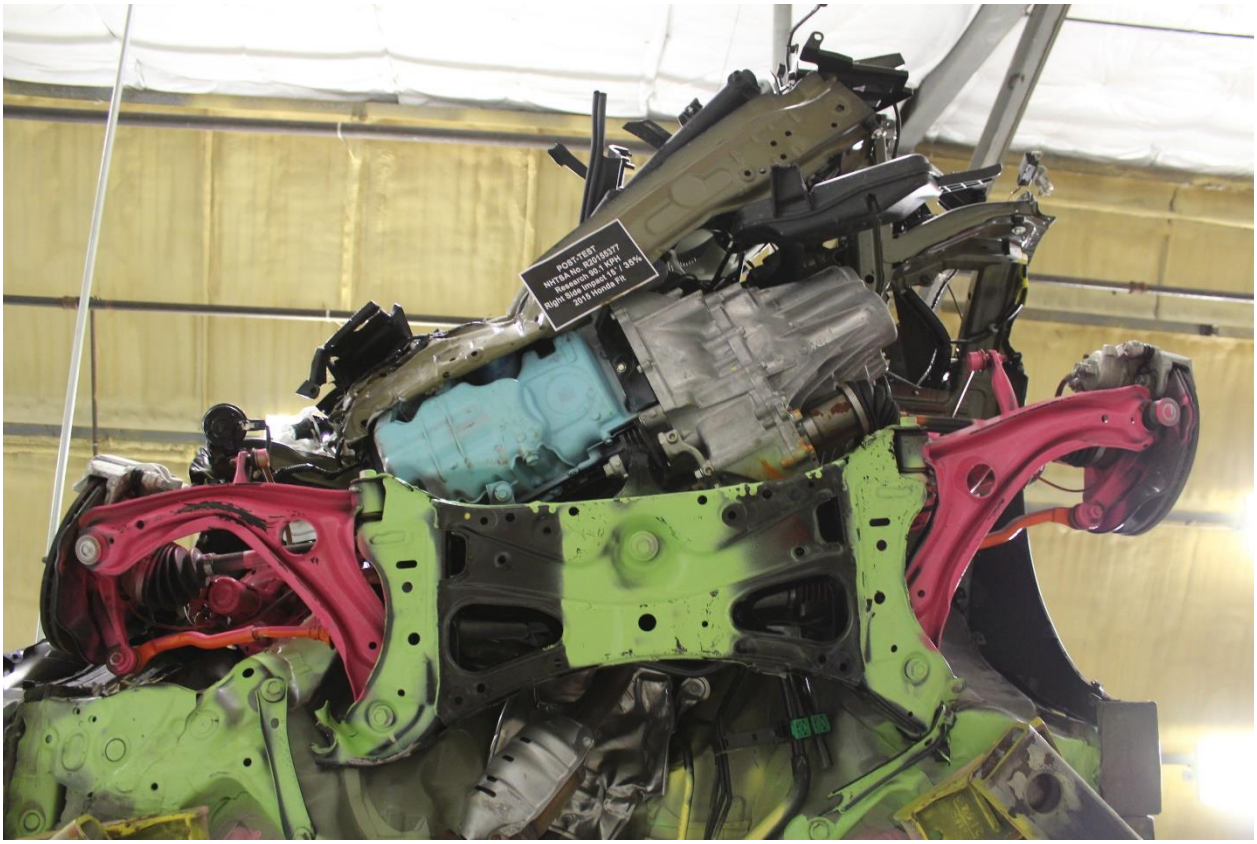


No. 141: Post-Test View of Steering rack and or sway bar

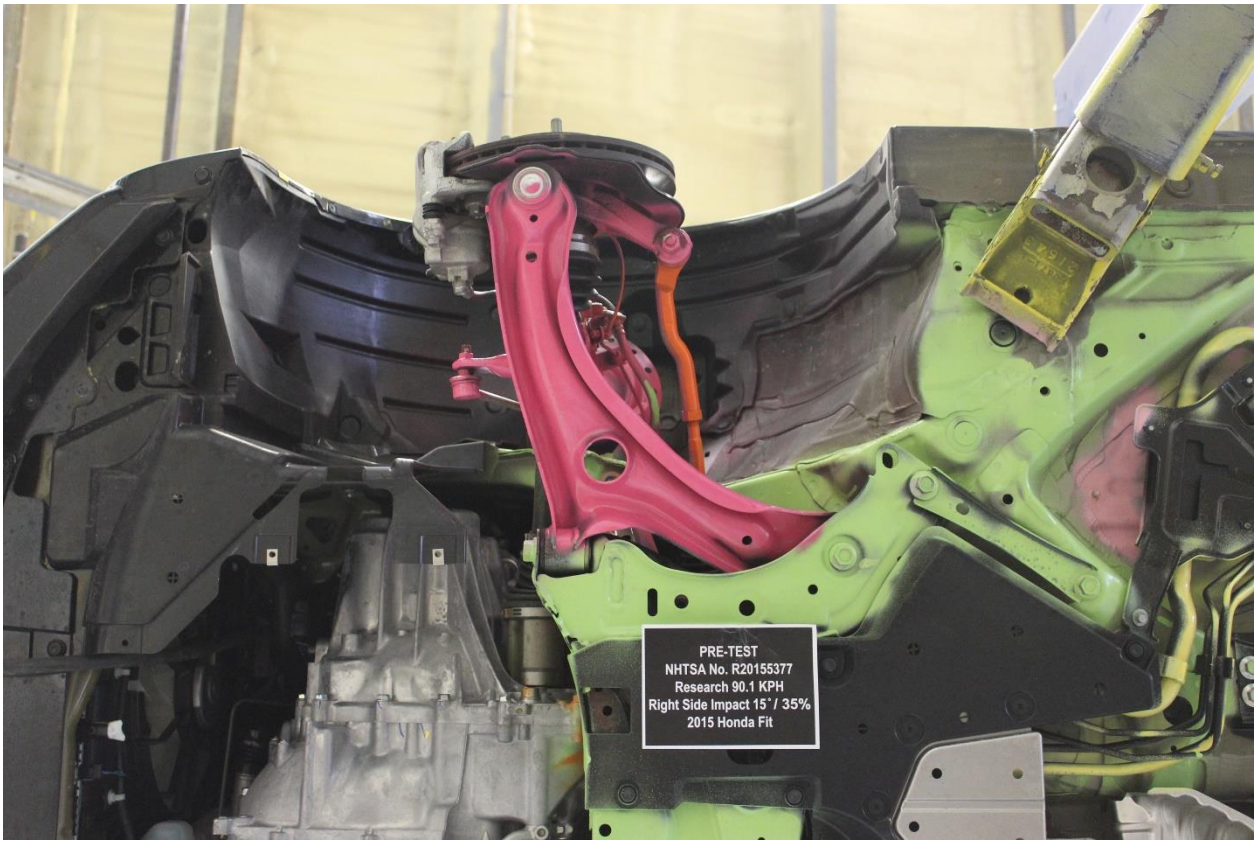


No. 142: Pre-Test Bumper to Rail Attachments and Crush Initiators

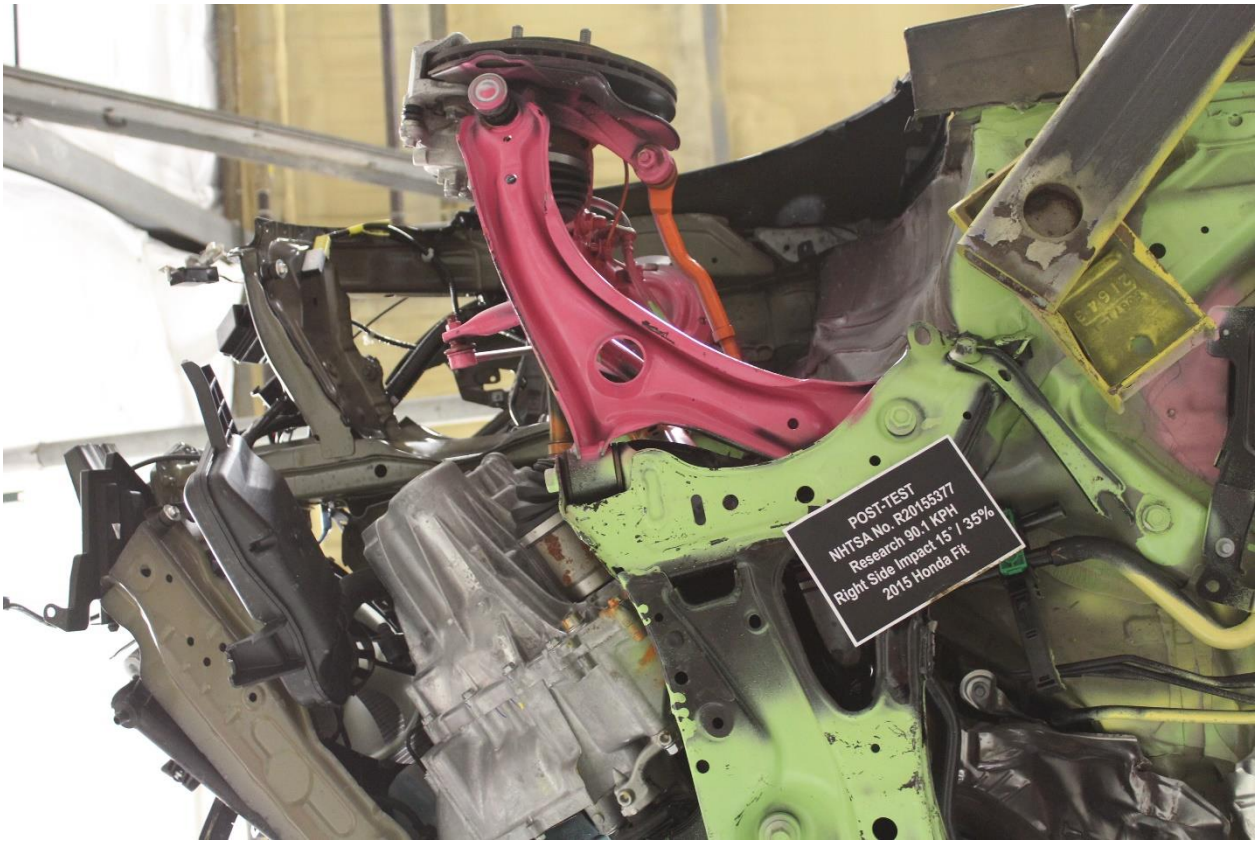
No. 143: Post-Test Bumper to Rail Attachments and Crush Initiators



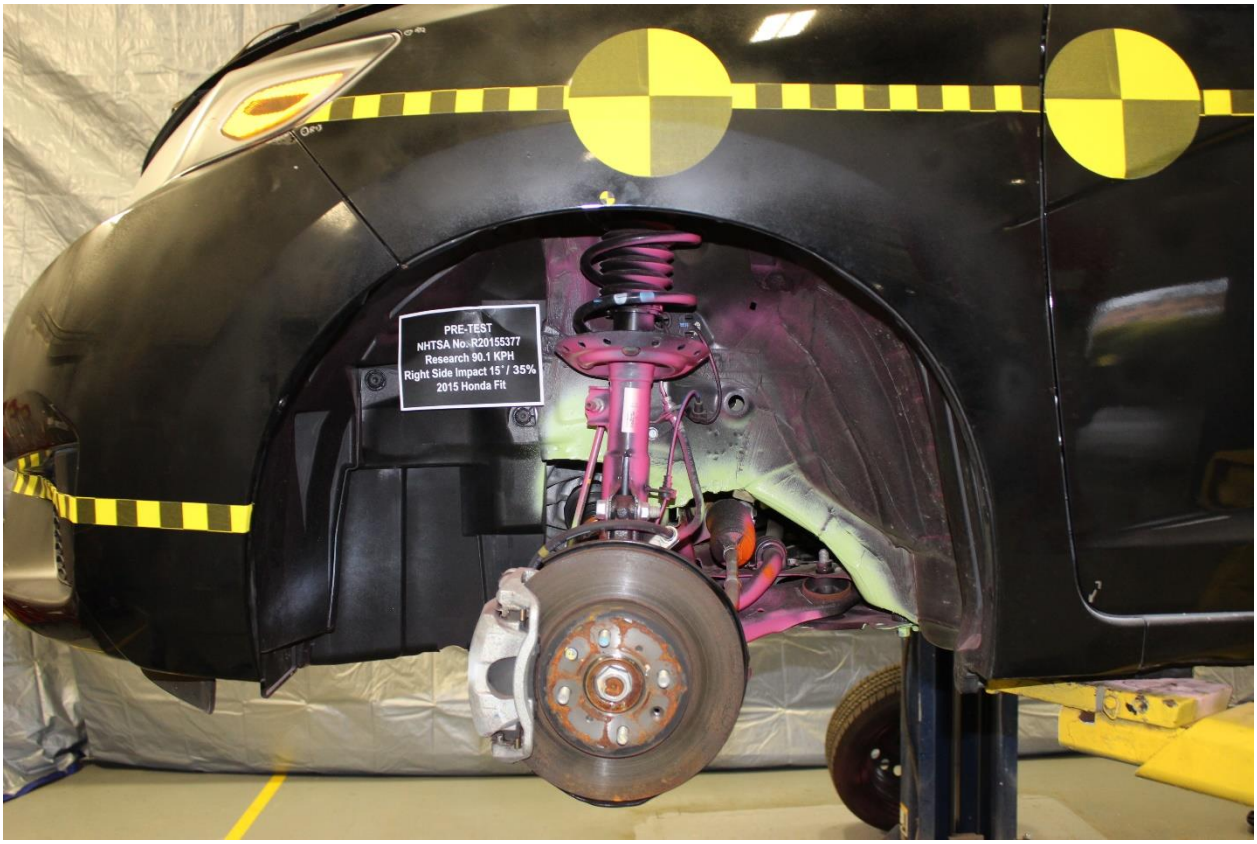
No. 144: Post-Test View of Front Sub-Frame Deformation



No. 145: Pre-Test Frame Rail with tire removed

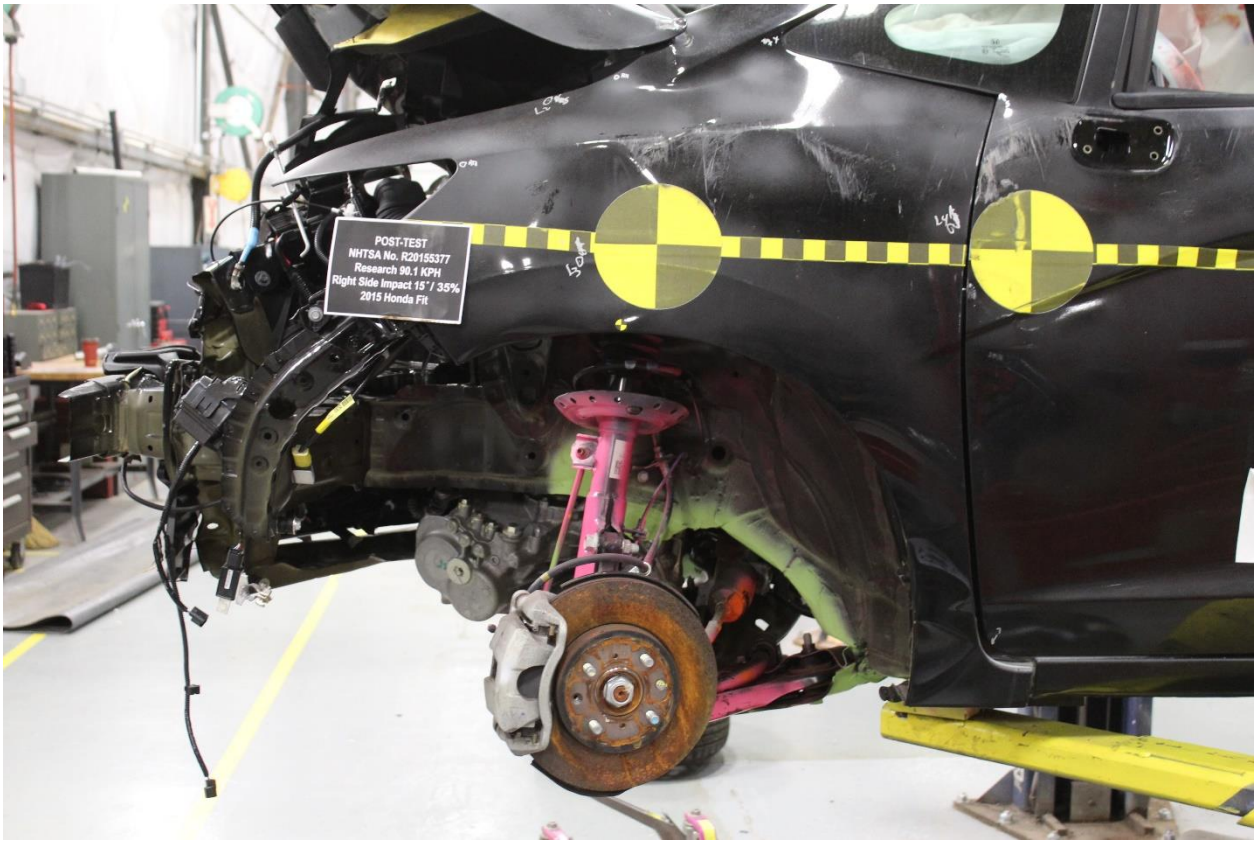


No. 146: Post-Test Frame Rail with tire removed



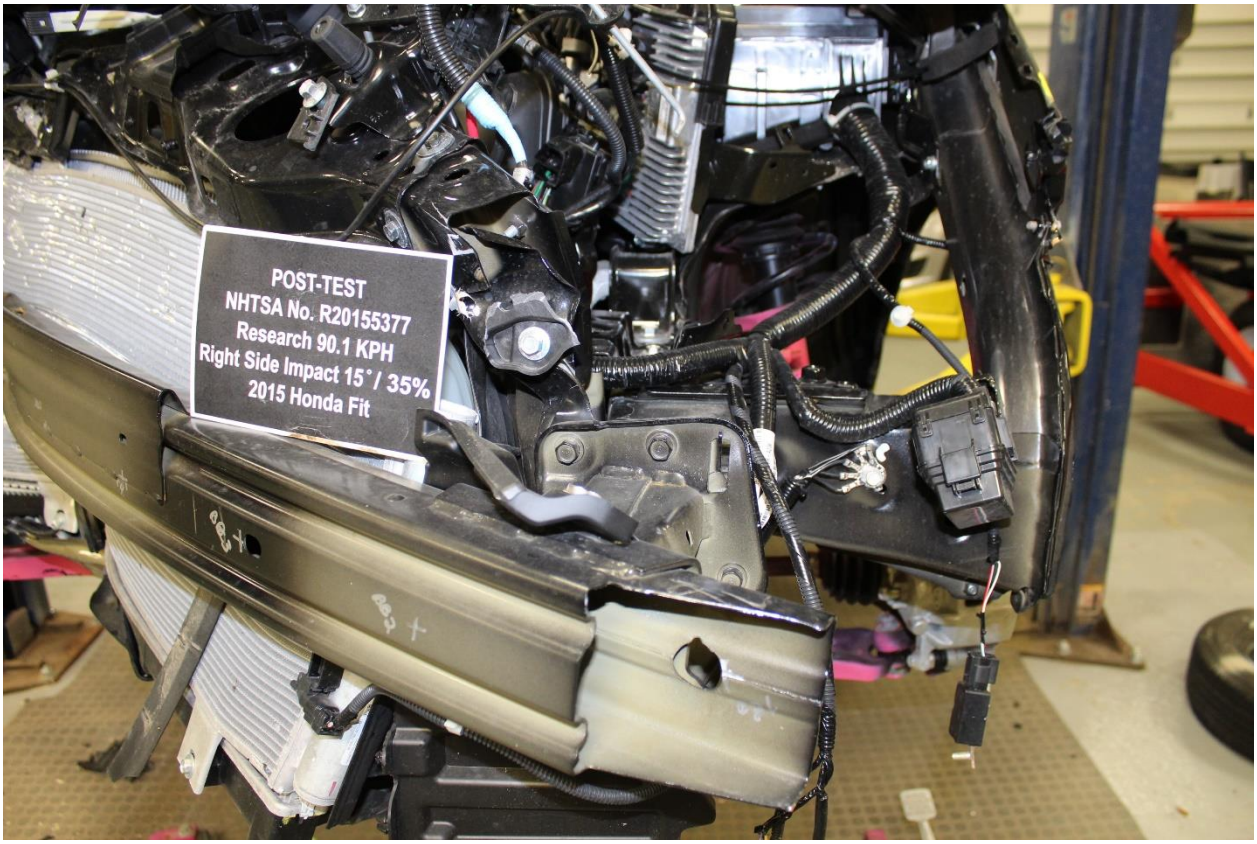
No. 147: Pre-Test View of Front Driver Wheel Well w/ Tire Removed

No. 148: Post-Test ¾ View of Front Driver Wheel Well w/ Tire Removed

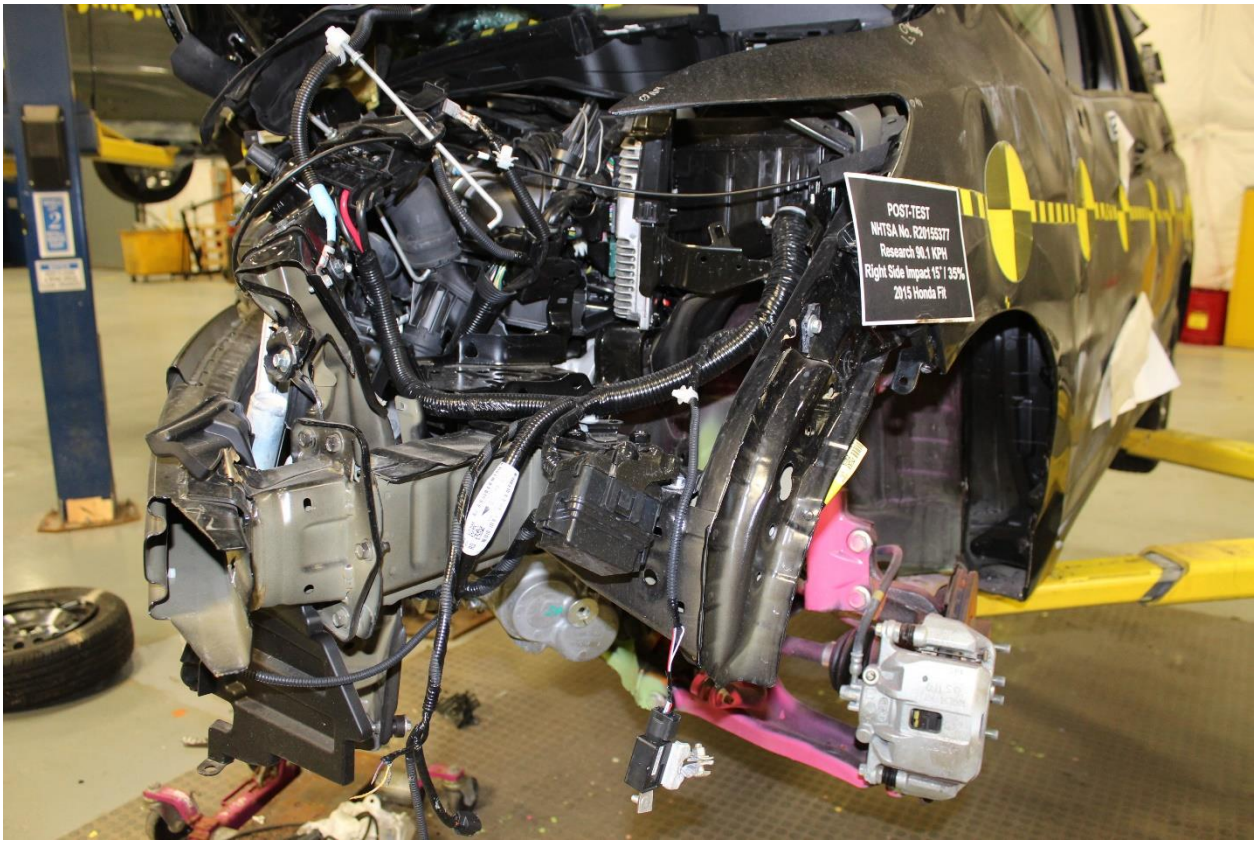


No. 149: Post-Test Side View of Front Driver Wheel Well w/ Tire Removed

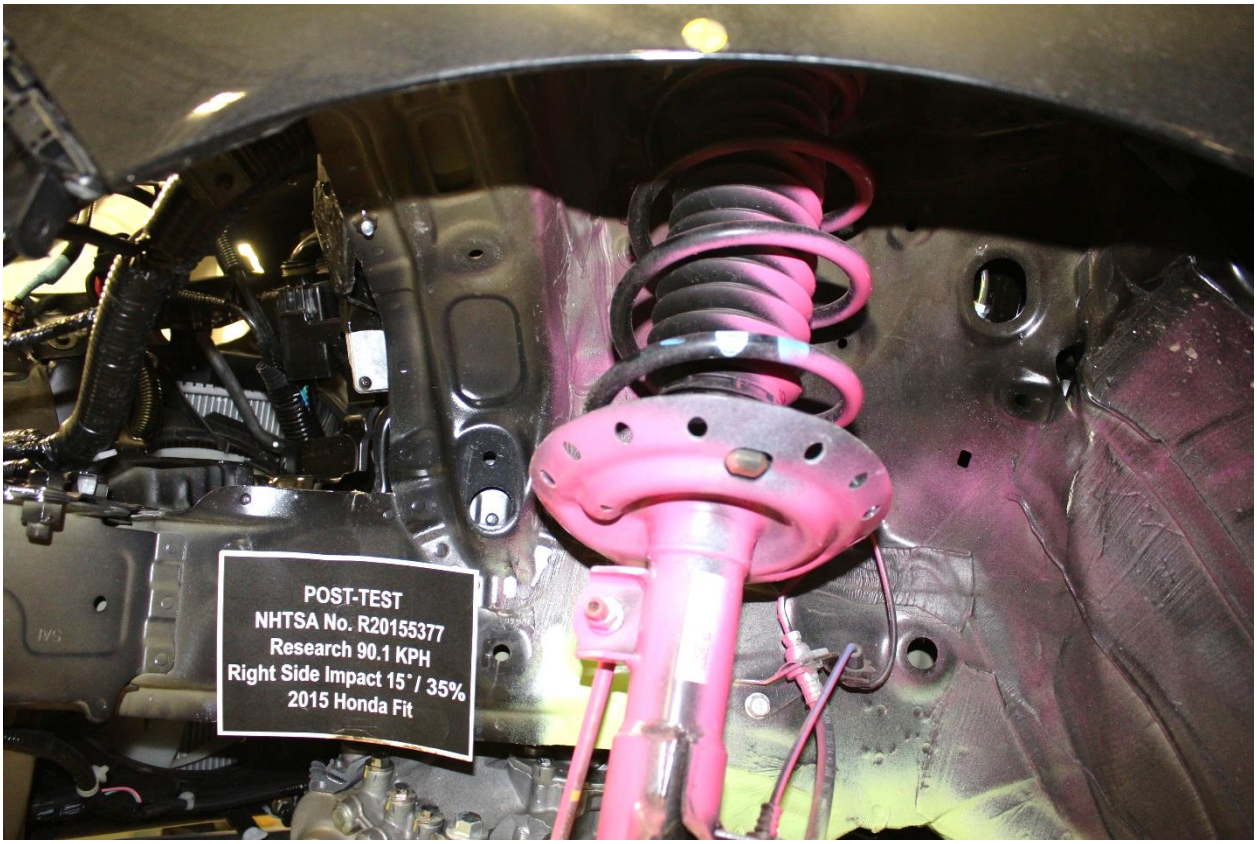
No. 150: Post-Test Right Side 3/4 Rear View of the Front Driver Wheel Well w/ Tire Removed



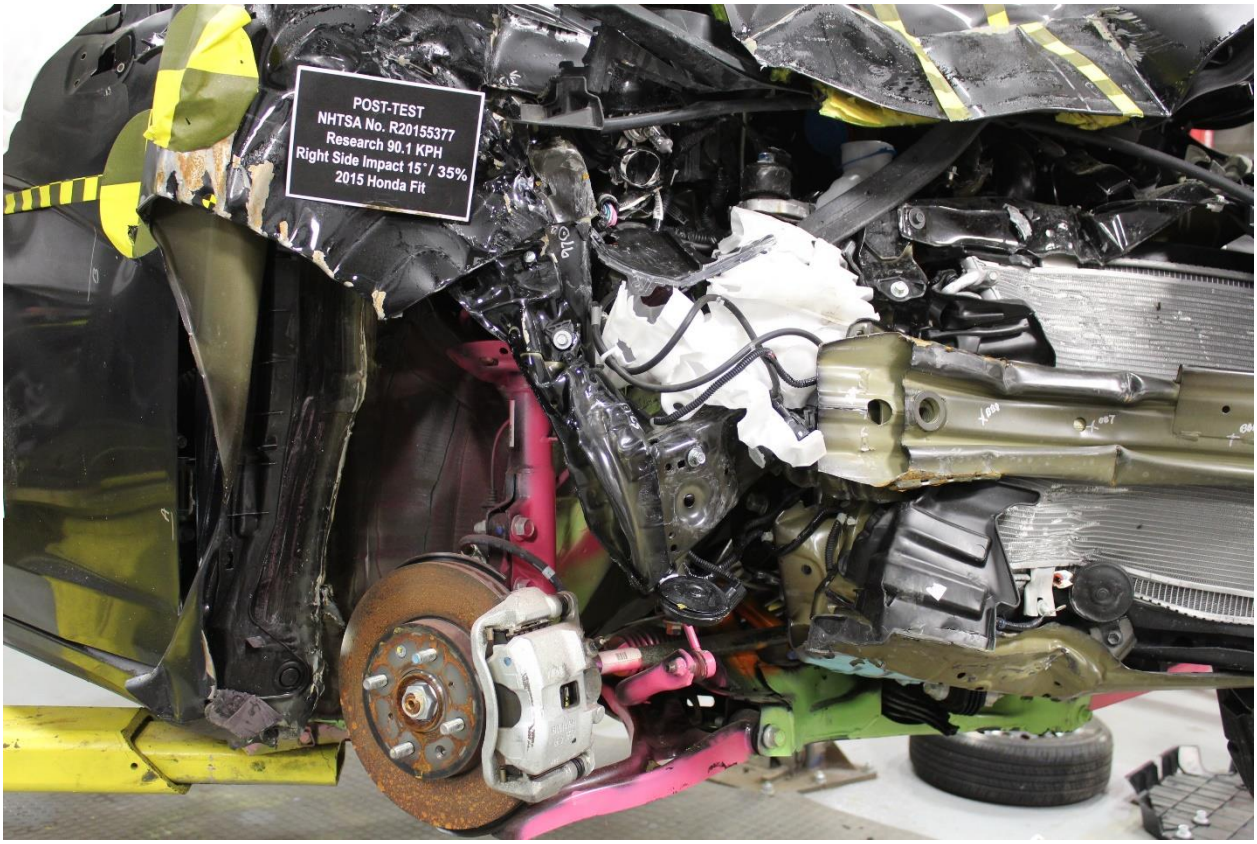
No. 151: Post-Test Looking Down at the Front Driver Shotgun



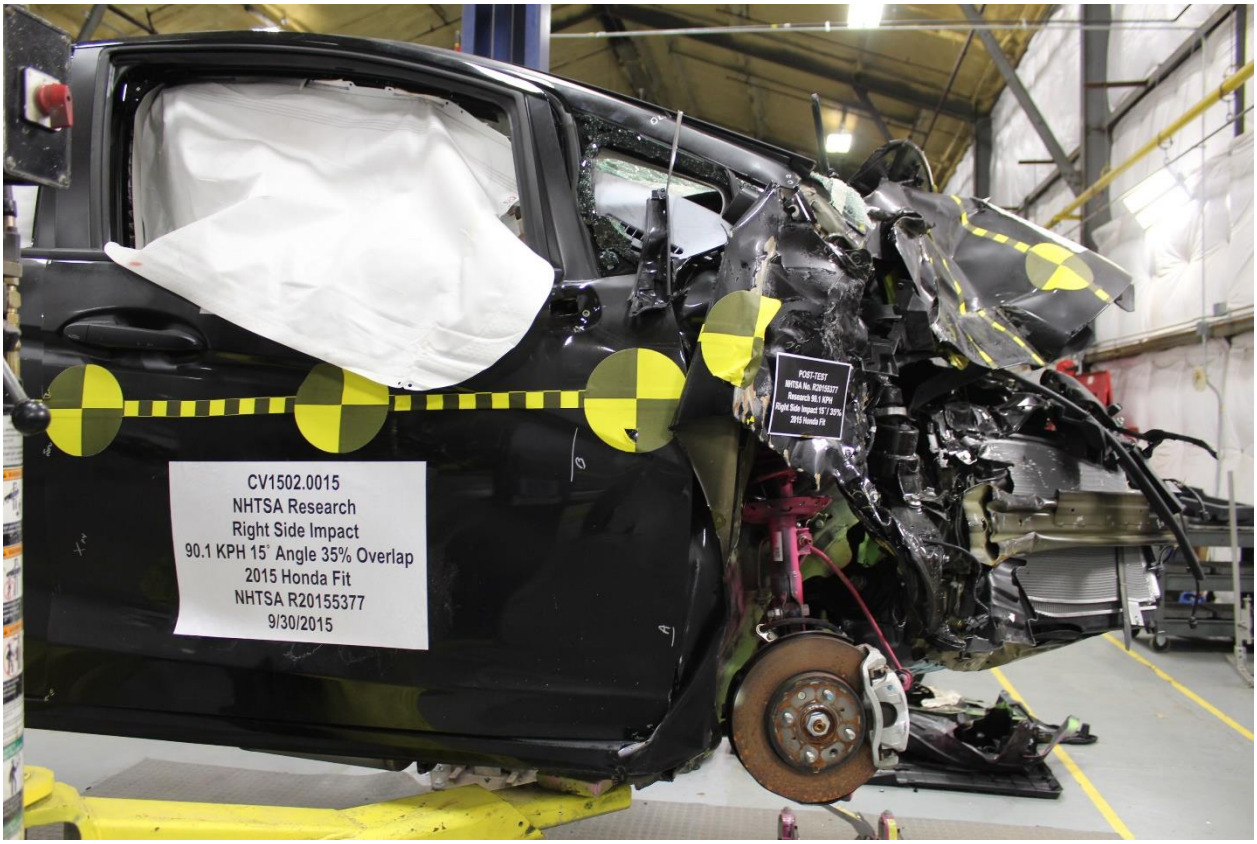
No. 152: Post-Test Right Side ¾ View of Front Driver Shotgun



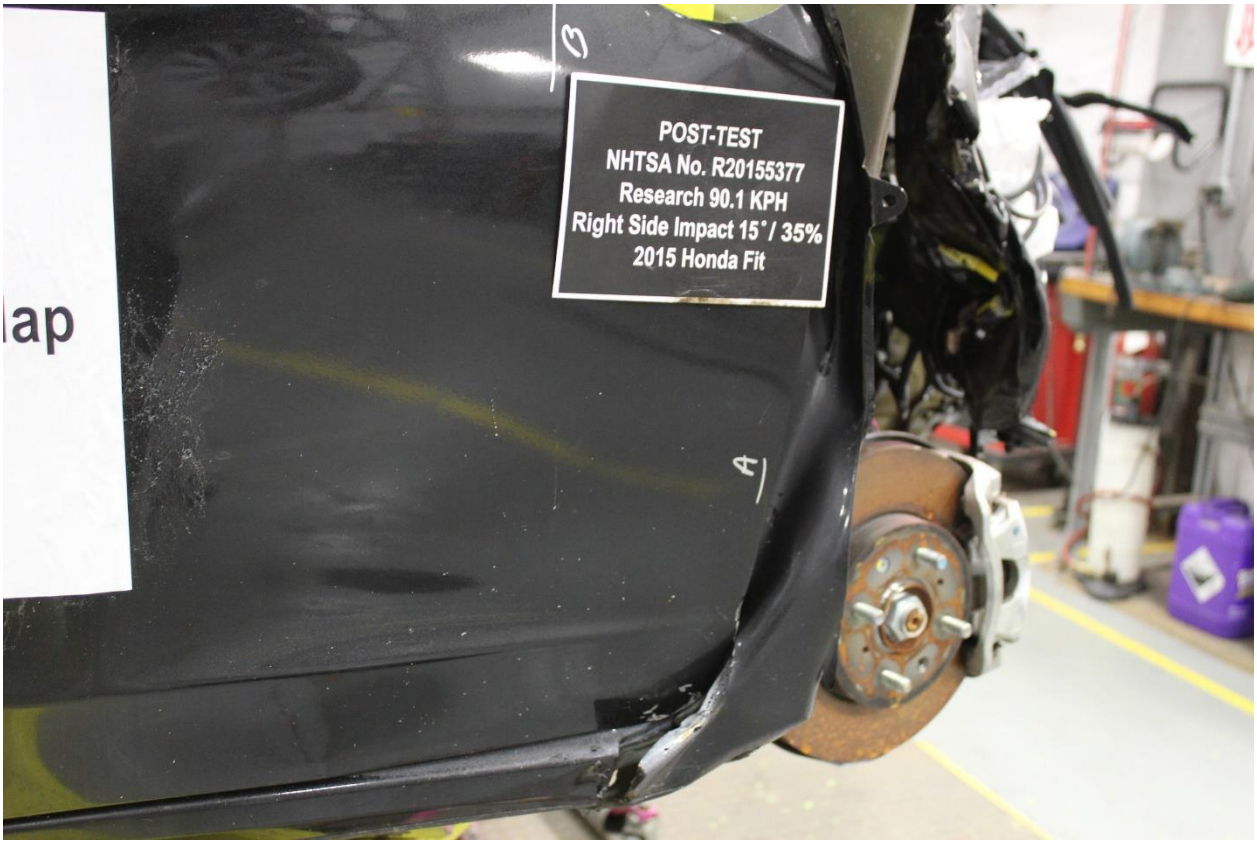
No. 153: Post-Test Front Driver Close up View of Suspension w/ Tire Removed



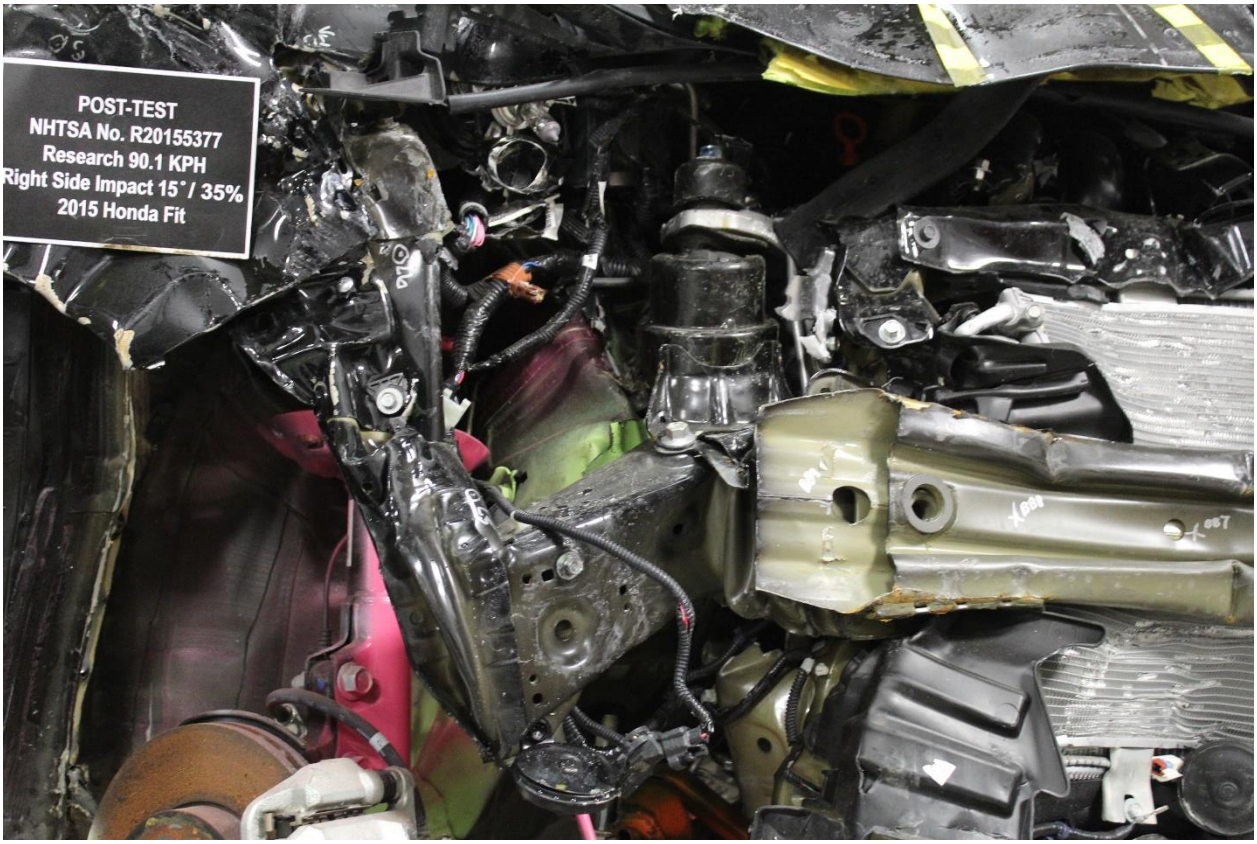
No. 154: Post-Test ¾ View of Front Passenger Wheel Well w/ Tire Removed



No. 155: Post-Test Side View of Front Passenger Wheel Well w/ Tire Removed

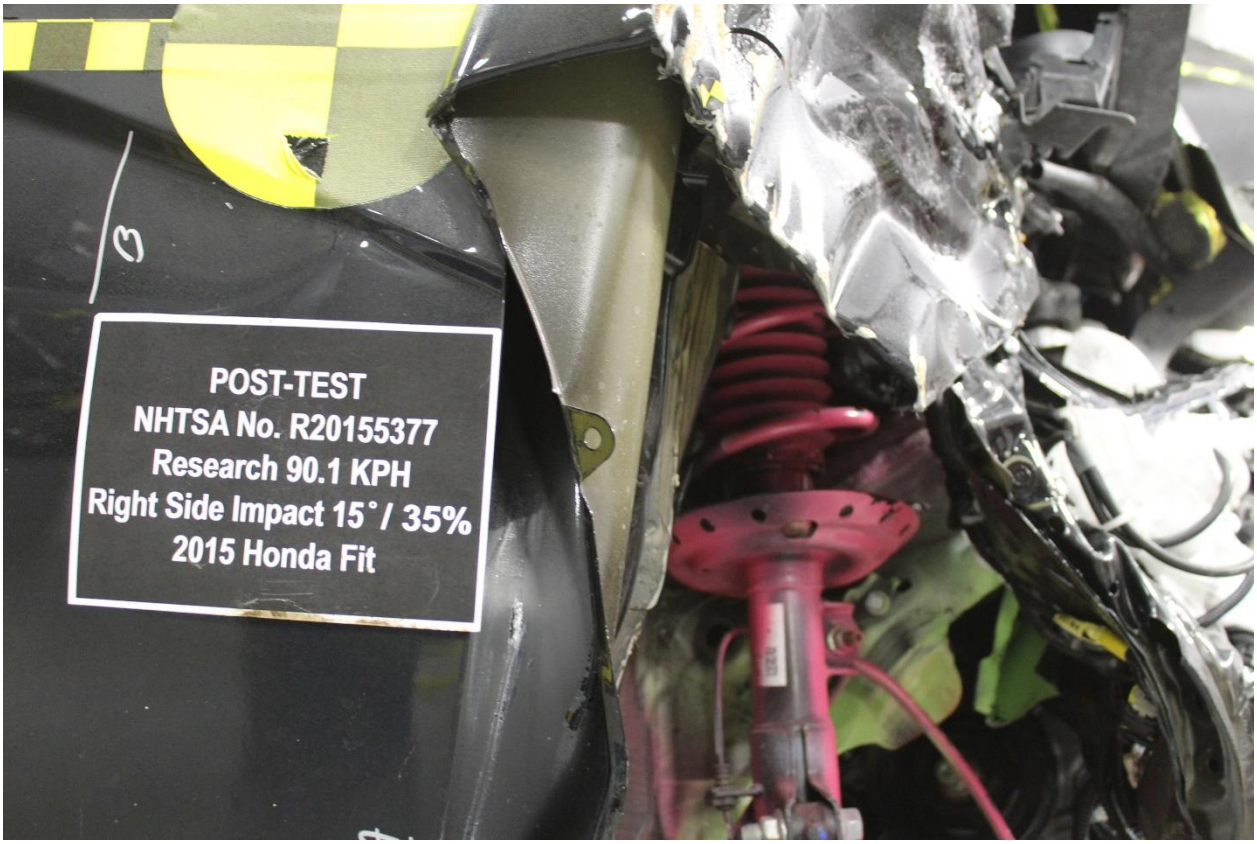


No. 156: Post-Test Right Side 3/4 Rear View of the Front Passenger Wheel Well w/ Tire Removed

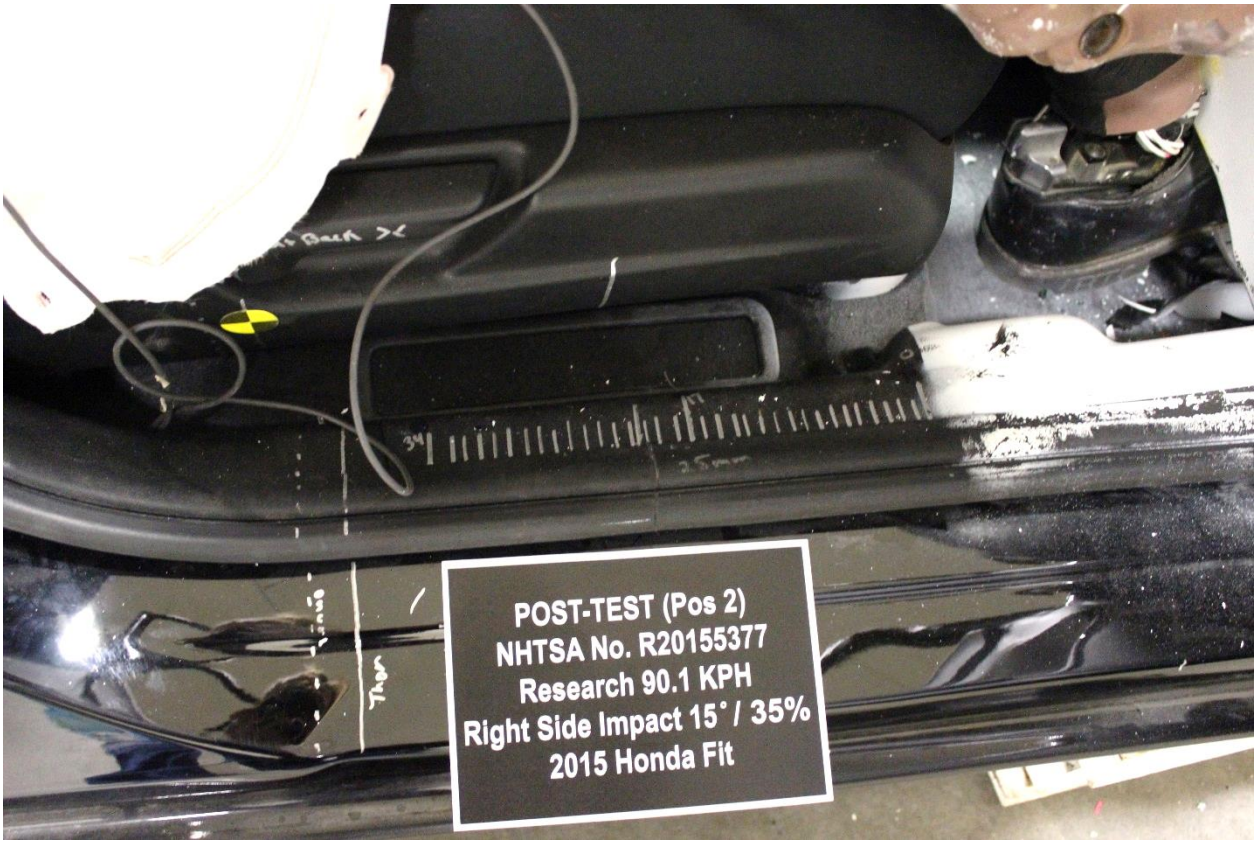


No. 157: Post-Test Looking Down at the Front Passenger Shotgun

No. 158: Post-Test Right Side ¾ View of Front Passenger Shotgun



No. 159: Post-Test Front Passenger Close up View of Suspension w/ Tire Removed

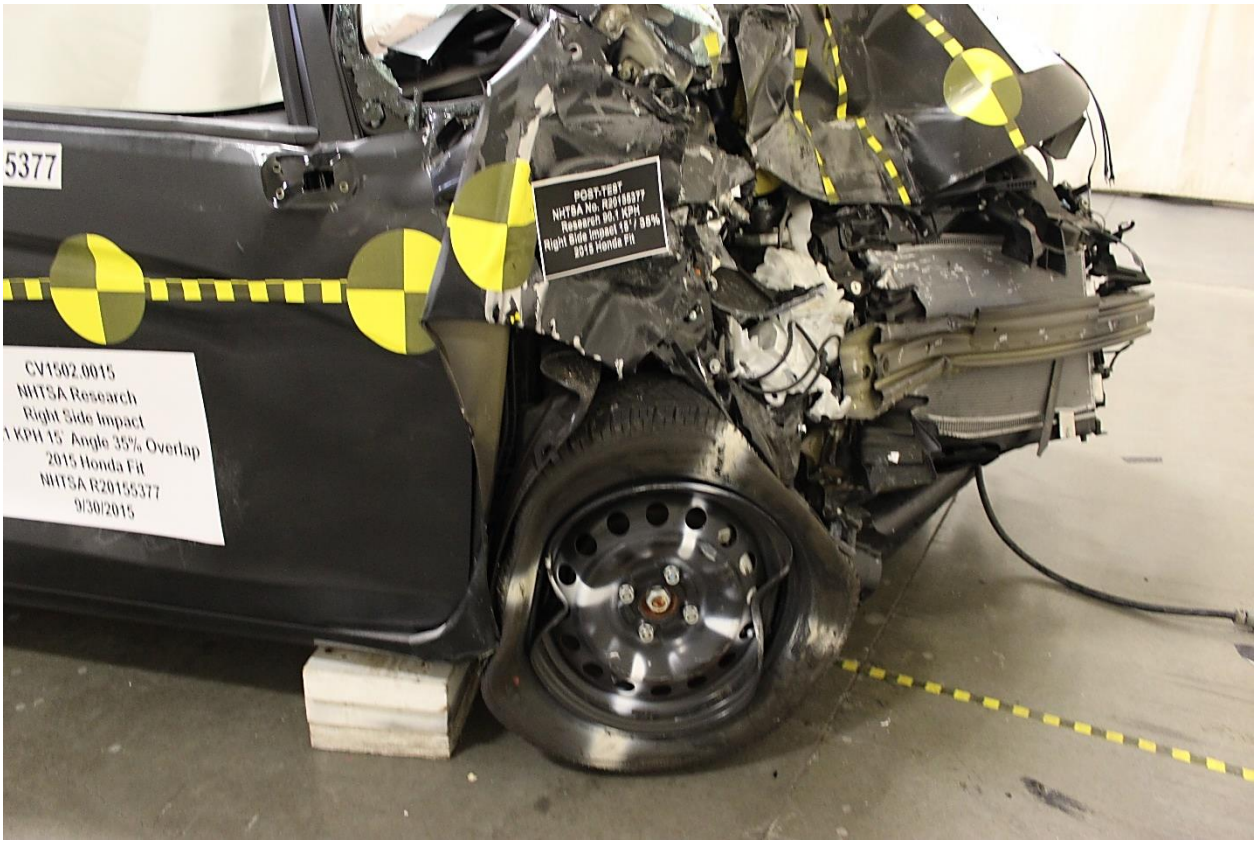


No. 160: Post-Test View of Door Sill with Door Open- Struck Side

No. 161: Post-Test View of Deformation of A pillar-Struck Side

No. 162: Post-Test View of Deformation of B pillar-Struck Side

No. 163: Post-Test View of Deformation of C pillar-Struck Side



No. 164: Post-Test View of Wheel and/or Tire Deformation-Struck Side

No. 165: Post-Test View of Deformation of Rocker or Post-Struck Side

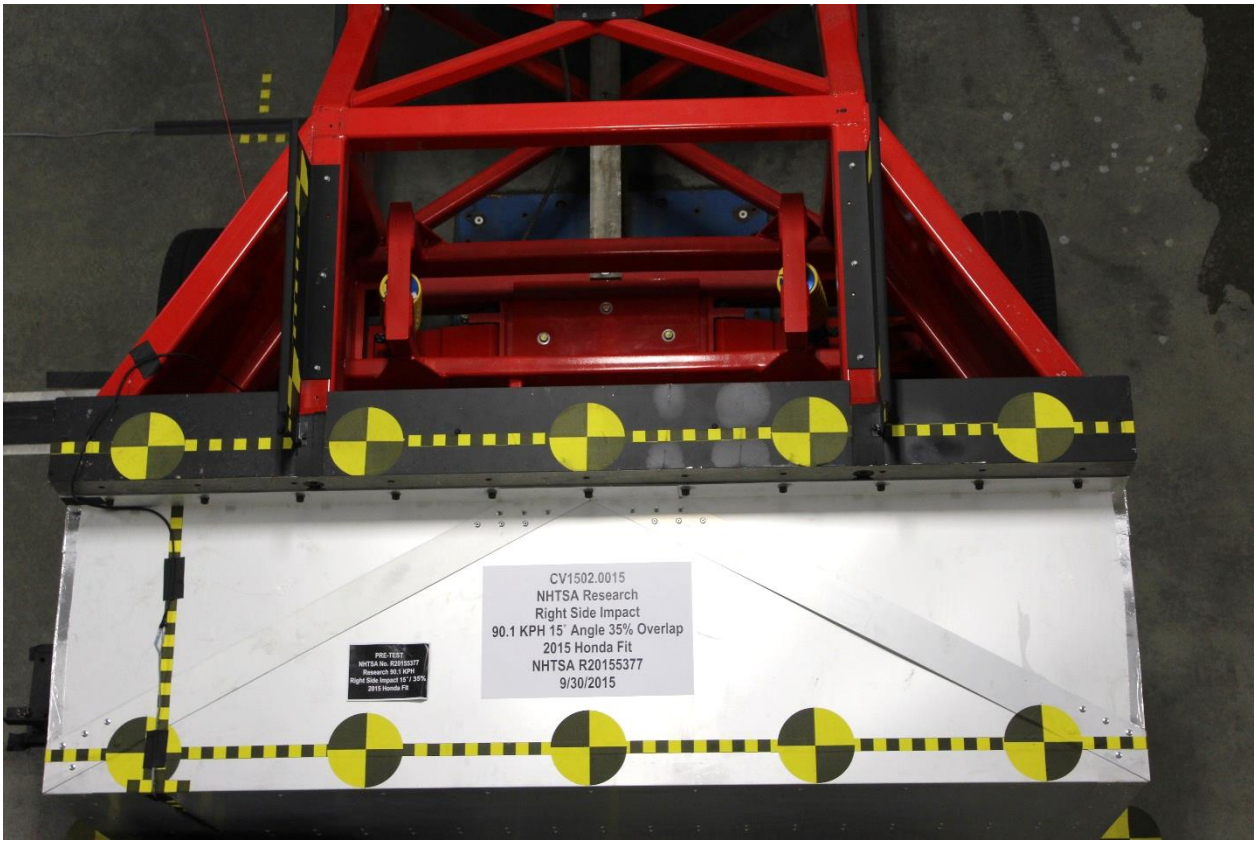
No. 166: Post-Test View of Windshield Separation

No. 167: Pre-Test Left Side View of OMDB

No. 168: Post-Test Left Side View of OMDB

No. 169: Pre-Test Right Side View of OMDB

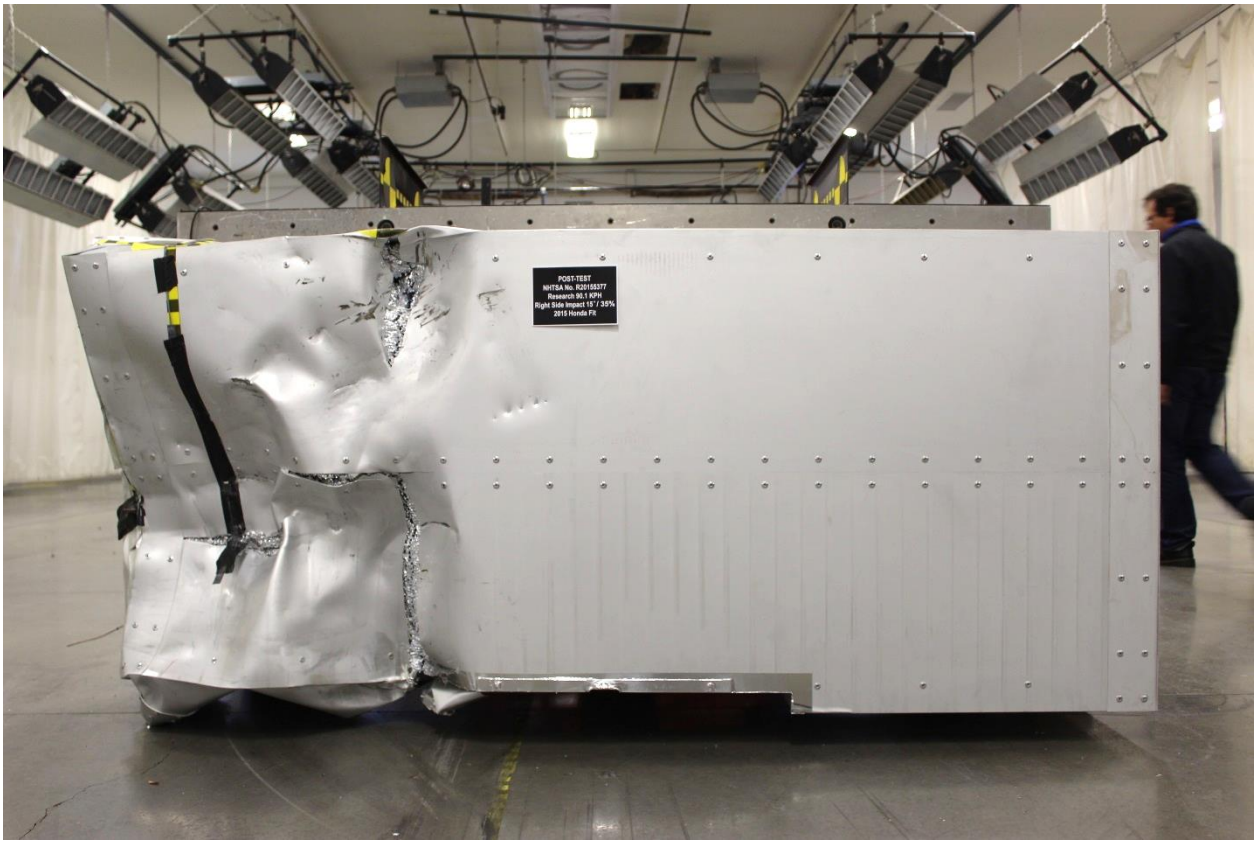
No. 170: Post-Test Right Side View of OMDB



No. 171: Pre-Test Top View of OMDB

No. 172: Post-Test Top View of OMDB

No. 173: Pre-Test Front View of OMDB



No. 174: Post-Test Front View of OMDB

No. 175: Pre-Test Left Front ¾ View of OMDB

No. 176: Post-Test Left Front ¾ View of OMDB

No. 177: Pre-Test Right Front ¾ View of OMDB

No. 178: Post-Test Right Front ¾ View of OMDB

No. 179: Pre-Test Right Side View of OMDB

Photo Not Available

No. 180: Post-Test Right Side View of OMDB

No. 181: Pre-Test Left Side View of OMDB

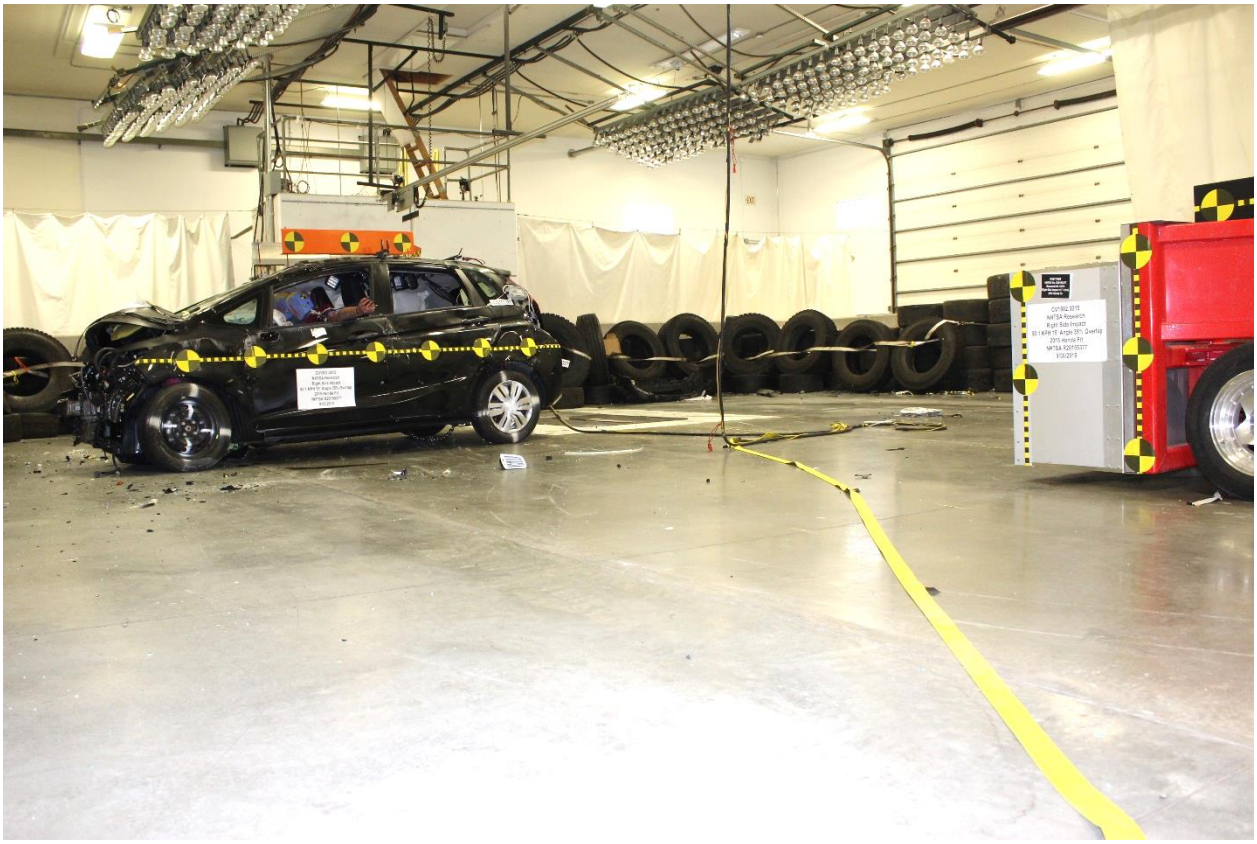
Photo Not Available

No. 182: Post-Test Left Side View of OMDB

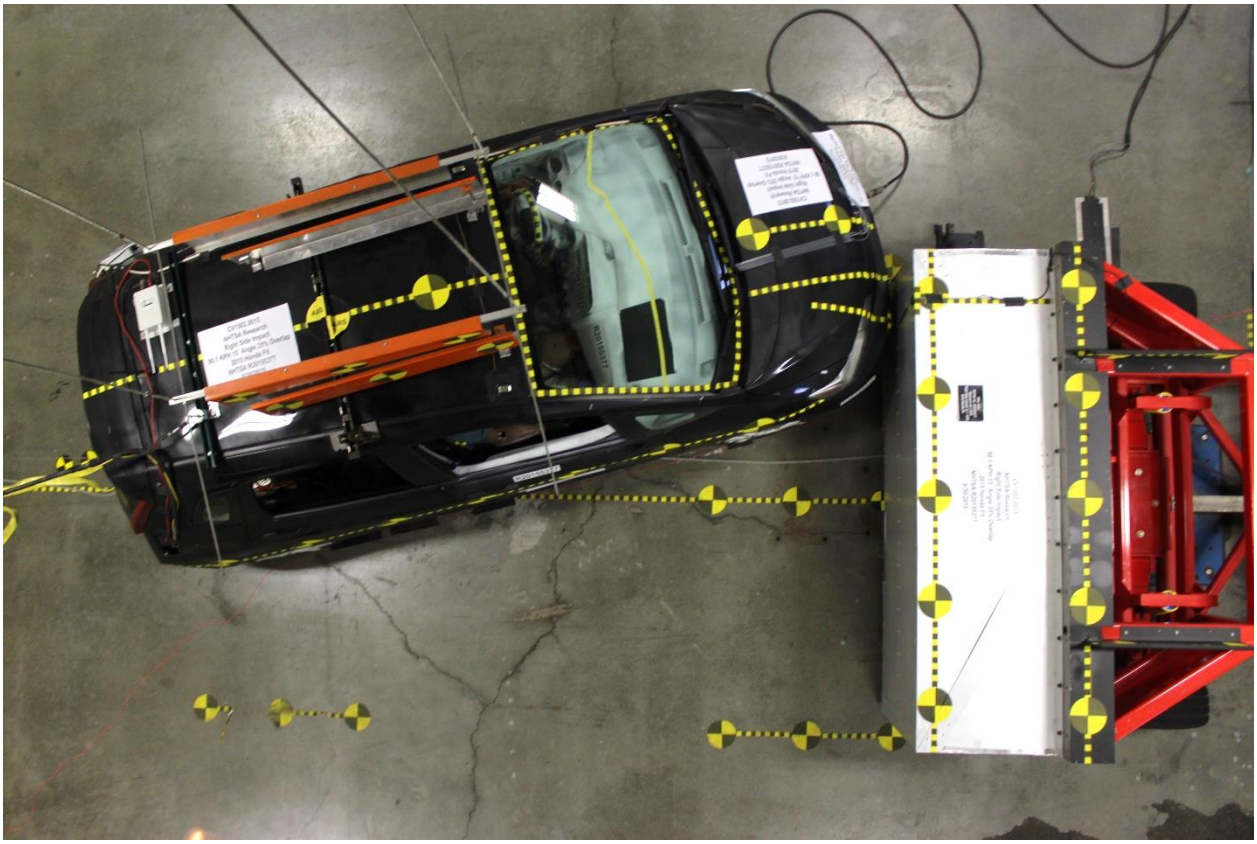
No. 183: Pre-Test OMDB & Vehicle, Right Side

No. 184: Post-Test OMDB & Vehicle, Right Side

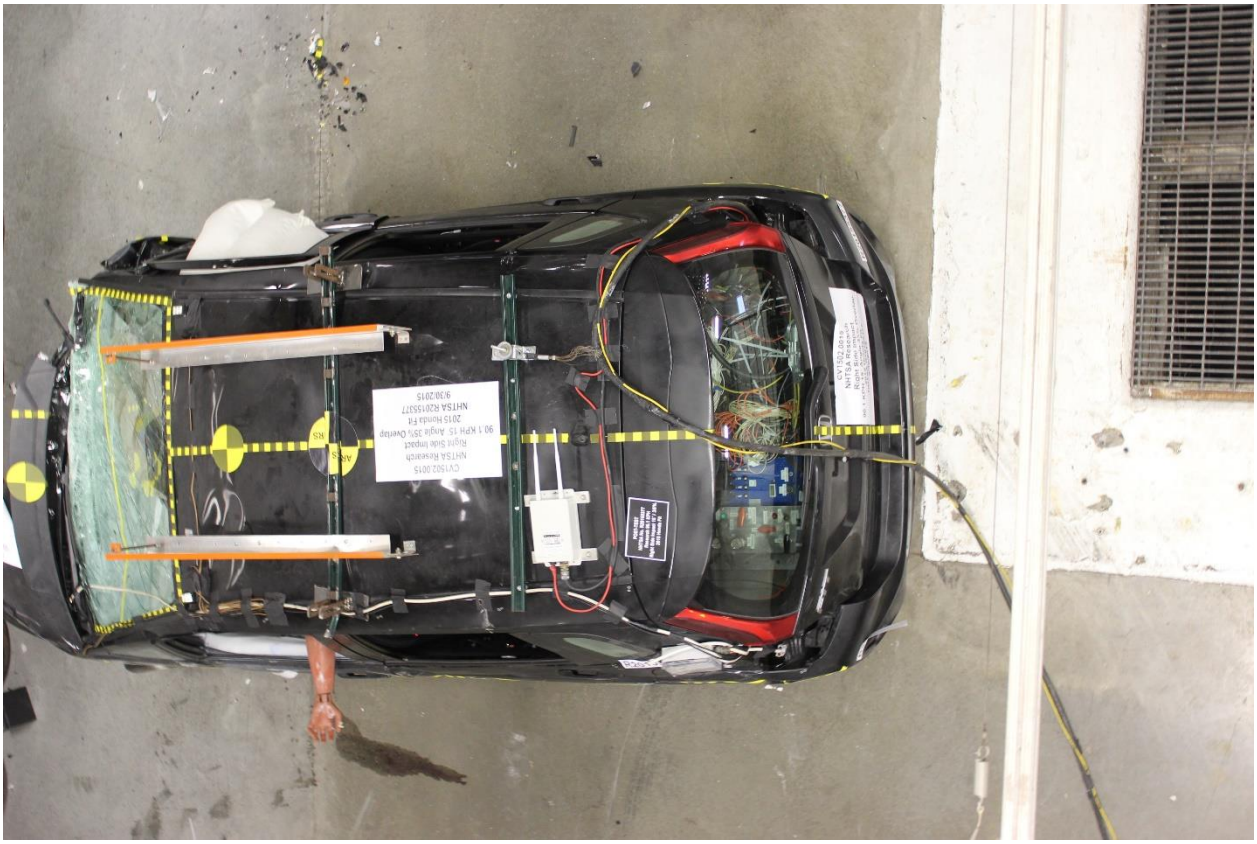
No. 185: Pre-Test OMDB & Vehicle, Left Side



No. 186: Post-Test OMDB & Vehicle, Left Side



No. 187: Pre-Test OMDB & Vehicle, Top View

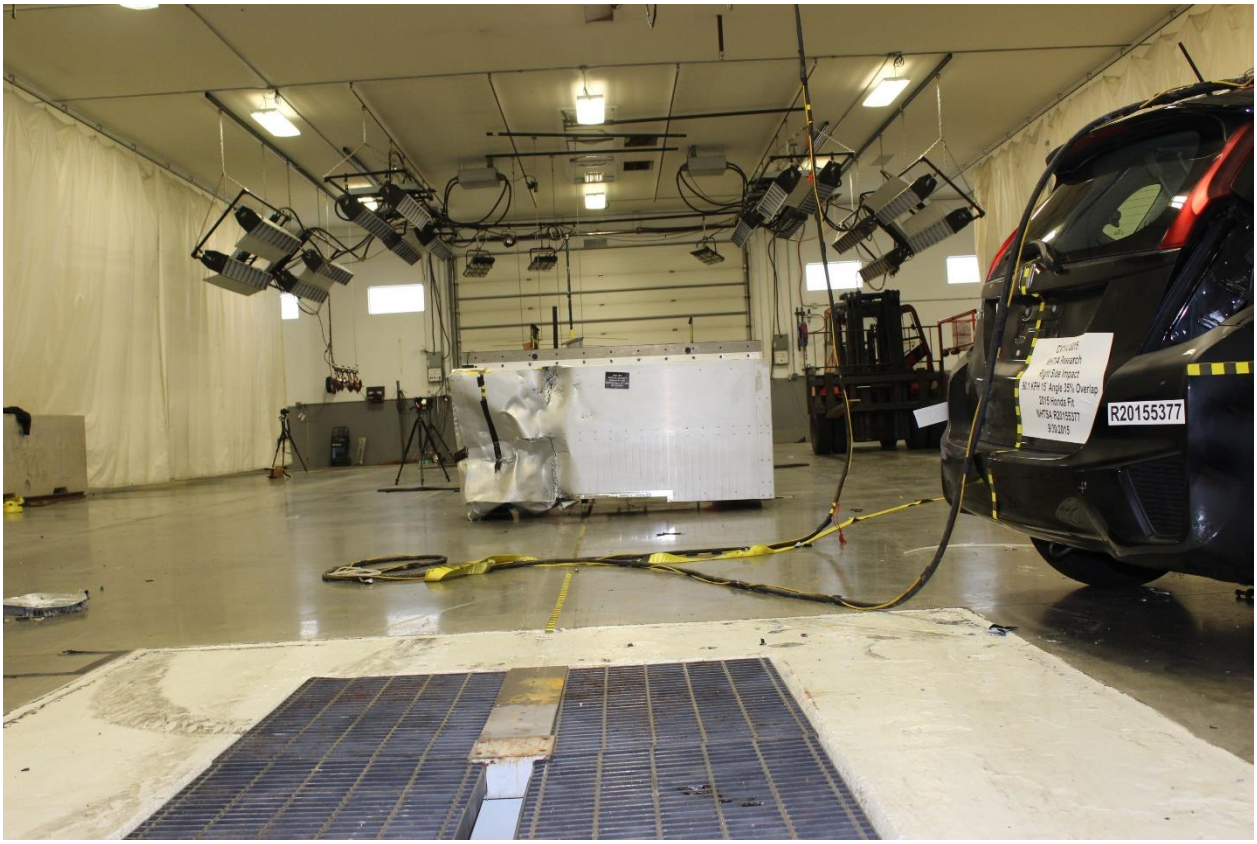


No. 188: Post-Test OMDB & Vehicle, Top View

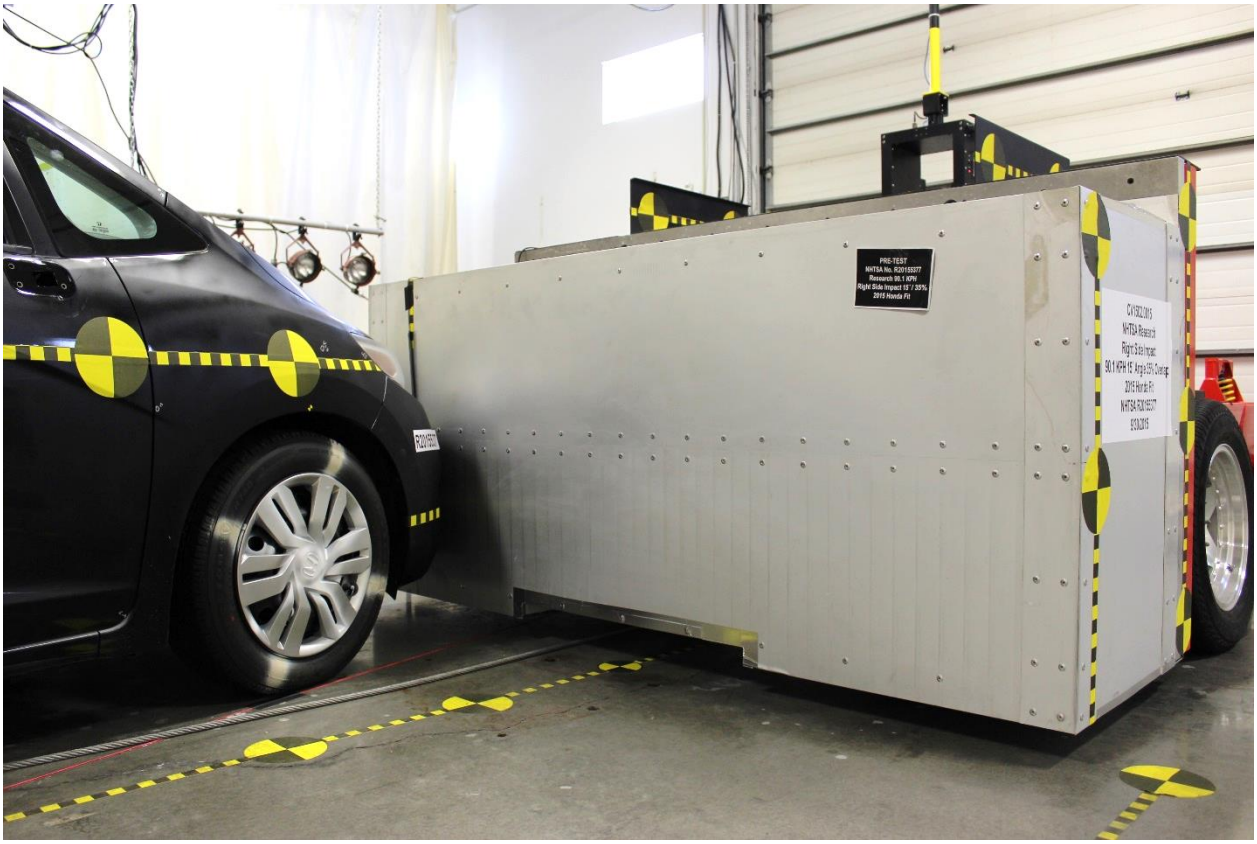
No. 189: Pre-Test OMDB & Vehicle, Rear View

No. 190: Post-Test OMDB & Vehicle, Rear View

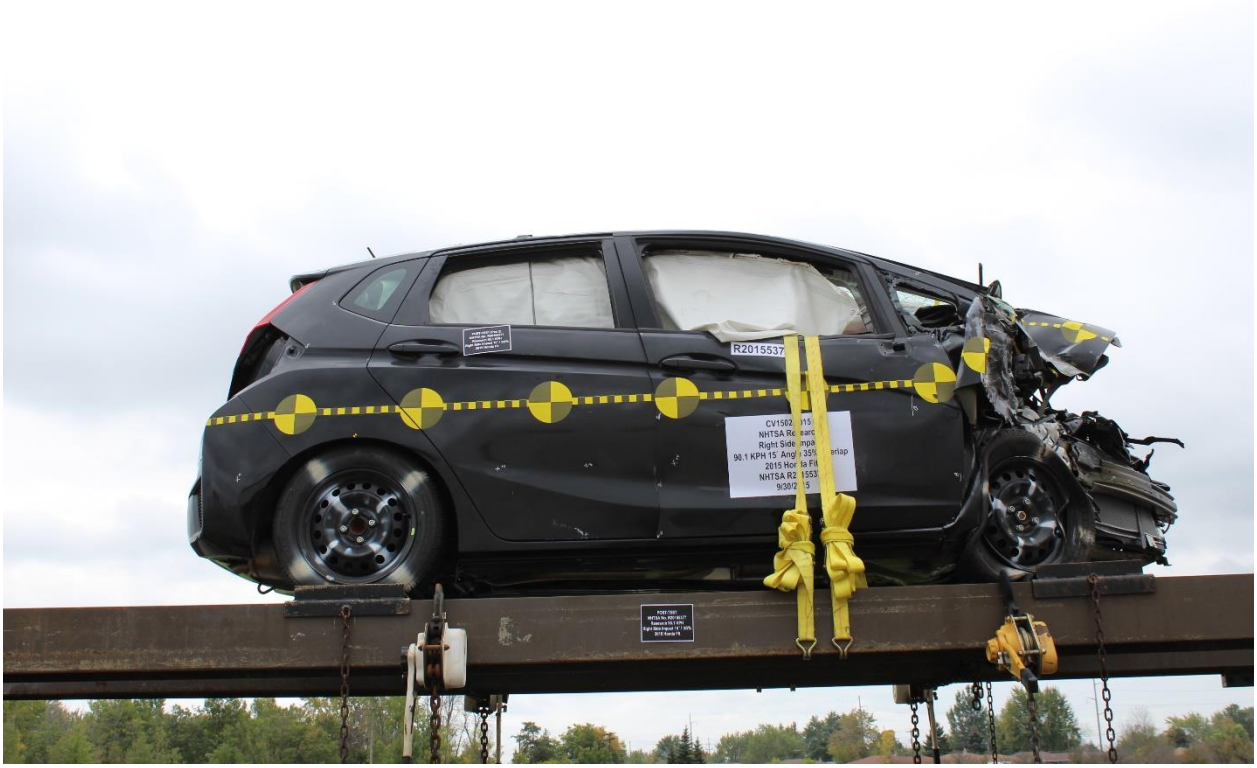
No. 191: Pre-Test OMDB & Vehicle, Front View



No. 192: Post-Test OMDB & Vehicle, Front View



No. 193: Pre-Test OMDB & Vehicle Alighnment



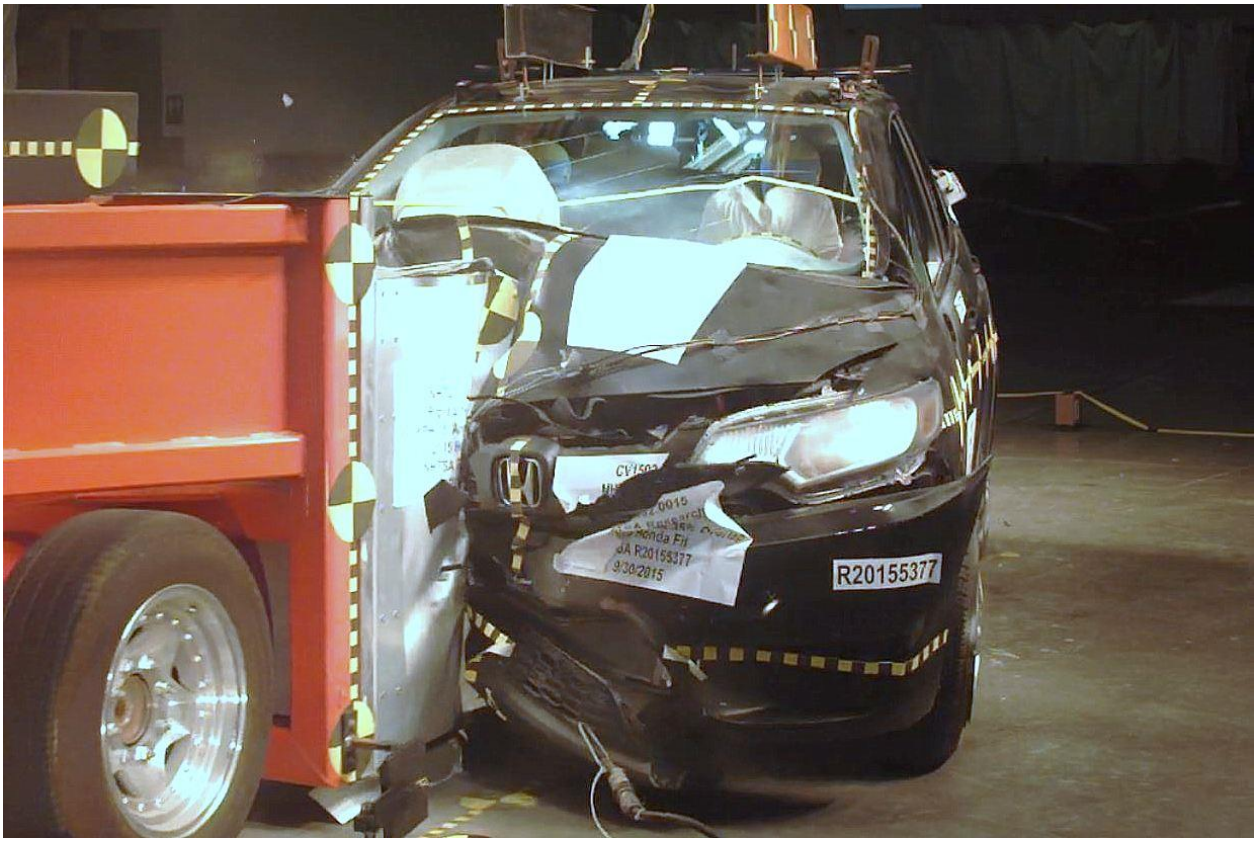
No. 194: Vehicle at 0 Degrees on Static Rollover Device

No. 195: Vehicle at 90 Degrees on Static Rollover Device

No. 196: Vehicle at 180 Degrees on Static Rollover Device

No. 197: Vehicle at 270 Degrees on Static Rollover Device

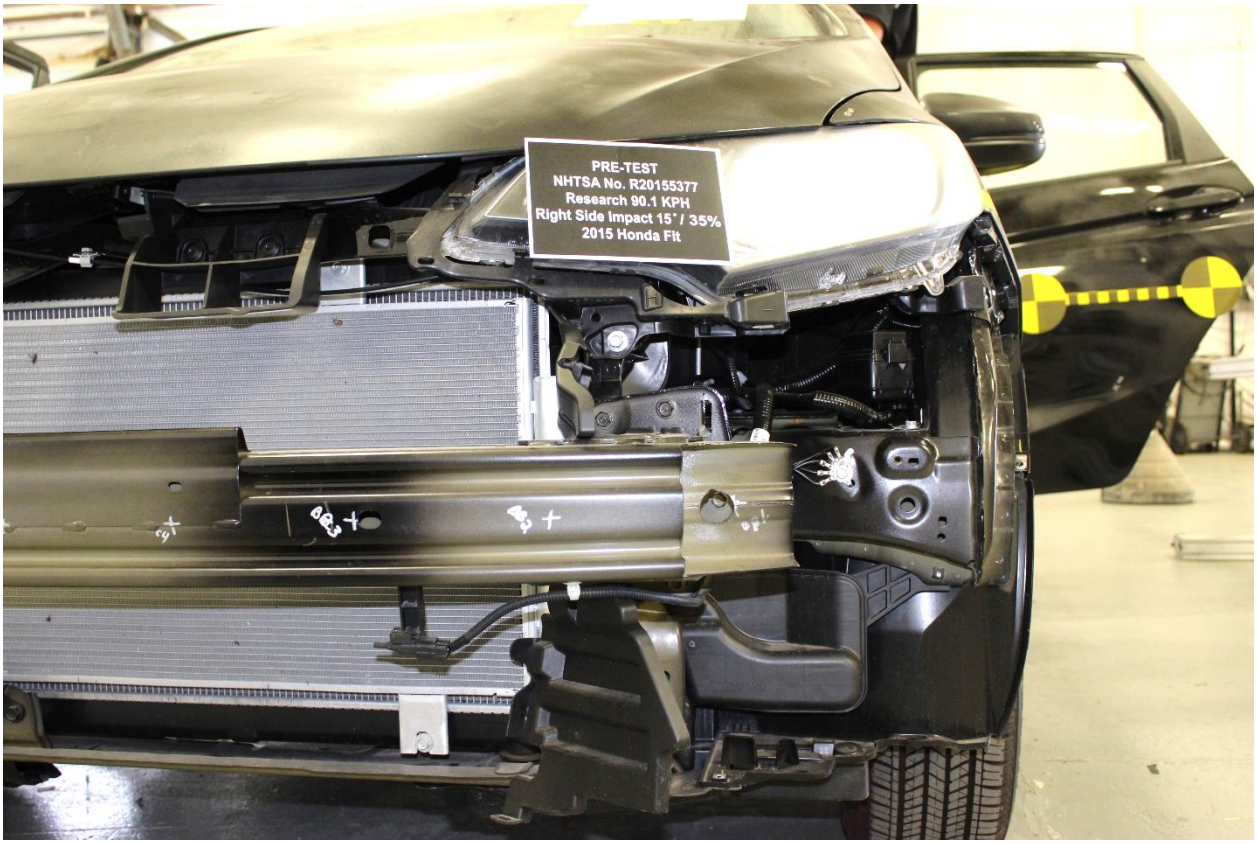
No. 198: Vehicle at 360 Degrees on Static Rollover Device



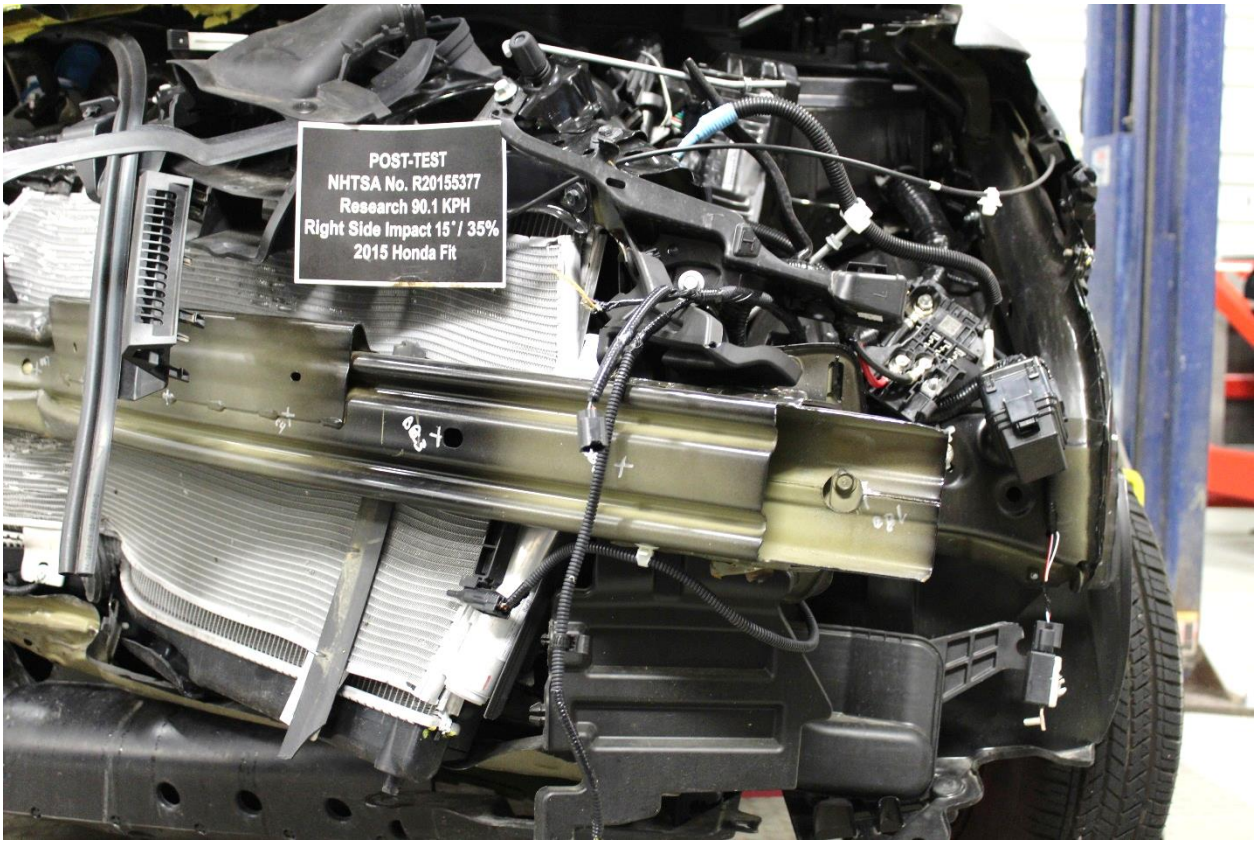
No. 199: Impact Photo

No. 200: Pre-Test Vehicle Bumper Left Side View

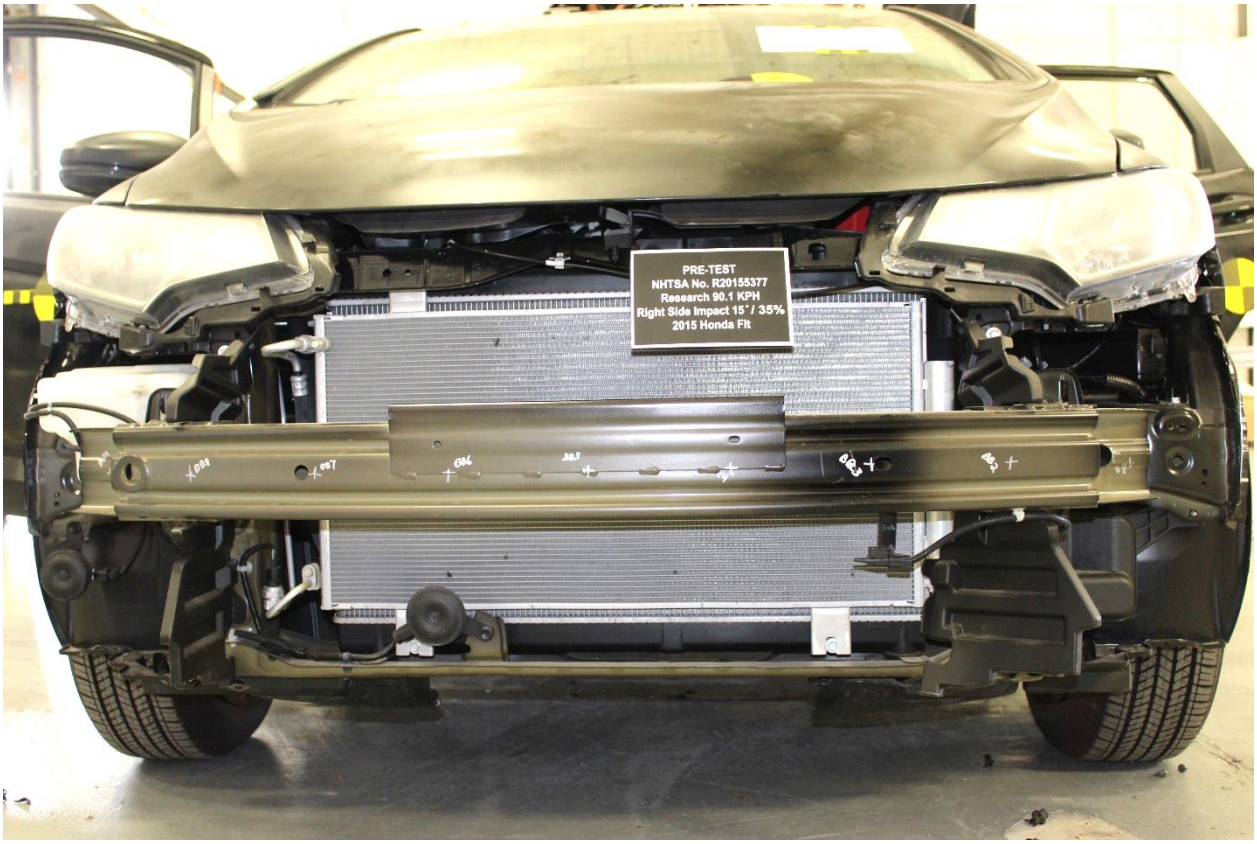
No. 201 Post-Test Vehicle Bumper Left View



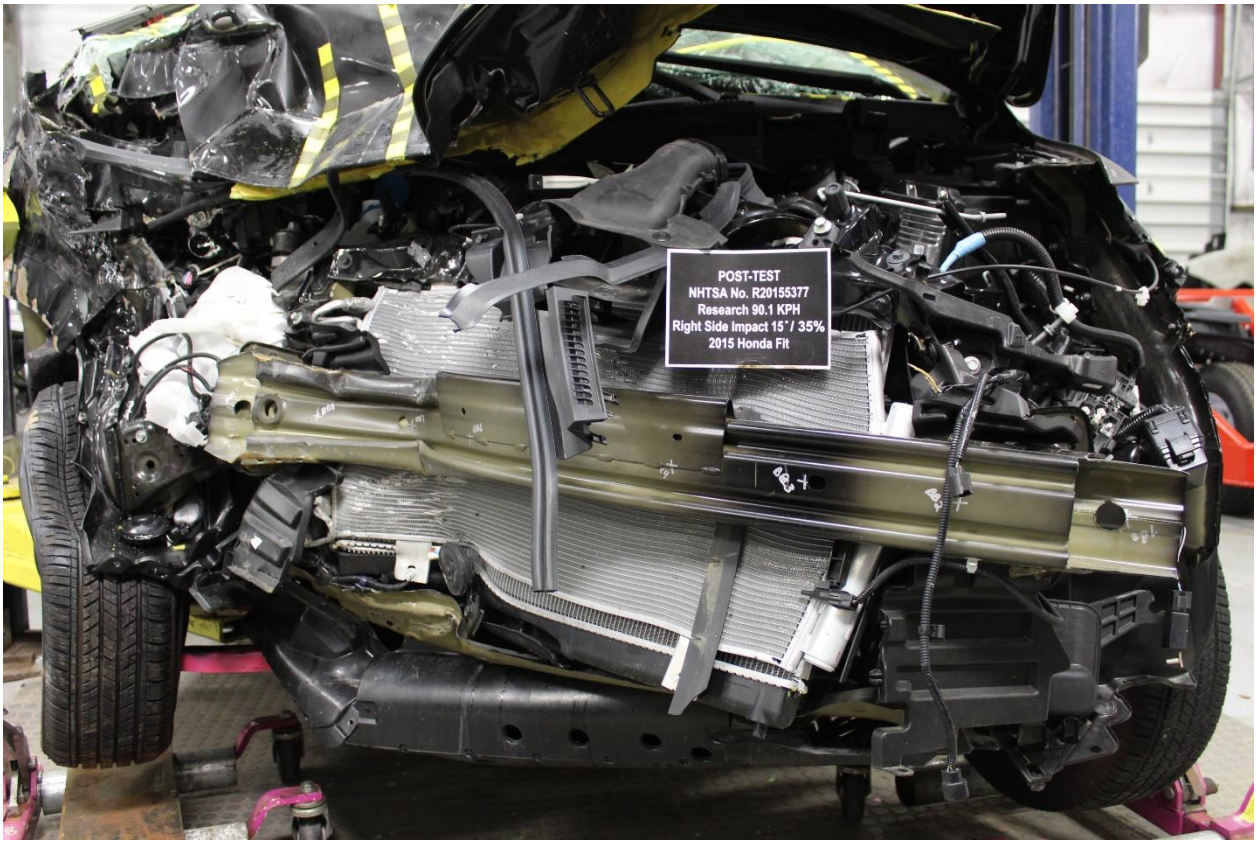
No. 202 Pre-Test Vehicle Bumper Left Front View



No. 203 Post-Test Vehicle Bumper Left Front View



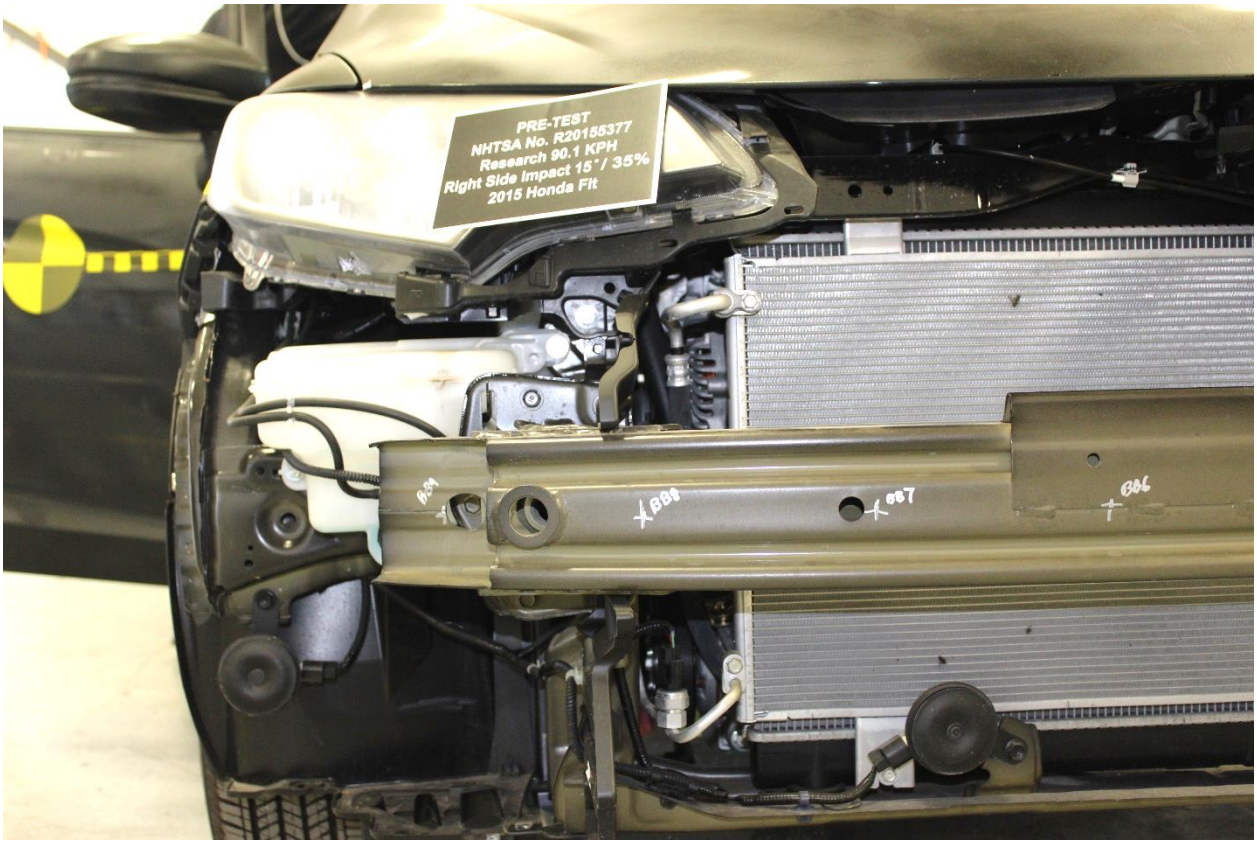
No. 204 Pre-Test Vehicle Bumper Front View



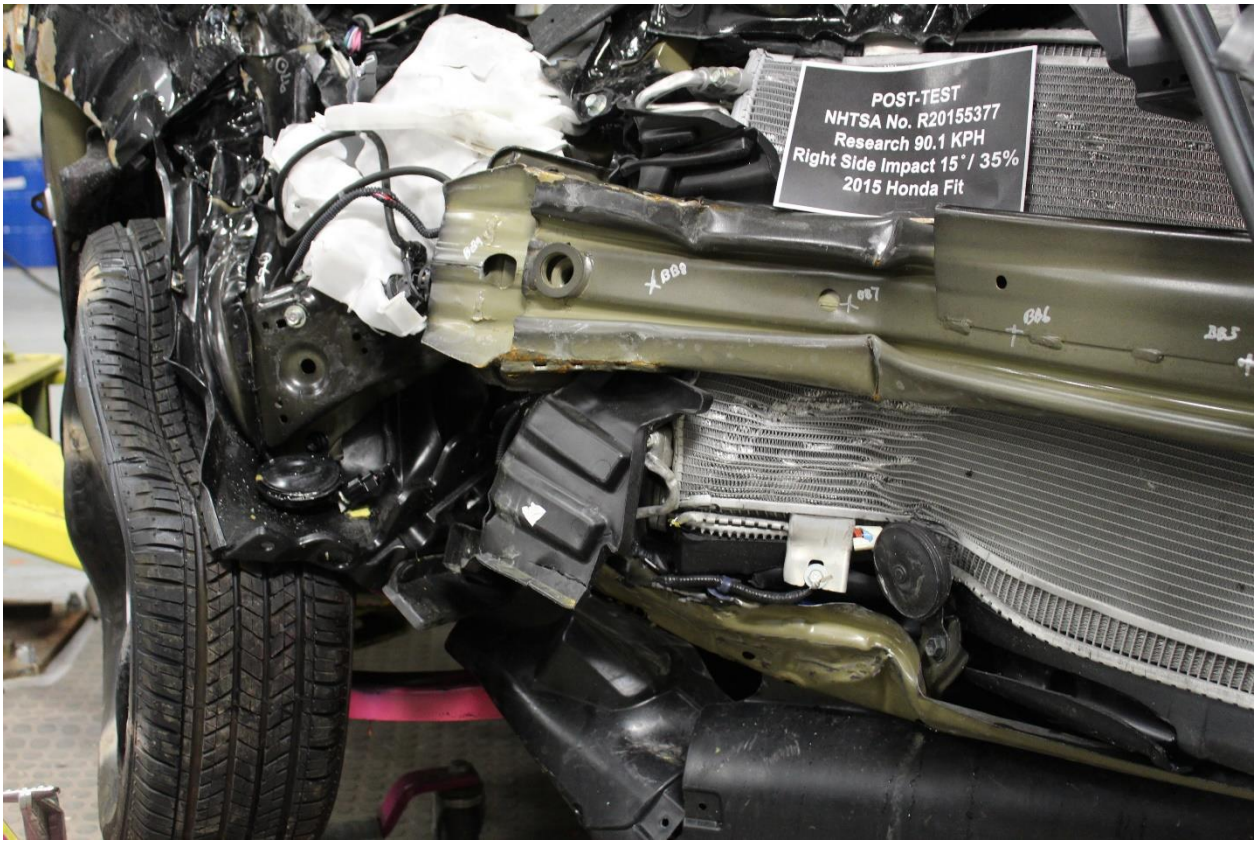
No. 205 Post-Test Vehicle Bumper Front View

No. 206 Pre-Test Vehicle Bumper Right Side View

No. 207 Post-Test Vehicle Bumper Right View



No. 208 Pre-Test Vehicle Bumper Right Front View



No. 209 Post-Test Vehicle Bumper Right Front View

APPENDIX B
VEHICLE & DUMMY RESPONSE DATA TRACES

Table of Data Plots

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

Plot 53	V2P1 Pelvis Acetabulum Left Z Force	B-22
Plot 54	V2P1 Pelvis Acetabulum Right X Force	B-22
Plot 55	V2P1 Pelvis Acetabulum Right Y Force	B-22
Plot 56	V2P1 Pelvis Acetabulum Right Z Force	B-22
Plot 57	V2P1 Pelvis X Acceleration	B-23
Plot 58	V2P1 Pelvis Y Acceleration	B-23
Plot 59	V2P1 Pelvis Z Acceleration	B-23
Plot 60	V2P1 ASIS Left X Force	B-23
Plot 61	V2P1 Left ASIS Y Moment	B-24
Plot 62	V2P1 ASIS Right X Force	B-24
Plot 63	V2P1 Right ASIS Y Moment	B-24
Plot 64	V2P1 Femur Left X Force	B-24
Plot 65	V2P1 Femur Left Y Force	B-25
Plot 66	V2P1 Femur Left Z Force	B-25
Plot 67	V2P1 Femur Left X Moment	B-25
Plot 68	V2P1 Femur Left Y Moment	B-25
Plot 69	V2P1 Femur Right X Force	B-26
Plot 70	V2P1 Femur Right Y Force	B-26
Plot 71	V2P1 Femur Right Z Force	B-26
Plot 72	V2P1 Femur Right X Moment	B-26
Plot 73	V2P1 Femur Right Y Moment	B-27
Plot 74	V2P1 Knee Left X Displacement	B-27
Plot 75	V2P1 Knee Right X Displacement	B-27
Plot 76	V2P1 Upper Tibia Left Z Force	B-27
Plot 77	V2P1 Upper Tibia Left X Moment	B-28
Plot 78	V2P1 Upper Tibia Left Y Moment	B-28
Plot 79	V2P1 Upper Tibia Right Z Force	B-28
Plot 80	V2P1 Upper Tibia Right X Moment	B-28
Plot 81	V2P1 Upper Tibia Right Y Moment	B-29
Plot 82	V2P1 Lower Tibia Left X Force	B-29
Plot 83	V2P1 Lower Tibia Left Y Force	B-29
Plot 84	V2P1 Lower Tibia Left Z Force	B-29
Plot 85	V2P1 Lower Tibia Left X Moment	B-30
Plot 86	V2P1 Lower Tibia Left Y Moment	B-30
Plot 87	V2P1 Lower Tibia Right X Force	B-30
Plot 88	V2P1 Lower Tibia Right Y Force	B-30
Plot 89	V2P1 Lower Tibia Right Z Force	B-31
Plot 90	V2P1 Lower Tibia Right X Moment	B-31
Plot 91	V2P1 Lower Tibia Right Y Moment	B-31
Plot 92	V2P1 Left Mid Tibia X Acceleration	B-31
Plot 93	V2P1 Left Mid Tibia Y Acceleration	B-32
Plot 94	V2P1 Right Mid Tibia X Acceleration	B-32
Plot 95	V2P1 Right Mid Tibia Y Acceleration	B-32
Plot 96	V2P1 Foot Left X Acceleration	B-32
Plot 97	V2P1 Foot Left Z Acceleration	B-33
Plot 98	V2P1 Foot Right X Acceleration	B-33
Plot 99	V2P1 Foot Right Z Acceleration	B-33
Plot 100	V2P1 Ankle Left X Rotation	B-33
Plot 101	V2P1 Ankle Left Y Rotation	B-34
Plot 102	V2P1 Ankle Left Z Rotation	B-34
Plot 103	V2P1 Ankle Right X Rotation	B-34
Plot 104	V2P1 Ankle Right Y Rotation	B-34
Plot 105	V2P1 Ankle Right Z Rotation	B-35
Plot 106	V2 Driver Lap Belt Force	B-35

Plot 107	V2 Driver Shoulder Belt Upper Force	B-35
Plot 108	V2 Driver Shoulder Belt Displacement	B-35
Plot 109	V2P2 Head CG X Acceleration	B-36
Plot 110	V2P2 Head CG Y Acceleration	B-36
Plot 111	V2P2 Head CG Z Acceleration	B-36
Plot 112	V2P2 Head CG Angular Velocity About X	B-36
Plot 113	V2P2 Head CG Angular Velocity About Y	B-37
Plot 114	V2P2 Head CG Angular Velocity About Z	B-37
Plot 115	V2P2 Upper Neck X Force	B-37
Plot 116	V2P2 Upper Neck Y Force	B-37
Plot 117	V2P2 Upper Neck Z Force	B-38
Plot 118	V2P2 Upper Neck X Moment	B-38
Plot 119	V2P2 Upper Neck Y Moment	B-38
Plot 120	V2P2 Upper Neck Z Moment	B-38
Plot 121	V2P2 Lower Neck X Force	B-39
Plot 122	V2P2 Lower Neck Y Force	B-39
Plot 123	V2P2 Lower Neck Z Force	B-39
Plot 124	V2P2 Lower Neck X Moment	B-39
Plot 125	V2P2 Lower Neck Y Moment	B-40
Plot 126	V2P2 Lower Neck Z Moment	B-40
Plot 127	V2P2 Front Neck Spring Tower Load Cell	B-40
Plot 128	V2P2 Rear Neck Spring Tower Load Cell	B-40
Plot 129	V2P2 Occipital Condyle Rotation Potentiometer	B-41
Plot 130	V2P2 Upper Left DGIR X Displacement	B-41
Plot 131	V2P2 Upper Left DGIR Y Rotation	B-41
Plot 132	V2P2 Upper Left DGIR Z Rotation	B-41
Plot 133	V2P2 Upper Right DGIR X Displacement	B-42
Plot 134	V2P2 Upper Right DGIR Y Rotation	B-42
Plot 135	V2P2 Upper Right DGIR Z Rotation	B-42
Plot 136	V2P2 Lower Left DGIR X Displacement	B-42
Plot 137	V2P2 Lower Left DGIR Y Rotation	B-43
Plot 138	V2P2 Lower Left DGIR Z Rotation	B-43
Plot 139	V2P2 Lower Right DGIR X Displacement	B-43
Plot 140	V2P2 Lower Right DGIR Y Rotation	B-43
Plot 141	V2P2 Lower Right DGIR Z Rotation	B-44
Plot 142	V2P2 Spine Force X	B-44
Plot 143	V2P2 Spine Force Y	B-44
Plot 144	V2P2 Spine Force Z	B-44
Plot 145	V2P2 Spine Moment X	B-45
Plot 146	V2P2 Spine Moment Y	B-45
Plot 147	V2P2 T6 X Acceleration	B-45
Plot 148	V2P2 T6 Y Acceleration	B-45
Plot 149	V2P2 T6 Z Acceleration	B-46
Plot 150	V2P2 T1 X Acceleration	B-46
Plot 151	V2P2 T1 Y Acceleration	B-46
Plot 152	V2P2 T1 Z Acceleration	B-46
Plot 153	V2P2 Abdomen Left DGIR X Displacement	B-47
Plot 154	V2P2 Abdomen Left DGIR Y Rotation	B-47
Plot 155	V2P2 Abdomen Left DGIR Z Rotation	B-47
Plot 156	V2P2 Abdomen Right DGIR X Displacement	B-47
Plot 157	V2P2 Abdomen Right DGIR Y Rotation	B-48
Plot 158	V2P2 Abdomen Right DGIR Z Rotation	B-48
Plot 159	V2P2 Pelvis Acetabulum Left X Force	B-48
Plot 160	V2P2 Pelvis Acetabulum Left Y Force	B-48

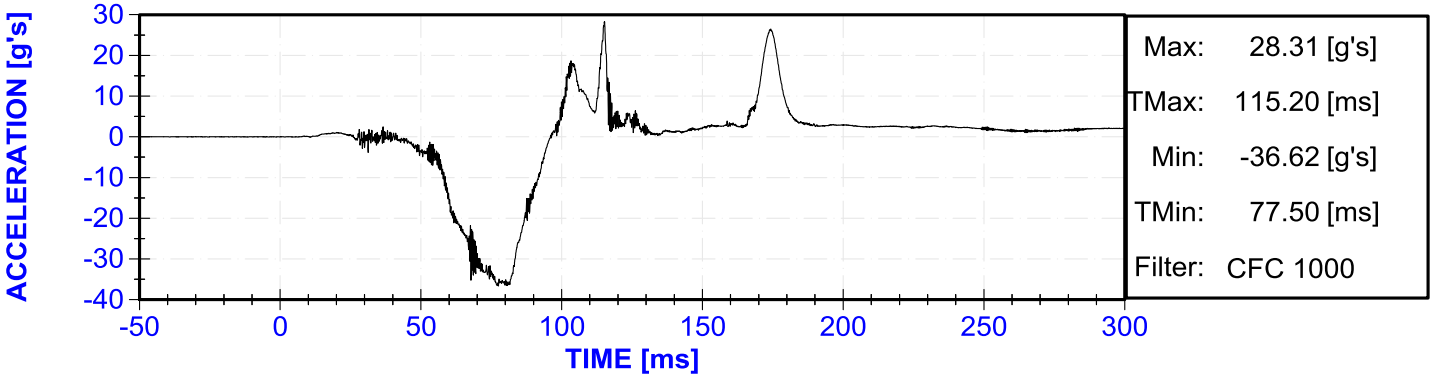
Plot 161	V2P2 Pelvis Acetabulum Left Z Force	B-49
Plot 162	V2P2 Pelvis Acetabulum Right X Force	B-49
Plot 163	V2P2 Pelvis Acetabulum Right Y Force	B-49
Plot 164	V2P2 Pelvis Acetabulum Right Z Force	B-49
Plot 165	V2P2 Pelvis X Acceleration	B-50
Plot 166	V2P2 Pelvis Y Acceleration	B-50
Plot 167	V2P2 Pelvis Z Acceleration	B-50
Plot 168	V2P2 ASIS Left X Force	B-50
Plot 169	V2P2 Left ASIS Y Moment	B-51
Plot 170	V2P2 ASIS Right X Force	B-51
Plot 171	V2P2 Right ASIS Y Moment	B-51
Plot 172	V2P2 Femur Left X Force	B-51
Plot 173	V2P2 Femur Left Y Force	B-52
Plot 174	V2P2 Femur Left Z Force	B-52
Plot 175	V2P2 Femur Left X Moment	B-52
Plot 176	V2P2 Femur Left Y Moment	B-52
Plot 177	V2P2 Femur Right X Force	B-53
Plot 178	V2P2 Femur Right Y Force	B-53
Plot 179	V2P2 Femur Right Z Force	B-53
Plot 180	V2P2 Femur Right X Moment	B-53
Plot 181	V2P2 Femur Right Y Moment	B-54
Plot 182	V2P2 Knee Left X Displacement	B-54
Plot 183	V2P2 Knee Right X Displacement	B-54
Plot 184	V2P2 Upper Tibia Left Z Force	B-54
Plot 185	V2P2 Upper Tibia Left X Moment	B-55
Plot 186	V2P2 Upper Tibia Left Y Moment	B-55
Plot 187	V2P2 Upper Tibia Right Z Force	B-55
Plot 188	V2P2 Upper Tibia Right X Moment	B-55
Plot 189	V2P2 Upper Tibia Right Y Moment	B-56
Plot 190	V2P2 Lower Tibia Left X Force	B-56
Plot 191	V2P2 Lower Tibia Left Y Force	B-56
Plot 192	V2P2 Lower Tibia Left Z Force	B-56
Plot 193	V2P2 Lower Tibia Left X Moment	B-57
Plot 194	V2P2 Lower Tibia Left Y Moment	B-57
Plot 195	V2P2 Lower Tibia Right X Force	B-57
Plot 196	V2P2 Lower Tibia Right Y Force	B-57
Plot 197	V2P2 Lower Tibia Right Z Force	B-58
Plot 198	V2P2 Lower Tibia Right X Moment	B-58
Plot 199	V2P2 Lower Tibia Right Y Moment	B-58
Plot 200	V2P2 Left Mid Tibia X Acceleration	B-58
Plot 201	V2P2 Left Mid Tibia Y Acceleration	B-59
Plot 202	V2P2 Right Mid Tibia X Acceleration	B-59
Plot 203	V2P2 Right Mid Tibia Y Acceleration	B-59
Plot 204	V2P2 Foot Left X Acceleration	B-59
Plot 205	V2P2 Foot Left Z Acceleration	B-60
Plot 206	V2P2 Foot Right X Acceleration	B-60
Plot 207	V2P2 Foot Right Z Acceleration	B-60
Plot 208	V2P2 Ankle Left X Rotation	B-60
Plot 209	V2P2 Ankle Left Y Rotation	B-61
Plot 210	V2P2 Ankle Left Z Rotation	B-61
Plot 211	V2P2 Ankle Right X Rotation	B-61
Plot 212	V2P2 Ankle Right Y Rotation	B-61
Plot 213	V2P2 Ankle Right Z Rotation	B-62
Plot 214	V2 Passenger Lap Belt Force	B-62

Plot 215	V2 Passenger Shoulder Belt Upper Force	B-62
Plot 216	V2 Passenger Shoulder Belt Displacement	B-62
Plot 217	V2 Left Rear Sill X Acceleration	B-63
Plot 218	V2 Left Rear Sill Y Acceleration	B-63
Plot 219	V2 Right Rear Sill X Acceleration	B-63
Plot 220	V2 Right Rear Sill Y Acceleration	B-63
Plot 221	V2 Right Rear Sill Redundant X Acceleration	B-64
Plot 222	V2 Right Rear Sill Redundant Y Acceleration	B-64
Plot 223	V2 Vehicle CG X Acceleration	B-64
Plot 224	V2 Vehicle CG Y Acceleration	B-64
Plot 225	V2 Vehicle CG Z Acceleration	B-65
Plot 226	V2 Vehicle CG Angular Rate X	B-65
Plot 227	V2 Vehicle CG Angular Rate Y	B-65
Plot 228	V2 Vehicle CG Angular Rate Z	B-65
Plot 229	V2 Passenger Seat Track X Acceleration	B-66
Plot 230	V2 Passenger Seat Track Y Acceleration	B-66
Plot 231	V2 Passenger Seat Track Z Acceleration	B-66
Plot 232	V2 Passenger Seat Thigh Bar X Acceleration	B-66
Plot 233	V2 Passenger Seat Thigh Bar Z Acceleration	B-67
Plot 234	V2 Passenger Floor Pan X Acceleration	B-67
Plot 235	V2 Passenger Floor Pan Y Acceleration	B-67
Plot 236	V2 Passenger Floor Pan Z Acceleration	B-67
Plot 237	V2 Passenger Floor Pan X Deflection	B-68
Plot 238	Driver Front Airbag Stage 1 Monitor	B-68
Plot 239	Driver Front Airbag Stage 2 Monitor	B-68
Plot 240	Driver Curtain Airbag Monitor	B-68
Plot 241	Driver Seat Torso Airbag Monitor	B-69
Plot 242	Driver Retractor Pretensioner Monitor	B-69
Plot 243	Driver Anchor Pretensioner Monitor	B-69
Plot 244	Passenger Front Airbag Stage 1 Monitor	B-69
Plot 245	Passenger Front Airbag Stage 2 Monitor	B-70
Plot 246	Passenger Curtain Airbag Monitor	B-70
Plot 247	Passenger Seat Torso Airbag Monitor	B-70
Plot 248	Passenger Anchor Pretensioner Monitor	B-70
Plot 249	V1 OMDB CG X Acceleration	B-71
Plot 250	V1 OMDB CG Y Acceleration	B-71
Plot 251	V1 OMDB CG Z Acceleration	B-71
Plot 252	V1 OMDB CG Angular Rate X	B-71
Plot 253	V1 OMDB CG Angular Rate Y	B-72
Plot 254	V1 OMDB CG Angular Rate Z	B-72
Plot 255	V1 OMDB Rear C/L X Acceleration	B-72
Plot 256	V1 OMDB Rear C/L Y Acceleration	B-72
Plot 257	V1 OMDB Rear C/L Z Acceleration	B-73
Plot 258	V2P1 Fx on head acting through the O.C. joint only	B-73
Plot 259	V2P1 Fz on head acting through the O.C. joint only	B-73
Plot 260	V2P1 My on head acting through the O.C. joint only	B-73
Plot 261	V2P1 Fx on head acting through the total neck section	B-74
Plot 262	V2P1 Fy on head acting through the total neck section	B-74
Plot 263	V2P1 Fz on head acting through the total neck section	B-74
Plot 264	V2P1 Mx on head acting through the total neck section	B-74
Plot 265	V2P1 My on head acting through the total neck section	B-75
Plot 266	V2P1 Mz on head acting through the total neck section	B-75
Plot 267	V2P1 Chest Left Upper Dx	B-75
Plot 268	V2P1 Chest Left Upper Dy	B-75

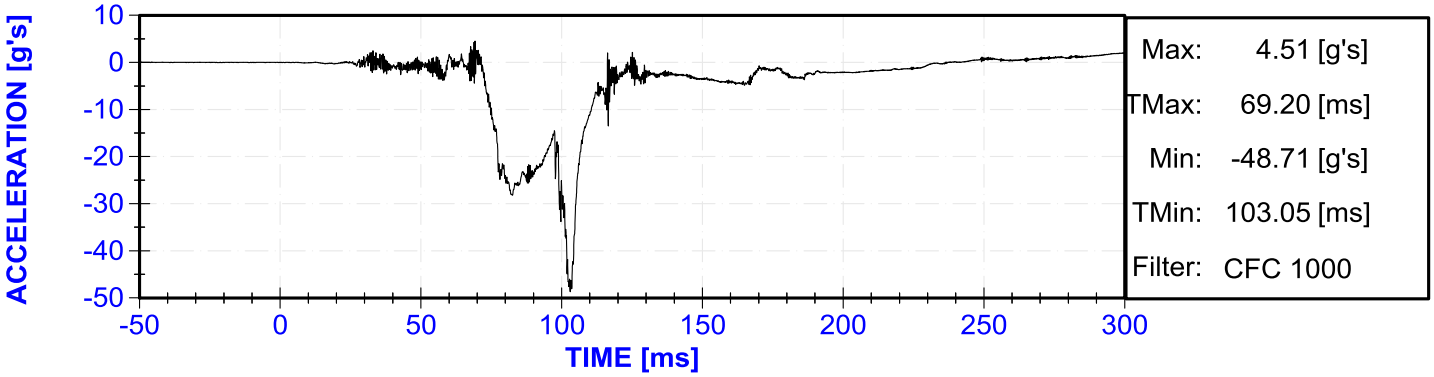
Plot 269	V2P1 Chest Left Upper Dz	B-76
Plot 270	V2P1 Chest Left Upper Resultant	B-76
Plot 271	V2P1 Chest Right Upper Dx	B-76
Plot 272	V2P1 Chest Right Upper Dy	B-76
Plot 273	V2P1 Chest Right Upper Dz	B-77
Plot 274	V2P1 Chest Right Upper Resultant	B-77
Plot 275	V2P1 Chest Left Lower Dx	B-77
Plot 276	V2P1 Chest Left Lower Dy	B-77
Plot 277	V2P1 Chest Left Lower Dz	B-78
Plot 278	V2P1 Chest Left Lower Resultant	B-78
Plot 279	V2P1 Chest Right Lower Dx	B-78
Plot 280	V2P1 Chest Right Lower Dy	B-78
Plot 281	V2P1 Chest Right Lower Dz	B-79
Plot 282	V2P1 Chest Right Lower Resultant	B-79
Plot 283	V2P1 Abdomen Left Lower Dx	B-79
Plot 284	V2P1 Abdomen Left Lower Dy	B-79
Plot 285	V2P1 Abdomen Left Lower Dz	B-80
Plot 286	V2P1 Abdomen Left Lower Resultant	B-80
Plot 287	V2P1 Abdomen Right Lower Dx	B-80
Plot 288	V2P1 Abdomen Right Lower Dy	B-80
Plot 289	V2P1 Abdomen Right Lower Dz	B-81
Plot 290	V2P1 Abdomen Right Lower Resultant	B-81
Plot 291	V2P2 Fx on head acting through the O.C. joint only	B-81
Plot 292	V2P2 Fz on head acting through the O.C. joint only	B-81
Plot 293	V2P2 My on head acting through the O.C. joint only	B-82
Plot 294	V2P2 Fx on head acting through the total neck section	B-82
Plot 295	V2P2 Fy on head acting through the total neck section	B-82
Plot 296	V2P2 Fz on head acting through the total neck section	B-82
Plot 297	V2P2 Mx on head acting through the total neck section	B-83
Plot 298	V2P2 My on head acting through the total neck section	B-83
Plot 299	V2P2 Mz on head acting through the total neck section	B-83
Plot 300	V2P2 Chest Left Upper Dx	B-83
Plot 301	V2P2 Chest Left Upper Dy	B-84
Plot 302	V2P2 Chest Left Upper Dz	B-84
Plot 303	V2P2 Chest Left Upper Resultant	B-84
Plot 304	V2P2 Chest Right Upper Dx	B-84
Plot 305	V2P2 Chest Right Upper Dy	B-85
Plot 306	V2P2 Chest Right Upper Dz	B-85
Plot 307	V2P2 Chest Right Upper Resultant	B-85
Plot 308	V2P2 Chest Left Lower Dx	B-85
Plot 309	V2P2 Chest Left Lower Dy	B-86
Plot 310	V2P2 Chest Left Lower Dz	B-86
Plot 311	V2P2 Chest Left Lower Resultant	B-86
Plot 312	V2P2 Chest Right Lower Dx	B-86
Plot 313	V2P2 Chest Right Lower Dy	B-87
Plot 314	V2P2 Chest Right Lower Dz	B-87
Plot 315	V2P2 Chest Right Lower Resultant	B-87
Plot 316	V2P2 Abdomen Left Lower Dx	B-87
Plot 317	V2P2 Abdomen Left Lower Dy	B-88
Plot 318	V2P2 Abdomen Left Lower Dz	B-88
Plot 319	V2P2 Abdomen Left Lower Resultant	B-88
Plot 320	V2P2 Abdomen Right Lower Dx	B-88
Plot 321	V2P2 Abdomen Right Lower Dy	B-89
Plot 322	V2P2 Abdomen Right Lower Dz	B-89

Plot 323	V2P2 Abdomen Right Lower Resultant	B-89

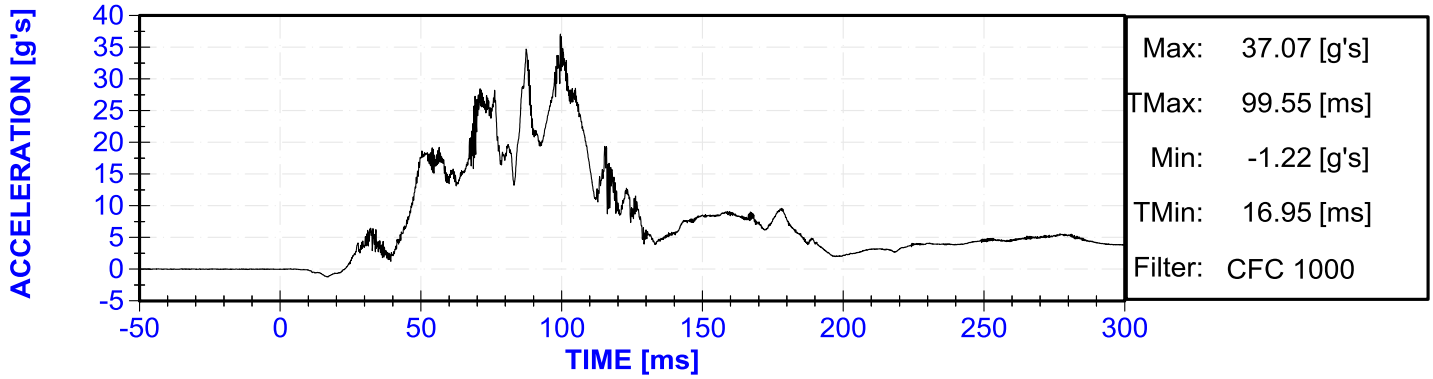
V2P1 Head CG X Acceleration



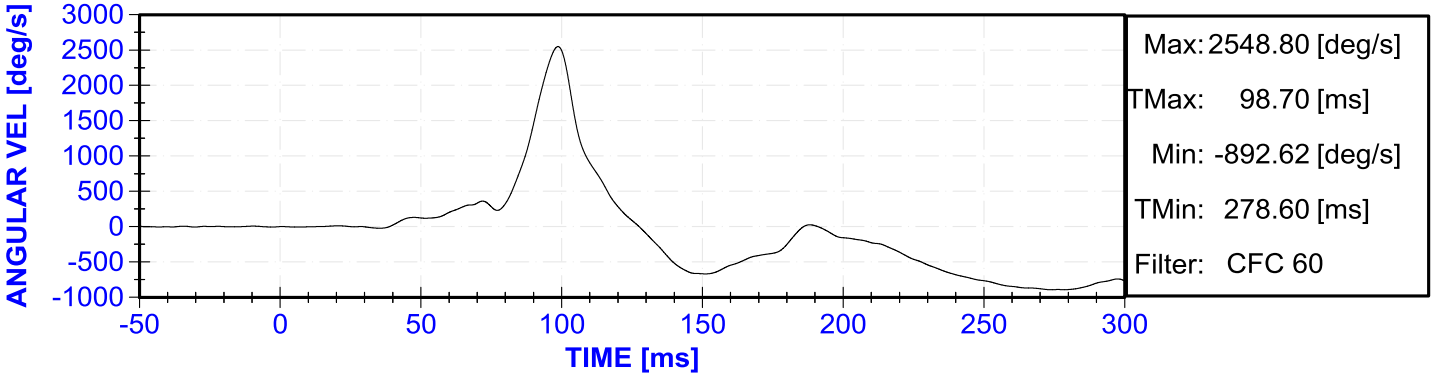
V2P1 Head CG Y Acceleration

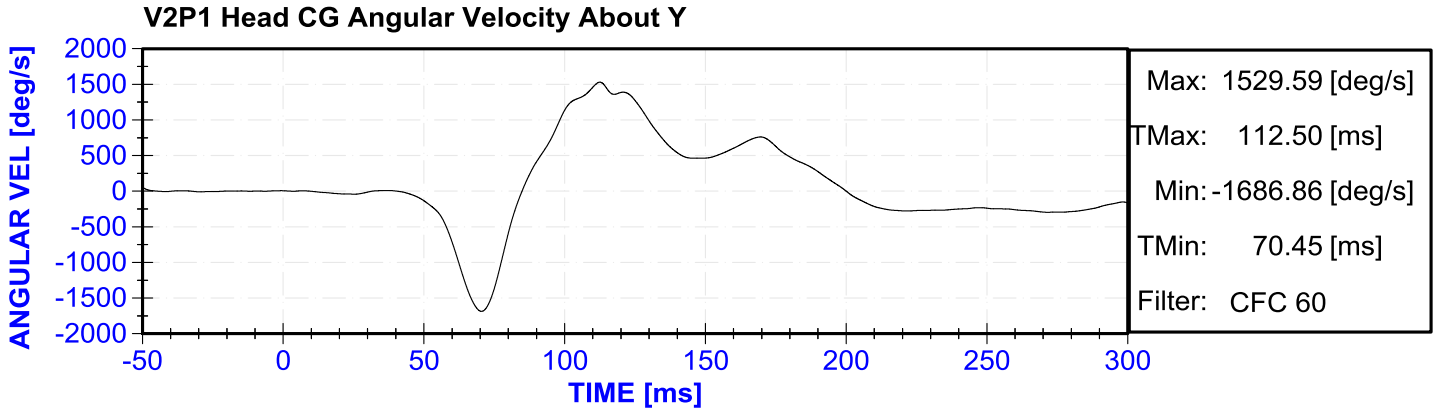


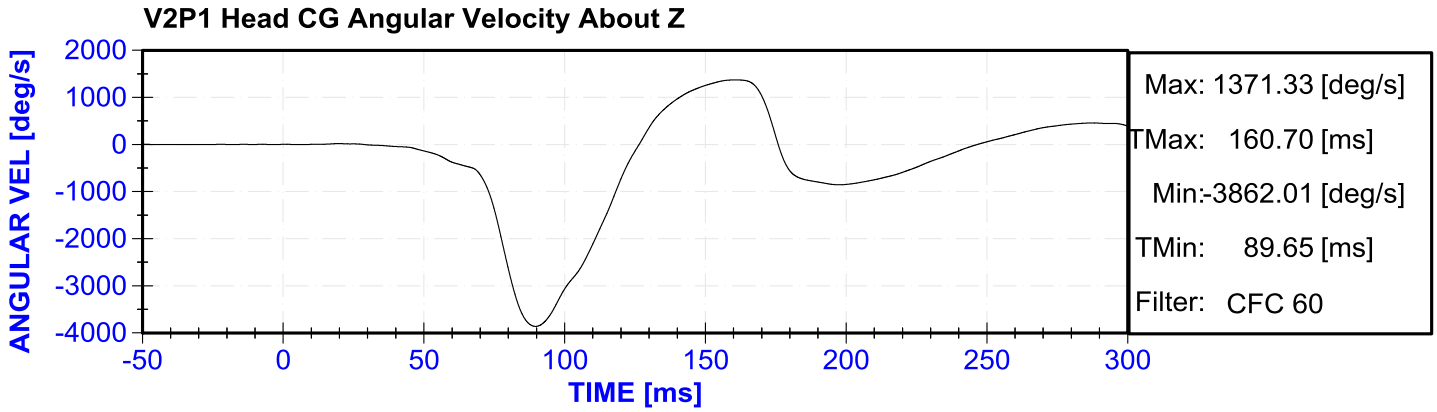
V2P1 Head CG Z Acceleration

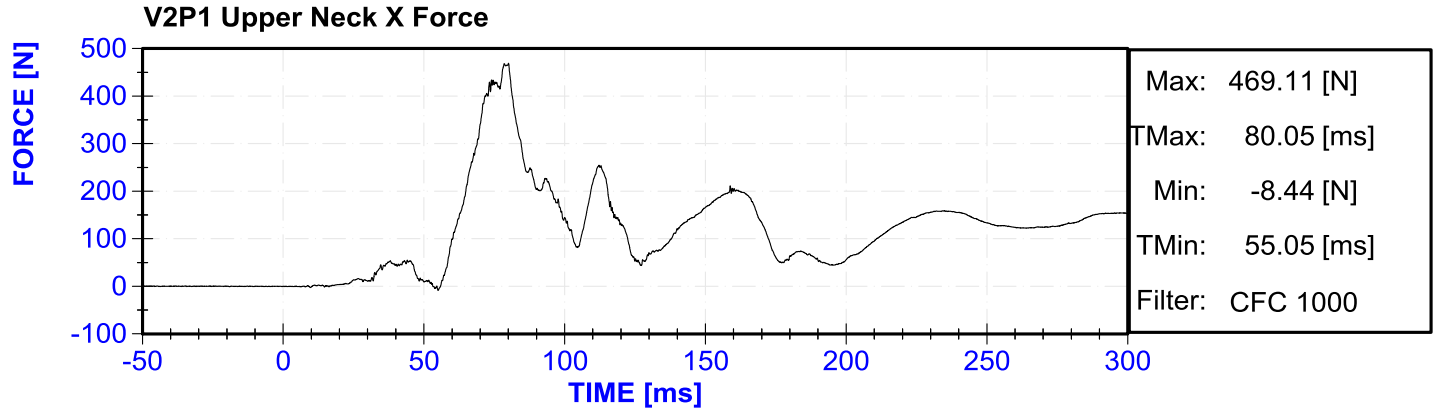


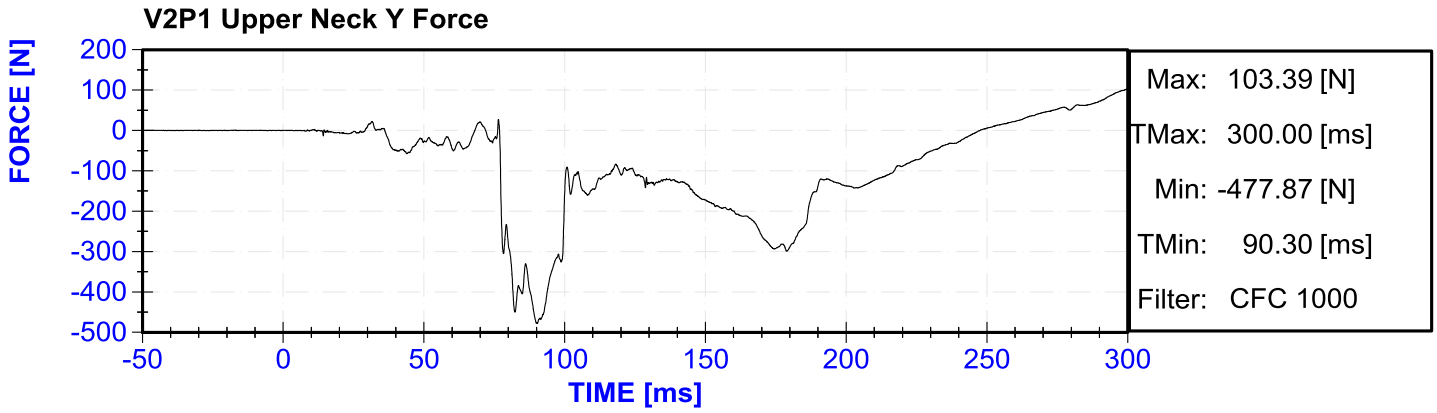
V2P1 Head CG Angular Velocity About X

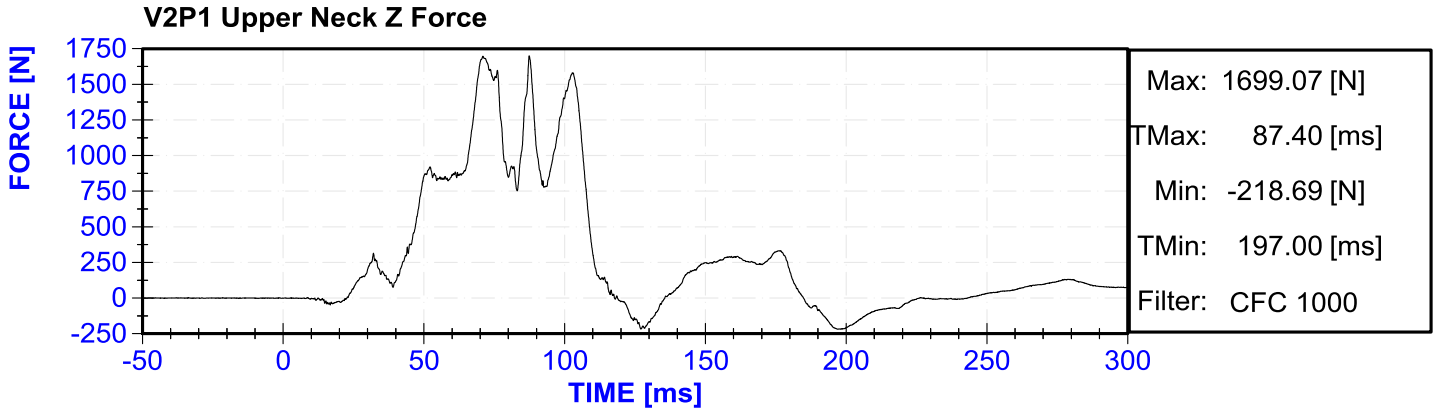


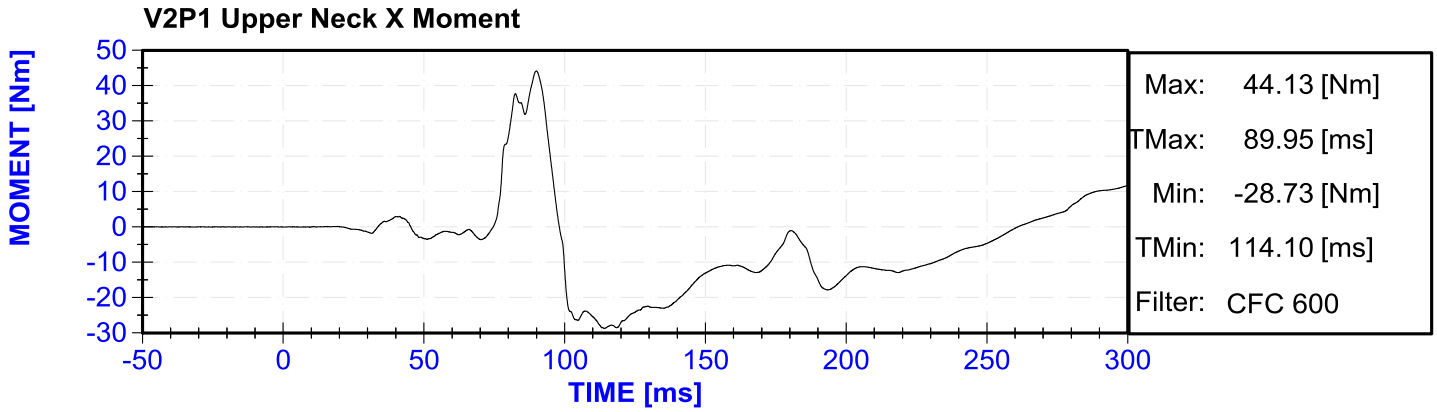

V2P1 Head CG Angular Velocity About Y
ANGULAR VEL [deg/s]
2000
1500
1000
500
0
-500
-1000
-1500
-2000
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 1529.59 [deg/s]
TMax: 112.50 [ms]
Min: -1686.86 [deg/s]
TMin: 70.45 [ms]
Filter: CFC 60

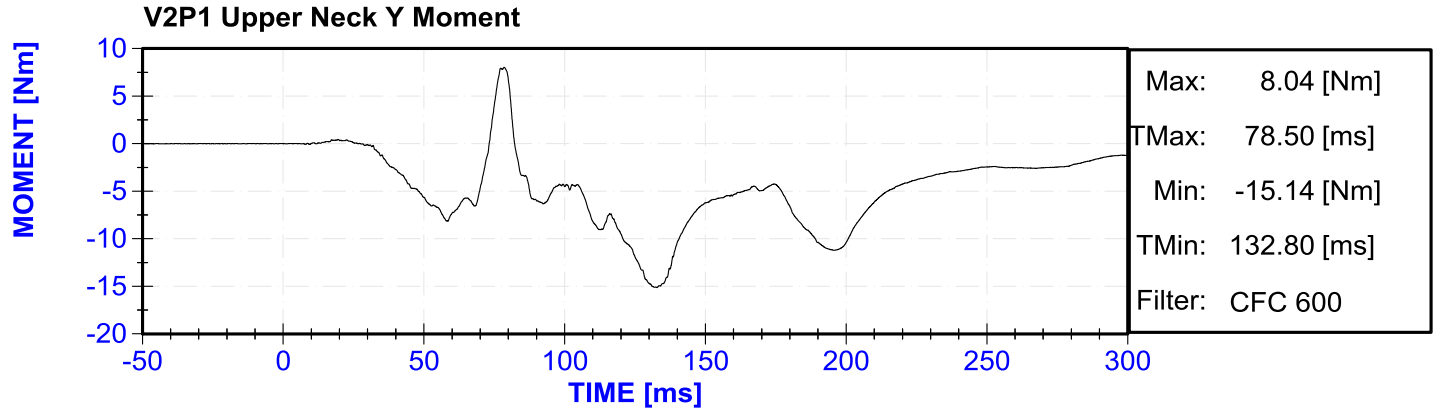

V2P1 Head CG Angular Velocity About Z
ANGULAR VEL [deg/s]
2000
1000
0
-1000
-2000
-3000
-4000
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 1371.33 [deg/s]
TMax: 160.70 [ms]
Min: -3862.01 [deg/s]
TMin: 89.65 [ms]
Filter: CFC 60

