REPORT NUMBER: R&D – CAL – 11 – 002

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

2007 FORD TAURUS FOUR DOOR SEDAN
7^{o} VEHICLE ANGLE AND 18% OVERLAP

TEST DATE: FEBRUARY 25, 2011
NHTSA NO: R70221

Prepared By;
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FINAL REPORT

March 21, 2011

PREPARED FOR:
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NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
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FINAL REPORT ACCEPTANCE BY OCWS:

_____

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

Date: _____

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

Date: _____

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15. Supplementary Notes

16. Abstract

A test was conducted in accordance with Task Order 0001 of Contract DTNH22-10-D-00155. The test consisted of a research moving deformable barrier, traveling at a targeted speed of 97.2, impacting a stationary 2007 Ford Taurus Four Door Sedan. The Ford Taurus was positioned 7 degrees relative to the moving barrier and the barrier impacted 18 percent of the left side of the vehicle. This 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 crash test facility in Buffalo, New York on February 25, 2011.

The impact velocity of the RMDB was 97.62 km/h. The target vehicle post-test maximum crush was 464 mm of Vehicle. The test vehicle's performance is as follows:

Measurement Description	Driver ATD			Pass. ATD		
	Units	Threshold	Result	Units	Threshold	Result
Head Injury Criteria (HIC_{15})	N/A	700	507.17	N/A	700	140.24
Maximum Chest Compression	mm	63	27.92	mm	52	23.55
Nij	N/A	1	0.23	N/A	1	0.47
Neck Tension	N	4,170	1,287.67	N	2,620	1,663.02
Neck Compression	N	4,000	-713.77	N	2,520	-183.06
Left Femur Force	N	10,008	-4,804.84	N	6,805	-91.95
Right Femur Force	N	10,008	-4,528.30	N	6,805	-80.77

17. Key Words 2007 Ford Taurus NHTSA No. R70221 7o , 18% Overlap 97.2 km/h / 60.4 mph THOR small overlap oblique offset	*18. Distribution Statement* Copies of this report are available from: NHTSA Technical Reference Division National Highway Traffic Safety Admin. 1200 New Jersey Ave SE Washington, DC 20590		
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SECTION 1
PURPOSE OF TEST

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

This 97.2 km/h (60.4 mph) Moving Barrier into a vehicle test is part of Frontal Overlap Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-10-D-00155. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for research and development purposes.

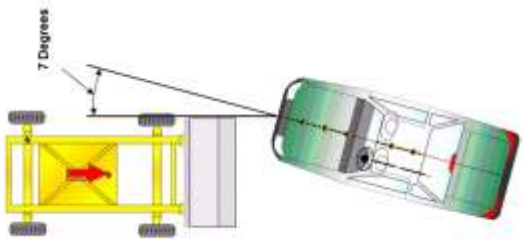
This test was conducted in accordance with the instructions set forth by NHTSA for a 7º, 18% overlap moving barrier to vehicle impact, outlined in Task Order (TO) DTNH22-10-D-00155. Data was obtained indicant of Federal Motor Vehicle Safety Standard (FMVSS) 208-Occupant Crash Protection, FMVSS 212-Windshield Mounting, FMVSS 219 (partial)-Windshield Zone Intrusion, and FMVSS 301-Fuel System Integrity, in addition to the requirements of TO DTNH22-10-D-00155.

SECTION 2

SUMMARY OF TEST

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7° / 18% Small Overlap Frontal	Test Date	2/25/2011

A 2007 Ford Taurus Four Door Sedan was impacted on the left front corner by a Research Moving Deformable Barrier (RMDB). The test vehicle was stationary and positioned at a target angle of 7° and a target Overlap of 18% to the line of forward motion of the RMDB. The RMDB was towed down the test track in a full forward direction, without any crabbing, at the targeted impact velocity of 97.2 km/h (60.4 mph) into the test vehicle. The test vehicle mass was 1729 kg and the RMDB mass was 2385 kg (5259 lbs). The test was conducted by Calspan Corporation on February 25, 2011.



The test was documented by 1 real time and 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, the RMDB and the 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 MK (Mod Kit) anthropomorphic test device (ATD) (Serial No.: 0006) was seated in the left front (driver's) seating position and one Part 572O 5% adult female (HIII 5th) ATD (Serial No. 147) was seated in the left rear seating position. The THOR MK driver was positioned according to instructions specified in Laboratory Test Procedure for FMVSS No. 208, "Occupant Crash Protection", TP208 13, July 27, 2005. The HIII 5th% left rear seat occupant was positioned using a modified procedure of the Laboratory Test Procedure for FMVSS No. 214, "Side Impact Protection – Dynamic", TP214D-08, December 15, 2006.

The driver was restrained with a 3-point seat belt and a dual stage frontal airbag. The left rear passenger was restrained with a 3-point seat belt. The driver head restraint was removed prior to the test at the COTR's request to provide better onboard video coverage.

SECTION 2 (CONTINUED)

SUMMARY OF TEST

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

One hundred and eighty five (185) channels of data from the two ATD's, test vehicle and RMDB were collected using a Kayser-Threde data acquisition system. Appendix B contains dummy data plots, as well as vehicle and RMDB response data plots.

The indicant FMVSS 212 windshield retention measurement showed 96% of the mounting was still intact after the impact; with 93% and 100% retention on the left and right sides respectively. There was minor intrusion of the hood structure into the protected zone of the windshield during the test. The maximum static crush of the vehicle was 464 mm at C1 to the left of the vehicle's centerline. The maximum crush of the lower bumper beam was 423 mm at C1, to the left of vehicle's centerline. Full vehicle measurements are presented in Section 3 of this report.

The left front door opened during the collision and was jammed with an opening of 60mm after the test. All other doors remained closed and latched during the test. The left rear door was jammed shut as a result of the impact. All other doors remained operational. During the collision, the A-Pillar and the door sill buckled but there was no separation of the sill from the vehicle structure.

Review of the high speed video indicated the air bag cover started to open at 40 ms.

The driver ATD's visible contact points are as follows:

- Head contacted the airbag, A-pillar trim, side header and B-pillar trim
- Chest contacted the airbag and the side door trim panel
- Left and right knees contacted the knee bolster.

The left rear passenger ATD's visible contact points are as follows:

- Head contacted the chest and seatback
- Upper thorax contacted the side door trim panel
- Knees and lower legs contacted the driver's seatback

SECTION 2 (CONTINUED)

CRASH VEHICLE SUMMARY

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
RMDB Velocity at Impact	km/h	97.62
RMDB Test Weight	kg	2385.44
RMDB Maximum Static Crush	mm	250
Vehicle Test Weight	kg	1729
Actual Vehicle Angle	º	7
Vehicle Maximum Static Crush	mm	464 mm to left centerline
Vertical Overlap from Target Point	mm	Unknown
Lateral Overlap from Target Point	mm	2 mm Left
Number of Data Channels		137
Number of Real-Time Cameras		1
Number of High-Speed Cameras		14

DUMMY CONTACTS

	Driver	Left Rear Passenger
Dummy Type	THOR 50th Male	HIII 5th Female
Restraint System	3-Point Belt / Frontal Airbag	3-Point Belt
Head Contact	Airbag, A-pillar trim, Side Header and B-pillar Trim	Chest, Seatback
Chest Contact	Airbag, Door Trim Panel	None
Abdomen Contact	Airbag, Door Trim Panel	None
Left Knee Contact	Knee Bolster	Driver Seatback
Right Knee Contact	Knee Bolster	Driver Seatback

Data Anamolies:

V2P1 CHEST LEFT UPPER CM	->	Questionable Data: Channel Noise
V2P1 CHEST RIGHT LOWER CM	->	Questionable after 152 ms
V2P1 ABDOMEN RIGHT DY	->	Questionable 28 - 61 ms
V2P1 ANKLE LEFT POT X	->	Channel Failure
V2P1 FOOT LEFT Y	->	Data Spikes at 74ms
V2P4 HEAD 9 ARRAY CENTER X	->	No Data
V2P4 LOWER NECK FX	->	Data noise spikes after 150ms
V2 VEHICLE CG X	->	Questionable data after 133ms
V2 DRIVER FLOOR PAN X	->	Questionable after 41 ms
V2 DRIVER FLOOR PAN Z	->	Questionable data 50+ms; Failure at 290
V2 VEHICLE CG RX	->	No Data
V2 VEHICLE CG RY	->	No Data
V2 VEHICLE CG RZ	->	No Data

SECTION 2 (CONTINUED)
PRELIMINARY INJURY SUMMARY: Driver

Test Vehicle: 2007 Ford Taurus 4 Door Sedan NHTSA No.: R70221
Test Program: Research and Development Left Oblique Offset Test Date: 2/25/2011

Driver: Thor Serial No. 006 Injury Summary

	Nomenclature	Units	Source	Max	Min
Head	Head Rotational Acceleration X	rad/s^2	SIMon	3687.60	-1759.90
	Head Rotational Acceleration Y	rad/s^2	SIMon	4167.40	-1759.40
	Head Rotational Acceleration Z	rad/s^2	SIMon	2605.80	-3265.20
	Head Rotational Acceleration Resultant	rad/s^2	Compute	5471.03	
	Head Rotational Velocity X	rad/s	SIMon	28.00	-10.24
	Head Rotational Velocity Y	rad/s	SIMon	9.80	-17.62
	Head Rotational Velocity Z	rad/s	SIMon	5.26	-6.68
	Head Rotational Velocity Resultant	rad/s	Compute	28.38	
	36 ms HIC		Compute	521.20	
	15 ms HIC		Compute	507.17	
	Head Resultant CG Acceleration, 3 ms Clip	g	Compute	79.76	
	Skull fracture correlate	-	SIMon	66.11	
	Cumulative strain (Tolerance = 0.05)	-	SIMon	0.99	0.00
	Cumulative strain (Tolerance = 0.10)	-	SIMon	0.53	0.00
	Cumulative strain (Tolerance = 0.15)	-	SIMon	0.14	0.00
Neck	UNLC Transferred to OC, Neck System, FX	N	1000	115.64	-443.47
	UNLC Neck System Tension, FZ	N	1000	1287.67	
	UNLC Neck System Compression, FZ	N	1000		-713.77
	UNLC Transferred to OC, Neck System Flexion, MY	N-m	Thortest	1.01	
	UNLC Transferred to OC, Neck System Extension, MY	N-m	Thortest		-20.80
	NIJ		Compute	0.23	
	On head acting through total neck section, FX	N	Thortest	498.93	-951.68
	On head acting through total neck section, FY	N	Thortest	219.34	-285.82
	On head acting through total neck section, FZ	N	Thortest	963.47	-396.32
	On head acting through total neck section, MX	N-m	Thortest	10.10	-27.77
	On head acting through total neck section, MY	N-m	Thortest	12.76	-23.44
	On head acting through total neck section, MZ	N-m	Thortest	30.28	-18.08
	On head acting through O.C. joint only, FX	N	Thortest	548.15	-919.50
	On head acting through O.C. joint only, FZ	N	Thortest	909.48	-462.81
	On head acting through O.C. joint only, MY	N-m	Thortest	1.01	-20.80
Chest	Upper Left Crux X – deflection	mm	Thortest	6.26(1)	-8.41(1)
	Upper Left Crux Y – deflection	mm	Thortest	8.19(1)	-6.20(1)
	Upper Left Crux Z – deflection	mm	Thortest	5.11(1)	-11.46(1)
	Upper Left Crux D – deflection	mm	Thortest	9.12(1)	-7.87(1)
	Upper Right Crux X – deflection	mm	Thortest	0.29	-35.67
	Upper Right Crux Y – deflection	mm	Thortest	3.15	-13.79
	Upper Right Crux Z – deflection	mm	Thortest	20.57	-4.87
	Upper Right Crux D – deflection	mm	Thortest	0.22	-27.92

SECTION 2 (CONTINUED)
PRELIMINARY INJURY SUMMARY: Driver

Test Vehicle: 2007 Ford Taurus 4 Door Sedan NHTSA No.: R70221
Test Program: Research and Development Left Oblique Offset Test Date: 2/25/2011

Driver: Thor Serial No. 006 Injury Summary

	Nomenclature	Units	Source	Max	Min
Chest (Con't)	Lower Left Crux X – deflection	mm	Thortest	1.17	-3.72
	Lower Left Crux Y – deflection	mm	Thortest	1.26	-6.03
	Lower Left Crux Z – deflection	mm	Thortest	4.68	-28.69
	Lower Left Crux D – deflection	mm	Thortest	14.98	-2.39
	Lower Right Crux X – deflection	mm	Thortest	26.12(2)	-0.12(2)
	Lower Right Crux Y – deflection	mm	Thortest	0.05(2)	-18.96(2)
	Lower Right Crux Z – deflection	mm	Thortest	8.27(2)	-1.67(2)
	Lower Right Crux D – deflection	mm	Thortest	2.47(2)	0.00(2)
	Chest CG Acceleration, 3 ms clip	g	Compute	43.21	
Abdomen	Upper Displacement	mm	Thortest	4.13	-
	Lower Left X – deflection	mm	Thortest	6.30	-0.97
	Lower Left Y – deflection	mm	Thortest	9.07	-9.24
	Lower Left Z – deflection	mm	Thortest	3.90	-9.73
	Left Viscous Criterion Based on X - deflection		Compute	0.21	
	Lower Right X – deflection	mm	Thortest	3.34	-0.15
	Lower Right Y – deflection	mm	Thortest	1.92(3)	-24.61(3)
	Lower Right Z – deflection	mm	Thortest	13.25	-2.76
	Right Viscous Criterion Based on X - deflection		Compute	0.06(3)	
Spine	Upper Spine (T1) AX	g	180	6.98	-61.58
	Upper Spine (T1) AY	g	180	23.07	-13.65
	Upper Spine (T1) AZ	g	180	41.61	-10.82
	Upper Spine (T1) Resultant	g	Compute	65.55	
	Middle Spine (T6) AX	g	180	11.33	-45.24
	Middle Spine (T6) AY	g	180	33.38	-18.55
	Middle Spine (T6) AZ	g	180	9.59	-7.59
	Middle Spine (T6) Resultant	g	Compute	49.13	
Pelvis	Pelvis CG Resultant Acceleration	g	Compute	40.70	
Acetabulum	Left FX force	N	600	120.78	-4537.36
	Left FY force	N	600	1848.98	-292.17
	Left FZ force	N	600	3623.88	-69.64
	Left Acetabulum Resultant	N	Compute	5962.16	
	Right FX force	N	600	1938.96	-1889.29
	Right FY force	N	600	2187.77	-1311.16
	Right FZ force	N	600	637.21	-1507.62
	Right Acetabulum Resultant	N	Compute	2793.86	

SECTION 2 (CONTINUED)
PRELIMINARY INJURY SUMMARY: Driver Legs

Test Vehicle: 2007 Ford Taurus 4 Door Sedan NHTSA No.: R70221
Test Program: Research and Development Left Oblique Offset Test Date: 2/25/2011

Driver: Thor Serial No. 006 Injury Summary

	Nomenclature	Units	Source	Max	Min
Knee	Left Knee Displacement, DX	mm	180	0.66	-2.30
	Right Knee Displacement, DX	mm	180	0.16	-0.83
Femur	Left Femur Force, FZ	N	600	151.94	-4804.84
	Left Femur Moment, MX	N-m	600	272.50	-17.45
	Left Femur Moment, MY	N-m	600	51.05	-101.27
	Left Femur Res (MX / MY only, not MZ)	N-m	Compute	274.29	
	Right Femur Force, FZ	N	600	795.32	-4528.30
	Right Femur Moment, MX	N-m	600	32.71	-145.01
	Right Femur Moment, MY	N-m	600	36.56	-65.09
	Right Femur Res (MX / MY only, not MZ)	N-m	Compute	145.20	
Tibia	Left Upper Tibia, FZ	N	600	2238.27	-222.05
	Left Upper Tibia, MY	N-m	600	80.43	-271.95
	Left Upper Tibia, Index		Compute	1.52	
	Right Upper Tibia, FZ	N	600	451.97	-1133.88
	Right Upper Tibia, MY	N-m	600	47.34	-53.19
	Right Upper Tibia, Index		Compute	0.47	
	Left Lower Tibia, FZ	N	600	1466.37	-1002.83
	Left Lower Tibia, MY	N-m	600	75.67	-186.32
	Left Lower Tibia, Index		Compute	0.80	
	Right Lower Tibia, FZ	N	600	325.60	-1555.56
	Right Lower Tibia, MY	N-m	600	18.60	-29.25
	Right Lower Tibia, Index		Compute	0.38	
Ankle	Left Ankle Rotation, RX	Deg	180	0.02(4)	-0.01(4)
	Left Ankle Rotation, RY	Deg	180	22.28	-0.02
	Right Ankle Rotation, RX	Deg	180	29.06	-19.10
	Right Ankle Rotation, RY	Deg	180	21.55	-0.16

Anomalies

(1) Questionable data due to noise
(2) Questionable data after 152 ms
(3) Questionable data between 28 – 61 ms on V2P1 ABDR Dy
(4) Channel failed

Test Vehicle: 2007 Ford Taurus 4 Door Sedan NHTSA No.: R70221
Test Program: Research and Development Left Oblique Offset Test Date: 2/25/2011

Left Rear Passenger: H3 5th Female Serial No. 421 Injury Summary

	Nomenclature	Source	Max	Min
Head	Angular acceleration (rad/sec^2) - X	SIMon	909.74	-695.90
	Angular acceleration (rad/sec^2) - Y	SIMon	223.31	-88.17
	Angular acceleration (rad/sec^2) - Z	SIMon	191.41	-801.49
	Angular acceleration - resultant (rad/sec^2)	SIMon	1028.18	
	Angular velocity (rad/sec) - X	SIMon	13.34	-12.43
	Angular velocity (rad/sec) - Y	SIMon	10.54	0.00
	Angular velocity (rad/sec) - Z	SIMon	0.07	-45.65
	Angular velocity - resultant (rad/sec)	SIMon	526.31	
	36 ms HIC	Compute	300.04	
	15 ms HIC	Compute	140.24	
	Skull fracture correlate	SIMon	38.75	
	Cumulative strain (Tolerance = 0.05)	SIMon	0.94	
	Cumulative strain (Tolerance = 0.10)	SIMon	0.52	
	Cumulative strain (Tolerance = 0.15)	SIMon	0.24	
	Head resultant CG acceleration, 3 ms clip (g's)	Compute	42.90	
Neck	Upper Neck Tension (N) Fz	1000	1663.02	
	Upper Neck Compression (N) Fz	1000		-183.06
	Upper Neck NTF	Compute	0.47	
	Upper Neck NTE	Compute	0.28	
	Upper Neck NCF	Compute	0.14	
	Upper Neck NCE	Compute	0.01	
Chest	Chest Deflection (mm)	600	0.08	-23.55
Femur	Right Fz Force (N)	600	993.84	-80.77
	Left Fz Force (N)	600	745.86	-91.95
Anomalies None				

SECTION 3
DATA SHEETS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

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DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7° / 18% Small Overlap Frontal	Test Date	2/25/2011

TEST VEHICLE INFORMATION

NHTSA No.	R70221
Make	Ford
Model	Taurus
Body Style	Four Door Sedan
VIN	1FAFP53U57A138399
Color	Light blue
Delivery Date	11/19/2010
Odometer Reading (mi)	21000
Odometer Reading (km)	33796.2
Dealer	Glen Campbell
Transmission	4-Speed Automatic
Final Drive	Front Wheel Drive
Type/No. Cyl	V6
Engine Disp. (L)	3.0
Engine Placement	Transverse
Roof Rack	No
Sunroof/T-Top	No
Tinted Glass	Yes
Traction Control	No
Power Brakes	Yes
Front Disc	Yes
Rear Disc	Yes

TEST VEHICLE OPTIONS

Anti-Lock Brakes	Yes
All-Wheel Drive	No
Power Steering	Yes
Driver Front Airbag	Yes
Driver Curtain Airbag	No
Driver Head/Torso Airbag	No
Driver Torso Airbag	No
Driver Torso/Pelvis Airbag	No
Driver Pelvis Airbag	No
Driver Knee Airbag	No
Pass. Front Airbag	Yes
Pass. Curtain Airbag	No
Pass. Head/Torso Airbag	No
Pass. Torso Airbag	No
Pass. Torso/Pelvis Airbag	No
Pass. Pelvis Airbag	No
Pass. Knee Airbag	No
Pretensioners	Yes
Load Limiters	Yes
Automatic Door Locks	No
Tilt Steering	Yes
Other	--

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

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Company
Date of Manufacture	06/06

GVWR (kg)	2,125
GAWR Front (kg)	1,158
GAWR Rear (kg)	967

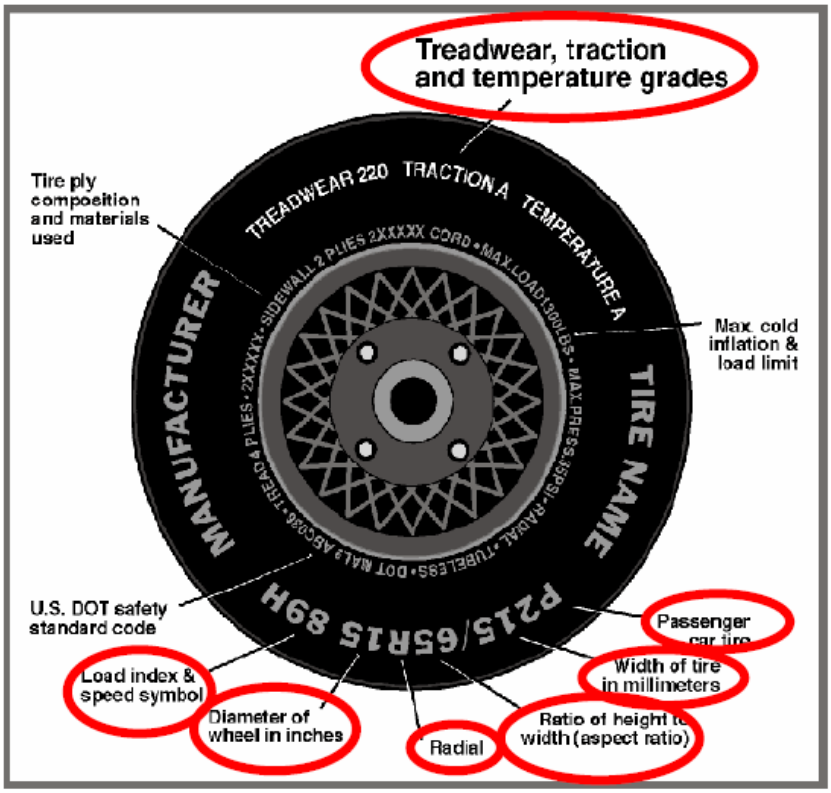
VEHICLE SEATING AND WEIGHT CAPACITY

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Split Bench	Bench	NA	
Number of Occupants	3	3	NA	6
Capacity Wt. (VCW) (kg)				498
Cargo Wt. (RCLW) (kg)				90

DATA SHEET NO. 1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011



Measured Parameter	Front	Rear
Maximum Tire Pressure	300	300
Cold Pressure (kPa)	205	205
Recommended Tire Size	P215/60R16	P215/60R16
Tire Size on Vehicle	P215/60R16	P215/60R16
Tire Manufacturer	Continental	Continental
Tire Model	Touring Contact AS	Touring Contact AS
Treadwear	520	520
Traction	A	A
Temperature Grades	B	B
Tire Plies Sidewall	1 polyester	1 polyester
Tire Plies Body	1 steel, 2 polyester, 1 nylon	1 steel, 2 polyester, 1 nylon
Load Index/Speed Symbol	94T	94T
Tire Material	Rubber	Rubber
DOT Safety Code Right	LLX845LB1006	LLX845LB1006
DOT Safety Code Left	LLX845LB1006	LLX845LB1006

DATA SHEET NO. 1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2007 Ford Taurus Four Door Sedan	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	474.5	262.5		521	379	
Right	kg	475	255.5		479	350	
Ratio	%	65	35		58	42	
Totals	kg	949.5	518	1,467.5	1,000	729	1,729

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	702	721	715	705	970
As Tested	mm	699	716	627	642	1159
Post Test	mm		695	600	721	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2,748
Total Vehicle Length at Left Side	mm	4,921
Total Vehicle Length at Centerline	mm	5,028
Total Vehicle Length at Right Side	mm	4,920
Weight of Ballast in Cargo Area	kg	22
Weight of Vehicle Components Removed	kg	0.0
Amount of Stoddard Solvent in Fuel Tank	L	63.6

LIST OF COMPONENTS REMOVED TO MEET TEST WEIGHT:

None

DATA SHEET NO.1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle:	2007 Ford Taurus Four Door Sedan	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

TARGET VEHICLE STRUCTURAL MEASUREMENT

	Elements	Pre-Test (mm)
1	Total Length	5,028
2	Total Width	1,866
3	Bumper Top Height	558
4	Bumper Bottom Height	249
5	Longitudinal Member Top Height	519
6	Distance Between Longitudinal Members	1,184
7	Longitudinal Member Width	106
8	Engine Top Height	881
9	Engine Bottom Height	182
10	Engine and Gearbox Width	627
11	Front Bumper-Engine Distance	638
12	Front Shock Absorber Fixing Height	859
13	Bonnet Leading Edge Height	734
14	Front Shock Absorber Fixing Width	1,116
15	Front Bumper – Front Axle Distance	1,055
16	Front Axle – A Pillar Distance	507
17	A-Pillar – B-Pillar Distance	1,092
18	B-Pillar – Rear Axle Distance	1,157
19	B-Pillar – C-Pillar Distance	1,248
20	Roof Sill Bottom Height	1,289
21	Roof Sill Top Height	1,367
22	Floor Sill Bottom Height	246
23	Floor Sill Top Height	369

DATA SHEET NO. 2

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL

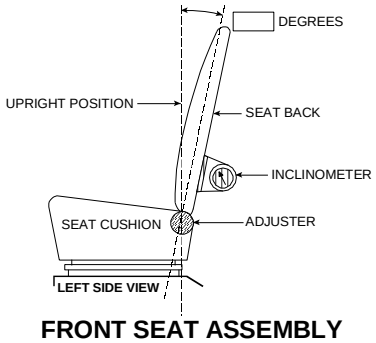
Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

NORMAL DESIGN RIDING POSITION

Driver seat: The driver seat back was positioned according to the Nominal Design Riding position listed in FORM 1

Passenger Seat: The rear passenger seat back was not adjustable

	Deg.
Driver Seat Back Angle	27.1
Passenger Seat Back Angle	25.6



FRONT SEAT ASSEMBLY

SEAT FORE/AFT POSITIONS

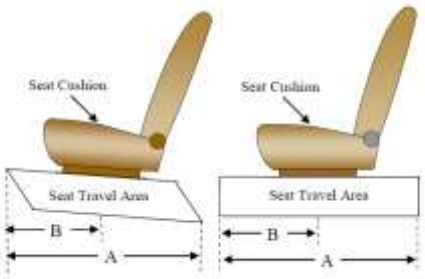
The driver's seat was positioned at the mid-point of fore/aft travel.
The passenger's seat track was not adjustable in the fore/aft direction

	Total Fore/Aft Travel	Placed in Position #
Driver Seat	13	6
Passenger Seat	FIXED	FIXED

SEAT BELT UPPER ANCHORAGES

The driver's upper seat belt anchorage was placed in the uppermost (position 0) of five possible positions. The rear seat passenger's upper belt anchorage was not adjustable.

	Total # of Positions	Placed in Position #
Driver Seat	5	0
Passenger Seat	FIXED	FIXED

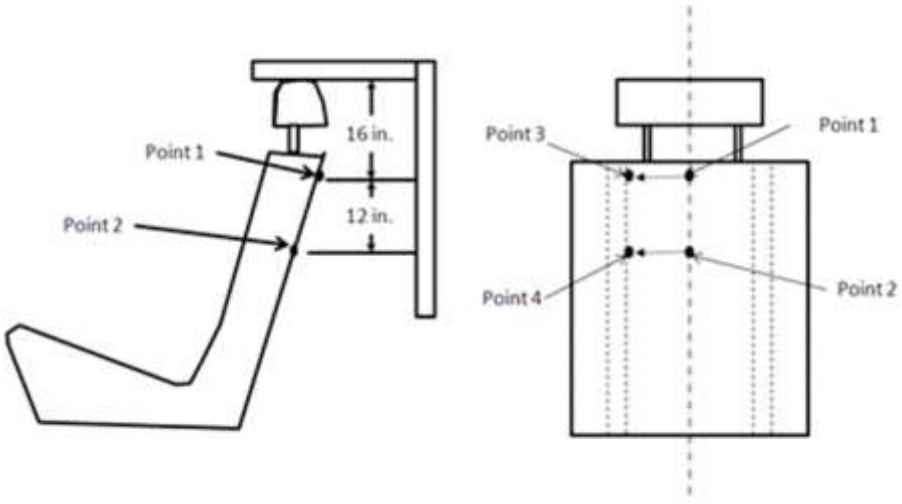


DATA SHEET NO. 2 (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

Seat Back Measurement Points



	X	Y	Z
Point 3	2323	-578	-303
Point 4	2447	-593	-9

Reference Origin Located at Center of Rear Bumper:
+X towards front of vehicle
+Y right of vehicle centerline
+Z towards ground

Note: See Appendix E.1 for a detailed description of procedure to obtain required measurements

DATA SHEET NO. 2 (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL DATA

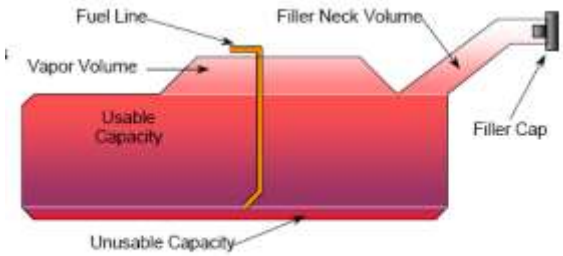
Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	68.9
Usable Capacity of "Optional Tank"	
92%-94% of Usable Capacity	63.4 - 64.8
Actual Amount of Solvent Used	63.6
1/3 of Usable Capacity	23.0

FUEL PUMP

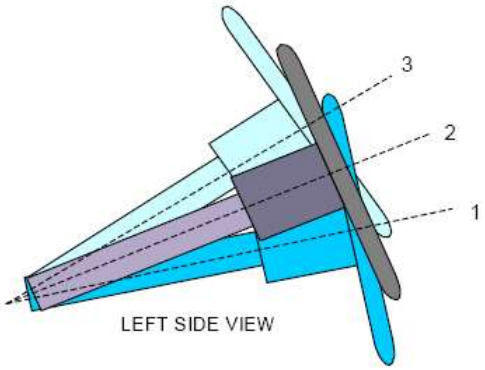
Fuel evacuated according to the specifications provided by the manufacturer in Form 1



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

The steering wheel was adjusted to the midpoint of tilt angle range. This vehicle did not have a telescoping wheel.



STEERING COLUMN ASSEMBLY

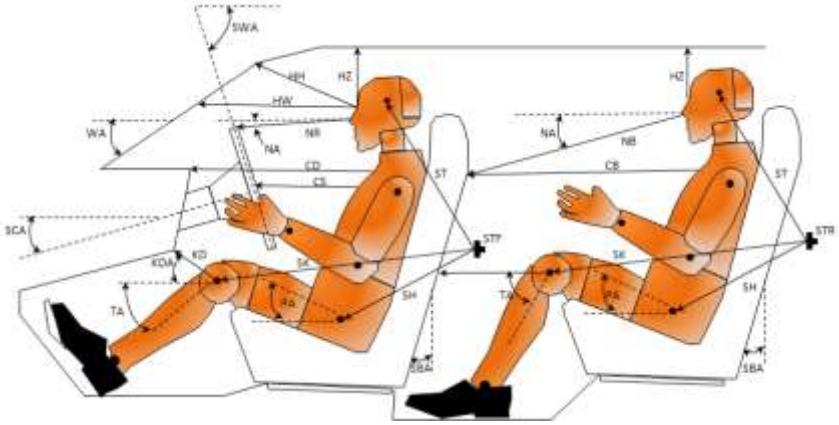
STEERING COLUMN POSITIONS

	Degrees	Fore/Aft Position (mm)
Lowermost position No. 1	76.2	
Geometric center position No. 2	68.7	
Uppermost position No. 3	60.6	
Telescoping Steering Wheel Travel		NA
Test Position	68.7	NA

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011



Code	Measurement Description	Driver		Left Rear Passenger	
		Length (mm)	Angle(°)	Length (mm)	Angle (°)
WAº	Windshield Angle		25.0		
SWAº	Steering Wheel Angle		68.3		
SCAº	Steering Column Angle		19.8		
SAº	Seat Back Angle (on headrest post)		19.3		
HZ	Head to Roof (Z)	160	90.0	310	90.0
HH	Head to Header	346	14.6		
HW	Head to Windshield	558	0.0		
NR/NB	Nose to Rim/Seat Back	430	-12.1	672	-6.4
CD/CB	Chest to Dash/Seat Back	590		636	
CS	Chest to Steering Hub	317	0.0		
RA	Rim to Abdomen	181	0.0		
KDL/KBL	Left Knee to Dash/Seat Back	110	13.8	258	9.0
KDR/KBR	Right Knee to Dash/Seat Back	76	12.7	255	7.0
PAº	Pelvic Angle		22.4		24.4
TAº	Tibia Angle		59.4		-51.2
SK	Striker to Knee	602	-6.5	665	-20.1
ST	Striker to Head	600	84.7	295	54.8
SH	Striker to H-Point	240	-34.8	400	-47.5
HAXº	Head Angle X		-56.0		
HAYº	Head Angle Y		5.2		
NAXº	Neck Angle X		-4.8		
NAYº	Neck Angle Y		-5.5		
TAXº	T Angle X		-41.3		
TAYº	T Angle Y		40.1		
LAXº	Lumbar Angle (X)		-15.1		
LAYº	Lumbar Angle (Y)		34.9		

DATA SHEET NO. 3 (CONTINUED)

DUMMY CMM MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

Description	Units	Driver			Left Rear Passenger		
		X	Y	Z	X	Y	Z
Striker (Driver/Passenger)	mm	2445.28	-791.14	-99.28	1424.07	-786.42	-303.84
Head CG	mm	2514.25	-464.38	-645.66	1563.66	-417.55	-541.35
Bridge of Nose	mm				1634.95	-345.32	-543.85
Tip of Nose	mm				1659.72	-343.84	-516.45
Shoulder Bolt	mm	2535.13	-561.61	-388.06	1562.02	-512.12	-297.68
Tip of Chin	mm	2620.99	-385.03	-520.96	1651.57	-347.59	-441.60
H-point	mm	2684.46	-602.74	42.38	1734.64	-511.01	31.10
Left Knee	mm	3080.02	-536.16	-135.38	2125.66	-434.26	-71.80
Right Knee	mm	3124.88	-174.05	-71.39	2127.60	-291.49	-81.40
Left Ankle	mm	3353.21	-534.62	157.67	2273.77	-425.86	175.39
Right Ankle	mm	3442.73	-231.73	140.63	2273.19	-277.84	168.45
Left Heel	mm	3357.84	-562.57	324.21	2230.96	-449.68	307.81
Right Heel	mm	3476.43	-232.26	323.48	2239.35	-281.40	303.82
Driver's Outboard Seat Anchor Bolt	mm	2924.69	-556.39	299.69			
Outboard Head Restraint Post	mm	2334.21	-457.88	-446.93			
Top of Head Restraint *	mm	-	-	-	-	-	-
Center of Steering Wheel	mm	3002.79	-360.51	-364.75			

*Driver Head restraint was removed at COTR's request; This vehicle did not have a rear seat passenger head restraint

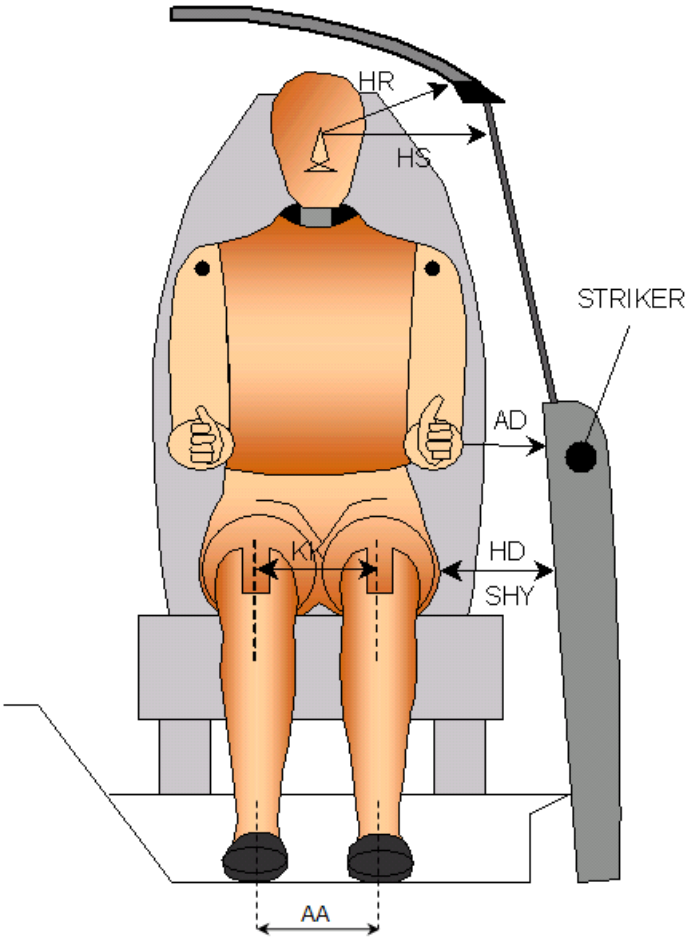
Reference Origin Located at Center of Rear Bumper:

+X towards front of vehicle
+Y right of vehicle centerline
+Z towards ground

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7° / 18% Small Overlap Frontal	Test Date	2/25/2011

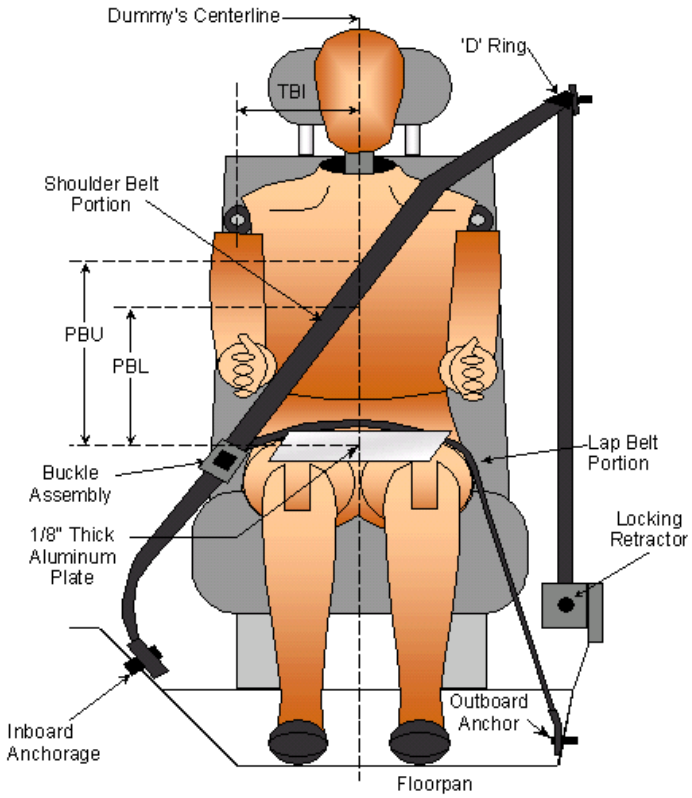


Code	Description	Units	Driver	Passenger
AD	Arm to Door	mm	106	124
HD	H-Point to Door	mm	143	211
HR	Head to Side Header	mm	151	263
HS	Head to Side Window	mm	298	380
KK	Knee to Knee	mm	360	160
SHY	Striker to H-Point (Y Direction)	mm	245	310
AA	Ankle to Ankle	mm	324	172

DATA SHEET NO. 5

SEAT BELT POSITIONING DATA

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU — Top surface of aluminum plate to belt upper edge	mm	325	310
PBL — Top surface of aluminum plate to belt lower edge	mm	249	230

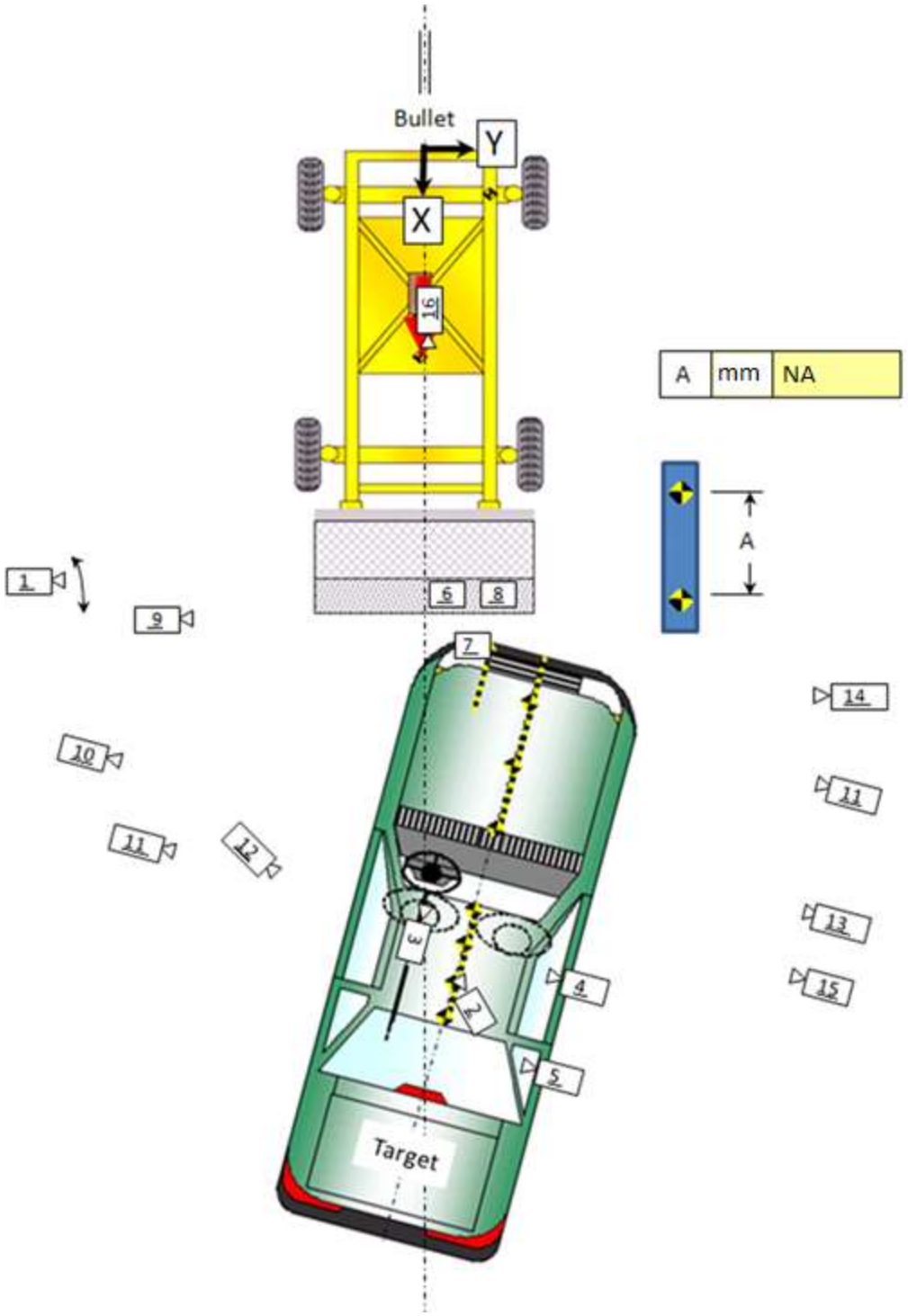
BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	860	810
Lap Belt Length as measured on ATD	mm	850	600
Remainder of belt on reel	mm	220	200
Total belt length for continuous webbing systems	mm	1,930	1,610

DATA SHEET NO. 6

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7° / 18% Small Overlap Frontal	Test Date	2/25/2011



DATA SHEET NO. 6 (CONTINUED)

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

CAMERA LOCATIONS

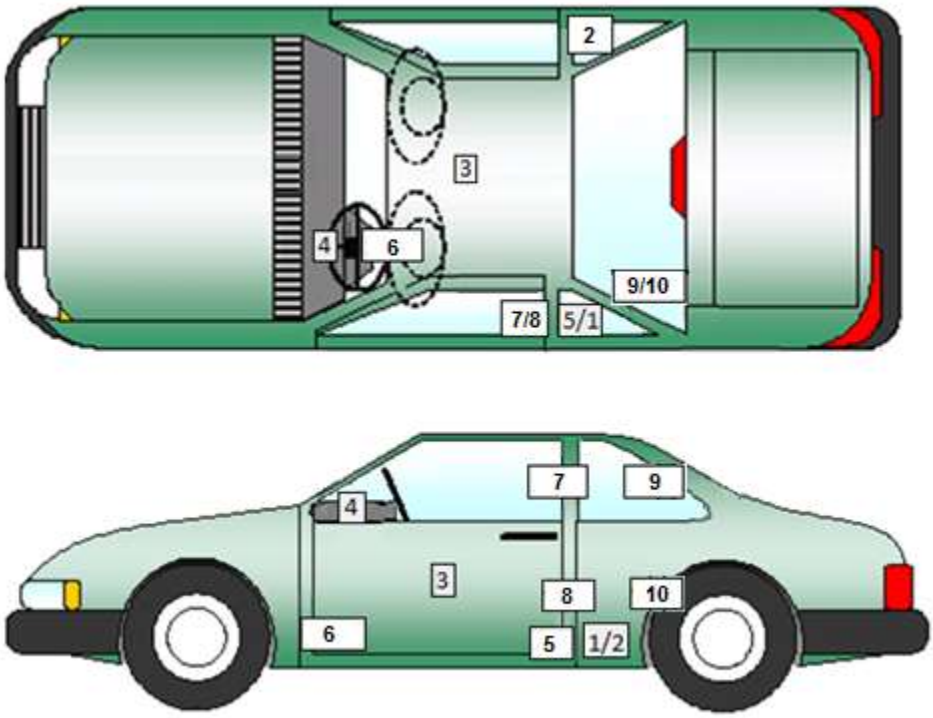
No.	Camera View	Location (mm)			Lens (mm)	Speed (fps)
		X	Y	Z		
1	Real-Time Left Side View	-	-	-	-	-
2	Onboard Driver Over Shoulder	7455	295	1360	12.5	500
3	Onboard Driver Lower Leg	6035	370	330	6.5	500
4	Onboard Driver Perpendicular	6285	660	920	12.5	500
5	Onboard Left Rear Passenger Perpendicular	7205	680	940	12.5	500
6	Overall Top View	4685	40	5300	14	1000
7	Zoomed Top View	4385	0	5300	24	1000
8	Pit Front	-	-	-	-	-
9	Overall Left Side	3885	-8660	1455	24	1000
10	Target Vehicle Left Side	4535	-8540	1340	24	1000
11	Driver's Motion	4255	-3610	1385	50	1000
12	Look Down Driver's Motion	-	-	-	24	1000
13	Target Vehicle Right Side	5210	9580	1430	50	1000
14	Bullet Vehicle Left Side	4580	-4310	1465	24	1000
15	Bullet Vehicle Right Side	5345	8550	1350	24	1000

* COORDINATES
(At the 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 ACCELEROMETER DATA

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7o / 18% Small Overlap Frontal	Test Date	2/25/2011



VEHICLE ACCELEROMETER PRE-TEST LOCATIONS

Accelerometer Location	Axes	Units	Location		
			X	Y	Z
Left Rear Sill	X,Y	mm	2142	589	240
Right Rear Sill	X,Y	mm	2142	-589	240
Vehicle CG	X, Y, Z	mm	3026	-9	342
Instrument Panel	X	mm	3210	11	947
Driver Seat Track	X, Y, Z	mm	2539	-533	262
Brake Pedal	X, Y, Z	mm	3649	-157	344

Reference Points: Rearmost center of the top of rear bumper beam

+X – From rear of vehicle to the front of vehicle

+Y – From the left side of the vehicle to the right side of the vehicle

+Z – From the top of the vehicle to the bottom of the vehicle

DATA SHEET NO. 7 (CONTINUED)
VEHICLE INSTRUMENTATION DATA

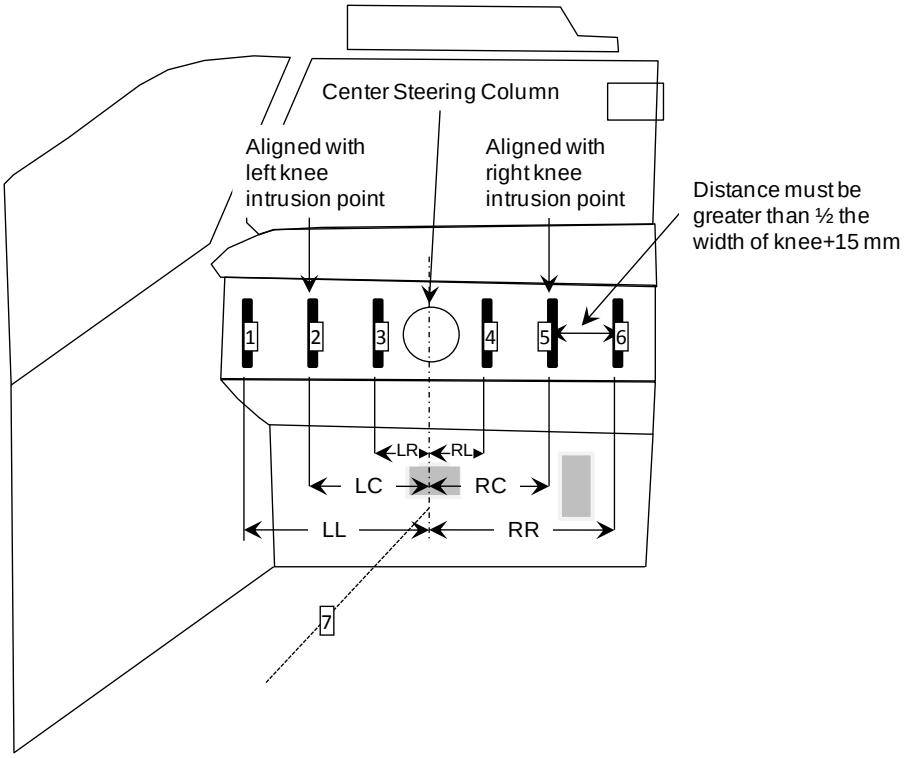
Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7° / 18% Small Overlap Frontal	Test Date	2/25/2011

VEHICLE INSTRUMENTATION DATA

Loc.	Description	Axes	Units	Positive Direction		Negative Direction	
				Max	Time (ms)	Max	Time (ms)
1	Left Rear Cross Member	X	G	2.65	46.15	-44.80	41.80
		Y	G	14.05	59.40	-8.29	45.20
2	Right Rear Cross Member	X	G	5.34	250.10	-21.78	42.75
		Y	G	20.37	61.10	-12.79	250.35
3	Vehicle CG	X	G	346.56	149.85	10654.69	139.70
		Y	G	26.02	58.55	-11.22	81.30
		Z	G	78.05	45.70	-47.43	77.60
4	Instrument Panel	X	G	39.38	87.30	-65.09	110.50
5	Driver Seat Track	X	G	36.27	43.05	-1.92	47.65
		Y	G	34.82	65.30	-10.06	34.45
		Z	G	19.89	42.75	-17.14	60.00
6	Behind Brake Pedal	X	G	53.08	81.30	-73.32	42.30
		Y	G	21.29	42.85	-44.27	80.45
		Z	G	39.39	54.25	-125.42	299.95
7	Driver Shoulder Belt		N	3168.27	68.25	-1.02	0.95
8	Driver Lap Belt		N	2009.41	57.15	-0.93	-0.30
9	Passenger Shoulder Belt		N	4335.67	95.25	-1.38	294.80
10	Passenger Lap Belt		N	2685.16	85.55	-0.31	0.20

DATA SHEET NO. 7 (CONTINUED)
VEHICLE INSTRUMENTATION DATA

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7° / 18% Small Overlap Frontal	Test Date	2/25/2011



Location	Distance (mm)	Location	Distance (mm)
LL	200	RL	100
LC	150	RC	150
LR	100	RR	200

VEHICLE INSTRUMENTION DATA

Loc.	Description		Positive Direction		Negative Direction	
			Max	Time (ms)	Max	Time (ms)
1	Left knee contact switch (LL) (ms)	*	0.72	47.10	-5.60	5.55
2	Left knee contact switch (LC) (ms)	*	0.75	74.05	-5.64	42.35
3	Left knee contact switch (LR) (ms)	*	0.74	66.40	-5.36	43.45
4	Right knee contact switch (RL) (ms)	*	0.65	124.90	-5.41	40.75
5	Right knee contact switch (RC) (ms)	*	0.72	95.30	-5.64	91.85
6	Right knee contact switch (RR) (ms)	*	0.86	248.40	-5.92	110.10
7	Toepan string pot (mm)		0.11	0.15	-124.45	87.70

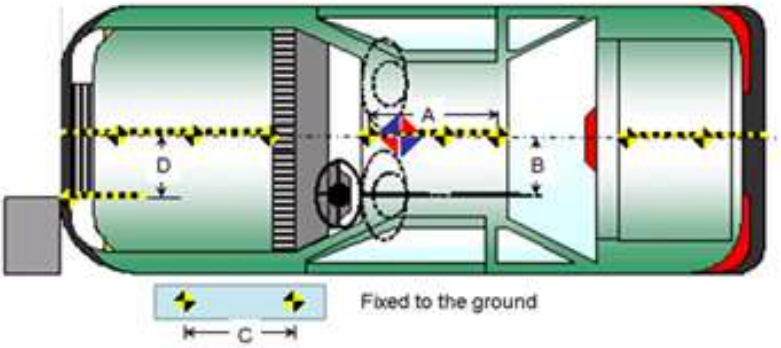
* The measurement indicates the initial time the voltage changed

DATA SHEET NO. 8

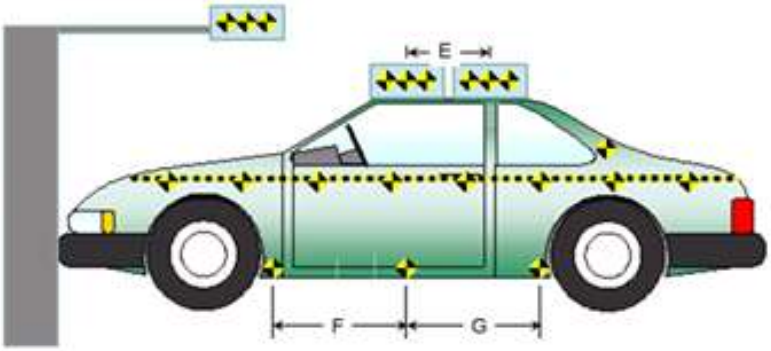
PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7° / 18% Small Overlap Frontal	Test Date	2/25/2011

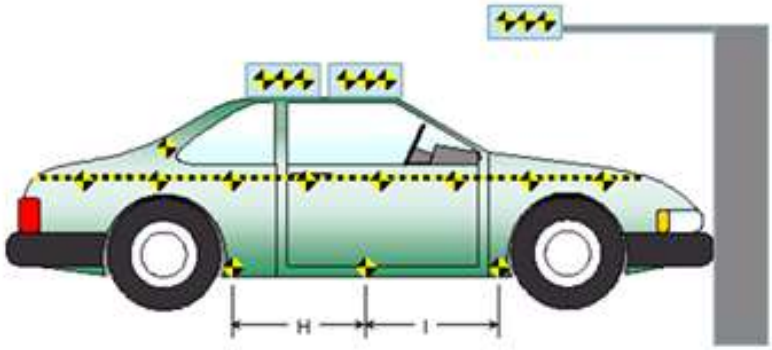
Item	Units	Value (mm)
A	mm	610
B	mm	363
C	mm	610
D	mm	280
E	mm	1074
F	mm	940
G	mm	943
H	mm	943
I	mm	944



Top View



Left Side View

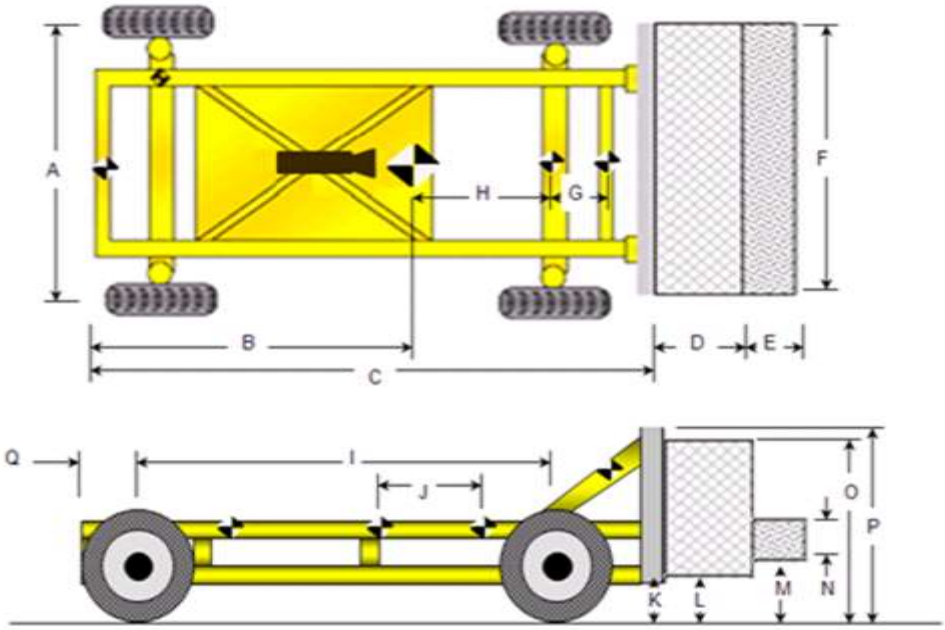


Right Side View

DATA SHEET NO. 8 (CONTINUED)

PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011



Item	Units	Value	Item	Units	Value
A	mm	1900	J	mm	701
B	mm	2057	K	mm	134
C	mm	3505	L	mm	209
D	mm	610	M	mm	-
E	mm	-	N	mm	-
F	mm	2200	O	mm	1159
G	mm	686	P	mm	1234
H	mm	953	Q	mm	838
I	mm	2590			

DATA SHEET NO. 9

TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7o / 18% Small Overlap Frontal	Test Date	2/25/2011

INSTRUMENTATION

Driver Dummy Channels	119
Passenger Dummy Channels	34
Belt load cells	4
Contact Switches	6
Vehicle Structure Accelerometers	14
RMDB Vehicle Accelerometers	6
Total	185

CAMERA COVERAGE

High-Speed Vehicle Onboard	4
High-Speed Offboard	10
Real-Time Panning	1
Total	15

DATA SHEET NO. 10

POST TEST OBSERVATIONS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

TEST DUMMY INFORMATION AND CONTACT

Description	Driver	Rear Passenger
Dummy Type/Serial No.	THOR-NT 50th 0006	Hybrid III 5th 147
Head Contact	Airbag, A-pillar trim, Side Header and B-pillar Trim	Chest, Seatback
Upper Torso Contact	Airbag, Door Trim Panel	None
Lower Torso Contact	Airbag, Door Trim Panel	None
Left Knee Contact	Knee Bolster	Driver Seatback
Right Knee Contact	Knee Bolster	Driver Seatback

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Rear Passenger
Locked/Unlocked Doors	Unlocked	Unlocked
Front Door Opening	Opened During Crash 60 mm	Closed & Operational
Rear Door Opening	Jammed Shut	Closed & Operational
Seat Track Shift (mm)	Unknown	NA
Seat Back Failure	None	None
Glazing Damage	Laminate tears along lower edges	

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Windshield Damage	Damaged, tear in laminate along lower left and right edges
Window Damage	NA
Other Notable Effects	A-pillar buckled due to engagement with barrier

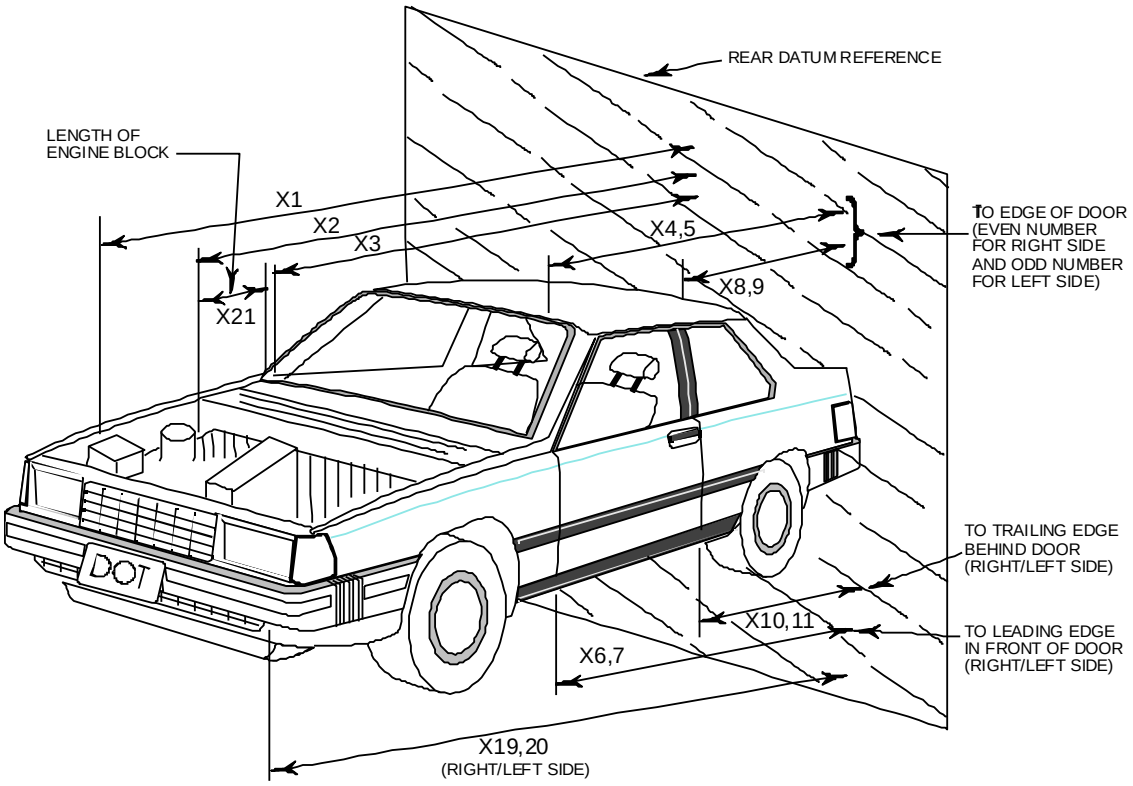
SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

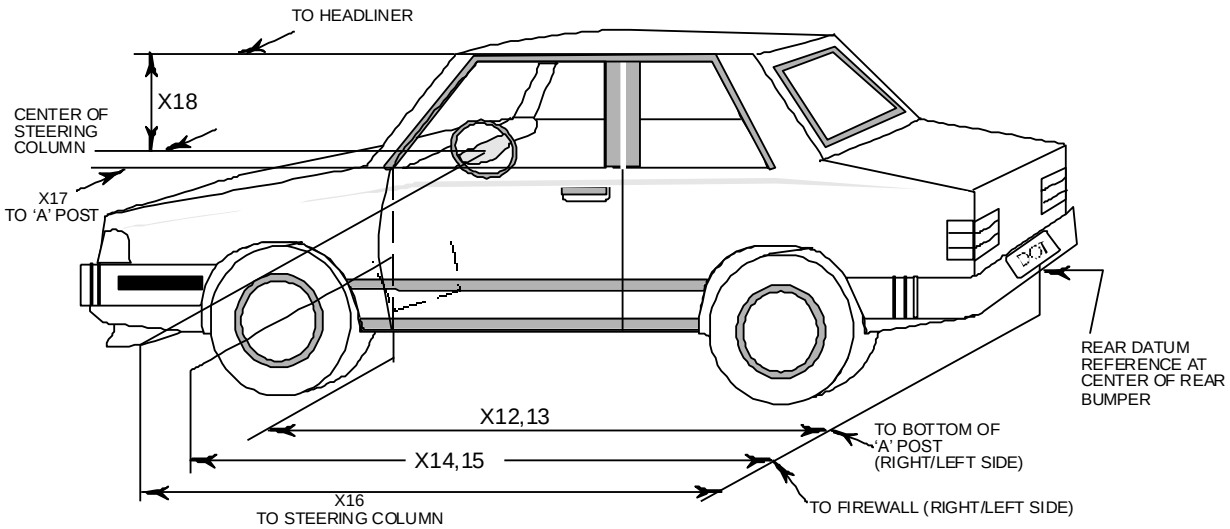
Restraint Type	Driver (Occupant 1)		Rear Passenger (Occupant 2)	
	Installed	Operated	Installed	Operated
Front Airbag	Yes	Yes	No	
Knee Airbag	No	No	No	
Seat Belt Pretensioner	Yes	Yes	No	
Seat Belt Load Limiter	Yes	Yes	No	
Other				

DATA SHEET NO. 11

VEHICLE PROFILE MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7° / 18% Small Overlap Frontal	Test Date	2/25/2011





DATA SHEET NO. 11 (CONTINUED)

VEHICLE PROFILE MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

No.	Measurement Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	5028	4940	-88
2	Rear Surface of Vehicle (RSOV) to Front of Engine	4390	4340	-50
3	RSOV to Firewall	3929	3695	-234
4	RSOV to Upper Leading Edge of Right Door	3461	3485	24
5	RSOV to Upper Leading Edge of Left Door	3466	3001	-465
6	RSOV to Lower Leading Edge of Right Door	3444	3493	49
7	RSOV to Lower Leading Edge of Left Door	3446	3382	-64
8	RSOV to Upper Trailing Edge of Right Door	2388	2413	25
9	RSOV to Upper Trailing Edge of Left Door	2388	2395	7
10	RSOV to Lower Trailing Edge of Right Door	2372	2430	58
11	RSOV to Lower Trailing Edge of Left Door	2372	2342	-30
12	RSOV to Bottom of “A” Post of Right Side	3514	3533	19
13	RSOV to Bottom of “A” Post of Left Side	3513	3085	-428
14	RSOV to Firewall, Right Side	3889	3910	20
15	RSOV to Firewall, Left Side	3896	3520	-376
16	RSOV to Steering Column	2998	2757	-241
17	Center of Steering Column to “A” Post	282	336	54
18	Center of Steering Column to Headliner	393	526	133
19	RSOV to Right Side of Front Bumper	4920	4929	8
20*	RSOV to Left Side of Front Bumper	4921	-	-
21	Length of Engine Block	431	431	0
RD	RSOV to Right Side of Dash Panel	3120	3134	13
CD	RSOV to Center of Dash Panel	3187	3022	-165
LD	RSOV to Left Side of Dash Panel	3126	2959	-168

All Dimensions in mm

*Left side of bumper was sheared off during the collision and was no longer attached to the vehicle.

DATA SHEET NO. 12

ACCIDENT INVESTIGATION DIVISION DATA

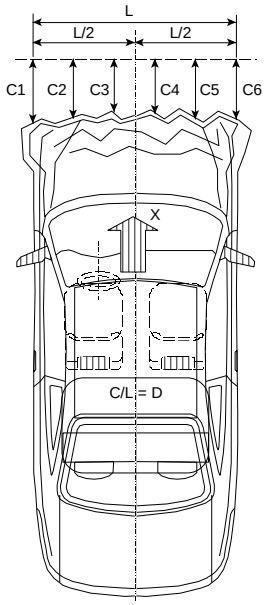
Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

VEHICLE INFORMATION

VIN:	1FAFP53U57A138399	Wheelbase:	2748
Vehicle Size Category:	Passenger	Test Weight (kg):	1729.0

ACCELEROMETER DATA

Accelerometer Locations:	Data Sheet No.7	Linearity:	>99%
Cal. Procedure/Interval:	Calspan Procedure/ 6 months		
Integration Algorithm:	Trapezoidal		
Impact Velocity (km/h):	97.62		
Velocity Change (km/h):	97.62		



CRUSH PROFILE

Collision Deformation Classification :	12FLEE8
Midpoint of Damage:	N/A
Damage Region Length (mm):	1428
Impact Mode:	Narrow Overlap Frontal

Crush Measurements: WITH BUMPER COVER

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	4839	4375	-464
C2	Crush zone 2 at left side	mm	4971	4551	-420
C3	Crush zone 3 at left side	mm	5023	4658	-365
C4	Crush zone 4 at right side	mm	5023	4752	-271
C5	Crush zone 5 at right side	mm	4970	4836	-134
C6	Crush zone 6 at right side	mm	4835	4876	41
L	C1 to C6	mm	1428	1132	296

DATA SHEET NO. 13

VEHICLE INTRUSION MEASUREMENTS

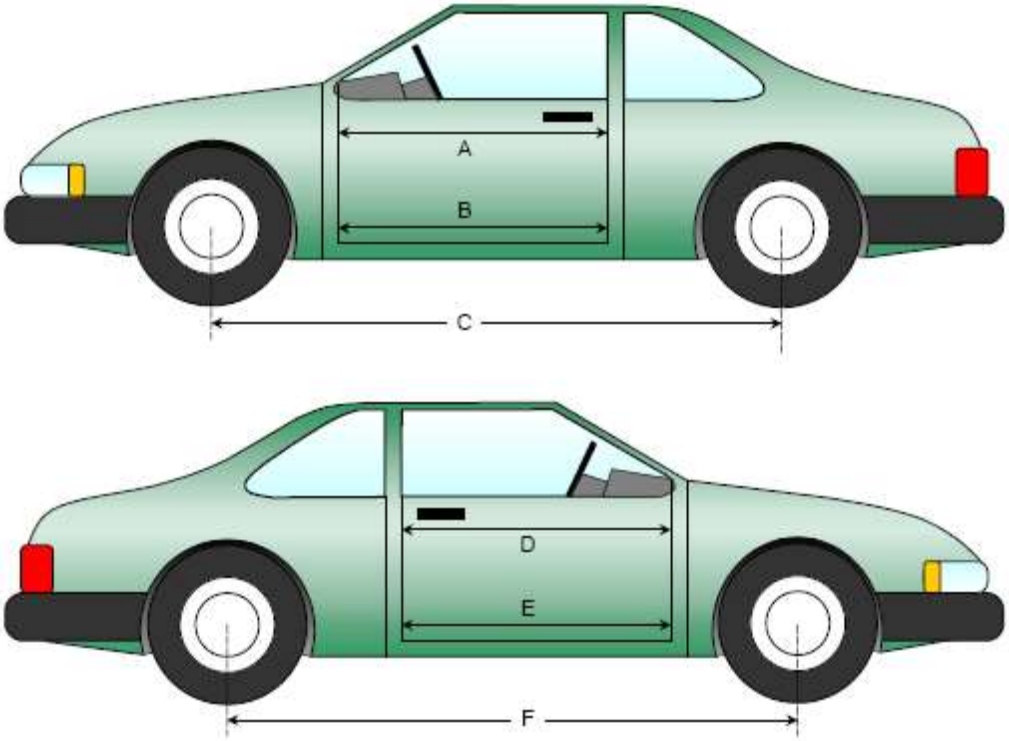
Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	955	639	-317
B	Left Side Lower	mm	920	725	-195
D	Right Side Upper	mm	955	949	-6
E	Right Side Lower	mm	919	915	-4

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2756	2321	-435
F	Right Side Wheelbase	mm	2739	2815	75



DATA SHEET NO.13 (CONTINUED)

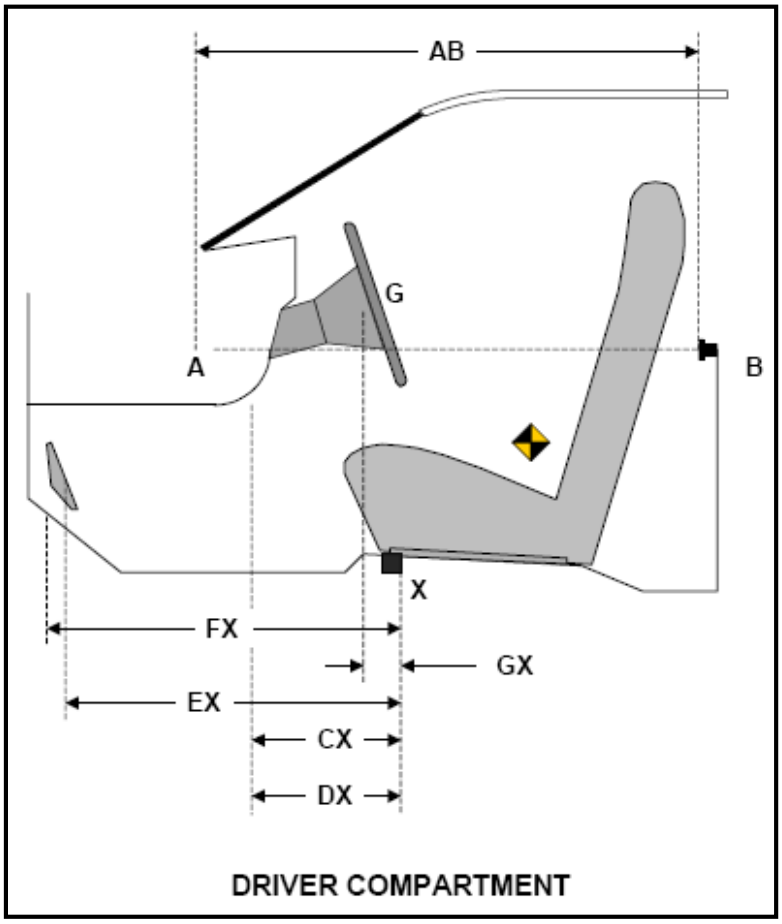
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	798	411	-388
CX	Left Knee Bolster to X	mm	258	143	-115
DX	Right Knee Bolster to X	mm	257	215	-42
EX	Brake Pedal to X	mm	562	480	-82
FX	Foot Rest to X	mm	590	523	-66
GX	Center of Steering Column Wheel Hub to X	mm	78	-155	-232

X = Front of Seat Track (Stationary)

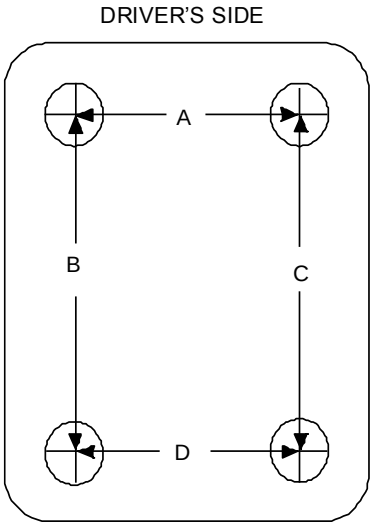


DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

TOP VIEW THROUGH FLOOR PAN



UNDERBODY FLOORBOARD DEFORMATION

Measurement	Pre-Test	Post-Test	Difference
A	453	484	31
B	395	202	-193
C	299	307	8
D	399	401	3

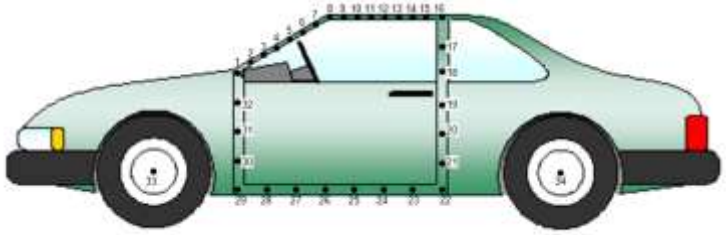
All units in millimeters

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

DRIVER SIDE DOOR SILL INTRUSIONS



Left Side View

Pt.	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	3480	-801	-379	3007	-702	-375	-472	99	4
2	3416	-780	-431	2997	-687	-400	-419	93	30
3	3350	-760	-475	2994	-683	-441	-357	77	34
4	3286	-740	-517	2999	-681	-490	-287	59	27
5	3219	-721	-557	2984	-678	-533	-236	43	24
6	3155	-703	-594	2958	-672	-622	-197	31	-27
7	3083	-681	-634	2931	-669	-710	-152	12	-75
8	3015	-661	-669	2898	-663	-794	-117	-2	-124
9	2950	-639	-702	2859	-654	-878	-91	-15	-176
10	2878	-618	-734	2805	-643	-947	-73	-25	-213
11	2805	-597	-763	2717	-624	-957	-88	-26	-194
12	2729	-586	-782	2631	-606	-944	-98	-20	-162
13	2652	-576	-799	2543	-588	-921	-108	-12	-122
14	2544	-562	-819	2463	-577	-891	-81	-15	-72
15	2437	-557	-829	2379	-566	-856	-58	-9	-27
16	2320	-561	-830	2301	-563	-852	-19	-3	-21
17	2349	-691	-676	2297	-902	-708	-52	-210	-32
18	2382	-787	-505	2368	-964	-532	-14	-176	-27
19	2410	-888	-337	2394	-1020	-336	-16	-132	1
20	2429	-914	-148	2439	-1006	-167	10	-92	-19
21	2421	-931	56	2390	-975	23	-31	-44	-33
22	2446	-894	250	2359	-962	167	-87	-68	-83
23	2607	-902	233	2508	-946	202	-99	-43	-32
24	2766	-897	235	2671	-939	216	-95	-42	-20
25	2926	-895	232	2825	-952	206	-101	-58	-26
26	3090	-887	237	2992	-955	197	-98	-69	-41
27	3251	-881	238	3154	-947	186	-97	-65	-53
28	3404	-878	235	3302	-923	158	-102	-44	-77
29	3547	-886	240	3366	-803	183	-181	82	-56
30	3549	-901	67	3284	-837	21	-265	64	-46
31	3556	-900	-135	3179	-841	-170	-378	58	-35
32	3547	-876	-281	3105	-803	-349	-442	73	-68

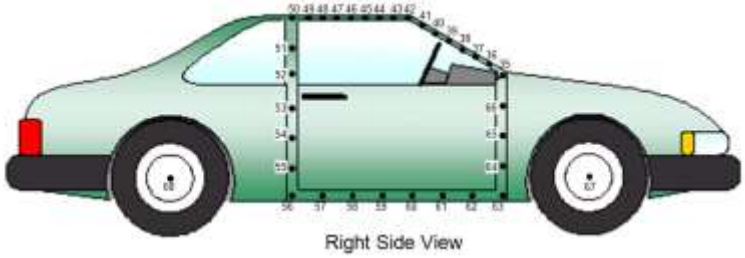
*****Coordinate system origin at center of rear bumper: +X Forward, +Y Right of Centerline, +Z Down
Note: Please see Appendix E.2 for a detailed procedure used to measure the required door sill intrusions

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

PASSENGER SIDE DOOR SILL INTRUSIONS



Right Side View

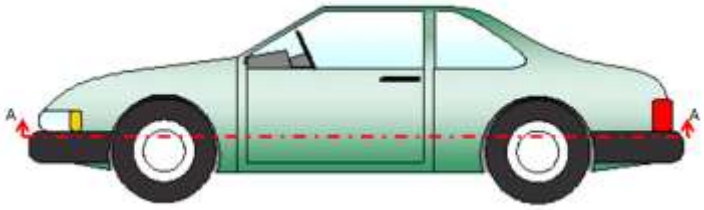
Pt.	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
35	3479	805	-365	3503	813	-468	24	8	-103
36	3414	784	-419	3440	790	-527	25	6	-108
37	3346	762	-470	3363	764	-578	17	2	-108
38	3275	739	-518	3290	736	-623	15	-3	-105
39	3205	719	-561	3217	710	-664	13	-9	-103
40	3134	701	-600	3136	683	-706	2	-18	-105
41	3063	678	-641	3058	654	-744	-5	-24	-103
42	2988	654	-679	2983	626	-778	-5	-28	-98
43	2913	628	-717	2902	601	-813	-12	-26	-96
44	2838	605	-749	2818	583	-837	-20	-22	-88
45	2761	580	-780	2729	574	-854	-32	-6	-75
46	2684	581	-792	2648	567	-867	-36	-14	-75
47	2600	577	-804	2558	565	-875	-42	-12	-71
48	2510	576	-812	2466	566	-878	-44	-9	-66
49	2422	568	-822	2395	566	-879	-27	-2	-57
50	2330	553	-837	2310	562	-885	-20	8	-48
51	2341	685	-687	2347	791	-736	5	107	-50
52	2374	781	-515	2389	874	-571	15	93	-57
53	2414	877	-343	2436	962	-399	22	85	-56
54	2427	911	-161	2465	982	-205	38	71	-44
55	2419	928	39	2473	988	2	54	60	-36
56	2416	899	238	2472	963	165	56	63	-72
57	2584	906	218	2620	957	142	35	51	-76
58	2740	897	230	2777	945	129	37	47	-102
59	2896	890	236	2938	933	109	41	43	-127
60	3054	886	234	3099	916	99	44	30	-135
61	3209	873	249	3256	895	107	47	22	-142
62	3366	865	254	3415	876	100	49	11	-154
63	3524	867	261	3530	866	98	6	-1	-163
64	3530	897	93	3548	888	-38	18	-9	-131
65	3541	896	-80	3563	896	-186	22	1	-106
66	3536	879	-266	3565	908	-346	29	29	-80

*****Coordinate system origin at center of rear bumper: +X Forward, +Y Right of Centerline, +Z Down
Note: Please see Appendix E.2 for a detailed procedure used to measure the required door sill intrusions

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011



VEHICLE EXTERIOR CRUSH PROFILE
SECTION A-A

Pt.	Pre-Test			Pt.	Post-Test		
	X	Y	Z		X	Y	Z
1	593	852	-19	1	773	-862	-40
2	741	873	-21	2	1545	-941	-51
3	890	893	-23	3	1872	-944	-49
4	1498	920	-31	4	2204	-945	-85
5	1646	918	-30	5	2428	-993	-115
6	1796	918	-29	6	2502	-1089	-94
7	1948	917	-34	7	2722	-1012	-104
8	2098	916	-33	8	2979	-942	-100
9	2252	917	-31	9	3136	-961	-125
10	2407	917	-32	10	3221	-855	-131
11	2562	915	-33	11	3294	-663	-154
12	2709	912	-35	12	3580	-761	-127
13	2859	910	-35	13	3794	-566	-200
14	3013	907	-33	14	4059	-562	-268
15	3162	904	-35	15	4407	-605	-352
16	3317	901	-35	16	4903	-614	-380
17	3470	899	-34	17	4952	-284	-223
18	3617	899	-31	18	4990	169	-189
19	4383	852	-32	19	4918	435	-111
20	4540	822	-36	20	4739	624	-85
21	4699	747	27	21	4400	739	-76
22	4801	661	55	22	3652	883	-45
23	4870	523	66	23	3444	896	-19
24	4885	373	69	24	3107	930	-2
25	4895	223	71	25	2808	958	-1
26	4900	72	68	26	2458	990	29
27	4899	-79	72	27	2304	909	15
28	4894	-231	67	28	1949	916	24
29	4886	-380	63	29	1673	921	32
30	4871	-533	64	30	1594	911	27

