REPORT NUMBER: R&D-CAL-11-011

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

2011 FORD FIESTA
56 MPH, 7 DEGREE ANGLE, 20% OVERLAP

TEST DATE: JULY 23, 2011
NHTSA NO: RB0224

PREPARED BY:
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FINAL REPORT SUBMITTED:

FEBRUARY 15, 2012

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FINAL REPORT ACCEPTANCE BY OCWS:

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

Date: _____

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

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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 (RMDB) traveling at a target speed of 90.12 kph into a stationary 2011 Ford Fiesta four door sedan. The struck vehicle was positioned 7 degrees relative to the moving barrier, and impacted 20% of the left side of the vehicle. The test was conducted to obtain data indicant of FMVSS 208, 212, 219 (partial), 301, and foot well intrusion performance. The test was conducted at the Calspan Corporation's crash test facility in Buffalo, New York on July 19, 2011.

The impact velocity of the vehicle was 89.58 km/h, and the ambient temperature at the barrier face at the time of impact was 43.6°C. The target vehicle post-test maximum crush was 132 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})	NA	700	788.64	NA	700	1170.45
Maximum Chest Compression	mm	63	-39.80	mm	52	-44.80
Nij	NA	1	0.39	NA	1	1.32
Neck Tension	N	4,170	2423.30	N	2,620	4727.20
Neck Compression	N	4,000	-921.96	N	2,520	-548.06
Left Femur Force	N	10,008	-4884.14	N	6,805	-967.01
Right Femur Force	N	10,008	2301.65	N	6,805	-368.49

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SECTION 1
PURPOSE

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224
Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

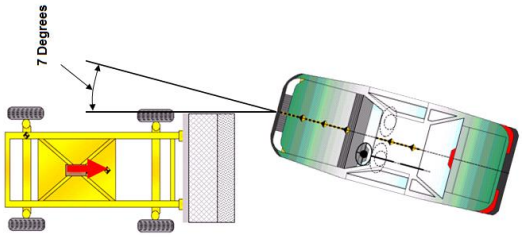
This 90.12 km/h (56 mph) Moving Barrier into a vehicle test is part of Frontal Offset Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-10-D-00155. The purpose of this test was to obtain vehicle crashworthiness and occupant restraint system performance data for consumer information purposes.

This test was conducted in accordance with the instructions set forth by NHTSA for a 7º angle, 20% offset moving barrier to vehicle impact, outlined in Task Order (TO) DTNH2-10-D-001552. 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: 2011 Ford Fiesta NHTSA No.: RB0224
Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

A 2011 Ford Fiesta 4-door sedan was impacted on the left front corner by an Research Moving Deformable Barrier (RMDB). This test vehicle was stationary and positioned at a target angle of 7° and a target offset of 20% to the forward line of motion of the RMDB. The RMDB was towed down the test track in a full forward direction, without any crabbing, and the targeted impact velocity of 90.12 km/h (56 mph) into the test vehicle. The test vehicle mass was 1364.5 kg (3002 lbs), and the RMDB mass was 2486.2 kg (5481 lbs). The test was conducted by Calspan Corporation on July 23, 2011.



The test was documented by one (1) real time and fourteen (14) high-speed video cameras. Camera locations and other pertinent data are located in Data Sheet No. 06 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.: 007) was seated in the left front (driver's) seating position and one Part 572O 5% adult female (HIII 5th) ATD (Serial No. 070) 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, a dual stage frontal airbag, a curtain airbag, a seat mounted torso airbag, and a bolster mounted knee airbag. The left rear passenger was restrained with a 3-point seat belt, and a curtain airbag.

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224
Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

One hundred and ninety eight (198) channels of data from the two ATD's, test vehicle and RMDB were collected using Kayser-Threde and Slice data acquisition systems. Appendix B contains dummy data plots, as well as vehicle and RMDB response data plots.

There was 100% total windshield retention, with 100% and 100% retention on the left and right sides respectively. The left rear section of hood caused intrusion into the lower left corner of windshield below protected zone during the impact test. The maximum static crush of the vehicle was 703 mm at C1 to the left of the vehicle's centerline. The maximum crush of the lower bumper beam was 166 mm at C1, to the left of vehicle's centerline. Full vehicle measurements are presented in Section 3 of this report. All four vehicle doors remained closed and latched during the test. The left front door was jammed shut, but was able to be opened. The left rear, right front, and right rear doors all remained operational after the test.

Structure observations include the following:

- A-Pillar and the door sill buckled
- Some tears of the windshield along the driver A-pillar, and along the bottom of the windshield in front of the driver.

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

- Head contacted the steering wheel airbag, curtain airbag, and the interior A-Pillar head liner door frame.
- Chest contacted the airbag
- Both the left and right knees contacted the knee bolster airbag.

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

- Head contacted the chest, C-Pillar and seatback, and curtain airbag
- Torso contacted the torso airbag
- Knees contacted the rear of the driver seat back

SECTION 2 (CONTINUED)

CRASH VEHICLE SUMMARY

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

PRIMARY IMPACT DATA

Measured Parameter	Units	Value
RMDB Velocity at Impact	km/h	90.17
RMDB Test Weight	kg	2491
RMDB Maximum Static Crush	mm	273.2
Vehicle Test Weight	kg	1634.5
Actual Vehicle Angle	degree	7
Vehicle Maximum Static Crush	mm	168 mm to left centerline
Vertical Offset from Target Point	mm	11 Below
Lateral Offset from Target Point	mm	18 Left
Number of Data Channels		198
Number of Real-Time Cameras		1
Number of High-Speed Cameras		14

DUMMY CONTACTS

	Driver	Picture Ref.	Passenger	Picture Ref.
Dummy Type	50% Male, Thor 007	N/A	5% HIII Female, 070	N/A
Head Contact	Front airbag, A Pillar, Side Curtain Airbag	A-37 A-48	C pillar, rebound on outside of curtain	A-49 A-52 A-58
Upper Torso Contact	Torso airbag, front airbag, steering wheel	-	Seat back on rebound	-
Lower Torso Contact	Seat bolster airbag	A-46 A-47	Seat back on rebound	-
Left Knee Contact	Knee Airbag	A-45	Driver seatback	A-59
Right Knee Contact	Knee Airbag	A-44	Driver seatback	A-59

Data Anamolies:

V2P1 CLAVICLE - LEFT OUTER LC FX	->	Questionable after 86ms cable
V2P1 CLAVICLE - LEFT OUTER LC FZ	->	Questionable after 87ms cable
V2P1 CLAVICLE - LEFT INNER LC FX	->	Questionable after 86ms cable
V2P1 CLAVICLE - RIGHT INNER LC FZ	->	Questionable 81-88 ms
V2P1 ABDOMEN LEFT RZ	->	Noise spikes after 58 ms
V2P1 RIGHT ILIAC FX	->	Questionable 224-228ms
V2P1 RIGHT ILIAC MY	->	Channel failed
V2P1 TIBIA LEFT LOWER MY	->	Questionable data
V2P1 ANKLE LEFT POT z	->	Questionable at 224-227ms
V2P1 FEMUR RIGHT Fx	->	Noise spikes on data 9 - 77 ms
V2P1 FEMUR RIGHT Fy	->	Noise spikes on data 9 - 77 ms.
V2P1 TIBIA RIGHT UPPER MY	->	Questionable after 58 ms
V2P4 8 STRING POD - LR MID	->	Questionable 66 - 105 ms
V2 RIGHT REAR SILL X	->	Data questionable - magnitude
V2 RIGHT REAR SILL Y	->	Data questionable - magnitude

SECTION 2 (CONTINUED)
PRELIMINARY INJURY SUMMARY: Driver

Test Vehicle: 2011 Ford Fiesta 4-Door Sedan NHTSA No.: RB0224
Test Program: Research and Development Left Small Overlap Test Date: 7/23/2011

Driver: Thor Serial No. 007 Injury Summary

	Nomenclature	Units	Source	Max	Min
Head	Head Rotational Acceleration X	rad/s^2	SIMon	330536.84	-375623.16
	Head Rotational Acceleration Y	rad/s^2	SIMon	226931.58	-394208.42
	Head Rotational Acceleration Z	rad/s^2	SIMon	1006894.89	-549835.11
	Head Rotational Acceleration Resultant	rad/s^2	Compute	1078657.49	
	Head Rotational Velocity X	rad/s	SIMon	66.30	-66.01
	Head Rotational Velocity Y	rad/s	SIMon	27.42	-66.69
	Head Rotational Velocity Z	rad/s	SIMon	110.75	-123.80
	Head Rotational Velocity Resultant	rad/s	Compute	145.15	
	36 ms HIC		Compute	788.64	
	15 ms HIC		Compute	788.64	
	Head Resultant CG Acceleration, 3 ms Clip	g	Compute	91.04	
	Skull fracture correlate	-	SIMon	145.28	
	Cumulative strain (Tolerance = 0.05)	-	SIMon	1.00	0.00
	Cumulative strain (Tolerance = 0.10)	-	SIMon	0.99	0.00
	Cumulative strain (Tolerance = 0.15)	-	SIMon	0.89	0.00
Neck	UNLC Transferred to OC, Neck System, FX	N	1000	152.27	-743.99
	UNLC Neck System Tension, FZ	N	1000	2423.30	
	UNLC Neck System Compression, FZ	N	1000		-921.96
	UNLC Transferred to OC, Neck System Flexion, MY	N-m	Thortest	3.13	
	UNLC Transferred to OC, Neck System Extension, MY	N-m	Thortest		-21.26
	NIJ		Compute	0.39	
	On head acting through total neck section, FX	N	Thortest	619.89	-513.51
	On head acting through total neck section, FY	N	Thortest	476.37	-522.27
	On head acting through total neck section, FZ	N	Thortest	2582.55	-798.38
	On head acting through total neck section, MX	N-m	Thortest	22.86	-49.96
	On head acting through total neck section, MY	N-m	Thortest	26.96	-19.87
	On head acting through total neck section, MZ	N-m	Thortest	28.19	-11.80
	On head acting through O.C. joint only, FX	N	Thortest	482.91	-697.26
	On head acting through O.C. joint only, FZ	N	Thortest	2379.38	-1043.07
	On head acting through O.C. joint only, MY	N-m	Thortest	3.13	-21.26
Chest	Upper Left Crux X – deflection	mm	Thortest	1.81	-14.75
	Upper Left Crux Y – deflection	mm	Thortest	2.37	-9.38
	Upper Left Crux Z – deflection	mm	Thortest	15.98	-0.39
	Upper Left Crux D – deflection	mm	Thortest	0.64	-11.99
	Upper Right Crux X – deflection	mm	Thortest	0.01	-43.47
	Upper Right Crux Y – deflection	mm	Thortest	4.95	-9.76
	Upper Right Crux Z – deflection	mm	Thortest	25.70	-2.70
	Upper Right Crux D – deflection	mm	Thortest	0.01	-39.80

SECTION 2 (CONTINUED)
PRELIMINARY INJURY SUMMARY: Driver

Test Vehicle: 2011 Ford Fiesta 4-Door Sedan NHTSA No.: RB0224
Test Program: Research and Development Left Small Overlap Test Date: 7/23/2011

Driver: Thor Serial No. 007 Injury Summary

	Nomenclature	Units	Source	Max	Min
Chest (Con't)	Lower Left Crux X – deflection	mm	Thortest	9.51	-7.19
	Lower Left Crux Y – deflection	mm	Thortest	0.86	-21.91
	Lower Left Crux Z – deflection	mm	Thortest	15.82	-10.93
	Lower Left Crux D – deflection	mm	Thortest	8.51	-7.85
	Lower Right Crux X – deflection	mm	Thortest	0.03	-35.05
	Lower Right Crux Y – deflection	mm	Thortest	1.52	-29.68
	Lower Right Crux Z – deflection	mm	Thortest	12.36	-0.23
	Lower Right Crux D – deflection	mm	Thortest	0.03	-34.41
	Chest CG Acceleration, 3 ms clip	g	Compute	52.07	
Abdomen	Upper Displacement	mm	Thortest	N/A	N/A
	Lower Left X – deflection	mm	Thortest	0.09	-51.64
	Lower Left Y – deflection	mm	Thortest	8.48	-6.64
	Lower Left Z – deflection	mm	Thortest	10.77(1)	-3.57(1)
	Left Viscous Criterion Based on X - deflection		Compute	0.47(1)	
	Lower Right X – deflection	mm	Thortest	0.34	-71.36
	Lower Right Y – deflection	mm	Thortest	5.20	-5.10
	Lower Right Z – deflection	mm	Thortest	9.48	-0.01
	Right Viscous Criterion Based on X - deflection		Compute	0.64	
Spine	Upper Spine (T1) AX	g	180	9.57	-64.91
	Upper Spine (T1) AY	g	180	37.81	-9.18
	Upper Spine (T1) AZ	g	180	35.58	-17.84
	Upper Spine (T1) Resultant	g	Compute	74.06	
	Middle Spine (T6) AX	g	180	58.39	-50.74
	Middle Spine (T6) AY	g	180	44.82	-16.58
	Middle Spine (T6) AZ	g	180	19.77	-10.16
	Middle Spine (T6) Resultant	g	Compute	73.52	
Pelvis	Pelvis CG Resultant Acceleration	g	Compute	64.35	
Acetabulum	Left FX force	N	600	700.39	-1386.80
	Left FY force	N	600	736.75	-1383.74
	Left FZ force	N	600	3013.05	-615.81
	Left Acetabulum Resultant	N	Compute	3513.48	
	Right FX force	N	600	2183.25	-595.20
	Right FY force	N	600	803.25	-844.88
	Right FZ force	N	600	414.04	-1918.69
	Right Acetabulum Resultant	N	Compute	3010.24	

SECTION 2 (CONTINUED)
PRELIMINARY INJURY SUMMARY: Driver Legs

Test Vehicle: 2011 Ford Fiesta 4-Door Sedan NHTSA No.: RB0224
Test Program: Research and Development Left Small Overlap Test Date: 7/23/2011

Driver: Thor Serial No. 007 Injury Summary

	Nomenclature	Units	Source	Max	Min
Knee	Left Knee Displacement, DX	mm	180	13.24	-0.00
	Right Knee Displacement, DX	mm	180	5.62	-0.05
Femur	Left Femur Force, FZ	N	600	51.69	-4884.14
	Left Femur Moment, MX	N-m	600	53.40	-274.80
	Left Femur Moment, MY	N-m	600	93.91	-33.04
	Left Femur Res (MX / MY only, not MZ)	N-m	Compute	274.88	
	Right Femur Force, FZ	N	600	1421.29(2)	-2301.65(2)
	Right Femur Moment, MX	N-m	600	84.88	-85.77
	Right Femur Moment, MY	N-m	600	93.32	-25.05
	Right Femur Res (MX / MY only, not MZ)	N-m	Compute	103.32	
Tibia	Left Upper Tibia, FZ	N	600	32.63	-2645.91
	Left Upper Tibia, MY	N-m	600	97.59	-77.11
	Left Upper Tibia, Index		Compute	0.52	
	Right Upper Tibia, FZ	N	600	530.92	-1741.45
	Right Upper Tibia, MY	N-m	600	405.25(3)	-48.06(3)
	Right Upper Tibia, Index		Compute	1.82(3)	
	Left Lower Tibia, FZ	N	600	280.09	-3561.13
	Left Lower Tibia, MY	N-m	600	49.13(4)	-22.48(4)
	Left Lower Tibia, Index		Compute	0.52(4)	
	Right Lower Tibia, FZ	N	600	366.55	-2405.55
	Right Lower Tibia, MY	N-m	600	26.92	-52.01
	Right Lower Tibia, Index		Compute	0.58	
Ankle	Left Ankle Rotation, RX	Deg	180	29.41	-2.20
	Left Ankle Rotation, RY	Deg	180	17.61	-2.51
	Right Ankle Rotation, RX	Deg	180	22.13	-32.45
	Right Ankle Rotation, RY	Deg	180	10.07	-10.12

Anomalies

(1) Noise spikes after 58 ms
(2) Noise spikes from 9 to 77 ms
(3) Questionable data after 58 ms
(4) Questionable data throughout

Test Vehicle: 2011 Ford Fiesta 4-Door Sedan NHTSA No.: RB0224
Test Program: Research and Development Left Small Overlap Test Date: 7/23/2011

Left Rear Passenger: H3 5th Female Serial No. 070 Injury Summary

	Nomenclature	Source	Max	Min
Head	Angular acceleration (rad/sec^2) - X	SIMon	3677.40	-1852.10
	Angular acceleration (rad/sec^2) - Y	SIMon	958.45	-234.64
	Angular acceleration (rad/sec^2) - Z	SIMon	388.72	-2664.40
	Angular acceleration - resultant (rad/sec^2)	SIMon	3726.13	
	Angular velocity (rad/sec) - X	SIMon	19.80	-22.21
	Angular velocity (rad/sec) - Y	SIMon	35.46	-0.09
	Angular velocity (rad/sec) - Z	SIMon	0.05	-116.00
	Angular velocity - resultant (rad/sec)	SIMon	122.54	
	36 ms HIC	Compute	2089.99	
	15 ms HIC	Compute	1170.45	
	Skull fracture correlate	SIMon	90.55	
	Cumulative strain (Tolerance = 0.05)	SIMon	1.00	
	Cumulative strain (Tolerance = 0.10)	SIMon	0.98	
	Cumulative strain (Tolerance = 0.15)	SIMon	0.84	
	Head resultant CG acceleration, 3 ms clip (g's)	Compute	111.12	
Neck	Upper Neck Tension (N) Fz	1000	4727.20	
	Upper Neck Compression (N) Fz	1000		-548.06
	Upper Neck NTF	Compute	1.32	
	Upper Neck NTE	Compute	1.25	
	Upper Neck NCF	Compute	0.14	
	Upper Neck NCE	Compute	0.53	
Chest	Chest Deflection (mm)	600	0.01	-44.80
	Upper Left Chest X (mm)	Compute	0.05	-28.68
	Upper Left Chest Y (mm)	Compute	9.20	-3.34
	Upper Right Chest X (mm)	Compute	1.17	-9.44
	Upper Right Chest Y (mm)	Compute	0.22	-37.59
	Lower Left Chest X (mm)	Compute	0.06	-24.02
	Lower Left Chest Y (mm)	Compute	10.69	-2.91
	Lower Right Chest X (mm)	Compute	10.77(1)	-42.49(1)
	Lower Right Chest Y (mm)	Compute	18.09(1)	-116.66(1)
	Chest CG acceleration, 3 ms clip, (G's)	Compute	77.25	
Femur	Right Fz Force (N)	600	1479.98	-368.49
	Left Fz Force (N)	600	1847.23	-967.01

Anomalies

(1) Chest D3 was questionable from 66 to 105 ms

SECTION 3
DATA SHEETS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

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DATA SHEET NO. 1

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

TEST VEHICLE INFORMATION

NHTSA No.	RB0224
Make	Ford
Model	Fiesta
Body Style	4-door Sedan
Year	2011
VIN	3FADP4AJ3BM227913
Color	Silver
Delivery Date	7/6/2011
Odometer Reading (mi)	15
Odometer Reading (km)	24
Dealer	Koons Ford of Baltimore
Transmission	5 speed manual
Final Drive	FWD
Type/No. Cyl	I4
Engine Disp. (L)	1.6L
Engine Placement	Lateral
Roof Rack	No
Sunroof/T-Top	No
Tinted Glass	No
Traction Control	Yes
Power Brakes	Yes
Front Disc	Yes
Rear Disc	No

TEST VEHICLE OPTIONS

Anti-Lock Brakes	Yes
All-Wheel Drive	No
Power Steering	Yes
Driver Front Airbag	Yes
Driver Side Airbag	Yes
Driver Head Airbag	No
Driver Curtain Airbag	Yes
Driver Knee Airbag	Yes
Pass. Front Airbag	No
Pass. Side Airbag	Yes
Pass. Head Airbag	No
Pass. Curtain Airbag	Yes
Pretensioners	Yes
Load Limiters	Yes
Bucket Seats	Yes
Air Cond.	Yes
AM/FM CD	Yes
Tilt Steering	Yes
Automatic Door Locks	No
Power Windows	No
Power Seats	No
Other	-
Other	-

Does owner's manual provide instructions to turn off automatic door locks? N/A

DATA FROM CERTIFICATION LABEL

Manufactured By	Ford Motor Co
Date of Manufacture	6/11

GVWR (kg)	1642
GAWR Front (kg)	839
GAWR Rear (kg)	816

VEHICLE SEATING AND WEIGHT CAPACITY

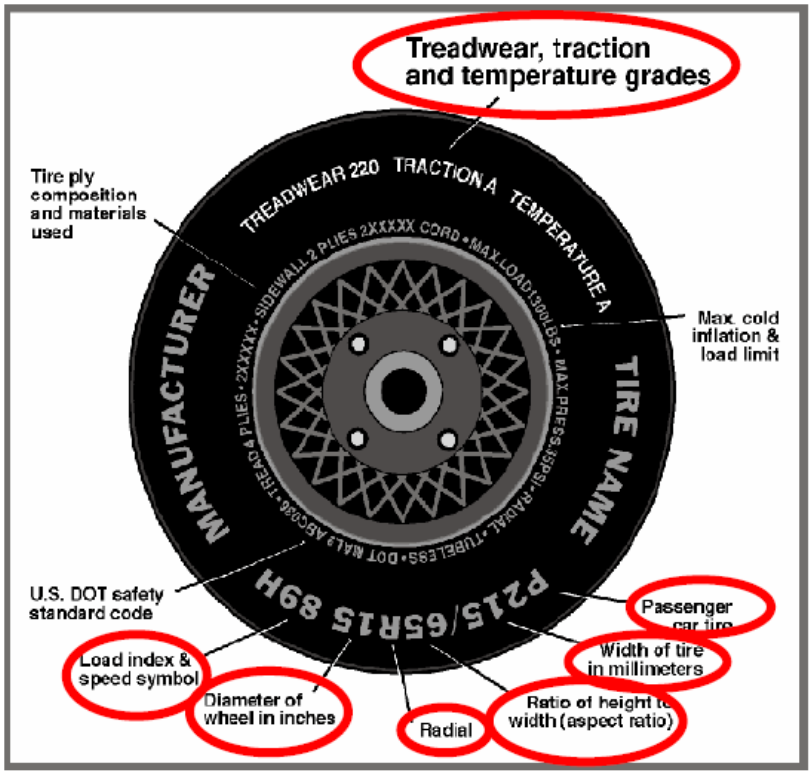
Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench	-	
Number of Occupants	2	3	-	5
Capacity Wt. (VCW) (kg)				375
Cargo Wt. (RCLW) (kg)				35

DATA SHEET NO. 1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11



Measured Parameter	Front	Rear
Maximum Tire Pressure	300	300
Cold Pressure (kPa)	220	220
Recommended Tire Size	P185/60R15	P185/60R15
Tire Size on Vehicle	P185/60R15	P185/60R15
Tire Manufacturer	Kumho	Kumho
Tire Model	Solus KH25	Solus KH25
Treadwear	480	480
Traction	A	A
Temperature Grades	A	A
Tire Plies Sidewall	1 Polyester	1 Polyester
Tire Plies Body	2 Steel, 1 Polyester, 1 Nylon	2 Steel, 1 Polyester, 1 Nylon
Load Index/Speed Symbol	84H	84H
Tire Material	Rubber	Rubber
DOT Safety Code Right	COR9YPL80711	COR9YPL80711
DOT Safety Code Left	COR9YPL80711	COR9YPL80711

DATA SHEET NO. 1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	340.5	253.5		381	344	
Right	kg	336	229		329	310.5	
Ratio	%	58	42		52	48	
Totals	kg	676.5	482.5	1159	710	654.5	1364.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1159
Weight of 1 P572E ATD & 1 P572O ATD	kg	153.54
Rated Cargo/Luggage Weight (RCLW)	kg	35
Calculated Vehicle Target Weight (TVTW)	kg	1347.54

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	660	658	658	662	1036
As Tested	mm	651	660	604	620	1194
Post Test	mm	-	-	-	-	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Total Vehicle Wheel Base	mm	2,489
Total Vehicle Length at Left Side	mm	4,249
Total Vehicle Length at Centerline	mm	4,414
Total Vehicle Length at Right Side	mm	4,249
Weight of Ballast in Cargo Area	kg	0
Weight of Vehicle Components Removed	kg	0
Amount of Stoddard Solvent in Fuel Tank	L	43.5

LIST OF COMPONENTS REMOVED TO MEET TEST WEIGHT: _____

MASS OF BALLAST ADDED (kg) _____

DATA SHEET NO.1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

TARGET VEHICLE STRUCTURAL MEASUREMENT

	Elements	Pre-Test (mm)
1	Total Length	4414
2	Total Width	1685
3	Bumper Top Height	-1
4	Bumper Bottom Height	124
5	Longitudinal Member Top Height	77
6	Distance Between Longitudinal Members	1027
7	Longitudinal Member Width	63
8	Engine Top Height	-159
9	Engine Bottom Height	391
10	Engine and Gearbox Width	613
11	Front Bumper-Engine Distance	446
12	Front Shock Absorber Fixing Height	-218
13	Bonnet Leading Edge Height	-126
14	Front Shock Absorber Fixing Width	1124
15	Front Bumper – Front Axle Distance	859
16	Front Axle – A Pillar Distance	432
17	A- Pillar – B-Pillar Distance	1085
18	B-Pillar – Rear Axle Distance	971
19	B-Pillar – C-Pillar Distance	1202
20	Roof Sill Bottom Height	-749
21	Roof Sill Top Height	-795
22	Floor Sill Bottom Height	366
23	Floor Sill Top Height	254

DATA SHEET NO. 2

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL

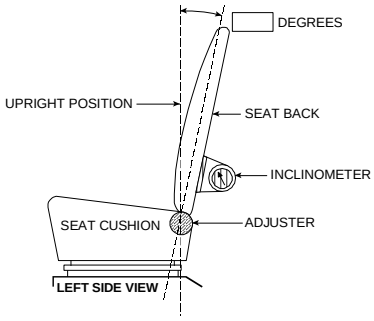
Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

NOMINAL DESIGN RIDING POSITION

Inclinometer was zeroed on the door sill, then placed on the head rest post to measure the set angle, according to form 1.

	Deg.
Driver seat back angle:	12.9
Passenger seat back angle:	FIXED



FRONT SEAT ASSEMBLY

SEAT FORE/AFT POSITIONS

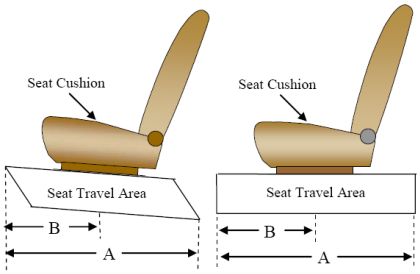
Seat was set to full forward, full up and marked. Then moved to the full rear, full down position, and marked. Mid point was measured, and seat was set to full down, mid position, as per form 1.

	Total Fore/Aft Travel	Placed in Position #
Driver Seat	310mm (25 detents)	155mm (9 th detent)
Passenger Seat	FIXED	FIXED

SEAT BELT UPPER ANCHORAGE

Belt anchorages were moved along the full range of motion, and marked on the B-pillar to their respective possible positions. Photographic evidence can be found in appendix A of this report.

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



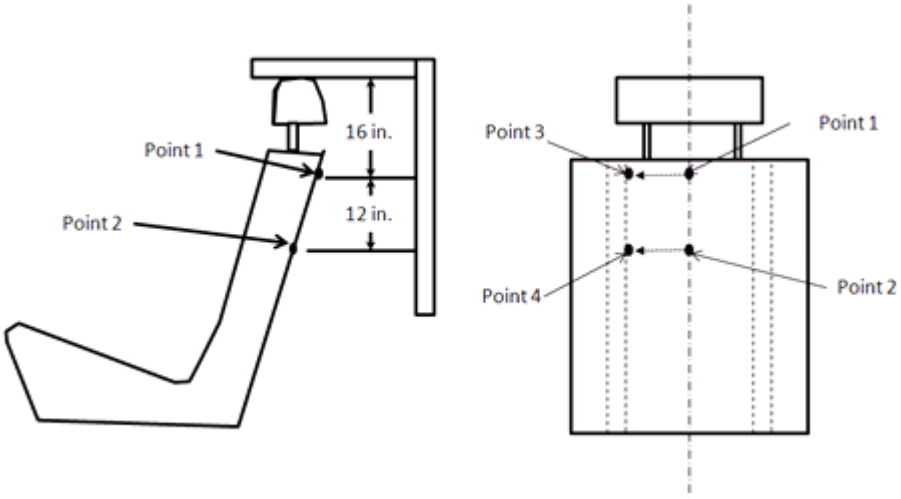
DATA SHEET NO. 2 (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL DATA

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

SEAT BACK MEASUREMENT POINTS



Reference point: Rear most center of the top of rear bumper beam

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

+Y - From 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

	X	Y	Z
Point 3	1902.801	-489.411	-260.805
Point 4	2045.941	-497.66	44.4318

See Appendix F.1 for detailed description of the CMM measurement procedure

DATA SHEET NO. 2 (CONTINUED)

SEAT ADJUSTMENT, FUEL SYSTEM, AND STEERING WHEEL DATA

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

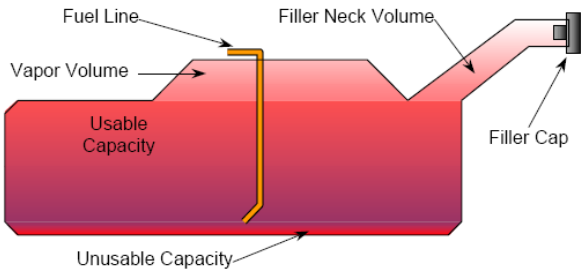
Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	46.9
Usable Capacity of "Optional Tank"	
92%-94% of Usable Capacity	43.5
Actual Amount of Solvent Used	43.5
1/3 of Usable Capacity	15.6

FUEL PUMP

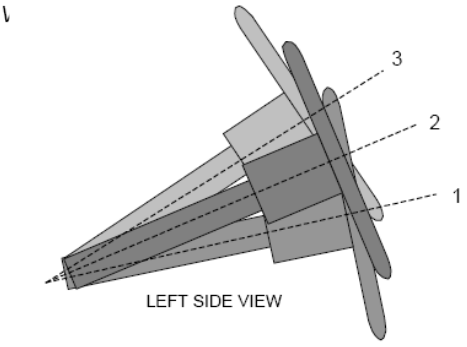
Electric fuel pump is located under the rear seat. Electric Fuel pump operates with the ignition in the 'on' position and the engine running. The fuel filler neck is located above the left rear wheel.



STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. Describe how this measurement was taken.

A level line was drawn on the steering wheel and an inclinometer was used to determine the angle of adjustment. The steering column was then moved full in and full out. Positions were marked and the steering wheel was set to the geometric center of its possible movement.



STEERING COLUMN ASSEMBLY

STEERING COLUMN POSITIONS

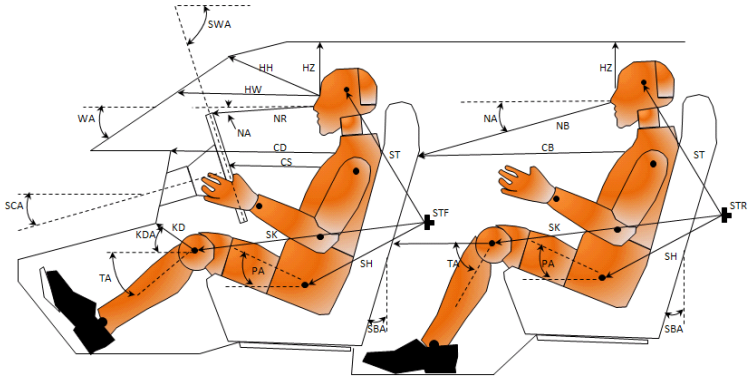
	Degrees	Fore/Aft Position (mm)
Lowermost position No. 1	69.5	
Geometric center position No. 2	67.6	
Uppermost position No. 3	65.6	
Telescoping Steering Wheel Travel		46
Test Position	67.6	23

DATA SHEET NO. 3

DUMMY LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11



Code	Measurement Description	Driver		Left Rear Passenger	
		Length (mm)	Angle(°)	Length (mm)	Angle (°)
WAº	Windshield Angle		-23.1		
SWAº	Steering Wheel Angle		22.45		
SCAº	Steering Column Angle		14.5		
SAº	Seat Back Angle (on headrest post)		12.8		8.2
HZ	Head to Roof (Z)	179	90	277	90
HH	Head to Header	328	22.2		
HW	Head to Windshield	717	0		
NR/NB	Nose to Rim/Seat Back	402	-17.3	469	-17.0
CD/CB	Chest to Dash/Seat Back	626		455	
CS	Chest to Steering Hub	321	-10.4		
RA	Rim to Abdomen	168	0		
KDL/KBL	Left Knee to Dash/Seat Back	133	32.4	198	14.3
KDR/KBR	Right Knee to Dash/Seat Back	128	26.7	202	15.4
PAº	Pelvic Angle		24.2		24.2
TAº	Tibia Angle		51.6		61.6
SK	Striker to Knee	573	-2.0	692	-27.2
ST	Striker to Head	547	80.1	258	51.4
SH	Striker to H-Point	229	-48.2	363	-54.6
HAXº	Head Angle X		0.4		
HAYº	Head Angle Y		5.2		
NAXº	Neck Angle X		0.2		
NAYº	Neck Angle Y		0.8		
TAXº	T Angle X		15.5		
TAYº	T Angle Y		0.5		
LAXº	Lumbar Angle (X)		-0.2		
LAYº	Lumbar Angle (Y)		22.2		

DATA SHEET NO. 3 (CONTINUED)

DUMMY CMM MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

Description	Units	Driver			Left Rear Passenger		
		X	Y	Z	X	Y	Z
Striker (Driver/Passenger)	mm	-2120.04	-727.258	-72.5	1179.3	-682.0	-293.9
Head CG	mm	2168.8	-416.4	-588.4	1340.2	-381.2	-495.0
Bridge of Nose	mm	2262.1	-332.3	-583.8	1425.7	-306.0	-504.5
Tip of Nose	mm	2260.1	-333.5	-544.1	1449.0	-304.5	-473.4
Shoulder Bolt	mm	2208.9	-524.1	-337.3	1322.2	-458.0	-268.3
Tip of Chin	mm	2252.8	-331.6	-460.4	1431.6	-310.6	-402.4
H-point	mm	2325.7	-528.0	106.9	1406.6	-430.6	31.3
Left Knee	mm	2713.1	-503.5	-72.8	1824.7	-420.0	15.5
Right Knee	mm	2715.6	-246.5	-81.3	1830.9	-261.2	15.5
Left Ankle	mm	3012.7	-523.4	218.5	1999.4	-412.1	304.3
Right Ankle	mm	3012.6	-226.0	212.3	1999.5	-261.2	302.0
Left Heel	mm	3038.6	-513.4	344.0	1929.7	-394.4	397.9
Right Heel	mm	3024.2	-206.2	338.6	1935.5	-233.7	401.9
Driver's Outboard Seat Anchor Bolt	mm	2603	-541	303			
Outboard Head Restraint Post	mm	1087.5	-381.5	-419.3	1087.5	-381.5	-419.3
Top of Head Restraint*	mm	1981.2	-330.6	-658.7	1150.7	-325.2	-627.9
Center of Steering Wheel	mm	2608	-329	-309			

Reference point: Rear most center of the top of rear bumper beam

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

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

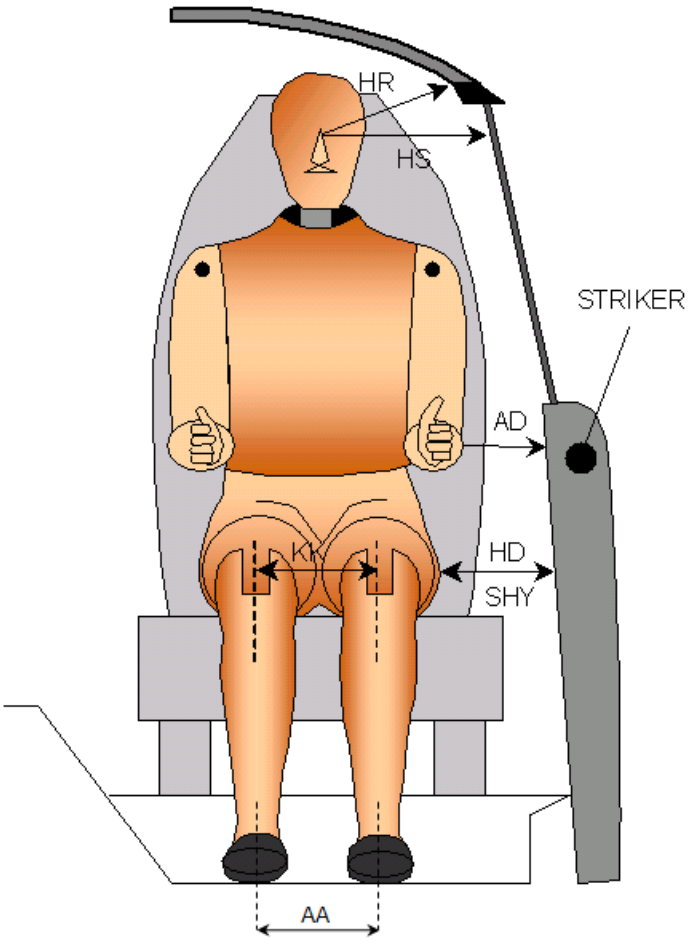
+Z - From the top of the vehicle to the bottom of the vehicle

DATA SHEET NO. 4

DUMMY LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11



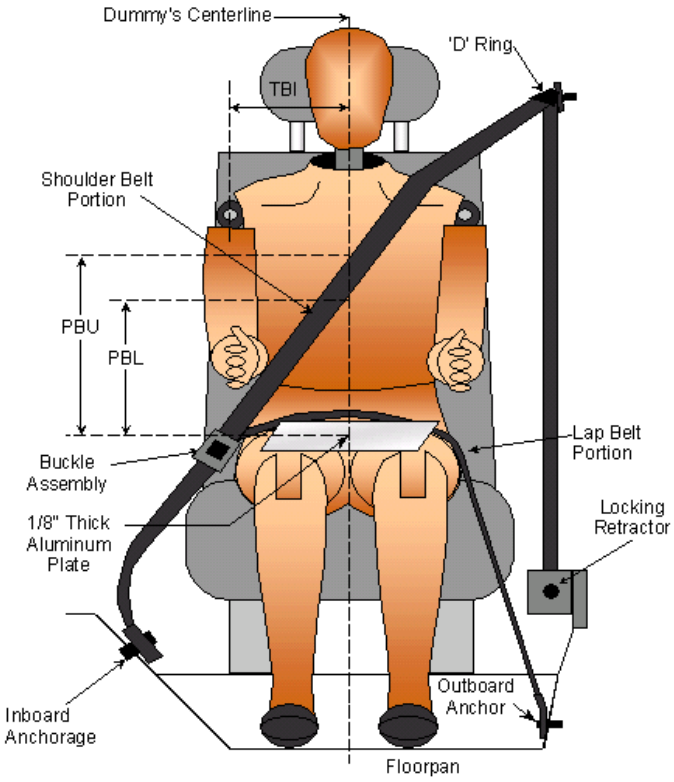
Code	Description	Units	Driver (P1)	Passenger (P4)
AD	Arm to Door	mm	98	94
HD	H-Point to Door	mm	114	154
HR	Head to Side Header	mm	192	235
HS	Head to Side Window	mm	328	333
KK	Knee to Knee	mm	260	165
SHY	Striker to H-Point (Y Direction)	mm	210	290
AA	Ankle to Ankle	mm	290	160

DATA SHEET NO. 5

SEAT BELT POSITIONING DATA

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11



SEAT BELT POSITIONING MEASUREMENTS

Measurement Description	Units	Driver	Passenger
PBU — Top surface of aluminum plate to belt upper edge	mm	374	295
PBL — Top surface of aluminum plate to belt lower edge	mm	298	216

BELT LENGTH DATA

Measurement Description	Units	Driver	Passenger
Shoulder belt length as measured on ATD	mm	840	975
Lap Belt Length as measured on ATD	mm	880	605
Remainder of belt on reel	mm	680	820
Total belt length for continuous webbing systems	mm	2400	2400

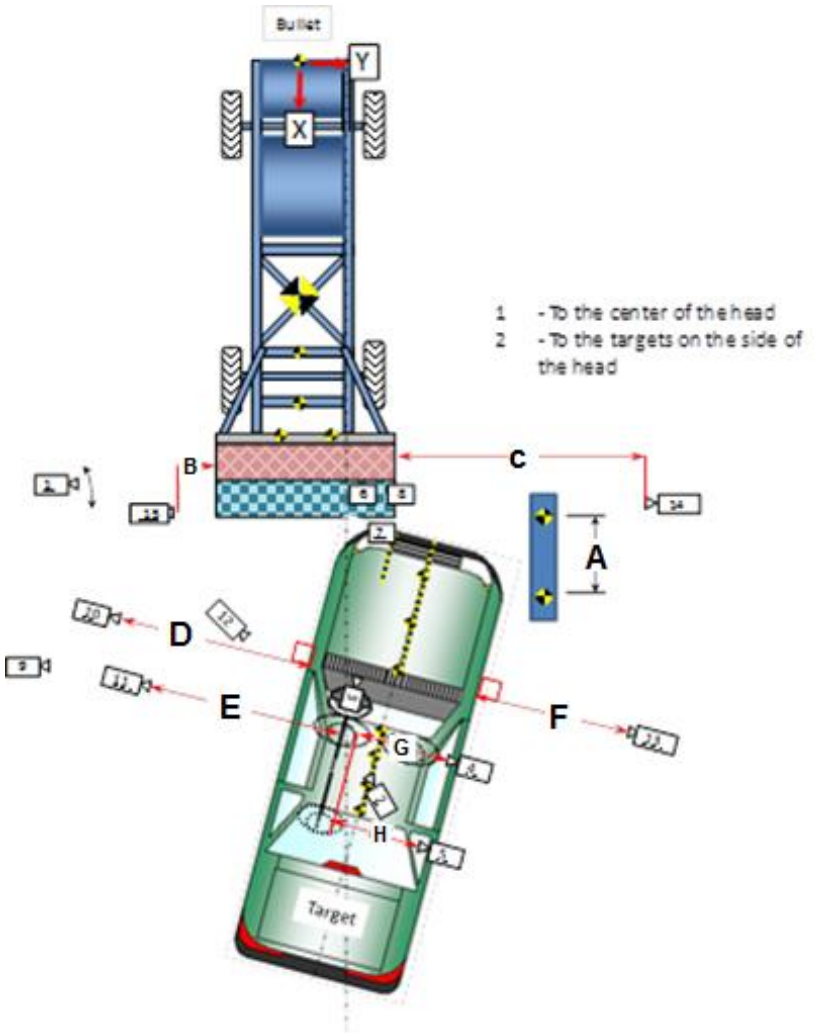
DATA SHEET NO. 6

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

Horizontal Location



A	mm	915
B	mm	7499
C	mm	
D	mm	9846
E	mm	10157
F	mm	7561
G	mm	866
H	mm	771

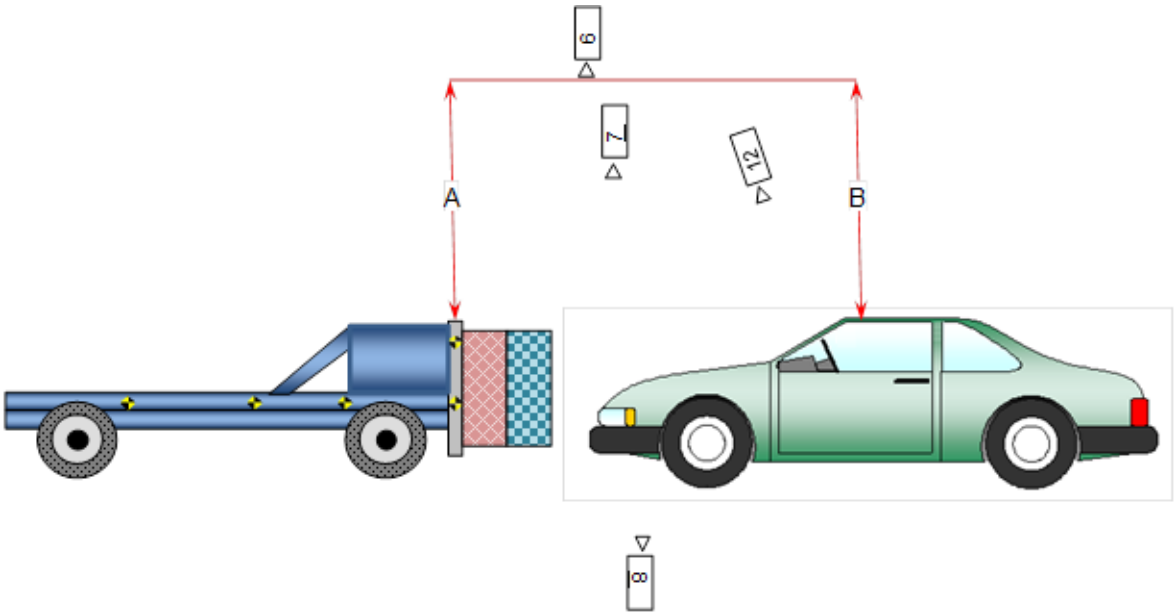
DATA SHEET NO. 6 (CONTINUED)

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

Horizontal Location



	Units	Value
A	mm	4310
B	mm	3880

DATA SHEET NO. 6 (CONTINUED)

HIGH-SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

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	7484	1509	1237	12.5	500
3	Onboard Driver Lower Leg	6290	988	287	6.5	500
4	Onboard Driver Perpendicular	6499	1986	853	12.5	500
5	Onboard Left Rear Passenger Perpendicular	7268	1846	877	12.5	500
6	Overall Top View	6293	1068	5343	14	1000
7	Zoomed Top View	4558	1087	3691	24	1000
8	Pit Front	-	-	-	-	-
9	Overall Left Side	6568	9408	1331	24	1000
10	Target Vehicle Left Side	6123	9215	1273	24	1000
11	Driver's Motion	6448	9293	1344	50	1000
12	Look Down Driver's Motion	7144	482	3535	24	1000
13	Target Vehicle Right Side	7885	9590	1344	28	1000
14	Bullet Vehicle Left Side	-	-	-	-	-
15	Bullet Vehicle Right Side	4741	8602	1344	28	1000
16	Onboard RMDB	5110	1097	1862	13	1000

Reference point: center most rearward point of the RMDB when in contact with the Target Vehicle):

+X = from back of RMDB to front of RMDB

+Y = right of monorail center

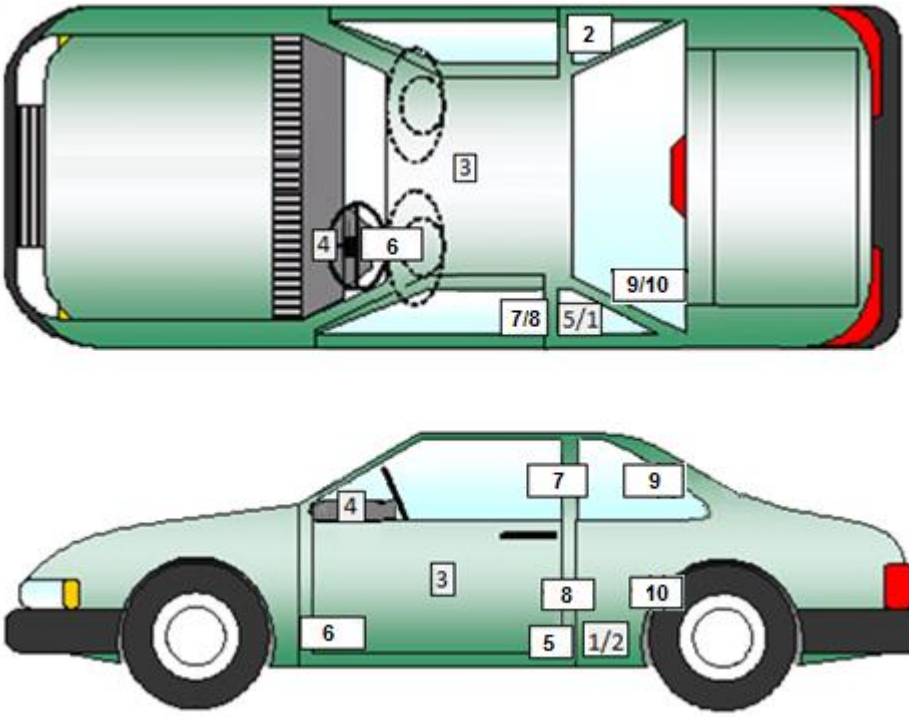
+Z = up from ground

DATA SHEET NO. 7

VEHICLE INSTRUMENTATION LOCATIONS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11



Accelerometer Location	Axes	Units	Location		
			X	Y	Z
Left Rear Sill	X,Y	mm	1928	-568	376
Right Rear Sill	X,Y	mm	1944	568	369
Vehicle CG	X, Y, Z	mm	2712	101	256
Driver Seat Track	X	mm	2218	-236	384
Instrument Panel	X, Y, Z	mm	2783	14	-23
Behind Brake Pedal	X, Y, Z	mm	3345	-384	101

Reference point: Rear most center of the top of rear bumper beam

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

+Y - From 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: 2011 Ford Fiesta NHTSA No.: RB0224
Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

VEHICLE INSTRUMENTION DATA

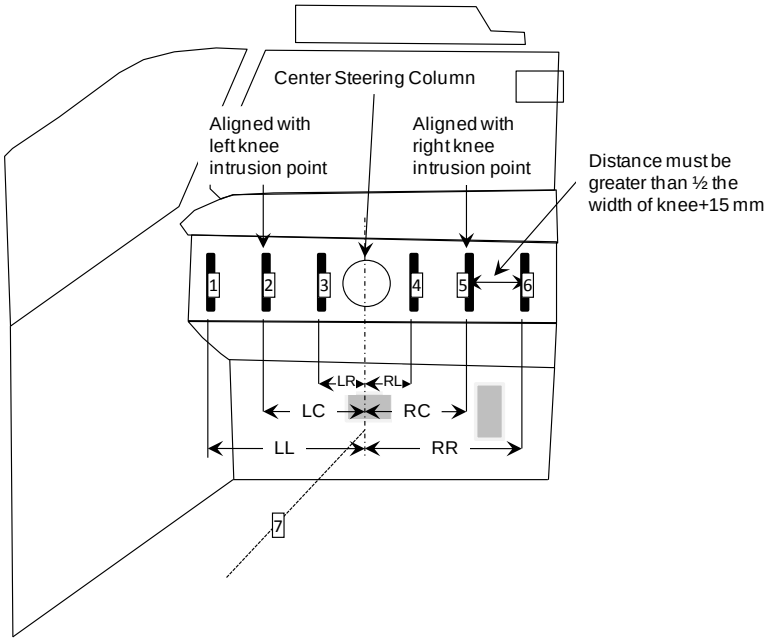
Loc.	Description	Axes	Units	Positive Direction		Negative Direction	
				Max	Time (ms)	Max	Time (ms)
1	Left Rear Cross Member	X	G	3.61	158.25	-46.01	36.60
		Y	G	27.06	57.45	-5.58	89.50
2	Right Rear Cross Member	X	G	480.81	200.25	-48.16	35.65
		Y	G	243.80	140.50	-400.23	86.70
3	Vehicle CG	X	G	43.07	72.55	-56.47	53.90
		Y	G	45.08	39.95	-18.90	44.25
		Z	G	26.86	49.45	-32.80	65.55
4	Instrument Panel	X	G	75.24	55.40	-24.69	74.60
5	Driver Seat Track	X	G	6.15	96.45	-41.33	36.50
		Y	G	26.49	36.25	-3.20	89.65
		Z	G	20.81	61.55	-18.86	43.30
6	Behind Brake Pedal	X	G	25.13	41.15	-107.23	35.20
		Y	G	56.13	54.80	-10.50	89.90
		Z	G	9.23	85.45	-41.63	55.35
7	Driver Shoulder Belt		N	6293.89	73.85	-37.31	7.55
8	Driver Lap Belt		N	5423.58	68.95	-9.17	9.55
9	Passenger Shoulder Belt		N	7786.63	73.55	-11.62	235.45
10	Passenger Lap Belt		N	8977.91	67.95	-9.92	240.05

DATA SHEET NO. 7 (CONTINUED)

VEHICLE INSTRUMENTATION DATA

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11



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	-50	0	-50
2	Left knee contact switch (LC) (ms)	*	0	-50	-1	17.20
3	Left knee contact switch (LR) (ms)	*	0	-50	-1	12.60
4	Right knee contact switch (RL) (ms)	*	0	-50	-1	12.95
5	Right knee contact switch (RC) (ms)	*	0	-50	-1	18.00
6	Right knee contact switch (RR) (ms)	*	0	-50	-1	17.65
7	Toepan string pot (mm)		0.04	0.10	-73.92	79.80

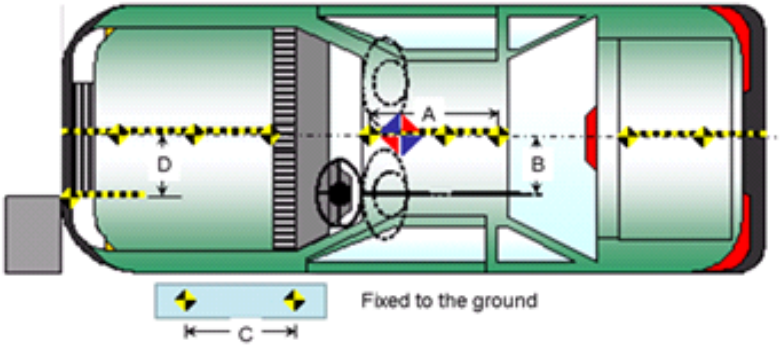
* The measurement indicates the initial time the voltage changed