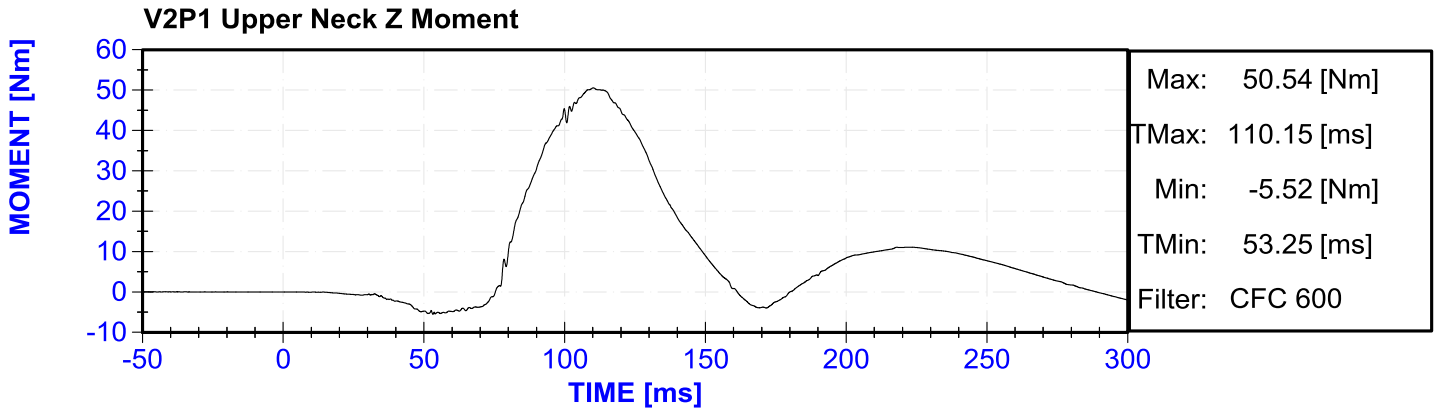

V2P1 Upper Neck X Force
FORCE [N]
500
400
300
200
100
0
-100
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 469.11 [N]
TMax: 80.05 [ms]
Min: -8.44 [N]
TMin: 55.05 [ms]
Filter: CFC 1000

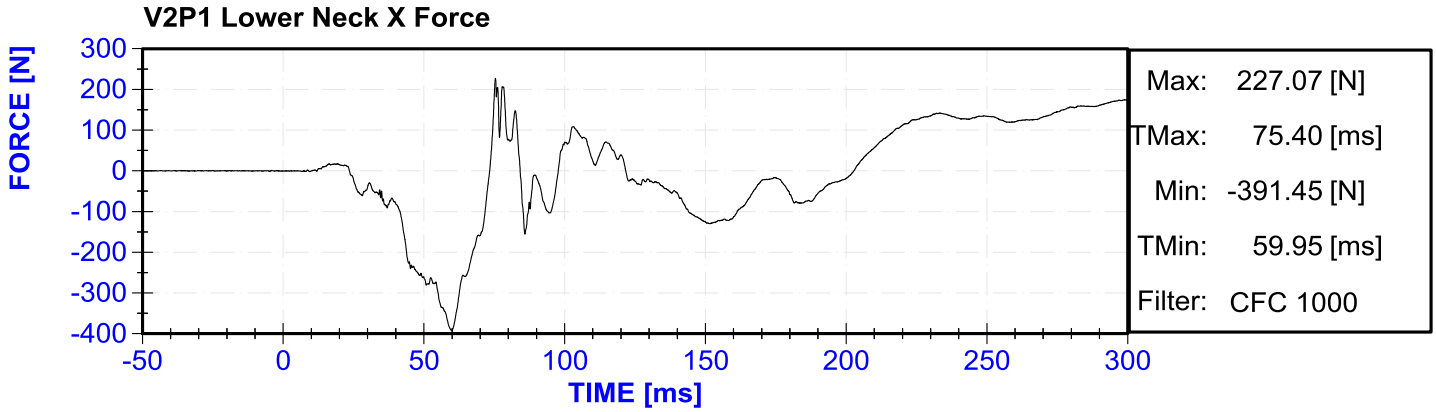

V2P1 Upper Neck Y Force
FORCE [N]
200
100
0
-100
-200
-300
-400
-500
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 103.39 [N]
TMax: 300.00 [ms]
Min: -477.87 [N]
TMin: 90.30 [ms]
Filter: CFC 1000

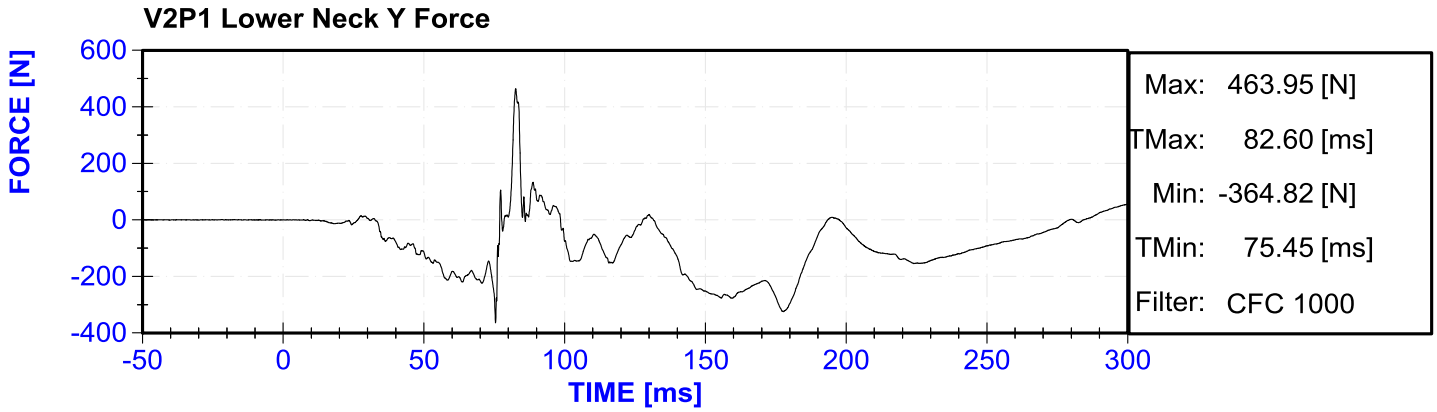

V2P1 Upper Neck Z Force
FORCE [N]
TIME [ms]
Max: 1699.07 [N]
TMax: 87.40 [ms]
Min: -218.69 [N]
TMin: 197.00 [ms]
Filter: CFC 1000

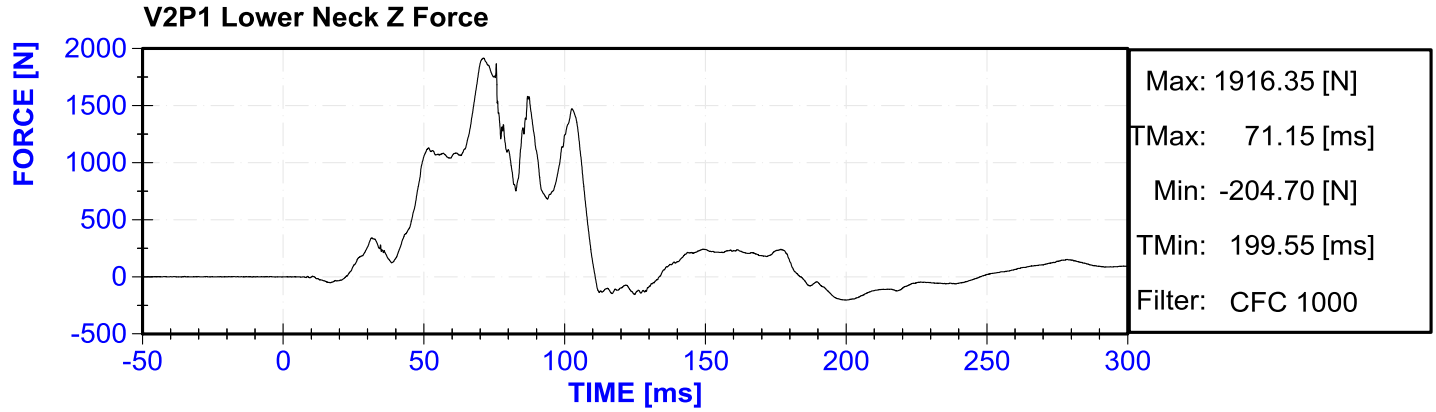

V2P1 Upper Neck X Moment
MOMENT [Nm]
TIME [ms]
Max: 44.13 [Nm]
TMax: 89.95 [ms]
Min: -28.73 [Nm]
TMin: 114.10 [ms]
Filter: CFC 600

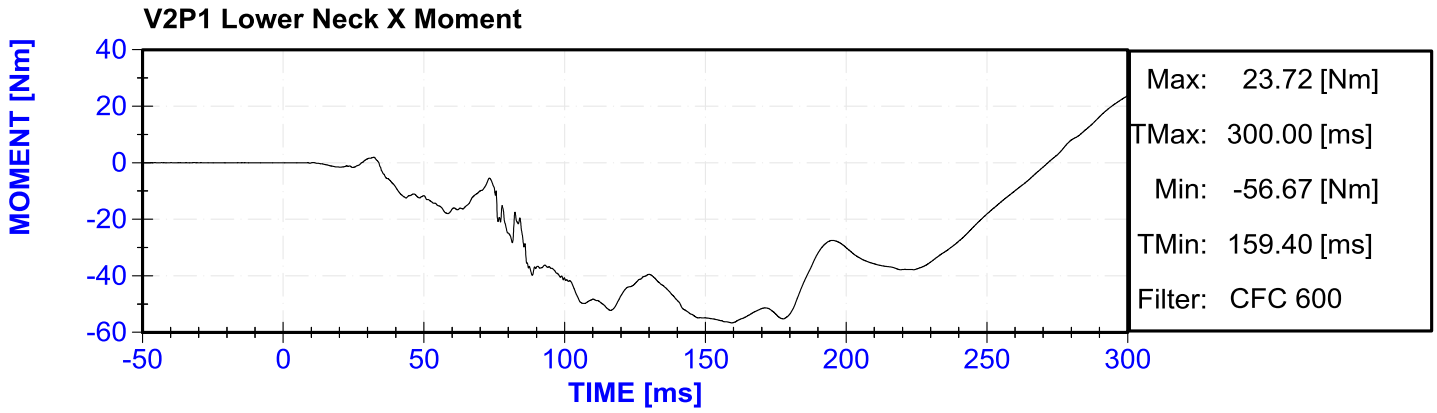

V2P1 Upper Neck Y Moment
MOMENT [Nm]
TIME [ms]
Max: 8.04 [Nm]
TMax: 78.50 [ms]
Min: -15.14 [Nm]
TMin: 132.80 [ms]
Filter: CFC 600


V2P1 Upper Neck Z Moment
MOMENT [Nm]
TIME [ms]
Max: 50.54 [Nm]
TMax: 110.15 [ms]
Min: -5.52 [Nm]
TMin: 53.25 [ms]
Filter: CFC 600

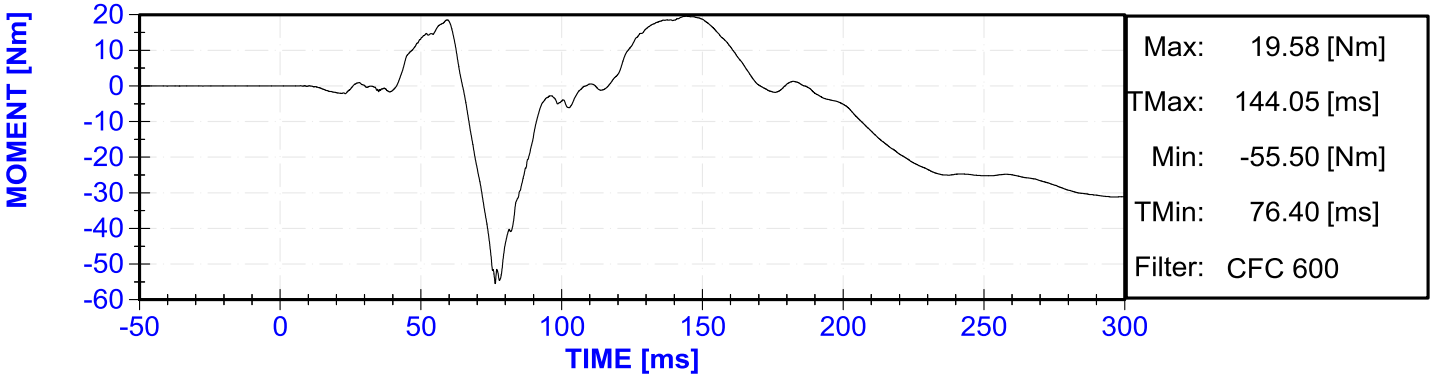

V2P1 Lower Neck X Force
FORCE [N]
TIME [ms]
Max: 227.07 [N]
TMax: 75.40 [ms]
Min: -391.45 [N]
TMin: 59.95 [ms]
Filter: CFC 1000


V2P1 Lower Neck Y Force
FORCE [N]
TIME [ms]
Max: 463.95 [N]
TMax: 82.60 [ms]
Min: -364.82 [N]
TMin: 75.45 [ms]
Filter: CFC 1000

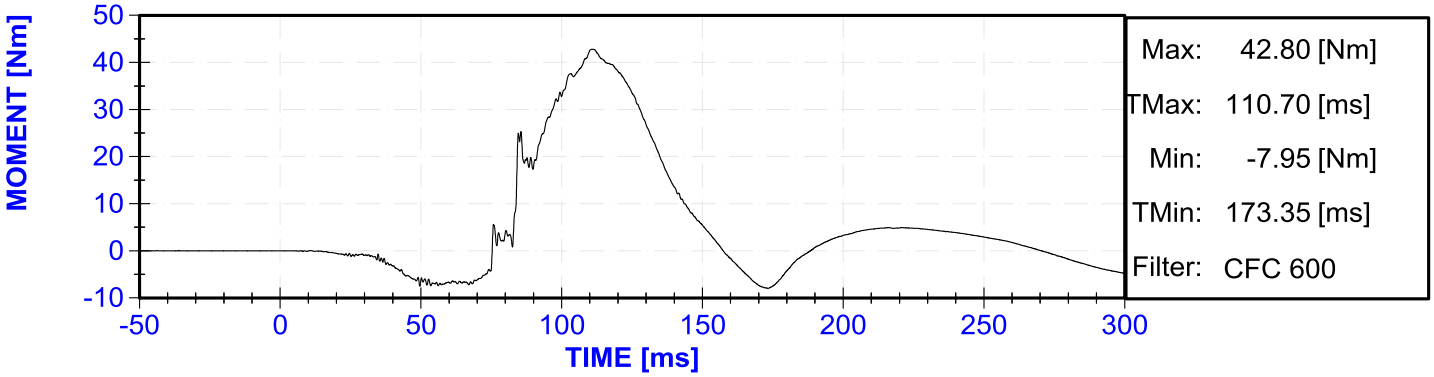

V2P1 Lower Neck Z Force
FORCE [N]
TIME [ms]
Max: 1916.35 [N]
TMax: 71.15 [ms]
Min: -204.70 [N]
TMin: 199.55 [ms]
Filter: CFC 1000


V2P1 Lower Neck X Moment
MOMENT [Nm]
TIME [ms]
Max: 23.72 [Nm]
TMax: 300.00 [ms]
Min: -56.67 [Nm]
TMin: 159.40 [ms]
Filter: CFC 600

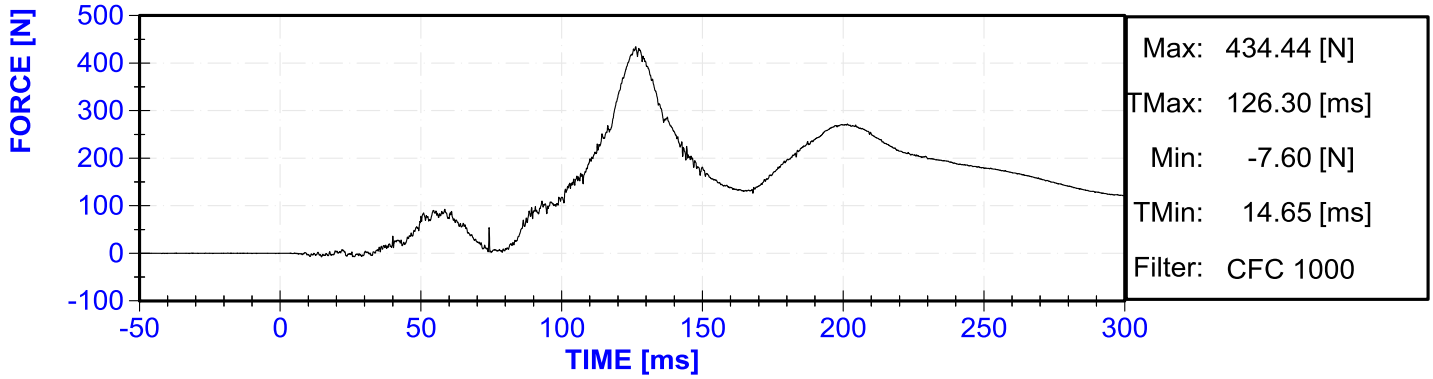
V2P1 Lower Neck Y Moment



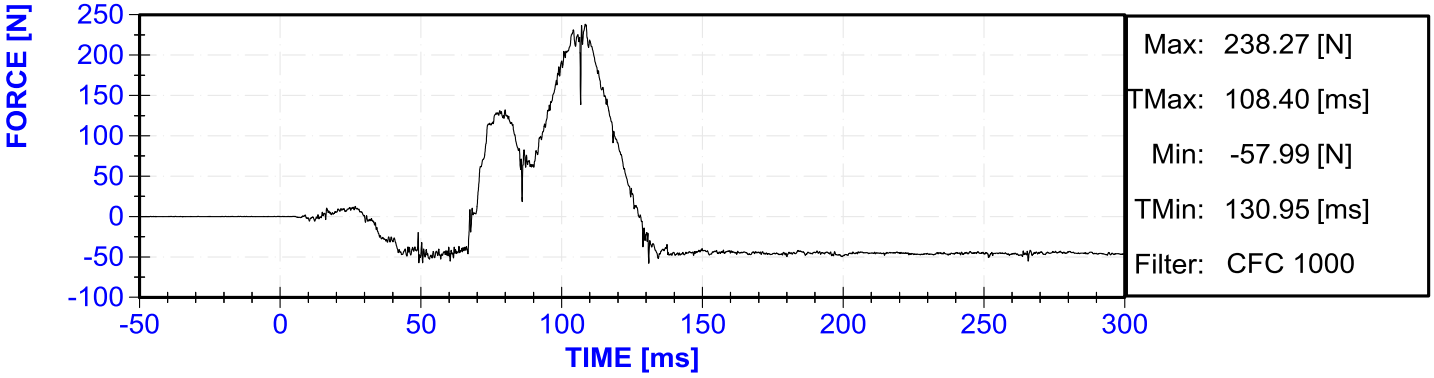
V2P1 Lower Neck Z Moment

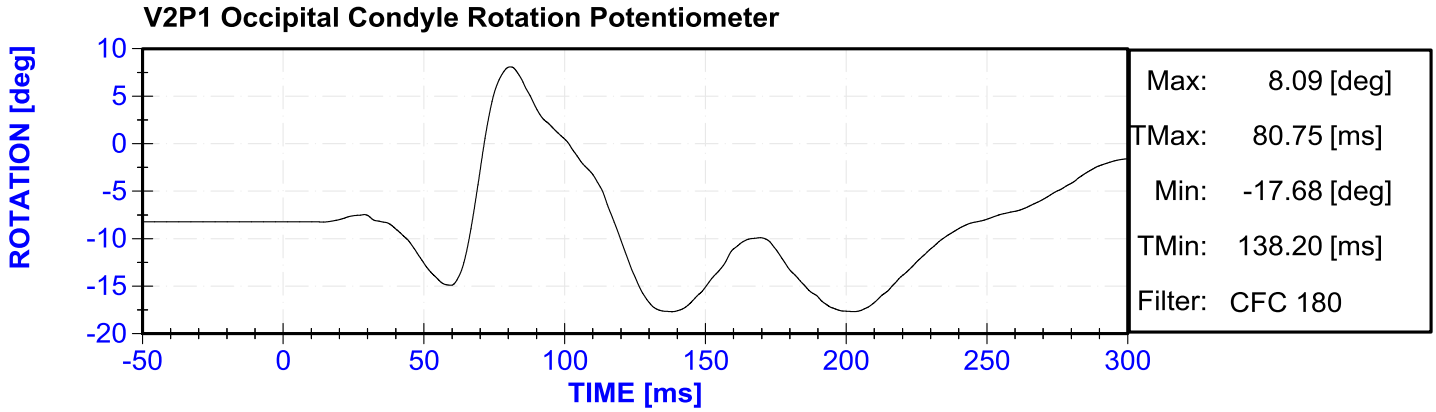


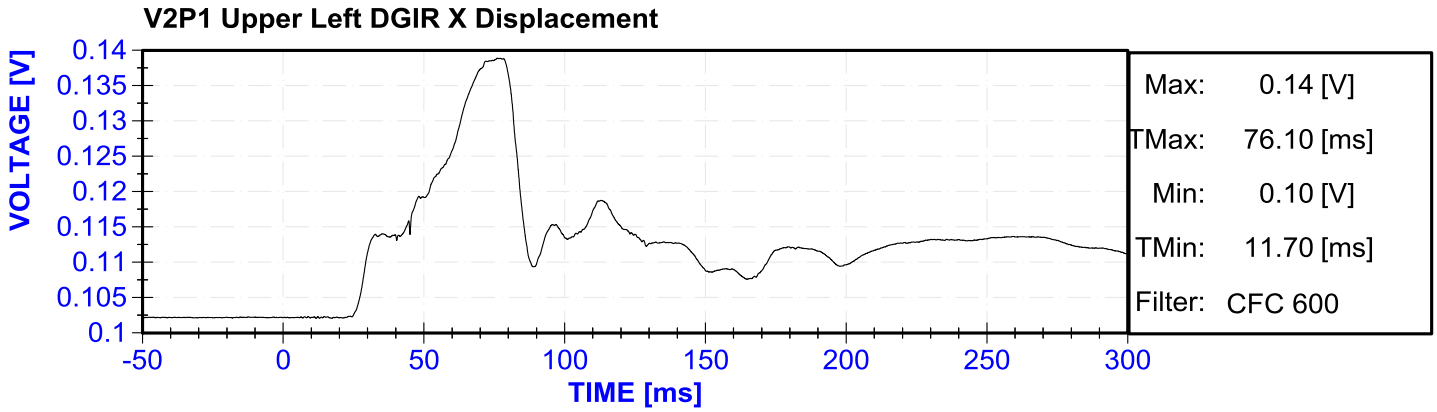
V2P1 Front Neck Spring Tower Load Cell

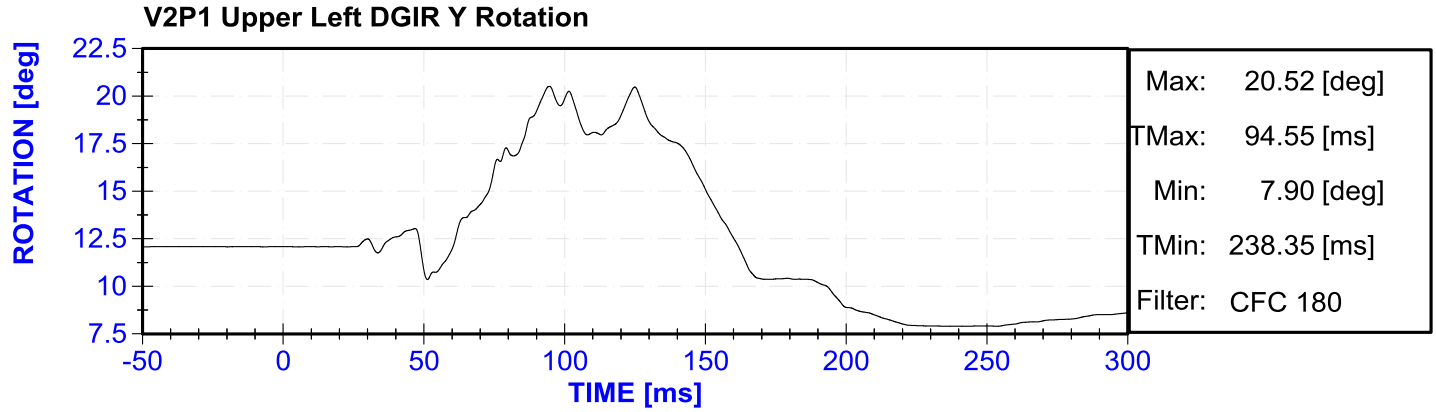


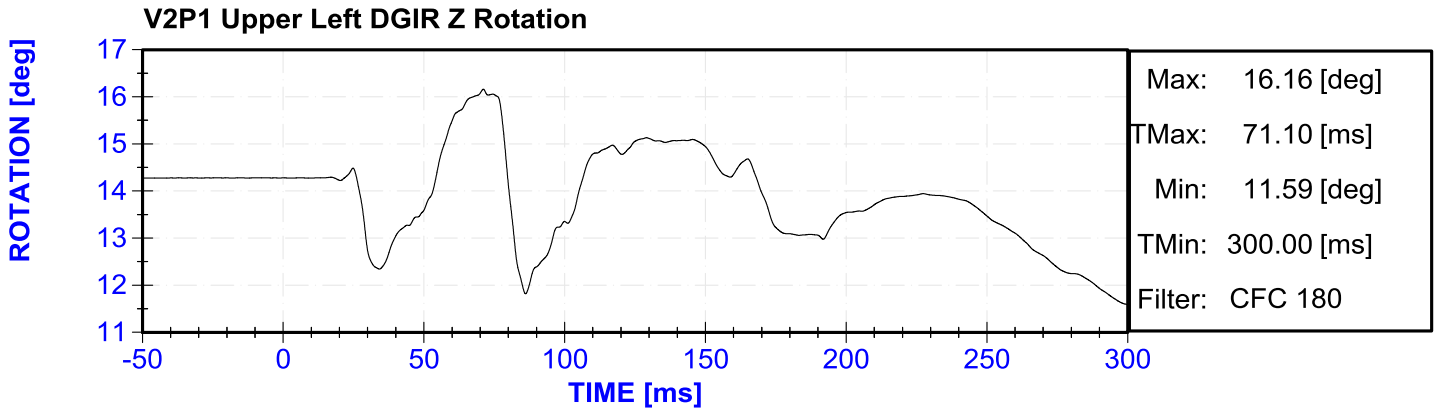
V2P1 Rear Neck Spring Tower Load Cell



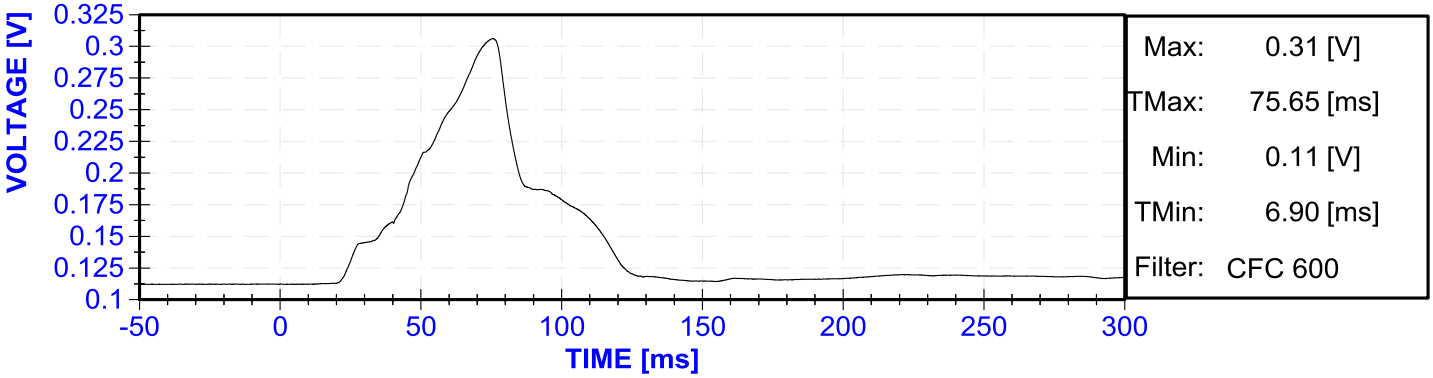

V2P1 Occipital Condyle Rotation Potentiometer
ROTATION [deg]
TIME [ms]
Max: 8.09 [deg]
TMax: 80.75 [ms]
Min: -17.68 [deg]
TMin: 138.20 [ms]
Filter: CFC 180


V2P1 Upper Left DGIR X Displacement
VOLTAGE [V]
TIME [ms]
Max: 0.14 [V]
TMax: 76.10 [ms]
Min: 0.10 [V]
TMin: 11.70 [ms]
Filter: CFC 600

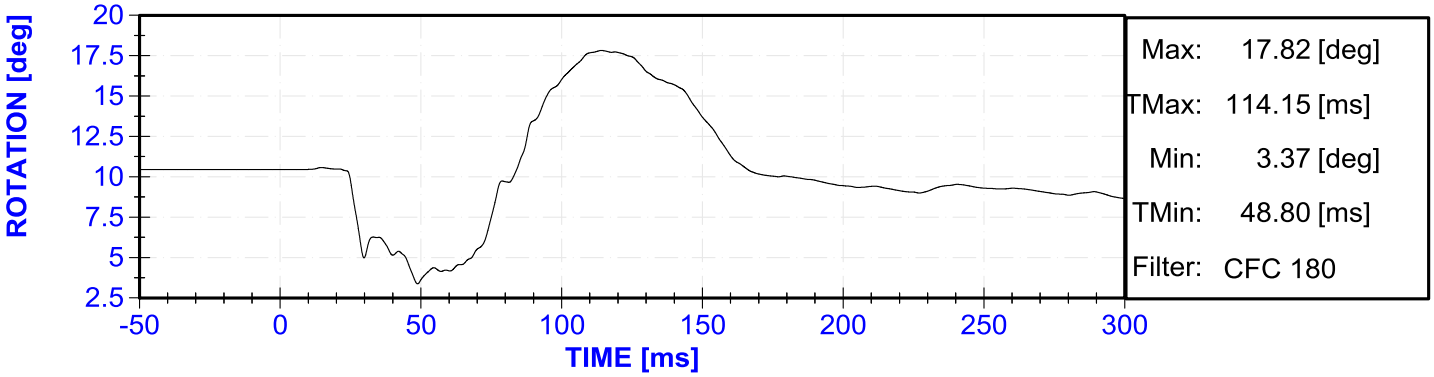

V2P1 Upper Left DGIR Y Rotation
ROTATION [deg]
TIME [ms]
Max: 20.52 [deg]
TMax: 94.55 [ms]
Min: 7.90 [deg]
TMin: 238.35 [ms]
Filter: CFC 180


V2P1 Upper Left DGIR Z Rotation
ROTATION [deg]
TIME [ms]
Max: 16.16 [deg]
TMax: 71.10 [ms]
Min: 11.59 [deg]
TMin: 300.00 [ms]
Filter: CFC 180

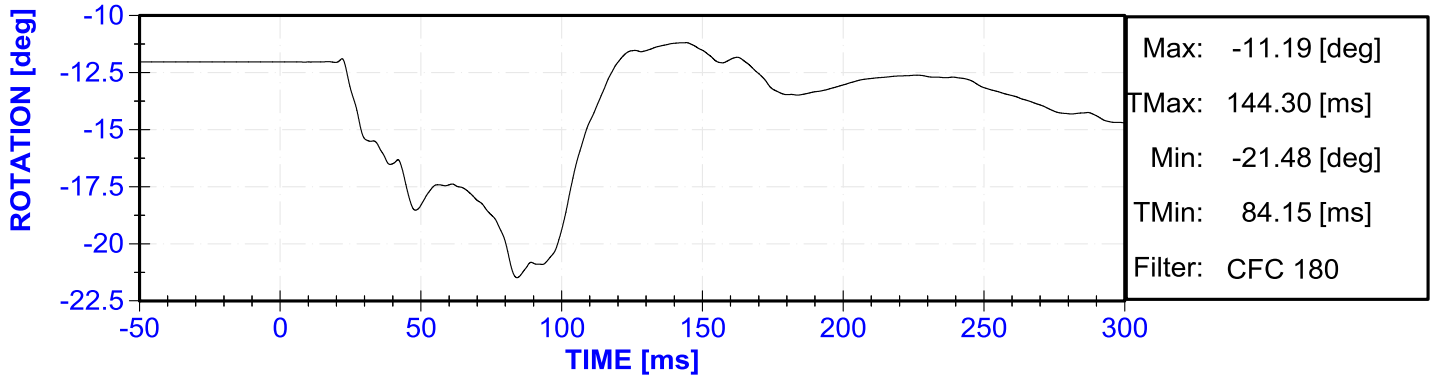
V2P1 Upper Right DGIR X Displacement



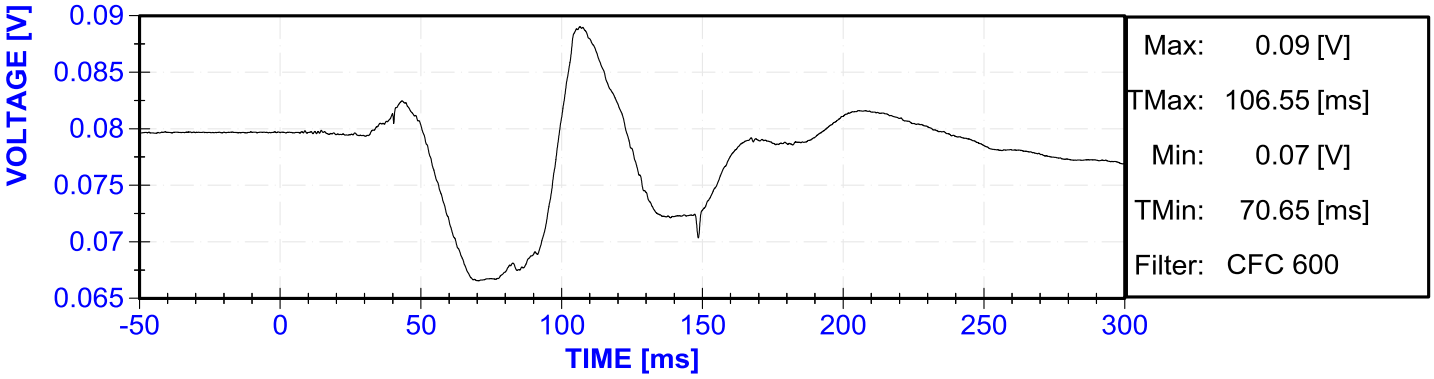
V2P1 Upper Right DGIR Y Rotation

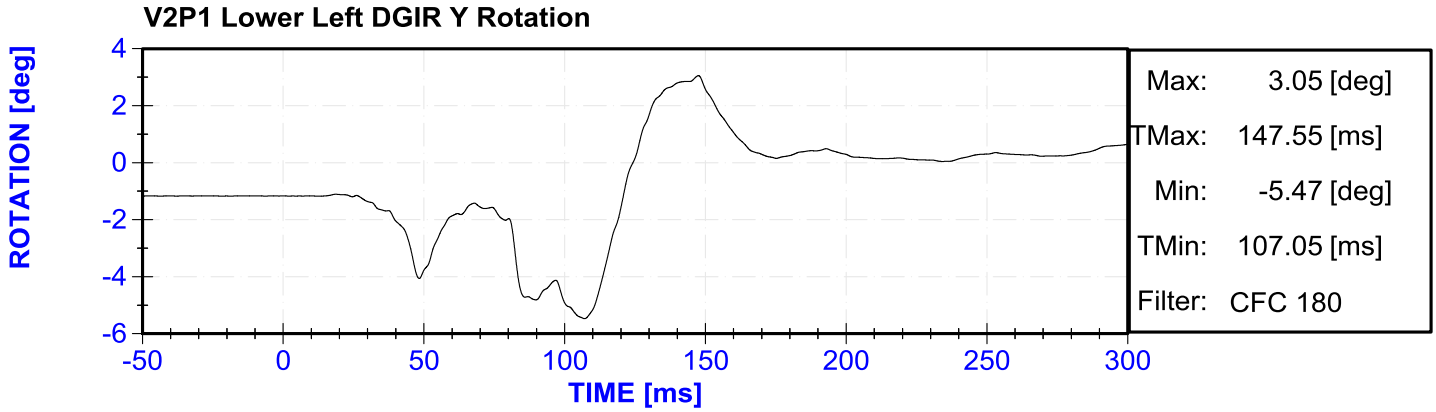


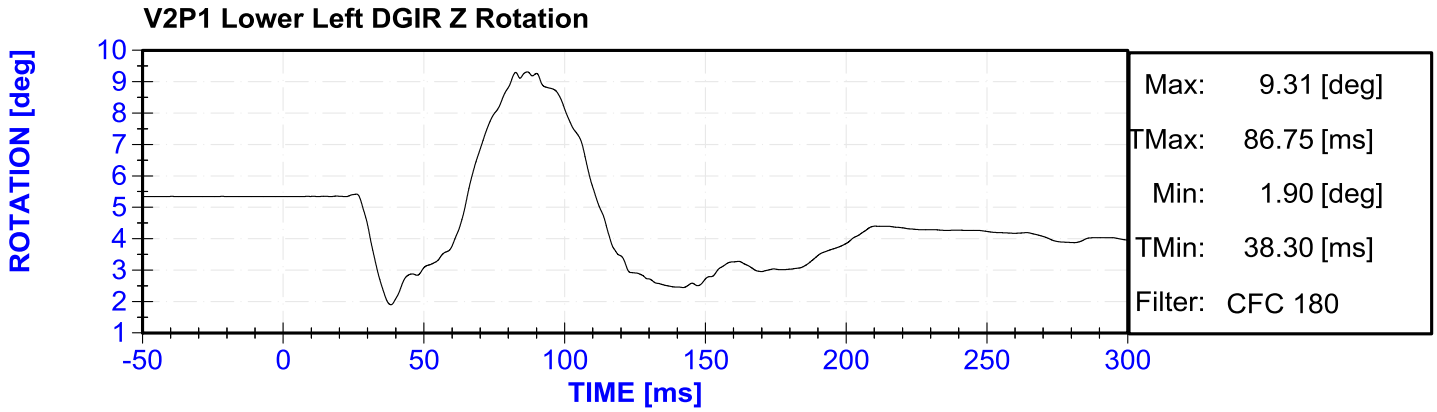
V2P1 Upper Right DGIR Z Rotation

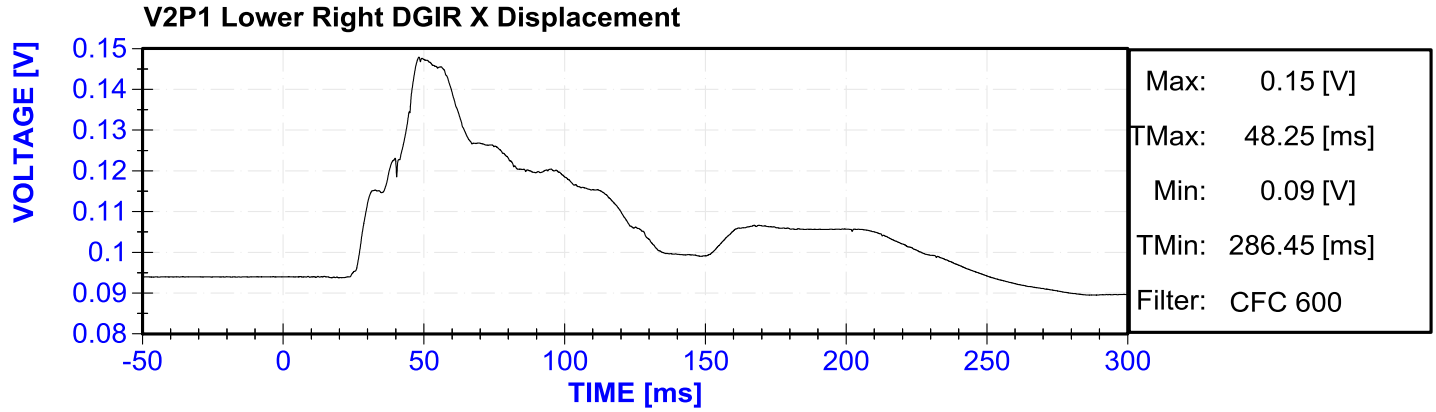


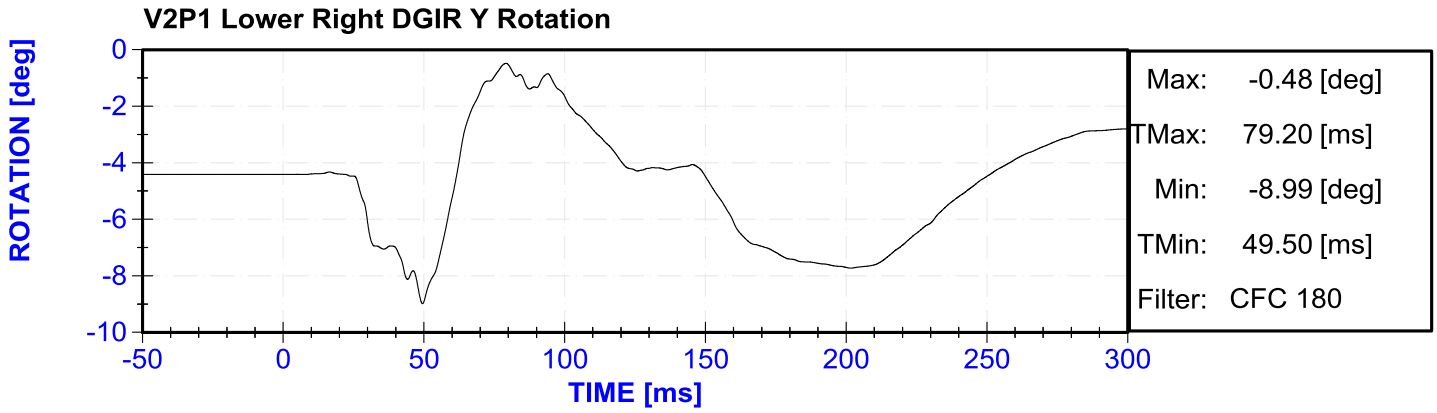
V2P1 Lower Left DGIR X Displacement

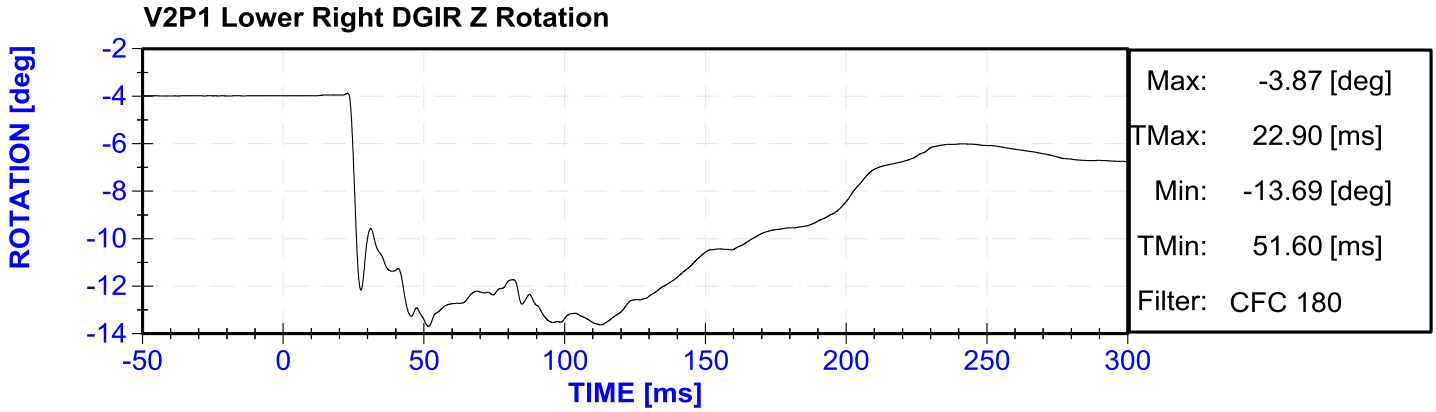


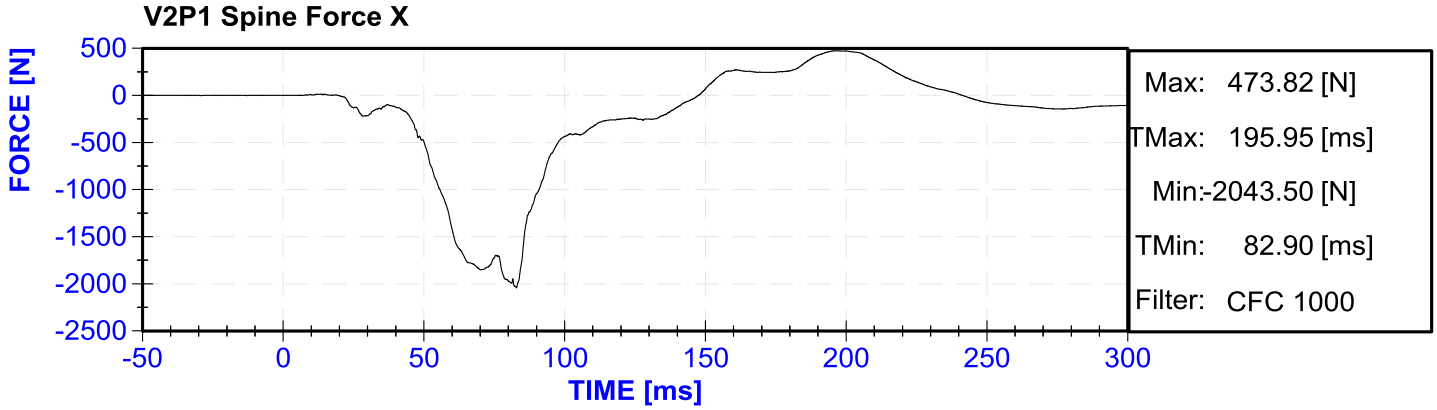

V2P1 Lower Left DGIR Y Rotation
ROTATION [deg]
TIME [ms]
Max: 3.05 [deg]
TMax: 147.55 [ms]
Min: -5.47 [deg]
TMin: 107.05 [ms]
Filter: CFC 180

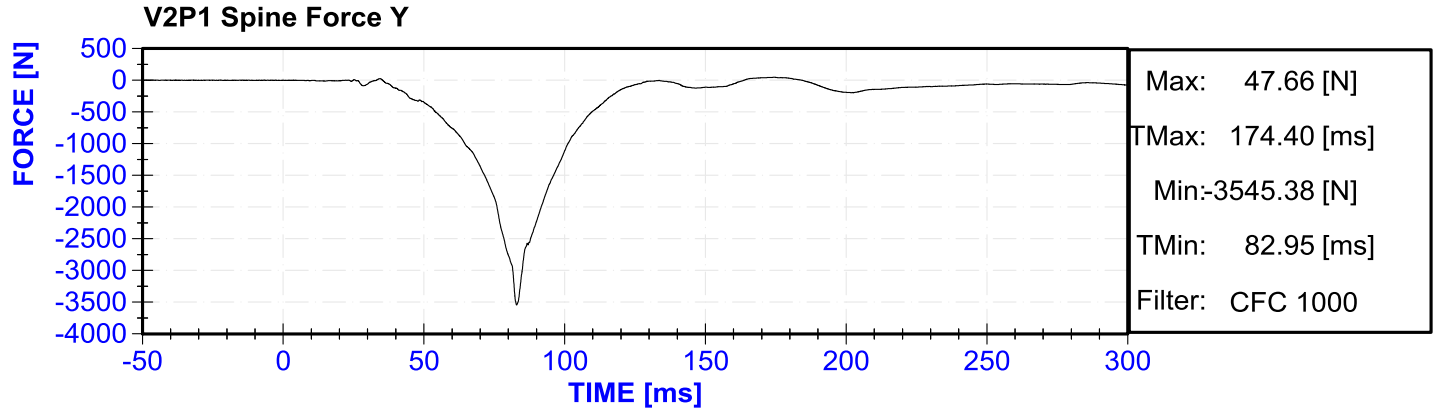

V2P1 Lower Left DGIR Z Rotation
ROTATION [deg]
TIME [ms]
Max: 9.31 [deg]
TMax: 86.75 [ms]
Min: 1.90 [deg]
TMin: 38.30 [ms]
Filter: CFC 180

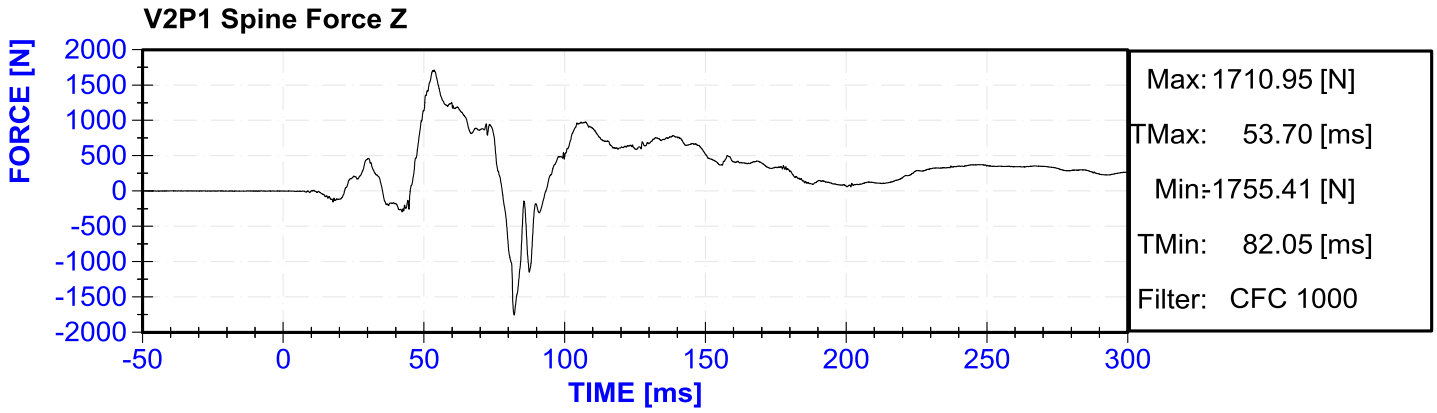

V2P1 Lower Right DGIR X Displacement
VOLTAGE [V]
TIME [ms]
Max: 0.15 [V]
TMax: 48.25 [ms]
Min: 0.09 [V]
TMin: 286.45 [ms]
Filter: CFC 600

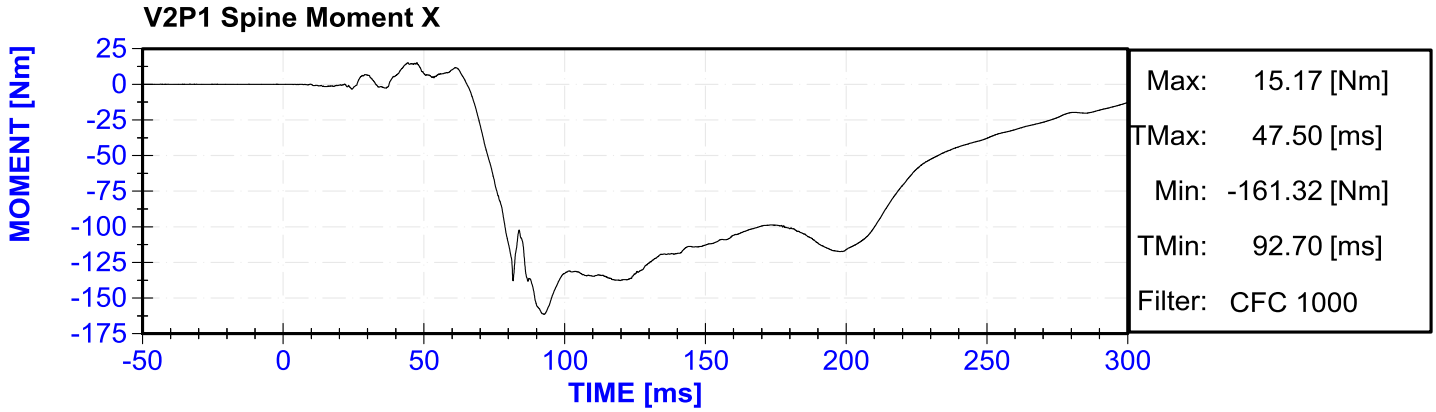

V2P1 Lower Right DGIR Y Rotation
ROTATION [deg]
TIME [ms]
Max: -0.48 [deg]
TMax: 79.20 [ms]
Min: -8.99 [deg]
TMin: 49.50 [ms]
Filter: CFC 180

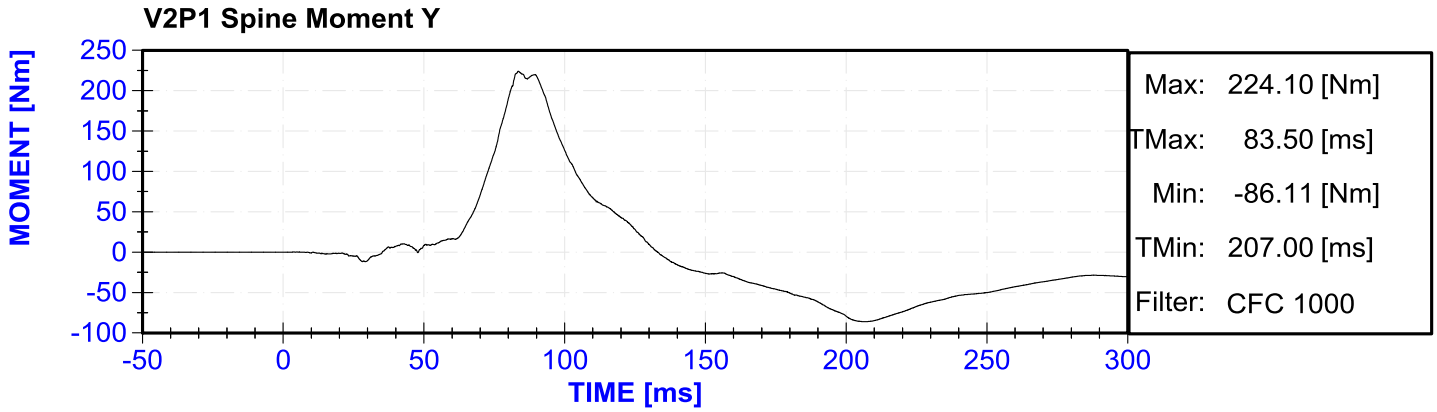

V2P1 Lower Right DGIR Z Rotation
ROTATION [deg]
TIME [ms]
Max: -3.87 [deg]
TMax: 22.90 [ms]
Min: -13.69 [deg]
TMin: 51.60 [ms]
Filter: CFC 180

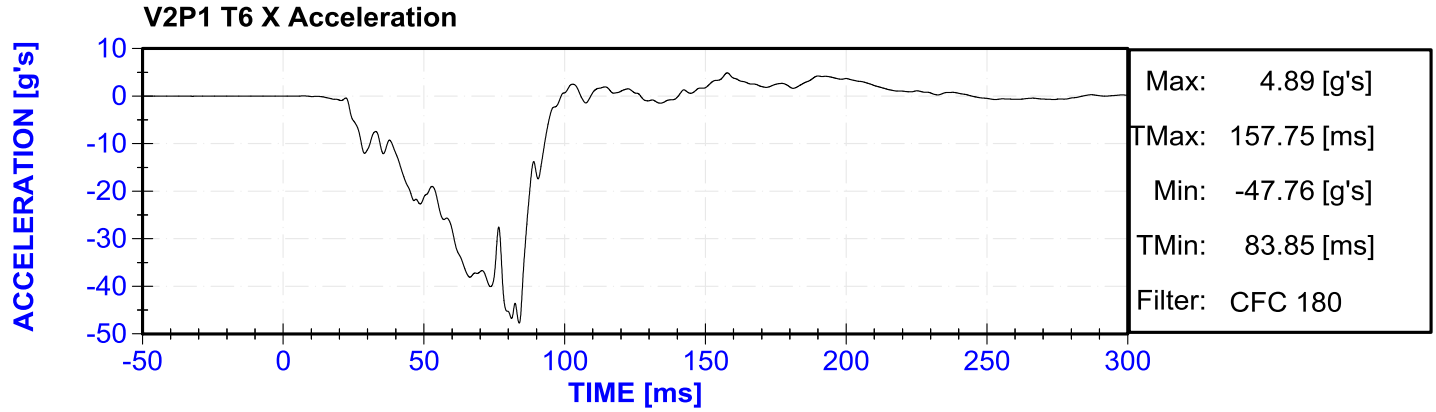

V2P1 Spine Force X
FORCE [N]
TIME [ms]
Max: 473.82 [N]
TMax: 195.95 [ms]
Min:-2043.50 [N]
TMin: 82.90 [ms]
Filter: CFC 1000

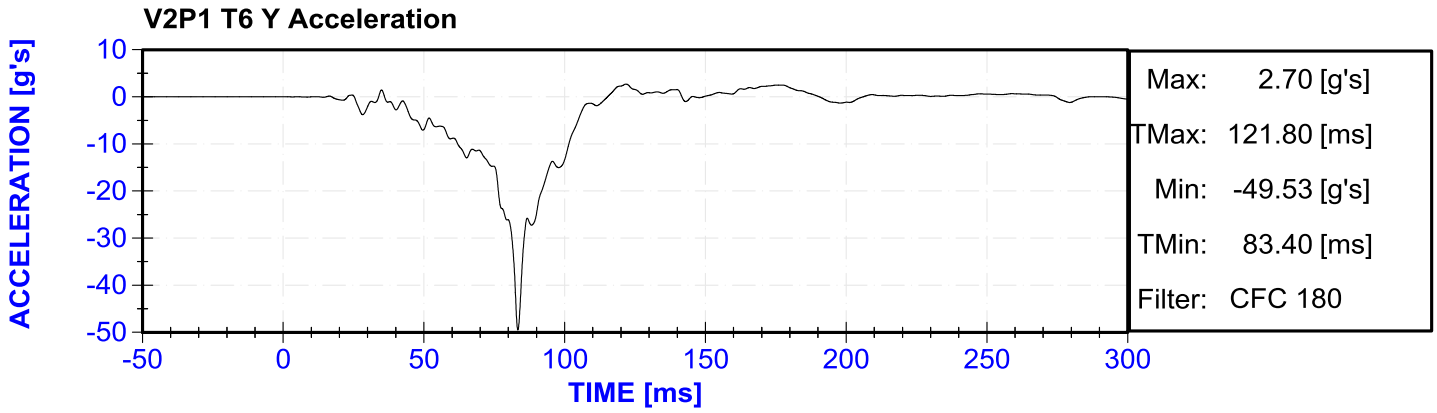

V2P1 Spine Force Y
FORCE [N]
TIME [ms]
Max: 47.66 [N]
TMax: 174.40 [ms]
Min:-3545.38 [N]
TMin: 82.95 [ms]
Filter: CFC 1000

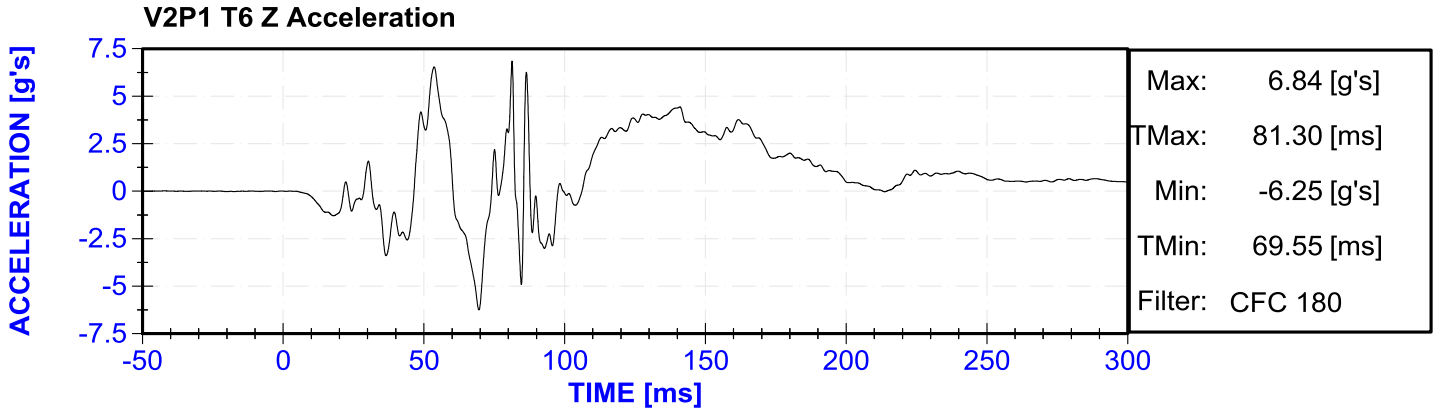

V2P1 Spine Force Z
FORCE [N]
TIME [ms]
Max: 1710.95 [N]
TMax: 53.70 [ms]
Min:-1755.41 [N]
TMin: 82.05 [ms]
Filter: CFC 1000

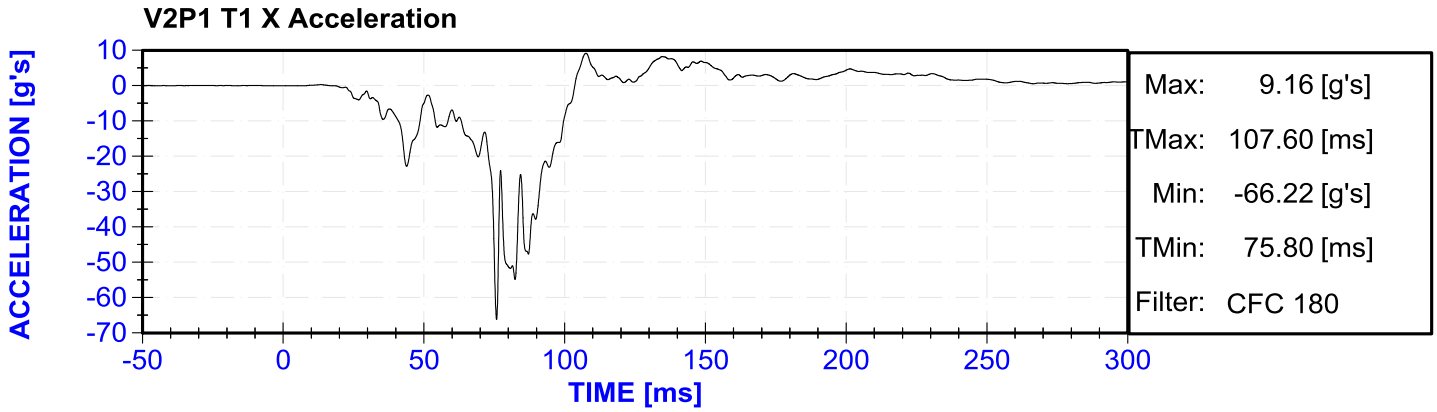

V2P1 Spine Moment X
MOMENT [Nm]
TIME [ms]
Max: 15.17 [Nm]
TMax: 47.50 [ms]
Min: -161.32 [Nm]
TMin: 92.70 [ms]
Filter: CFC 1000

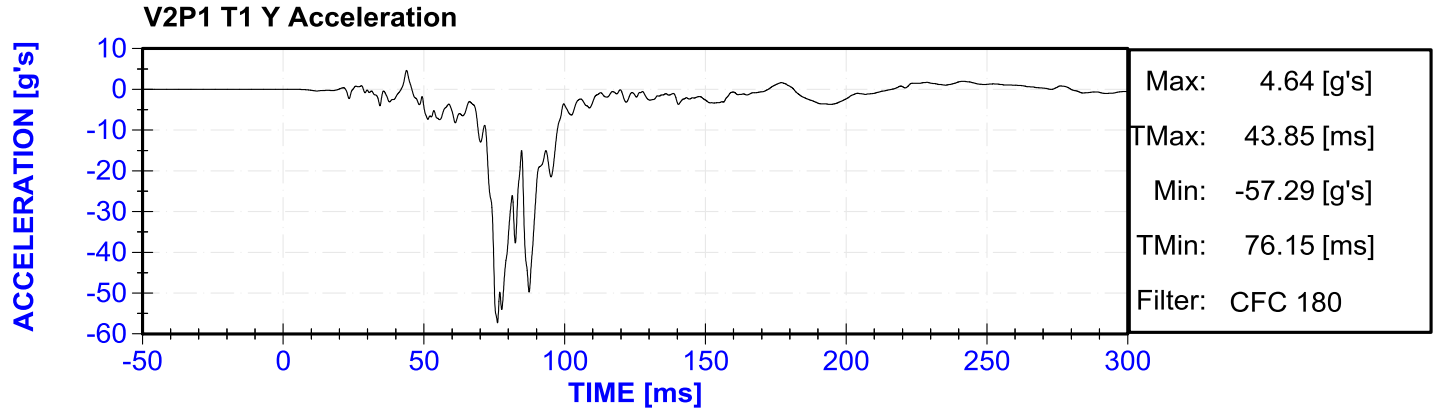

V2P1 Spine Moment Y
MOMENT [Nm]
TIME [ms]
Max: 224.10 [Nm]
TMax: 83.50 [ms]
Min: -86.11 [Nm]
TMin: 207.00 [ms]
Filter: CFC 1000

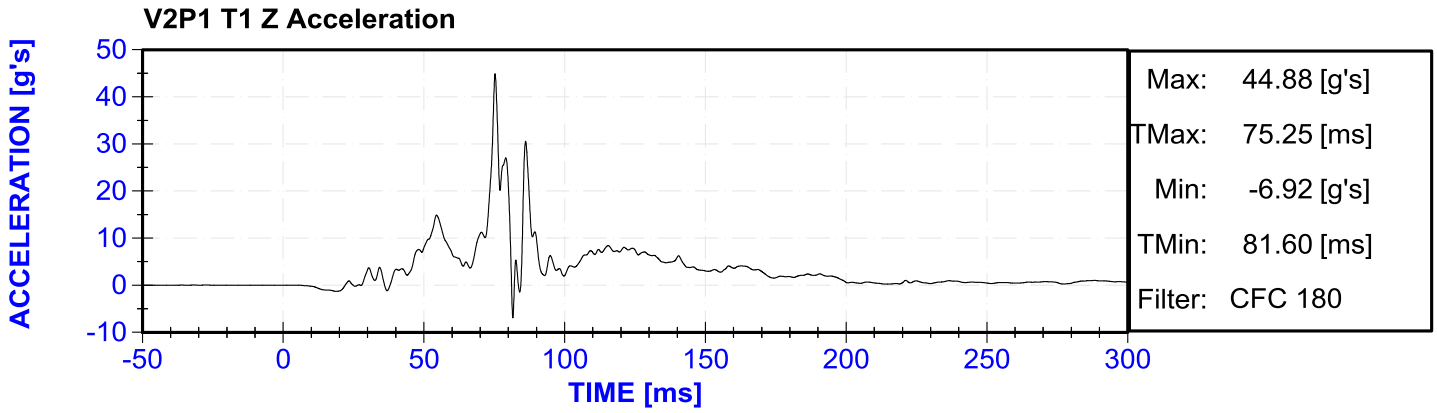

V2P1 T6 X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 4.89 [g's]
TMax: 157.75 [ms]
Min: -47.76 [g's]
TMin: 83.85 [ms]
Filter: CFC 180

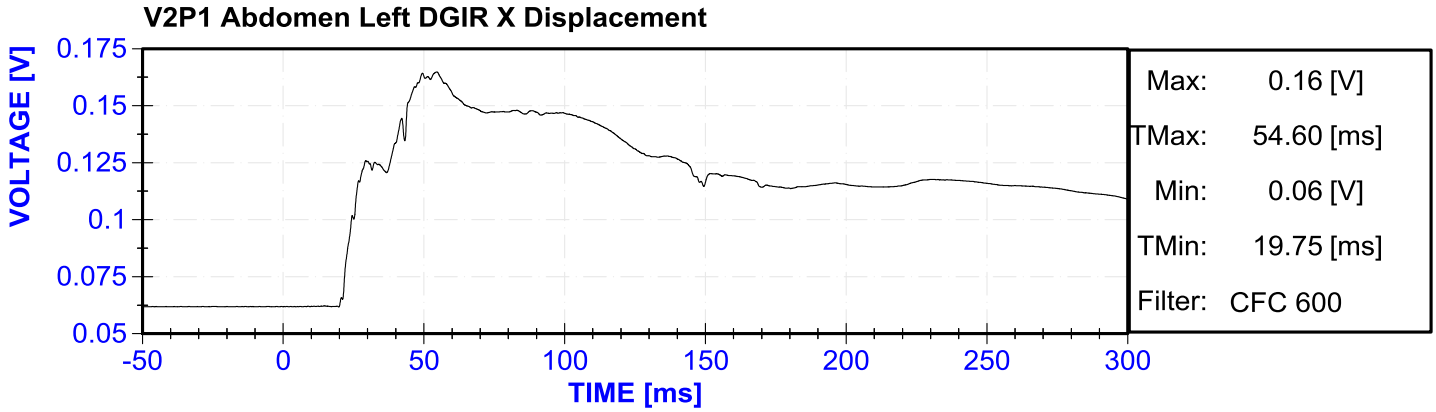

V2P1 T6 Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 2.70 [g's]
TMax: 121.80 [ms]
Min: -49.53 [g's]
TMin: 83.40 [ms]
Filter: CFC 180

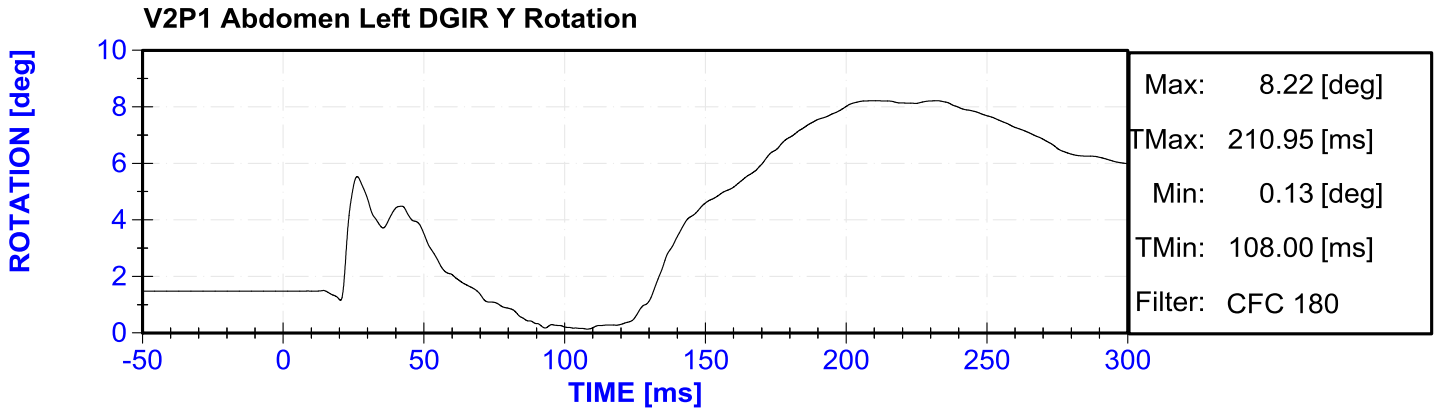

V2P1 T6 Z Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 6.84 [g's]
TMax: 81.30 [ms]
Min: -6.25 [g's]
TMin: 69.55 [ms]
Filter: CFC 180

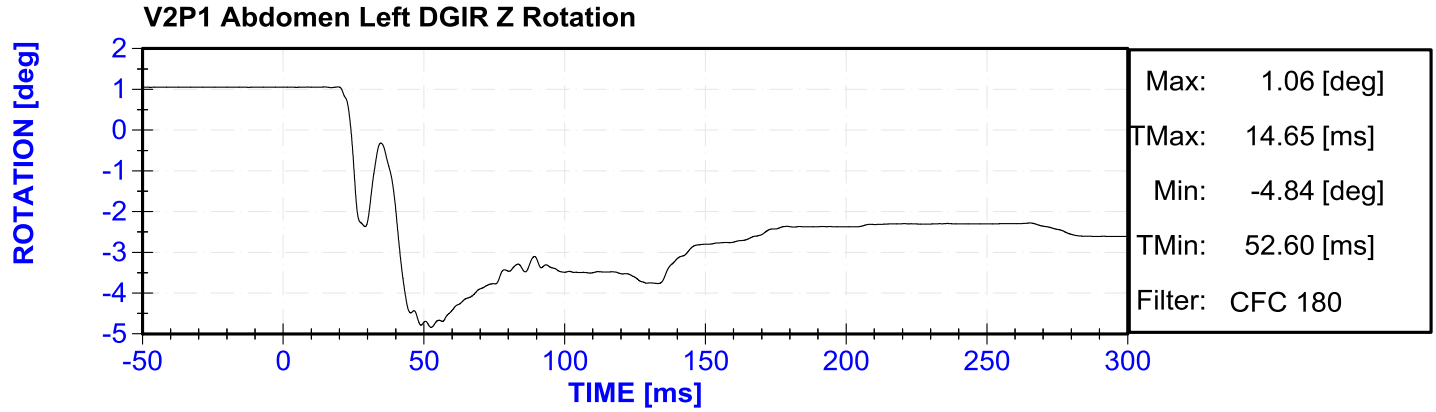

V2P1 T1 X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 9.16 [g's]
TMax: 107.60 [ms]
Min: -66.22 [g's]
TMin: 75.80 [ms]
Filter: CFC 180

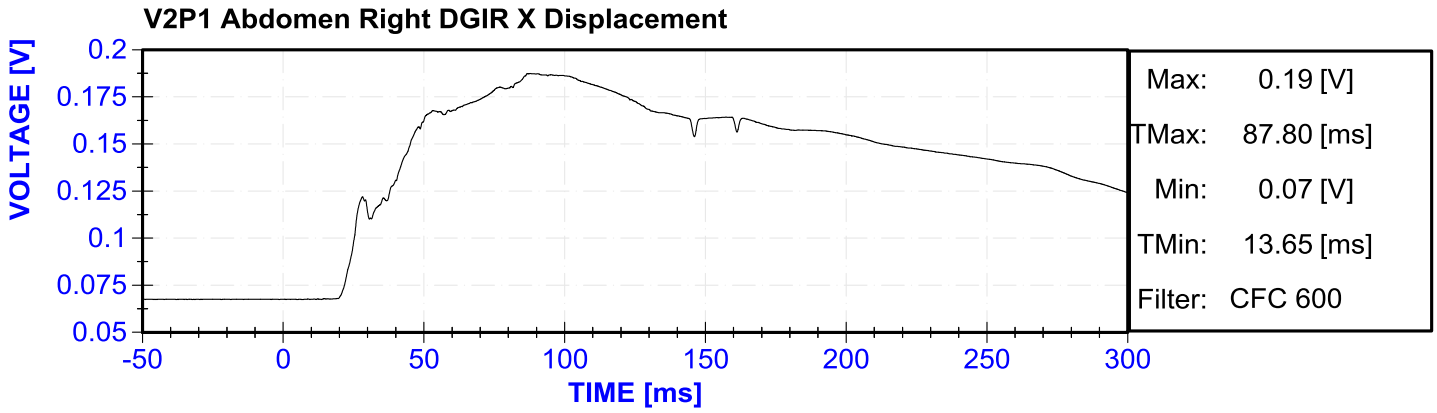

V2P1 T1 Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 4.64 [g's]
TMax: 43.85 [ms]
Min: -57.29 [g's]
TMin: 76.15 [ms]
Filter: CFC 180

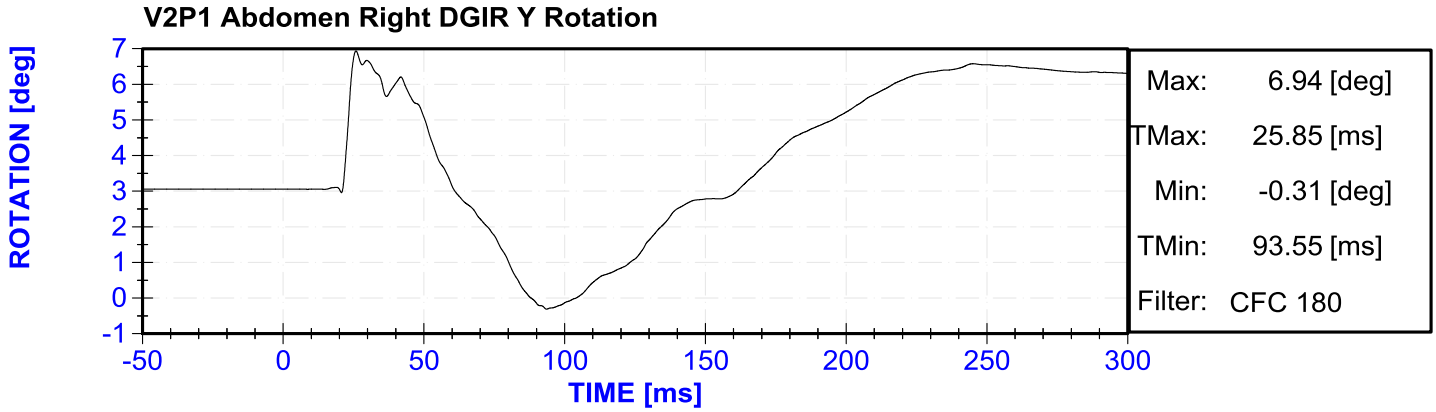

V2P1 T1 Z Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 44.88 [g's]
TMax: 75.25 [ms]
Min: -6.92 [g's]
TMin: 81.60 [ms]
Filter: CFC 180

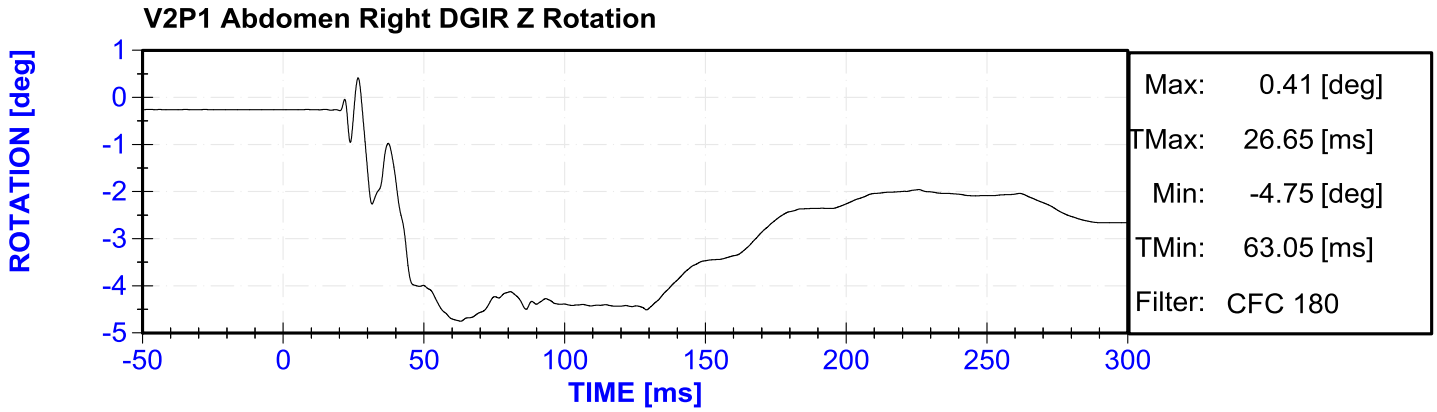

V2P1 Abdomen Left DGIR X Displacement
VOLTAGE [V]
0.175
0.15
0.125
0.1
0.075
0.05
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 0.16 [V]
TMax: 54.60 [ms]
Min: 0.06 [V]
TMin: 19.75 [ms]
Filter: CFC 600

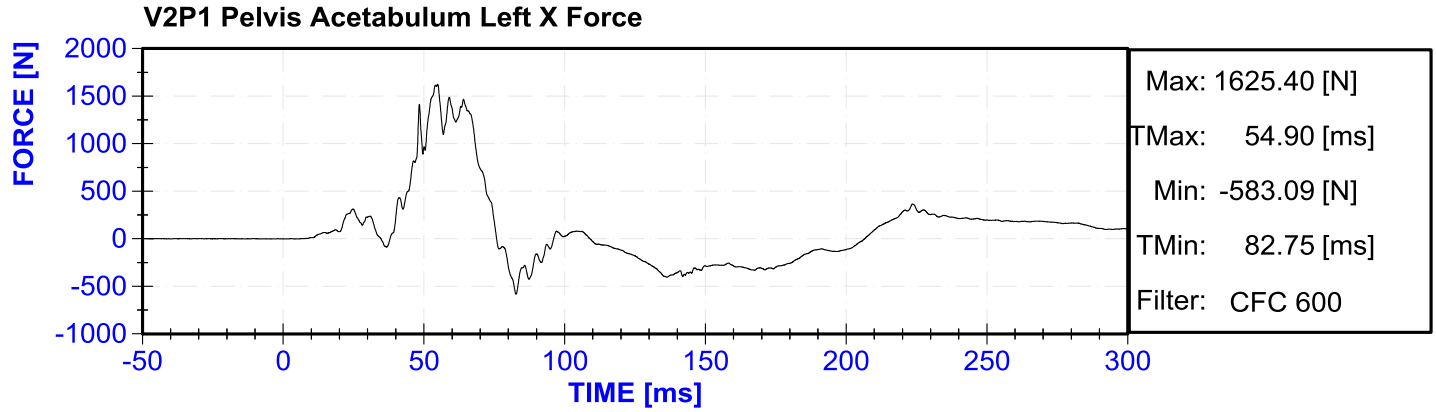

V2P1 Abdomen Left DGIR Y Rotation
ROTATION [deg]
10
8
6
4
2
0
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 8.22 [deg]
TMax: 210.95 [ms]
Min: 0.13 [deg]
TMin: 108.00 [ms]
Filter: CFC 180

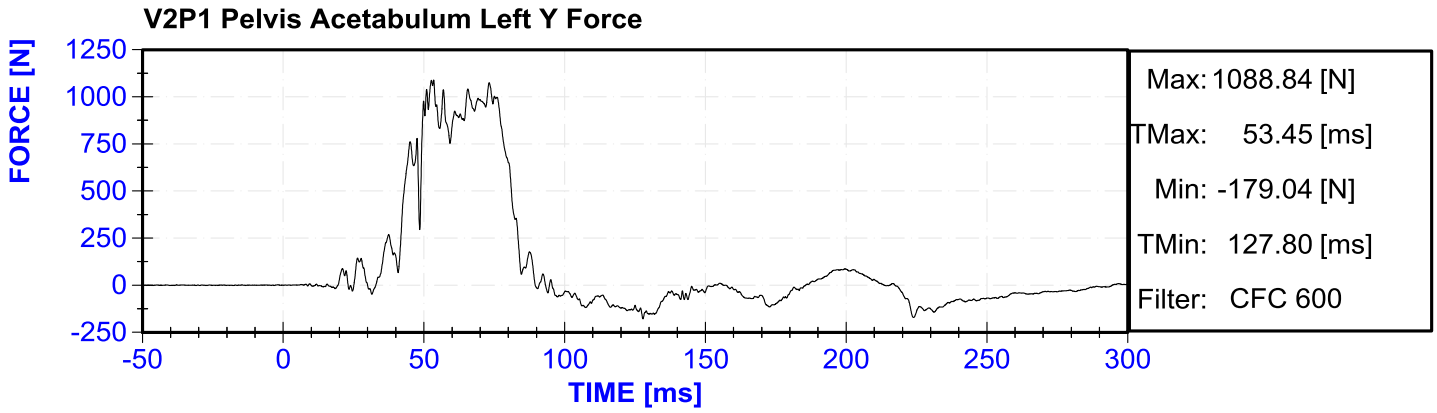

V2P1 Abdomen Left DGIR Z Rotation
ROTATION [deg]
2
1
0
-1
-2
-3
-4
-5
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 1.06 [deg]
TMax: 14.65 [ms]
Min: -4.84 [deg]
TMin: 52.60 [ms]
Filter: CFC 180


V2P1 Abdomen Right DGIR X Displacement
VOLTAGE [V]
0.2
0.175
0.15
0.125
0.1
0.075
0.05
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 0.19 [V]
TMax: 87.80 [ms]
Min: 0.07 [V]
TMin: 13.65 [ms]
Filter: CFC 600

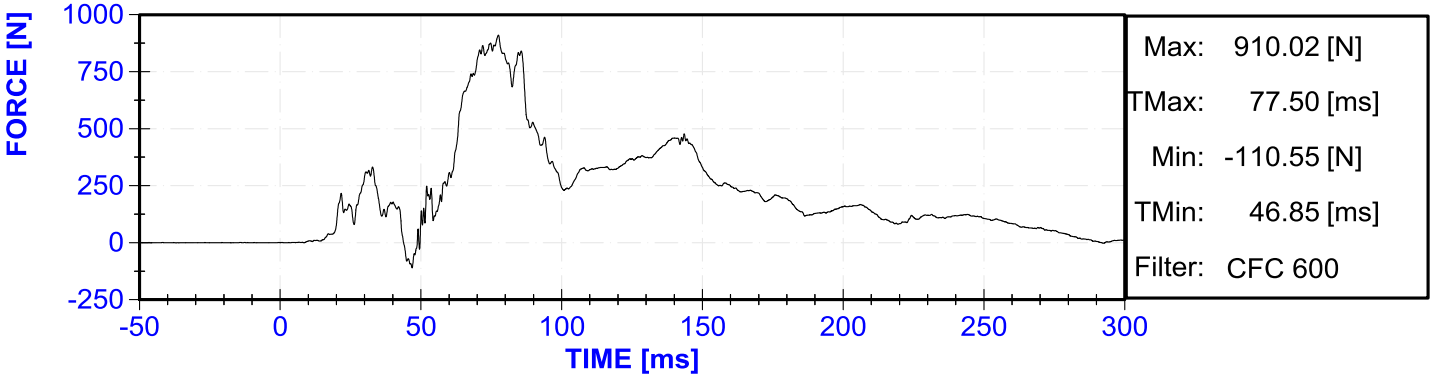

V2P1 Abdomen Right DGIR Y Rotation
ROTATION [deg]
TIME [ms]
Max: 6.94 [deg]
TMax: 25.85 [ms]
Min: -0.31 [deg]
TMin: 93.55 [ms]
Filter: CFC 180


V2P1 Abdomen Right DGIR Z Rotation
ROTATION [deg]
TIME [ms]
Max: 0.41 [deg]
TMax: 26.65 [ms]
Min: -4.75 [deg]
TMin: 63.05 [ms]
Filter: CFC 180

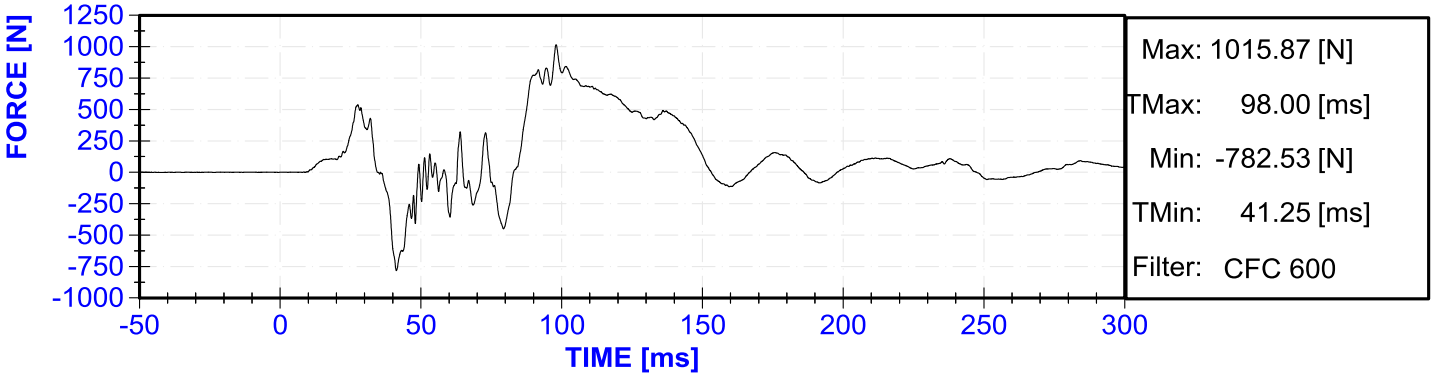

V2P1 Pelvis Acetabulum Left X Force
FORCE [N]
TIME [ms]
Max: 1625.40 [N]
TMax: 54.90 [ms]
Min: -583.09 [N]
TMin: 82.75 [ms]
Filter: CFC 600


V2P1 Pelvis Acetabulum Left Y Force
FORCE [N]
TIME [ms]
Max: 1088.84 [N]
TMax: 53.45 [ms]
Min: -179.04 [N]
TMin: 127.80 [ms]
Filter: CFC 600

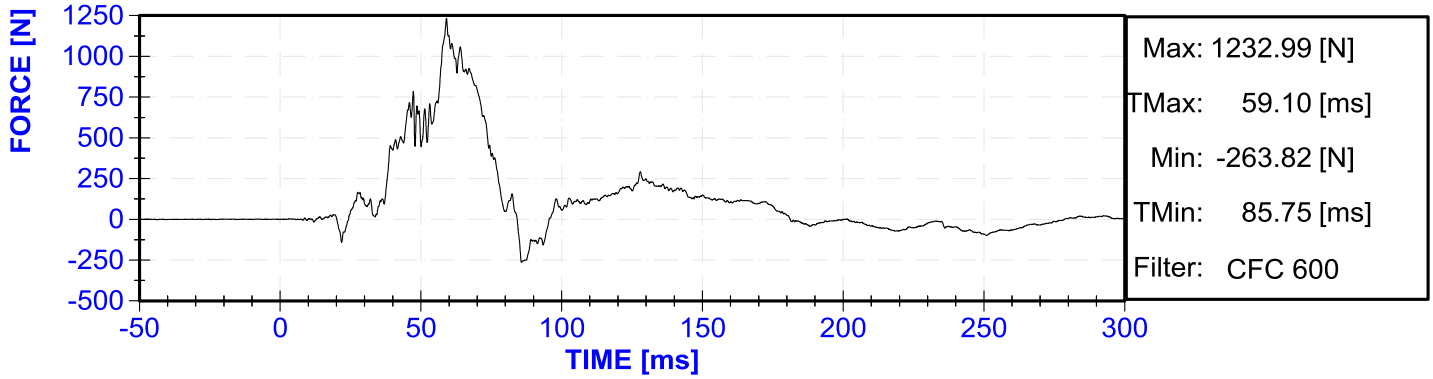
V2P1 Pelvis Acetabulum Left Z Force



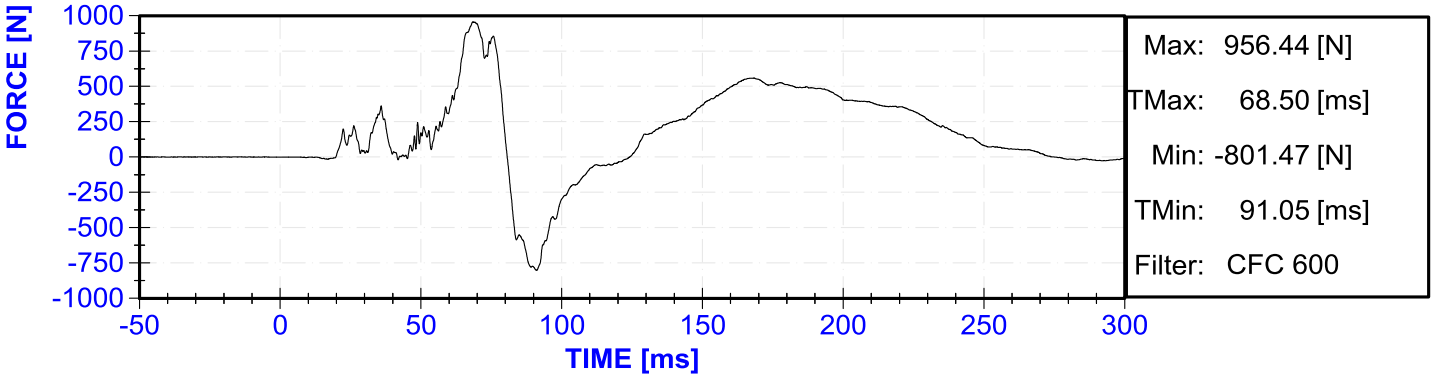
V2P1 Pelvis Acetabulum Right X Force

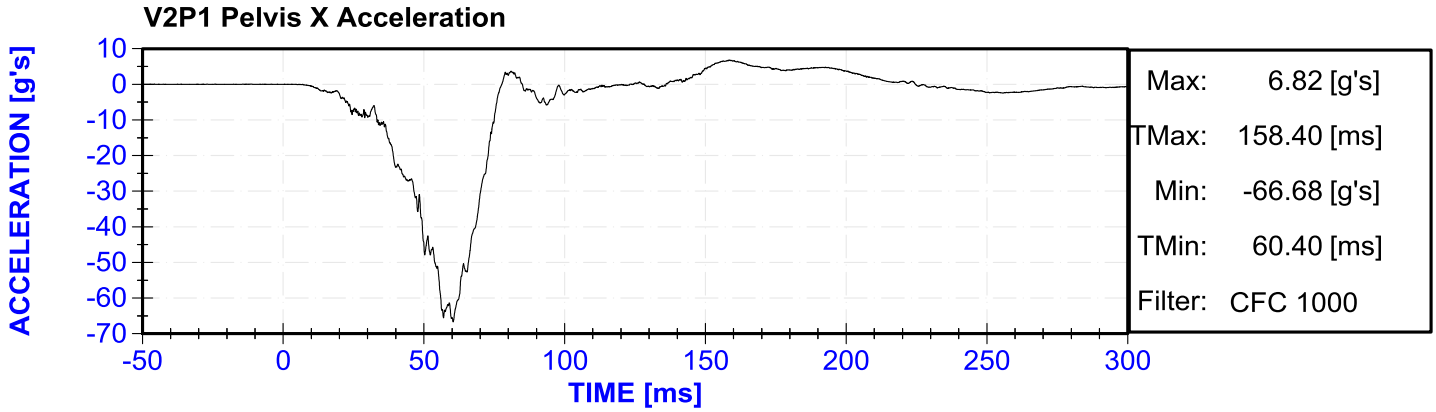


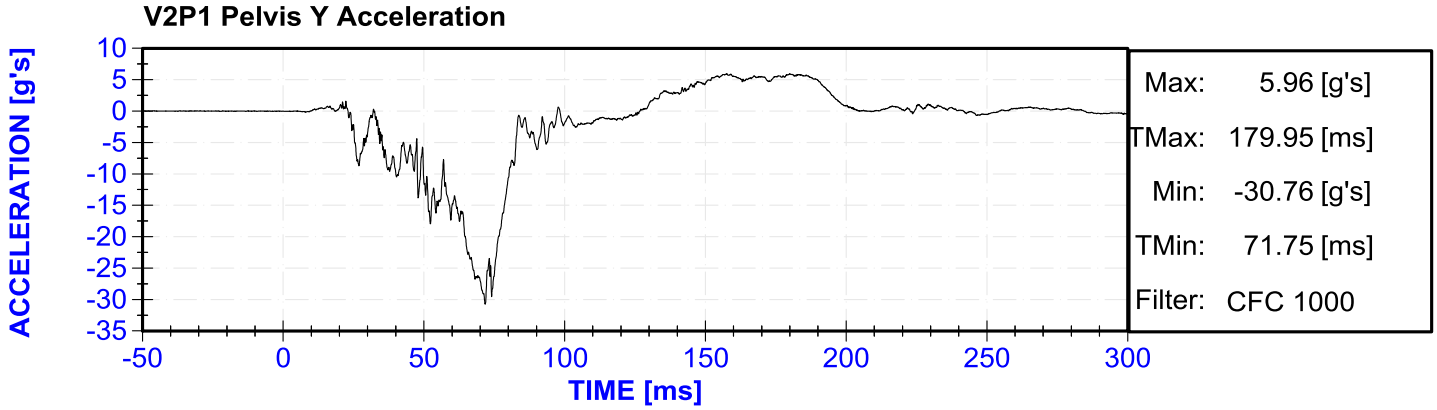
V2P1 Pelvis Acetabulum Right Y Force

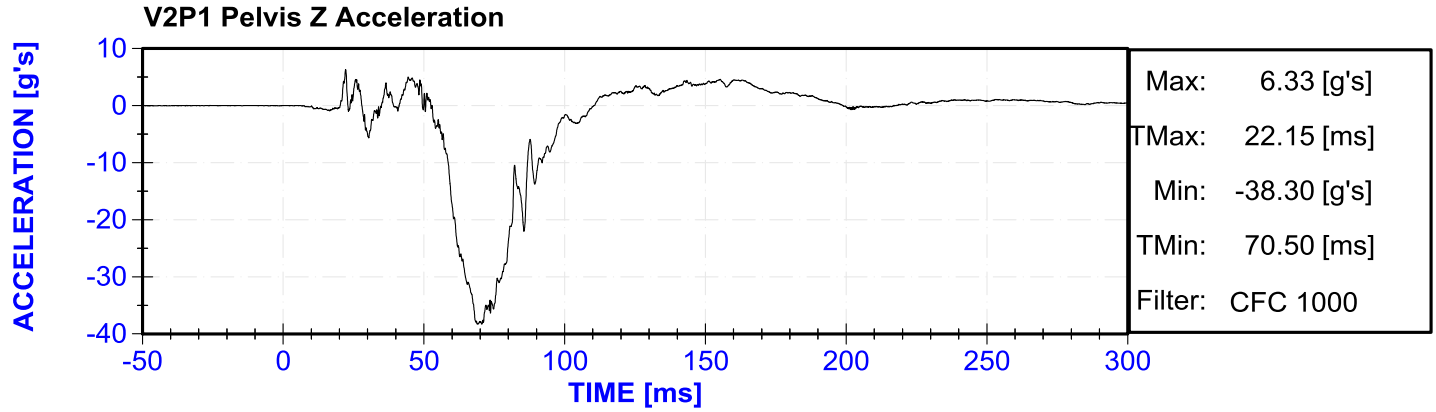


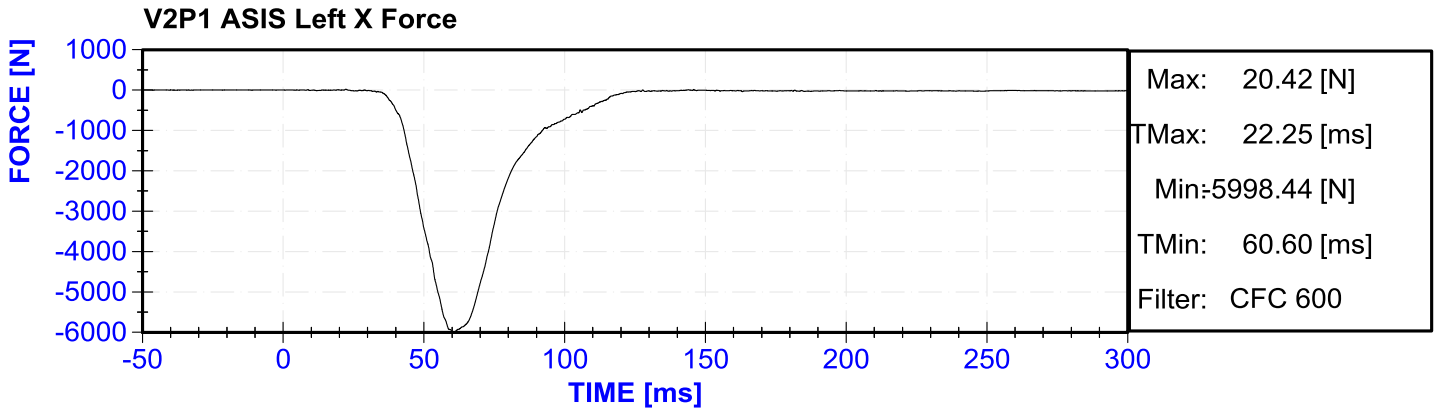
V2P1 Pelvis Acetabulum Right Z Force

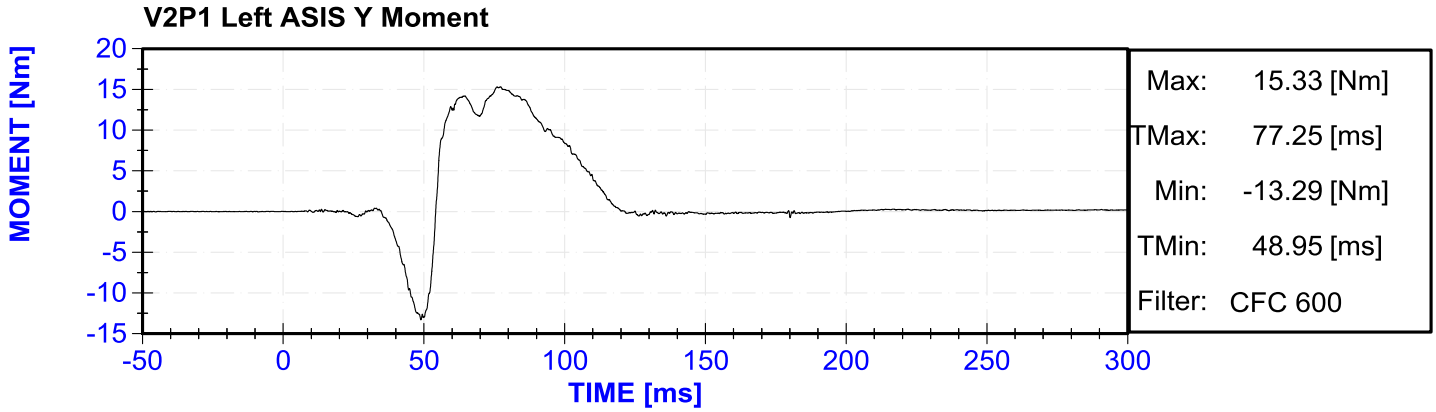


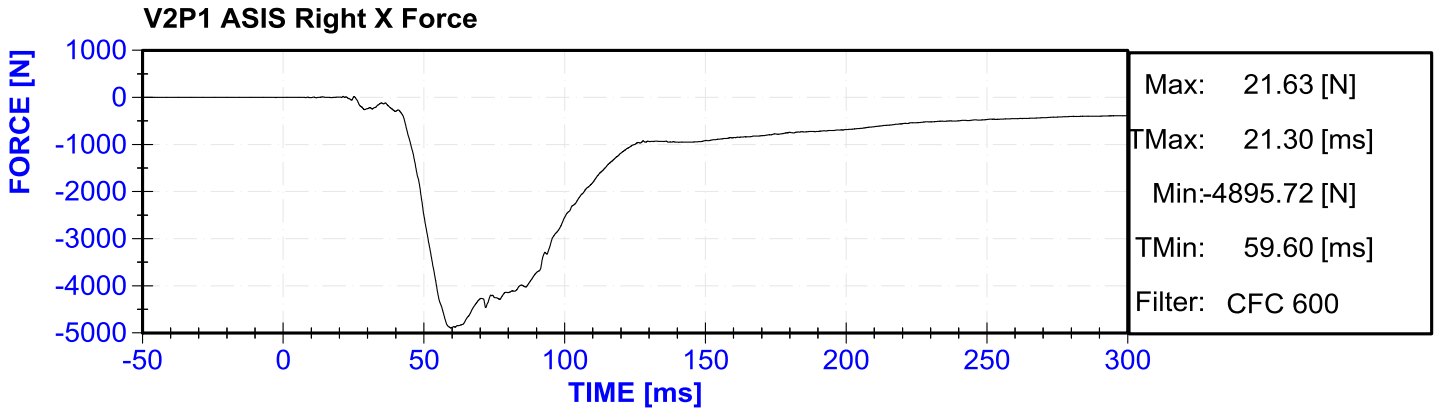

V2P1 Pelvis X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 6.82 [g's]
TMax: 158.40 [ms]
Min: -66.68 [g's]
TMin: 60.40 [ms]
Filter: CFC 1000

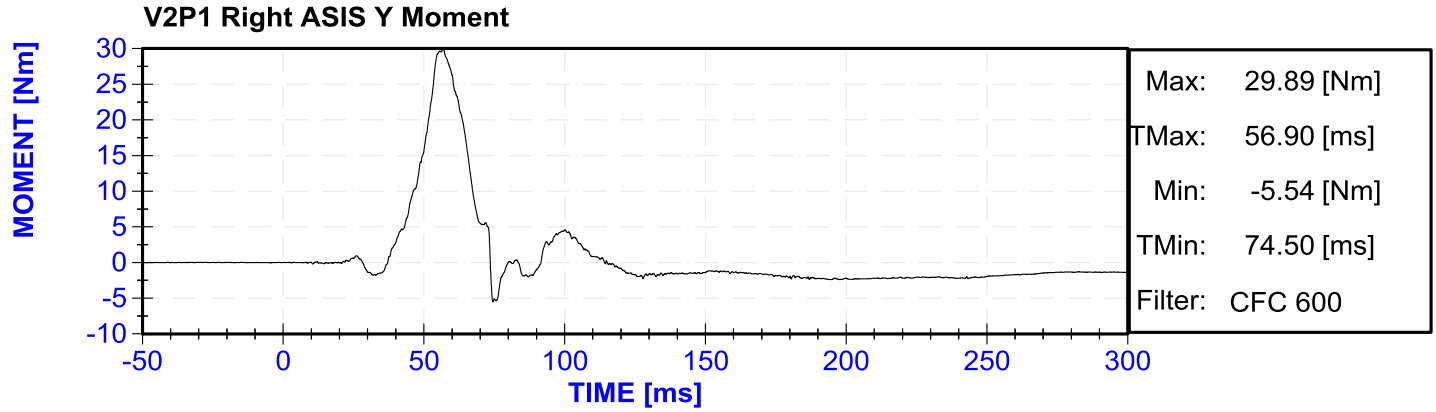

V2P1 Pelvis Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 5.96 [g's]
TMax: 179.95 [ms]
Min: -30.76 [g's]
TMin: 71.75 [ms]
Filter: CFC 1000

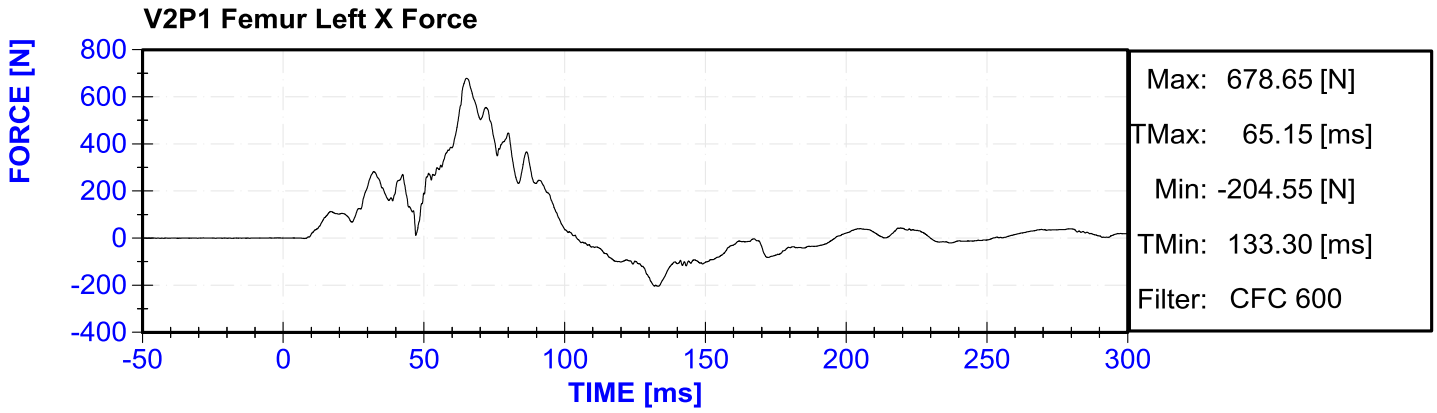

V2P1 Pelvis Z Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 6.33 [g's]
TMax: 22.15 [ms]
Min: -38.30 [g's]
TMin: 70.50 [ms]
Filter: CFC 1000

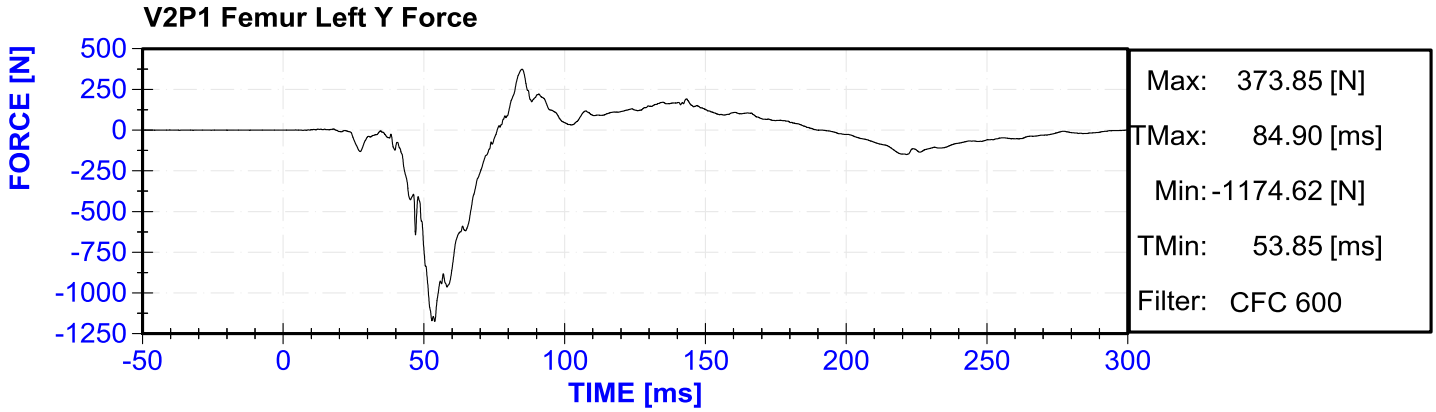

V2P1 ASIS Left X Force
FORCE [N]
TIME [ms]
Max: 20.42 [N]
TMax: 22.25 [ms]
Min: -5998.44 [N]
TMin: 60.60 [ms]
Filter: CFC 600

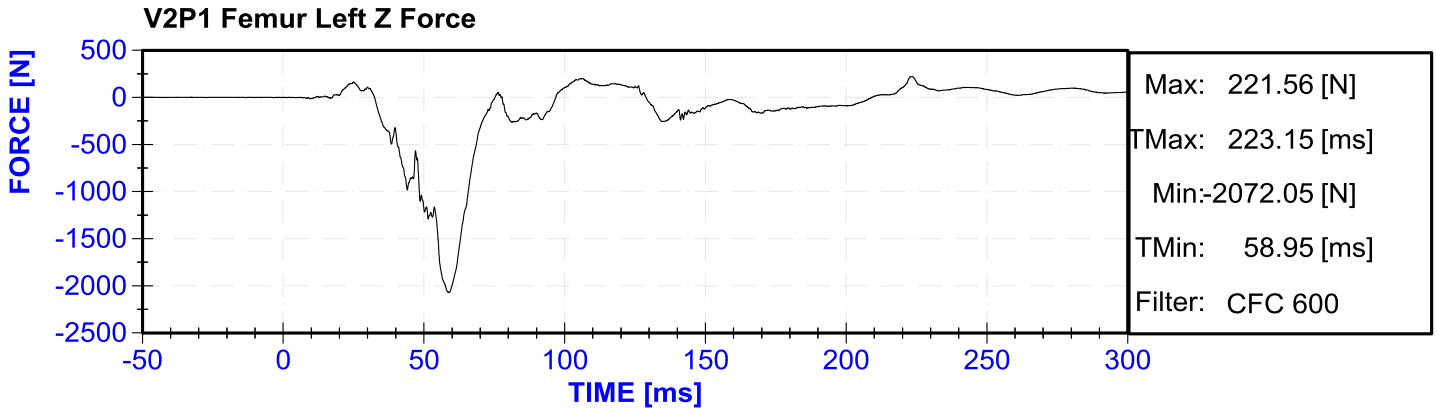

V2P1 Left ASIS Y Moment
MOMENT [Nm]
TIME [ms]
Max: 15.33 [Nm]
TMax: 77.25 [ms]
Min: -13.29 [Nm]
TMin: 48.95 [ms]
Filter: CFC 600

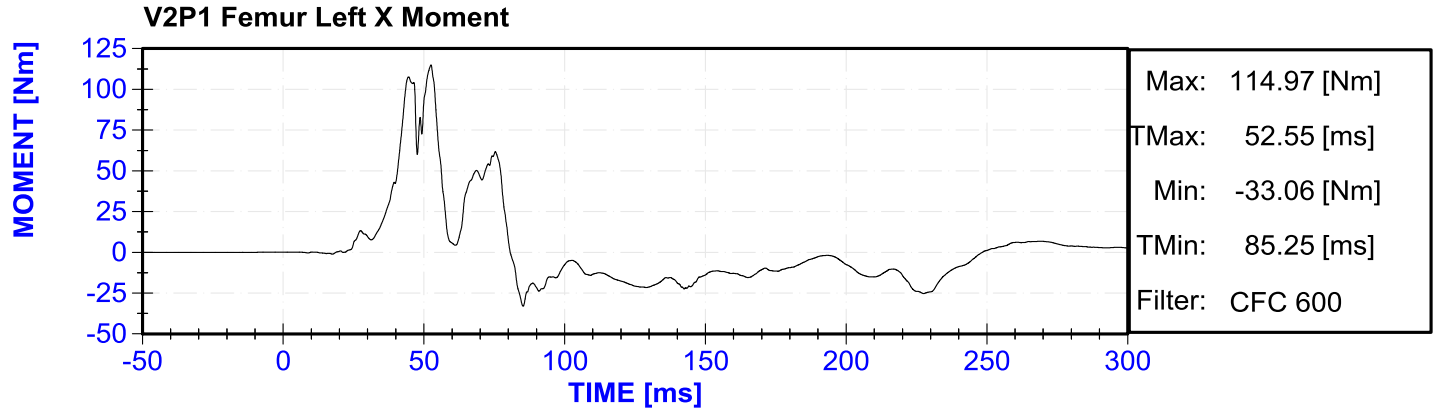

V2P1 ASIS Right X Force
FORCE [N]
TIME [ms]
Max: 21.63 [N]
TMax: 21.30 [ms]
Min:-4895.72 [N]
TMin: 59.60 [ms]
Filter: CFC 600

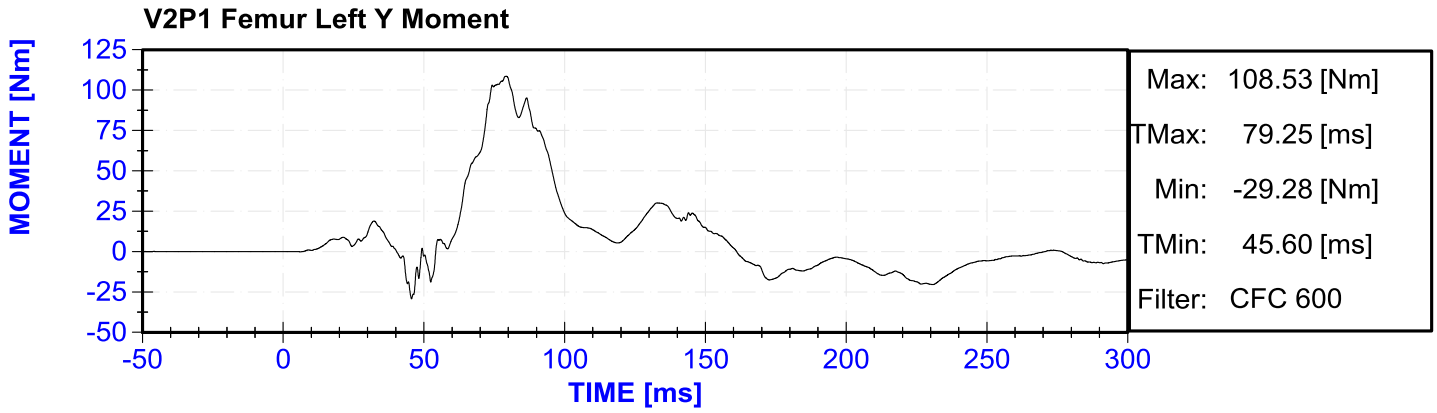

V2P1 Right ASIS Y Moment
MOMENT [Nm]
TIME [ms]
Max: 29.89 [Nm]
TMax: 56.90 [ms]
Min: -5.54 [Nm]
TMin: 74.50 [ms]
Filter: CFC 600

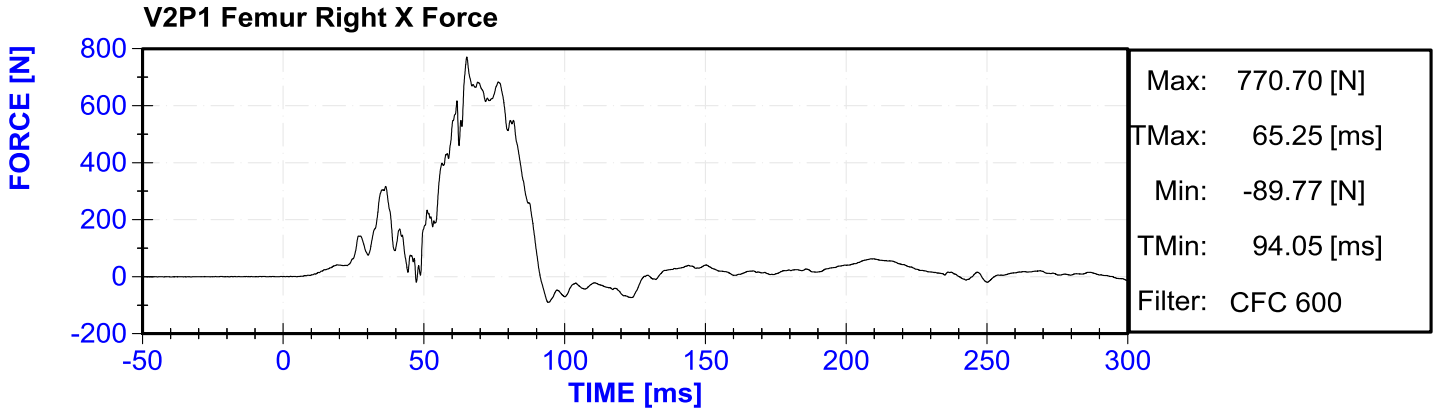

V2P1 Femur Left X Force
FORCE [N]
TIME [ms]
Max: 678.65 [N]
TMax: 65.15 [ms]
Min: -204.55 [N]
TMin: 133.30 [ms]
Filter: CFC 600

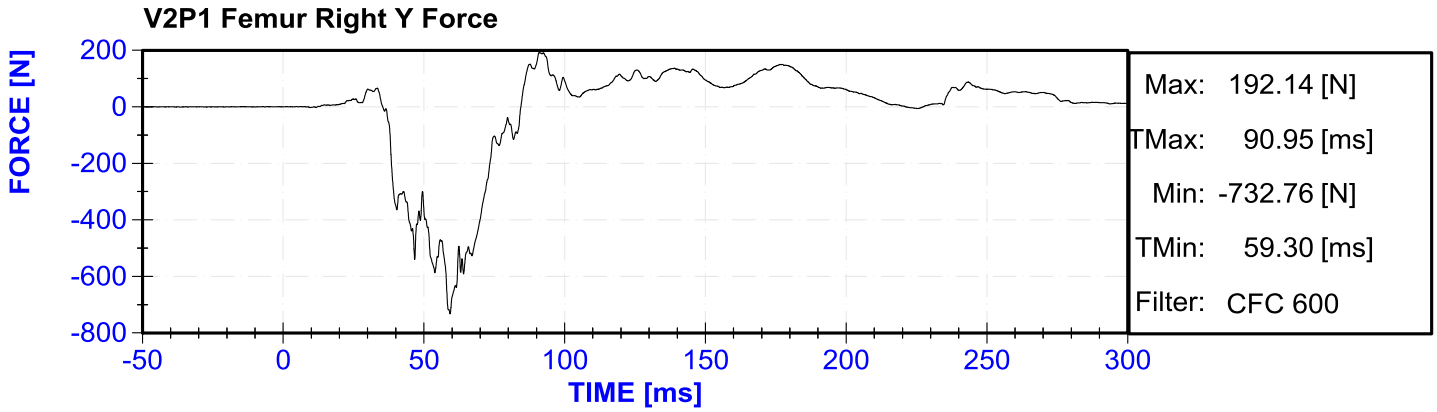

V2P1 Femur Left Y Force
FORCE [N]
TIME [ms]
Max: 373.85 [N]
TMax: 84.90 [ms]
Min: -1174.62 [N]
TMin: 53.85 [ms]
Filter: CFC 600

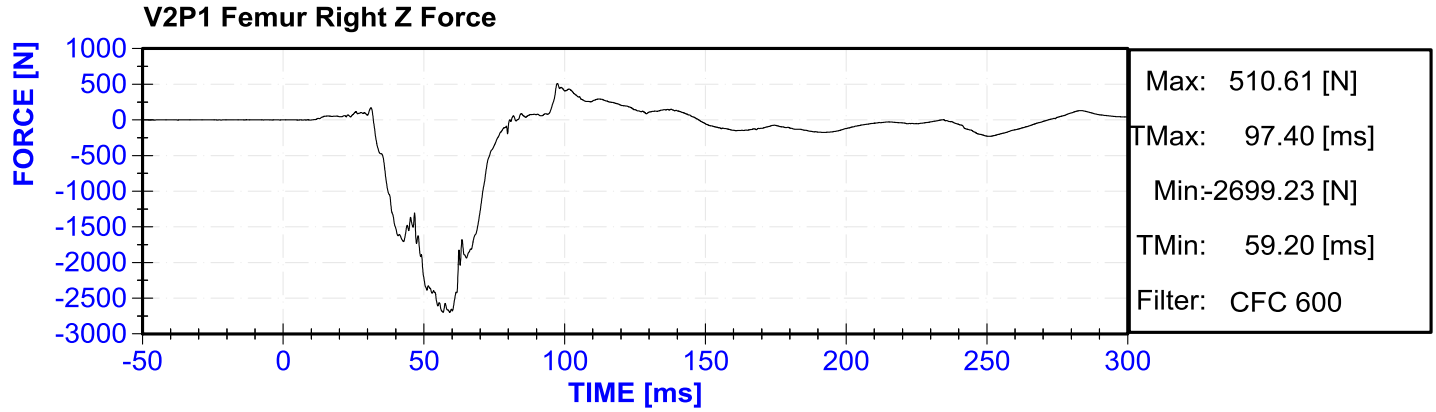

V2P1 Femur Left Z Force
FORCE [N]
TIME [ms]
Max: 221.56 [N]
TMax: 223.15 [ms]
Min: -2072.05 [N]
TMin: 58.95 [ms]
Filter: CFC 600

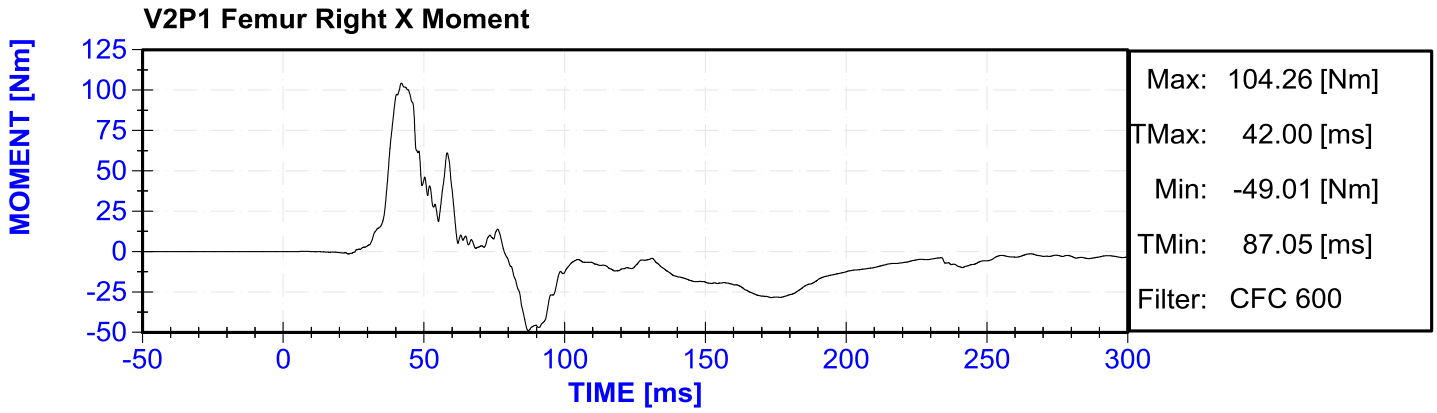

V2P1 Femur Left X Moment
MOMENT [Nm]
TIME [ms]
Max: 114.97 [Nm]
TMax: 52.55 [ms]
Min: -33.06 [Nm]
TMin: 85.25 [ms]
Filter: CFC 600

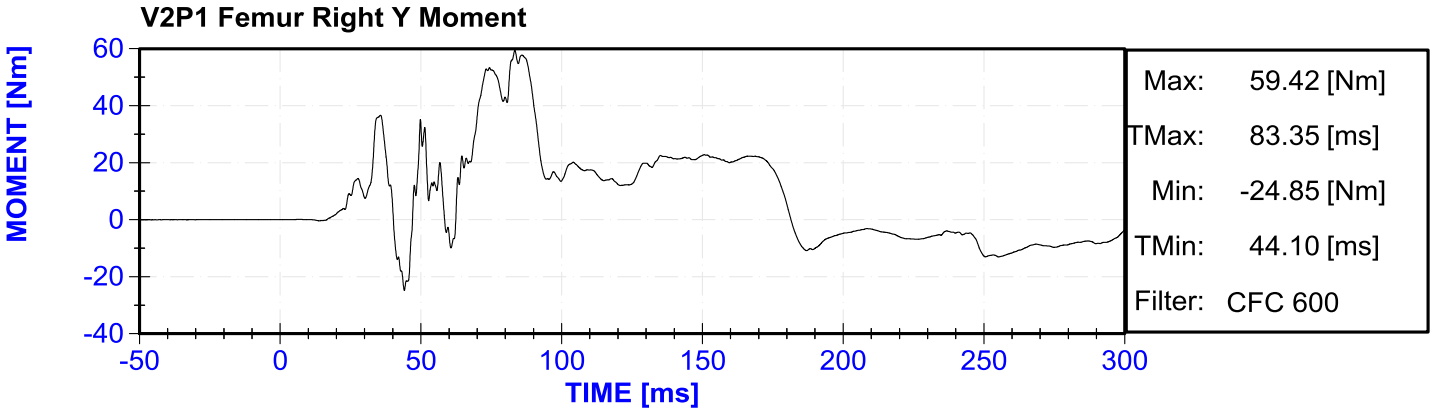

V2P1 Femur Left Y Moment
MOMENT [Nm]
TIME [ms]
Max: 108.53 [Nm]
TMax: 79.25 [ms]
Min: -29.28 [Nm]
TMin: 45.60 [ms]
Filter: CFC 600

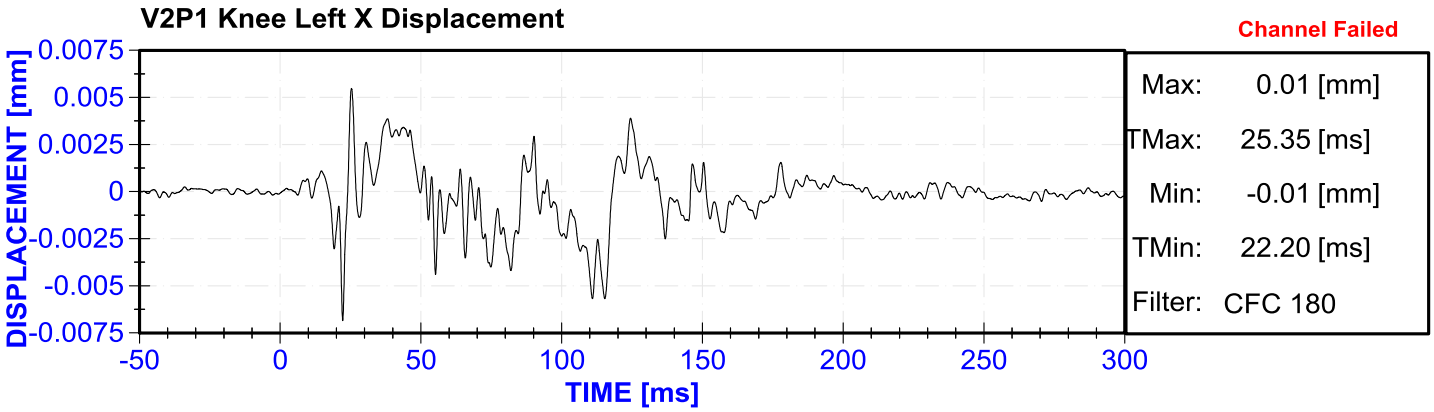

V2P1 Femur Right X Force
FORCE [N]
TIME [ms]
Max: 770.70 [N]
TMax: 65.25 [ms]
Min: -89.77 [N]
TMin: 94.05 [ms]
Filter: CFC 600

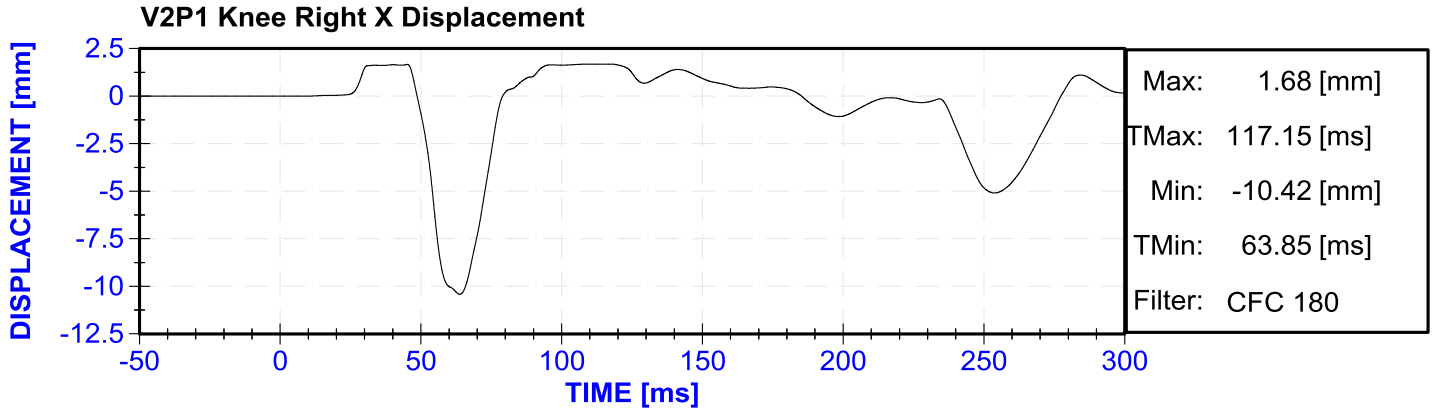

V2P1 Femur Right Y Force
FORCE [N]
TIME [ms]
Max: 192.14 [N]
TMax: 90.95 [ms]
Min: -732.76 [N]
TMin: 59.30 [ms]
Filter: CFC 600

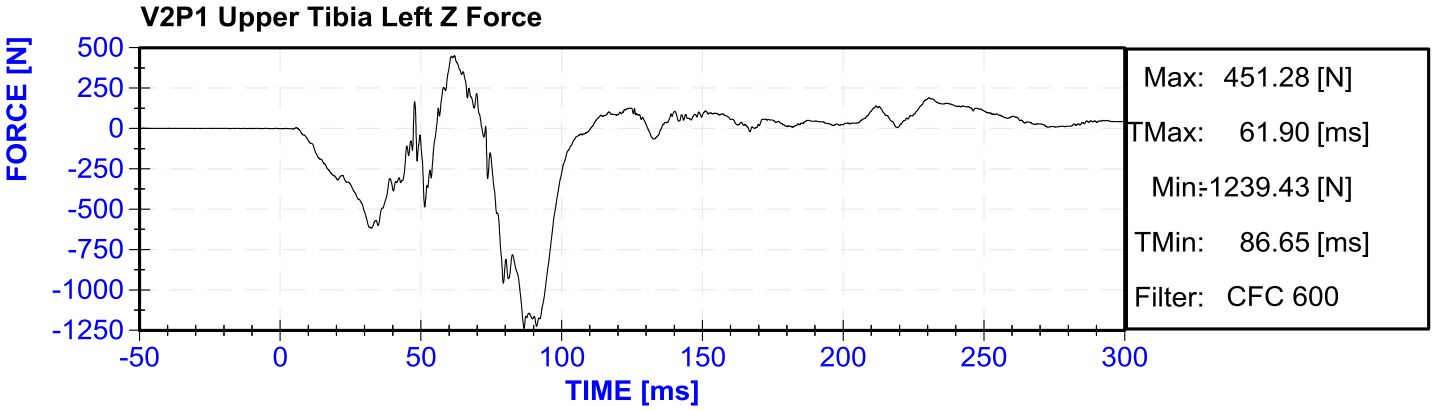

V2P1 Femur Right Z Force
FORCE [N]
TIME [ms]
Max: 510.61 [N]
TMax: 97.40 [ms]
Min:-2699.23 [N]
TMin: 59.20 [ms]
Filter: CFC 600

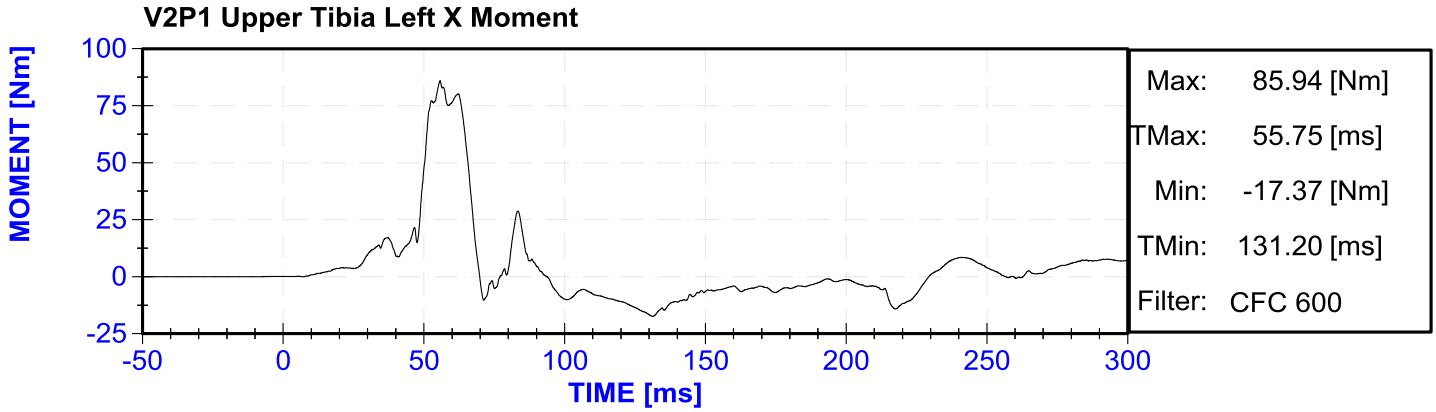

V2P1 Femur Right X Moment
MOMENT [Nm]
TIME [ms]
Max: 104.26 [Nm]
TMax: 42.00 [ms]
Min: -49.01 [Nm]
TMin: 87.05 [ms]
Filter: CFC 600

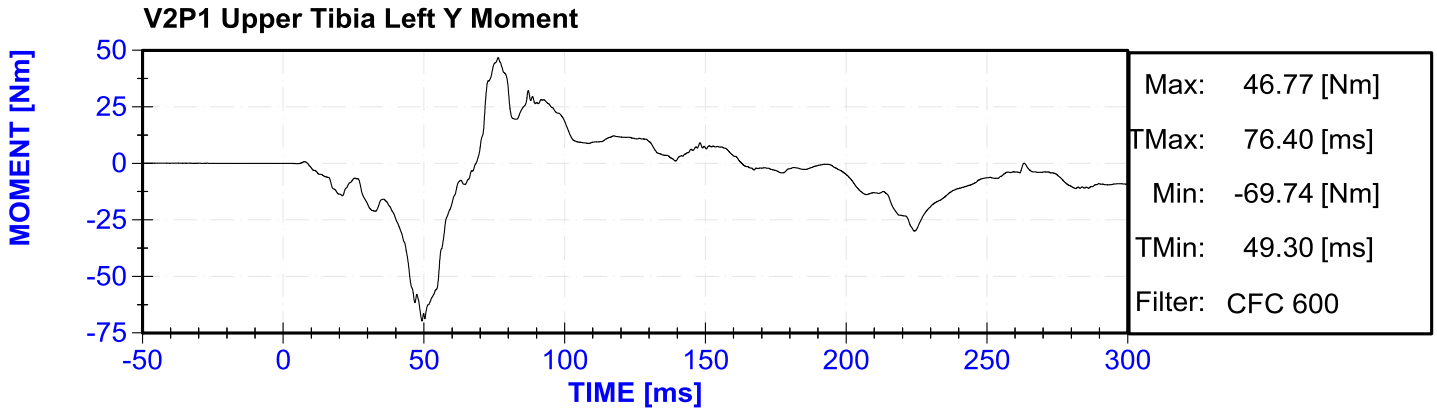

V2P1 Femur Right Y Moment
MOMENT [Nm]
60
40
20
0
-20
-40
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 59.42 [Nm]
TMax: 83.35 [ms]
Min: -24.85 [Nm]
TMin: 44.10 [ms]
Filter: CFC 600

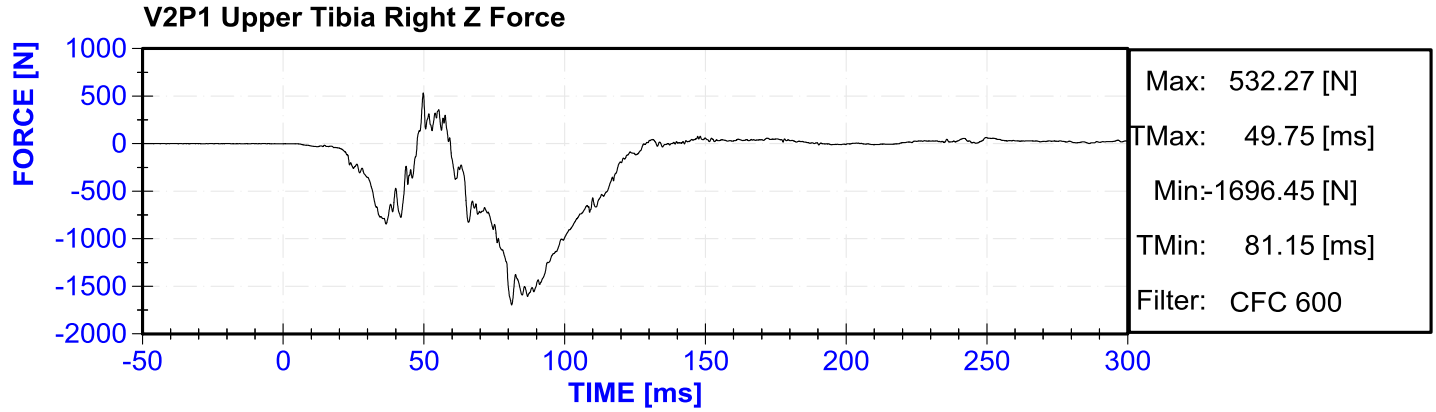

V2P1 Knee Left X Displacement
Channel Failed
DISPLACEMENT [mm]
0.0075
0.005
0.0025
0
-0.0025
-0.005
-0.0075
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 0.01 [mm]
TMax: 25.35 [ms]
Min: -0.01 [mm]
TMin: 22.20 [ms]
Filter: CFC 180

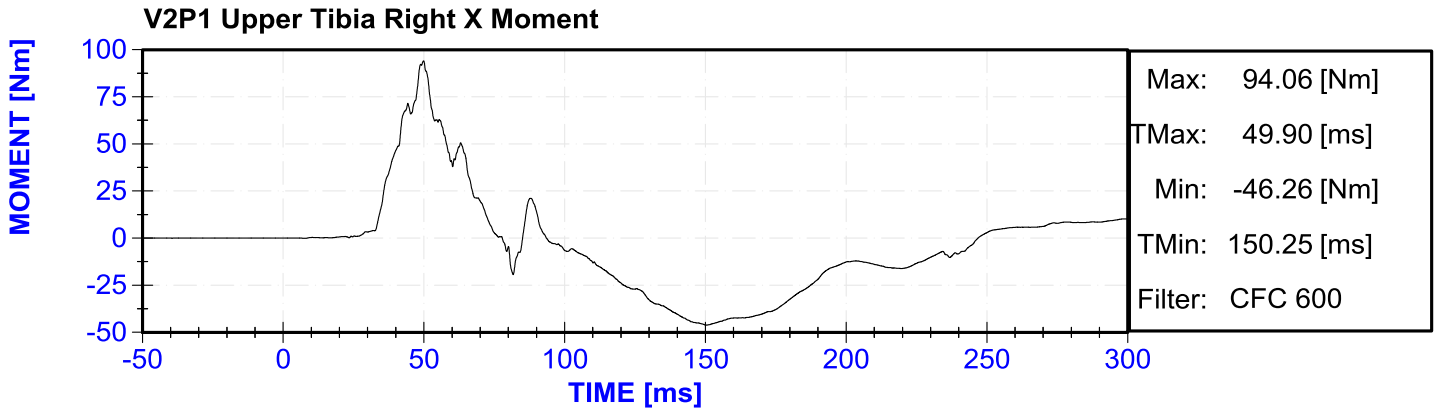

V2P1 Knee Right X Displacement
DISPLACEMENT [mm]
2.5
0
-2.5
-5
-7.5
-10
-12.5
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 1.68 [mm]
TMax: 117.15 [ms]
Min: -10.42 [mm]
TMin: 63.85 [ms]
Filter: CFC 180