Note: See Appendix E.3 for a detailed procedure on how to measure the required vehicle exterior crush profile

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

VEHICLE EXTERIOR CRUSH PROFILE
SECTION A-A

Pt.	Pre-Test			Pt.	Post-Test		
	X	Y	Z		X	Y	Z
31	4799	-649	48	31	963	943	124
32	4700	-737	15	32	409	825	143
33	4603	-811	-32	33	222	652	136
34	4402	-849	-29	34	126	317	130
35	4262	-876	-30	35	73	-62	112
36	3647	-907	-32	36	70	-424	112
37	3494	-902	-28	37	189	-687	102
38	3349	-906	-30				
39	3196	-909	-30				
40	3046	-912	-31				
41	2895	-916	-30				
42	2745	-919	-29				
43	2593	-922	-32				
44	2445	-925	-30				
45	2292	-924	-29				
46	2142	-924	-31				
47	1994	-924	-28				
48	1846	-924	-28				
49	1692	-923	-30				
50	1517	-927	-36				
51	790	-883	-31				
52	642	-862	-34				
53	495	-840	-34				
54	343	-812	-32				
55	168	-751	-32				
56	69	-576	-27				
57	35	-422	-28				
58	17	-267	-28				
59	10	-111	-25				
60	8	47	-24				
61	14	207	-23				
62	28	359	-22				
63	54	515	-23				
64	115	687	-21				
65	297	794	-19				
66	446	824	-16				

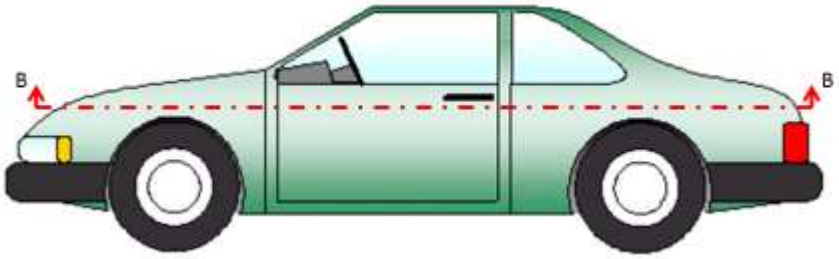
*Coordinate system origin at center of rear bumper: +X Forward, +Y Right of Centerline, +Z Down
Note: See Appendix E.3 for a detailed procedure on how to measure the required vehicle exterior crush profile

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

VEHICLE EXTERIOR CRUSH PROFILE



VEHICLE EXTERIOR CRUSH PROFILE
SECTION B-B (Continued)

Pt.	Pre-Test			Pt.	Post-Test		
	X	Y	Z		X	Y	Z
1	591	836	-201	1	782	-852	-202
2	743	859	-199	2	1087	-897	-205
3	892	876	-202	3	1379	-925	-222
4	1042	893	-202	4	1685	-932	-241
5	1193	904	-203	5	1992	-941	-257
6	1343	910	-202	6	2298	-948	-268
7	1494	913	-203	7	2349	-947	-286
8	1646	913	-202	8	2411	-1061	-292
9	1797	915	-202	9	2615	-1142	-313
10	1945	916	-204	10	2808	-1047	-317
11	2097	918	-204	11	3002	-952	-321
12	2252	918	-207	12	3005	-845	-318
13	2403	921	-209	13	3086	-853	-324
14	2557	923	-204	14	3233	-785	-323
15	2706	919	-203	15	3465	-794	-337
16	2857	917	-205	16	3594	-834	-349
17	3010	916	-206	17	3705	-599	-355
18	3164	914	-205	18	3844	-609	-343
19	3316	910	-207	19	3970	-554	-345
20	3465	905	-207	20	4110	-624	-363
21	3615	899	-206	21	4271	-672	-373
22	3769	893	-202	22	4458	-669	-402
23	3921	882	-207	23	4569	-497	-388
24	4073	867	-204	24	4667	-288	-329
25	4222	844	-203	25	4812	148	-300
26	4371	808	-204	26	4810	479	-317
27	4510	745	-202	27	4565	719	-305
28	4568	614	-156	28	4410	764	-293
29	4640	483	-148	29	4254	805	-282

Note: See Appendix E.3 for a detailed procedure on how to measure the required vehicle exterior crush profile

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

VEHICLE EXTERIOR CRUSH PROFILE
SECTION B-B (Continued)

Pt.	Pre-Test			Pt.	Post-Test		
	X	Y	Z		X	Y	Z
30	4702	355	-146	30	4152	826	-271
31	4714	203	-145	31	3846	874	-243
32	4719	56	-146	32	3602	896	-226
33	4727	-90	-147	33	3217	913	-208
34	4714	-235	-146	34	2910	932	-183
35	4699	-394	-147	35	2538	973	-161
36	4614	-490	-142	36	2263	895	-156
37	4573	-615	-157	37	1818	905	-126
38	4531	-743	-203	38	1449	923	-108
39	4402	-810	-198	39	1068	935	-101
40	4256	-844	-200	40	662	850	-83
41	4107	-867	-199	41	363	835	-47
42	3956	-883	-200	42	241	620	-54
43	3807	-891	-201	43	191	405	-62
44	3658	-902	-208	44	143	159	-76
45	3498	-908	-207	45	122	-214	-95
46	3350	-913	-208	46	178	-574	-118
47	3200	-916	-207				
48	3050	-919	-209				
49	2897	-920	-208				
50	2747	-922	-211				
51	2598	-927	-210				
52	2448	-924	-210				
53	2296	-923	-208				
54	2146	-923	-211				
55	1994	-920	-205				
56	1846	-920	-210				
57	1694	-919	-210				
58	1543	-917	-211				
59	1393	-914	-215				
60	1242	-911	-215				
61	1092	-902	-211				
62	944	-887	-208				
63	794	-870	-213				
64	646	-849	-212				
65	499	-823	-211				
66	355	-787	-213				

Note: See Appendix E.3 for a detailed procedure on how to measure the required vehicle exterior crush profile

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

VEHICLE EXTERIOR CRUSH PROFILE
SECTION B-B (Continued)

Pt.	Pre-Test			Pt.	Post-Test		
	X	Y	Z		X	Y	Z
67	236	-695	-211				
68	175	-556	-209				
69	162	-407	-200				
70	151	-255	-201				
71	158	-103	-202				
72	157	48	-198				
73	152	197	-204				
74	161	348	-199				
75	163	499	-196				
76	209	643	-198				
77	308	754	-199				
78	444	806	-197				

*****Coordinate system origin at center of rear bumper: +X Forward, +Y Right of Centerline, +Z Down

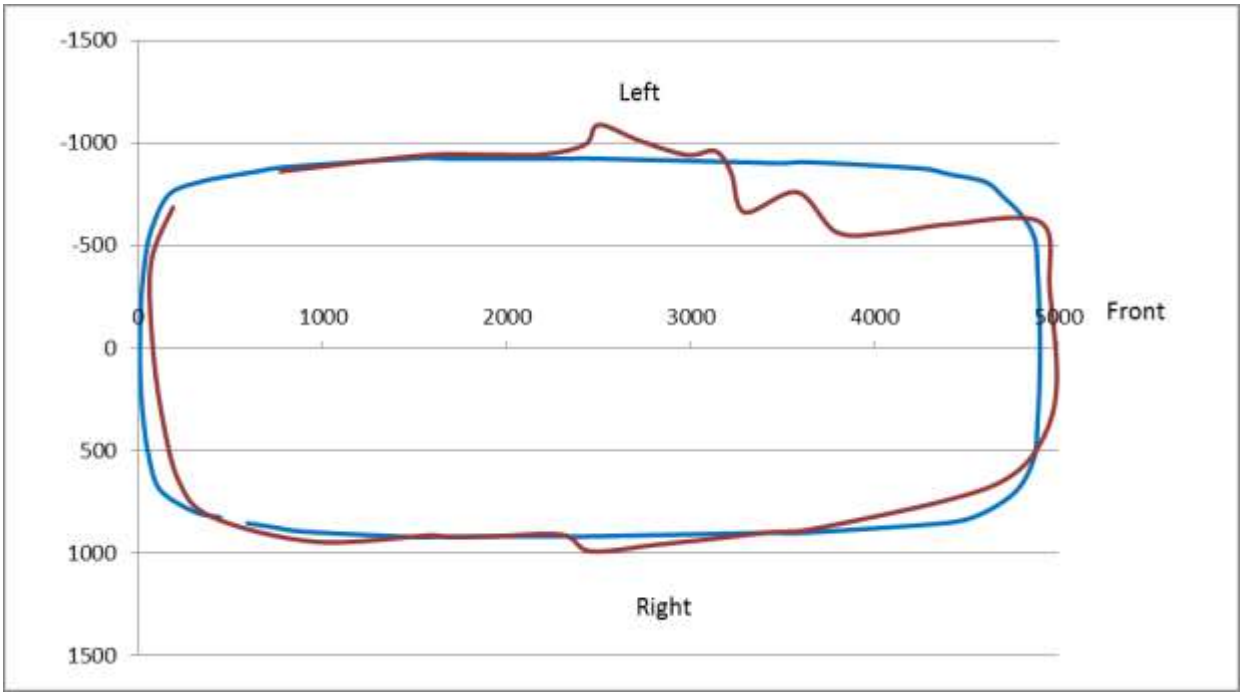
Note: See Appendix E.3 for a detailed procedure on how to measure the required vehicle exterior crush profile

DATA SHEET NO.13 (CONTINUED)

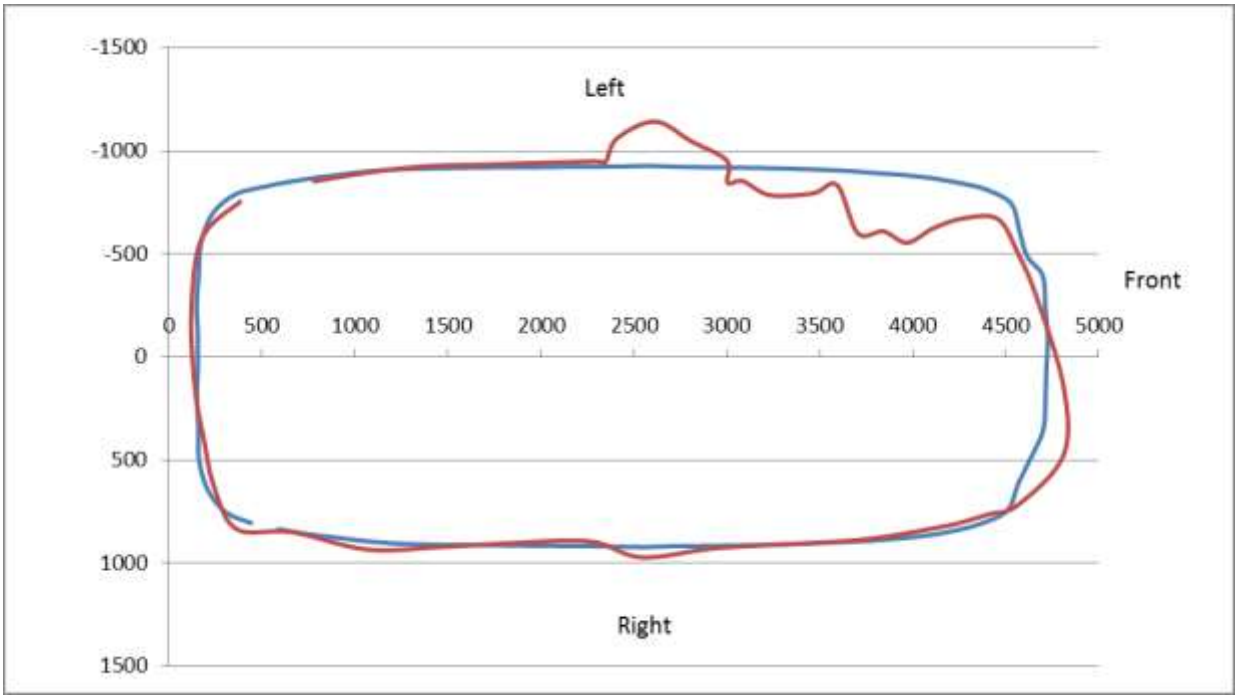
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

SECTION A-A



SECTION B-B



DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

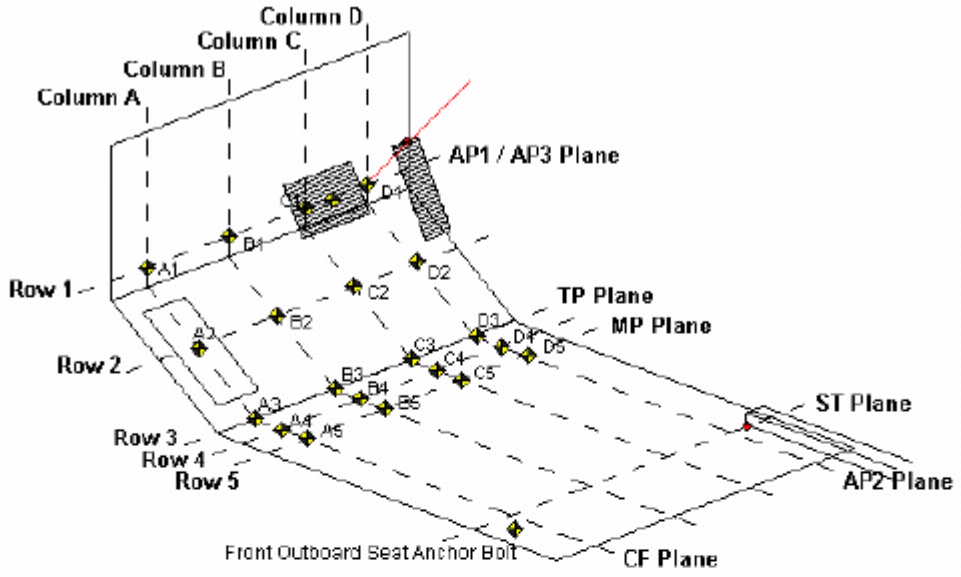
	Points	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
		X	Y	Z	X	Y	Z	X	Y	Z
Lower Bumper Beam	1	4821	-656	170	4395	-708	-359	-426	-52	-529
	2	4882	-398	176	4568	-522	-355	-313	-124	-531
	3	4896	-124	177	4674	-288	-298	-222	-164	-474
	4	4895	149	177	4766	-60	-232	-129	-209	-409
	5	4879	411	186	4849	185	-165	-31	-227	-352
	6	4818	661	187	4887	424	-92	68	-238	-278
Upper Bumper Beam	1	4825	-650	58	4375	-672	-494	-450	-22	-552
	2	4887	-392	63	4551	-490	-448	-336	-98	-512
	3	4901	-122	66	4658	-260	-391	-243	-138	-457
	4	4900	150	67	4752	-24	-331	-147	-174	-399
	5	4884	417	71	4836	214	-261	-48	-203	-332
	6	4823	661	68	4876	449	-205	53	-212	-273
Upper Radiator Support	1	4526	-639	-176	4197	-564	-646	-329	75	-470
	2	4700	-387	-150	4471	-418	-653	-229	-31	-503
	3	4741	-138	-139	4606	-212	-574	-136	-74	-435
	4	4743	149	-137	4674	42	-505	-69	-107	-368
	5	4694	406	-146	4655	304	-449	-38	-101	-303
	6	4517	640	-168	4523	553	-376	7	-87	-208

*****Coordinate system origin at center of rear bumper: +X Forward, +Y Right of Centerline, +Z Down

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7° / 18% Small Overlap Frontal	Test Date	2/25/2011



AP1: Y-Z Plane passing through D1

AP2: X-Z Plane passing through D1

AP3: X-Y plane passing through D1

MP: Y-Z plane, halfway between the ST plane and AP1 plane

CF Plane: X-Z plane passes through center of footrest.

BP Plane: X-Z plane passes through center of brake pedal

TP Plane: Y-Z plane, intersection of BP Plane and the intersection of the toe pan and floorboard

Column A: intersection of vehicle and CF plane

Column D: Intersection of vehicle and AP2 plane

Row 1: intersection of the vehicle and the AP3 Plane

Row 3: intersection of the vehicle and TP plane

Row 5: intersection of the vehicle and MP plane

Row 2: evenly spaced between row 1 and 3

Row 4: evenly spaced between row 3 and 5

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

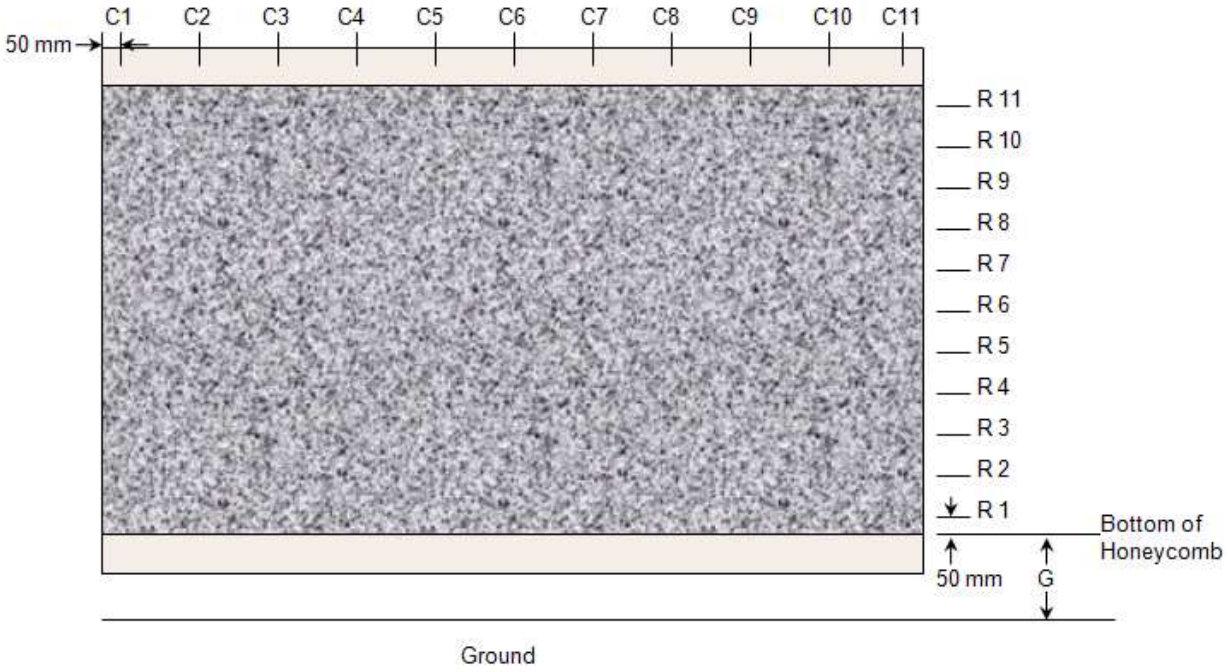
Intrusion Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3545	-573	355	3426	-510	372	119	-62	-17
B1	3660	-423	351	3569	-427	442	91	5	-91
C1	3655	-279	341	3579	-297	430	76	19	-88
D1	3649	-157	344	3603	-191	452	46	34	-107
A2	3511	-577	292	3435	-520	311	76	-57	-18
B2	3594	-426	292	3507	-421	352	87	-4	-60
C2	3582	-287	286	3521	-307	362	62	20	-76
D2	3576	-155	284	3550	-151	377	27	-4	-93
A3	3481	-583	241	3412	-514	253	68	-69	-12
B3	3488	-438	227	3466	-425	281	23	-13	-54
C3	3482	-299	226	3439	-305	301	43	6	-75
D3	3478	-164	224	3455	-167	331	23	3	-107
A4	3420	-586	237	3366	-536	267	53	-51	-31
B4	3413	-442	225	3374	-442	279	39	0	-54
C4	3407	-302	222	3363	-304	297	44	2	-75
D4	3396	-177	226	3360	-175	342	36	-2	-117
A5	3366	-588	230	3307	-570	275	59	-18	-45
B5	3357	-445	221	3292	-439	278	65	-7	-56
C5	3345	-311	221	3292	-305	300	53	-5	-79
D5	3334	-182	226	3291	-186	353	43	3	-127
Brake Pedal	3483	-157	344	3392	-297	443	91	140	-99
IP Left	3179	-513	704	3054	-454	692	125	-59	13
IP Right	3180	-213	704	3127	-169	632	53	-44	73
Steering Column	2998	-363	915	2757	-258	927	241	-105	-11
Front Outboard Bolt	2921	-568	280	2912	-586	318	9	18	-38

*****Coordinate system origin at center of rear bumper: +X Forward, +Y Right of Centerline, +Z Down

DATA SHEET NO.14

DEFORMABLE BARRIER CRUSH MEASUREMENTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011



Barrier Crush (X-direction only)

		C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11
		50 mm	260 mm	470 mm	680 mm	890 mm	1100 mm	1310 mm	1520 mm	1730 mm	1940 mm	2150 mm
R11	910 mm	1	3	3	3	4	4	4	4	5	4	4
R10	824 mm	1	1	1	1	1	1	2	2	3	3	5
R9	738 mm	0	0	1	0	1	1	1	1	2	5	13
R8	652 mm	0	0	0	0	0	0	1	1	1	6	56
R7	566 mm	0	0	0	0	0	1	0	1	2	66	126
R6	480 mm	0	-1	0	0	0	0	0	1	7	45	207
R5	384 mm	0	-1	0	0	0	0	0	1	19	48	184
R4	308 mm	-1	-1	-1	0	0	0	0	1	17	78	186
R3	222 mm	-1	-1	-1	0	0	0	0	0	25	128	187
R2	136 mm	-2	-1	0	0	0	0	0	0	66	192	194
R1	50 mm	-2	-1	0	0	1	1	0	7	112	250	233

DATA SHEET NO. 15

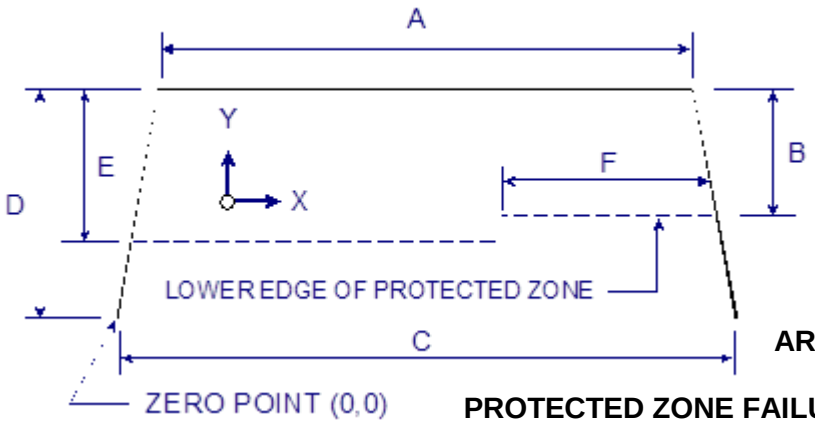
SUMMARY OF FMVSS 212, 219 (PARTIAL), AND 301 DATA

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

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: 21.3ºC

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2,214	2,059	93%
Right Side	2,214	2,214	100%
Total	4,428	4,273	96%



Item	Units	Value
A	mm	1170
B	mm	380
C	mm	1618
D	mm	820
E	mm	428
F	mm	705

AREAS OF PROTECTED ZONE FAILURES

X	Y
1020	183

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.

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.

DATA SHEET NO. 15 (CONTINUED)

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

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7° / 18% Small Overlap Frontal	Test Date	2/25/2011

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 22° C Test Time: 15:00

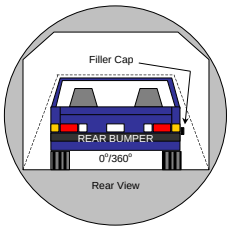
Stoddard Solvent Spillage Measurements

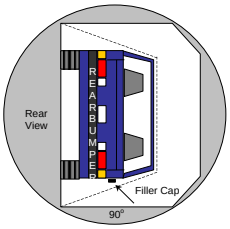
A.	From impact until vehicle motion ceases: (Maximum allowable = 1 oz.)	0	oz
B.	For the 5-minute period after motion ceases: (Maximum allowable = 5 oz.	0	oz
C.	For the following 25 minutes: (Maximum allowable = 1 oz./minute	0	oz
D.	Spillage	0	oz

DATA SHEET NO. 16

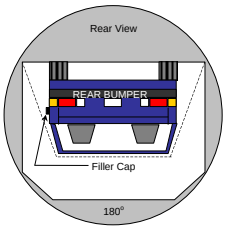
FMVSS 301 STATIC ROLLOVER RESULTS

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

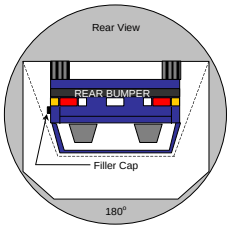




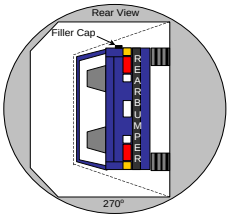
0° TO 90°



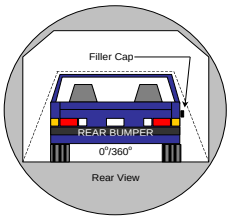
90° TO 180°



180° TO 270°



270° TO 360°



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

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	70	300	370
90° to 180°	63	300	363
180° to 270°	62	300	362
270° to 360°	72	300	372

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°	
90° to 180°	
180° to 270°	
270° to 360°	

DATA SHEET NO. 17

DUMMY/VEHICLE TEMPERATURE STABILIZATION

Test Vehicle:	2007 Ford Taurus	NHTSA No:	R70221
Test Program:	7º / 18% Small Overlap Frontal	Test Date	2/25/2011

Photo Not Available

APPENDIX A

PHOTOGRAPHS

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Photo Not Available

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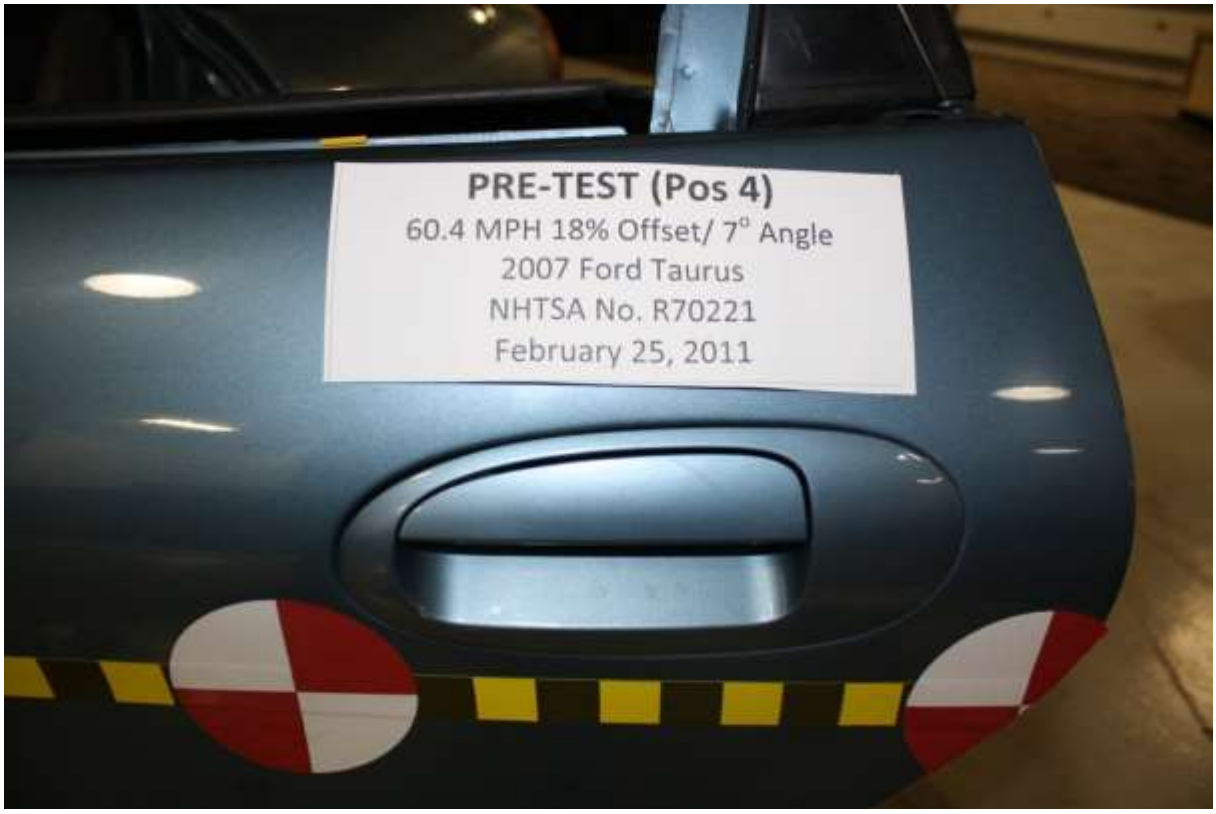

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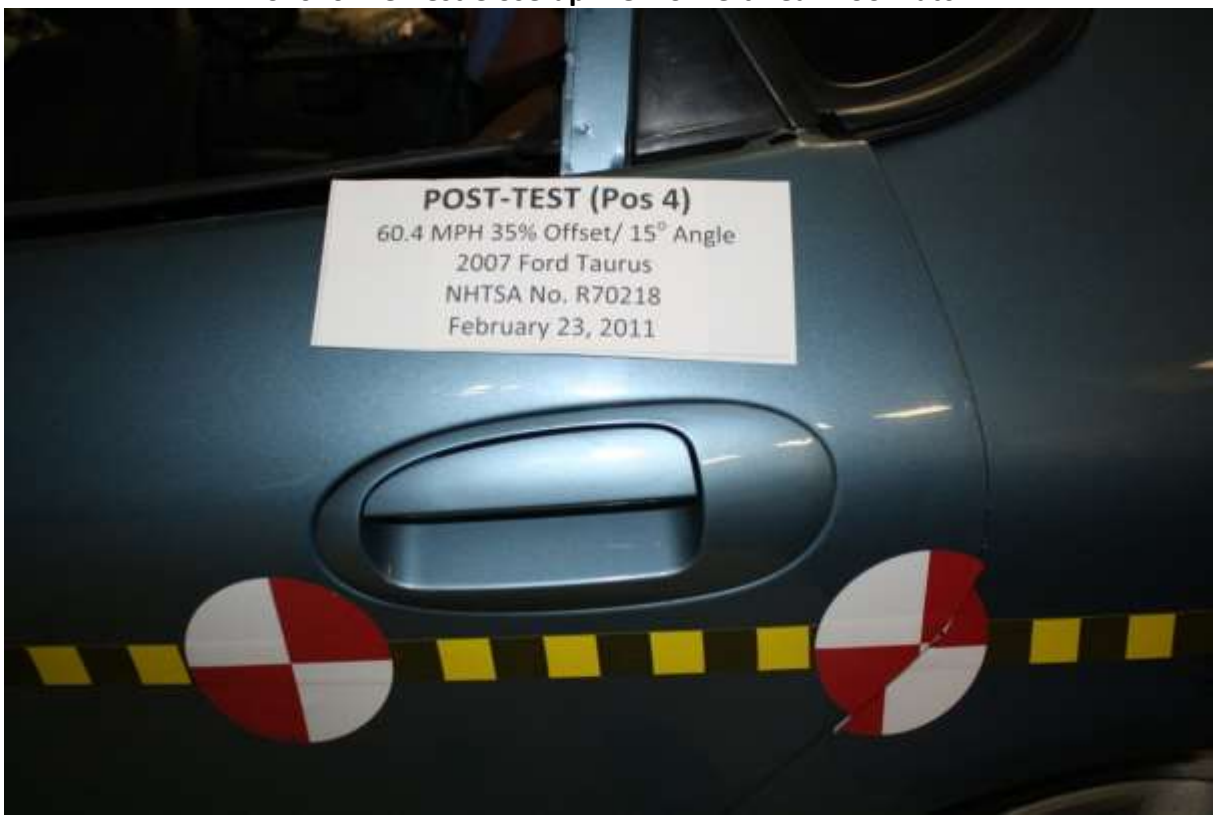

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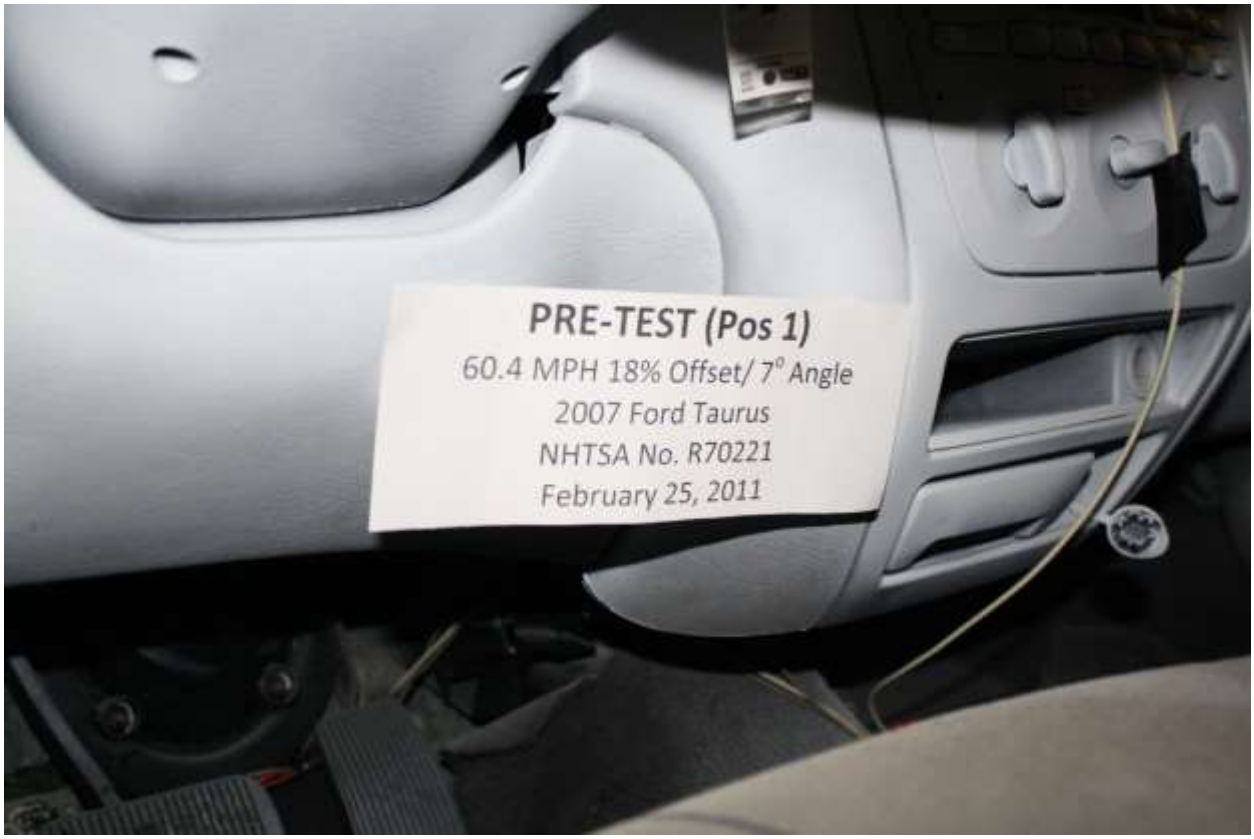

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Photo Not Available

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Photo Not Available

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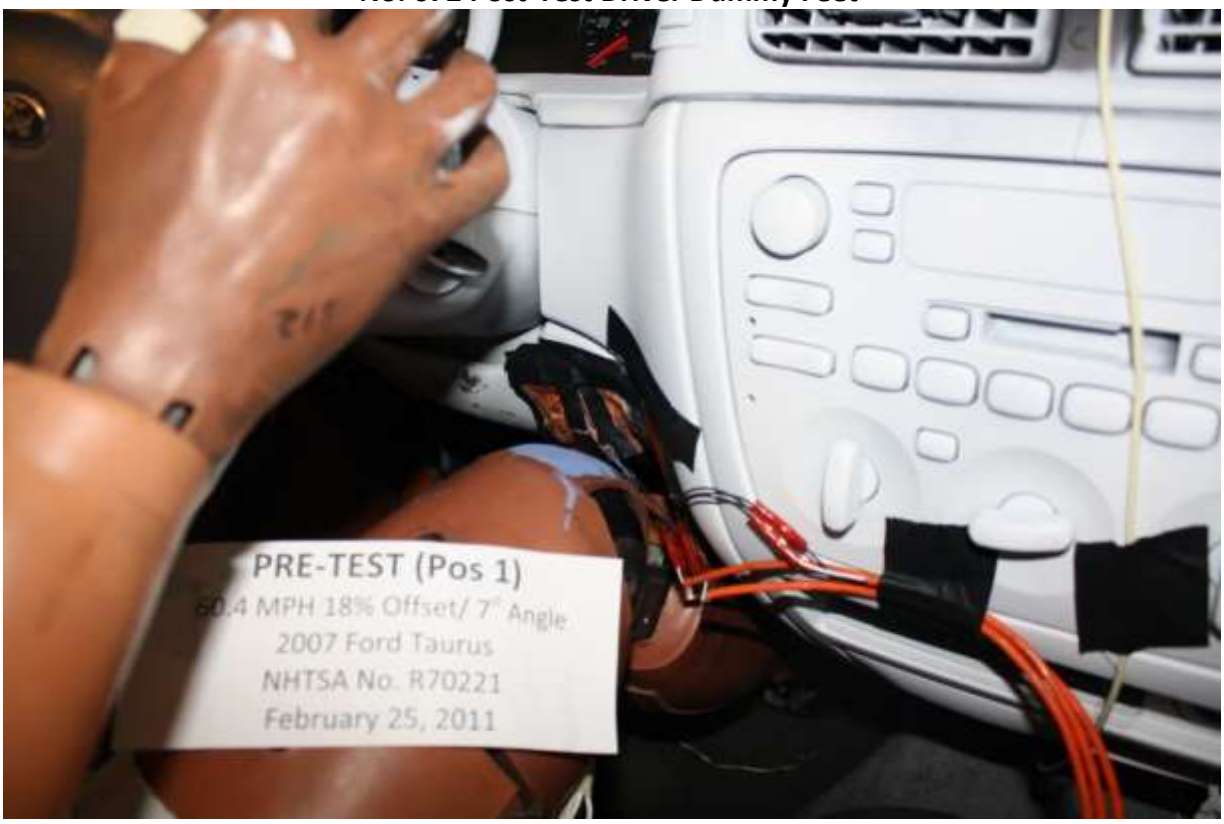
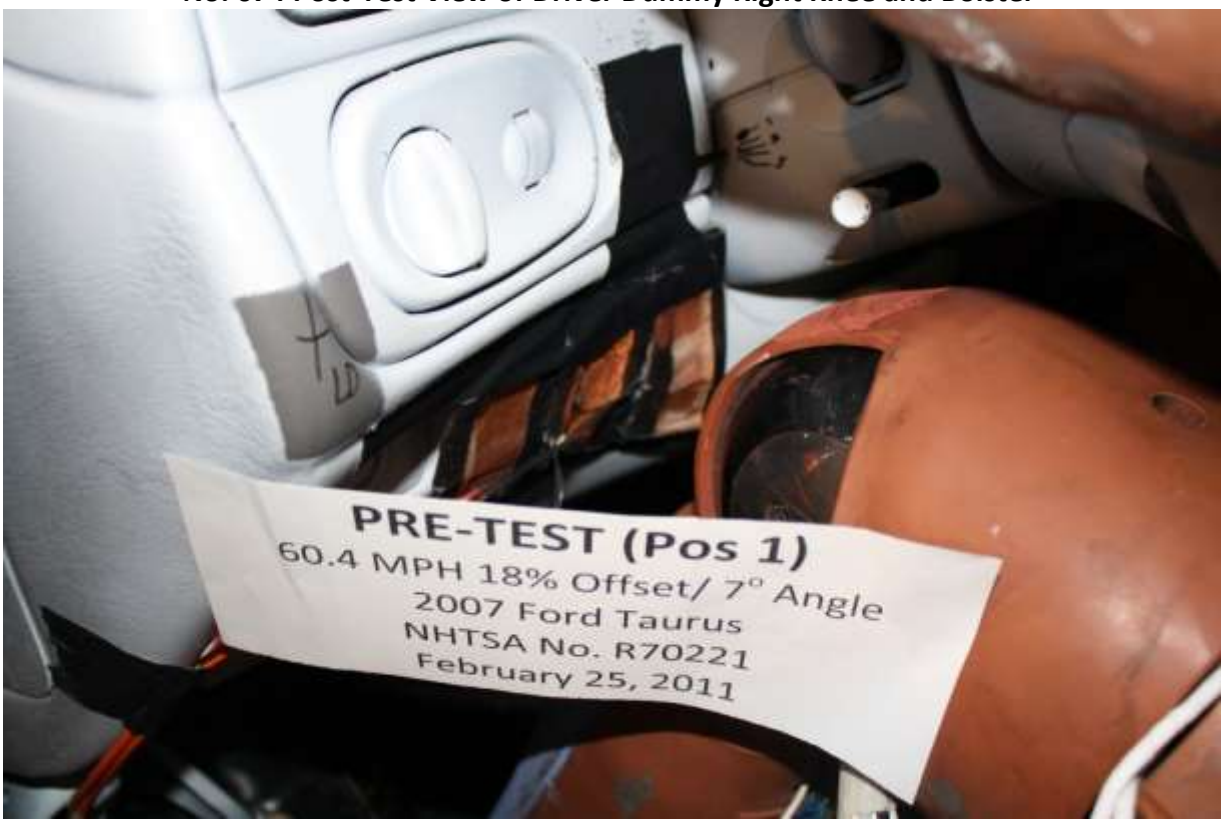


No. 073 Pre-Test View of Driver Dummy Right Knee and Bolster

Photo Not Available

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



No. 075 Pre-Test View of Driver Dummy Left Knee and Bolster

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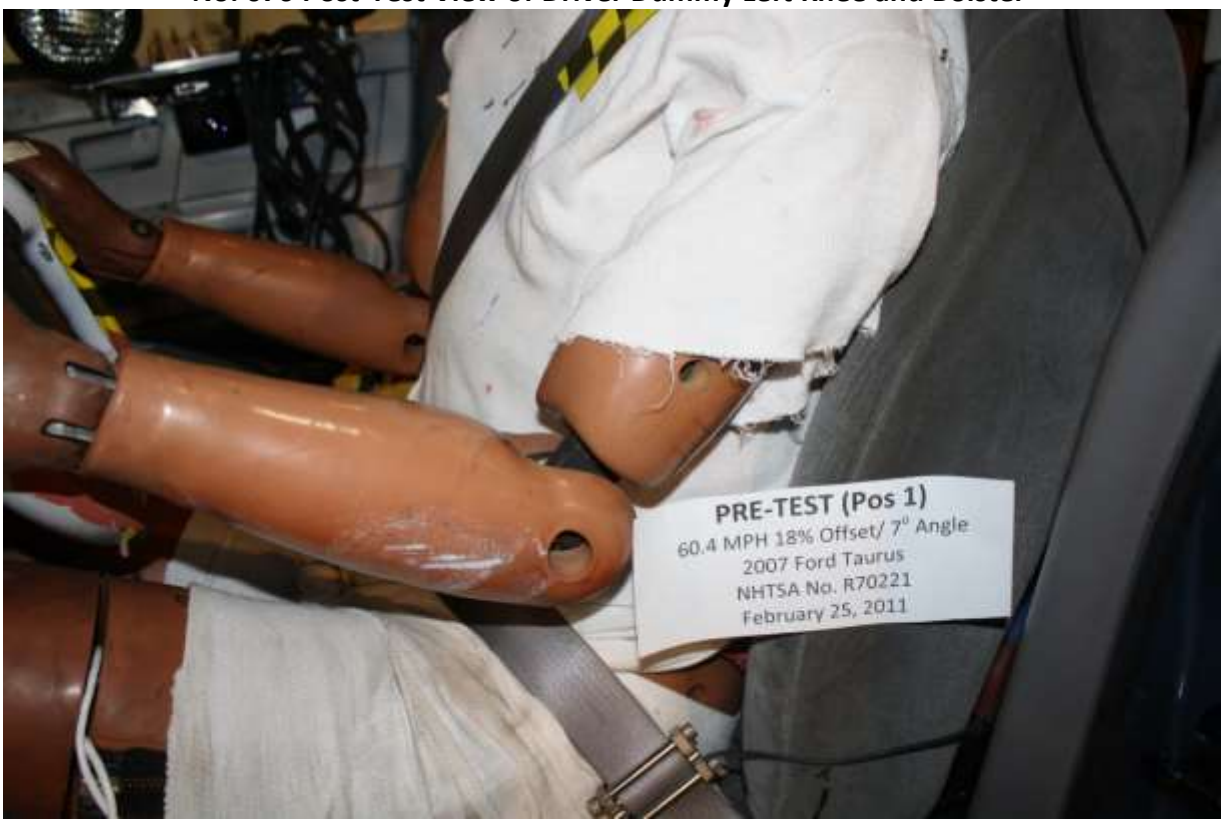

No. 077 Pre-Test View of Driver Dummy Abdomen

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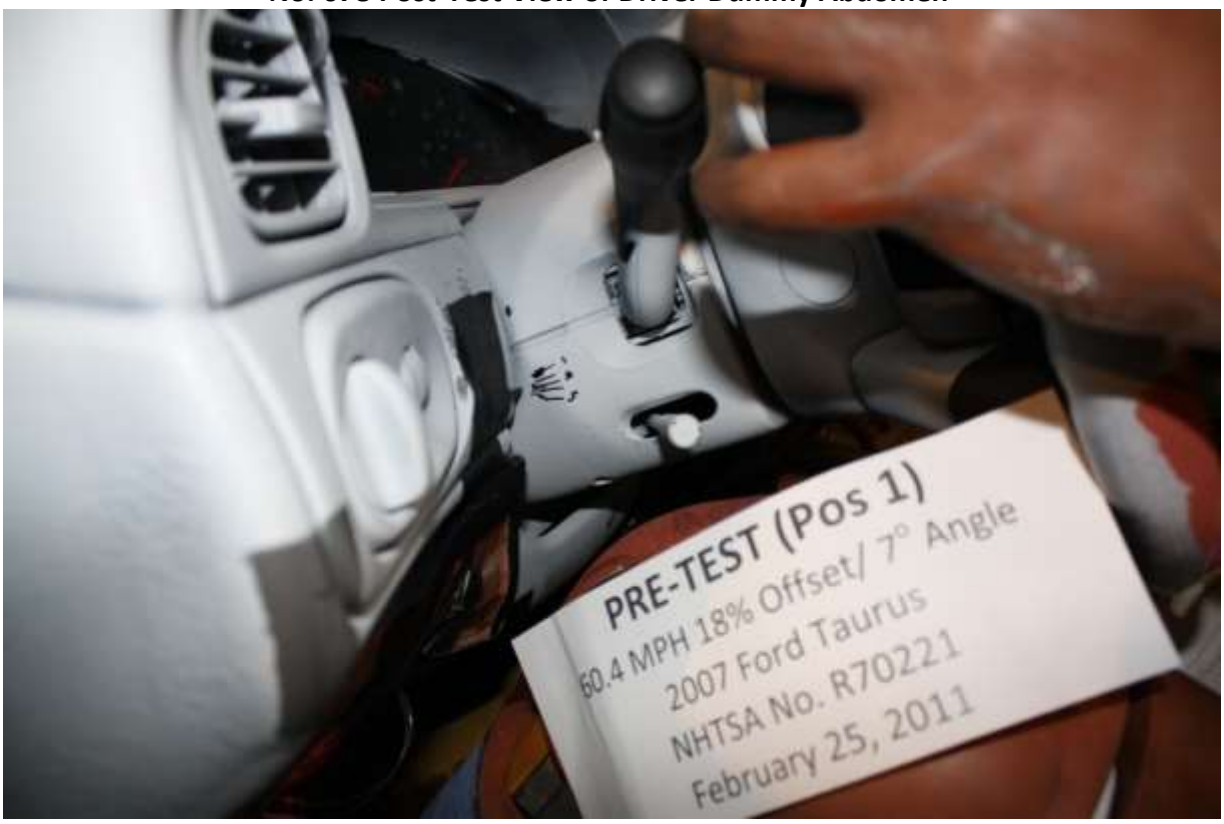

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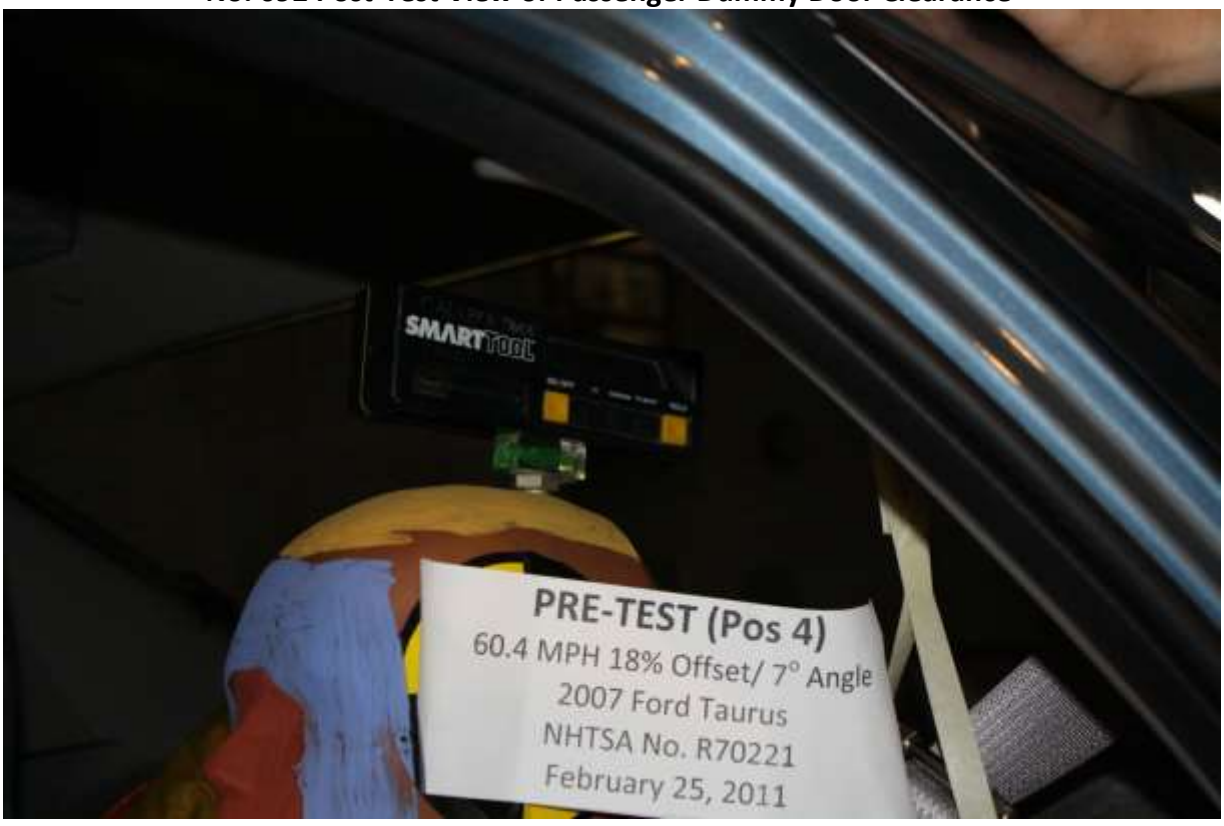

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Photo Not Applicable

Seatback Not Adjustable

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Photo Not Applicable

D-ring Not Adjustable

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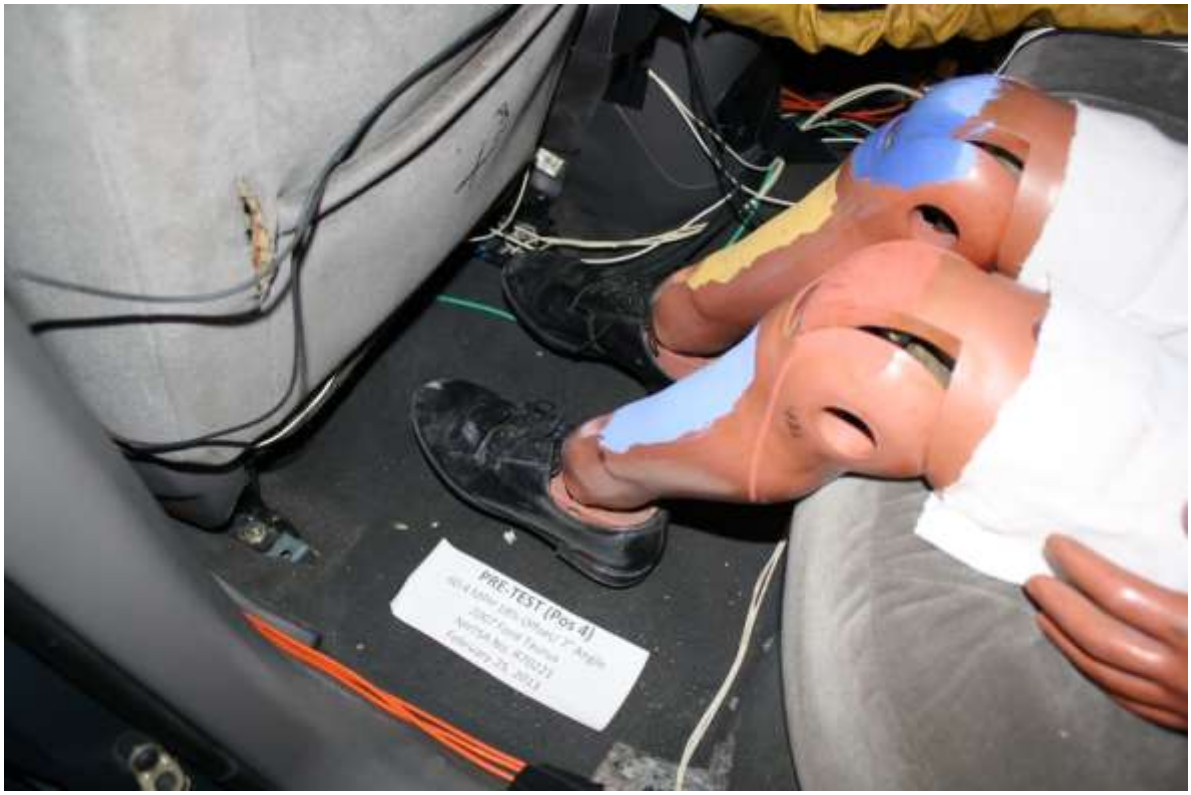
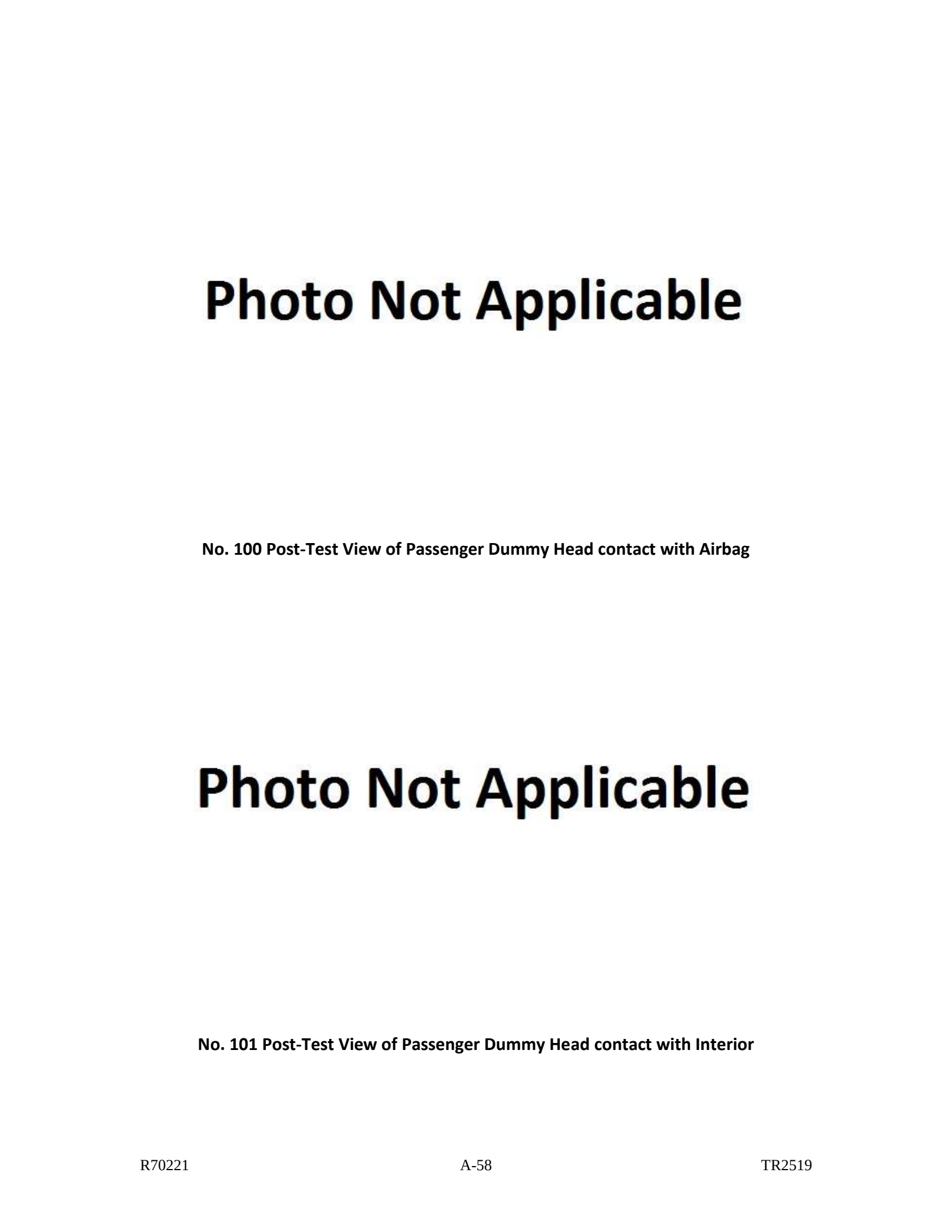


No. 098 Pre-Test View of Passenger Dummy Feet

No. 099 Post-Test View of Passenger Dummy Feet



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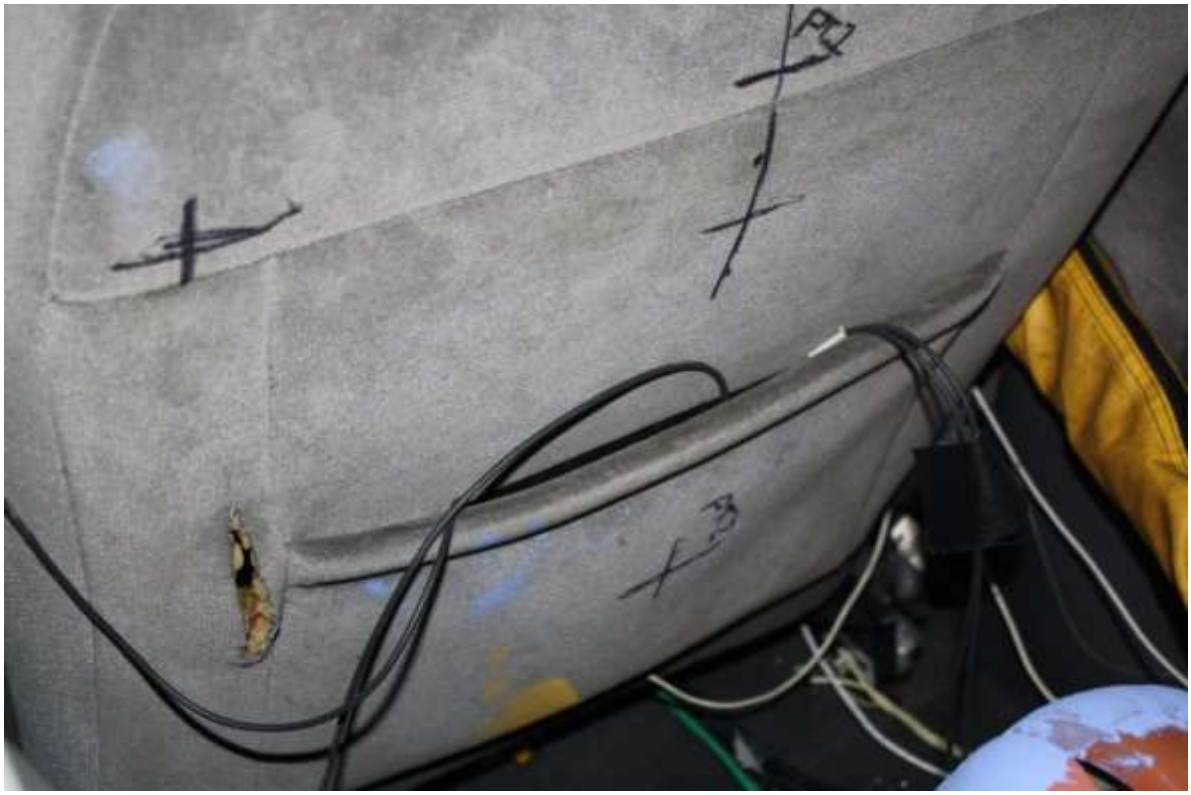

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Photo Not Available

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Photo Not Available

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Plot 234	V2P4 HEAD ANGULAR VELOCITY Y [SIMON]	B-65
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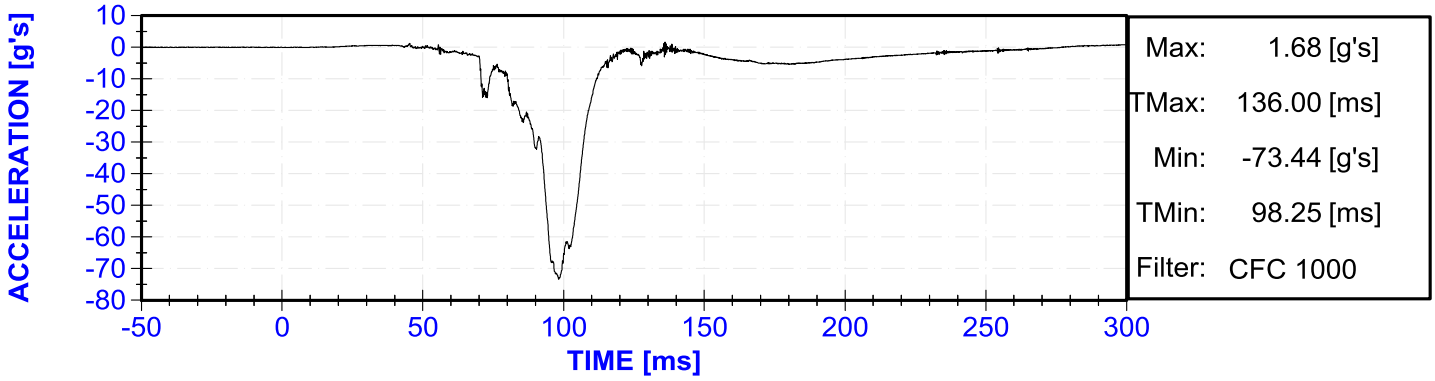
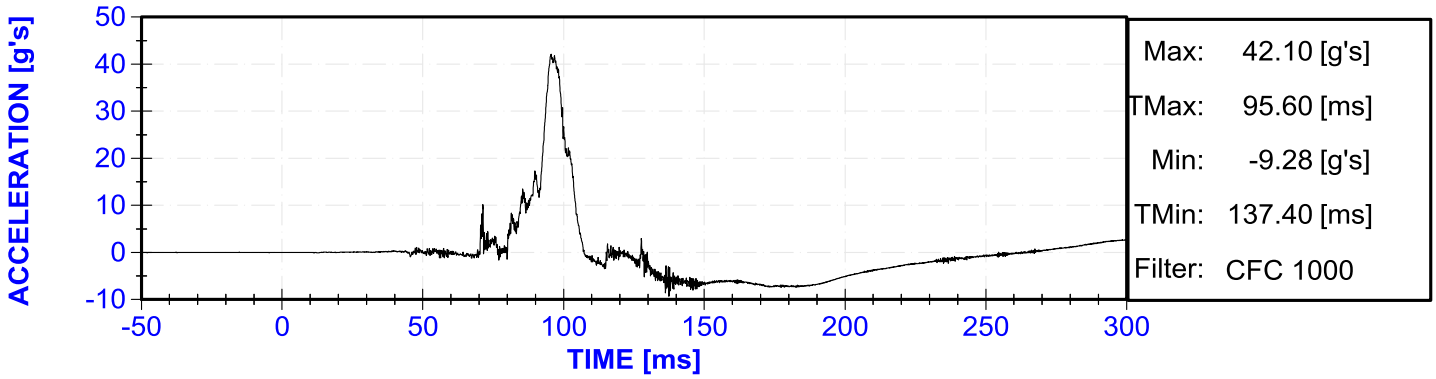
Plot 237	V2P4 CUMULATIVE STRAIN 0.10 [SIMON]	B-66
Plot 238	V2P4 CUMULATIVE STRAIN 0.15 [SIMON]	B-66

