

REPORT NUMBER: R&D-CAL-14-001

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

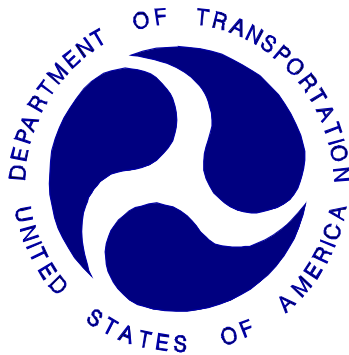
2014 Honda Accord

90.1KPH, 15 DEGREE ANGLE, 35% OVERLAP

TEST DATE: 06/27/2014

NHTSA No: R20145374

**CALSPAN CORPORATION
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December 19, 2014

PREPARED FOR:

**U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Vehicle safety Research
1200 New Jersey Ave, SE
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Edward J. Dutton, Test Engineer Director
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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: _____

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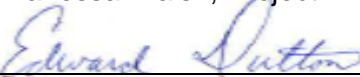
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16. Abstract A test was conducted in accordance with Task Order 0002 of Contract DTNH22-10-D-00155. The Test consisted of a Research Moving Deformable Barrier (RMDB) traveling at a target speed of 90.12 kph into a stationary 2014 Honda Accord four door sedan. The struck vehicle was positioned 15 degrees relative to the moving barrier and impacted 35% of the left side of the vehicle. The test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and foot well intrusion performance. The test was conducted at the Calspan Corporation's Transportation Test Operation's facility in Buffalo, New York on June 27, 2014. The RMDB impact velocity was 90.32 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:																																																									
<table border="1"> <thead> <tr> <th rowspan="2">Measurement Description</th> <th rowspan="2">Units</th> <th colspan="2">Driver ATD</th> <th colspan="2">Pass. ATD</th> </tr> <tr> <th>Threshold</th> <th>Result</th> <th>Threshold</th> <th>Result</th> </tr> </thead> <tbody> <tr> <td>Head Injury Criteria (HIC₁₅)</td> <td>N/A</td> <td>700</td> <td>185.00</td> <td>700</td> <td>934.77</td> </tr> <tr> <td>Maximum Chest Compression</td> <td>mm</td> <td>63</td> <td>-48.74</td> <td>63</td> <td>-39.34</td> </tr> <tr> <td>Neck Injury Criteria (Nij)</td> <td>N/A</td> <td>1</td> <td>0.26</td> <td>1</td> <td>0.41</td> </tr> <tr> <td>Neck Tension</td> <td>N</td> <td>4,170</td> <td>1540.43</td> <td>4,170</td> <td>2097.42</td> </tr> <tr> <td>Neck Compression</td> <td>N</td> <td>4,000</td> <td>-45.76</td> <td>4,000</td> <td>-223.46</td> </tr> <tr> <td>Left Femur Force</td> <td>N</td> <td>10,008</td> <td>-3372.60</td> <td>10,008</td> <td>-5191.90</td> </tr> <tr> <td>Right Femur Force</td> <td>N</td> <td>10,008</td> <td>-1999.70</td> <td>10,008</td> <td>-5512.60</td> </tr> </tbody> </table>						Measurement Description	Units	Driver ATD		Pass. ATD		Threshold	Result	Threshold	Result	Head Injury Criteria (HIC ₁₅)	N/A	700	185.00	700	934.77	Maximum Chest Compression	mm	63	-48.74	63	-39.34	Neck Injury Criteria (Nij)	N/A	1	0.26	1	0.41	Neck Tension	N	4,170	1540.43	4,170	2097.42	Neck Compression	N	4,000	-45.76	4,000	-223.46	Left Femur Force	N	10,008	-3372.60	10,008	-5191.90	Right Femur Force	N	10,008	-1999.70	10,008	-5512.60
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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.

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 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

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**SECTION 1
PURPOSE OF TEST**

Test Vehicle: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014

This 90.12 kph (56 mph) Moving Barrier into a test vehicle is part of the Frontal Offset Test outlined in Contract No. DTNH22-10-D-00155, Task Order 0002. The purpose of this test is to obtain vehicle crashworthiness and occupant restraint system performance data for consumer information purposes.

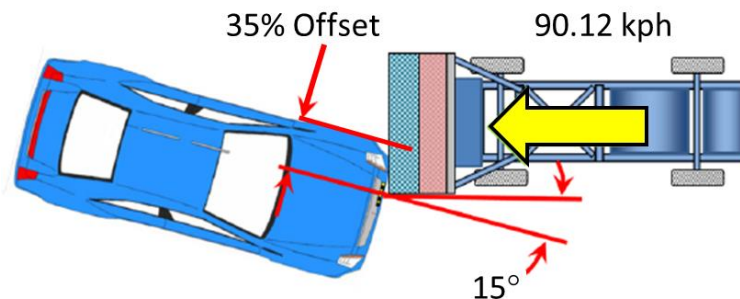
This test was conducted in accordance with the instructions set forth for a 15° angle, 35% offset moving barrier to vehicle impact, outlined in Contract No. DTNH22-10-D-00155, TO 0002. Data was obtained indicant of Federal Motor Vehicle Safety Standard FMVSS 208-Occupant Crash Protection, FMVSS 212 – Windshield Mounting, FMVSS 219 (partial) – Windshield Zone Intrusion, and FMVSS 301 – Fuel System Integrity, in addition to the requirements of Contract No. DTNH22-10-D-00155, TO 0002.

SECTION 2 SUMMARY OF TEST

Test Vehicle: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014

A 2014 Honda Accord four door sedan was impacted on the left front corner by a research moving deformable barrier (RMDB). 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 RMDB. The RMDB 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 1,744 kg (3,843.8 lbs), and the RMDB's mass was 2490.2 kg (5490 lbs). The test was conducted by Calspan Corporation on June 27, 2014.



The test was documented by two (2) real time and fourteen (14) 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, RMDB, 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 laboratory test procedures FMVSS 208-14, "Occupant Crash Protection", TP208-14, July 27, 2006.

The driver was restrained with a 3 – point seat belt, a frontal, curtain, and torso airbags. The passenger was restrained with a 3 – point seat belt, and frontal airbag. The passenger's curtain and torso airbags were disabled.

SECTION 2 (CONTINUED)
SUMMARY OF TEST

Test Vehicle: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014

Two hundred and thirty six (236) channels of data from the two ATD's, test vehicle and RMDB were collected using Kayser – Threde and DTS data acquisition systems. Appendix B contains dummy data plots, as well as vehicle and RMDB response data plots.

There was 94.5% total windshield retention, with 88.9% and 100% 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 621 mm at C1 to the left of the vehicle's centerline. The maximum crush of the structural bumper beam was 568 mm at B1, to the left 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
- Hood bent inwards and exposed part of the engine compartment

The driver ATD's visible contact points were:

- Head contacted the frontal and curtain airbag
- Torso contacted the frontal airbag, torso airbag, and driver's shoulder contacted the side door
- Knees contacted the knee bolster

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

- Head contacted the frontal airbag, center instrument panel, visor, and head liner
- Torso contacted the frontal airbag, and left shoulder contacted the center instrument panel
- Knees contacted the glove box

**SECTION 2 (CONTINUED)
CRASH VEHICLE SUMMARY**

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

Primary Impact Data

Measured Parameter	Units	Value
RMDB Velocity at Impact	kph	90.32
RMDB Test Weight	kg	2490.2
RMDB Maximum Static Crush	mm	268
Vehicle Test Weight	kg	1744
Actual Vehicle Angle	degrees	15
Vehicle Maximum Static Crush	mm	621
Vertical Offset from Target Point (+ down / - up)*	mm	-9
Lateral Offset from Target Point (+ left / - right)*	mm	+3
Number of Data Channels		236
Number of Real-Time Cameras		2
Number of High-Speed Cameras		14

*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 & Curtain Airbag	A49-A51	Front Airbag	A70-A72
Left Shoulder Contact	Driver's Door	N/A	Center Instrument Panel	N/A
Upper Torso Contact	Front & Torso Airbag	N/A	Front Airbag	N/A
Lower Torso Contact	None	N/A	None	N/A
Left Knee Contact	Knee Bolster	A28	Glove Box	A52
Left Outside Leg Contact	None	N/A	None	N/A
Right Knee Contact	Knee Bolster	A28	Glove Box	A52

Data Anomalies:

- Driver Left Lower IRTRACC X Displacement – Known bad channel.

SECTION 2 (CONTINUED)
PRELIMINARY INJURY SUMMARY: Driver

Test Vehicle: 2014 Honda Accord NHTSA No.: R20145374
 Test Program: Research and Development Right Oblique Offset Test Date: 6/27/2014

Driver: Thor Serial No. 015 Injury Summary

	Nomenclature	Units	Source	Max	Min
Head	Head CG X	g	1000	4.47	-46.43
	Head CG Y	g	1000	18.81	-4.40
	Head CG Z	g	1000	30.24	-6.70
	Head Resultant	g	Compute	53.99	
	36 ms HIC		Compute	253.76	
	15 ms HIC		Compute	185.00	
	Head Resultant CG Acceleration, 3 ms Clip	g	Compute	45.09	
	Head Rotational Velocity X	deg/s	60	461.53	-346.64
	Head Rotational Velocity Y	deg/s	60	669.61	-1769.08
	Head Rotational Velocity Z	deg/s	60	622.47	-464.49
	Head Rotational Velocity Resultant	deg/s	Compute	1774.21	
	Brain Injury Criteria		Compute	0.61	
	Neck	UNLC Transferred to OC, Neck System, FX	N	1000	116.48
UNLC Neck System Tension, FZ		N	1000	1540.43	
UNLC Neck System Compression, FZ		N	1000		-45.76
UNLC Transferred to OC, Neck System Flexion, MY		N-m	Thortest	6.51	
UNLC Transferred to OC, Neck System Extension, MY		N-m	Thortest		-24.65
NIJ			Compute	0.26	
On head acting through total neck section, FX		N	Thortest	135.95	-767.68
On head acting through total neck section, FY		N	Thortest	273.51	-81.14
On head acting through total neck section, FZ		N	Thortest	1577.60	-42.75
On head acting through total neck section, MX		N-m	Thortest	5.95	-28.17
On head acting through total neck section, MY		N-m	Thortest	22.15	-17.45
On head acting through total neck section, MZ		N-m	Thortest	8.74	-4.96
On head acting through O.C. joint only, FX		N	Thortest	109.38	-851.66
On head acting through O.C. joint only, FZ		N	Thortest	1540.90	-155.05
On head acting through O.C. joint only, MY		N-m	Thortest	6.51	-24.65
Chest	Upper Left IR-TRACC X - deflection	mm	Thortest	0.00	-27.23
	Upper Left IR-TRACC Y - deflection	mm	Thortest	13.19	-3.48
	Upper Left IR-TRACC Z - deflection	mm	Thortest	12.74	-15.12
	Upper Left IR-TRACC D - deflection	mm	Thortest	0.01	-25.09
	Upper Right IR-TRACC X - deflection	mm	Thortest	0.60	-49.28
	Upper Right IR-TRACC Y - deflection	mm	Thortest	14.23	-1.58
	Upper Right IR-TRACC Z - deflection	mm	Thortest	20.72	-9.47
	Upper Right IR-TRACC D - deflection	mm	Thortest	0.58	-48.74
	Lower Left IR-TRACC X - deflection	mm	Thortest	23950.77 ⁽¹⁾	-700.83 ⁽¹⁾
	Lower Left IR-TRACC Y - deflection	mm	Thortest	3338.92 ⁽¹⁾	-179.63 ⁽¹⁾

SECTION 2 (CONTINUED)
PRELIMINARY INJURY SUMMARY: Driver

Test Vehicle: 2014 Honda Accord NHTSA No.: R20145374
 Test Program: Research and Development Right Oblique Offset Test Date: 6/27/2014

Driver: Thor Serial No. 015 Injury Summary

	Nomenclature	Units	Source	Max	Min
Chest (Con't)	Lower Left IR-TRACC Z - deflection	mm	Thortest	113.94 ⁽¹⁾	-767.80 ⁽¹⁾
	Lower Left IR-TRACC D - deflection	mm	Thortest	24162.47 ⁽¹⁾	-713.22 ⁽¹⁾
	Lower Right IR-TRACC X - deflection	mm	Thortest	0.05	-38.64
	Lower Right IR-TRACC Y - deflection	mm	Thortest	3.58	-24.50
	Lower Right IR-TRACC Z - deflection	mm	Thortest	18.91	-1.46
	Lower Right IR-TRACC D - deflection	mm	Thortest	0.05	-36.94
	Chest CG Acceleration, 3 ms clip	g	Compute	39.75	
Abdomen	Lower Left IR-TRACC X - deflection	mm	Thortest	0.20	-49.29
	Lower Left IR-TRACC Y - deflection	mm	Thortest	7.16	-2.69
	Lower Left IR-TRACC Z - deflection	mm	Thortest	20.10	-0.01
	Lower Left IR-TRACC D - deflection	mm	Thortest	0.20	-49.87
	Left Viscous Criterion Based on X - deflection		Compute	1.27	
	Lower Right IR-TRACC X - deflection	mm	Thortest	5.97	-60.84
	Lower Right IR-TRACC Y - deflection	mm	Thortest	11.52	-3.01
	Lower Right IR-TRACC Z - deflection	mm	Thortest	19.14	-0.05
	Lower Right IR-TRACC D - deflection	mm	Thortest	5.72	-62.40
	Right Viscous Criterion Based on X - deflection		Compute	2.67	
Spine	Upper Spine (T1) AX	g	180	8.42	-44.82
	Upper Spine (T1) AY	g	180	17.56	-44.90
	Upper Spine (T1) AZ	g	180	12.43	-2.78
	Upper Spine (T1) Resultant	g	Compute	62.40	
	Middle Spine (T6) AX	g	180	5.85	-38.30
	Middle Spine (T6) AY	g	180	28.47	-2.79
	Middle Spine (T6) AZ	g	180	3.25	-11.53
	Middle Spine (T6) Resultant	g	Compute	41.35	
Pelvis	Pelvis CG Resultant Acceleration	g	Compute	61.35	
Acetabulum	Left FX force	N	600	1141.02	-894.27
	Left FY force	N	600	390.91	-1236.12
	Left FZ force	N	600	979.57	-531.09
	Left Acetabulum Resultant	N	Compute	1730.47	
	Right FX force	N	600	1768.64	-813.90
	Right FY force	N	600	171.62	-1099.69
	Right FZ force	N	600	1076.16	-369.79
	Right Acetabulum Resultant	N	Compute	2073.91	

Anomalies

(1) IR-TRACC displacement transducer no data – known issue before test.

SECTION 2 (CONTINUED)
PRELIMINARY INJURY SUMMARY: Driver Legs

Test Vehicle: 2014 Honda Accord NHTSA No.: R20145374
 Test Program: Research and Development Right Oblique Offset Test Date: 6/27/2014

Driver: Thor Serial No. 015 Injury Summary

	Nomenclature	Units	Source	Max	Min
Knee	Left Knee Displacement, DX	mm	180	1.92	-11.69
	Right Knee Displacement, DX	mm	180	1.66	-14.25
Femur	Left Femur Force, FZ	N	600	410.05	-3372.60
	Left Femur Moment, MX	N-m	600	38.74	-103.61
	Left Femur Moment, MY	N-m	600	55.11	-10.53
	Left Femur Res (MX / MY only, not MZ)	N-m	Compute	105.41	
	Right Femur Force, FZ	N	600	569.54	-1999.70
	Right Femur Moment, MX	N-m	600	27.02	-106.24
	Right Femur Moment, MY	N-m	600	74.11	-29.81
	Right Femur Res (MX / MY only, not MZ)	N-m	Compute	110.92	
	Tibia	Left Upper Tibia, FZ	N	600	29.89
Left Upper Tibia, MY		N-m	600	38.47	-109.68
Left Upper Tibia, Index			Compute	0.55	
Right Upper Tibia, FZ		N	600	20.14	-1512.84
Right Upper Tibia, MY		N-m	600	29.72	-76.57
Right Upper Tibia, Index			Compute	0.45	
Left Lower Tibia, FZ		N	600	1.21	-2917.46
Left Lower Tibia, MY		N-m	600	23.51	-74.38
Left Lower Tibia, Index			Compute	0.52	
Right Lower Tibia, FZ		N	600	2.84	-3186.54
Right Lower Tibia, MY		N-m	600	46.01	-46.42
Right Lower Tibia, Index			Compute	0.68	
Ankle		Left Ankle Rotation, RX	Deg	180	-4.73
	Left Ankle Rotation, RY	Deg	180	33.12	-6.01
	Right Ankle Rotation, RX	Deg	180	2.62	-35.72
	Right Ankle Rotation, RY	Deg	180	31.90	-6.12
Anomalies					
None					

SECTION 2 (CONTINUED)

PRELIMINARY INJURY SUMMARY: Right Front Passenger

Test Vehicle: 2014 Honda Accord NHTSA No.: R20145374

Test Program: Research and Development Right Oblique Offset Test Date: 6/27/2014

Right Front Passenger: Thor Serial No. 016 Injury Summary

	Nomenclature	Units	Source	Max	Min
Head	Head CG X	g	1000	19.93	-57.85
	Head CG Y	g	1000	132.63	-12.29
	Head CG Z	g	1000	55.92	-0.86
	Head Resultant	g	Compute	150.46	
	36 ms HIC		Compute	934.77	
	15 ms HIC		Compute	934.77	
	Head Resultant CG Acceleration, 3 ms Clip	g	Compute	90.42	
	Head Rotational Velocity X	deg/s	60	602.18	-1973.57
	Head Rotational Velocity Y	deg/s	60	755.45	-1569.72
	Head Rotational Velocity Z	deg/s	60	3128.69	-1387.80
	Head Rotational Velocity Resultant	deg/s	Compute	3591.49	
	Brain Injury Criteria		Compute	1.46	
Neck	UNLC Transferred to OC, Neck System, FX	N	1000	380.10	-175.65
	UNLC Neck System Tension, FZ	N	1000	2097.42	
	UNLC Neck System Compression, FZ	N	1000		-223.46
	UNLC Transferred to OC, Neck System Flexion, MY	N-m	Thortest	10.79	
	UNLC Transferred to OC, Neck System Extension, MY	N-m	Thortest		-8.55
	NIJ		Compute	0.41	
	On head acting through total neck section, FX	N	Thortest	545.93	-187.63
	On head acting through total neck section, FY	N	Thortest	357.48	-295.09
	On head acting through total neck section, FZ	N	Thortest	2197.22	-216.78
	On head acting through total neck section, MX	N-m	Thortest	28.32	-37.03
	On head acting through total neck section, MY	N-m	Thortest	8.61	-26.32
	On head acting through total neck section, MZ	N-m	Thortest	11.35	-26.78
	On head acting through O.C. joint only, FX	N	Thortest	542.48	-175.27
	On head acting through O.C. joint only, FZ	N	Thortest	2071.38	-233.35
	On head acting through O.C. joint only, MY	N-m	Thortest	10.79	-8.55
Chest	Upper Left IR-TRACC X - deflection	mm	Thortest	0.00	-31.58
	Upper Left IR-TRACC Y - deflection	mm	Thortest	5.61	-6.98
	Upper Left IR-TRACC Z - deflection	mm	Thortest	14.21	-6.13
	Upper Left IR-TRACC D - deflection	mm	Thortest	0.00	-30.82
	Upper Right IR-TRACC X - deflection	mm	Thortest	0.10	-26.74
	Upper Right IR-TRACC Y - deflection	mm	Thortest	9.16	-5.58
	Upper Right IR-TRACC Z - deflection	mm	Thortest	10.37	-4.28
	Upper Right IR-TRACC D - deflection	mm	Thortest	0.10	-27.02
	Lower Left IR-TRACC X - deflection	mm	Thortest	0.15	-45.77
	Lower Left IR-TRACC Y - deflection	mm	Thortest	17.49	-0.49

SECTION 2 (CONTINUED)
PRELIMINARY INJURY SUMMARY: Right Front Passenger

Test Vehicle: 2014 Honda Accord NHTSA No.: R20145374

Test Program: Research and Development Right Oblique Offset Test Date: 6/27/2014

Right Front Passenger: Thor Serial No. 016 Injury Summary

	Nomenclature	Units	Source	Max	Min
Chest (Con't)	Lower Left IR-TRACC Z - deflection	mm	Thortest	4.56	-16.23
	Lower Left IR-TRACC D - deflection	mm	Thortest	0.26	-39.34
	Lower Right IR-TRACC X - deflection	mm	Thortest	1.95	-5.26
	Lower Right IR-TRACC Y - deflection	mm	Thortest	14.11	-12.58
	Lower Right IR-TRACC Z - deflection	mm	Thortest	17.59	-9.58
	Lower Right IR-TRACC D - deflection	mm	Thortest	1.70	-5.59
	Chest CG Acceleration, 3 ms clip	g	Compute	31.81	
Abdomen	Lower Left IR-TRACC X - deflection	mm	Thortest	0.92	-67.78
	Lower Left IR-TRACC Y - deflection	mm	Thortest	8.04	-2.08
	Lower Left IR-TRACC Z - deflection	mm	Thortest	5.37	-7.68
	Lower Left IR-TRACC D - deflection	mm	Thortest	0.92	-66.19
	Left Viscous Criterion Based on X - deflection		Compute	0.89	
	Lower Right IR-TRACC X - deflection	mm	Thortest	0.03	-60.00
	Lower Right IR-TRACC Y - deflection	mm	Thortest	12.88	-0.02
	Lower Right IR-TRACC Z - deflection	mm	Thortest	10.53	-4.33
	Lower Right IR-TRACC D - deflection	mm	Thortest	0.03	-59.45
	Right Viscous Criterion Based on X - deflection		Compute	0.94	
Spine	Upper Spine (T1) AX	g	180	3.44	-27.93
	Upper Spine (T1) AY	g	180	44.84	-5.38
	Upper Spine (T1) AZ	g	180	26.33	-1.63
	Upper Spine (T1) Resultant	g	Compute	51.45	
	Middle Spine (T6) AX	g	180	5.76	-30.73
	Middle Spine (T6) AY	g	180	24.70	-2.65
	Middle Spine (T6) AZ	g	180	19.93	-5.55
	Middle Spine (T6) Resultant	g	Compute	32.74	
Pelvis	Pelvis CG Resultant Acceleration	g	Compute	70.51	
Acetabulum	Left FX force	N	600	4443.20	-2995.86
	Left FY force	N	600	1137.02	-1087.73
	Left FZ force	N	600	1069.51	-1680.89
	Left Acetabulum Resultant	N	Compute	4456.01	
	Right FX force	N	600	1021.46	-1129.92
	Right FY force	N	600	283.87	-2000.55
	Right FZ force	N	600	2100.65	-45.17
	Right Acetabulum Resultant	N	Compute	2531.91	
Anomalies					
None					

SECTION 2 (CONTINUED)
PRELIMINARY INJURY SUMMARY: Right Front Passenger Legs

Test Vehicle: 2014 Honda Accord NHTSA No.: R20145374
 Test Program: Research and Development Right Oblique Offset Test Date: 6/27/2014

Right Front Passenger: Thor Serial No. 016 Injury Summary

	Nomenclature	Units	Source	Max	Min
Knee	Left Knee Displacement, DX	mm	180	1.07	-11.64
	Right Knee Displacement, DX	mm	180	0.92	-2.31
Femur	Left Femur Force, FZ	N	600	295.23	-5191.90
	Left Femur Moment, MX	N-m	600	145.60	-135.80
	Left Femur Moment, MY	N-m	600	103.95	-47.23
	Left Femur Res (MX / MY only, not MZ)	N-m	Compute	178.90	
	Right Femur Force, FZ	N	600	393.30	-5512.60
	Right Femur Moment, MX	N-m	600	44.26	-228.78
	Right Femur Moment, MY	N-m	600	152.35	-50.25
	Right Femur Res (MX / MY only, not MZ)	N-m	Compute	229.01	
Tibia	Left Upper Tibia, FZ	N	600	168.90	-1657.05
	Left Upper Tibia, MY	N-m	600	22.97	-39.53
	Left Upper Tibia, Index		Compute	0.30	
	Right Upper Tibia, FZ	N	600	180.73	-1419.71
	Right Upper Tibia, MY	N-m	600	14.95	-36.35
	Right Upper Tibia, Index		Compute	0.28	
	Left Lower Tibia, FZ	N	600	45.71	-1419.16
	Left Lower Tibia, MY	N-m	600	57.47	-37.21
	Left Lower Tibia, Index		Compute	0.78	
	Right Lower Tibia, FZ	N	600	157.59	-934.41
	Right Lower Tibia, MY	N-m	600	43.15	-34.62
	Right Lower Tibia, Index		Compute	0.39	
Ankle	Left Ankle Rotation, RX	Deg	180	28.86	-27.66
	Left Ankle Rotation, RY	Deg	180	7.63	-18.12
	Right Ankle Rotation, RX	Deg	180	11.82	-22.75
	Right Ankle Rotation, RY	Deg	180	-1.75	-34.95
Anomalies					
None					

**SECTION 3
DATA SHEETS**

Test Vehicle: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014

<u>Data Sheet No.</u>		<u>Page No.</u>
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2	Seat Adjustment, Fuel System, and Steering Wheel	3-6
3	Dummy Longitudinal Clearance Dimensions	3-8
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**DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

VEHICLE INFORMATION

NHTSA No.	R20145374
Model Year	2014
Make	Honda
Model	Accord
Body Style	Four Door Sedan
VIN	1HGCR2F34EA184507
Body Color	Silver
Odometer Reading (km/mi)	95 km / 59 mi
Engine Displacement. (L)	2.4
Type/No. Cylinders	I4
Engine Placement	Transverse
Transmission Type	Automatic
Transmission Speeds	CVT
Overdrive	Yes
Final Drive	Front Wheel Drive
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?

No

DATA FROM CERTIFICATION LABEL

Manufactured By	Honda of America MFG. INC
Date of Manufacture	03/14

GWR (kg)	1905
GAWR Front (kg)	1020
GAWR Rear (kg)	910

VEHICLE SEATING AND WEIGHT CAPACITY

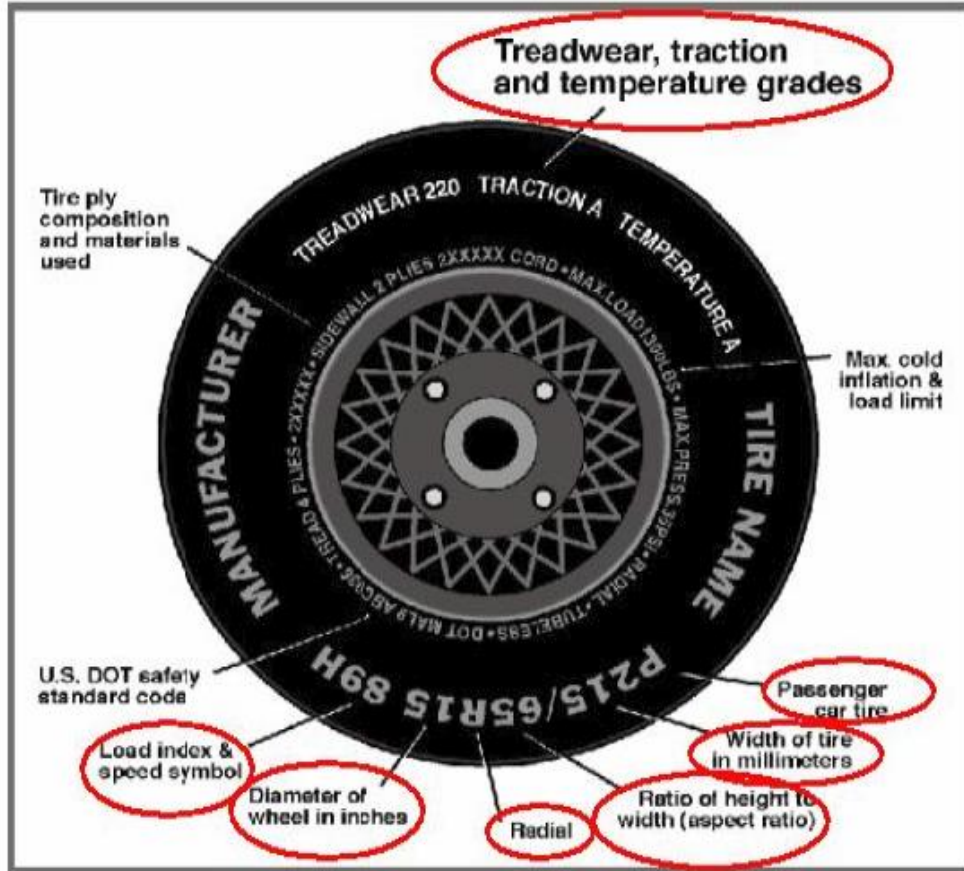
Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench	--	
Number of Occupants	2	3	--	5
Capacity Wt. (VCW) (kg)				385
Cargo Wt. (RCLW) (kg)				44.8

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

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

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



Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold Pressure (kPa)	230	220
Recommended Tire Size	P205/65R16	P205/65R16
Tire Size on Vehicle	P205/65R16	P205/65R16
Tire Manufacturer	Firestone	Firestone
Tire Model	Affinity Touring S4	Affinity Touring S4
Treadwear	500	500
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	2 Polyester	2 Polyester
Tire Plies Body	2 Polyester, 2 Steel, 1 Nylon	2 Polyester, 2 Steel, 1 Nylon
Load Index/Speed Symbol	95H	95H
Tire Material	Rubber	Rubber
DOT Safety Code Right	W23PA1A0714	W23PA1A0714
DOT Safety Code Left	W23PA1A0714	W23PA1A0714

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

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	474	268		519.5	372	
Right	kg	422	302		458	394.5	
Ratio	%	61%	39%		56%	44%	
Totals	kg	896	570	1466	977.5	766.5	1744

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1466
Weight of 2 P572E ATDs	kg	197.8
Rated Cargo/Luggage Weight (RCLW)	kg	44.8
Calculated Vehicle Target Weight (TVTW)	kg	1708.6

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	708	712	714	716	1079
As Tested	mm	693	701	684	684	1220
Post Test	mm	729	678	669	699	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2776
Total Vehicle Length at Left Side	mm	4733
Total Vehicle Length at Centerline	mm	4864
Total Vehicle Length at Right Side	mm	4731
Weight of Ballast in Cargo Area	kg	0
Weight of Vehicle Components Removed	kg	58.5
Amount of Stoddard Solvent in Fuel Tank	L	60.6

LIST OF COMPONENTS REMOVED TO MEET TEST WEIGHT:

Trunk carpeting, spare tire, jack, rear speaker, tail light, rear seats, and muffler

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

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

TARGET VEHICLE STRUCTURAL MEASUREMENT

	Elements		Pre-Test
1	Total Length	mm	4864
2	Total Width	mm	1844
3*	Bumper Top Height	mm	553
4*	Bumper Bottom Height	mm	460
5*	Longitudinal Member Top Height	mm	550
6	Distance Between Longitudinal Members	mm	1082
7	Longitudinal Member Width	mm	72
8*	Engine Top Height	mm	864
9*	Engine Bottom Height	mm	187
10	Engine and Gearbox Width	mm	598
11	Front Bumper-Engine Distance	mm	668
12*	Front Shock Absorber Fixing Height	mm	891
13*	Bonnet Leading Edge Height	mm	737
14	Front Shock Absorber Fixing Width	mm	1187
15	Front Bumper – Front Axle Distance	mm	968
16	Front Axle – A Pillar Distance	mm	504
17	A-Pillar – B-Pillar Distance	mm	1151
18	B-Pillar – Rear Axle Distance	mm	1121
19	B-Pillar – C-Pillar Distance	mm	1059
20*	Roof Sill Bottom Height	mm	1349
21*	Roof Sill Top Height	mm	1446
22*	Floor Sill Bottom Height	mm	218
23*	Floor Sill Top Height	mm	390

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

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

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

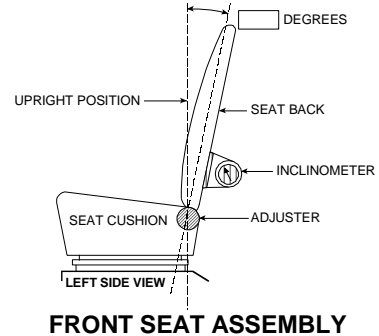
NHTSA No.: R20145374
 Test Date: 6/27/2014

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

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



	Deg.
Driver Seat Back Angle	3.4
Passenger Seat Back Angle	2.6

SEAT FORE/AFT POSITIONS

Describe the method used of determining seat fore/aft positions. _____

The driver's seat was positioned at its lowest position and at the mid-point of fore/aft travel.

The passenger's seat was positioned at the mid-point of fore/aft travel.

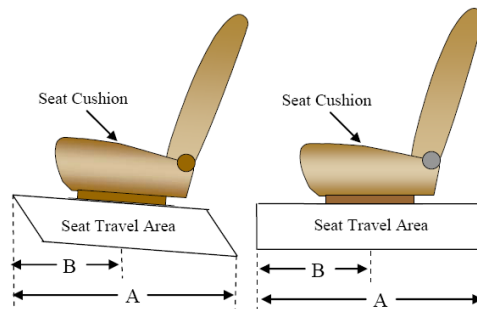
	Total Fore/Aft Travel	Placed in Position #
Driver Seat	25 (0-24)	10
Passenger Seat	25 (0-24)	12

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: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

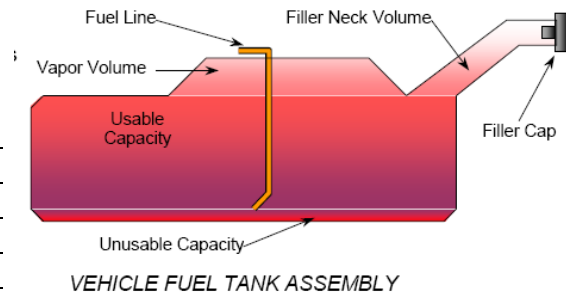
FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	65.1
Usable Capacity of "Optional Tank"	
93% of Usable Capacity	60.6
Actual Amount of Solvent Used	60.6
1/3 of Usable Capacity	21.7

FUEL PUMP

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

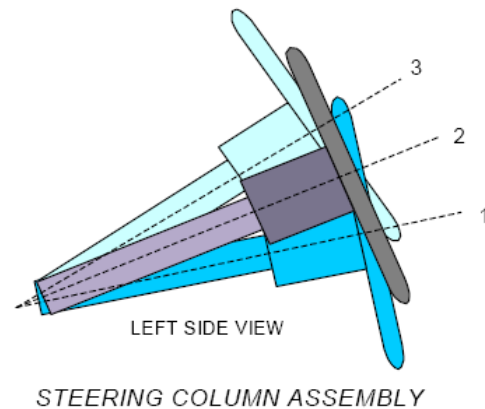
Fuel evacuated according to the specifications provided by the manufacturer in Form 1. Electric fuel pump operates when the ignition is in the 'on' position and the engine is running. The fuel filler neck is located above the left rear wheel.



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 (if applicable)



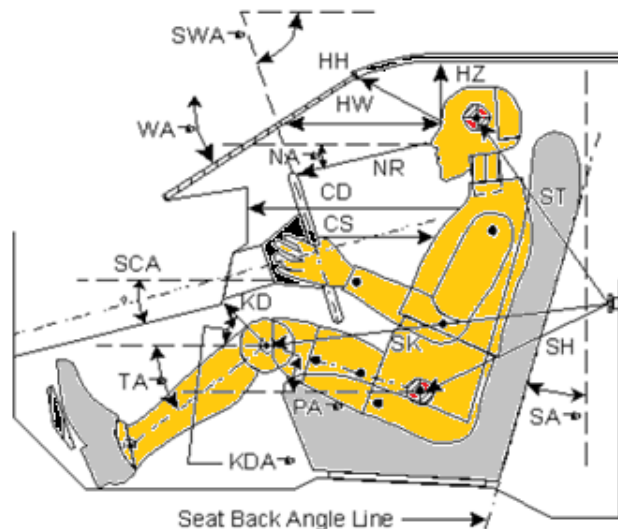
STEERING COLUMN POSITIONS

	Tilt (degrees)	Fore/Aft Position (mm)
Lowermost position No. 1	18.3	
Geometric center position No. 2	21.6	
Uppermost position No. 3	24.8	
Telescoping Steering Wheel Travel		38
Test Position	21.6	19

DATA SHEET NO. 3
DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014



Code	Measurement Description	Driver (Serial # THOR 015)		Passenger (Serial # THOR 016)	
		Length (mm)	Angle(°)	Length (mm)	Angle (°)
WA°	Windshield Angle		-28.2		
SWA°	Steering Wheel Angle		21.6		
SCA°	Steering Column Angle		68.4		
SA°	Seat Back Angle (on headrest post)		2.6		2.4
HZ	Head to Roof (Z)	197	90	174	90
HH	Head to Header	421	16.9	418	14.4
HW	Head to Windshield	706	0	628	0
NR	Nose to Rim	508	-16.1	718	-35.1
CD	Chest to Dash	605		561	
CS	Chest to Steering Hub	378	-1.5		
RA	Rim to Abdomen	207	0		
KDL	Left Knee to Dash	127	21.2	127	28.6
KDR	Right Knee to Dash	107	42.1	137	29.8
PA°	Pelvic Angle		24.6		23.1
TA°	Tibia Angle		41.5		-40.8
SK	Striker to Knee	630	-9.8	631	-9.9
ST	Striker to Head	410	-86.4	443	-86.1
SH	Striker to H-Point	375	-47.2	342	-48.0
HAX°	Head Angle (X)		0.3		-0.1
HAY°	Head Angle (Y)		0.2		0.4
NAX°	Neck Angle (X)		N/A		N/A
NAY°	Neck Angle (Y)		N/A		N/A
TAX°	T6 Angle (X)		-1.8		-0.8
TAY°	T6 Angle (Y)		21.6		15.9
LAX°	T1 (X)		1.5		2.4
LAY°	T1 (Y)		3.3		-0.1

**DATA SHEET NO.3 (CONTINUED)
DUMMY CMM MEASUREMENTS**

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

Description	Units	Driver			Passenger		
		X	Y	Z	X	Y	Z
Striker	mm	1010	-807	597	1012	807	601
Head CG	mm	1070	-462	202	1074	465	176
Bridge of Nose	mm	1162	-382	192	1164	383	169
Tip of Nose	mm	1164	-383	228	1165	383	209
Shoulder Bolt	mm	1115	-583	448	1130	576	439
Tip of Chin	mm	1163	-384	326	1158	382	308
H-Point	mm	1299	-629	886	1274	635	872
Left Knee	mm	1665	-616	718	1665	324	723
Right Knee	mm	1692	-302	735	1667	547	727
Left Ankle	mm	1984	-640	993	1982	315	996
Right Ankle	mm	2019	-266	997	1989	529	995
Left Heel	mm	2005	-614	1125	1971	279	1133
Right Heel	mm	2041	-230	1127	1973	491	1132
Head Bolt 1 – Top Left	mm	1005	-426	151	1001	345	130
Head Bolt 2 – Lower Left	mm	1014	-416	237	1010	358	214
Head Bolt 3 – Top Right	mm	1007	-354	150	1001	418	130
Head Bolt 4 – Lower Right	mm	1010	-368	239	1009	409	215
Driver's Outboard Seat Anchor Bolt	mm	1512	-601	1122	1514	598	1125
Outboard Head Restraint Post	mm	948	-465	388	927	468	383
Top of Head Restraint	mm	987	-381	112	958	383	104
Center of Steering Wheel	mm	1591	-385	476			

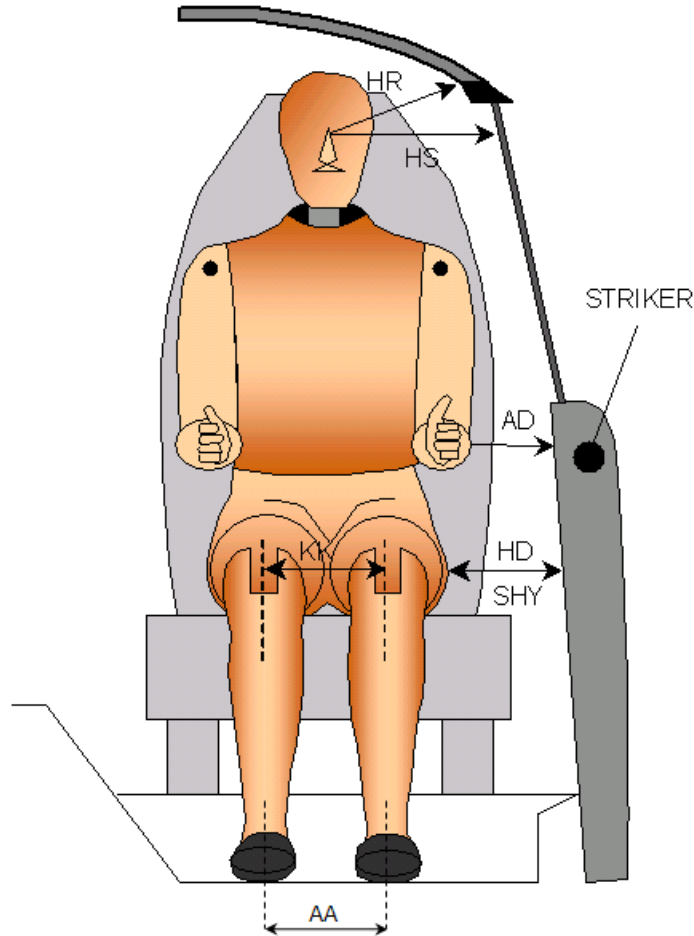
Reference point: Rear most center of the top of rear window (See appendix D for procedure to create coordinate system).

- +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: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

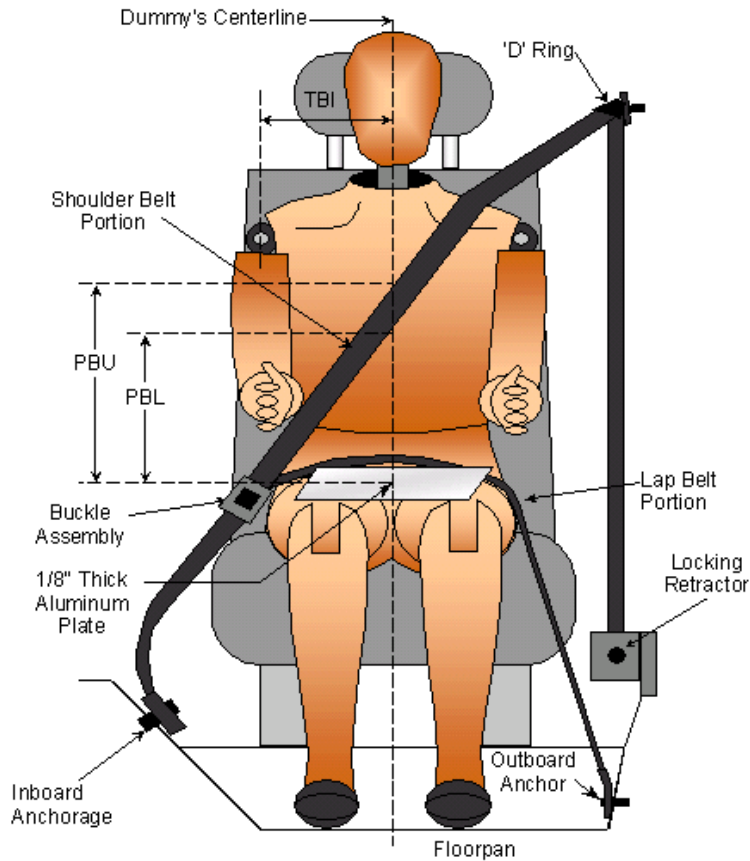


Code	Description	Units	Driver	Passenger
AD	Arm to Door	mm	130	52
HD	H-Point to Door	mm	133	111
HR	Head to Side Header	mm	192	188
HS	Head to Side Window	mm	323	323
KK	Knee to Knee	mm	360	270
SHY	Striker to H-Point (Y Direction)	mm	220	220
AA	Ankle to Ankle	mm	365	212

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

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU — Top surface of reference to belt upper edge	mm	385	380
PBL — Top surface of reference to belt lower edge	mm	305	300

BELT LENGTH DATA

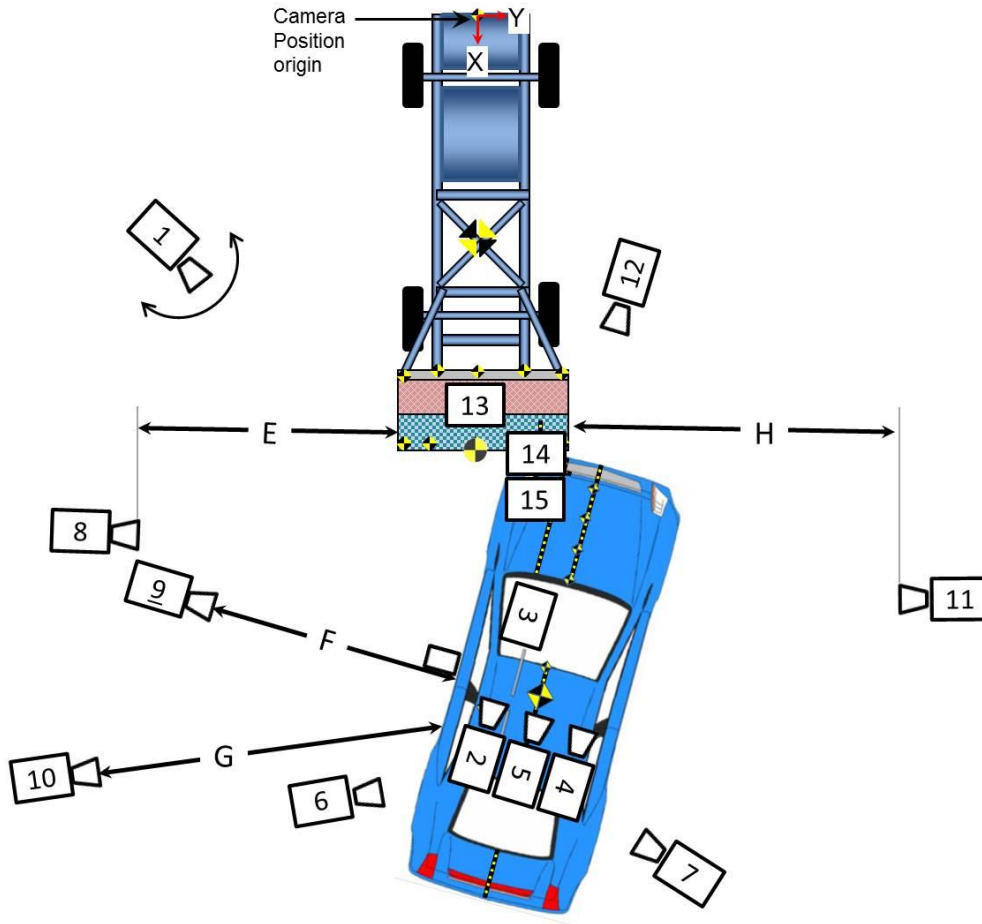
Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	845	880
Lap Belt Length as measured on ATD	mm	550	570
Remainder of belt on reel	mm	1055	1000
Total belt length for continuous webbing systems	mm	2450	2450

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

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

HORIZONTAL LOCATION



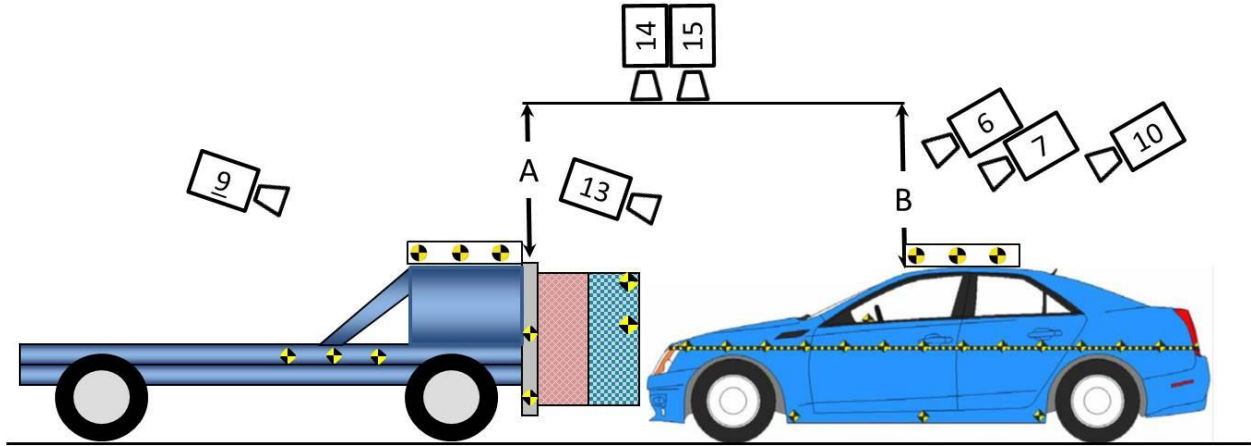
E	mm	6830
F	mm	7461
G	mm	9334
H	mm	6371

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

Test Vehicle: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014

VERTICAL LOCATION



A	mm	4069
B	mm	3800

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

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

CAMERA LOCATIONS

No.	Camera View	Location (mm)			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Side	--	--	--	Zoom	30
2	Onboard Passenger Movement	7839	-271	1284	12.5	1000
3	Onboard Driver Lower Leg	6583	-503	245	6.5	1000
4	Onboard Driver Movement	8121	-859	1284	12.5	1000
5	Onboard Centerline	7908	-497	1284	6.5	1000
6	Driver Interaction	7875	2641	3417	24	1000
7	Passenger Interaction	10922	-8924	2524	24-70	1000
8	Target Vehicle Left Side Perpendicular (High)	4527	7799	1092	24	1000
9	Target Vehicle Driver Motion	6235	7545	1183	24	1000
10	Target Vehicle Passenger Motion	10268	8904	2968	24-70	1000
11	Target Vehicle Right Side	4706	-7422	1253	24	1000
12	Target Vehicle Left Side (High)	754	-2486	1149	28	1000
13	RMDB/Target Vehicle Interaction	4824	-993	4685	28	1000
14	Close-up Impact Point	6950	-561	5246	15	1000
15	Overall Impact	4501	-150	5246	15	1000

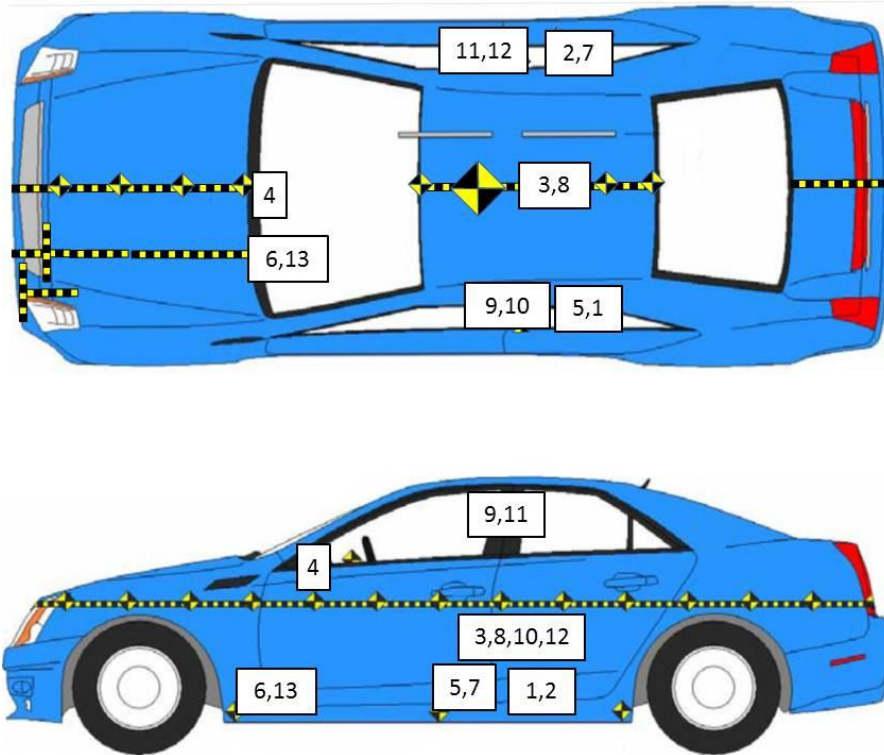
Reference Point: Center most rearward point of the RMDB when in contact with the target vehicle:

- +X – From back of RMDB to front of RMDB
- +Y – Right of monorail center
- +Z – Up from ground

DATA SHEET NO. 7
VEHICLE INSTRUMENTATION DATA

Test Vehicle: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

No.	Accelerometer Location	Axes	Units	Measurements (mm)		
				X	Y	Z
1	Left Rear Sill	X,Y	mm	784	-666	1110
2	Right Rear Sill	X,Y	mm	762	667	1099
3	Vehicle CG	X,Y,Z	mm	784	-1	1052
4	Instrument Panel	X	mm	1742	1	599
5	Driver Seat Track	X,Y,Z	mm	1001	-591	1161
6	Behind Brake Pedal	X,Y,Z	mm	2305	-416	882
7	Passenger Seat Track	X,Y,Z	mm	1004	602	1164
8	Angular Rate Sensors	X	mm	796	0	1062
		Y	mm	785	9	1060
		Z,	mm	784	-1	1052

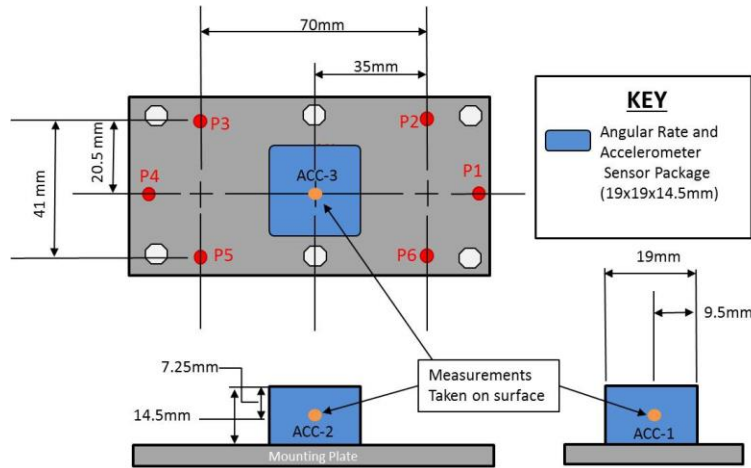
Reference point: Rear most center of the top of rear window (See appendix D for procedure to create coordinate system).

- +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
VEHICLE INSTRUMENTATION DATA

Test Vehicle: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014



VEHICLE COORDINATE SYSTEM					
No.	Accelerometer Location	Units	Measurements (mm)		
			X	Y	Z
ACC-1	Accelerometer CG – X Direction	mm	796	0	1062
ACC-2	Accelerometer CG – Y Direction	mm	785	9	1060
ACC-3	Accelerometer CG – Z Direction	mm	784	-1	1052
M1	Mounting Bolt 1	mm	792	6	1053
M2	Mounting Bolt 2	mm	777	-9	1053
P1	Plate Point 1	mm	830	-2	1068
P2	Plate Point 2	mm	819	-23	1068
P3	Plate Point 3	mm	749	-22	1067
P4	Plate Point 4	mm	738	-2	1068
P5	Plate Point 5	mm	749	19	1068
P6	Plate Point 6	mm	819	19	1068

**DATA SHEET NO. 7 (CONTINUED)
VEHICLE INSTRUMENTATION DATA**

Test Vehicle: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014

VEHICLE INSTRUMENTATION DATA

Loc.	Description	Axes	Units	Positive Direction		Negative Direction	
				Max	Time (ms)	Max	Time (ms)
1	Left Rear Sill	X	g	2.01	112.35	-47.64	42.75
		Y	g	19.40	44.75	-3.26	69.00
2	Right Rear Sill	X	g	3.13	113.95	-46.03	44.35
		Y	g	22.31	43.45	-2.83	19.90
3	Vehicle CG	X	g	3.44	111.05	-49.45	41.95
		Y	g	32.48	43.85	-4.28	48.70
		Z	g	18.29	41.70	-23.33	47.50
4	Instrument Panel	X	g	54.50	99.60	-55.16	104.70
5	Driver Seat Track	X	g	2.39	117.75	-49.61	42.50
		Y	g	29.54	42.30	-1.83	130.20
		Z	g	19.55	43.05	-18.86	50.35
6	Behind Brake Pedal	X	g	33.21	27.70	-93.63	32.85
		Y	g	32.90	31.00	-18.99	38.55
		Z	g	253.02	19.80	-43.41	50.05
7	Passenger Seat Track	X	g	3.26	117.80	-49.16	43.20
		Y	g	33.87	43.85	-13.38	48.65
		Z	g	5.67	43.40	-11.59	58.10
8	Angular Rate Sensors	X	Deg/s	61.61	77.70	-275.03	45.05
		Y	Deg/s	648.16	45.65	-167.43	53.65
		Z	Deg/s	35.64	0	-94.98	61.80
9	Driver Shoulder Belt		N	4403.11	56.25	-5.35	12.45
10	Driver Lap Belt		N	4715.99	71.10	-0.72	-40.20
11	Passenger Shoulder Belt		N	3836.52	53.05	-14.64	12.40
12	Passenger Lap Belt		N	4901.32	67.70	-0.54	4.30
13	Driver Floor Pan String Pot		mm	0.06	0.35	-109.02	68.00

Note: See Appendix B for all additional vehicle channel data

TIME TO FIRE RESTRAINT TIMING

Loc.	Description	Axes	Units	Time to Fire (ms)
1	Driver Air Bag Squib 1	*	A	18.95
2	Driver Air Bag Squib 2	*	A	14.00
3	Driver Curtain Airbag	*	A	42.00
4	Driver Torso Airbag	*	A	42.00
5	Driver Knee Airbag	*	A	N/A
6	Driver Pretensioner	*	A	13.00
7	Passenger Air Bag Squib 1	*	A	27.95
8	Passenger Air Bag Squib 2	*	A	13.00
9	Passenger Curtain Airbag	*	A	Disabled
10	Passenger Torso Airbag	*	A	Disabled
11	Passenger Knee Airbag	*	A	N/A
12	Passenger Pretensioner	*	A	13.00

* The measurement indicates the time the voltage changed

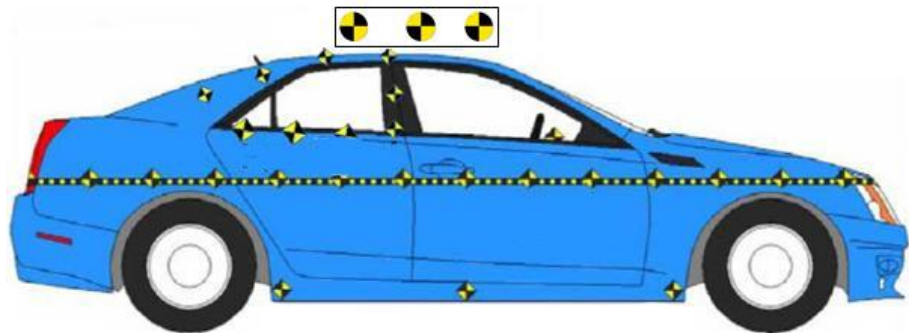
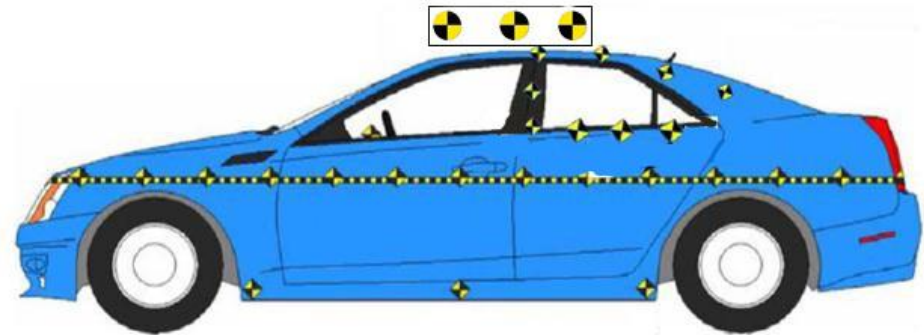
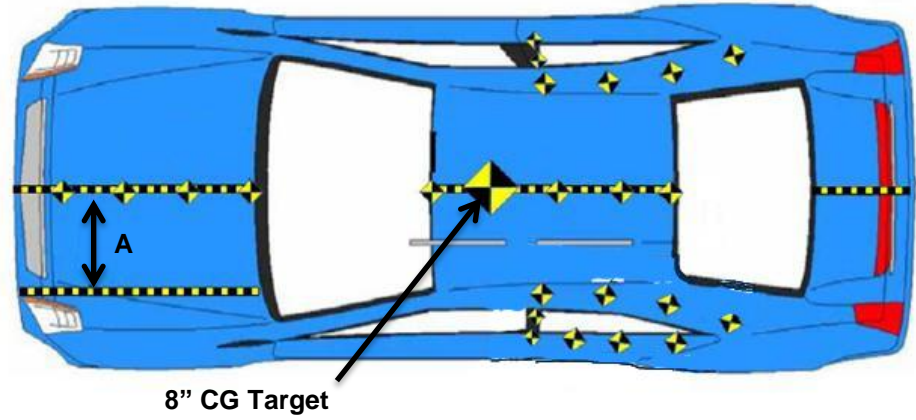
DATA SHEET NO. 8
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

Item	Units	Value
A	mm	276

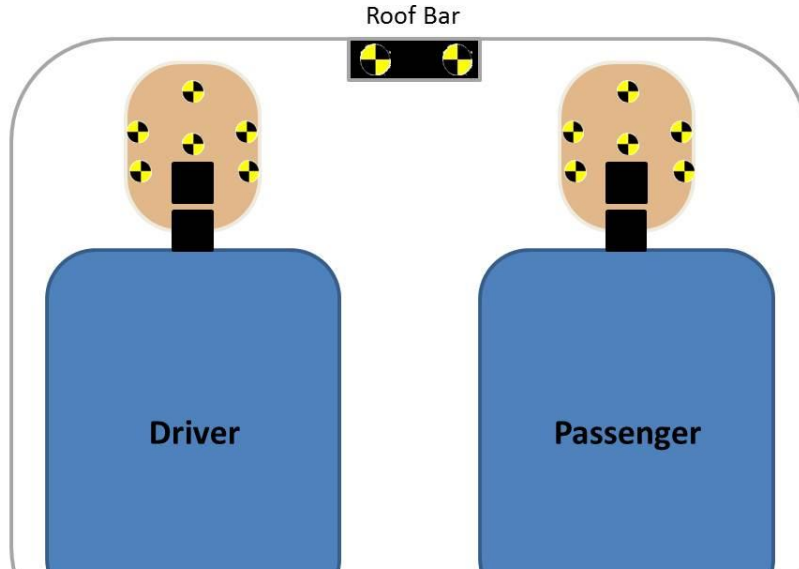
Note: All 6" targets on vehicle are 450 mm apart.



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

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014



Point	Pre-Test		
	X	Y	Z
Roof Bar Driver	1554	-60	90
Roof Bar Passenger	1553	71	91

Reference point: 50mm above the center of the rear windshield (See appendix D for procedure to create coordinate system).

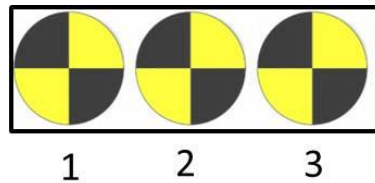
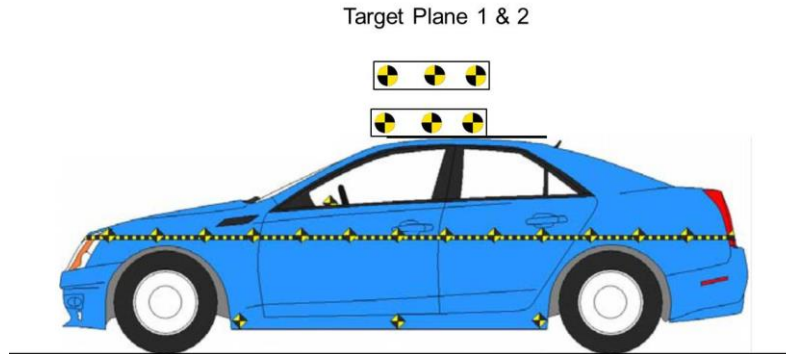
- +X – From the rear of the vehicle to the front of the vehicle
- +Y – From the left side of the vehicle to the right side of the vehicle
- +Z – From the top of the vehicle to the bottom of the vehicle

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

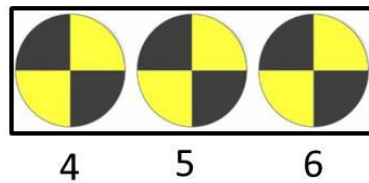
Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

OVERHEAD TARGET BARS



Vertical Target
Plane 1
(Driver's Side)



Vertical Target
Plane 2
(Passenger Side)

Target	Units	X	Y	Z
1	mm	1385	-390	-433
2	mm	937	-390	-434
3	mm	484	-385	-432
4	mm	1390	387	-424
5	mm	938	379	-428
6	mm	485	374	-427

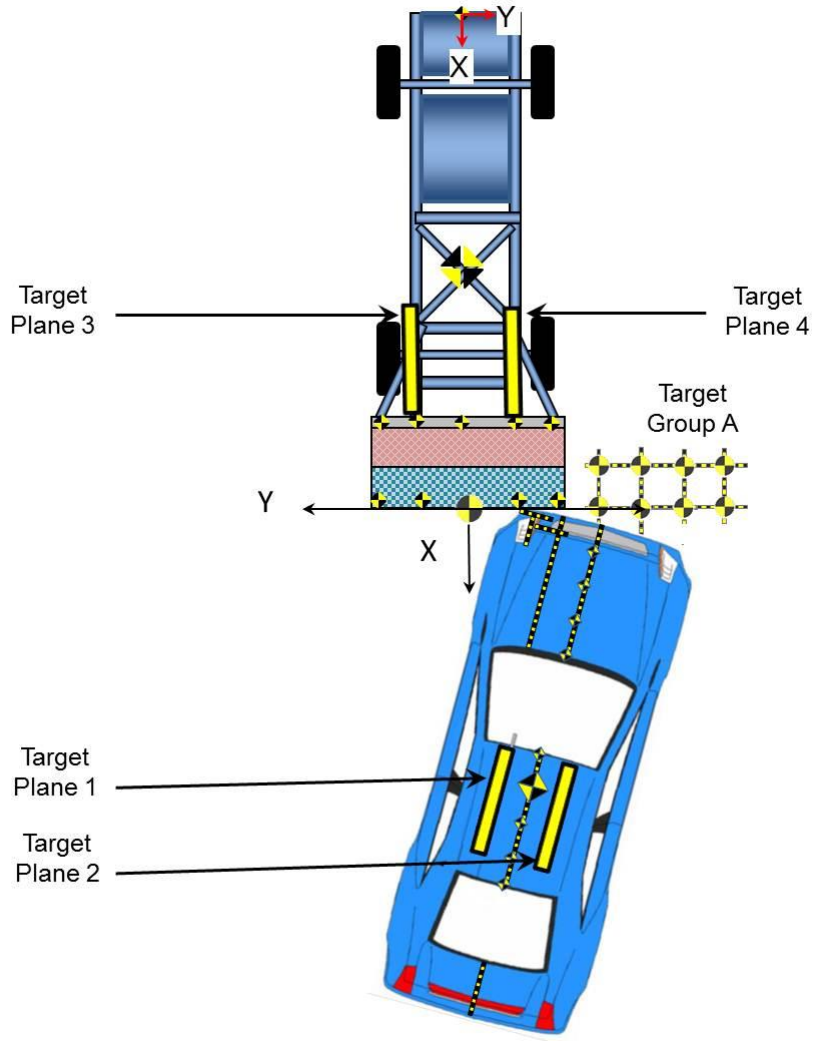
Reference point: 50mm above the center of the rear windshield (See appendix D for procedure to create coordinate system).

- +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: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014



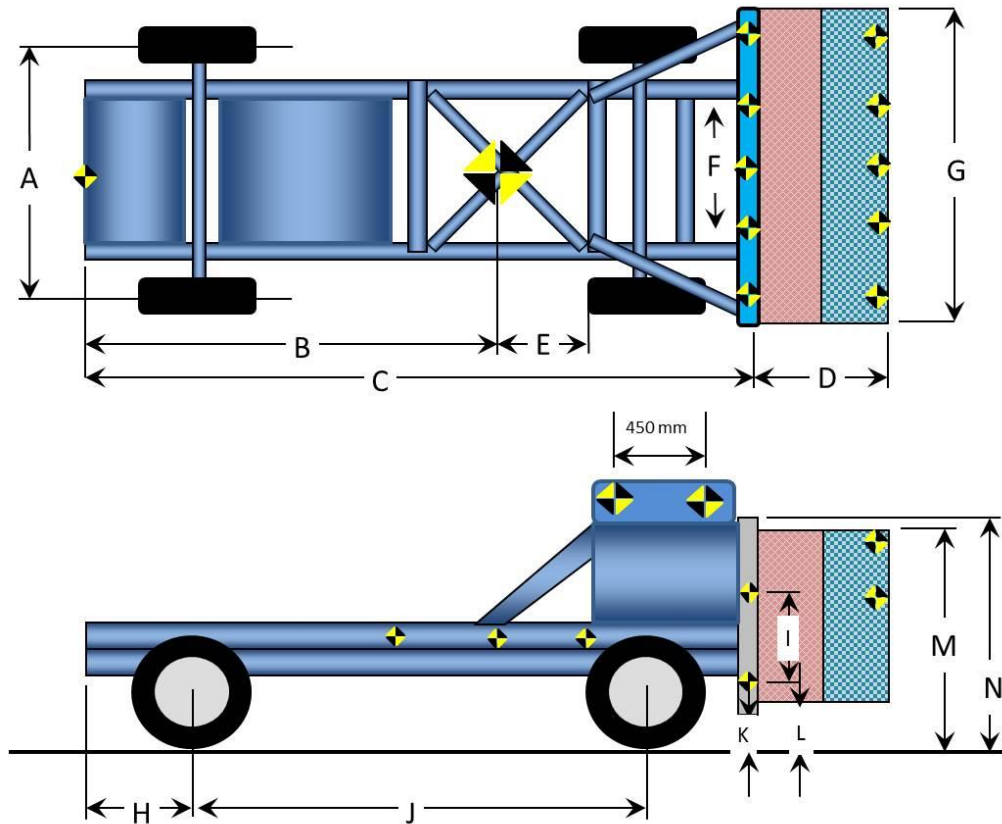
GROUND TARGET LOCATIONS

Target	Units	X	Y
1	mm	0	1411
2	mm	0	1861
3	mm	0	2311
4	mm	-450	1411
5	mm	-450	1861
6	mm	-450	2311

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

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014



Item	Units	Value	Item	Units	Value
A	mm	1930	H	mm	800
B	mm	2449	I	mm	450
C	mm	3995	J	mm	2555
D	mm	605	K	mm	77
E	mm	907	L	mm	71
F	mm	900	M	mm	1024
G	mm	2205	N	mm	1177

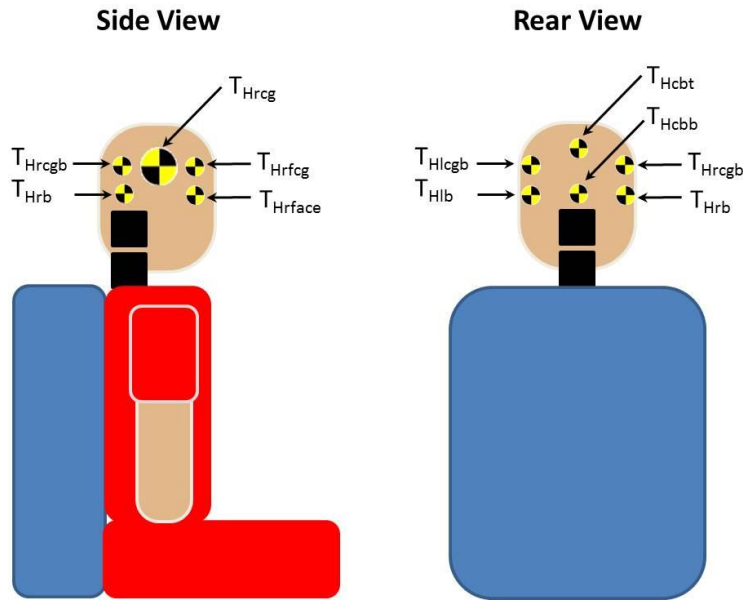
	Units	Front Axle	Rear Axle	Total
Left	kg	804.2	435	1239.2
Right	kg	801.5	449.5	1251
Ratio	%	64.5	35.5	100
Total	kg	1605.7	884.5	2490.2
CG Aft of Front Axle	mm			907

Note: All targets on the RMDB honeycomb are 450mm apart unless otherwise noted.

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

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014



Driver Dummy Head Targets (S/N 016)

Measurement	Units	Value
Distance between T _{Hrcg} & T _{Hrfcg}	mm	38
Distance between T _{Hrcg} & T _{Hrcgb}	mm	38
Distance between T _{Hrcgb} & T _{Hrb}	mm	70
Distance between T _{Hrfcg} & T _{Hrface}	mm	70
Distance between T _{Hlcbg} & T _{Hlcb}	mm	38
Distance between T _{Hlcbg} & T _{Hlfcg}	mm	38
Distance between T _{Hlcbg} & T _{Hlfb}	mm	70
Distance between T _{Hlfcg} & T _{Hlfb}	mm	70
Distance between T _{Hcgt} & T _{Hcbb}	mm	72

Passenger Dummy Head Targets (S/N 015)

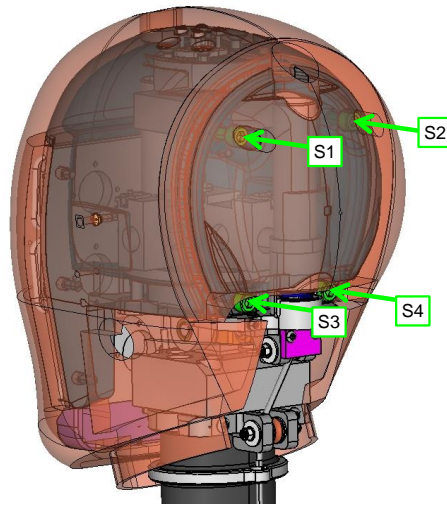
Distance between T _{Hrcg} & T _{Hrfcg}	mm	38
Distance between T _{Hrcg} & T _{Hrcgb}	mm	38
Distance between T _{Hrcgb} & T _{Hrb}	mm	70
Distance between T _{Hrfcg} & T _{Hrface}	mm	70
Distance between T _{Hlcbg} & T _{Hlcb}	mm	38
Distance between T _{Hlcbg} & T _{Hlfcg}	mm	38
Distance between T _{Hlcbg} & T _{Hlfb}	mm	70
Distance between T _{Hlfcg} & T _{Hlfb}	mm	70
Distance between T _{Hcgt} & T _{Hcbb}	mm	72

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

Test Vehicle: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014

THOR HEAD BOLT MEASUREMENTS



BOLT POINTS RELATIVE TO HEAD CG

Target	X	Y	Z
S1	-65.32	-35.43	-45.75
S2	-65.32	35.43	-45.75
S3	-60.16	-25.40	36.90
S4	-60.16	25.40	36.90

DATA SHEET NO. 9
TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014

INSTRUMENTATION

Instrumentation	Number of Channels Collected
Driver Dummy Accelerometers	93
Passenger Dummy Accelerometers	93
Vehicle Structure Accelerometers	44
RMDB Cart Accelerometers	6
Total	236

CAMERA COVERAGE

Type of Camera	Number Used in this Test
High-Speed Vehicle Onboard	4
High-Speed Off-board	10
Real-Time Panning	2
Total	16

**DATA SHEET NO. 10
POST TEST OBSERVATIONS**

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

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 & Curtain Airbags	Front Airbag, Center instrument panel, visor, and head liner
Upper Torso Contact	Front & Torso Airbags, Left shoulder contacted driver's door	Front Airbag and left shoulder contacted center instrument panel
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	None

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	None	Y
Other Notable Effects	None	--

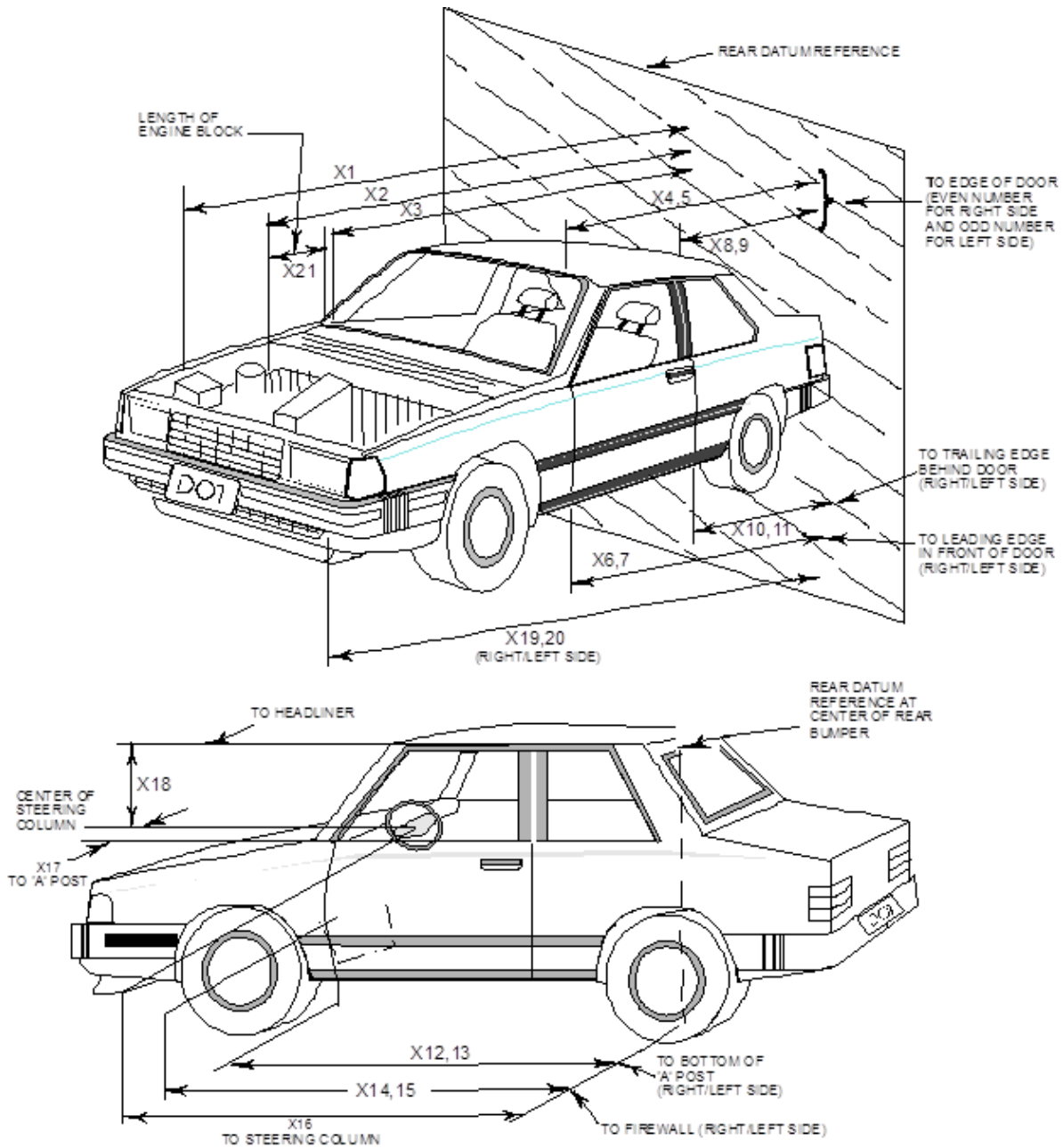
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Driver (Occupant 1)		Right Front Passenger (Occupant 2)	
	Installed	Deployed	Installed	Deployed
Front Airbag	Yes	Yes	Yes	Yes
Curtain Airbag	Yes	Yes	Yes	Disabled
Torso Airbag	Yes	Yes	Yes	Disabled
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 VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014



**DATA SHEET NO. 11 (CONTINUED)
VEHICLE PROFILE MEASUREMENTS**

Test Vehicle: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	mm	3564	3170	395
2	Rear Surface of Vehicle (RSOV) to Front of Engine	mm	2896	2735	161
3	RSOV to Firewall	mm	2456	2396	61
4	RSOV to Upper Leading Edge of Right Door	mm	2091	2091	0
5	RSOV to Upper Leading Edge of Left Door	mm	2089	2087	2
6	RSOV to Lower Leading Edge of Right Door	mm	2106	2106	0
7	RSOV to Lower Leading Edge of Left Door	mm	2104	2105	-1
8	RSOV to Upper Trailing Edge of Right Door	mm	947	948	-1
9	RSOV to Upper Trailing Edge of Left Door	mm	945	946	-1
10	RSOV to Lower Trailing Edge of Right Door	mm	959	959	0
11	RSOV to Lower Trailing Edge of Left Door	mm	958	959	-1
12	RSOV to Bottom of "A" Post of Right Side	mm	2055	2056	-1
13	RSOV to Bottom of "A" Post of Left Side	mm	2054	2052	1
14	RSOV to Firewall, Right Side	mm	2616	2621	-5
15	RSOV to Firewall, Left Side	mm	2615	2464	150
16	RSOV to Steering Column	mm	1591	1590	1
17	Center of Steering Column to "A" Post	mm	262	226	36
18	Center of Steering Column to Headliner	mm	409	395	14
19	RSOV to Right Side of Front Bumper	mm	3475	3510	-35
20	RSOV to Left Side of Front Bumper	mm	3478	2961	517
21	Length of Engine Block	mm	378	361	17
RD	RSOV to Right Side of Dash Panel	mm	1767	1771	-4
CD	RSOV to Center of Dash Panel	mm	1716	1714	3
LD	RSOV to Left Side of Dash Panel	mm	1765	1748	18

UR* = Unrecoverable Data Point

DATA SHEET NO. 12
ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014

VEHICLE INFORMATION

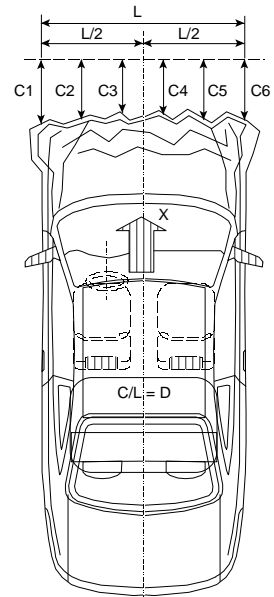
VIN: 1HGCR2F34EA184507 Wheelbase (mm): 2776
Vehicle Size Category: Passenger Test Weight (kg): 1744

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): 90.32
Velocity Change (kph): 90.32

CRUSH PROFILE

Collision Deformation Classification: 12FYEW3
Midpoint of Damage: C2
Damage Region Length (mm): 1082
Impact Mode: Frontal 15° Angle, 35% Left Offset



Crush Measurements: Bumper Cover

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	3445	2824	621
C2	Crush zone 2 at left side	mm	3537	2951	586
C3	Crush zone 3 at left side	mm	3562	3092	470
C4	Crush zone 4 at right side	mm	3562	3243	319
C5	Crush zone 5 at right side	mm	3537	3377	160
C6	Crush zone 6 at right side	mm	3445	3458	-13
L	C1 to C6	mm	1082	903	179

Crush Measurements: Bumper Cover Removed

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
B1	Bumper Beam 1 at left side	mm	3457	2889	-568
B2	Bumper Beam 2 at left side	mm	3478	2941	-537
B3	Bumper Beam 3 at left side	mm	3493	3024	-469
B4	Bumper Beam 4 at left side	mm	3507	3107	-400
B5	Bumper Beam 5 at right side	mm	3507	3182	-325
B6	Bumper Beam 6 at right side	mm	3507	3257	-250
B7	Bumper Beam 7 at right side	mm	3492	3318	-174
B8	Bumper Beam 8 at right side	mm	3477	3380	-97
B9	Bumper Beam 9 at right side	mm	3459	3439	-20
L	B1 to B9	mm	969	772	197

**DATA SHEET NO. 13
VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

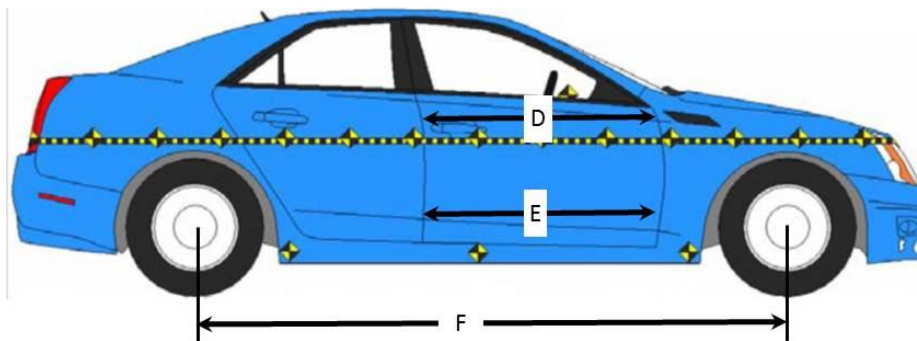
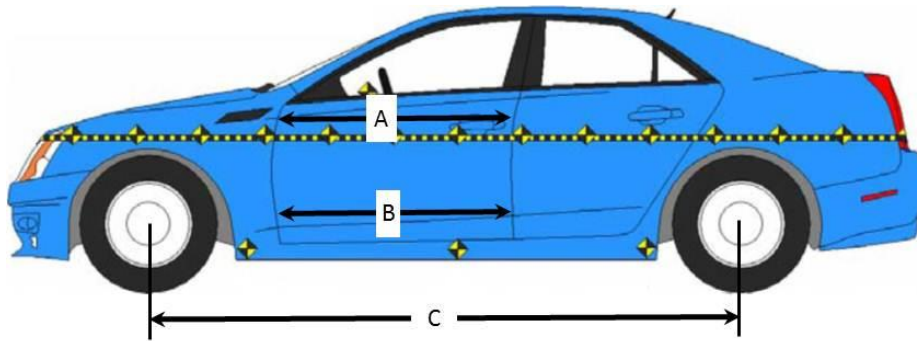
NHTSA No.: R20145374
 Test Date: 6/27/2014

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	1064	1061	-3
B	Left Side Lower	mm	939	938	-1
D	Right Side Upper	mm	1062	1062	0
E	Right Side Lower	mm	936	936	0

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2776	2581	-195
F	Right Side Wheelbase	mm	2776	2761	-15



**DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS**

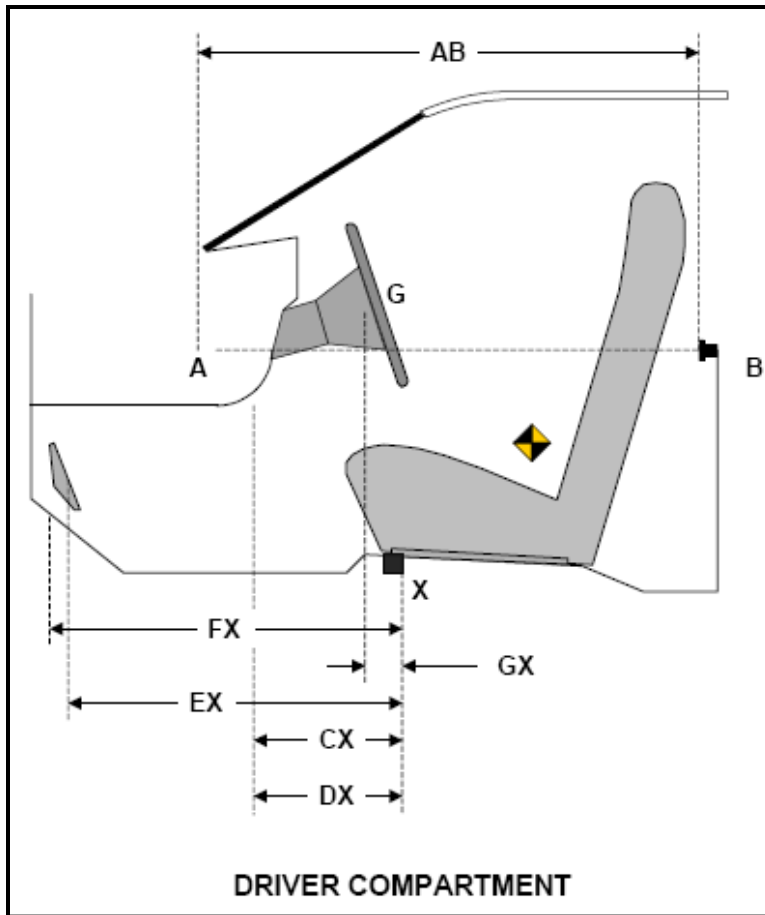
Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	797	795	-2
CX	Left Knee Bolster to X	mm	255	238	-17
DX	Right Knee Bolster to X	mm	250	243	-7
EX	Brake Pedal to X	mm	579	404	-175
FX	Foot Rest to X	mm	638	570	-68
GX	Center of Steering Column Wheel Hub to X	mm	79	74	-5

X = Front of Seat Track (Stationary)



**DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

DRIVER SIDE DOOR SILL INTRUSIONS



Reference point: Rear most center of the top of rear window (See appendix D for procedure to create coordinate system).

- +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	2013	-770	954	2013	-761	951	0	9	-3
2	2029	-763	877	2029	-757	874	0	6	-3
3	2004	-755	802	2005	-749	799	1	6	-3
4	1967	-743	503	1966	-746	497	-1	-3	-6
5	1958	-725	430	1958	-729	425	0	-4	-5
6	1873	-704	355	1872	-709	349	-1	-5	-6
7	1892	-773	1022	1892	-763	1020	0	10	-2
8	1740	-773	1022	1743	-763	1020	3	10	-2
9	1590	-773	1021	1592	-765	1020	2	8	-1
10	1939	-773	1016	1940	-763	1013	1	10	-3
11	1980	-772	994	1981	-764	991	1	8	-3
12	1970	-750	708	1969	-746	703	-1	4	-5
13	1965	-751	608	1964	-750	604	-1	1	-4
14	1812	-693	317	1812	-698	312	0	-5	-5
15	1751	-681	281	1752	-685	276	1	-4	-5
16	1690	-668	245	1690	-672	240	0	-4	-5

DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

Point	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
17	1627	-655	212	1628	-658	207	1	-3	-5
18	1563	-641	180	1564	-644	175	1	-3	-5
19	1497	-631	152	1497	-632	147	0	-1	-5
20	1429	-620	127	1429	-622	122	0	-2	-5
21	1359	-613	106	1359	-616	101	0	-3	-5
22	1288	-608	90	1288	-610	86	0	-2	-4
23	1217	-605	79	1217	-606	76	0	-1	-3
24	1146	-605	71	1145	-606	68	-1	-1	-3
25	1075	-604	65	1075	-605	62	0	-1	-3
26	988	-606	62	988	-606	60	0	0	-2
27	1538	-773	1021	1539	-765	1020	1	8	-1
28	1487	-773	1020	1488	-765	1020	1	8	0
29	1437	-773	1020	1439	-766	1020	2	7	0
30	1386	-773	1020	1388	-766	1020	2	7	0
31	1334	-773	1020	1335	-766	1020	1	7	0
32	1287	-772	1014	1289	-767	1014	2	5	0
33	1141	-765	801	1142	-761	800	1	4	-1
34	1211	-771	953	1212	-767	952	1	4	-1

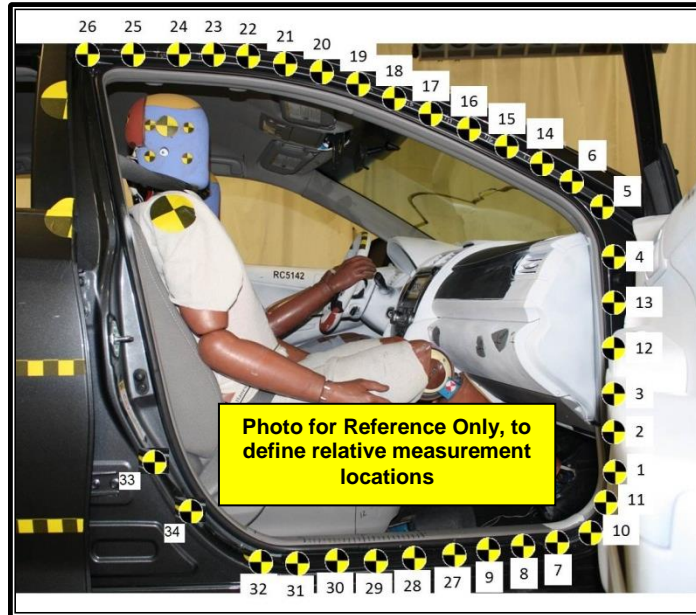
Note: See Appendix D for detailed procedure on how to measure the required door sill intrusions.

**DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

PASSENGER SIDE DOOR SILL INTRUSIONS



Reference point: Rear most center of the top of rear window (See appendix D for procedure to create coordinate system).

- +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	2018	769	952	2016	776	954	-2	7	2
2	2031	761	879	2030	767	881	-1	6	2
3	2004	755	802	2003	758	806	-1	3	4
4	1968	744	501	1967	741	505	-1	-3	4
5	1956	725	427	1955	722	431	-1	-3	4
6	1867	704	354	1866	701	356	-1	-3	2
7	1892	771	1025	1891	779	1028	-1	8	3
8	1741	771	1024	1740	778	1027	-1	7	3
9	1591	771	1024	1591	777	1026	0	6	2
10	1940	771	1019	1938	779	1021	-2	8	2
11	1984	771	994	1983	778	997	-1	7	3
12	1969	749	702	1968	751	705	-1	2	3
13	1966	752	600	1965	751	604	-1	-1	4
14	1806	692	316	1806	691	319	0	-1	3
15	1746	680	280	1745	677	283	-1	-3	3
16	1684	668	244	1683	665	248	-1	-3	4

DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

Point	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
17	1620	655	211	1620	652	214	0	-3	3
18	1557	643	180	1557	639	183	0	-4	3
19	1491	631	152	1491	629	154	0	-2	2
20	1424	622	128	1423	618	131	-1	-4	3
21	1354	616	107	1353	612	110	-1	-4	3
22	1281	610	92	1281	607	94	0	-3	2
23	1210	607	81	1209	604	83	-1	-3	2
24	1136	606	73	1136	604	75	0	-2	2
25	1065	607	67	1065	604	69	0	-3	2
26	988	609	65	987	606	67	-1	-3	2
27	1542	771	1023	1540	777	1026	-2	6	3
28	1492	771	1024	1490	776	1026	-2	5	2
29	1443	772	1024	1443	776	1026	0	4	2
30	1390	771	1024	1388	775	1026	-2	4	2
31	1336	771	1023	1335	775	1026	-1	4	3
32	1287	771	1017	1286	774	1019	-1	3	2
33	1140	765	800	1138	766	801	-2	2	1
34	1209	770	950	1208	772	952	-1	3	2

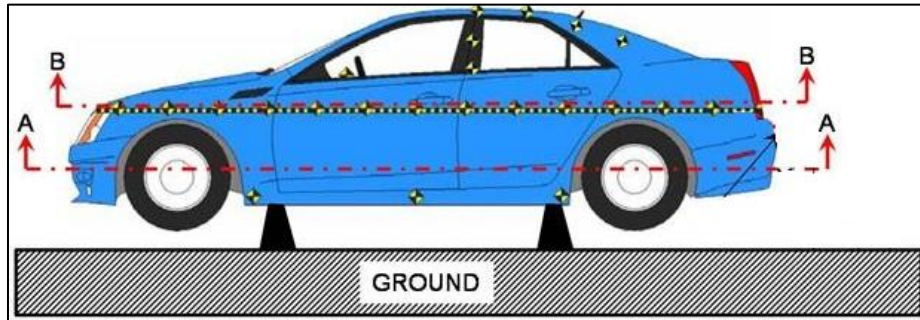
Note: See Appendix D for detailed procedure on how to measure the required door sill intrusions.

**DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

**VEHICLE EXTERIOR CRUSH PROFILE
SECTION A-A**



Reference point: Rear most center of the top of rear window (See appendix D for procedure to create coordinate system).

- +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	2954	-903	906	1	2663	-695	905
2	3031	-895	905	2	2675	-633	906
3	3147	-861	905	3	2712	-627	906
4	3253	-807	906	4	2762	-619	905
5	3333	-721	905	5	2785	-585	905
6	3395	-629	905	6	2819	-518	906
7	3445	-540	905	7	2846	-446	906
8	3508	-405	906	8	2865	-385	906
9	3537	-326	906	9	2858	-306	905
10	3550	-255	906	10	2940	-232	905
11	3561	-123	906	11	2981	-189	905
12	3563	1	906	12	3033	-149	906
13	3562	106	905	13	3123	-47	906
14	3550	244	905	14	3195	38	906
15	3537	324	905	15	3256	111	905
16	3487	453	905	16	3325	192	906
17	3445	540	906	17	3295	226	905
18	3342	709	906	18	3343	298	905
19	3215	832	906	19	3389	370	906
20	3087	880	905	20	3425	431	906
21	3027	897	905	21	3446	489	906
22	2957	904	905	22	3449	513	906
23	2243	907	906	23	3258	547	906
24	2153	906	905	24	3257	608	905
25	2030	906	905	25	3245	671	907

**DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

**VEHICLE EXTERIOR CRUSH PROFILE
SECTION A-A (Continued)**

Point	Pre-Test			Point	Post-Test		
	X	Y	Z		X	Y	Z
26	1824	908	906	26	3219	704	906
27	1624	910	905	27	3169	732	906
28	1420	911	905	28	3080	746	906
29	1239	912	905	29	2981	790	907
30	1046	913	905	30	2968	941	908
31	947	912	905	31	2858	1008	906
32	731	910	905	32	2722	992	906
33	554	908	905	33	2254	936	906
34	391	908	905	34	2150	939	905
35	263	908	905	35	2132	918	905
36	172	909	906	36	2011	919	905
37	-570	895	906	37	1878	920	906
38	-677	874	905	38	1753	921	906
39	-840	842	905	39	1583	923	905
40	-967	812	905	40	1469	923	905
41	-1079	781	905	41	1311	924	905
42	-1125	749	905	42	1177	925	905
43	-1191	658	905	43	1016	925	905
44	-1243	541	905	44	983	924	905
45	-1266	434	905	45	860	920	906
46	-1280	328	905	46	692	919	906
47	-1290	195	906	47	518	918	905
48	-1295	62	905	48	368	917	905
49	-1296	-3	906	49	231	918	906
50	-1293	-110	905	50	173	917	906
51	-1287	-237	905	51	-537	900	906
52	-1279	-329	905	52	-537	900	906
53	-1263	-449	905	53	-631	882	905
54	-1240	-551	905	54	-767	855	905
55	-1191	-658	905	55	-925	821	906
56	-1137	-735	905	56	-1058	786	906
57	-1104	-771	906	57	-1109	765	905
58	-916	-824	905	58	-1189	658	906
59	-760	-858	905	59	-1243	539	905
60	-634	-884	906	60	-1270	400	905
61	-538	-902	905	61	-1287	225	905
62	173	-910	905	62	-1294	94	905
63	338	-910	905	63	-1295	16	905
64	501	-910	905	64	-1292	-117	905
65	686	-912	905	65	-1284	-267	905
66	863	-913	905	66	-1266	-425	905

**DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

**VEHICLE EXTERIOR CRUSH PROFILE
SECTION A-A (Continued)**

Point	Pre-Test			Point	Post-Test		
	X	Y	Z		X	Y	Z
67	969	-914	905	67	-1240	-549	905
68	1058	-914	905	68	-1181	-674	906
69	1220	-914	906	69	-1099	-775	906
70	1396	-914	906	70	-973	-810	905
71	1589	-914	906	71	-832	-843	906
72	1748	-912	905	72	-689	-872	906
73	1908	-910	905	73	-533	-903	905
74	2061	-910	905	74	177	-910	905
75	2238	-912	906	75	291	-908	906
76	2954	-903	906	76	498	-908	905
				77	686	-909	906
				78	865	-909	905
				79	972	-910	905
				80	981	-907	905
				81	1098	-906	905
				82	1186	-907	905
				83	1302	-907	906
				84	1442	-907	906
				85	1577	-907	905
				86	1738	-906	906
				87	1876	-905	906
				88	2023	-904	905
				89	2132	-905	906
				90	2141	-903	905
				91	2183	-908	905
				92	2210	-920	906
				93	2310	-866	906
				94	2451	-813	906
				95	2515	-783	905
				96	2649	-757	906

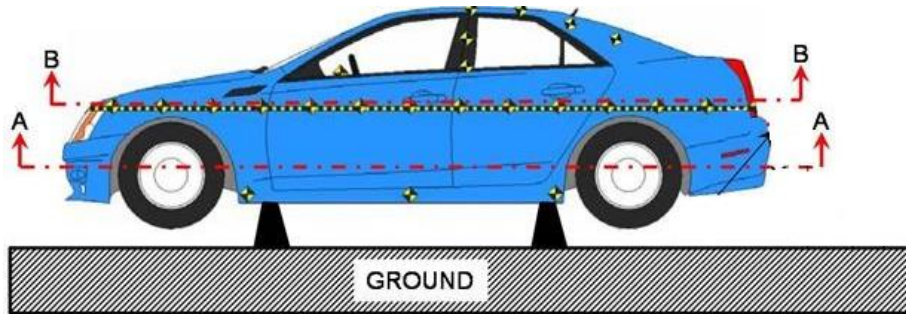
Note: See Appendix D for detailed procedure on how to measure vehicle exterior crush profile

**DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

**VEHICLE EXTERIOR CRUSH PROFILE
SECTION B-B**



Reference point: Rear most center of the top of rear window (See appendix D for procedure to create coordinate system).

- +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	2268	-897	651	1	1626	-905	650
2	2371	-909	651	2	1812	-900	650
3	2498	-918	650	3	2011	-896	651
4	2648	-917	651	4	2138	-895	650
5	2788	-908	651	5	2178	-988	650
6	2931	-874	650	6	2344	-902	651
7	3037	-846	651	7	2420	-824	650
8	3158	-811	650	8	2501	-750	651
9	3233	-760	651	9	2574	-721	650
10	3298	-637	650	10	2566	-625	650
11	3344	-539	651	11	2527	-455	650
12	3369	-481	650	12	2618	-324	651
13	3404	-396	651	13	2692	-263	651
14	3427	-272	651	14	2796	-157	651
15	3442	-143	650	15	2835	-107	650
16	3448	-15	650	16	2902	-69	651
17	3447	39	651	17	2975	-50	650
18	3441	150	650	18	3051	-3	651
19	3425	277	650	19	3098	156	651
20	3407	367	650	20	3171	214	650
21	3394	427	650	21	3235	292	651
22	3363	494	650	22	3281	361	651
23	3343	535	650	23	3279	405	651
24	3299	631	651	24	3170	555	651
25	3254	710	650	25	3039	636	652

**DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

**VEHICLE EXTERIOR CRUSH PROFILE
SECTION B-B (Continued)**

Point	Pre-Test			Point	Post-Test		
	X	Y	Z		X	Y	Z
26	3233	757	650	26	1996	897	650
27	3168	804	651	27	1836	902	650
28	3077	834	650	28	1644	909	651
29	2947	867	650	29	1491	913	650
30	2797	905	650	30	1334	916	651
31	2719	914	650	31	1187	918	650
32	2622	916	650	32	1177	919	650
33	2477	915	650	33	1055	920	650
34	2350	904	650	34	984	921	650
35	2183	890	650	35	888	919	650
36	2035	890	650	36	707	918	651
37	1828	896	651	37	523	917	651
38	1630	903	650	38	305	917	650
39	1441	907	651	39	94	921	651
40	1237	911	650	40	-49	925	651
41	1097	913	650	41	-148	926	651
42	968	914	650	42	-199	917	651
43	863	913	650	43	-199	917	651
44	702	912	650	44	-311	914	650
45	472	910	650	45	-464	898	651
46	321	910	651	46	-627	872	650
47	180	911	650	47	-798	839	651
48	49	913	650	48	-915	813	650
49	-35	917	650	49	-1027	783	651
50	-197	917	650	50	-1110	699	650
51	-384	908	651	51	-1161	587	651
52	-430	901	650	52	-1174	549	651
53	-556	884	651	53	-1169	542	650
54	-659	866	650	54	-1191	440	651
55	-766	846	651	55	-1206	346	650
56	-876	822	650	56	-1200	284	650
57	-972	802	650	57	-1187	174	651
58	-1047	775	650	58	-1189	9	651
59	-1120	685	651	59	-1189	-71	650
60	-1154	610	650	60	-1187	-179	650
61	-1175	551	650	61	-1192	-267	651
62	-1172	534	650	62	-1210	-303	650
63	-1197	412	651	63	-1200	-405	651
64	-1211	314	651	64	-1176	-516	650
65	-1187	226	650	65	-1174	-553	650
66	-1189	159	651	66	-1151	-619	651
67	-1189	-171	650	67	-1133	-659	650

**DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

**VEHICLE EXTERIOR CRUSH PROFILE
SECTION B-B (Continued)**

Point	Pre-Test			Point	Post-Test		
	X	Y	Z		X	Y	Z
68	-1188	-238	650	68	-1063	-765	650
69	-1212	-309	650	69	-967	-805	650
70	-1175	-526	650	70	-810	-840	651
71	-1176	-551	651	71	-627	-875	651
72	-1138	-651	651	72	-468	-900	651
73	-1081	-747	651	73	-286	-916	650
74	-1029	-785	650	74	-99	-919	650
75	-927	-813	651	75	-44	-918	650
76	-730	-856	650	76	44	-915	651
77	-566	-885	650	77	156	-912	651
78	-400	-908	650	78	301	-910	651
79	-268	-917	650	79	485	-909	650
80	-102	-919	651	80	674	-910	650
81	24	-916	650	81	824	-911	651
82	104	-914	650	82	975	-912	650
83	291	-911	651	83	1043	-911	650
84	446	-910	650	84	1164	-910	650
85	604	-912	650	85	1242	-910	650
86	777	-913	650	86	1273	-910	651
87	948	-915	650	87	1412	-909	650
88	1030	-914	650				
89	1198	-913	650				
90	1362	-911	650				
91	1525	-908	651				
92	1732	-902	650				
93	1924	-896	650				
94	2085	-892	650				
95	2213	-894	650				

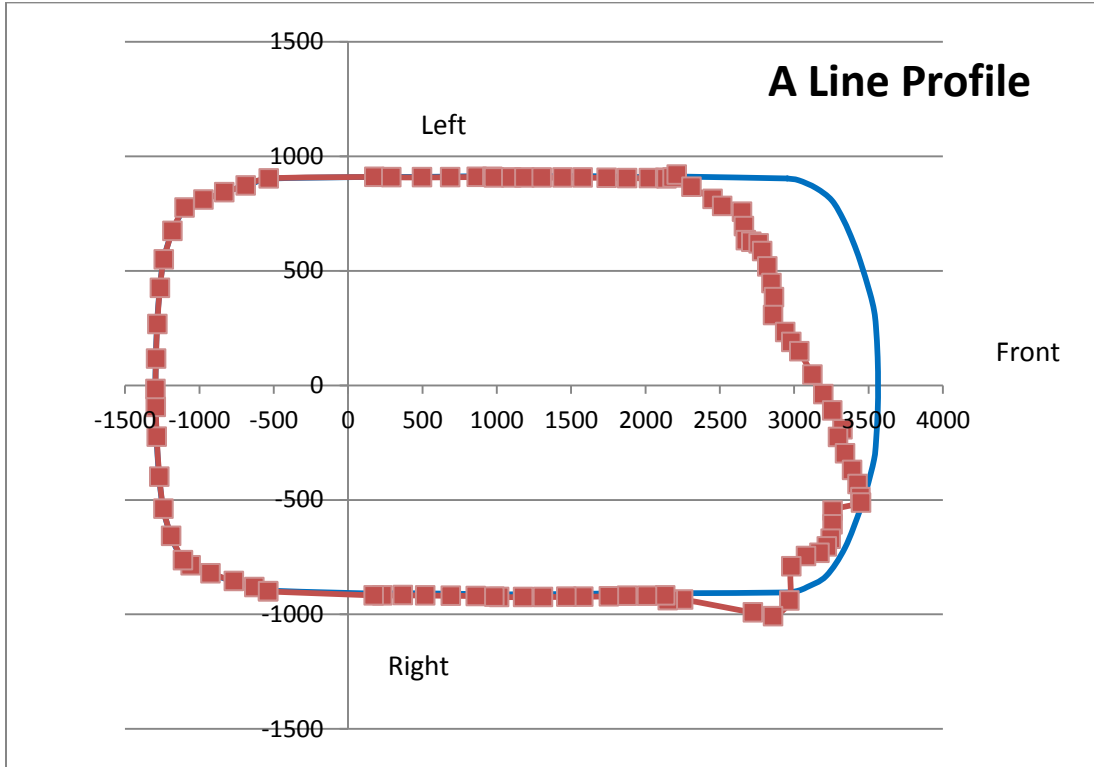
Note: See Appendix D for detailed procedure on how to measure vehicle exterior crush profile

DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

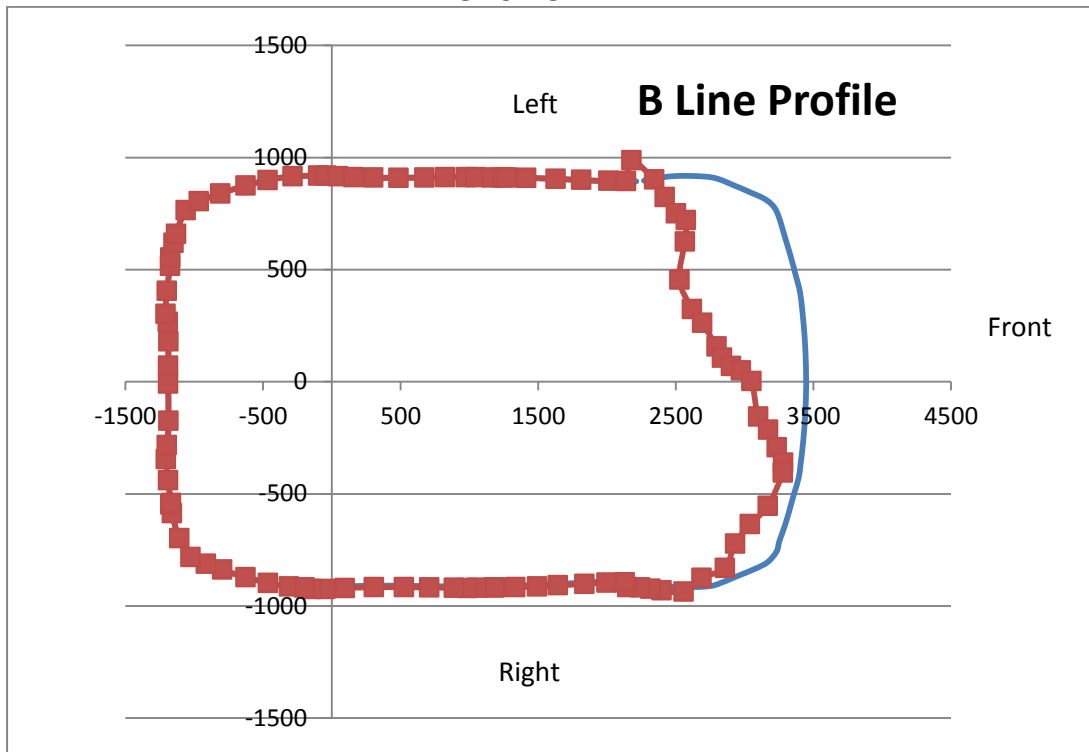
Test Vehicle: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014

VEHICLE EXTERIOR CRUSH PROFILE
SECTION A-A



SECTION B-B



DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014

STRUCTURAL BUMPER BEAM POINTS

	Point	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
		X	Y	Z	X	Y	Z	X	Y	Z
Redundant Structural Bumper Beam	B1	3447	-485	877	2875	-338	853	-572	147	-24
	B2	3468	-364	882	2934	-251	867	-534	113	-15
	B3	3482	-243	881	3016	-162	865	-466	81	-16
	B4	3527	-123	880	3124	-95	868	-403	28	-12
	B5	3527	-1	882	3199	3	868	-328	4	-14
	B6	3527	122	880	3273	99	865	-254	-23	-15
	B7	3482	241	880	3310	223	863	-172	-18	-17
	B8	3466	363	879	3371	329	862	-95	-34	-17
	B9	3449	486	877	3431	437	858	-18	-49	-19
Center Structural Bumper Beam	B1	3457	-484	907	2889	-343	889	-568	141	-18
	B2	3478	-363	907	2941	-256	893	-537	107	-14
	B3	3493	-241	907	3024	-166	892	-469	75	-15
	B4	3507	-124	904	3107	-81	889	-400	43	-15
	B5	3507	0	910	3182	16	894	-325	16	-16
	B6	3507	122	905	3257	113	890	-250	-9	-15
	B7	3492	241	904	3318	217	888	-174	-24	-16
	B8	3477	363	905	3380	323	887	-97	-40	-18
	B9	3459	485	905	3439	429	885	-20	-56	-20
Upper Radiator Support	1	3344	-434	642	2745	-216	661	-599	218	19
	2	3343	-324	643	2772	-164	634	-571	160	-9
	3	3336	-218	644	2831	-85	612	-505	133	-32
	4	3329	-108	644	2911	-11	608	-418	97	-36
	5	3330	0	651	2991	61	610	-339	61	-41
	6	3329	108	646	3069	139	606	-260	31	-40
	7	3337	217	646	3149	214	612	-188	-3	-34
	8	3341	325	645	3224	293	621	-117	-32	-24
	9	3346	434	647	3290	378	628	-56	-56	-19

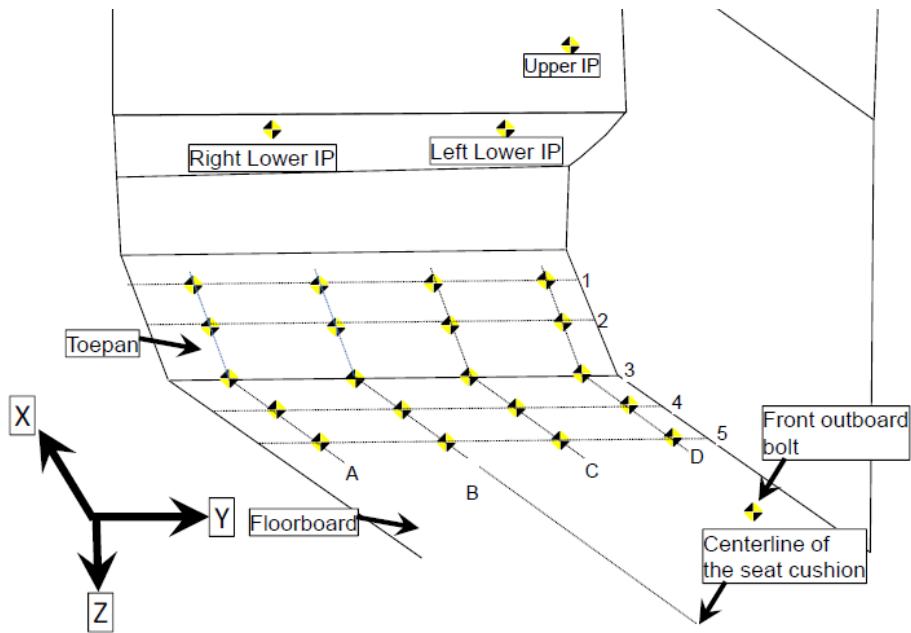
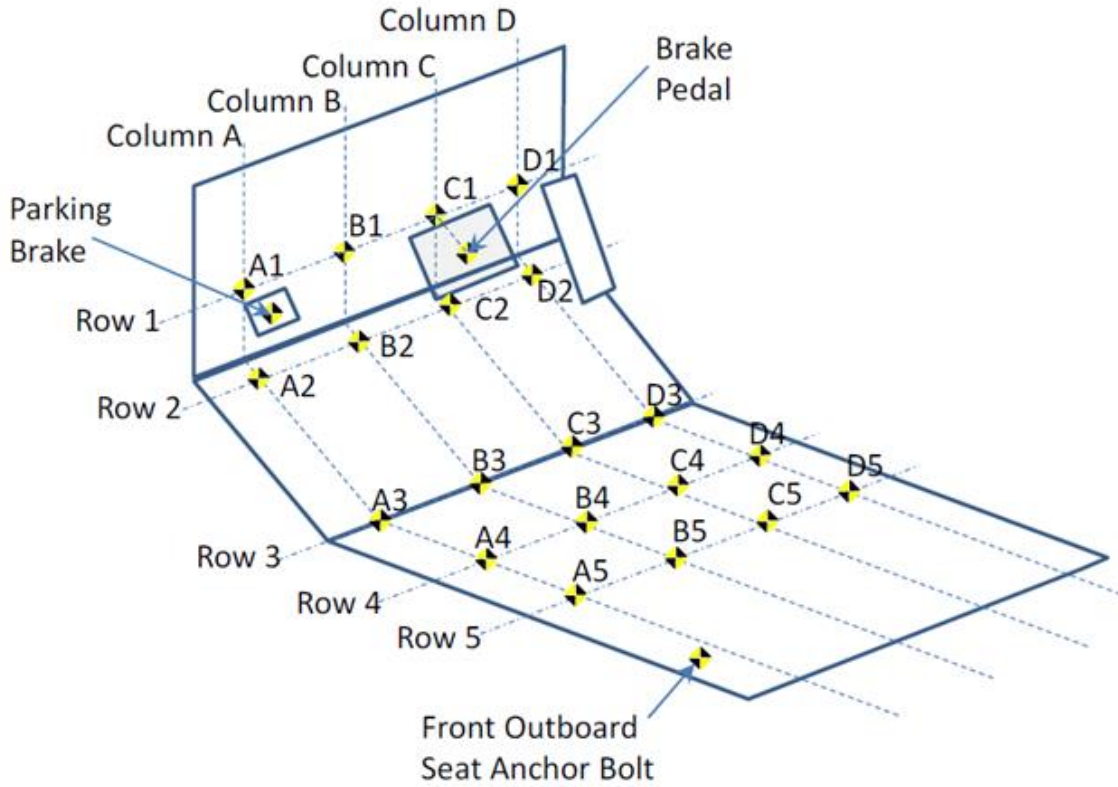
Reference point: Rear most center of the top of rear window (See appendix D for procedure to create coordinate system).

- +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: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014



Note: See Appendix D for toe pan measuring procedure

**DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS**

Test Vehicle: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014

DRIVER FLOOR PAN MEASUREMENTS

Intrusion Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	2231	-615	952	2131	-594	934	-100	21	-18
B1	2300	-517	952	2158	-481	922	-142	36	-30
C1	2302	-366	952	2169	-351	927	-133	15	-25
D1	2273	-219	950	2170	-216	941	-103	3	-9
A2	2215	-617	1017	2139	-597	1001	-76	20	-16
B2	2265	-518	1019	2181	-494	987	-84	24	-32
C2	2264	-367	1019	2168	-349	1002	-96	18	-17
D2	2235	-220	1020	2164	-202	1012	-71	18	-8
A3	2171	-619	1097	2134	-601	1093	-37	18	-4
B3	2174	-519	1096	2128	-500	1094	-46	19	-2
C3	2169	-368	1097	2119	-353	1101	-50	15	4
D3	2162	-218	1096	2123	-203	1110	-39	15	14
A4	2064	-618	1179	2064	-608	1197	0	10	18
B4	2064	-518	1183	2062	-507	1207	-2	11	24
C4	2064	-366	1183	2061	-354	1220	-3	12	37
D4	2061	-217	1149	2057	-201	1201	-4	16	52
A5	1963	-619	1194	1962	-608	1208	-1	11	14
B5	1965	-520	1195	1964	-510	1218	-1	10	23
C5	1961	-368	1193	1961	-359	1227	0	9	34
D5	1964	-217	1146	1964	-205	1186	0	12	40
Brake Pedal	2091	-368	951	1920	-405	879	-171	-37	-72
Driver IP Left	1768	-533	637	1754	-541	652	-14	-8	15
Driver IP Right	1762	-235	637	1760	-237	640	-2	-2	3
DOLP	1784	-635	650	1787	-653	662	3	-18	12
Steering Column	1591	-385	476	1590	-412	457	-1	-27	-19
Front Outboard Bolt	1512	-601	1122	1516	-593	1126	4	8	4
Emergency Brake									

Reference point: Rear most center of the top of rear window (See appendix D for procedure to create coordinate system).

- +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: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014

PASSENGER FLOOR PAN MEASUREMENTS

Intrusion Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	2269	235	950	2263	243	961	-6	8	11
B1	2303	387	952	2298	395	958	-5	8	6
C1	2285	536	952	2281	544	958	-4	8	6
D1	2218	639	952	2217	647	953	-1	8	1
A2	2241	236	1017	2239	244	1030	-2	8	13
B2	2266	387	1017	2265	396	1027	-1	9	10
C2	2266	535	1018	2263	545	1023	-3	10	5
D2	2211	637	1017	2209	646	1022	-2	9	5
A3	2161	235	1083	2161	245	1096	0	10	13
B3	2179	385	1096	2177	395	1106	-2	10	10
C3	2180	535	1097	2177	545	1102	-3	10	5
D3	2180	635	1097	2178	646	1101	-2	11	4
A4	2079	236	1150	2079	247	1163	0	11	13
B4	2080	387	1174	2078	397	1184	-2	10	10
C4	2080	537	1178	2079	547	1183	-1	10	5
D4	2080	636	1182	2078	647	1187	-2	11	5
A5	1981	236	1147	1981	245	1159	0	9	12
B5	1981	387	1194	1980	396	1202	-1	9	8
C5	1981	534	1197	1978	547	1203	-3	13	6
D5	1979	635	1198	1978	647	1204	-1	12	6
Pass IP Left	1779	235	682	1799	227	690	20	-8	8
Pass IP Right	1809	536	680	1819	530	691	10	-6	11
PORP	1783	637	649	1789	629	663	6	-8	14
Front Outboard Bolt	1514	598	1125	1514	603	1129	0	5	4

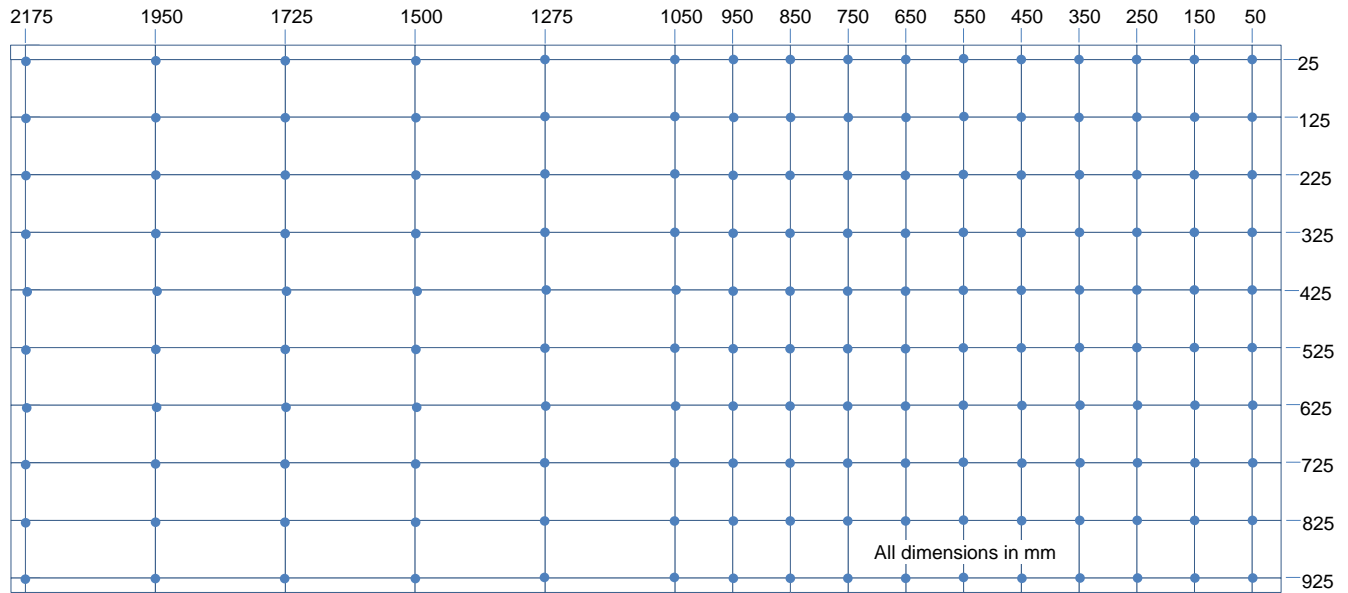
Reference point: Rear most center of the top of rear window (See appendix D for procedure to create coordinate system).

- +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 RMDB CRUSH MEASUREMENTS

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014



	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
R10	-2.5	-2.3	-2.0	-1.8	-1.4	-1.9	-1.5	-1.5	-1.2	-1.1	-1.0	-0.7	-0.9	-0.2	0.1	2.4
R9	-2.4	-2.3	-1.9	-1.7	-1.6	-2.0	-1.6	-1.4	-1.1	-1.1	-0.9	-0.8	0.3	0.0	2.2	13.2
R8	-2.0	-1.6	-1.6	-1.4	-1.3	-1.9	-1.6	2.2	43.4	48.5	43.6	31.9	5.9	7.2	11.9	46.3
R7	-1.8	-1.7	-1.5	-1.2	-1.2	-1.8	-1.2	-1.4	19.1	96.6	70.7	1.4	11.4	17.7	60.5	95.4
R6	-1.5	-1.4	-1.5	-1.3	-1.0	-1.8	-1.5	-1.0	9.2	71.6	22.7	0.7	16.3	63.4	116.7	147.0
R5	-1.5	-1.5	-1.1	-0.9	-0.8	-1.5	-1.2	11.2	55.5	29.0	37.5	263.3	267.7	264.3	258.9	264.2
R4	-1.1	-0.9	-0.8	-0.6	-0.5	-1.2	-0.6	39.4	98.9	74.4	53.1	185.6	225.0	238.1	226.2	246.5
R3	-0.9	-0.8	-0.5	-0.5	-0.4	-1.1	7.5	51.6	111.9	138.2	78.1	107.5	147.1	172.2	190.9	211.2
R2	-0.4	-0.3	-0.2	-0.1	-0.1	-0.8	15.4	56.3	107.2	146.2	69.4	67.3	139.1	212.4	231.3	243.2
R1	1.1	-0.1	0.1	0.3						119.3	56.7	61.2	103.7	163.5	206.7	233.0

*Barrier was cut to accommodate the rail, therefore these points were un-measurable.

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

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014

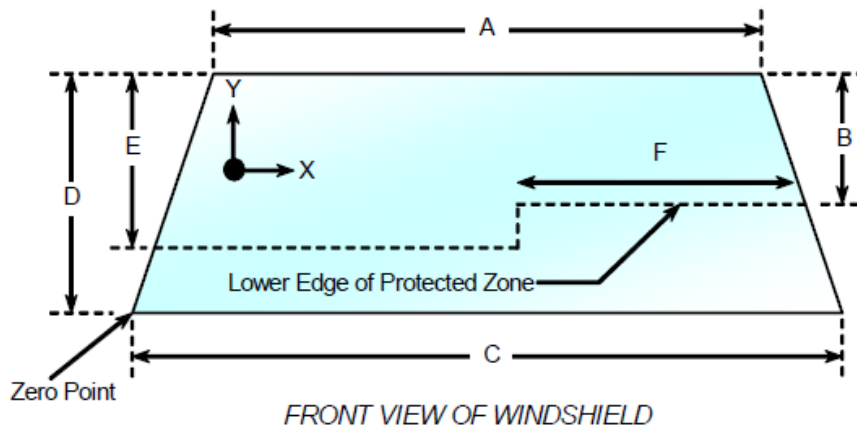
Please provide windshield mounting details. A 0.8 mm trim surrounds the top and side of windshield while a plastic shroud is on the bottom.

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: 21°C

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2125	1890	88.9%
Right Side	2125	2125	100%
Total	4250	4015	94.5%



Item	Units	Value
A	mm	1170
B	mm	402
C	mm	1520
D	mm	780
E	mm	549
F	mm	480

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: 2014 Honda Accord four door sedan
Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
Test Date: 6/27/2014

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Ambient Temperature at Test Vehicle Time of Impact: 21° C

Test Time: 11:19 AM

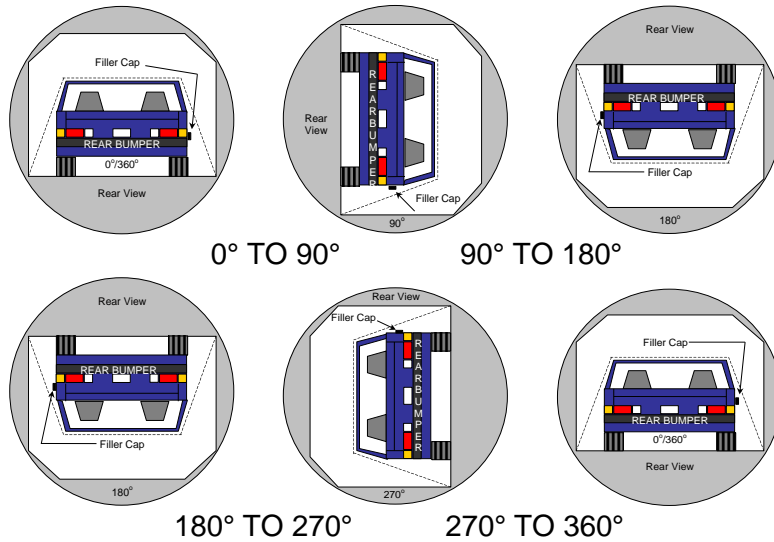
Stoddard Solvent Spillage Measurements

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

**DATA SHEET NO. 16
FMVSS 301 STATIC ROLLOVER RESULTS**

Test Vehicle: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014



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°	69	300	369
90° to 180°	65	300	365
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	

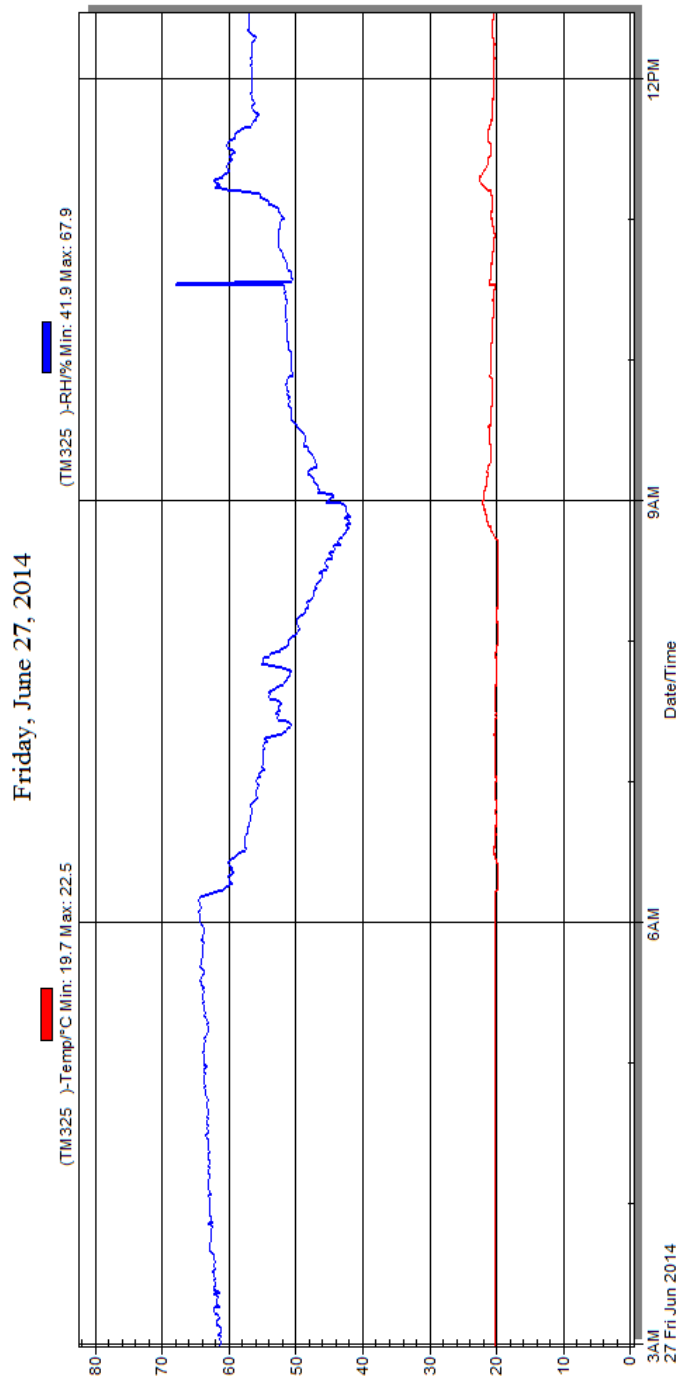
SOLVENT SPILLAGE LOCATION TABLE

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: 2014 Honda Accord four door sedan
 Test Program: R&D 90.1kph, 15° / 35% Left Oblique Offset

NHTSA No.: R20145374
 Test Date: 6/27/2014



Temperature Stabilization Chart/Data

APPENDIX A
PHOTOGRAPHS

Pictures contain wrong NHTSA number. The Correct NHTSA Number is R20145374

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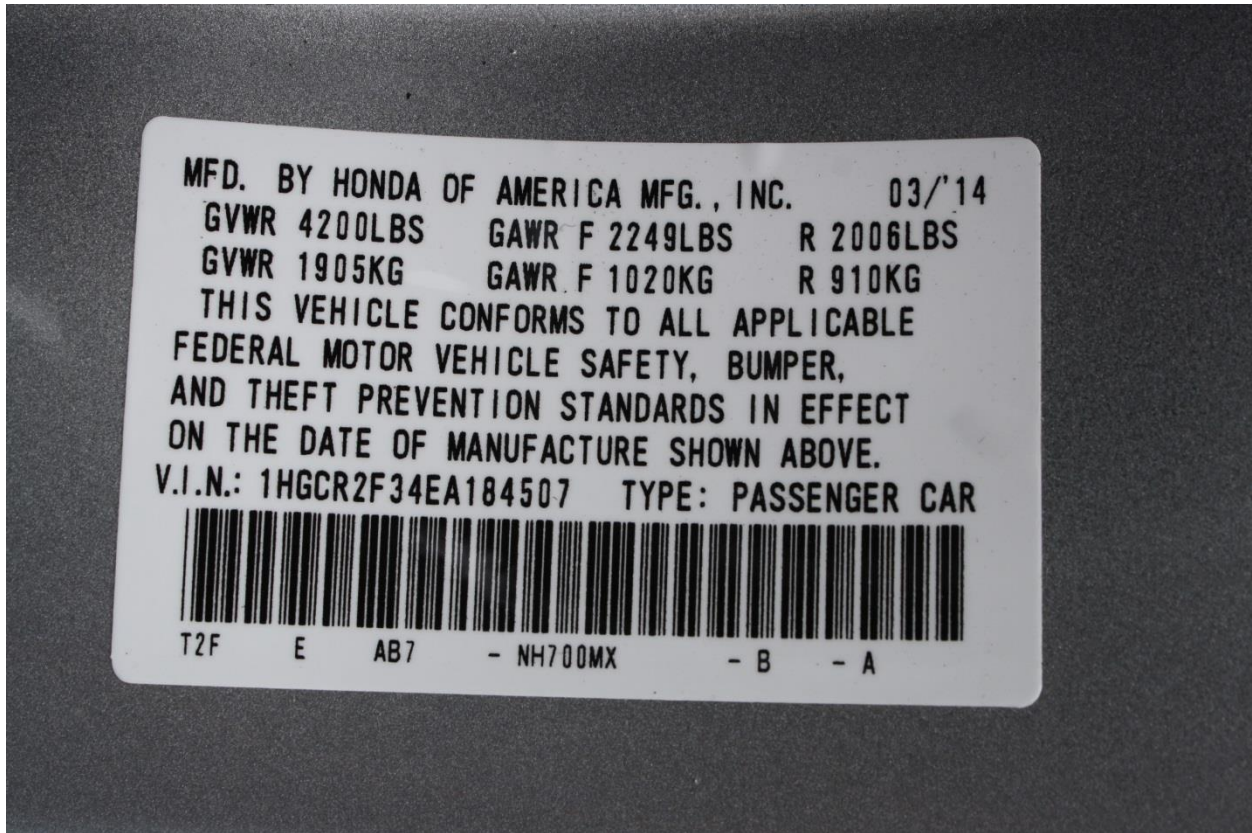
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No. 001 As Delivered Right Front 3-4 View of Test Vehicle



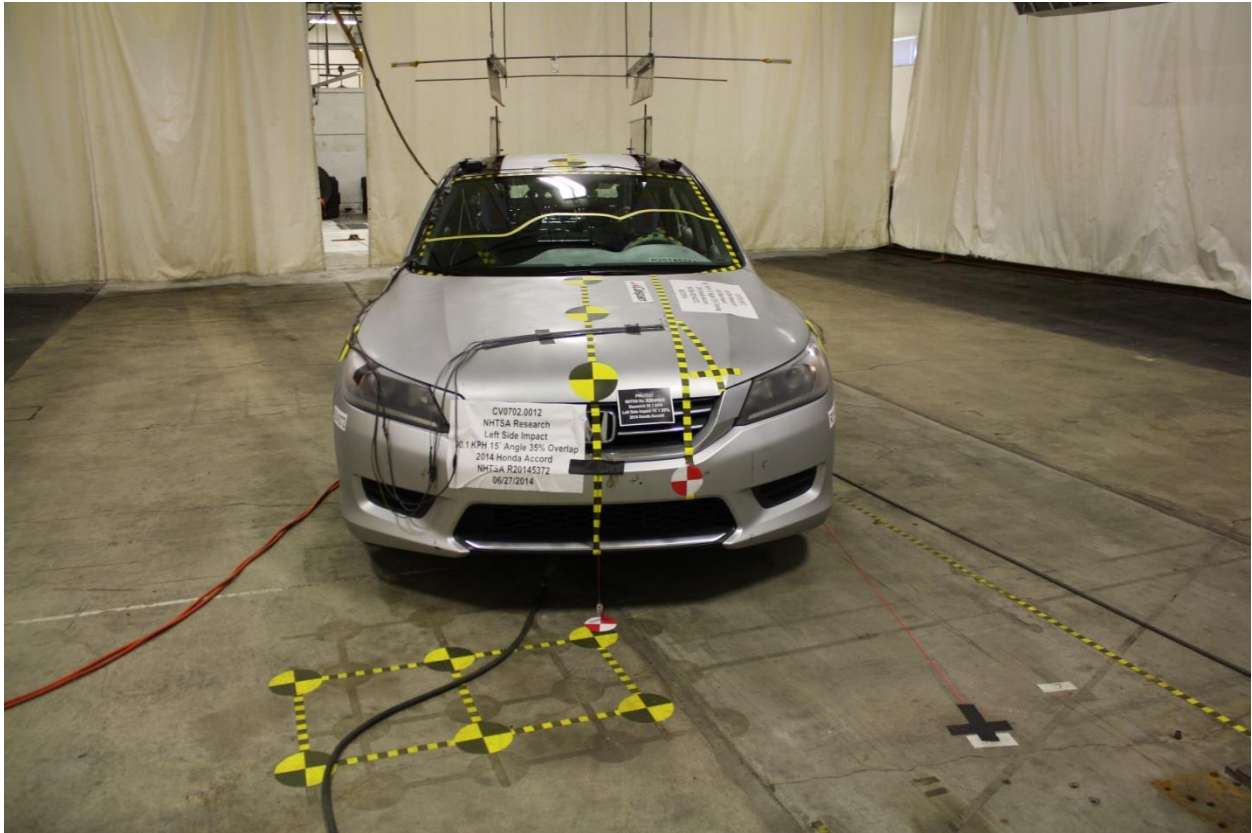
No. 002 As Delivered Left Rear 3-4 View of Test Vehicle



No. 003 Test Vehicle Certification Label



No. 004 Test Vehicle Tire Placard



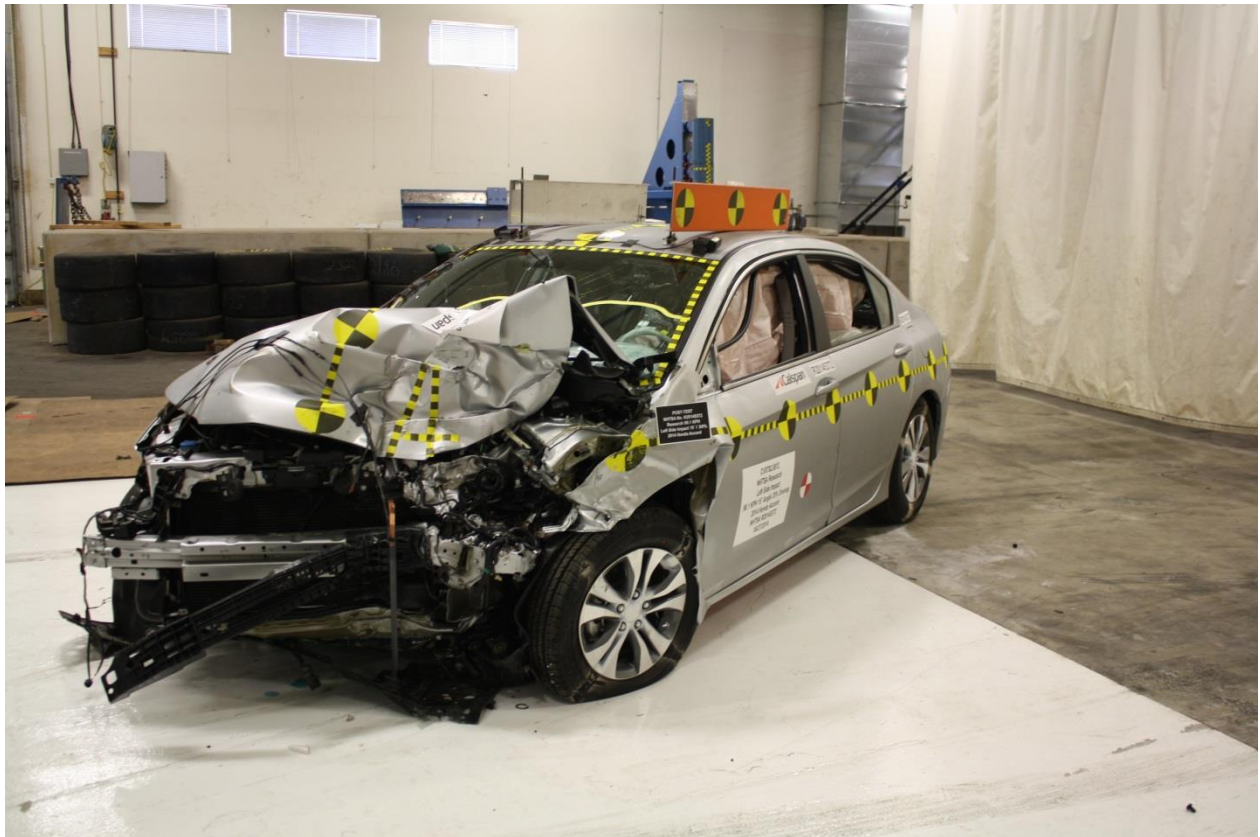
No. 005 Pre-Test Front View of Test Vehicle



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



2014 ACCORD 4DR LX
EXT: ALABASTER SILVER M ENGINE NUMBER: K24W1-2118554
INT: GRAY

Fuel Economy and Environment Gasoline Vehicle

Fuel Economy
30 MPG combined city/hwy
27 city
36 highway
3.3 gallons per 100 miles

Midsize cars range from 13 to 58 MPG. The best vehicle rates 119 MPG.

You save \$2,750 in fuel costs over 5 years compared to the average new vehicle.

STANDARD EQUIPMENT AT NO EXTRA COST

- TECHNICAL FEATURES**
 - 189hp 2.4-Liter DCHC 16-Valve i-VTEC 4-Cyl. Earth Dreams Direct-Injection Engine
 - Continuously Variable Transmission (CVT) with Sport Mode
 - 4-Wheel Disc Brakes
 - Front MacPherson Strut Suspension
 - Rear Multi-Link Suspension
 - Electric Power-Assisted Rack-and-Pinion Steering
 - Front and Rear Stabilizer Bars
 - ECC Assist System
 - Immobilizer Theft-Deterrent System
- SAFETY FEATURES**
 - Driver's and Front Passenger's Dual-Stage Airbags (SRS)
 - Driver's and Front Passenger's Side Airbags w/ SmartVent
 - Side Curtain Airbags with Rollover Sensor
 - Vehicle Stability Assist (VSA)
 - Anti-Lock Braking System (ABS)
 - Brake Assist
 - Electronic Brake Distribution (EBD)
 - ACE II Body Structure
 - The Pressure Monitoring System
 - Side-Impact Door Beams
 - Daytime Running Lights (DRL)
 - LATCH System for Child Seats

Interior Features

- Intelligent Multi-Information Display (i-MID) w/ Rearview Camera
- AM/FM/CD/MP3 Audio System with 4 Speakers
- Steering Wheel-Mounted Controls
- Bluetooth HandsFreeLink
- Pandora Internet Radio Interface
- SMS Text Messaging Functionality
- USB Audio Interface
- MP3 Auxiliary Input Jack
- Dual-Zone Automatic Climate Control with Air Filtration System
- Power Windows and Door Locks
- Driver's Auto Up/Down Window
- Tilt & Telescopic Steering Column
- Illuminated Visor Vanity Mirrors
- Map Lights
- Sunglasses Holder
- Cruise Control
- Exterior Temperature Display
- Floor Mats
- Maintenance Minder System

Exterior Features

- 16" x 6.5" Alloy Wheels
- 200595 R16 All-Season Tires
- Auto-On/Off Headlights
- Power Door Mirrors
- Expanded View Driver's Mirror
- Remote Entry System with Trunk Opener
- Security System

Manufacturer's Suggested Retail Price **\$22,755.00**

Full Tank of Fuel No Charge

KEY STANDARD FEATURES

- Rearview Camera
- Bluetooth HandsFreeLink
- USB Audio Interface
- Side Curtain Airbags with Rollover Sensor

Destination and Handling 790.00

TOTAL VEHICLE PRICE
(Includes Pre-Delivery Service) **\$23,545.00**

License and title fees, state and local taxes and dealer options and accessories are not included in the manufacturer's suggested retail price.

Annual fuel cost
\$1,750

Fuel Economy & Greenhouse Gas Rating (EPA only)

1 8 10 Best

Smog Rating (EPA only)

1 5 10 Best

This vehicle emits 206 grams CO₂ per mile. The best emits 0 grams per mile (EPA only). Producing and distributing fuel also create emissions. Learn more at fuelconomy.gov.

Actual results will vary for many reasons, including driving conditions and how you drive and maintain your vehicle. The average new vehicle gets 23 MPG and costs \$11,500 to fuel over 5 years. Cost estimates are based on 15,000 miles per year at \$3.20 per gallon. MPGe is miles per gasoline gallon equivalent. Vehicle emissions are a significant cause of climate change and smog.

fuelconomy.gov
Calculate personalized estimates. with compatible vehicles

PARTS CONTENT INFORMATION

FOR VEHICLES IN THIS CARLINE
U.S./Canadian Parts Content: **70 %**

Major Sources of Foreign Parts Content:
JAPAN 15 %

NOTE: Parts content does not include final assembly, distribution or other non-parts costs.

FOR THIS VEHICLE
Final Assembly Point:
MARYSVILLE, OHIO USA

Country of Origin: Engine:
U.S.A.

Transmission:
JAPAN

GOVERNMENT 5-STAR SAFETY RATING

Overall Vehicle Score ★★★★★

Based on the combined ratings of frontal, side and rollover. Should ONLY be compared to other vehicles of similar size and weight.

Frontal Crash	Driver	★★★★★
	Passenger	★★★★★
<small>Based on the risk of injury in a frontal impact. Should ONLY be compared to other vehicles of similar size and weight.</small>		
Side Crash	Front seat	★★★★★
	Rear seat	★★★★★
<small>Based on the risk of injury in a side impact.</small>		
Rollover		★★★★★
<small>Based on the risk of rollover in a single vehicle crash.</small>		

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 of a type that has been tested at an impact speed of 5 miles per hour, and a rear bumper of a type that has been tested at an impact speed of 5 miles per hour, resulting in no damage to the vehicle's body and safety systems, and minimal damage to the bumper and attachment hardware. "Minimal damage to the bumper" means minor cosmetic 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 vehicle will require repair after a low-speed collision. This vehicle exceeds the current federal bumper standard of 2.5 miles per hour.