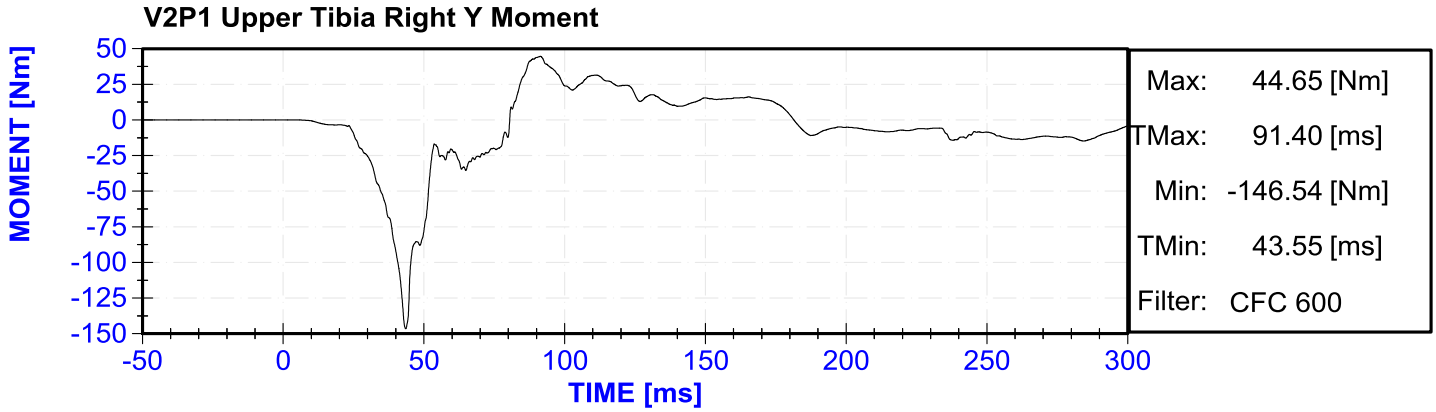

V2P1 Upper Tibia Left Z Force
FORCE [N]
500
250
0
-250
-500
-750
-1000
-1250
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 451.28 [N]
TMax: 61.90 [ms]
Min: -1239.43 [N]
TMin: 86.65 [ms]
Filter: CFC 600

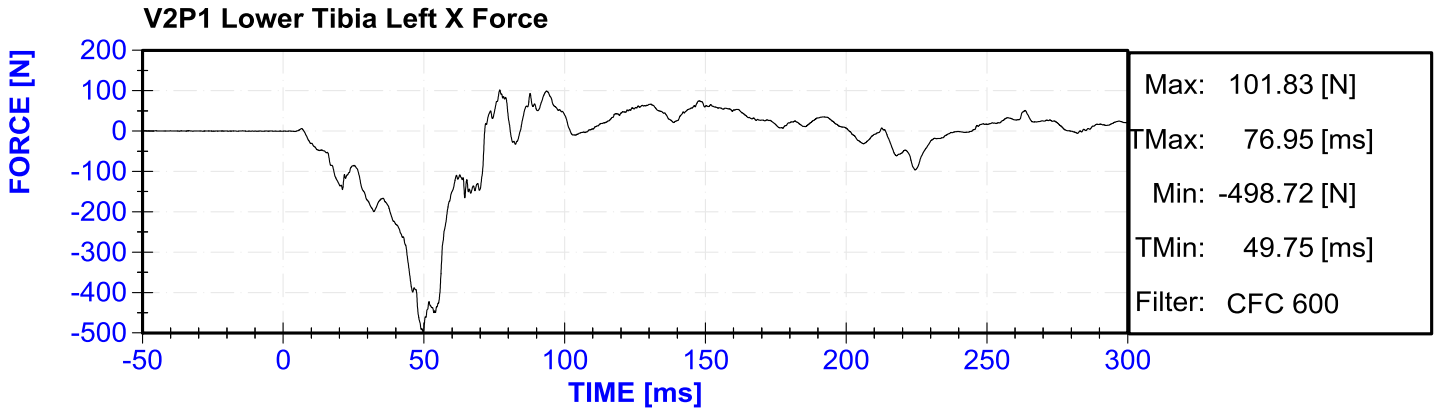

V2P1 Upper Tibia Left X Moment
MOMENT [Nm]
TIME [ms]
Max: 85.94 [Nm]
TMax: 55.75 [ms]
Min: -17.37 [Nm]
TMin: 131.20 [ms]
Filter: CFC 600

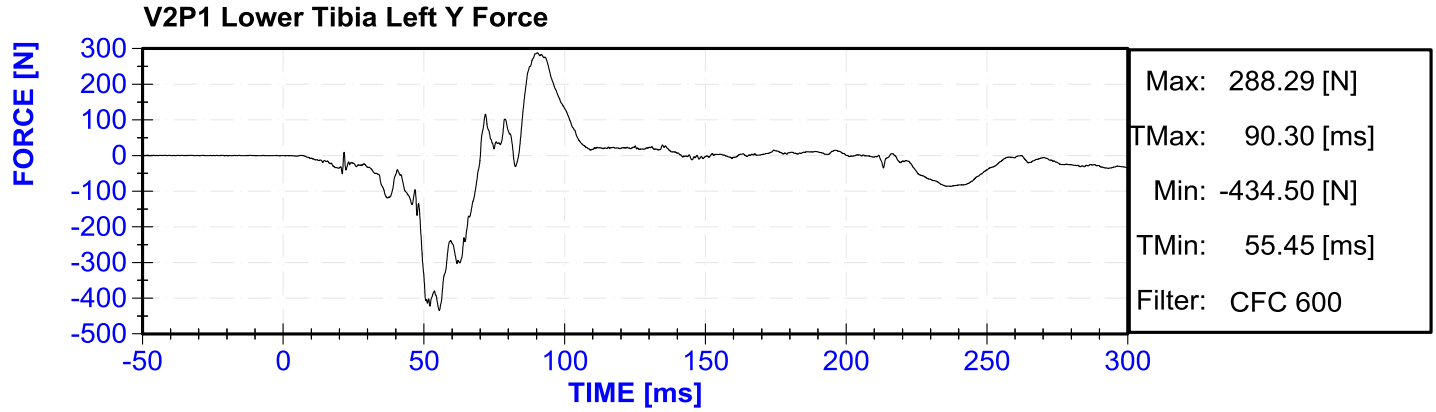

V2P1 Upper Tibia Left Y Moment
MOMENT [Nm]
TIME [ms]
Max: 46.77 [Nm]
TMax: 76.40 [ms]
Min: -69.74 [Nm]
TMin: 49.30 [ms]
Filter: CFC 600

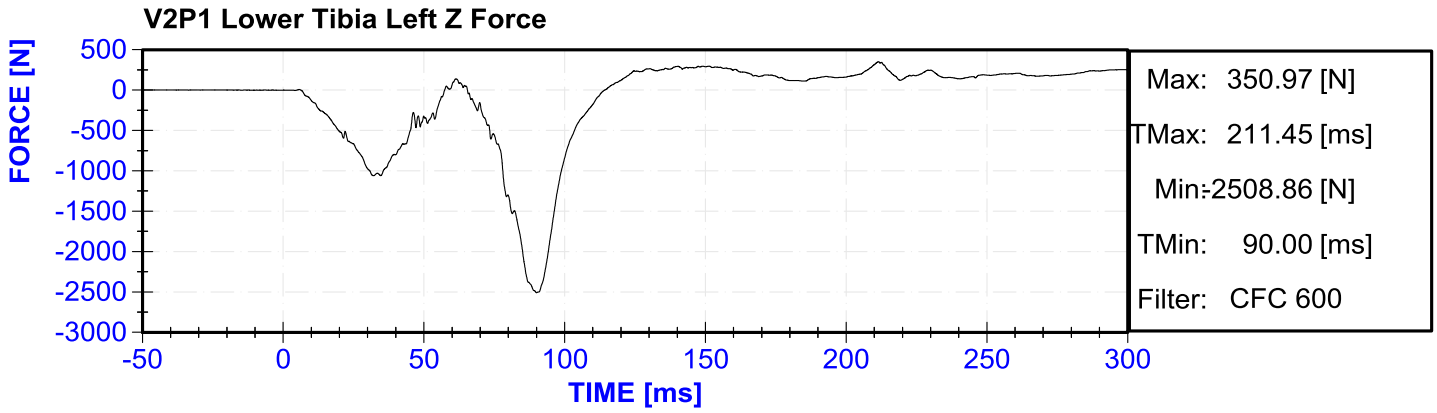

V2P1 Upper Tibia Right Z Force
FORCE [N]
TIME [ms]
Max: 532.27 [N]
TMax: 49.75 [ms]
Min:-1696.45 [N]
TMin: 81.15 [ms]
Filter: CFC 600

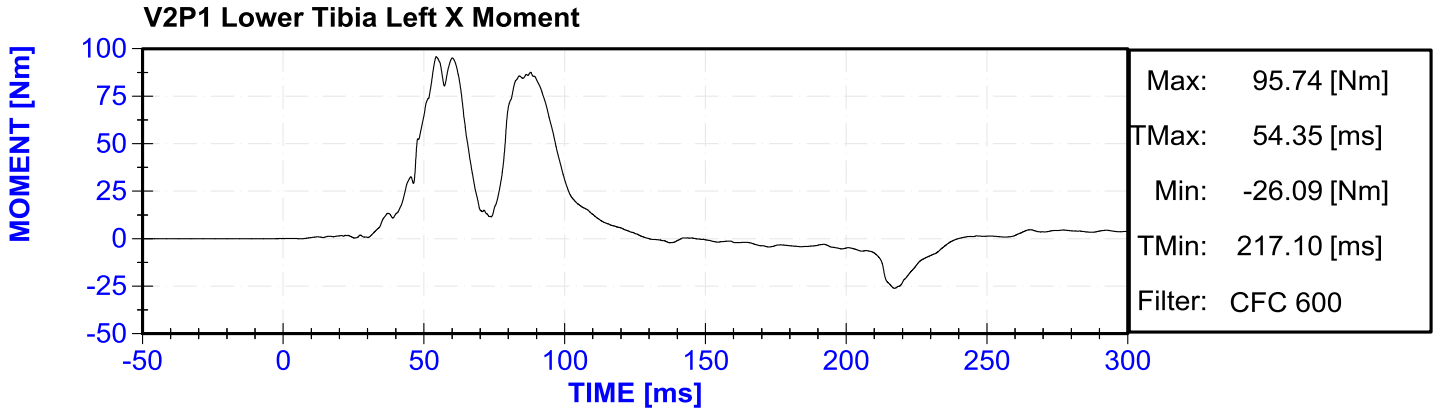

V2P1 Upper Tibia Right X Moment
MOMENT [Nm]
TIME [ms]
Max: 94.06 [Nm]
TMax: 49.90 [ms]
Min: -46.26 [Nm]
TMin: 150.25 [ms]
Filter: CFC 600

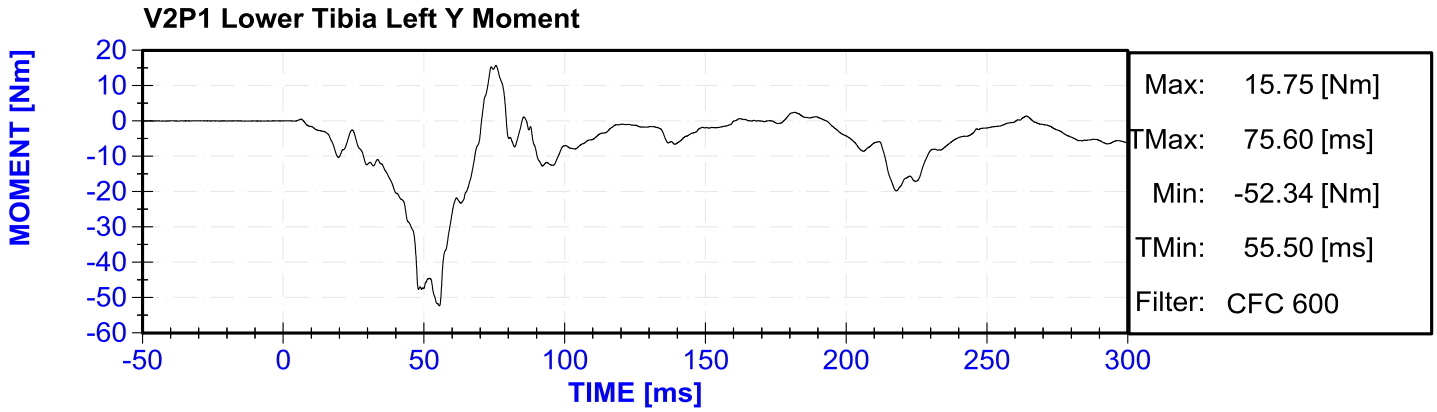

V2P1 Upper Tibia Right Y Moment
MOMENT [Nm]
TIME [ms]
Max: 44.65 [Nm]
TMax: 91.40 [ms]
Min: -146.54 [Nm]
TMin: 43.55 [ms]
Filter: CFC 600

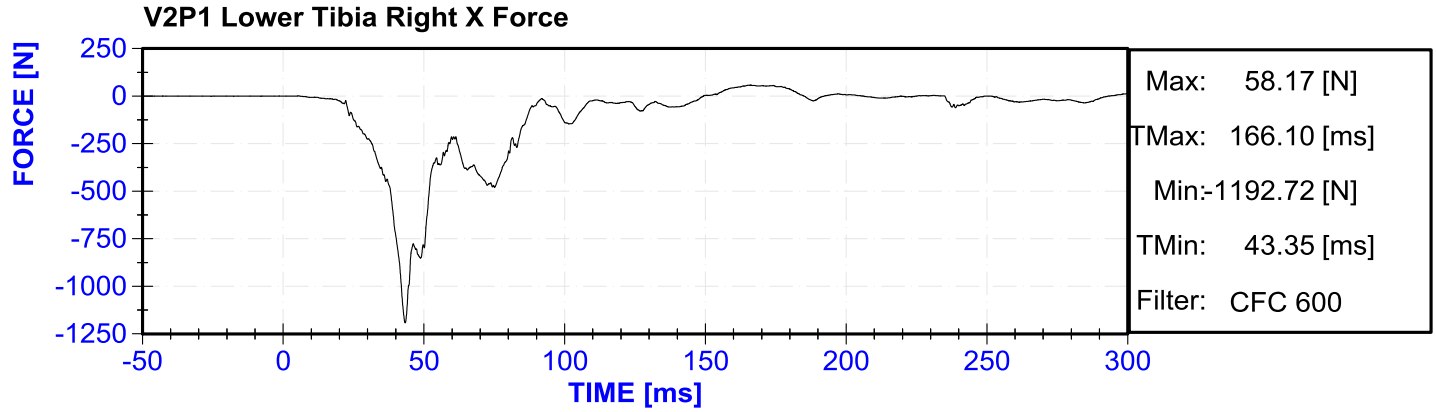

V2P1 Lower Tibia Left X Force
FORCE [N]
TIME [ms]
Max: 101.83 [N]
TMax: 76.95 [ms]
Min: -498.72 [N]
TMin: 49.75 [ms]
Filter: CFC 600

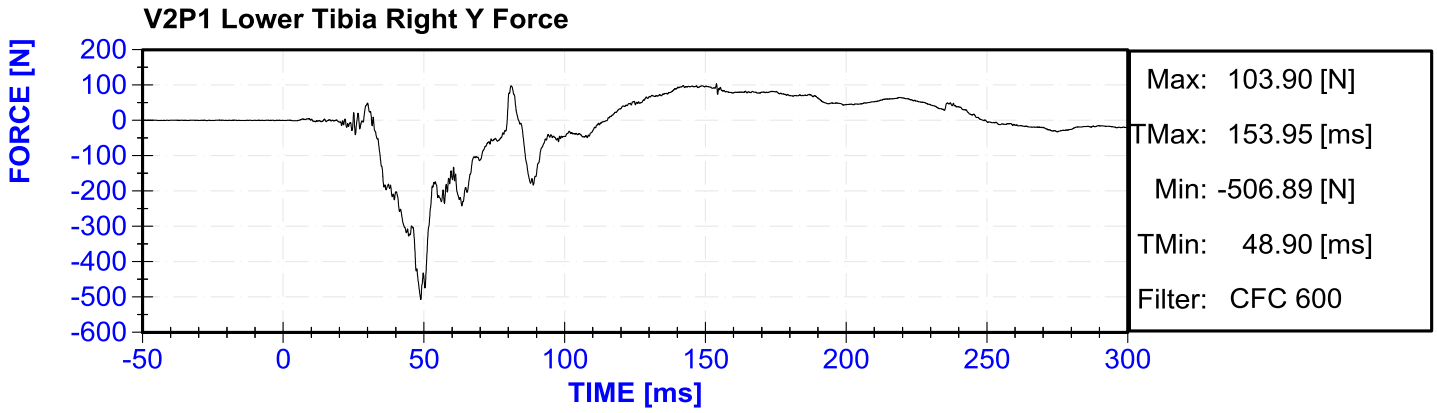

V2P1 Lower Tibia Left Y Force
FORCE [N]
TIME [ms]
Max: 288.29 [N]
TMax: 90.30 [ms]
Min: -434.50 [N]
TMin: 55.45 [ms]
Filter: CFC 600

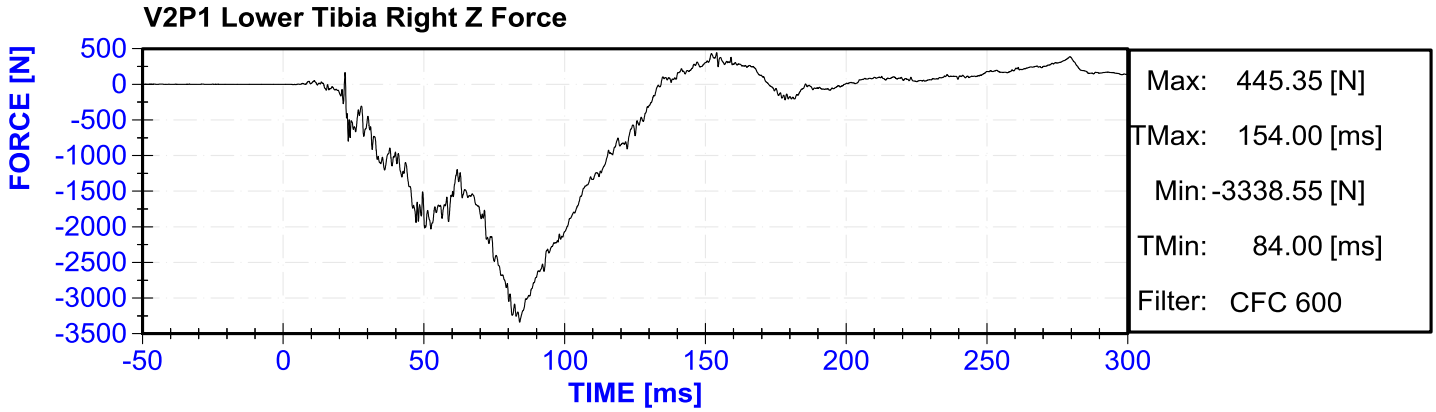

V2P1 Lower Tibia Left Z Force
FORCE [N]
TIME [ms]
Max: 350.97 [N]
TMax: 211.45 [ms]
Min: -2508.86 [N]
TMin: 90.00 [ms]
Filter: CFC 600

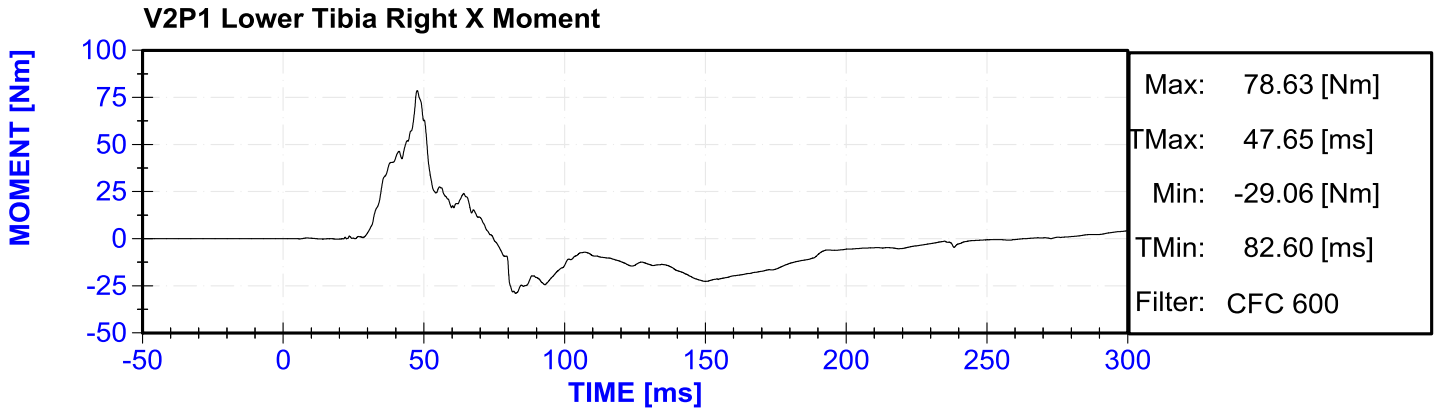

V2P1 Lower Tibia Left X Moment
MOMENT [Nm]
TIME [ms]
Max: 95.74 [Nm]
TMax: 54.35 [ms]
Min: -26.09 [Nm]
TMin: 217.10 [ms]
Filter: CFC 600

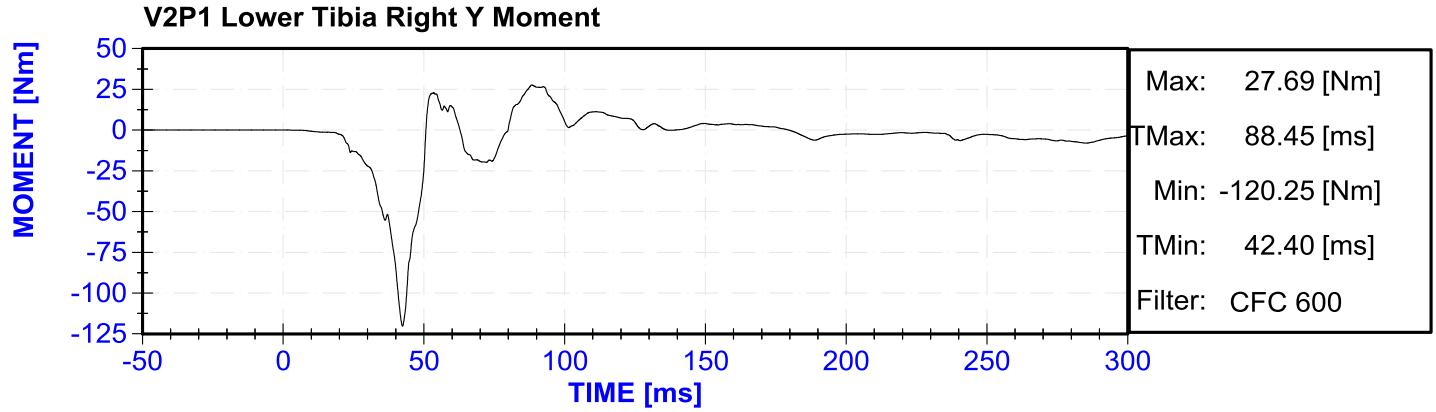

V2P1 Lower Tibia Left Y Moment
MOMENT [Nm]
TIME [ms]
Max: 15.75 [Nm]
TMax: 75.60 [ms]
Min: -52.34 [Nm]
TMin: 55.50 [ms]
Filter: CFC 600

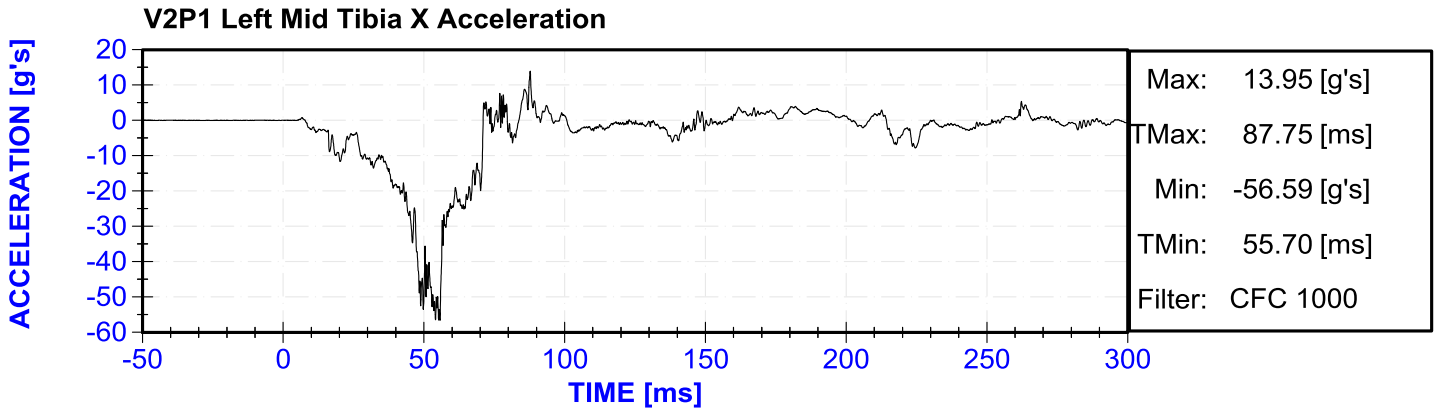

V2P1 Lower Tibia Right X Force
FORCE [N]
TIME [ms]
Max: 58.17 [N]
TMax: 166.10 [ms]
Min:-1192.72 [N]
TMin: 43.35 [ms]
Filter: CFC 600

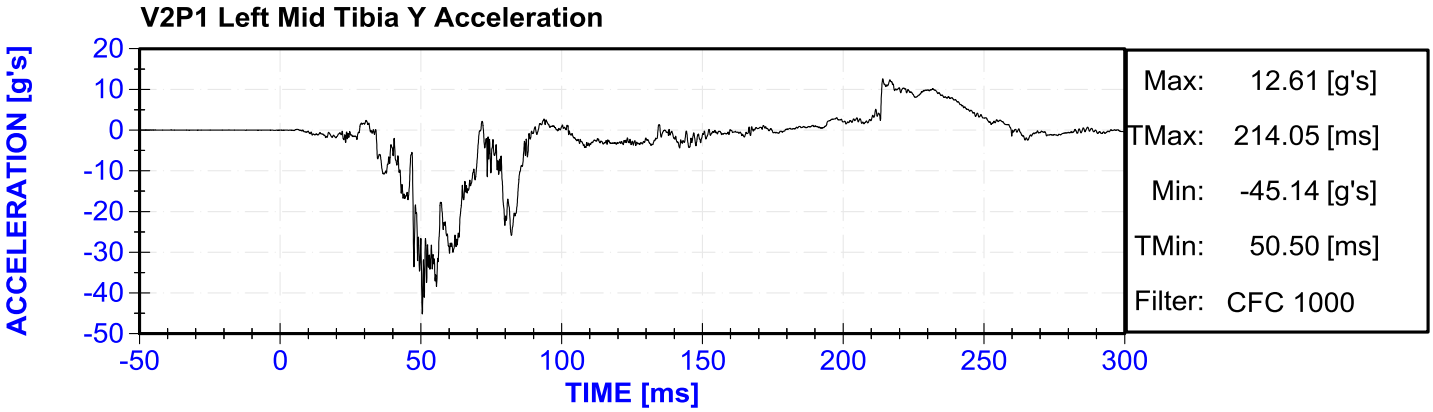

V2P1 Lower Tibia Right Y Force
FORCE [N]
TIME [ms]
Max: 103.90 [N]
TMax: 153.95 [ms]
Min: -506.89 [N]
TMin: 48.90 [ms]
Filter: CFC 600

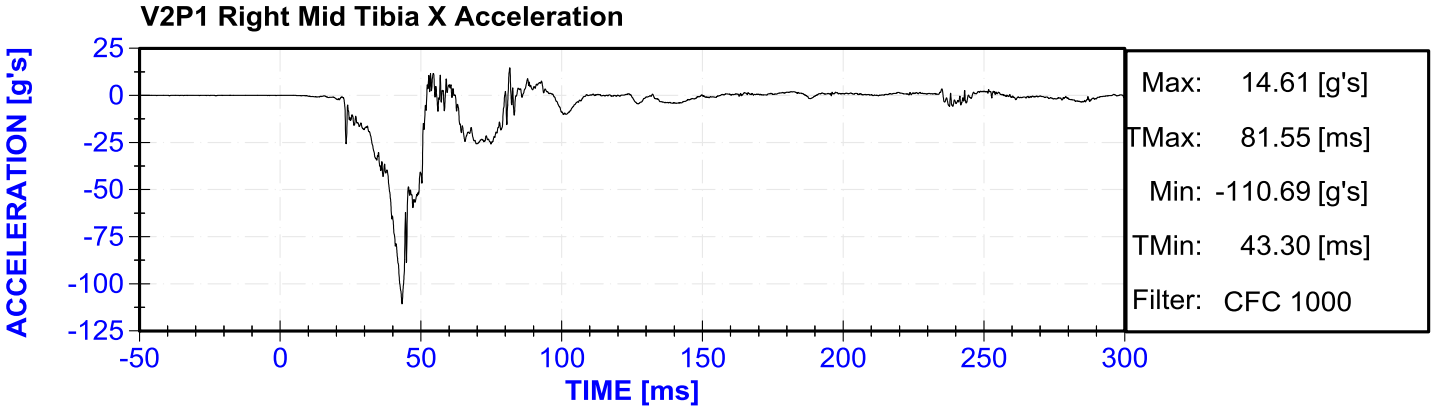

V2P1 Lower Tibia Right Z Force
FORCE [N]
TIME [ms]
Max: 445.35 [N]
TMax: 154.00 [ms]
Min: -3338.55 [N]
TMin: 84.00 [ms]
Filter: CFC 600

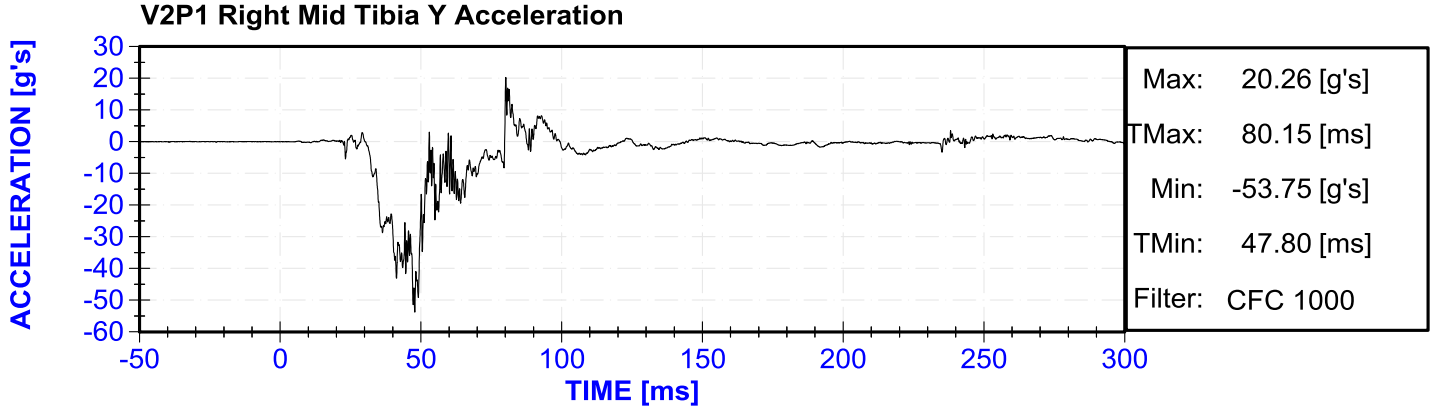

V2P1 Lower Tibia Right X Moment
MOMENT [Nm]
TIME [ms]
Max: 78.63 [Nm]
TMax: 47.65 [ms]
Min: -29.06 [Nm]
TMin: 82.60 [ms]
Filter: CFC 600

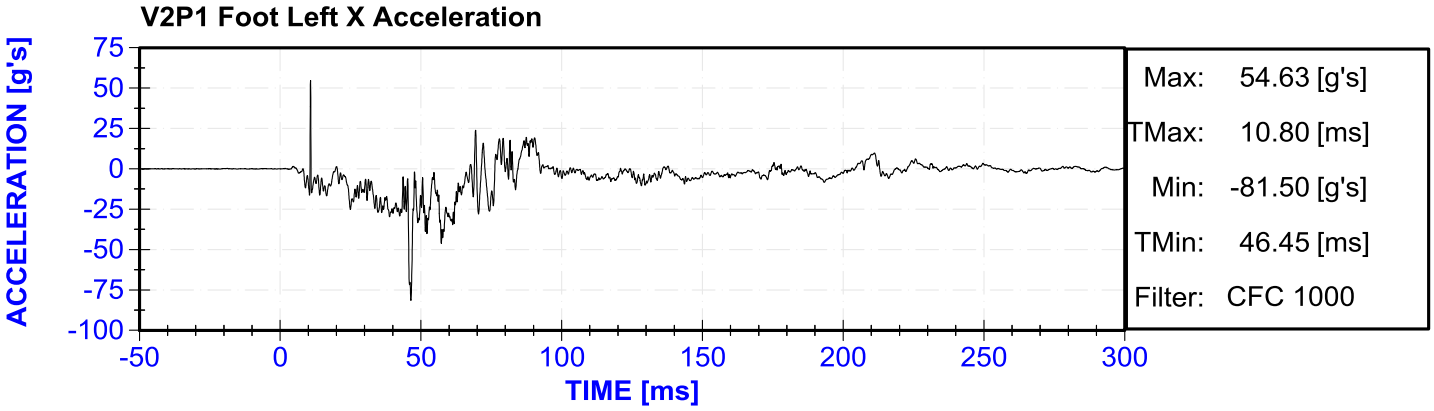

V2P1 Lower Tibia Right Y Moment
MOMENT [Nm]
TIME [ms]
Max: 27.69 [Nm]
TMax: 88.45 [ms]
Min: -120.25 [Nm]
TMin: 42.40 [ms]
Filter: CFC 600


V2P1 Left Mid Tibia X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 13.95 [g's]
TMax: 87.75 [ms]
Min: -56.59 [g's]
TMin: 55.70 [ms]
Filter: CFC 1000

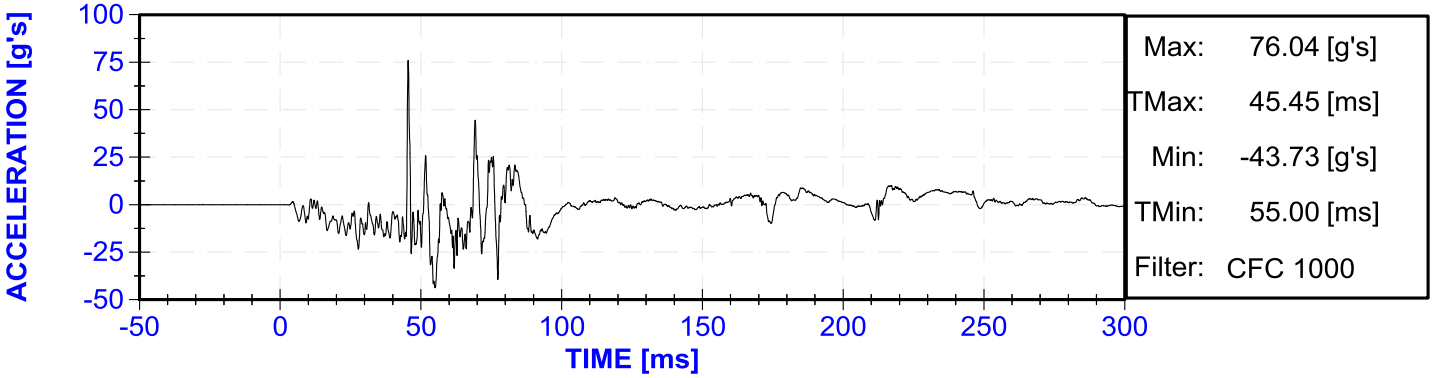

V2P1 Left Mid Tibia Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 12.61 [g's]
TMax: 214.05 [ms]
Min: -45.14 [g's]
TMin: 50.50 [ms]
Filter: CFC 1000


V2P1 Right Mid Tibia X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 14.61 [g's]
TMax: 81.55 [ms]
Min: -110.69 [g's]
TMin: 43.30 [ms]
Filter: CFC 1000

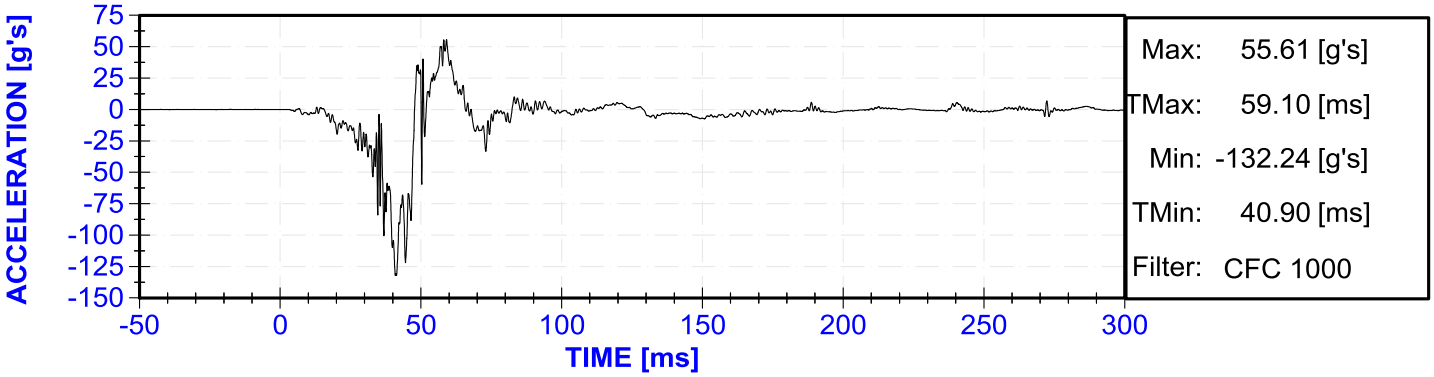

V2P1 Right Mid Tibia Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 20.26 [g's]
TMax: 80.15 [ms]
Min: -53.75 [g's]
TMin: 47.80 [ms]
Filter: CFC 1000


V2P1 Foot Left X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 54.63 [g's]
TMax: 10.80 [ms]
Min: -81.50 [g's]
TMin: 46.45 [ms]
Filter: CFC 1000

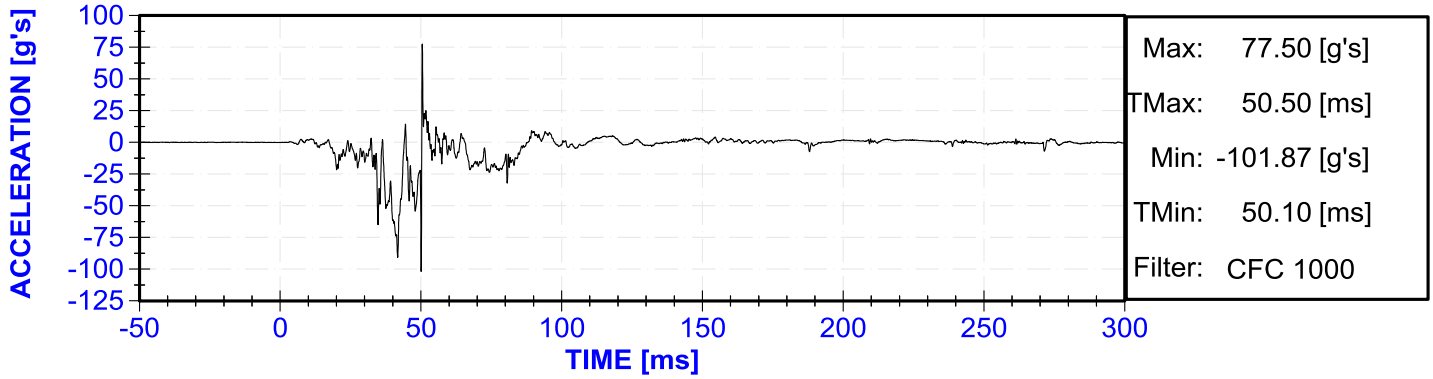
V2P1 Foot Left Z Acceleration



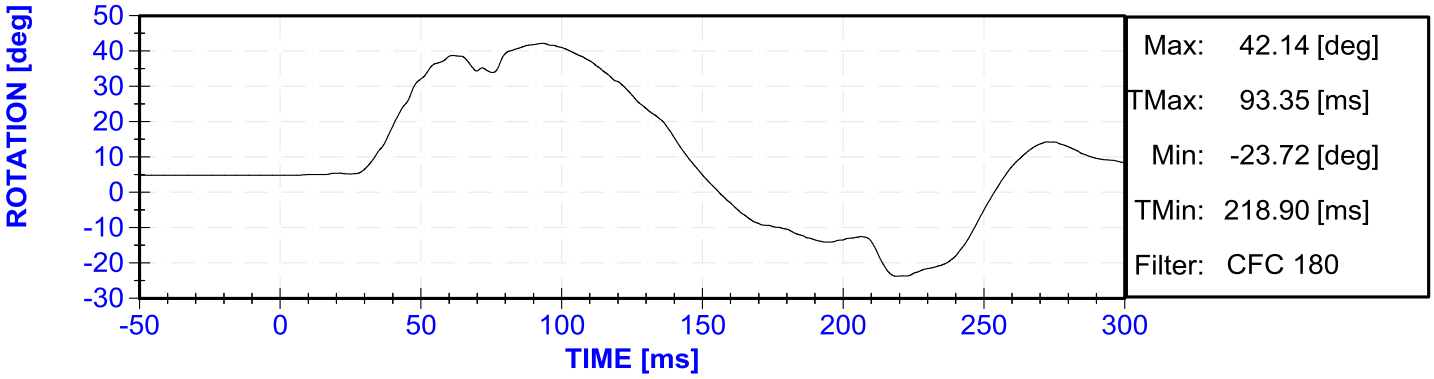
V2P1 Foot Right X Acceleration

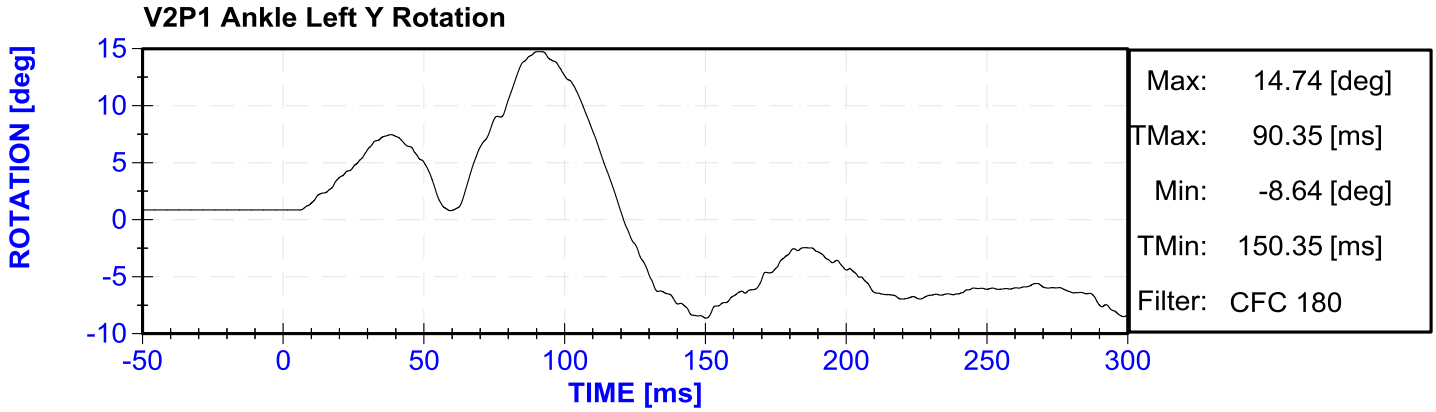


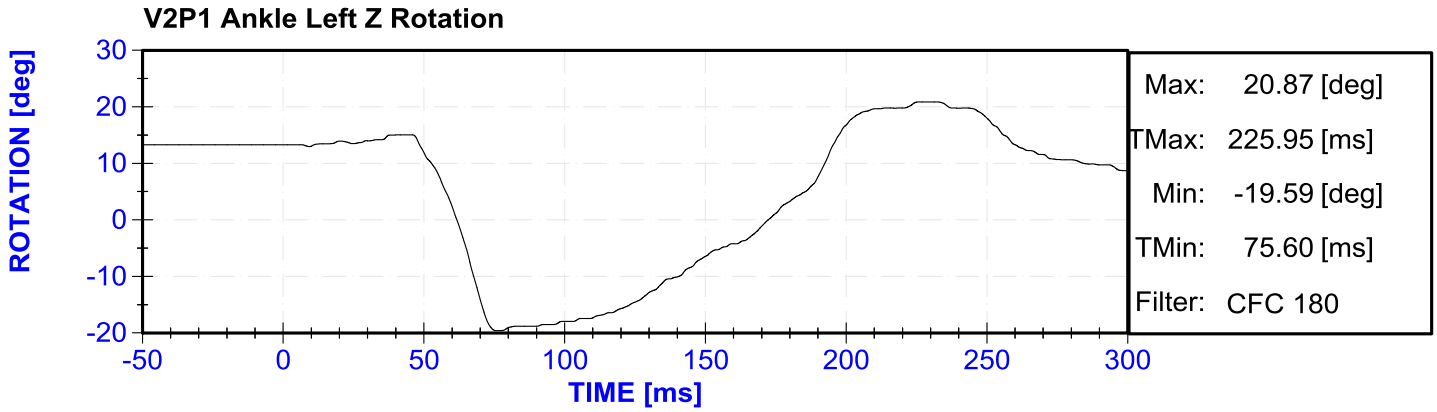
V2P1 Foot Right Z Acceleration

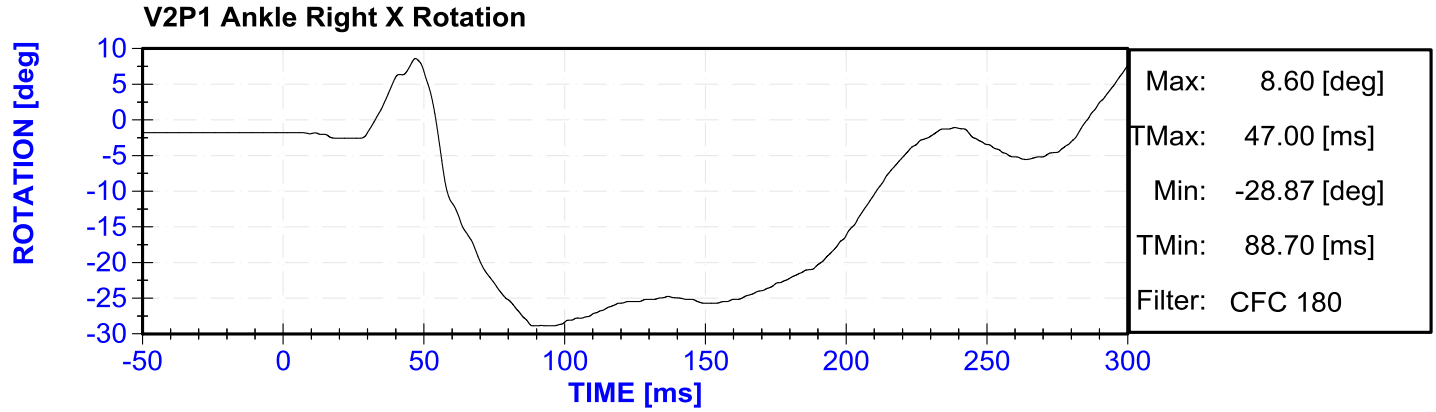


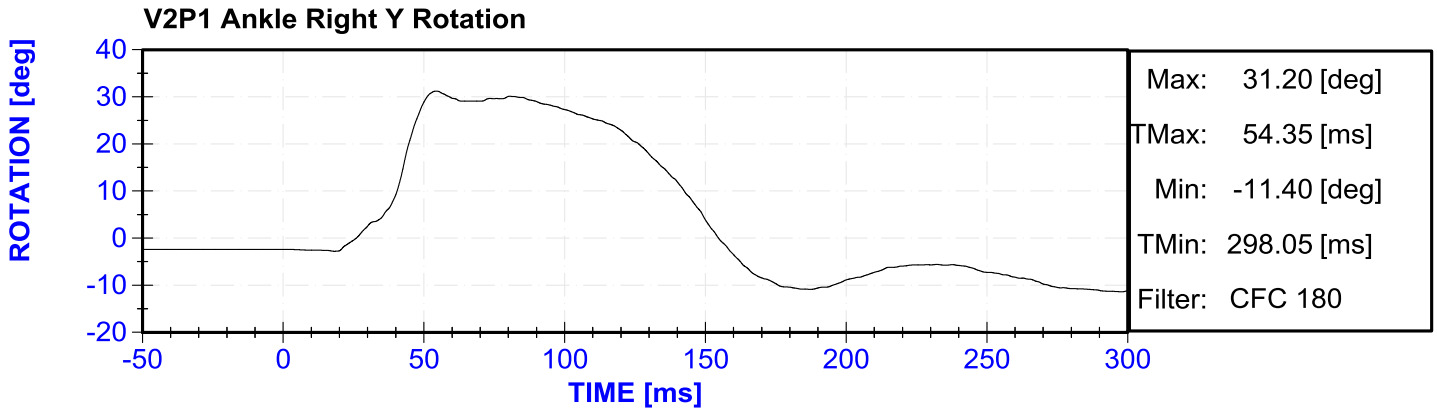
V2P1 Ankle Left X Rotation



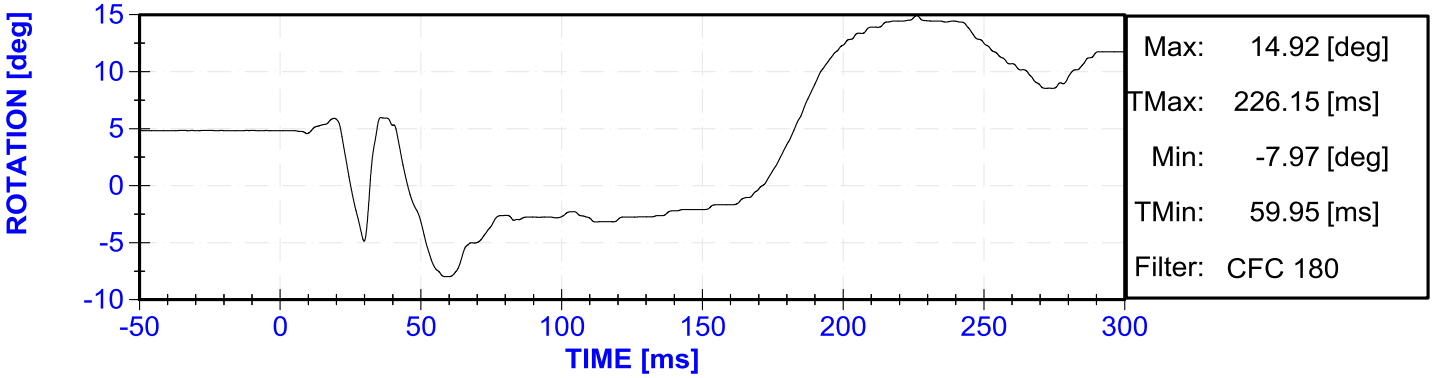

V2P1 Ankle Left Y Rotation
ROTATION [deg]
TIME [ms]
Max: 14.74 [deg]
TMax: 90.35 [ms]
Min: -8.64 [deg]
TMin: 150.35 [ms]
Filter: CFC 180


V2P1 Ankle Left Z Rotation
ROTATION [deg]
TIME [ms]
Max: 20.87 [deg]
TMax: 225.95 [ms]
Min: -19.59 [deg]
TMin: 75.60 [ms]
Filter: CFC 180


V2P1 Ankle Right X Rotation
ROTATION [deg]
TIME [ms]
Max: 8.60 [deg]
TMax: 47.00 [ms]
Min: -28.87 [deg]
TMin: 88.70 [ms]
Filter: CFC 180

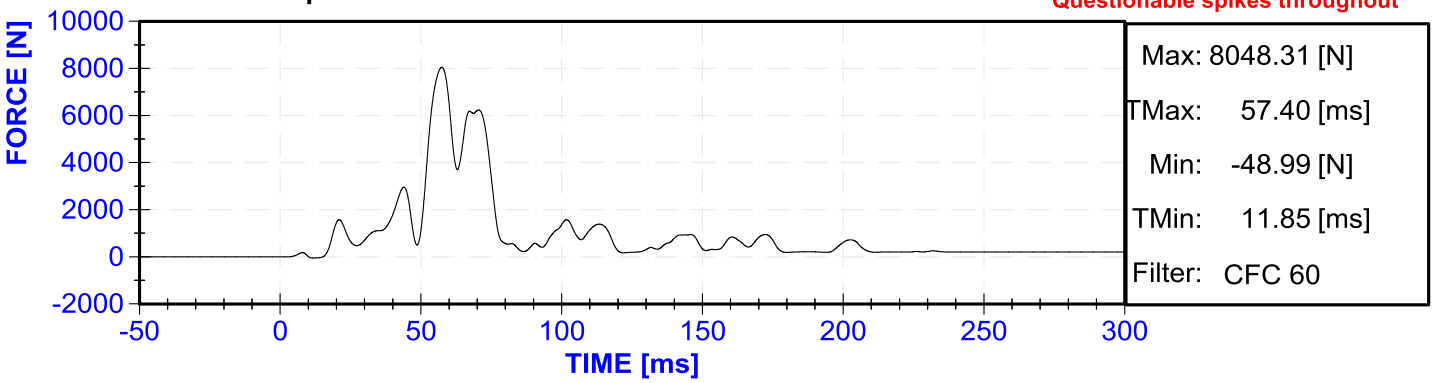

V2P1 Ankle Right Y Rotation
ROTATION [deg]
TIME [ms]
Max: 31.20 [deg]
TMax: 54.35 [ms]
Min: -11.40 [deg]
TMin: 298.05 [ms]
Filter: CFC 180

V2P1 Ankle Right Z Rotation

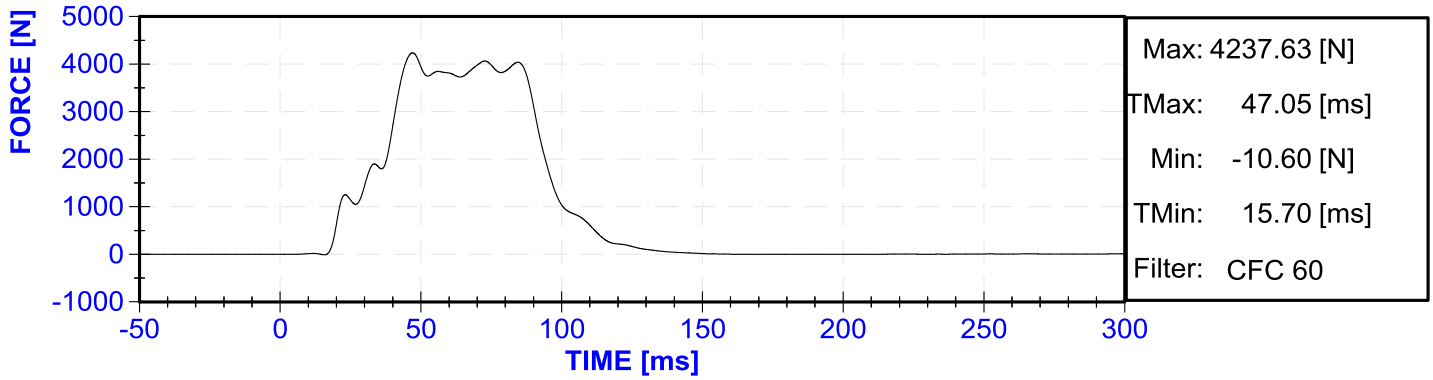


V2 Driver Lap Belt Force

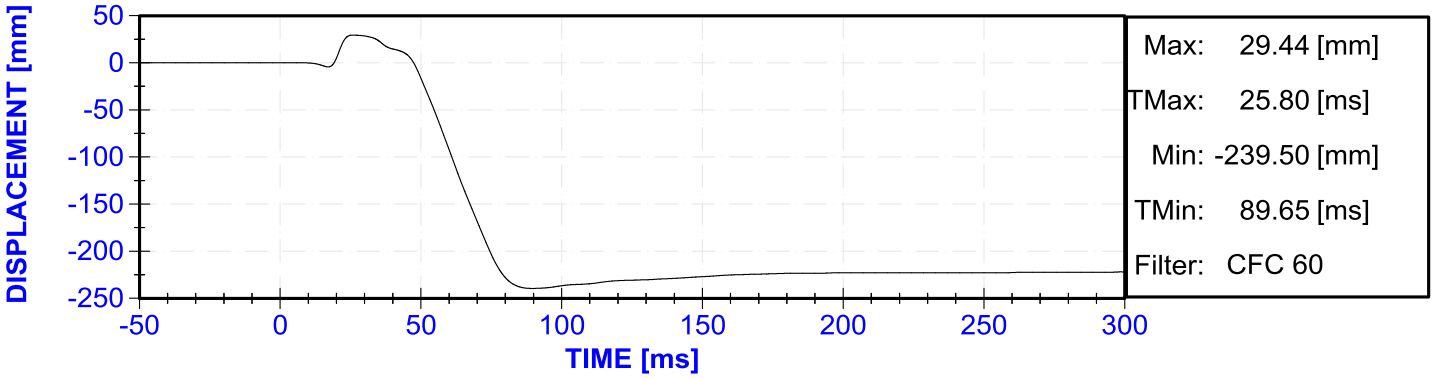
Questionable spikes throughout

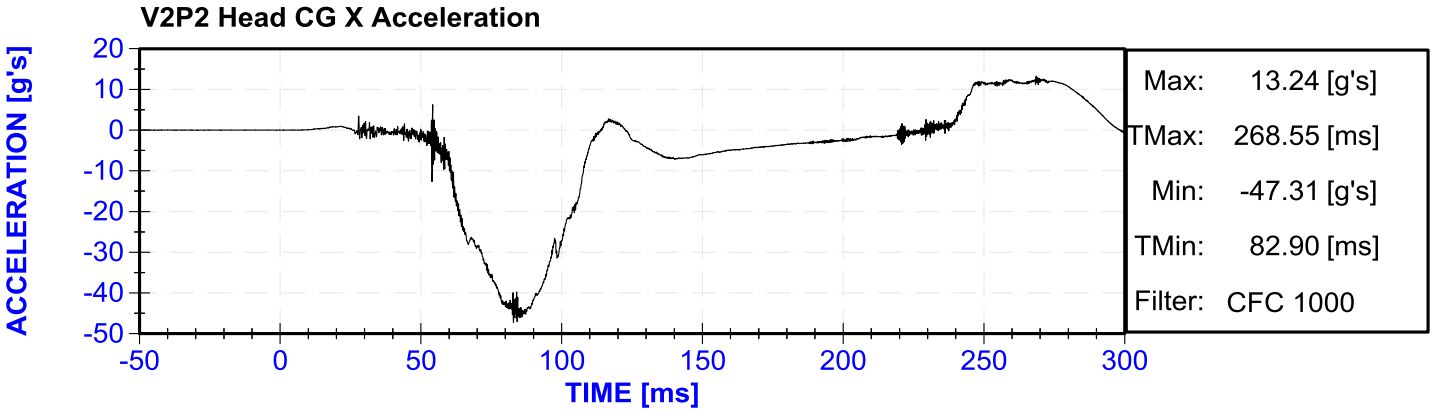


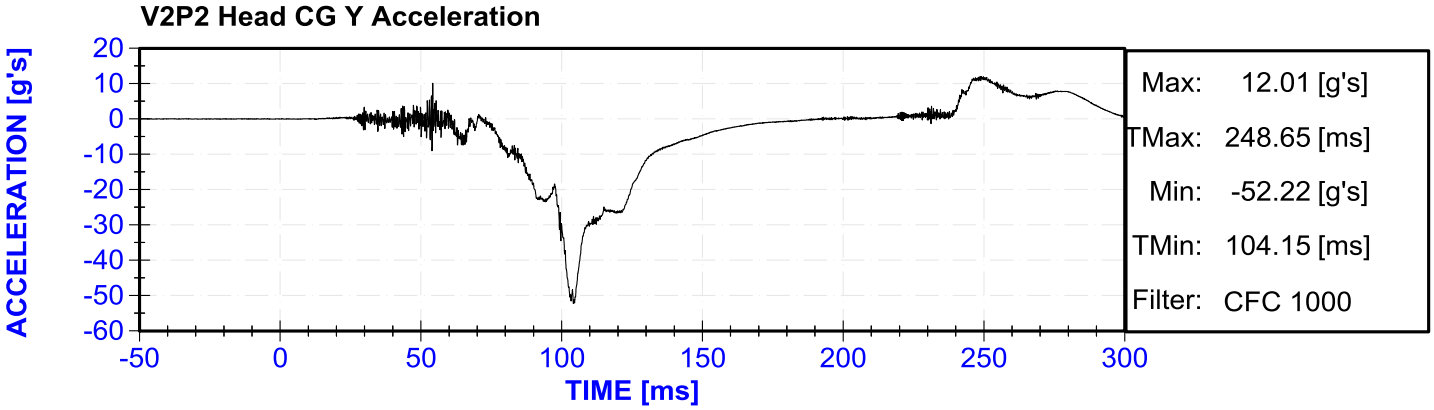
V2 Driver Shoulder Belt Upper Force

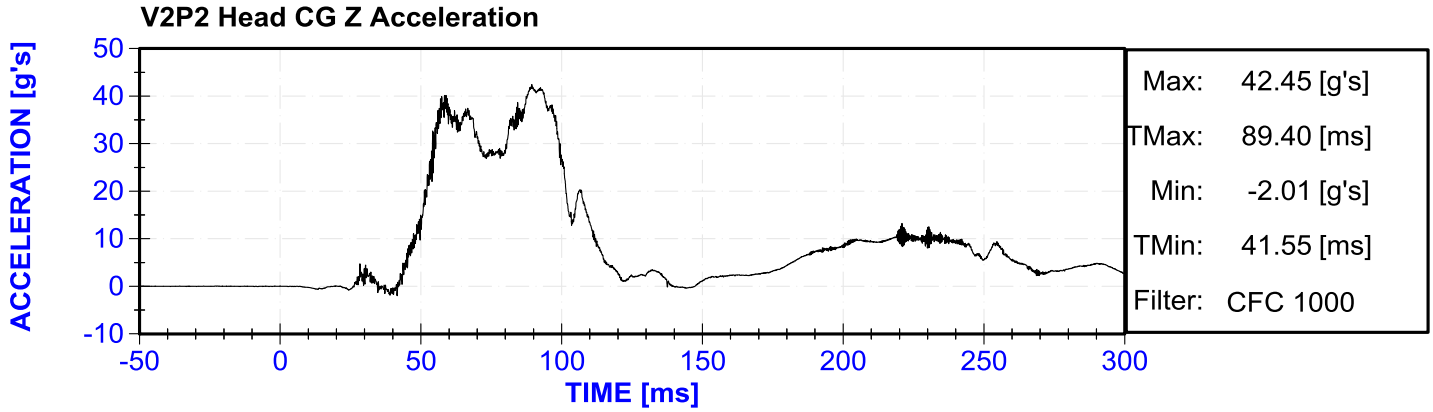


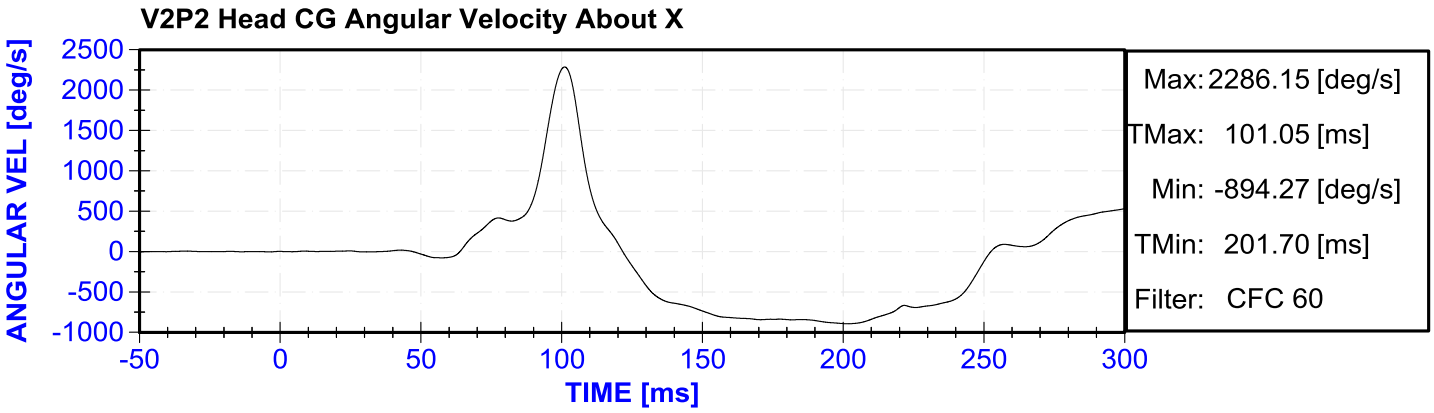
V2 Driver Shoulder Belt Displacement

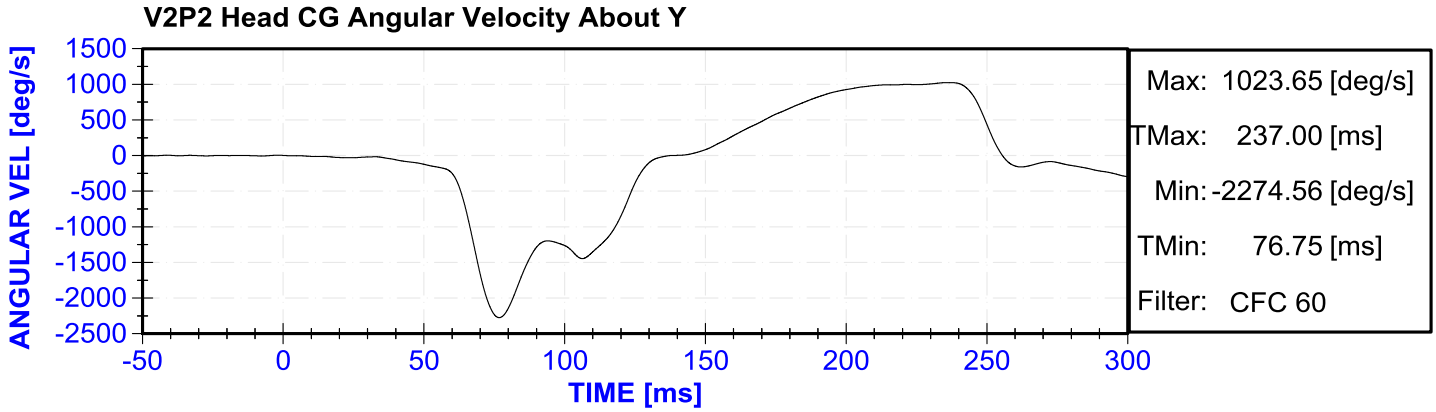


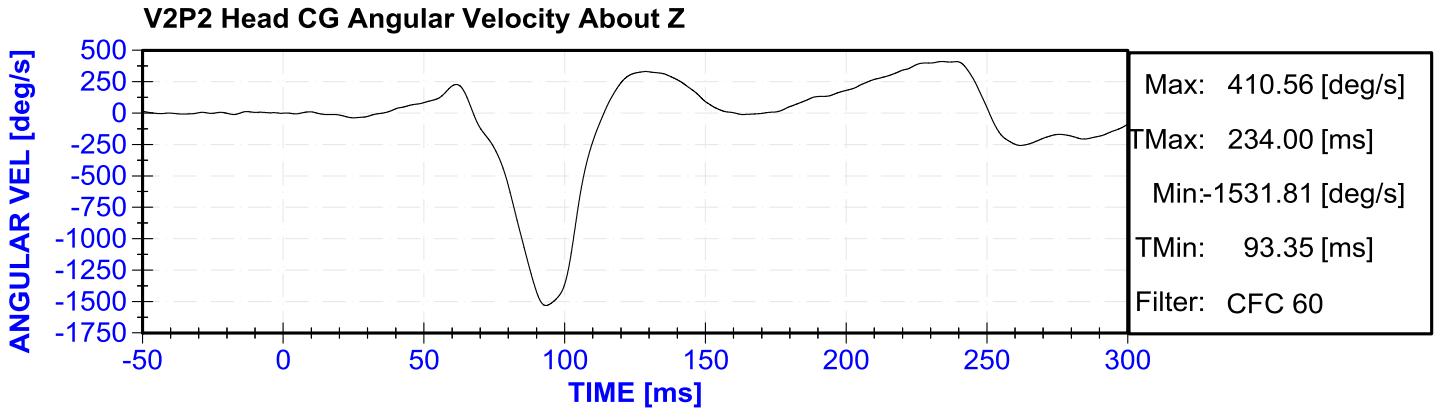

V2P2 Head CG X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 13.24 [g's]
TMax: 268.55 [ms]
Min: -47.31 [g's]
TMin: 82.90 [ms]
Filter: CFC 1000

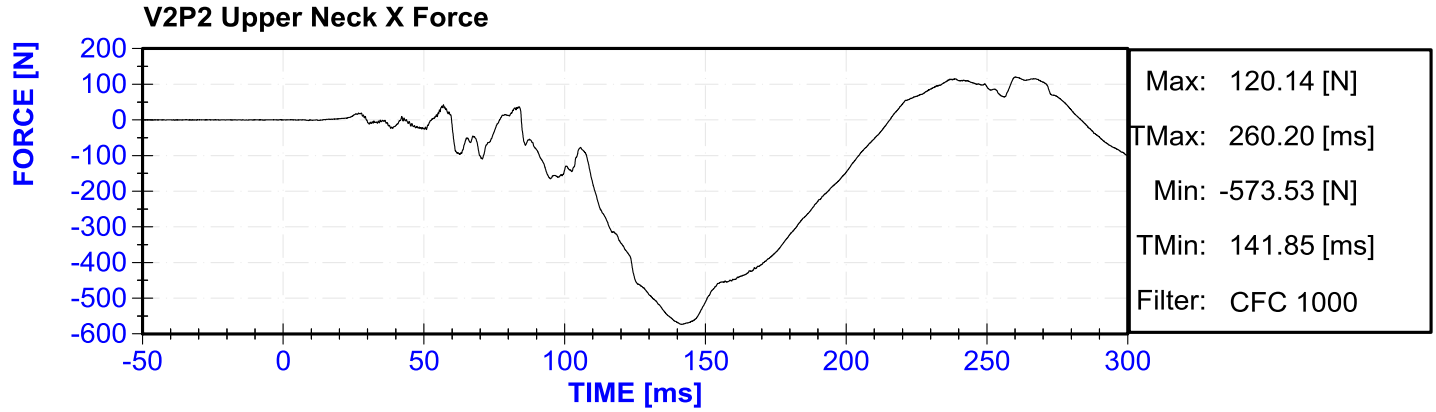

V2P2 Head CG Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 12.01 [g's]
TMax: 248.65 [ms]
Min: -52.22 [g's]
TMin: 104.15 [ms]
Filter: CFC 1000

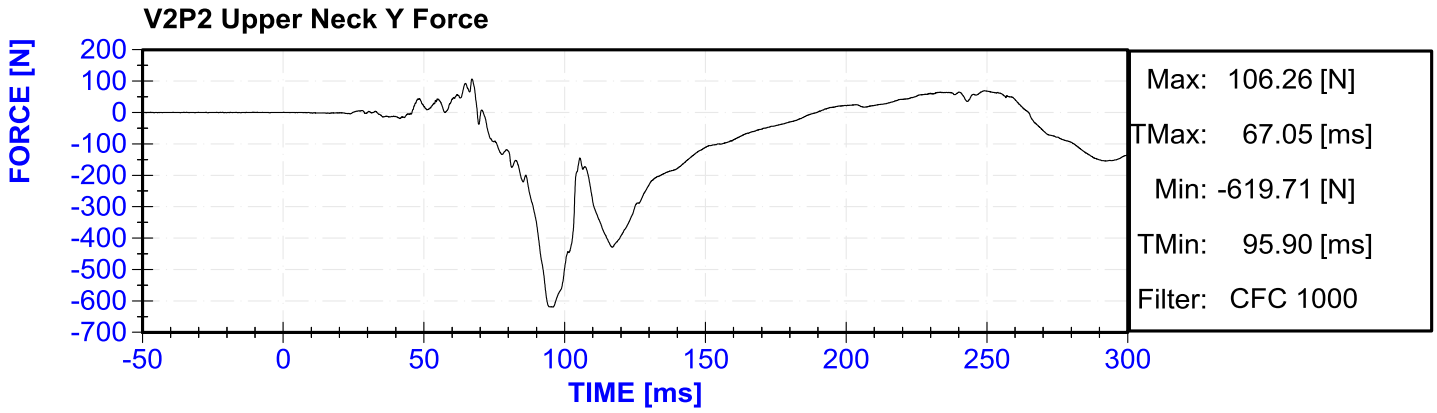

V2P2 Head CG Z Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 42.45 [g's]
TMax: 89.40 [ms]
Min: -2.01 [g's]
TMin: 41.55 [ms]
Filter: CFC 1000

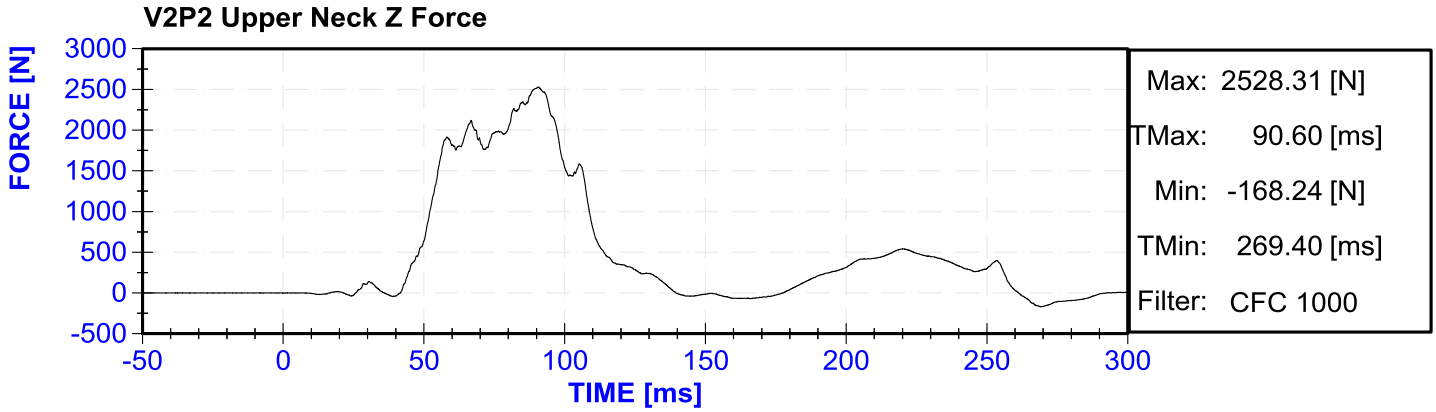

V2P2 Head CG Angular Velocity About X
ANGULAR VEL [deg/s]
TIME [ms]
Max: 2286.15 [deg/s]
TMax: 101.05 [ms]
Min: -894.27 [deg/s]
TMin: 201.70 [ms]
Filter: CFC 60

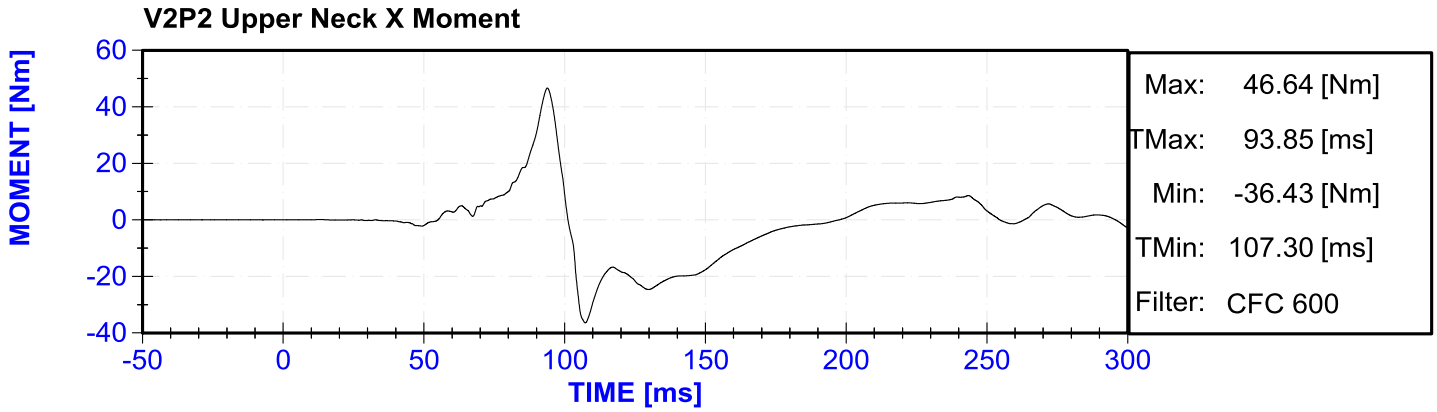

V2P2 Head CG Angular Velocity About Y
ANGULAR VEL [deg/s]
TIME [ms]
Max: 1023.65 [deg/s]
TMax: 237.00 [ms]
Min: -2274.56 [deg/s]
TMin: 76.75 [ms]
Filter: CFC 60

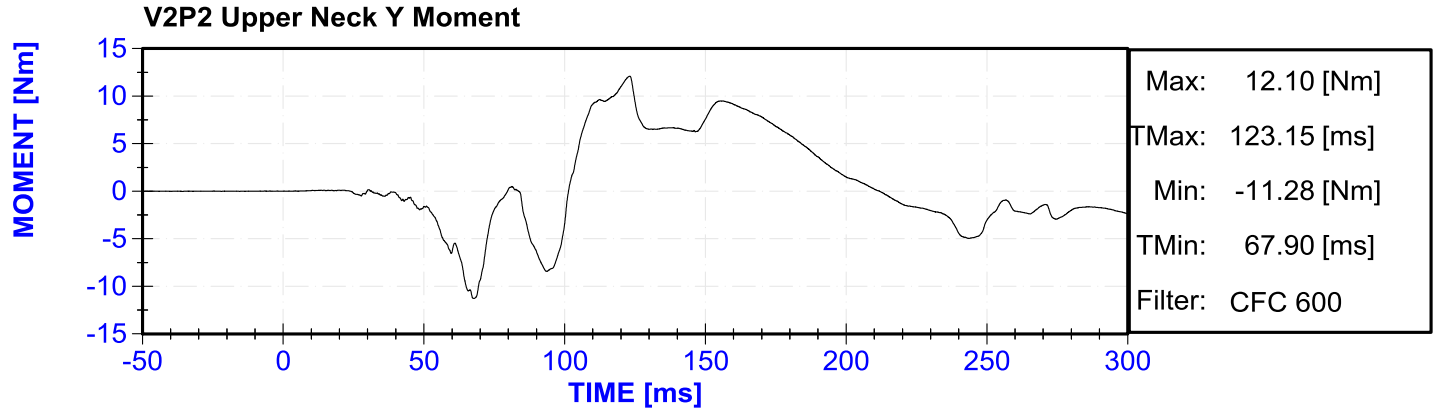

V2P2 Head CG Angular Velocity About Z
ANGULAR VEL [deg/s]
TIME [ms]
Max: 410.56 [deg/s]
TMax: 234.00 [ms]
Min: -1531.81 [deg/s]
TMin: 93.35 [ms]
Filter: CFC 60

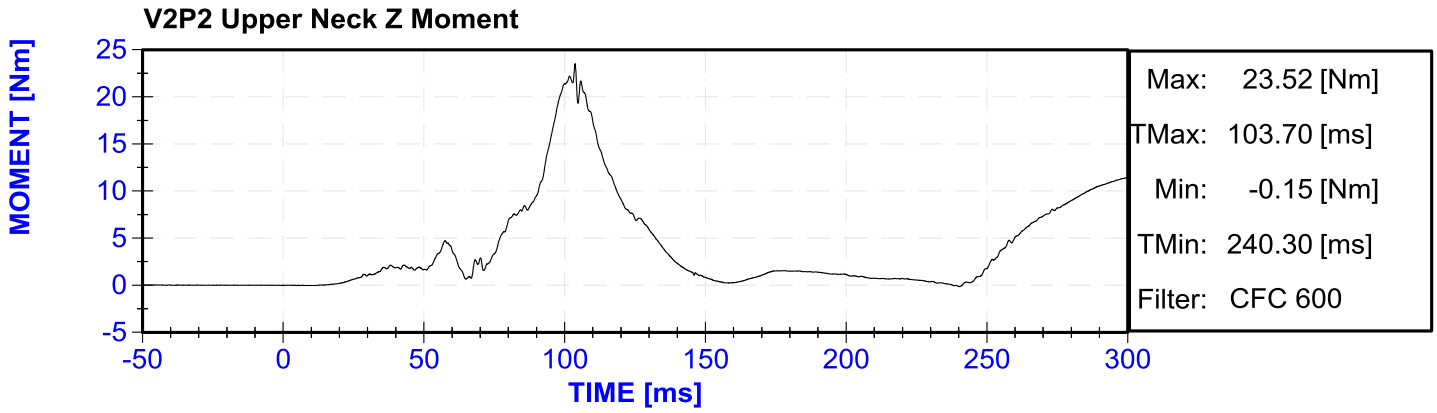

V2P2 Upper Neck X Force
FORCE [N]
TIME [ms]
Max: 120.14 [N]
TMax: 260.20 [ms]
Min: -573.53 [N]
TMin: 141.85 [ms]
Filter: CFC 1000

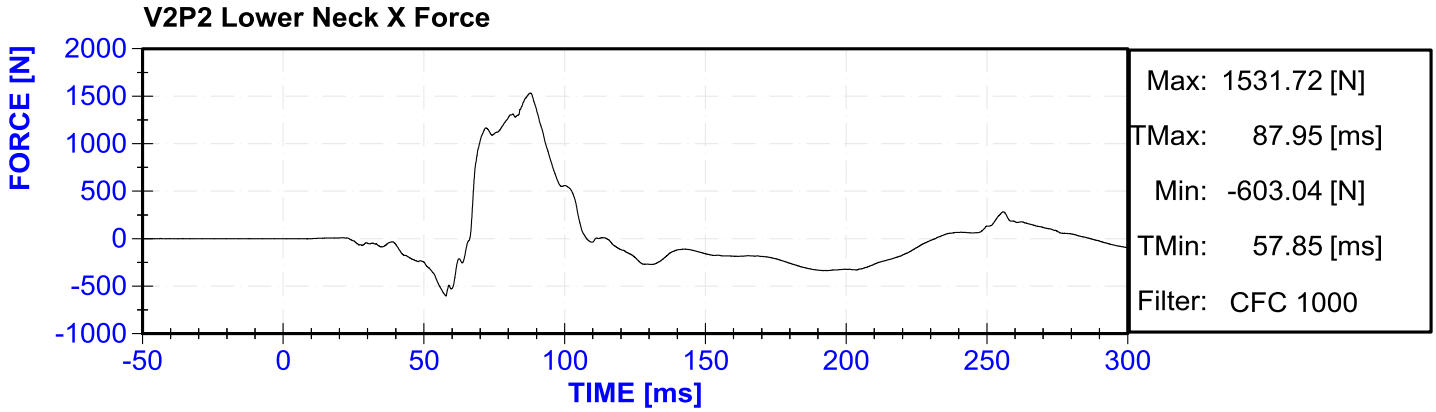

V2P2 Upper Neck Y Force
FORCE [N]
TIME [ms]
Max: 106.26 [N]
TMax: 67.05 [ms]
Min: -619.71 [N]
TMin: 95.90 [ms]
Filter: CFC 1000

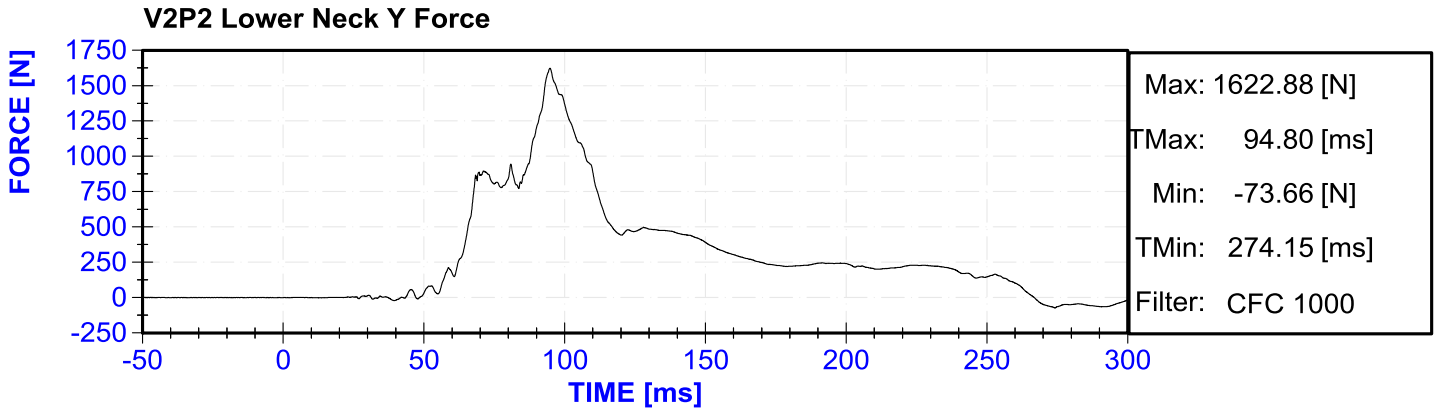

V2P2 Upper Neck Z Force
FORCE [N]
TIME [ms]
Max: 2528.31 [N]
TMax: 90.60 [ms]
Min: -168.24 [N]
TMin: 269.40 [ms]
Filter: CFC 1000

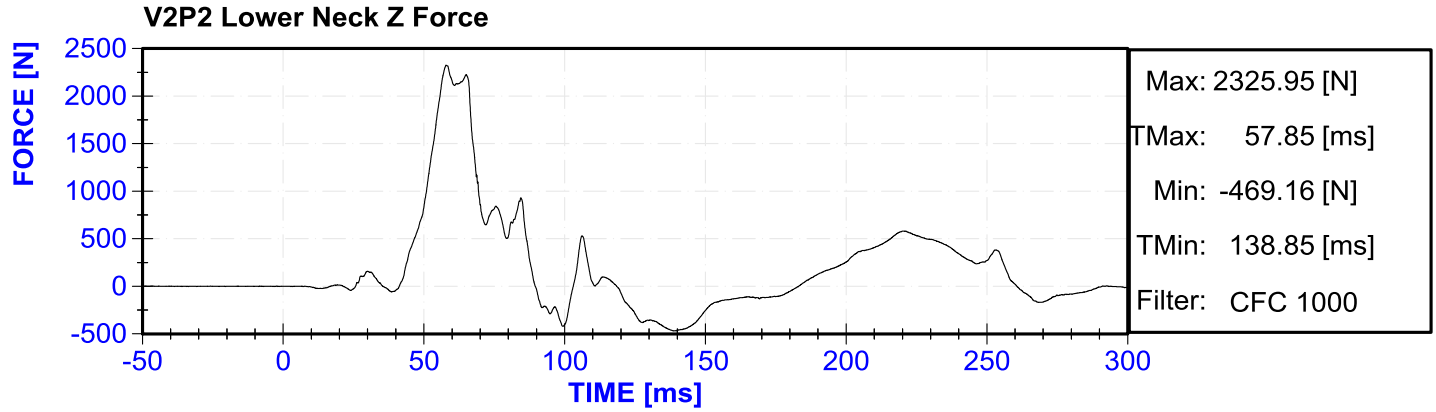

V2P2 Upper Neck X Moment
MOMENT [Nm]
TIME [ms]
Max: 46.64 [Nm]
TMax: 93.85 [ms]
Min: -36.43 [Nm]
TMin: 107.30 [ms]
Filter: CFC 600

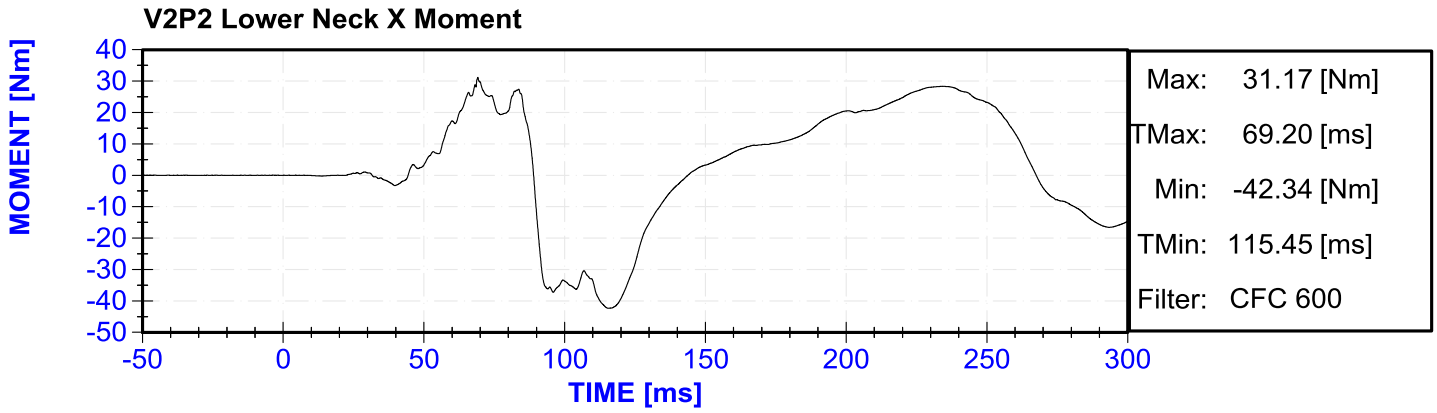

V2P2 Upper Neck Y Moment
MOMENT [Nm]
TIME [ms]
Max: 12.10 [Nm]
TMax: 123.15 [ms]
Min: -11.28 [Nm]
TMin: 67.90 [ms]
Filter: CFC 600

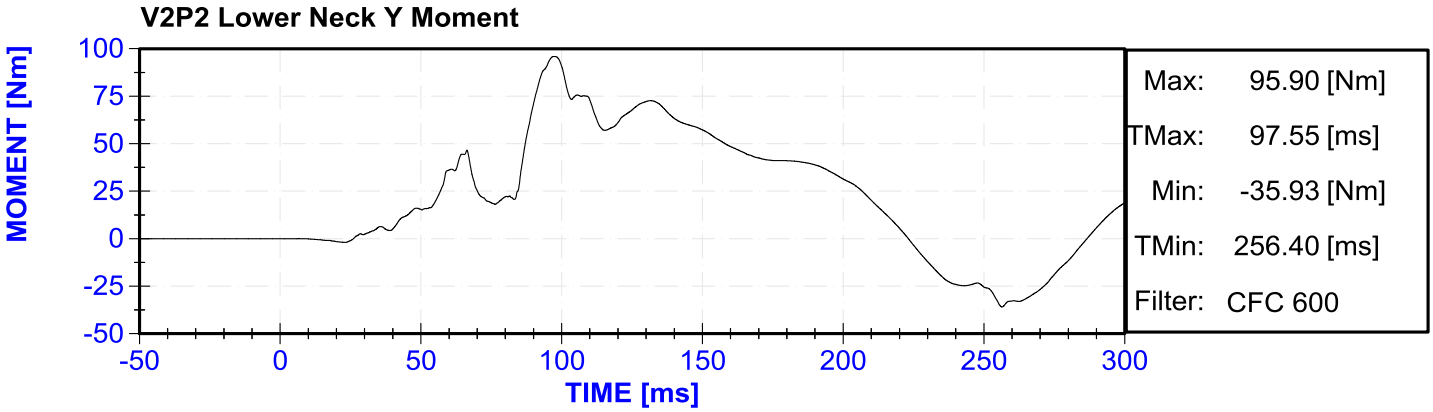

V2P2 Upper Neck Z Moment
MOMENT [Nm]
TIME [ms]
Max: 23.52 [Nm]
TMax: 103.70 [ms]
Min: -0.15 [Nm]
TMin: 240.30 [ms]
Filter: CFC 600

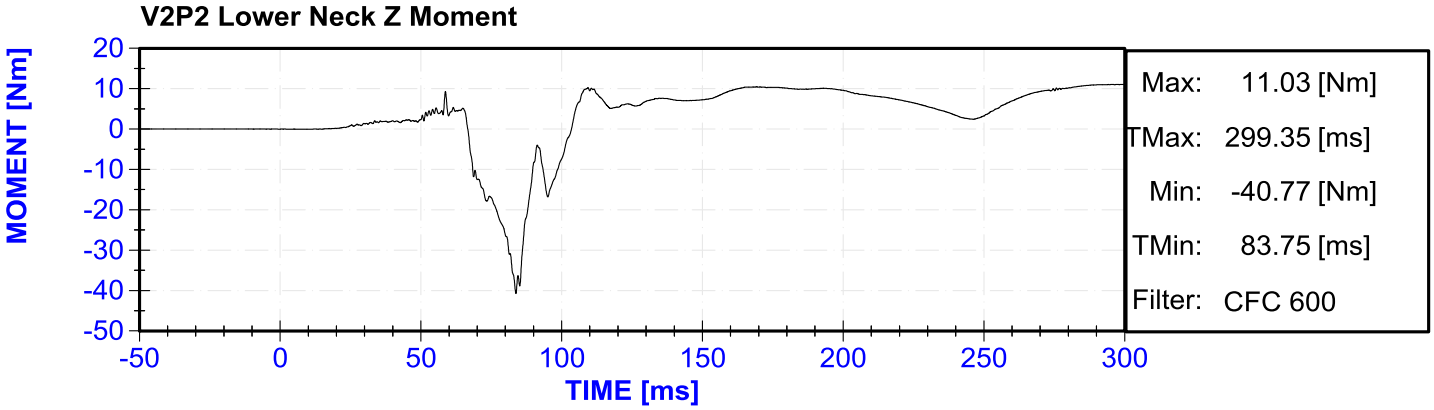

V2P2 Lower Neck X Force
FORCE [N]
TIME [ms]
Max: 1531.72 [N]
TMax: 87.95 [ms]
Min: -603.04 [N]
TMin: 57.85 [ms]
Filter: CFC 1000

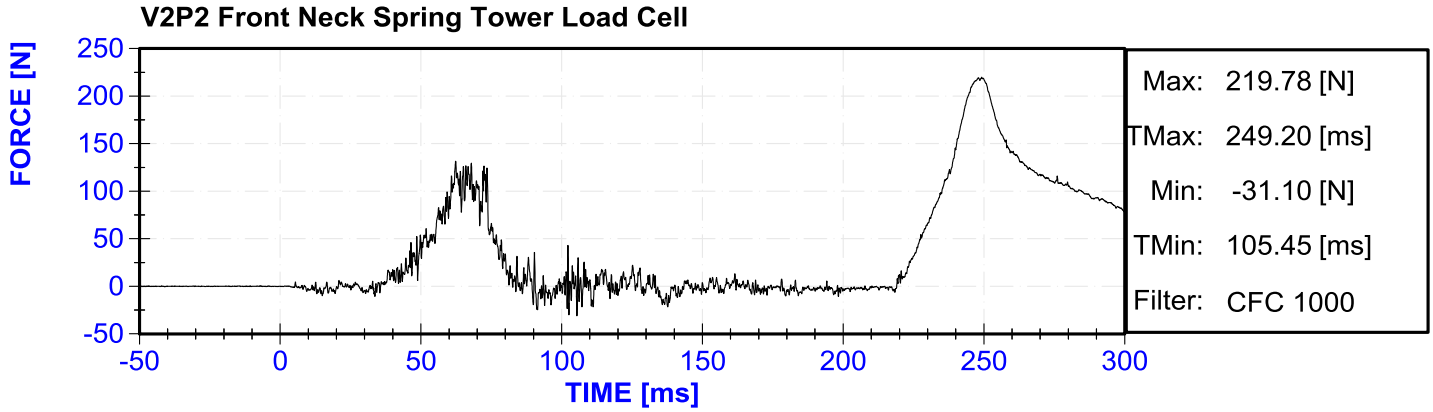

V2P2 Lower Neck Y Force
FORCE [N]
TIME [ms]
Max: 1622.88 [N]
TMax: 94.80 [ms]
Min: -73.66 [N]
TMin: 274.15 [ms]
Filter: CFC 1000

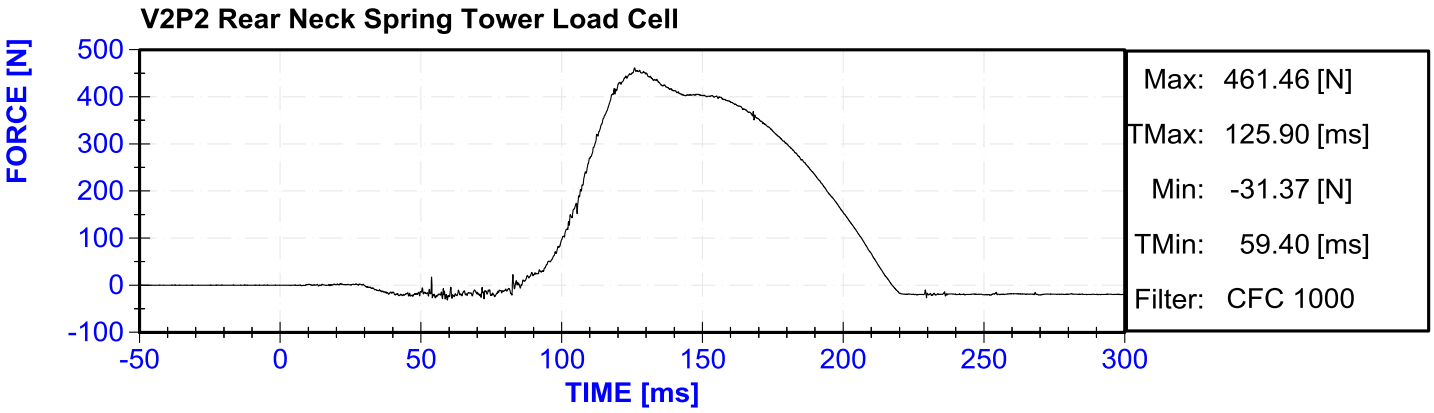

V2P2 Lower Neck Z Force
FORCE [N]
TIME [ms]
Max: 2325.95 [N]
TMax: 57.85 [ms]
Min: -469.16 [N]
TMin: 138.85 [ms]
Filter: CFC 1000

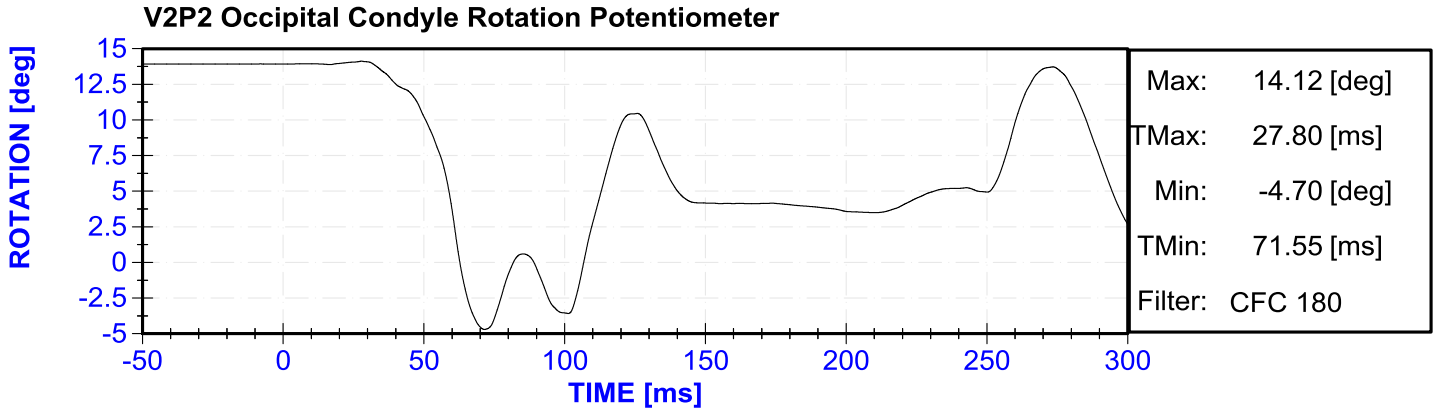

V2P2 Lower Neck X Moment
MOMENT [Nm]
TIME [ms]
Max: 31.17 [Nm]
TMax: 69.20 [ms]
Min: -42.34 [Nm]
TMin: 115.45 [ms]
Filter: CFC 600

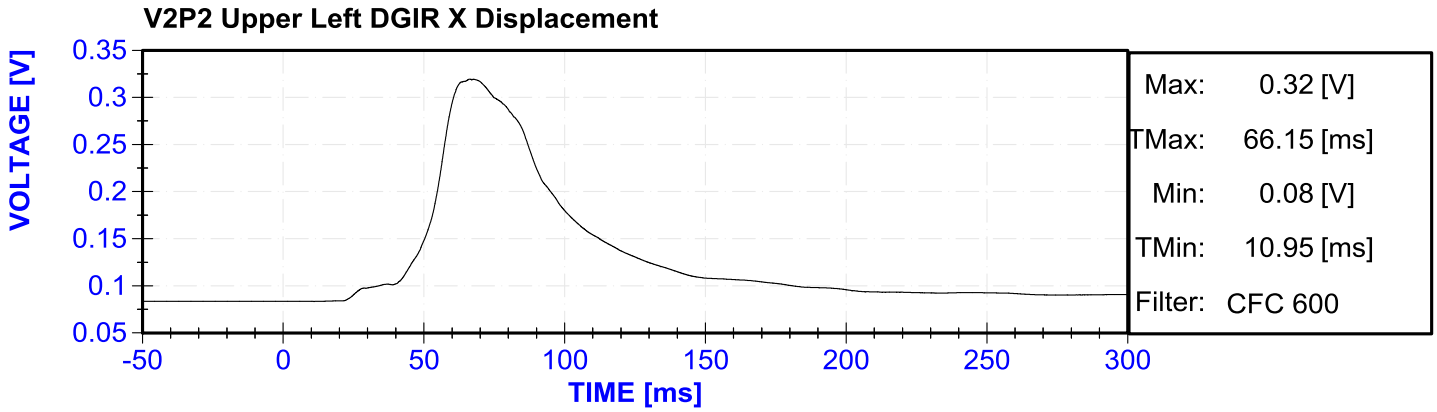

V2P2 Lower Neck Y Moment
MOMENT [Nm]
TIME [ms]
Max: 95.90 [Nm]
TMax: 97.55 [ms]
Min: -35.93 [Nm]
TMin: 256.40 [ms]
Filter: CFC 600

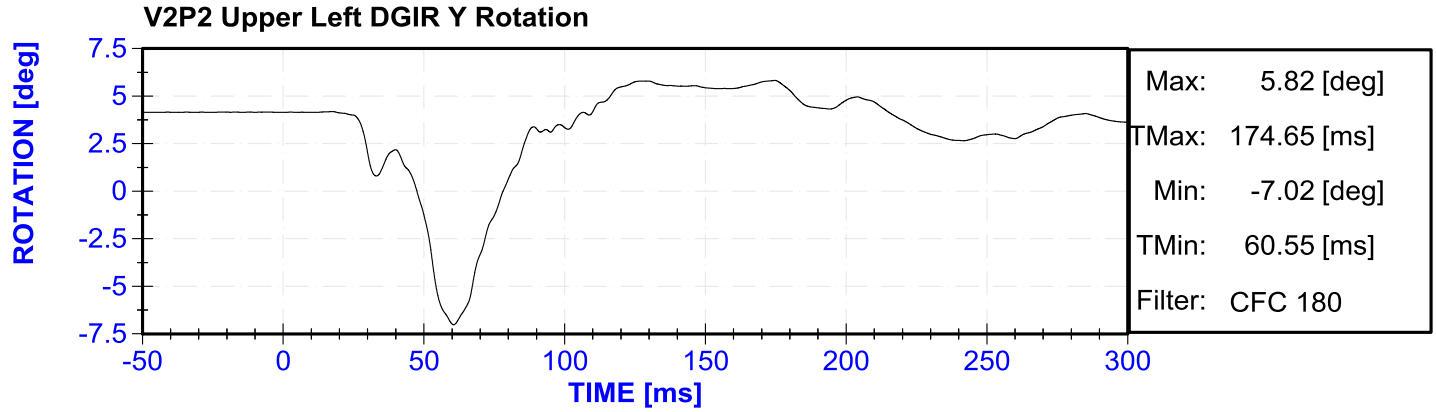

V2P2 Lower Neck Z Moment
MOMENT [Nm]
TIME [ms]
Max: 11.03 [Nm]
TMax: 299.35 [ms]
Min: -40.77 [Nm]
TMin: 83.75 [ms]
Filter: CFC 600

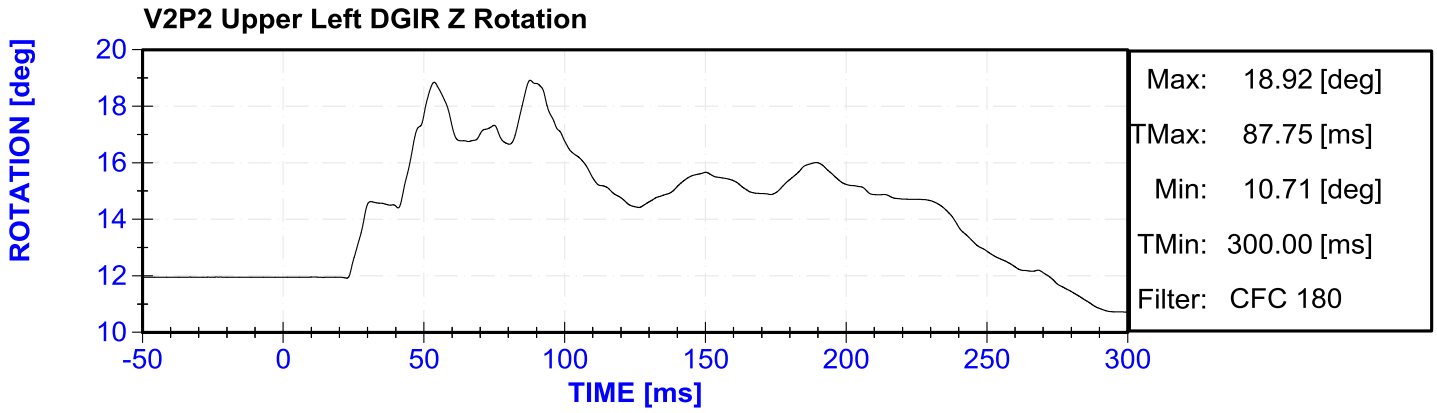

V2P2 Front Neck Spring Tower Load Cell
FORCE [N]
TIME [ms]
Max: 219.78 [N]
TMax: 249.20 [ms]
Min: -31.10 [N]
TMin: 105.45 [ms]
Filter: CFC 1000


V2P2 Rear Neck Spring Tower Load Cell
FORCE [N]
TIME [ms]
Max: 461.46 [N]
TMax: 125.90 [ms]
Min: -31.37 [N]
TMin: 59.40 [ms]
Filter: CFC 1000


V2P2 Occipital Condyle Rotation Potentiometer
ROTATION [deg]
TIME [ms]
Max: 14.12 [deg]
TMax: 27.80 [ms]
Min: -4.70 [deg]
TMin: 71.55 [ms]
Filter: CFC 180

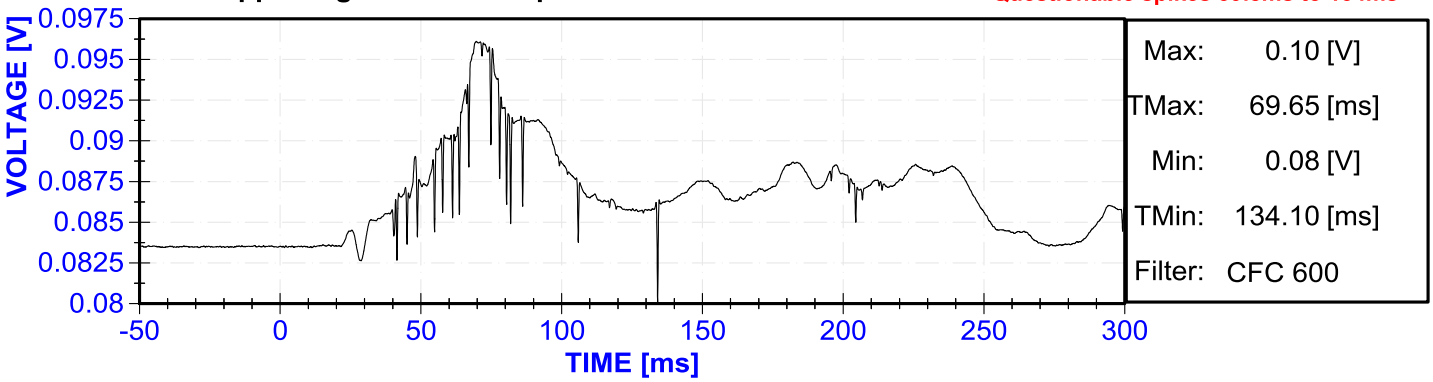

V2P2 Upper Left DGIR X Displacement
VOLTAGE [V]
TIME [ms]
Max: 0.32 [V]
TMax: 66.15 [ms]
Min: 0.08 [V]
TMin: 10.95 [ms]
Filter: CFC 600


V2P2 Upper Left DGIR Y Rotation
ROTATION [deg]
TIME [ms]
Max: 5.82 [deg]
TMax: 174.65 [ms]
Min: -7.02 [deg]
TMin: 60.55 [ms]
Filter: CFC 180

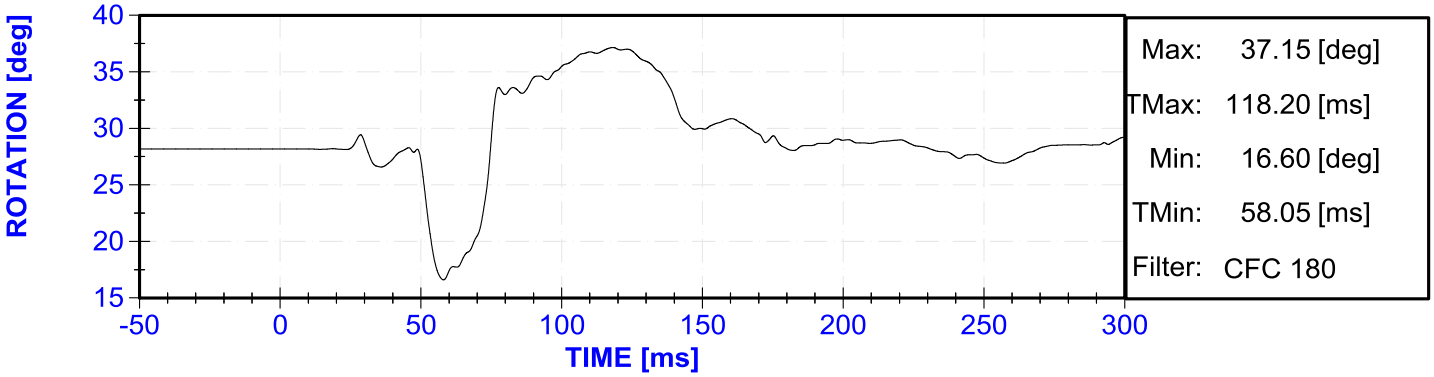

V2P2 Upper Left DGIR Z Rotation
ROTATION [deg]
TIME [ms]
Max: 18.92 [deg]
TMax: 87.75 [ms]
Min: 10.71 [deg]
TMin: 300.00 [ms]
Filter: CFC 180

V2P2 Upper Right DGIR X Displacement

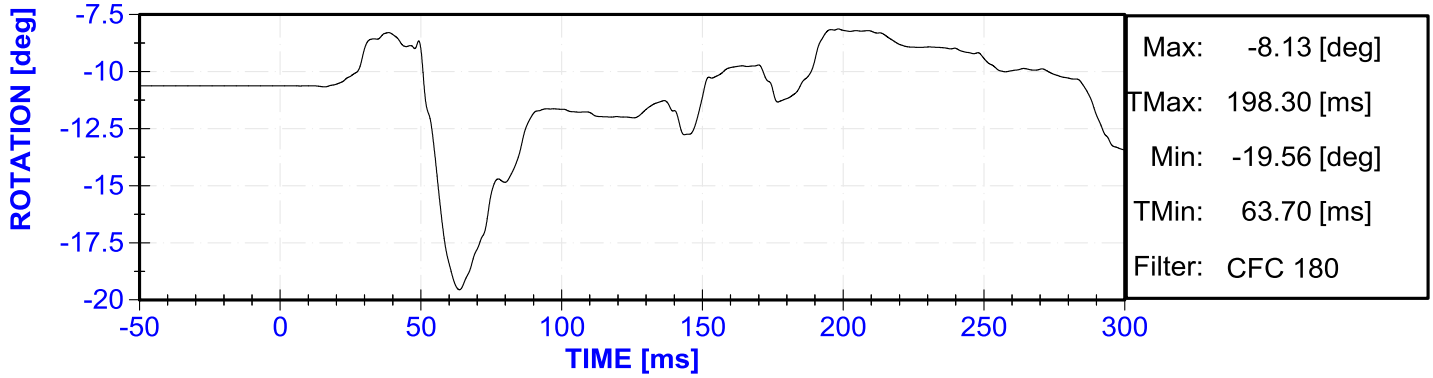
Questionable spikes 39.8ms to 134ms



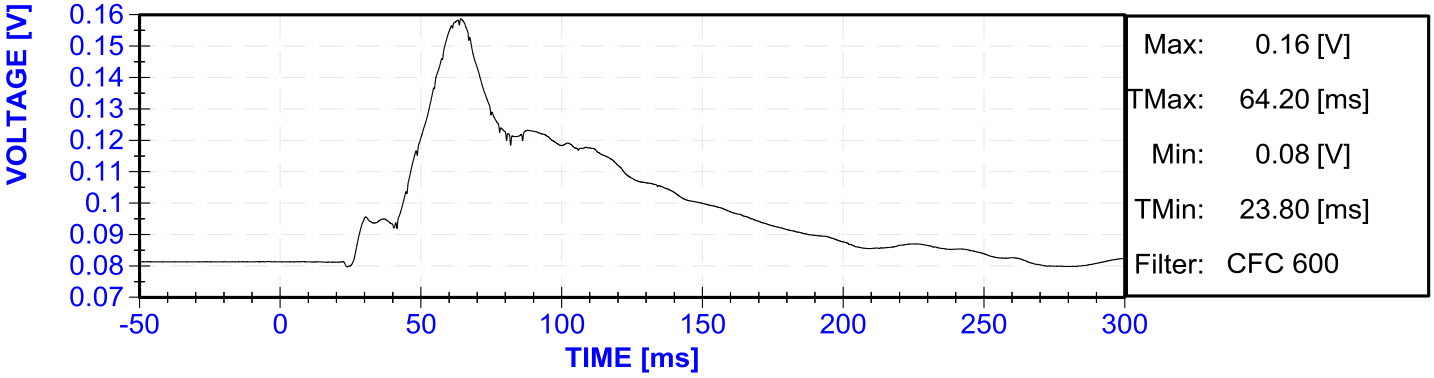
V2P2 Upper Right DGIR Y Rotation

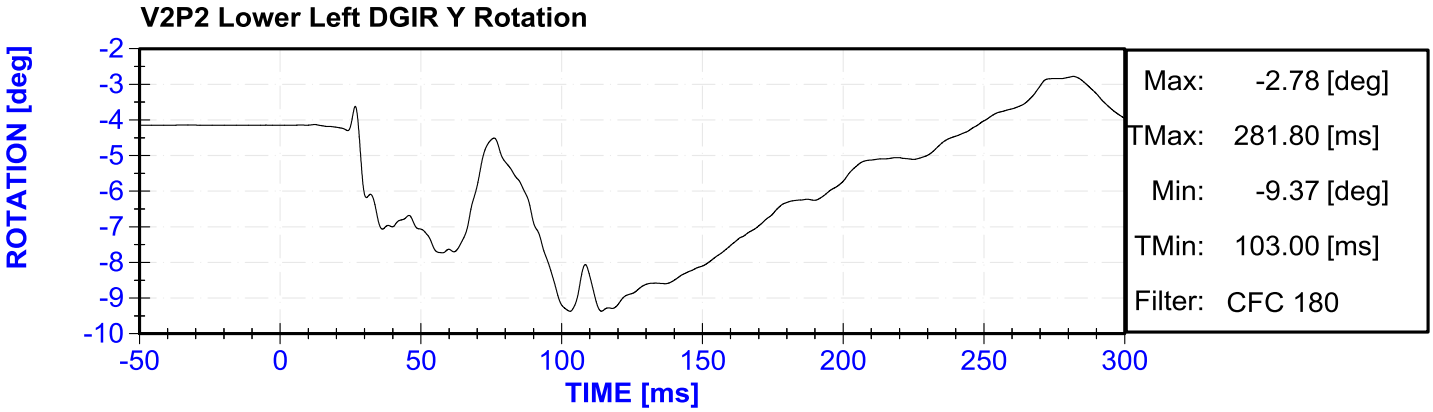


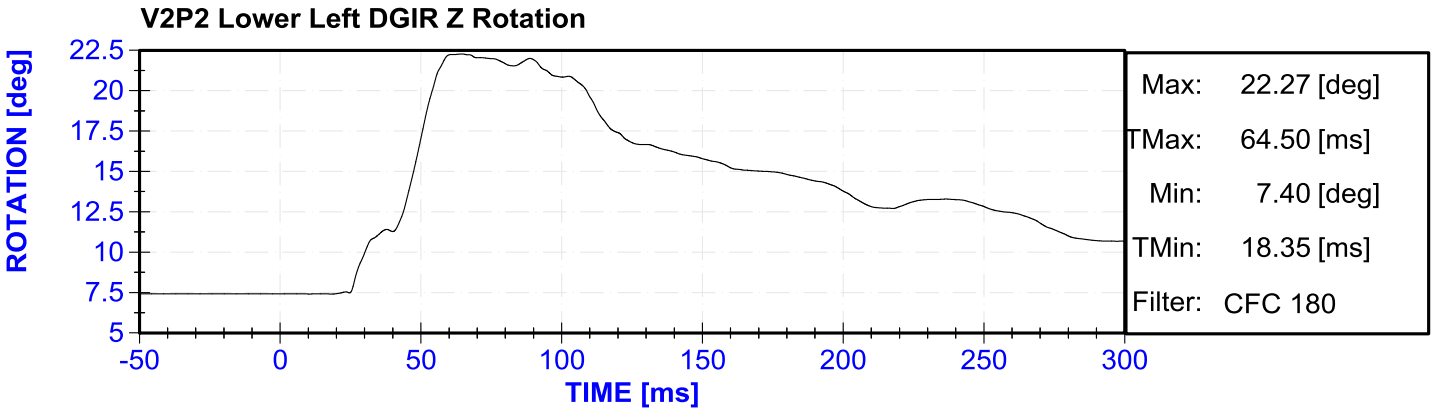
V2P2 Upper Right DGIR Z Rotation

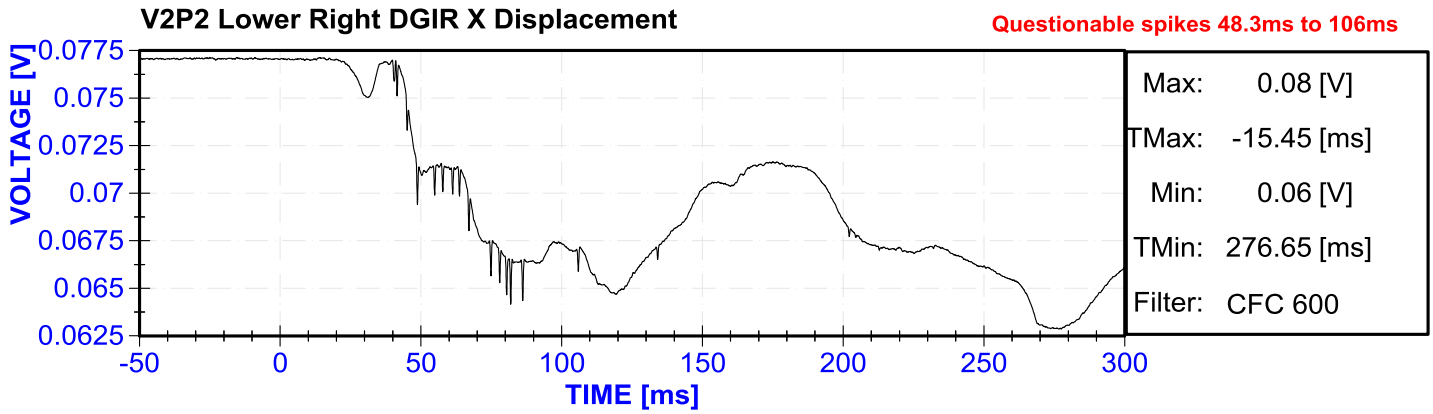


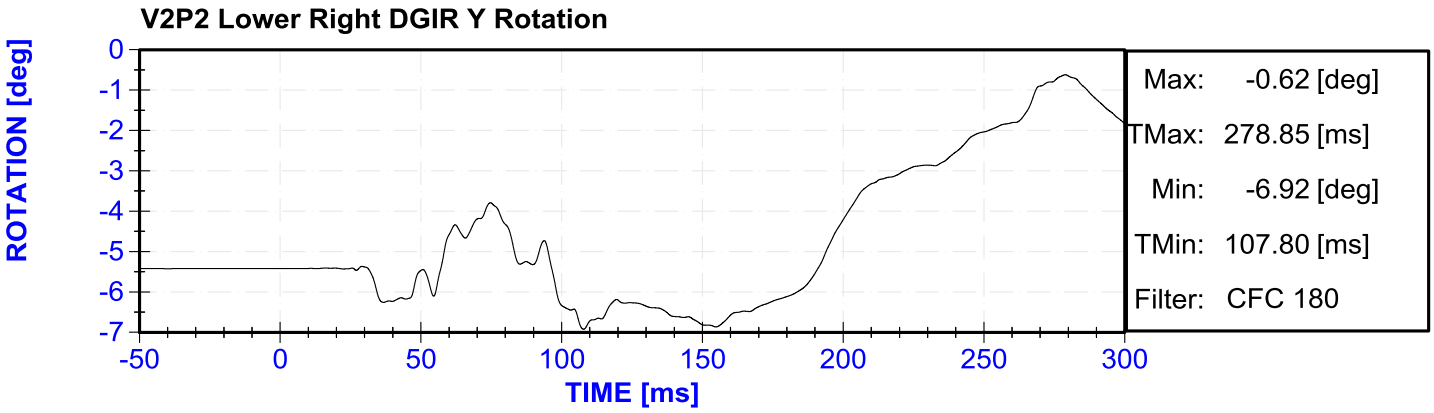
V2P2 Lower Left DGIR X Displacement



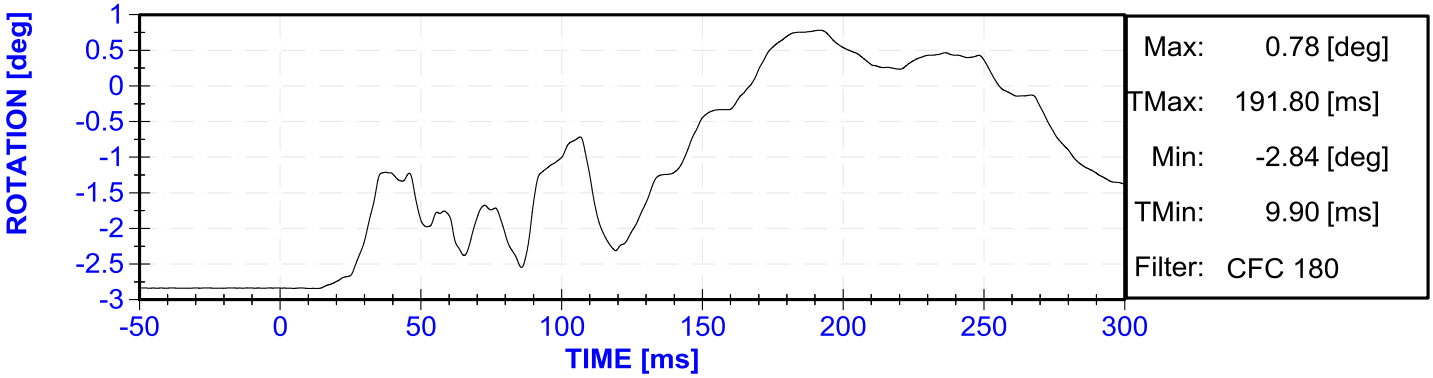

V2P2 Lower Left DGIR Y Rotation
ROTATION [deg]
TIME [ms]
Max: -2.78 [deg]
TMax: 281.80 [ms]
Min: -9.37 [deg]
TMin: 103.00 [ms]
Filter: CFC 180


V2P2 Lower Left DGIR Z Rotation
ROTATION [deg]
TIME [ms]
Max: 22.27 [deg]
TMax: 64.50 [ms]
Min: 7.40 [deg]
TMin: 18.35 [ms]
Filter: CFC 180

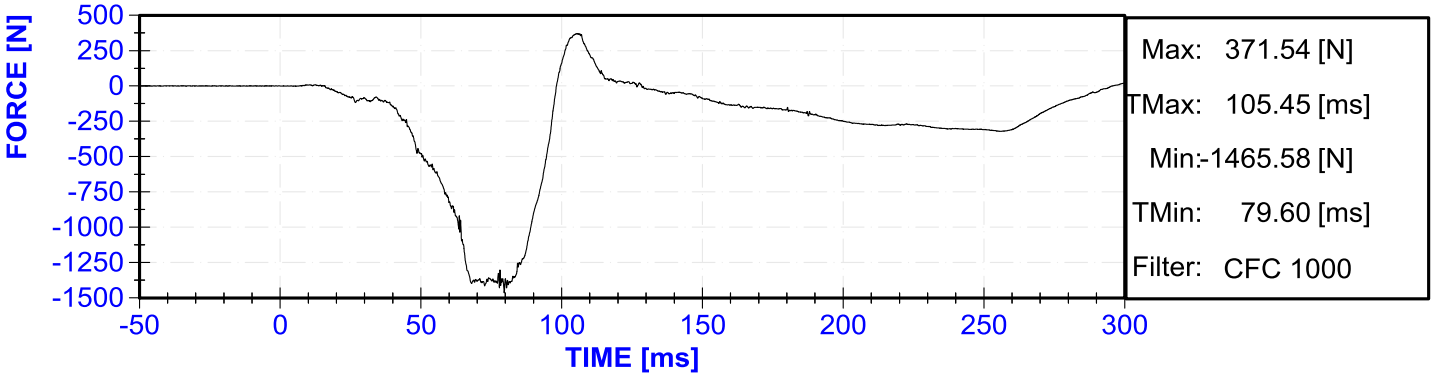

V2P2 Lower Right DGIR X Displacement
Questionable spikes 48.3ms to 106ms
VOLTAGE [V]
TIME [ms]
Max: 0.08 [V]
TMax: -15.45 [ms]
Min: 0.06 [V]
TMin: 276.65 [ms]
Filter: CFC 600


V2P2 Lower Right DGIR Y Rotation
ROTATION [deg]
TIME [ms]
Max: -0.62 [deg]
TMax: 278.85 [ms]
Min: -6.92 [deg]
TMin: 107.80 [ms]
Filter: CFC 180

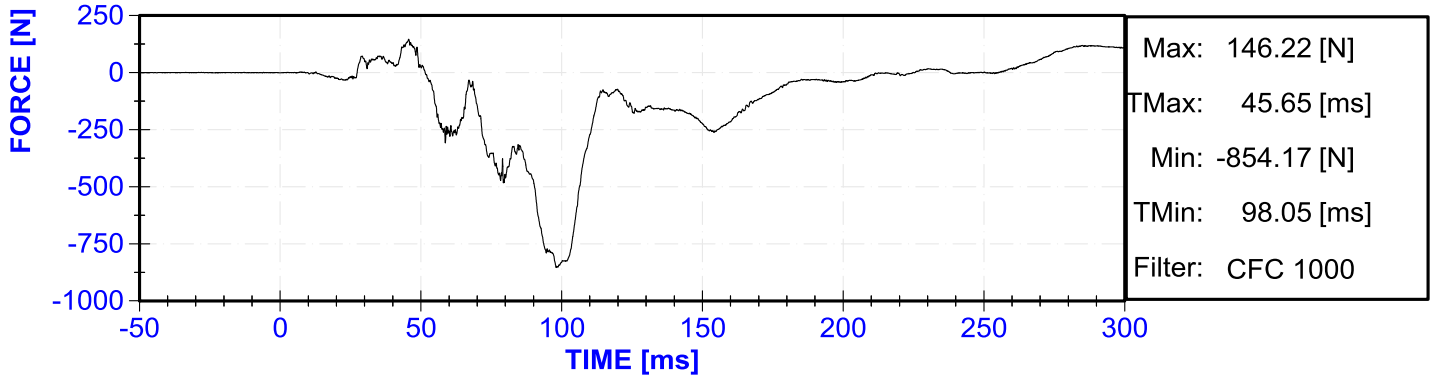
V2P2 Lower Right DGIR Z Rotation



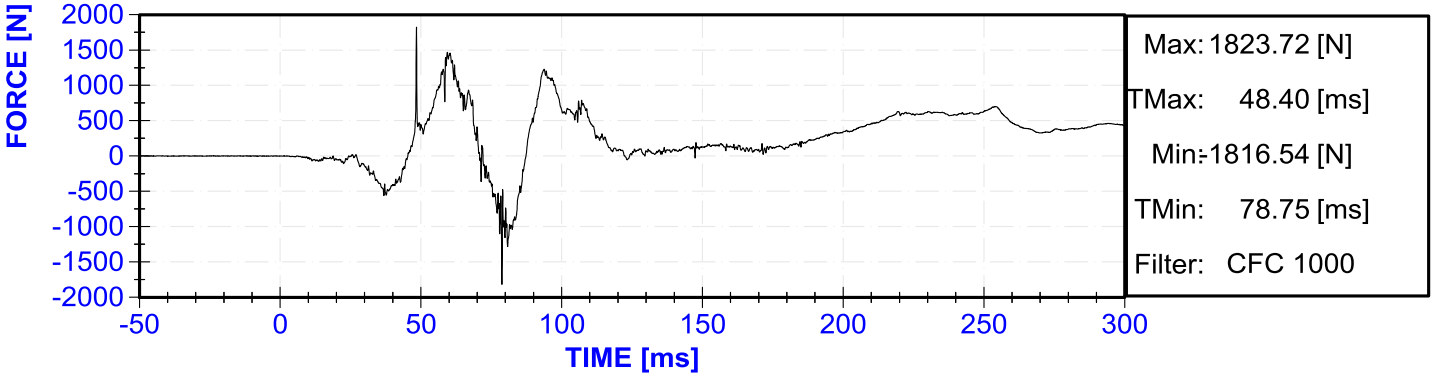
V2P2 Spine Force X

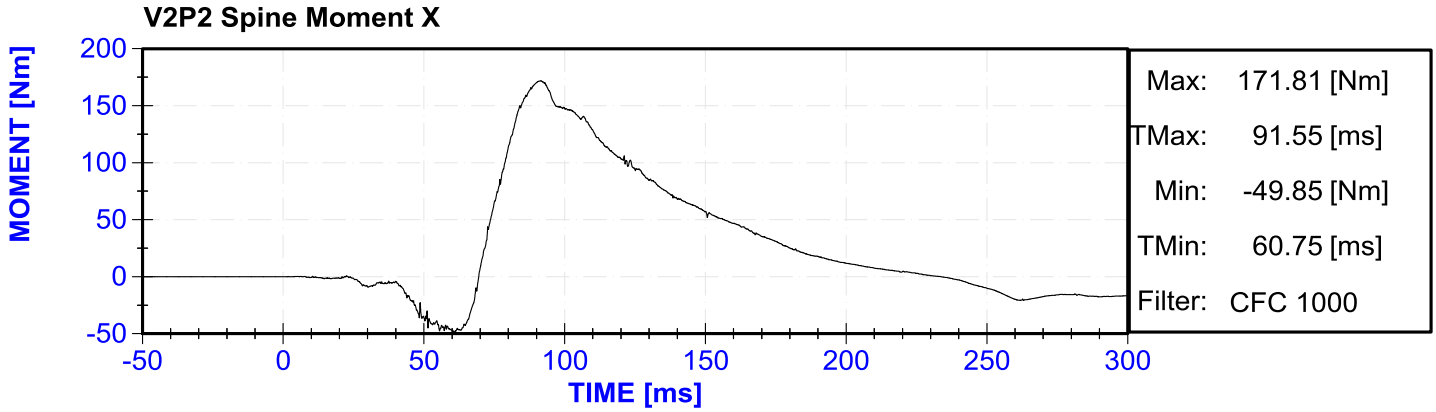


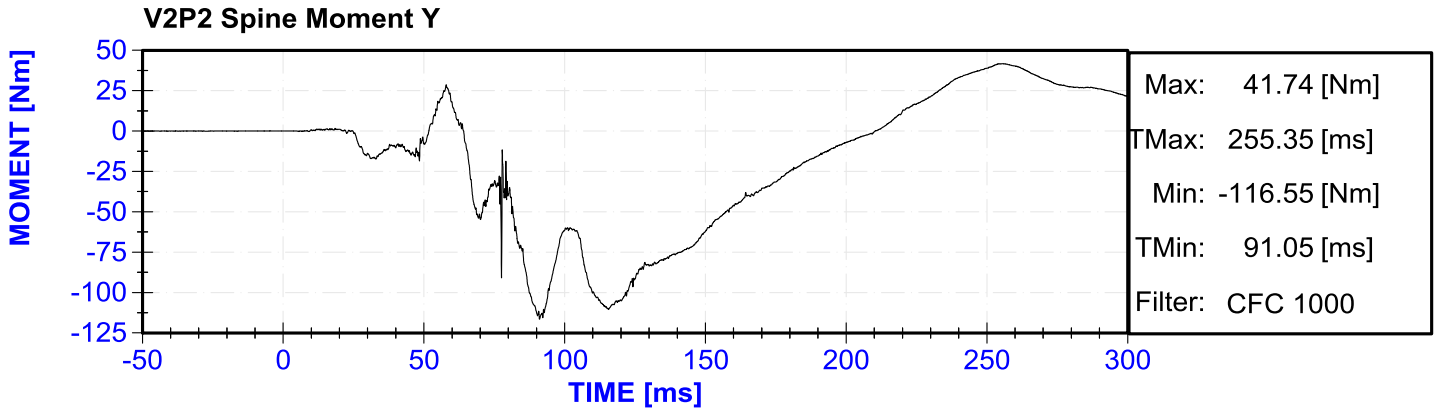
V2P2 Spine Force Y

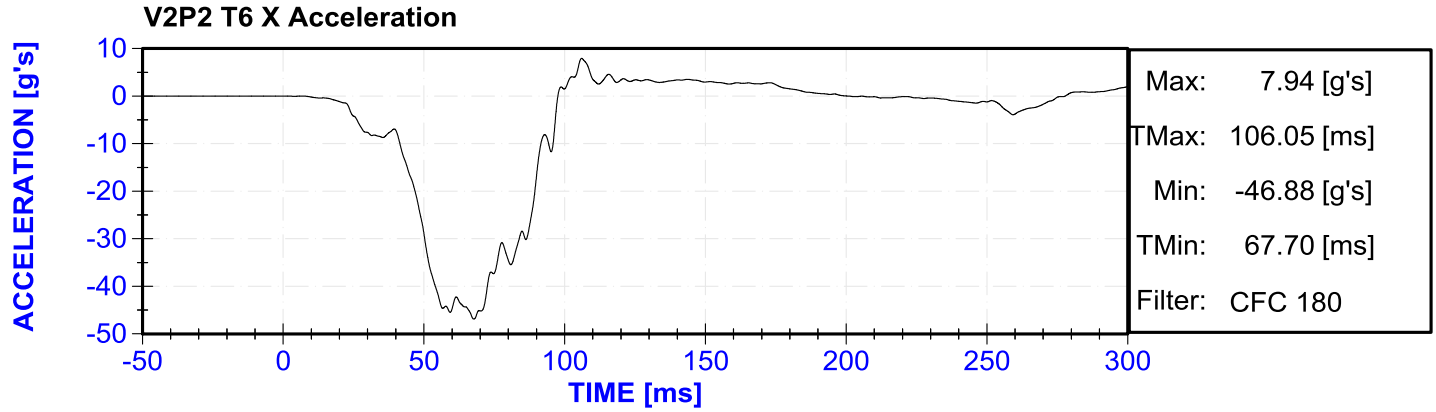


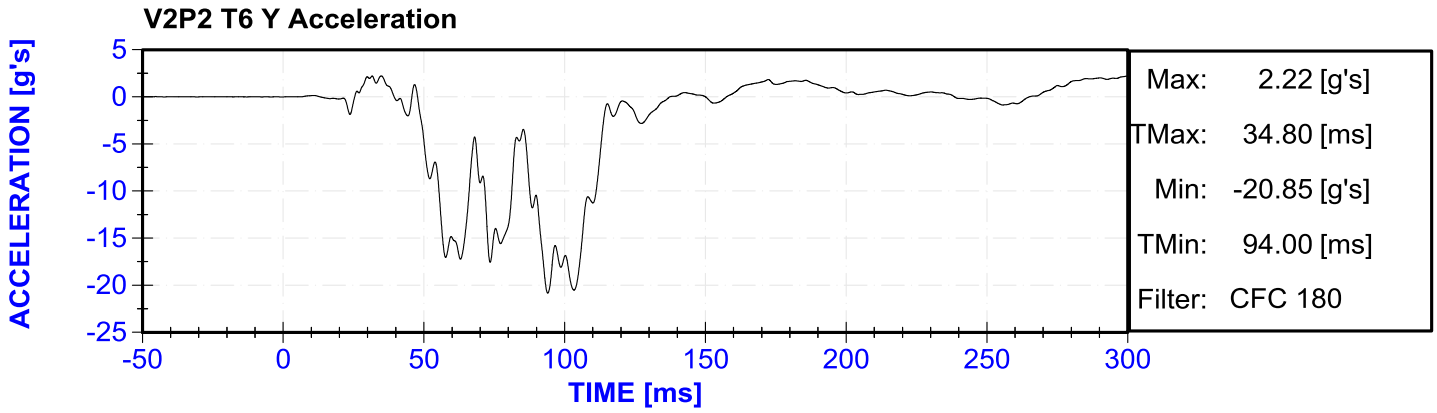
V2P2 Spine Force Z

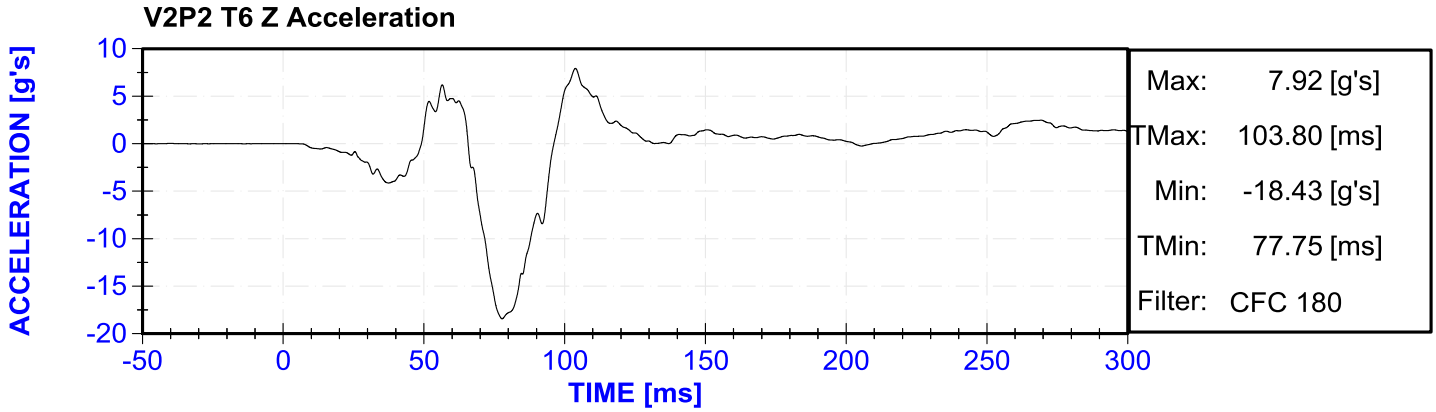


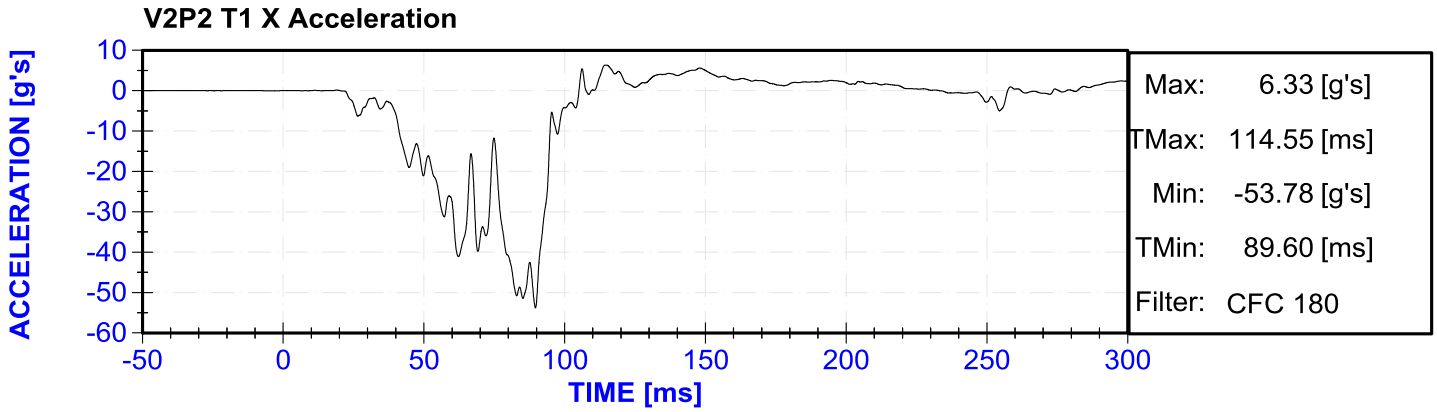

V2P2 Spine Moment X
MOMENT [Nm]
TIME [ms]
Max: 171.81 [Nm]
TMax: 91.55 [ms]
Min: -49.85 [Nm]
TMin: 60.75 [ms]
Filter: CFC 1000