DATA SHEET NO. 8

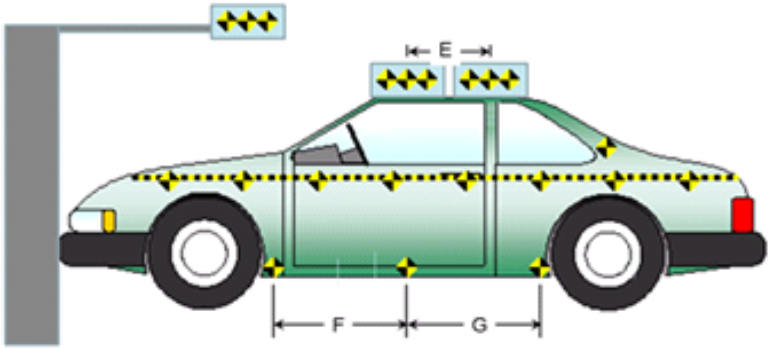
VEHICLE PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

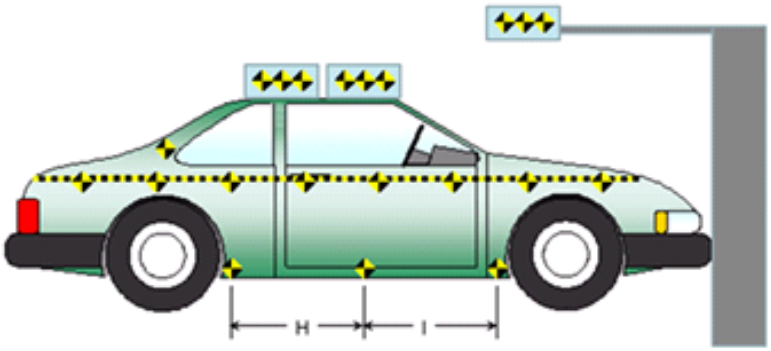
Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11



Top View



Left Side View



Right Side View

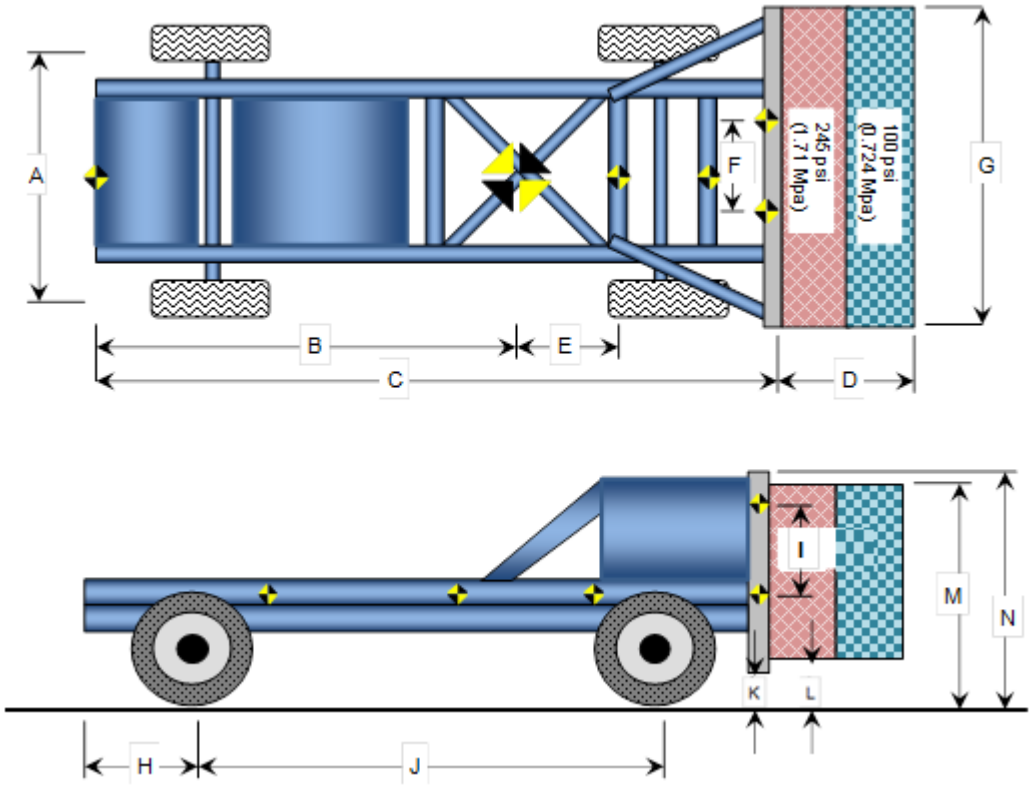
Item	Units	Value
A	mm	610
B	mm	339
C	mm	915
D	mm	509
E	mm	1218
F	mm	847
G	mm	847
H	mm	847
I	mm	846

DATA SHEET NO. 8 (CONTINUED)

RMDB PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11



Item	Units	Value
A	mm	1550
B	mm	2215
C	mm	3940
D	mm	606
E	mm	1185
F	mm	1130
G	mm	2210
H	mm	795
I	mm	500
J	mm	2585
K	mm	90
L	mm	98
M	mm	1055
N	mm	1190

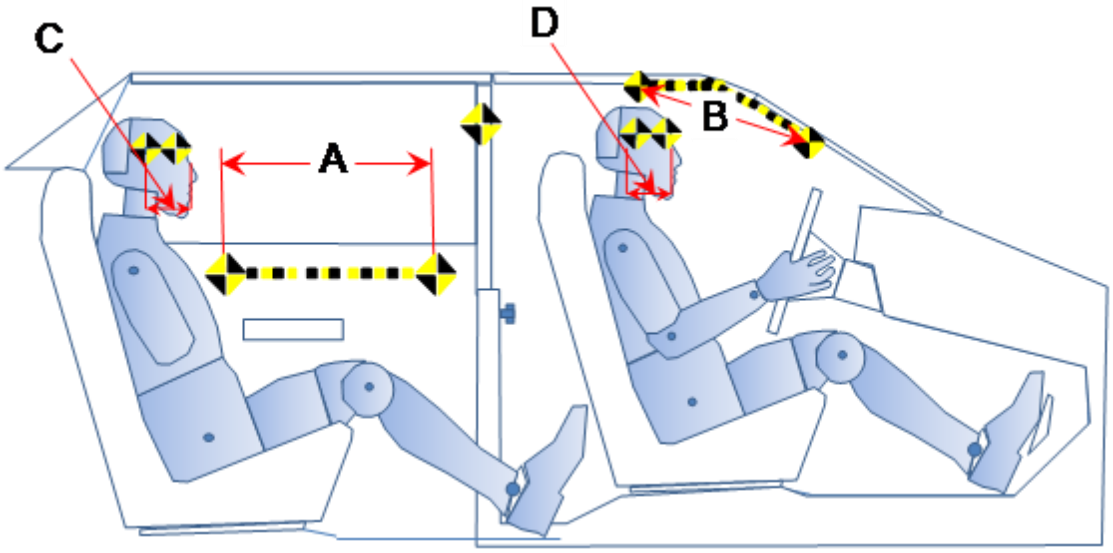
	Units	Front Axle	Rear Axle	Total
Left	kg	779.3	470.4	1249.7
Right	kg	749.3	487.2	1236.5
Ratio	%	61.5%	38.5%	100%
Total	kg	1528.6	957.6	2486.2
CG After of Front Axle	mm			1286

DATA SHEET NO. 8 (CONTINUED)

DUMMY PHOTOGRAPHIC REFERENCE TARGET LOCATIONS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11



Item	Units	Value
A	mm	305
B	mm	305
C	mm	50
D	mm	50

DATA SHEET NO. 9

TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

INSTRUMENTATION

Driver Dummy Accelerometers	119
Passenger Dummy Accelerometers	34
Vehicle Structure Accelerometers	16
Total	169

CAMERA COVERAGE

High-Speed Vehicle Onboard	4
High-Speed Offboard	9
Real-Time Panning	1
Total	14

DATA SHEET NO. 10

POST TEST OBSERVATIONS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

TEST DUMMY INFORMATION AND CONTACT

Description	Driver	Picture Ref.	Passenger	Picture Ref.
Dummy Type	THOR 50th Male	N/A	HIII 5th Female	N/A
Dummy Serial No.	0007	N/A	070	N/A
Lower Leg Type	THOR-FLX Lower Leg	N/A	HIII Lower Leg	N/A
Lower Leg Serial No.	LX103/LX104	N/A	-	N/A
Head Contact	Front and Curtain Airbags	A-37 A-48	Side curtain Airbag and C-Pillar	A-49 A-52 A-58
Upper Torso Contact	Front and Torso Airbag	-	Torso Airbag	-
Lower Torso Contact	Torso Airbag	A-46 A-47	Torso Airbag	-
Left Knee Contact	Knee Airbag	A-45	None	A-59
Right Knee Contact	Knee Airbag	A-44	None	A-59

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Driver	Passenger
Locked/Unlocked Doors	Unlocked	Unlocked
Front Door Opening	Closed, Operational	Closed, operational
Rear Door Opening	Closed, Operational	Closed, Operational
Seat Track Shift (mm)	30mm forward	None
Seat Back Failure	No Failure	No Failure
Glazing Damage	No Separation	No Separation

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions	Picture Ref
Windshield Damage	Shattered, some separation	A-21
Window Damage	Shattered, rolled down	A-36 / A-51
Other Notable Effects	None	-

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Driver (Occupant 1)		Passenger (Occupant 2)	
	Installed	Operated	Installed	Operated
Front Airbag	Yes	Yes	No	
Combination Head/Torso Airbag	Yes	Yes	Yes	
Curtain (or other Head) Airbag	Yes	Yes	Yes	Yes
Knee Airbag	Yes	Yes	No	-
Seat Belt Pretensioner	Yes	Yes	Yes	Yes
Seat Belt Load Limiter	Yes	Yes	Yes	Yes

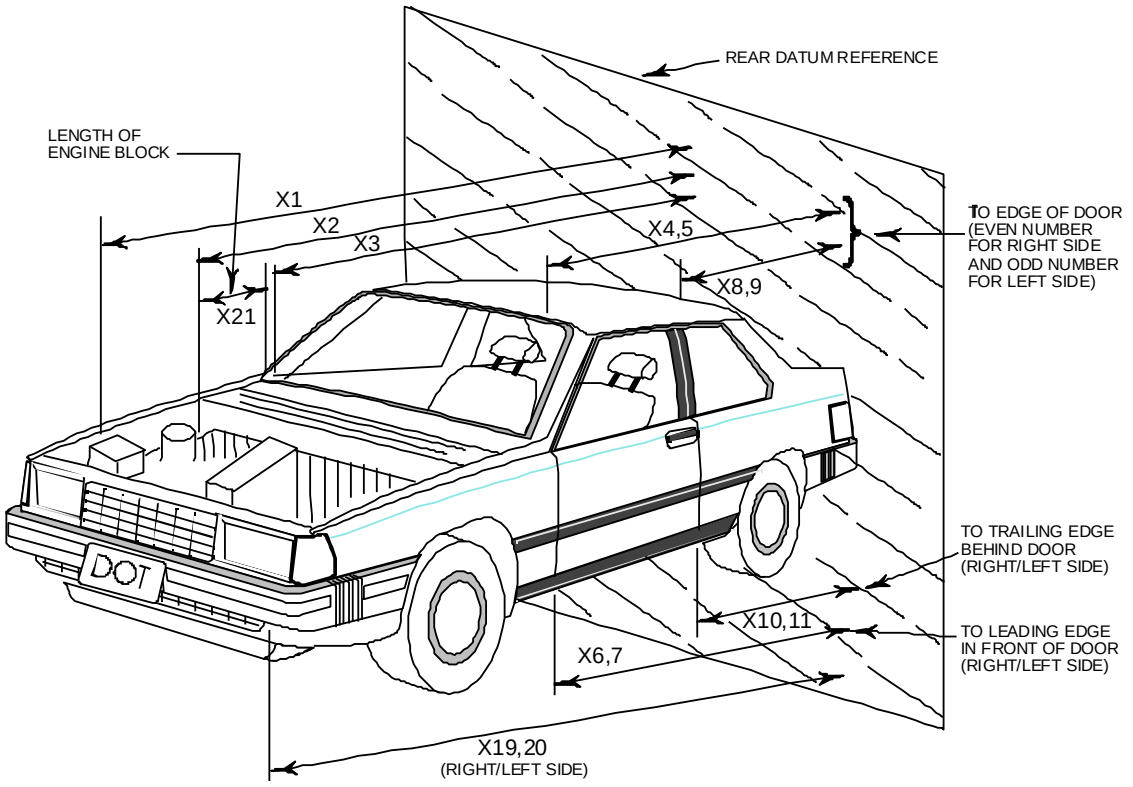
Note if any restraint system was disabled

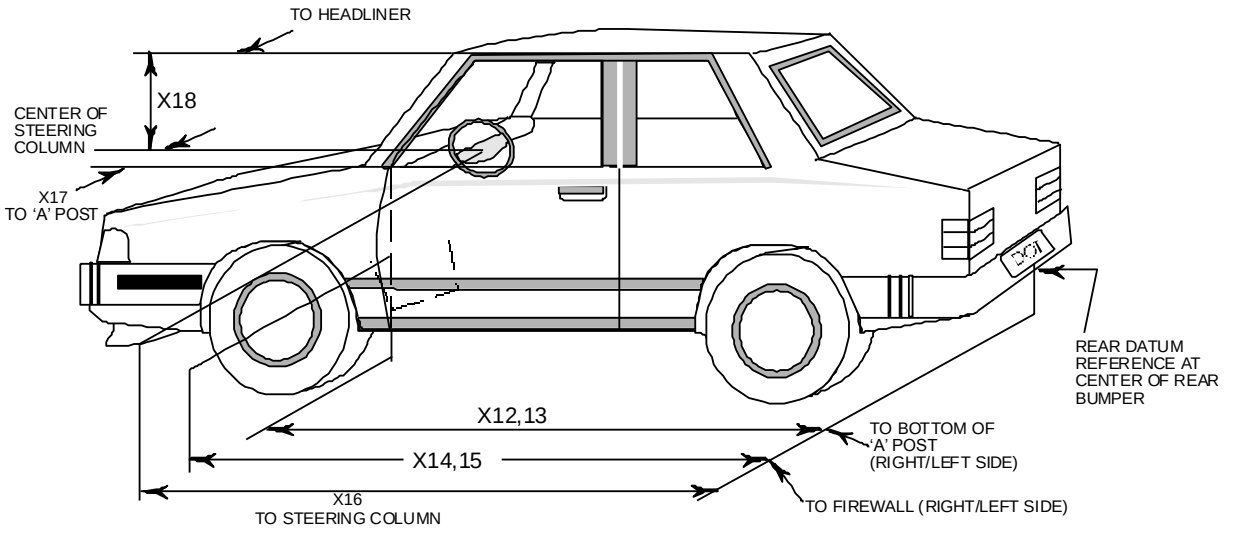
DATA SHEET NO. 11

VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11





DATA SHEET NO. 11 (CONTINUED)

VEHICLE PROFILE MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

No.	Measurement Description	Pre-Test	Post-Test	Difference
1	Total Length of Vehicle at Centerline	4414	4406	8
2	Rear Surface of Vehicle (RSOV) to Front of Engine	3968	3926	42
3	RSOV to Firewall	3496	3289	207
4	RSOV to Upper Leading Edge of Right Door	3116	3115	1
5	RSOV to Upper Leading Edge of Left Door	3117	2955	163
6	RSOV to Lower Leading Edge of Right Door	3121	3120	1
7	RSOV to Lower Leading Edge of Left Door	3115	3038	77
8	RSOV to Upper Trailing Edge of Right Door	2049	2048	1
9	RSOV to Upper Trailing Edge of Left Door	2049	1985	65
10	RSOV to Lower Trailing Edge of Right Door	2090	2090	0
11	RSOV to Lower Trailing Edge of Left Door	2086	2039	47
12	RSOV to Bottom of “A” Post of Right Side	3298	3296	2
13	RSOV to Bottom of “A” Post of Left Side	3297	3099	198
14	RSOV to Firewall, Right Side	3591	3592	-1
15	RSOV to Firewall, Left Side	3576	3278	298
16	RSOV to Steering Column	2608	2534	75
17	Center of Steering Column to “A” Post	290	295	-4
18	Center of Steering Column to Headliner	396	341	55
19	RSOV to Right Side of Front Bumper	4322	4357	-35
20	RSOV to Left Side of Front Bumper	4317	3776	541
21	Length of Engine Block	405	400	5
RD	RSOV to Right Side of Dash Panel	2817	2813	5
CD	RSOV to Center of Dash Panel	2853	2766	87
LD	RSOV to Left Side of Dash Panel	2820	2673	147

All Dimensions in mm

DATA SHEET NO. 12

ACCIDENT INVESTIGATION DIVISION DATA

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

VEHICLE INFORMATION

VIN: 3FADP4AJ3BM227913 Wheelbase: 2489

Vehicle Size Category: Passenger Test Weight (kg): 1364.5

ACCELEROMETER DATA

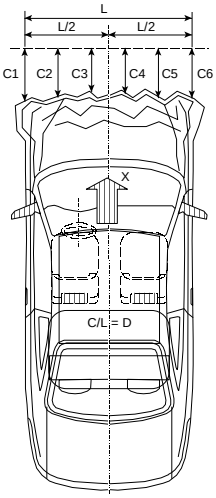
Accelerometer Locations: Data Sheet No.7 Linearity: >99%

Cal. Procedure/Interval: Shaker table 180 days

Integration Algorithm: Trapezoidal

Impact Velocity (km/h): 89.58

Velocity Change (km/h): 89.58



CRUSH PROFILE

Collision Deformation Classification : 12FLEE5

Midpoint of Damage: C2

Damage Region Length (mm): 1198

Impact Mode: 7° angle, 20% offset

CRUSH MEASUREMENTS: WITH BUMPER COVER

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	4211	3508	703
C2	Crush zone 2 at left side	mm	4349	4322	27
C3	Crush zone 3 at left side	mm	4397	4400	-3
C4	Crush zone 4 at right side	mm	4396	4422	-26
C5	Crush zone 5 at right side	mm	4343	4387	-44
C6	Crush zone 6 at right side	mm	4204	4239	-35
L	C1 to C6	mm	1198	1202	-3

CRUSH MEASUREMENTS: WITH BUMPER COVER REMOVED

No.	Measurement Description	Units	Pre-Test	Post-Test	Difference
C1	Crush zone 1 at left side	mm	4231.0	4065.2	-166
C2	Crush zone 2 at left side	mm	4328.2	4216.4	-112
C3	Crush zone 3 at left side	mm	4360.5	4283.9	-77
C4	Crush zone 4 at right side	mm	4360.1	4315.1	-45
C5	Crush zone 5 at right side	mm	4327.1	4312.9	-14
C6	Crush zone 6 at right side	mm	4229.8	4243.1	13
L	C1 to C6	mm	1088	1023	65

DATA SHEET NO. 13

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

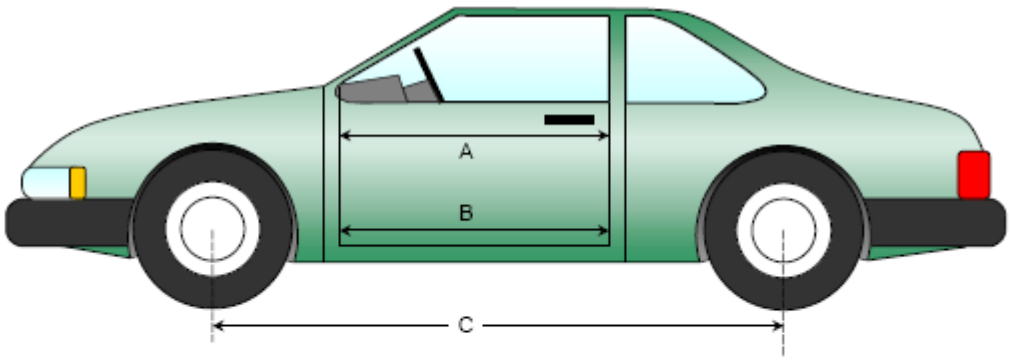
Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

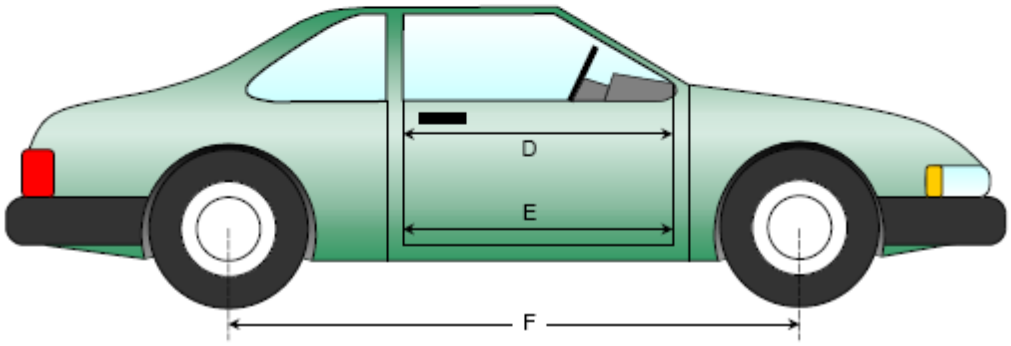
DOOR OPENING WIDTH

Item	Description	Units	Pre-Test	Post-Test	Difference
A	Left Side Upper	mm	867	713	-154
B	Left Side Lower	mm	865	741	-123
D	Right Side Upper	mm	867	866	-1
E	Right Side Lower	mm	853	854	1

WHEELBASE MEASUREMENTS

Item	Description	Units	Pre-Test	Post-Test	Difference
C	Left Side Wheelbase	mm	2488	2322	-166
F	Right Side Wheelbase	mm	2490	2593	103





DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

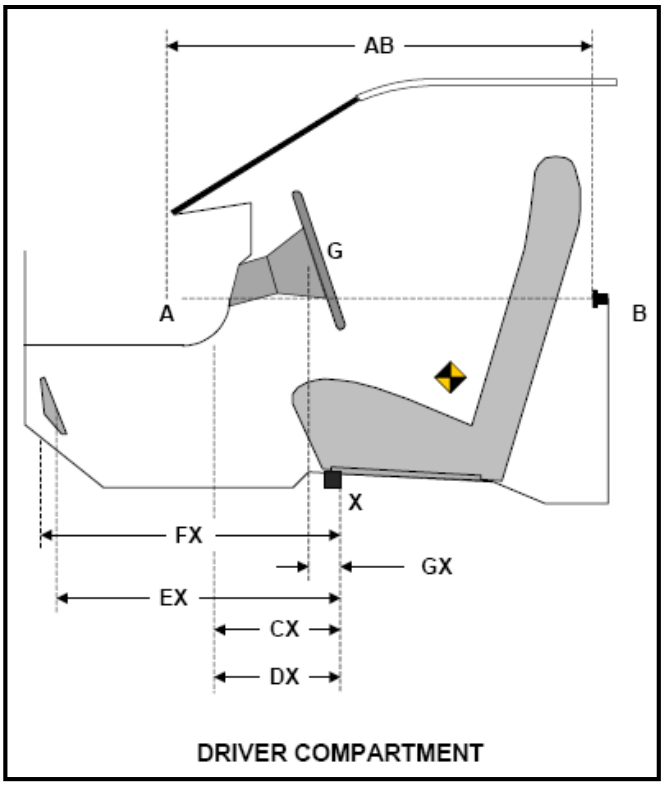
Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

DRIVER COMPARTMENT INTRUSION

Item	Description	Units	Pre-Test	Post-Test	Difference
AB	Door Opening (Inside Window Jam)	mm	812	717	-95
CX	Left Knee Bolster to X	mm	282	198	-84
DX	Right Knee Bolster to X	mm	252	180	-71
EX	Brake Pedal to X	mm	513	469	-44
FX	Foot Rest to X	mm	608	544	-64
GX	Center of Steering Column Wheel Hub to X	mm	5	-64	-69

X = Front of Seat Track (Stationary)

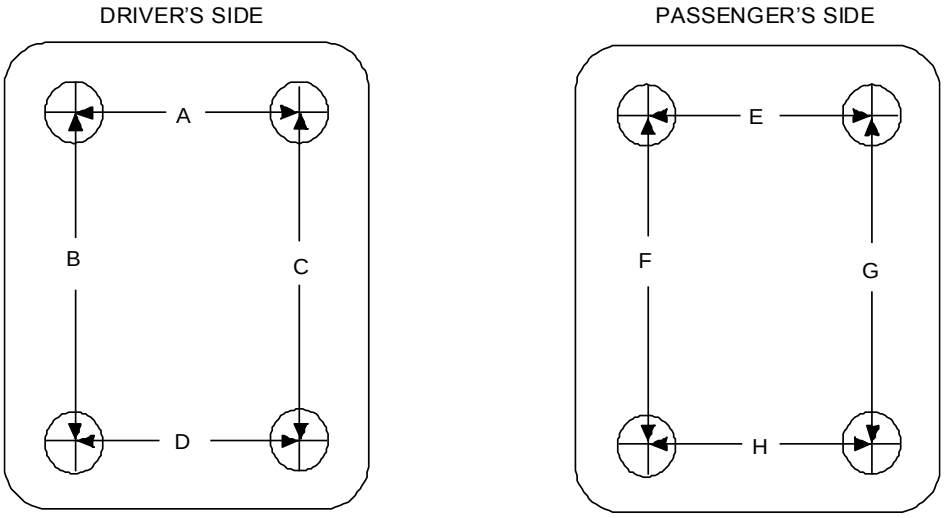


DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224
Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

TOP VIEW THROUGH FLOOR PAN



UNDERBODY FLOORBOARD DEFORMATION

Measurement	Pre-Test	Post-Test	Difference
A	439	396	42
B	320	304	16
C	298	298	0
D	418	391	26
E	402	382	20
F	352	352	0
G	332	336	-4
H	416	385	31

All units in millimeters

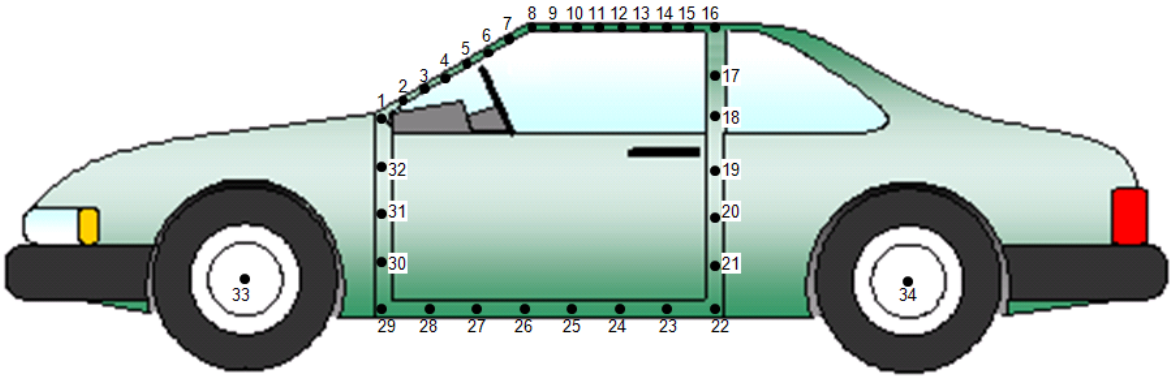
DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

DRIVER SIDE DOOR SILL INTRUSIONS



Left Side View

Reference point: Rear most center of the top of rear bumper beam

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

+Y – From 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

Note: See appendix F.2 for detailed procedure to measure required Door sill intrusion.

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

DRIVER SIDE DOOR SILL INTRUSIONS

Pt.	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2967.1	-698.9	-276.9	2800.5	-624.2	-337.0	-167	75	-60
2	2950.6	-687.4	-356.6	2825.8	-598.3	-409.7	-125	89	-53
3	2933.6	-666.3	-431.9	2863.6	-567.0	-474.5	-70	99	-43
4	2915.6	-638.9	-507.2	2909.2	-530.6	-531.3	-6	108	-24
5	2848.5	-625.9	-546.3	2854.8	-533.2	-565.3	6	93	-19
6	2776.0	-619.0	-581.4	2780.3	-544.6	-594.7	4	74	-13
7	2702.3	-606.9	-610.6	2705.9	-551.4	-620.6	4	56	-10
8	2626.1	-595.0	-637.3	2628.6	-558.1	-644.4	2	37	-7
9	2548.9	-584.1	-660.8	2550.0	-563.3	-664.7	1	21	-4
10	2471.1	-575.7	-682.3	2470.9	-561.0	-683.8	0	15	-2
11	2390.4	-568.9	-700.3	2389.7	-557.0	-702.4	-1	12	-2
12	2310.0	-562.3	-713.5	2308.7	-551.1	-714.3	-1	11	-1
13	2229.8	-556.2	-723.3	2310.4	-551.8	-714.7	81	4	9
14	2148.7	-552.3	-731.1	2229.8	-546.9	-723.9	81	5	7
15	2069.5	-550.7	-736.5	2148.0	-543.3	-730.3	79	7	6
16	2023.5	-548.8	-721.8	2069.8	-543.0	-734.5	46	6	-13
17	2035.7	-642.8	-574.3	2023.3	-542.4	-721.3	-12	100	-147
18	2068.2	-702.5	-410.0	2034.8	-634.8	-572.0	-33	68	-162
19	2111.2	-743.3	-242.7	2067.0	-693.0	-408.0	-44	50	-165
20	2106.4	-764.1	-58.4	2107.8	-732.7	-238.0	1	31	-180
21	2145.3	-764.9	117.0	2103.7	-751.6	-54.3	-42	13	-171
22	2170.9	-755.7	277.3	2141.6	-753.2	121.0	-29	2	-156
23	2288.5	-760.8	282.4	2168.9	-737.7	280.0	-120	23	-2
24	2412.2	-745.7	278.1	2286.0	-739.6	285.6	-126	6	7
25	2531.5	-743.8	278.4	2408.1	-723.6	277.8	-123	20	-1
26	2650.6	-744.3	278.7	2526.6	-718.5	274.5	-124	26	-4
27	2772.2	-744.5	279.0	2647.3	-717.7	264.0	-125	27	-15
28	2892.9	-742.9	279.1	2752.6	-705.0	251.2	-140	38	-28
29	3010.0	-724.4	237.7	2866.0	-680.4	240.9	-144	44	3
30	3061.3	-709.8	121.7	2950.7	-638.7	173.4	-111	71	52
31	3058.3	-704.8	-11.6	2943.1	-647.4	47.7	-115	57	59
32	3022.2	-702.4	-135.8	2913.6	-647.8	-80.7	-109	55	55
33	3555	-823	333	3379	-772.6	178.28	-176	51	-155
34	1067	-814	329	1056	-797.3	297.8	-10	16	-31

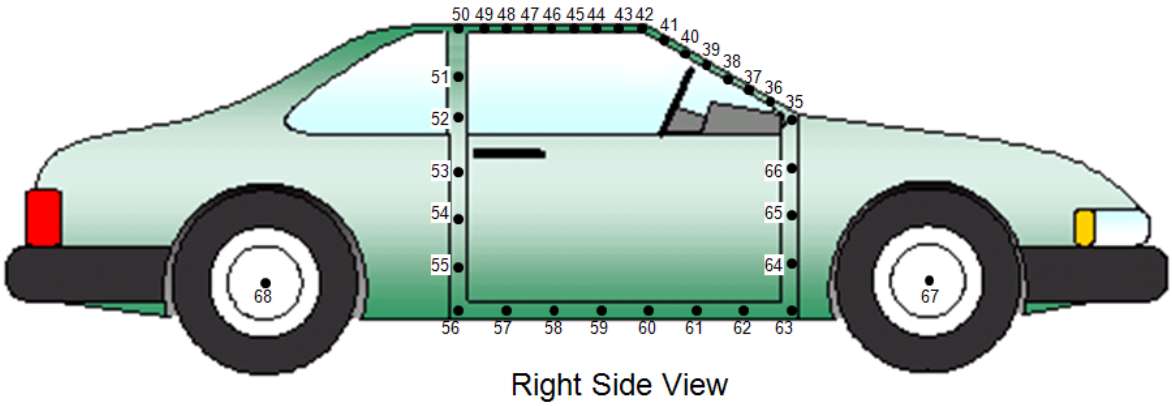
Note: Please see Appendix F.2 for a detailed procedure on how to measure the required door sill intrusions.

DATA SHEET NO.13 (CONTINUED)
VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

PASSENGER SIDE DOOR SILL INTRUSIONS



Right Side View

Reference point: Rear most center of the top of rear bumper beam
+X – From the rear of the vehicle to the front of the vehicle
+Y – From 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

Note: See appendix F.2 for detailed procedure to measure required Door sill intrusion**.**

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

PASSENGER SIDE DOOR SILL INTRUSION

Pt.	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
35	2966.4	709.8	-301.2	2965.8	735.8	-305.8	-1	26	-5
36	2950.0	698.8	-376.4	2947.7	725.0	-381.5	-2	26	-5
37	2933.7	683.9	-452.9	2930.8	707.4	-456.6	-3	23	-4
38	2915.5	659.6	-527.0	2912.8	681.3	-529.9	-3	22	-3
39	2852.0	657.5	-578.1	2848.3	675.7	-581.3	-4	18	-3
40	2781.4	646.9	-608.2	2780.5	663.6	-611.0	-1	17	-3
41	2708.0	636.7	-637.4	2708.0	636.7	-637.4	0	0	0
42	2635.9	626.8	-663.2	2635.5	638.0	-665.2	0	11	-2
43	2559.5	616.5	-686.7	2561.2	625.4	-688.8	2	9	-2
44	2486.9	608.3	-706.4	2486.5	615.1	-707.8	0	7	-1
45	2408.7	599.7	-722.7	2409.0	607.1	-724.2	0	7	-1
46	2332.3	593.5	-736.6	2331.0	599.4	-737.5	-1	6	-1
47	2253.2	587.1	-746.4	2252.9	592.6	-747.2	0	5	-1
48	2176.5	582.2	-753.4	2175.5	586.7	-753.8	-1	4	0
49	2096.2	578.4	-758.4	2096.2	582.5	-758.9	0	4	0
50	2016.7	569.7	-733.2	2015.9	574.3	-733.7	-1	5	0
51	2034.8	657.4	-587.1	2032.9	662.4	-587.9	-2	5	-1
52	2068.2	715.8	-423.5	2067.0	721.2	-424.1	-1	5	-1
53	2112.3	756.4	-252.9	2108.6	762.3	-253.6	-4	6	-1
54	2107.2	774.7	-75.9	2106.6	780.6	-78.9	-1	6	-3
55	2133.2	774.2	98.4	2131.4	780.4	98.0	-2	6	0
56	2130.8	763.0	263.8	2129.7	768.8	261.7	-1	6	-2
57	2259.7	768.0	268.8	2259.9	774.9	267.4	0	7	-1
58	2392.8	749.8	263.7	2391.5	757.8	261.5	-1	8	-2
59	2524.2	749.4	265.3	2524.1	757.8	262.5	0	8	-3
60	2655.7	748.2	264.2	2655.2	758.1	261.1	-1	10	-3
61	2786.5	746.8	263.3	2784.9	757.7	259.8	-2	11	-4
62	2918.9	748.1	262.2	2918.1	760.3	258.3	-1	12	-4
63	3032.1	724.8	202.1	3030.8	738.2	198.2	-1	13	-4
64	3063.4	694.2	68.4	3062.7	712.2	63.4	-1	18	-5
65	3058.8	717.4	-60.3	3056.6	737.5	-66.1	-2	20	-6
66	3011.5	719.5	-176.6	3007.9	743.1	-182.4	-4	24	-6
67	3561.6	829.6	325.3	3675.8	813.7	283.8	114	-16	-41
68	1072.1	817.2	334.8	1083.1	832.2	326.5	11	15	-8

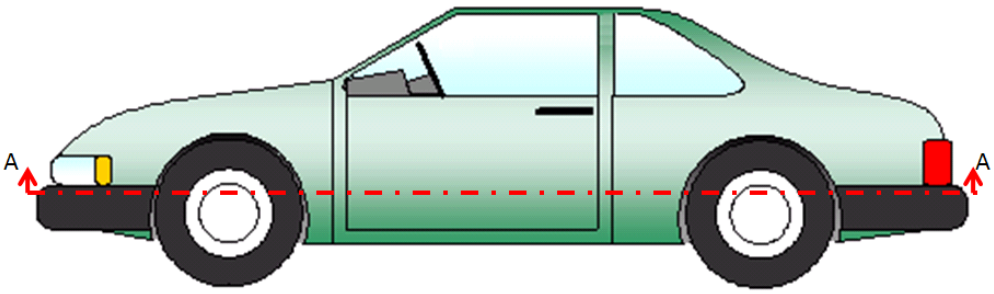
Note: Please see Appendix F.2 for a detailed procedure on how to measure the required door sill intrusions.

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11



Reference point: Rear most center of the top of rear bumper beam

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

+Y - From 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

VEHICLE EXTERIOR CRUSH PROFILE
SECTION A-A

Pt.	Pre-Test			Pt.	Post-Test		
	X	Y	Z		X	Y	Z
1	799.8	-817.7	98.3	1	835.1	-824.2	66.4
2	677.0	-794.6	96.5	2	689.5	-801.2	72.4
3	462.3	-750.3	93.3	3	508.7	-768.1	76.2
4	278.2	-694.3	101.8	4	316.4	-721.6	84.1
5	168.3	-621.7	100.5	5	237.9	-682.1	87.7
6	115.3	-562.4	94.4	6	127.7	-586.2	92.4
7	72.3	-480.2	102.2	7	67.3	-486.0	96.9
8	38.3	-353.0	104.4	8	41.4	-397.1	100.3
9	23.3	-221.5	106.8	9	24.7	-270.9	107.3
10	15.6	-6.1	108.2	10	18.1	-6.9	112.0
11	16.6	94.2	106.5	11	29.9	237.1	121.8
12	28.1	261.3	111.5	12	59.2	426.8	125.0
13	52.7	418.7	112.2	13	113.1	548.7	126.2
14	123.5	578.6	109.6	14	195.1	625.4	128.5
15	201.2	655.9	110.7	15	322.9	703.1	126.4
16	287.4	706.1	110.5	16	559.3	772.0	124.2
17	418.7	748.7	106.6	17	800.8	830.1	120.2

Note: See appendix F.3 for a detailed procedure on how to measure vehicle exterior crush profile

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

VEHICLE EXTERIOR CRUSH PROFILE
SECTION A-A (Continued)

Pt.	Pre-Test			Pt.	Post-Test		
	X	Y	Z		X	Y	Z
18	640.6	799.0	112.4	18	1338.4	845.8	107.4
19	1068.8	837.5	102.8	19	1456.1	837.2	105.0
20	1434.7	838.1	98.8	20	1650.0	831.6	99.9
21	1633.2	828.4	95.5	21	1841.0	839.3	98.1
22	1863.1	836.2	94.4	22	2079.6	847.6	94.9
23	2079.0	841.9	94.4	23	2432.8	855.3	89.0
24	2273.4	844.7	92.5	24	2759.3	858.9	81.4
25	2531.1	845.7	90.3	25	3074.0	857.8	73.4
26	2827.7	843.6	83.9	26	3226.8	870.8	71.3
27	3127.8	841.0	74.4	27	3285.7	873.4	68.8
28	3286.8	851.6	76.2	28	3820.0	858.9	44.7
29	3825.7	831.3	87.7	29	3964.1	840.6	38.5
30	3952.0	783.3	84.9	30	4022.6	810.5	44.0
31	4094.3	690.5	84.5	31	4137.7	749.6	33.4
32	4205.8	611.1	87.5	32	4255.1	681.1	30.8
33	4299.8	495.0	83.0	33	4325.5	610.4	28.0
34	4368.2	350.3	79.9	34	4384.9	518.5	22.8
35	4397.8	219.6	80.1	35	4376.9	455.3	20.6
36	4408.9	0.7	75.8	36	4402.3	320.9	11.4
37	4401.8	-171.0	76.0	37	4387.5	153.4	12.4
38	4383.1	-293.1	73.0	38	4428.4	-58.8	-148.7
39	4316.1	-458.8	73.1	39	4276.1	-305.4	-7.7
40	4233.8	-574.6	73.2	40	4265.0	-361.4	-9.0
41	4093.0	-685.9	73.4	41	4157.0	-378.1	-7.0
42	3963.5	-768.7	75.3	42	3920.2	-341.3	-0.4
43	3821.3	-826.0	74.6	43	3898.9	-445.2	-4.3
44	3292.3	-842.2	78.7	44	3781.0	-431.3	-1.5
45	3148.0	-834.5	79.4	45	3617.0	-431.0	5.2
46	2929.8	-831.2	82.2	46	3533.2	-439.9	0.1
47	2698.3	-834.3	83.8	47	3406.4	-443.2	5.9
48	2447.8	-834.7	87.8	48	3712.7	-628.8	-6.6
49	2183.6	-833.1	88.6	49	3674.5	-793.7	-10.9
50	1951.5	-828.6	88.7	50	3528.5	-888.1	-8.7

Note: See appendix F.3 for a detailed procedure on how to measure vehicle exterior crush profile

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

VEHICLE EXTERIOR CRUSH PROFILE
SECTION A-A (Continued)

Pt.	Pre-Test			Pt.	Post-Test		
	X	Y	Z		X	Y	Z
51	1816.4	-824.5	89.1	51	3052.4	-820.7	5.9
52	1597.4	-816.7	93.1	52	3025.6	-820.4	-3.6
53	1476.3	-822.5	88.0	53	3004.4	-753.7	-1.4
54	1333.5	-838.2	89.7	54	2893.4	-793.6	3.6
55	799.8	-817.7	98.3	55	2744.5	-840.5	7.6
				56	2506.7	-910.0	12.7
				57	2329.0	-972.5	16.6
				58	2182.0	-1003.4	22.0
				59	2054.8	-1021.8	27.8
				60	2015.8	-1028.1	22.3
				61	2064.5	-826.9	52.6
				62	1807.2	-824.0	41.9
				63	1481.7	-820.9	54.5
				64	1354.0	-837.8	54.7
				65	1282.9	-839.9	58.2
				66	835.1	-824.2	66.4

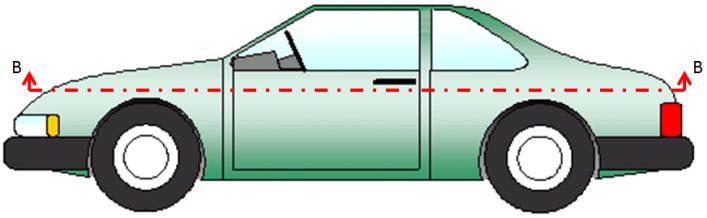
Note: See appendix F.3 for a detailed procedure on how to measure vehicle exterior crush profile

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11



Page 3-15: Please change text below figure:
Reference point: Rear most center of the top of rear bumper beam

+X - From the rear of the vehicle to the front of the vehicle
+Y - From 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

VEHICLE EXTERIOR CRUSH PROFILE
SECTION B-B

Pt.	Pre-Test			Pt.	Post-Test		
	X	Y	Z		X	Y	Z
1	1090.4	-838.4	-44.3	1	1019.8	-828.3	-85.8
2	943.0	-830.4	-36.1	2	836.5	-809.5	-75.7
3	711.2	-784.0	-38.8	3	718.6	-780.4	-71.7
4	479.5	-741.7	-37.7	4	526.6	-751.5	-62.7
5	248.3	-669.1	-39.7	5	415.9	-733.2	-59.8
6	157.1	-600.6	-39.0	6	234.5	-665.9	-51.5
7	96.3	-514.7	-39.8	7	113.0	-556.0	-41.5
8	62.1	-411.6	-37.4	8	56.3	-430.9	-39.1
9	36.4	-227.4	-32.5	9	25.4	-238.8	-32.5
10	27.8	0.1	-30.4	10	10.5	-1.9	-22.3
11	32.0	185.8	-29.9	11	18.6	193.7	-19.7
12	66.5	416.4	-35.2	12	50.1	427.5	-13.8
13	116.0	556.3	-36.2	13	97.5	537.1	-9.2
14	185.8	631.3	-41.2	14	192.0	632.8	-8.1
15	300.7	700.7	-43.2	15	338.1	710.9	-8.6
16	458.7	747.0	-39.0	16	460.1	746.6	-11.4
17	665.8	784.6	-44.2	17	691.5	802.2	-13.1
18	877.1	831.7	-41.1	18	908.3	838.9	-11.8

Note: See appendix F.3 for a detailed procedure on how to measure vehicle exterior crush profile

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

VEHICLE EXTERIOR CRUSH PROFILE
SECTION B-B (Continued)

Pt.	Pre-Test			Pt.	Post-Test		
	X	Y	Z		X	Y	Z
19	1125.6	847.5	-51.5	19	1031.1	848.0	-15.7
20	1162.1	846.5	-54.4	20	1131.7	851.0	-22.0
21	1304.6	840.4	-54.9	21	1168.9	850.2	-9.9
22	1537.1	831.4	-58.5	22	1311.6	845.6	-12.1
23	1753.6	839.8	-51.4	23	1525.8	833.2	-15.6
24	2073.1	848.3	-59.1	24	1814.5	845.6	-15.4
25	2304.3	851.0	-62.7	25	1991.1	851.6	-15.5
26	2568.2	849.6	-67.6	26	2166.6	858.7	-19.9
27	2841.3	843.4	-65.2	27	2369.1	863.1	-20.8
28	3144.1	831.0	-61.2	28	2647.2	865.5	-23.3
29	3251.8	842.8	-68.0	29	3074.8	859.0	-25.7
30	3450.7	855.7	-66.4	30	3210.0	868.3	-24.5
31	3735.8	840.4	-71.6	31	3420.7	880.2	-26.6
32	3805.9	816.4	-56.8	32	3696.7	869.5	-31.4
33	3921.0	756.5	-60.1	33	3814.8	848.9	-40.6
34	4080.4	655.1	-67.5	34	3914.9	820.6	-42.4
35	4148.1	569.3	-61.1	35	4030.7	802.0	-43.4
36	4245.8	411.8	-65.4	36	4161.8	741.2	-46.6
37	4283.1	392.8	-65.2	37	4253.8	677.6	-48.9
38	4329.1	5.8	-68.4	38	4330.1	598.0	-52.8
39	4298.0	-354.0	-58.4	39	4386.0	506.7	-55.5
40	4259.1	-387.7	-47.5	40	4425.1	377.5	-55.8
41	4199.5	-539.9	-49.9	41	4429.9	267.8	-63.0
42	4048.6	-680.3	-55.1	42	4387.0	84.9	-63.1
43	3891.9	-761.2	-67.0	43	4348.4	-120.3	-68.2
44	3771.6	-814.7	-72.6	44	4311.0	-238.5	-92.3
45	3646.9	-836.4	-70.0	45	4134.0	-410.2	-90.5
46	3468.9	-843.3	-62.1	46	4044.0	-472.3	-88.1
47	3296.7	-835.6	-66.9	47	3907.2	-439.2	-80.1
48	3262.2	-830.4	-72.2	48	3752.5	-433.3	-74.4
49	3165.5	-818.6	-72.1	49	3440.4	-441.1	-67.6
50	2860.7	-828.0	-70.4	50	3675.0	-532.8	-74.3
51	2553.5	-835.0	-65.1	51	3591.7	-639.1	-76.4
52	2248.1	-837.0	-56.7	52	3511.4	-722.4	-74.3

Note: See appendix F.3 for a detailed procedure on how to measure vehicle exterior crush profile

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

VEHICLE EXTERIOR CRUSH PROFILE
SECTION B-B (Continued)

Pt.	Pre-Test			Pt.	Post-Test		
	X	Y	Z		X	Y	Z
53	1944.3	-833.3	-56.3	53	3525.7	-788.5	-76.4
54	1637.3	-824.2	-55.5	54	3431.1	-855.7	-68.3
55	1331.4	-827.6	-55.3	55	3039.1	-843.7	-64.2
56	1124.2	-838.5	-47.2	56	3027.5	-757.5	-169.4
57	1090.4	-838.4	-44.3	57	2850.2	-842.3	-182.1
				58	2586.6	-939.7	-171.4
				59	2329.1	-1021.8	-159.3
				60	2070.3	-1025.4	-164.0
				61	1993.7	-987.9	-134.6
				62	2061.0	-821.0	-119.7
				63	1931.0	-819.8	-130.2
				64	1742.0	-819.6	-122.9
				65	1466.5	-817.1	-108.4
				66	1266.6	-828.1	-97.3
				67	1141.6	-830.9	-91.6
				68	1019.8	-828.3	-85.8

Note: See appendix F.3 for a detailed procedure on how to measure vehicle exterior crush profile

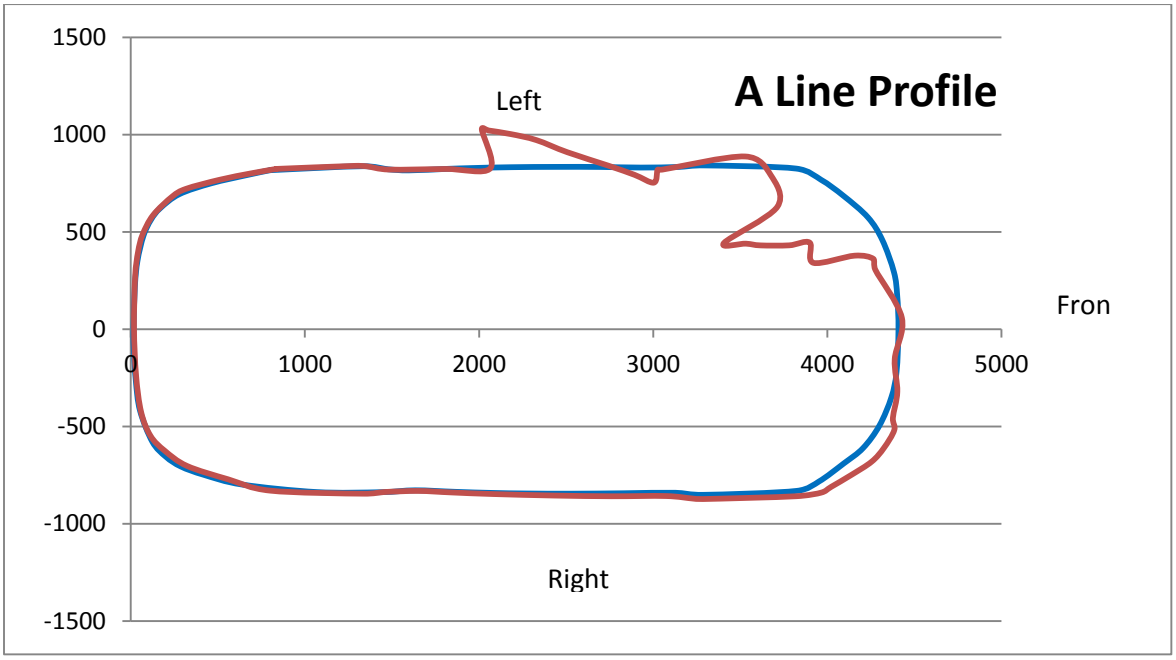
DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

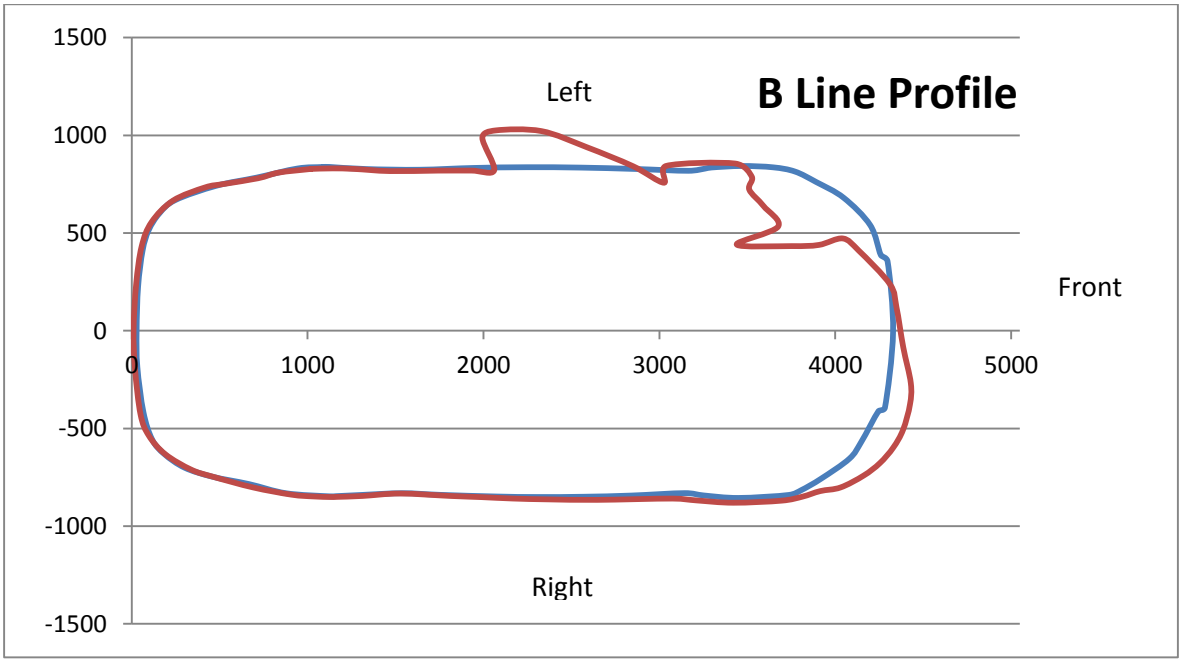
Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

SECTION A-A



SECTION B-B



Left Profile DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224
Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

Left Profile of the Dash

Points	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
LB3	2986.5	-482.8	3.8	2866.2	-394.8	-64.2	-120.2	88.0	-68.0
LB2	2956.9	-481.9	-38.2	2851.0	-427.0	-111.1	-105.9	54.8	-72.9
LB1	2923.5	-481.2	-80.8	2840.0	-440.4	-160.7	-83.5	40.8	-79.9
DIPL	2885.0	-480.8	-109.5	2795.3	-440.6	-219.8	-89.7	40.3	-110.2
LT1	2841.2	-480.8	-132.1	2755.4	-413.8	-225.6	-85.7	67.0	-93.5
LT2	2822.1	-482.6	-178.9	2716.3	-407.2	-236.5	-105.8	75.4	-57.6
LT3	2837.9	-481.4	-220.8	2701.2	-400.3	-286.5	-136.7	81.1	-65.7
LT4	2850.5	-483.5	-267.8	2703.1	-396.1	-348.9	-147.4	87.4	-81.1
LT5	2884.9	-484.3	-306.3	2733.8	-402.8	-387.8	-151.1	81.5	-81.6
LT6	2923.6	-488.4	-335.6	2766.0	-410.9	-419.0	-157.6	77.5	-83.4
LT7	2973.0	-483.3	-351.1	2818.2	-412.6	-437.7	-154.9	70.7	-86.6
LT8	3020.2	-483.8	-361.8	2867.3	-417.6	-448.9	-152.9	66.2	-87.0

Reference point: Rear most center of the top of rear bumper beam
+X - From the rear of the vehicle to the front of the vehicle
+Y - From 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

Note: See Appendix F.4 for a detailed procedure on how to measure the required profile dash.