SCHAUMBURG HONDA AUTOMOBIL
750 EAST GOLF ROAD
SCHAUMBURG, IL 60173

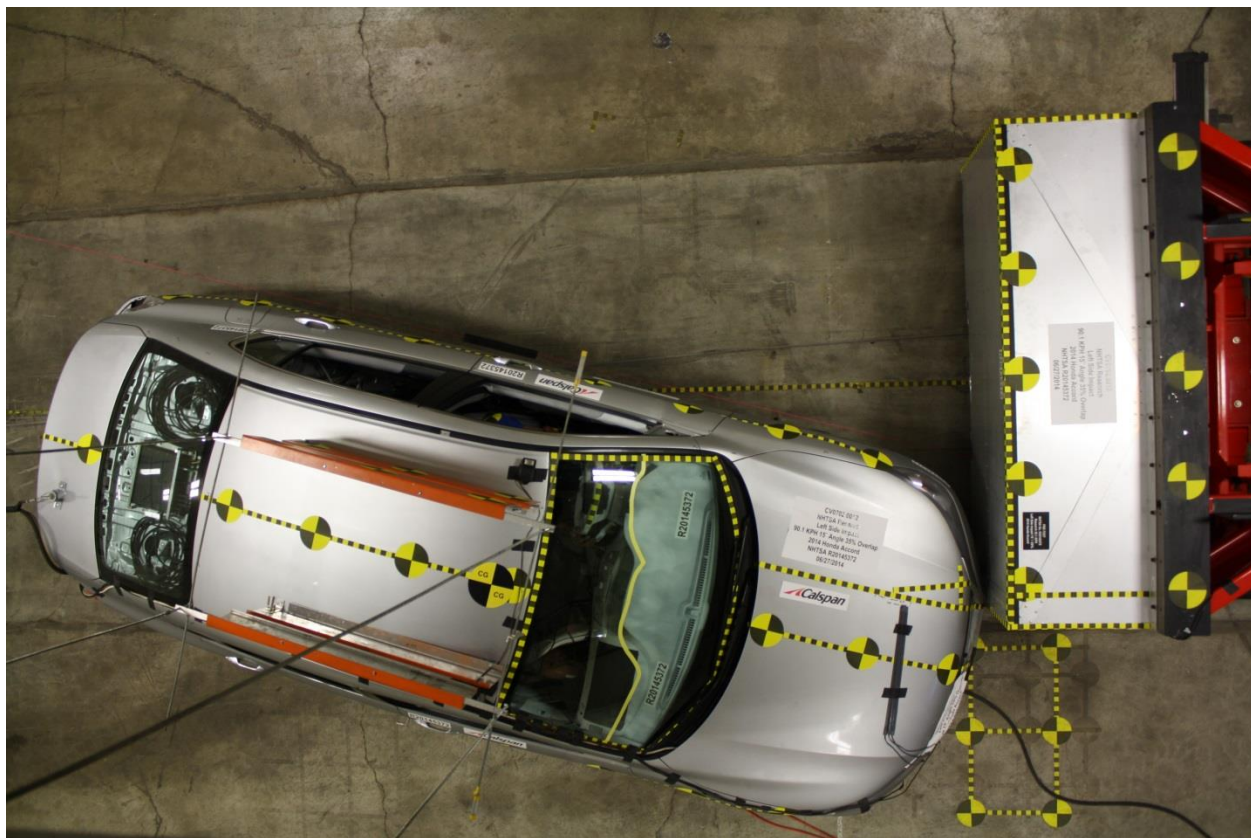
PORT OF ENTRY: MARYSVILLE
DELIVERY POINT: SCHAUMBURG

SHIP#:
ROWSPACE: 524-007
TRANS.METHOD: TRUCK

VIN: 1HGCR2F34EA184507

ORIG. DLR: 207562
REF. NO: 40674
HN CODE: HN-7356
EMISSION: 50 STATE
CONTROL NO: 156754
DEALER: 207562

No. 021 Monroney Label Photograph



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



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



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



PRE-TEST
NHTSA No. R20145372
Research 90.1 KPH
Left Side Impact 15° / 35%
2014 Honda Accord

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

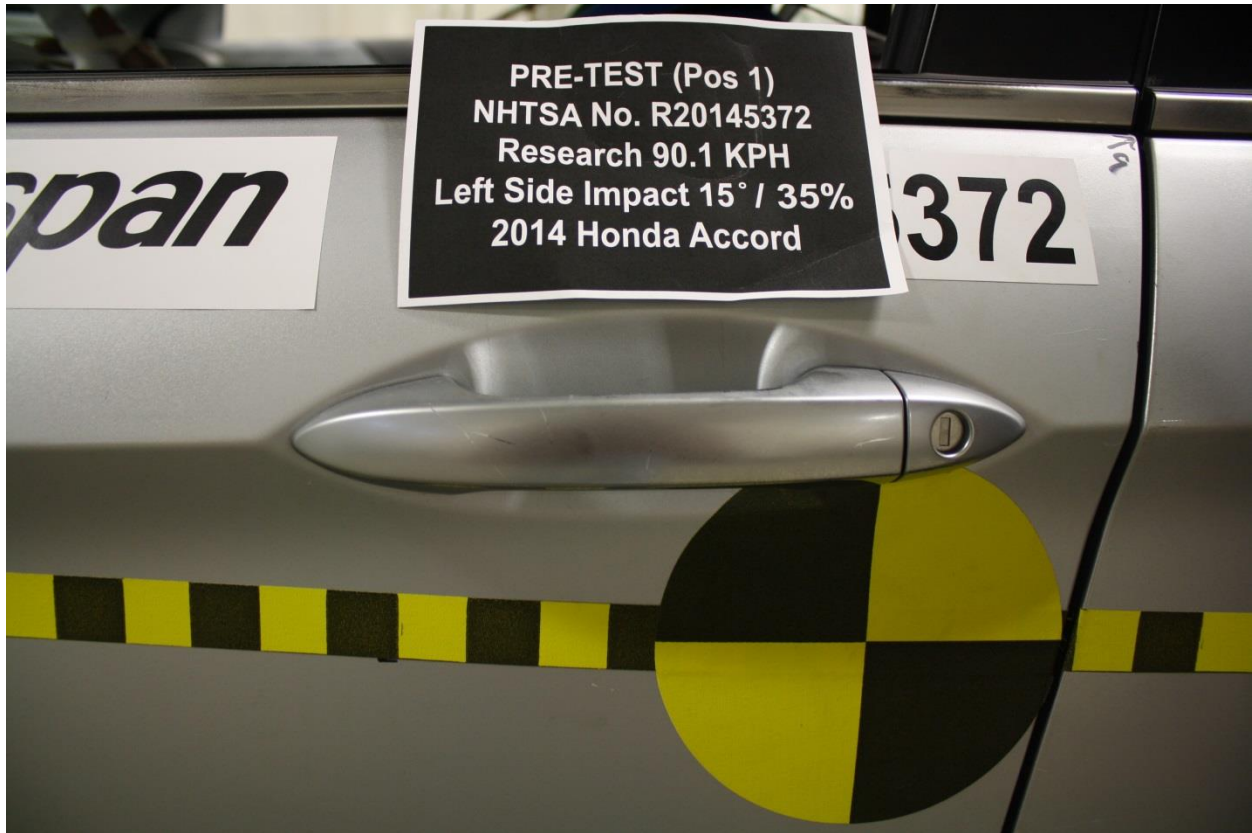


POST-TEST
NHTSA No. R20145372
Research 90.1 KPH
Left Side Impact 15° / 35%
2014 Honda Accord

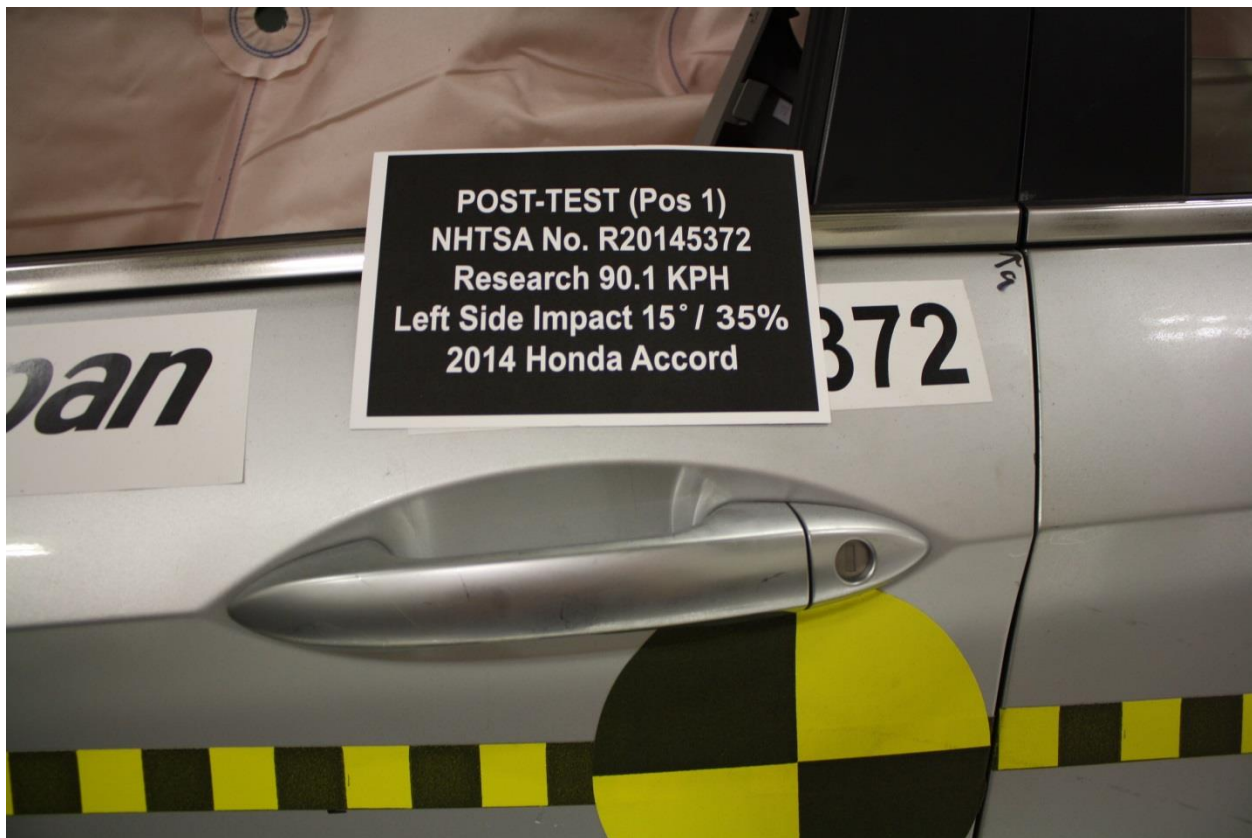
No. 026 Post-Test Close-up View of Impact Point



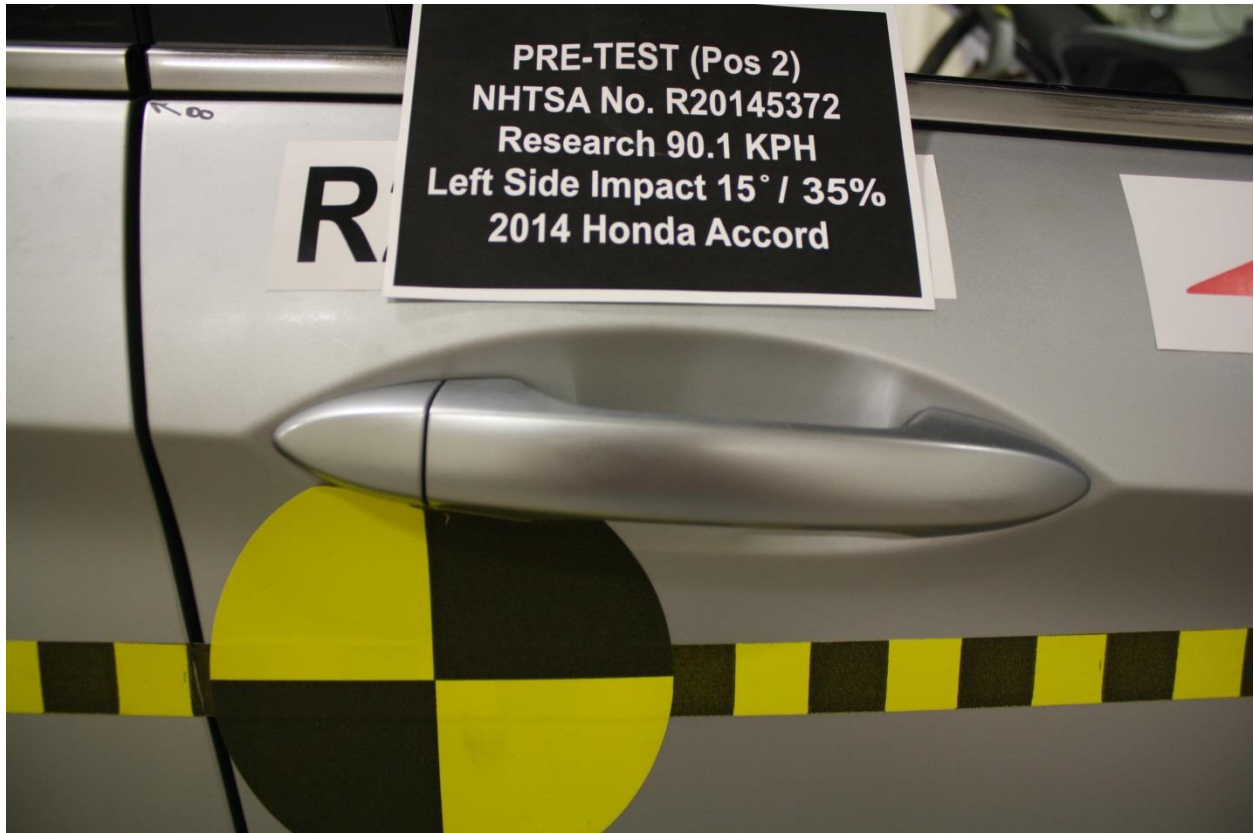
No. 027 Post-Test Vehicle Overhead View



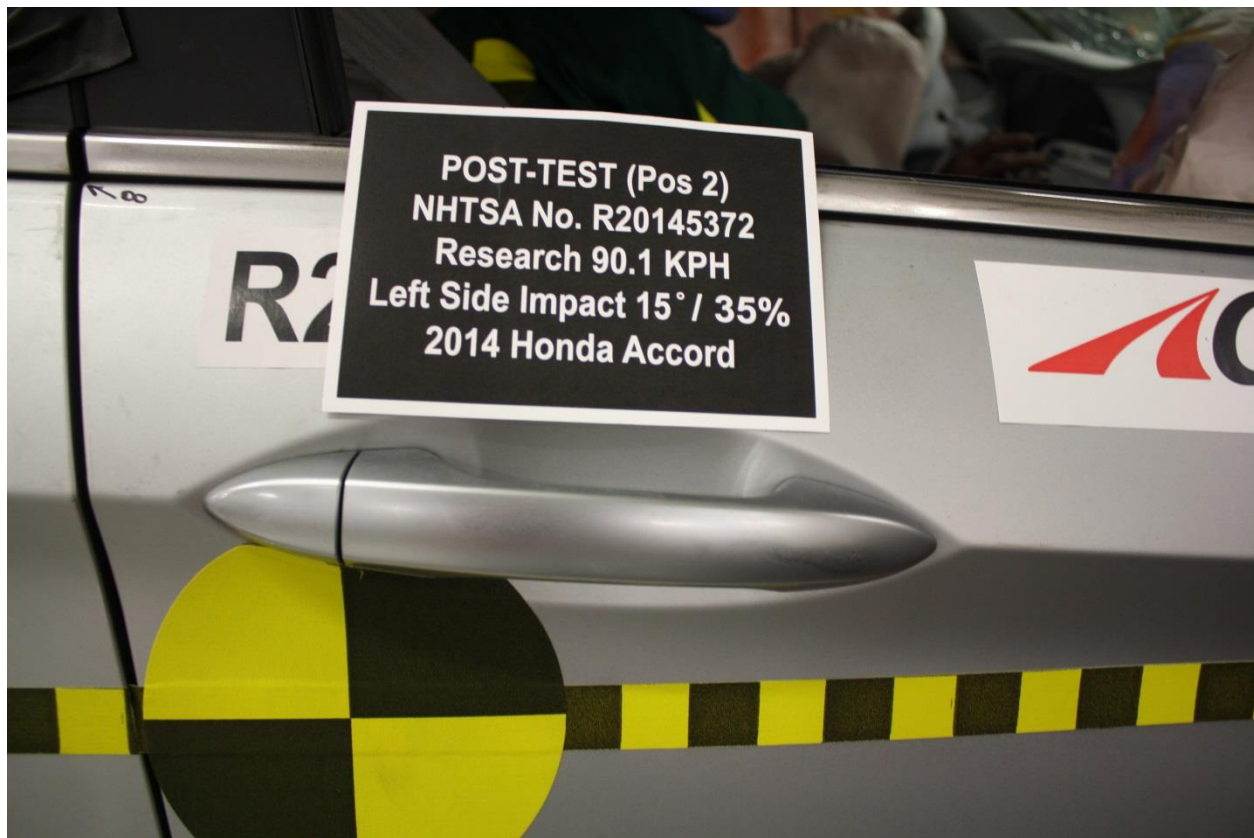
No. 028 Pre-Test Close-up View of Driver Door Latch



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



PRE-TEST (Pos 2)
NHTSA No. R20145372
Research 90.1 KPH
Left Side Impact 15' / 35%
2014 Honda Accord

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

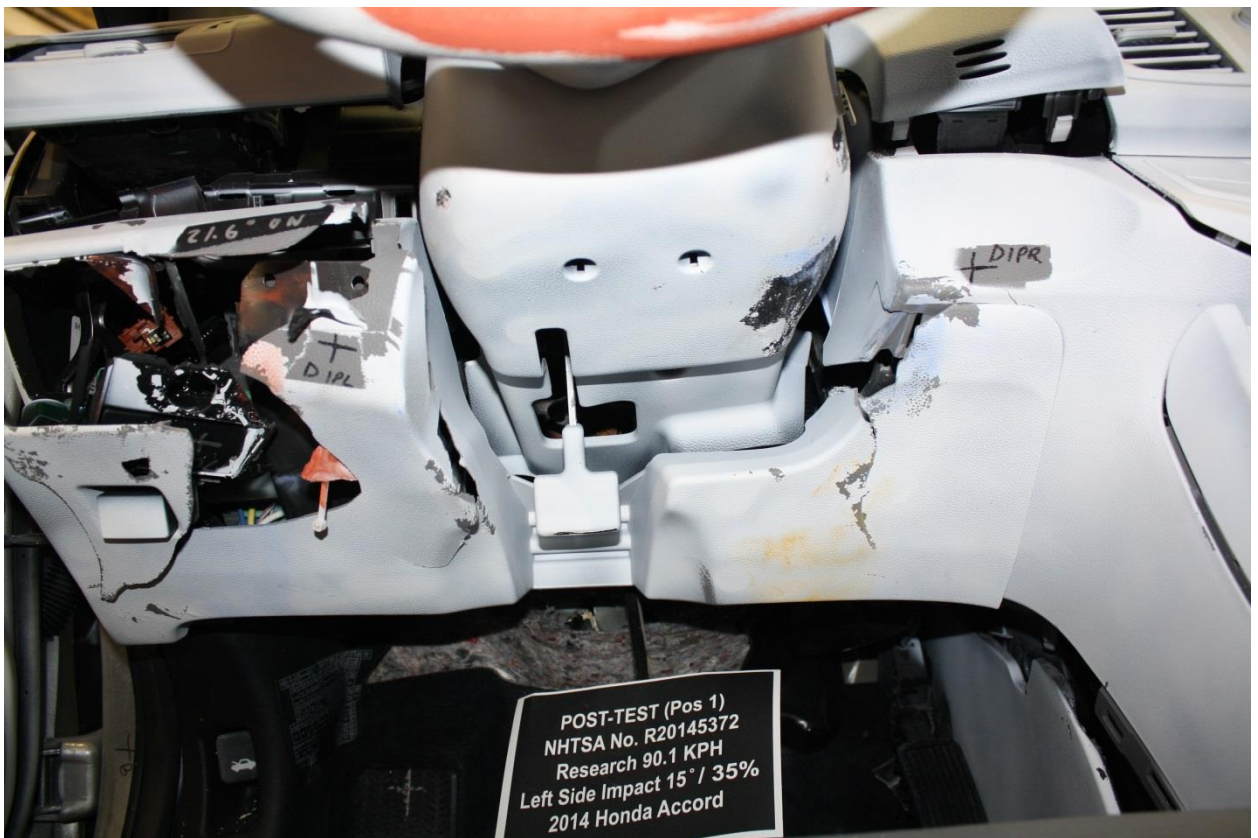


POST-TEST (Pos 2)
NHTSA No. R20145372
Research 90.1 KPH
Left Side Impact 15' / 35%
2014 Honda Accord

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



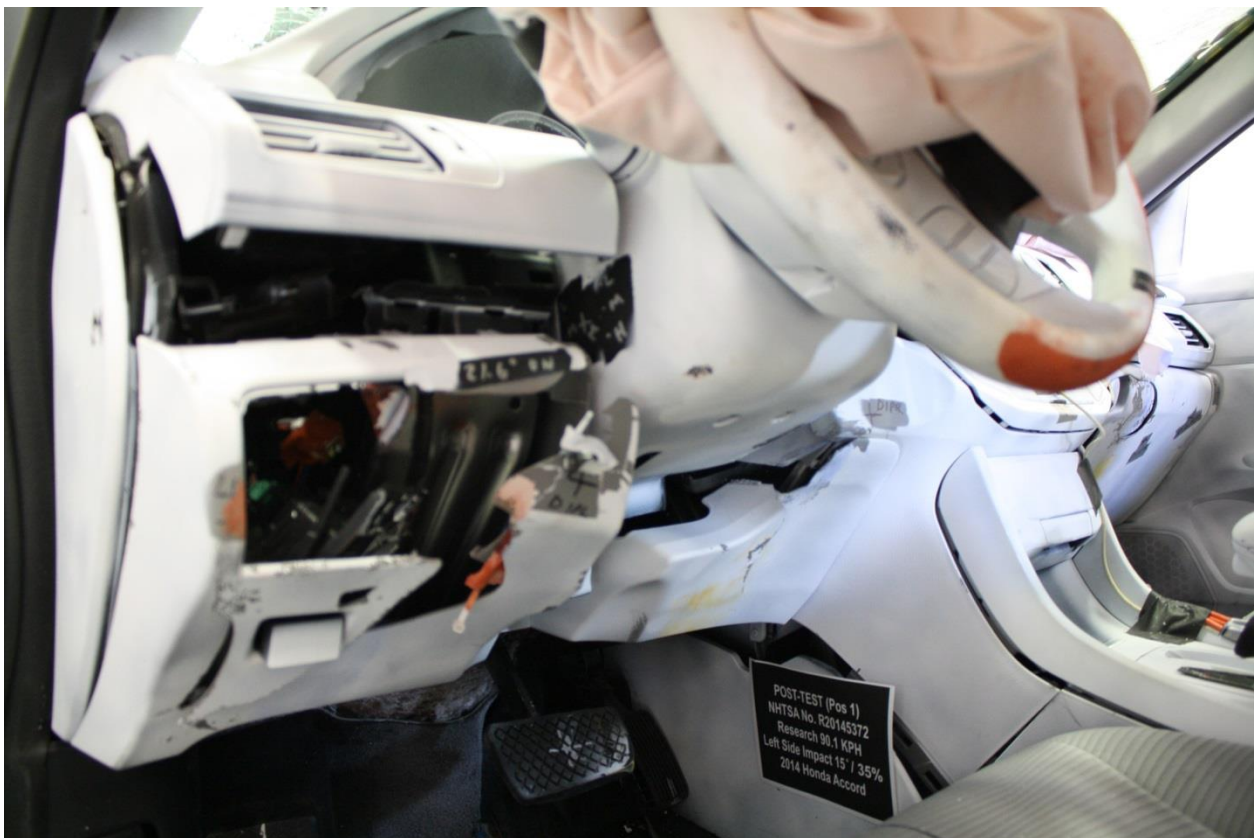
No. 038 Pre-Test Overall View of Driver Knee Bolsters



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



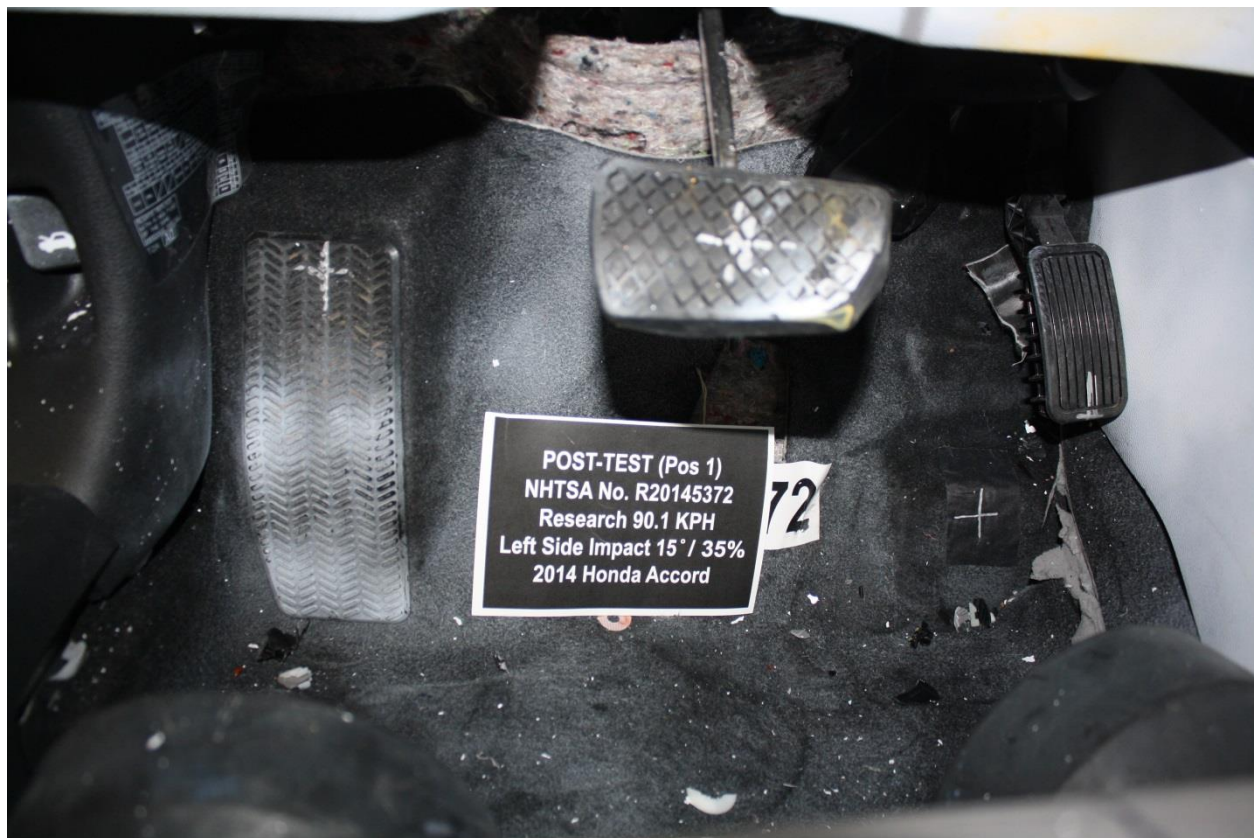
No. 044 Pre-Test View of Driver Floor pan at Left sill level, w/carpet



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



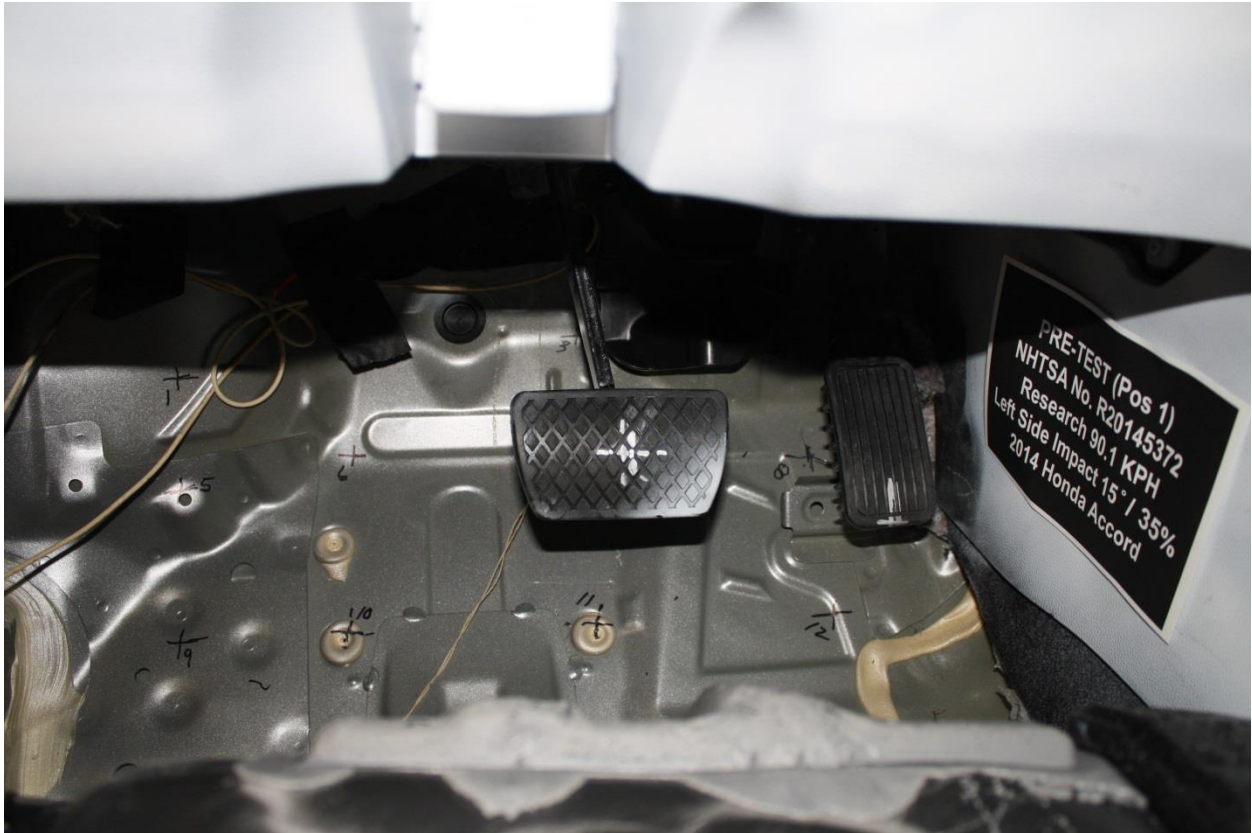
No. 047 Post-Test view of Driver Floor pan at Mid seat level, w/carpet



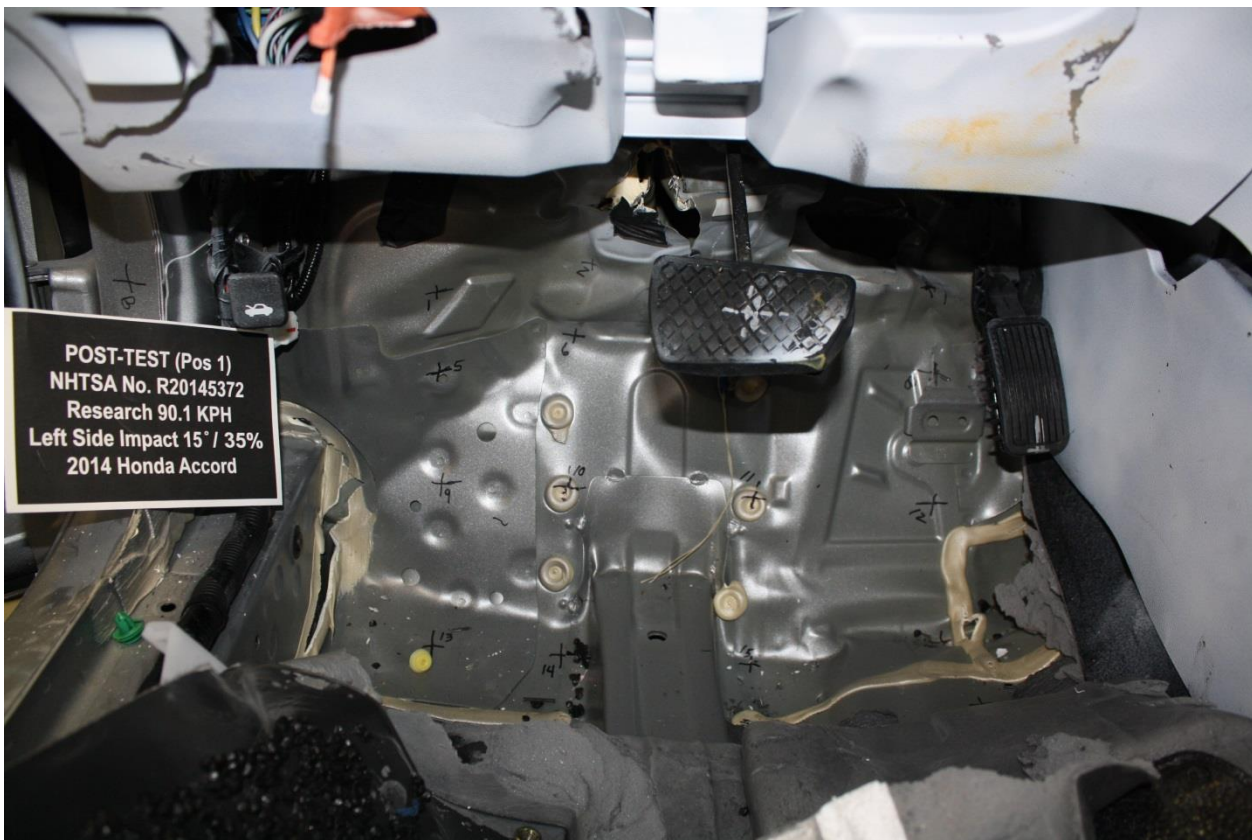
No. 048 Pre-Test View of Driver Floor pan at Left sill level, w/o carpet



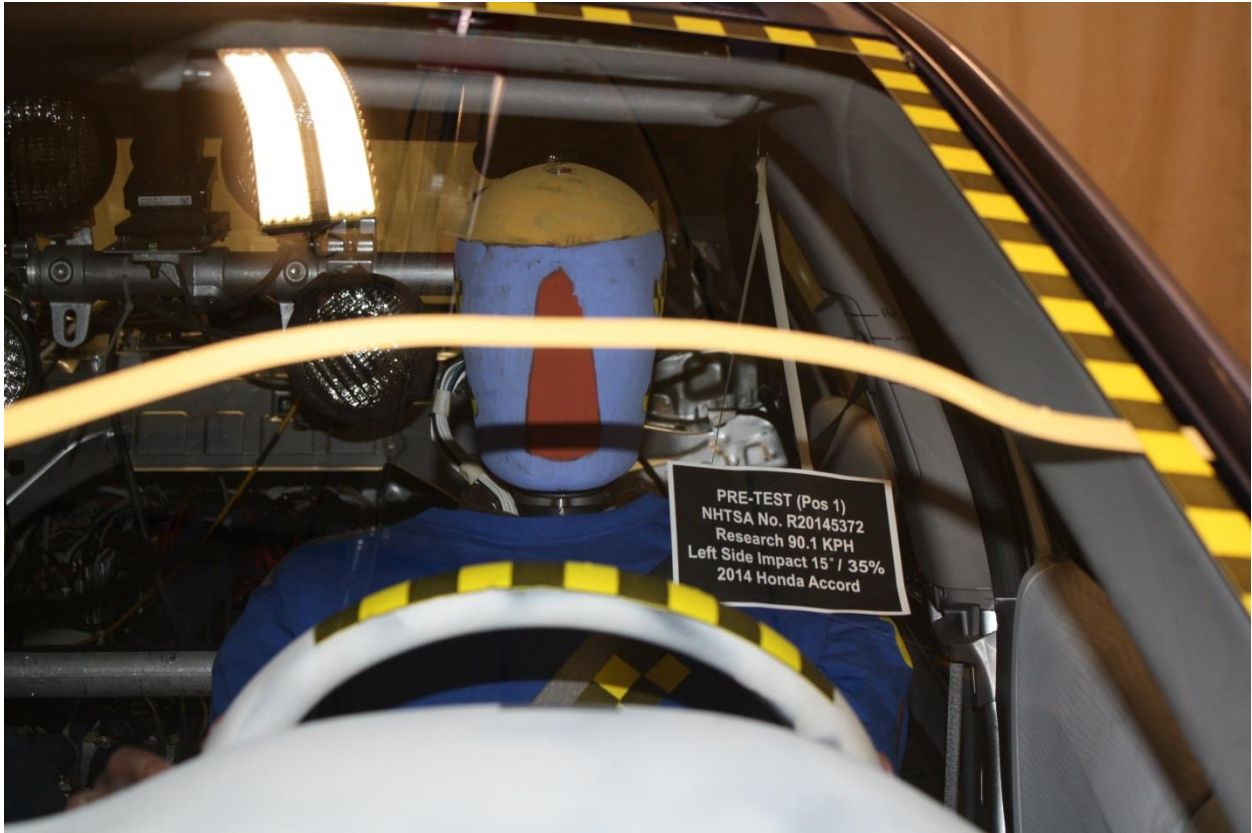
No. 049 Post-Test View of Driver Floor pan at Left sill level, w/o carpet



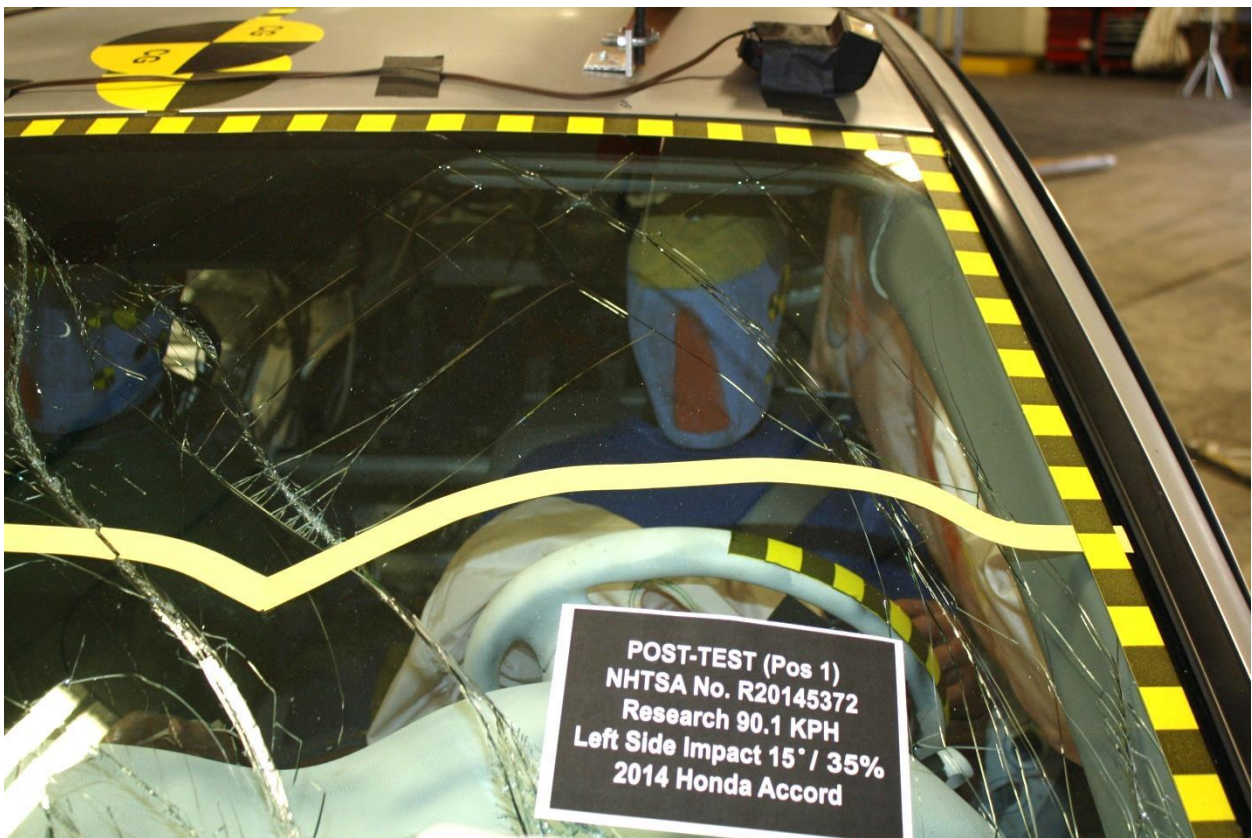
No. 050 Pre-Test View of Driver Floor pan at Mid seat level, w/o carpet



No. 051 Post-Test view of Driver Floor pan at Mid seat level, w/o carpet



No. 052 Pre-Test Driver Front Windshield View



No. 053 Post-Test Driver Front Windshield View



No. 054 Pre-Test Left Side View of Driver and Interior



No. 055 Post-Test Left Side View of Driver and Interior



No. 056 Pre-Test Left Side Driver Window View



No. 057 Post-Test Left Side Driver Window View



No. 058 Pre-Test Right Side View of Driver and Interior



No. 059 Post-Test Right Side View of Driver and Interior



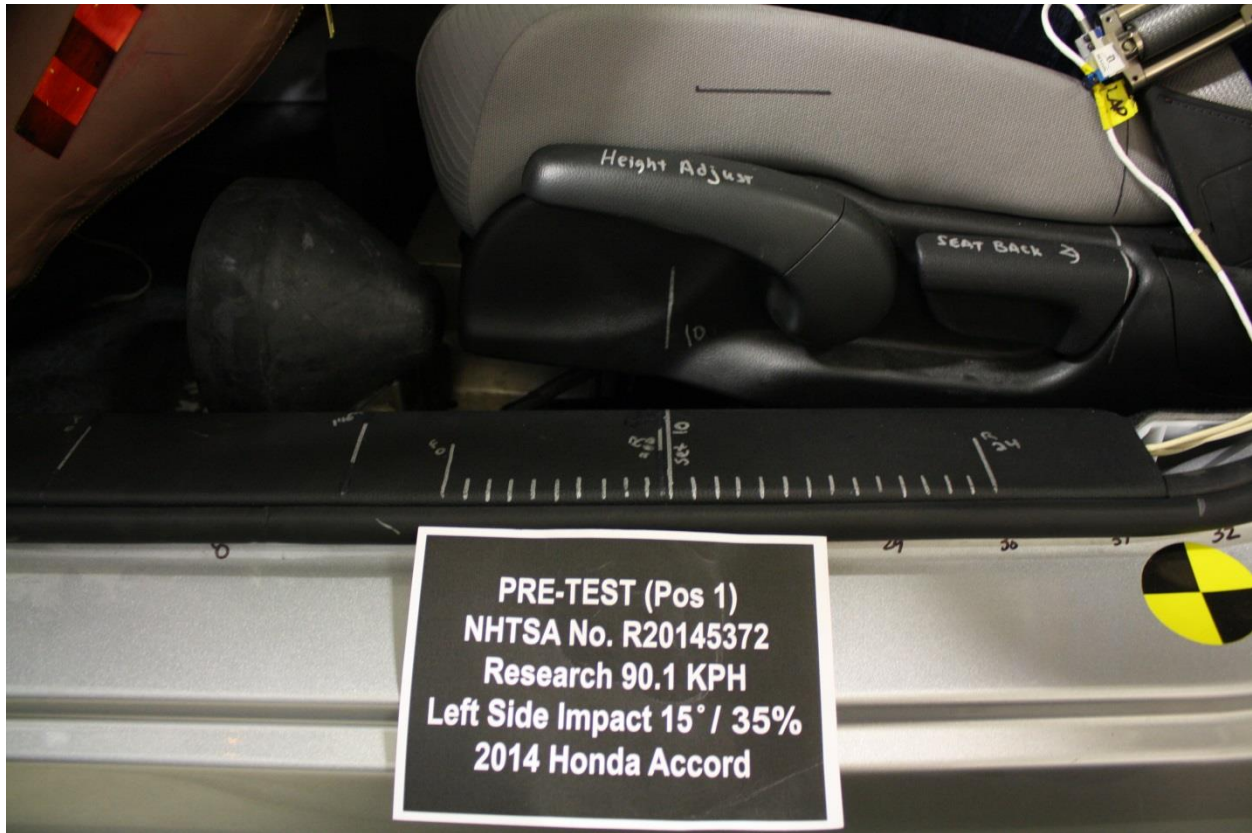
No. 060 Pre-Test View of Driver Door Clearance



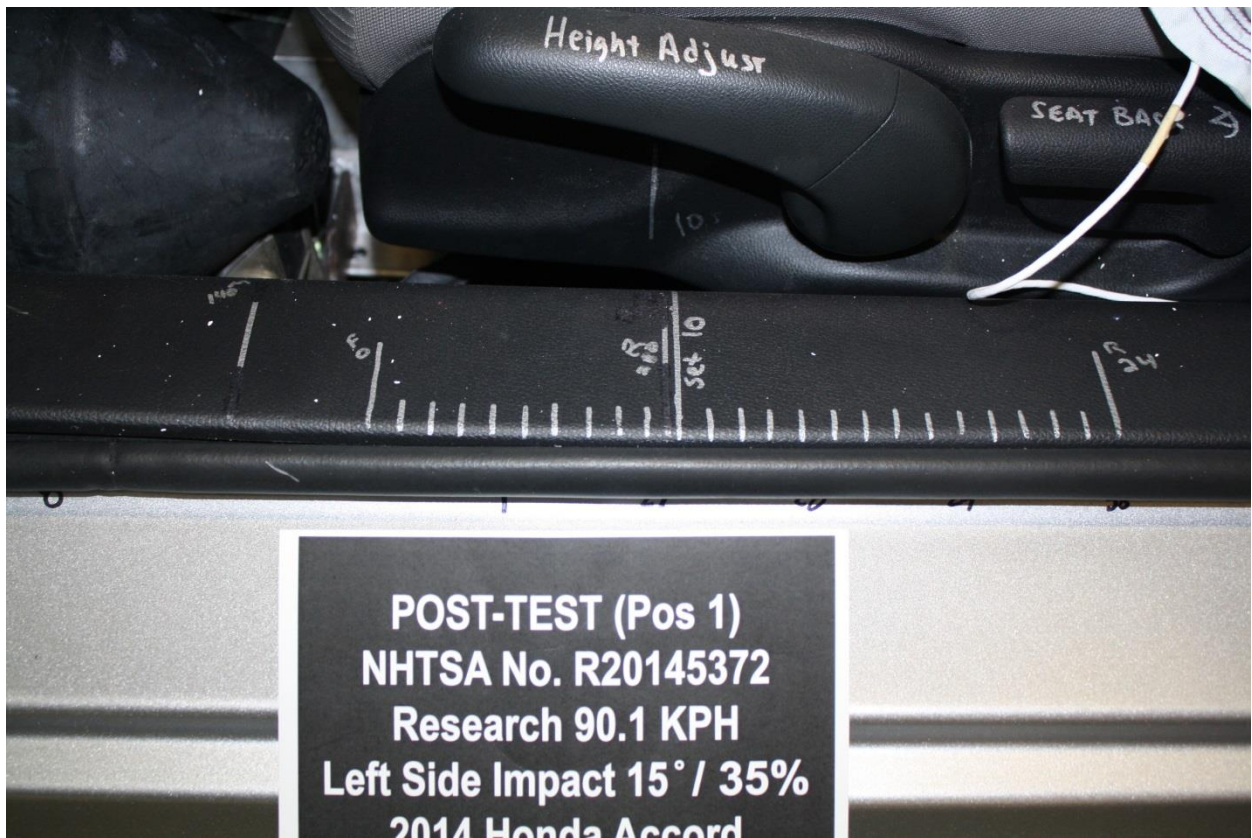
No. 061 Post-Test View of Driver Door Clearance



No. 062 Pre-Test View of Parking Brake



No. 063 Pre-Test Driver Seat Fore Aft Markings



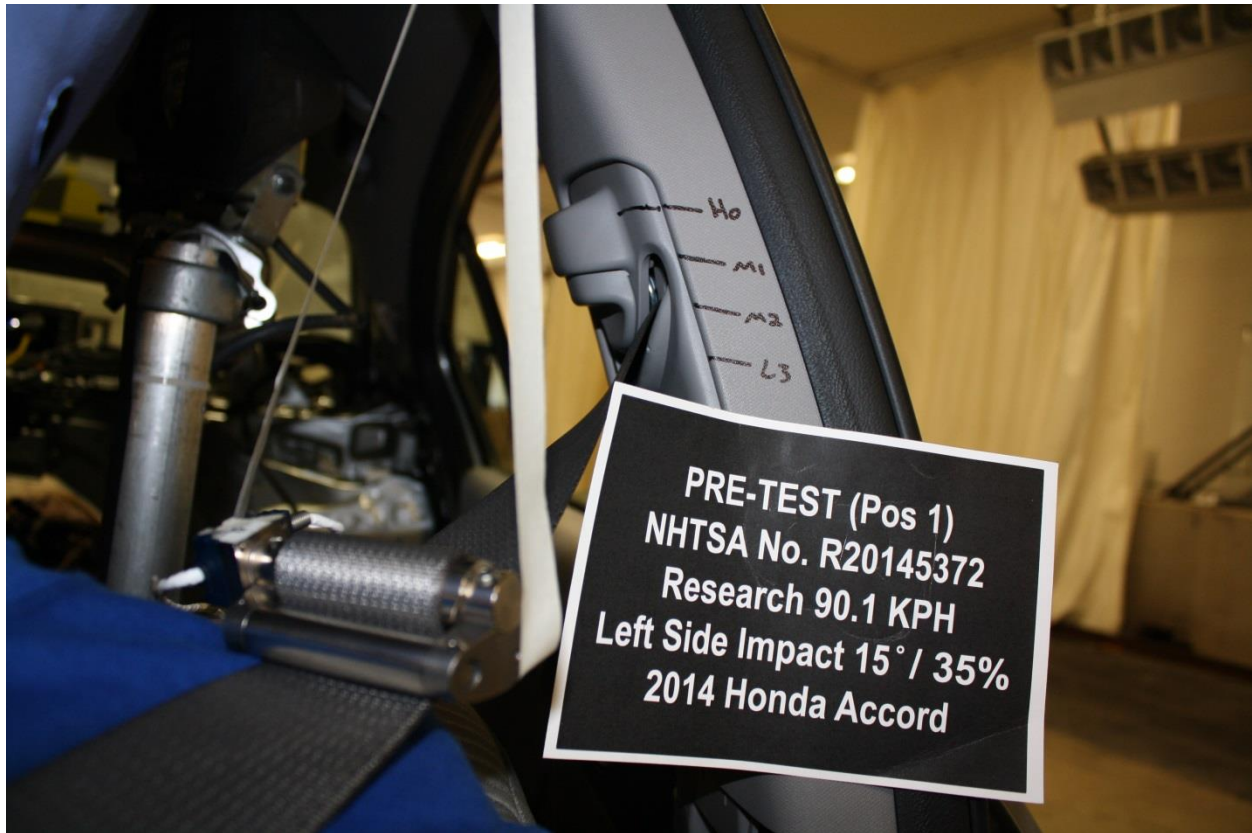
No. 064 Post-Test Driver Seat Fore Aft Markings



No. 065 Pre-Test Driver Seat Back Markings



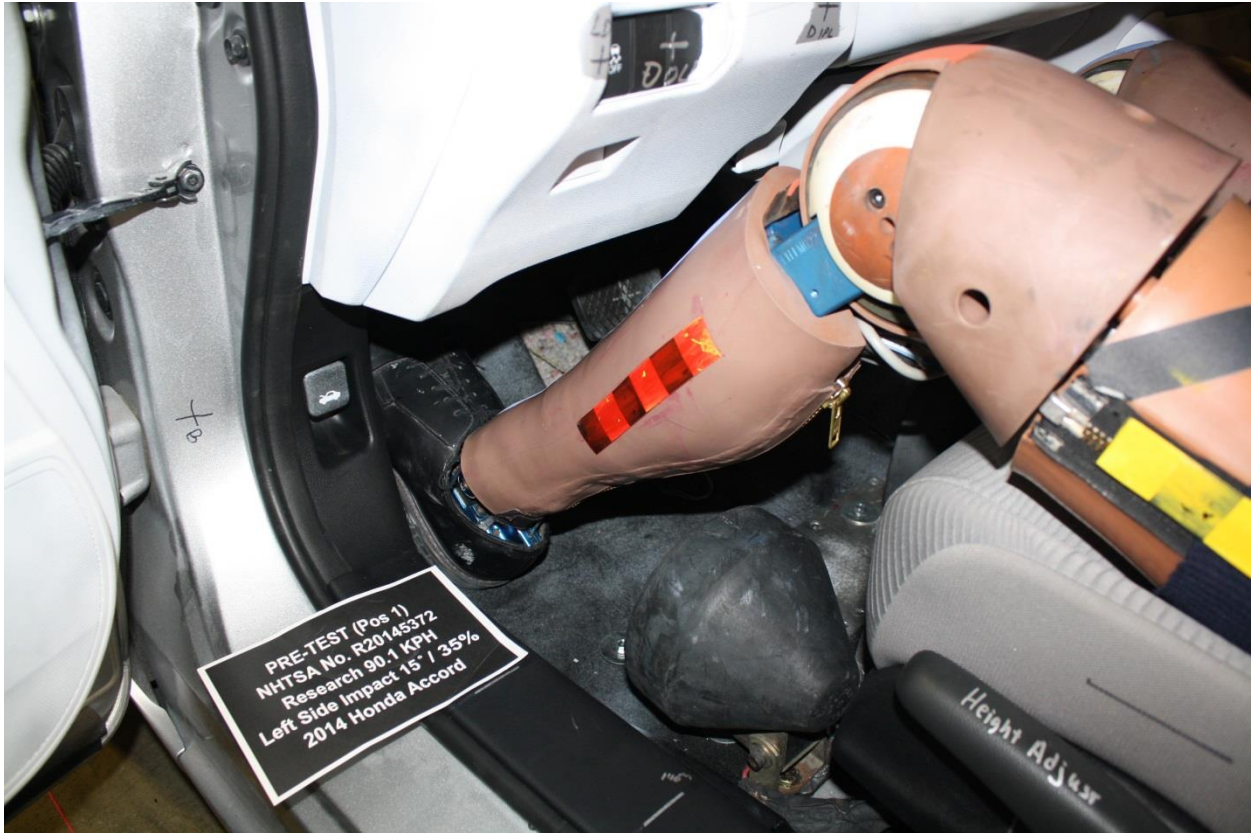
No. 066 Pre-Test Overhead View of Driver Thighs on Seat



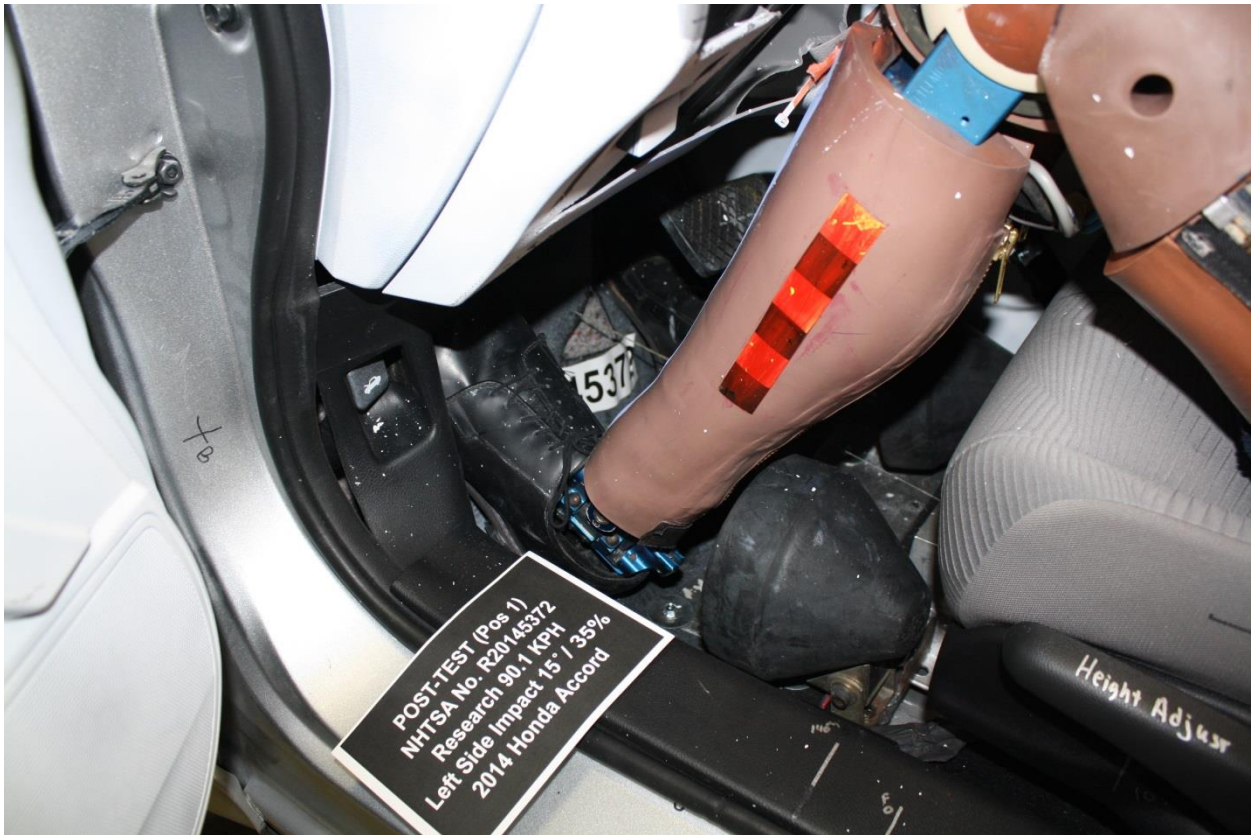
No. 067 Pre-Test Driver Adjustable D-Ring



No. 068 Post-Test Driver Adjustable D-Ring



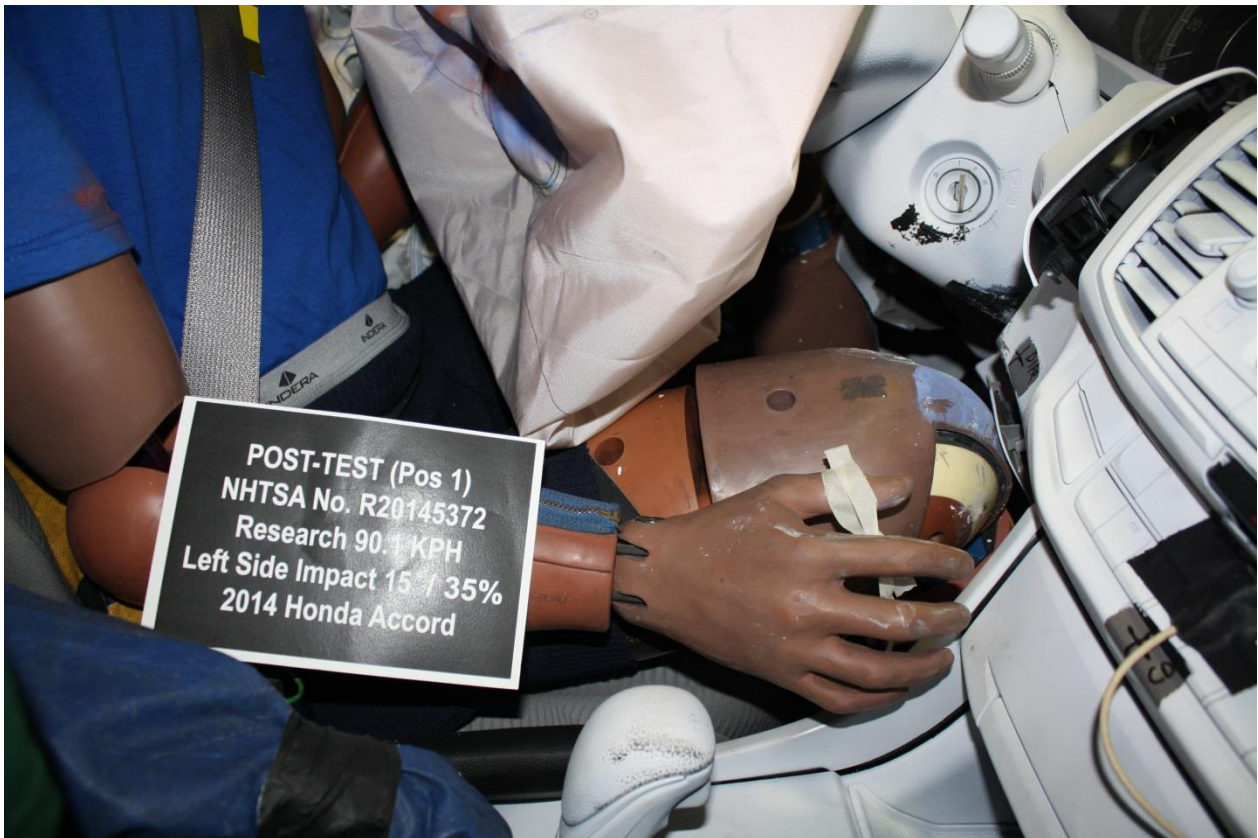
No. 069 Pre-Test Driver Feet



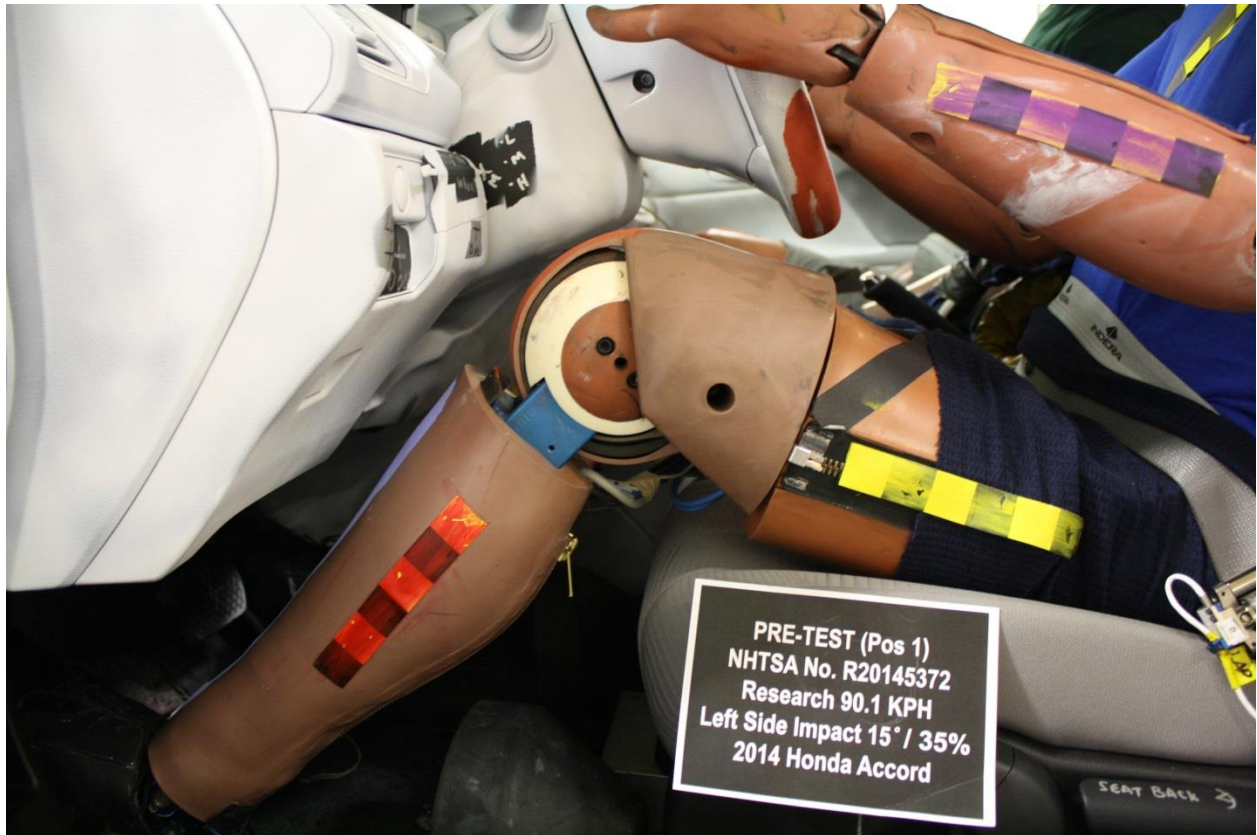
No. 070 Post-Test Driver Feet



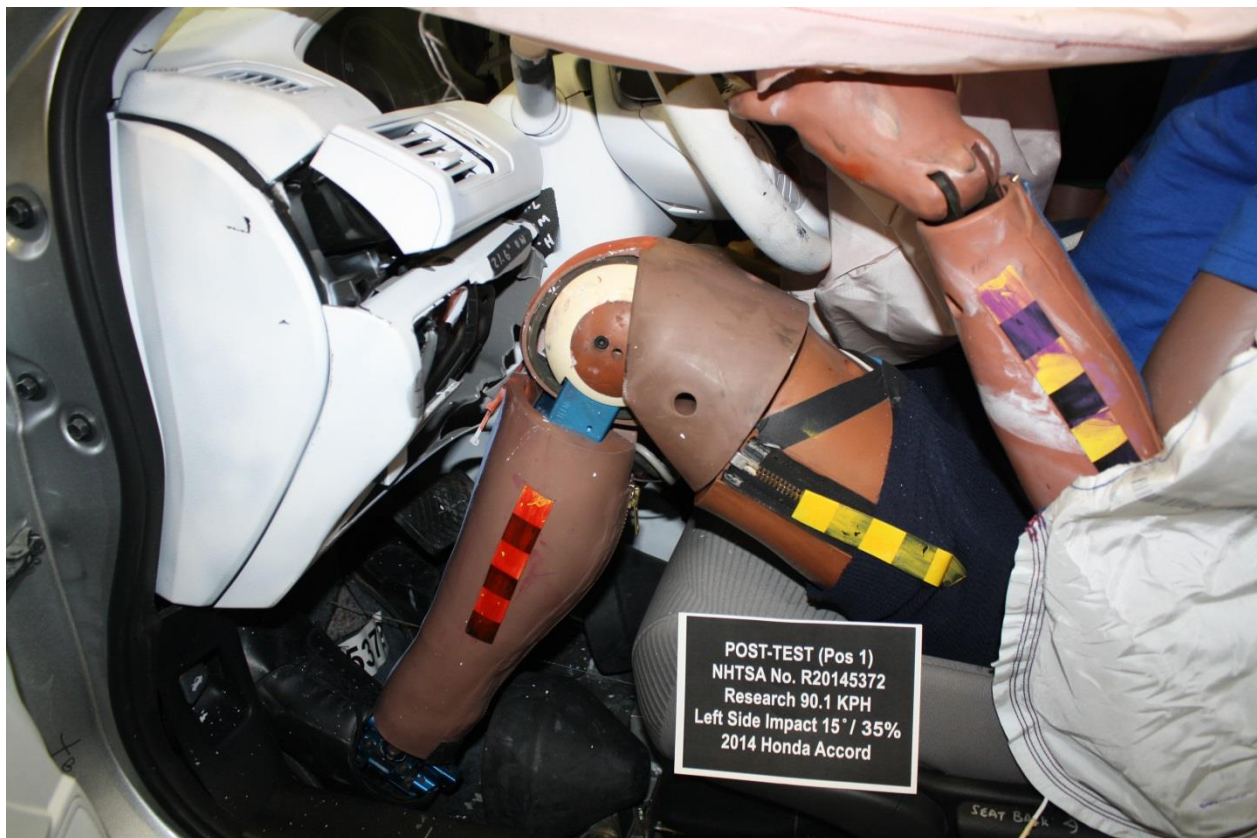
No. 071 Pre-Test View of Driver Right Knee and Bolster



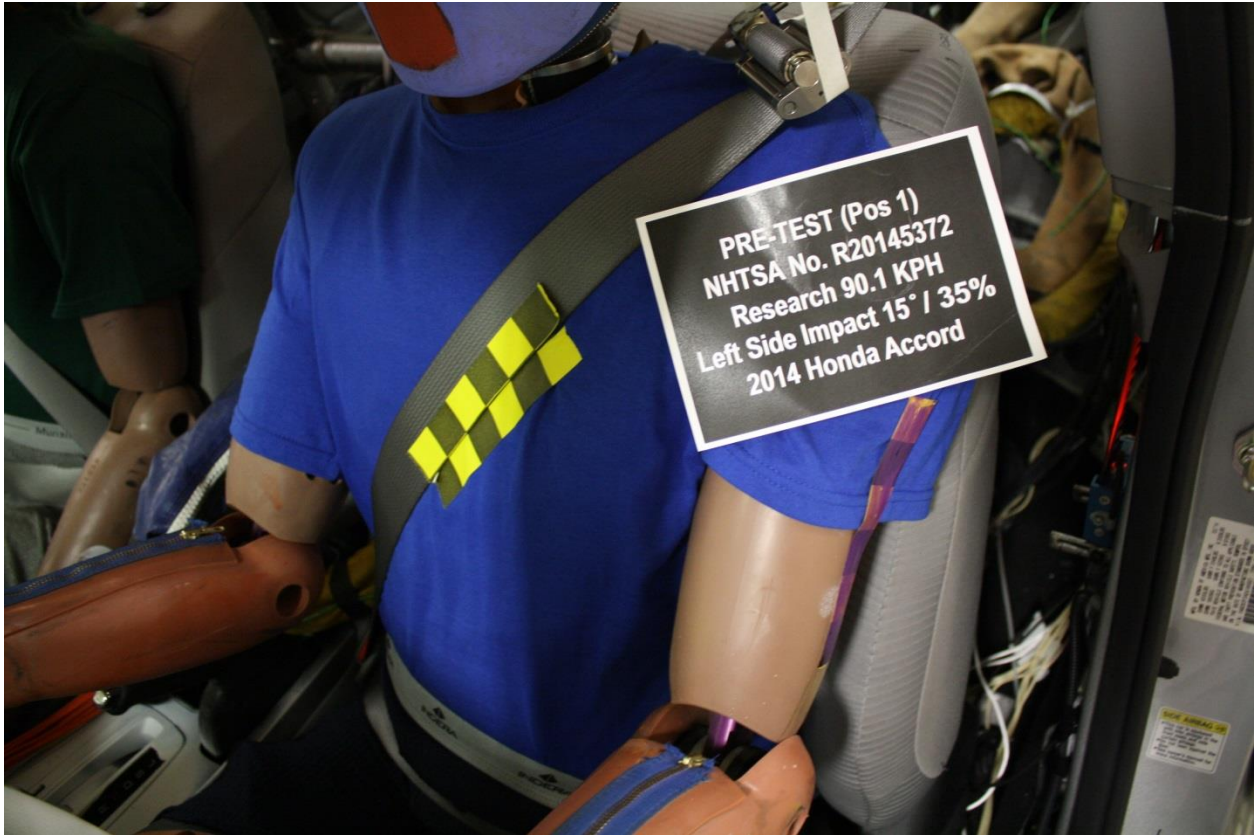
No. 072 Post-Test View of Driver Right Knee and Bolster



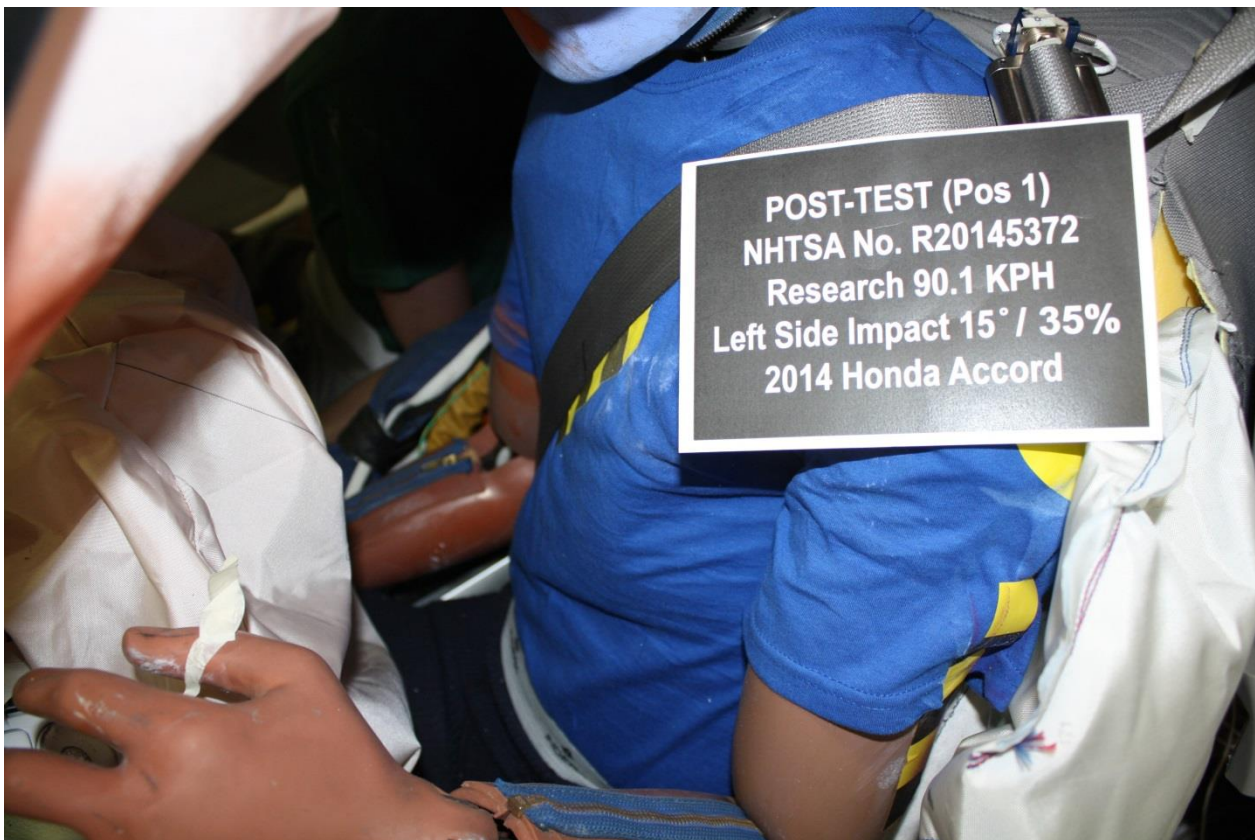
No. 073 Pre-Test View of Driver Left Knee and Bolster



No. 074 Post-Test View of Driver Left Knee and Bolster



No. 075 Pre-Test View of Driver Abdomen



No. 076 Post-Test View of Driver Abdomen



No. 077 Pre-Test Left Side View of Steering Wheel set position



No. 078 Post-Test Left Side View of Steering Wheel set position



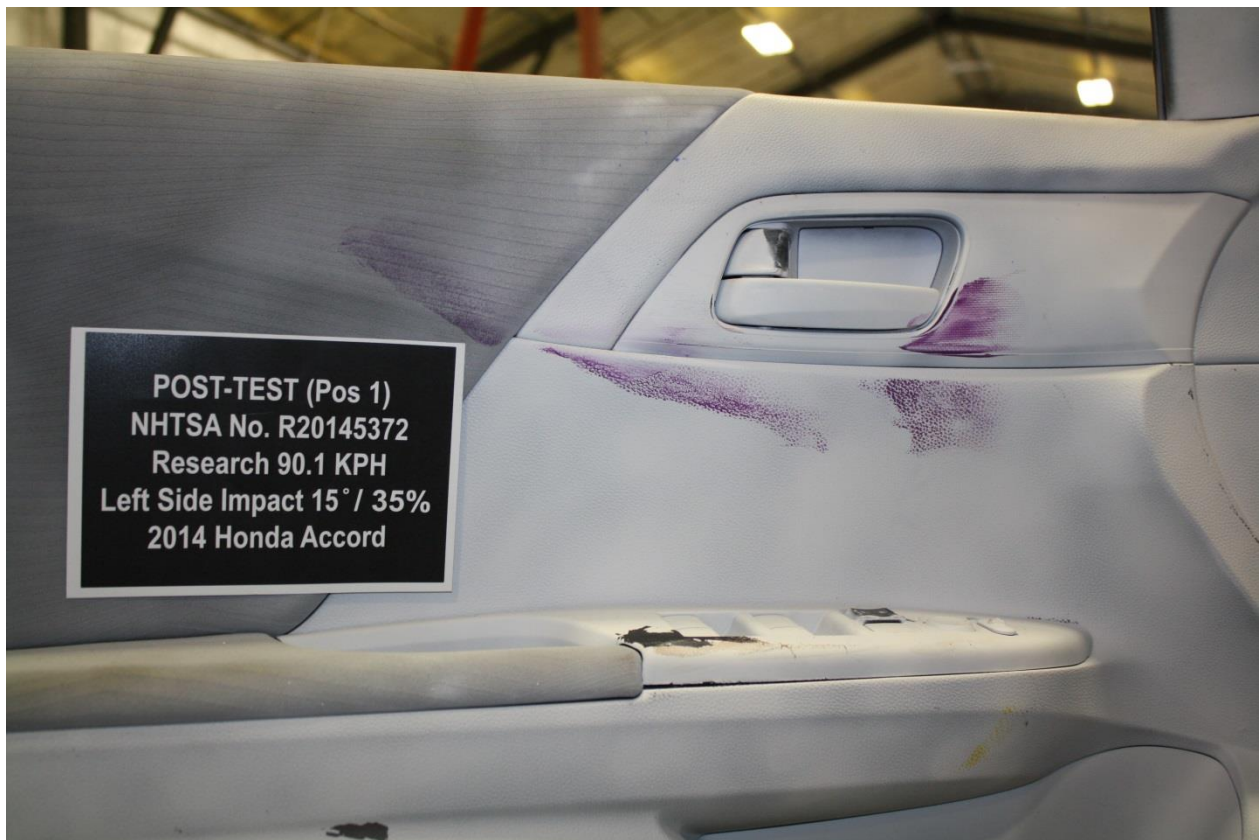
No. 079 Post-Test View of Driver Head Contact with Front Airbag



No. 080 Post-Test View of Driver Head Contact with Curtain Airbag

Photo Not Applicable

No. 081 Post-Test View of Driver Head Contact with Vehicle Interior – A



No. 081a Post-Test View of Driver Body Contact with Vehicle Interior - B



No. 081b 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



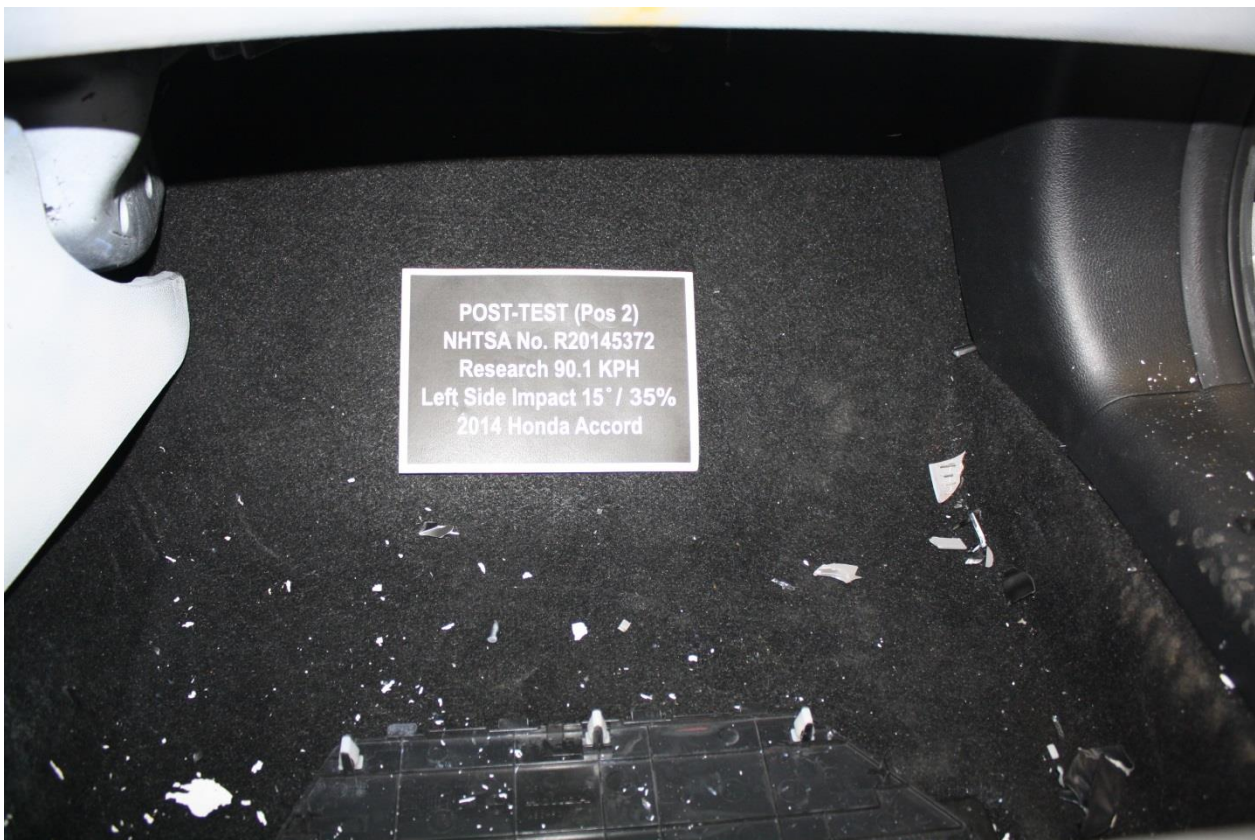
No. 088 Pre-Test View of Passenger Floor pan at Left sill level, w/carpet



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



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



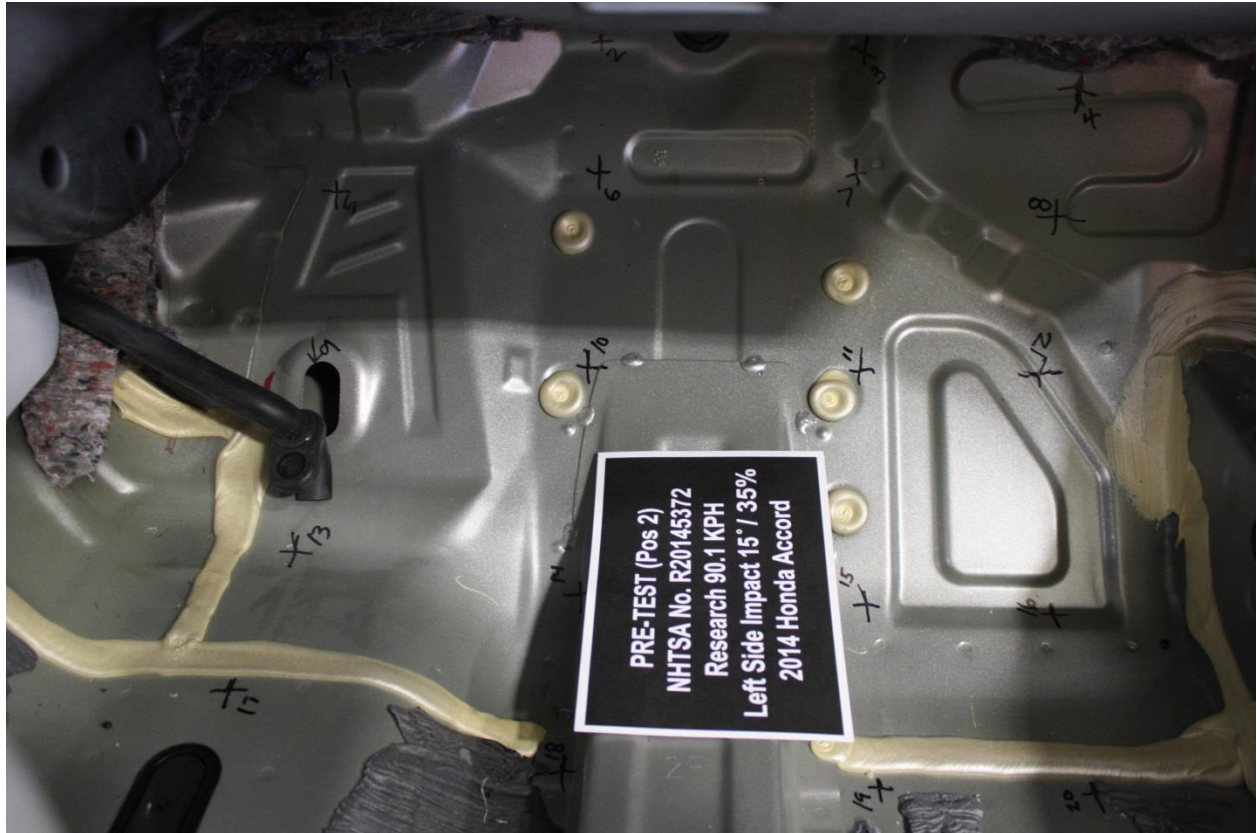
No. 091 Post-Test view of Passenger Floor pan at Mid seat level, w/carpet



No. 092 Pre-Test View of Passenger Floor pan at Left sill level, w/o carpet



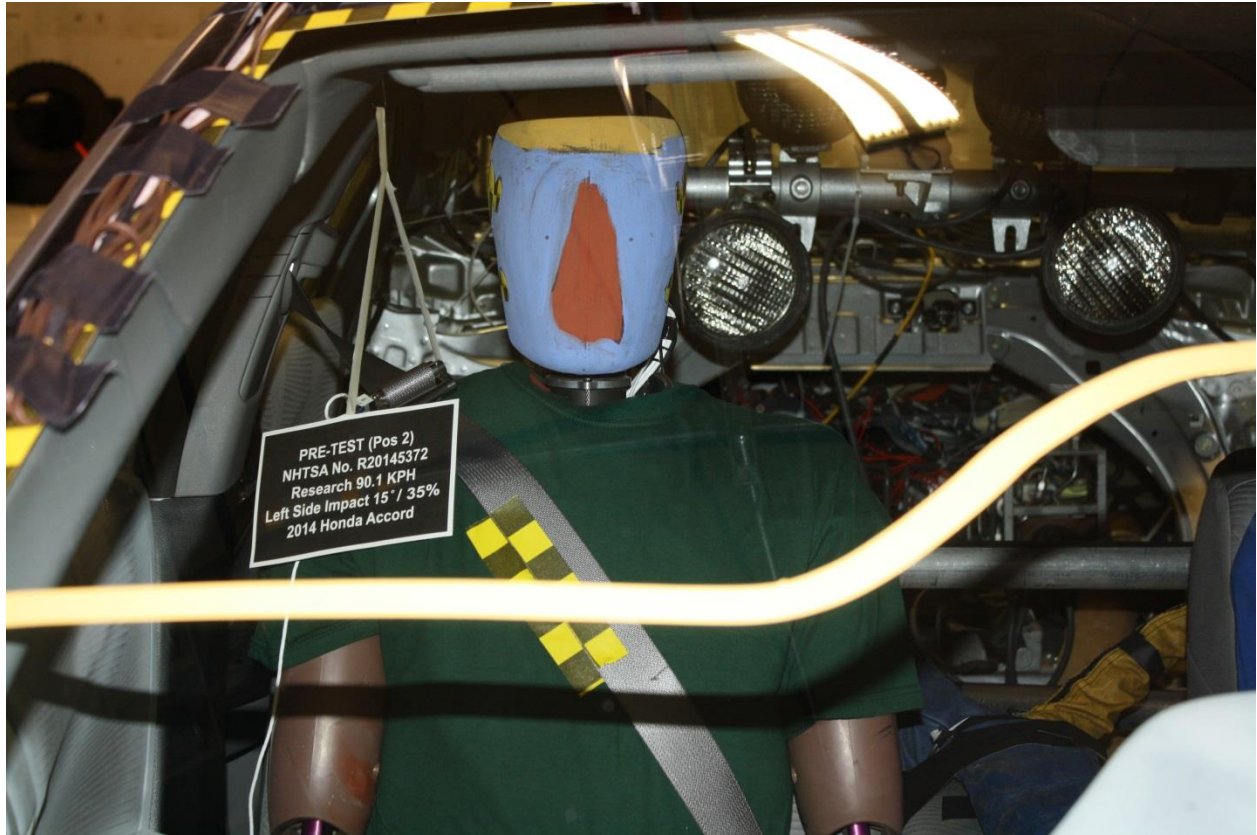
No. 093 Post-Test View of Passenger Floor pan at Left sill level, w/o carpet



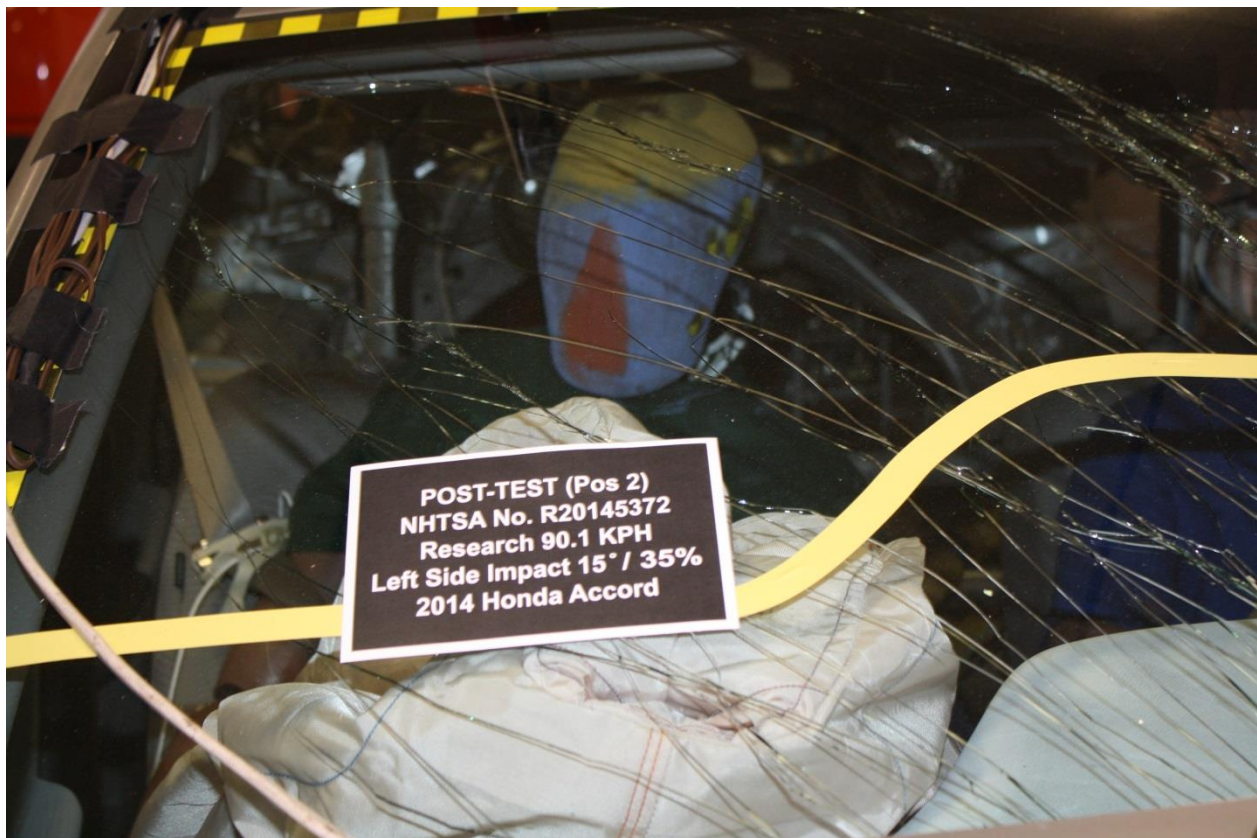
No. 094 Pre-Test View of Passenger Floor pan at Mid seat level, without carpet



No. 095 Post-Test view of Passenger Floor pan at Mid seat level, wo carpet



No. 096 Pre-Test Passenger Front Close-up View, Windshield



No. 097 Post-Test Passenger Front Close-up View, Windshield



No. 098 Pre-Test Left Side Passenger and Interior View



No. 099 Post-Test Left Side Passenger and Interior View



No. 100 Pre-Test Right Side Passenger Window View



No. 101 Post-Test Right Side Passenger Window View



No. 102 Pre-Test Right Side Passenger and Interior View



No. 103 Post-Test Right Side Passenger and Interior View



No. 104 Pre-Test View of Passenger Door Clearance



No. 105 Post-Test View of Passenger Door Clearance



No. 106 Pre-Test Passenger Seat Fore-Aft Markings



No. 107 Post-Test Passenger Seat Fore-Aft Markings



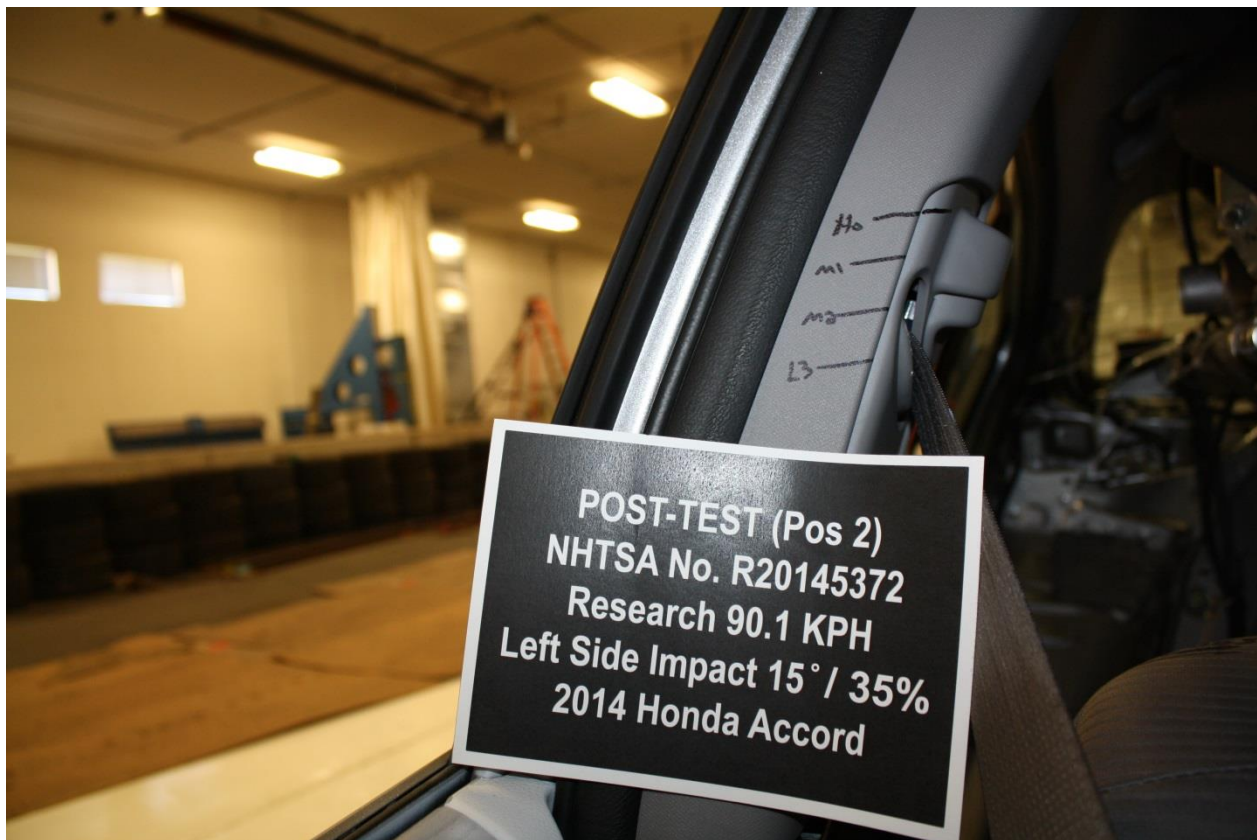
No. 108 Pre-Test Passenger Seat Back Markings



No. 109 Pre-Test Overhead View of Passenger Thighs on seat



No. 110 Pre-Test Passenger Adjustable D-ring



No. 111 Post-Test Passenger Adjustable D-ring



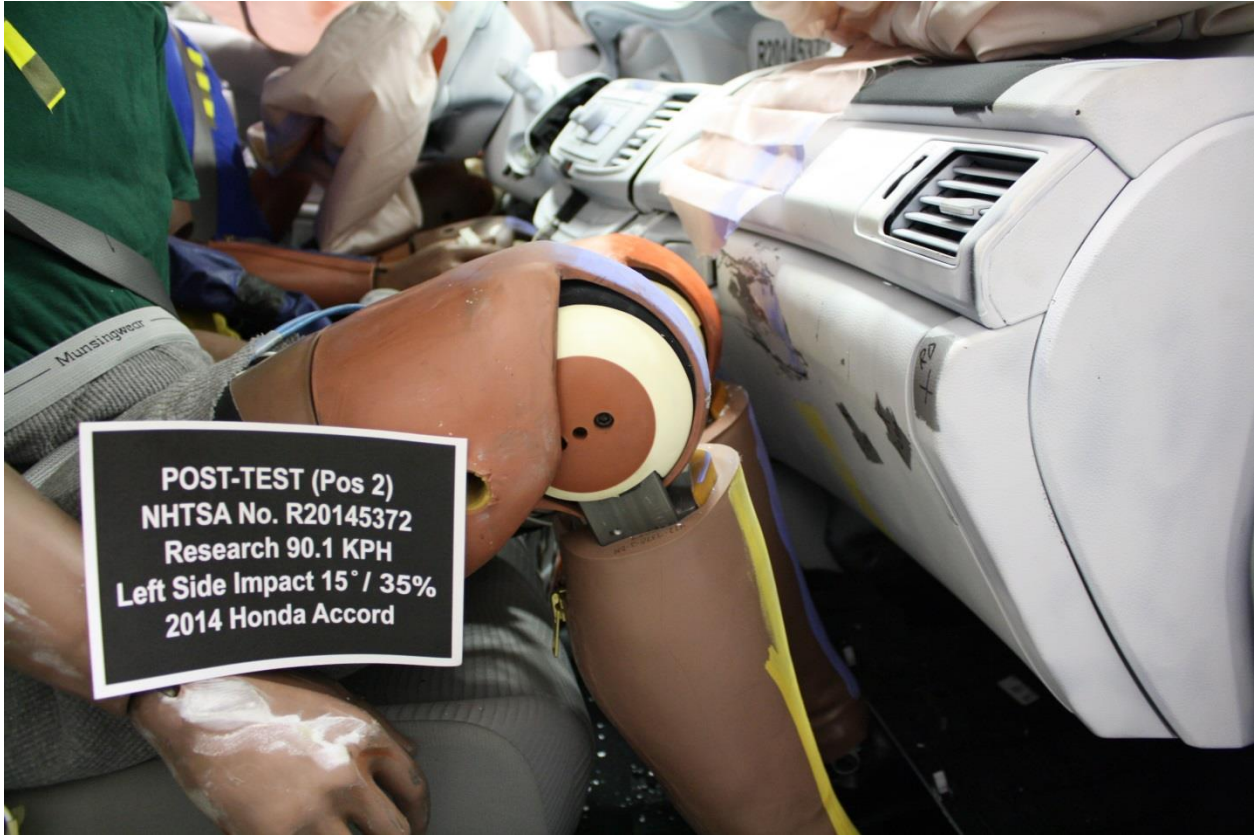
No. 112 Pre-Test View of Passenger Feet



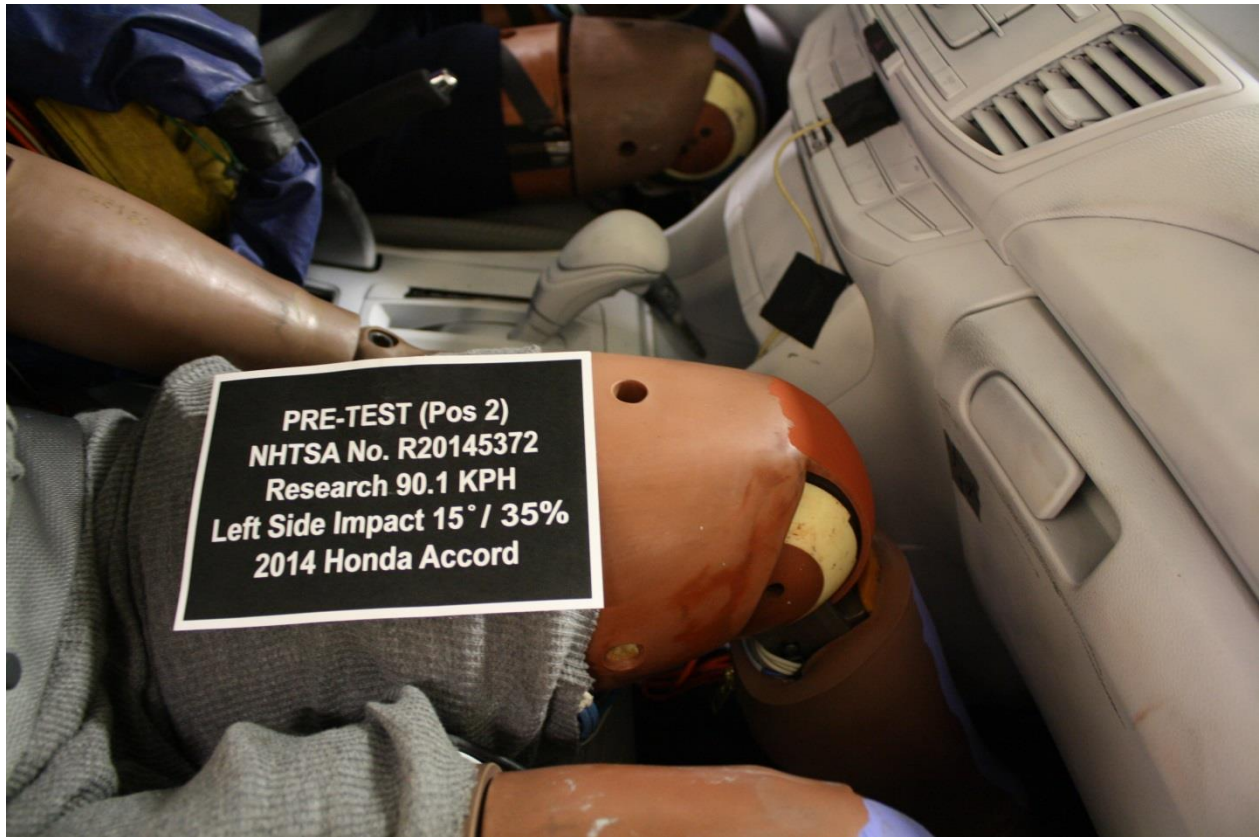
No. 113 Post-Test View of Passenger Feet



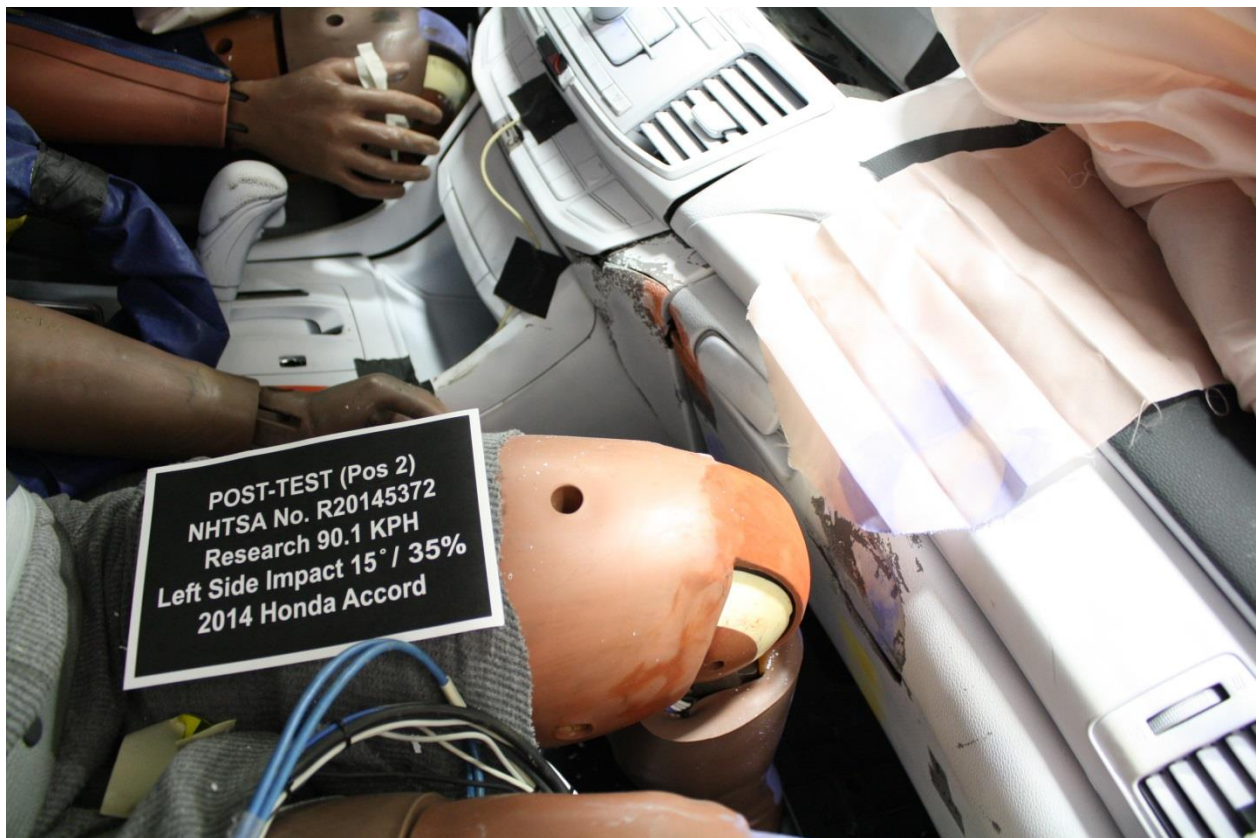
No. 114 Pre-Test View of Passenger Right Knee and Bolster



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



No. 116 Pre-Test View of Passenger Left Knee and Bolster



No. 117 Post-Test View of Passenger Left Knee and Bolster



No. 118 Pre-Test View of Passenger Abdomen



No. 119 Post-Test View of Passenger Abdomen



No. 120 Post-Test View of Passenger Head contact with Airbag – Front

Photo Not Applicable

No. 120a Post-Test View of Passenger Head contact with Airbag - Curtain



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



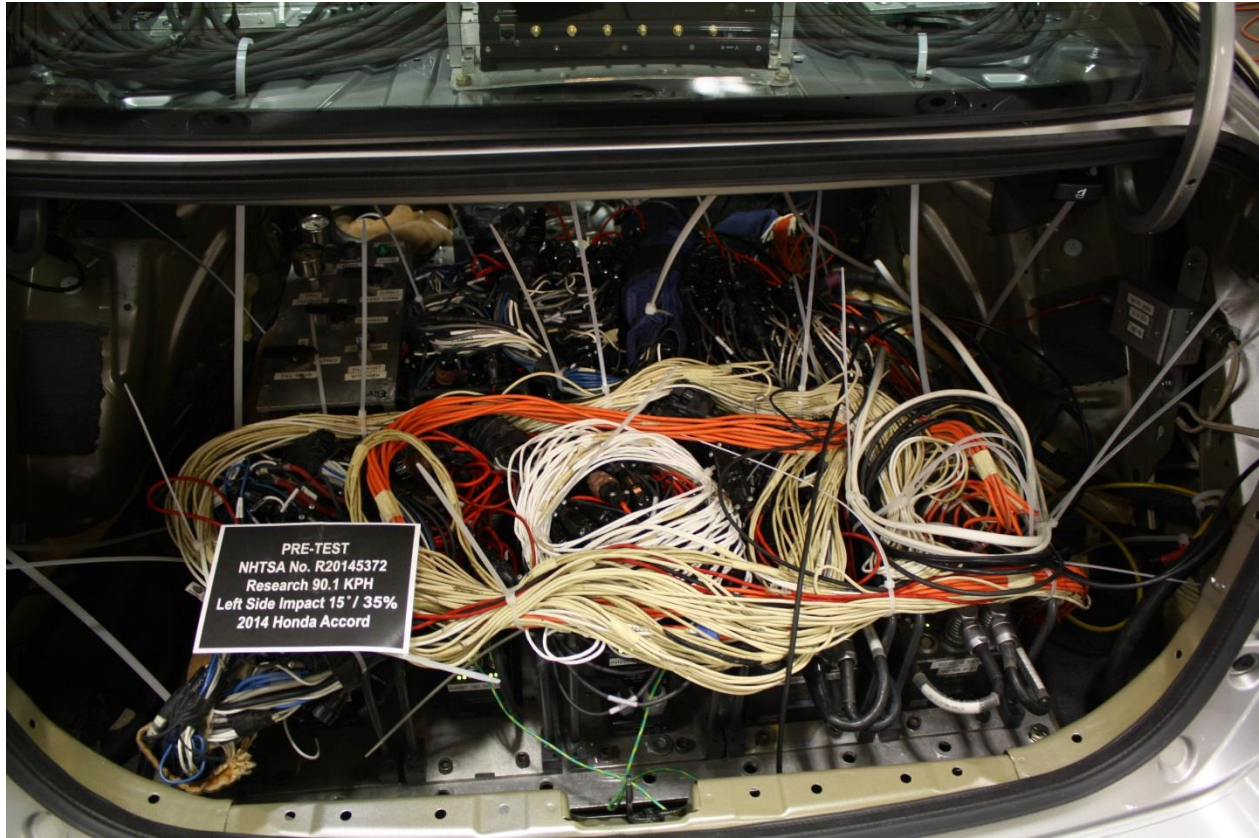
No. 121a Post-Test View of Passenger Head contact with Interior

Photo Not Applicable

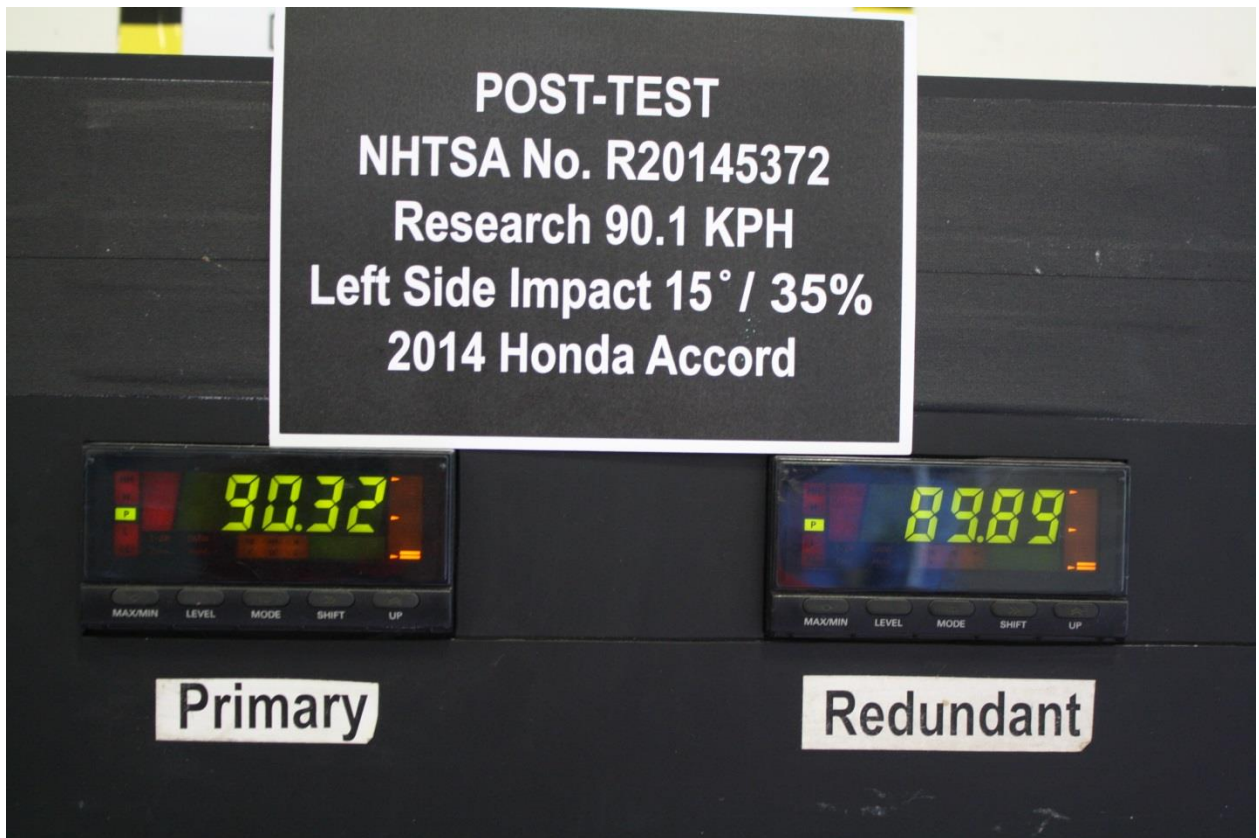
No. 121b Post-Test View of Passenger Head contact with Interior



No. 122 Post-Test Passenger Contact With Glovebox



No. 123 Pre-Test Ballast Locations



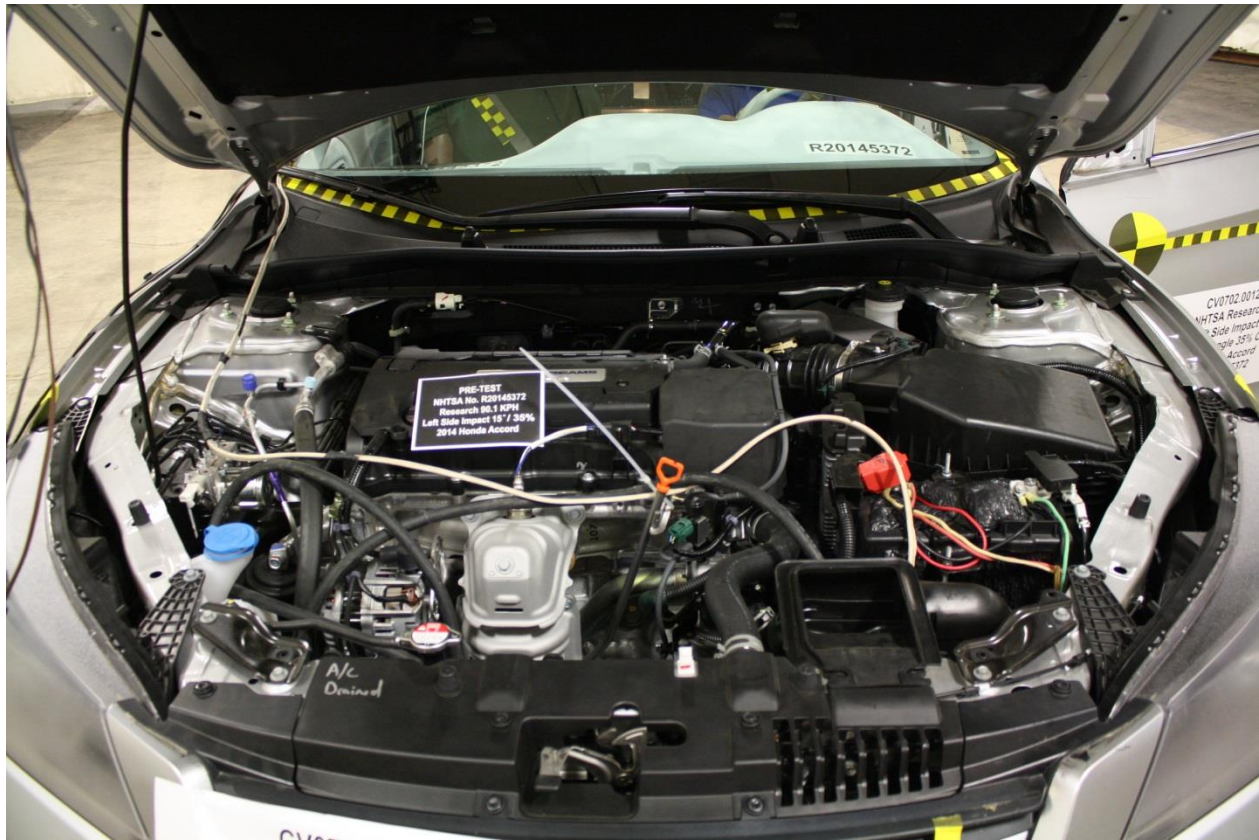
No. 124 Post-Test Speed Trap Readout



No. 125 Pre-Test View of Fuel Filler Cap



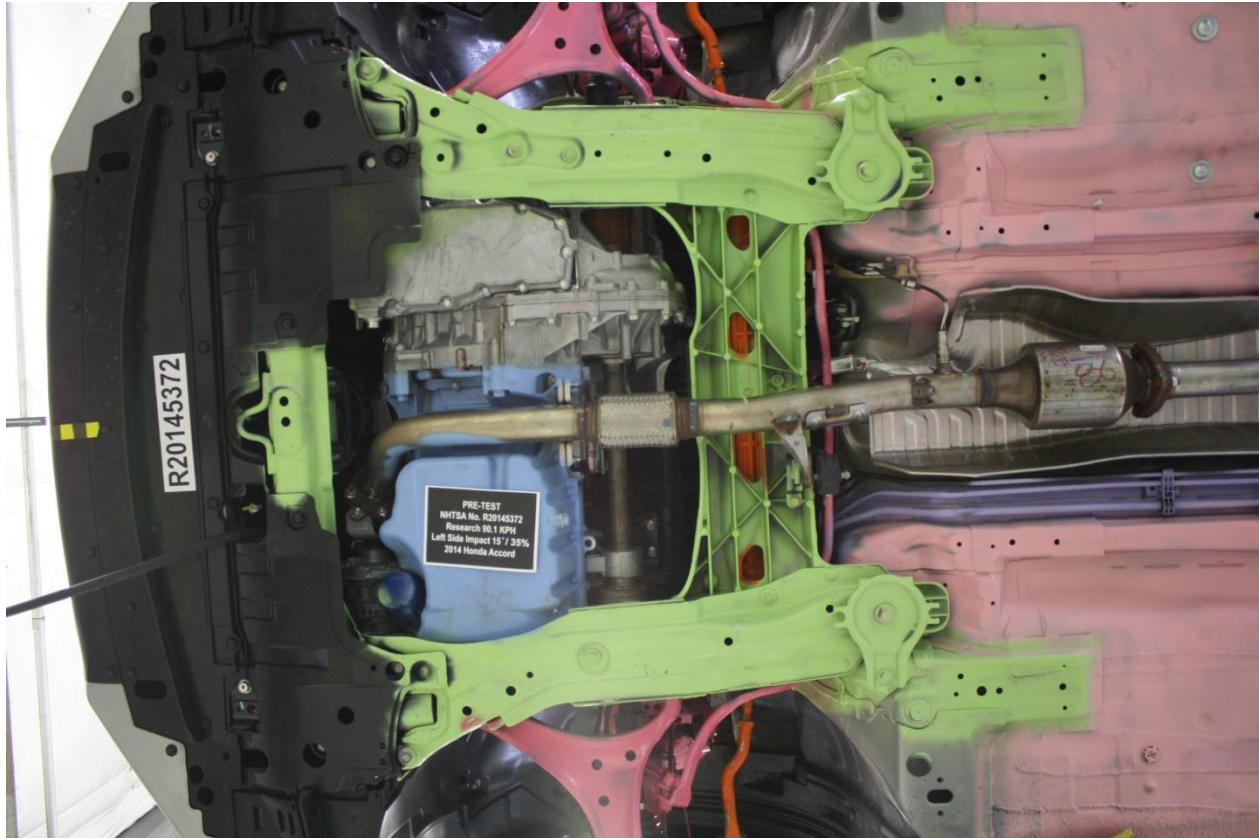
No. 126 Post-Test View of Fuel Filler Cap



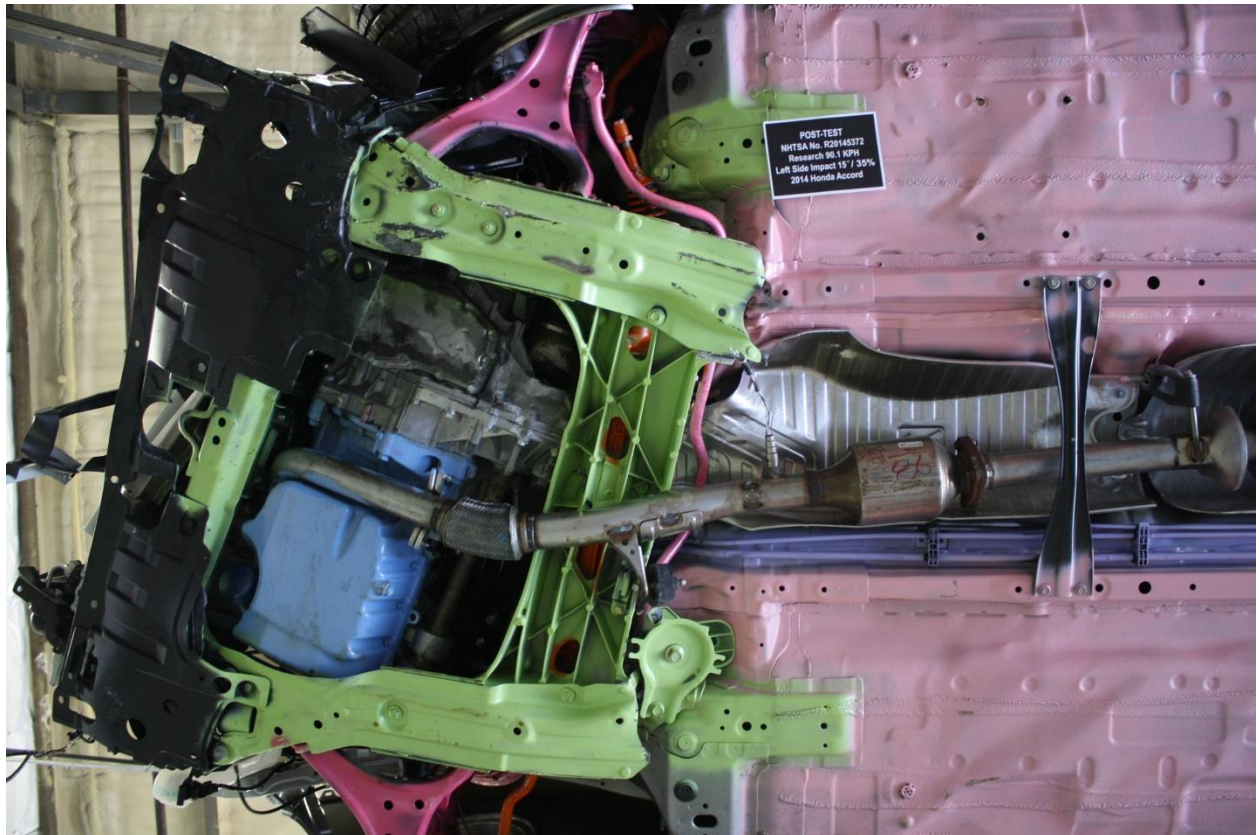
No. 127 Pre-Test Engine Compartment View



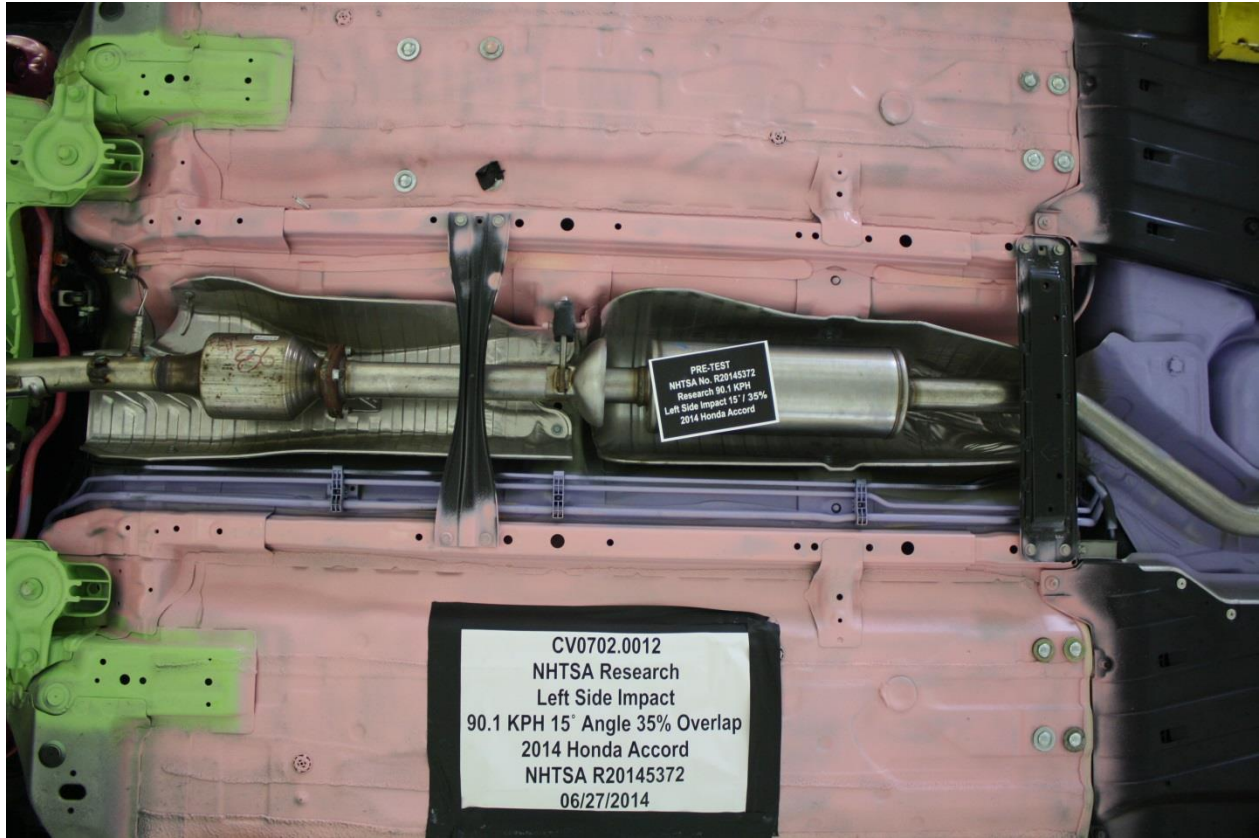
No. 128 Post-Test Engine Compartment View



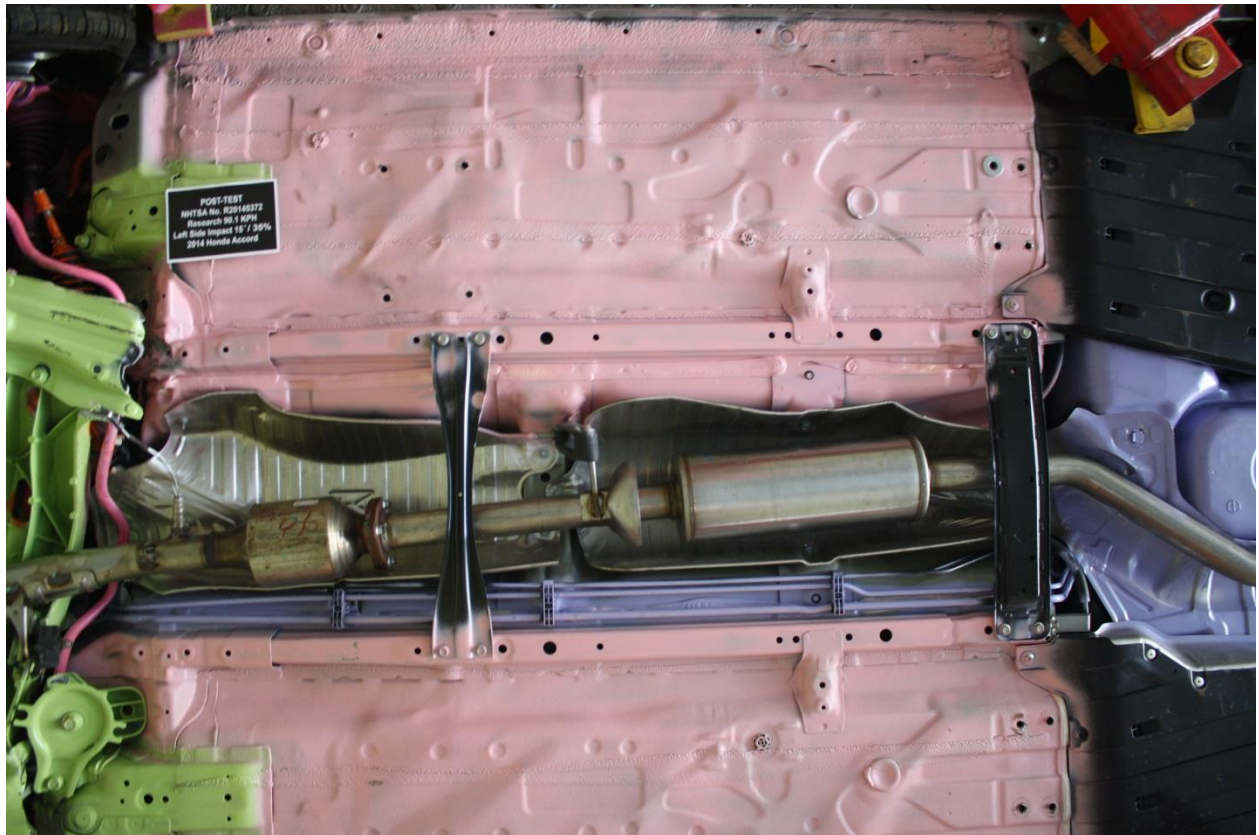
No. 129 Pre-Test View of Front Underbody (perpendicular to vehicle)



No. 130 Post-Test View of Front Underbody (perpendicular to vehicle)



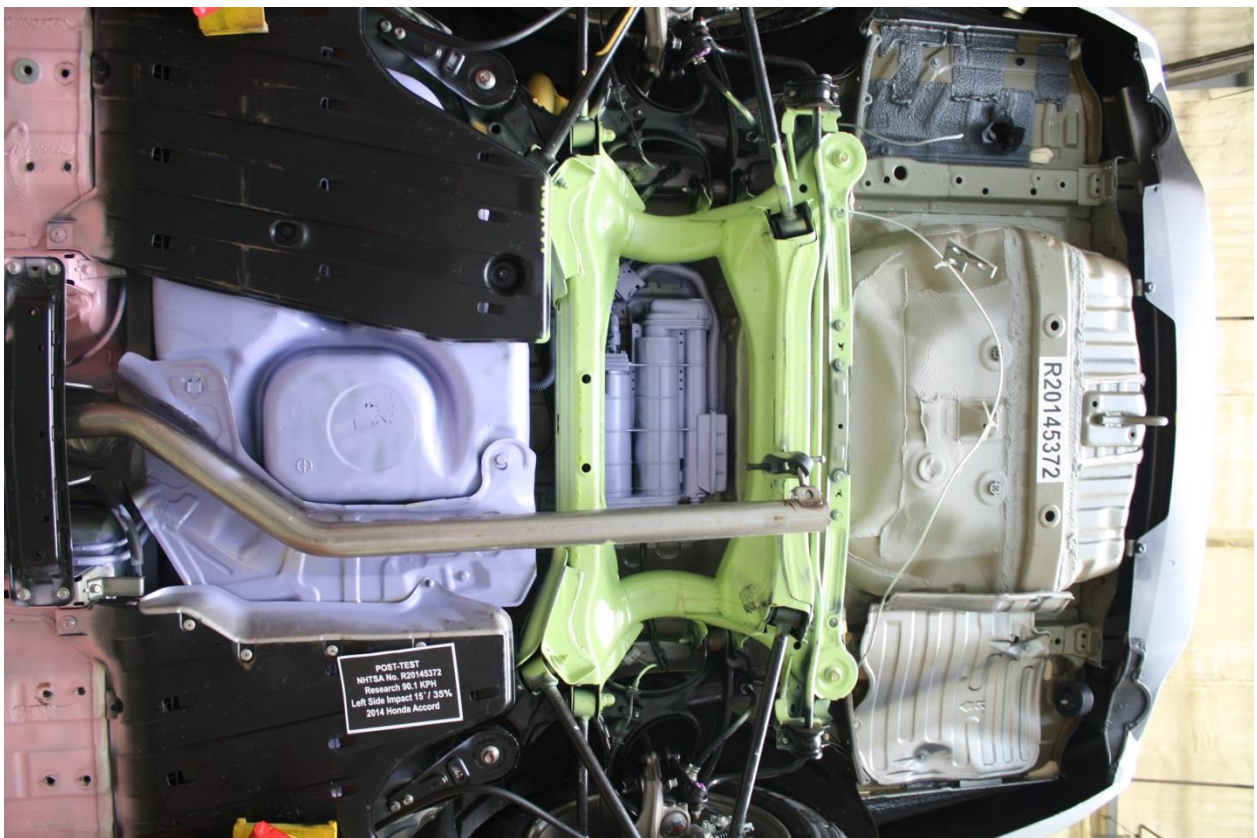
No. 131 Pre-Test View of Mid Underbody (perpendicular to vehicle)



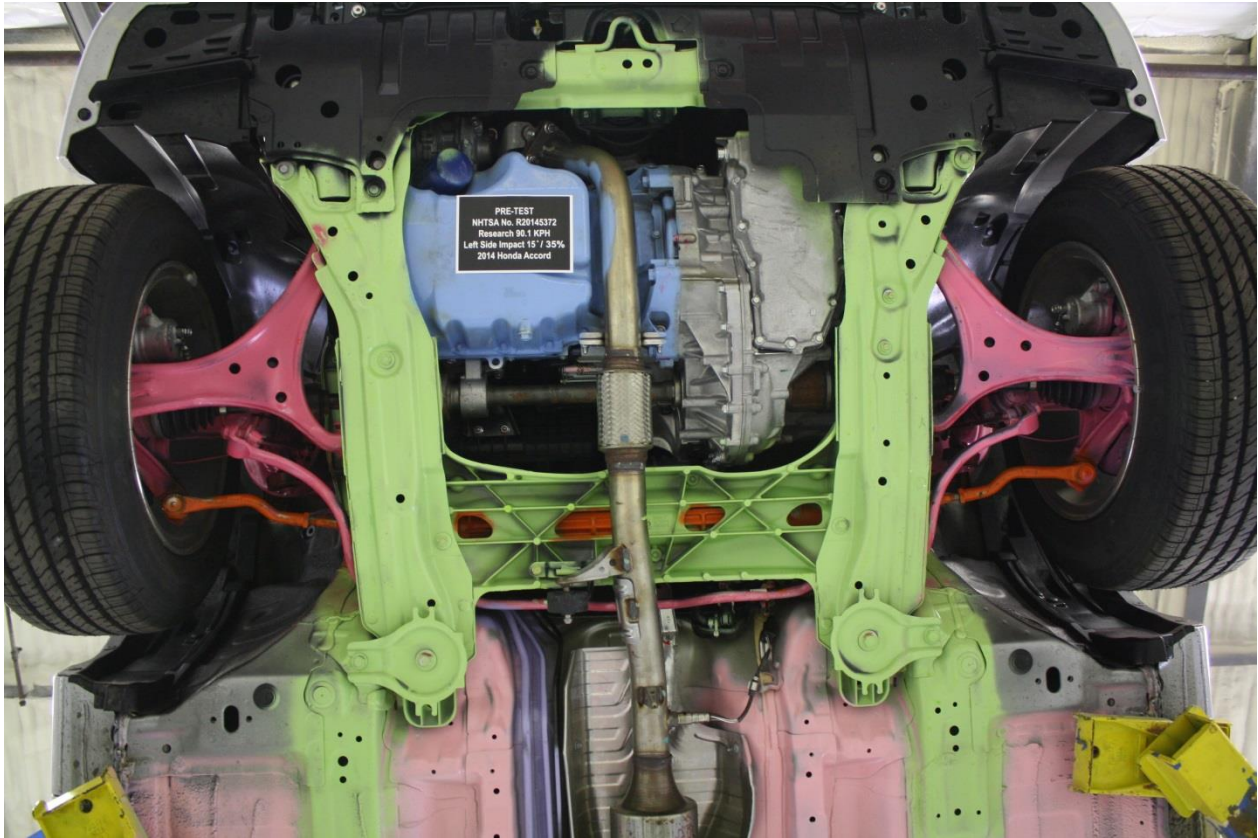
No. 132 Post-Test View of Mid Underbody (perpendicular to vehicle)



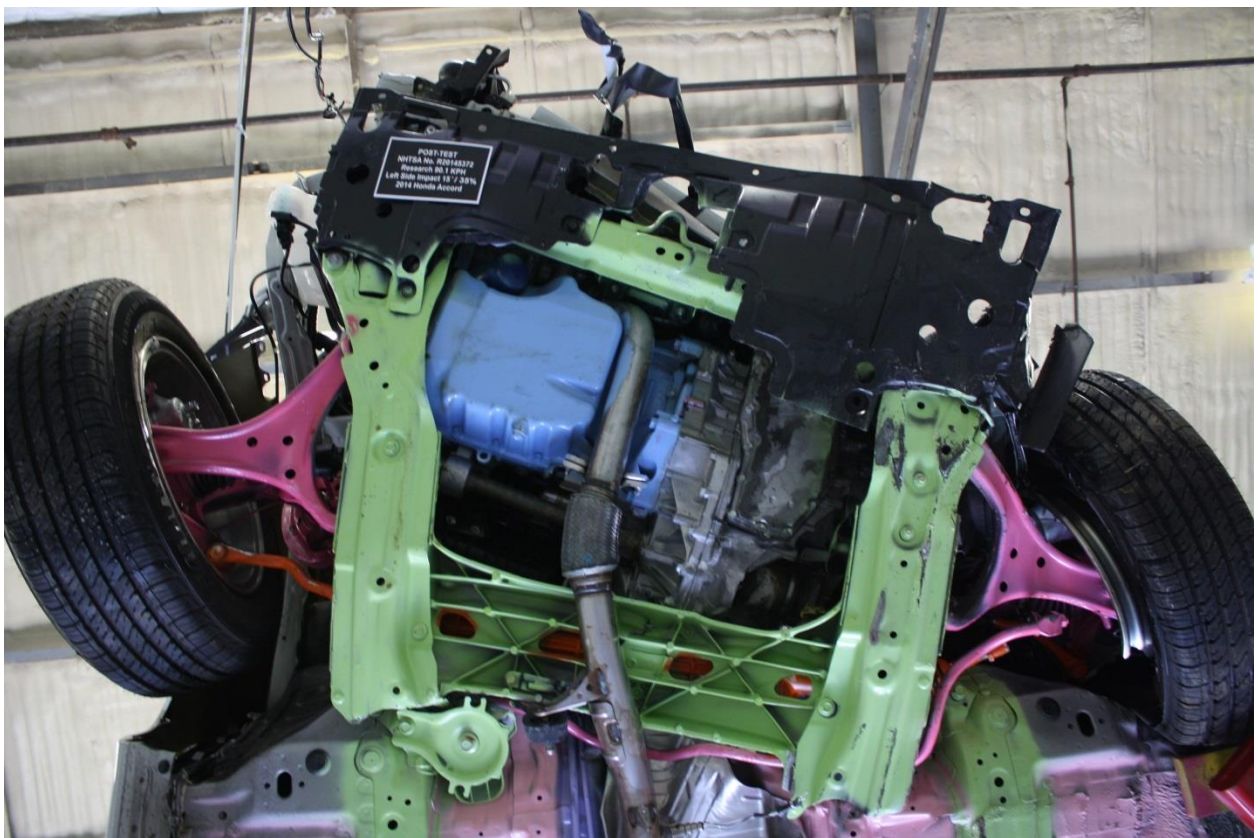
No. 133 Pre-Test View of Rear Underbody (perpendicular to vehicle)



No. 134 Post-Test View of Rear Underbody (perpendicular to vehicle)



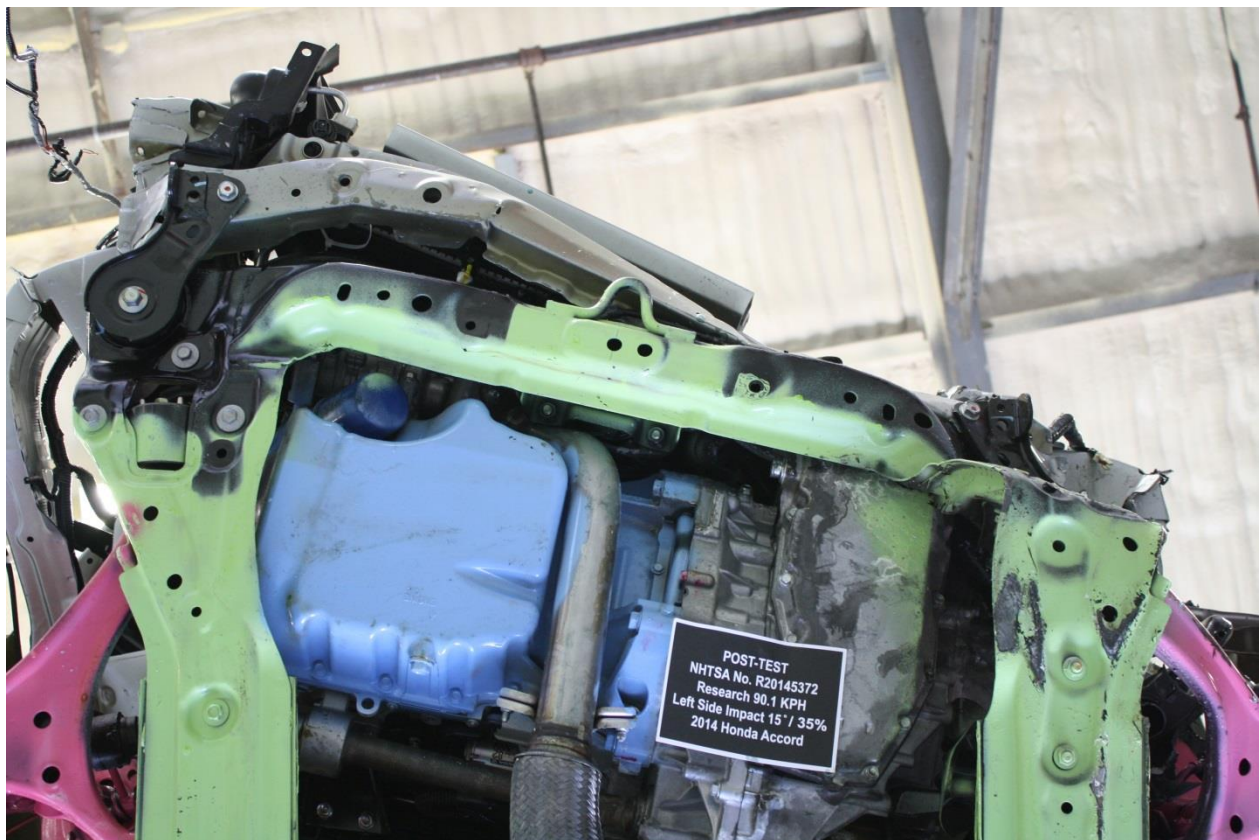
No. 135 Pre-Test View of Steering rack and or sway bar



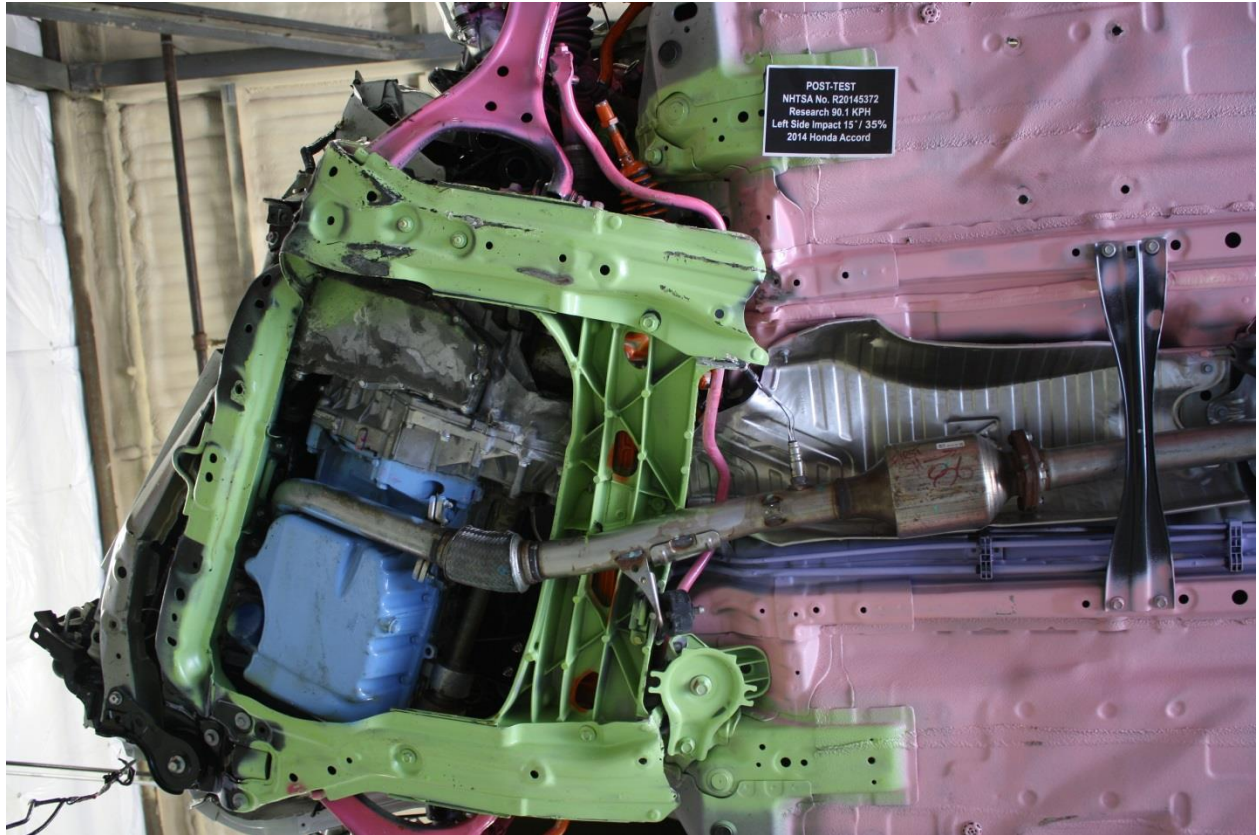
No. 136 Post-Test View of Steering rack and or sway bar



No. 137 Pre-Test Bumper to Rail Attachments and Crush Initiators

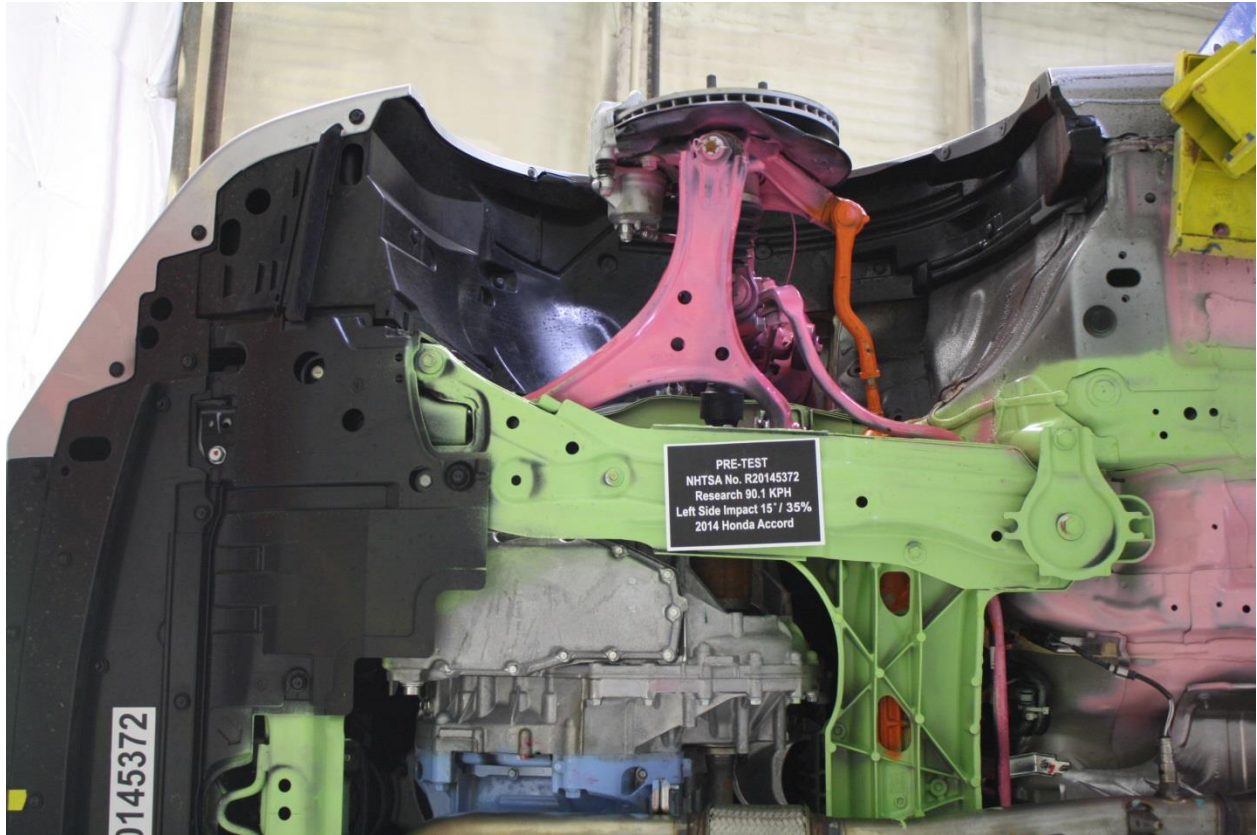


No. 138 Post-Test Bumper to Rail Attachments and Crush Initiators

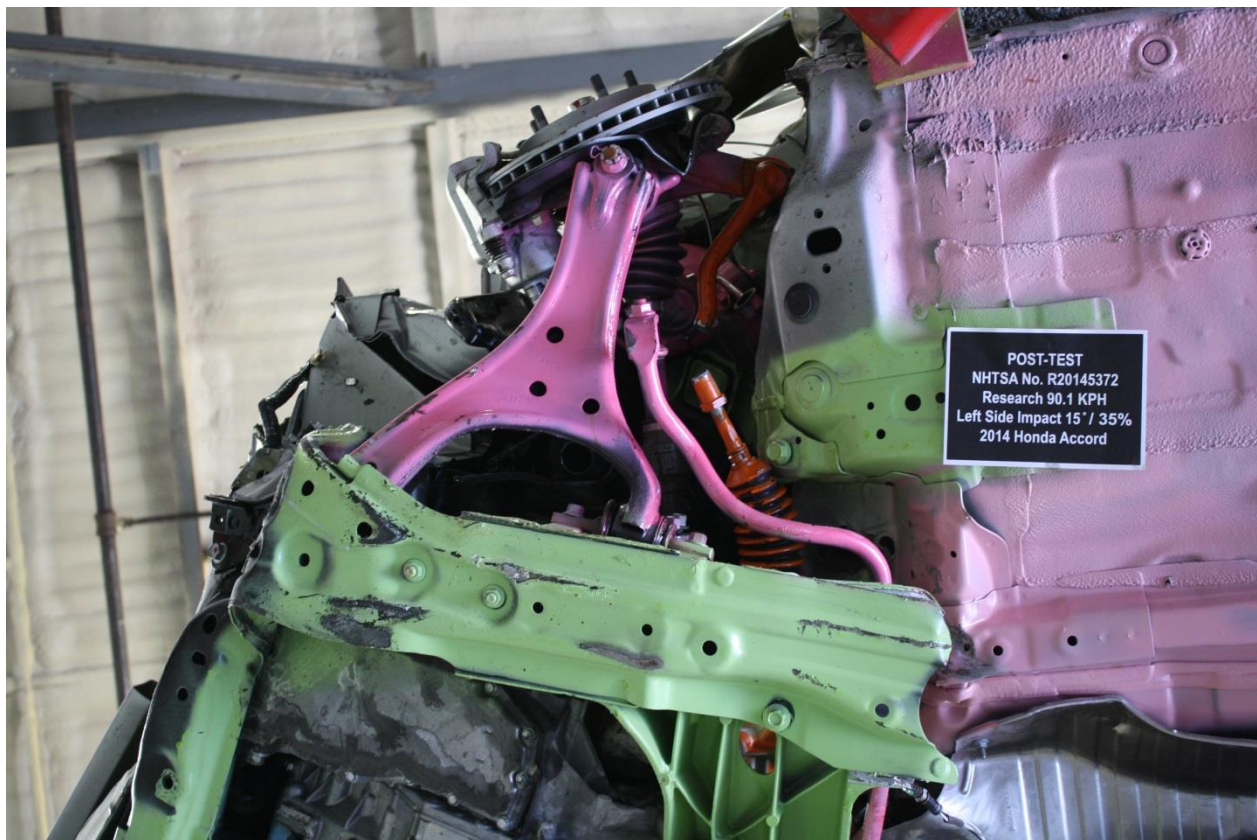


POST-TEST
NHTSA No. R20145372
Research 90.1 MPH
Left Side Impact 15' / 35%
2014 Honda Accord

No. 139 Post-Test View of Front Sub-Frame Deformation



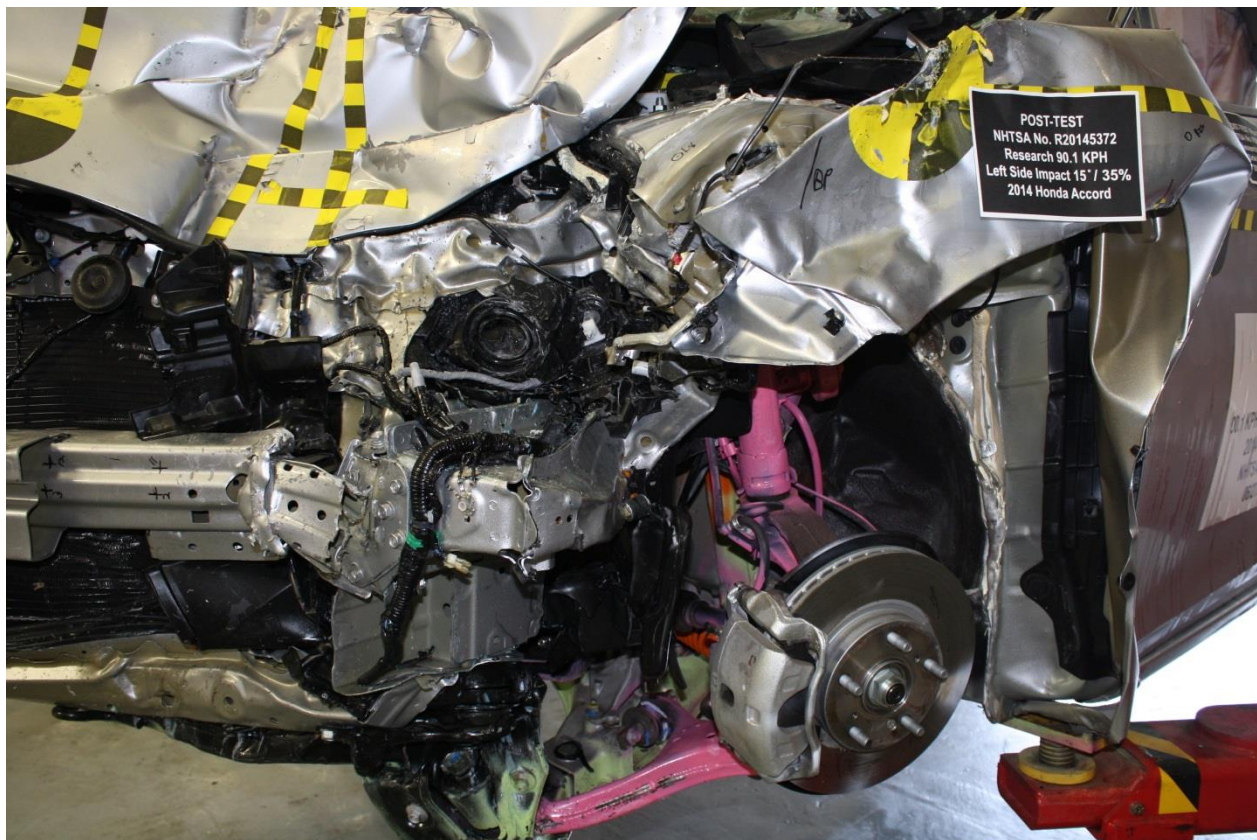
No. 140 Pre-Test Frame Rail with tire removed



No. 141 Post-Test Frame Rail with tire removed



No. 142 Pre-Test View of Front Driver Wheel Well w/ Tire Removed



No. 143 Post-Test $\frac{3}{4}$ View of Front Driver Wheel Well w/ Tire Removed



No. 144 Post-Test Side View of Front Driver Wheel Well w/ Tire Removed



No. 145 Post-Test Right Side 3/4 Rear View of the Front Driver Wheel Well w/ Tire Removed



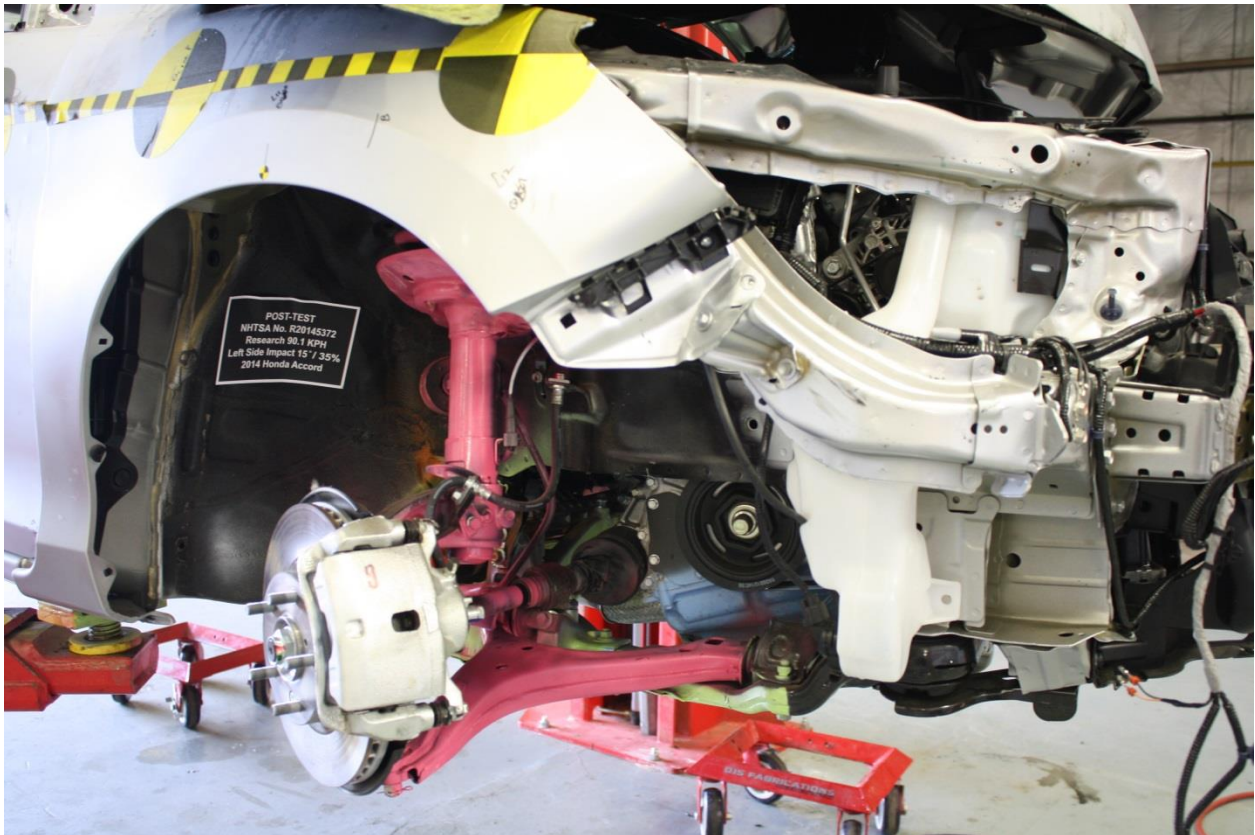
No. 146 Post-Test Looking Down at the Front Driver Shotgun



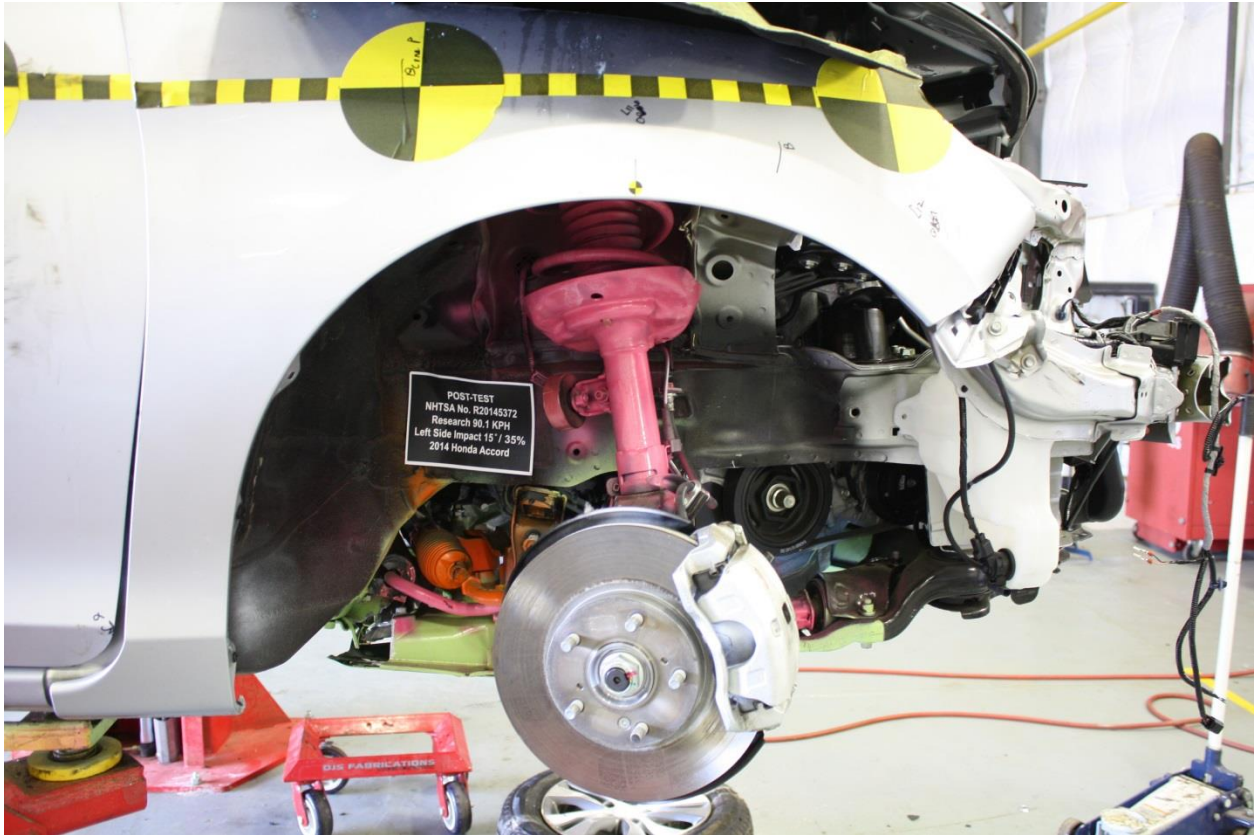
No. 147 Post-Test Right Side 3/4 View of Front Driver Shotgun