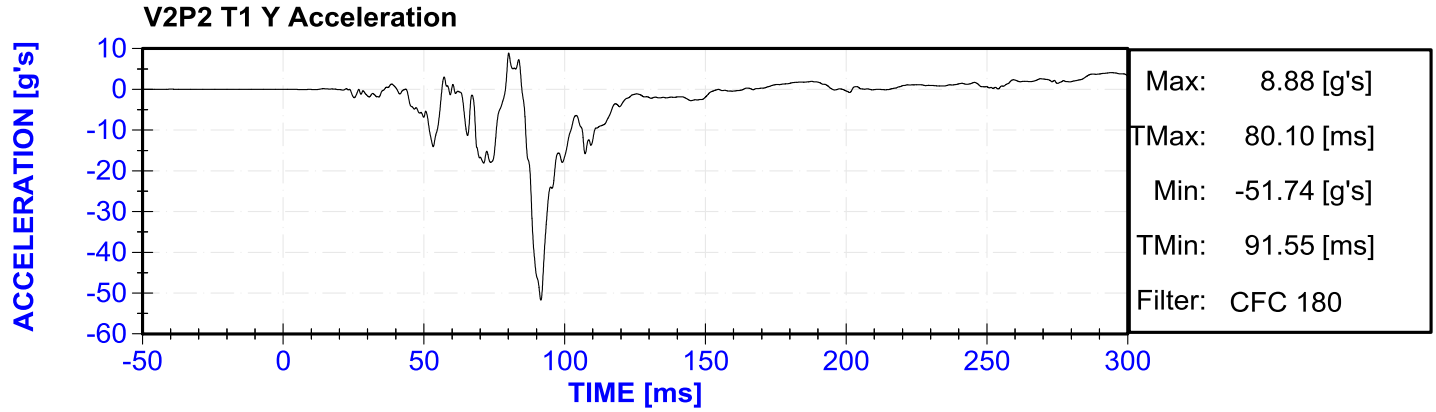

V2P2 Spine Moment Y
MOMENT [Nm]
TIME [ms]
Max: 41.74 [Nm]
TMax: 255.35 [ms]
Min: -116.55 [Nm]
TMin: 91.05 [ms]
Filter: CFC 1000

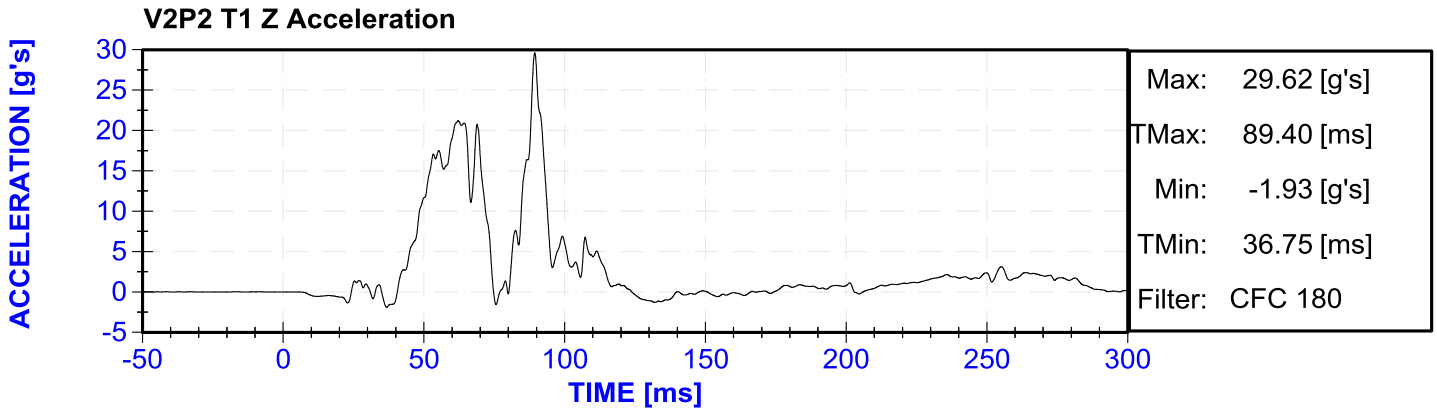

V2P2 T6 X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 7.94 [g's]
TMax: 106.05 [ms]
Min: -46.88 [g's]
TMin: 67.70 [ms]
Filter: CFC 180


V2P2 T6 Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 2.22 [g's]
TMax: 34.80 [ms]
Min: -20.85 [g's]
TMin: 94.00 [ms]
Filter: CFC 180


V2P2 T6 Z Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 7.92 [g's]
TMax: 103.80 [ms]
Min: -18.43 [g's]
TMin: 77.75 [ms]
Filter: CFC 180

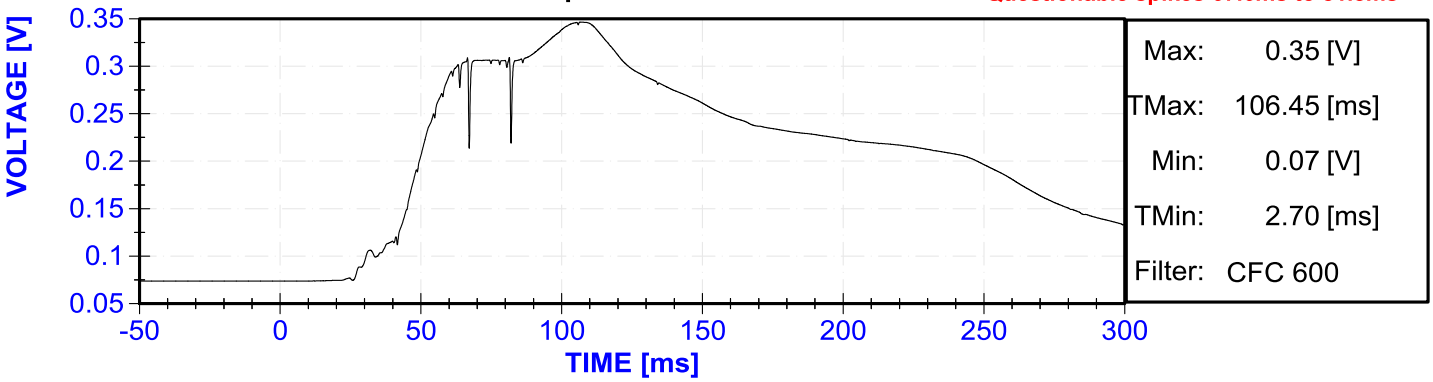

V2P2 T1 X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 6.33 [g's]
TMax: 114.55 [ms]
Min: -53.78 [g's]
TMin: 89.60 [ms]
Filter: CFC 180


V2P2 T1 Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 8.88 [g's]
TMax: 80.10 [ms]
Min: -51.74 [g's]
TMin: 91.55 [ms]
Filter: CFC 180

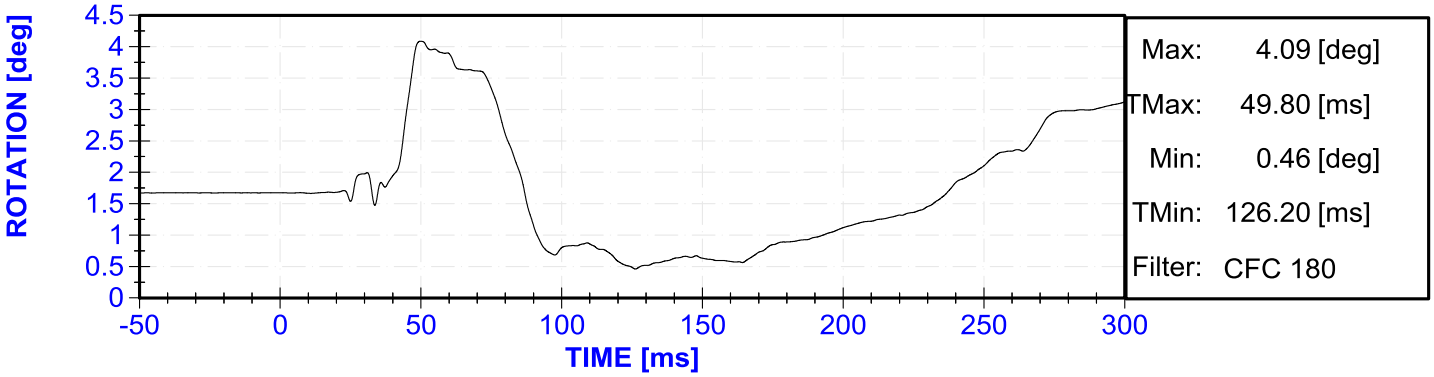

V2P2 T1 Z Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 29.62 [g's]
TMax: 89.40 [ms]
Min: -1.93 [g's]
TMin: 36.75 [ms]
Filter: CFC 180

V2P2 Abdomen Left DGIR X Displacement

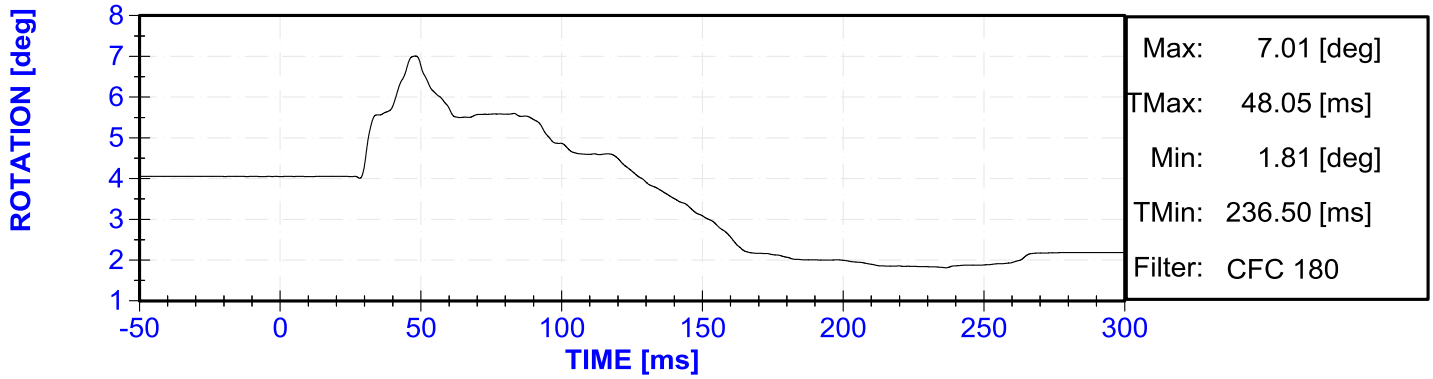
Questionable spikes 67.6ms to 81.8ms



V2P2 Abdomen Left DGIR Y Rotation

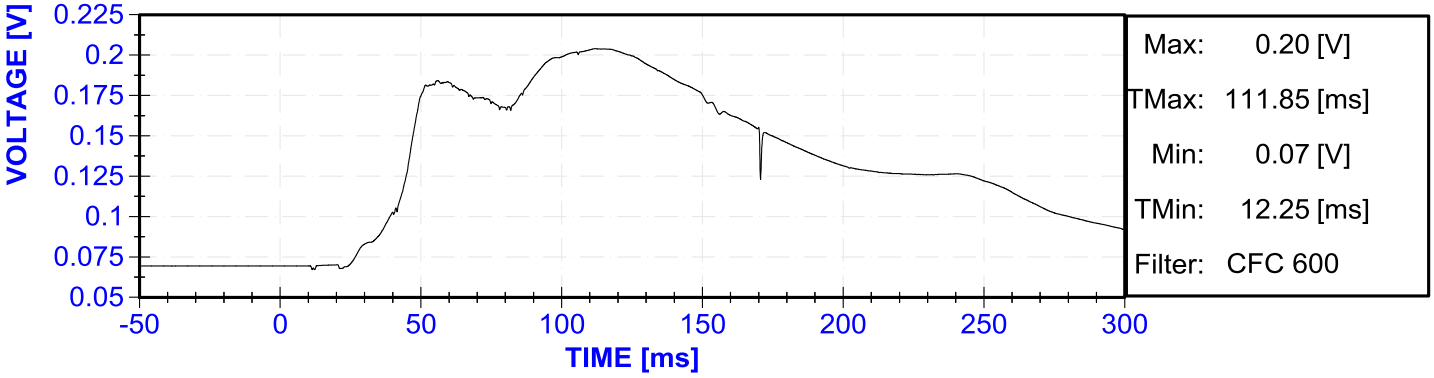


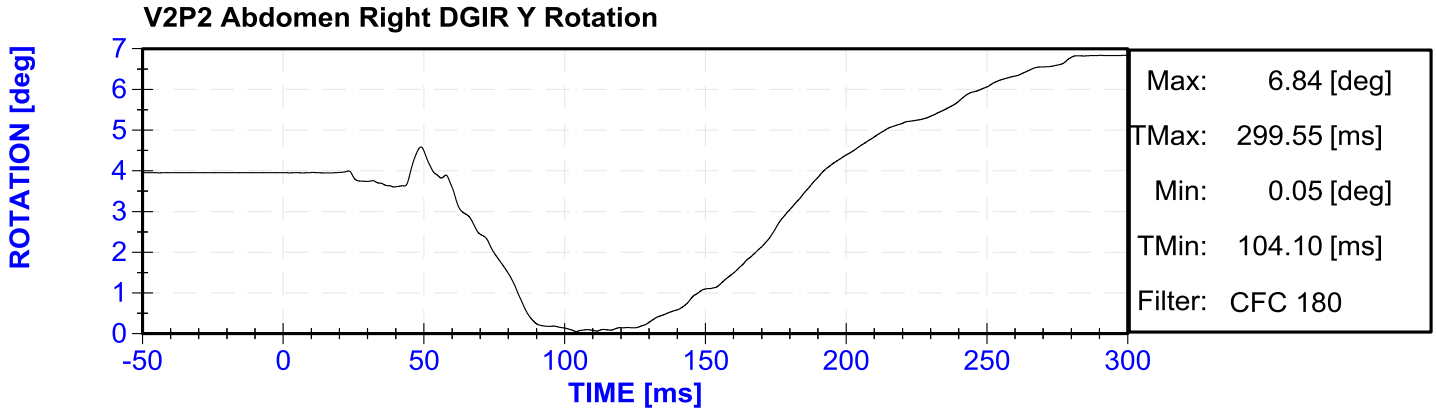
V2P2 Abdomen Left DGIR Z Rotation

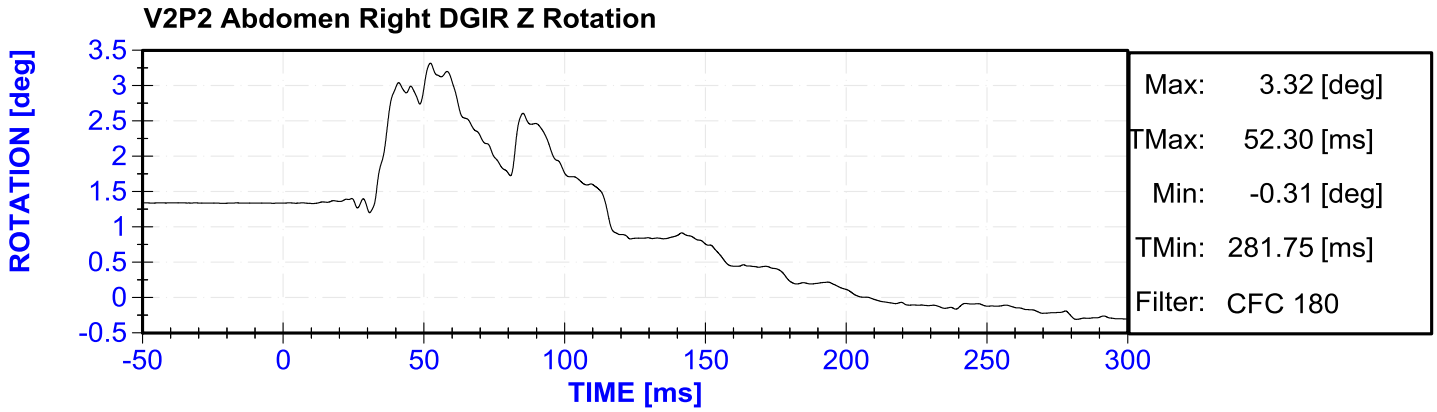


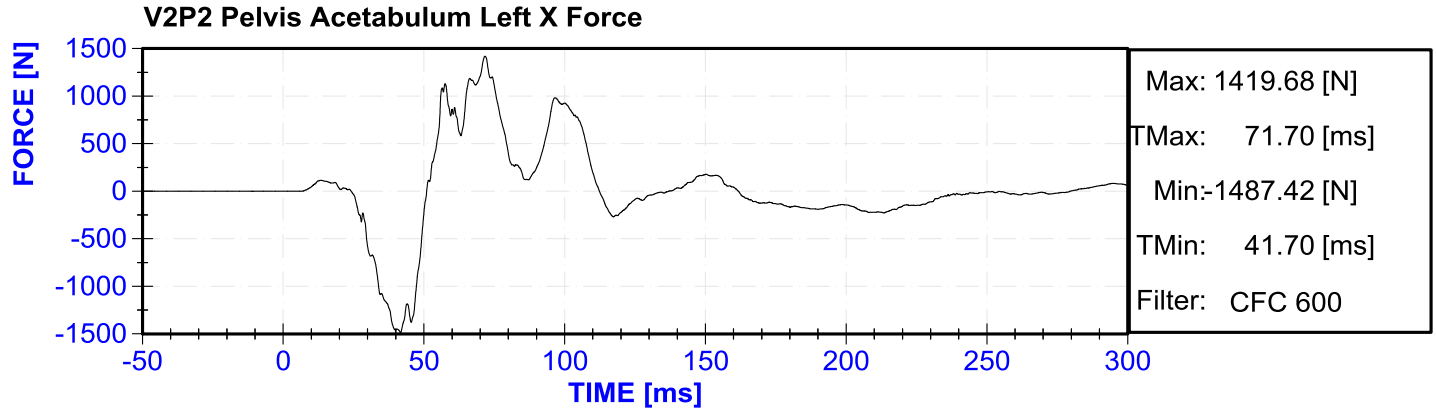
V2P2 Abdomen Right DGIR X Displacement

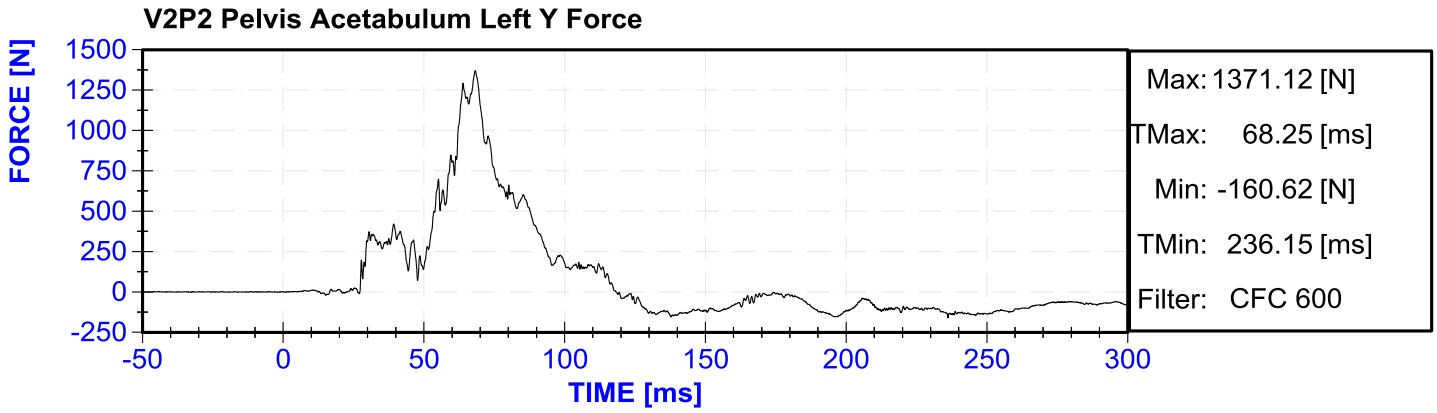
Questionable spike at 170ms




V2P2 Abdomen Right DGIR Y Rotation
ROTATION [deg]
TIME [ms]
Max: 6.84 [deg]
TMax: 299.55 [ms]
Min: 0.05 [deg]
TMin: 104.10 [ms]
Filter: CFC 180

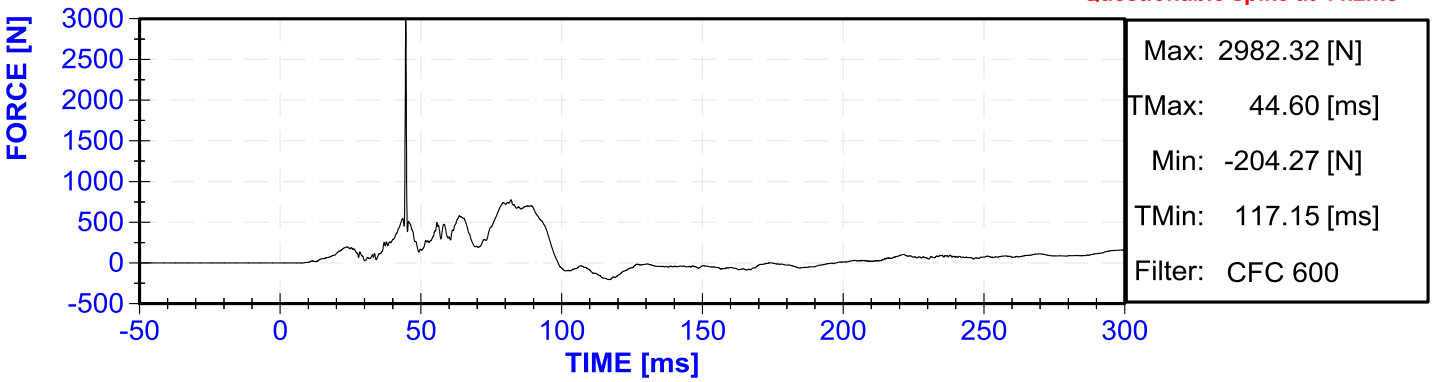

V2P2 Abdomen Right DGIR Z Rotation
ROTATION [deg]
TIME [ms]
Max: 3.32 [deg]
TMax: 52.30 [ms]
Min: -0.31 [deg]
TMin: 281.75 [ms]
Filter: CFC 180


V2P2 Pelvis Acetabulum Left X Force
FORCE [N]
TIME [ms]
Max: 1419.68 [N]
TMax: 71.70 [ms]
Min:-1487.42 [N]
TMin: 41.70 [ms]
Filter: CFC 600

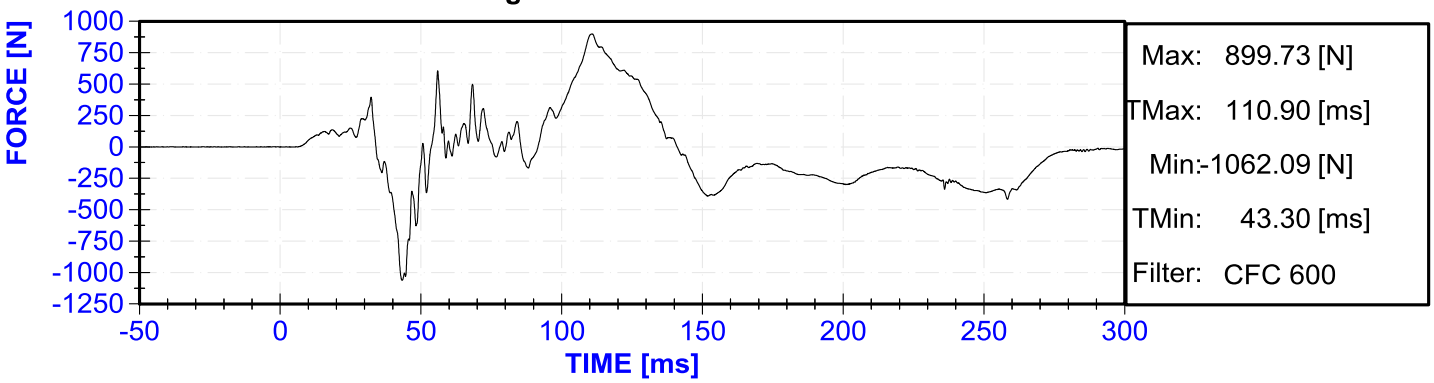

V2P2 Pelvis Acetabulum Left Y Force
FORCE [N]
TIME [ms]
Max: 1371.12 [N]
TMax: 68.25 [ms]
Min: -160.62 [N]
TMin: 236.15 [ms]
Filter: CFC 600

V2P2 Pelvis Acetabulum Left Z Force

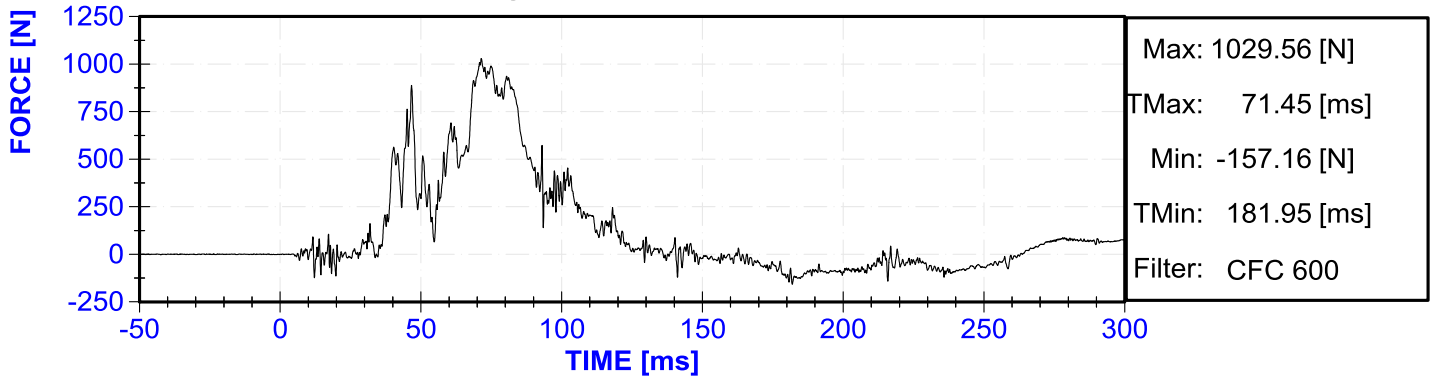
Questionable spike at 44.2ms



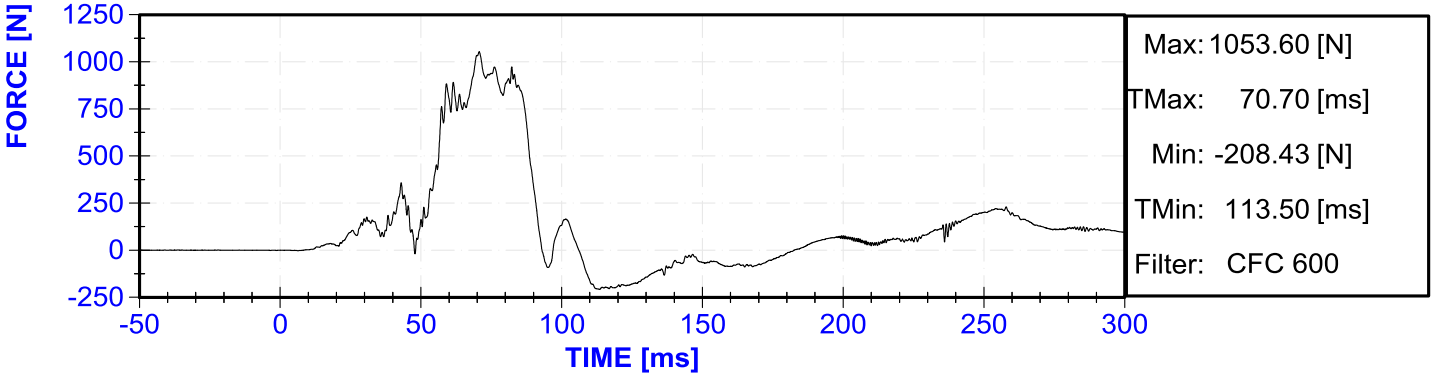
V2P2 Pelvis Acetabulum Right X Force

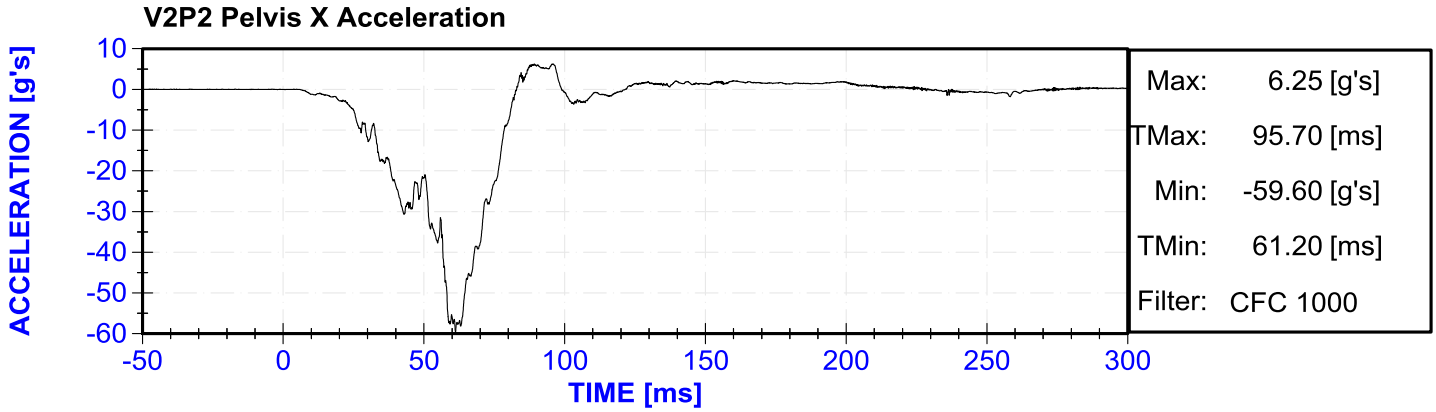


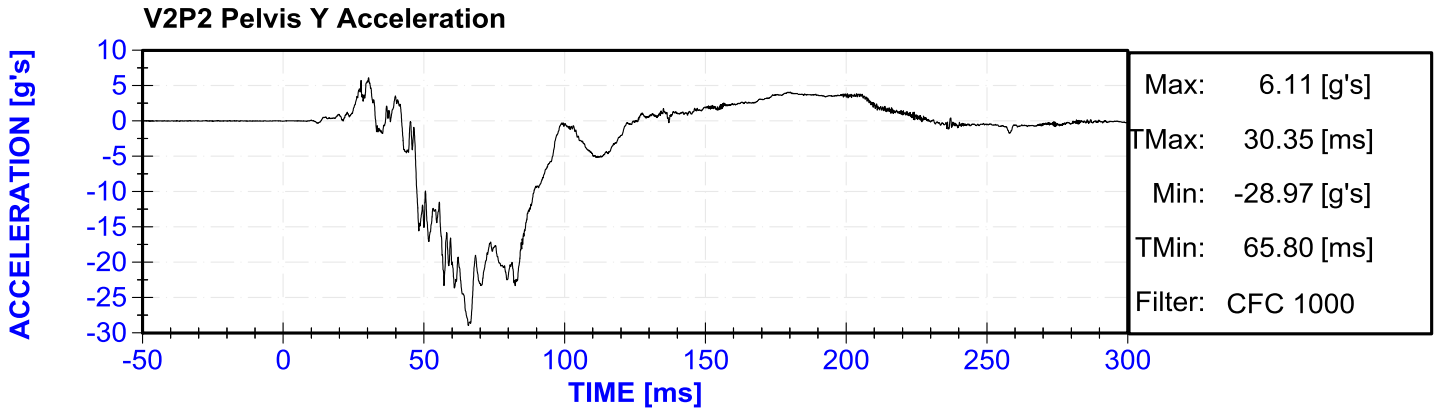
V2P2 Pelvis Acetabulum Right Y Force

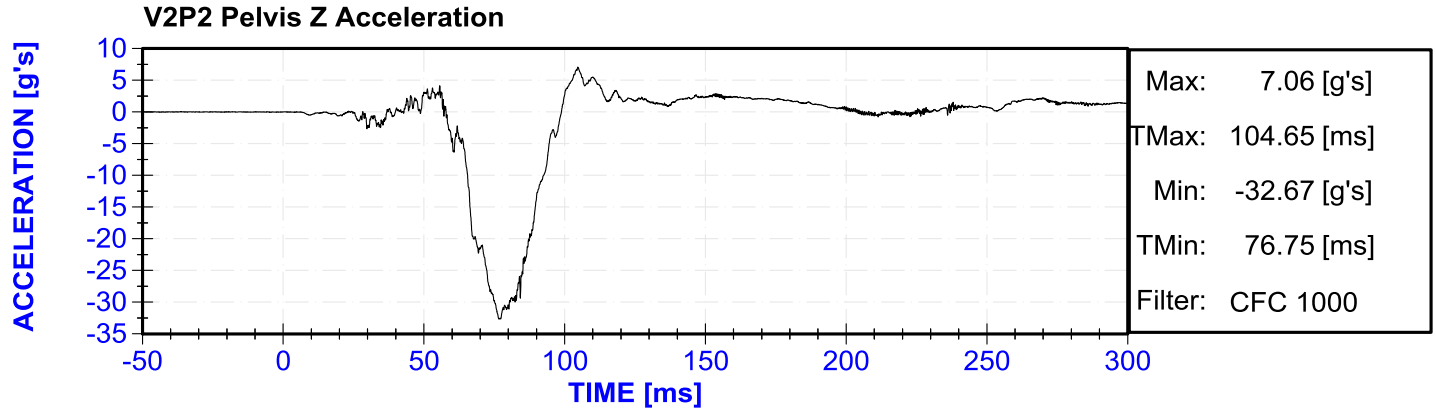


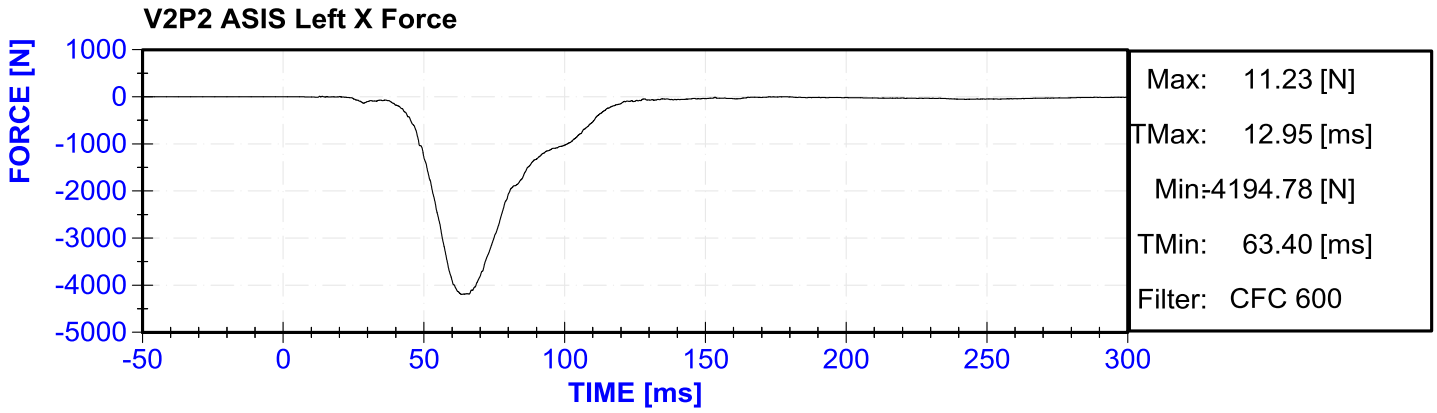
V2P2 Pelvis Acetabulum Right Z Force

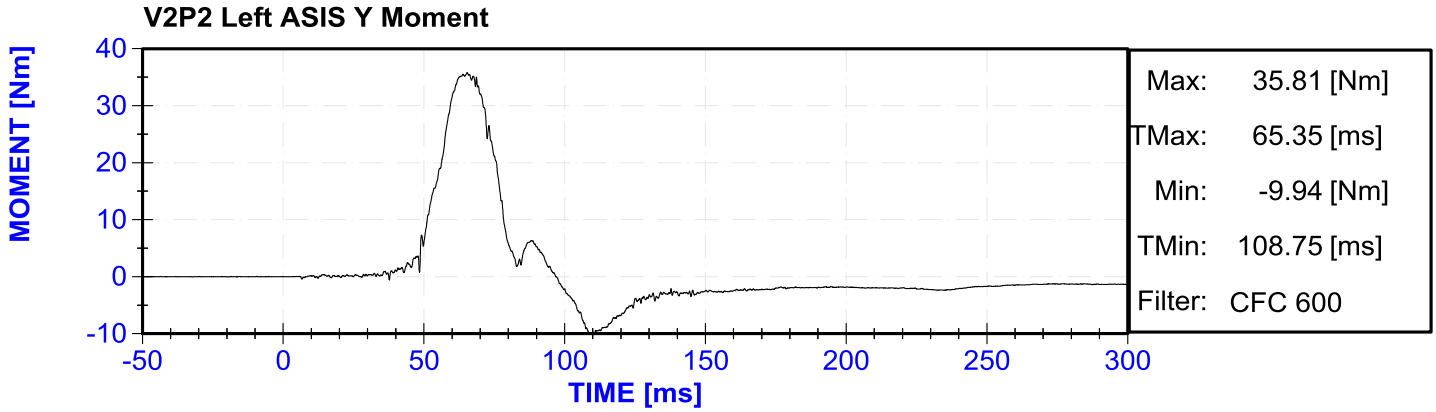


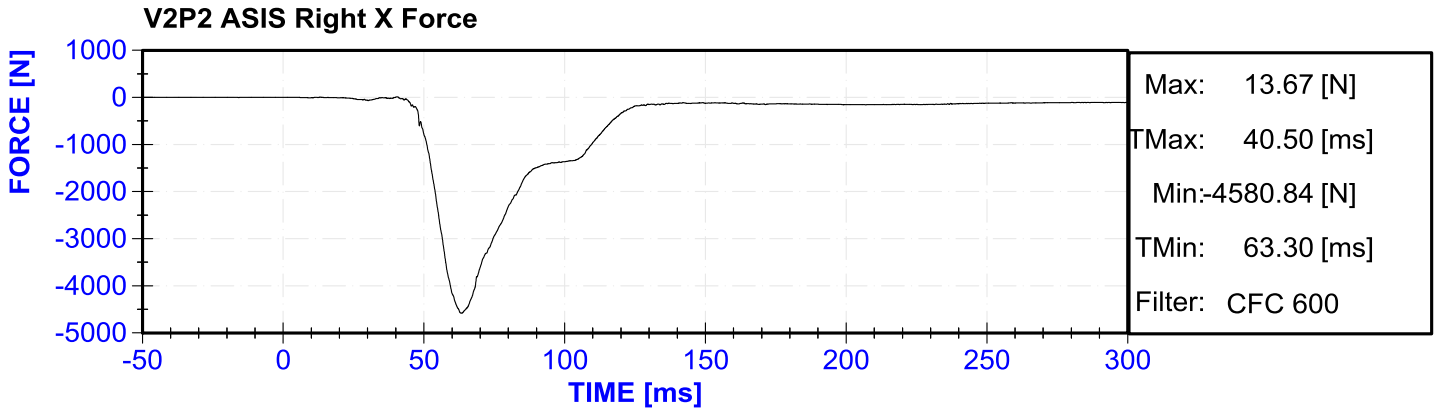

V2P2 Pelvis X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 6.25 [g's]
TMax: 95.70 [ms]
Min: -59.60 [g's]
TMin: 61.20 [ms]
Filter: CFC 1000

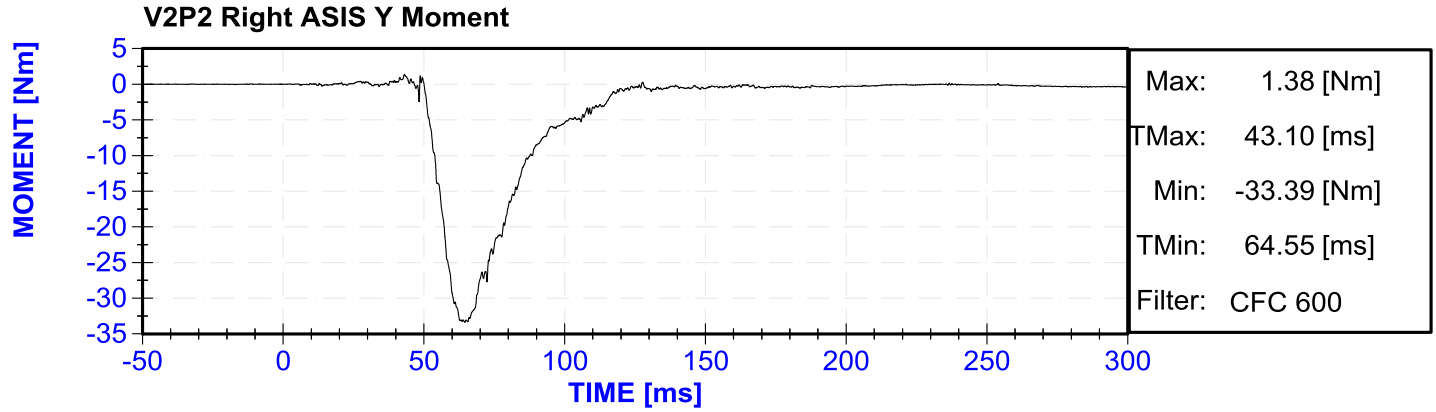

V2P2 Pelvis Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 6.11 [g's]
TMax: 30.35 [ms]
Min: -28.97 [g's]
TMin: 65.80 [ms]
Filter: CFC 1000

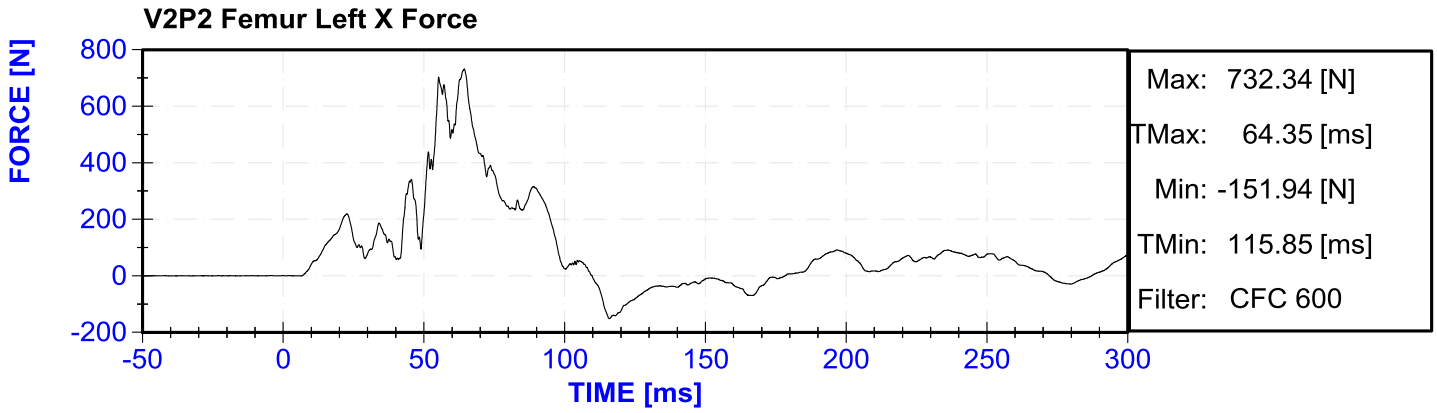

V2P2 Pelvis Z Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 7.06 [g's]
TMax: 104.65 [ms]
Min: -32.67 [g's]
TMin: 76.75 [ms]
Filter: CFC 1000

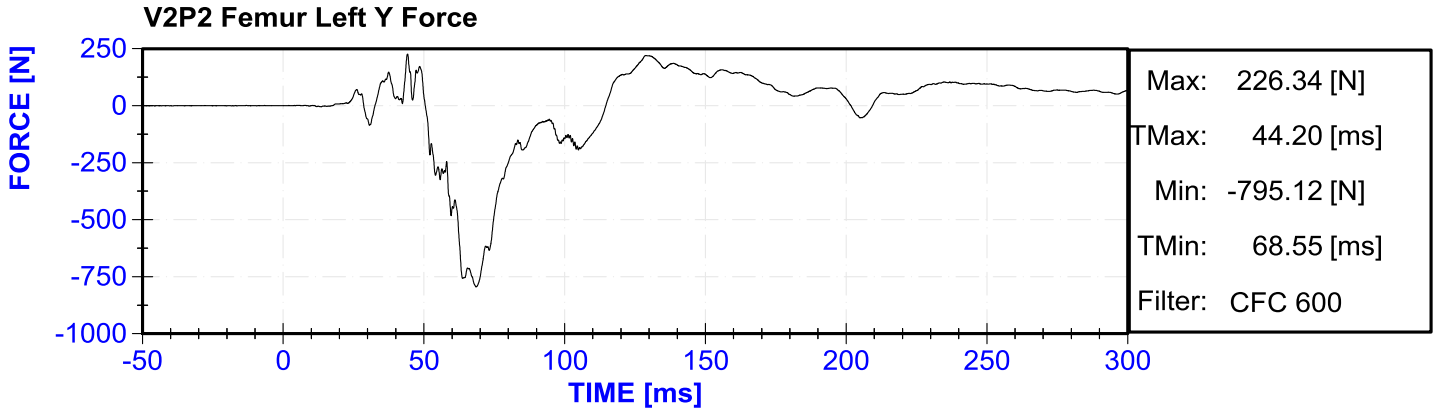

V2P2 ASIS Left X Force
FORCE [N]
TIME [ms]
Max: 11.23 [N]
TMax: 12.95 [ms]
Min: -4194.78 [N]
TMin: 63.40 [ms]
Filter: CFC 600

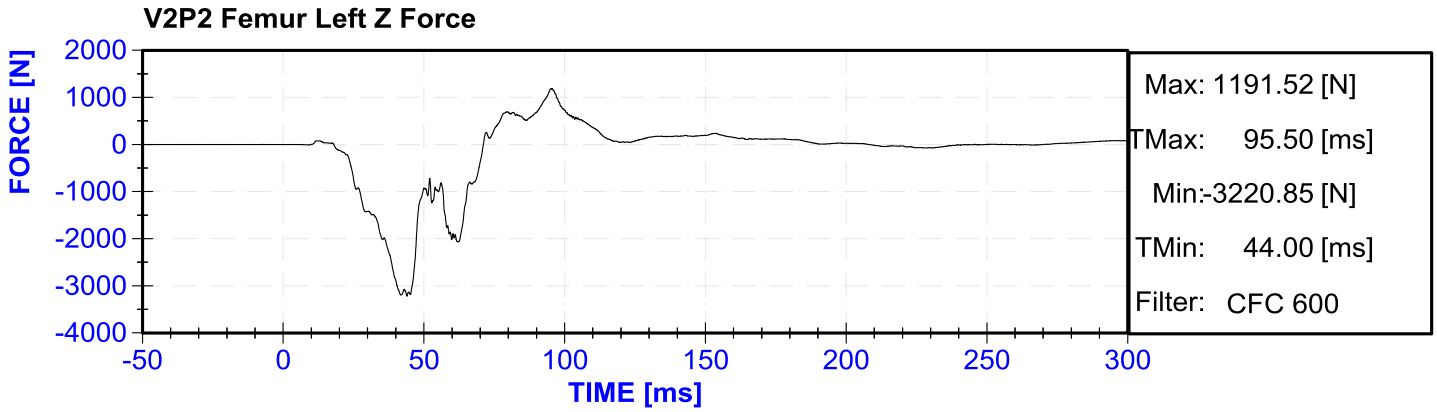

V2P2 Left ASIS Y Moment
MOMENT [Nm]
TIME [ms]
Max: 35.81 [Nm]
TMax: 65.35 [ms]
Min: -9.94 [Nm]
TMin: 108.75 [ms]
Filter: CFC 600

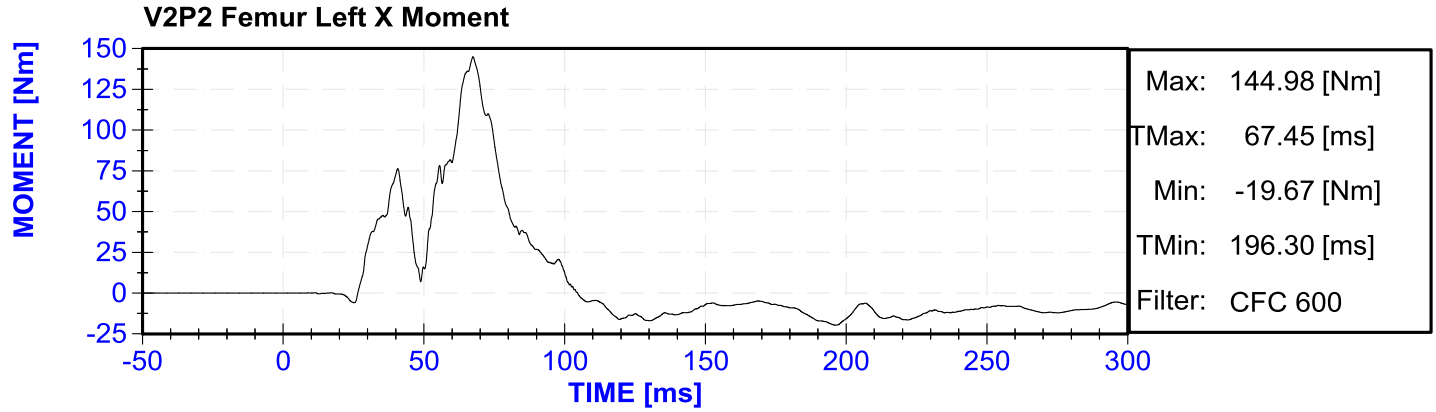

V2P2 ASIS Right X Force
FORCE [N]
TIME [ms]
Max: 13.67 [N]
TMax: 40.50 [ms]
Min:-4580.84 [N]
TMin: 63.30 [ms]
Filter: CFC 600

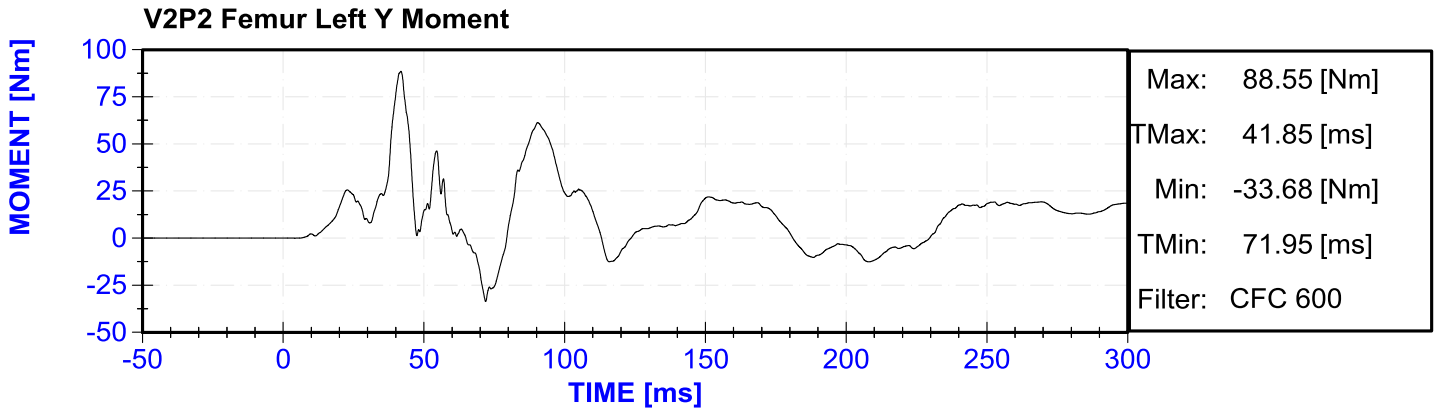

V2P2 Right ASIS Y Moment
MOMENT [Nm]
TIME [ms]
Max: 1.38 [Nm]
TMax: 43.10 [ms]
Min: -33.39 [Nm]
TMin: 64.55 [ms]
Filter: CFC 600

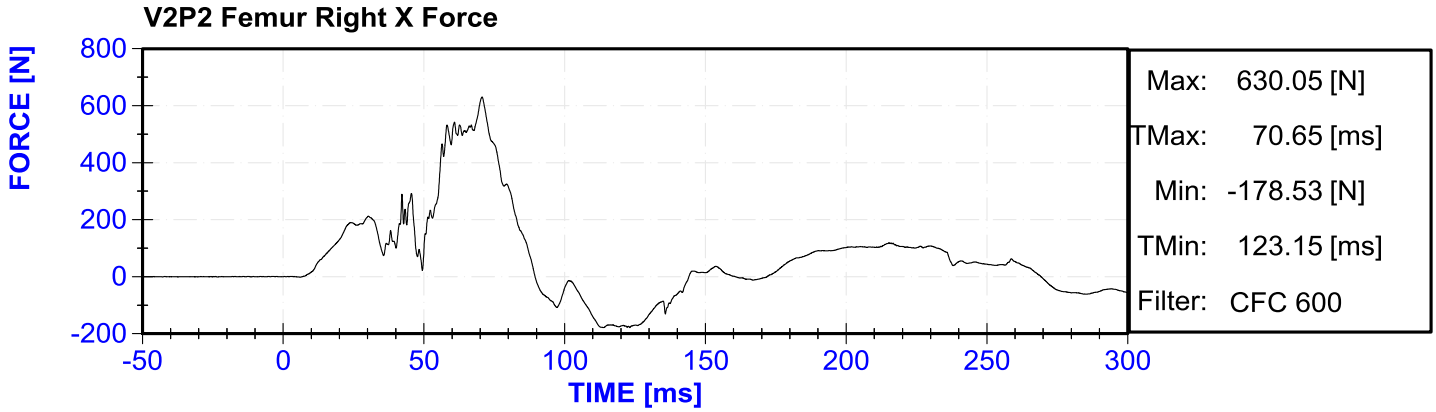

V2P2 Femur Left X Force
FORCE [N]
TIME [ms]
Max: 732.34 [N]
TMax: 64.35 [ms]
Min: -151.94 [N]
TMin: 115.85 [ms]
Filter: CFC 600

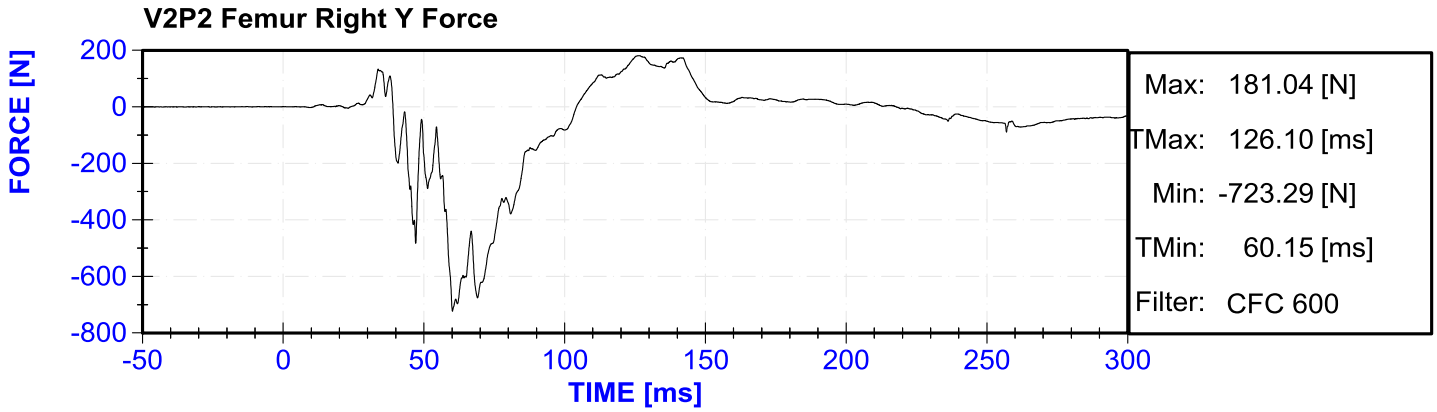

V2P2 Femur Left Y Force
FORCE [N]
TIME [ms]
Max: 226.34 [N]
TMax: 44.20 [ms]
Min: -795.12 [N]
TMin: 68.55 [ms]
Filter: CFC 600

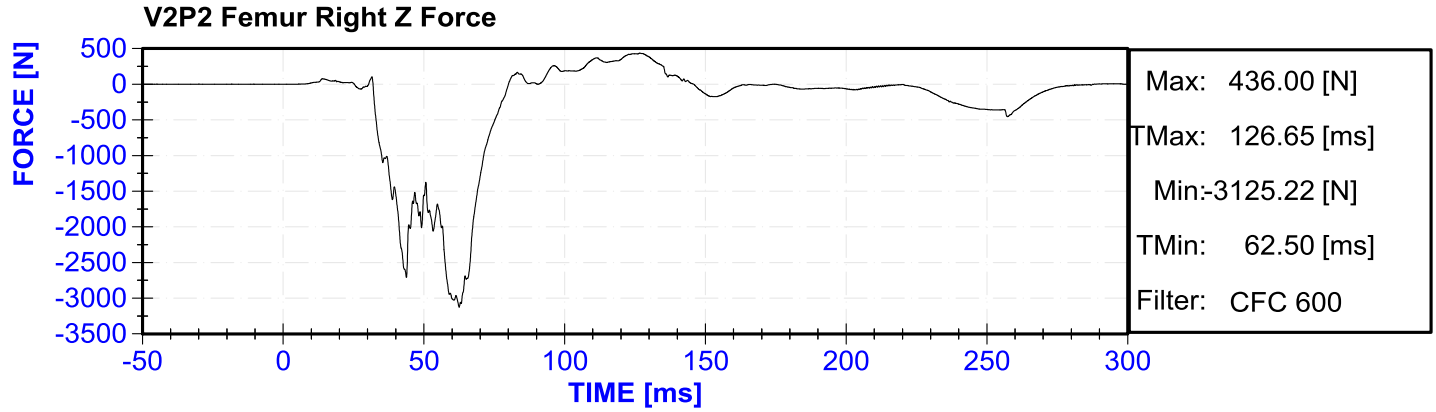

V2P2 Femur Left Z Force
FORCE [N]
TIME [ms]
Max: 1191.52 [N]
TMax: 95.50 [ms]
Min:-3220.85 [N]
TMin: 44.00 [ms]
Filter: CFC 600

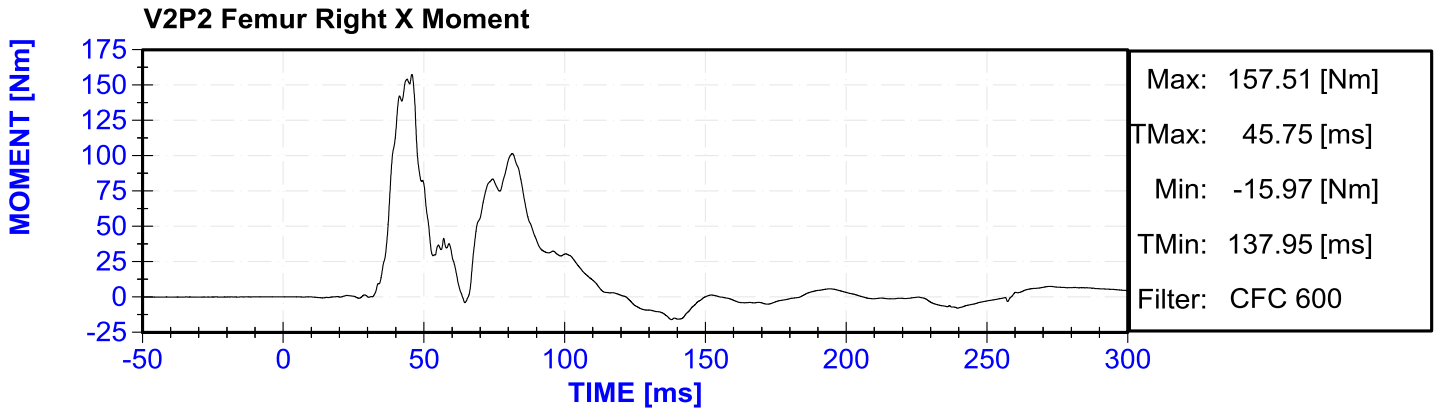

V2P2 Femur Left X Moment
MOMENT [Nm]
TIME [ms]
Max: 144.98 [Nm]
TMax: 67.45 [ms]
Min: -19.67 [Nm]
TMin: 196.30 [ms]
Filter: CFC 600

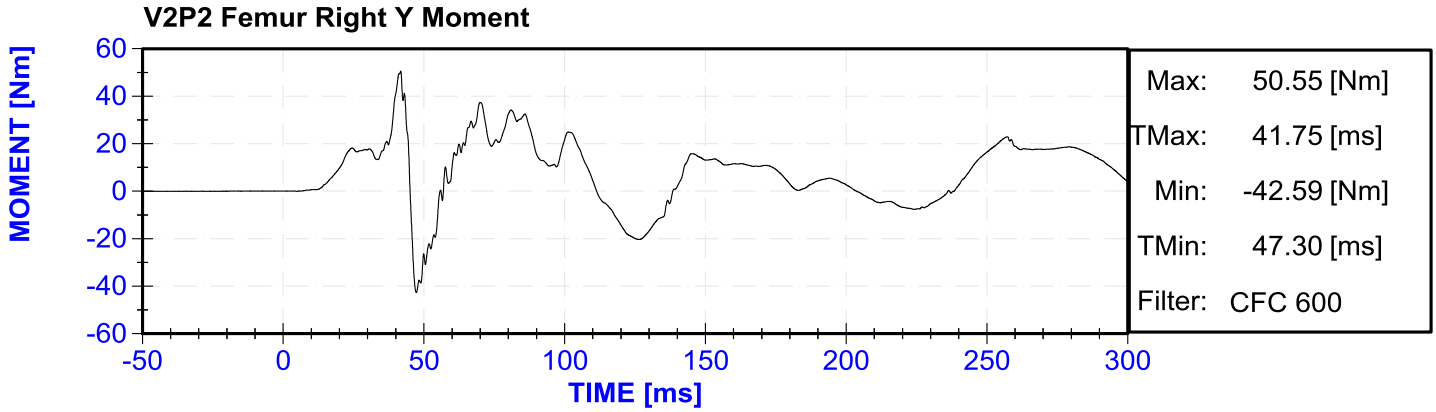

V2P2 Femur Left Y Moment
MOMENT [Nm]
TIME [ms]
Max: 88.55 [Nm]
TMax: 41.85 [ms]
Min: -33.68 [Nm]
TMin: 71.95 [ms]
Filter: CFC 600

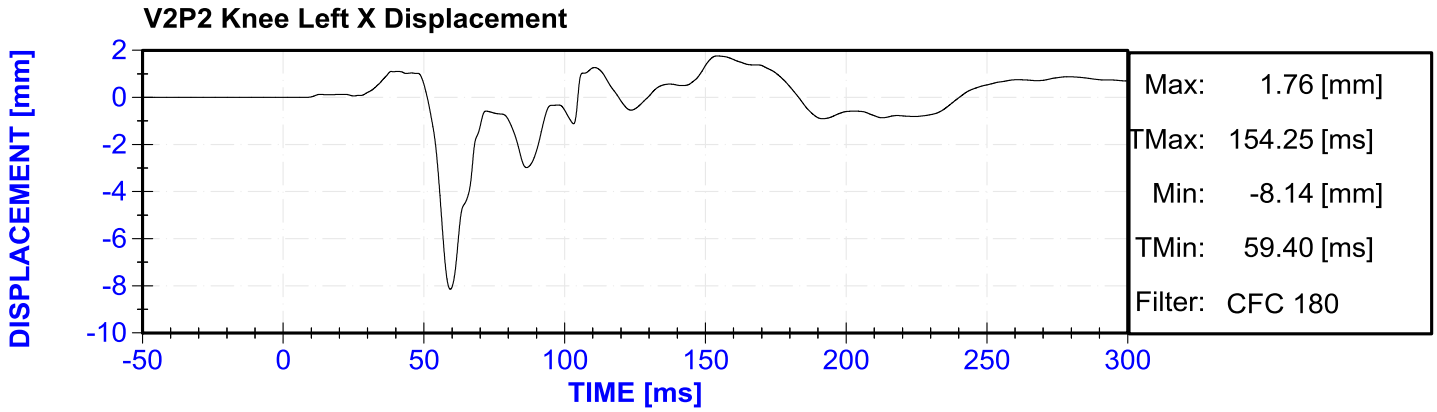

V2P2 Femur Right X Force
FORCE [N]
TIME [ms]
Max: 630.05 [N]
TMax: 70.65 [ms]
Min: -178.53 [N]
TMin: 123.15 [ms]
Filter: CFC 600

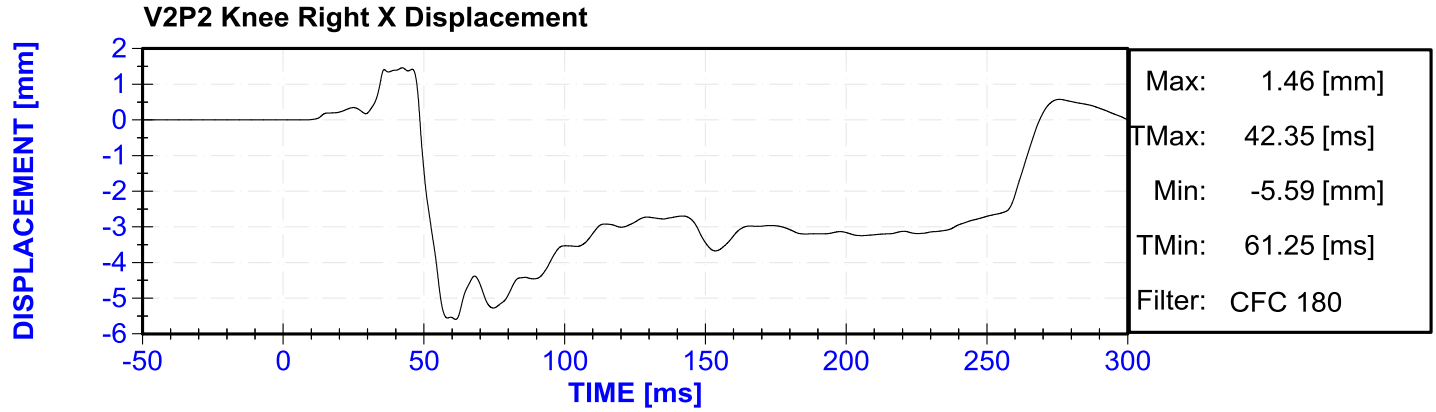

V2P2 Femur Right Y Force
FORCE [N]
TIME [ms]
Max: 181.04 [N]
TMax: 126.10 [ms]
Min: -723.29 [N]
TMin: 60.15 [ms]
Filter: CFC 600

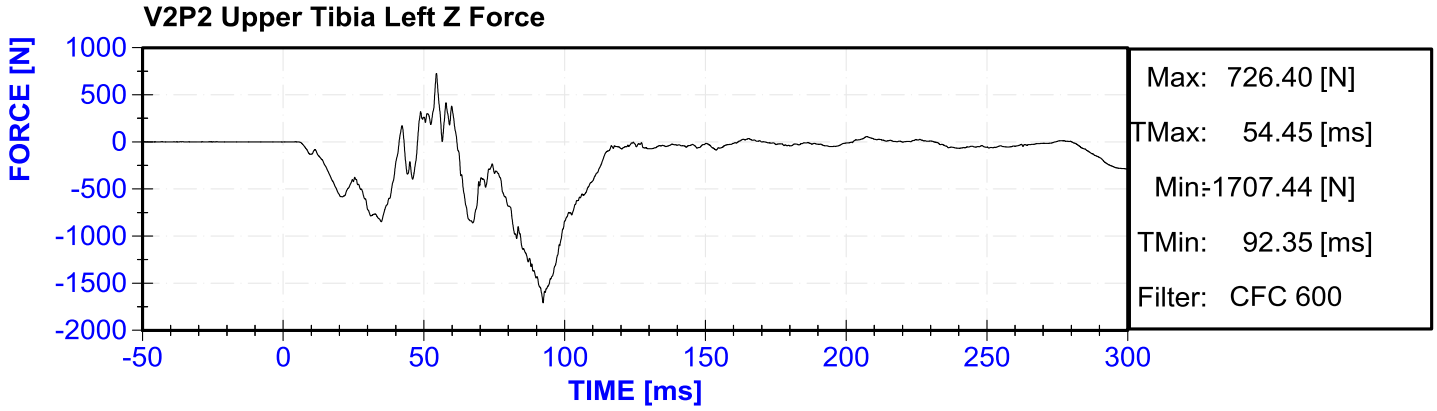

V2P2 Femur Right Z Force
FORCE [N]
TIME [ms]
Max: 436.00 [N]
TMax: 126.65 [ms]
Min:-3125.22 [N]
TMin: 62.50 [ms]
Filter: CFC 600

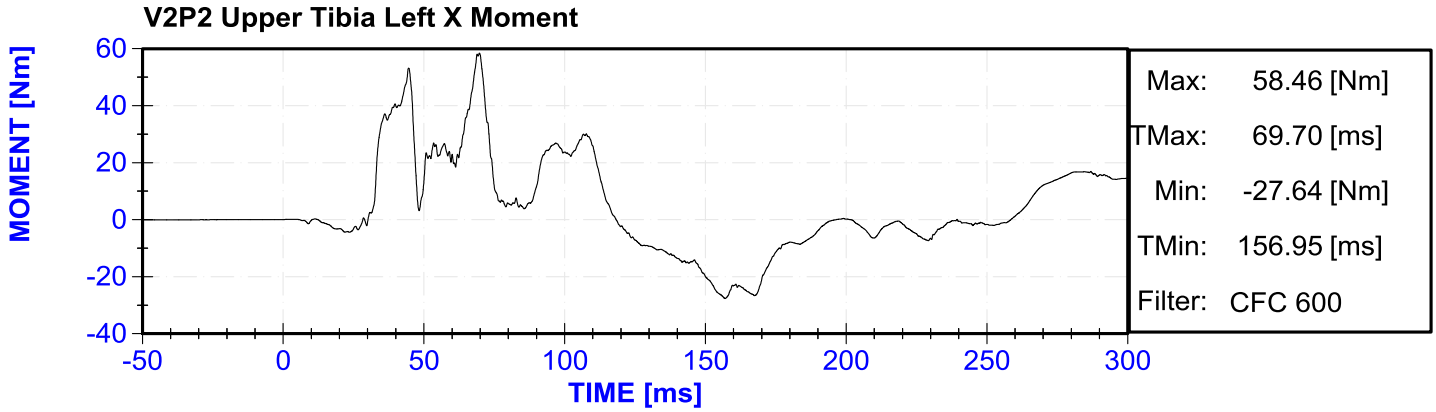

V2P2 Femur Right X Moment
MOMENT [Nm]
TIME [ms]
Max: 157.51 [Nm]
TMax: 45.75 [ms]
Min: -15.97 [Nm]
TMin: 137.95 [ms]
Filter: CFC 600

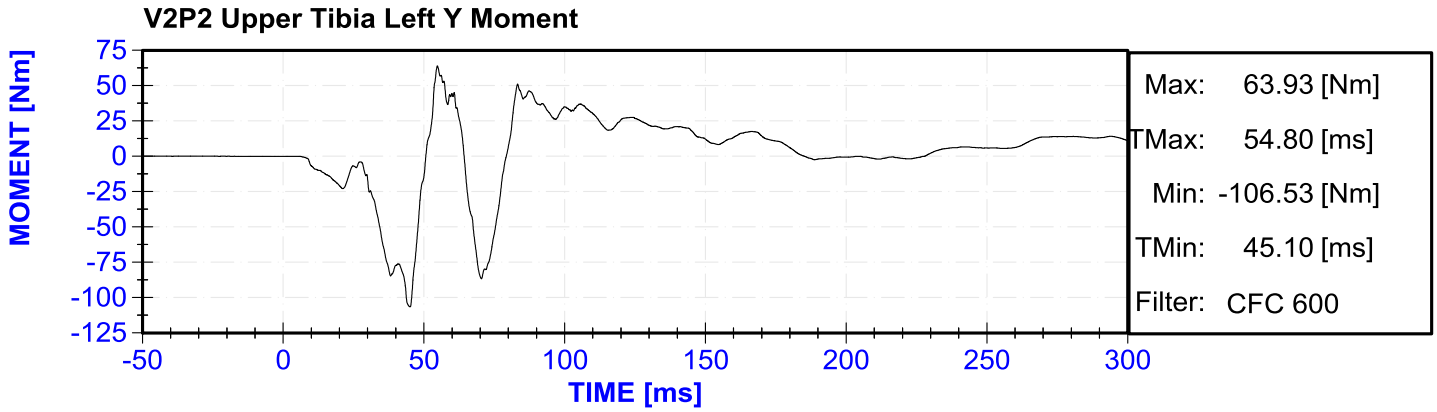

V2P2 Femur Right Y Moment
MOMENT [Nm]
TIME [ms]
Max: 50.55 [Nm]
TMax: 41.75 [ms]
Min: -42.59 [Nm]
TMin: 47.30 [ms]
Filter: CFC 600

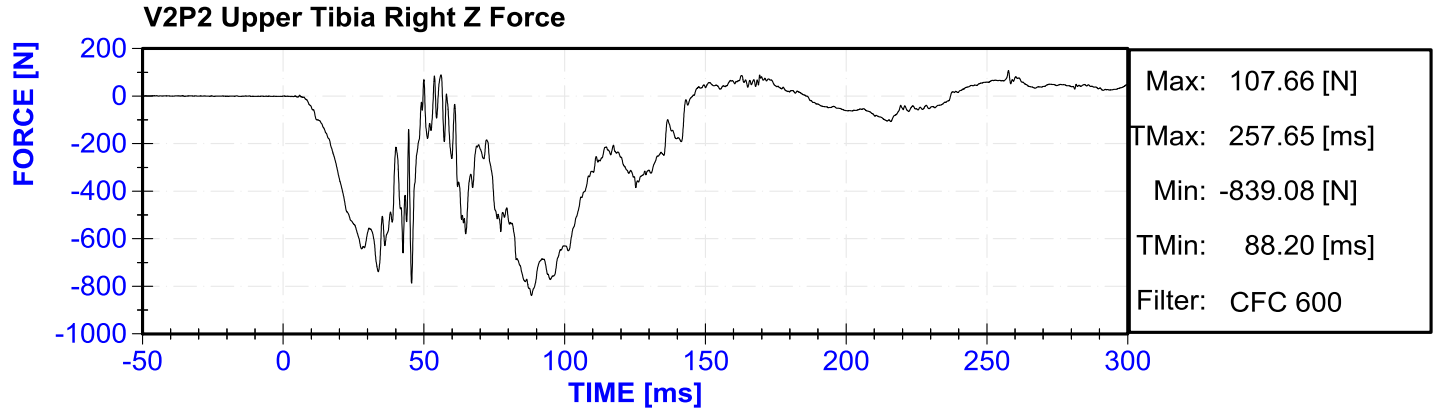

V2P2 Knee Left X Displacement
DISPLACEMENT [mm]
TIME [ms]
Max: 1.76 [mm]
TMax: 154.25 [ms]
Min: -8.14 [mm]
TMin: 59.40 [ms]
Filter: CFC 180

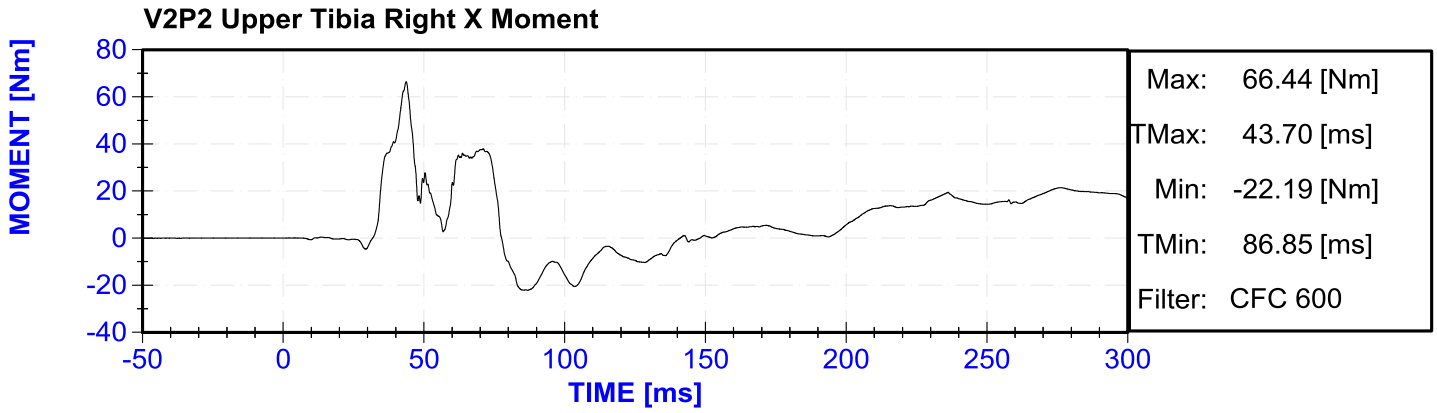

V2P2 Knee Right X Displacement
DISPLACEMENT [mm]
TIME [ms]
Max: 1.46 [mm]
TMax: 42.35 [ms]
Min: -5.59 [mm]
TMin: 61.25 [ms]
Filter: CFC 180


V2P2 Upper Tibia Left Z Force
FORCE [N]
TIME [ms]
Max: 726.40 [N]
TMax: 54.45 [ms]
Min: -1707.44 [N]
TMin: 92.35 [ms]
Filter: CFC 600

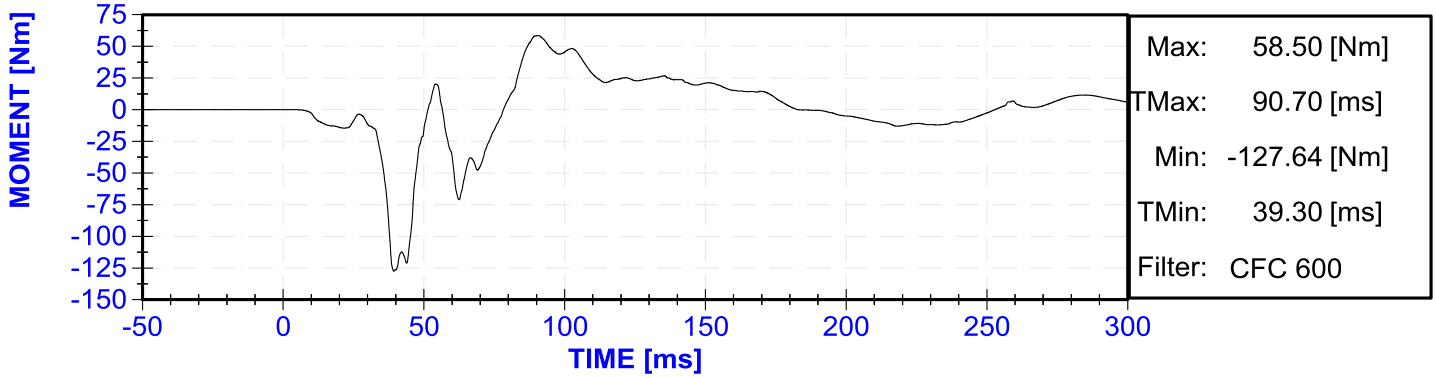

V2P2 Upper Tibia Left X Moment
MOMENT [Nm]
TIME [ms]
Max: 58.46 [Nm]
TMax: 69.70 [ms]
Min: -27.64 [Nm]
TMin: 156.95 [ms]
Filter: CFC 600


V2P2 Upper Tibia Left Y Moment
MOMENT [Nm]
TIME [ms]
Max: 63.93 [Nm]
TMax: 54.80 [ms]
Min: -106.53 [Nm]
TMin: 45.10 [ms]
Filter: CFC 600

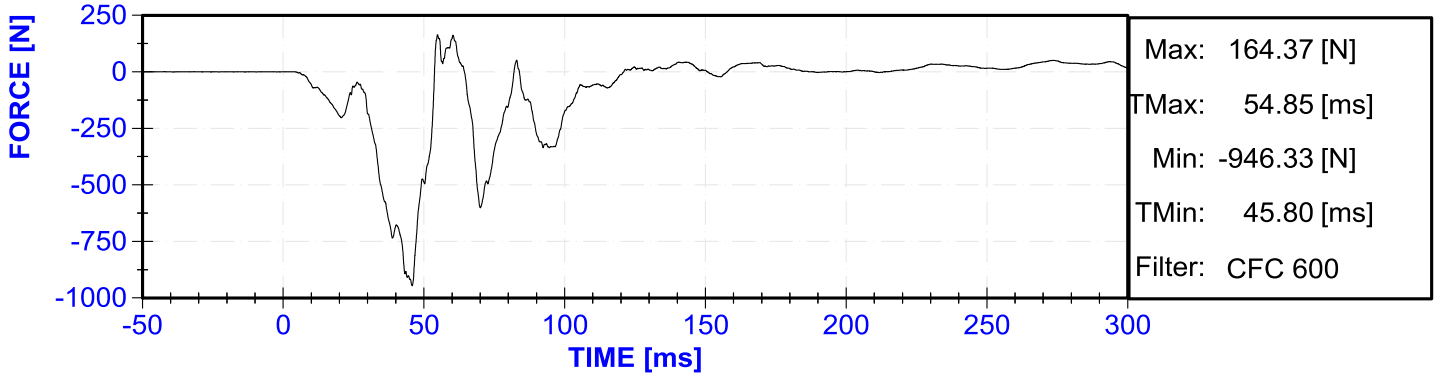

V2P2 Upper Tibia Right Z Force
FORCE [N]
TIME [ms]
Max: 107.66 [N]
TMax: 257.65 [ms]
Min: -839.08 [N]
TMin: 88.20 [ms]
Filter: CFC 600


V2P2 Upper Tibia Right X Moment
MOMENT [Nm]
TIME [ms]
Max: 66.44 [Nm]
TMax: 43.70 [ms]
Min: -22.19 [Nm]
TMin: 86.85 [ms]
Filter: CFC 600

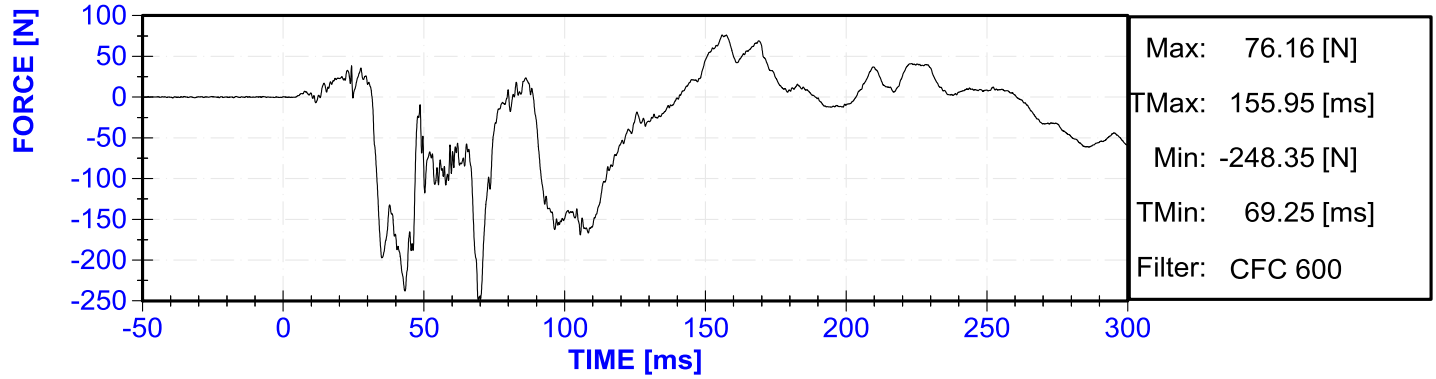
V2P2 Upper Tibia Right Y Moment



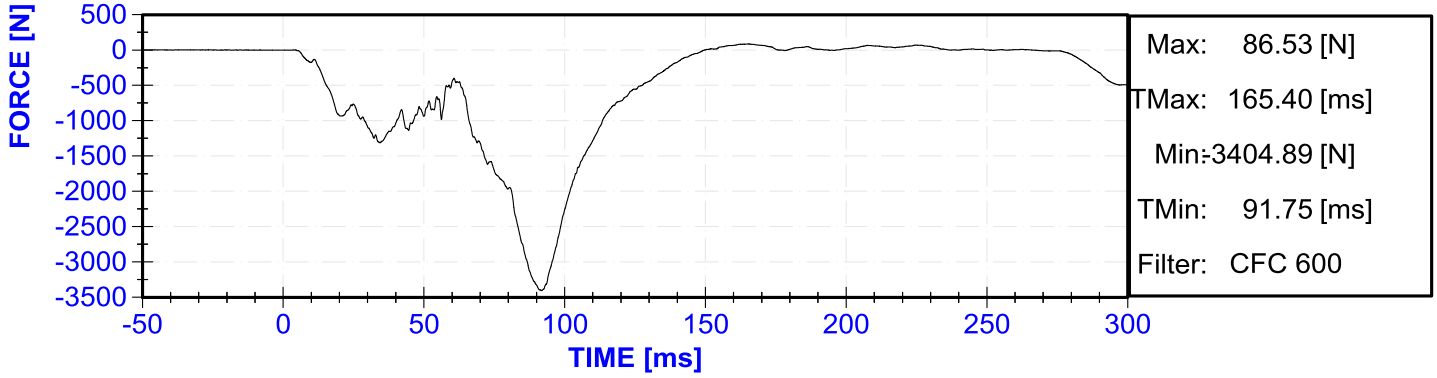
V2P2 Lower Tibia Left X Force

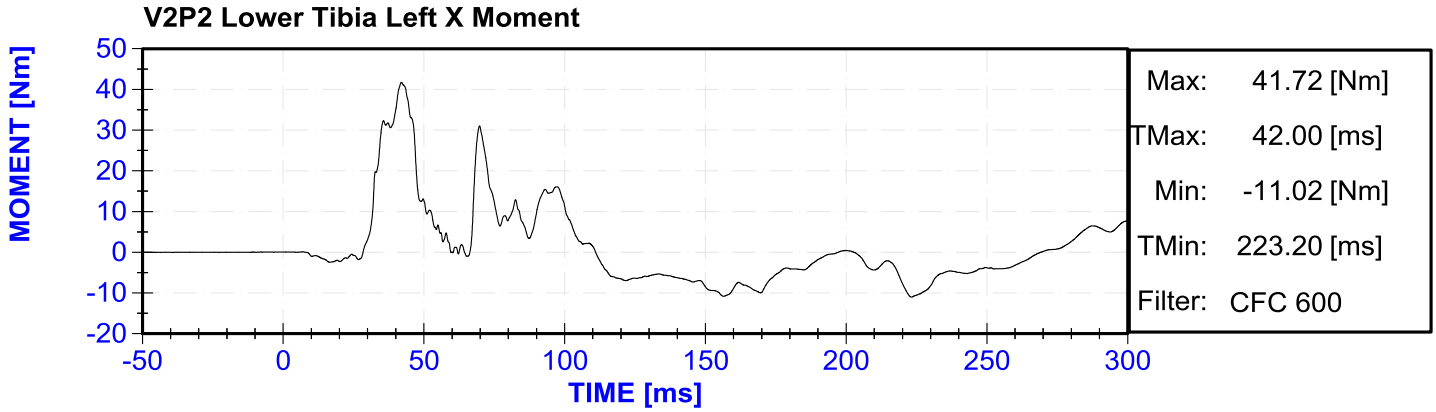


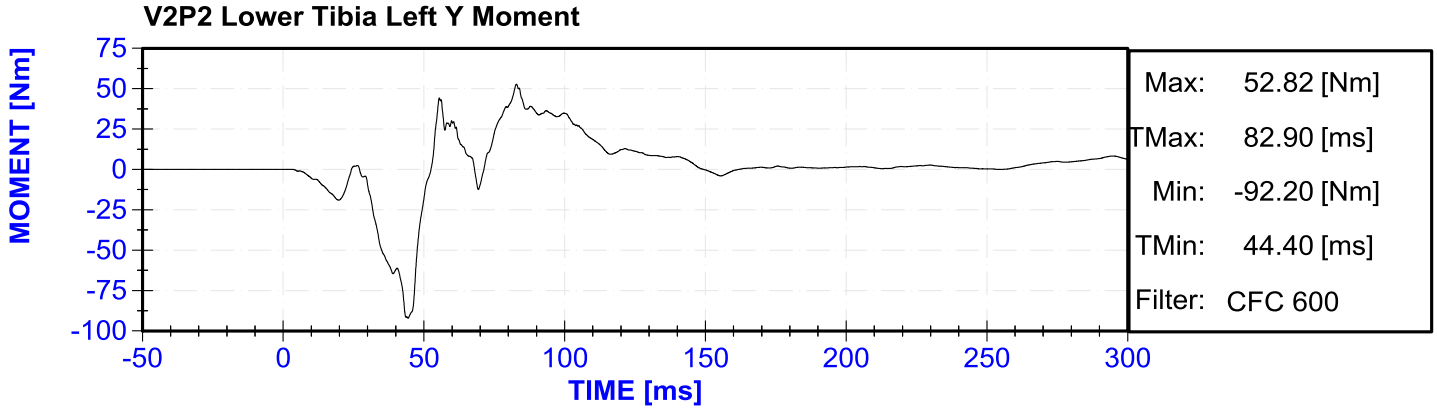
V2P2 Lower Tibia Left Y Force

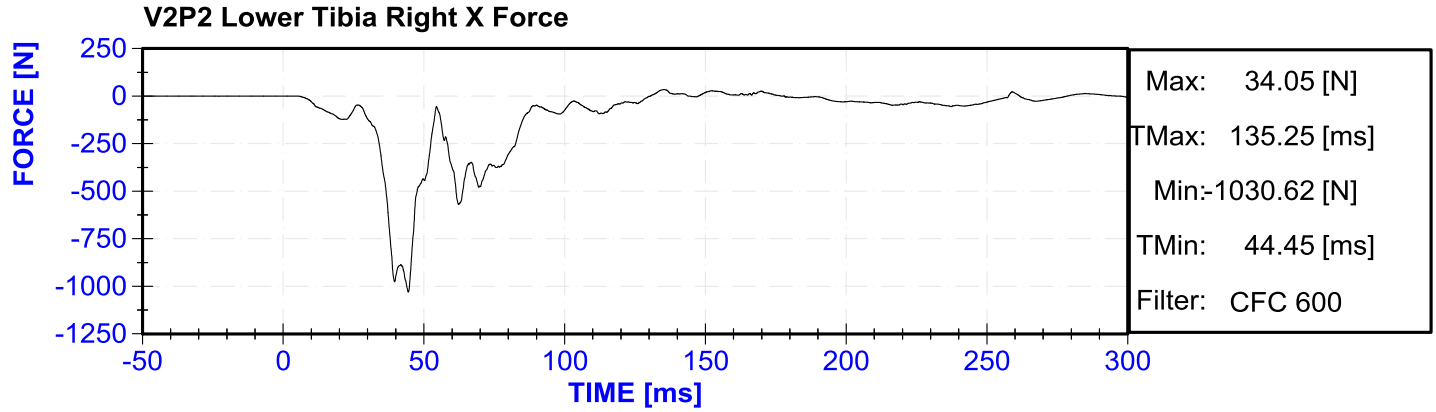


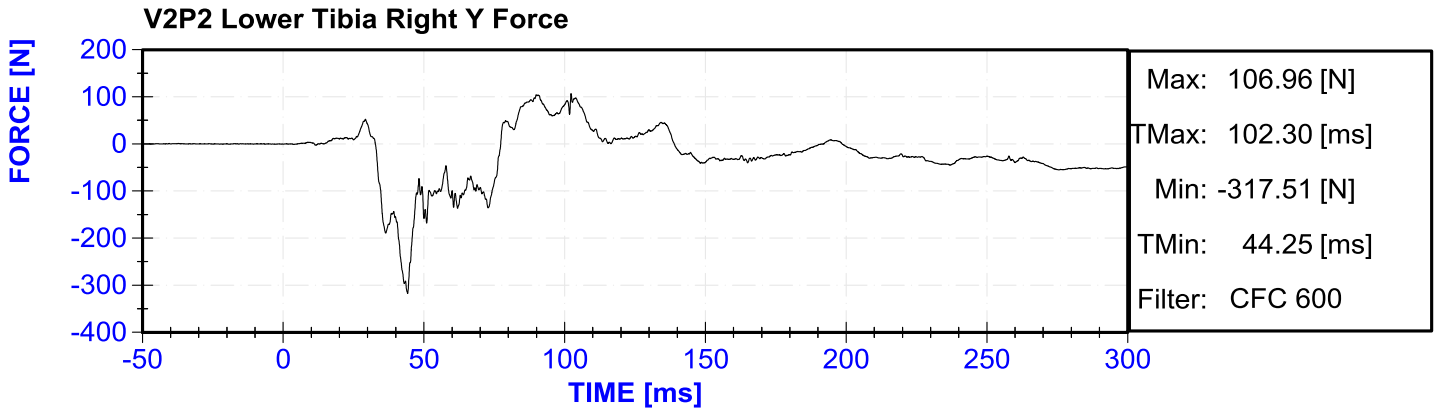
V2P2 Lower Tibia Left Z Force

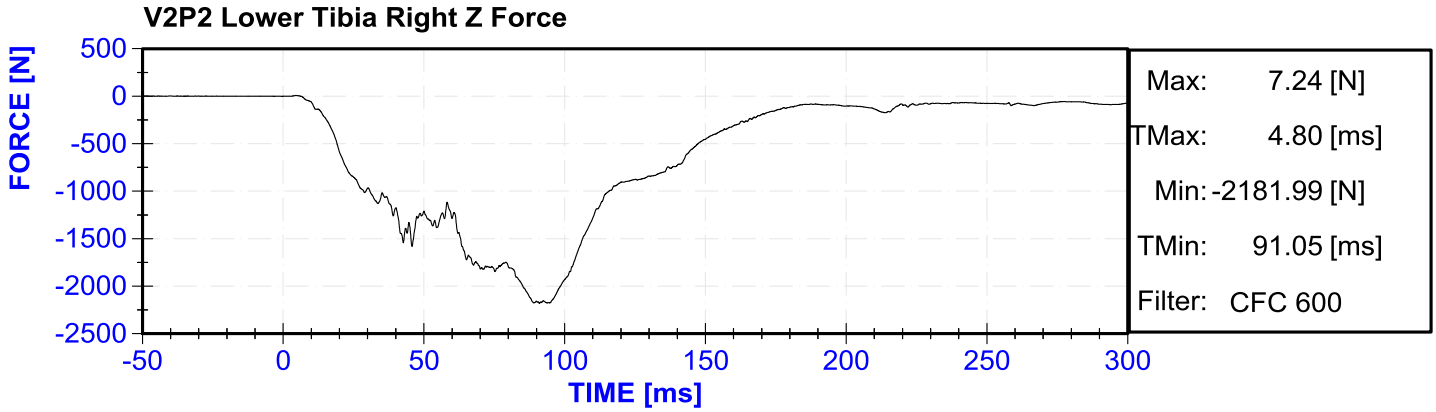


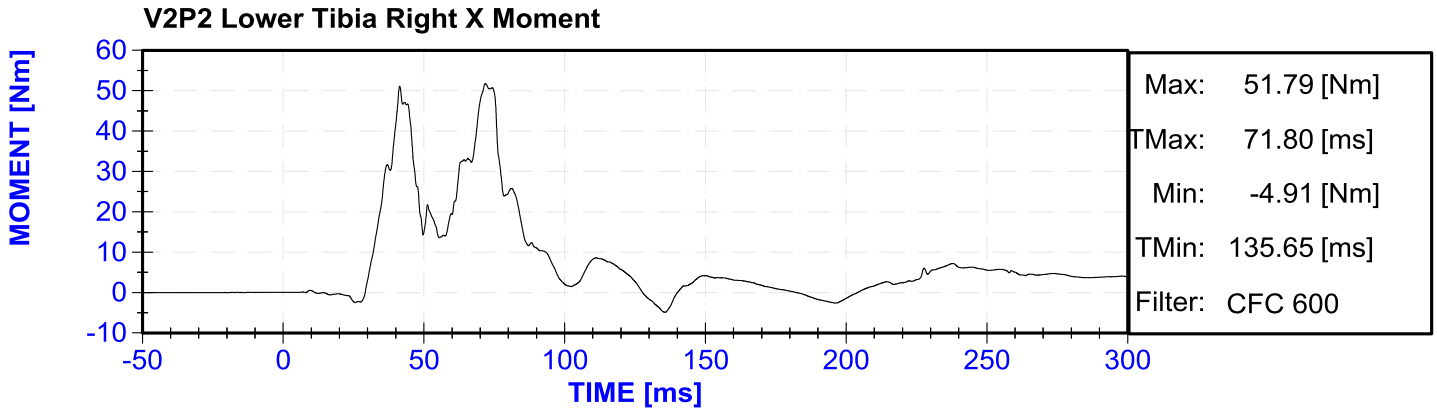

V2P2 Lower Tibia Left X Moment
MOMENT [Nm]
TIME [ms]
Max: 41.72 [Nm]
TMax: 42.00 [ms]
Min: -11.02 [Nm]
TMin: 223.20 [ms]
Filter: CFC 600

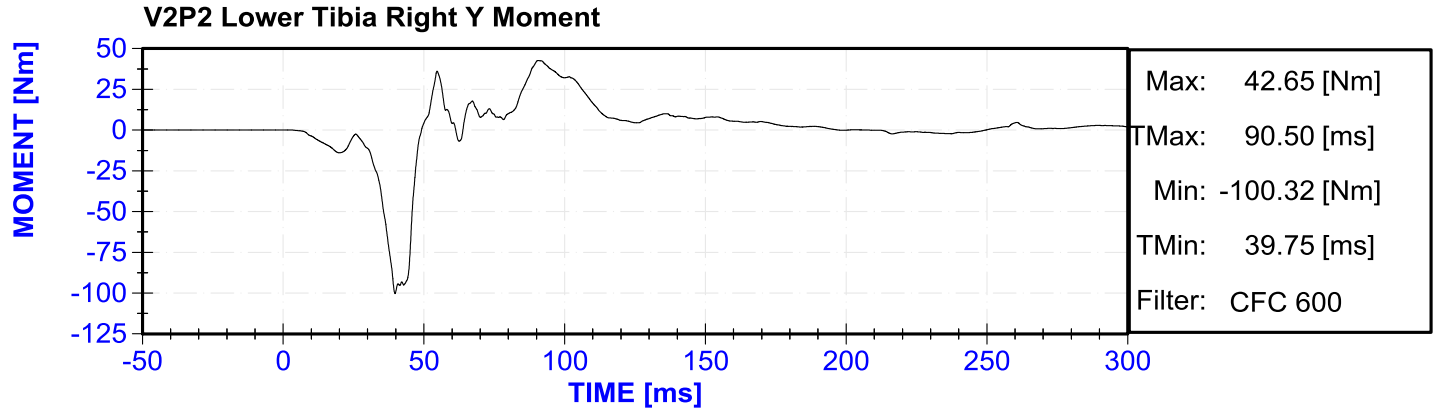

V2P2 Lower Tibia Left Y Moment
MOMENT [Nm]
TIME [ms]
Max: 52.82 [Nm]
TMax: 82.90 [ms]
Min: -92.20 [Nm]
TMin: 44.40 [ms]
Filter: CFC 600

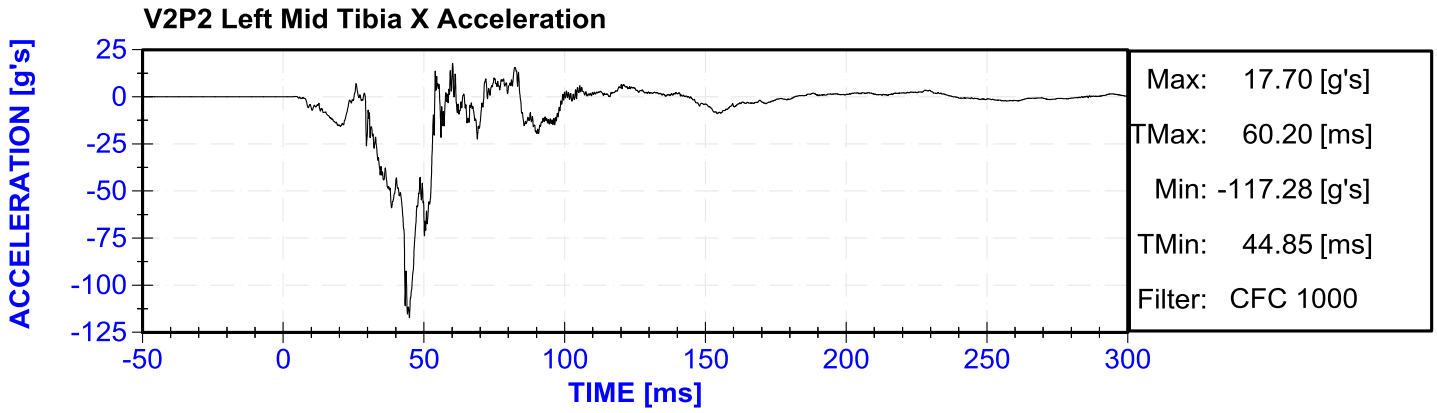

V2P2 Lower Tibia Right X Force
FORCE [N]
TIME [ms]
Max: 34.05 [N]
TMax: 135.25 [ms]
Min:-1030.62 [N]
TMin: 44.45 [ms]
Filter: CFC 600

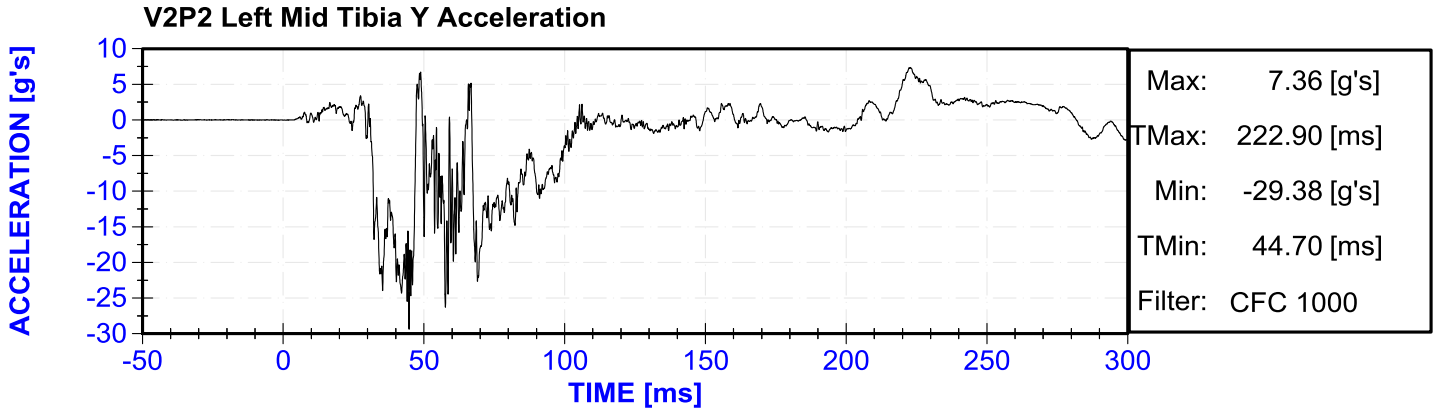

V2P2 Lower Tibia Right Y Force
FORCE [N]
TIME [ms]
Max: 106.96 [N]
TMax: 102.30 [ms]
Min: -317.51 [N]
TMin: 44.25 [ms]
Filter: CFC 600

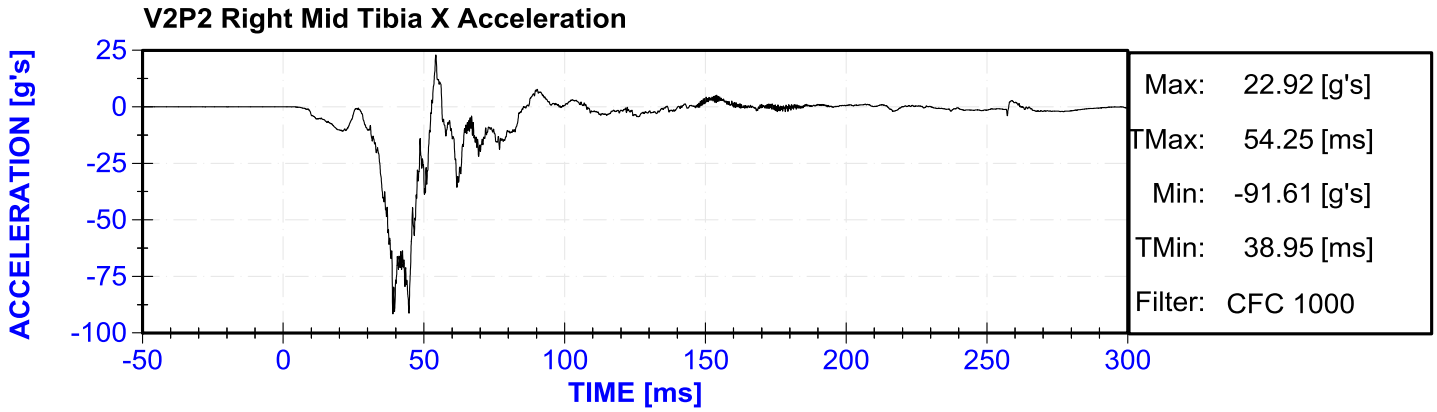

V2P2 Lower Tibia Right Z Force
FORCE [N]
TIME [ms]
Max: 7.24 [N]
TMax: 4.80 [ms]
Min: -2181.99 [N]
TMin: 91.05 [ms]
Filter: CFC 600

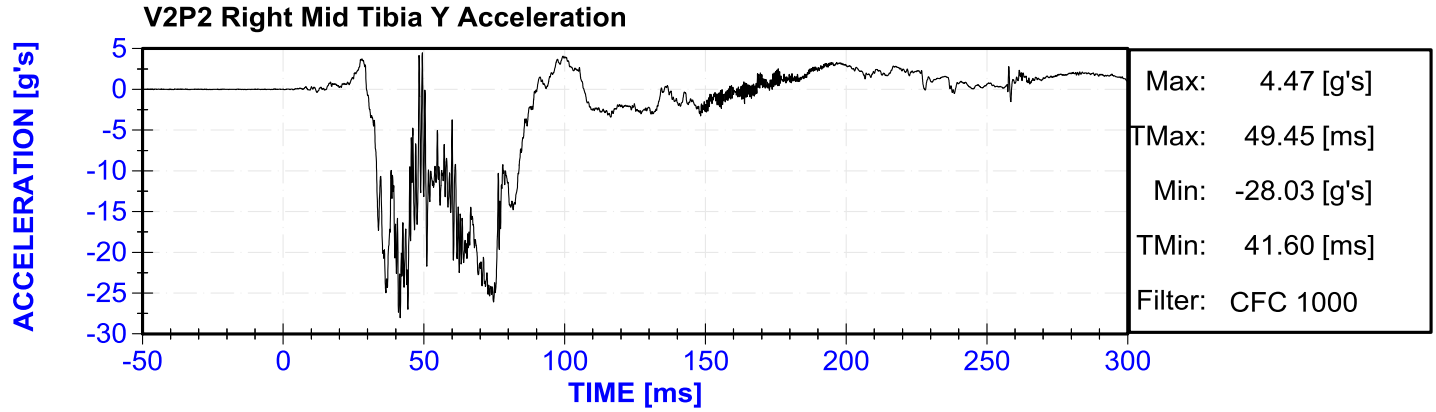

V2P2 Lower Tibia Right X Moment
MOMENT [Nm]
TIME [ms]
Max: 51.79 [Nm]
TMax: 71.80 [ms]
Min: -4.91 [Nm]
TMin: 135.65 [ms]
Filter: CFC 600

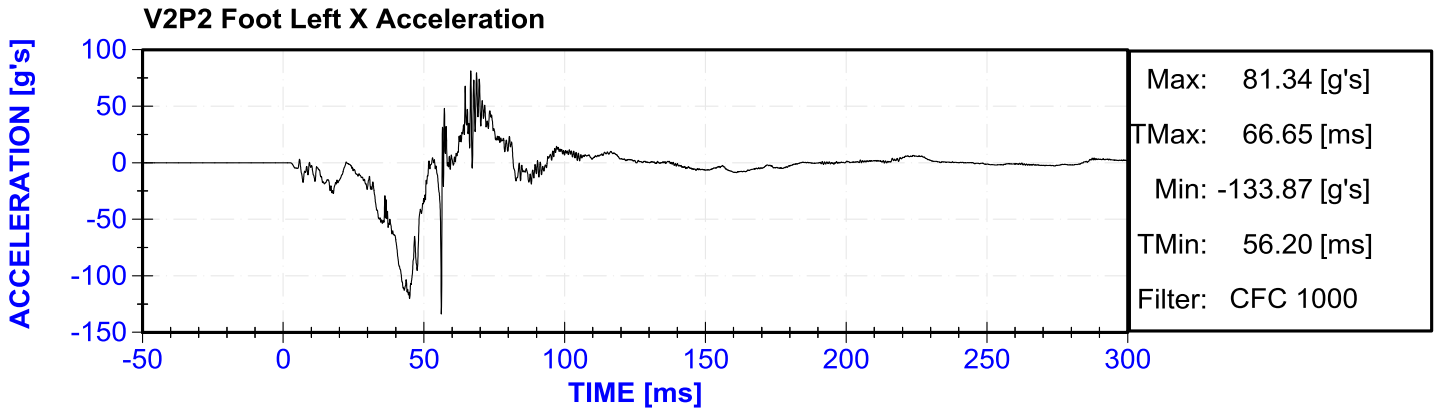

V2P2 Lower Tibia Right Y Moment
MOMENT [Nm]
TIME [ms]
Max: 42.65 [Nm]
TMax: 90.50 [ms]
Min: -100.32 [Nm]
TMin: 39.75 [ms]
Filter: CFC 600

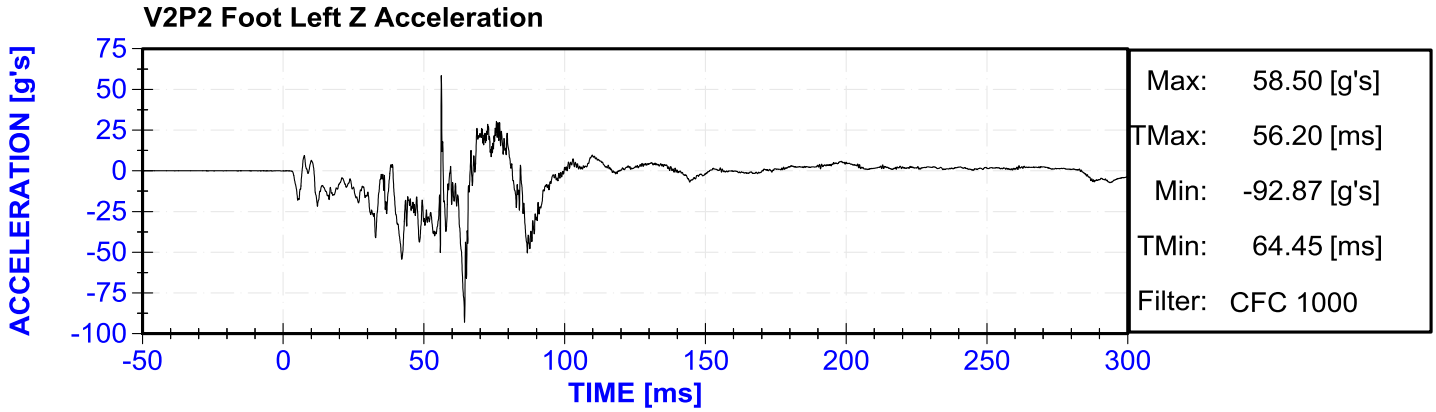

V2P2 Left Mid Tibia X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 17.70 [g's]
TMax: 60.20 [ms]
Min: -117.28 [g's]
TMin: 44.85 [ms]
Filter: CFC 1000

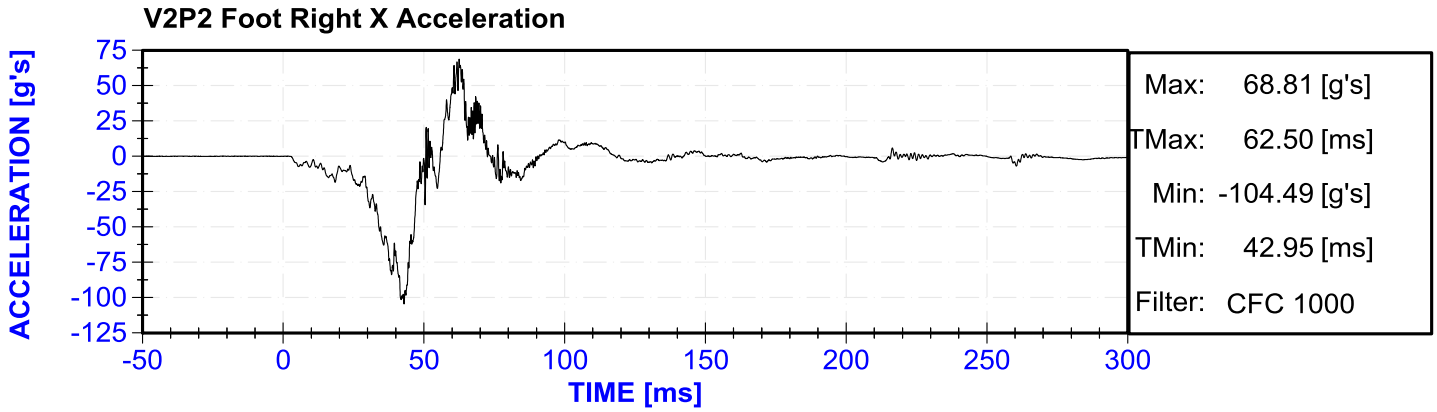

V2P2 Left Mid Tibia Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 7.36 [g's]
TMax: 222.90 [ms]
Min: -29.38 [g's]
TMin: 44.70 [ms]
Filter: CFC 1000

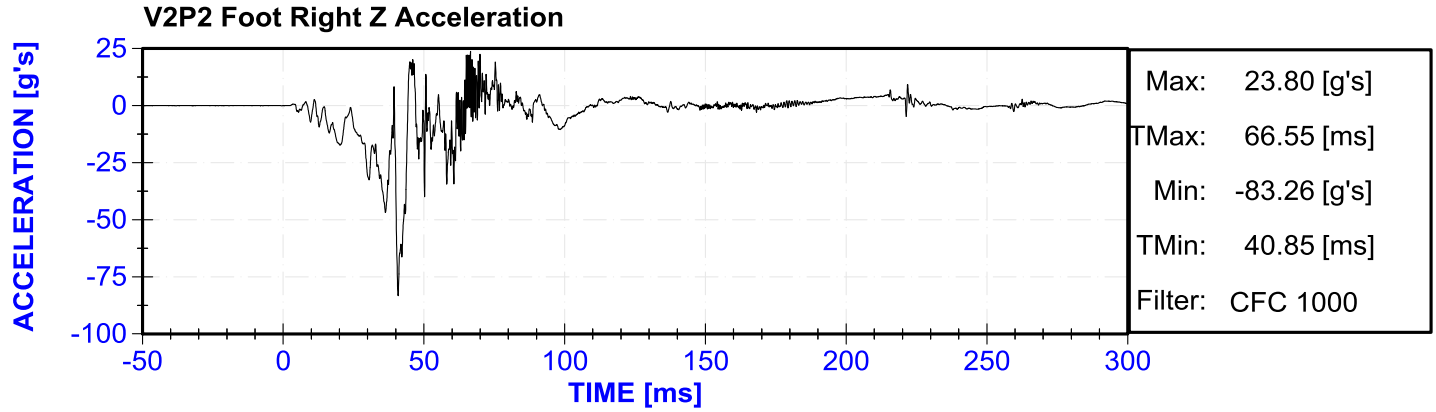

V2P2 Right Mid Tibia X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 22.92 [g's]
TMax: 54.25 [ms]
Min: -91.61 [g's]
TMin: 38.95 [ms]
Filter: CFC 1000

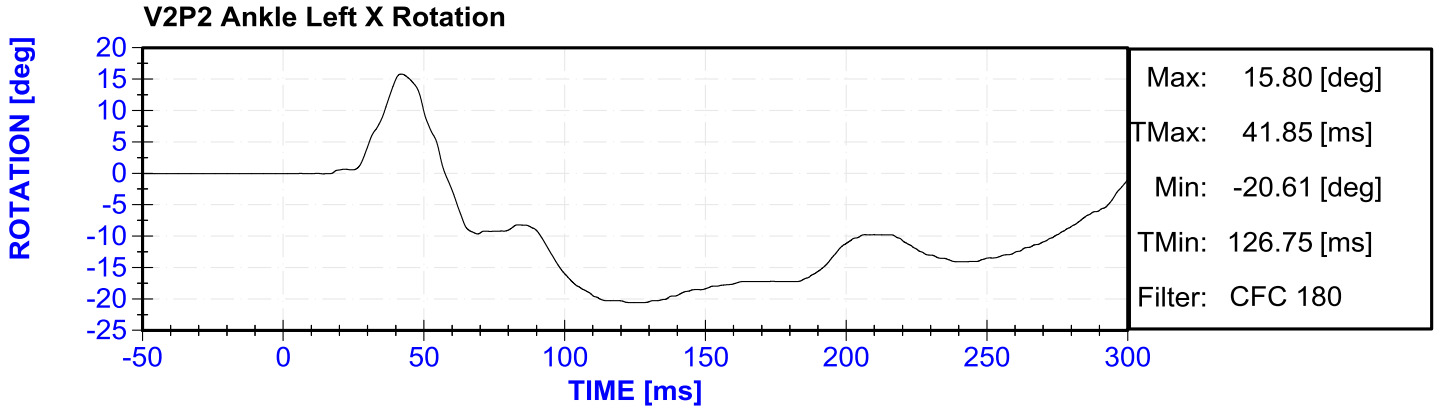

V2P2 Right Mid Tibia Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 4.47 [g's]
TMax: 49.45 [ms]
Min: -28.03 [g's]
TMin: 41.60 [ms]
Filter: CFC 1000

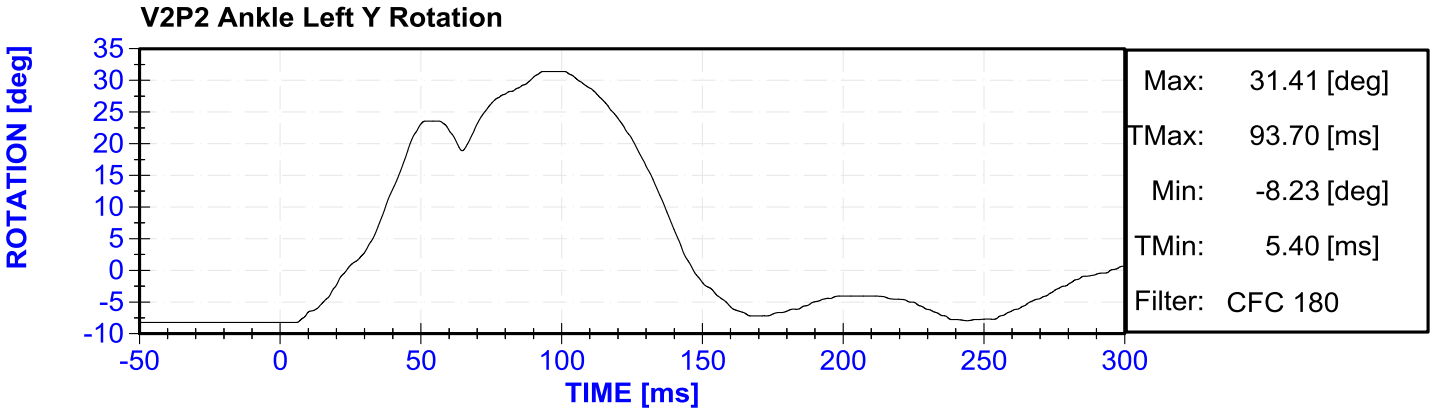

V2P2 Foot Left X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 81.34 [g's]
TMax: 66.65 [ms]
Min: -133.87 [g's]
TMin: 56.20 [ms]
Filter: CFC 1000

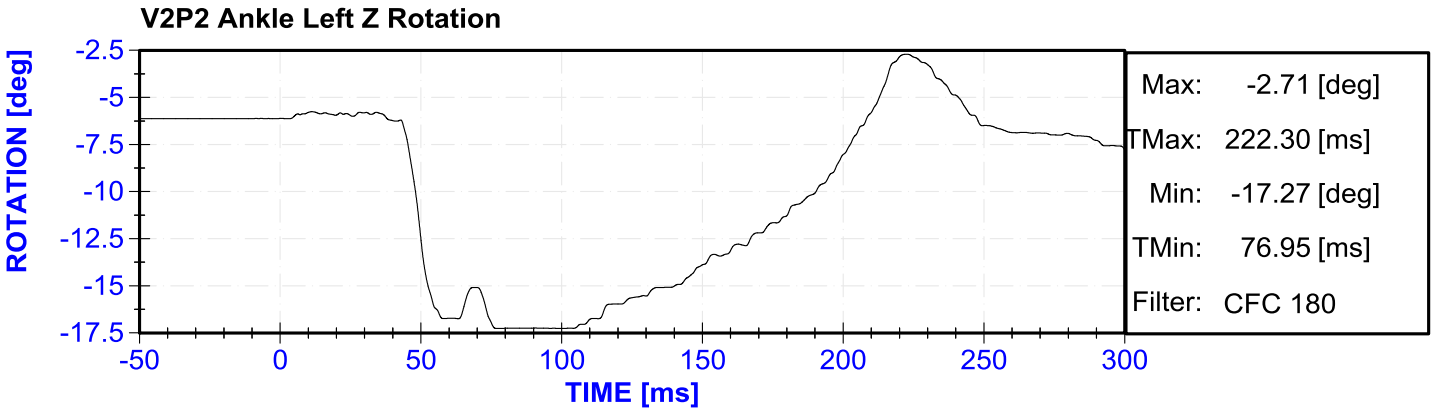

V2P2 Foot Left Z Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 58.50 [g's]
TMax: 56.20 [ms]
Min: -92.87 [g's]
TMin: 64.45 [ms]
Filter: CFC 1000

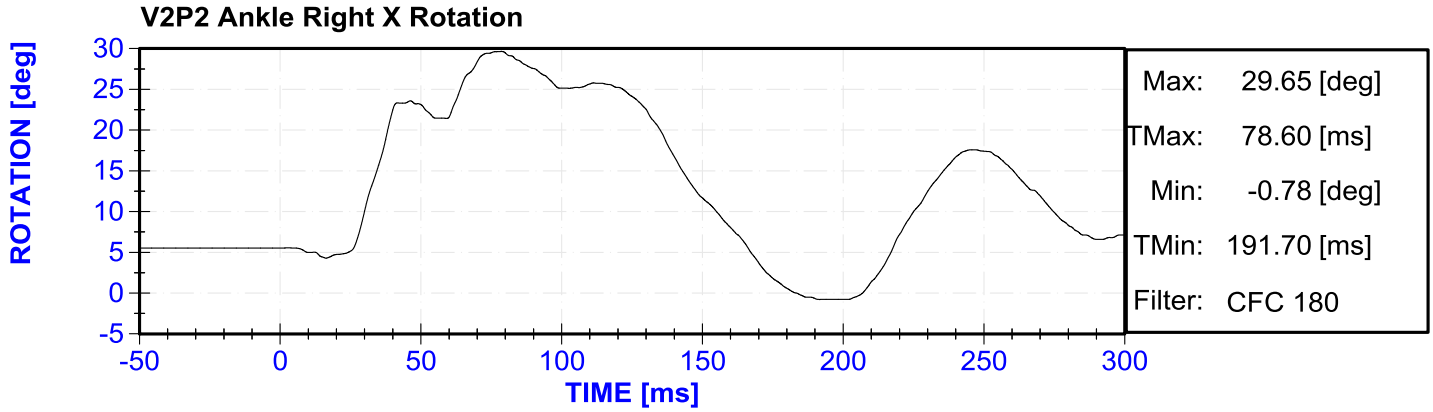

V2P2 Foot Right X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 68.81 [g's]
TMax: 62.50 [ms]
Min: -104.49 [g's]
TMin: 42.95 [ms]
Filter: CFC 1000

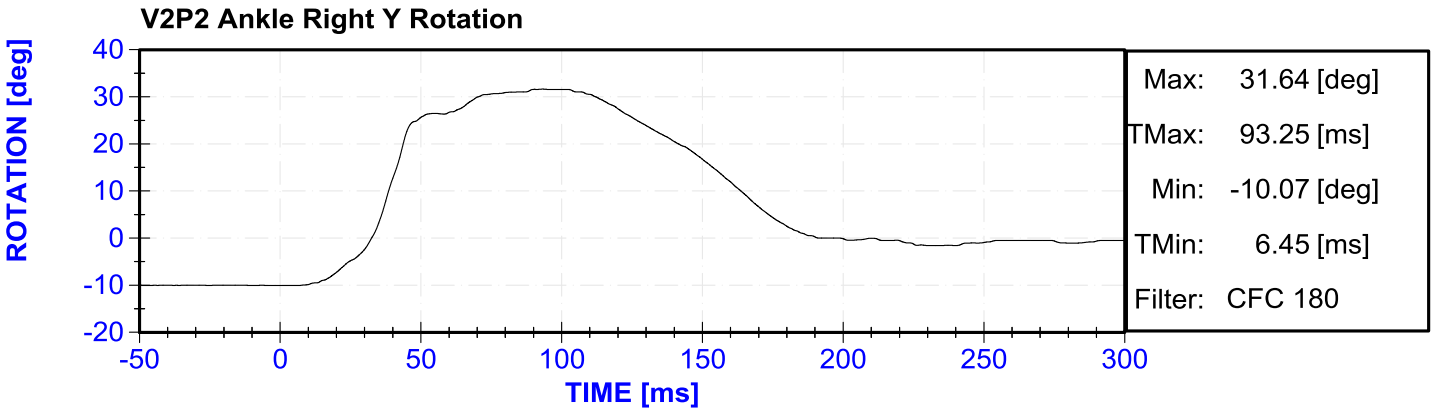

V2P2 Foot Right Z Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 23.80 [g's]
TMax: 66.55 [ms]
Min: -83.26 [g's]
TMin: 40.85 [ms]
Filter: CFC 1000


V2P2 Ankle Left X Rotation
ROTATION [deg]
TIME [ms]
Max: 15.80 [deg]
TMax: 41.85 [ms]
Min: -20.61 [deg]
TMin: 126.75 [ms]
Filter: CFC 180

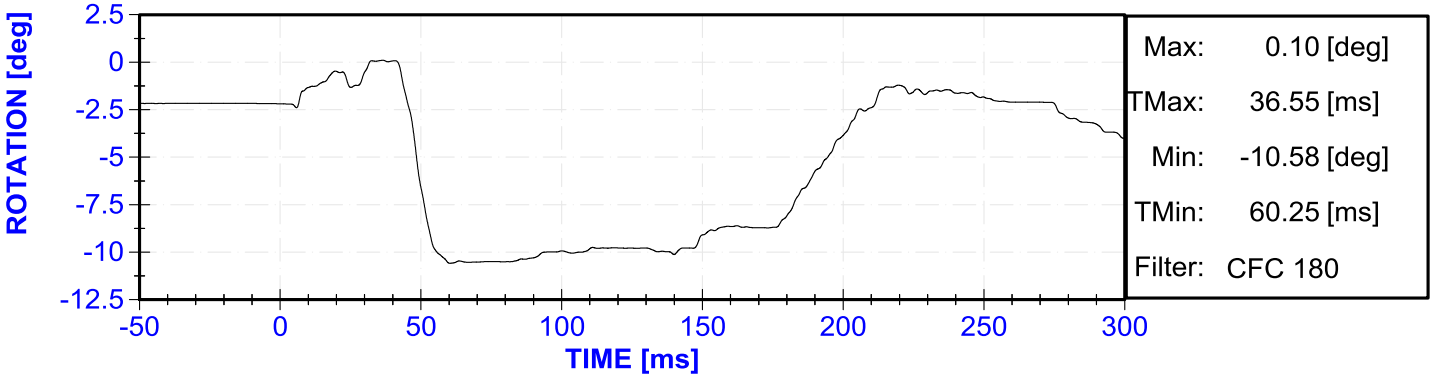

V2P2 Ankle Left Y Rotation
ROTATION [deg]
TIME [ms]
Max: 31.41 [deg]
TMax: 93.70 [ms]
Min: -8.23 [deg]
TMin: 5.40 [ms]
Filter: CFC 180


V2P2 Ankle Left Z Rotation
ROTATION [deg]
TIME [ms]
Max: -2.71 [deg]
TMax: 222.30 [ms]
Min: -17.27 [deg]
TMin: 76.95 [ms]
Filter: CFC 180

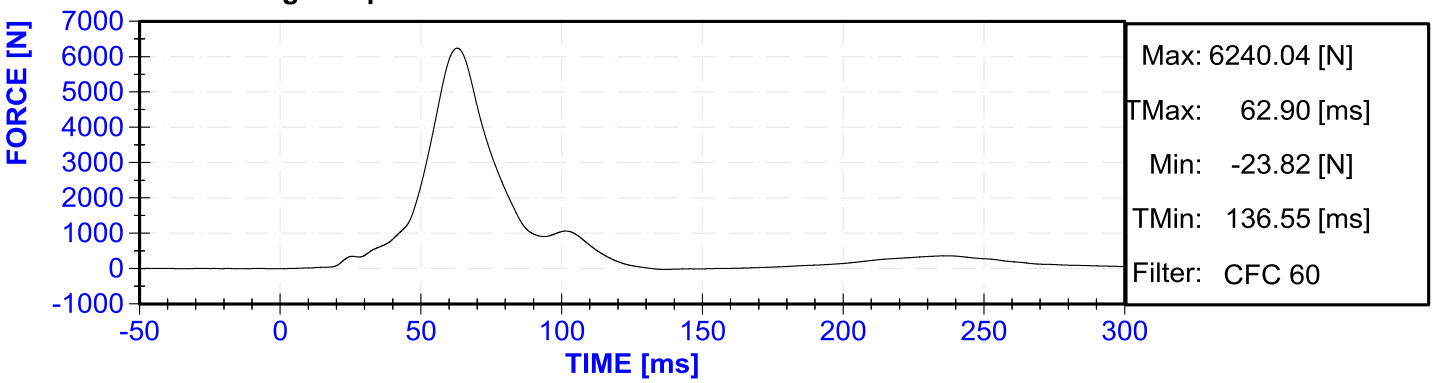

V2P2 Ankle Right X Rotation
ROTATION [deg]
TIME [ms]
Max: 29.65 [deg]
TMax: 78.60 [ms]
Min: -0.78 [deg]
TMin: 191.70 [ms]
Filter: CFC 180


V2P2 Ankle Right Y Rotation
ROTATION [deg]
TIME [ms]
Max: 31.64 [deg]
TMax: 93.25 [ms]
Min: -10.07 [deg]
TMin: 6.45 [ms]
Filter: CFC 180

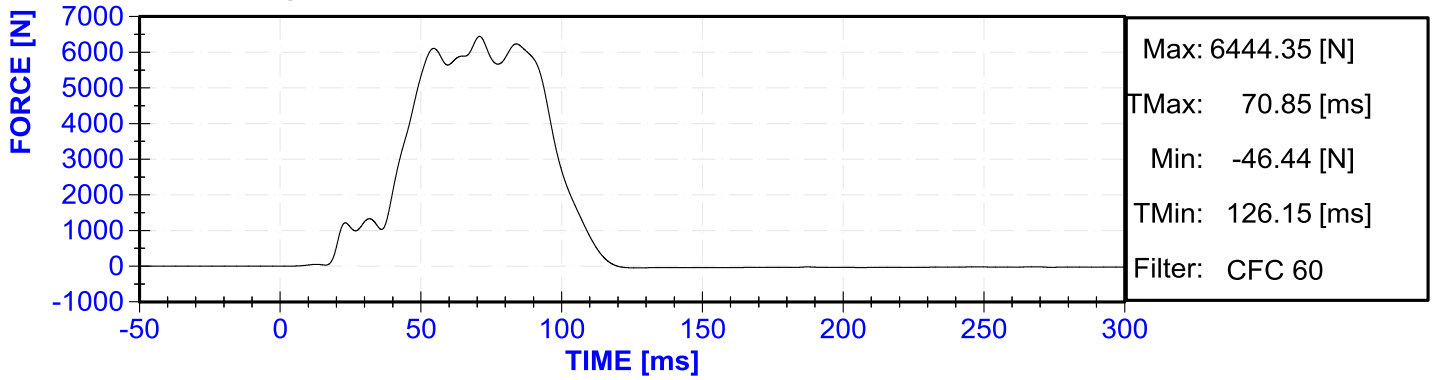
V2P2 Ankle Right Z Rotation



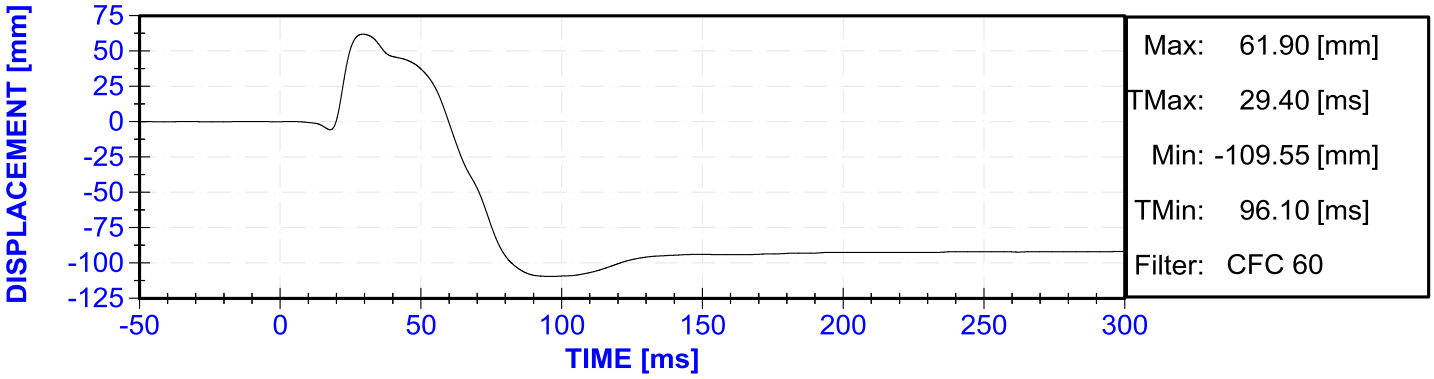
V2 Passenger Lap Belt Force



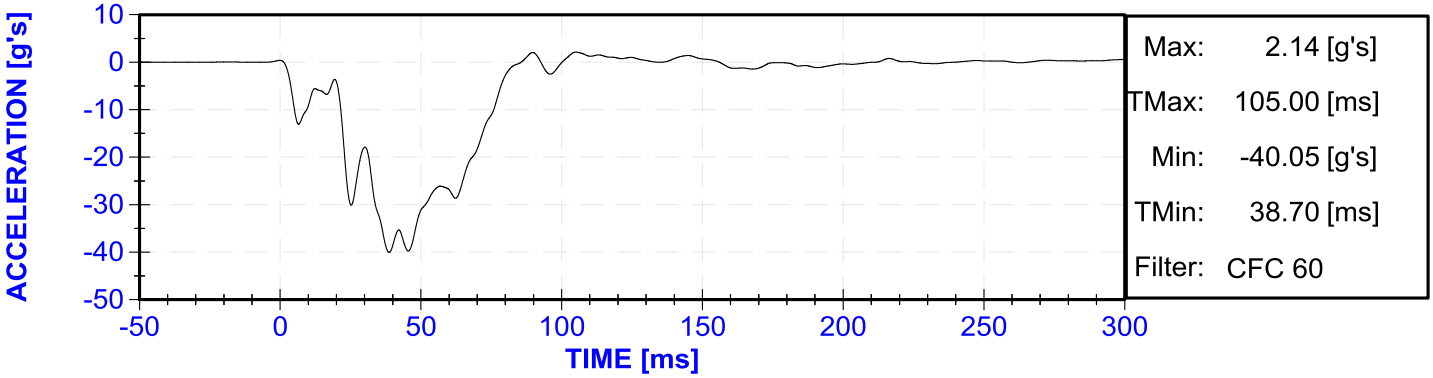
V2 Passenger Shoulder Belt Upper Force



V2 Passenger Shoulder Belt Displacement

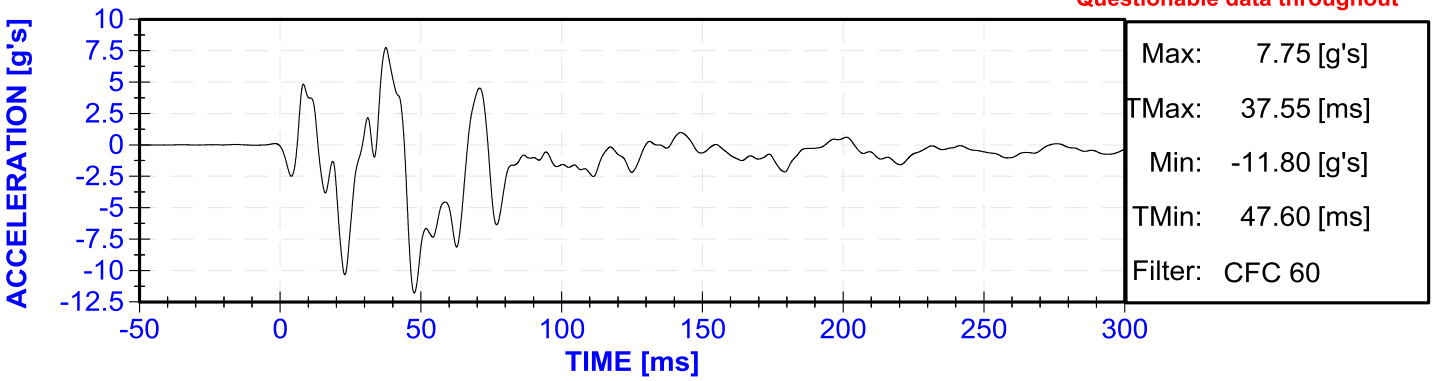


V2 Left Rear Sill X Acceleration

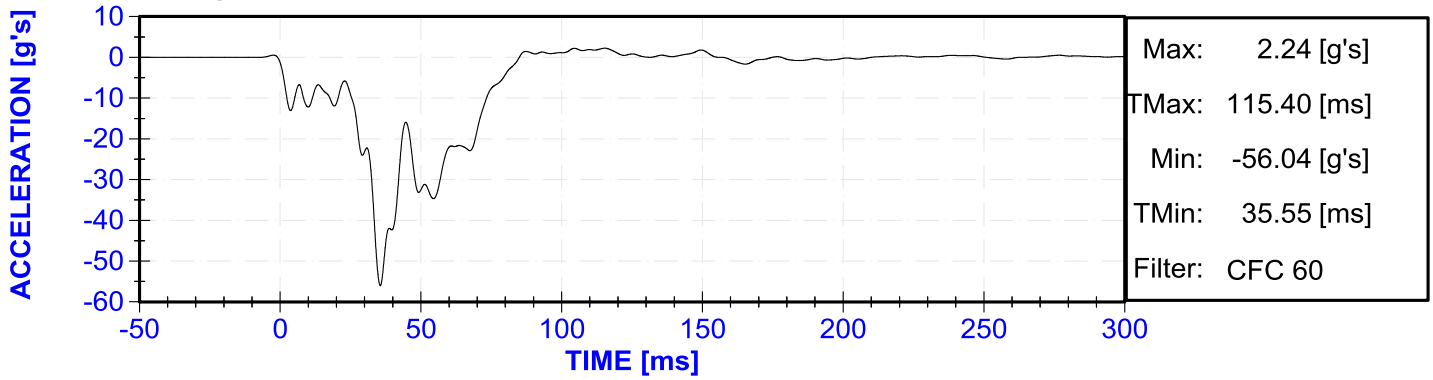


V2 Left Rear Sill Y Acceleration

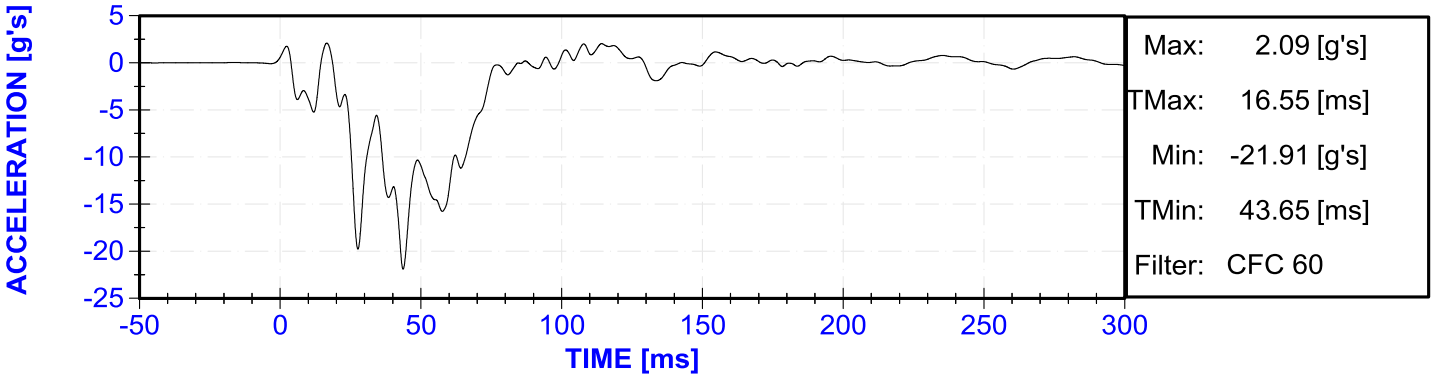
Questionable data throughout

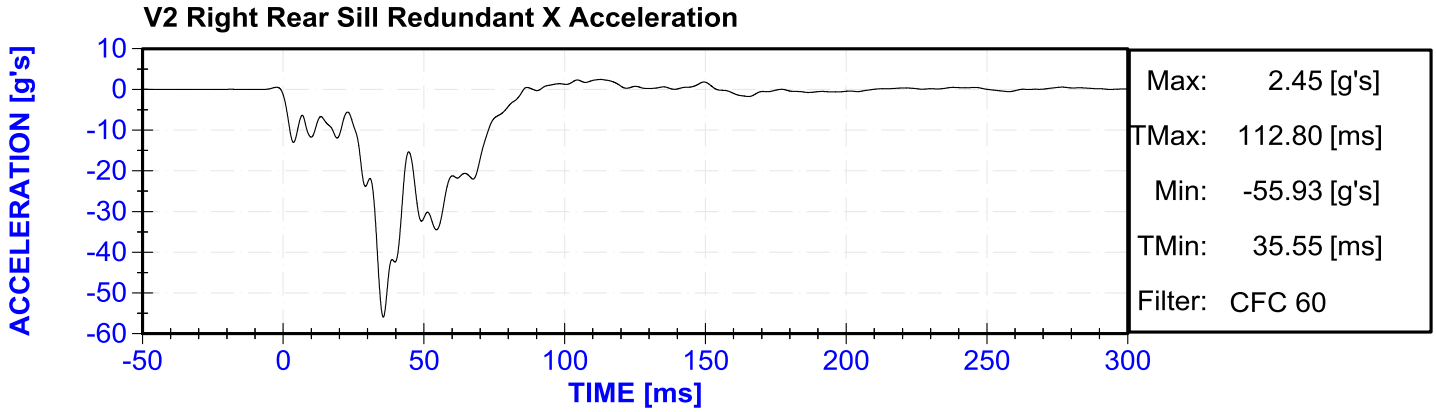


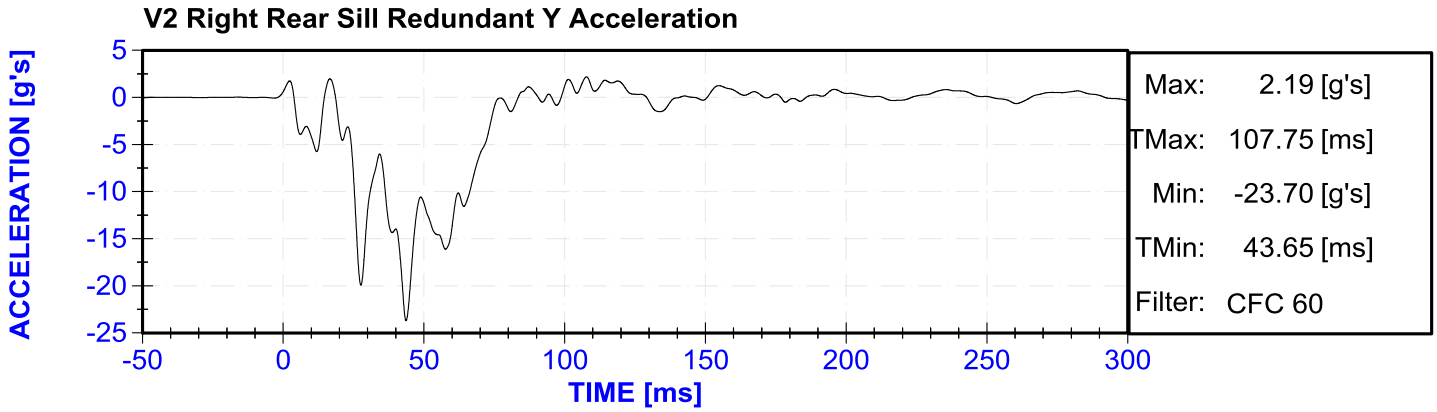
V2 Right Rear Sill X Acceleration

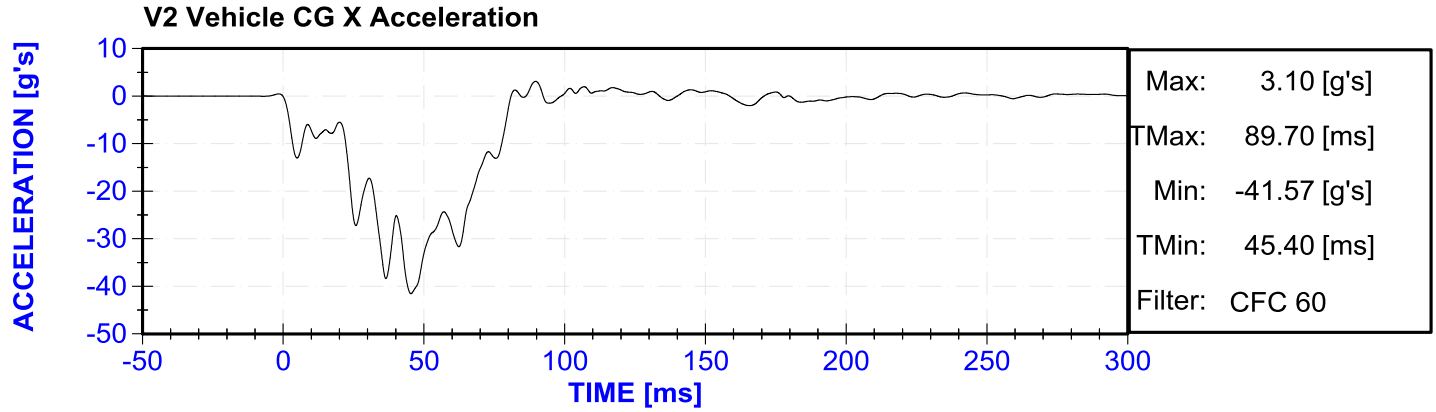


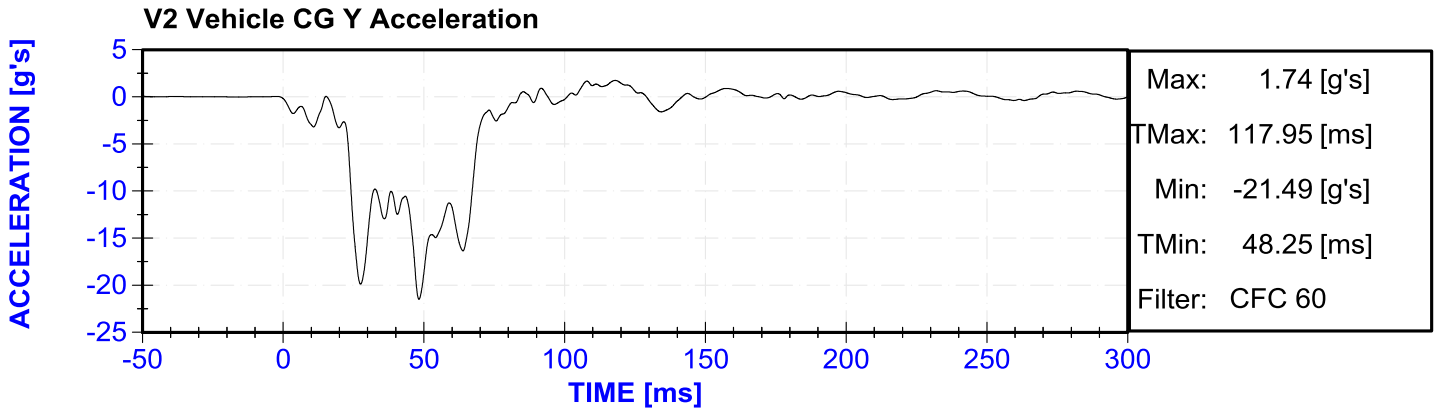
V2 Right Rear Sill Y Acceleration



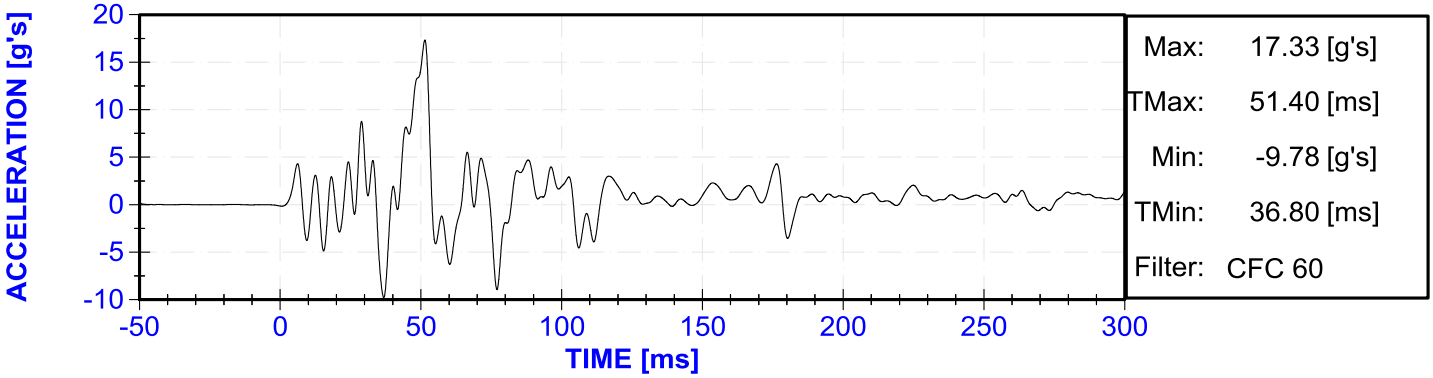

V2 Right Rear Sill Redundant X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 2.45 [g's]
TMax: 112.80 [ms]
Min: -55.93 [g's]
TMin: 35.55 [ms]
Filter: CFC 60