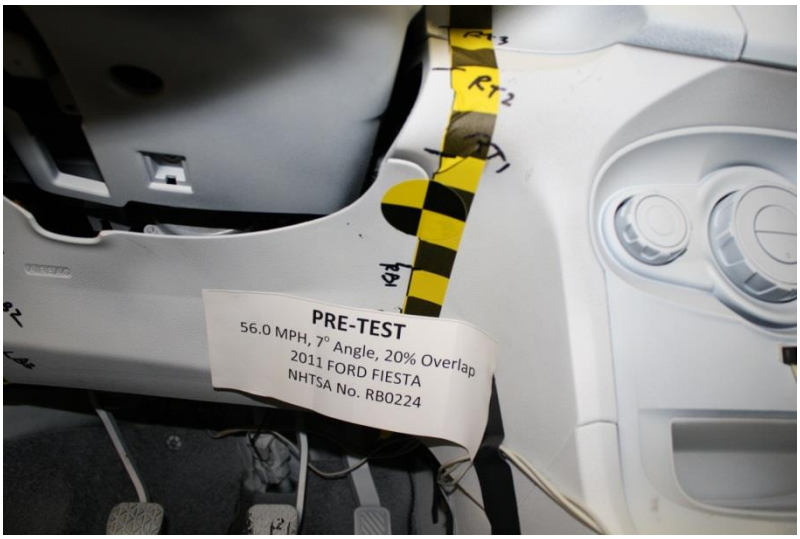
DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

Right Profile of the Dash



Points	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
RB3	2959.4	-184.8	-0.5	2896.5	-98.3	-95.9	-62.9	86.5	-95.4
RB2	2928.4	-184.6	-42.8	2862.0	-98.6	-132.3	-66.4	86.0	-89.5
RB1	2895.6	-184.8	-76.9	2822.4	-100.8	-163.9	-73.1	84.0	-86.9
DIPR	2854.8	-188.1	-106.1	2777.6	-105.5	-190.8	-77.2	82.6	-84.7
RT1	2811.9	-187.4	-132.3	2732.9	-106.4	-210.6	-79.1	81.0	-78.3
RT2	2801.4	-186.8	-176.1	2715.7	-106.4	-248.5	-85.7	80.3	-72.4
RT3	2834.5	-181.6	-214.5	2738.0	-100.2	-294.5	-96.5	81.4	-79.9
RT4	2833.3	-187.9	-259.6	2731.5	-104.8	-340.5	-101.8	83.1	-81.0
RT5	2869.3	-187.1	-294.7	2762.2	-106.2	-378.0	-107.0	80.8	-83.3
RT6	2900.7	-177.0	-332.7	2797.4	-98.9	-415.8	-103.3	78.2	-83.1
RT7	2951.8	-183.9	-347.0	2835.3	-111.2	-444.0	-116.5	72.7	-97.0
RT8	2998.9	-185.6	-363.9	2879.1	-116.2	-468.1	-119.9	69.4	-104.2

Reference point: Rear most center of the top of rear bumper beam

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

+Y - From 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

Note: See Appendix F.4 for a detailed procedure on how to measure the required profile dash.

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

	Points	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
		X	Y	Z	X	Y	Z	X	Y	Z
Lower Bumper Beam	1	4118.6	-398.5	-113.2	4100.4	-286.2	-342.4	-18	112	-229
	2	4114.1	-235.3	-159.7	4099.5	-114.8	-313.4	-15	121	-154
	3	4102.8	-71.4	-124.0	4157.9	-7.4	-270.6	55	64	-147
	4	4098.8	90.5	-138.9	4130.1	152.7	-243.8	31	62	-105
	5	4107.0	254.2	-138.6	4119.9	313.7	-211.5	13	59	-73
	6	4115.2	411.0	-110.5	4134.7	455.6	-162.4	20	45	-52
Upper Bumper Beam	1	4229.8	-539.7	85.1	4061.5	-439.9	-170.9	-168	100	-256
	2	4328.4	-335.7	90.4	4208.9	-279.1	-138.0	-119	57	-228
	3	4360.8	-110.8	90.8	4275.6	-65.4	-91.2	-85	45	-182
	4	4360.2	117.4	90.2	4309.0	154.5	-39.4	-51	37	-130
	5	4327.3	343.1	92.8	4310.0	374.5	17.4	-17	31	-75
	6	4227.7	548.2	95.0	4243.0	586.7	71.3	15	38	-24
Upper Radiator Support	1	4231.0	-541.4	176.3	4065.2	-461.5	-78.1	-166	80	-254
	2	4328.2	-337.1	175.5	4216.4	-300.5	-53.5	-112	37	-229
	3	4360.5	-111.8	179.1	4283.9	-87.6	-3.7	-77	24	-183
	4	4360.1	116.5	179.7	4315.1	132.0	47.9	-45	16	-132
	5	4327.1	341.2	178.6	4312.9	353.0	99.0	-14	12	-80
	6	4229.8	546.7	183.0	4243.1	561.9	158.3	13	15	-25

Reference point: Rear most center of the top of rear bumper beam

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

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

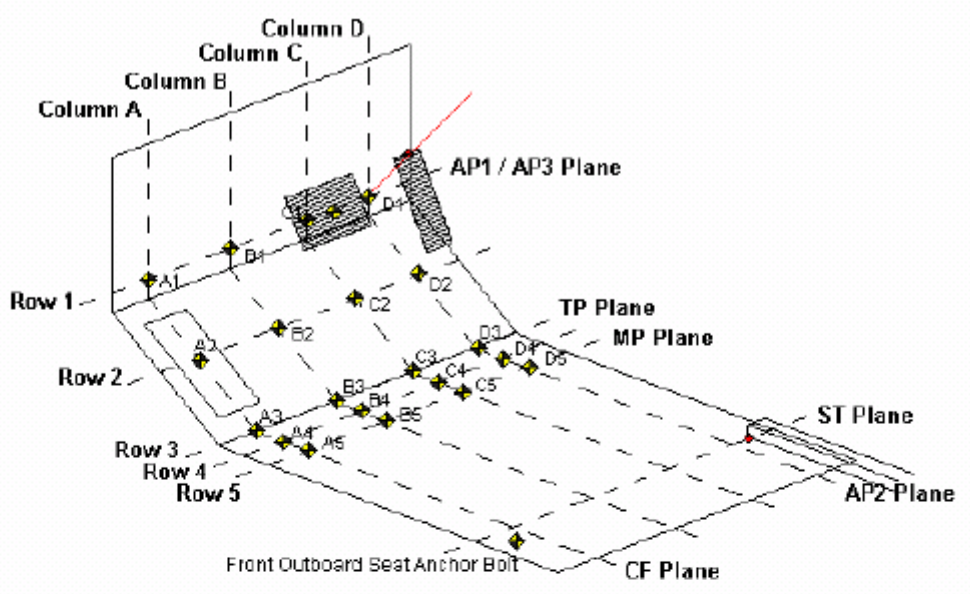
+Z – From the top of the vehicle to the bottom of the vehicle

DATA SHEET NO.13 (CONTINUED)

VEHICLE INTRUSION MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11



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: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

Intrusion Location	Pre-Test (mm)			Post-Test (mm)			Difference (mm)		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3223.0	-535.1	222.2	3149.4	-485.5	105.7	-73.6	49.5	-116.5
B1	3298.2	-398.7	224.2	3221.7	-351.6	91.3	-76.5	47.1	-132.9
C1	3293.7	-270.1	226.9	3209.0	-233.7	79.4	-84.7	36.5	-147.5
D1	3298.1	-158.0	225.6	3254.5	-138.0	104.4	-43.6	19.9	-121.2
A2	3210.9	-538.0	290.0	3141.1	-487.1	170.0	-69.8	50.9	-120.0
B2	3203.9	-401.7	295.5	3151.0	-356.6	182.7	-53.0	45.0	-112.8
C2	3210.5	-279.1	306.9	3153.4	-246.0	180.3	-57.1	33.1	-126.6
D2	3211.4	-158.3	312.5	3191.4	-143.7	208.7	-20.0	14.6	-103.8
A3	3101.1	-543.3	352.7	3061.1	-484.9	266.5	-40.0	58.5	-86.2
B3	3099.9	-412.1	352.8	3062.1	-367.6	263.5	-37.8	44.5	-89.3
C3	3103.4	-284.7	360.8	3078.9	-252.1	270.9	-24.5	32.7	-89.9
D3	3107.3	-159.4	352.4	3090.5	-140.6	268.4	-16.8	18.8	-84.0
A4	3014.3	-542.4	352.4	2968.9	-492.8	274.2	-45.4	49.6	-78.1
B4	3013.7	-414.7	351.1	2983.8	-373.0	249.8	-29.9	41.7	-101.3
C4	3013.3	-289.2	354.4	2989.3	-260.2	263.6	-24.0	29.1	-90.8
D4	3012.1	-160.1	354.5	3003.3	-141.8	286.9	-8.8	18.2	-67.6
A5	2925.3	-544.9	353.6	2903.9	-495.3	305.9	-21.5	49.6	-47.7
B5	2929.7	-421.6	355.2	2902.1	-383.4	263.7	-27.6	38.2	-91.5
C5	2929.9	-292.7	355.5	2904.7	-257.1	274.7	-25.1	35.6	-80.8
D5	2931.0	-166.1	356.8	2921.3	-144.1	289.6	-9.7	22.1	-67.2
Brake Pedal	3116.0	-264.2	177.3	3066.5	-193.3	104.7	-49.5	70.9	-72.6
IP Left	2885.0	-480.8	-109.5	2795.3	-440.6	-219.8	-89.7	40.3	-110.2
IP Right	2854.8	-188.1	-106.1	2777.6	-105.5	-190.8	-77.2	82.6	-84.7
Steering Column	2608.4	-329.4	-309.5	2533.6	-239.7	-384.0	-74.8	89.7	-74.5
Front Outboard Bolt	2603.1	-540.8	303.5	2597.2	-516.9	300.6	-5.9	23.9	-2.9

Reference point: Rear most center of the top of rear bumper beam

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

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

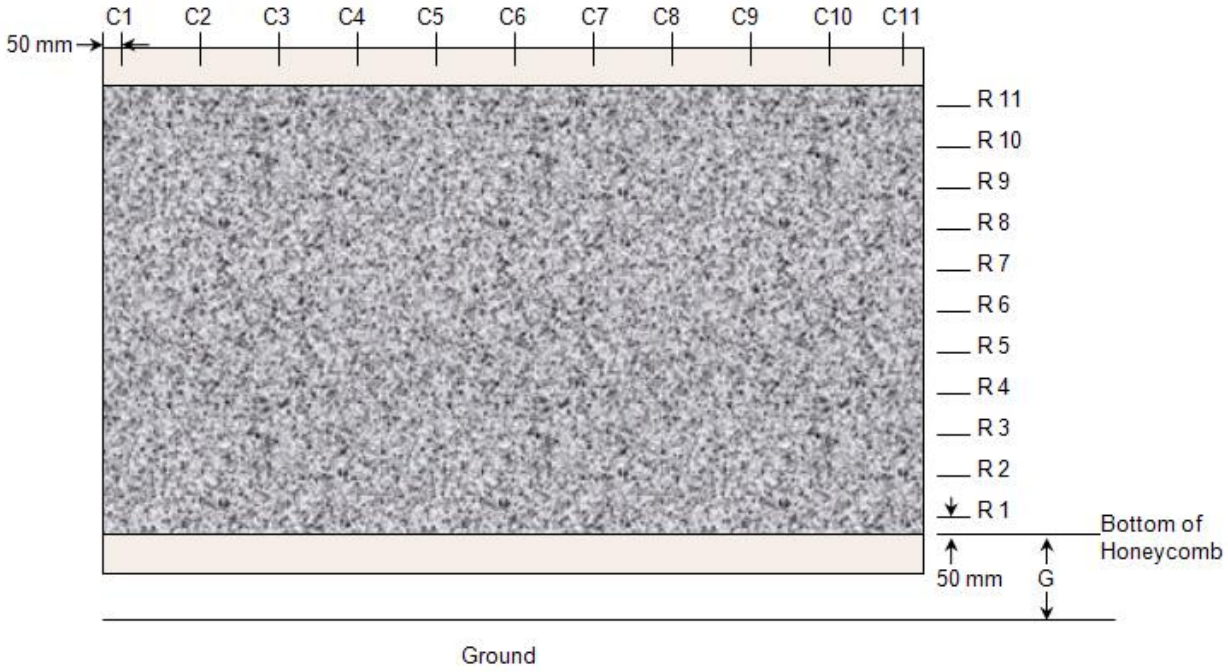
+Z – From the top of the vehicle to the bottom of the vehicle

DATA SHEET NO.14

RMDB CRUSH MEASUREMENTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11



BARRIER X-CRUSH

		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	910mm	-3.8	-1.4	-0.6	-0.1	1.1	2.2	2.9	4.0	4.7	18.9	71.8
R10	824mm	-4.1	-3.4	-2.6	-2.1	-1.2	-0.2	1.0	1.9	8.3	45.4	91.2
R9	738mm	-4.1	-3.7	-2.9	-2.3	-1.5	-0.4	0.5	1.7	7.6	71.1	127.2
R8	652mm	-4.1	-3.9	-3.0	-2.3	-1.6	-0.7	0.4	1.5	3.3	117.7	155.8
R7	566mm	-4.1	-3.9	-3.0	-2.4	-1.5	-0.5	0.5	1.5	3.9	95.4	177.9
R6	480mm	-4.3	-3.4	-3.1	-2.2	-1.6	-0.5	0.6	1.5	6.6	90.8	202.1
R5	384mm	-4.3	-4.1	-3.1	-2.1	-1.3	-0.4	0.5	1.5	30.9	106.6	160.3
R4	308mm	-4.7	-4.1	-3.3	-2.1	-1.2	-0.3	0.8	1.7	61.8	147.0	179.1
R3	222mm	-4.8	-4.3	-3.3	-2.1	-1.2	-0.3	0.8	1.8	88.1	194.5	190.9
R2	136mm	-4.8	-4.3	-3.0	-1.7	-0.9	0.1	1.0	1.9	114.7	231.7	235.5
R1	50mm	-4.7	-3.9	-2.9	-0.4	*	*	0.8	7.2	138.1	235.0	273.2

DATA SHEET NO. 15

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

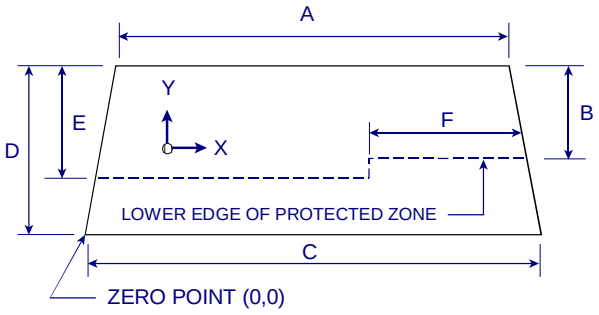
Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224
Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

Please provide windshield mounting details. The windshield is connected on the left and right sides by a rubber gasket and glued with urethane adhesive.

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: 21.3 ºC

WINDSHIELD PERIPHERY MEASUREMENTS

Measurement	Pre-Test (mm)	Post-Test (mm)	% Retention
Left Side	2068	2068	100
Right Side	2068	2068	100
Total	4135	4135	100



Item	Units	Value
A	mm	1140
B	mm	547
C	mm	1325
D	mm	835
E	mm	562
F	mm	528

AREAS OF PROTECTED ZONE FAILURES

A. Provide coordinates of the area that the protected zone was penetrated more than .25 inches by a vehicle component other than one that is normally in contact with the windshield.
- No Penetration

X	Y

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

- Hood Penetration

X	Y
1145	30

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

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224
Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Temperature at Time of Impact: 26.7ºC Test Time: 10:50 AM

Stoddard Solvent Spillage Measurements

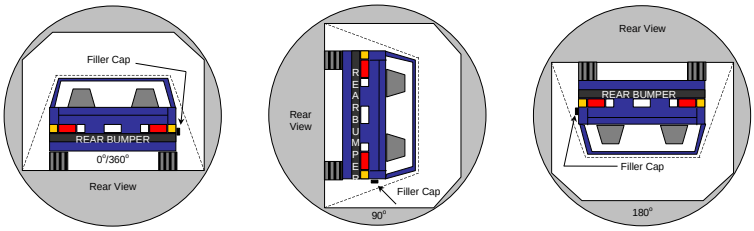
A.	From impact until vehicle motion ceases: (maximum allowable = 1 oz.)	0 oz.
B.	For the 5-minute period after motion ceases: (maximum allowable = 5 oz.)	0 oz.
C.	For the following 25 minutes: (maximum allowable = 1 oz./minute)	0 oz.
D.	Spillage:	0 oz.

DATA SHEET NO. 16

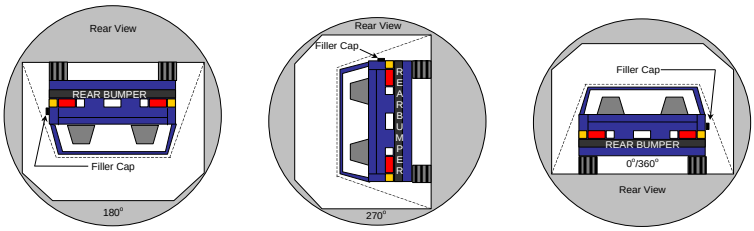
FMVSS 301 STATIC ROLLOVER RESULTS

Test Vehicle: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11



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).

- Details of Stoddard Solvent spillage: _____

SOLVENT COLLECTION TIME TABLE IN SECONDS

Test Phase	Rotation Time	Hold Time	Total Time
0° to 90°	71	300	371
90° to 180°	61	300	361
180° to 270°	59	300	359
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: 2011 Ford Fiesta NHTSA No.: RB0224

Test Program: R&D 56mph, 7° angle, 20% offset Test Date: 7/23/11

Not Available

APPENDIX A

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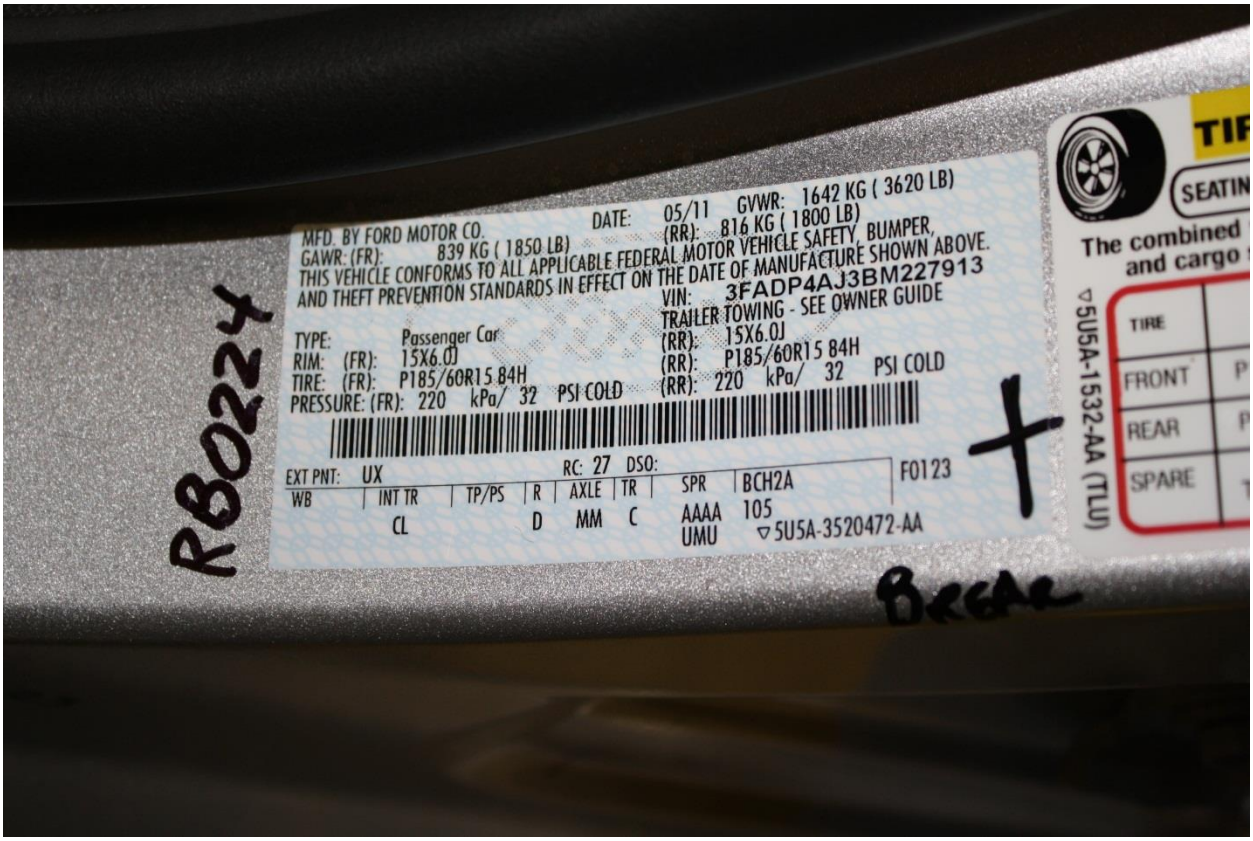
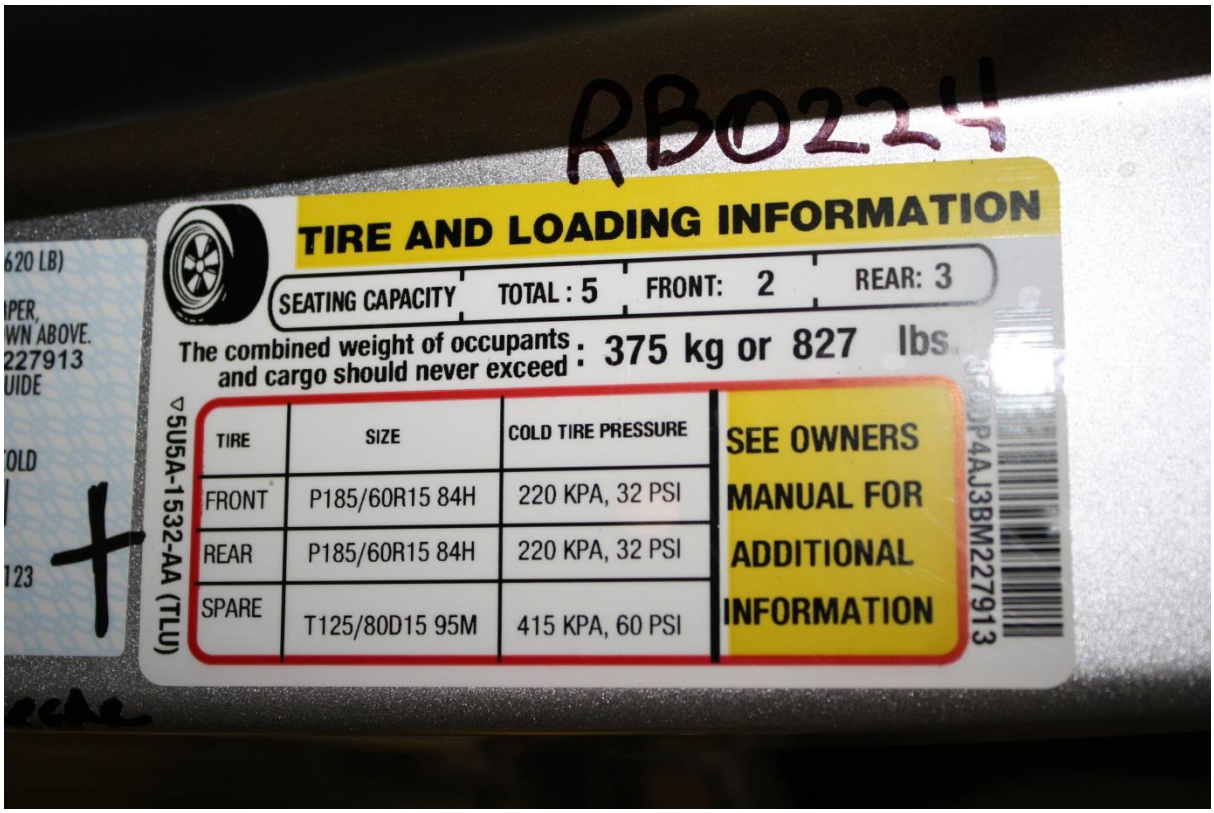
No. 001 As Delivered Right Front 3-4 View of Test Vehicle

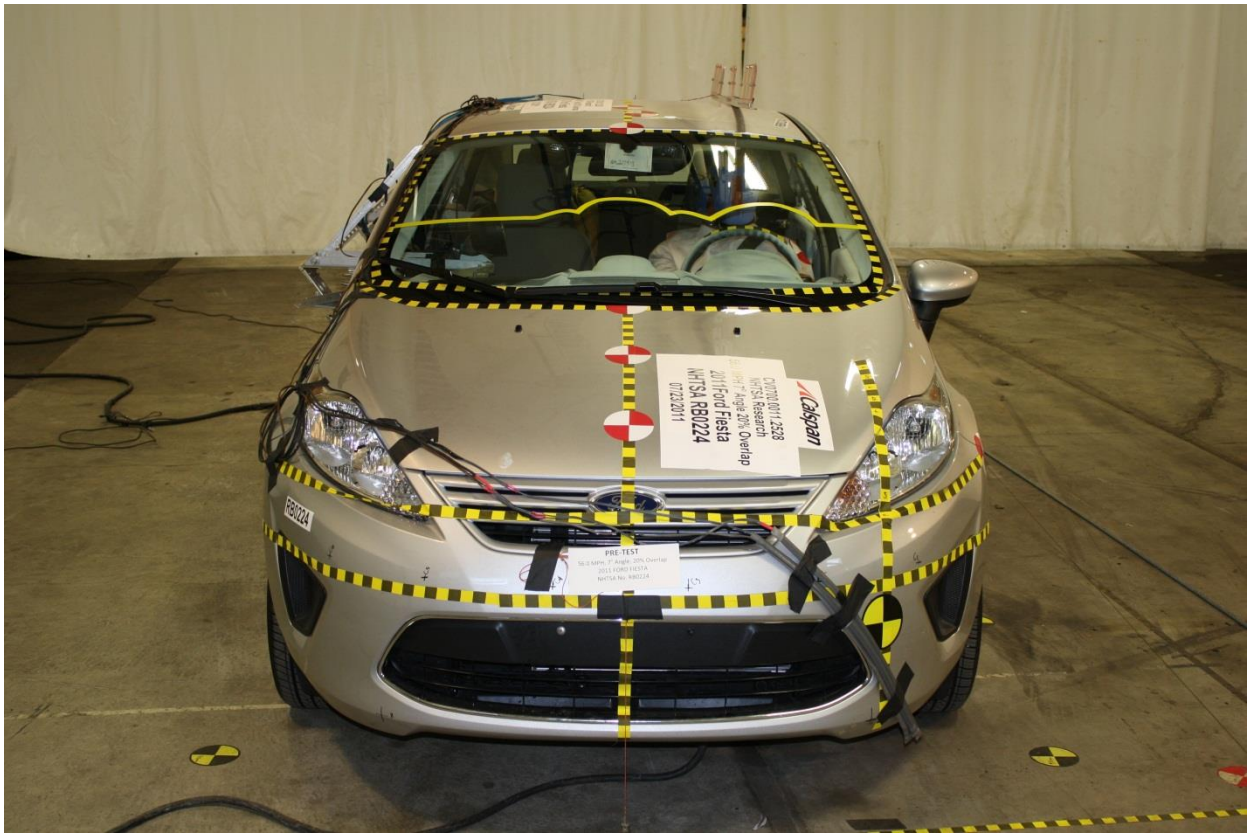
No. 002 As Delivered Left Rear 3-4 View of Test Vehicle



No. 003 Test Vehicle Certification Label



No. 004 Test Vehicle Tire Placard



No. 005 Pre-Test Front View of Test Vehicle

No. 006 Post-Test Front View of Test Vehicle

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

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

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

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

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

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

No. 013 Pre-Test Rear View of Test Vehicle

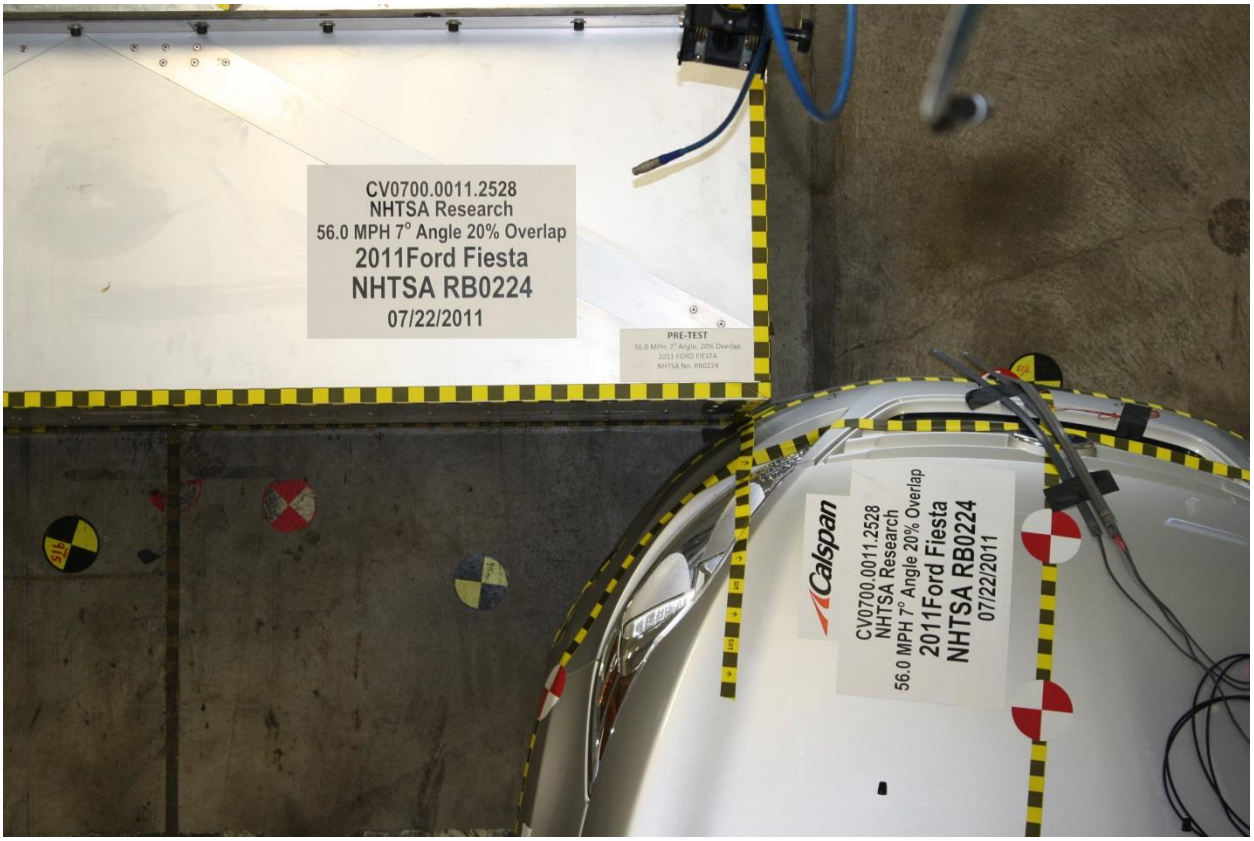
No. 014 Post-Test Rear View of Test Vehicle

No. 015 Pre-Test Right Side View of Test Vehicle

No. 016 Post-Test Right Side View of Test Vehicle

No. 017 Pre-Test Right Front 3-4 View of Test Vehicle

No. 018 Post-Test Right Front 3-4 View of Test Vehicle



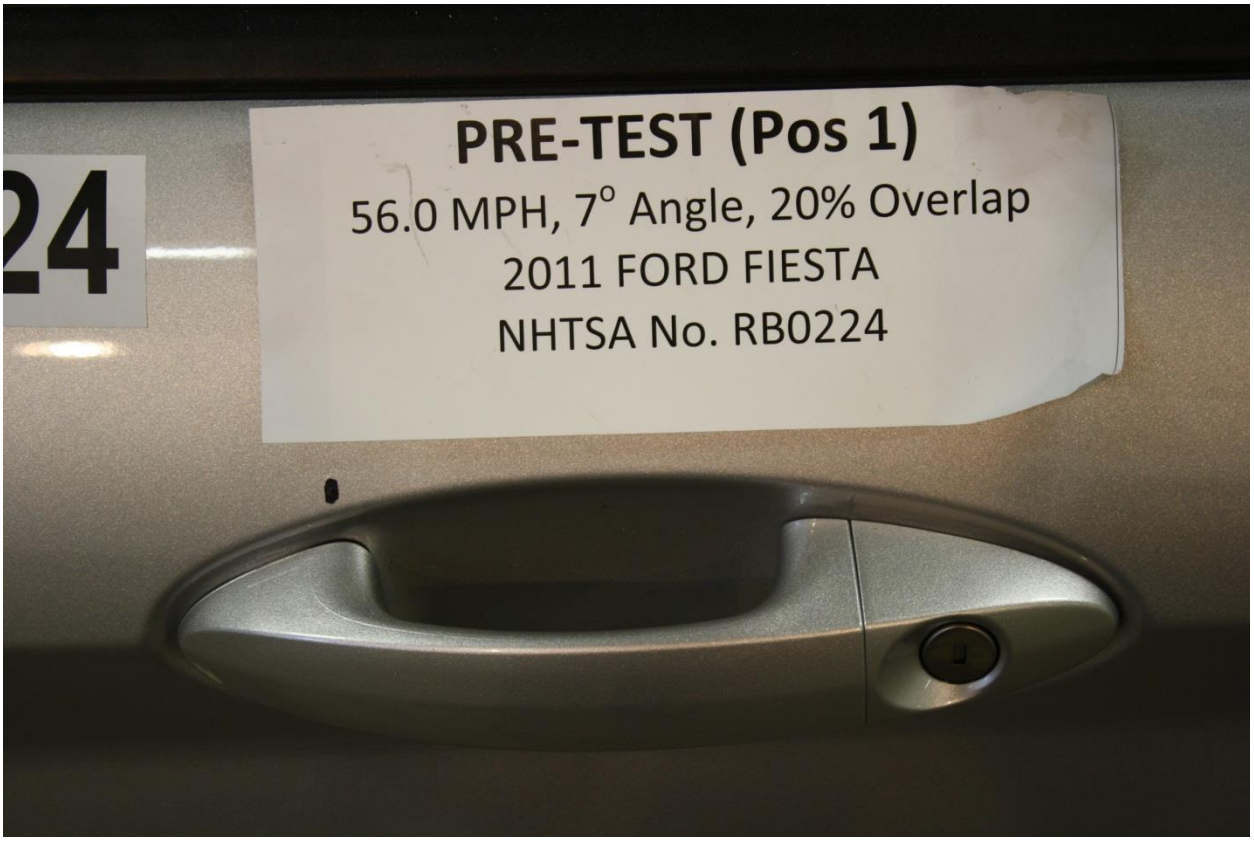
No. 019 Pre-Test Overhead View of RMDB against target vehicle at ideal Impact Point

No. 020 Pre-Test Left Side View of RMDB against target vehicle at ideal Impact Point

No. 021 Pre-Test Right Side View of RMDB against target vehicle at ideal Impact Point

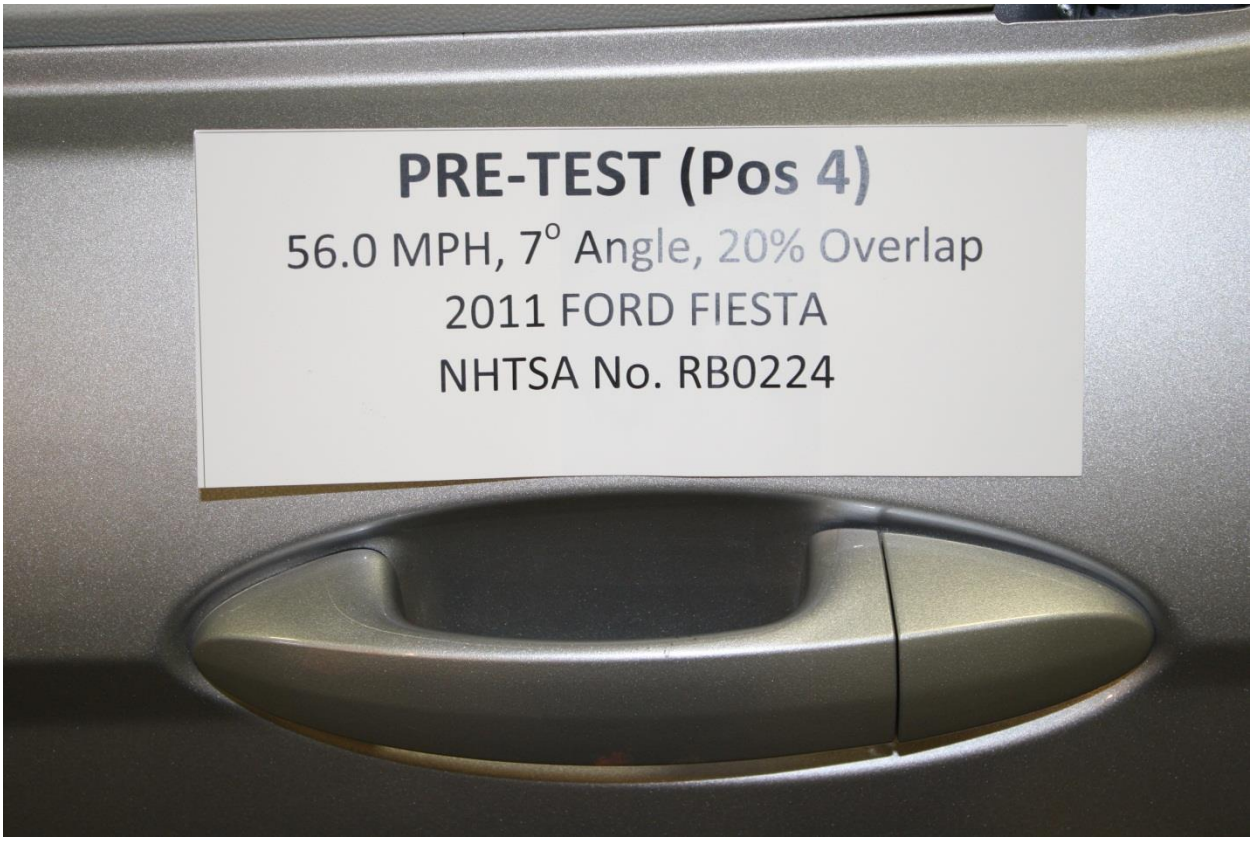
No. 022 Pre-Test Close-up View of Impact Point

No. 023 Post-Test Close-up View of Impact Point

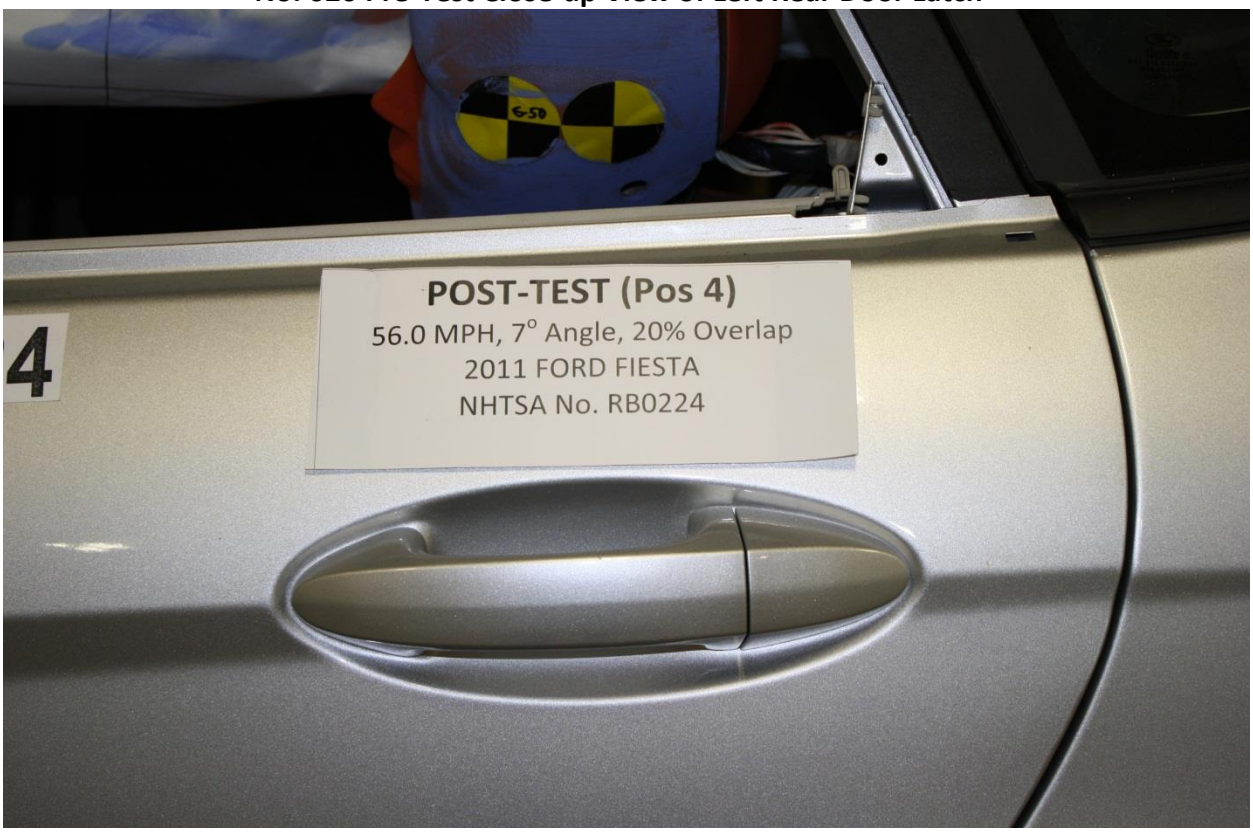


No. 024 Pre-Test Close-up View of Left Front Door Latch

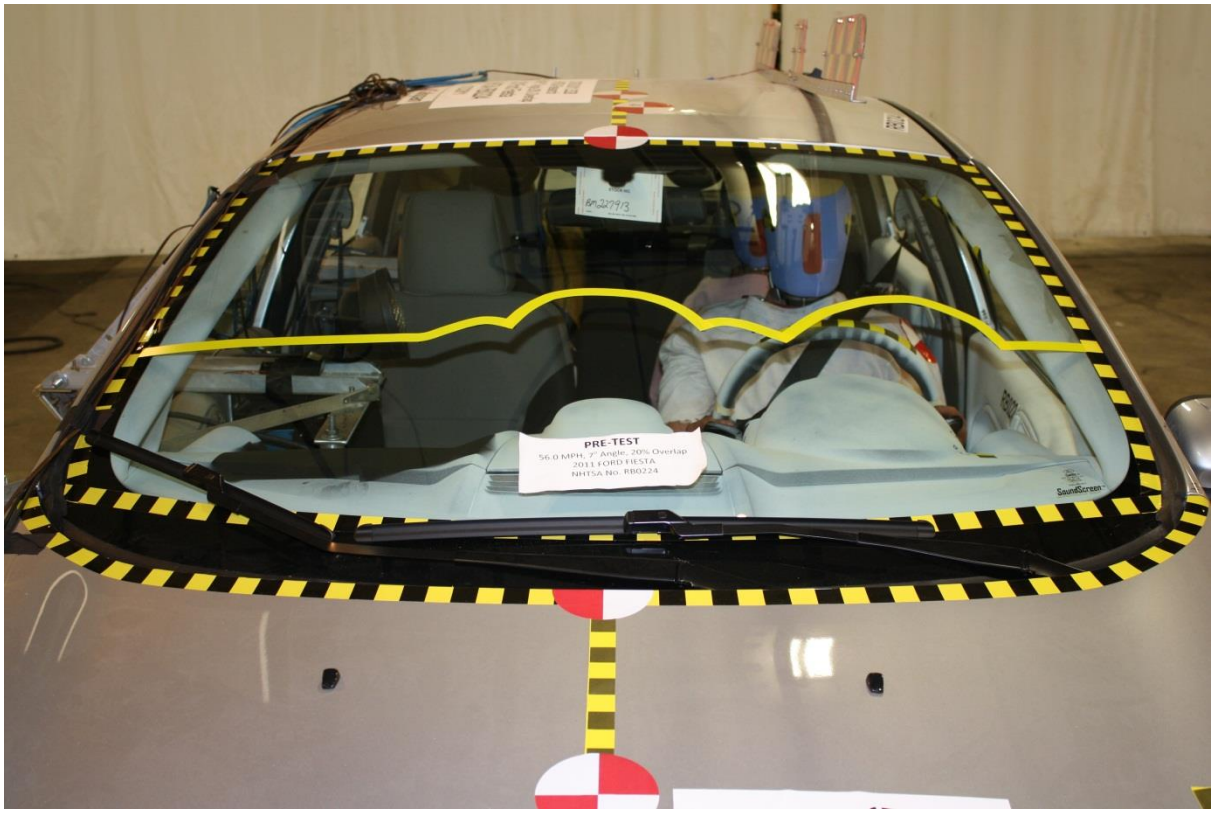
No. 025 Post-Test Close-up View of Left Front Door Latch



No. 026 Pre-Test Close-up View of Left Rear Door Latch



No. 027 Post-Test Close-up View of Left Rear Door Latch



No. 028 Pre-Test Windshield View

No. 029 Post-Test Windshield View

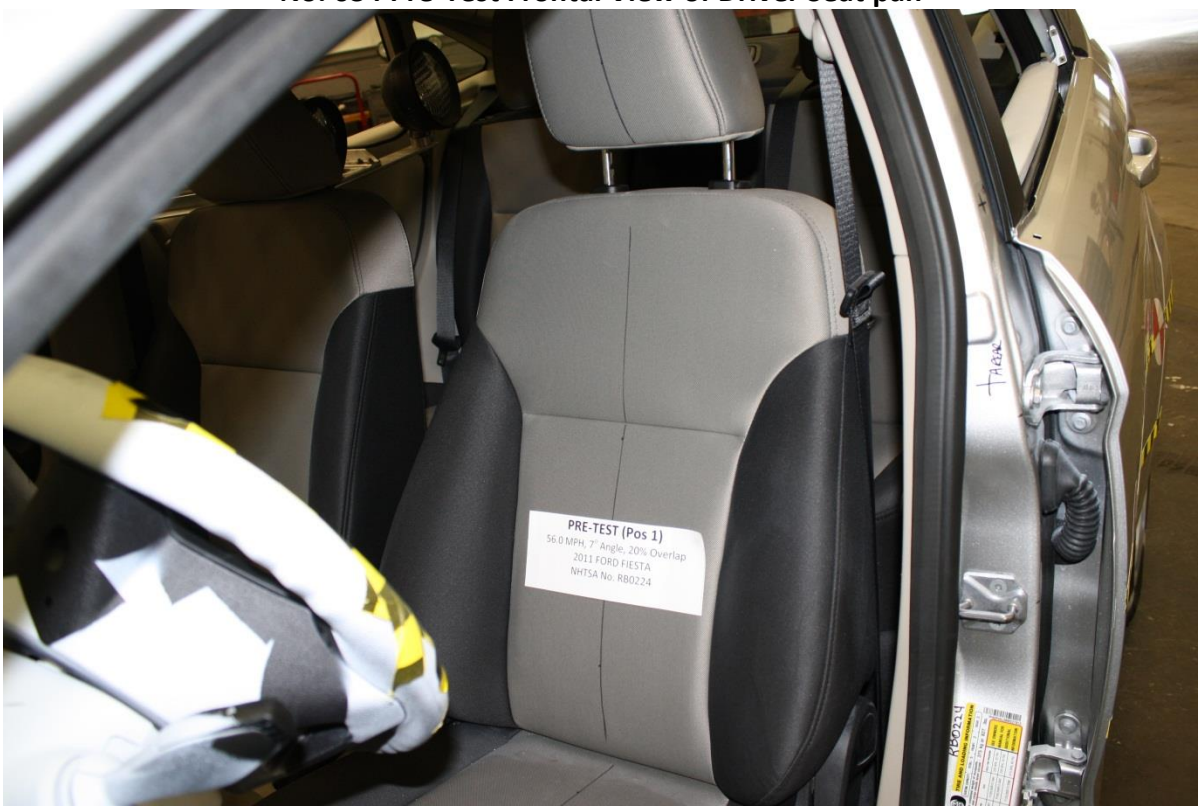
No. 030 Pre-Test View of Driver Inner Door Panel

No. 031 Post-Test View of Driver Inner Door Panel

No. 032 Pre-Test View of Passenger Inner Door Panel

No. 033 Post-Test View of Passenger Inner Door Panel

No. 034 Pre-Test Frontal View of Driver Seat pan



No. 035 Pre-Test Frontal View of Driver Seat back

No. 036 Pre-Test Frontal View of Left Rear Seat pan

No. 037 Pre-Test Frontal View of Left Rear Seat back

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

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

Photo Not Applicable

Panel can't be removed due to knee airbag

No. 040 Pre-Test Overall View of Driver Knee Bolsters with panel removed

No. 041 Post-Test Overall View of Driver Knee Bolsters with panel removed

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

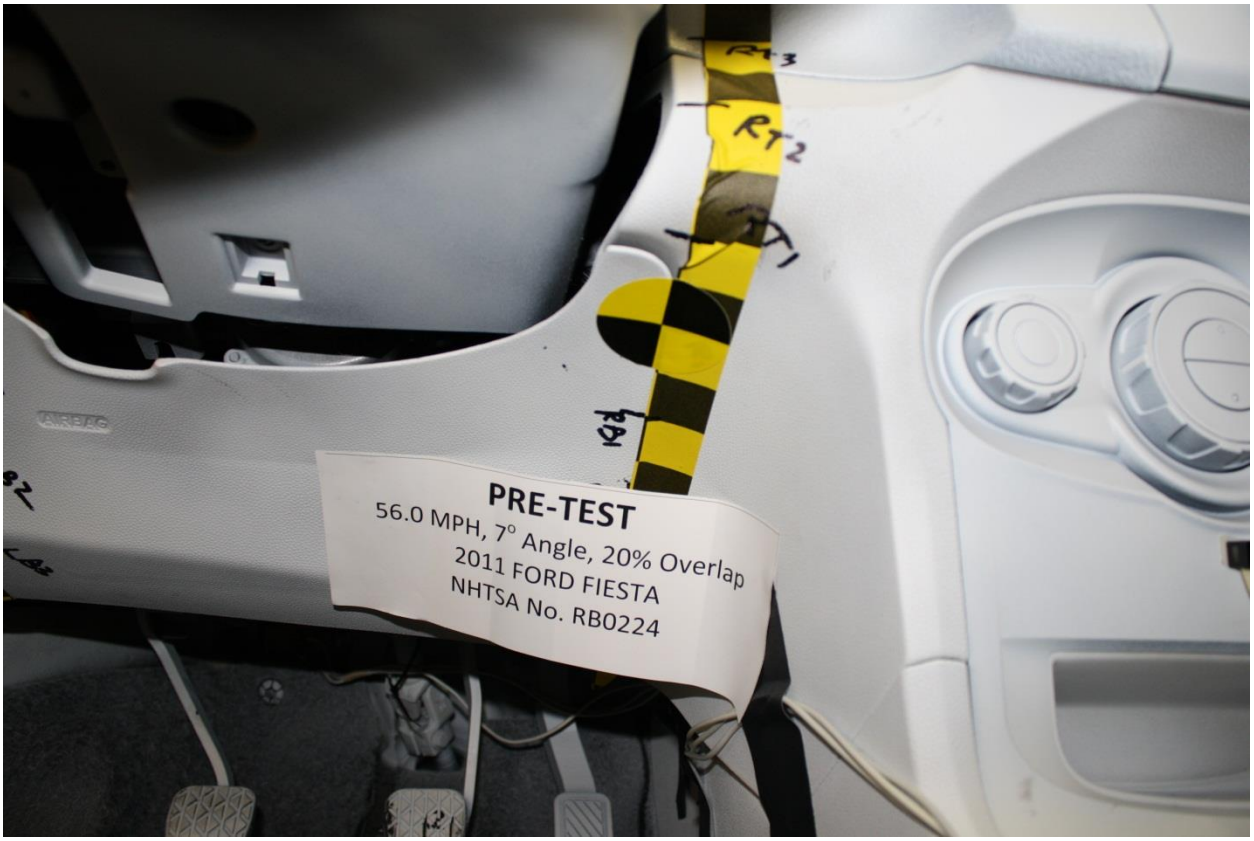
No. 043 Post-Test Left Side View of Driver Knee Bolsters