No. 148 Post-Test Front Driver Close up View of Suspension w/ Tire Removed



No. 149 Post-Test 3/4 View of Front Passenger Wheel Well w/ Tire Removed



No. 150 Post-Test Side View of Front Passenger Wheel Well w/ Tire Removed



No. 151 Post-Test Right Side 3/4 Rear View of the Front Passenger Wheel Well w/ Tire Removed



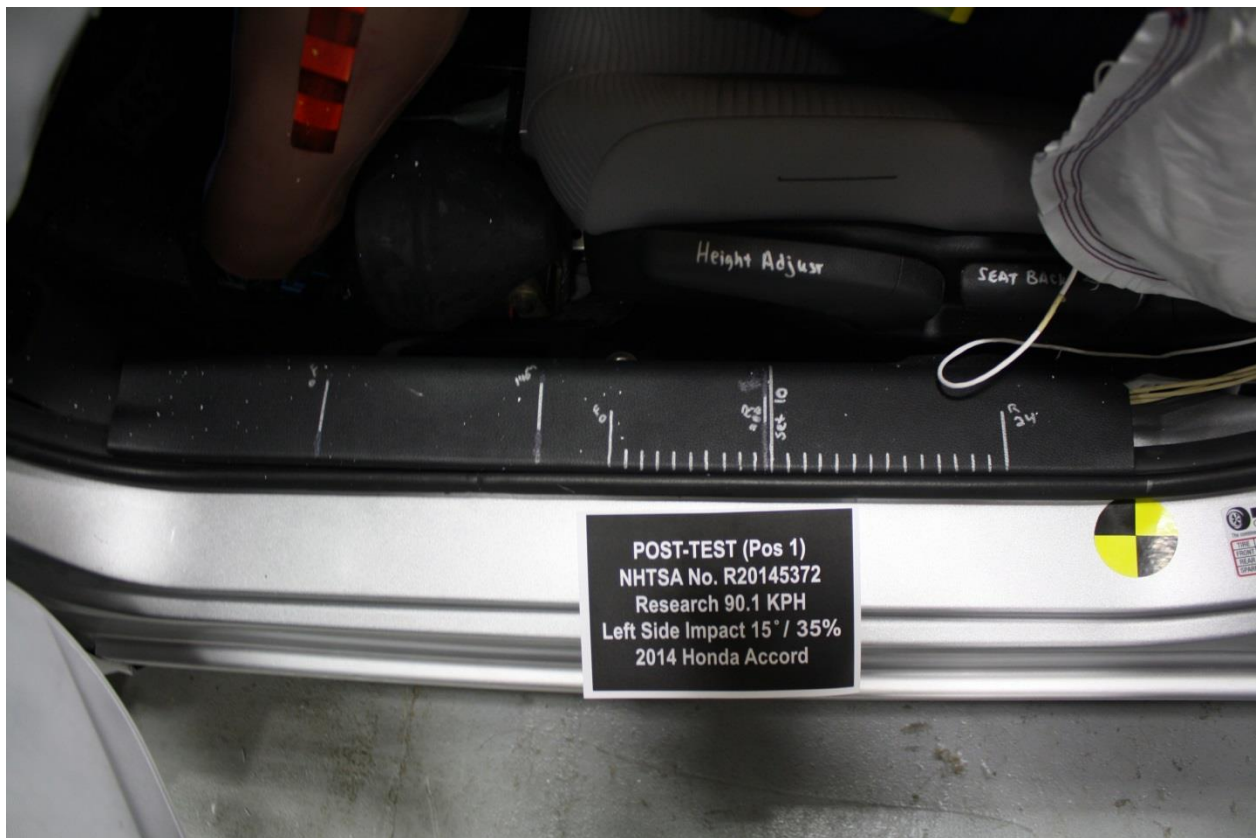
No. 152 Post-Test Looking Down at the Front Passenger Shotgun



No. 153 Post-Test Right Side 3/4 View of Front Passenger Shotgun



No. 154 Post-Test Front Passenger Close up View of Suspension w/ Tire Removed



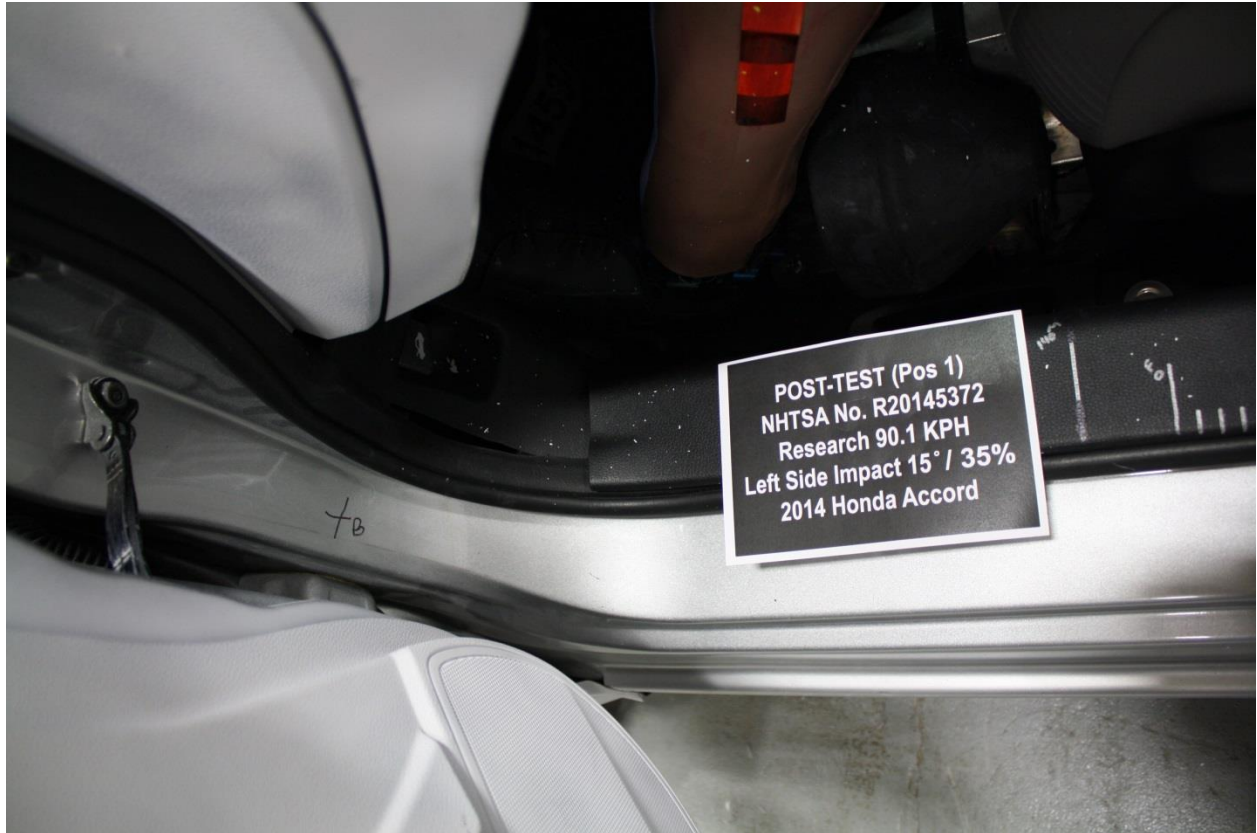
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No. 156 Post-Test View of Deformation of A pillar-Struck Side



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No. 160 Post-Test View of Deformation of Rocker or Post-Struck Side

Photo Not Applicable

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No. 163 Post-Test Left Side View of RMDB



No. 164 Pre-Test Right Side View of RMDB



No. 165 Post-Test Right Side View of RMDB



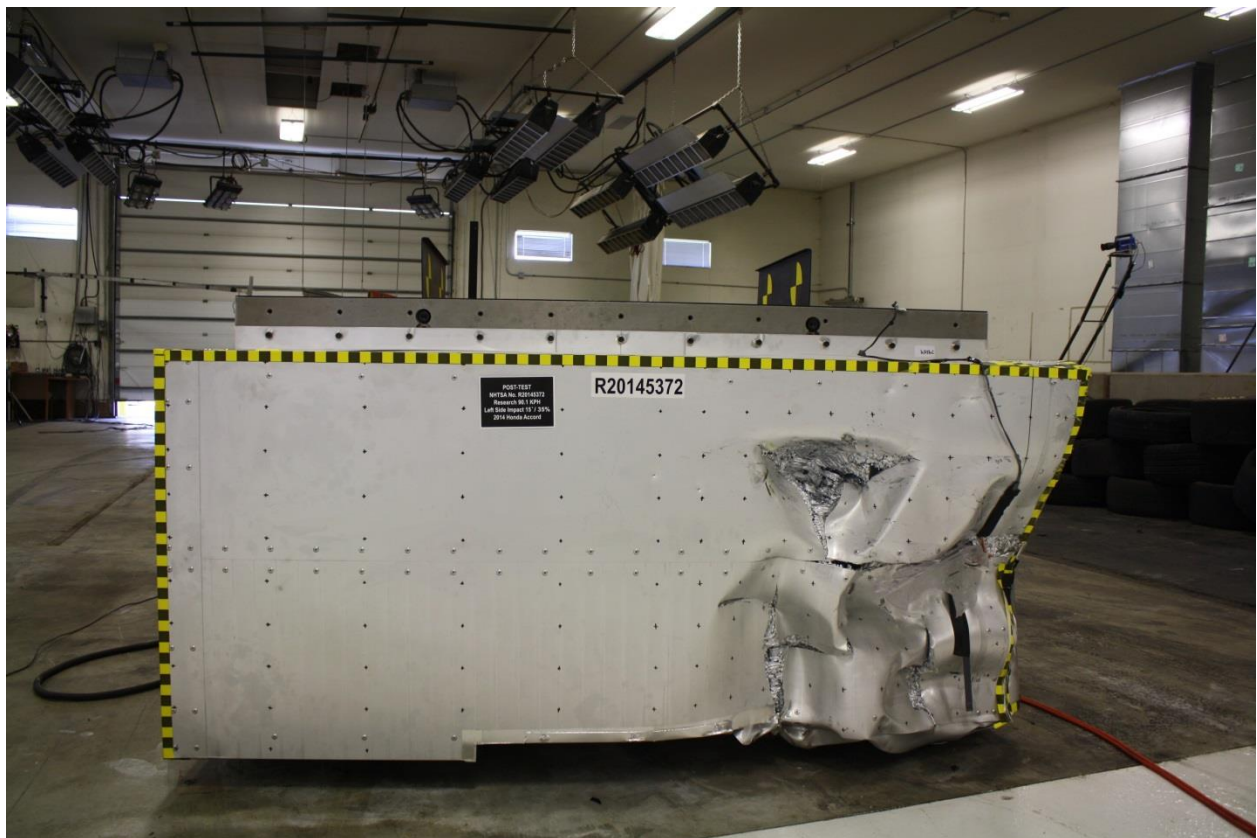
No. 166 Pre-Test Top View of RMDB



No. 167 Post-Test Top View of RMDB



No. 168 Pre-Test Front View of RMDB



No. 169 Post-Test Front View of RMDB



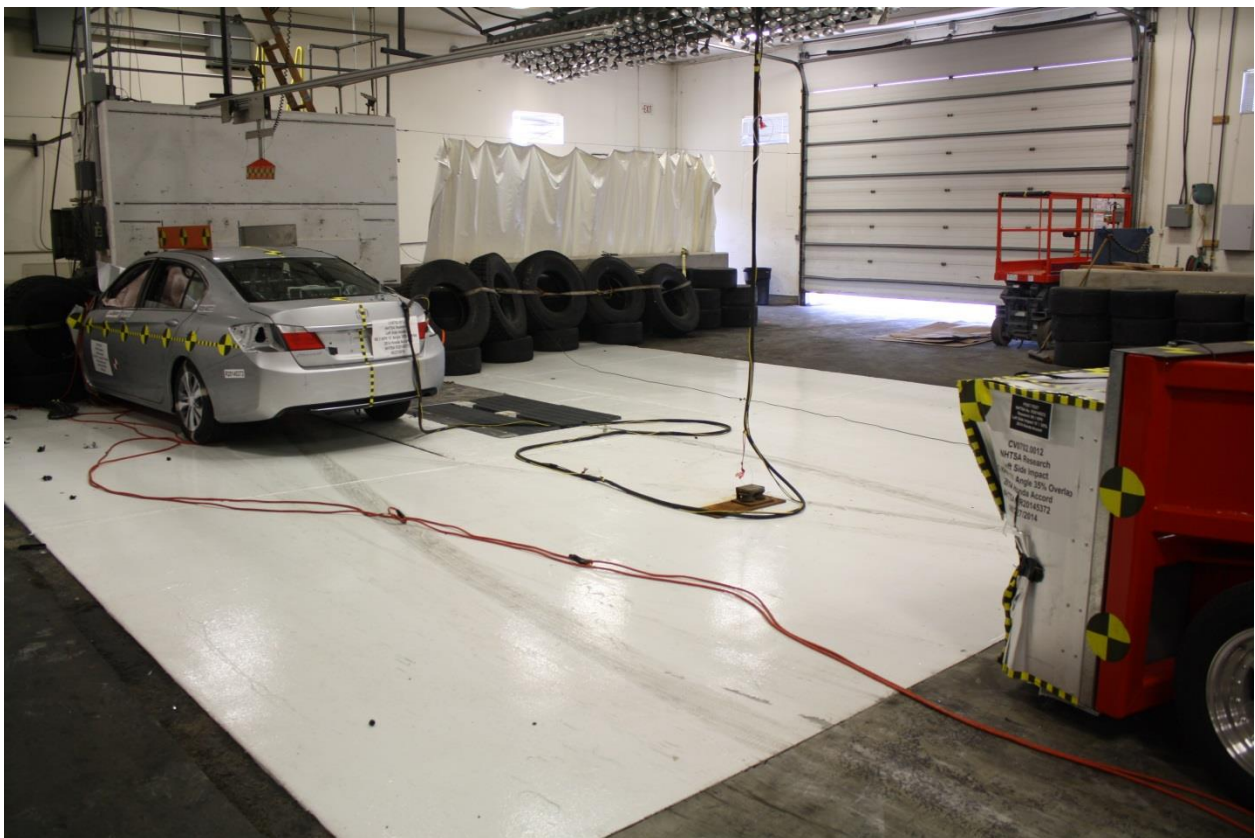
No. 170 Pre-Test RMDB & Vehicle, Right Side



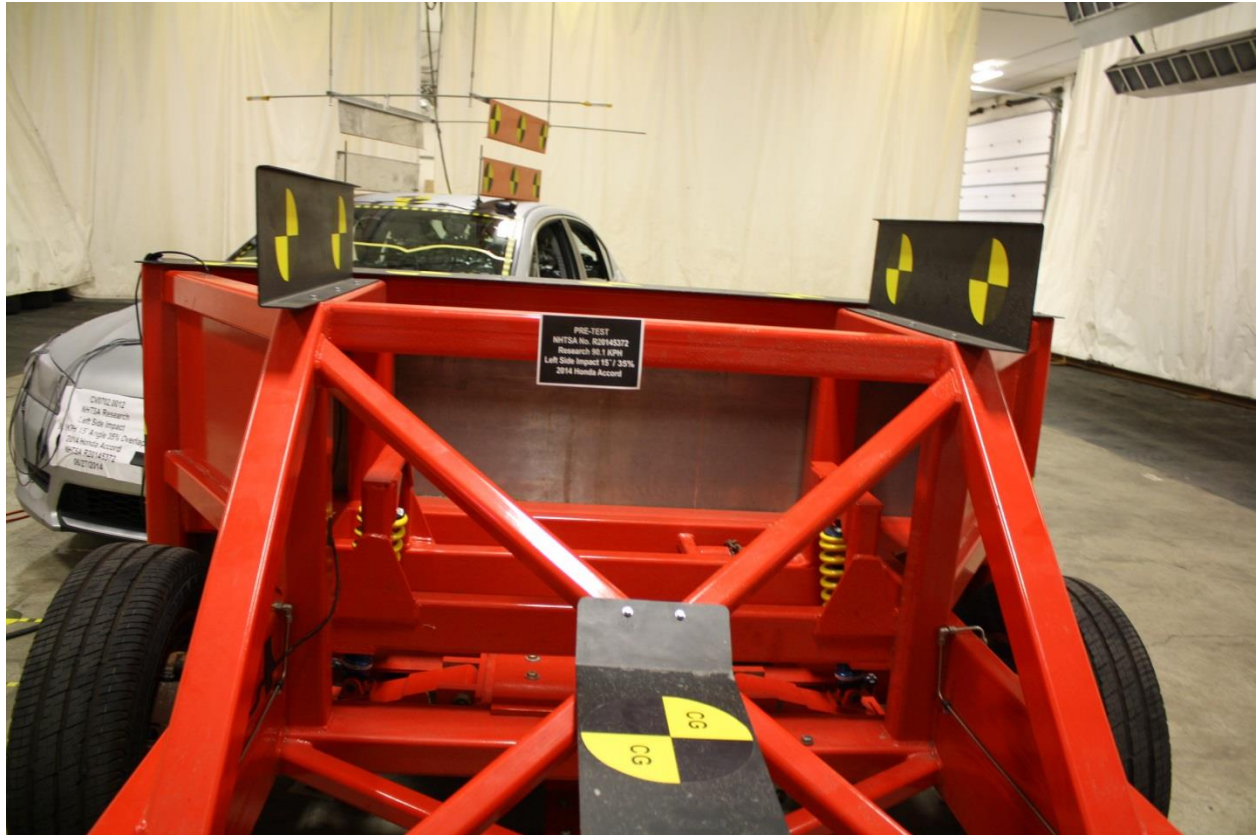
No. 171 Post-Test RMDB & Vehicle, Right Side



No. 172 Pre-Test RMDB & Vehicle, Left Side



No. 173 Post-Test RMDB & Vehicle, Left Side



No. 176 Pre-Test RMDB & Vehicle, Rear View



No. 177 Post-Test RMDB & Vehicle, Rear View



No. 178 Pre-Test RMDB & Vehicle, Front View



No. 179 Post-Test RMDB & Vehicle, Front View



No. 180 Vehicle at 0 Degrees on Static Rollover Device



No. 181 Vehicle at 90 Degrees on Static Rollover Device



No. 182 Vehicle at 180 Degrees on Static Rollover Device



No. 183 Vehicle at 270 Degrees on Static Rollover Device



No. 184 Vehicle at 360 Degrees on Static Rollover Device



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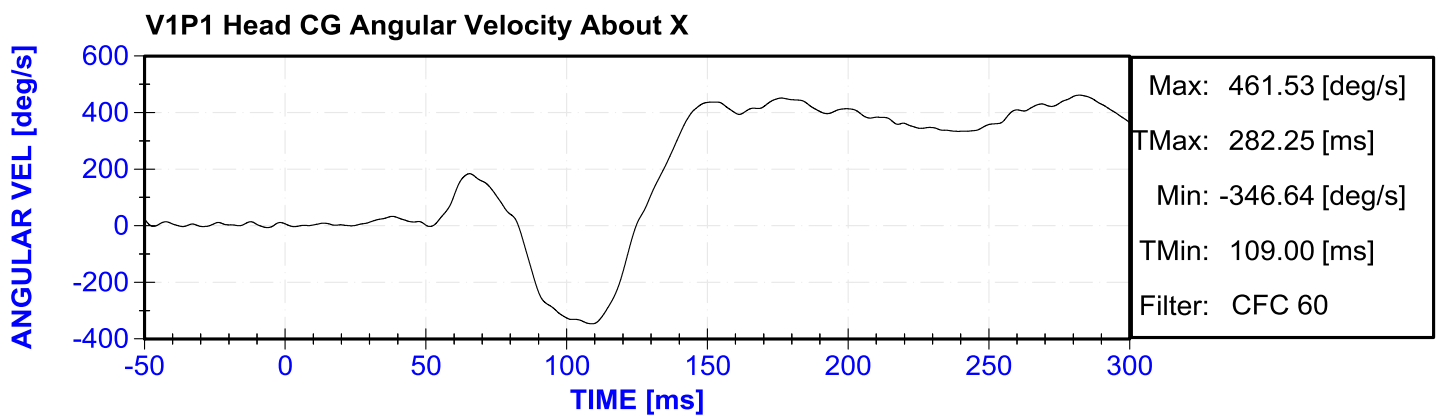
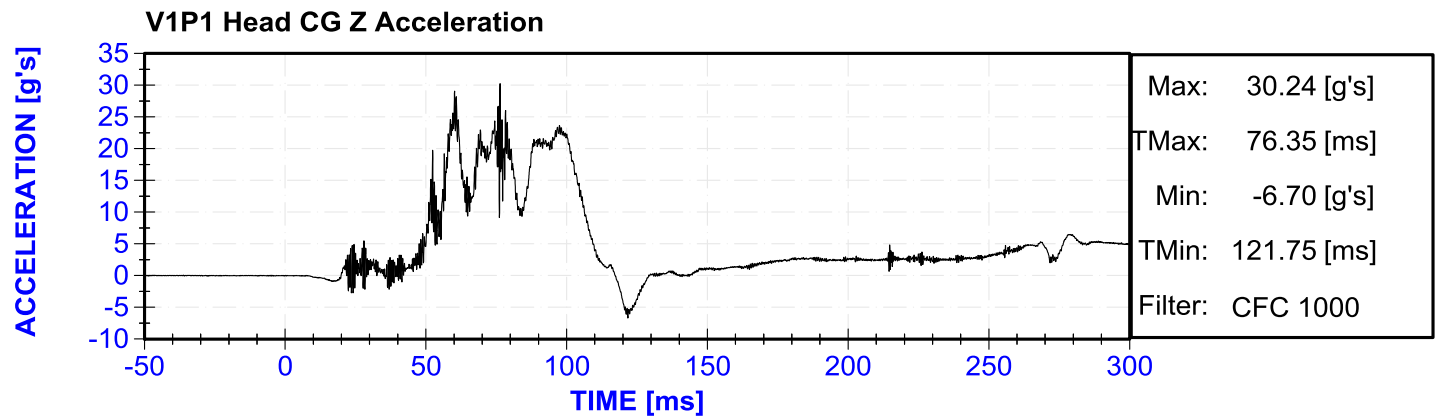
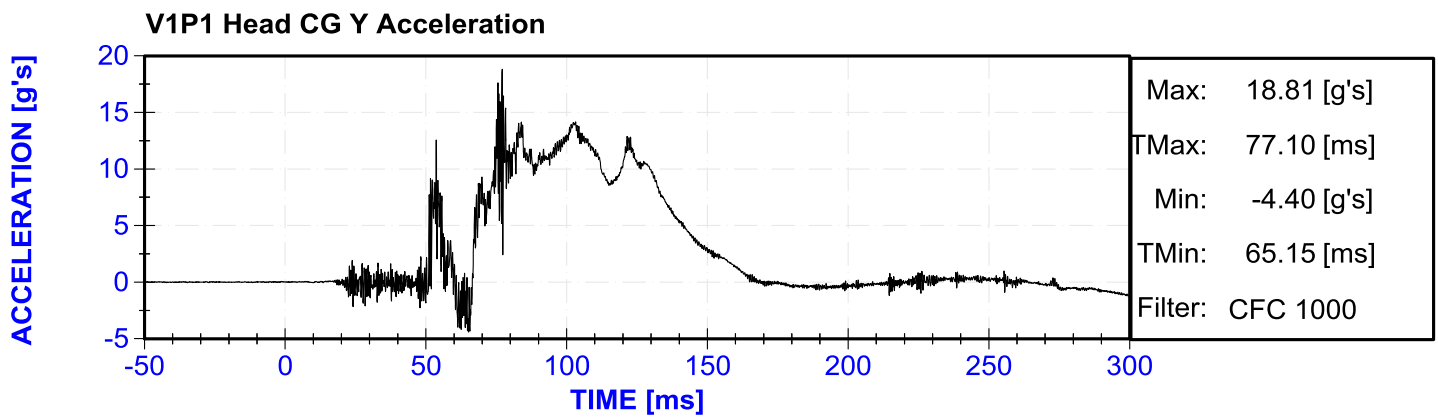
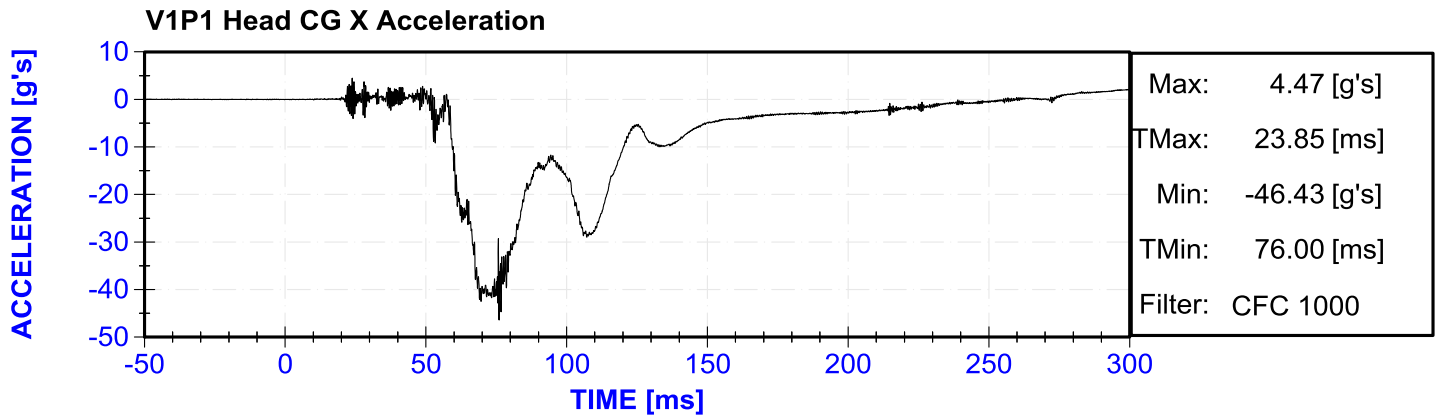
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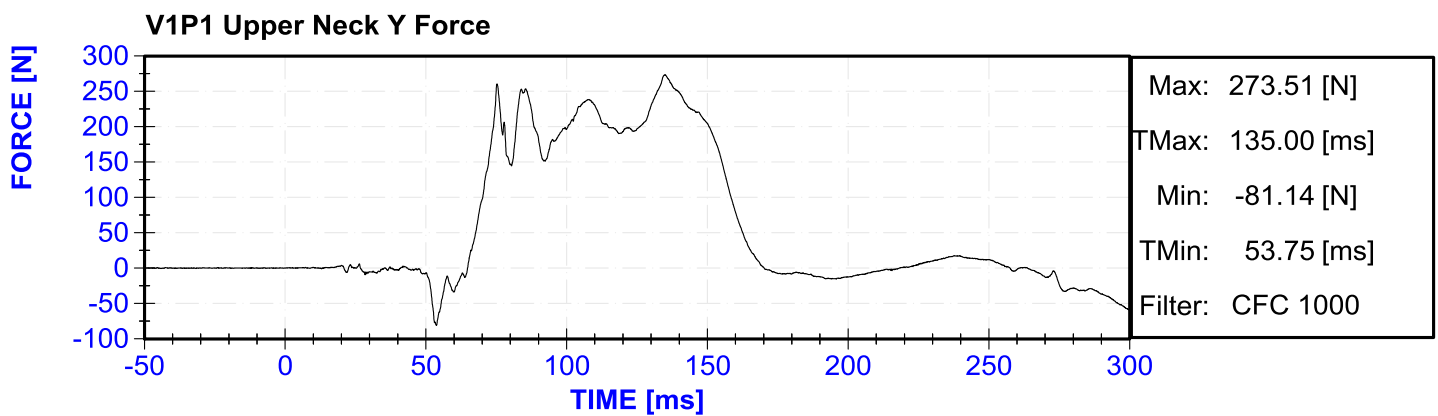
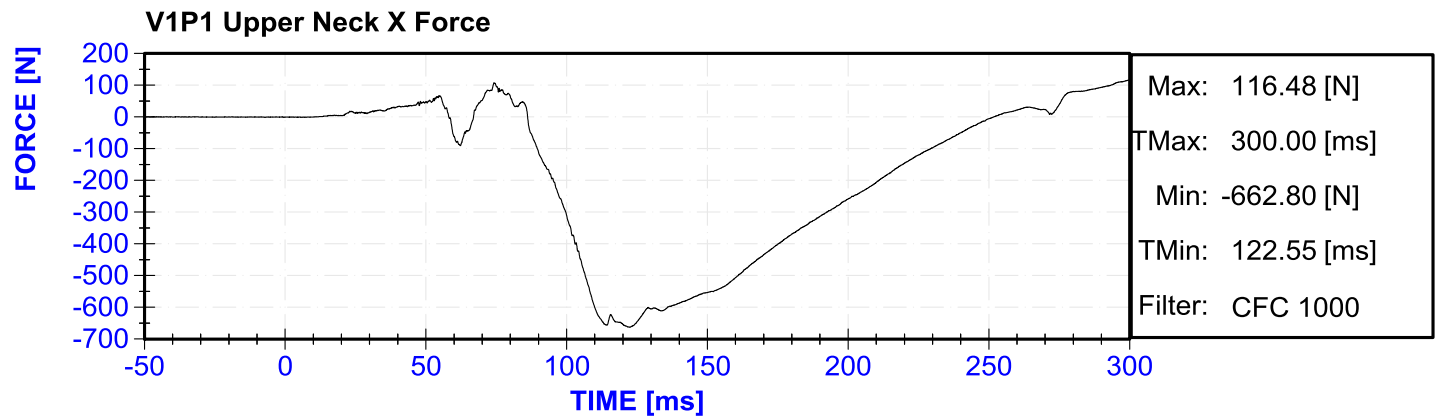
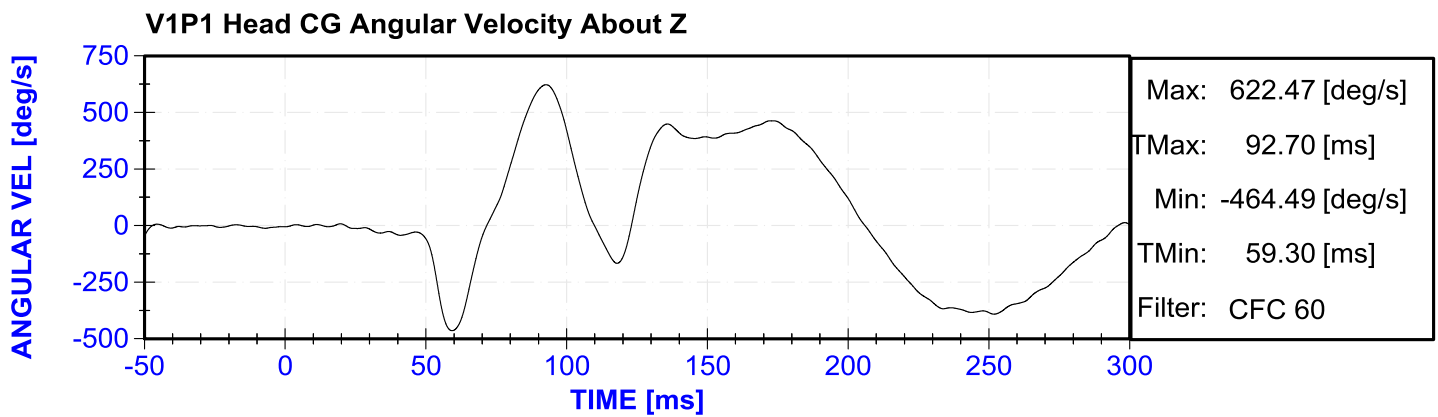
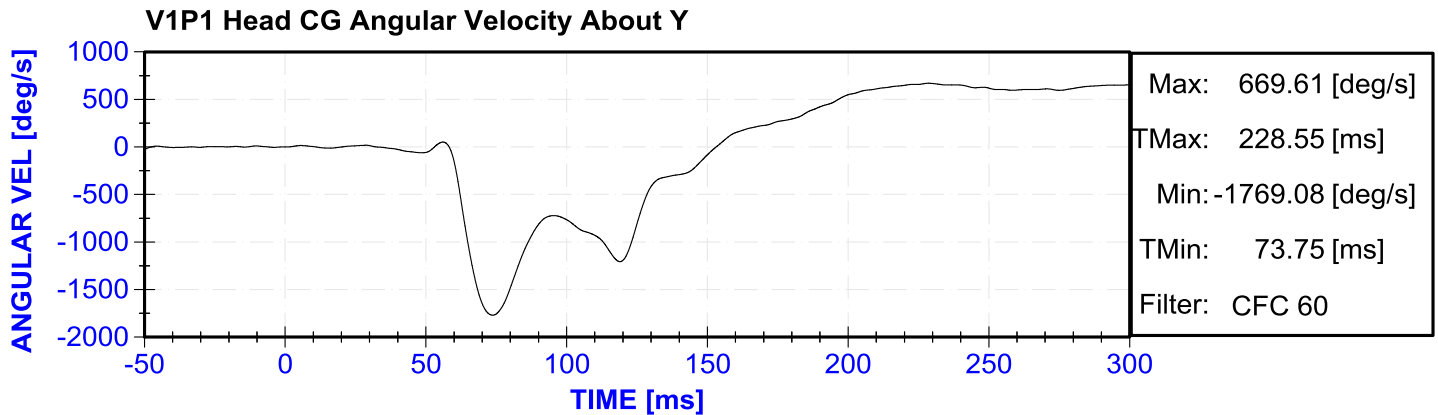
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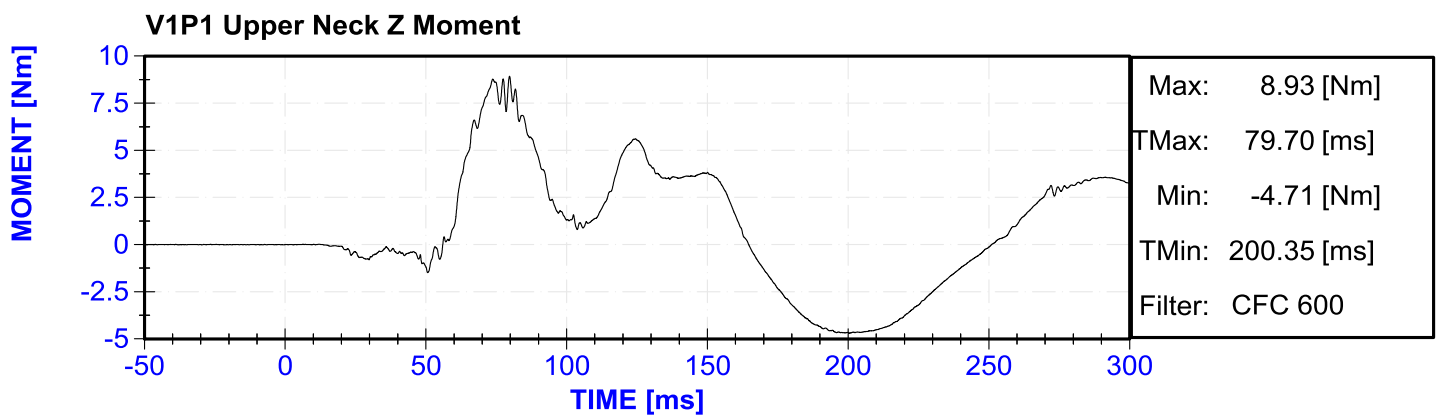
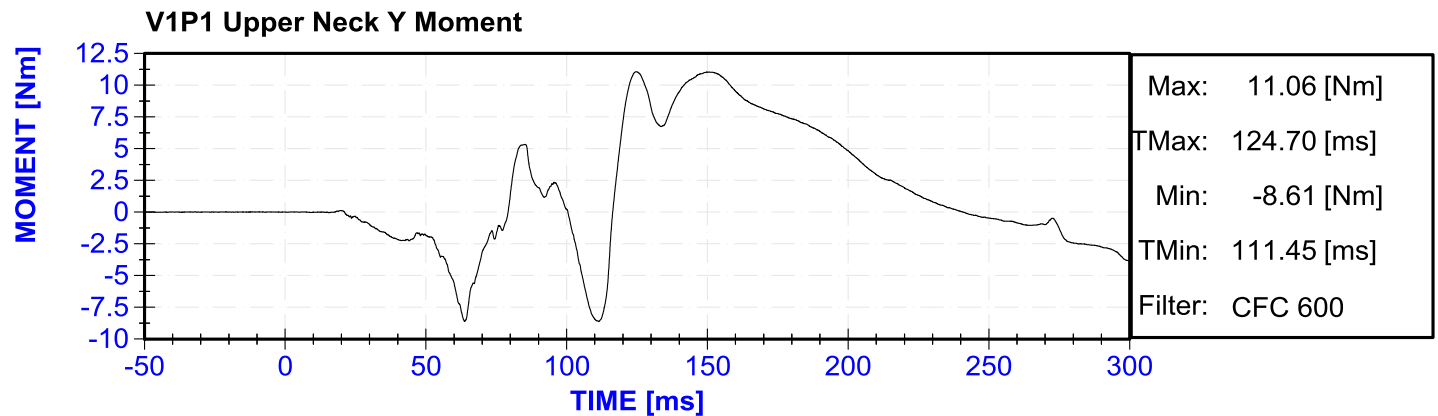
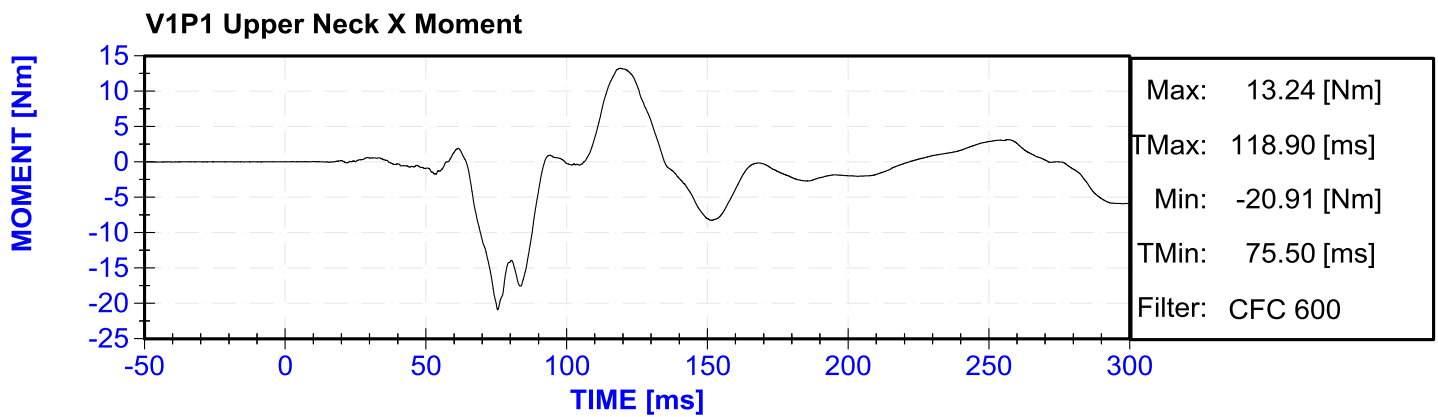
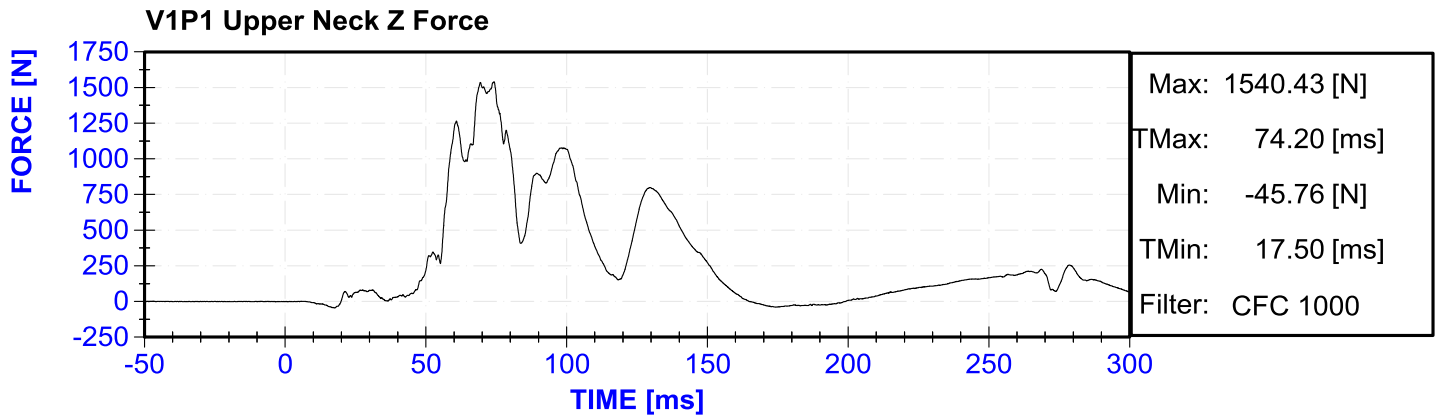
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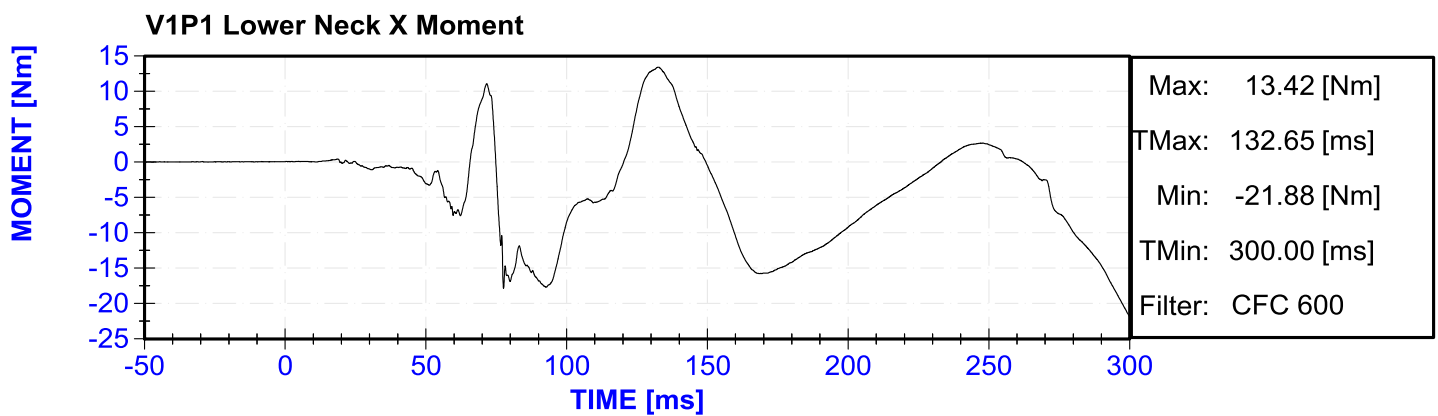
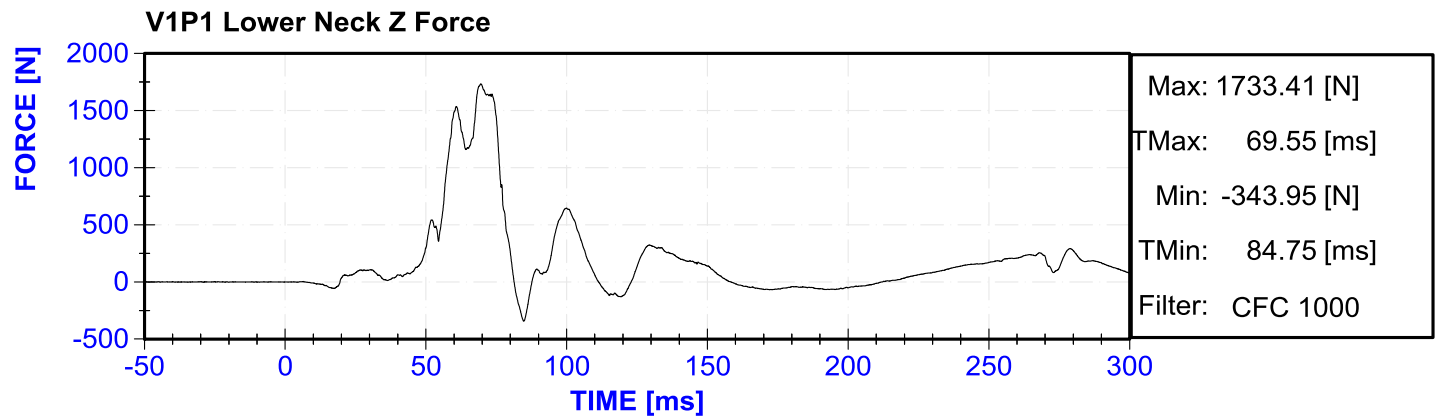
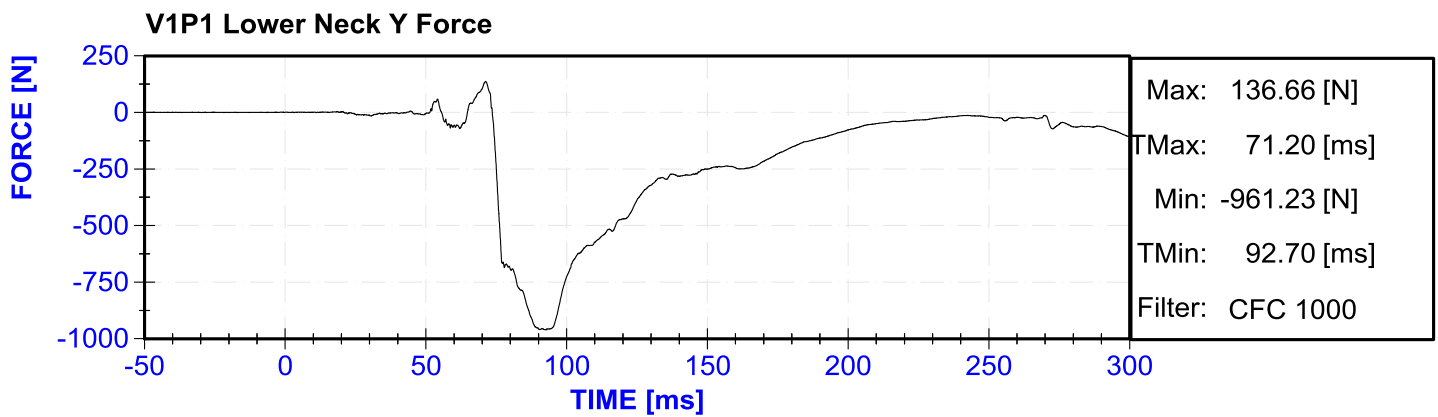
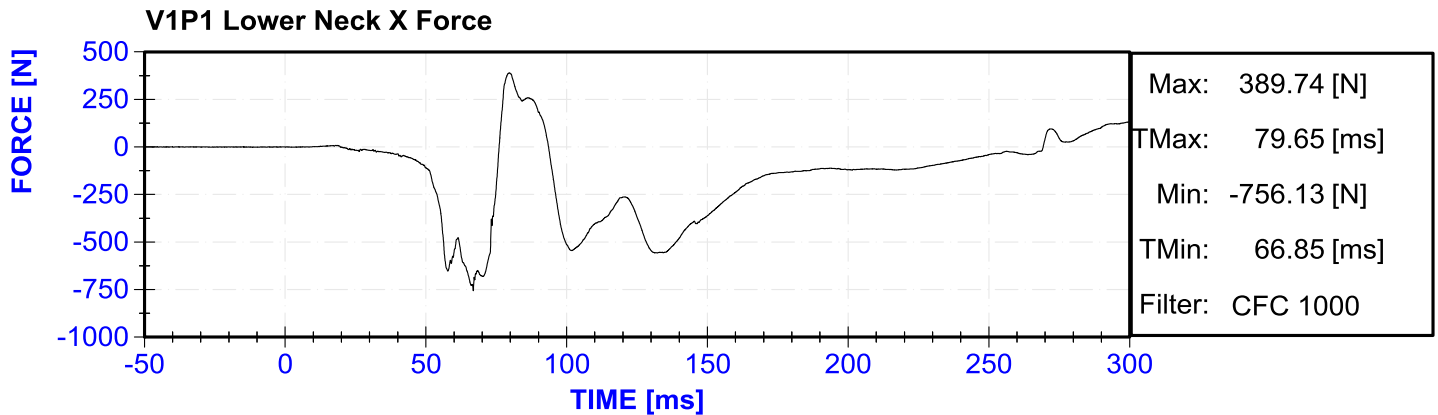
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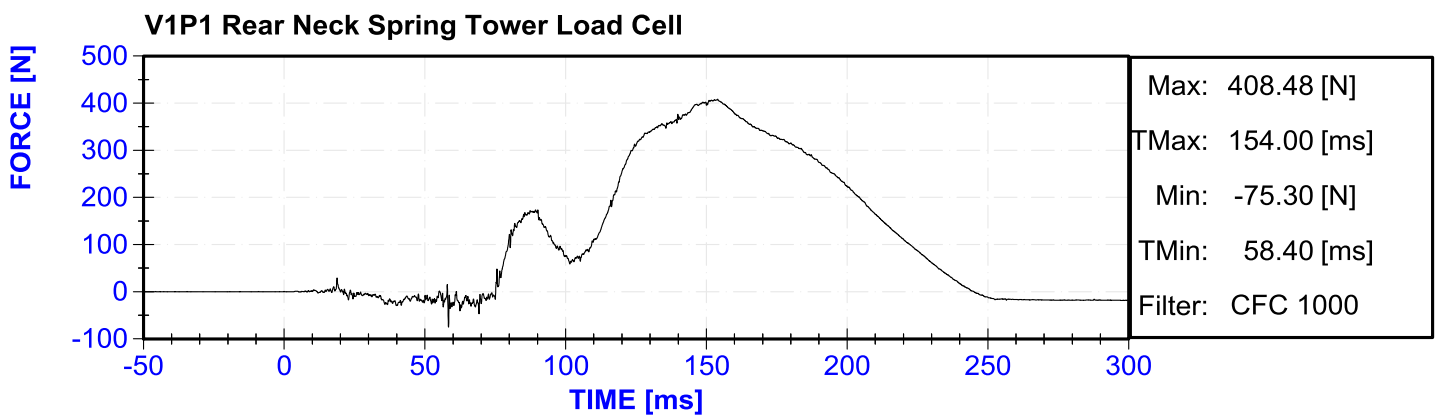
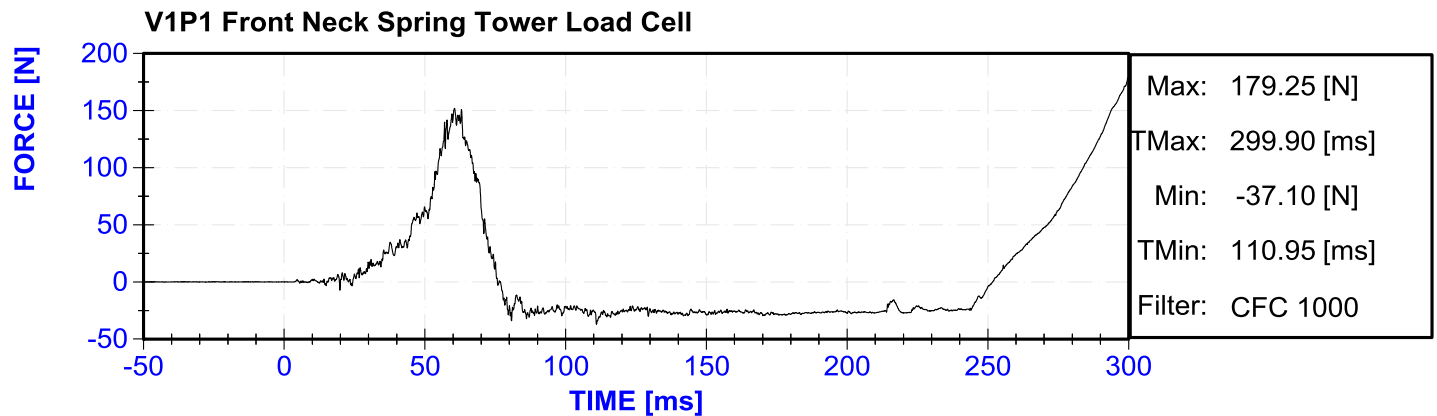
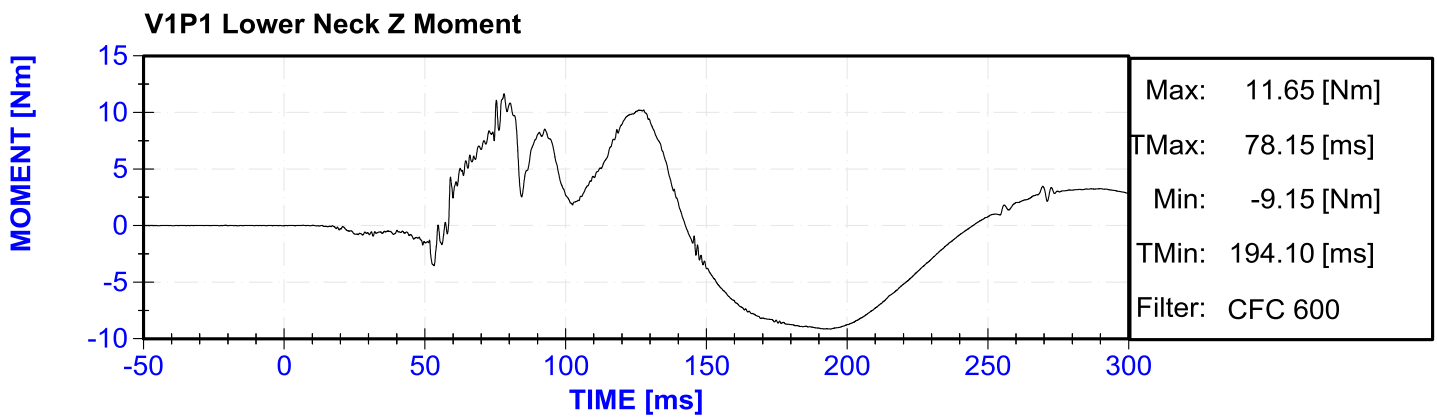
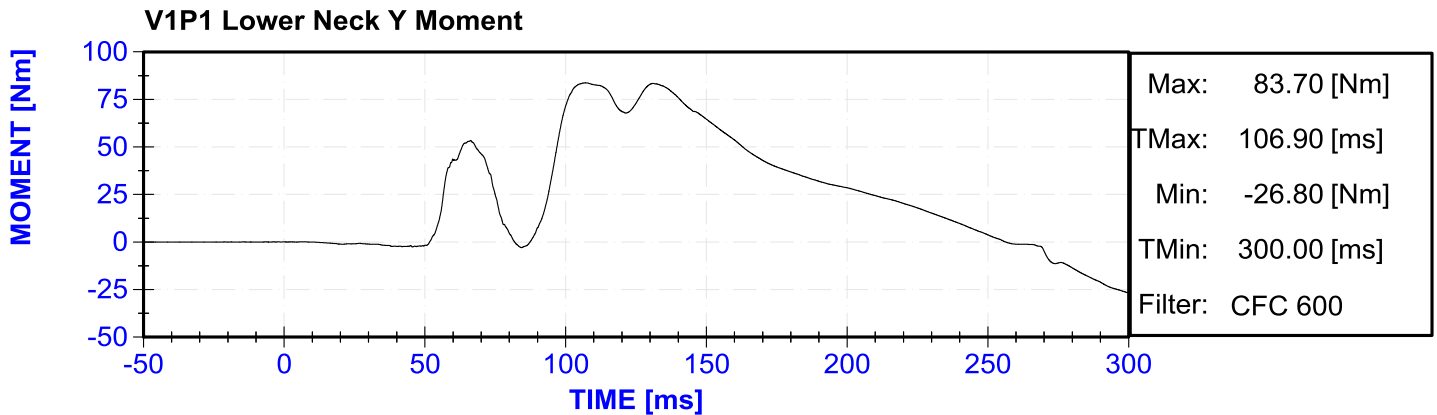
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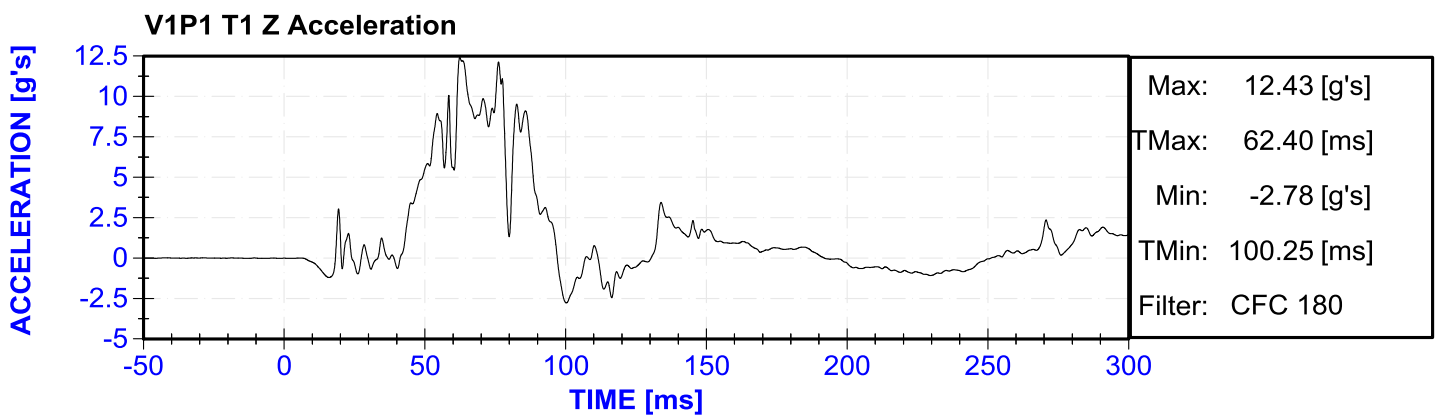
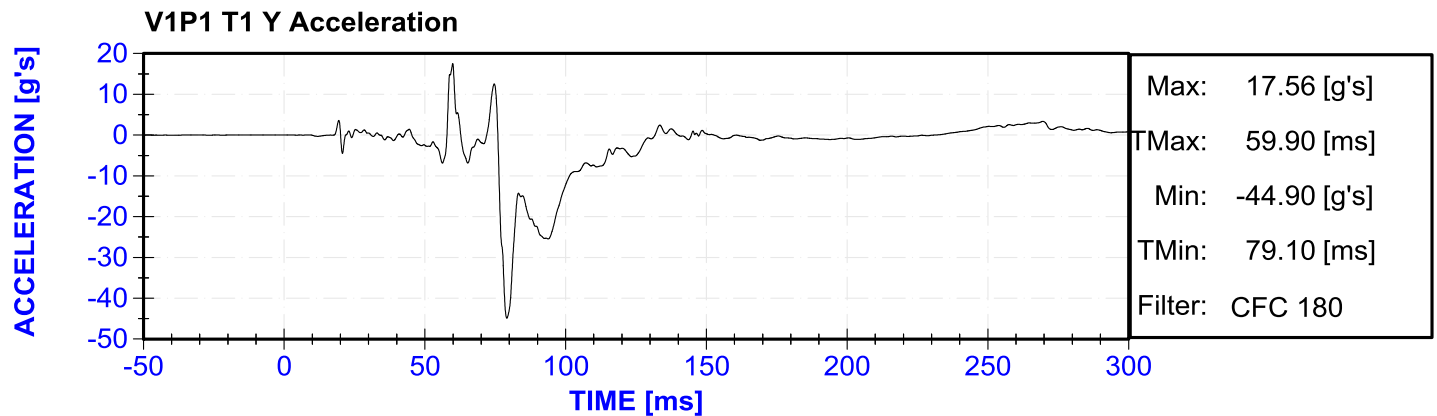
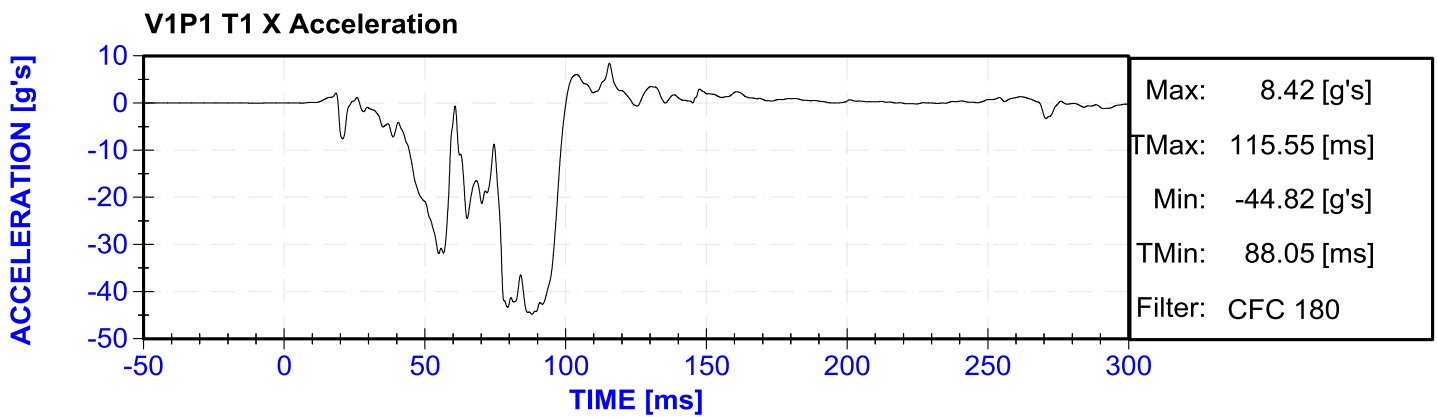
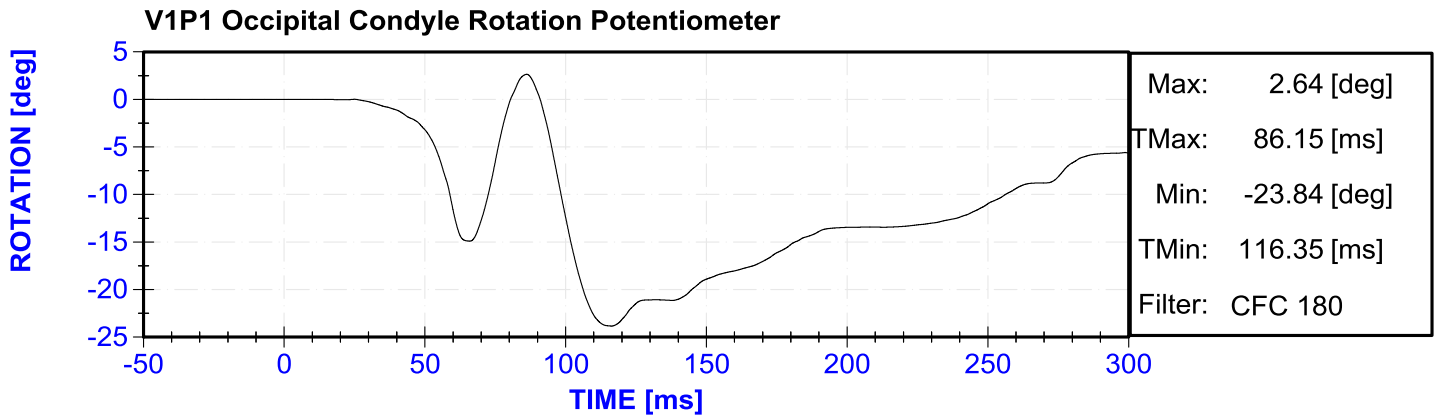


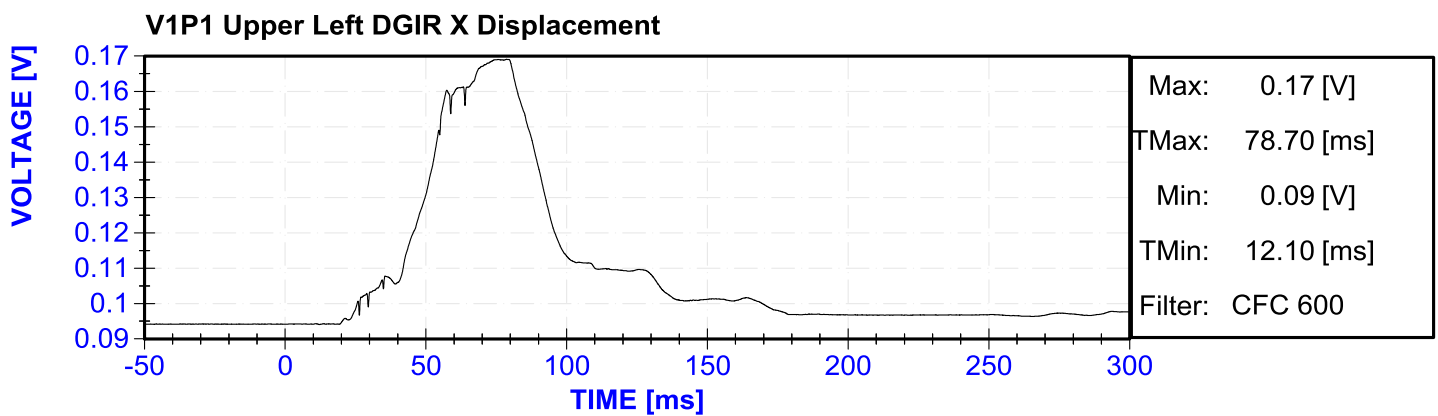
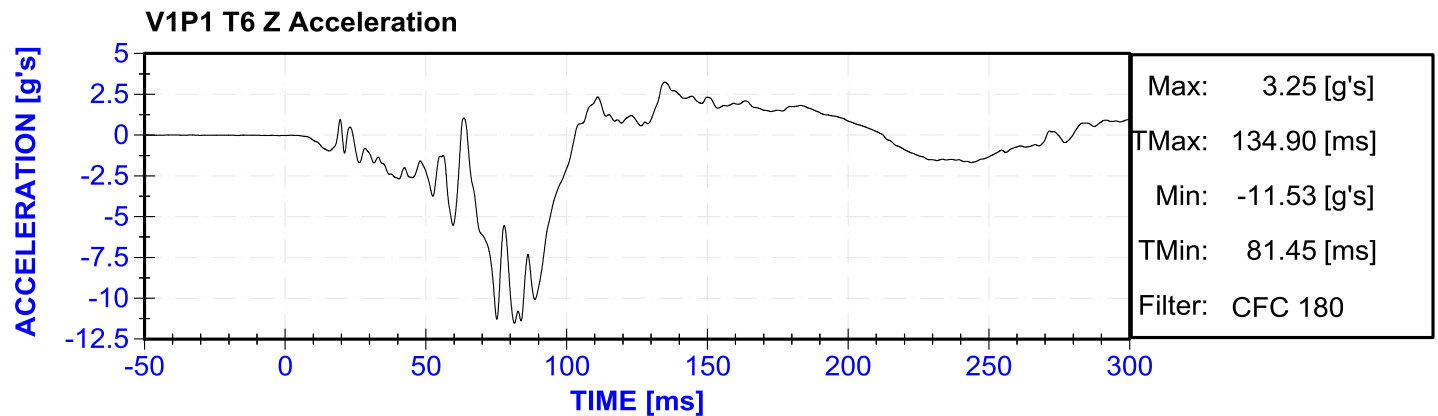
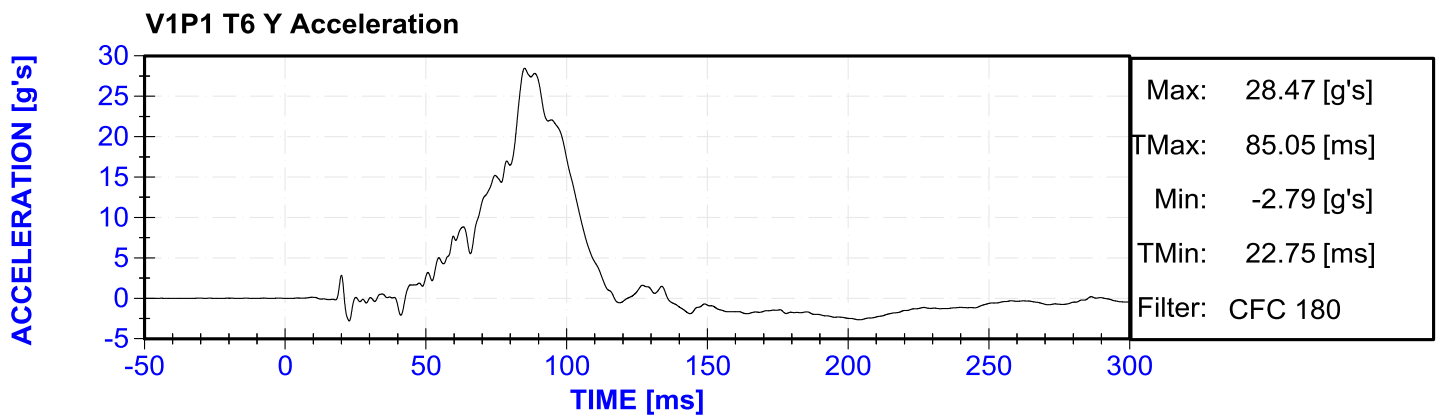
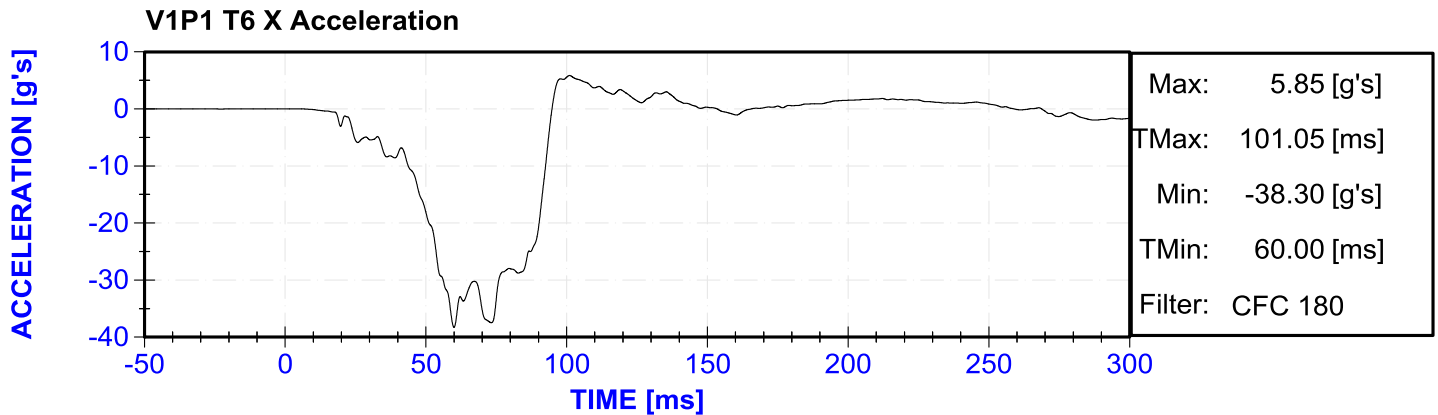


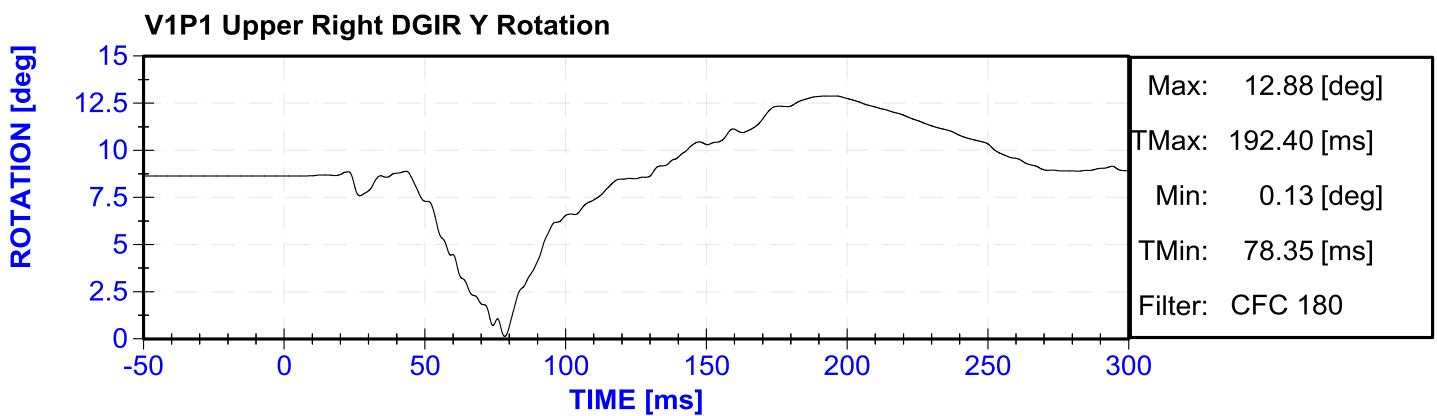
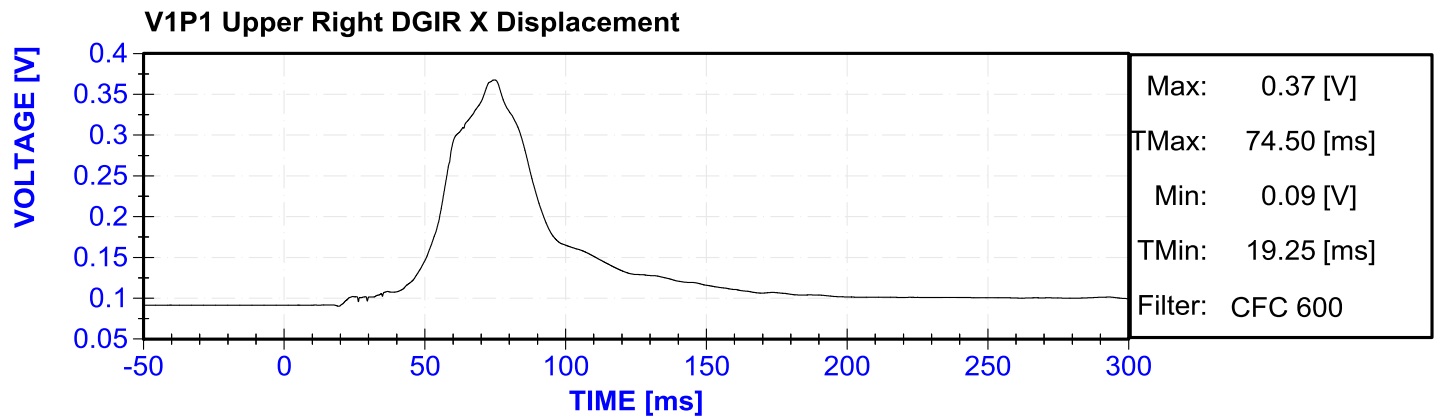
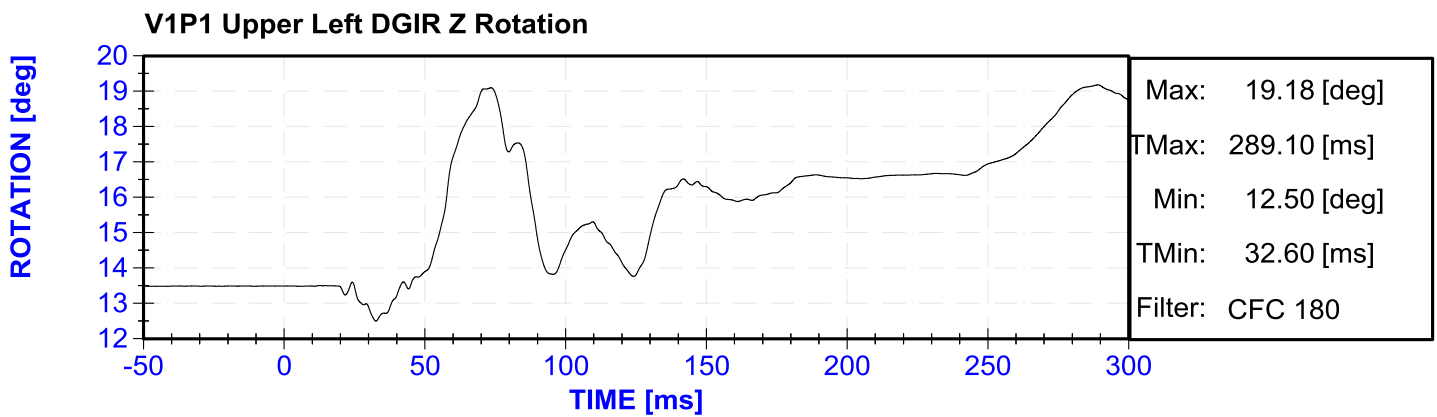
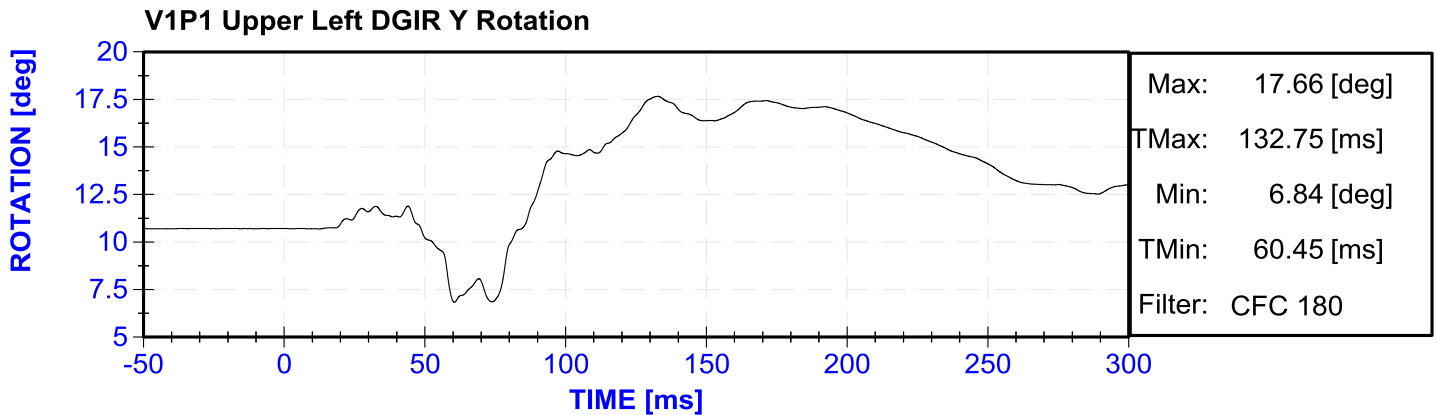


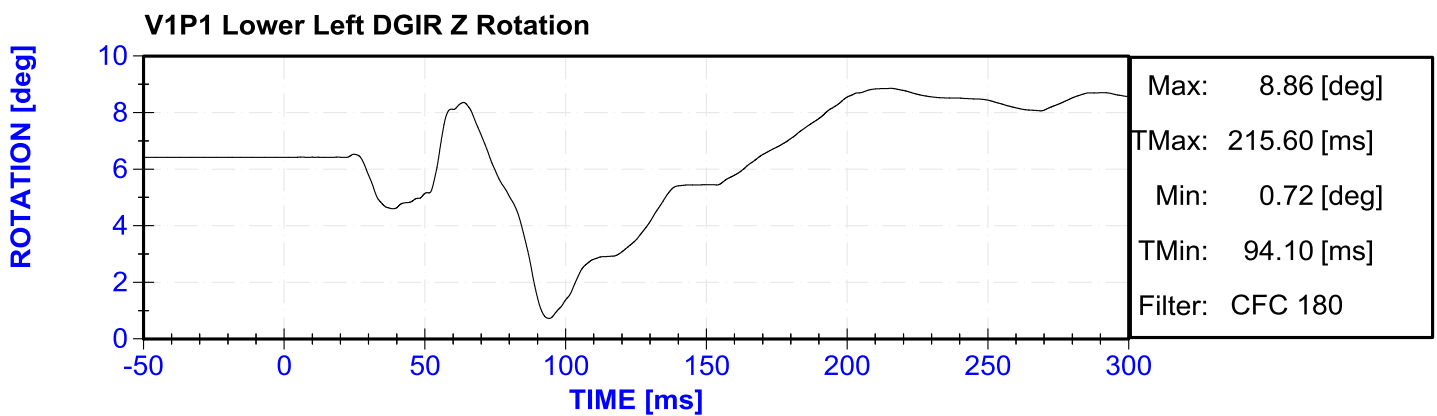
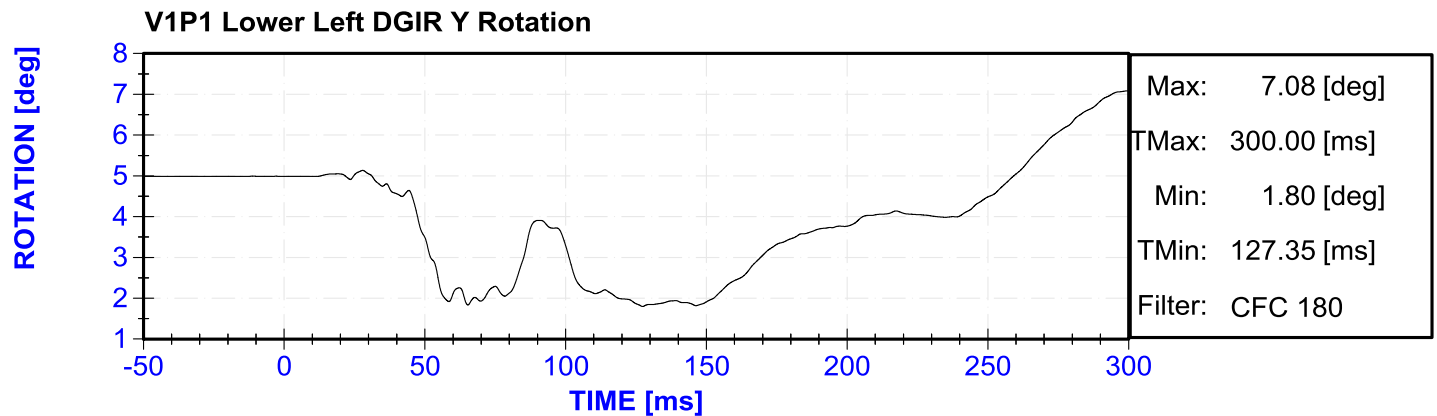
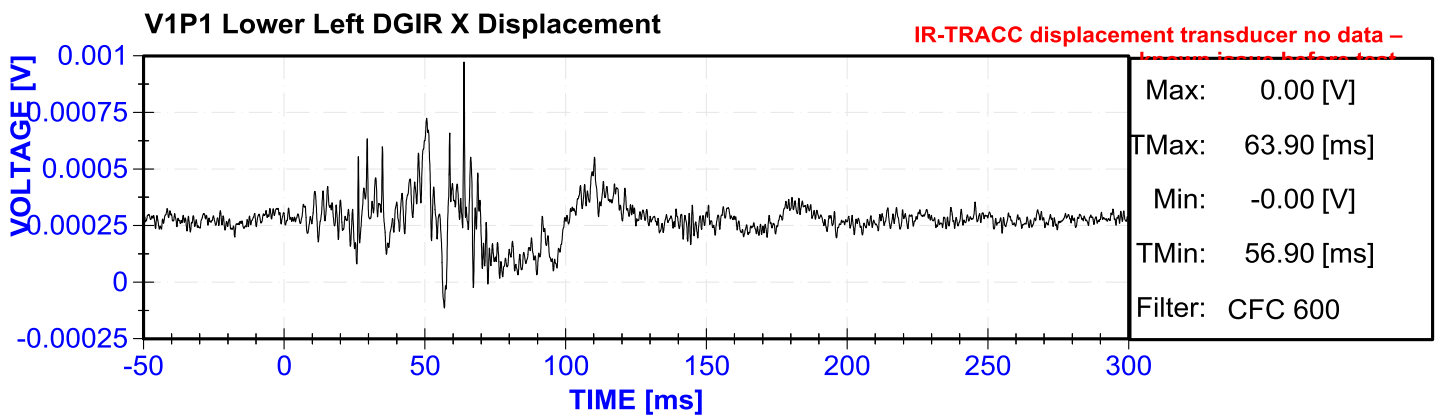
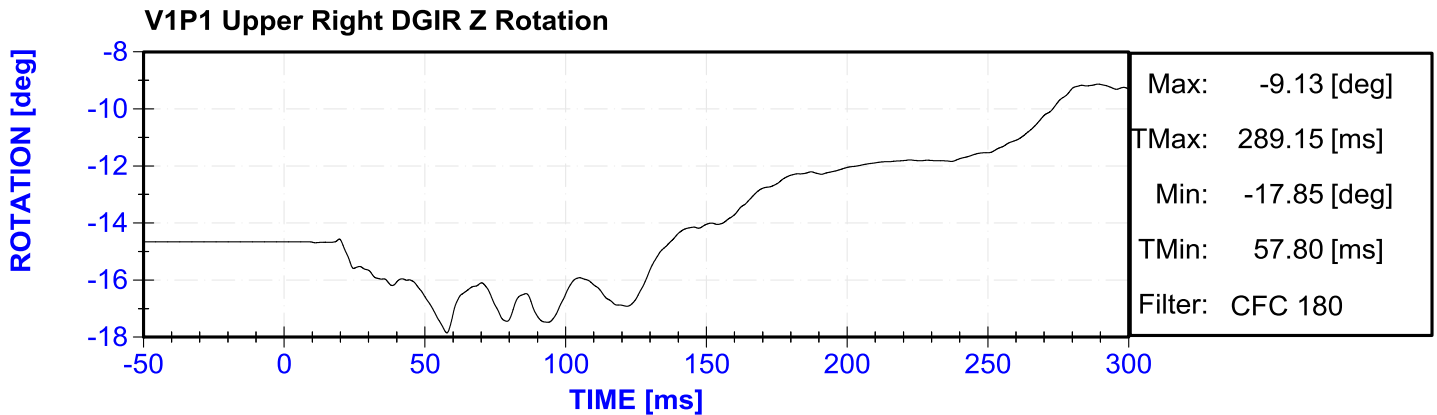




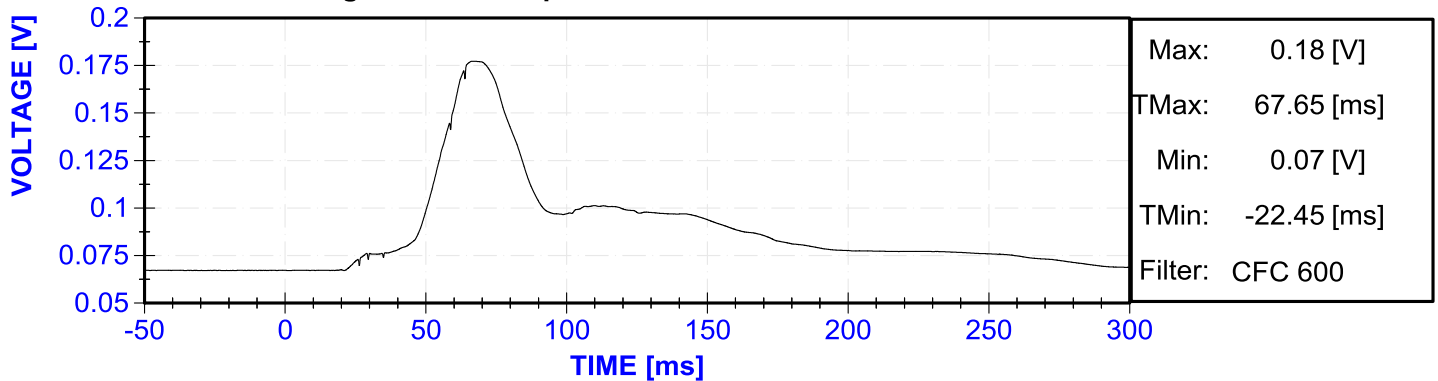




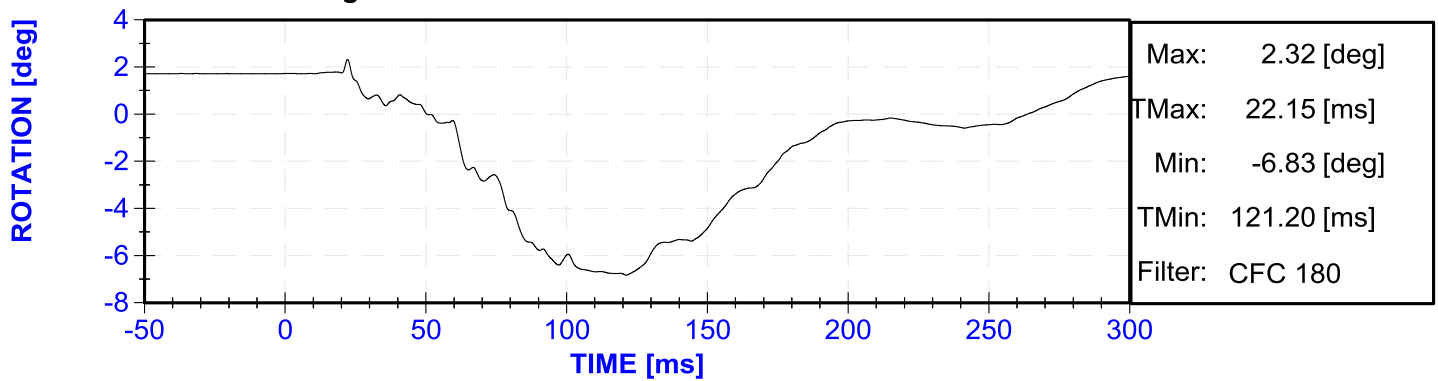




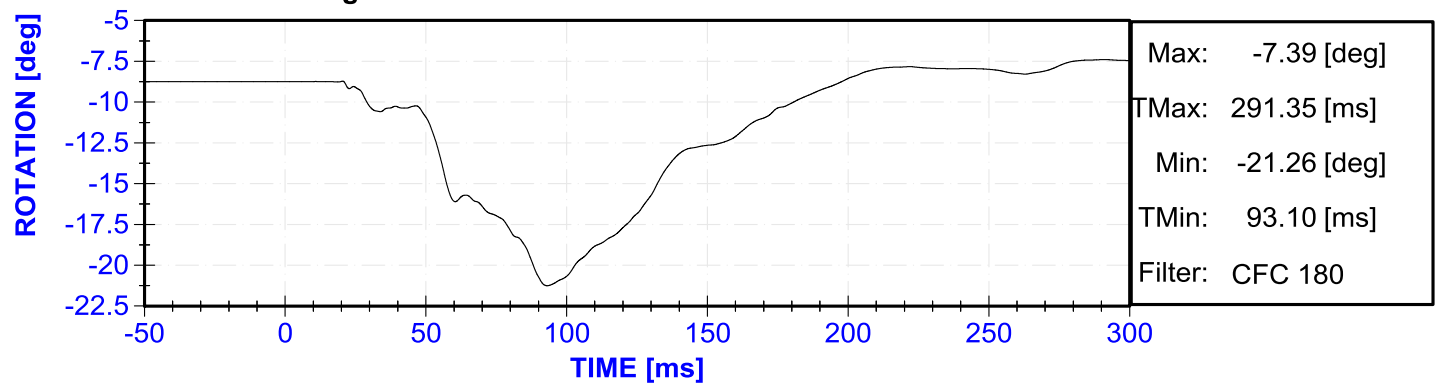
V1P1 Lower Right DGIR X Displacement



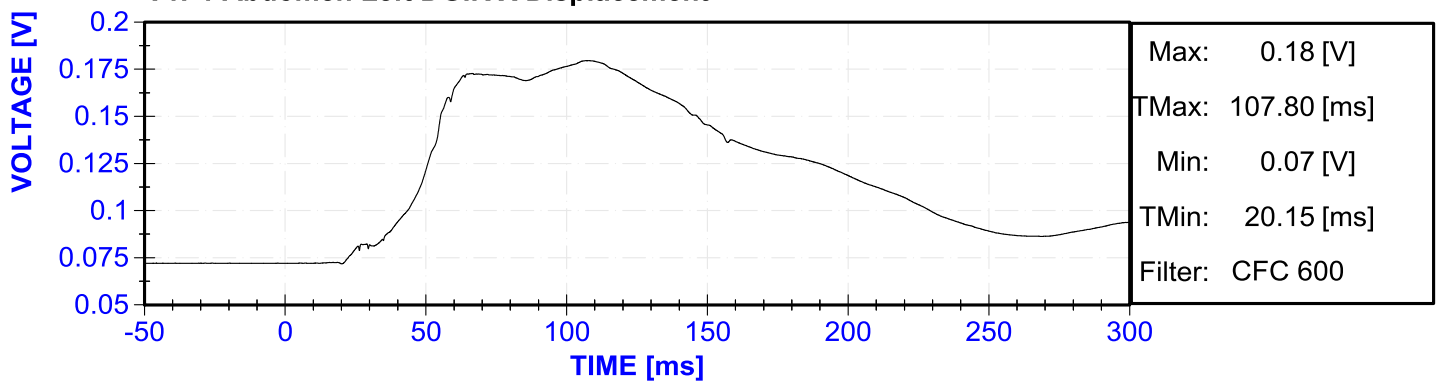
V1P1 Lower Right DGIR Y Rotation

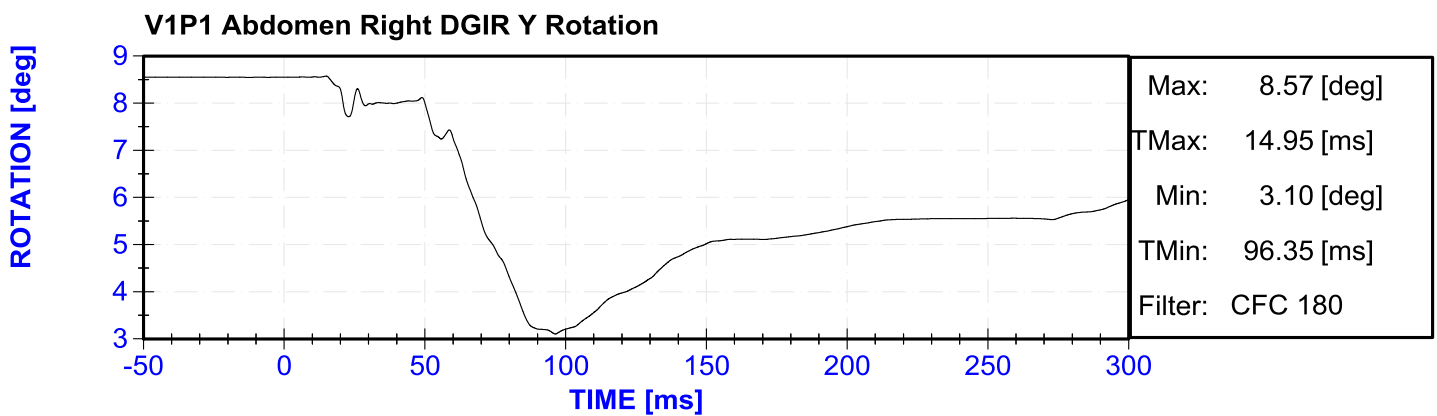
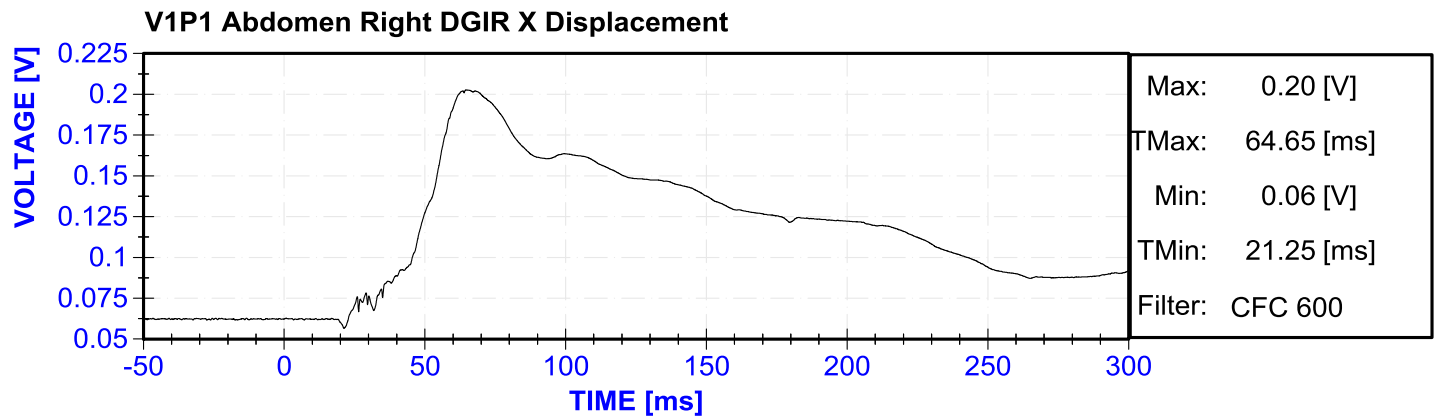
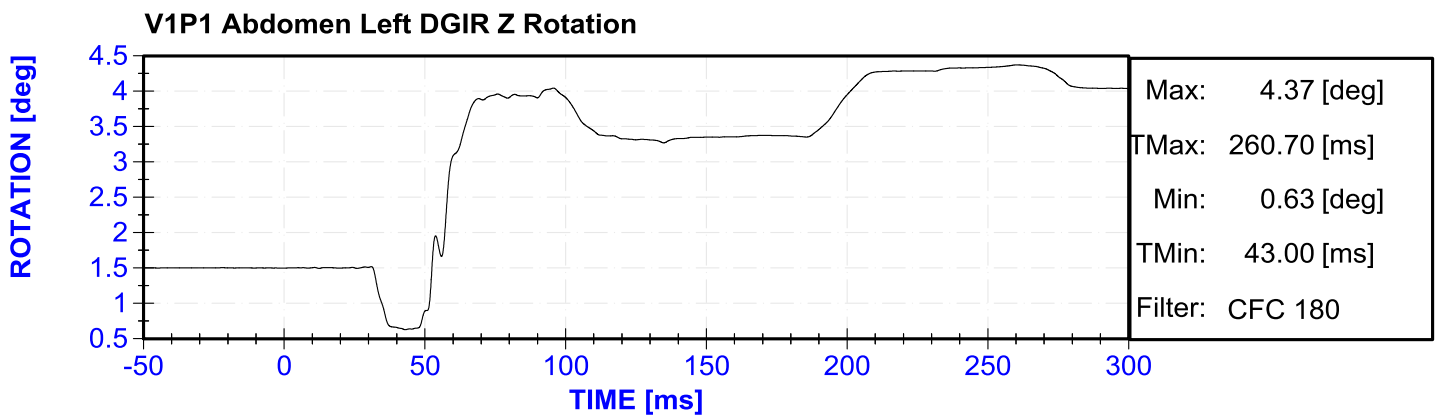
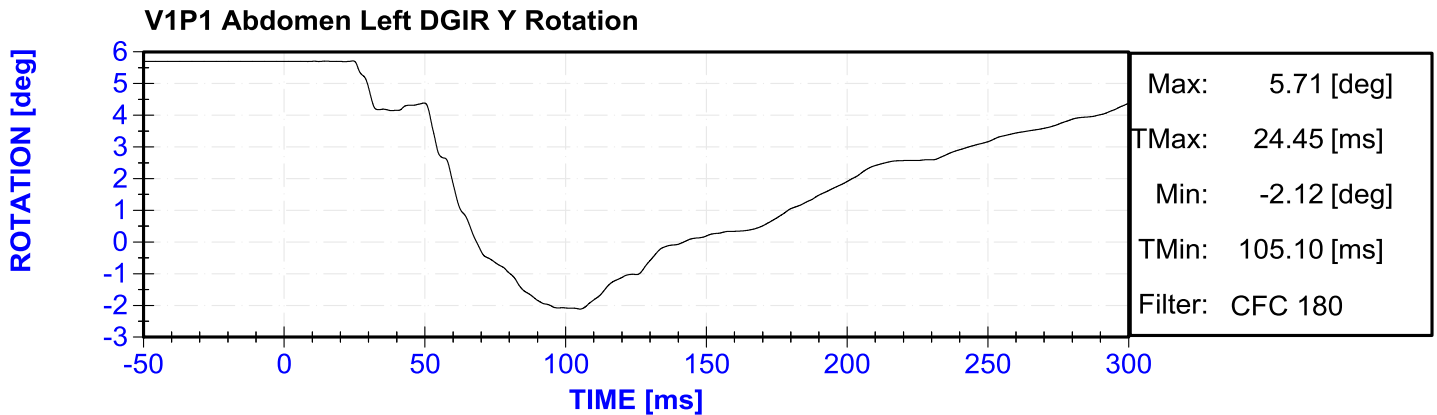


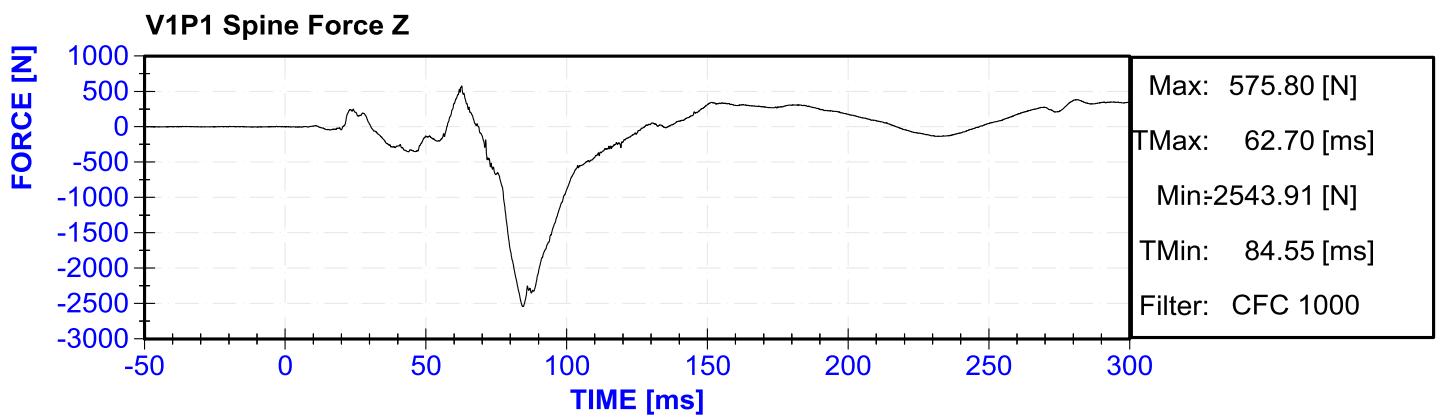
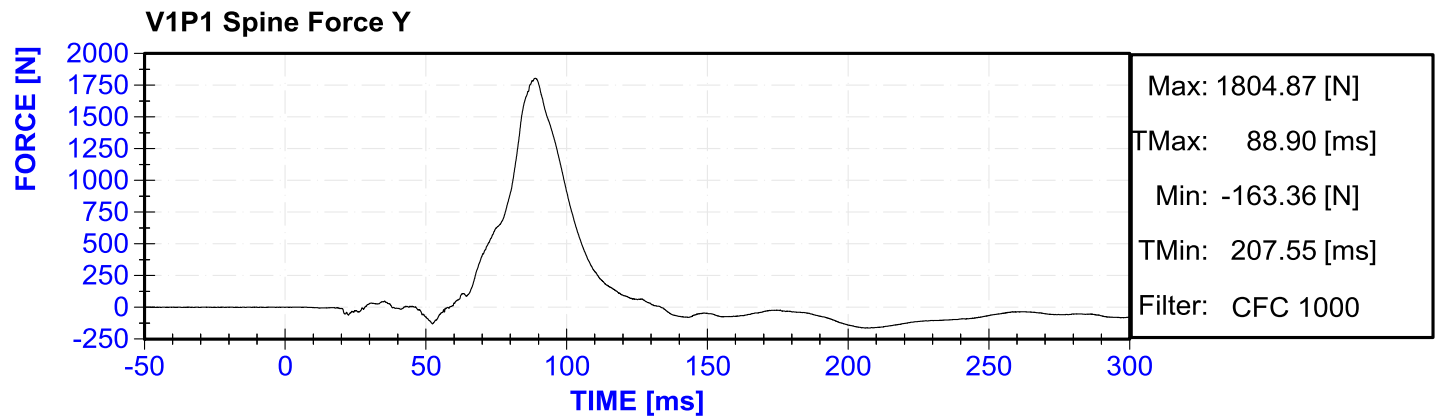
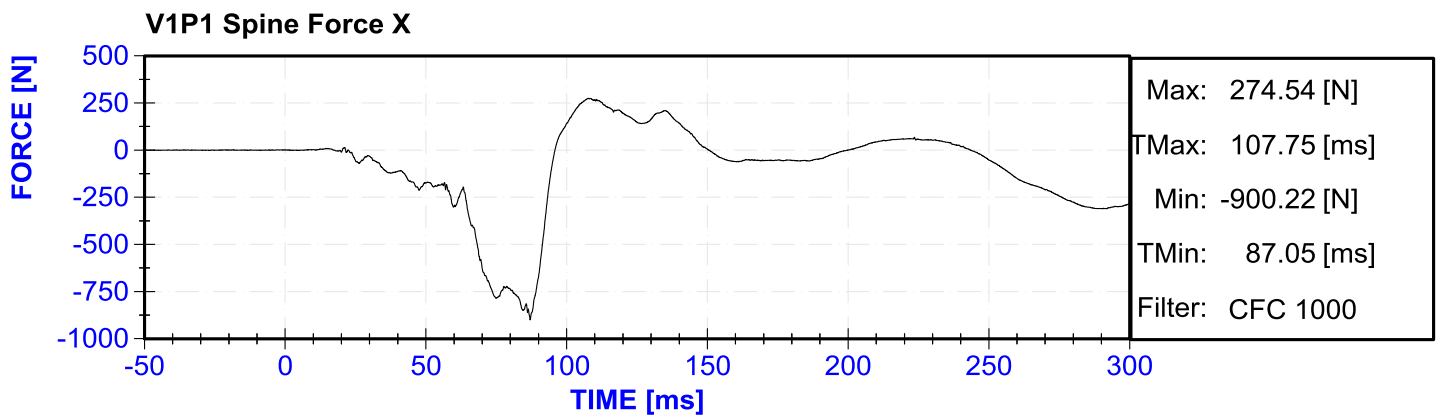
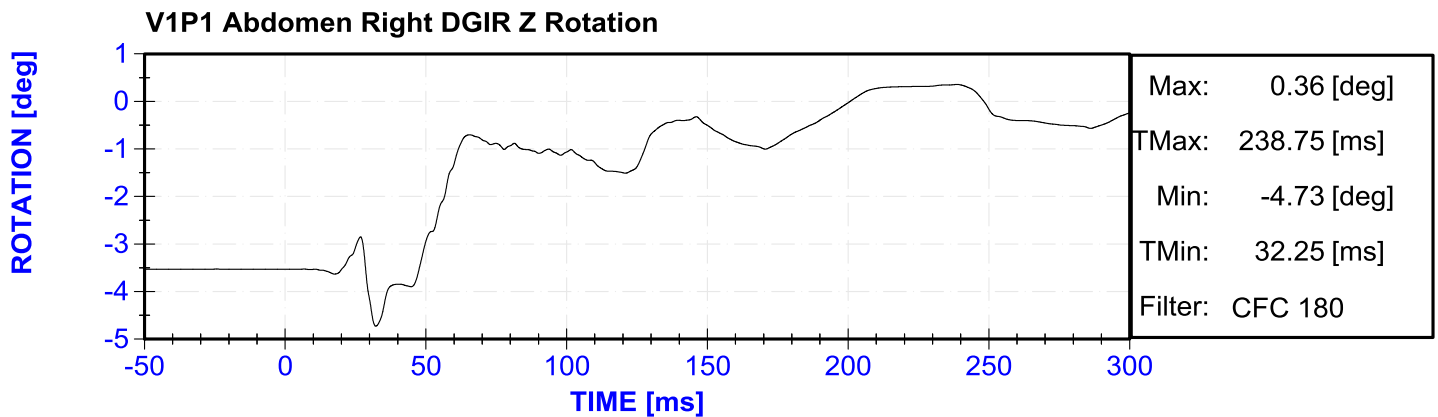
V1P1 Lower Right DGIR Z Rotation

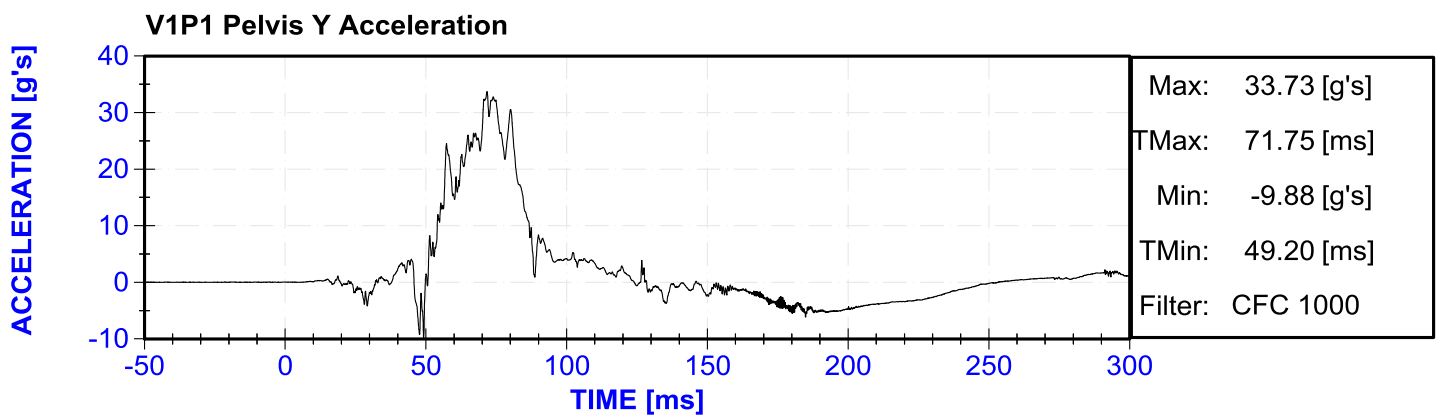
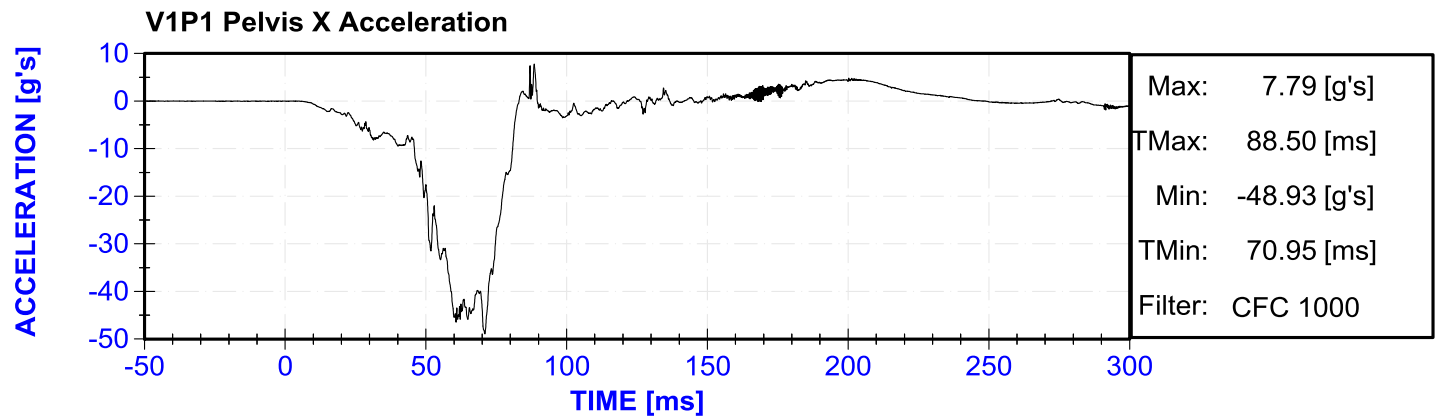
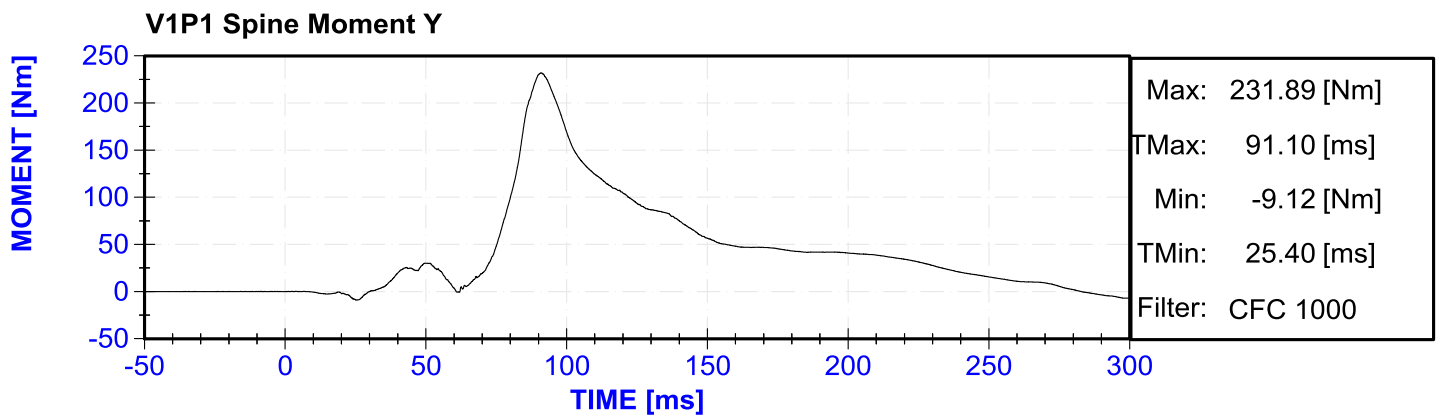
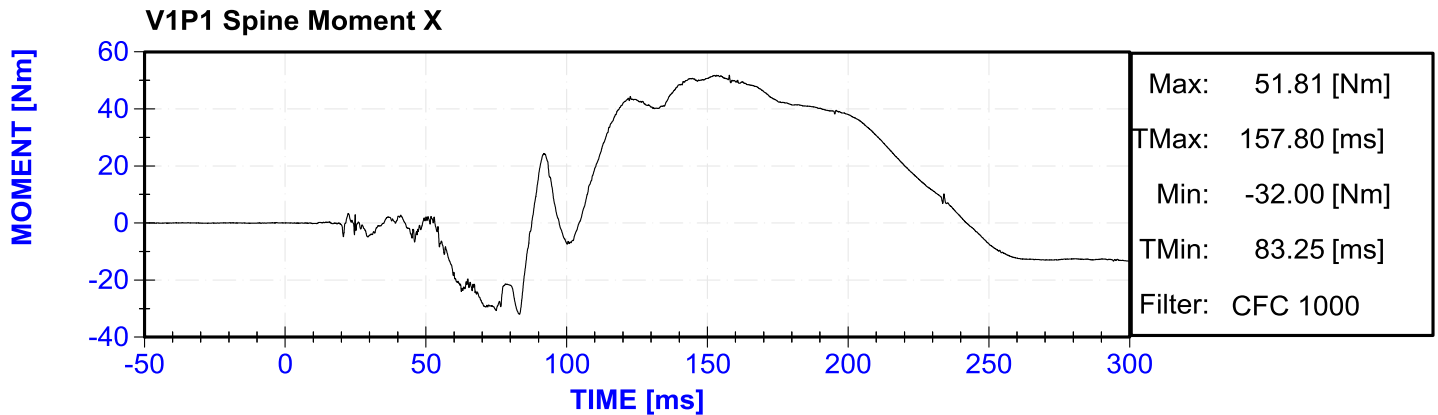


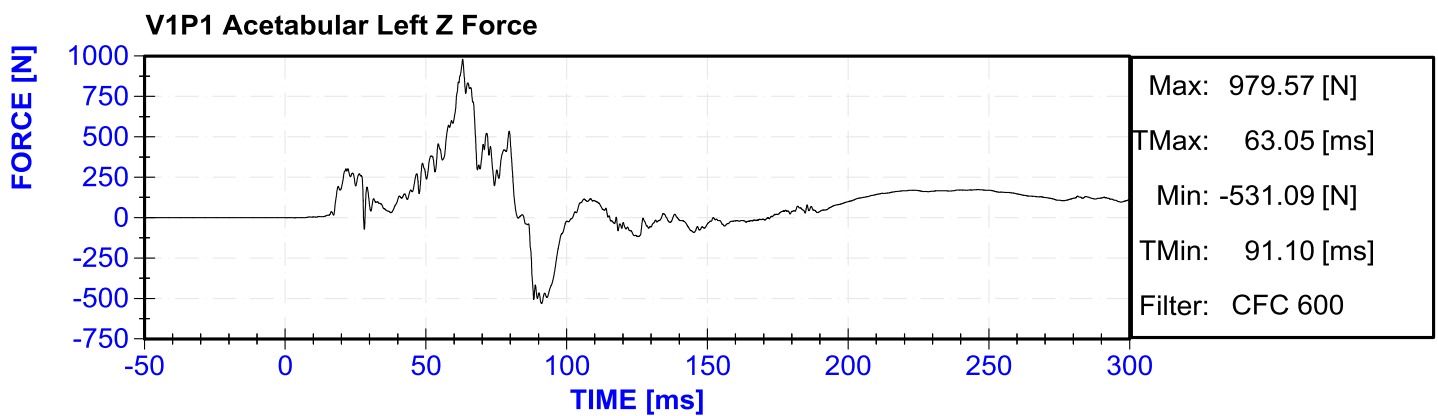
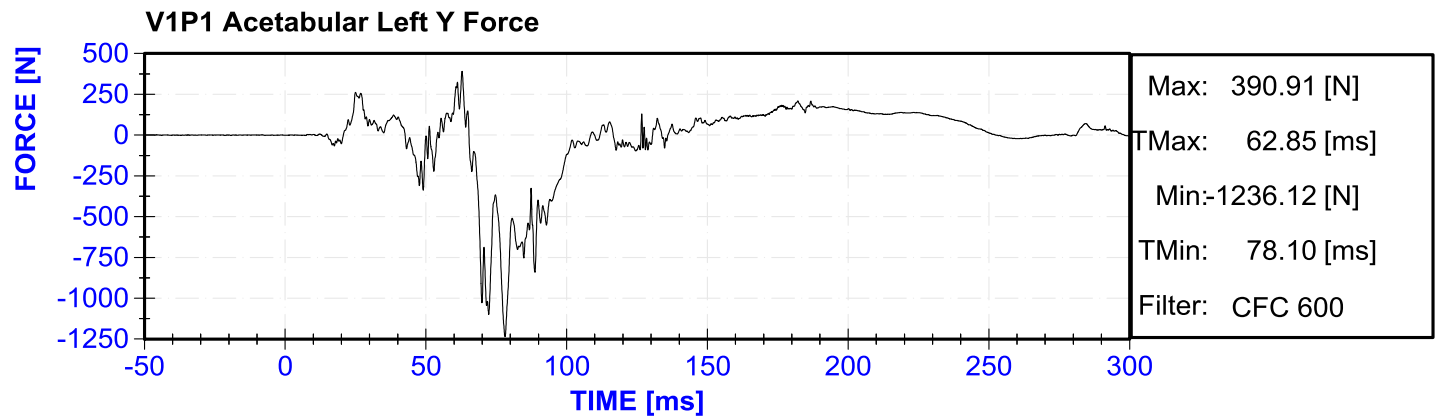
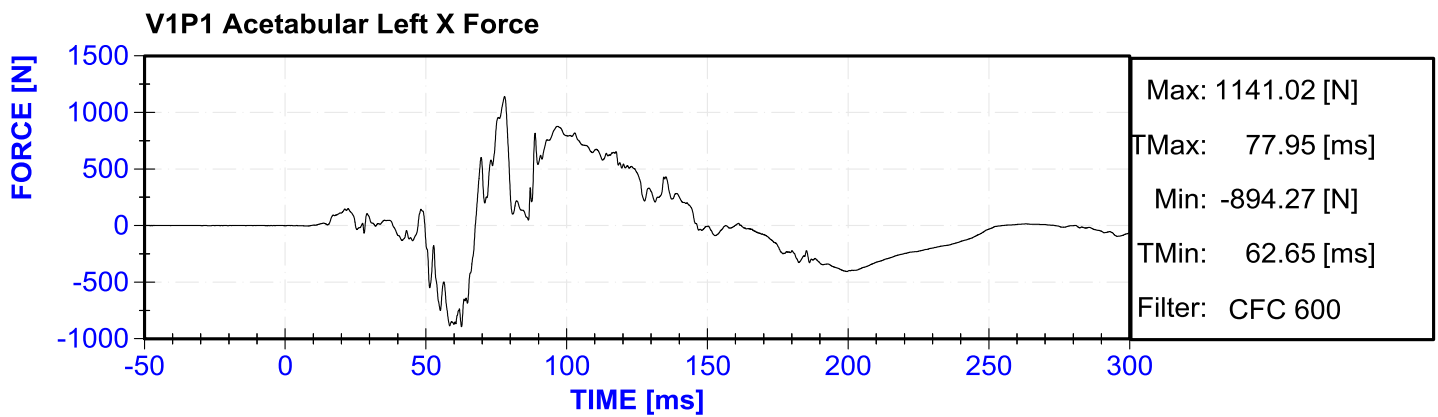
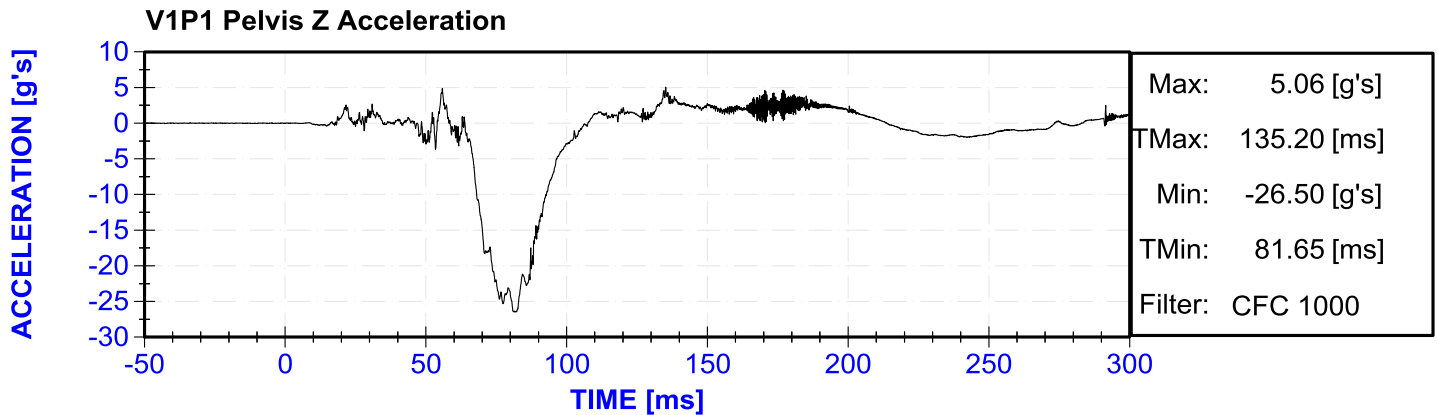
V1P1 Abdomen Left DGIR X Displacement

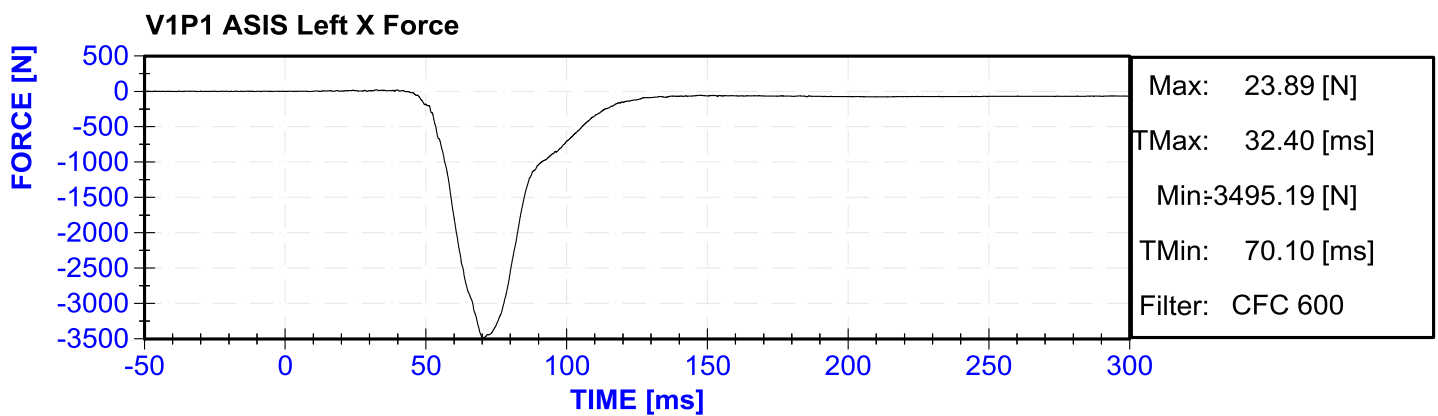
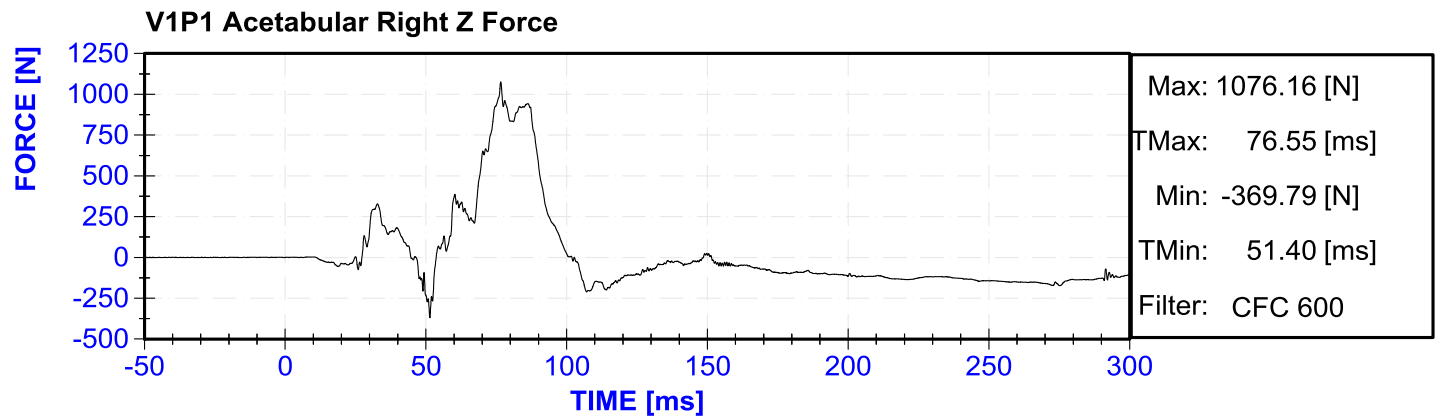
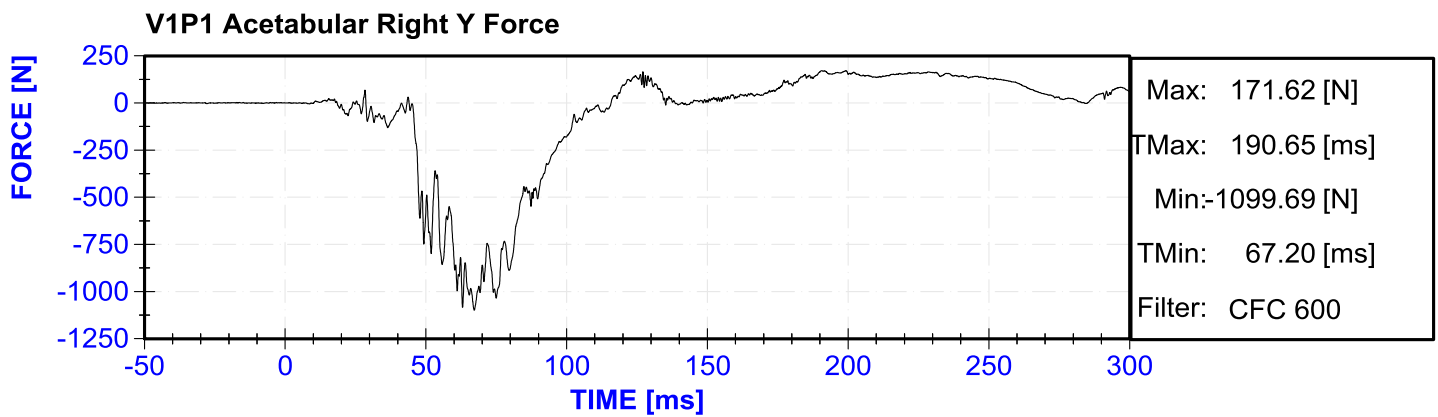
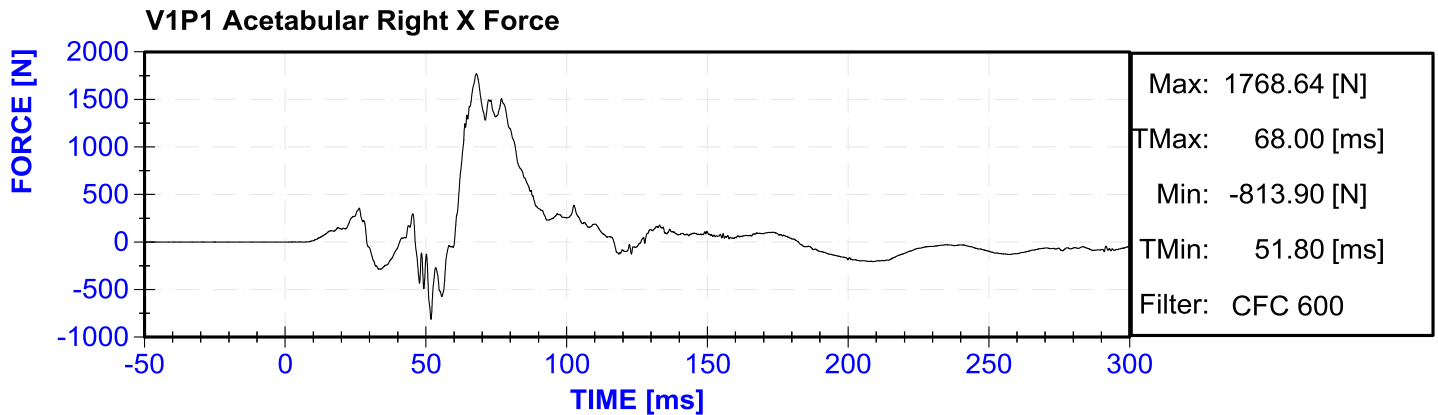


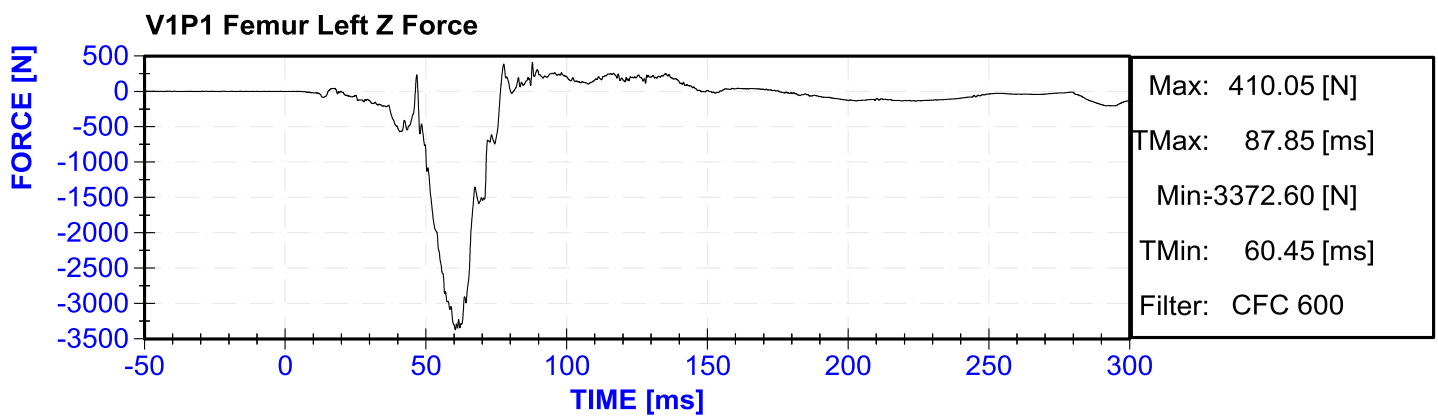
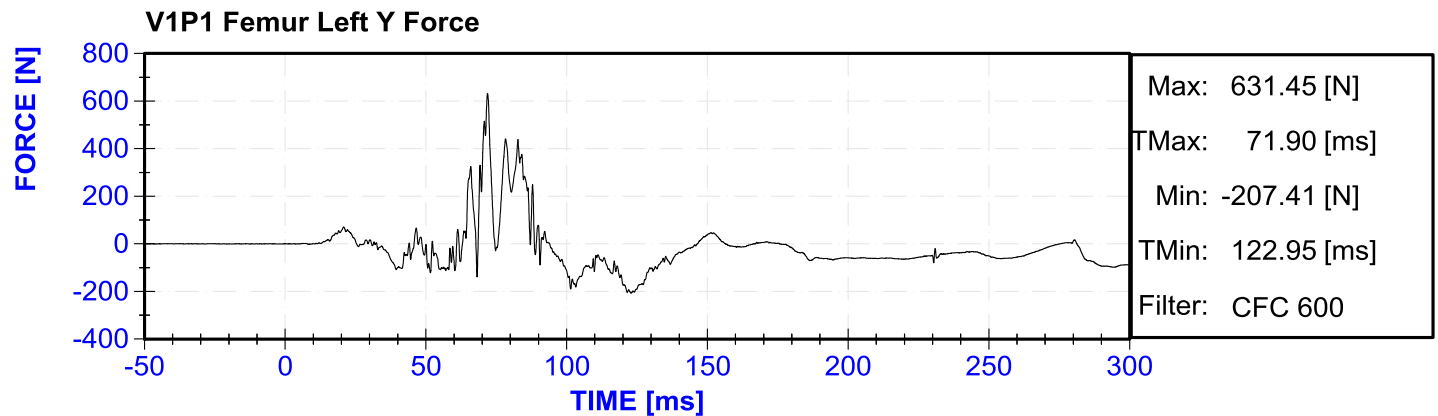
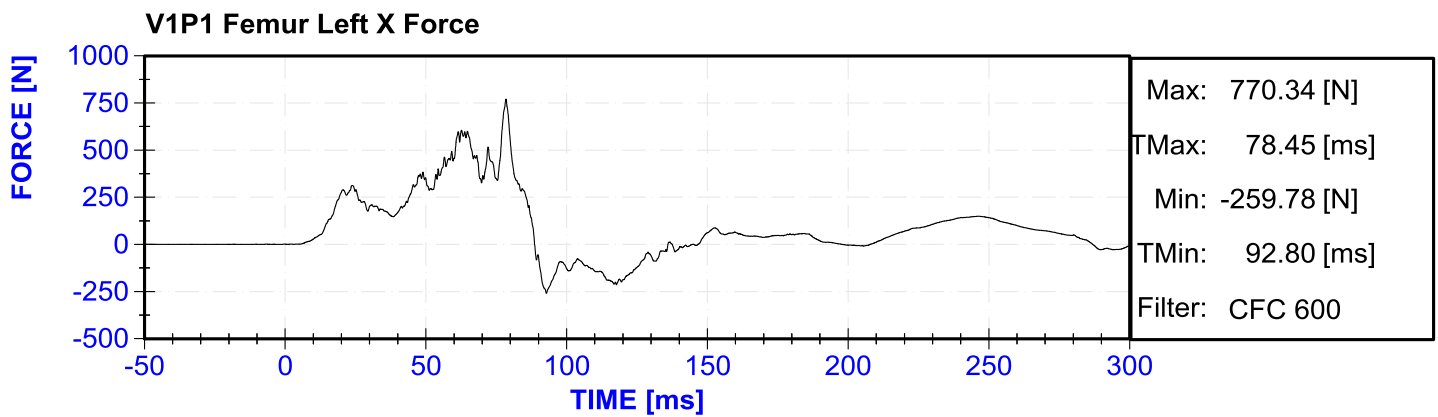
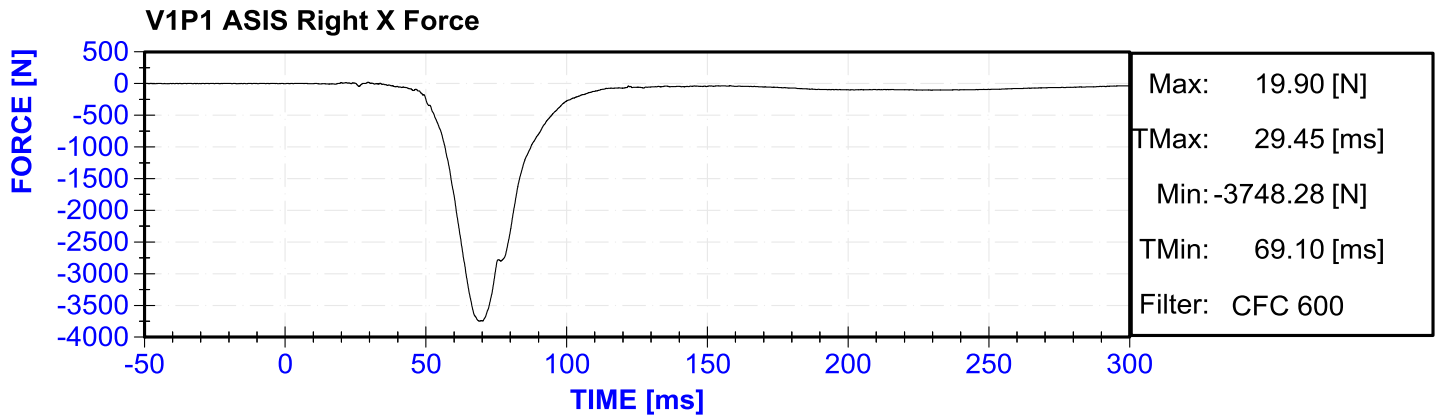


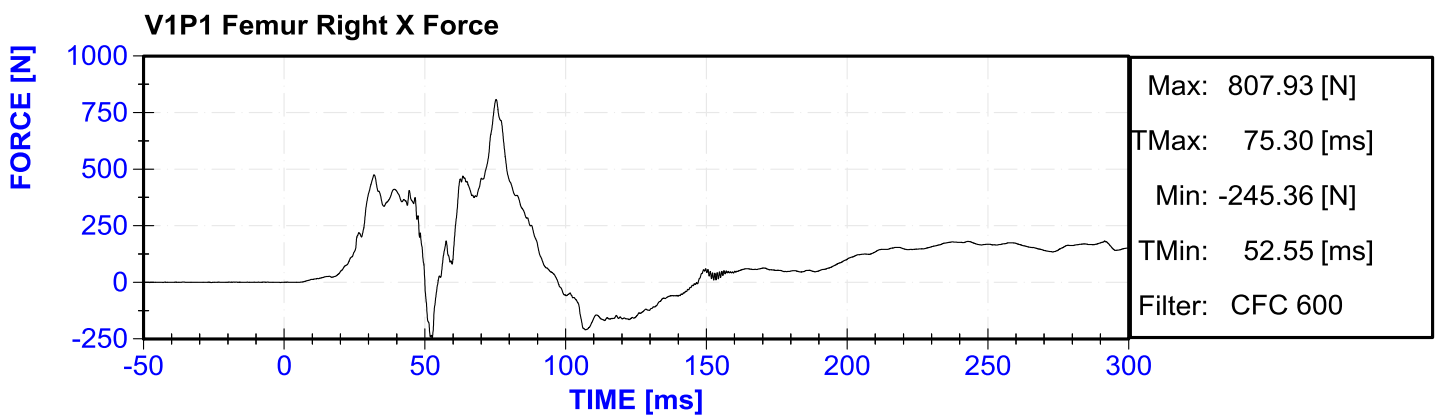
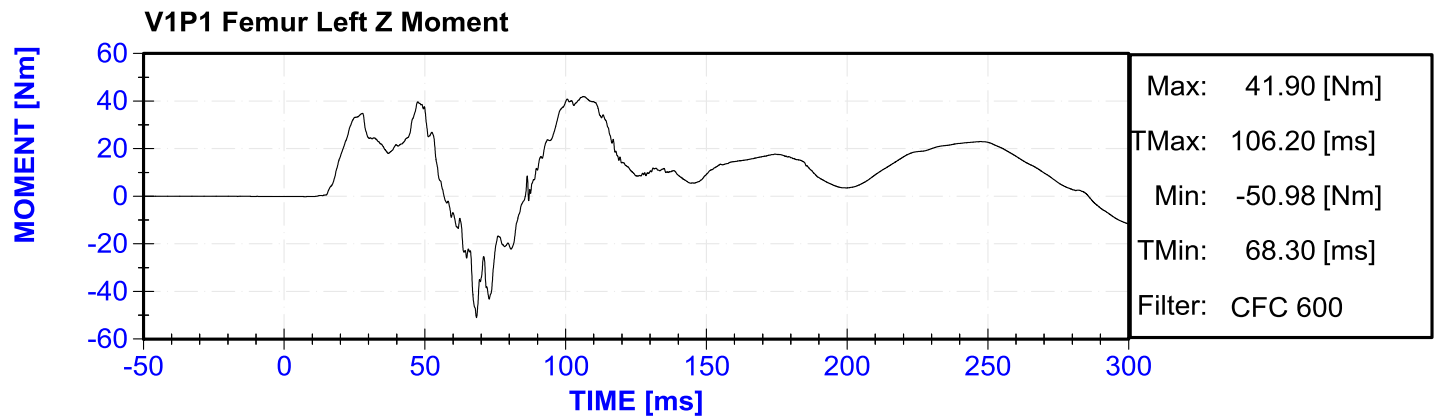
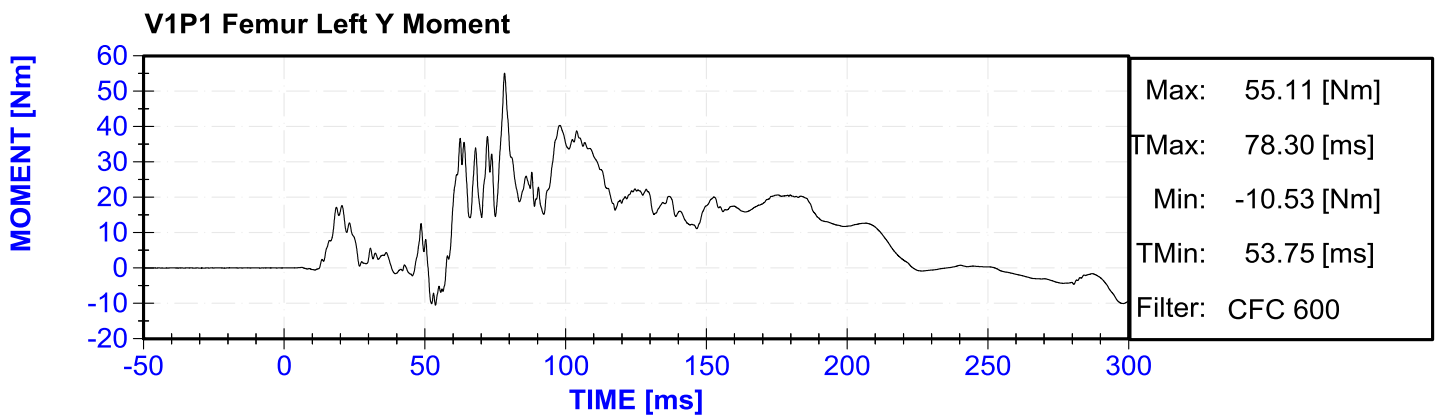
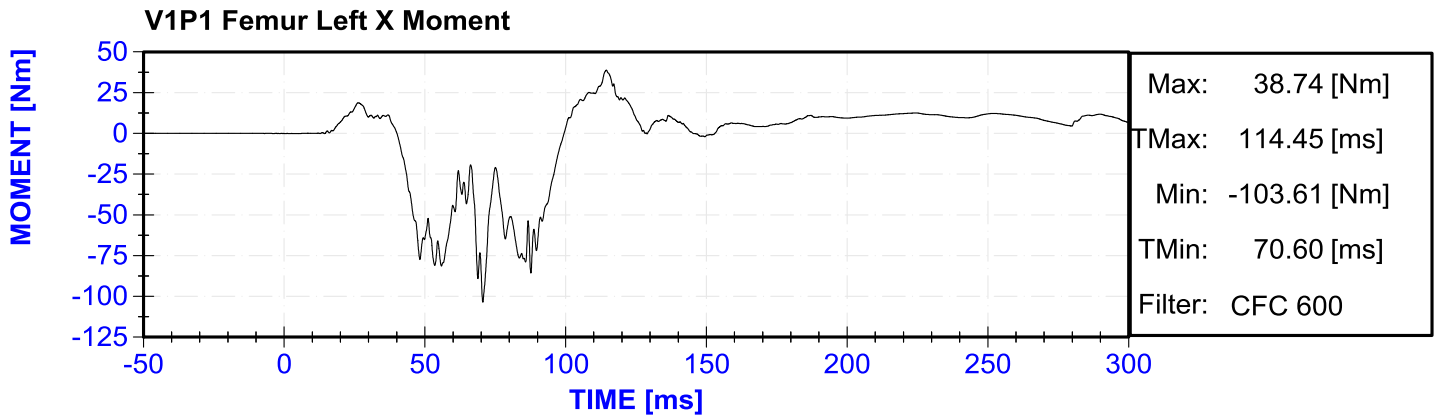


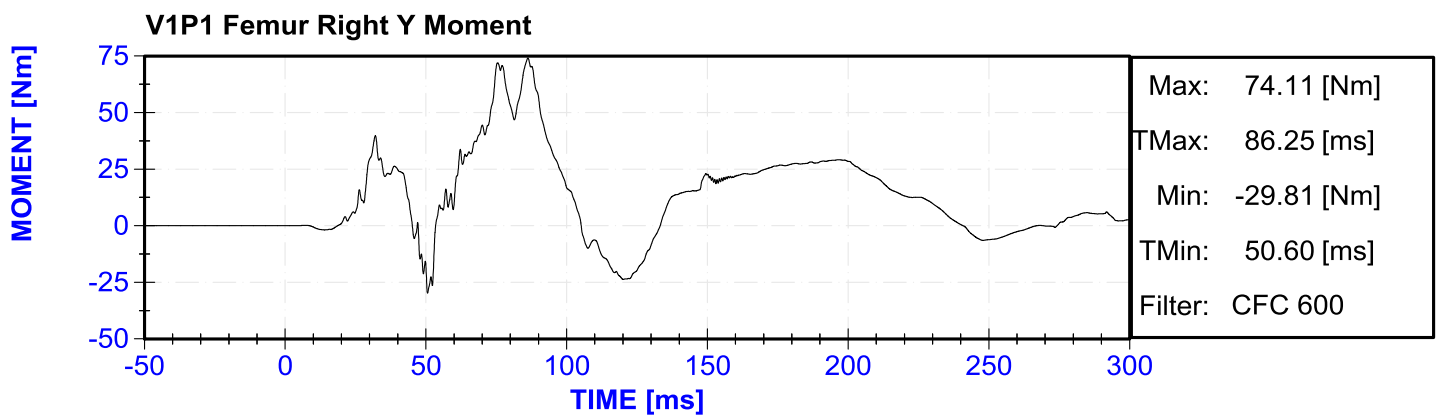
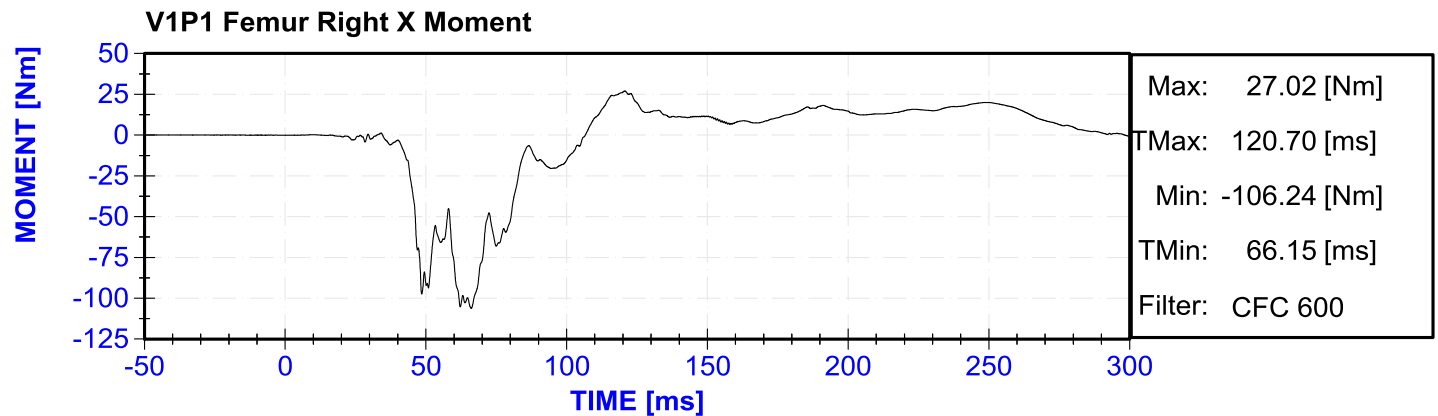
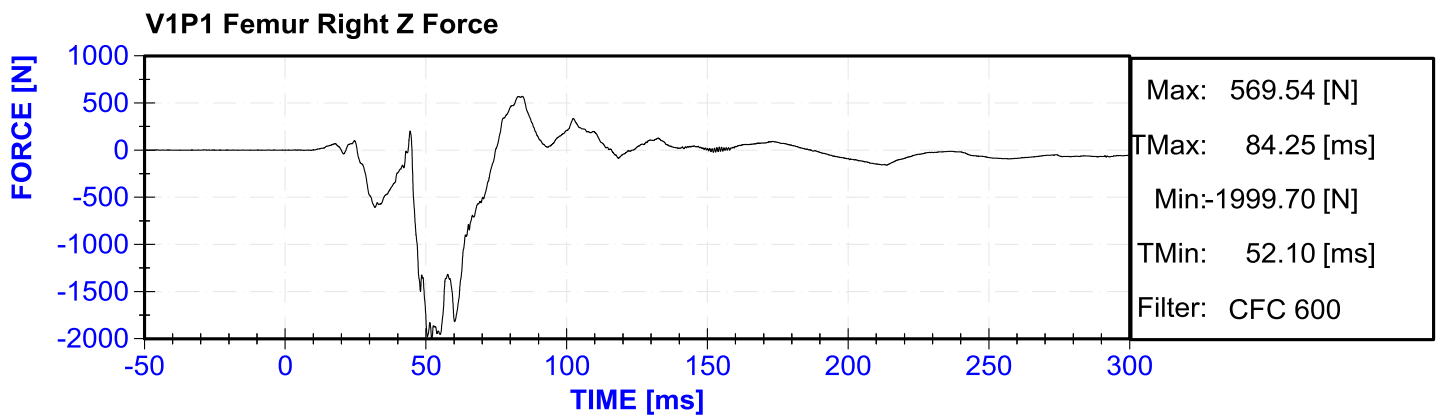
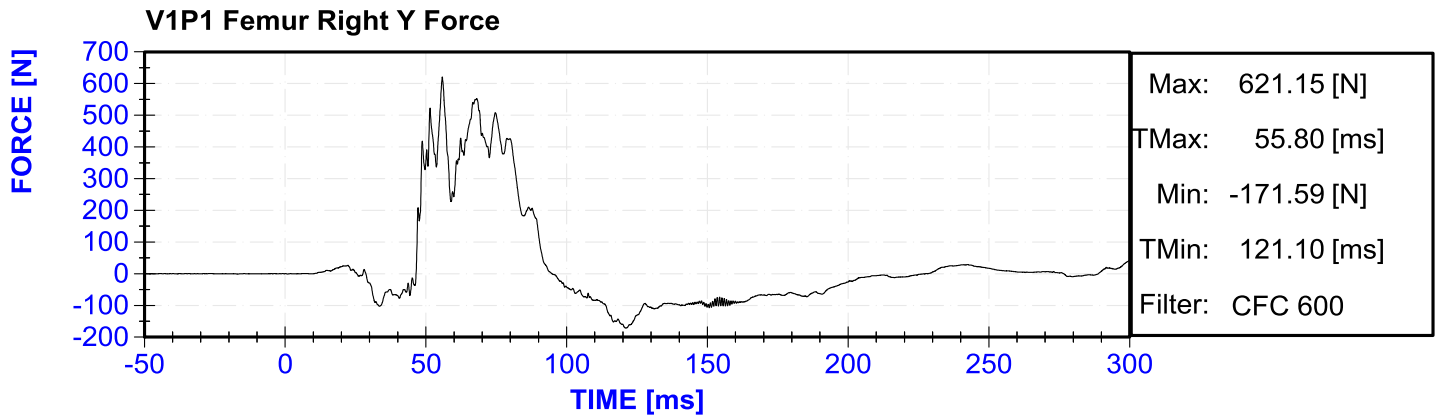