V2 Right Rear Sill Redundant Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 2.19 [g's]
TMax: 107.75 [ms]
Min: -23.70 [g's]
TMin: 43.65 [ms]
Filter: CFC 60

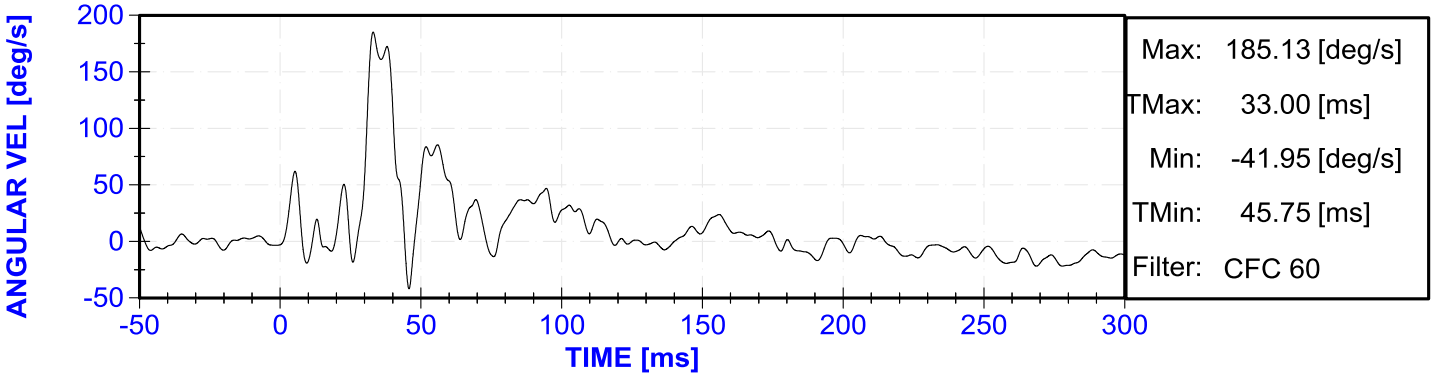

V2 Vehicle CG X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 3.10 [g's]
TMax: 89.70 [ms]
Min: -41.57 [g's]
TMin: 45.40 [ms]
Filter: CFC 60


V2 Vehicle CG Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 1.74 [g's]
TMax: 117.95 [ms]
Min: -21.49 [g's]
TMin: 48.25 [ms]
Filter: CFC 60

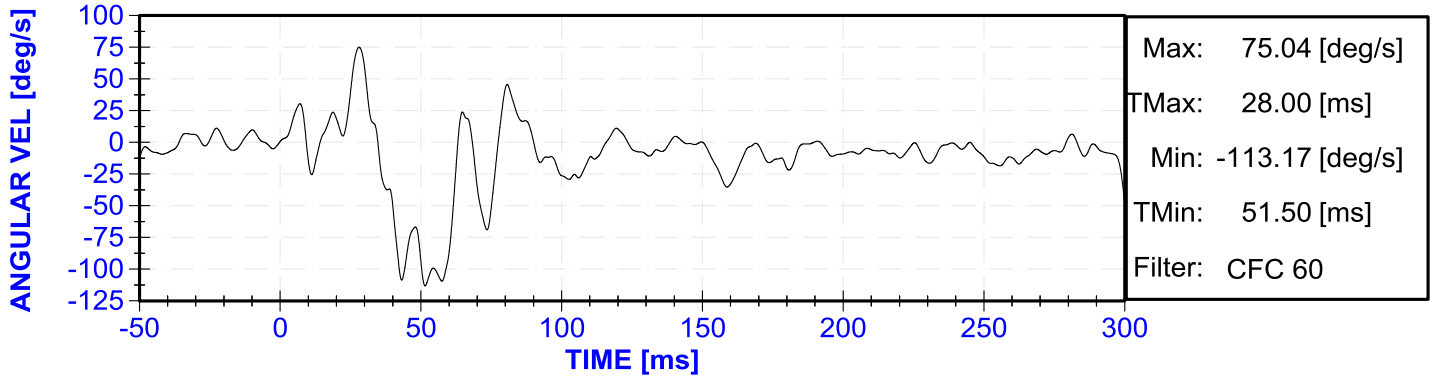
V2 Vehicle CG Z Acceleration



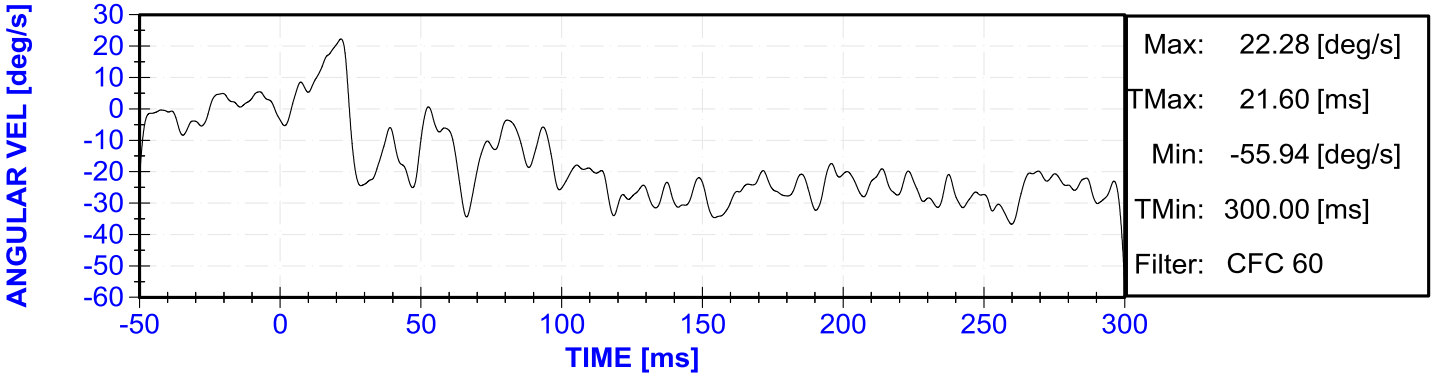
V2 Vehicle CG Angular Rate X



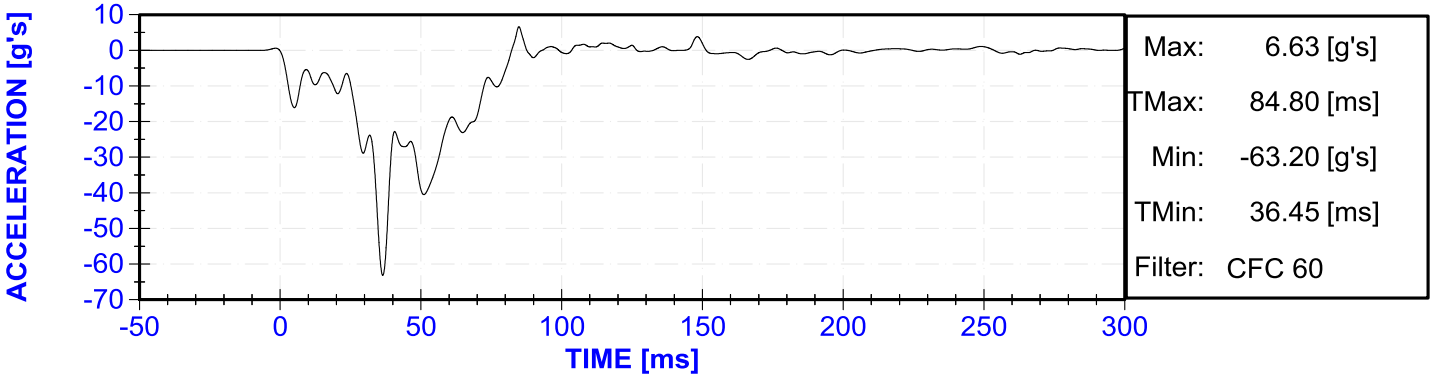
V2 Vehicle CG Angular Rate Y



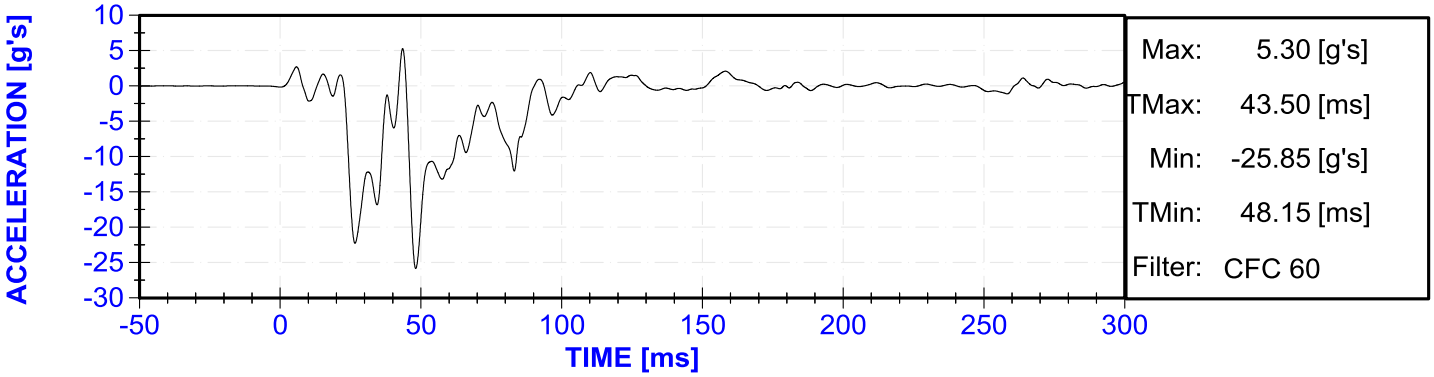
V2 Vehicle CG Angular Rate Z



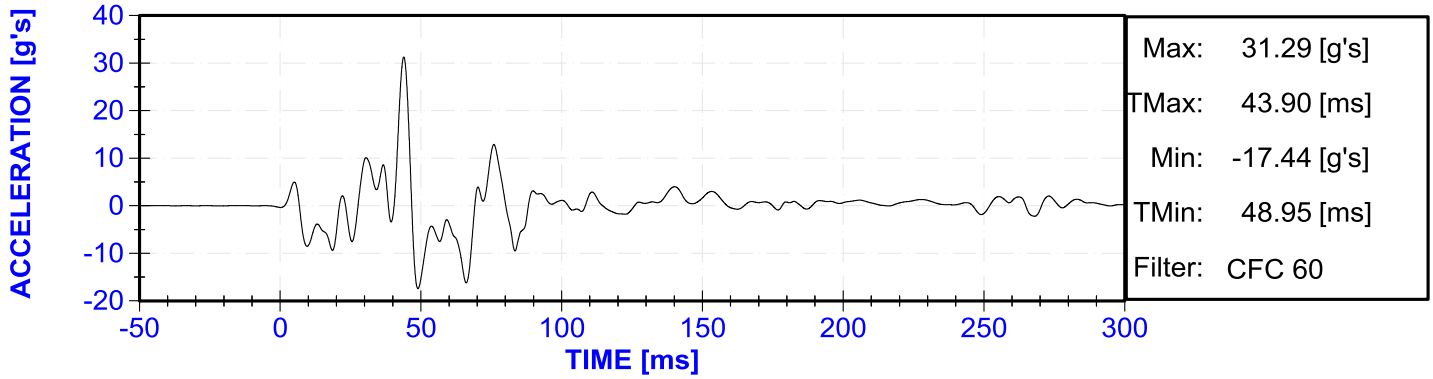
V2 Passenger Seat Track X Acceleration



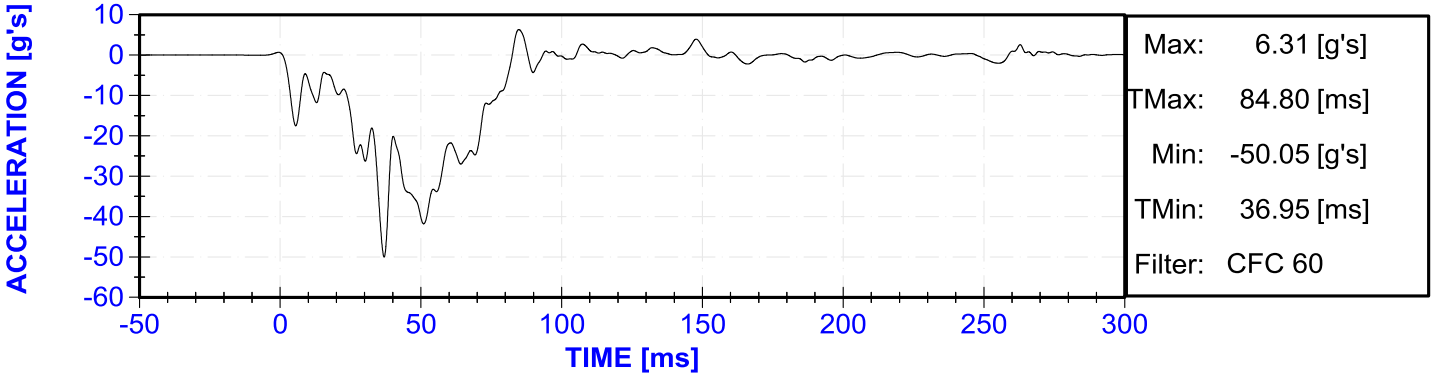
V2 Passenger Seat Track Y Acceleration

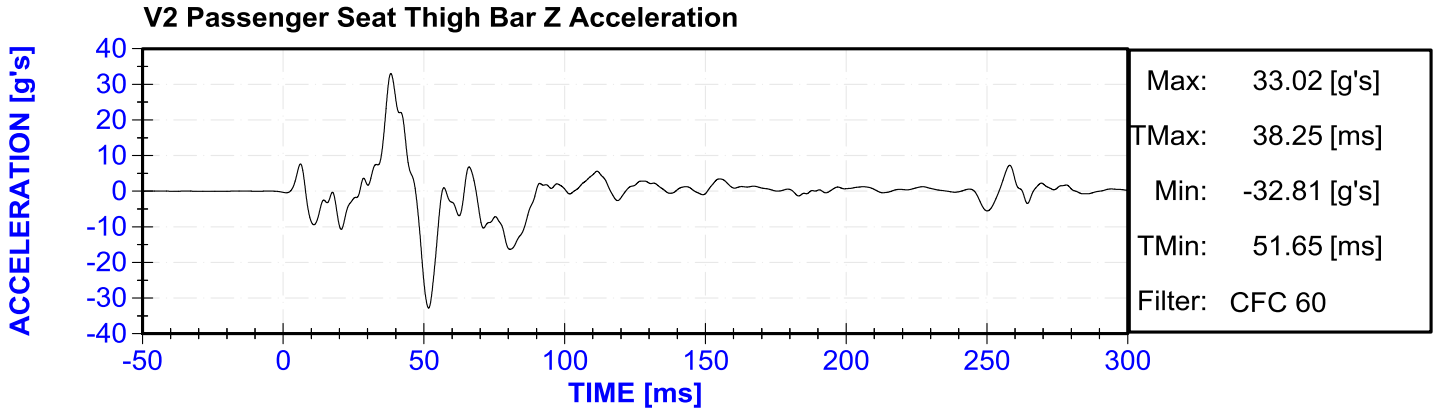


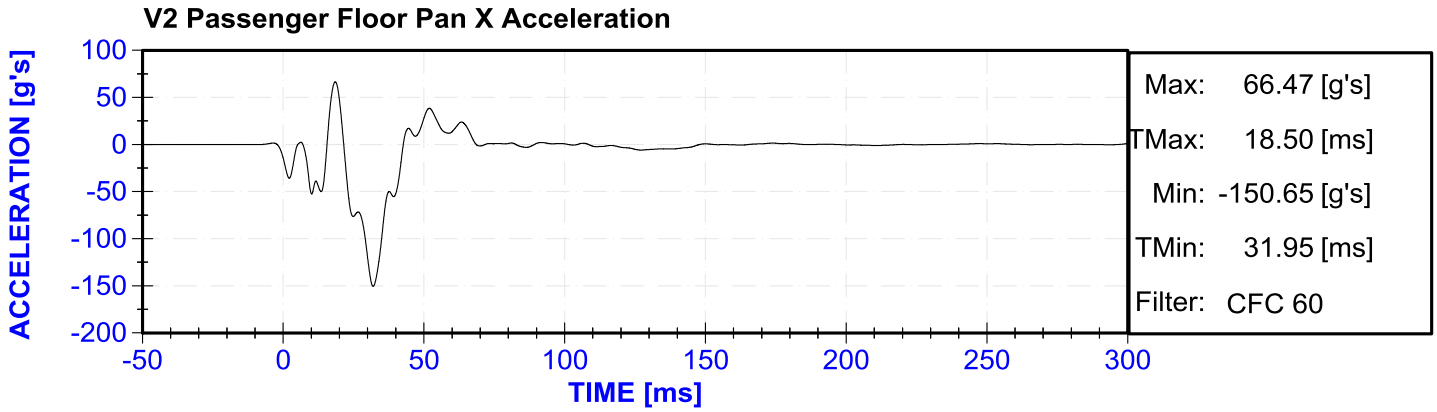
V2 Passenger Seat Track Z Acceleration

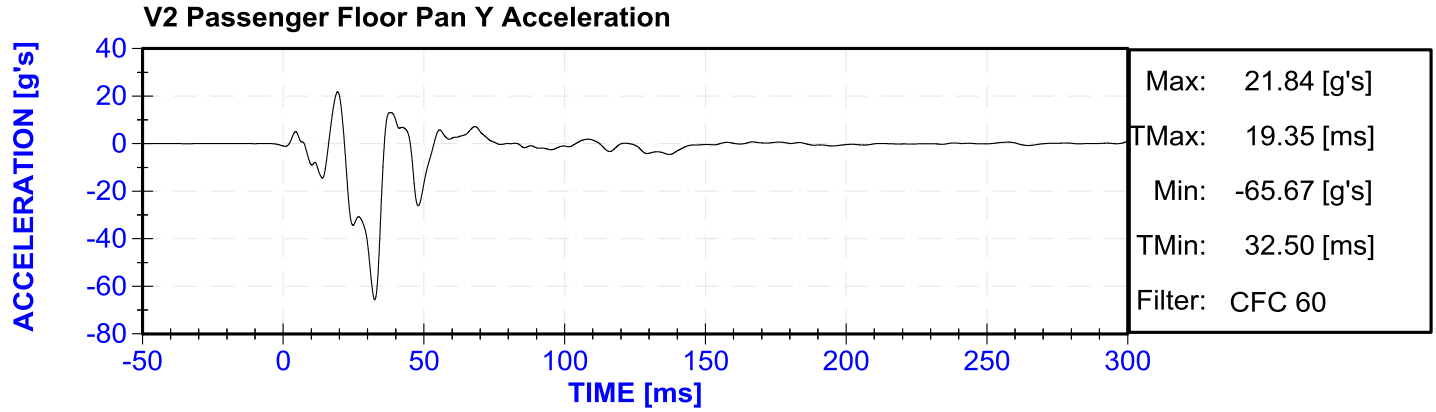


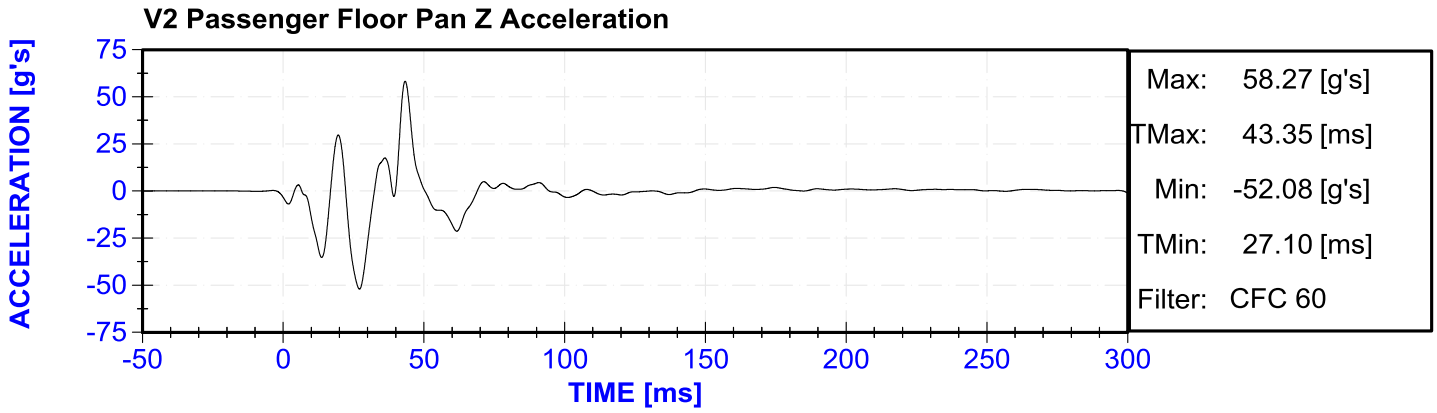
V2 Passenger Seat Thigh Bar X Acceleration



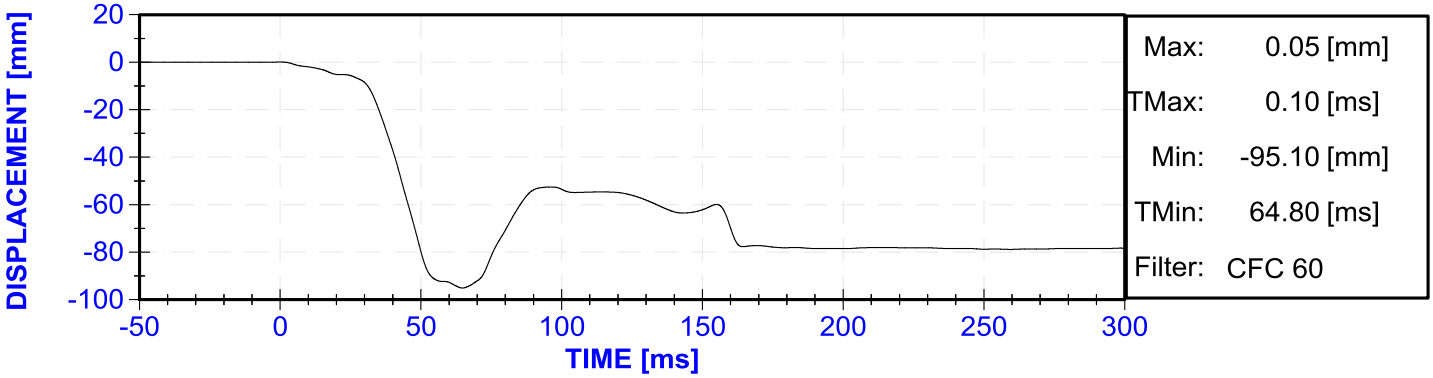

V2 Passenger Seat Thigh Bar Z Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 33.02 [g's]
TMax: 38.25 [ms]
Min: -32.81 [g's]
TMin: 51.65 [ms]
Filter: CFC 60


V2 Passenger Floor Pan X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 66.47 [g's]
TMax: 18.50 [ms]
Min: -150.65 [g's]
TMin: 31.95 [ms]
Filter: CFC 60


V2 Passenger Floor Pan Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 21.84 [g's]
TMax: 19.35 [ms]
Min: -65.67 [g's]
TMin: 32.50 [ms]
Filter: CFC 60

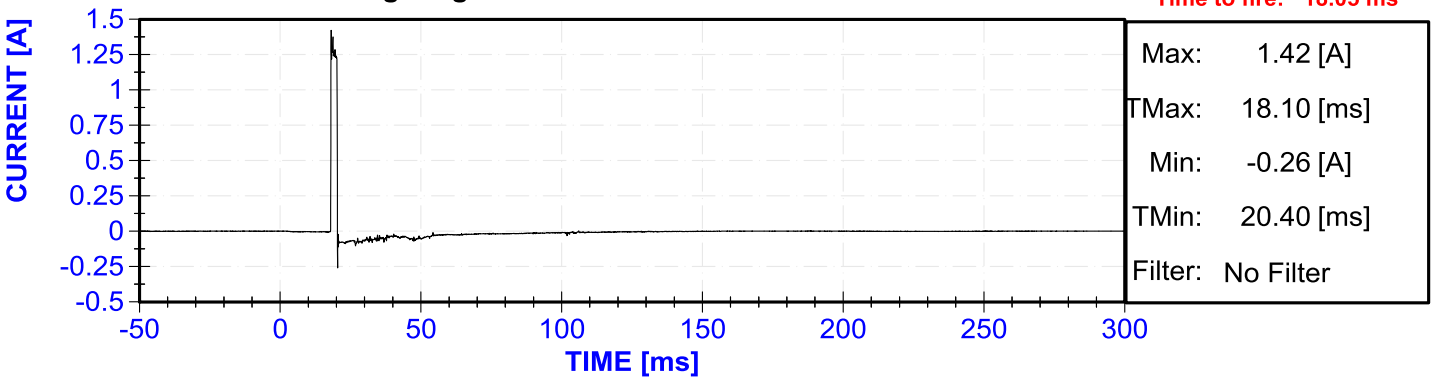

V2 Passenger Floor Pan Z Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 58.27 [g's]
TMax: 43.35 [ms]
Min: -52.08 [g's]
TMin: 27.10 [ms]
Filter: CFC 60

V2 Passenger Floor Pan X Deflection



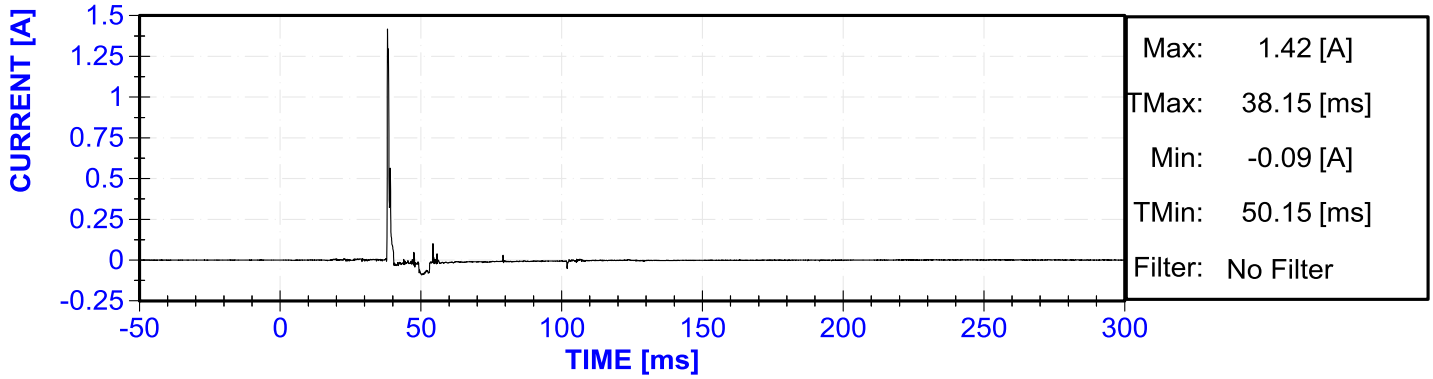
Driver Front Airbag Stage 1 Monitor

Time to fire: 18.05 ms



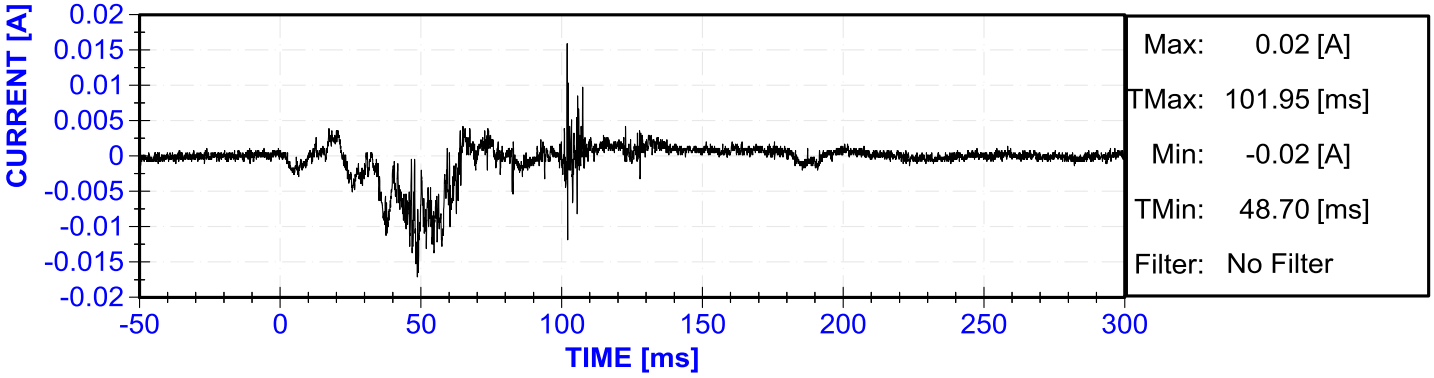
Driver Front Airbag Stage 2 Monitor

Time to fire: 38.05 ms



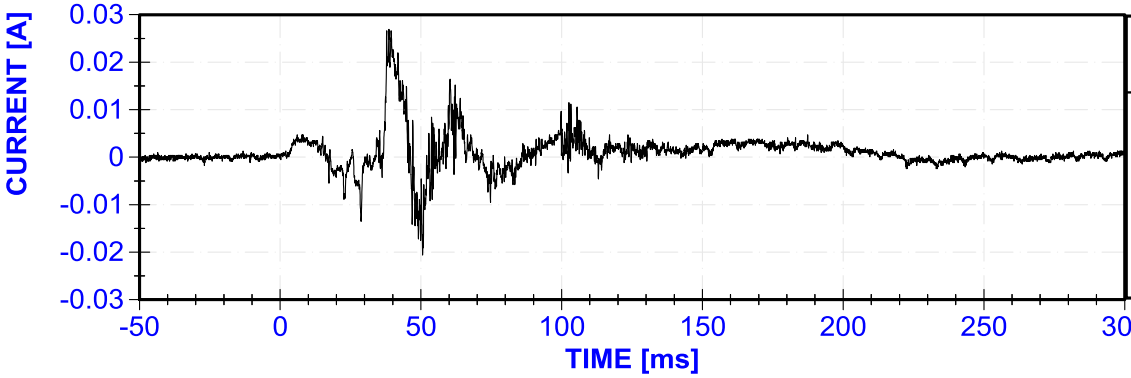
Driver Curtain Airbag Monitor

Did not fire



Driver Seat Torso Airbag Monitor

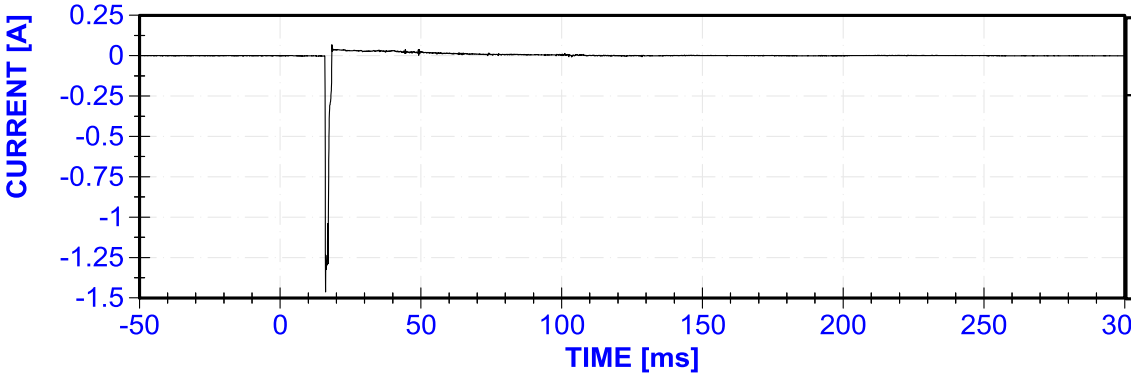
Did not fire



Max:	0.03 [A]
TMax:	38.65 [ms]
Min:	-0.02 [A]
TMin:	50.60 [ms]
Filter:	No Filter

Driver Retractor Pretensioner Monitor

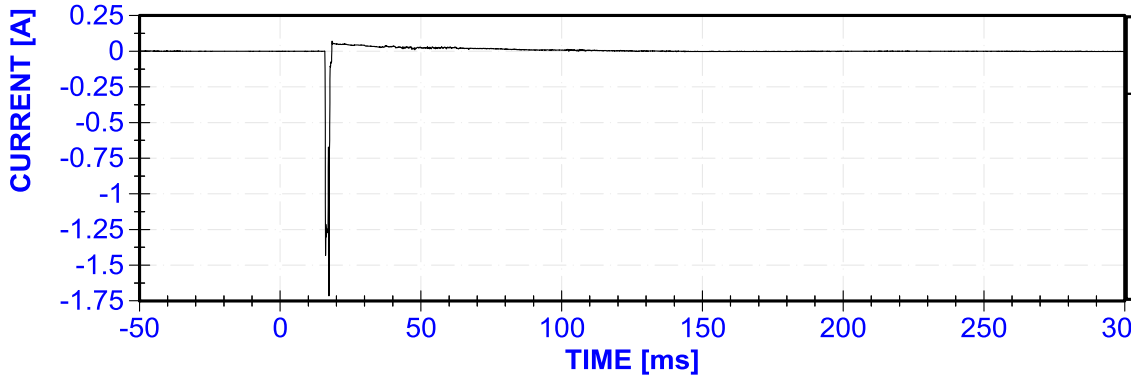
Time to fire: 16.05 ms



Max:	0.07 [A]
TMax:	18.40 [ms]
Min:	-1.46 [A]
TMin:	16.10 [ms]
Filter:	No Filter

Driver Anchor Pretensioner Monitor

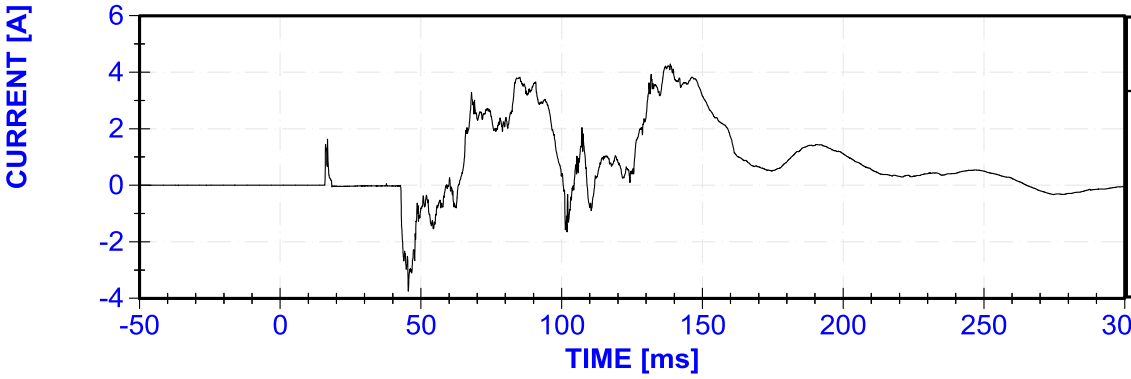
Time to fire: 16.05 ms



Max:	0.07 [A]
TMax:	18.45 [ms]
Min:	-1.71 [A]
TMin:	17.35 [ms]
Filter:	No Filter

Passenger Front Airbag Stage 1 Monitor

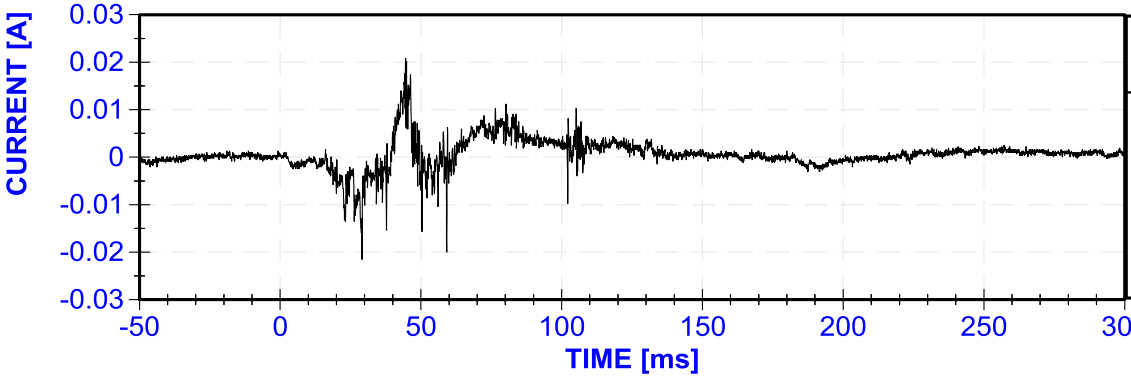
Time to fire: 16.05 ms



Max:	4.29 [A]
TMax:	138.60 [ms]
Min:	-3.75 [A]
TMin:	45.55 [ms]
Filter:	No Filter

Passenger Front Airbag Stage 2 Monitor

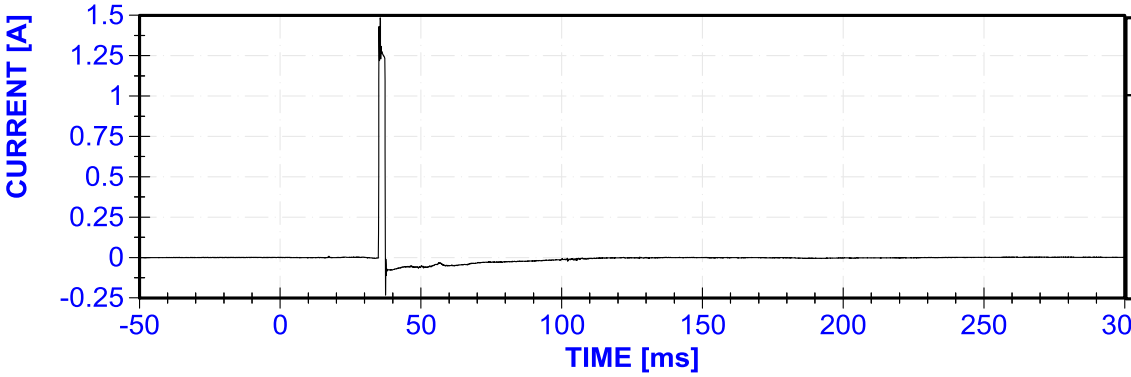
Questionable Data airbag fired



Max:	0.02 [A]
TMax:	44.55 [ms]
Min:	-0.02 [A]
TMin:	29.10 [ms]
Filter:	No Filter

Passenger Curtain Airbag Monitor

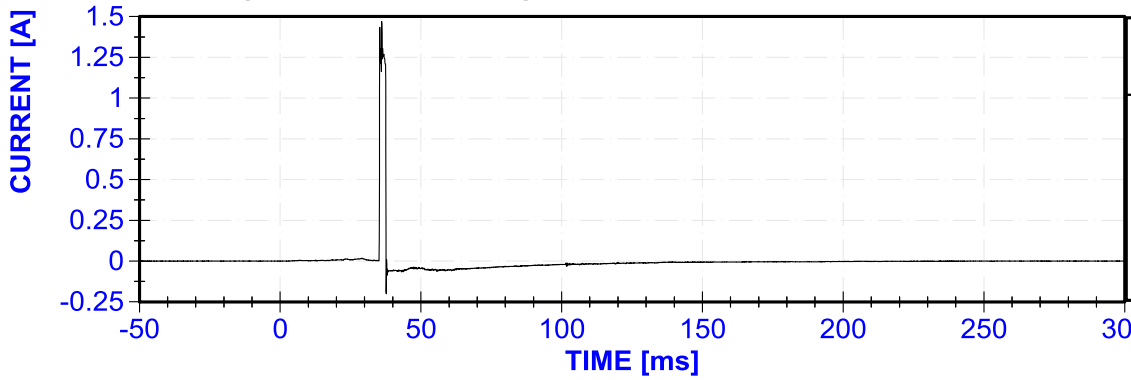
Time to fire: 35.05 ms



Max:	1.48 [A]
TMax:	35.55 [ms]
Min:	-0.23 [A]
TMin:	37.40 [ms]
Filter:	No Filter

Passenger Seat Torso Airbag Monitor

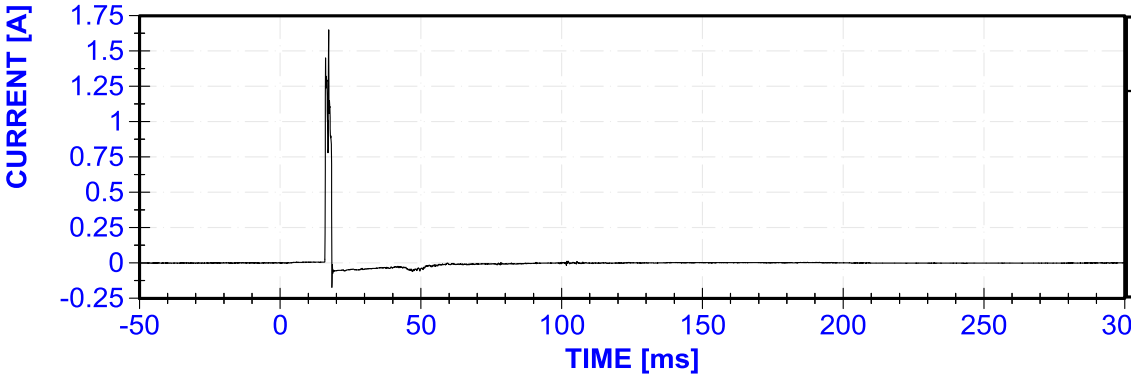
Time to fire: 35.30 ms



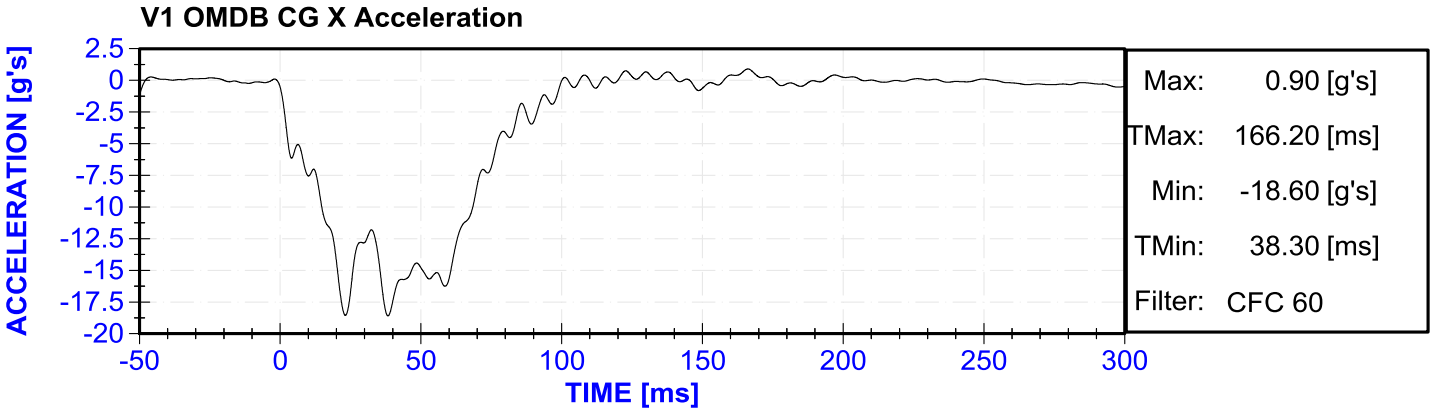
Max:	1.47 [A]
TMax:	36.10 [ms]
Min:	-0.20 [A]
TMin:	37.70 [ms]
Filter:	No Filter

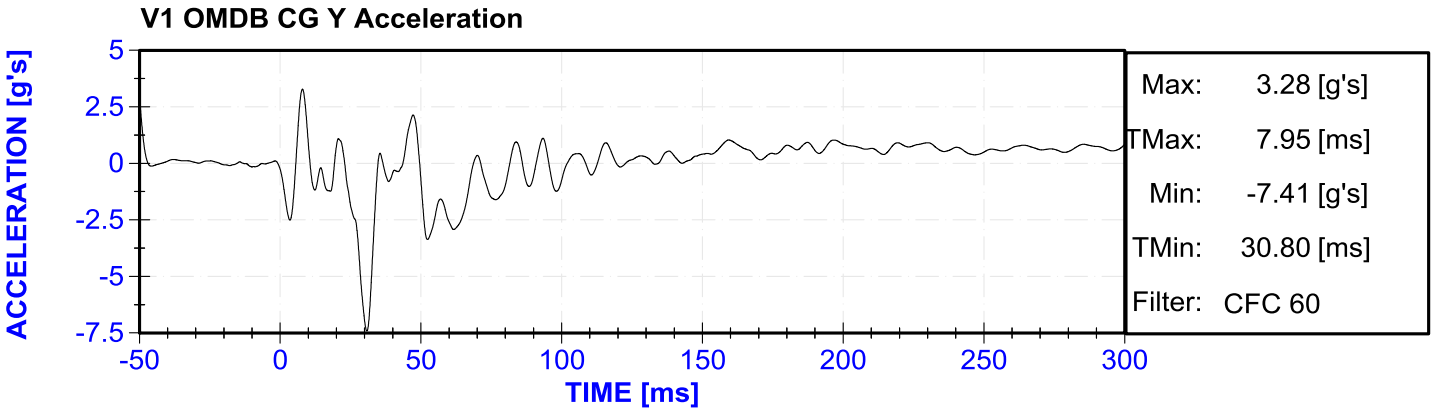
Passenger Anchor Pretensioner Monitor

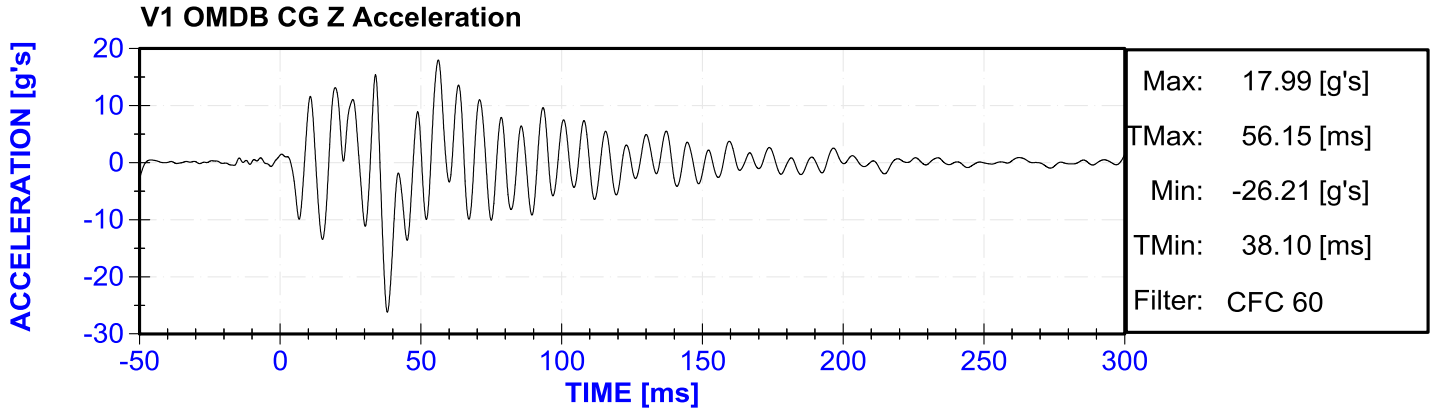
Time to fire: 16.05 ms

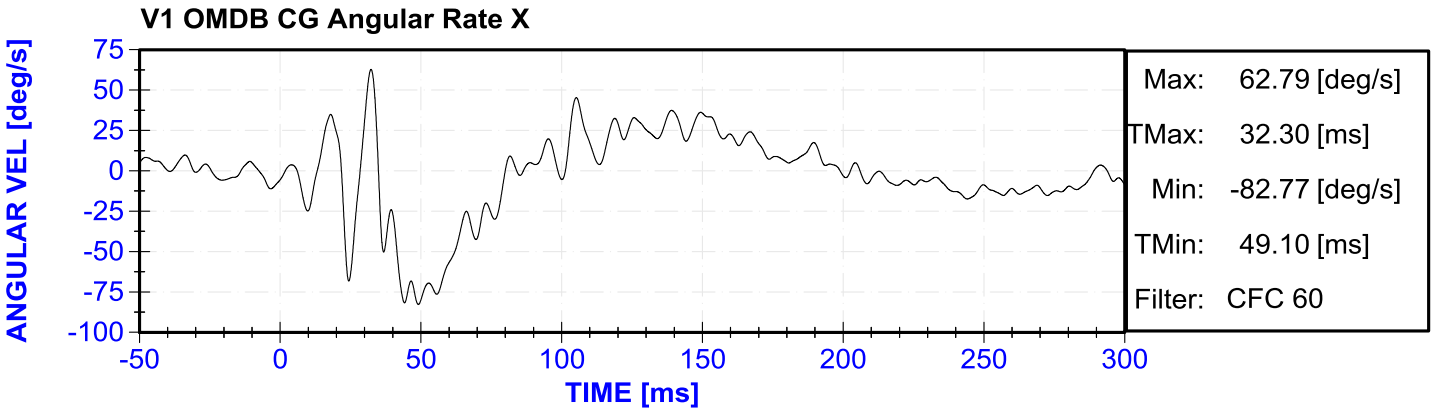


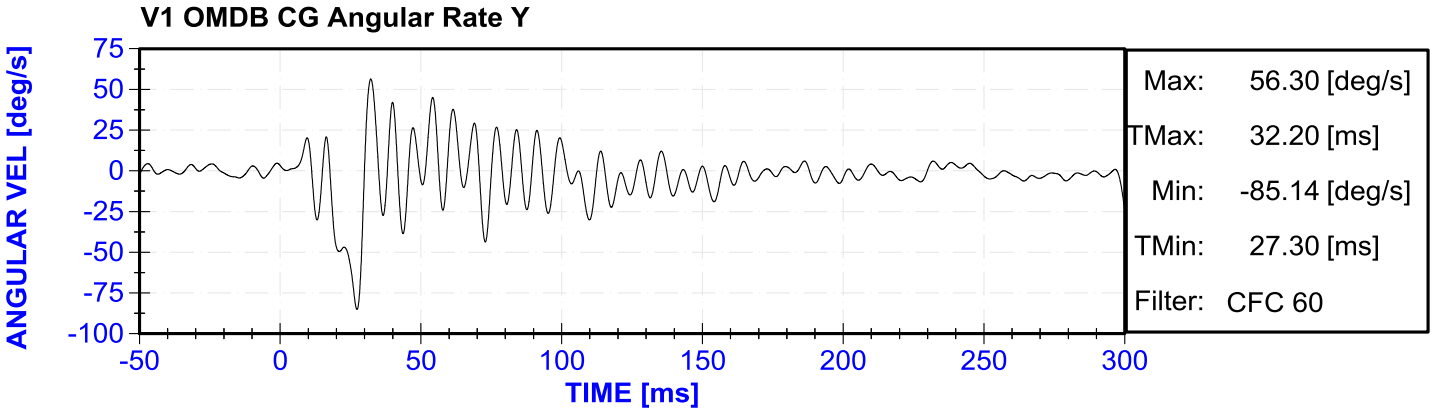
Max:	1.65 [A]
TMax:	17.20 [ms]
Min:	-0.17 [A]
TMin:	18.40 [ms]
Filter:	No Filter

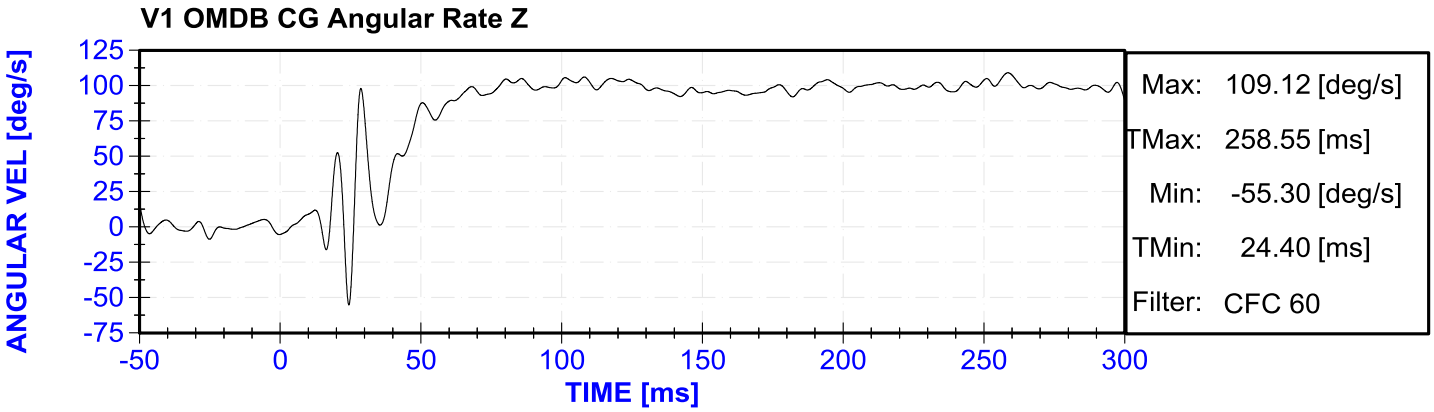

V1 OMDB CG X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 0.90 [g's]
TMax: 166.20 [ms]
Min: -18.60 [g's]
TMin: 38.30 [ms]
Filter: CFC 60

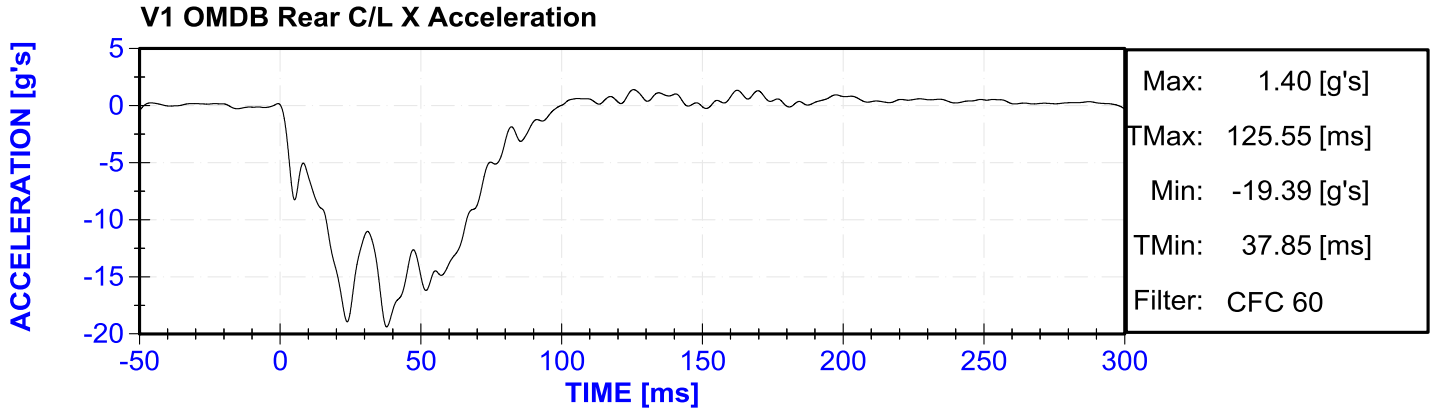

V1 OMDB CG Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 3.28 [g's]
TMax: 7.95 [ms]
Min: -7.41 [g's]
TMin: 30.80 [ms]
Filter: CFC 60

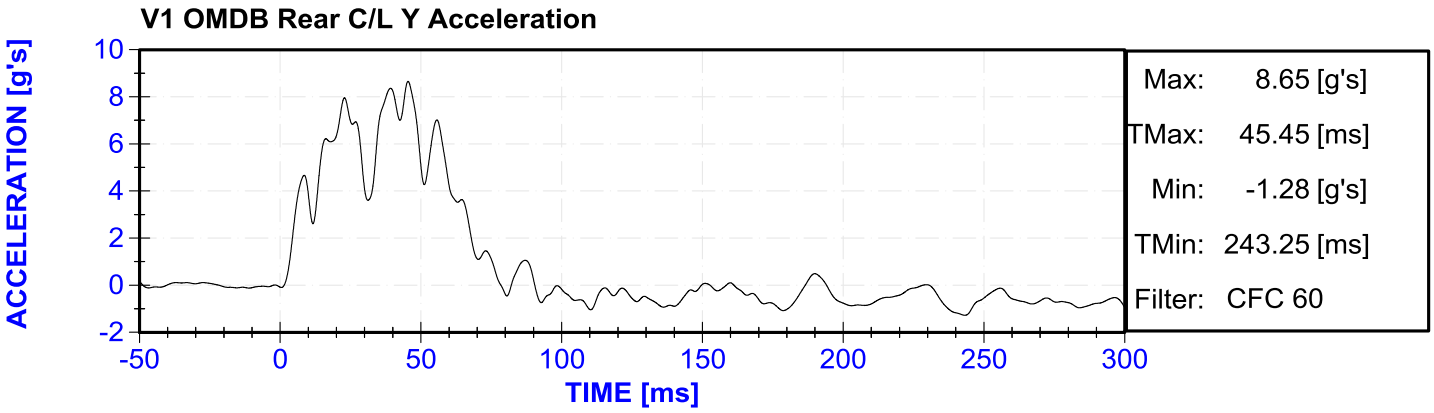

V1 OMDB CG Z Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 17.99 [g's]
TMax: 56.15 [ms]
Min: -26.21 [g's]
TMin: 38.10 [ms]
Filter: CFC 60


V1 OMDB CG Angular Rate X
ANGULAR VEL [deg/s]
TIME [ms]
Max: 62.79 [deg/s]
TMax: 32.30 [ms]
Min: -82.77 [deg/s]
TMin: 49.10 [ms]
Filter: CFC 60

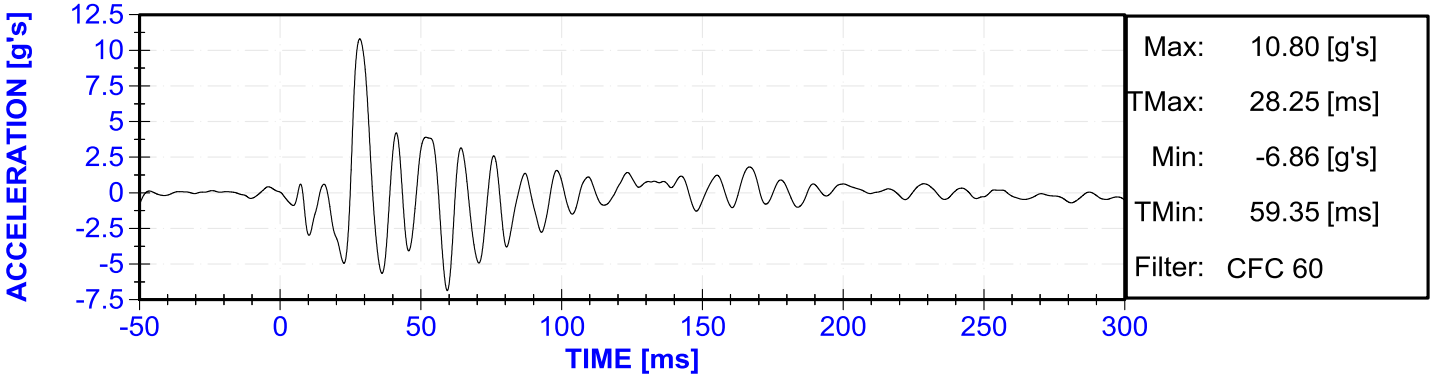

V1 OMDB CG Angular Rate Y
ANGULAR VEL [deg/s]
TIME [ms]
Max: 56.30 [deg/s]
TMax: 32.20 [ms]
Min: -85.14 [deg/s]
TMin: 27.30 [ms]
Filter: CFC 60


V1 OMDB CG Angular Rate Z
ANGULAR VEL [deg/s]
TIME [ms]
Max: 109.12 [deg/s]
TMax: 258.55 [ms]
Min: -55.30 [deg/s]
TMin: 24.40 [ms]
Filter: CFC 60

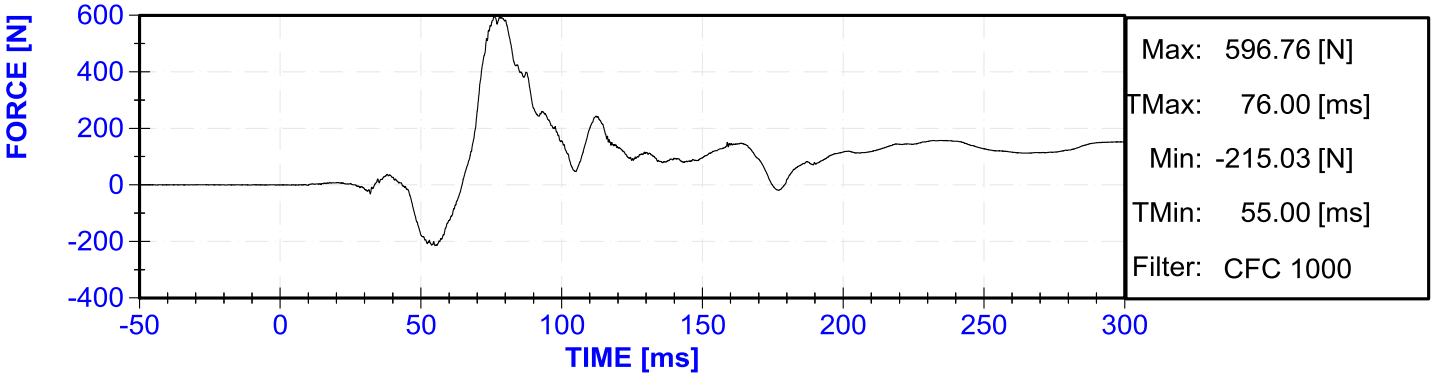

V1 OMDB Rear C/L X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 1.40 [g's]
TMax: 125.55 [ms]
Min: -19.39 [g's]
TMin: 37.85 [ms]
Filter: CFC 60


V1 OMDB Rear C/L Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 8.65 [g's]
TMax: 45.45 [ms]
Min: -1.28 [g's]
TMin: 243.25 [ms]
Filter: CFC 60

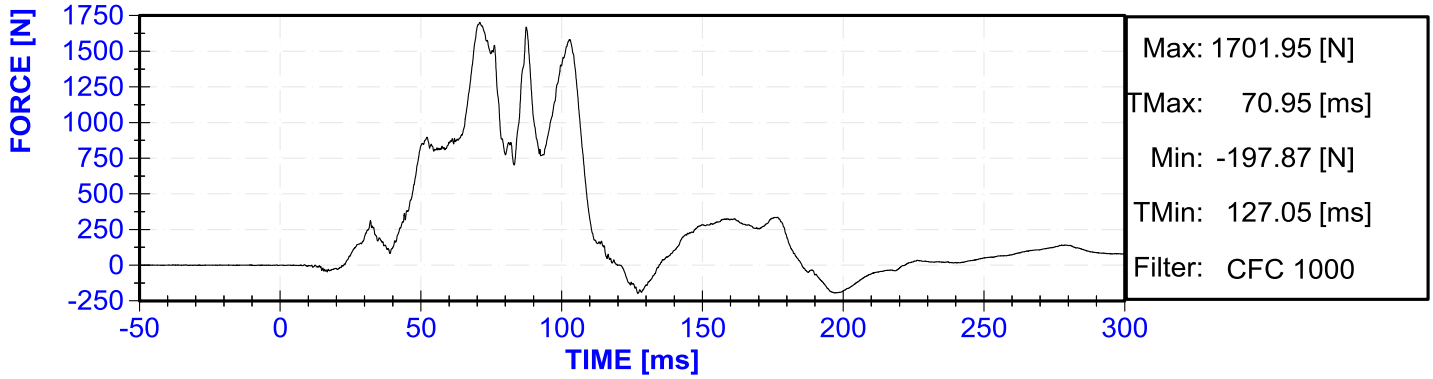
V1 OMDB Rear C/L Z Acceleration



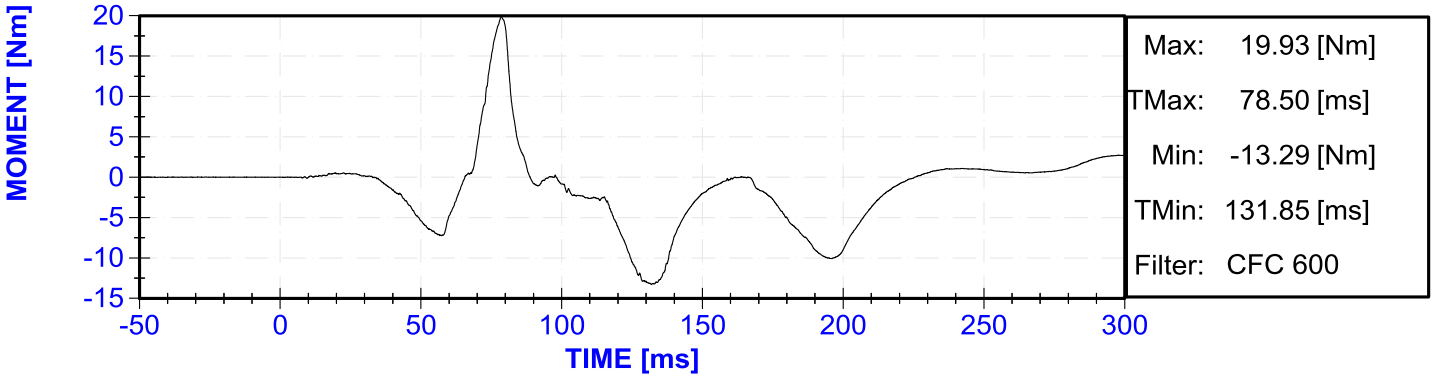
V2P1 Fx on head acting through the O.C. joint only



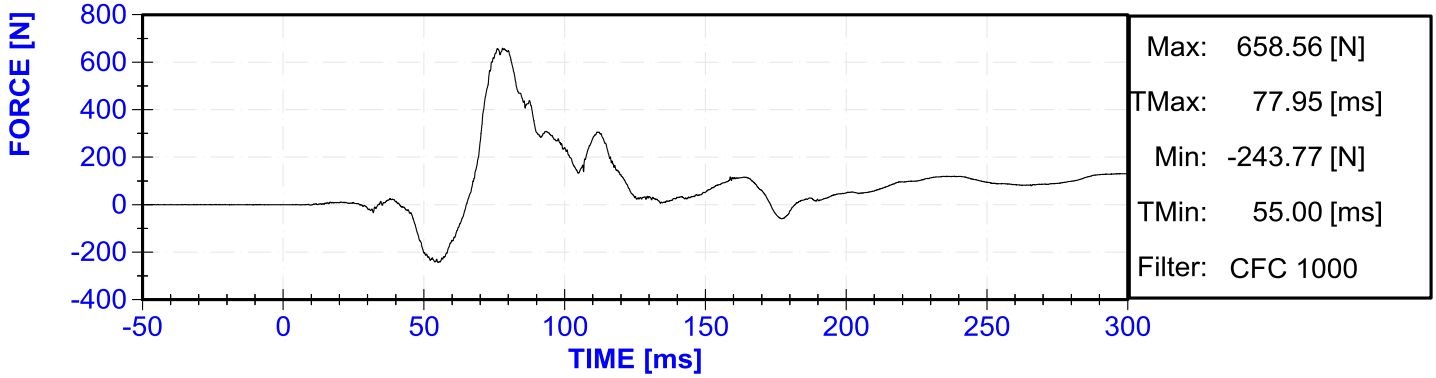
V2P1 Fz on head acting through the O.C. joint only



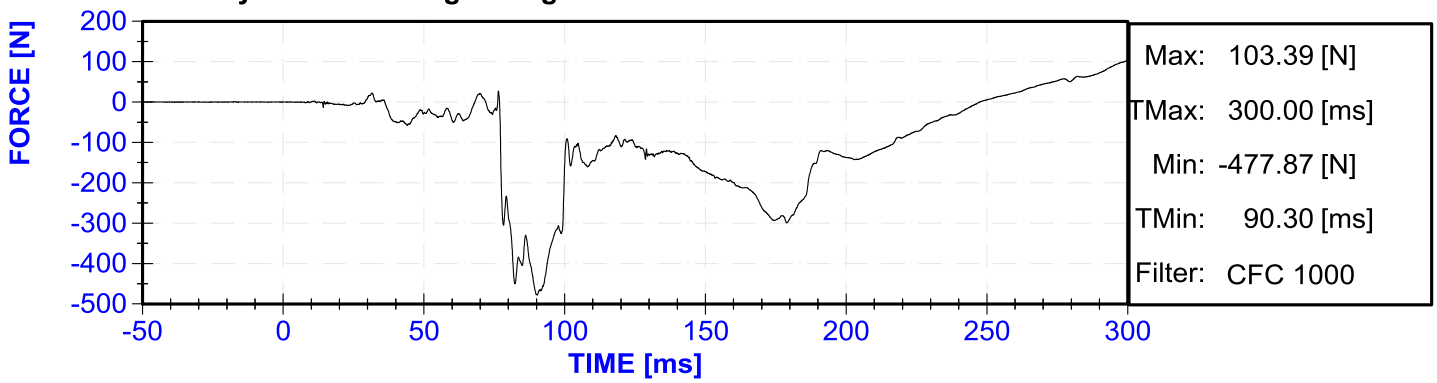
V2P1 My on head acting through the O.C. joint only



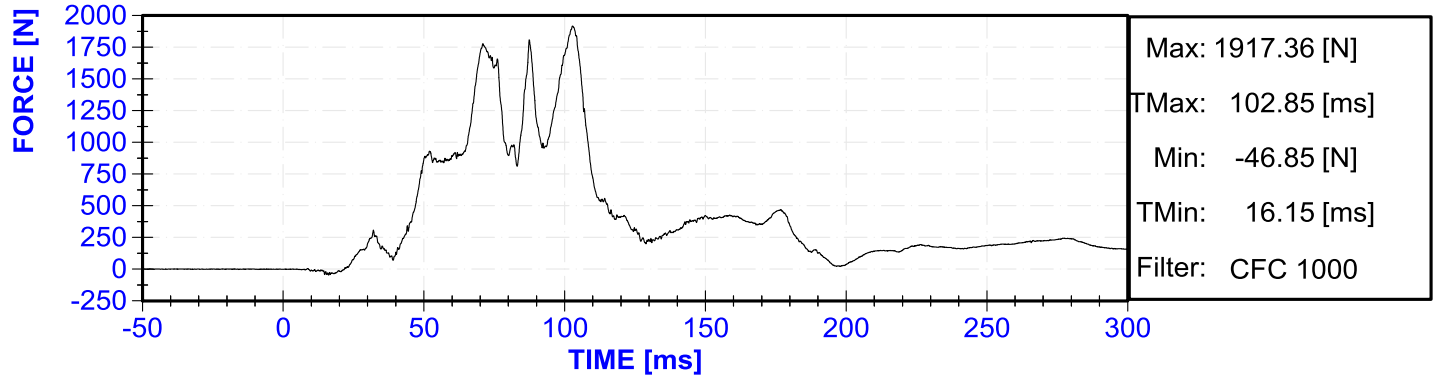
V2P1 Fx on head acting through the total neck section



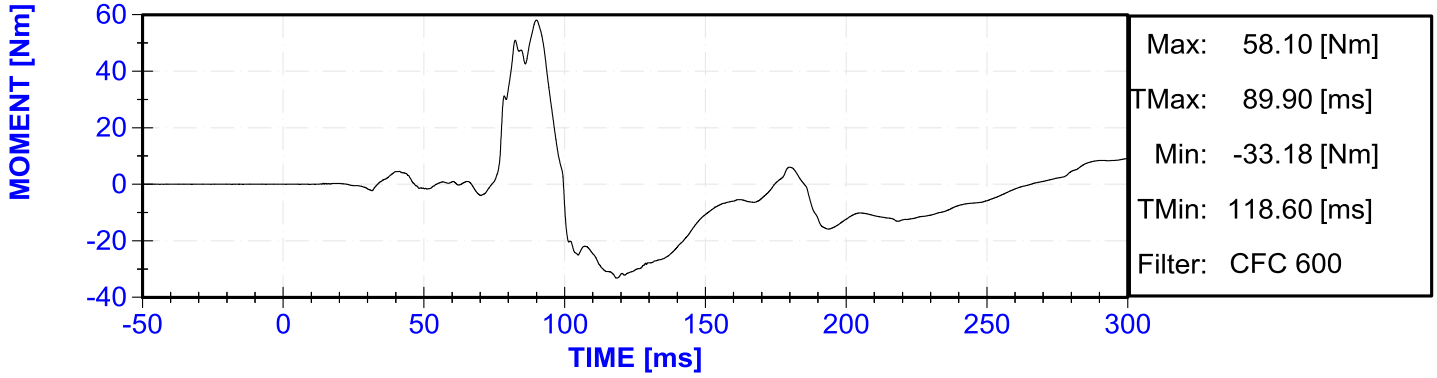
V2P1 Fy on head acting through the total neck section



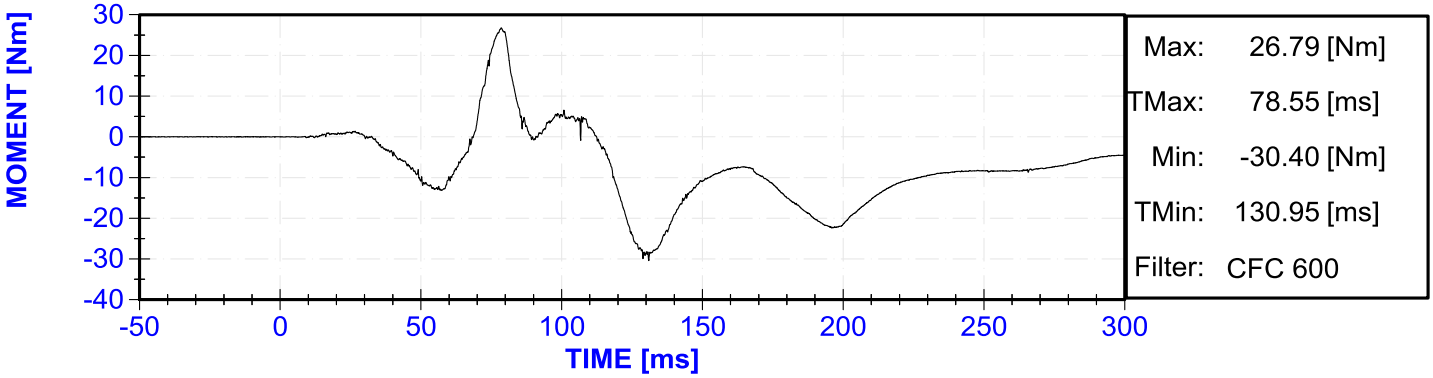
V2P1 Fz on head acting through the total neck section



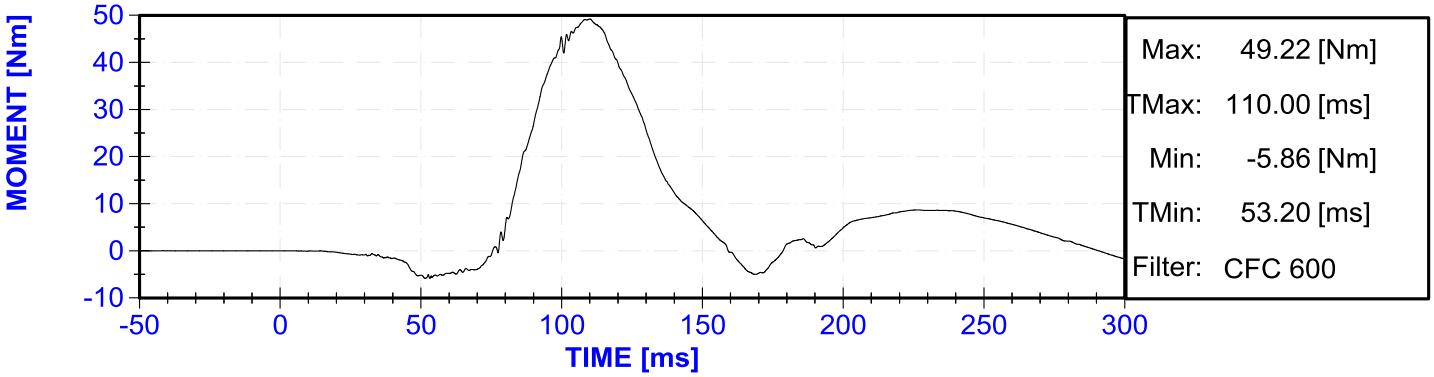
V2P1 Mx on head acting through the total neck section



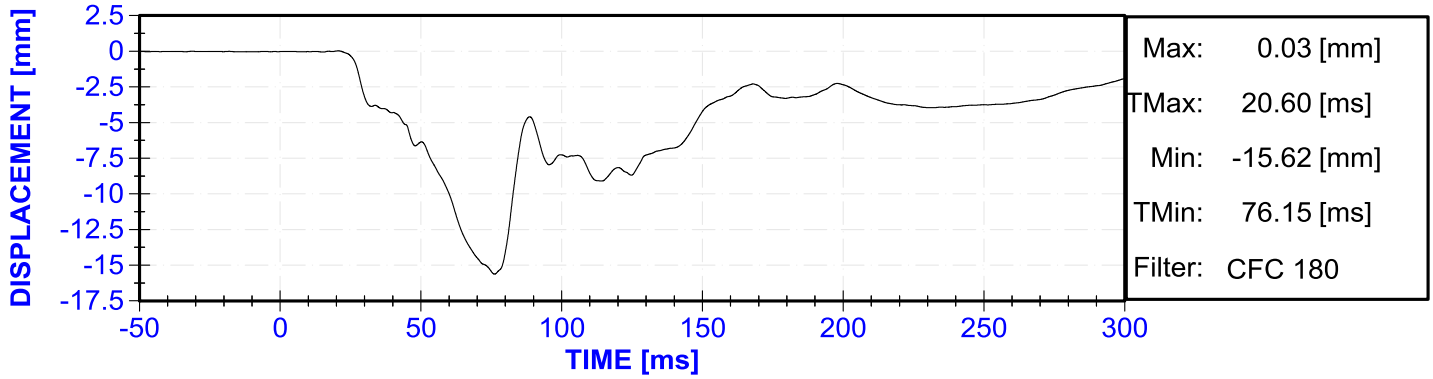
V2P1 My on head acting through the total neck section



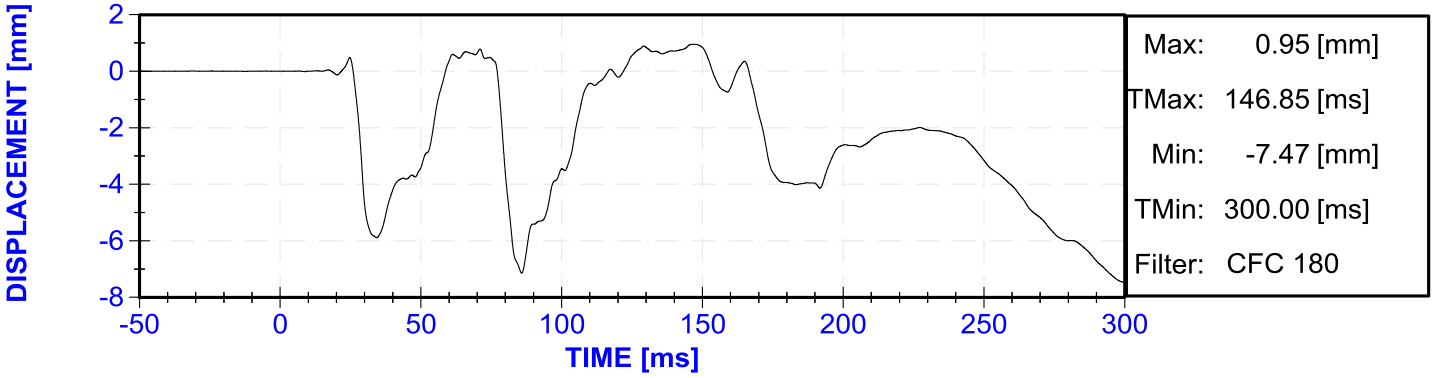
V2P1 Mz on head acting through the total neck section



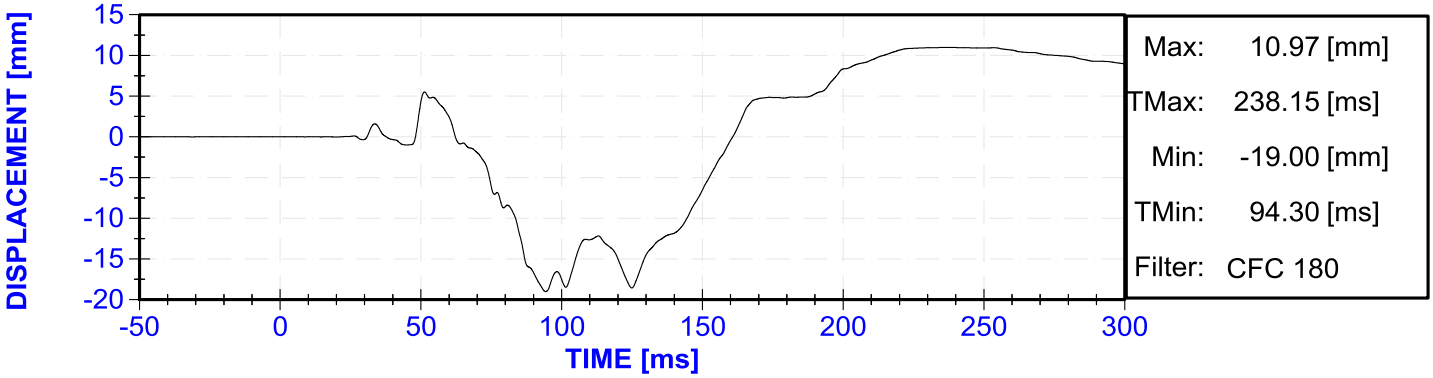
V2P1 Chest Left Upper Dx



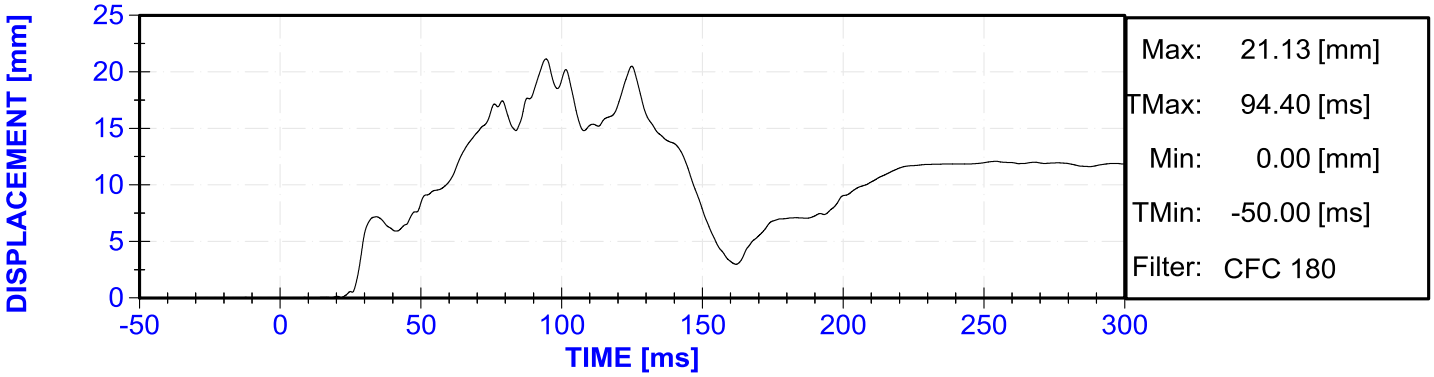
V2P1 Chest Left Upper Dy



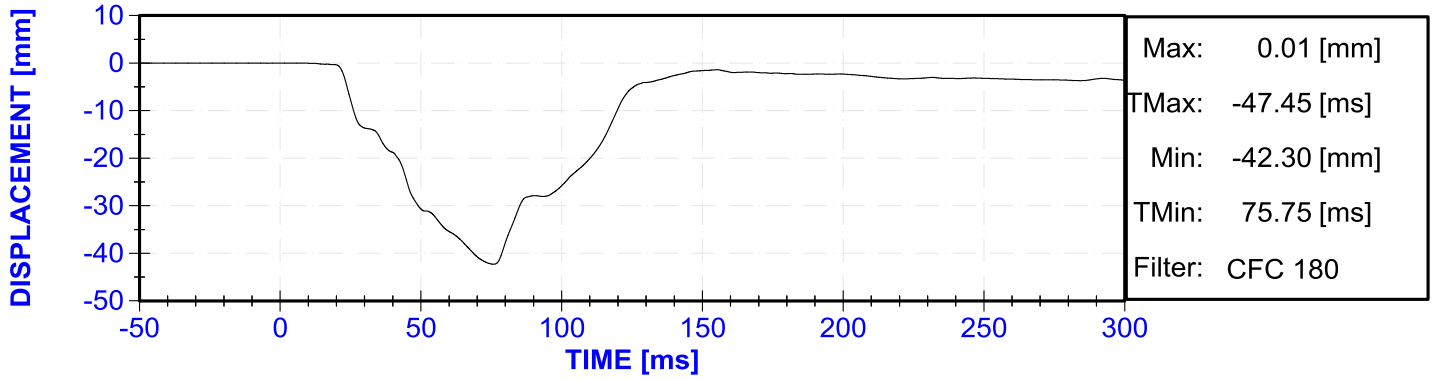
V2P1 Chest Left Upper Dz



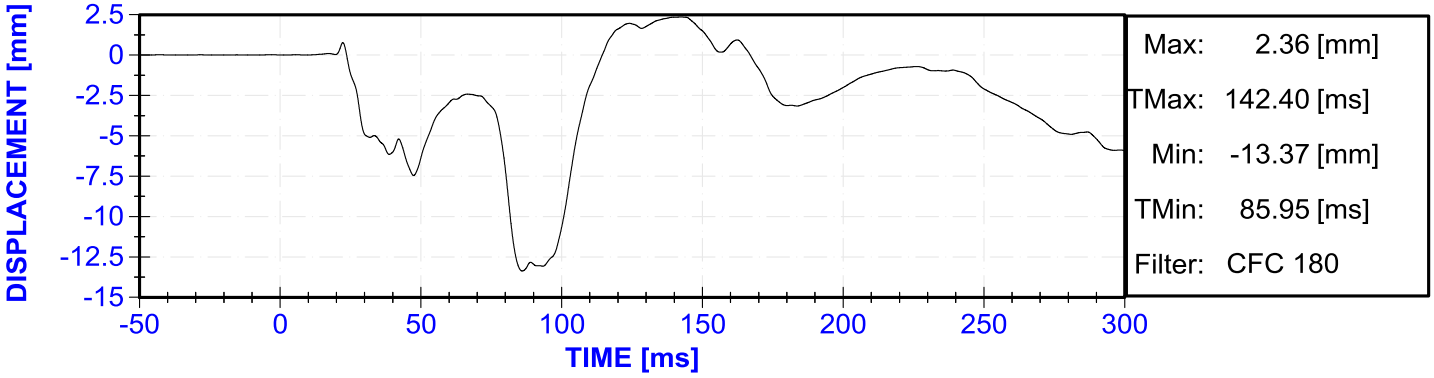
V2P1 Chest Left Upper Resultant



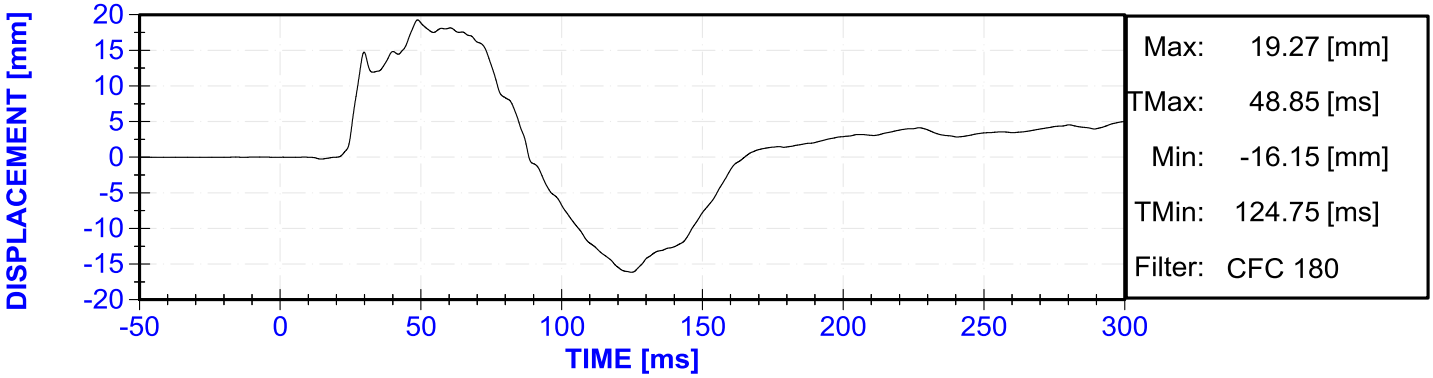
V2P1 Chest Right Upper Dx



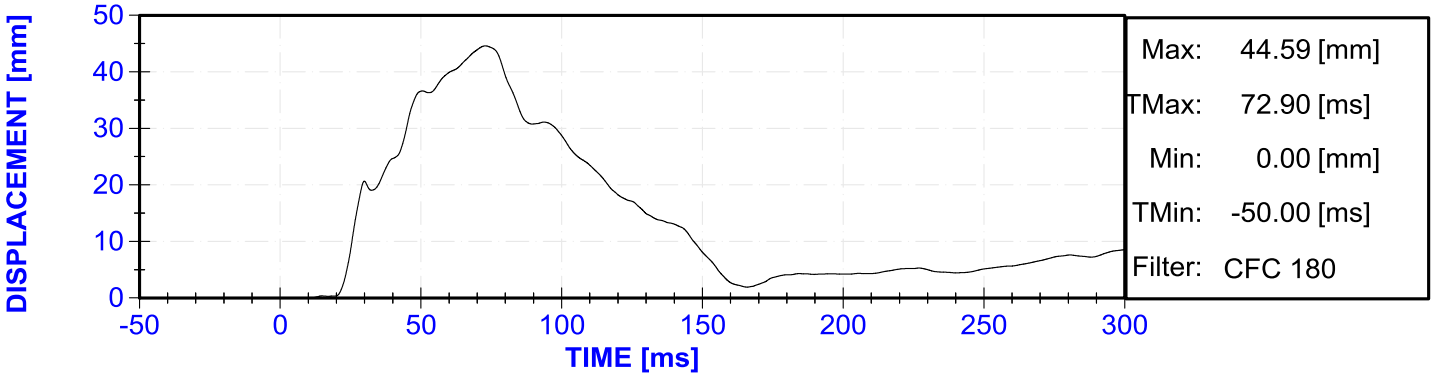
V2P1 Chest Right Upper Dy



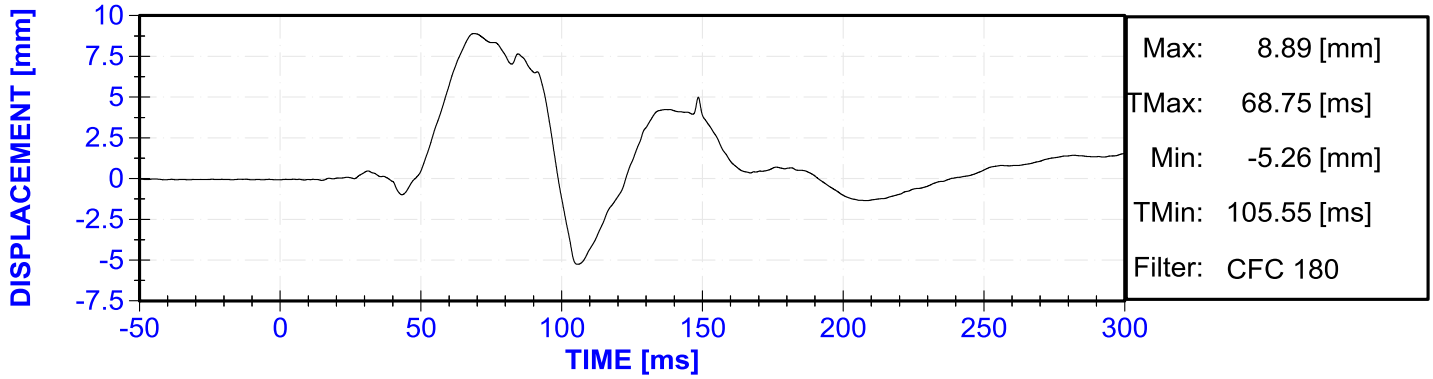
V2P1 Chest Right Upper Dz



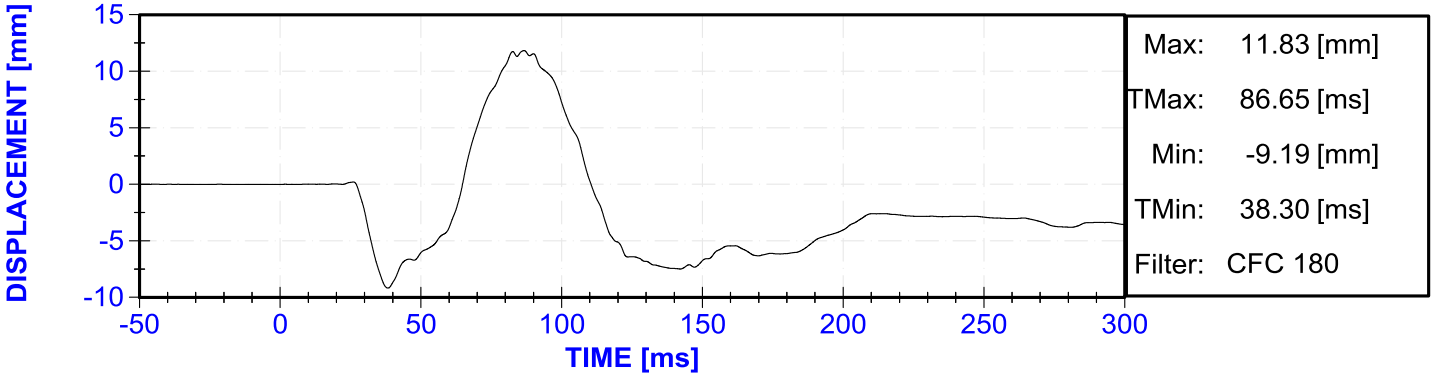
V2P1 Chest Right Upper Resultant



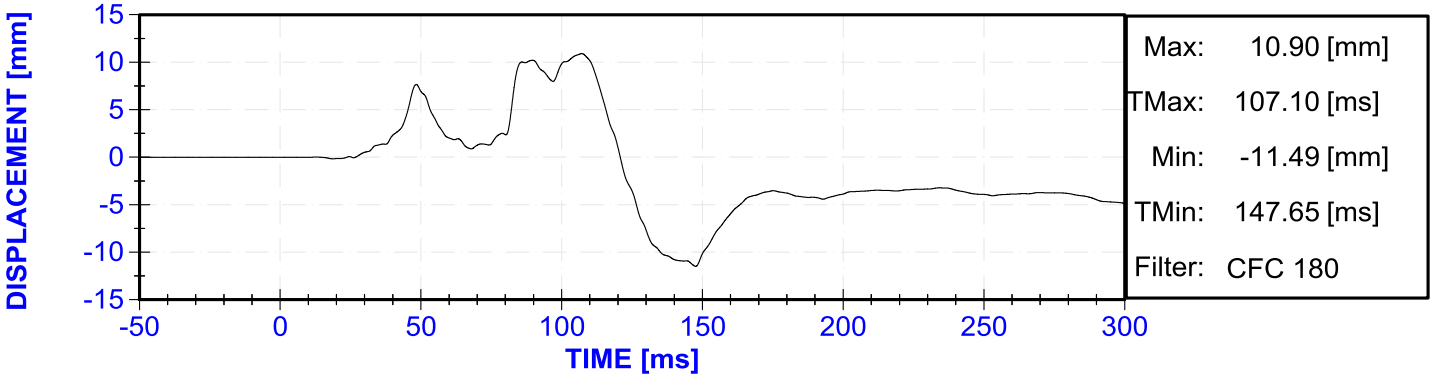
V2P1 Chest Left Lower Dx



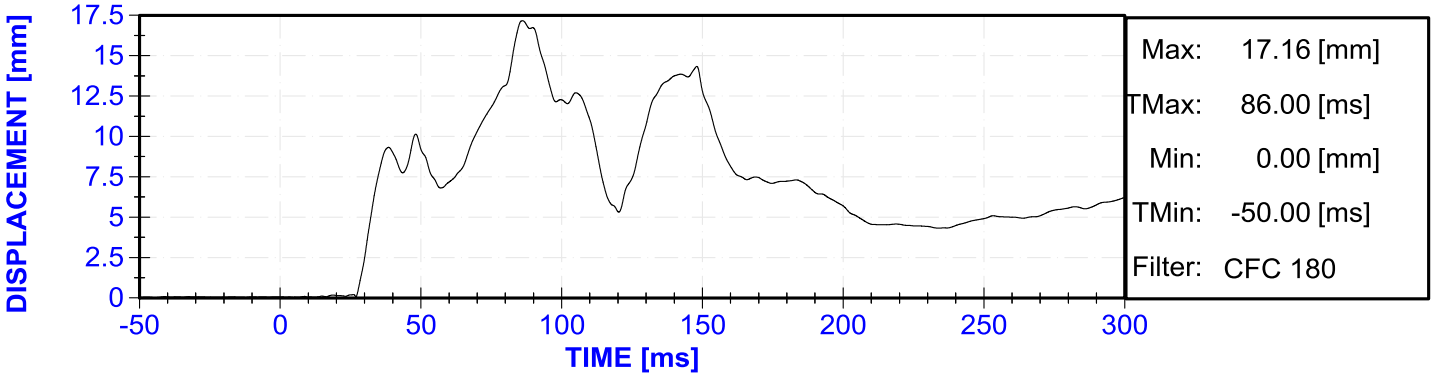
V2P1 Chest Left Lower Dy



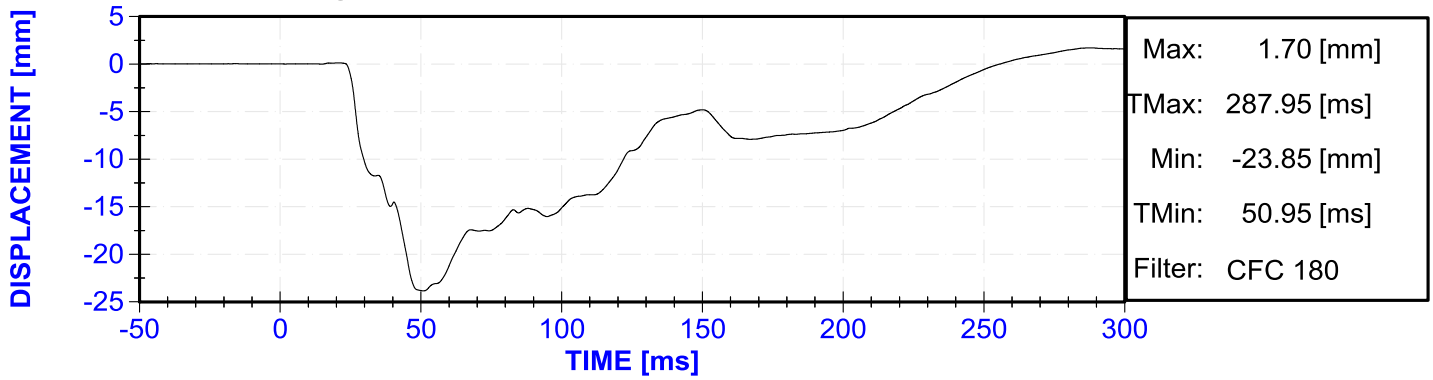
V2P1 Chest Left Lower Dz



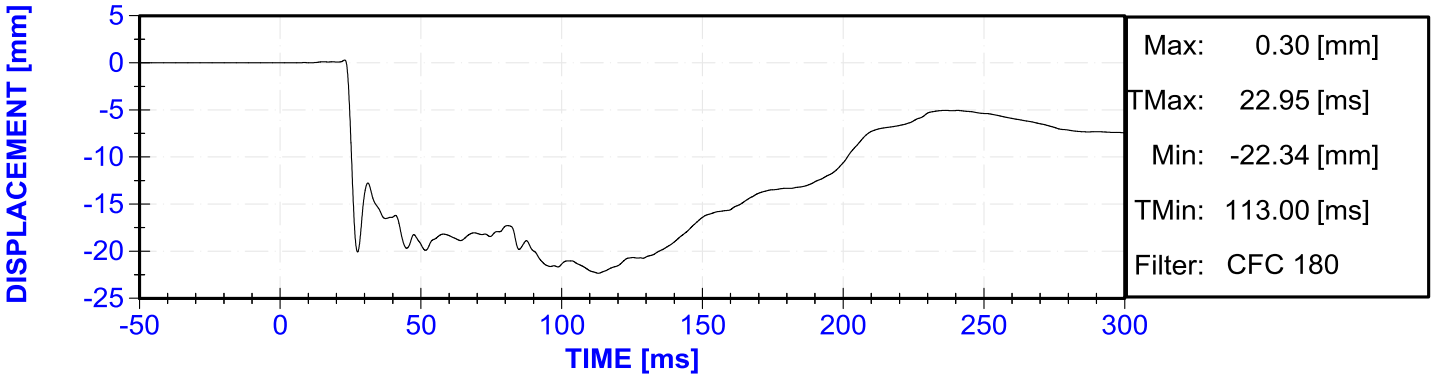
V2P1 Chest Left Lower Resultant



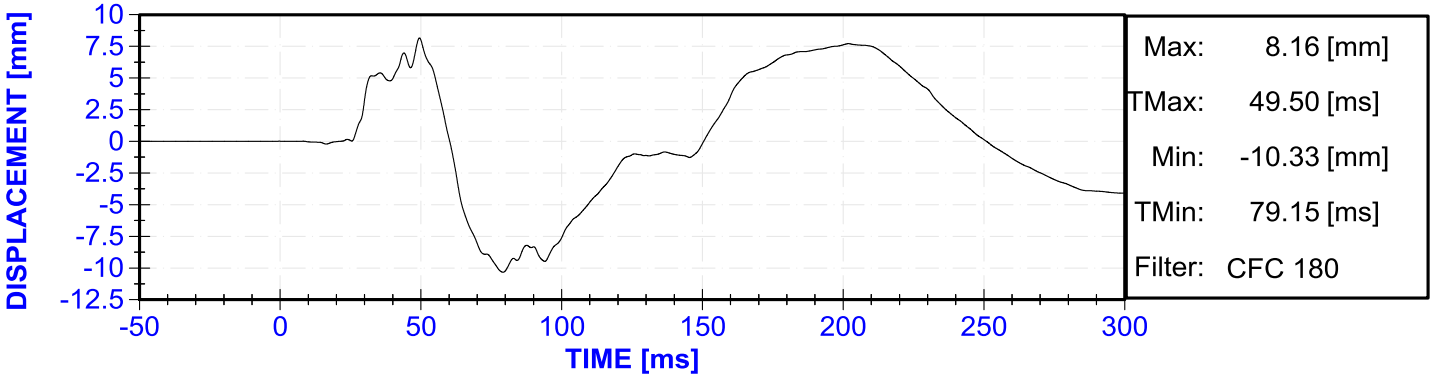
V2P1 Chest Right Lower Dx



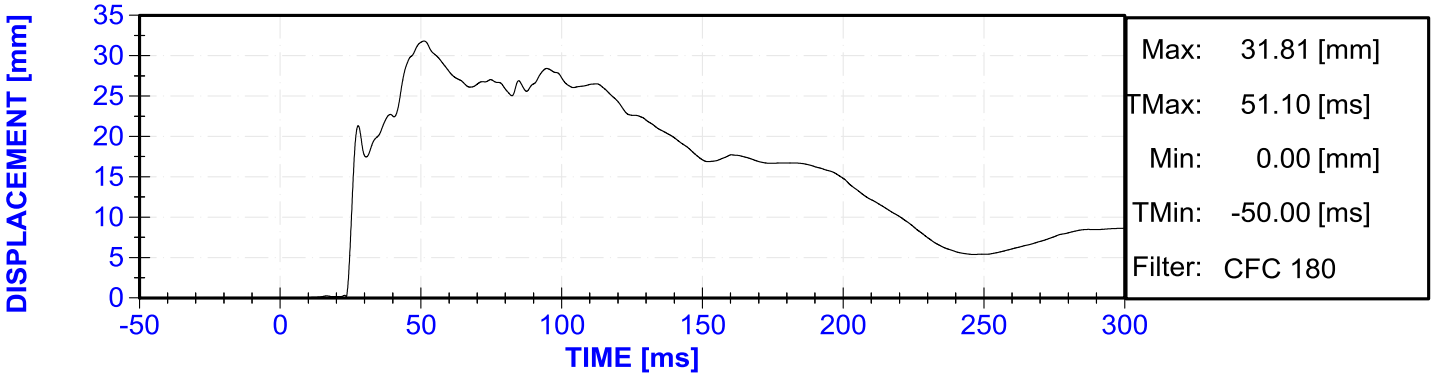
V2P1 Chest Right Lower Dy



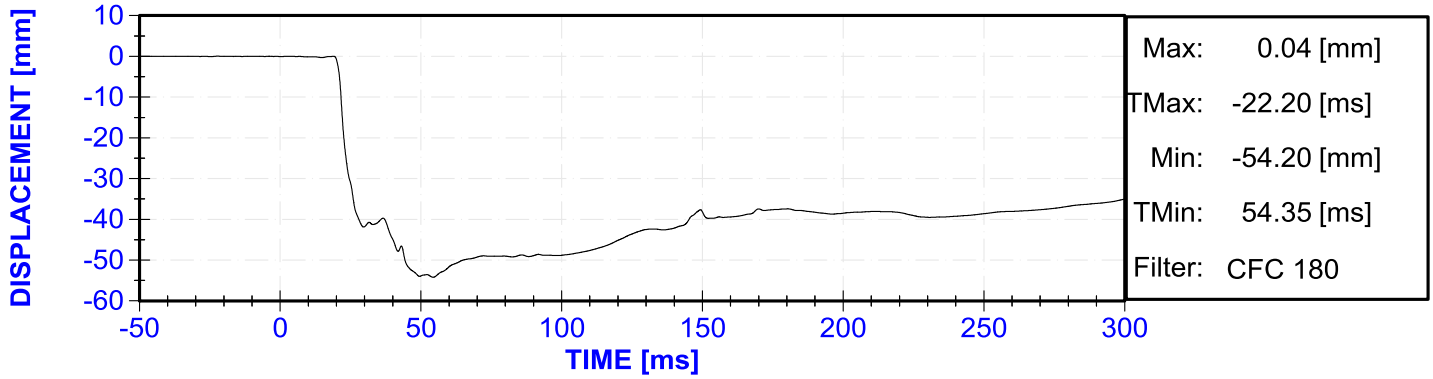
V2P1 Chest Right Lower Dz



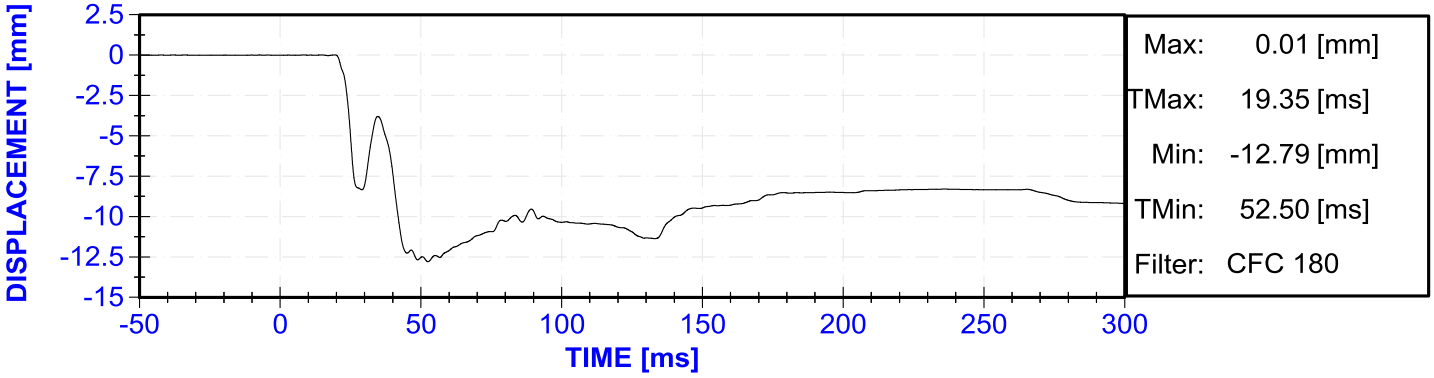
V2P1 Chest Right Lower Resultant

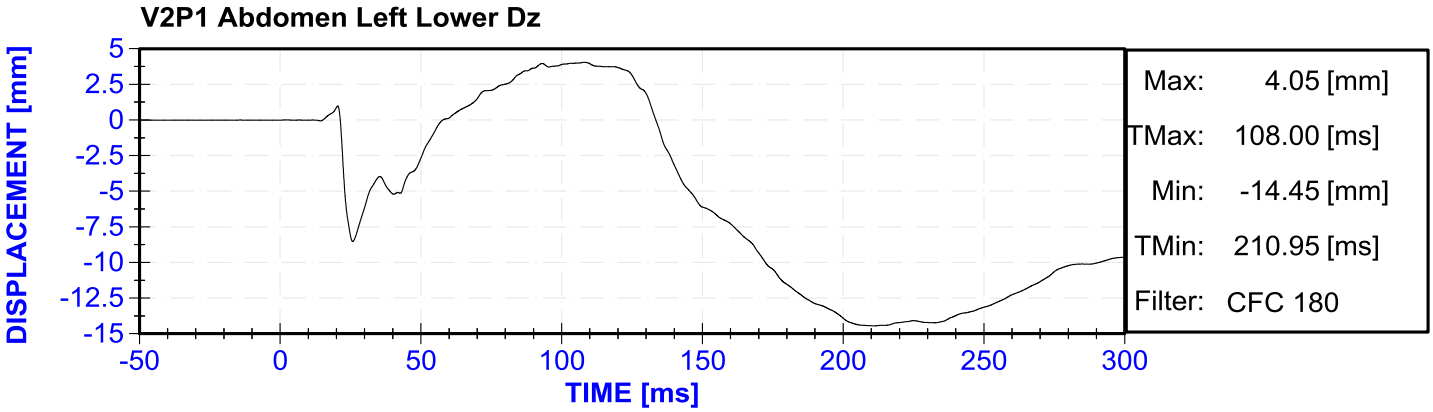


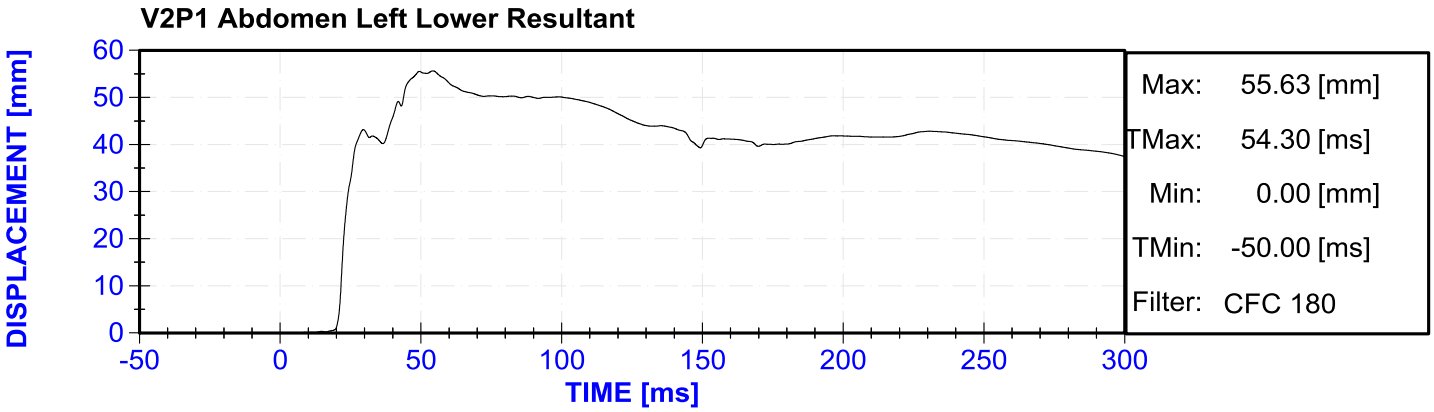
V2P1 Abdomen Left Lower Dx

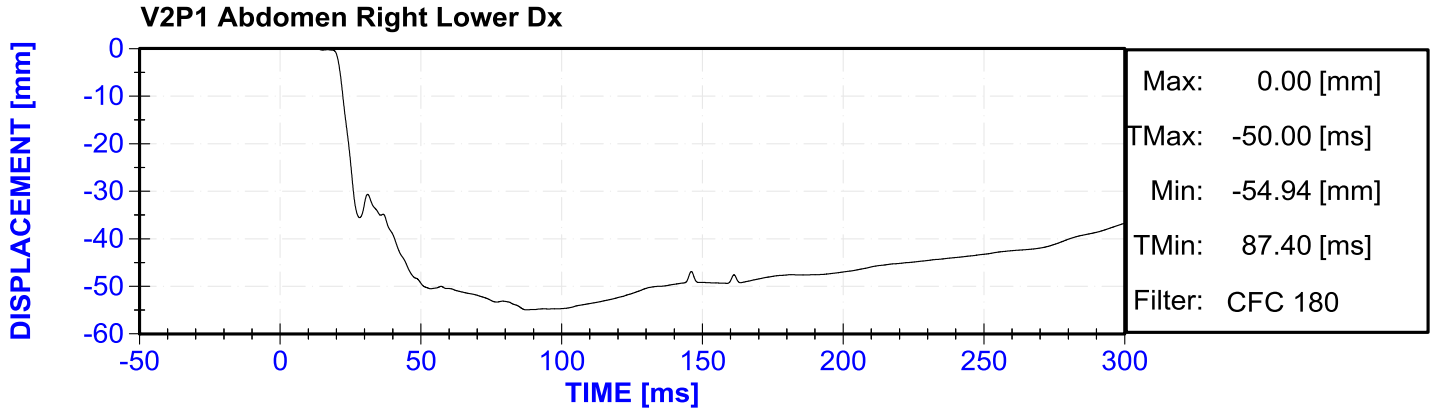


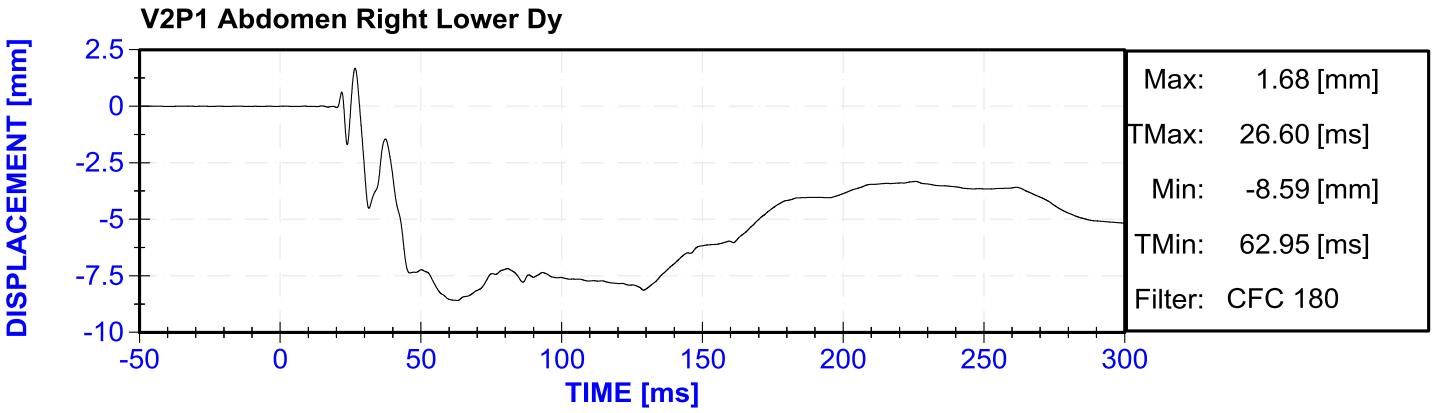
V2P1 Abdomen Left Lower Dy



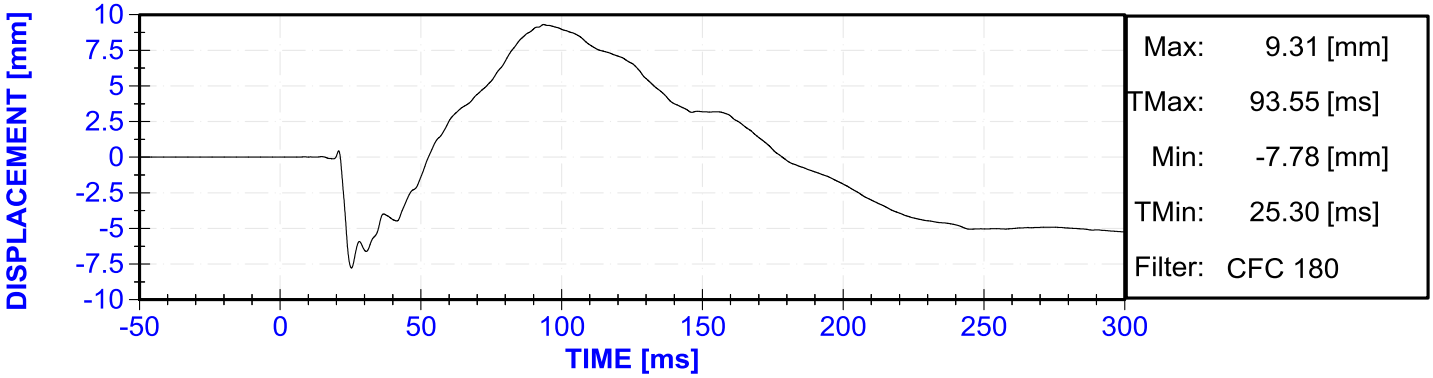

V2P1 Abdomen Left Lower Dz
DISPLACEMENT [mm]
TIME [ms]
Max: 4.05 [mm]
TMax: 108.00 [ms]
Min: -14.45 [mm]
TMin: 210.95 [ms]
Filter: CFC 180


V2P1 Abdomen Left Lower Resultant
DISPLACEMENT [mm]
TIME [ms]
Max: 55.63 [mm]
TMax: 54.30 [ms]
Min: 0.00 [mm]
TMin: -50.00 [ms]
Filter: CFC 180

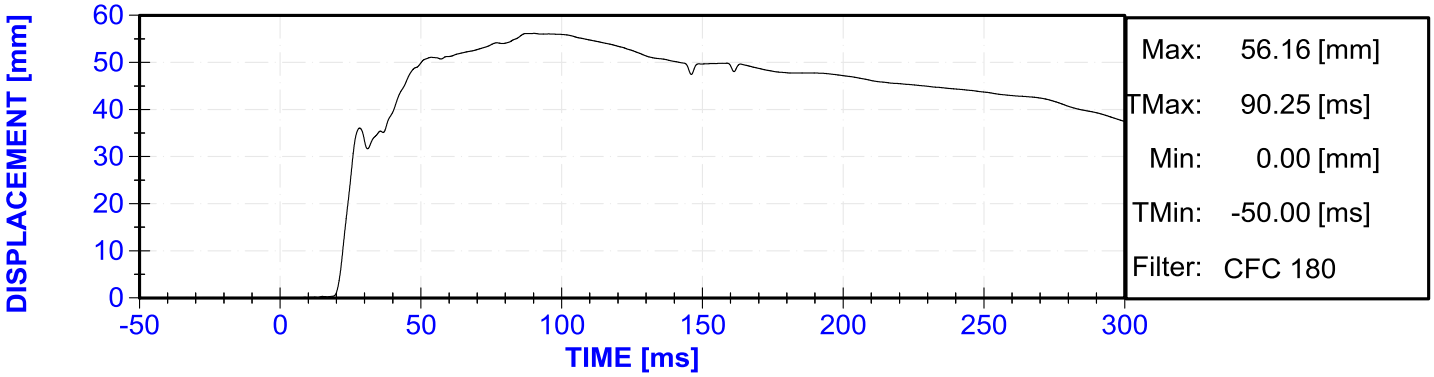

V2P1 Abdomen Right Lower Dx
DISPLACEMENT [mm]
TIME [ms]
Max: 0.00 [mm]
TMax: -50.00 [ms]
Min: -54.94 [mm]
TMin: 87.40 [ms]
Filter: CFC 180


V2P1 Abdomen Right Lower Dy
DISPLACEMENT [mm]
TIME [ms]
Max: 1.68 [mm]
TMax: 26.60 [ms]
Min: -8.59 [mm]
TMin: 62.95 [ms]
Filter: CFC 180

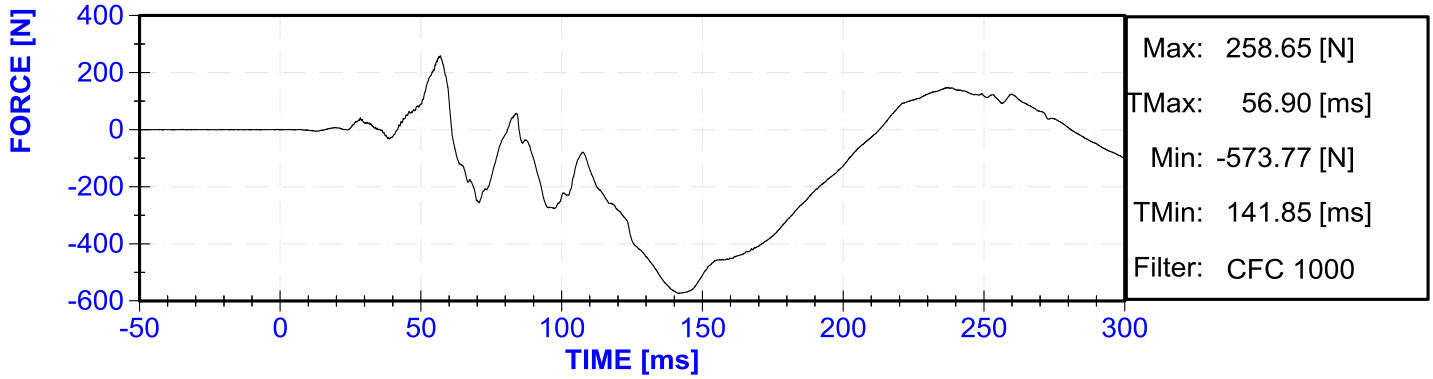
V2P1 Abdomen Right Lower Dz



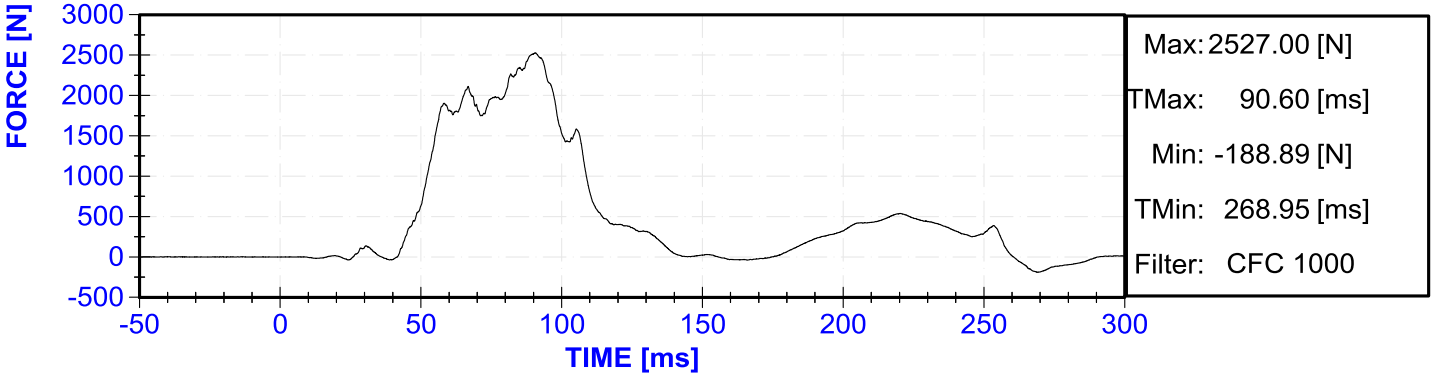
V2P1 Abdomen Right Lower Resultant



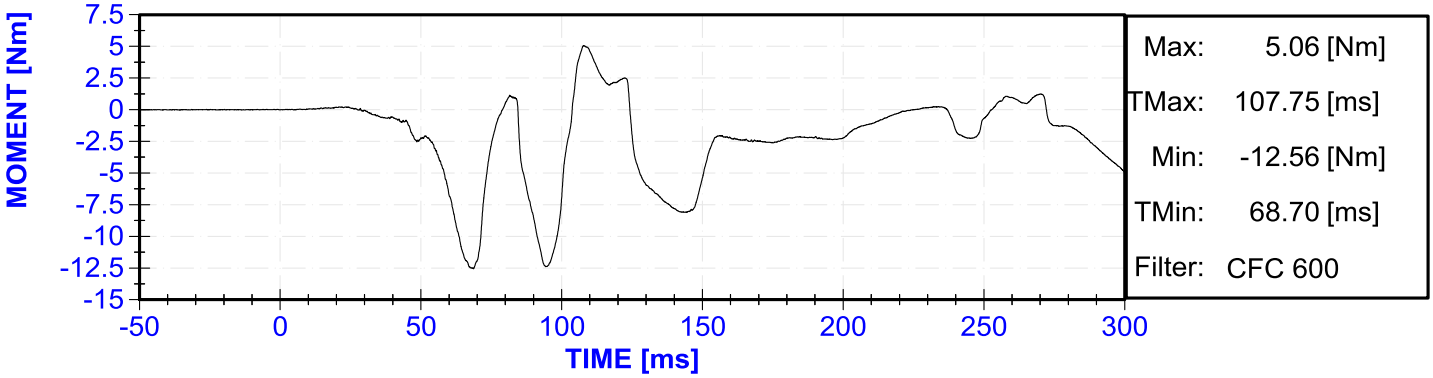
V2P2 Fx on head acting through the O.C. joint only



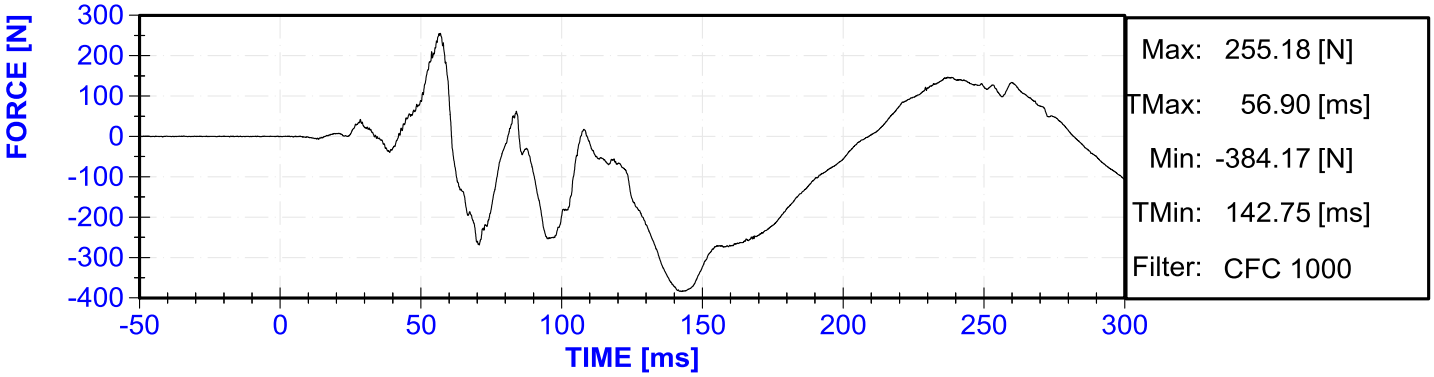
V2P2 Fz on head acting through the O.C. joint only



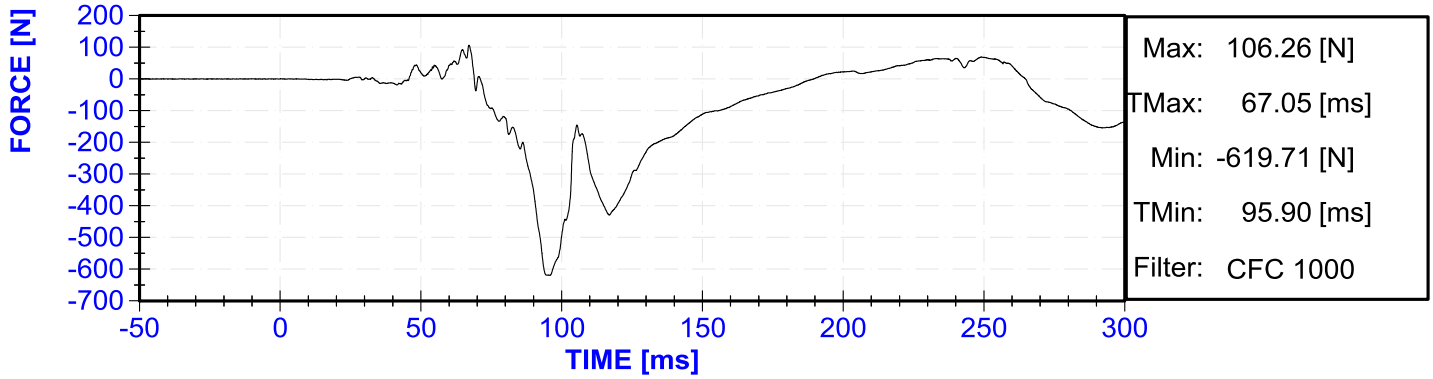
V2P2 My on head acting through the O.C. joint only



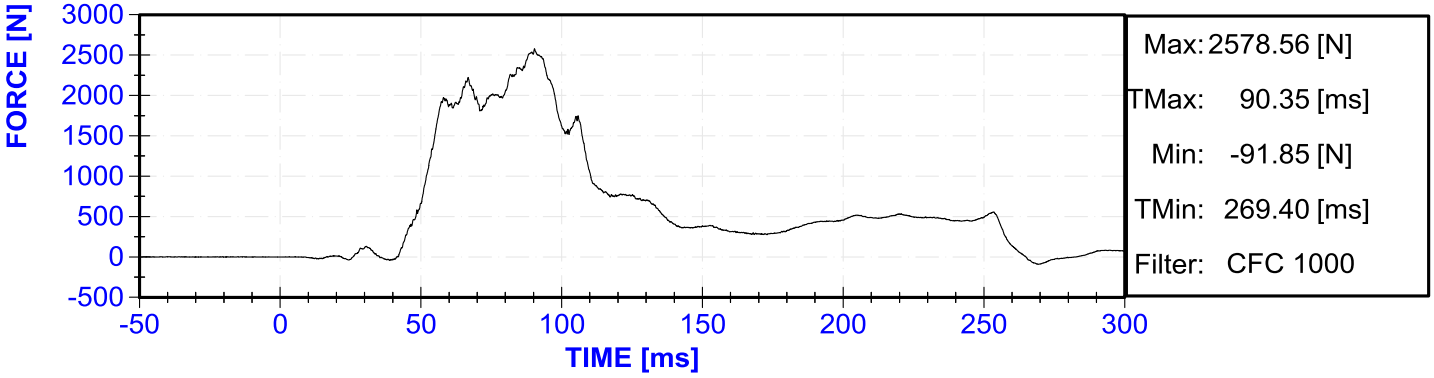
V2P2 Fx on head acting through the total neck section



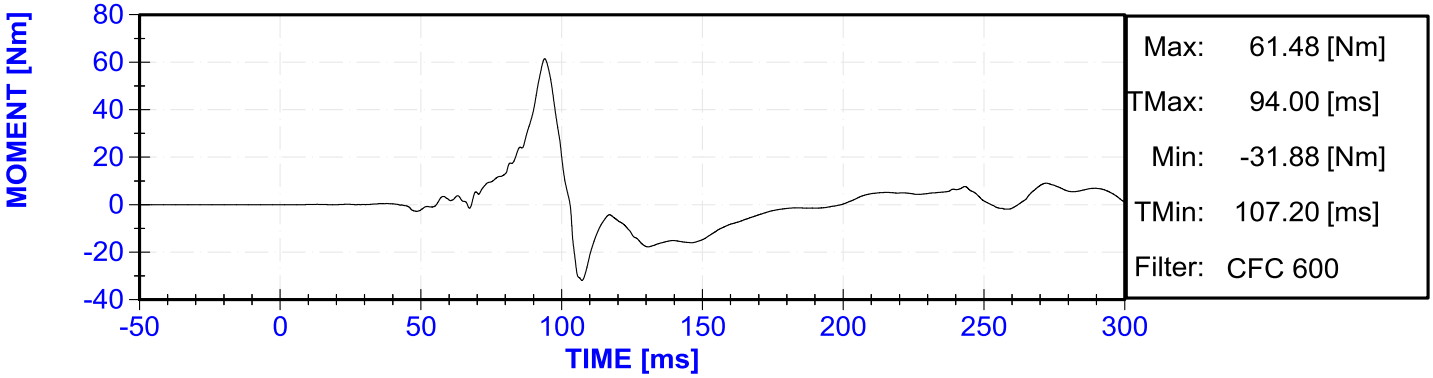
V2P2 Fy on head acting through the total neck section



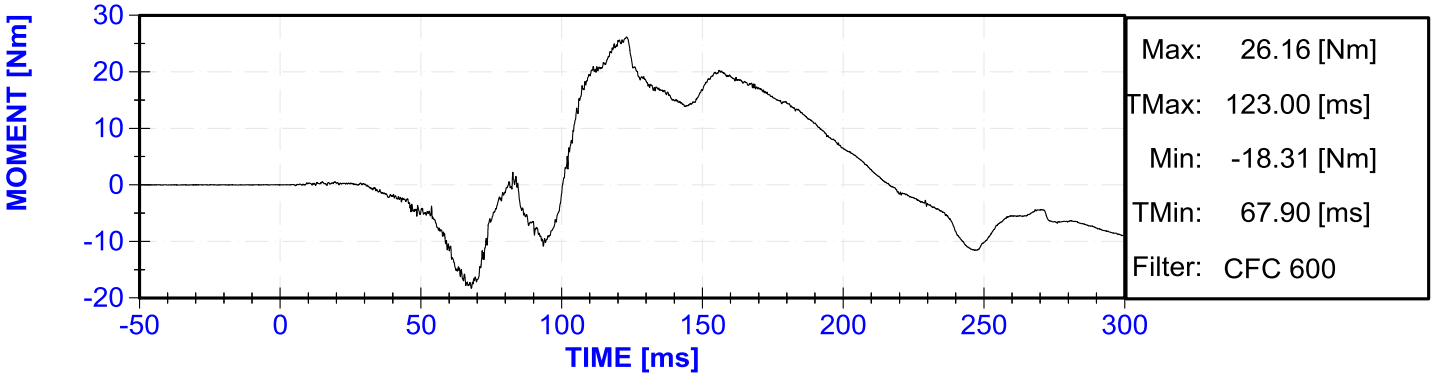
V2P2 Fz on head acting through the total neck section