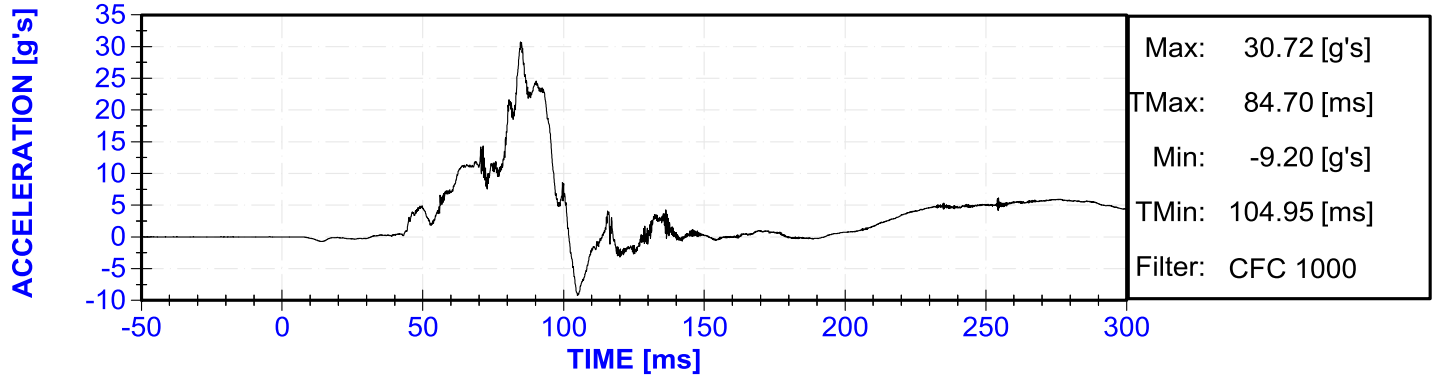
V2P1 Head CG X Acceleration



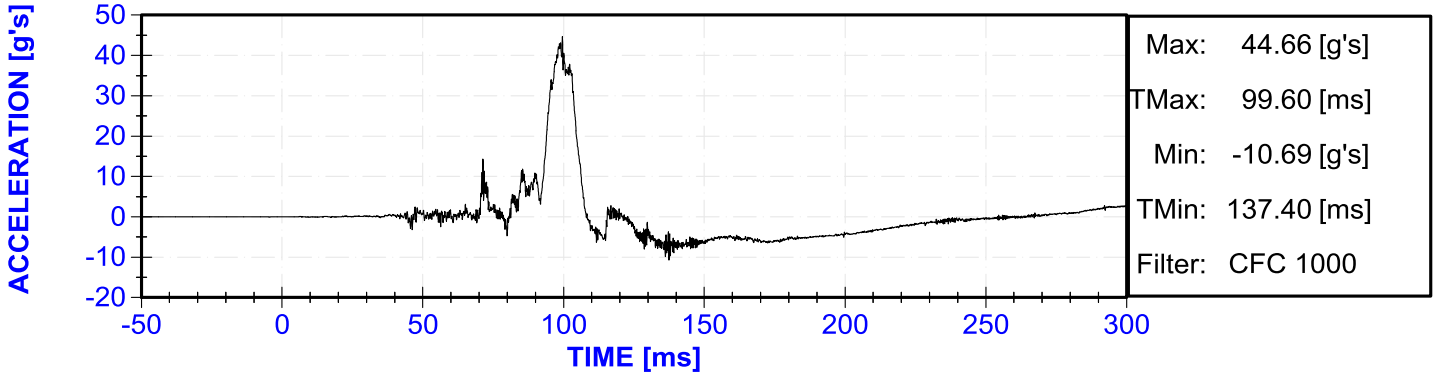
V2P1 Head CG Y Acceleration



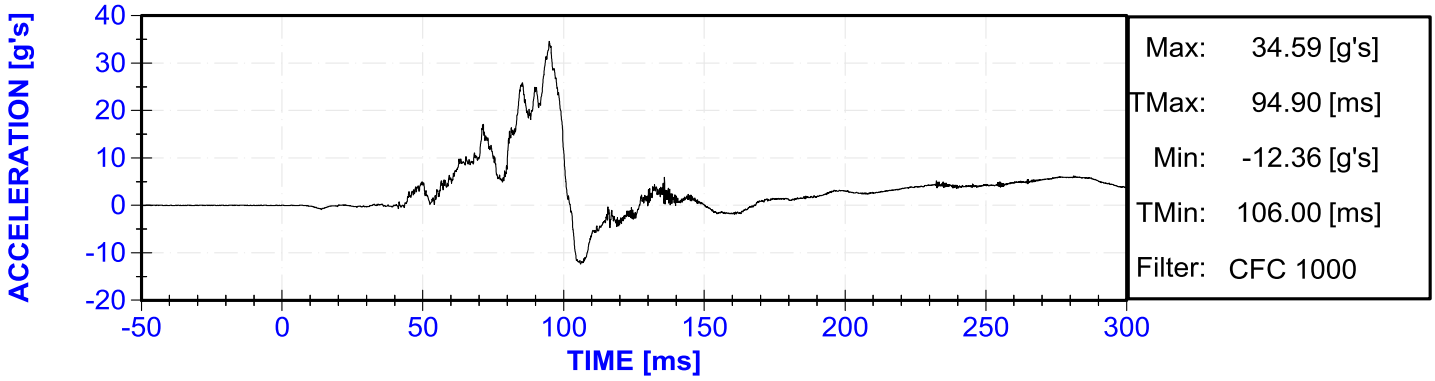
V2P1 Head CG Z Acceleration



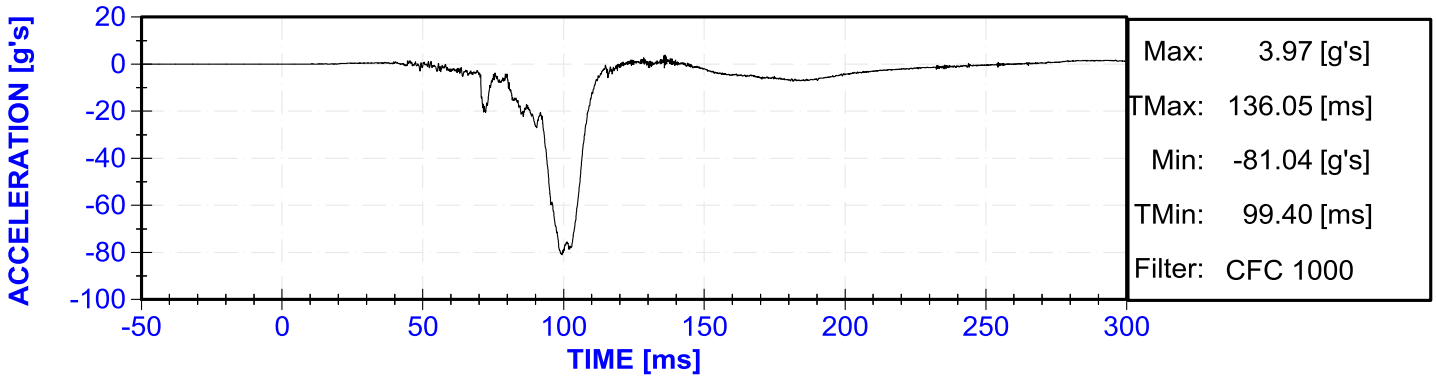
V2P1 HEAD 9 ARRAY X ARM Y



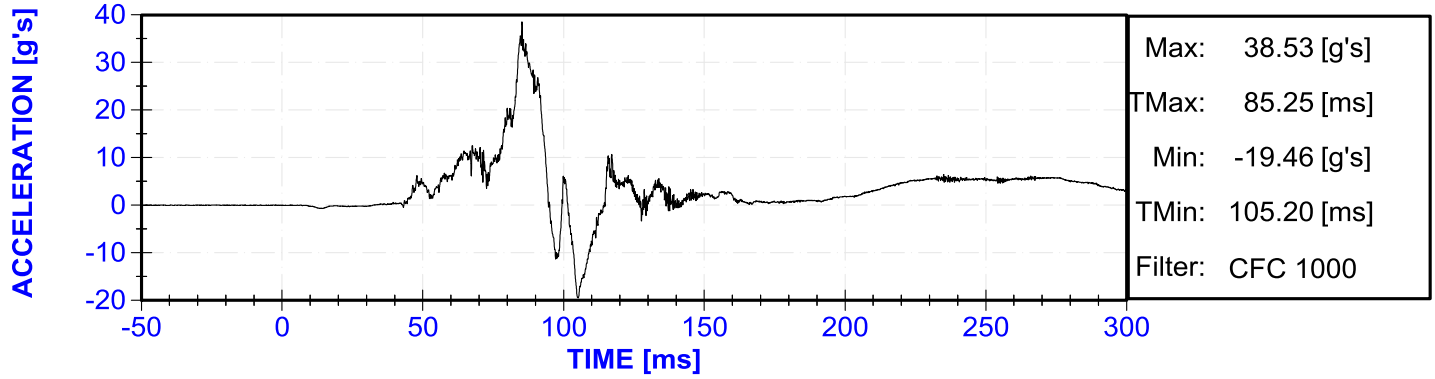
V2P1 HEAD 9 ARRAY X ARM Z



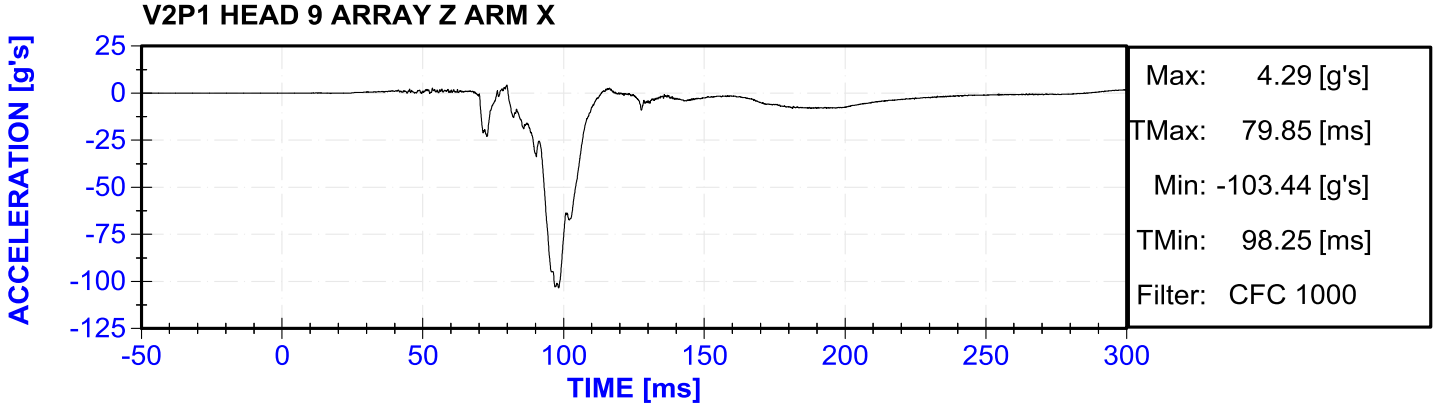
V2P1 HEAD 9 ARRAY Y ARM X



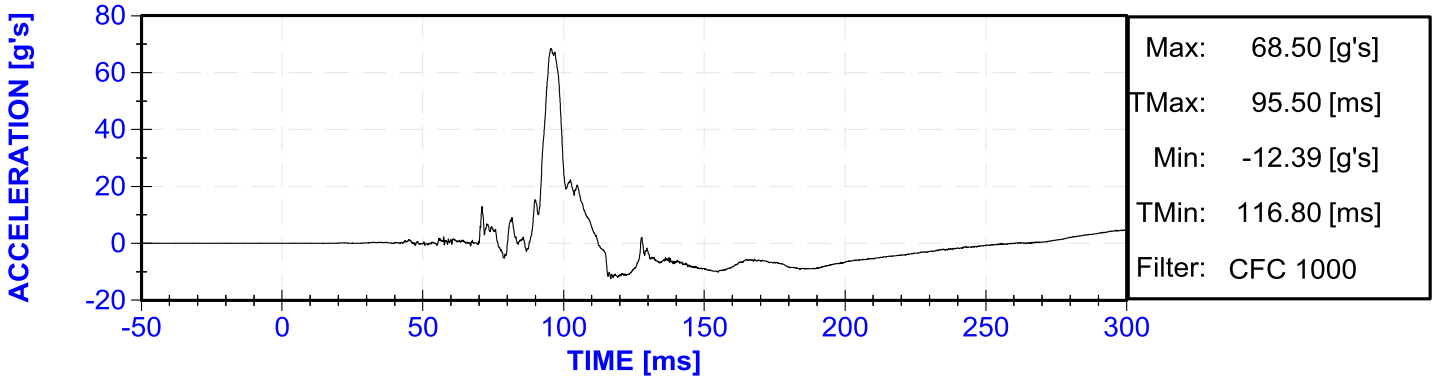
V2P1 HEAD 9 ARRAY Y ARM Z



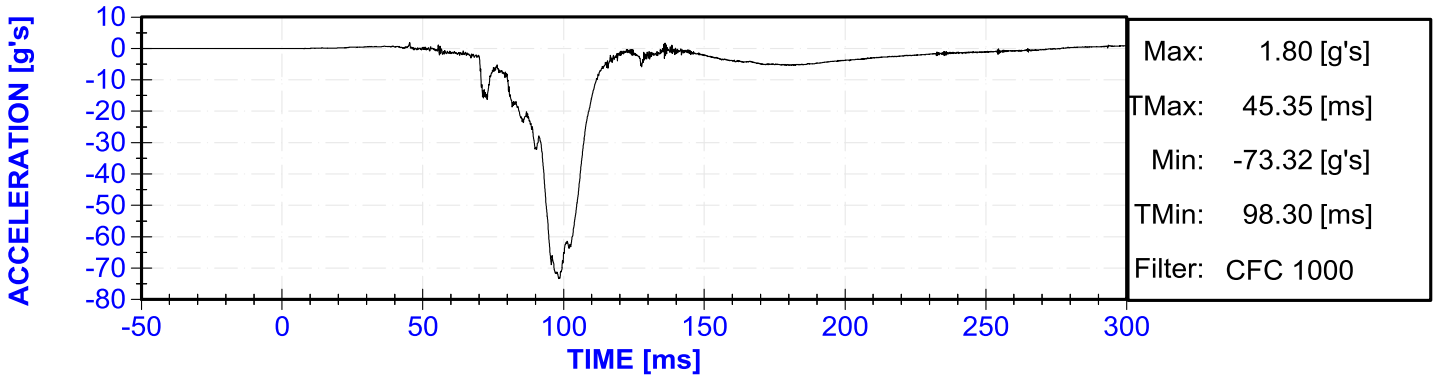
V2P1 HEAD 9 ARRAY Z ARM X



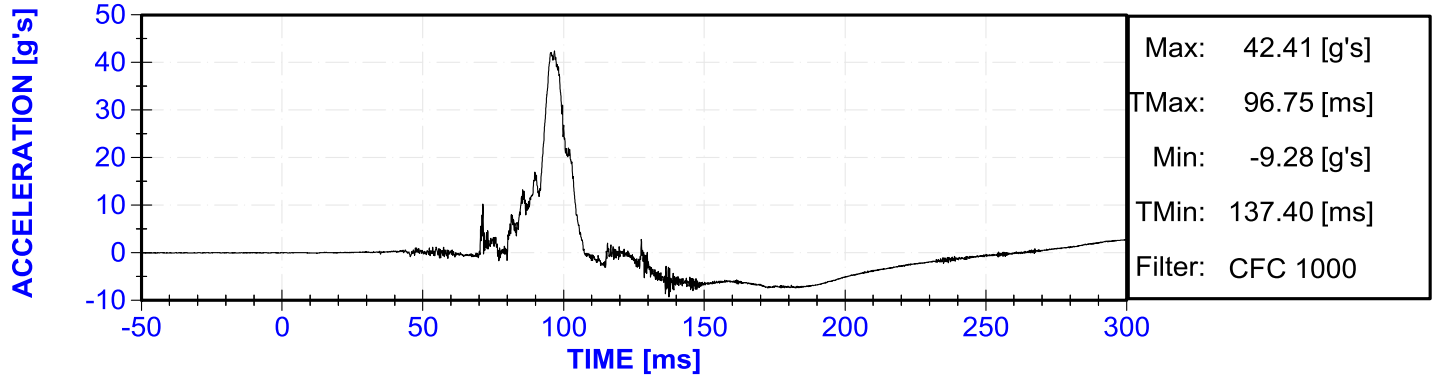
V2P1 HEAD 9 ARRAY Z ARM Y



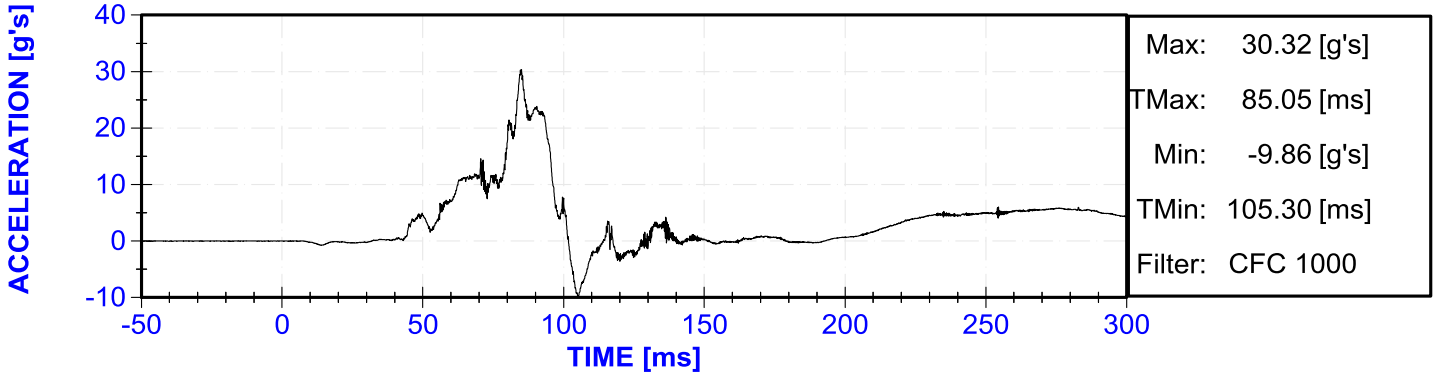
V2P1 HEAD 9 ARRAY CENTER X



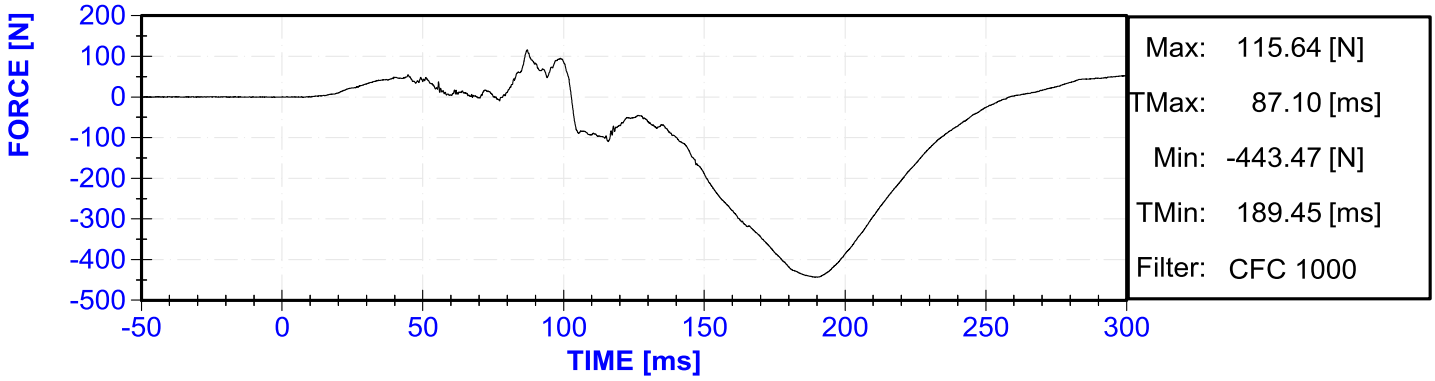
V2P1 HEAD 9 ARRAY CENTER Y



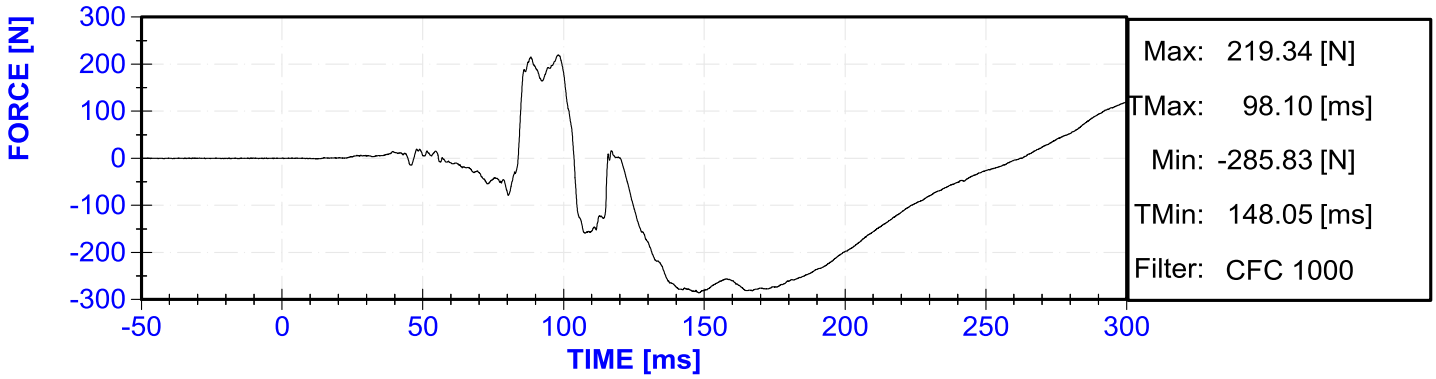
V2P1 HEAD 9 ARRAY CENTER Z



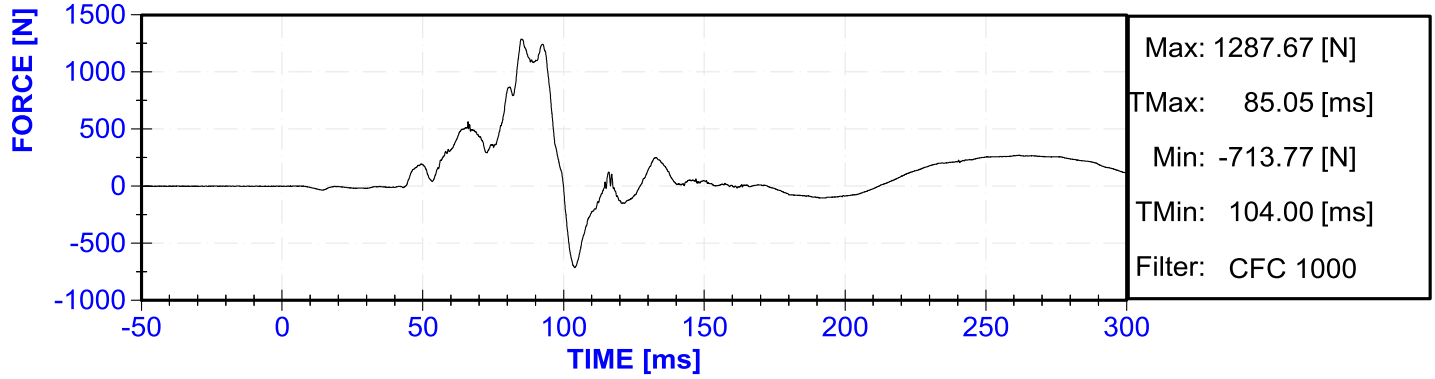
V2P1 Upper Neck X Force



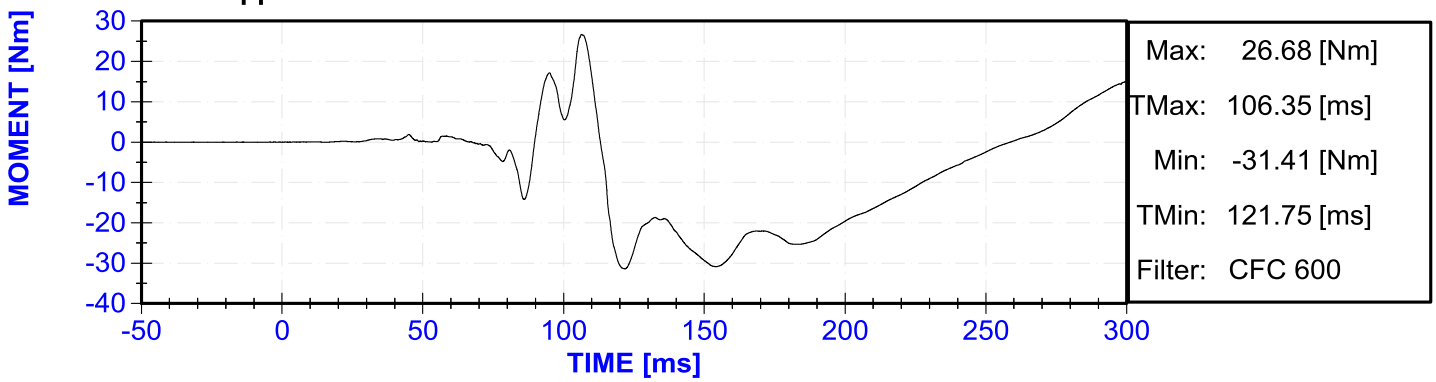
V2P1 Upper Neck Y Force



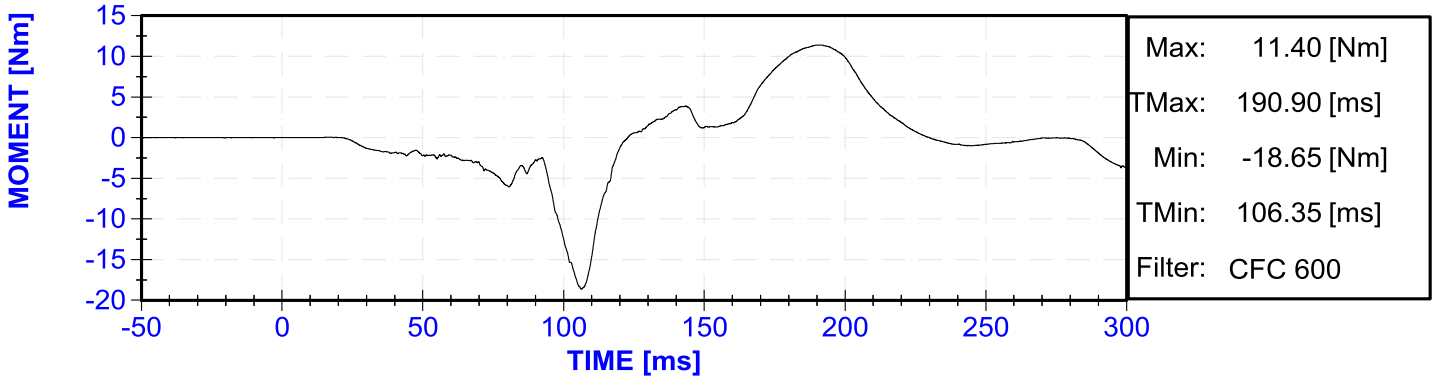
V2P1 Upper Neck Z Force



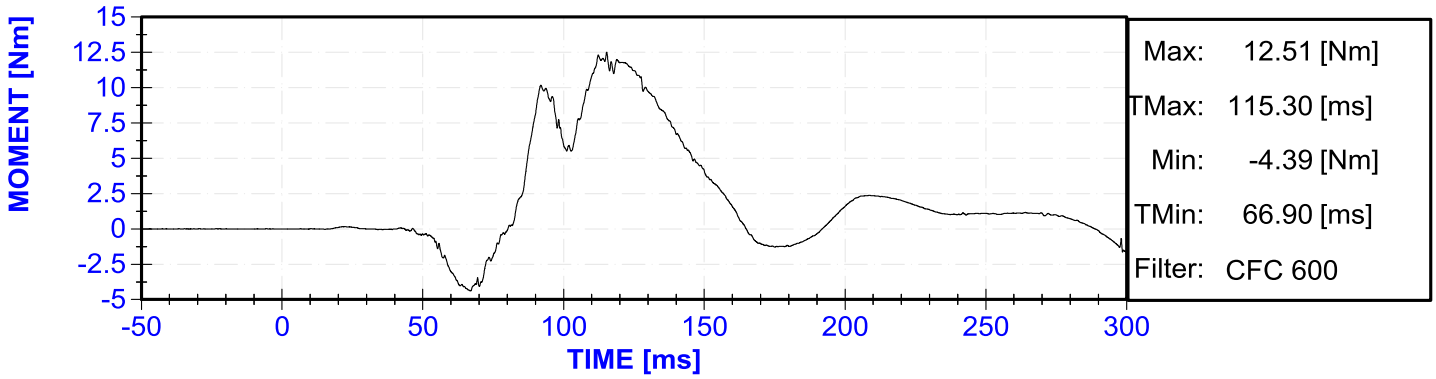
V2P1 Upper Neck X Moment



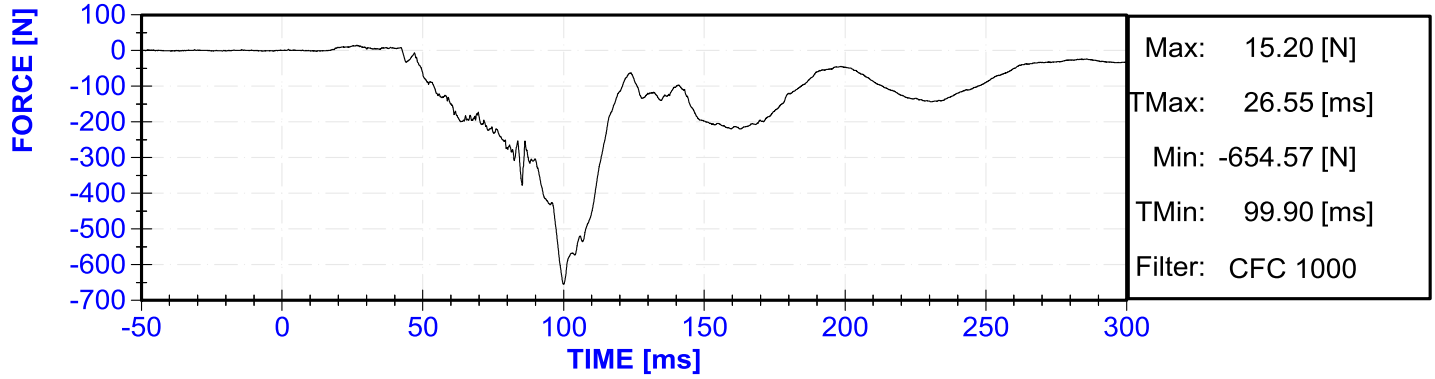
V2P1 Upper Neck Y Moment



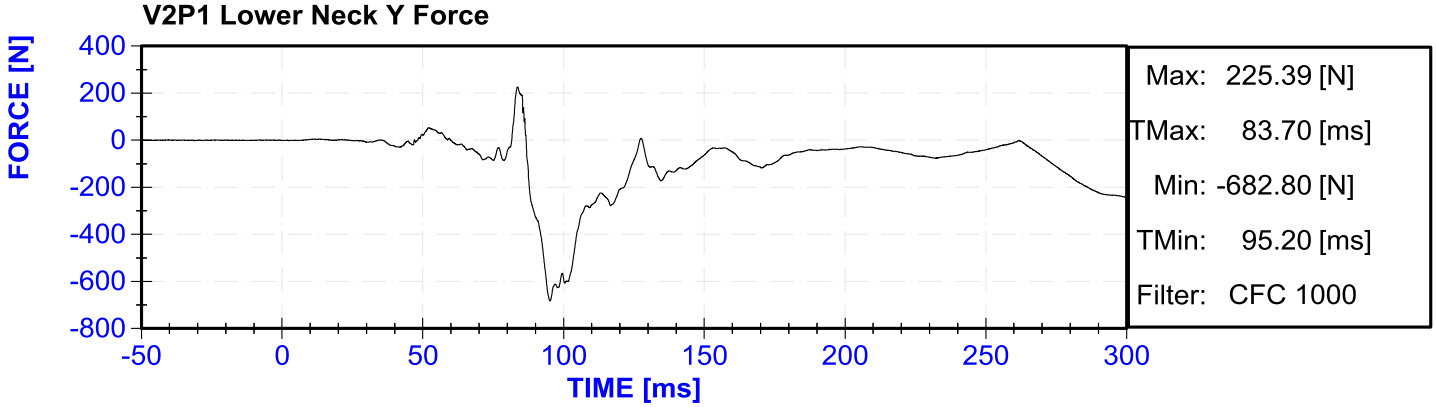
V2P1 Upper Neck Z Moment



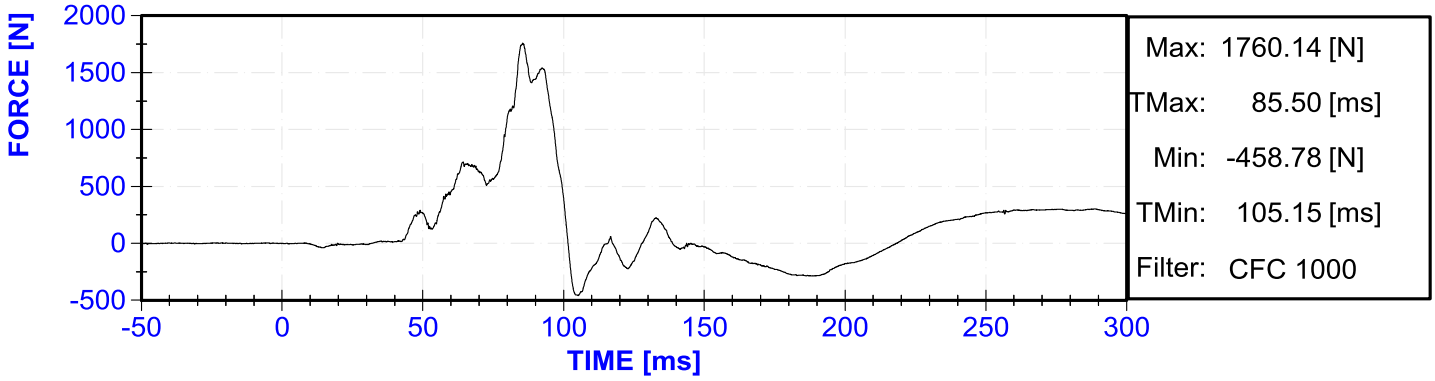
V2P1 Lower Neck X Force



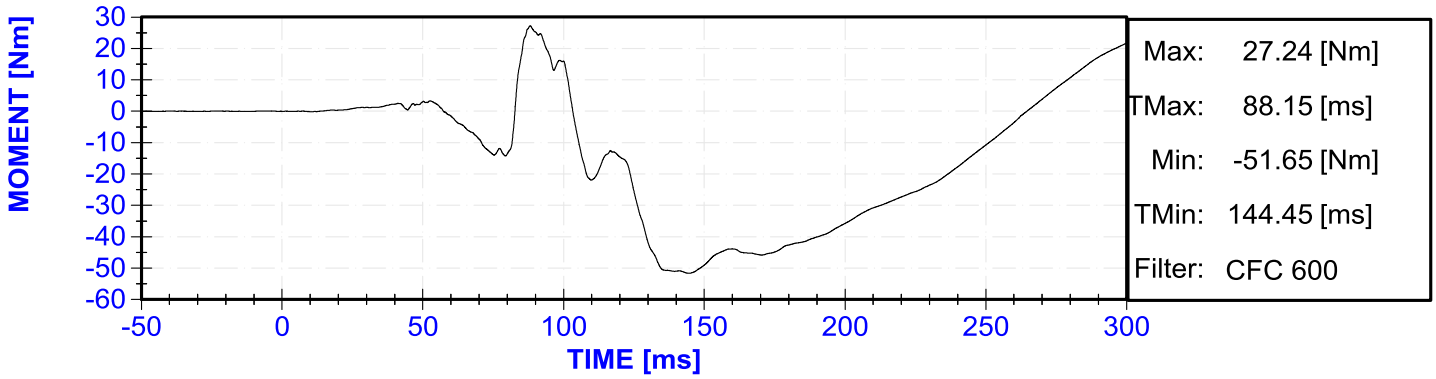
V2P1 Lower Neck Y Force



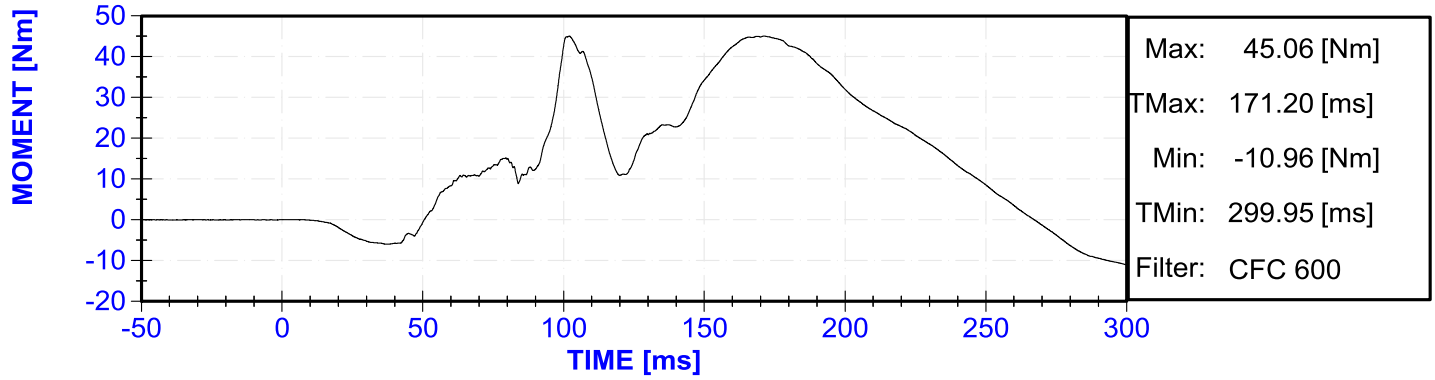
V2P1 Lower Neck Z Force



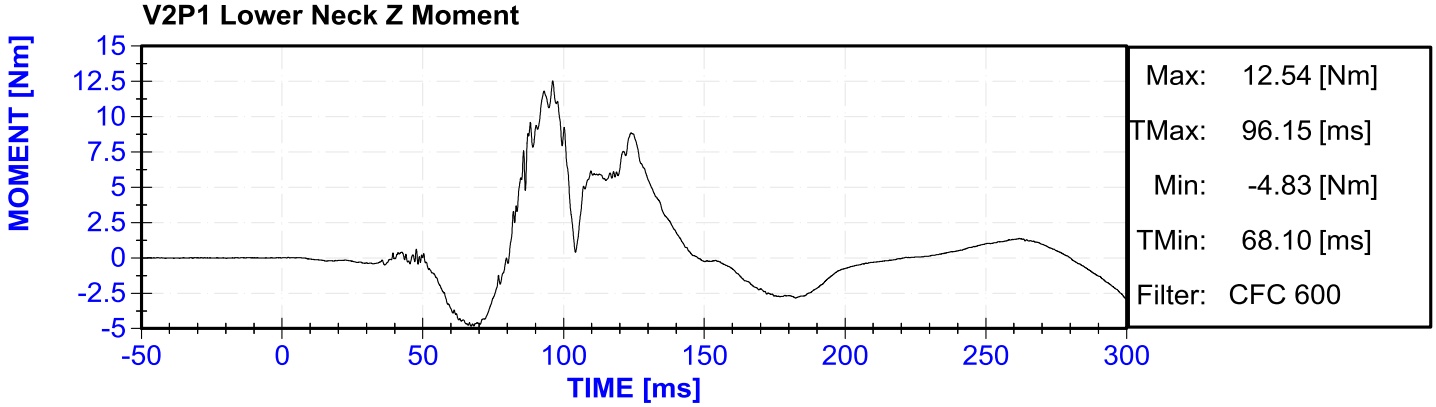
V2P1 Lower Neck X Moment



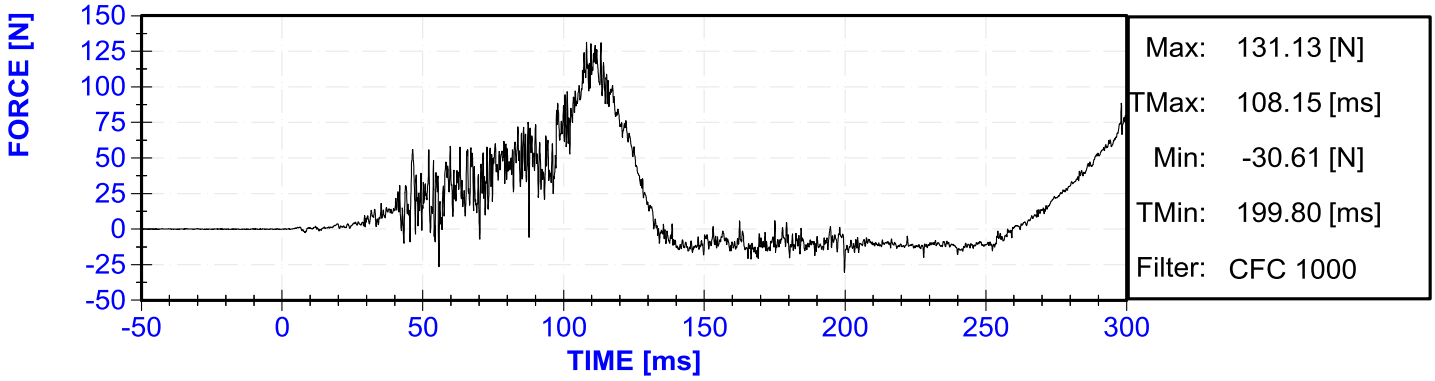
V2P1 Lower Neck Y Moment



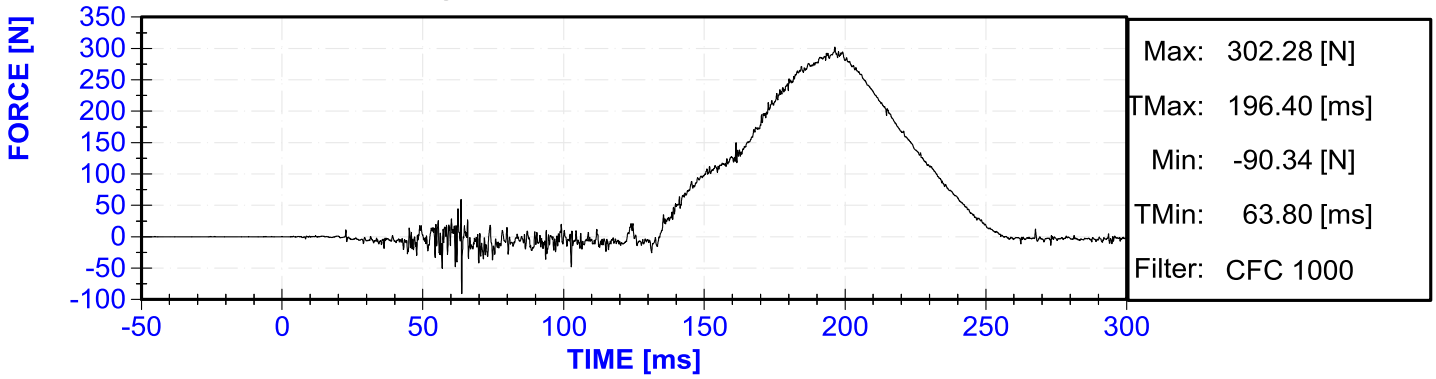
V2P1 Lower Neck Z Moment



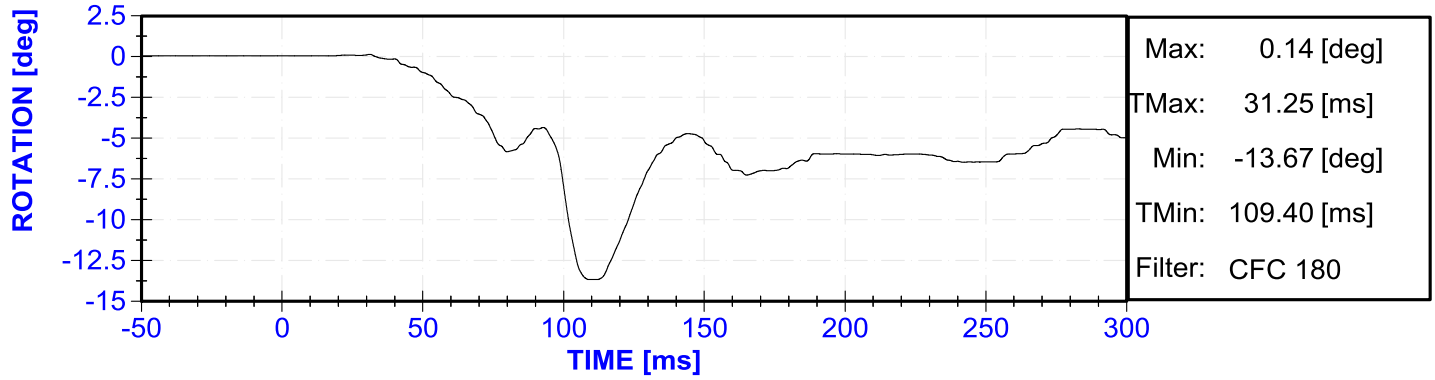
V2P1 Front Neck Spring Tower Load Cell



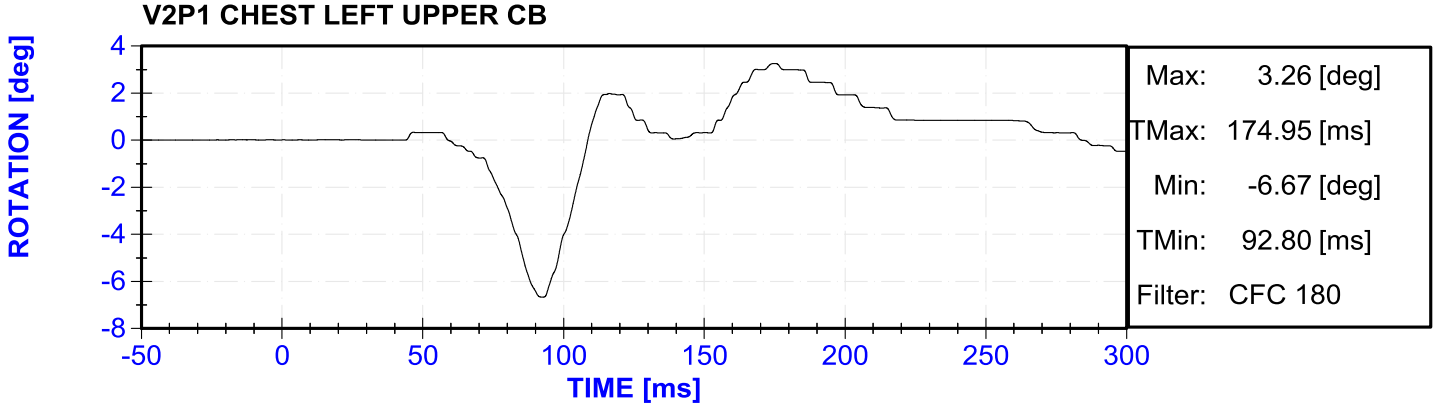
V2P1 Rear Neck Spring Tower Load Cell



V2P1 Occipital Condyle Rotation Potentiometer

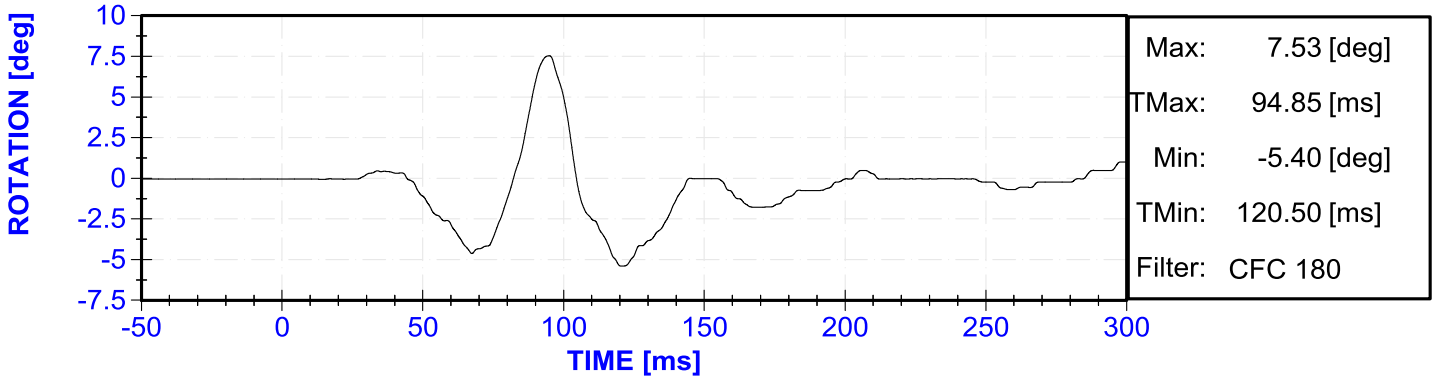


V2P1 CHEST LEFT UPPER CB

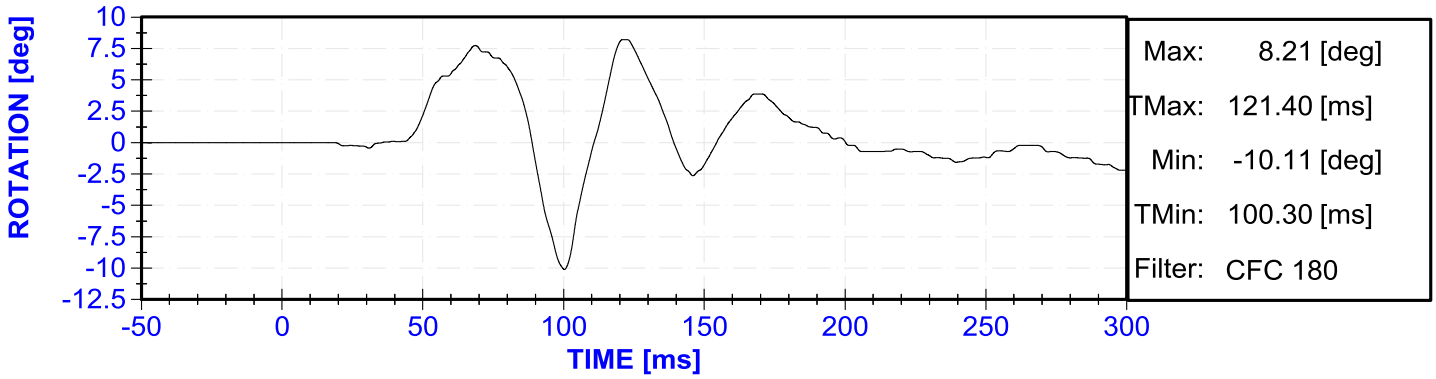


V2P1 CHEST LEFT UPPER CM

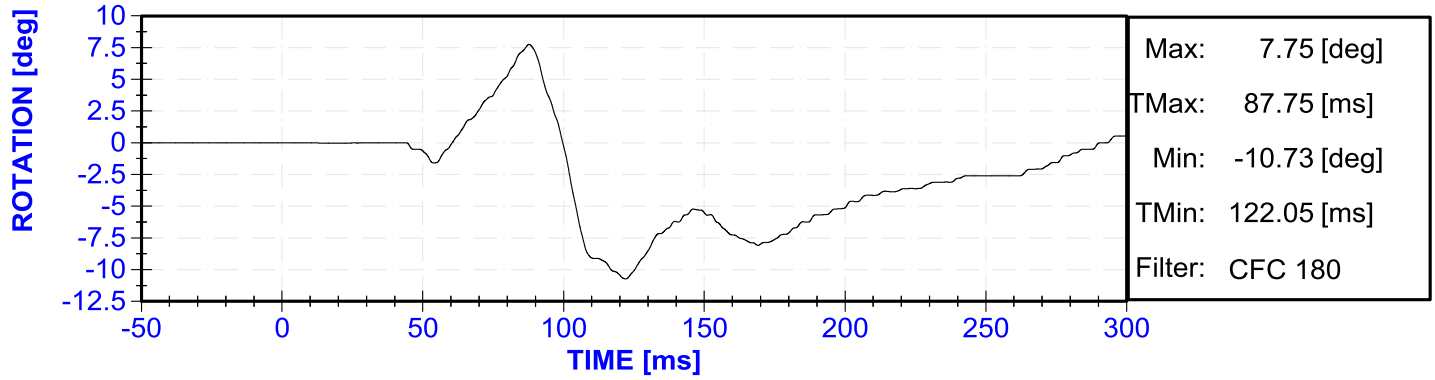
QUESTIONABLE DATA: CHANNEL NOISE



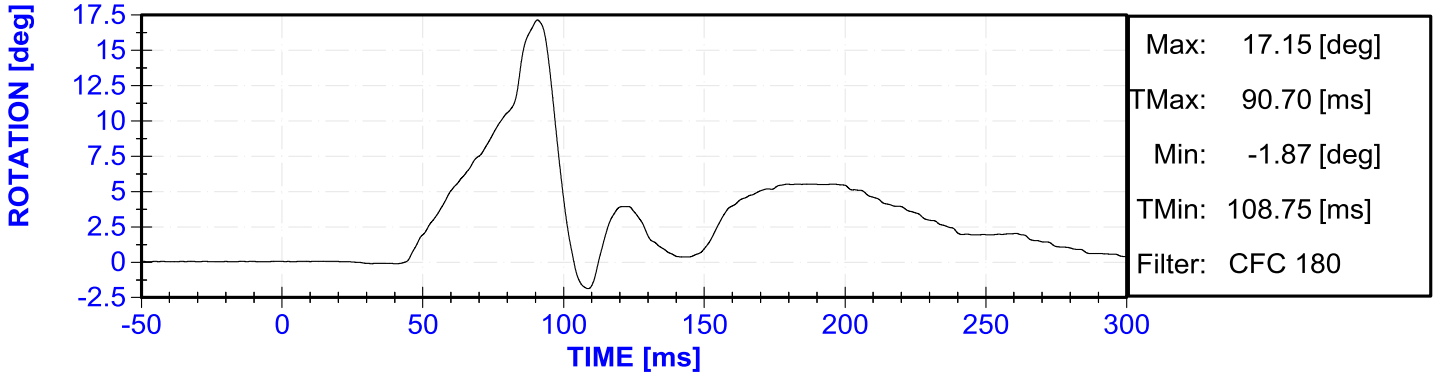
V2P1 CHEST LEFT UPPER CE



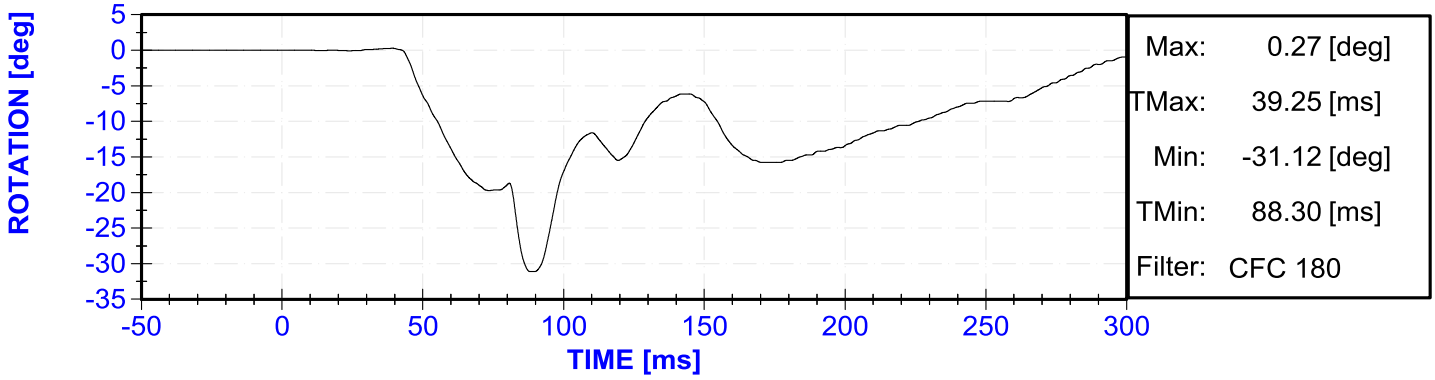
V2P1 CHEST RIGHT UPPER CB



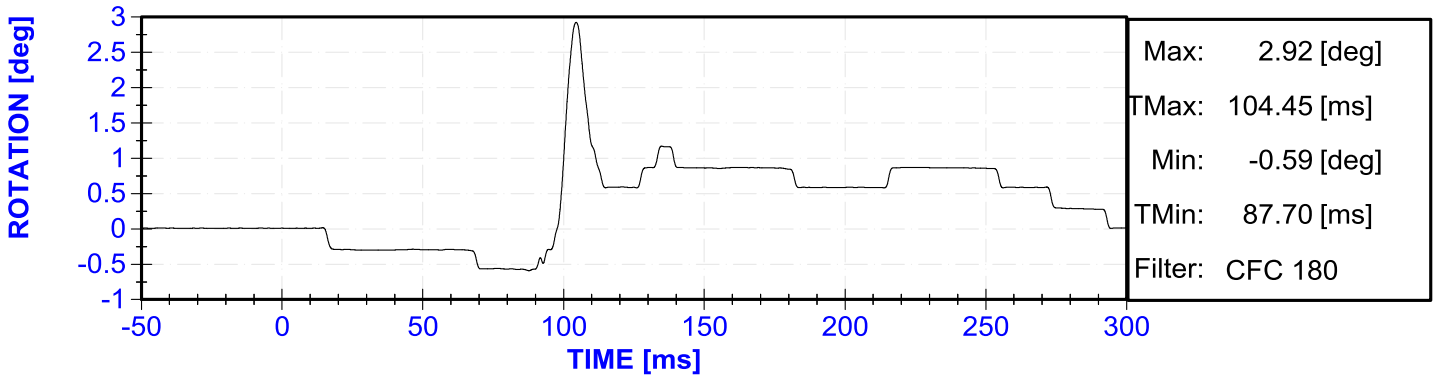
V2P1 CHEST RIGHT UPPER CM



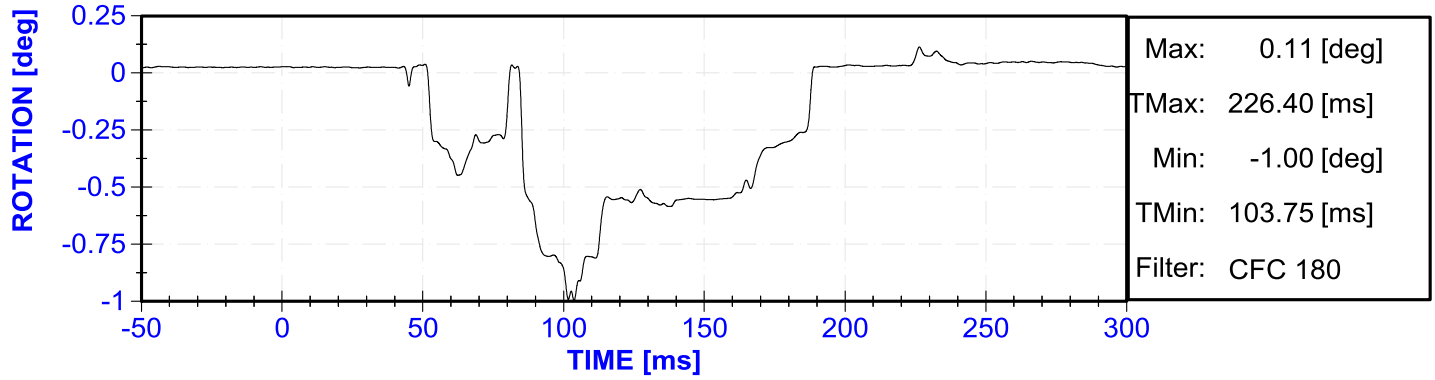
V2P1 CHEST RIGHT UPPER CE



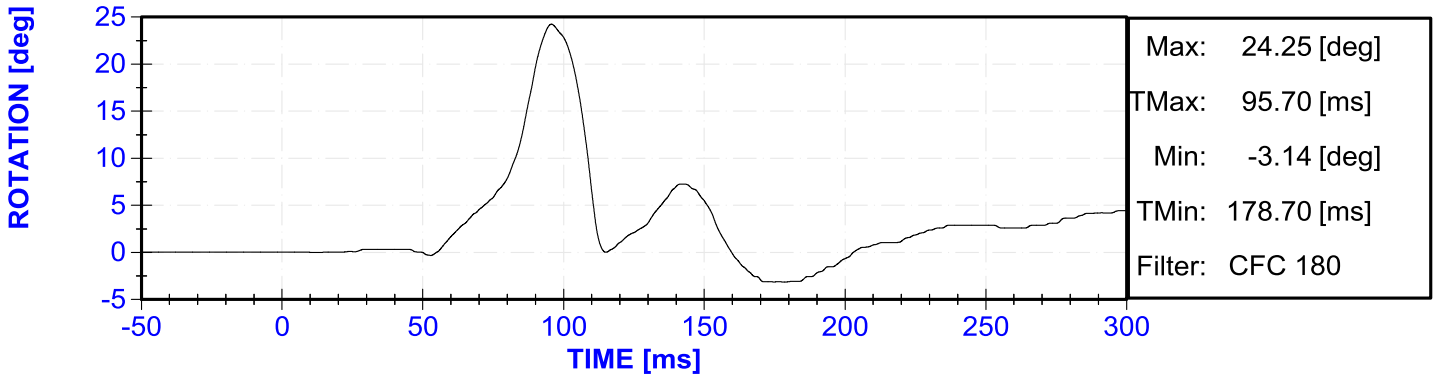
V2P1 CHEST LEFT LOWER CB



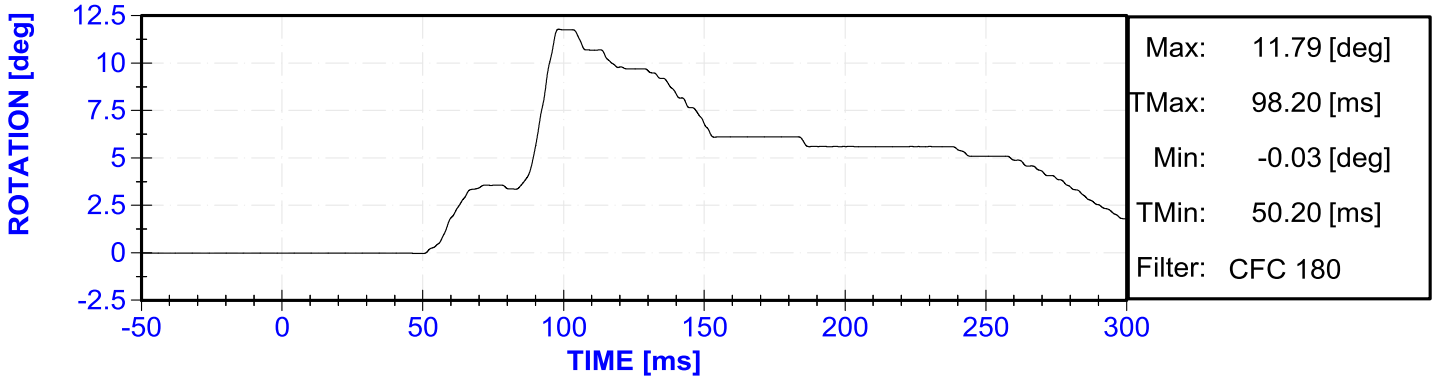
V2P1 CHEST LEFT LOWER CM



V2P1 CHEST LEFT LOWER CE

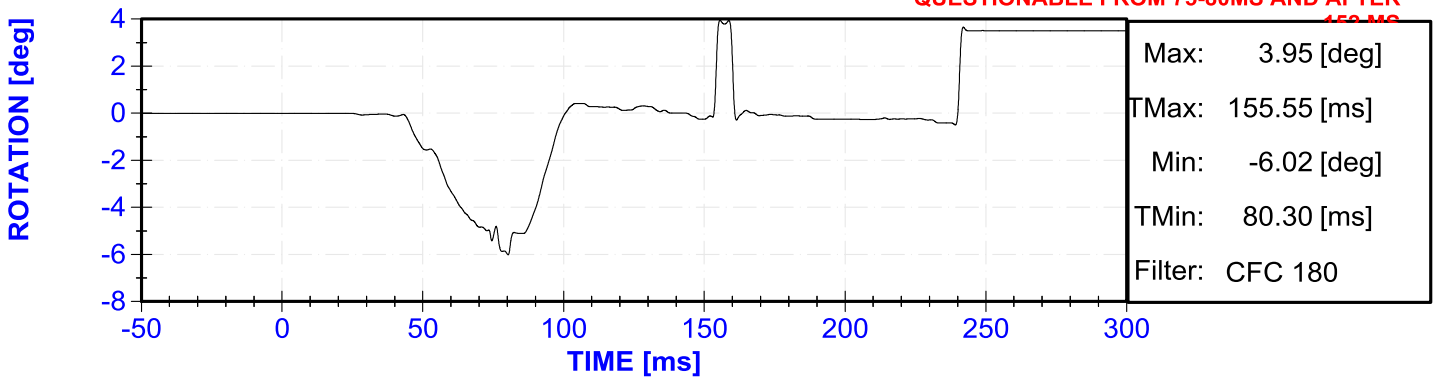


V2P1 CHEST RIGHT LOWER CB

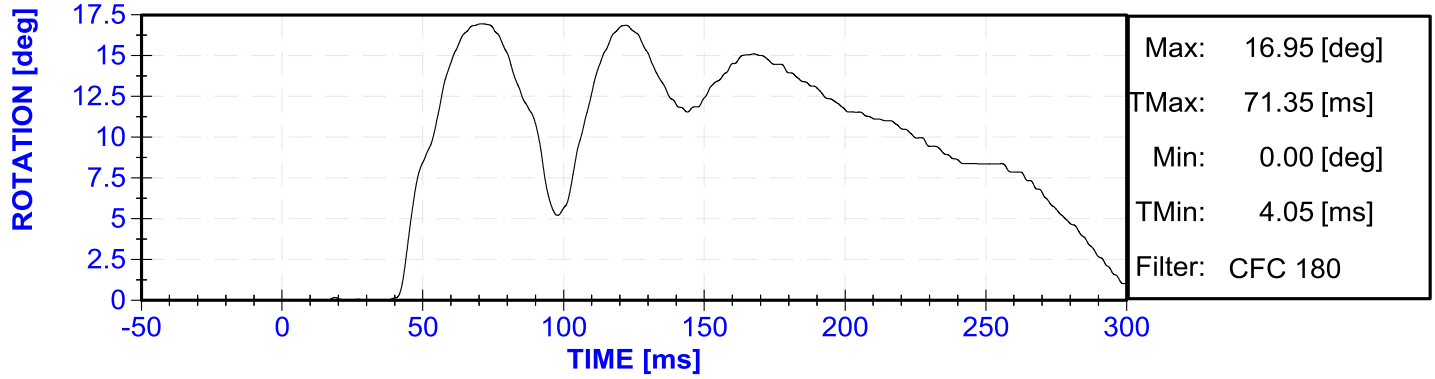


V2P1 CHEST RIGHT LOWER CM

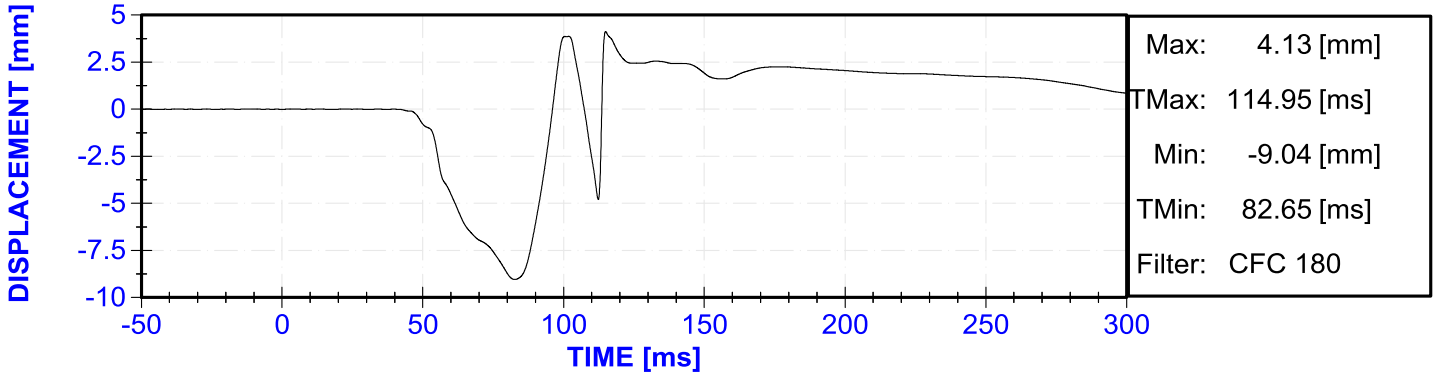
QUESTIONABLE FROM 75-80MS AND AFTER



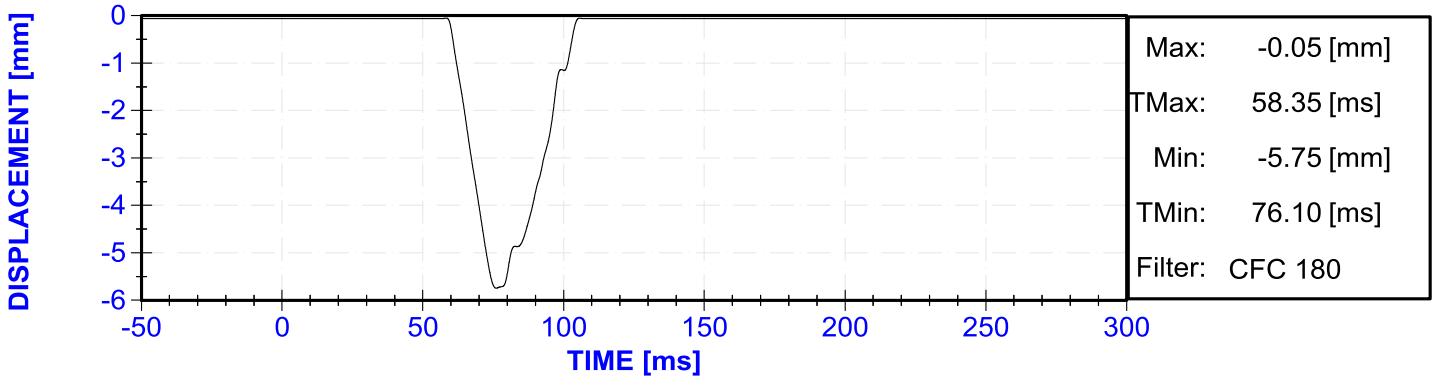
V2P1 CHEST RIGHT LOWER CE



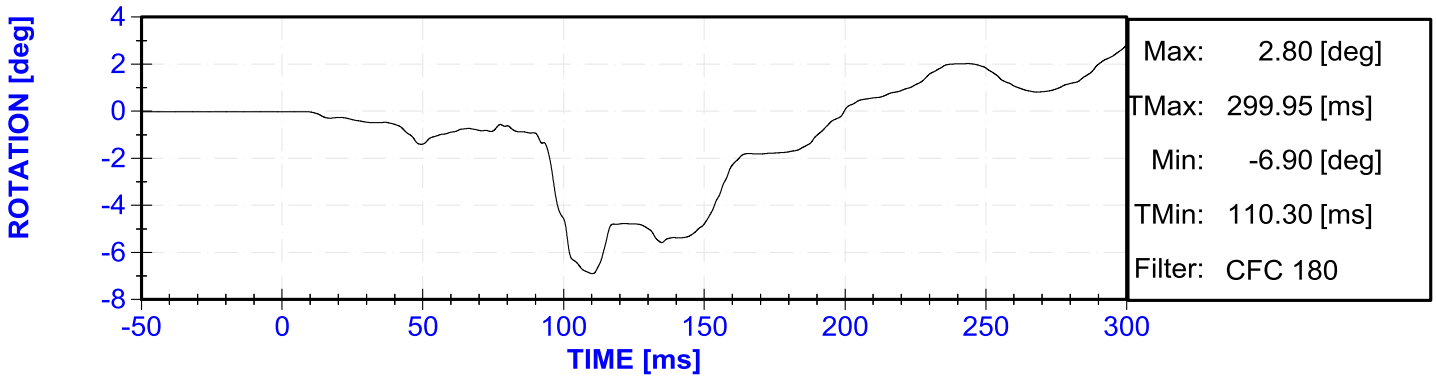
V2P1 ABDOMEN UPPER DX



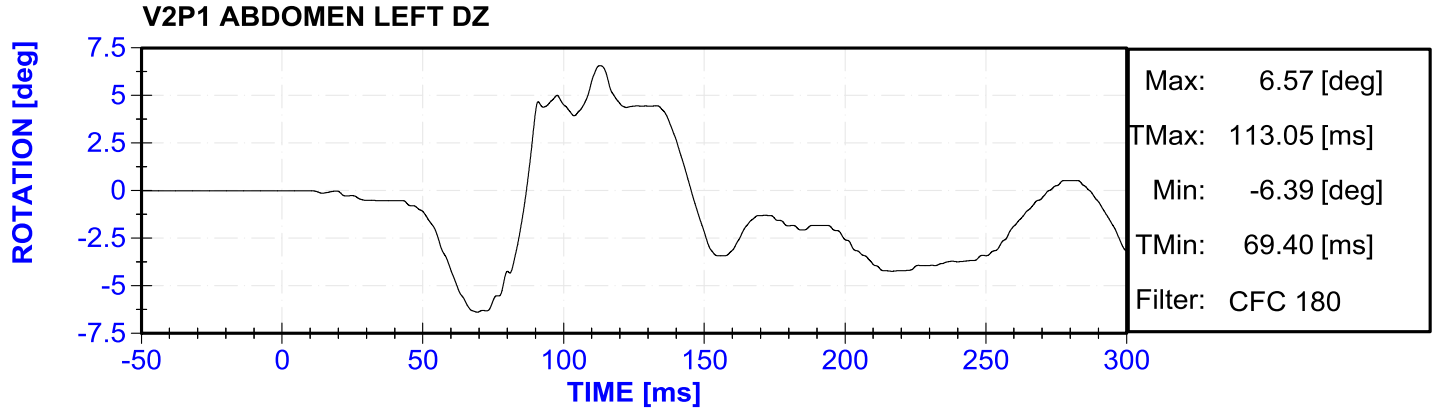
V2P1 ABDOMEN LEFT DX



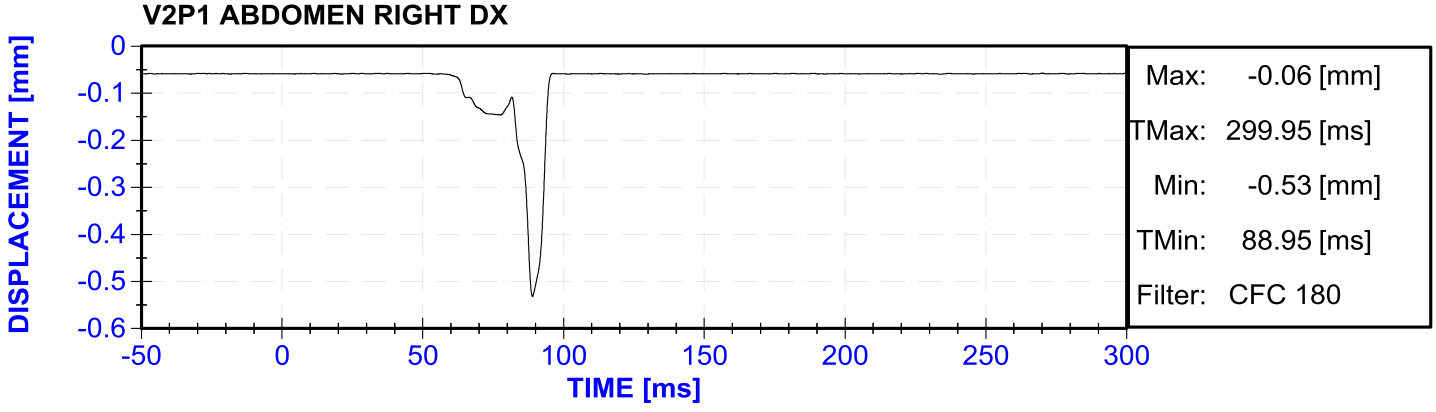
V2P1 ABDOMEN LEFT DY



V2P1 ABDOMEN LEFT DZ

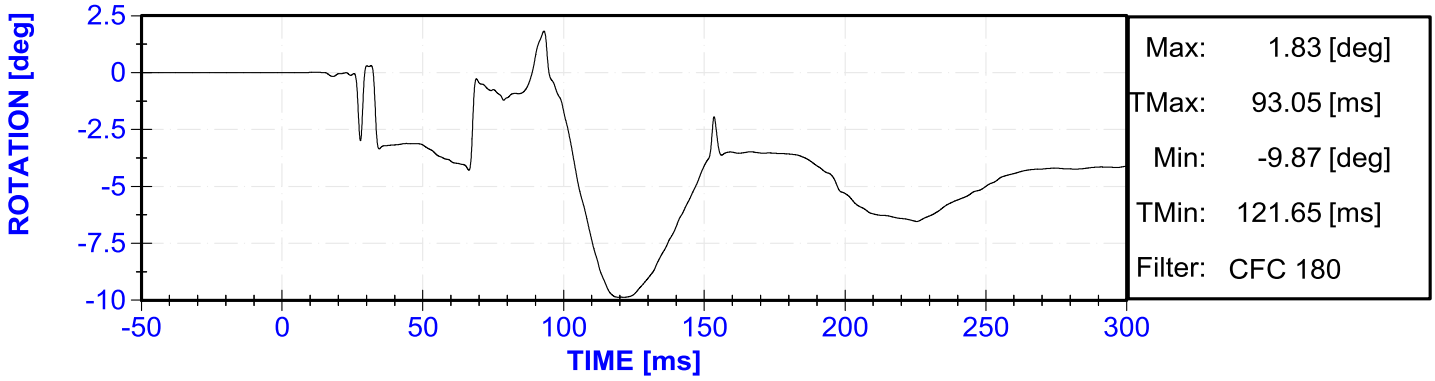


V2P1 ABDOMEN RIGHT DX

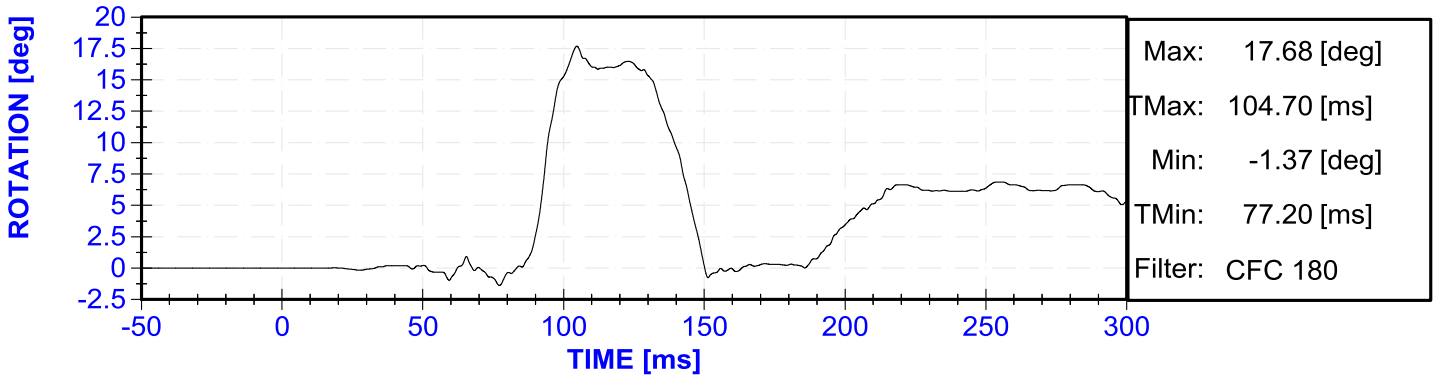


V2P1 ABDOMEN RIGHT DY

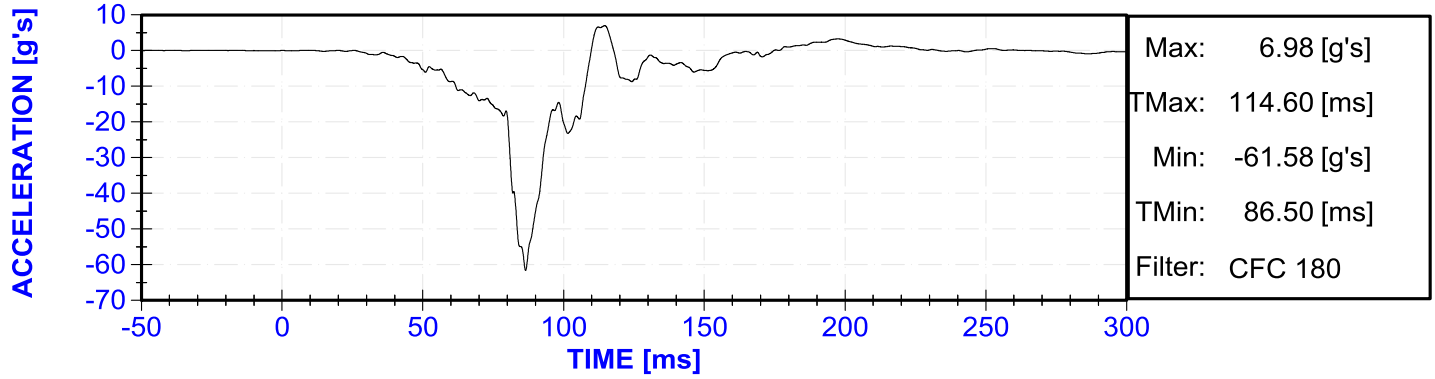
QUESTIONABLE DATA 28 - 61 MS



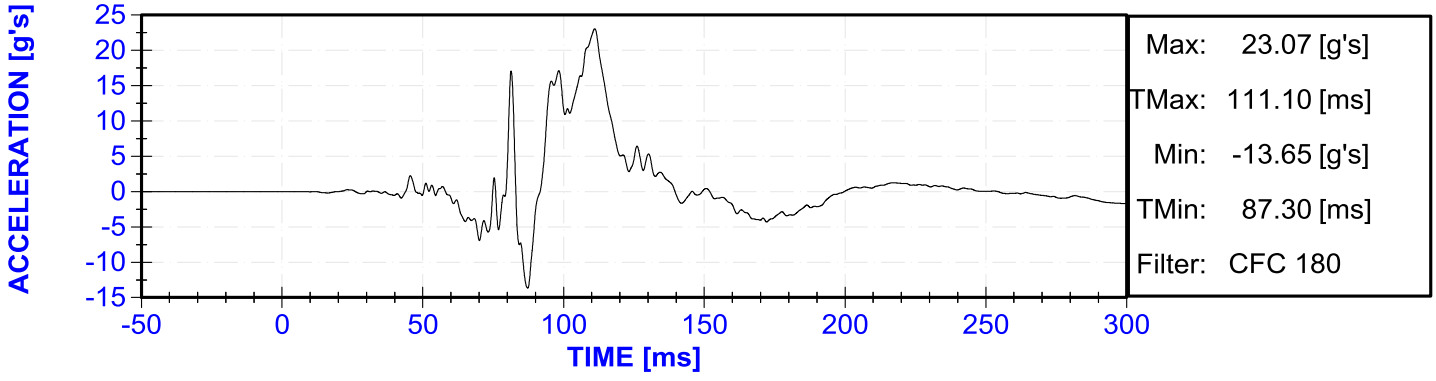
V2P1 ABDOMEN RIGHT DZ



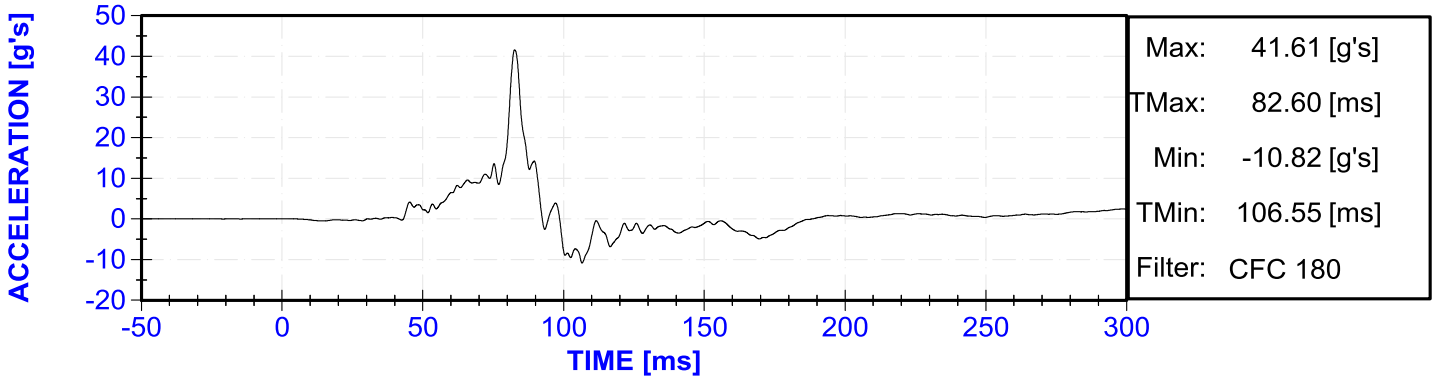
V2P1 T1 X Acceleration



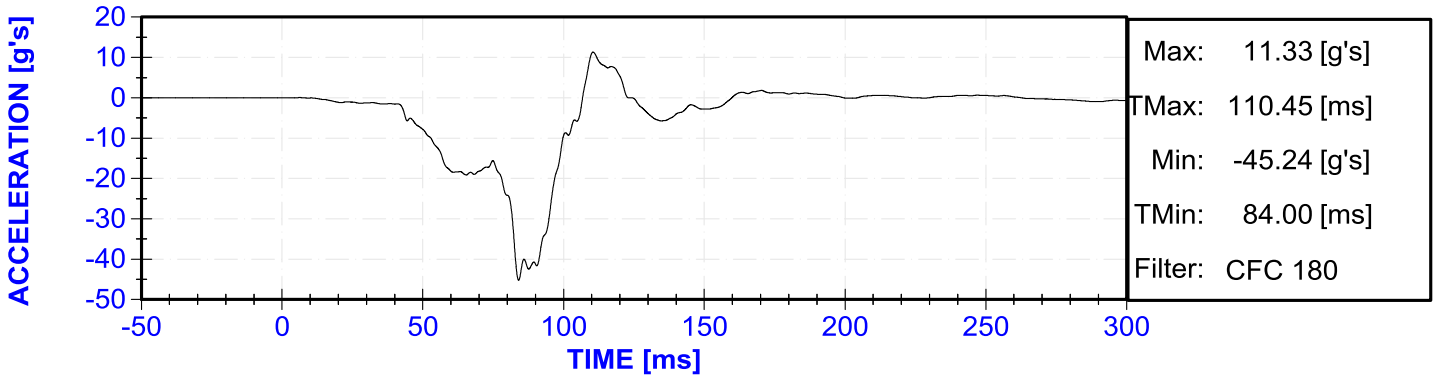
V2P1 T1 Y Acceleration