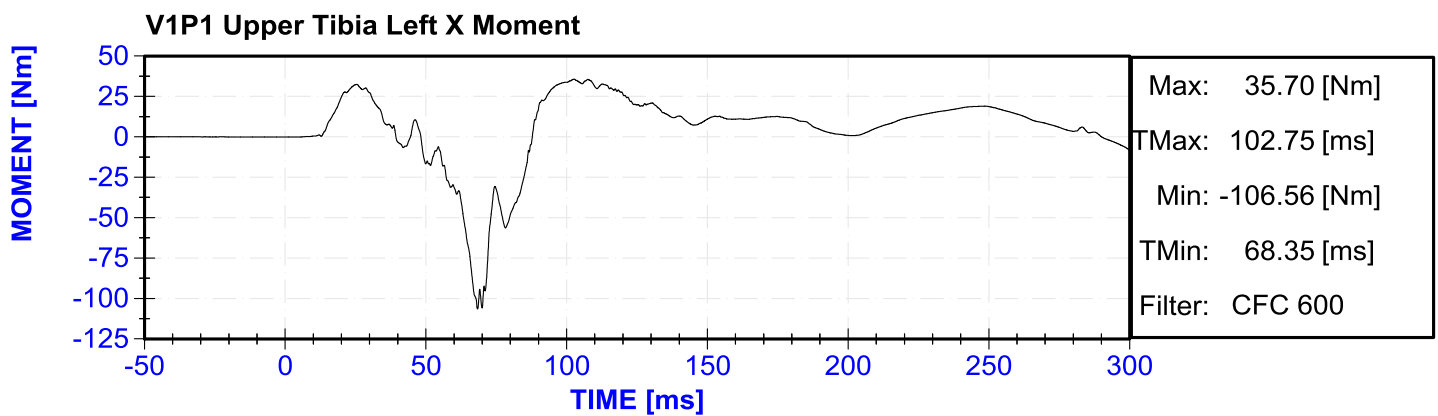
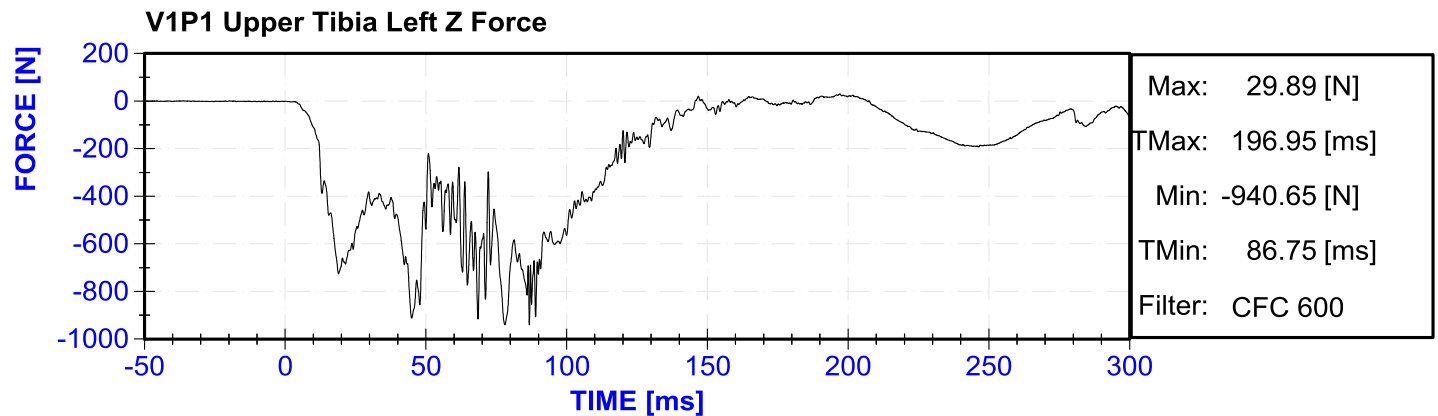
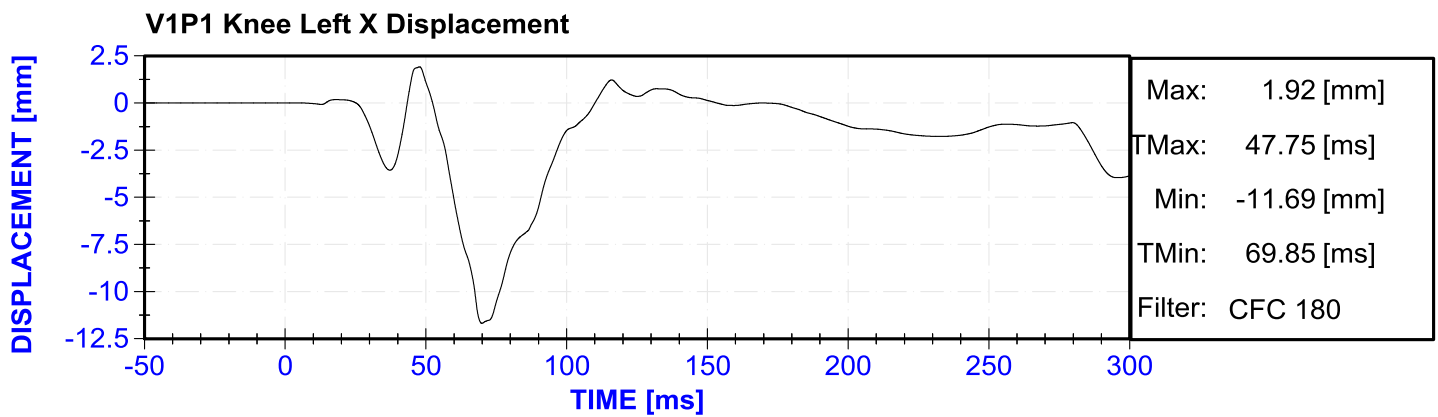
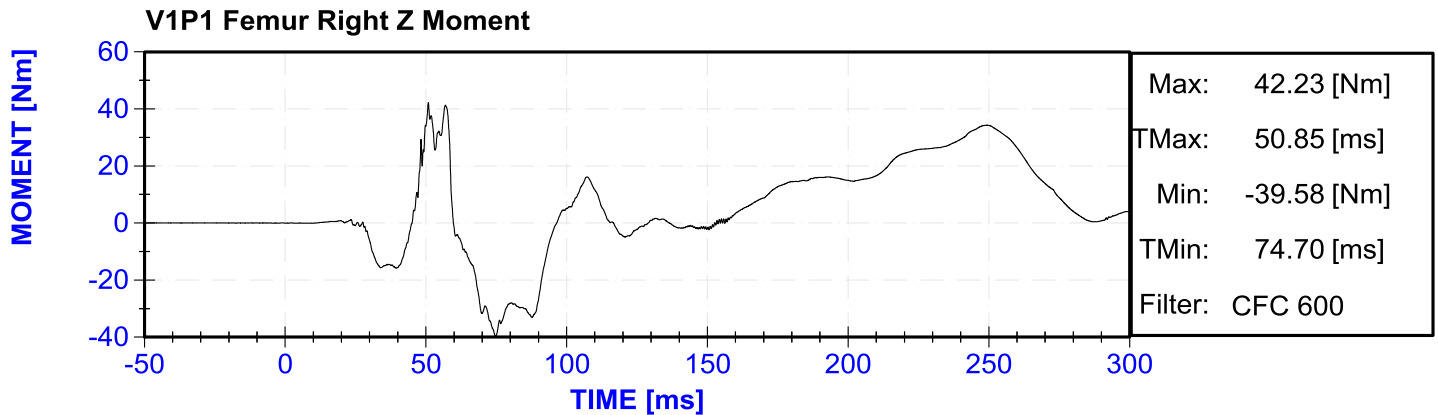


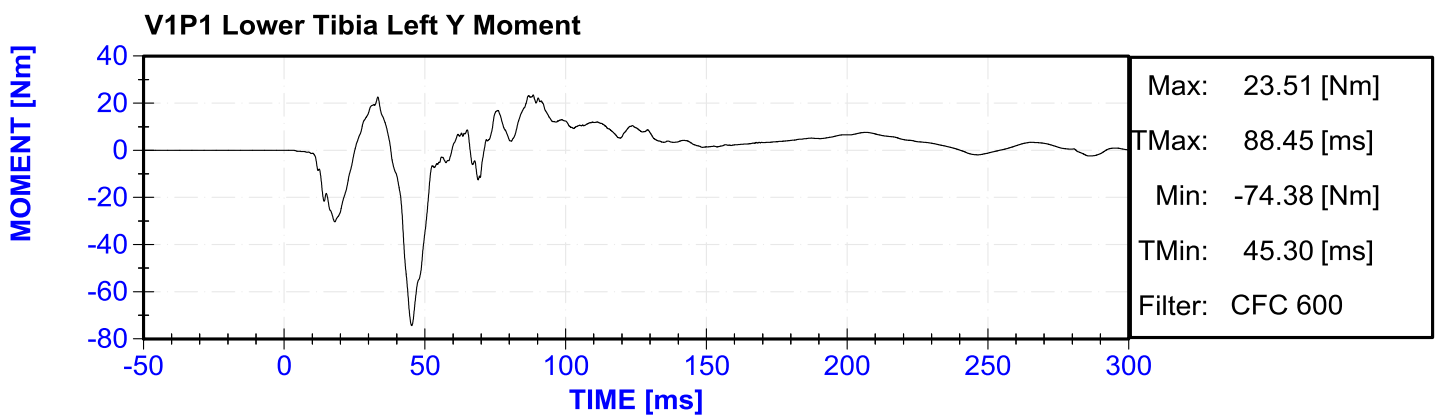
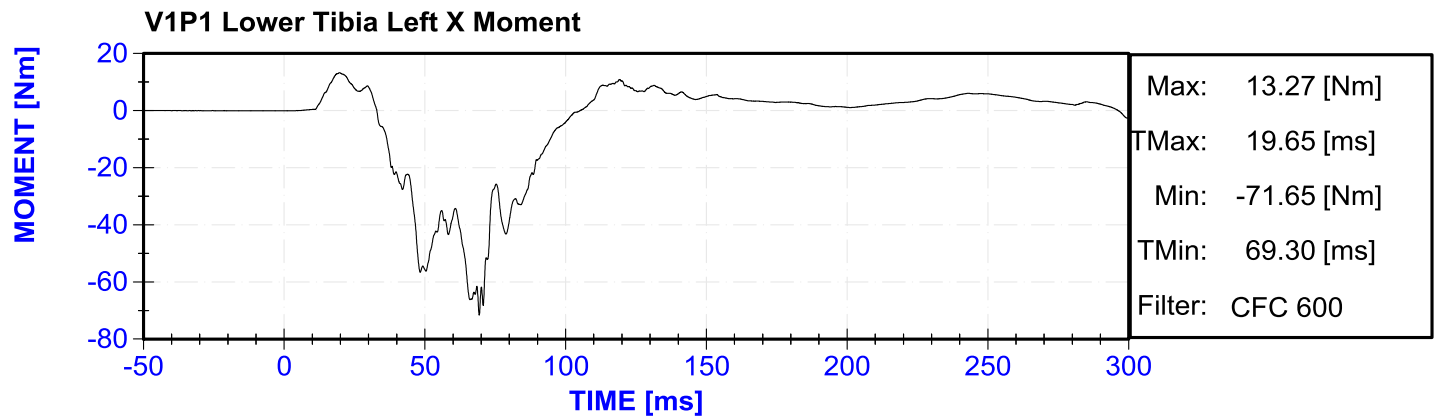
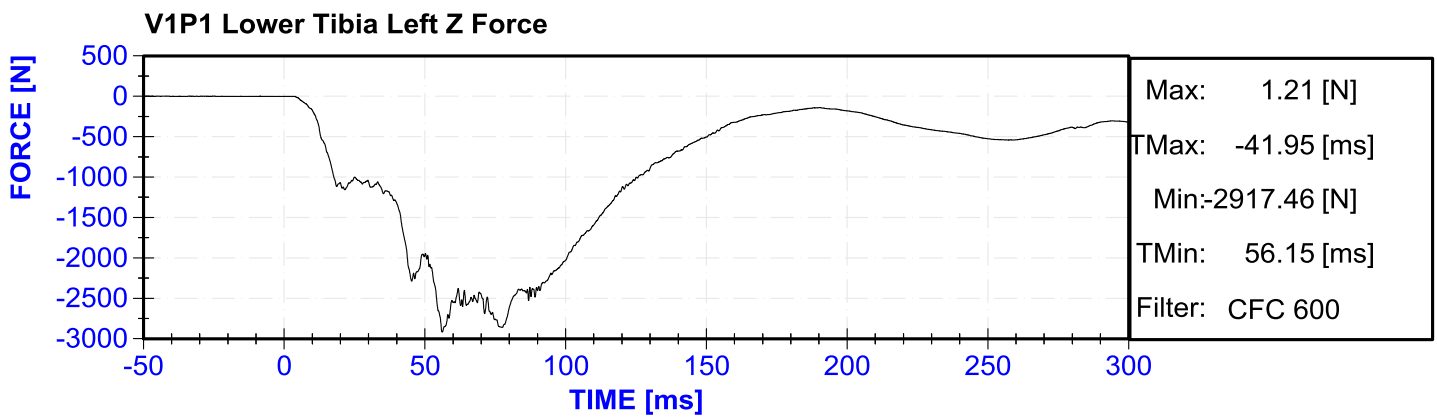
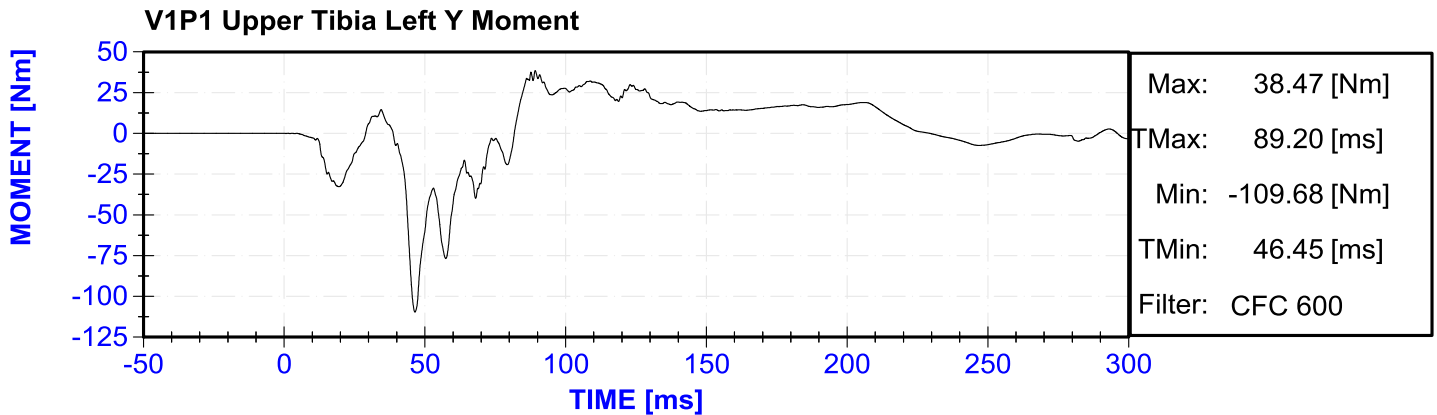


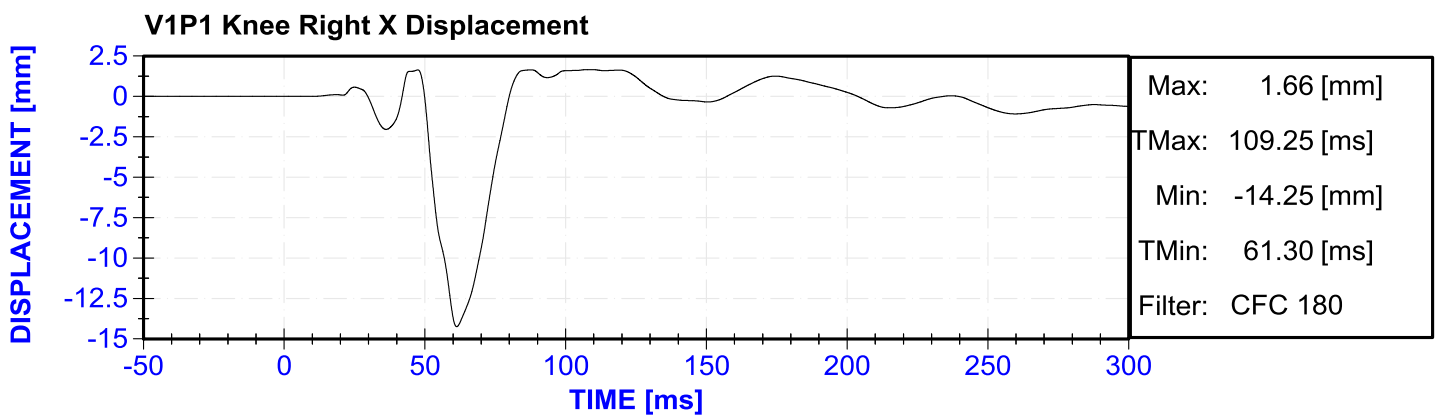
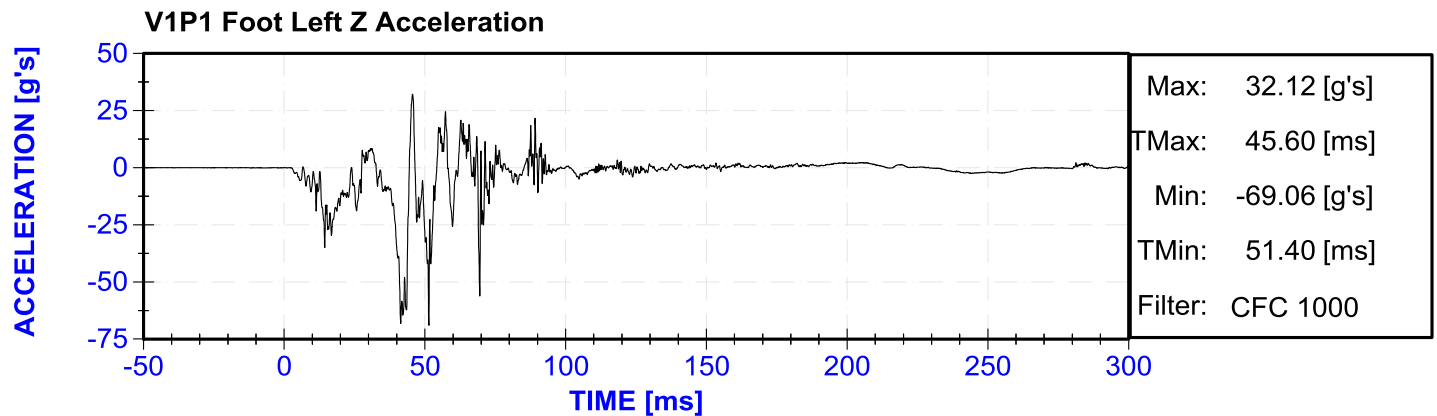
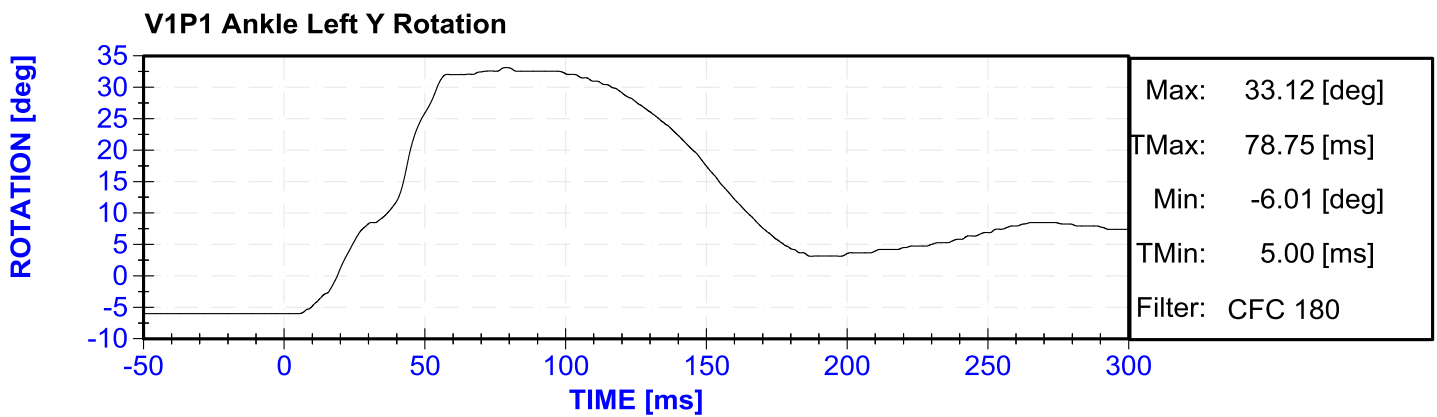
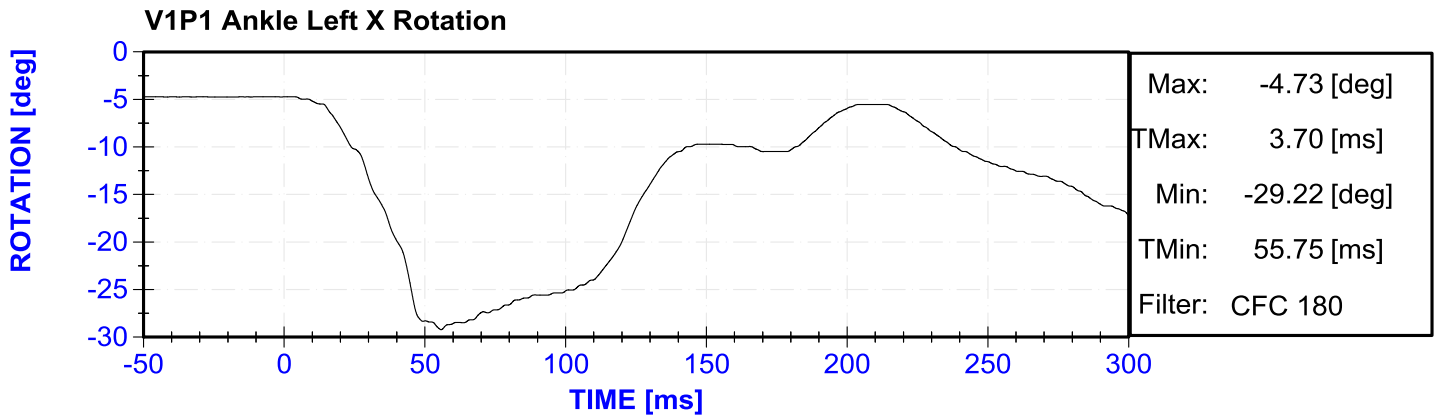


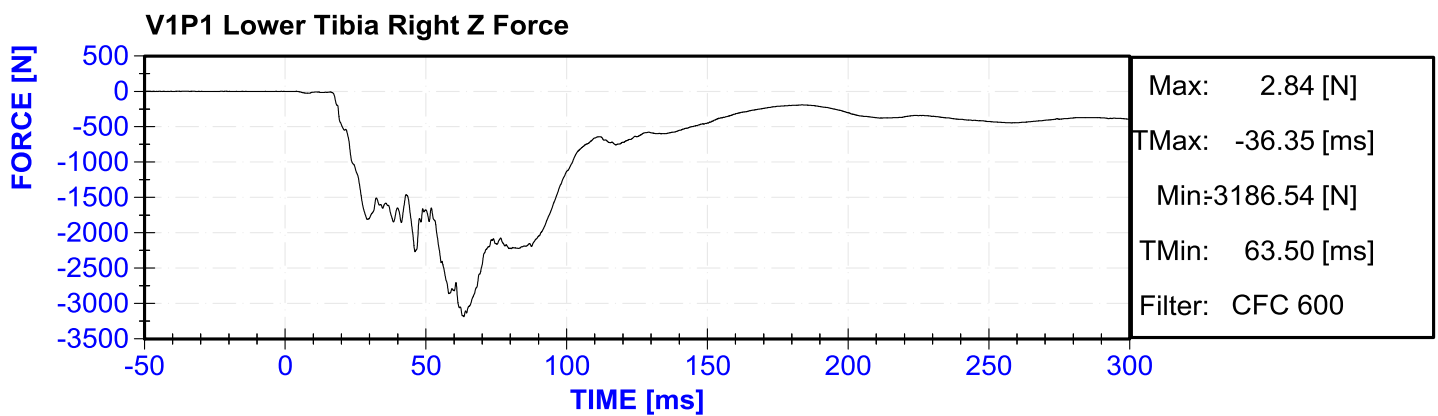
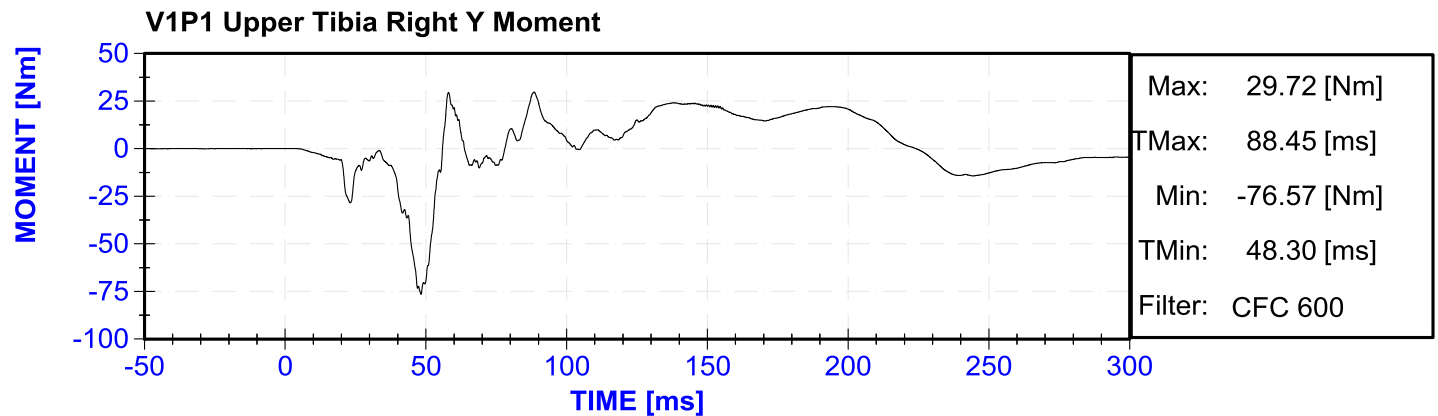
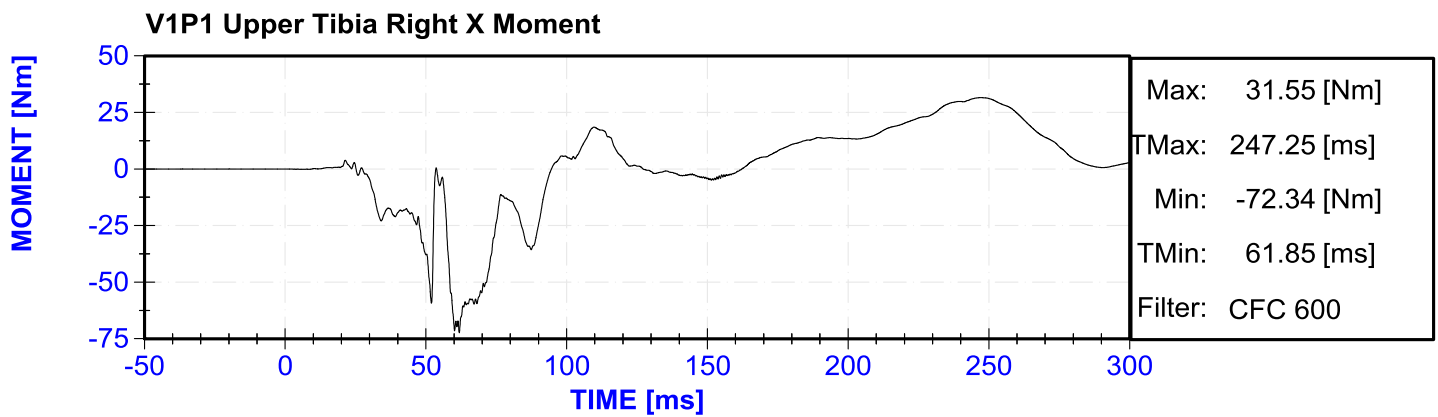
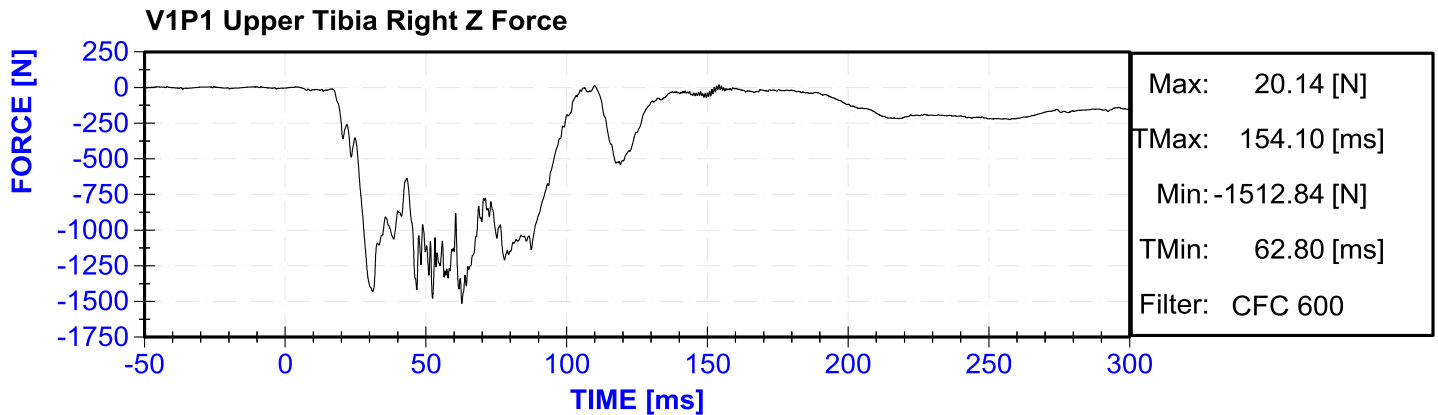


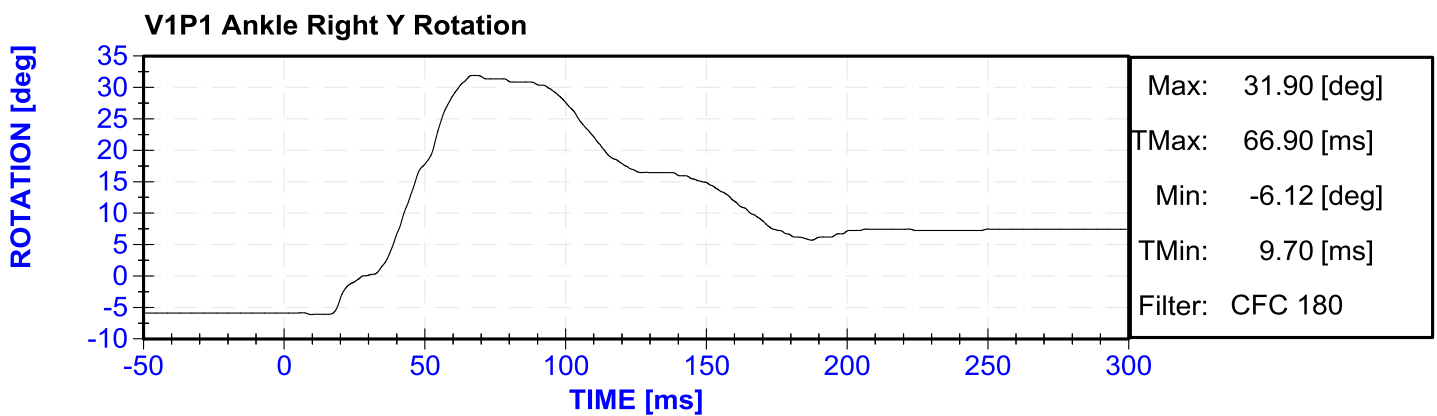
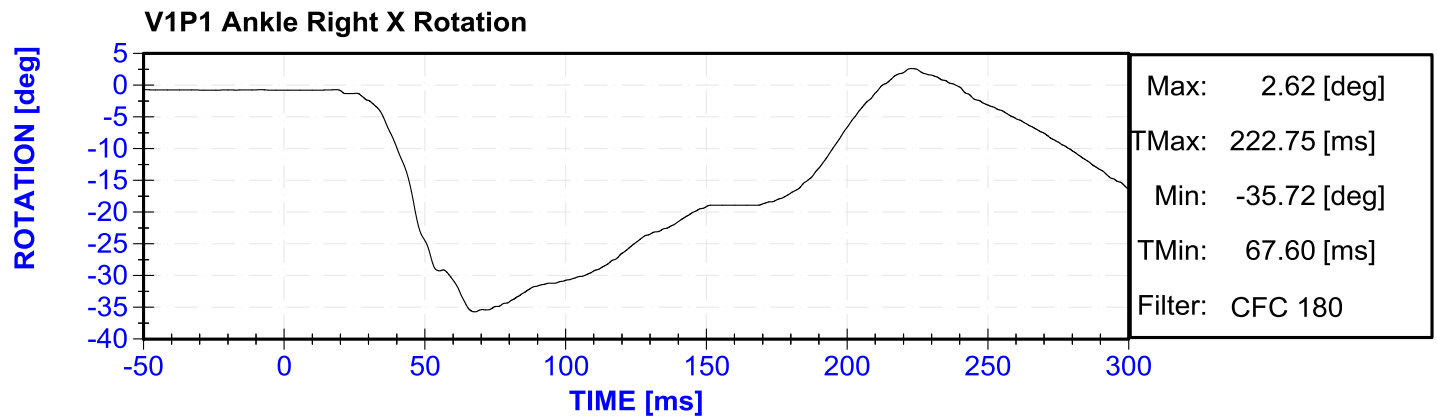
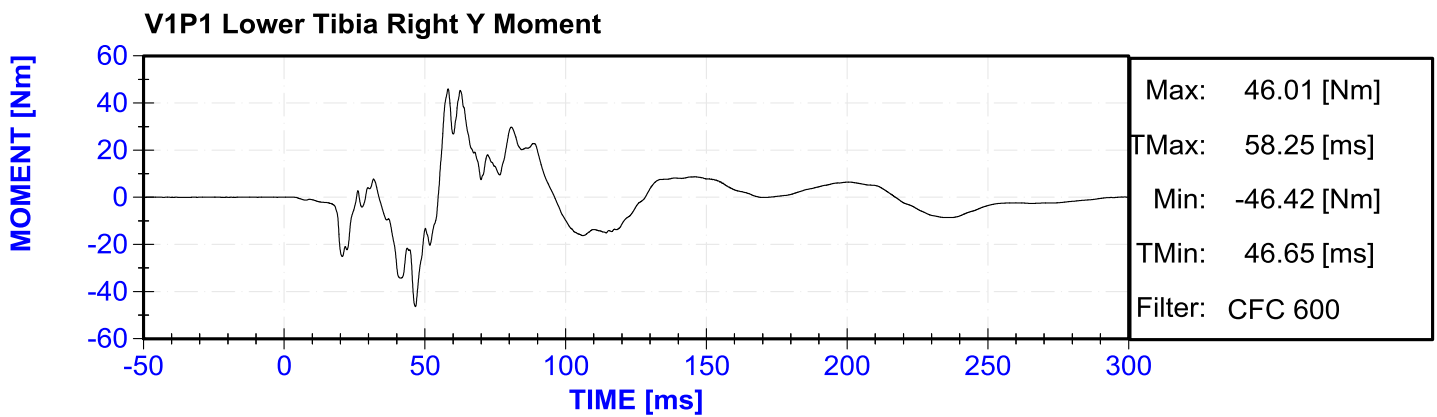
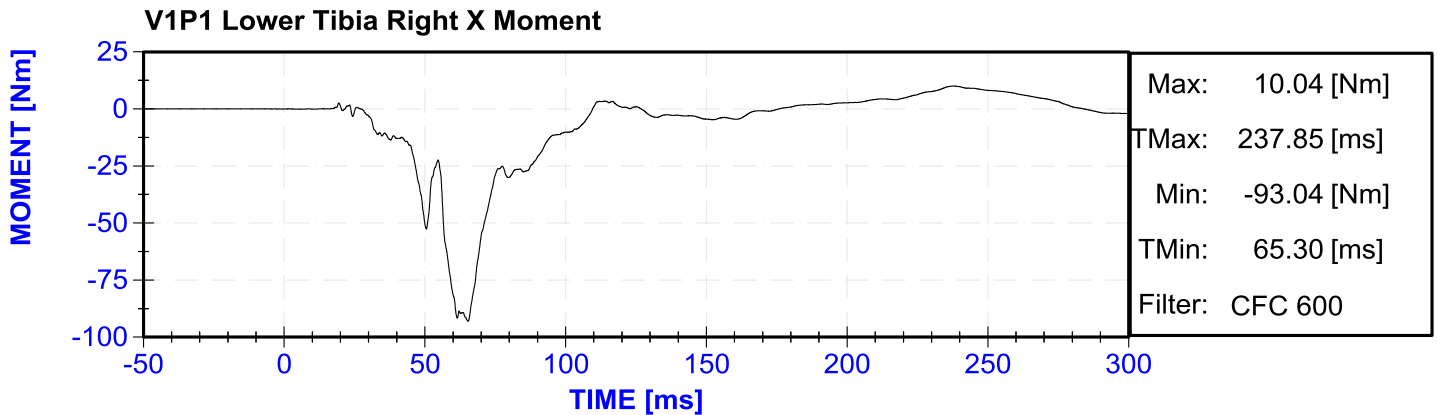


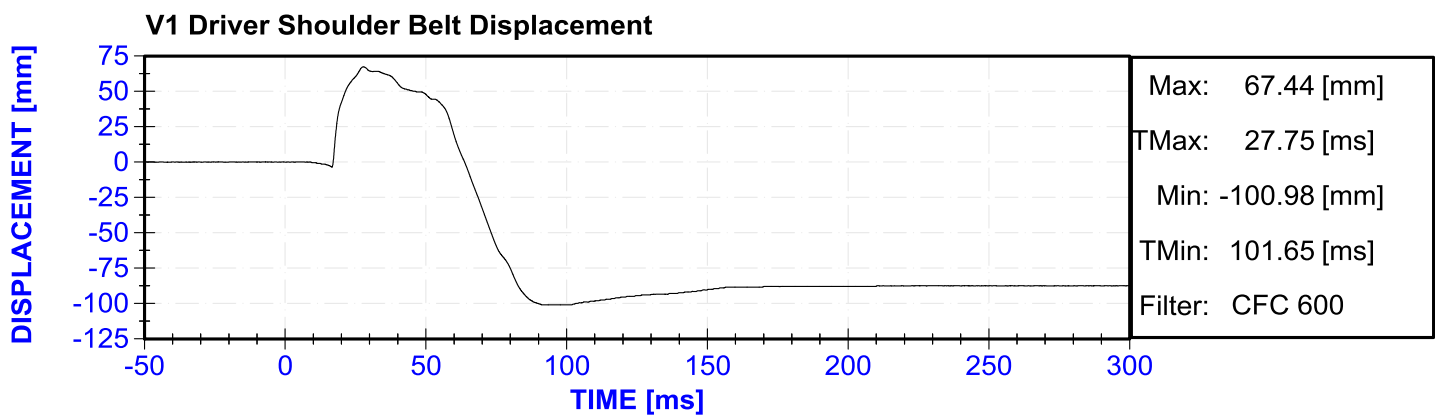
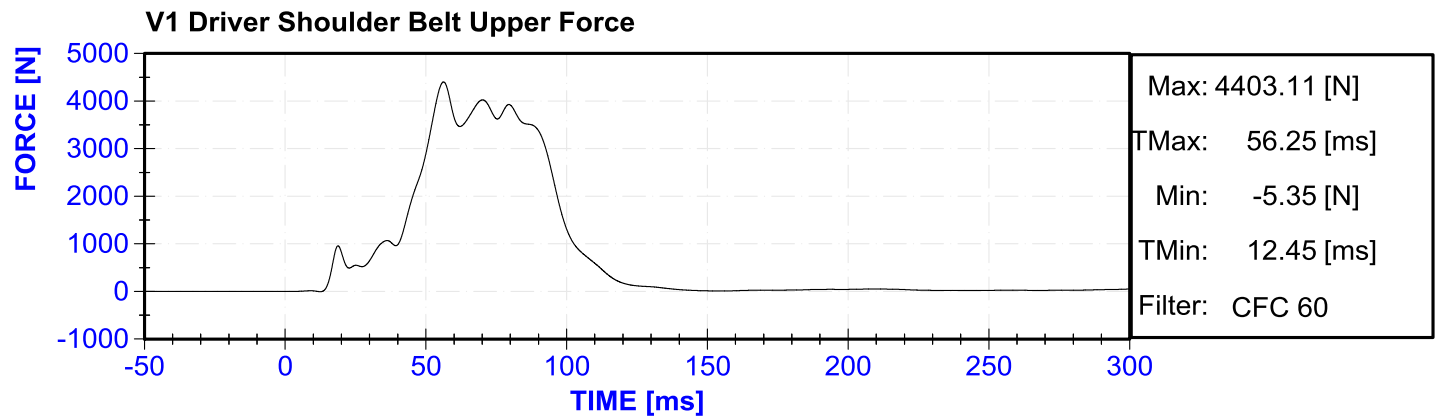
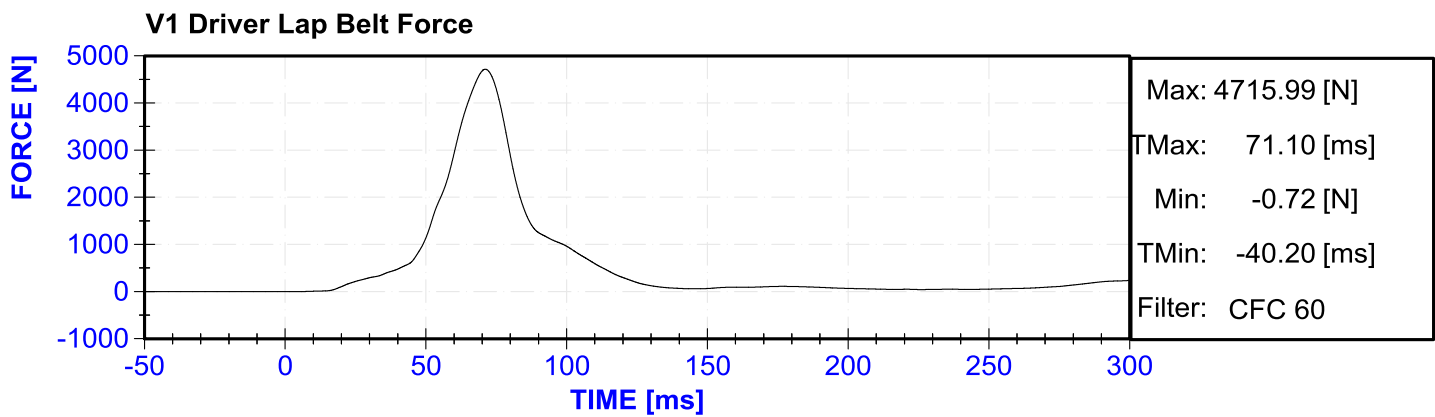
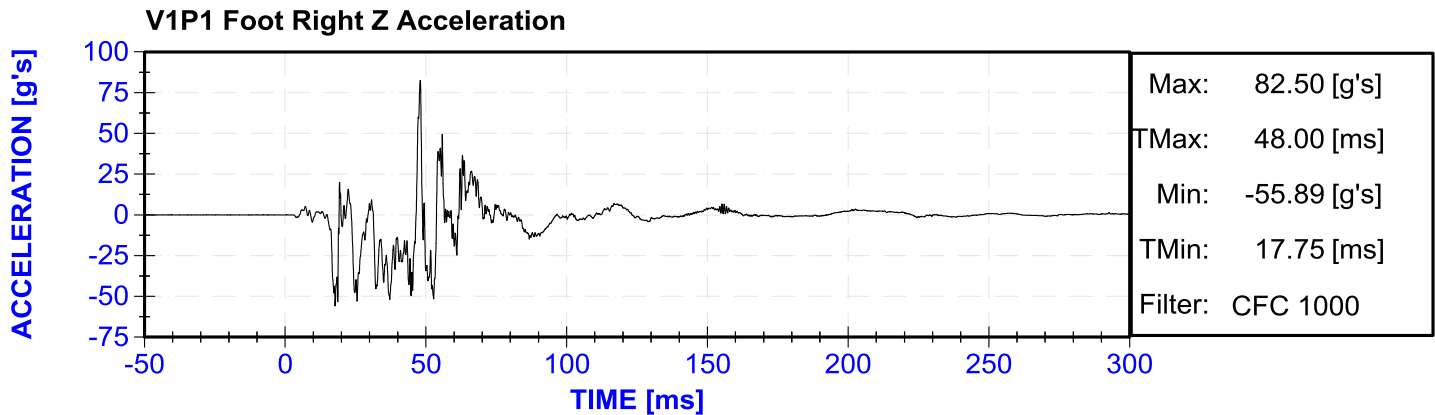


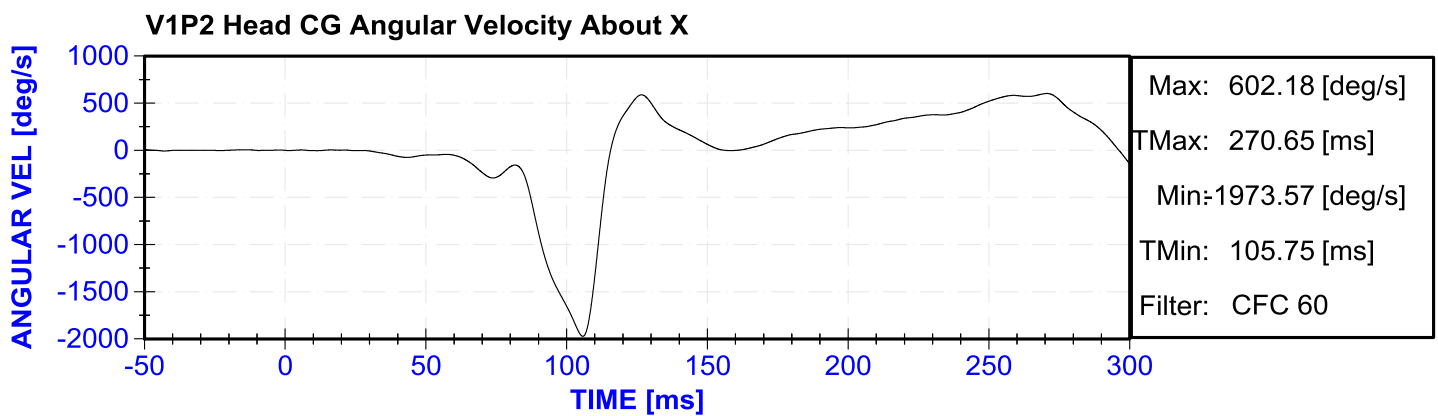
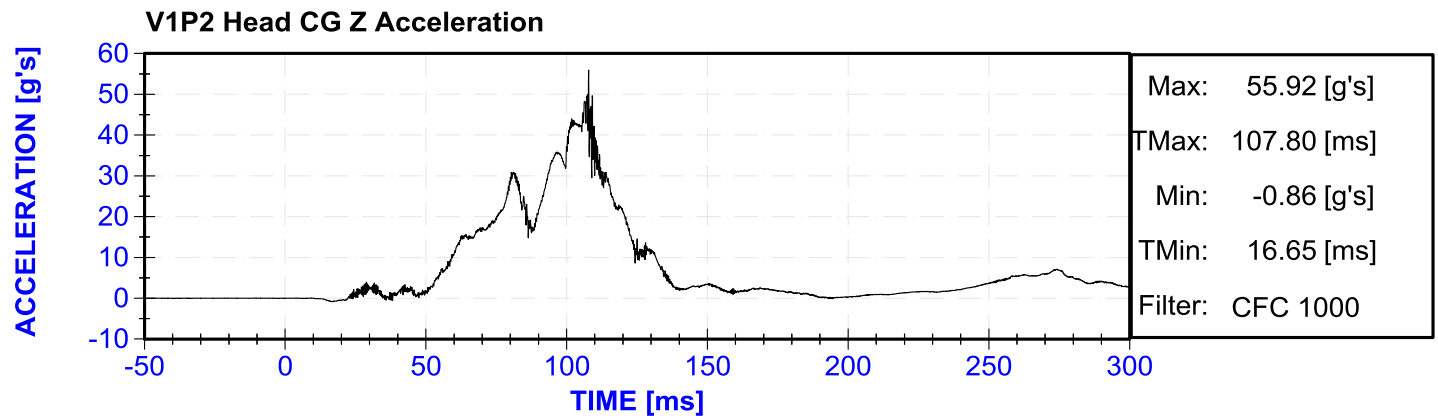
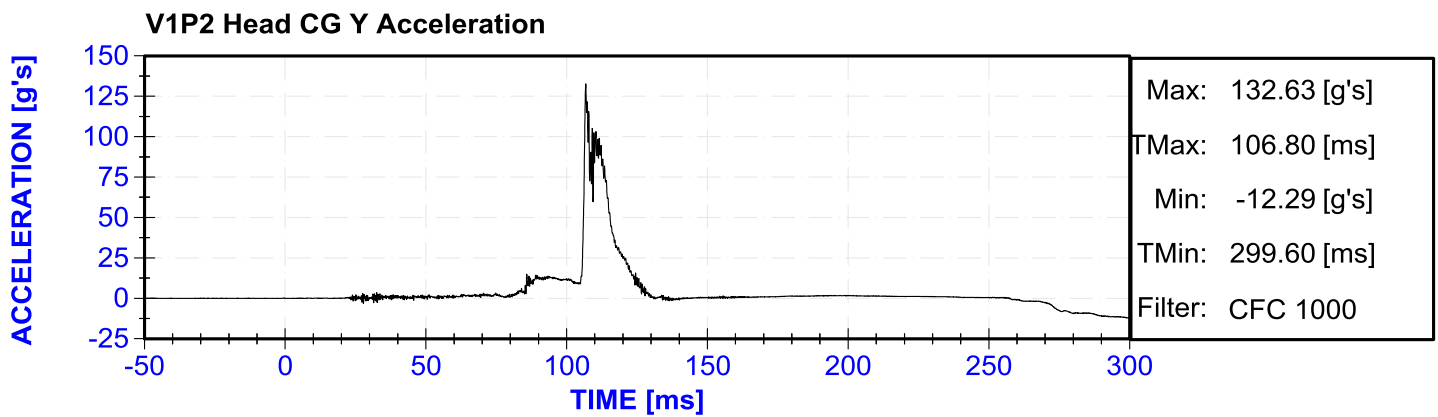
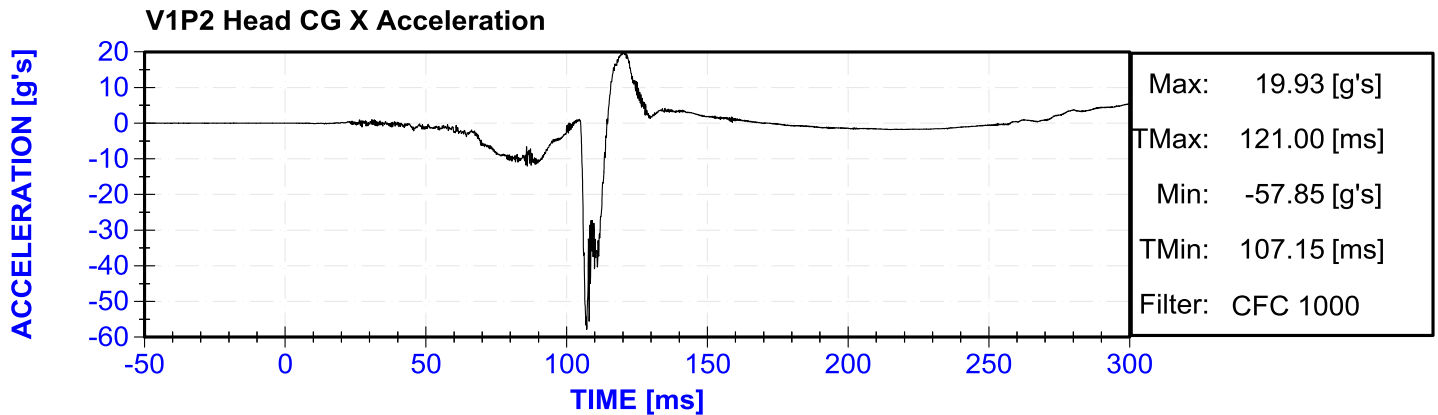


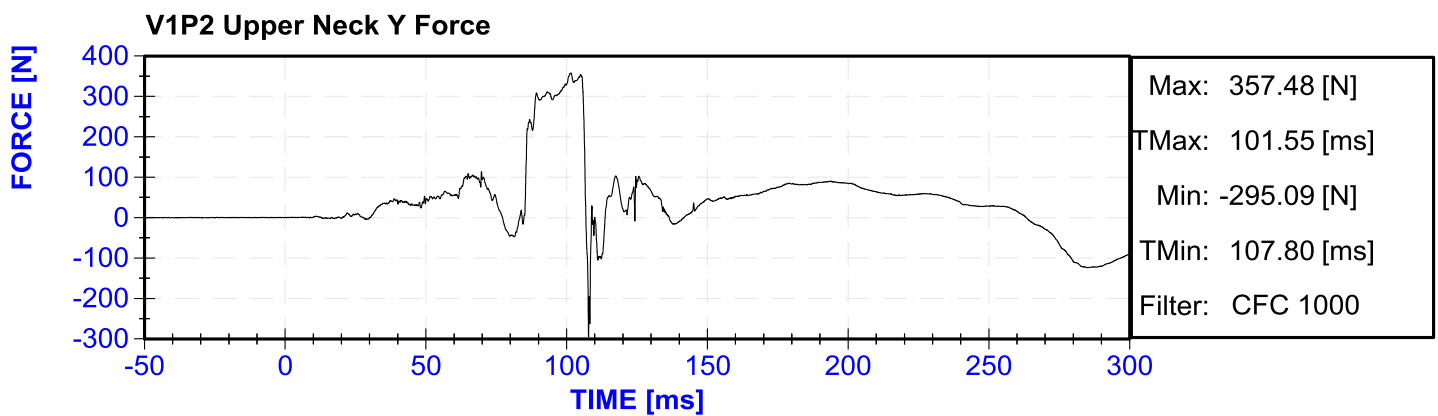
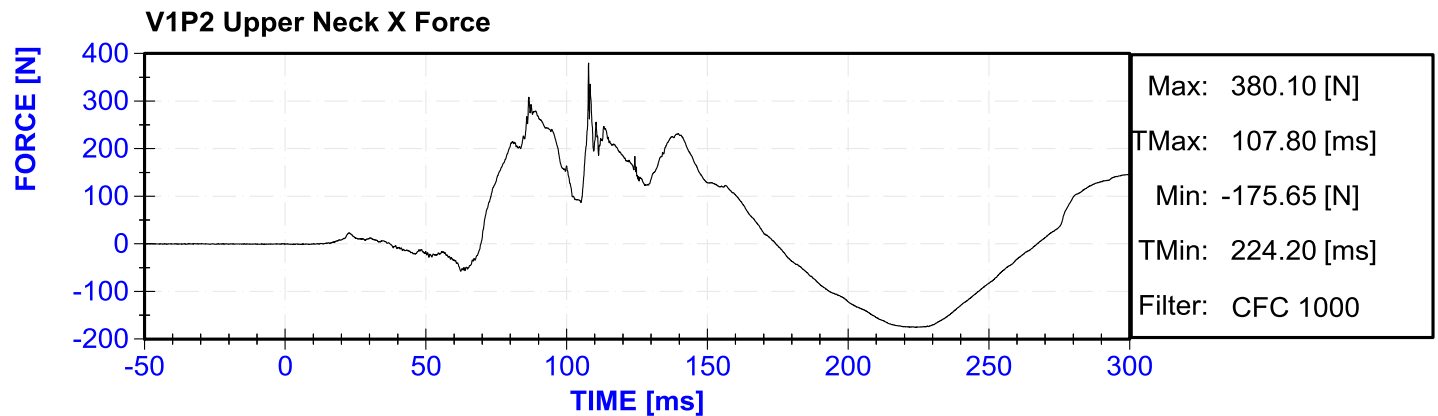
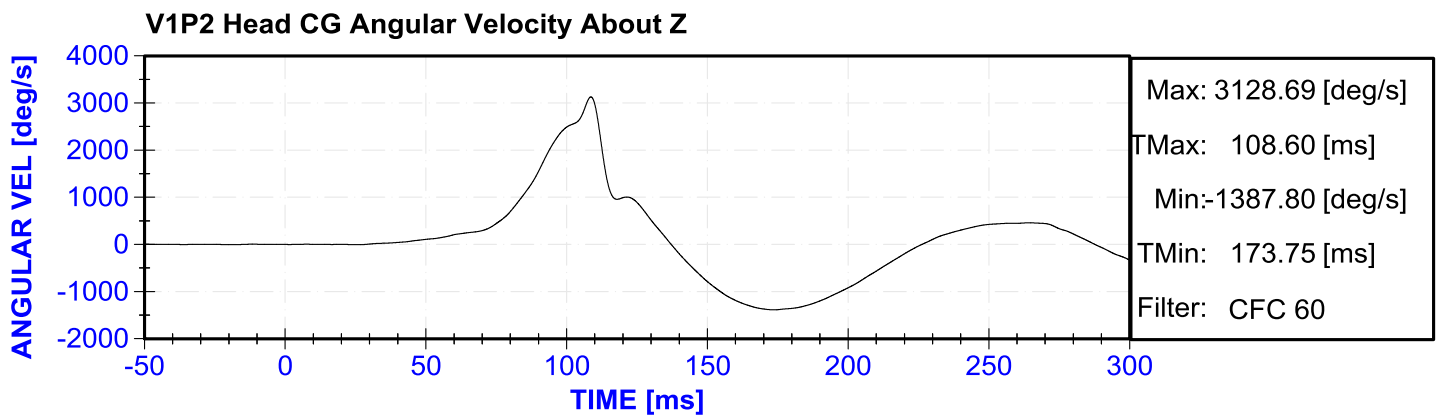
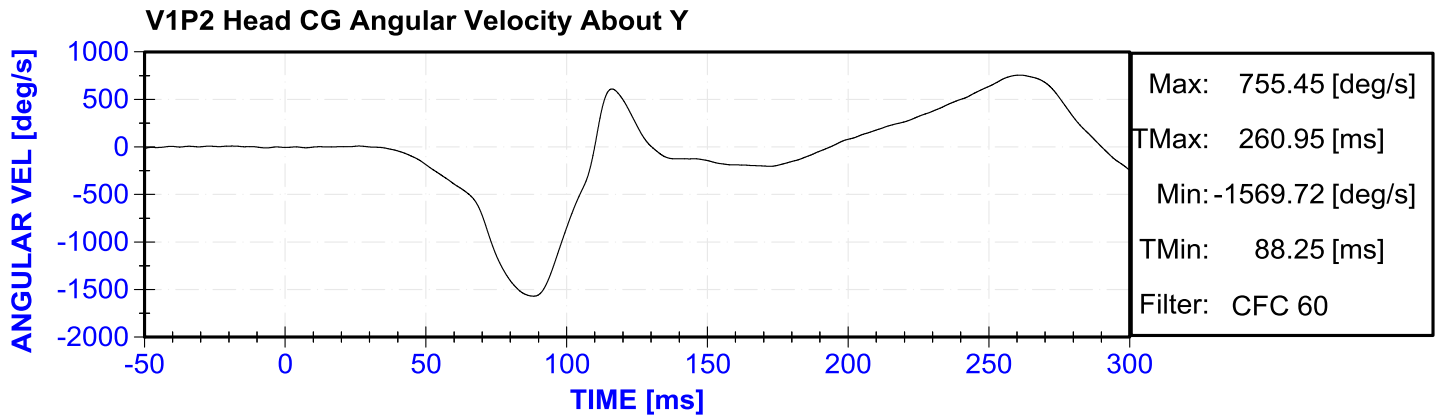


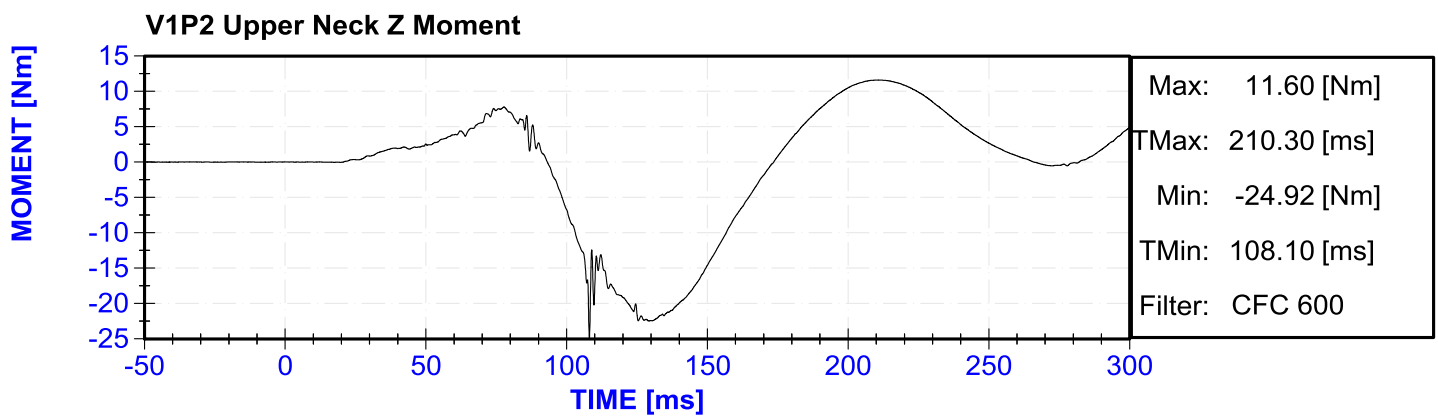
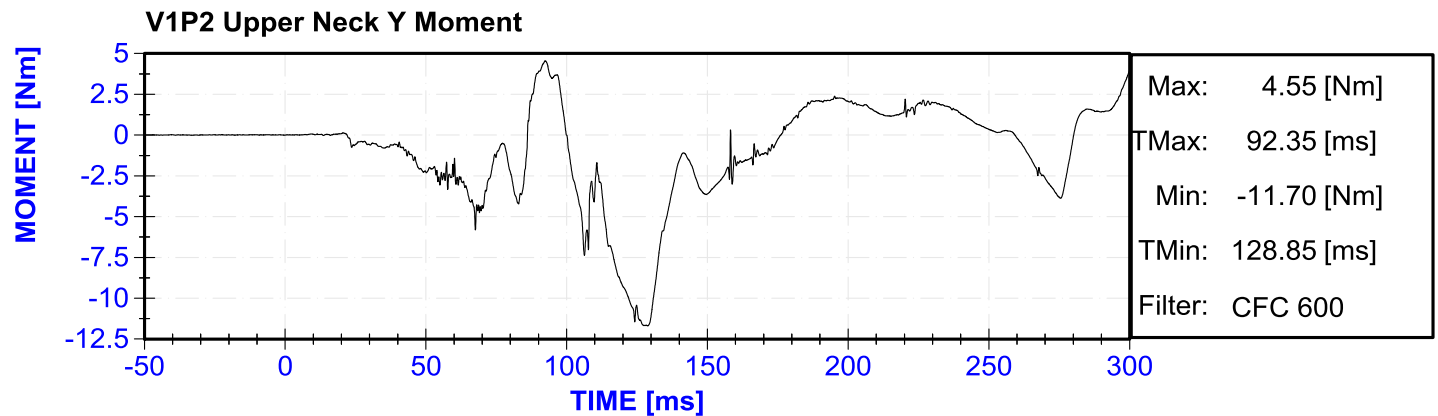
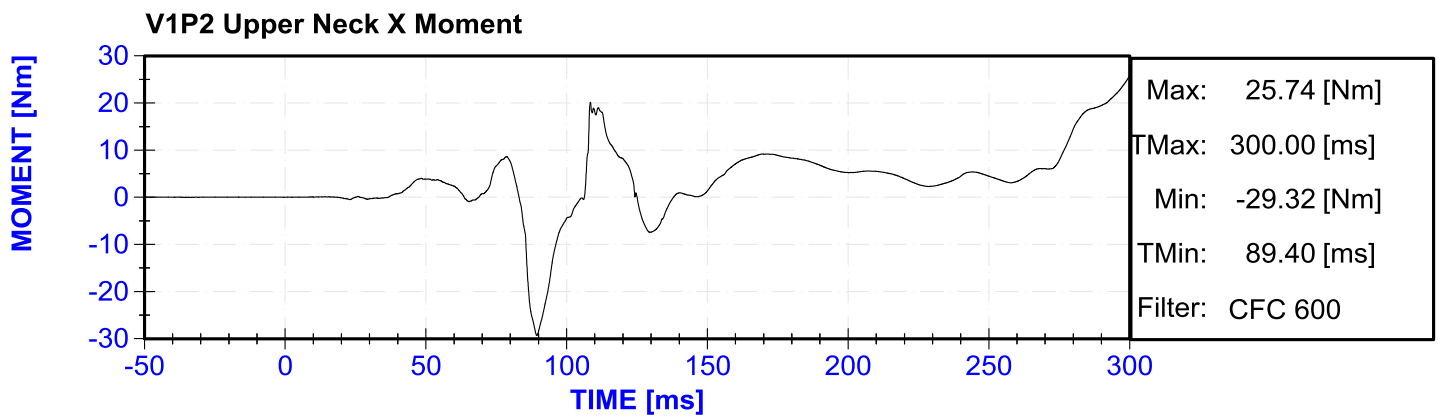
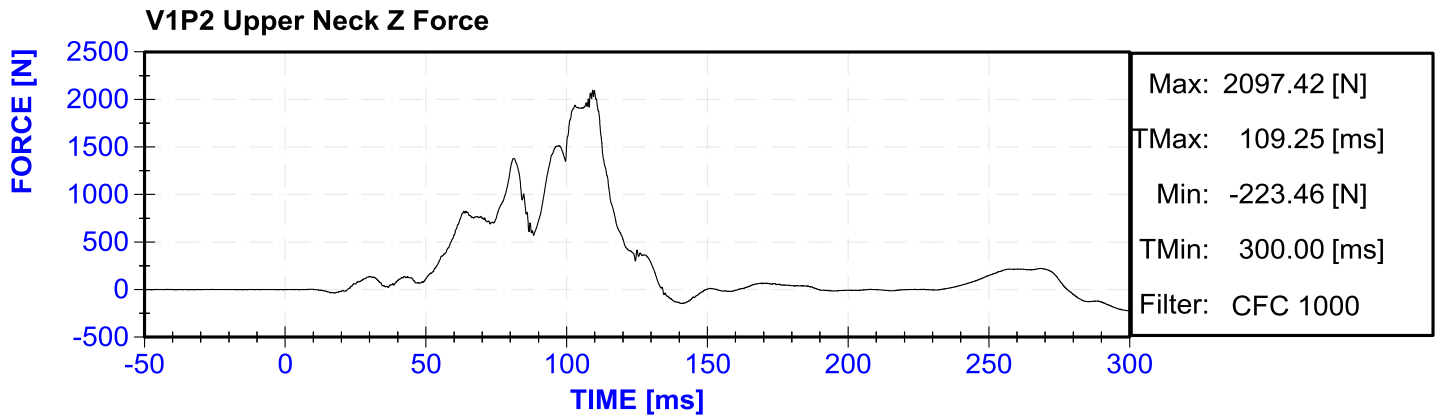


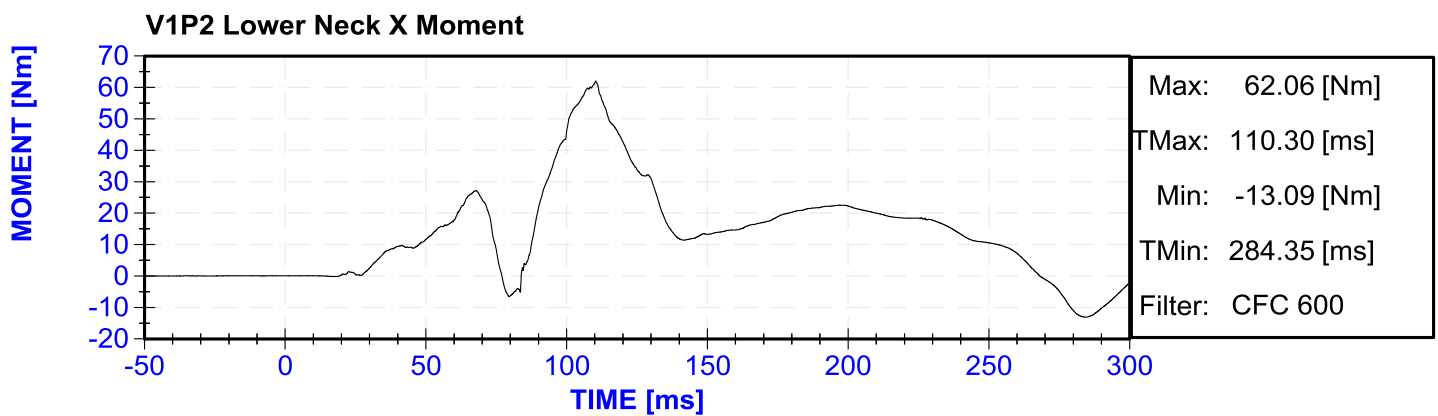
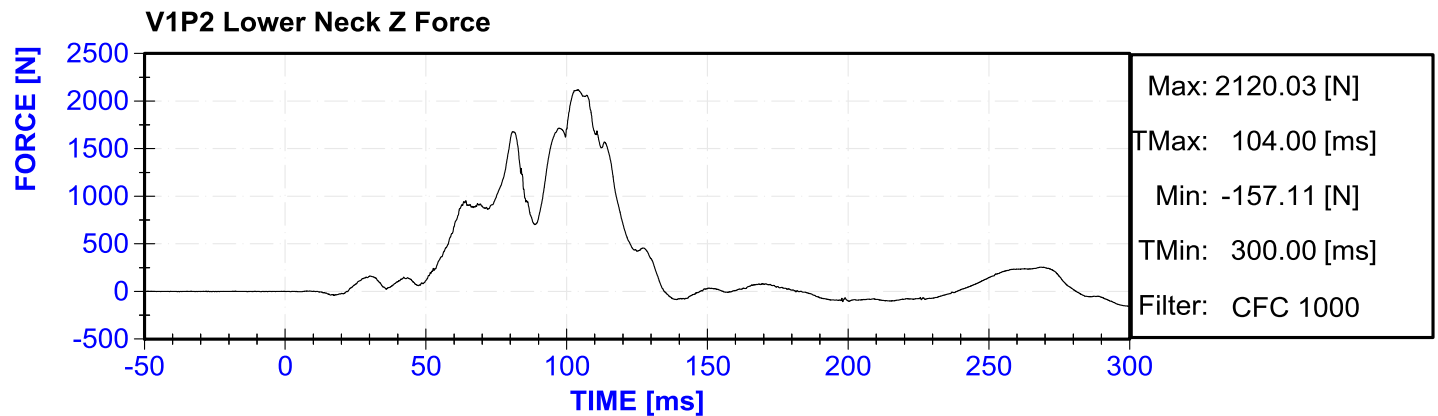
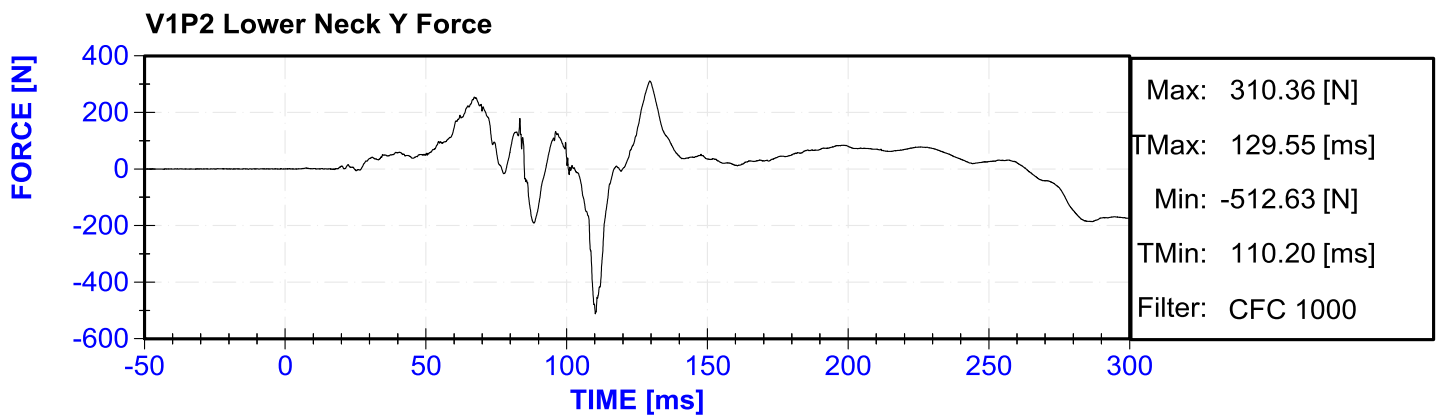
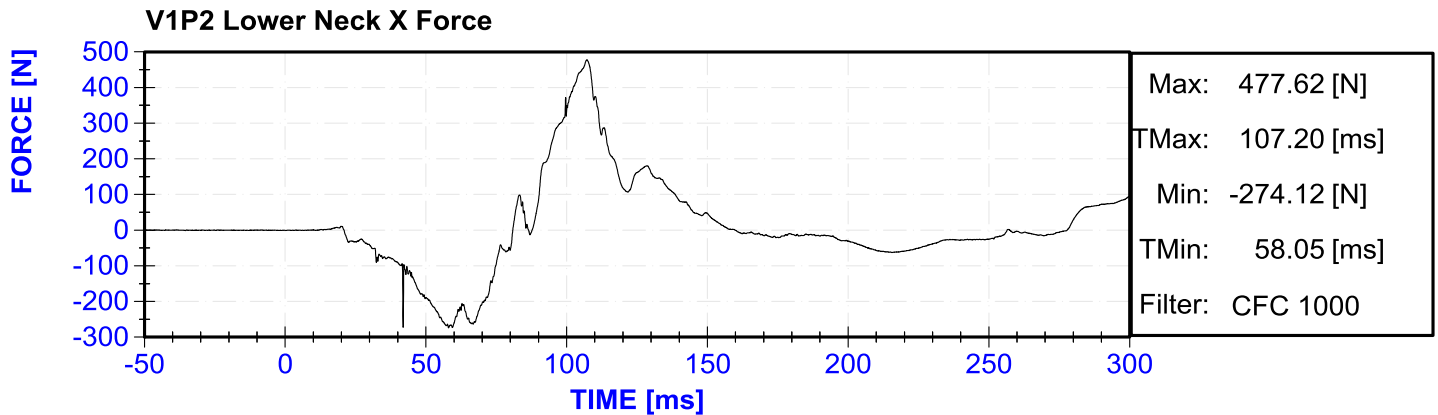


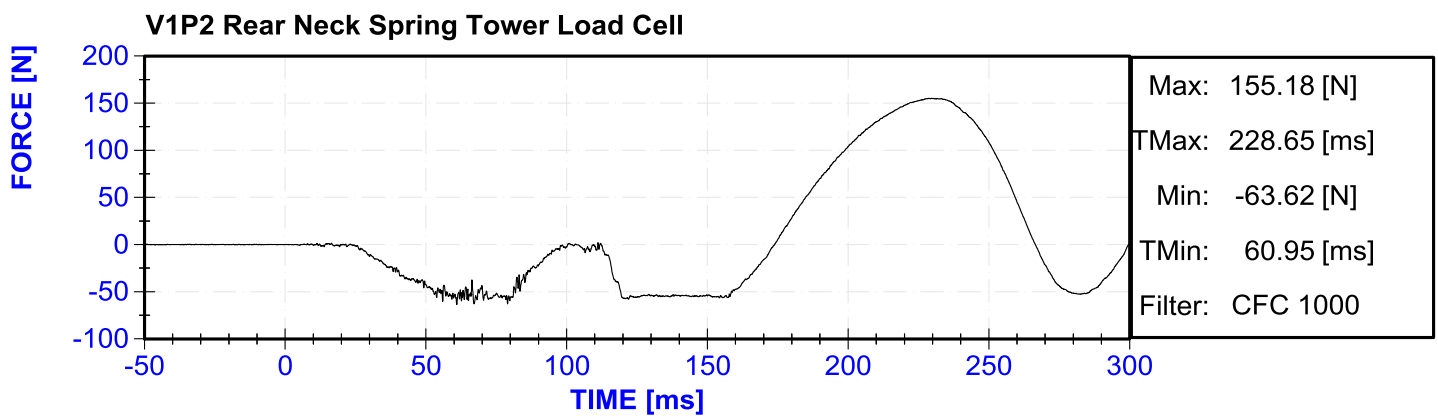
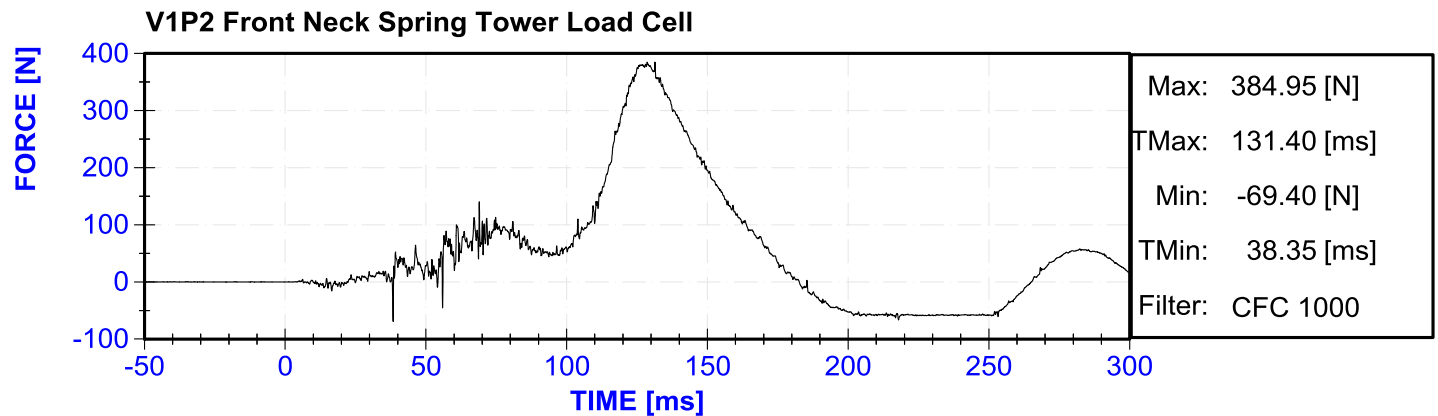
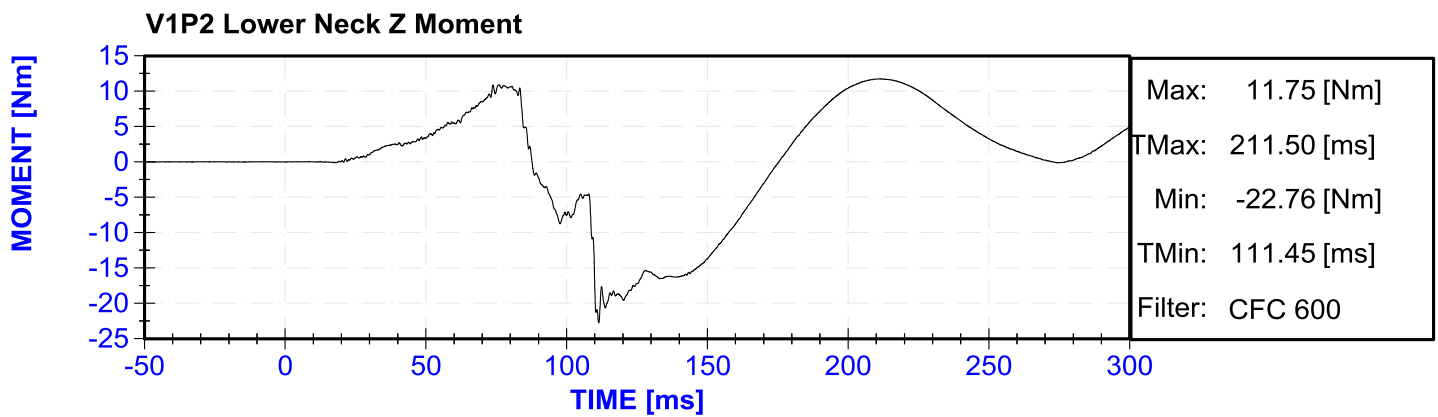
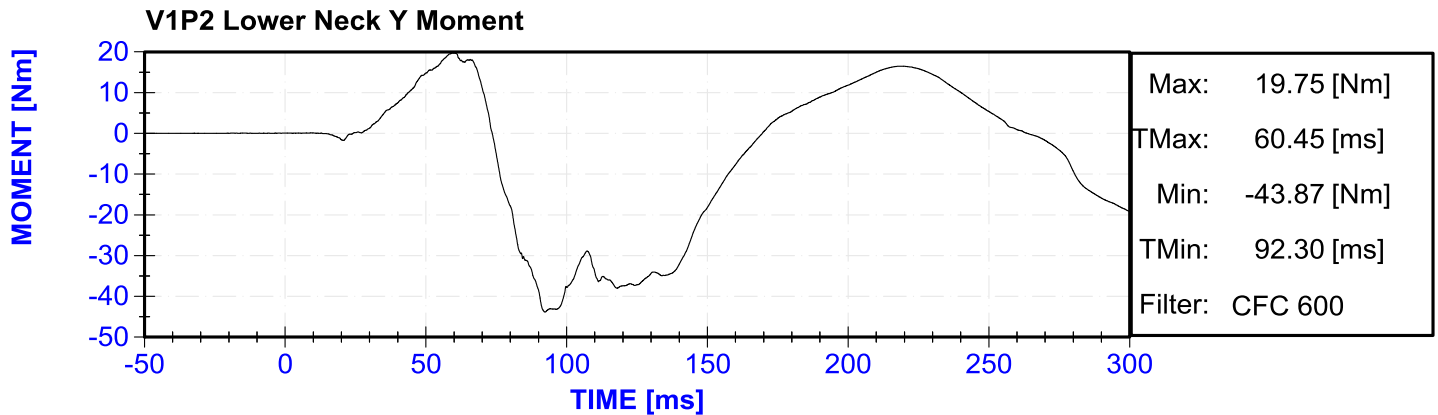


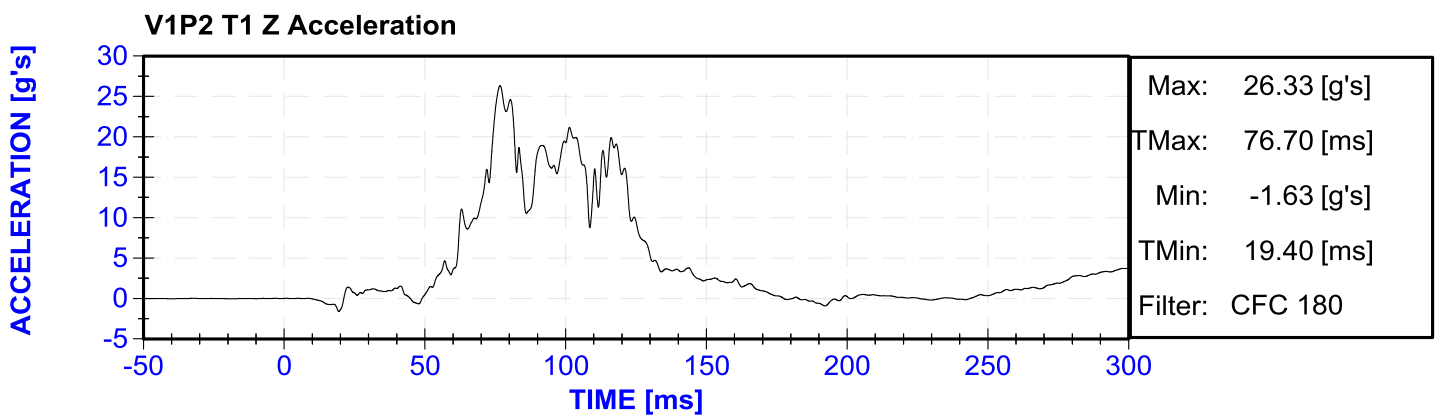
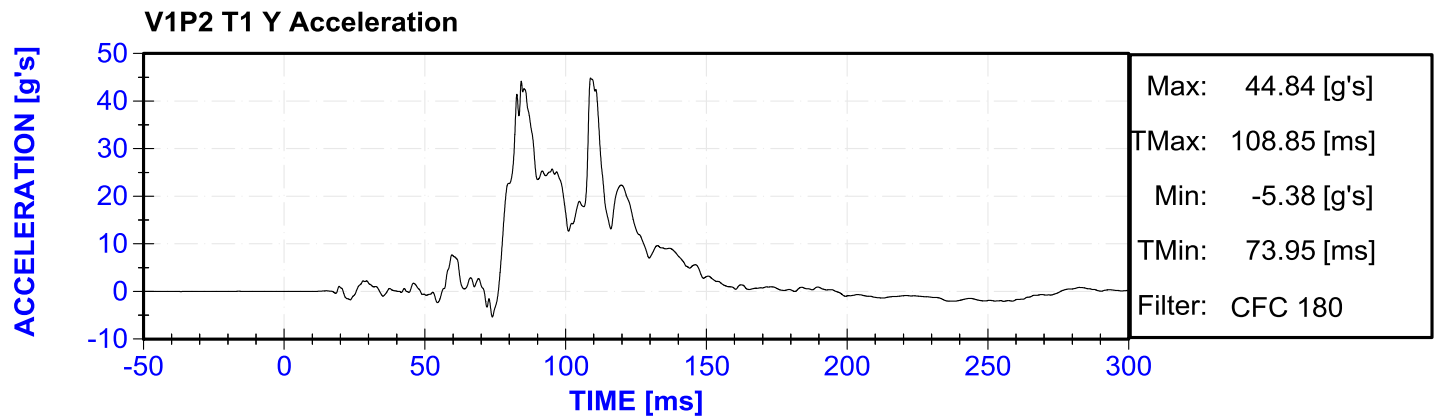
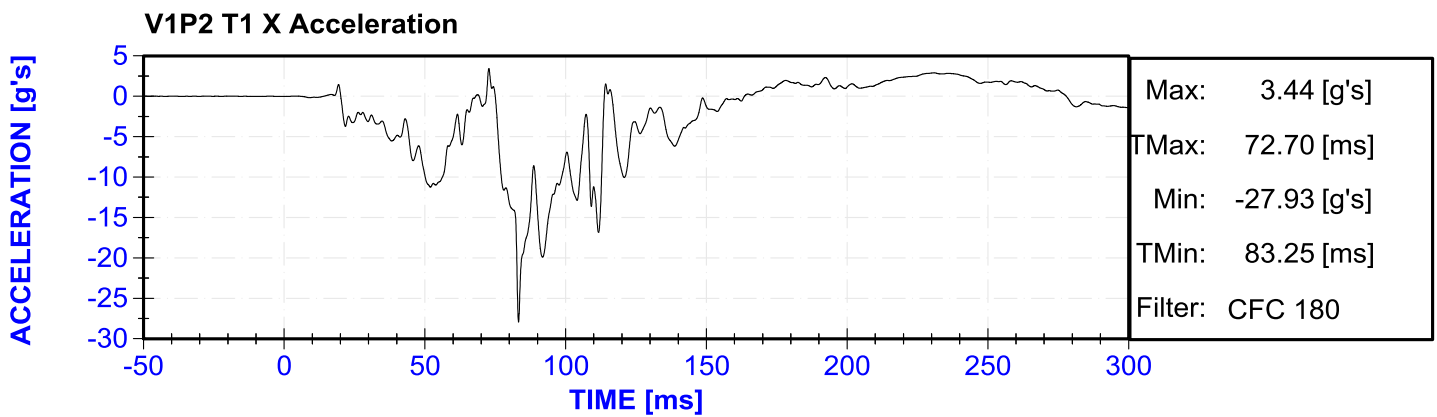
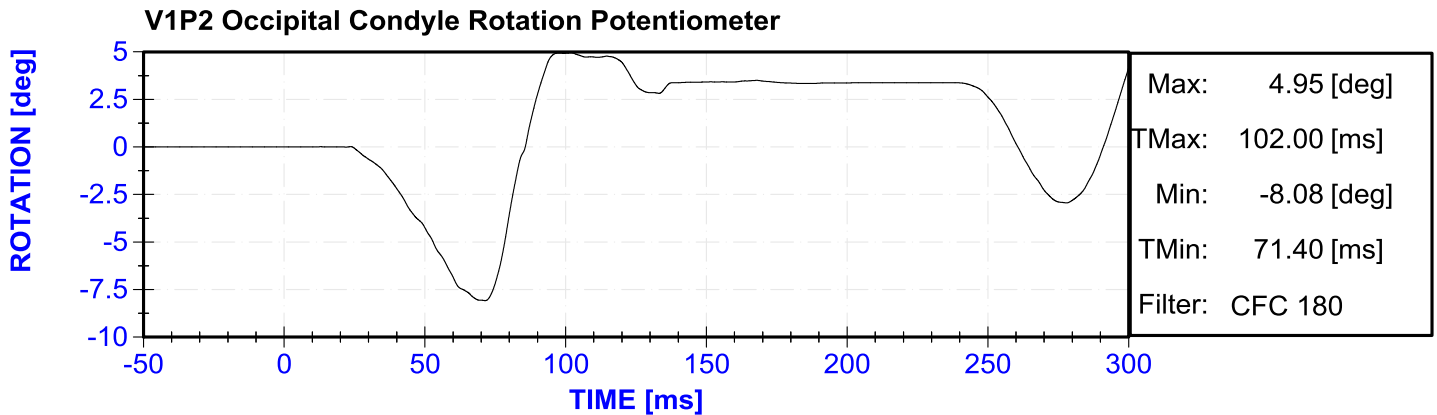


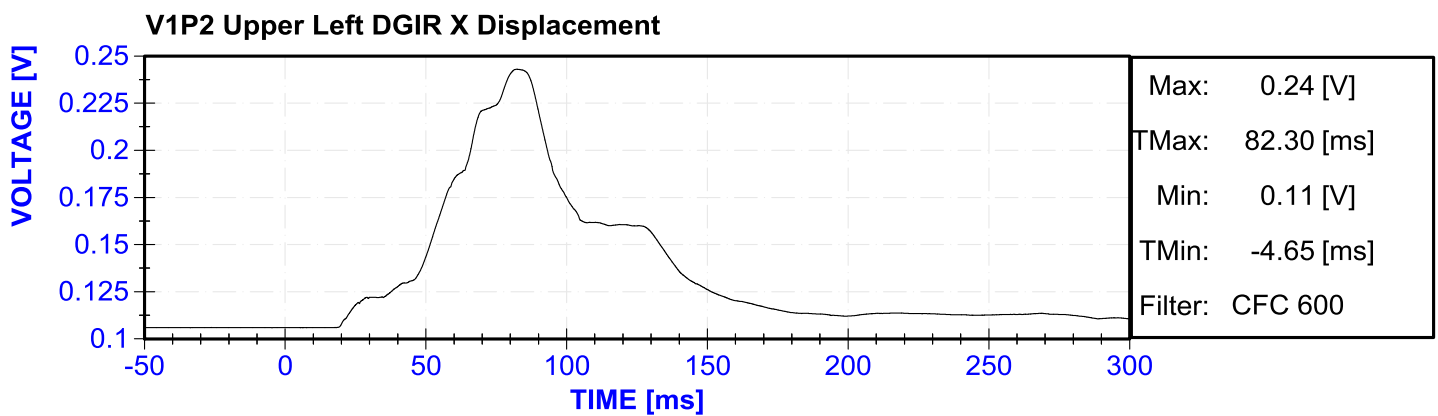
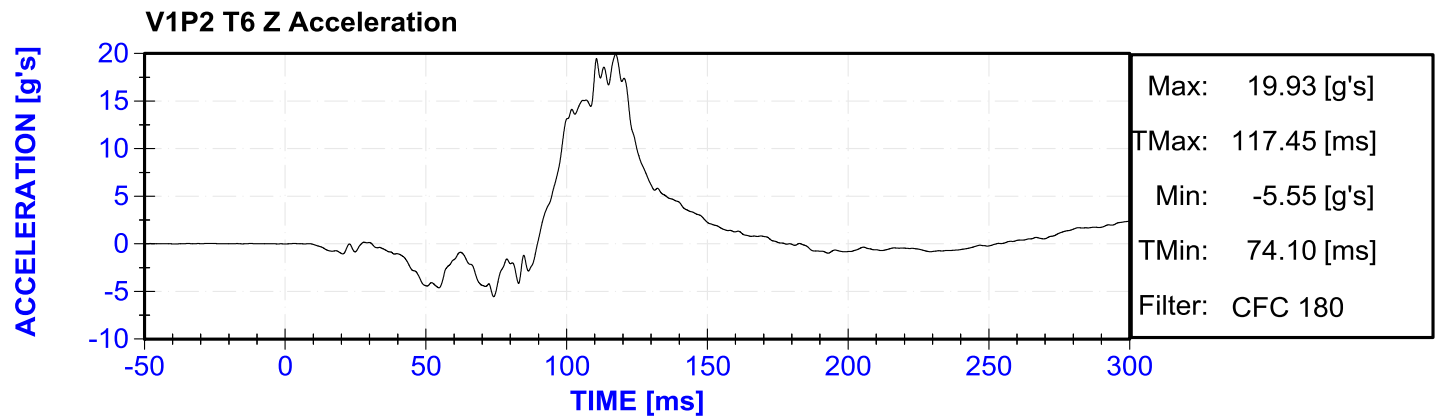
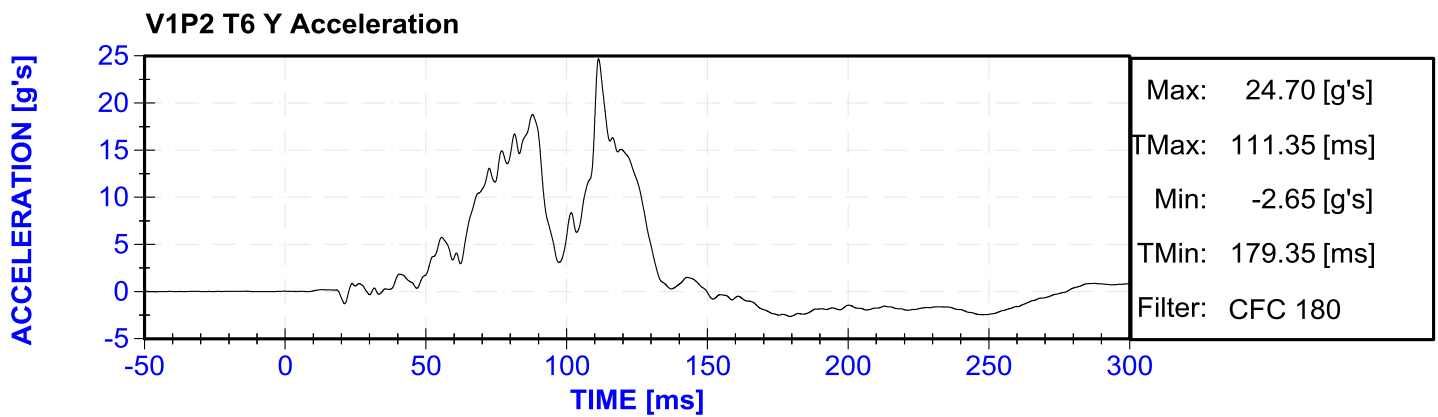
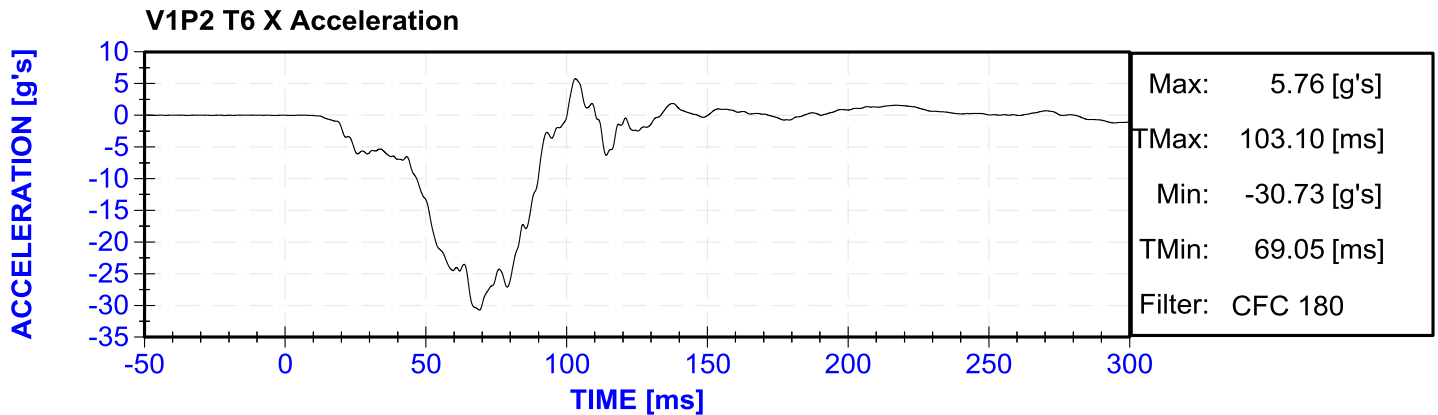


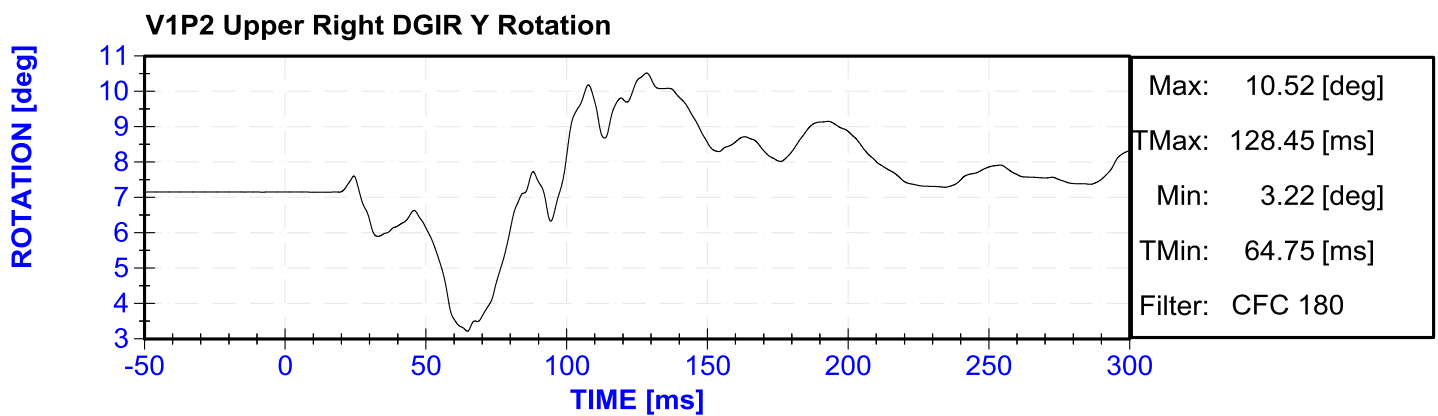
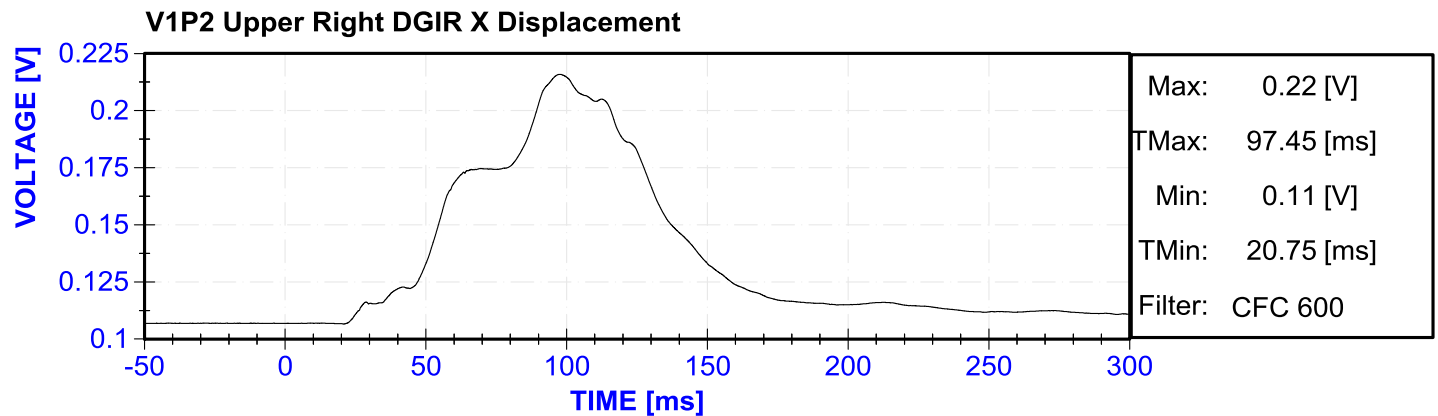
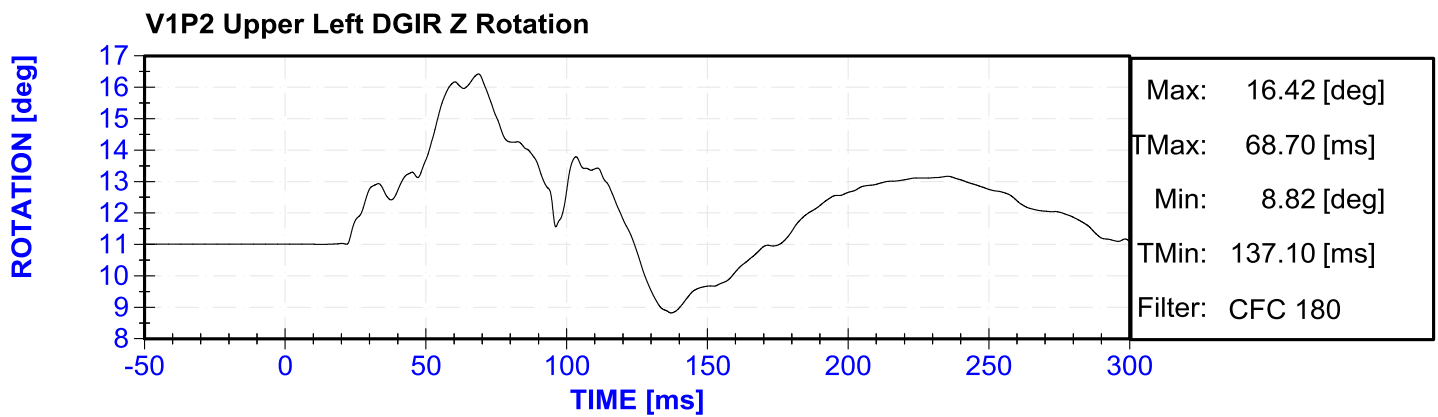
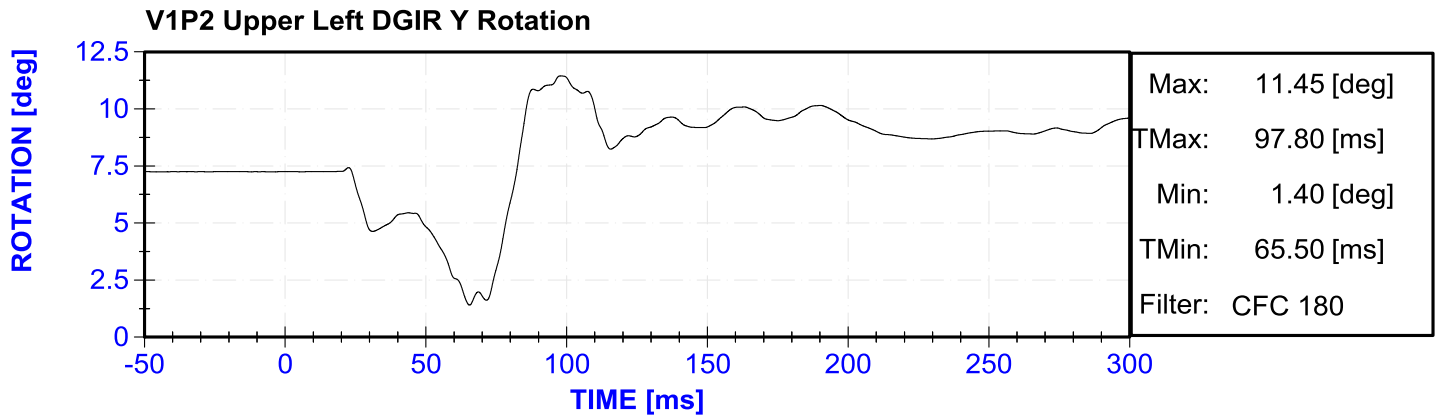


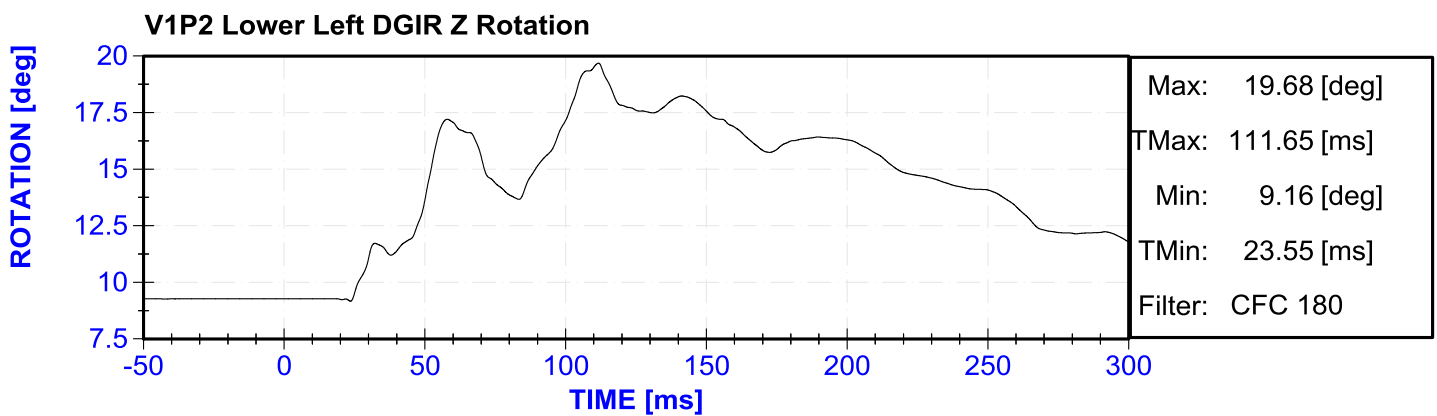
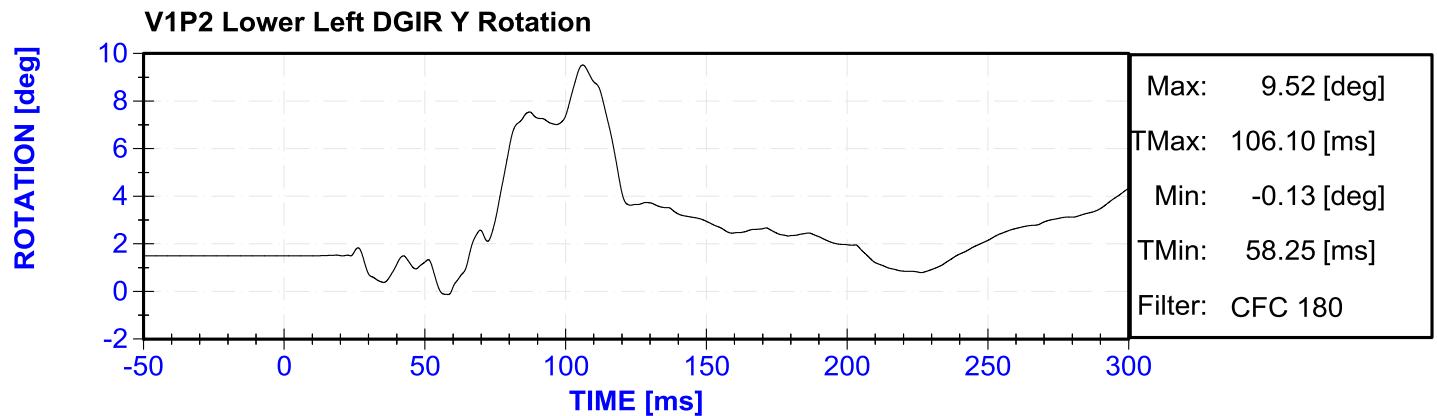
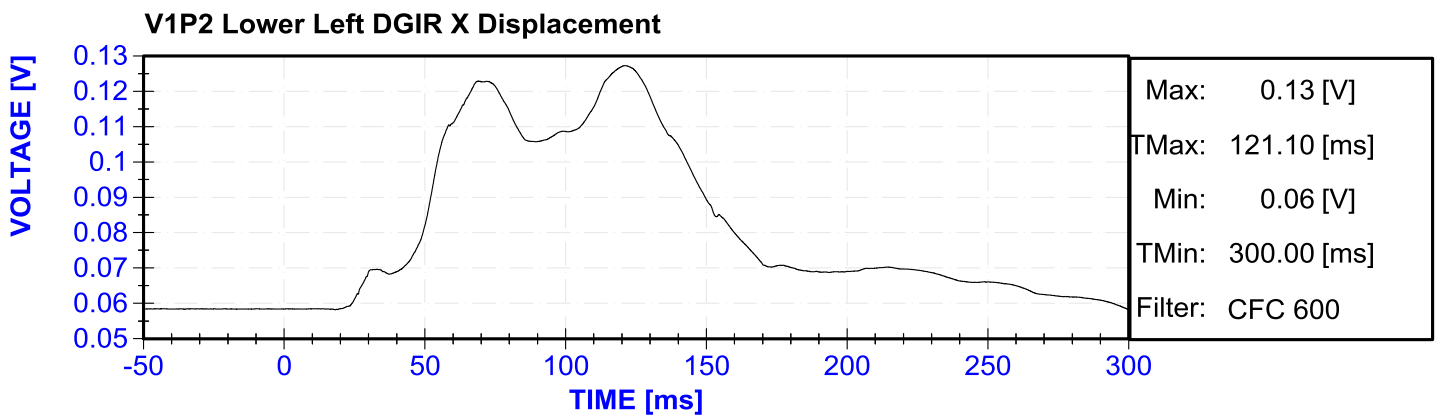
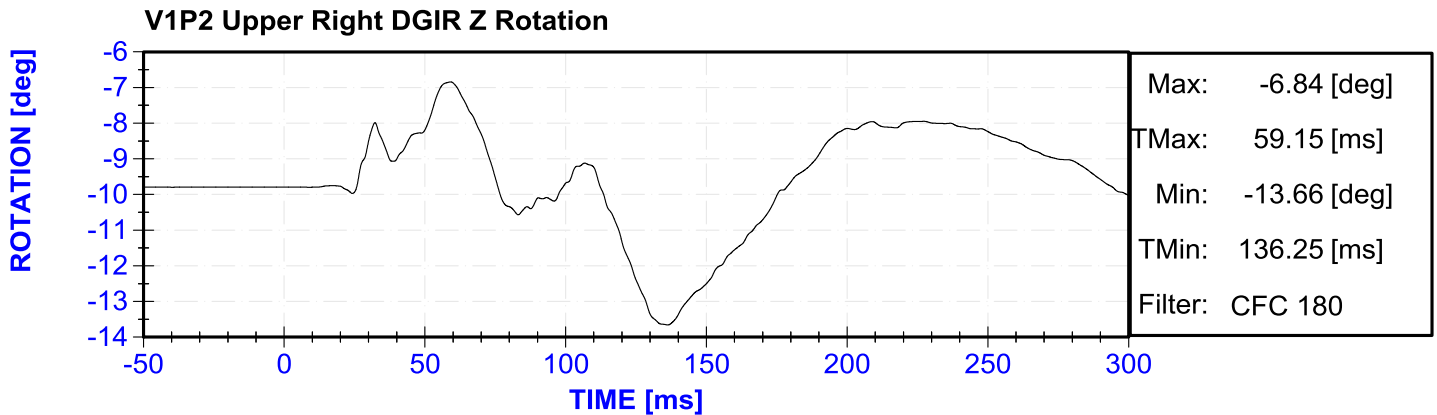




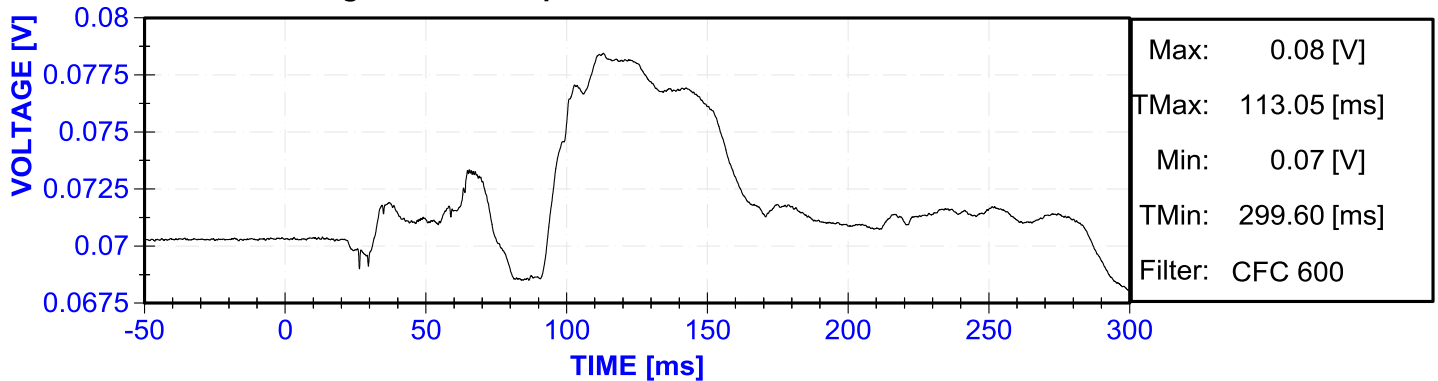




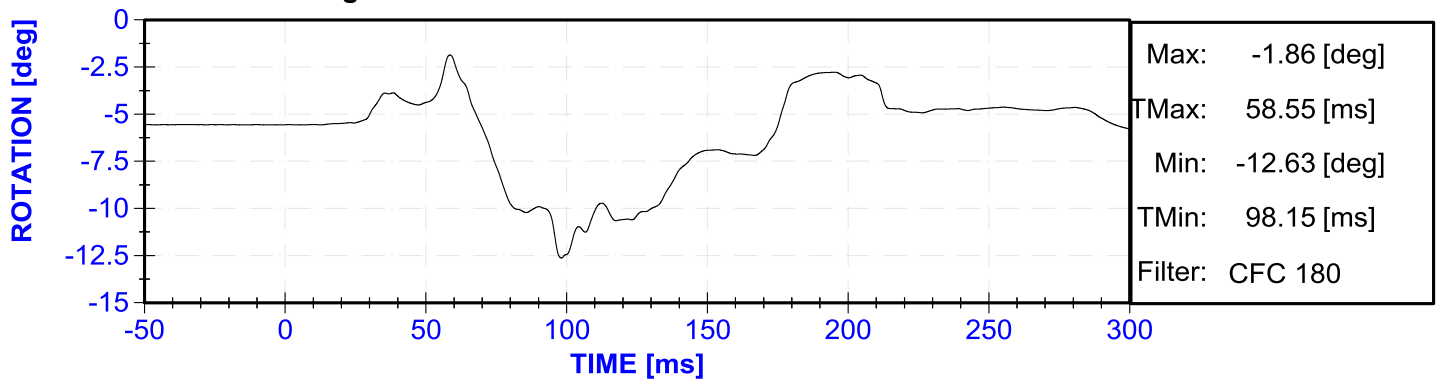




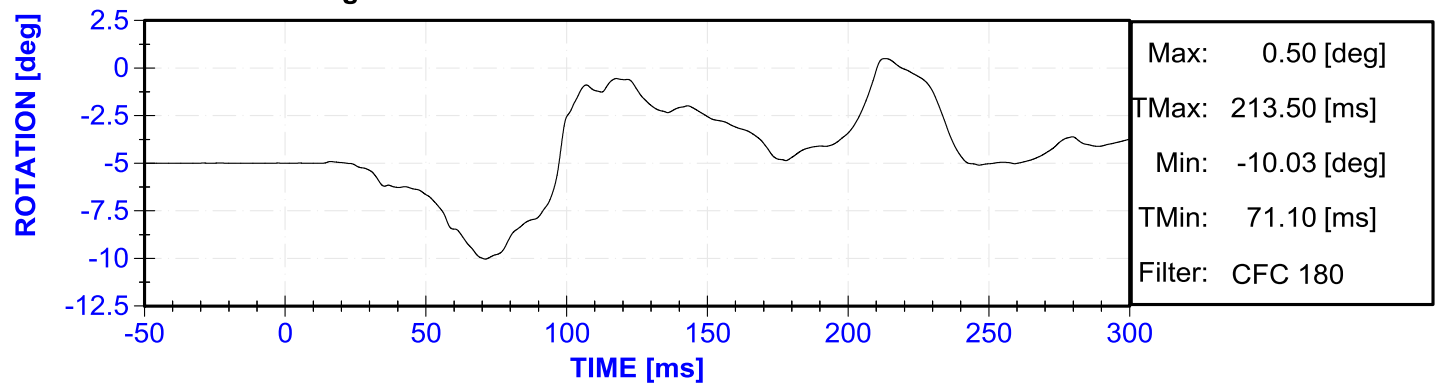
V1P2 Lower Right DGIR X Displacement



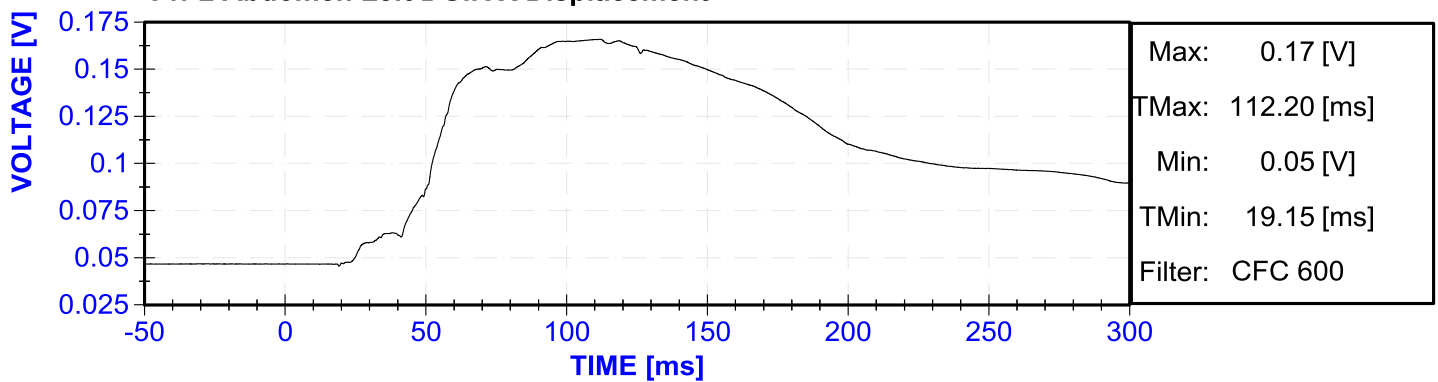
V1P2 Lower Right DGIR Y Rotation

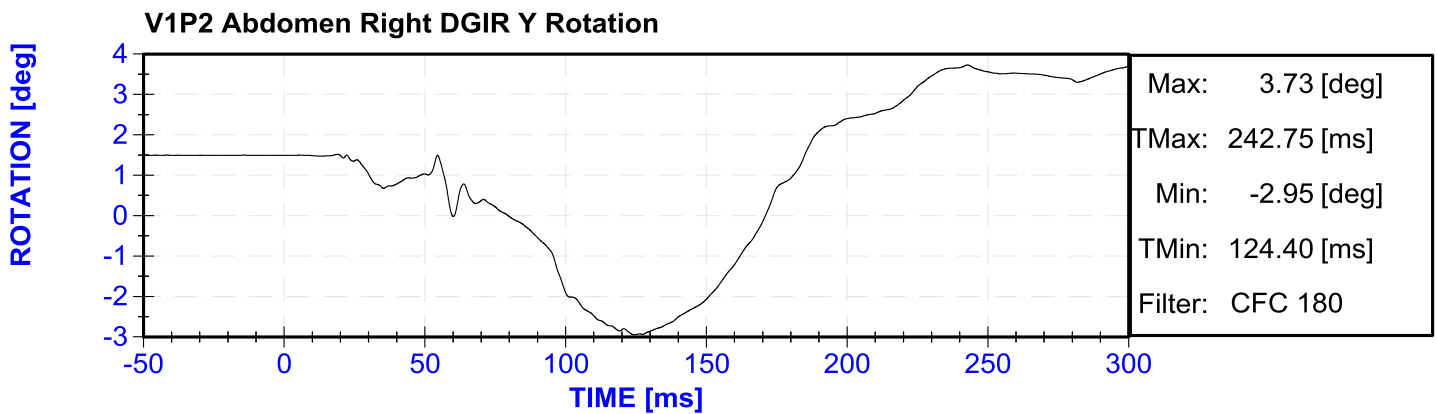
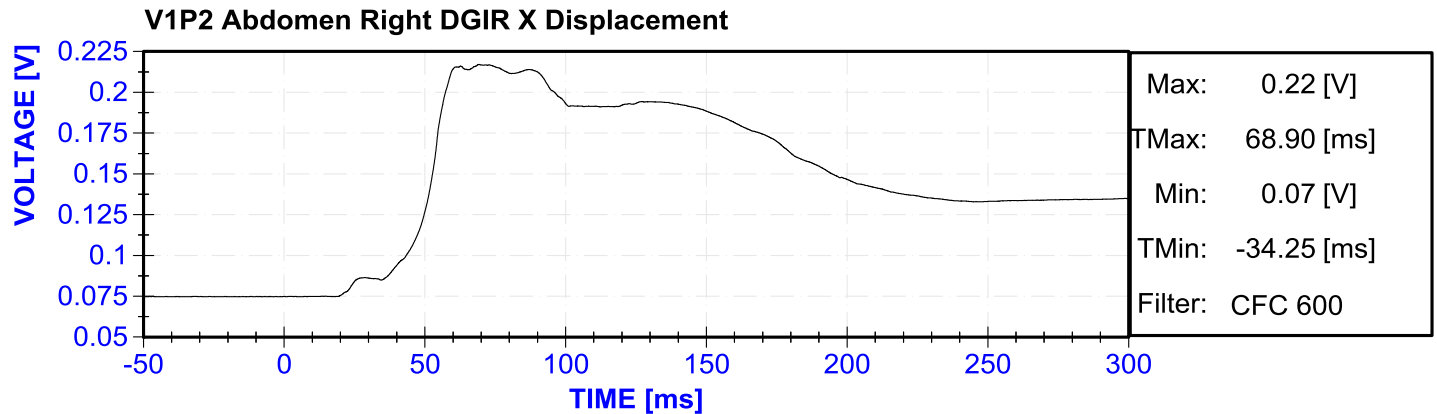
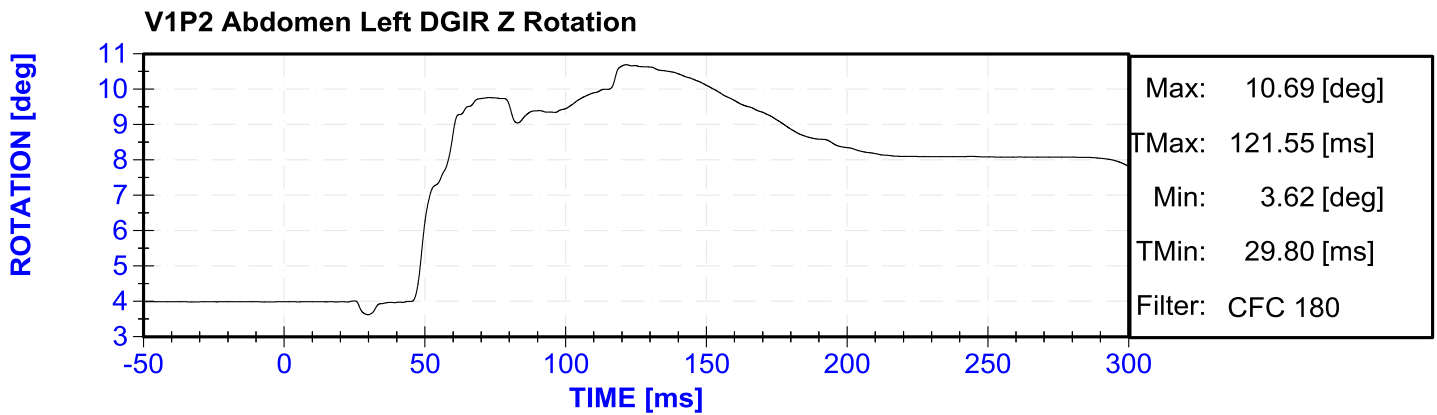
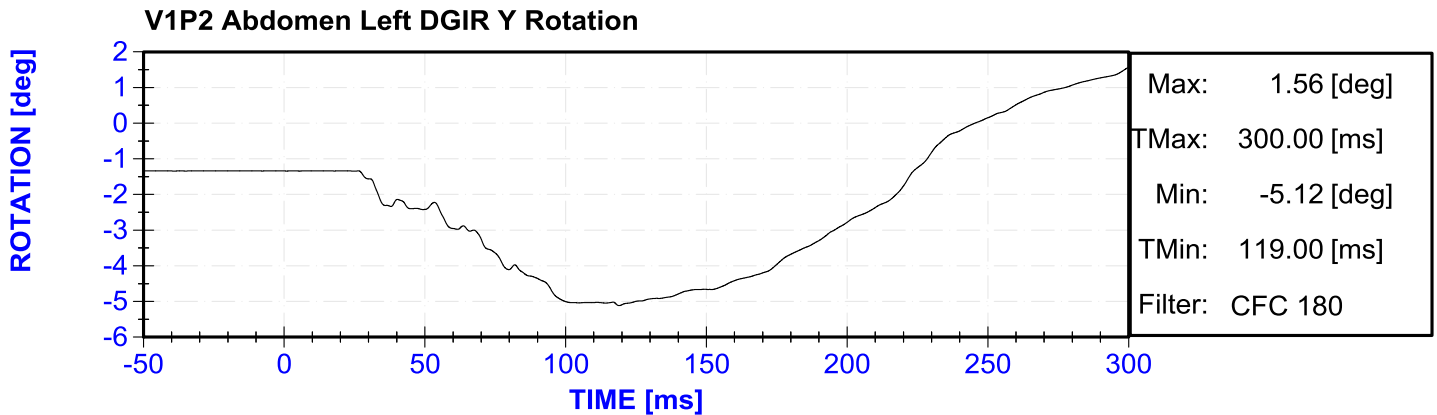


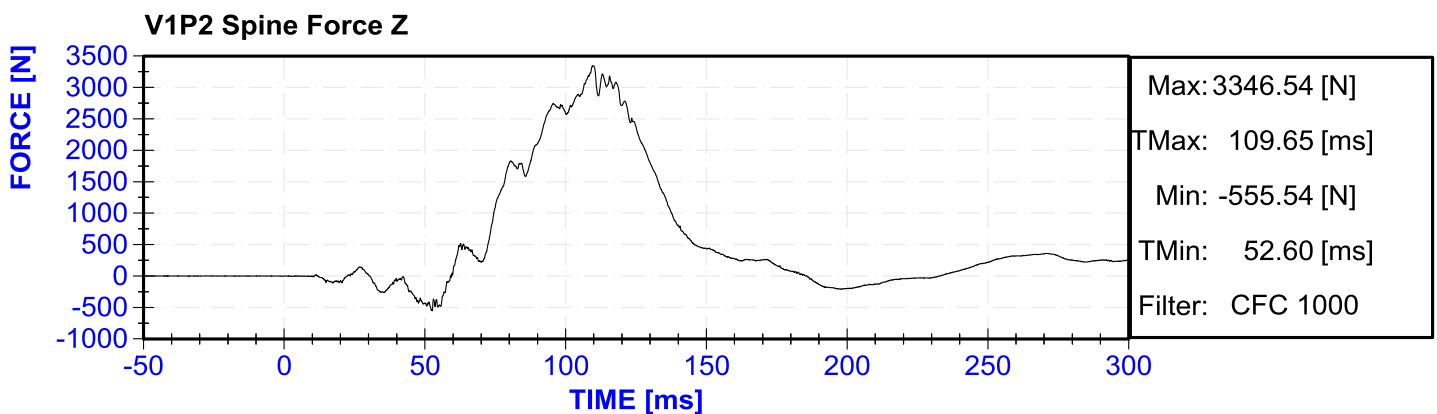
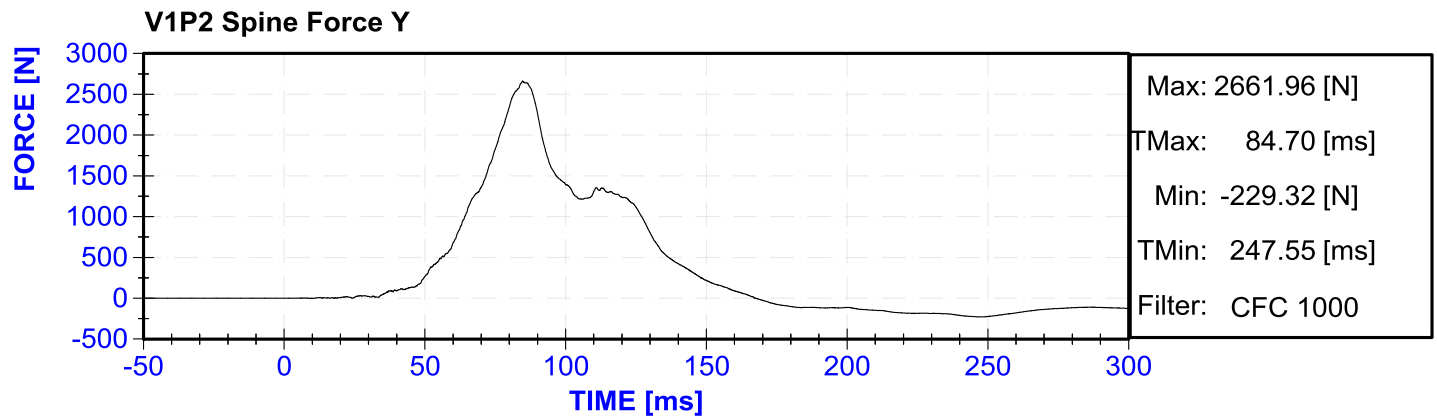
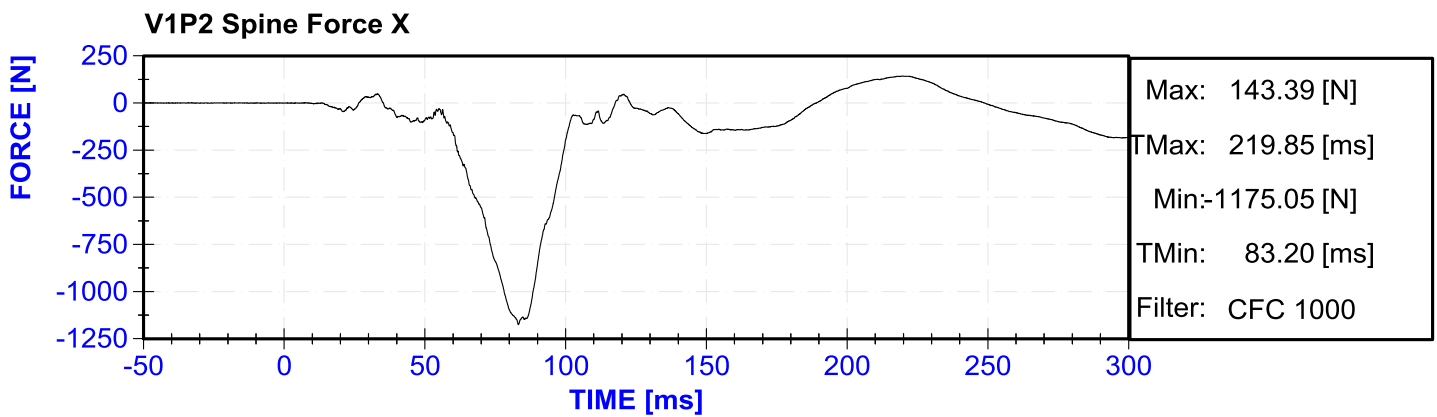
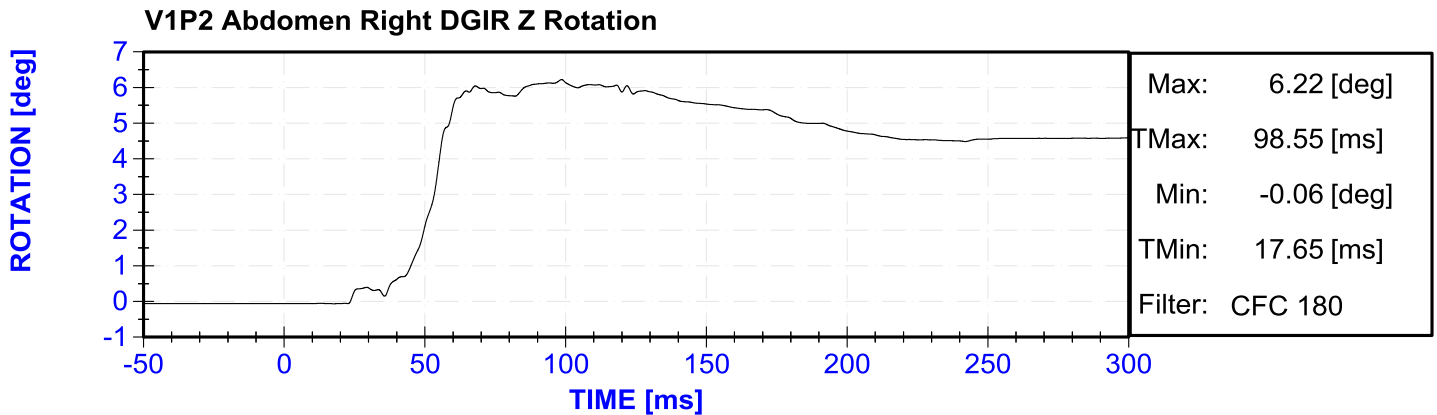
V1P2 Lower Right DGIR Z Rotation

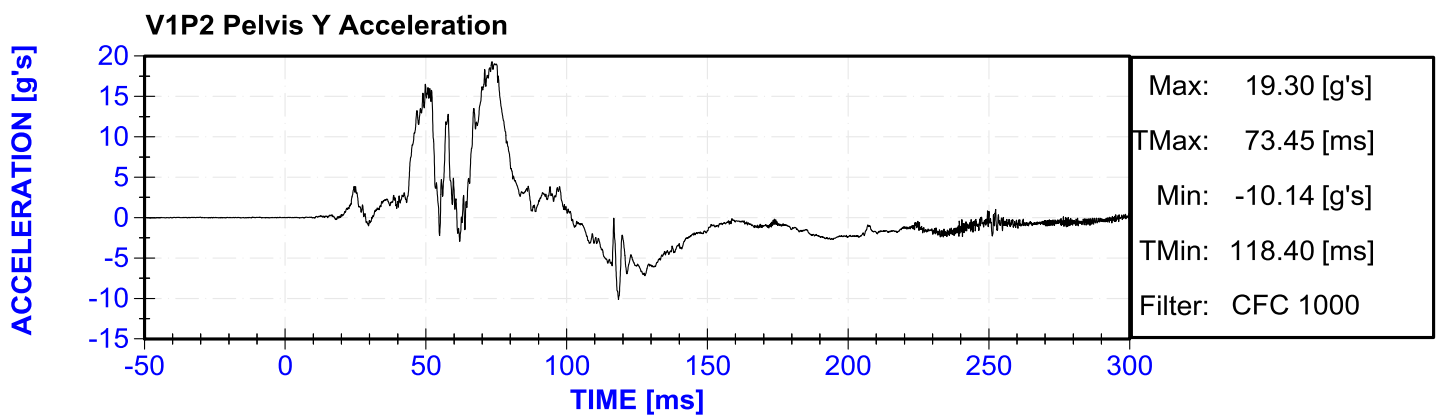
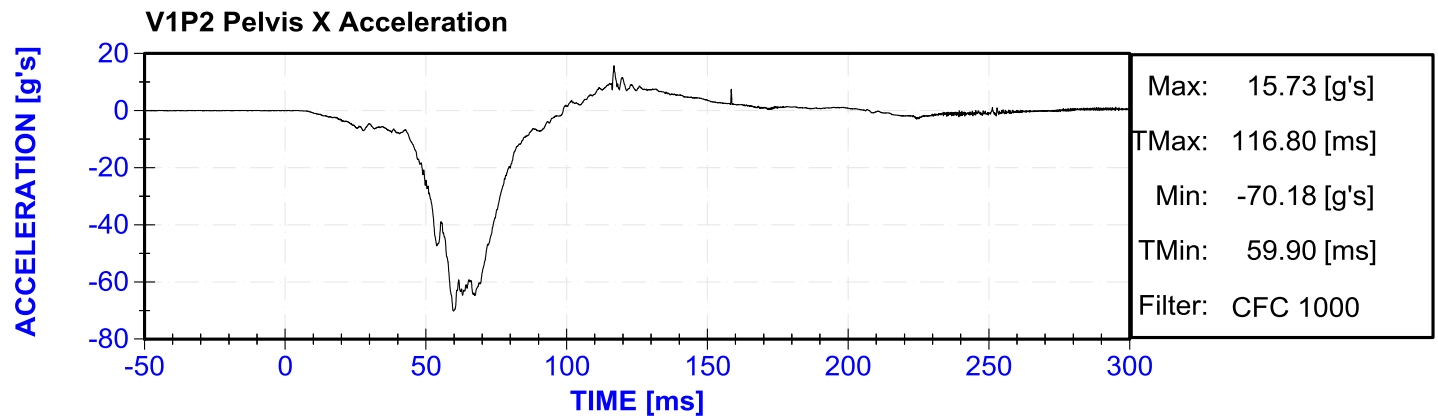
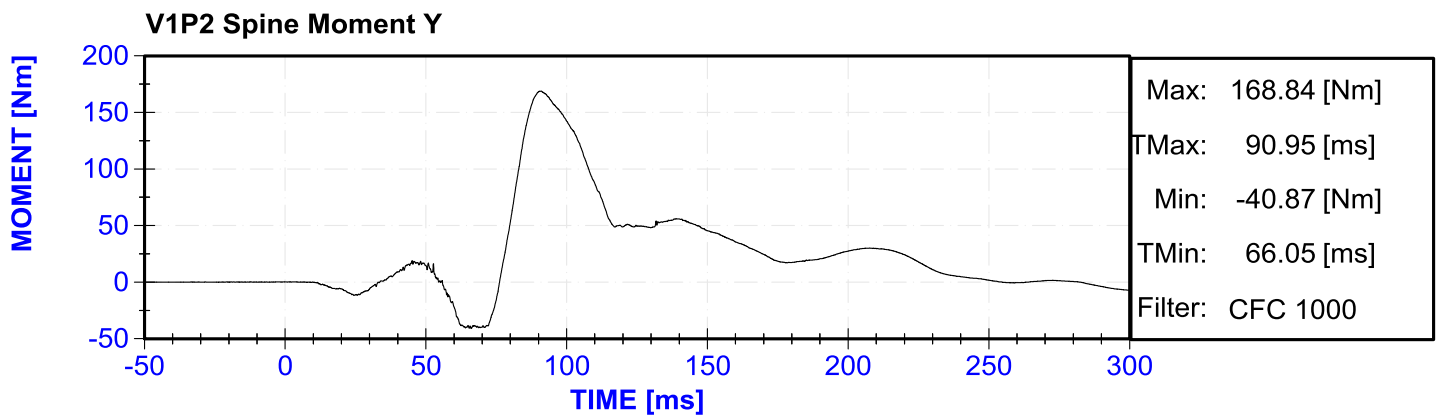
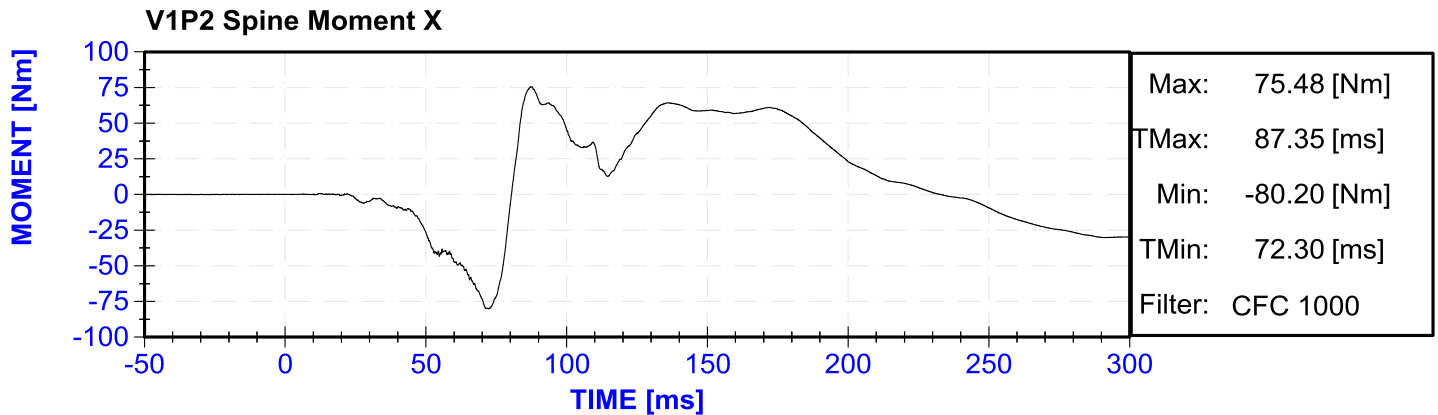


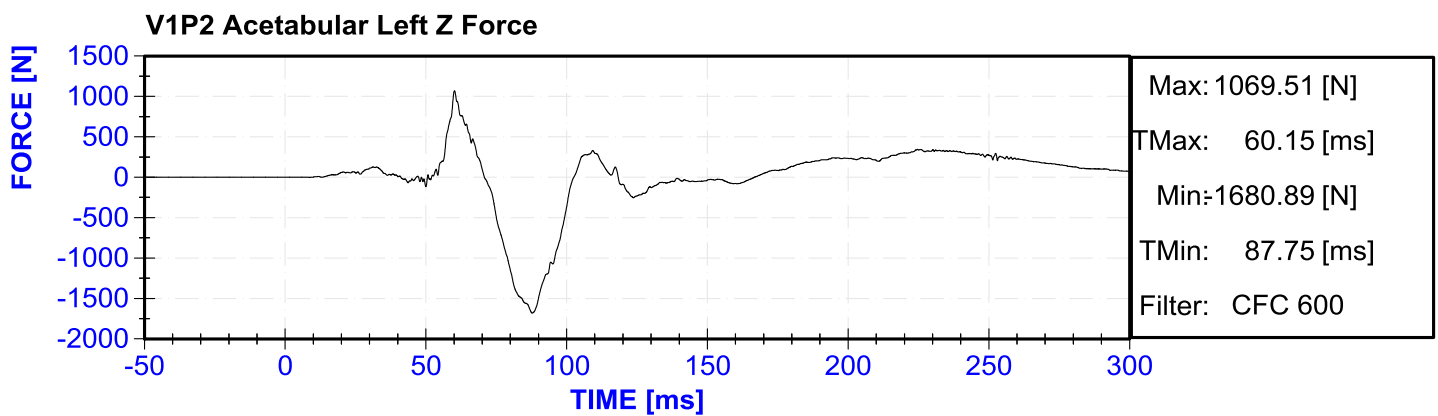
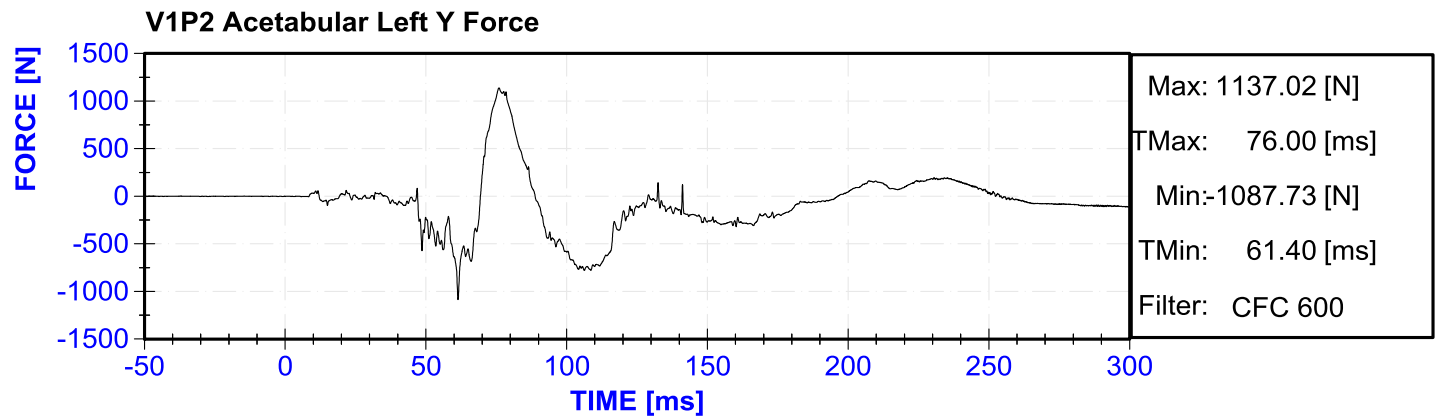
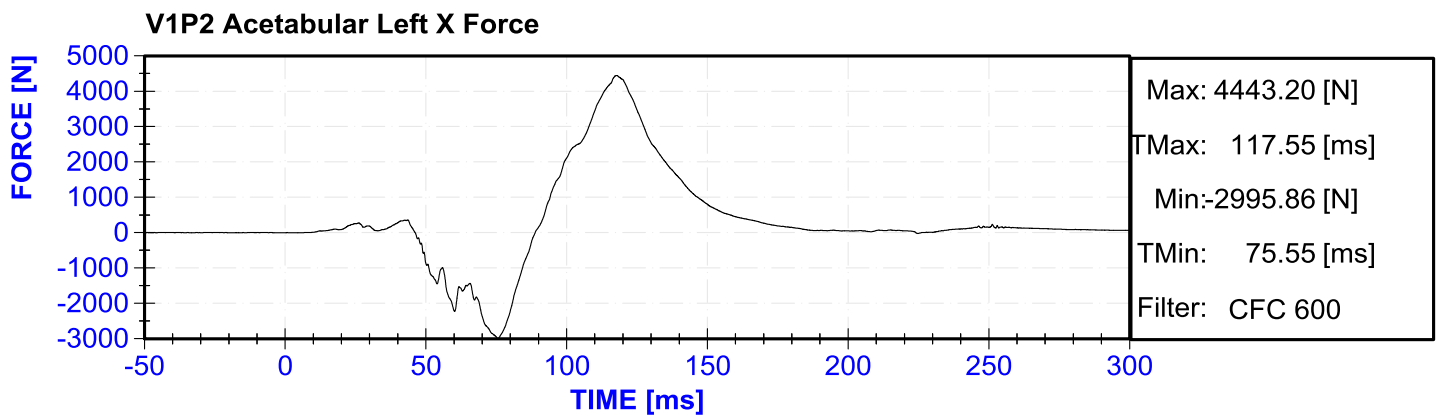
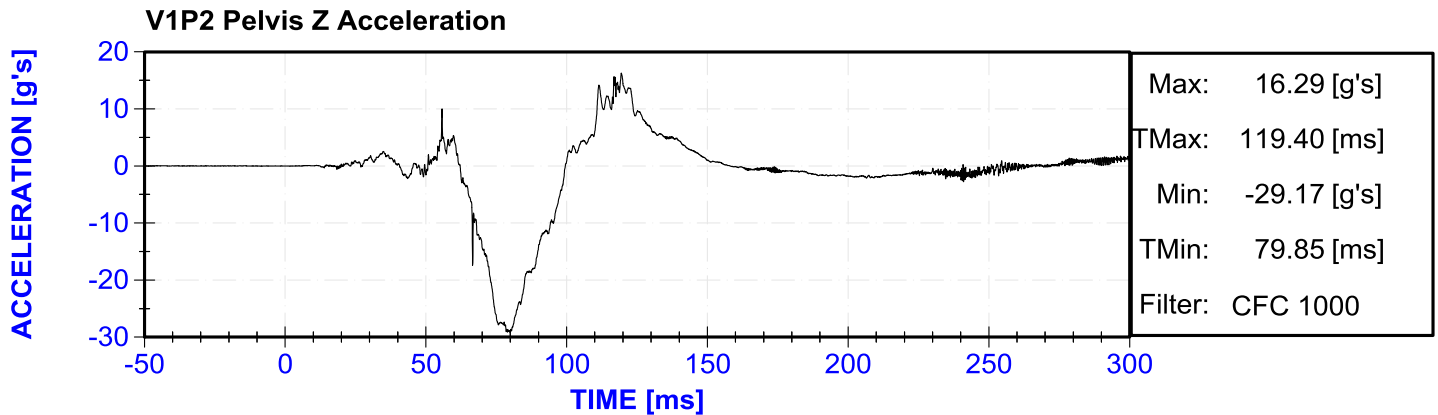
V1P2 Abdomen Left DGIR X Displacement

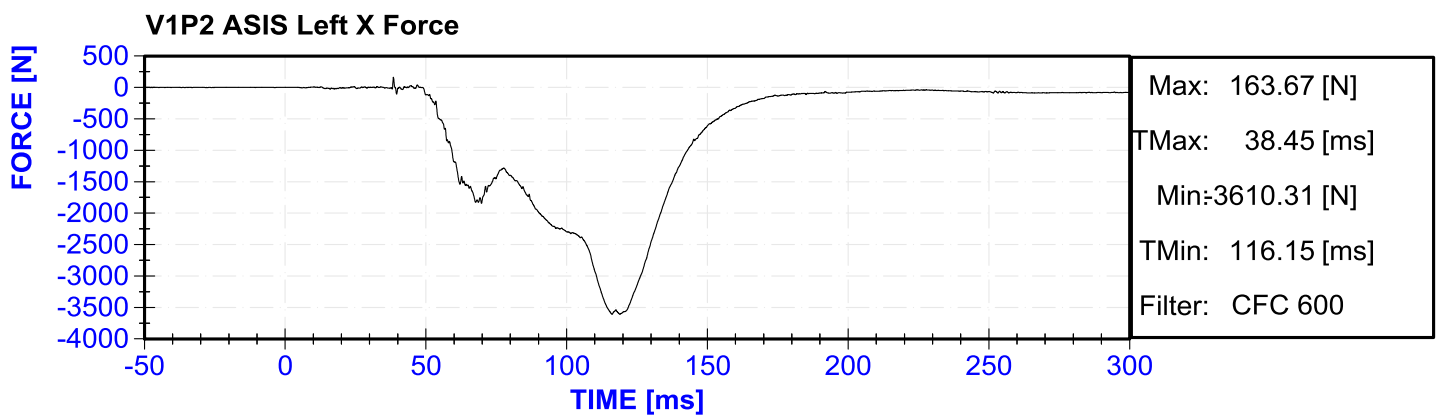
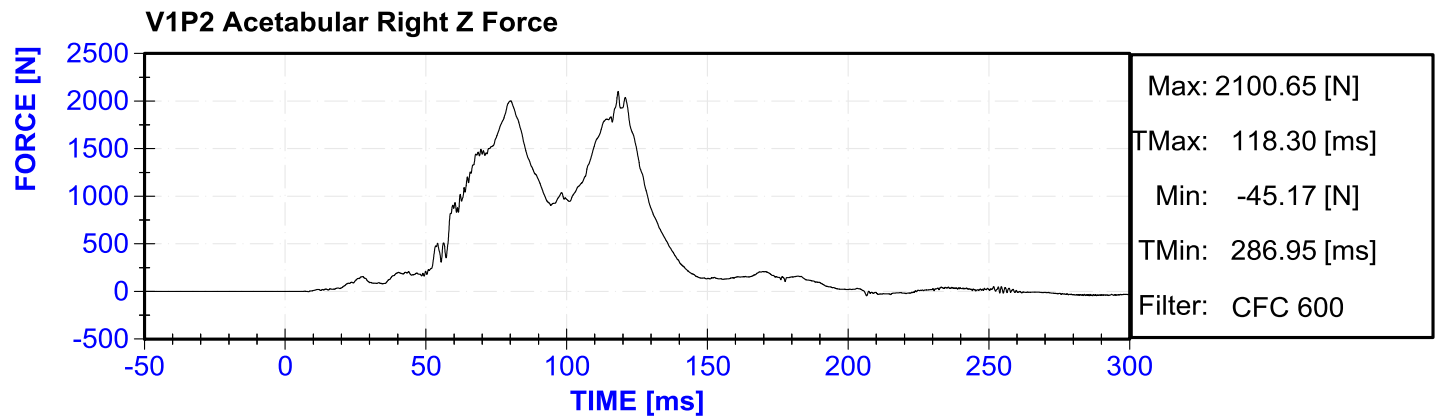
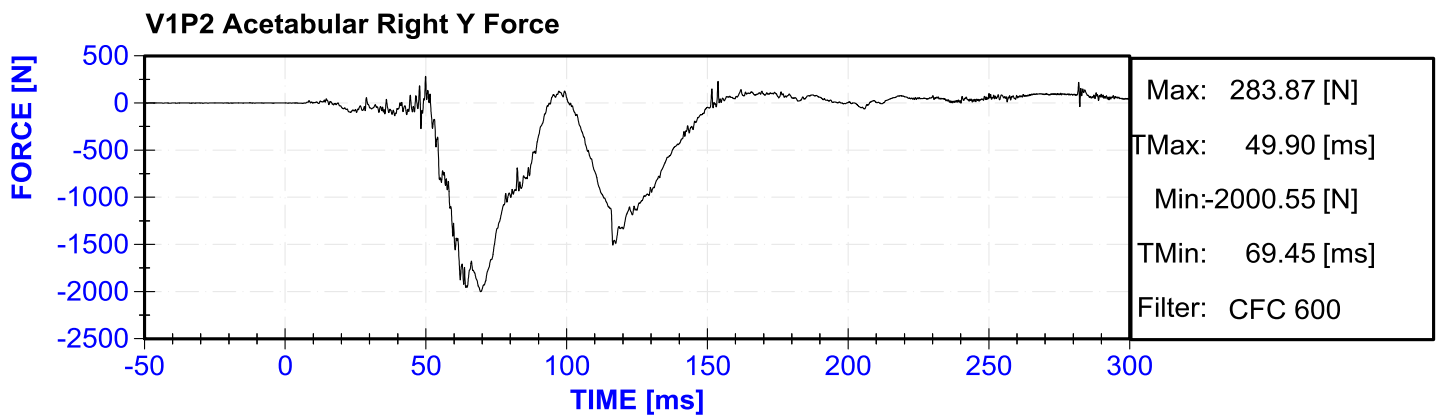
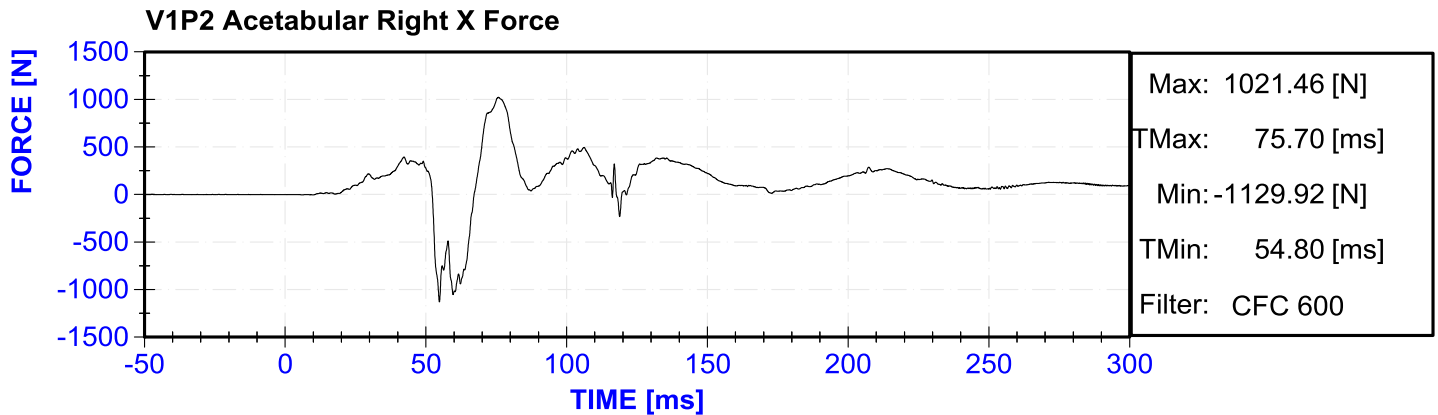