Photo Not Applicable

Panel can't be removed due to knee airbag

No. 044 Pre-Test Left Side View of Driver Knee Bolsters with panel removed

No. 045 Post-Test Left Side View of Driver Knee Bolsters with panel removed



No. 046 Pre-Test Right Side View of Driver Knee Bolsters

No. 047 Post-Test Right Side View of Driver Knee Bolsters

Photo Not Applicable

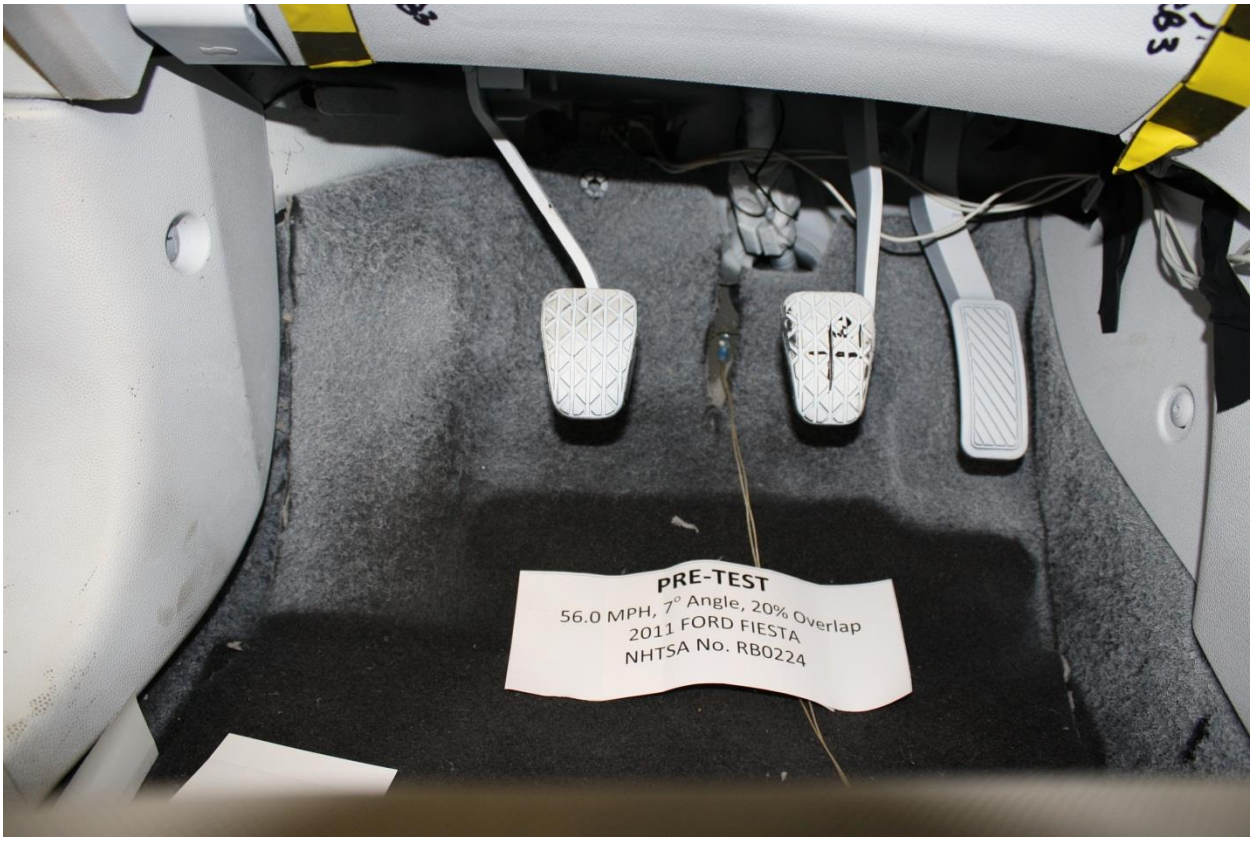
Panel can't be removed due to knee airbag

No. 048 Pre-Test Right Side View of Driver Knee Bolster with panel removed

No. 049 Post-test right side view of driver knee bolster with panel removed

No. 050 Pre-Test View of Driver Floor pan at Left sill level

No. 051 Post-Test View of Driver Floor pan at Left sill level



No. 052 Pre-Test View of Driver Floor pan at Mid seat level

No. 053 Post-Test view of Driver Floor pan at Mid seat level

No. 054 Pre-Test Driver Dummy Front Windshield View

No. 055 Post-Test Driver Dummy Front Windshield View

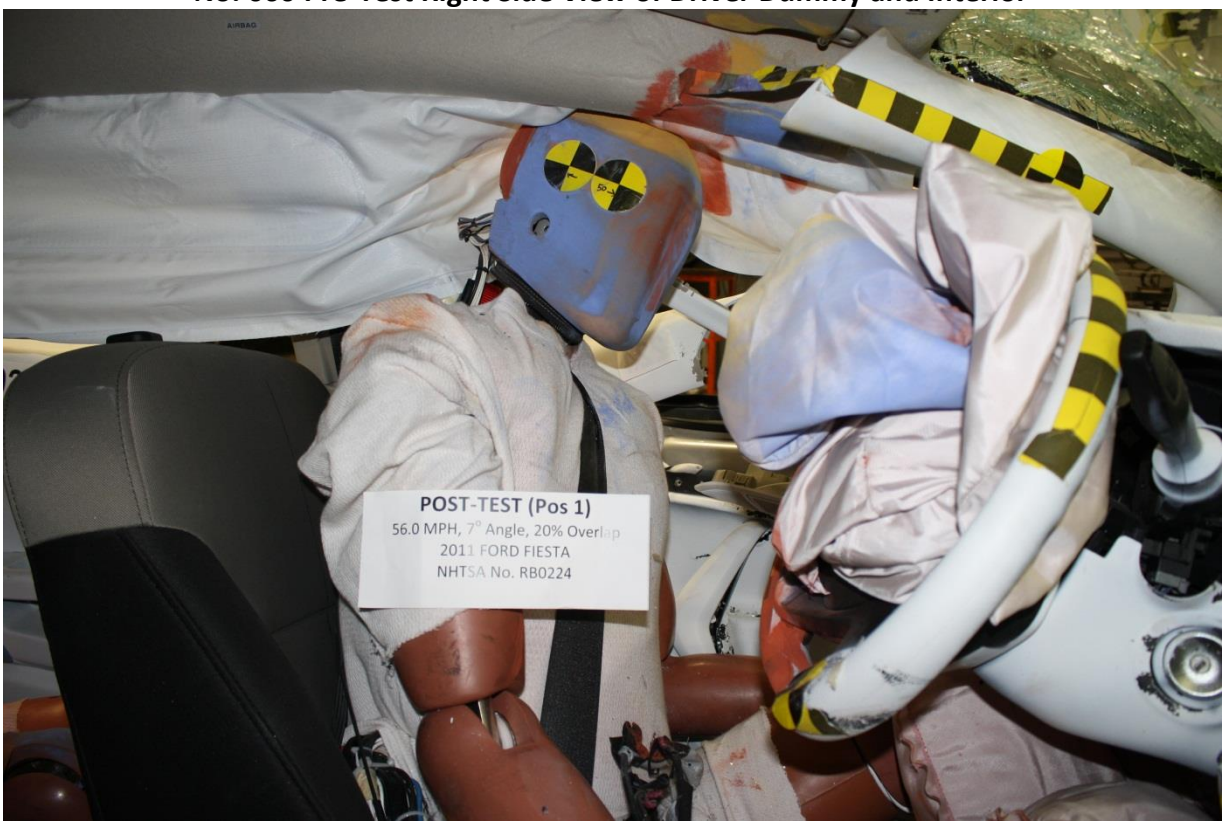
No. 056 Pre-Test Left Side View of Driver Dummy and Interior

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

No. 058 Pre-Test Left Side Driver Dummy Window View

No. 059 Post-Test Left Side Driver Dummy Window View

No. 060 Pre-Test Right Side View of Driver Dummy and Interior



No. 061 Post-Test Right Side View of Driver Dummy and Interior

No. 062 Pre-Test View of Driver Dummy Door Clearance

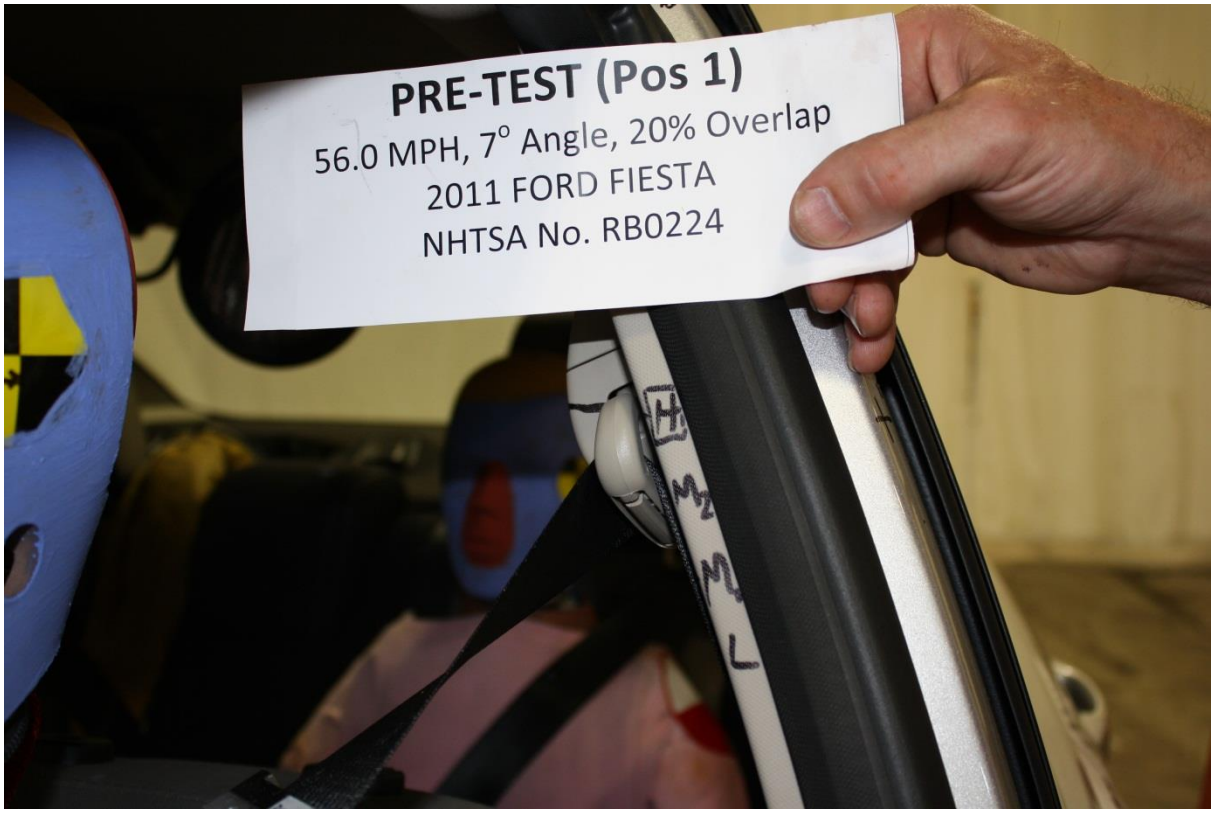
No. 063 Post-Test View of Driver Dummy Door Clearance

No. 064 Pre-Test Driver Seat Back Position markings

No. 065 Pre-Test Driver Seat Back Position with Level or Inclinometer

No. 066 Pre-Test Driver Seat Fore Aft Markings

No. 067 Post-Test Driver Seat Fore Aft Markings



No. 068 Pre-Test Driver Adjustable D-ring

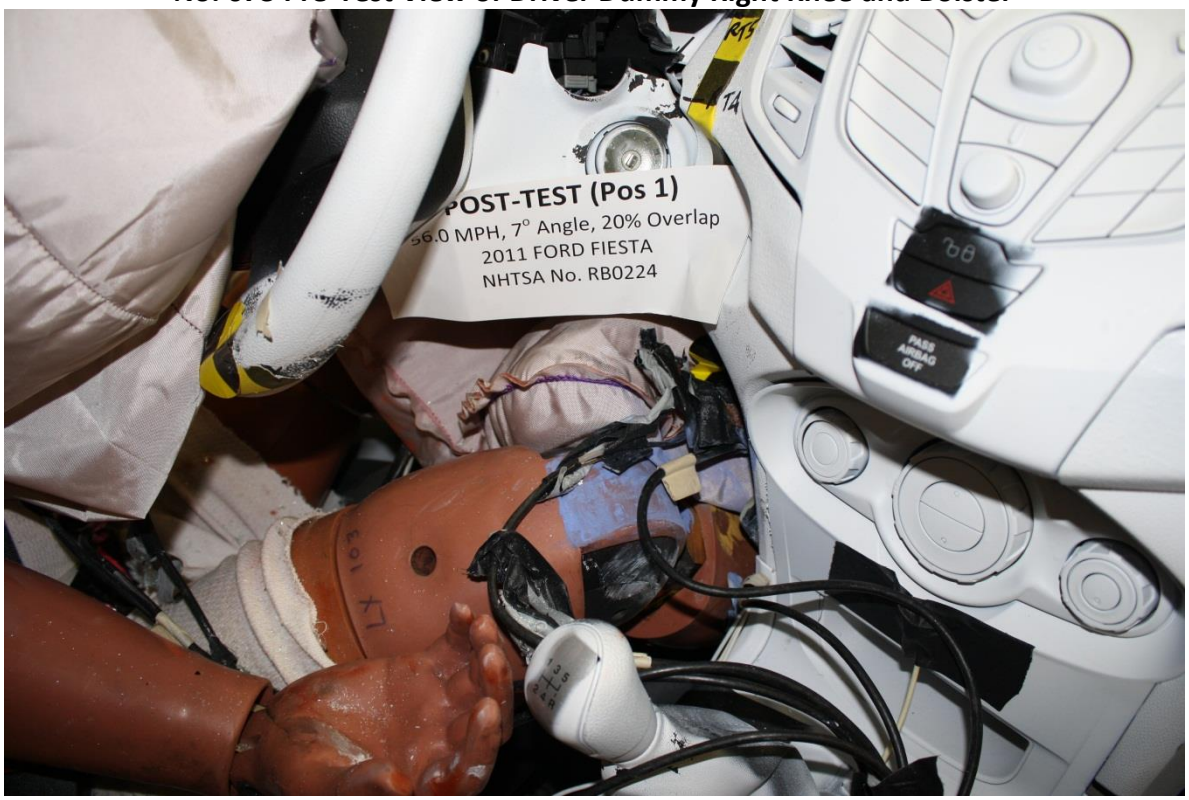
No. 069 Pre-Test Overhead View of Driver Dummy Thighs in seat

No. 070 Pre-Test View of Parking Brake

No. 071 Pre-Test Driver Dummy Feet

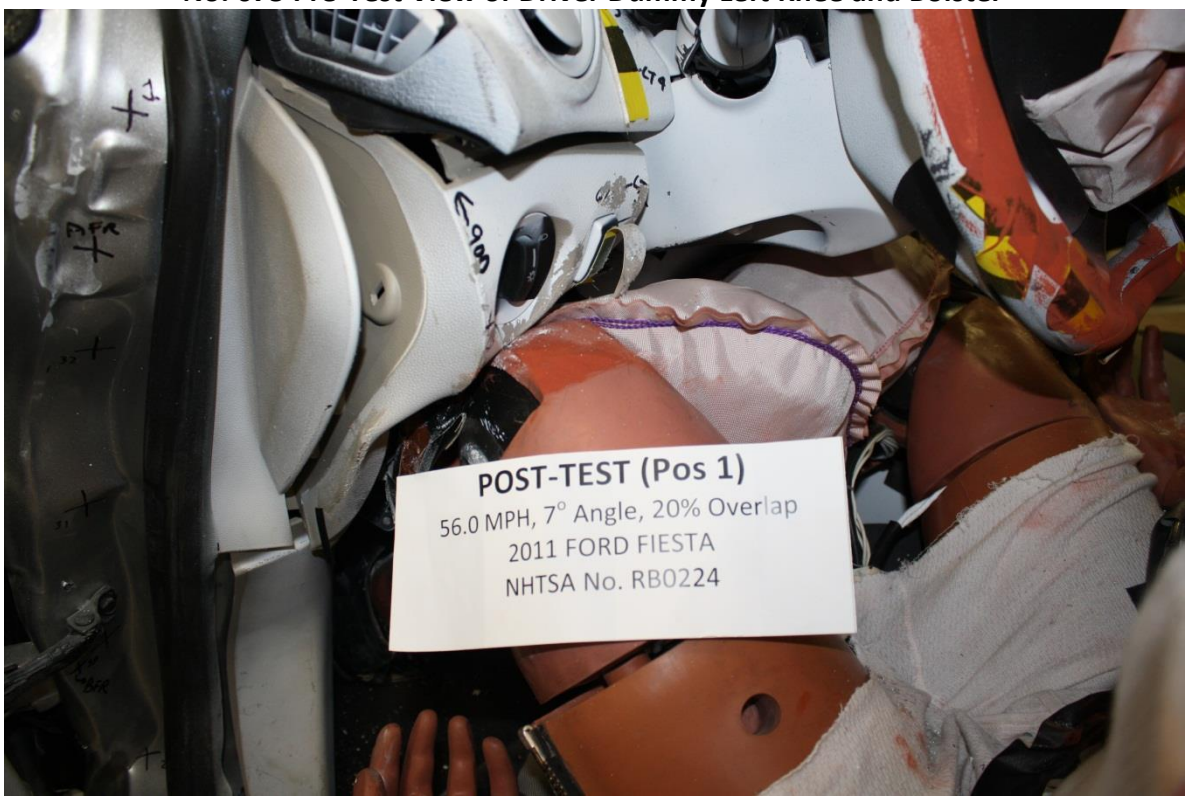
No. 072 Post-Test Driver Dummy Feet

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



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

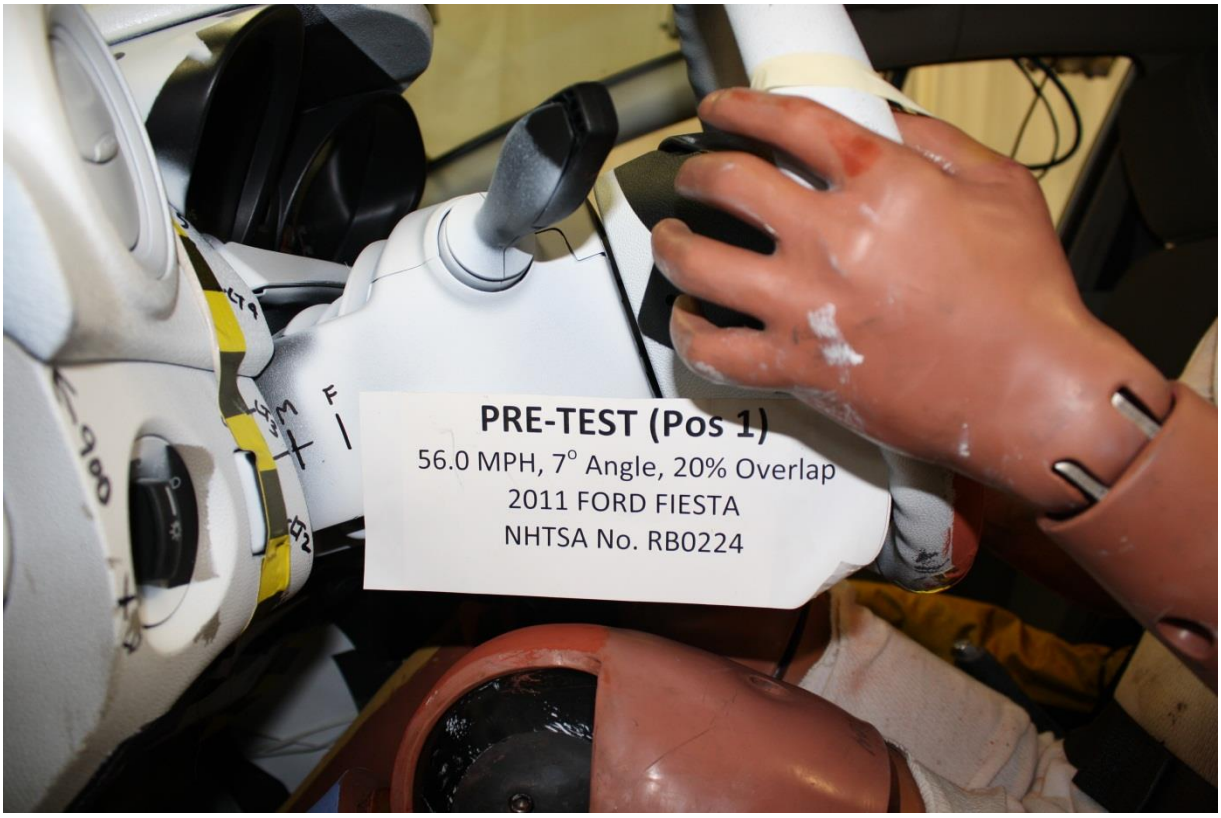
No. 075 Pre-Test View of Driver Dummy Left Knee and Bolster



No. 076 Post-Test View of Driver Dummy Left Knee and Bolster

No. 077 Pre-Test View of Driver Dummy Abdomen

No. 078 Post-Test View of Driver Dummy Abdomen



No. 079 Pre-Test Left Side View of Steering Wheel set position

No. 080 Post-Test Left Side View of Steering Wheel set position

No. 081 Post-Test View of Driver Dummy Head Contact with Airbag

No. 082 Post-Test View of Driver Dummy Head Contact with Vehicle Interior (a, b, c, etc)

No. 083 Pre-Test Passenger Dummy Front Close-up View

No. 084 Post-Test Passenger Dummy Front Close-up View

No. 085 Pre-Test Left Side Passenger Dummy and Interior View

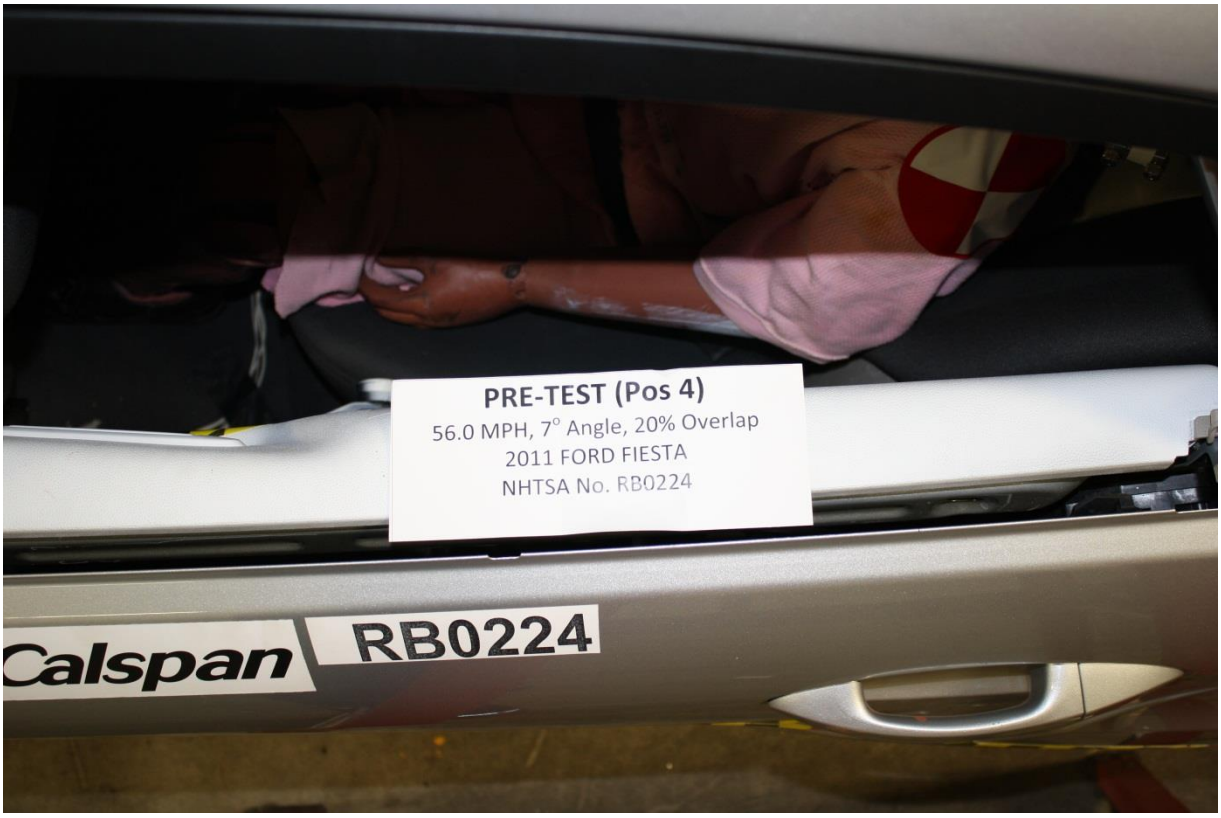
No. 086 Post-Test Left Side Passenger Dummy and Interior View

No. 087 Pre-Test Left Side Passenger Dummy Window View

No. 088 Post-Test Left Side Passenger Dummy Window View

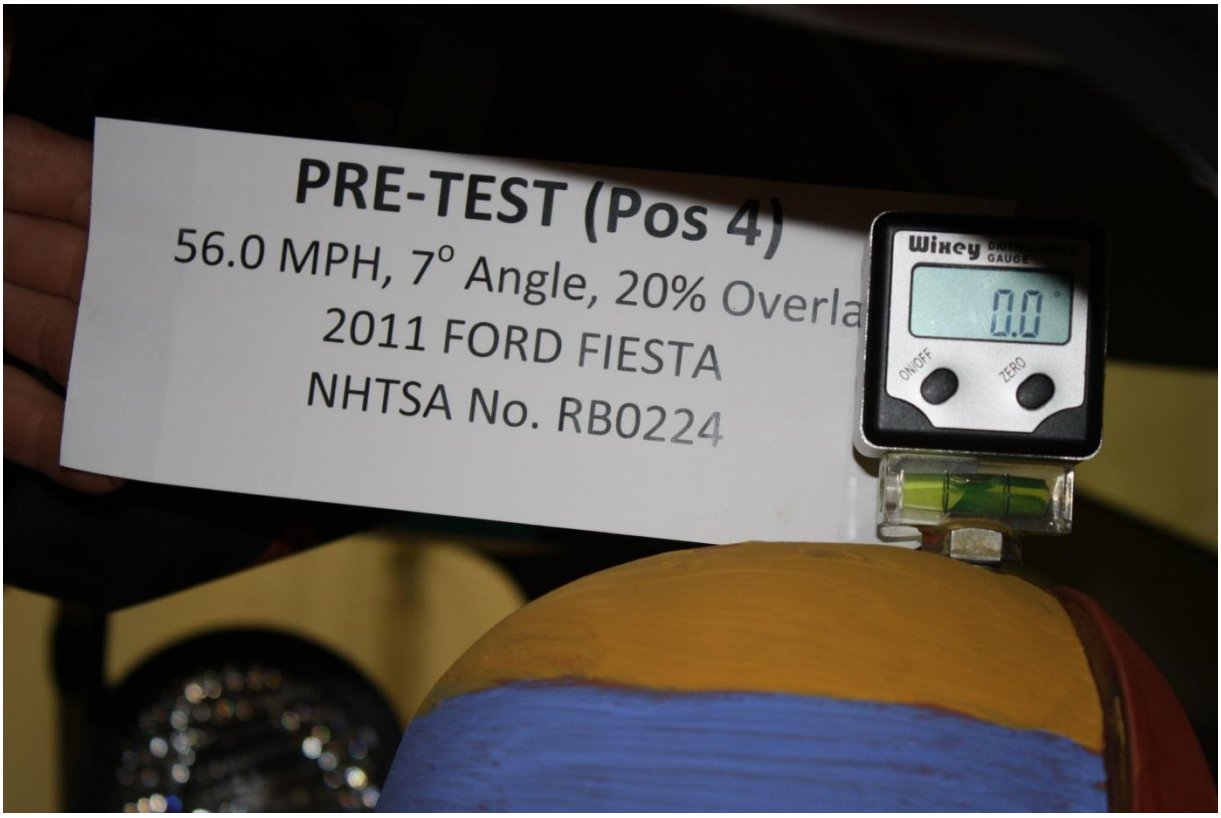
No. 089 Pre-Test Right Side View of Passenger Dummy and Interior

No. 090 Post-Test Right Side View of Passenger Dummy and Interior



No. 091 Pre-Test View of Passenger Dummy Door Clearance

No. 092 Post-Test View of Passenger Dummy Door Clearance



No. 093 Pre-Test Passenger View Showing Head Level

Photo Not Applicable

P4 Seat not adjustable fore/aft

No. 094 Pre-Test Passenger Seat Fore-Aft Markings

Photo Not Applicable

P4 Seat angle fixed

No. 095 Pre-Test Passenger Seat Back Angle

No. 096 Pre-Test Overhead View of Passenger Dummy Thighs on seat

Photo Not Applicable

P4 D-Ring not adjustable

No. 097 Pre-Test Passenger Adjustable D-ring

No. 098 Pre-Test View of Passenger Dummy Feet

No. 099 Post-Test View of Passenger Dummy Feet

No. 100 Post-Test View of Passenger Dummy Head contact with Airbag

No. 101 Post-Test View of Passenger Dummy Head contact with Interior (a,b,c)

No. 102 Post-Test View of Passenger Dummy Knee Contact with Seatback

Photo Not Applicable

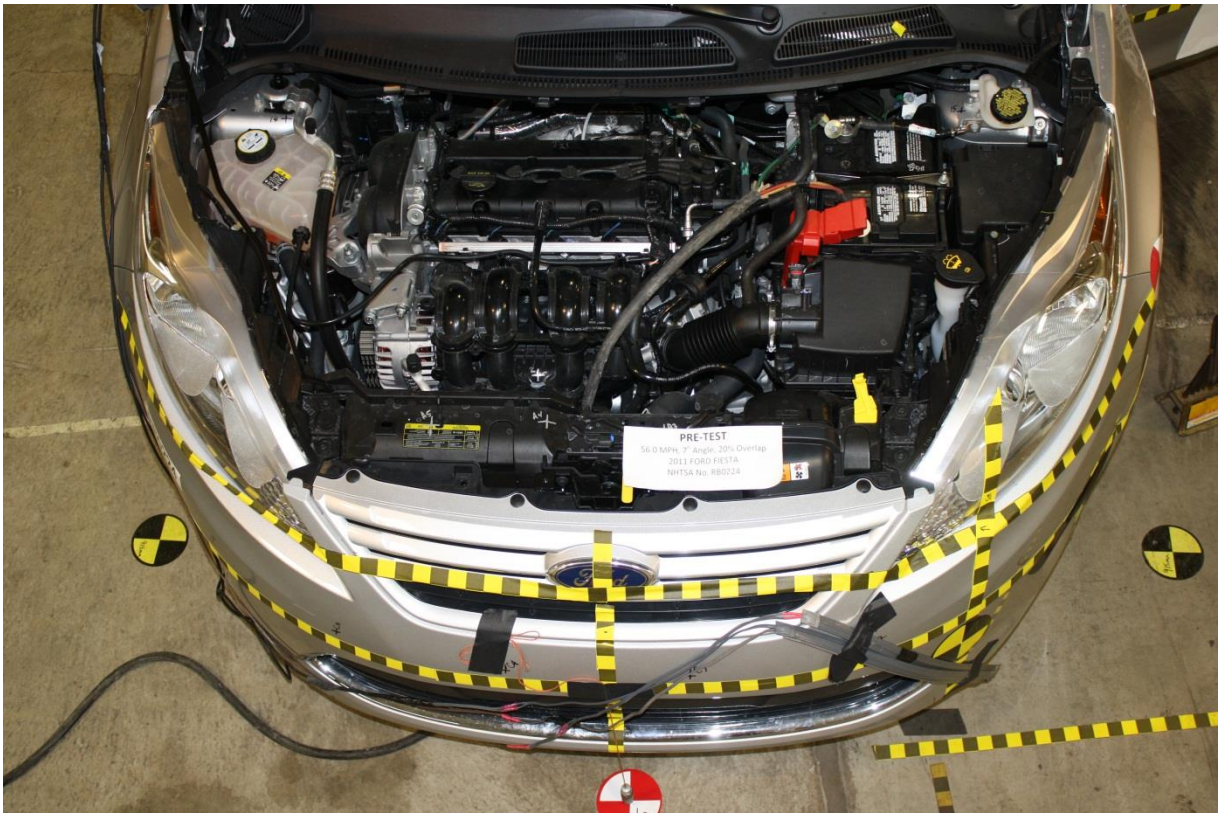
No Ballast Added

No. 103 Pre-Test Ballast Locations

No. 104 Post-Test Speed Trap Readout

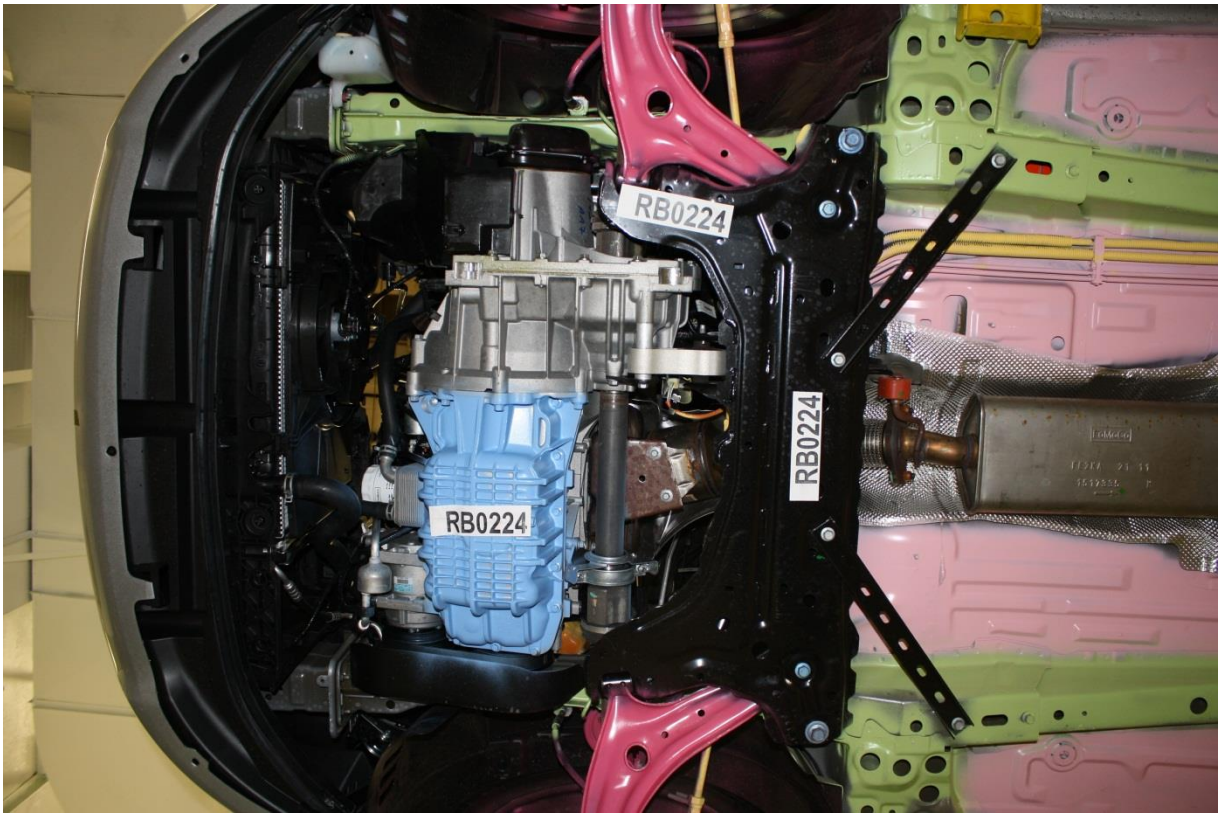
No. 105 Pre-Test View of Fuel Filler Cap

No. 106 Post-Test View of Fuel Filler Cap

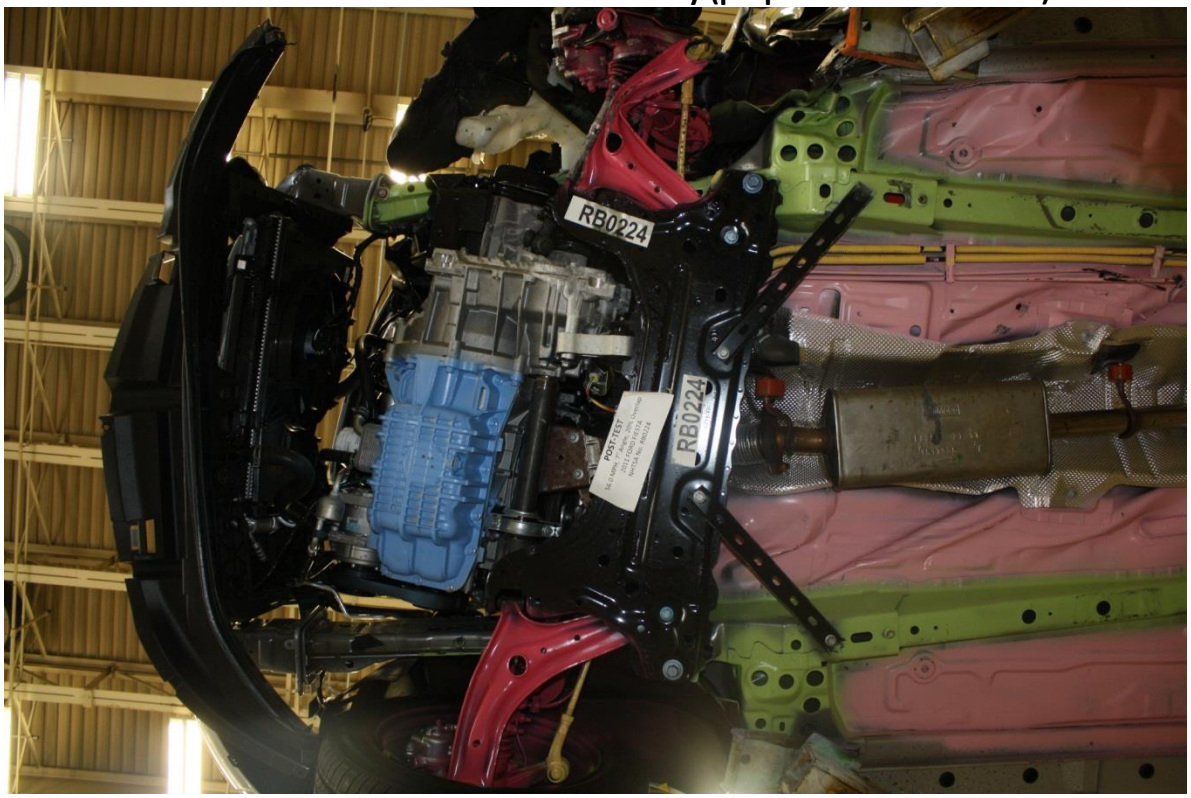


No. 107 Pre-Test Engine Compartment View

No. 108 Post-Test Engine Compartment View

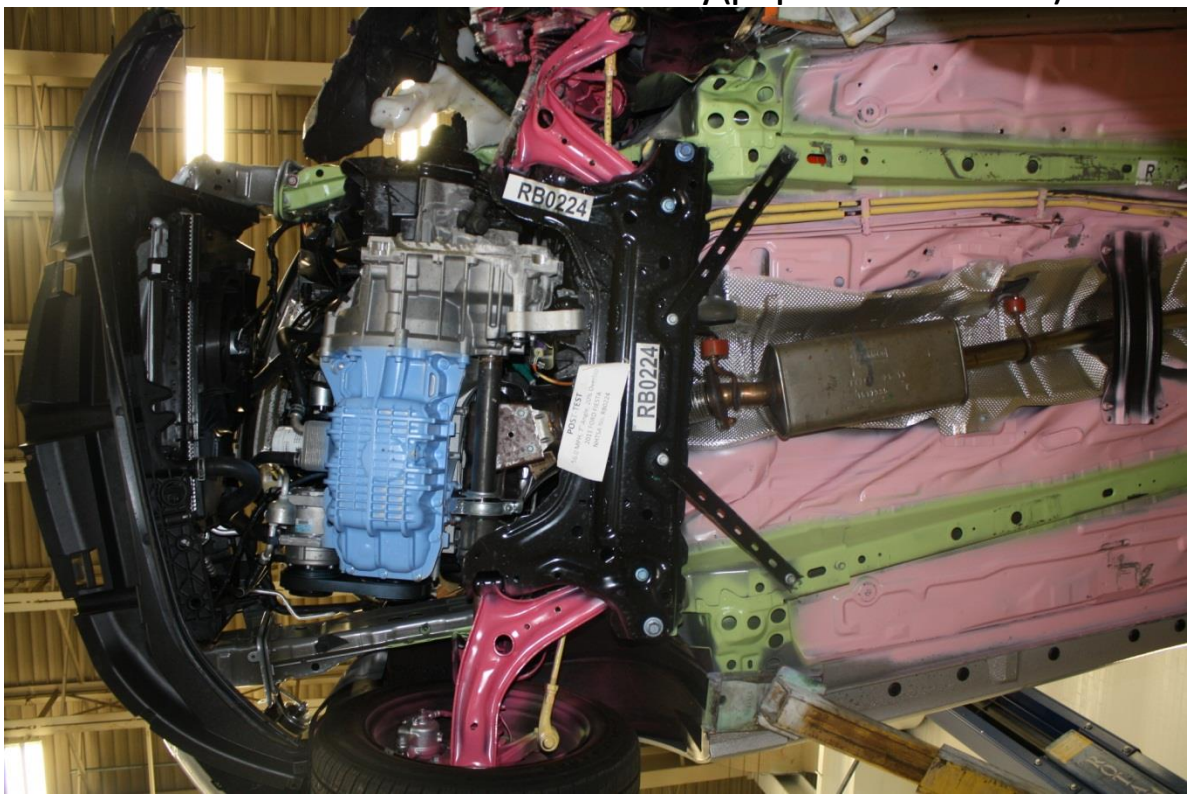


No. 109 Pre-Test View of Front Underbody (perpendicular to vehicle)

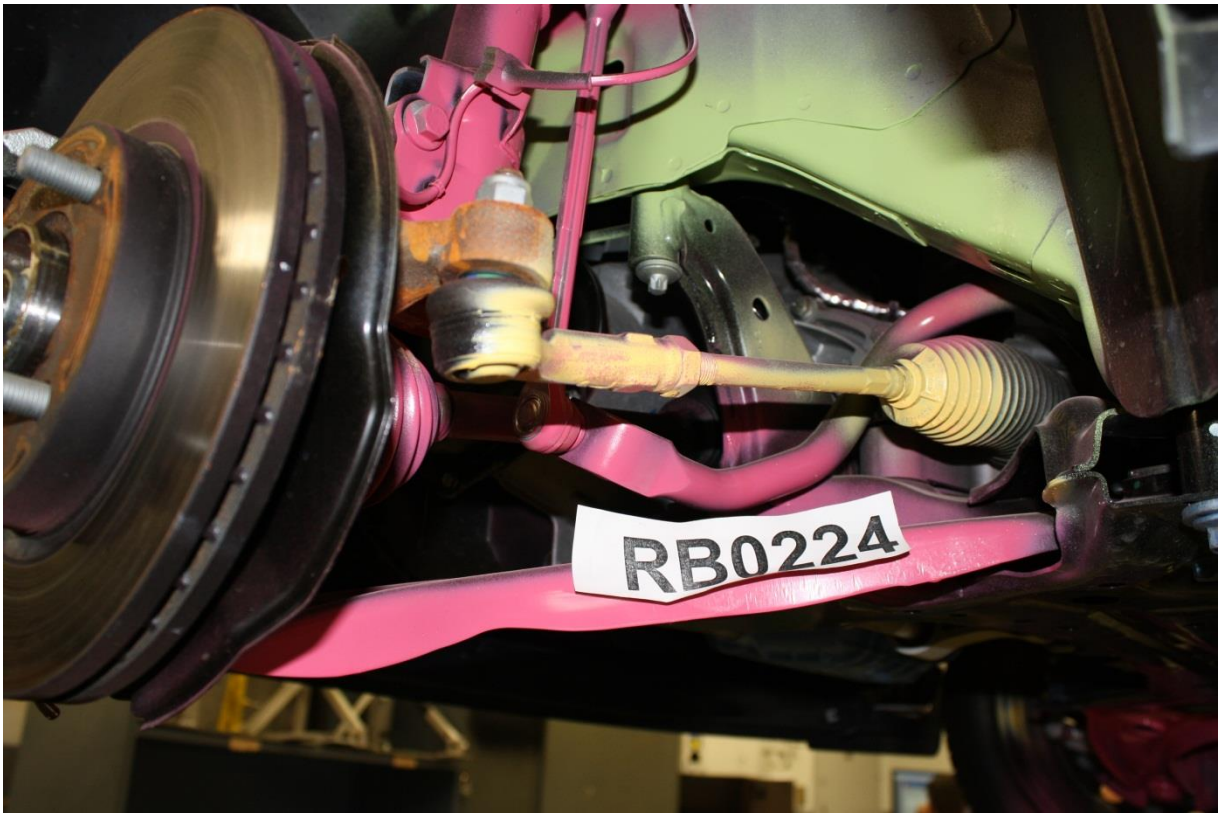


No. 110 Post-Test View of Front Underbody (perpendicular to vehicle)

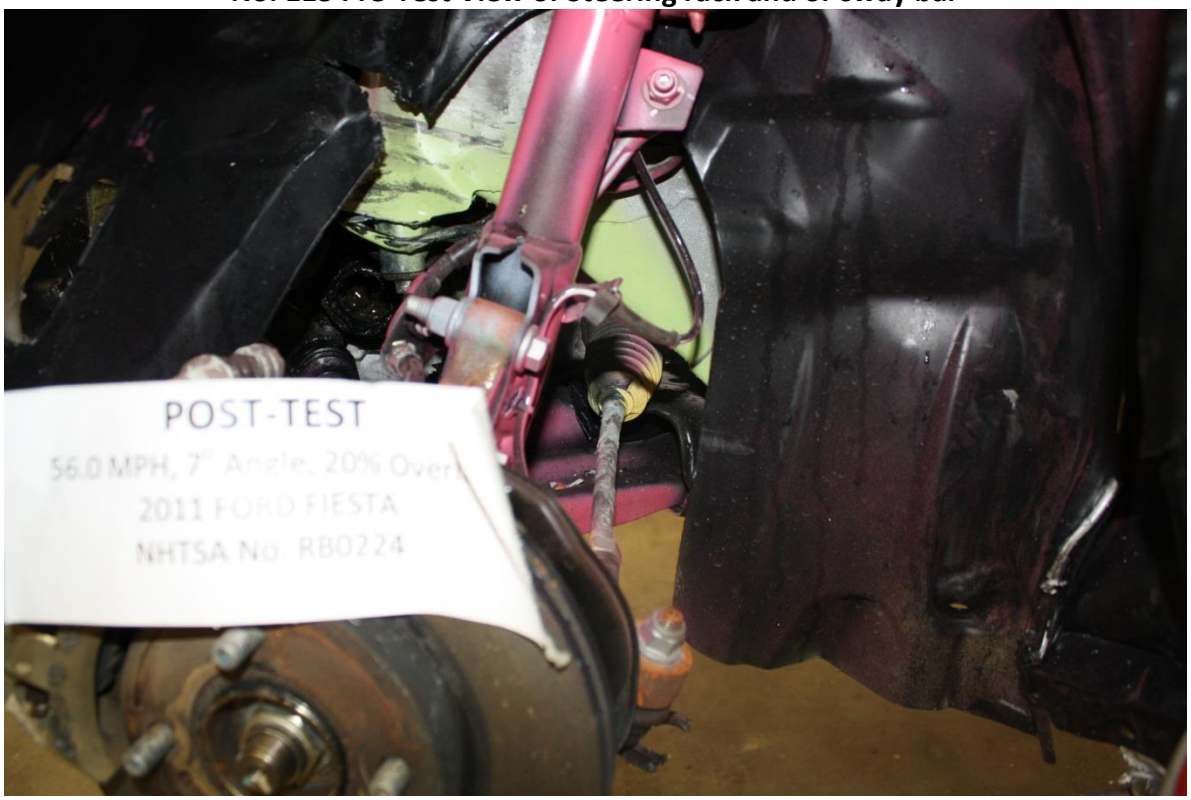
No. 111 Pre-Test View of Overall Underbody (perpendicular to vehicle)



No. 112 Post-Test View of Overall Underbody (perpendicular to vehicle)

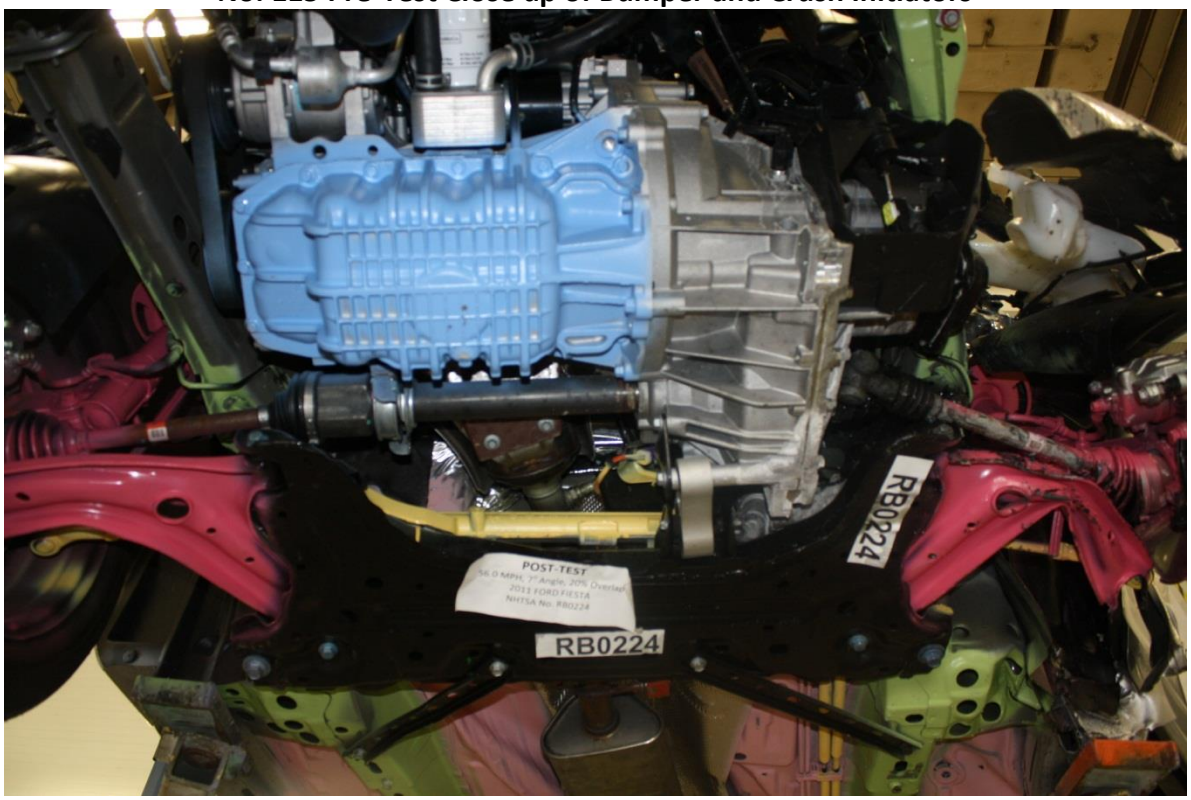


No. 113 Pre-Test View of Steering rack and or sway bar



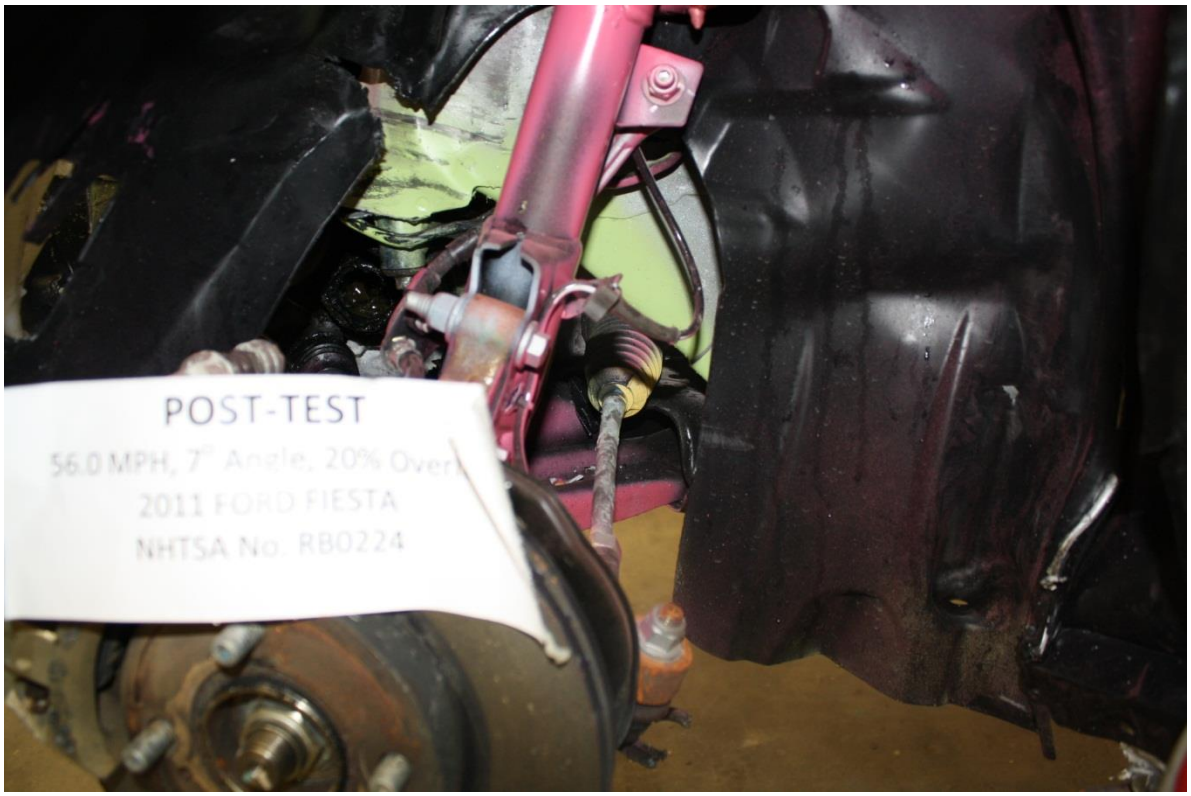
No. 114 Post-Test View of Steering rack and or sway bar