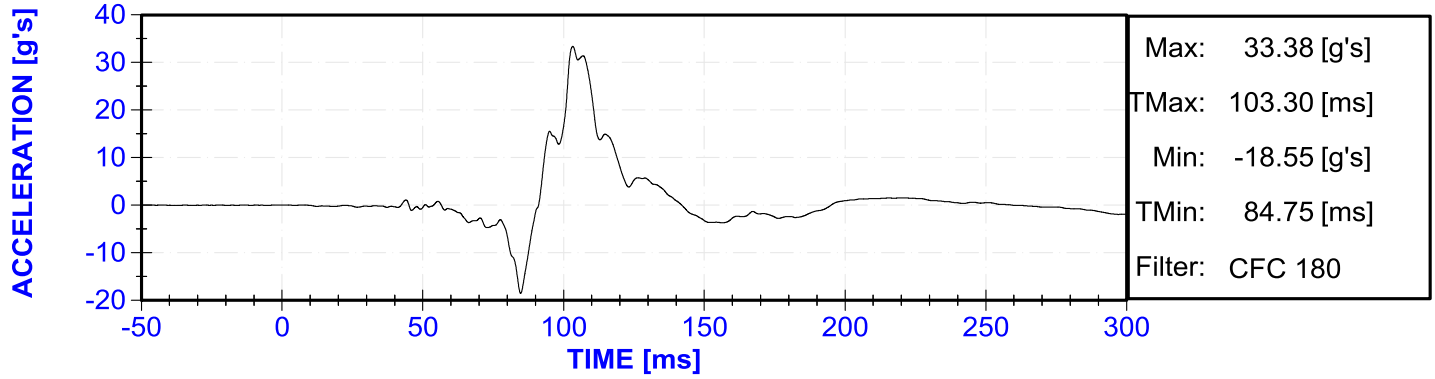
V2P1 T1 Z Acceleration



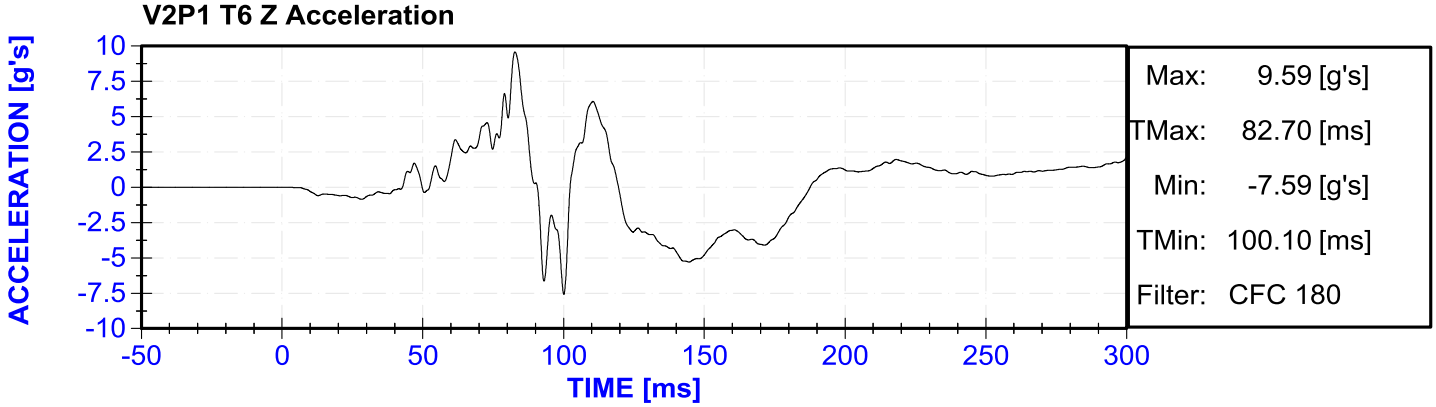
V2P1 T6 X Acceleration



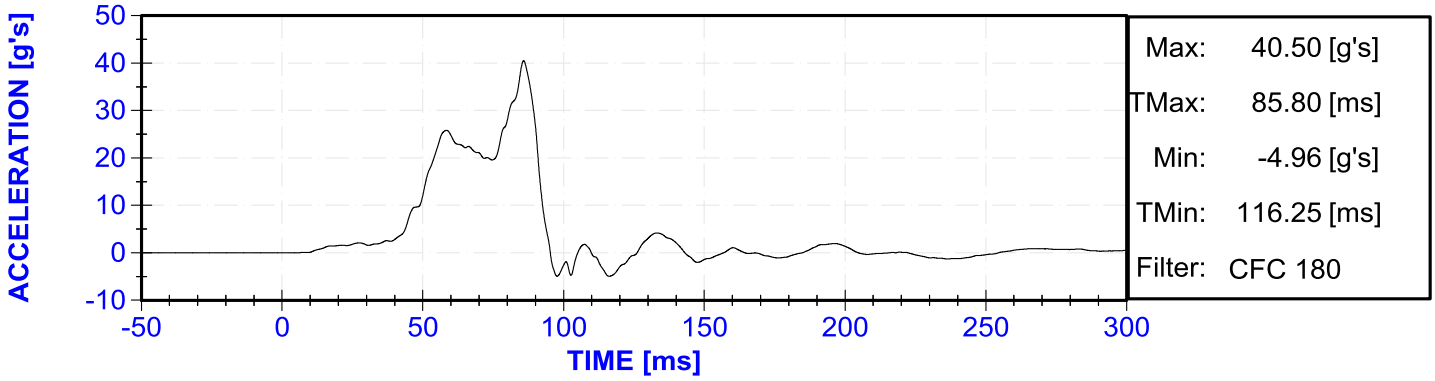
V2P1 T6 Y Acceleration



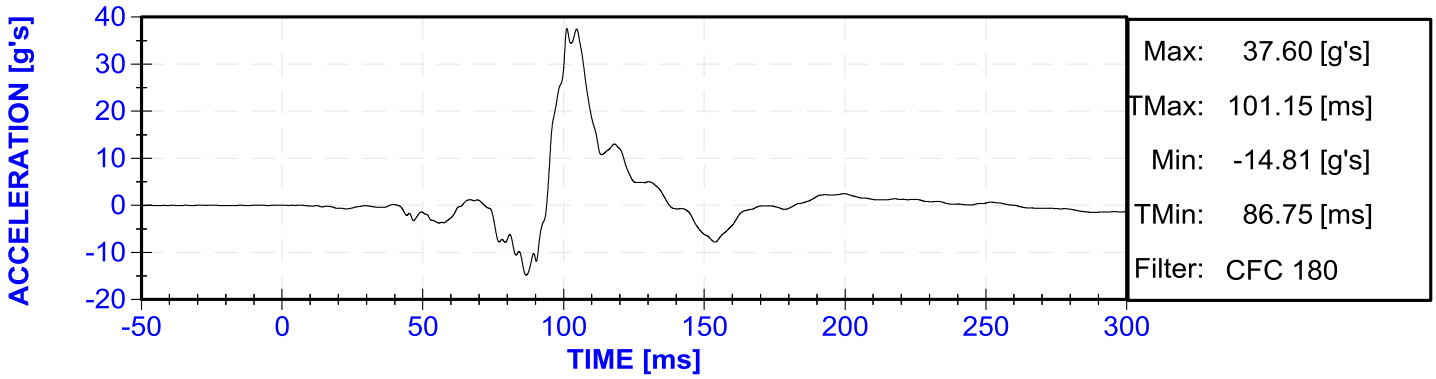
V2P1 T6 Z Acceleration



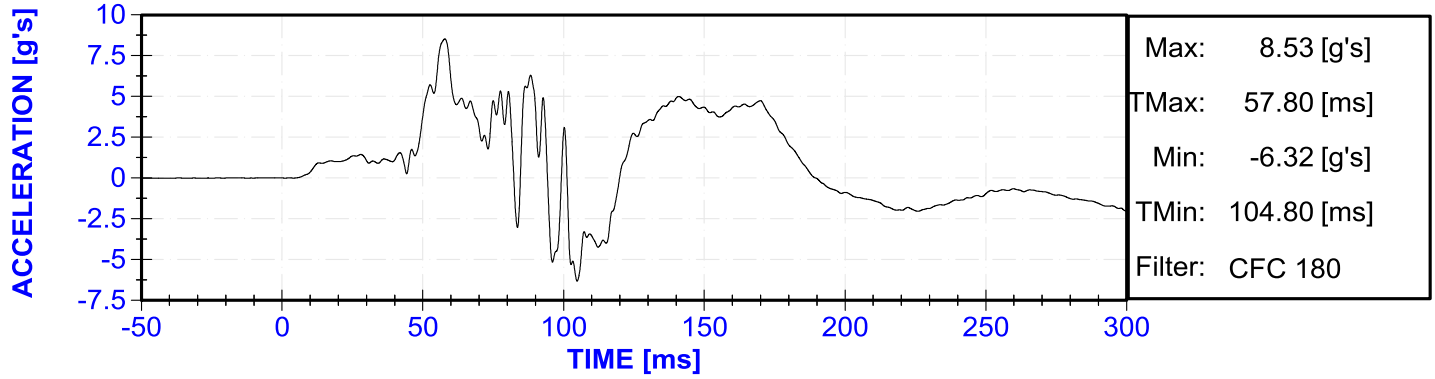
V2P1 T12 X Acceleration



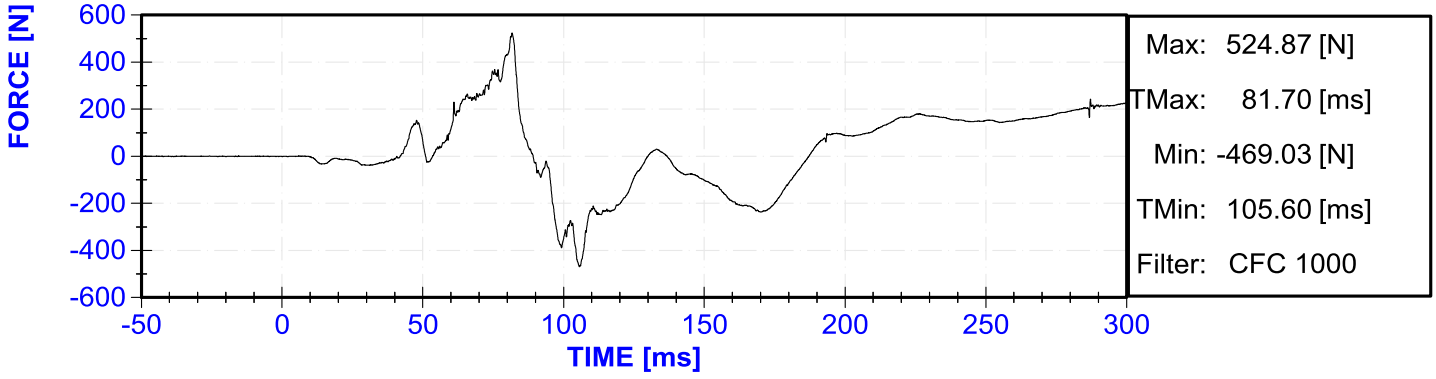
V2P1 T12 Y Acceleration



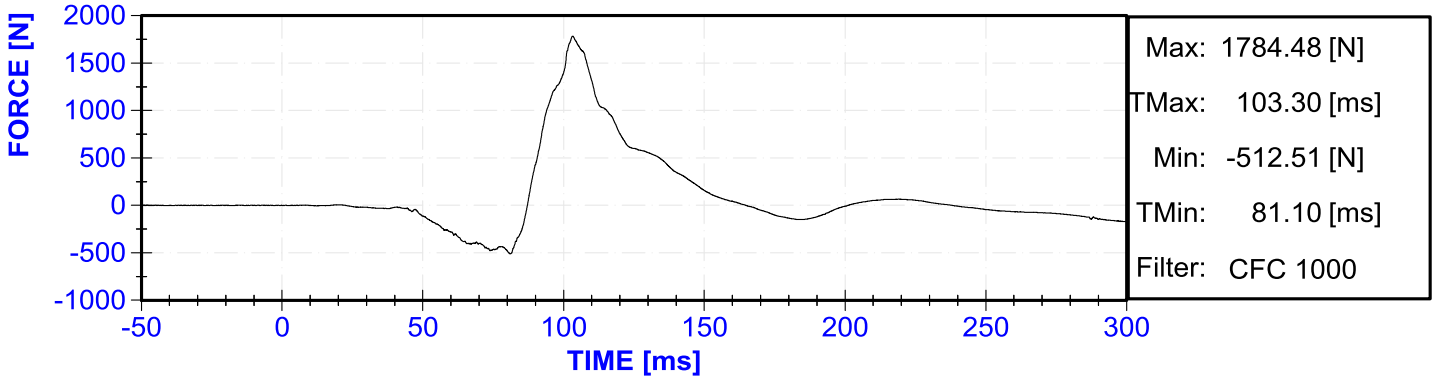
V2P1 T12 Z Acceleration



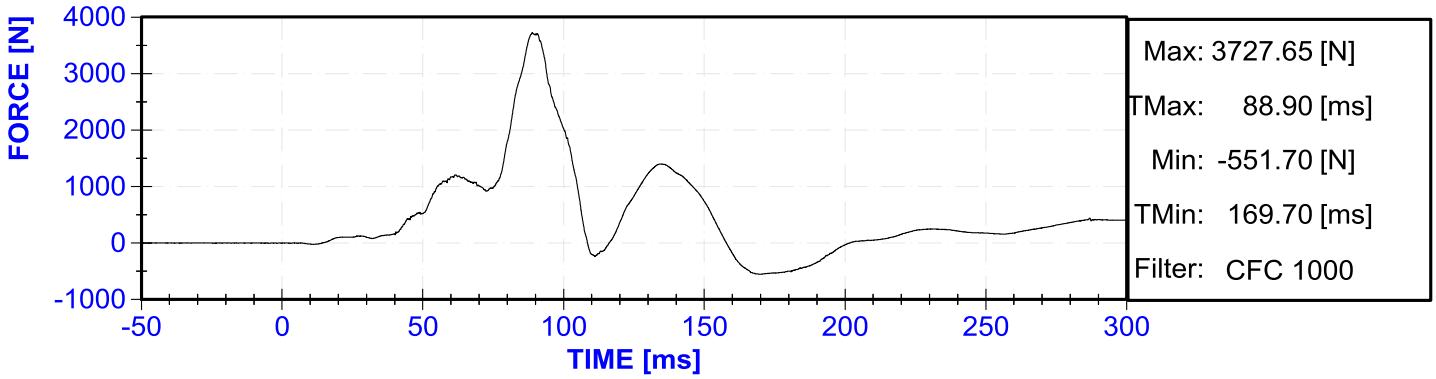
V2P1 Spine Force X



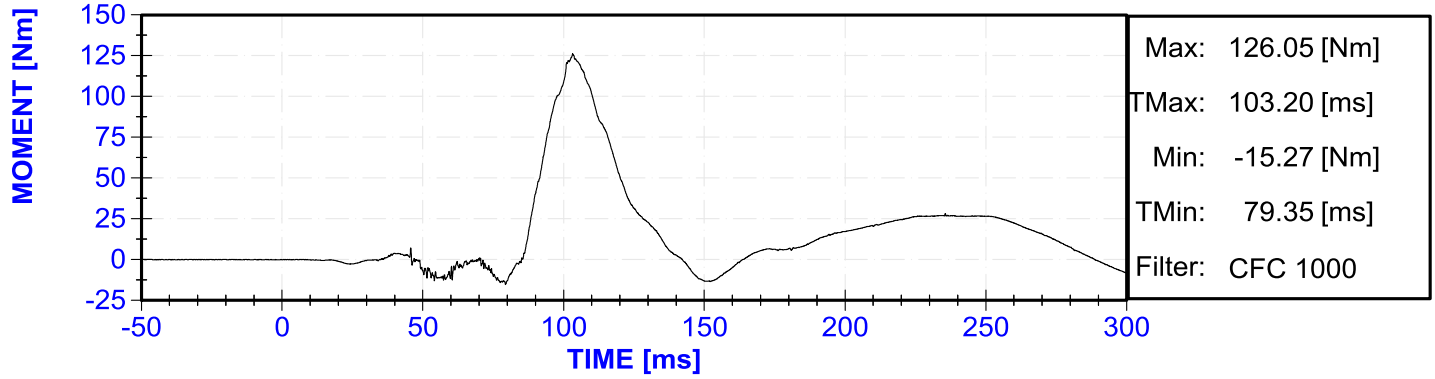
V2P1 Spine Force Y



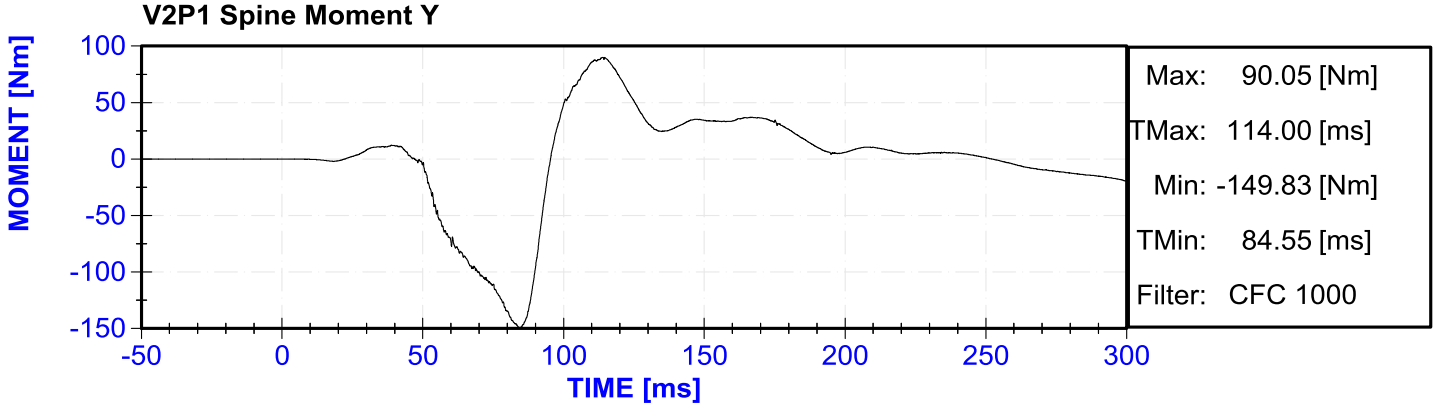
V2P1 Spine Force Z



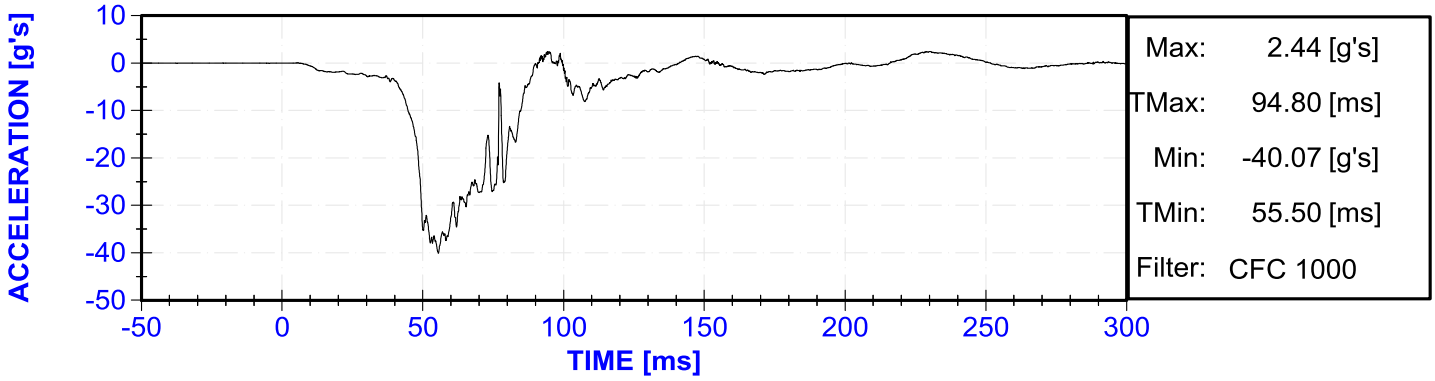
V2P1 Spine Moment X



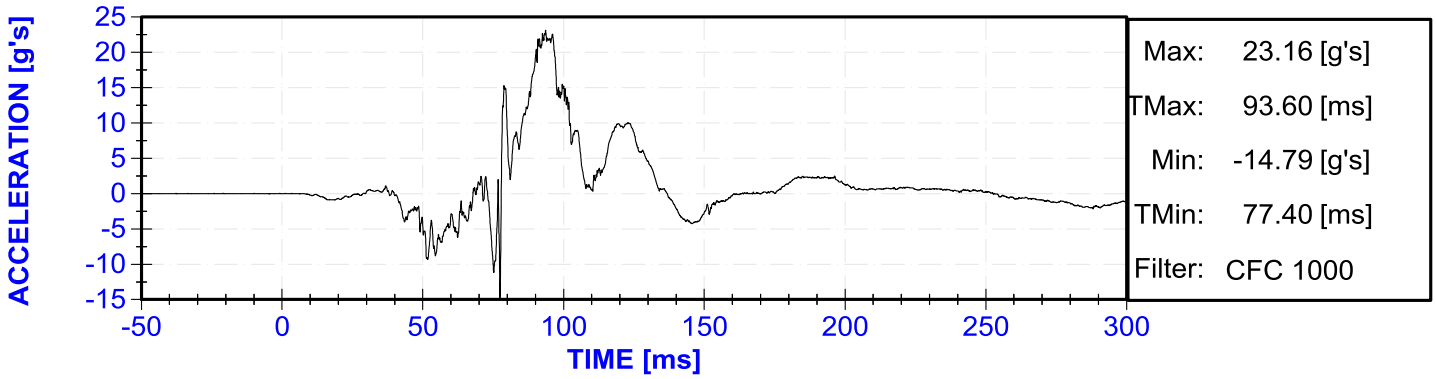
V2P1 Spine Moment Y



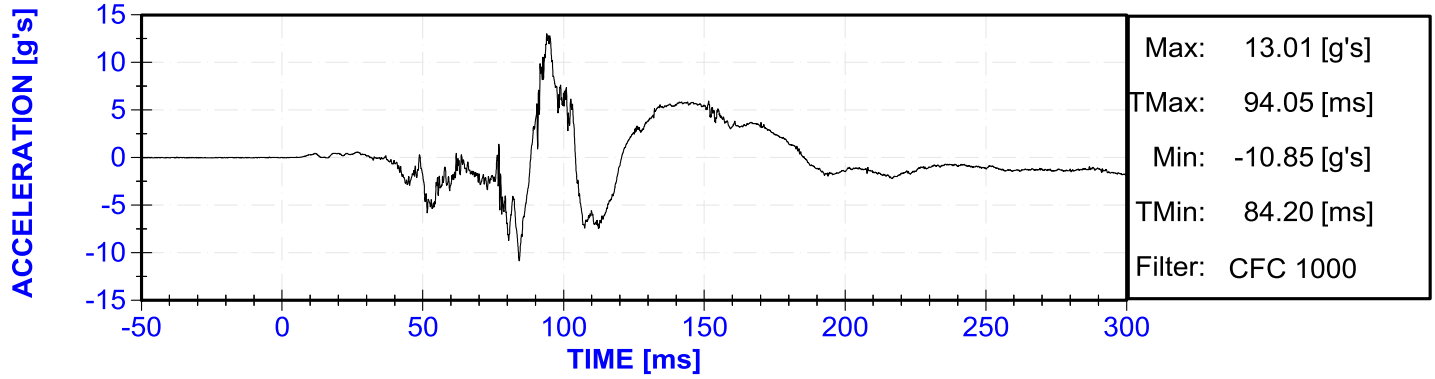
V2P1 Pelvis X Acceleration



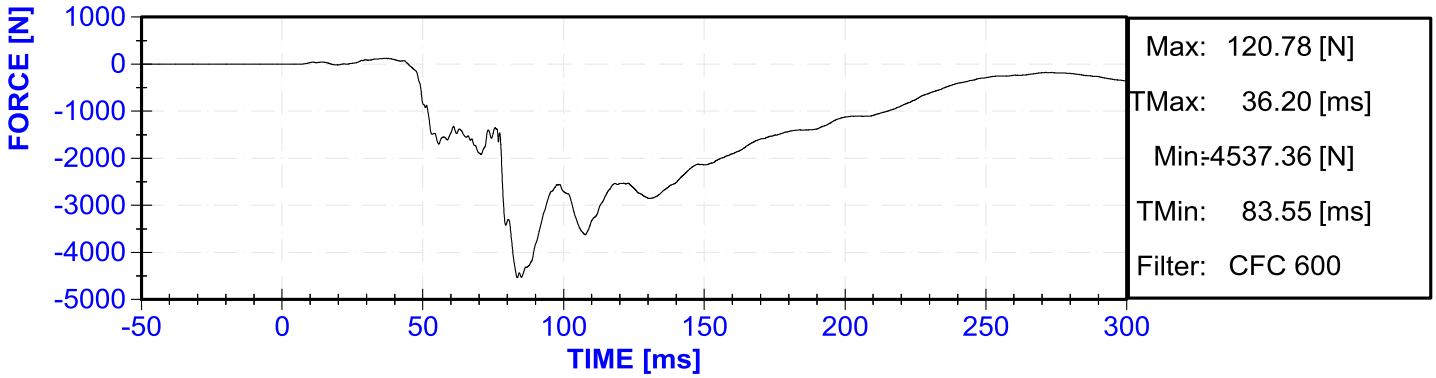
V2P1 Pelvis Y Acceleration



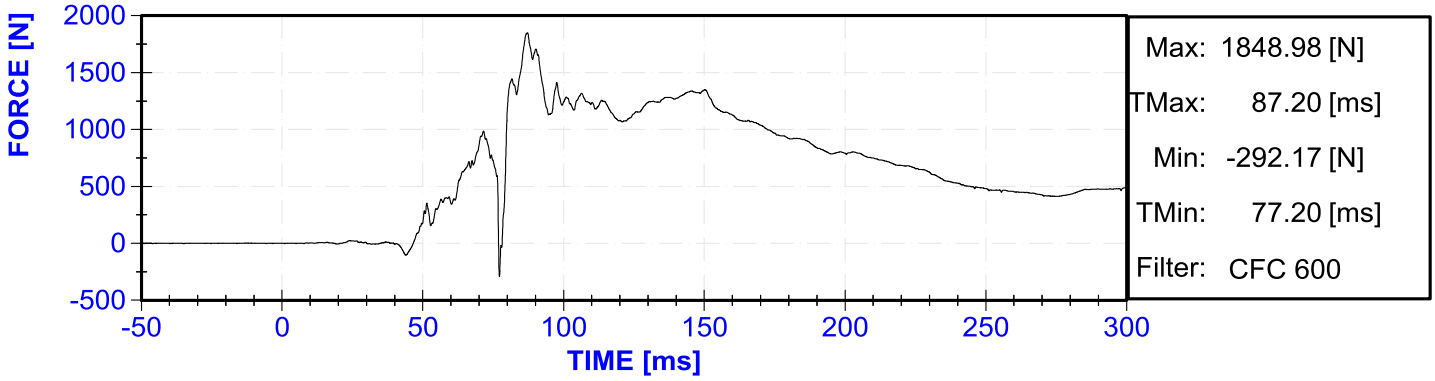
V2P1 Pelvis Z Acceleration



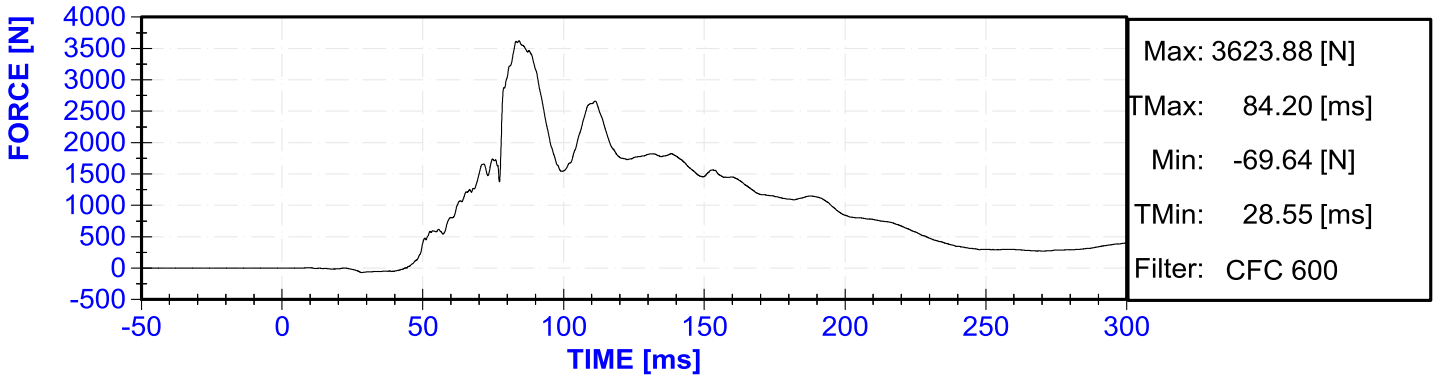
V2P1 Acetabulam Left X Force



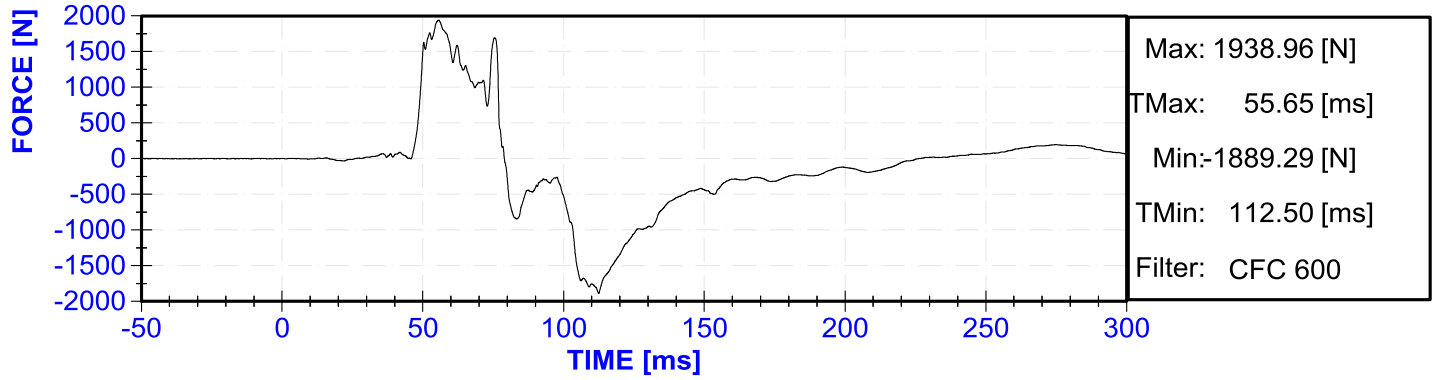
V2P1 Acetabulam Left Y Force



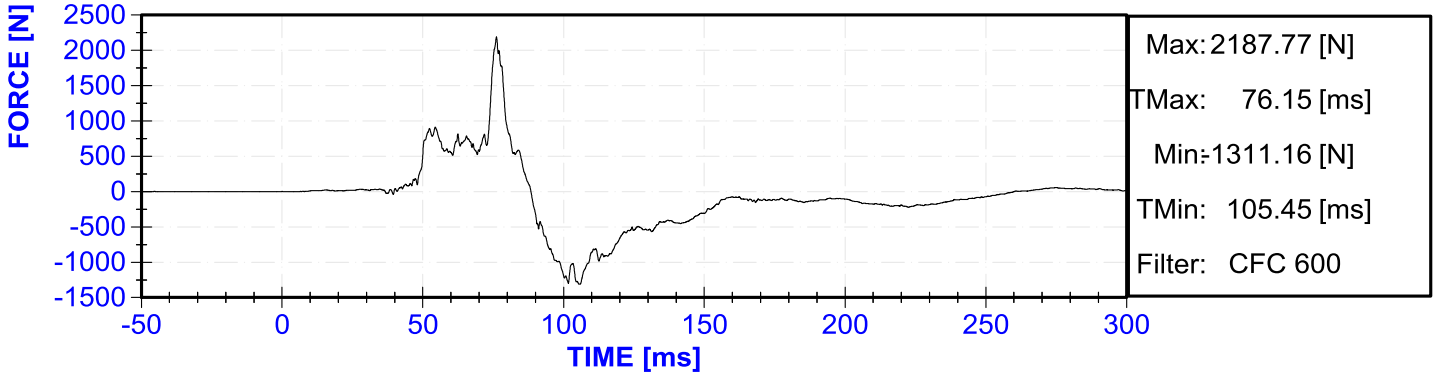
V2P1 Acetabulam Left Z Force



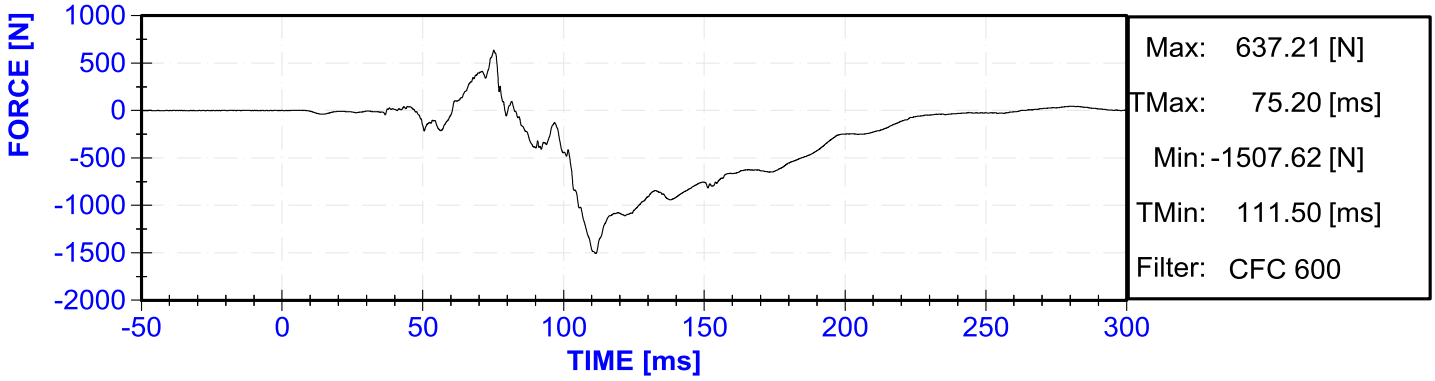
V2P1 Acetabulam Right X Force



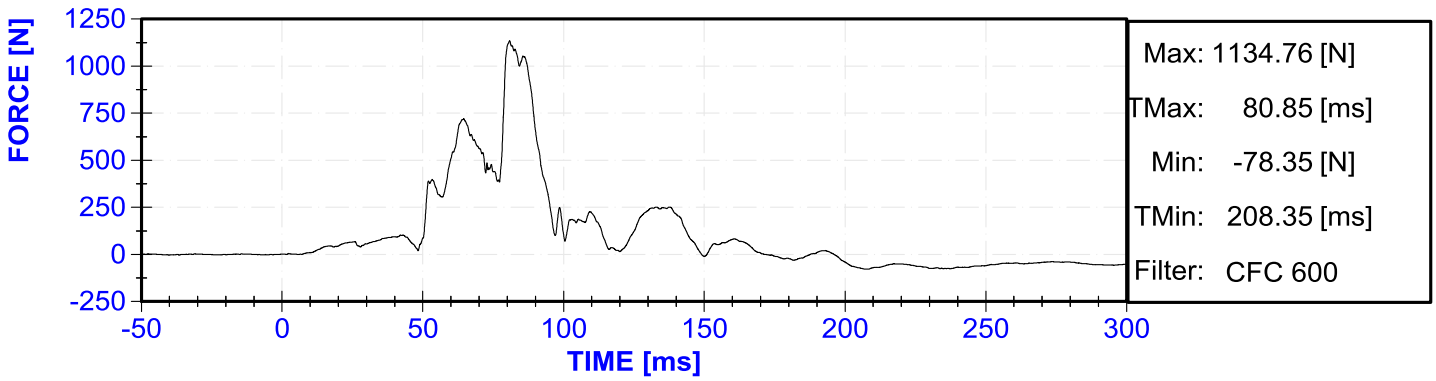
V2P1 Acetabulam Right Y Force



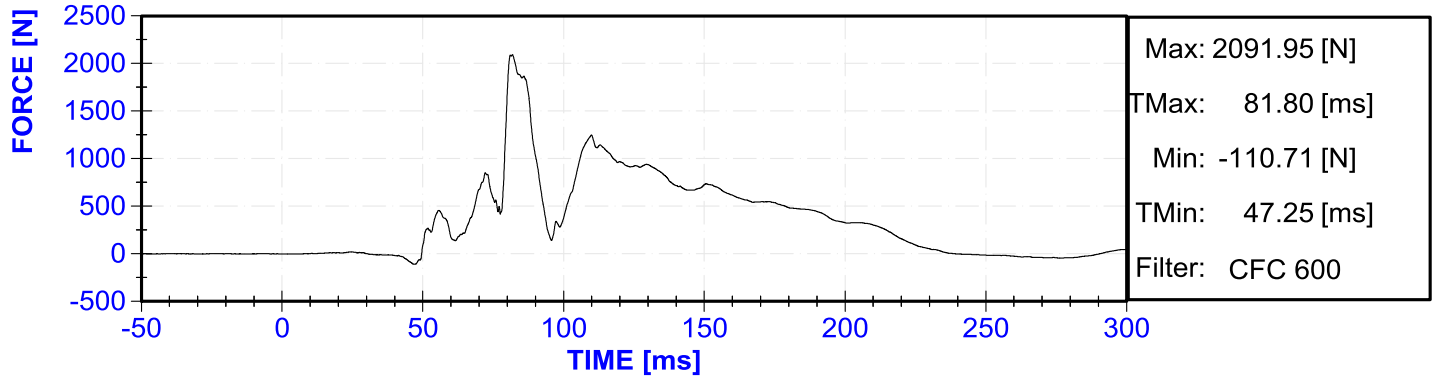
V2P1 Acetabulam Right Z Force



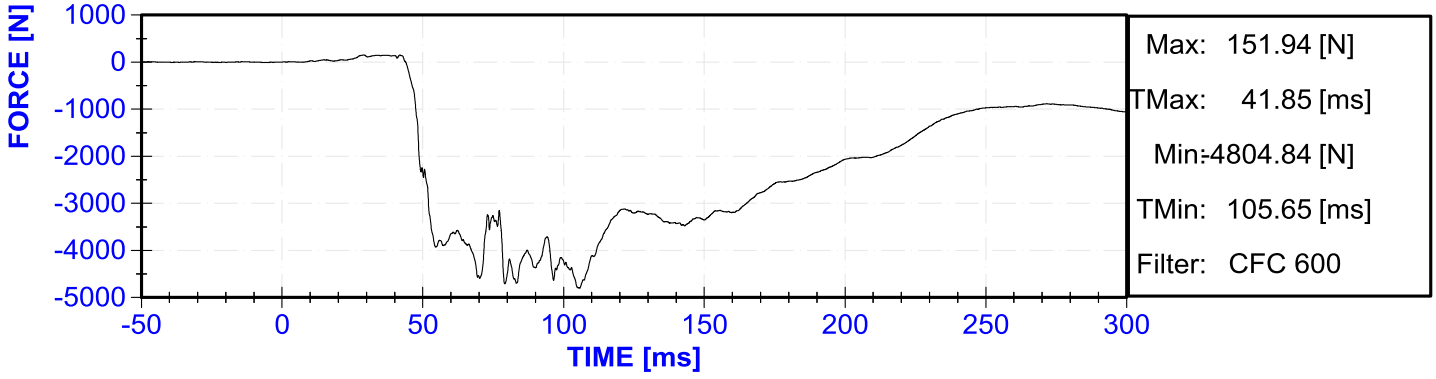
V2P1 Femur Left X Force



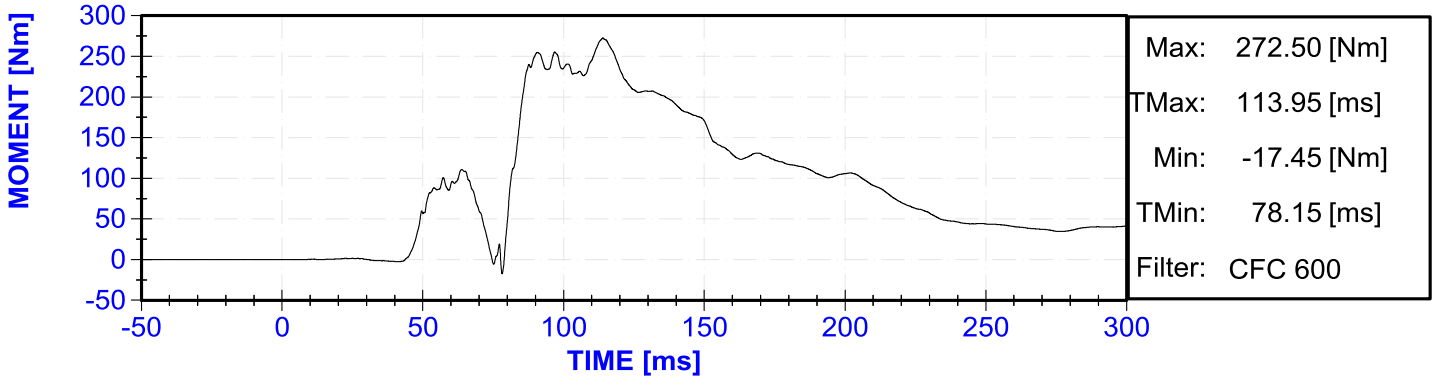
V2P1 Femur Left Y Force



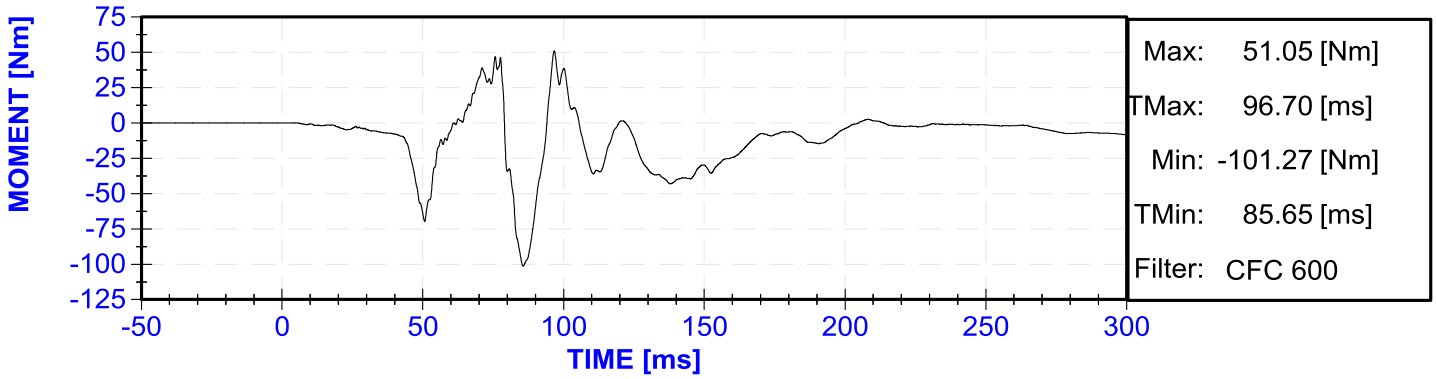
V2P1 Femur Left Z Force



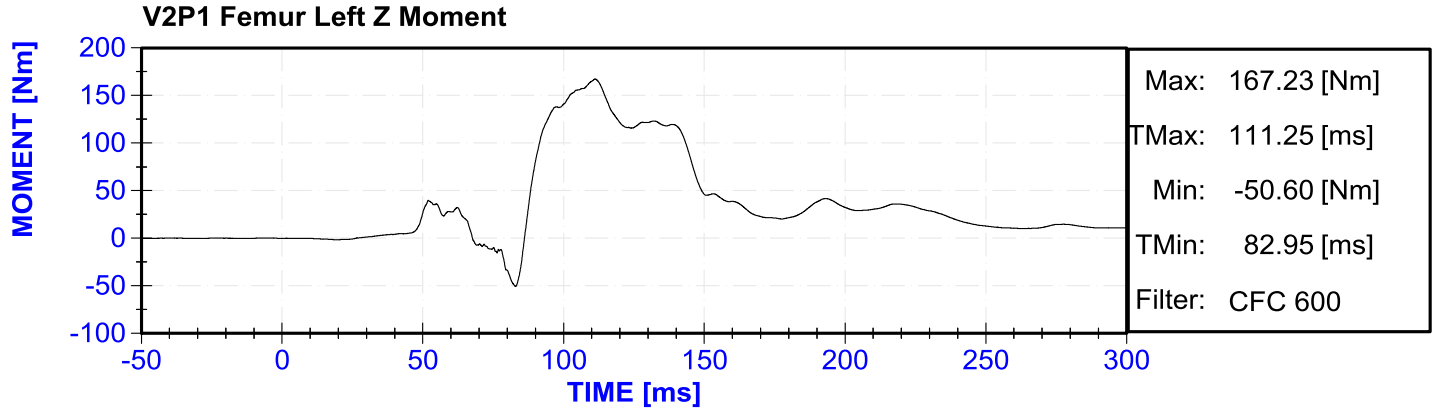
V2P1 Femur Left X Moment



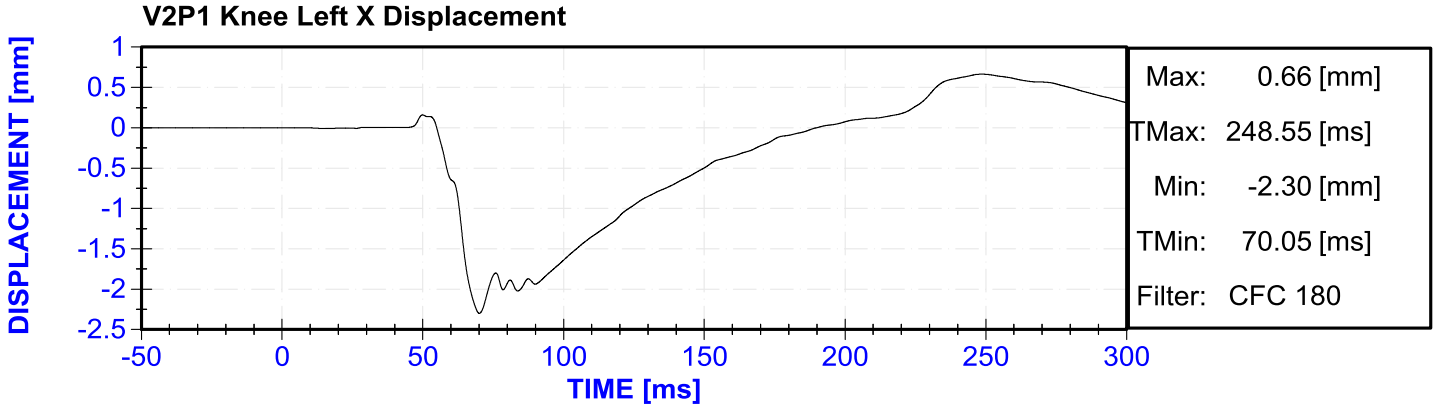
V2P1 Femur Left Y Moment



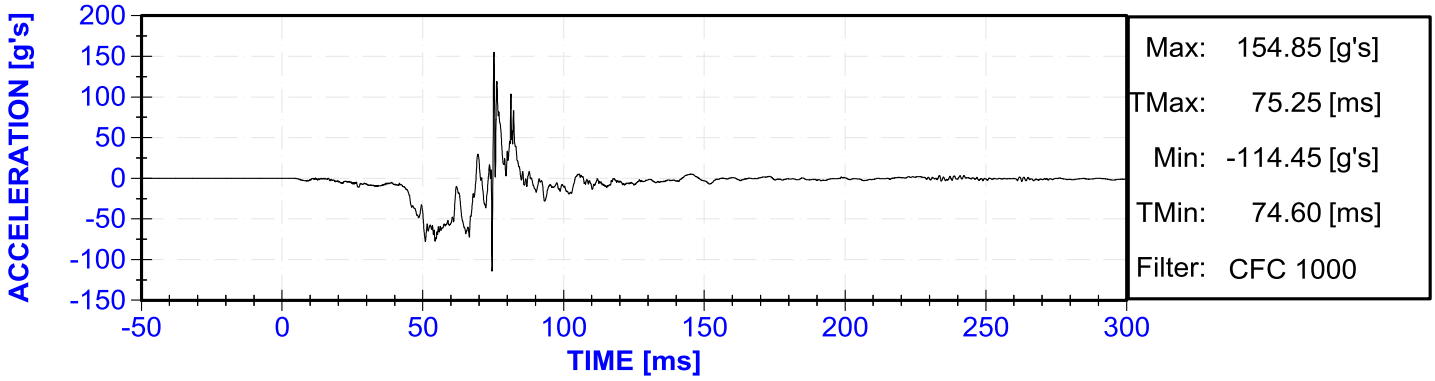
V2P1 Femur Left Z Moment



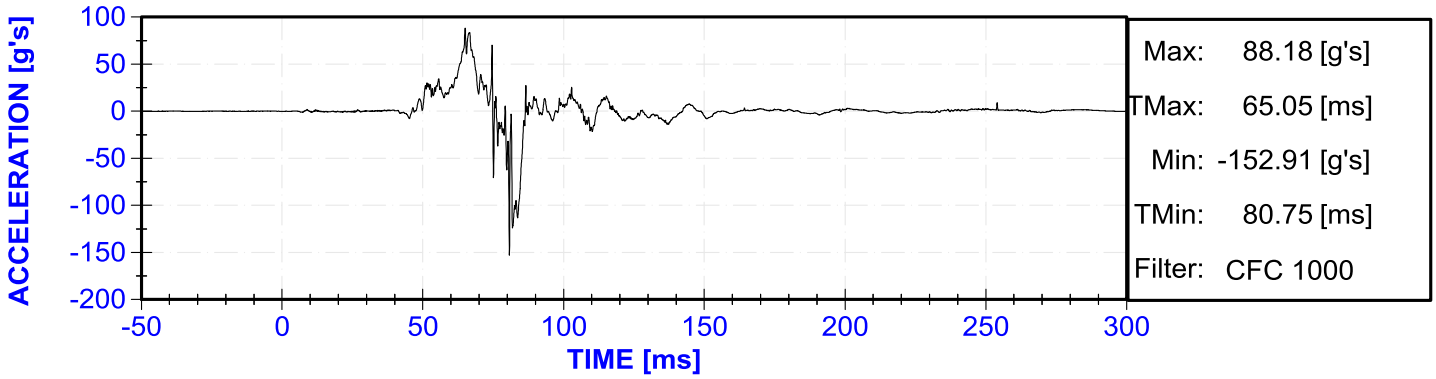
V2P1 Knee Left X Displacement



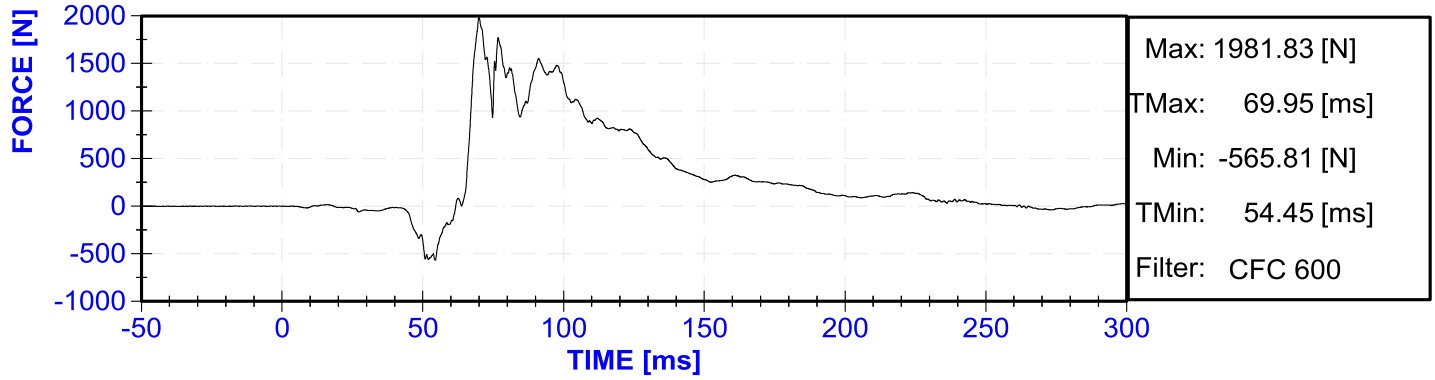
V2P1 Tibia Left X Acceleration



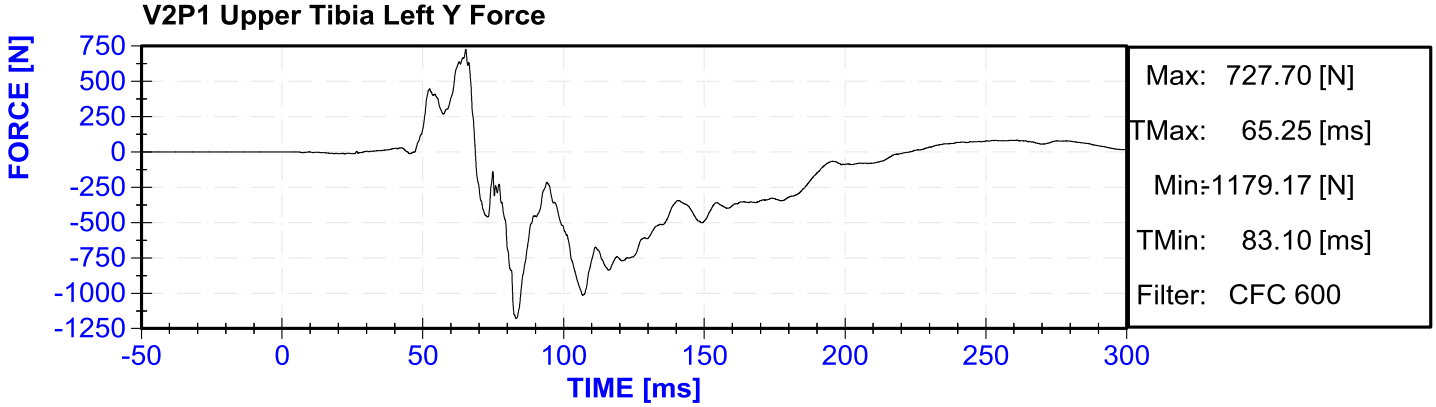
V2P1 Tibia Left Y Acceleration



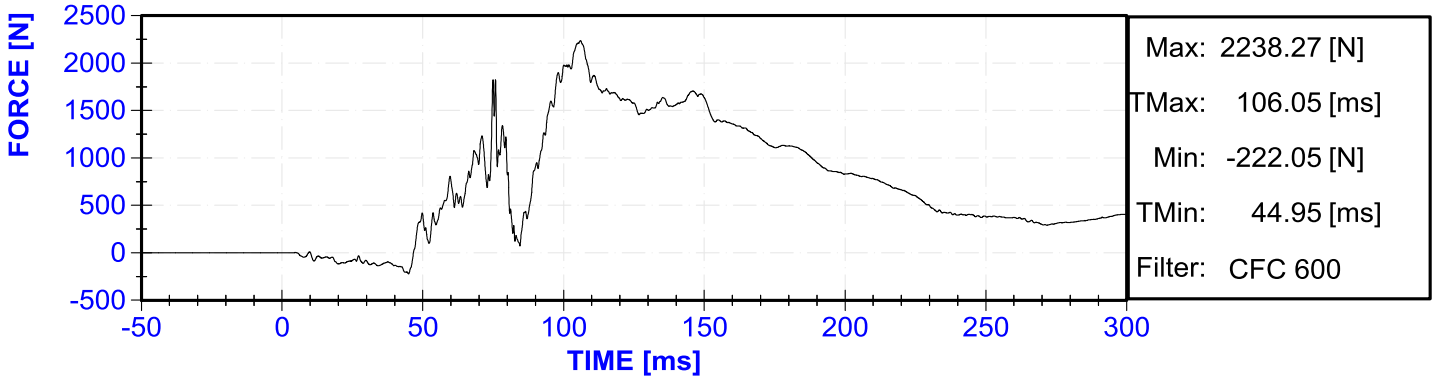
V2P1 Upper Tibia Left X Force



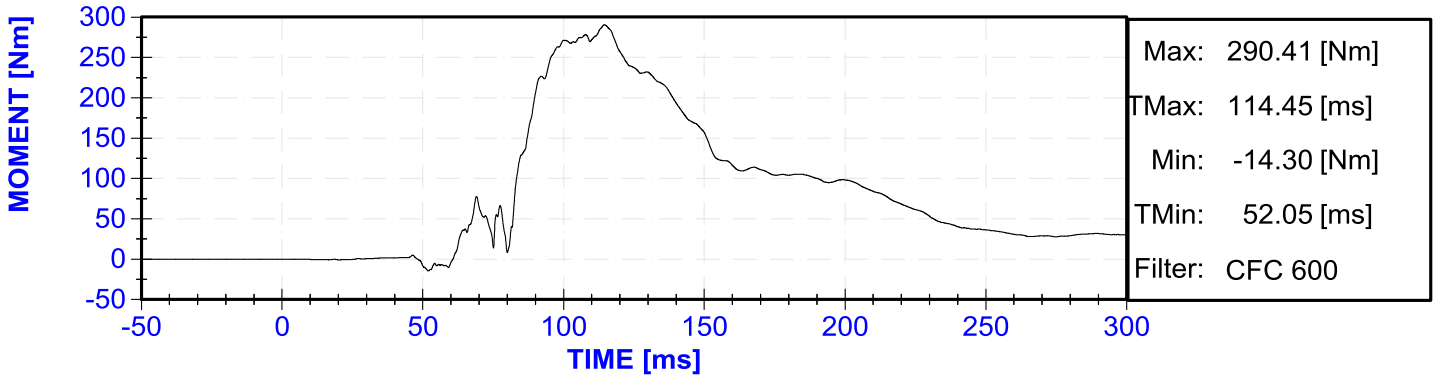
V2P1 Upper Tibia Left Y Force



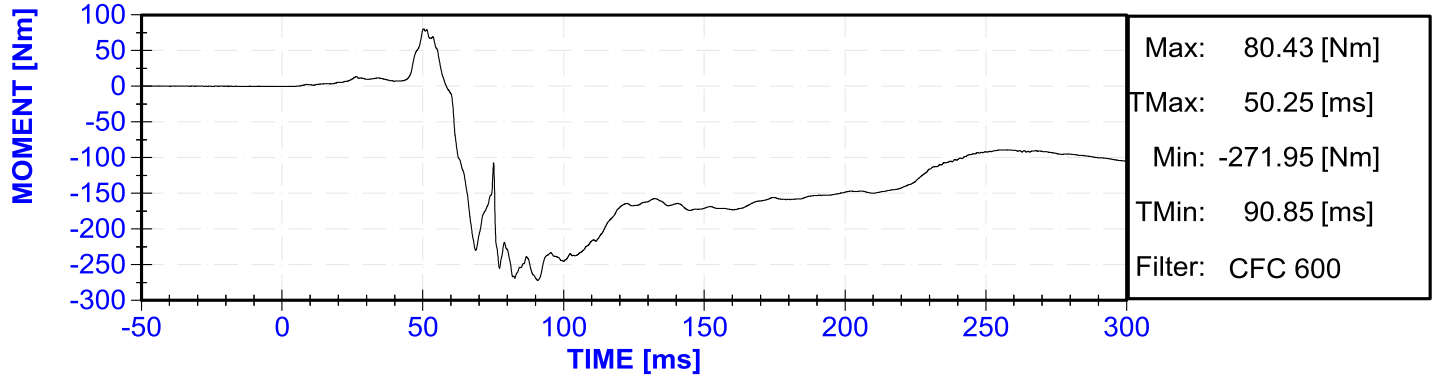
V2P1 Upper Tibia Left Z Force



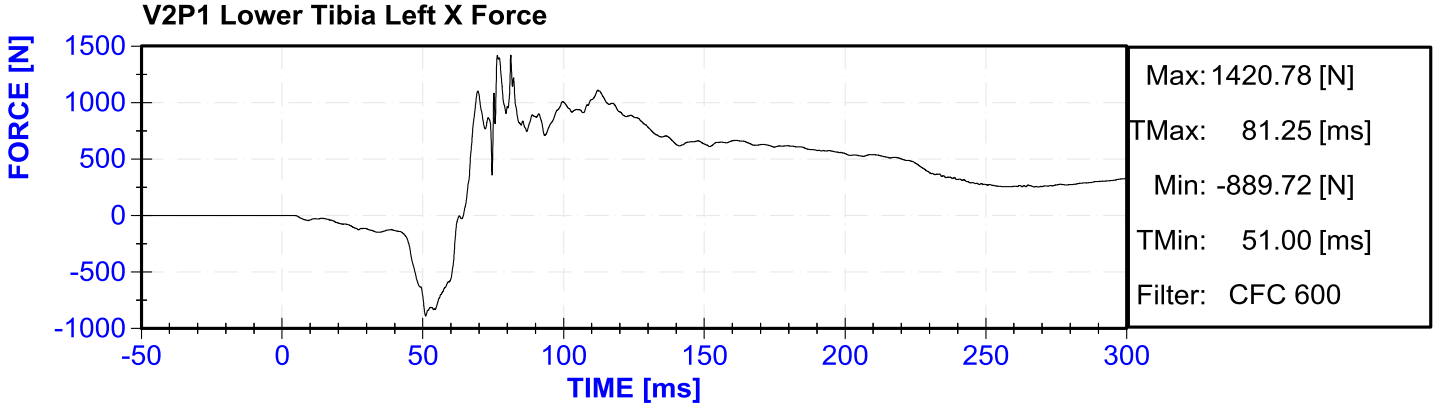
V2P1 Upper Tibia Left X Moment



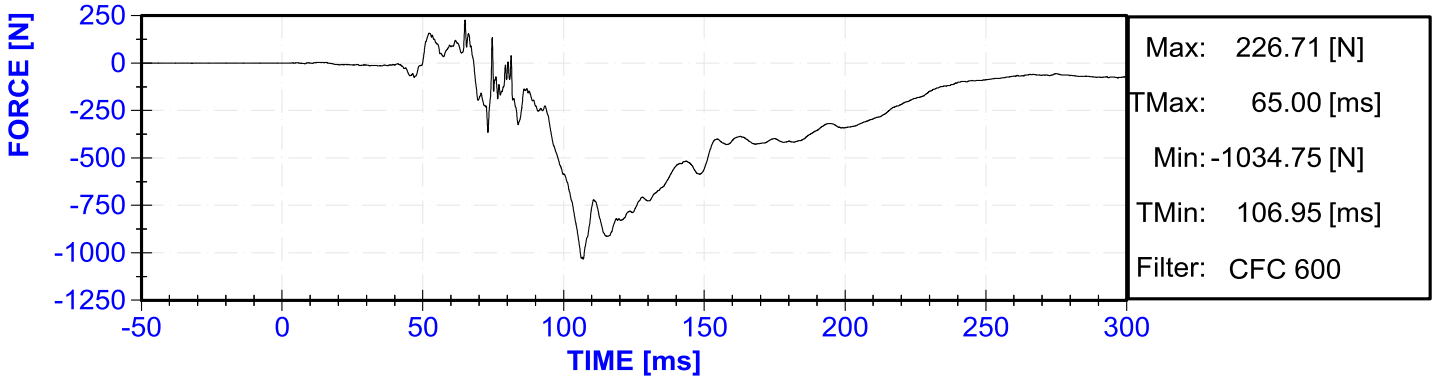
V2P1 Upper Tibia Left Y Moment



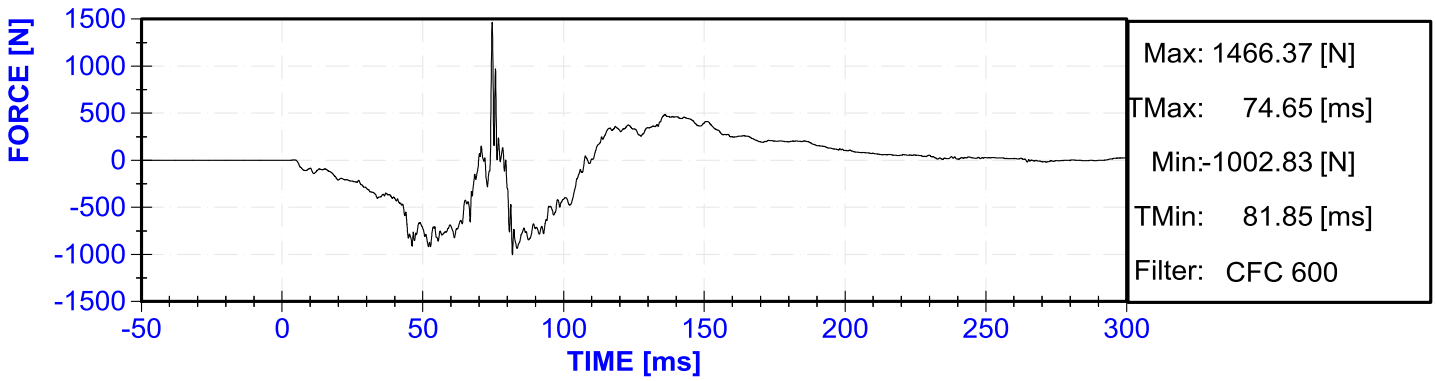
V2P1 Lower Tibia Left X Force



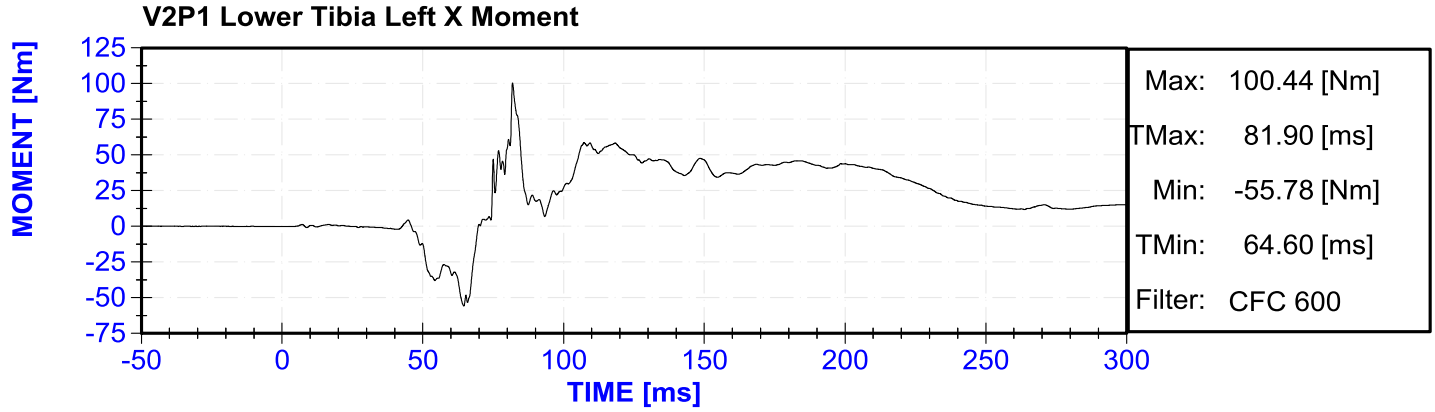
V2P1 Lower Tibia Left Y Force



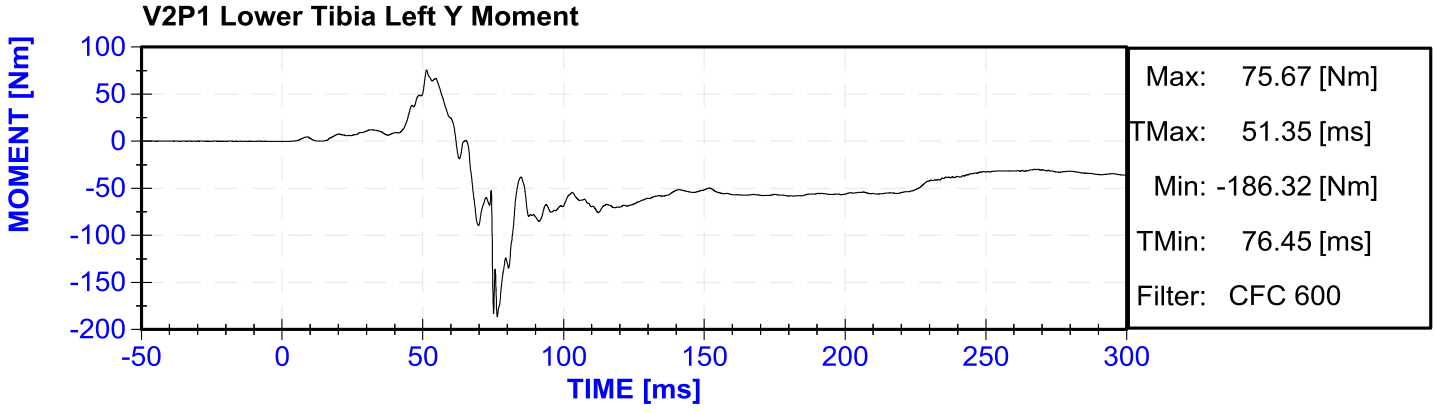
V2P1 Lower Tibia Left Z Force



V2P1 Lower Tibia Left X Moment

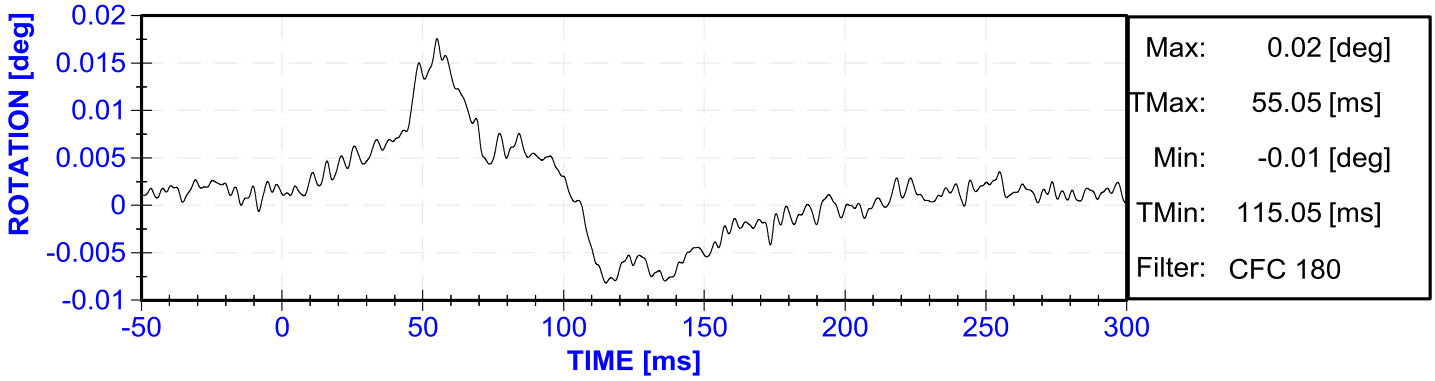


V2P1 Lower Tibia Left Y Moment

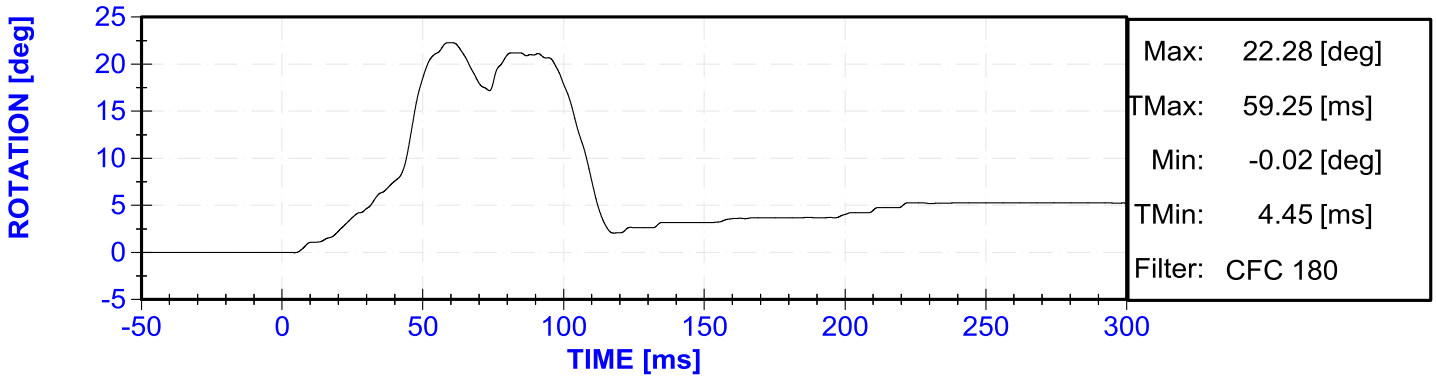


V2P1 Ankle Left X Rotation

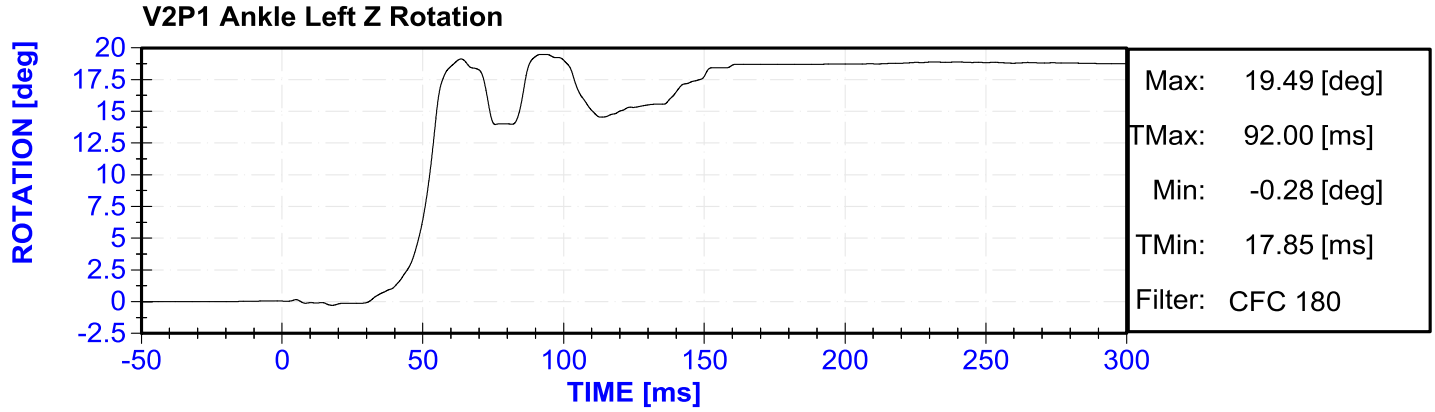
CHANNEL FAILURE



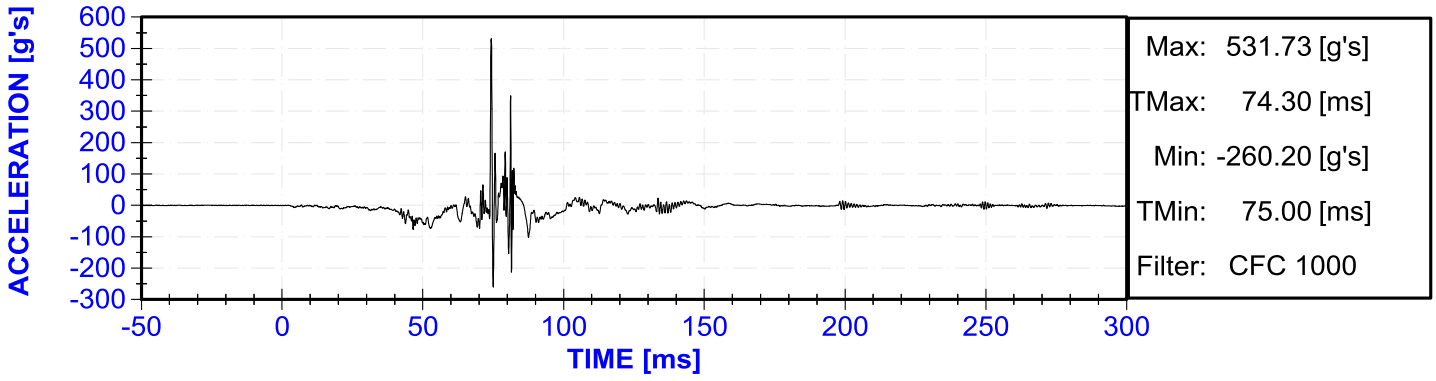
V2P1 Ankle Left Y Rotation



V2P1 Ankle Left Z Rotation

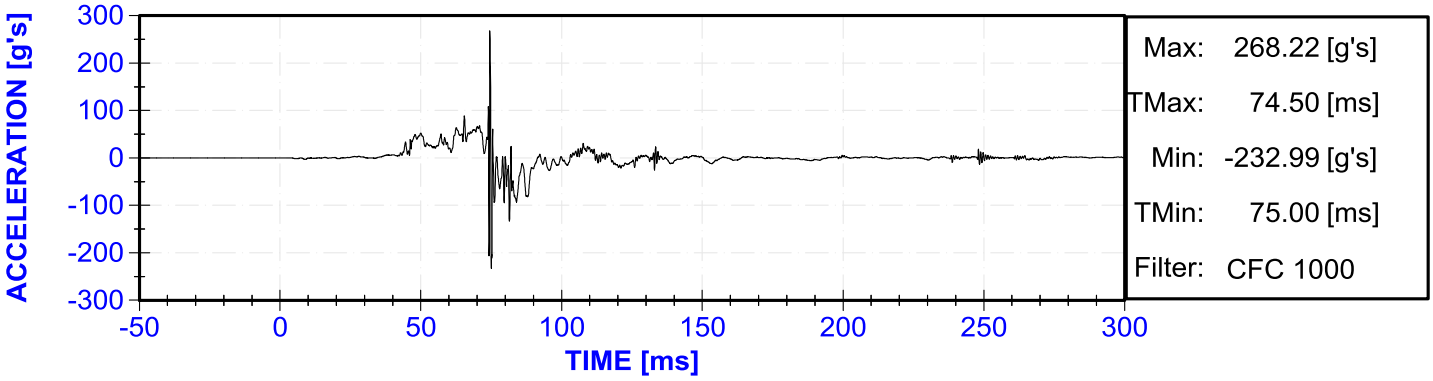


V2P1 Foot Left X Acceleration

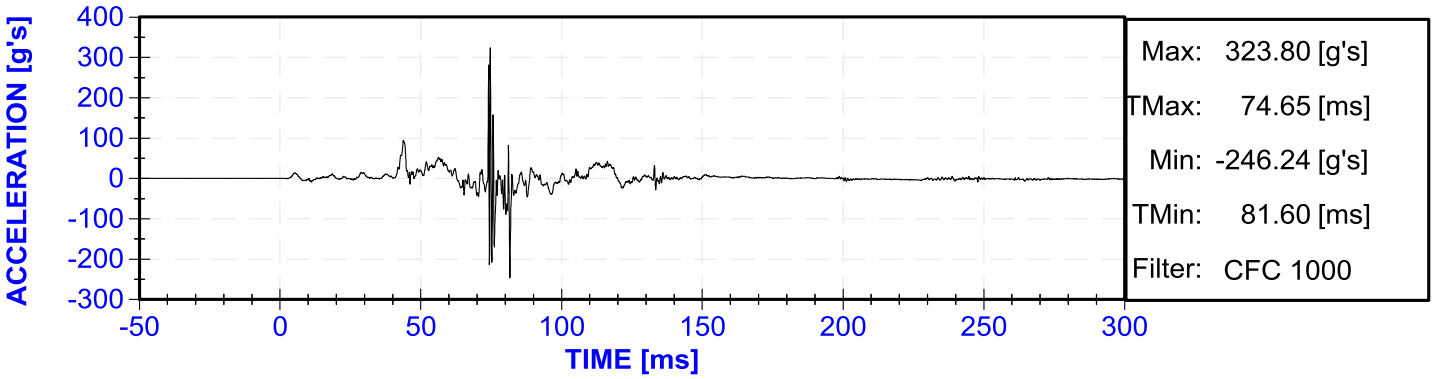


V2P1 Foot Left Y Acceleration

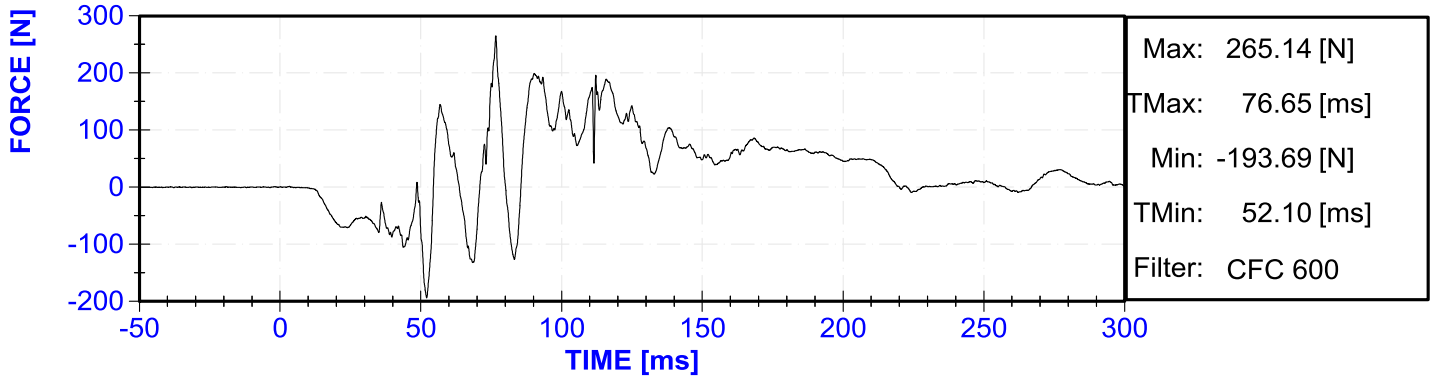
QUESTIONABLE DATA SPIKES AT 74MS



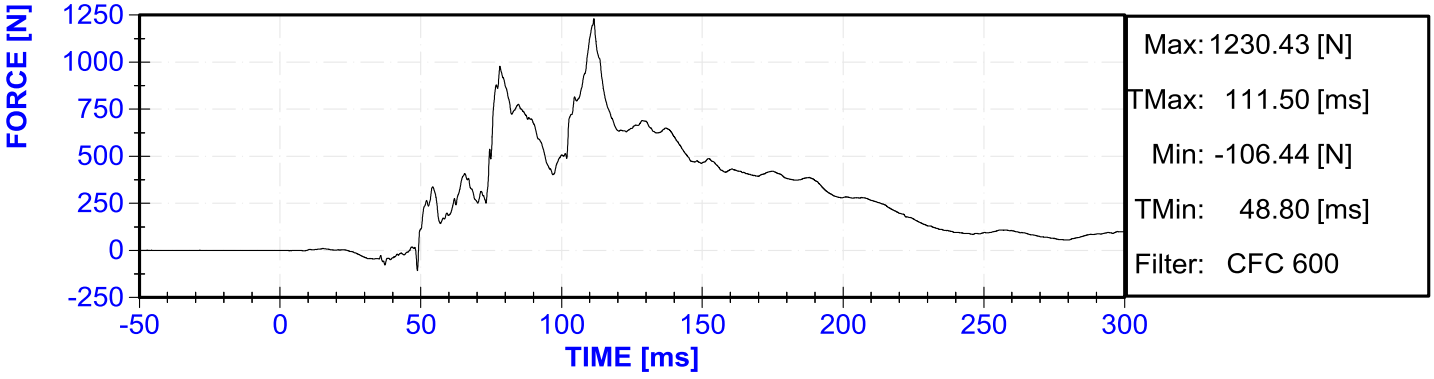
V2P1 Foot Left Z Acceleration



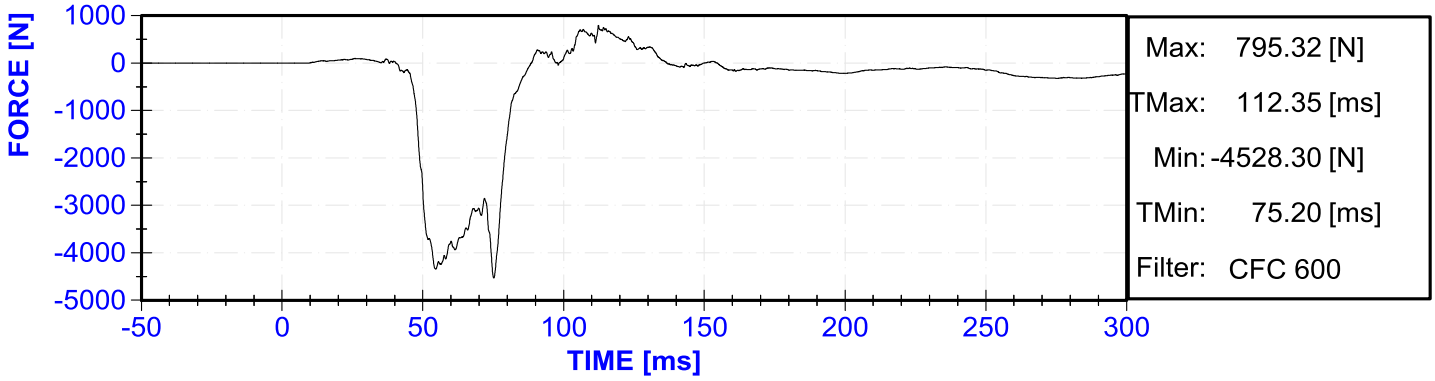
V2P1 Femur Right X Force



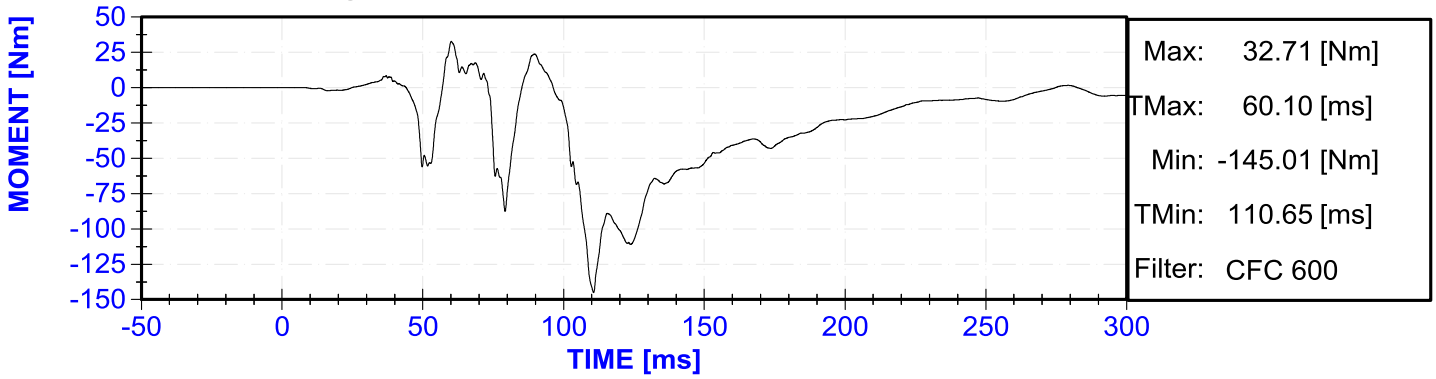
V2P1 Femur Right Y Force



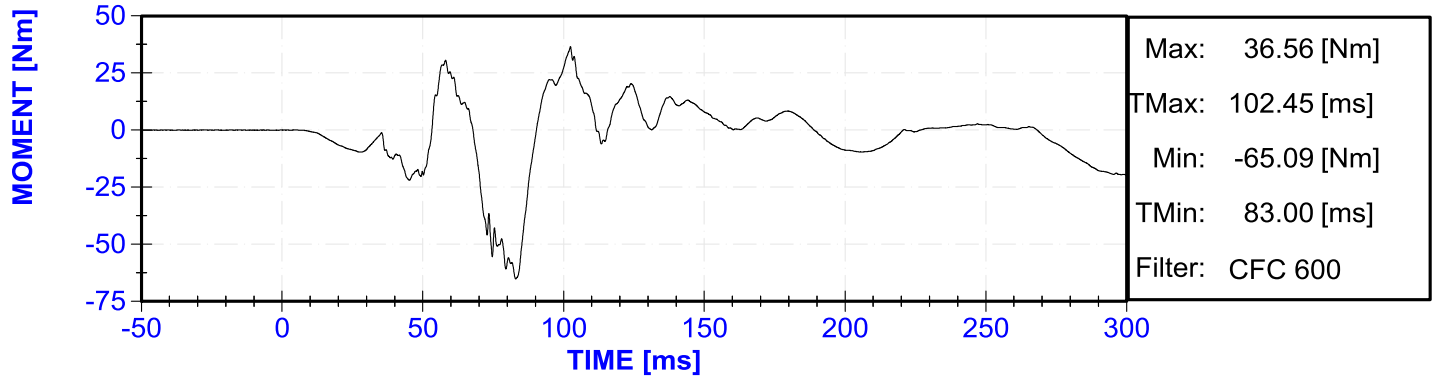