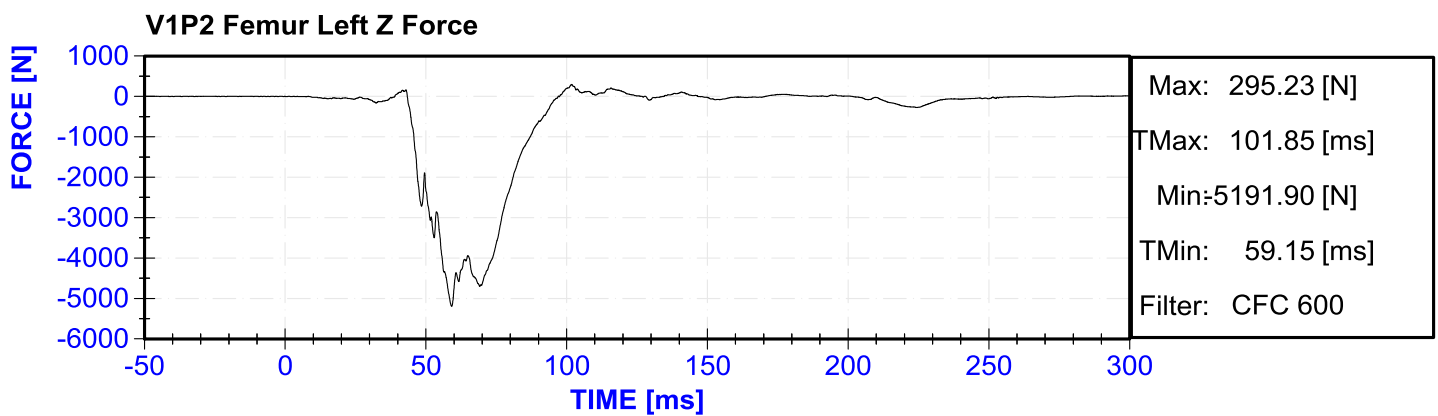
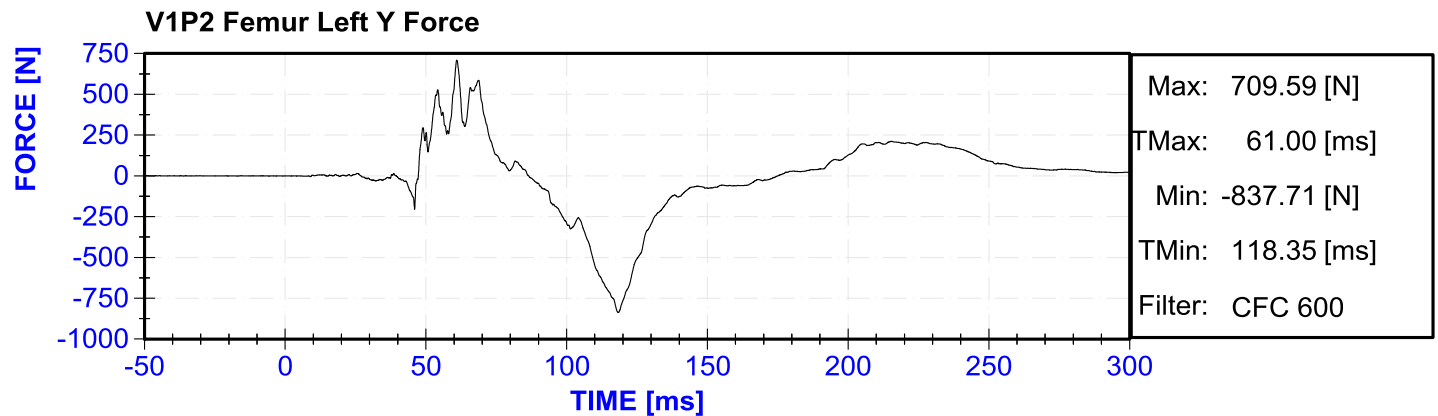
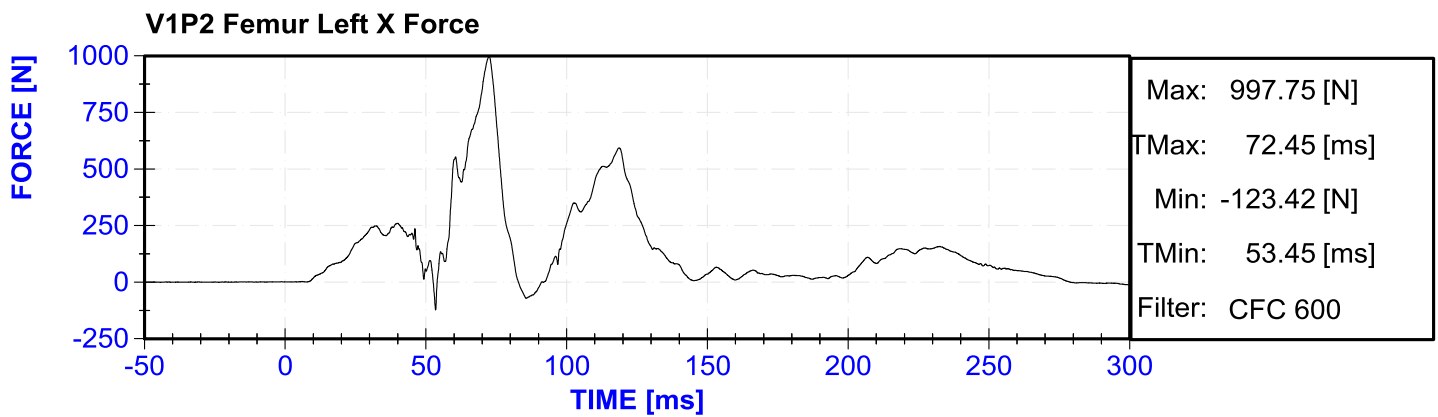
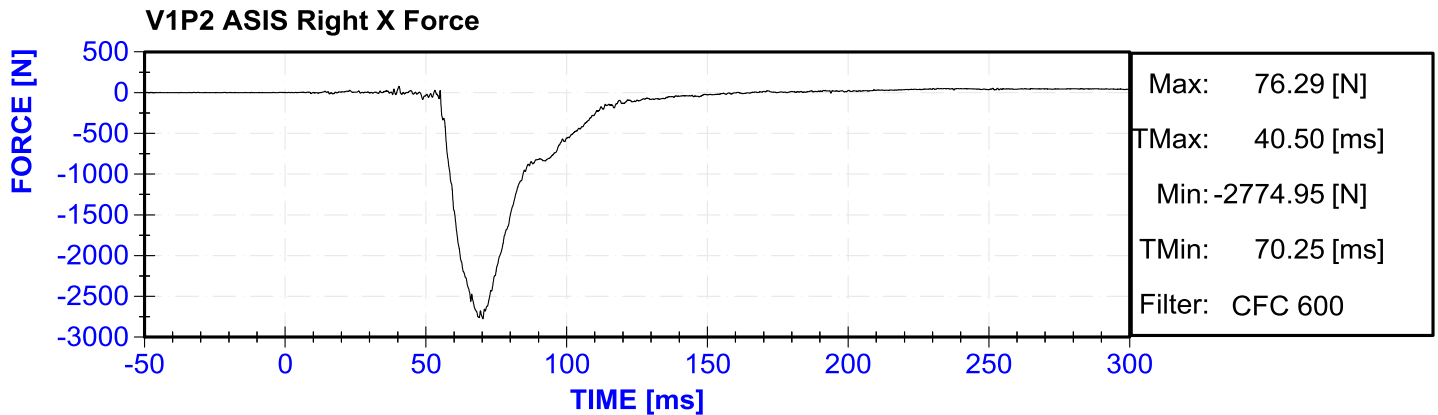


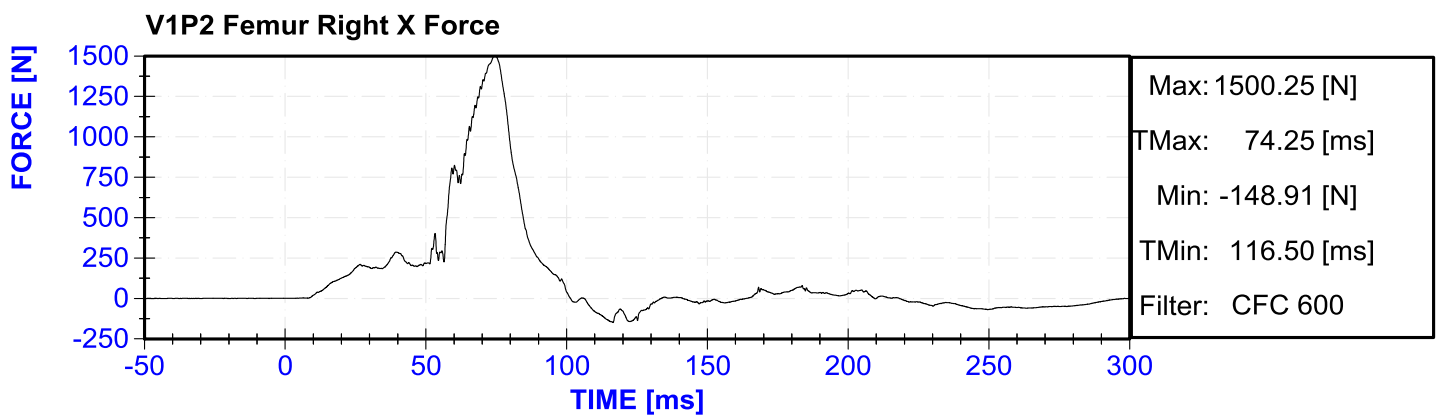
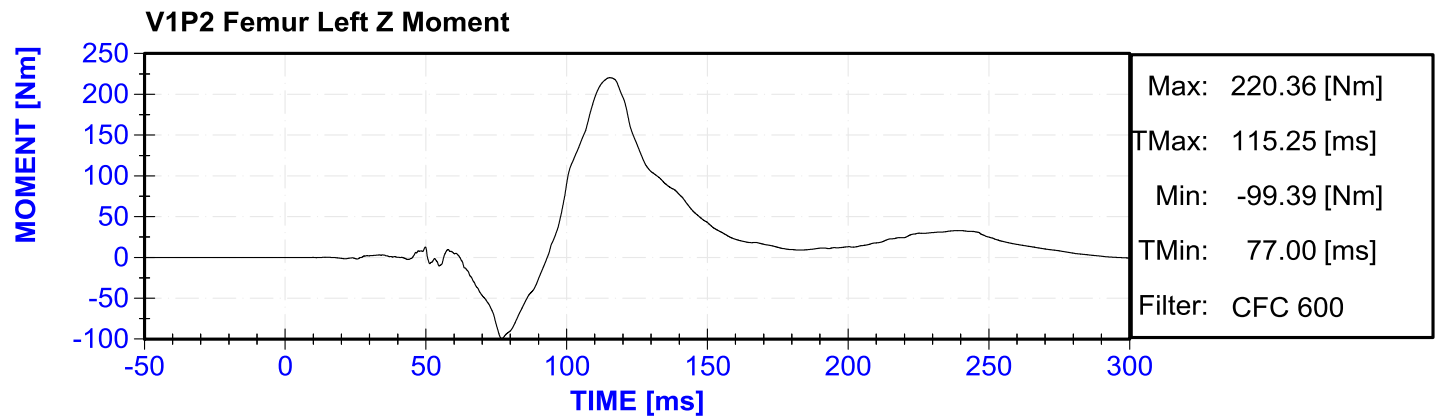
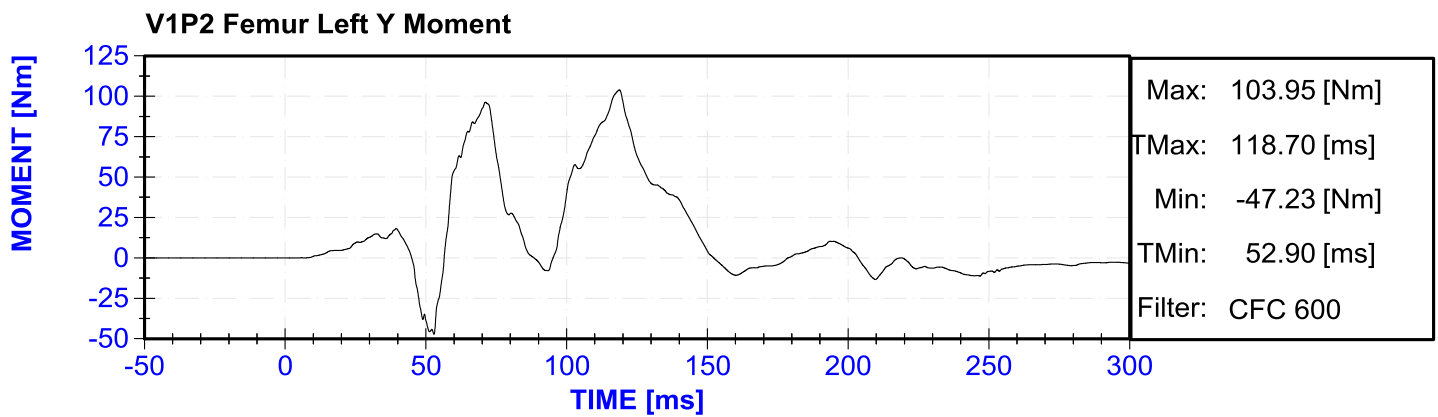
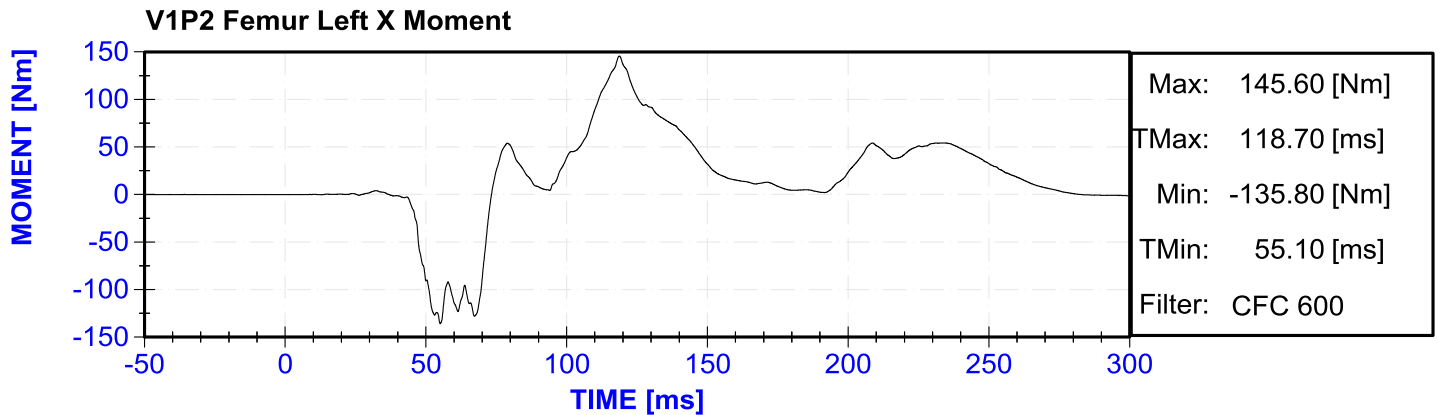


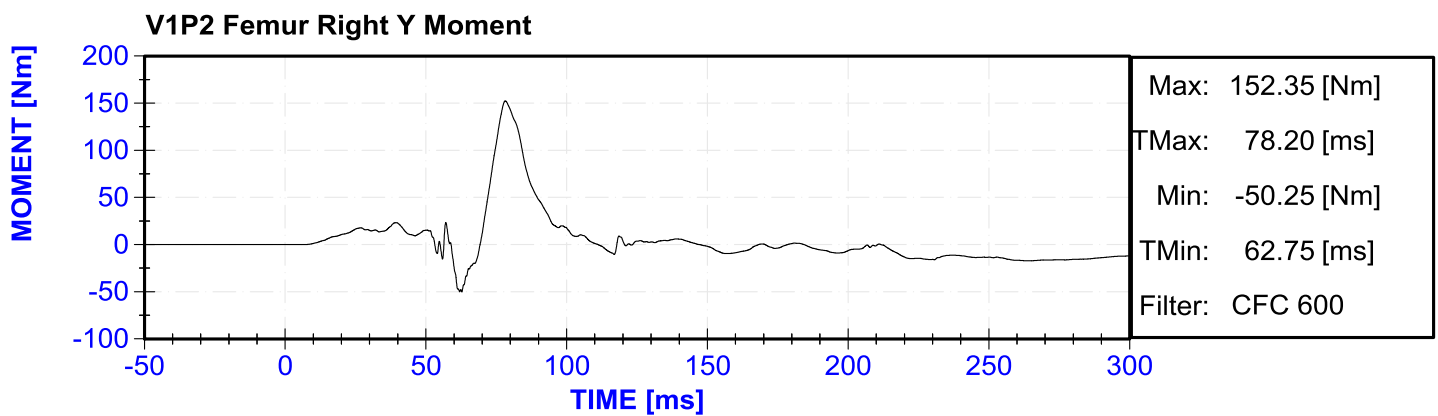
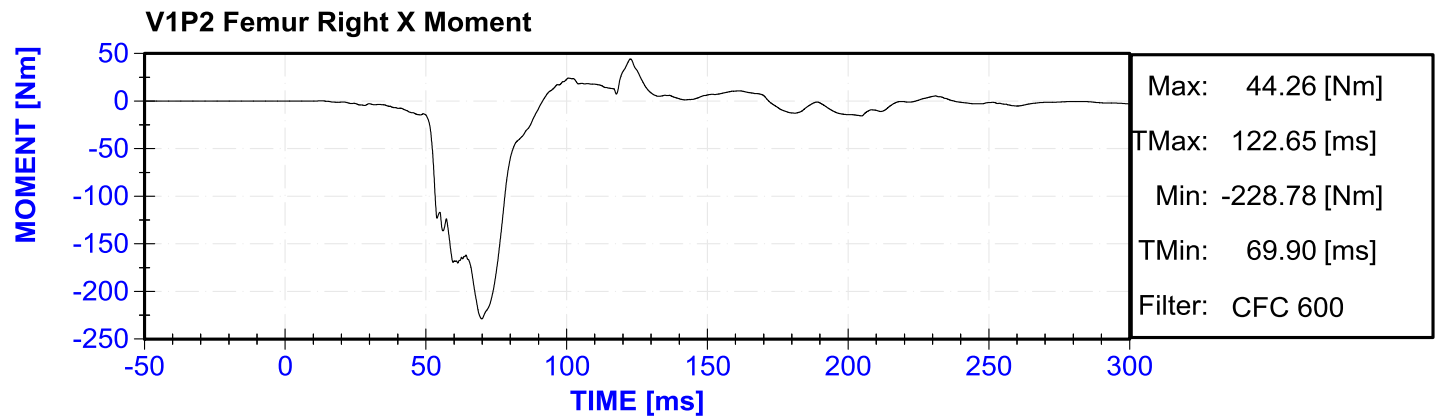
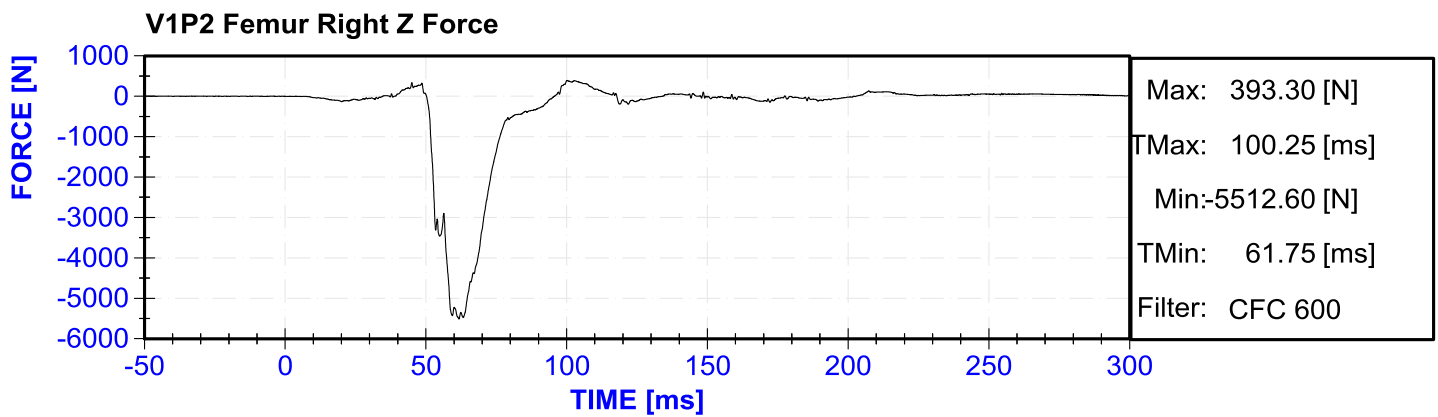
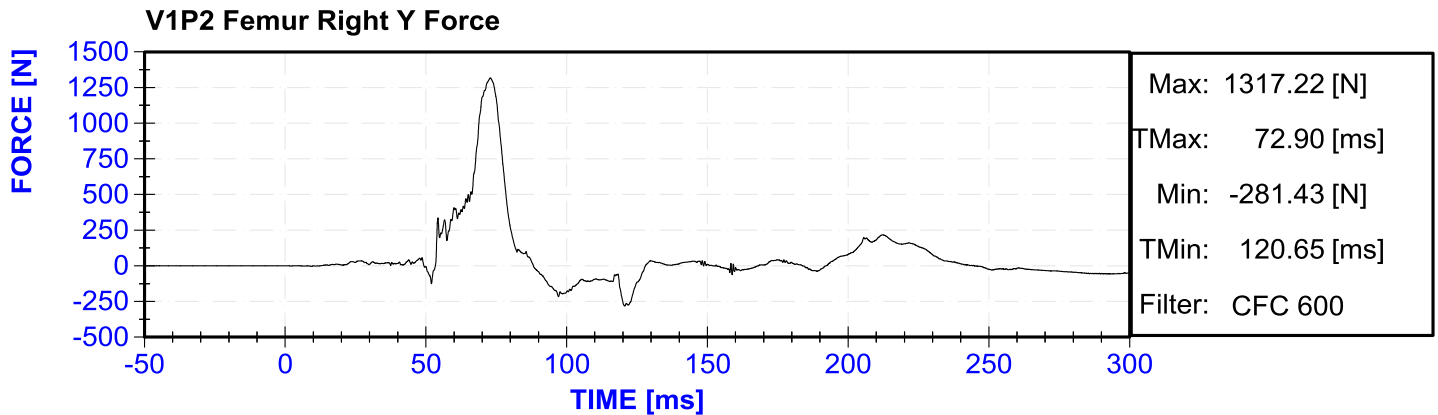


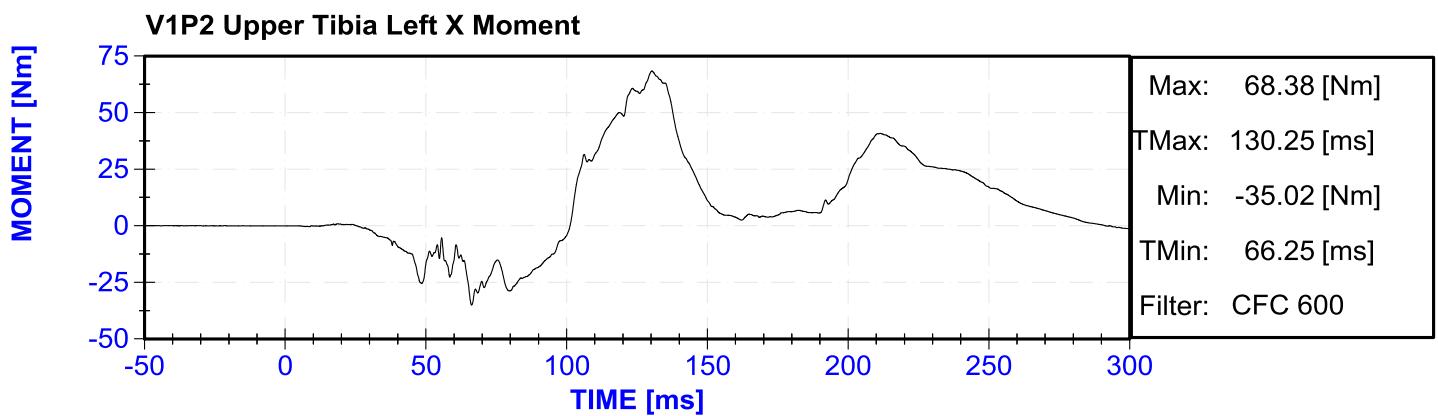
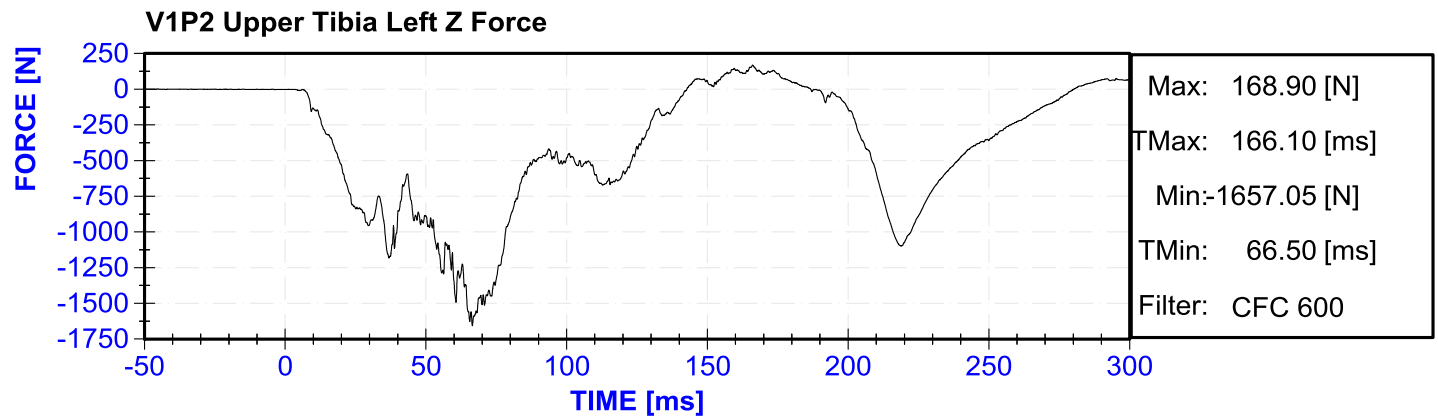
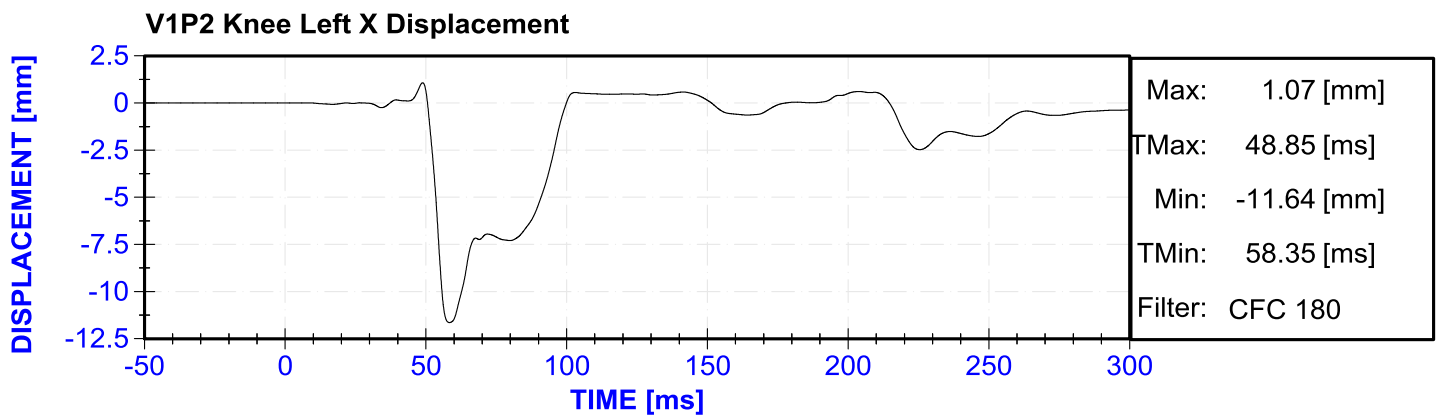
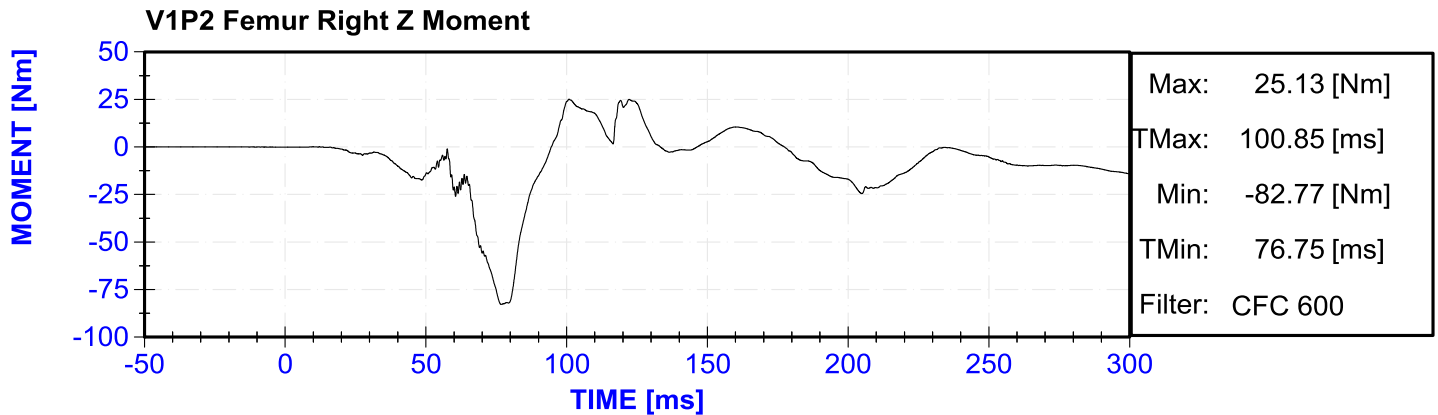


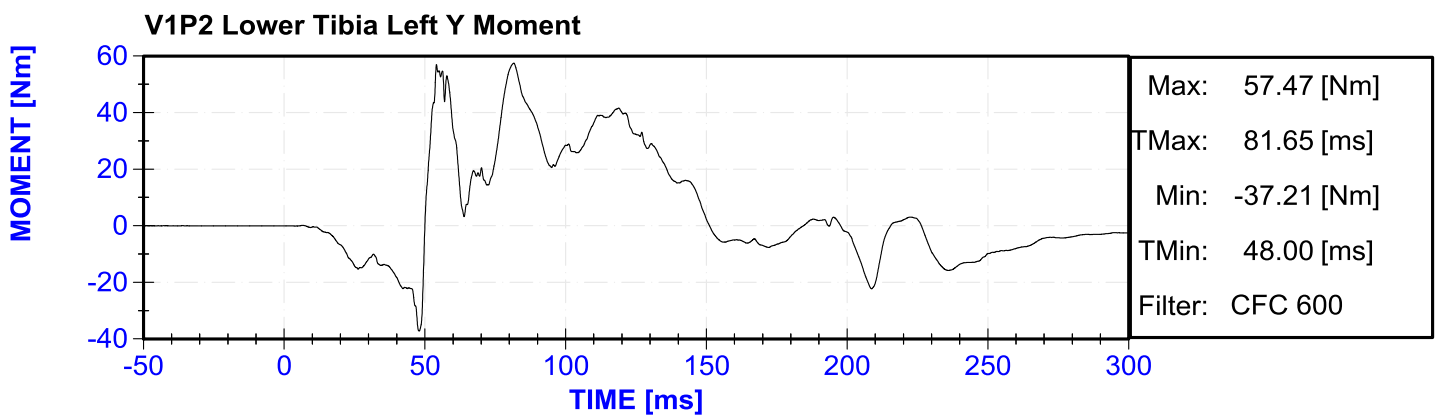
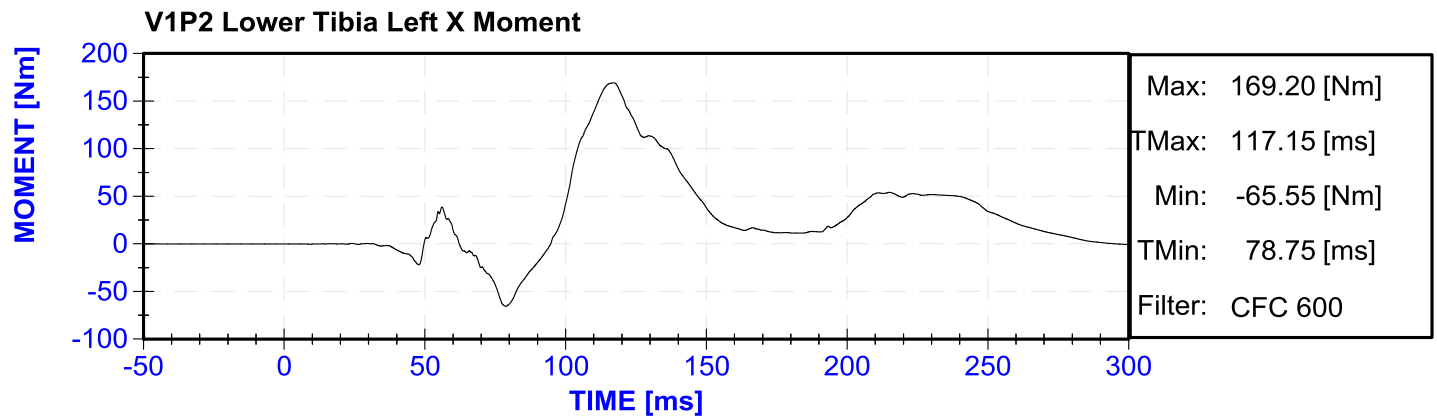
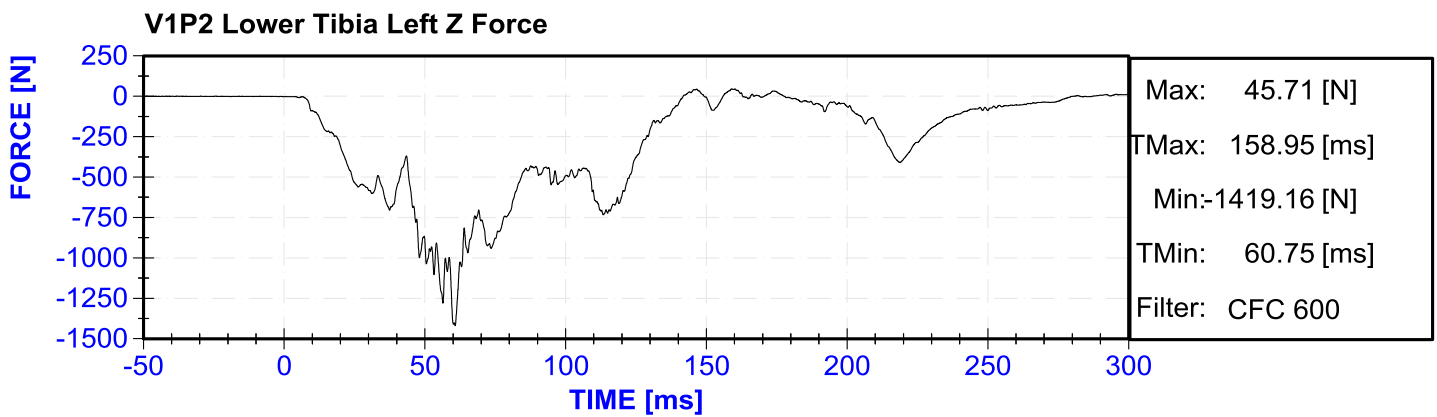
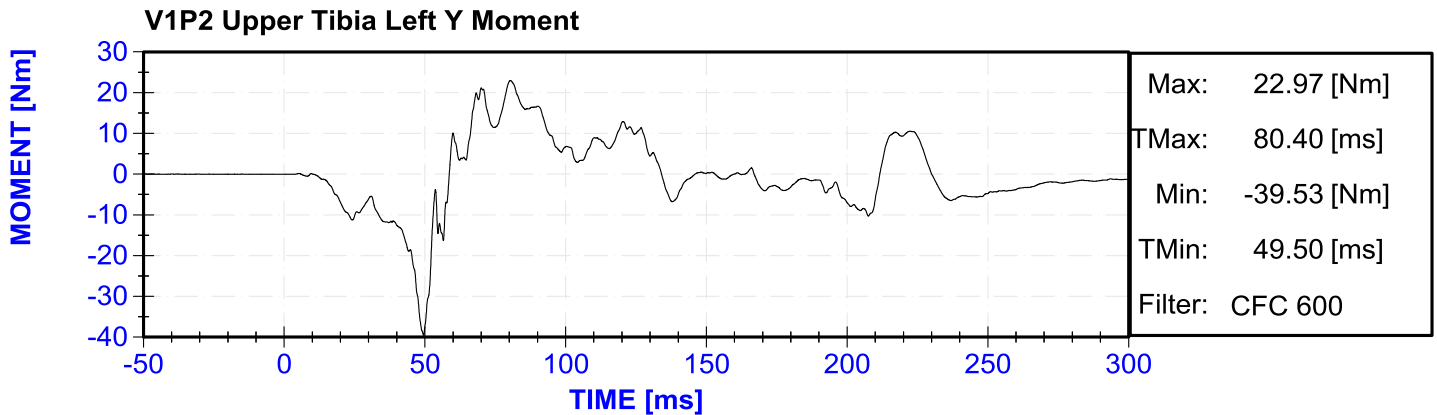


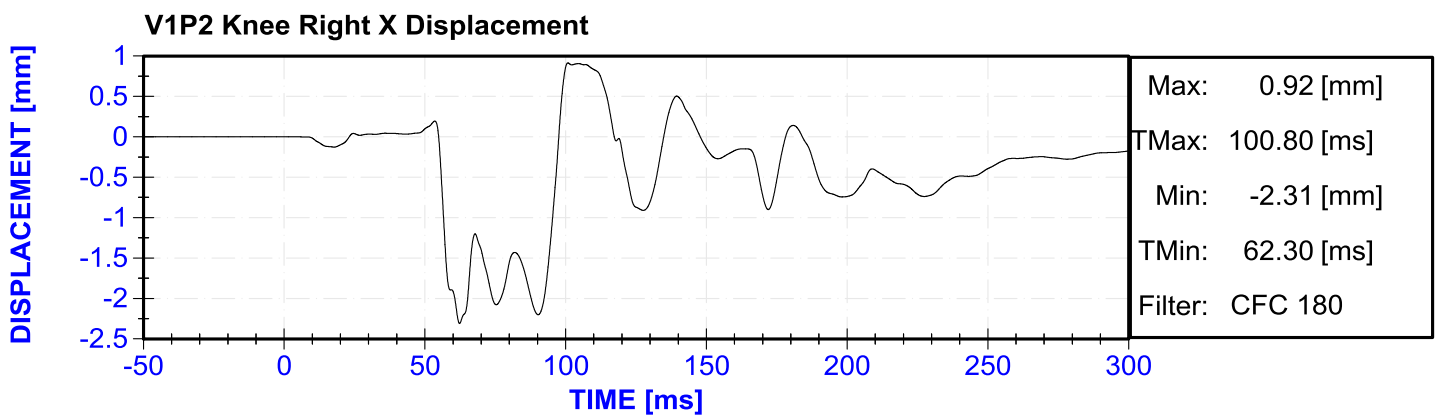
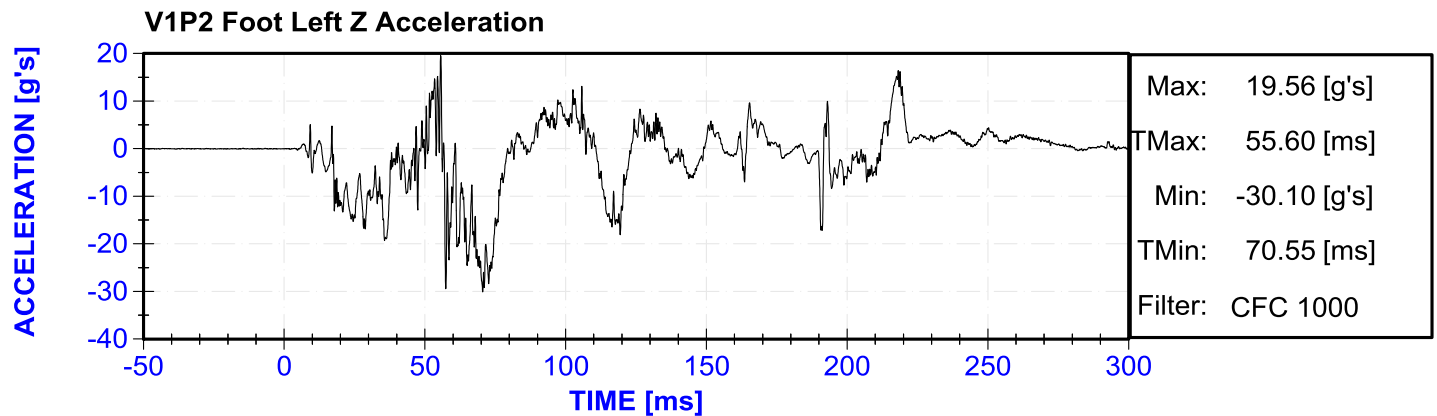
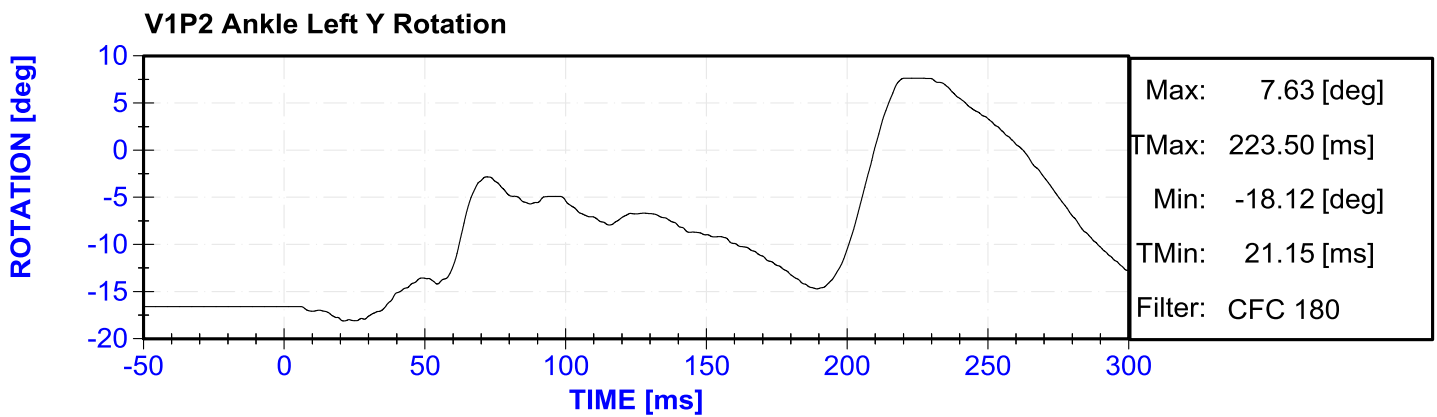
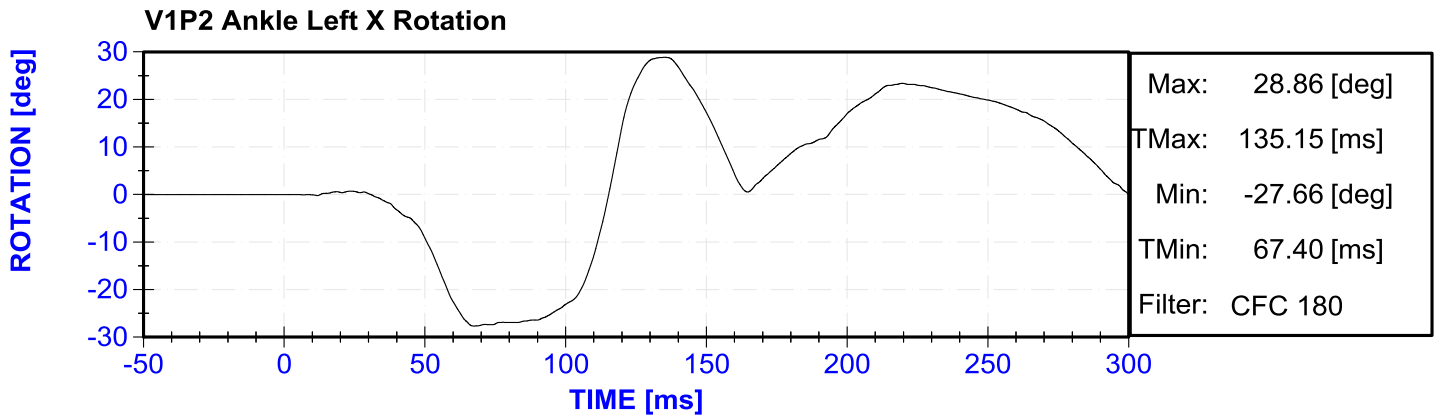


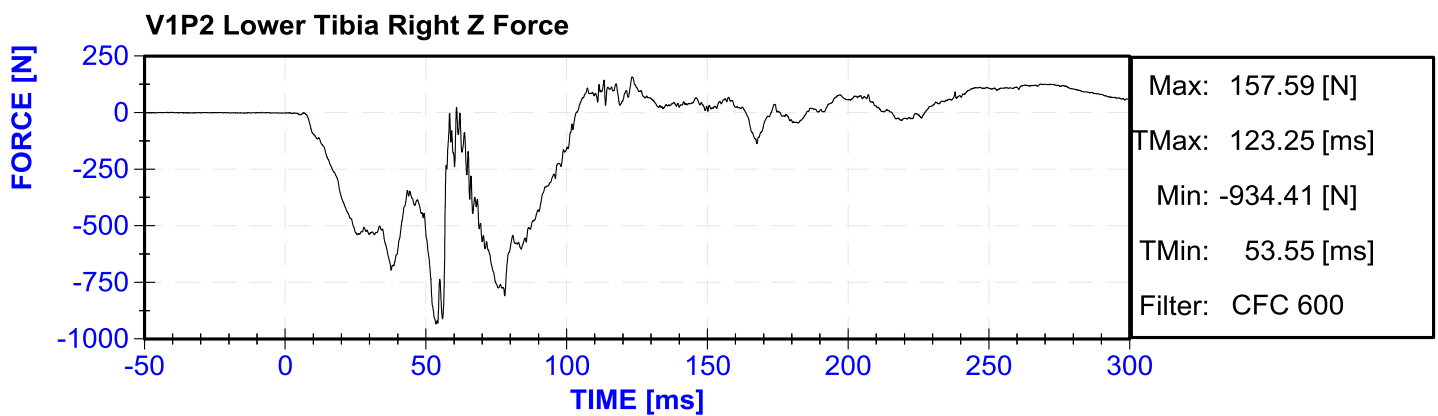
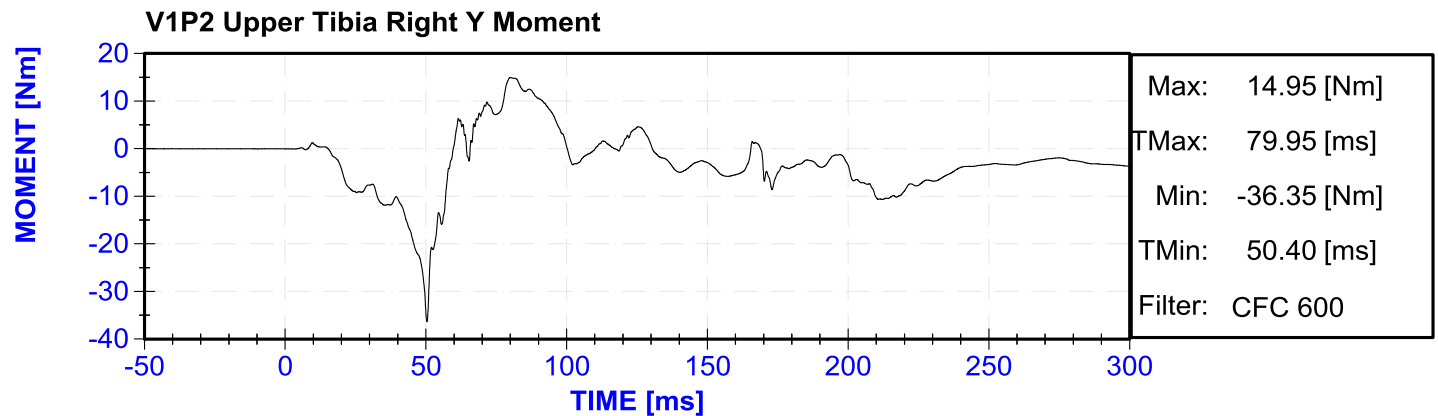
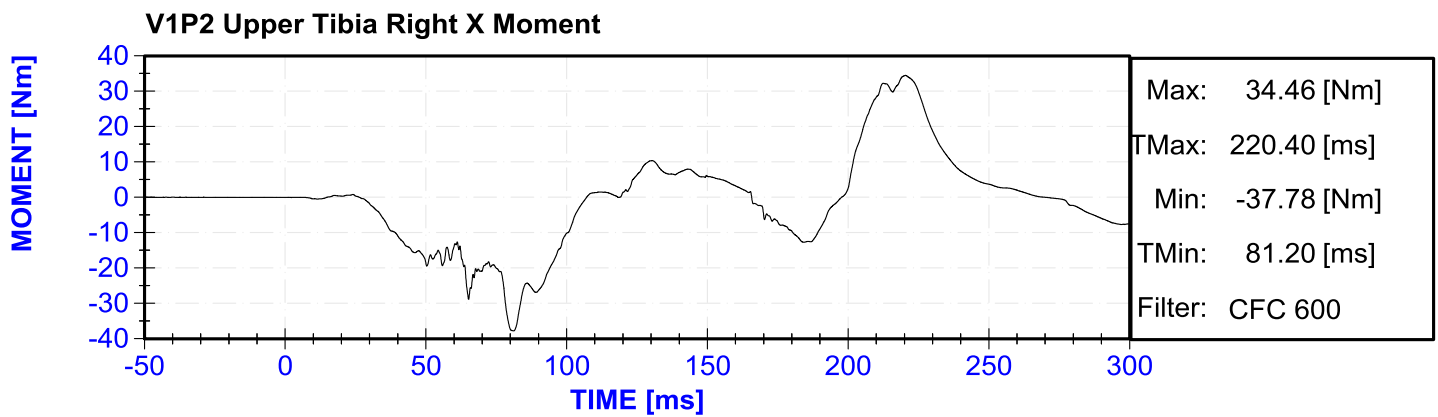
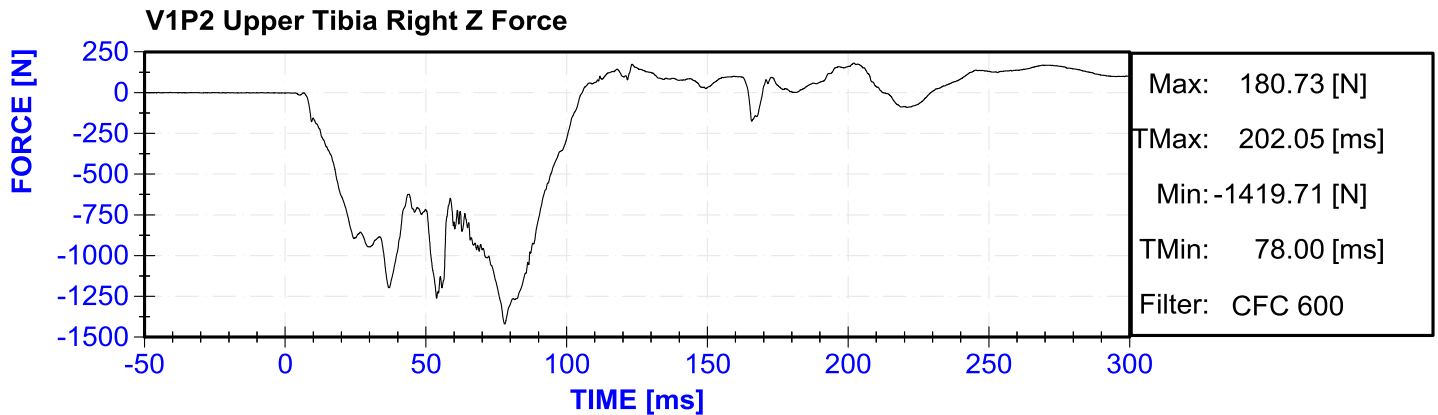


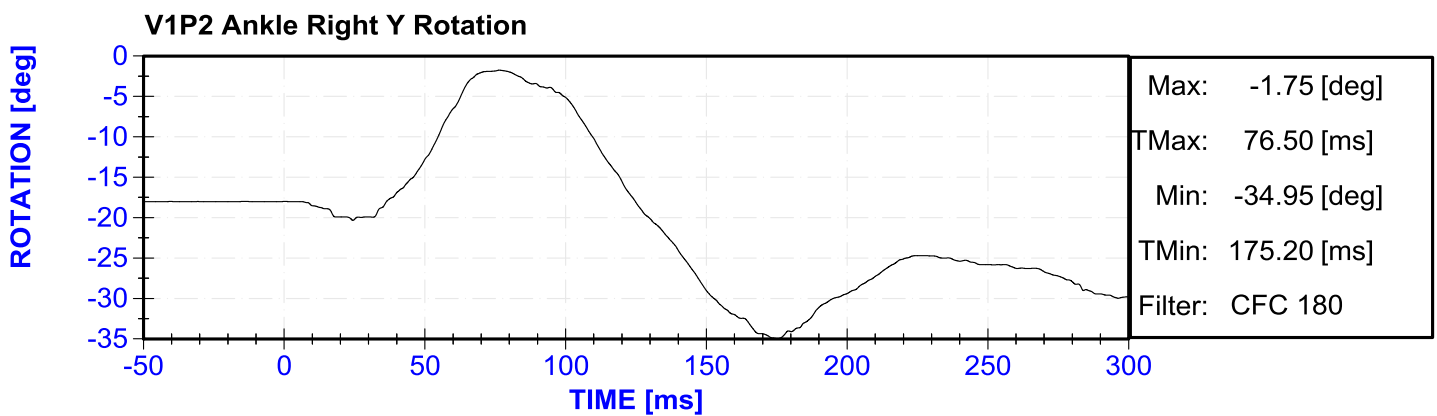
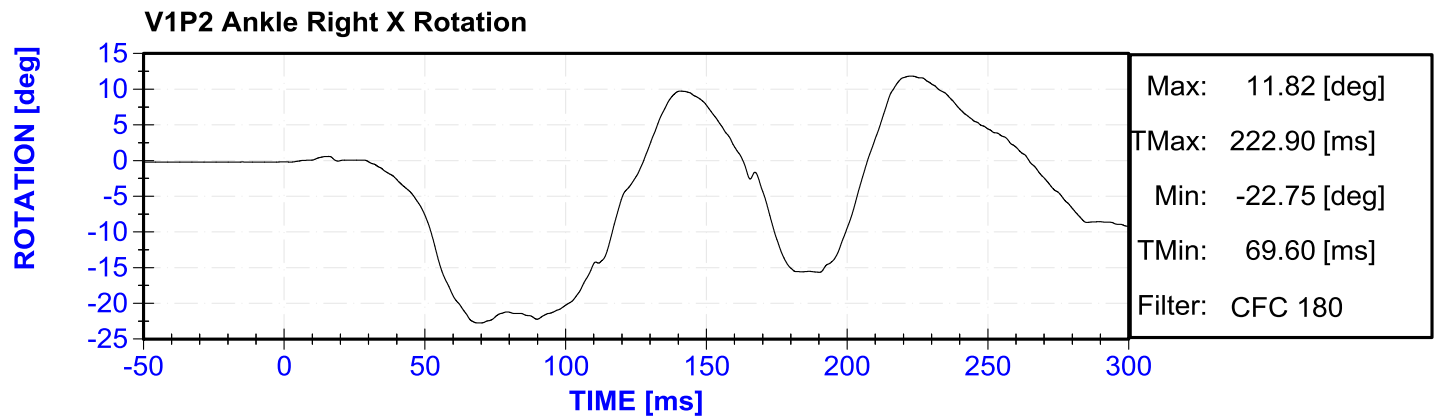
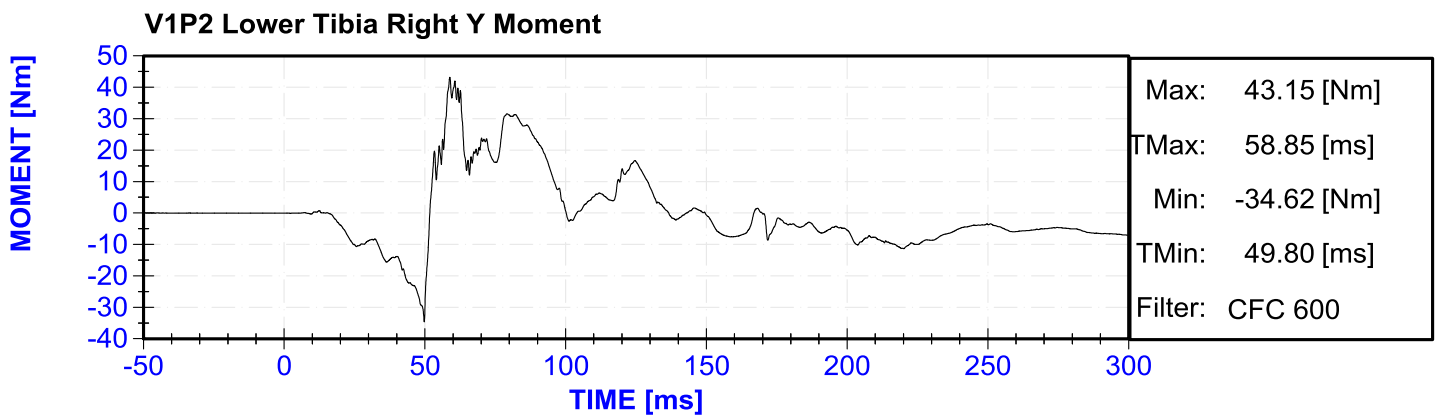
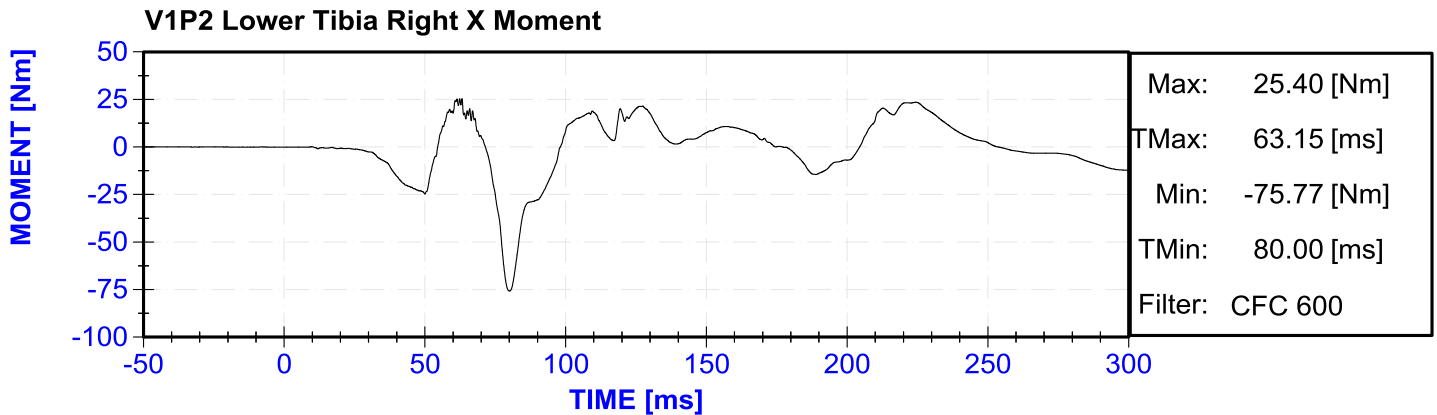


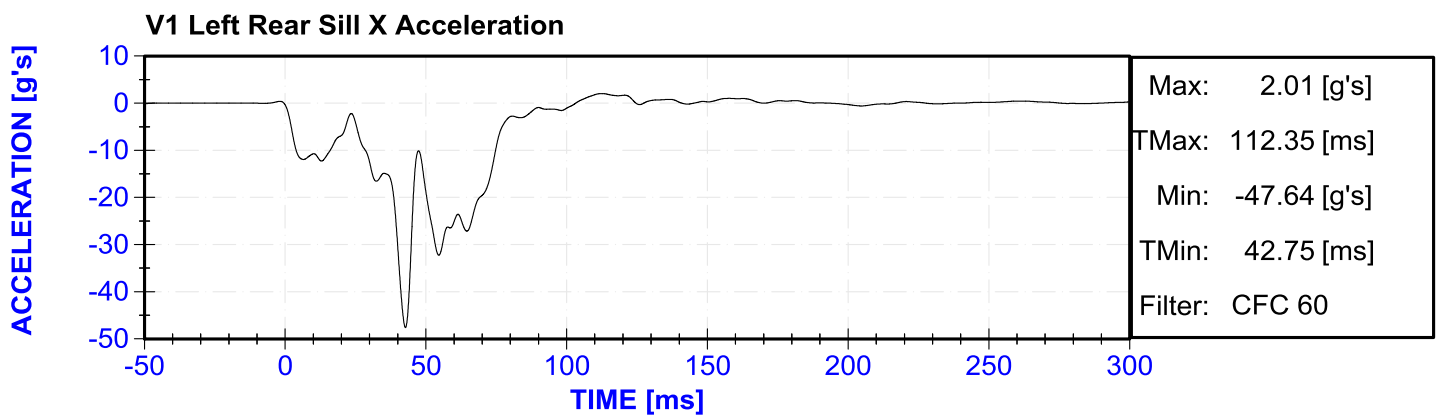
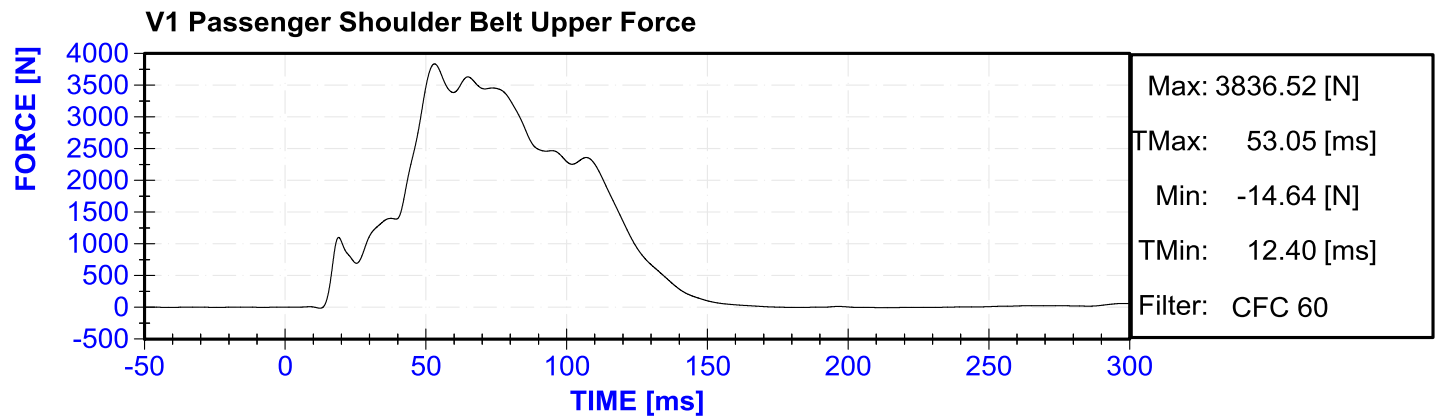
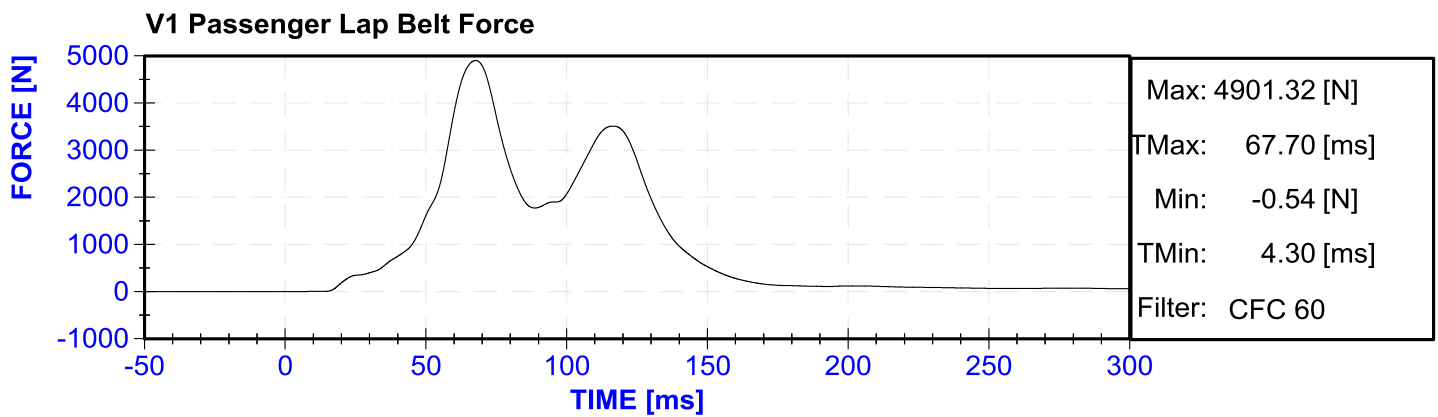
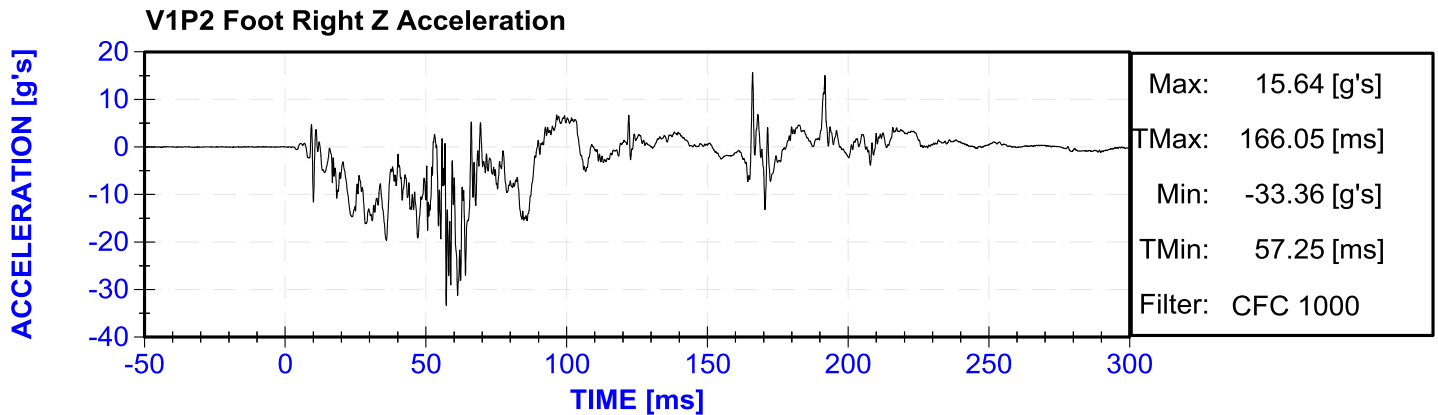


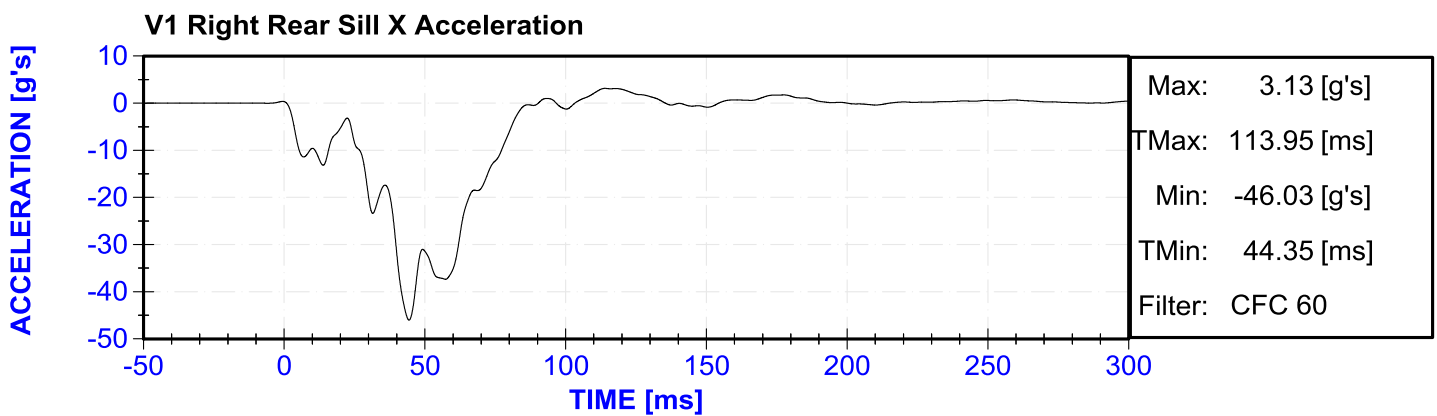
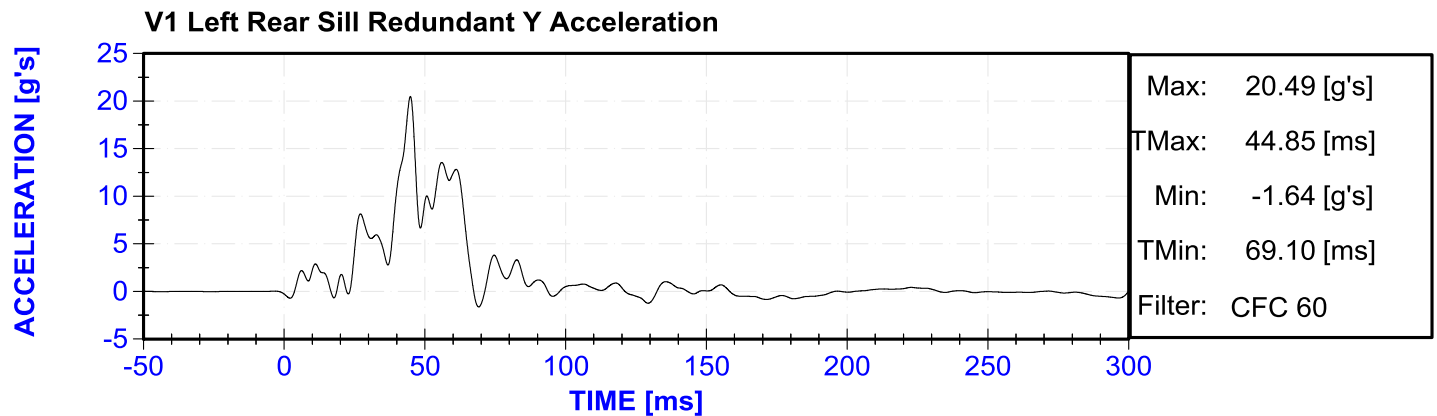
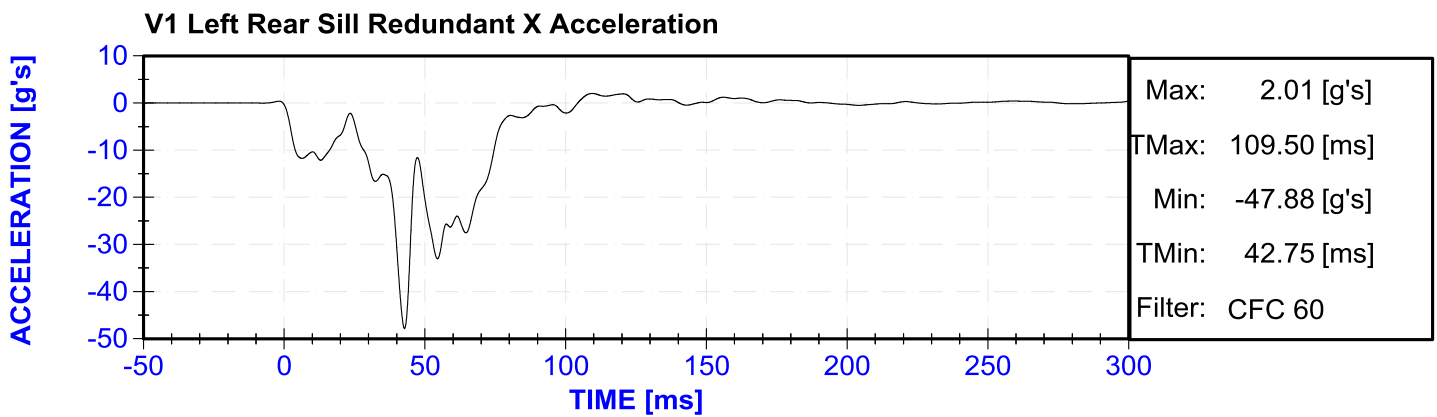
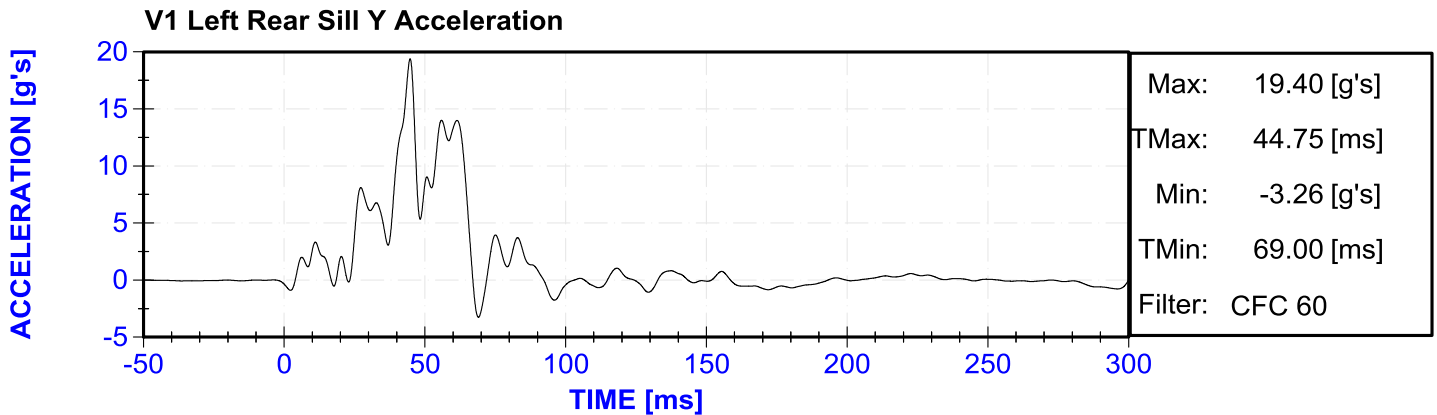


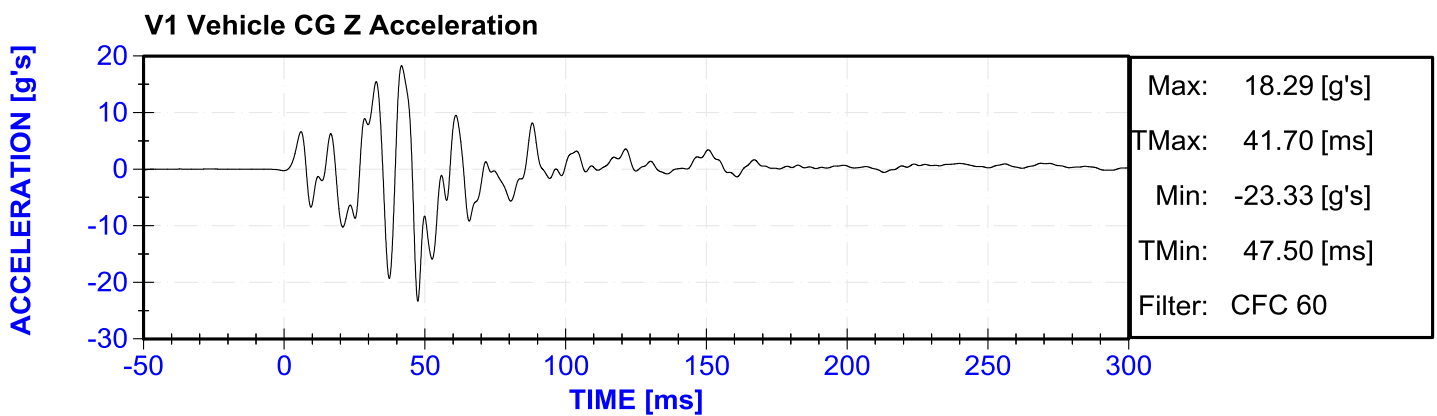
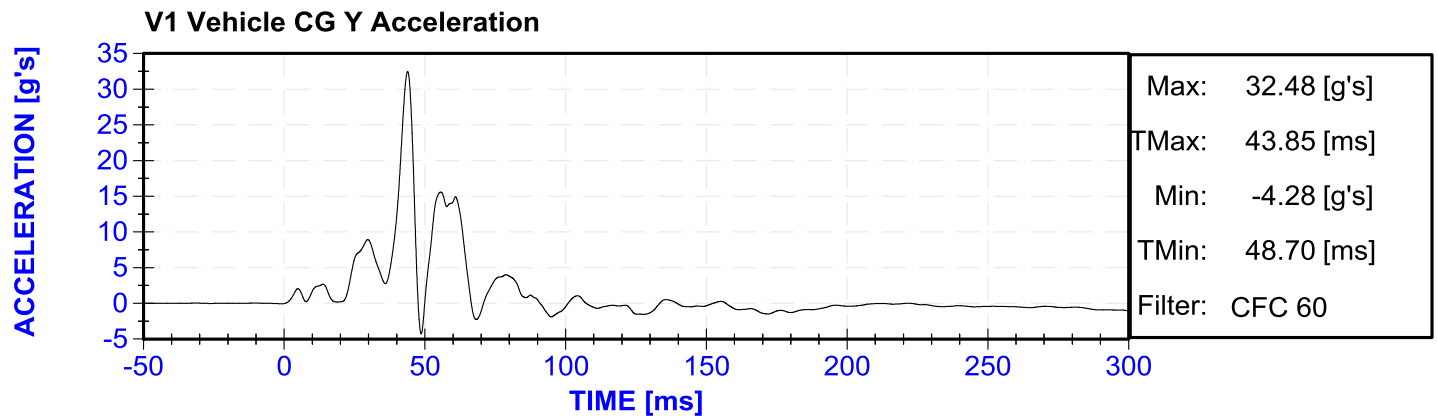
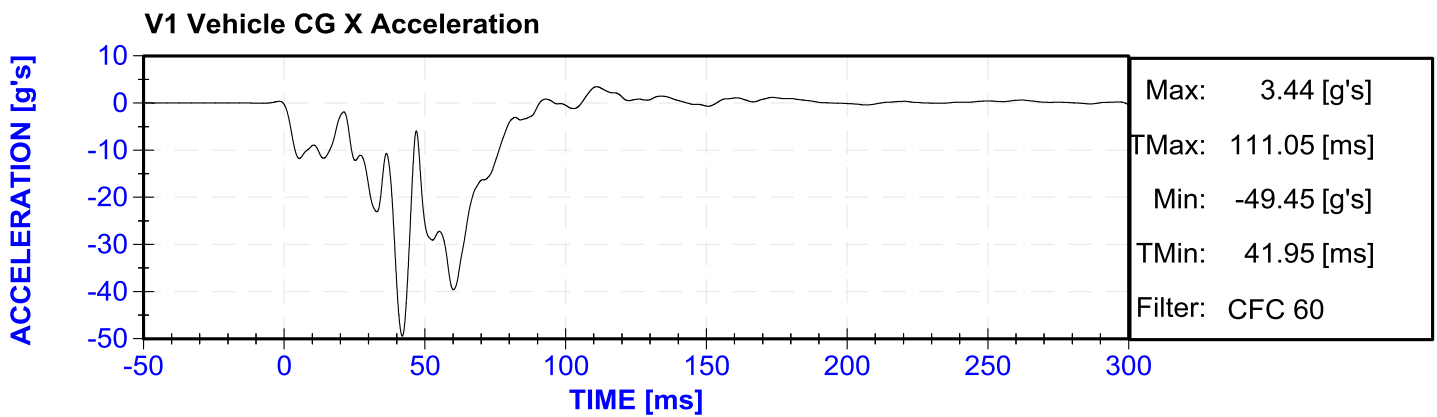
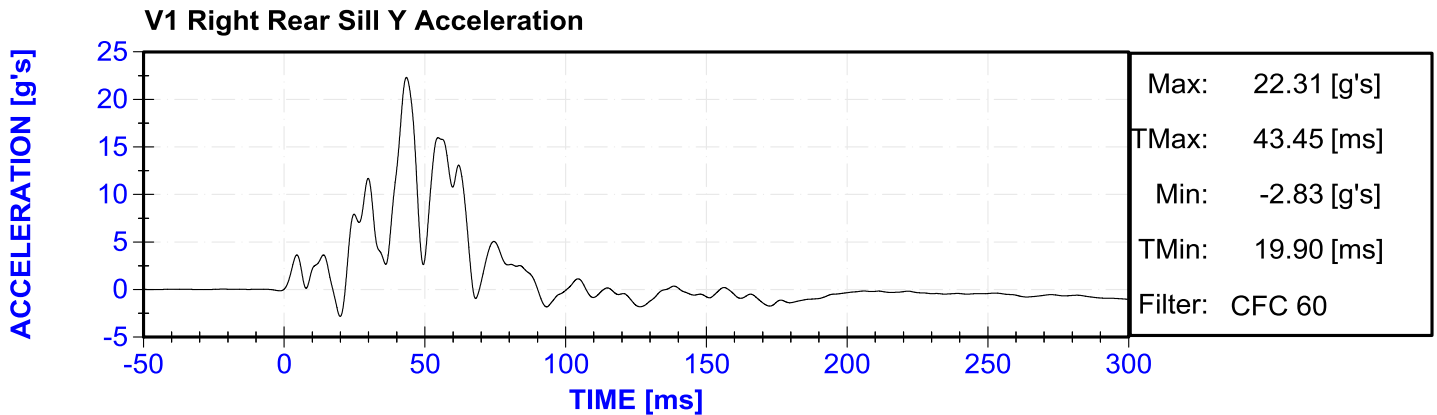


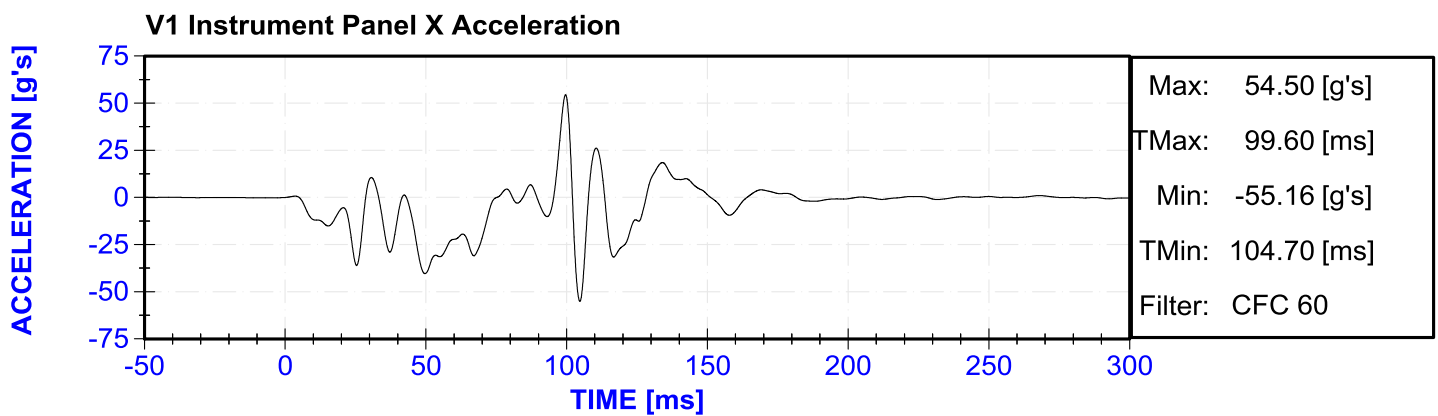
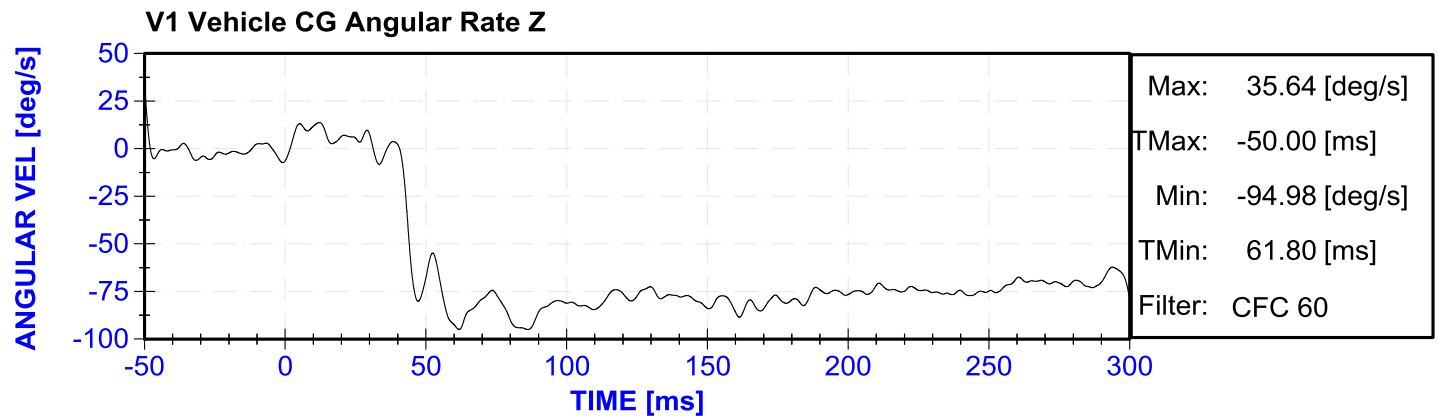
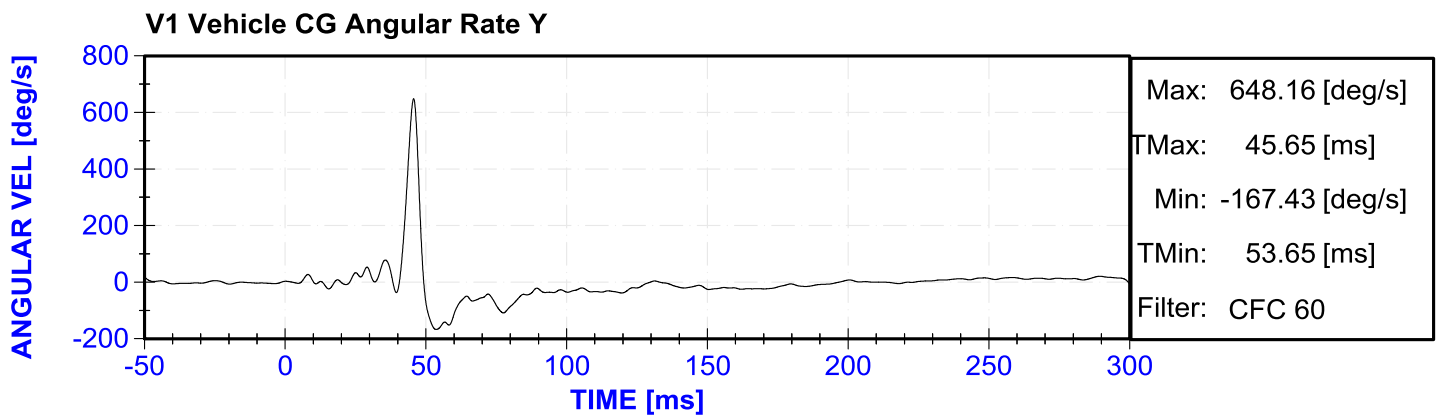
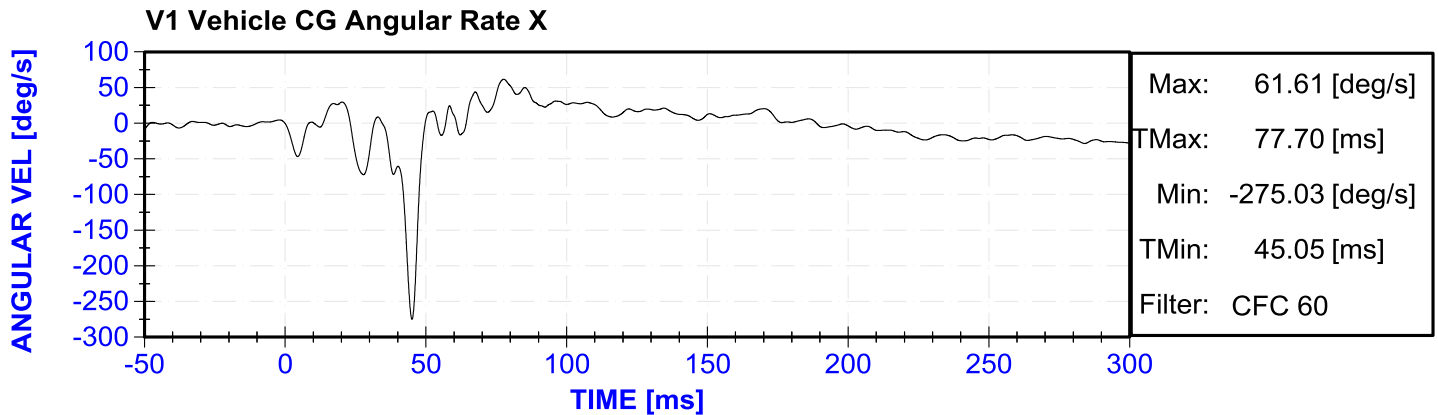


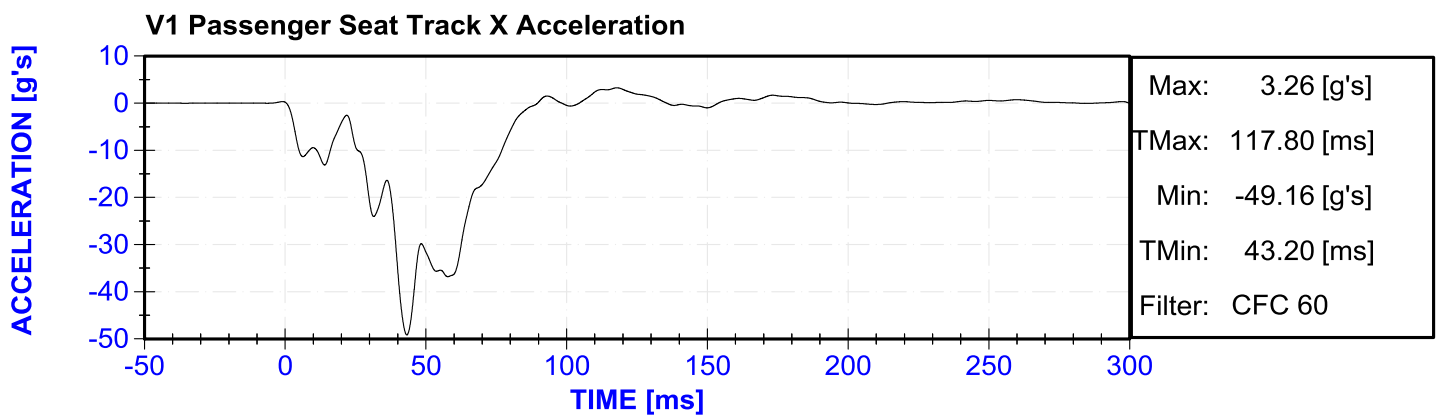
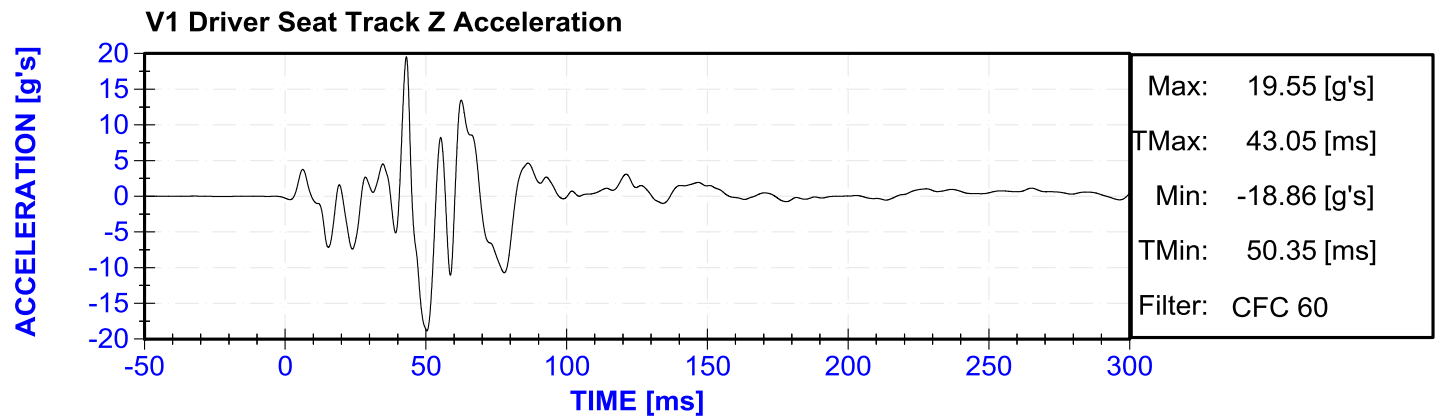
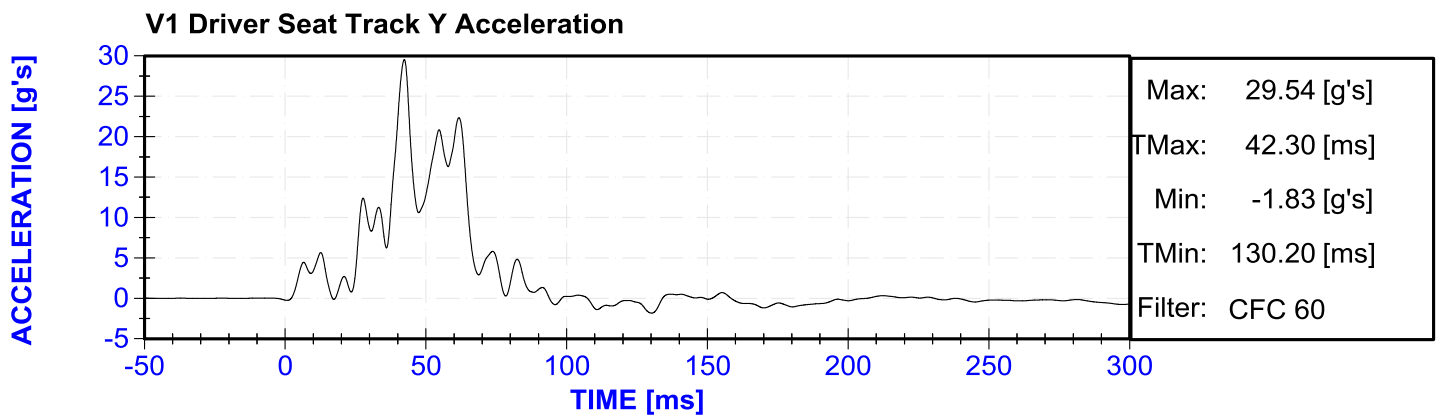
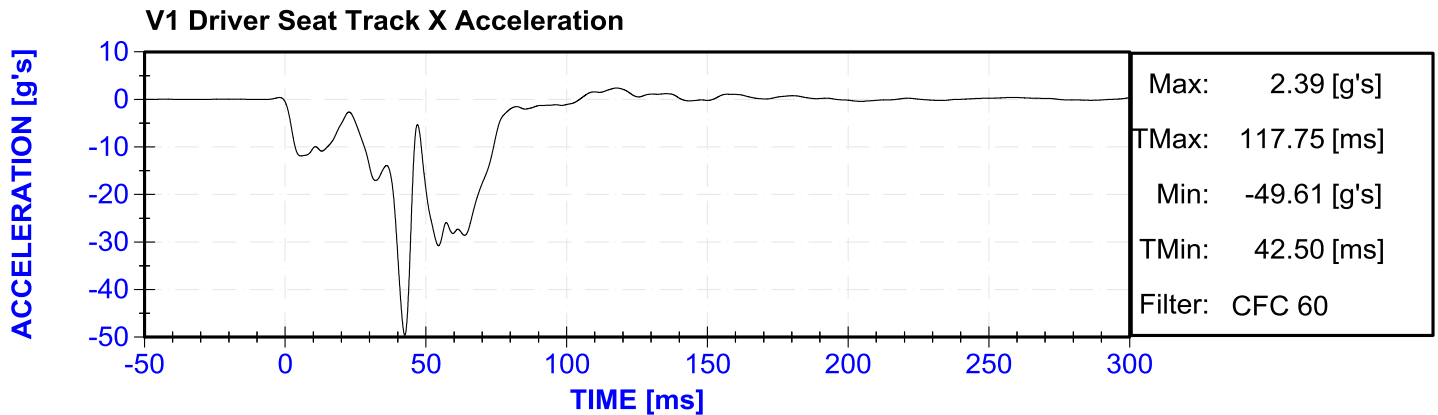


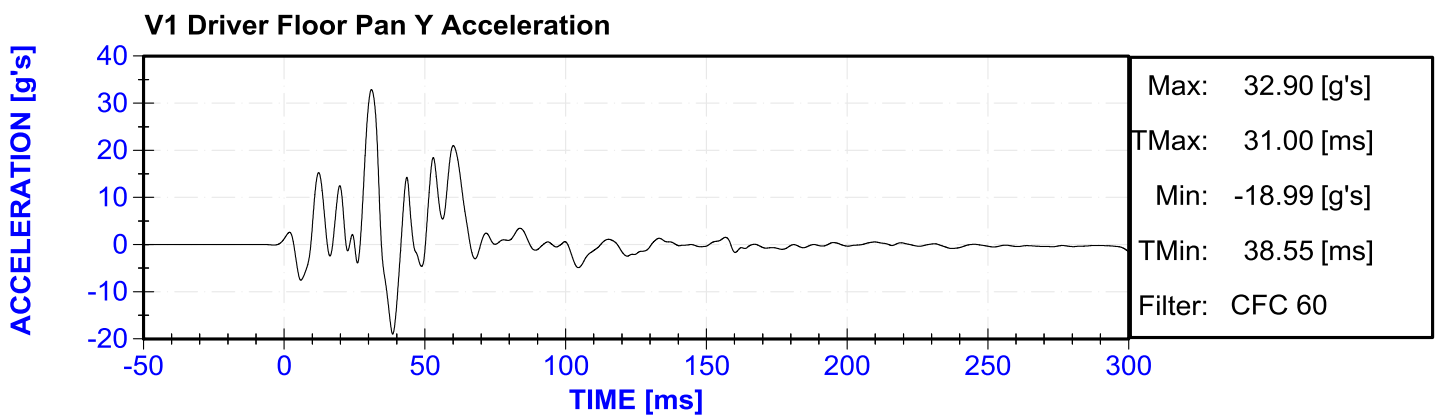
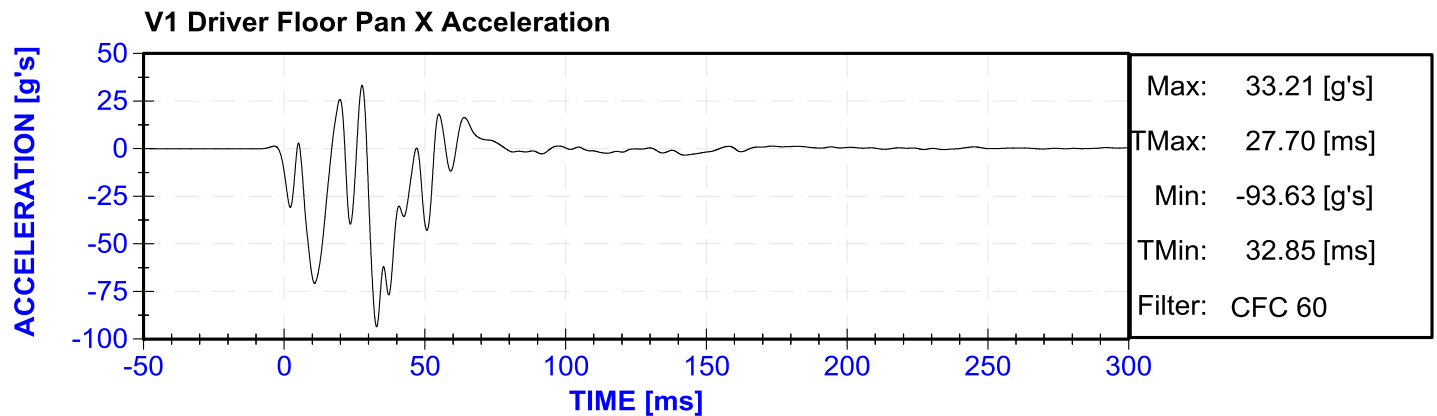
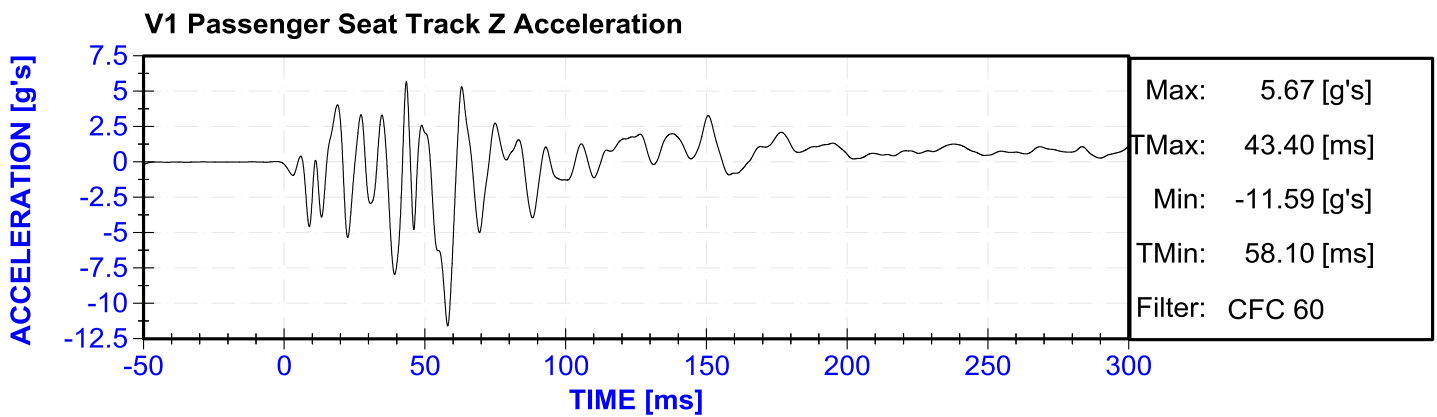
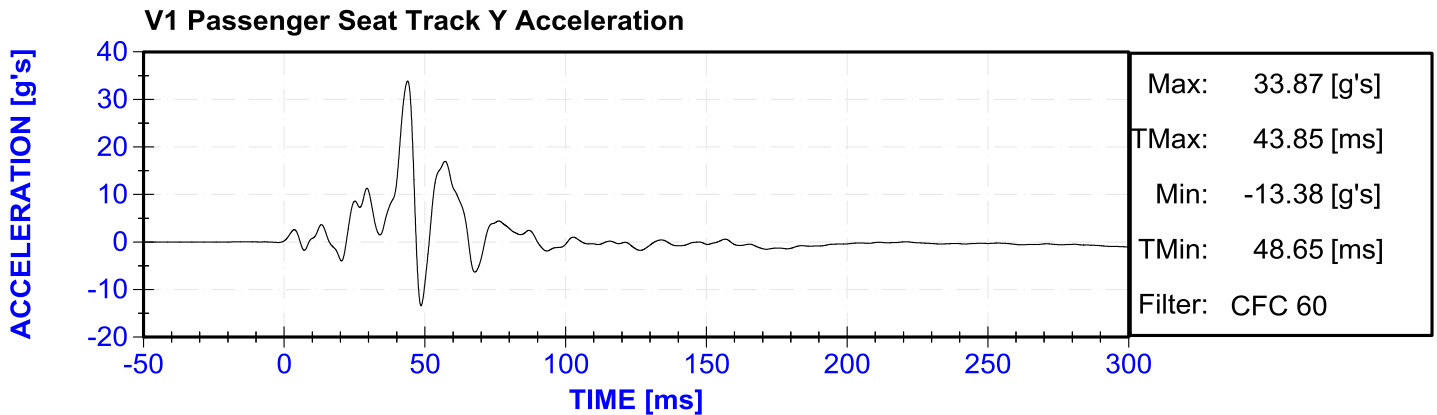


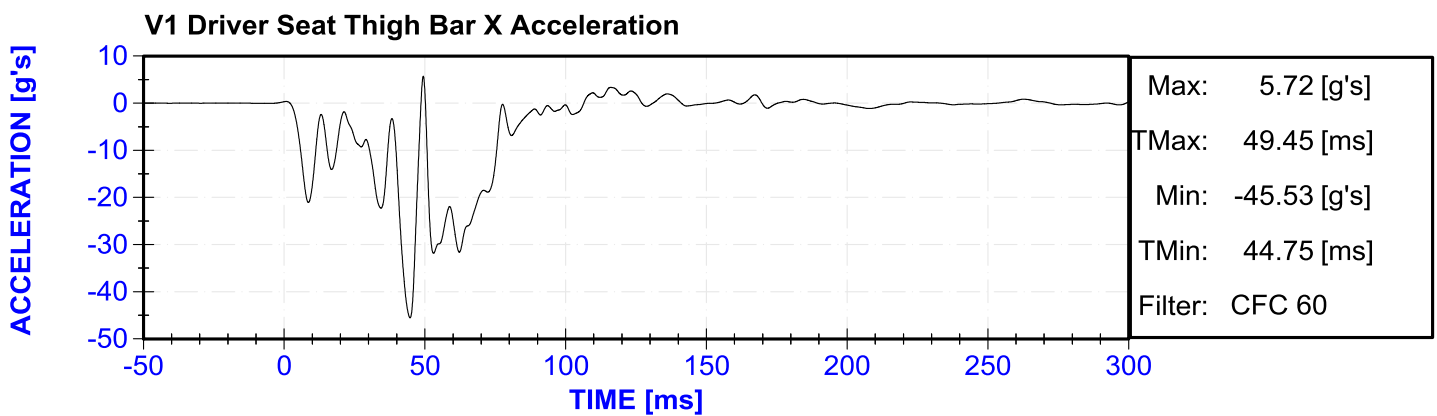
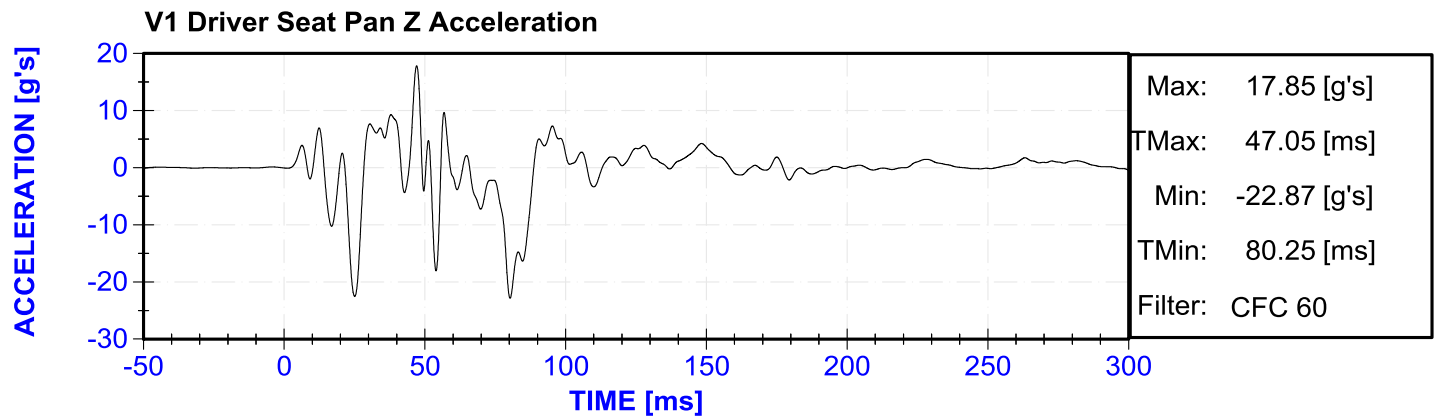
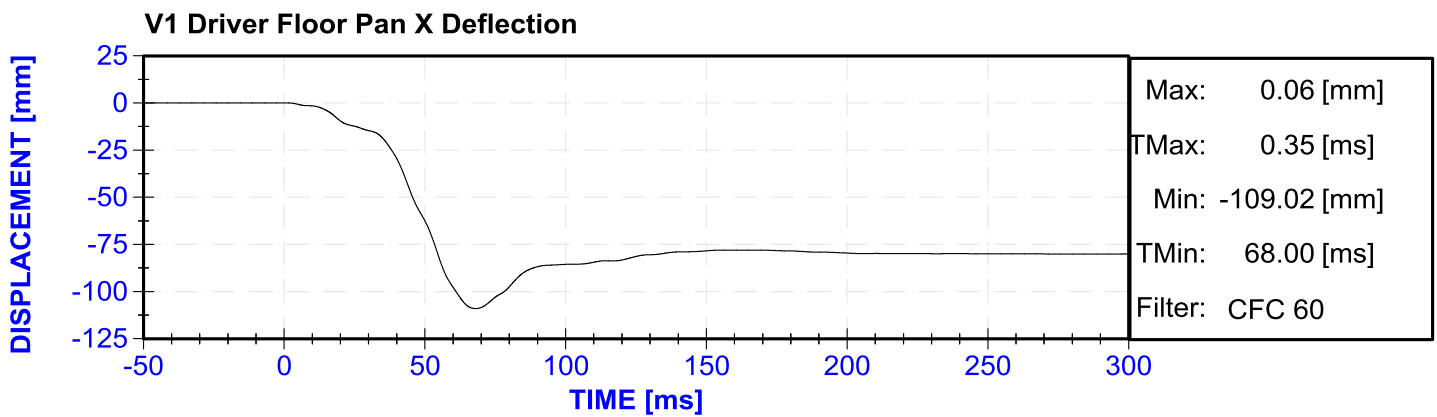
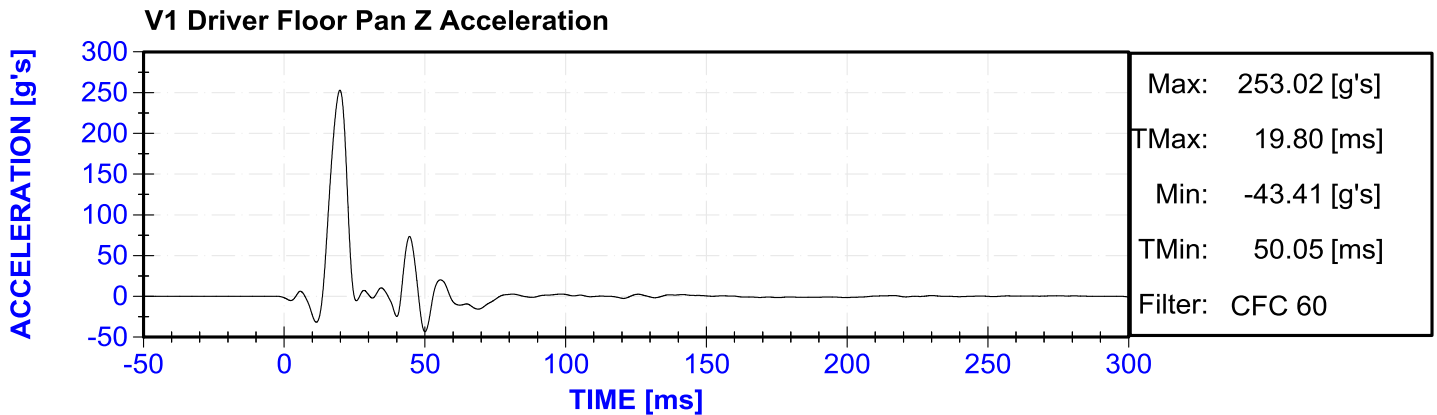


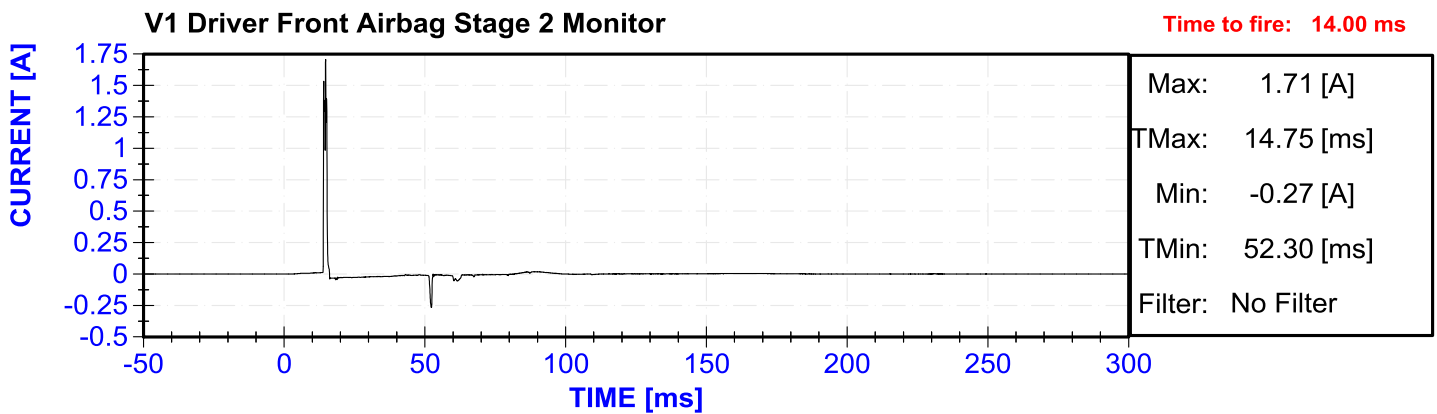
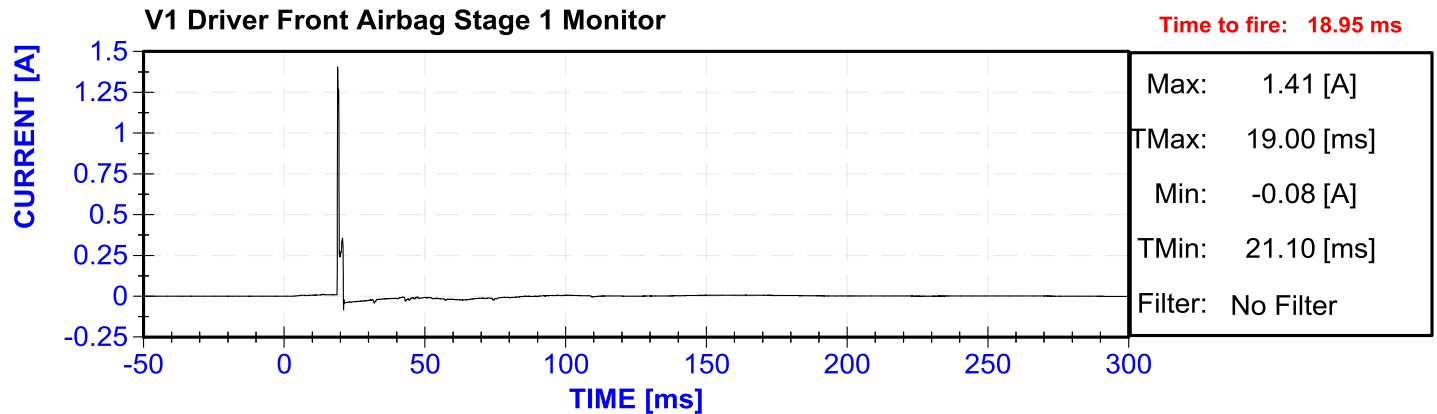
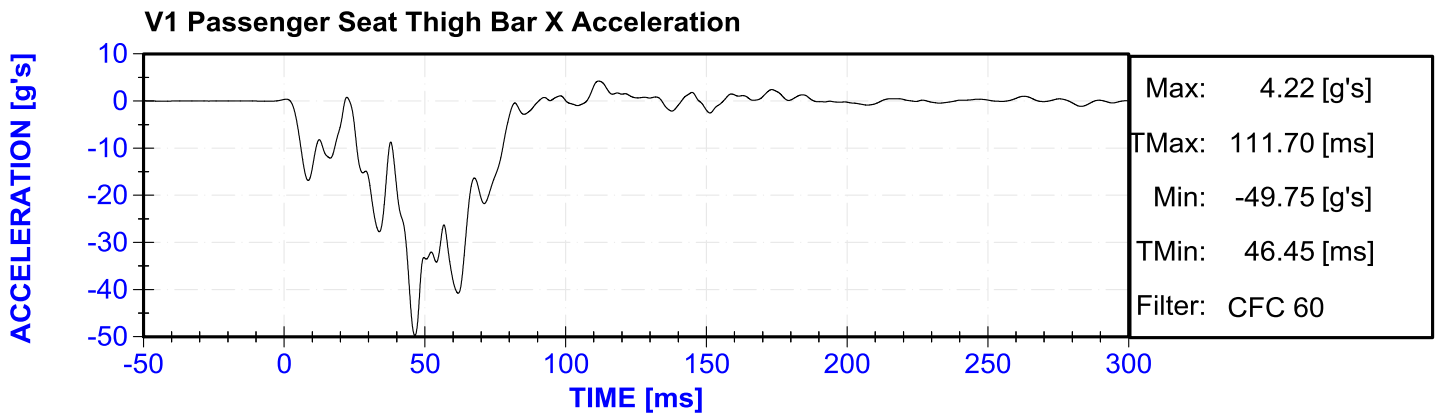
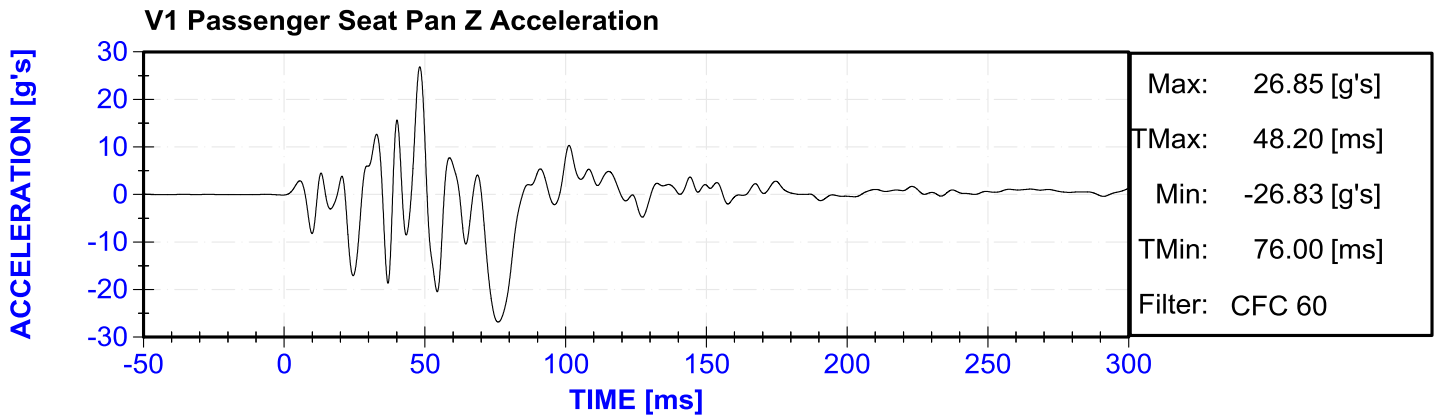


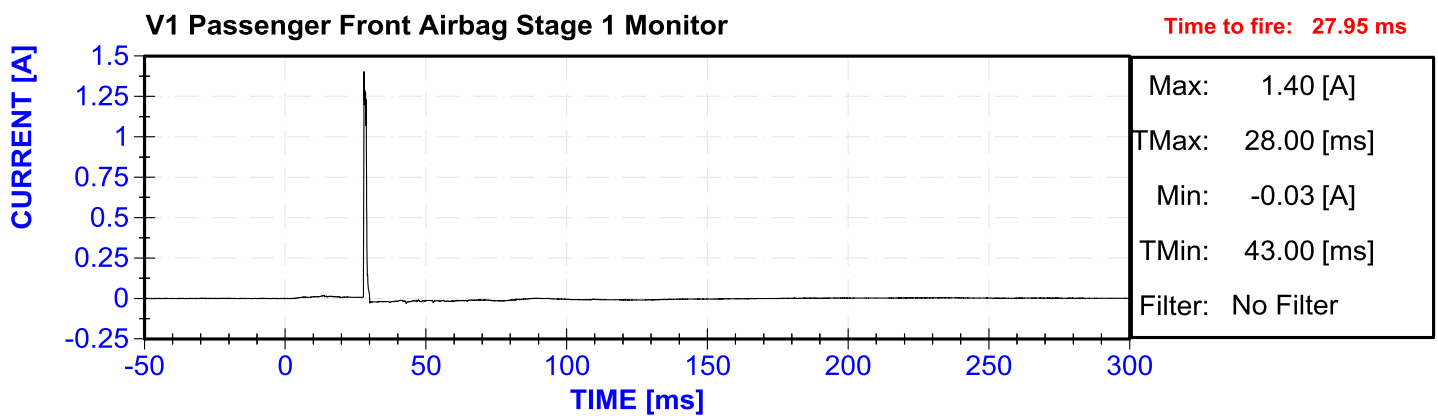
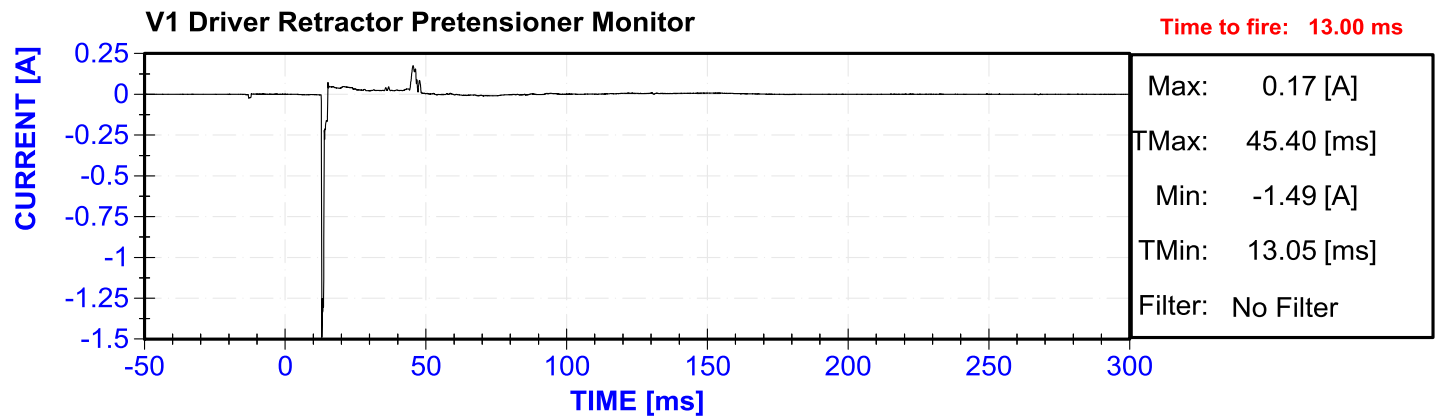
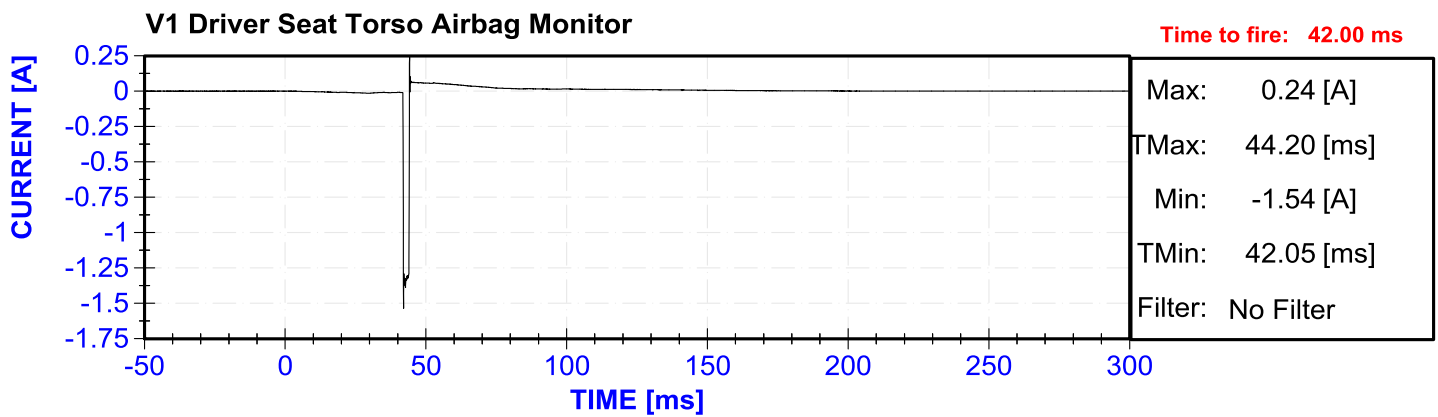
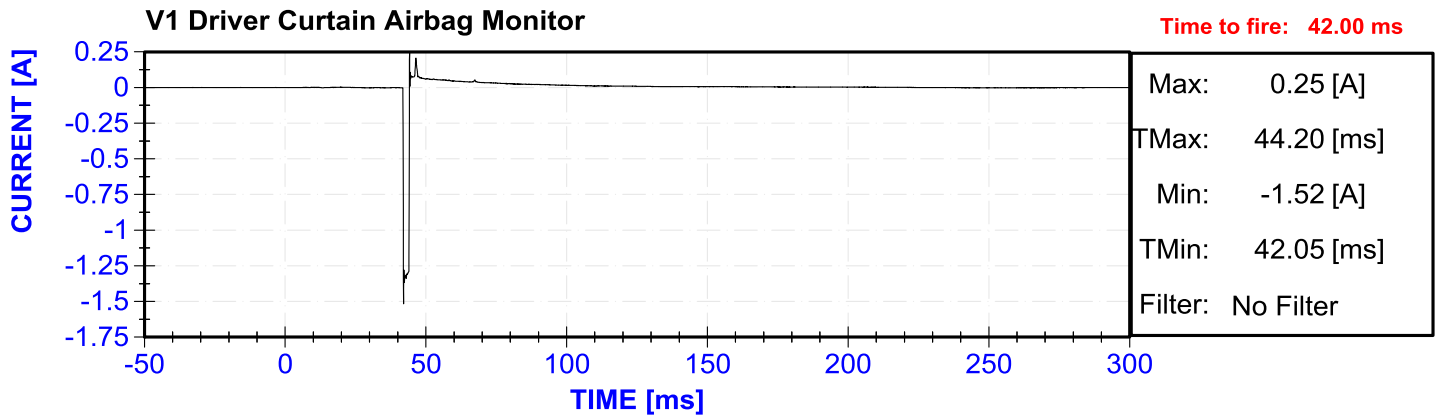






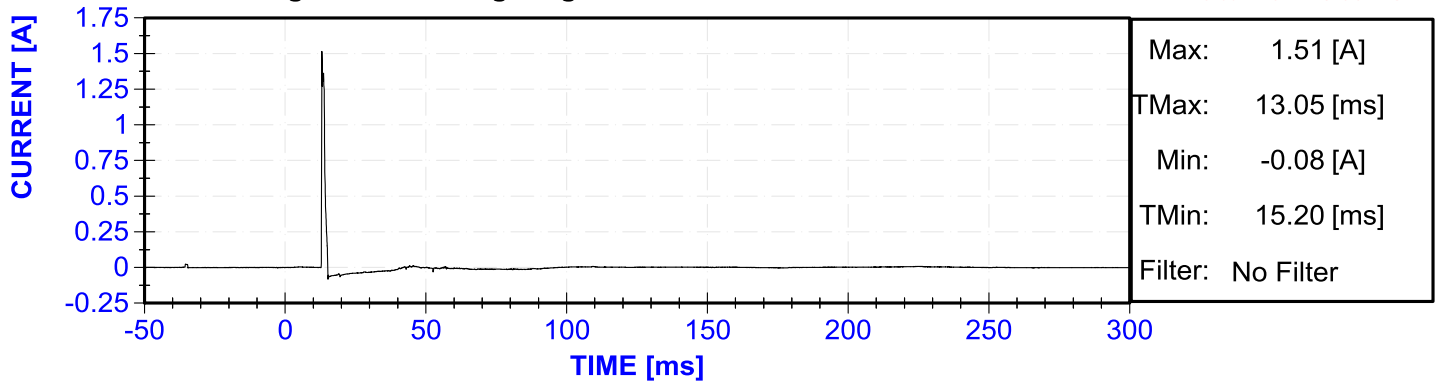






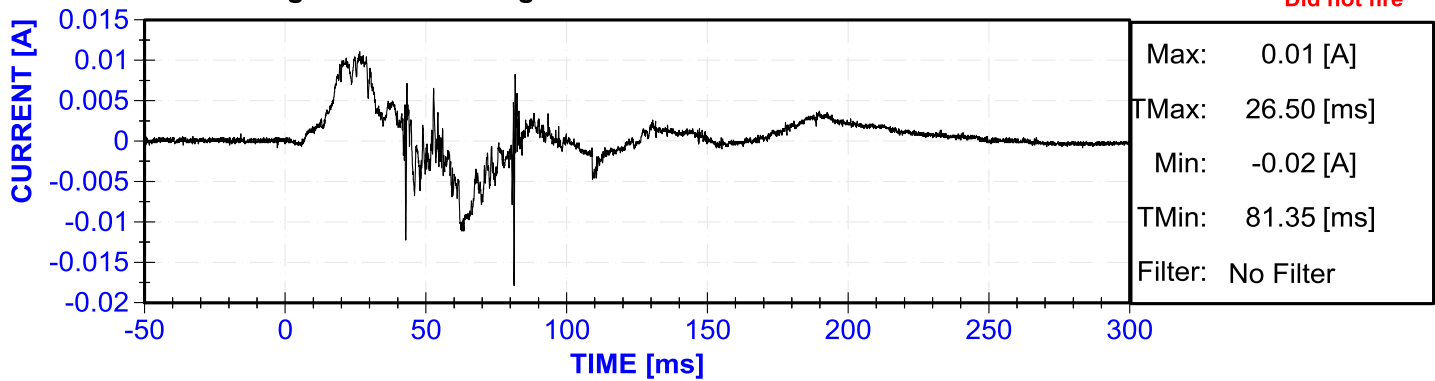
V1 Passenger Front Airbag Stage 2 Monitor

Time to fire: 13.00 ms



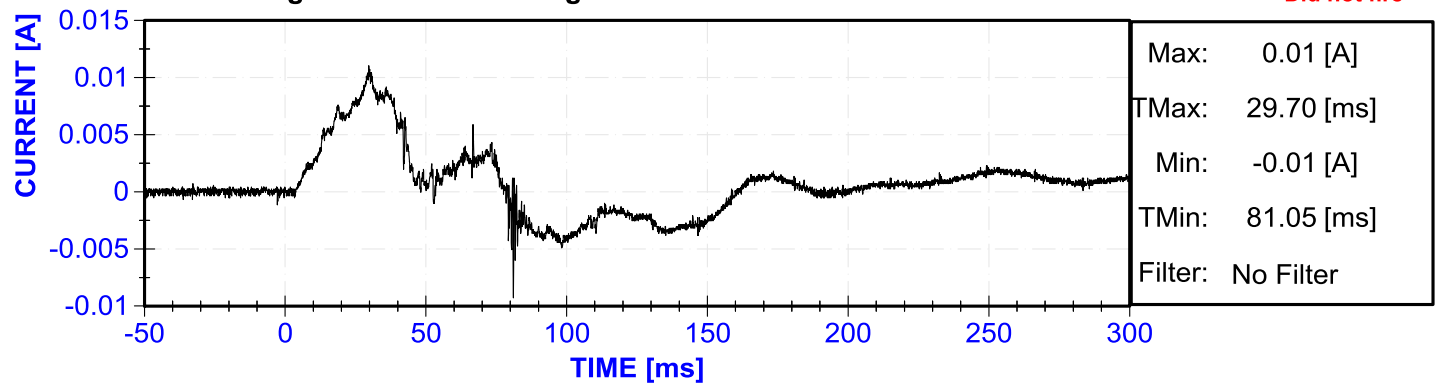
V1 Passenger Curtain Airbag Monitor

Did not fire



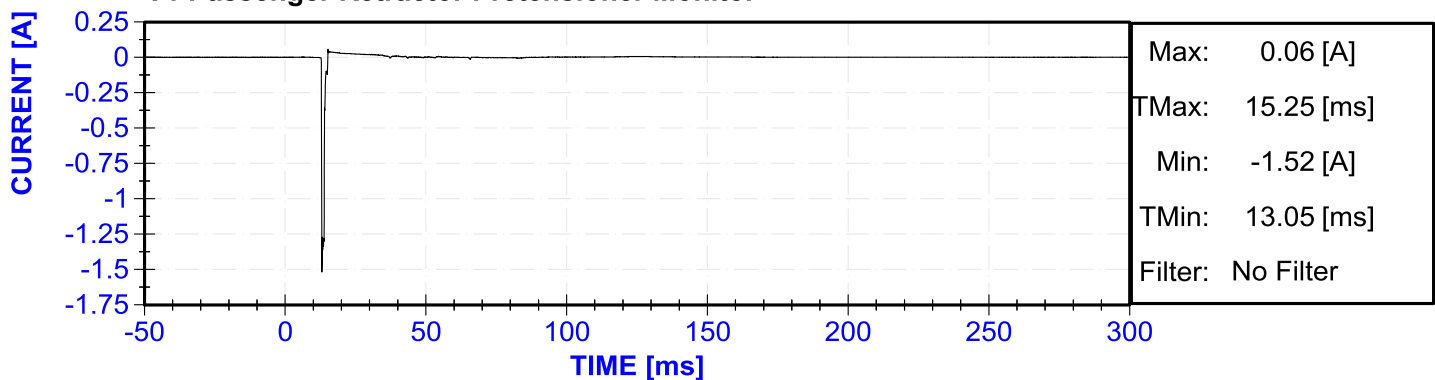
V1 Passenger Seat Torso Airbag Monitor

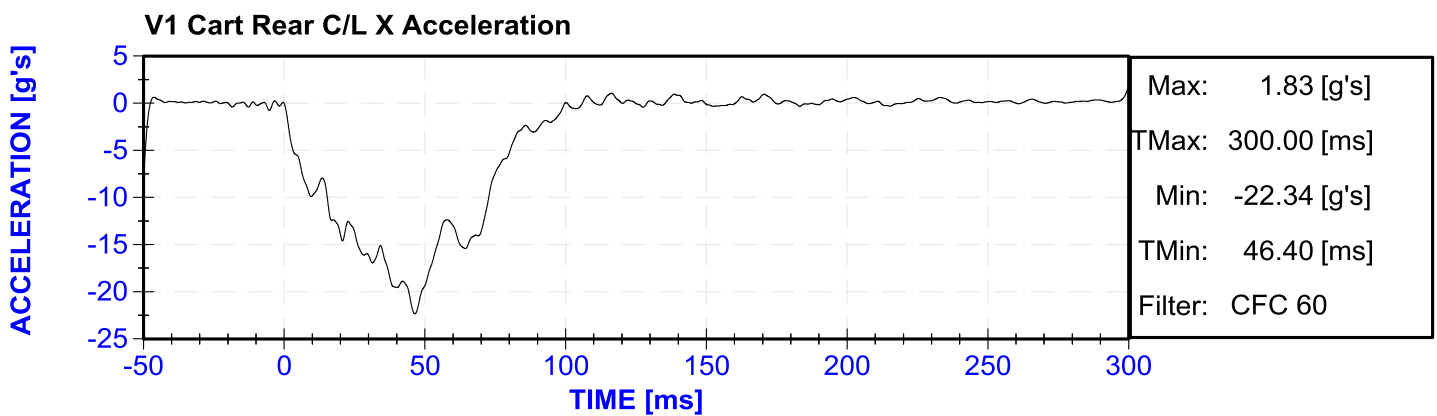
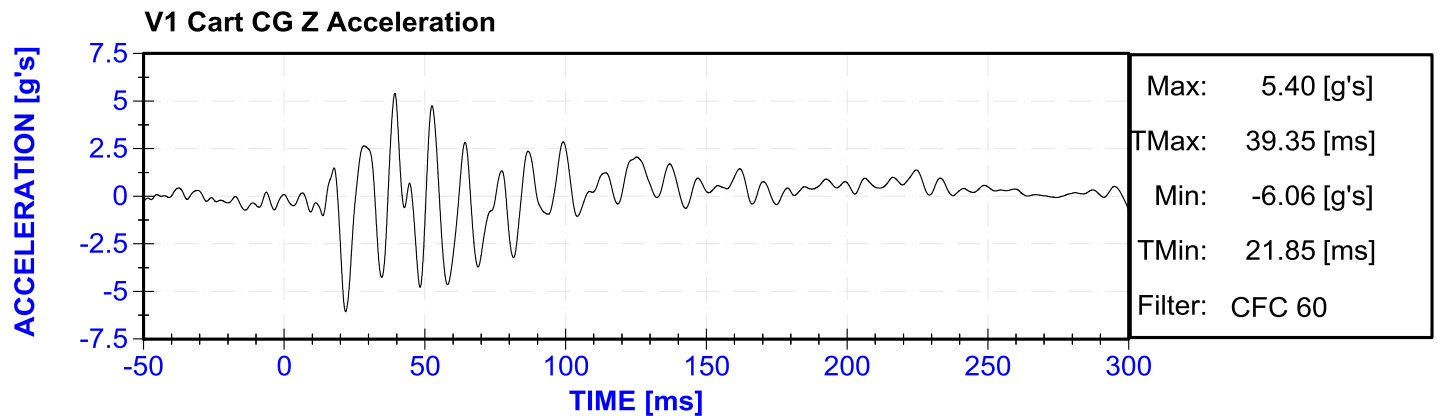
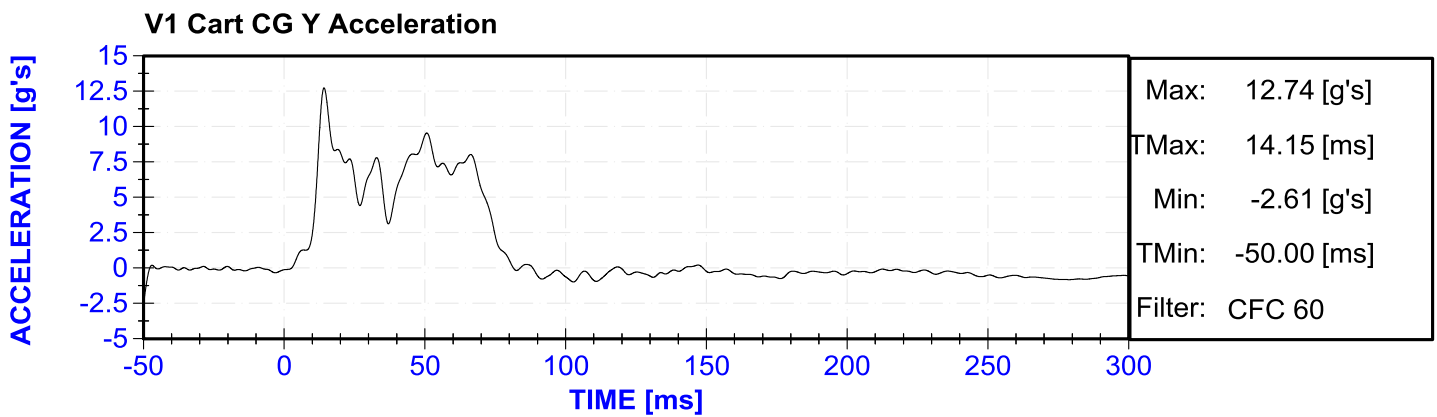
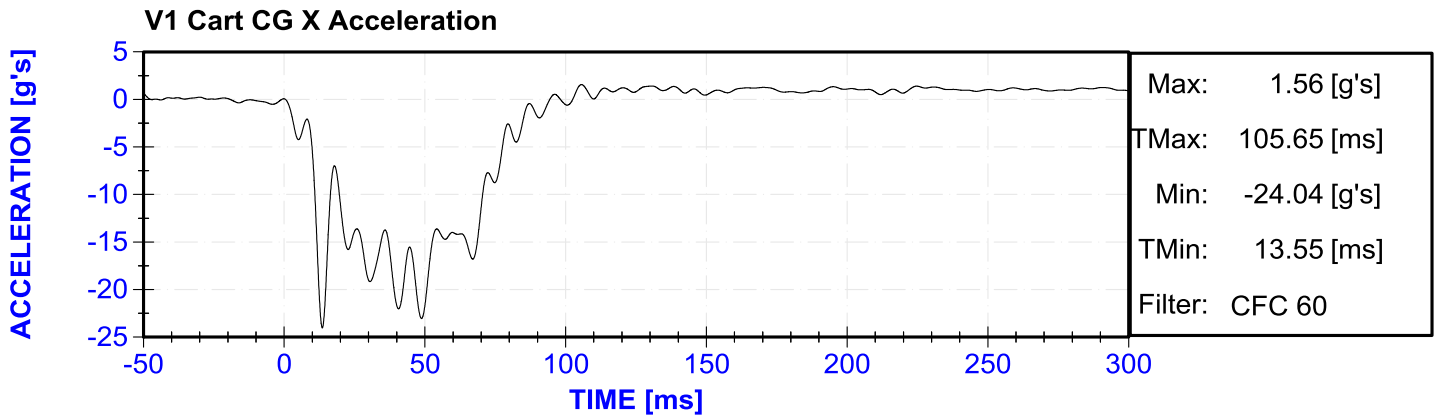
Did not fire

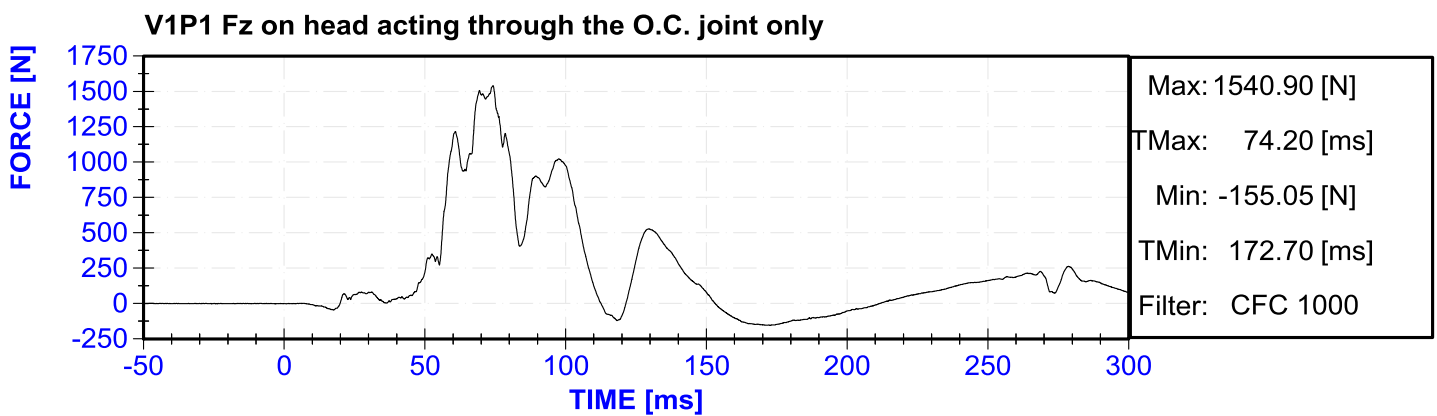
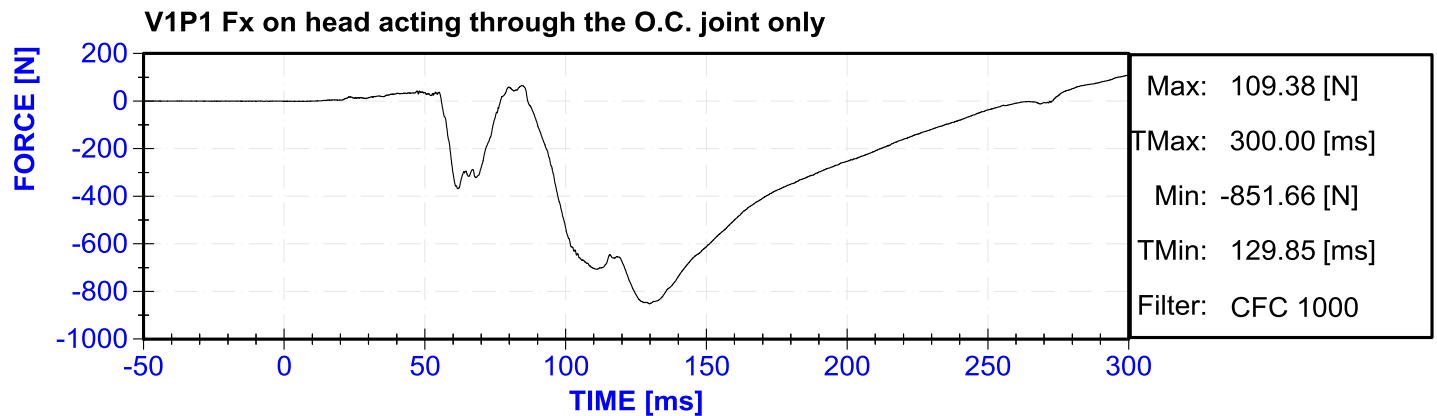
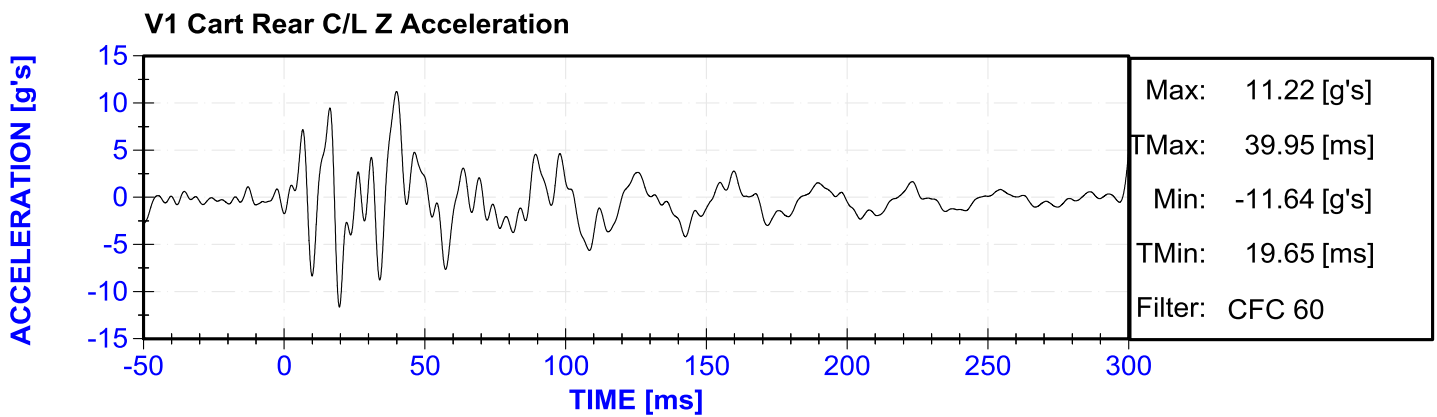
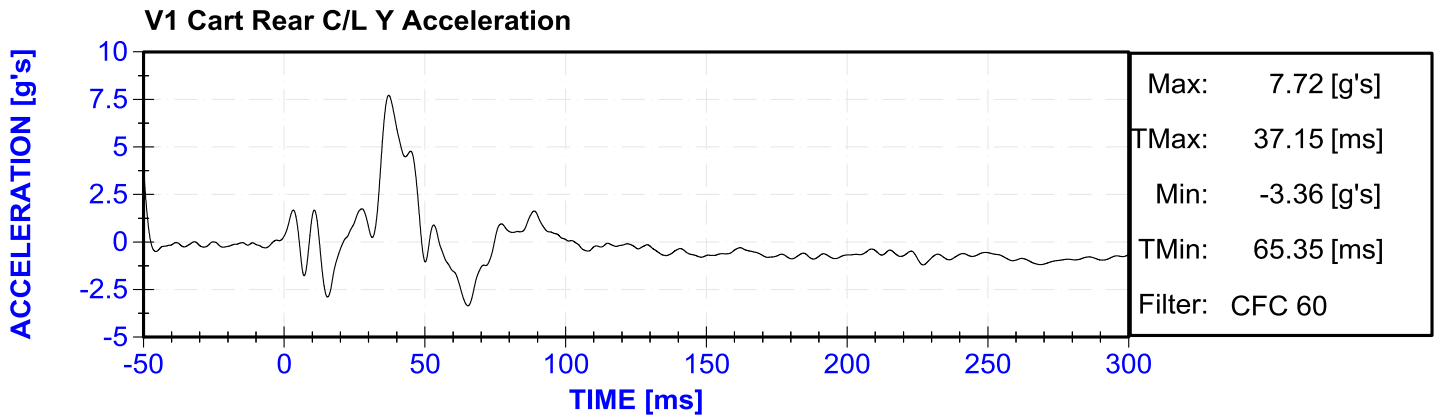


V1 Passenger Retractor Pretensioner Monitor

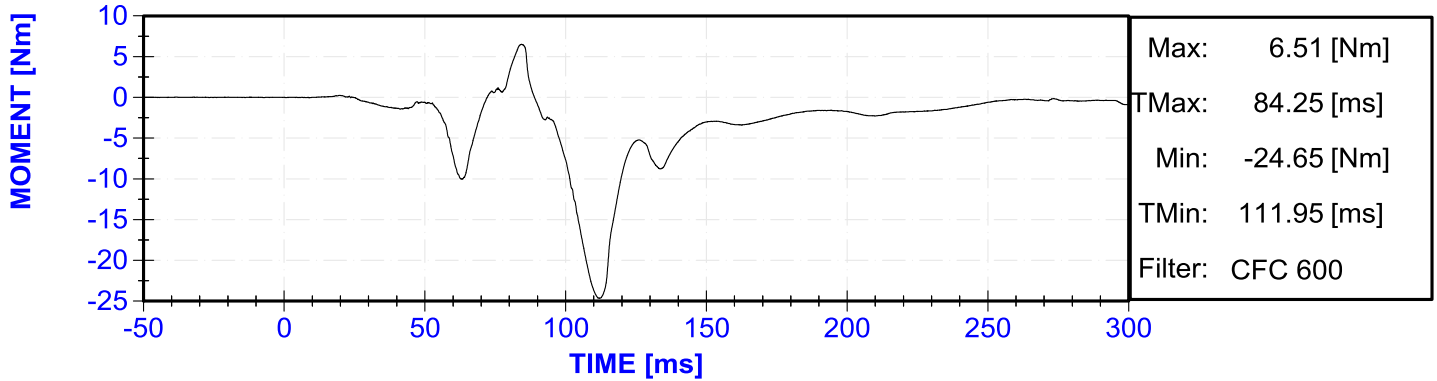
Time to fire: 13.00 ms



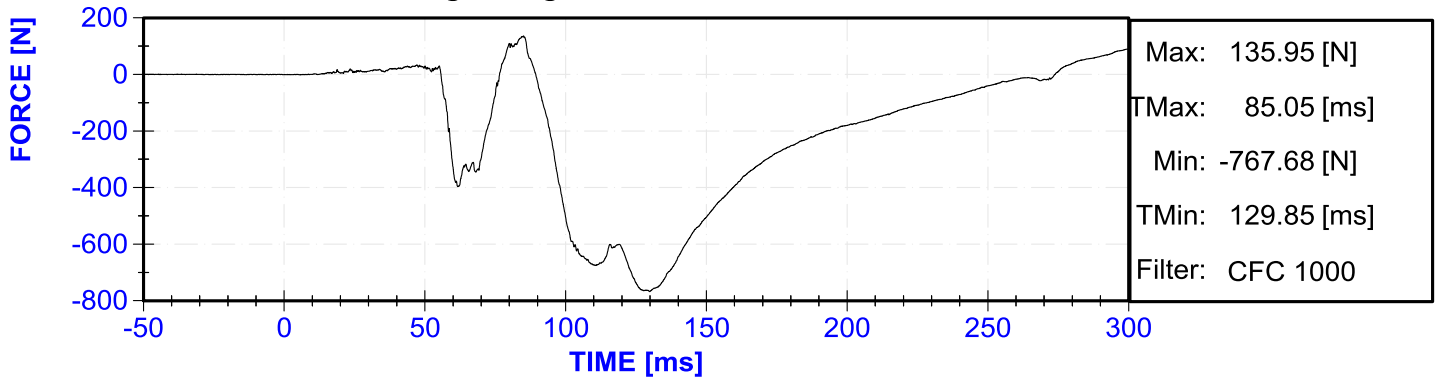




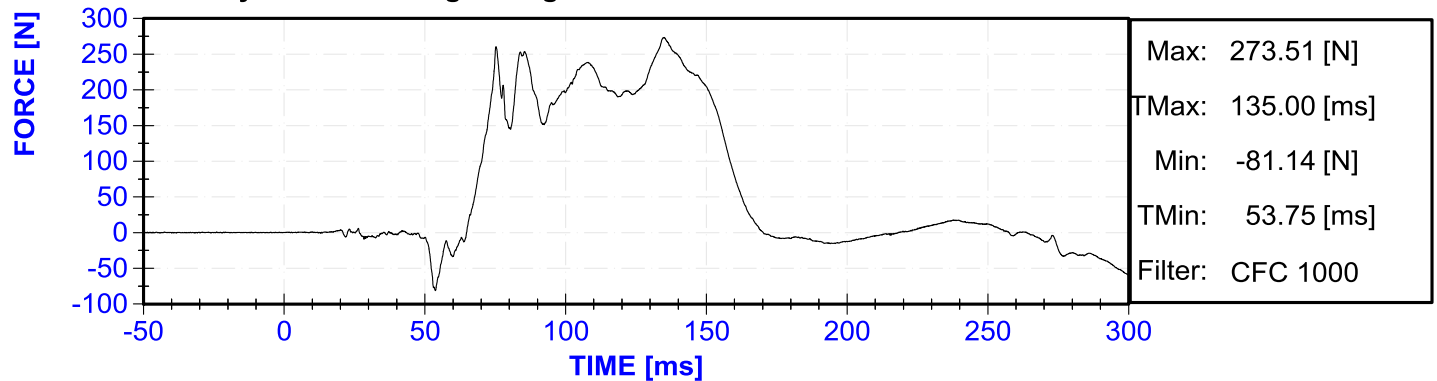
V1P1 My on head acting through the O.C. joint only



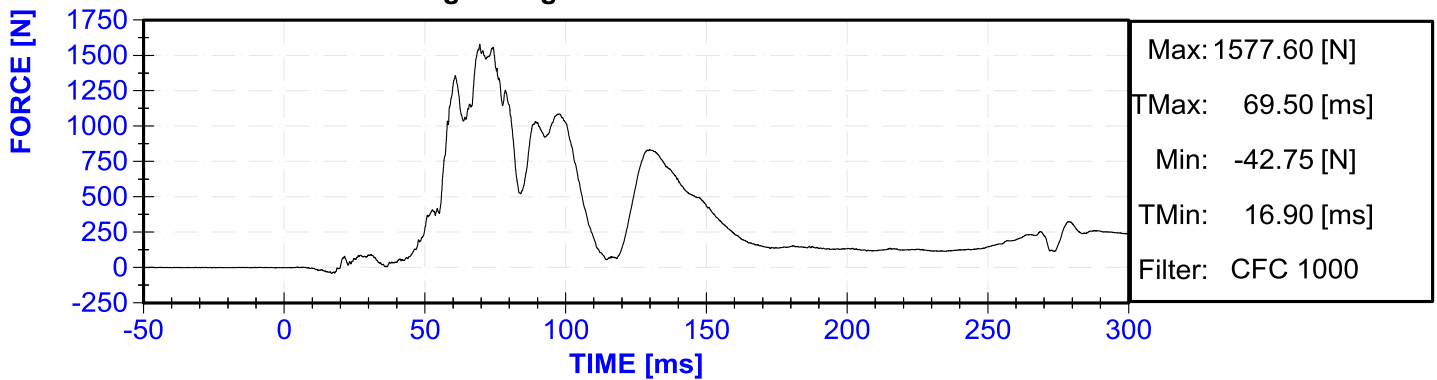
V1P1 Fx on head acting through the total neck section



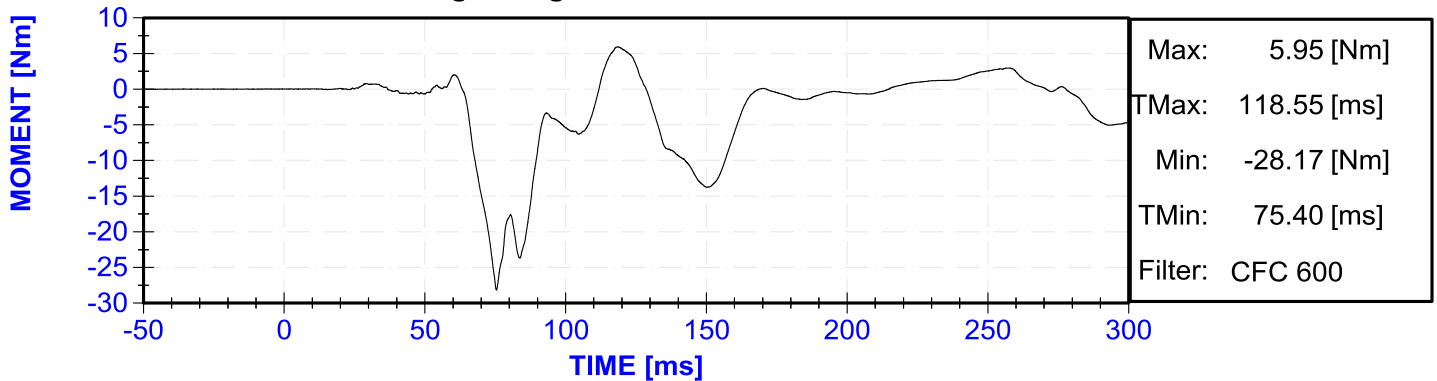
V1P1 Fy on head acting through the total neck section