No. 115 Pre-Test Close up of Bumper and Crush Initiators

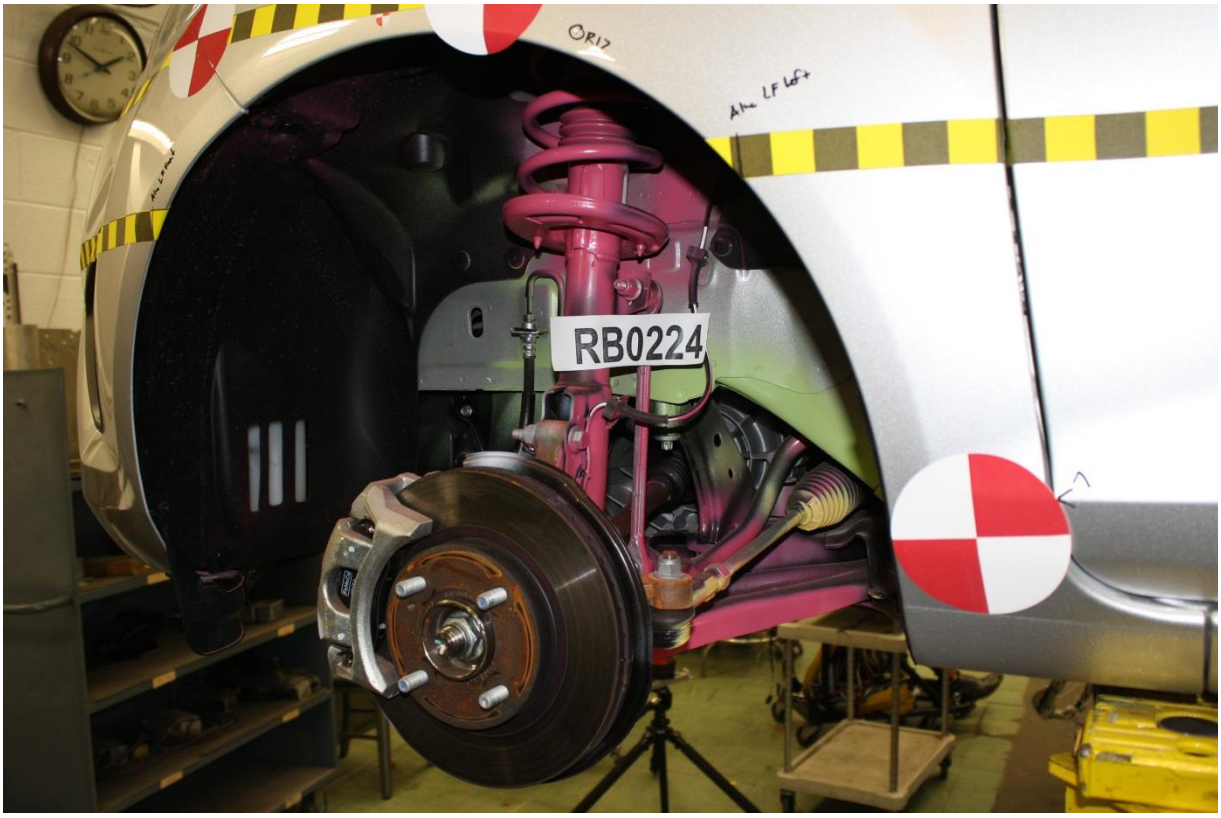


No. 116 Post-Test View of Front Sub-Frame Deformation

No. 117 Pre-Test Frame Rail with tire removed



No. 118 Post-Test Frame Rail with tire removed



No. 119 Pre-Test View of Wheel Well with tire removed

No. 120 Post-Test View of Wheel Well with tire removed

No. 121 Post-Test View of Door Sill with door open

No. 122 Post-Test View of Deformation of A pillar

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VEHICLE & DUMMY RESPONSE DATA TRACES

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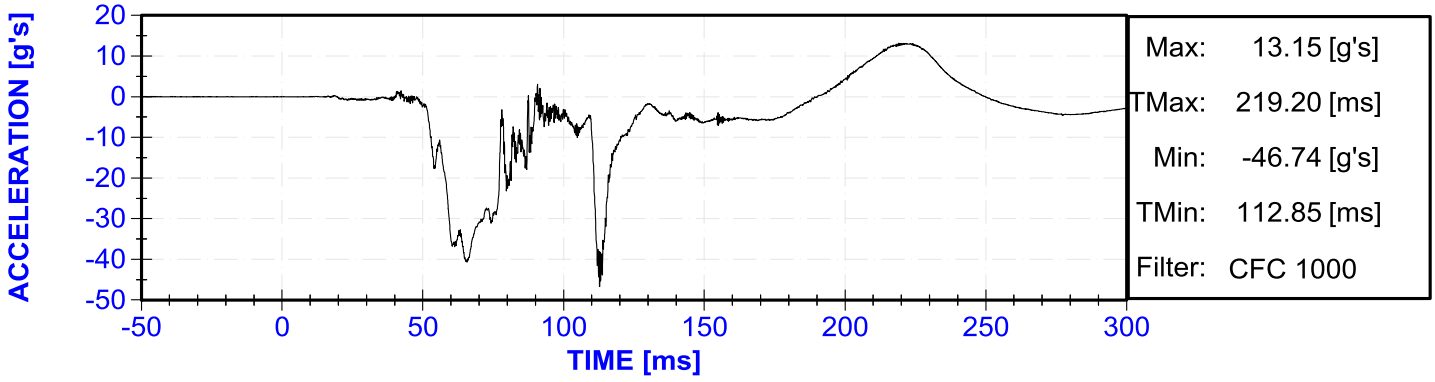
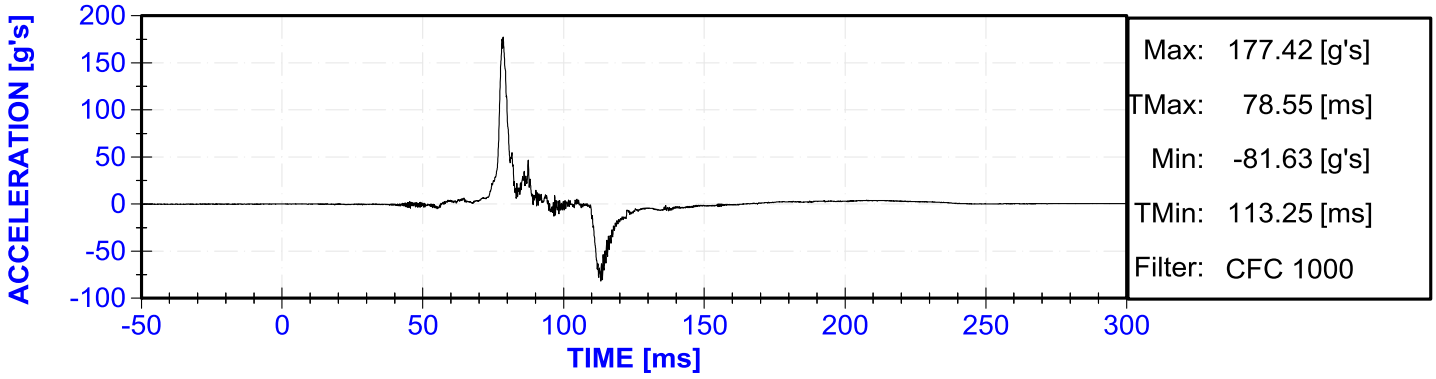
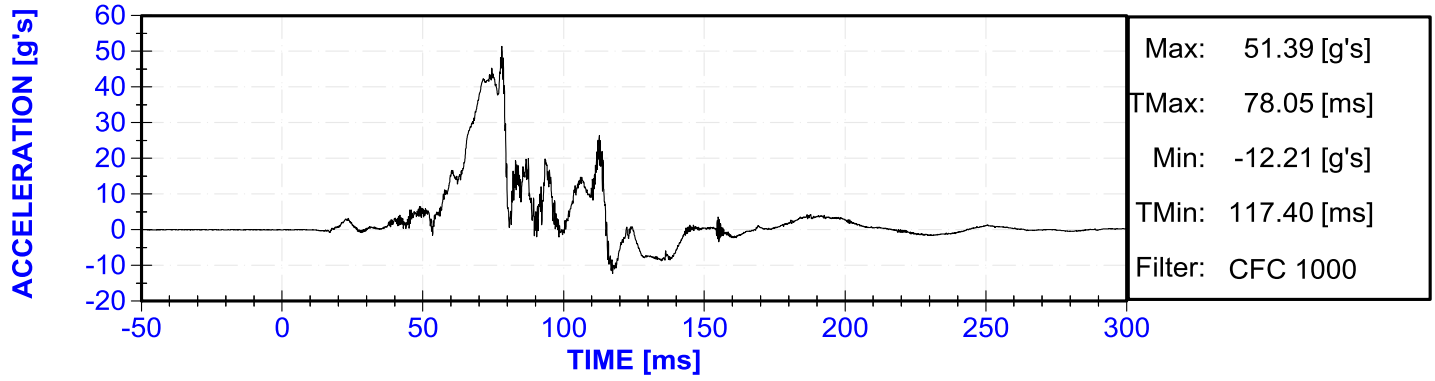
V2P1 Head CG X Acceleration



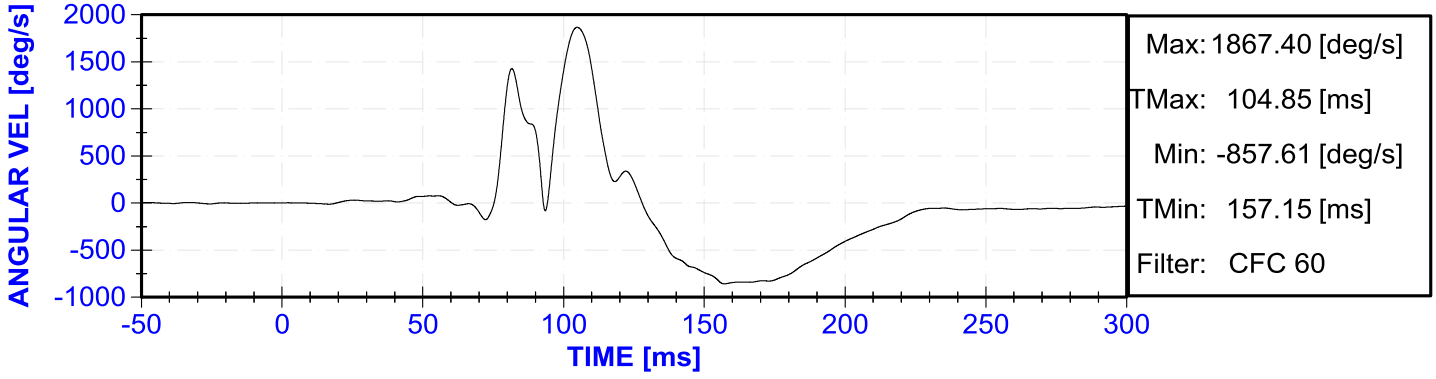
V2P1 Head CG Y Acceleration



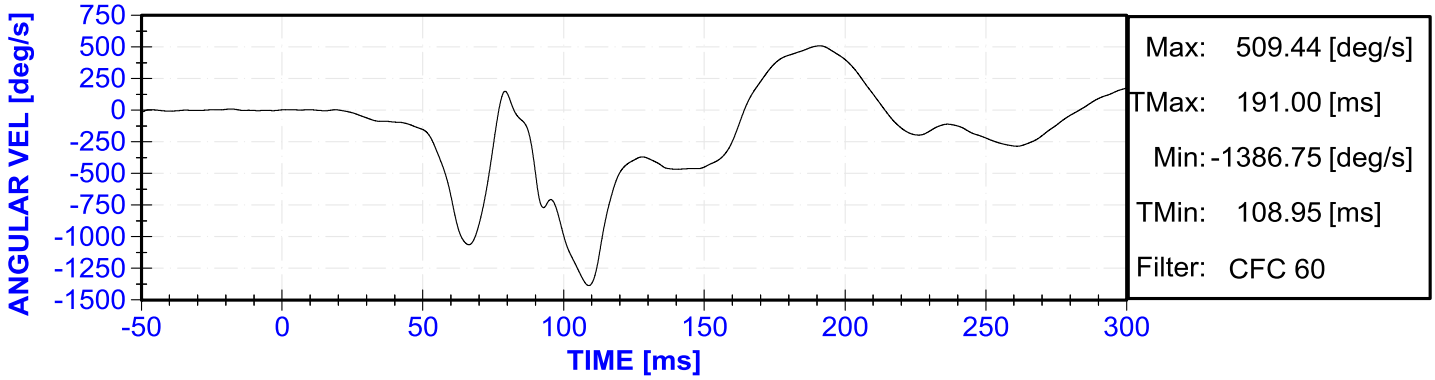
V2P1 Head CG Z Acceleration



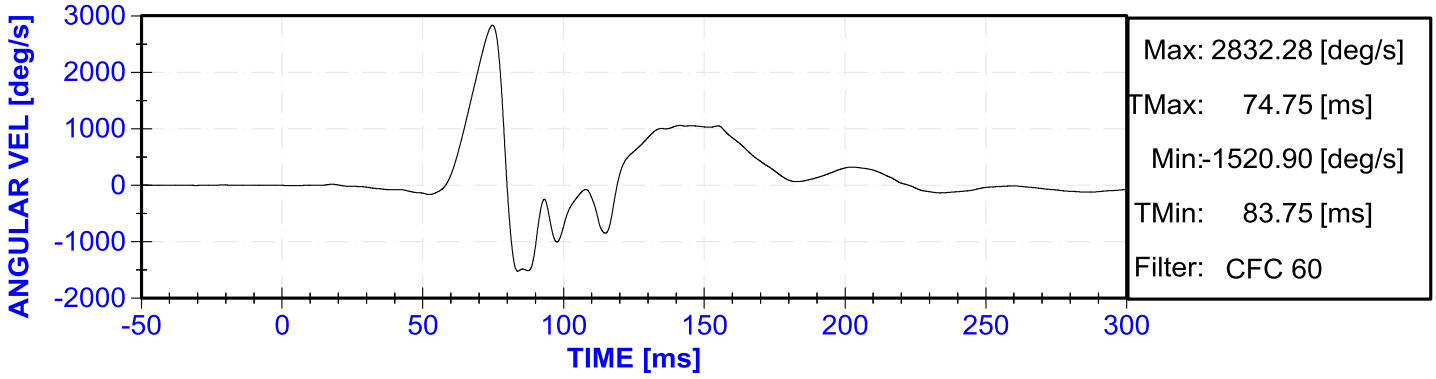
V2P1 Head CG Angular Velocity About X



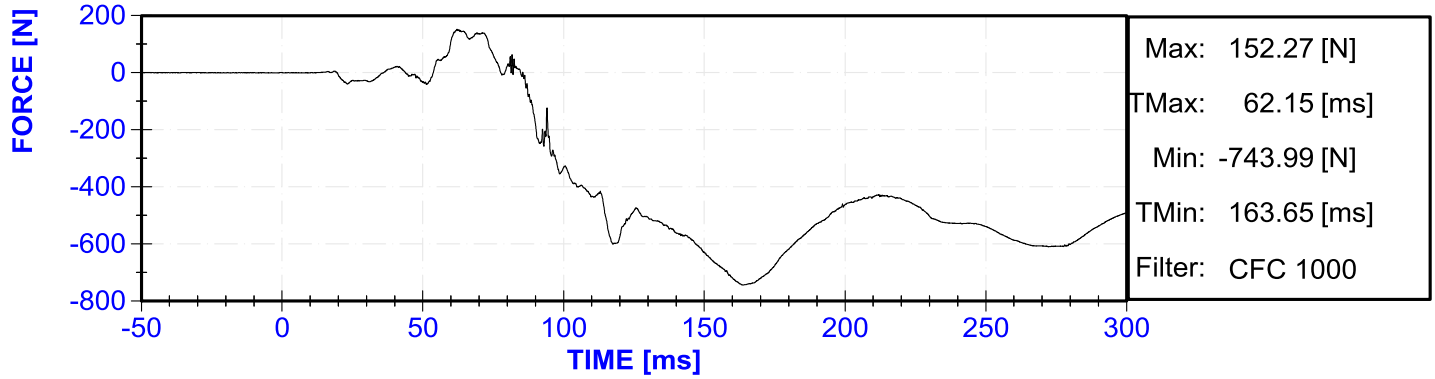
V2P1 Head CG Angular Velocity About Y



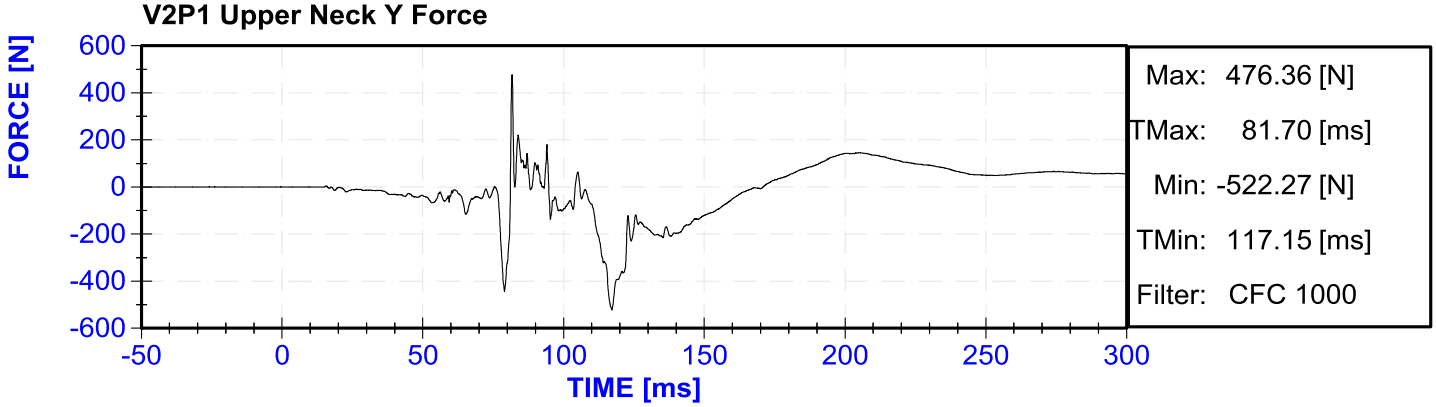
V2P1 Head CG Angular Velocity About Z



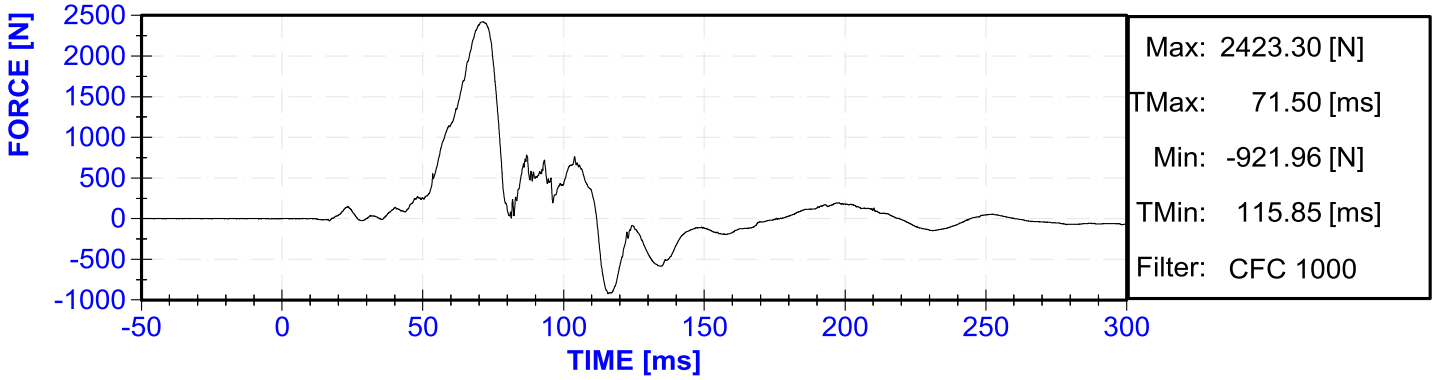
V2P1 Upper Neck X Force



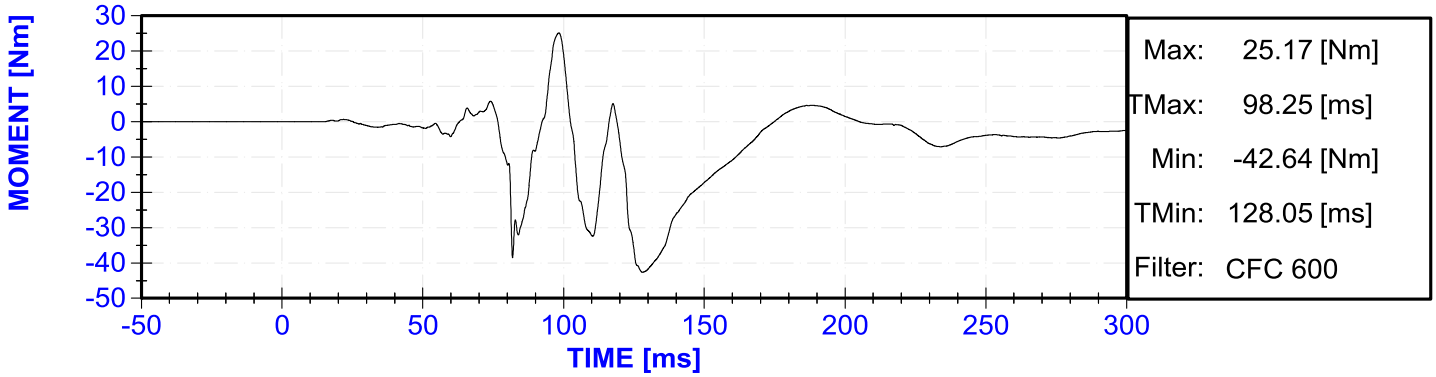
V2P1 Upper Neck Y Force



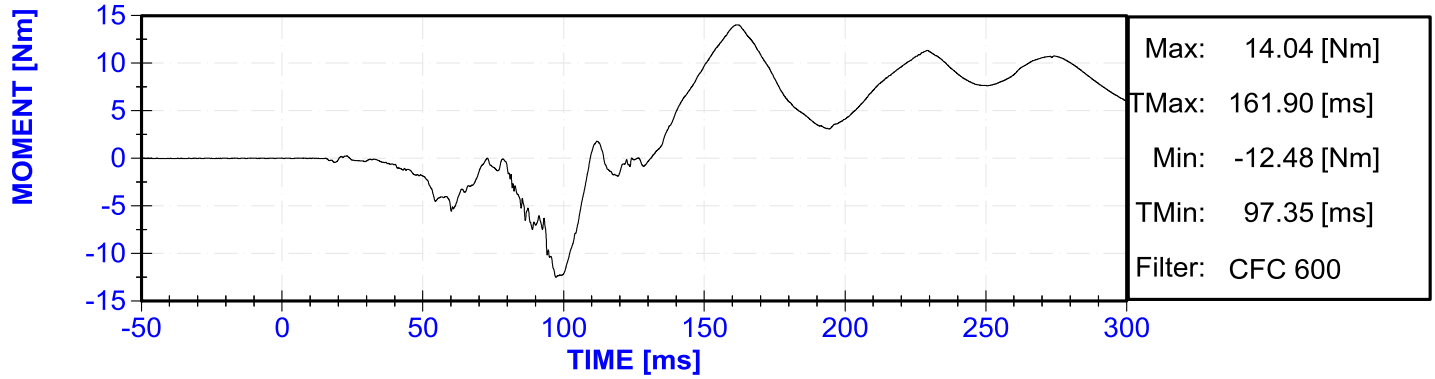
V2P1 Upper Neck Z Force



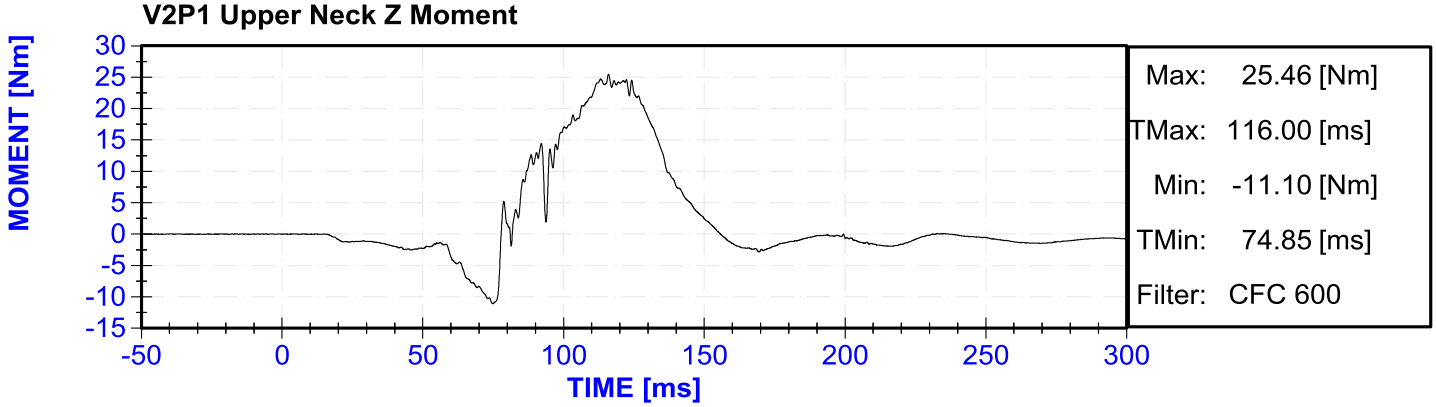
V2P1 Upper Neck X Moment

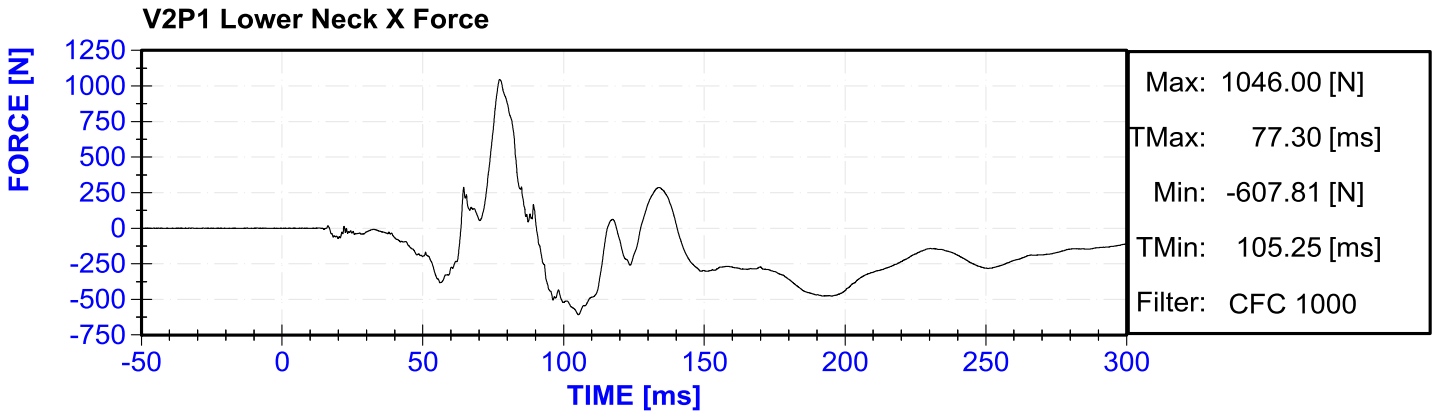


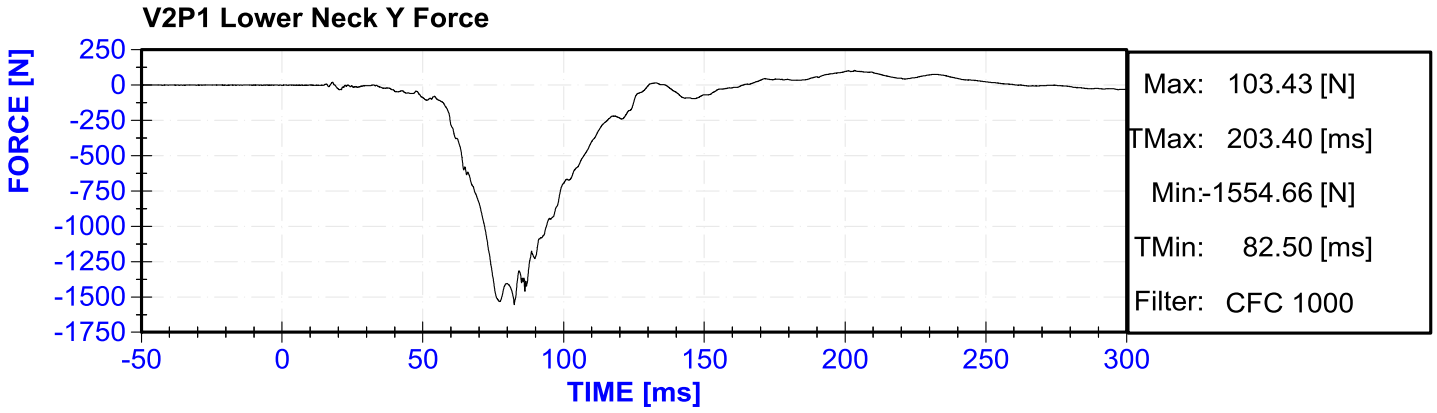
V2P1 Upper Neck Y Moment

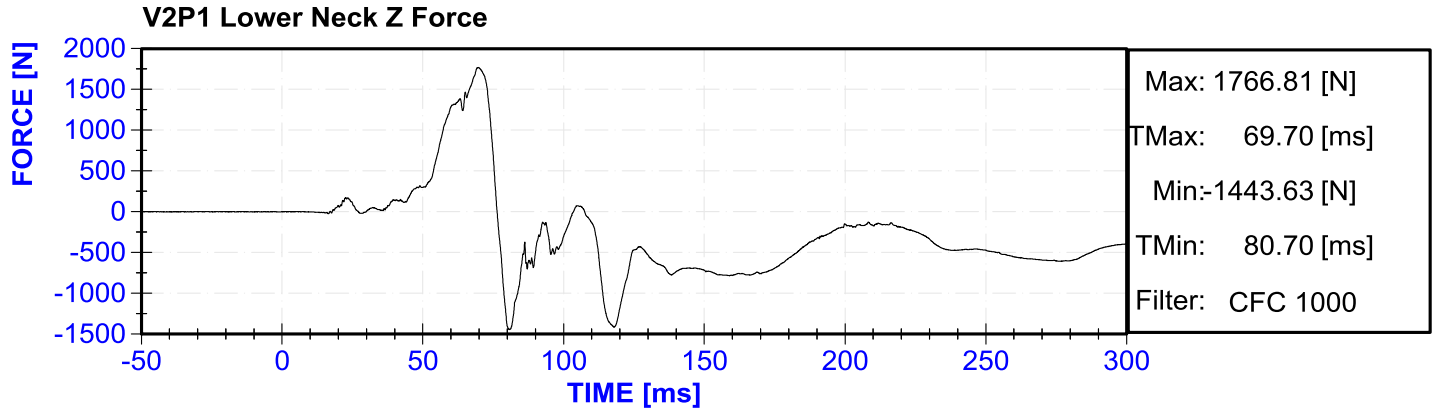


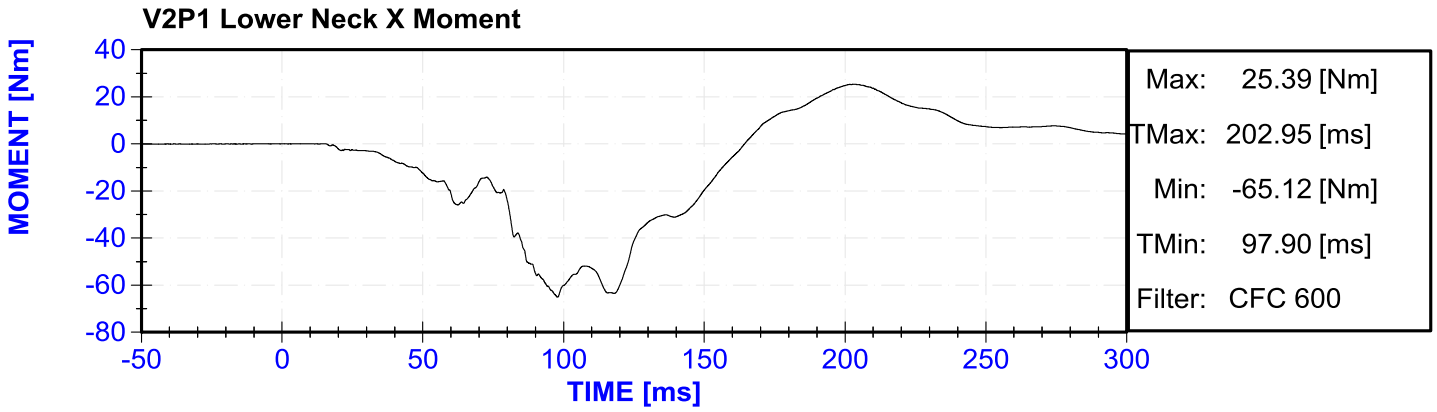
V2P1 Upper Neck Z Moment



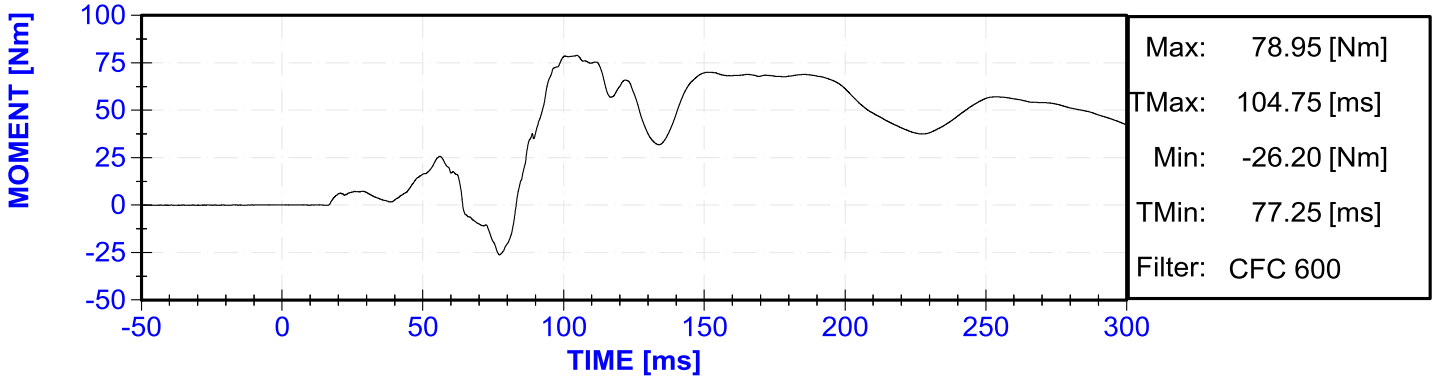

V2P1 Lower Neck X Force
FORCE [N]
1250
1000
750
500
250
0
-250
-500
-750
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 1046.00 [N]
TMax: 77.30 [ms]
Min: -607.81 [N]
TMin: 105.25 [ms]
Filter: CFC 1000


V2P1 Lower Neck Y Force
FORCE [N]
250
0
-250
-500
-750
-1000
-1250
-1500
-1750
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 103.43 [N]
TMax: 203.40 [ms]
Min:-1554.66 [N]
TMin: 82.50 [ms]
Filter: CFC 1000

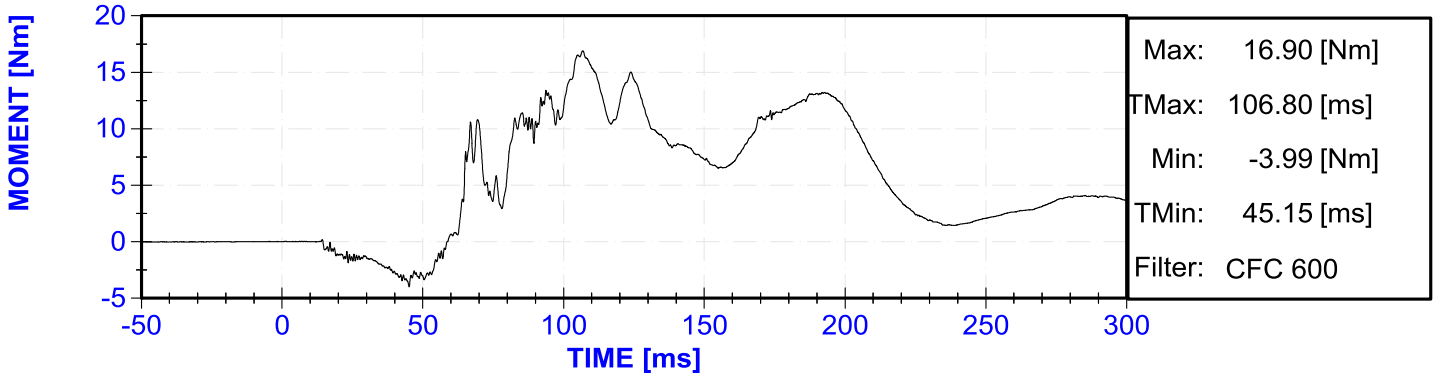

V2P1 Lower Neck Z Force
FORCE [N]
2000
1500
1000
500
0
-500
-1000
-1500
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 1766.81 [N]
TMax: 69.70 [ms]
Min:-1443.63 [N]
TMin: 80.70 [ms]
Filter: CFC 1000


V2P1 Lower Neck X Moment
MOMENT [Nm]
40
20
0
-20
-40
-60
-80
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 25.39 [Nm]
TMax: 202.95 [ms]
Min: -65.12 [Nm]
TMin: 97.90 [ms]
Filter: CFC 600