V2P1 Femur Right Z Force



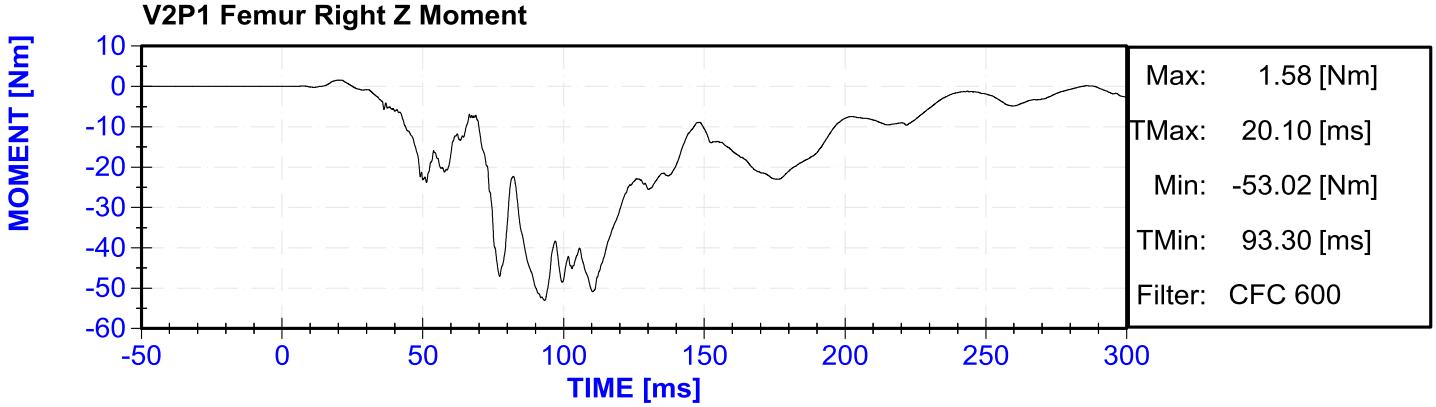
V2P1 Femur Right X Moment



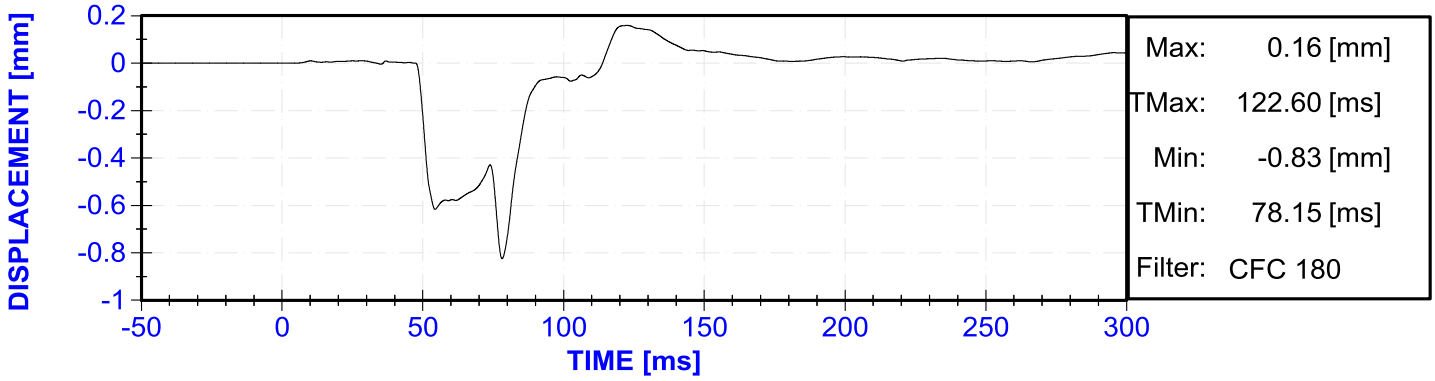
V2P1 Femur Right Y Moment



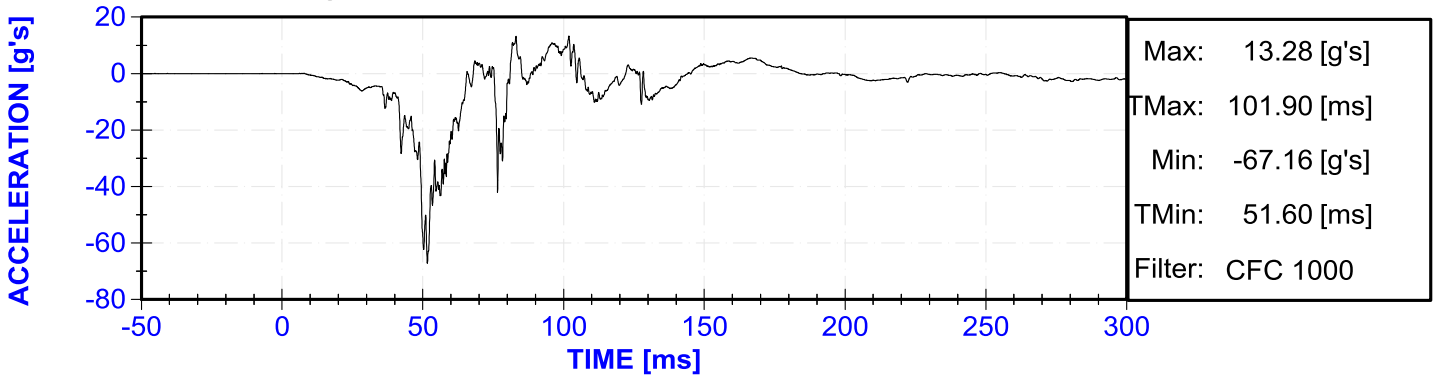
V2P1 Femur Right Z Moment



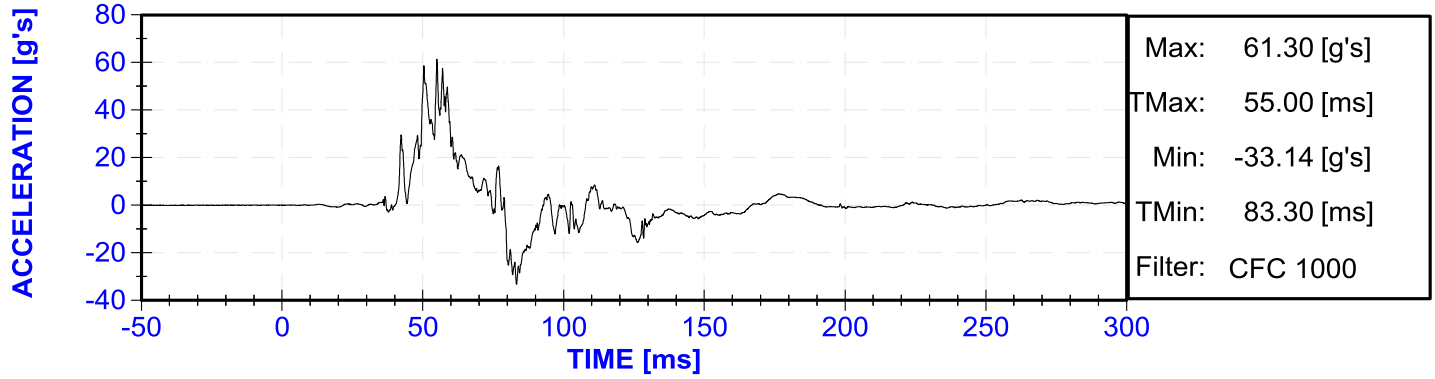
V2P1 Knee Right X Displacement



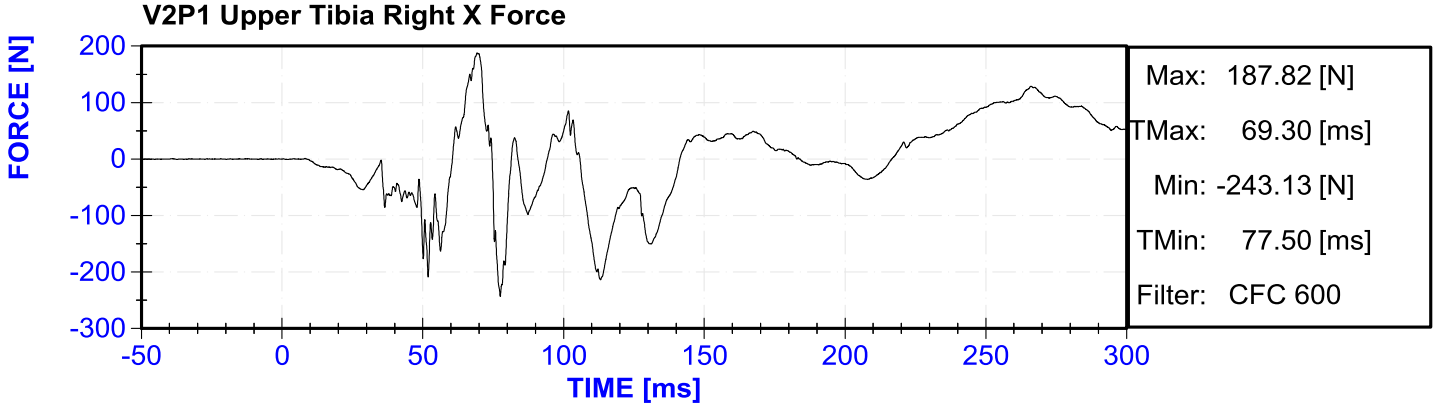
V2P1 Tibia Right X Acceleration



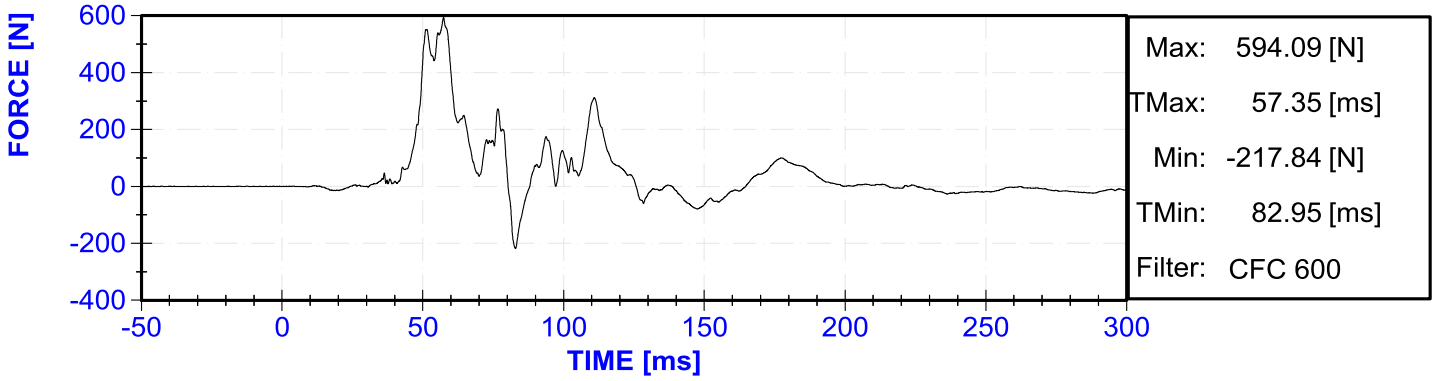
V2P1 Tibia Right Y Acceleration



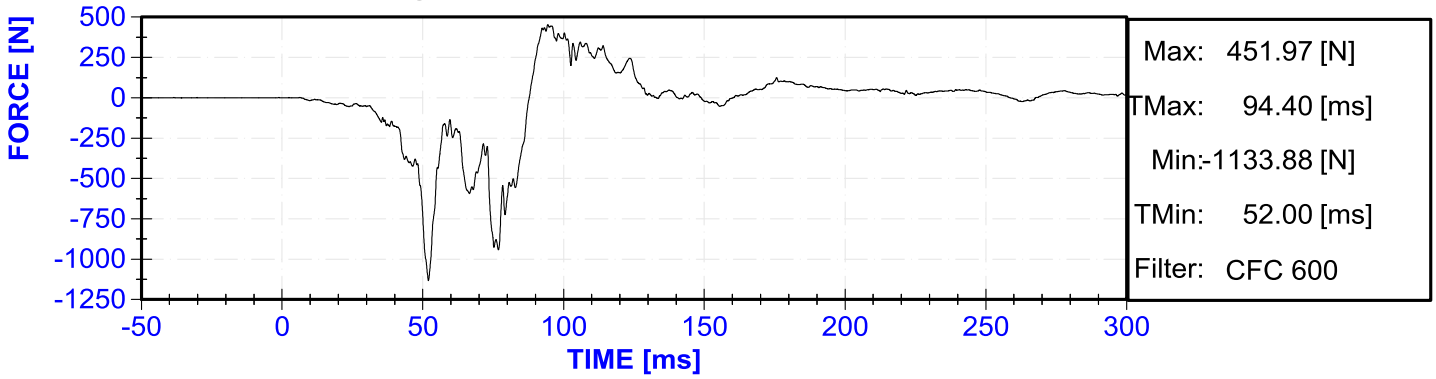
V2P1 Upper Tibia Right X Force



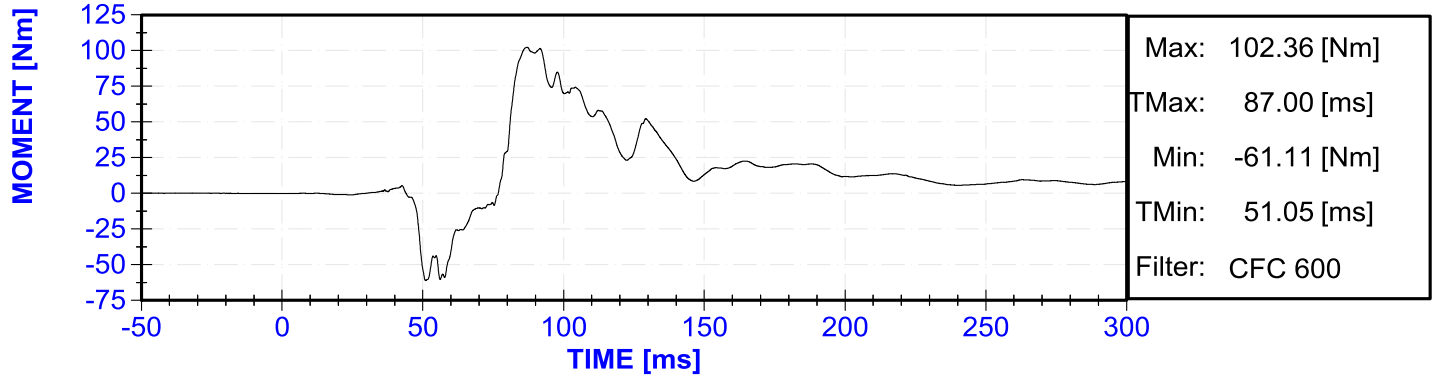
V2P1 Upper Tibia Right Y Force



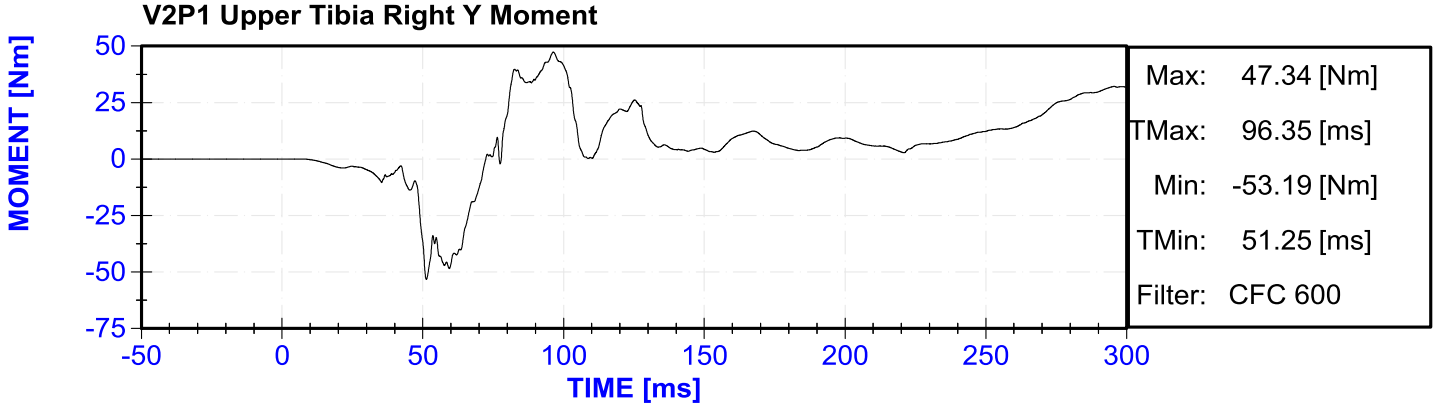
V2P1 Upper Tibia Right Z Force



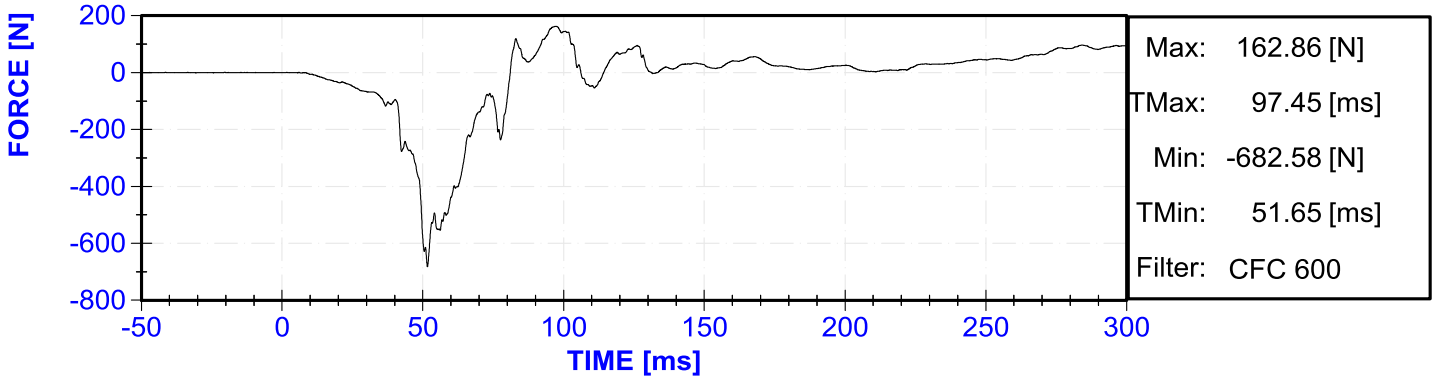
V2P1 Upper Tibia Right X Moment



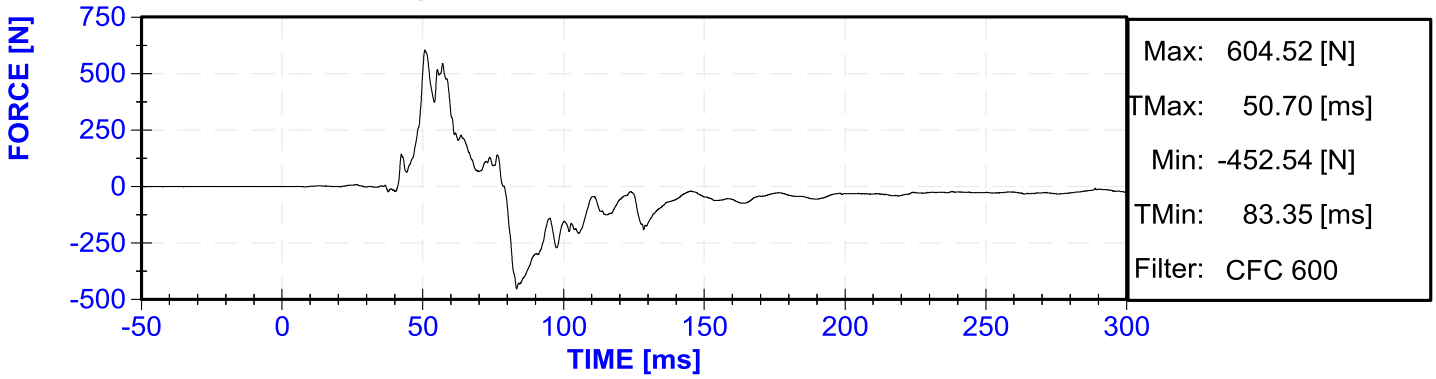
V2P1 Upper Tibia Right Y Moment



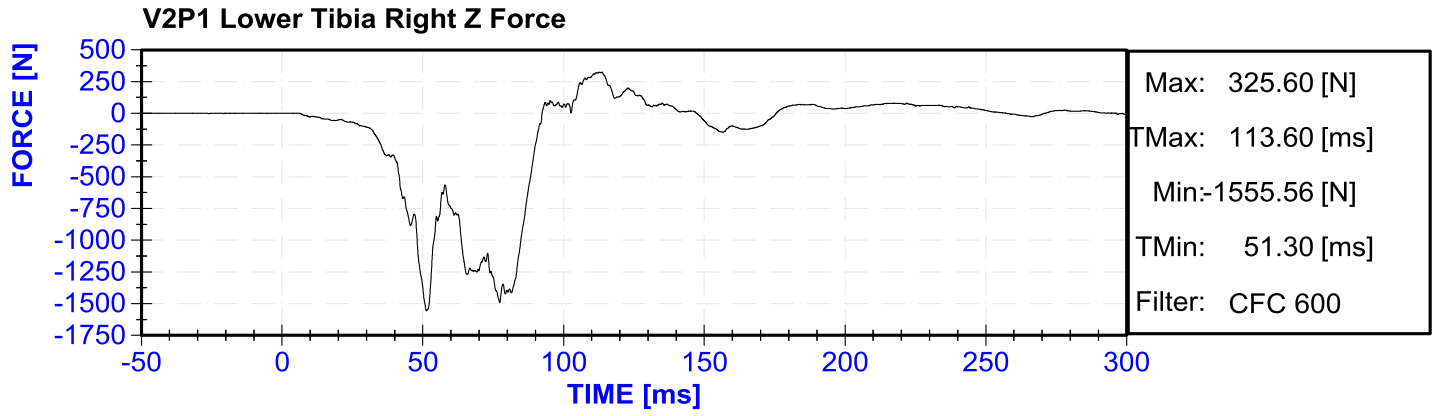
V2P1 Lower Tibia Right X Force



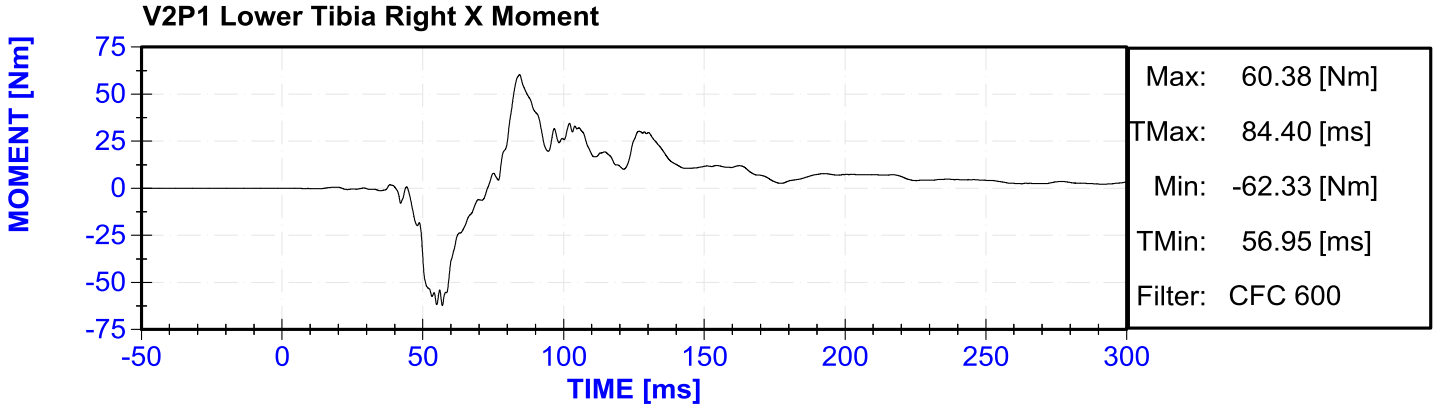
V2P1 Lower Tibia Right Y Force



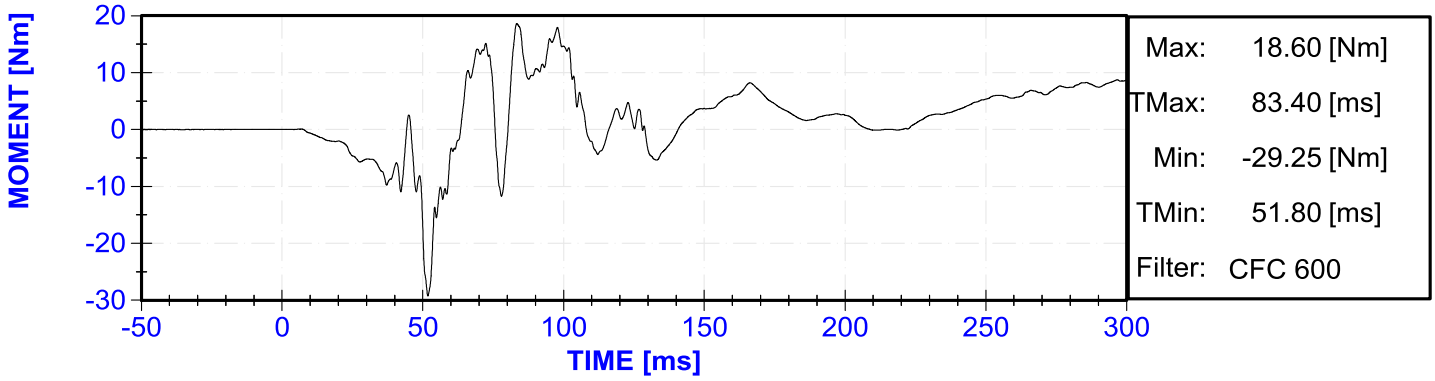
V2P1 Lower Tibia Right Z Force



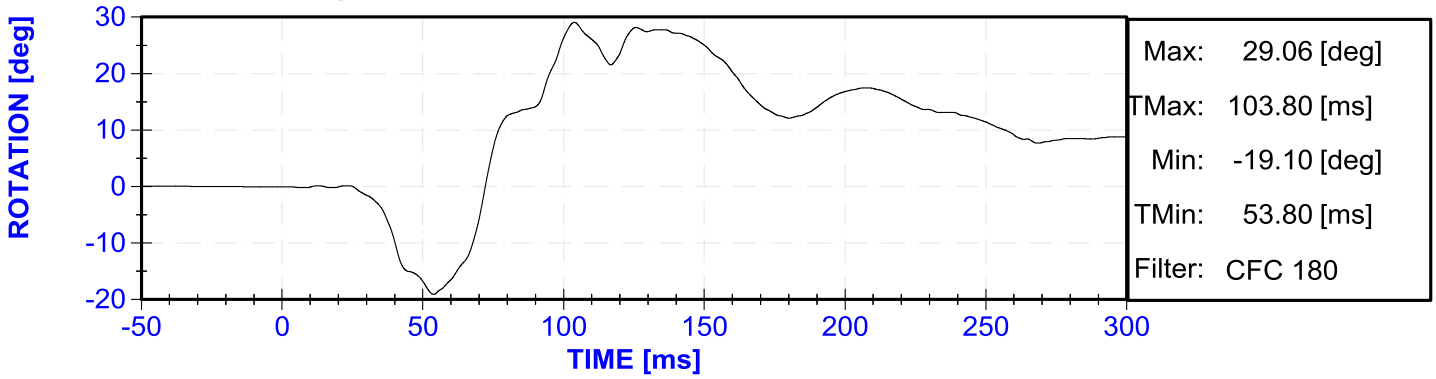
V2P1 Lower Tibia Right X Moment



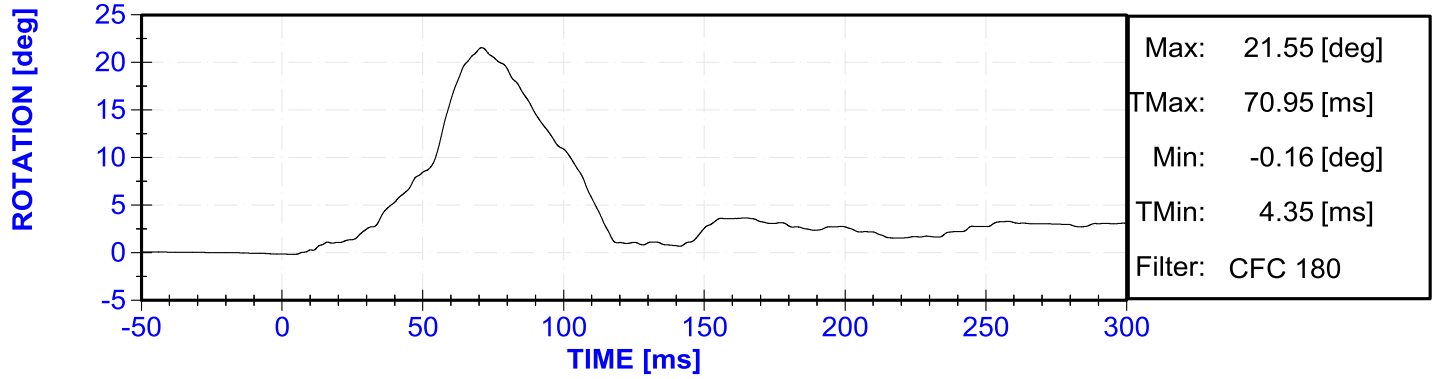
V2P1 Lower Tibia Right Y Moment



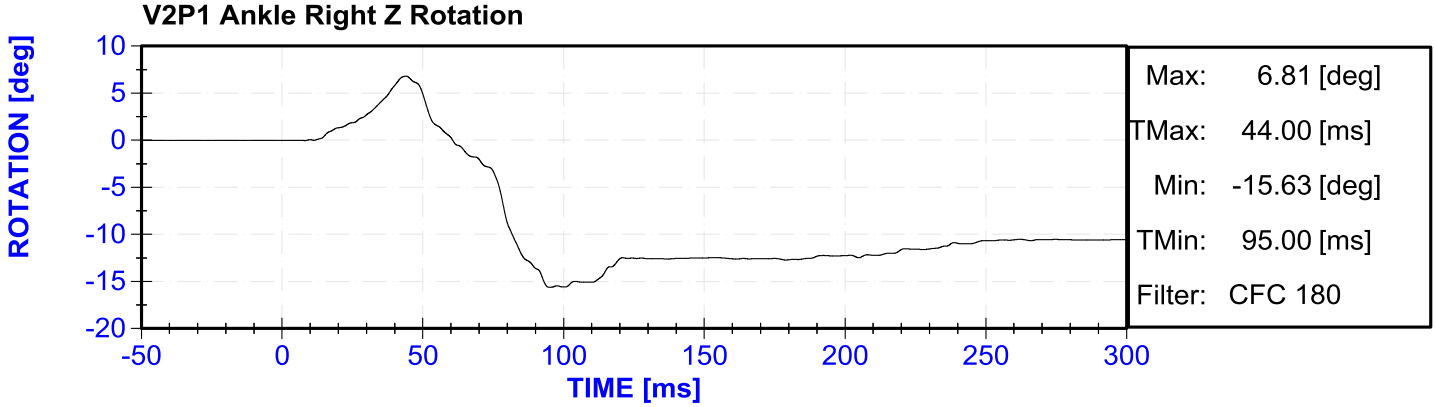
V2P1 Ankle Right X Rotation



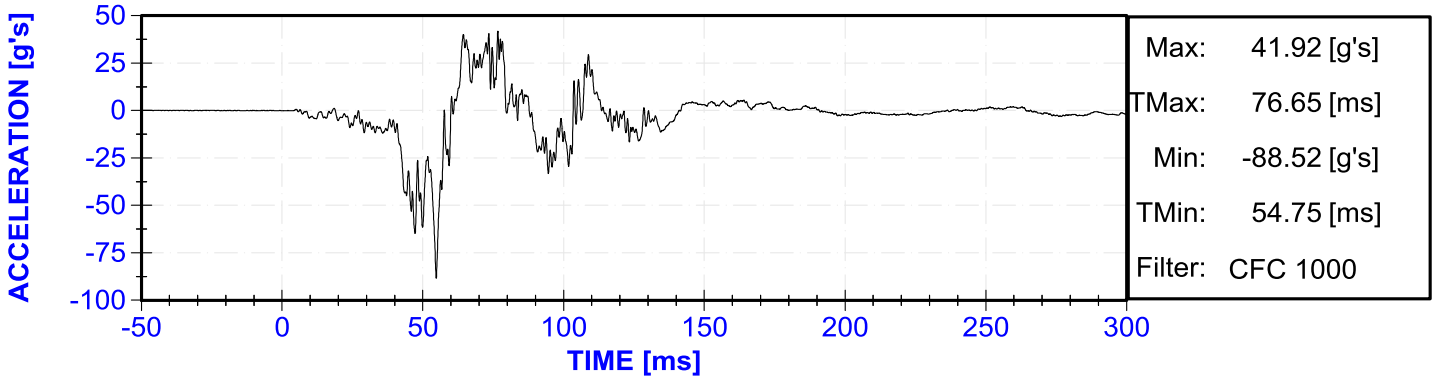
V2P1 Ankle Right Y Rotation



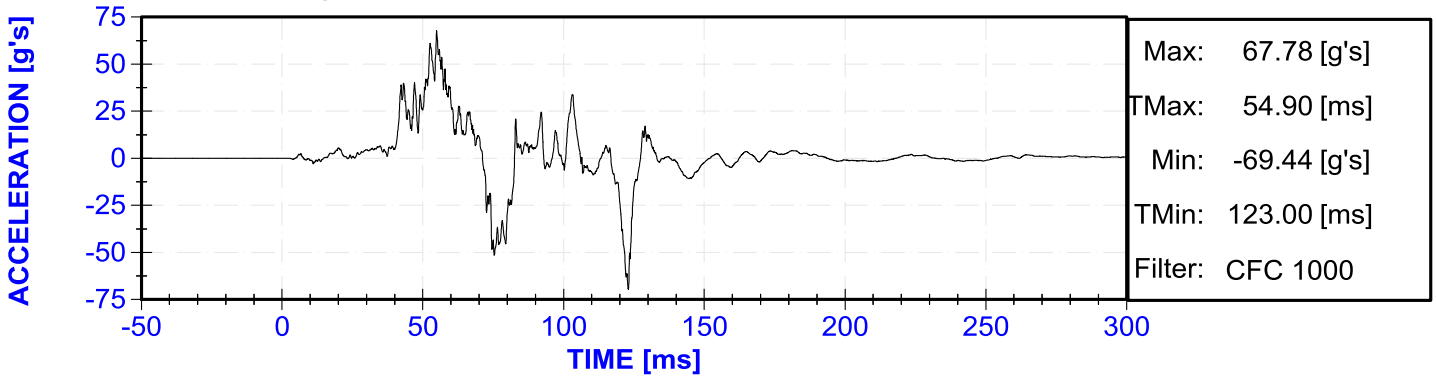
V2P1 Ankle Right Z Rotation



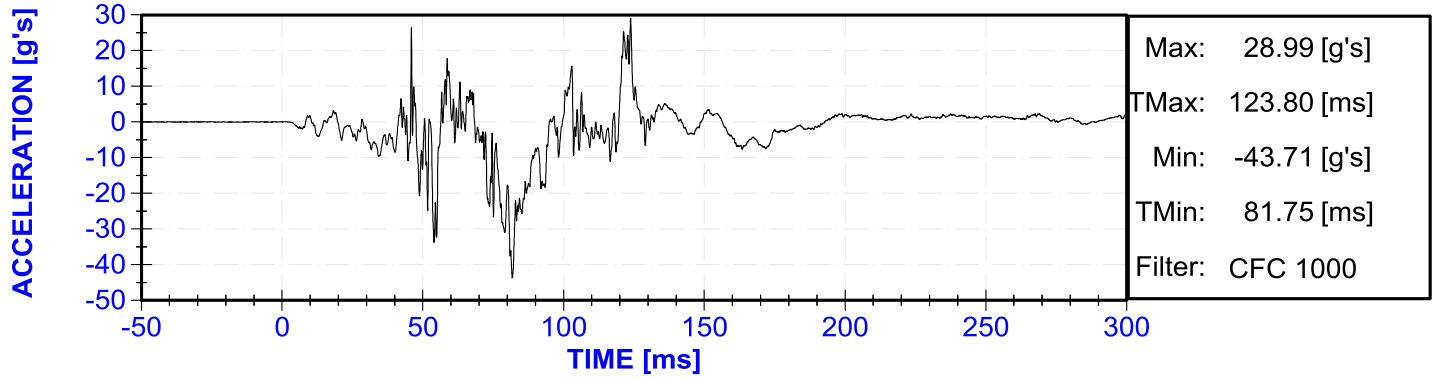
V2P1 Foot Right X Acceleration



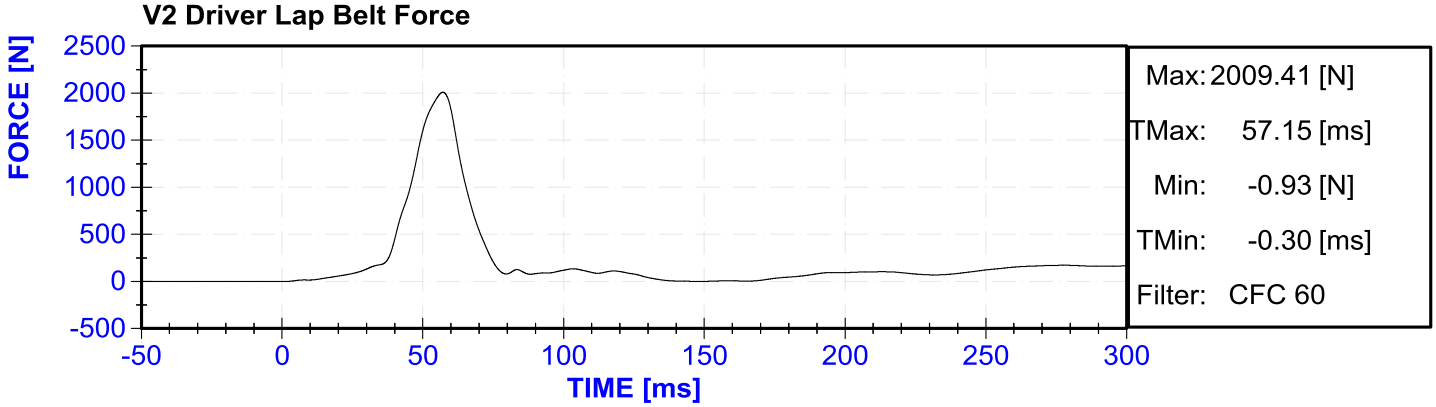
V2P1 Foot Right Y Acceleration



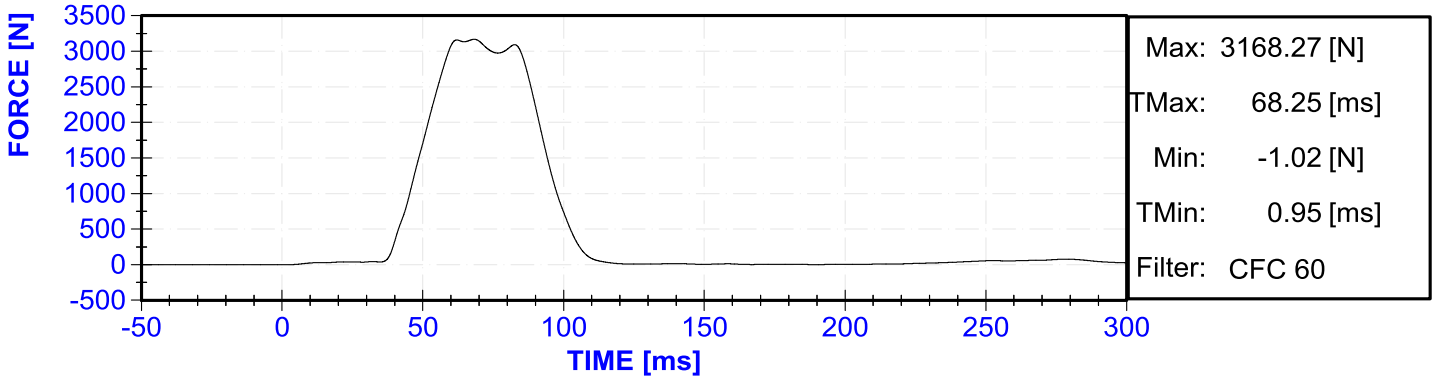
V2P1 Foot Right Z Acceleration



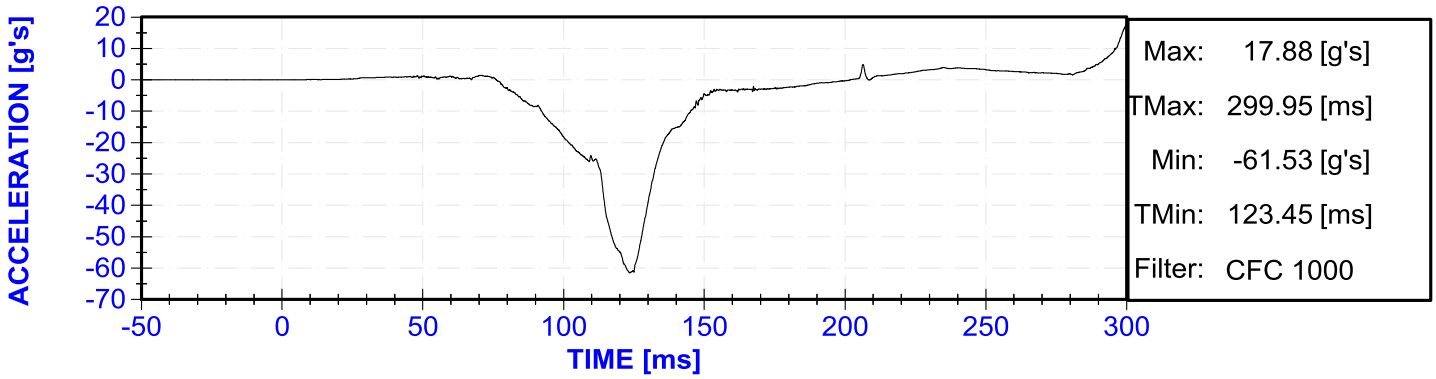
V2 Driver Lap Belt Force



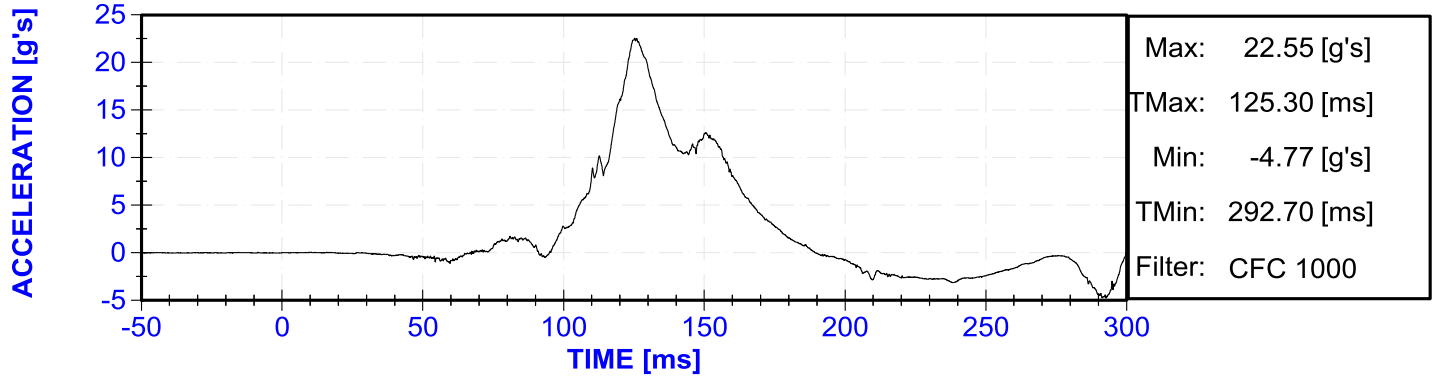
V2 Driver Shoulder Belt Upper Force



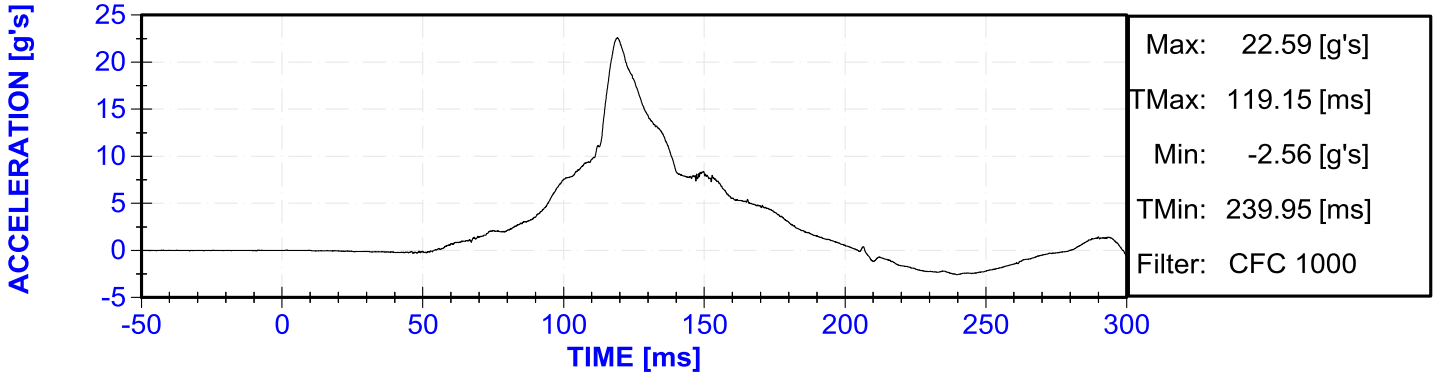
V2P4 HEAD 9 ARRAY Z ARM X



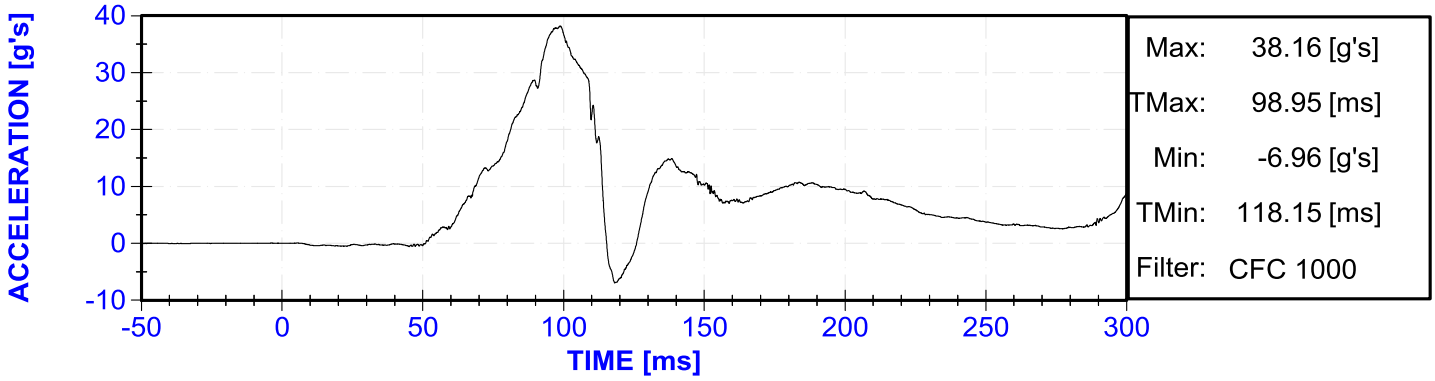
V2P4 HEAD 9 ARRAY Z ARM Y



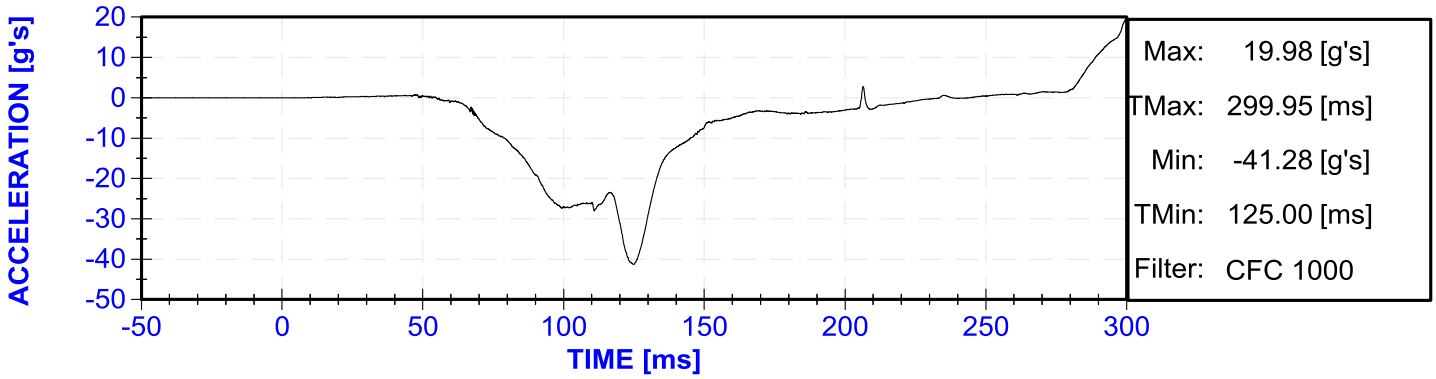
V2P4 HEAD 9 ARRAY X ARM Y



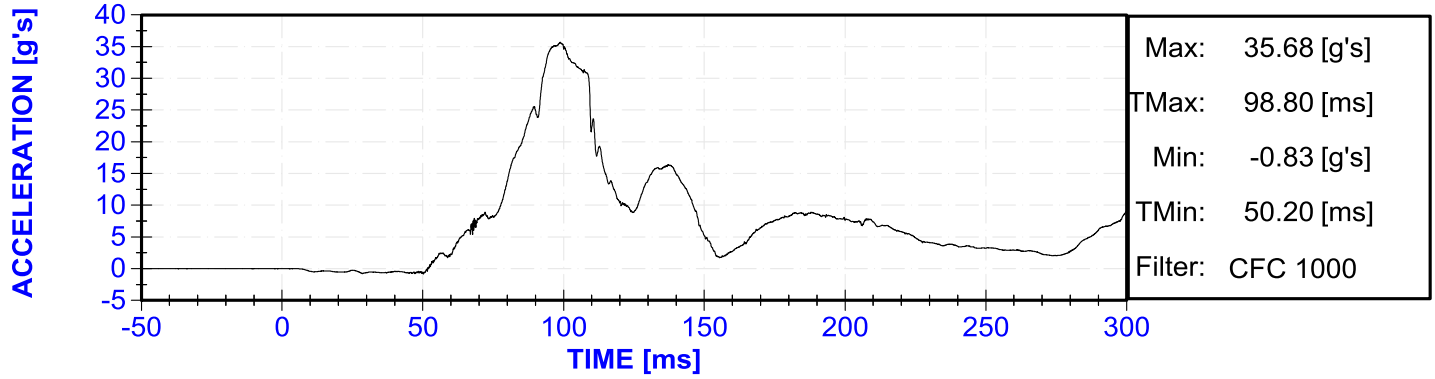
V2P4 HEAD 9 ARRAY X ARM Z



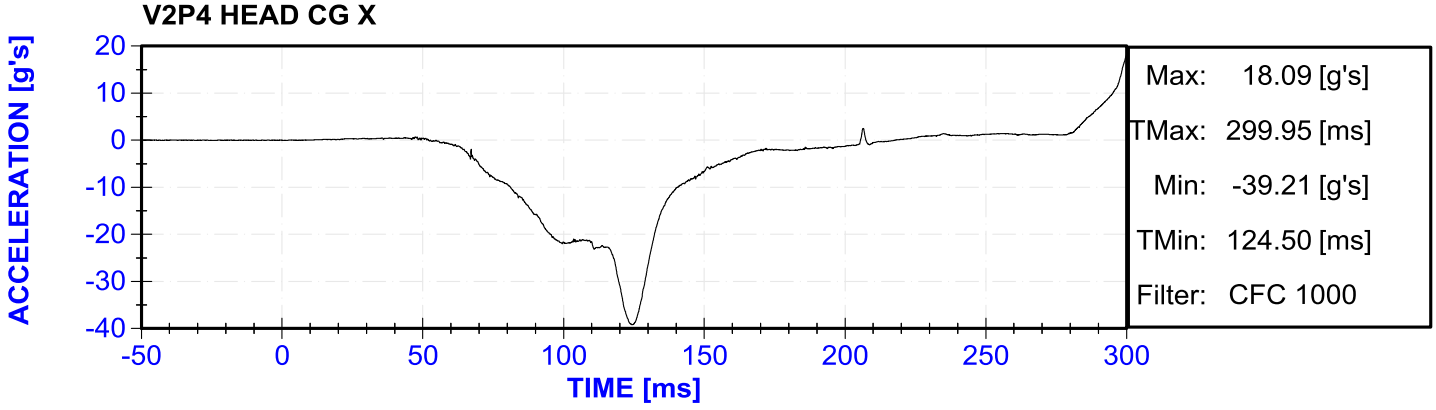
V2P4 HEAD 9 ARRAY Y ARM X



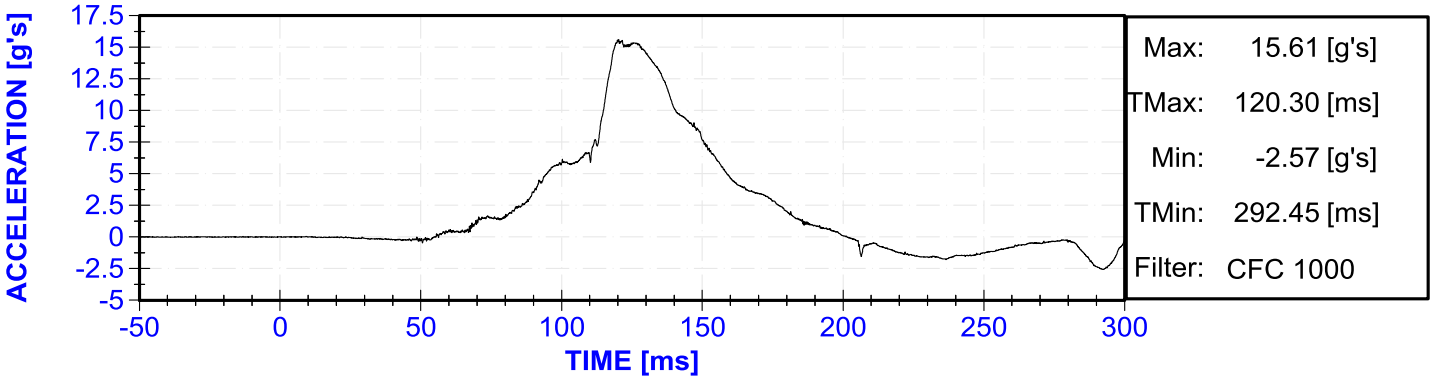
V2P4 HEAD 9 ARRAY Y ARM Z



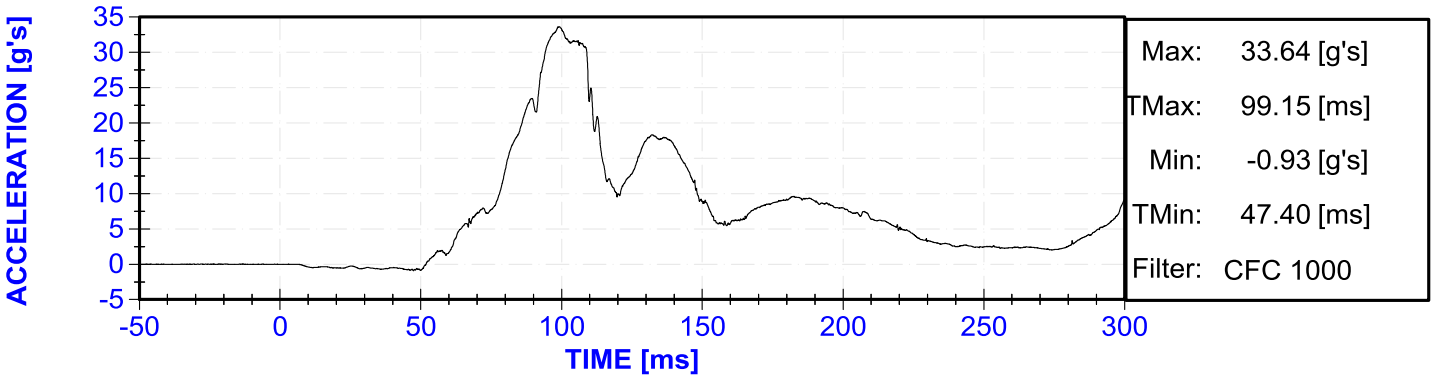
V2P4 HEAD CG X



V2P4 HEAD CG Y

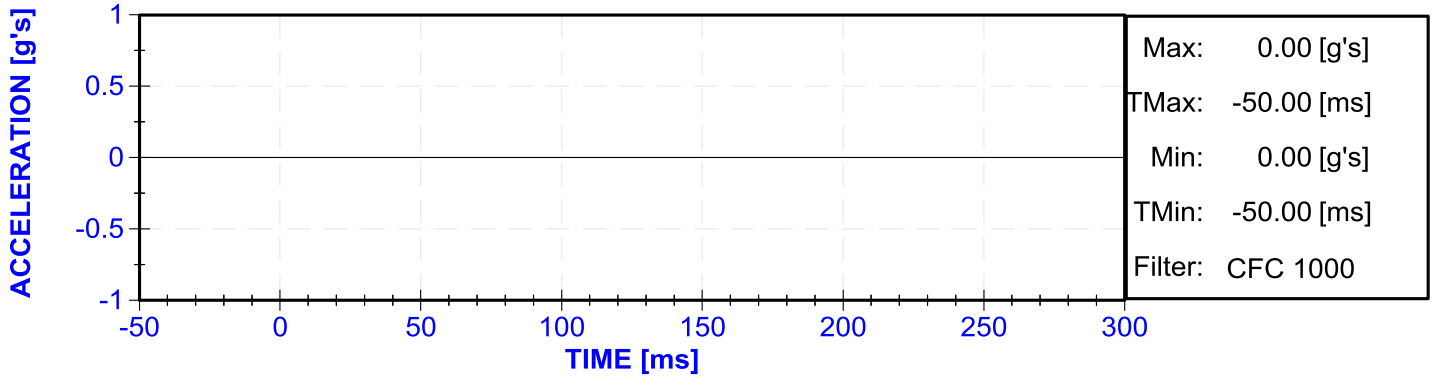


V2P4 HEAD CG Z

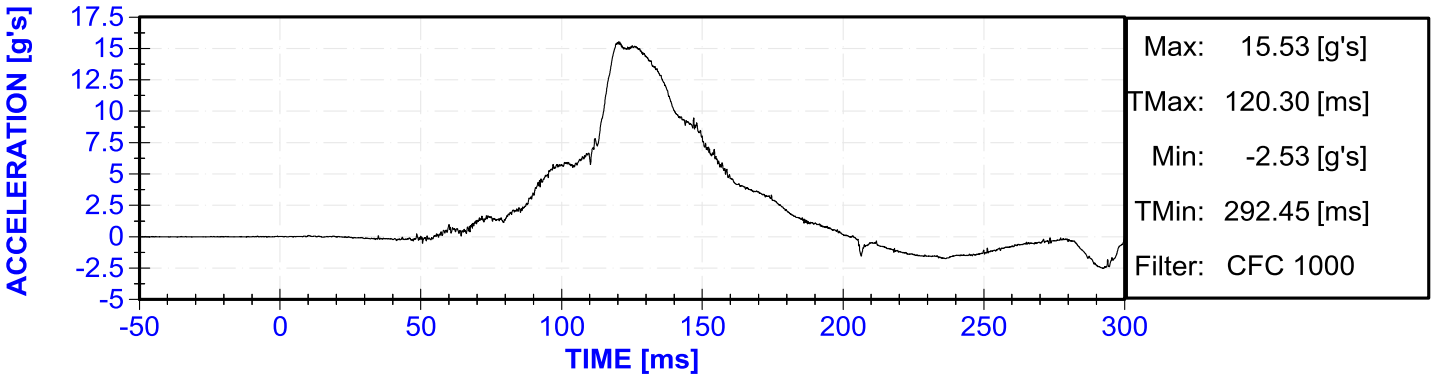


V2P4 HEAD 9 ARRAY CENTER X

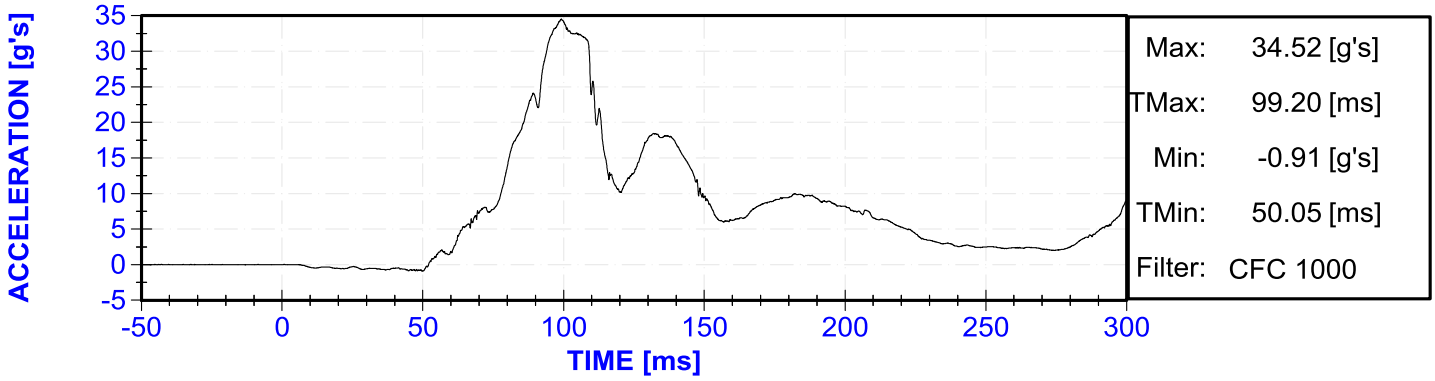
NO DATA



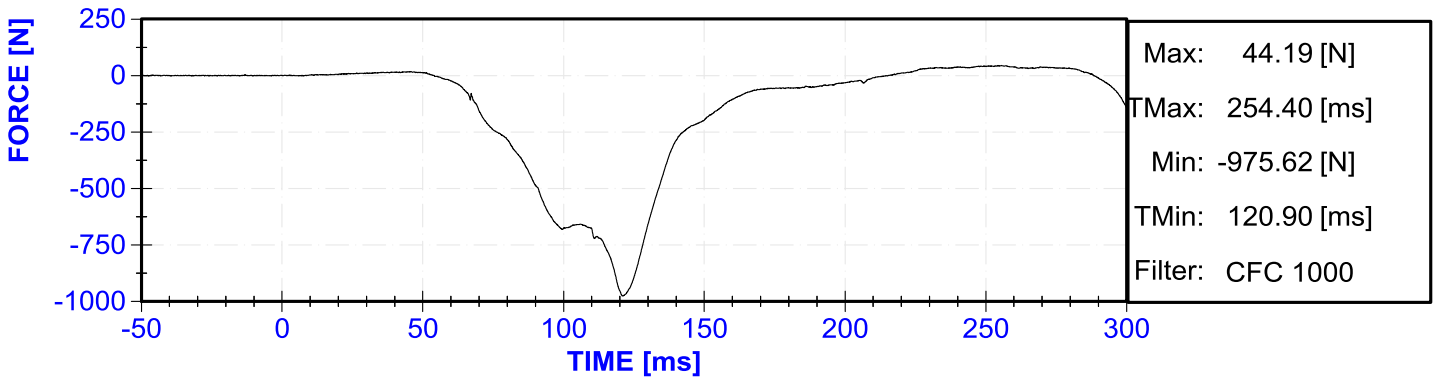
V2P4 HEAD 9 ARRAY CENTER Y



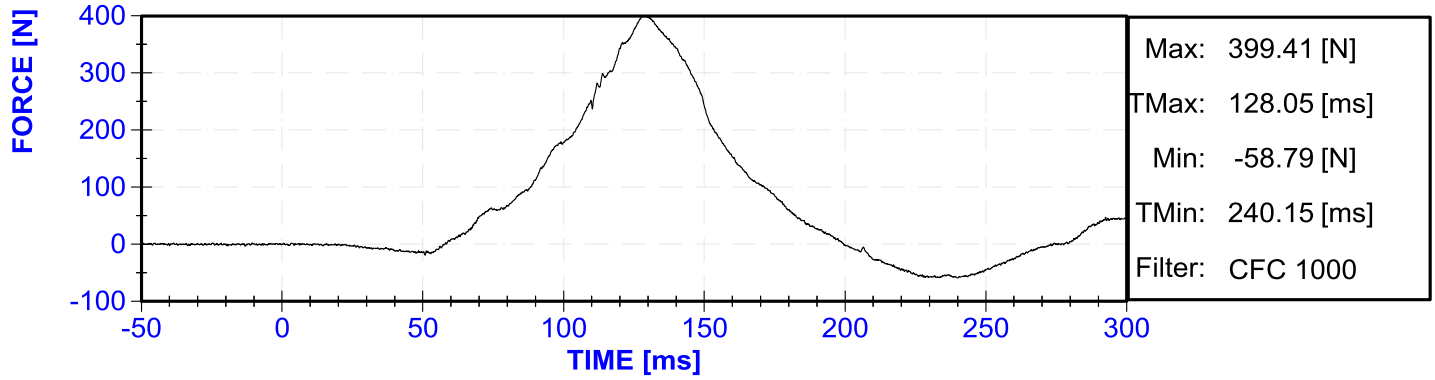
V2P4 HEAD 9 ARRAY CENTER Z



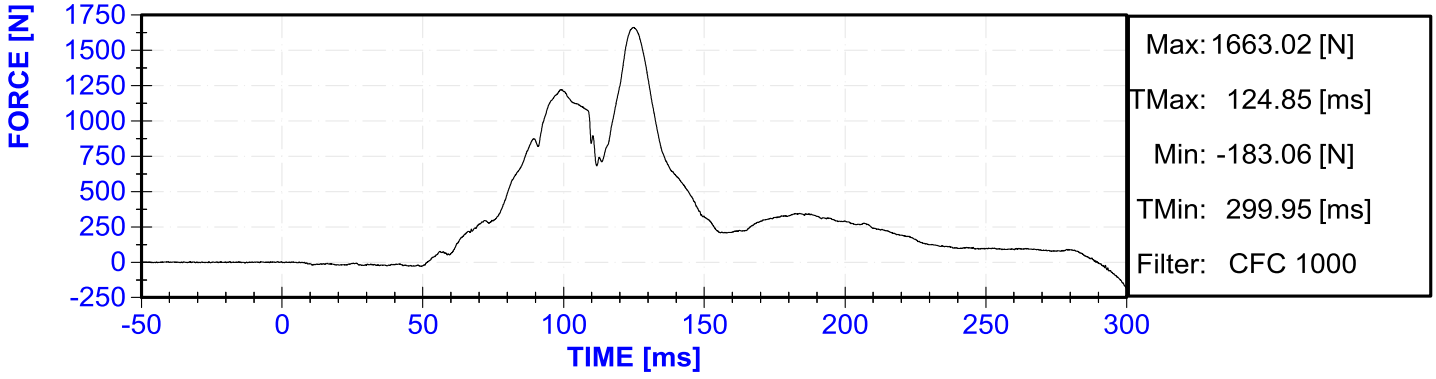
V2P4 UPPER NECK FX



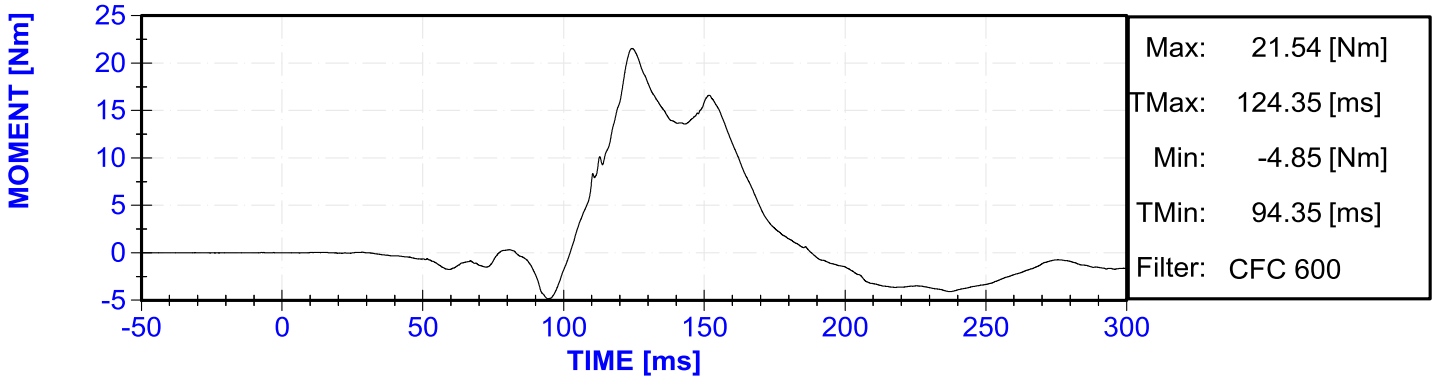
V2P4 UPPER NECK FY



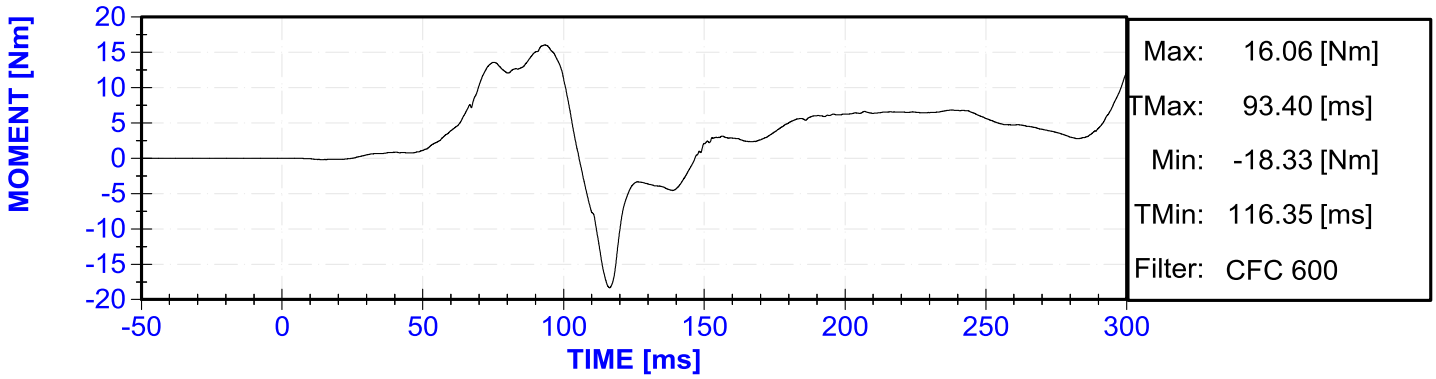
V2P4 UPPER NECK FZ



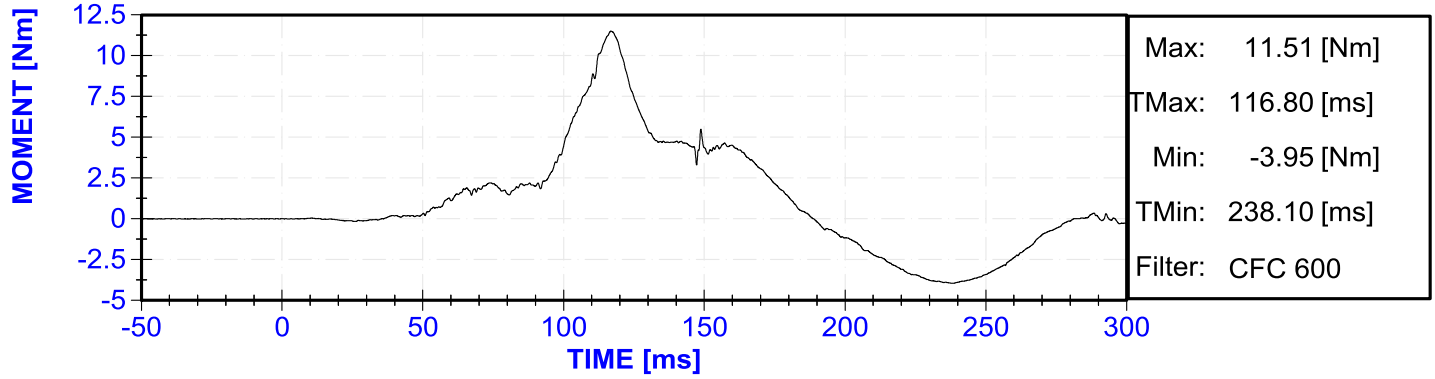
V2P4 UPPER NECK MX



V2P4 UPPER NECK MY

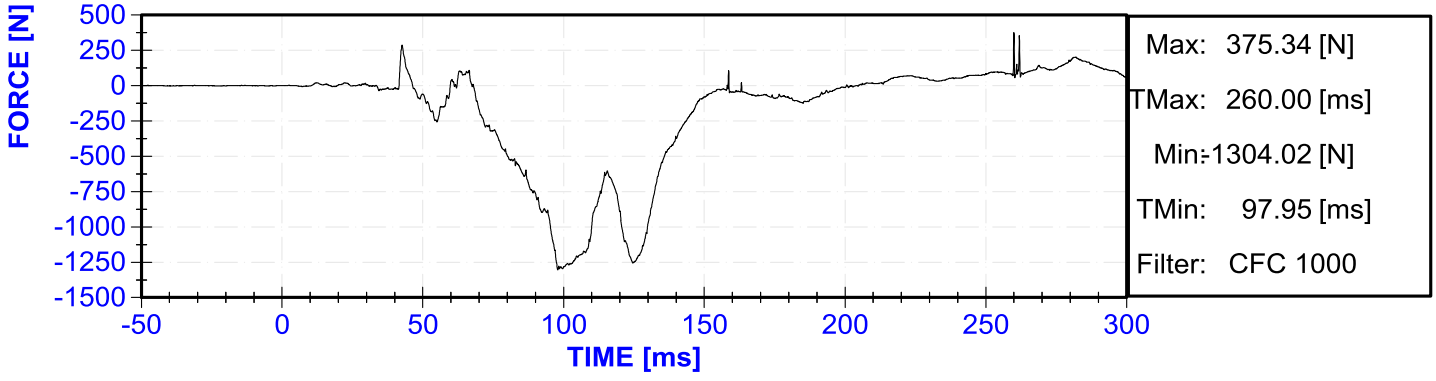


V2P4 UPPER NECK MZ

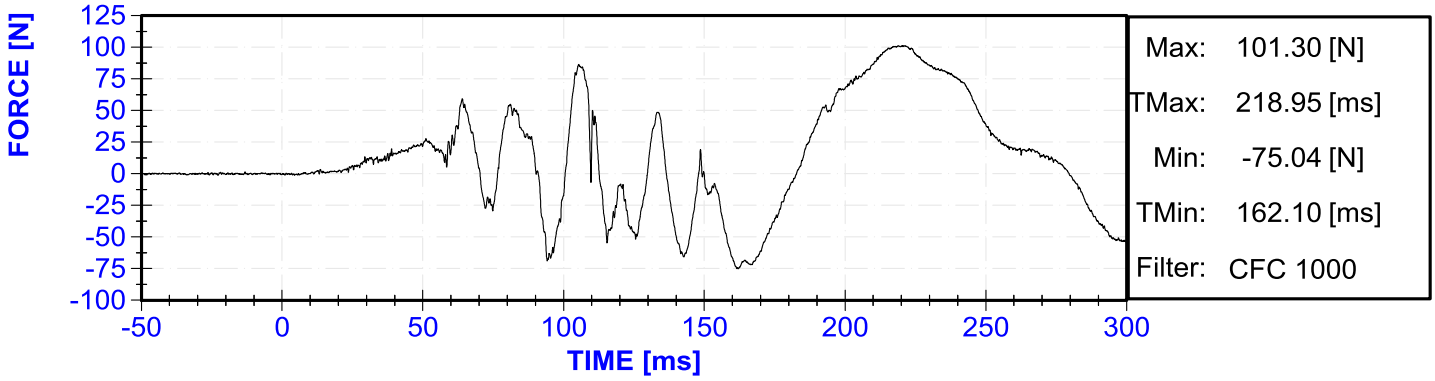


V2P4 LOWER NECK FX

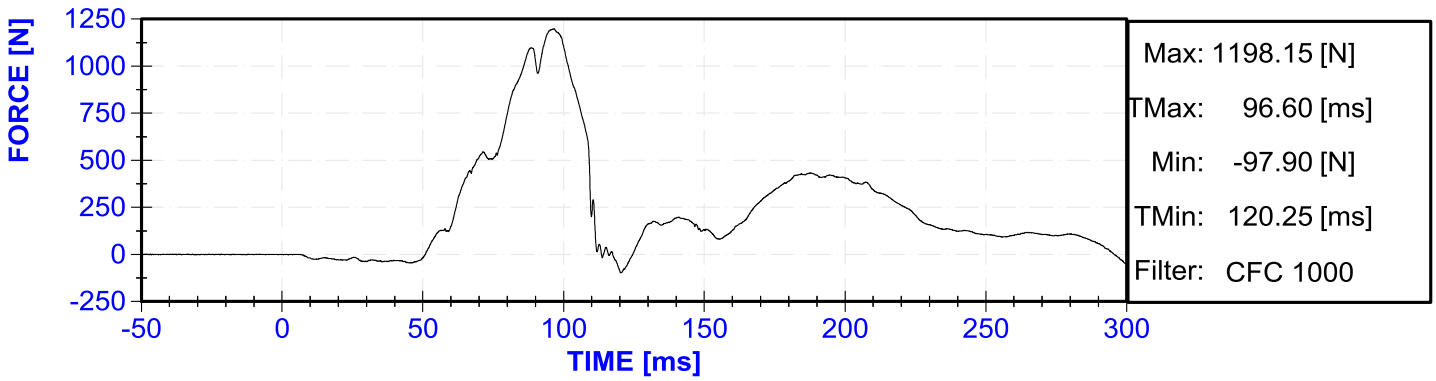
DATA NOISE SPIKES AFTER 150MS



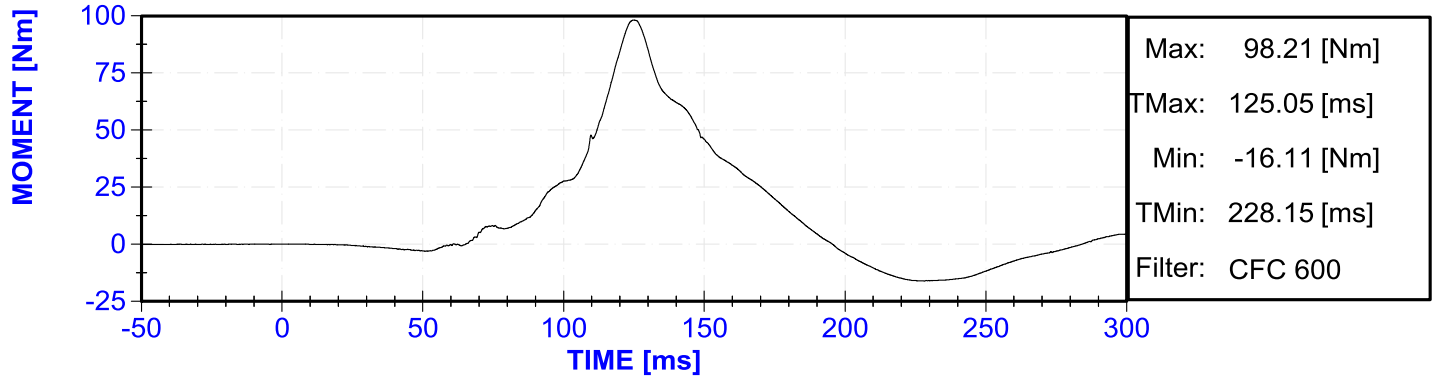
V2P4 LOWER NECK FY



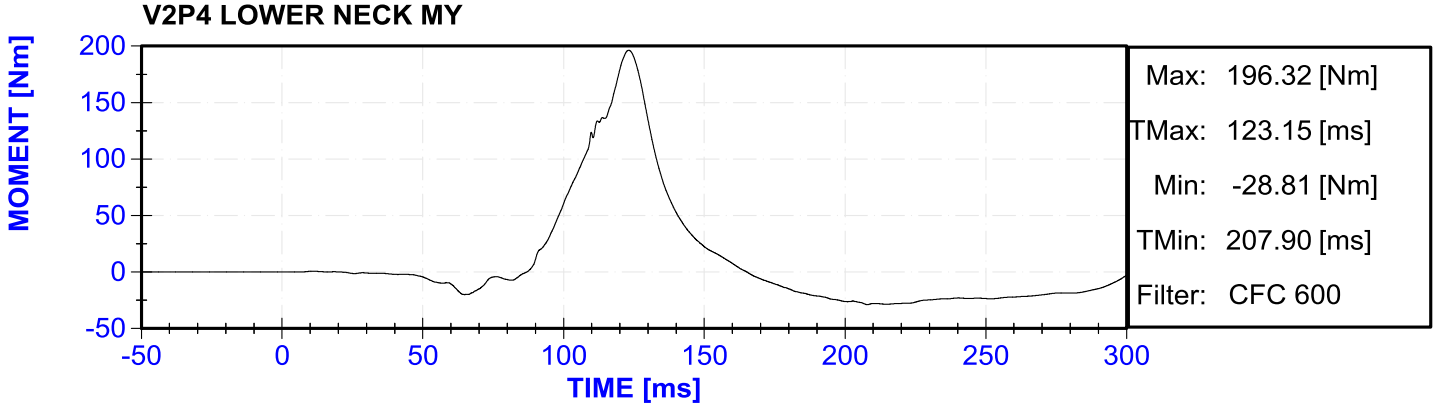
V2P4 LOWER NECK FZ



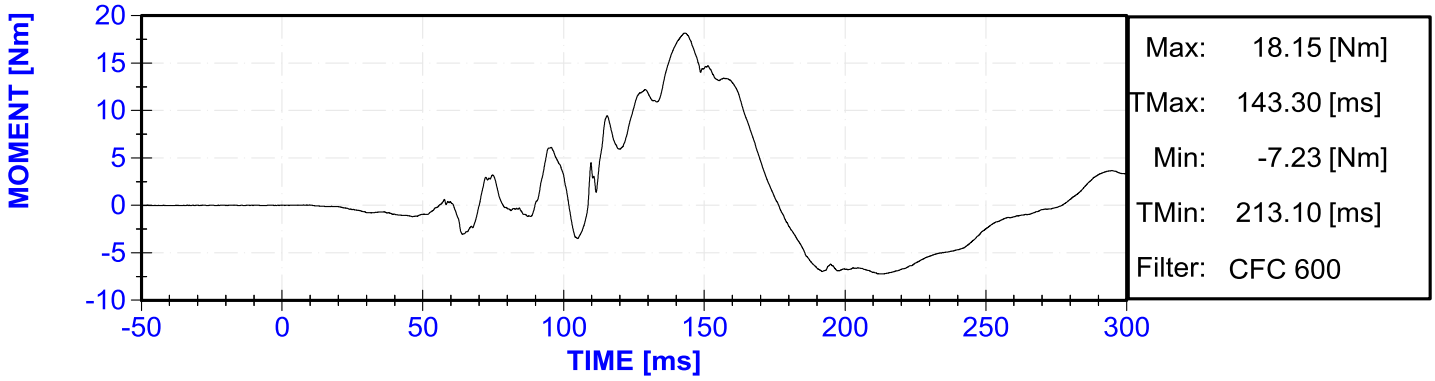
V2P4 LOWER NECK MX



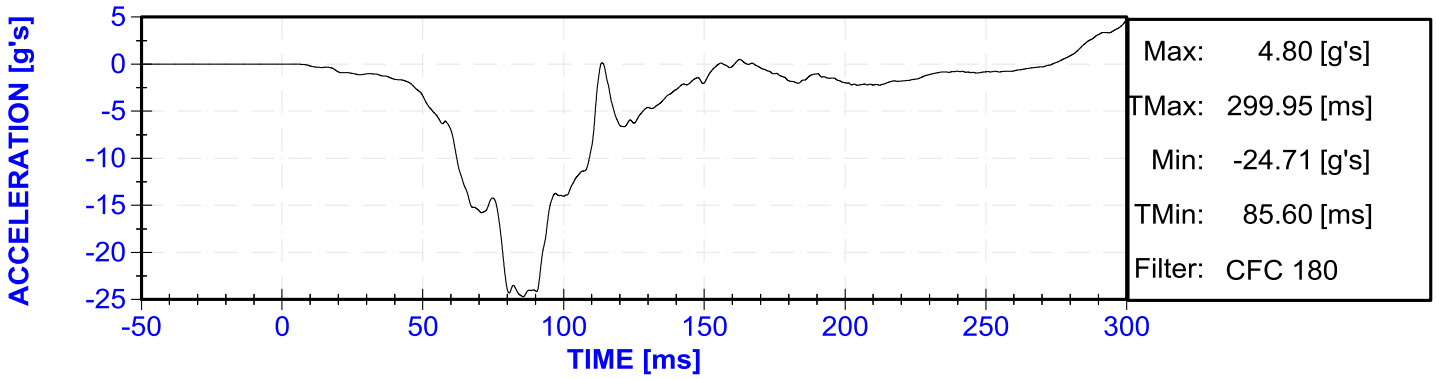
V2P4 LOWER NECK MY



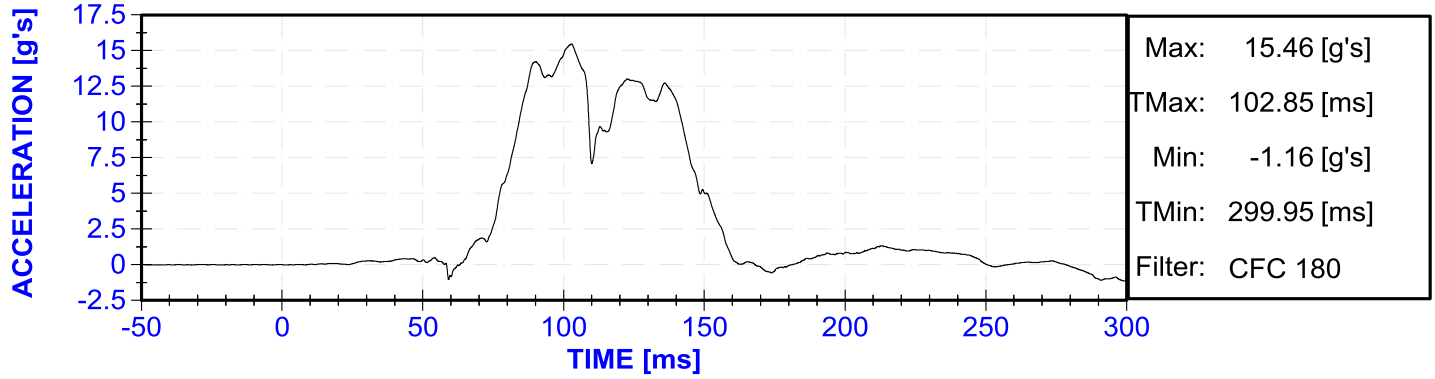
V2P4 LOWER NECK MZ



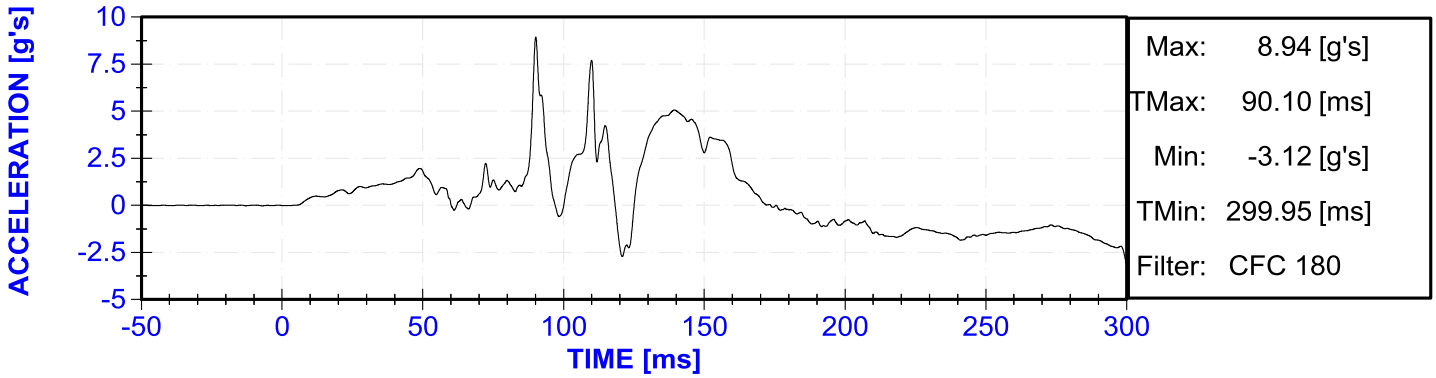
V2P4 CHEST X