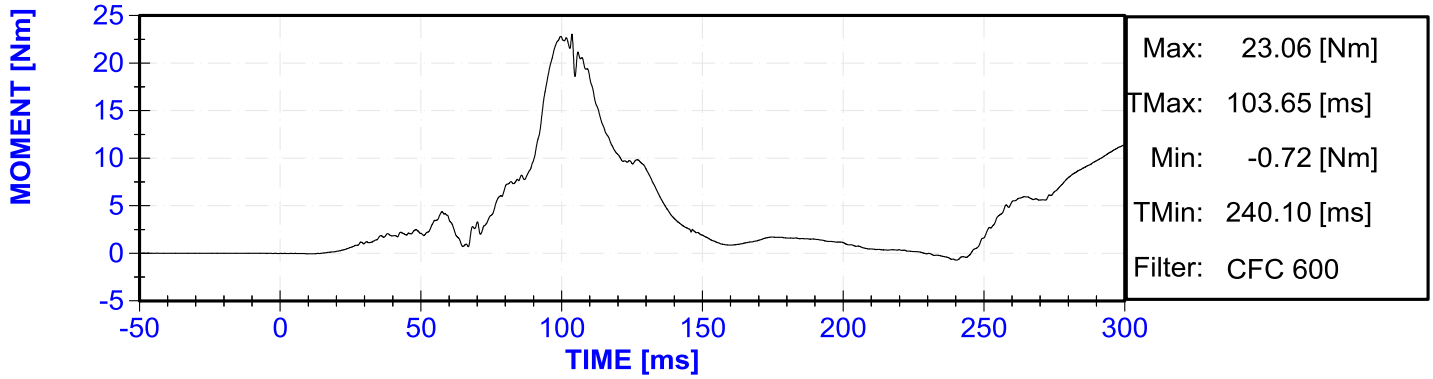
V2P2 Mx on head acting through the total neck section



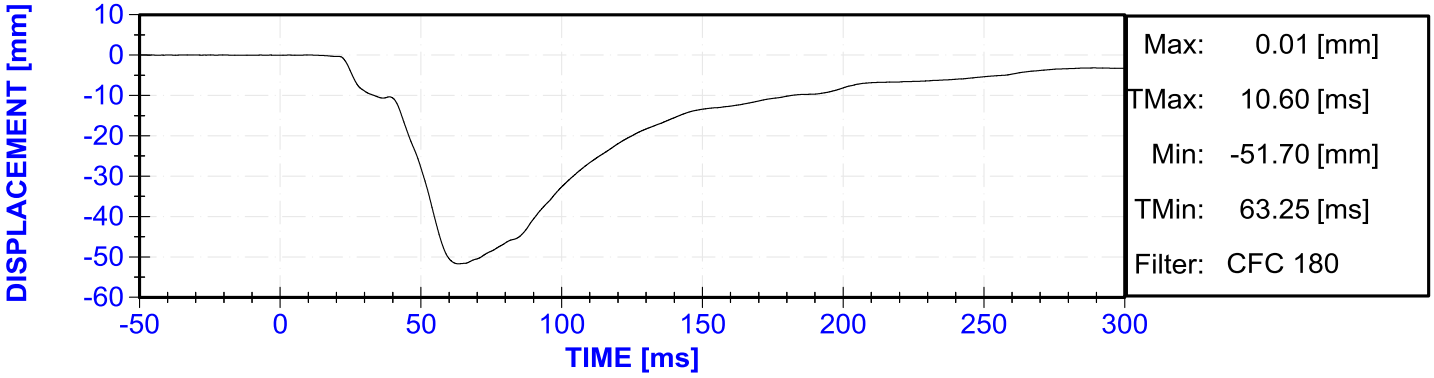
V2P2 My on head acting through the total neck section



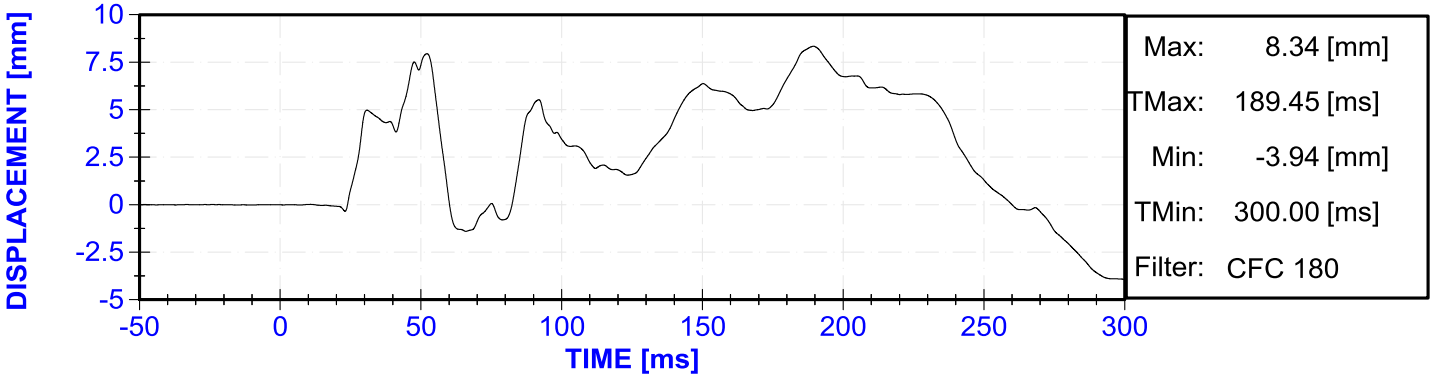
V2P2 Mz on head acting through the total neck section



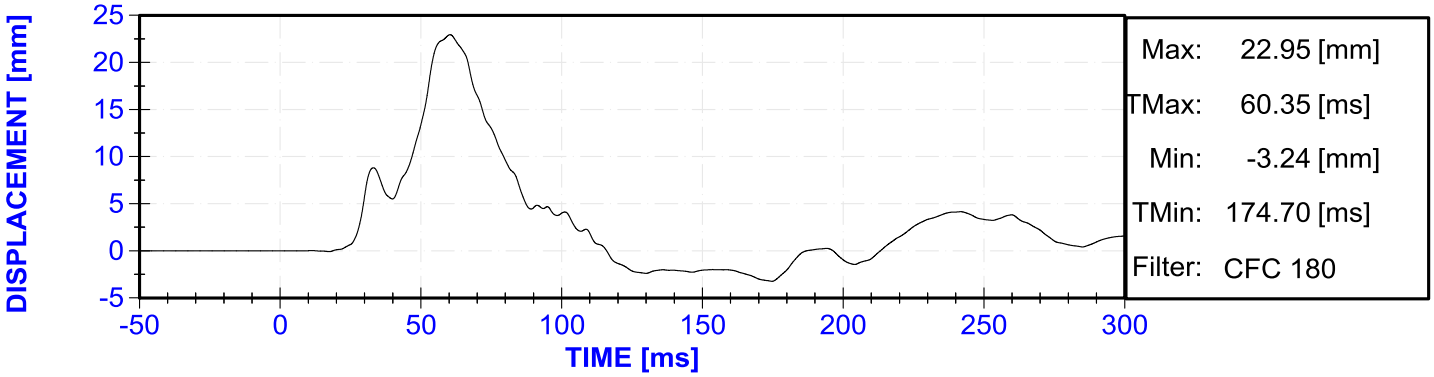
V2P2 Chest Left Upper Dx



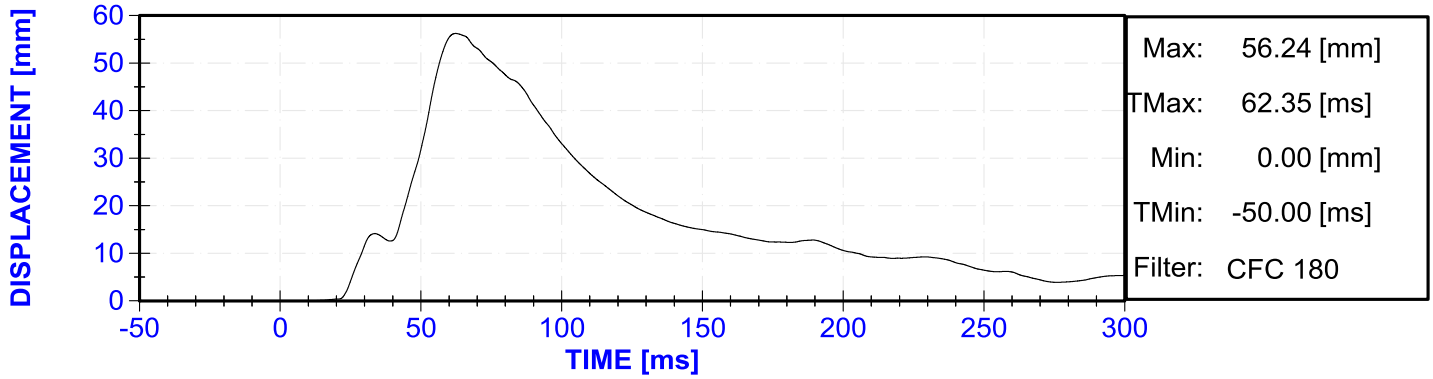
V2P2 Chest Left Upper Dy



V2P2 Chest Left Upper Dz

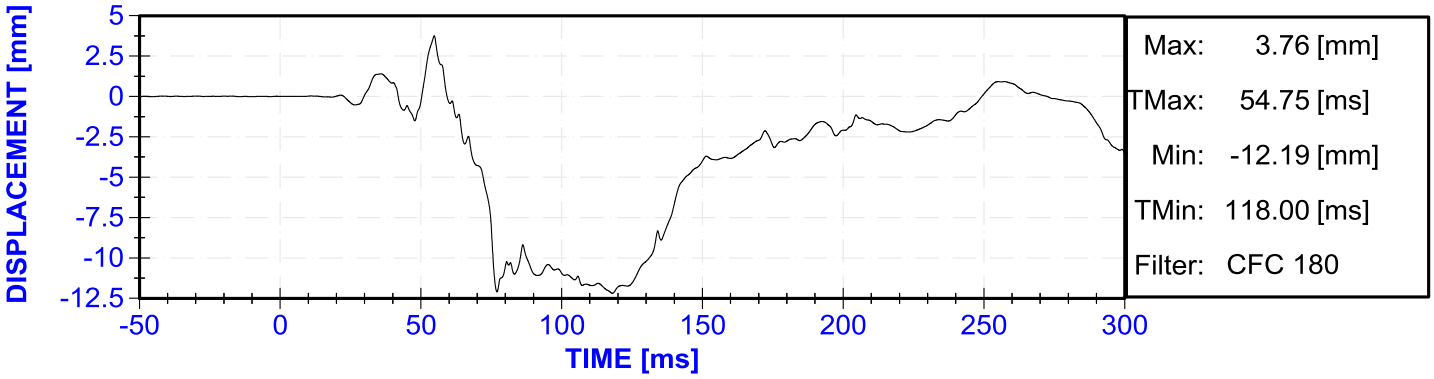


V2P2 Chest Left Upper Resultant



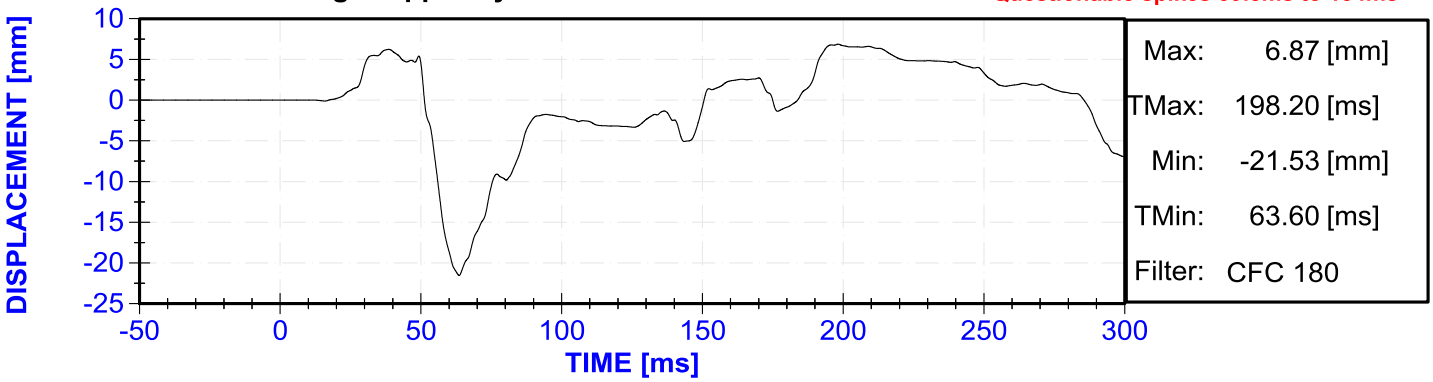
V2P2 Chest Right Upper Dx

Questionable spikes 39.8ms to 134ms



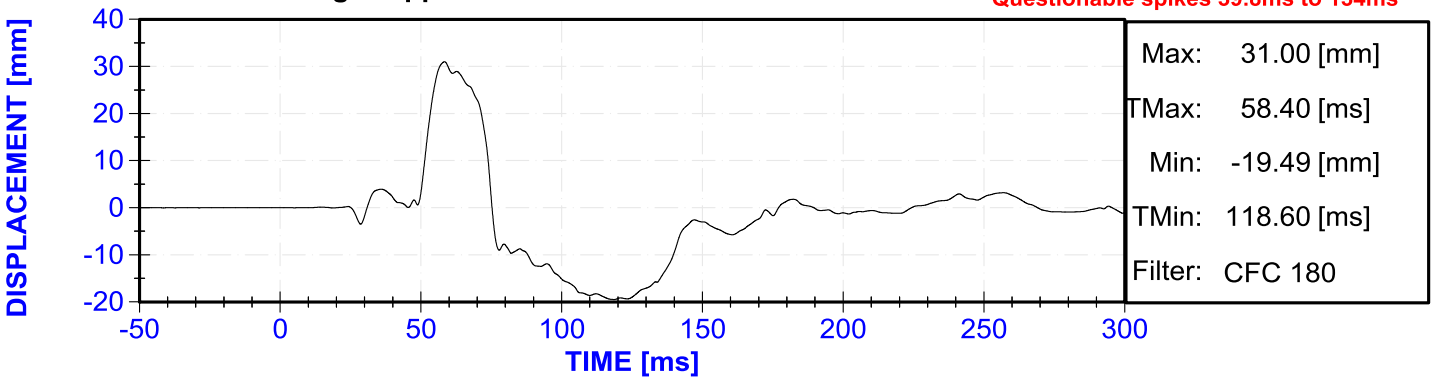
V2P2 Chest Right Upper Dy

Questionable spikes 39.8ms to 134ms



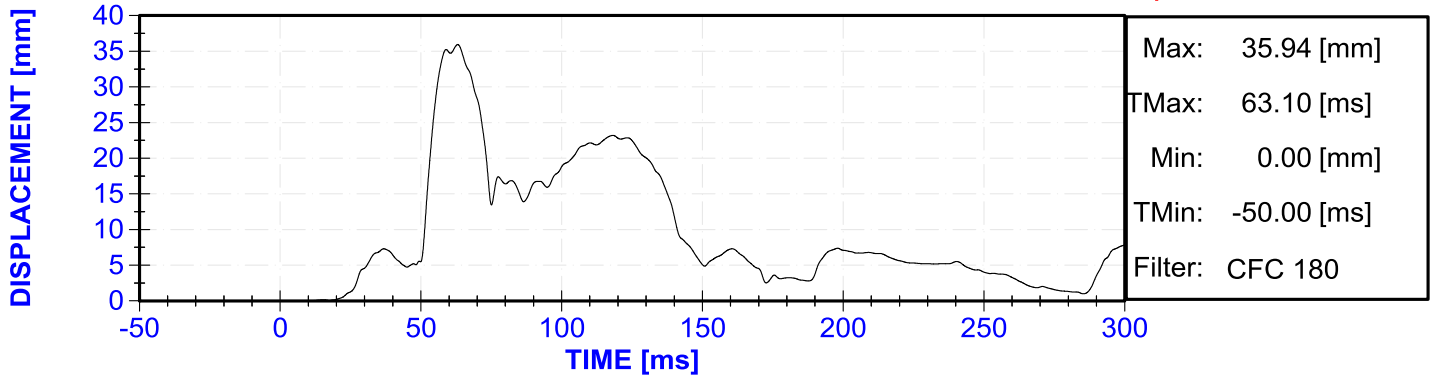
V2P2 Chest Right Upper Dz

Questionable spikes 39.8ms to 134ms

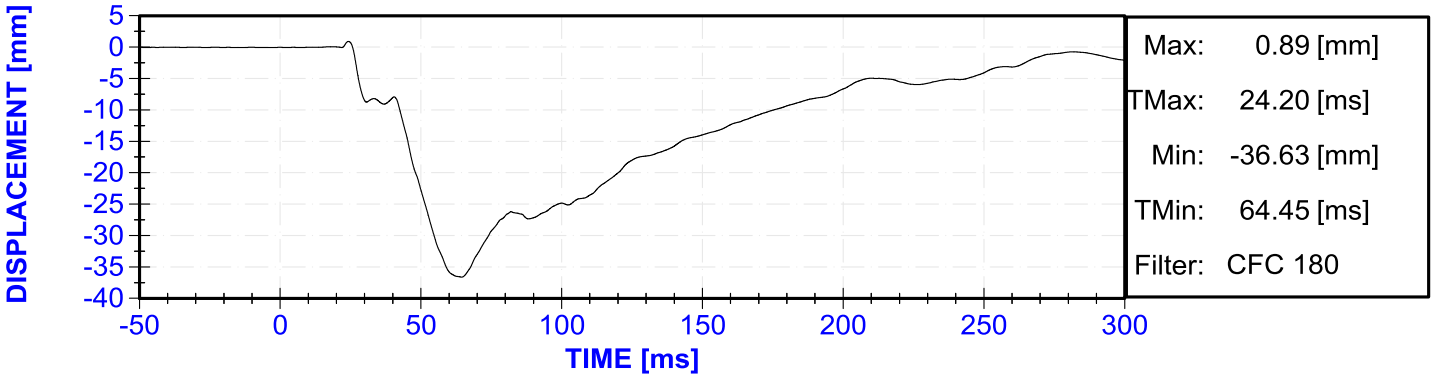


V2P2 Chest Right Upper Resultant

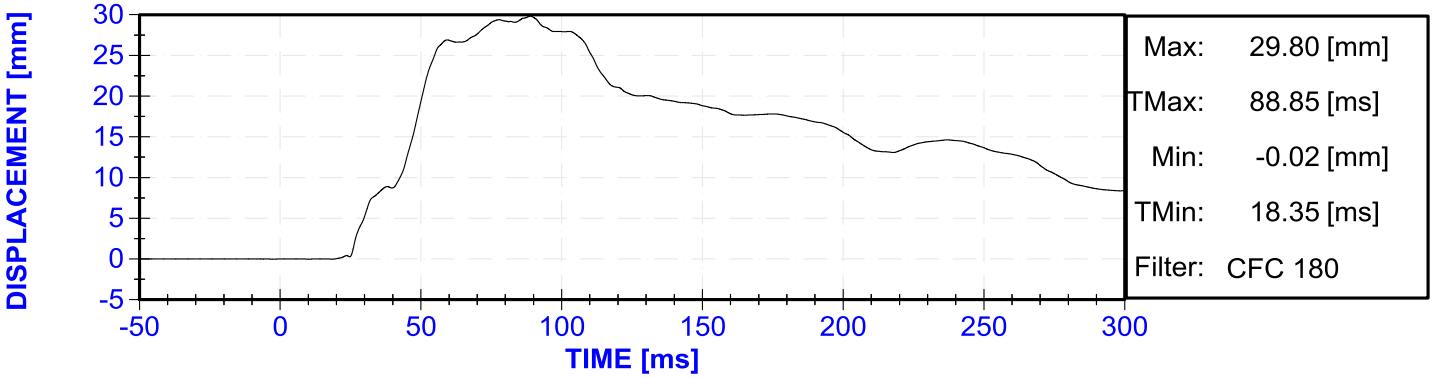
Questionable spikes 39.8ms to 134ms



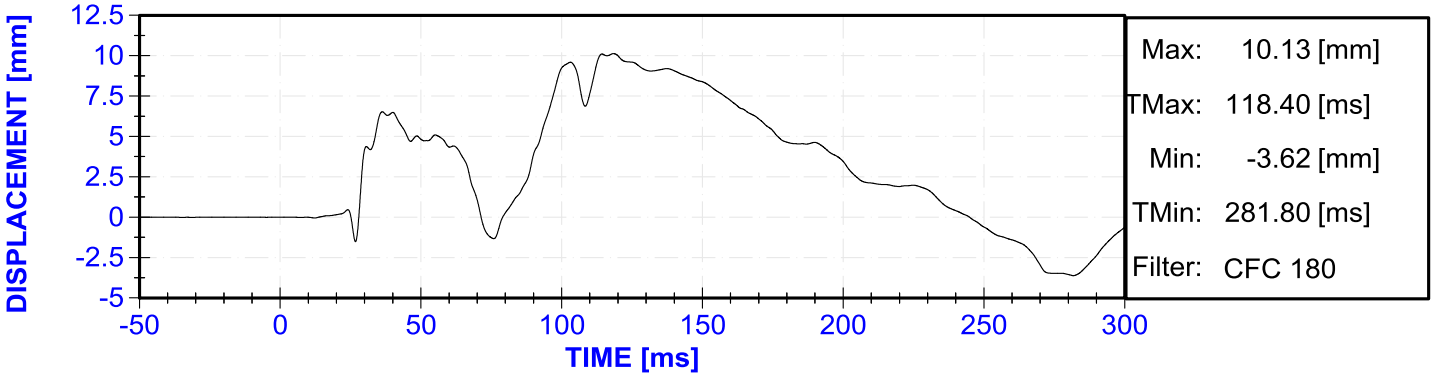
V2P2 Chest Left Lower Dx



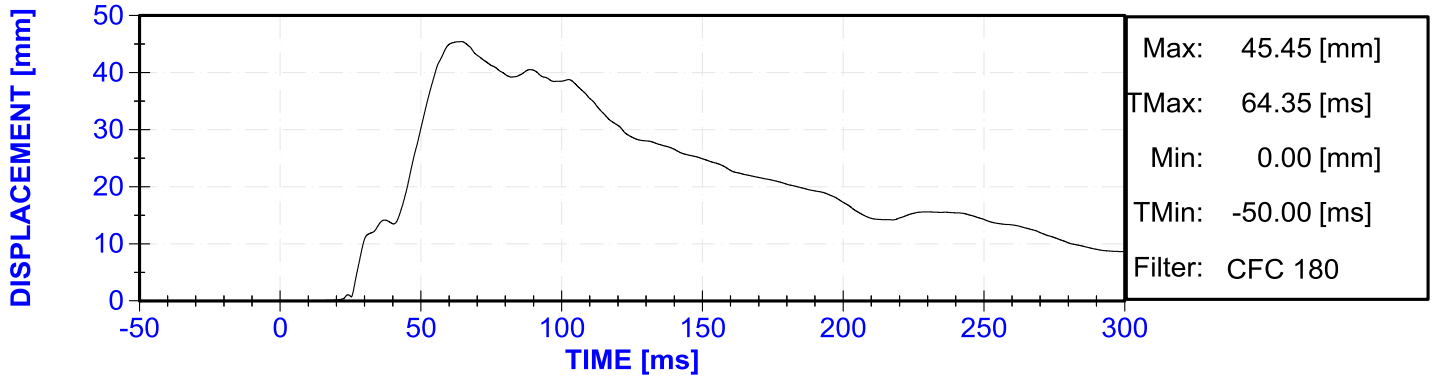
V2P2 Chest Left Lower Dy



V2P2 Chest Left Lower Dz

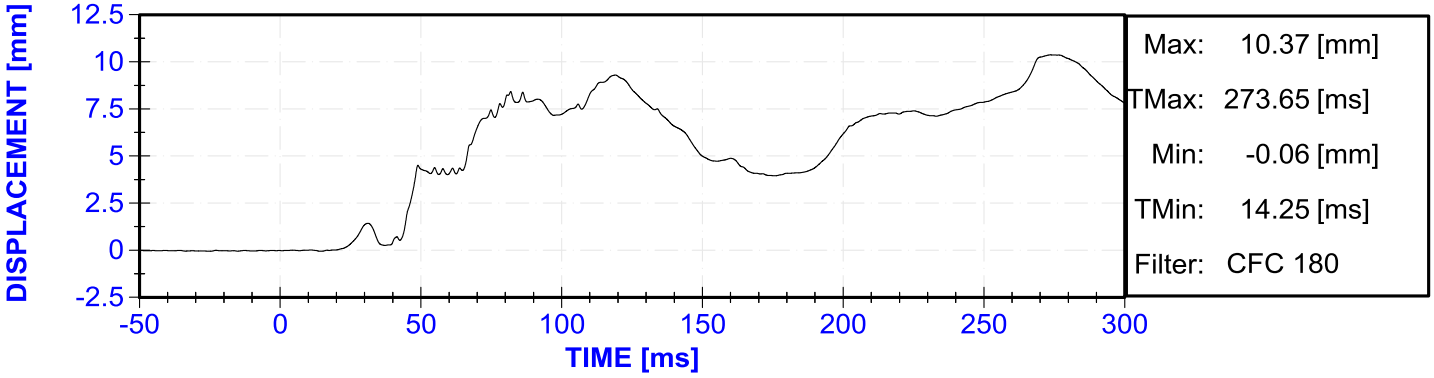


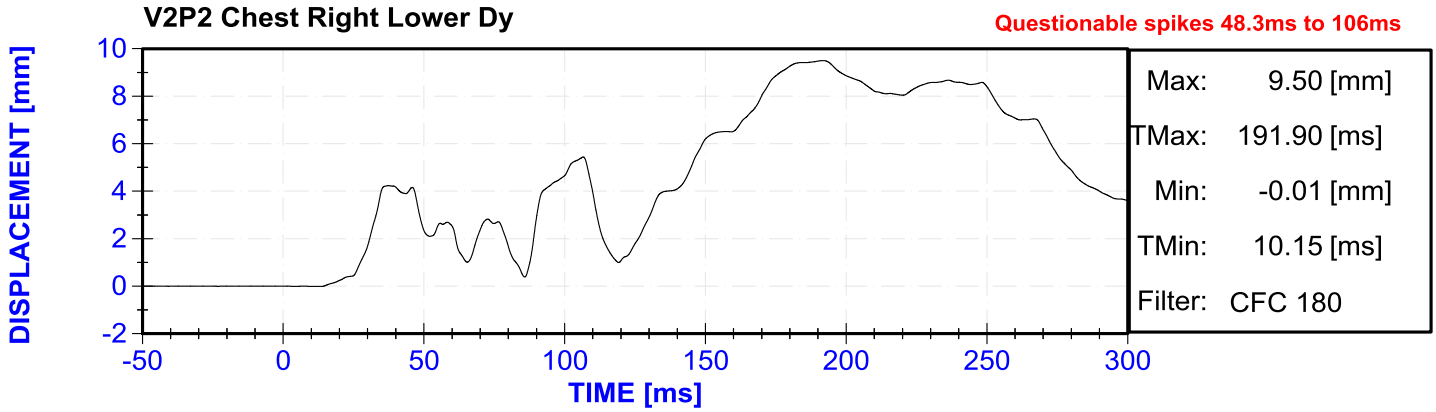
V2P2 Chest Left Lower Resultant

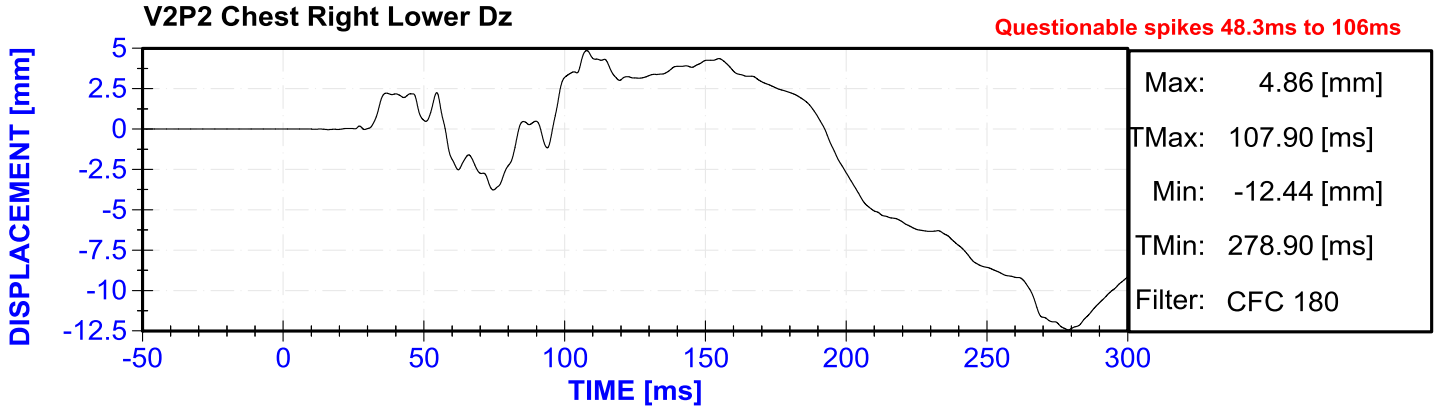


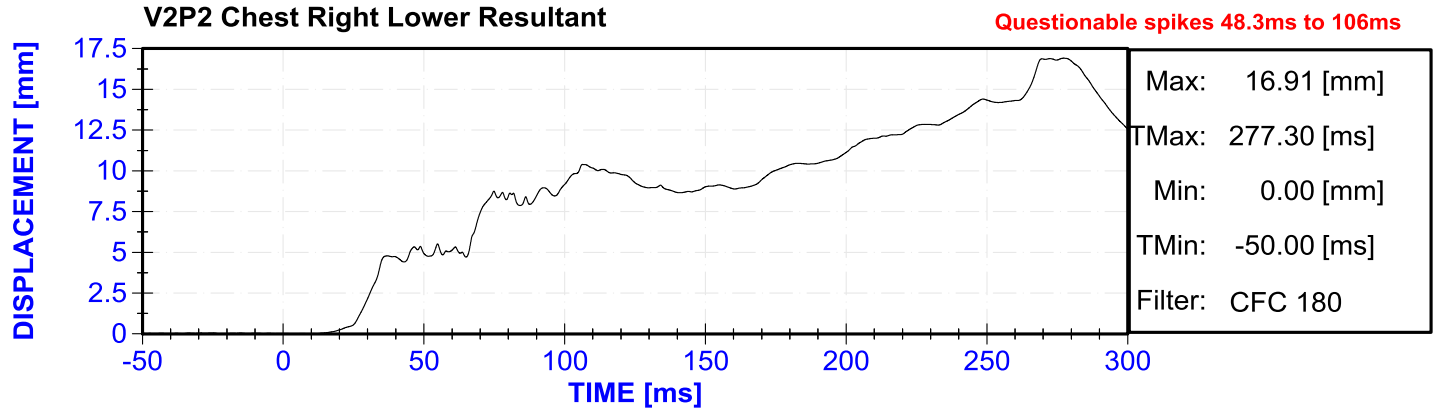
V2P2 Chest Right Lower Dx

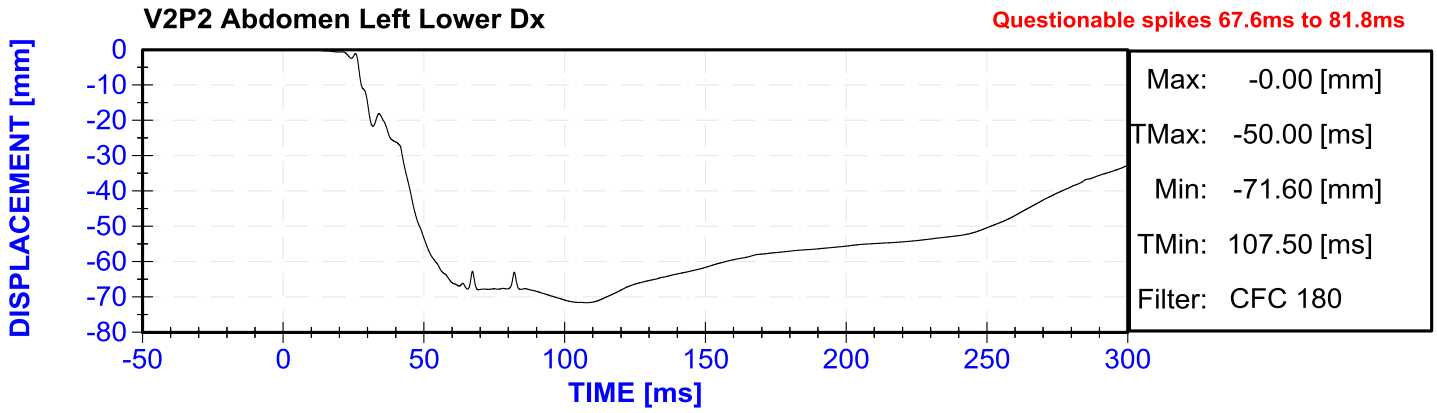
Questionable spikes 48.3ms to 106ms




V2P2 Chest Right Lower Dy
Questionable spikes 48.3ms to 106ms
DISPLACEMENT [mm]
TIME [ms]
Max: 9.50 [mm]
TMax: 191.90 [ms]
Min: -0.01 [mm]
TMin: 10.15 [ms]
Filter: CFC 180

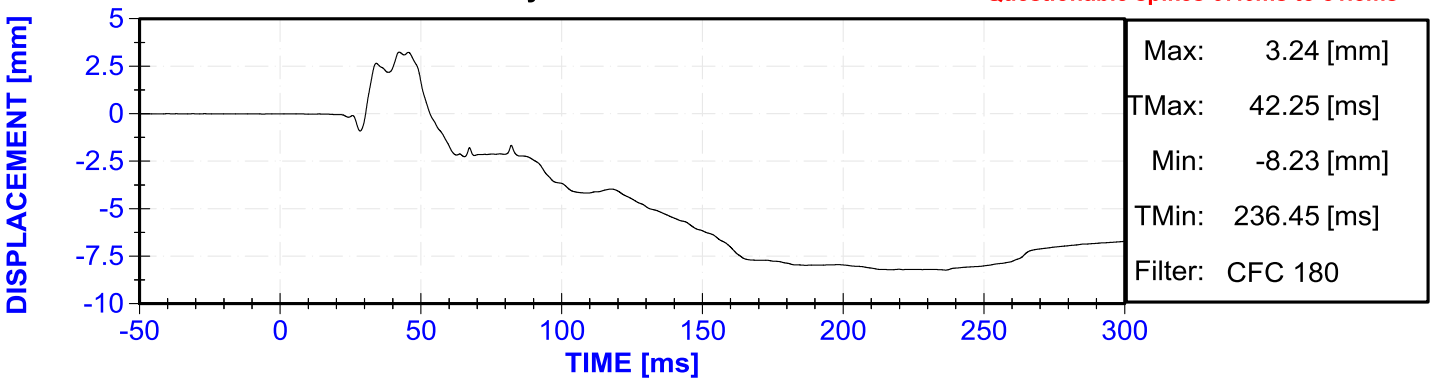

V2P2 Chest Right Lower Dz
Questionable spikes 48.3ms to 106ms
DISPLACEMENT [mm]
TIME [ms]
Max: 4.86 [mm]
TMax: 107.90 [ms]
Min: -12.44 [mm]
TMin: 278.90 [ms]
Filter: CFC 180


V2P2 Chest Right Lower Resultant
Questionable spikes 48.3ms to 106ms
DISPLACEMENT [mm]
TIME [ms]
Max: 16.91 [mm]
TMax: 277.30 [ms]
Min: 0.00 [mm]
TMin: -50.00 [ms]
Filter: CFC 180


V2P2 Abdomen Left Lower Dx
Questionable spikes 67.6ms to 81.8ms
DISPLACEMENT [mm]
TIME [ms]
Max: -0.00 [mm]
TMax: -50.00 [ms]
Min: -71.60 [mm]
TMin: 107.50 [ms]
Filter: CFC 180

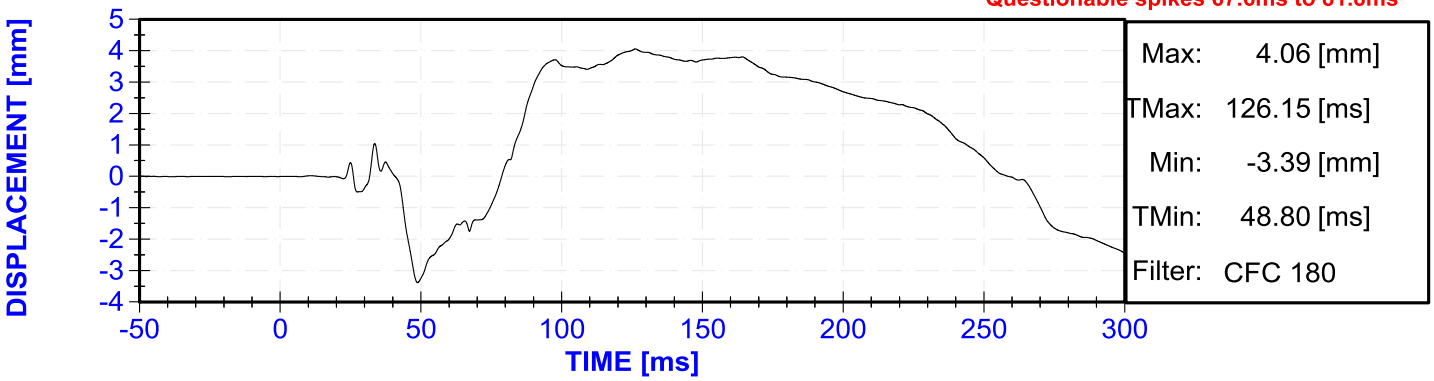
V2P2 Abdomen Left Lower Dy

Questionable spikes 67.6ms to 81.8ms



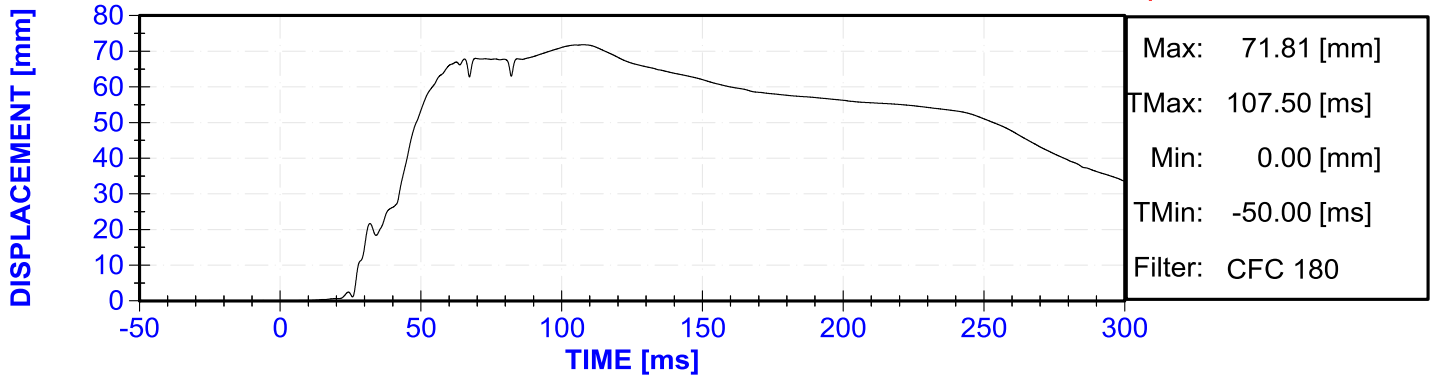
V2P2 Abdomen Left Lower Dz

Questionable spikes 67.6ms to 81.8ms



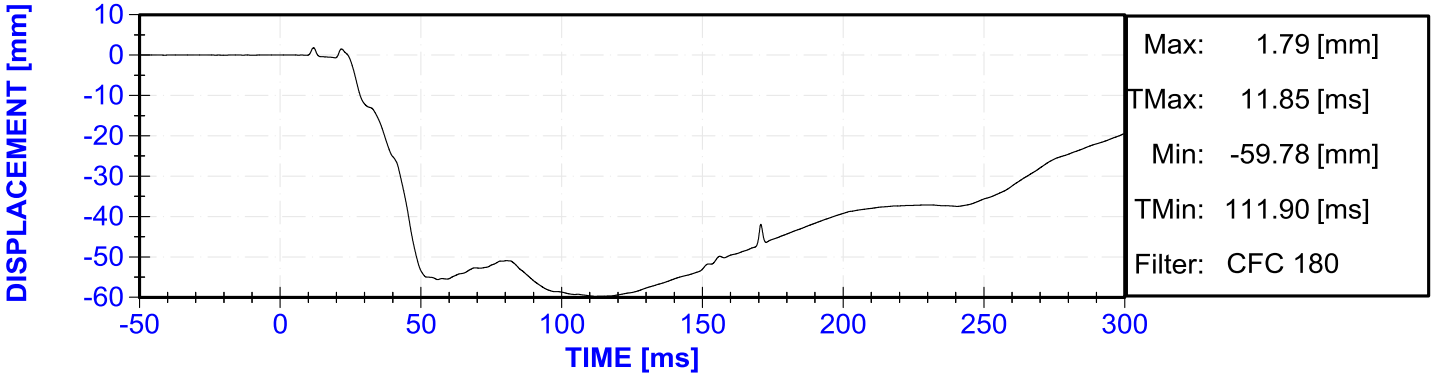
V2P2 Abdomen Left Lower Resultant

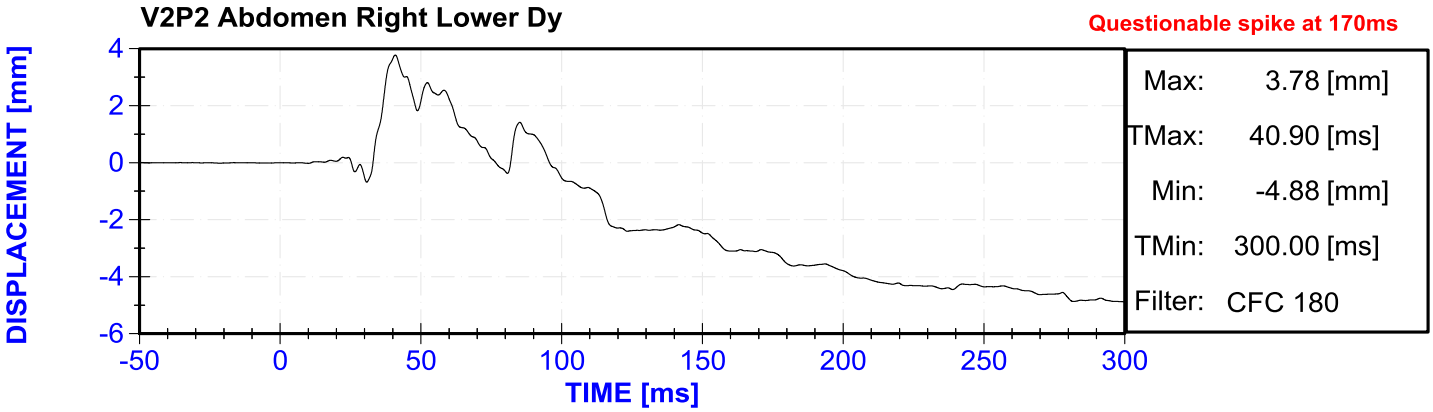
Questionable spikes 67.6ms to 81.8ms

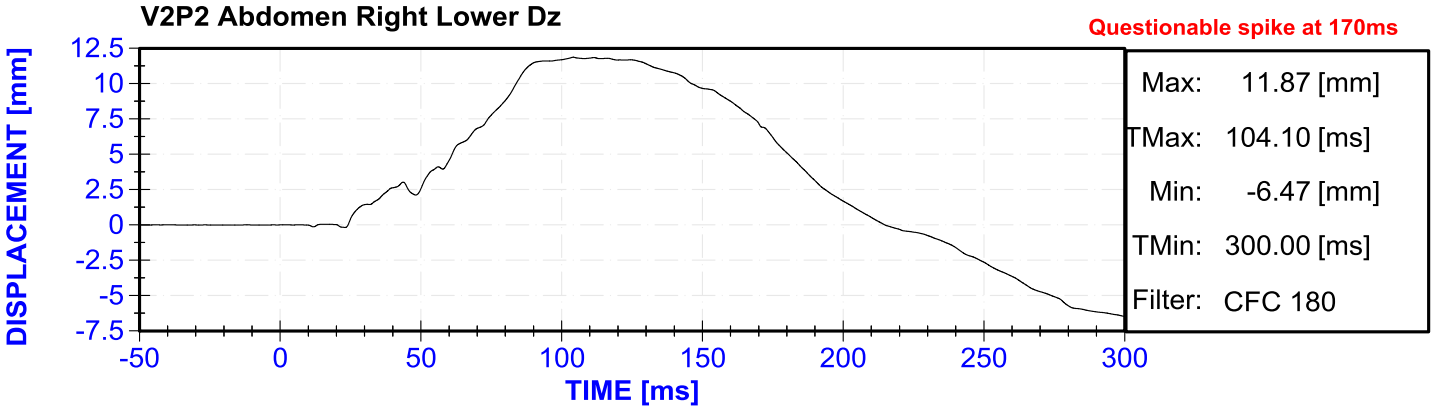


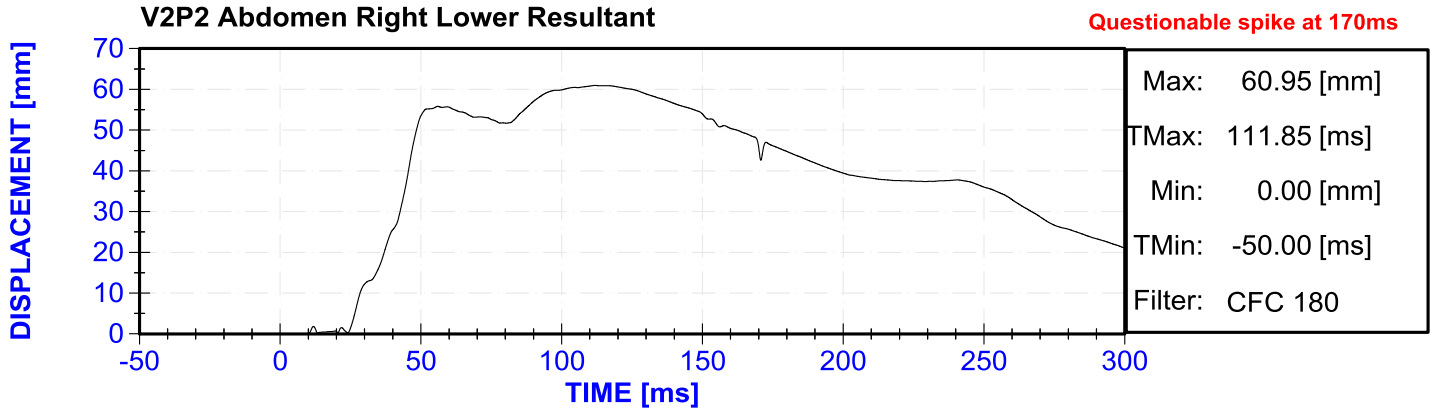
V2P2 Abdomen Right Lower Dx

Questionable spike at 170ms




V2P2 Abdomen Right Lower Dy
Questionable spike at 170ms
DISPLACEMENT [mm]
TIME [ms]
Max: 3.78 [mm]
TMax: 40.90 [ms]
Min: -4.88 [mm]
TMin: 300.00 [ms]
Filter: CFC 180


V2P2 Abdomen Right Lower Dz
Questionable spike at 170ms
DISPLACEMENT [mm]
TIME [ms]
Max: 11.87 [mm]
TMax: 104.10 [ms]
Min: -6.47 [mm]
TMin: 300.00 [ms]
Filter: CFC 180


V2P2 Abdomen Right Lower Resultant
Questionable spike at 170ms
DISPLACEMENT [mm]
TIME [ms]
Max: 60.95 [mm]
TMax: 111.85 [ms]
Min: 0.00 [mm]
TMin: -50.00 [ms]
Filter: CFC 180

APPENDIX C

DUMMY CALIBRATION DATA

Table C-1: Dummy Information

TYPE	SERIAL NUMBER
THOR 50TH Male	015
THOR 50TH Male	016

Table C-2: THOR Ankle Zero Offset Information

THOR 50th Male S/N: 015					
LFTX Left Ankle X	**LFTY Left Ankle Y**	**LFTZ Left Ankle Z**	**RFTX Right Ankle X**	**RFTY Right Ankle Y**	**RFTZ Right Ankle Z**
0.00893 deg	-15.7295 deg	-49.551 deg	-2.40521 deg	-12.1317 deg	-88.5479 deg
THOR 50th Male S/N: 016					
LFTX Left Ankle X	**LFTY Left Ankle Y**	**LFTZ Left Ankle Z**	**RFTX Right Ankle X**	**RFTY Right Ankle Y**	**RFTZ Right Ankle Z**
2.16286 deg	-16.3445 deg	-44.58 deg	-3.53702 deg	-15.8108 deg	-46.565 deg

Table C- 3: THOR Dummy Initial Set-Up Information

THOR 50th Male S/N: 015					
Sensor	**Manufacturer**	**Serial Number**	**Range**	**Sensitivity**	**Sensitivity Units**
Head CG Ax	Endevco	AC-P63993	2000	0.020850001	mV/V/g
Head CG Ay	Endevco	AC-P51641	2000	0.019360001	mV/V/g
Head CG Az	Endevco	AC-P52011	2000	0.019339999	mV/V/g
Head Wx	DTS	ARS-5921	18000	0.094919997	mV/deg/sec
Head Wy	DTS	ARS-6120	18000	0.093950002	mV/deg/sec
Head Wz	DTS	ARS-6640	18000	0.094540002	mV/deg/sec
Upper Neck Fx	Humanetics	LC-76Fx	8896.4	0.000231699	mV/V/N
Upper Neck Fy	Humanetics	LC-76Fy	8896.4	0.000234116	mV/V/N
Upper Neck Fz	Humanetics	LC-76Fz	13344.7	8.84E-05	mV/V/N
Upper Neck Mx	Humanetics	LC-76Mx	282.5	0.005946997	mV/V/Nm
Upper Neck My	Humanetics	LC-76My	282.5	0.005957618	mV/V/Nm
Upper Neck Mz	Humanetics	LC-76Mz	282.5	0.009966654	mV/V/Nm
Lower Neck Fx	Humanetics	LC-DM4552Fx	13344.7	0.00017042	mV/V/N
Lower Neck Fy	Humanetics	LC-DM4552Fy	13344.7	0.000169911	mV/V/N
Lower Neck Fz	Humanetics	LC-DM4552Fz	13344.7	7.10E-05	mV/V/N
Lower Neck Mx	Humanetics	LC-DM4552Mx	451.9	0.004082851	mV/V/Nm
Lower Neck My	Humanetics	LC-DM4552My	451.9	0.004110952	mV/V/Nm
Lower Neck Mz	Humanetics	LC-DM4552Mz	226	0.006743385	mV/V/Nm
Skull Spring Front Fz	Humanetics	LC-DI7617 Fz	4448.2	0.000498224	mV/V/N
Skull Spring Rear Fz	Humanetics	LC-80 Fz	4448.2	0.000868662	mV/V/N
Condyle Pot Ry	Sfernice	LC-DI7189	180	3.035299946	mV/V/deg
T1 Ax	Endevco	AC-P80336	2000	0.016559999	mV/V/g
T1 Ay	Endevco	AC-P80338	2000	0.01672	mV/V/g
T1 Az	Endevco	AC-P72696	2000	0.02044	mV/V/g

THOR 50th Male (Continued) S/N: 015					
Sensor	**Manufacturer**	**Serial Number**	**Range**	**Sensitivity**	**Sensitivity Units**
T4 Ax	Endevco	AC-P80288	2000	0.020150001	mV/V/g
T4 Ay	Endevco	AC-P82328	2000	0.018279999	mV/V/g
T4 Az	Endevco	AC-P78985	2000	0.01835	mV/V/g
Thoracic Spine Fx	Denton	LC-92Fx	13344.7	0.000137193	mV/V/N
Thoracic Spine Fy	Denton	LC-92Fy	13344.7	0.000137958	mV/V/N
Thoracic Spine Fz	Denton	LC-92Fz	17792.9	5.26E-05	mV/V/N
Thoracic Spine Mx	Denton	LC-92Mx	677.9	0.002160616	mV/V/Nm
Thoracic Spine My	Denton	LC-92My	903.9	0.001779222	mV/V/Nm
Upper Left Thorax Dx	Humanetics	DS-DP1394	160 mm	Non-linear Scale	
Upper Left Thorax Ry	Sfernice	DS-DO7273	180	3.04979994	mV/V/deg
Upper Left Thorax Rz	Sfernice	DS-DP3884	180	3.048900049	mV/V/deg
Upper Right Thorax Dx	Humanetics	DS-DP1387	160 mm	Non-linear Scale	
Upper Right Thorax Ry	Sfernice	DS-DO7282	180	3.034099936	mV/V/deg
Upper Right Thorax Rz	Sfernice	DS-DO7285	180	3.021700075	mV/V/deg
Lower Left Thorax Dx	Humanetics	DS-DM1151	160 mm	Non-linear Scale	
Lower Left Thorax Ry	Sfernice	DS-DI2386	180	2.952900017	mV/V/deg
Lower Left Thorax Rz	Sfernice	DS-DI6129	180	3.087900113	mV/V/deg
Lower Right Thorax Dx	Humanetics	DS-DI4717	160 mm	Non-linear Scale	
Lower Right Thorax Ry	Sfernice	DS-DI2385	180	2.602899913	mV/V/deg
Lower Right Thorax Rz	Sfernice	DS-DO7286	180	3.08299996	mV/V/deg
Abdomen Left Dx	Humanetics	DS-DJ5441	192 mm	Non-linear Scale	
Abdomen Left Ry	Sfernice	DS-VR31	150	3.035200061	mV/V/deg
Abdomen Left Rz	Sfernice	DS-VR30	150	3.023399971	mV/V/deg
Abdomen Right Dx	Humanetics	DS-DI4778	192 mm	Non-linear Scale	
Abdomen Right Ry	Sfernice	DS-DI7754	150	3.015900031	mV/V/deg
Abdomen Right Rz	Sfernice	DS-DI7902	150	3.029200016	mV/V/deg
Pelvis Ax	Endevco	AC-P52130	2000	0.017099999	mV/V/g
Pelvis Ay	Endevco	AC-P51678	2000	0.020879999	mV/V/g
Pelvis Az	Endevco	AC-P63840	2000	0.0222	mV/V/g
Acetabulum Left Fx	Humanetics	LC-DM5055Fx	22241.1	0.000121887	mV/V/N
Acetabulum Left Fy	Humanetics	LC-DM5055Fy	13344.7	5.93E-05	mV/V/N
Acetabulum Left Fz	Humanetics	LC-DM5055Fz	13344.7	0.000163534	mV/V/N
Acetabulum Right Fx	Denton	LC-87Fx	22241.1	0.000124068	mV/V/N
Acetabulum Right Fy	Denton	LC-87Fy	13344.7	6.08E-05	mV/V/N
Acetabulum Right Fz	Denton	LC-87Fz	13344.7	0.000167363	mV/V/N
ASIS Left Fx	Humanetics	LC-DI4774 Fx	13000	6.84E-05	mV/V/N
ASIS Left My	Humanetics	LC-DI4774 My	325	0.003740923	mV/V/Nm
ASIS Right Fx	Humanetics	LC-DI4775 Fx	13000	6.77E-05	mV/V/N
ASIS Right My	Humanetics	LC-DI4775 My	325	0.003728923	mV/V/Nm
Femur Left Fx	Humanetics	LC-DT1833Fx	15000	0.000146287	mV/V/N
Femur Left Fy	Humanetics	LC-DT1833Fy	15000	0.000145733	mV/V/N
Femur Left Fz	Humanetics	LC-DT1833Fz	15000	7.36E-05	mV/V/N
Femur Left Mx	Humanetics	LC-DT1833Mx	350	0.006617429	mV/V/Nm
Femur Left My	Humanetics	LC-DT1833My	350	0.006614857	mV/V/Nm
Femur Right Fx	Humanetics	LC-DT1830Fx	15000	0.00014712	mV/V/N
Femur Right Fy	Humanetics	LC-DT1830Fy	15000	0.000147193	mV/V/N
Femur Right Fz	Humanetics	LC-DT1830Fz	15000	7.29E-05	mV/V/N
Femur Right Mx	Humanetics	LC-DT1830Mx	350	0.006648857	mV/V/Nm

THOR 50th Male (Continued) S/N: 015					
Sensor	**Manufacturer**	**Serial Number**	**Range**	**Sensitivity**	**Sensitivity Units**
Femur Right My	Humanetics	LC-DT1830My	350	0.006598	mV/V/Nm
Knee Dx	Space Age	DS-D2103665B	33	23.88590015	mv/v/mm
Upper Tibia Fz	Denton	LC-DS8145 Fz	11120	9.56E-05	mv/v/N
Upper Tibia Mx	Denton	LC-DS8145 Mx	395	0.0074603	mv/v/Nm
Upper Tibia My	Denton	LC-DS8145 My	395	0.0074283	mv/v/Nm
Lower Tibia Fx	Denton	LC-78 Fx	11100	0.0001747	mv/v/N
Lower Tibia Fy	Denton	LC-78 Fy	11100	0.0001706	mv/v/N
Lower Tibia Fz	Denton	LC-78 Fz	11100	9.64E-05	mv/v/N
Lower Tibia Mx	Denton	LC-78 Mx	395	0.0074895	mv/v/Nm
Lower Tibia My	Denton	LC-78 My	395	0.007513	mv/v/Nm
Leg Ax	Endevco	AC-P74940	2000	0.016620001	mv/v/g
Leg Ay	Endevco	AC-P51732	2000	0.01896	mv/v/g
Ankle Rx	Contelec	DS-0382	180	3.178999992	mv/v/deg
Ankle Ry	Contelec	DS-0386	180	3.176100086	mv/v/deg
Ankle Rz	Contelec	DS-0543	180	3.198399907	mv/v/deg
Foot Ax	Endevco	AC-P68071	2000	0.02365	mv/v/g
Foot Az	Endevco	AC-P51294	2000	0.02195	mv/v/g
Knee Dx	Space Age	DS-D2103657B	30	24.01199937	mv/v/mm
Upper Tibia Fz	Denton	LC-DS8144 Fz	11120	9.63E-05	mv/v/N
Upper Tibia Mx	Denton	LC-DS8144 Mx	395	0.0074676	mv/v/Nm
Upper Tibia My	Denton	LC-DS8144 My	395	0.0074022	mv/v/Nm
Lower Tibia Fx	Denton	LC-77 Fx	11100	0.0001737	mv/v/N
Lower Tibia Fy	Denton	LC-77 Fy	11100	0.0001715	mv/v/N
Lower Tibia Fz	Denton	LC-77 Fz	11100	9.61E-05	mv/v/N
Lower Tibia Mx	Denton	LC-77 Mx	395	0.0074698	mv/v/Nm
Lower Tibia My	Denton	LC-77 My	395	0.0073378	mv/v/Nm
Leg Ax	Endevco	AC-P79622	2000	0.02118	mv/v/g
Leg Ay	Endevco	AC-P83316	2000	0.01946	mv/v/g
Ankle Rx	Contelec	DS-0385	180	3.178199986	mv/v/deg
Ankle Ry	Contelec	DS-0383	180	3.153099911	mv/v/deg
Ankle Rz	Contelec	DS-0401	180	3.186699934	mv/v/deg
Foot Ax	Endevco	AC-P72691	2000	0.02014	mv/v/g
Foot Az	Endevco	AC-P83310	2000	0.01946	mv/v/g

Table C- 3: THOR Dummy Initial Set-Up Information

THOR 50th Male S/N: 016					
Sensor	**Manufacturer**	**Serial Number**	**Range**	**Sensitivity**	**Sensitivity Units**
Head CG Ax	Endevco	AC-P81382	2000	0.01759	mV/V/g
Head CG Ay	Endevco	AC-P80275	2000	0.020490001	mV/V/g
Head CG Az	Endevco	AC-P74947	2000	0.016690001	mV/V/g
Head Wx	DTS	ARS-6629	18000	0.094080002	mV/deg/sec
Head Wy	DTS	ARS-4735	18000	0.095700001	mV/deg/sec

THOR 50th Male (Continued) S/N: 016					
Sensor	**Manufacturer**	**Serial Number**	**Range**	**Sensitivity**	**Sensitivity Units**
Head Wz	DTS	ARS-4069	18000	0.09311	mV/deg/sec
Upper Neck Fx	Humanetics	LC-75Fx	8896.4	0.000228159	mV/V/N
Upper Neck Fy	Humanetics	LC-75Fy	8896.4	0.000229418	mV/V/N
Upper Neck Fz	Humanetics	LC-75Fz	13344.7	8.76E-05	mV/V/N
Upper Neck Mx	Humanetics	LC-75Mx	282.5	0.005912656	mV/V/Nm
Upper Neck My	Humanetics	LC-75My	282.5	0.005966114	mV/V/Nm
Upper Neck Mz	Humanetics	LC-75Mz	282.5	0.009657586	mV/V/Nm
Lower Neck Fx	Humanetics	LC-79Fx	13344.7	0.000168262	mV/V/N
Lower Neck Fy	Humanetics	LC-79Fy	13344.7	0.000168472	mV/V/N
Lower Neck Fz	Humanetics	LC-79Fz	13344.7	7.02E-05	mV/V/N
Lower Neck Mx	Humanetics	LC-79Mx	451.9	0.003947435	mV/V/Nm
Lower Neck My	Humanetics	LC-79My	451.9	0.00396934	mV/V/Nm
Lower Neck Mz	Humanetics	LC-79Mz	226	0.006685855	mV/V/Nm
Skull Spring Front Fz	Humanetics	LC-130 Fz	4448.2	0.000493186	mV/V/N
Skull Spring Rear Fz	Humanetics	LC-DM2829Fz	4448.2	0.000514633	mV/V/N
Condyle Pot Ry	Sfernice	DS-0007	180	3.052179934	mV/V/deg
T1 Ax	Endevco	AC-P74948	2000	0.01686	mV/V/g
T1 Ay	Endevco	AC-P83429	2000	0.018139999	mV/V/g
T1 Az	Endevco	AC-P83430	2000	0.0177	mV/V/g
T4 Ax	Endevco	AC-P80268	2000	0.020920001	mV/V/g
T4 Ay	Endevco	AC-P81791	2000	0.01917	mV/V/g
T4 Az	Endevco	AC-P80269	2000	0.021170001	mV/V/g
Thoracic Spine Fx	Denton	LC-123Fx	13344.7	0.000139239	mV/V/N
Thoracic Spine Fy	Denton	LC-123Fy	13344.7	0.000140453	mV/V/N
Thoracic Spine Fz	Denton	LC-123Fz	17792.9	5.33E-05	mV/V/N
Thoracic Spine Mx	Denton	LC-123Mx	677.9	0.002083467	mV/V/Nm
Thoracic Spine My	Denton	LC-123My	903.9	0.001837305	mV/V/Nm
Upper Left Thorax Dx	Humanetics	DS-DS6356	160 mm	Non-linear Scale	
Upper Left Thorax Ry	Sfernice	DS-DJ4106	180	3.059499897	mV/V/deg
Upper Left Thorax Rz	Sfernice	DS-DJ4108	180	3.046100028	mV/V/deg
Upper Right Thorax Dx	Humanetics	DS-DM3232	160 mm	Non-linear Scale	
Upper Right Thorax Ry	Sfernice	DS-DI2381	180	3.058299888	mV/V/deg
Upper Right Thorax Rz	Sfernice	DS-DI2380	180	3.06040002	mV/V/deg
Lower Left Thorax Dx	Humanetics	DS-DP1389	160 mm	Non-linear Scale	
Lower Left Thorax Ry	Sfernice	DS-DP1972	180	3.044900019	mV/V/deg
Lower Left Thorax Rz	Sfernice	DS-DO7288	180	3.039200092	mV/V/deg
Lower Right Thorax Dx	Humanetics	DS-DP1393	160 mm	Non-linear Scale	
Lower Right Thorax Ry	Sfernice	DS-DO7275	180	3.038000083	mV/V/deg
Lower Right Thorax Rz	Sfernice	DS-DO7276	180	3.021999961	mV/V/deg
Abdomen Left Dx	Humanetics	DS-DJ5440	192 mm	Non-linear Scale	
Abdomen Left Ry	Sfernice	DS-DI7755	150	3.025599988	mV/V/deg
Abdomen Left Rz	Sfernice	DS-DI7901	150	3.057899885	mV/V/deg
Abdomen Right Dx	Humanetics	DS-DQ2304	192 mm	Non-linear Scale	
Abdomen Right Ry	Sfernice	DS-218	150	3.012799891	mV/V/deg
Abdomen Right Rz	Sfernice	DS-DI6580	150	2.744599944	mV/V/deg
Pelvis Ax	Endevco	AC-P82402	2000	0.01788	mV/V/g
Pelvis Ay	Endevco	AC-P82403	2000	0.01799	mV/V/g
Pelvis Az	Endevco	AC-P82332	2000	0.01715	mV/V/g

THOR 50th Male (Continued) S/N: 016					
Sensor	**Manufacturer**	**Serial Number**	**Range**	**Sensitivity**	**Sensitivity Units**
Acetabulum Left Fx	Humanetics	LC-83Fx	22241.1	0.000120471	mV/V/N
Acetabulum Left Fy	Humanetics	LC-83Fy	13344.7	5.91E-05	mV/V/N
Acetabulum Left Fz	Humanetics	LC-83Fz	13344.7	0.000162964	mV/V/N
Acetabulum Right Fx	Denton	LC-84Fx	22241.1	0.000122579	mV/V/N
Acetabulum Right Fy	Denton	LC-84Fy	13344.7	5.82E-05	mV/V/N
Acetabulum Right Fz	Denton	LC-84Fz	13344.7	0.000165272	mV/V/N
ASIS Left Fx	Humanetics	LC-DT1000Fx	13000	6.88E-05	mV/V/N
ASIS Left My	Humanetics	LC-DT1000My	325	0.003827634	mV/V/Nm
ASIS Right Fx	Humanetics	LC-DT1001Fx	13000	6.94E-05	mV/V/N
ASIS Right My	Humanetics	LC-DT1001My	325	0.003849914	mV/V/Nm
Femur Left Fx	Humanetics	LC-DP4630Fx	15000	0.000142	mV/V/N
Femur Left Fy	Humanetics	LC-DP4630Fy	15000	0.0001419	mV/V/N
Femur Left Fz	Humanetics	LC-DP4630Fz	15000	7.16E-05	mV/V/N
Femur Left Mx	Humanetics	LC-DP4630Mx	350	0.0064409	mV/V/Nm
Femur Left My	Humanetics	LC-DP4630My	350	0.0064306	mV/V/Nm
Femur Right Fx	Humanetics	LC-DP3959Fx	15000	0.000142	mV/V/N
Femur Right Fy	Humanetics	LC-DP3959Fy	15000	0.0001422	mV/V/N
Femur Right Fz	Humanetics	LC-DP3959Fz	15000	7.24E-05	mV/V/N
Femur Right Mx	Humanetics	LC-DP3959Mx	350	0.006592	mV/V/Nm
Femur Right My	Humanetics	LC-DP3959My	350	0.0064729	mV/V/Nm
Knee Dx	Space Age	DS-017169	33	22.93870039	mv/v/mm
Upper Tibia Fz	Denton	LC-95 Fz	11120	9.60E-05	mv/v/N
Upper Tibia Mx	Denton	LC-95 Mx	395	0.0074226	mv/v/Nm
Upper Tibia My	Denton	LC-95 My	395	0.0073786	mv/v/Nm
Lower Tibia Fx	Denton	LC-139 Fx	11100	0.00017407	mv/v/N
Lower Tibia Fy	Denton	LC-139 Fy	11100	0.00017491	mv/v/N
Lower Tibia Fz	Denton	LC-139 Fz	11100	9.63E-05	mv/v/N
Lower Tibia Mx	Denton	LC-139 Mx	395	0.0074679	mv/v/Nm
Lower Tibia My	Denton	LC-139 My	395	0.007503	mv/v/Nm
Leg Ax	Endevco	AC-P67924	2000	0.02107	mv/v/g
Leg Ay	Endevco	AC-P51711	2000	0.01915	mv/v/g
Ankle Rx	Contelec	DS-0544	180	3.173100064	mv/v/deg
Ankle Ry	Contelec	DS-0527	180	3.160400083	mv/v/deg
Ankle Rz	Contelec	DS-0541	180	3.15340003	mv/v/deg
Foot Ax	Endevco	AC-P63979	2000	0.020310001	mv/v/g
Foot Az	Endevco	AC-P82182	2000	0.018090001	mv/v/g
Knee Dx	Space Age	DS-12070382	30	24.1260007	mv/v/mm
Upper Tibia Fz	Denton	LC-88 Fz	11120	9.33E-05	mv/v/N
Upper Tibia Mx	Denton	LC-88 Mx	395	0.0072837	mv/v/Nm
Upper Tibia My	Denton	LC-88 My	395	0.0071822	mv/v/Nm
Lower Tibia Fx	Denton	LC-140 Fx	11100	0.0001784	mv/v/N
Lower Tibia Fy	Denton	LC-140 Fy	11100	0.0001764	mv/v/N
Lower Tibia Fz	Denton	LC-140 Fz	11100	9.65E-05	mv/v/N
Lower Tibia Mx	Denton	LC-140 Mx	395	0.0076118	mv/v/Nm
Lower Tibia My	Denton	LC-140 My	395	0.0076405	mv/v/Nm
Leg Ax	Endevco	AC-P50100	2000	0.017660001	mv/v/g

THOR 50th Male (Continued) S/N: 016					
Sensor	**Manufacturer**	**Serial Number**	**Range**	**Sensitivity**	**Sensitivity Units**
Leg Ay	Endevco	AC-P80922	2000	0.018160001	mv/v/g
Ankle Rx	Contelec	DS-0254	180	3.179399995	mv/v/deg
Ankle Ry	Contelec	DS-0525-1	180	3.179399995	mv/v/deg
Ankle Rz	Contelec	DS-0256	180	3.160899971	mv/v/deg
Foot Ax	Endevco	AC-P58836	2000	0.01903	mv/v/g
Foot Az	Endevco	AC-P72351	2000	0.021059999	mv/v/g

Table 4 – THOR IR-TRACC Polarity

In order to reduce the risk of damage to instrumentation, it is recommended that the 3D IR-TRACC units are not disconnected from the rib cage to conduct the polarity test. An alternate procedure for checking the IR-TRACC polarity is described below.

1. Using the data acquisition system control software, open a live view of each channel. If possible, view the DX, RY, and RZ components of a given quadrant simultaneously.
2. Record the initial reading of each channel
3. Perform the following motions on each of the four rib attachment locations and two abdomen attachment locations (specified by the hexagonal bolt attaching the blue ribs).
    a. DX: Push inward (front-to-back). The IR-TRACC tube voltage should increase.
    b. RY: Push downward (head-to-pelvis). The Y-axis potentiometer reading should decrease.
    c. RZ: Push rightward (left-to-right). The Z-axis potentiometer should increase.
4. Record the final reading of each channel
5. If the “Measured” value (increase or decrease) does not match the “Expected” value, the polarity of the channel must be inverted.

THOR 50th Male 015

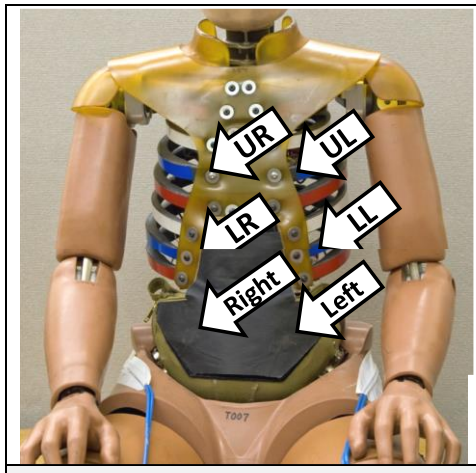


Figure 1. Manipulation to determine thoracic and abdominal IR-TRACC polarity.

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)	0.11203	+	+	DX (V)	0.10139	+	+
RY (Deg)	10.5792	+	+	RY (Deg)	11.7954	+	+
RZ (Deg)	-12.961	+	+	RZ (Deg)	13.0209	+	+
Lower Right Thorax				**Lower Left Thorax**			
Channel	**Initial Value**	**Expected Polarity**	**Recorded Polarity**	**Channel**	**Initial Value**	**Expected Polarity**	**Recorded Polarity**
DX (V)	0.09578	+	+	DX (V)	0.08445	+	+
RY (Deg)	-3.4367	+	+	RY (Deg)	-2.3055	+	+
RZ (Deg)	-5.1227	+	+	RZ (Deg)	5.23523	+	+
Abdomen Right				**Abdomen Left**			
Channel	**Initial Value**	**Expected Polarity**	**Recorded Polarity**	**Channel**	**Initial Value**	**Expected Polarity**	**Recorded Polarity**
DX (V)	0.06672	+	+	DX (V)	0.06328	+	+
RY (Deg)	2.86058	+	+	RY (Deg)	1.87899	+	+
RZ (Deg)	-0.8069	+	+	RZ (Deg)	1.53933	+	+

THOR 50th Male 016

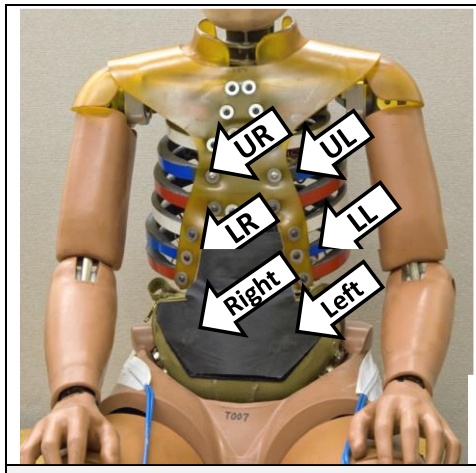


Figure 2. Manipulation to determine thoracic and abdominal IR-TRACC polarity.

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)	0.08380	+	+	DX (V)	0.85751	+	+
RY (Deg)	10.0137	+	+	RY (Deg)	4.55342	+	+
RZ (Deg)	-11.962	+	+	RZ (Deg)	11.7694	+	+
Lower Right Thorax				**Lower Left Thorax**			
Channel	**Initial Value**	**Expected Polarity**	**Recorded Polarity**	**Channel**	**Initial Value**	**Expected Polarity**	**Recorded Polarity**
DX (V)	0.08025	+	+	DX (V)	0.08125	+	+
RY (Deg)	-6.1346	+	+	RY (Deg)	-4.0026	+	+
RZ (Deg)	-2.2819	+	+	RZ (Deg)	7.84761	+	+
Abdomen Right				**Abdomen Left**			
Channel	**Initial Value**	**Expected Polarity**	**Recorded Polarity**	**Channel**	**Initial Value**	**Expected Polarity**	**Recorded Polarity**
DX (V)	0.07470	+	+	DX (V)	0.07571	+	+
RY (Deg)	3.52947	+	+	RY (Deg)	3.10074	+	+
RZ (Deg)	1.27844	+	+	RZ (Deg)	5.10226	+	+

Test Data/Sensor Repair Notes

THOR Inspection Checklist

Date: **9/28/2015**		
NHTSA Representative: **James Saunders**		
Inspection Reporter**: Mike Hartung**		
Inspection type (check one): ☒ Pre-Test ☐ Post-Test		
Dummy S/N: **0015**	Legs S/N: **LX0038/LX0039**	
Dummy Description: **THOR-M 50th Male**		
Date of last Certification: **July 2015**		
Tests conducted: Since last inspection: **R20150189 - 2015 Malibu** Since last certification: **R20155509 - Forester** **R20150227 - 2015 Ford F-150** **R20155143 - 2015 Highlander** *LX Leg Certification*	**R20155913 - 2015 Volvo S60** **R20150189 - 2015 Malibu**	
Known errors in data channels (no data, clipping, unexpected drops): - 11NECKUP00THMOYP,Upper Neck Y Moment, Questionable data spike 265 ms to 266 ms, SN:LC-76My - 11KNSLLE00THDSXP,Knee Left X Displacement, Channel Failed, SN:DS-D2103665B		
Physical evidence of damage: **None**		
Anecdotal evidence of damage: **None**		
Equipment delivered to Borrower: **THOR 0015 ATD** **26 Accelerometers** **3 Angular Rate Sensors** **2 Skull Spring LC** **1 Condyle Pot** **1 Upper Neck LC** **6 IRTraccs** **12 Rotational Pots** **1 Spine LC** **2 Acetabulum LC** **2 ASIS LC** **2 Femur LC**	*Continued* **2 LX Leg Assemblies** **2 Upper Tibia LC** **2 Lower Tibia LC** **6 Ank1e Potentiometers** **2 Knee Sliders** **1 Neck Skin** **1 Neck Foam** **1 Tiltview Interface Cable** **4 Tilt Sensors** **1 H-Point Tool** **1 Tool Box** **1 Laptop**	

Note: New Damage is Noted in Red

HEAD	
Y / N	Rear head cap mounts securely to head
Y / N	Head skin fits securely over skull
Y / N	Head skin shows no sign of tears or damage
Y / N	Interior components of skull cavity (ballast, accelerometer mount, accelerometers) securely attached
Y / N	Head securely mounted to OC joint
OTHER	
NECK	
Y / N	Neck cables slide freely through holes in neck plates
Y / N	Neck cables show no sign of fraying, broken strands, or kinking

Y / N	No evidence of de-bonding between neck pucks and plates
Y / N	No evidence of de-bonding or permanent compression in neck soft stop assemblies
Y / N	Neck securely attached to upper neck load cell
Y / N	Neck securely attached to lower neck load cell
Y / N	Neck pitch change joint mechanism mating teeth are engaged
OTHER	**Front Neck Spring jam nut was loose. Tightened.**
SHOULDER	
Y / N	Urethane shoulder pads show no evidence of contact
Y / N	Clavicles securely attached to sternum and shoulder
Y / N	No evidence of de-bonding, tearing, or permanent compression of posterior soft stops
OTHER	
SPINE	
Y / N	No evidence of de-bonding between thoracic spine flex joint and metal plates
Y / N	No evidence of de-bonding between lumbar spine flex joint and metal plates
Y / N	Lumbar spine pitch change joint mechanism mating teeth are engaged
OTHER	
THORAX	
Y / N	No evidence of contact at top, bottom, or interior faces of rib damping material
Y / N	No evidence of de-bonding between rib damping material and ribs
Y / N	IRTRACCs securely attached to anterior ribs
Y / N	IRTRACCs securely attached to double gimbals, spine
Y / N	Urethane bib is securely attached to ribs with no sign of tearing or washer penetration
Y / N	Ribs securely attached to posterior spine
Y / N	Rib stiffeners show no evidence of bending (no gaps between ribs and stiffeners)
OTHER	
ABDOMEN	
Y / N	No evidence of tearing, cuts, or broken stitches in upper abdomen bag and zipper
Y / N	Upper abdomen insert securely attached to spine
Y / N	Upper abdomen insert shows no evidence of permanent set
Y / N	No evidence of tearing, cuts, or broken stitches in lower abdomen bag and zipper **Multiple tears and broken stiches in lower abdomen bag.**
Y / N	Lower abdomen insert securely attached to spine
Y / N	Lower abdomen insert shows no evidence of permanent set
OTHER	
PELVIS	
Y / N	Pelvis flesh fits securely over pelvis bones
Y / N	H-point tool fits securely into hole on both sides of pelvis
OTHER	

FEMUR	
Y / N	Acetabular load cells firmly attached
Y / N	Femur load cells firmly attached
Y / N	No evidence of deformation of knee slider bump stop
Y / N	No cuts, tears, or scuffing of knee flesh
OTHER	**New heavy scuffing on left knee skin.**
LOWER EXTREMITY (LX)	
Y / N	Rotational potentiometers in ankle securely attached
Y / N	Achilles tendon provides resistance to dorsiflexion
Y / N	No evidence of de-bonding, tearing, or permanent compression of ankle soft stops
Y / N	No cuts, tears, or scuffing of leg flesh
OTHER	**Heavy scuffing on front of right calf. Both thigh zippers detaching from flesh. Zippers detaching on left and right calves. Torn zippers/flesh on L & R forearms.**
JACKET	
Y / N	Rib stiffeners show no sign of permanent deformation
Y / N	No evidence of tears or holes in jacket fabric, Velcro, or zippers
OTHER	

THOR Inspection Checklist

Date: **10/1/2015**		
NHTSA Representative: **James Saunders**		
Inspection Reporter**: Mike Hartung**		
Inspection type (check one): ☐ Pre-Test ☒ Post-Test		
Dummy S/N: **0015**	Legs S/N: **LX0038/LX0039**	
Dummy Description: **THOR-M 50th Male**		
Date of last Certification: **July 2015**		
Tests conducted: Since last inspection: **R20155377-2015 Honda Fit** Since last certification: **R20155509 - Forester** **R20150227 - 2015 Ford F-150** **R20155143 - 2015 Highlander** *LX Leg Certification*	**R20155913 - 2015 Volvo S60** **R20150189 - 2015 Malibu** **R20155377-2015 Honda Fit**	
Known errors in data channels (no data, clipping, unexpected drops): - 11KNSLLE00THDSXP,Knee Left X Displacement,Channel Failed, SN:DS-D2103665B		
Physical evidence of damage: **See Report-Left forearm flesh damaged near elbow, heavy scuffing/abrasions all over left forearm, left humerus bent, right knee- right cover flesh torn, puncture through palm of right hand**		
Anecdotal evidence of damage: **None**		
Equipment delivered to Borrower: **THOR 0015 ATD** **26 Accelerometers** **3 Angular Rate Sensors** **2 Skull Spring LC** **1 Condyle Pot** **1 Upper Neck LC** **6 IRTraccs** **12 Rotational Pots** **1 Spine LC** **2 Acetabulum LC** **2 ASIS LC** **2 Femur LC**	*Continued* **2 LX Leg Assemblies** **2 Upper Tibia LC** **2 Lower Tibia LC** **6 Ank1e Potentiometers** **2 Knee Sliders** **1 Neck Skin** **1 Neck Foam** **1 Tiltview Interface Cable** **4 Tilt Sensors** **1 H-Point Tool** **1 Tool Box** **1 Laptop**	

Note: New Damage is Noted in Red

HEAD	
Y / N	Rear head cap mounts securely to head
Y / N	Head skin fits securely over skull
Y / N	Head skin shows no sign of tears or damage
Y / N	Interior components of skull cavity (ballast, accelerometer mount, accelerometers) securely attached
Y / N	Head securely mounted to OC joint
OTHER	
NECK	
Y / N	Neck cables slide freely through holes in neck plates
Y / N	Neck cables show no sign of fraying, broken strands, or kinking
Y / N	No evidence of de-bonding between neck pucks and plates
Y / N	No evidence of de-bonding or permanent compression in neck soft stop assemblies
Y / N	Neck securely attached to upper neck load cell
Y / N	Neck securely attached to lower neck load cell
Y / N	Neck pitch change joint mechanism mating teeth are engaged
OTHER	**Front Neck Spring jam nut was loose. Tightened.**
SHOULDER	
Y / N	Urethane shoulder pads show no evidence of contact
Y / N	Clavicles securely attached to sternum and shoulder
Y / N	No evidence of de-bonding, tearing, or permanent compression of posterior soft stops
OTHER	
SPINE	
Y / N	No evidence of de-bonding between thoracic spine flex joint and metal plates
Y / N	No evidence of de-bonding between lumbar spine flex joint and metal plates
Y / N	Lumbar spine pitch change joint mechanism mating teeth are engaged
OTHER	
THORAX	
Y / N	No evidence of contact at top, bottom, or interior faces of rib damping material
Y / N	No evidence of de-bonding between rib damping material and ribs
Y / N	IRTRACCs securely attached to anterior ribs
Y / N	IRTRACCs securely attached to double gimbals, spine
Y / N	Urethane bib is securely attached to ribs with no sign of tearing or washer penetration
Y / N	Ribs securely attached to posterior spine
Y / N	Rib stiffeners show no evidence of bending (no gaps between ribs and stiffeners)
OTHER	
ABDOMEN	
Y / N	No evidence of tearing, cuts, or broken stitches in upper abdomen bag and zipper
Y / N	Upper abdomen insert securely attached to spine
Y / N	Upper abdomen insert shows no evidence of permanent set
Y / N	No evidence of tearing, cuts, or broken stitches in lower abdomen bag and zipper **Multiple tears and broken stiches in lower abdomen bag.**

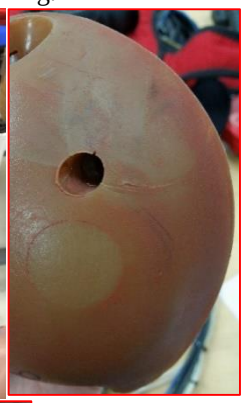
Y / N	Lower abdomen insert securely attached to spine
Y / N	Lower abdomen insert shows no evidence of permanent set
OTHER	
PELVIS	
Y / N	Pelvis flesh fits securely over pelvis bones
Y / N	H-point tool fits securely into hole on both sides of pelvis
OTHER	
FEMUR	
Y / N	Acetabular load cells firmly attached
Y / N	Femur load cells firmly attached
Y / N	No evidence of deformation of knee slider bump stop
Y / N	No cuts, tears, or scuffing of knee flesh
OTHER	**Right knee- right cover flesh torn New heavy scuffing on left knee skin.**
LOWER EXTREMITY (LX)	
Y / N	Rotational potentiometers in ankle securely attached
Y / N	Achilles tendon provides resistance to dorsiflexion
Y / N	No evidence of de-bonding, tearing, or permanent compression of ankle soft stops
Y / N	No cuts, tears, or scuffing of leg flesh
OTHER	**Left forearm flesh damaged near elbow, heavy scuffing/abrasions all over left forearm, left humerus bent, puncture through palm of right hand. Heavy scuffing on front of right calf. Both thigh zippers detaching from flesh. Zippers detaching on left and right calves. Torn zippers/flesh on L & R forearms.**

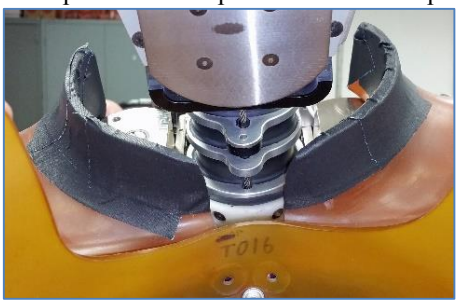
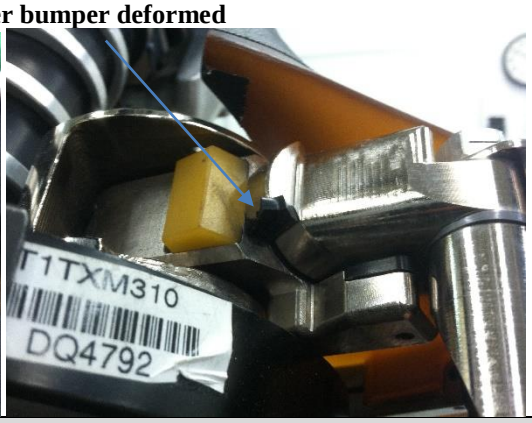
JACKET	
Y / N	Rib stiffeners show no sign of permanent deformation
Y / N	No evidence of tears or holes in jacket fabric, Velcro, or zippers
OTHER	

THOR Inspection Checklist

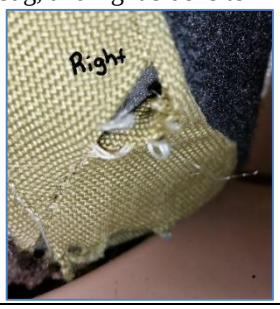
Date: **09/28/2015**		
NHTSA Representative: **James Saunders**		
Inspection Reporter**: Mike Hartung**		
Inspection type (check one): ☒ Pre-Test ☐ Post-Test		
Dummy S/N: **0016**	Legs S/N: **LX0018/LX0019**	
Dummy Description: **THOR 50th Male**		
Date of last Certification: **July 2015**		
Tests conducted: Since last inspection: **R20150189 - 2015 Malibu** Since last certification: **R20155509 - Forester** **R20150227 - 2015 Ford F-150** **R20155143 - 2015 Highlander** *LX Leg Certification*	**R20155913 - 2015 Volvo S60** **R20150189 - 2015 Malibu**	
Known errors in data channels (no data, clipping, unexpected drops): **None**		
Physical evidence of damage: **See Report – Head skin scuff**		
Anecdotal evidence of damage: **N/A**		
Equipment delivered to Borrower: **THOR 0016 ATD** **2 LX Leg Assemblies 0018 & 0019** **2 Lower Tibia Load Cells** **2 Upper Tibia Load Cells** **19 Rotational Potentiometers** **1 Left Knee Slider Potentiometer** **1 Right Knee Slider Potentiometer** **25 Accelerometers** **2 Achilles Load Cells**	*Continued* **3 Angular Rate Sensors** **2 Skull Spring Load Cells** **1 Upper Neck Load Cell** **1 Lower Neck Load Cell 6 IRTRACCs** **1 Thoracic Spine Load Cell** **1 Right Acetabulum Load Cell** **1 Left Acetabulum Load Cell**	**2 ASIS Load Cells** **2 Femur Load Cells** **1 Interface Cable** **1 IES Tilt Sensors** **1 Laptop** **1 H-Point Tool** **1 Neck Foam Assembly** **1 Neck Skin** **1 Toolbox**

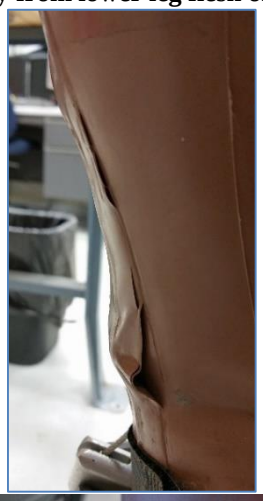
Note: New Damage is in Red

HEAD	
Y / N	Rear head cap mounts securely to head
Y / N	Head skin fits securely over skull
Y / N	Head skin shows no sign of tears or damage
Y / N	Interior components of skull cavity (ballast, accelerometer mount, accelerometers) securely attached
Y / N	Head securely mounted to OC joint
OTHER	Right rear of head and right side of skull cap abrasions and scuffing. Rear head cap has a superficial cut and some scuffing. Head skin has scuffing. 
NECK	
Y / N	Neck cables slide freely through holes in neck plates
Y / N	Neck cables show no sign of fraying, broken strands, or kinking
Y / N	No evidence of de-bonding between neck pucks and plates
Y / N	No evidence of de-bonding or permanent compression in neck soft stop assemblies Permanent compression of the first neck soft stop
Y / N	Neck securely attached to upper neck load cell
Y / N	Neck securely attached to lower neck load cell
Y / N	Neck pitch change joint mechanism mating teeth are engaged
OTHER	
SHOULDER	
Y / N	Urethane shoulder pads show no evidence of contact
Y / N	Clavicles securely attached to sternum and shoulder
Y / N	No evidence of de-bonding, tearing, or permanent compression of posterior soft stops

OTHER	Urethane Pads are both torn, completely through, near the neck. We put Gaffer's tape over the tears to protect.  **LH shoulder bumper missing. RH shoulder bumper deformed** 
SPINE	
Y / N	No evidence of de-bonding between thoracic spine flex joint and metal plates
Y / N	No evidence of de-bonding between lumbar spine flex joint and metal plates
Y / N	Lumbar spine pitch change joint mechanism mating teeth are engaged
OTHER	Small cut on the thoracic spine Tears and rubbing damage to the front left Lumbar Spine. Tears also on rear sides – right side is pictured. Damage is present on the surrounding metal structures of the Lumbar Spine

THORAX	
Y / N	No evidence of contact at top, bottom, or interior faces of rib damping material Both of the top two ribs, left and right, have contact damage
Y / N	No evidence of de-bonding between rib damping material and ribs
Y / N	IRTRACCs securely attached to anterior ribs
Y / N	IRTRACCs securely attached to double gimbals, spine
Y / N	Urethane bib is securely attached to ribs with no sign of tearing or washer penetration Urethane bib has signs of washer penetration repair and a tear
Y / N	Ribs securely attached to posterior spine
Y / N	Rib stiffeners show no evidence of bending (no gaps between ribs and stiffeners)
OTHER	There is heavy scuffing to the left upper arm, lower arm, and hand The left hand and lower arm (inside and out) have cuts/puncutres

	 The right lower arm (inside and out) has scuffing The inside of the right hand has cuts and the thumb is tearing The back of the right elbow has a small tear
ABDOMEN	
Y / N	No evidence of tearing, cuts, or broken stitches in upper abdomen bag and zipper
Y / N	Upper abdomen insert securely attached to spine
Y / N	Upper abdomen insert shows no evidence of permanent set
Y / N	No evidence of tearing, cuts, or broken stitches in lower abdomen bag and zipper Both sides have tears on the lower portion of the bag, and right side is torn near top 
Y / N	Lower abdomen insert securely attached to spine
Y / N	Lower abdomen insert shows no evidence of permanent set
OTHER	
PELVIS	
Y / N	Pelvis flesh fits securely over pelvis bones
Y / N	H-point tool fits securely into hole on both sides of pelvis
OTHER	

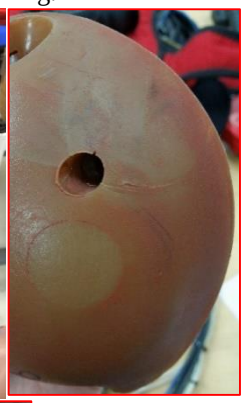
FEMUR	
Y / N	Acetabular load cells firmly attached
Y / N	Femur load cells firmly attached
Y / N	No evidence of deformation of knee slider bump stop
Y / N	No cuts, tears, or scuffing of knee flesh Scuffing to the right knee Slice on Right knee
OTHER	
LOWER EXTREMITY (LX)	
Y / N	Rotational potentiometers in ankle securely attached
Y / N	Achilles tendon provides resistance to dorsiflexion
Y / N	No evidence of de-bonding, tearing, or permanent compression of ankle soft stops
Y / N	No cuts, tears, or scuffing of leg flesh **Zipper pulling away from lower leg flesh of the left leg on both sides, and the front is scuffed.**  **Velcro strap torn from LH tibia flesh at ankle.**

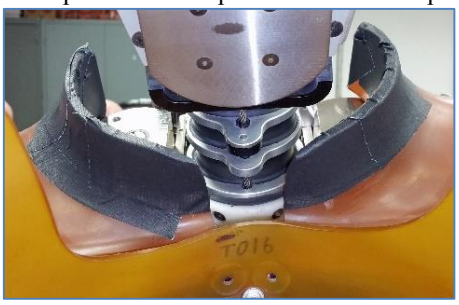
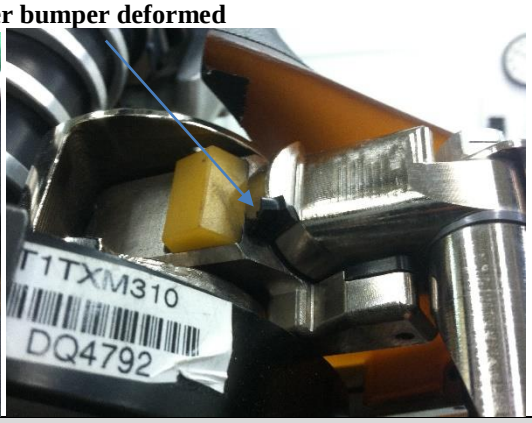
	Heavy scuffing on left thigh. Puncture in front on left calf.
OTHER	
JACKET	
Y / N	Rib stiffeners show no sign of permanent deformation
Y / N	No evidence of tears or holes in jacket fabric, Velcro, or zippers
OTHER	

THOR Inspection Checklist

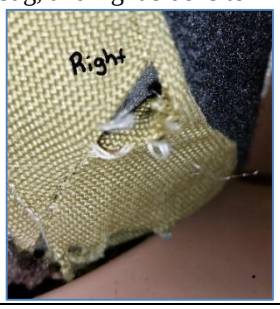
Date: **10/1/2015**		
NHTSA Representative: **James Saunders**		
Inspection Reporter**: Mike Hartung**		
Inspection type (check one): ☐ Pre-Test ☒ Post-Test		
Dummy S/N: **0016**	Legs S/N: **LX0018/LX0019**	
Dummy Description: **THOR 50th Male**		
Date of last Certification: **July 2015**		
Tests conducted: Since last inspection: **R20155377-2015 Honda Fit** Since last certification: **R20155509 - Forester** **R20150227 - 2015 Ford F-150** **R20155143 - 2015 Highlander** *LX Leg Certification*	**R20155913 - 2015 Volvo S60** **R20150189 - 2015 Malibu** **R20155377-2015 Honda Fit**	
Known errors in data channels (no data, clipping, unexpected drops): • 13CHSTRIUPTHVO0P,DGIR Upper Right X Displacement,Questionable spikes 39.8ms to 134ms, SN:DS-DM3232 • 13CHSTRILOTHVO0P,DGIR Lower Right X Displacement,Questionable spikes 48.3ms to 106ms, SN:DS-DP1393 • 13ABDOLE00THVO0P,Abdomen Left DGIR X Displacement,Questionable spikes 67.6ms to 81.8ms, SN:DS-DJ5440 • 13ACTBLE00THFOZP,Acetabular Left Z Force,Questionable spike at 44.2ms, SN:LC-83Fz		
Physical evidence of damage: **None New**		
Anecdotal evidence of damage: **N/A**		
Equipment delivered to Borrower: **THOR 0016 ATD** **2 LX Leg Assemblies 0018 & 0019** **2 Lower Tibia Load Cells** **2 Upper Tibia Load Cells** **19 Rotational Potentiometers** **1 Left Knee Slider Potentiometer** **1 Right Knee Slider Potentiometer** **25 Accelerometers** **2 Achilles Load Cells**	*Continued* **3 Angular Rate Sensors** **2 Skull Spring Load Cells** **1 Upper Neck Load Cell** **1 Lower Neck Load Cell 6 IRTRACCs** **1 Thoracic Spine Load Cell** **1 Right Acetabulum Load Cell** **1 Left Acetabulum Load Cell**	**2 ASIS Load Cells** **2 Femur Load Cells** **1 Interface Cable** **1 IES Tilt Sensors** **1 Laptop** **1 H-Point Tool** **1 Neck Foam Assembly** **1 Neck Skin** **1 Toolbox**

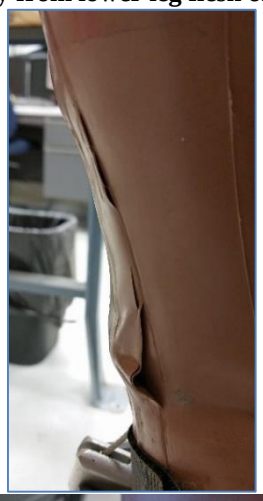
Note: New Damage is in Red

HEAD	
Y / N	Rear head cap mounts securely to head
Y / N	Head skin fits securely over skull
Y / N	Head skin shows no sign of tears or damage
Y / N	Interior components of skull cavity (ballast, accelerometer mount, accelerometers) securely attached
Y / N	Head securely mounted to OC joint
OTHER	Right rear of head and right side of skull cap abrasions and scuffing. Rear head cap has a superficial cut and some scuffing. Head skin has scuffing. 
NECK	
Y / N	Neck cables slide freely through holes in neck plates
Y / N	Neck cables show no sign of fraying, broken strands, or kinking
Y / N	No evidence of de-bonding between neck pucks and plates
Y / N	No evidence of de-bonding or permanent compression in neck soft stop assemblies Permanent compression of the first neck soft stop
Y / N	Neck securely attached to upper neck load cell
Y / N	Neck securely attached to lower neck load cell
Y / N	Neck pitch change joint mechanism mating teeth are engaged
OTHER	
SHOULDER	
Y / N	Urethane shoulder pads show no evidence of contact
Y / N	Clavicles securely attached to sternum and shoulder
Y / N	No evidence of de-bonding, tearing, or permanent compression of posterior soft stops

OTHER	Urethane Pads are both torn, completely through, near the neck. We put Gaffer's tape over the tears to protect.  **LH shoulder bumper missing. RH shoulder bumper deformed** 
SPINE	
Y / N	No evidence of de-bonding between thoracic spine flex joint and metal plates
Y / N	No evidence of de-bonding between lumbar spine flex joint and metal plates
Y / N	Lumbar spine pitch change joint mechanism mating teeth are engaged
OTHER	Small cut on the thoracic spine Tears and rubbing damage to the front left Lumbar Spine. Tears also on rear sides – right side is pictured. Damage is present on the surrounding metal structures of the Lumbar Spine

THORAX	
Y / N	No evidence of contact at top, bottom, or interior faces of rib damping material Both of the top two ribs, left and right, have contact damage
Y / N	No evidence of de-bonding between rib damping material and ribs
Y / N	IRTRACCs securely attached to anterior ribs
Y / N	IRTRACCs securely attached to double gimbals, spine
Y / N	Urethane bib is securely attached to ribs with no sign of tearing or washer penetration Urethane bib has signs of washer penetration repair and a tear
Y / N	Ribs securely attached to posterior spine
Y / N	Rib stiffeners show no evidence of bending (no gaps between ribs and stiffeners)
OTHER	There is heavy scuffing to the left upper arm, lower arm, and hand The left hand and lower arm (inside and out) have cuts/puncutres

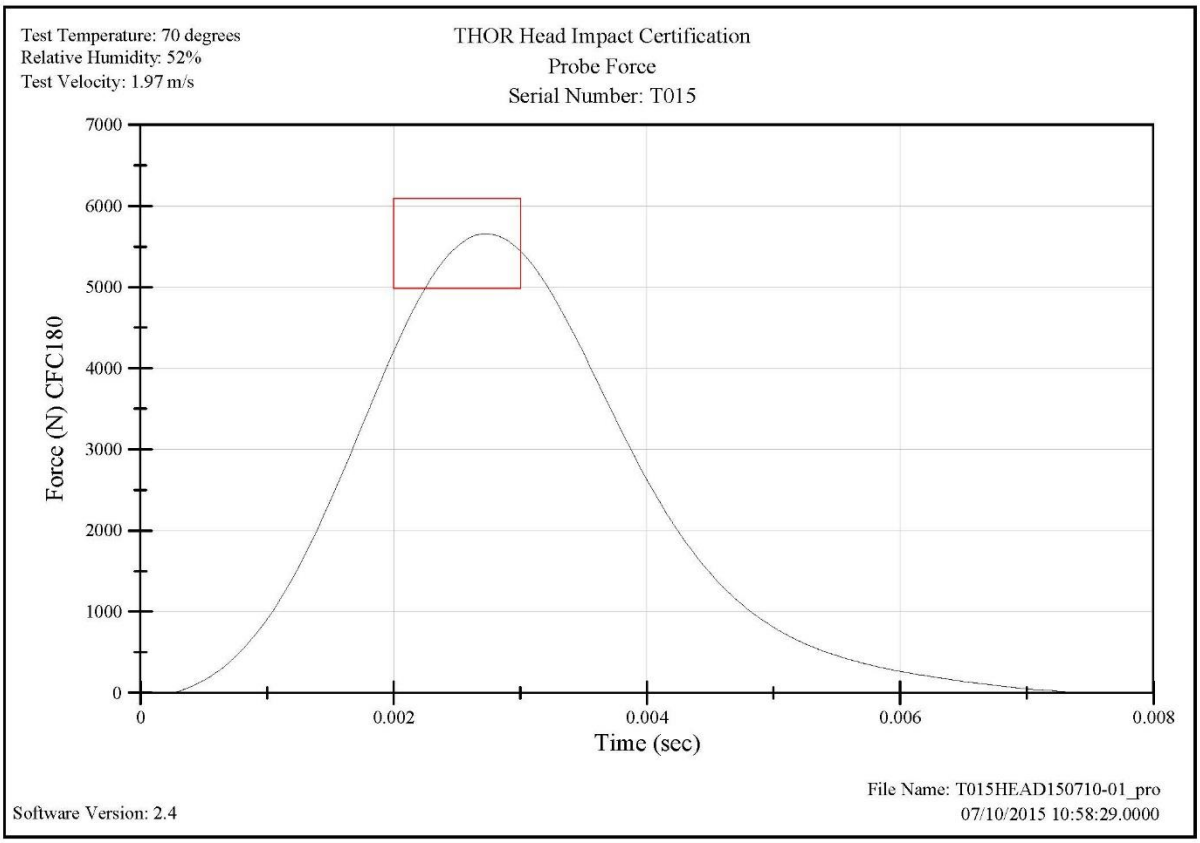
	 The right lower arm (inside and out) has scuffing The inside of the right hand has cuts and the thumb is tearing The back of the right elbow has a small tear
ABDOMEN	
Y / N	No evidence of tearing, cuts, or broken stitches in upper abdomen bag and zipper
Y / N	Upper abdomen insert securely attached to spine
Y / N	Upper abdomen insert shows no evidence of permanent set
Y / N	No evidence of tearing, cuts, or broken stitches in lower abdomen bag and zipper Both sides have tears on the lower portion of the bag, and right side is torn near top 
Y / N	Lower abdomen insert securely attached to spine
Y / N	Lower abdomen insert shows no evidence of permanent set
OTHER	
PELVIS	
Y / N	Pelvis flesh fits securely over pelvis bones
Y / N	H-point tool fits securely into hole on both sides of pelvis
OTHER	

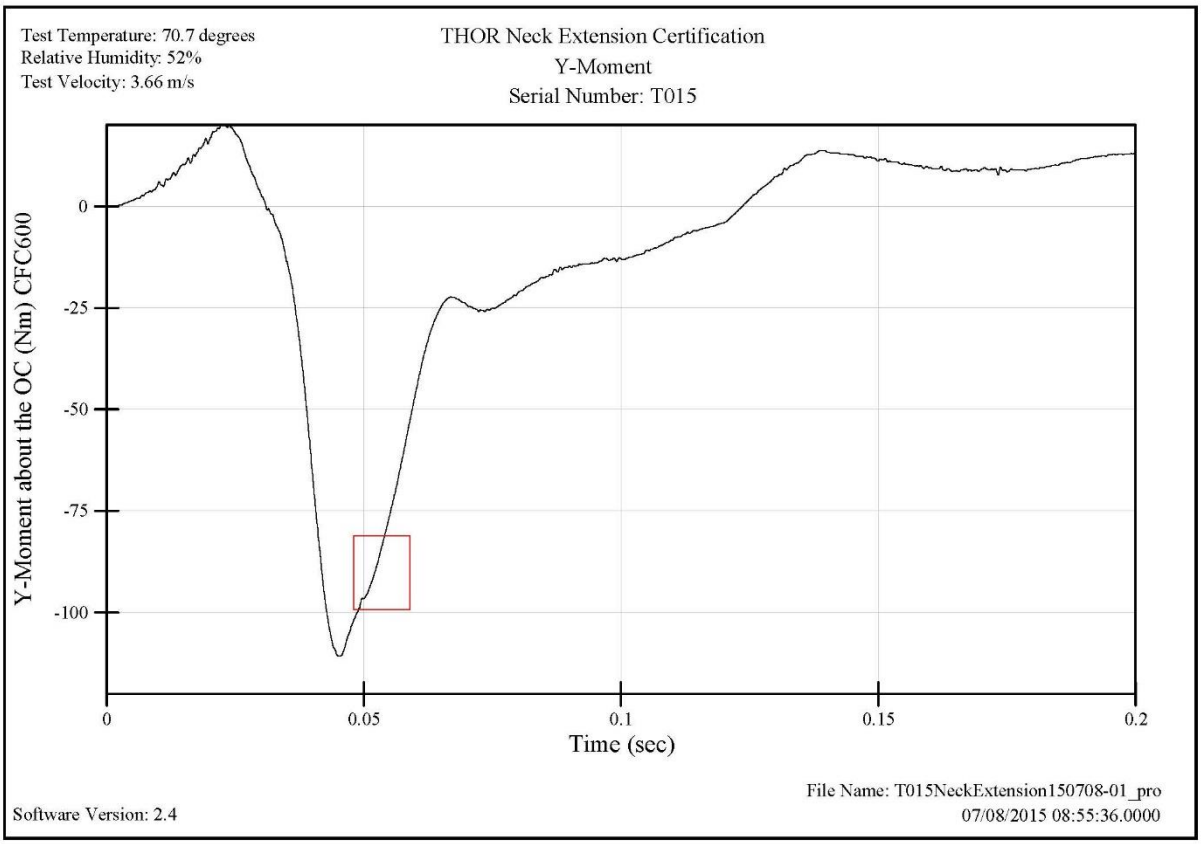
FEMUR	
Y / N	Acetabular load cells firmly attached
Y / N	Femur load cells firmly attached
Y / N	No evidence of deformation of knee slider bump stop
Y / N	No cuts, tears, or scuffing of knee flesh Scuffing to the right knee Slice on Right knee
OTHER	
LOWER EXTREMITY (LX)	
Y / N	Rotational potentiometers in ankle securely attached
Y / N	Achilles tendon provides resistance to dorsiflexion
Y / N	No evidence of de-bonding, tearing, or permanent compression of ankle soft stops
Y / N	No cuts, tears, or scuffing of leg flesh **Zipper pulling away from lower leg flesh of the left leg on both sides, and the front is scuffed.**  **Velcro strap torn from LH tibia flesh at ankle.**

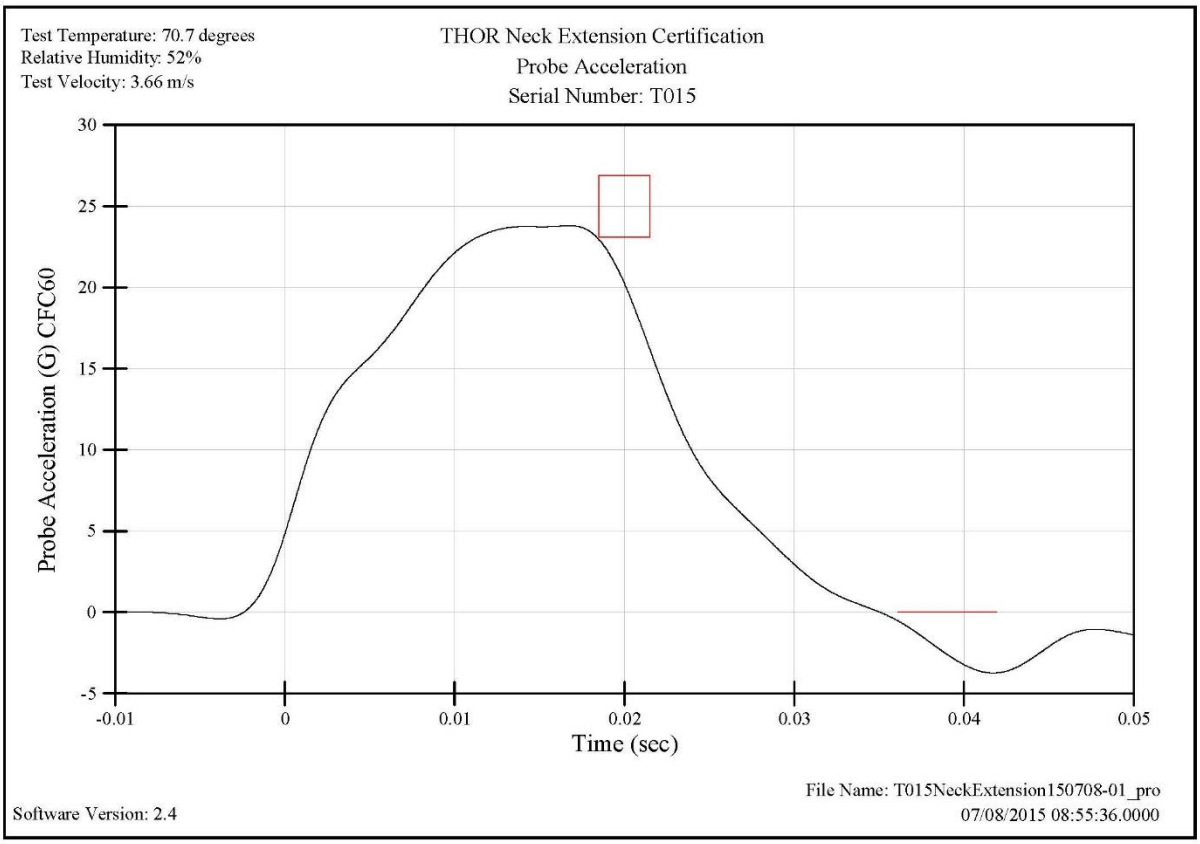
	Heavy scuffing on left thigh. Puncture in front on left calf.
OTHER	
JACKET	
Y / N	Rib stiffeners show no sign of permanent deformation
Y / N	No evidence of tears or holes in jacket fabric, Velcro, or zippers
OTHER	

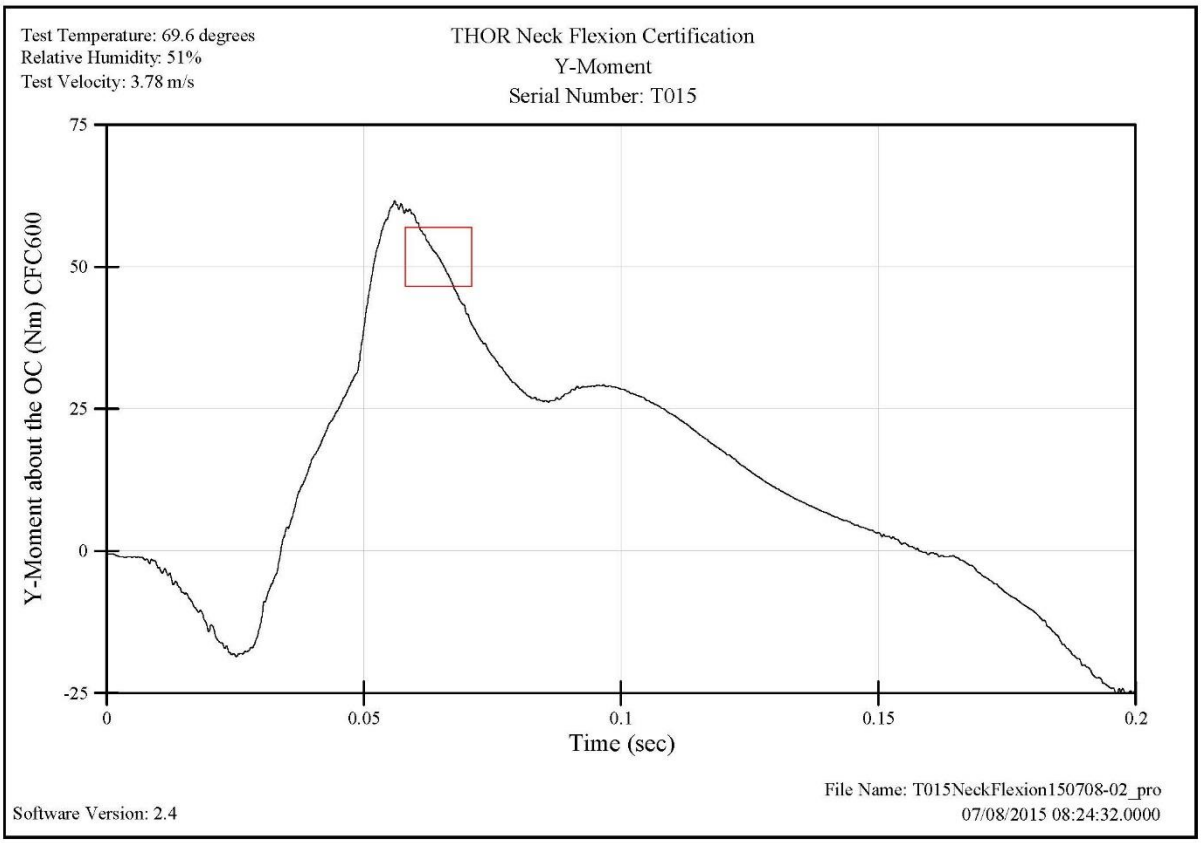
DUMMY CALIBRATIONS

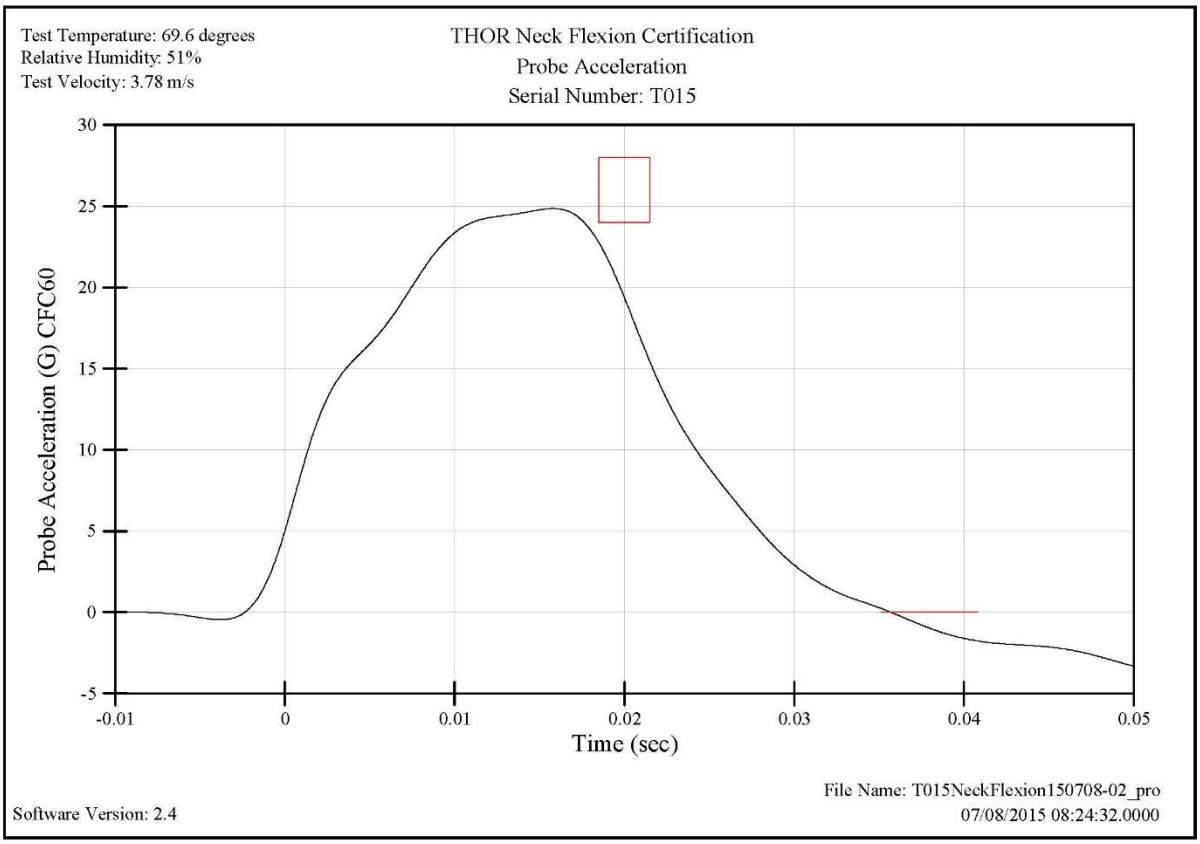
50% ADULT MALE THOR015 DUMMY CALIBRATIONS

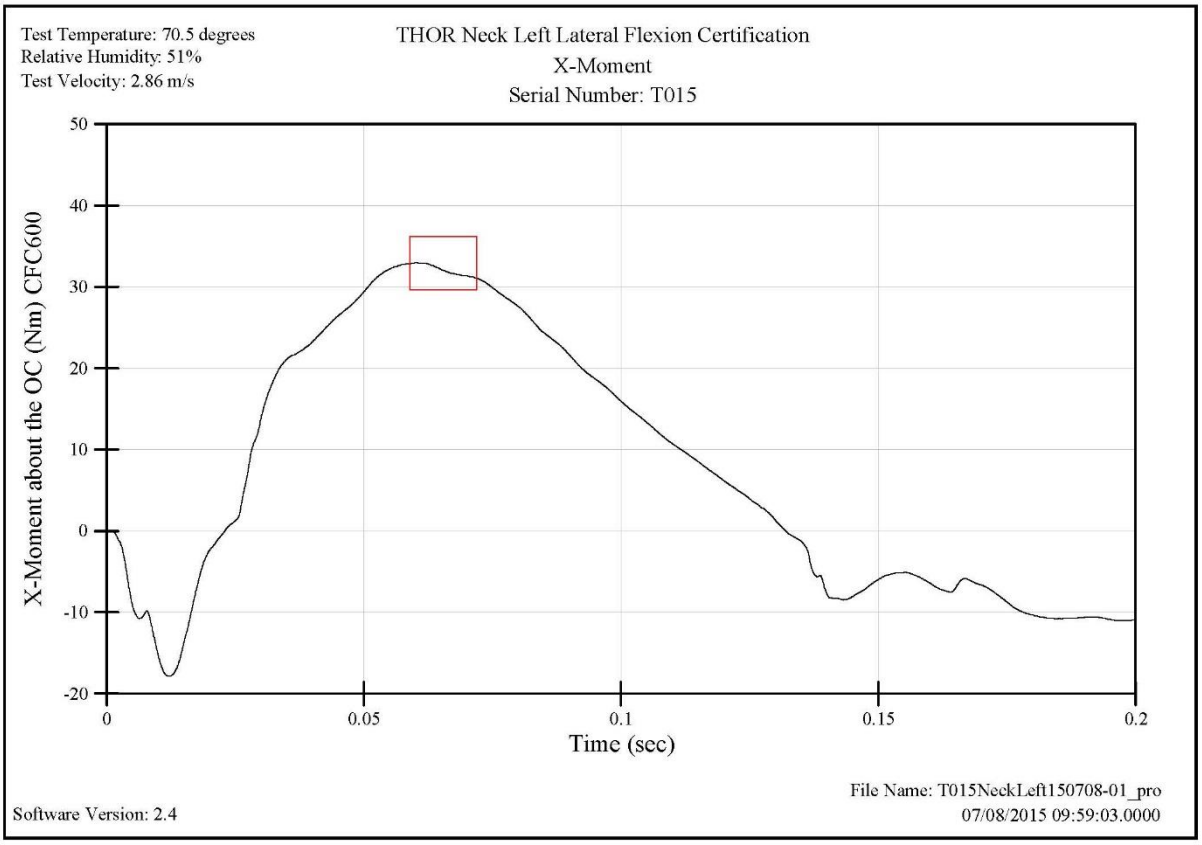


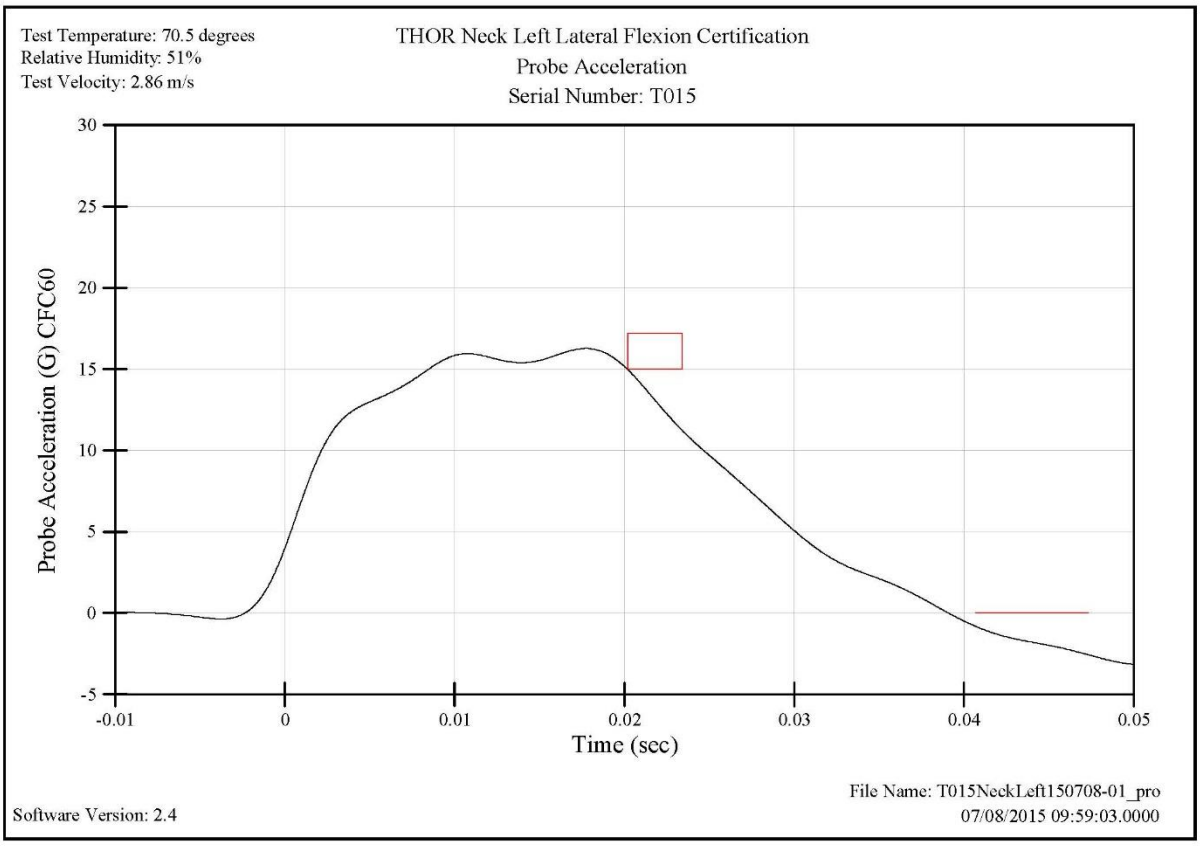


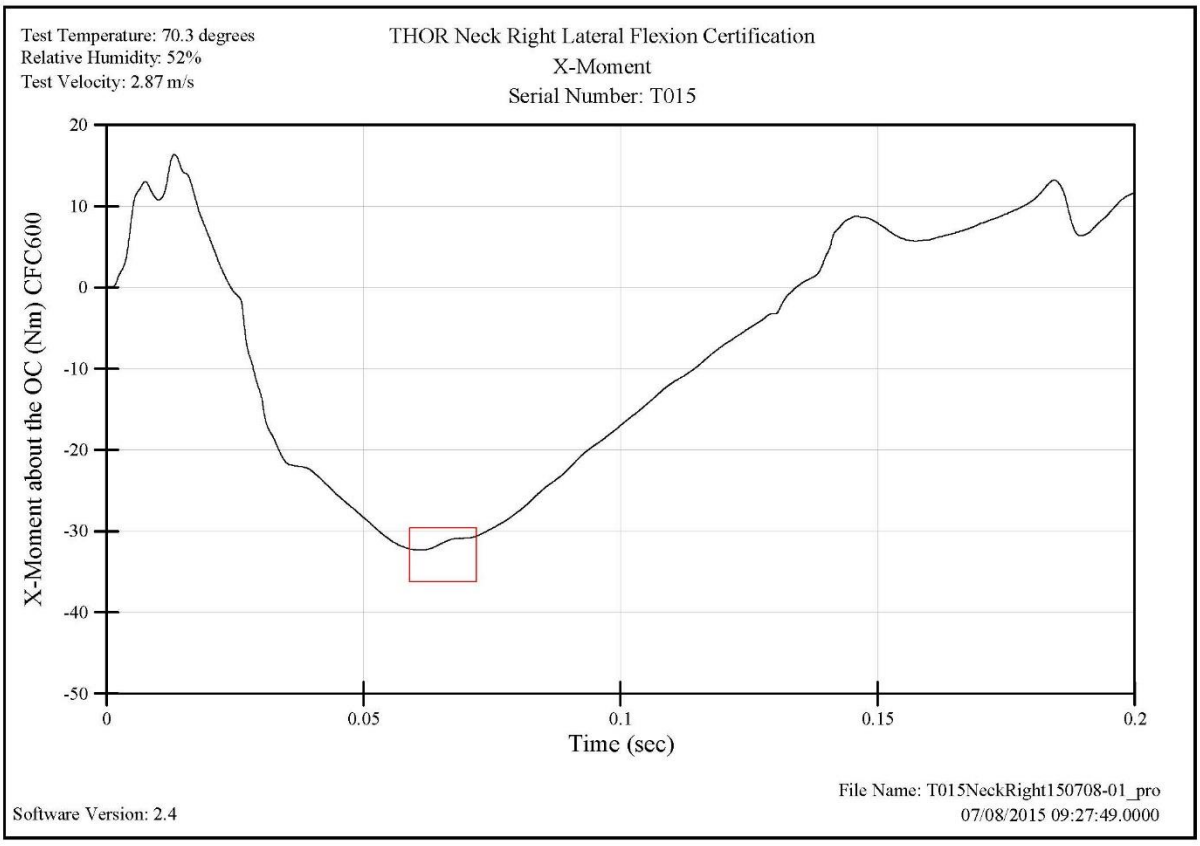

Test Temperature: 70.7 degrees
Relative Humidity: 52%
Test Velocity: 3.66 m/s
THOR Neck Extension Certification
Probe Acceleration
Serial Number: T015
Probe Acceleration (G) CFC60
30
25
20
15
10
5
0
-5
-0.01
0
0.01
0.02
0.03
0.04
0.05
Time (sec)
File Name: T015NeckExtension150708-01_pro
07/08/2015 08:55:36.0000
Software Version: 2.4

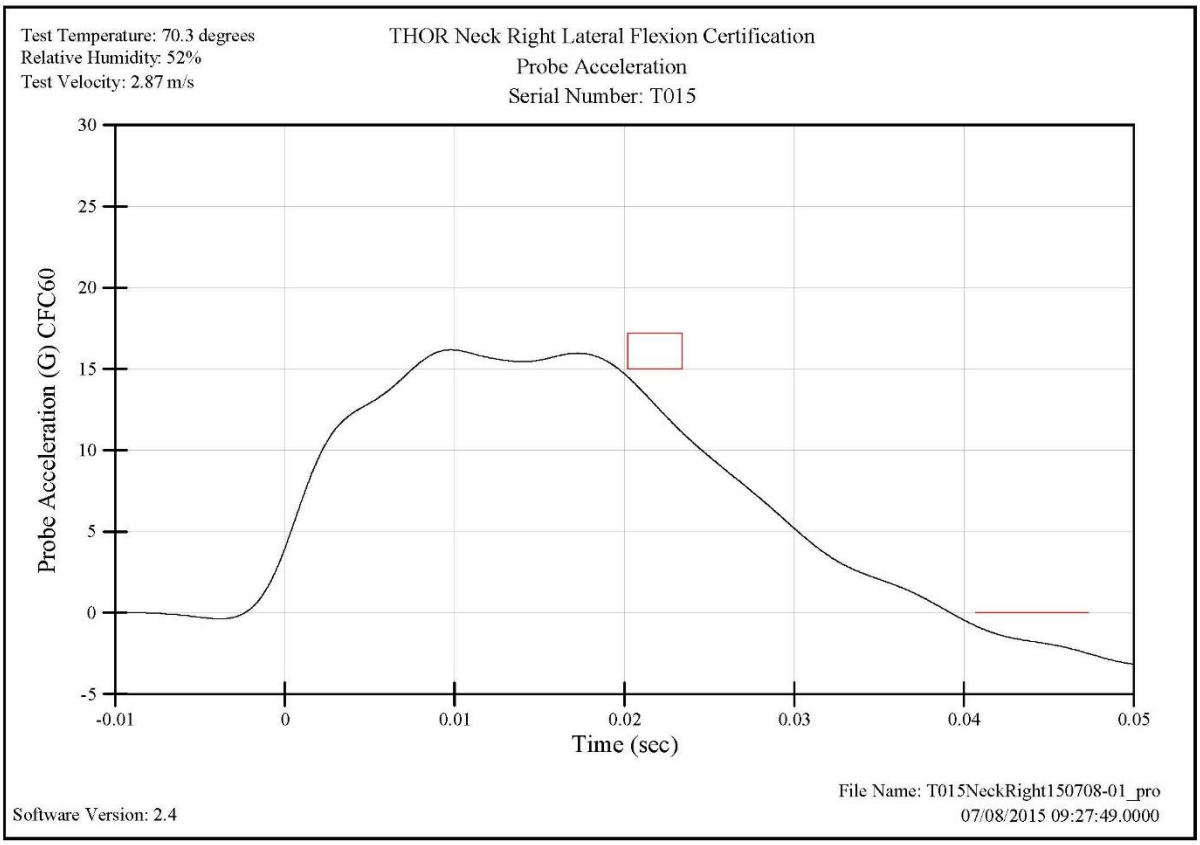

Test Temperature: 69.6 degrees
Relative Humidity: 51%
Test Velocity: 3.78 m/s
THOR Neck Flexion Certification
Y-Moment
Serial Number: T015
Y-Moment about the OC (Nm) CFC600
75
50
25
0
-25
0
0.05
0.1
0.15
0.2
Time (sec)
File Name: T015NeckFlexion150708-02_pro
07/08/2015 08:24:32.0000
Software Version: 2.4

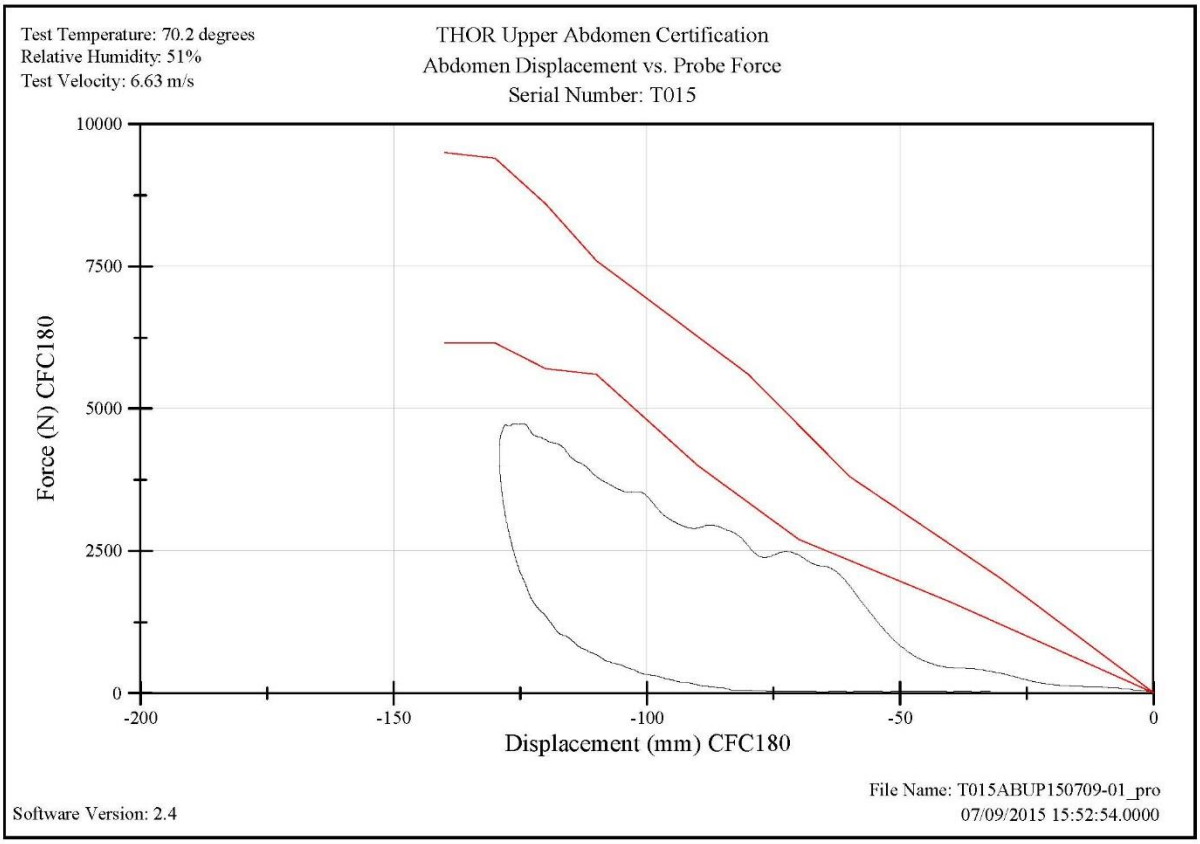

Test Temperature: 69.6 degrees
Relative Humidity: 51%
Test Velocity: 3.78 m/s
THOR Neck Flexion Certification
Probe Acceleration
Serial Number: T015
Probe Acceleration (G) CFC60
Time (sec)
File Name: T015NeckFlexion150708-02_pro
07/08/2015 08:24:32.0000
Software Version: 2.4

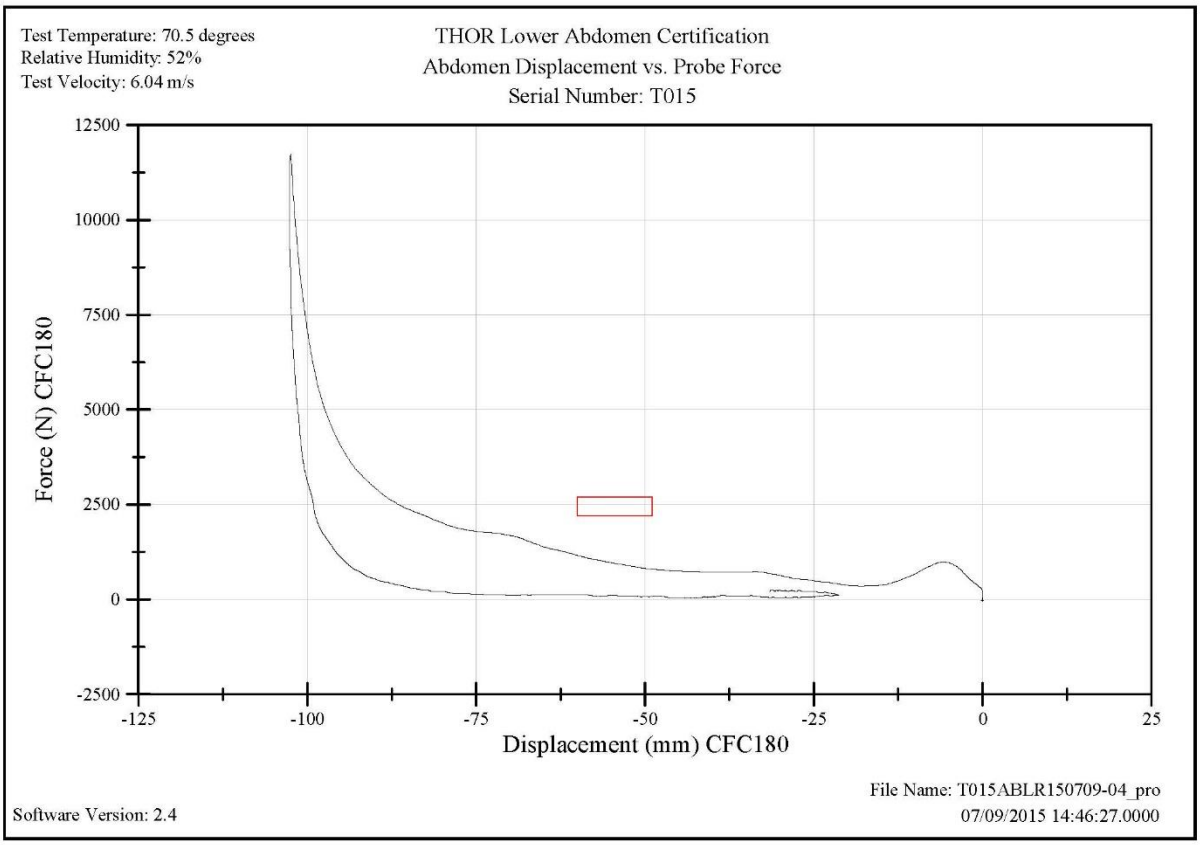

Test Temperature: 70.5 degrees
Relative Humidity: 51%
Test Velocity: 2.86 m/s
THOR Neck Left Lateral Flexion Certification
X-Moment
Serial Number: T015
X-Moment about the OC (Nm) CFC600
Time (sec)
File Name: T015NeckLeft150708-01_pro
07/08/2015 09:59:03.0000
Software Version: 2.4

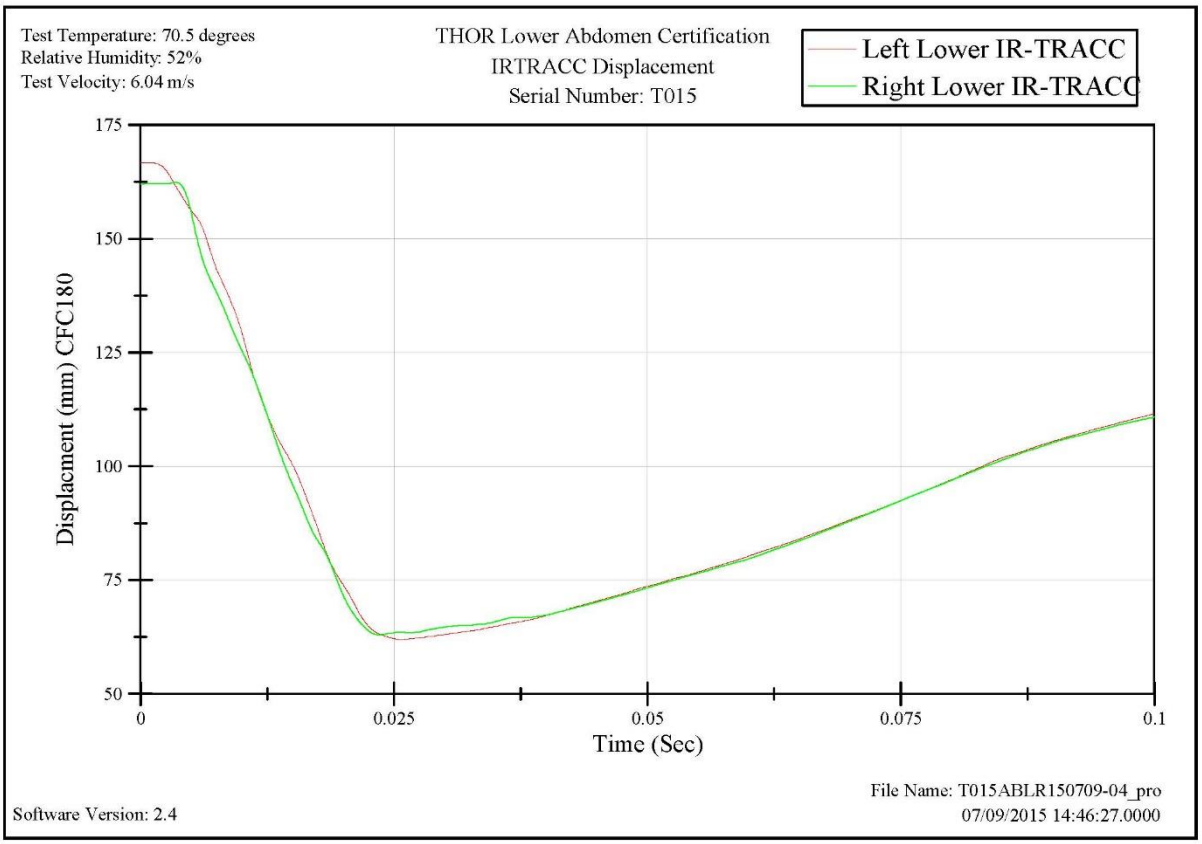

Test Temperature: 70.5 degrees
Relative Humidity: 51%
Test Velocity: 2.86 m/s
THOR Neck Left Lateral Flexion Certification
Probe Acceleration
Serial Number: T015
Probe Acceleration (G) CFC60
30
25
20
15
10
5
0
-5
-0.01
0
0.01
0.02
0.03
0.04
0.05
Time (sec)
File Name: T015NeckLeft150708-01_pro
07/08/2015 09:59:03.0000
Software Version: 2.4