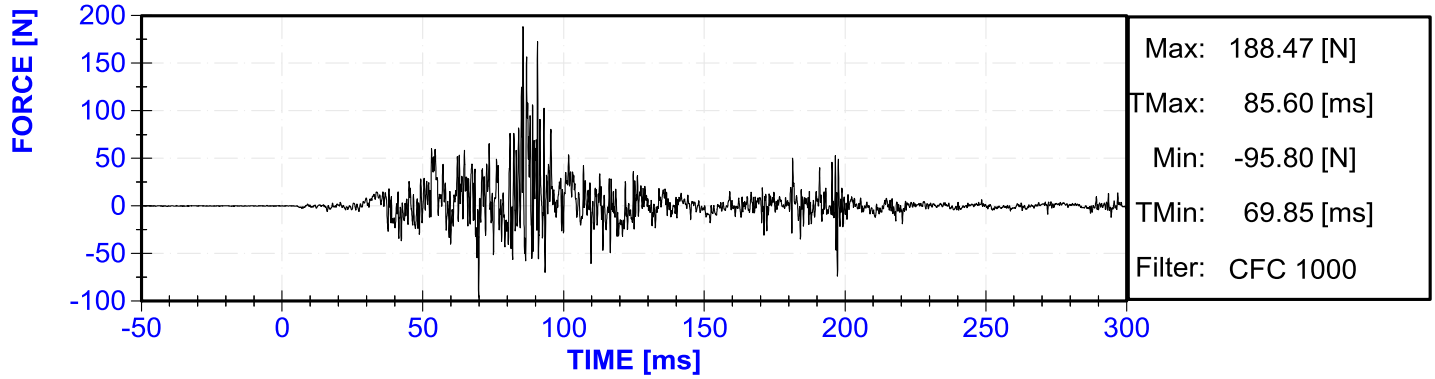
V2P1 Lower Neck Y Moment



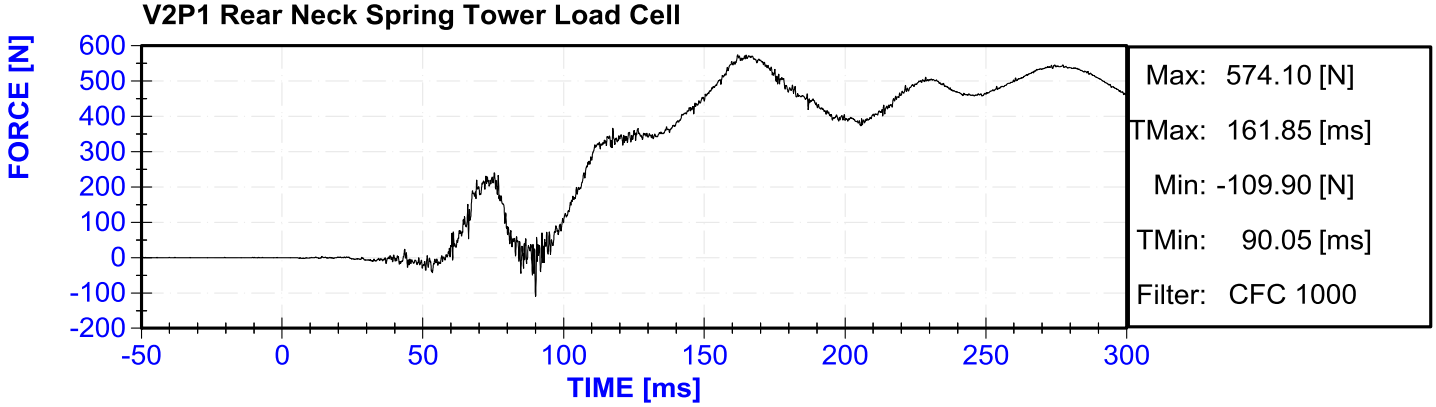
V2P1 Lower Neck Z Moment



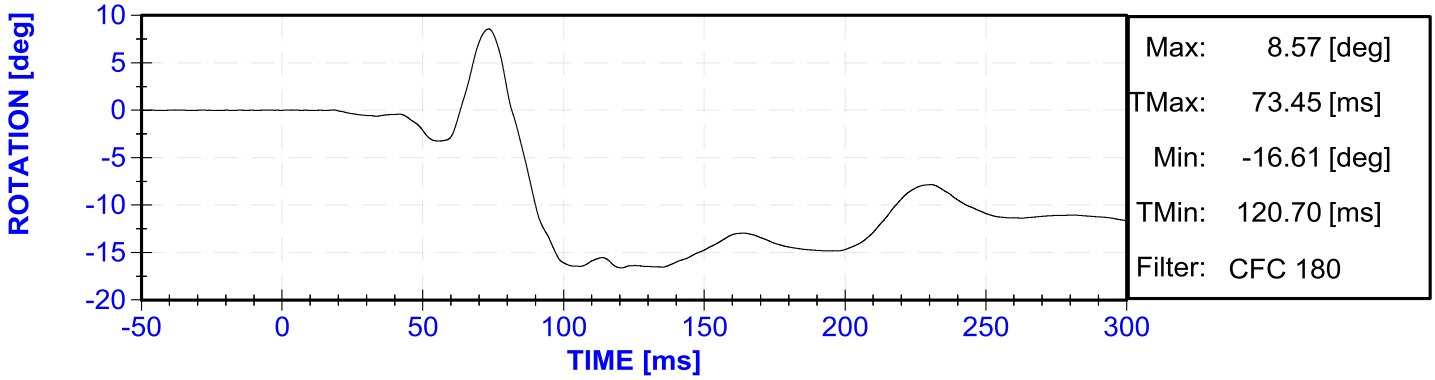
V2P1 Front Neck Spring Tower Load Cell



V2P1 Rear Neck Spring Tower Load Cell

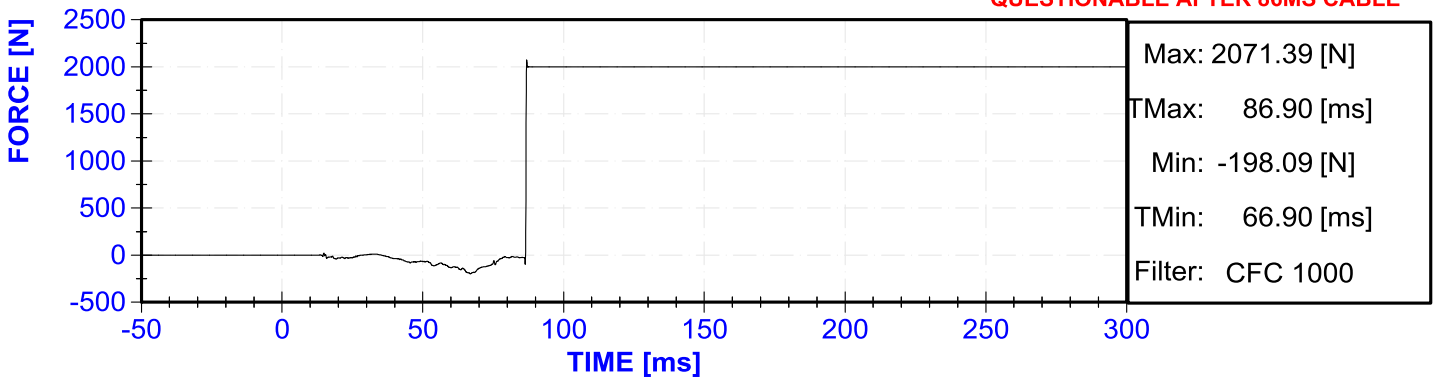


V2P1 Occipital Condyle Rotation Potentiometer



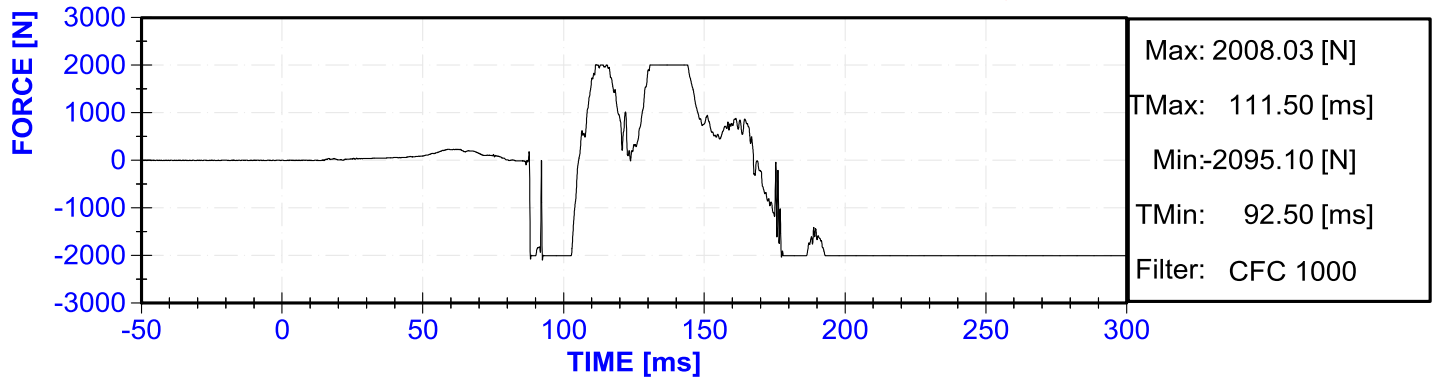
V2P1 CLAVICLE - LEFT OUTER LC FX

QUESTIONABLE AFTER 86MS CABLE



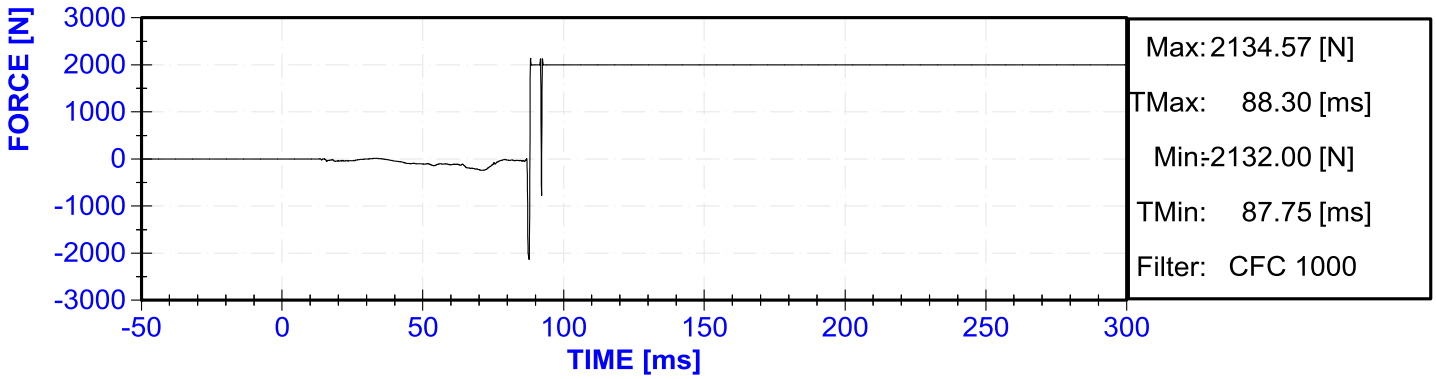
V2P1 CLAVICLE - LEFT OUTER LC FZ

QUESTIONABLE AFTER 87MS CABLE

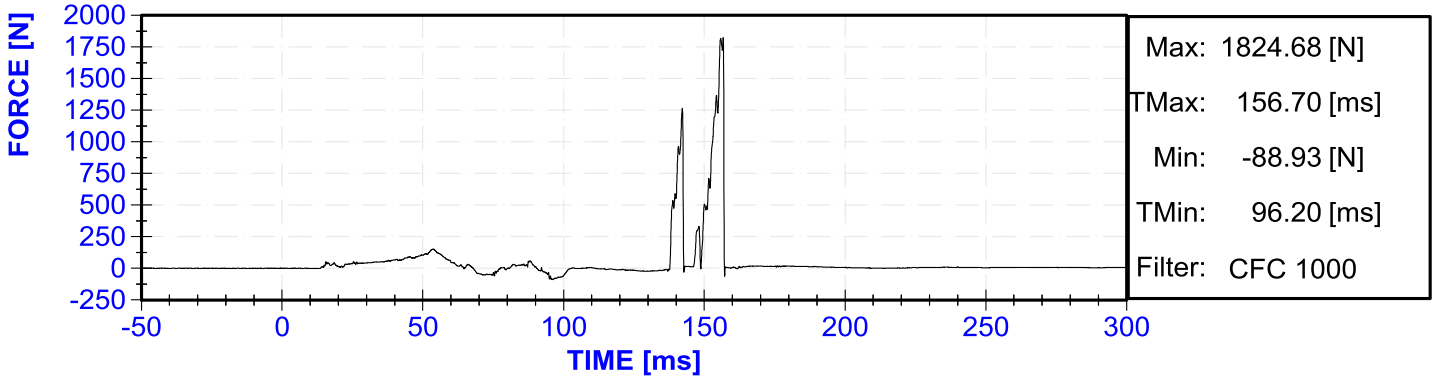


V2P1 CLAVICLE - LEFT INNER LC FX

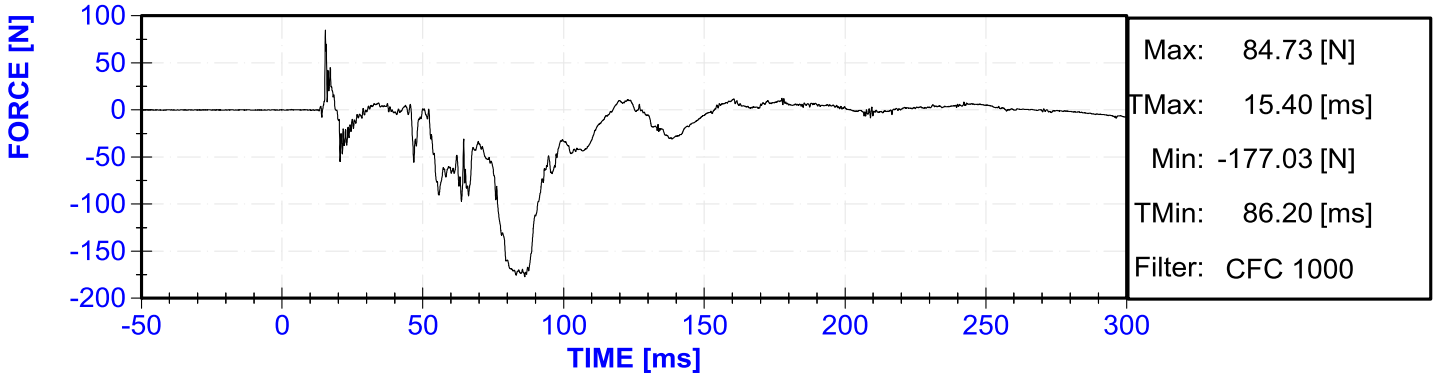
QUESTIONABLE AFTER 86MS CABLE



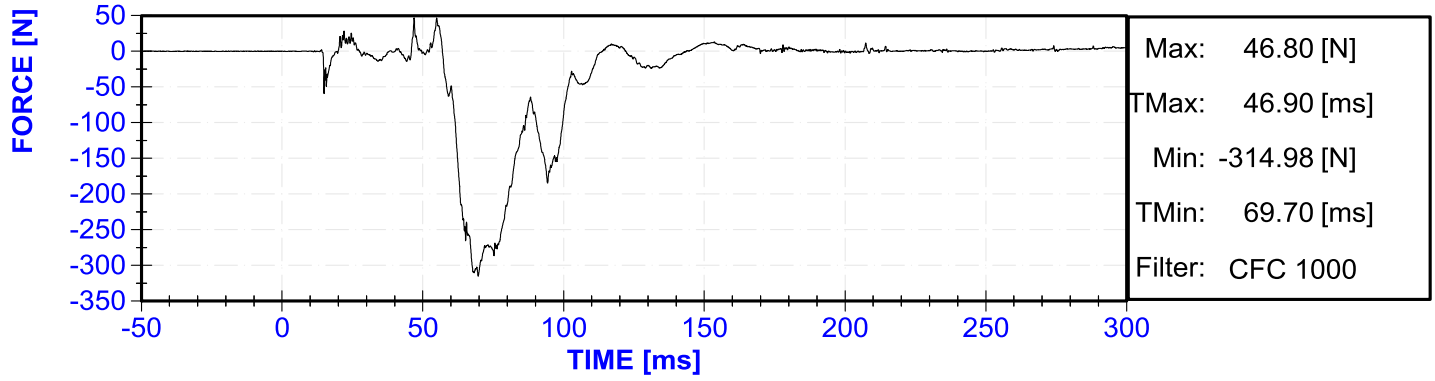
V2P1 CLAVICLE - LEFT INNER LC FZ



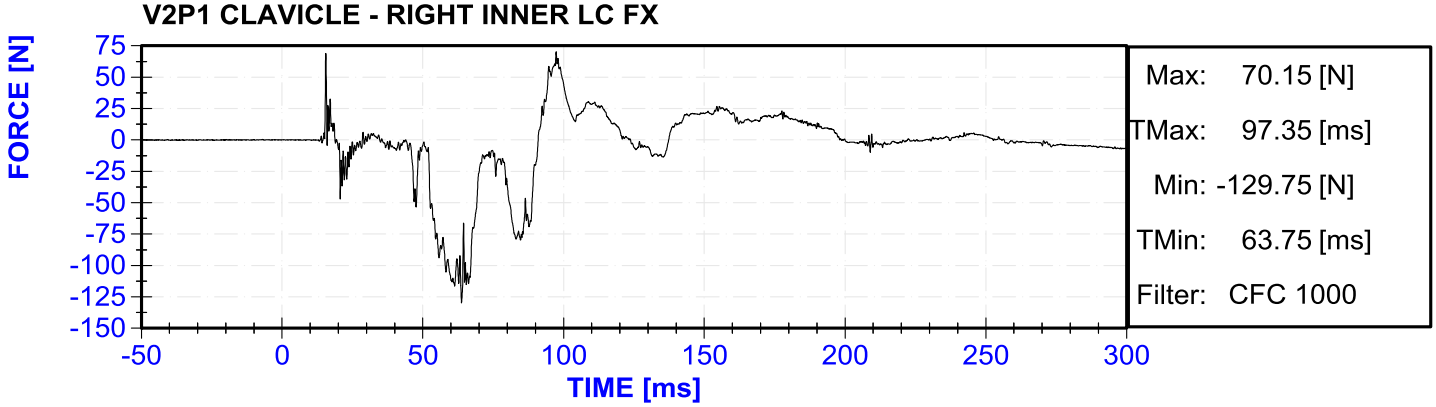
V2P1 CLAVICLE - RIGHT OUTER LC FX



V2P1 CLAVICLE - RIGHT OUTER LC FZ

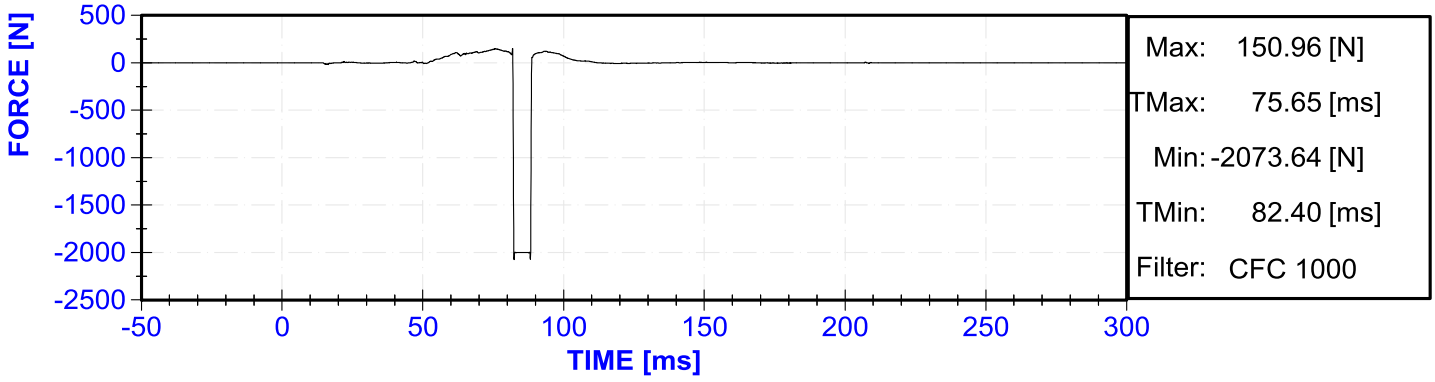


V2P1 CLAVICLE - RIGHT INNER LC FX

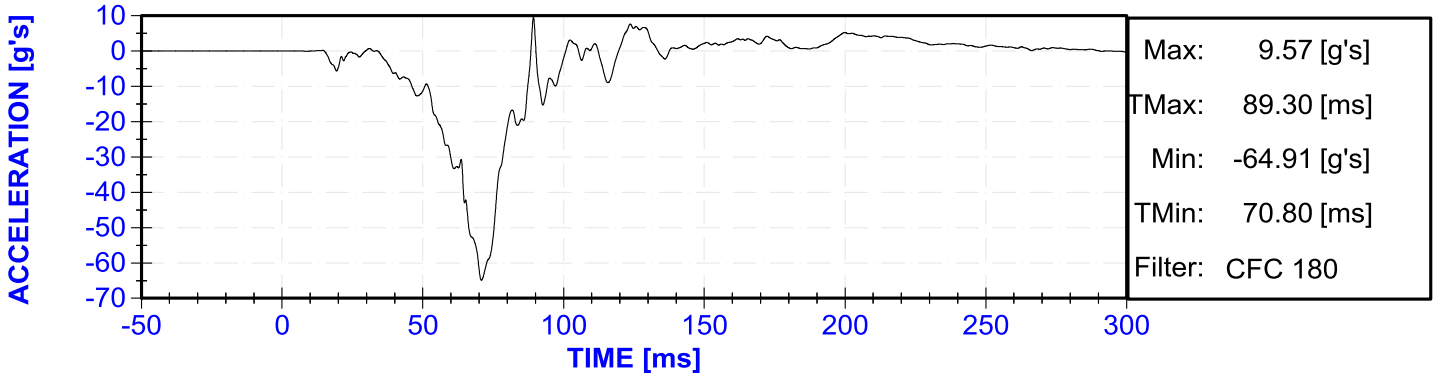


V2P1 CLAVICLE - RIGHT INNER LC FZ

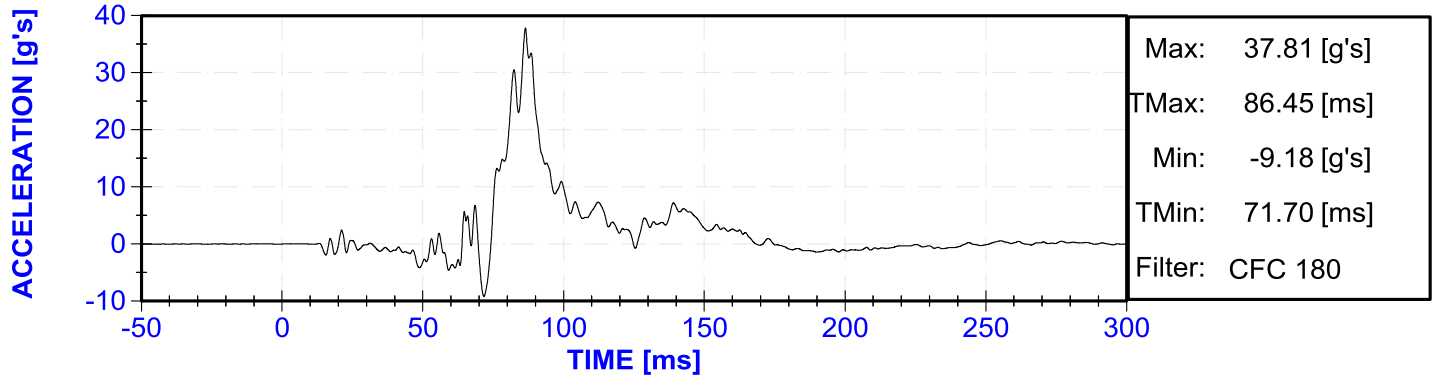
QUESTIONABLE 81-88 MS



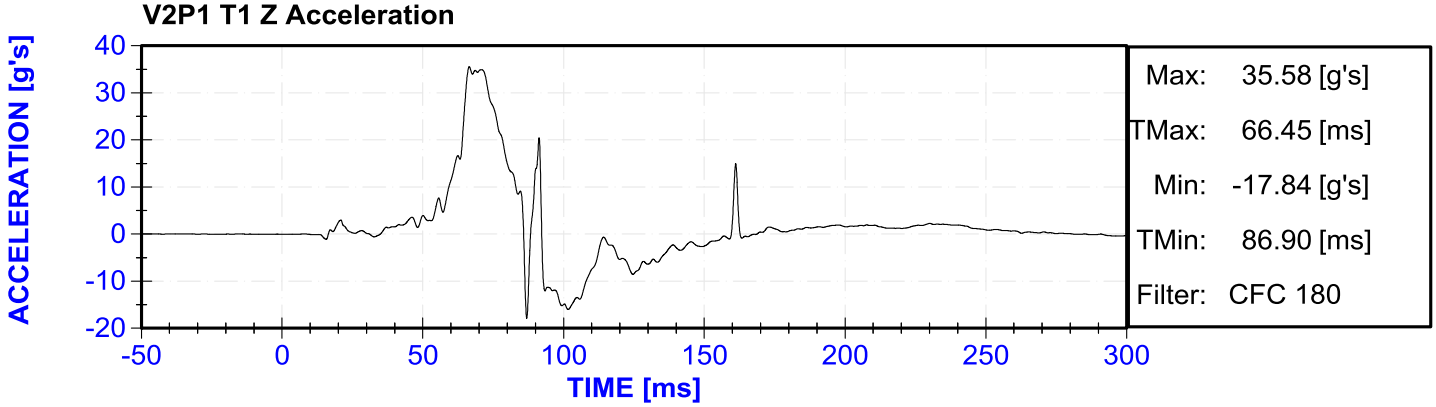
V2P1 T1 X Acceleration



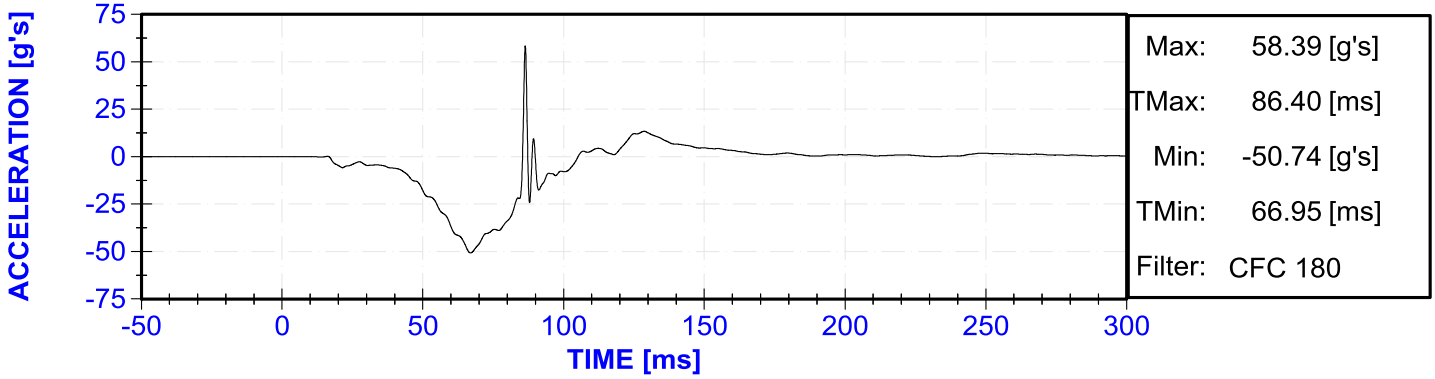
V2P1 T1 Y Acceleration



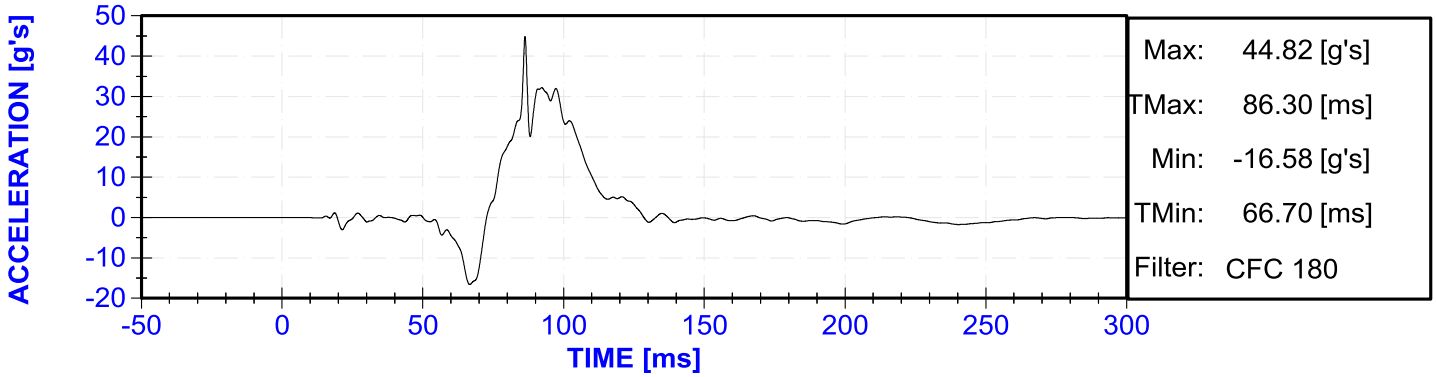
V2P1 T1 Z Acceleration



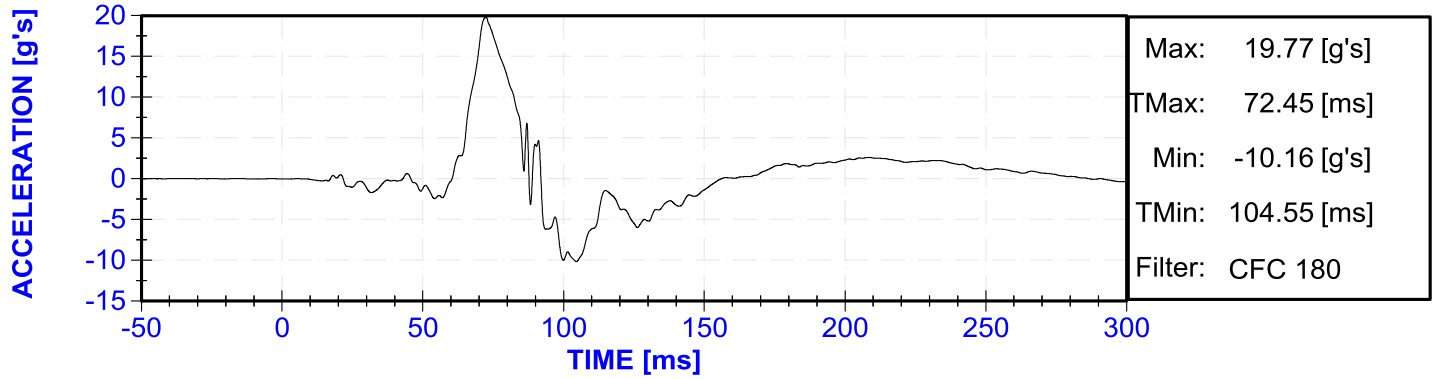
V2P1 T6 X Acceleration



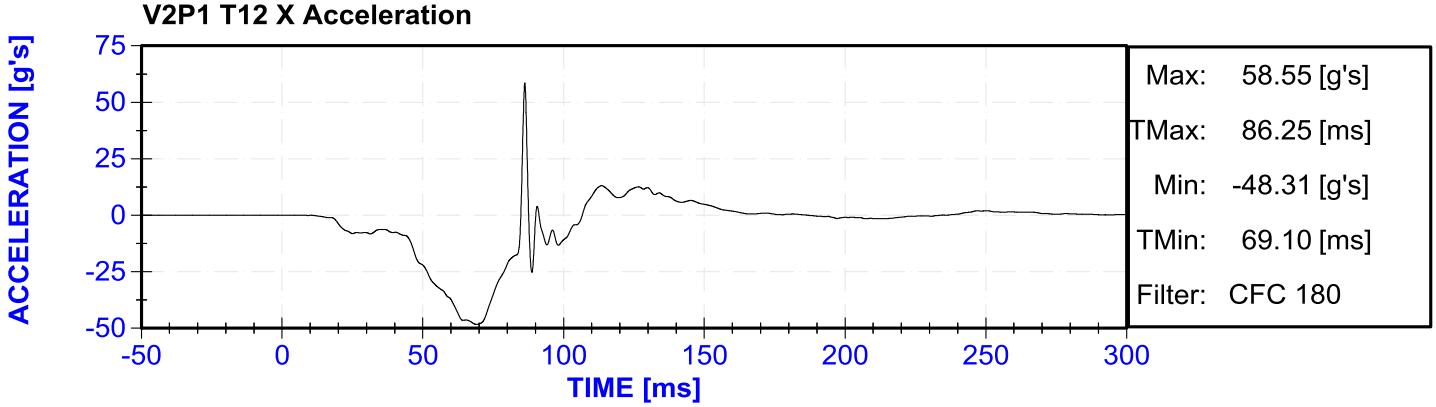
V2P1 T6 Y Acceleration



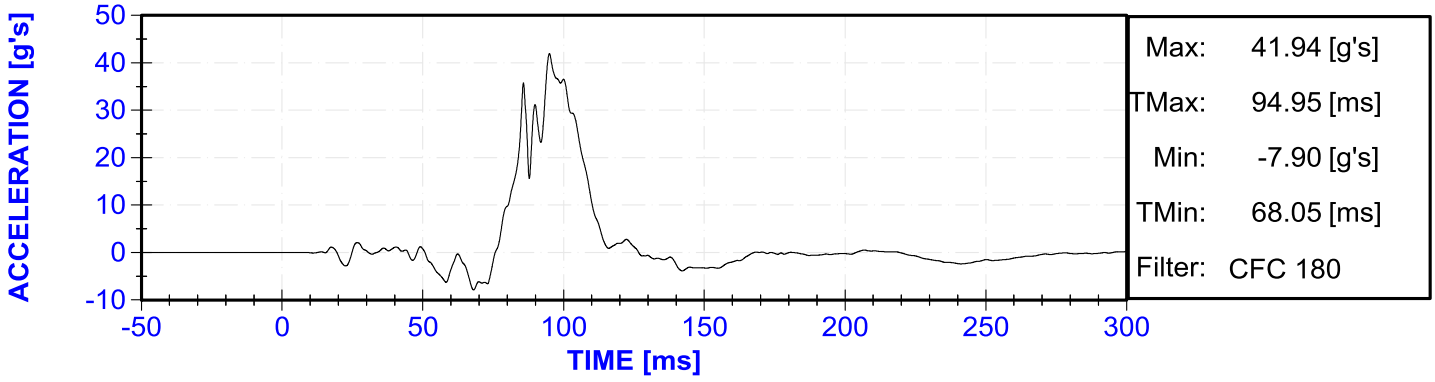
V2P1 T6 Z Acceleration



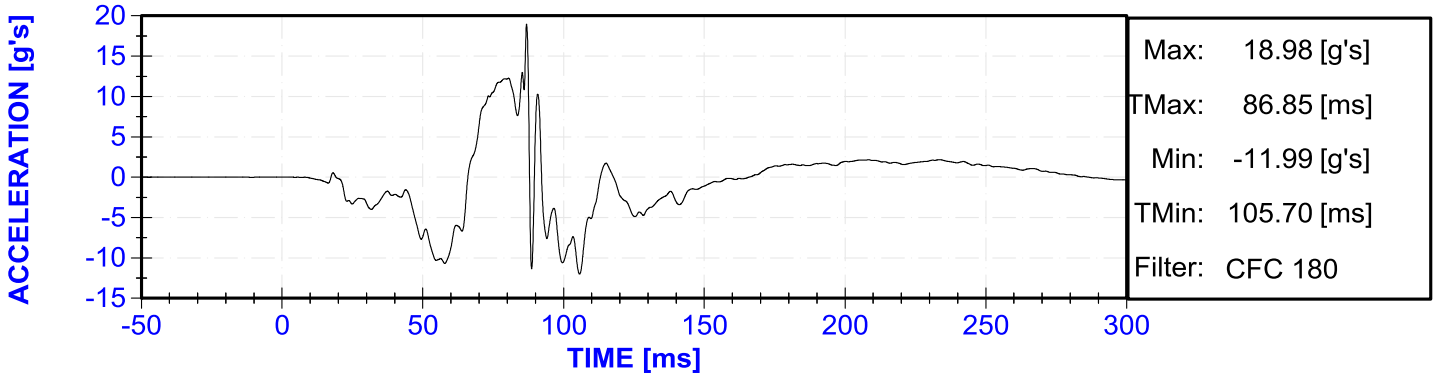
V2P1 T12 X Acceleration



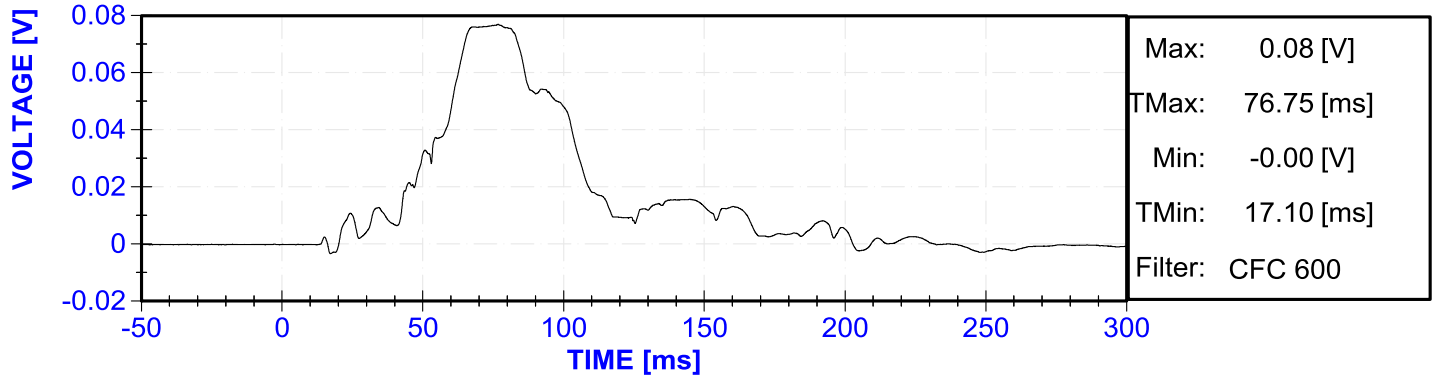
V2P1 T12 Y Acceleration



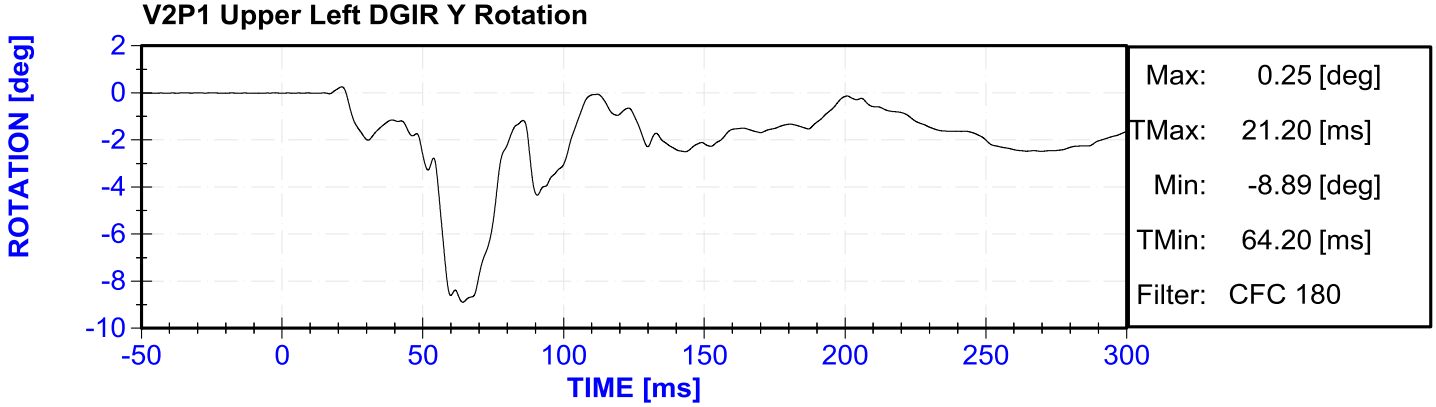
V2P1 T12 Z Acceleration



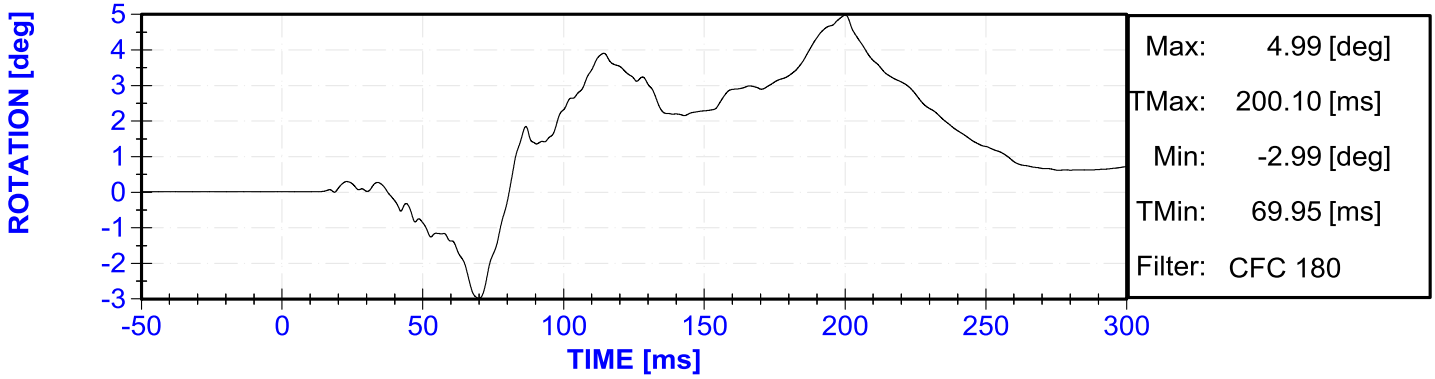
V2P1 Upper Left DGIR X Displacement



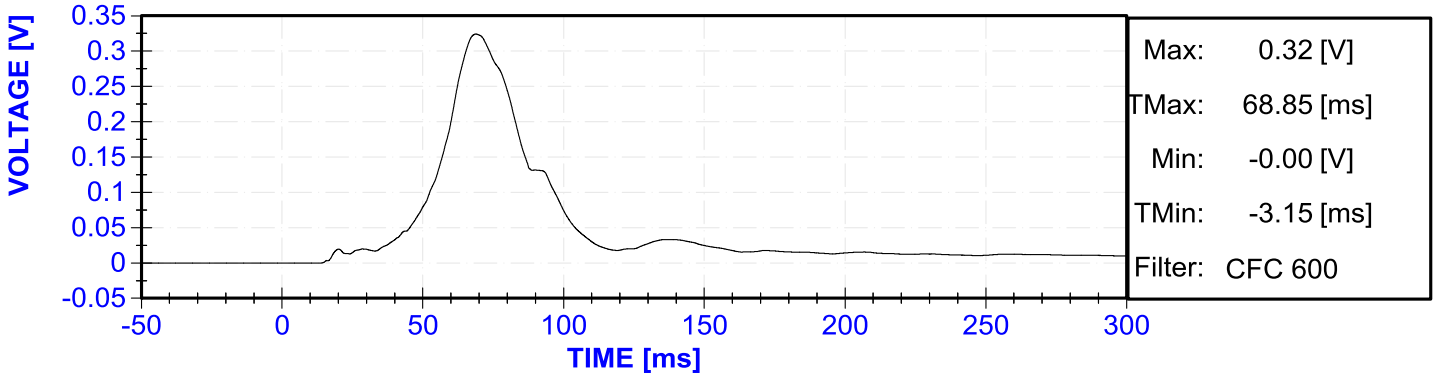
V2P1 Upper Left DGIR Y Rotation



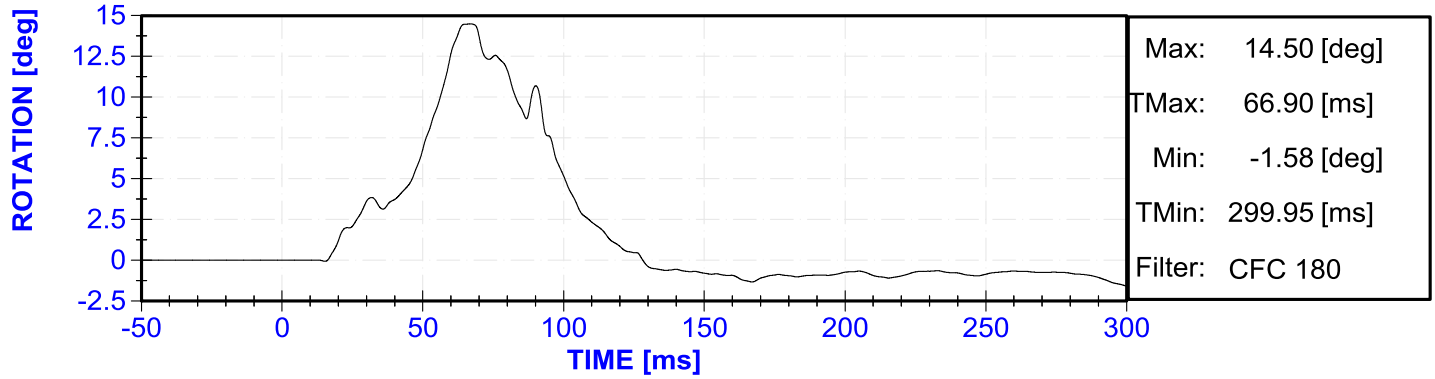
V2P1 Upper Left DGIR Z Rotation



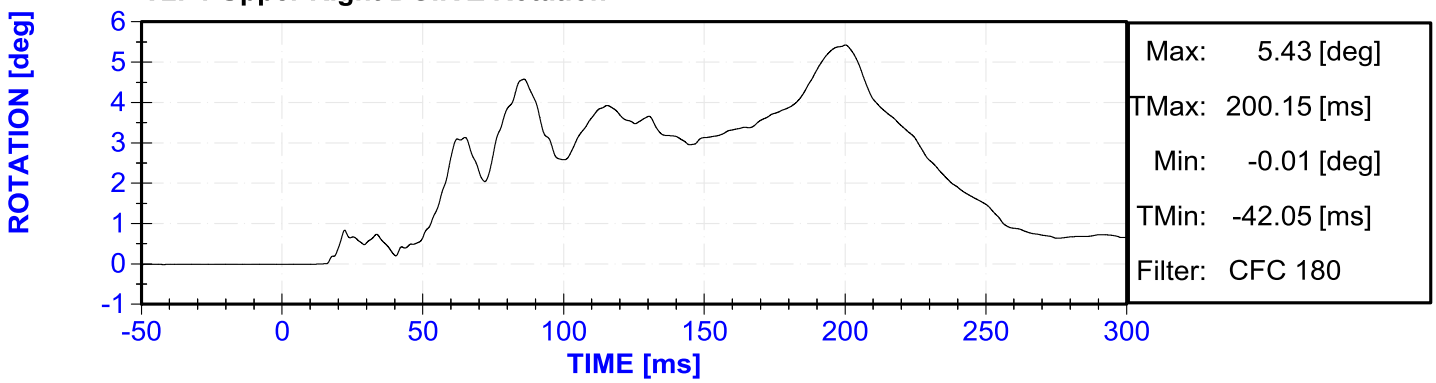
V2P1 Upper Right DGIR X Displacement



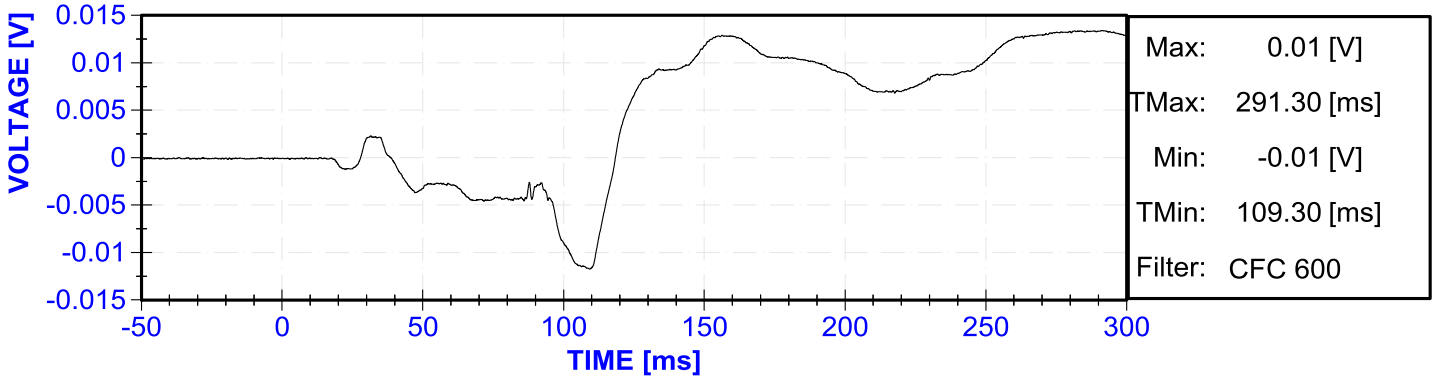
V2P1 Upper Right DGIR Y Rotation



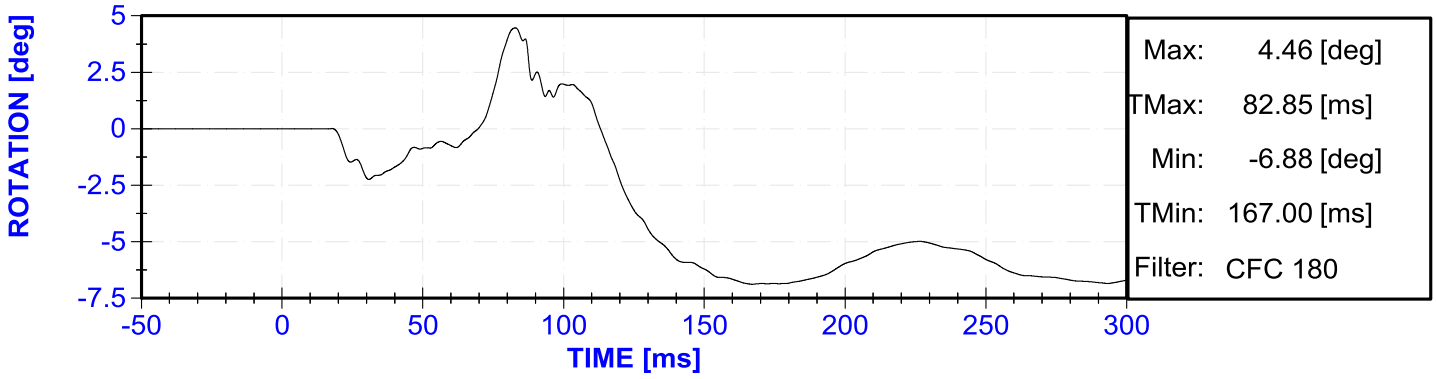
V2P1 Upper Right DGIR Z Rotation



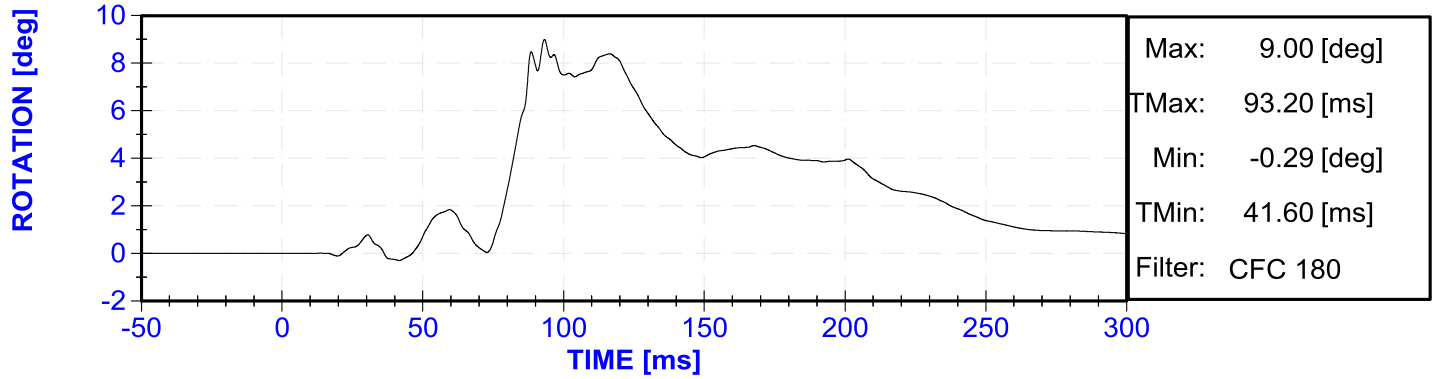
V2P1 Lower Left DGIR X Displacement



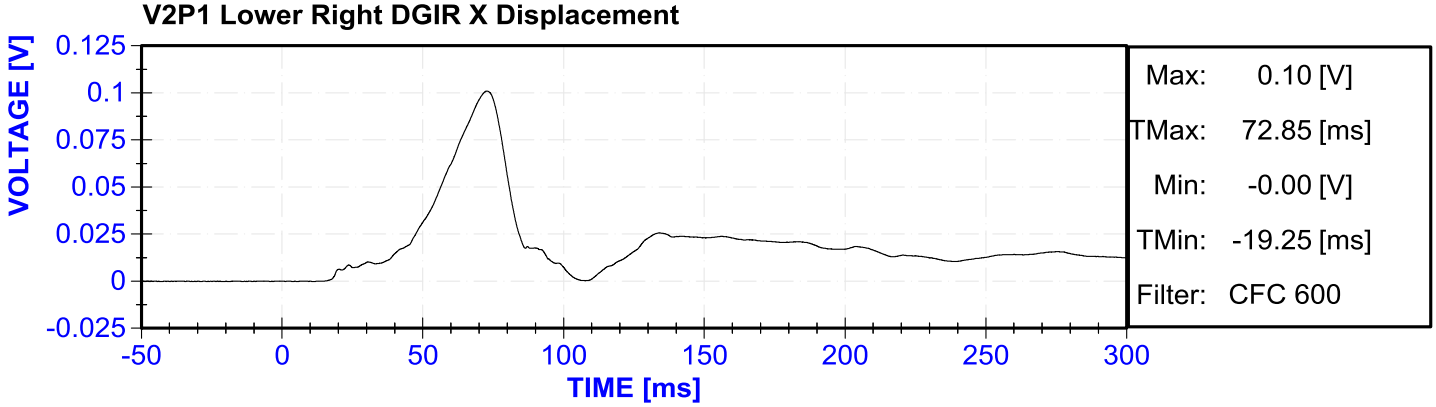
V2P1 Lower Left DGIR Y Rotation



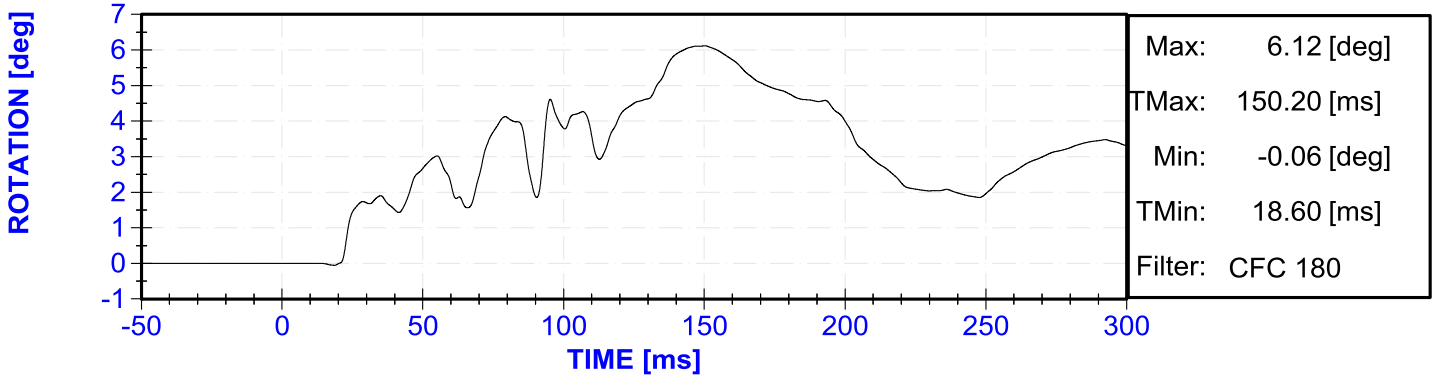
V2P1 Lower Left DGIR Z Rotation



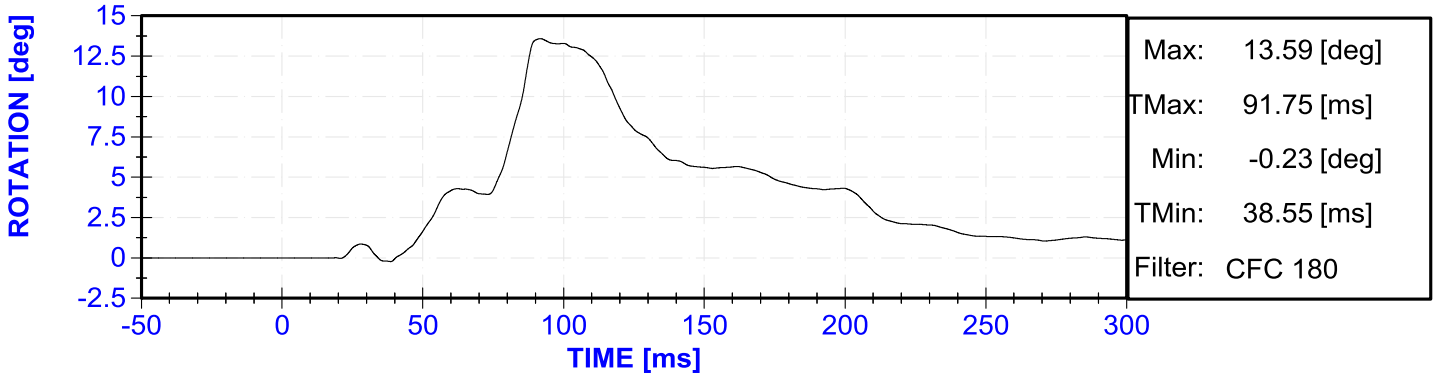
V2P1 Lower Right DGIR X Displacement



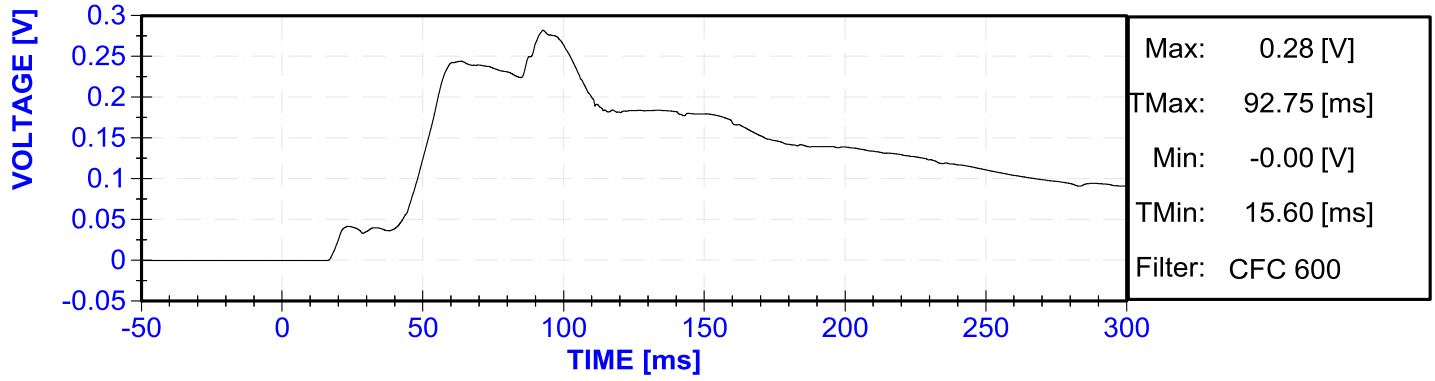
V2P1 Lower Right DGIR Y Rotation



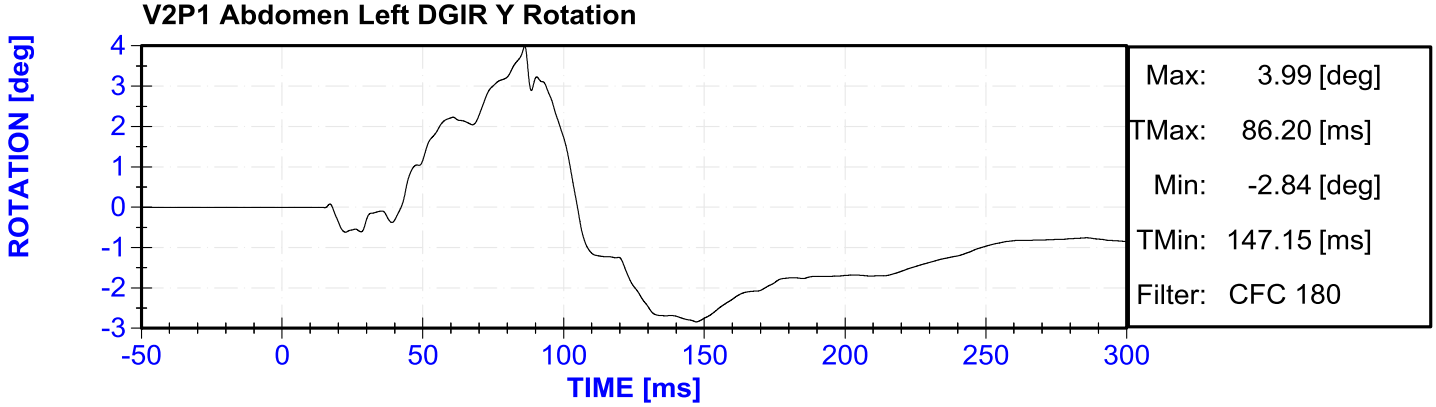
V2P1 Lower Right DGIR Z Rotation



V2P1 Abdomen Left DGIR X Displacement

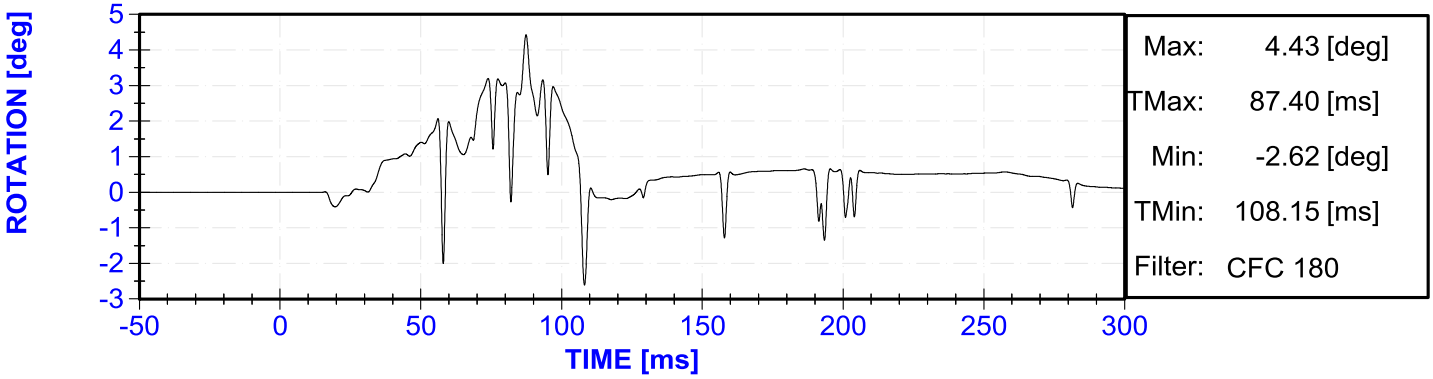


V2P1 Abdomen Left DGIR Y Rotation

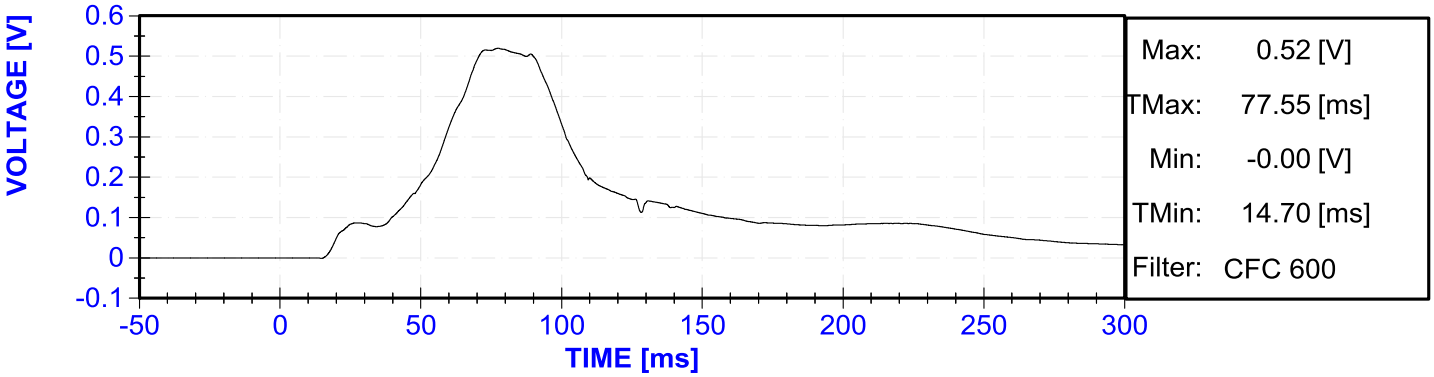


V2P1 Abdomen Left DGIR Z Rotation

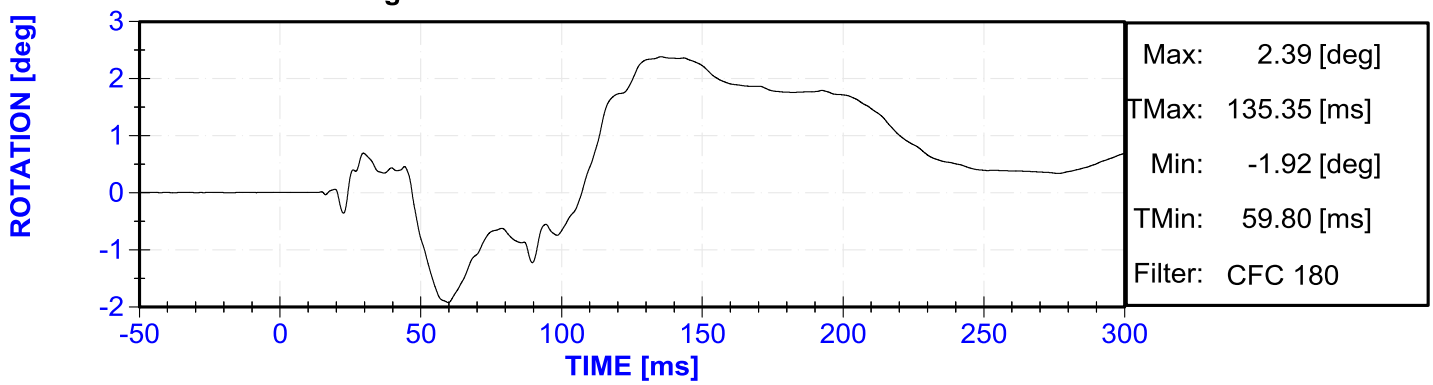
NOISE SPIKES AFTER 58 MS



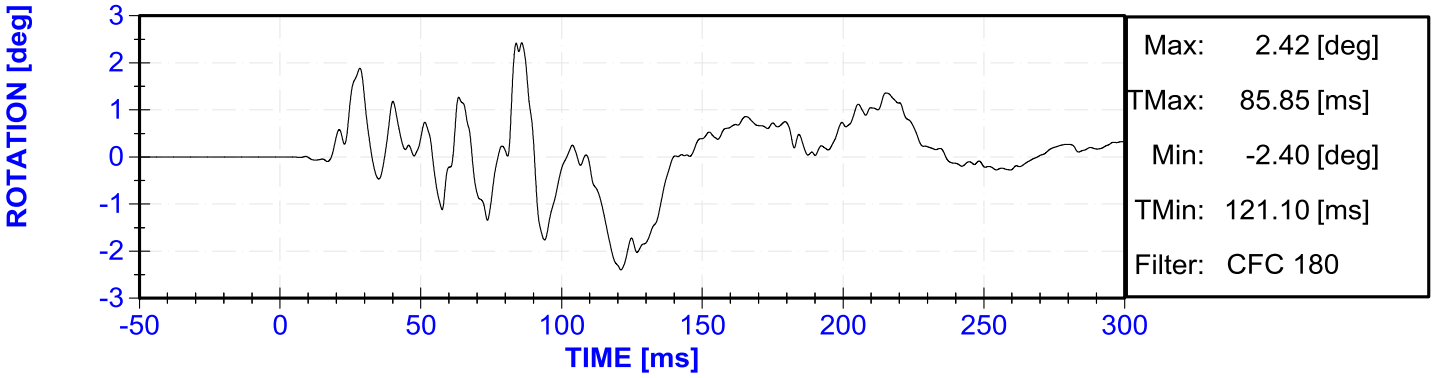
V2P1 Abdomen Right DGIR X Displacement

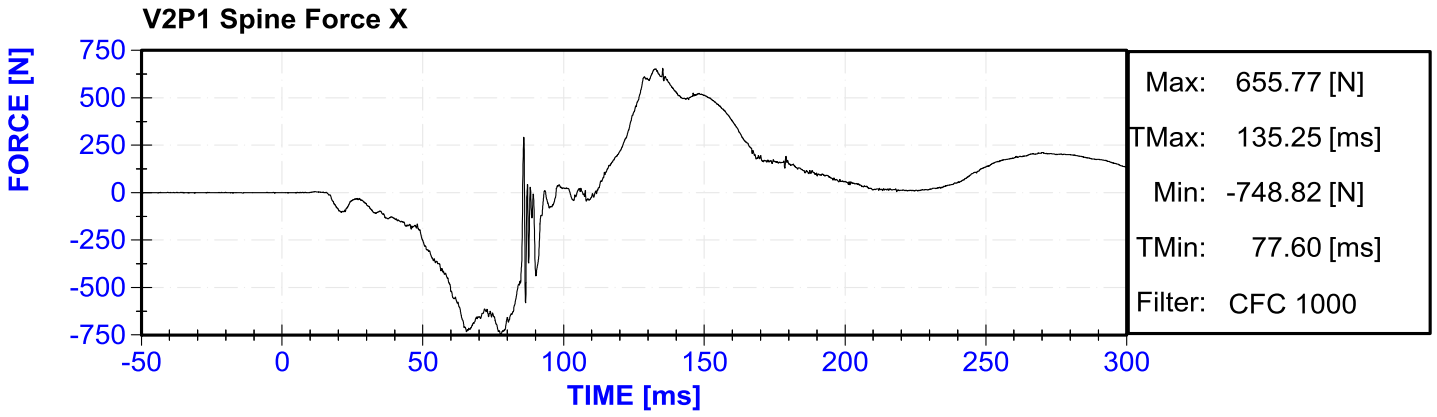


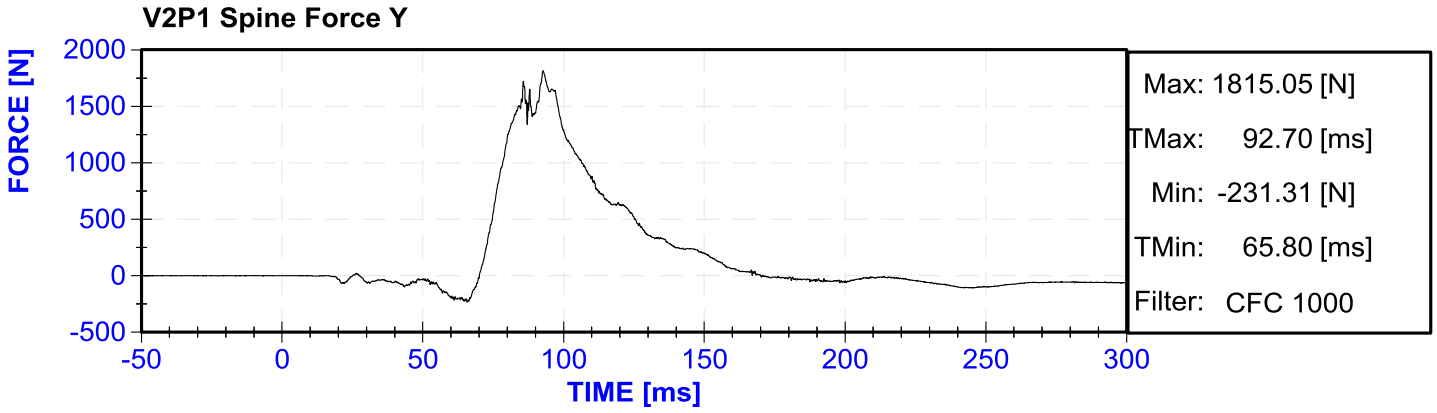
V2P1 Abdomen Right DGIR Y Rotation

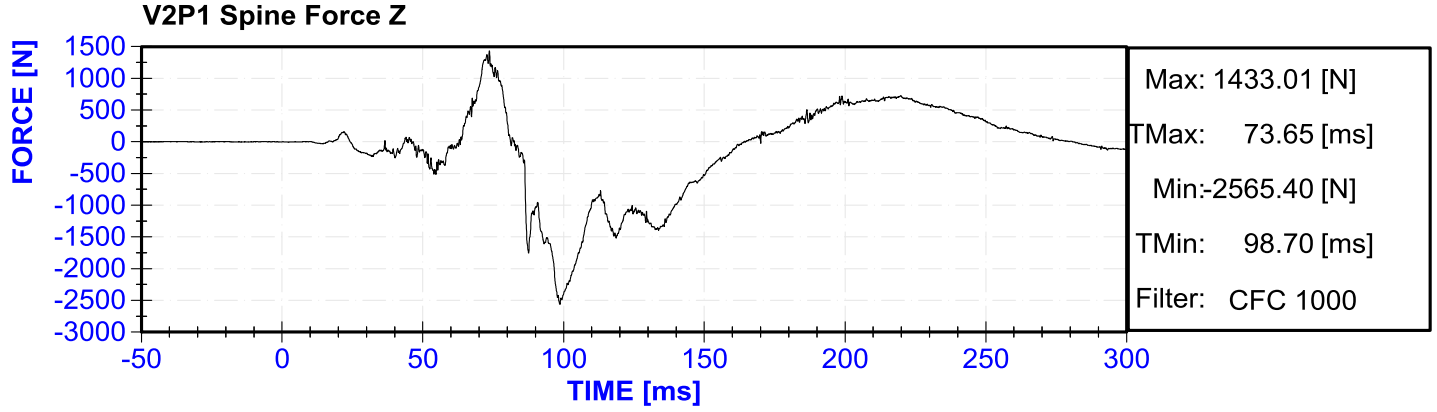


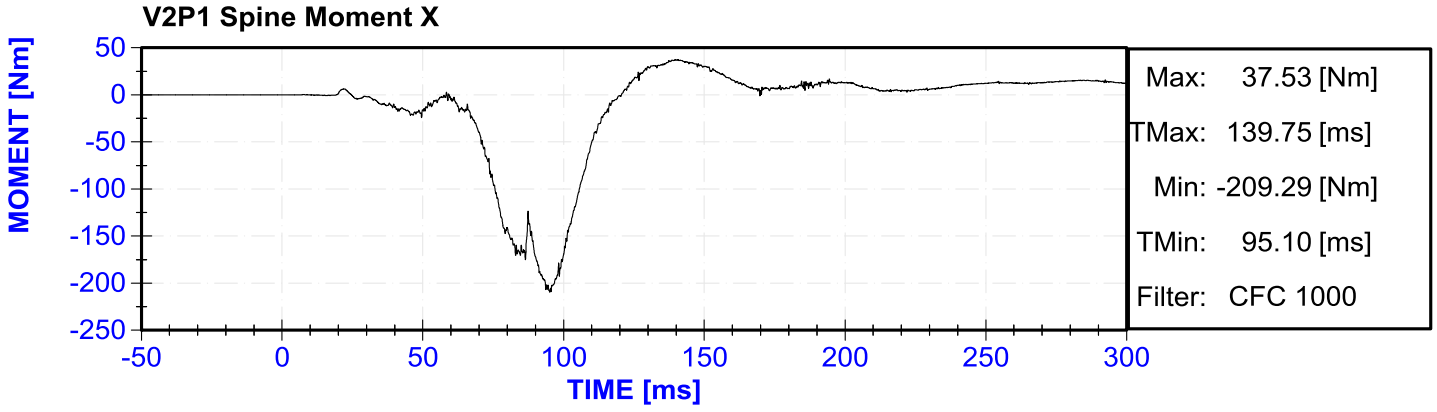
V2P1 Abdomen Right DGIR Z Rotation

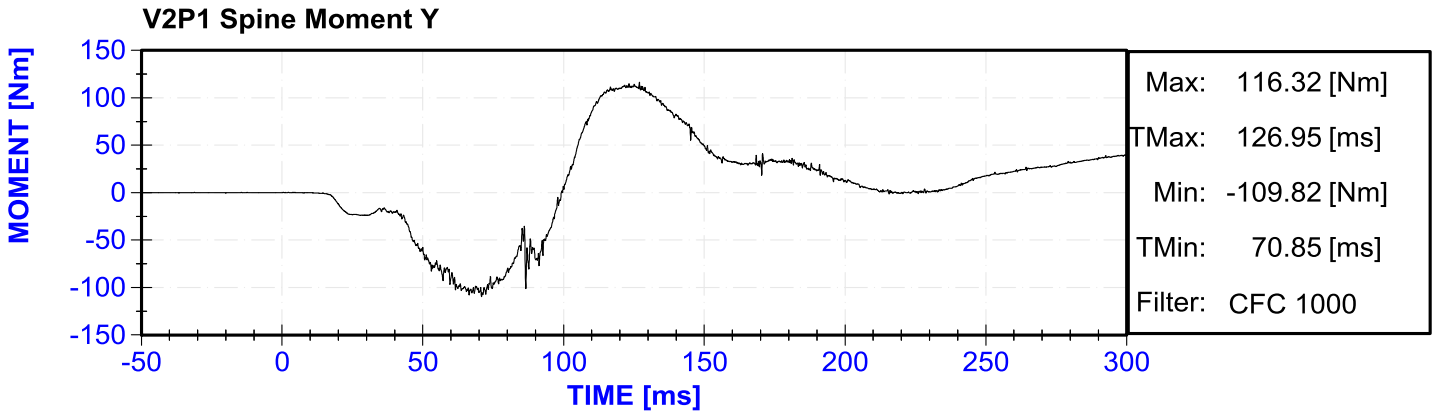


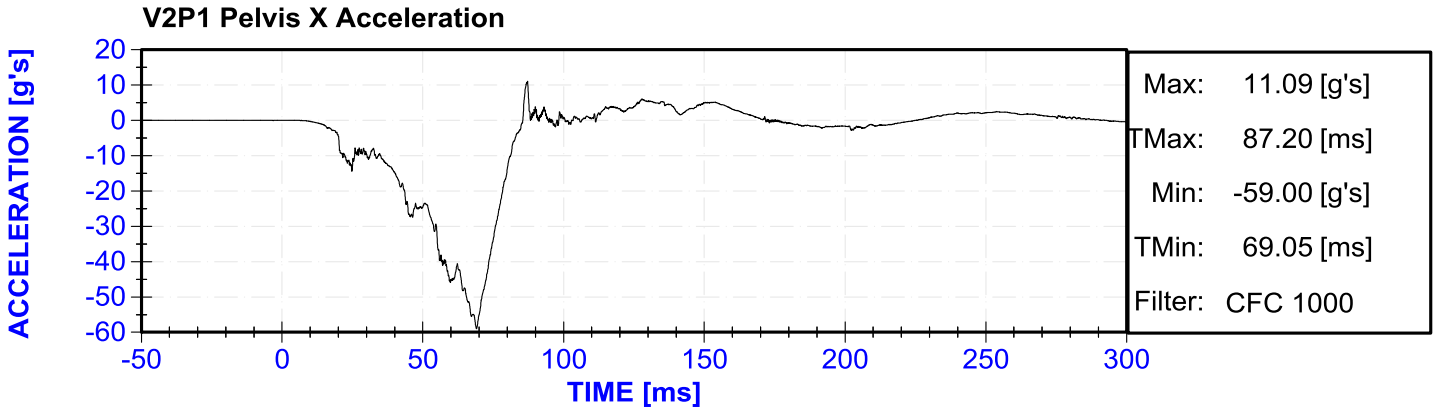

V2P1 Spine Force X
FORCE [N]
750
500
250
0
-250
-500
-750
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 655.77 [N]
TMax: 135.25 [ms]
Min: -748.82 [N]
TMin: 77.60 [ms]
Filter: CFC 1000

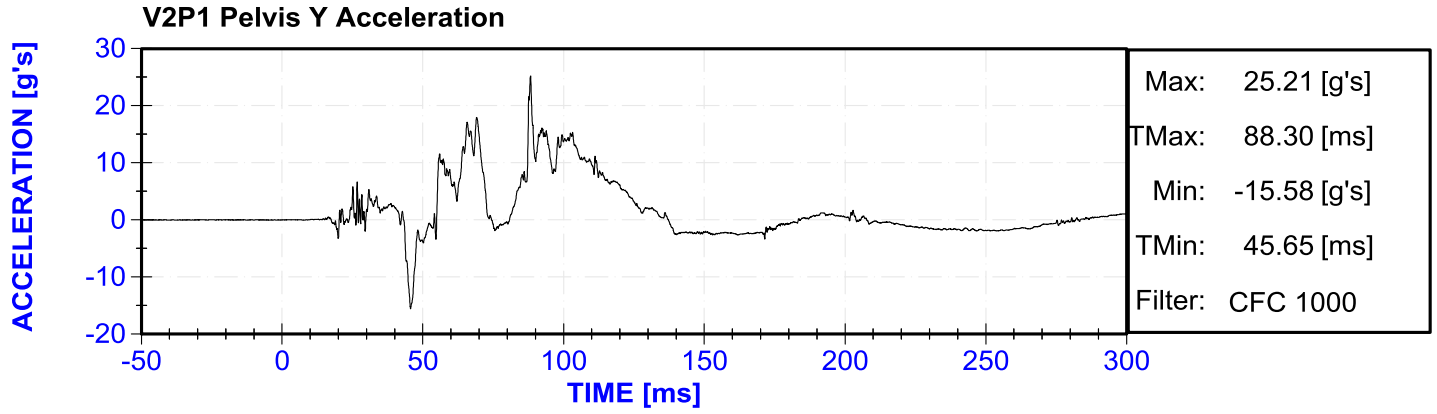

V2P1 Spine Force Y
FORCE [N]
2000
1500
1000
500
0
-500
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 1815.05 [N]