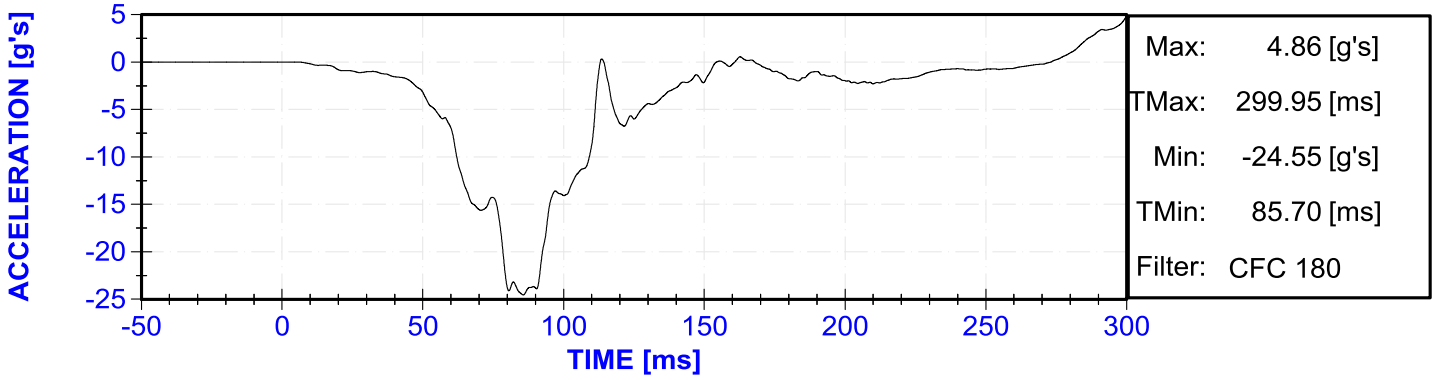
V2P4 CHEST Y



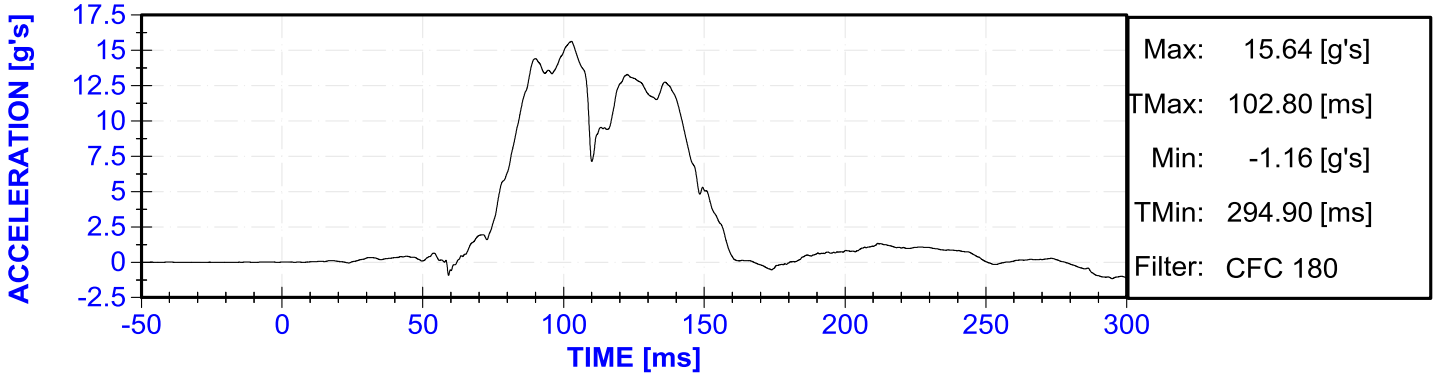
V2P4 CHEST Z



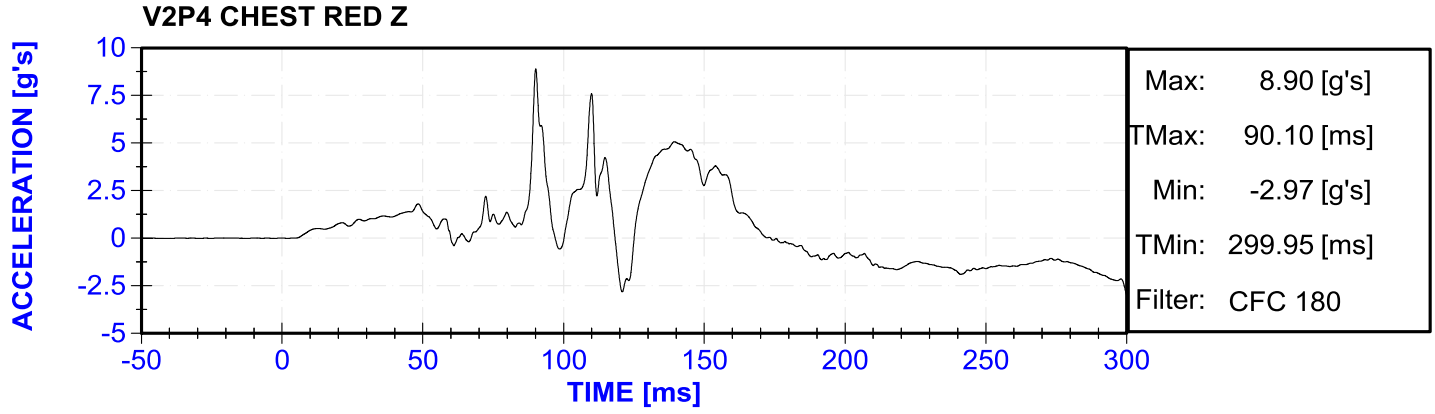
V2P4 CHEST RED X



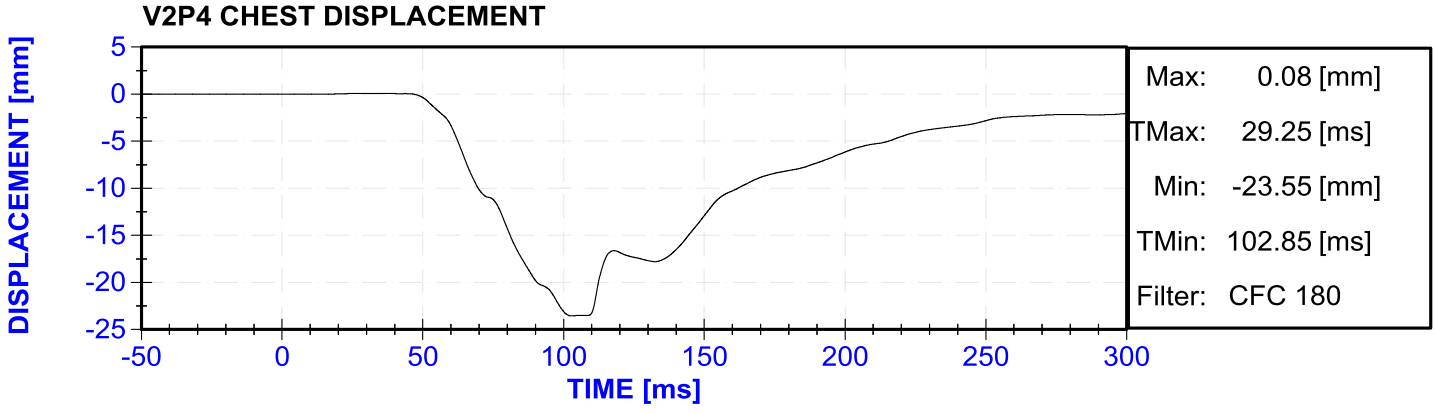
V2P4 CHEST RED Y



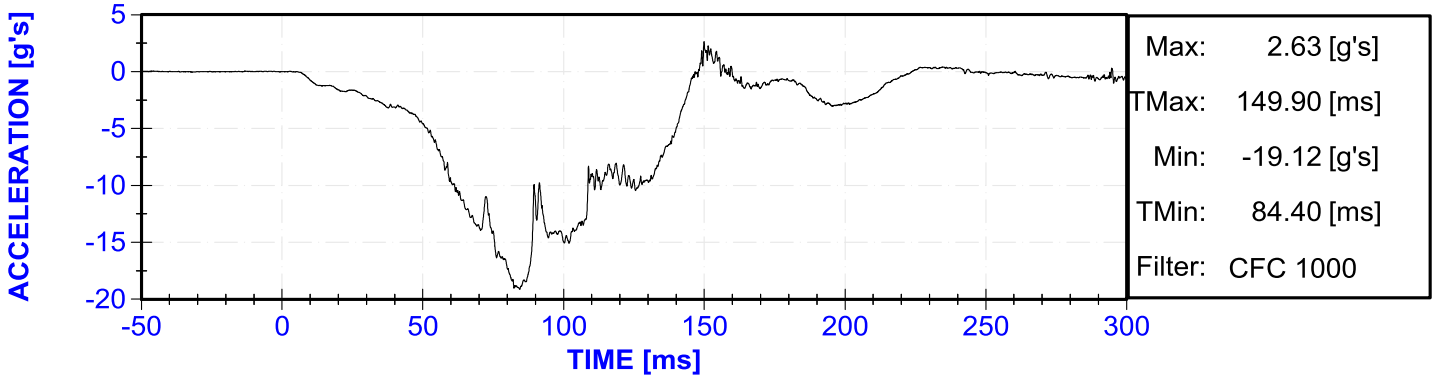
V2P4 CHEST RED Z



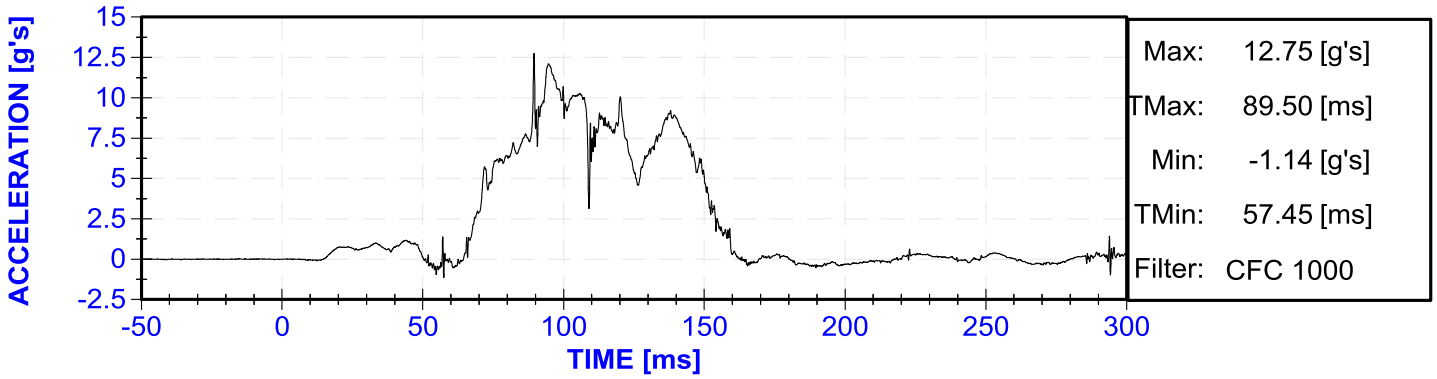
V2P4 CHEST DISPLACEMENT



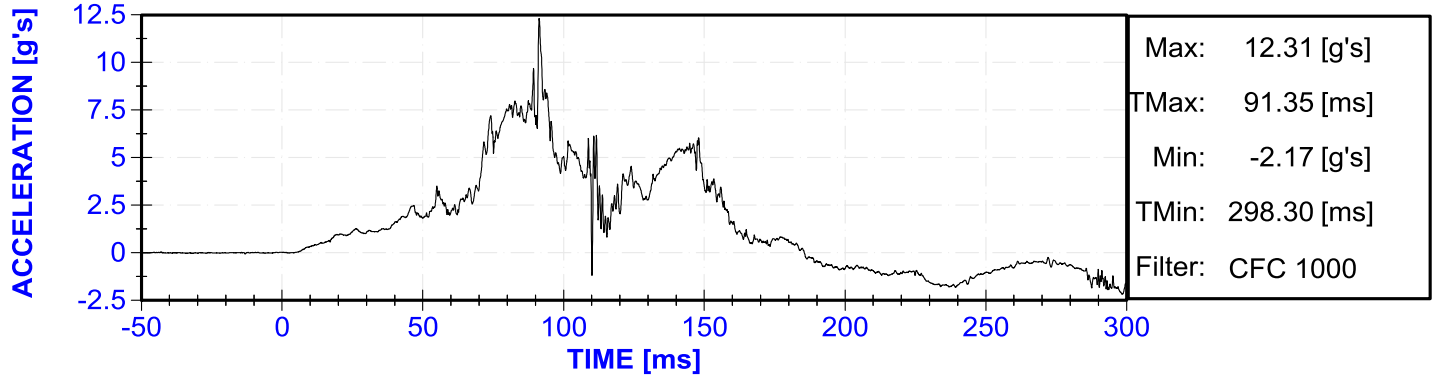
V2P4 PELVIC X



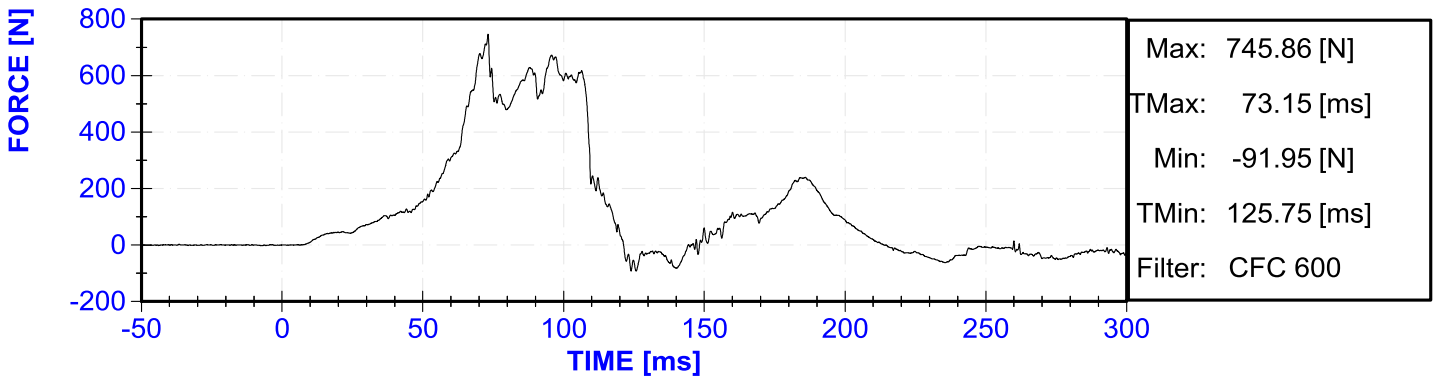
V2P4 PELVIC Y



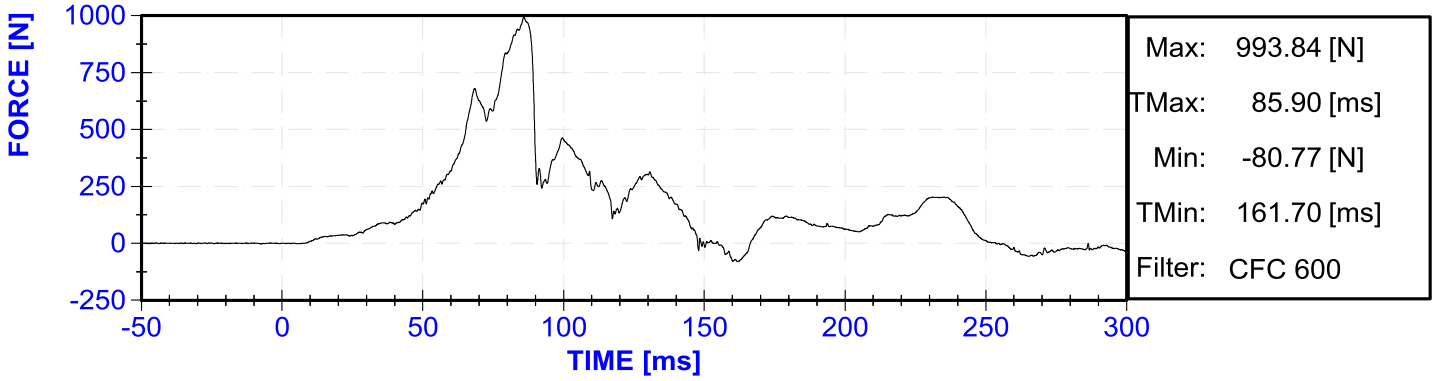
V2P4 PELVIC Z



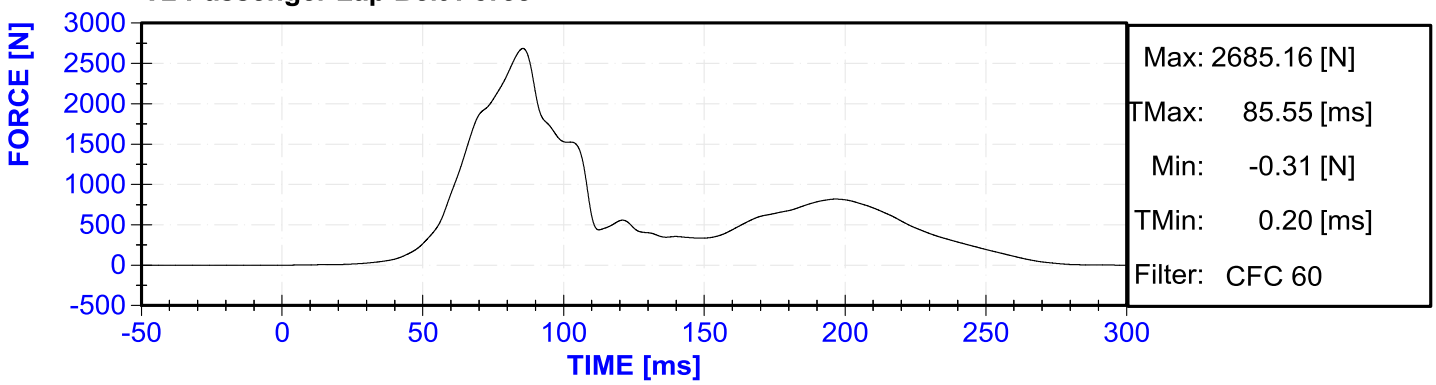
V2P4 LEFT FEMUR FZ



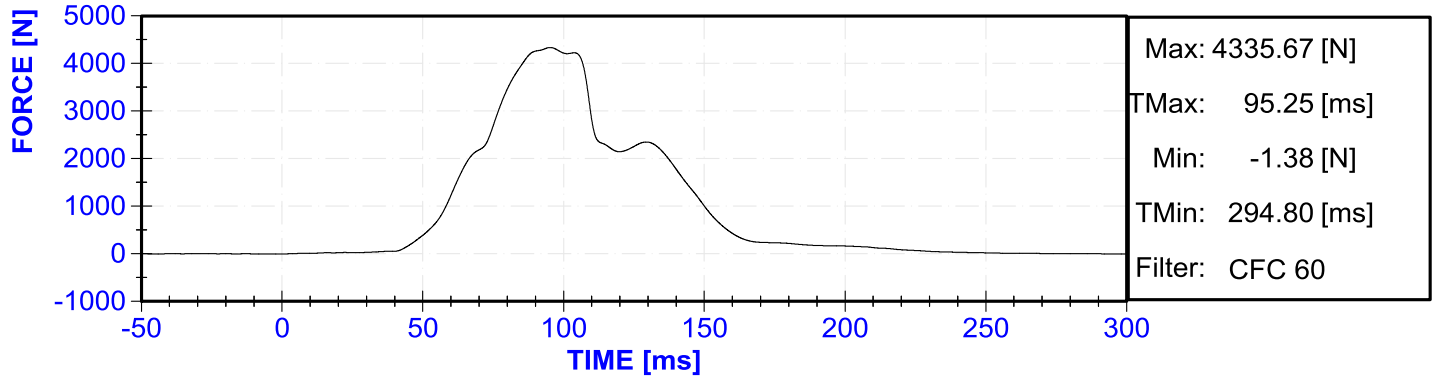
V2P4 RIGHT FEMUR FZ



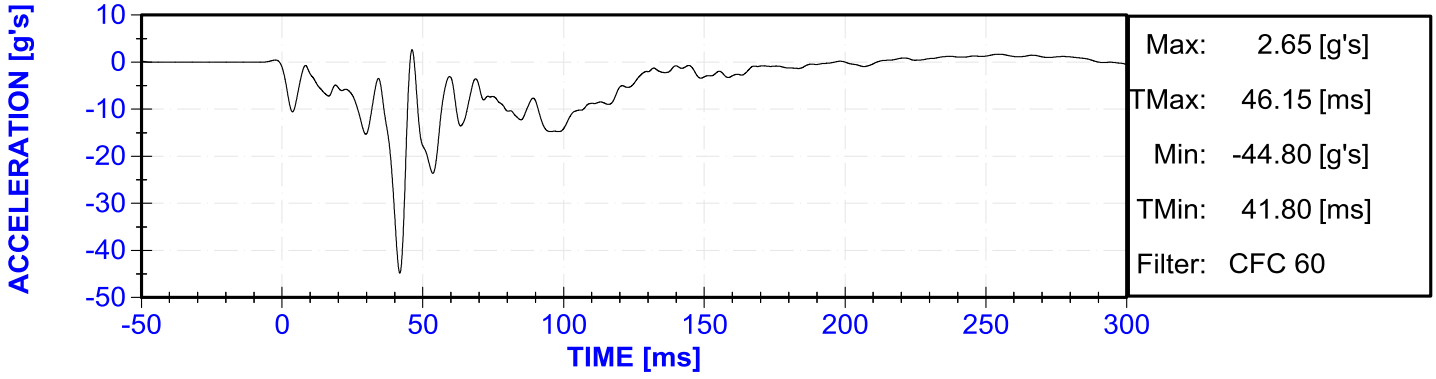
V2 Passenger Lap Belt Force



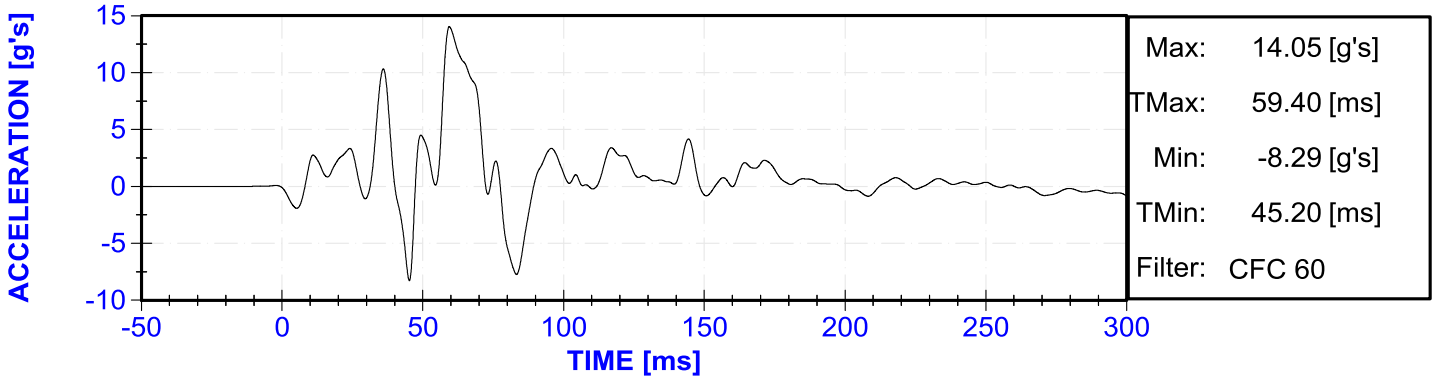
V2 Passenger Shoulder Belt Upper Force



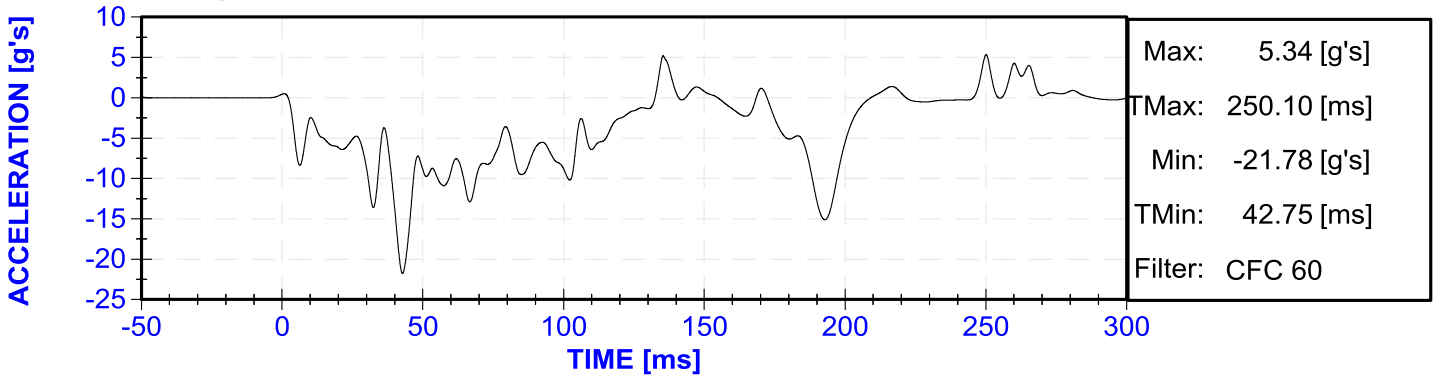
V2 Left Rear Sill X Acceleration



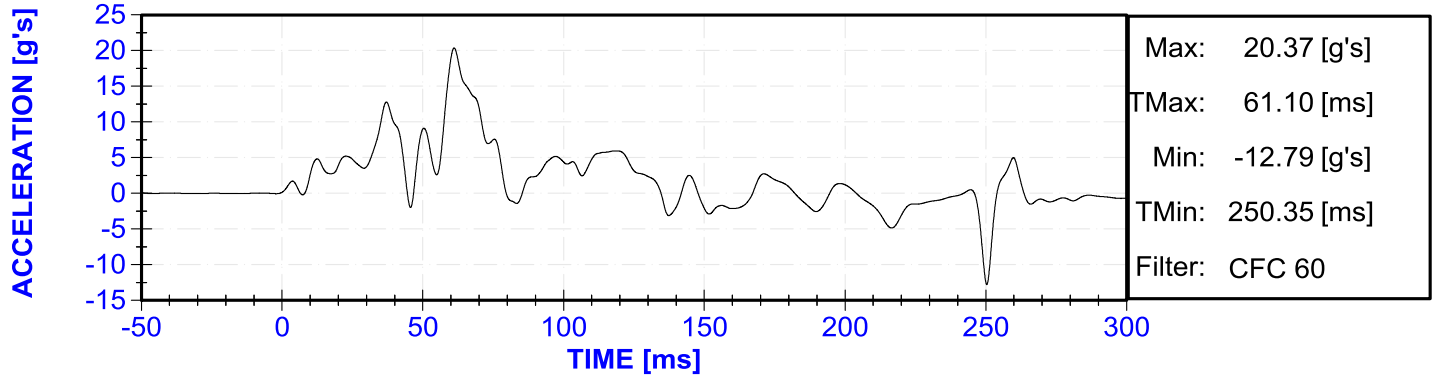
V2 Left Rear Sill Y Acceleration



V2 Right Rear Sill X Acceleration

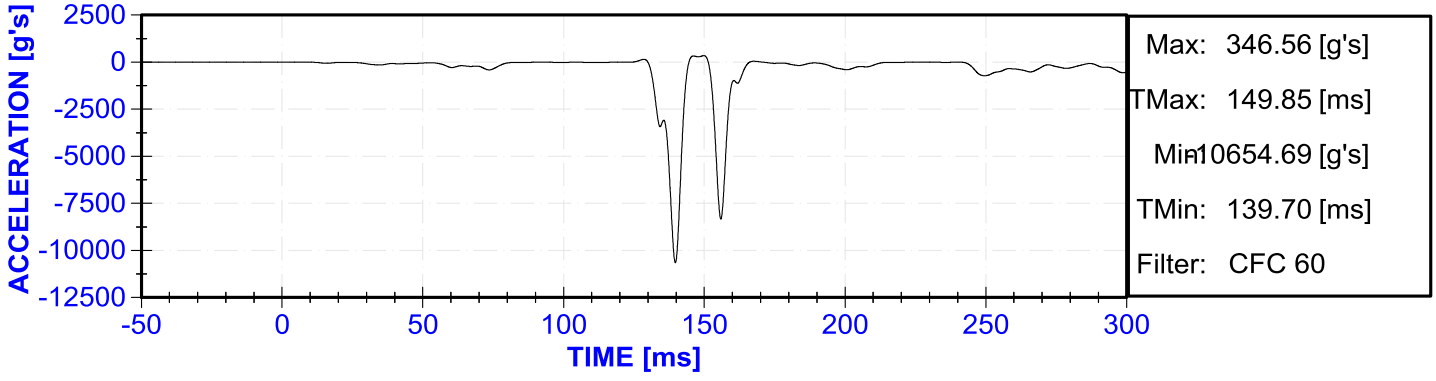


V2 Right Rear Sill Y Acceleration

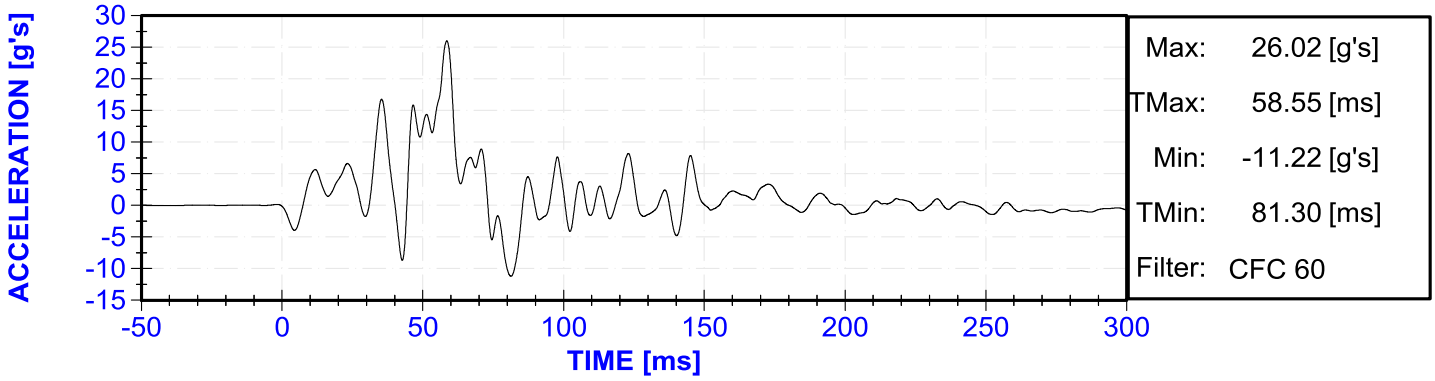


V2 Vehicle CG X Acceleration

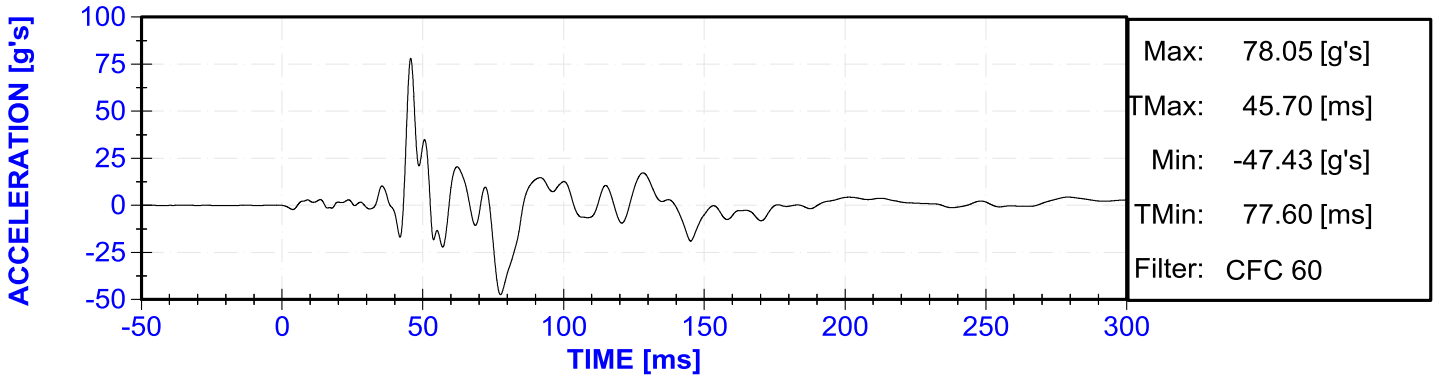
QUESTIONABLE DATA AFTER 133MS



V2 Vehicle CG Y Acceleration

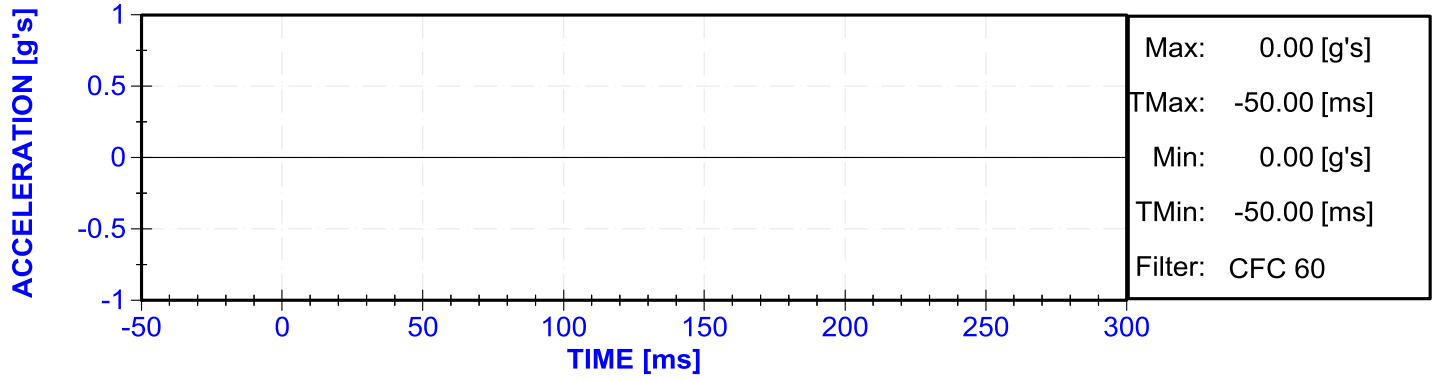


V2 Vehicle CG Z Acceleration



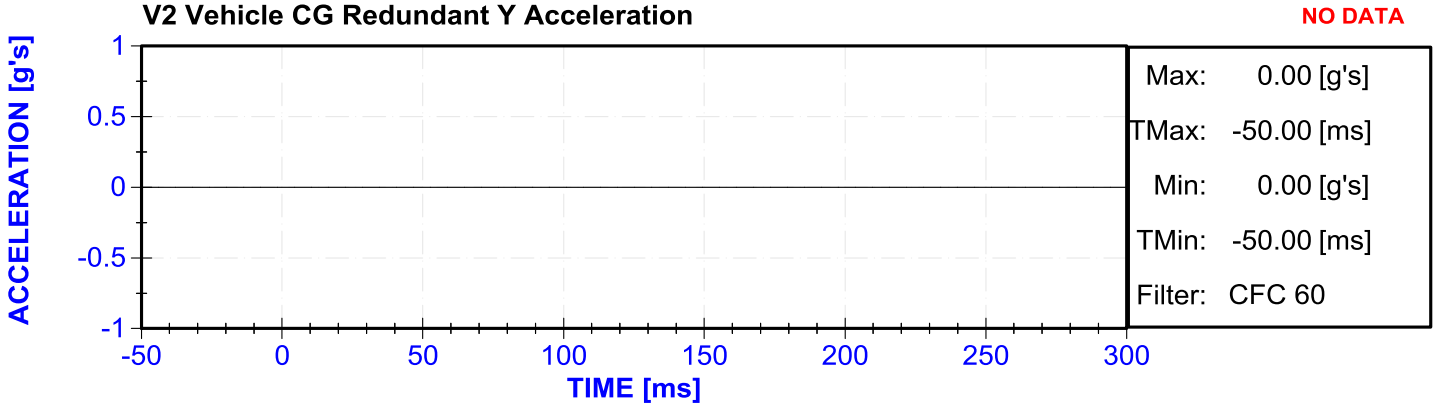
V2 Vehicle CG Redundant X Acceleration

NO DATA



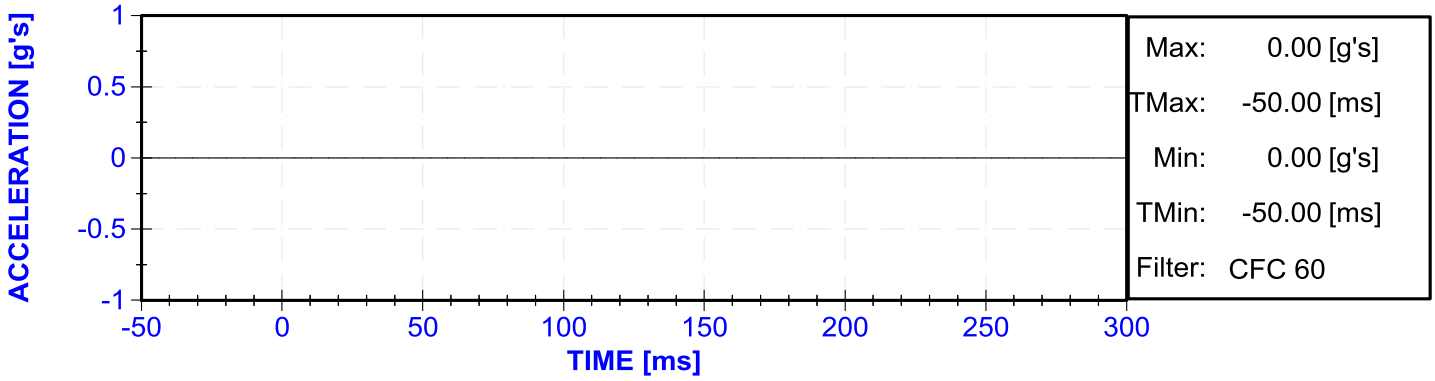
V2 Vehicle CG Redundant Y Acceleration

NO DATA

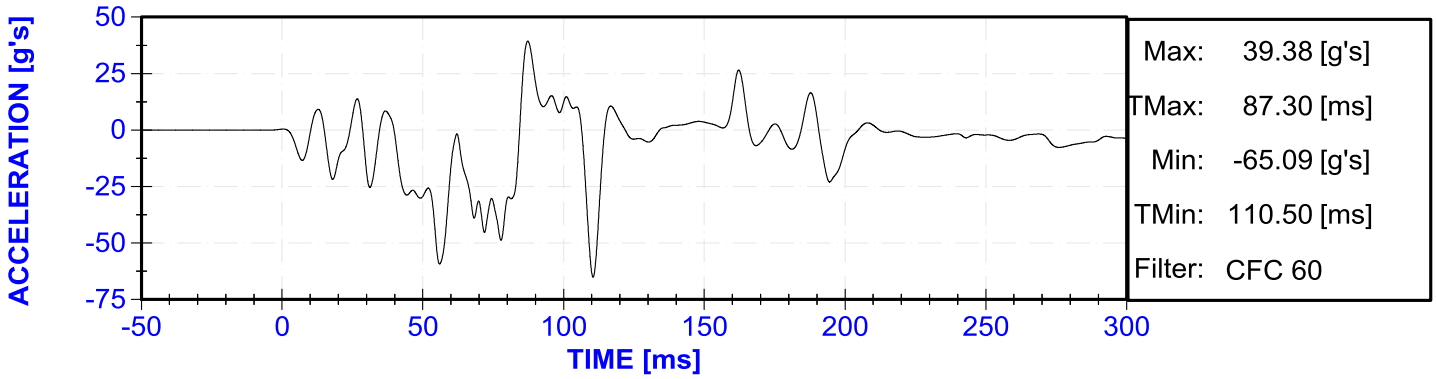


V2 Vehicle CG Redundant Z Acceleration

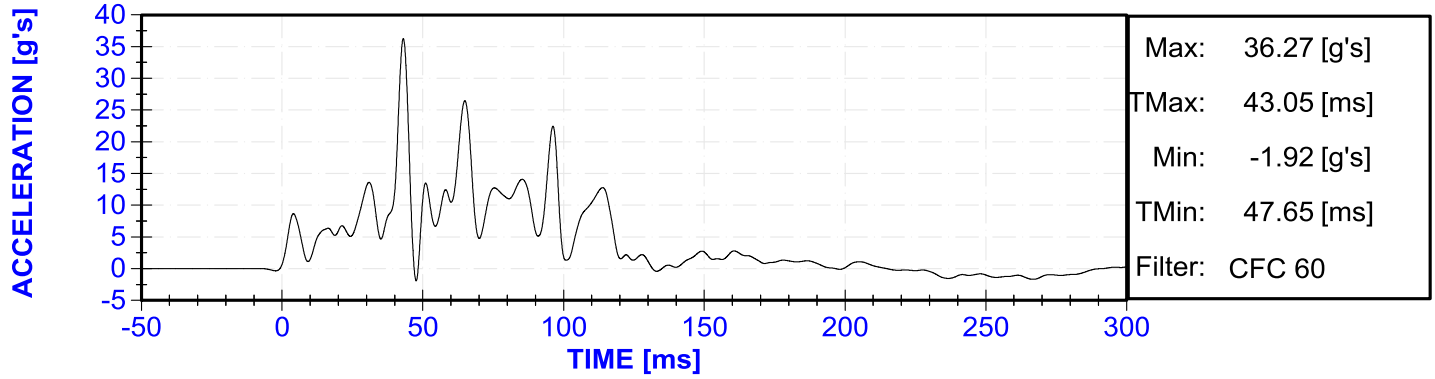
NO DATA



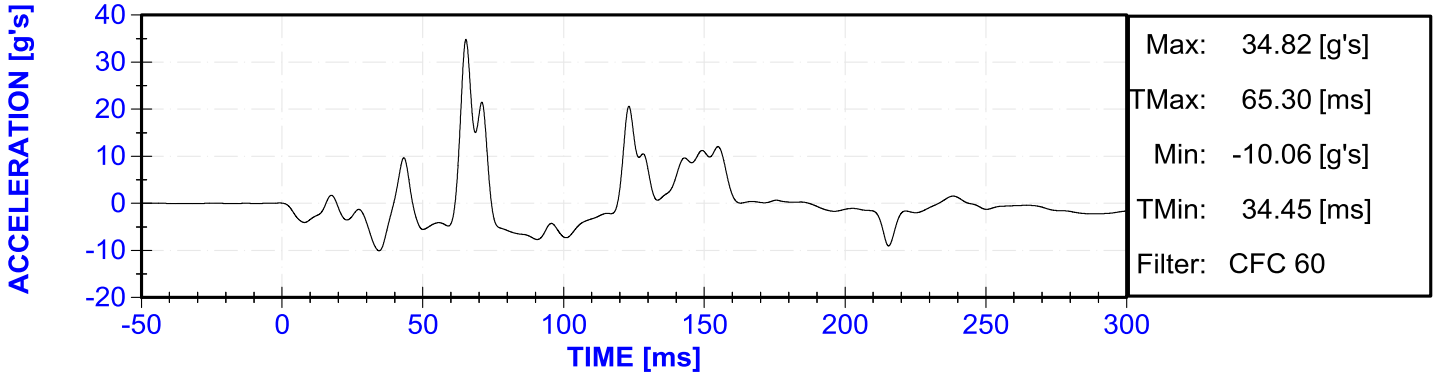
V2 Instrument Panel X Acceleration



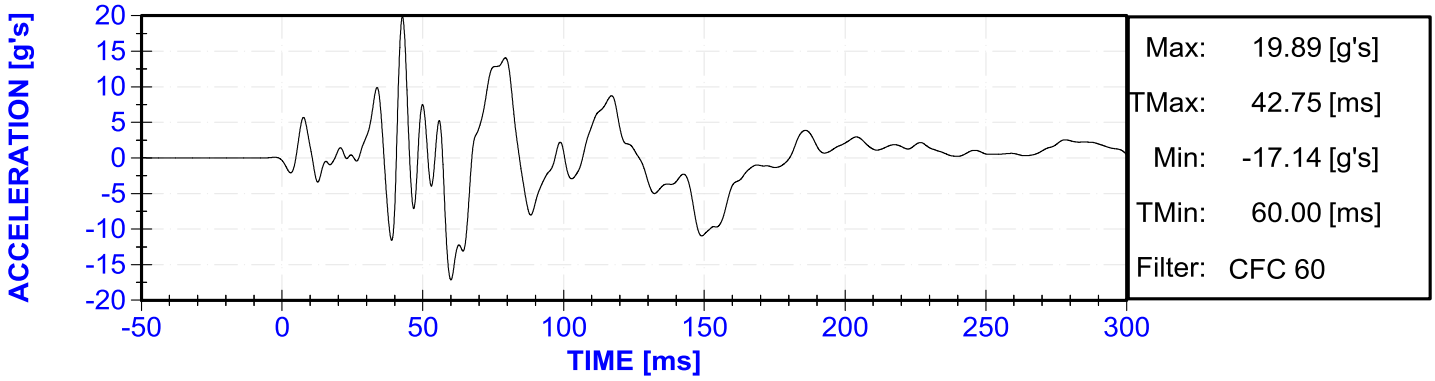
V2 Driver Seat Track X Acceleration



V2 Driver Seat Track Y Acceleration

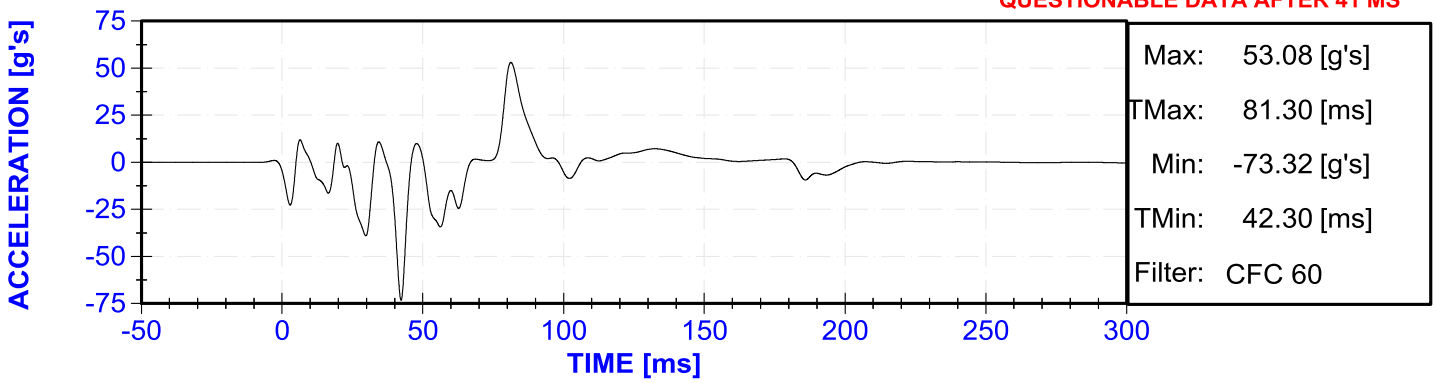


V2 Driver Seat Track Z Acceleration

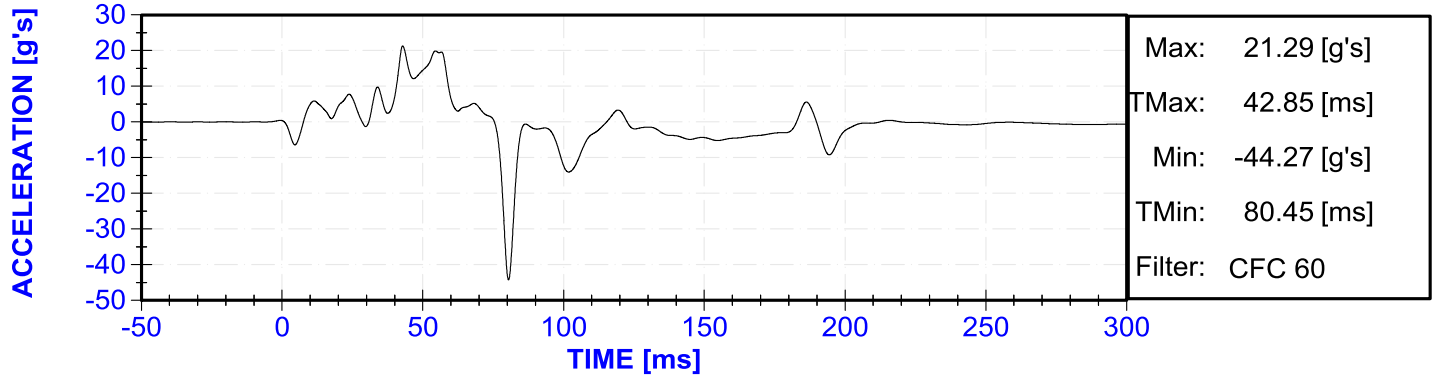


V2 Driver Floor Pan X Acceleration

QUESTIONABLE DATA AFTER 41 MS

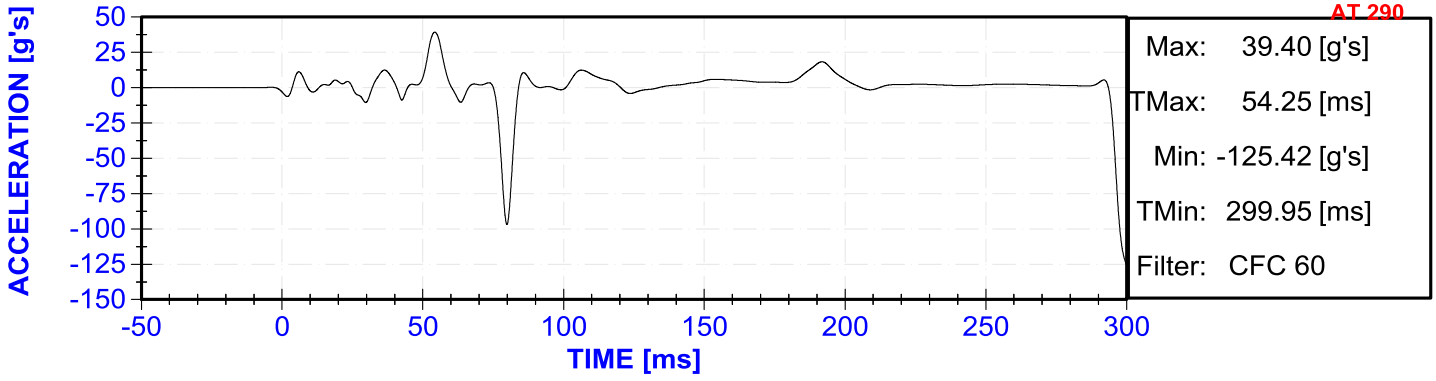


V2 Driver Floor Pan Y Acceleration

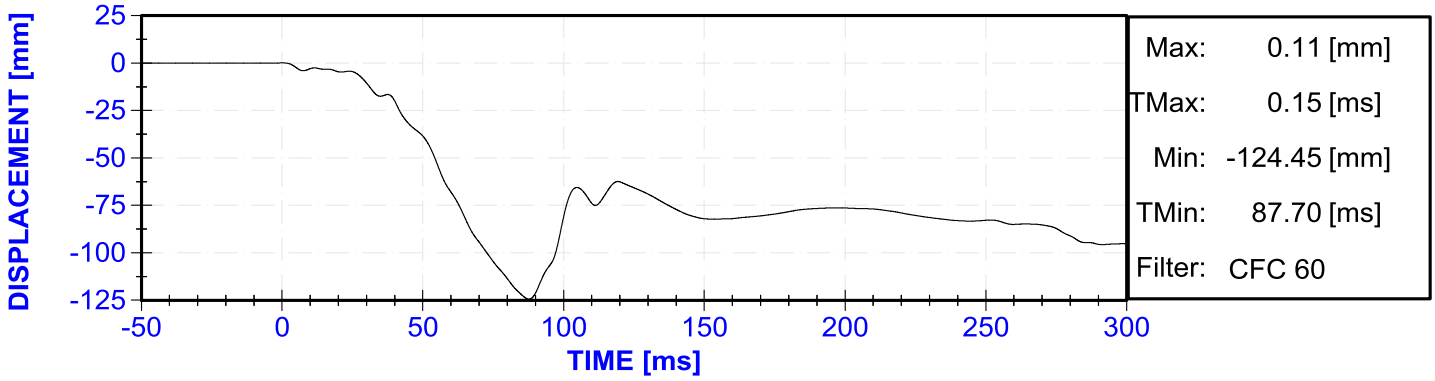


V2 Driver Floor Pan Z Acceleration

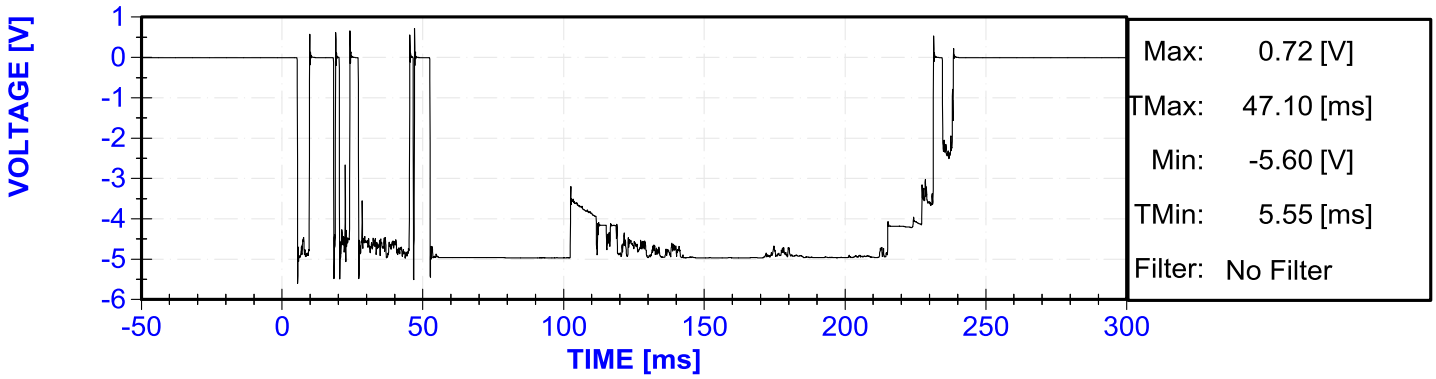
QUESTIONABLE DATA 50+MS; CHN FAILURE AT 290



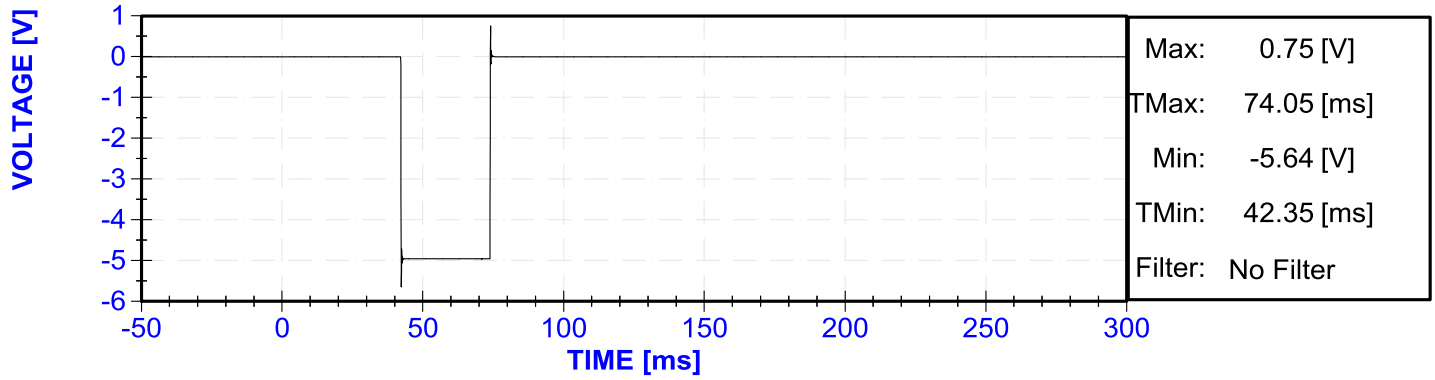
V2 Driver Floor Pan X Deflection



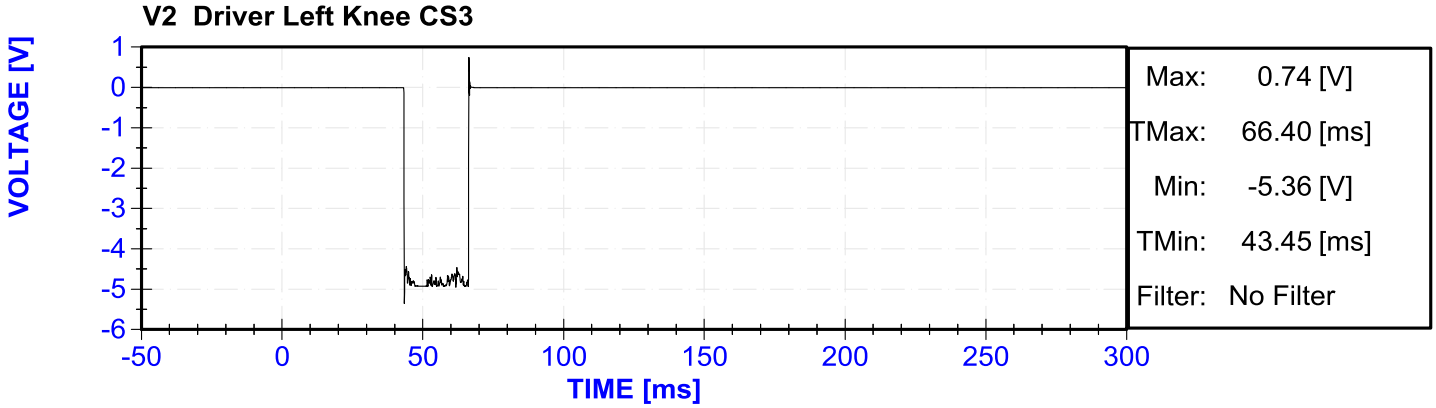
V2 Driver Left Knee CS1



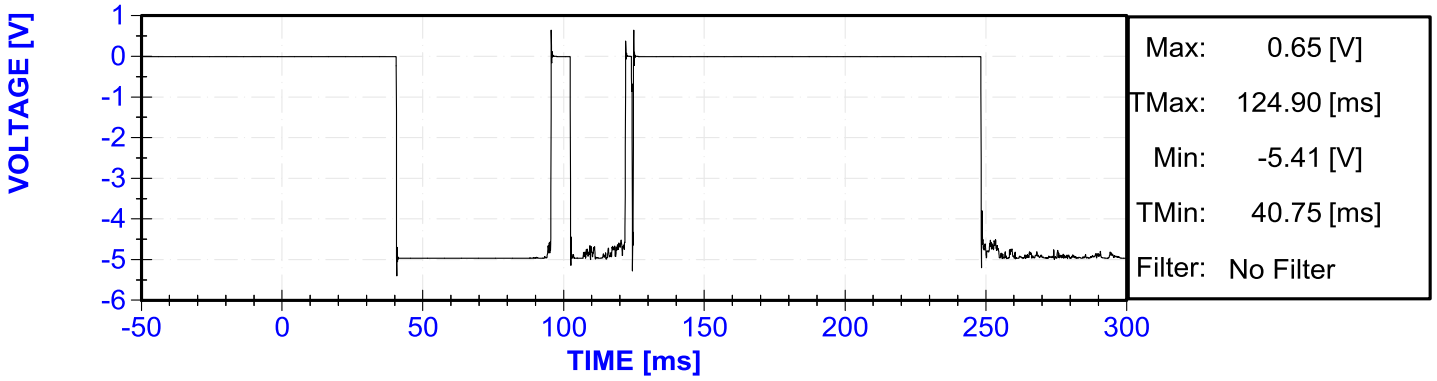
V2 Driver Left Knee CS2



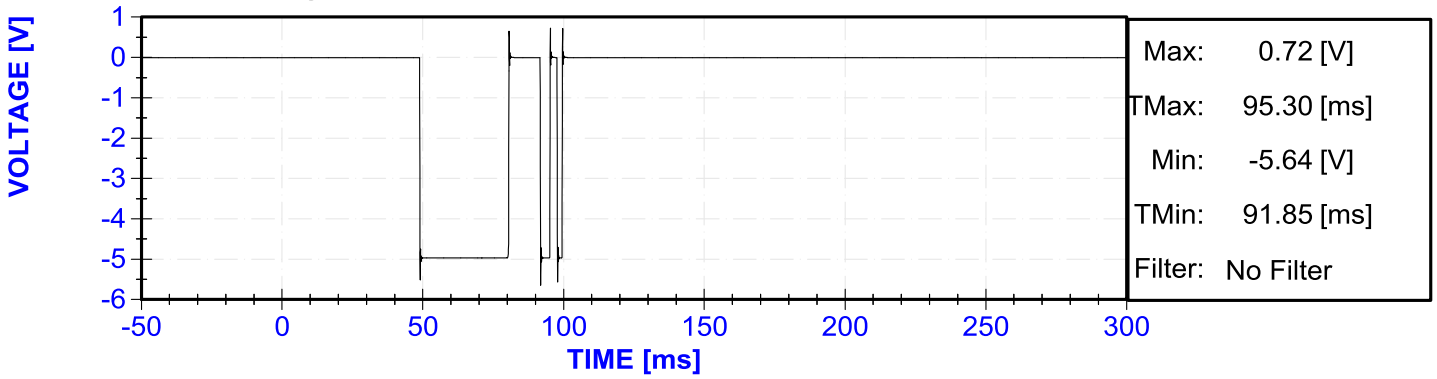
V2 Driver Left Knee CS3



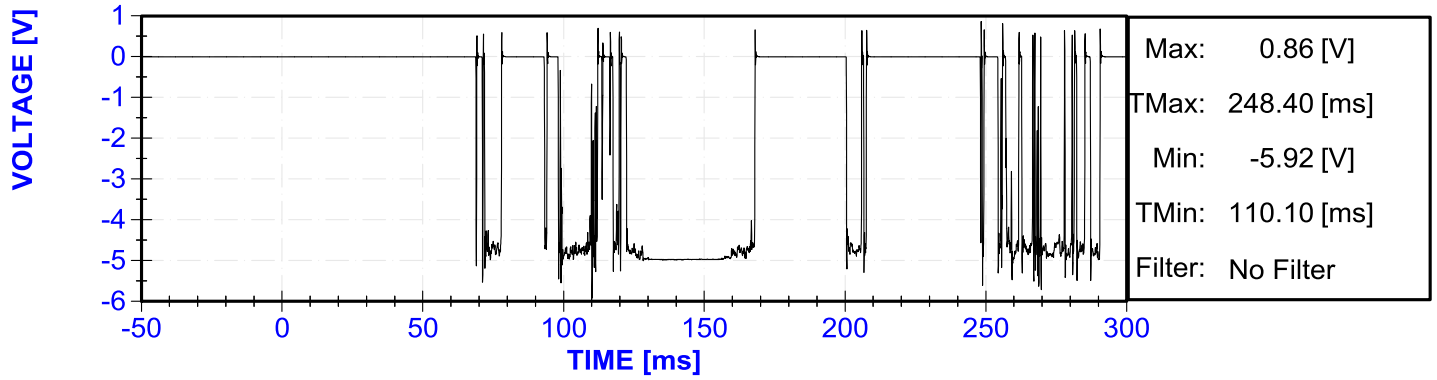
V2 Driver Right Knee CS4



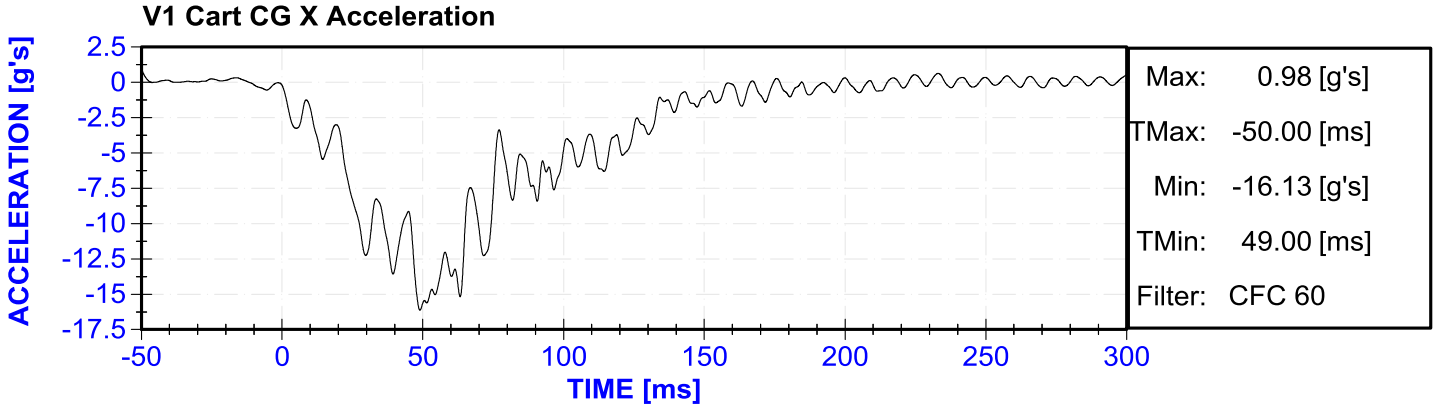
V2 Driver Right Knee CS5



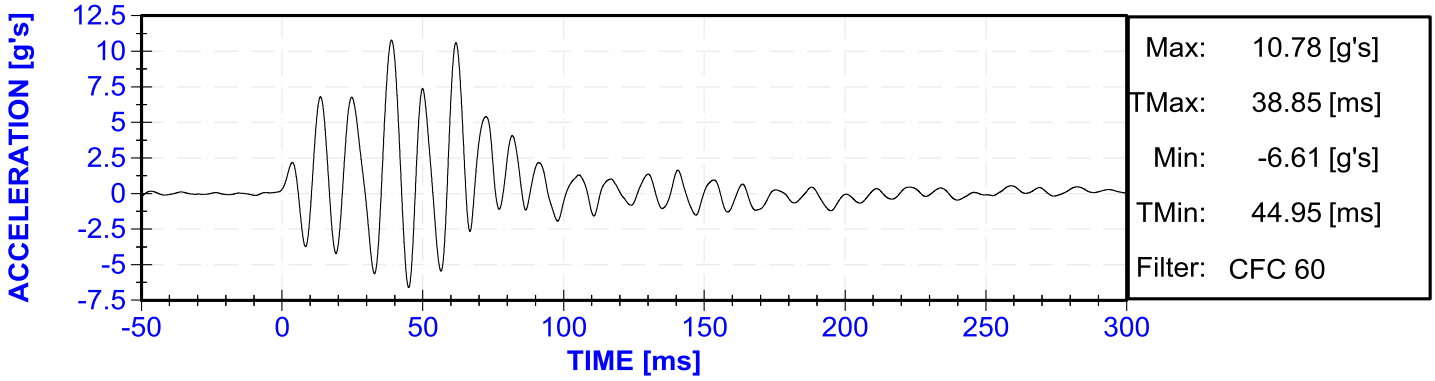
V2 Driver Right Knee CS6



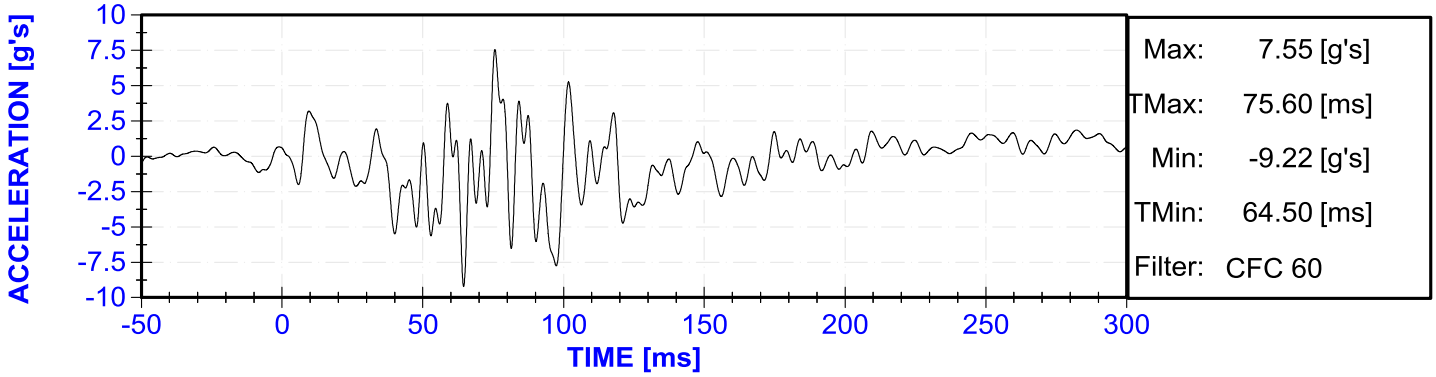
V1 Cart CG X Acceleration



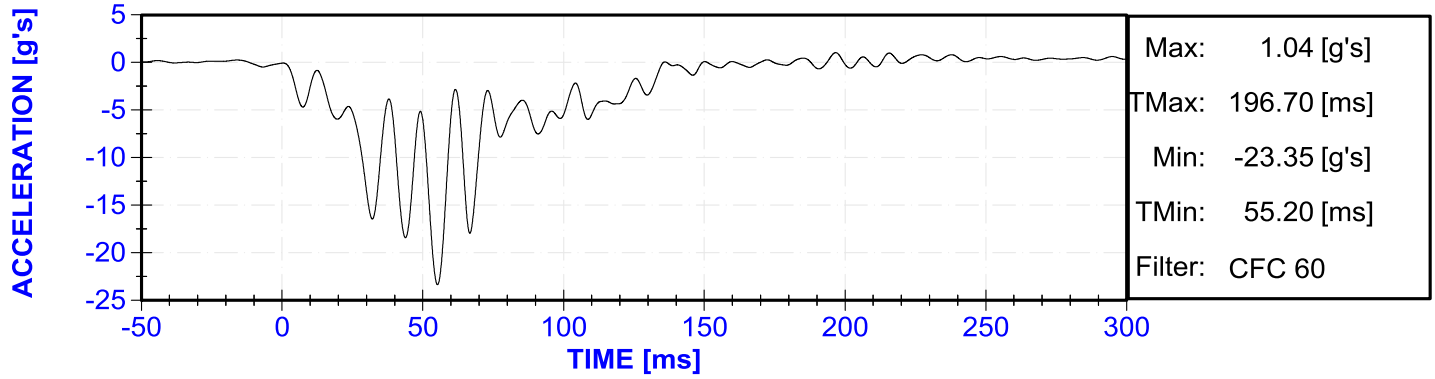
V1 Cart CG Y Acceleration



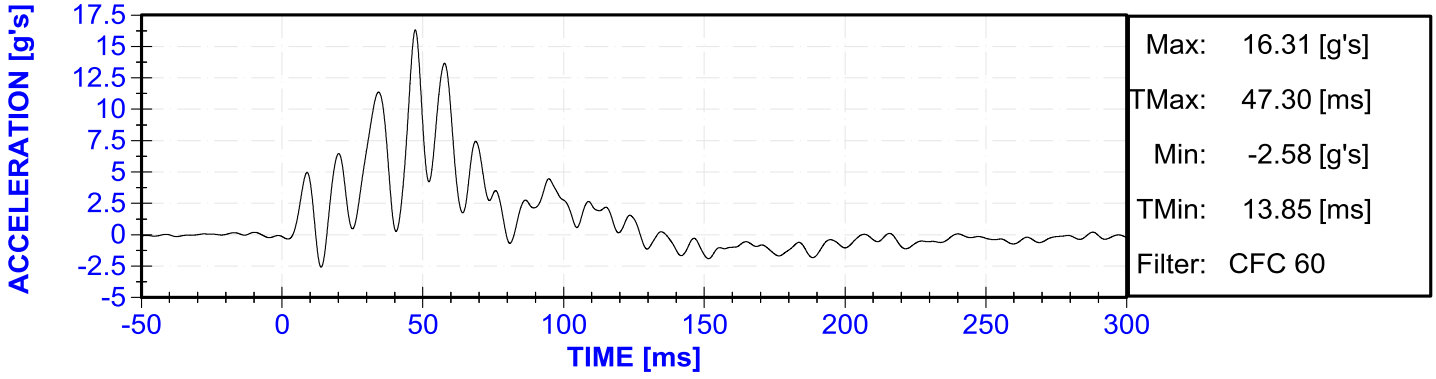
V1 Cart CG Z Acceleration



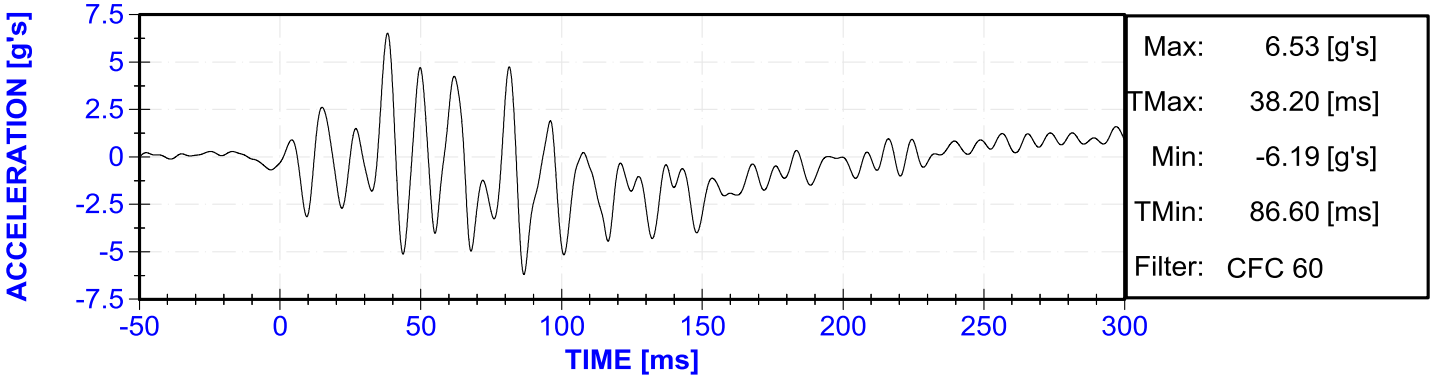
V1 Cart Rear C/L X Acceleration



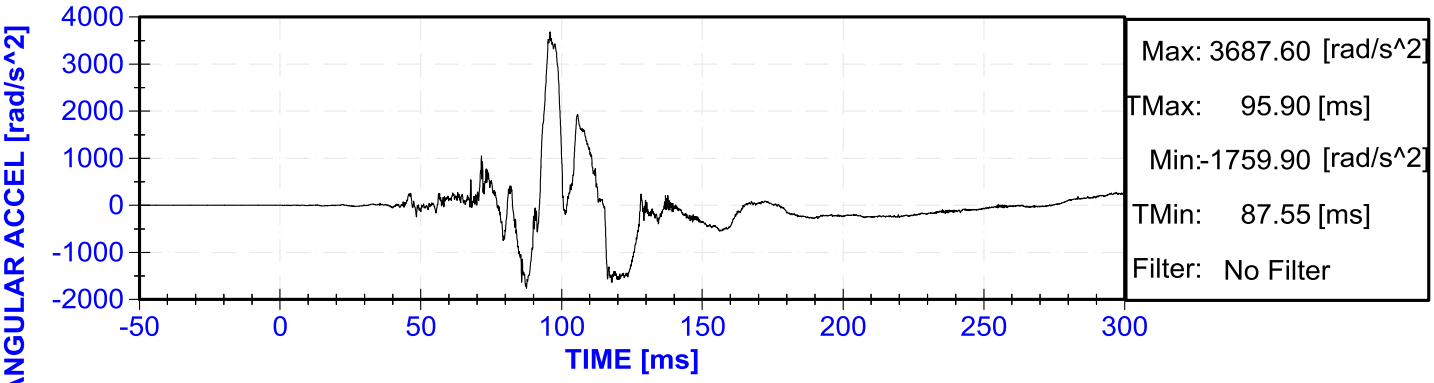
V1 Cart Rear C/L Y Acceleration



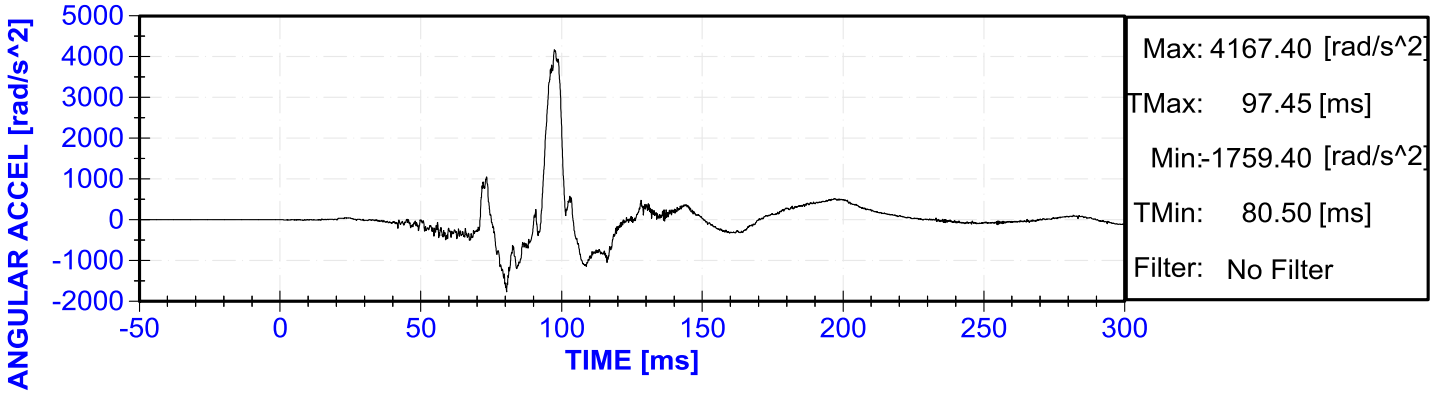
V1 Cart Rear C/L Z Acceleration



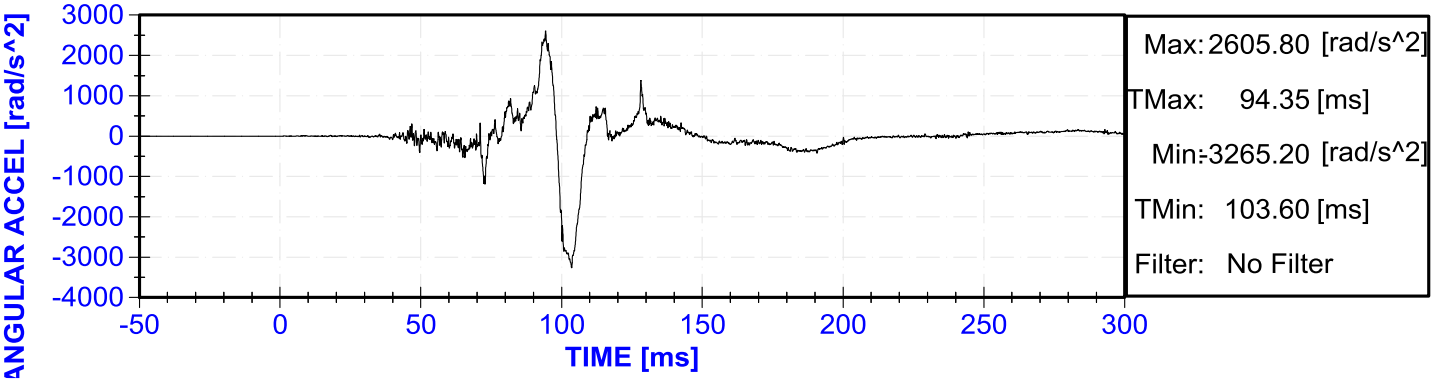
V2P1 HEAD ANGULAR ACCELERATION X [SIMON]



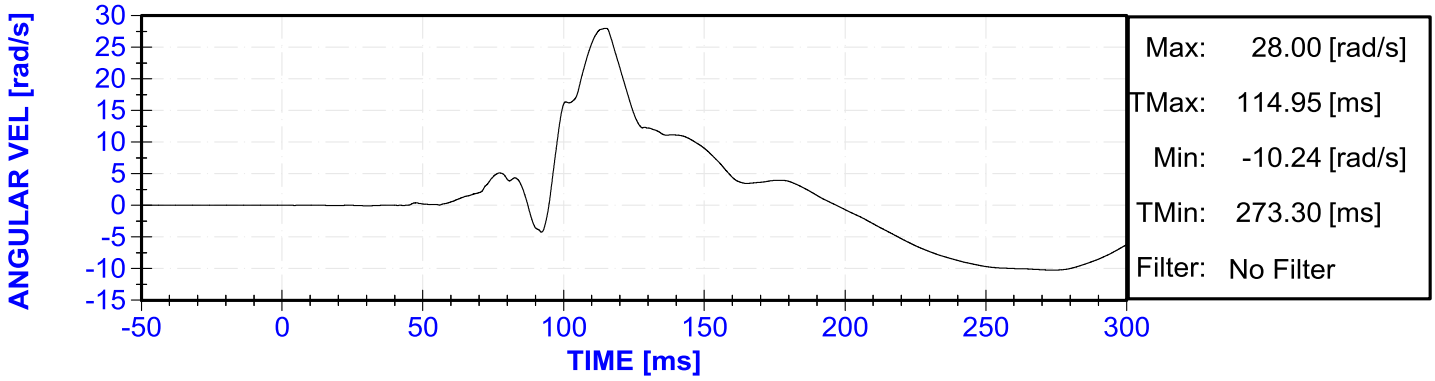
V2P1 HEAD ANGULAR ACCELERATION Y [SIMON]



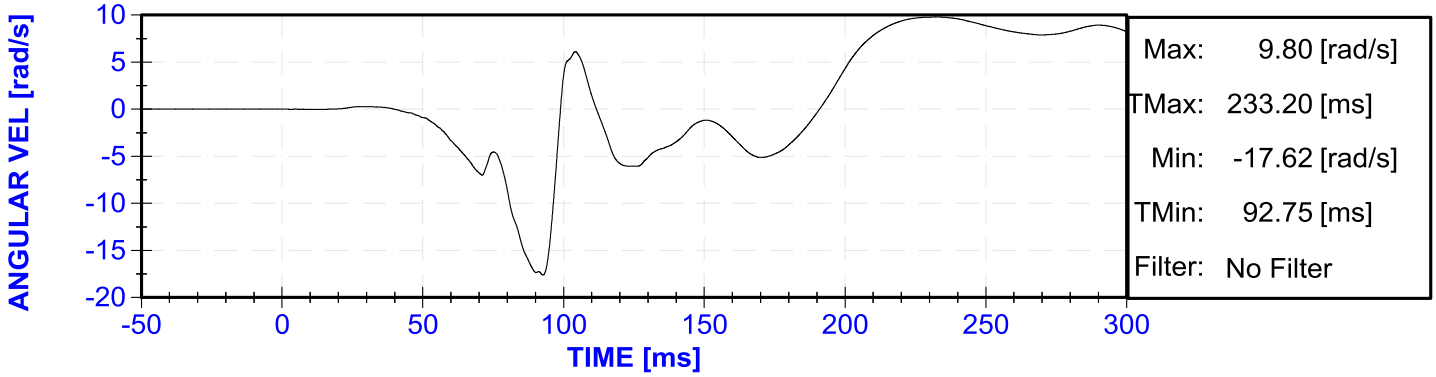
V2P1 HEAD ANGULAR ACCELERATION Z [SIMON]