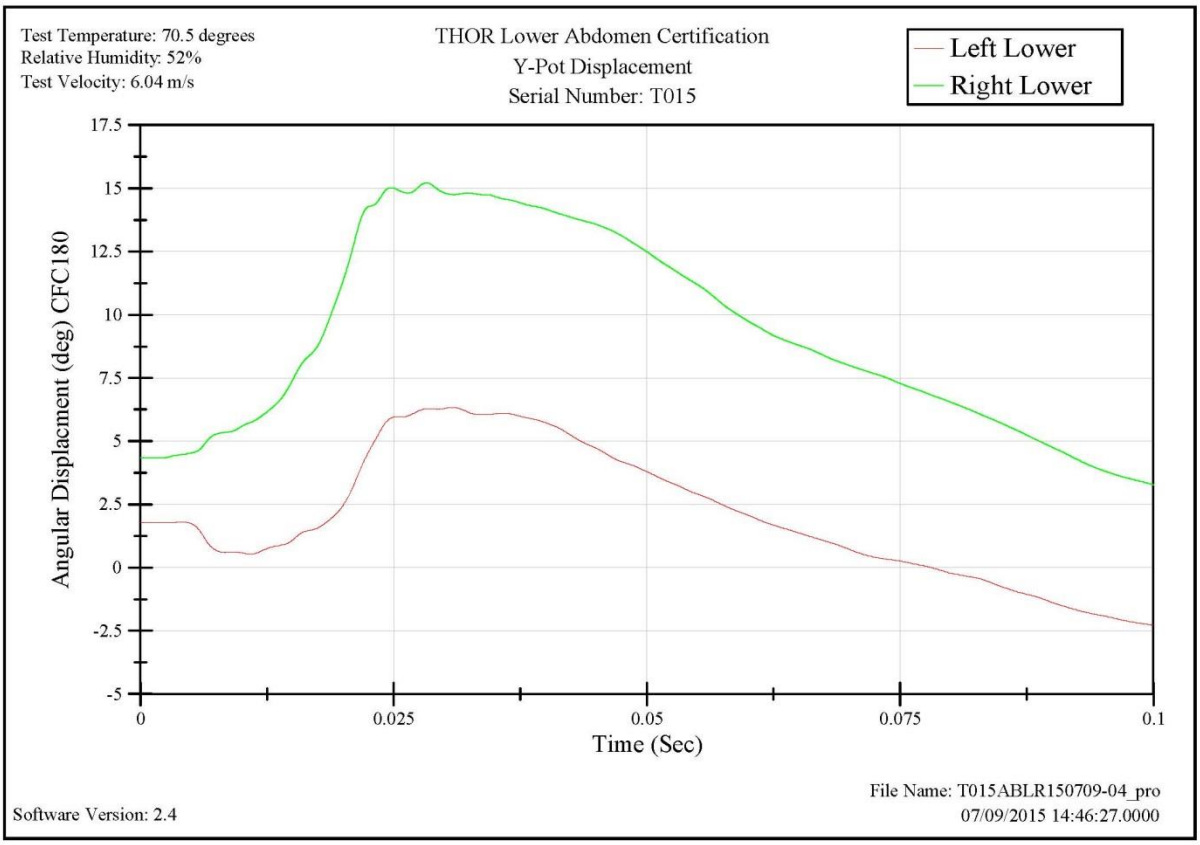

Test Temperature: 70.3 degrees
Relative Humidity: 52%
Test Velocity: 2.87 m/s
THOR Neck Right Lateral Flexion Certification
X-Moment
Serial Number: T015
X-Moment about the OC (Nm) CFC600
20
10
0
-10
-20
-30
-40
-50
0
0.05
0.1
0.15
0.2
Time (sec)
File Name: T015NeckRight150708-01_pro
07/08/2015 09:27:49.0000
Software Version: 2.4

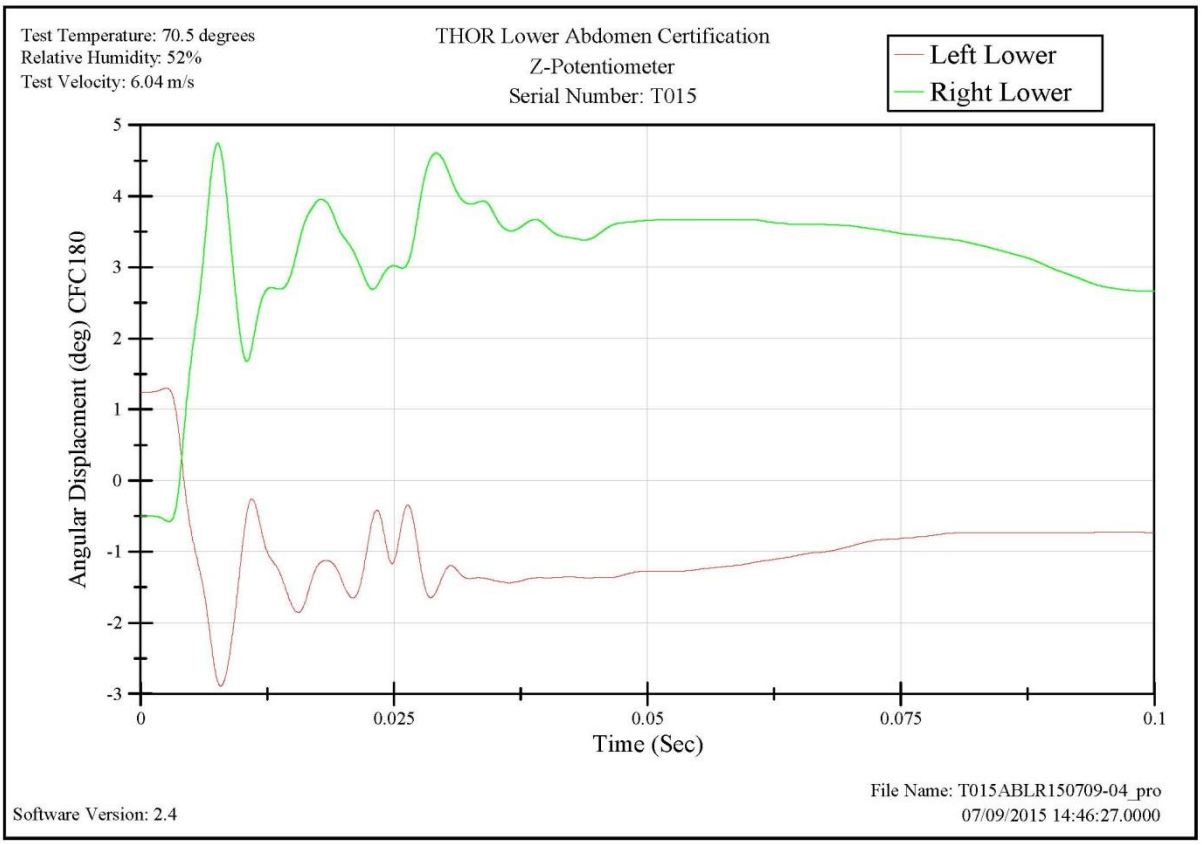

Test Temperature: 70.3 degrees
Relative Humidity: 52%
Test Velocity: 2.87 m/s
THOR Neck Right Lateral Flexion Certification
Probe Acceleration
Serial Number: T015
Probe Acceleration (G) CFC60
30
25
20
15
10
5
0
-5
-0.01
0
0.01
0.02
0.03
0.04
0.05
Time (sec)
File Name: T015NeckRight150708-01_pro
07/08/2015 09:27:49.0000
Software Version: 2.4

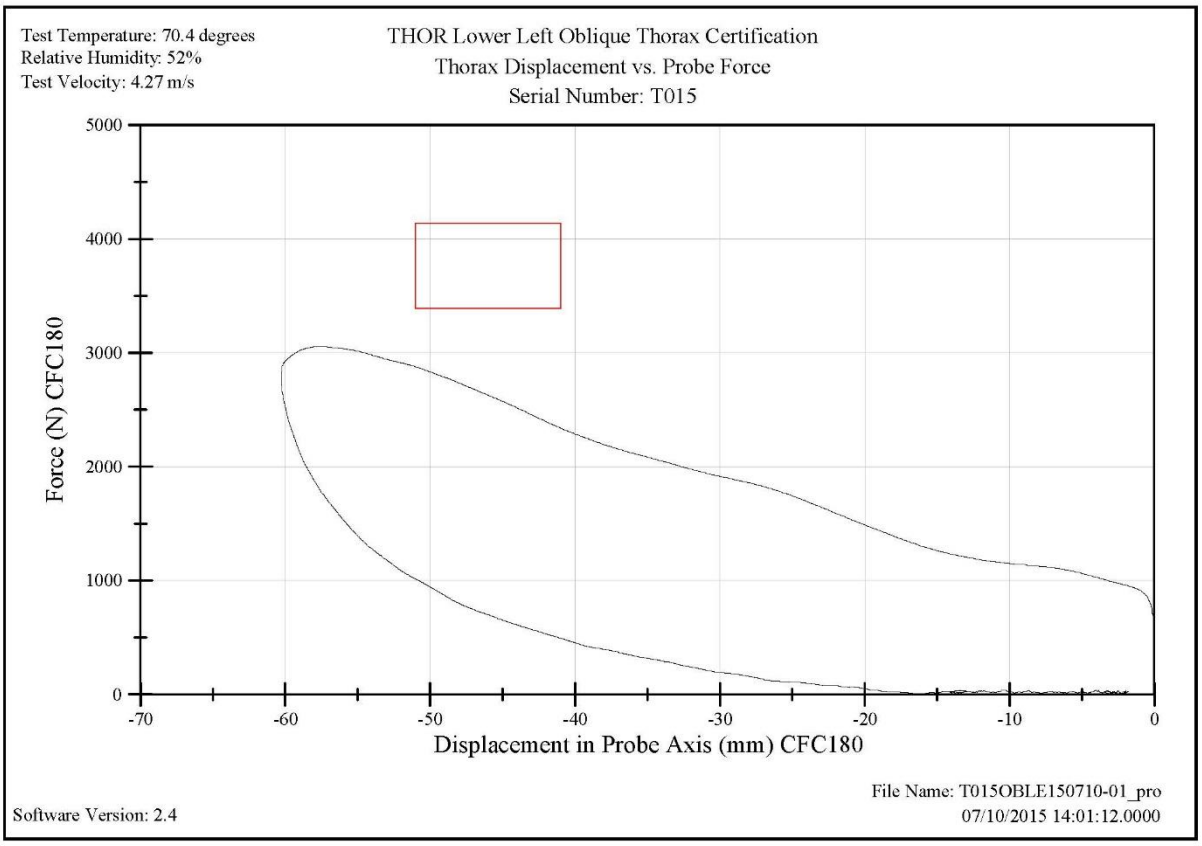

Test Temperature: 70.2 degrees
Relative Humidity: 51%
Test Velocity: 6.63 m/s
THOR Upper Abdomen Certification
Abdomen Displacement vs. Probe Force
Serial Number: T015
Force (N) CFC180
10000
7500
5000
2500
0
-200
-150
-100
-50
0
Displacement (mm) CFC180
File Name: T015ABUP150709-01_pro
07/09/2015 15:52:54.0000
Software Version: 2.4

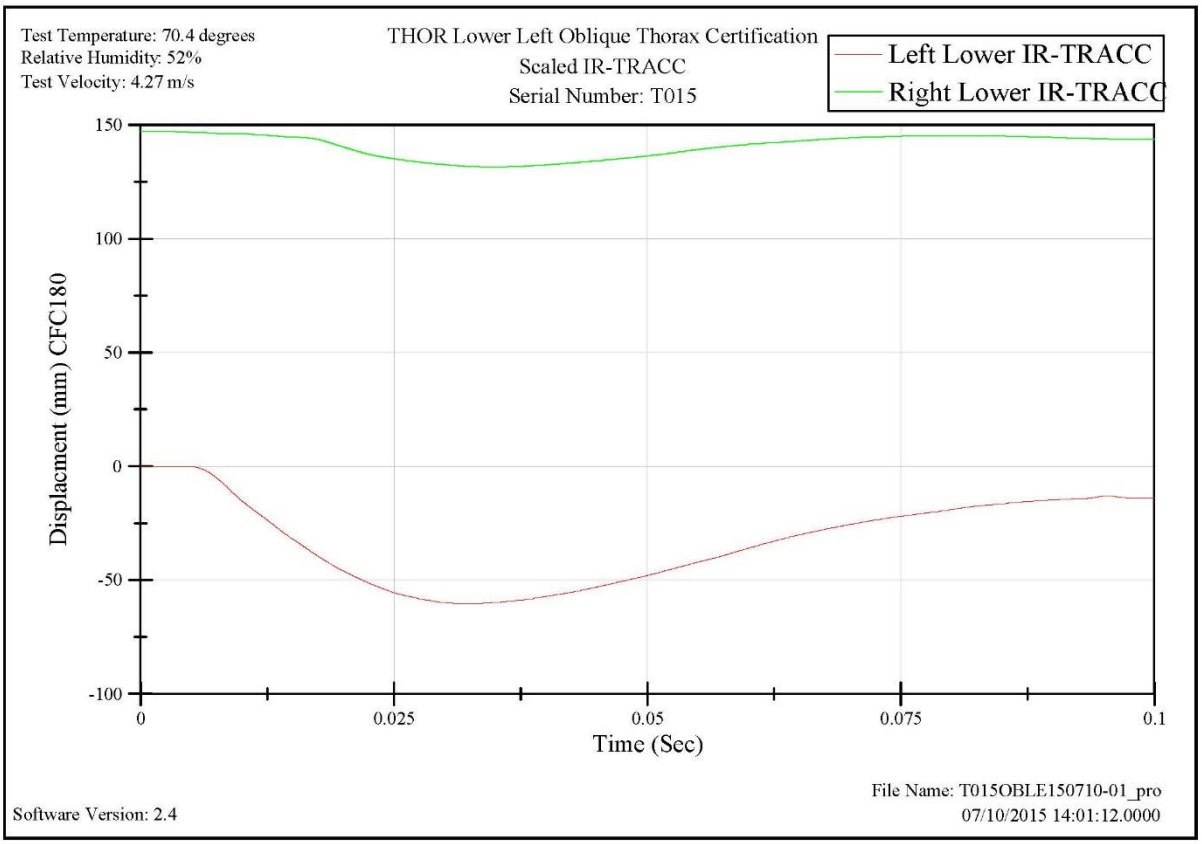

Test Temperature: 70.5 degrees
Relative Humidity: 52%
Test Velocity: 6.04 m/s
THOR Lower Abdomen Certification
Abdomen Displacement vs. Probe Force
Serial Number: T015
Force (N) CFC180
12500
10000
7500
5000
2500
0
-2500
-125
-100
-75
-50
-25
0
25
Displacement (mm) CFC180
File Name: T015ABLR150709-04_pro
07/09/2015 14:46:27.0000
Software Version: 2.4

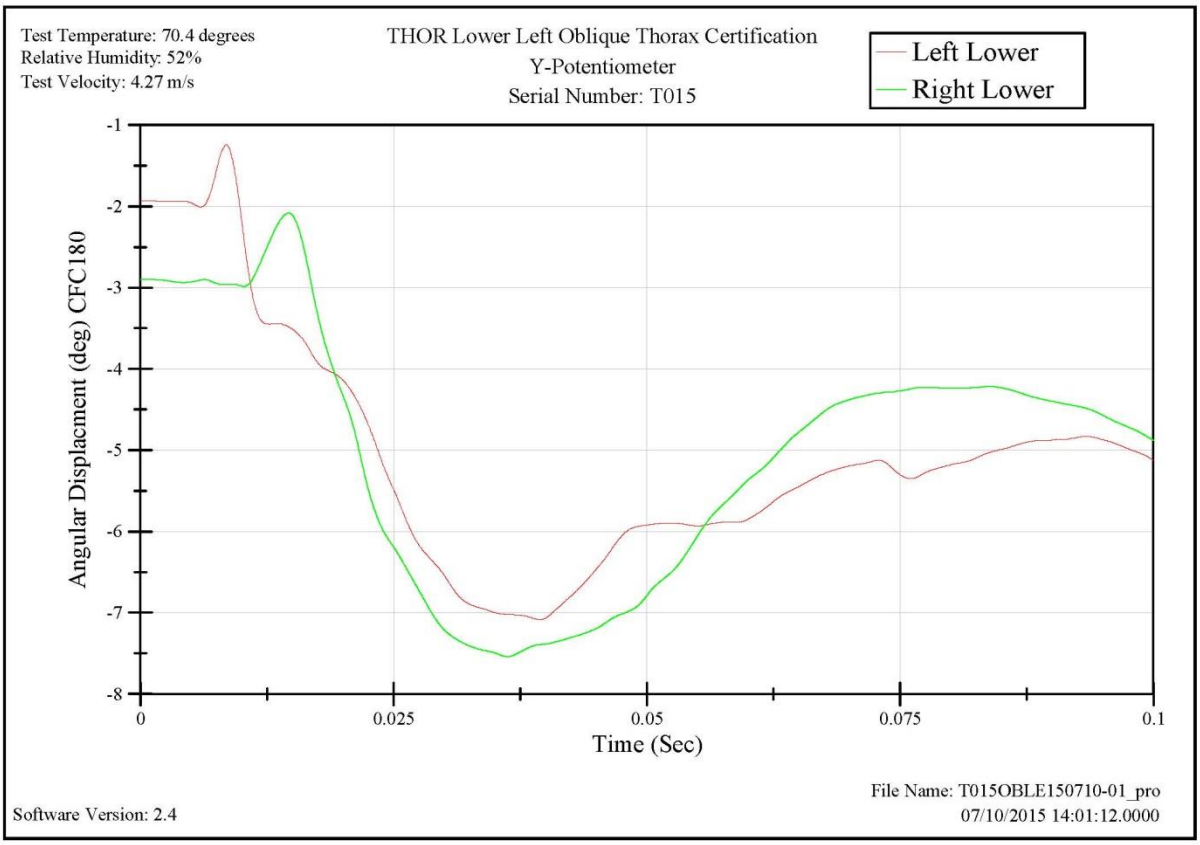

Test Temperature: 70.5 degrees
Relative Humidity: 52%
Test Velocity: 6.04 m/s
THOR Lower Abdomen Certification
IRTRACC Displacement
Serial Number: T015
Left Lower IR-TRACC
Right Lower IR-TRACC
Displacement (mm) CFC180
175
150
125
100
75
50
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T015ABLR150709-04_pro
07/09/2015 14:46:27.0000
Software Version: 2.4

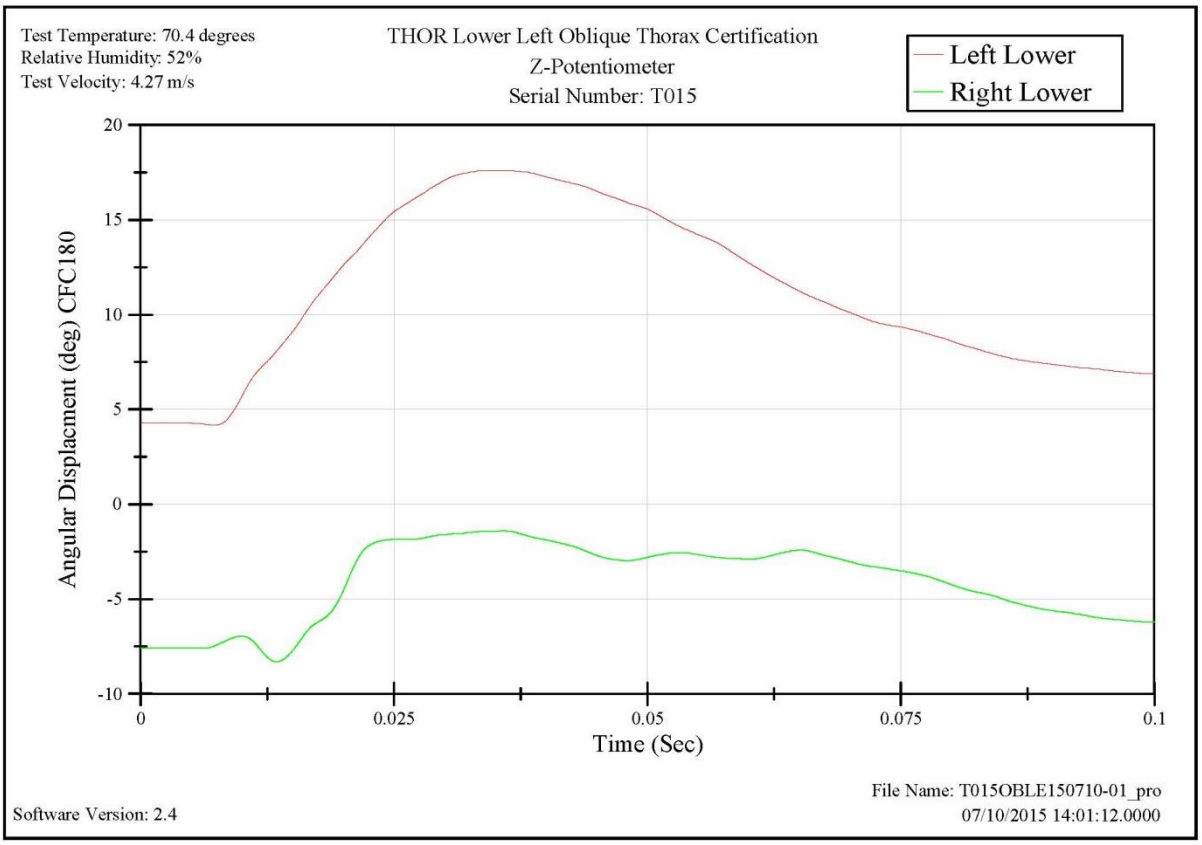

Test Temperature: 70.5 degrees
Relative Humidity: 52%
Test Velocity: 6.04 m/s
THOR Lower Abdomen Certification
Y-Pot Displacement
Serial Number: T015
Left Lower
Right Lower
Angular Displacment (deg) CFC180
17.5
15
12.5
10
7.5
5
2.5
0
-2.5
-5
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T015ABLR150709-04_pro
07/09/2015 14:46:27.0000
Software Version: 2.4

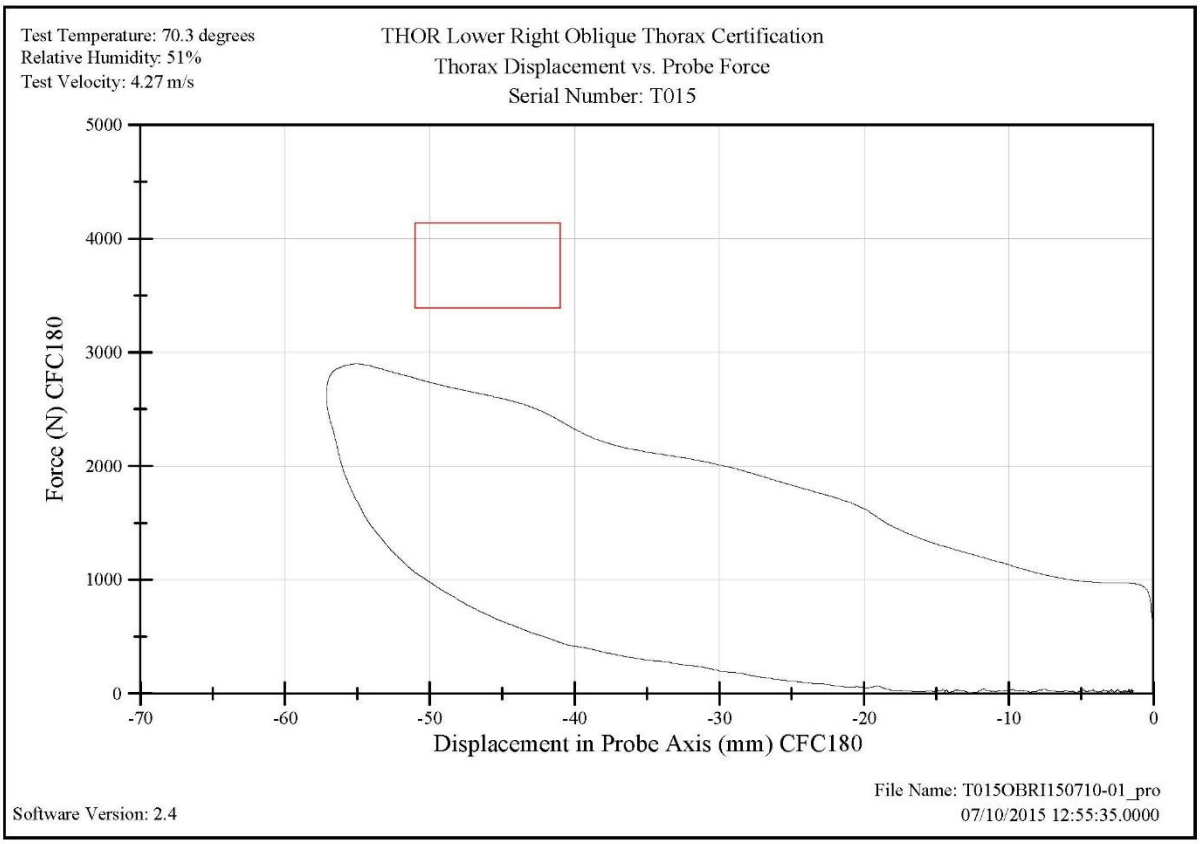

Test Temperature: 70.5 degrees
Relative Humidity: 52%
Test Velocity: 6.04 m/s
THOR Lower Abdomen Certification
Z-Potentiometer
Serial Number: T015
Left Lower
Right Lower
Angular Displacment (deg) CFC180
5
4
3
2
1
0
-1
-2
-3
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T015ABLR150709-04_pro
07/09/2015 14:46:27.0000
Software Version: 2.4

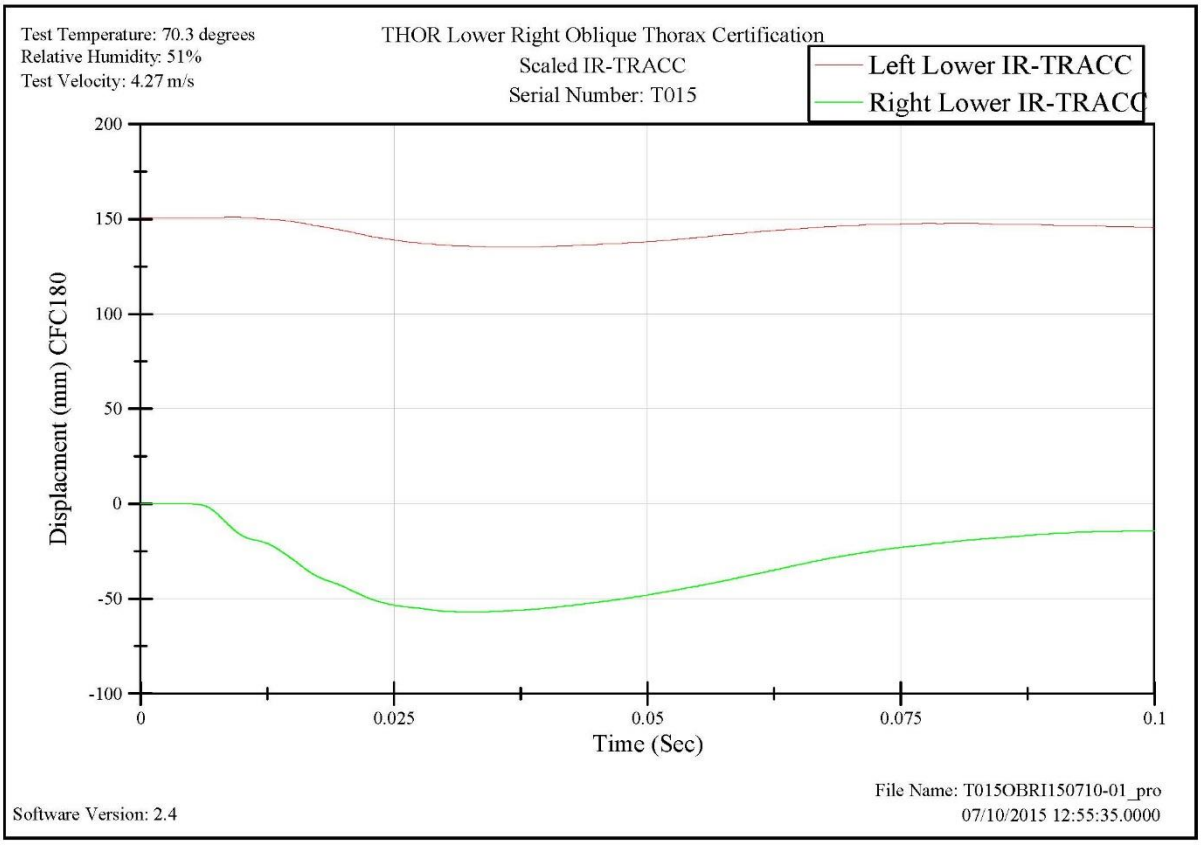

Test Temperature: 70.4 degrees
Relative Humidity: 52%
Test Velocity: 4.27 m/s
THOR Lower Left Oblique Thorax Certification
Thorax Displacement vs. Probe Force
Serial Number: T015
Force (N) CFC180
5000
4000
3000
2000
1000
0
-70
-60
-50
-40
-30
-20
-10
0
Displacement in Probe Axis (mm) CFC180
File Name: T015OBLE150710-01_pro
07/10/2015 14:01:12.0000
Software Version: 2.4

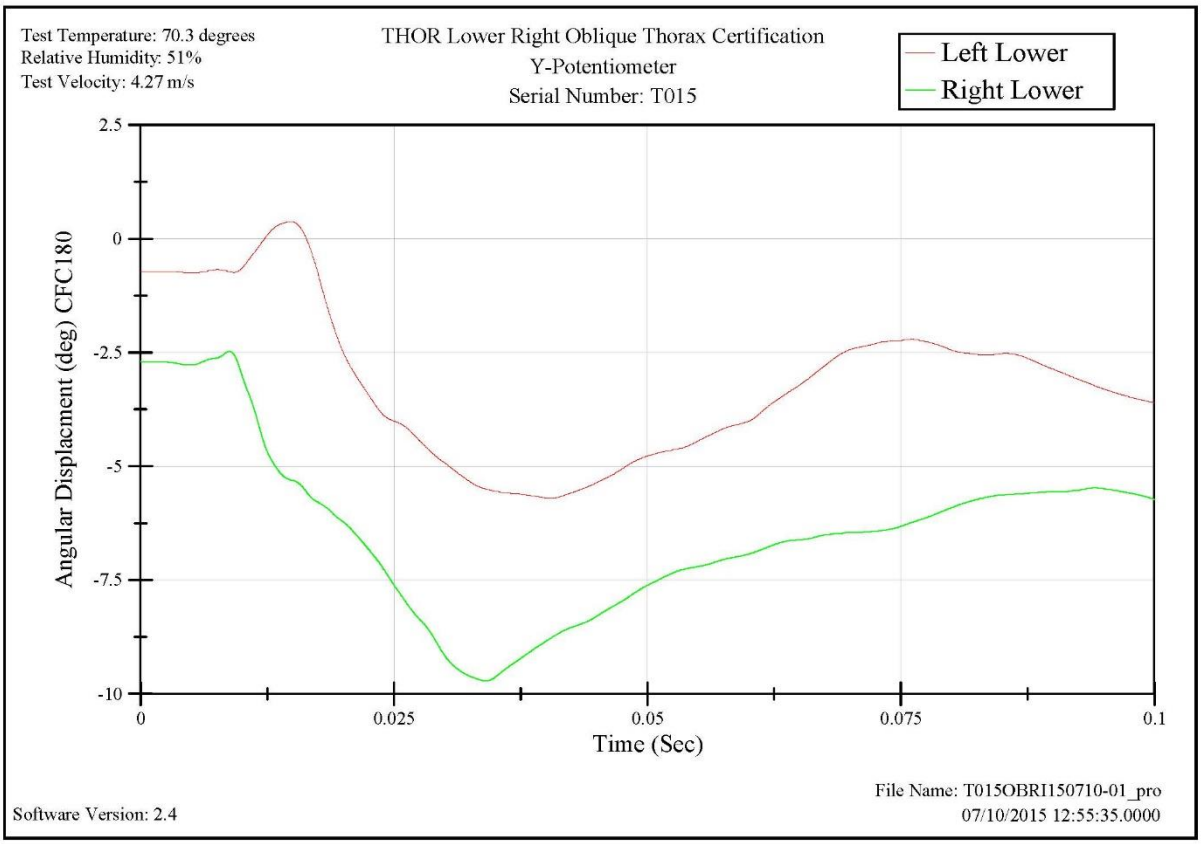

Test Temperature: 70.4 degrees
Relative Humidity: 52%
Test Velocity: 4.27 m/s
THOR Lower Left Oblique Thorax Certification
Scaled IR-TRACC
Serial Number: T015
Left Lower IR-TRACC
Right Lower IR-TRACC
Displacment (mm) CFC180
150
100
50
0
-50
-100
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T015OBLE150710-01_pro
07/10/2015 14:01:12.0000
Software Version: 2.4

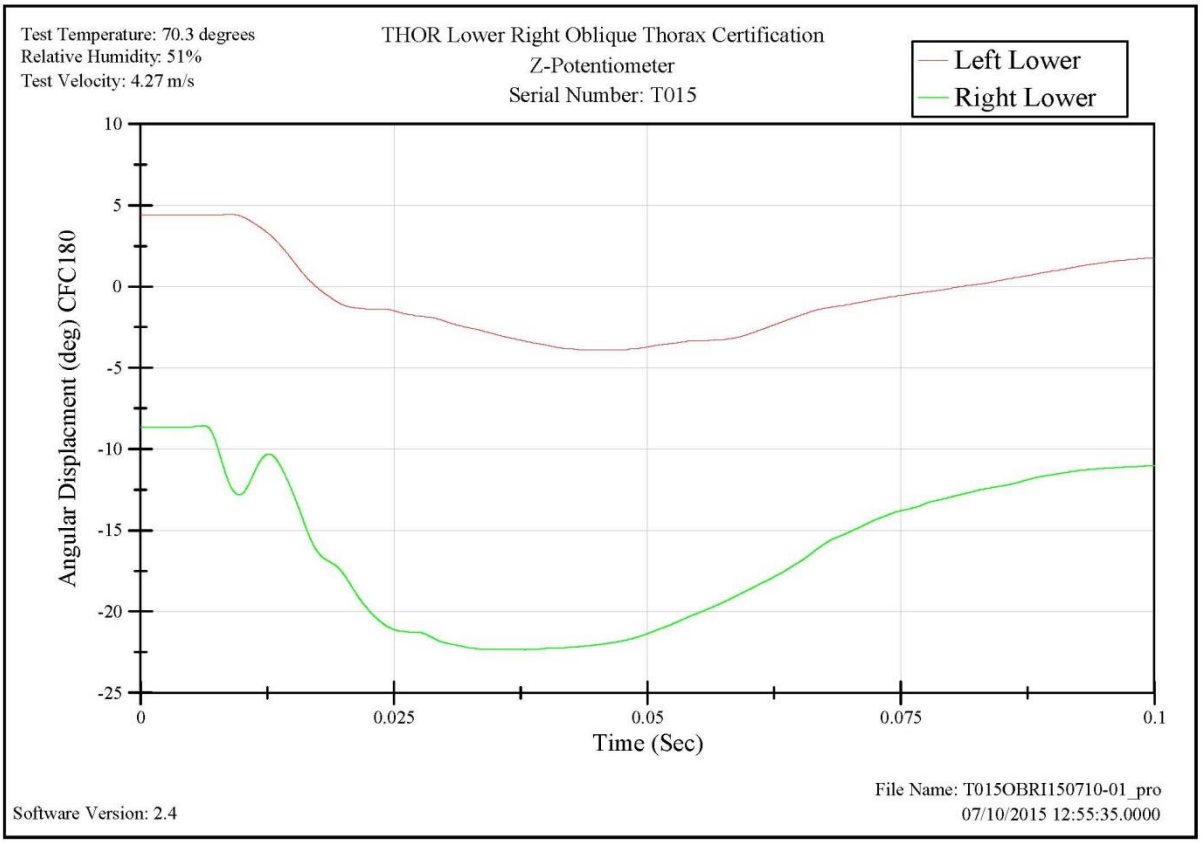

Test Temperature: 70.4 degrees
Relative Humidity: 52%
Test Velocity: 4.27 m/s
THOR Lower Left Oblique Thorax Certification
Y-Potentiometer
Serial Number: T015
Left Lower
Right Lower
Angular Displacment (deg) CFC180
-1
-2
-3
-4
-5
-6
-7
-8
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T015OBLE150710-01_pro
07/10/2015 14:01:12.0000
Software Version: 2.4

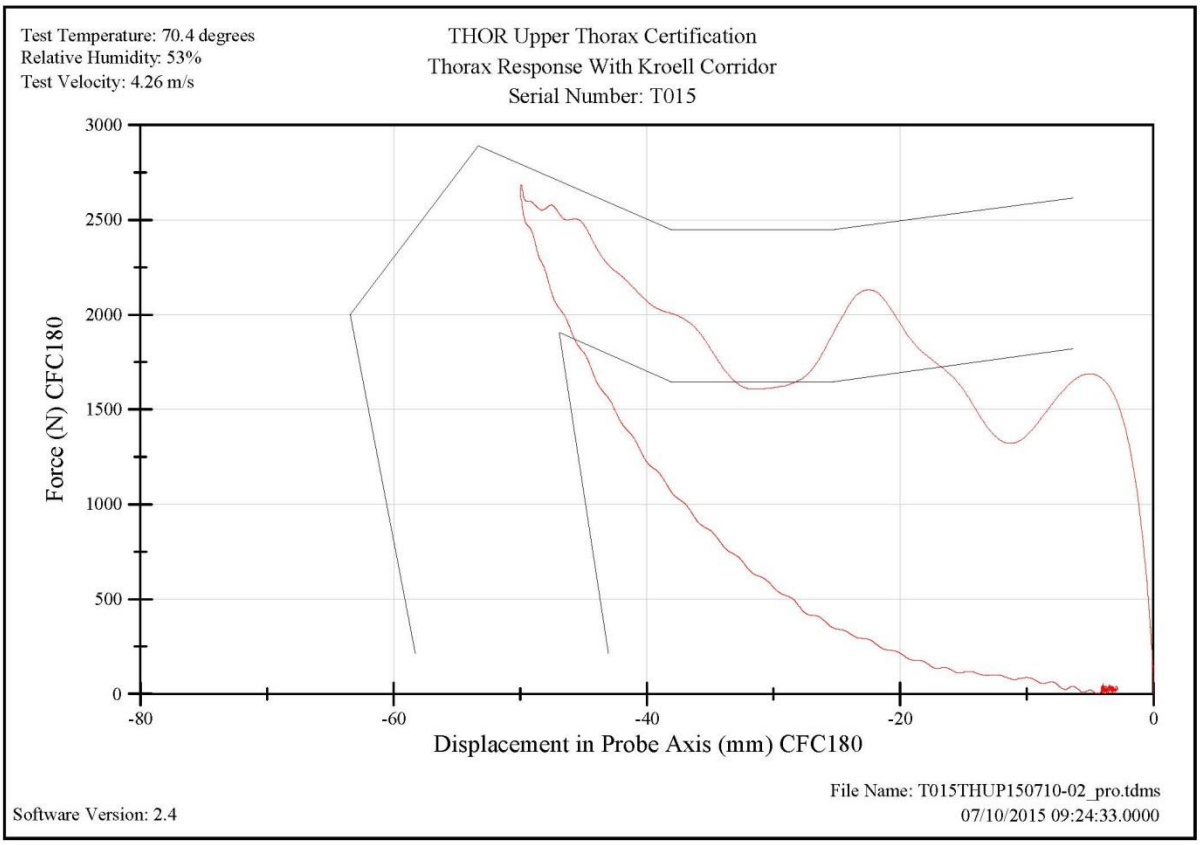

Test Temperature: 70.4 degrees
Relative Humidity: 52%
Test Velocity: 4.27 m/s
THOR Lower Left Oblique Thorax Certification
Z-Potentiometer
Serial Number: T015
Left Lower
Right Lower
Angular Displacment (deg) CFC180
20
15
10
5
0
-5
-10
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T015OBLE150710-01_pro
07/10/2015 14:01:12.0000
Software Version: 2.4

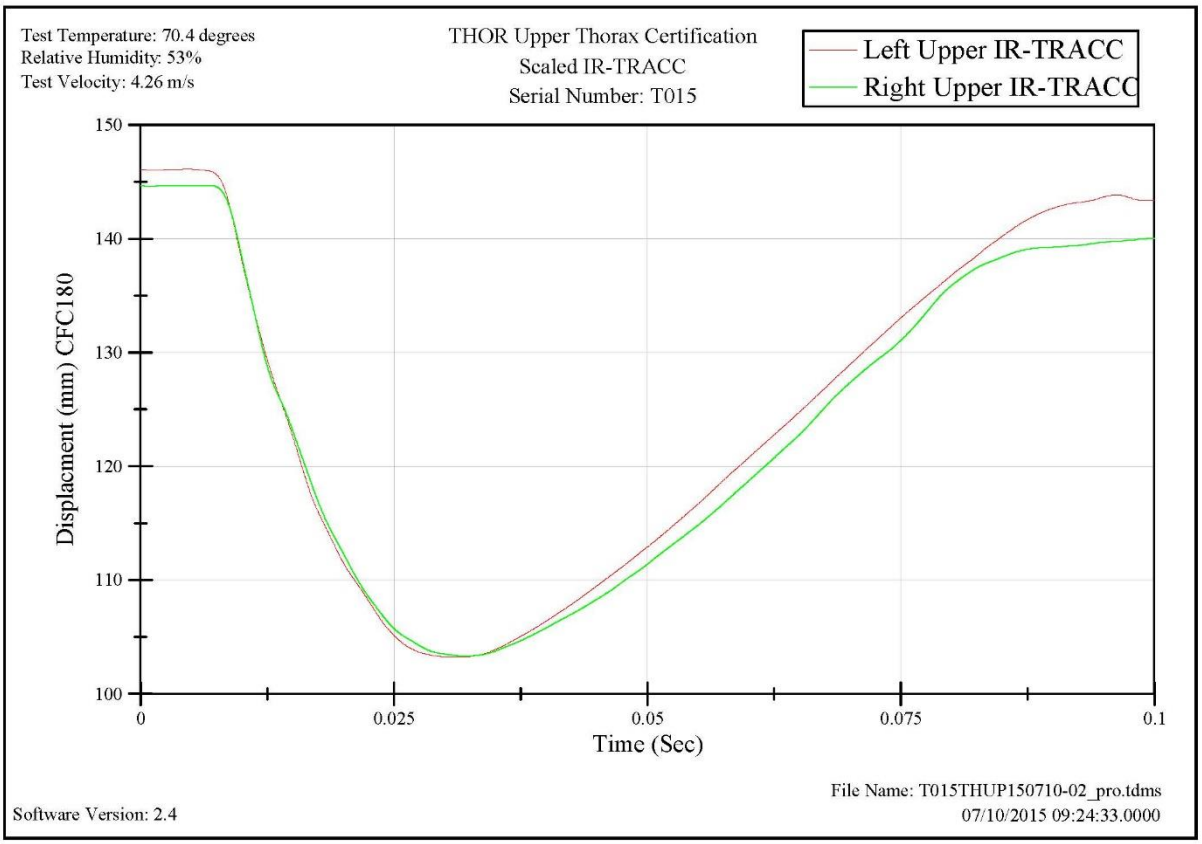

Test Temperature: 70.3 degrees
Relative Humidity: 51%
Test Velocity: 4.27 m/s
THOR Lower Right Oblique Thorax Certification
Thorax Displacement vs. Probe Force
Serial Number: T015
Force (N) CFC180
5000
4000
3000
2000
1000
0
-70
-60
-50
-40
-30
-20
-10
0
Displacement in Probe Axis (mm) CFC180
File Name: T015OBRI150710-01_pro
07/10/2015 12:55:35.0000
Software Version: 2.4

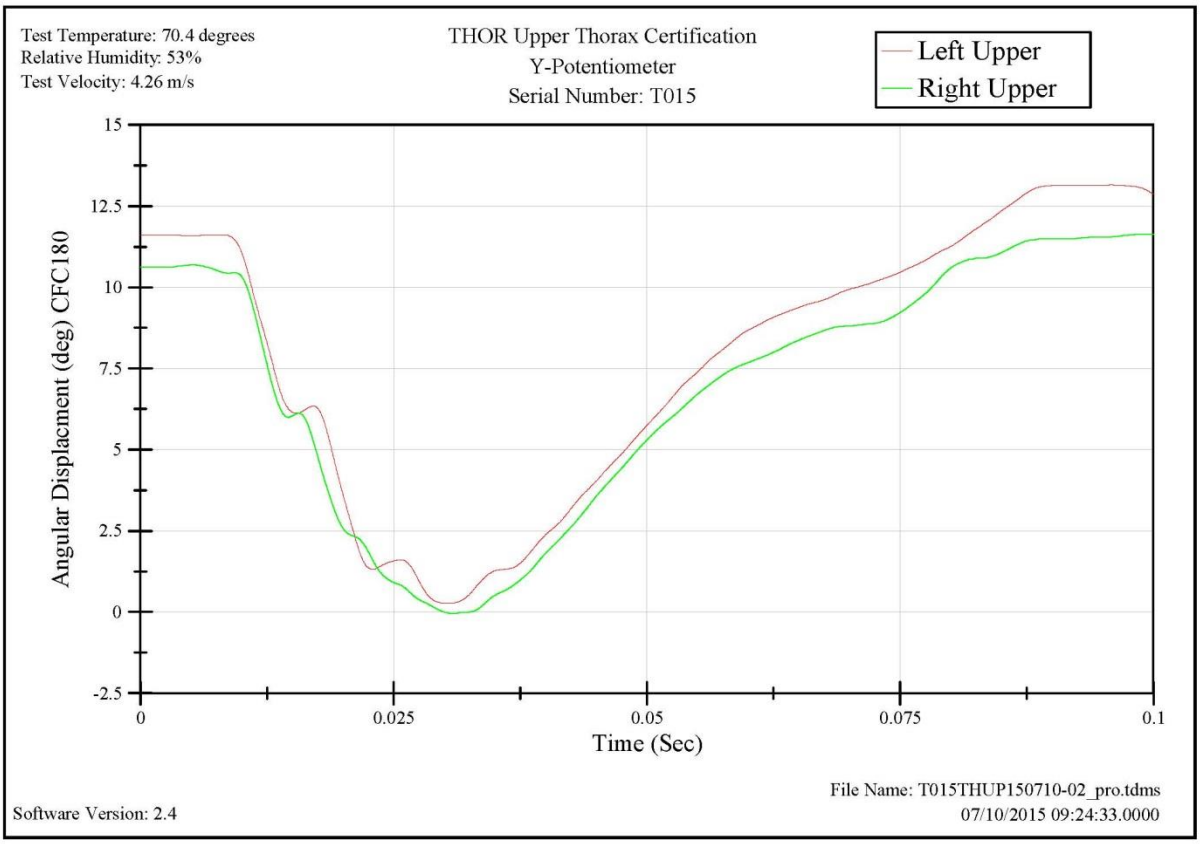

Test Temperature: 70.3 degrees
Relative Humidity: 51%
Test Velocity: 4.27 m/s
THOR Lower Right Oblique Thorax Certification
Scaled IR-TRACC
Serial Number: T015
Left Lower IR-TRACC
Right Lower IR-TRACC
Displacment (mm) CFC180
200
150
100
50
0
-50
-100
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T015OBRI150710-01_pro
07/10/2015 12:55:35.0000
Software Version: 2.4

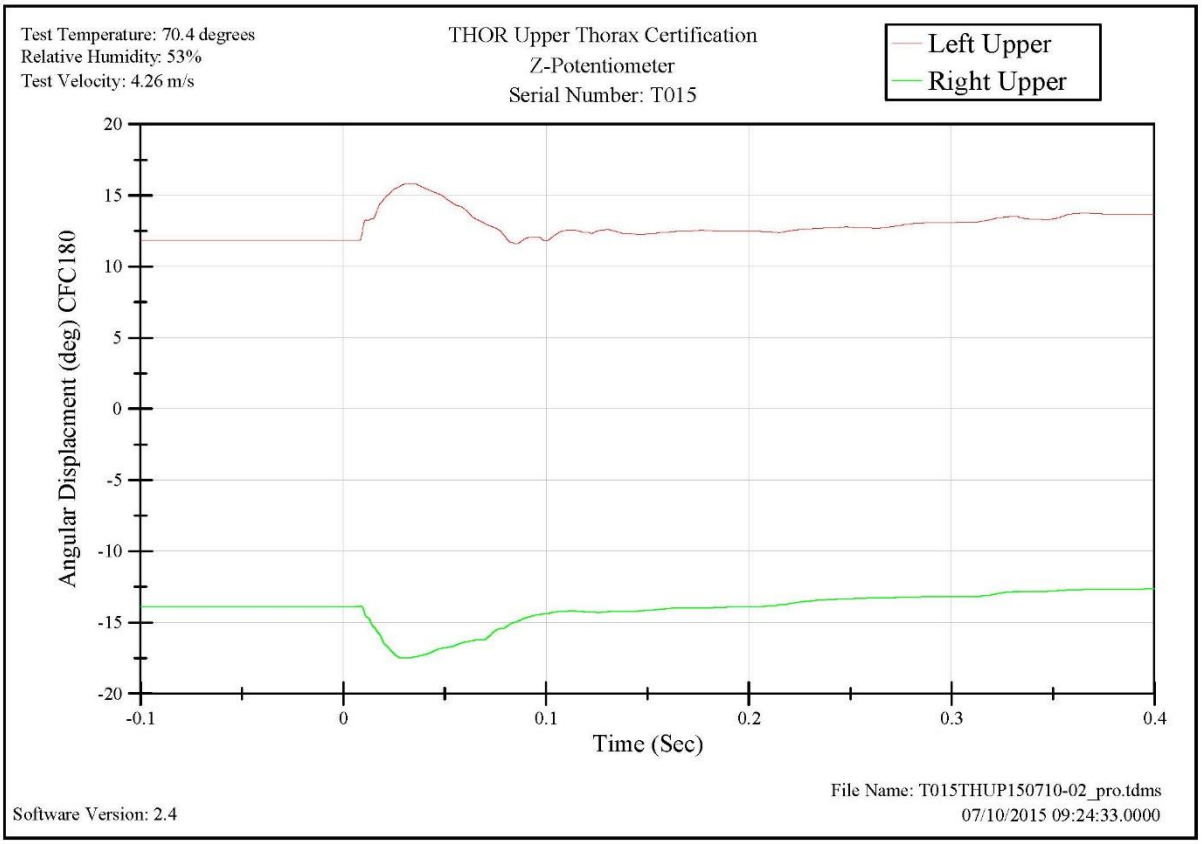

Test Temperature: 70.3 degrees
Relative Humidity: 51%
Test Velocity: 4.27 m/s
THOR Lower Right Oblique Thorax Certification
Y-Potentiometer
Serial Number: T015
Left Lower
Right Lower
Angular Displacment (deg) CFC180
2.5
0
-2.5
-5
-7.5
-10
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T015OBRI150710-01_pro
07/10/2015 12:55:35.0000
Software Version: 2.4

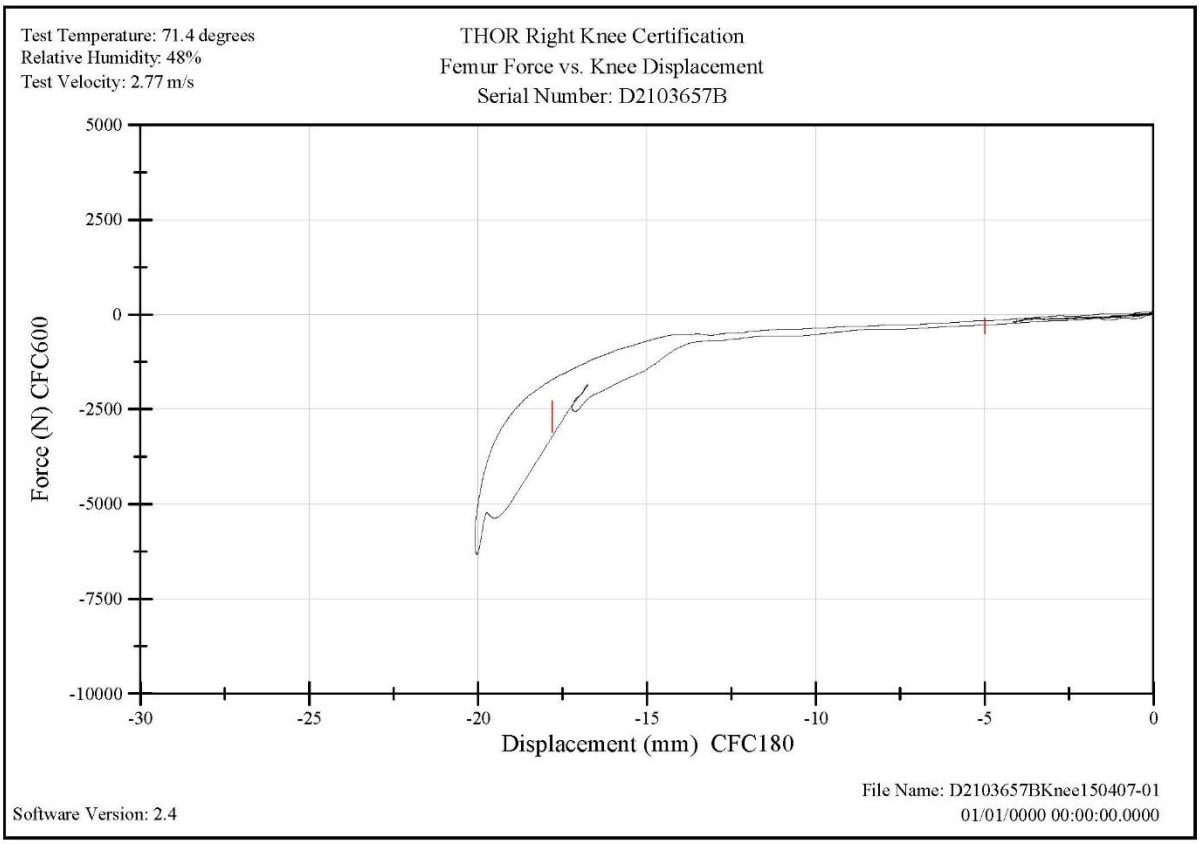

Test Temperature: 70.3 degrees
Relative Humidity: 51%
Test Velocity: 4.27 m/s
THOR Lower Right Oblique Thorax Certification
Z-Potentiometer
Serial Number: T015
Left Lower
Right Lower
Angular Displacment (deg) CFC180
10
5
0
-5
-10
-15
-20
-25
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T015OBRI150710-01_pro
07/10/2015 12:55:35.0000
Software Version: 2.4

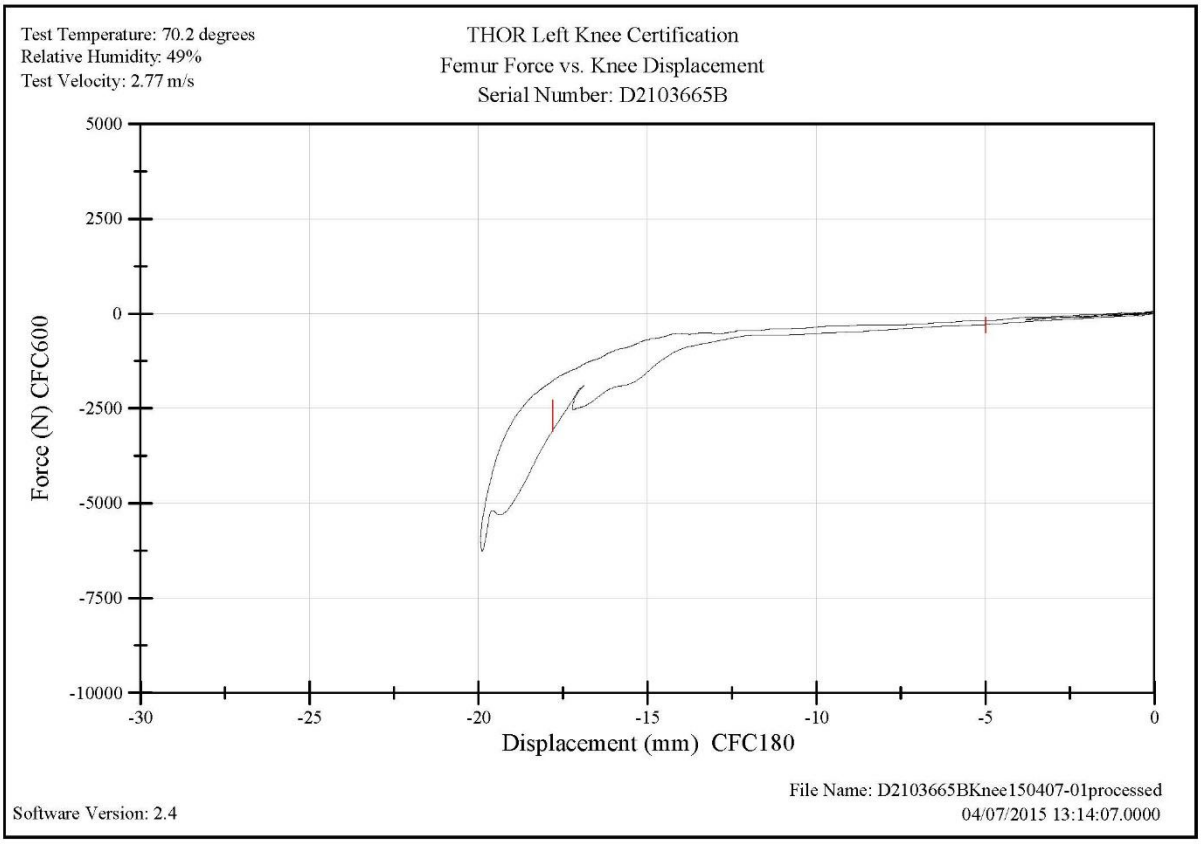

Test Temperature: 70.4 degrees
Relative Humidity: 53%
Test Velocity: 4.26 m/s
THOR Upper Thorax Certification
Thorax Response With Kroell Corridor
Serial Number: T015
Force (N) CFC180
3000
2500
2000
1500
1000
500
0
-80
-60
-40
-20
0
Displacement in Probe Axis (mm) CFC180
File Name: T015THUP150710-02_pro.tdms
07/10/2015 09:24:33.0000
Software Version: 2.4


Test Temperature: 70.4 degrees
Relative Humidity: 53%
Test Velocity: 4.26 m/s
THOR Upper Thorax Certification
Scaled IR-TRACC
Serial Number: T015
Left Upper IR-TRACC
Right Upper IR-TRACC
Displacement (mm) CFC180
150
140
130
120
110
100
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T015THUP150710-02_pro.tdms
07/10/2015 09:24:33.0000
Software Version: 2.4


Test Temperature: 70.4 degrees
Relative Humidity: 53%
Test Velocity: 4.26 m/s
THOR Upper Thorax Certification
Y-Potentiometer
Serial Number: T015
Left Upper
Right Upper
Angular Displacment (deg) CFC180
15
12.5
10
7.5
5
2.5
0
-2.5
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T015THUP150710-02_pro.tdms
07/10/2015 09:24:33.0000
Software Version: 2.4


Test Temperature: 70.4 degrees
Relative Humidity: 53%
Test Velocity: 4.26 m/s
THOR Upper Thorax Certification
Z-Potentiometer
Serial Number: T015
Left Upper
Right Upper
Angular Displacment (deg) CFC180
20
15
10
5
0
-5
-10
-15
-20
-0.1
0
0.1
0.2
0.3
0.4
Time (Sec)
File Name: T015THUP150710-02_pro.tdms
07/10/2015 09:24:33.0000
Software Version: 2.4


Test Temperature: 71.4 degrees
Relative Humidity: 48%
Test Velocity: 2.77 m/s
THOR Right Knee Certification
Femur Force vs. Knee Displacement
Serial Number: D2103657B
Force (N) CFC600
5000
2500
0
-2500
-5000
-7500
-10000
-30
-25
-20
-15
-10
-5
0
Displacement (mm) CFC180
File Name: D2103657BKnee150407-01
01/01/0000 00:00:00.0000
Software Version: 2.4


Test Temperature: 70.2 degrees
Relative Humidity: 49%
Test Velocity: 2.77 m/s
THOR Left Knee Certification
Femur Force vs. Knee Displacement
Serial Number: D2103665B
Force (N) CFC600
5000
2500
0
-2500
-5000
-7500
-10000
-30
-25
-20
-15
-10
-5
0
Displacement (mm) CFC180
File Name: D2103665BKnee150407-01processed
04/07/2015 13:14:07.0000
Software Version: 2.4

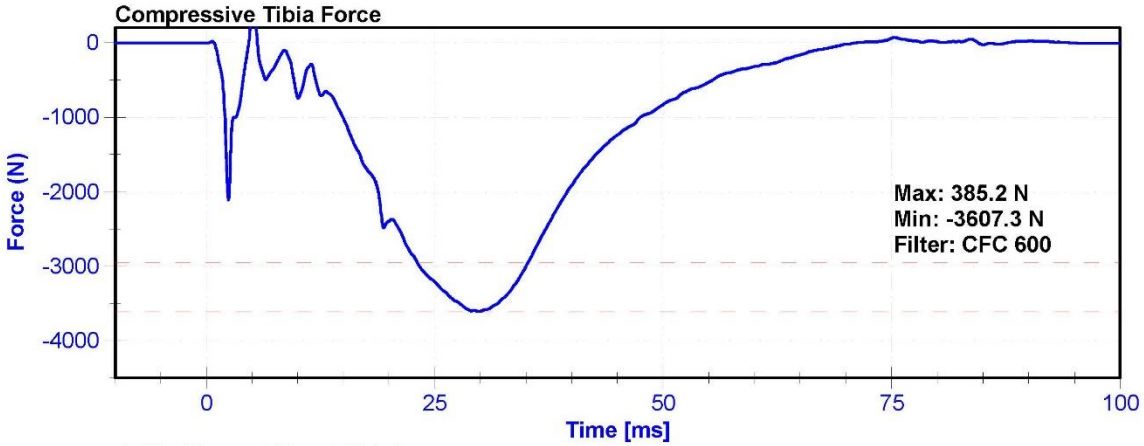
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0015	Laboratory Supervisor	M. Goehle

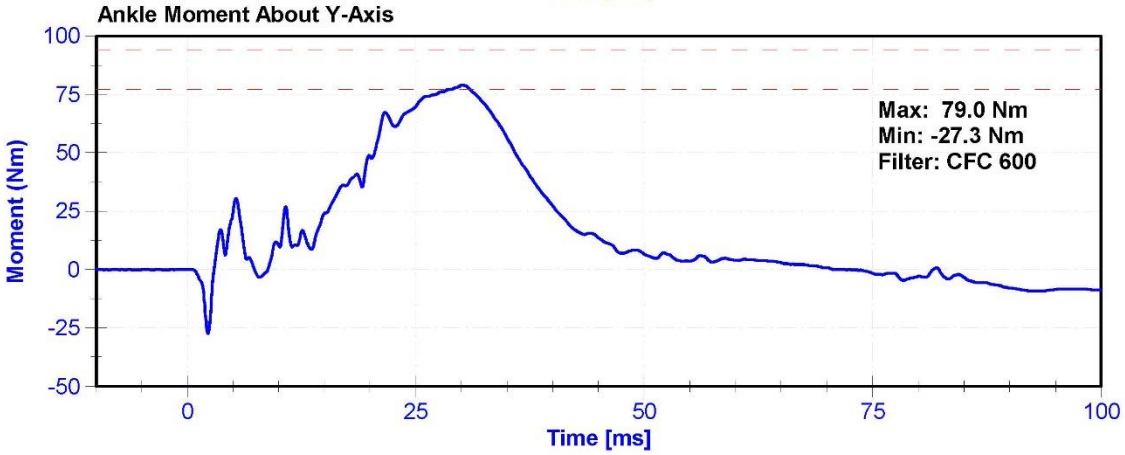
Results

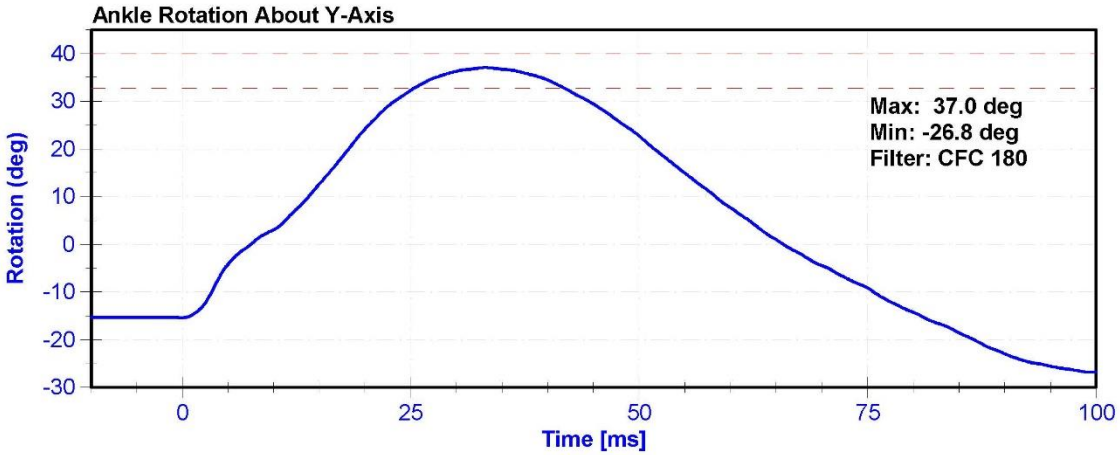
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	^{0}C	21.3	Pass
Humidity	10	70	%	43.8	Pass
Velocity	4.9	5.1	m/s	4.948	Pass
Lower Tibia Compressive Force	-3,613	-2,956	N	-3607.3	Pass
Peak Moment about Y-Axis	77.1	94.2	Nm	79.03	Pass
Peak Rotation about Y-Axis	32.7	39.9	deg	37.03	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-77 Fz	2/20/2015	2/20/2016
Ankle Y Potentiometer	Contelec PD210-4B	DS-0383	2/27/2015	2/27/2016


Compressive Tibia Force
Force (N)
0
-1000
-2000
-3000
-4000
0
25
50
75
100
Time [ms]
Max: 385.2 N
Min: -3607.3 N
Filter: CFC 600


Ankle Moment About Y-Axis
Moment (Nm)
100
75
50
25
0
-25
-50
0
25
50
75
100
Time [ms]
Max: 79.0 Nm
Min: -27.3 Nm
Filter: CFC 600


Ankle Rotation About Y-Axis
Rotation (deg)
40
30
20
10
0
-10
-20
-30
0
25
50
75
100
Time [ms]
Max: 37.0 deg
Min: -26.8 deg
Filter: CFC 180

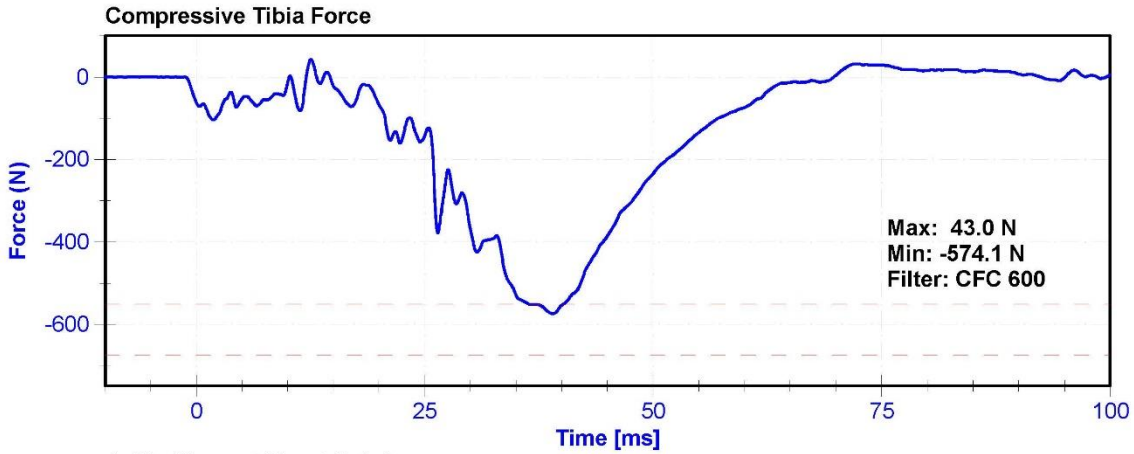
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0015	Laboratory Supervisor	M. Goehle

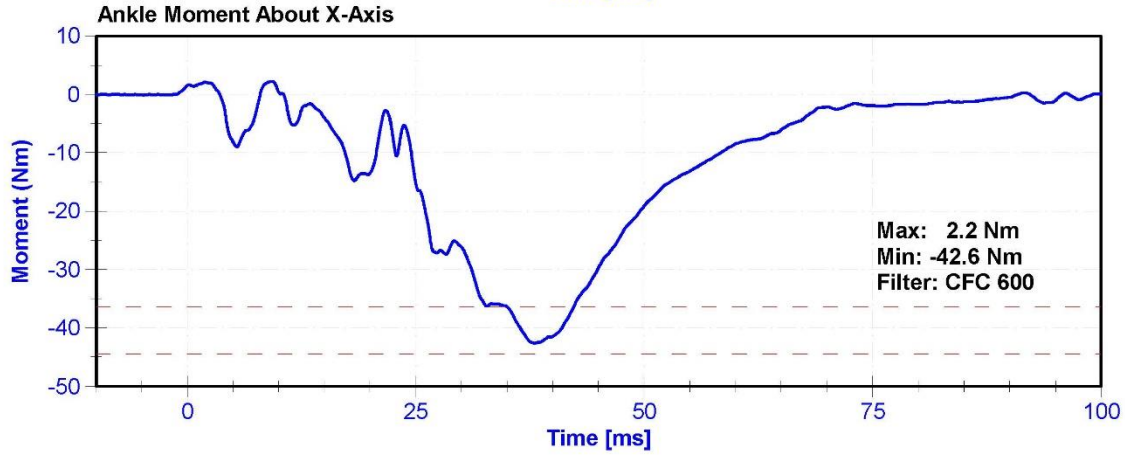
Results

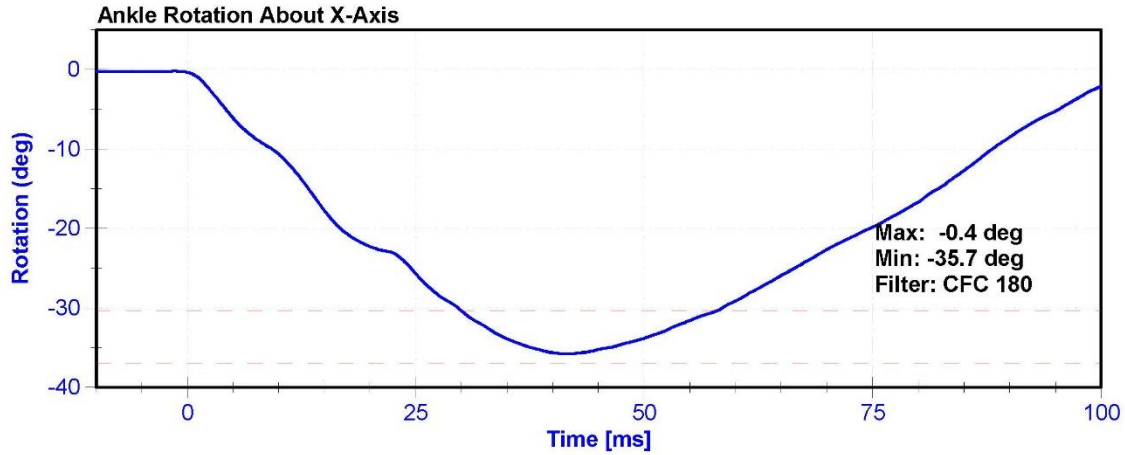
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	^{0}C	21.3	Pass
Humidity	10	70	%	45.9	Pass
Velocity	1.9	2.1	m/s	1.934	Pass
Lower Tibia Compressive Force	-675	-552	N	-574.1	Pass
Peak Moment about X-Axis	-44.4	-36.3	Nm	-42.59	Pass
Peak Rotation about X-Axis	-37.0	-30.3	deg	-35.70	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-77 Fz	2/20/2015	2/20/2016
Ankle Y Potentiometer	Contelec PD210-4B	DS-0385	2/27/2015	2/27/2016


Compressive Tibia Force
Force (N)
0
-200
-400
-600
Max: 43.0 N
Min: -574.1 N
Filter: CFC 600
0
25
50
75
100
Time [ms]


Ankle Moment About X-Axis
Moment (Nm)
10
0
-10
-20
-30
-40
-50
Max: 2.2 Nm
Min: -42.6 Nm
Filter: CFC 600
0
25
50
75
100
Time [ms]


Ankle Rotation About X-Axis
Rotation (deg)
0
-10
-20
-30
-40
Max: -0.4 deg
Min: -35.7 deg
Filter: CFC 180
0
25
50
75
100
Time [ms]

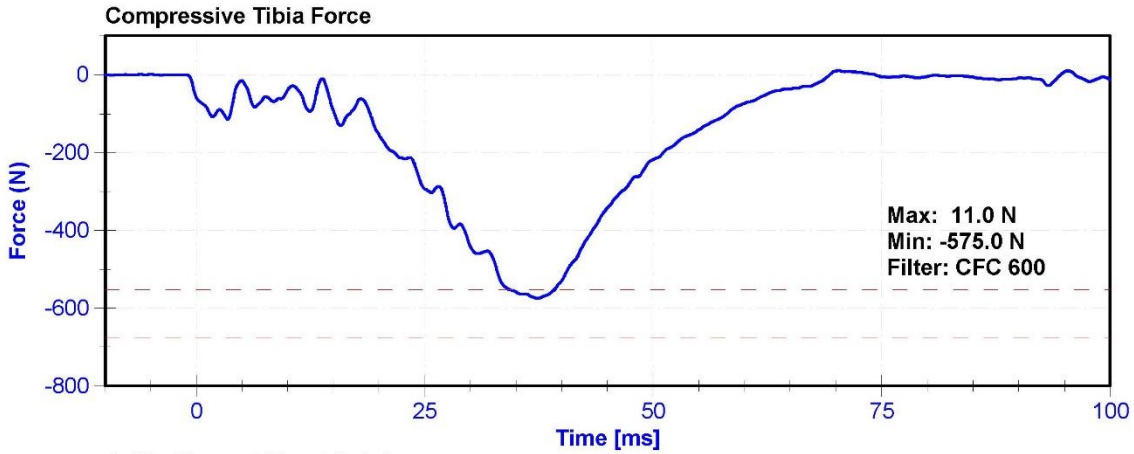
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0015	Laboratory Supervisor	M. Goehle

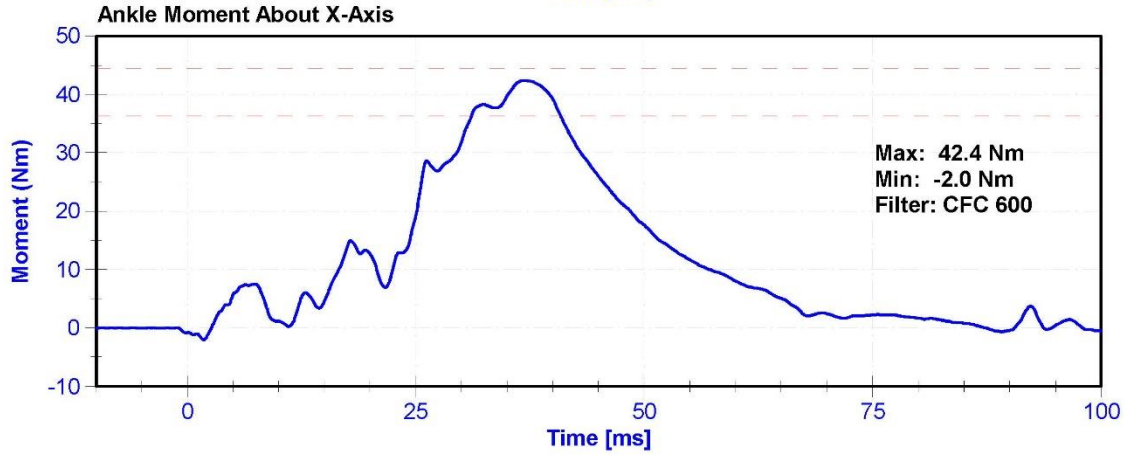
Results

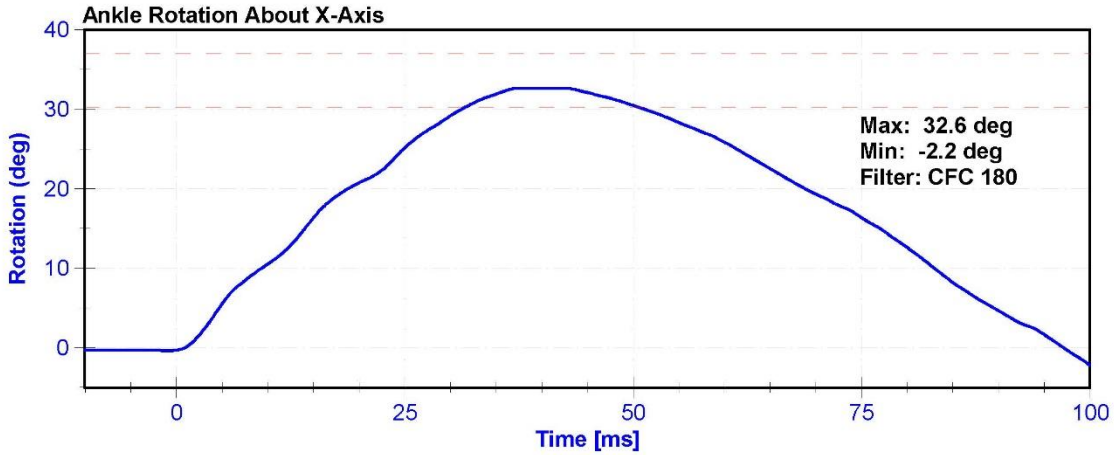
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	^{0}C	21.4	Pass
Humidity	10	70	%	45.4	Pass
Velocity	1.9	2.1	m/s	1.924	Pass
Lower Tibia Compressive Force	-675	-552	N	-575.0	Pass
Peak Moment about X-Axis	36.3	44.4	Nm	42.38	Pass
Peak Rotation about X-Axis	30.3	37.0	deg	32.65	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-77 Fz	2/20/2015	2/20/2016
Ankle Y Potentiometer	Contelec PD210-4B	DS-0385	2/27/2015	2/27/2016


Compressive Tibia Force
Force (N)
0
-200
-400
-600
-800
0
25
50
75
100
Time [ms]
Max: 11.0 N
Min: -575.0 N
Filter: CFC 600


Ankle Moment About X-Axis
Moment (Nm)
50
40
30
20
10
0
-10
0
25
50
75
100
Time [ms]
Max: 42.4 Nm
Min: -2.0 Nm
Filter: CFC 600


Ankle Rotation About X-Axis
Rotation (deg)
40
30
20
10
0
0
25
50
75
100
Time [ms]
Max: 32.6 deg
Min: -2.2 deg
Filter: CFC 180

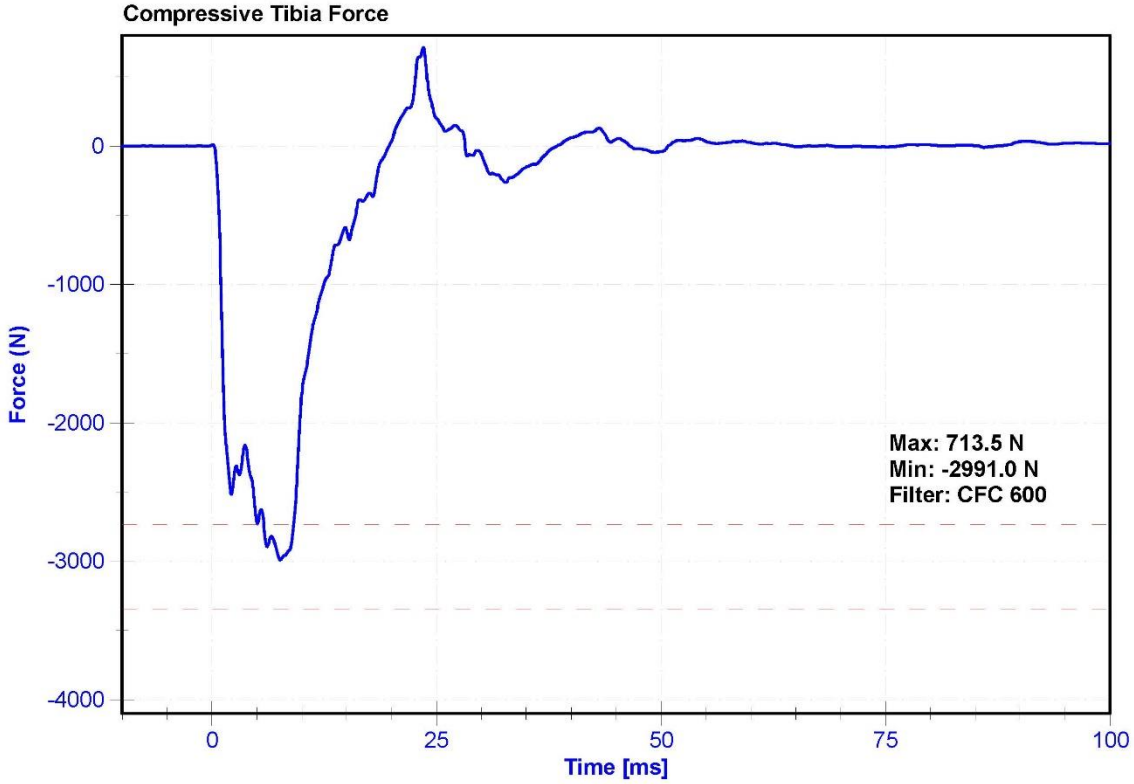
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0015	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	20.6	Pass
Humidity	10	70	%	59.2	Pass
Velocity	3.9	4.1	m/s	4.032	Pass
Lower Tibia Compressive Force	-3,346	-2,738	N	-2991.0	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-77 Fz	2/20/2015	2/20/2016



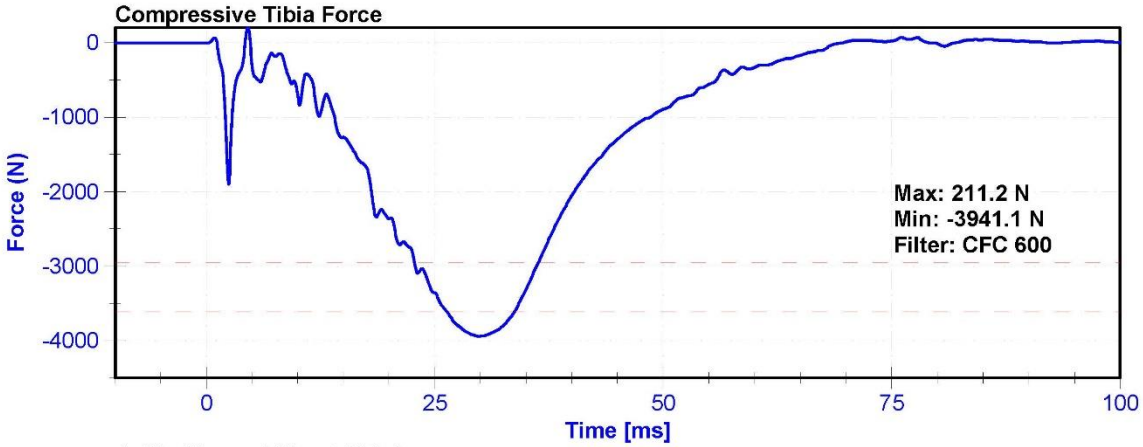
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0015	Laboratory Supervisor	M. Goehle

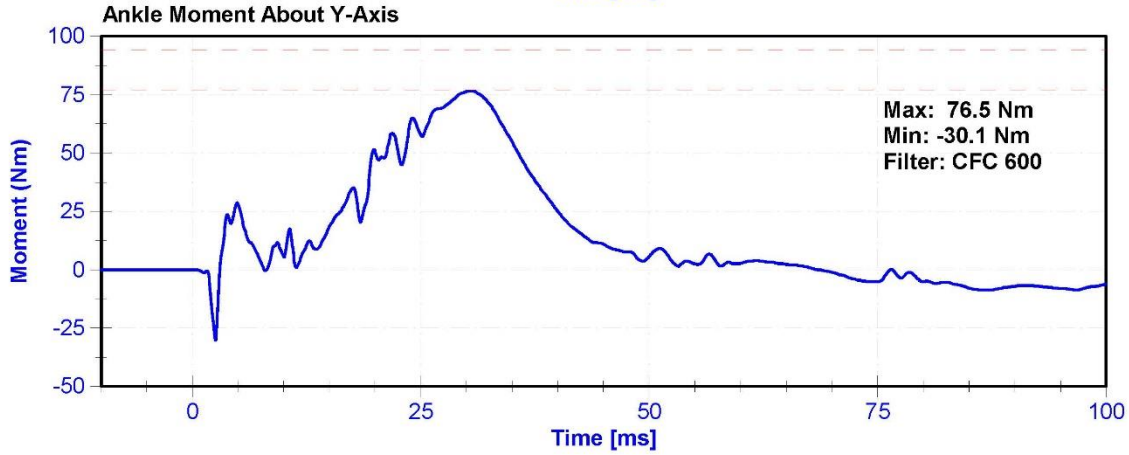
Results

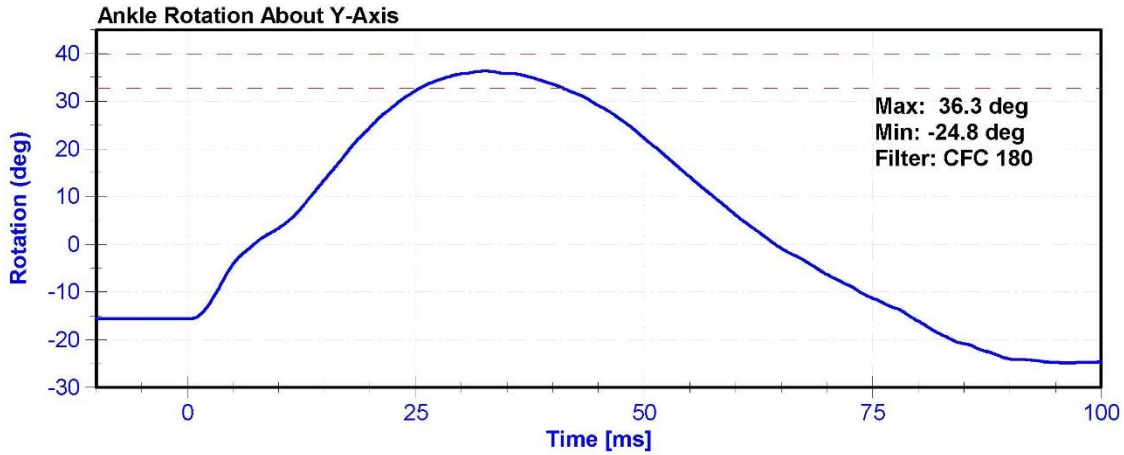
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	^{0}C	21.3	Pass
Humidity	10	70	%	45.8	Pass
Velocity	4.9	5.1	m/s	4.980	Pass
Lower Tibia Compressive Force	-3,613	-2,956	N	-3941.1	Fail
Peak Moment about Y-Axis	77.1	94.2	Nm	76.52	Fail
Peak Rotation about Y-Axis	32.7	39.9	deg	36.32	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-78 Fz	2/20/2015	2/20/2016
Ankle Y Potentiometer	Contelec PD210-4B	DS-0386	3/2/2015	3/1/2016


Compressive Tibia Force
Force (N)
0
-1000
-2000
-3000
-4000
0
25
50
75
100
Time [ms]
Max: 211.2 N
Min: -3941.1 N
Filter: CFC 600


Ankle Moment About Y-Axis
Moment (Nm)
100
75
50
25
0
-25
-50
0
25
50
75
100
Time [ms]
Max: 76.5 Nm
Min: -30.1 Nm
Filter: CFC 600


Ankle Rotation About Y-Axis
Rotation (deg)
40
30
20
10
0
-10
-20
-30
0
25
50
75
100
Time [ms]
Max: 36.3 deg
Min: -24.8 deg
Filter: CFC 180

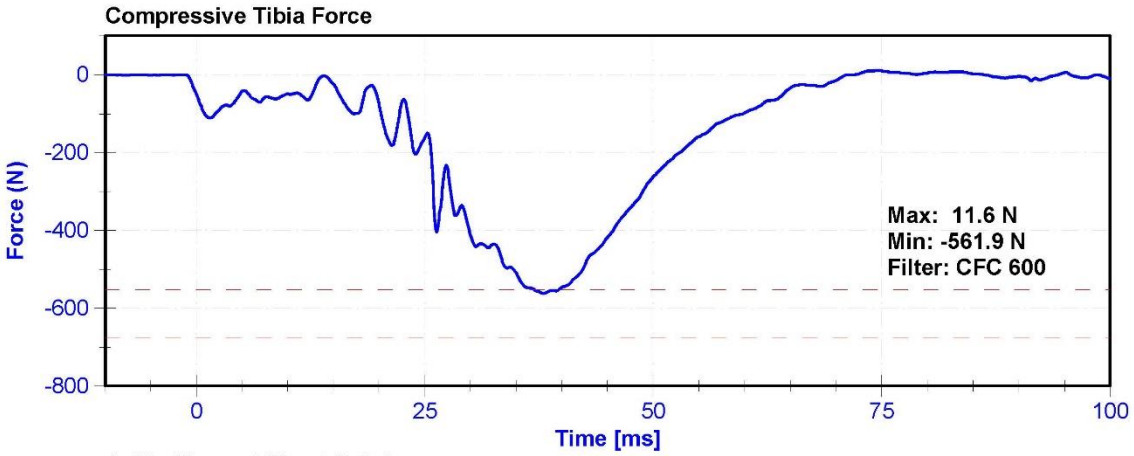
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0015	Laboratory Supervisor	M. Goehle

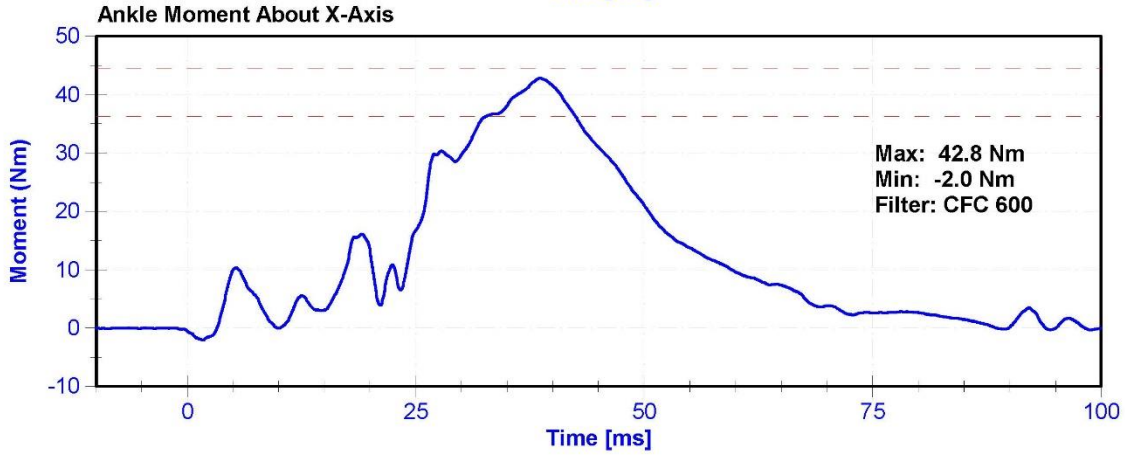
Results

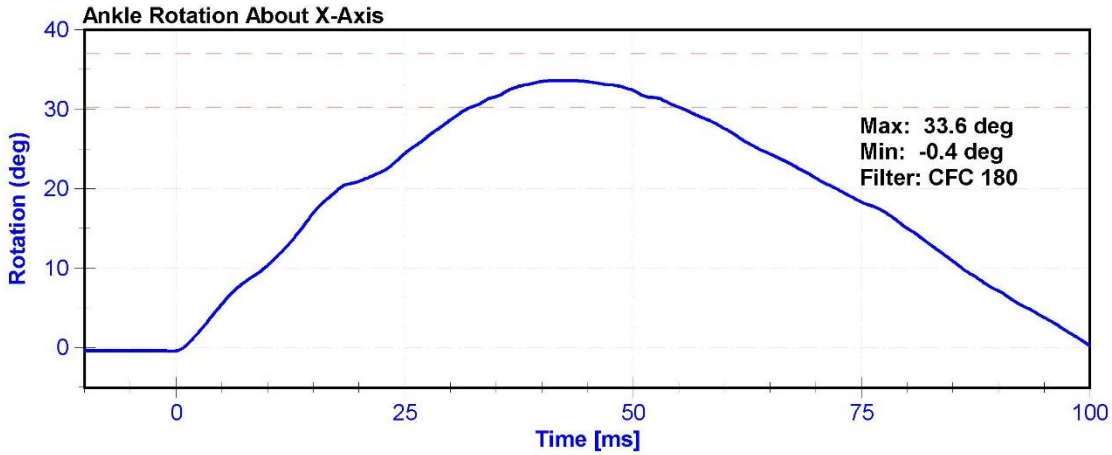
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	^{0}C	21.5	Pass
Humidity	10	70	%	47.5	Pass
Velocity	1.9	2.1	m/s	1.929	Pass
Lower Tibia Compressive Force	-675	-552	N	-561.9	Pass
Peak Moment about X-Axis	36.3	44.4	Nm	42.77	Pass
Peak Rotation about X-Axis	30.3	37.0	deg	33.57	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-78 Fz	2/20/2015	2/20/2016
Ankle Y Potentiometer	Contelec PD210-4B	DS-0382	3/2/2015	3/1/2016


Compressive Tibia Force
Force (N)
0
-200
-400
-600
-800
0
25
50
75
100
Time [ms]
Max: 11.6 N
Min: -561.9 N
Filter: CFC 600


Ankle Moment About X-Axis
Moment (Nm)
50
40
30
20
10
0
-10
0
25
50
75
100
Time [ms]
Max: 42.8 Nm
Min: -2.0 Nm
Filter: CFC 600


Ankle Rotation About X-Axis
Rotation (deg)
40
30
20
10
0
0
25
50
75
100
Time [ms]
Max: 33.6 deg
Min: -0.4 deg
Filter: CFC 180

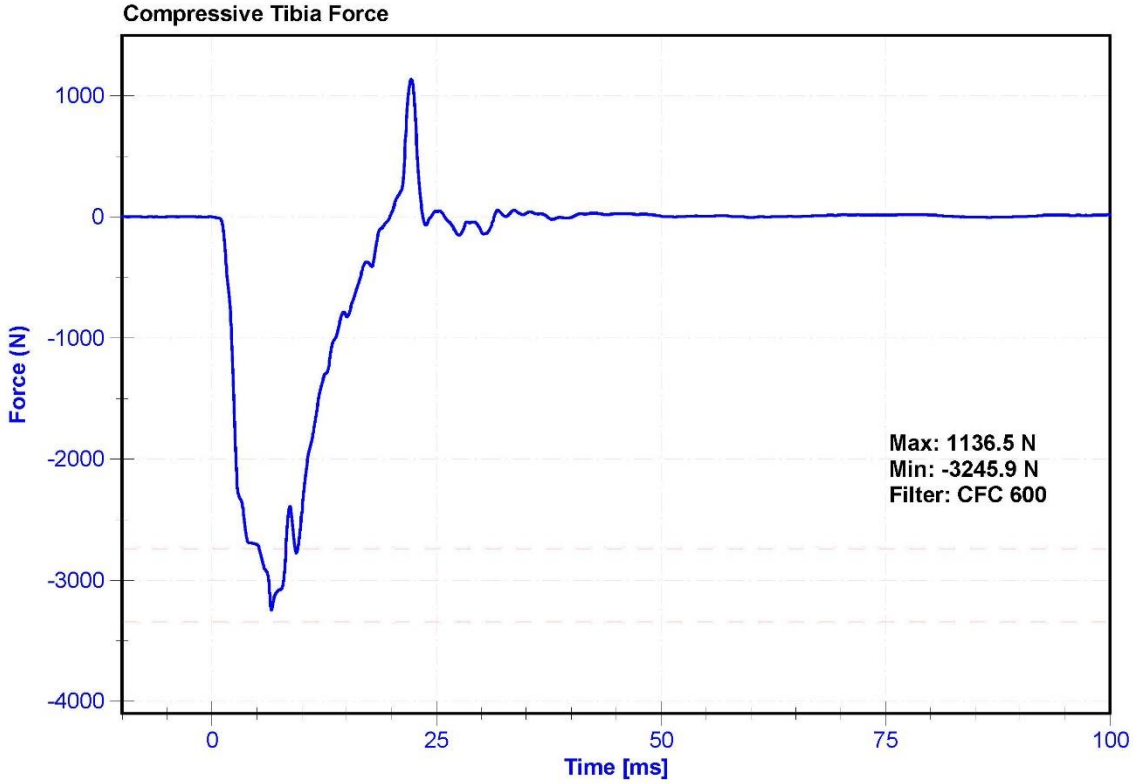
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0015	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	44.6	Pass
Velocity	3.9	4.1	m/s	4.032	Pass
Lower Tibia Compressive Force	-3,346	-2,738	N	-3245.9	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-78 Fz	2/20/2015	2/20/2016



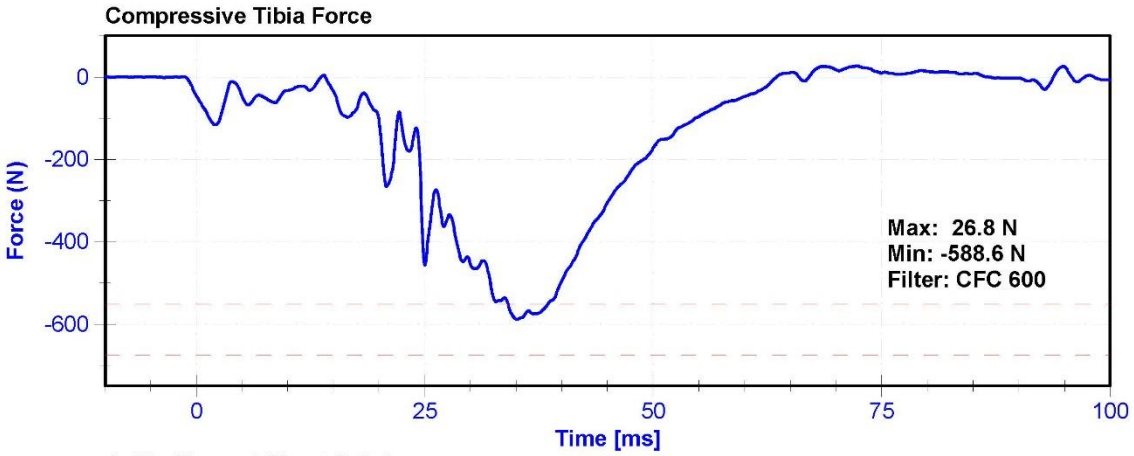
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0015	Laboratory Supervisor	M. Goehle

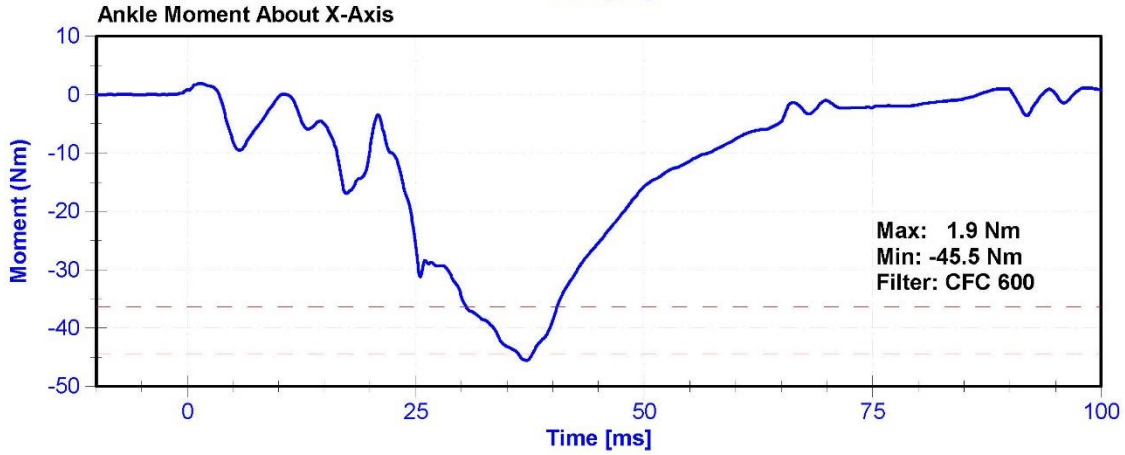
Results

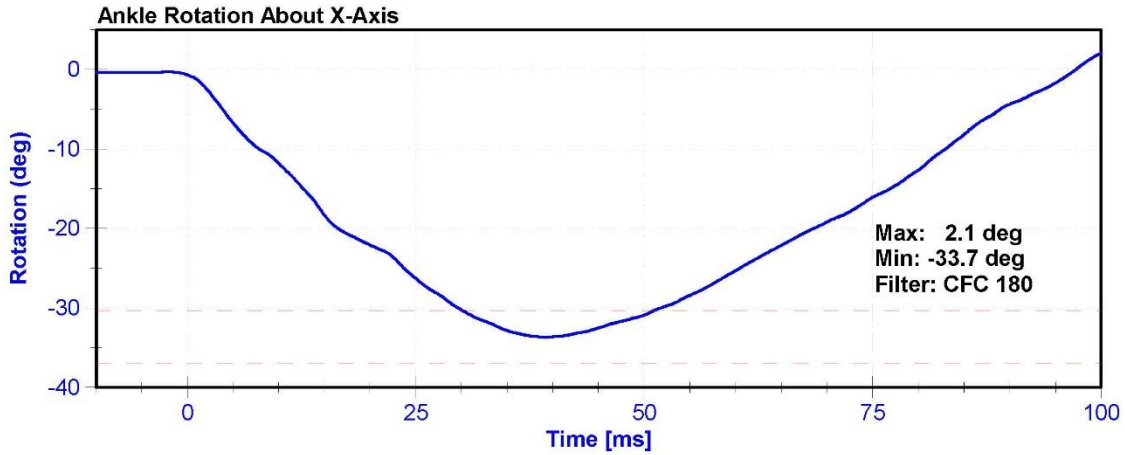
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	^{0}C	21.5	Pass
Humidity	10	70	%	47.5	Pass
Velocity	1.9	2.1	m/s	1.949	Pass
Lower Tibia Compressive Force	-675	-552	N	-588.6	Pass
Peak Moment about X-Axis	-44.4	-36.3	Nm	-45.51	Fail
Peak Rotation about X-Axis	-37.0	-30.3	deg	-33.68	Pass

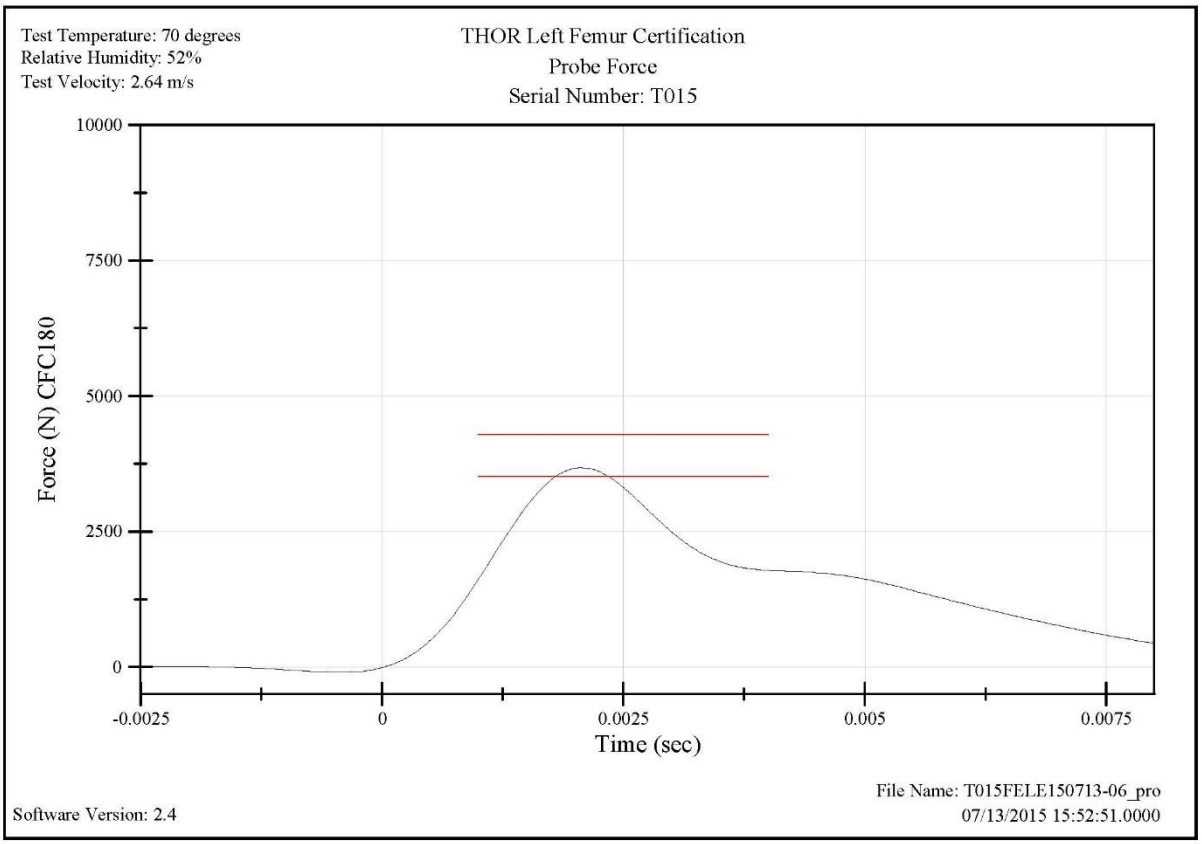
Transducer Calibrations

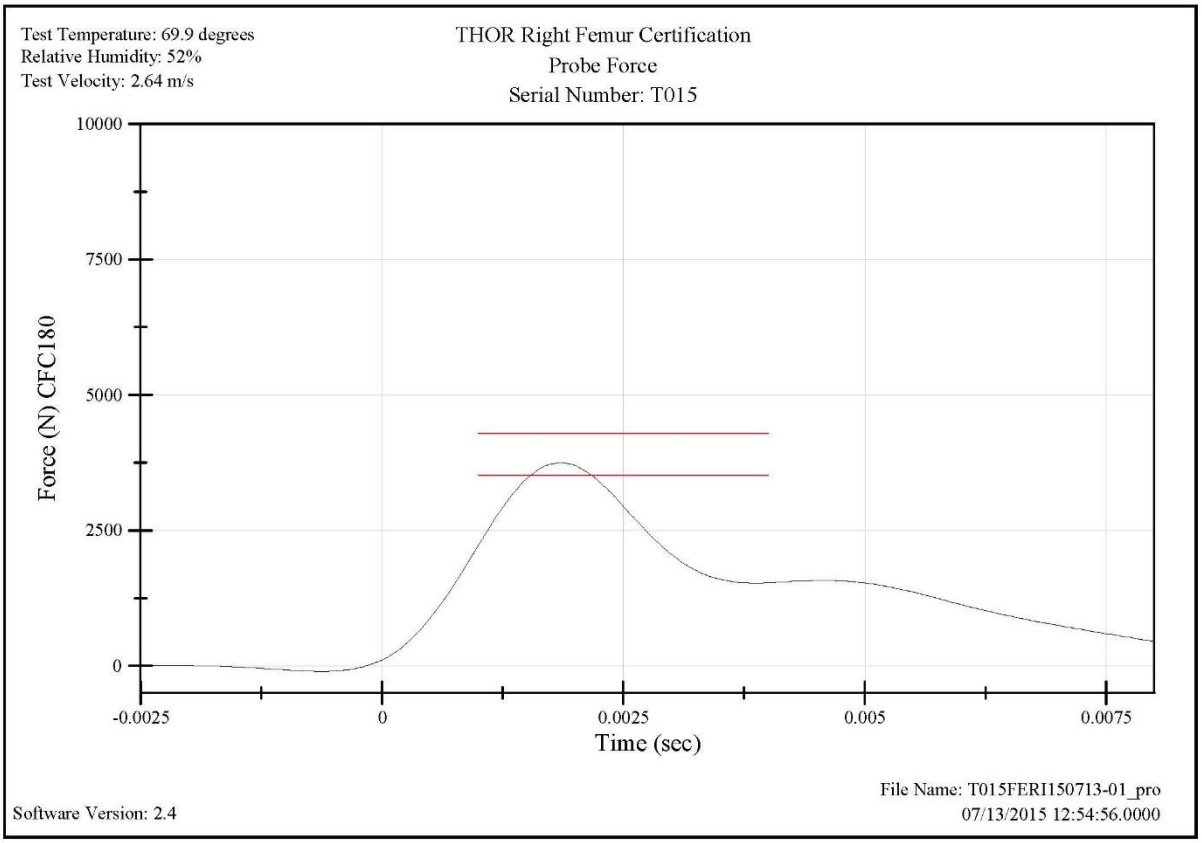
Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-78 Fz	2/20/2015	2/20/2016
Ankle Y Potentiometer	Contelec PD210-4B	DS-0382	3/2/2015	3/1/2016

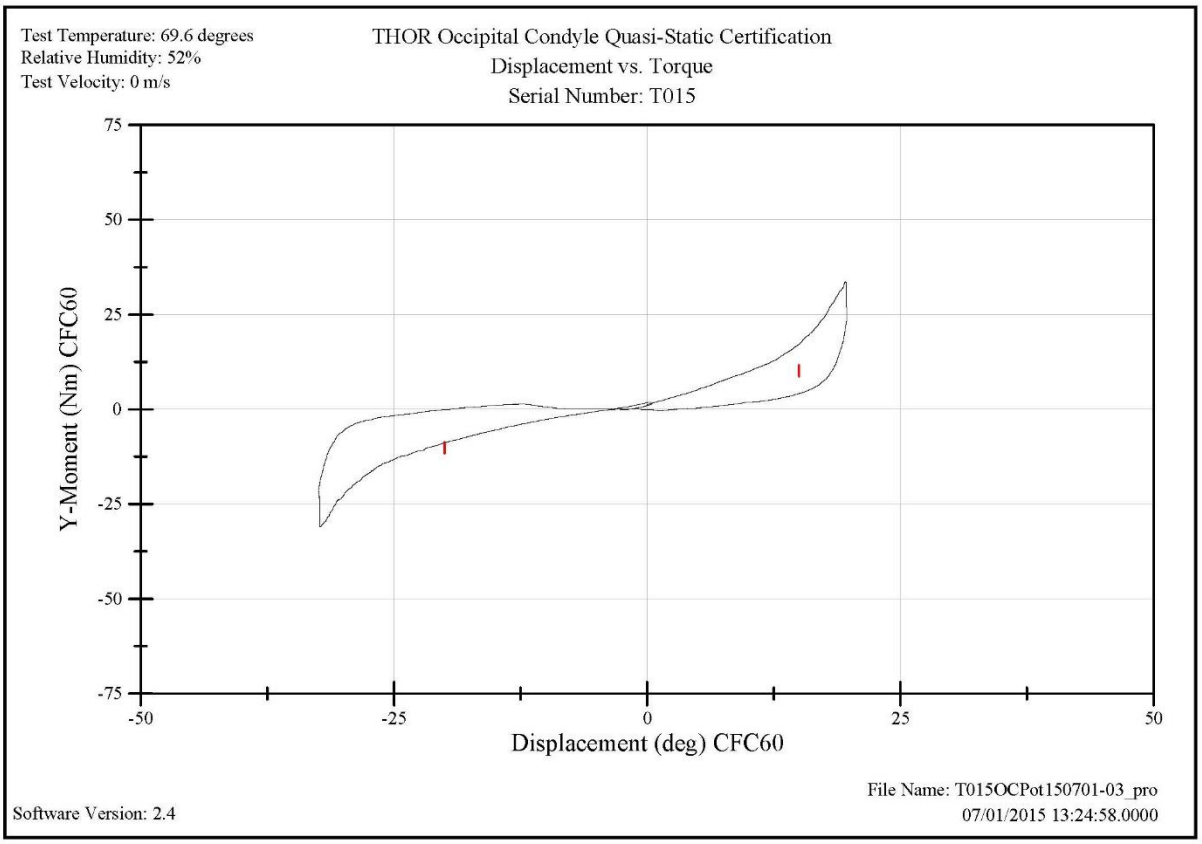

Compressive Tibia Force
Force (N)
0
-200
-400
-600
Max: 26.8 N
Min: -588.6 N
Filter: CFC 600
0
25
50
75
100
Time [ms]


Ankle Moment About X-Axis
Moment (Nm)
10
0
-10
-20
-30
-40
-50
Max: 1.9 Nm
Min: -45.5 Nm
Filter: CFC 600
0
25
50
75
100
Time [ms]

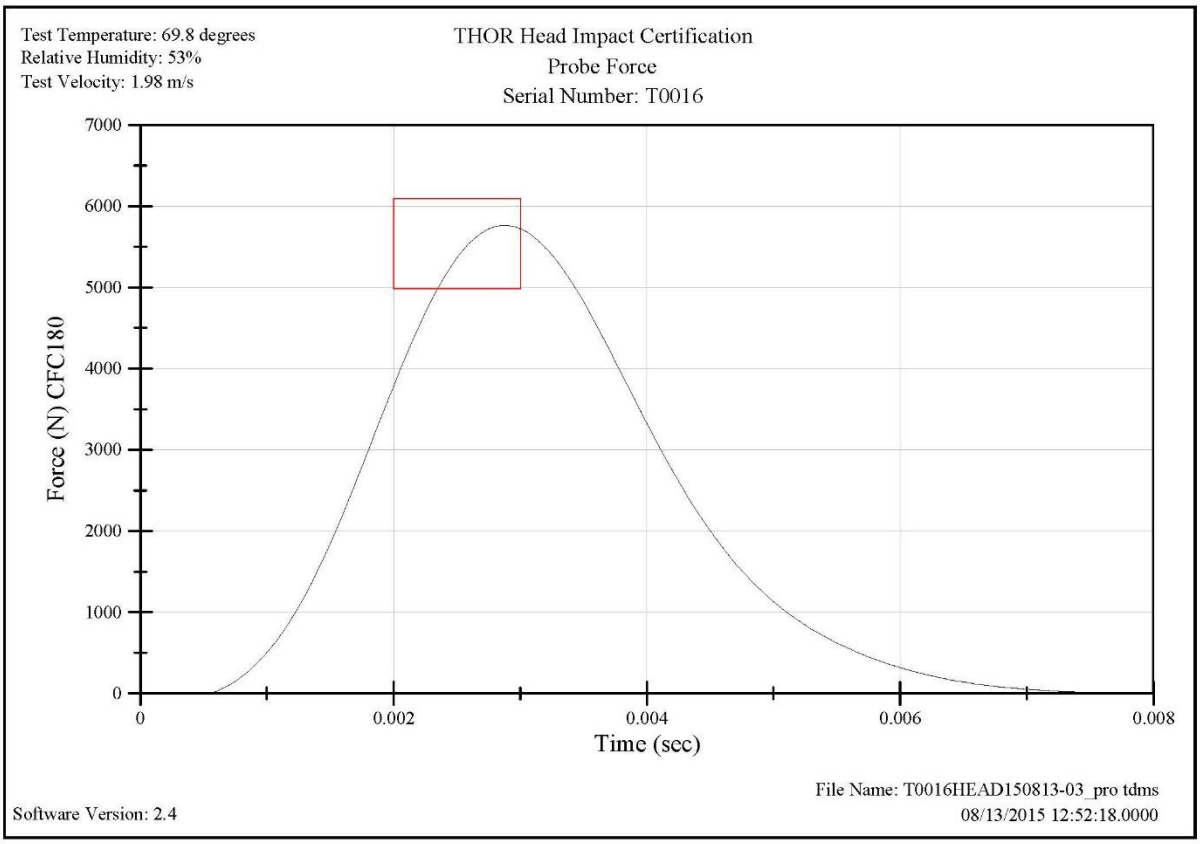

Ankle Rotation About X-Axis
Rotation (deg)
0
-10
-20
-30
-40
Max: 2.1 deg
Min: -33.7 deg
Filter: CFC 180
0
25
50
75
100
Time [ms]

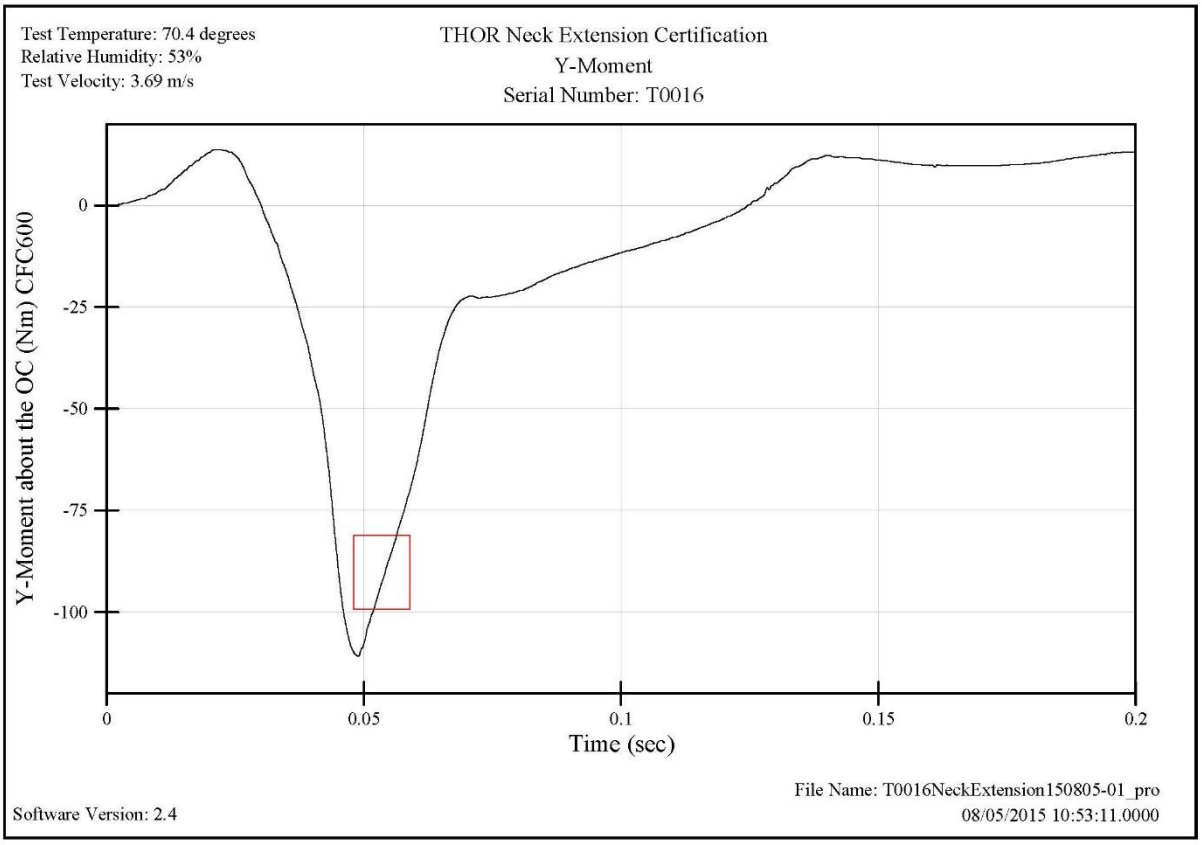

Test Temperature: 70 degrees
Relative Humidity: 52%
Test Velocity: 2.64 m/s
THOR Left Femur Certification
Probe Force
Serial Number: T015
Force (N) CFC180
10000
7500
5000
2500
0
-0.0025
0
0.0025
0.005
0.0075
Time (sec)
File Name: T015FELE150713-06_pro
07/13/2015 15:52:51.0000
Software Version: 2.4

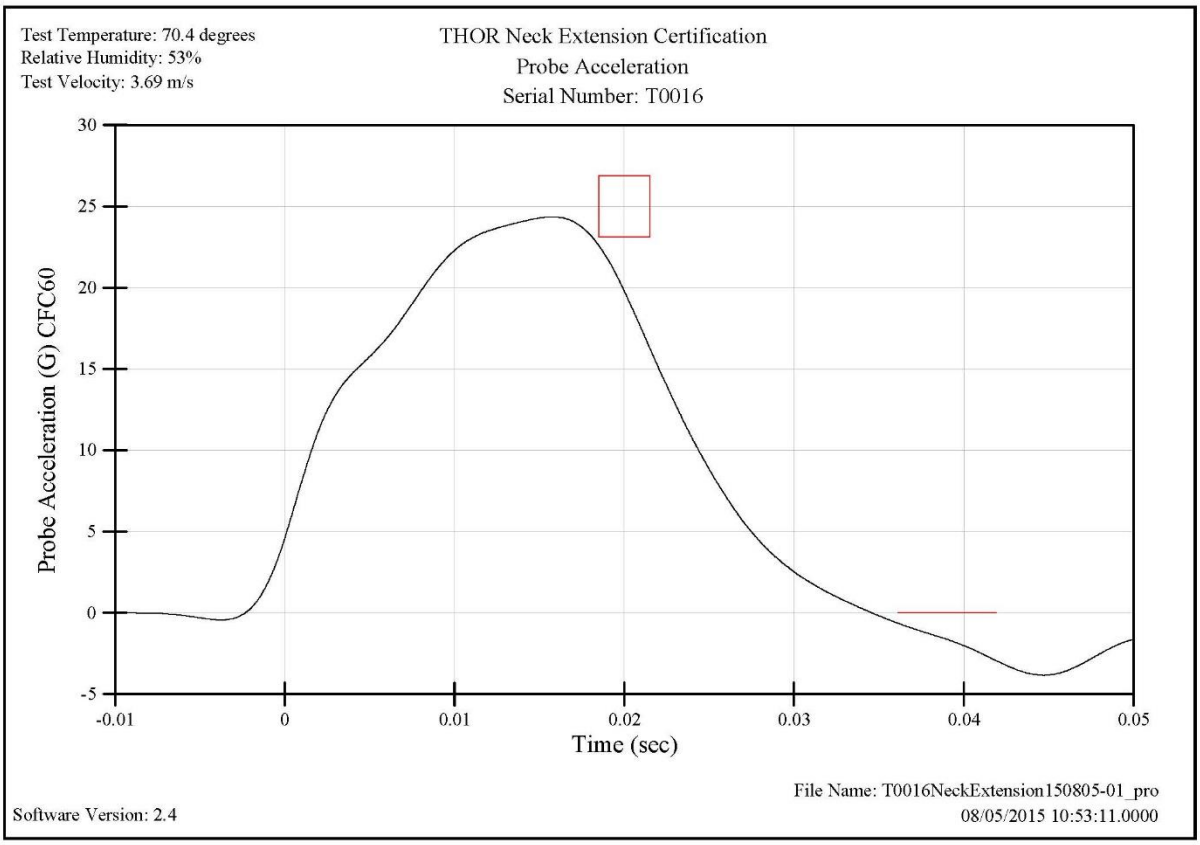

Test Temperature: 69.9 degrees
Relative Humidity: 52%
Test Velocity: 2.64 m/s
THOR Right Femur Certification
Probe Force
Serial Number: T015
Force (N) CFC180
10000
7500
5000
2500
0
-0.0025
0
0.0025
0.005
0.0075
Time (sec)
File Name: T015FERI150713-01_pro
07/13/2015 12:54:56.0000
Software Version: 2.4

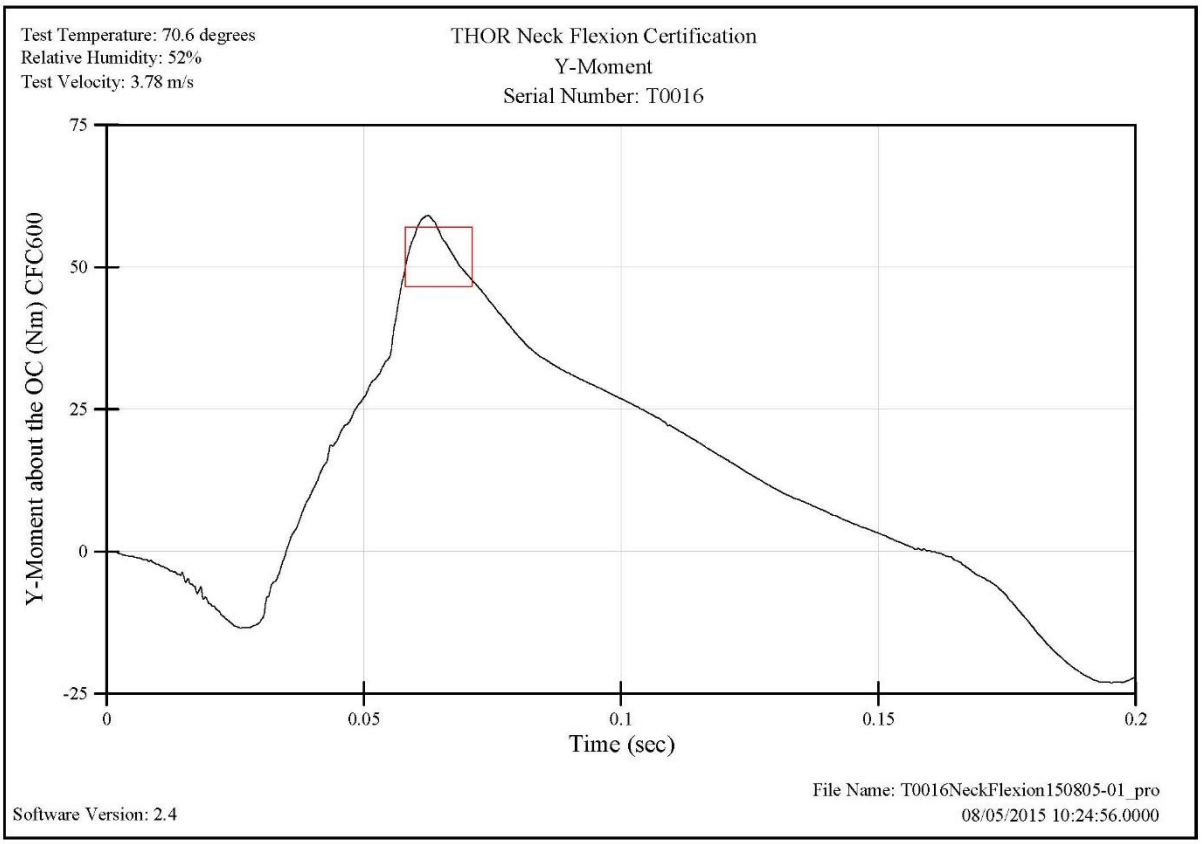

Test Temperature: 69.6 degrees
Relative Humidity: 52%
Test Velocity: 0 m/s
THOR Occipital Condyle Quasi-Static Certification
Displacement vs. Torque
Serial Number: T015
Y-Moment (Nm) CFC60
75
50
25
0
-25
-50
-75
-50
-25
0
25
50
Displacement (deg) CFC60
File Name: T015OCPot150701-03_pro
07/01/2015 13:24:58.0000
Software Version: 2.4

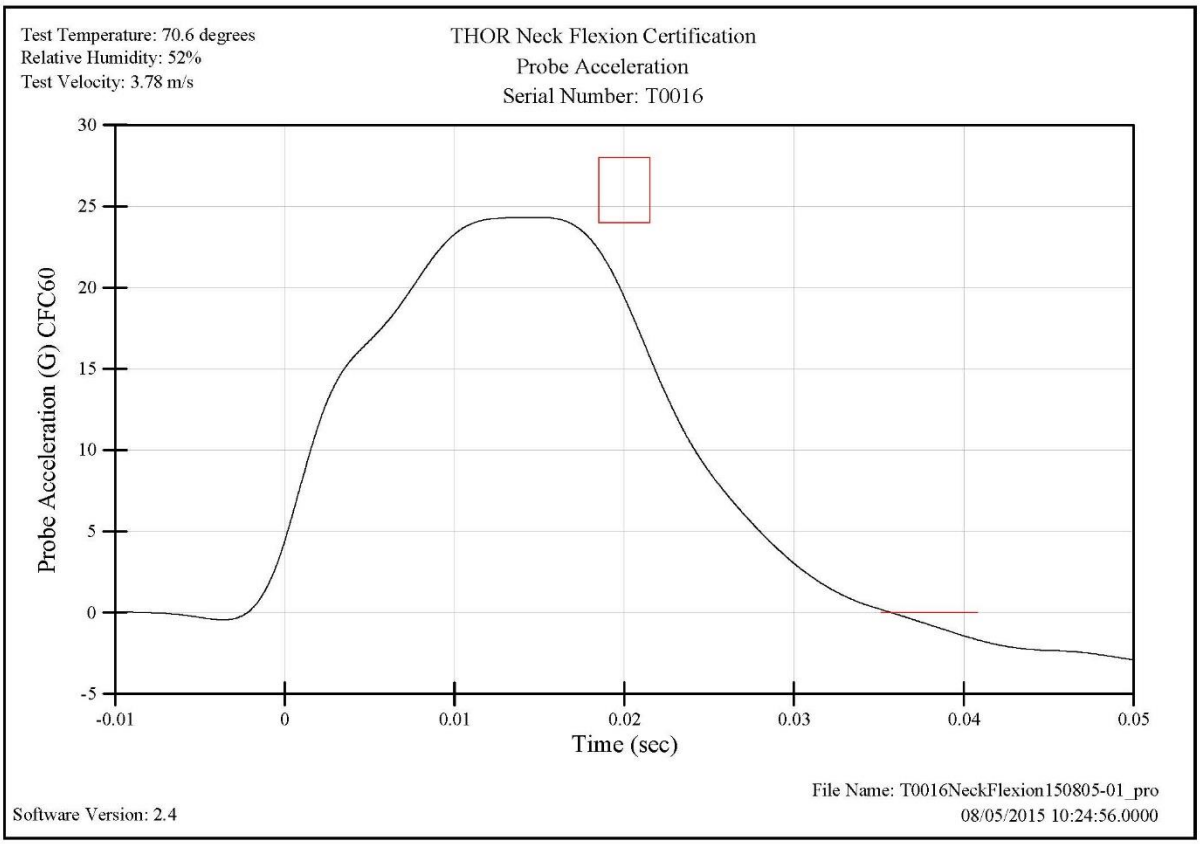
50% ADULT MALE THOR016 DUMMY CALIBRATIONS

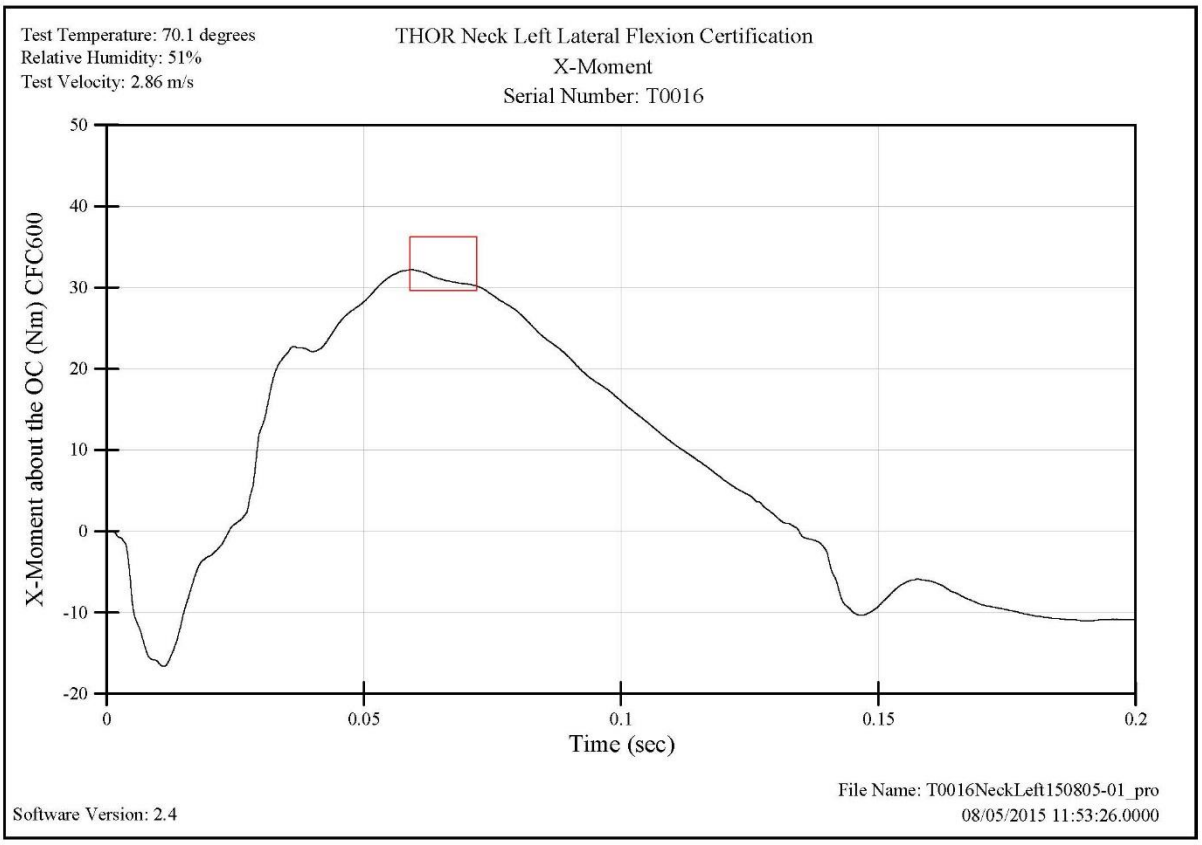

Test Temperature: 69.8 degrees
Relative Humidity: 53%
Test Velocity: 1.98 m/s
THOR Head Impact Certification
Probe Force
Serial Number: T0016
Force (N) CFC180
7000
6000
5000
4000
3000
2000
1000
0
0
0.002
0.004
0.006
0.008
Time (sec)
File Name: T0016HEAD150813-03_pro tdms
08/13/2015 12:52:18.0000
Software Version: 2.4

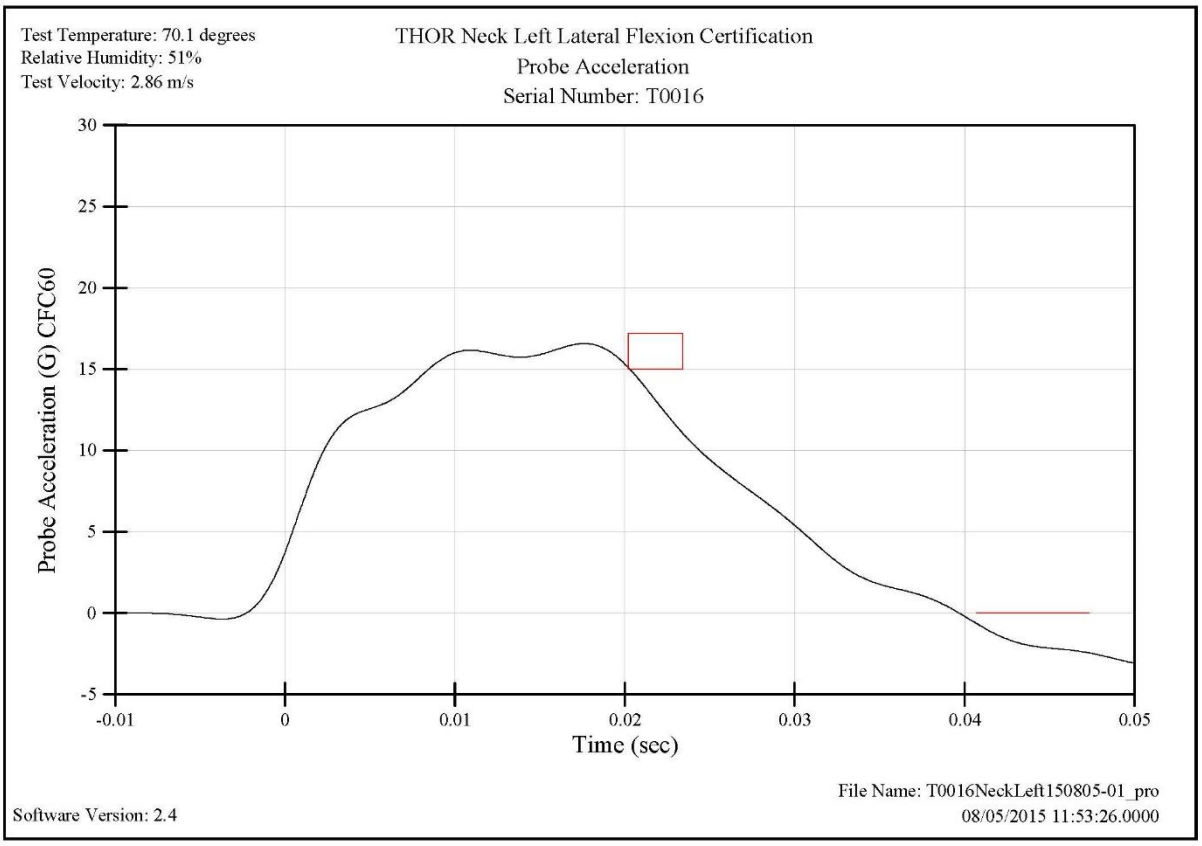

Test Temperature: 70.4 degrees
Relative Humidity: 53%
Test Velocity: 3.69 m/s
THOR Neck Extension Certification
Y-Moment
Serial Number: T0016
Y-Moment about the OC (Nm) CFC600
0
-25
-50
-75
-100
0
0.05
0.1
0.15
0.2
Time (sec)
File Name: T0016NeckExtension150805-01_pro
08/05/2015 10:53:11.0000
Software Version: 2.4

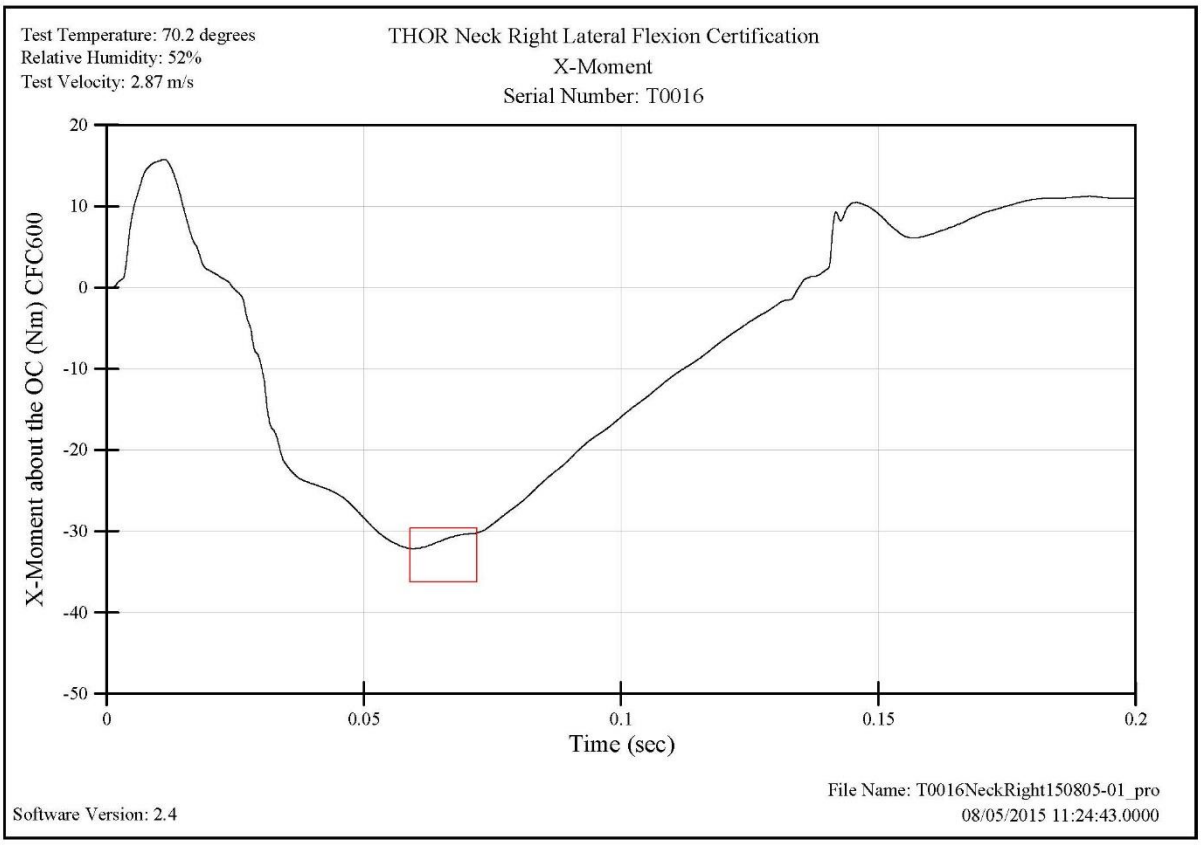

Test Temperature: 70.4 degrees
Relative Humidity: 53%
Test Velocity: 3.69 m/s
THOR Neck Extension Certification
Probe Acceleration
Serial Number: T0016
Probe Acceleration (G) CFC60
30
25
20
15
10
5
0
-5
-0.01
0
0.01
0.02
0.03
0.04
0.05
Time (sec)
File Name: T0016NeckExtension150805-01_pro
Software Version: 2.4
08/05/2015 10:53:11.0000

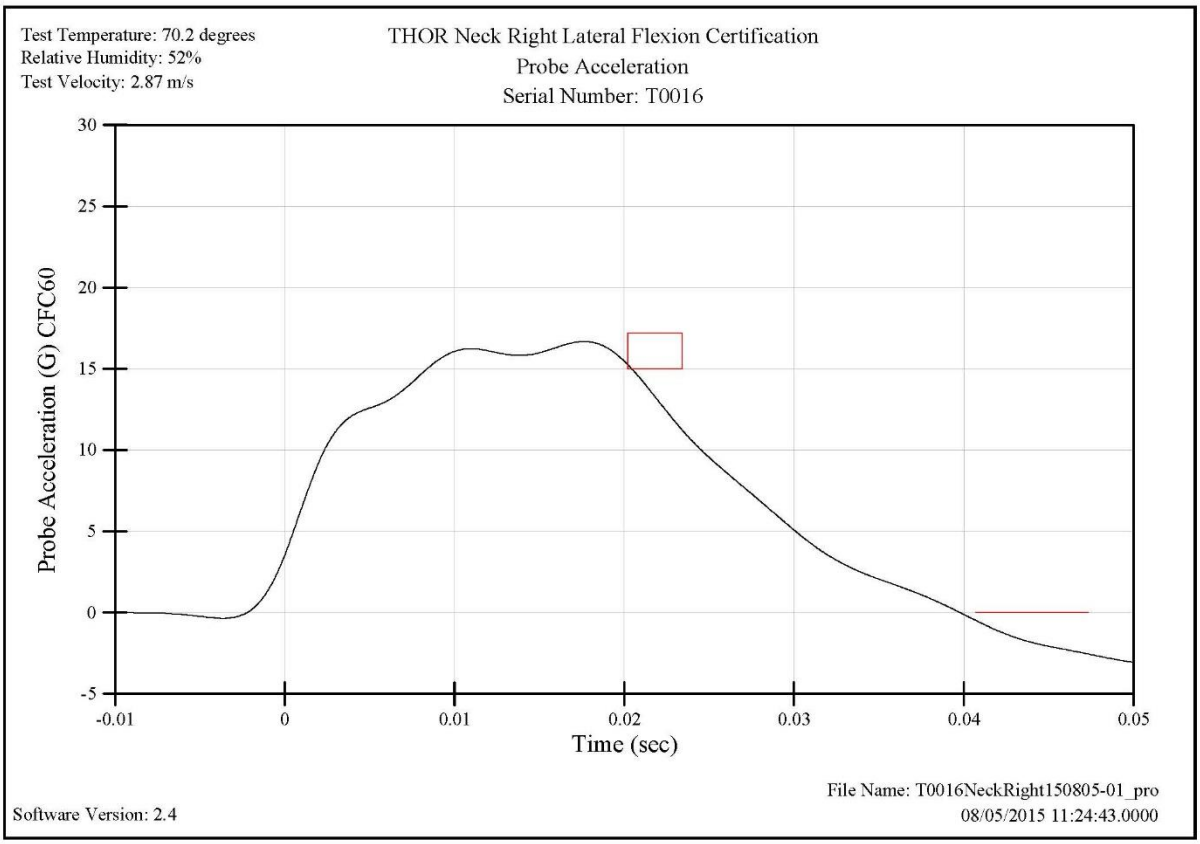

Test Temperature: 70.6 degrees
Relative Humidity: 52%
Test Velocity: 3.78 m/s
THOR Neck Flexion Certification
Y-Moment
Serial Number: T0016
Y-Moment about the OC (Nm) CFC600
75
50
25
0
-25
0
0.05
0.1
0.15
0.2
Time (sec)
File Name: T0016NeckFlexion150805-01_pro
Software Version: 2.4
08/05/2015 10:24:56.0000