TMax: 92.70 [ms]
Min: -231.31 [N]
TMin: 65.80 [ms]
Filter: CFC 1000

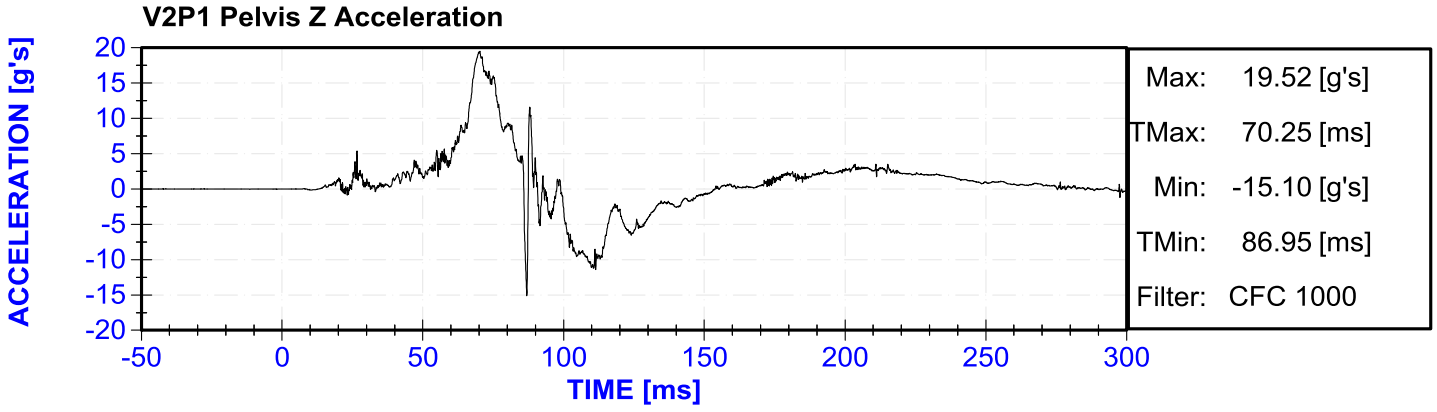

V2P1 Spine Force Z
FORCE [N]
1500
1000
500
0
-500
-1000
-1500
-2000
-2500
-3000
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 1433.01 [N]
TMax: 73.65 [ms]
Min:-2565.40 [N]
TMin: 98.70 [ms]
Filter: CFC 1000


V2P1 Spine Moment X
MOMENT [Nm]
50
0
-50
-100
-150
-200
-250
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 37.53 [Nm]
TMax: 139.75 [ms]
Min: -209.29 [Nm]
TMin: 95.10 [ms]
Filter: CFC 1000

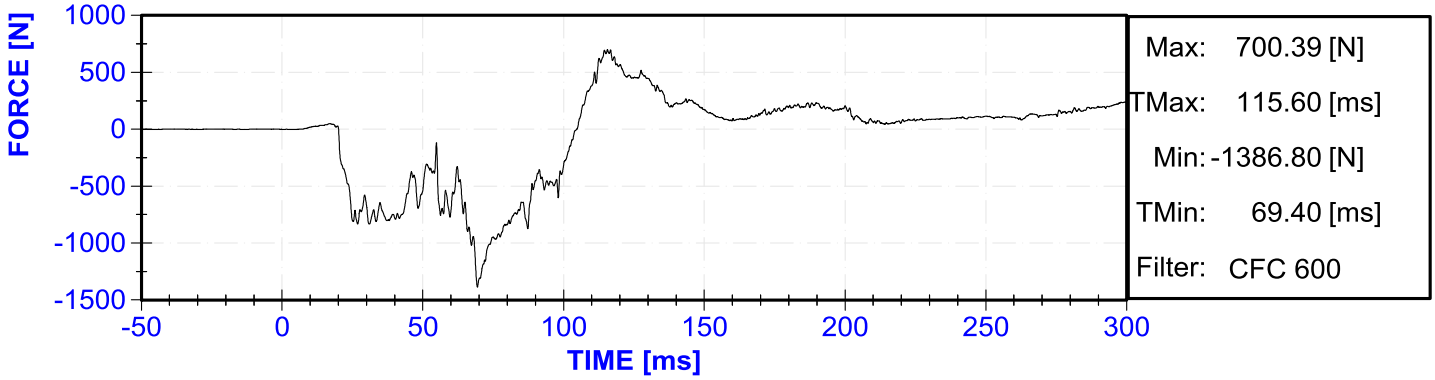

V2P1 Spine Moment Y
MOMENT [Nm]
150
100
50
0
-50
-100
-150
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 116.32 [Nm]
TMax: 126.95 [ms]
Min: -109.82 [Nm]
TMin: 70.85 [ms]
Filter: CFC 1000


V2P1 Pelvis X Acceleration
ACCELERATION [g's]
20
10
0
-10
-20
-30
-40
-50
-60
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 11.09 [g's]
TMax: 87.20 [ms]
Min: -59.00 [g's]
TMin: 69.05 [ms]
Filter: CFC 1000

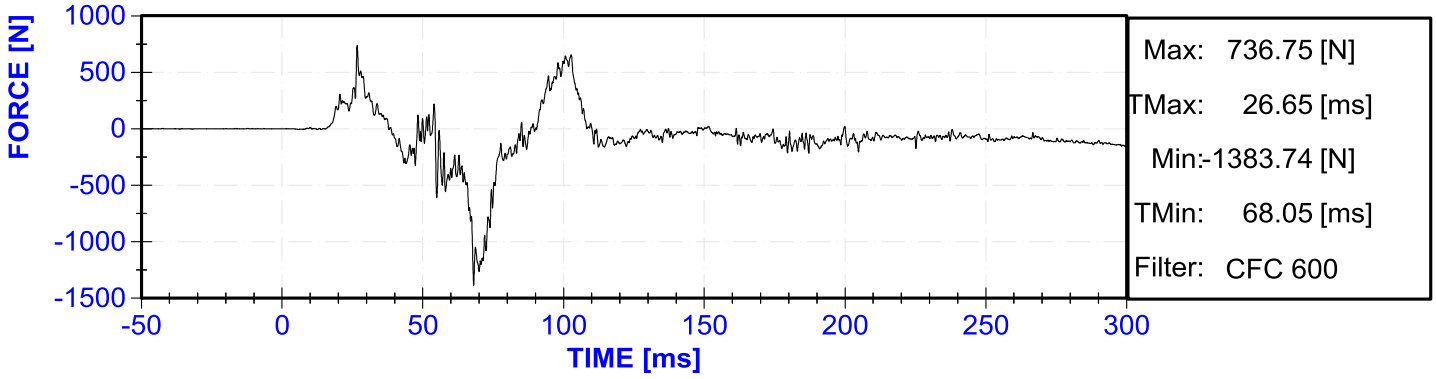

V2P1 Pelvis Y Acceleration
ACCELERATION [g's]
30
20
10
0
-10
-20
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 25.21 [g's]
TMax: 88.30 [ms]
Min: -15.58 [g's]
TMin: 45.65 [ms]
Filter: CFC 1000


V2P1 Pelvis Z Acceleration
ACCELERATION [g's]
20
15
10
5
0
-5
-10
-15
-20
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 19.52 [g's]
TMax: 70.25 [ms]
Min: -15.10 [g's]
TMin: 86.95 [ms]
Filter: CFC 1000

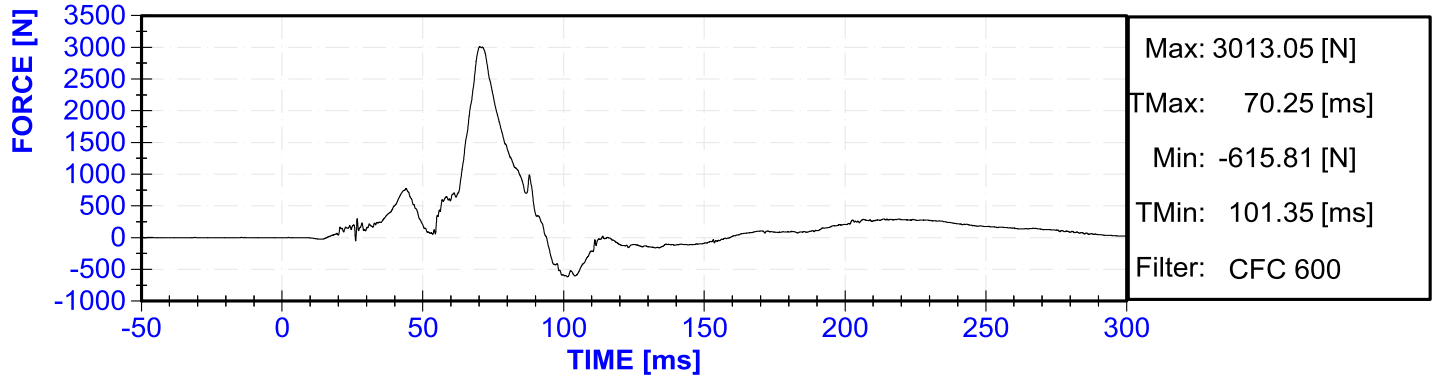
V2P1 Acetabulam Left X Force



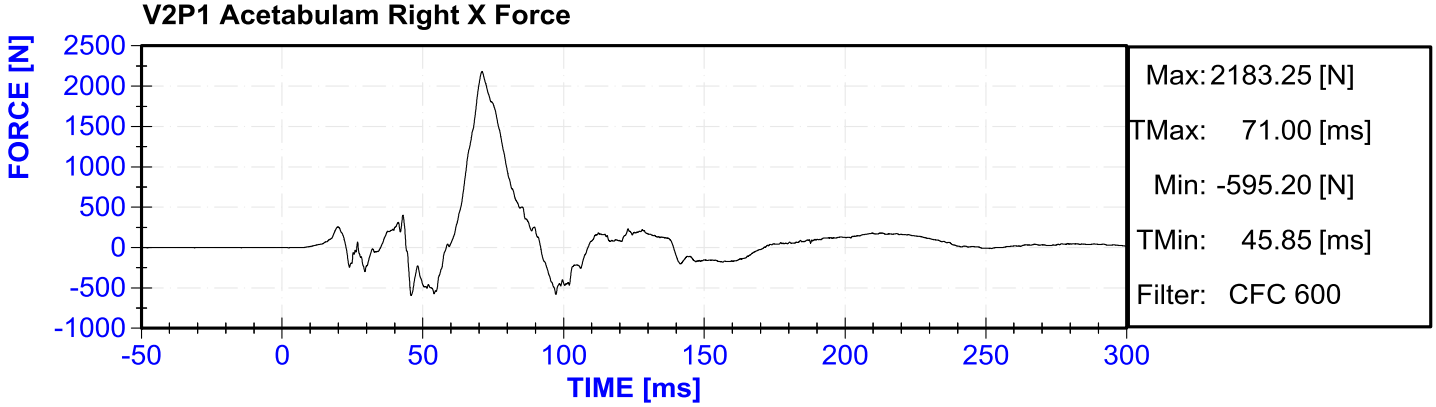
V2P1 Acetabulam Left Y Force



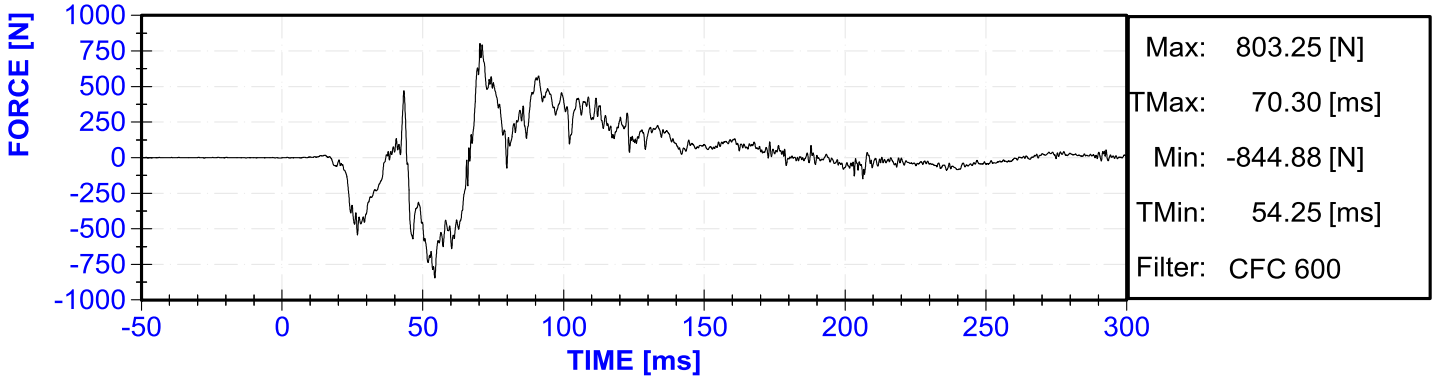
V2P1 Acetabulam Left Z Force



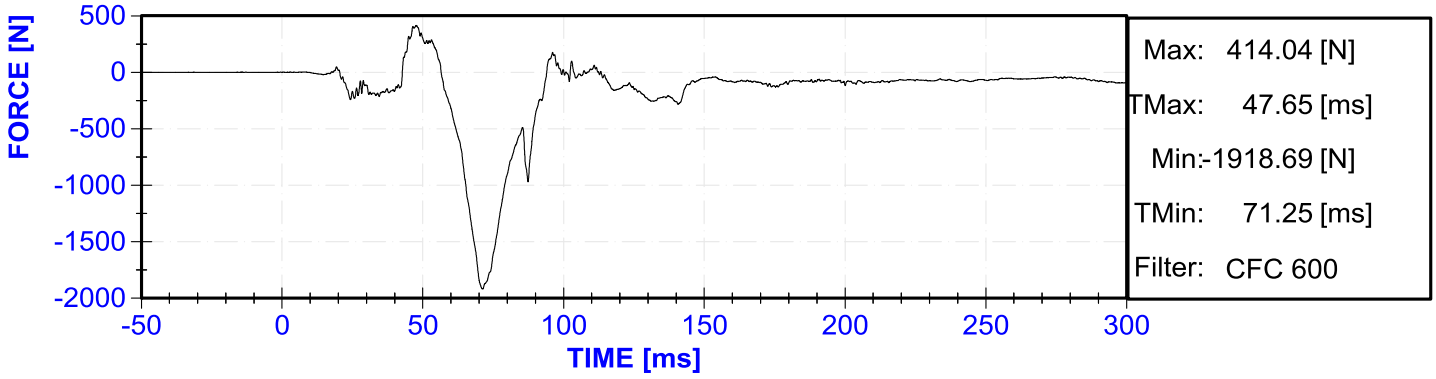
V2P1 Acetabulam Right X Force



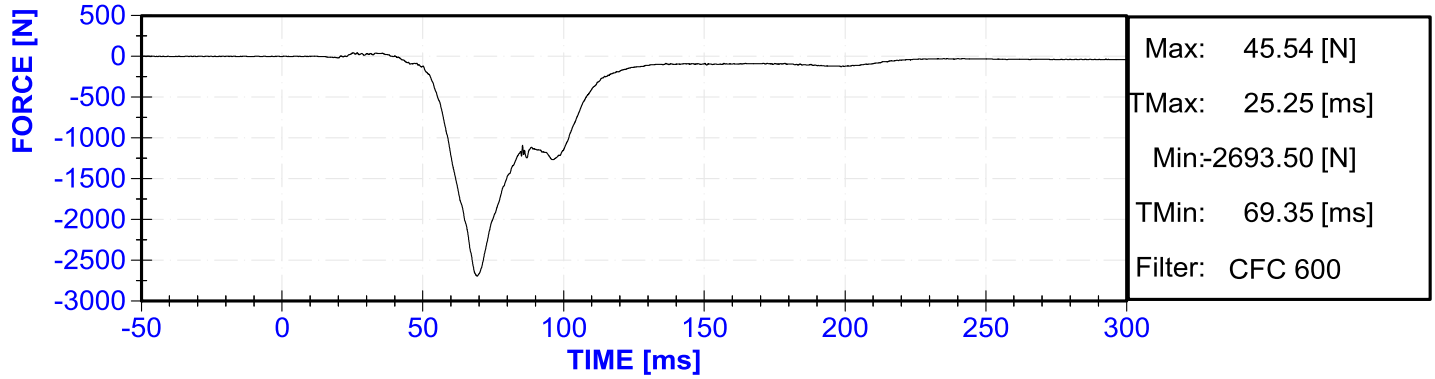
V2P1 Acetabulam Right Y Force



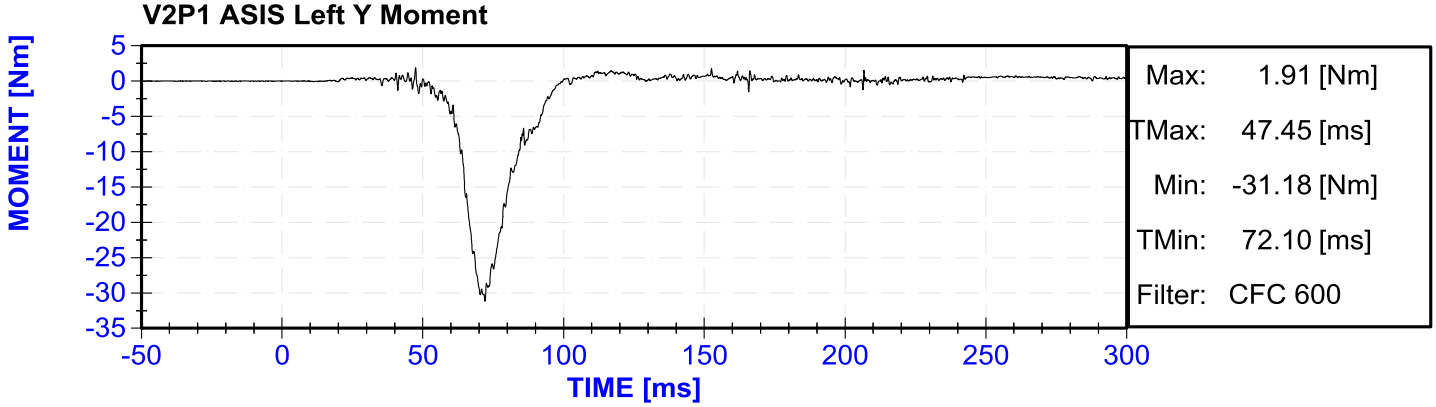
V2P1 Acetabulam Right Z Force



V2P1 ASIS Left X Force

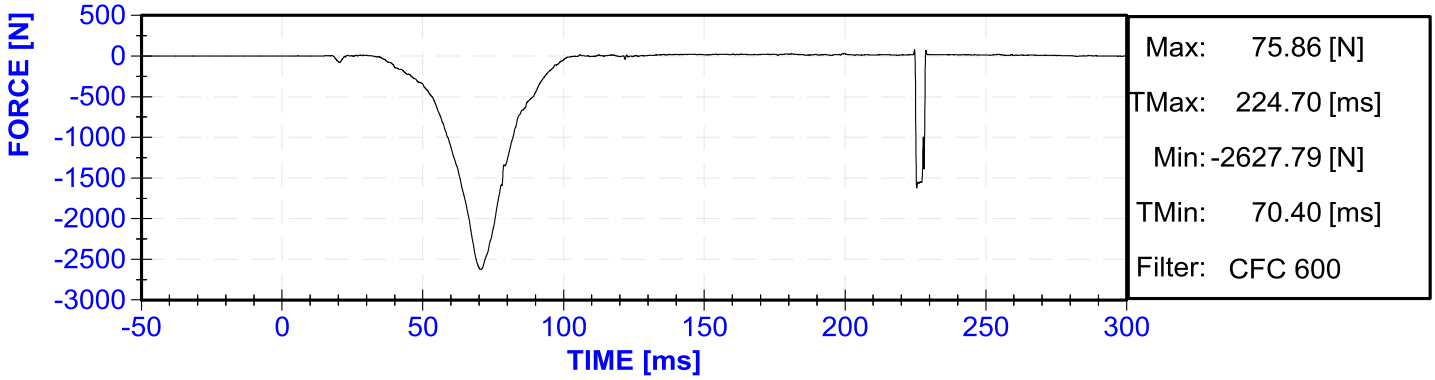


V2P1 ASIS Left Y Moment



V2P1 ASIS Right X Force

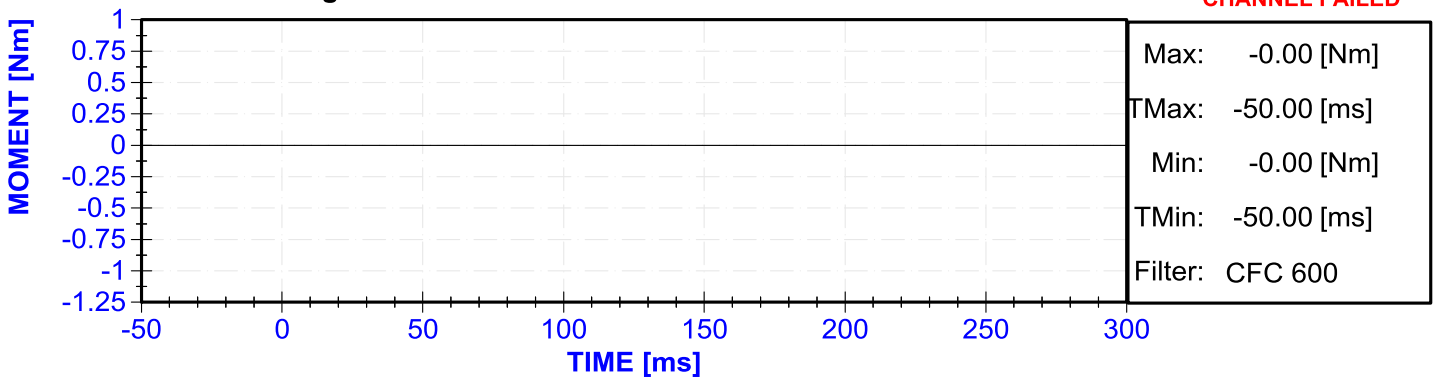
QUESTIONABLE 224-228MS



Max: 75.86 [N]
TMax: 224.70 [ms]
Min: -2627.79 [N]
TMin: 70.40 [ms]
Filter: CFC 600

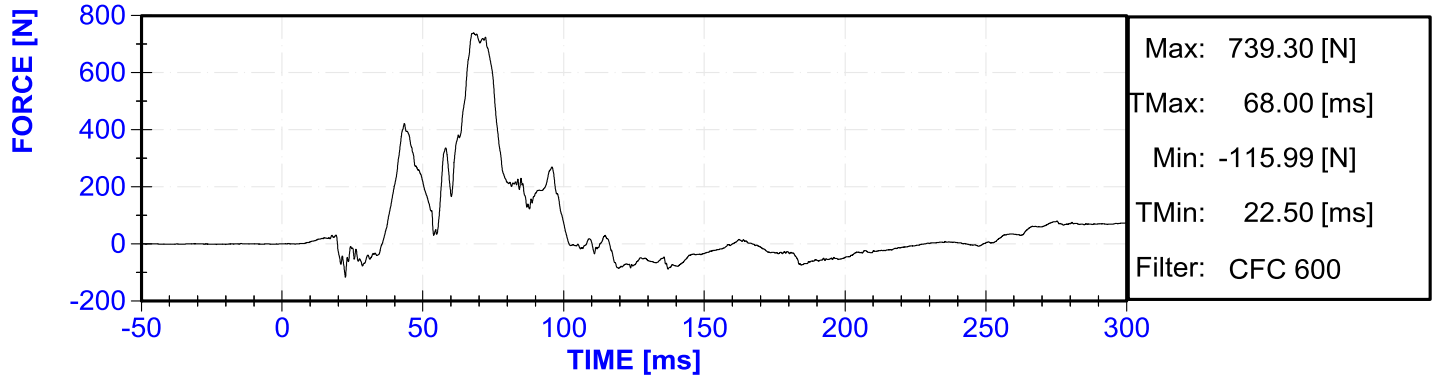
V2P1 ASIS Right Y Moment

CHANNEL FAILED



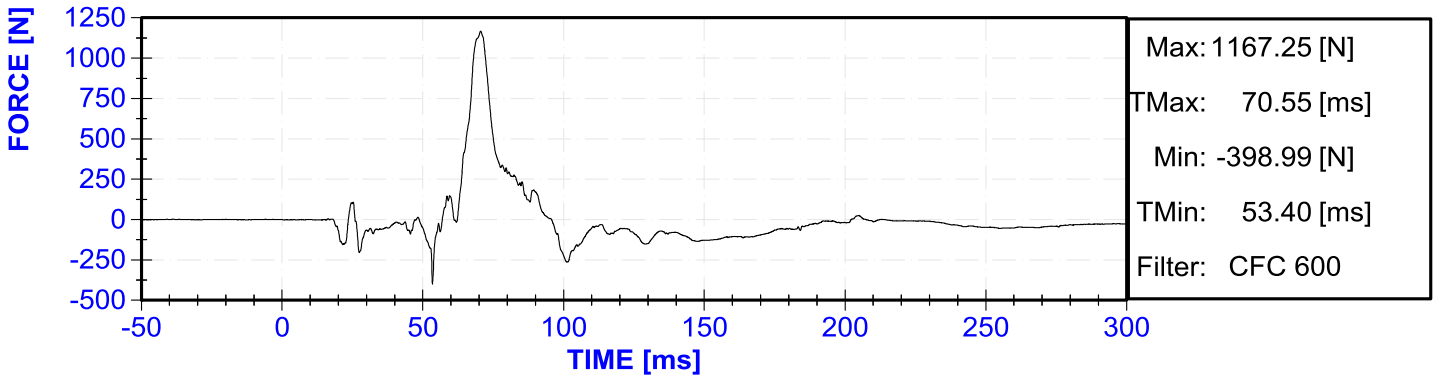
Max: -0.00 [Nm]
TMax: -50.00 [ms]
Min: -0.00 [Nm]
TMin: -50.00 [ms]
Filter: CFC 600

V2P1 Femur Left X Force

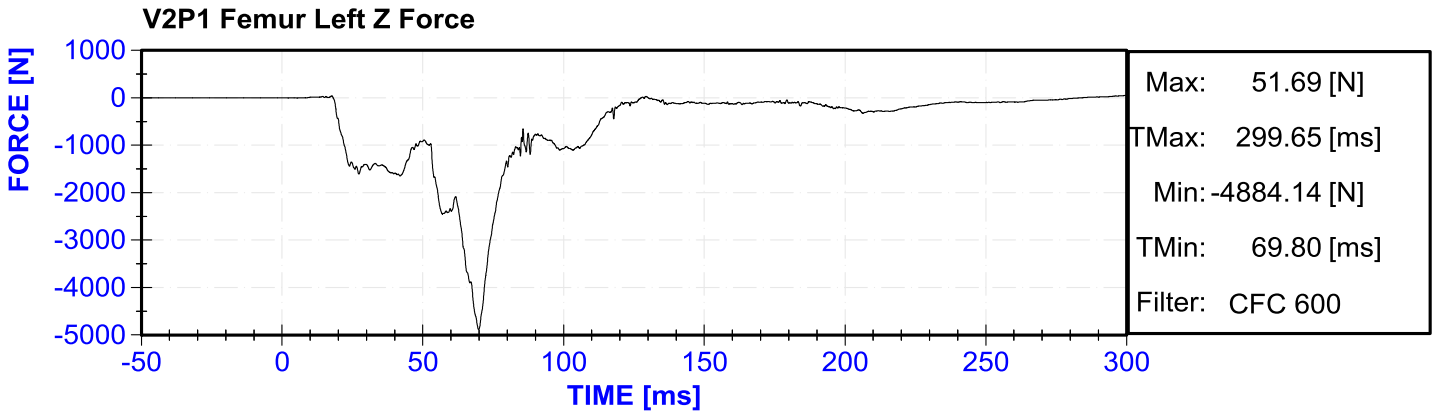


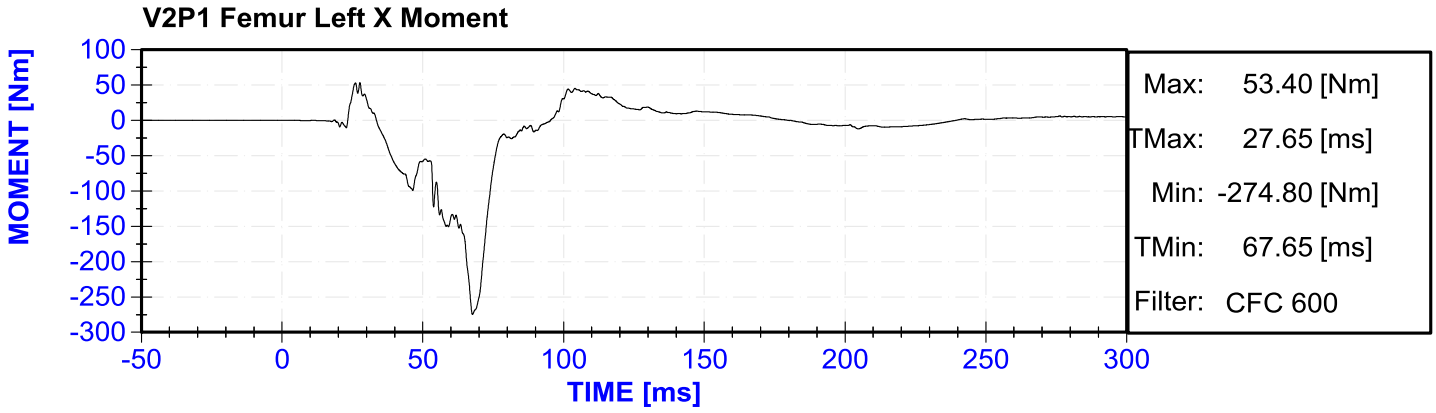
Max: 739.30 [N]
TMax: 68.00 [ms]
Min: -115.99 [N]
TMin: 22.50 [ms]
Filter: CFC 600

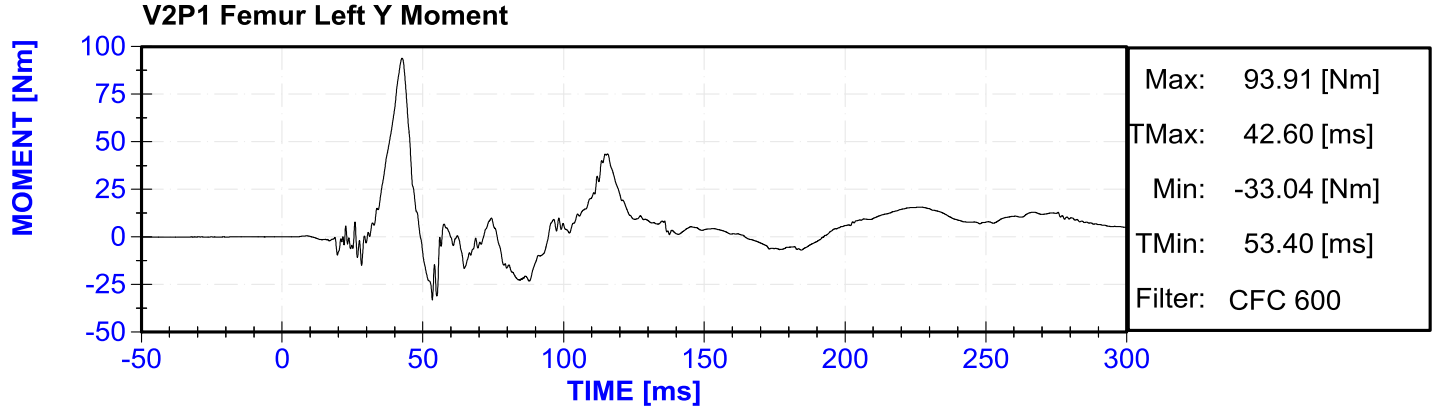
V2P1 Femur Left Y Force

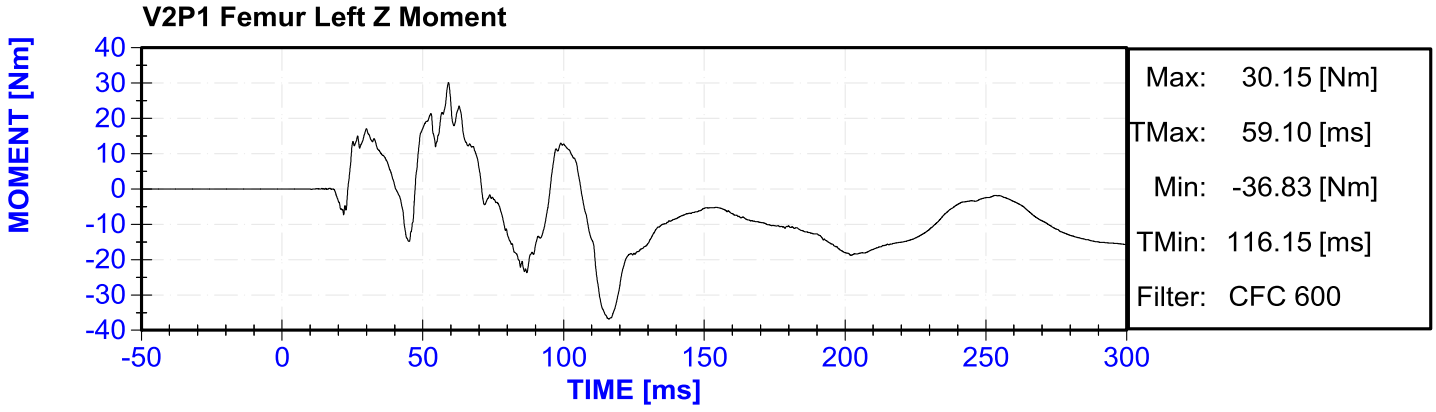


Max: 1167.25 [N]
TMax: 70.55 [ms]
Min: -398.99 [N]
TMin: 53.40 [ms]
Filter: CFC 600

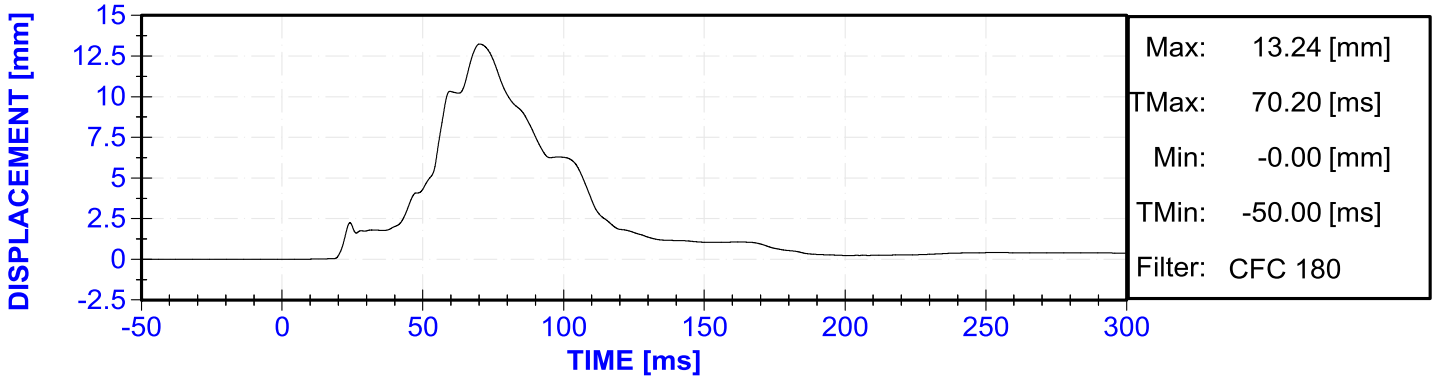

V2P1 Femur Left Z Force
FORCE [N]
1000
0
-1000
-2000
-3000
-4000
-5000
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 51.69 [N]
TMax: 299.65 [ms]
Min: -4884.14 [N]
TMin: 69.80 [ms]
Filter: CFC 600


V2P1 Femur Left X Moment
MOMENT [Nm]
100
50
0
-50
-100
-150
-200
-250
-300
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 53.40 [Nm]
TMax: 27.65 [ms]
Min: -274.80 [Nm]
TMin: 67.65 [ms]
Filter: CFC 600

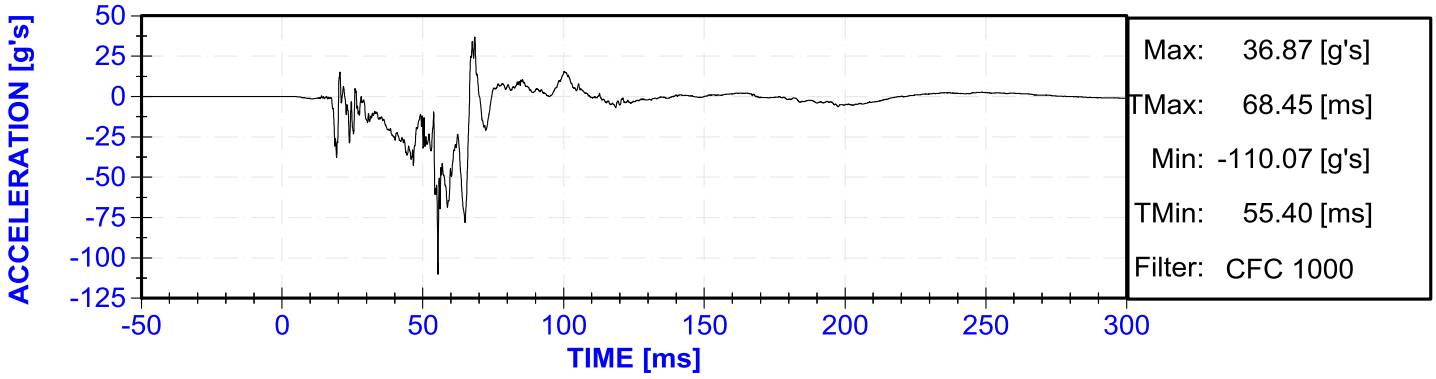

V2P1 Femur Left Y Moment
MOMENT [Nm]
100
75
50
25
0
-25
-50
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 93.91 [Nm]
TMax: 42.60 [ms]
Min: -33.04 [Nm]
TMin: 53.40 [ms]
Filter: CFC 600


V2P1 Femur Left Z Moment
MOMENT [Nm]
40
30
20
10
0
-10
-20
-30
-40
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 30.15 [Nm]
TMax: 59.10 [ms]
Min: -36.83 [Nm]
TMin: 116.15 [ms]
Filter: CFC 600