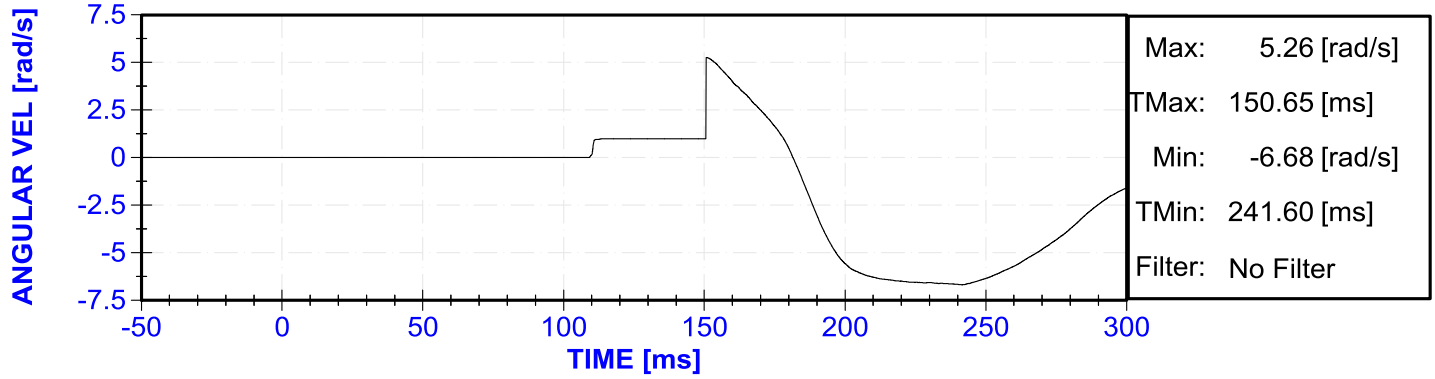
V2P1 HEAD ANGULAR VELOCITY X [SIMON]



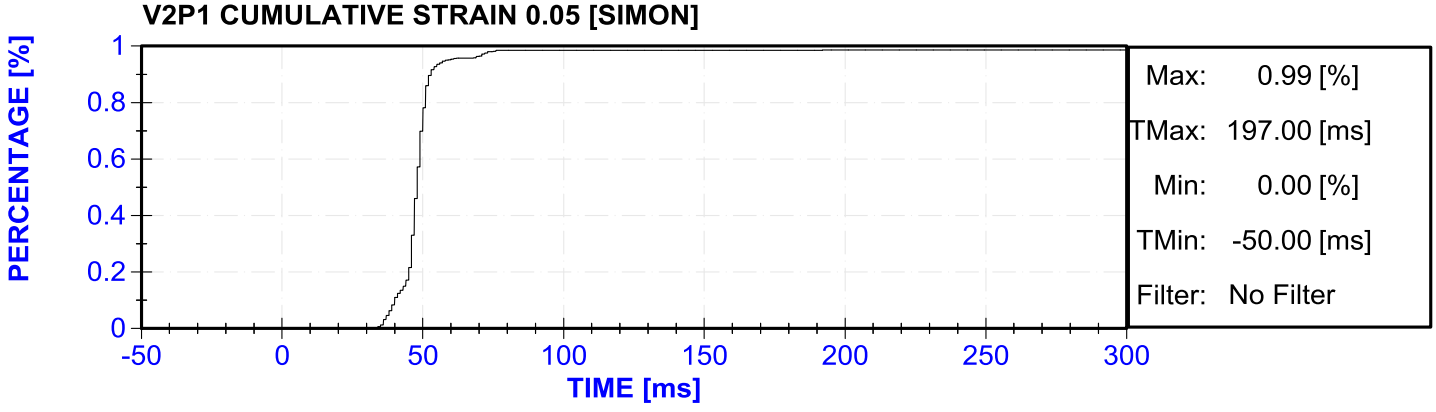
V2P1 HEAD ANGULAR VELOCITY Y [SIMON]



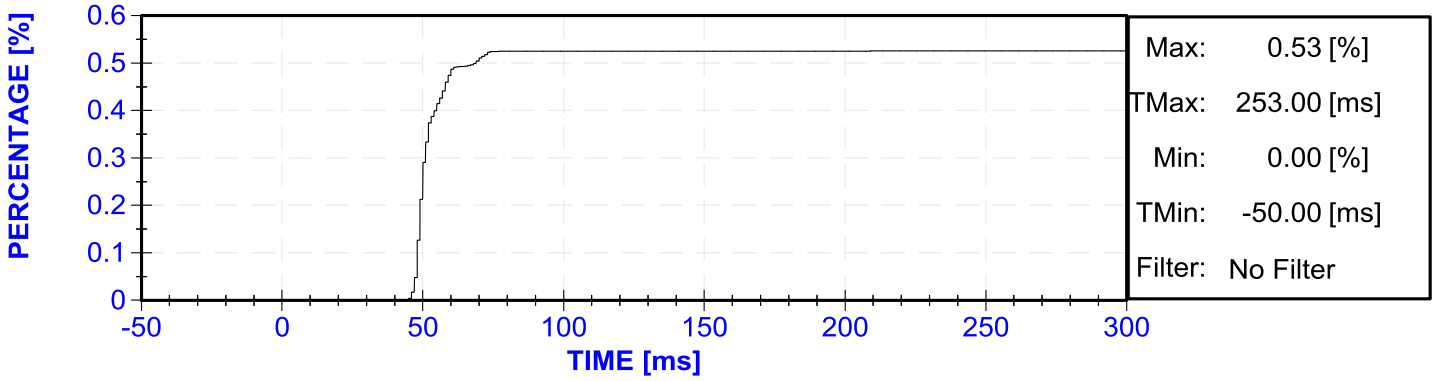
V2P1 HEAD ANGULAR VELOCITY Z [SIMON]



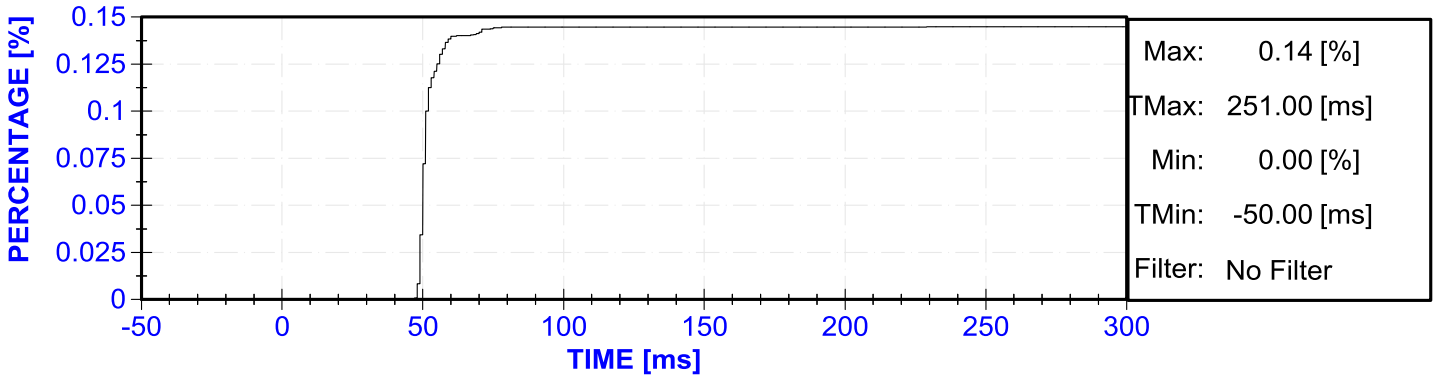
V2P1 CUMULATIVE STRAIN 0.05 [SIMON]



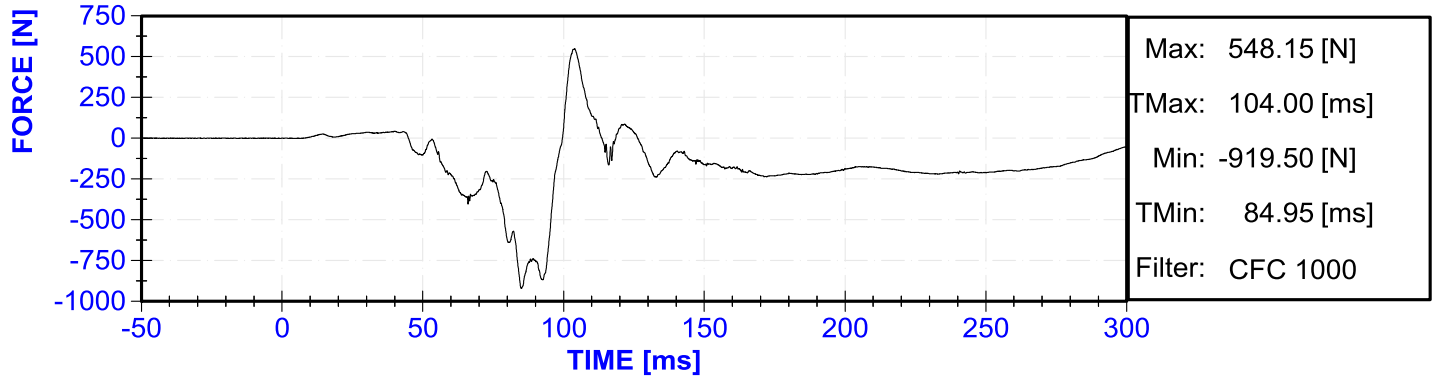
V2P1 CUMULATIVE STRAIN 0.10 [SIMON]



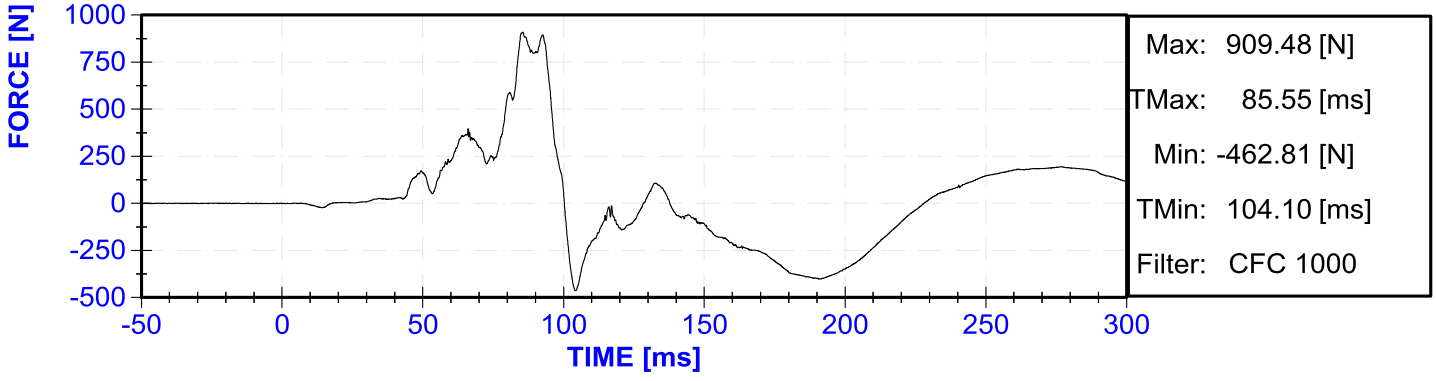
V2P1 CUMULATIVE STRAIN 0.15 [SIMON]



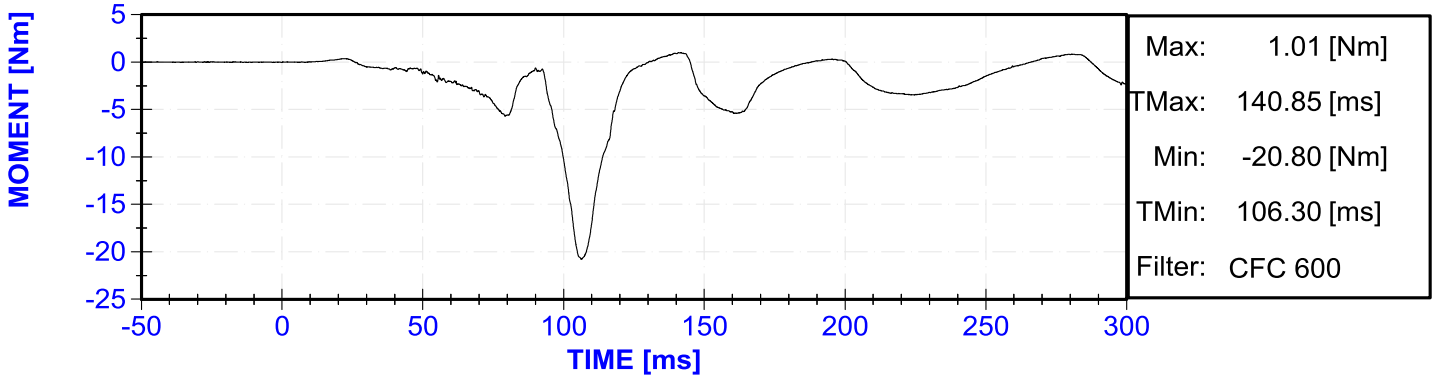
V2P1 Fx on head acting through the O.C. joint only



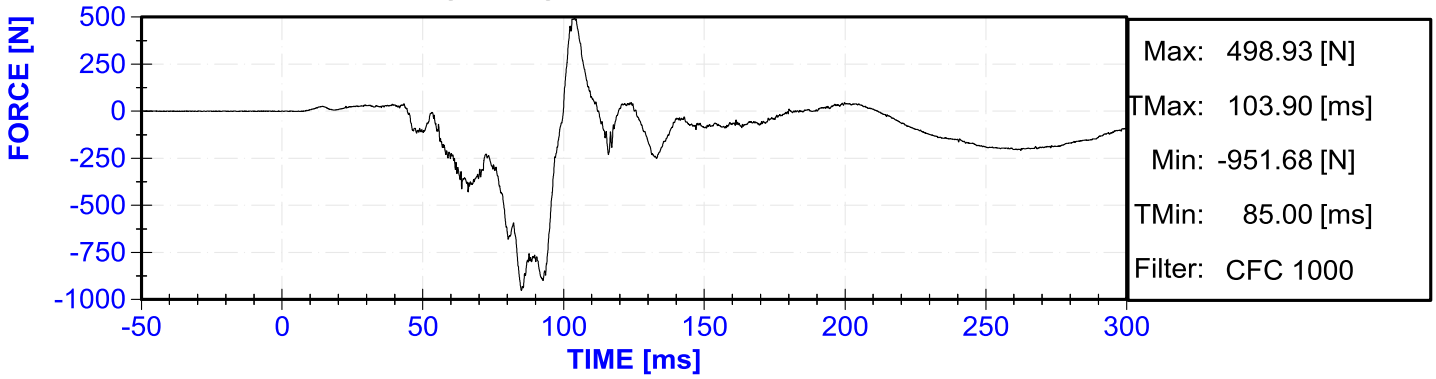
V2P1 Fz on head acting through the O.C. joint only



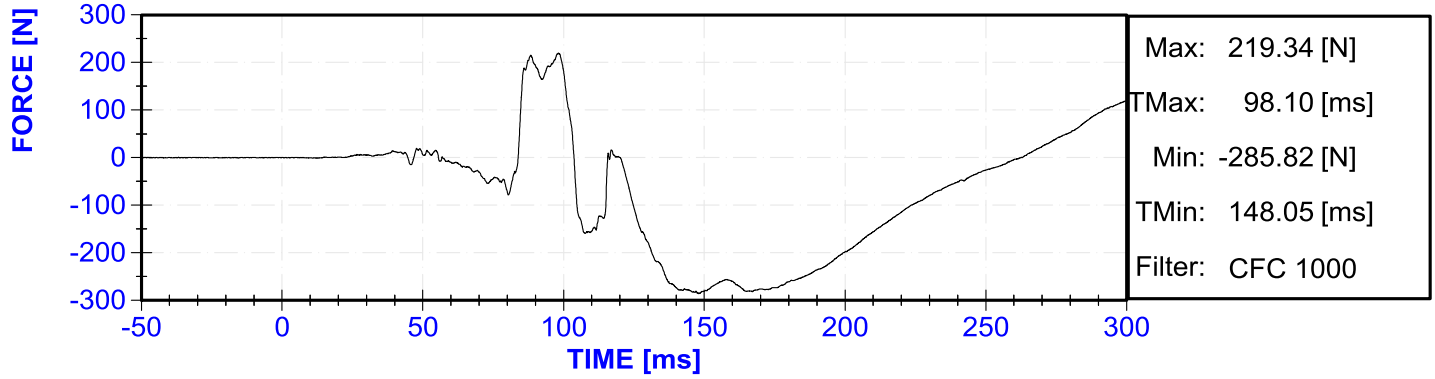
V2P1 My on head acting through the O.C. joint only



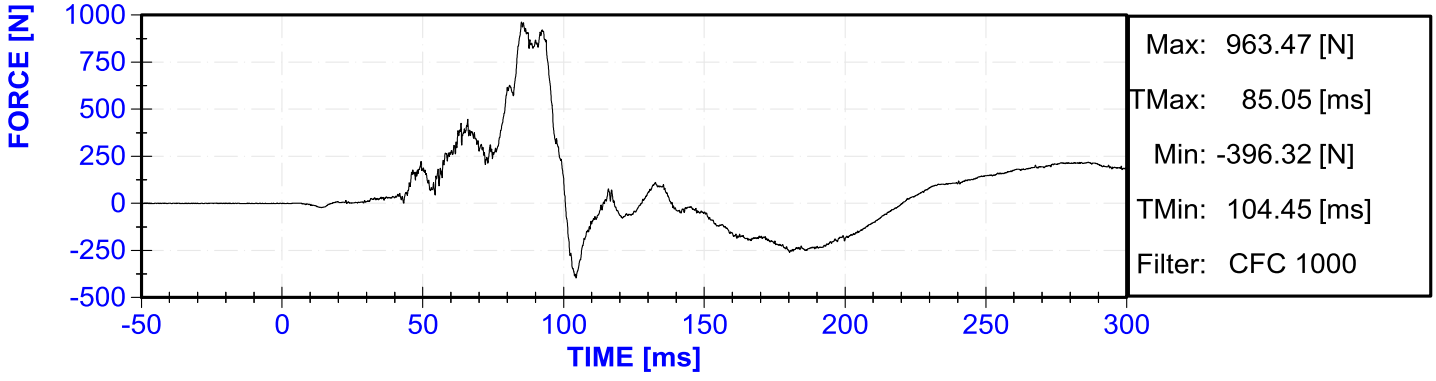
V2P1 Fx on head acting through the total neck section



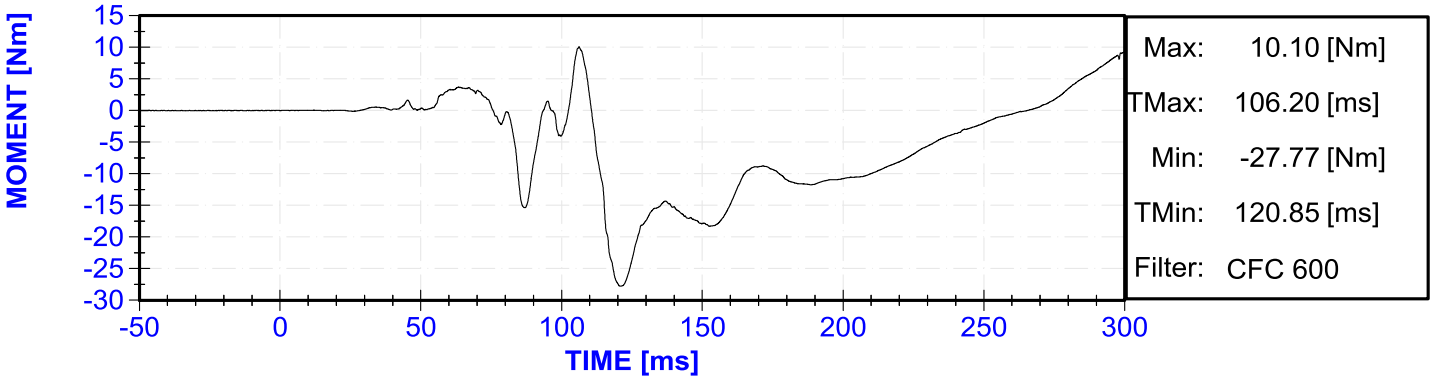
V2P1 Fy on head acting through the total neck section



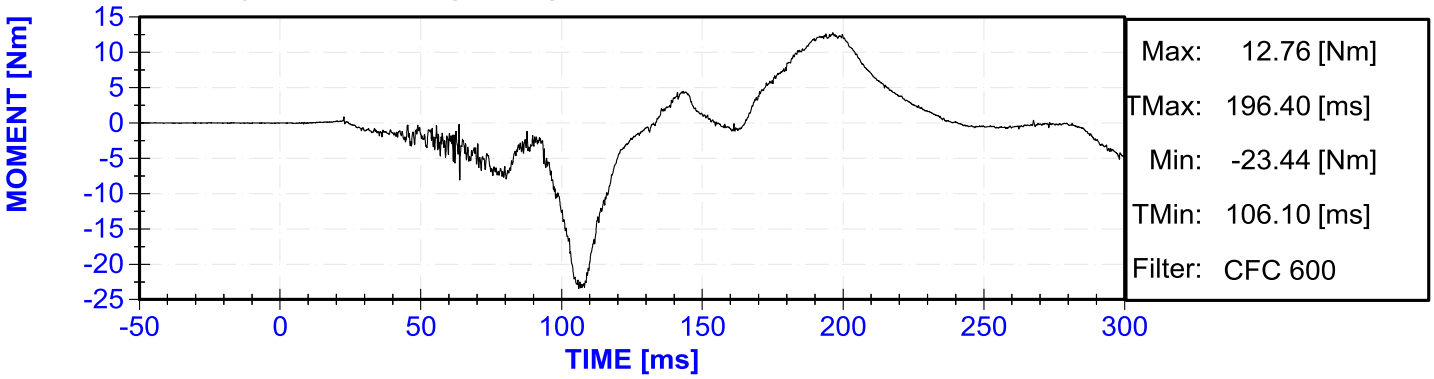
V2P1 Fz on head acting through the total neck section



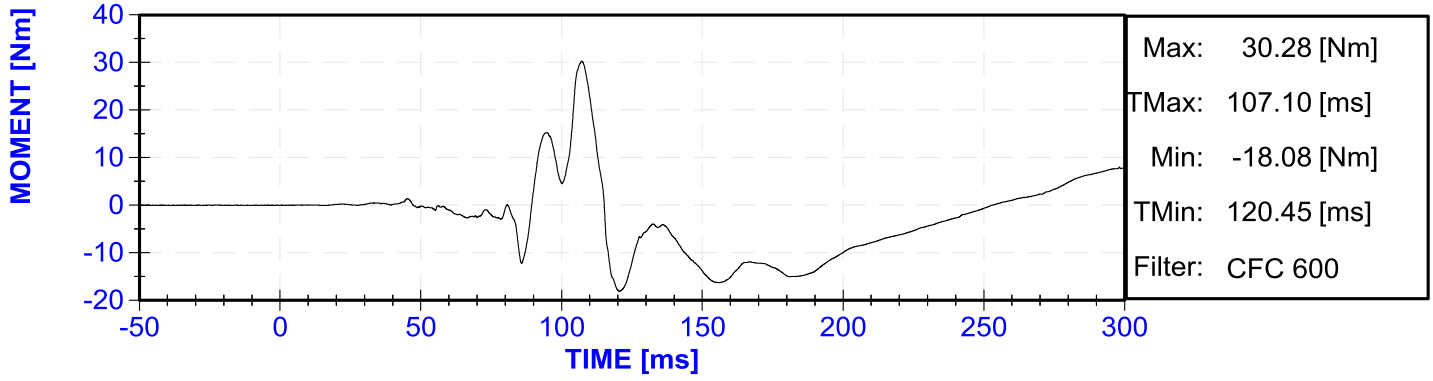
V2P1 Mx on head acting through the total neck section



V2P1 My on head acting through the total neck section

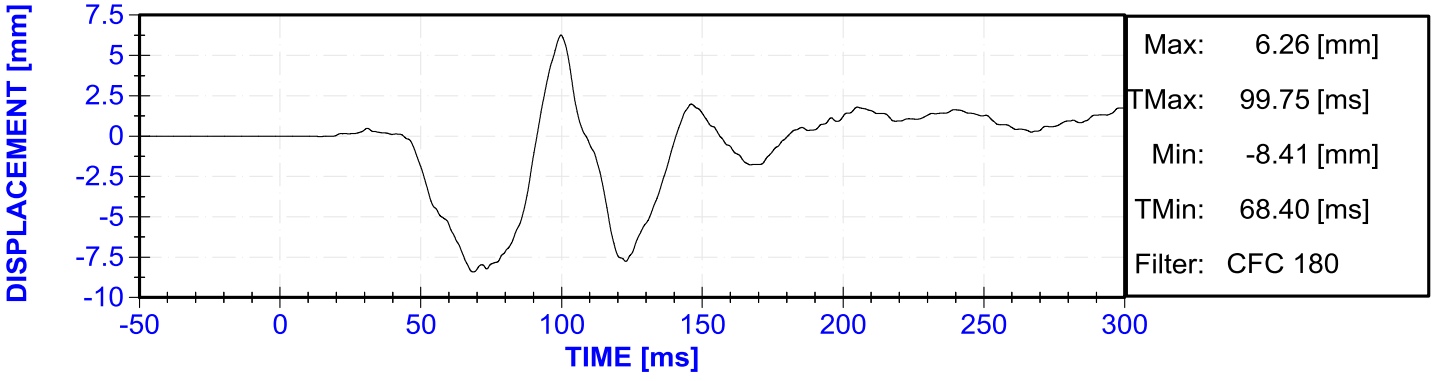


V2P1 Mz on head acting through the total neck section



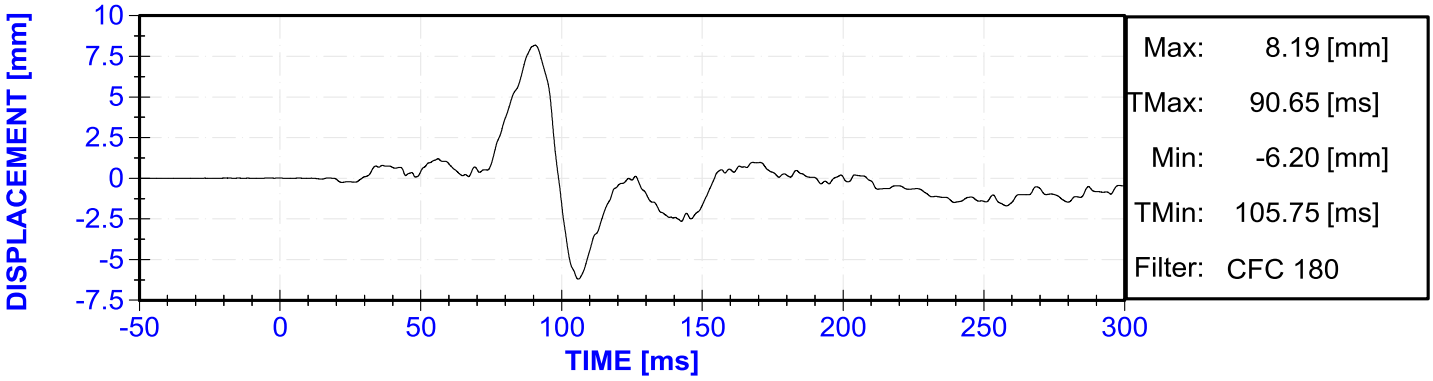
V2P1 Chest Left Upper Dx

V2P1 CHLU CM HAD QD : NOISE



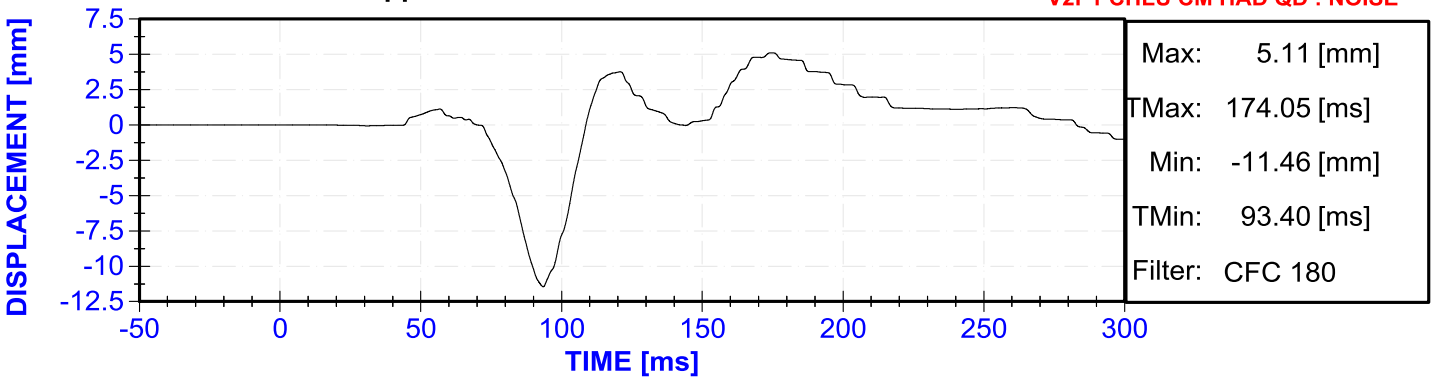
V2P1 Chest Left Upper Dy

V2P1 CHLU CM HAD QD : NOISE



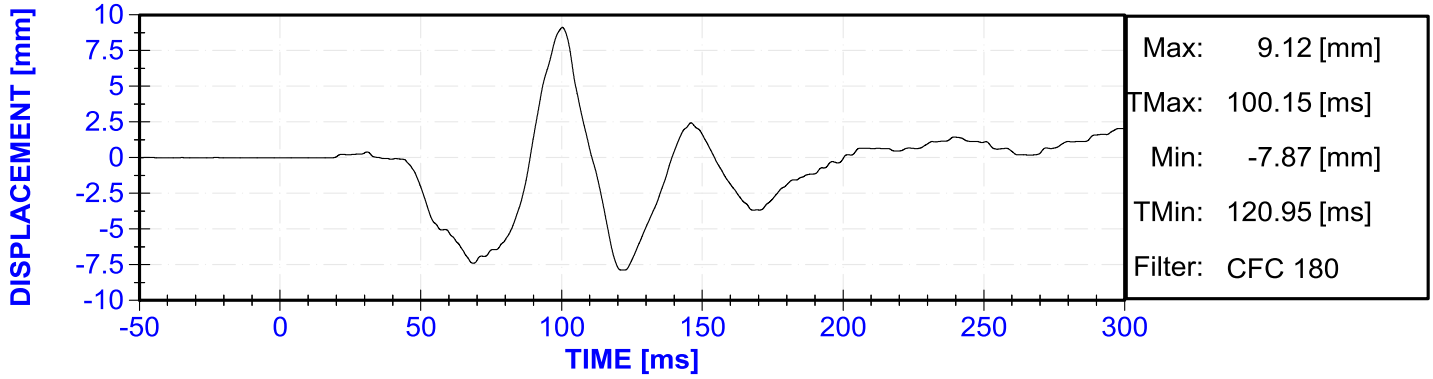
V2P1 Chest Left Upper Dz

V2P1 CHLU CM HAD QD : NOISE

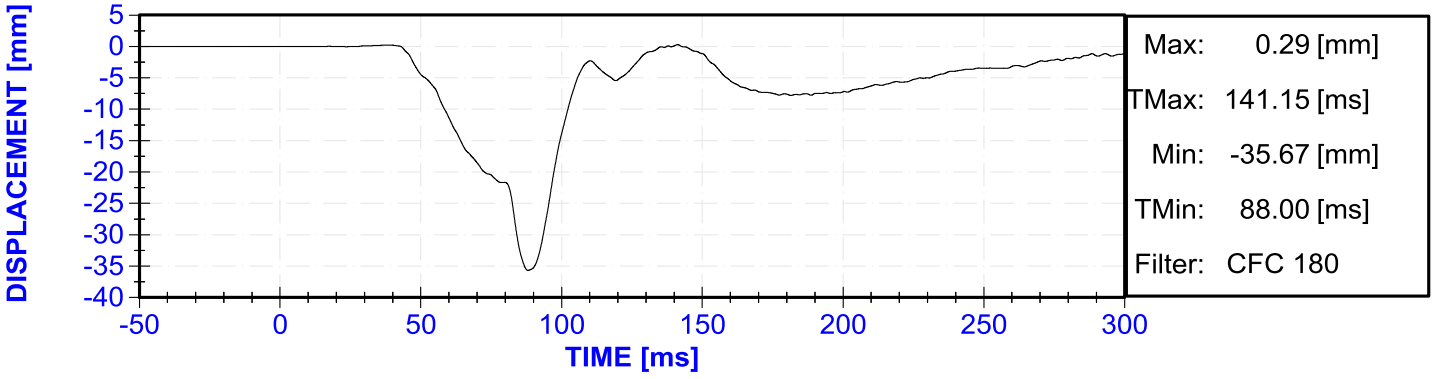


V2P1 Chest Left Upper D

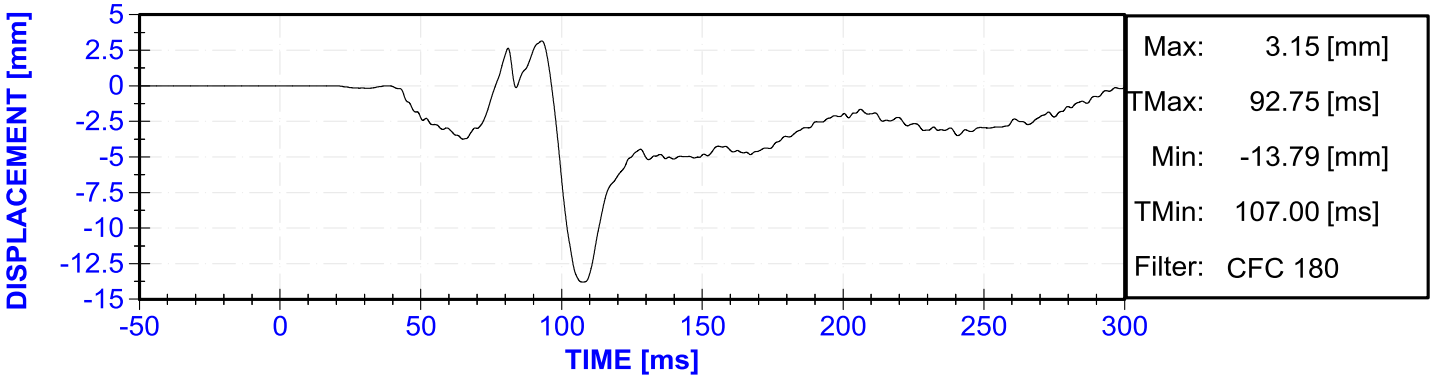
V2P1 CHLU CM HAD QD : NOISE



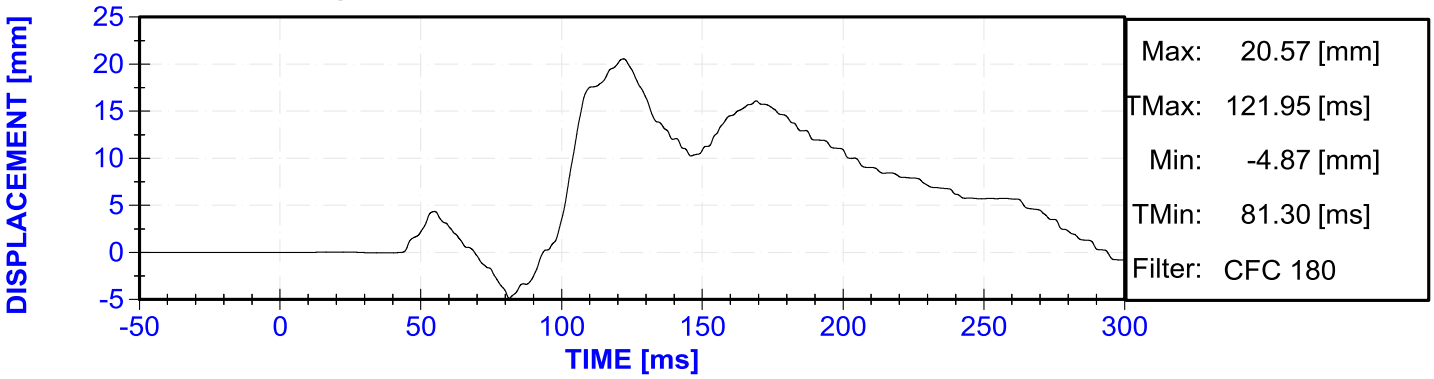
V2P1 Chest Right Upper Dx



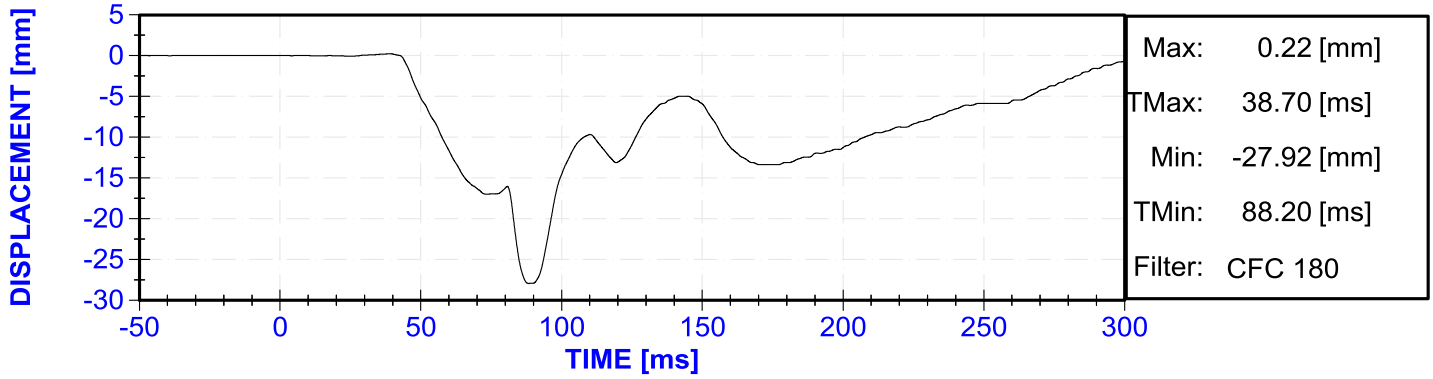
V2P1 Chest Right Upper Dy



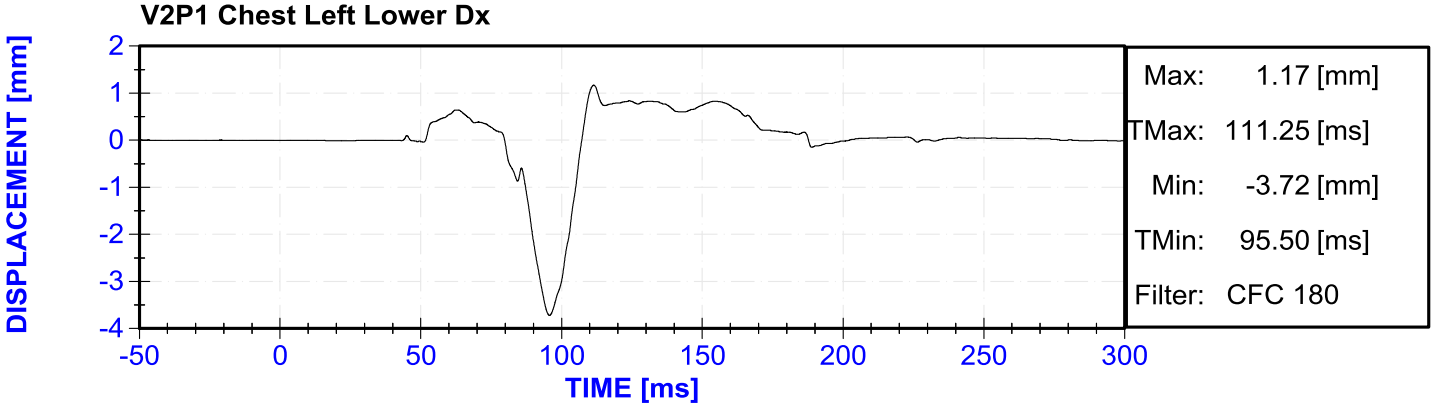
V2P1 Chest Right Upper Dz



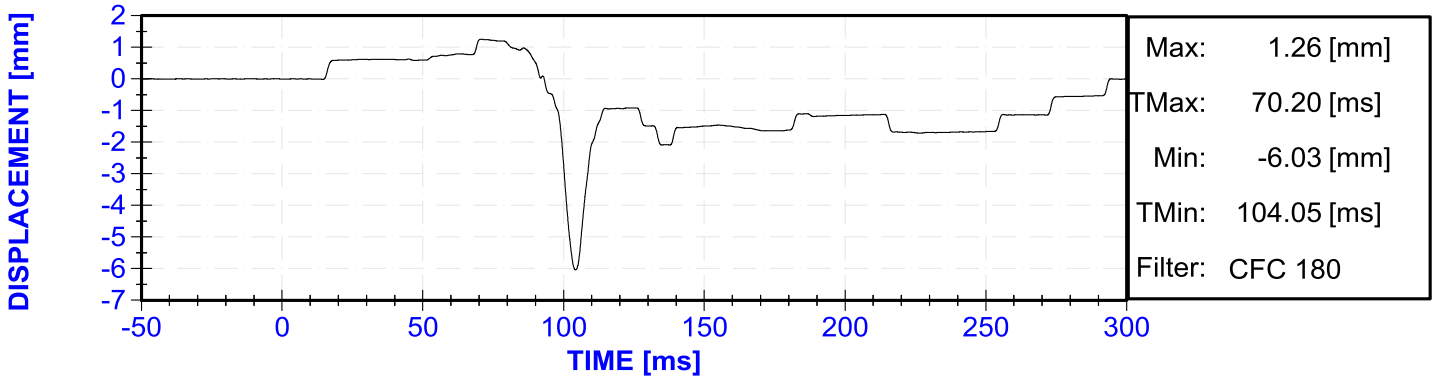
V2P1 Chest Right Upper D



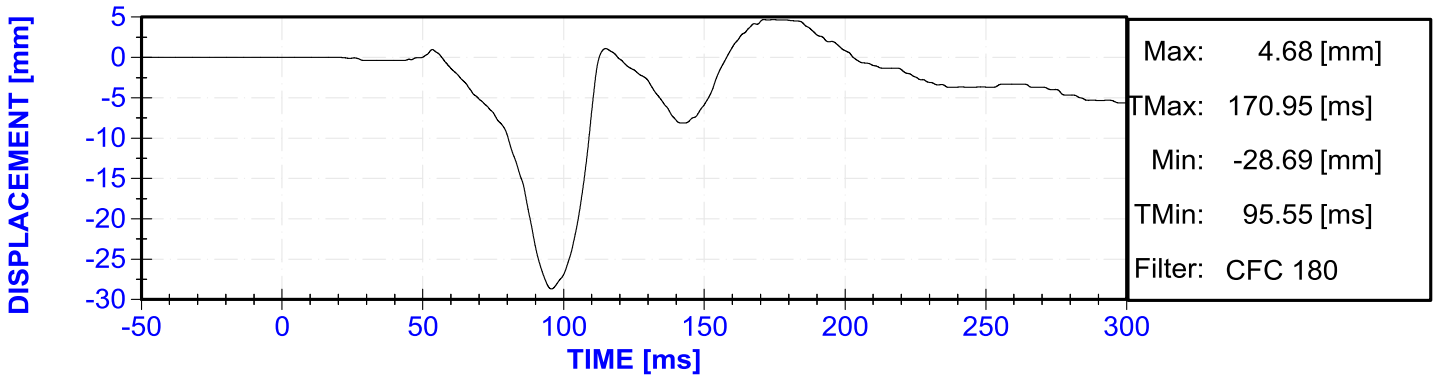
V2P1 Chest Left Lower Dx



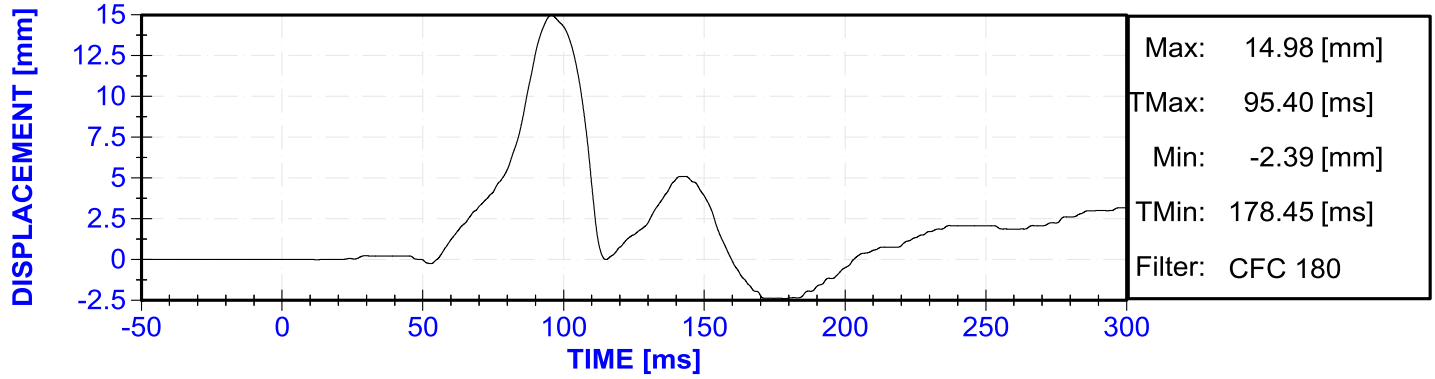
V2P1 Chest Left Lower Dy



V2P1 Chest Left Lower Dz

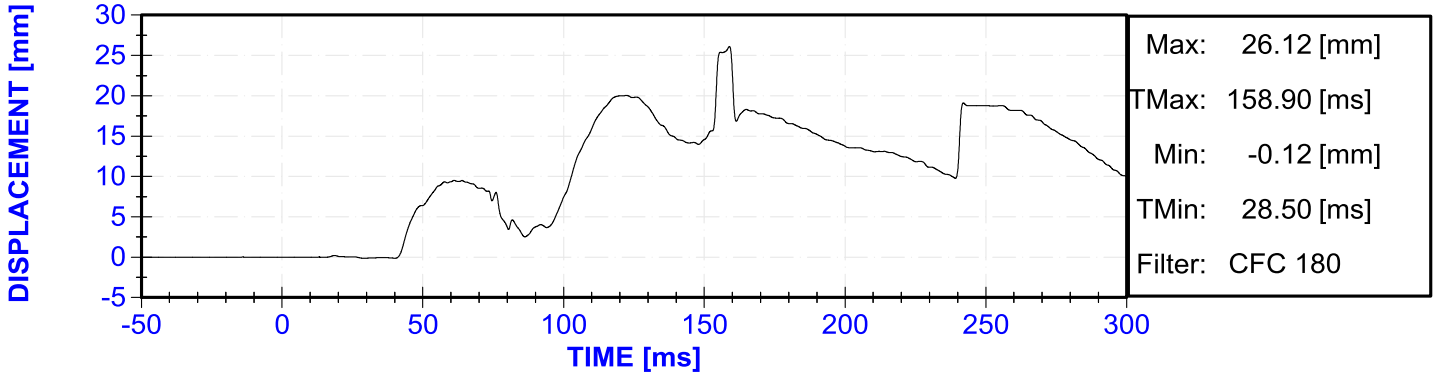


V2P1 Chest Left Lower D



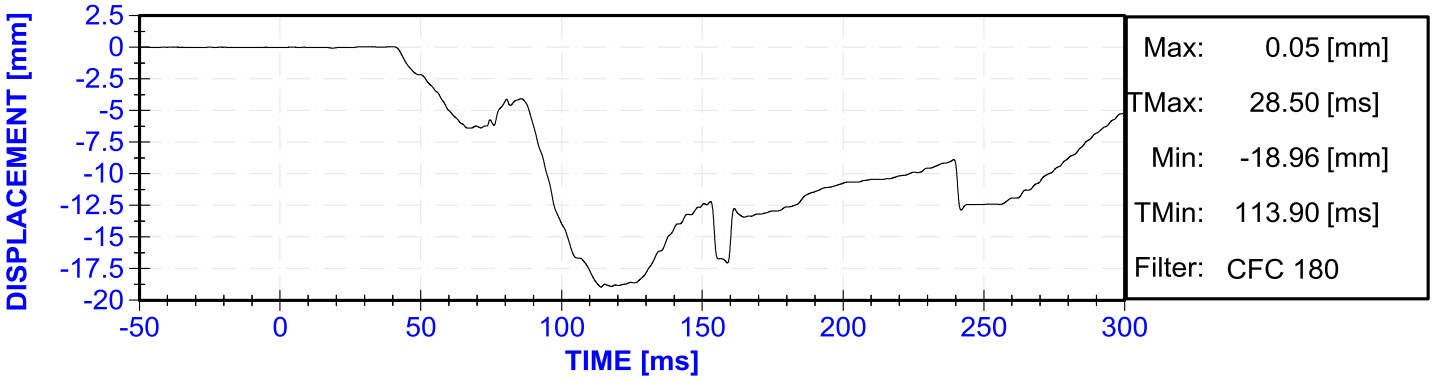
V2P1 Chest Right Lower Dx

V2P1 CHRL CM HAD QD AT 152+ MS



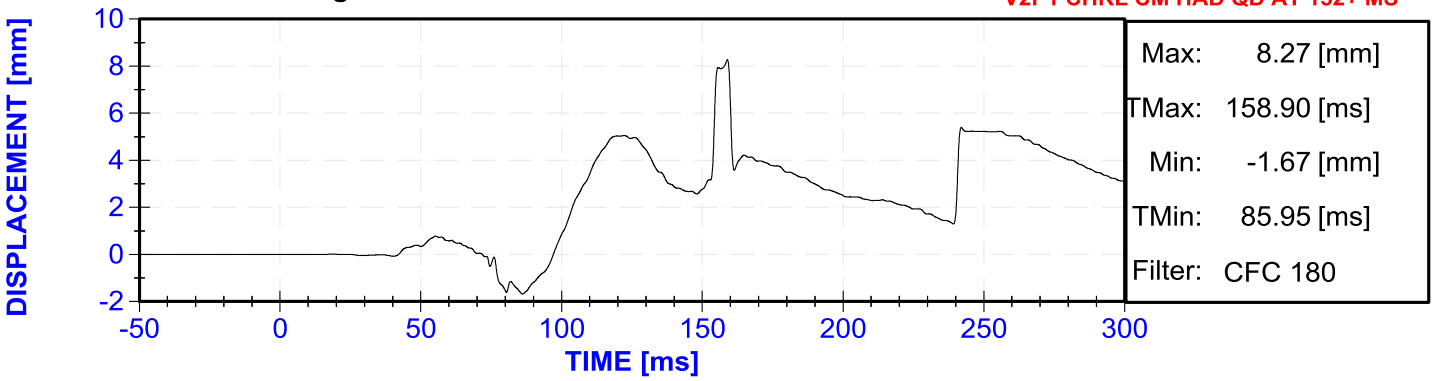
V2P1 Chest Right Lower Dy

V2P1 CHRL CM HAD QD AT 152+ MS



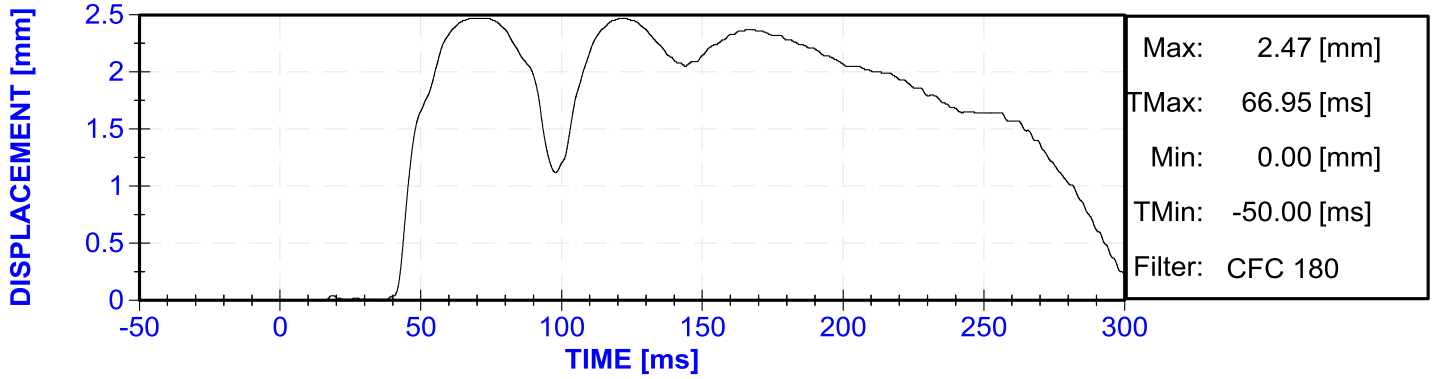
V2P1 Chest Right Lower Dz

V2P1 CHRL CM HAD QD AT 152+ MS

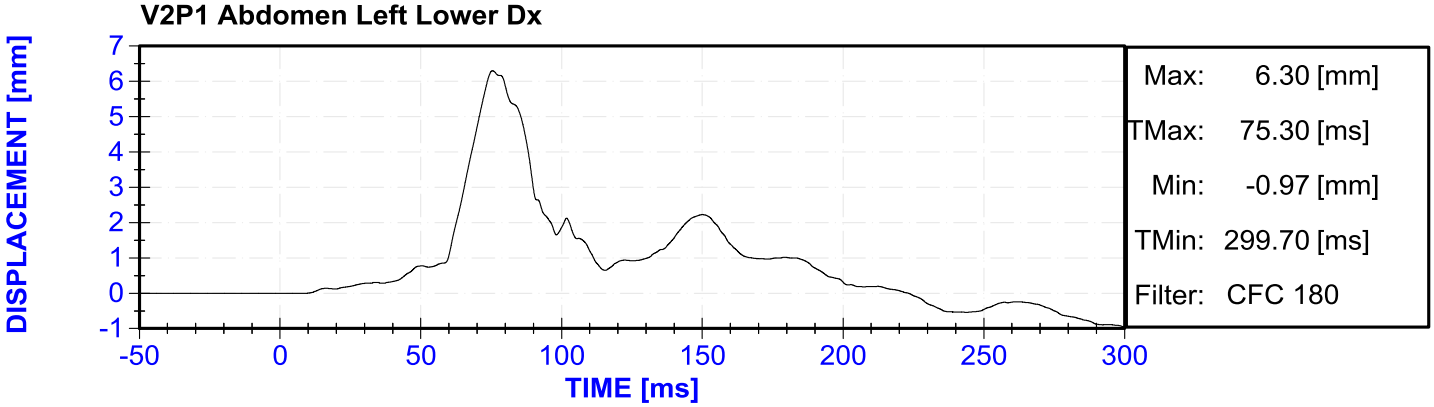


V2P1 Chest Right Lower D

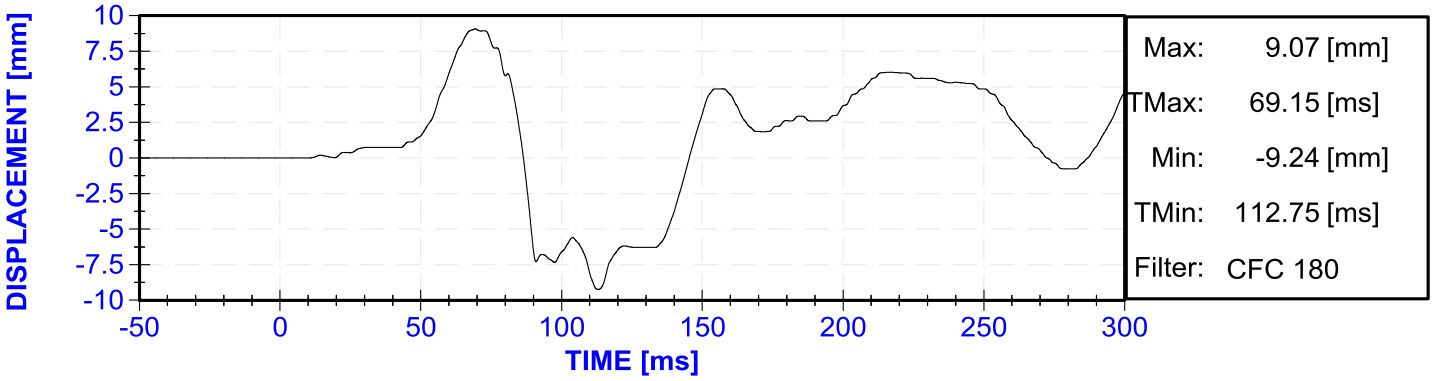
V2P1 CHRL CM HAD QD AT 152+ MS



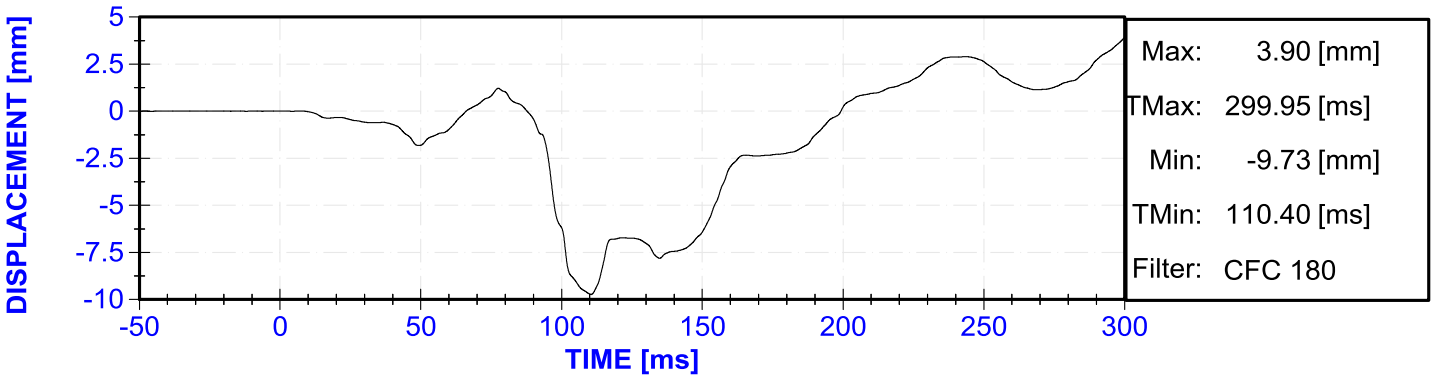
V2P1 Abdomen Left Lower Dx



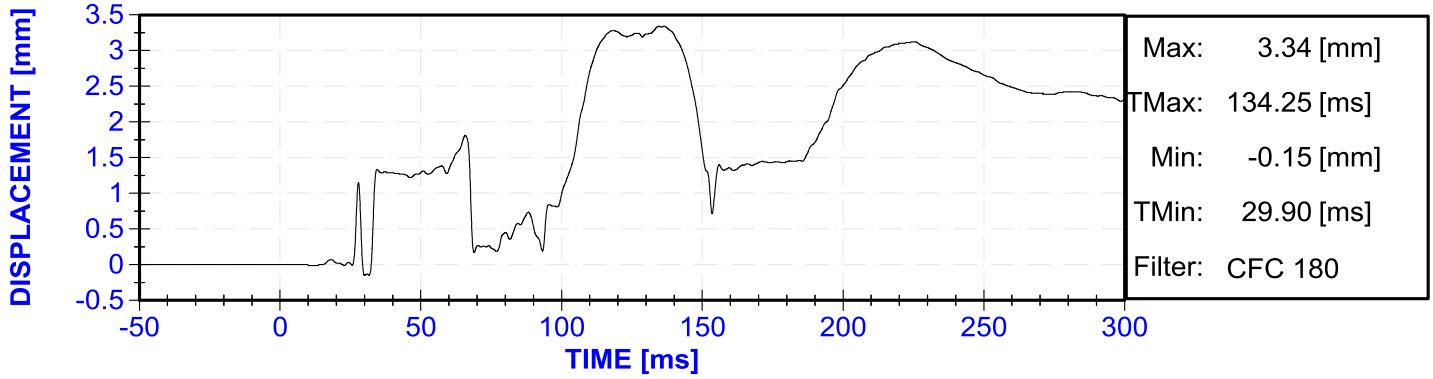
V2P1 Abdomen Left Lower Dy



V2P1 Abdomen Left Lower Dz

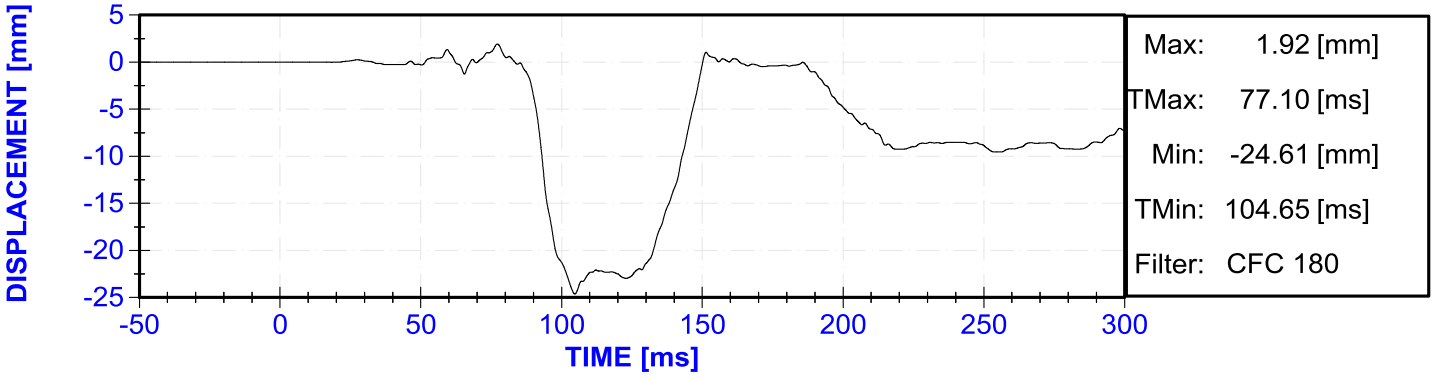


V2P1 Abdomen Right Lower Dx

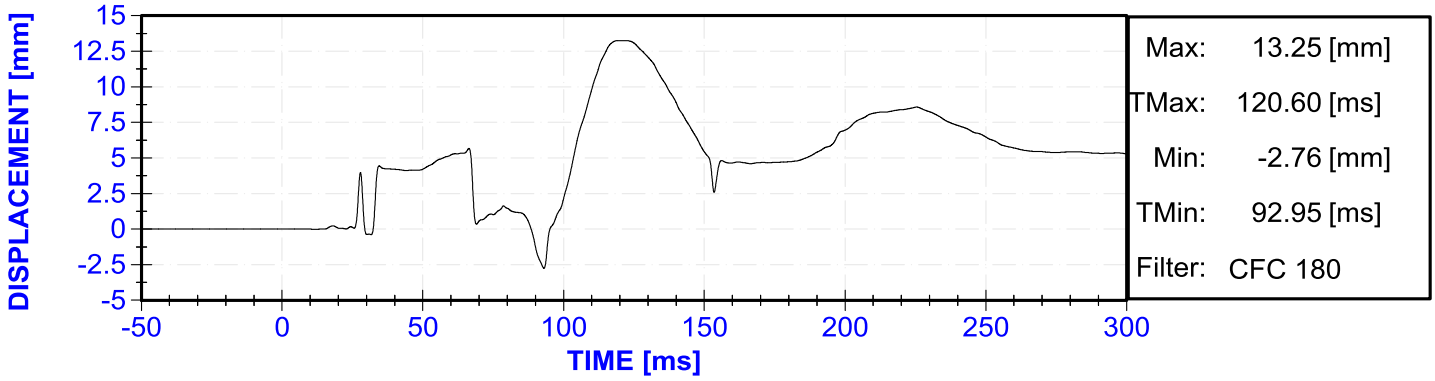


V2P1 Abdomen Right Lower Dy

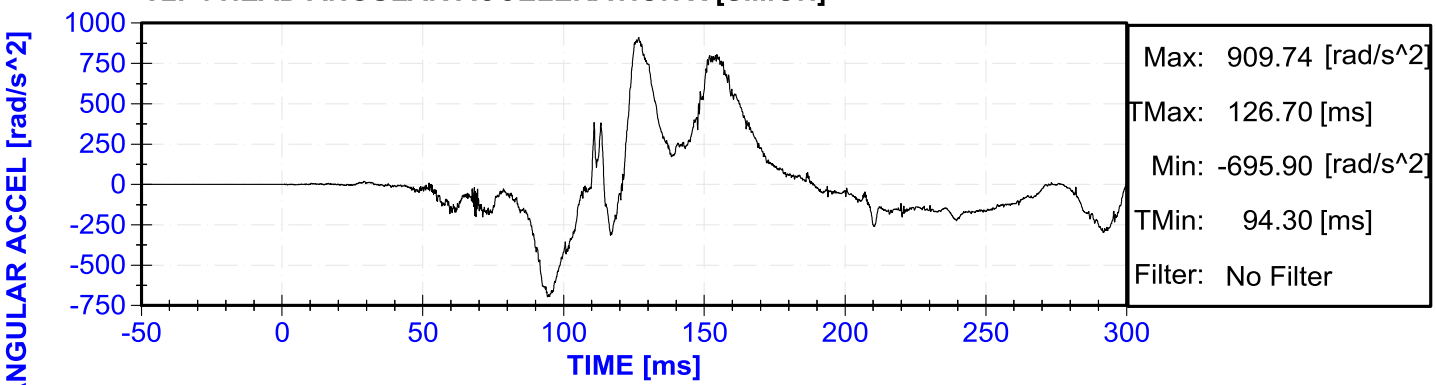
V2P1 ABDR DY HAD QD 28 - 61 MS



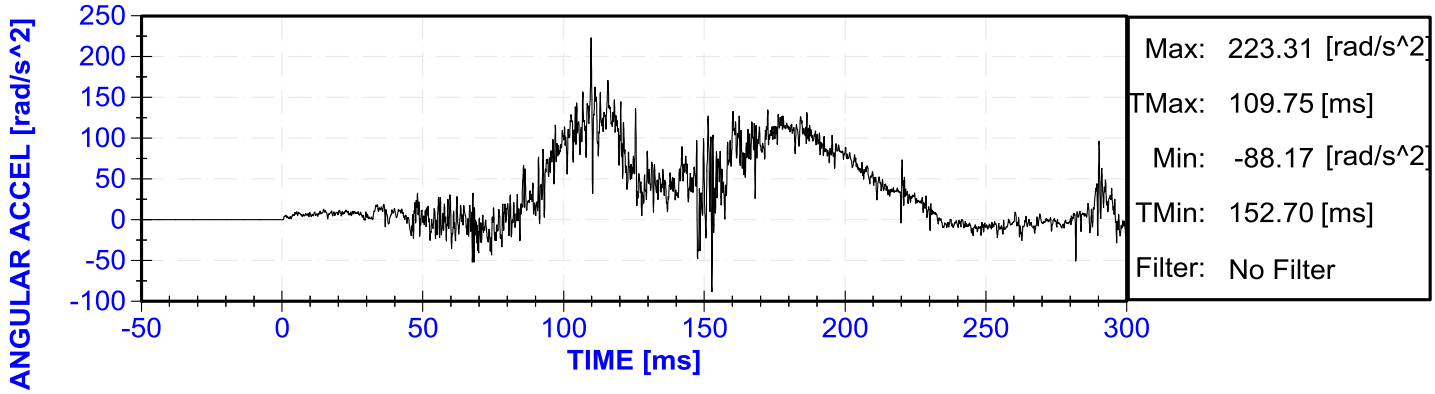
V2P1 Abdomen Right Lower Dz



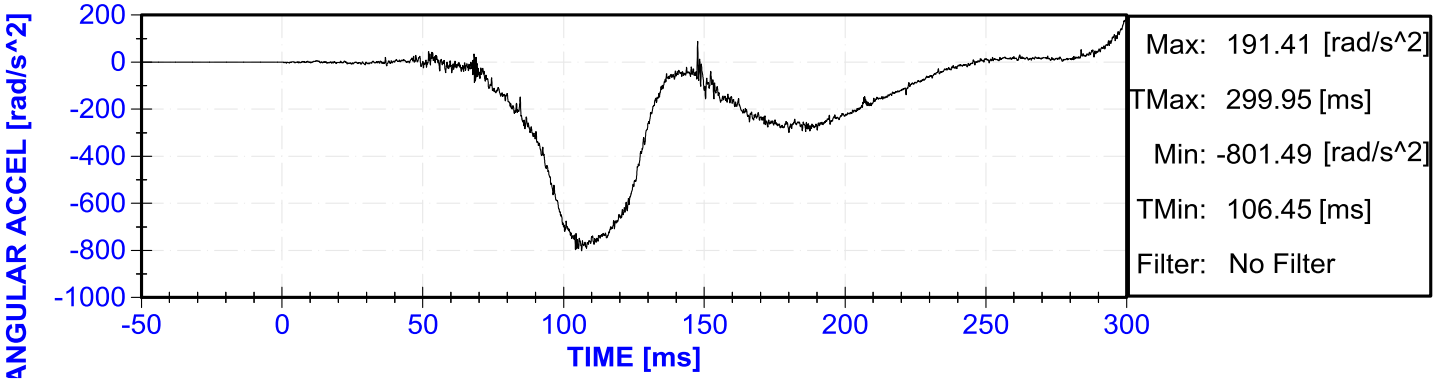
V2P4 HEAD ANGULAR ACCELERATION X [SIMON]



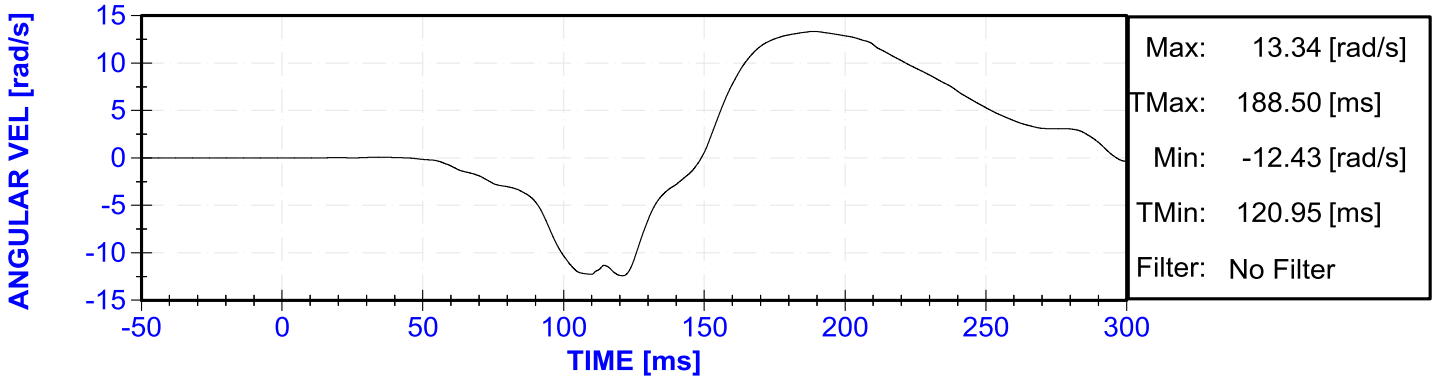
V2P4 HEAD ANGULAR ACCELERATION Y [SIMON]



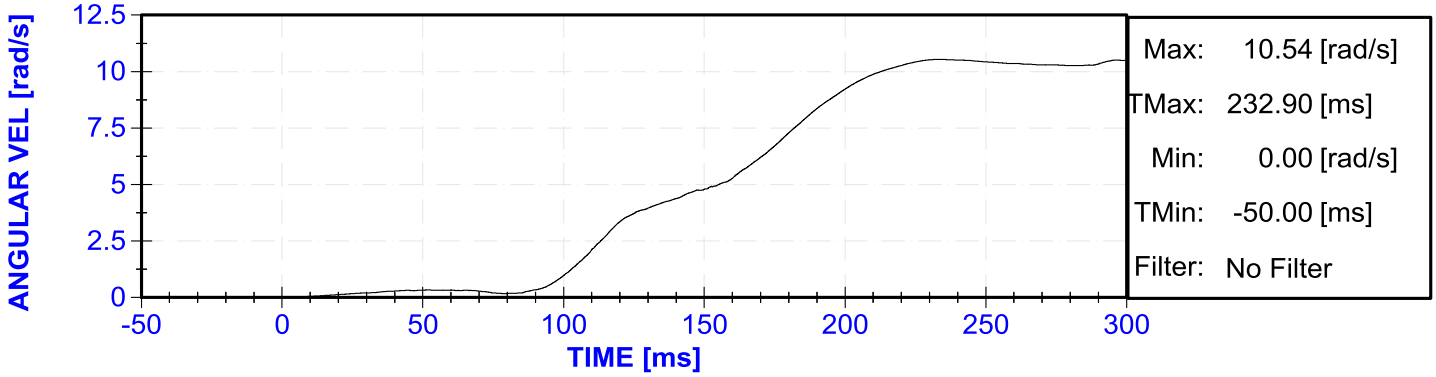
V2P4 HEAD ANGULAR ACCELERATION Z [SIMON]



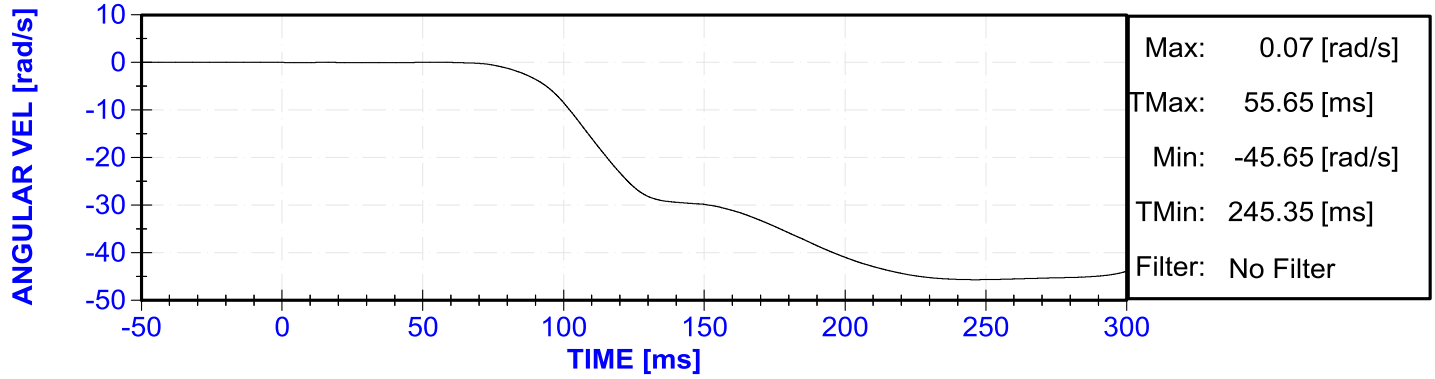
V2P4 HEAD ANGULAR VELOCITY X [SIMON]



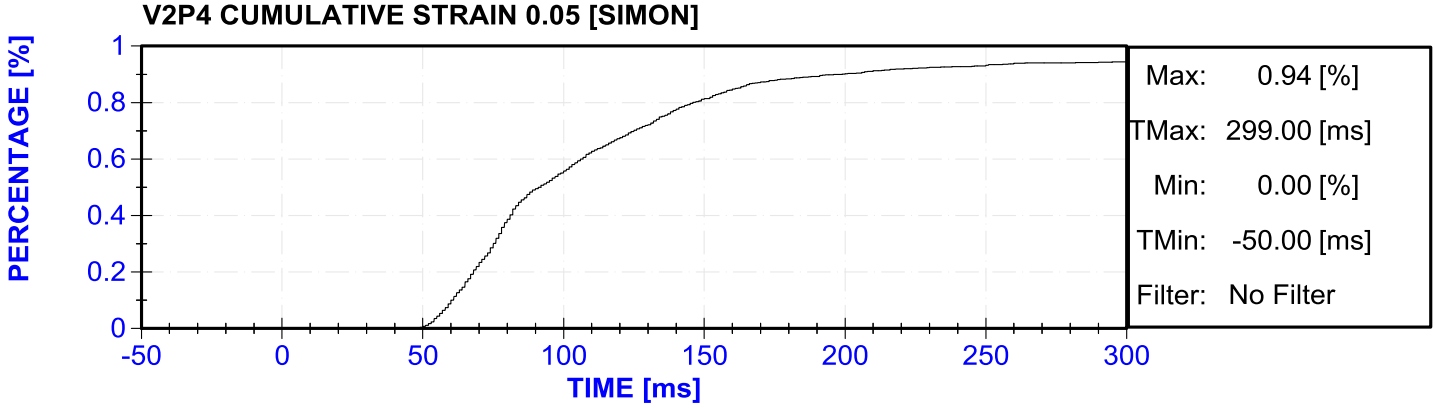
V2P4 HEAD ANGULAR VELOCITY Y [SIMON]



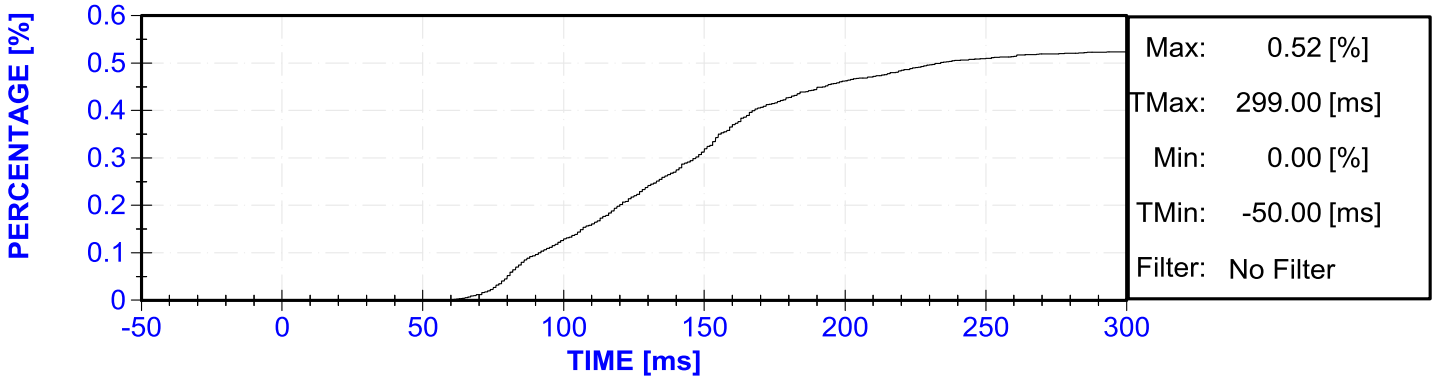
V2P4 HEAD ANGULAR VELOCITY Z [SIMON]



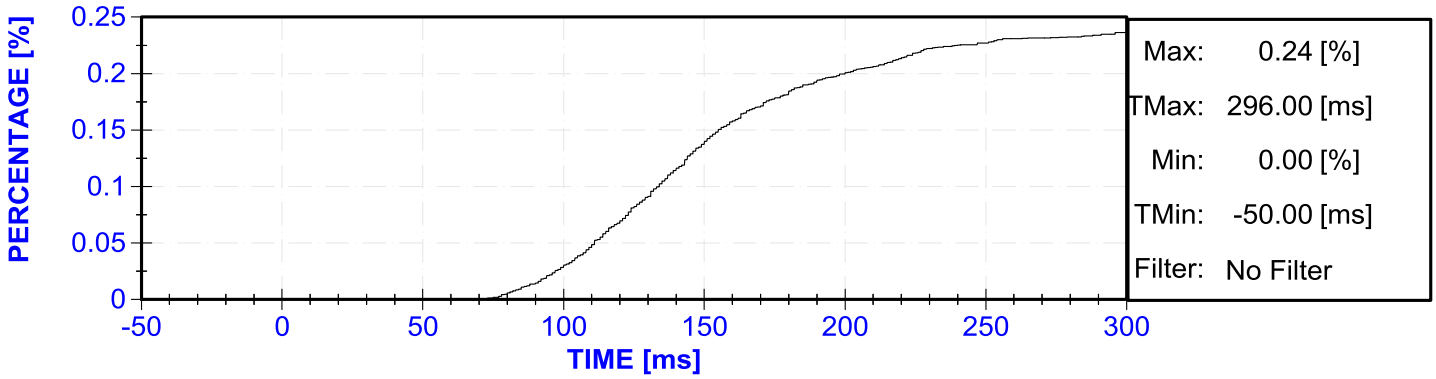
V2P4 CUMULATIVE STRAIN 0.05 [SIMON]



V2P4 CUMULATIVE STRAIN 0.10 [SIMON]



V2P4 CUMULATIVE STRAIN 0.15 [SIMON]



APPENDIX C

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

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Table1	Dummy Information	C-3
Table 2	THOR 6 File Set	C-3
Table 3	THOR Dummy Initial Set-Up Information	C-3
Table 4	THOR Pre-Test Inspection Checklist	C-4
Table 5	THOR Post-Test Inspection Checklist	C-9
	Dummy Calibration Plots	C-14

Table 1 – Dummy Information

TYPE	DESCRIPTION	SERIAL NUMBER
THOR	50TH Male	006
Hybrid III	5th Female	421

Table 2 - THOR-FLX Lower Leg Ankle Potentiometer Channel Bias at 0 degrees:

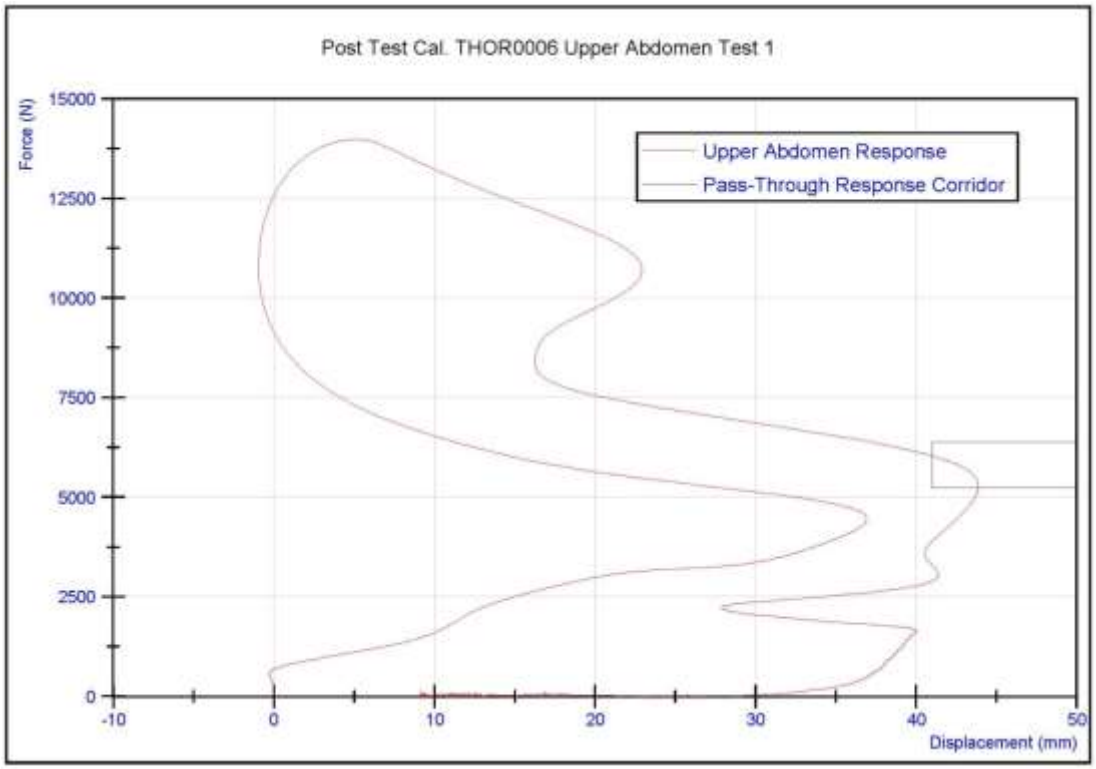
LFTX	LFTY	LFTZ	RFTX	RFTY	RFTZ
Left Ankle X Rotation	Left Ankle Y Rotation	Left Ankle Z Rotation	Right Ankle X Rotation	Right Ankle Y Rotation	Right Ankle Z Rotation
1.4755	13.1133	2.9864	3.0012	8.3459	36.7335

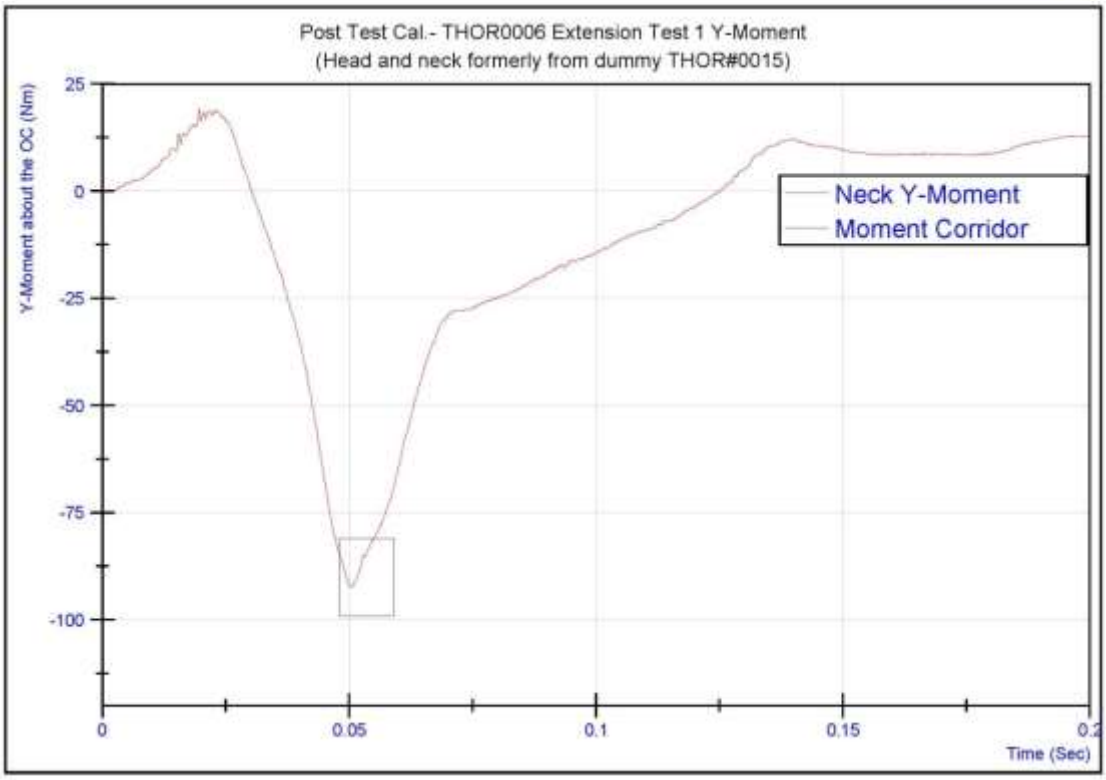
Table 3 - THOR Dummy Initial SetUp Information

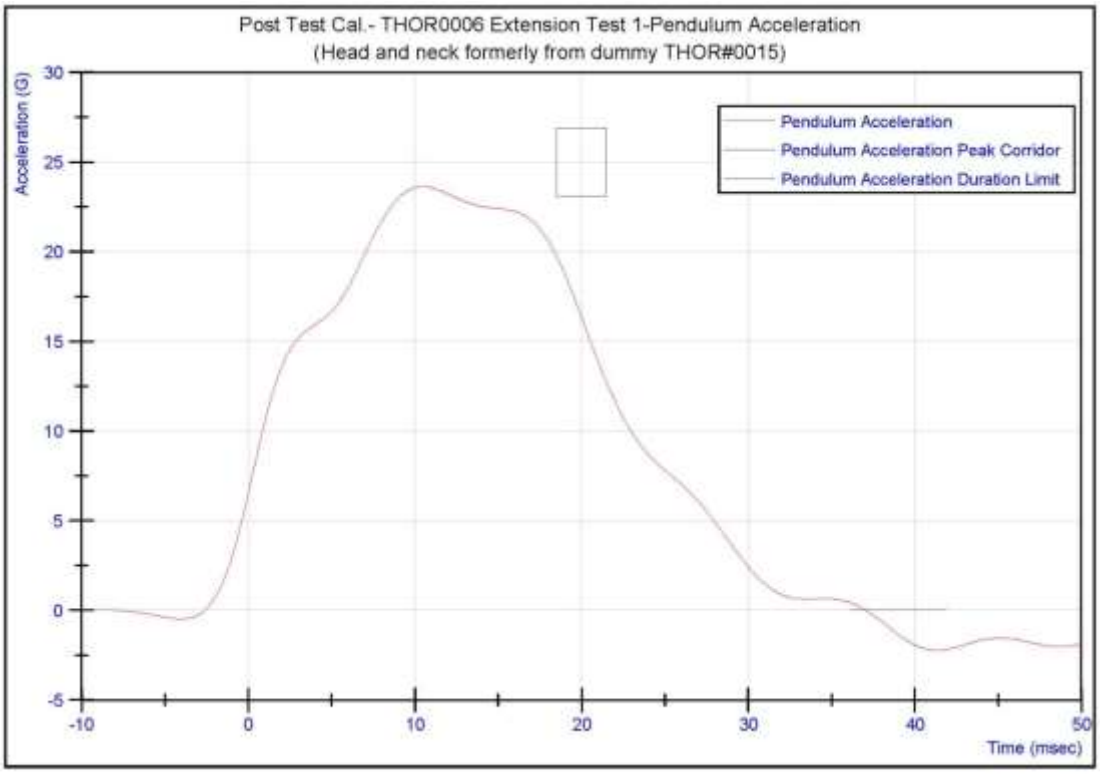
THOR-NT S/N 0006									Sensitivity (JARI)	Sensitivity (GESAC)	Setup Angle (GESAC)
Sensor	**Description /Axis**	**Mfg**	**Capacity**	**Unit-1**	**Unit-2**	**Range**	**Direction**	**CFC**	**V/Unit-1**	**V/Unit-1**	**Degrees**
NKCRP	Occipital Condyle	Contelec S/N 441	318	deg	mV	1000	Rear +	180	3.16653	3.16653	0
Thorax CRUX	Upper Right Base	Contelec S/N 001	318	deg	mV	2000	Rear +	180	3.18451	3.18451	-1.462
Thorax CRUX	Upper Right Mid	Contelec S/N 307	318	deg	mV	2000	Rear +	180	3.1923	3.1923	-88.721
Thorax CRUX	Upper Right Elbow	Contelec S/N 003	318	deg	mV	2000	Rear +	180	3.15174	3.15174	85.449
Thorax CRUX	Upper Left Base	Contelec S/N 040	318	deg	mV	2000	Rear +	180	3.14021	3.14021	-4.697
Thorax CRUX	Upper Left Mid	Contelec S/N 041	318	deg	mV	2000	Rear +	180	3.13326	3.13326	99.189
Thorax CRUX	Upper Left Elbow	Contelec S/N 529	318	deg	mV	2000	Rear +	180	3.14537	3.14537	-91.362
Thorax CRUX	Lower Right Base	Contelec S/N 043	318	deg	mV	2000	Rear +	180	3.1615	3.1615	2.0640
Thorax CRUX	Lower Right Mid	Contelec S/N 706	318	deg	mV	2000	Rear +	180	3.04839	3.04839	70.639
Thorax CRUX	Lower Right Elbow	Contelec S/N 559	318	deg	mV	2000	Rear +	180	3.19115	3.19115	15.895
Thorax CRUX	Lower Left Base	Contelec S/N 023	318	deg	mV	2000	Rear +	180	3.12781	3.12781	6.628
Thorax CRUX	Lower Left Mid	Contelec S/N 357	318	deg	mV	2000	Rear +	180	3.12211	3.12211	-87.755
Thorax CRUX	Lower left Elbow	Contelec S/N 317	318	deg	mV	2000	Rear +	180	3.15098	3.15098	46.700
DGSP	Right Abdomen X	Space-Age S/N 14486	101.6	mm	mV		Rear +	180	9.4366	9.4366	132.99
DGSP	Right Abdomen Y	Contelec S/N 104	318	deg	mV	1000	Rear +	180	2.915	2.915	2.70
DGSP	Right Abdomen Z	Contelec S/N 361	318	deg	mV	1000	Rear +	180	3.12438	3.12438	-20.03
DGSP	Left Abdomen X	Space-Age S/N 256	101.6	mm	mV	10000	Rear +	180	9.37504	9.37504	135.16
DGSP	Left Abdomen Y	Contelec S/N 107	318	deg	mV	1000	Rear +	180	2.922	2.922	-3.48
DGSP	Left Abdomen Z	Contelec S/N 410	318	deg	mV	1000	Rear +	180	3.19551	3.19551	-3.27

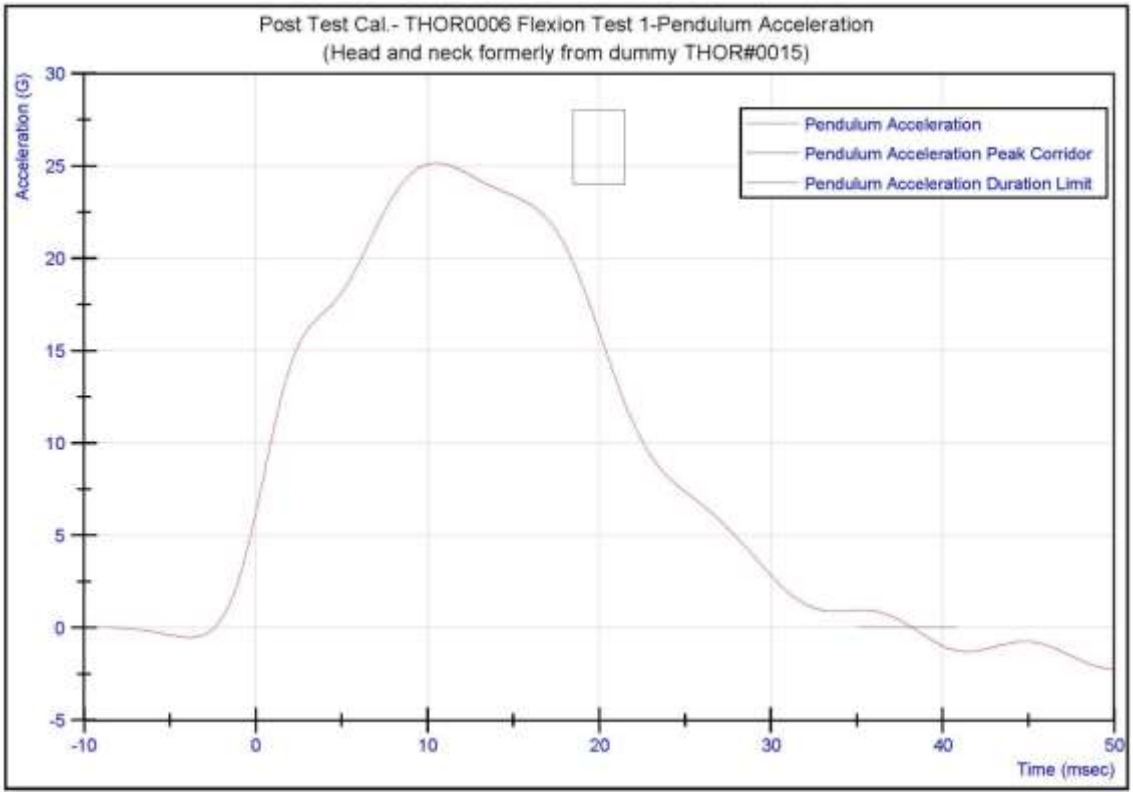
Table 4&5 – Pre and Post Test Thor Inspection was not required for this test as per SOW

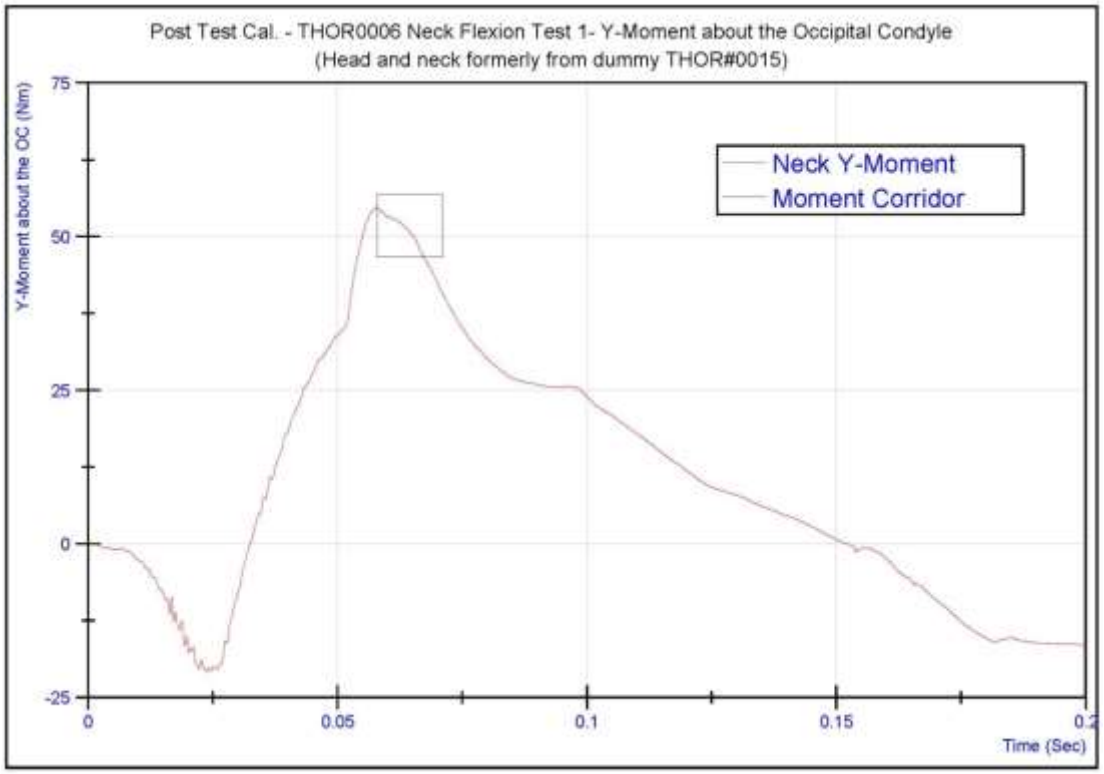
Dummy Calibration Plots

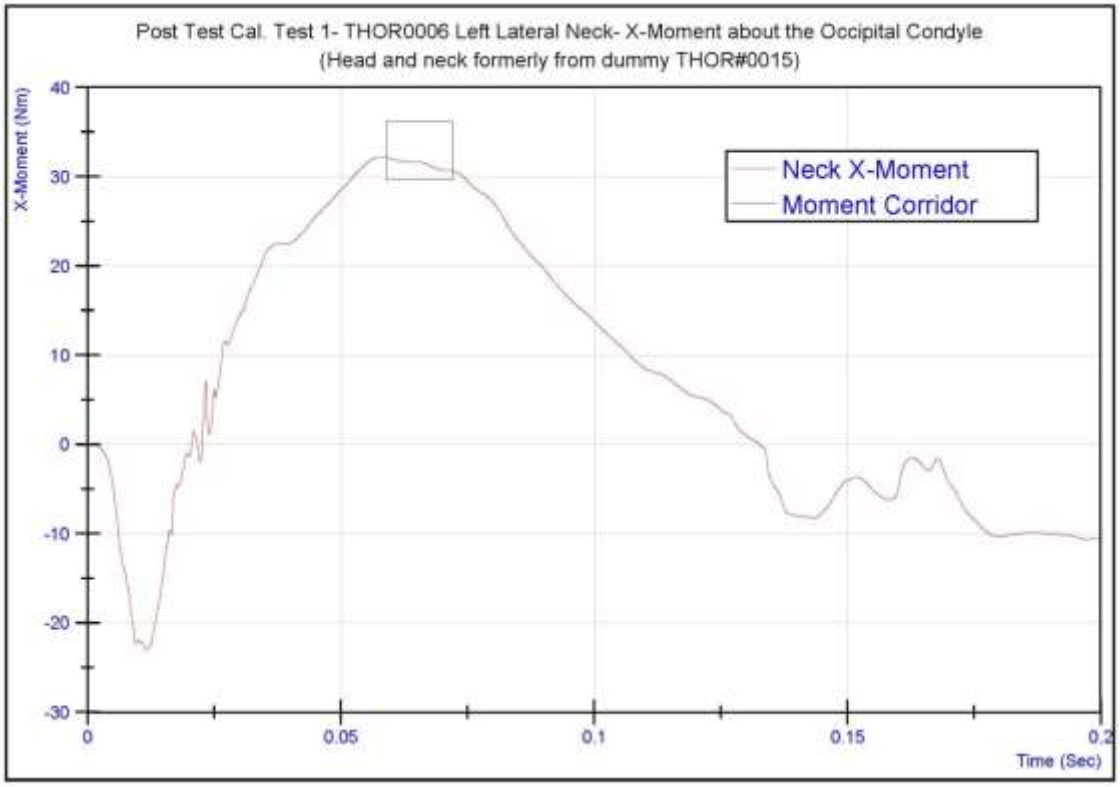

Post Test Cal. THOR0006 Upper Abdomen Test 1
Force (N)
15000
12500
10000
7500
5000
2500
0
-10
0
10
20
30
40
50
Displacement (mm)
Upper Abdomen Response
Pass-Through Response Corridor

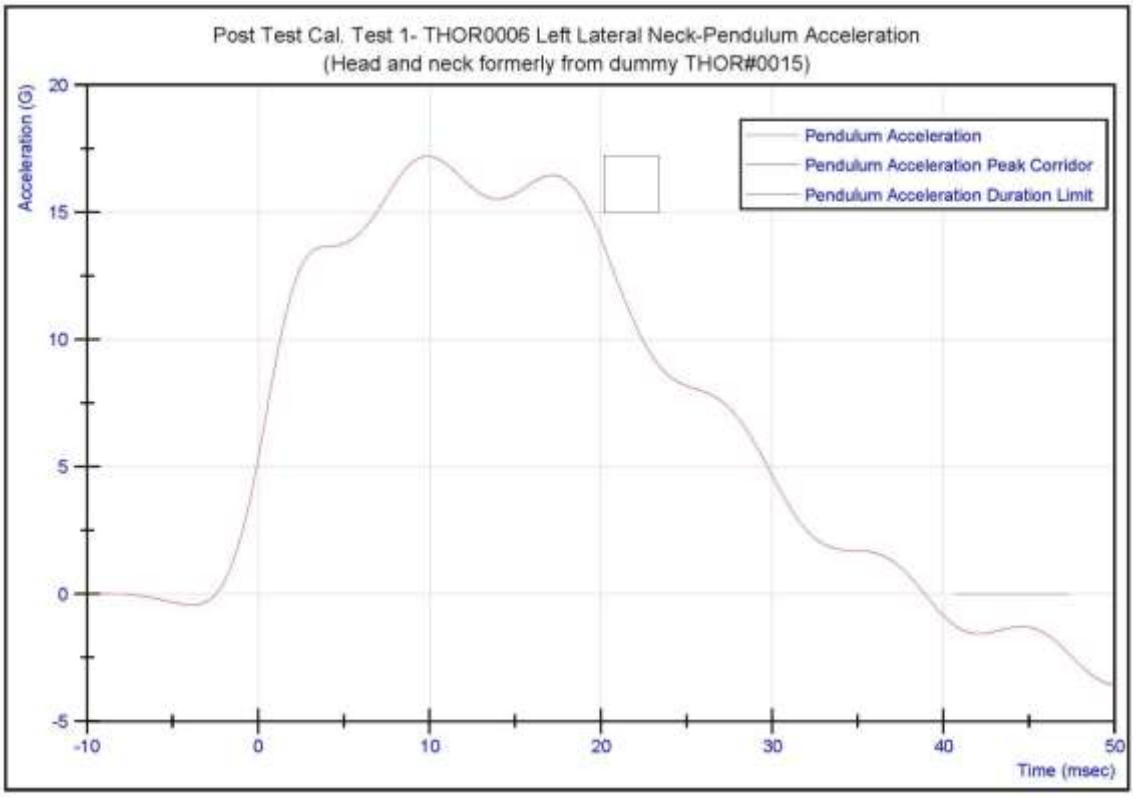

Post Test Cal.- THOR0006 Extension Test 1 Y-Moment
(Head and neck formerly from dummy THOR#0015)
Y-Moment about the OC (Nm)
25
0
-25
-50
-75
-100
0
0.05
0.1
0.15
Time (Sec)
Neck Y-Moment
Moment Corridor

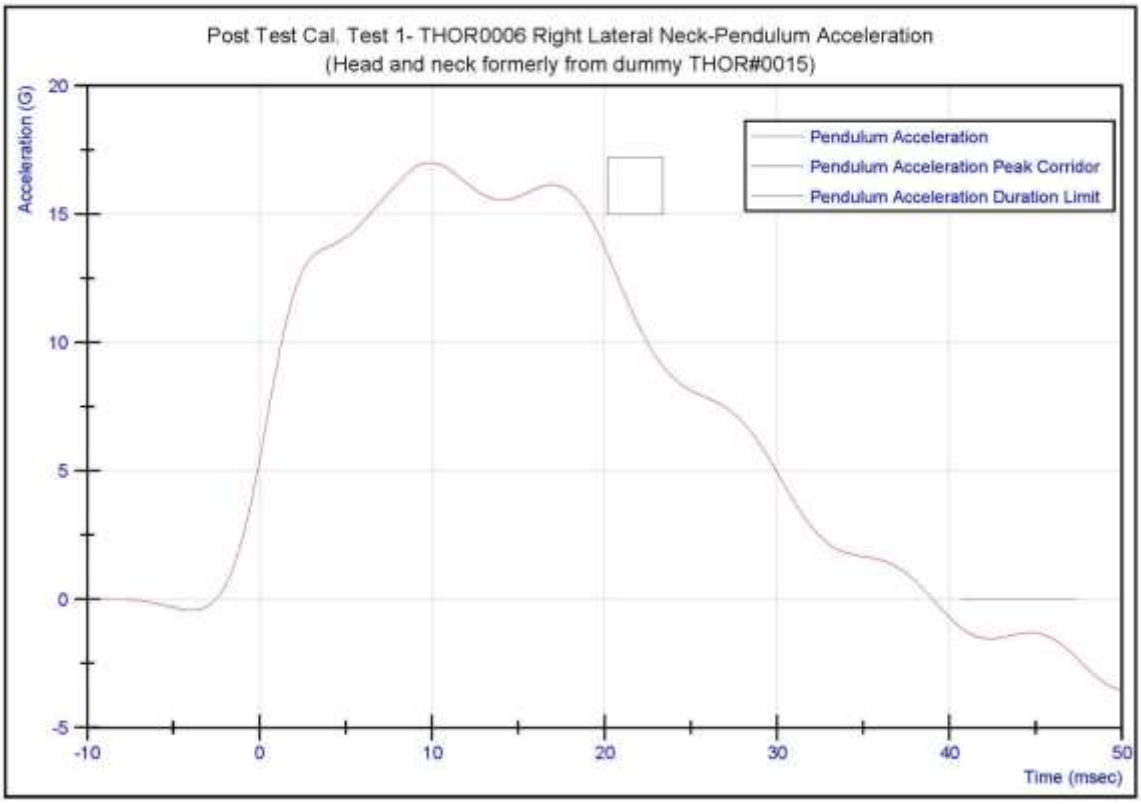

Post Test Cal.- THOR0006 Extension Test 1-Pendulum Acceleration
(Head and neck formerly from dummy THOR#0015)
Acceleration (G)
30
25
20
15
10
5
0
-5
-10
0
10
20
30
40
50
Time (msec)
Pendulum Acceleration
Pendulum Acceleration Peak Corridor
Pendulum Acceleration Duration Limit

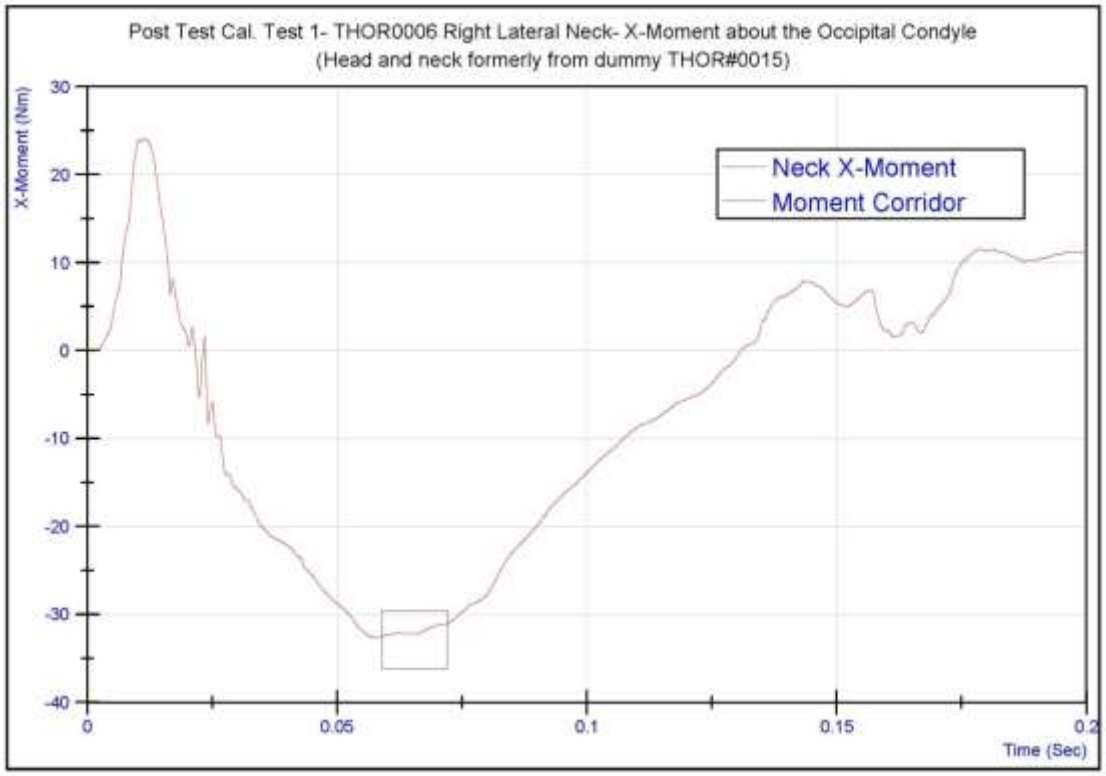

Post Test Cal.- THOR0006 Flexion Test 1-Pendulum Acceleration
(Head and neck formerly from dummy THOR#0015)
Acceleration (G)
30
25
20
15
10
5
0
-5
-10
0
10
20
30
40
50
Time (msec)
Pendulum Acceleration
Pendulum Acceleration Peak Corridor
Pendulum Acceleration Duration Limit

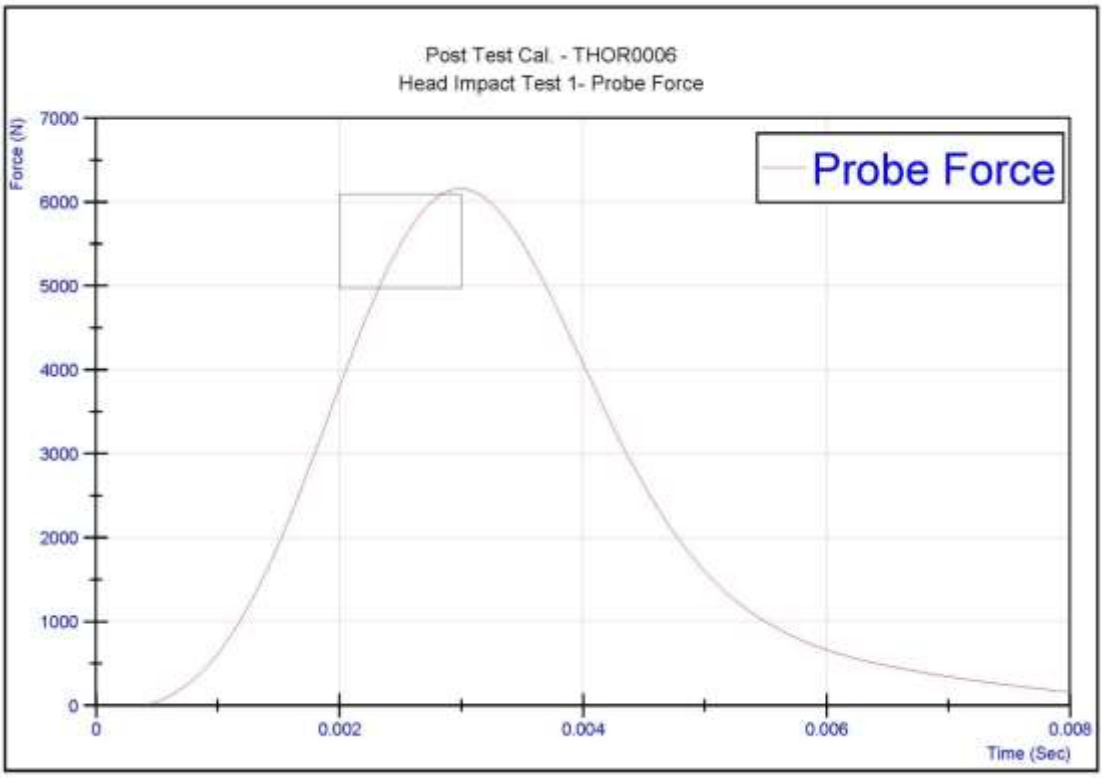

Post Test Cal. - THOR0006 Neck Flexion Test 1- Y-Moment about the Occipital Condyle
(Head and neck formerly from dummy THOR#0015)
Y-Moment about the OC (Nm)
75
50
25
0
-25
0
0.05
0.1
0.15
0.2
Time (Sec)
Neck Y-Moment
Moment Corridor


Post Test Cal. Test 1- THOR0006 Left Lateral Neck- X-Moment about the Occipital Condyle
(Head and neck formerly from dummy THOR#0015)
X-Moment (Nm)
40
30
20
10
0
-10
-20
-30
0
0.05
0.1
0.15
0.2
Time (Sec)
Neck X-Moment
Moment Corridor

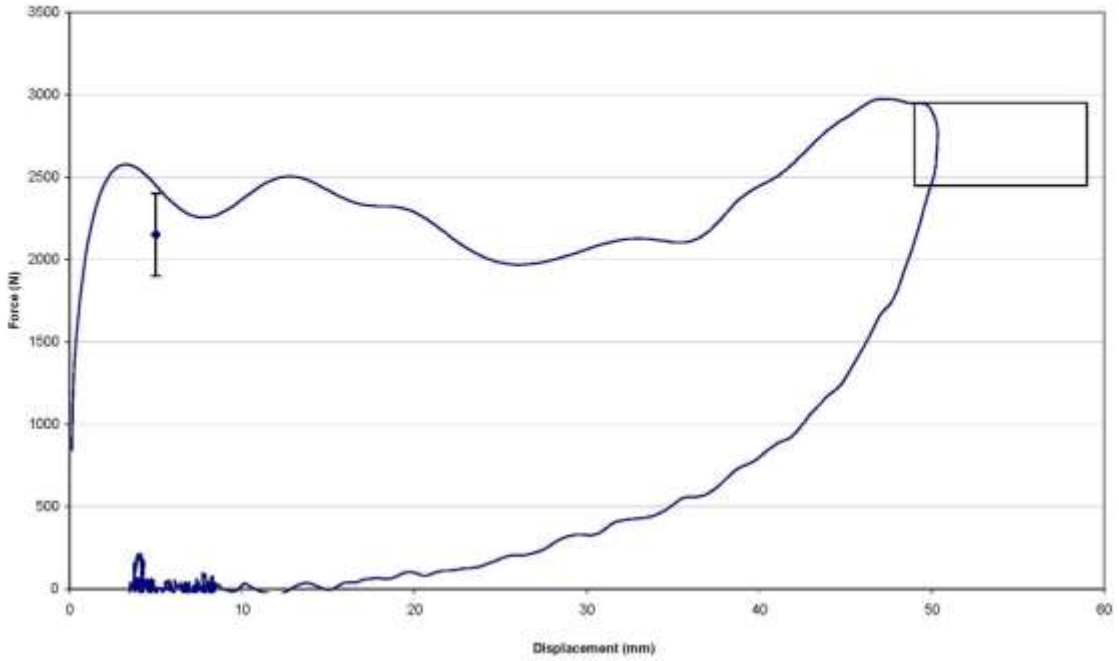

Post Test Cal. Test 1- THOR0006 Left Lateral Neck-Pendulum Acceleration
(Head and neck formerly from dummy THOR#0015)
Acceleration (G)
20
15
10
5
0
-5
-10
0
10
20
30
40
50
Time (msec)
Pendulum Acceleration
Pendulum Acceleration Peak Corridor
Pendulum Acceleration Duration Limit


Post Test Cal. Test 1- THOR0006 Right Lateral Neck-Pendulum Acceleration
(Head and neck formerly from dummy THOR#0015)
Acceleration (G)
20
15
10
5
0
-5
-10
0
10
20
30
40
50
Time (msec)
Pendulum Acceleration
Pendulum Acceleration Peak Corridor
Pendulum Acceleration Duration Limit

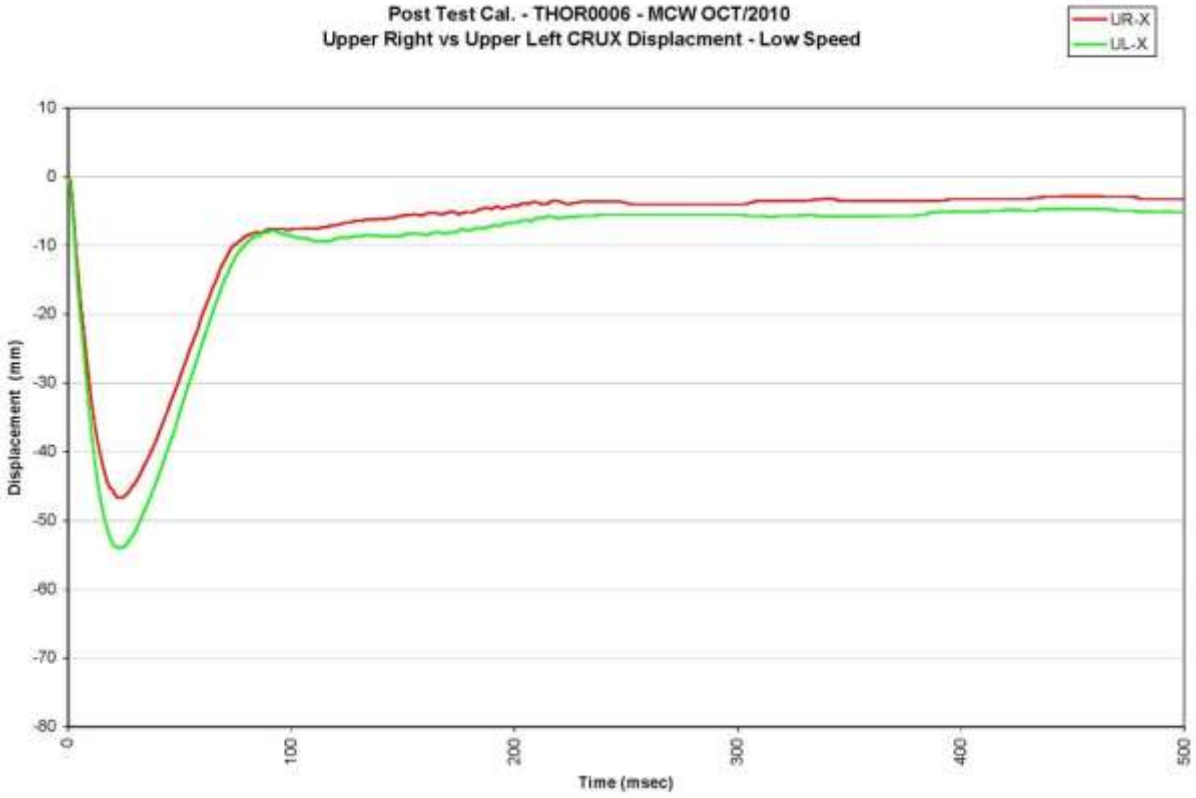

Post Test Cal. Test 1- THOR0006 Right Lateral Neck- X-Moment about the Occipital Condyle
(Head and neck formerly from dummy THOR#0015)
X-Moment (Nm)
30
20
10
0
-10
-20
-30
-40
0
0.05
0.1
0.15
0.2
Time (Sec)
Neck X-Moment
Moment Corridor


Post Test Cal. - THOR0006
Head Impact Test 1- Probe Force
Force (N)
7000
6000
5000
4000
3000
2000
1000
0
0
0.002
0.004
0.006
0.008
Time (Sec)
Probe Force

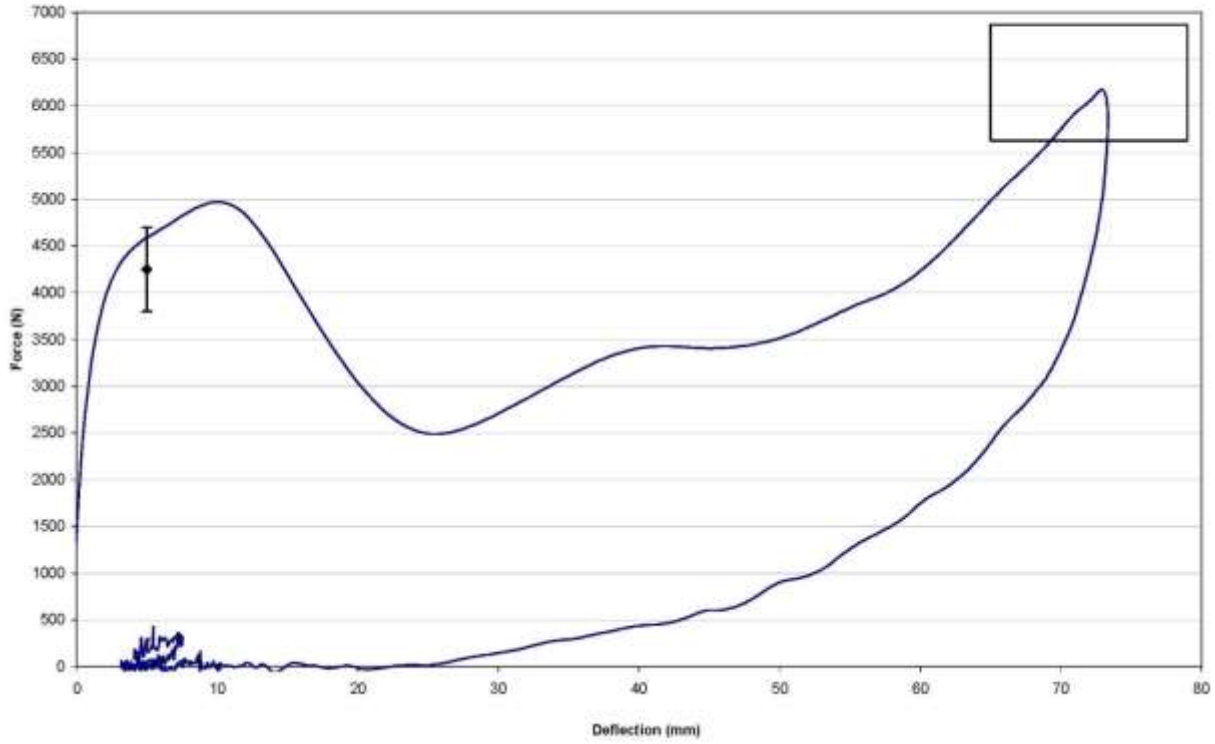
Post Test Cal. - THOR0006 - MCW OCT/2010
Upper Thorax Kroell Response - Low Speed



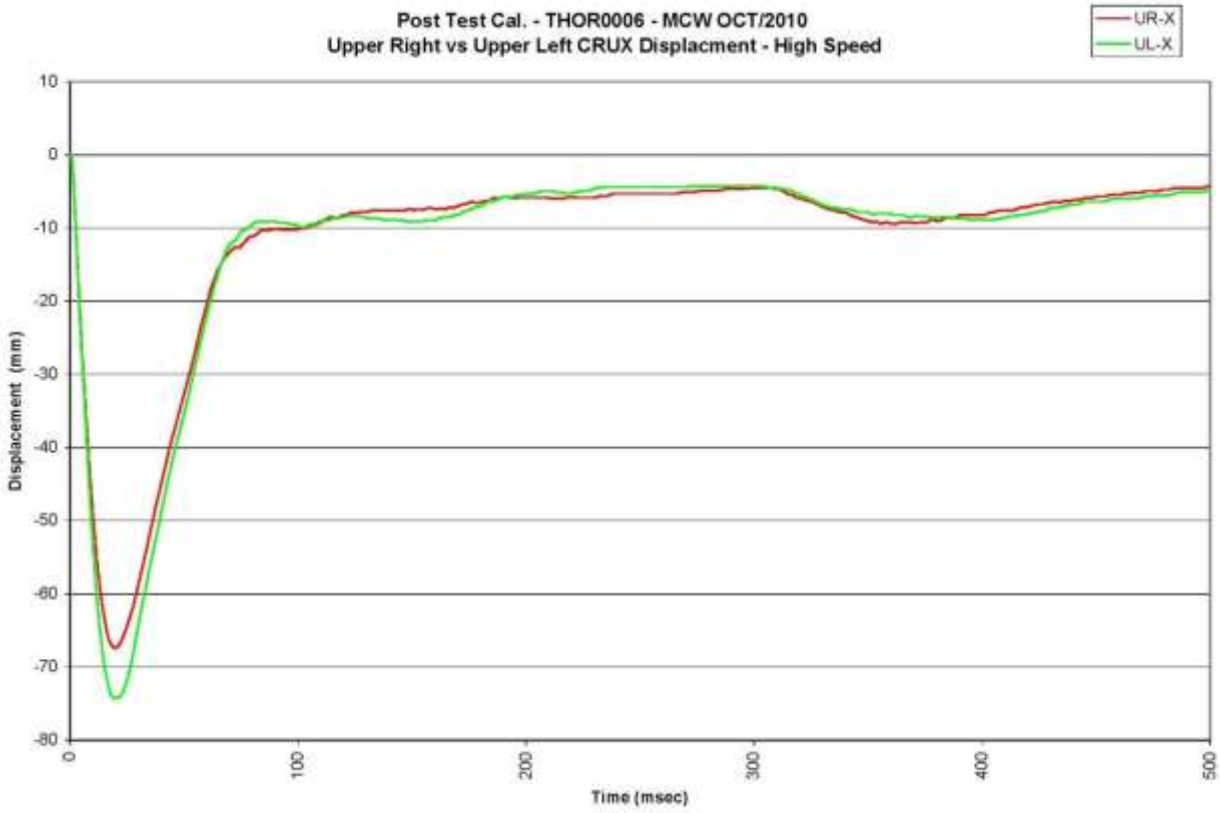
Post Test Cal. - THOR0006 - MCW OCT/2010
Upper Right vs Upper Left CRUX Displacment - Low Speed



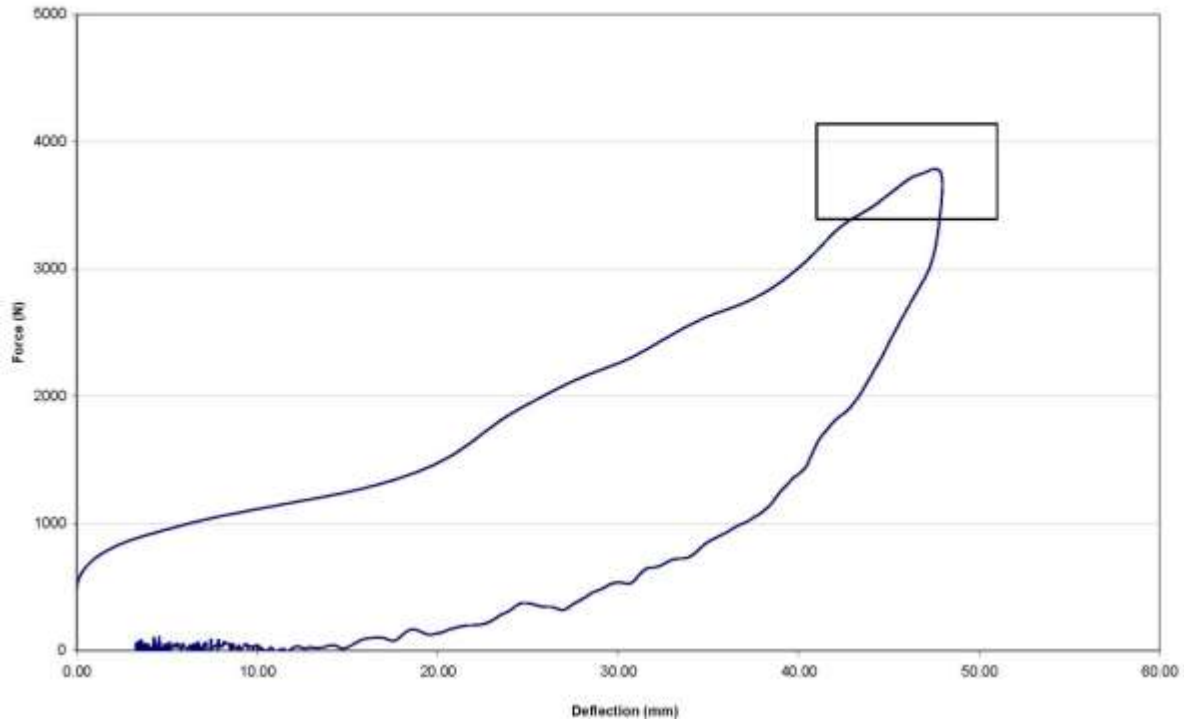
Post Test Cal. - THOR0006 - MCW OCT/2010
Upper Thorax Kroell Response - High Speed



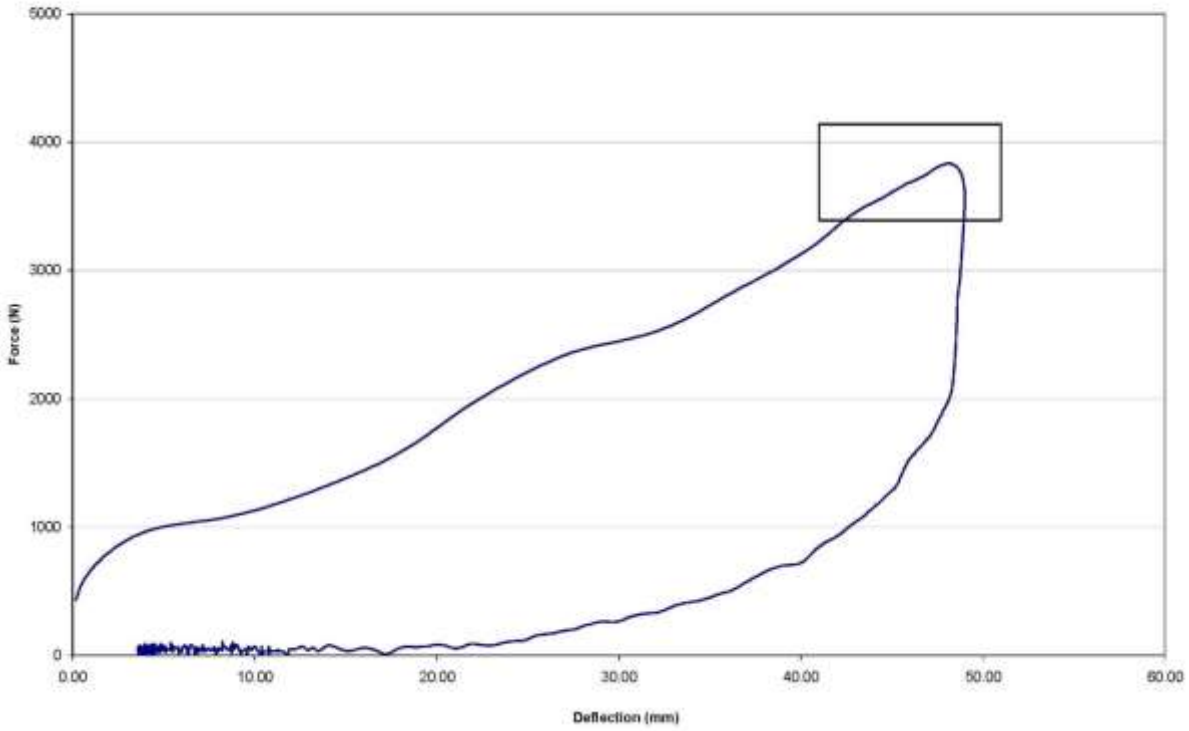
Post Test Cal. - THOR0006 - MCW OCT/2010
Upper Right vs Upper Left CRUX Displacment - High Speed

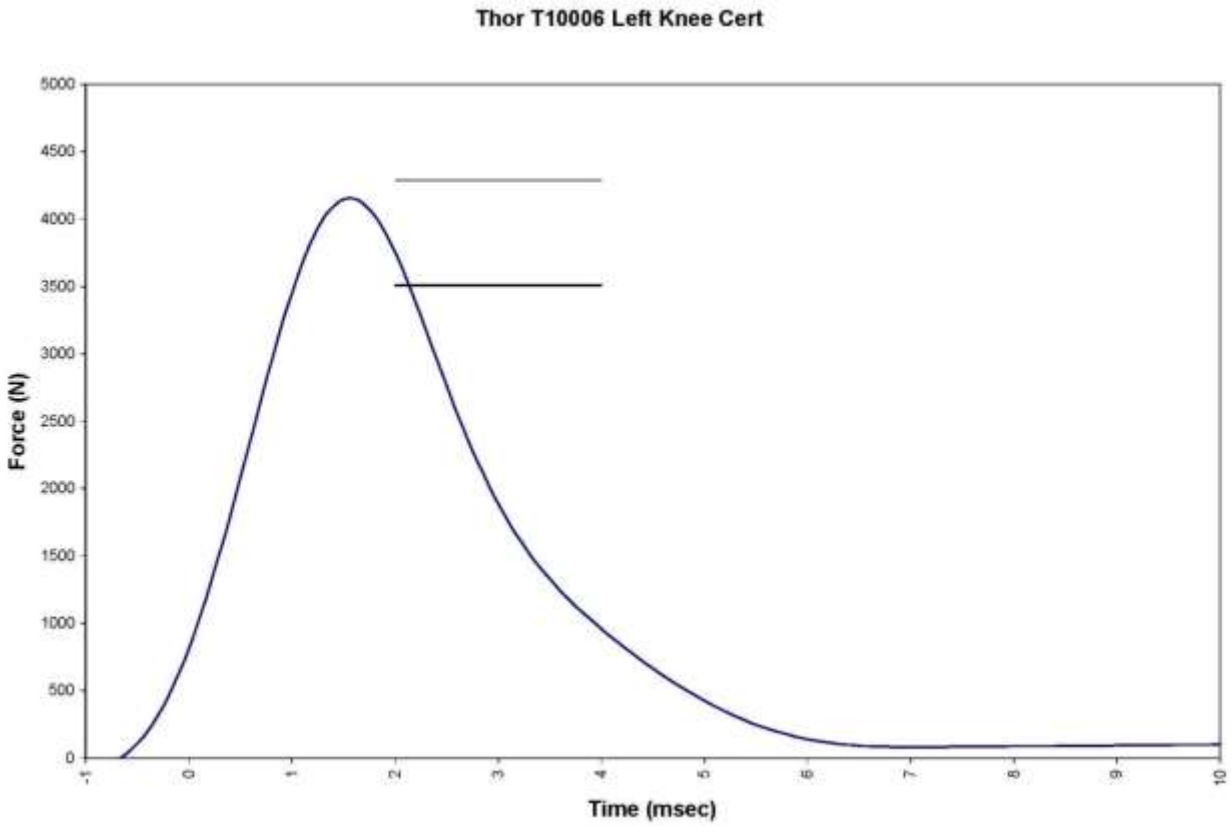


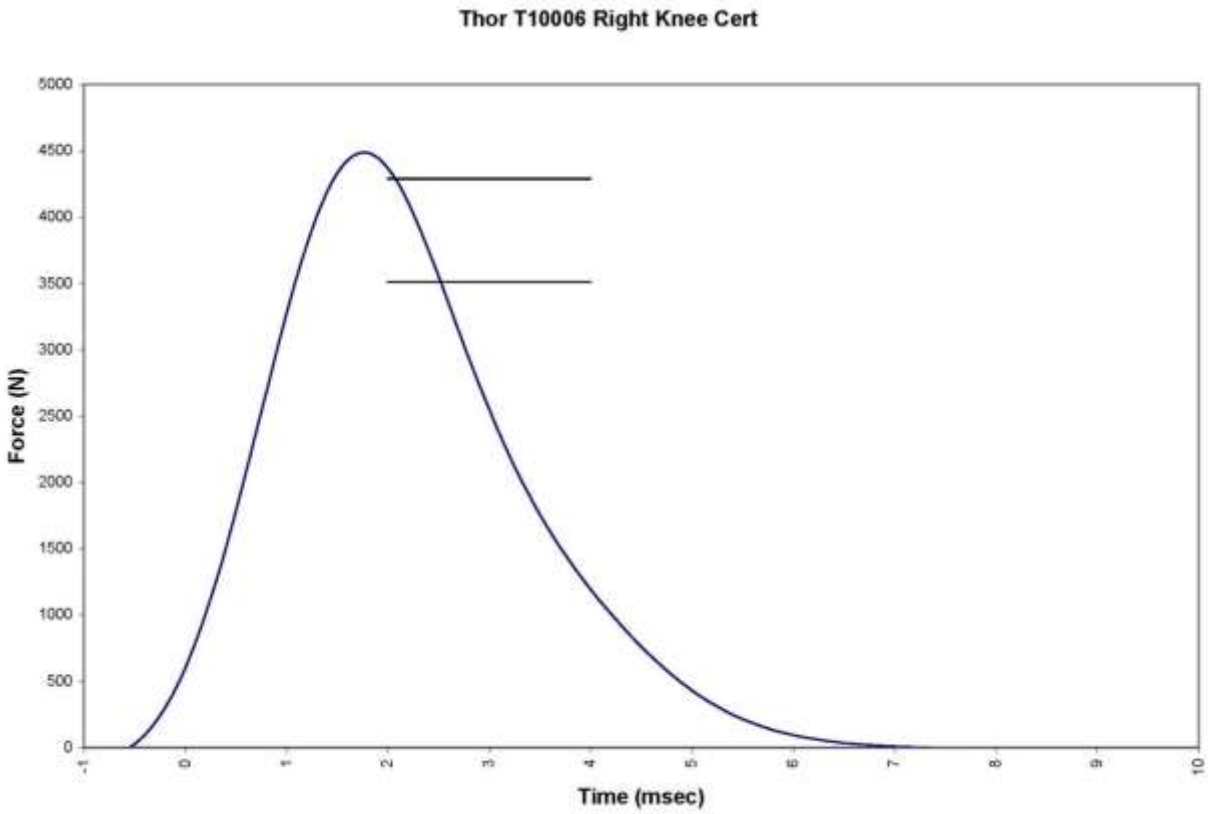
Post Test Cal. - THOR0006
Lower Left 15 Degree Oblique Thorax Response- MCW - OCT2010



Post Test Cal. - THOR0006
Lower Right 15 Degree Oblique Thorax Response- MCW - OCT2010

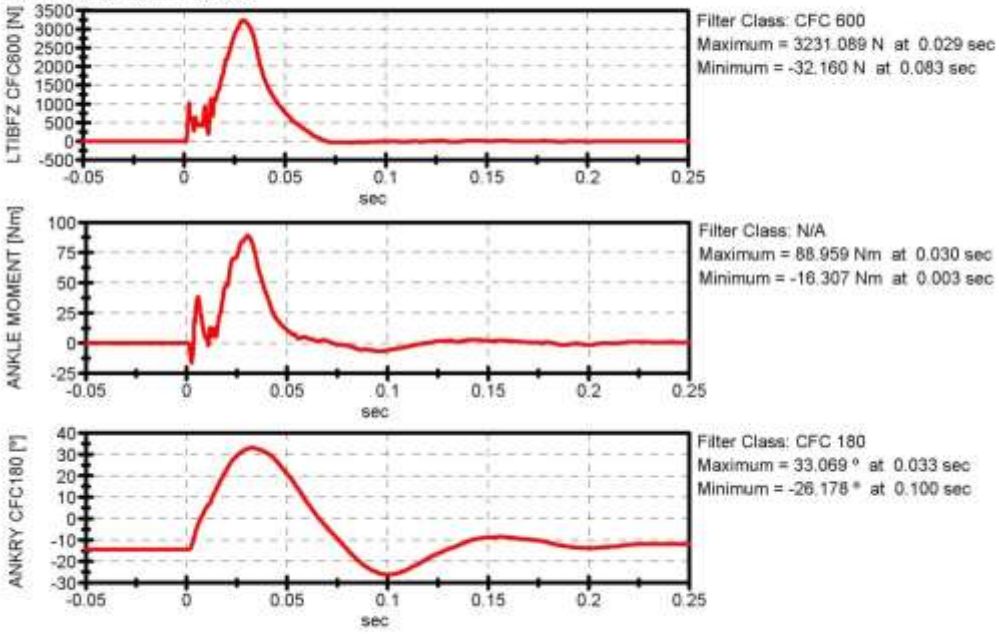




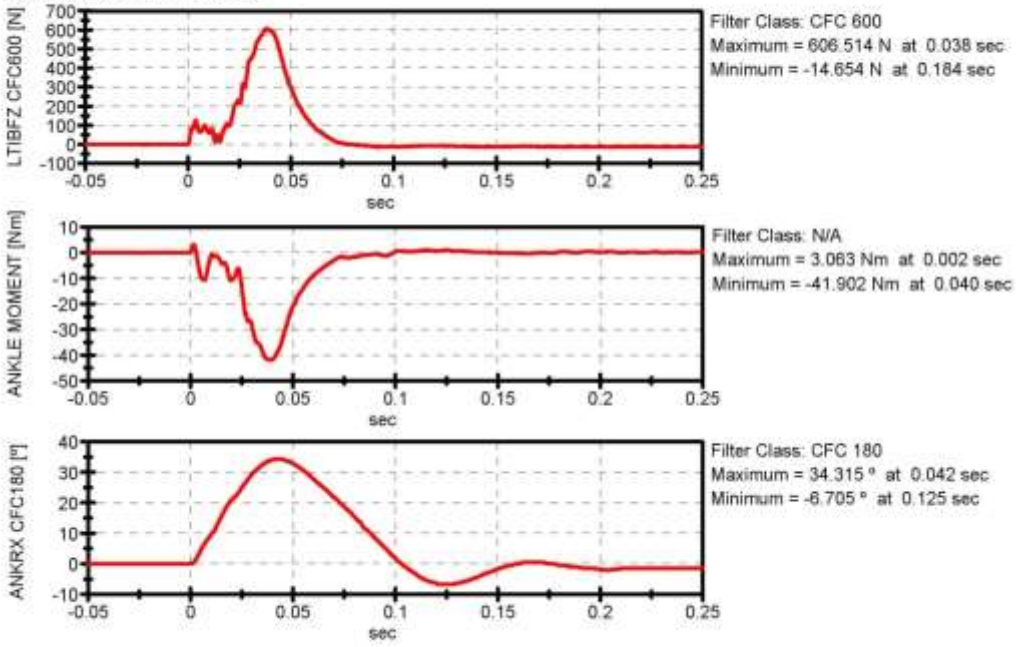


LEG S/N: LX103 / LX104

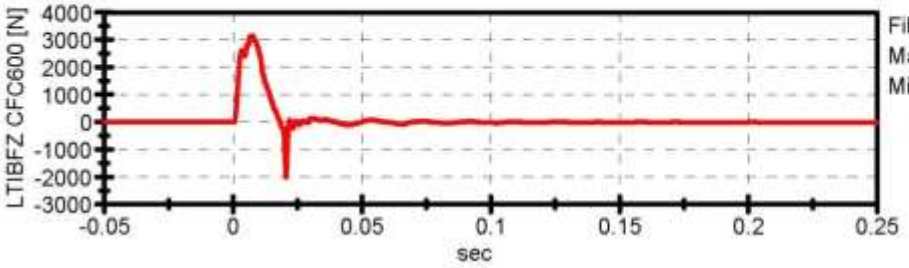
Test Performer: Vehicle Research and Test Center
Test Type: Dorsiflexion/Ball of Foot
Test Name: LX103R_2011_07_12_DORSI_01
Test Date: 12.07.2011 13:03:52



Test Performer: Vehicle Research and Test Center
Test Type: Eversion
Test Name: LX103R_2011_07_12_EVER_01
Test Date: 12.07.2011 14:00:09

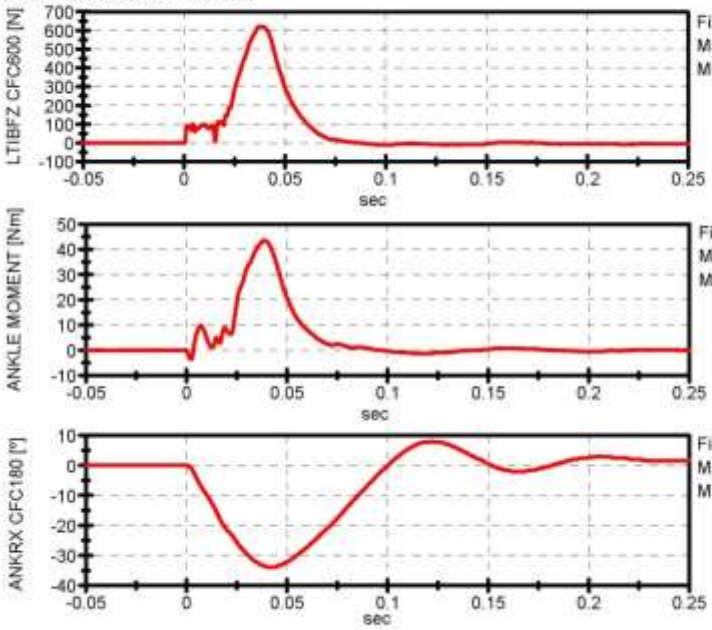


Test Performer: Vehicle Research and Test Center
Test Type: Heel of Foot
Test Name: LX103R_2011_07_12_HEEL_01
Test Date: 12.07.2011 12:23:32



Filter Class: CFC 600
Maximum = 3140.967 N at 0.008 sec
Minimum = -2014.830 N at 0.021 sec

Test Performer: Vehicle Research and Test Center
Test Type: Inversion
Test Name: LX103R_2011_07_12_INVER_01
Test Date: 12.07.2011 13:33:12

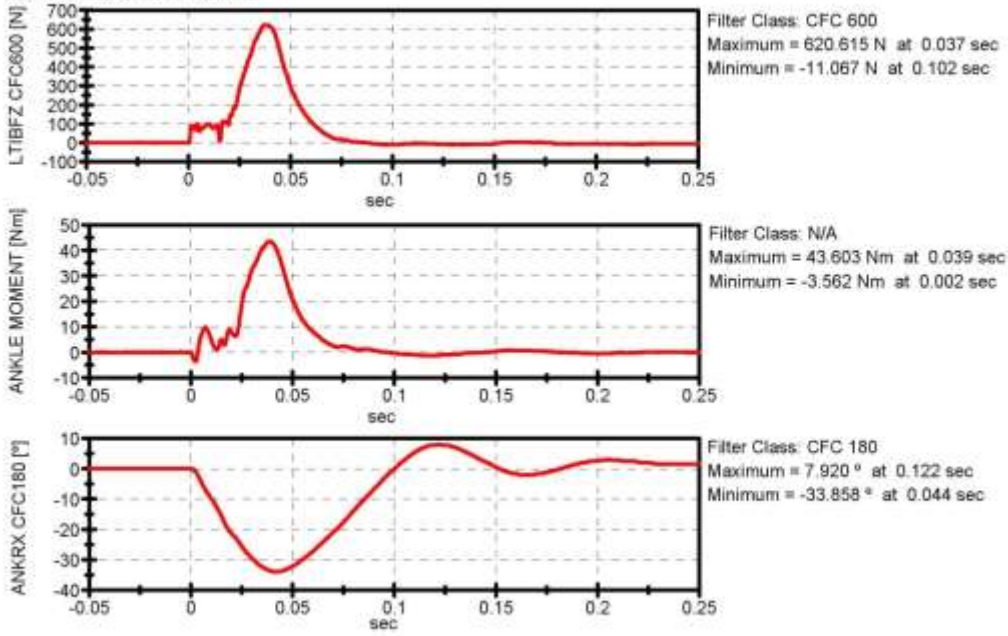


Filter Class: CFC 600
Maximum = 620.615 N at 0.037 sec
Minimum = -11.067 N at 0.102 sec

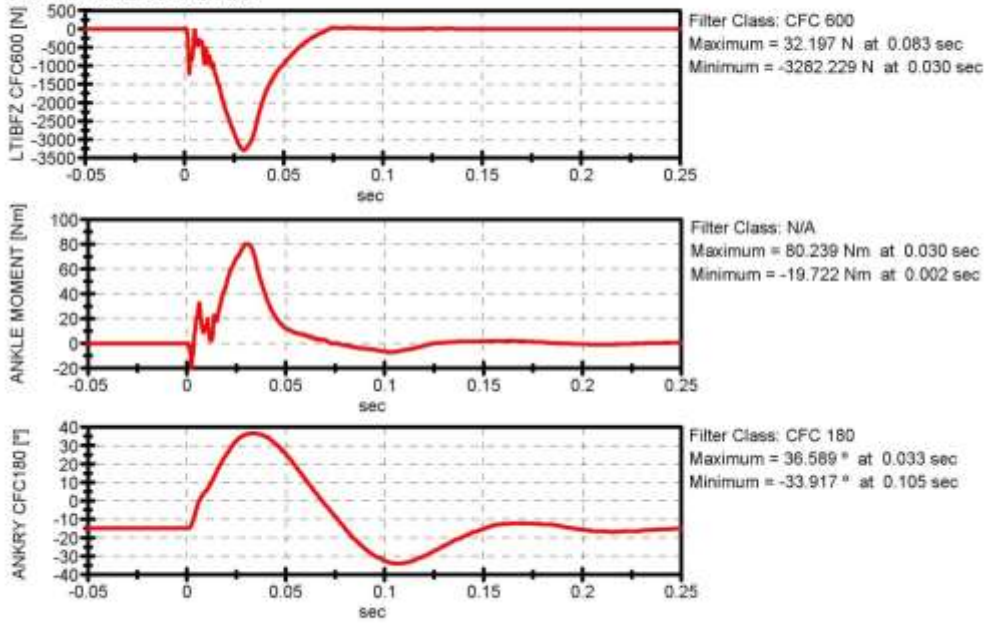
Filter Class: N/A
Maximum = 43.603 Nm at 0.039 sec
Minimum = -3.562 Nm at 0.002 sec

Filter Class: CFC 180
Maximum = 7.920 ° at 0.122 sec
Minimum = -33.858 ° at 0.044 sec

Test Performer: Vehicle Research and Test Center
Test Type: Inversion
Test Name: LX103R_2011_07_12_INVER_01
Test Date: 12.07.2011 13:33:12



Test Performer: Vehicle Research and Test Center
Test Type: Dorsiflexion/Ball of Foot
Test Name: LX104L_2011_07_11_DORSI_02
Test Date: 12.07.2011 07:30:24



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Test Type: Eversion
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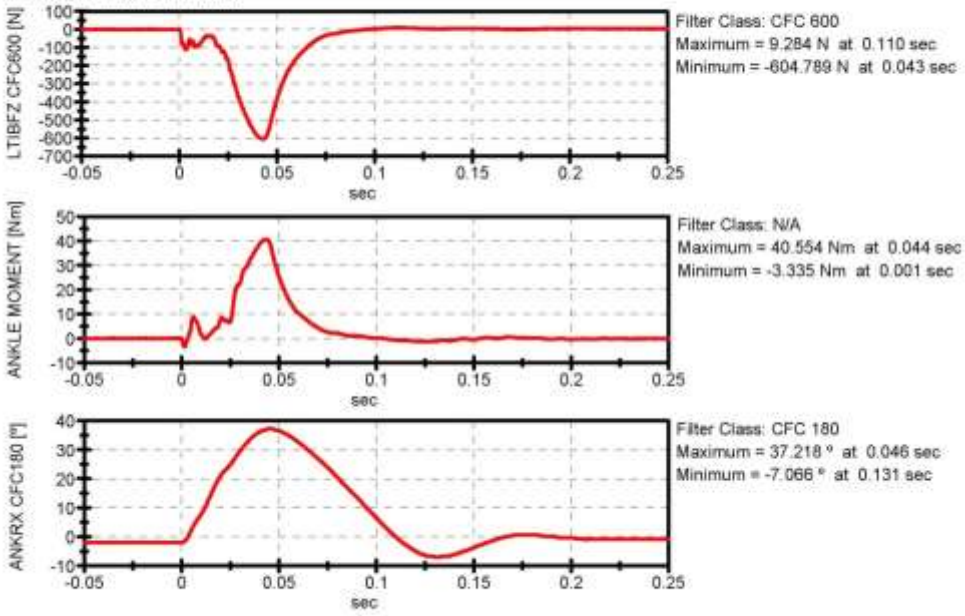
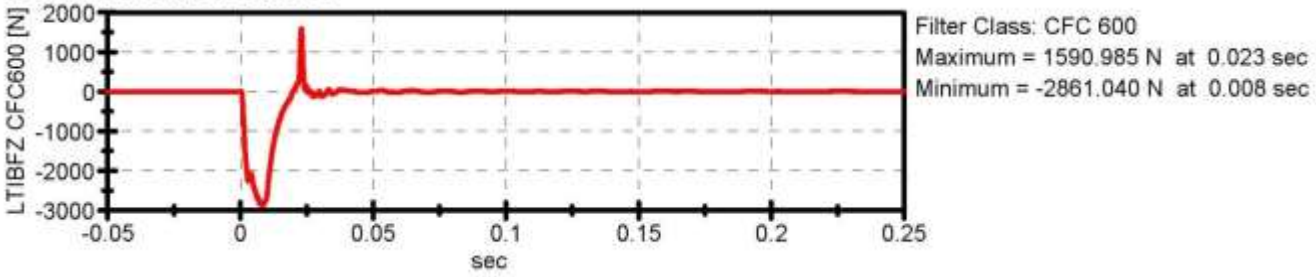
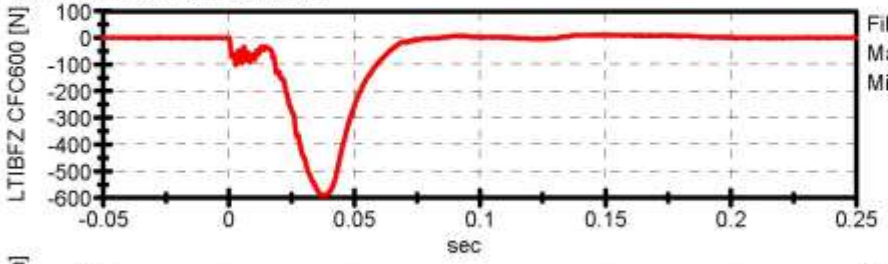
Test Date: 12.07.2011 08:58:27



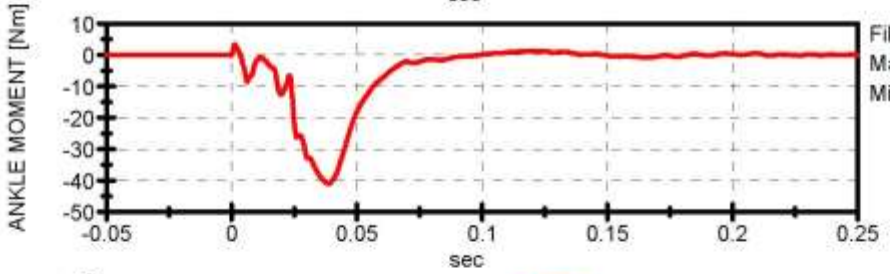
Test Performer: Vehicle Research and Test Center
Test Type: Heel of Foot
Test Name: LX104L_2011_07_12_HEEL_01
Test Date: 12.07.2011 10:26:09



Test Performer: Vehicle Research and Test Center
Test Type: Inversion
Test Name: LX104L_2011_07_12_INVER_01
Test Date: 12.07.2011 08:18:46



Filter Class: CFC 600
Maximum = 10.894 N at 0.152 sec
Minimum = -589.823 N at 0.038 sec



Filter Class: N/A
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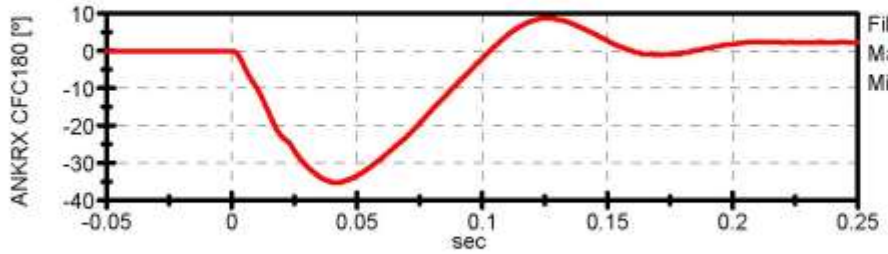
Minimum = -40.998 Nm at 0.039 sec



Filter Class: CFC 180
Maximum = 8.754 ° at 0.125 sec
Minimum = -35.243 ° at 0.041 sec

APPENDIX D:

Positioning Procedure for rear seat Part 572O 5th female ATD

The rear seat 5th female was positioned using a combination of the FMVSS 214D side impact and FMVSS 208 seating procedures.

The lateral seat centerline was determined by following the FMVSS 214D seating procedures for the rear seat.. Once the Part 572O 5th female dummy was located on the lateral centerline, the dummy was positioned following FMVSS 208 as if would be if it were in the front seating position. The legs would be positioned at the 120 degree angle and the pelvis would be pushed back against the seatback until the calves contacted the seat cushion. If the seatback was adjustable, the seatback would be raised to level the head. The 5th female dummy used in this test series had a lower neck transducer which prevented using the neck bracket as an adjustment to level the head.

APPENDIX E:

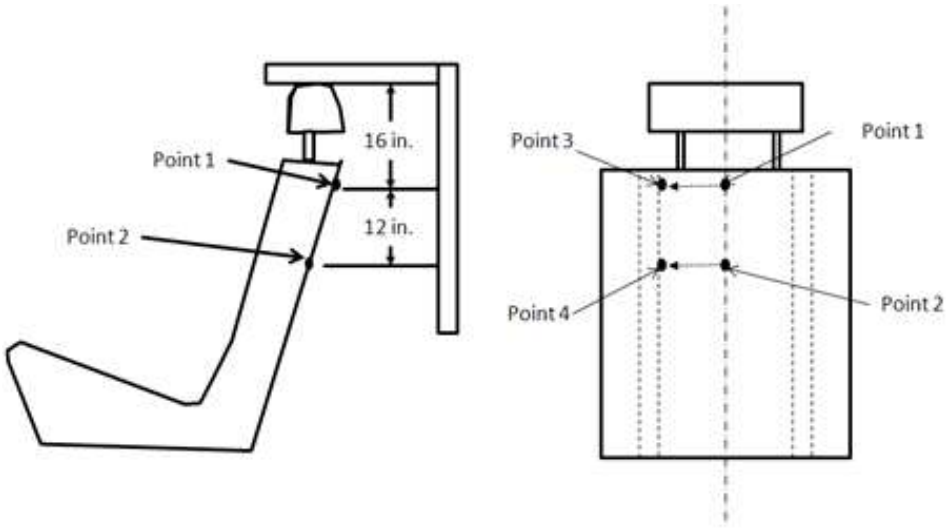
CMM MEASUREMENT PROCEDURES

SECTION E.1

SEAT BACK MEASUREMENT PROCEDURE

The following procedure was used in obtaining the required seat back measurements, please see the below diagram for additional clarification:

1. Measure Points 3 and 4 on the using the following method after positioning the dummy and head restraint:
2. Place a level at the center of the head restraint and make sure it is level to the horizontal
3. Measure down 16 inches from the bottom of the level in the vertical direction
4. Project a line in the longitudinal direction until contact with seat and mark point 1 with a marker
5. Project another line in the longitudinal direction until contact with seat and mark point 2 with a marker
6. Push on the seat fabric at point 1 and determine if there is any structure. Do not push in the longitudinal direction more than an inch
7. If no structure found push on the seat cloth and move in the lateral direction toward the outboard of the seat until seat structure is found
8. Cut a slit in the seat fabric
9. Mark Point 3 at the begin on the structure and measure the point
10. Perform the same procedure to determine Point 4 using Point 2



SECTION E.2

DOOR SILL INTRUSION MEASUREMENT PROCEDURE

The following procedure was conducted in order to obtain the required door sill intrusion measurements for this test. Please see the below picture for further clarifications:

1. Put steering wheel in center position. Create a horizontal plane (plane 1) that passes through the center of the steering wheel.
2. Point 1: Mark the sheet metal at the intersection of plane 1 and the outer edge of rubber part of the door sill running down the A-pillar.
3. Point 22: Mark the sheet metal at the intersection of plane 1 and the outer edge of rubber part of the door sill running down the B-pillar.
4. Mark 20 evenly spaced points between points 1 and 22 along the outer edge of the rubber door sill on the sheet metal. (A tape measure can be used to mark these points).
5. Mark 20 evenly spaced points between points 22 and 1 along the outer edge of the rubber door sill on the sheet metal. (A tape measure can be used to mark these points).
6. Measure points using CMM
7. Record in the appropriate data sheet and calculate the difference by subtracting the post-test minus the pre-test. A picture with the points labeled shall be included on the data sheet. All points shall be visible in the pictures.
8. Repeat on the passenger door.

SECTION E.3

VEHICLE EXTERIOR CRUSH PROFILE PROCEDURE

1. Expose the bumper beam and level the vehicle such that all attitudes are within 5 mm.

2. Cross section A-A is defined as a horizontal plane passing through the center of the front bumper beam at the centerline of the vehicle (Figure F.3.1). Record the height of this plane (d1) and take enough points at this height to create an exterior cross-section of the vehicle.

3. Perform the same procedure for cross-section B-B. Cross section B-B is defined as a plane passing through the top the upper radiator support.

4. Post-test put the vehicle back to its original coordinate system (Figure F.3.2). Take enough points at the height of d1 and d2 to create a post-test cross-section A-A and B-B. There can be more points measured posttest than pre-test (Figure F.3.3). Record these points in the appropriate data sheet.

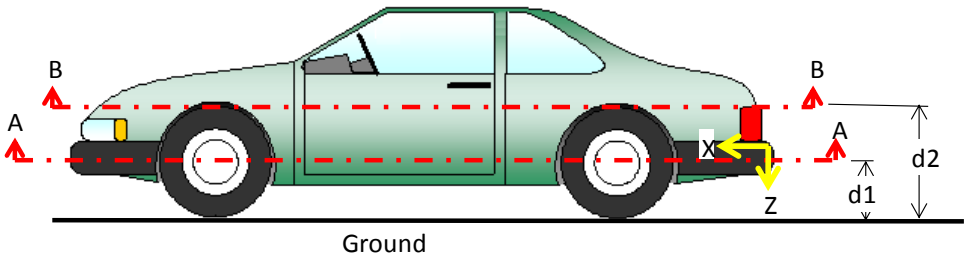


Figure F.3.1 - Pre-Test Cross-Sections

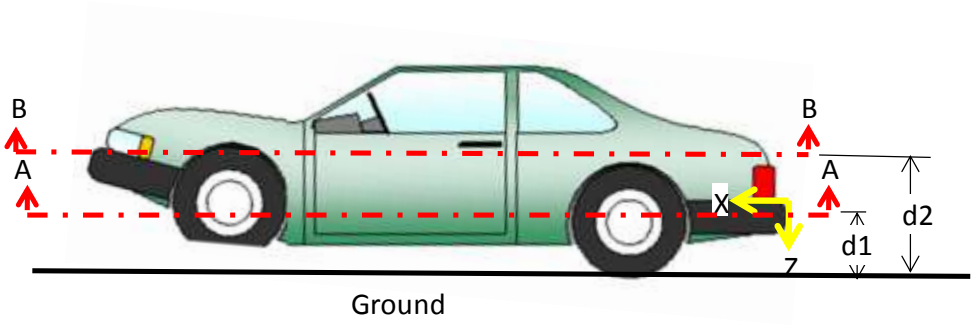


Figure F.3.2 - Post-Test Cross-Sections

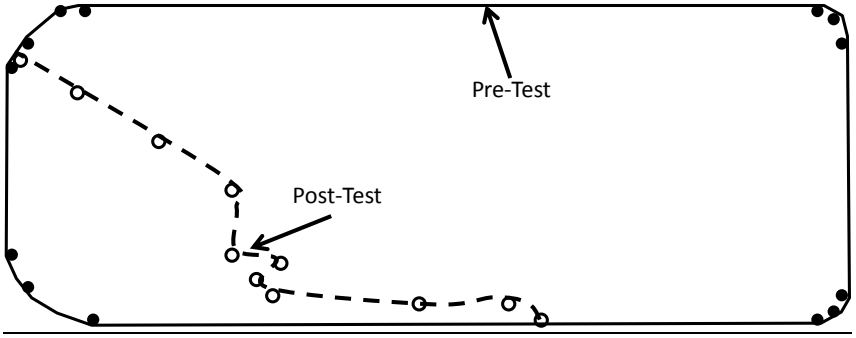


Figure F.3.3 - Plot of Cross-Section