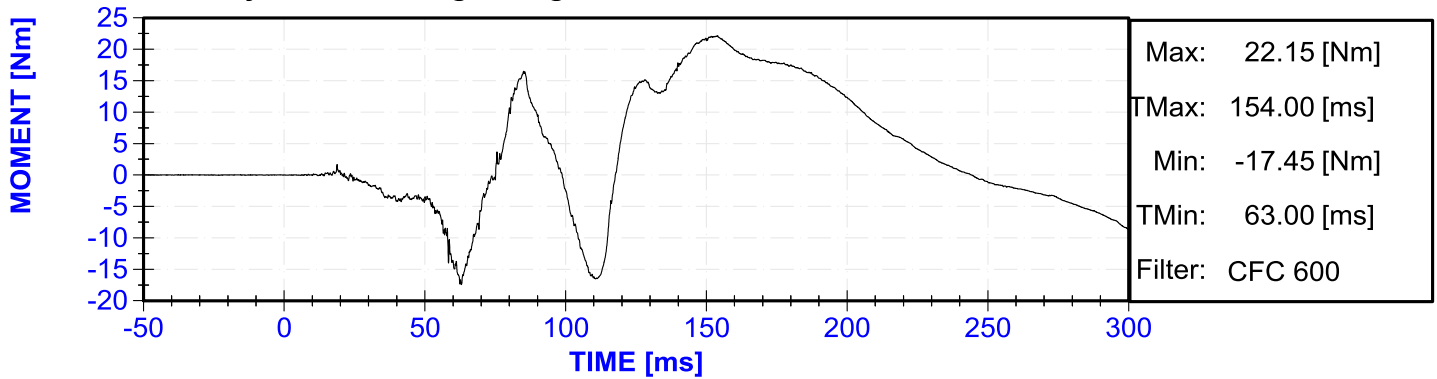
V1P1 Fz on head acting through the total neck section



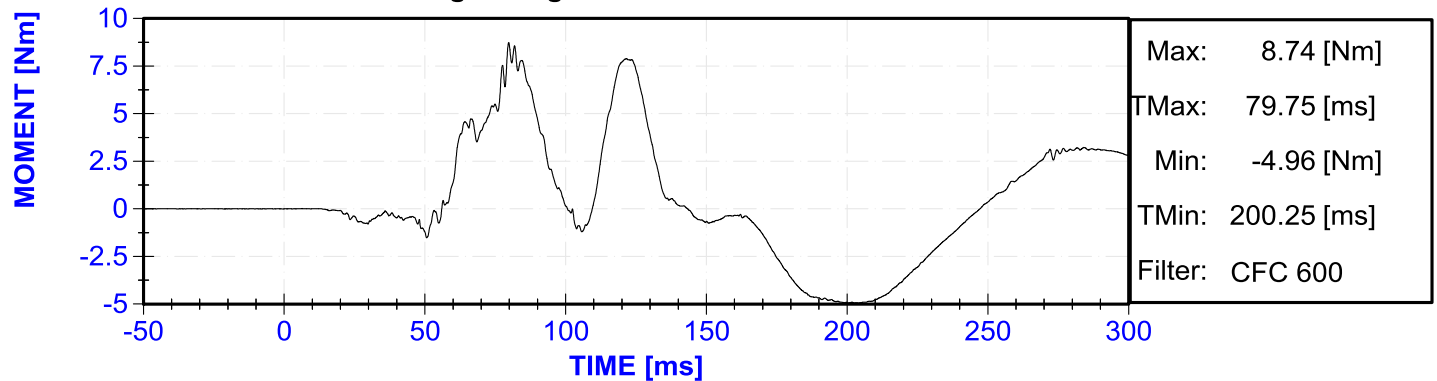
V1P1 Mx on head acting through the total neck section



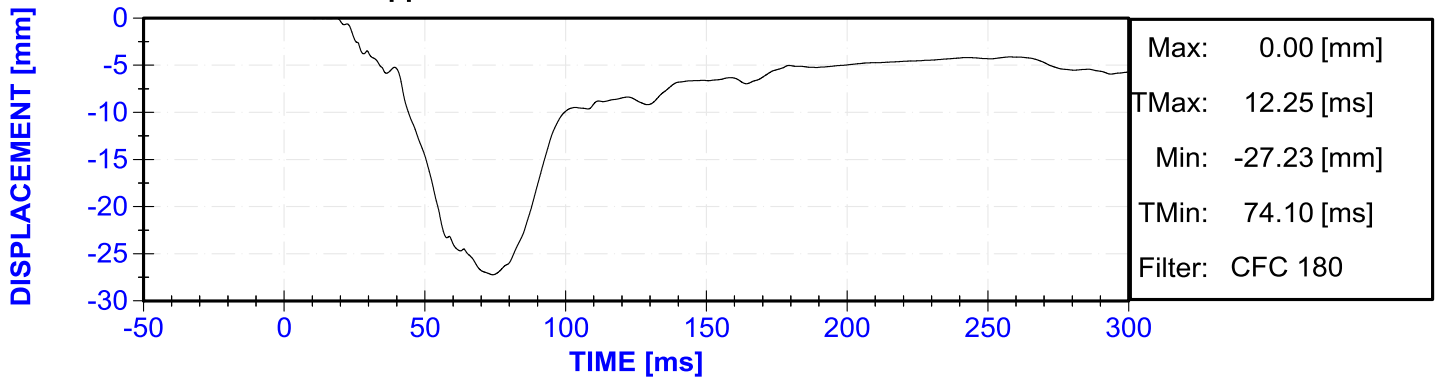
V1P1 My on head acting through the total neck section

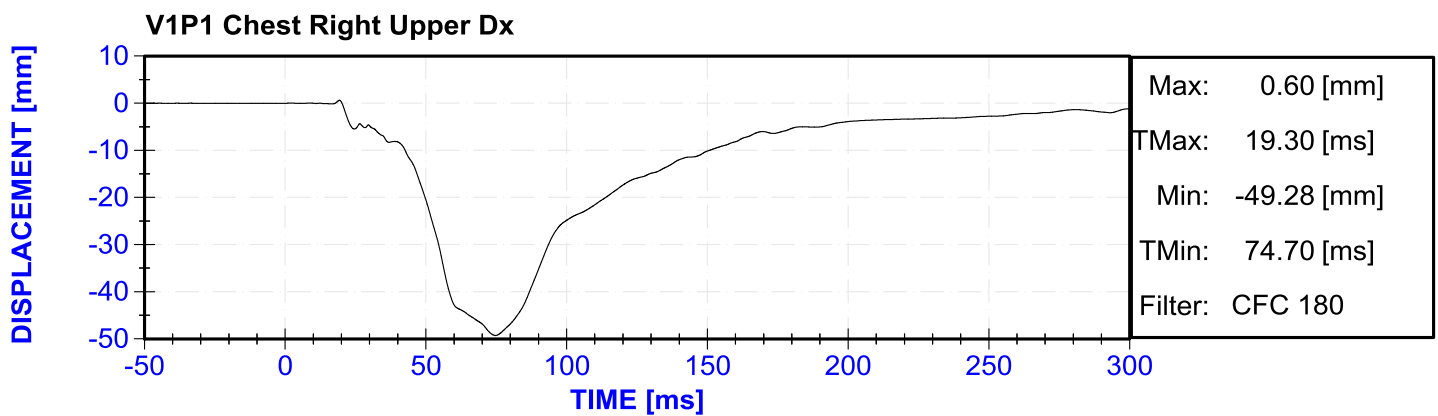
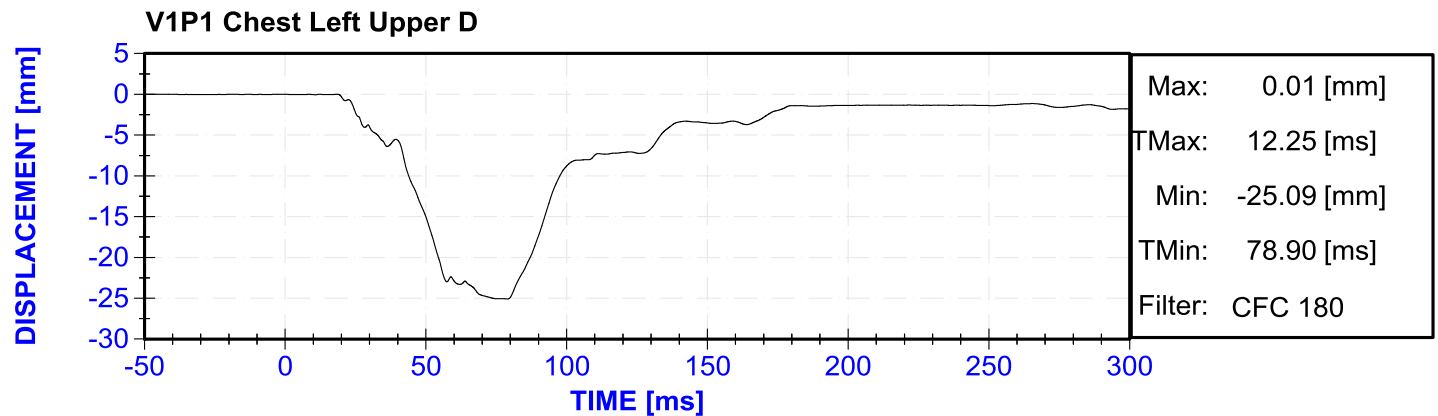
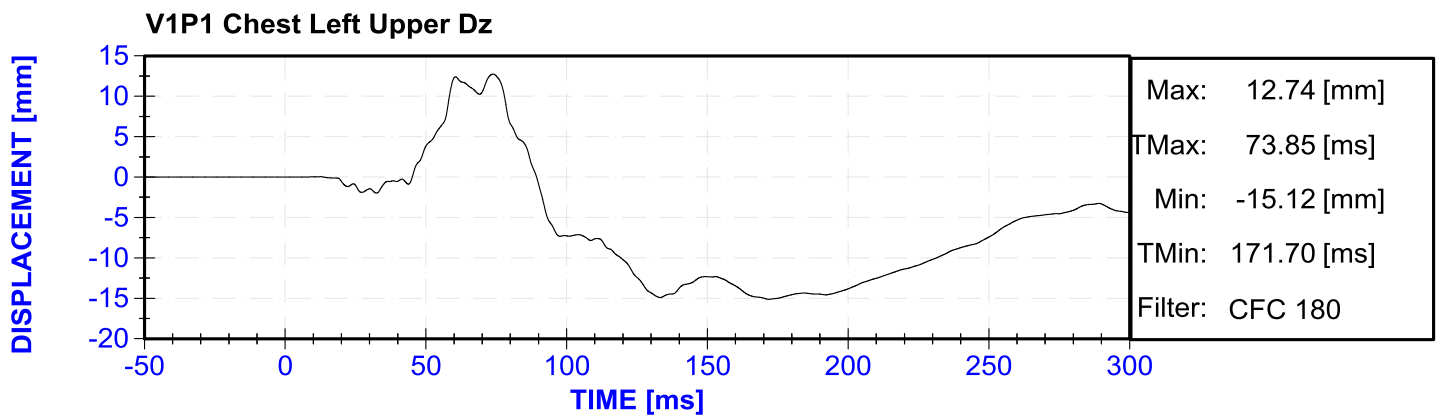
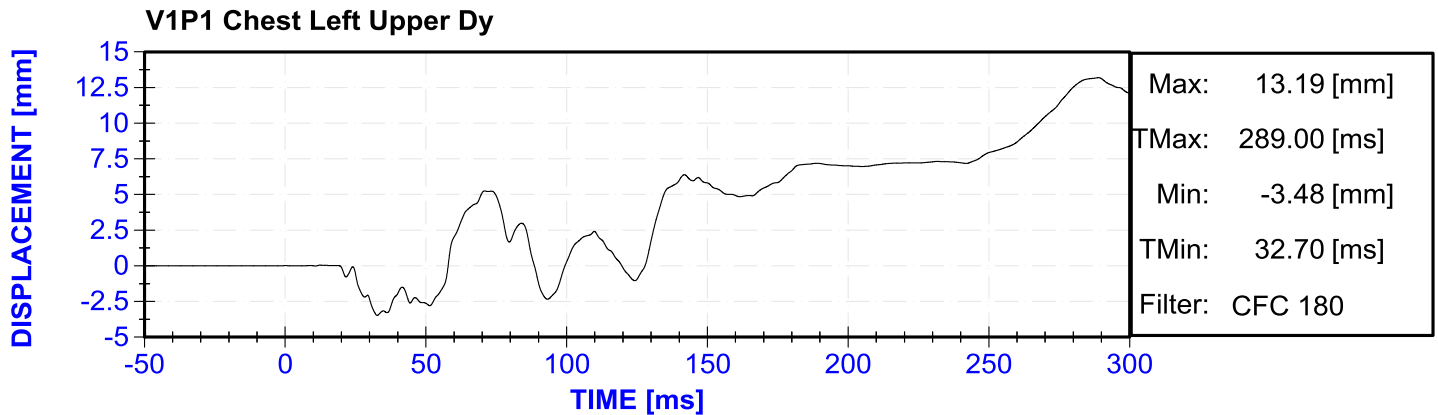


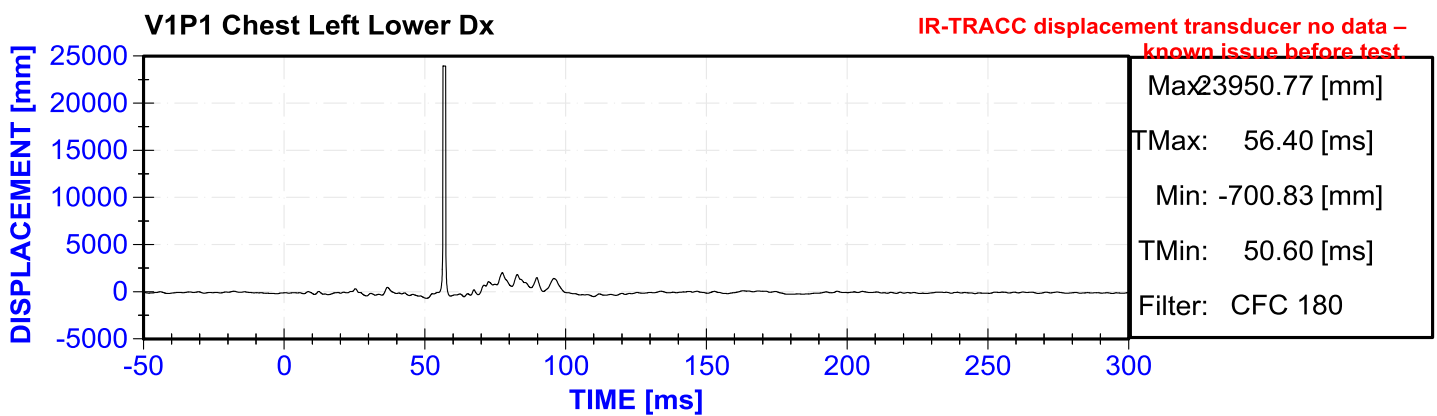
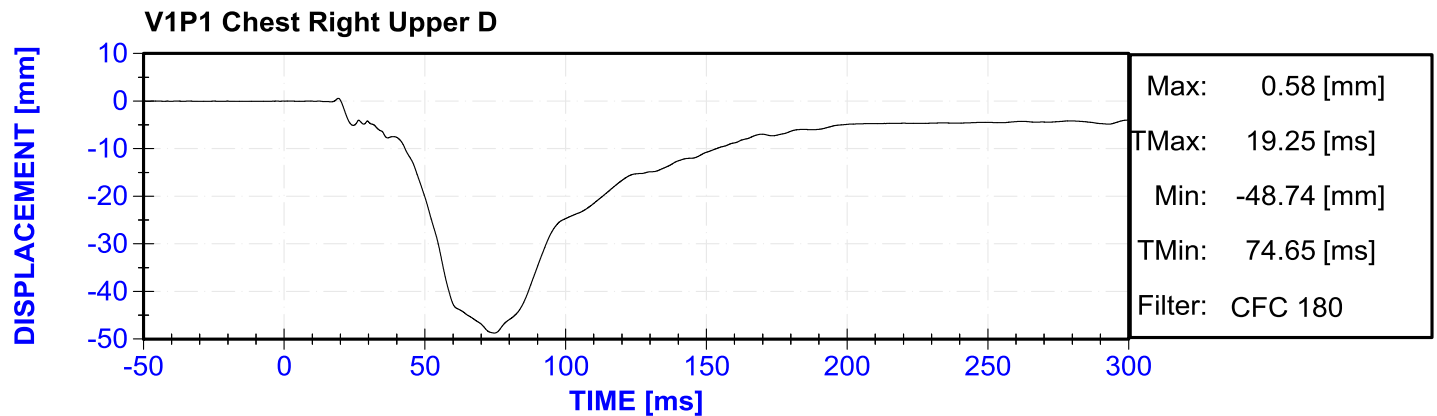
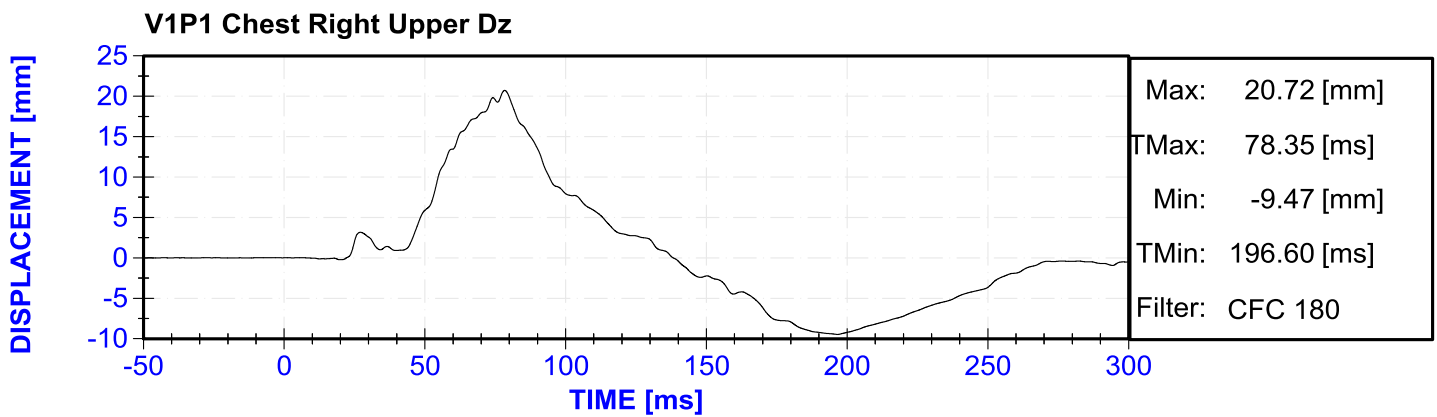
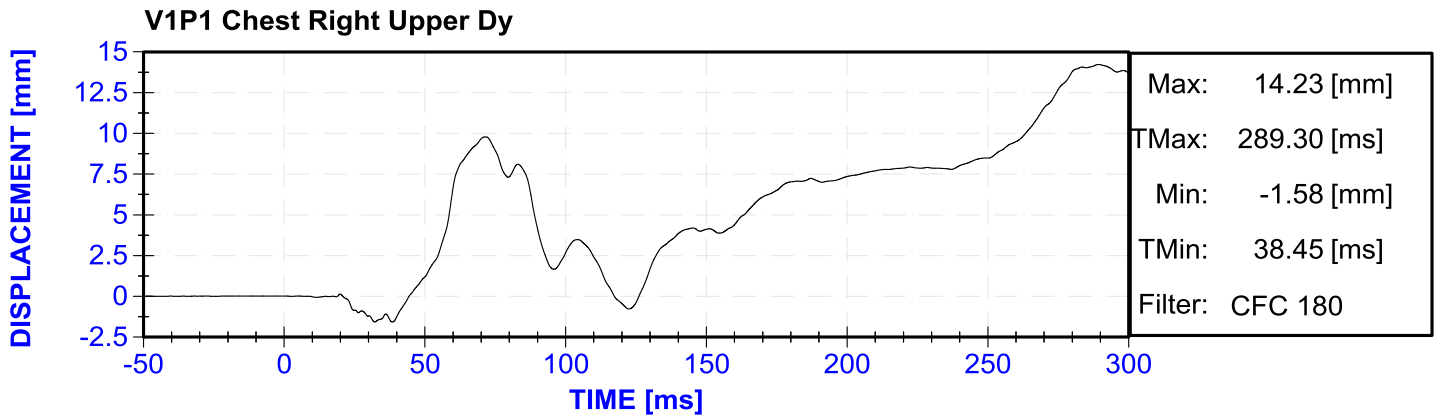
V1P1 Mz on head acting through the total neck section

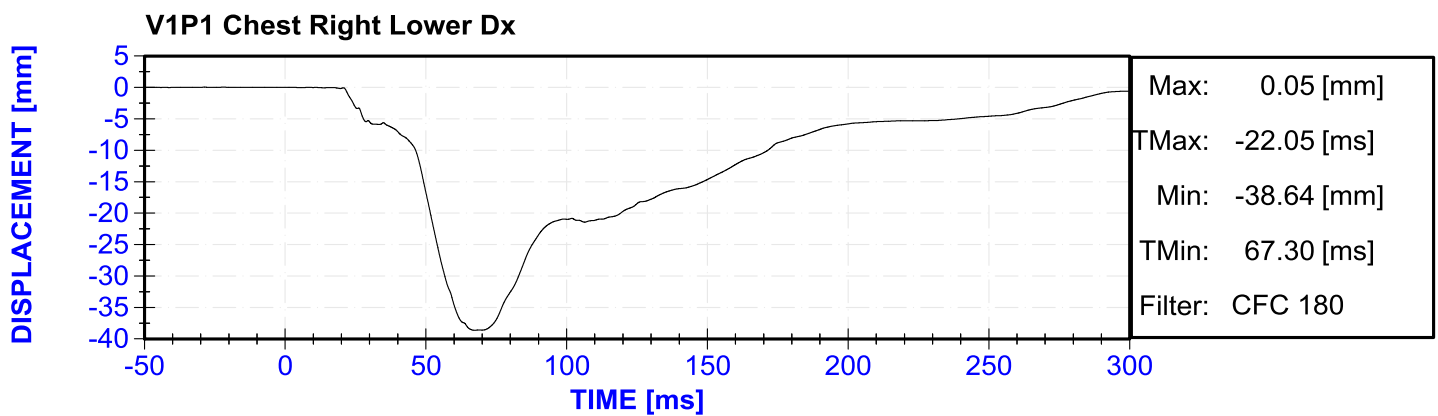
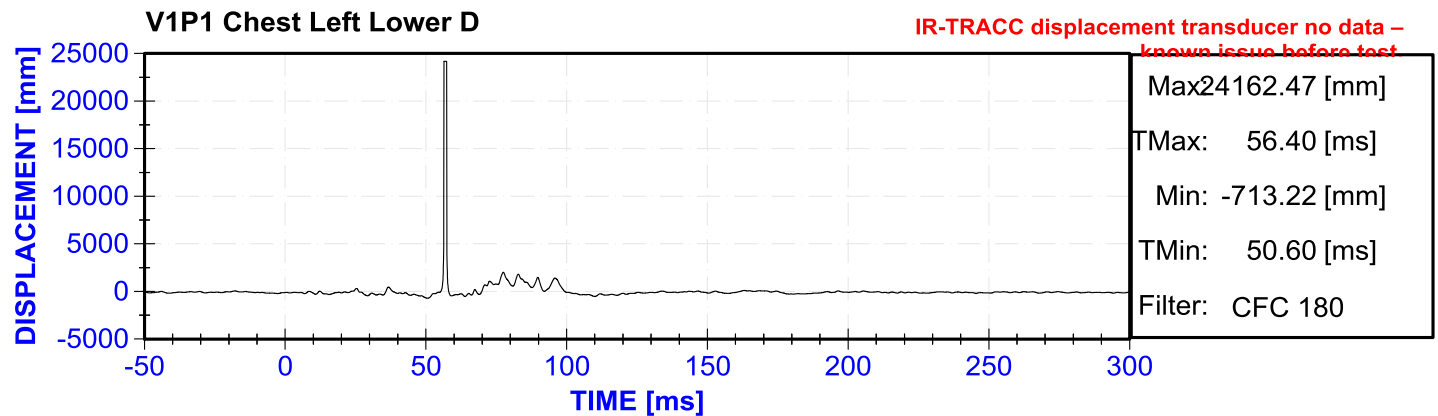
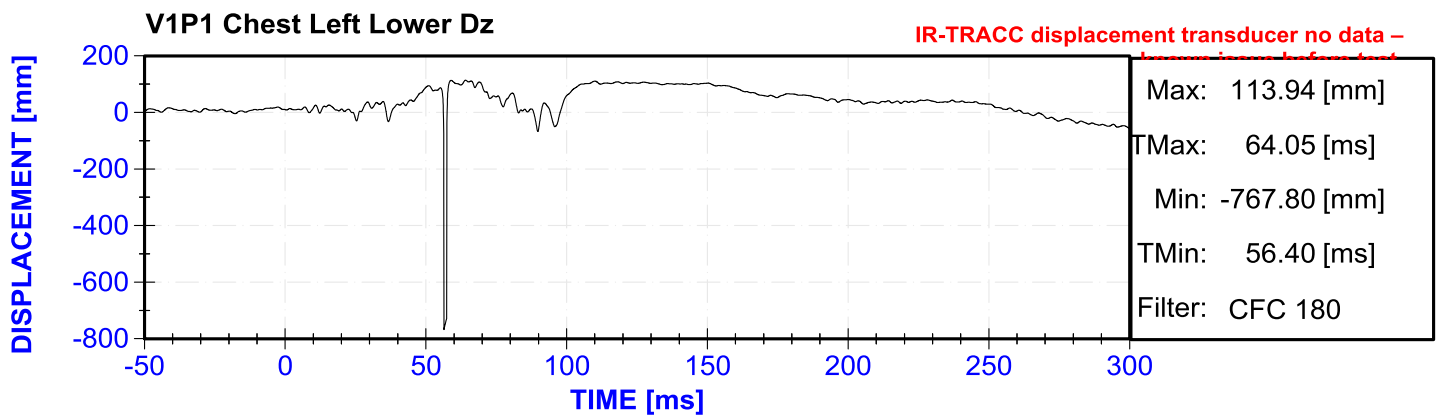
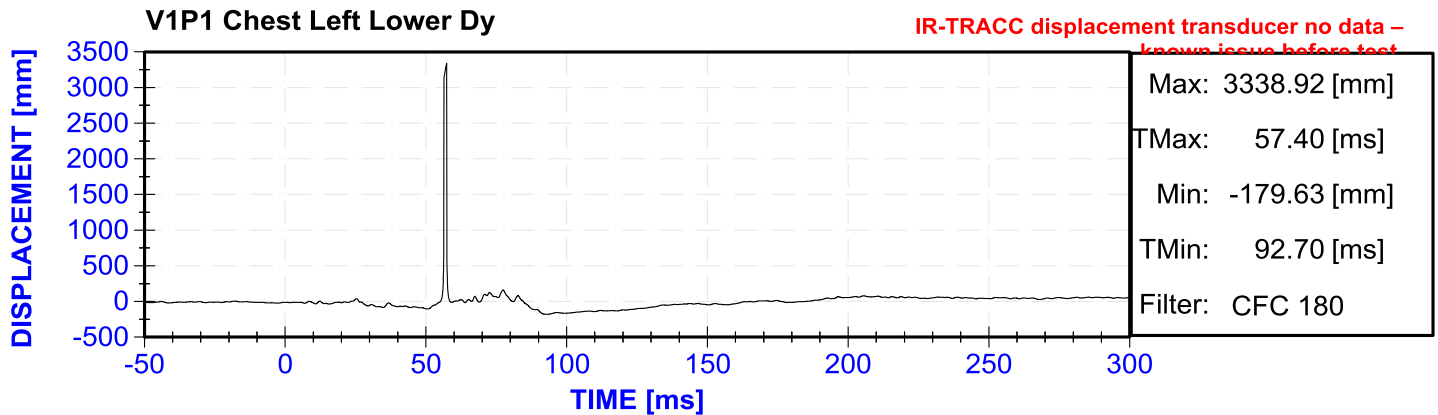


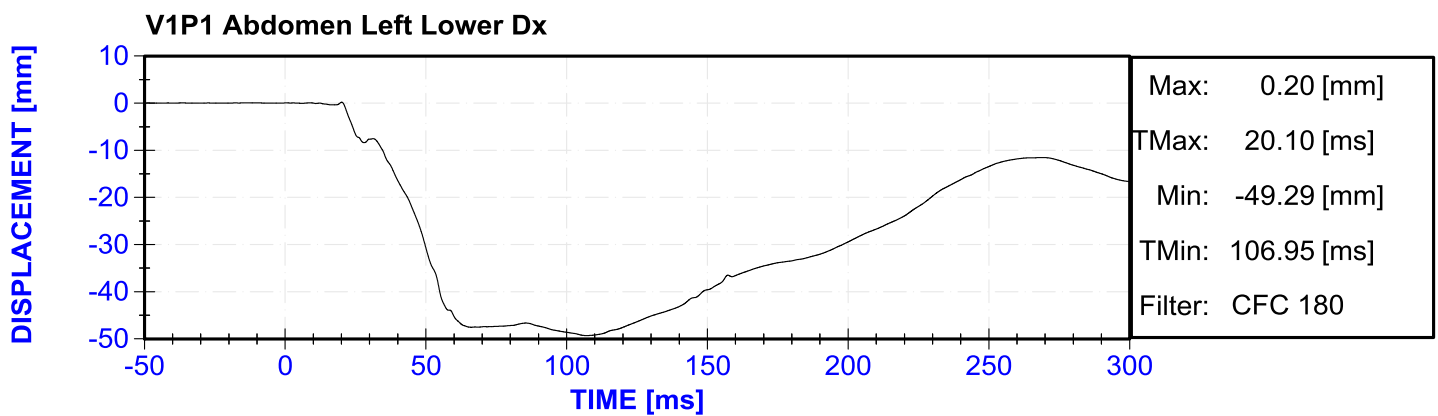
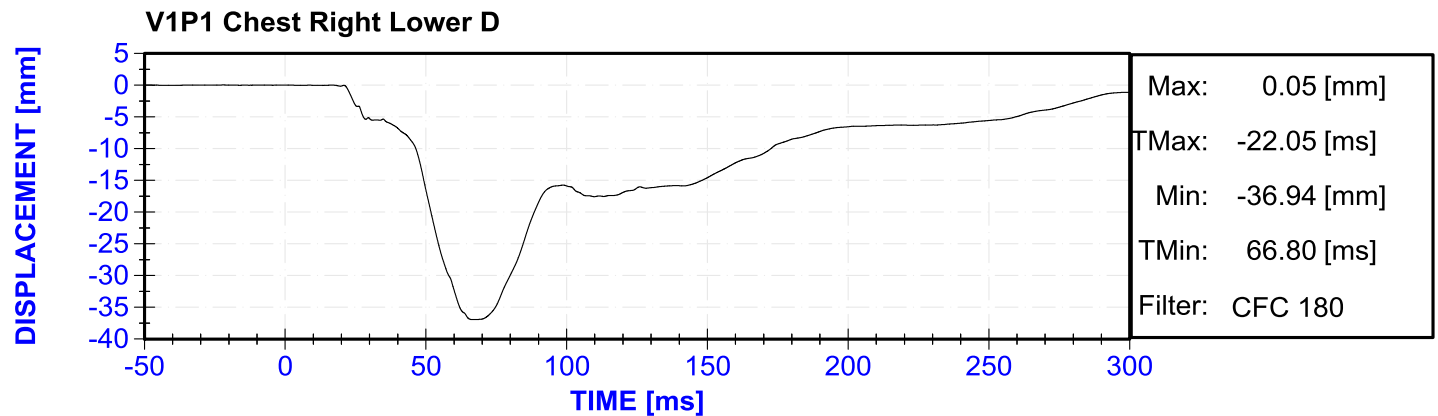
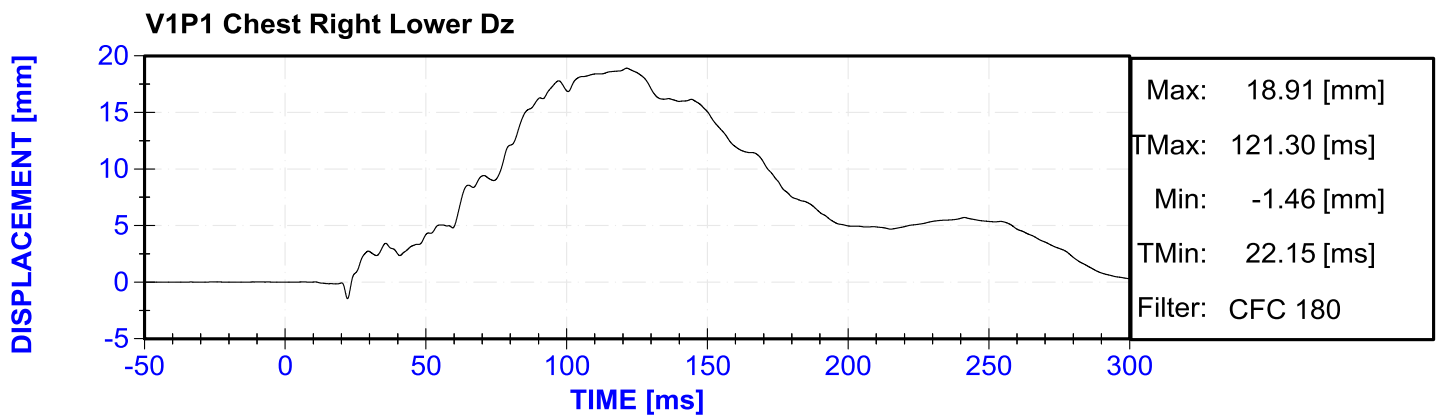
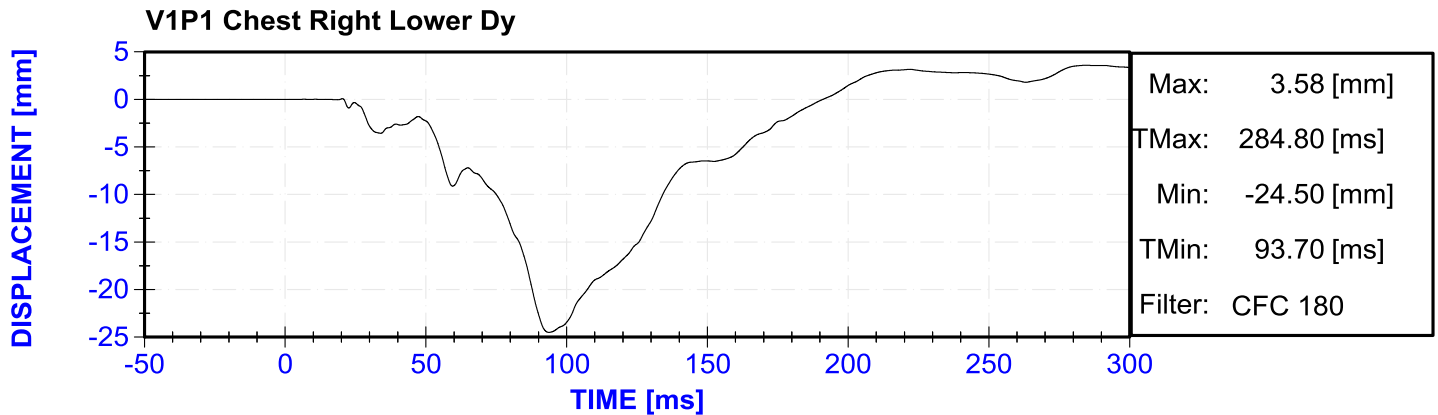
V1P1 Chest Left Upper Dx

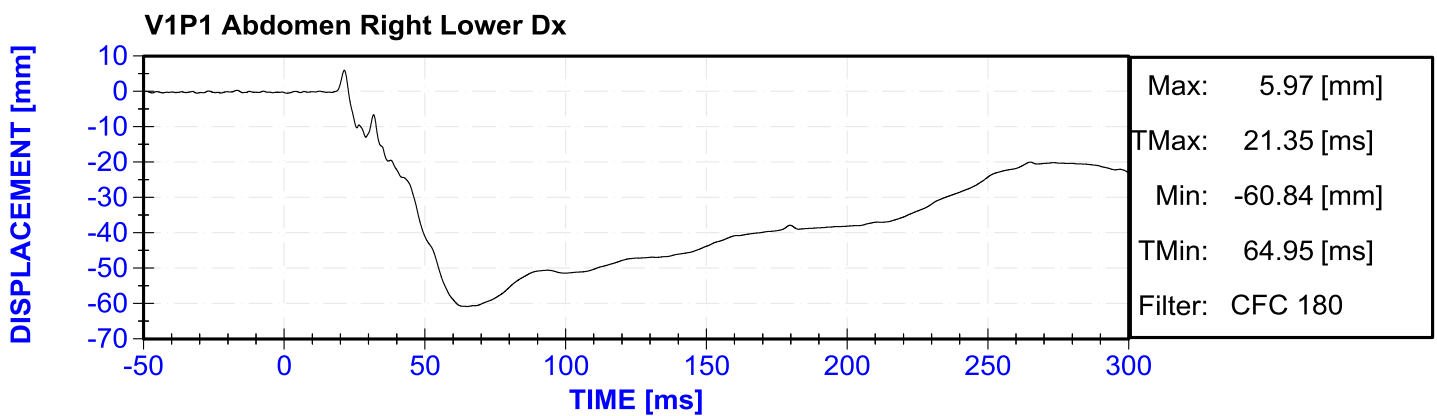
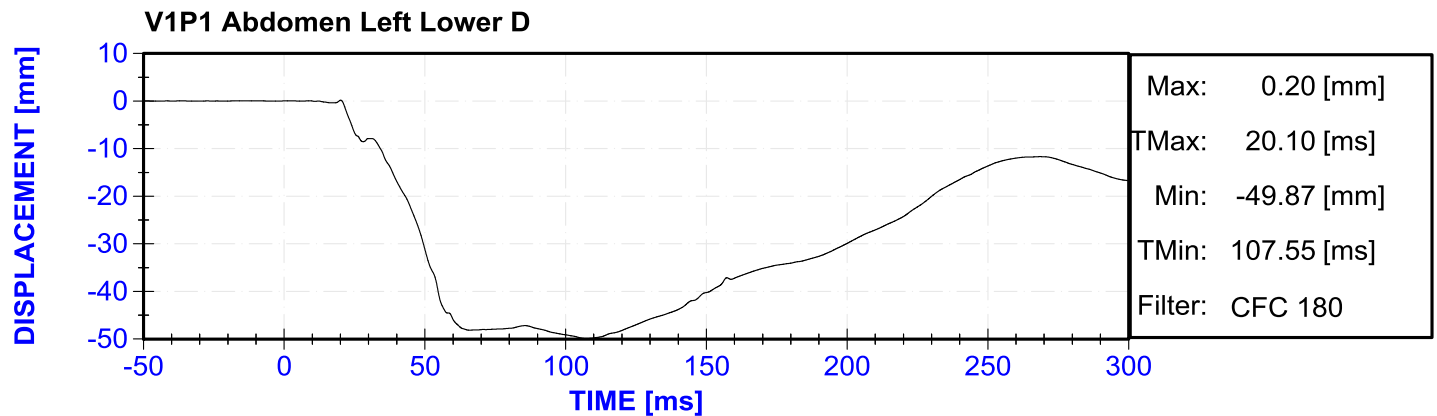
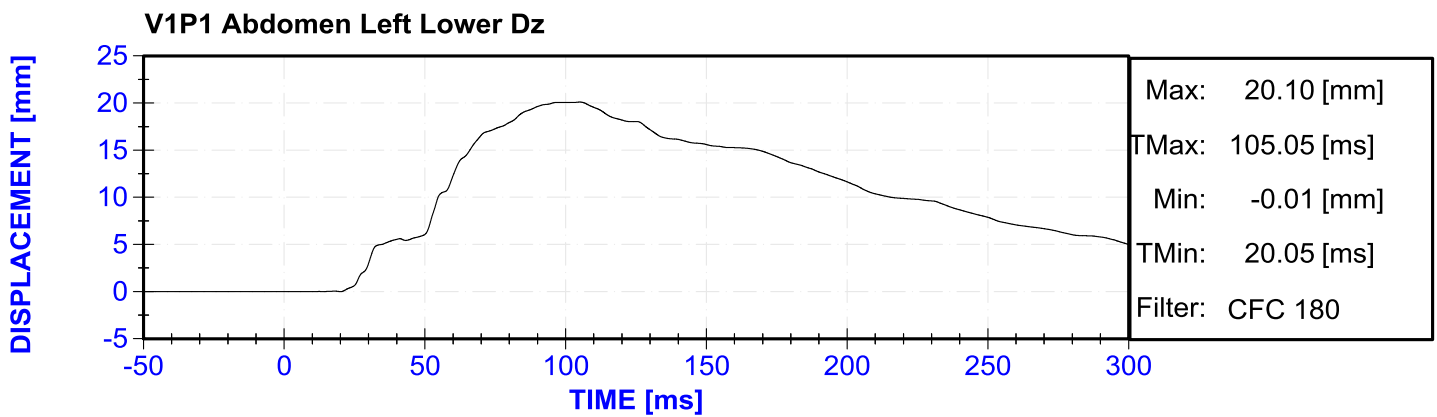
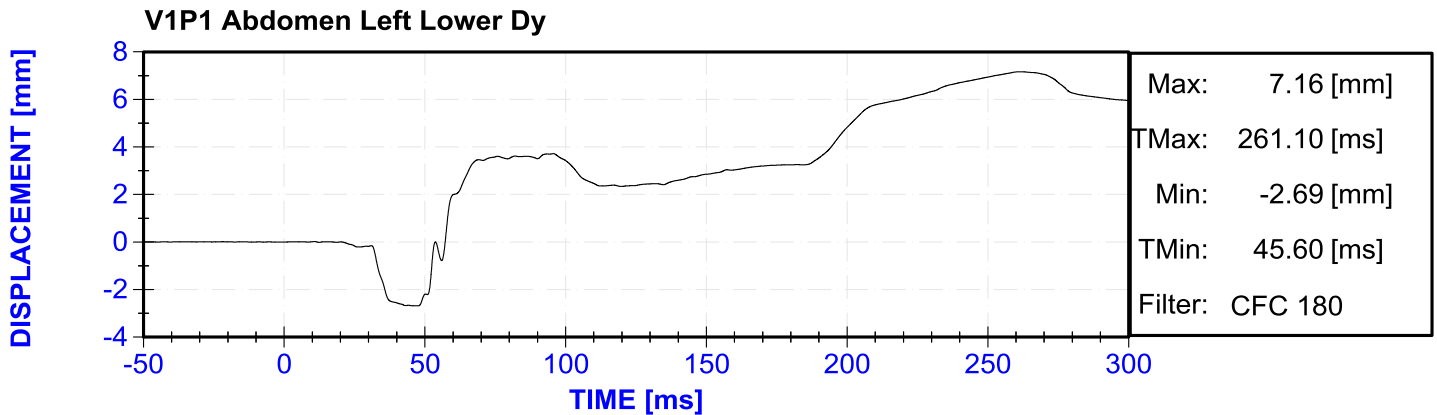


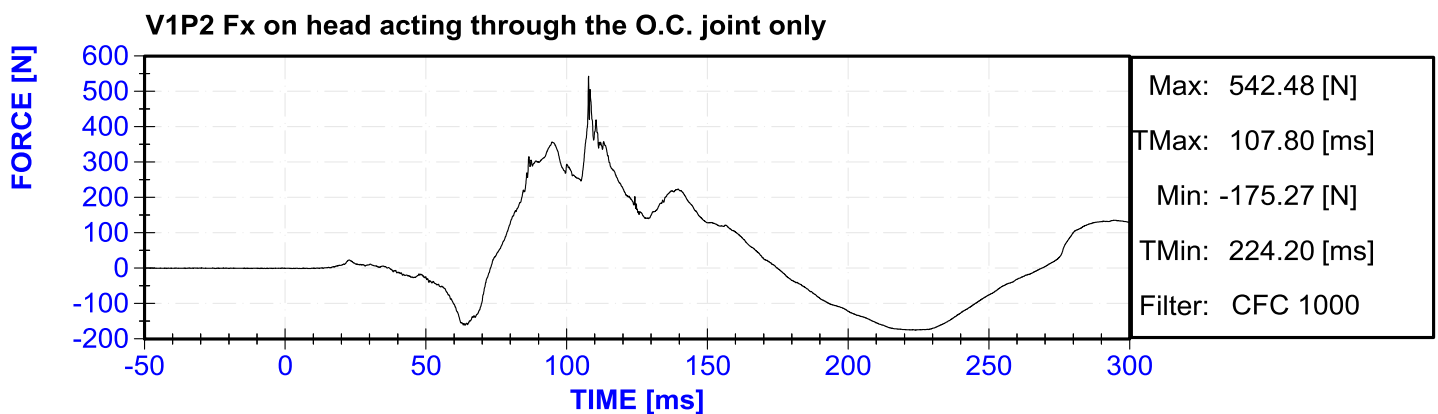
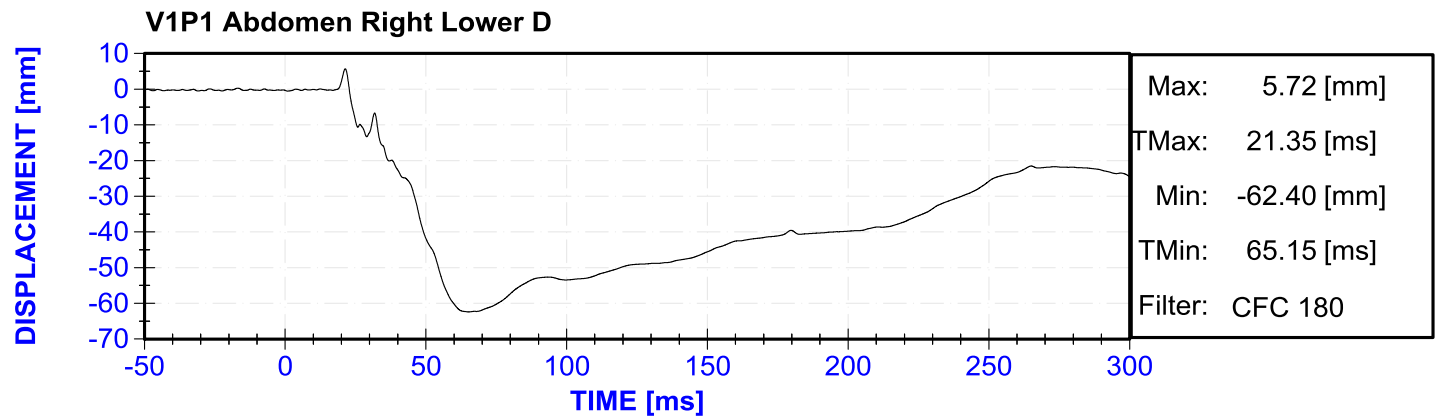
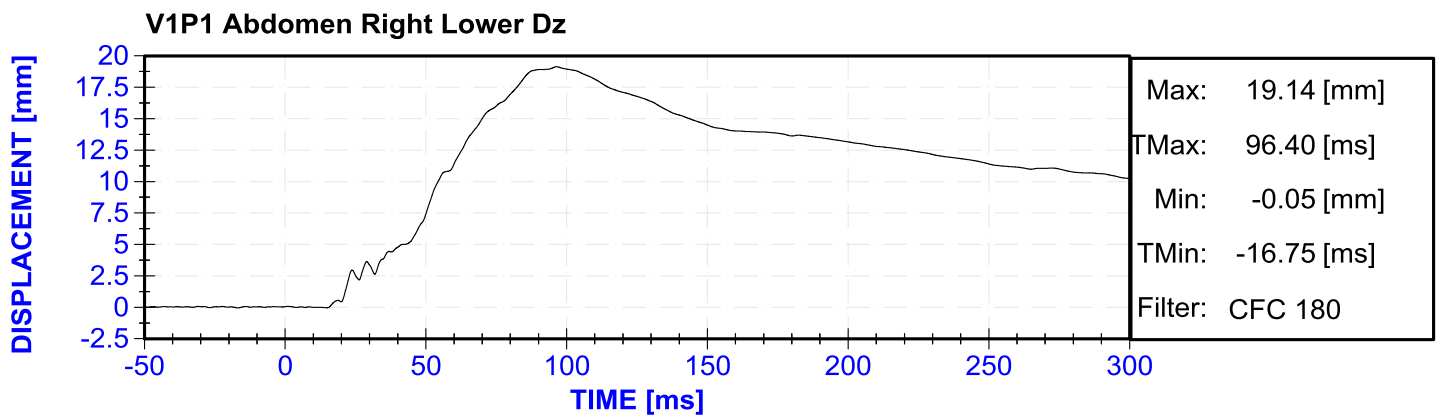
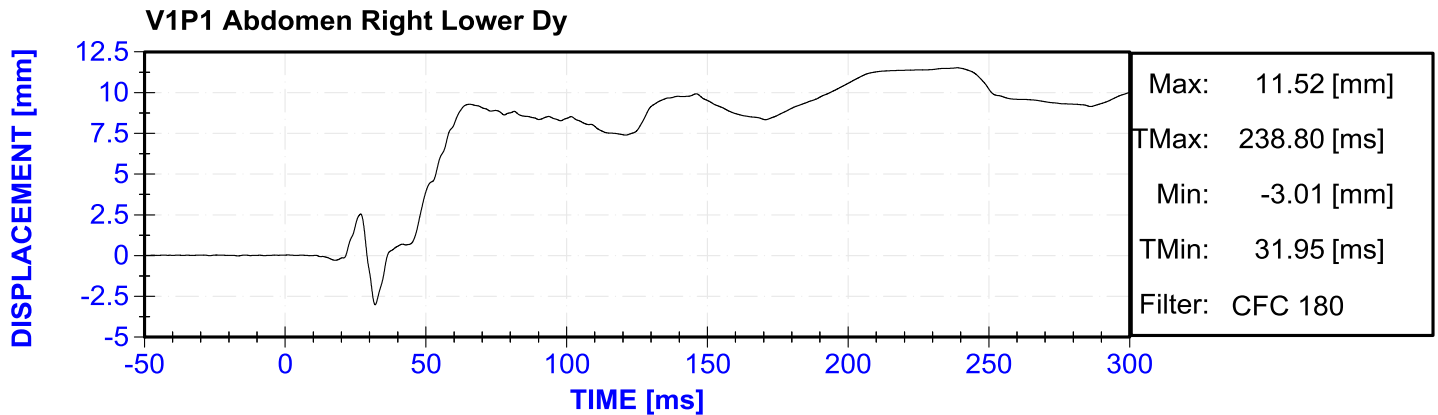




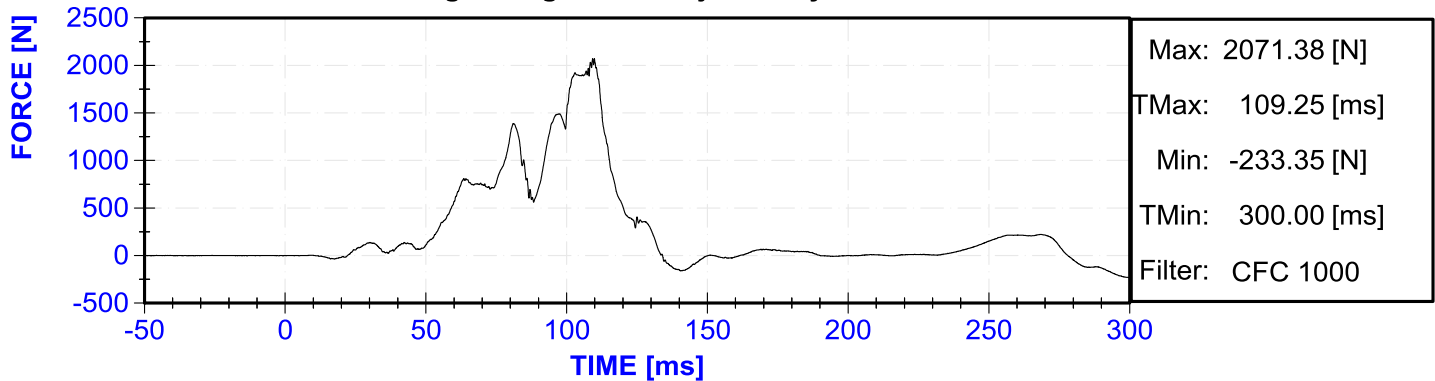




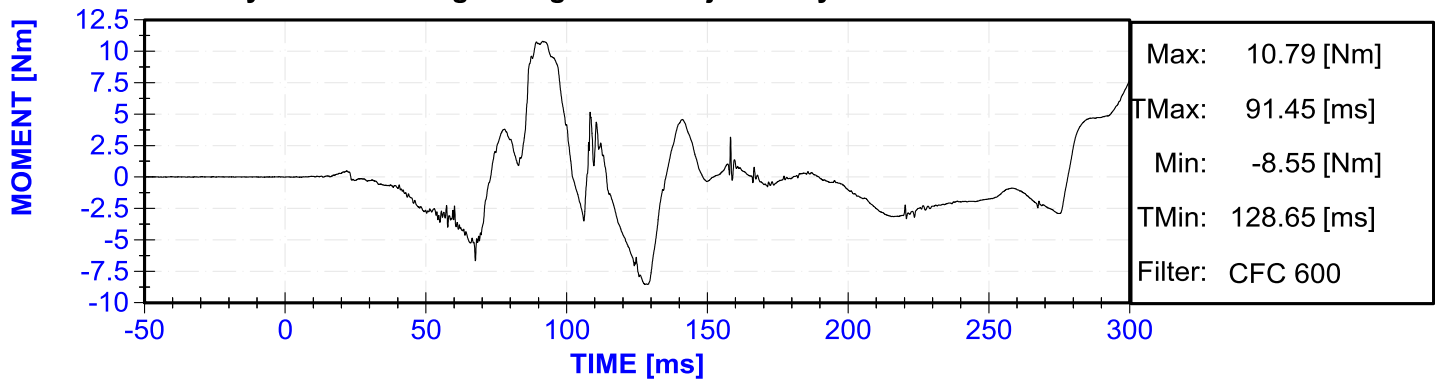




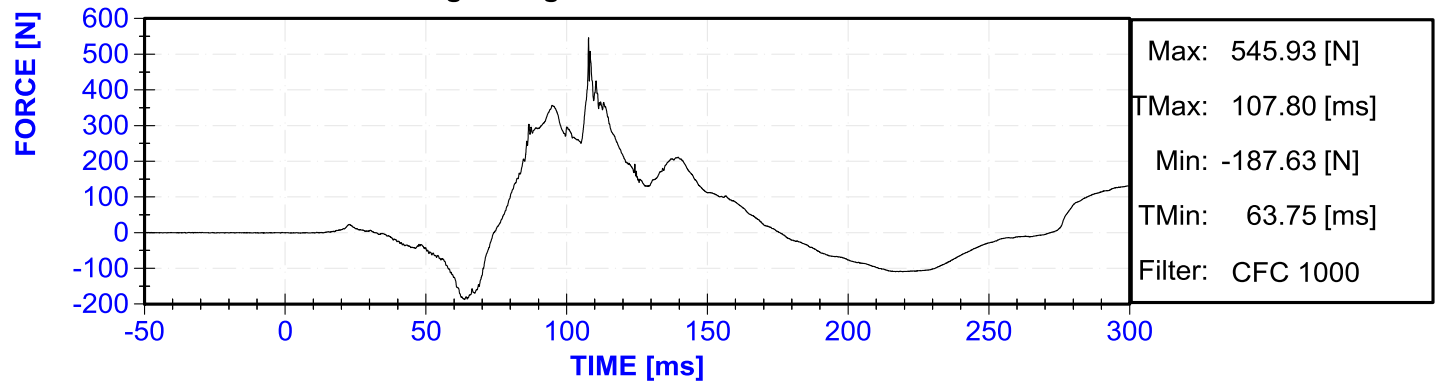
V1P2 Fz on head acting through the O.C. joint only



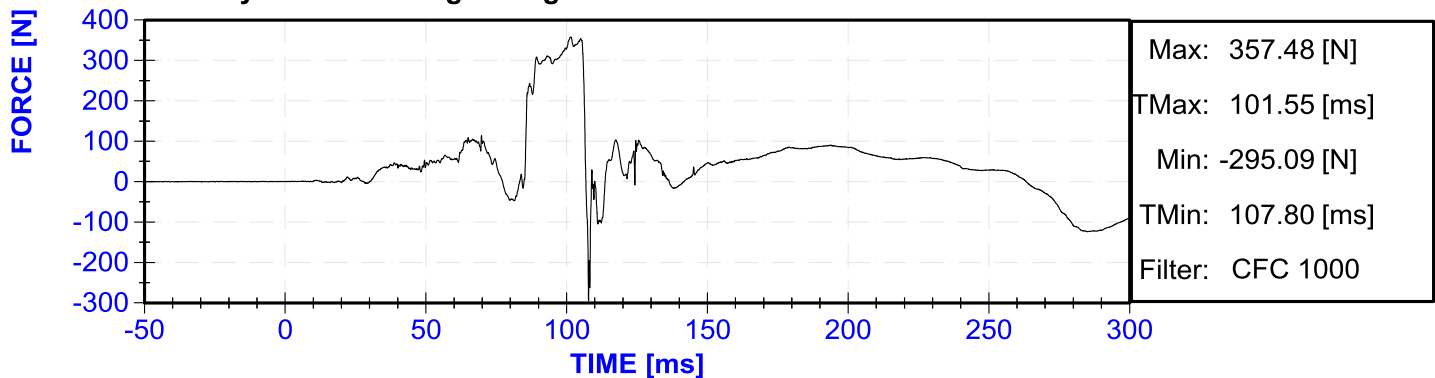
V1P2 My on head acting through the O.C. joint only

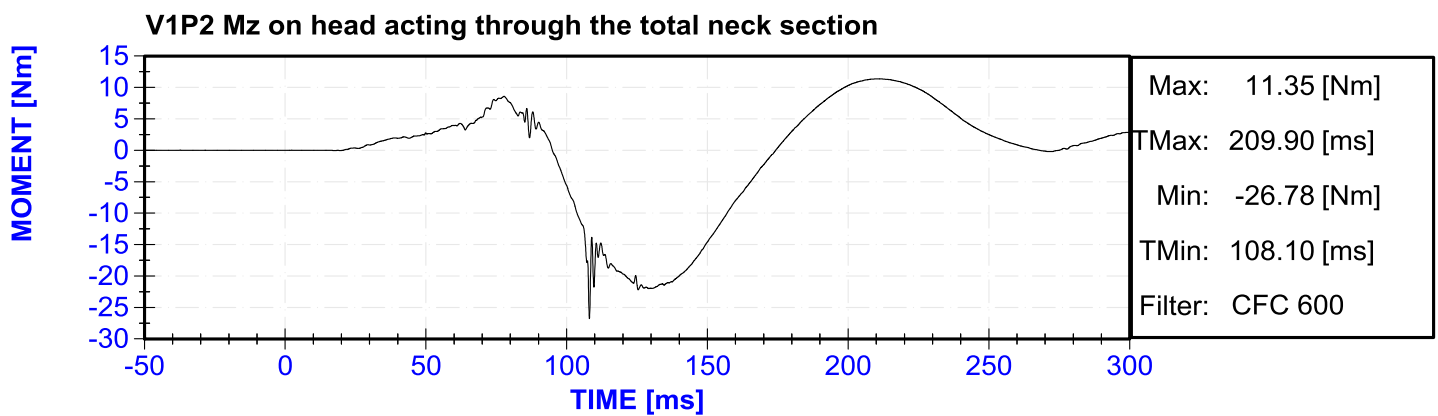
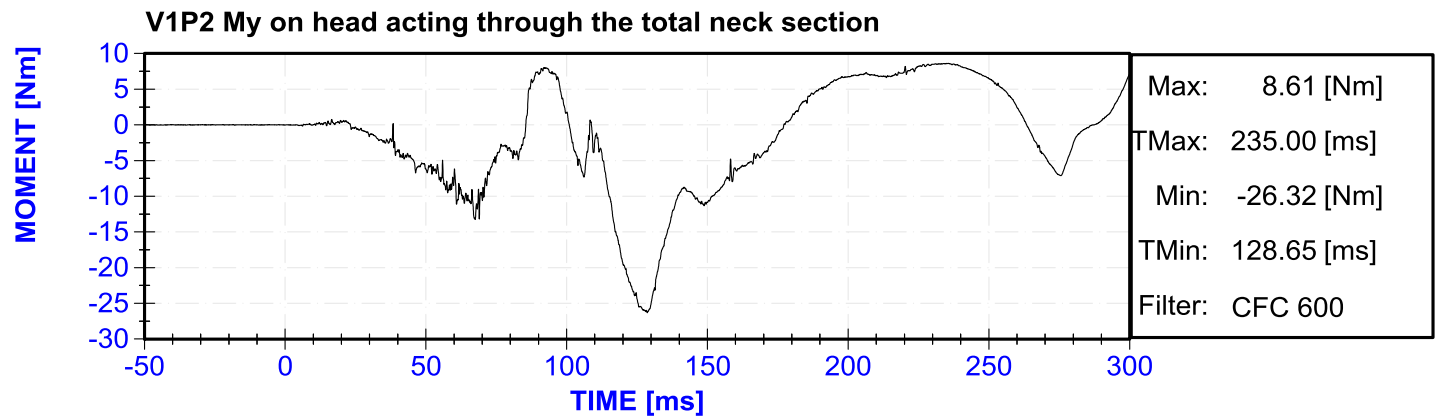
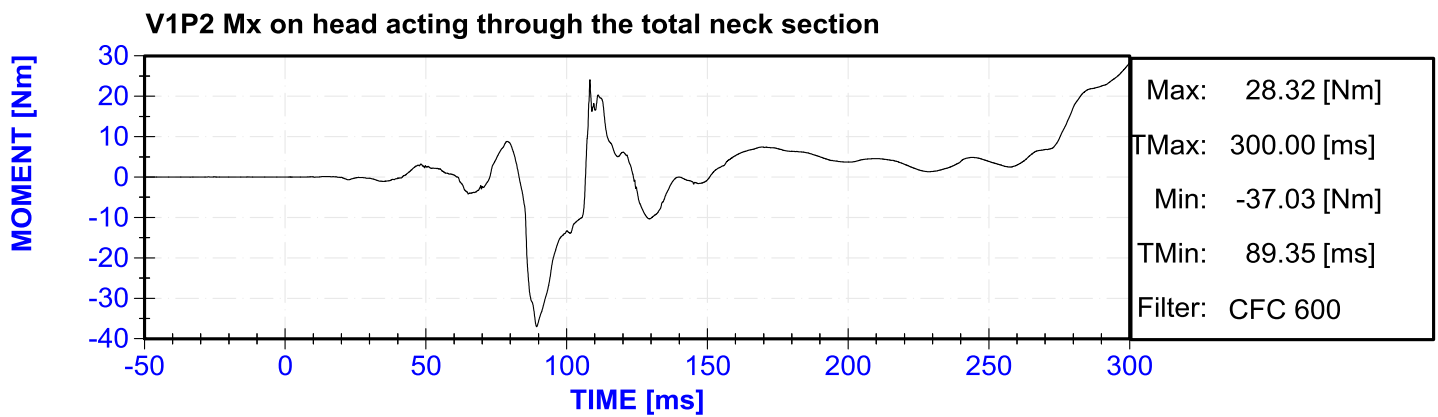
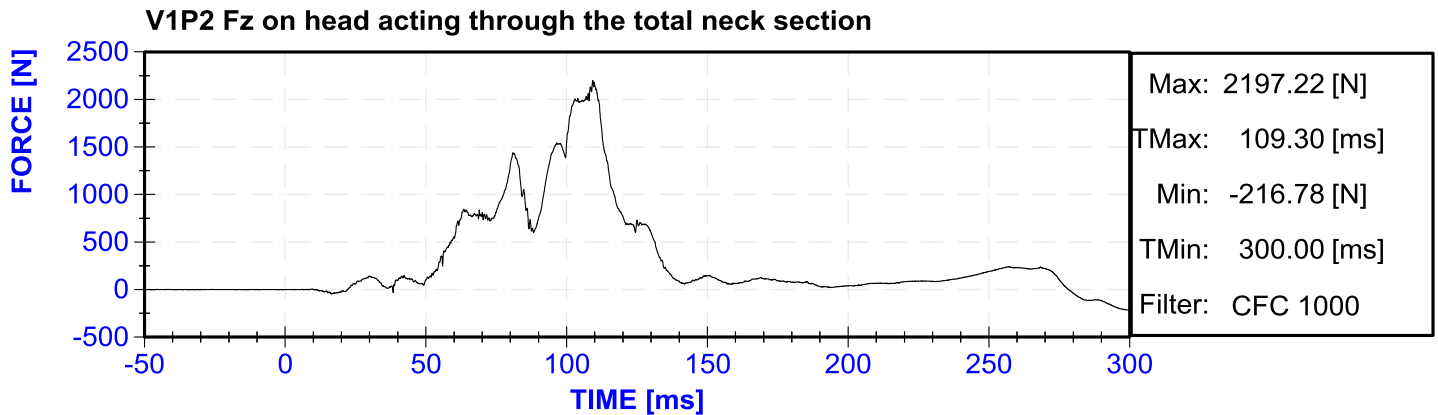


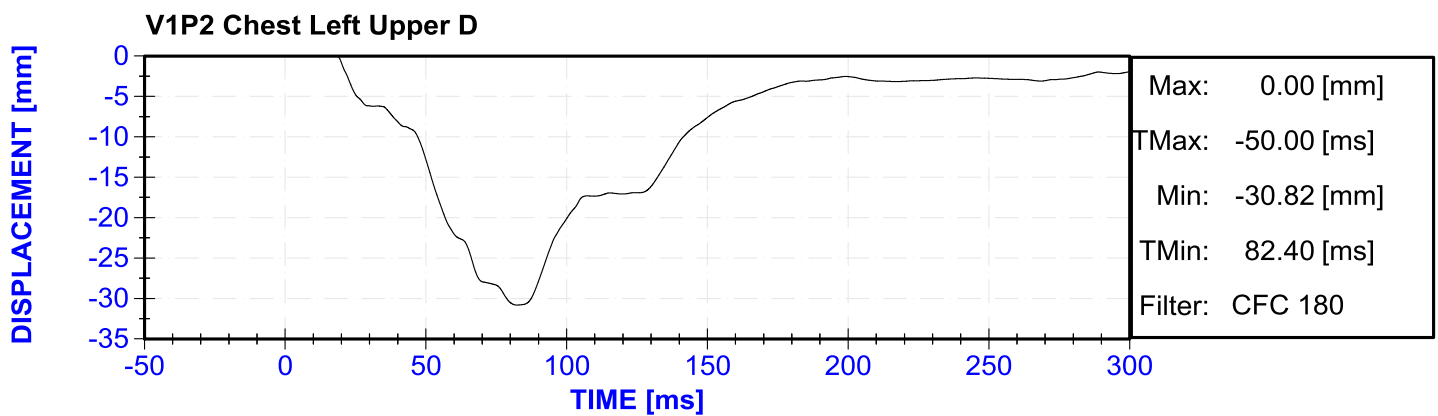
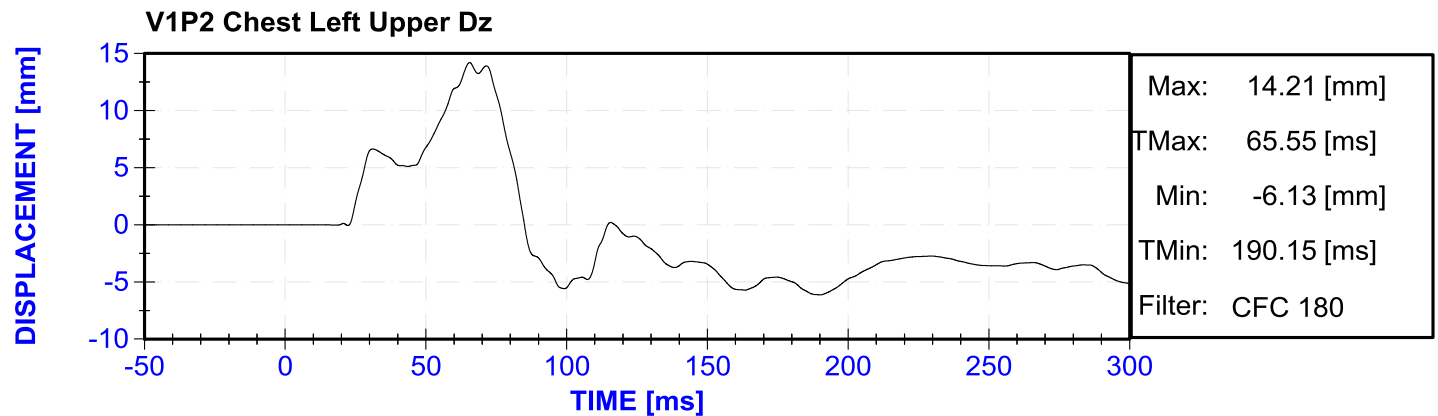
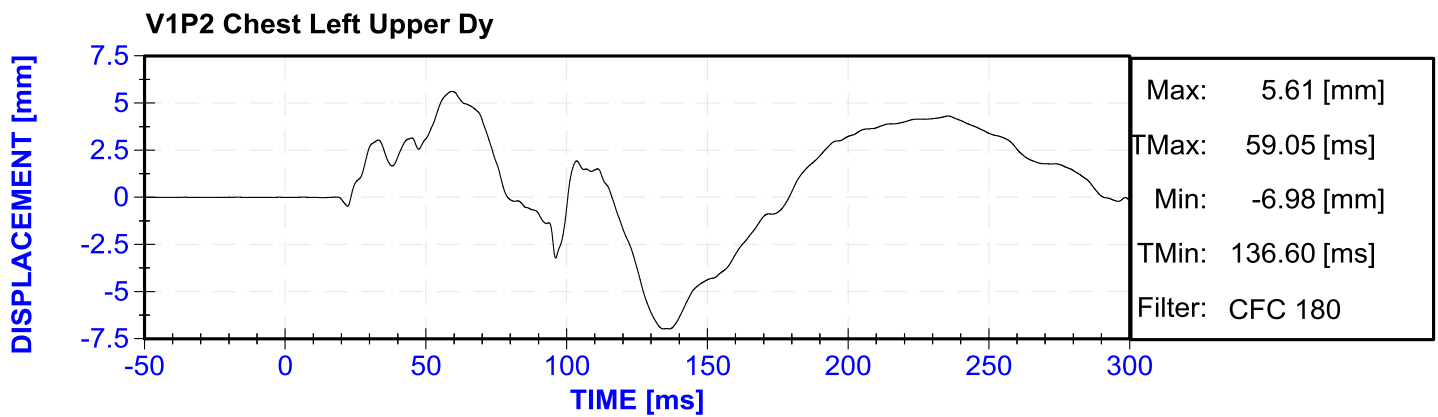
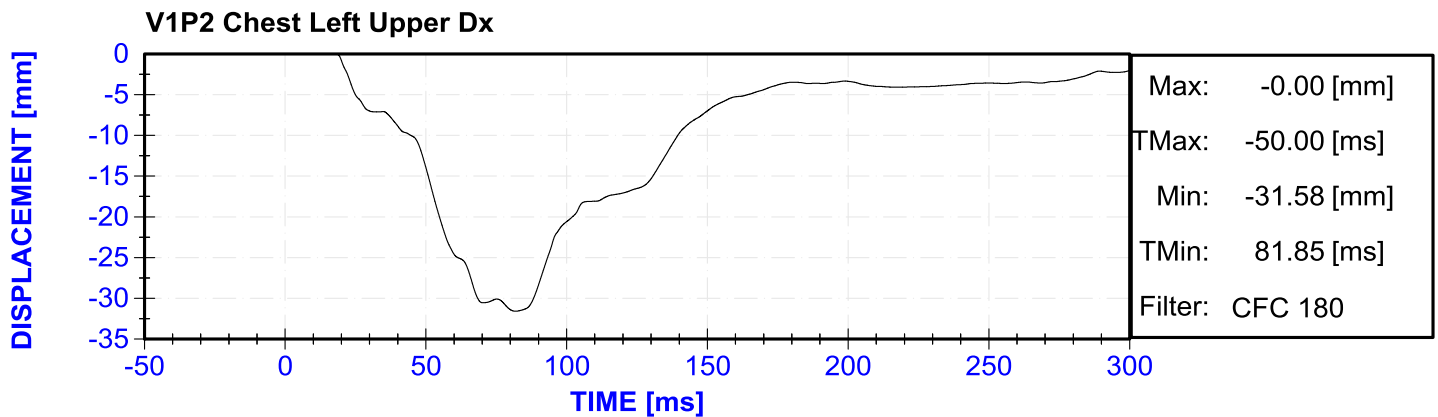
V1P2 Fx on head acting through the total neck section

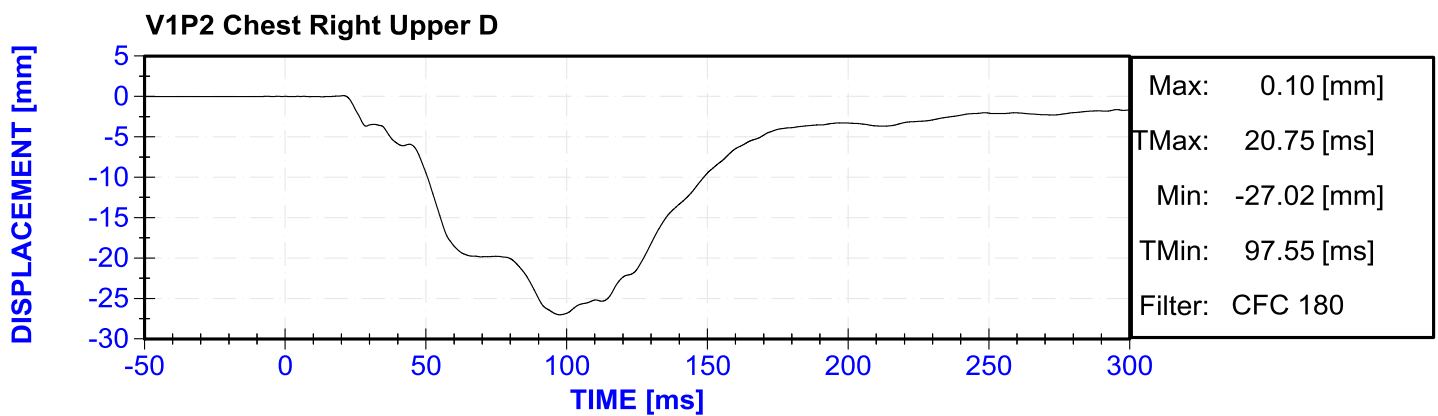
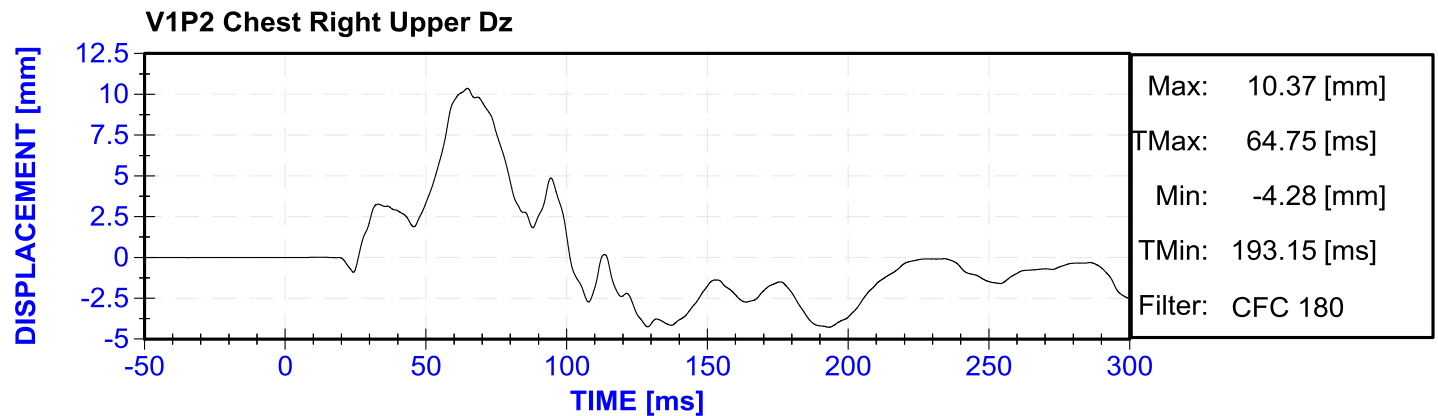
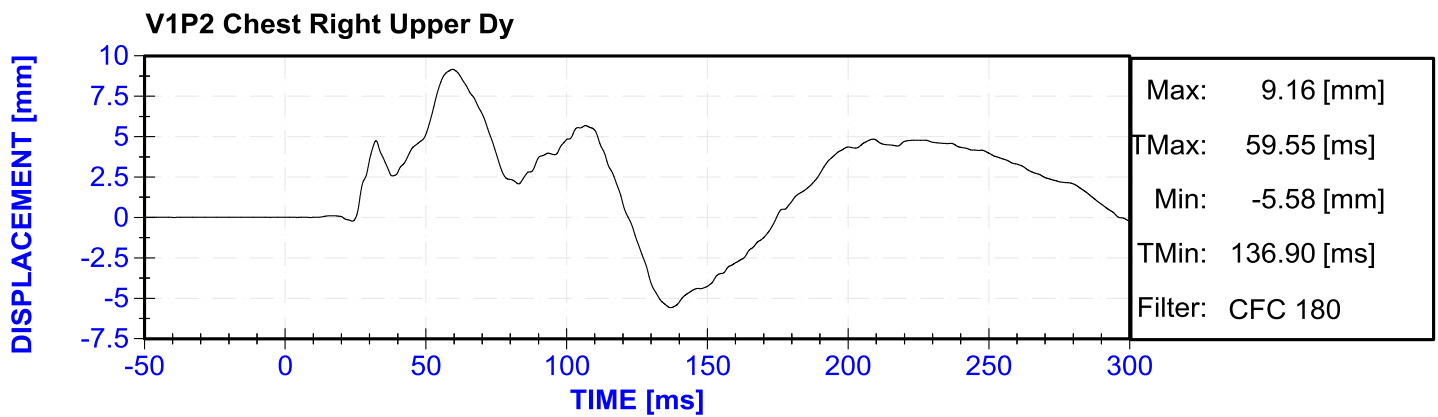
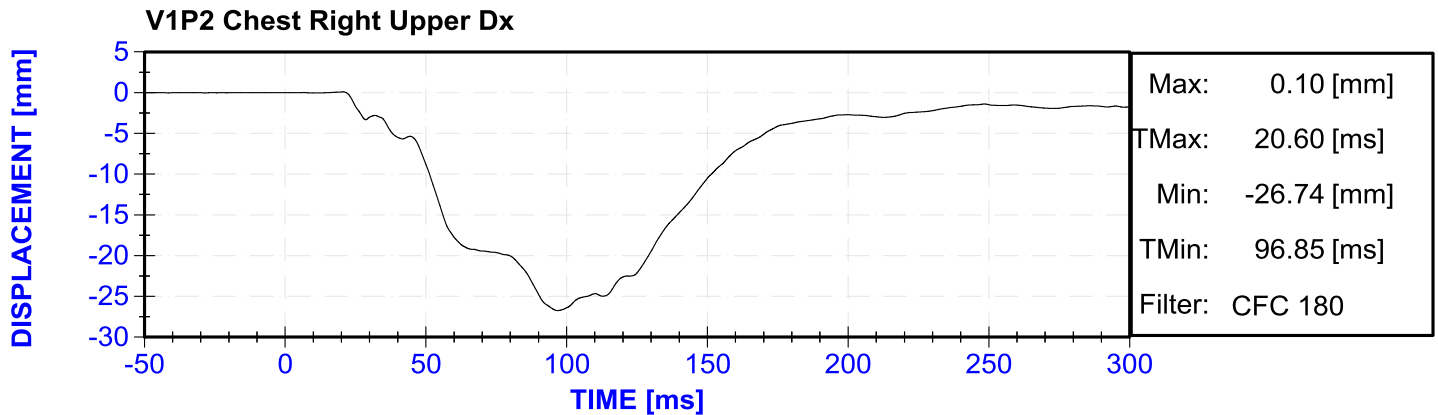


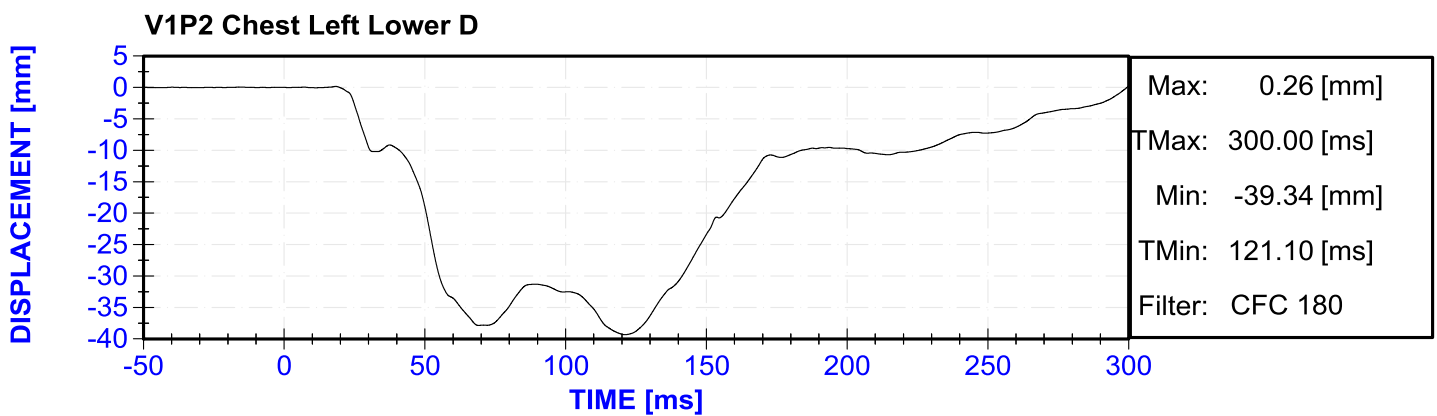
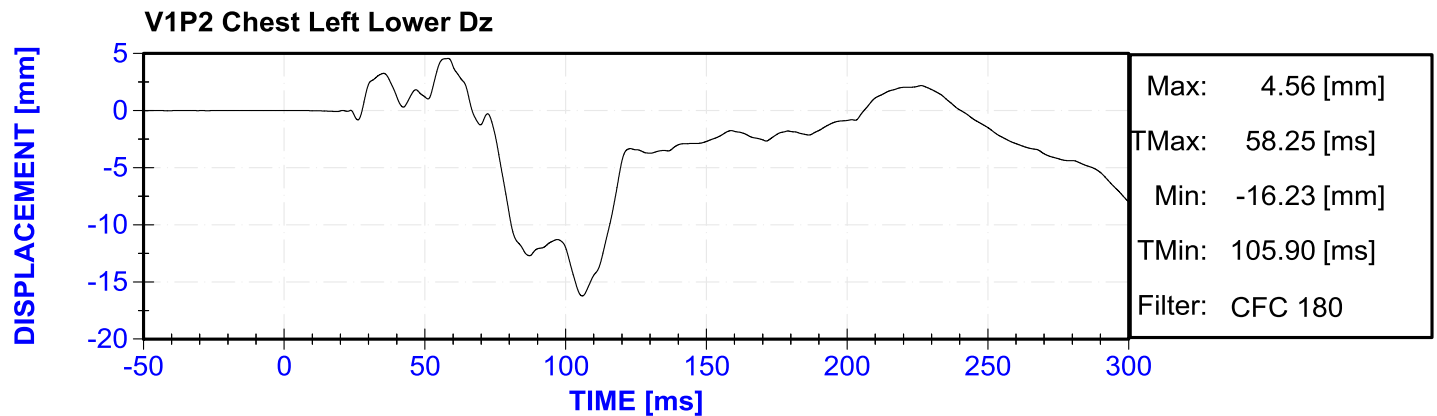
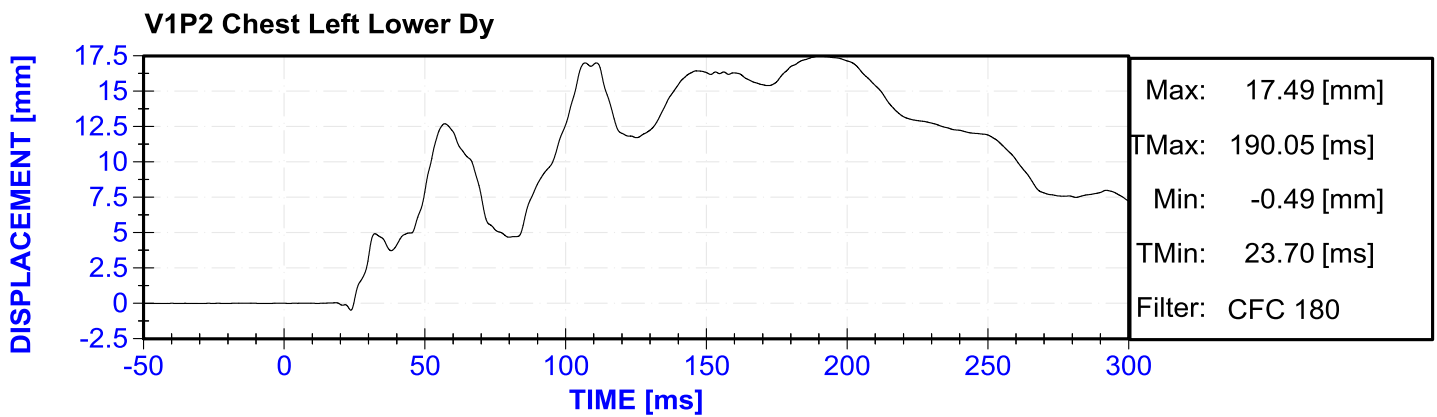
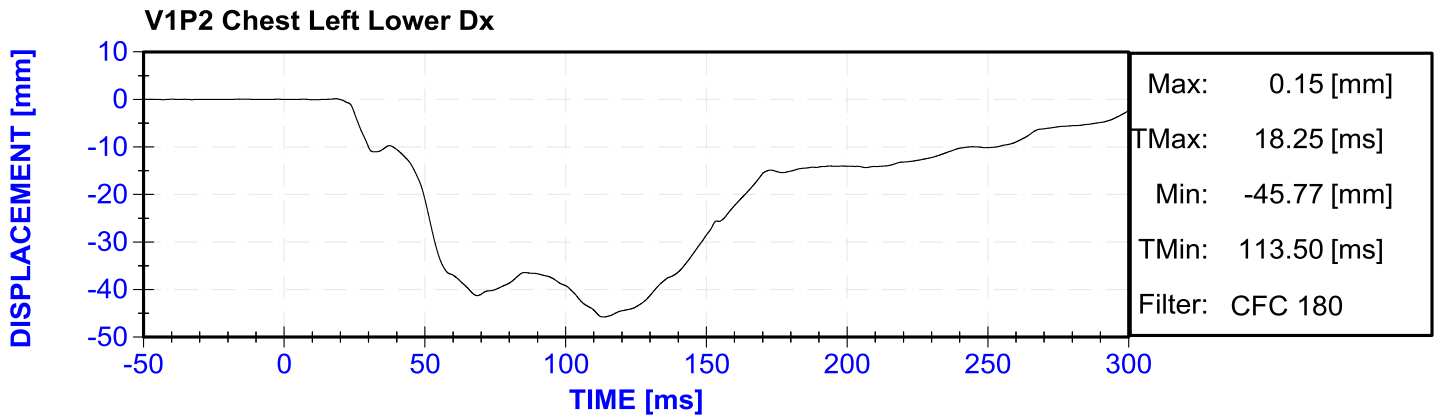
V1P2 Fy on head acting through the total neck section

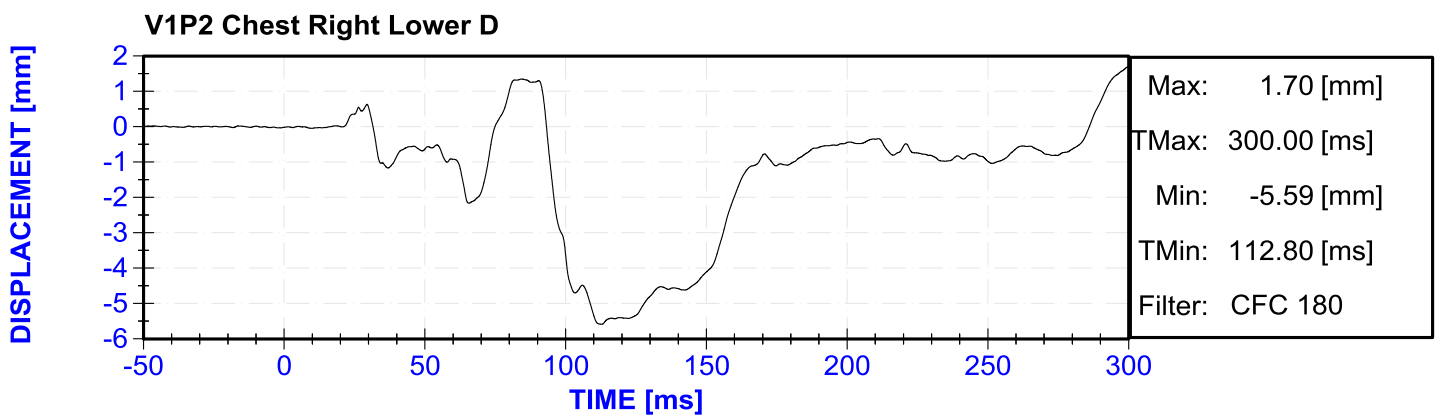
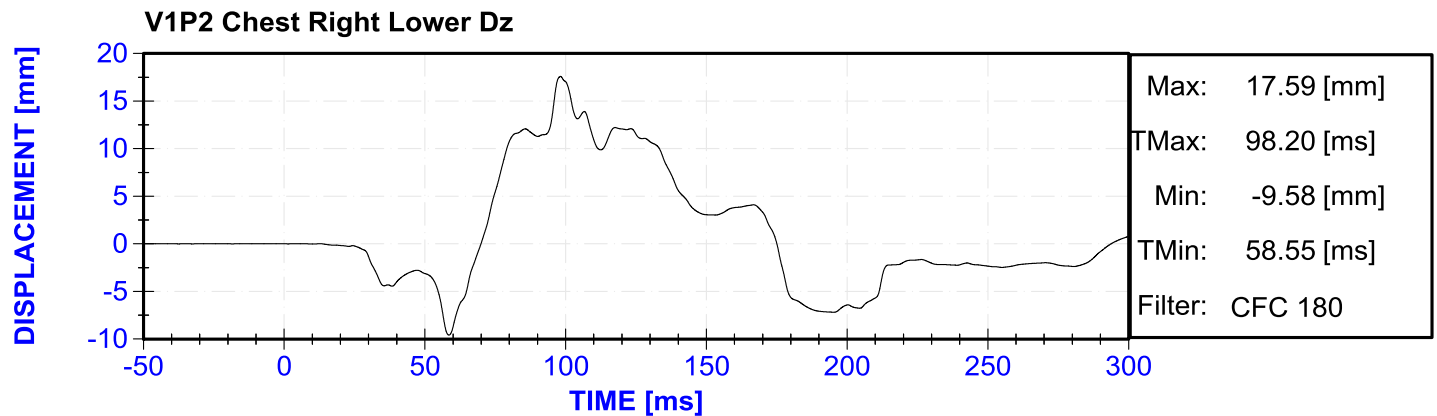
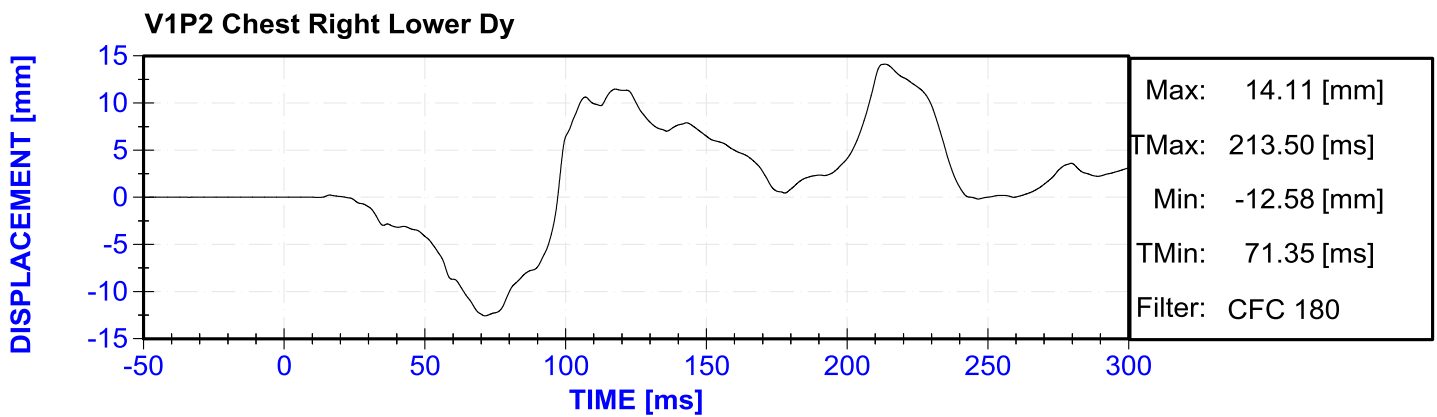
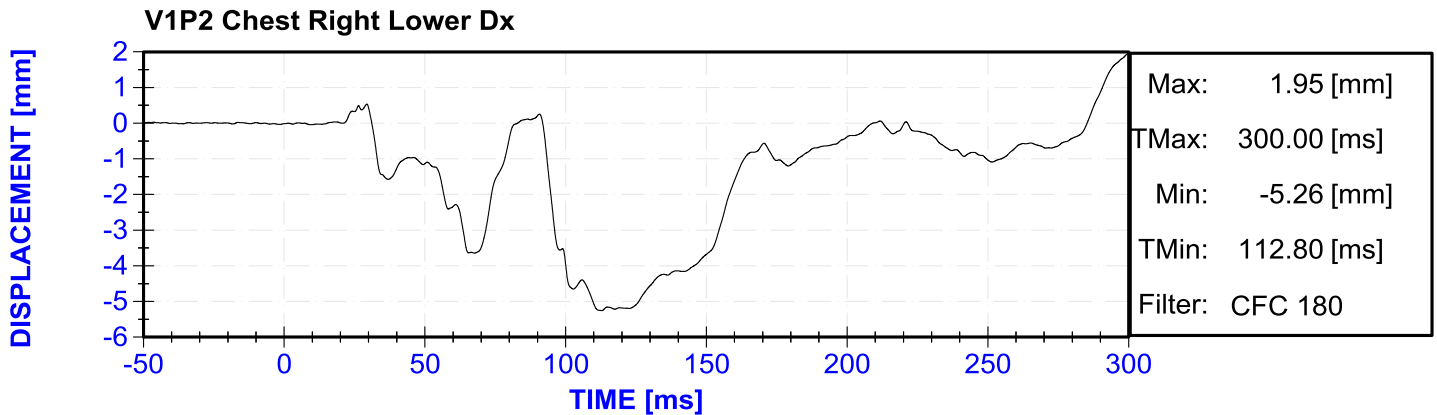


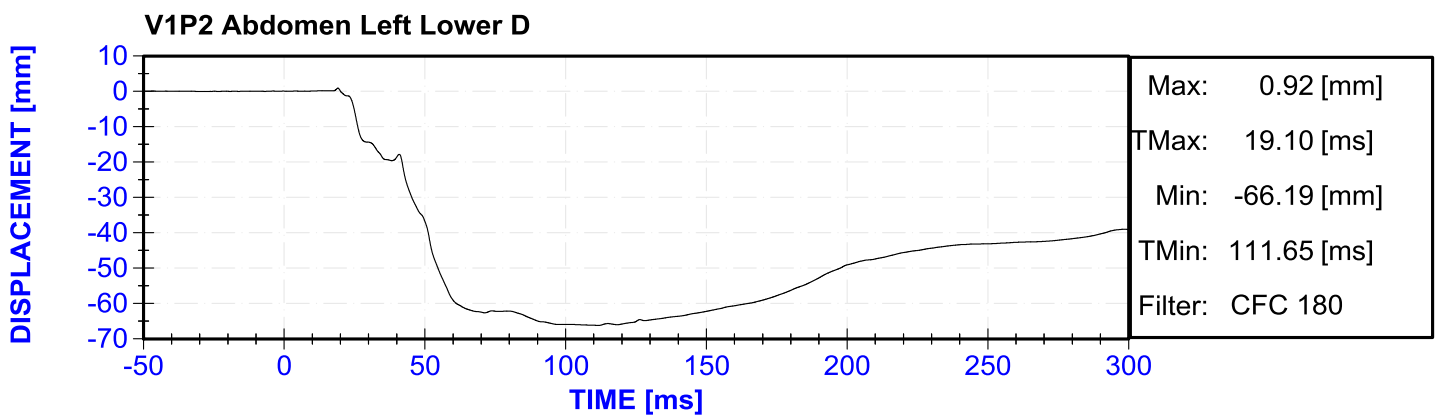
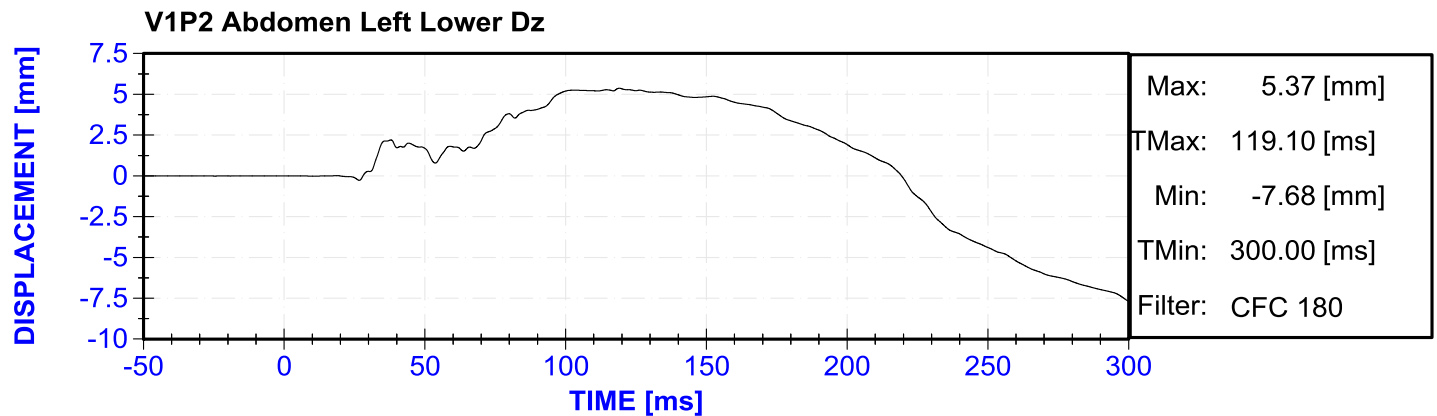
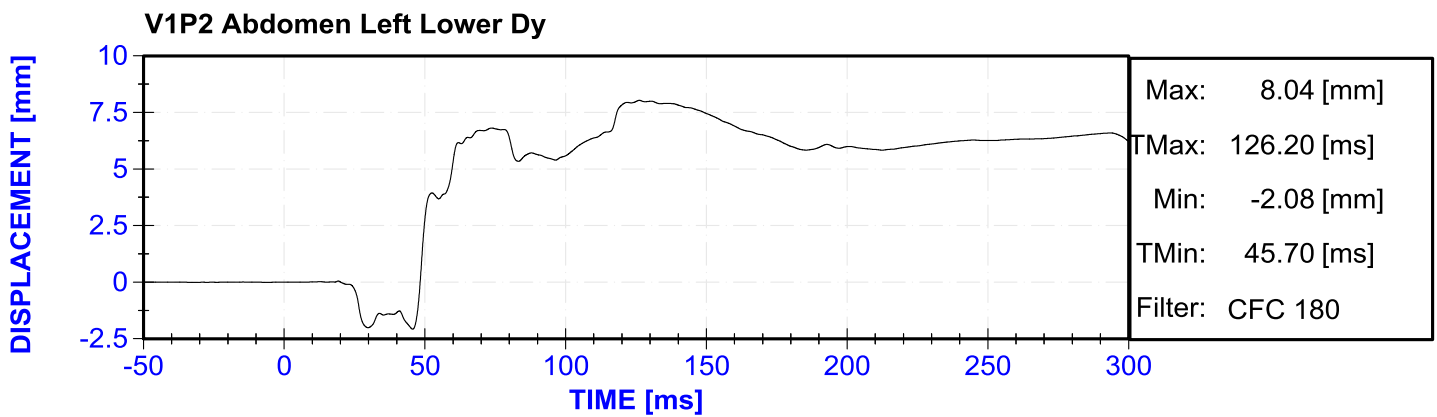
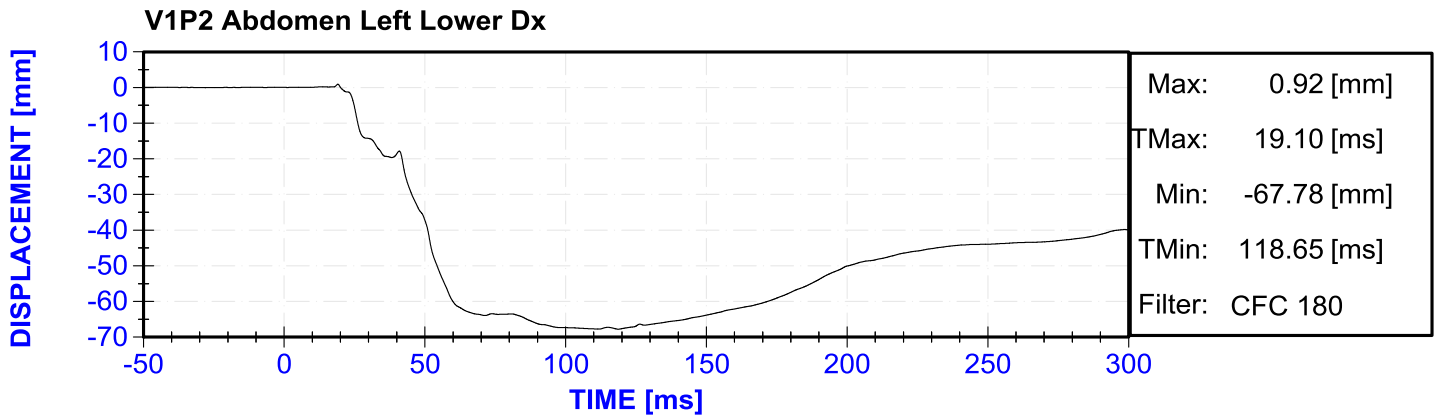


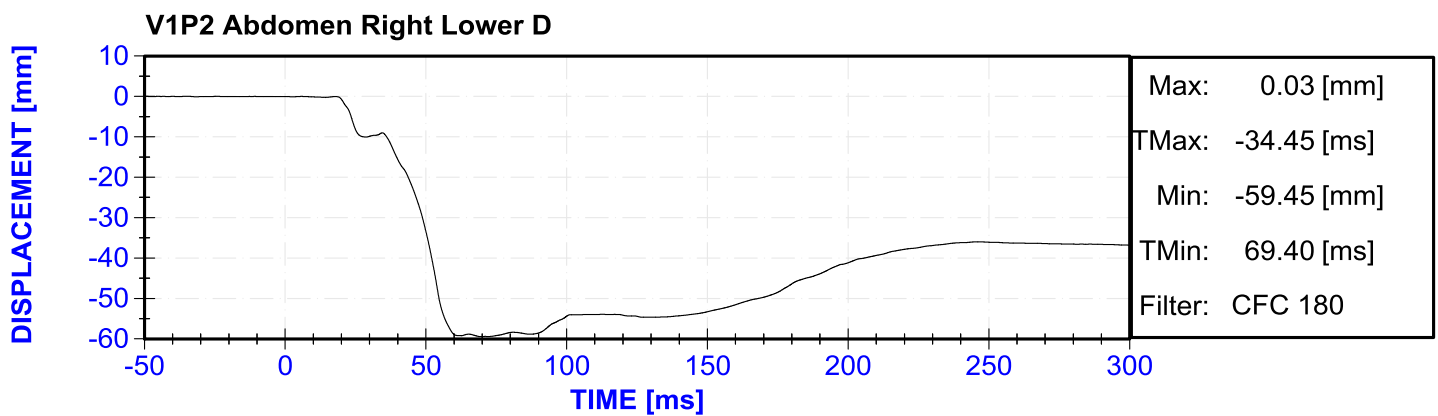
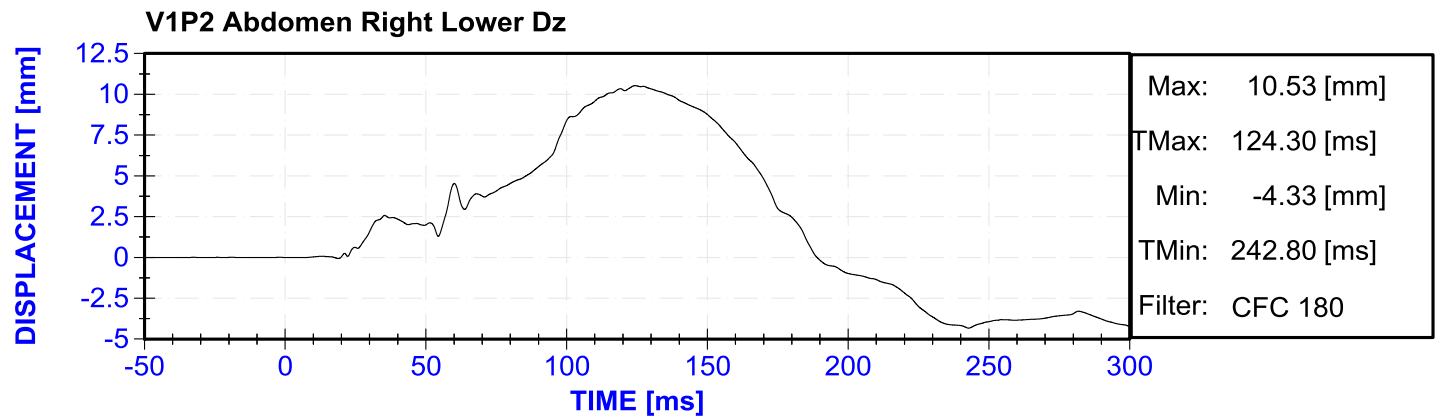
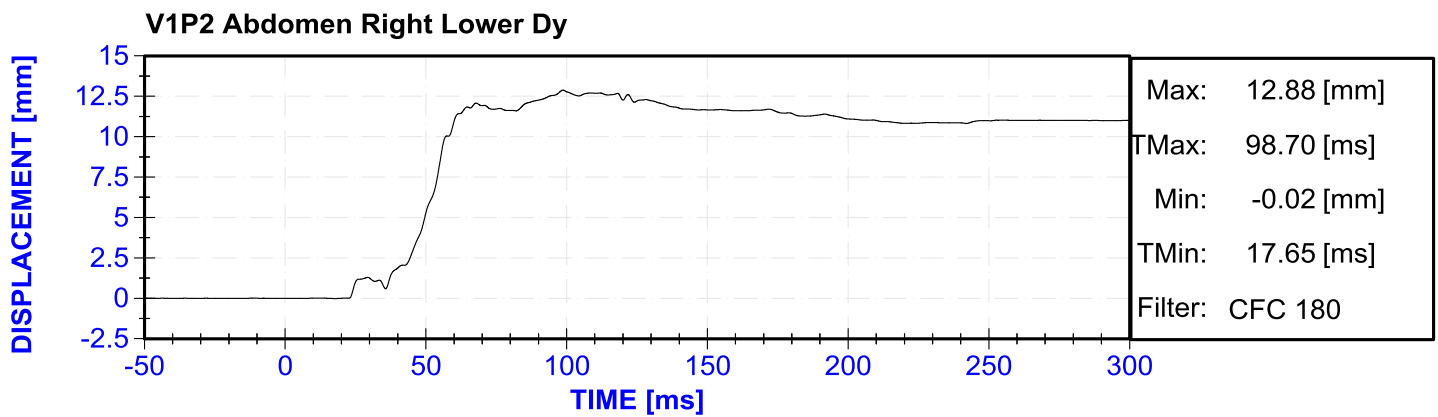
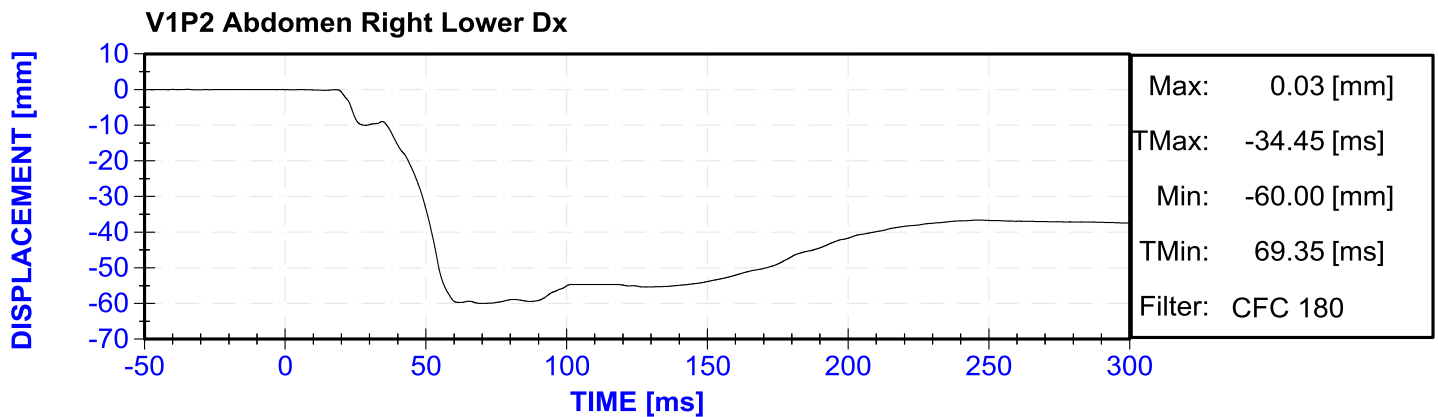












APPENDIX C

**PART 572 E/O DUMMY CALIBRATION
AND PERFORMANCE VERIFICATION DATA SHEETS**

Table C-1: Dummy Information

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

Table C-2: Ankle Offset Files

THOR – TK S/N: 016					
LFTX	LFTY	LFTZ	RFTX	RFTY	RFTZ
Left Ankle X Rotation	Left Ankle Y Rotation	Left Ankle Z Rotation	Right Ankle X Rotation	Right Ankle Y Rotation	Right Ankle Z Rotation
-0.281010	13.9793		-0.926255	17.6868	
THOR – TK S/N: 015					
LFTX	LFTY	LFTZ	RFTX	RFTY	RFTZ
Left Ankle X Rotation	Left Ankle Y Rotation	Left Ankle Z Rotation	Right Ankle X Rotation	Right Ankle Y Rotation	Right Ankle Z Rotation
.762525	14.9331		-1.31005	13.7803	

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

THOR – TK S/N: 016								
Sensor	Manufacturer	Serial #	Capacity	Units (M)	Range	CFC	Sensitivity (mv/V/EU)	Initial Offset (EU)
HEAD CG X	Endevco	AC-P74956	2000	g	2000	1000	0.01851	0.415576
HEAD CG Y	Endevco	AC-P51933	2000	g	2000	1000	0.01927	0
HEAD CG Z	Endevco	AC-P52069	2000	g	2000	1000	0.01904	0
HDCG Wx	DTS	ARS-5928	18000	deg/s	18000	1000	0.09340	-47.3992
HDCG Wy	DTS	ARS-5950	18000	deg/s	18000	1000	0.09373	-82.2398
HDCG Wz	DTS	ARS-5990	18000	deg/s	18000	1000	0.09396	-27.7157
NEKU Fx	Denton	LC-3454J-76Fx	8896	N	8896	1000	0.000231531	-1.74156
NEKU Fy	Denton	LC-3454J-76Fy	8896	N	8896	1000	0.000233790	-1.73876
NEKU Fz	Denton	LC-3454J-76Fz	13345	N	13345	1000	0.000088380	-7.82127
NEKU Mx	Denton	LC-3454J-76Mx	282	N-m	282	600	0.006027005	0
NEKU My	Denton	LC-3454J-76My	282	N-m	282	600	0.005967528	-0.165369
NEKU Mz	Denton	LC-3454J-76Mz	282	N-m	282	600	0.009944701	-0.0552506
NEKL Fx	Denton	LC-DM4552FX	13345	N	13345	1000	0.000170802	0
NEKL Fy	Denton	LC-DM4552FY	13345	N	13345	1000	0.000170203	0
NEKL Fz	Denton	LC-DM4552FZ	13345	N	13345	1000	0.000071152	0
NEKL Mx	Denton	LC-DM4552MX	452	N-m	452	600	0.004108075	-0.0885175
NEKL My	Denton	LC-DM4552MY	452	N-m	452	600	0.004134627	-0.0885933
NEKL Mz	Denton	LC-DM4552MZ	226	N-m	226	600	0.006758431	0
NKCF Fz	Denton	LC-6005J-77Fz	4448	N	4448	1000	0.000850317	-0.871135

THOR – TK (Continued)

S/N: 016

Sensor	Manufacturer	Serial #	Capacity	Units (M)	Range	CFC	Sensitivity (mv/V/EU)	Initial Offset (EU)
NKCR Fz	Denton	LC-6005J-78Fz	4448	N	4448	1000	0.000862839	0
HDOT RDy	Sfernice	DS-007	180	deg	160	180	3.045	0.0328407
SPNU Ax	Endevco	AC-P64099	2000	g	2000	180	0.02212	-0.821963
SPNU Ay	Endevco	AC-P58838	2000	g	2000	180	0.01904	-0.404008
SPNU Az	Entran	AC-02I02I05-F14	2000	g	2000	180	0.02184	0
SPNM Ax	Endevco	AC-P64002	2000	g	2000	180	0.01993	0.41813
SPNM Ay	Endevco	AC-P58735	2000	g	2000	180	0.01954	0.39367
SPNM Az	Entran	AC-03D03D16-F12	2000	g	2000	180	0.02265	0
CHLU Dx	Humanetics	DS-DM1151	3.3	V	3.3	600	Raw	0.144062
CHLU Ry	Humanetics	DS-DJ4106	180	deg	160	180	3.074	0
CHLU Rz	Humanetics	DS-DJ4108	180	deg	160	180	2.995	0.033389
CHRU Dx	Humanetics	DS-DI4716	3.3	V	3.3	600	Raw	0.125521
CHRU Ry	Humanetics	DS-DI2381	180	deg	160	180	3.029	0
CHRU Rz	Humanetics	DS-DI2380	180	deg	160	180	3.064	0
CHLL Dx	Humanetics	DS-DM1152	3.3	V	3.3	600	Raw	0.0989583
CHLL Ry	Humanetics	DS-DI7903	180	deg	160	180	2.997	0
CHLL Rz	Humanetics	DS-DJ0023	180	deg	160	180	3.065	-0.0326264
CHRL Dx	Humanetics	DS-DI4717	3.3	V	3.3	600	Raw	0.08
CHRL Ry	Humanetics	DS-DI2385	180	deg	160	180	2.584	0.0322497
CHRL Rz	Humanetics	DS-DI2384	180	deg	160	180	3.007	0
SPNL Fx	Denton	LC-92Fx	13345	N	13345	1000	0.000137463	2.60741
SPNL Fy	Denton	LC-92Fy	13345	N	13345	1000	0.000138198	-2.61227
SPNL Fz	Denton	LC-92Fz	17793	N	13345	1000	0.000052639	-5.21904
SPNL Mx	Denton	LC-92Mx	678	N-m	678	1000	0.002164893	0
SPNL My	Denton	LC-92My	904	N-m	904	1000	0.001775128	2.68257
PVCG Ax	Endevco	AC-P64087	2000	g	2000	1000	0.02017	0
PVCG Ay	Endevco	AC-P50065	2000	g	2000	1000	0.01704	0
PVCG Az	Endevco	AC-P64123	2000	g	2000	1000	0.01961	-0.392265
PVAL Fx	Humanetics	LC-84Fx	22241	N	22241	600	0.0001229300	8.70164
PVAL Fy	Humanetics	LC-84Fy	13345	N	13345	600	0.0000607883	0
PVAL Fz	Humanetics	LC-84Fz	13345	N	13345	600	0.0001661788	0
PVAR Fx	Humanetics	LC-77Fx	22241	N	22241	600	0.0001216936	-4.34865
PVAR Fy	Humanetics	LC-77Fy	13345	N	13345	600	0.0000598142	0
PVAR Fz	Humanetics	LC-77Fz	13345	N	13345	600	0.0001651371	2.61043
PILL Fx	Humanetics	LC-DI4774 Fx	13000	N	13000	600	0.000067785	5.07945
PILR Fx	Humanetics	LC-DI4775 Fx	13000	N	13000	600	0.000067854	12.7074
FMRL Fx	Humanetics	LC-108Fx	15000	N	15000	600	0.0001449	0
FMRL Fy	Humanetics	LC-108Fy	15000	N	15000	600	0.0001457	2.93308
FMRL Fz	Humanetics	LC-108Fz	15000	N	15000	600	0.0000750	-2.9304
FMRL Mx	Humanetics	LC-108Mx	350	N-m	350	600	0.0065318	-0.0686534
FMRL My	Humanetics	LC-108My	350	N-m	350	600	0.0065158	13.0026
FMRL Mz	Humanetics	LC-108Mz	350	N-m	350	600	0.0093691	-0.0684191
KNEL Dx	Space Age	DS-D2103665B	30	mm	20	180	23.87593	0.00418832
TBLU Fz	Denton	LC-4509J-110Fz	11120	N	11120	600	0.0000923	-6.52665
TBLU Mx	Denton	LC-4509J-110Mx	395	N-m	395	600	0.0073903	-0.0773214
TBLU My	Denton	LC-4509J-110My	395	N-m	395	600	0.0073054	0
TBLL Fz	Denton	LC-76Fz	11120	N	11120	600	0.0000948	-6.52486

THOR – TK (Continued)								
S/N: 016								
Sensor	Manufacturer	Serial #	Capacity	Units (M)	Range	CFC	Sensitivity (mv/V/EU)	Initial Offset (EU)
TBLL Mx	Denton	LC-76Mx	395	N	395	600	0.0074420	0
TBLL My	Denton	LC-76My	395	N	395	600	0.0073706	-0.0775281
ANKL Rx	Contelec	DS-001x	180	deg	150	180	3.20532	-0.28101
ANKL Ry	Contelec	DS-002y	180	deg	150	180	3.16119	13.9793
FOTL Az	Endevco	AC-J19244	2000	g	2000	1000	0.02590	2.36388
FMRR Fx	Humanetics	LC-DJ1045Fx	15000	N	15000	600	0.0001450	-2.9347
FMRR Fy	Humanetics	LC-DJ1045Fy	15000	N	15000	600	0.0001452	-2.93066
FMRR Fz	Humanetics	LC-DJ1045Fz	15000	N	15000	600	0.0000732	0
FMRR Mx	Humanetics	LC-DJ1045Mx	350	N-m	350	600	0.0065293	-0.0683731
FMRR My	Humanetics	LC-DJ1045My	350	N-m	350	600	0.0065638	0.0686265
FMRR Mz	Humanetics	LC-DJ1045Mz	350	N-m	350	600	0.0088260	0
KNER Dx	Space Age	DS-D2103657B	30	mm	20	180	24.06200	0.00415593
TBRU Fz	Denton	LC-4509J-107Fz	11120	N	11120	600	0.0000923	-6.52665
TBRU Mx	Denton	LC-4509J-107Mx	395	N-m	395	600	0.0073875	-0.0773507
TBRU My	Denton	LC-4509J-107My	395	N-m	395	600	0.0073329	0
TBRL Fz	Denton	LC-75Fz	11120	N	11120	600	0.0000958	0
TBRL Mx	Denton	LC-75Mx	395	N-m	395	600	0.0072968	0.0774273
TBRL My	Denton	LC-75My	395	N-m	395	600	0.0073137	0
ANKR Rx	Contelec	DS-004X	180	deg	150	180	3.16542	-0.92625
ANKR Ry	Contelec	DS-0534Y	180	deg	150	180	3.17825	17.6868
FOTR Az	Endevco	AC-P74773	2000	g	2000	1000	0.01818	-0.392896

THOR – TK								
S/N: 015								
Sensor	Manufacturer	Serial #	Capacity	Units (M)	Range	CFC	Sensitivity (mv/V/EU)	Initial Offset (EU)
HEAD CG X	Endevco	P63926	2000	g	2000	1000	0.01887	0
HEAD CG Y	Endevco	P64084	2000	g	2000	1000	0.02366	-1.95673
HEAD CG Z	Endevco	P51732	2000	g	2000	1000	0.01901	-0.404645
HDCG Wx	DTS	ARS4727	18000	deg/s	18000	1000	0.09212	-98.9425
HDCG Wy	DTS	ARS4712	18000	deg/s	18000	1000	0.09309	-11.7494
HDCG Wz	DTS	ARS4714	18000	deg/s	18000	1000	0.09443	-14.892
NEKU Fx	Denton	77	8896	N	8896	1000	0.000231857	-5.6069
NEKU Fy	Denton	77	8896	N	8896	1000	0.000228428	-0.875549
NEKU Fz	Denton	77	13345	N	13345	1000	0.000086454	2.31337
NEKU Mx	Denton	77	282	N-m	282	600	0.005888226	-0.0509491
NEKU My	Denton	77	282	N-m	282	600	0.005997267	-0.0333485
NEKU Mz	Denton	77	282	N-m	282	600	0.009965588	0.100345
NKCF Fz	Denton	LC-6005J-77Fz	80	N	4448	1000	0.000868639	0
NKCR Fz	Denton	LC-6005J-78Fz	75	N	4448	1000	0.000709137	0
HDOT RDy	Humanetics	DS-007	160	deg	160	180	3.036	0
SPNU Ax	Endevco	AC-P64099	2000	g	2000	180	0.01736	0
SPNU Ay	Entran	AC-P58838	2000	g	2000	180	0.02330	-1.18124
SPNU Az	Endevco	AC-02I02I05-F14	2000	g	2000	180	0.01914	0
SPNM Ax	Endevco	AC-P64002	2000	g	2000	180	0.01819	0.39268

THOR – TK (Continued)
S/N: 015

Sensor	Manufacturer	Serial #	Capacity	Units (M)	Range	CFC	Sensitivity (mv/V/EU)	Initial Offset (EU)
SPNM Ay	Endevco	P58717	2000	g	2000	180	0.01797	0
SPNM Az	Endevco	P63843	2000	g	2000	180	0.02361	-0.784351
CHLU Dx	Humanetics	DK3867	3.3	V	3.3	600	Raw	0.112292
CHLU Ry	Humanetics	DJ5448	180	deg	160	180	3.074	-0.0325309
CHLU Rz	Humanetics	DJ5449	180	deg	160	180	3.042	0
CHRU Dx	Humanetics	DK3868	3.3	V	3.3	600	Raw	0.10875
CHRU Ry	Humanetics	DJ5451	180	deg	160	180	3.045	0
CHRU Rz	Humanetics	DJ5450	180	deg	160	180	3.032	0
CHLL Dx	Humanetics	DI4718	3.3	V	3.3	600	Raw	0.0783333
CHLL Ry	Humanetics	DI2386	180	deg	160	180	2.958	0
CHLL Rz	Humanetics	DI6129	180	deg	160	180	3.053	0.0327547
CHRL Dx	Humanetics	DJ2614	3.3	V	3.3	600	Raw	0.0870833
CHRL Ry	Humanetics	DJ4107	180	deg	160	180	2.978	0.0335796
CHRL Rz	Humanetics	DJ4109	180	deg	160	180	3.045	0
SPNL Fx	Denton	125	13345	N	13345	1000	0.000142439	-2.80822
SPNL Fy	Denton	125	13345	N	13345	1000	0.000142551	0.701503
SPNL Fz	Denton	125	17793	N	13345	1000	0.000061260	4.89716
SPNL Mx	Denton	125	678	N-m	678	1000	0.002138341	-0.420887
SPNL My	Denton	125	904	N-m	904	1000	0.001834428	0.272565
PVCG Ax	Endevco	P51294	2000	g	2000	1000	0.02201	0
PVCG Ay	Endevco	P63857	2000	g	2000	1000	0.02371	1.57668
PVCG Az	Endevco	P59011	2000	g	2000	1000	0.01781	0
PVAL Fx	Humanetics	83	22241	N	22241	600	0.0001206055	9.12061
PVAL Fy	Humanetics	83	13345	N	13345	600	0.0000591322	15.2284
PVAL Fz	Humanetics	83	13345	N	13345	600	0.0001630614	-5.51941
PVAR Fx	Humanetics	79	22241	N	22241	600	0.0001206190	-9.94868
PVAR Fy	Humanetics	79	13345	N	13345	600	0.0000595968	-6.71141
PVAR Fz	Humanetics	79	13345	N	13345	600	0.0001636234	2.44464
PILL Fx	Humanetics	DJ5524	13000	N	13000	600	0.000070654	-10.1641
PILR Fx	Humanetics	77	13000	N	13000	600	0.000068416	-7.62598
FMRL Fx	Humanetics	DM4951	15000	N	15000	600	0.000142057	-2.93309
FMRL Fy	Humanetics	DM4951	15000	N	15000	600	0.000142086	-2.9325
FMRL Fz	Humanetics	DM4951	15000	N	15000	600	0.000071741	5.86907
FMRL Mx	Humanetics	DM4951	350	N-m	350	600	0.006425656	-0.137116
FMRL My	Humanetics	DM4951	350	N-m	350	600	0.006432760	-0.0684821
FMRL Mz	Humanetics	DM4951	350	N-m	350	600	0.009035044	0
KNEL Dx	Space Age	C2102639B	30	mm	20	180	24.03214	0.00832219
TBLU Fz	Denton	106	11120	N	11120	600	0.00009360	-6.52776
TBLU Mx	Denton	106	395	N-m	395	600	0.00741550	-0.155003
TBLU My	Denton	106	395	N-m	395	600	0.00742091	0
TBLL Fz	Denton	139	11120	N	11120	600	0.00009648	4.34585

THOR – TK (Continued)								
S/N: 015								
Sensor	Manufacturer	Serial #	Capacity	Units (M)	Range	CFC	Sensitivity (mv/V/EU)	Initial Offset (EU)
TBLL Mx	Denton	139	395	N	395	600	0.00749952	-0.0775243
TBLL My	Denton	139	395	N	395	600	0.00754555	-0.077502
ANKL Rx	Contelec	7921-0382	180	deg	150	180	3.18215	0.762525
ANKL Ry	Contelec	7921-0386	180	deg	150	180	3.17717	14.9331
FOTL Az	Endevco	J27525	2000	g	2000	1000	0.02143	6.36321
FMRR Fx	Humanetics	DM4950	15000	N	15000	600	0.000141110	0
FMRR Fy	Humanetics	DM4950	15000	N	15000	600	0.000141643	0
FMRR Fz	Humanetics	DM4950	15000	N	15000	600	0.000071653	-8.79589
FMRR Mx	Humanetics	DM4950	350	N-m	350	600	0.006388454	0.0686546
FMRR My	Humanetics	DM4950	350	N-m	350	600	0.006411979	-0.136805
FMRR Mz	Humanetics	DM4950	350	N-m	350	600	0.008857852	0
KNER Dx	Space Age	I1807966B	30	mm	20	180	23.38064	0
TBRU Fz	Denton	88	11120	N	11120	600	0.00009280	-4.34511
TBRU Mx	Denton	88	395	N-m	395	600	0.00726490	0
TBRU My	Denton	88	395	N-m	395	600	0.00725530	0
TBRL Fz	Denton	140	11120	N	11120	600	0.00009658	0
TBRL Mx	Denton	140	395	N-m	395	600	0.00760594	0
TBRL My	Denton	140	395	N-m	395	600	0.00764658	0
ANKR Rx	Contelec	7921-0385	180	deg	150	180	3.18522	-1.31005
ANKR Ry	Contelec	7921-0383	180	deg	150	180	3.18949	13.7803
FOTR Az	Endevco	P58616	2000	g	2000	1000	0.01995	0

Table C-4: THOR Dummy Initial Set-Up Information (IR-TRACC)

THOR – TK			
S/N: 016			
Sensor	IR-TRACC Exponent	IR-TRACC Slope	IR-TRACC Intercept
CHLU Dx	-0.54440	26.4269	N/A
CHRU Dx	-0.4872	31.6935	N/A
CHLL Dx	-0.49197	31.3308	N/A
CHRL Dx	-0.4865	30.3707	N/A
ABDL Dx	N/A	N/A	N/A
ABDR Dx	N/A	N/A	N/A
THOR – TK			
S/N: 015			
Sensor	IR-TRACC Exponent	IR-TRACC Slope	IR-TRACC Intercept
CHLU Dx	-0.5268	28.0630	N/A
CHRU Dx	-0.4888	31.4311	N/A
CHLL Dx	-0.4500	34.0200	N/A
CHRL Dx	-0.4647	34.5897	N/A
ABDL Dx	N/A	N/A	N/A
ABDR Dx	N/A	N/A	N/A

Table 5 – 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 016

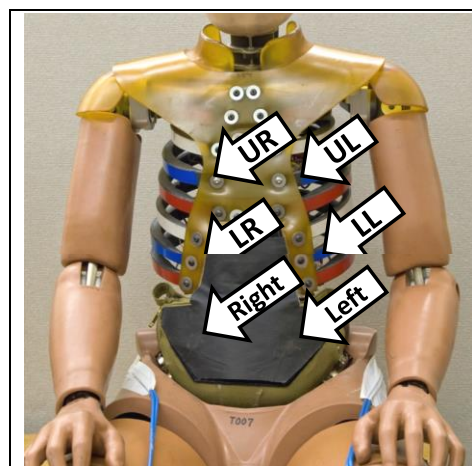


Figure 1. Manipulation to determine thoracic and abdominal IR-TRACC polarity.

Channel	Motion
DX	Push inward
RX	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)	0.12625	+	+	DX (V)	0.14208	+	+
RX (Deg)	8.1864	+	+	RX (Deg)	3.5479	+	+
RZ (Deg)	-8.7763	+	+	RZ (Deg)	11.9783	+	+
Lower Right Thorax				Lower Left Thorax			
Channel	Initial Value	Expected Polarity	Recorded Polarity	Channel	Initial Value	Expected Polarity	Recorded Polarity
DX (V)	0.07354	+	+	DX (V)	0.08948	+	+
RX (Deg)	0.77097	+	+	RX (Deg)	3.7068	+	+
RZ (Deg)	-6.8798	+	+	RZ (Deg)	7.1676	+	+
Abdomen Right				Abdomen Left			
Channel	Initial Value	Expected Polarity	Recorded Polarity	Channel	Initial Value	Expected Polarity	Recorded Polarity
DX (V)	N/A	+	N/A	DX (V)	N/A	+	N/A
RX (Deg)	N/A	+	N/A	RX (Deg)	N/A	+	N/A
RZ (Deg)	N/A	+	N/A	RZ (Deg)	N/A	+	N/A

THOR 015

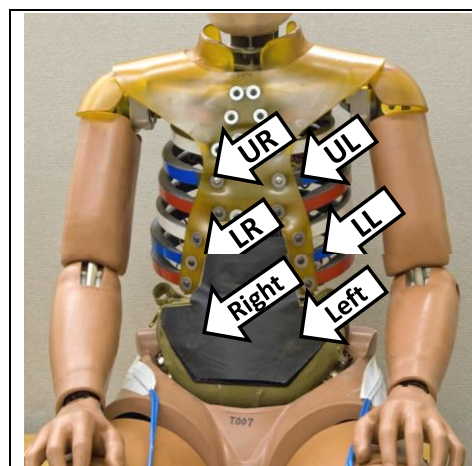


Figure 2. Manipulation to determine thoracic and abdominal IR-TRACC polarity.


Channel	Motion
DX	Push inward
RX	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)	0.10823	+	+	DX (V)	0.11271	+	+
RX (Deg)	6.54762	+	+	RX (Deg)	8.5546	+	+
RZ (Deg)	-16.135	+	+	RZ (Deg)	14.2536	+	+
Lower Right Thorax				Lower Left Thorax			
Channel	Initial Value	Expected Polarity	Recorded Polarity	Channel	Initial Value	Expected Polarity	Recorded Polarity
DX (V)	0.07854	+	+	DX (V)	0.07073	+	+
RX (Deg)	3.8564	+	+	RX (Deg)	4.5322	+	+
RZ (Deg)	-9.8420	+	+	RZ (Deg)	6.39228	+	+
Abdomen Right				Abdomen Left			
Channel	Initial Value	Expected Polarity	Recorded Polarity	Channel	Initial Value	Expected Polarity	Recorded Polarity
DX (V)	N/A	+	N/A	DX (V)	N/A	+	N/A
RX (Deg)	N/A	+	N/A	RX (Deg)	N/A	+	N/A
RZ (Deg)	N/A	+	N/A	RZ (Deg)	N/A	+	N/A



THOR Inspection Checklist

Date: 6/25/2014	
NHTSA Representative: James Saunders	
Inspection Reporter: Mary Geesey, Matthew Goehle	
Inspection type (check one): <input checked="" type="checkbox"/> Pre-Test <input type="checkbox"/> Post-Test	
Dummy S/N: 0015	Legs S/N: LX0038/LX0039
Dummy Description: THOR NT 50th Male	
Date of last Certification: Certification performed in May 2014	
<u>Tests conducted since last full certification or inspection:</u> Since last inspection: CAL2712 - Research Vehicle 2712 Since last certification: R20145400 – Mazda 3 R20145401 – Mazda CX-5 CAL2712 - Research Vehicle 2712	
<u>Known errors in data channels (no data, clipping, unexpected drops):</u> 11TIBIRULXTHFOZP –Driver Right Upper Tibia Fz - Questionable spikes from 38ms to 150ms – Pins were spread on the THOR side of Amp connector. Tightening the pins removed this noise.	
<u>Physical evidence of damage:</u> See Report – (IRTRACC cable, leg flesh)	
<u>Anecdotal evidence of damage:</u> None	
<u>Equipment delivered to Borrower:</u> THOR 0015 ATD 26 Accelerometers 3 Angular Rate Sensors 2 Skull Spring LC 1 Condyle Pot 1 Upper Neck LC 4 IRTraccs 8 Rotational Pots 1 Spine LC 2 Acetabulum LC 2 ASIS LC 2 Femur LC	<i>Continued</i> 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 1 LX Zeroing Bracket



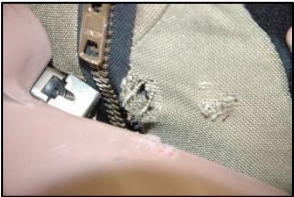
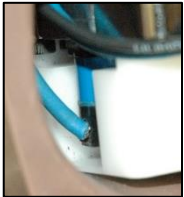
Note: New Damage is Noted in Red


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 Horizontal cut in face flesh goes all the way through 
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 debonding between neck pucks and plates
Y / N	No evidence of debonding 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	Rear upper neck stop is missing rubber 


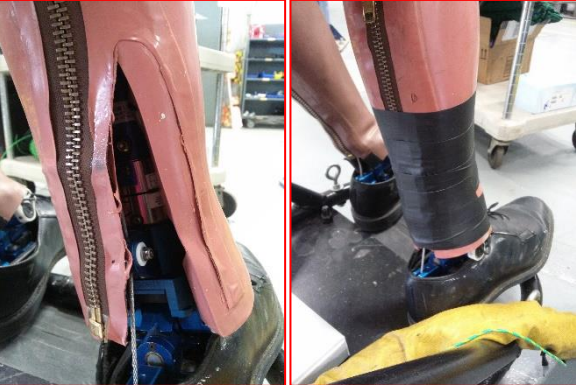
SHOULDER	
Y / N	Urethane shoulder pads show no evidence of contact
Y / N	Clavicles securely attached to sternum and shoulder
Y / N	No evidence of debonding, tearing, or permanent compression of posterior soft stops Left softstop is missing. 
OTHER	Right hand has a cut. 

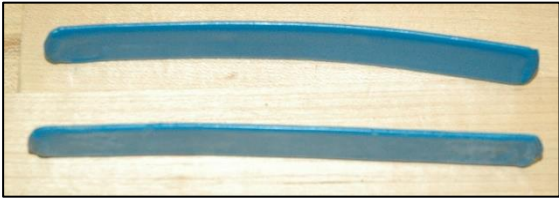

SPINE	
Y / N	No evidence of debonding between thoracic spine flex joint and metal plates
Y / N	No evidence of debonding between lumbar spine flex joint and metal plates
Y / N	Lumbar spine pitch change joint mechanism mating teeth are engaged
OTHER	

THORAX	
Y / N	No evidence of contact at top, bottom, or interior faces of rib damping material
Y / N	No evidence of debonding between rib damping material and ribs
Y / N	IRTRACC securely attached to anterior ribs
Y / N	IRTRACC 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	<p>Hole in chest damper foam on the left side</p>  <p>Right lower Dx IRTRACC cable broke at front end. Test data (300ms) was not affected.</p> 
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	<p>No evidence of tearing, cuts, or broken stitches in lower abdomen bag and zipper</p> <p>Holes on both sides of lower abdomen bag</p> 
Y / N	Lower abdomen insert securely attached to spine
Y / N	Lower abdomen insert shows no evidence of permanent set
OTHER	<p>Lower right abdomen IRTRACC Y-Axis potentiometer cable has detached.</p> 

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	Multiple cuts and pitting in pelvis flesh 

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 Knees are scuffed 
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 debonding, tearing, or permanent compression of ankle soft stops
Y / N	No cuts, tears, or scuffing of leg flesh Right leg flesh is torn at zipper attachment.  Right leg flesh is much more torn after CAL2712. Repair was made with Gaffer's tape. 
OTHER	


JACKET	
Y / N	<p>Rib stiffeners show no sign of permanent deformation Note: Bent, but can be corrected</p> 
Y / N	<p>No evidence of tears or holes in jacket fabric, Velcro, or zippers Multiple holes, tears in lining, frayed seams, back foam insert is falling apart</p> 
OTHER	



THOR Inspection Checklist

Date: 6/27/2014	
NHTSA Representative: James Saunders	
Inspection Reporter: Mary Geesey, Matthew Goehle	
Inspection type (check one): <input type="checkbox"/> Pre-Test <input checked="" type="checkbox"/> Post-Test	
Dummy S/N: 0015	Legs S/N: LX0038/LX0039
Dummy Description: THOR NT 50th Male	
Date of last Certification: Certification performed in May 2014	
<u>Tests conducted since last full certification or inspection:</u> Since last inspection: R20145374 – Honda Accord Since last certification: R20145400 – Mazda 3 R20145401 – Mazda CX-5 CAL2712 - Research Vehicle 2712 R20145374 – Honda Accord	
<u>Known errors in data channels (no data, clipping, unexpected drops):</u> None	
<u>Physical evidence of damage:</u> See Report – (Right knee tear)	
<u>Anecdotal evidence of damage:</u> None	
<u>Equipment delivered to Borrower:</u> THOR 0015 ATD 26 Accelerometers 3 Angular Rate Sensors 2 Skull Spring LC 1 Condyle Pot 1 Upper Neck LC 4 IRTracs 8 Rotational Pots 1 Spine LC 2 Acetabulum LC 2 ASIS LC 2 Femur LC	<i>Continued</i> 2 LX Leg Assemblies 2 Upper Tibia LC 2 Lower Tibia LC 6 Ankle 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 1 LX Zeroing Bracket



Note: New Damage is Noted in Red

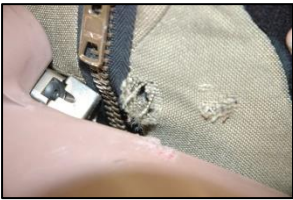
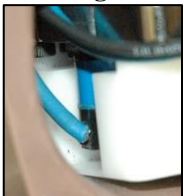
HEAD	
Y / N	Rear head cap mounts securely to head
Y / N	Head skin fits securely over skull
Y / N	Head skin shows no sign of tears or damage Horizontal cut in face flesh goes all the way through 
Y / N	Interior components of skull cavity (ballast, accelerometer mount, accelerometers) securely attached
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 debonding between neck pucks and plates
Y / N	No evidence of debonding 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	Rear upper neck stop is missing rubber 



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 debonding, tearing, or permanent compression of posterior soft stops Left softstop is missing. 
OTHER	Right hand has a cut. 



SPINE	
Y / N	No evidence of debonding between thoracic spine flex joint and metal plates
Y / N	No evidence of debonding between lumbar spine flex joint and metal plates
Y / N	Lumbar spine pitch change joint mechanism mating teeth are engaged
OTHER	

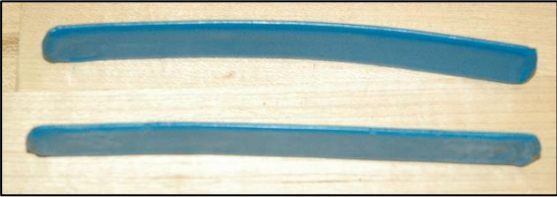

THORAX	
Y / N	No evidence of contact at top, bottom, or interior faces of rib damping material
Y / N	No evidence of debonding between rib damping material and ribs
Y / N	IRTRACC securely attached to anterior ribs
Y / N	IRTRACC securely attached to double gimbals, spine
Y / N	Urethane bib is securely 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	<p>Hole in chest damper foam on the left side</p>  <p>Right lower Dx IRTRACC cable broke at front end. Test data (300ms) was not affected. IRTRACC swapped with left lower tube per Dan/James' email approval on 6/26/14.</p> 

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	<p>No evidence of tearing, cuts, or broken stitches in lower abdomen bag and zipper</p> <p>Holes on both sides of lower abdomen bag</p> 
Y / N	Lower abdomen insert securely attached to spine
Y / N	Lower abdomen insert shows no evidence of permanent set
OTHER	<p>Lower right abdomen IRTRACC Y-Axis potentiometer cable has detached.</p> 

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	<p>Multiple cuts and pitting in pelvis flesh</p> 

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	<p>No cuts, tears, or scuffing of knee flesh Knees are scuffed</p>  <p>Right knee flesh is torn.</p> 
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 debonding, tearing, or permanent compression of ankle soft stops
Y / N	<p>No cuts, tears, or scuffing of leg flesh Right leg flesh is torn at zipper attachment.</p>  <p>Right leg flesh is much more torn after CAL2712. Repair was made with Gaffer's tape.</p> 
OTHER	

JACKET	
Y / N	<p>Rib stiffeners show no sign of permanent deformation Note: Bent, but can be corrected</p> 
Y / N	<p>No evidence of tears or holes in jacket fabric, Velcro, or zippers Multiple holes, tears in lining, frayed seams, back foam insert is falling apart</p> 
OTHER	

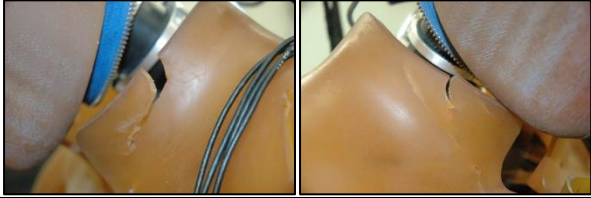
THOR Inspection Checklist

Date: 6/25/2014	
NHTSA Representative: James Saunders	
Inspection Reporter: Mary Geesey, Matthew Goehle	
Inspection type (check one): <input checked="" type="checkbox"/> Pre-Test <input type="checkbox"/> Post-Test	
Dummy S/N: 0016	Legs S/N: LX0019/LX0018
Dummy Description: THOR NT 50th Male	
Date of last Certification: Certification performed in June 2014	
<u>Tests conducted since last full certification or inspection:</u>	
<u>Since last inspection:</u> CAL2712 - Research Vehicle 2712 R20145401 – Mazda CX-5	
<u>Since last certification:</u> R20145400 – Mazda 3 R20145401 – Mazda CX-5 CAL2712 - Research Vehicle 2712	
<u>Known errors in data channels (no data, clipping, unexpected drops):</u>	
None	
<u>Physical evidence of damage:</u>	
None New	
<u>Anecdotal evidence of damage:</u>	
None	
<u>Equipment delivered to Borrower:</u>	<i>Continued</i>
THOR 0016 ATD	2 LX Leg Assemblies
26 Accelerometers	2 Upper Tibia LC
3 Angular Rate Sensors	2 Lower Tibia LC
2 Skull Spring LC	6 Ankle Potentiometers
1 Condyle Pot	2 Knee Sliders
1 Upper Neck LC	1 Neck Skin
4 IRTracs	1 Neck Foam
8 Rotational Pots	1 Tiltview Interface Cable
1 Spine LC	4 Tilt Sensors
2 Acetabulum LC	1 H-Point Tool
2 ASIS LC	1 Tool Box
2 Femur LC	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 debonding between neck pucks and plates
Y / N	No evidence of debonding 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	


SHOULDER	
Y / N	Urethane shoulder pads show no evidence of contact Both shoulder pads are torn. We used Gaffer's tape to prevent further damage.
	
Y / N	Clavicles securely attached to sternum and shoulder
Y / N	No evidence of debonding, tearing, or permanent compression of posterior soft stops
OTHER	


SPINE	
Y / N	No evidence of debonding between thoracic spine flex joint and metal plates
Y / N	No evidence of debonding between lumbar spine flex joint and metal plates
Y / N	Lumbar spine pitch change joint mechanism mating teeth are engaged
OTHER	

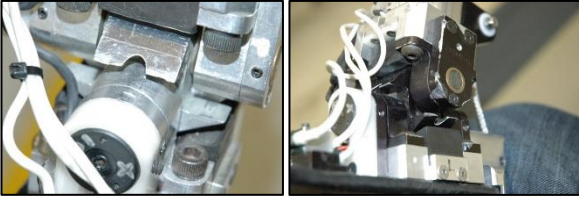

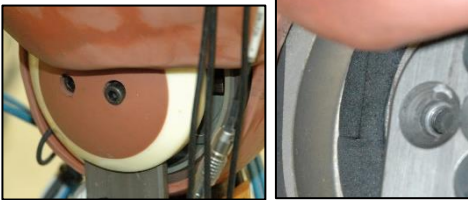
THORAX	
Y / N	No evidence of contact at top, bottom, or interior faces of rib damping material
Y / N	No evidence of debonding between rib damping material and ribs
Y / N	CRUX anterior arms securely attached to anterior ribs
Y / N	CRUX posterior arms securely attached to double gimbals, spine
Y / N	Urethane bib is securely attached to ribs with no sign of tearing or washer penetration Uppermost rib was not connected to sternum. I installed.

	 <p>Bib is torn in the center near clavicle attachment.</p> 
Y / N	Ribs securely attached to posterior spine
Y / N	Rib stiffeners show no evidence of bending (no gaps between ribs and stiffeners)
OTHER	<p>T6 Accelerometer cable is torn at accelerometer.</p> 

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	<p>No evidence of tearing, cuts, or broken stitches in lower abdomen bag and zipper</p> <p>Lower abdomen bag has a number of ribs and tears.</p> 
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	<p>Pelvis Instrumentation protective cover is missing.</p> 

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 Knees are both cut. Left insert is slightly cut.
	
OTHER	

LOWER EXTREMITY (LX)	
Y / N	Rotational potentiometers in ankle securely attached Ankle assemblies are both marked up but functional.
	
Y / N	Achilles tendon provides resistance to dorsiflexion
Y / N	No evidence of debonding, tearing, or permanent compression of ankle soft stops
Y / N	No cuts, tears, or scuffing of leg flesh Right tibia flesh has mild scuffing.
	
OTHER	Inside left and right knee covers were swapped resulting in permanent markings in the rear knee stops. I
	 swapped.

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 Jacket has a number of tears throughout.
OTHER	

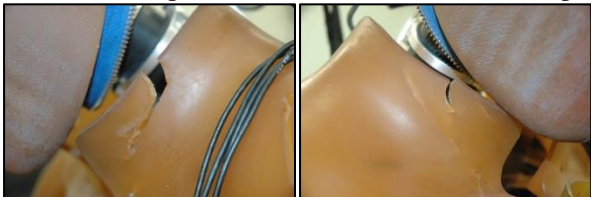
THOR Inspection Checklist

Date: 6/27/2014	
NHTSA Representative: James Saunders	
Inspection Reporter: Mary Geesey, Matthew Goehle	
Inspection type (check one): <input type="checkbox"/> Pre-Test <input checked="" type="checkbox"/> Post-Test	
Dummy S/N: 0016	Legs S/N: LX0019/LX0018
Dummy Description: THOR NT 50th Male	
Date of last Certification: Certification performed in June 2014	
<u>Tests conducted since last full certification or inspection:</u> Since last inspection: R20145374 – Honda Accord Since last certification: R20145400 – Mazda 3 R20145401 – Mazda CX-5 CAL2712 - Research Vehicle 2712 R20145374 – Honda Accord	
<u>Known errors in data channels (no data, clipping, unexpected drops):</u> None	
<u>Physical evidence of damage:</u> None New	
<u>Anecdotal evidence of damage:</u> None	
<u>Equipment delivered to Borrower:</u> THOR 0016 ATD 26 Accelerometers 3 Angular Rate Sensors 2 Skull Spring LC 1 Condyle Pot 1 Upper Neck LC 4 IRTraccs 8 Rotational Pots 1 Spine LC 2 Acetabulum LC 2 ASIS LC 2 Femur LC	<i>Continued</i> 2 LX Leg Assemblies 2 Upper Tibia LC 2 Lower Tibia LC 6 Ankle 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 debonding between neck pucks and plates
Y / N	No evidence of debonding 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	


SHOULDER	
Y / N	Urethane shoulder pads show no evidence of contact Both shoulder pads are torn. We used Gaffer's tape to prevent further damage.
	
Y / N	Clavicles securely attached to sternum and shoulder
Y / N	No evidence of debonding, tearing, or permanent compression of posterior soft stops
OTHER	


SPINE	
Y / N	No evidence of debonding between thoracic spine flex joint and metal plates
Y / N	No evidence of debonding between lumbar spine flex joint and metal plates
Y / N	Lumbar spine pitch change joint mechanism mating teeth are engaged
OTHER	

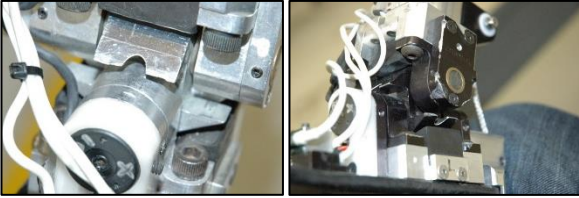

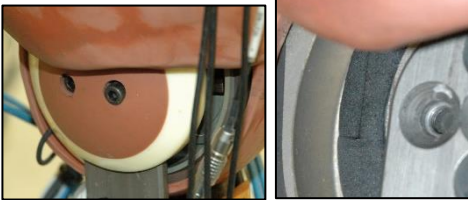
THORAX	
Y / N	No evidence of contact at top, bottom, or interior faces of rib damping material
Y / N	No evidence of debonding between rib damping material and ribs
Y / N	CRUX anterior arms securely attached to anterior ribs
Y / N	CRUX posterior arms securely attached to double gimbals, spine
Y / N	Urethane bib is securely attached to ribs with no sign of tearing or washer penetration Uppermost rib was not connected to sternum. I installed.

	 <p>Bib is torn in the center near clavicle attachment.</p> 
Y / N	Ribs securely attached to posterior spine
Y / N	Rib stiffeners show no evidence of bending (no gaps between ribs and stiffeners)
OTHER	<p>T6 Accelerometer cable is torn at accelerometer.</p> 

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	<p>No evidence of tearing, cuts, or broken stitches in lower abdomen bag and zipper</p> <p>Lower abdomen bag has a number of ribs and tears.</p> 
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	<p>Pelvis Instrumentation protective cover is missing.</p> 

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 Knees are both cut. Left insert is slightly cut.
	
OTHER	

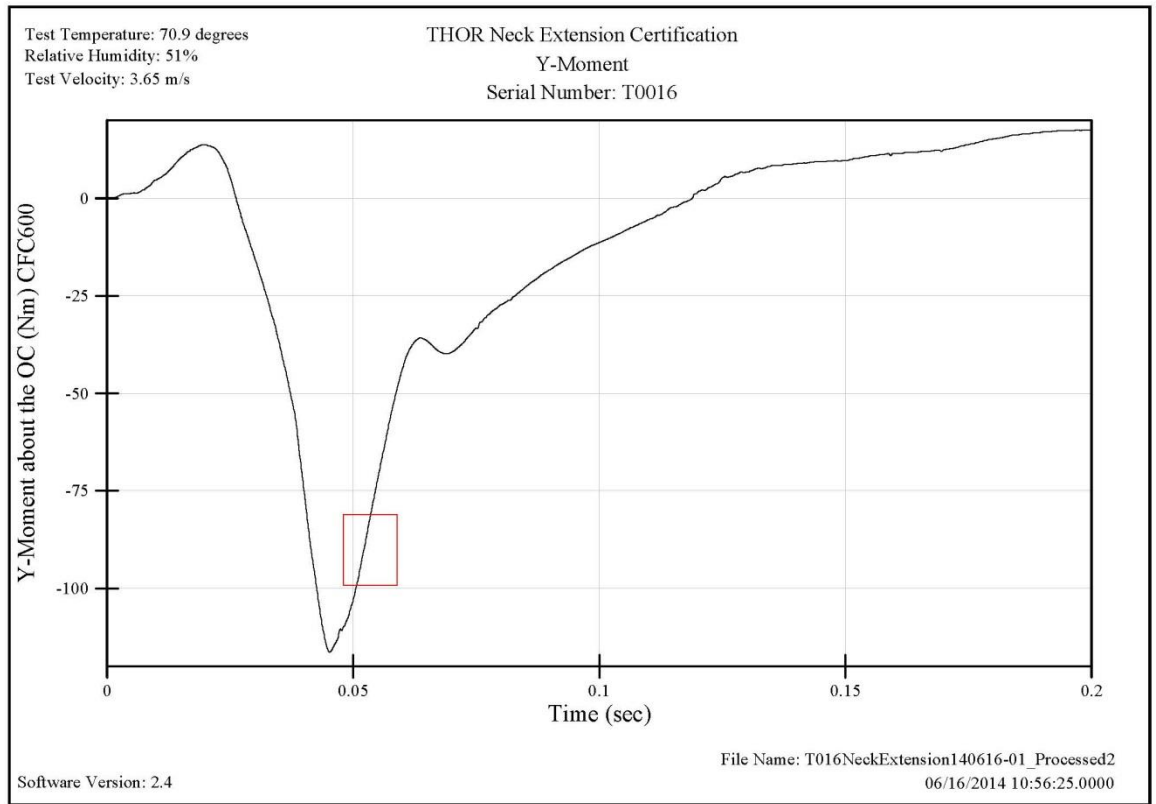
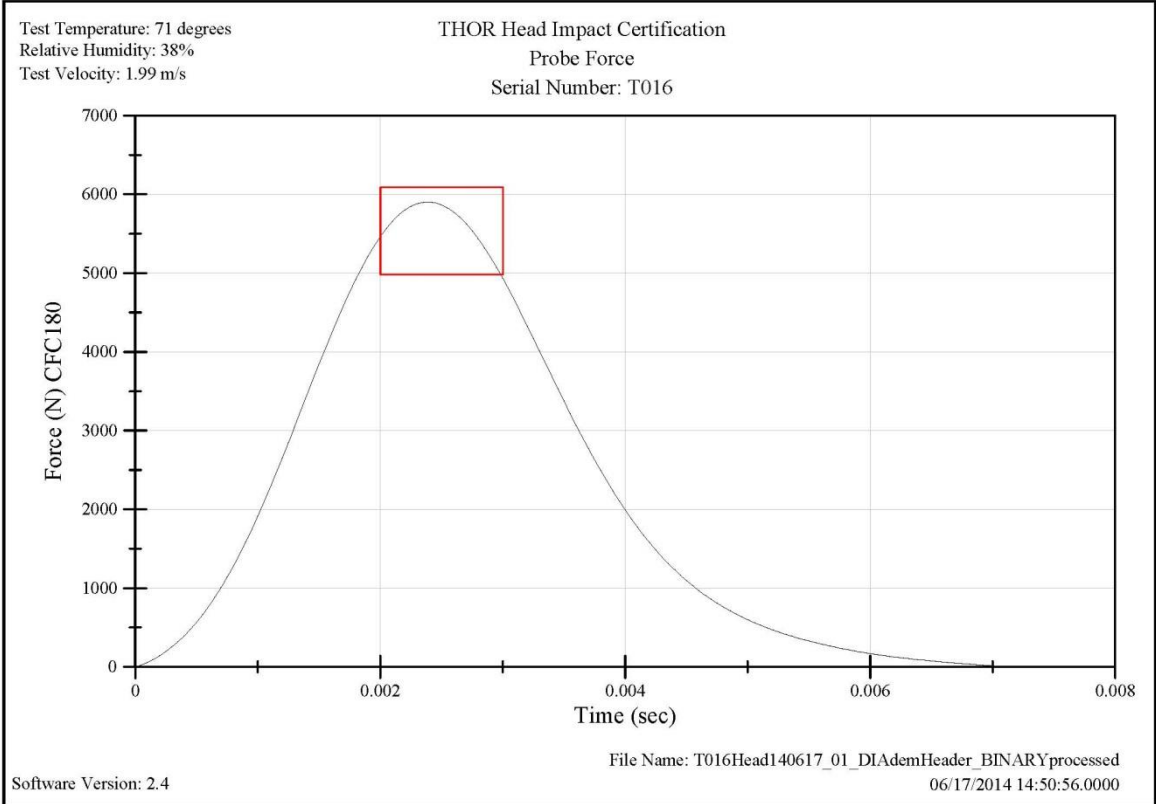
LOWER EXTREMITY (LX)	
Y / N	Rotational potentiometers in ankle securely attached Ankle assemblies are both marked up but functional.
	