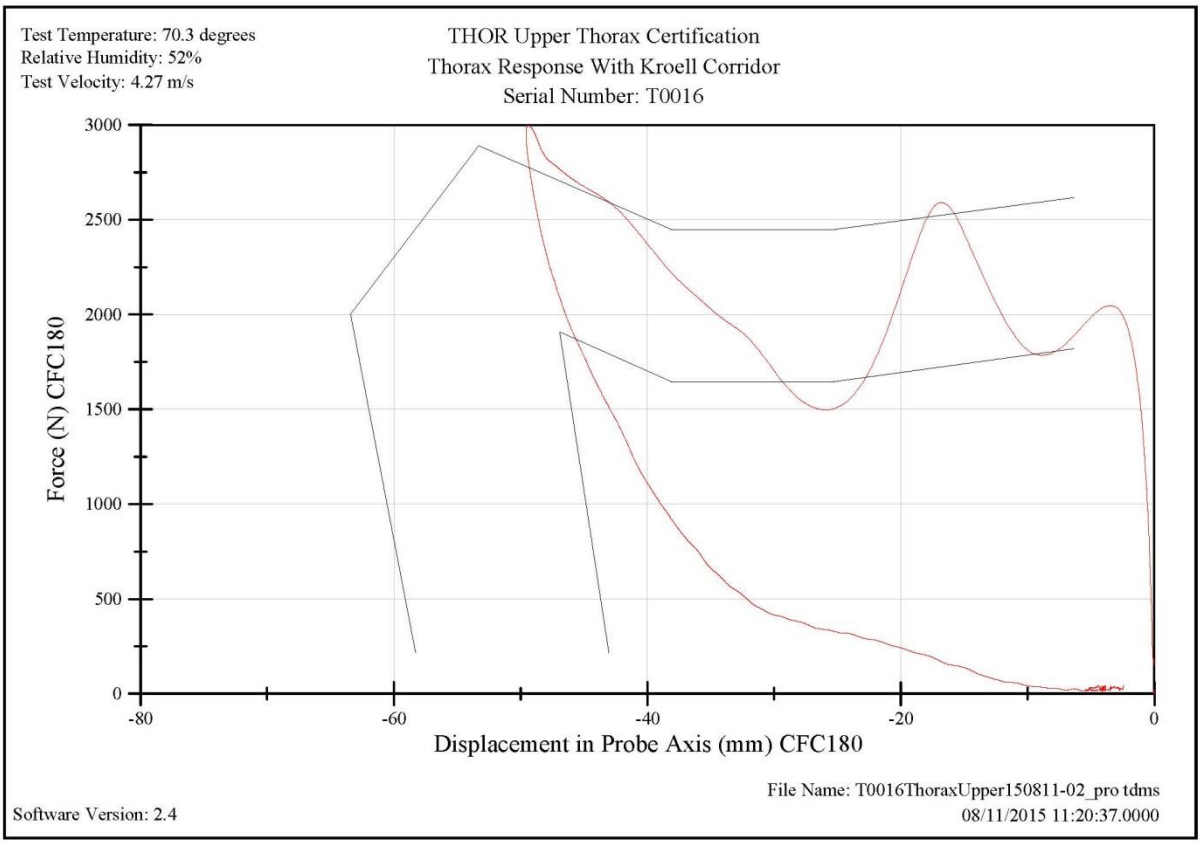

Test Temperature: 70.6 degrees
Relative Humidity: 52%
Test Velocity: 3.78 m/s
THOR Neck Flexion Certification
Probe Acceleration
Serial Number: T0016
Probe Acceleration (G) CFC60
30
25
20
15
10
5
0
-5
-0.01
0
0.01
0.02
0.03
0.04
0.05
Time (sec)
File Name: T0016NeckFlexion150805-01_pro
Software Version: 2.4
08/05/2015 10:24:56.0000

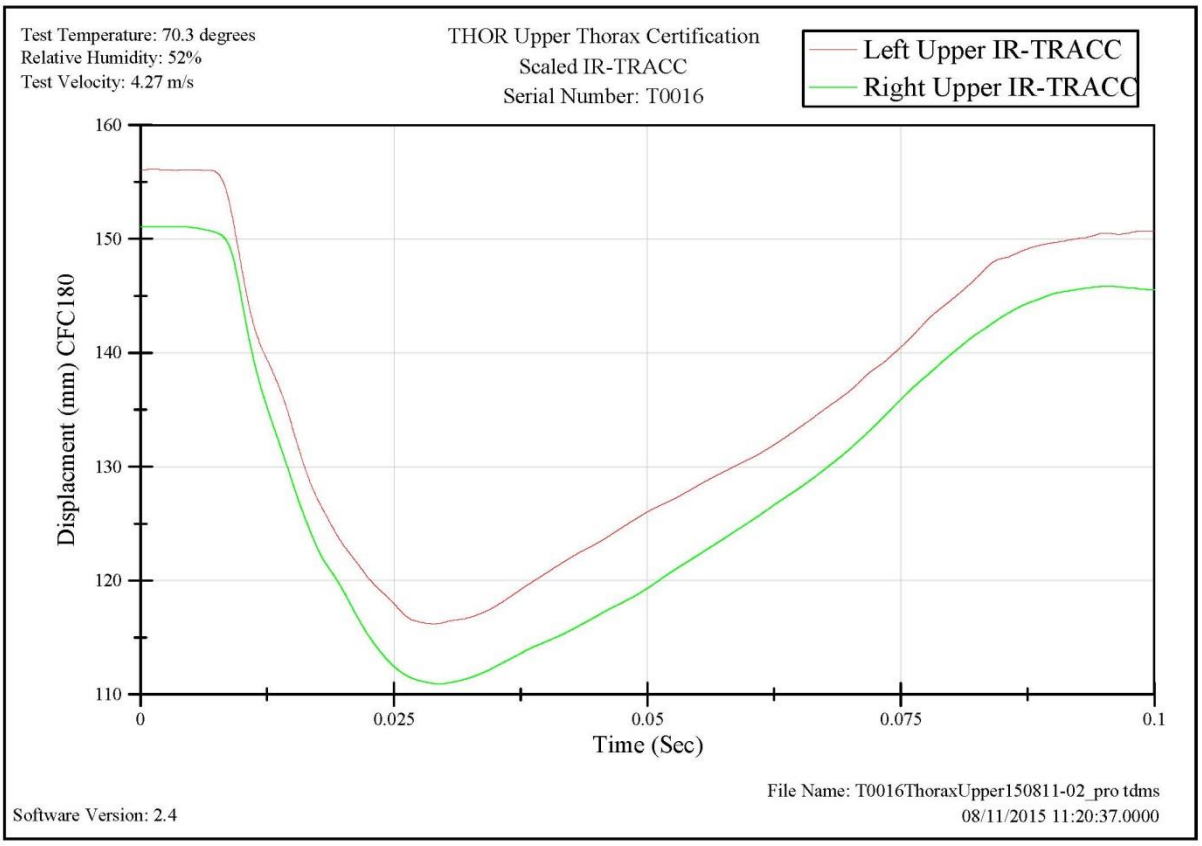

Test Temperature: 70.1 degrees
Relative Humidity: 51%
Test Velocity: 2.86 m/s
THOR Neck Left Lateral Flexion Certification
X-Moment
Serial Number: T0016
X-Moment about the OC (Nm) CFC600
50
40
30
20
10
0
-10
-20
0
0.05
0.1
0.15
0.2
Time (sec)
File Name: T0016NeckLeft150805-01_pro
Software Version: 2.4
08/05/2015 11:53:26.0000

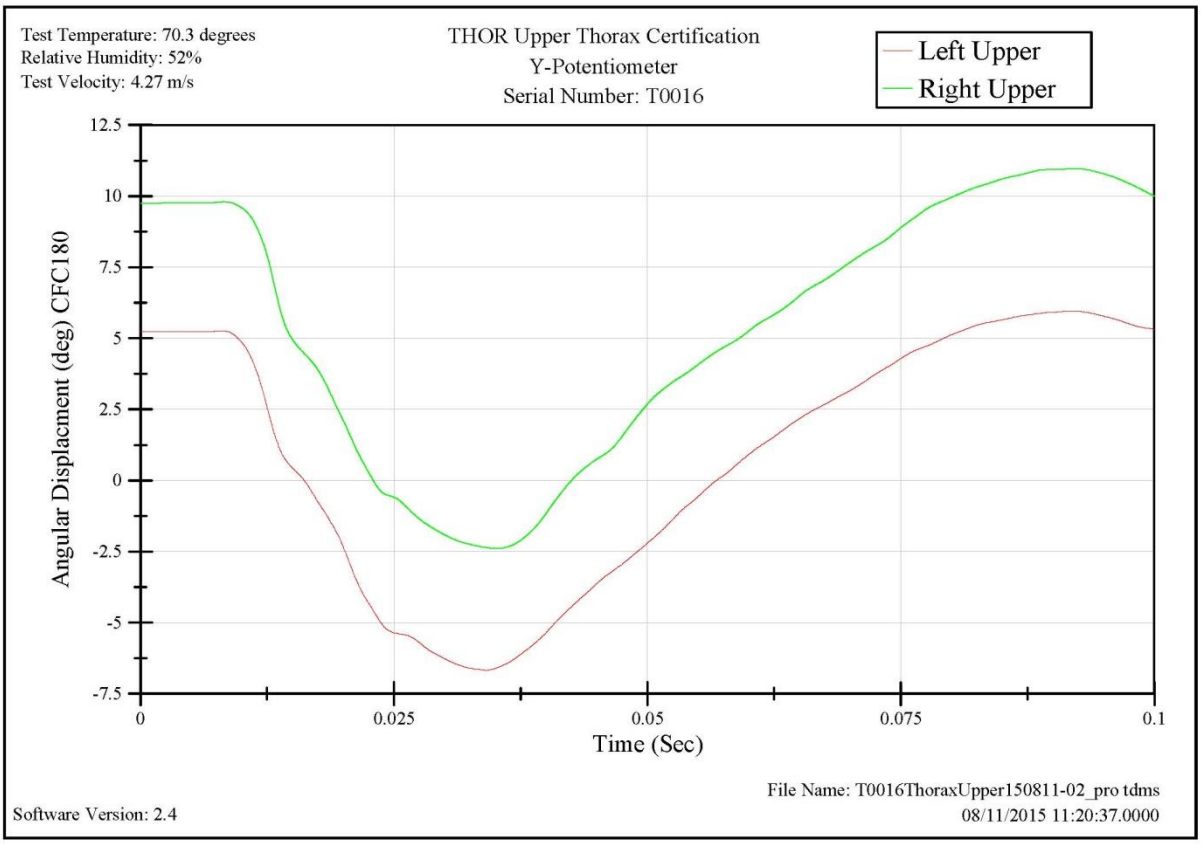

Test Temperature: 70.1 degrees
Relative Humidity: 51%
Test Velocity: 2.86 m/s
THOR Neck Left Lateral Flexion Certification
Probe Acceleration
Serial Number: T0016
Probe Acceleration (G) CFC60
30
25
20
15
10
5
0
-5
-0.01
0
0.01
0.02
0.03
0.04
0.05
Time (sec)
File Name: T0016NeckLeft150805-01_pro
08/05/2015 11:53:26.0000
Software Version: 2.4

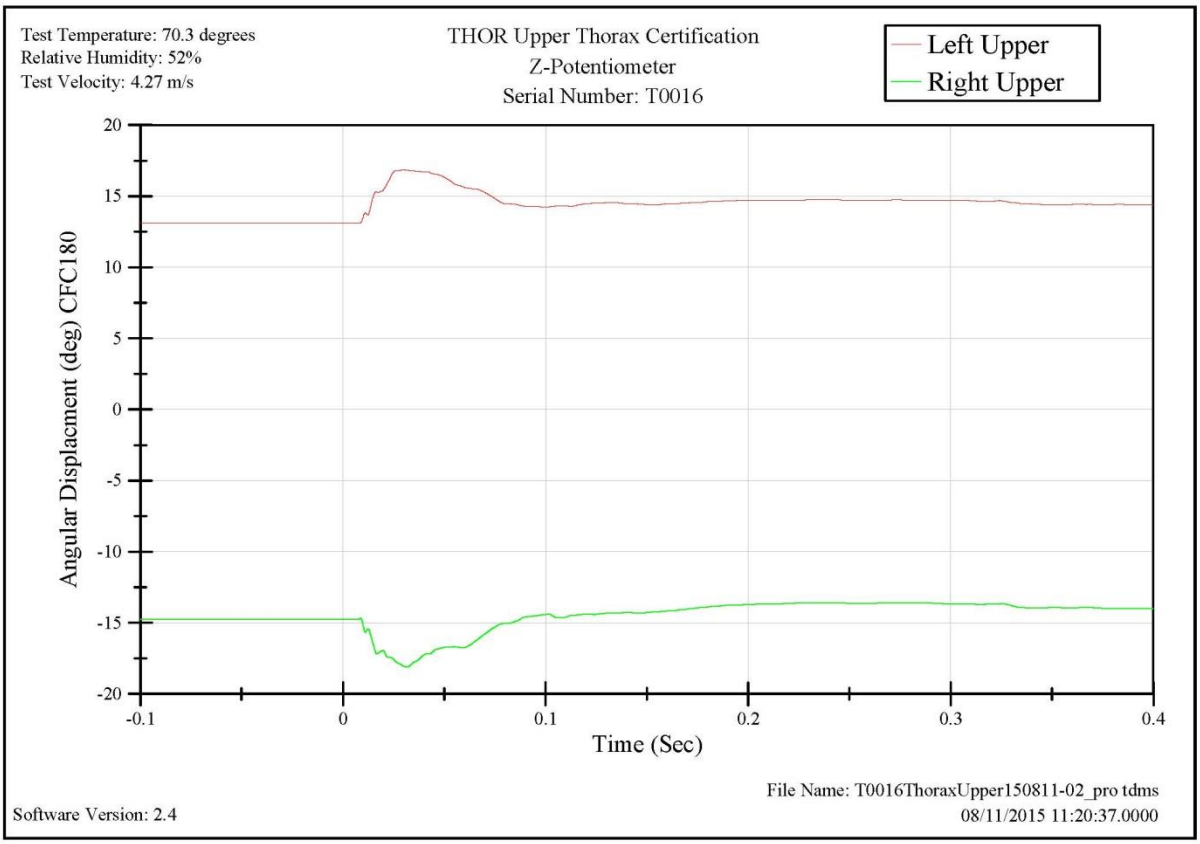

Test Temperature: 70.2 degrees
Relative Humidity: 52%
Test Velocity: 2.87 m/s
THOR Neck Right Lateral Flexion Certification
X-Moment
Serial Number: T0016
X-Moment about the OC (Nm) CFC600
20
10
0
-10
-20
-30
-40
-50
0
0.05
0.1
0.15
0.2
Time (sec)
File Name: T0016NeckRight150805-01_pro
08/05/2015 11:24:43.0000
Software Version: 2.4

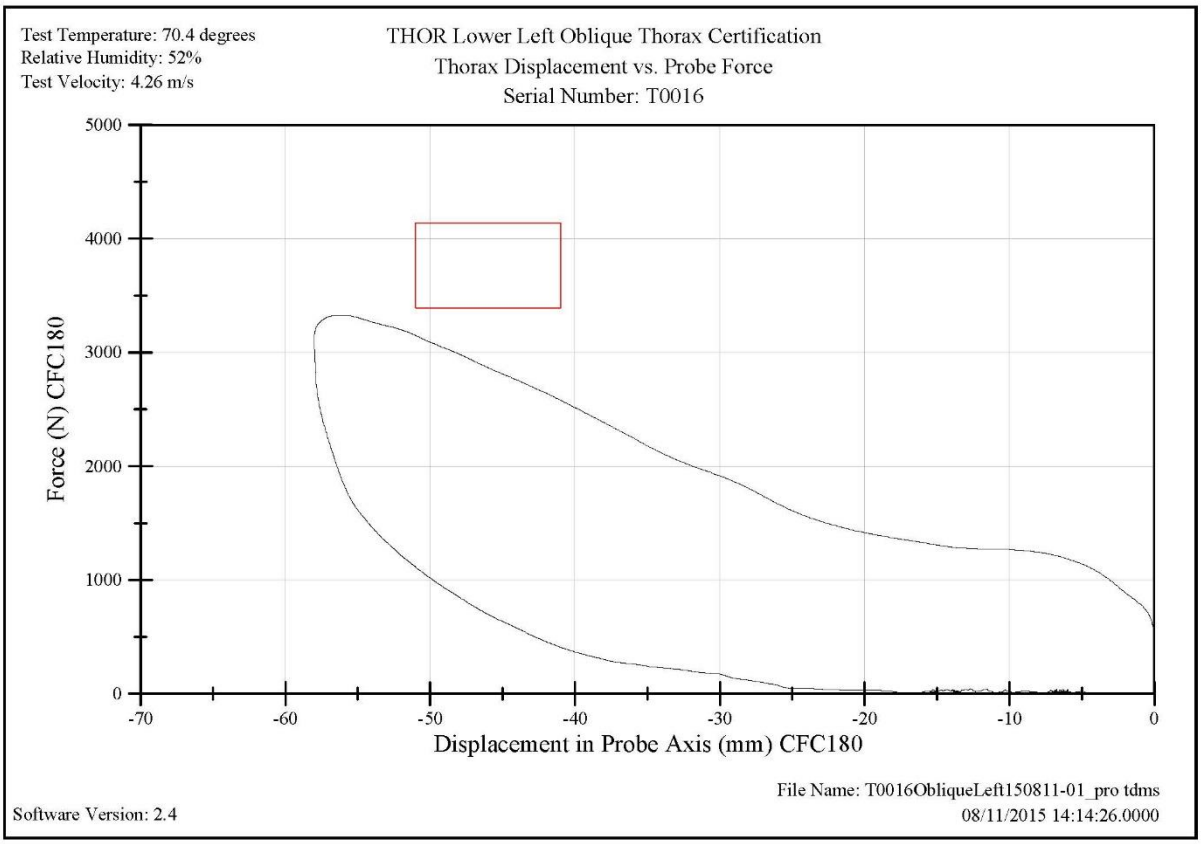

Test Temperature: 70.2 degrees
Relative Humidity: 52%
Test Velocity: 2.87 m/s
THOR Neck Right Lateral Flexion Certification
Probe Acceleration
Serial Number: T0016
Probe Acceleration (G) CFC60
Time (sec)
File Name: T0016NeckRight150805-01_pro
08/05/2015 11:24:43.0000
Software Version: 2.4

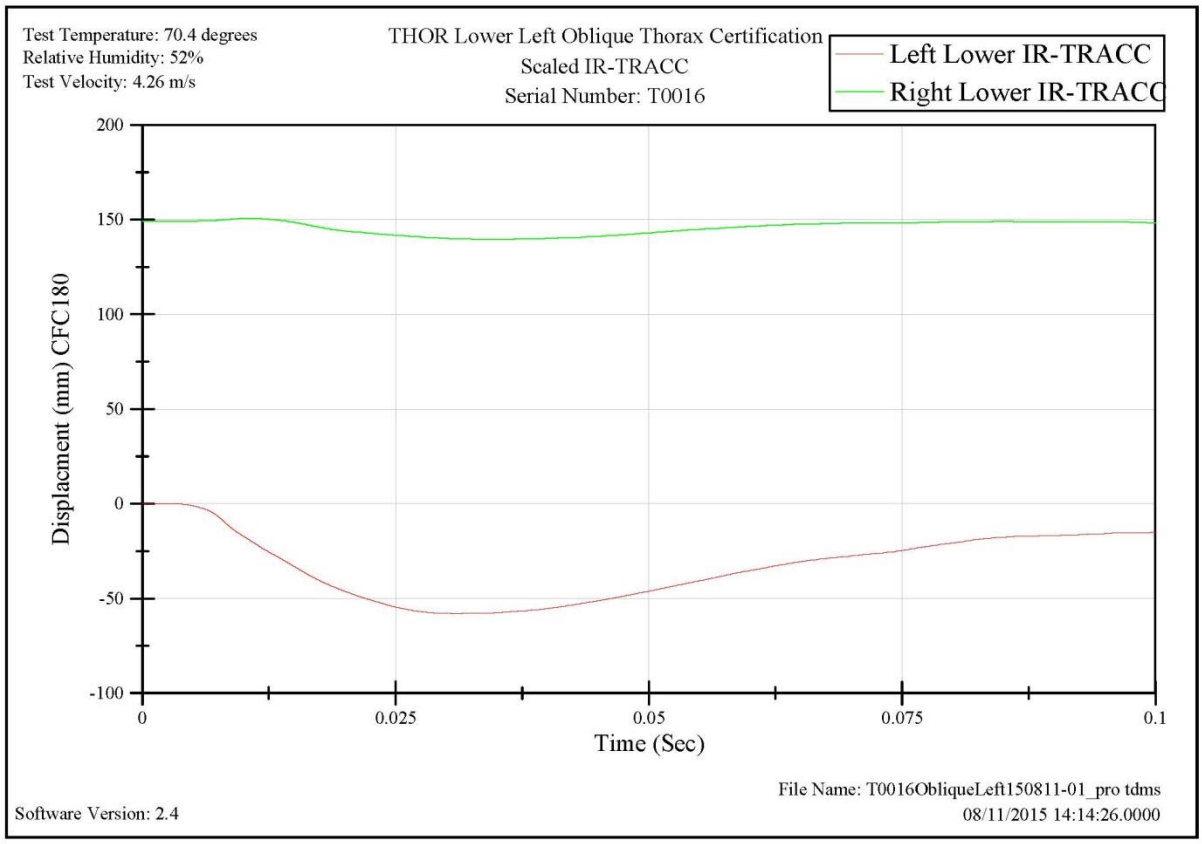

Test Temperature: 70.3 degrees
Relative Humidity: 52%
Test Velocity: 4.27 m/s
THOR Upper Thorax Certification
Thorax Response With Kroell Corridor
Serial Number: T0016
Force (N) CFC180
Displacement in Probe Axis (mm) CFC180
File Name: T0016ThoraxUpper150811-02_pro tdms
08/11/2015 11:20:37.0000
Software Version: 2.4

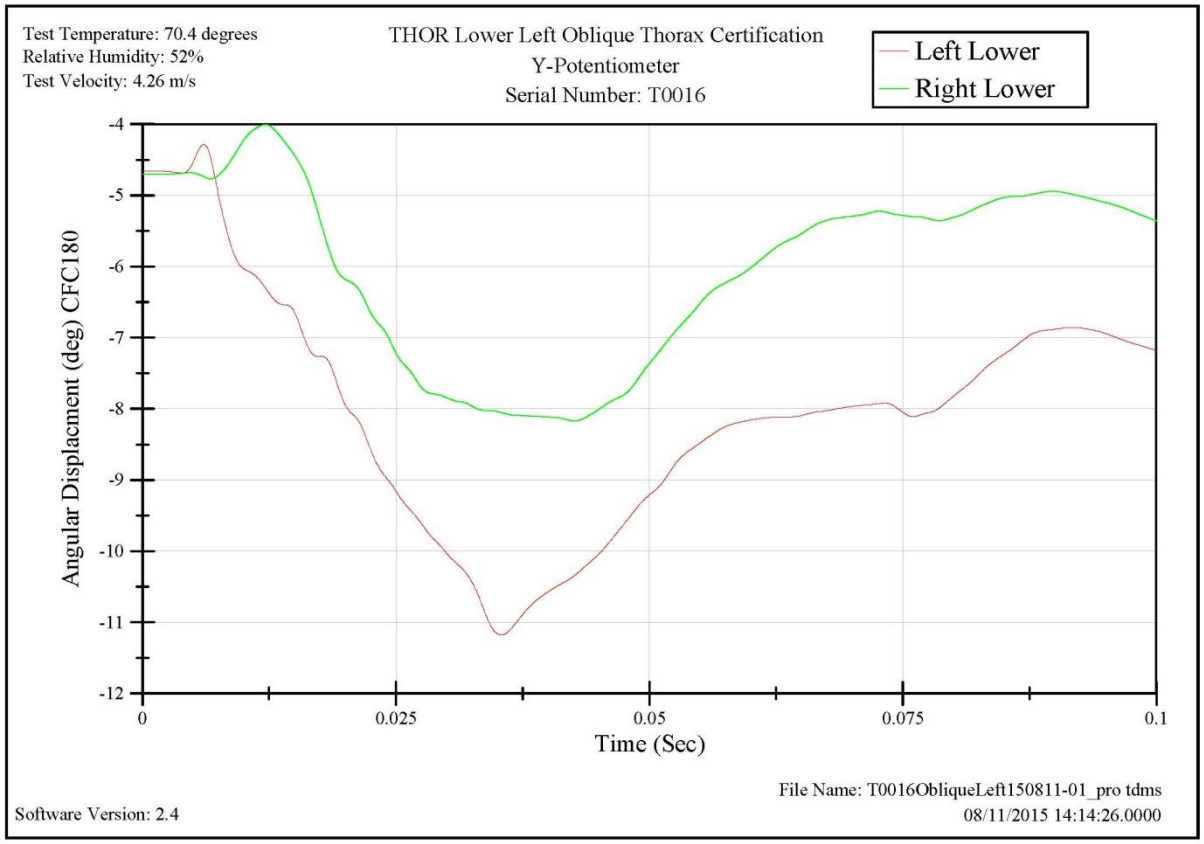

Test Temperature: 70.3 degrees
Relative Humidity: 52%
Test Velocity: 4.27 m/s
THOR Upper Thorax Certification
Scaled IR-TRACC
Serial Number: T0016
Left Upper IR-TRACC
Right Upper IR-TRACC
Displacment (mm) CFC180
160
150
140
130
120
110
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T0016ThoraxUpper150811-02_pro tdms
Software Version: 2.4
08/11/2015 11:20:37.0000

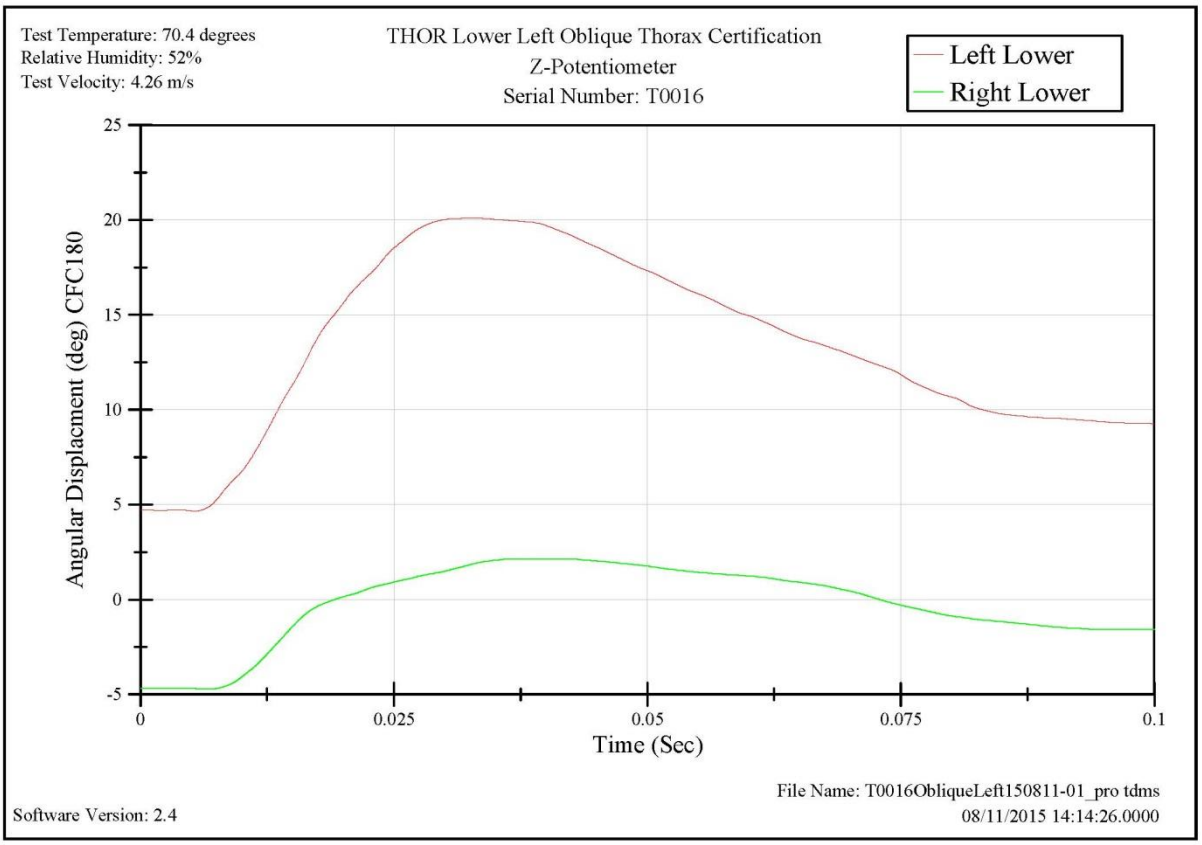

Test Temperature: 70.3 degrees
Relative Humidity: 52%
Test Velocity: 4.27 m/s
THOR Upper Thorax Certification
Y-Potentiometer
Serial Number: T0016
Left Upper
Right Upper
Angular Displacment (deg) CFC180
12.5
10
7.5
5
2.5
0
-2.5
-5
-7.5
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T0016ThoraxUpper150811-02_pro tdms
Software Version: 2.4
08/11/2015 11:20:37.0000

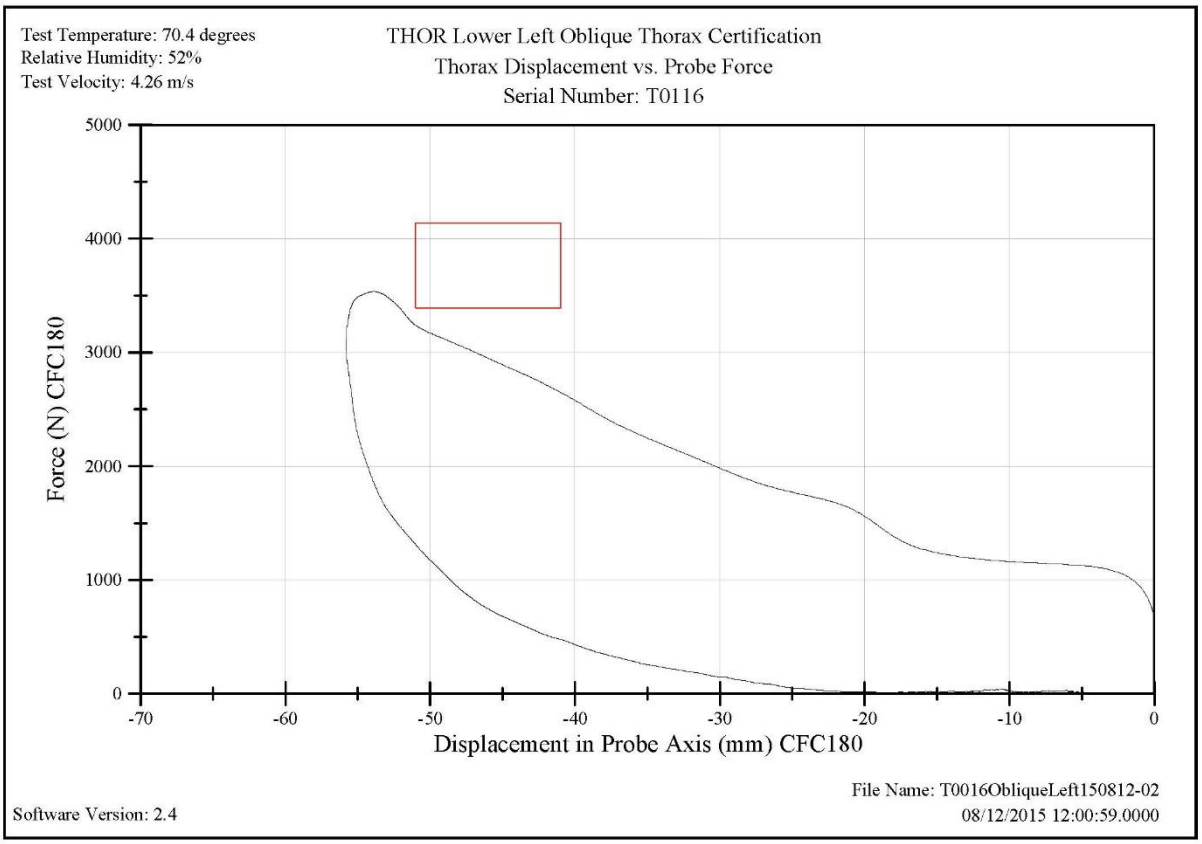

Test Temperature: 70.3 degrees
Relative Humidity: 52%
Test Velocity: 4.27 m/s
THOR Upper Thorax Certification
Z-Potentiometer
Serial Number: T0016
Left Upper
Right Upper
Angular Displacement (deg) CFC180
Time (Sec)
File Name: T0016ThoraxUpper150811-02_pro tdms
08/11/2015 11:20:37.0000
Software Version: 2.4

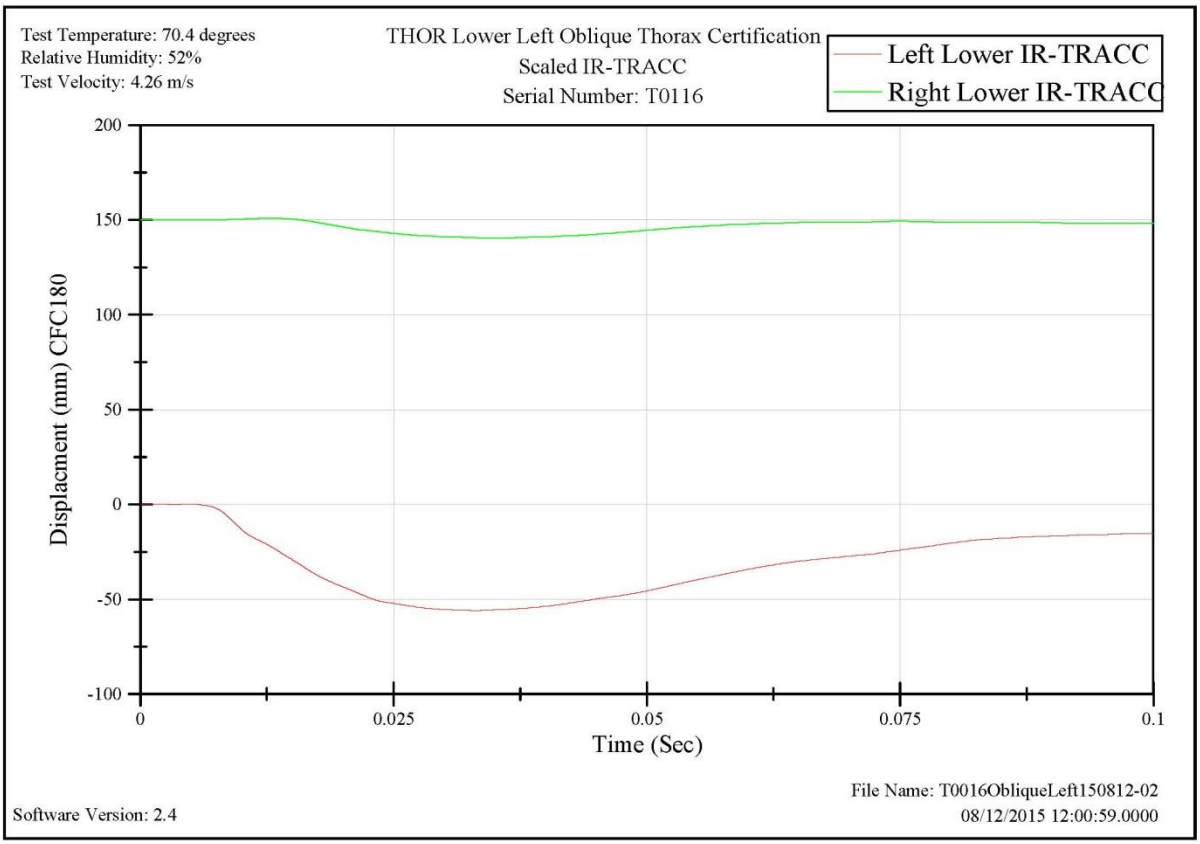

Test Temperature: 70.4 degrees
Relative Humidity: 52%
Test Velocity: 4.26 m/s
THOR Lower Left Oblique Thorax Certification
Thorax Displacement vs. Probe Force
Serial Number: T0016
Force (N) CFC180
Displacement in Probe Axis (mm) CFC180
File Name: T0016ObliqueLeft150811-01_pro tdms
08/11/2015 14:14:26.0000
Software Version: 2.4

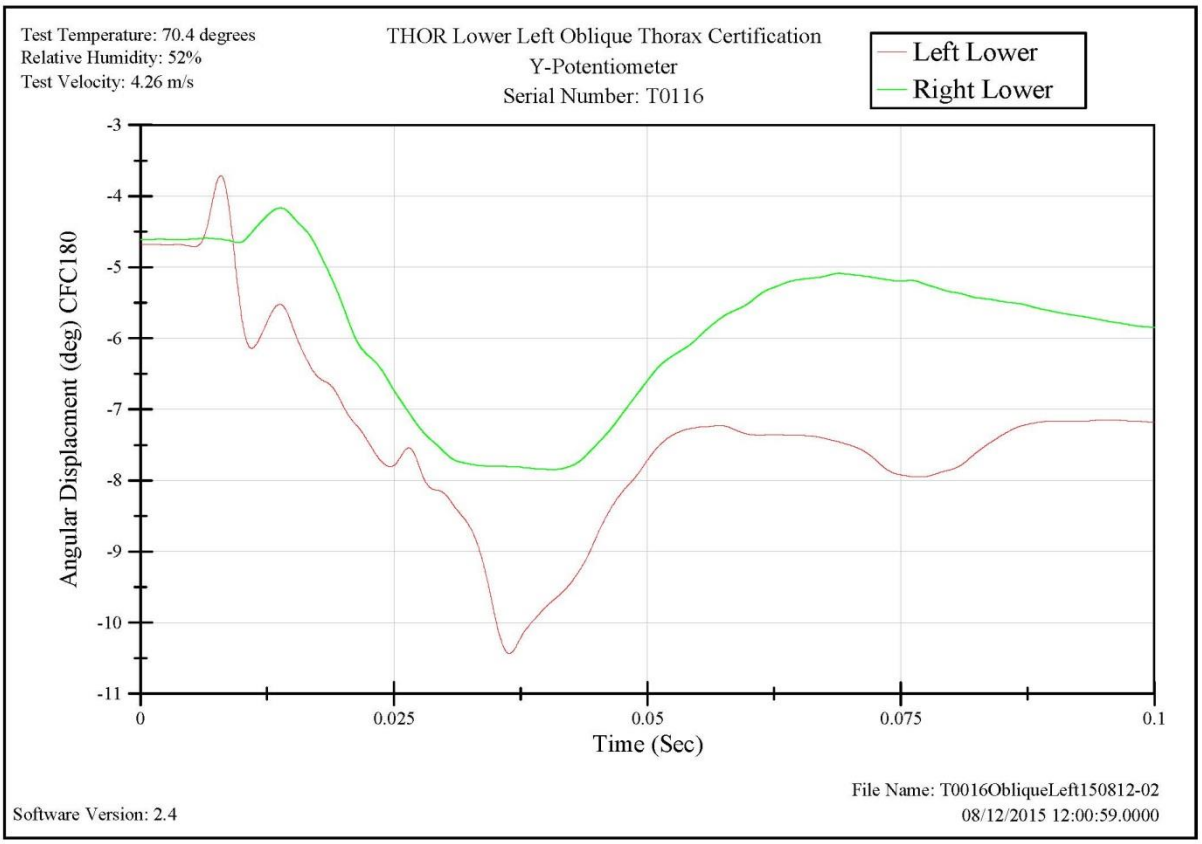

Test Temperature: 70.4 degrees
Relative Humidity: 52%
Test Velocity: 4.26 m/s
THOR Lower Left Oblique Thorax Certification
Scaled IR-TRACC
Serial Number: T0016
Left Lower IR-TRACC
Right Lower IR-TRACC
Displacment (mm) CFC180
200
150
100
50
0
-50
-100
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T0016ObliqueLeft150811-01_pro tdms
Software Version: 2.4
08/11/2015 14:14:26.0000

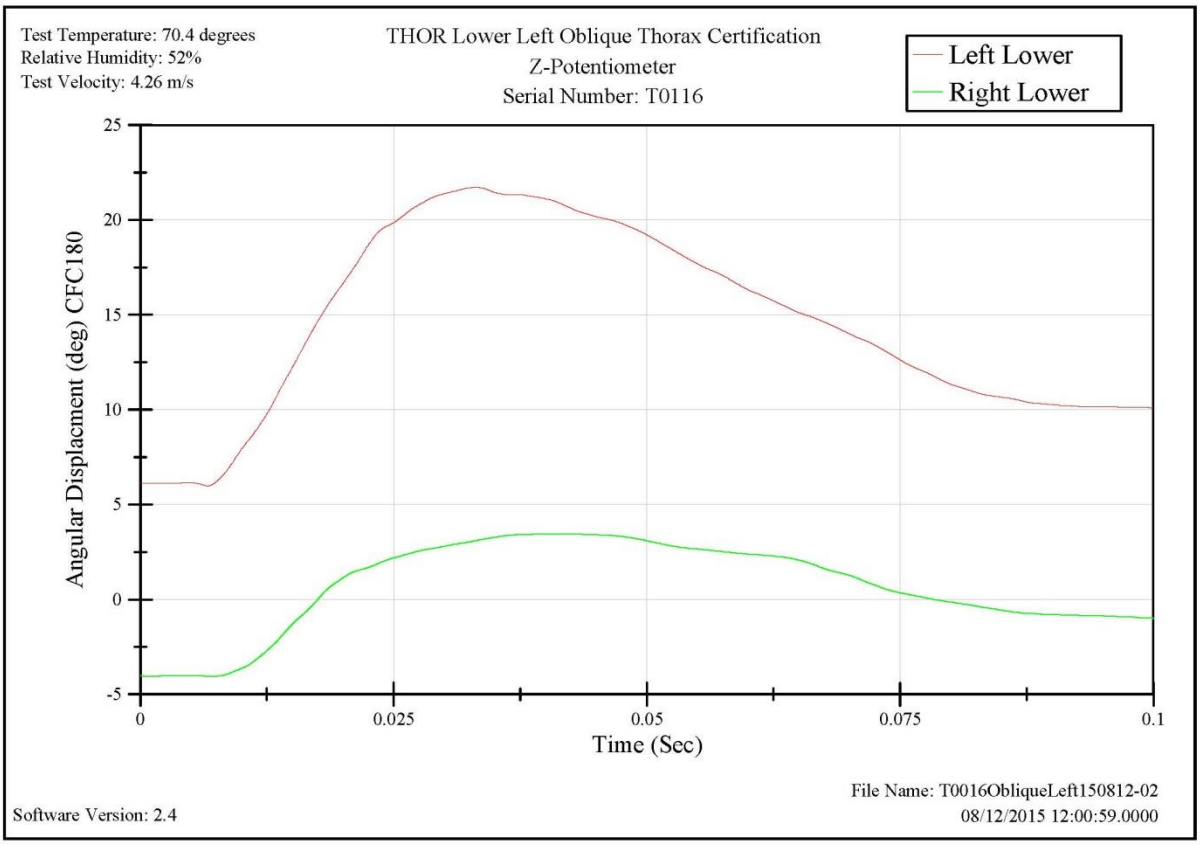

Test Temperature: 70.4 degrees
Relative Humidity: 52%
Test Velocity: 4.26 m/s
THOR Lower Left Oblique Thorax Certification
Y-Potentiometer
Serial Number: T0016
Left Lower
Right Lower
Angular Displacment (deg) CFC180
-4
-5
-6
-7
-8
-9
-10
-11
-12
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T0016ObliqueLeft150811-01_pro tdms
Software Version: 2.4
08/11/2015 14:14:26.0000

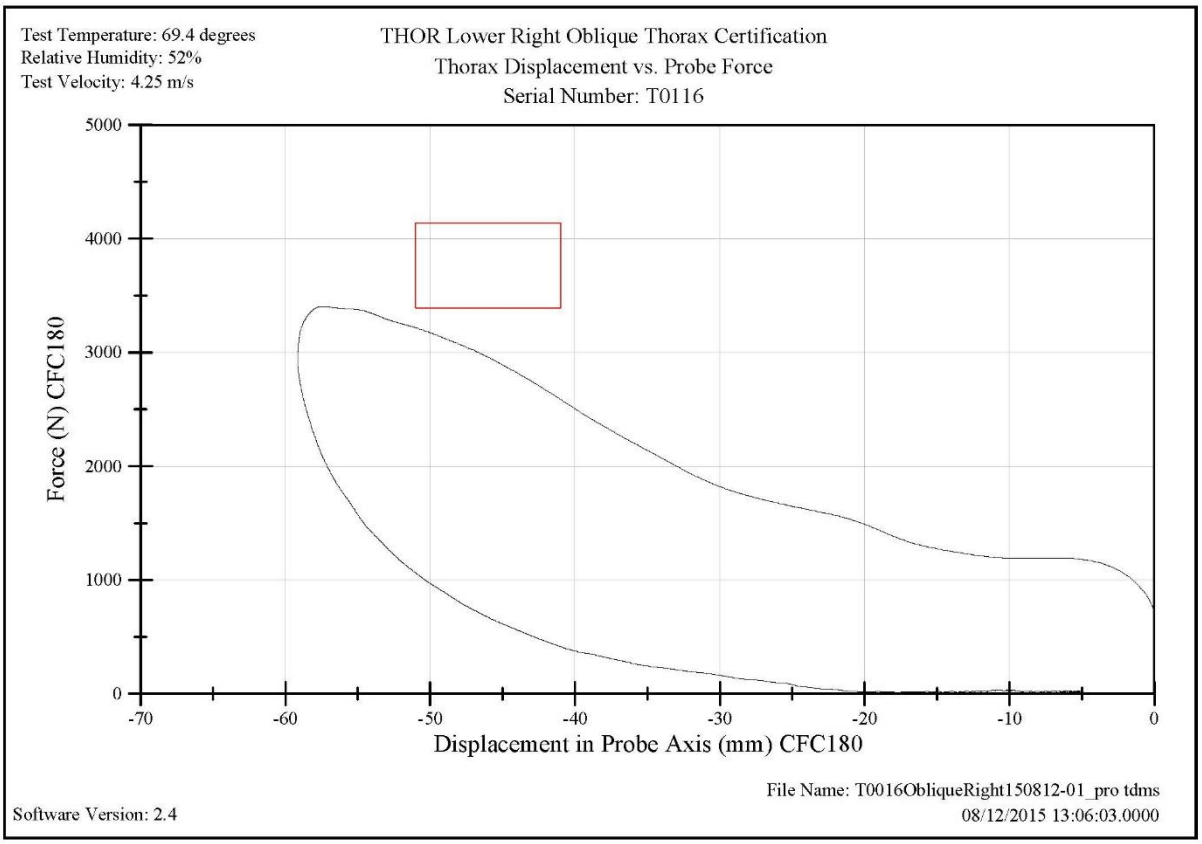

Test Temperature: 70.4 degrees
Relative Humidity: 52%
Test Velocity: 4.26 m/s
THOR Lower Left Oblique Thorax Certification
Z-Potentiometer
Serial Number: T0016
Left Lower
Right Lower
Angular Displacment (deg) CFC180
25
20
15
10
5
0
-5
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T0016ObliqueLeft150811-01_pro tdms
Software Version: 2.4
08/11/2015 14:14:26.0000

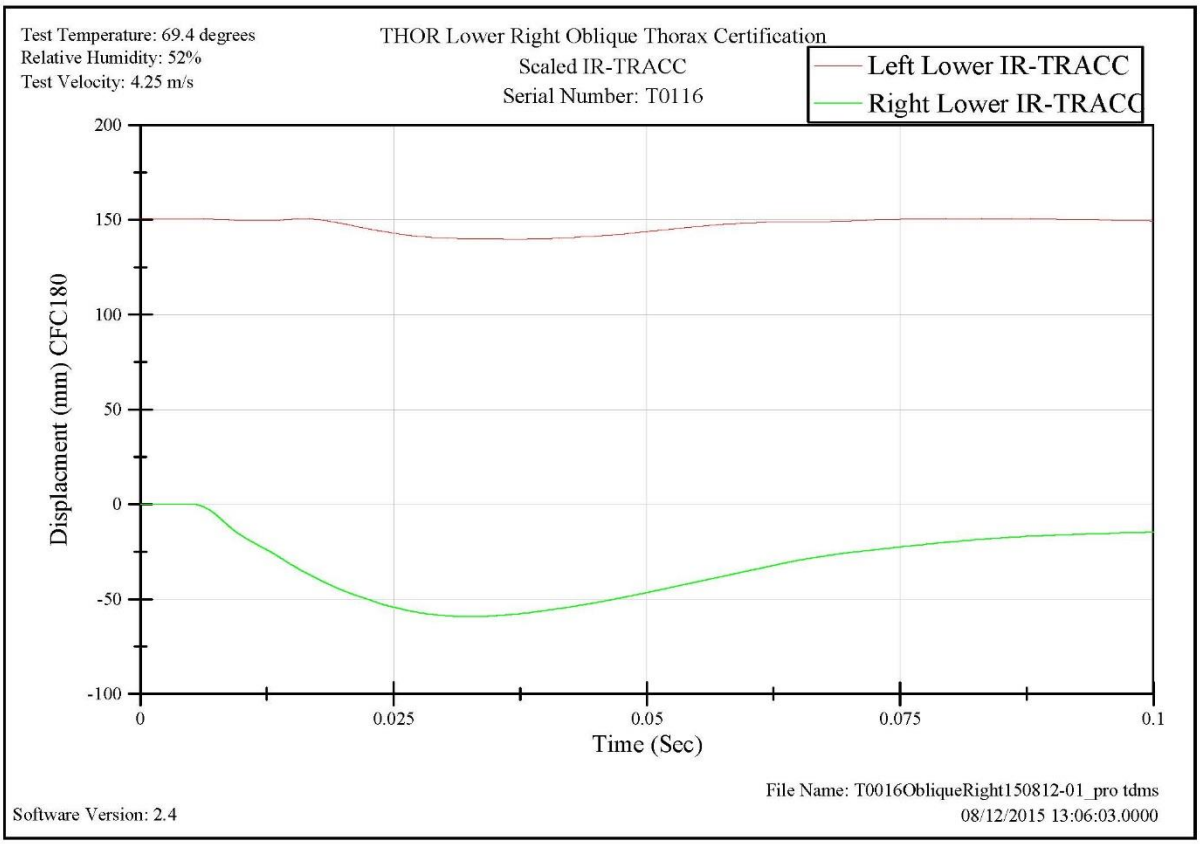

Test Temperature: 70.4 degrees
Relative Humidity: 52%
Test Velocity: 4.26 m/s
THOR Lower Left Oblique Thorax Certification
Thorax Displacement vs. Probe Force
Serial Number: T0116
Force (N) CFC180
5000
4000
3000
2000
1000
0
-70
-60
-50
-40
-30
-20
-10
0
Displacement in Probe Axis (mm) CFC180
File Name: T0016ObliqueLeft150812-02
Software Version: 2.4
08/12/2015 12:00:59.0000

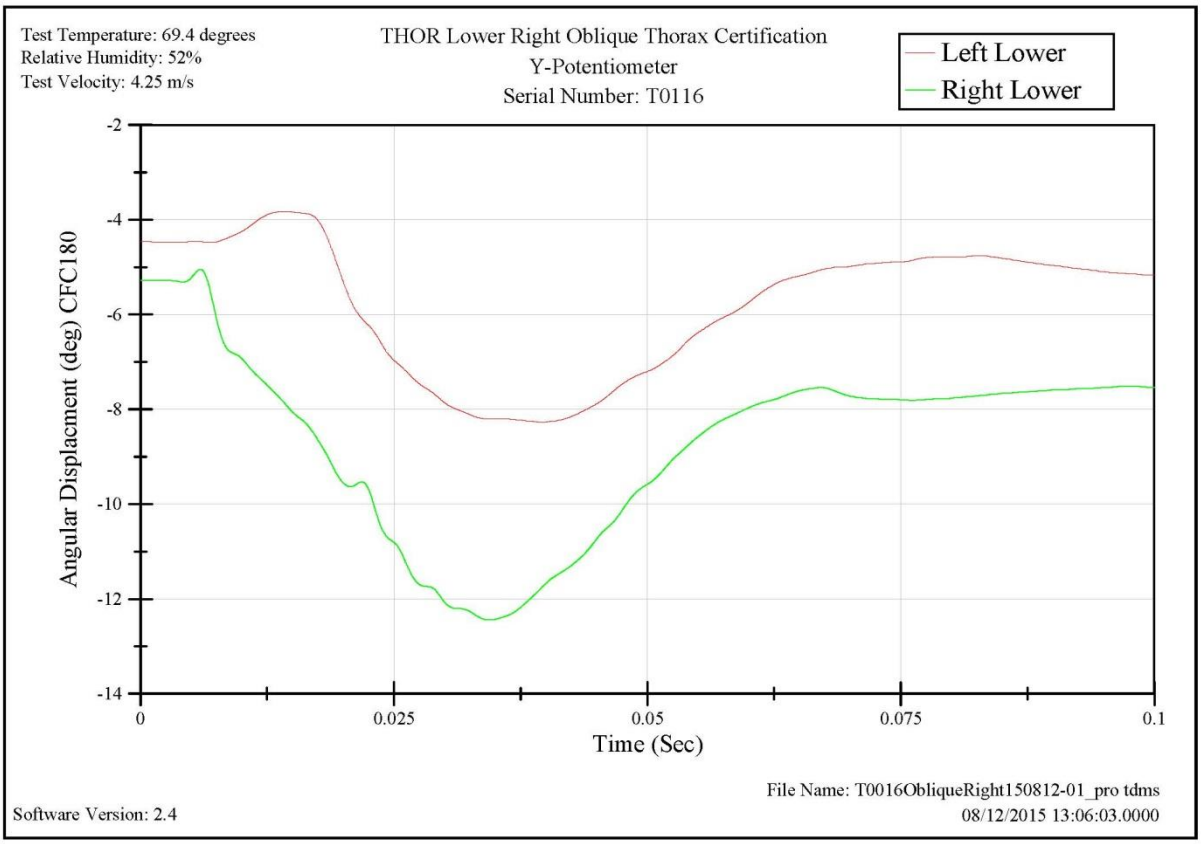

Test Temperature: 70.4 degrees
Relative Humidity: 52%
Test Velocity: 4.26 m/s
THOR Lower Left Oblique Thorax Certification
Scaled IR-TRACC
Serial Number: T0116
Left Lower IR-TRACC
Right Lower IR-TRACC
Displacment (mm) CFC180
200
150
100
50
0
-50
-100
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T0016ObliqueLeft150812-02
08/12/2015 12:00:59.0000
Software Version: 2.4

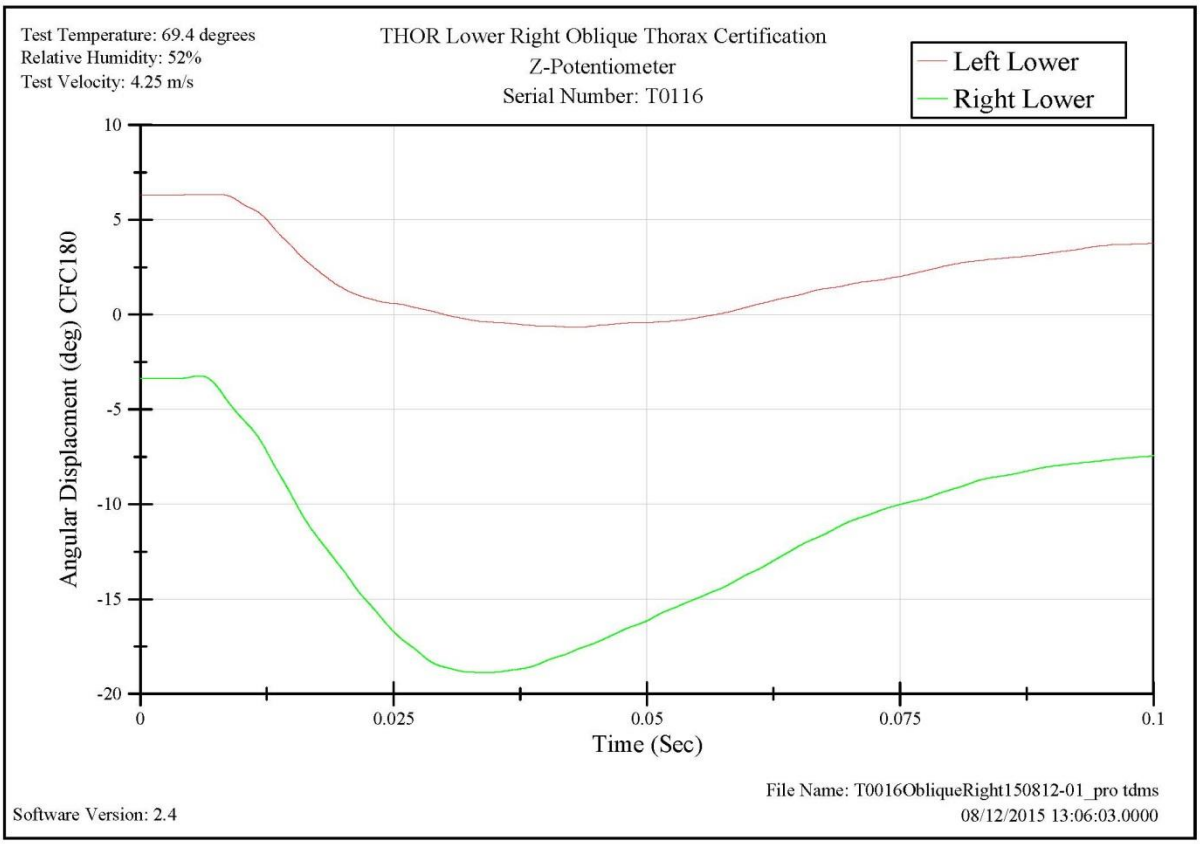

Test Temperature: 70.4 degrees
Relative Humidity: 52%
Test Velocity: 4.26 m/s
THOR Lower Left Oblique Thorax Certification
Y-Potentiometer
Serial Number: T0116
Left Lower
Right Lower
Angular Displacment (deg) CFC180
-3
-4
-5
-6
-7
-8
-9
-10
-11
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T0016ObliqueLeft150812-02
08/12/2015 12:00:59.0000
Software Version: 2.4

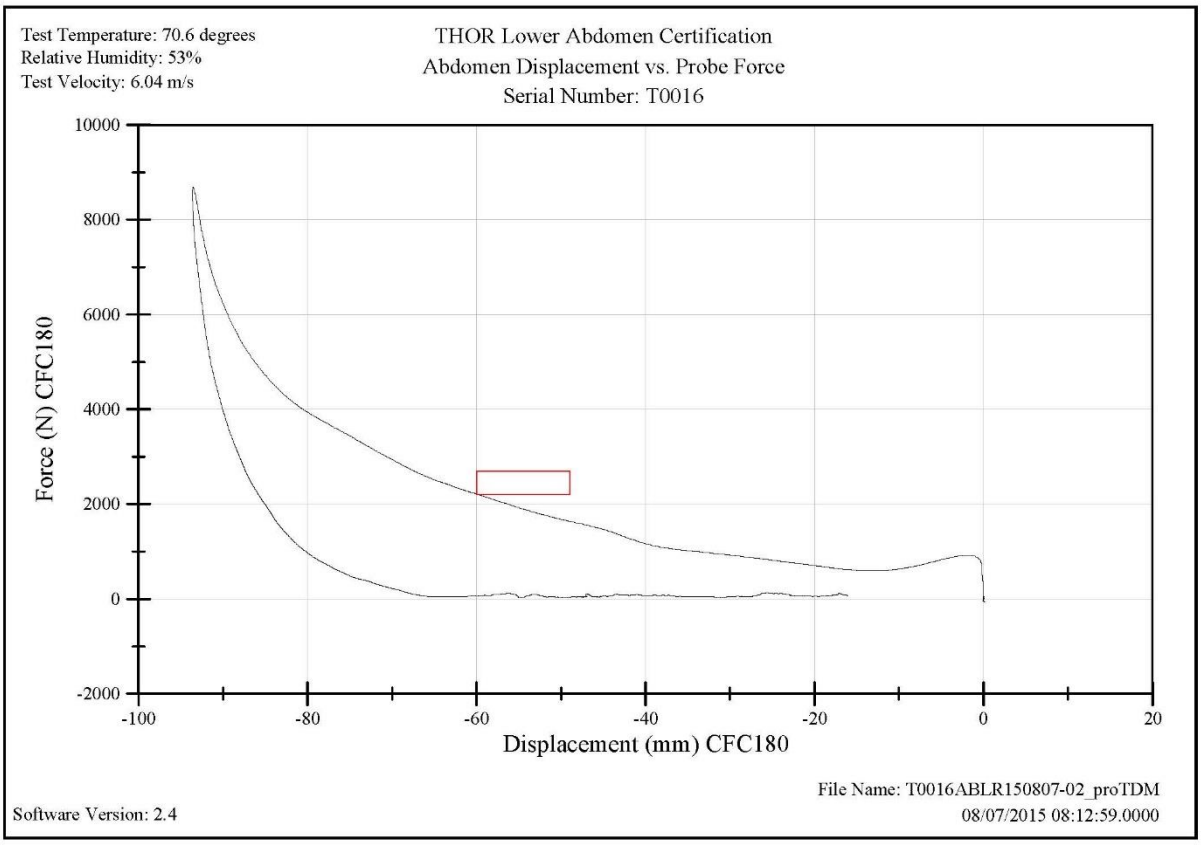

Test Temperature: 70.4 degrees
Relative Humidity: 52%
Test Velocity: 4.26 m/s
THOR Lower Left Oblique Thorax Certification
Z-Potentiometer
Serial Number: T0116
Left Lower
Right Lower
Angular Displacment (deg) CFC180
25
20
15
10
5
0
-5
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T0016ObliqueLeft150812-02
08/12/2015 12:00:59.0000
Software Version: 2.4

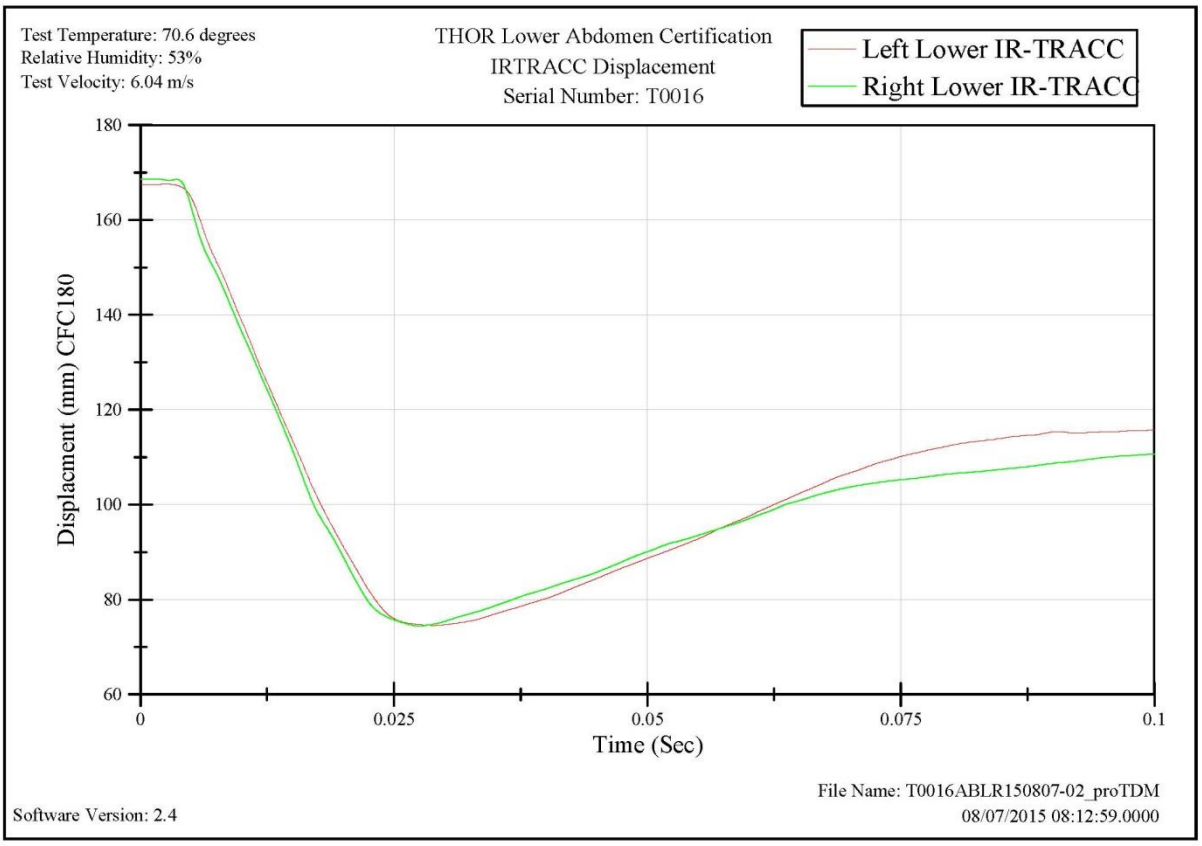

Test Temperature: 69.4 degrees
Relative Humidity: 52%
Test Velocity: 4.25 m/s
THOR Lower Right Oblique Thorax Certification
Thorax Displacement vs. Probe Force
Serial Number: T0116
Force (N) CFC180
5000
4000
3000
2000
1000
0
-70
-60
-50
-40
-30
-20
-10
0
Displacement in Probe Axis (mm) CFC180
File Name: T0016ObliqueRight150812-01_pro tdms
08/12/2015 13:06:03.0000
Software Version: 2.4

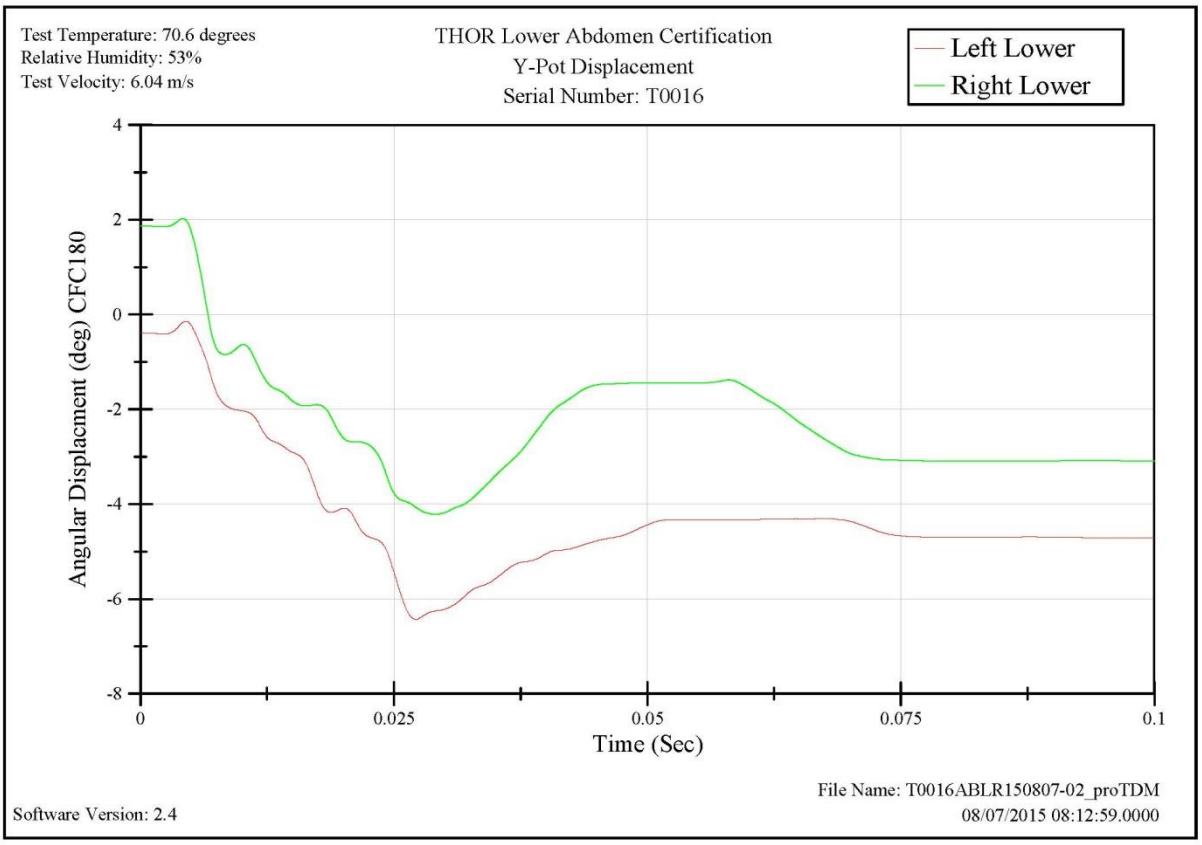

Test Temperature: 69.4 degrees
Relative Humidity: 52%
Test Velocity: 4.25 m/s
THOR Lower Right Oblique Thorax Certification
Scaled IR-TRACC
Serial Number: T0116
Left Lower IR-TRACC
Right Lower IR-TRACC
Displacment (mm) CFC180
200
150
100
50
0
-50
-100
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T0016ObliqueRight150812-01_pro tdms
Software Version: 2.4
08/12/2015 13:06:03.0000

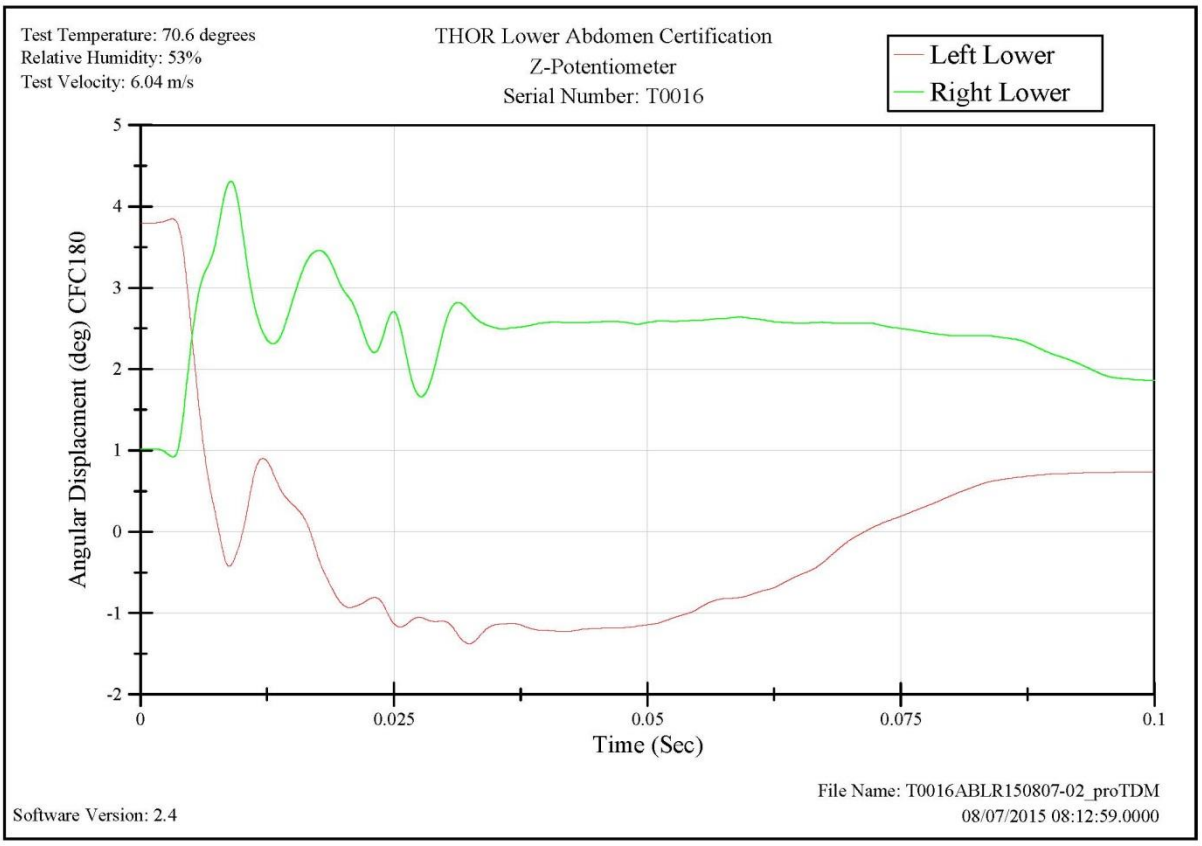

Test Temperature: 69.4 degrees
Relative Humidity: 52%
Test Velocity: 4.25 m/s
THOR Lower Right Oblique Thorax Certification
Y-Potentiometer
Serial Number: T0116
Left Lower
Right Lower
Angular Displacment (deg) CFC180
-2
-4
-6
-8
-10
-12
-14
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T0016ObliqueRight150812-01_pro tdms
Software Version: 2.4
08/12/2015 13:06:03.0000

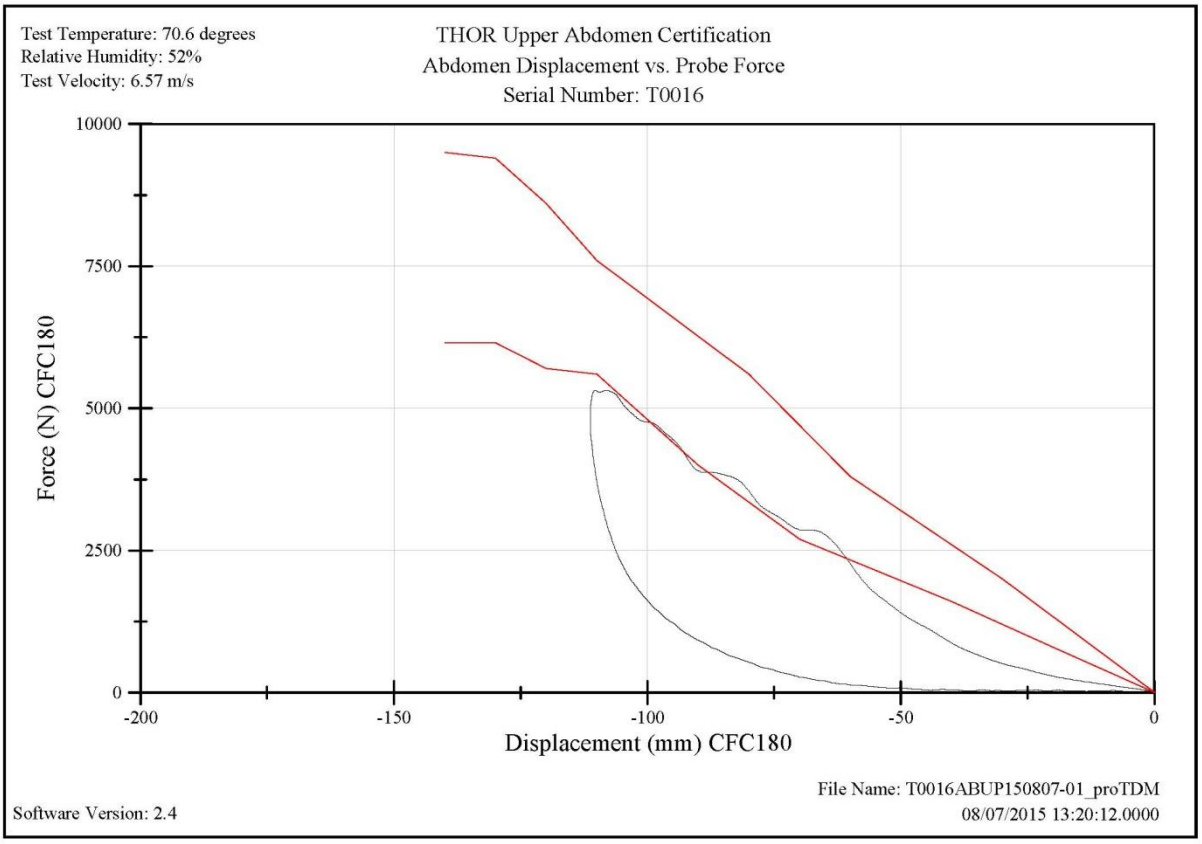

Test Temperature: 69.4 degrees
Relative Humidity: 52%
Test Velocity: 4.25 m/s
THOR Lower Right Oblique Thorax Certification
Z-Potentiometer
Serial Number: T0116
Left Lower
Right Lower
Angular Displacment (deg) CFC180
10
5
0
-5
-10
-15
-20
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T0016ObliqueRight150812-01_pro tdms
Software Version: 2.4
08/12/2015 13:06:03.0000

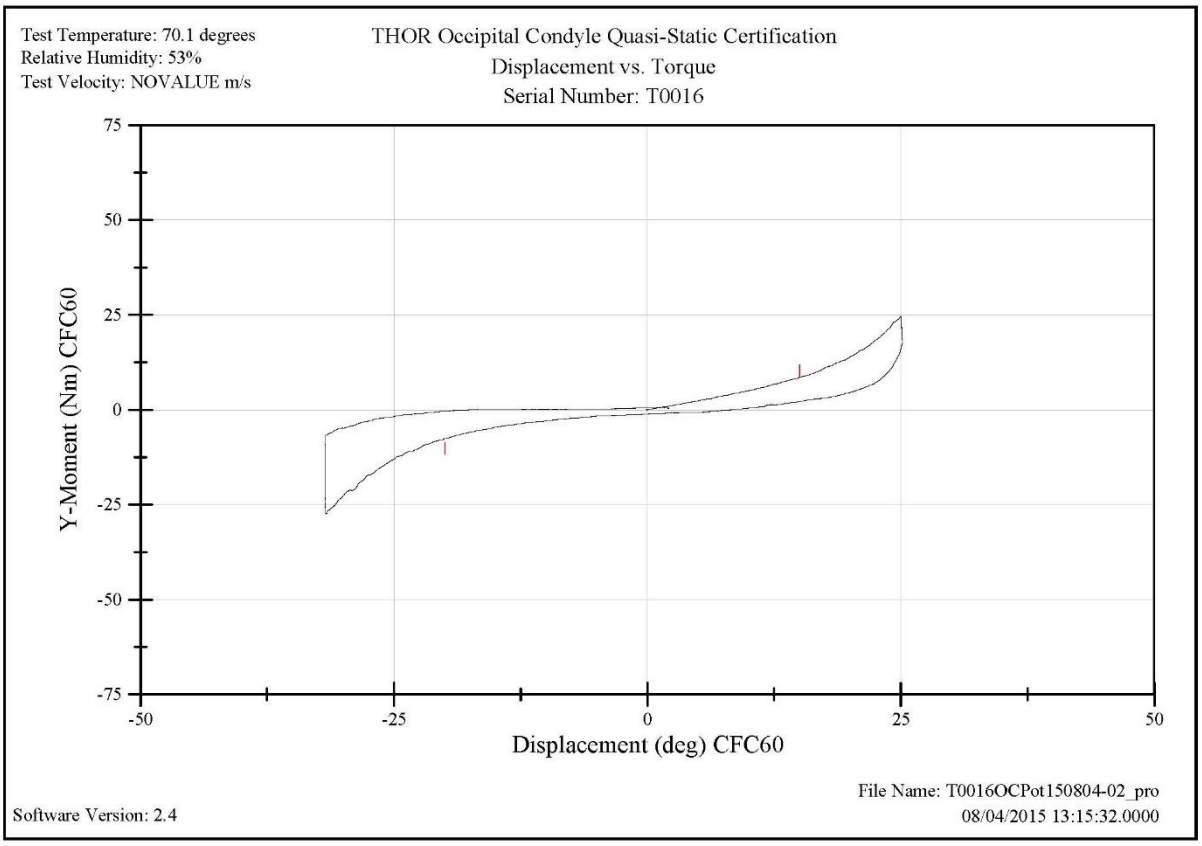

Test Temperature: 70.6 degrees
Relative Humidity: 53%
Test Velocity: 6.04 m/s
THOR Lower Abdomen Certification
Abdomen Displacement vs. Probe Force
Serial Number: T0016
Force (N) CFC180
10000
8000
6000
4000
2000
0
-2000
-100
-80
-60
-40
-20
0
20
Displacement (mm) CFC180
File Name: T0016ABLR150807-02_proTDM
Software Version: 2.4
08/07/2015 08:12:59.0000

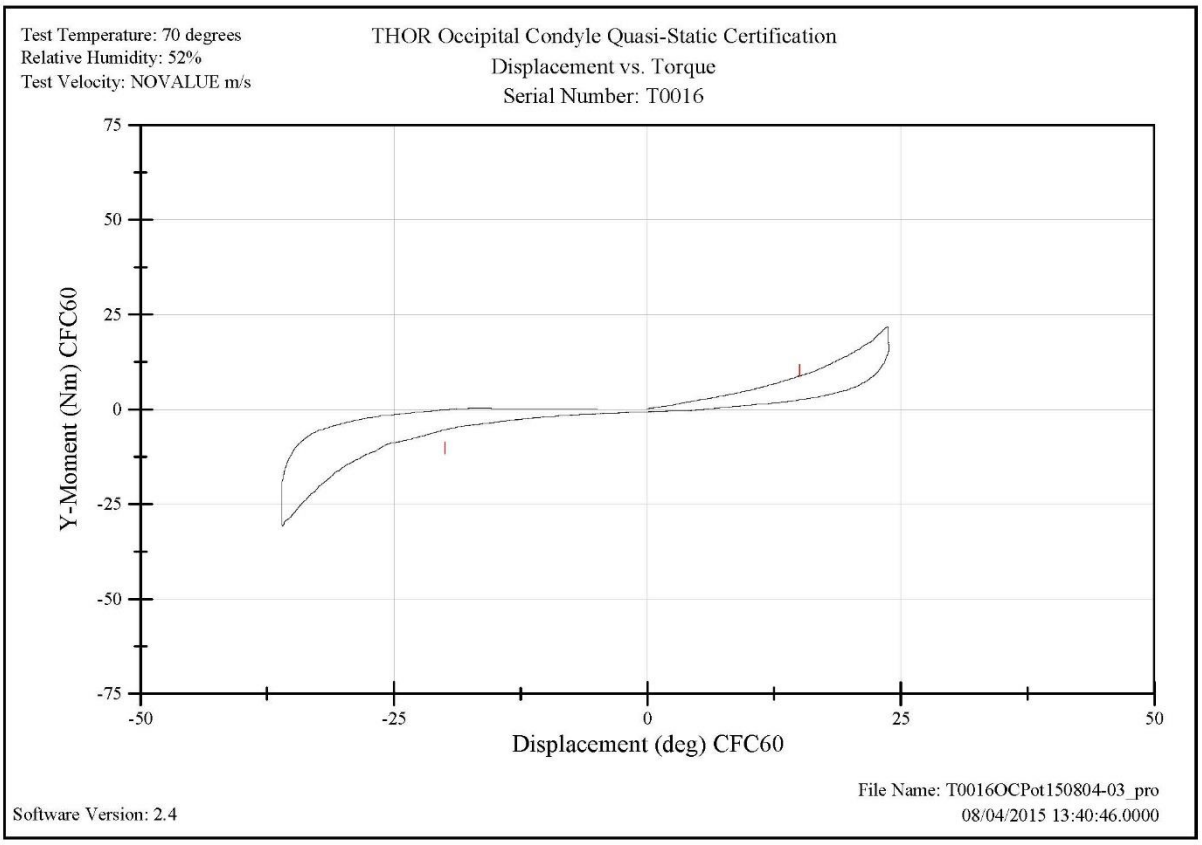

Test Temperature: 70.6 degrees
Relative Humidity: 53%
Test Velocity: 6.04 m/s
THOR Lower Abdomen Certification
IRTRACC Displacement
Serial Number: T0016
Left Lower IR-TRACC
Right Lower IR-TRACC
Displacment (mm) CFC180
180
160
140
120
100
80
60
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T0016ABLR150807-02_proTDM
08/07/2015 08:12:59.0000
Software Version: 2.4

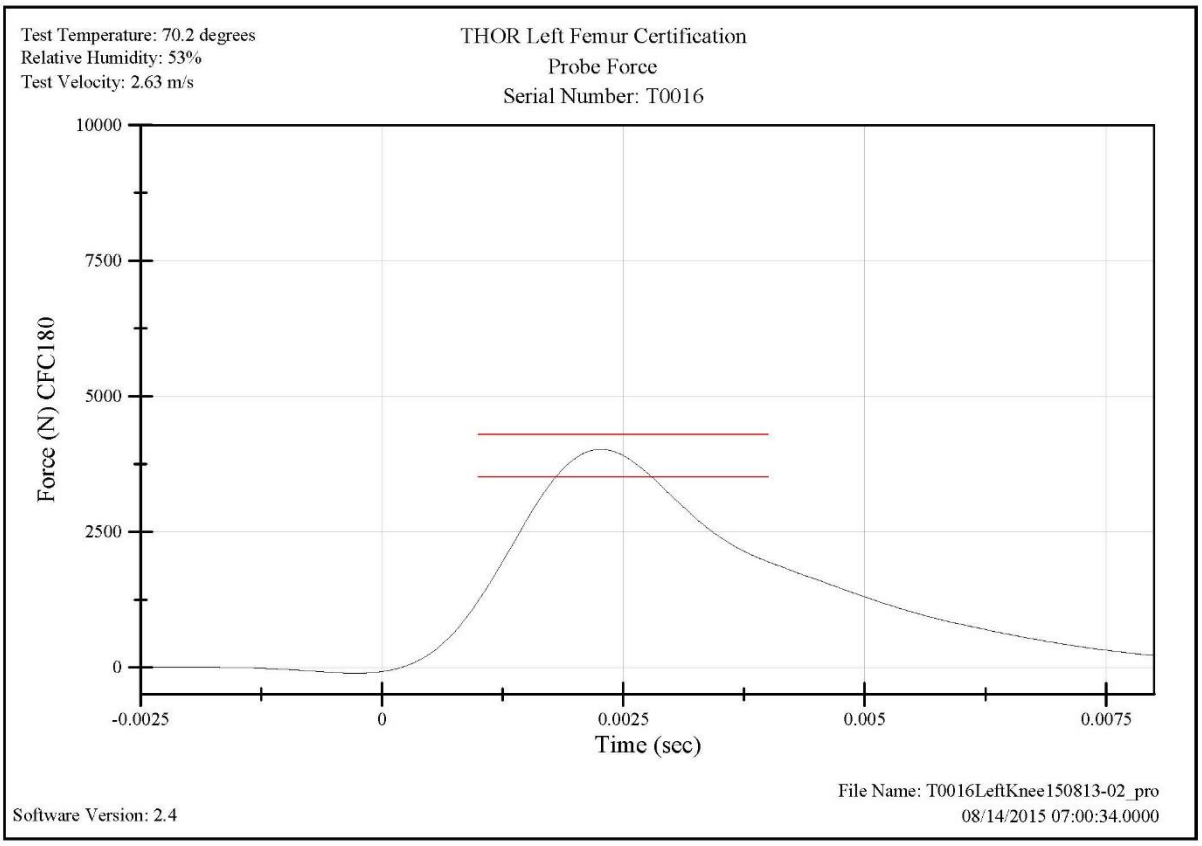

Test Temperature: 70.6 degrees
Relative Humidity: 53%
Test Velocity: 6.04 m/s
THOR Lower Abdomen Certification
Y-Pot Displacement
Serial Number: T0016
Left Lower
Right Lower
Angular Displacment (deg) CFC180
4
2
0
-2
-4
-6
-8
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T0016ABLR150807-02_proTDM
08/07/2015 08:12:59.0000
Software Version: 2.4

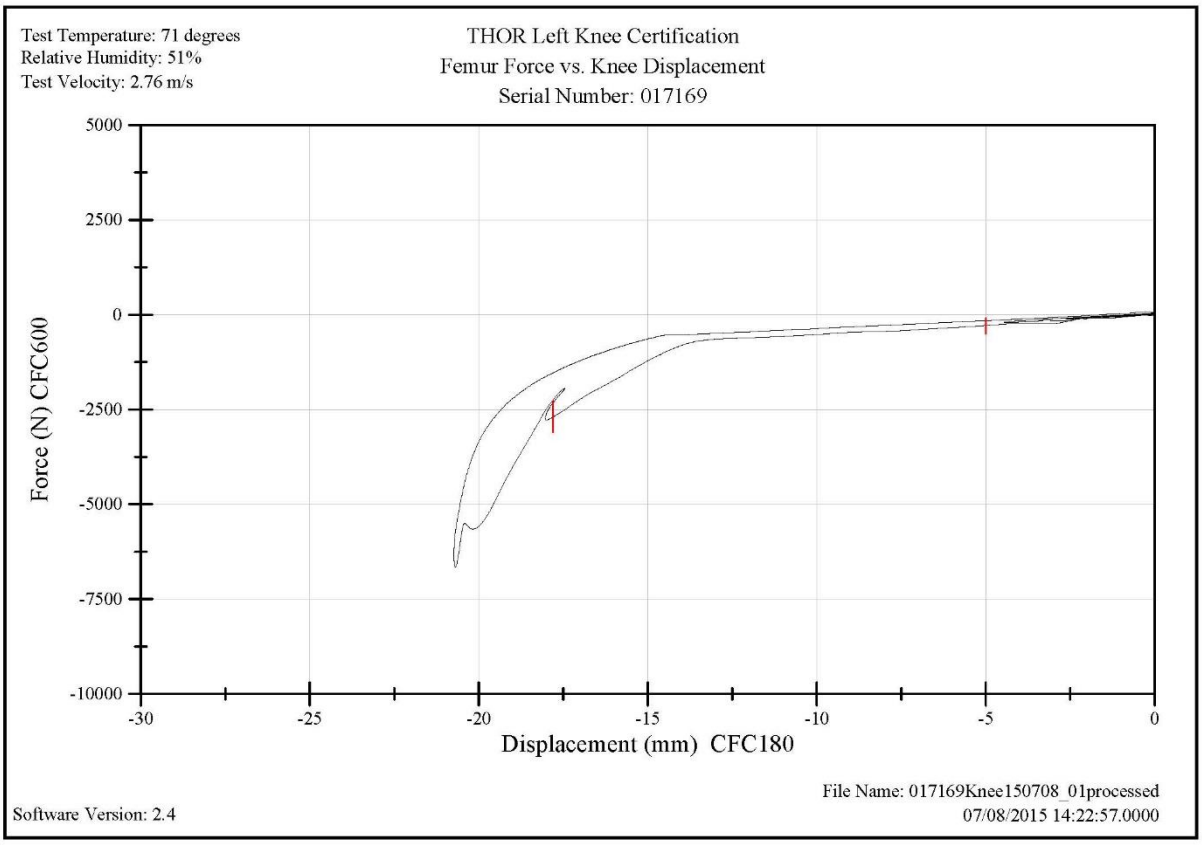

Test Temperature: 70.6 degrees
Relative Humidity: 53%
Test Velocity: 6.04 m/s
THOR Lower Abdomen Certification
Z-Potentiometer
Serial Number: T0016
Left Lower
Right Lower
Angular Displacement (deg) CFC180
5
4
3
2
1
0
-1
-2
0
0.025
0.05
0.075
0.1
Time (Sec)
File Name: T0016ABLR150807-02_proTDM
08/07/2015 08:12:59.0000
Software Version: 2.4

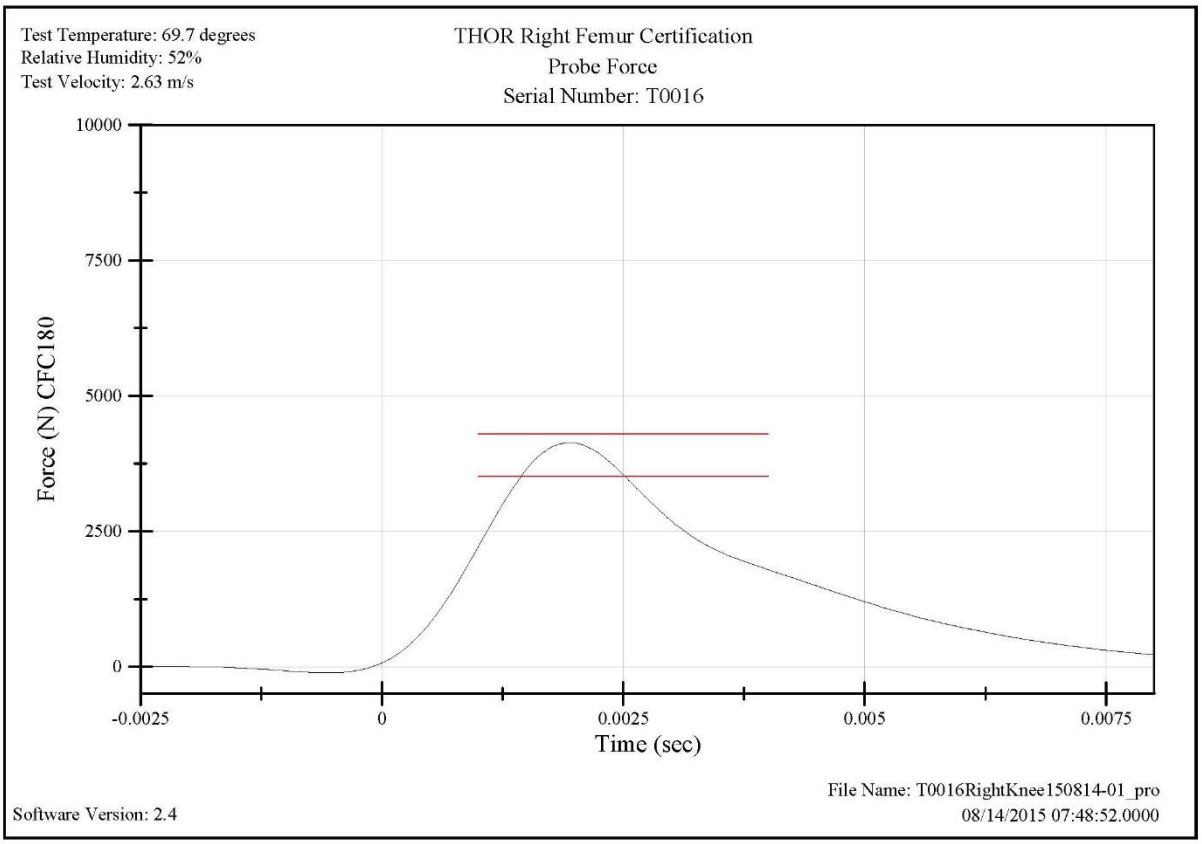

Test Temperature: 70.6 degrees
Relative Humidity: 52%
Test Velocity: 6.57 m/s
THOR Upper Abdomen Certification
Abdomen Displacement vs. Probe Force
Serial Number: T0016
Force (N) CFC180
10000
7500
5000
2500
0
-200
-150
-100
-50
0
Displacement (mm) CFC180
File Name: T0016ABUP150807-01_proTDM
08/07/2015 13:20:12.0000
Software Version: 2.4

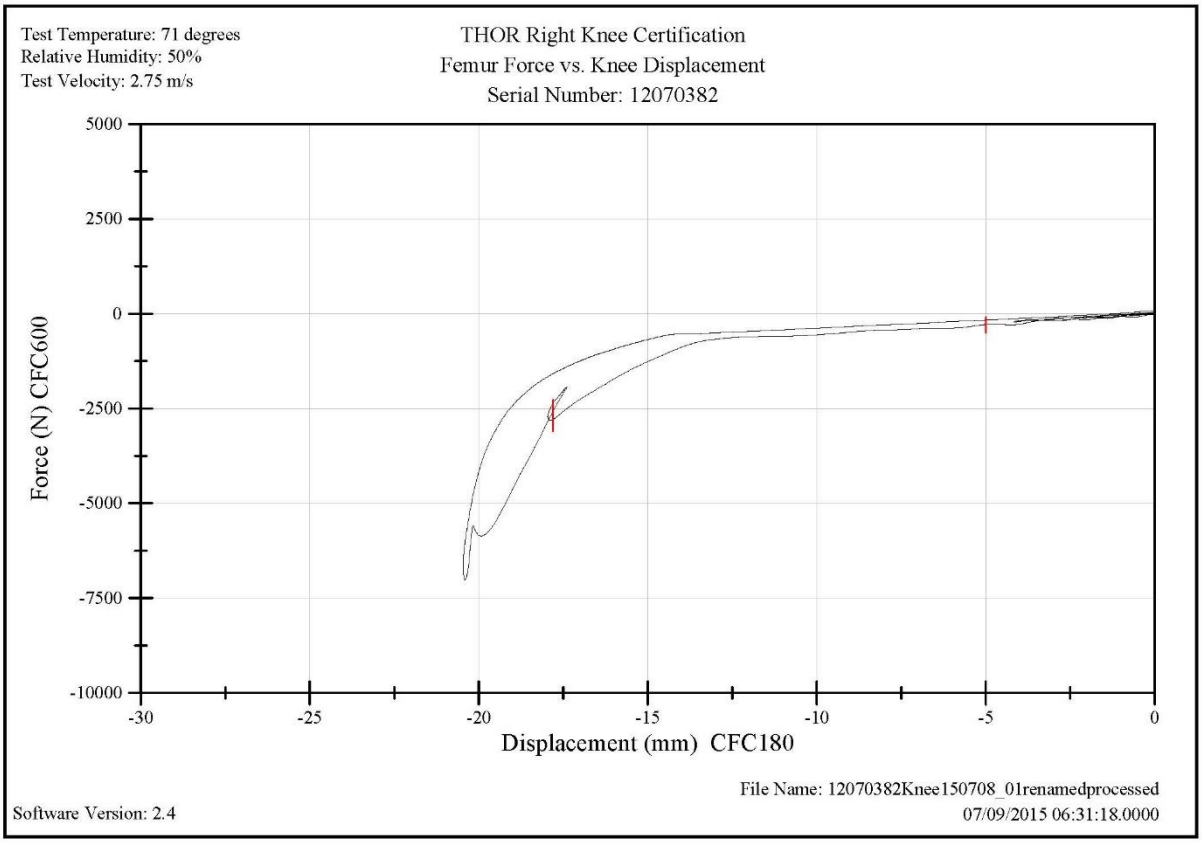

Test Temperature: 70.1 degrees
Relative Humidity: 53%
Test Velocity: NOVALUE m/s
THOR Occipital Condyle Quasi-Static Certification
Displacement vs. Torque
Serial Number: T0016
Y-Moment (Nm) CFC60
Displacement (deg) CFC60
75
50
25
0
-25
-50
-75
-50
-25
0
25
50
File Name: T0016OCPot150804-02_pro
08/04/2015 13:15:32.0000
Software Version: 2.4


Test Temperature: 70 degrees
Relative Humidity: 52%
Test Velocity: NOVALUE m/s
THOR Occipital Condyle Quasi-Static Certification
Displacement vs. Torque
Serial Number: T0016
Y-Moment (Nm) CFC60
Displacement (deg) CFC60
75
50
25
0
-25
-50
-75
-50
-25
0
25
50
File Name: T0016OCPot150804-03_pro
08/04/2015 13:40:46.0000
Software Version: 2.4


Test Temperature: 70.2 degrees
Relative Humidity: 53%
Test Velocity: 2.63 m/s
THOR Left Femur Certification
Probe Force
Serial Number: T0016
Force (N) CFC180
10000
7500
5000
2500
0
-0.0025
0
0.0025
0.005
0.0075
Time (sec)
File Name: T0016LeftKnee150813-02_pro
08/14/2015 07:00:34.0000
Software Version: 2.4


Test Temperature: 71 degrees
Relative Humidity: 51%
Test Velocity: 2.76 m/s
THOR Left Knee Certification
Femur Force vs. Knee Displacement
Serial Number: 017169
Force (N) CFC600
5000
2500
0
-2500
-5000
-7500
-10000
-30
-25
-20
-15
-10
-5
0
Displacement (mm) CFC180
File Name: 017169Knee150708_01processed
07/08/2015 14:22:57.0000
Software Version: 2.4


Test Temperature: 69.7 degrees
Relative Humidity: 52%
Test Velocity: 2.63 m/s
THOR Right Femur Certification
Probe Force
Serial Number: T0016
Force (N) CFC180
10000
7500
5000
2500
0
-0.0025
0
0.0025
0.005
0.0075
Time (sec)
File Name: T0016RightKnee150814-01_pro
08/14/2015 07:48:52.0000
Software Version: 2.4


Test Temperature: 71 degrees
Relative Humidity: 50%
Test Velocity: 2.75 m/s
THOR Right Knee Certification
Femur Force vs. Knee Displacement
Serial Number: 12070382
Force (N) CFC600
5000
2500
0
-2500
-5000
-7500
-10000
-30
-25
-20
-15
-10
-5
0
Displacement (mm) CFC180
File Name: 12070382Knee150708_01renamedprocessed
07/09/2015 06:31:18.0000
Software Version: 2.4

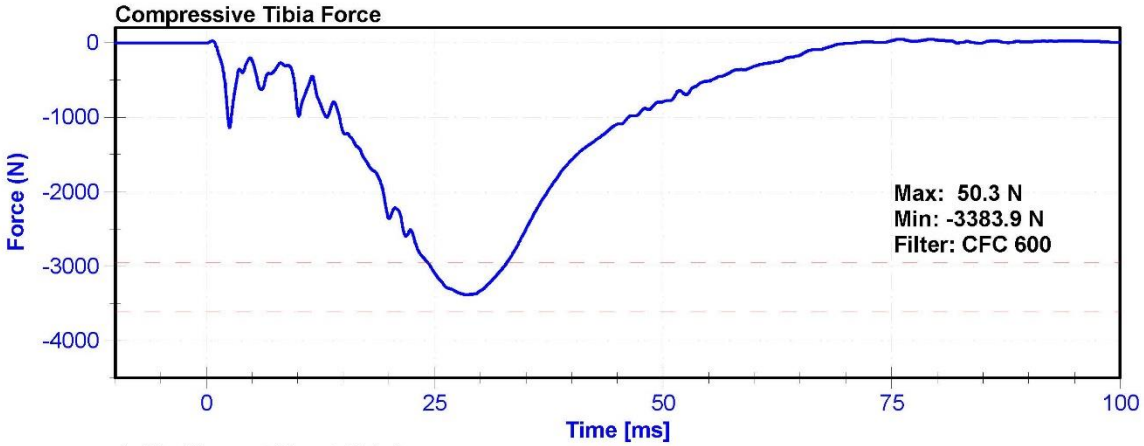
ATD Manufacturer	Huimanetics	Test Technician	M.Hartung
ATD Serial Number	0016	Laboratory Supervisor	M. Goehle

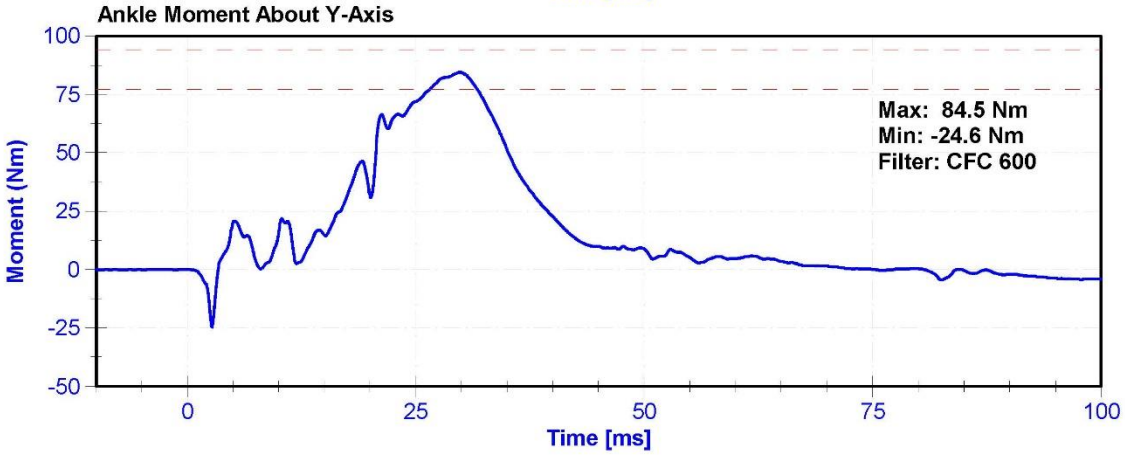
Results

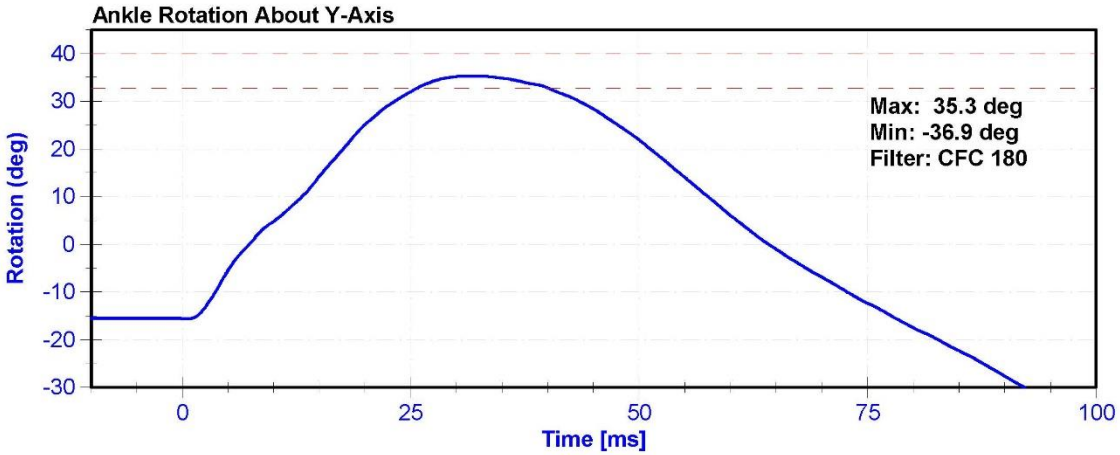
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	^{0}C	21.4	Pass
Humidity	10	70	%	49.1	Pass
Velocity	4.9	5.1	m/s	4.916	Pass
Lower Tibia Compressive Force	-3,613	-2,956	N	-3383.9	Pass
Peak Moment about Y-Axis	77.1	94.2	Nm	84.46	Pass
Peak Rotation about Y-Axis	32.7	39.9	deg	35.27	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-140 Fz	3/3/2015	3/2/2016
Ankle Y Potentiometer	Contelec PD210-4B	DS-0525-1	7/7/2015	7/6/2016


Compressive Tibia Force
Force (N)
0
-1000
-2000
-3000
-4000
Max: 50.3 N
Min: -3383.9 N
Filter: CFC 600
0
25
50
75
100
Time [ms]


Ankle Moment About Y-Axis
Moment (Nm)
100
75
50
25
0
-25
-50
Max: 84.5 Nm
Min: -24.6 Nm
Filter: CFC 600
0
25
50
75
100
Time [ms]


Ankle Rotation About Y-Axis
Rotation (deg)
40
30
20
10
0
-10
-20
-30
Max: 35.3 deg
Min: -36.9 deg
Filter: CFC 180
0
25
50
75
100
Time [ms]

ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0016	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	^{0}C	21.4	Pass
Humidity	10	70	%	46.1	Pass
Velocity	1.9	2.1	m/s	1.979	Pass
Lower Tibia Compressive Force	-675	-552	N	-567.5	Pass
Peak Moment about X-Axis	-44.4	-36.3	Nm	-42.63	Pass
Peak Rotation about X-Axis	-37.0	-30.3	deg	-33.99	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-140 Fz	3/3/2015	3/2/2016
Ankle Y Potentiometer	Contelec PD210-4B	DS-0254	6/30/2015	6/29/2016

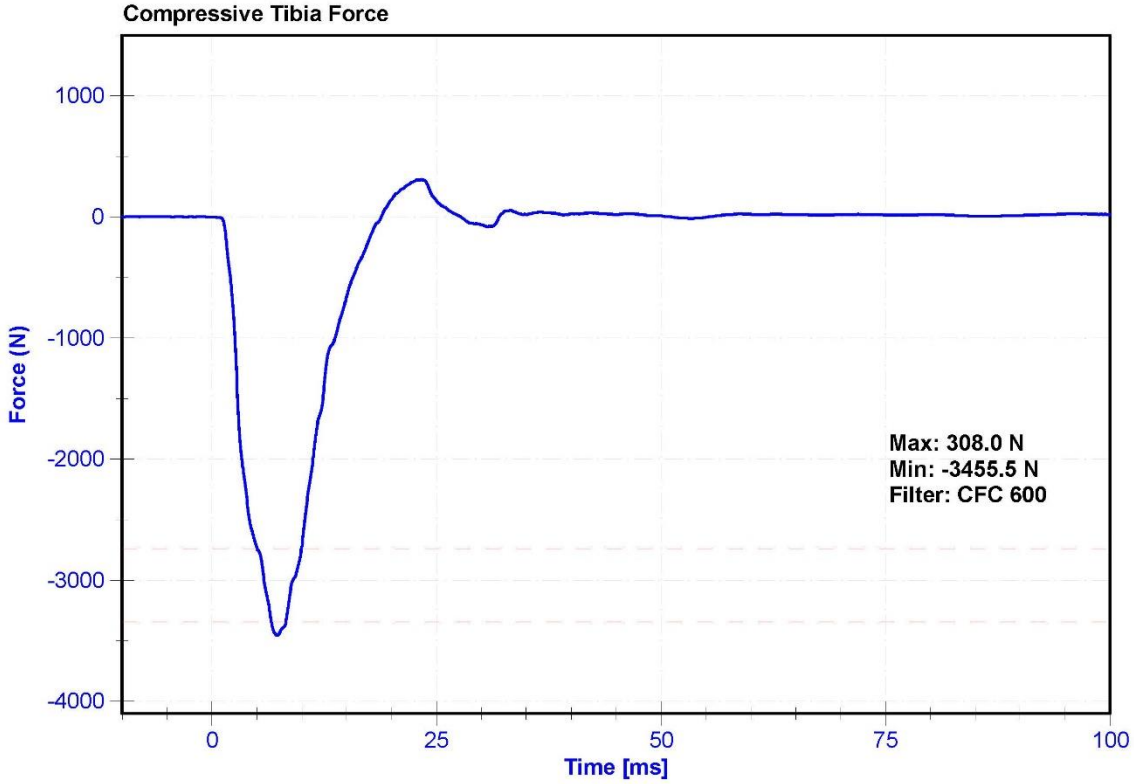
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0016	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	47.1	Pass
Velocity	3.9	4.1	m/s	3.948	Pass
Lower Tibia Compressive Force	-3,346	-2,738	N	-3455.5	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-140 Fz	3/3/2015	3/2/2016



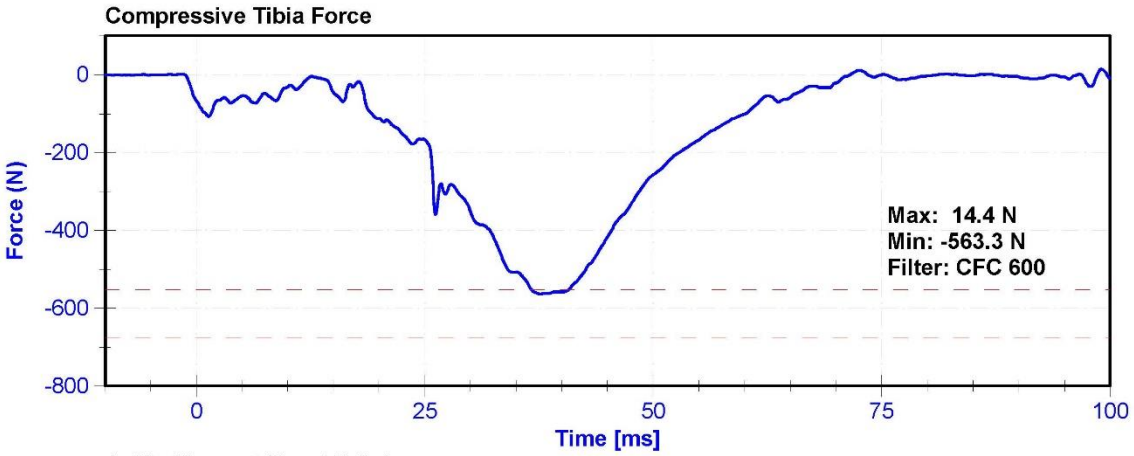
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0016	Laboratory Supervisor	M. Goehle

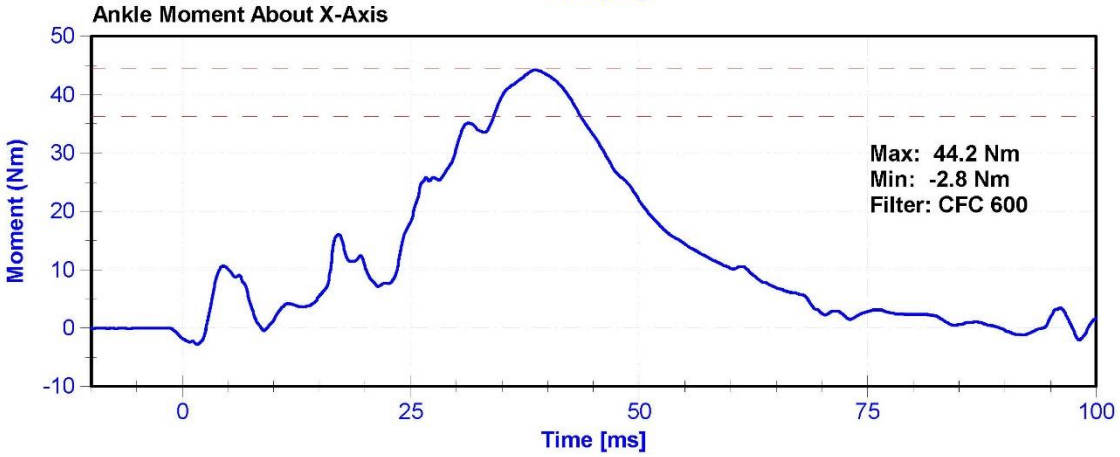
Results

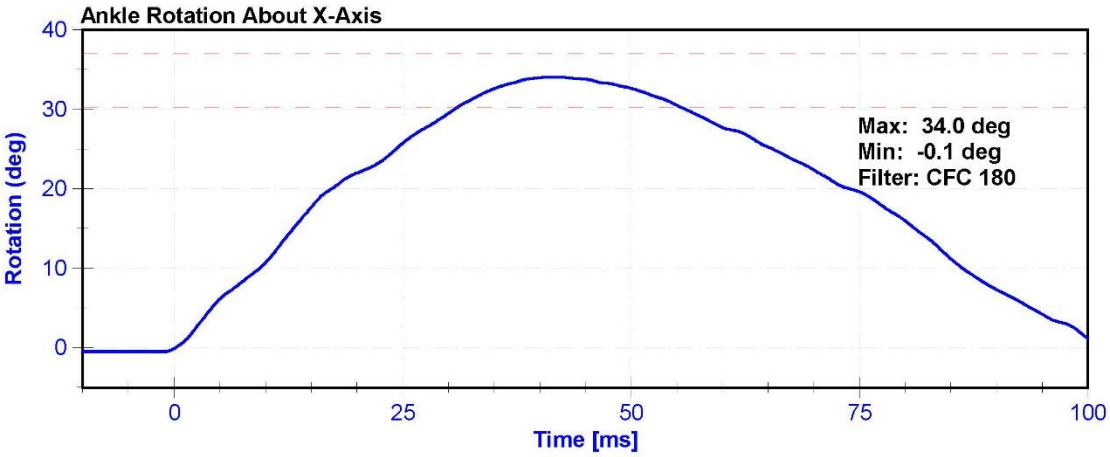
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	^{0}C	21.2	Pass
Humidity	10	70	%	48.8	Pass
Velocity	1.9	2.1	m/s	1.969	Pass
Lower Tibia Compressive Force	-675	-552	N	-563.3	Pass
Peak Moment about X-Axis	36.3	44.4	Nm	44.20	Pass
Peak Rotation about X-Axis	30.3	37.0	deg	34.02	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-140 Fz	3/3/2015	3/2/2016
Ankle Y Potentiometer	Contelec PD210-4B	DS-0254	6/30/2015	6/29/2016


Compressive Tibia Force
Force (N)
0
-200
-400
-600
-800
0
25
50
75
100
Time [ms]
Max: 14.4 N
Min: -563.3 N
Filter: CFC 600


Ankle Moment About X-Axis
Moment (Nm)
50
40
30
20
10
0
-10
0
25
50
75
100
Time [ms]
Max: 44.2 Nm
Min: -2.8 Nm
Filter: CFC 600


Ankle Rotation About X-Axis
Rotation (deg)
40
30
20
10
0
0
25
50
75
100
Time [ms]
Max: 34.0 deg
Min: -0.1 deg
Filter: CFC 180

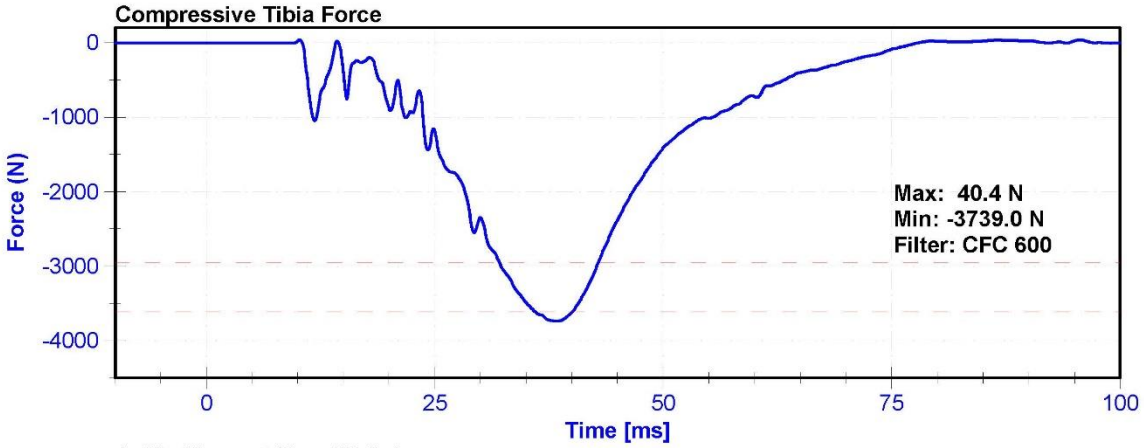
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0016	Laboratory Supervisor	M. Goehle

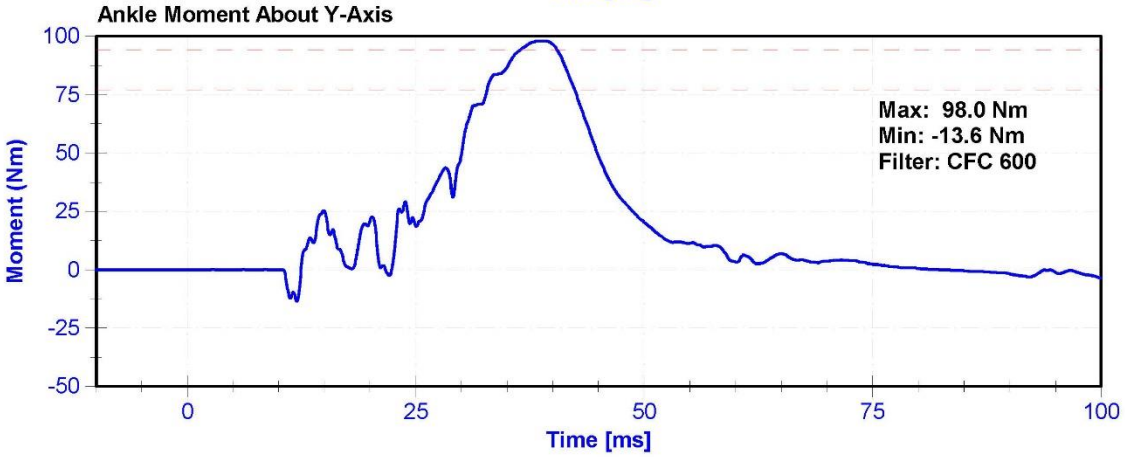
Results

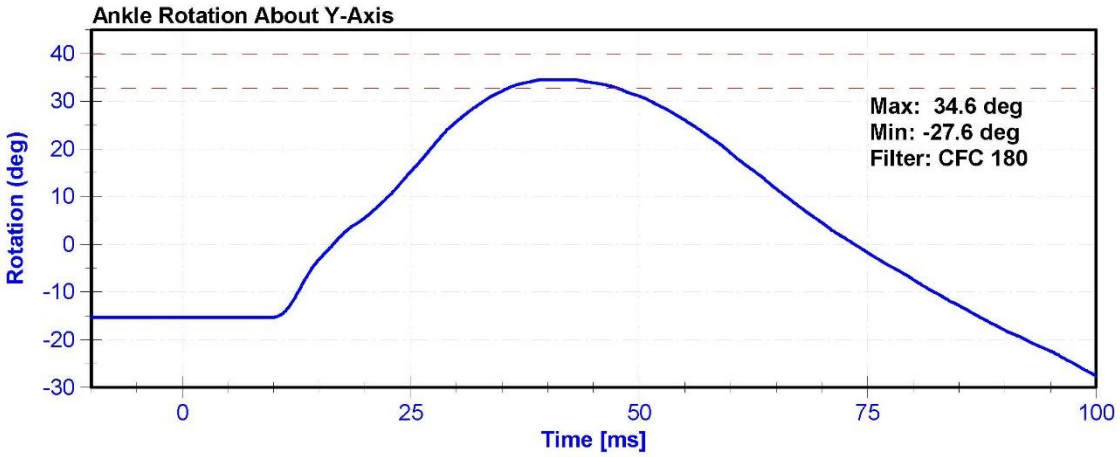
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	^{0}C	21.5	Pass
Humidity	10	70	%	47.9	Pass
Velocity	4.9	5.1	m/s	4.980	Pass
Lower Tibia Compressive Force	-3,613	-2,956	N	-3739.0	Fail
Peak Moment about Y-Axis	77.1	94.2	Nm	97.98	Fail
Peak Rotation about Y-Axis	32.7	39.9	deg	34.60	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-139 Fz	6/16/2015	6/15/2016
Ankle Y Potentiometer	Contelec PD210-4B	DS-0527	6/30/2015	6/29/2016


Compressive Tibia Force
Force (N)
0
-1000
-2000
-3000
-4000
Max: 40.4 N
Min: -3739.0 N
Filter: CFC 600
0
25
50
75
100
Time [ms]


Ankle Moment About Y-Axis
Moment (Nm)
100
75
50
25
0
-25
-50
Max: 98.0 Nm
Min: -13.6 Nm
Filter: CFC 600
0
25
50
75
100
Time [ms]


Ankle Rotation About Y-Axis
Rotation (deg)
40
30
20
10
0
-10
-20
-30
Max: 34.6 deg
Min: -27.6 deg
Filter: CFC 180
0
25
50
75
100
Time [ms]

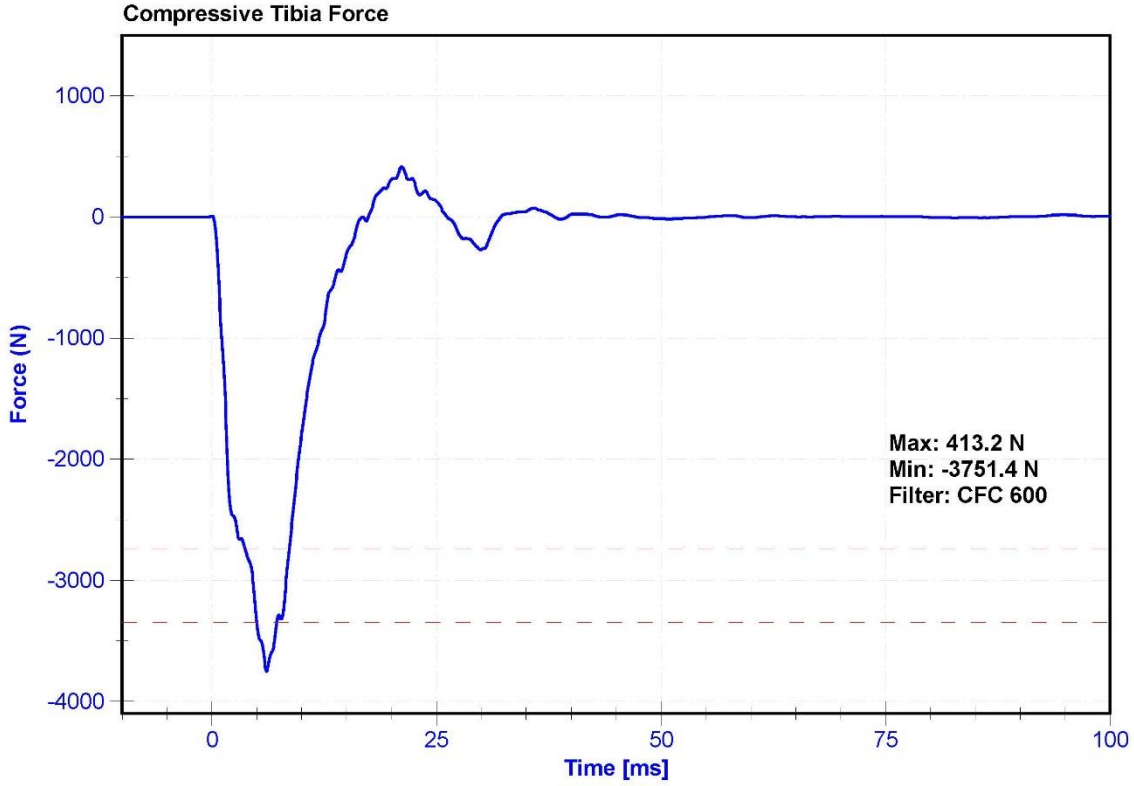
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0016	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	48.3	Pass
Velocity	3.9	4.1	m/s	3.948	Pass
Lower Tibia Compressive Force	-3,346	-2,738	N	-3751.4	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-139 Fz	6/16/2015	6/15/2016



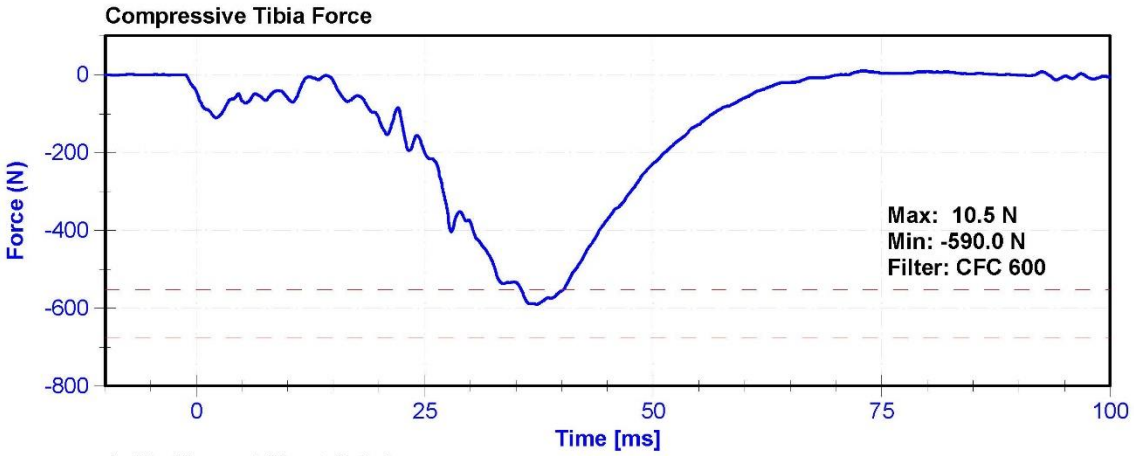
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0016	Laboratory Supervisor	M. Goehle

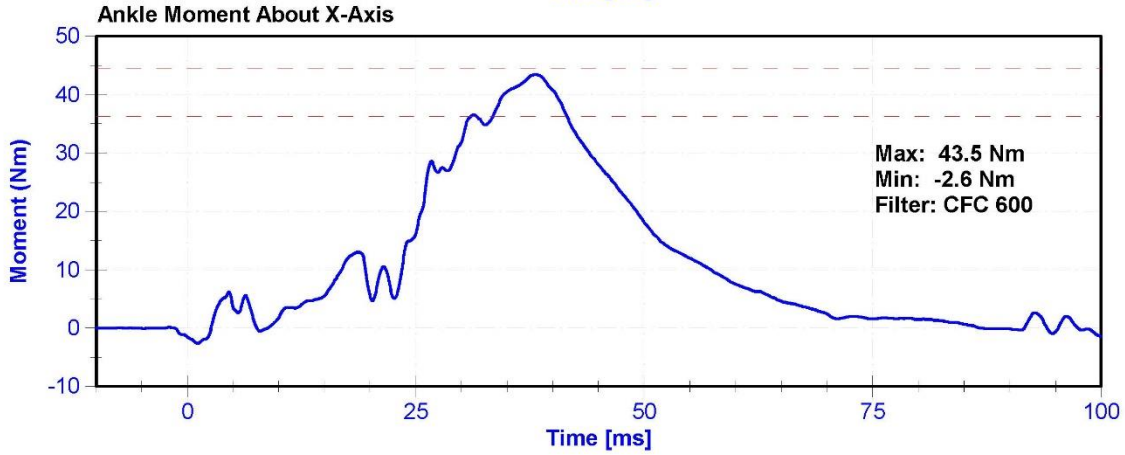
Results

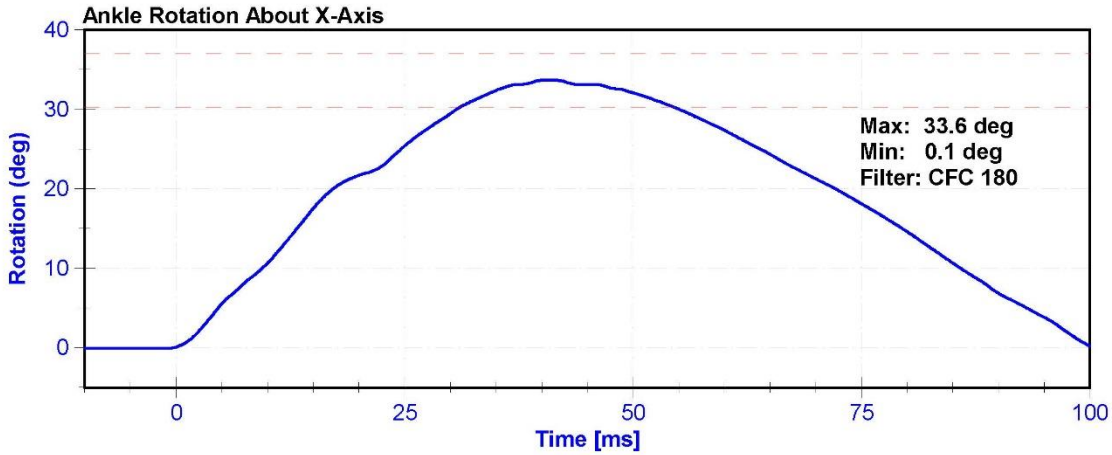
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	^{0}C	21.3	Pass
Humidity	10	70	%	46.5	Pass
Velocity	1.9	2.1	m/s	1.944	Pass
Lower Tibia Compressive Force	-675	-552	N	-590.0	Pass
Peak Moment about X-Axis	36.3	44.4	Nm	43.49	Pass
Peak Rotation about X-Axis	30.3	37.0	deg	33.65	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-139 Fz	6/16/2015	6/15/2016
Ankle Y Potentiometer	Contelec PD210-4B	DS-0544	6/30/2015	6/29/2016


Compressive Tibia Force
Force (N)
0
-200
-400
-600
-800
0
25
50
75
100
Time [ms]
Max: 10.5 N
Min: -590.0 N
Filter: CFC 600


Ankle Moment About X-Axis
Moment (Nm)
50
40
30
20
10
0
-10
0
25
50
75
100
Time [ms]
Max: 43.5 Nm
Min: -2.6 Nm
Filter: CFC 600


Ankle Rotation About X-Axis
Rotation (deg)
40
30
20
10
0
0
25
50
75
100
Time [ms]
Max: 33.6 deg
Min: 0.1 deg
Filter: CFC 180

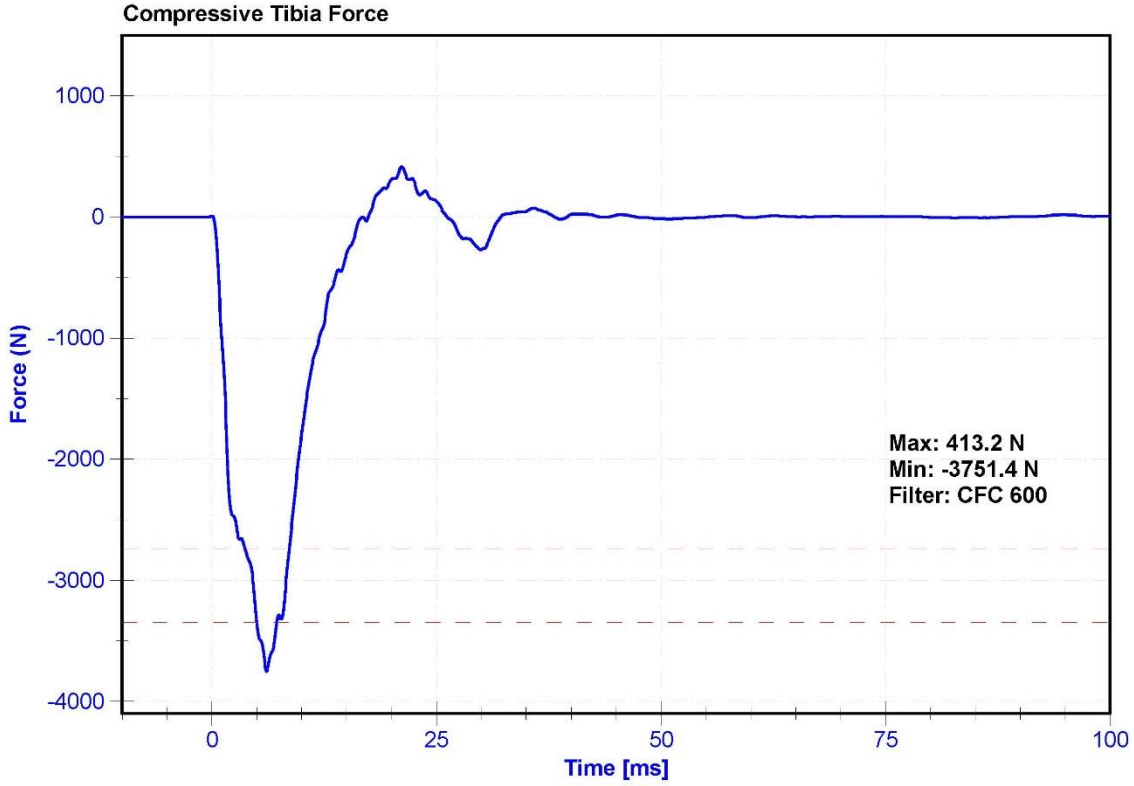
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0016	Laboratory Supervisor	M. Goehle

Results

Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	°C	21.3	Pass
Humidity	10	70	%	48.3	Pass
Velocity	3.9	4.1	m/s	3.948	Pass
Lower Tibia Compressive Force	-3,346	-2,738	N	-3751.4	Fail

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-139 Fz	6/16/2015	6/15/2016



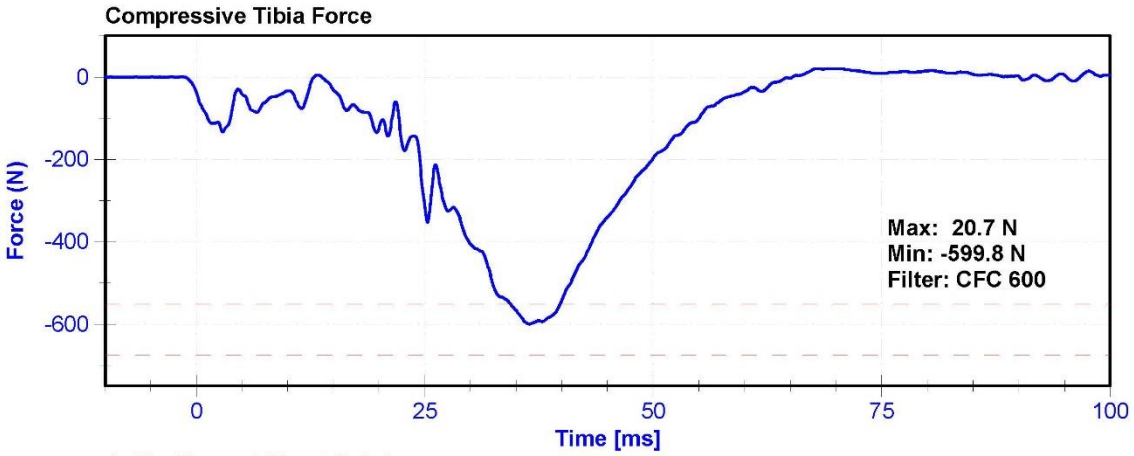
ATD Manufacturer	Humanetics	Test Technician	M.Hartung
ATD Serial Number	0016	Laboratory Supervisor	M. Goehle

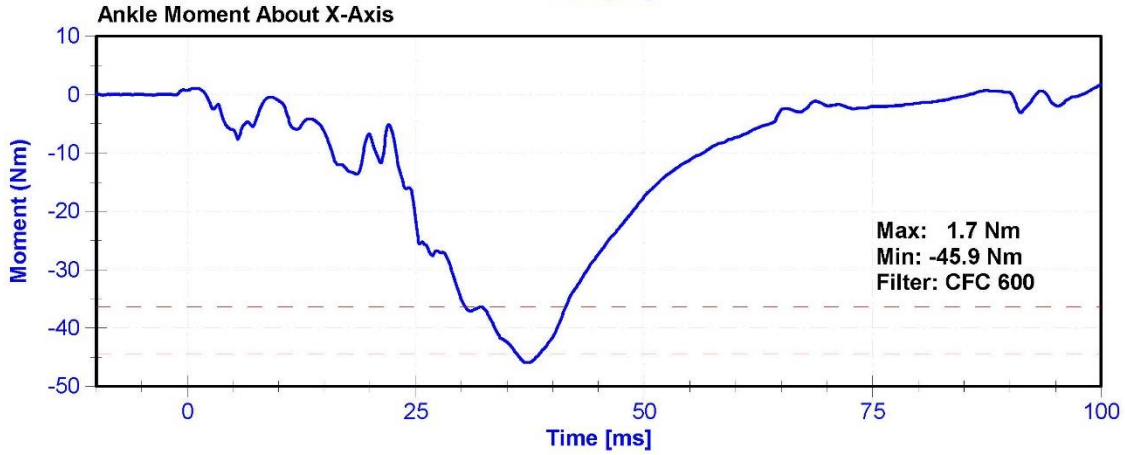
Results

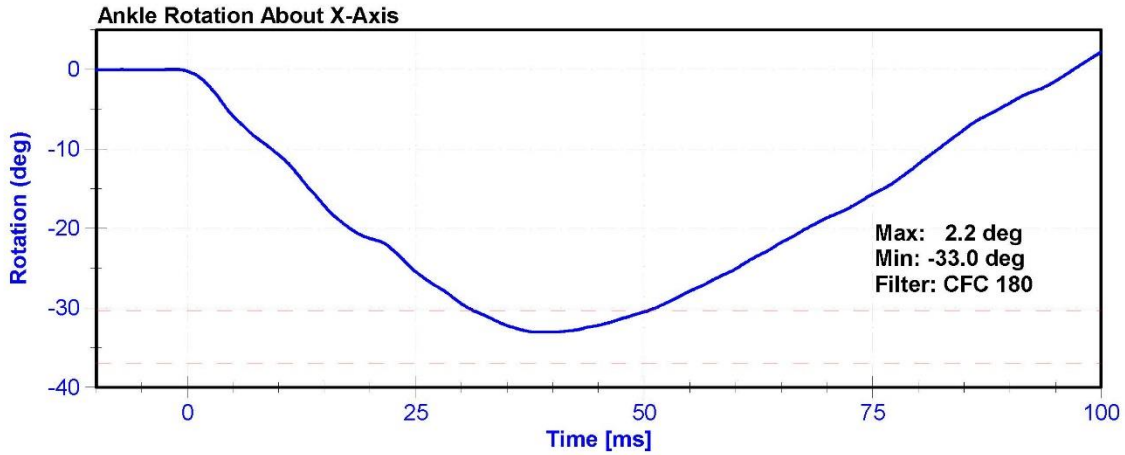
Test Parameter	Minimum Specification	Maximum Specification	Unit	Result	Pass/Fail
Temperature	20.6	22.2	^{0}C	21.5	Pass
Humidity	10	70	%	48.7	Pass
Velocity	1.9	2.1	m/s	1.905	Pass
Lower Tibia Compressive Force	-675	-552	N	-599.8	Pass
Peak Moment about X-Axis	-44.4	-36.3	Nm	-45.89	Fail
Peak Rotation about X-Axis	-37.0	-30.3	deg	-33.03	Pass

Transducer Calibrations

Channel	Manufacturer	Serial Number	Calibration Date	Calibration Due Date
Pendulum Accelerometer	ENDEVCO 7231CT	AC-C15018	7/15/2015	7/14/2016
Lower Tibia Load Cell	Denton 4929J	LC-139 Fz	6/16/2015	6/15/2016
Ankle Y Potentiometer	Contelec PD210-4B	DS-0544	6/30/2015	6/29/2016


Compressive Tibia Force
Force (N)
0
-200
-400
-600
Max: 20.7 N
Min: -599.8 N
Filter: CFC 600
0
25
50
75
100
Time [ms]


Ankle Moment About X-Axis
Moment (Nm)
10
0
-10
-20
-30
-40
-50
Max: 1.7 Nm
Min: -45.9 Nm
Filter: CFC 600
0
25
50
75
100
Time [ms]


Ankle Rotation About X-Axis
Rotation (deg)
0
-10
-20
-30
-40
Max: 2.2 deg
Min: -33.0 deg
Filter: CFC 180
0
25
50
75
100
Time [ms]