Y / N	Achilles tendon provides resistance to dorsiflexion
Y / N	No evidence of debonding, tearing, or permanent compression of ankle soft stops
Y / N	No cuts, tears, or scuffing of leg flesh Right tibia flesh has mild scuffing.
	
OTHER	Inside left and right knee covers were swapped resulting in permanent markings in the rear knee stops. I
	 swapped.

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 Jacket has a number of tears throughout.
OTHER	

Test Data/Sensor Repair Notes

DUMMY CALIBRATIONS

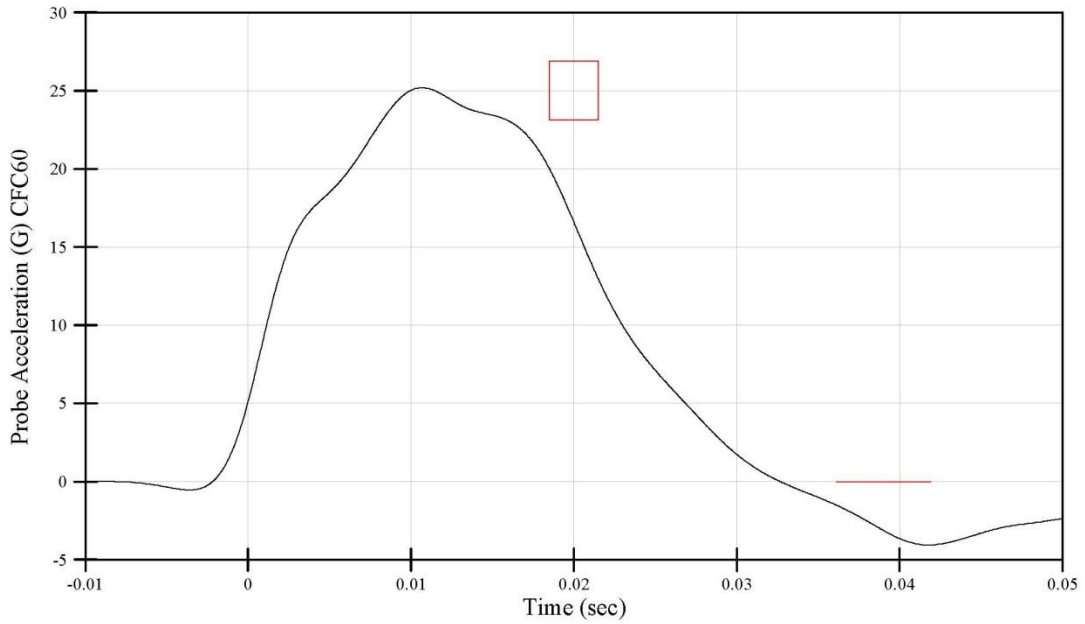
50% ADULT MALE THOR016 DUMMY CALIBRATIONS



Test Temperature: 70.9 degrees
Relative Humidity: 51%
Test Velocity: 3.65 m/s

THOR Neck Extension Certification

Probe Acceleration
Serial Number: T0016



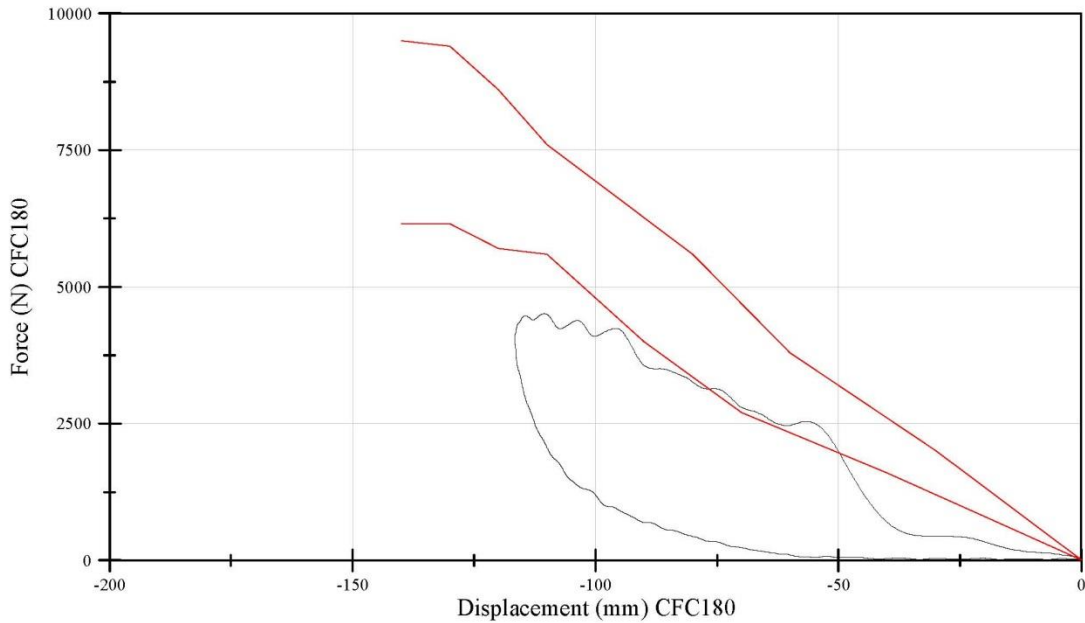
Software Version: 2.4

File Name: T016NeckExtension140616-01_Processed2
06/16/2014 10:56:25.0000

Test Temperature: 70.5 degrees
Relative Humidity: 51%
Test Velocity: 6.68 m/s

THOR Upper Abdomen Certification

Abdomen Displacement vs. Probe Force
Serial Number: T016

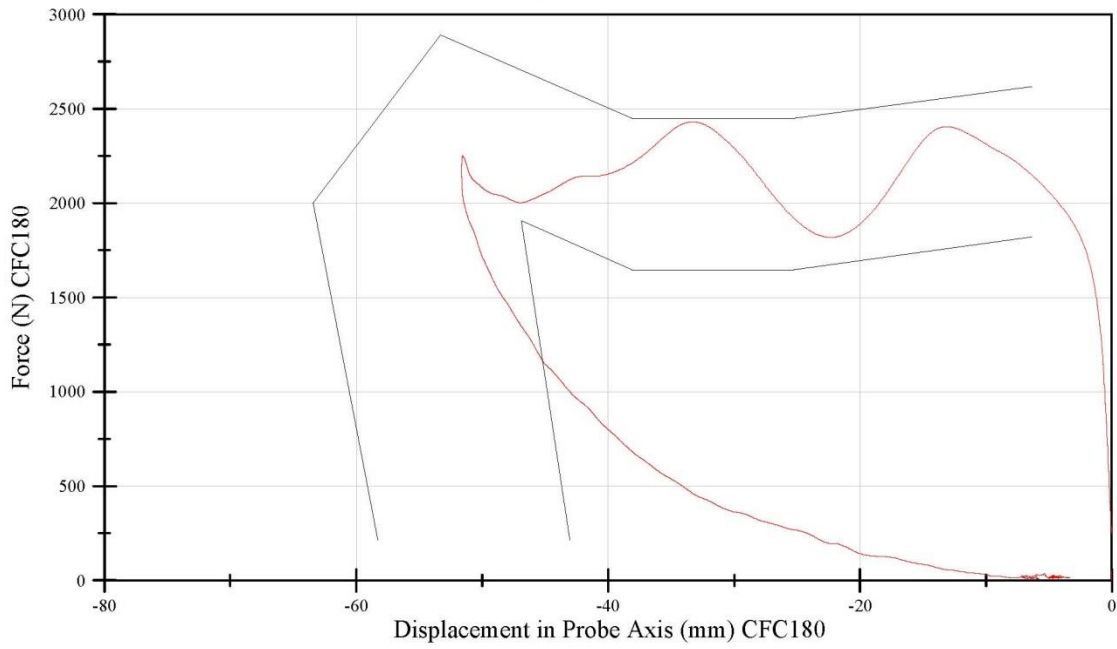


Software Version: 2.4

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06/10/2014 15:54:17.0000

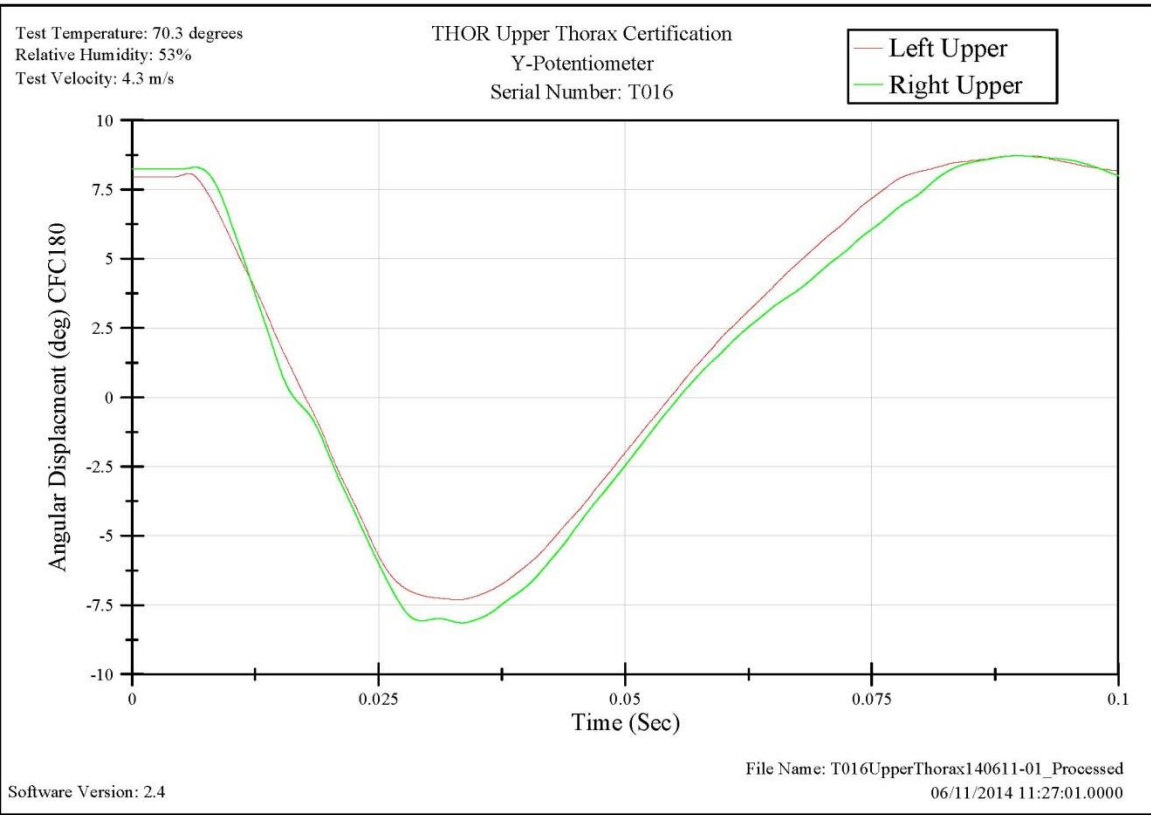
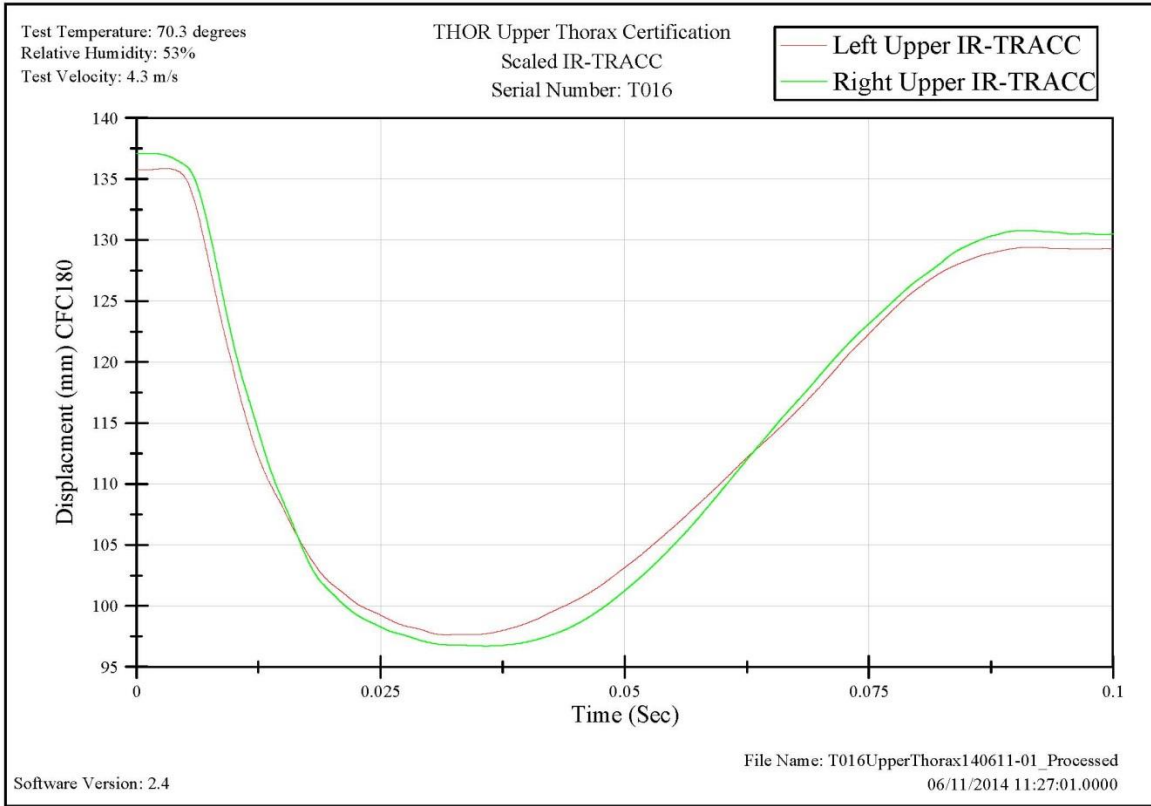
Test Temperature: 70.3 degrees
Relative Humidity: 53%
Test Velocity: 4.3 m/s

THOR Upper Thorax Certification
Thorax Response With Kroell Corridor
Serial Number: T016



Software Version: 2.4

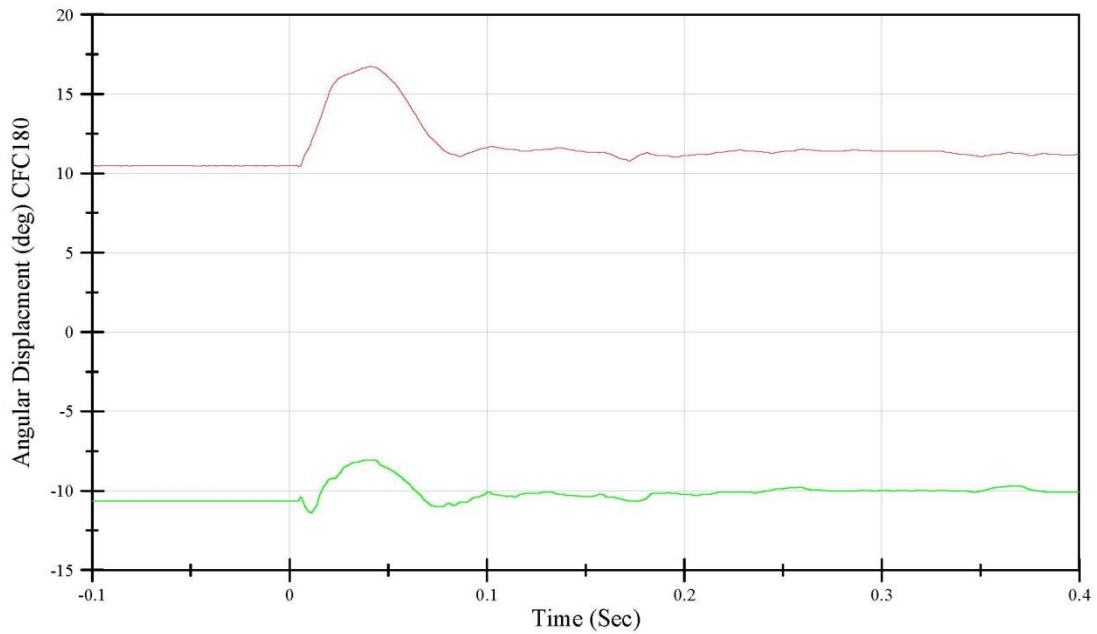
File Name: T016UpperThorax140611-01_Processed
06/11/2014 11:27:01.0000



Test Temperature: 70.3 degrees
Relative Humidity: 53%
Test Velocity: 4.3 m/s

THOR Upper Thorax Certification
Z-Potentiometer
Serial Number: T016

— Left Upper
— Right Upper

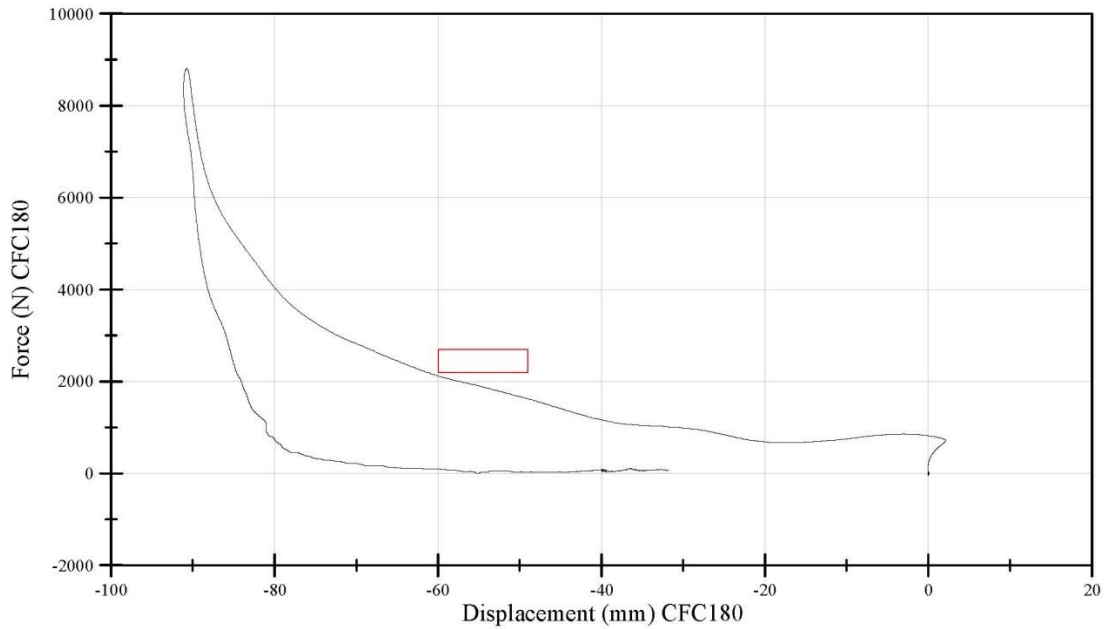


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06/11/2014 11:27:01.0000

Software Version: 2.4

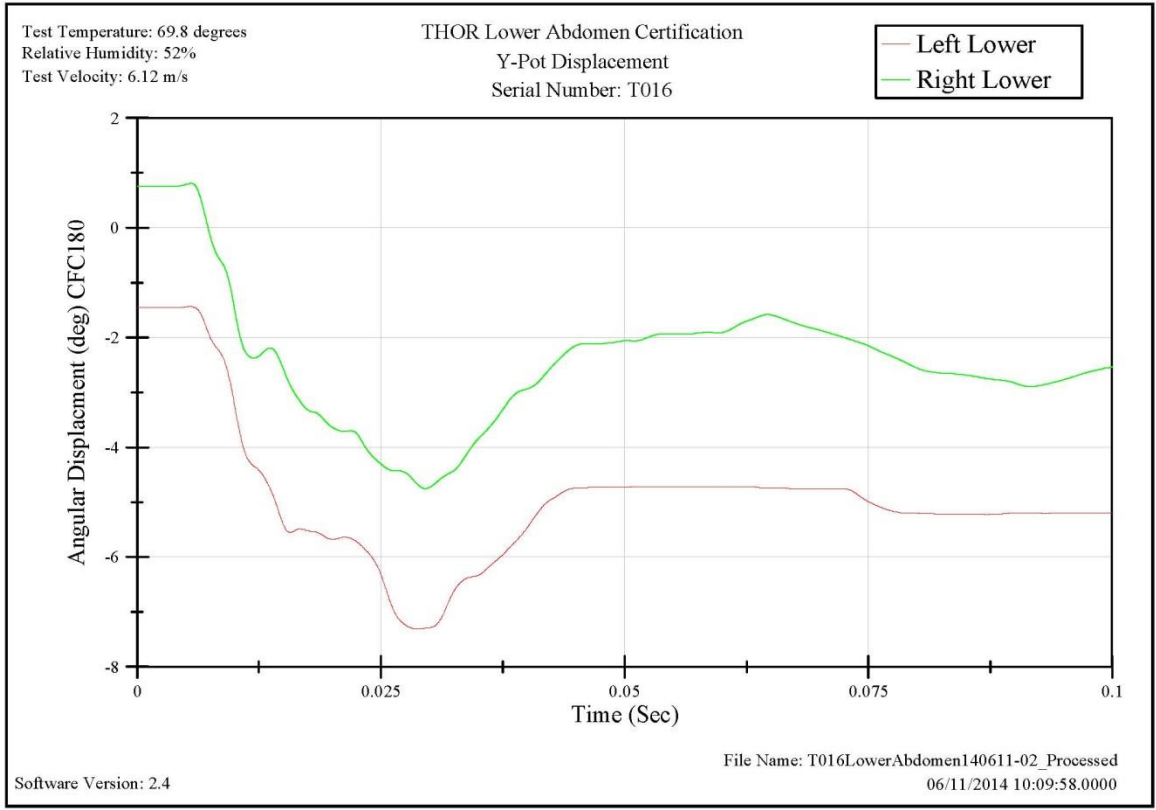
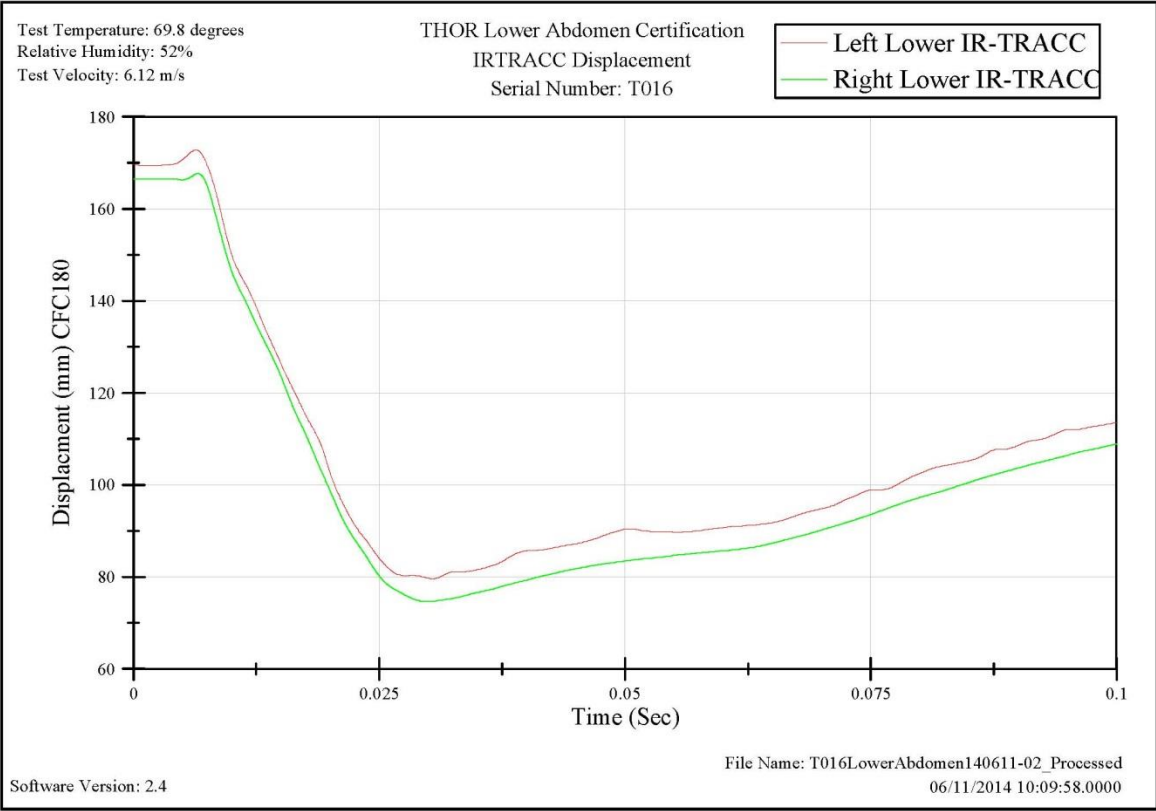
Test Temperature: 69.8 degrees
Relative Humidity: 52%
Test Velocity: 6.12 m/s

THOR Lower Abdomen Certification
Abdomen Displacement vs. Probe Force
Serial Number: T016



File Name: T016LowerAbdomen140611-02_Processed
06/11/2014 10:09:58.0000

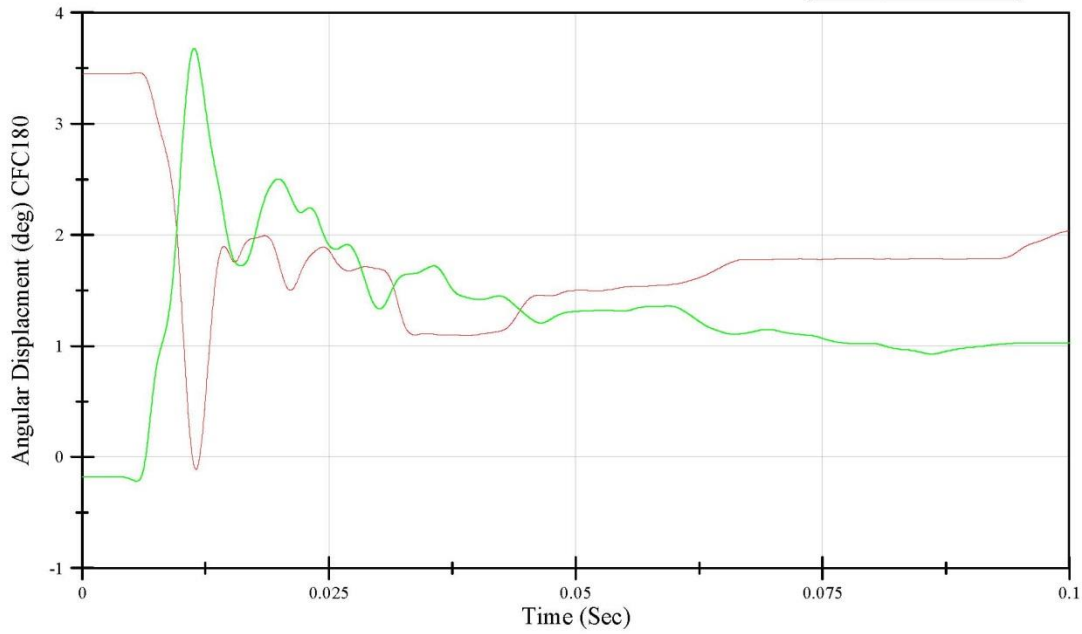
Software Version: 2.4



Test Temperature: 69.8 degrees
Relative Humidity: 52%
Test Velocity: 6.12 m/s

THOR Lower Abdomen Certification
Z-Potentiometer
Serial Number: T016

Left Lower
Right Lower

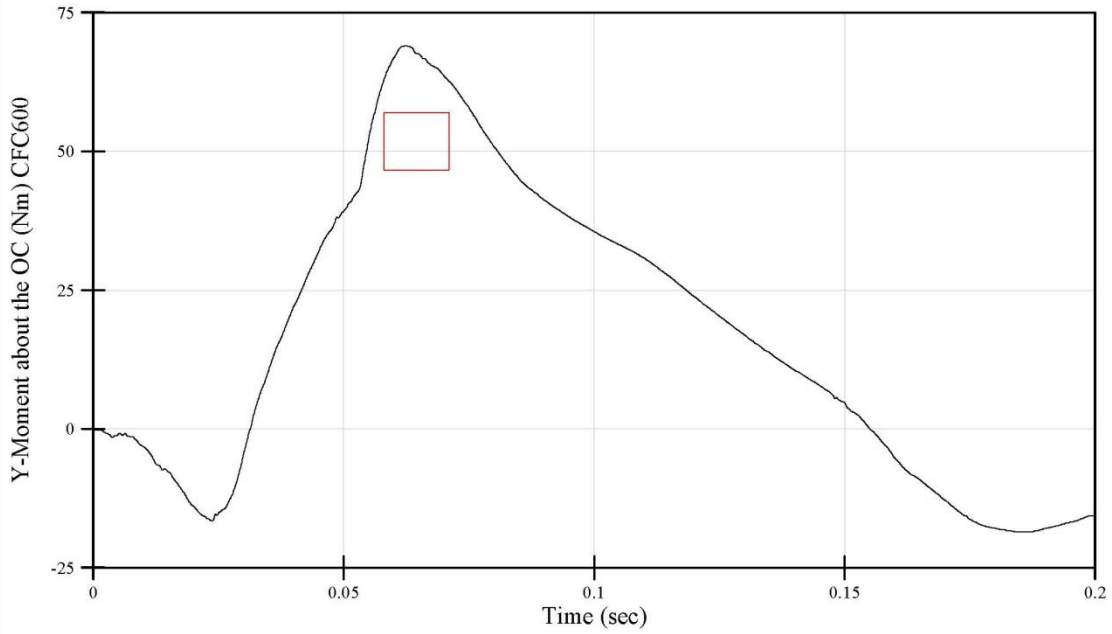


Software Version: 2.4

File Name: T016LowerAbdomen140611-02_Processed
06/11/2014 10:09:58.0000

Test Temperature: 71 degrees
Relative Humidity: 51%
Test Velocity: 3.75 m/s

THOR Neck Flexion Certification
Y-Moment
Serial Number: T0016

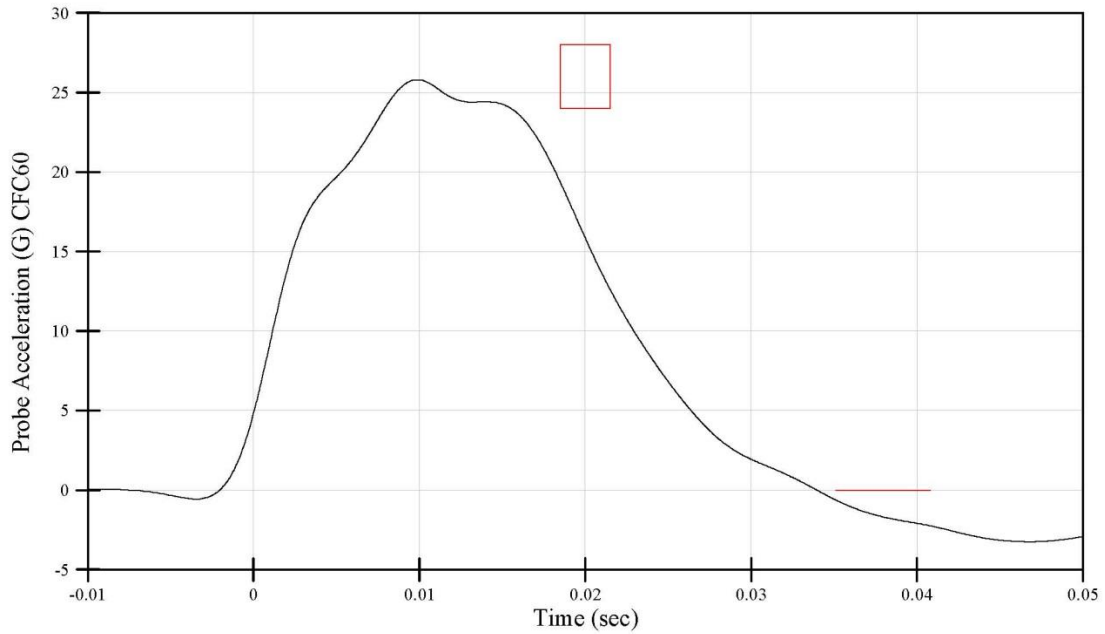


Software Version: 2.4

File Name: T016NeckFlexion140616-02_Processed2
06/16/2014 10:58:48.0000

Test Temperature: 71 degrees
Relative Humidity: 51%
Test Velocity: 3.75 m/s

THOR Neck Flexion Certification
Probe Acceleration
Serial Number: T0016

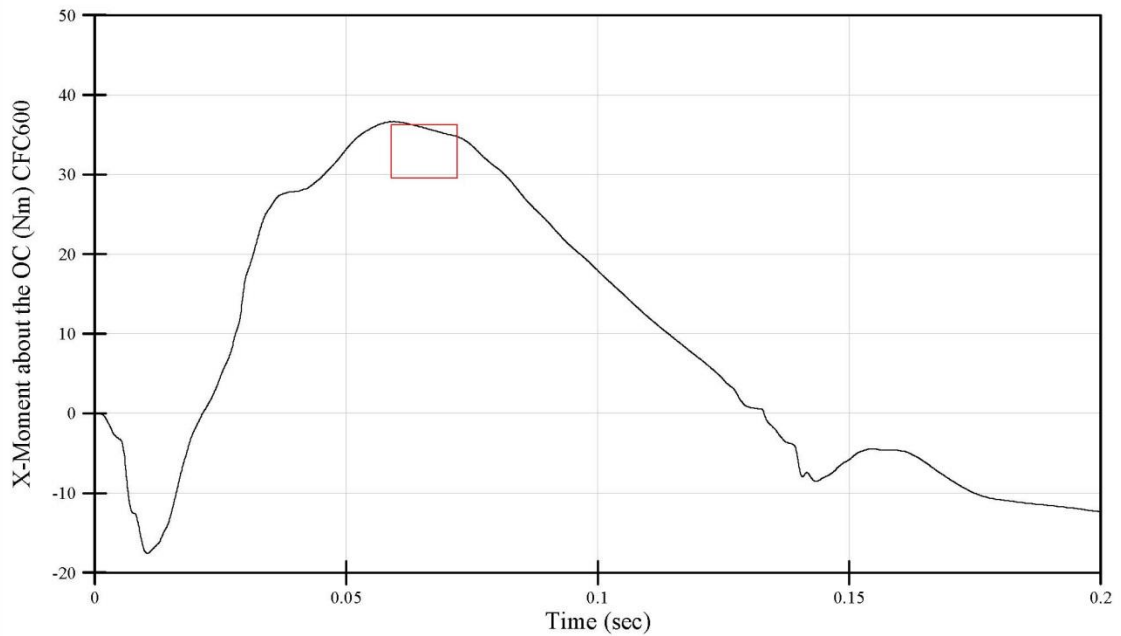


File Name: T016NeckFlexion140616-02_Processed2
06/16/2014 10:58:48.0000

Software Version: 2.4

Test Temperature: 70.4 degrees
Relative Humidity: 52%
Test Velocity: 2.86 m/s

THOR Neck Left Lateral Flexion Certification
X-Moment
Serial Number: T0016

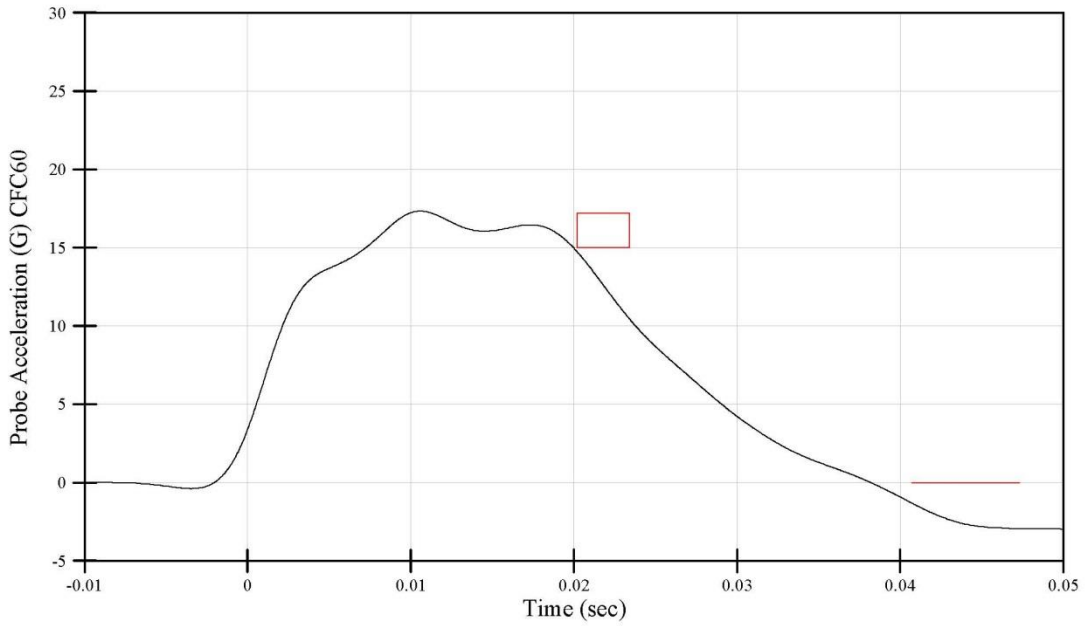


File Name: T016NeckLeftLateral140616-01_Processed
06/16/2014 11:07:30.0000

Software Version: 2.4

Test Temperature: 70.4 degrees
Relative Humidity: 52%
Test Velocity: 2.86 m/s

THOR Neck Left Lateral Flexion Certification
Probe Acceleration
Serial Number: T0016

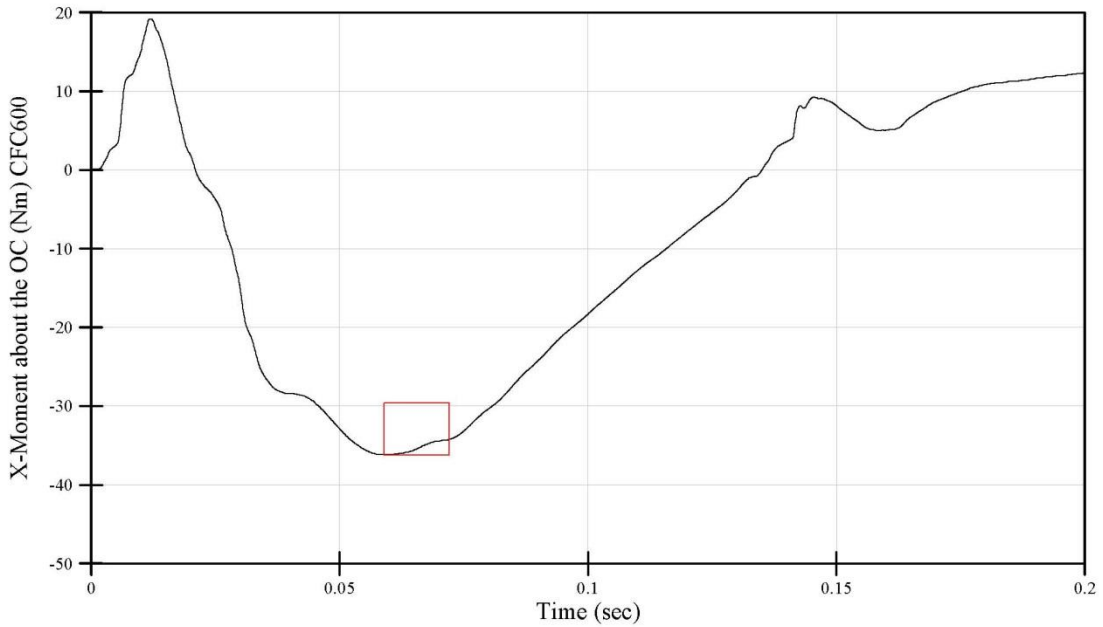


Software Version: 2.4

File Name: T016NeckLeftLateral140616-01_Processed
06/16/2014 11:07:30.0000

Test Temperature: 70.3 degrees
Relative Humidity: 53%
Test Velocity: 2.86 m/s

THOR Neck Right Lateral Flexion Certification
X-Moment
Serial Number: T0016

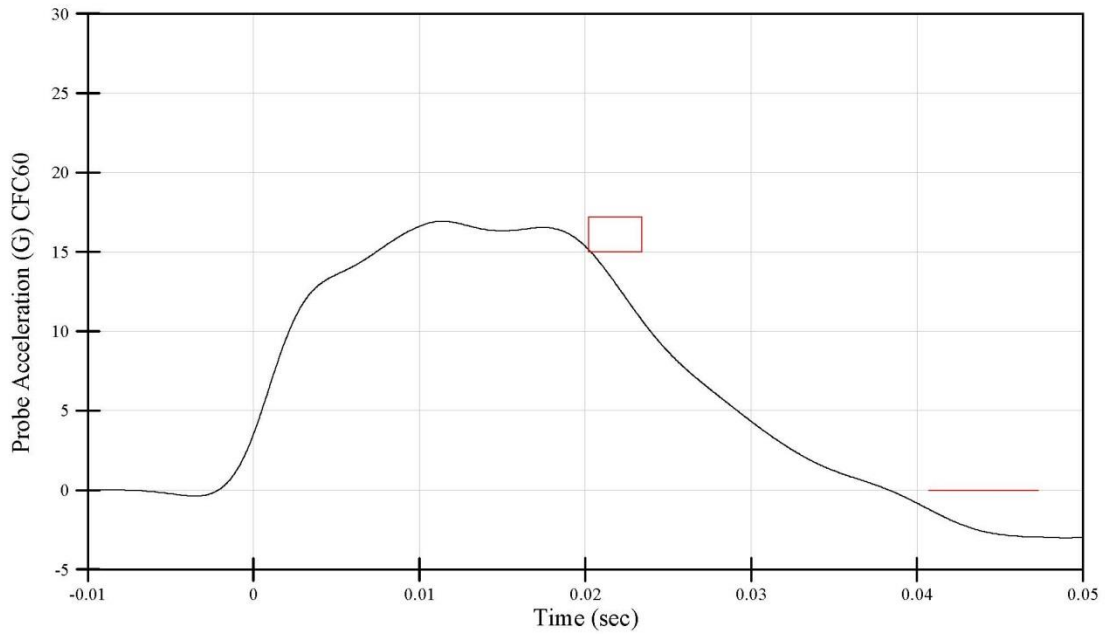


Software Version: 2.4

File Name: T016NeckRightLateral140616-01_Processed
06/16/2014 11:37:51.0000

Test Temperature: 70.3 degrees
Relative Humidity: 53%
Test Velocity: 2.86 m/s

THOR Neck Right Lateral Flexion Certification
Probe Acceleration
Serial Number: T0016

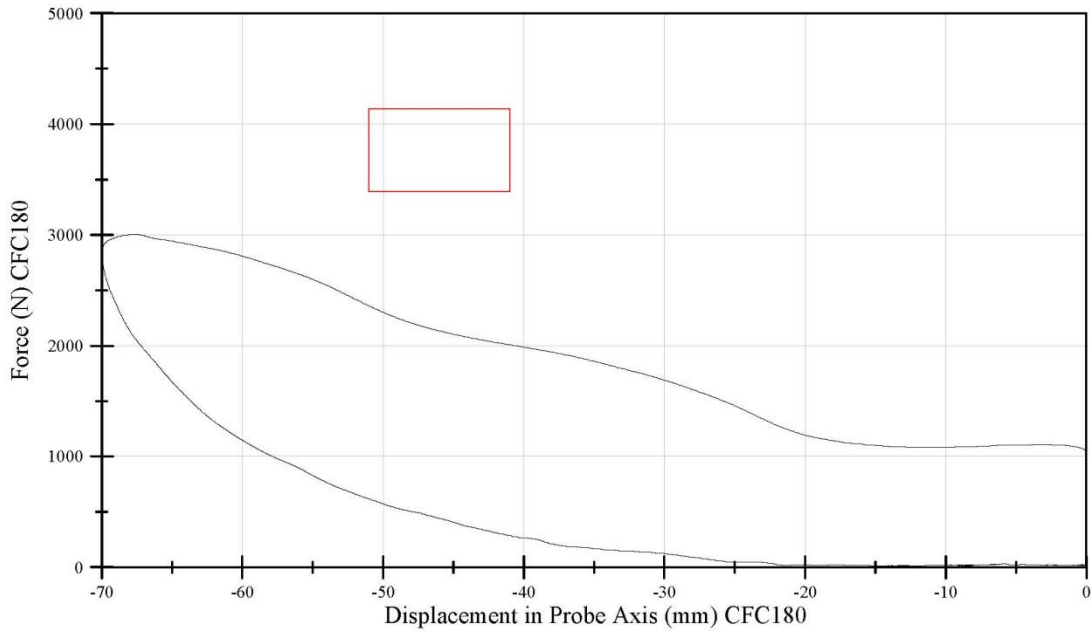


Software Version: 2.4

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06/16/2014 11:37:51.0000

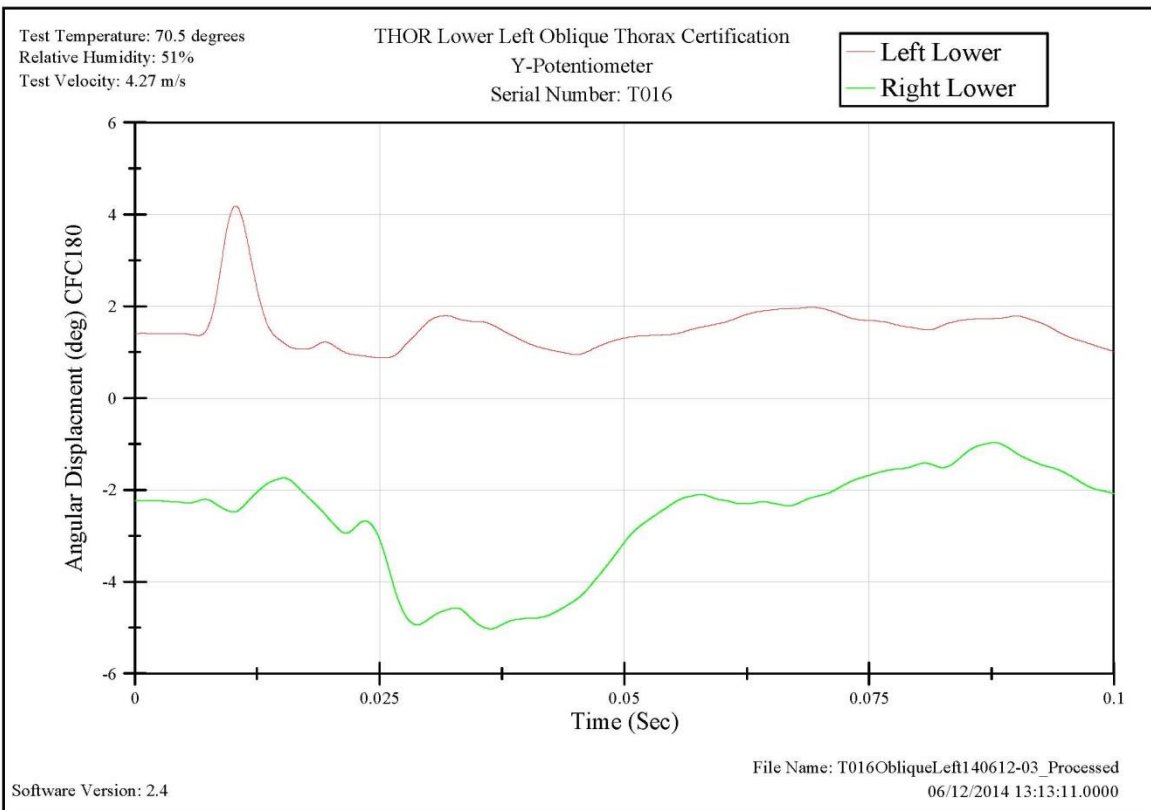
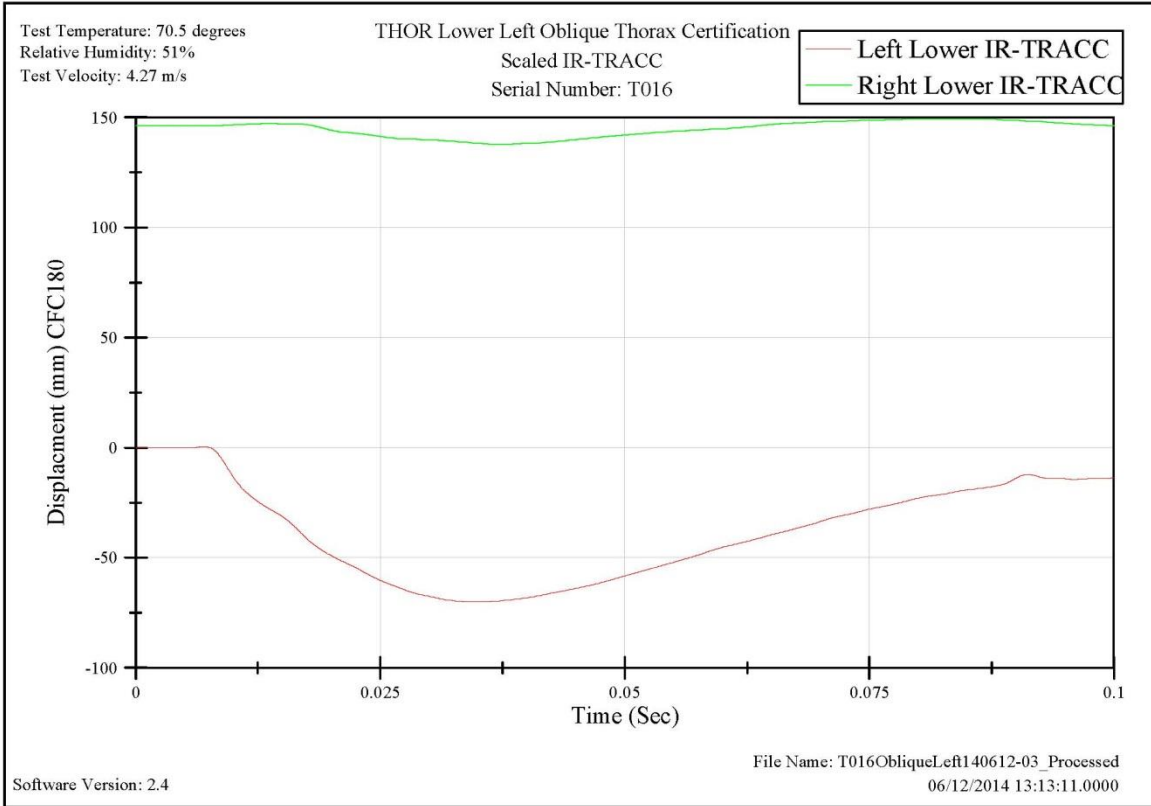
Test Temperature: 70.5 degrees
Relative Humidity: 51%
Test Velocity: 4.27 m/s

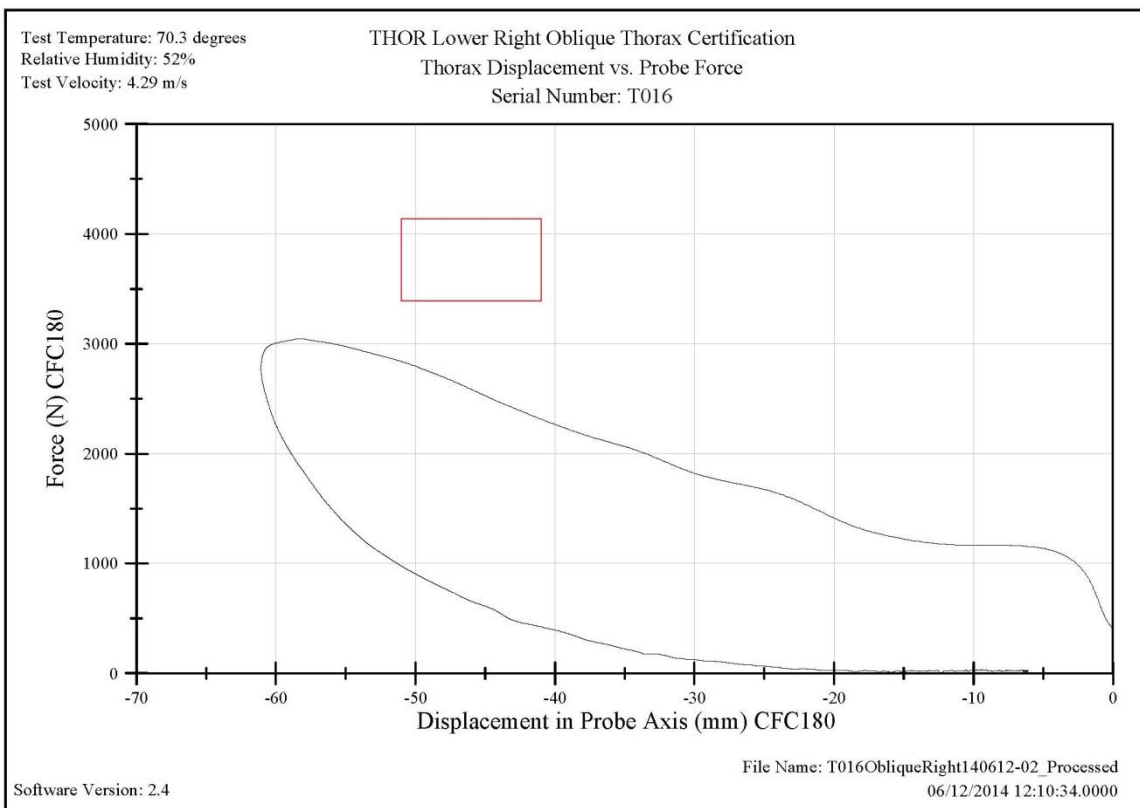
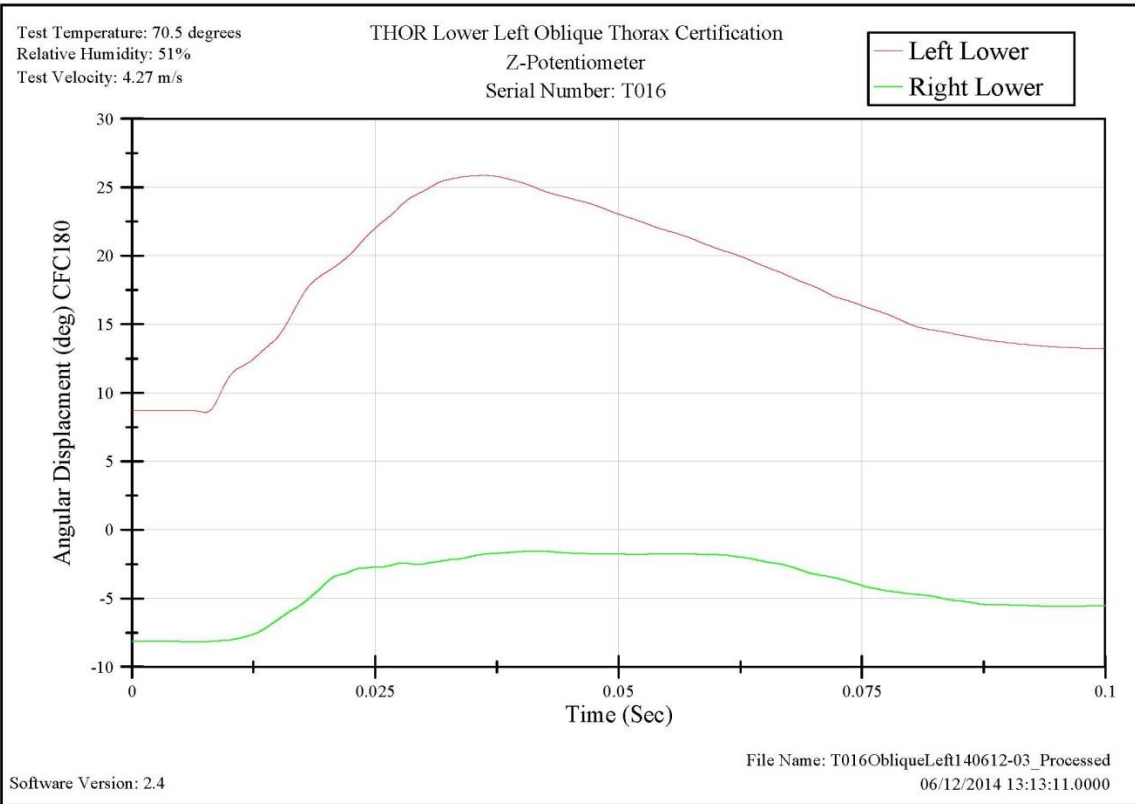
THOR Lower Left Oblique Thorax Certification
Thorax Displacement vs. Probe Force
Serial Number: T016

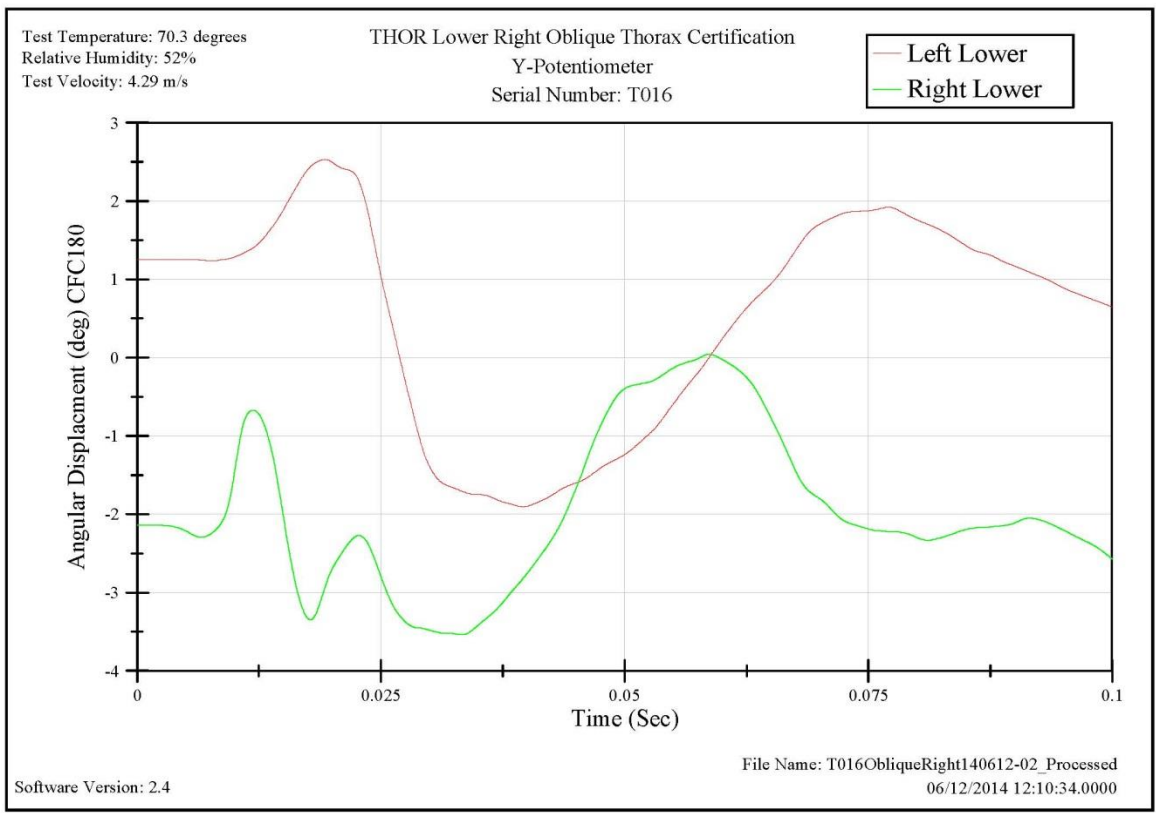
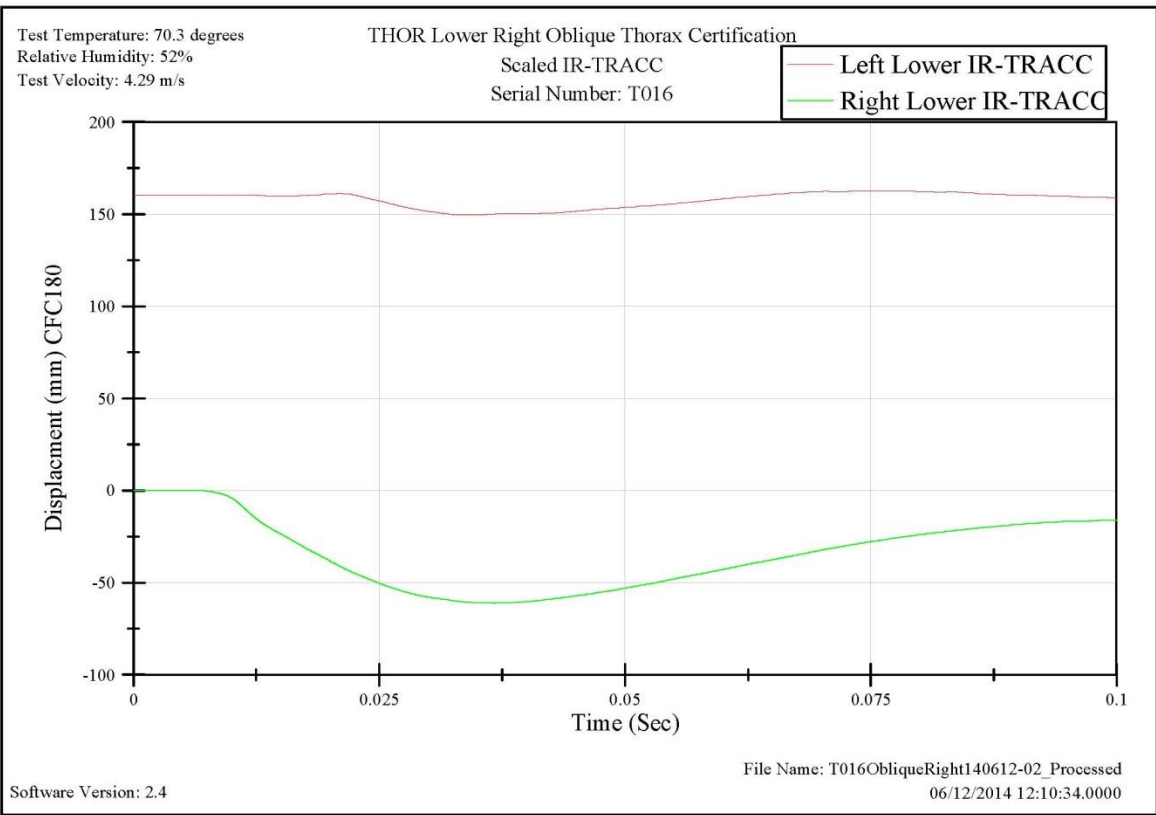


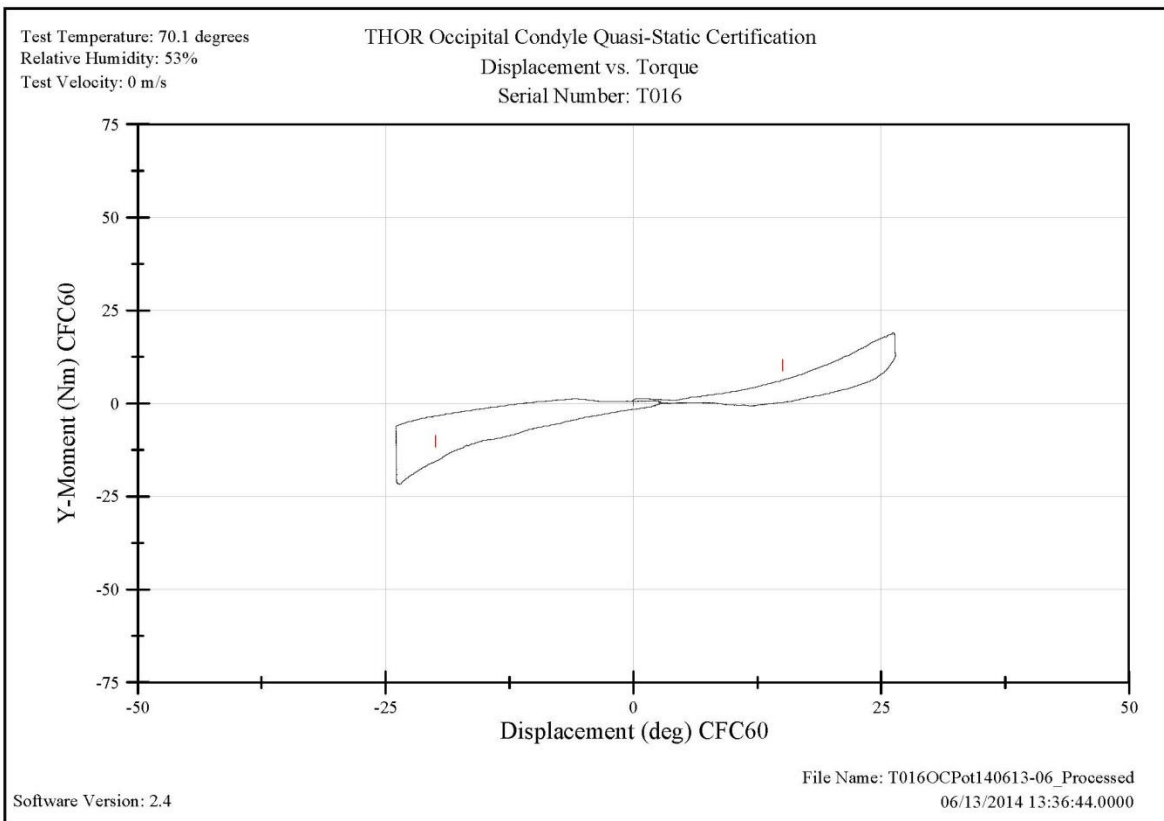
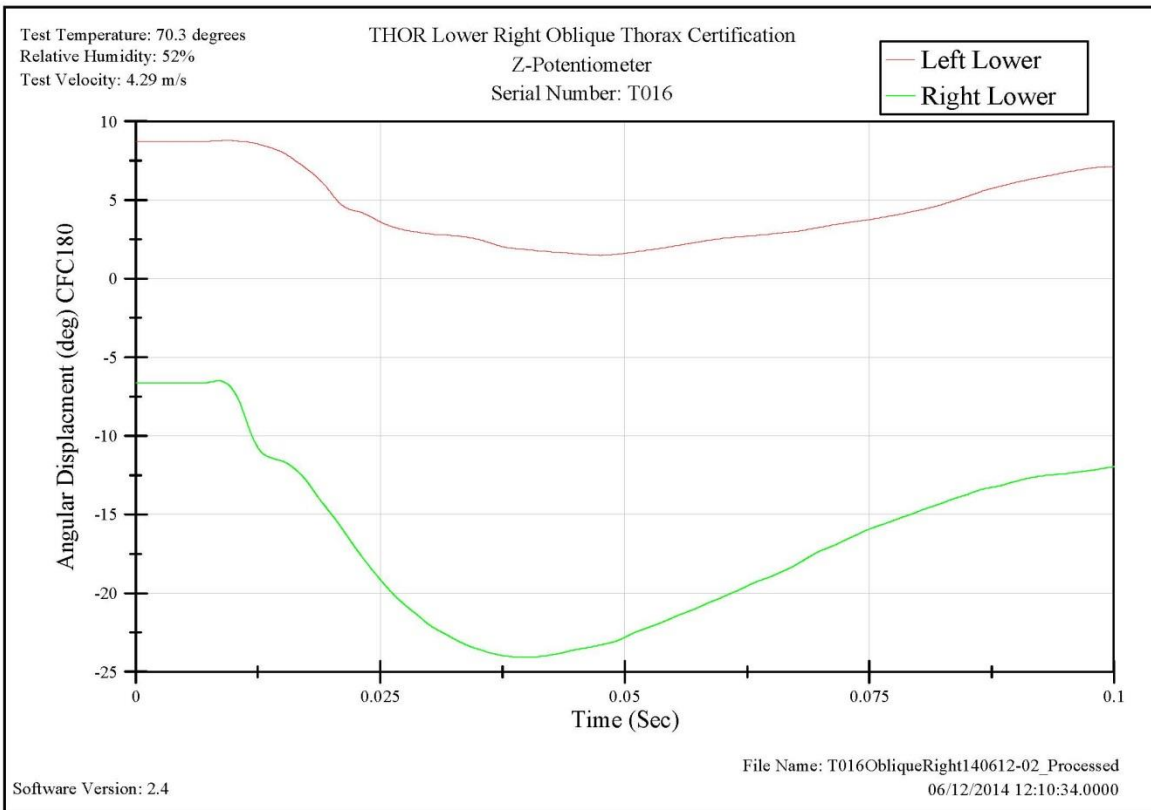
Software Version: 2.4

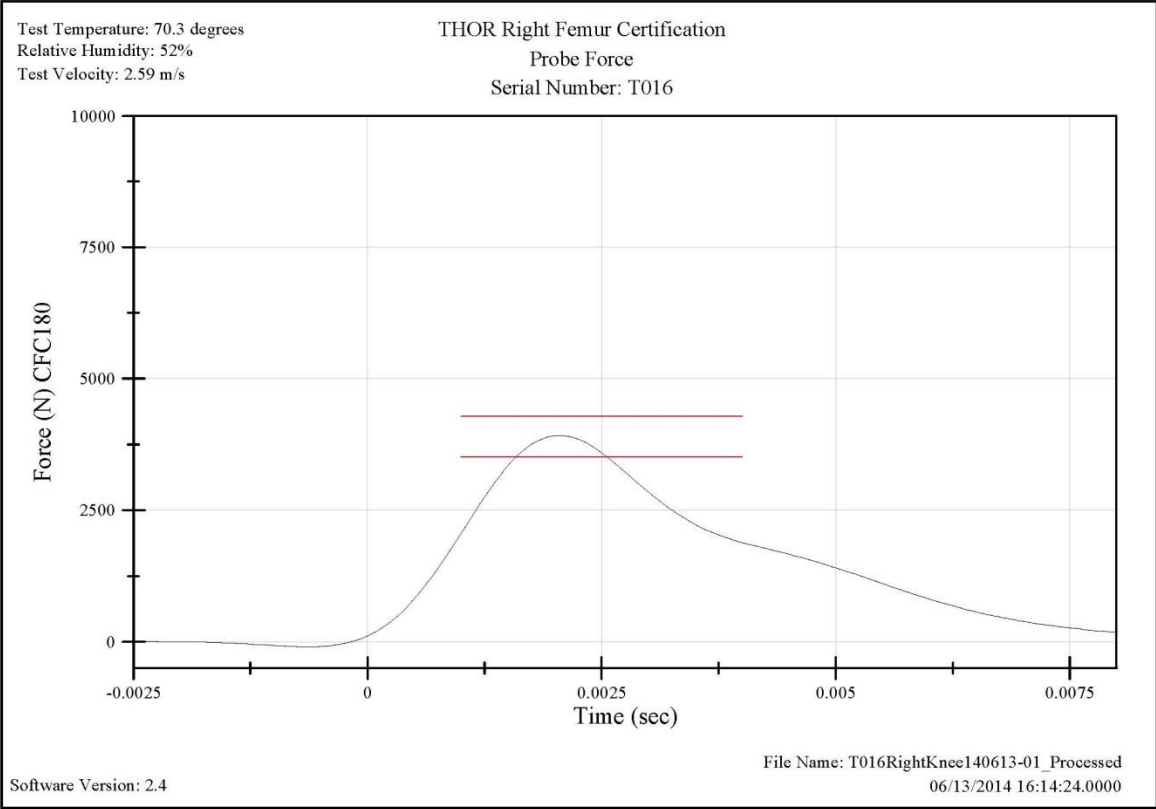
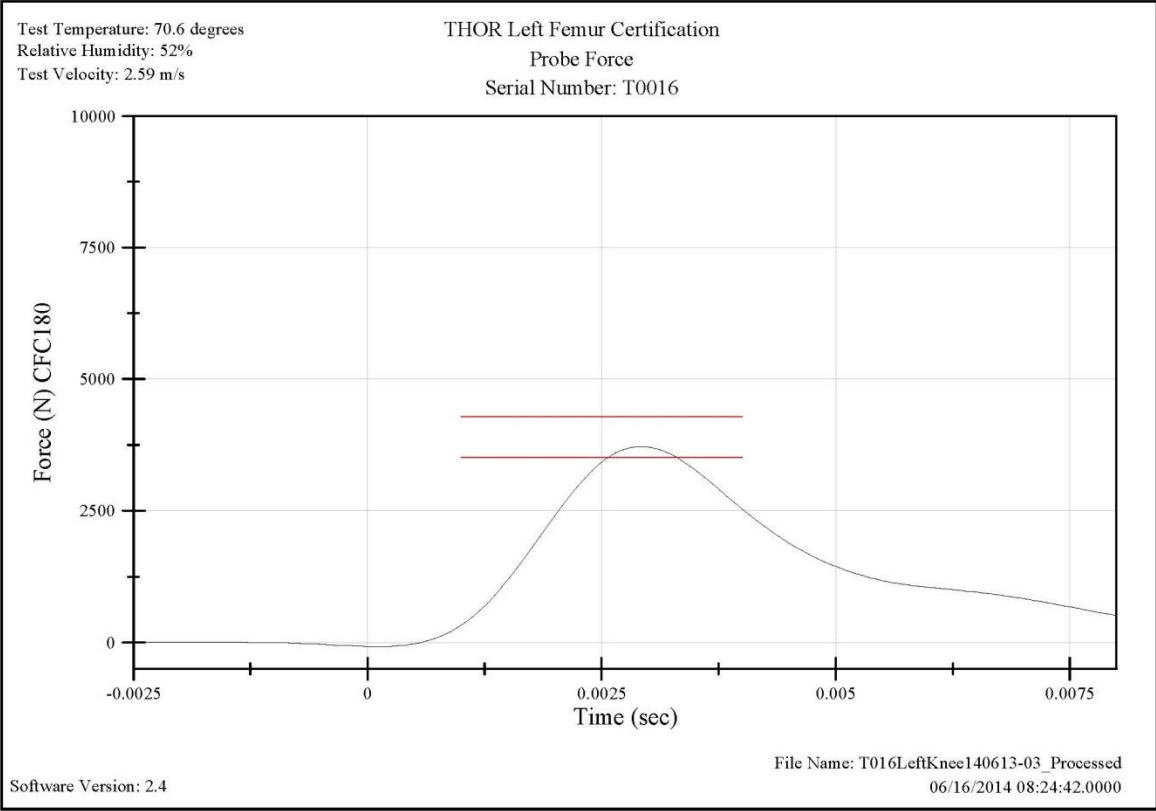
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06/12/2014 13:13:11.0000







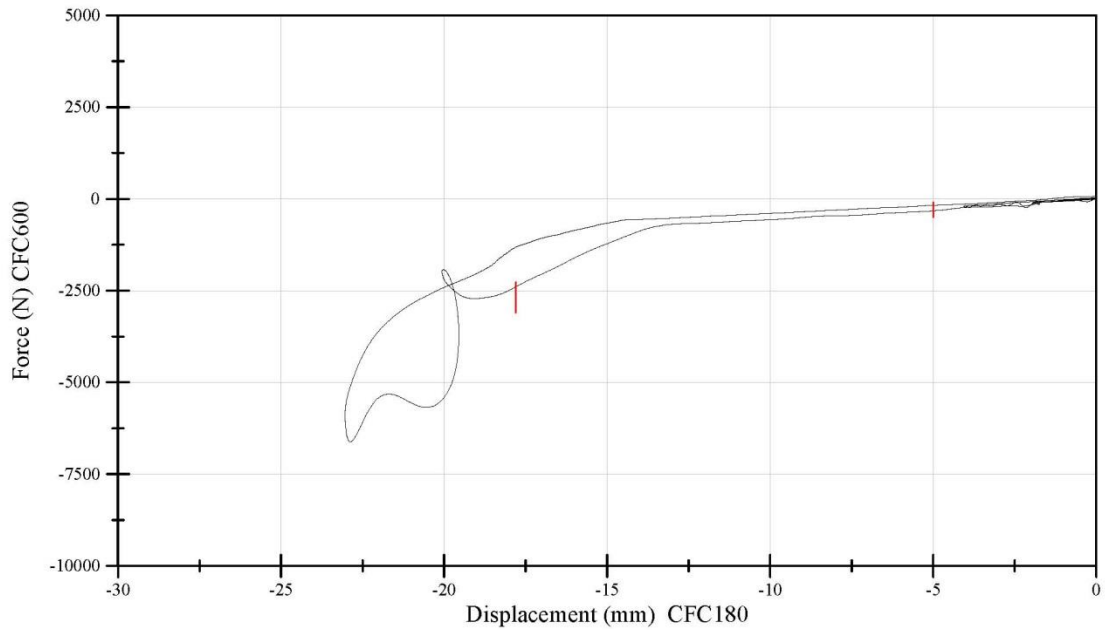




**THOR 016 LEG CALIBRATIONS
LX0018/ LX0019**

Test Temperature: 71 degrees
Relative Humidity: 38%
Test Velocity: 2.75 m/s

THOR Right Knee Certification
Femur Force vs. Knee Displacement
Serial Number: LX018



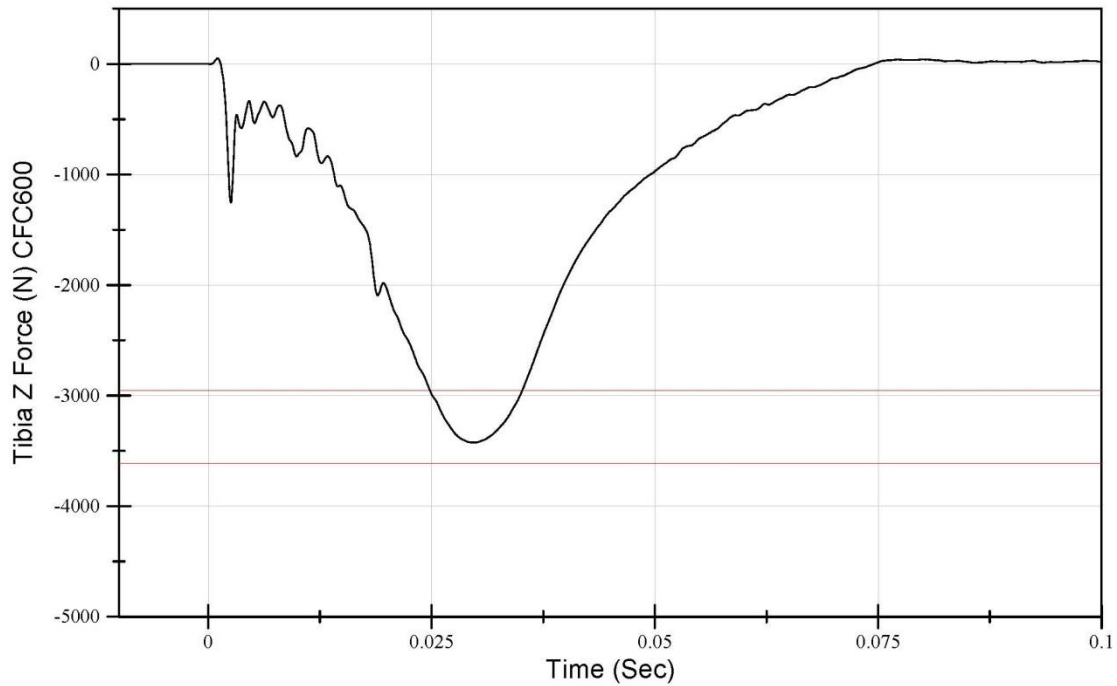
File Name: 042745 Knee 140617_02_DIADEMHeader_BINARYprocessed

06/17/2014 07:05:39.0000

Software Version: 2.5

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 5.03 m/s

THOR Right Foot Dorsiflexion Certification
Tibia Load
Serial Number: LX0018



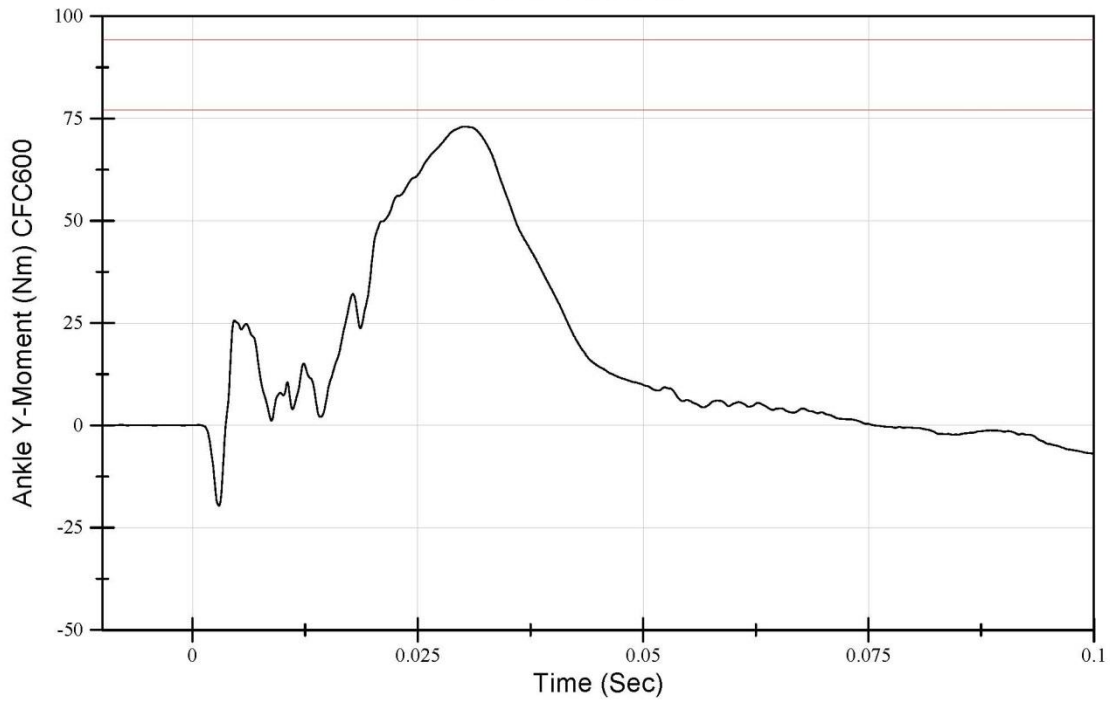
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05/20/2014 11:19:33.0000

Software Version: 2.4

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 5.03 m/s

THOR Right Foot Dorsiflexion Certification
Ankle Y-Moment
Serial Number: LX0018

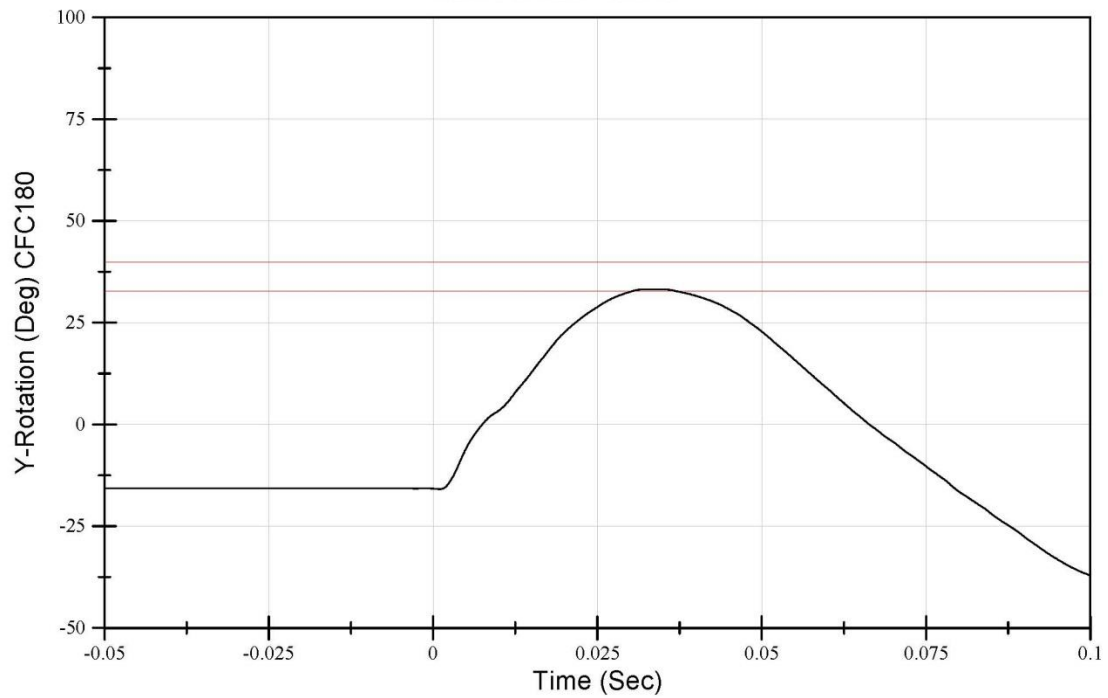


Software Version: 2.4

File Name: LX0018Ball140520_02processed
05/20/2014 11:19:33.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 5.03 m/s

THOR Right Foot Dorsiflexion Certification
Ankle Y-Rotation
Serial Number: LX0018

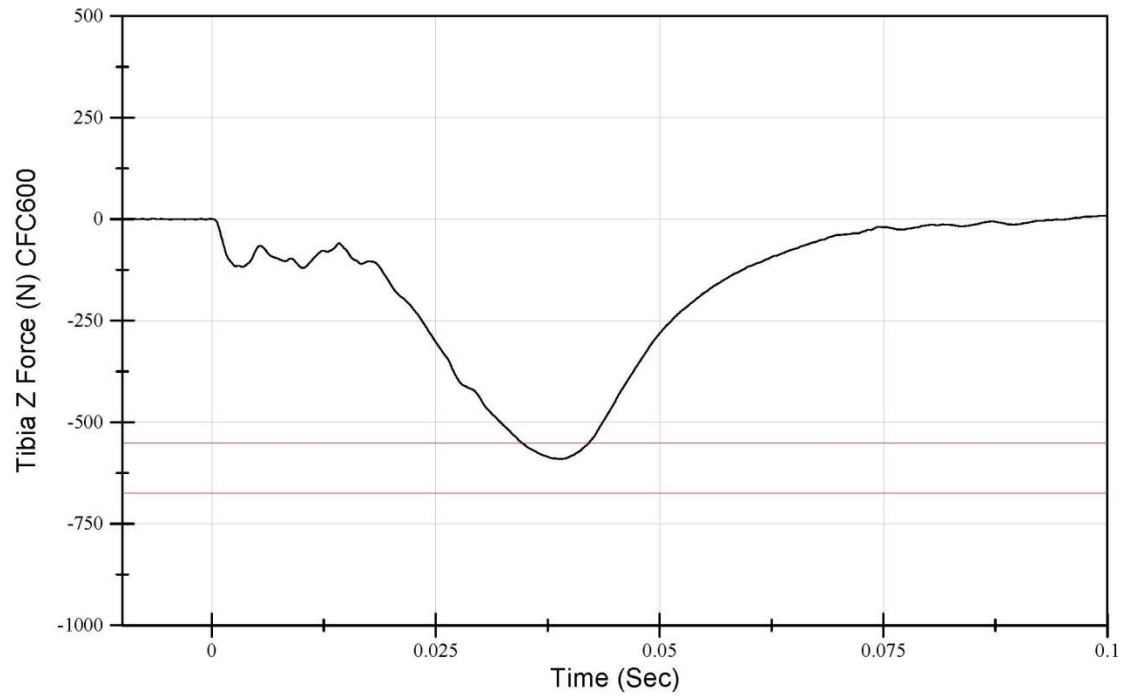


Software Version: 2.4

File Name: LX0018Ball140520_02processed
05/20/2014 11:19:33.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 2 m/s

THOR Right Foot Eversion Certification
Tibia Load
Serial Number: LX0018

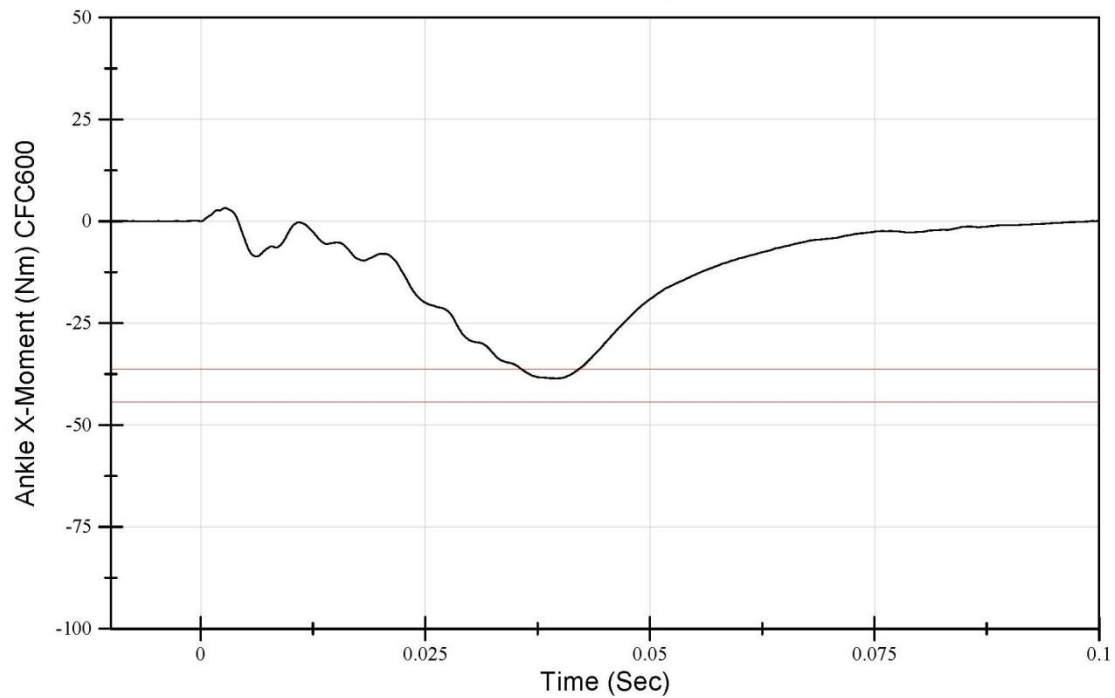


Software Version: 2.4

File Name: LX0018Eversion140520_01processed
05/20/2014 10:15:43.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 2 m/s

THOR Right Foot Eversion Certification
Ankle Moment
Serial Number: LX0018

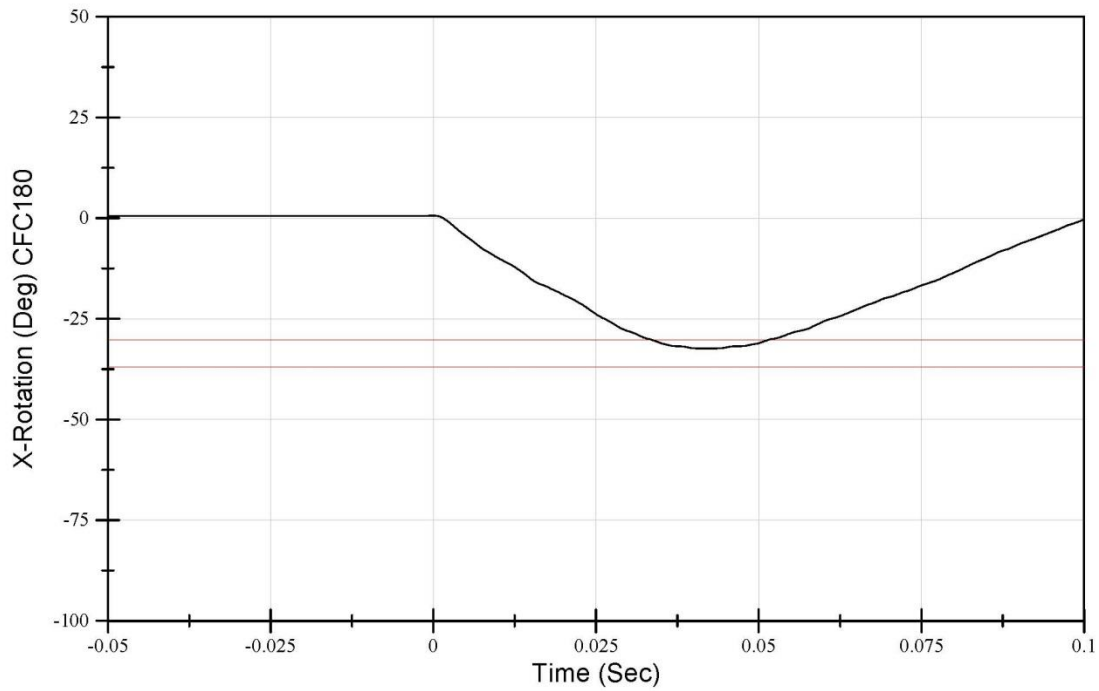


Software Version: 2.4

File Name: LX0018Eversion140520_01processed
05/20/2014 10:15:43.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 2 m/s

THOR Right Foot Eversion Certification
Ankle X-Rotation
Serial Number: LX0018

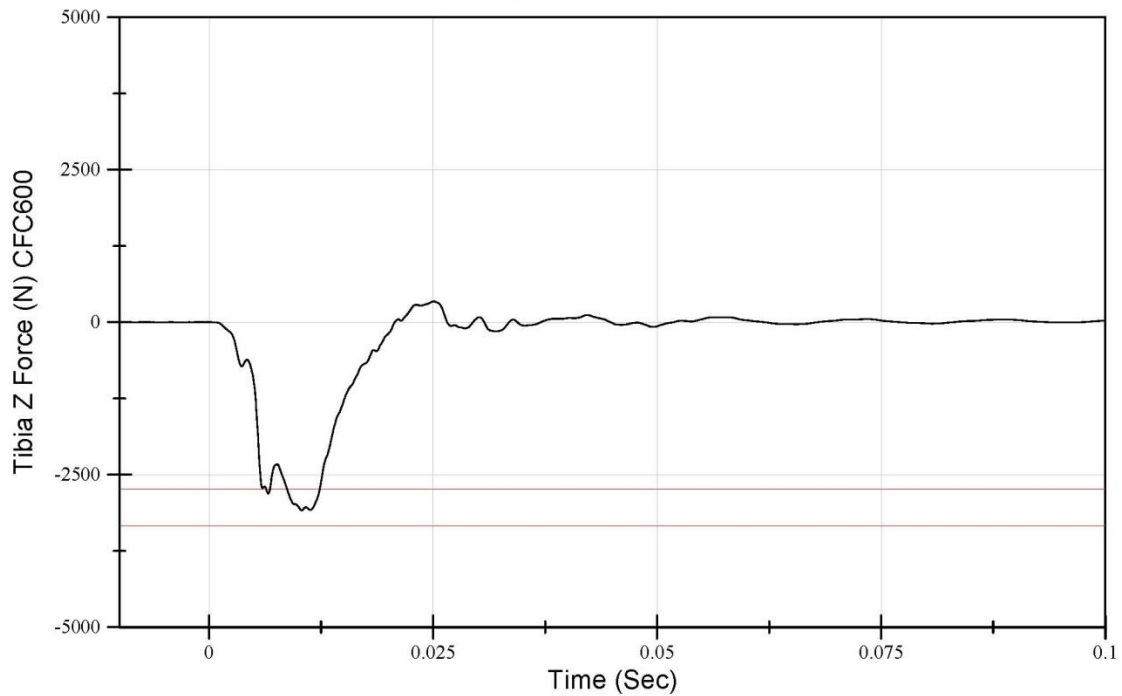


Software Version: 2.4

File Name: LX0018Eversion140520_01processed
05/20/2014 10:15:43.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 3.94 m/s

THOR Right Foot Heel Certification
Tibia Load
Serial Number: LX0018

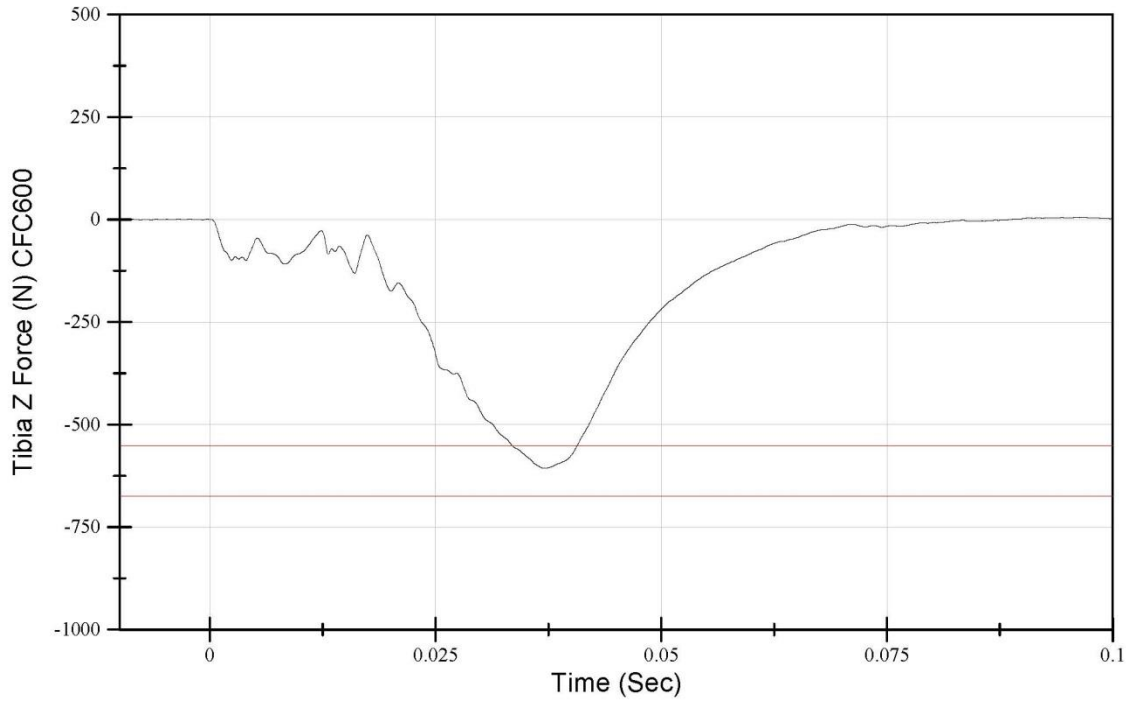


Software Version: 2.4

File Name: LX0018Heel140520_01processed
05/20/2014 12:59:01.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 2 m/s

THOR Right Foot Inversion Certification
Tibia Load
Serial Number: LX0018

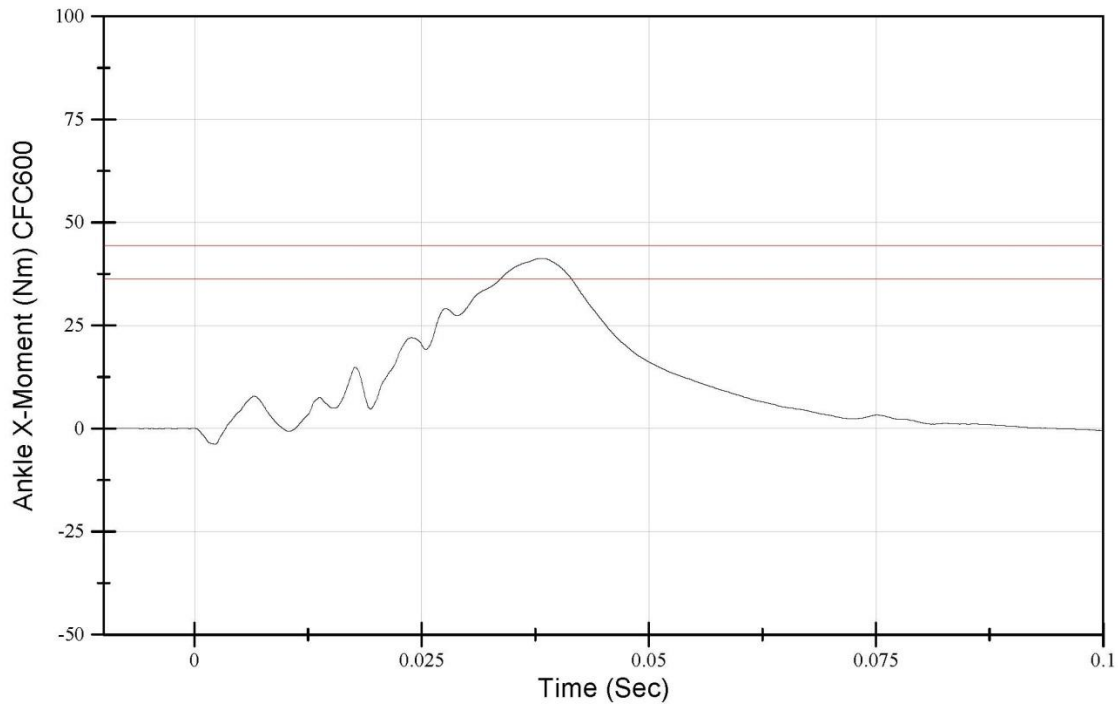


Software Version: 2.4

File Name: LX0018Inversion140520_04processed
05/20/2014 09:27:22.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 2 m/s

THOR Right Foot Inversion Certification
Ankle Moment
Serial Number: LX0018

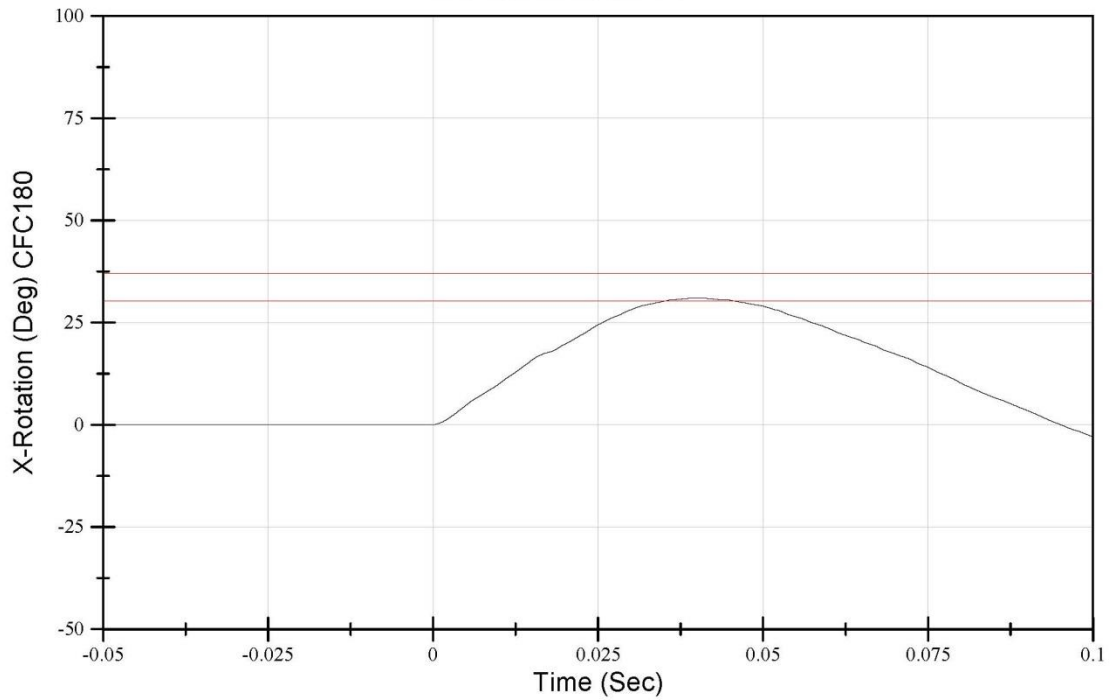


Software Version: 2.4

File Name: LX0018Inversion140520_04processed
05/20/2014 09:27:22.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 2 m/s

THOR Right Foot Inversion Certification
Ankle X-Rotation
Serial Number: LX0018

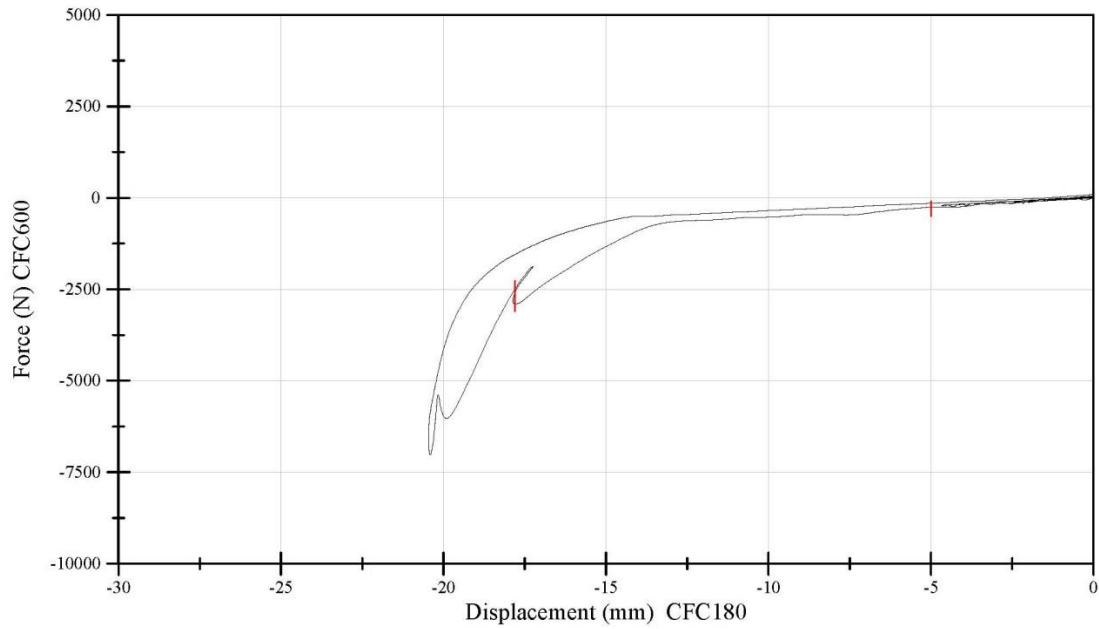


Software Version: 2.4

File Name: LX0018Inversion140520_04processed
05/20/2014 09:27:22.0000

Test Temperature: 71 degrees
Relative Humidity: 38%
Test Velocity: 2.75 m/s

THOR Left Knee Certification
Femur Force vs. Knee Displacement
Serial Number: LX0019

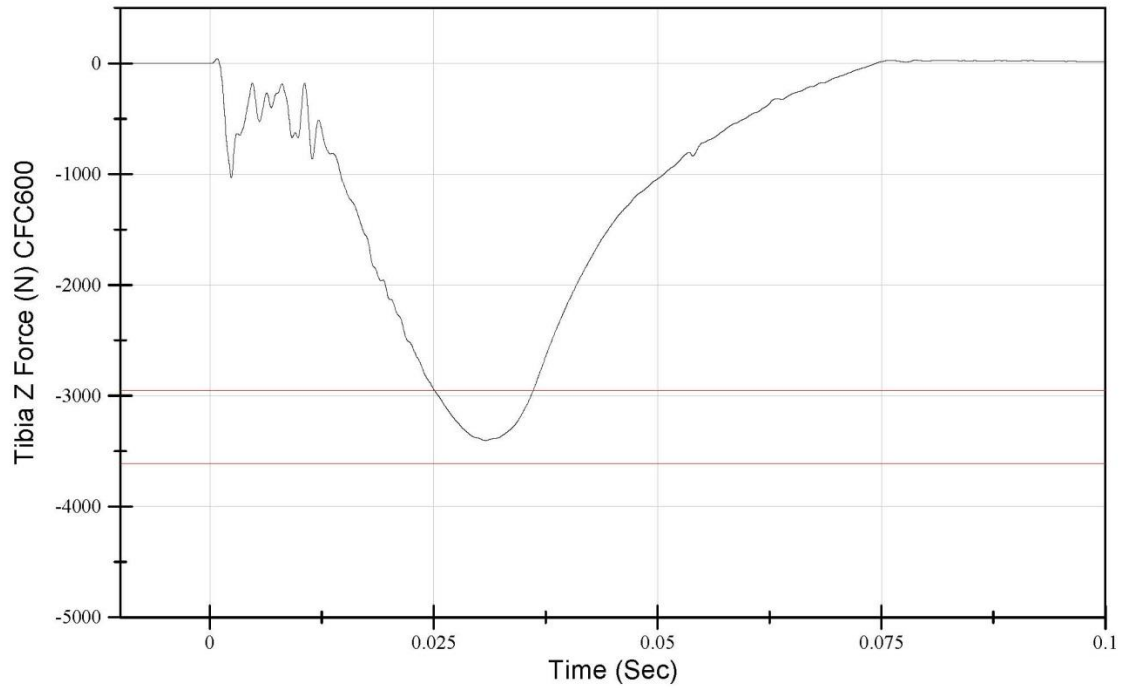


Software Version: 2.5

File Name: 13074235Knee140617_01_DIAdemHeader_BINARYprocessed
06/17/2014 10:50:02.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 5.03 m/s

THOR Left Foot Dorsiflexion Certification
Tibia Load
Serial Number: LX0019

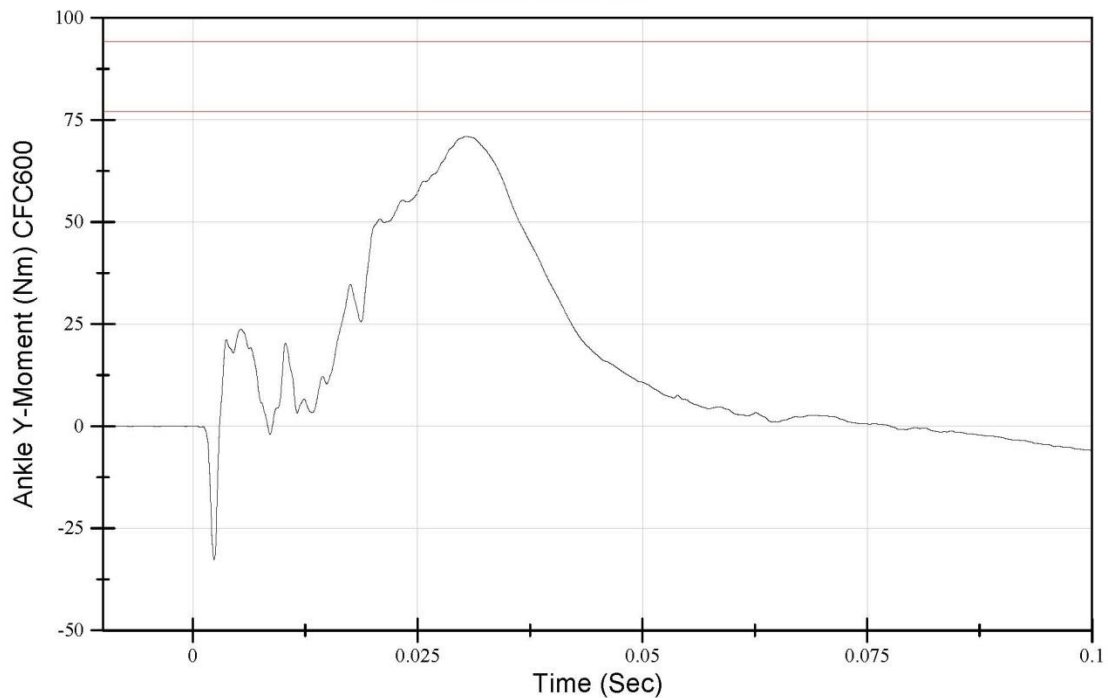


Software Version: 2.4

File Name: LX0019Ball140521_03processed
05/21/2014 13:20:28.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 5.03 m/s

THOR Left Foot Dorsiflexion Certification
Ankle Y-Moment
Serial Number: LX0019

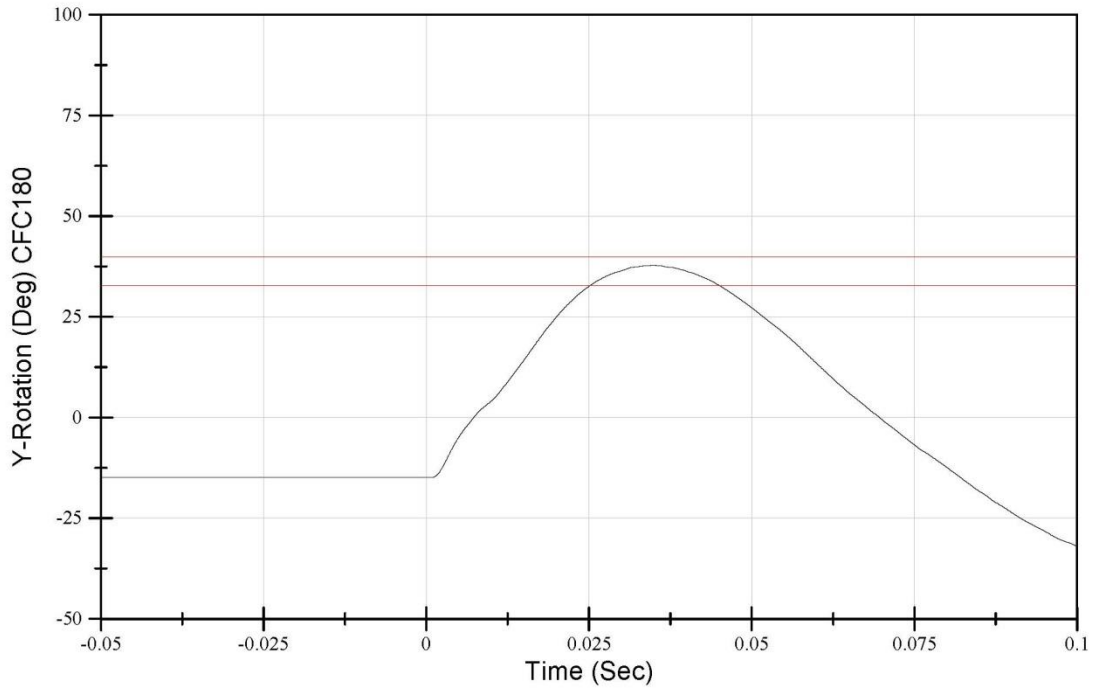


Software Version: 2.4

File Name: LX0019Ball140521_03processed
05/21/2014 13:20:28.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 5.03 m/s

THOR Left Foot Dorsiflexion Certification
Ankle Y-Rotation
Serial Number: LX0019

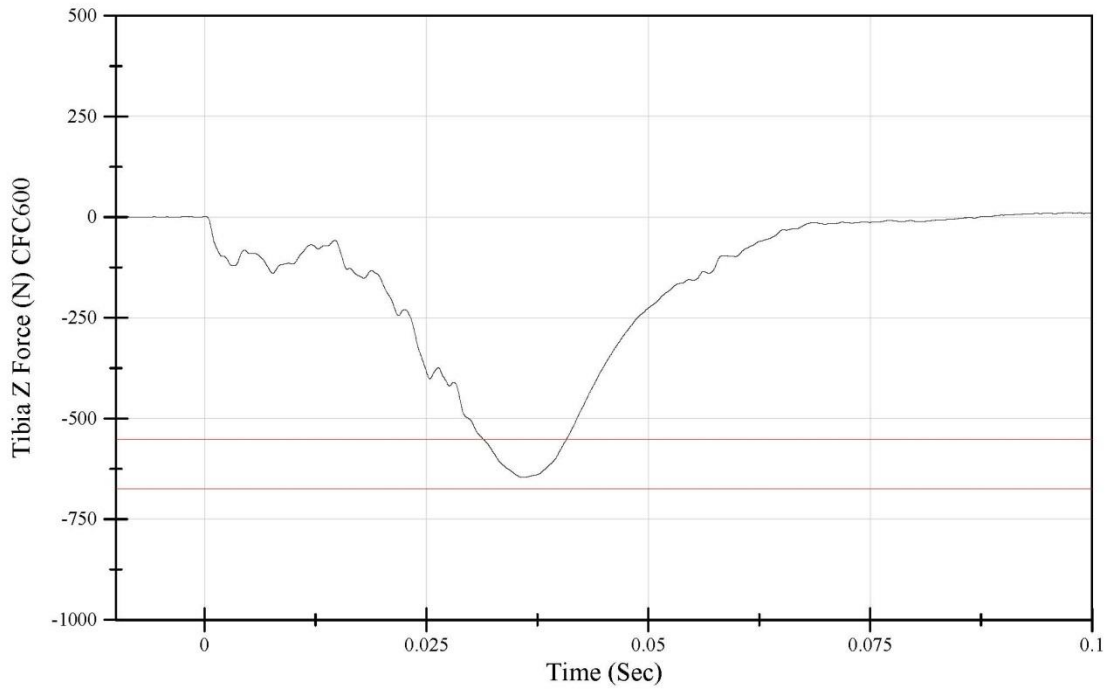


Software Version: 2.4

File Name: LX0019Ball140521_03processed
05/21/2014 13:20:28.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 1.97 m/s

THOR Left Foot Eversion Certification
Tibia Load
Serial Number: LX0019

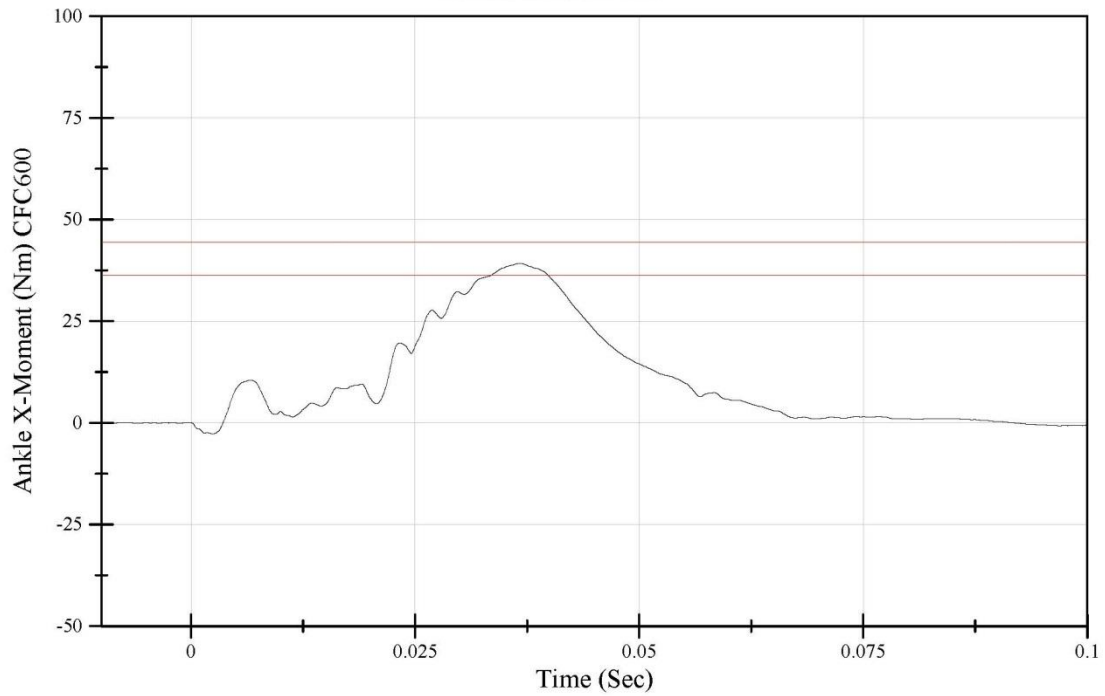


Software Version: 2.4

File Name: LX0019Eversion140521_02processed
05/21/2014 09:58:27.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 1.97 m/s

THOR Left Foot Eversion Certification
Ankle Moment
Serial Number: LX0019

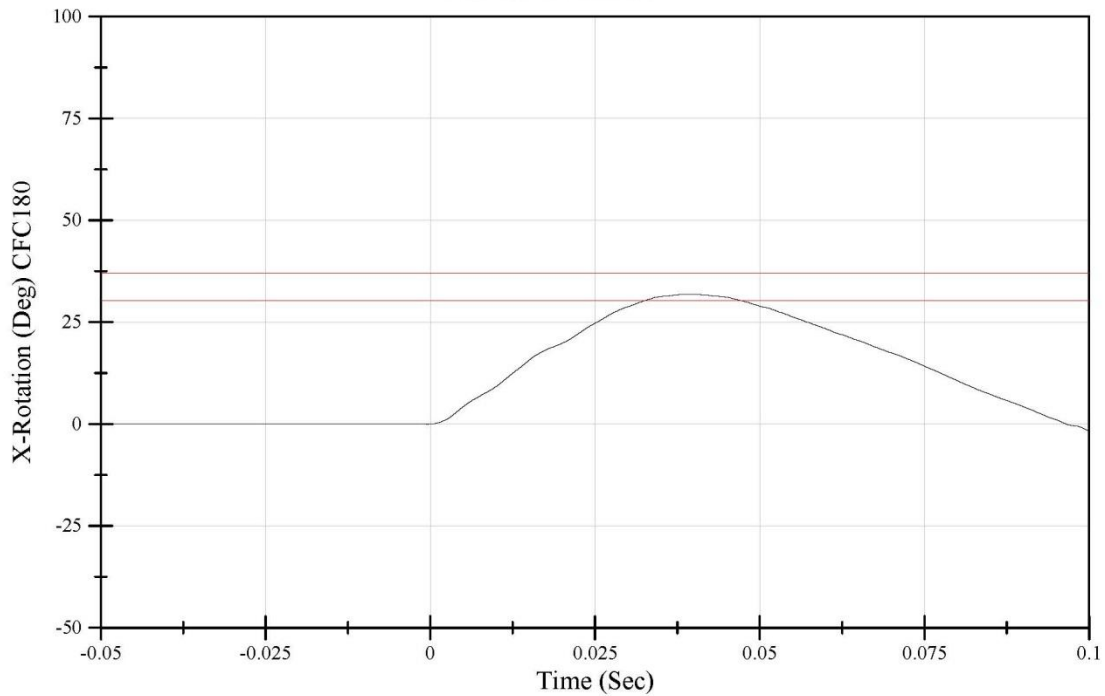


Software Version: 2.4

File Name: LX0019Eversion140521_02processed
05/21/2014 09:58:27.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 1.97 m/s

THOR Left Foot Eversion Certification
Ankle X-Rotation
Serial Number: LX0019

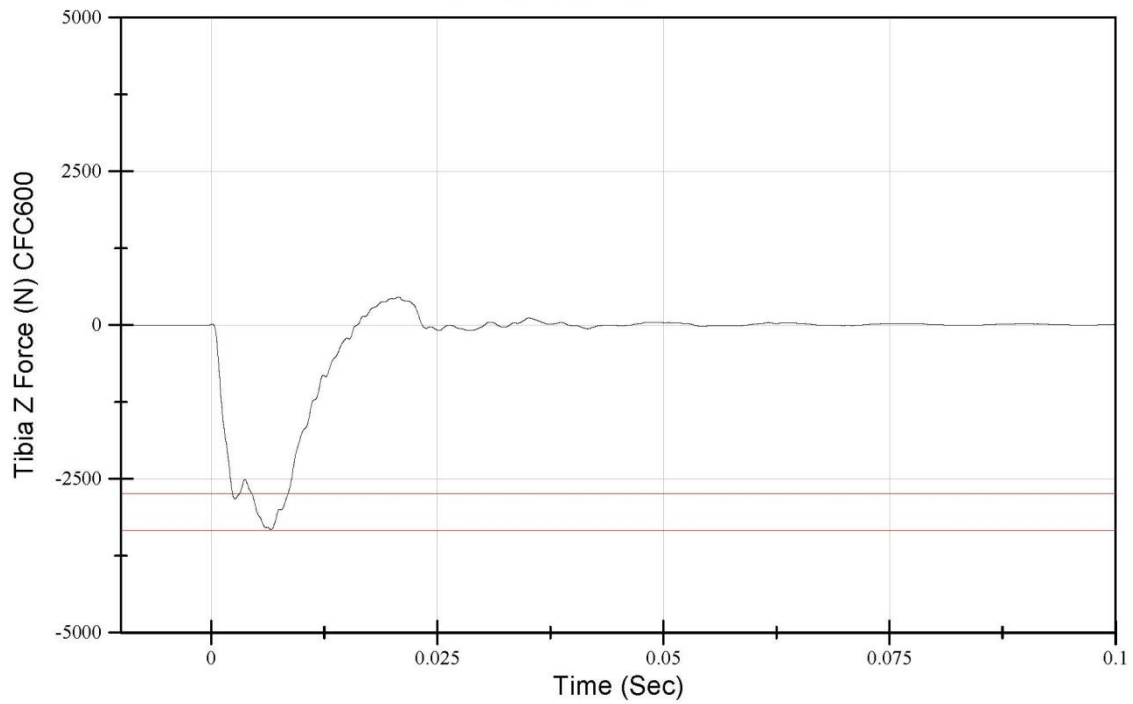


Software Version: 2.4

File Name: LX0019Eversion140521_02processed
05/21/2014 09:58:27.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 4 m/s

THOR Left Foot Heel Certification
Tibia Load
Serial Number: LX0019

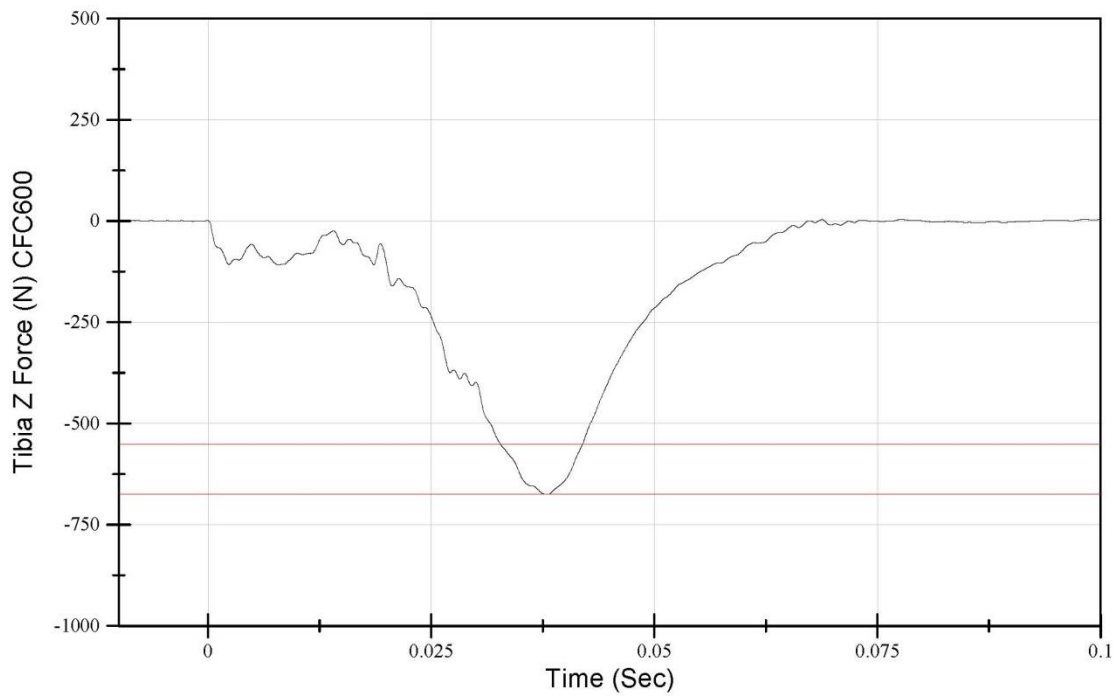


Software Version: 2.4

File Name: LX0019Heel140521_01processed
05/21/2014 14:19:36.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 1.96 m/s

THOR Left Foot Inversion Certification
Tibia Load
Serial Number: LX0019

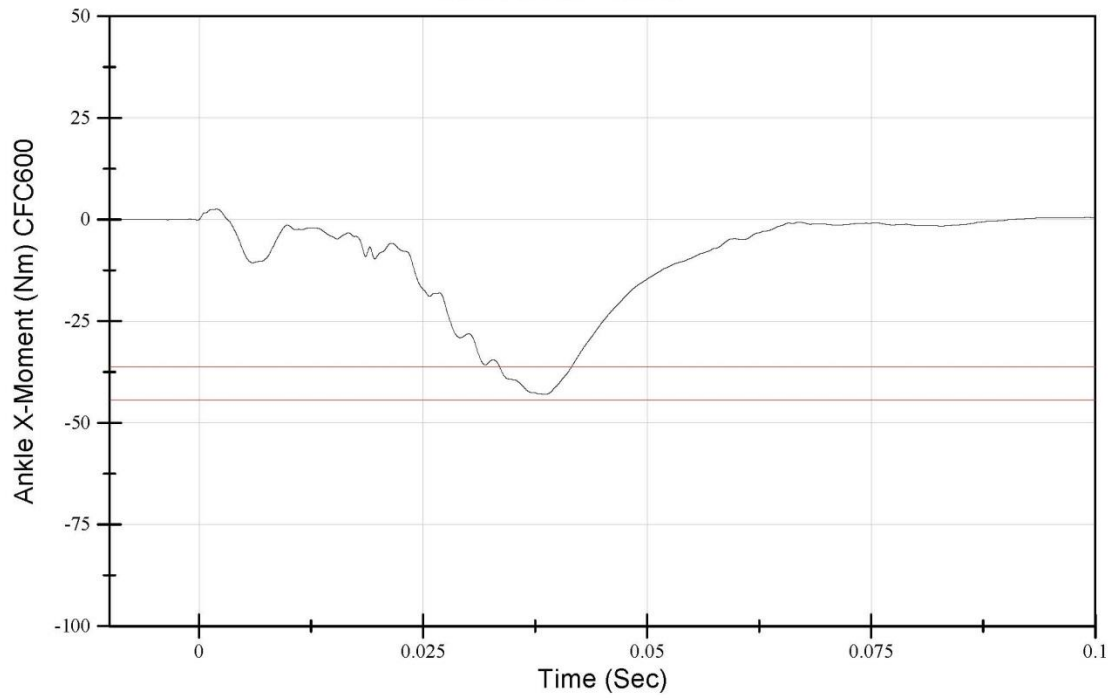


Software Version: 2.4

File Name: LX0019Inversion140521_03processed
05/21/2014 08:53:35.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 1.96 m/s

THOR Left Foot Inversion Certification
Ankle Moment
Serial Number: LX0019

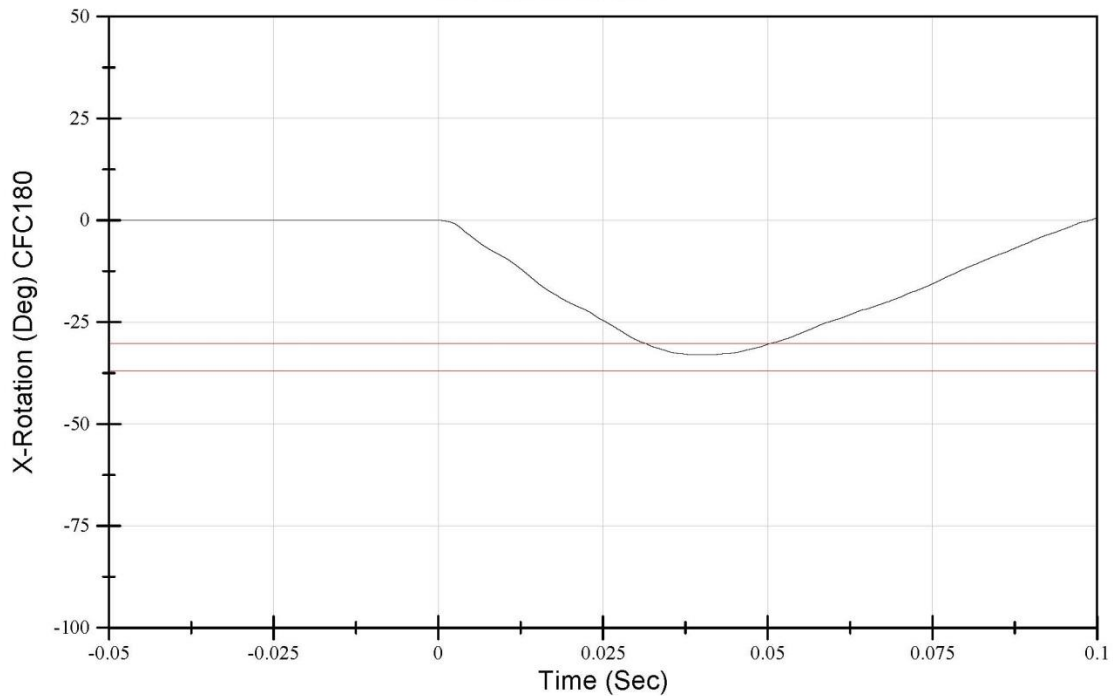


Software Version: 2.4

File Name: LX0019Inversion140521_03processed
05/21/2014 08:53:35.0000

Test Temperature: 71.1 degrees
Relative Humidity: 31.4%
Test Velocity: 1.96 m/s

THOR Left Foot Inversion Certification
Ankle X-Rotation
Serial Number: LX0019



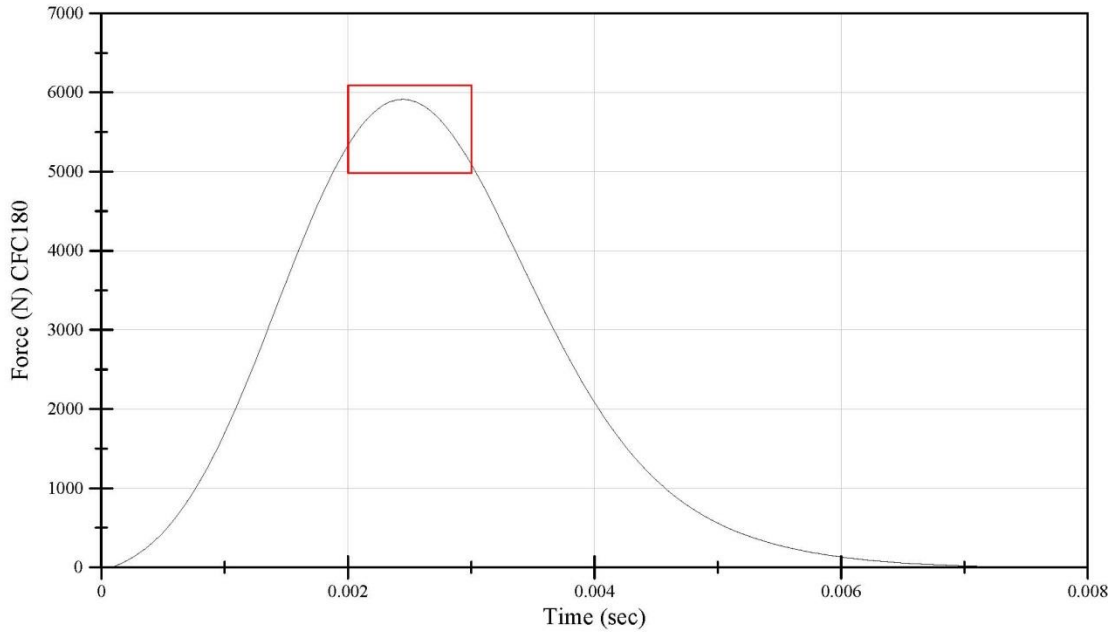
Software Version: 2.4

File Name: LX0019Inversion140521_03processed
05/21/2014 08:53:35.0000

50% ADULT MALE THOR015 DUMMY CALIBRATIONS

Test Temperature: 71 degrees
Relative Humidity: 31%
Test Velocity: 1.98 m/s

THOR Head Impact Certification
Probe Force
Serial Number: T015

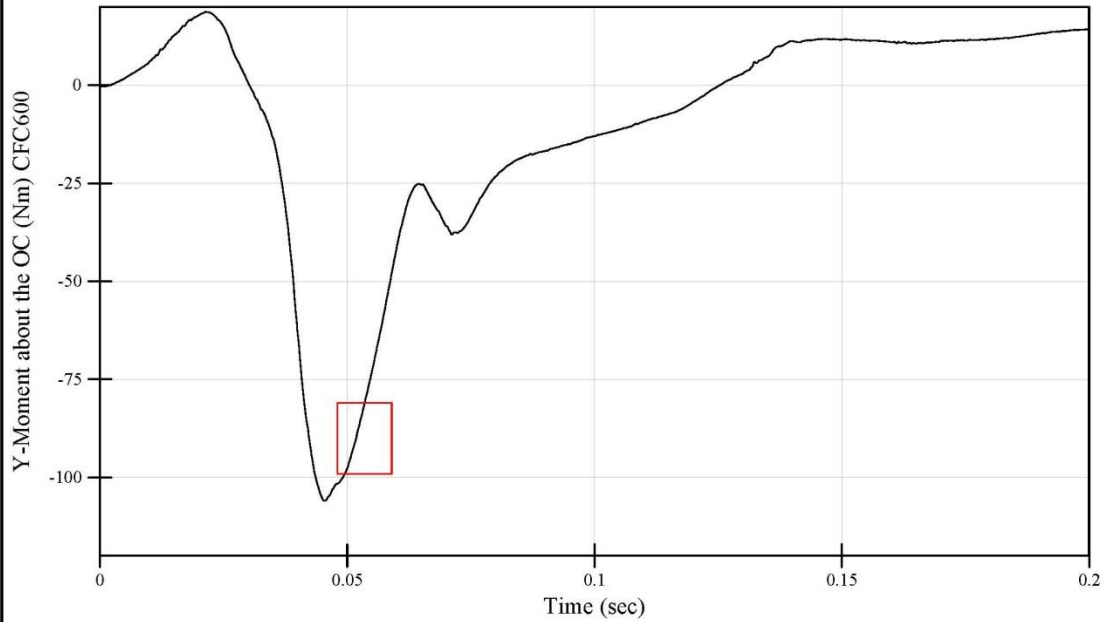


Software Version: 2.4

File Name: T015Head051914_01_DIAdemHeader_BINARYpatrick
05/19/2014 14:31:34.0000

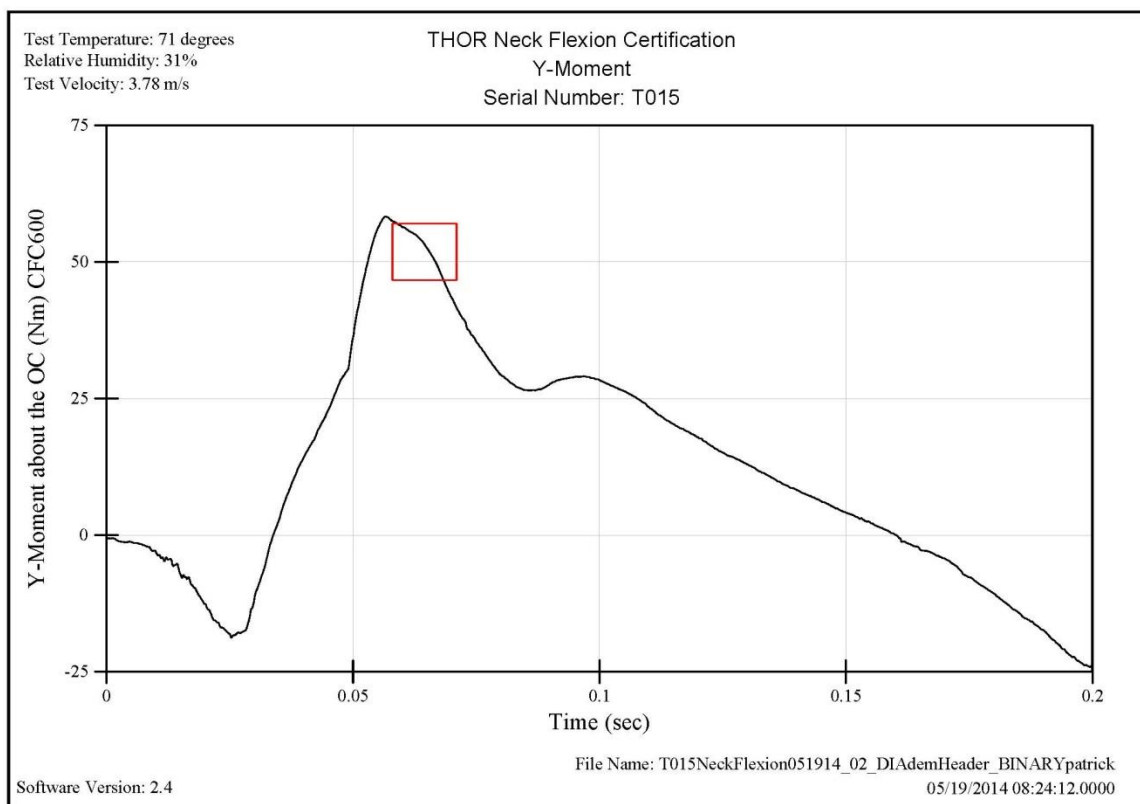
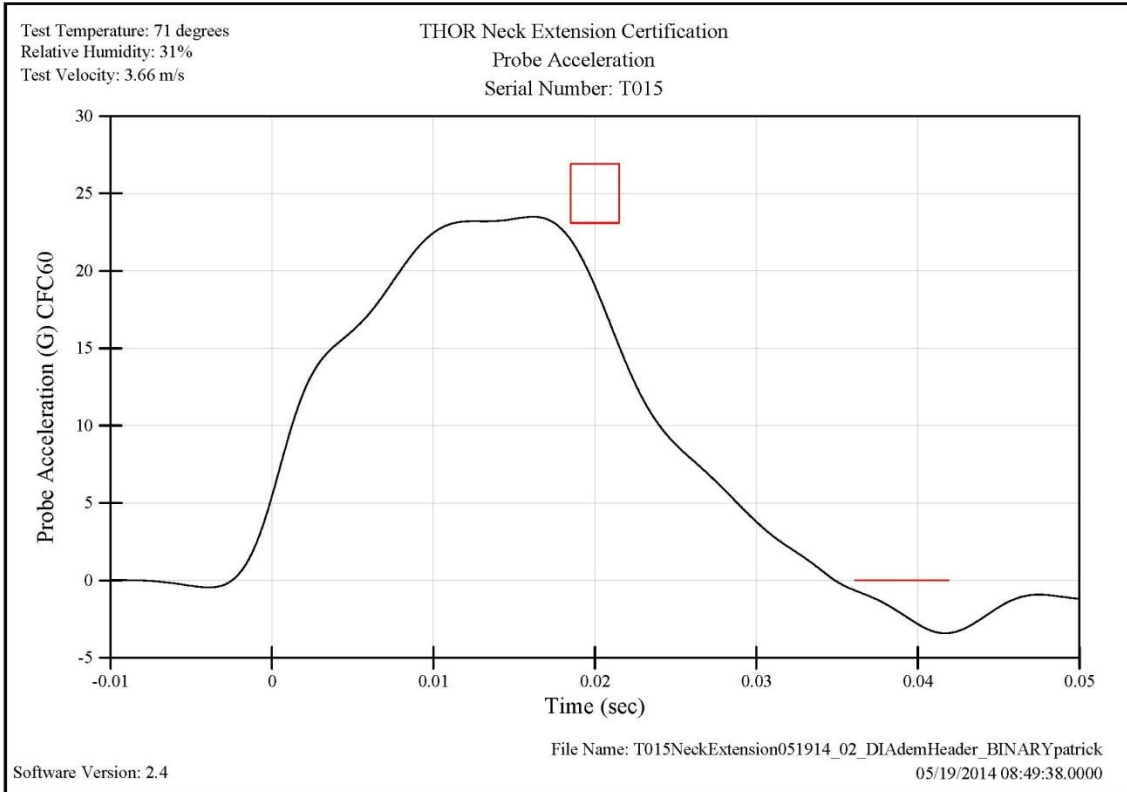
Test Temperature: 71 degrees
Relative Humidity: 31%
Test Velocity: 3.66 m/s

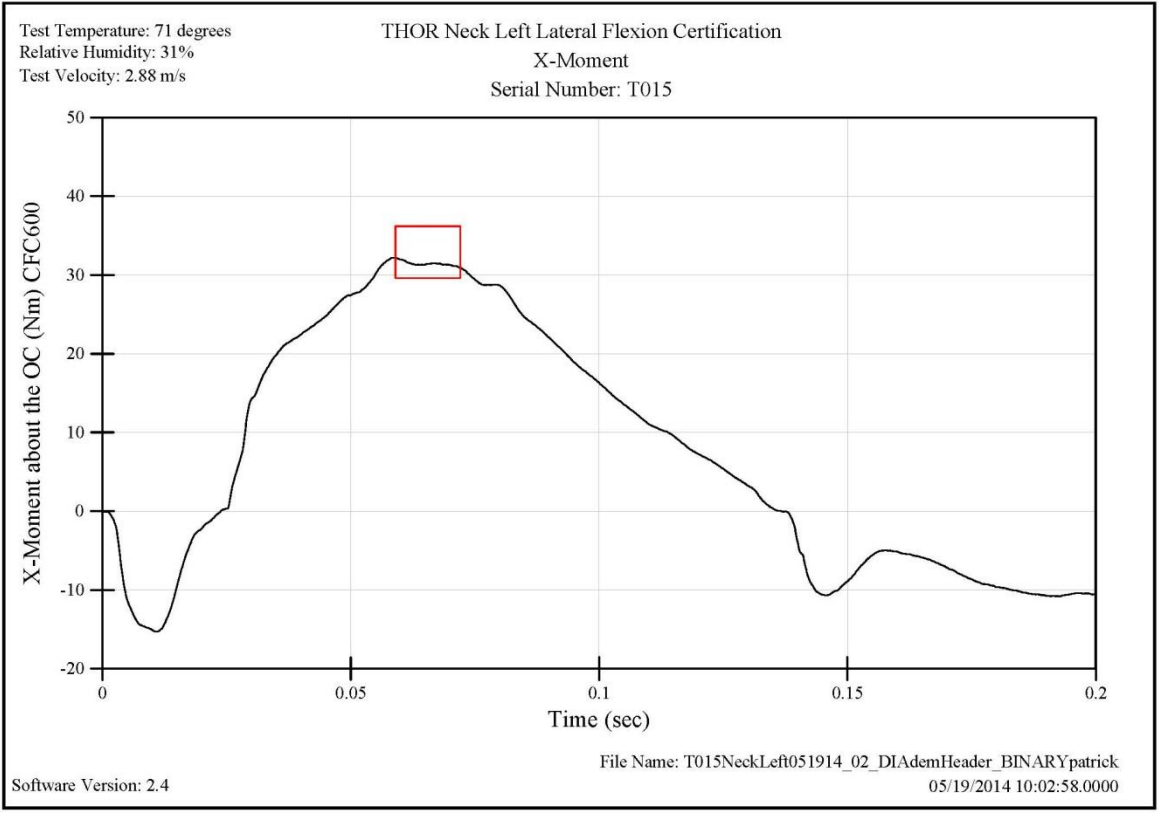
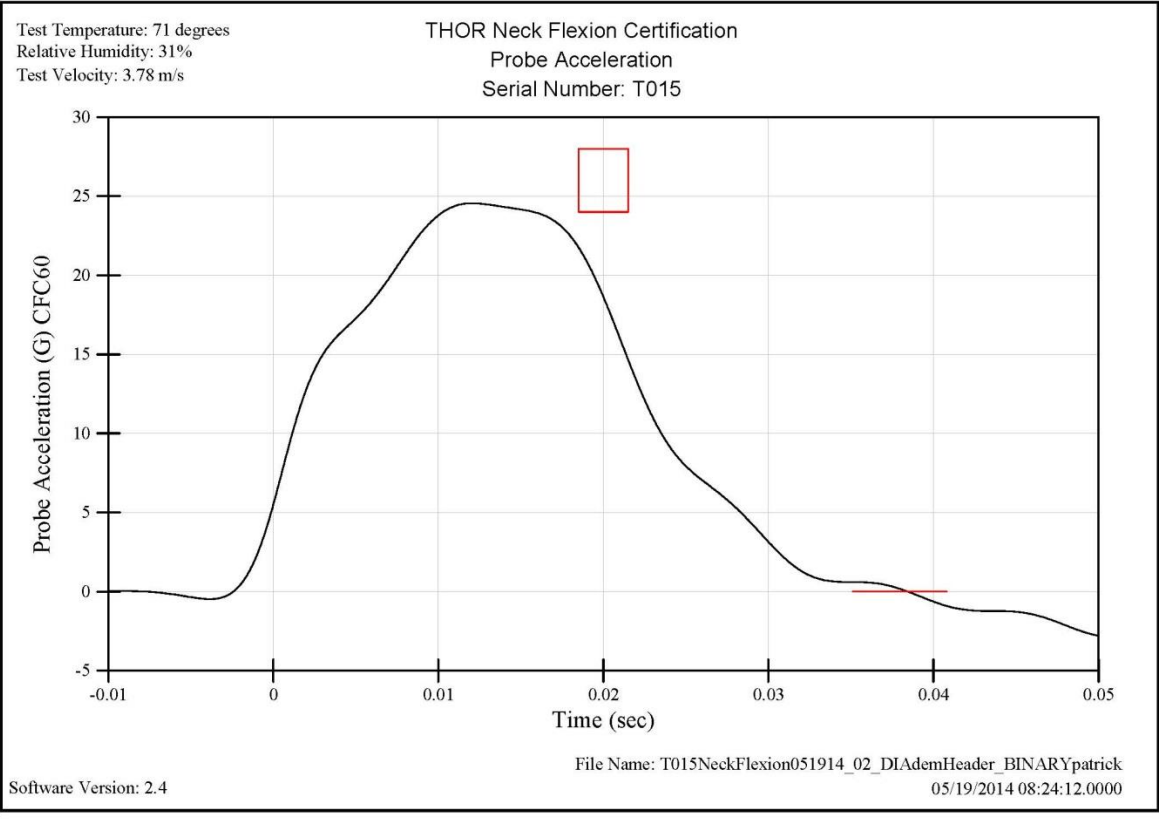
THOR Neck Extension Certification
Y-Moment
Serial Number: T015

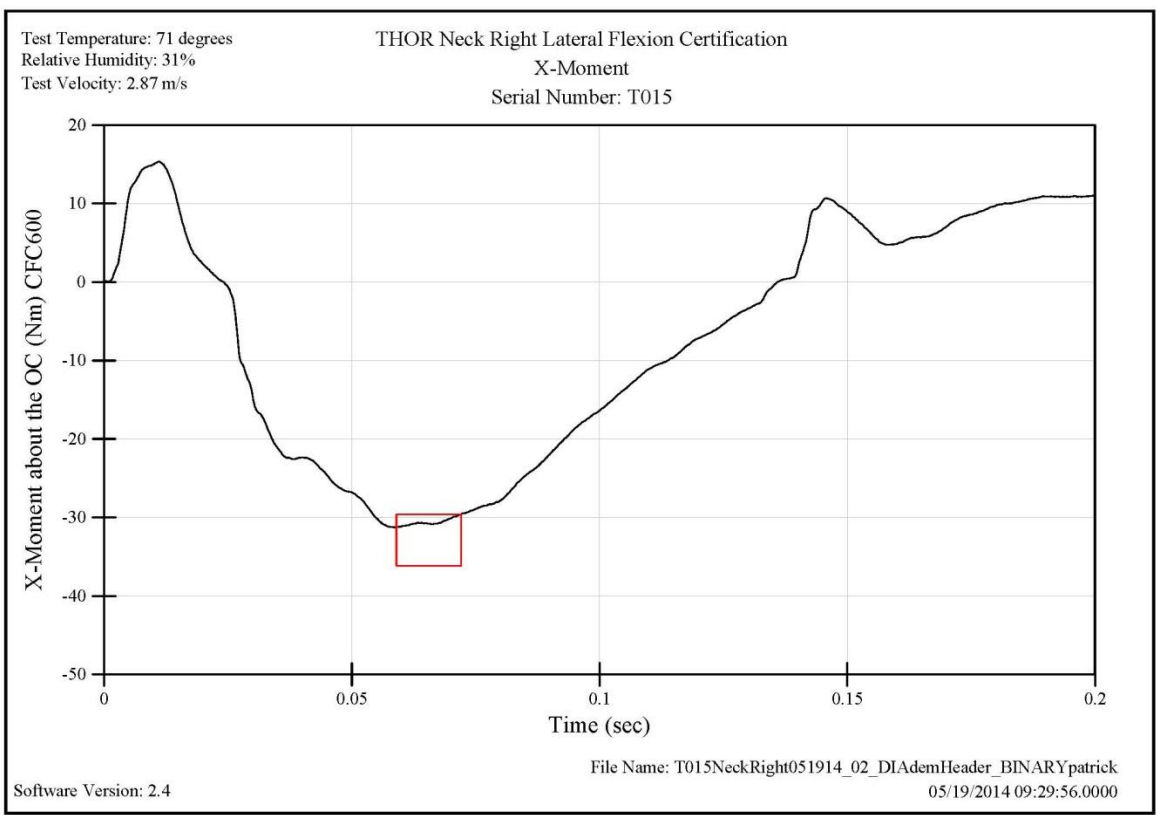
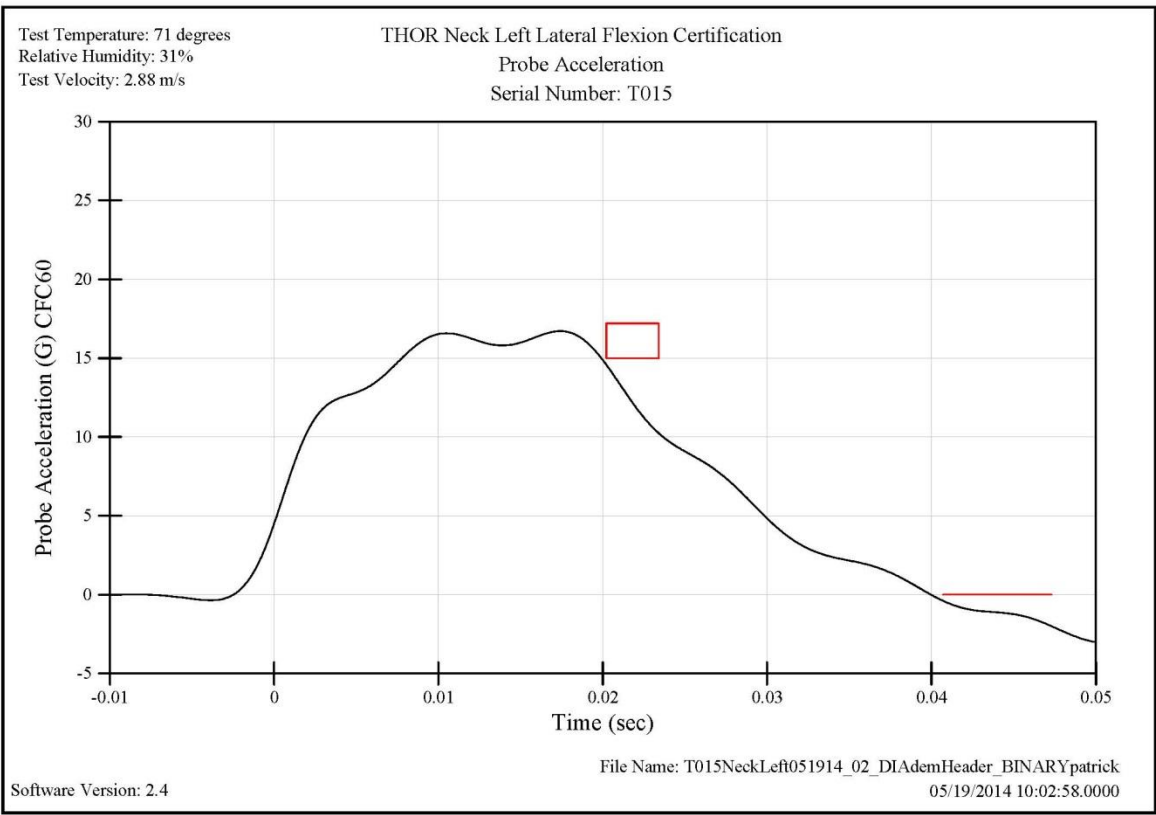


Software Version: 2.4

File Name: T015NeckExtension051914_02_DIAdemHeader_BINARYpatrick
05/19/2014 08:49:38.0000

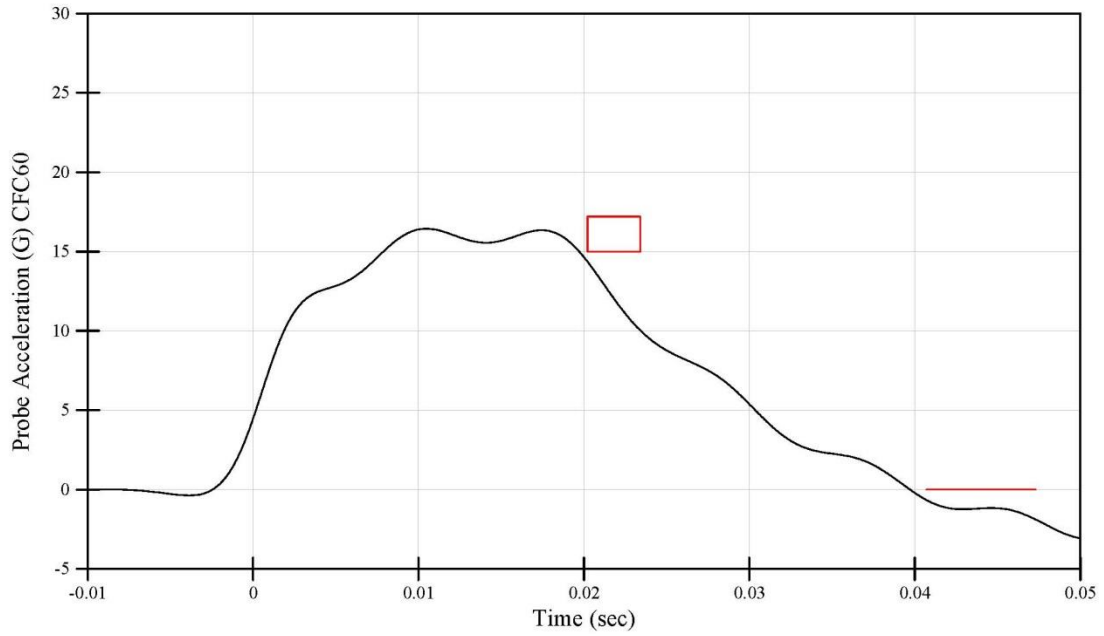






Test Temperature: 71 degrees
Relative Humidity: 31%
Test Velocity: 2.87 m/s

THOR Neck Right Lateral Flexion Certification
Probe Acceleration
Serial Number: T015

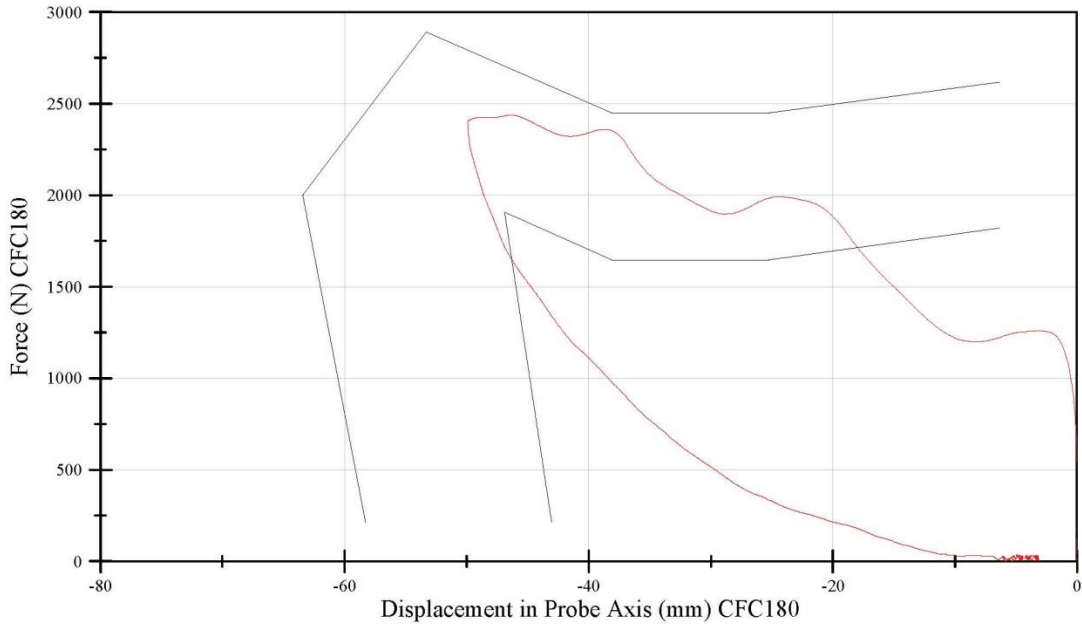


File Name: T015NeckRight051914_02_DIAdemHeader_BINARYpatrick
05/19/2014 09:29:56.0000

Software Version: 2.4

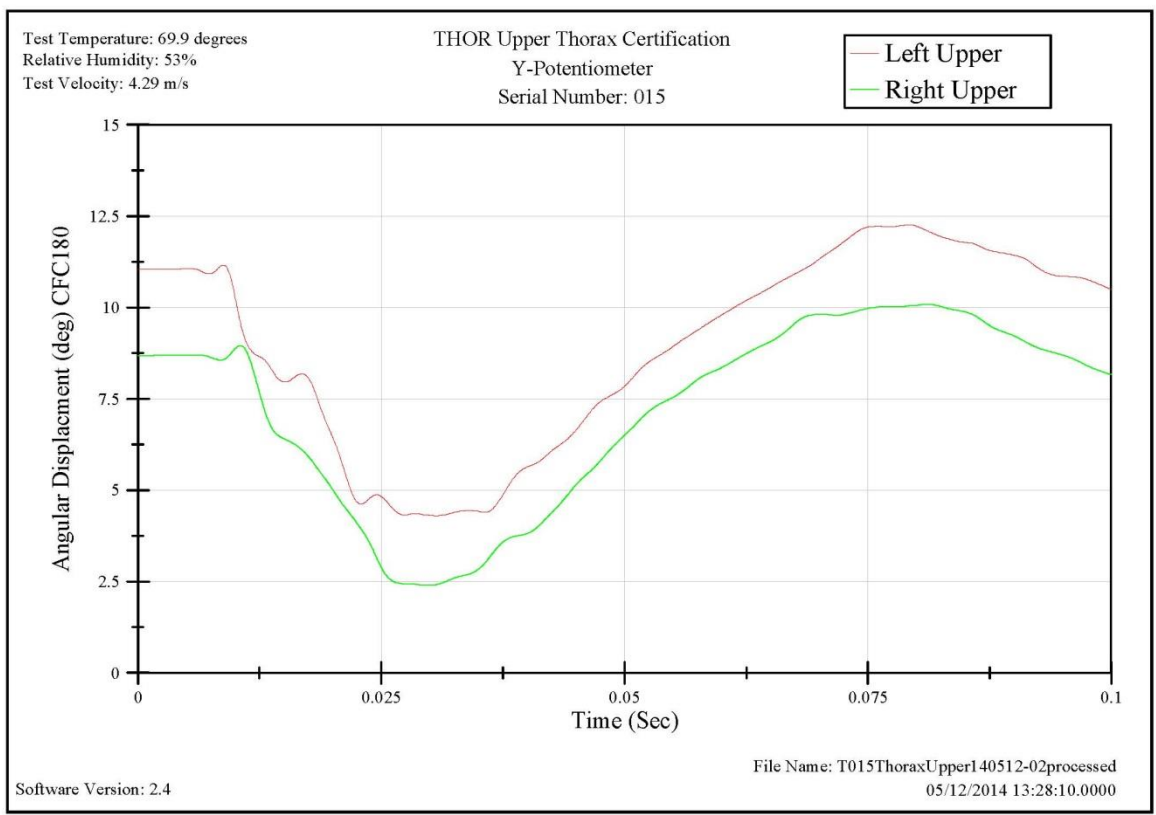
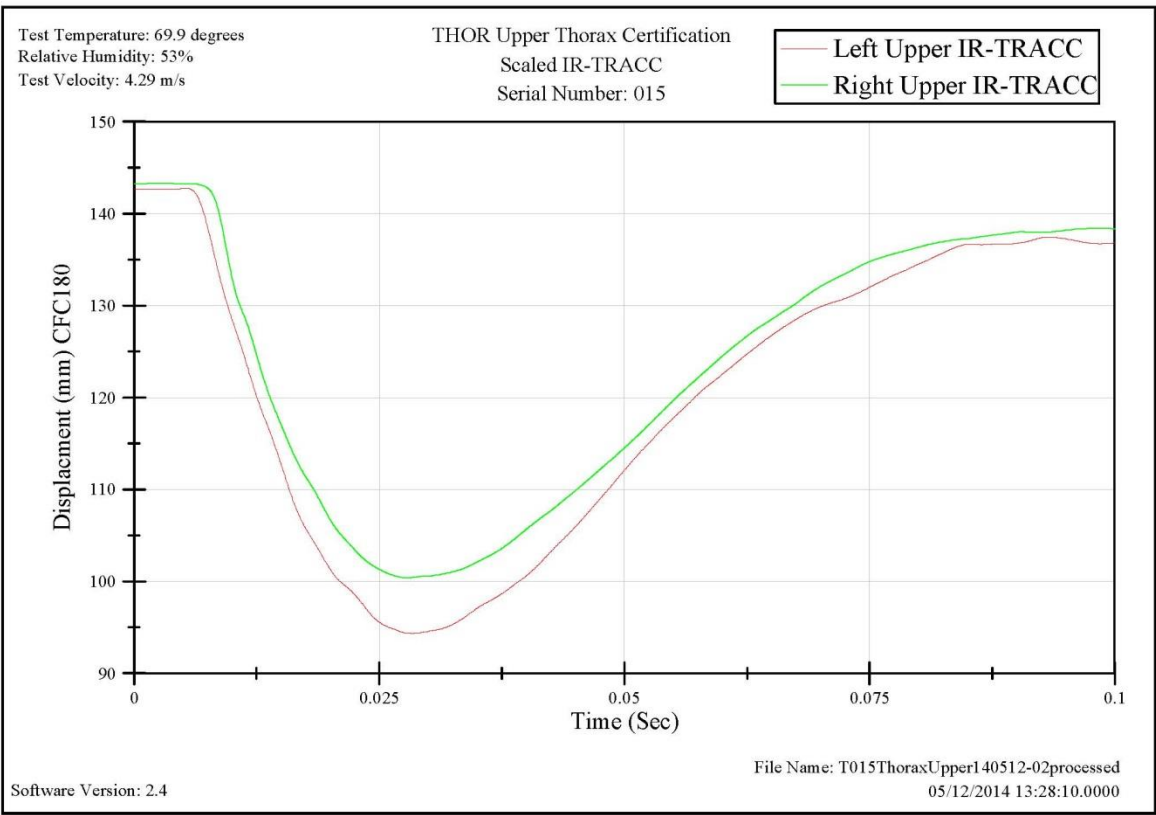
Test Temperature: 69.9 degrees
Relative Humidity: 53%
Test Velocity: 4.29 m/s

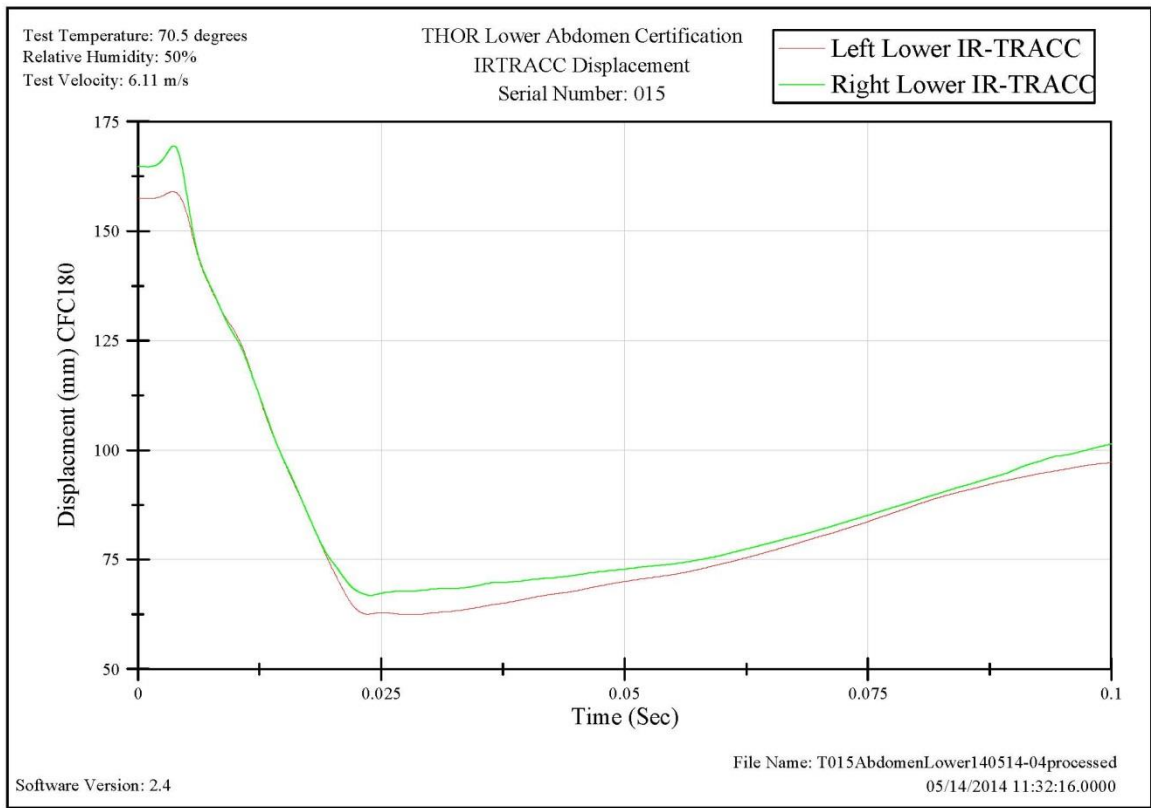
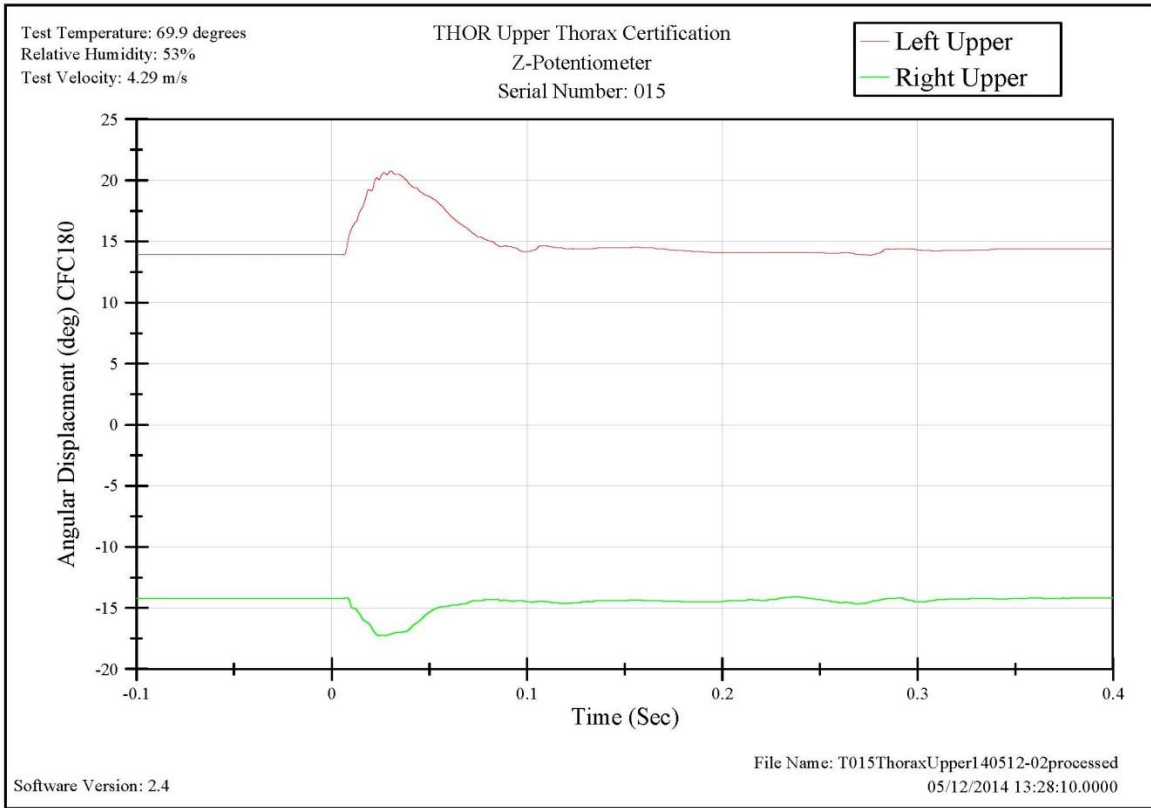
THOR Upper Thorax Certification
Thorax Response With Kroell Corridor
Serial Number: 015

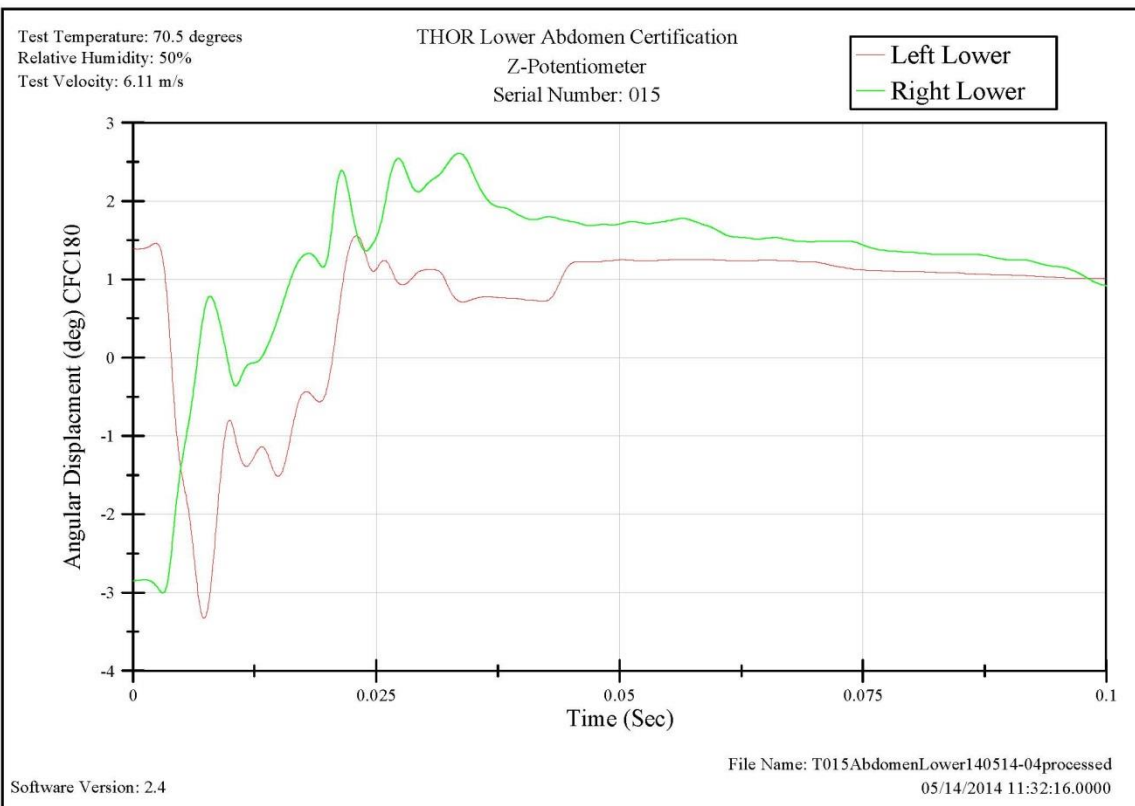
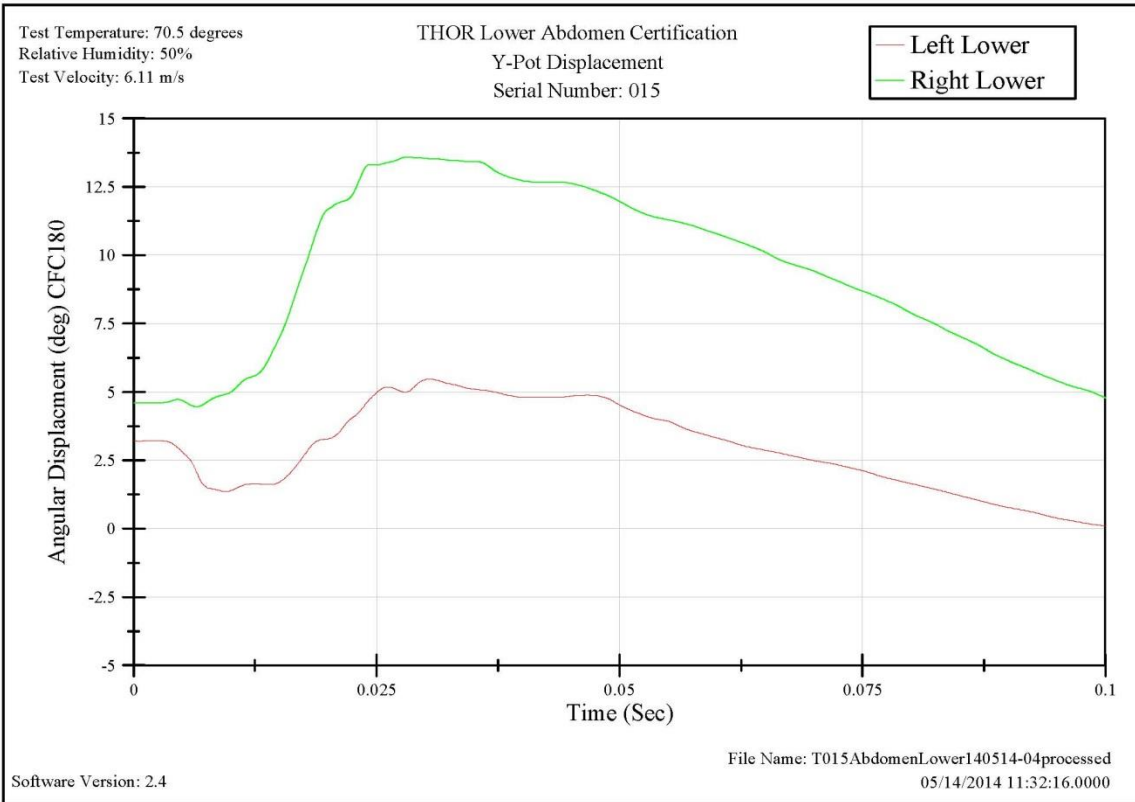


File Name: T015ThoraxUpper140512-02processed
05/12/2014 13:28:10.0000

Software Version: 2.4

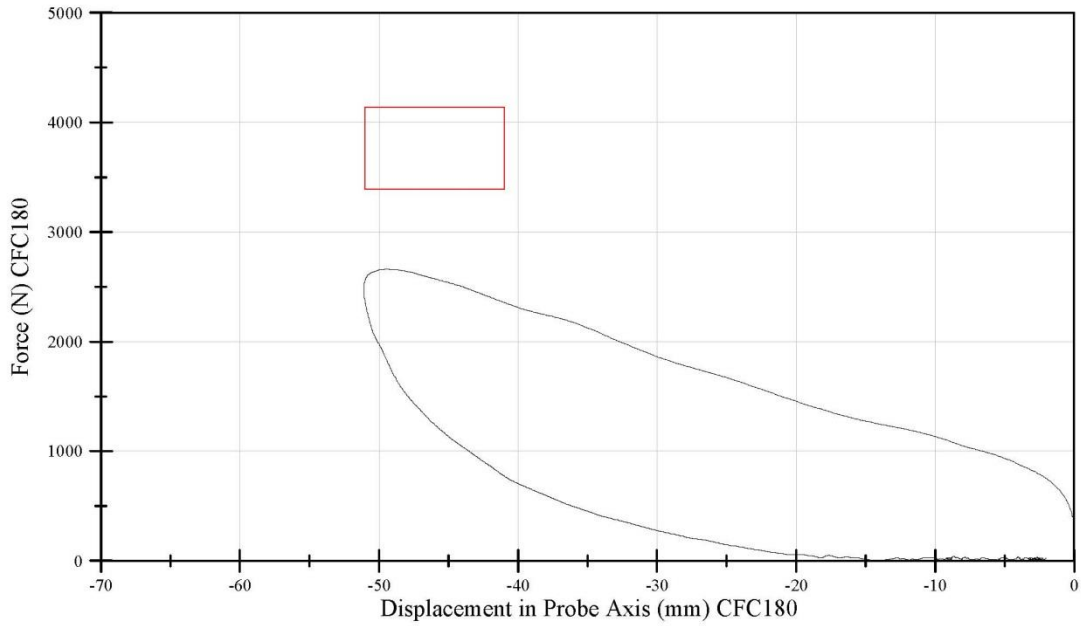






Test Temperature: 70.2 degrees
Relative Humidity: 54%
Test Velocity: 4.26 m/s

THOR Lower Left Oblique Thorax Certification
Thorax Displacement vs. Probe Force
Serial Number: 015



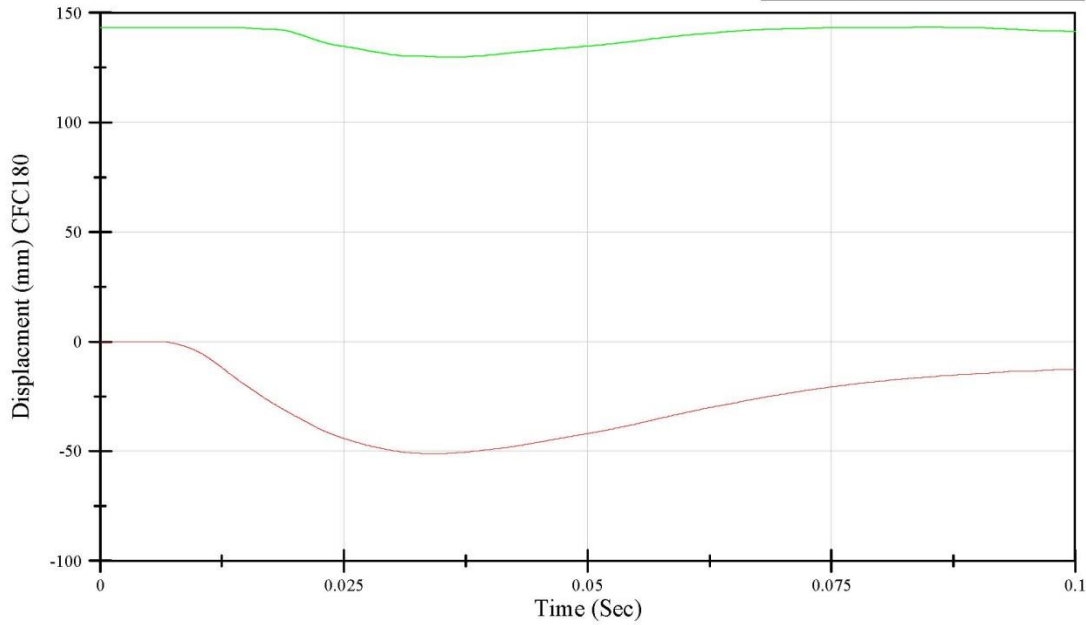
Software Version: 2.4

File Name: T015Lowerleft140513-01processed
05/13/2014 09:25:48.0000

Test Temperature: 70.2 degrees
Relative Humidity: 54%
Test Velocity: 4.26 m/s

THOR Lower Left Oblique Thorax Certification
Scaled IR-TRACC
Serial Number: 015

Left Lower IR-TRACC
Right Lower IR-TRACC

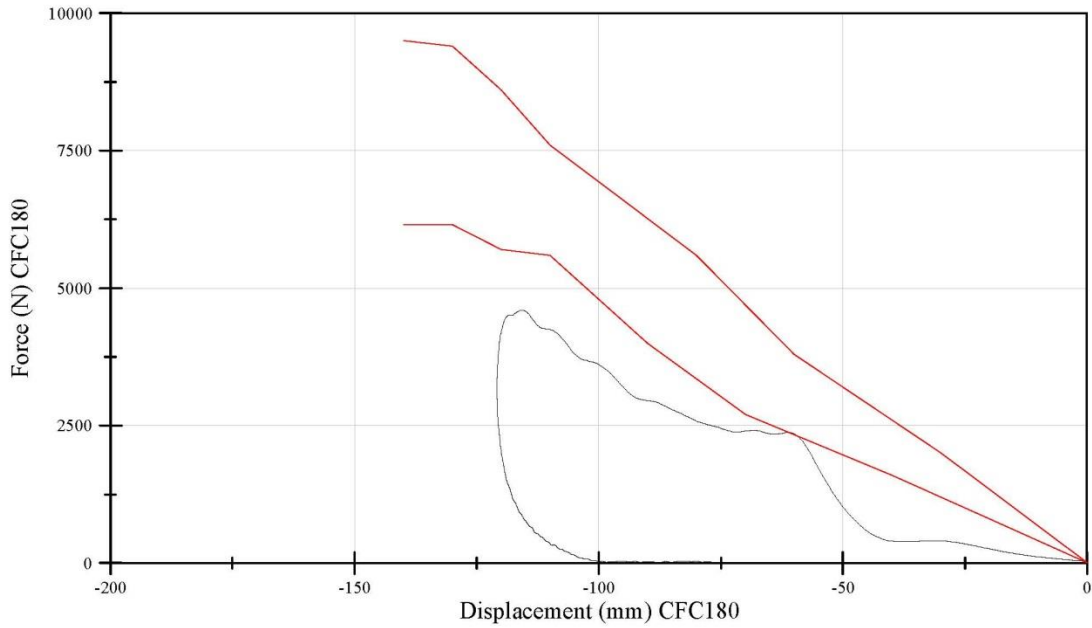


Software Version: 2.4

File Name: T015Lowerleft140513-01processed
05/13/2014 09:25:48.0000

Test Temperature: 68.9 degrees
Relative Humidity: 51%
Test Velocity: 6.64 m/s

THOR Upper Abdomen Certification
Abdomen Displacement vs. Probe Force
Serial Number: 015

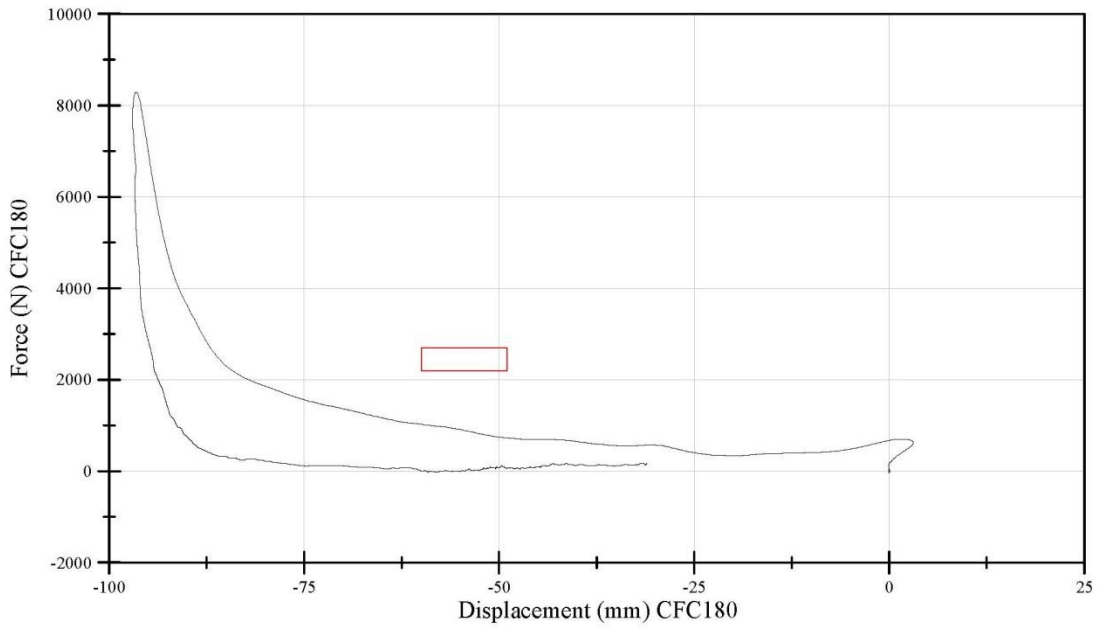


Software Version: 2.4

File Name: THFR-04
05/08/2014 14:50:17.0000

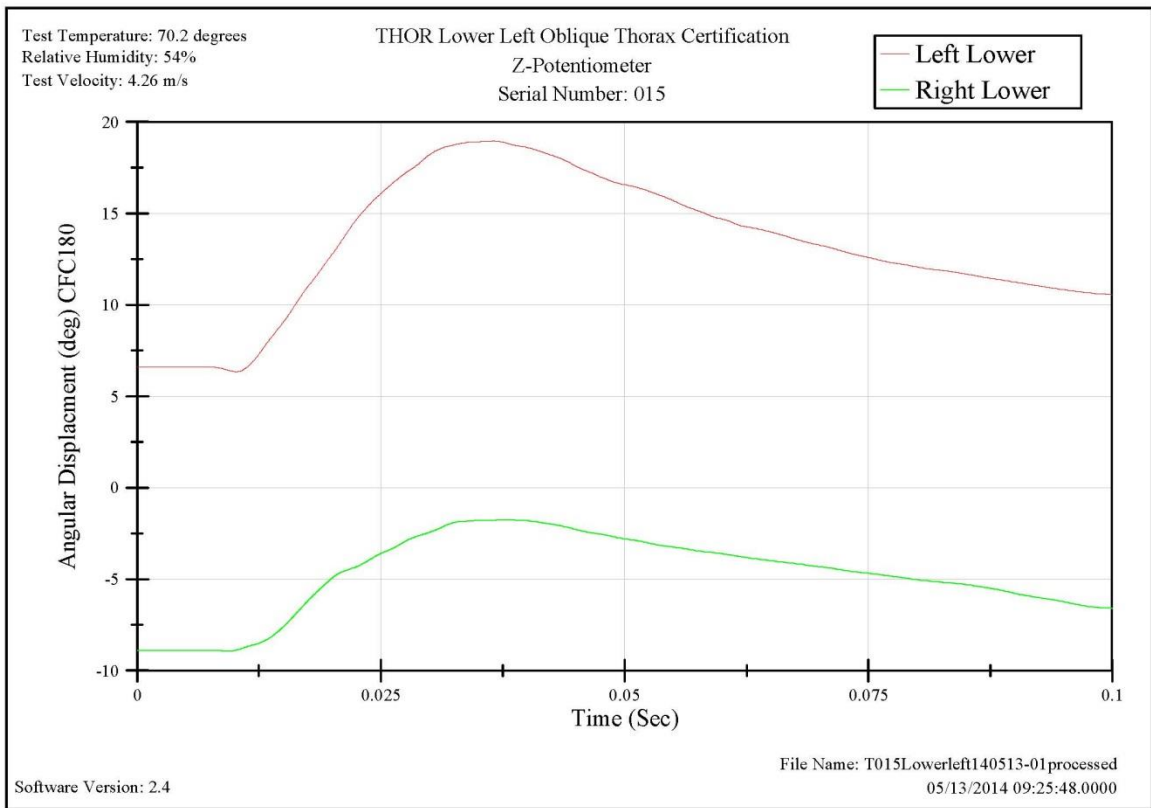
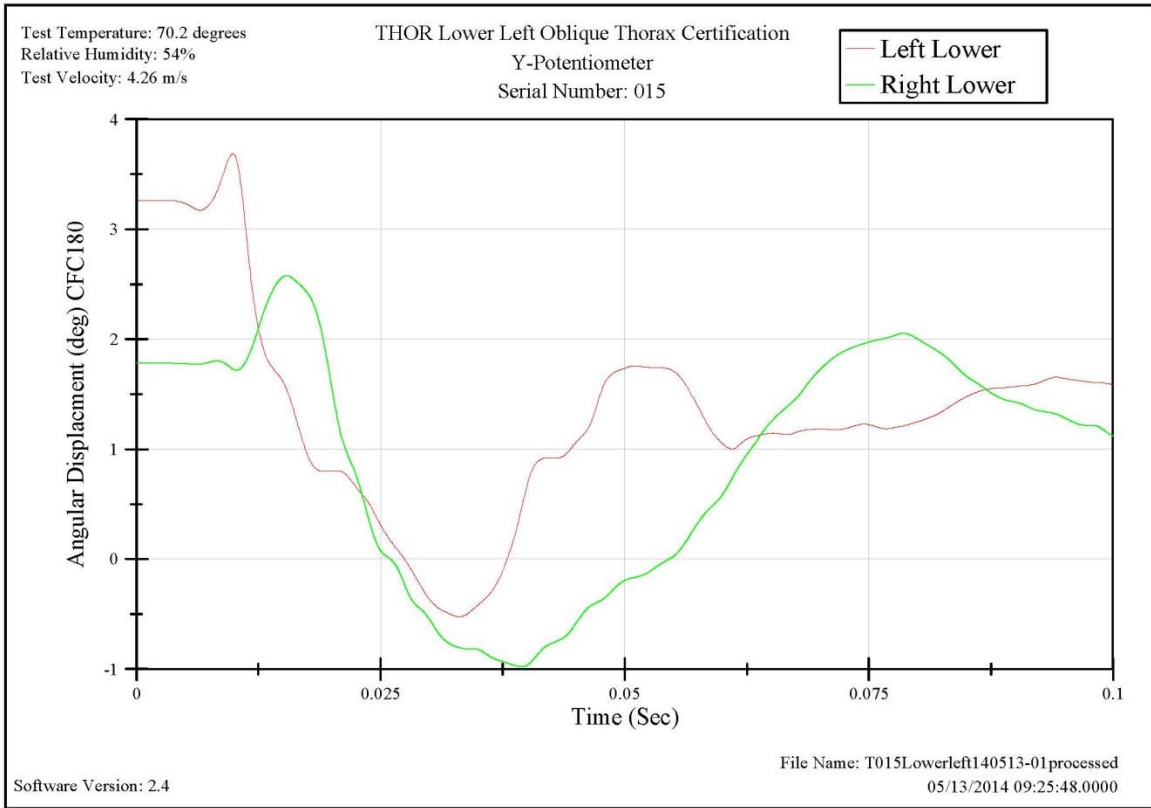
Test Temperature: 70.5 degrees
Relative Humidity: 50%
Test Velocity: 6.11 m/s

THOR Lower Abdomen Certification
Abdomen Displacement vs. Probe Force
Serial Number: 015



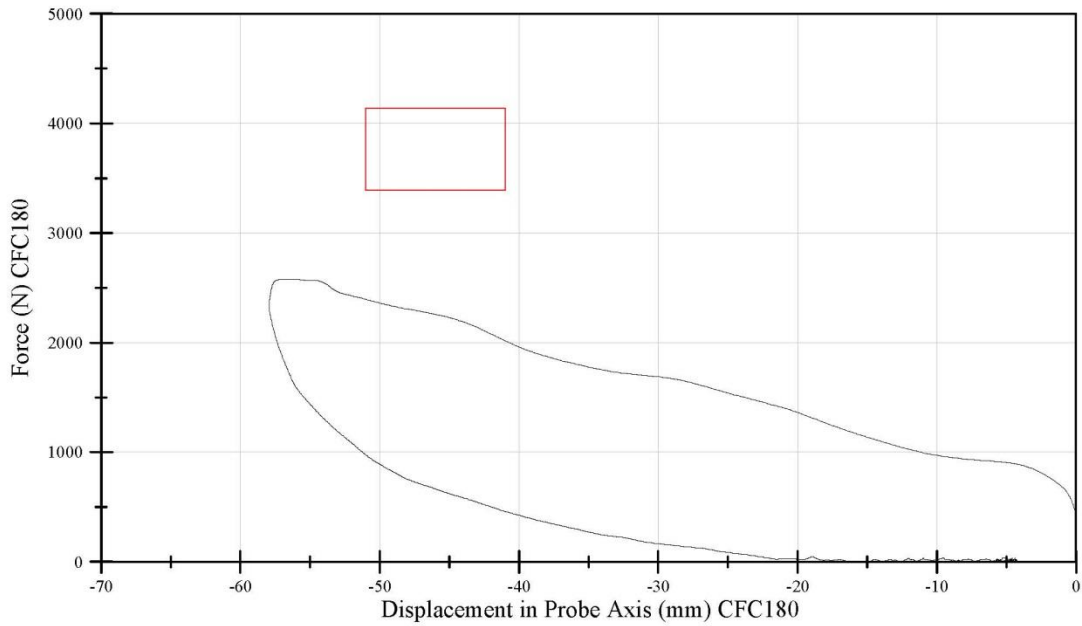
Software Version: 2.4

File Name: T015AbdomenLower140514-04processed
05/14/2014 11:32:16.0000



Test Temperature: 69.7 degrees
Relative Humidity: 55%
Test Velocity: 4.31 m/s

THOR Lower Right Oblique Thorax Certification
Thorax Displacement vs. Probe Force
Serial Number: 015

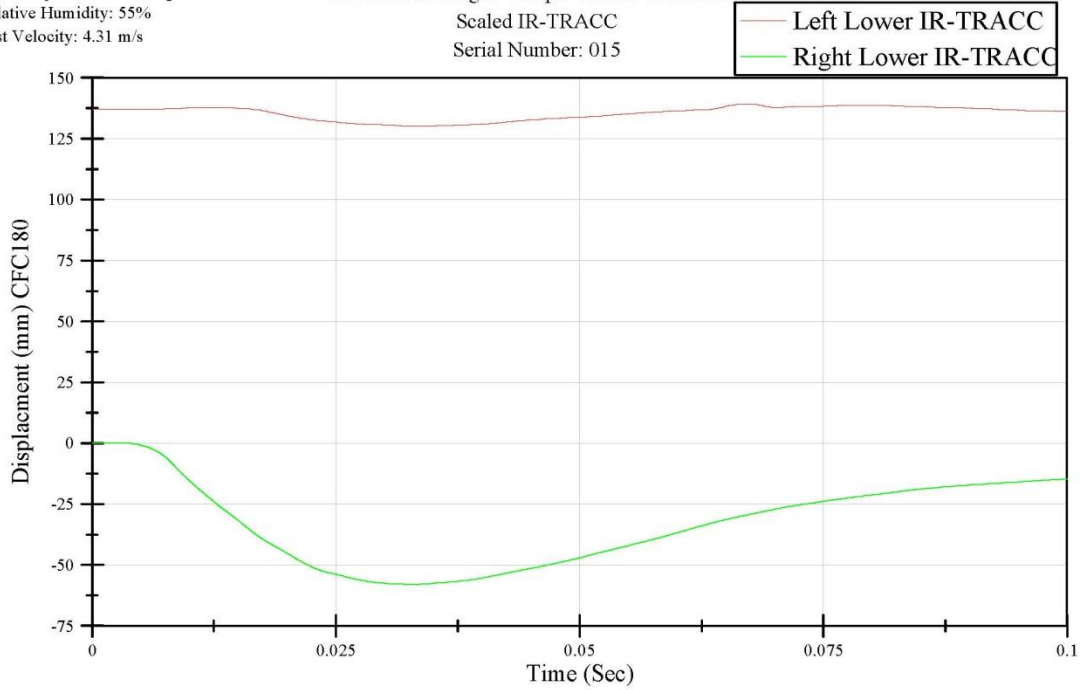


Software Version: 2.4

File Name: T015LowerRight140513-02processed
05/13/2014 08:48:48.0000

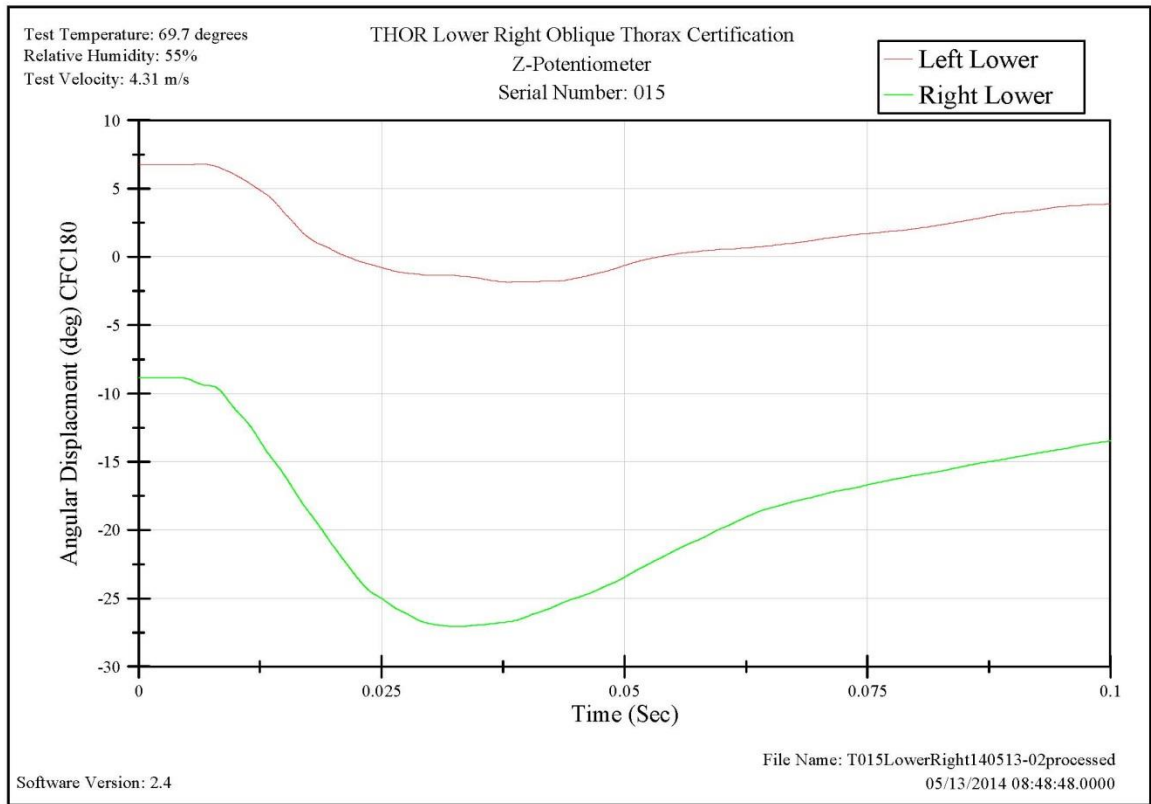
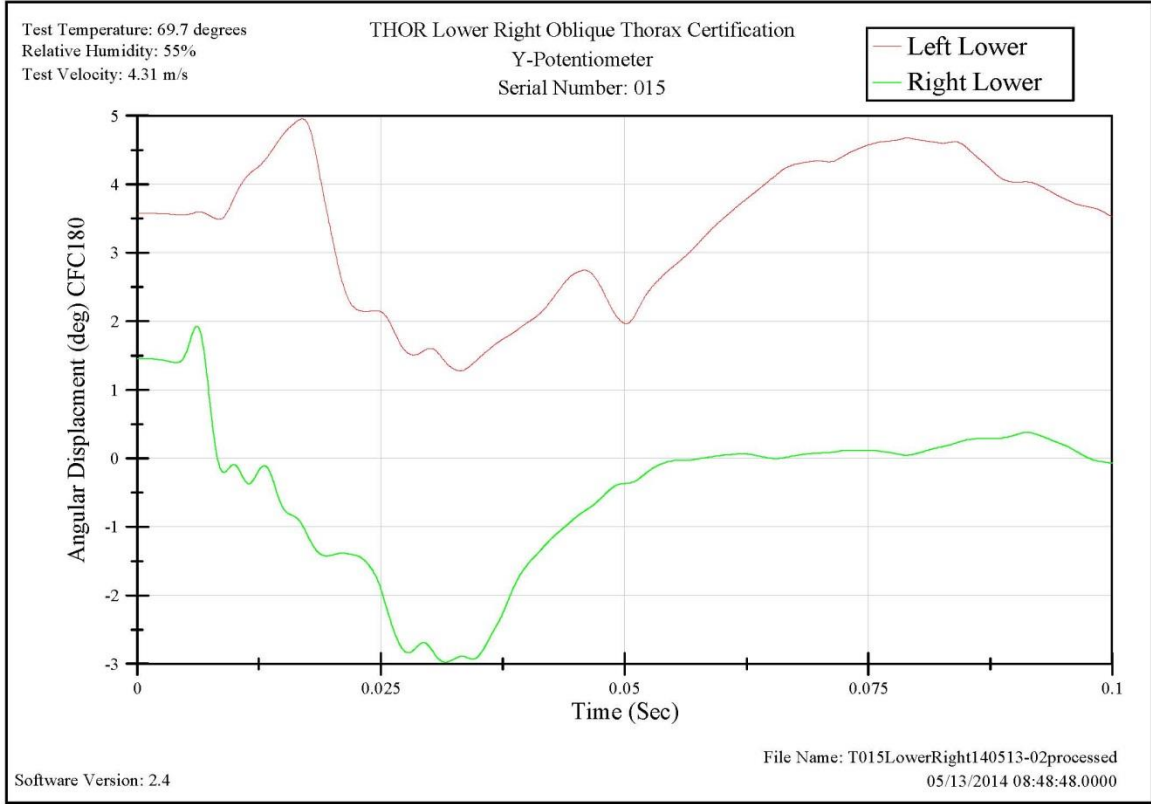
Test Temperature: 69.7 degrees
Relative Humidity: 55%
Test Velocity: 4.31 m/s

THOR Lower Right Oblique Thorax Certification
Scaled IR-TRACC
Serial Number: 015



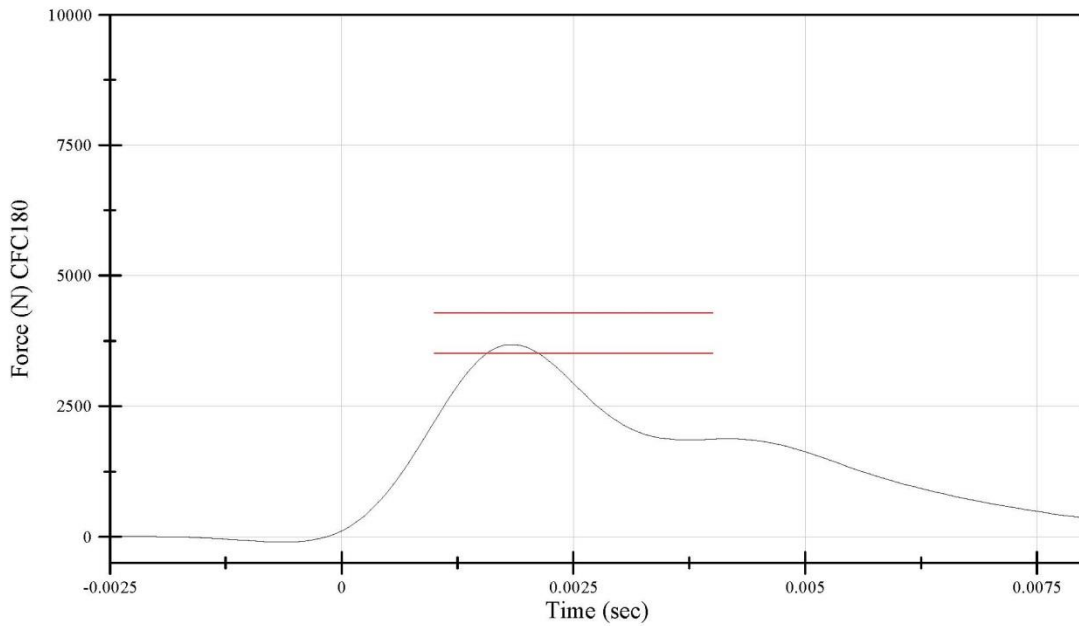
Software Version: 2.4

File Name: T015LowerRight140513-02processed
05/13/2014 08:48:48.0000



Test Temperature: 69.9 degrees
Relative Humidity: 53%
Test Velocity: 2.65 m/s

THOR Left Femur Certification
Probe Force
Serial Number: 015

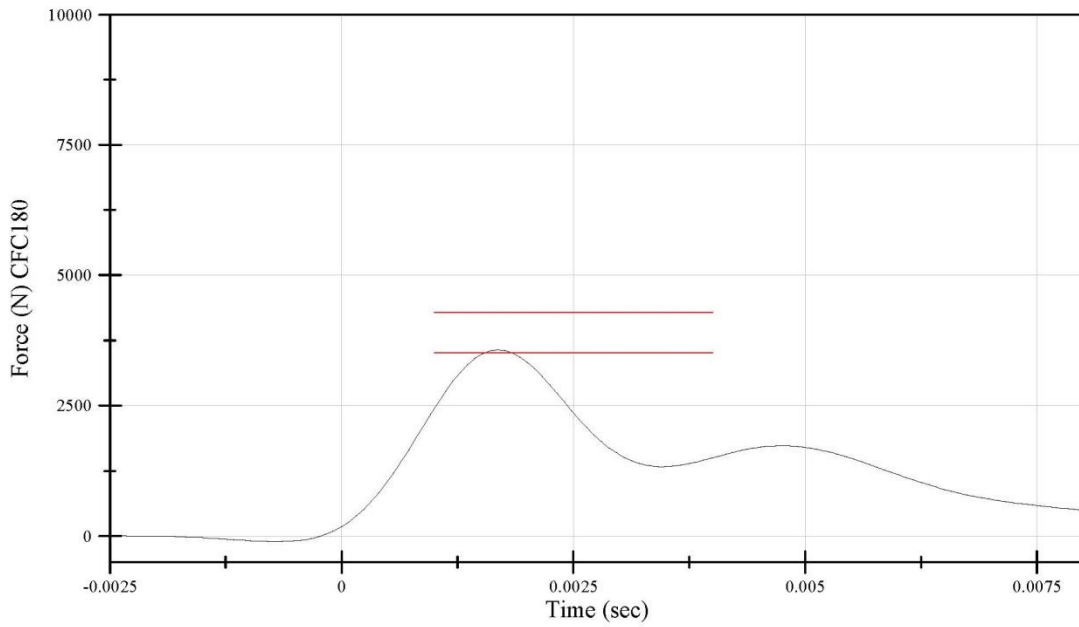


Software Version: 2.4

File Name: T015LeftKnee140514-02 time correctedprocessed
05/14/2014 15:13:25.0000

Test Temperature: 71.6 degrees
Relative Humidity: 50%
Test Velocity: 2.62 m/s

THOR Right Femur Certification
Probe Force
Serial Number: 015

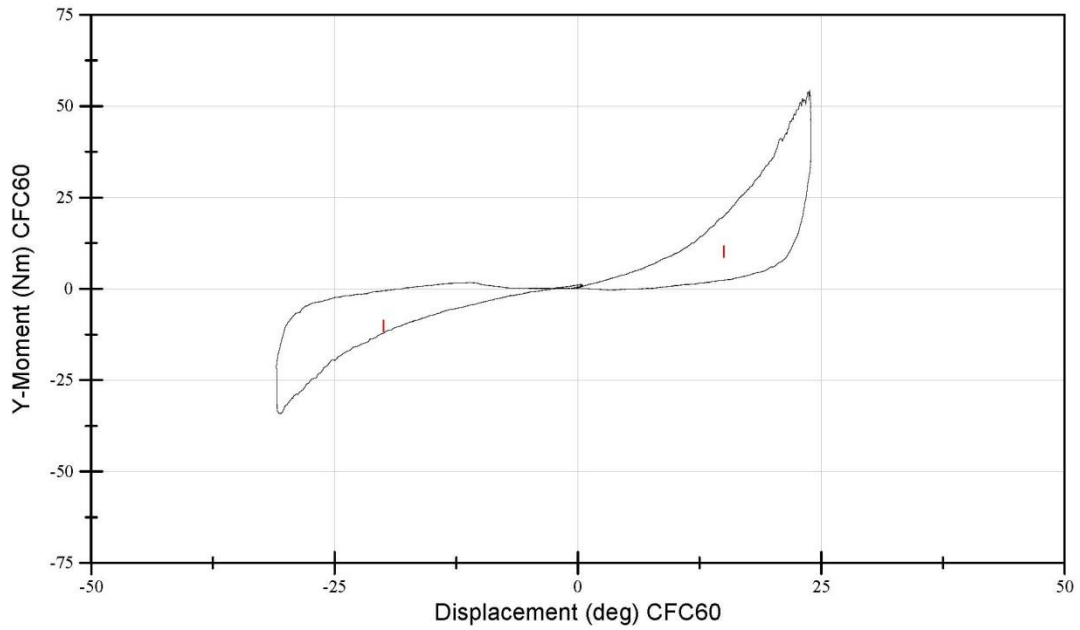


Software Version: 2.4

File Name: T015RightKnee140514-01processed
05/14/2014 15:28:10.0000

Test Temperature: 71 degrees
Relative Humidity: 35%
Test Velocity: 0 m/s

THOR Occipital Condyle Quasi-Static Certification
Displacement vs. Torque
Serial Number: T015



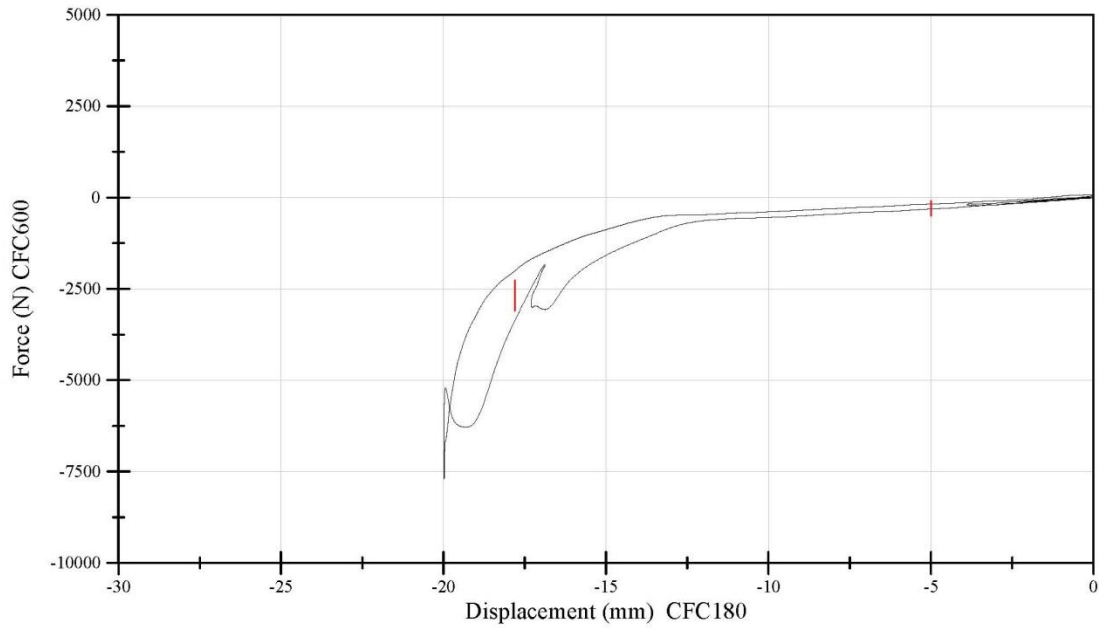
Software Version: 2.4

File Name: T015OC050814_01_DIADEMHeader_BINARYpatrick
05/08/2014 08:51:05.0000

**THOR 015 LEG CALIBRATIONS
LX0039 / LX0038**

Test Temperature: 71.6 degrees
Relative Humidity: 31.8%
Test Velocity: 2.78 m/s

THOR Knee Certification
Femur Force vs. Knee Displacement
Serial Number: LX0038

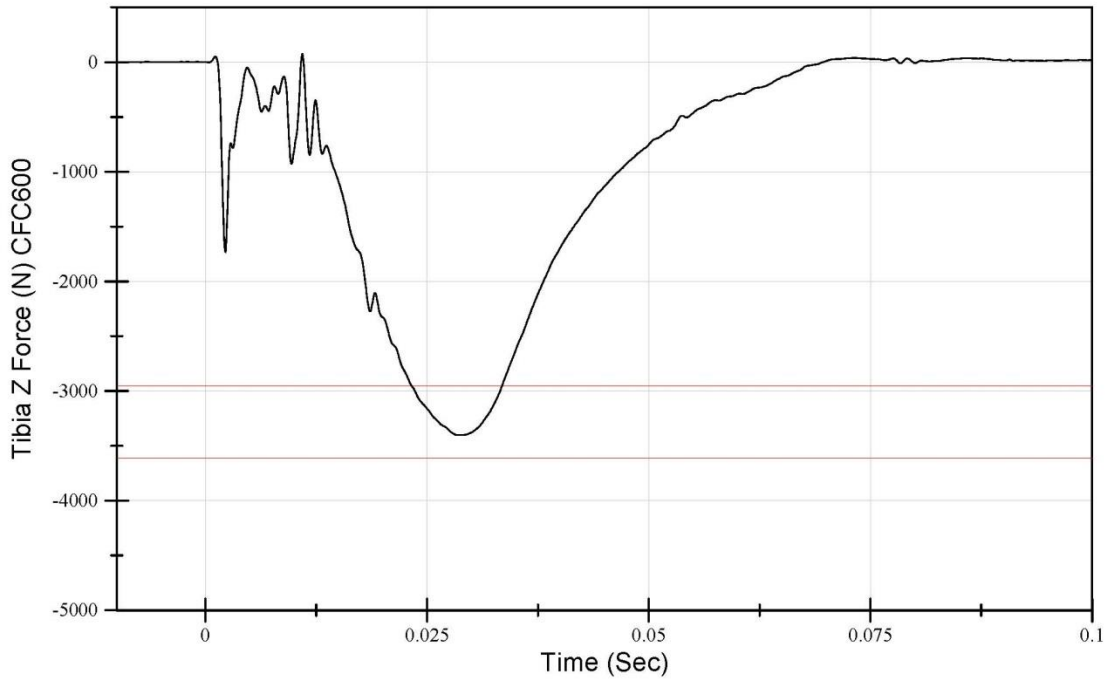


Software Version: 2.4

File Name: I1807966BKnee140424_01_DIAdemHeader_BINARYprocessed
04/24/2014 11:40:26.0000

Test Temperature: 71.2 degrees
Relative Humidity: 32%
Test Velocity: 5.03 m/s

THOR Right Foot Dorsiflexion Certification
Tibia Load
Serial Number: LX0038

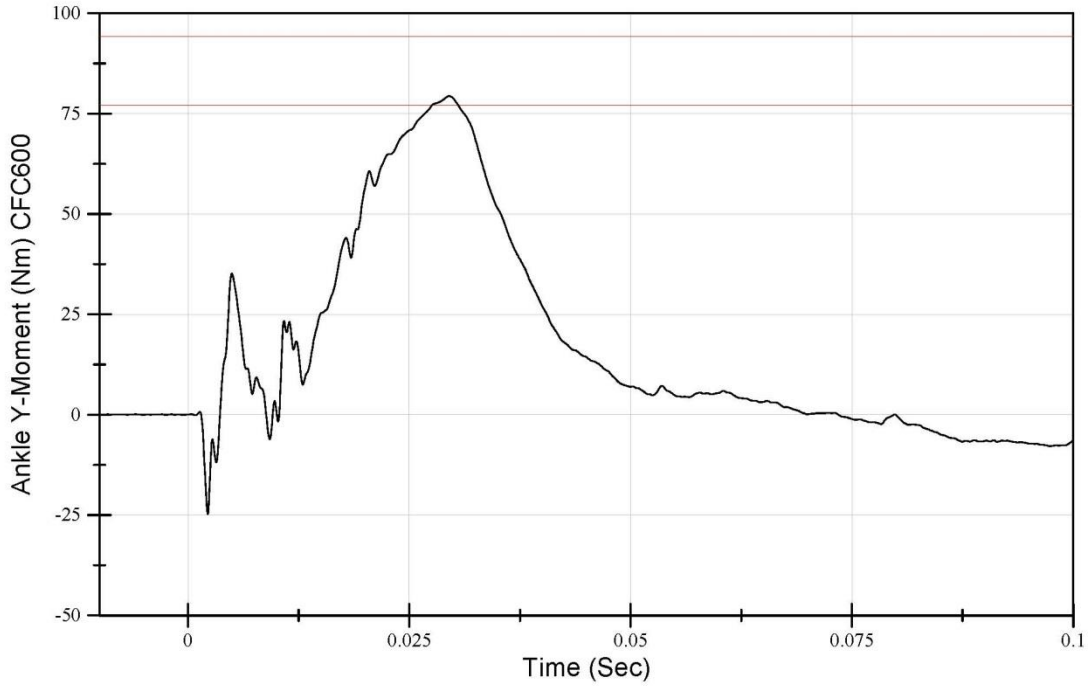


Software Version: 2.4

File Name: LX0038Ball140423_01_DIAdemHeader_BINARYprocessed
04/23/2014 11:20:29.0000

Test Temperature: 71.2 degrees
Relative Humidity: 32%
Test Velocity: 5.03 m/s

THOR Right Foot Dorsiflexion Certification
Ankle Y-Moment
Serial Number: LX0038

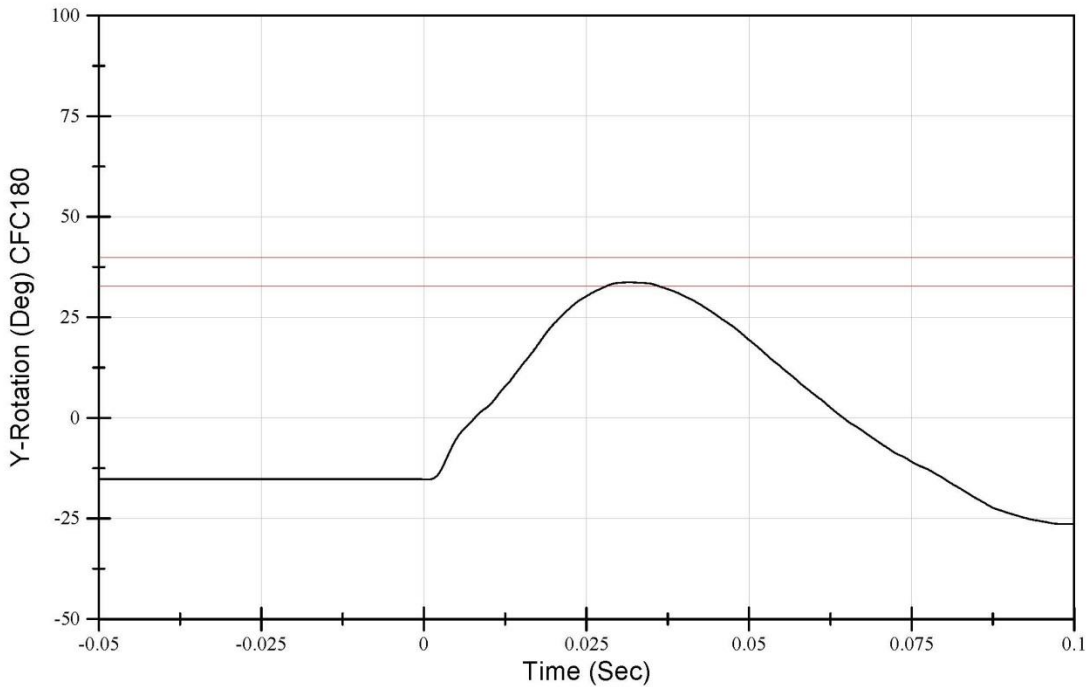


Software Version: 2.4

File Name: LX0038Ball140423_01_DIAdemHeader_BINARYprocessed
04/23/2014 11:20:29.0000

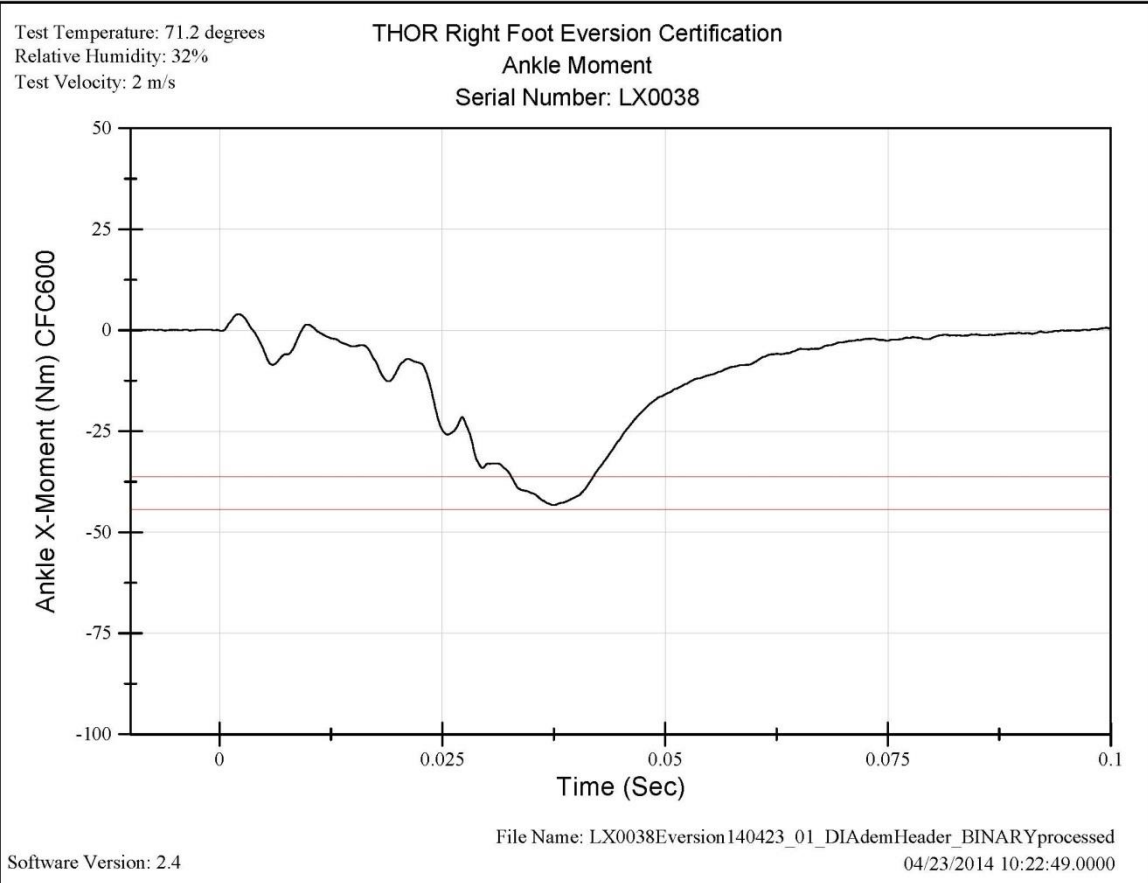
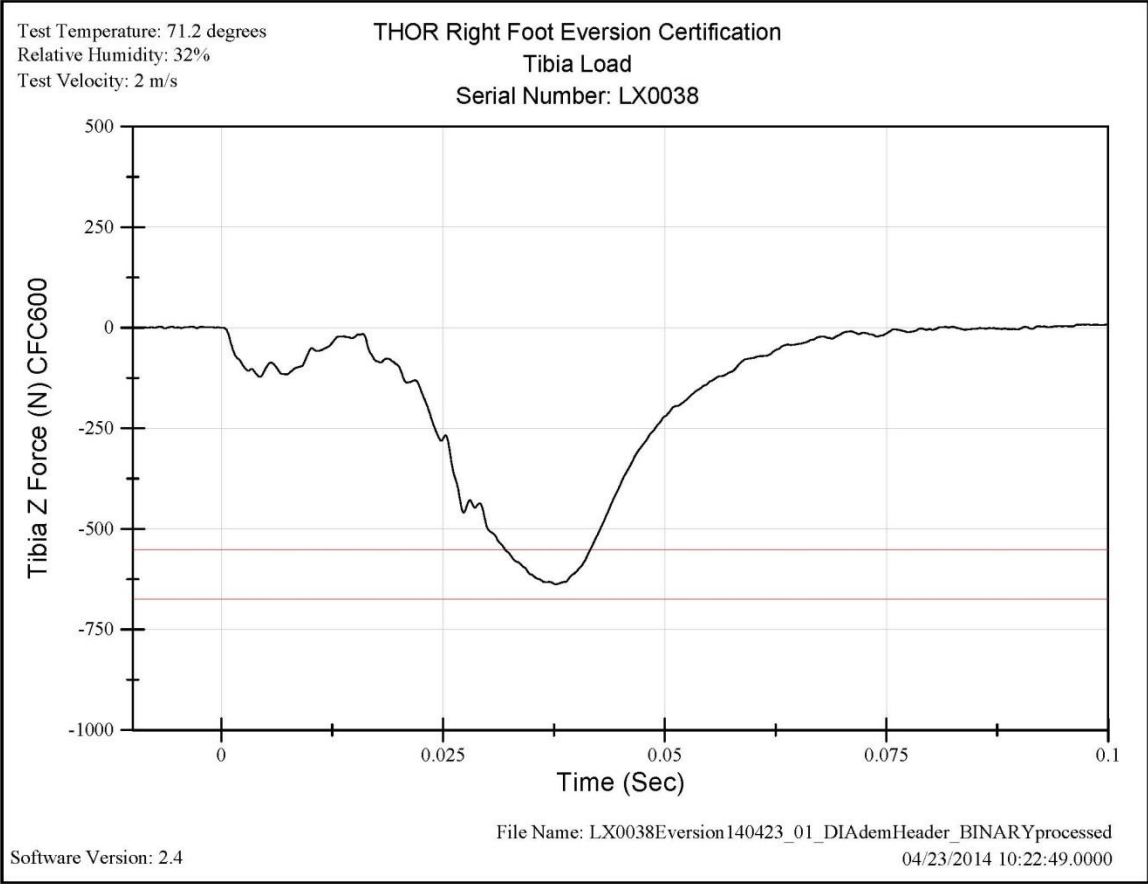
Test Temperature: 71.2 degrees
Relative Humidity: 32%
Test Velocity: 5.03 m/s

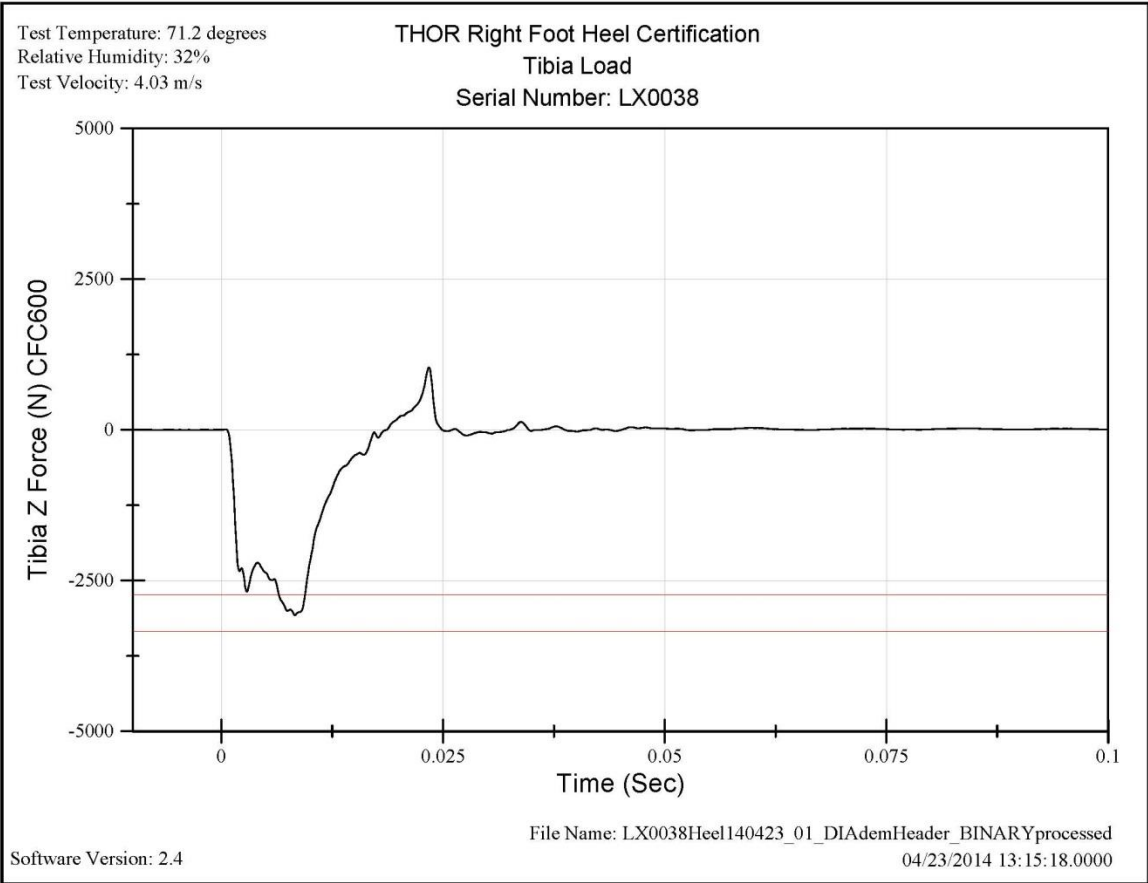
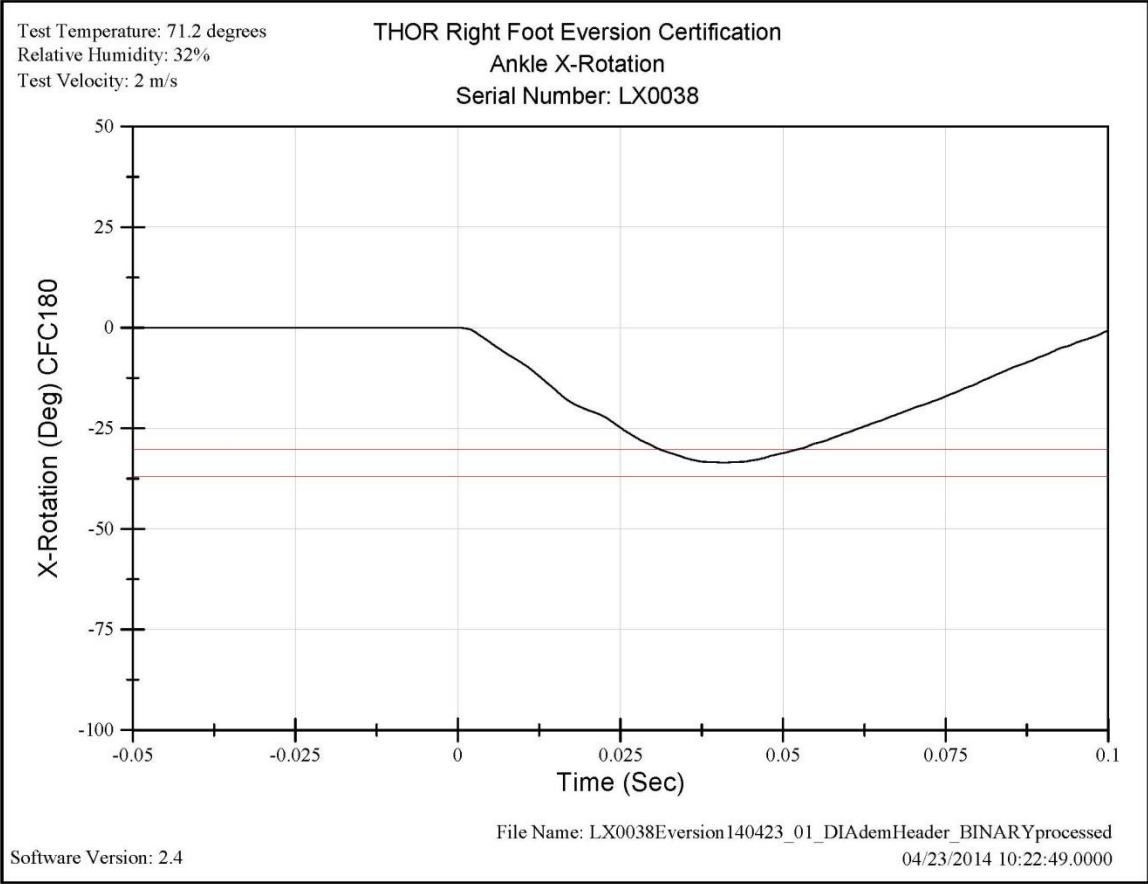
THOR Right Foot Dorsiflexion Certification
Ankle Y-Rotation
Serial Number: LX0038

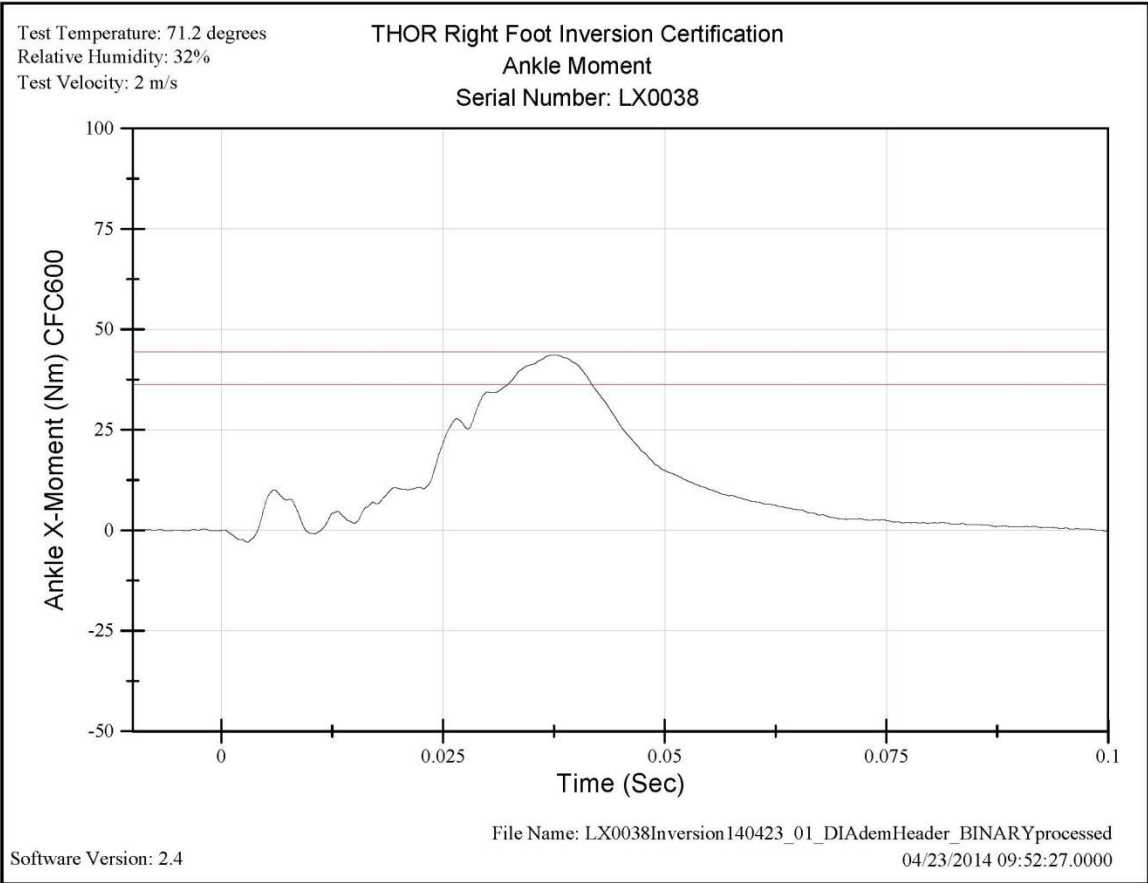
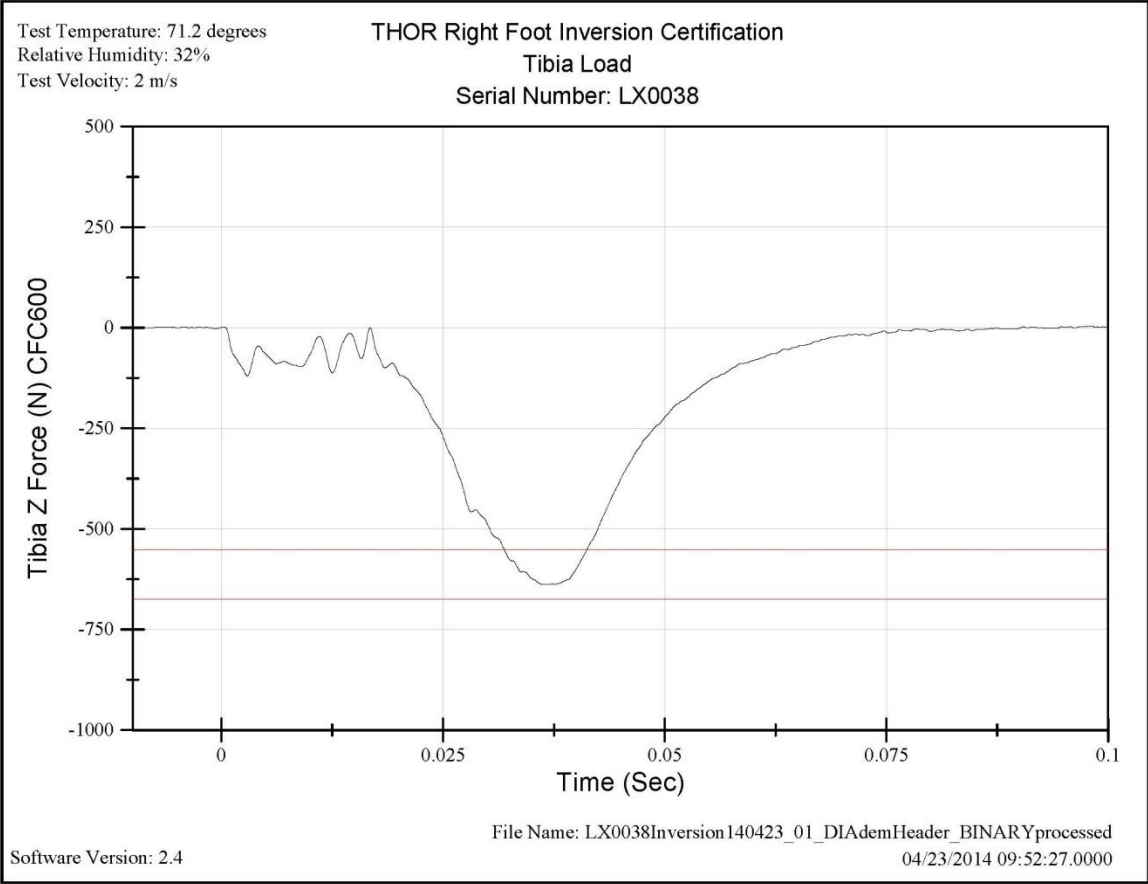


Software Version: 2.4

File Name: LX0038Ball140423_01_DIAdemHeader_BINARYprocessed
04/23/2014 11:20:29.0000

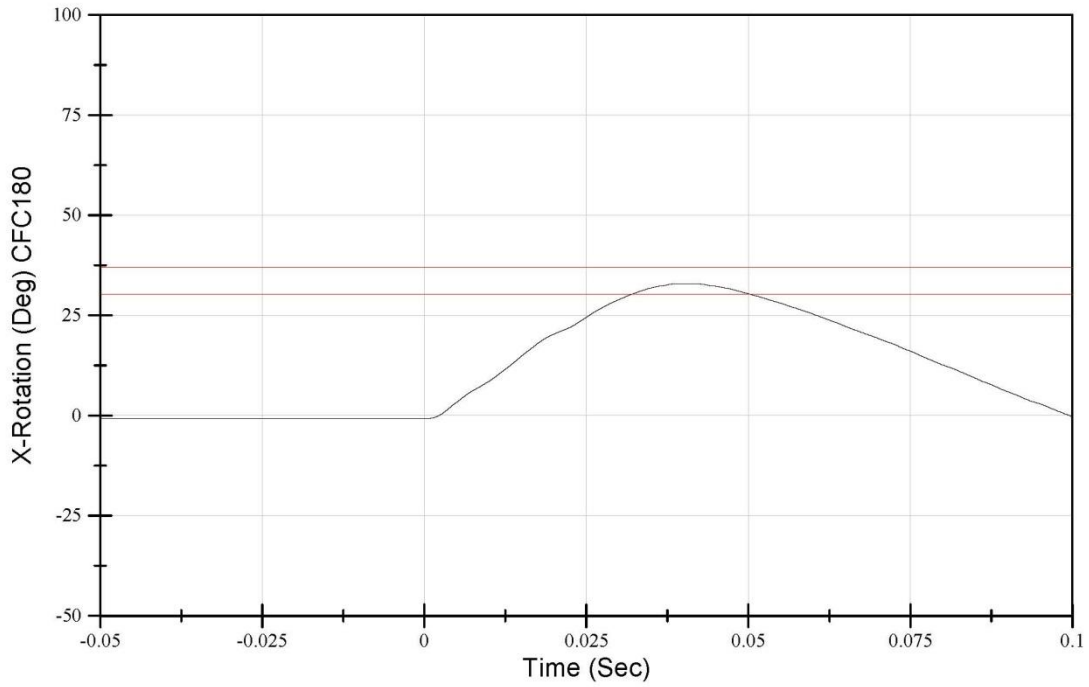






Test Temperature: 71.2 degrees
Relative Humidity: 32%
Test Velocity: 2 m/s

THOR Right Foot Inversion Certification
Ankle X-Rotation
Serial Number: LX0038

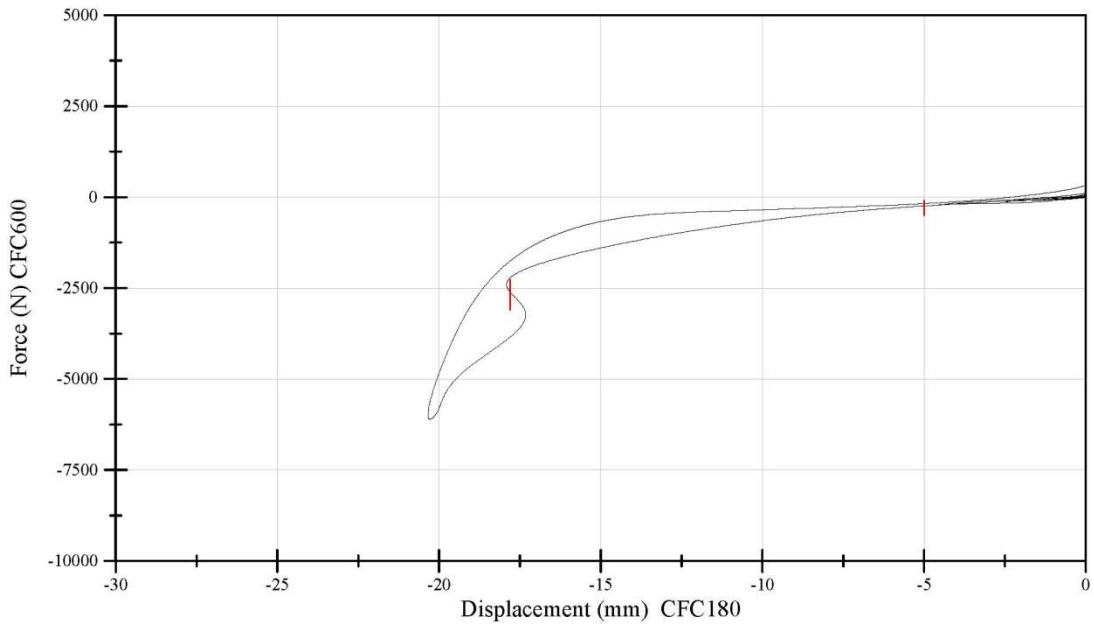


Software Version: 2.4

File Name: LX0038Inversion140423_01_DIAdemHeader_BINARYprocessed
04/23/2014 09:52:27.0000

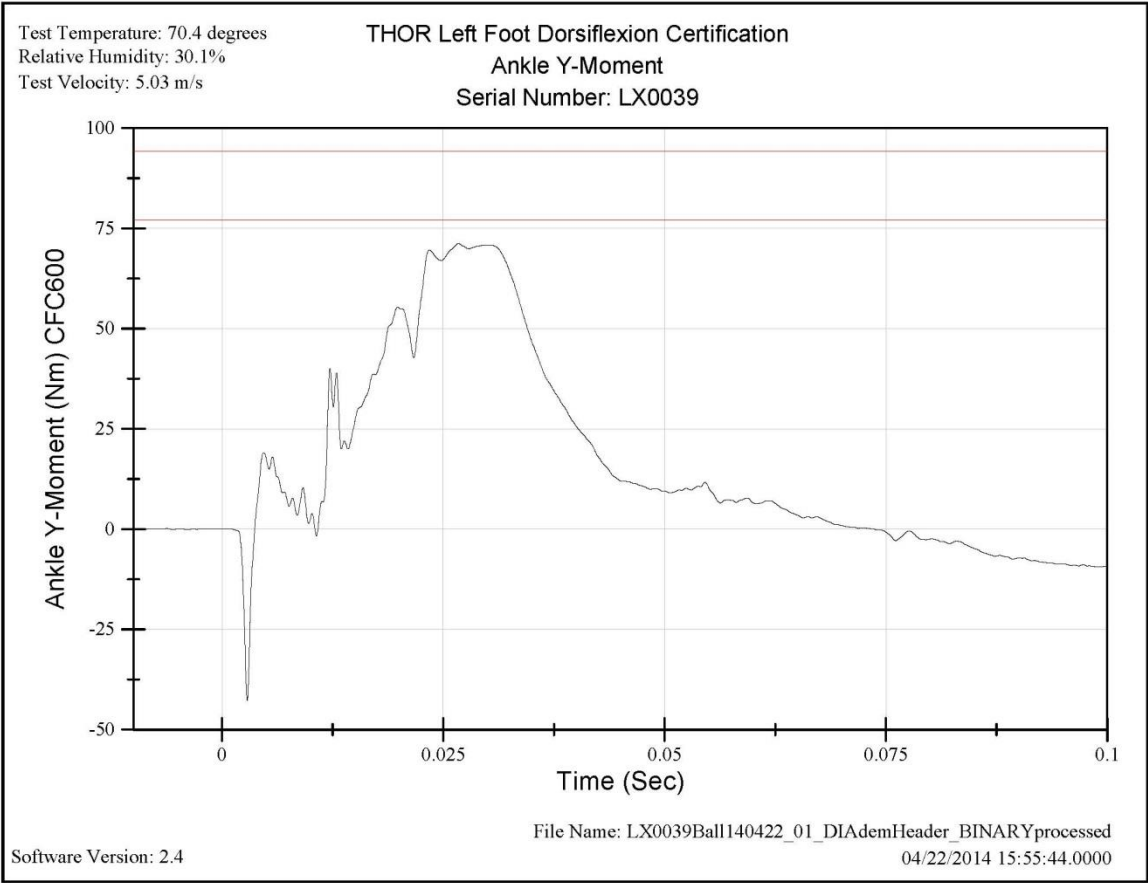
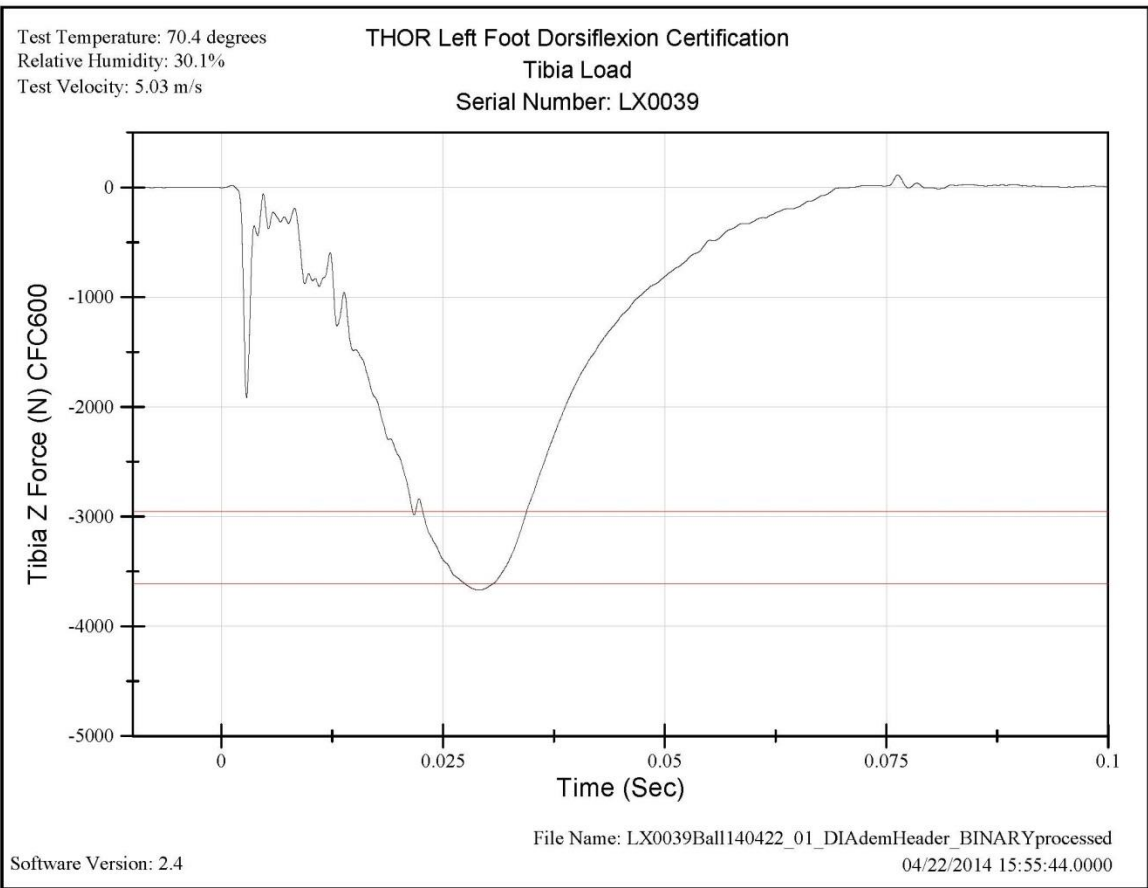
Test Temperature: 71.6 degrees
Relative Humidity: 31.8%
Test Velocity: 2.78 m/s

THOR Left Knee Certification
Femur Force vs. Knee Displacement
Serial Number: LX0039



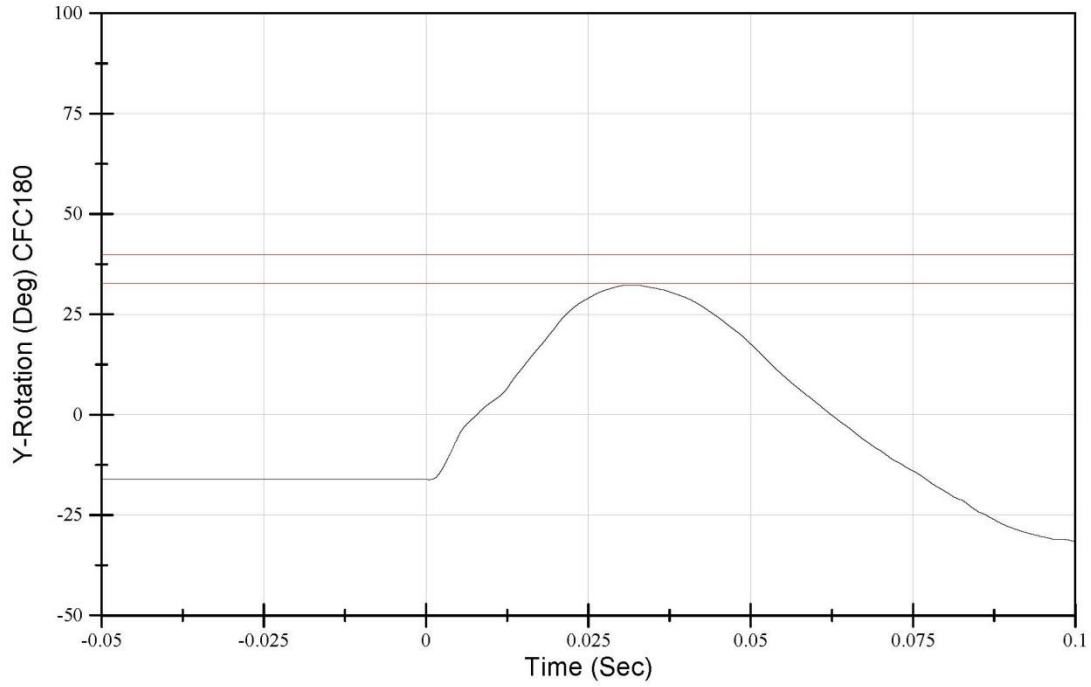
Software Version: 2.4

File Name: C2102639BKnee140424_01_DIAdemHeader_BINARYISOpcessed
04/24/2014 10:59:41.0000



Test Temperature: 70.4 degrees
Relative Humidity: 30.1%
Test Velocity: 5.03 m/s

THOR Left Foot Dorsiflexion Certification
Ankle Y-Rotation
Serial Number: LX0039

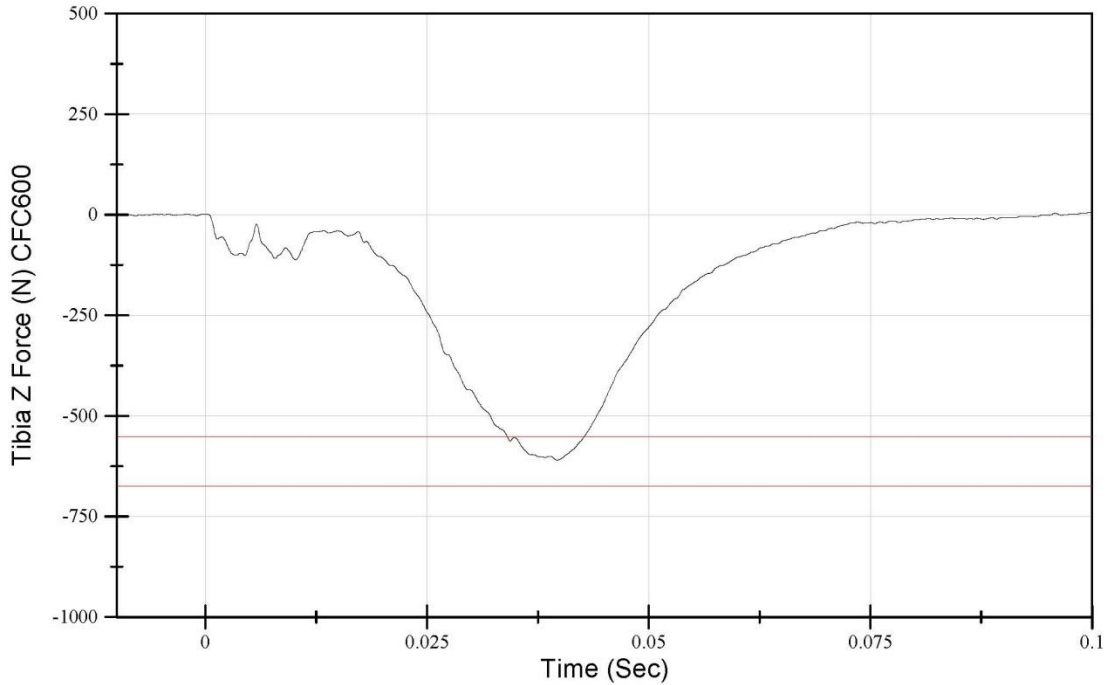


Software Version: 2.4

File Name: LX0039Ball140422_01_DIAdemHeader_BINARYprocessed
04/22/2014 15:55:44.0000

Test Temperature: 71.2 degrees
Relative Humidity: 30.4%
Test Velocity: 2 m/s

THOR Left Foot Eversion Certification
Tibia Load
Serial Number: LX0039

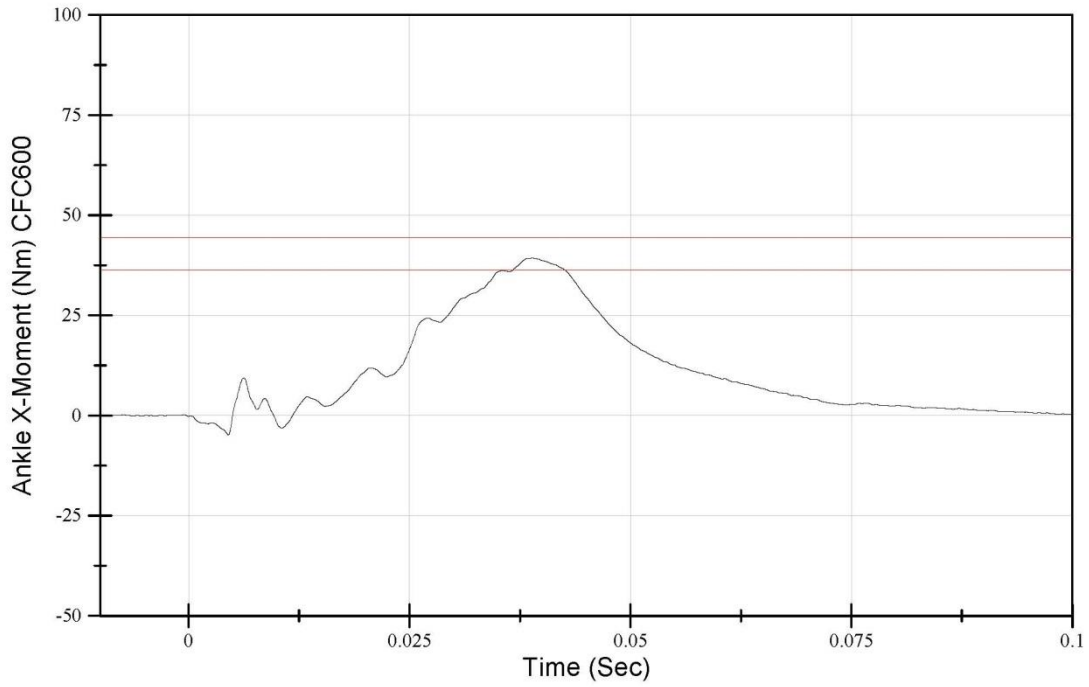


Software Version: 2.4

File Name: LX0039Eversion140422_01_DIAdemHeader_BINARYprocessed
04/22/2014 15:14:32.0000

Test Temperature: 71.2 degrees
Relative Humidity: 30.4%
Test Velocity: 2 m/s

THOR Left Foot Eversion Certification
Ankle Moment
Serial Number: LX0039

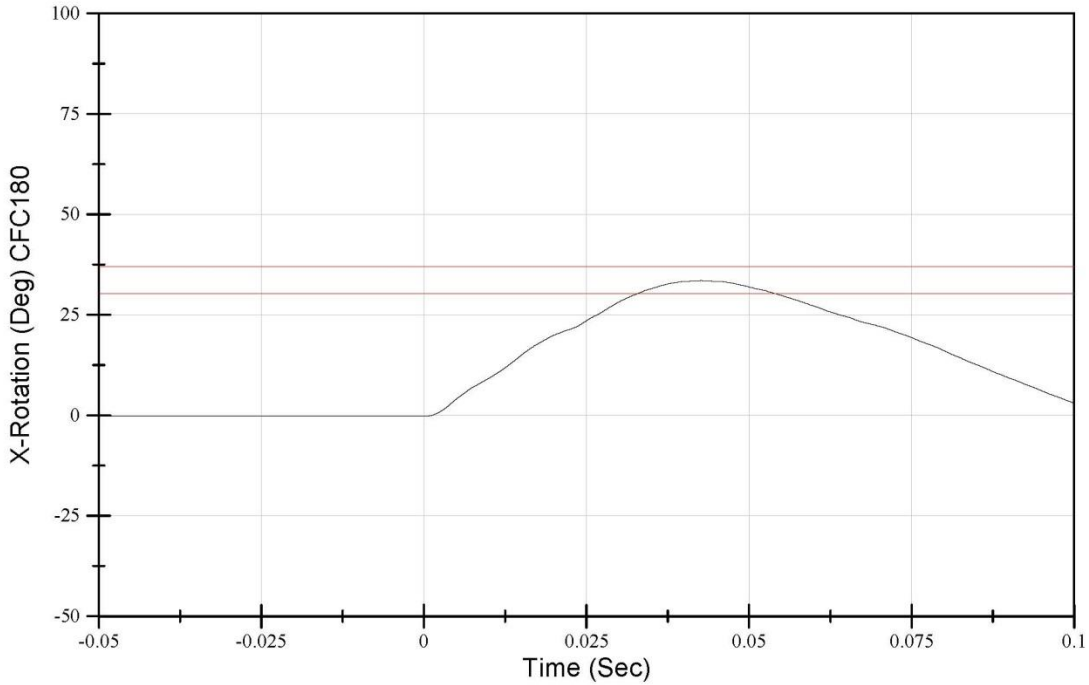


File Name: LX0039Eversion140422_01_DIAdemHeader_BINARYprocessed
04/22/2014 15:14:32.0000

Software Version: 2.4

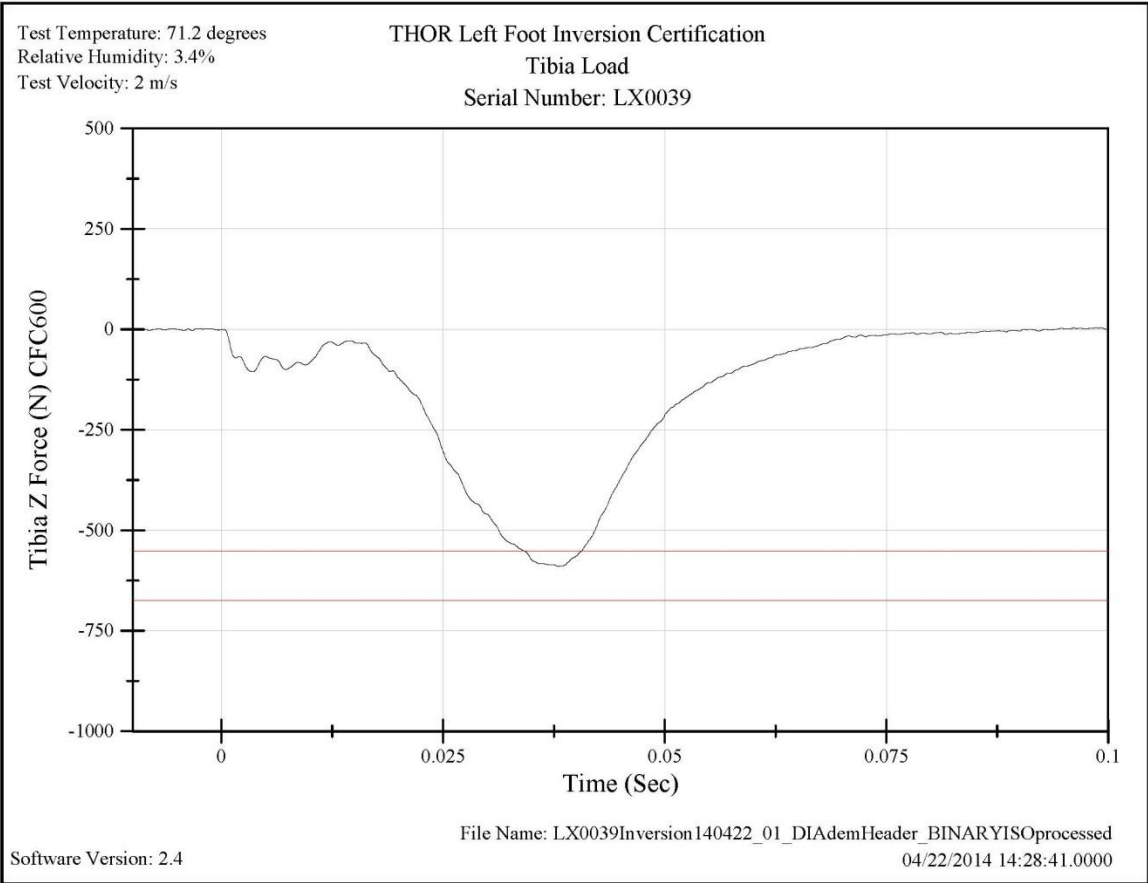
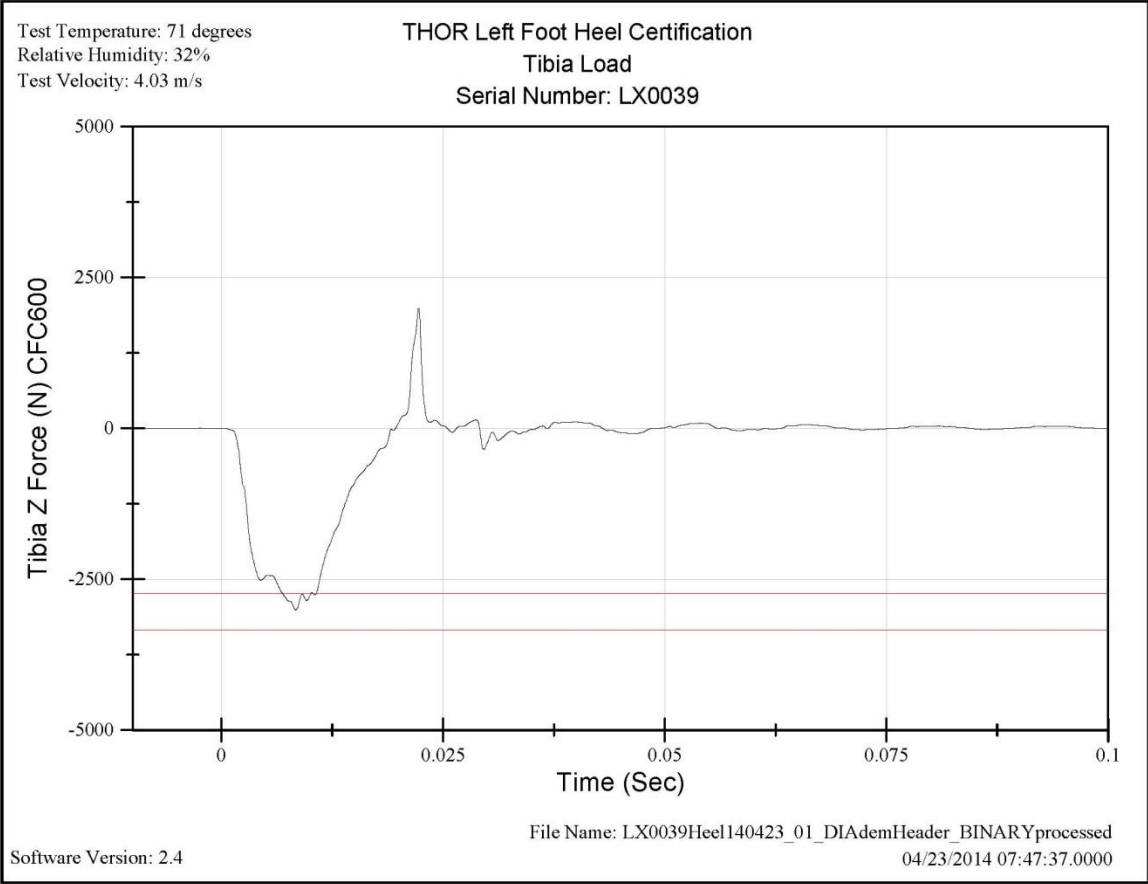
Test Temperature: 71.2 degrees
Relative Humidity: 30.4%
Test Velocity: 2 m/s

THOR Left Foot Eversion Certification
Ankle X-Rotation
Serial Number: LX0039



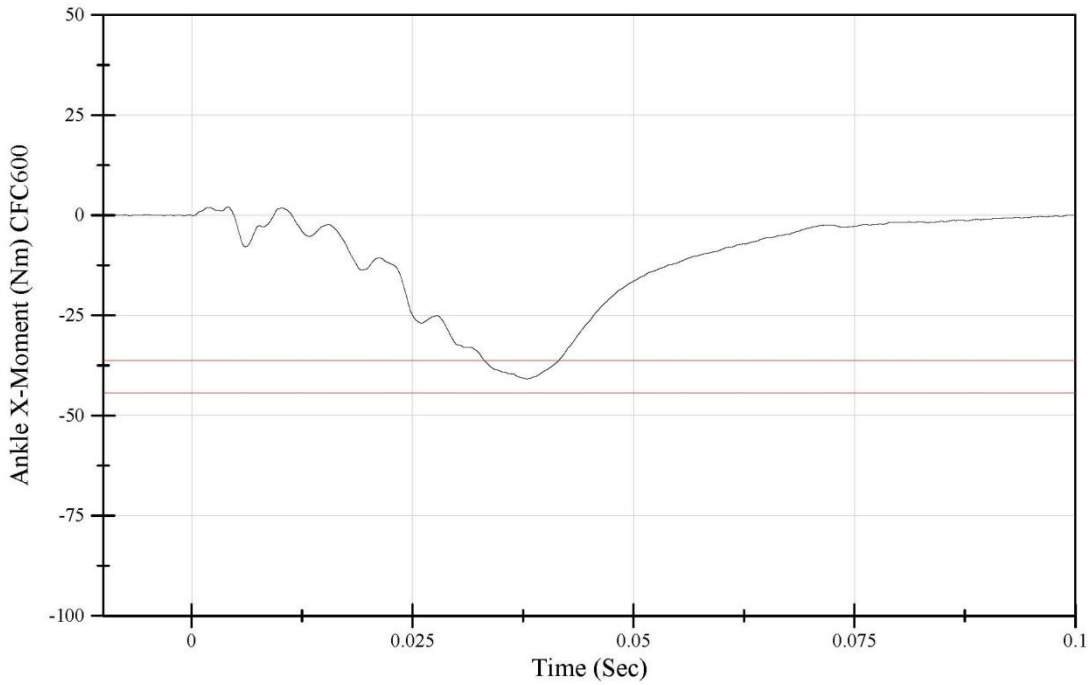
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Software Version: 2.4



Test Temperature: 71.2 degrees
Relative Humidity: 3.4%
Test Velocity: 2 m/s

THOR Left Foot Inversion Certification
Ankle Moment
Serial Number: LX0039

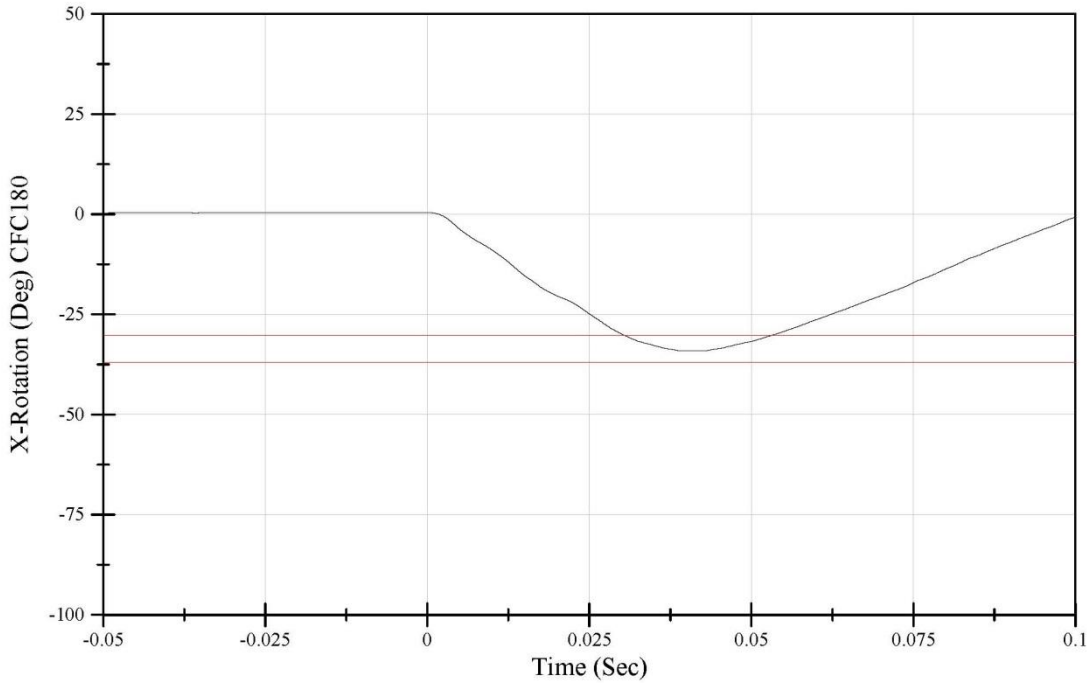


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04/22/2014 14:28:41.0000

Software Version: 2.4

Test Temperature: 71.2 degrees
Relative Humidity: 3.4%
Test Velocity: 2 m/s

THOR Left Foot Inversion Certification
Ankle X-Rotation
Serial Number: LX0039



File Name: LX0039Inversion140422_01_DIAdemHeader_BINARYISOpcessed
04/22/2014 14:28:41.0000

Software Version: 2.4

APPENDIX D:
CMM MEASUREMENT PROCEDURES

Vehicle Coordinate System

The origin point of the VCS is a point 50 mm forward of the rear window glass or hatchback door onto the roof of the vehicle along the vehicle's lateral centerline. The ground is not used as a reference.

The following procedure was used to create the Vehicle Coordinate System (VCS):

- 1) Place the As Delivered vehicle on a flat surface.
- 2) Measure the width of the vehicle at the rear of the vehicle to establish a first center point.
- 3) Measure the width of the vehicle at the front of the vehicle to establish a second center point.
- 4) Using a vertical laser beam, connect the two points to establish the lateral centerline of the vehicle.
- 5) Establish a point 50 mm from the edge of the rear window glass or rear hatchback door frame at the intersection of the roof onto the roof to establish the VCS origin point.
- 6) Construct a line perpendicular to the lateral centerline of the vehicle from VCS origin point towards the C-pillar. Mark a point along this line that is on the C-pillar at the body crease line between the roof and pillar geometry. This will be reference point #2.
- 7) Construct another perpendicular line in the opposite direction from the lateral centerline of the vehicle that is the same distance from the centerline as reference point #2. This will be reference point #3.
- 8) The VCS origin point is defined as the following:
 - Positive X is from the VCS origin point to the front of the vehicle
 - Positive Y is from the driver side of the vehicle to the passenger side of the vehicle
 - Positive Z is from the VCS origin point of the vehicle to the bottom of the vehicle

Steering Column Reference Point

The Steering Column Reference point is the x, y, and z location of the geometric center of the steering wheel in the VCS.

Brake Pedal Reference Point

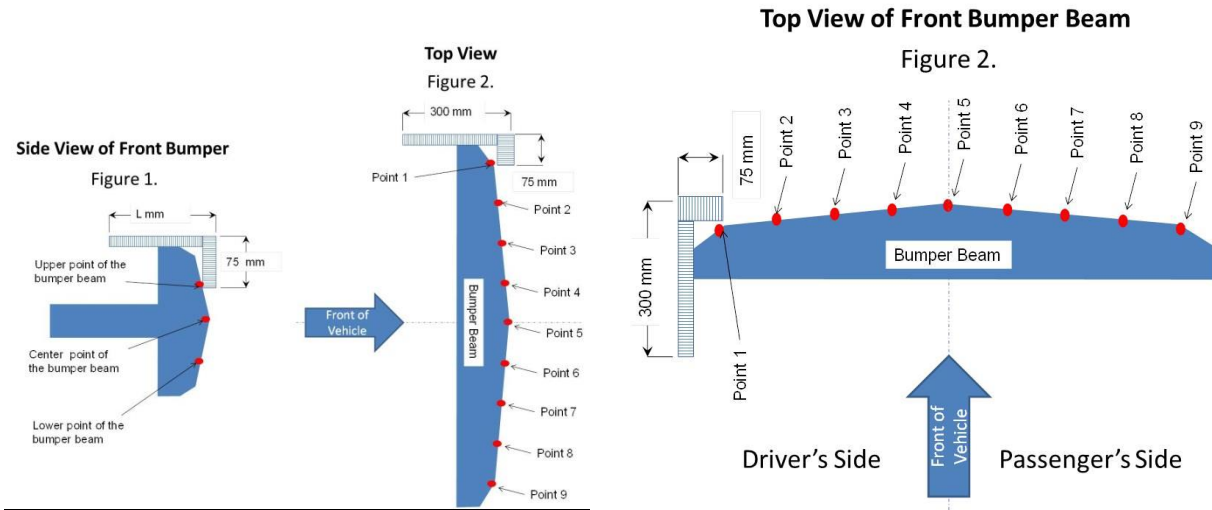
The Brake Pedal Reference Point is the x, y, and z location of the geometric center of the brake pedal pad (top surface) in the VCS.

Floor Reference Point

The Floor Reference Point is the x, y, and z location of the floor in the VCS. Use the following procedure to determine the Floor Reference Point:

1. If the vehicle has an accelerator pedal with fore-aft adjustment, adjust the pedal to its forward most position
2. Locate the centerline of the top surface of the bottom of the accelerator pedal (CLAP)
3. Remove floor mats
4. Project a vertical line down from the CLAP point until contact is made to the floor. This point is the Floor Reference Point

Pre and Post Bumper Beam and Radiator Support Measurement



Find the vertical center of the bumper beam using the following procedure (Reference Figure 1).

- 1) Position a square above the bumper beam at the centerline of the vehicle such that the plane of the square is aligned with the longitudinal axis of the vehicle and the “L mm” part of the square is parallel to the ground.
- 2) Move the square toward the ground until it contacts the bumper beam.
- 3) Move the square toward the rear of the vehicle until it contacts the bumper beam. The point where the 75 mm part of the square contacts the bumper beam is the Upper point of the bumper beam.
- 4) Perform the same procedure for the lower part of the bumper beam. The point where the 75 mm part of the square contacts the bumper beam is the Lower point of the bumper beam.
- 5) The center point of the bumper beam is half the distance between the Upper and Lower points of the bumper beam.
- 6) Transpose the lateral center of the bumper beam up onto the top of the upper radiator support.
- 7) Mark the center of the upper radiator support along its forward leading edge. If the radiator support is not flat this mark is made along the top edge.
- 8) Mark enough points along this edge to define its profile.

Pre and Post Driver Left Lower Instrument Panel

The left lower instrument panel (knee bolster) lateral coordinates are defined by adding 15 cm from the steering column reference lateral coordinate, respectively. The vertical coordinate is defined as 45 cm above the height of the floor reference point. If the panel or knee bolster loosens or breaks away in the crash, the post-crash measurements are taken by pressing and holding the panel against the underlying structure. Create a floor vehicle coordinate system on the floor at the location of this measurement.

Pre and Post Driver Right Lower Instrument Panel

The left lower instrument panel (knee bolster) lateral coordinates are defined by subtracting 15 cm from the steering column reference lateral coordinate, respectively. The vertical coordinate is defined as 45 cm above the height of the floor reference point. If the panel or knee bolster loosens or breaks away in the crash, the post-crash measurements are taken by pressing and holding the panel against the underlying structure.

Pre and Post Brake Pedal (Figure 22)

If the brake pedal is constructed so that it dangles loosely after the crash, the brake pedal is pushed straight forward against the toe pan/floor pan and held there to take the post-crash measurement. If the pedal drops away entirely, no post-crash measurement is taken.

Pre and Post Driver Toe pan and Floor Board (Figure 22)

DRIVER POINT A1

The vertical coordinate for the A1 measurement location is the vertical of the brake pedal reference. The lateral coordinate of the A1 is obtained by subtracting 25 cm from the brake pedal reference lateral coordinate.

DRIVER POINT B1

The vertical coordinate for the B1 location is the vertical coordinate of the brake pedal reference. The lateral coordinate of the B1 is obtained by subtracting 15 cm from the brake pedal reference lateral coordinate.

DRIVER POINT C1

The vertical coordinate for the C1 location is the vertical coordinate of the brake pedal reference. The lateral coordinate of the C1 is obtained by subtracting 0 cm from the brake pedal reference lateral coordinate.

DRIVER POINT D1

The vertical coordinate for the D1 location is the vertical coordinate of the brake pedal reference. The lateral coordinate of the D1 is obtained by adding 15 cm from the brake pedal reference lateral coordinate.

DRIVER POINT A2

The vertical coordinate of the A2 measurement location is obtained by adding half the distance between the vertical coordinate of the brake pedal reference and the vertical coordinate of the floor reference. The lateral coordinate of the A2 is obtained by subtracting 25 cm from the brake pedal reference lateral coordinate.

DRIVER POINT B2

The vertical coordinate of the B2 measurement location is obtained by adding half the distance between the vertical coordinate of the brake pedal reference the vertical coordinate of the floor reference. The lateral coordinate of the B2 is obtained by subtracting 15 cm from the brake pedal reference lateral coordinate.

DRIVER POINT C2

The vertical coordinate of the C2 measurement location is obtained by adding half the distance between the vertical coordinate of the brake pedal reference and the vertical coordinate of the floor reference. The lateral coordinate of the C2 is obtained by subtracting 0 cm from the brake pedal reference lateral coordinate.

DRIVER POINT D2

The vertical coordinate of the D2 measurement location is obtained by adding half the distance between the vertical coordinate of the brake pedal reference and the vertical coordinate of the floor reference. The lateral coordinate of the D2 is obtained by adding 15 cm from the brake pedal reference lateral coordinate.

DRIVER POINT A3

The vertical coordinate of the A3 measurement location is obtained by subtracting 1 cm from the floor reference. The lateral coordinate of the A3 is obtained by subtracting 25 cm from the brake pedal reference lateral coordinate.

DRIVER POINT B3

The vertical coordinate of the B3 measurement location is obtained by subtracting 1 cm from the floor reference. The lateral coordinate of the B3 is obtained by subtracting 15 cm from the brake pedal reference lateral coordinate.

DRIVER POINT C3

The vertical coordinate of the C3 measurement location is obtained by subtracting 1 cm from the floor reference. The lateral coordinate of the C3 is obtained by subtracting 0 cm from the brake pedal reference lateral coordinate.

DRIVER POINT D3

The vertical coordinate of the D3 measurement location is obtained by subtracting 1 cm from the floor reference. The lateral coordinate of the D3 is obtained by adding 15 cm from the brake pedal reference lateral coordinate.

DRIVER POINT A4

The longitudinal coordinate of the A4 measurement location is obtained by subtracting 10 cm from the D3 reference. The lateral coordinate of the A4 is obtained by subtracting 25 cm from the brake pedal reference lateral coordinate.

DRIVER POINT B4

The longitudinal coordinate of the B4 measurement location is obtained by subtracting 10 cm from the D3 reference. The lateral coordinate of the B4 is obtained by subtracting 15 cm from the brake pedal reference lateral coordinate.

DRIVER POINT C4

The longitudinal coordinate of the C4 measurement location is obtained by subtracting 10 cm from the D3 reference. The lateral coordinate of the C4 is obtained by subtracting 0 cm from the brake pedal reference lateral coordinate.

DRIVER POINT D4

The longitudinal coordinate of the D4 measurement location is obtained by subtracting 10 cm from the D3 reference. The lateral coordinate of the D4 is obtained by adding 15 cm from the brake pedal reference lateral coordinate.

DRIVER POINT A5

The longitudinal coordinate of the A5 measurement location is obtained by subtracting 10 cm from the A4 reference. The lateral coordinate of the A5 is obtained by subtracting 25 cm from the brake pedal reference lateral coordinate.

DRIVER POINT B5

The longitudinal coordinate of the B5 measurement location is obtained by subtracting 10 cm from the B4 reference. The lateral coordinate of the B5 is obtained by subtracting 15 cm from the brake pedal reference lateral coordinate.

DRIVER POINT C5

The longitudinal coordinate of the C5 measurement location is obtained by subtracting 10 cm from the C4 reference. The lateral coordinate of the C5 is obtained by subtracting 0 cm from the brake pedal reference lateral coordinate.

DRIVER POINT D5

The longitudinal coordinate of the D5 measurement location is obtained by subtracting 10 cm from the D4 reference. The lateral coordinate of the D5 is obtained by adding 15 cm from the brake pedal reference lateral coordinate.

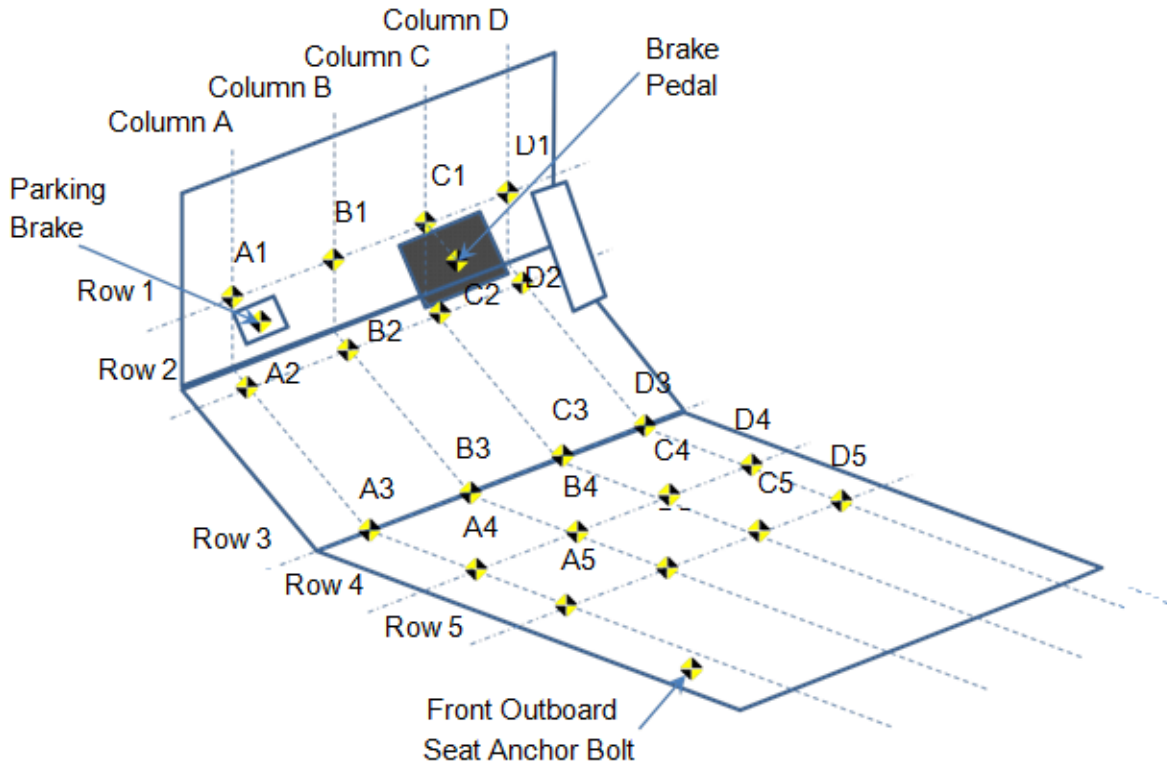
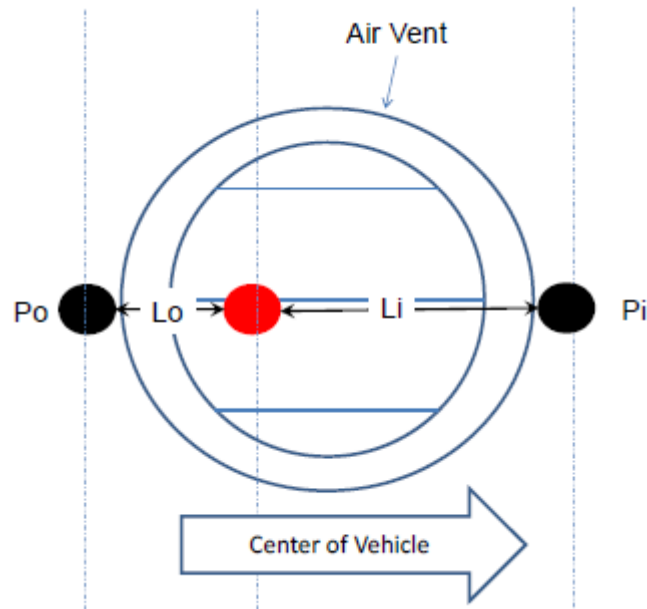


Figure 22: Lower interior intrusion measurements

Driver Upper Dash

The upper dash point is obtained by subtracting 25 cm from the lateral coordinate of the steering column reference lateral coordinate. This defines a line of points on the edge of the upper dash. The upper dash point is located on the rearward most (toward the rear of the vehicle) point on this line. This point must be located at least 30 cm above the brake pedal reference point to ensure a vertical location high enough to represent a location that could be contacted by the driver's upper body or head. If the rearward most point is less than 30 cm above the brake pedal reference point, the upper dash point is located at this 30 cm reference location.

There may be instances when the upper dash point is located on a "soft component" such as an air vent or control knob (Figure 23). To measure a more robust structure, the upper dash point is replaced with two additional points, and the weighted average of their coordinates is used to represent the deformation of a point at the original location (Equation 1). Each new point is determined by moving inboard/outboard to a location that is just off of the soft component.



$$dp = \frac{Li}{Lo + Li} [X_o, Y_o, Z_o] + \frac{Lo}{Lo + Li} [X_o, Y_o, Z_o]$$

Figure 23: Equation for Measuring Soft Component Driver Upper Dash Point

Passenger Left Lower Instrument Panel

The left lower instrument panel (knee bolster) lateral coordinates are defined by adding 15 cm from the center passenger seat reference lateral coordinate, respectively. The vertical coordinate is defined as 45 cm above the height of the floor (without floor mats). If the panel or knee bolster loosens or breaks away in the crash, the post-crash measurements are taken by pressing and holding the panel against the underlying structure.

Create a floor vehicle coordinate system on the floor at the location of this measurement.

Passenger Right Lower Instrument Panel

The left lower instrument panel (knee bolster) lateral coordinates are defined by subtracting 15 cm from the center passenger seat reference lateral coordinate, respectively. The vertical coordinate is defined as 45 cm above the height of the floor (without floor mats). If the panel or knee bolster loosens or breaks away in the crash, the post-crash measurements are taken by pressing and holding the panel against the underlying structure.

Passenger Toe pan and Floor Board (Figure 24)

PASSENGER POINT A1

The vertical coordinate for the A1 measurement location is the vertical coordinate of the brake pedal reference. The lateral coordinate of the A1 is obtained by subtracting 15 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT B1

The vertical coordinate for the B1 location is the vertical coordinate of the brake pedal reference. The lateral coordinate of the B1 is obtained by subtracting 0 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT C1

The vertical coordinate for the C1 location is the vertical coordinate of the brake pedal reference. The lateral coordinate of the C1 is obtained by adding 15 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT D1

The vertical coordinate for the D1 location is the vertical coordinate of the brake pedal reference. The lateral coordinate of the D1 is obtained by adding 25 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT A2

The vertical coordinate of the A2 measurement location is obtained by adding half the distance between the vertical coordinate of the brake pedal reference and the vertical coordinate of the floor reference. The lateral coordinate of the A2 is obtained by subtracting 15 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT B2

The vertical coordinate of the B2 measurement location is obtained by adding half the distance between the vertical coordinate of the brake pedal reference the vertical coordinate of the floor reference. The lateral coordinate of the B2 is obtained by subtracting 0 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT C2

The vertical coordinate of the C2 measurement location is obtained by adding half the distance between the vertical coordinate of the brake pedal reference and the vertical coordinate of the floor reference. The lateral coordinate of the C2 is obtained by adding 15 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT D2

The vertical coordinate of the C2 measurement location is obtained by adding half the distance between the vertical coordinate of the brake pedal reference and the vertical coordinate of the floor reference. The lateral coordinate of the D2 is obtained by adding 25 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT A3

The vertical coordinate of the A3 measurement location is obtained by subtracting 1 cm from the driver's floor reference. The lateral coordinate of the A3 is obtained by subtracting 15 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT B3

The vertical coordinate of the B3 measurement location is obtained by subtracting 1 cm from the driver's floor reference. The lateral coordinate of the B3 is obtained by subtracting 0 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT C3

The vertical coordinate of the C3 measurement location is obtained by subtracting 1 cm from the driver's floor reference. The lateral coordinate of the C3 is obtained by adding 15 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT D3

The vertical coordinate of the D3 measurement location is obtained by subtracting 1 cm from the driver's floor reference. The lateral coordinate of the D3 is obtained by adding 25 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT A4

The longitudinal coordinate of the A4 measurement location is obtained by subtracting 10 cm from the A3 reference. The lateral coordinate of the A4 is obtained by subtracting 15 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT B4

The longitudinal coordinate of the B4 measurement location is obtained by subtracting 10 cm from the A3 reference. The lateral coordinate of the B4 is obtained by subtracting 0 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT C4

The longitudinal coordinate of the C4 measurement location is obtained by subtracting 10 cm from the A3 reference. The lateral coordinate of the C4 is obtained by adding 15 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT D4

The longitudinal coordinate of the D4 measurement location is obtained by subtracting 10 cm from the A3 reference. The lateral coordinate of the D4 is obtained by adding 25 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT A5

The longitudinal coordinate of the A5 measurement location is obtained by subtracting 10 cm from the A4 reference. The lateral coordinate of the A5 is obtained by subtracting 15 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT B5

The longitudinal coordinate of the B5 measurement location is obtained by subtracting 10 cm from the B4 reference. The lateral coordinate of the B5 is obtained by subtracting 0 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT C5

The longitudinal coordinate of the C5 measurement location is obtained by subtracting 10 cm from the C4 reference. The lateral coordinate of the C5 is obtained by adding 15 cm from the center passenger seat reference lateral coordinate.

PASSENGER POINT D5

The longitudinal coordinate of the D5 measurement location is obtained by subtracting 10 cm from the D4 reference. The lateral coordinate of the D5 is obtained by adding 25 cm from the center passenger seat reference lateral coordinate.

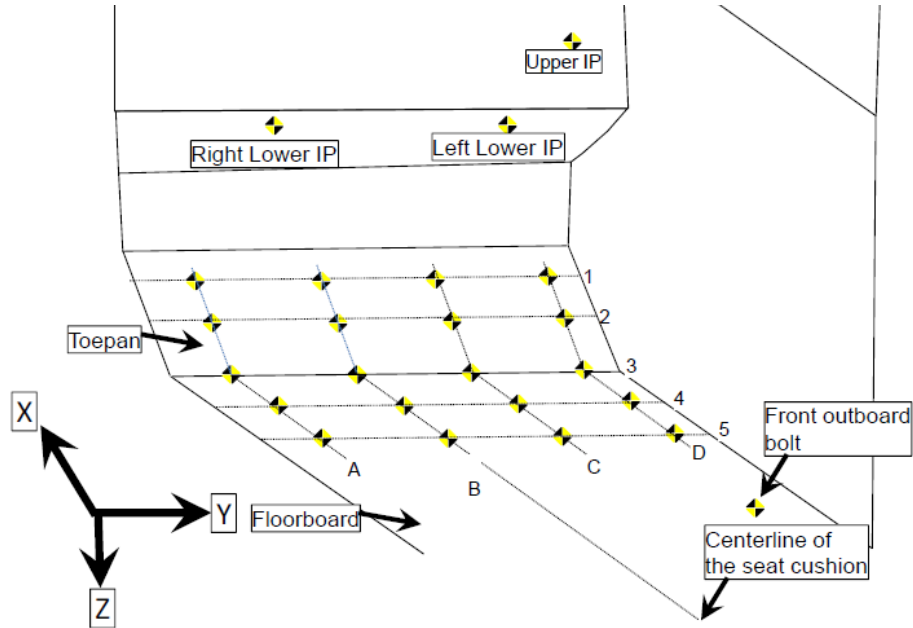


Figure 24: Passenger side lower interior measurements

Passenger Upper Dash

The upper dash point is obtained by adding 25 cm from the lateral coordinate of the center passenger seat reference lateral coordinate. This defines a line of points on the edge of the upper dash. The upper dash point is located on the rearward most (toward the rear of the vehicle) point on this line. This point must be located at least 30 cm above the brake pedal reference point to ensure a vertical location high enough to represent a location that could be contacted by the driver's upper body or head. If the rearward most point is less than 30 cm above the brake pedal reference point, the upper dash point is located at this 30 cm reference location.

There may be instances when the upper dash point is located on a "soft component" such as an air vent or control knob (Figure 23). To measure a more robust structure, the upper dash point is replaced with two additional points, and the weighted average of their coordinates is used to represent the deformation of a point at the original location (Equation 1). Each new point is determined by moving inboard/outboard to a location that is just off of the soft component.

Driver Door Measurements (Figure 25)

Mark the following points on the inner most surface of the door opening, typically on the pinch weld.

- 1) **Point 1:** The vertical coordinates of this point is obtained by subtracting 0 cm from the brake pedal reference point.
- 2) **Point 2:** The vertical coordinates of this point is obtained by subtracting 7.5 cm from the brake pedal reference point.
- 3) **Point 3:** The vertical coordinates of this point is obtained by subtracting 15 cm from the brake pedal reference point
- 4) **Point 4:** The vertical coordinates of this point is obtained by subtracting 45 cm from the brake pedal reference point.
- 5) **Point 5:** The vertical coordinates of this point is obtained by subtracting 52.5 cm from the brake pedal reference point).
- 6) **Point 6:** The vertical coordinates of this point is obtained by subtracting 60 cm from the brake pedal reference point
- 7) **Point 7:** The longitudinal coordinates of this point is obtained by subtracting 20 cm from the brake pedal reference point. If the 20 cm point is forward of the actual door frame, this point is located 5 cm rearward of lower hinge pillar point.
- 8) **Point 8:** The longitudinal coordinates of this point is obtained by subtracting 35 cm from the brake pedal reference point.
- 9) **Point 9:** The longitudinal coordinates of this point is obtained by subtracting 50 cm from the brake pedal reference point.
- 10) **Point 10 and 11:** Mark 2 evenly spaced points between points 1 and 7
- 11) **Point 12 and 13:** Mark 2 evenly spaced points between points 3 and 4
- 12) **Point 26:** Mark a point at the intersection of the roof rail and the start of the B-pillar
- 13) **Points 14-25:** Mark 12 evenly spaced points between points 6 and 26
- 14) **Point 32:** Mark a point at the intersection of the lower sill and the start of the B-pillar
- 15) **Points 27-31:** Mark 5 evenly spaced points between points 9 and 32
- 16) **Point 33:** Subtract 150mm from the vertical coordinate of the brake pedal reference point
- 17) **Point 34:** Subtract 0mm from the vertical coordinate of the brake pedal reference point

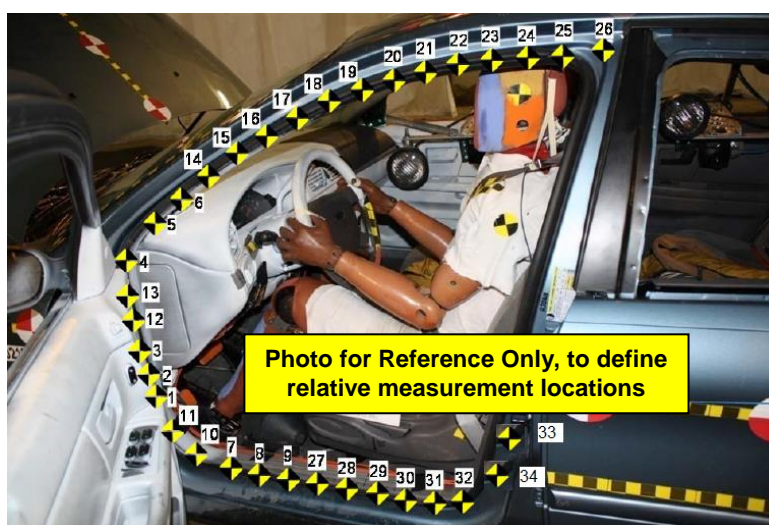


Figure 25: Driver Door Measurements

Passenger Door Measurements

Perform the same procedure as the driver door on the passenger side.

Pre-Test Exterior Profile

- 1) Expose the front bumper beam.
- 2) At the lateral center of the bumper beam, measure and mark the center of the front bumper beam (along front face of beam).
- 3) Using this Z coordinate, mark and measure enough points around the complete circumference of the vehicle to establish cross section A-A.
- 4) Transpose the lateral center of the bumper beam up onto the top of the upper radiator support.
- 5) Mark the center of the upper radiator support along its forward leading edge.
- 6) Using this Z coordinate, mark and measure enough points around the complete circumference of the vehicle to establish cross section B-B.

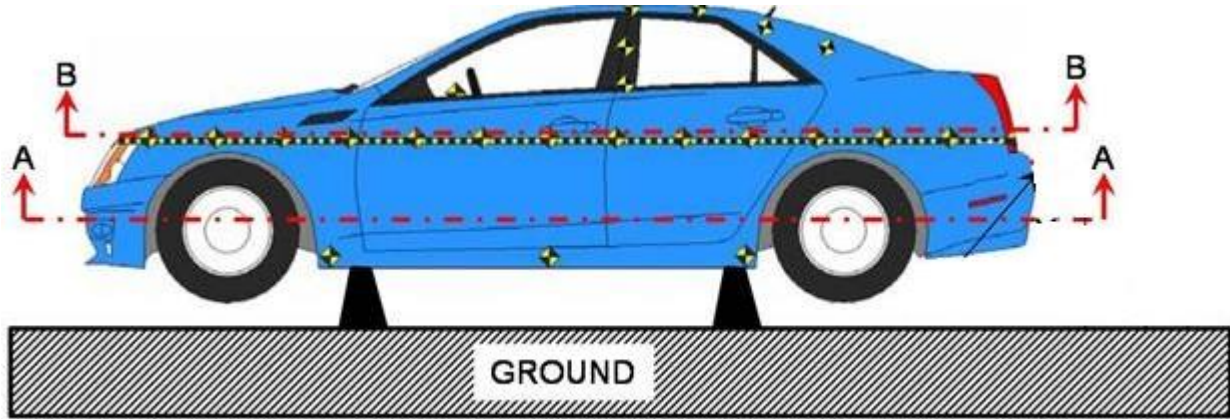


Figure 26: Pre-Test Vehicle Profile

Post-Test Exterior Profile

- 1) Remove bumper cover
- 2) Using the vehicle's origin reference point leap into vehicle's coordinate system.
- 3) Using the pre-Test z-value at section A-A which was recorded from VCS origin, take measurements at this z-distance around the circumference of the vehicle.
- 4) Using the pre-Test z-value at section B-B that was recorded from VCS origin, take measurements at this z-distance around the circumference of the vehicle.

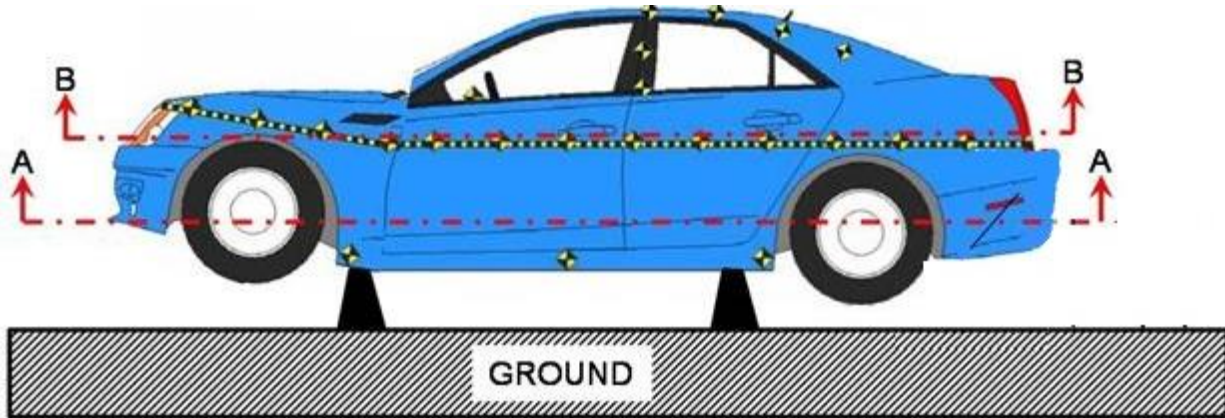
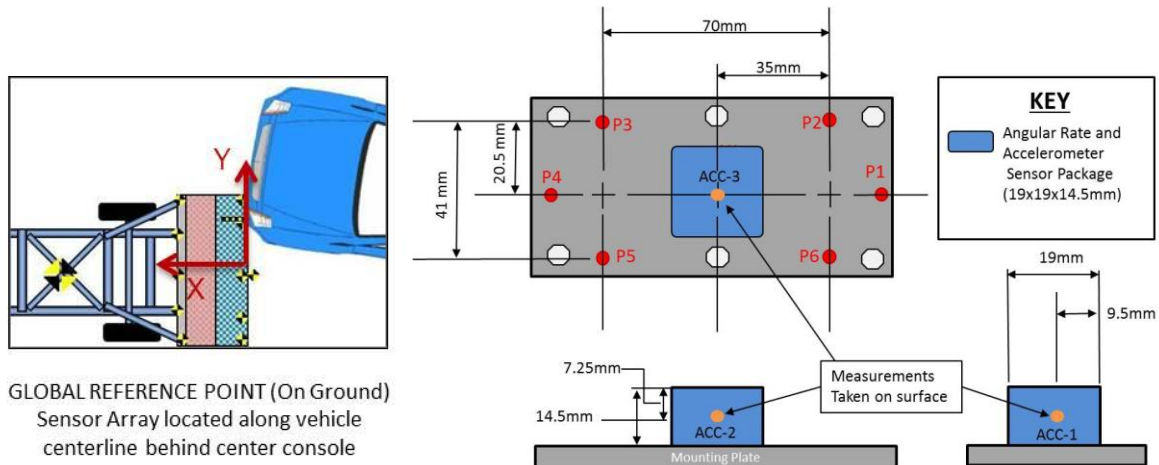


Figure 27: Post-Test Vehicle Profile

Pre and Post Honeycomb Requirements

The contractor shall take pre-and post-crush measurements of the honeycomb while attached to the barrier. These measurements shall be documented in the appropriate datasheet. Also, the contractor shall take pre-and post-Test pictures of the left and right side, top, and front view of the honeycomb while attached to the barrier.

Angular Rate Sensor Mounting & Dimensions:



- 1) Make sure the vehicle is in the **LVC** condition by placing jacks under each jack point and leveling the sill as previously described.
- 2) The ARS sensors and vehicle CG accelerometers were installed directly behind the center console on the floor board using the above pictured mounting block.
- 3) The block was mounted at the longitudinal centerline such that the x, y, and z axis of the block align with the vehicle coordinate system.
 - a. P1 and P4 were placed along the lateral centerline of the vehicle
 - b. P4 is mounted toward the front of the vehicle
 - c. The mounting plate is parallel to the horizontal plan of the vehicle coordinate system

Note: the block shall not move relative to the vehicle during the test

- 4) CMM each position alignment point (P1-P6) while the vehicle is level.
- 5) CMM the middle of the top surface of each direction of the CG accelerometer while the vehicle is level. (ie. Accelerometer CGx will be taken on the surface in the x-direction)
- 6) Transport the vehicle to test area and align with the RMDB barrier
- 7) Once vehicle is aligned with the barrier and all dummies are positioned, create a global coordinate system on the ground (GCS). The origin of the GCS is located at the front most point at the centerline of the RMDB.
 - Positive X is from the GCS origin point to the rear of RMDB
 - Positive Y is from the center of RMDB towards the left of RMDB when looking from the back of the RMDB
 - Positive Z is from the GCS origin point downward into the ground
- 8) Measure and record all points described above