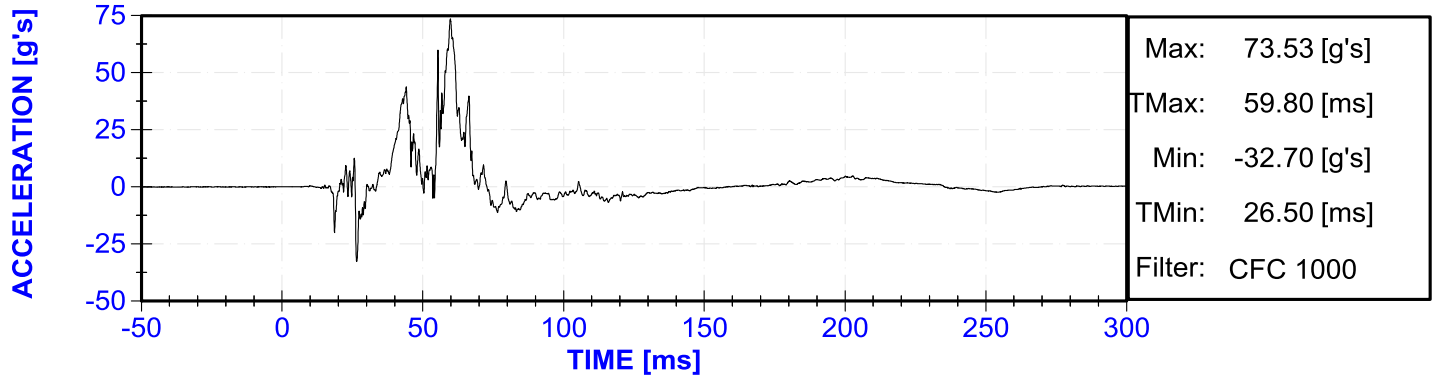
V2P1 Knee Left X Displacement



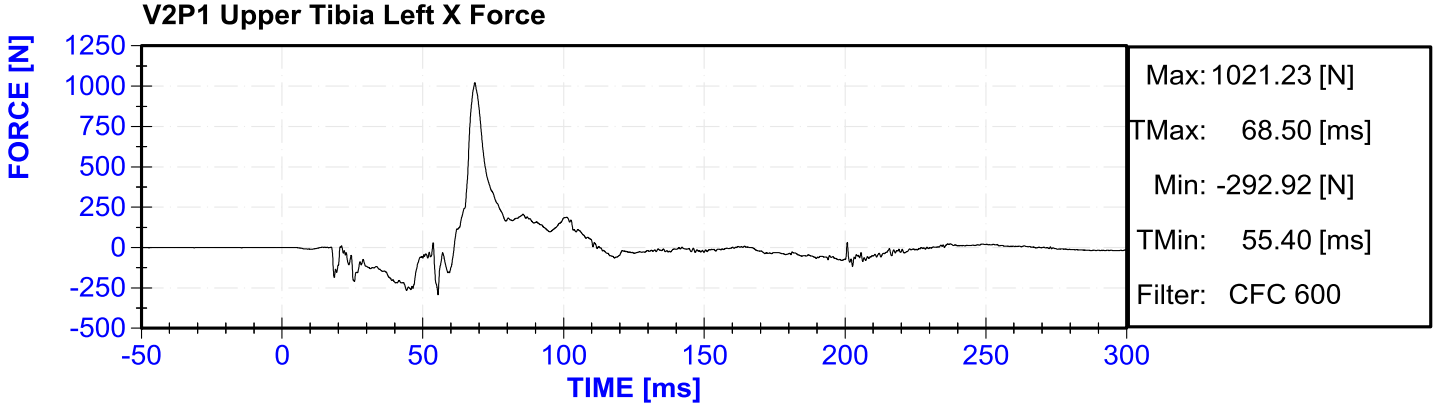
V2P1 Tibia Left X Acceleration



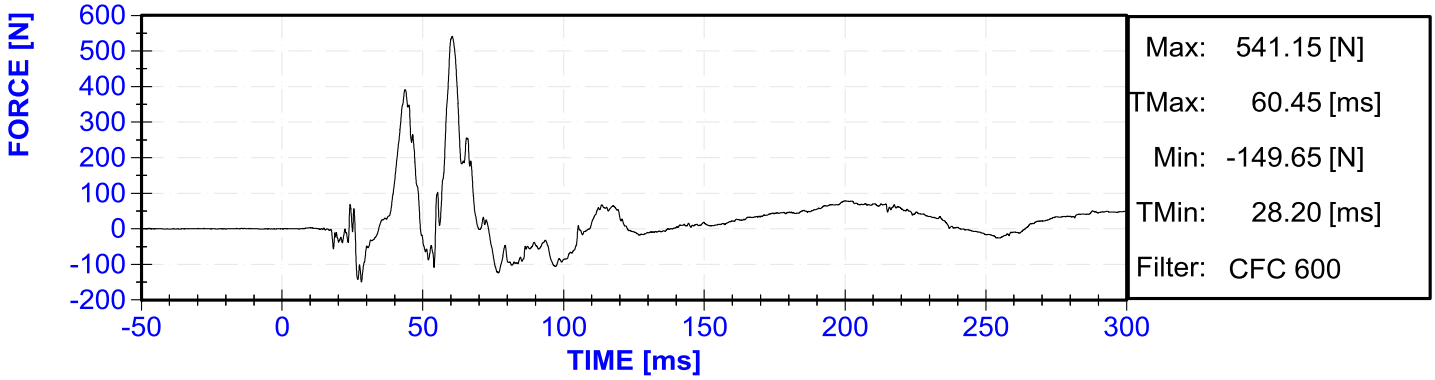
V2P1 Tibia Left Y Acceleration



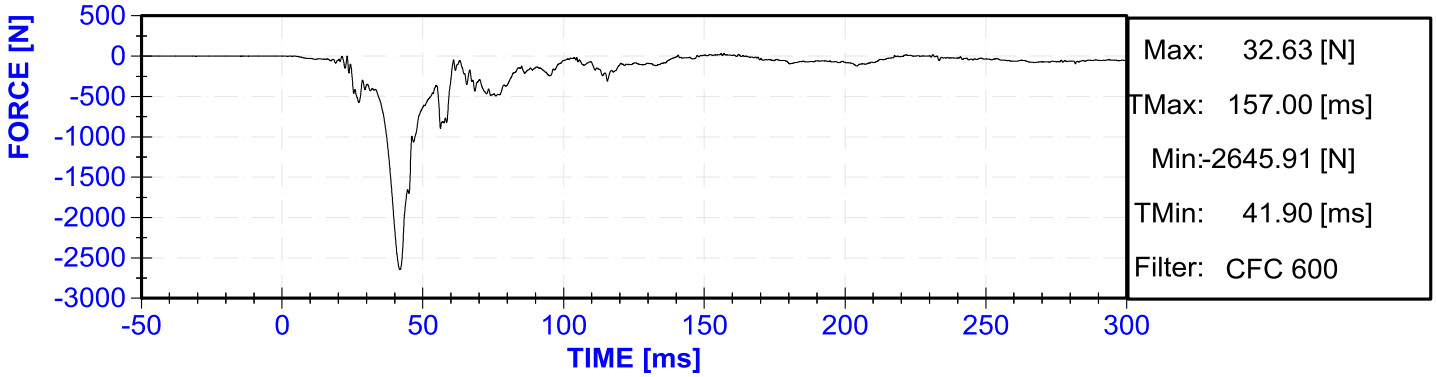
V2P1 Upper Tibia Left X Force



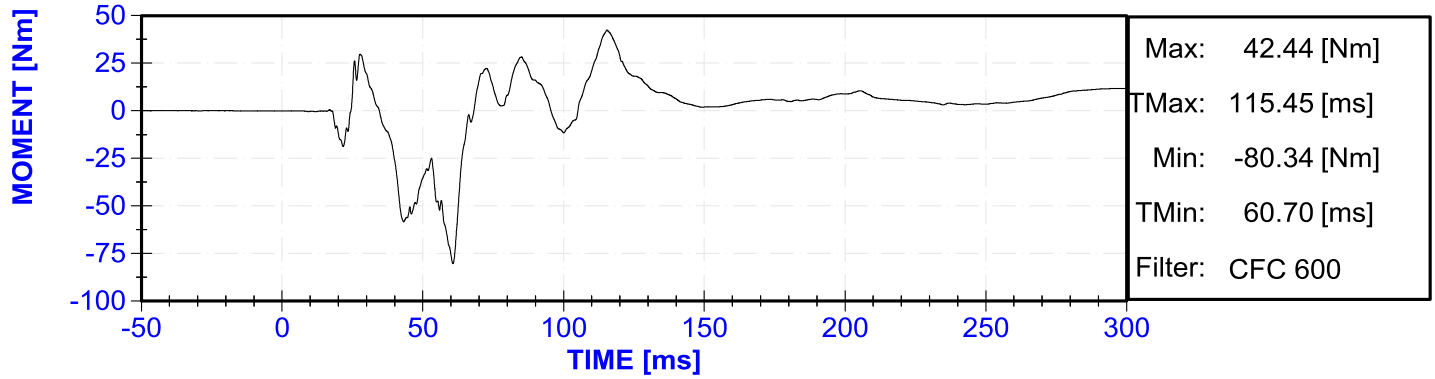
V2P1 Upper Tibia Left Y Force



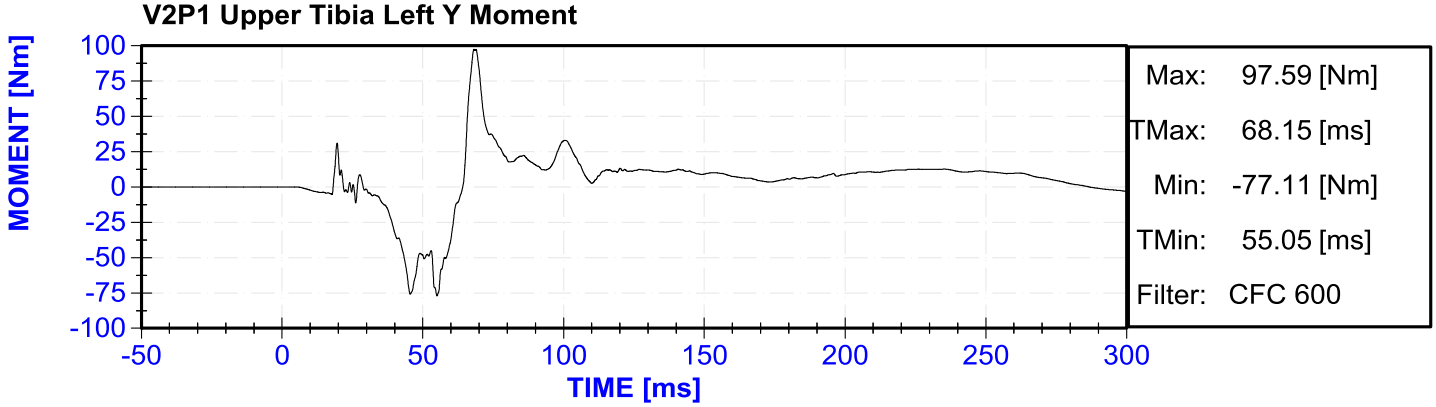
V2P1 Upper Tibia Left Z Force



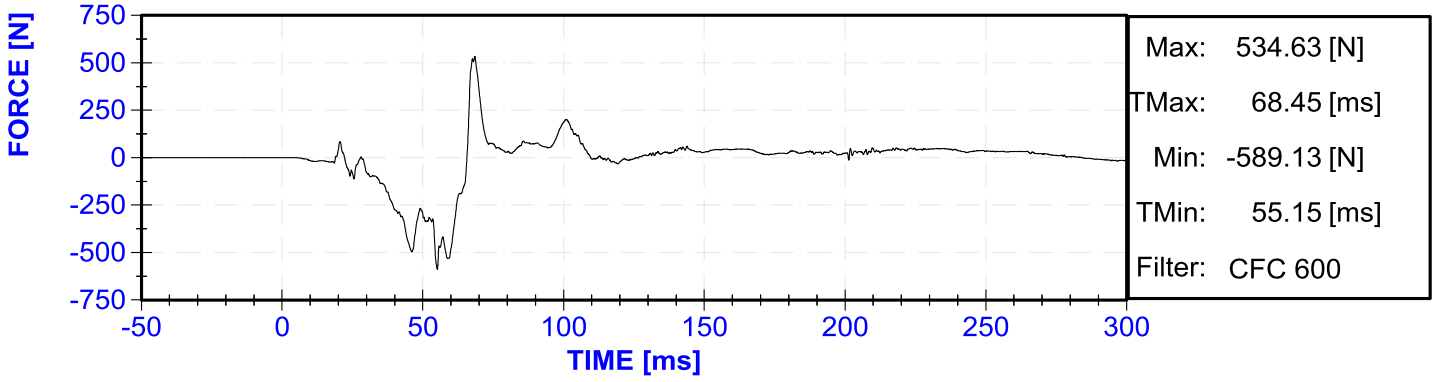
V2P1 Upper Tibia Left X Moment



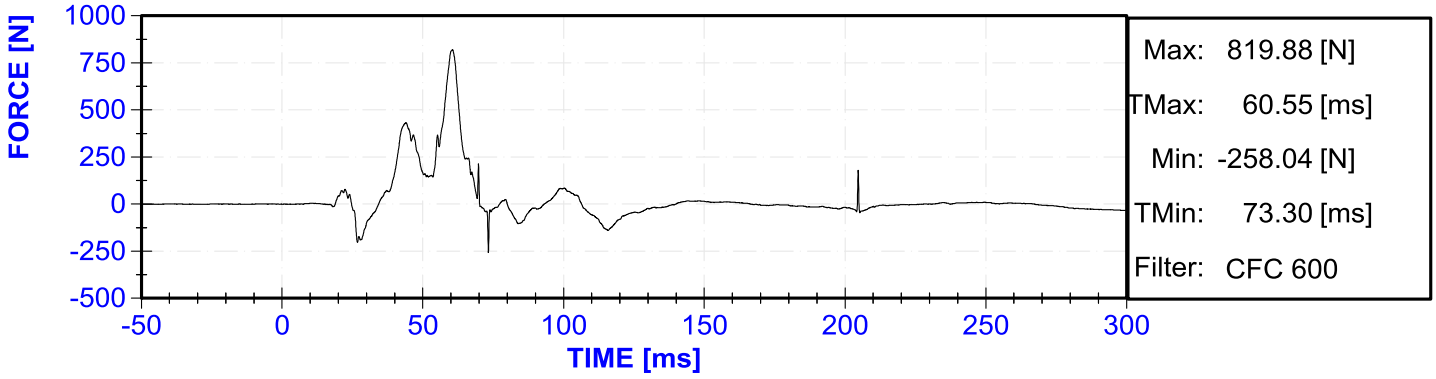
V2P1 Upper Tibia Left Y Moment



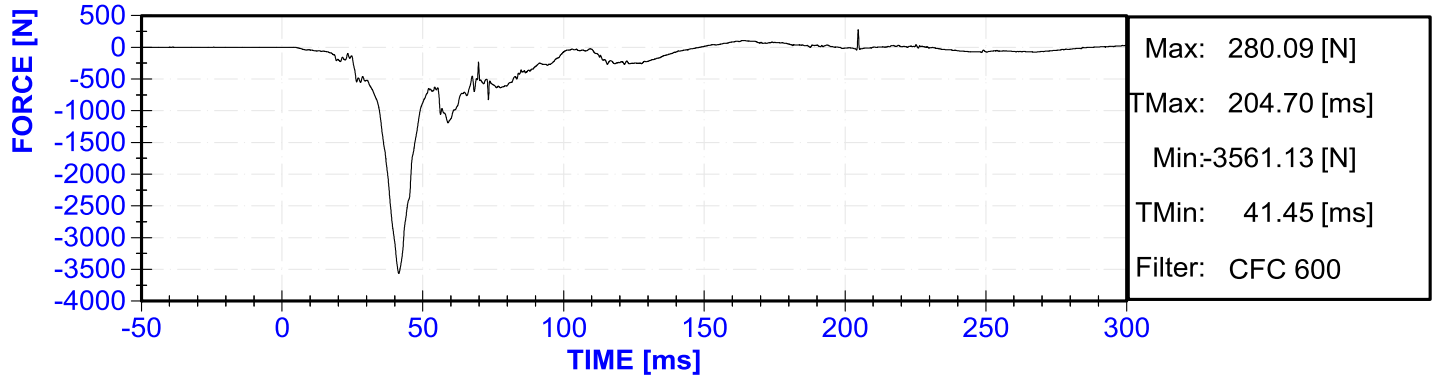
V2P1 Lower Tibia Left X Force



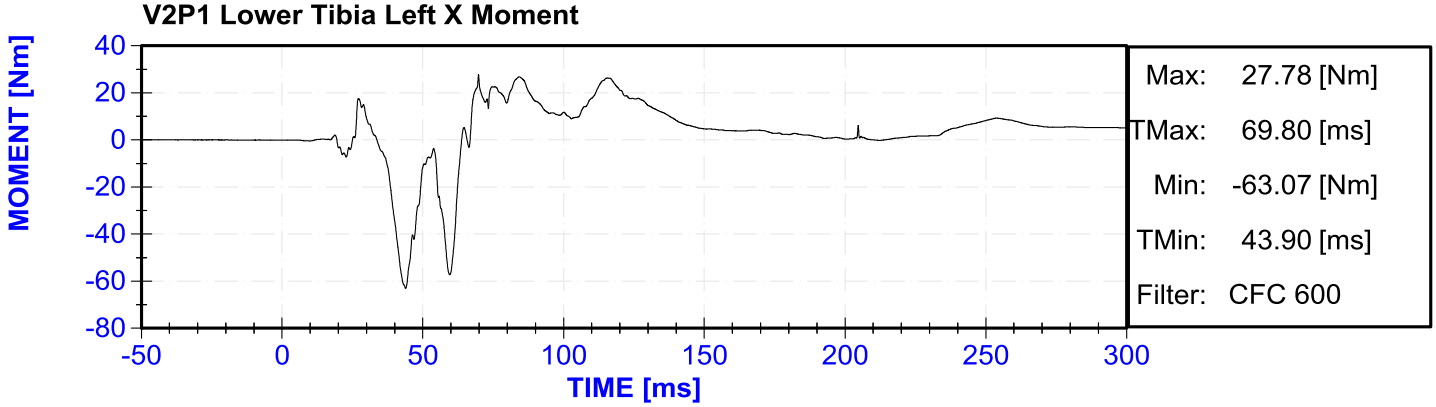
V2P1 Lower Tibia Left Y Force



V2P1 Lower Tibia Left Z Force

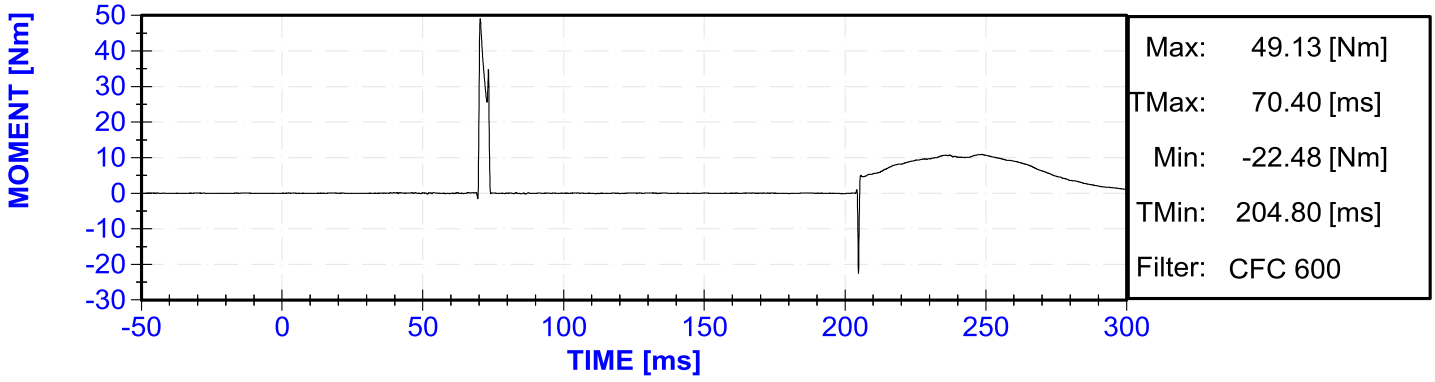


V2P1 Lower Tibia Left X Moment



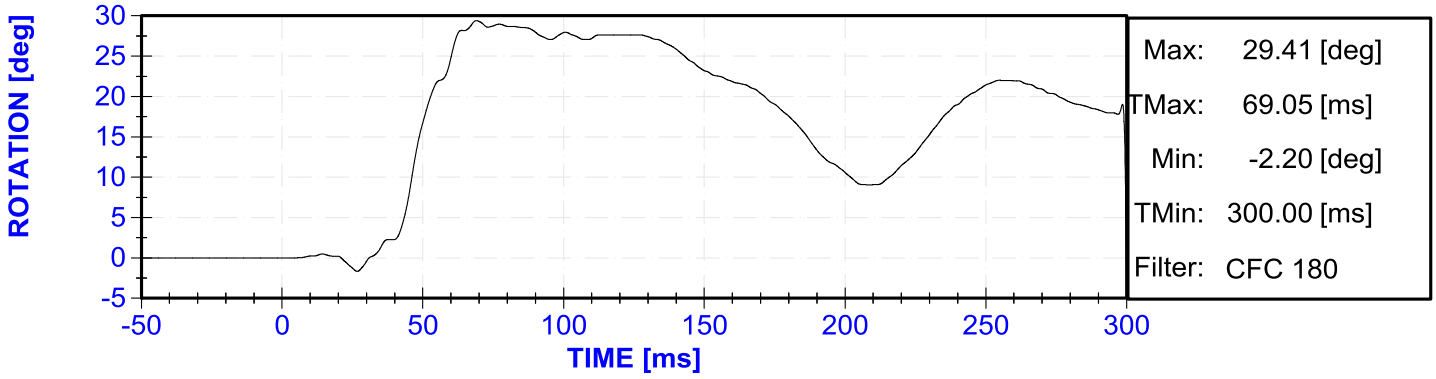
V2P1 Lower Tibia Left Y Moment

QUESTIONABLE DATA



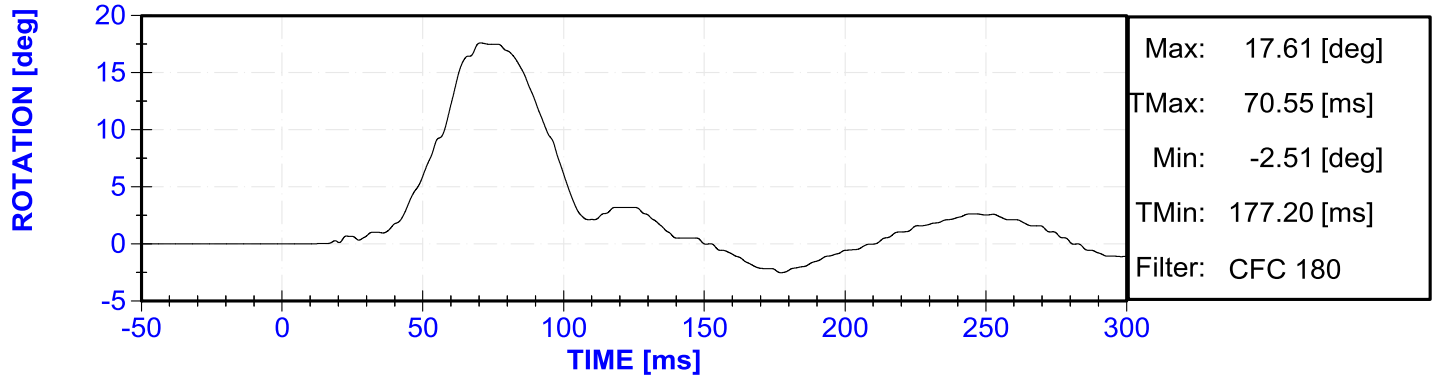
Max:	49.13 [Nm]
TMax:	70.40 [ms]
Min:	-22.48 [Nm]
TMin:	204.80 [ms]
Filter:	CFC 600

V2P1 Ankle Left X Rotation



Max:	29.41 [deg]
TMax:	69.05 [ms]
Min:	-2.20 [deg]
TMin:	300.00 [ms]
Filter:	CFC 180

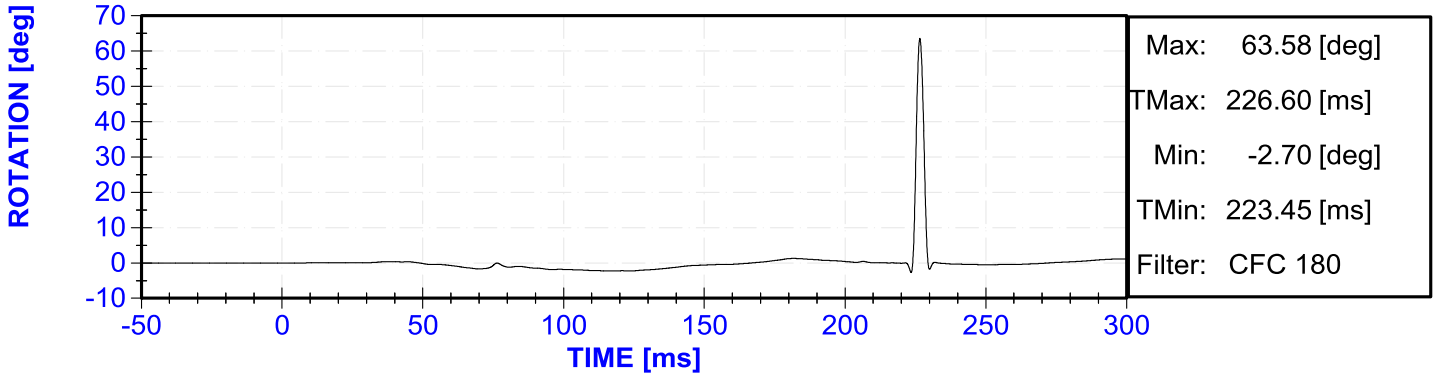
V2P1 Ankle Left Y Rotation



Max:	17.61 [deg]
TMax:	70.55 [ms]
Min:	-2.51 [deg]
TMin:	177.20 [ms]
Filter:	CFC 180

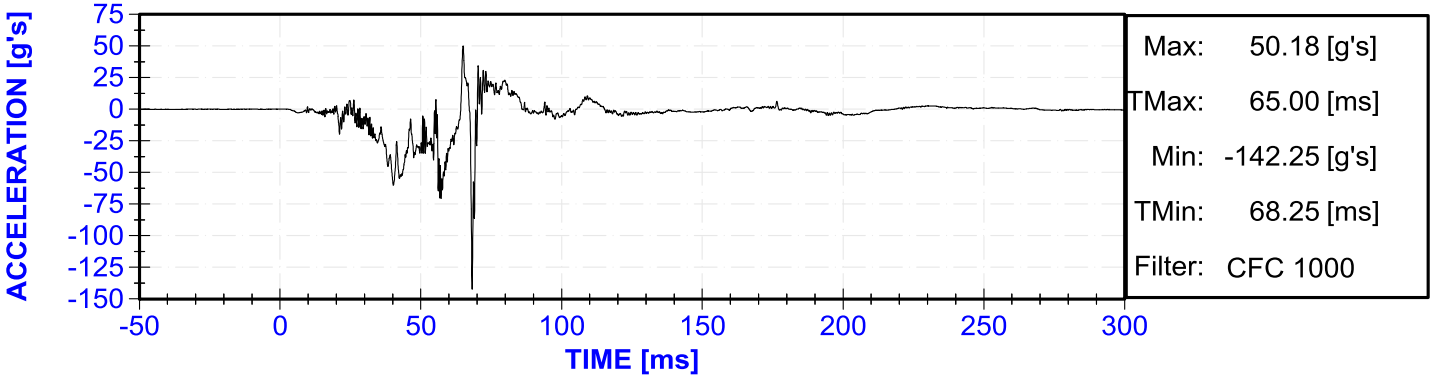
V2P1 Ankle Left Z Rotation

QUESTIONABLE AT 224-227MS

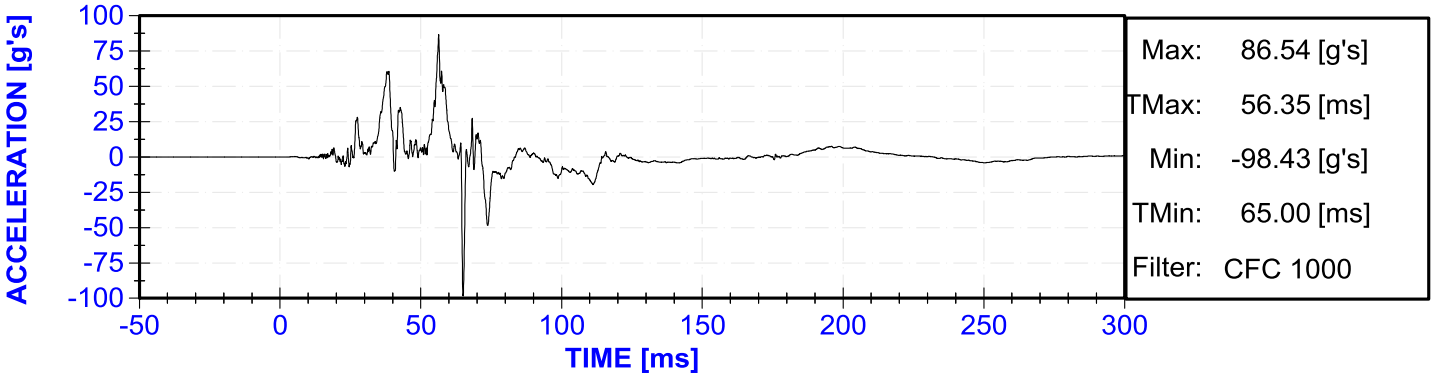


Max:	63.58 [deg]
TMax:	226.60 [ms]
Min:	-2.70 [deg]
TMin:	223.45 [ms]
Filter:	CFC 180

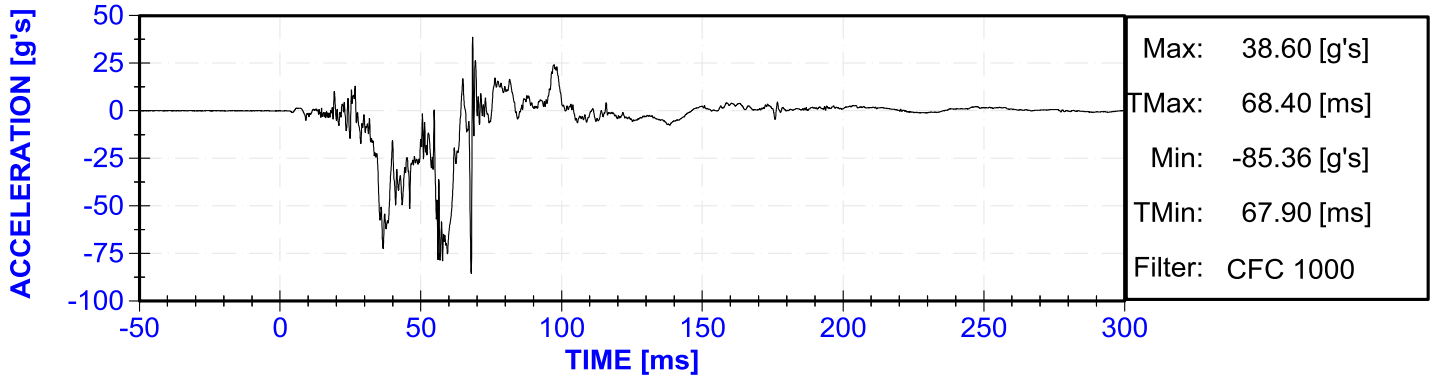
V2P1 Foot Left X Acceleration



V2P1 Foot Left Y Acceleration

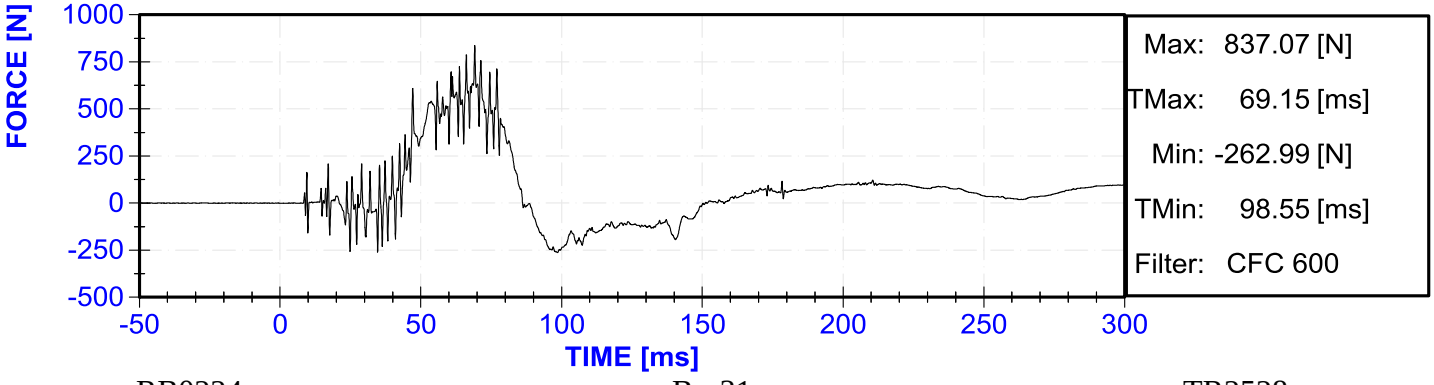


V2P1 Foot Left Z Acceleration



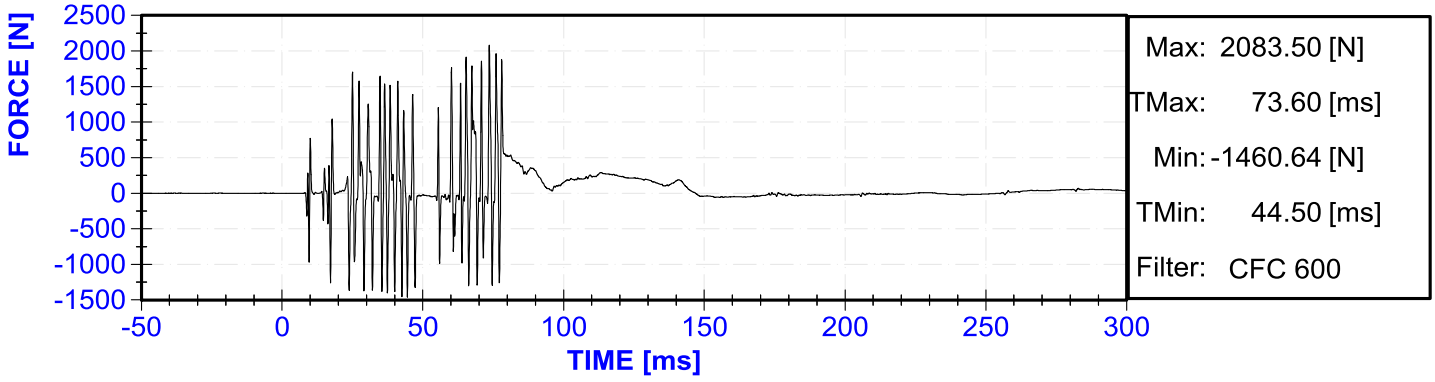
V2P1 Femur Right X Force

NOISE SPIKES ON DATA 9 - 77 MS



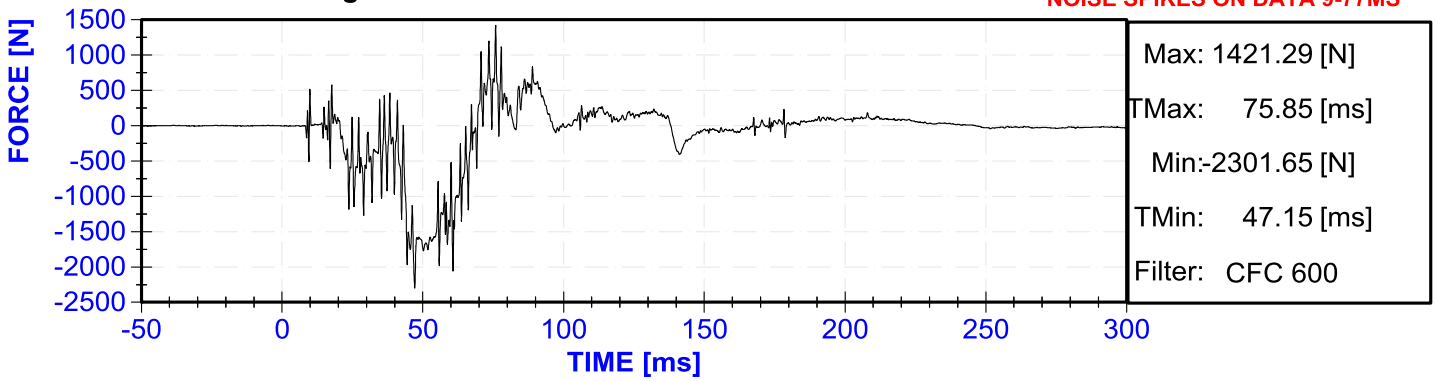
V2P1 Femur Right Y Force

NOISE SPIKES ON DATA 9 - 77 MS.

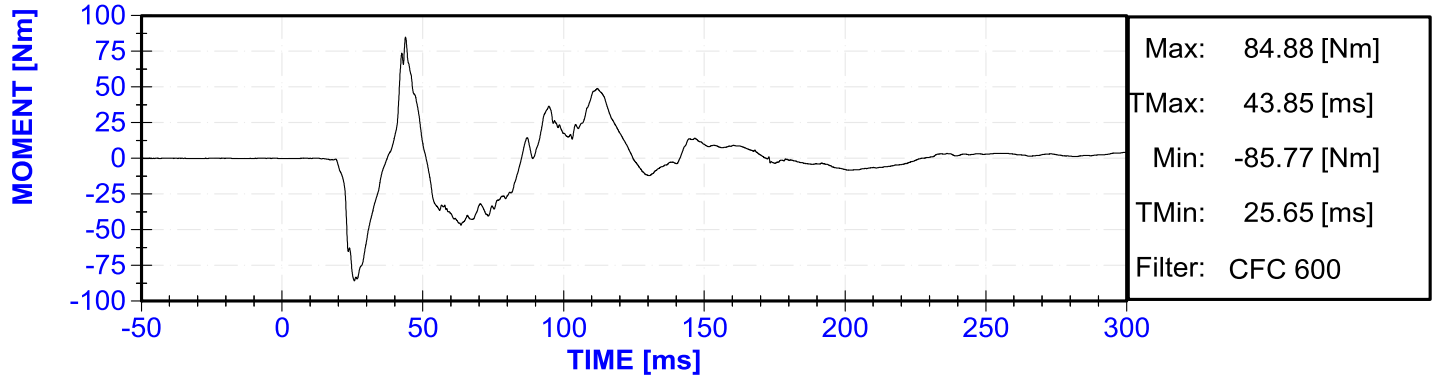


V2P1 Femur Right Z Force

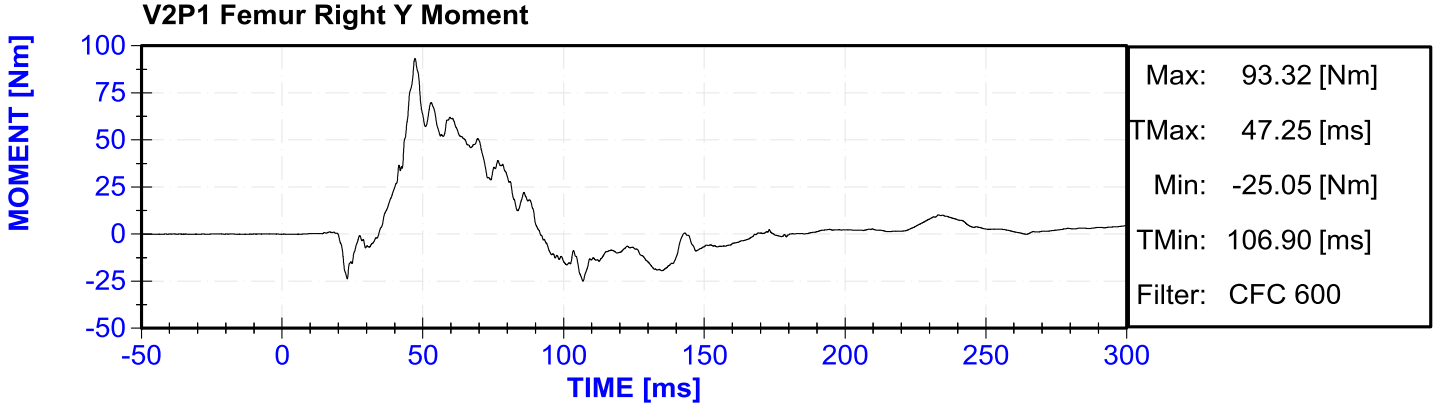
NOISE SPIKES ON DATA 9-77MS



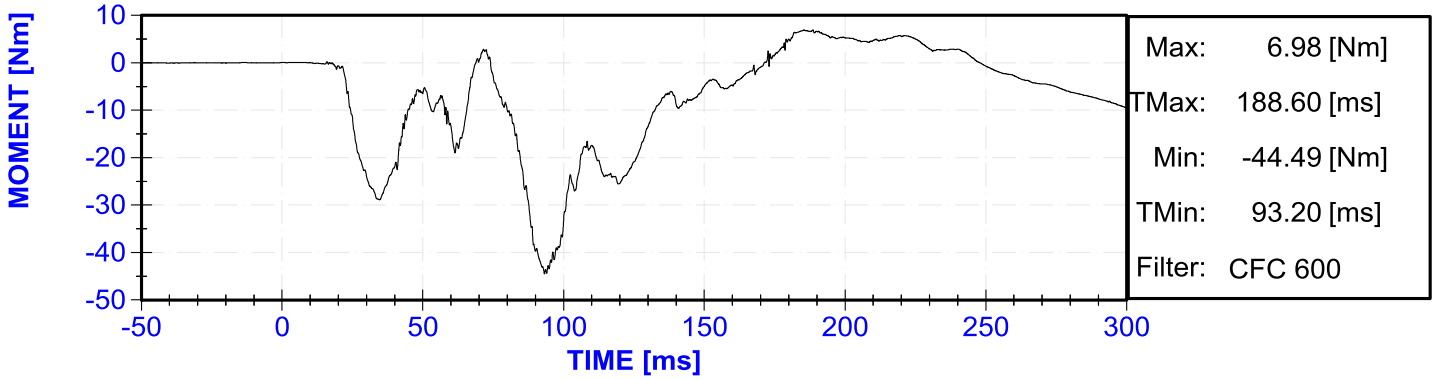
V2P1 Femur Right X Moment



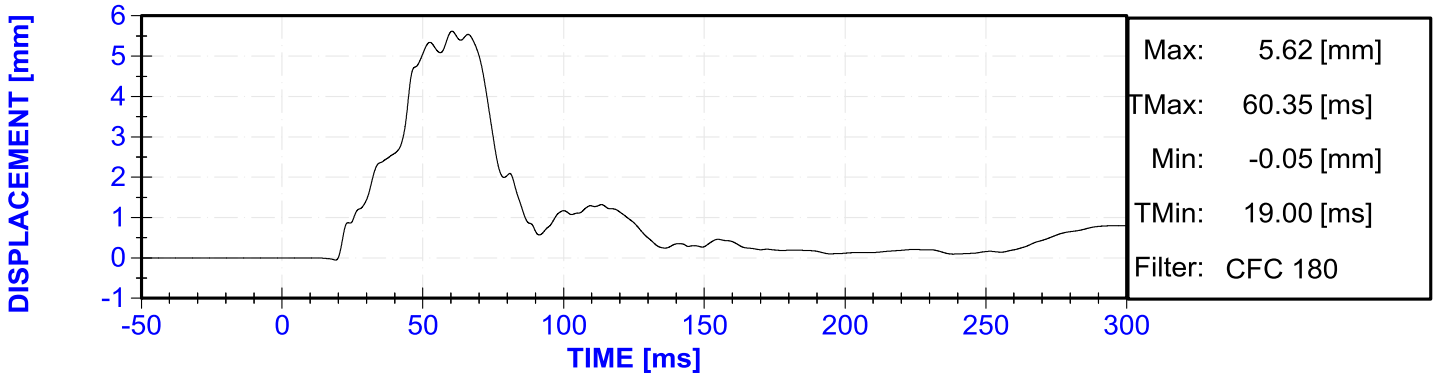
V2P1 Femur Right Y Moment



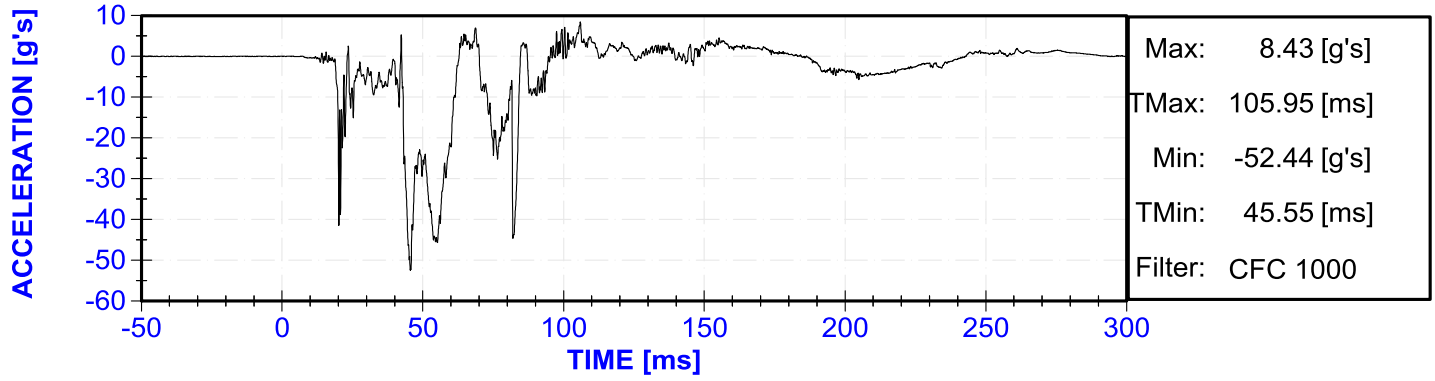
V2P1 Femur Right Z Moment



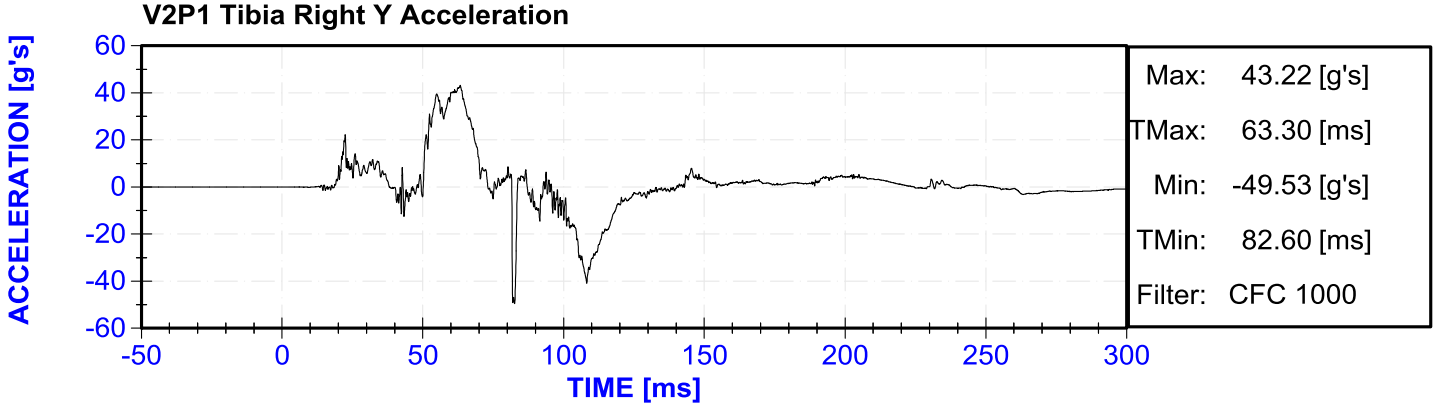
V2P1 Knee Right X Displacement

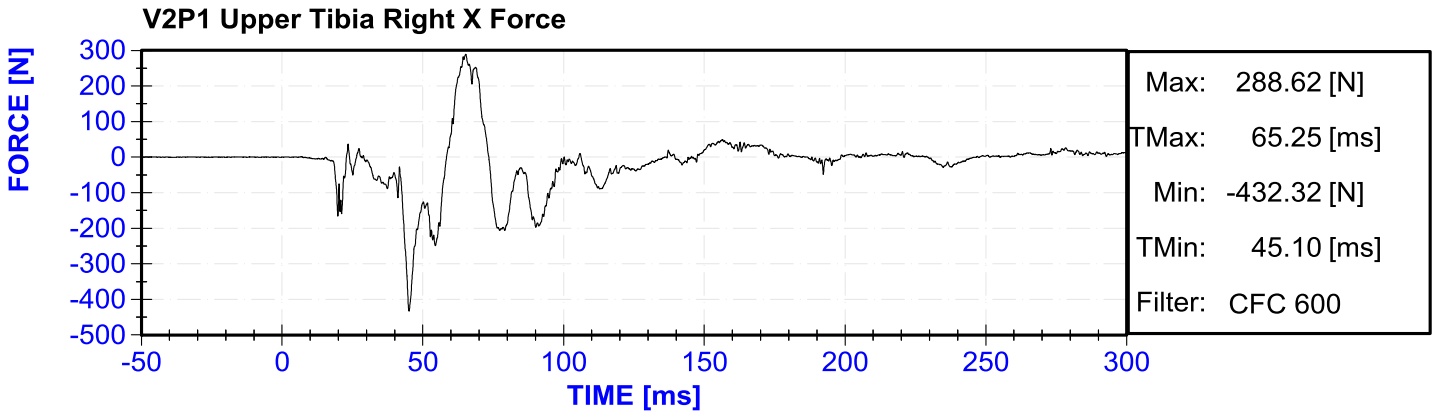


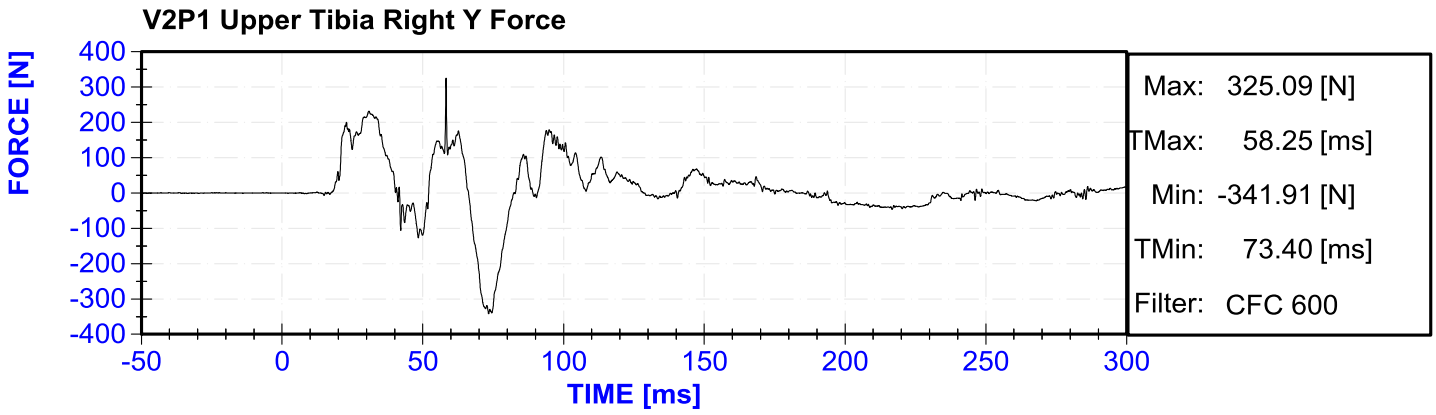
V2P1 Tibia Right X Acceleration

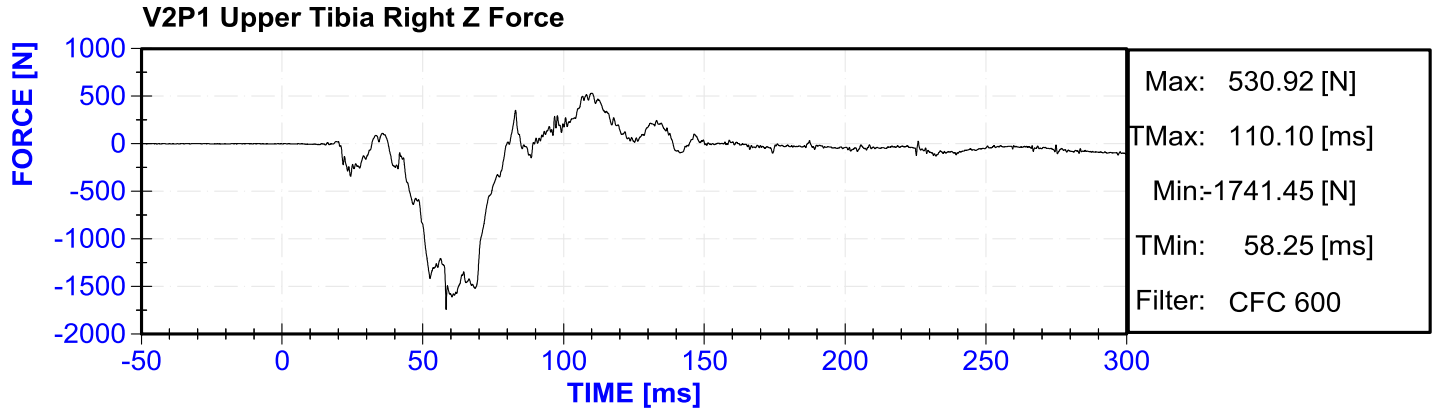


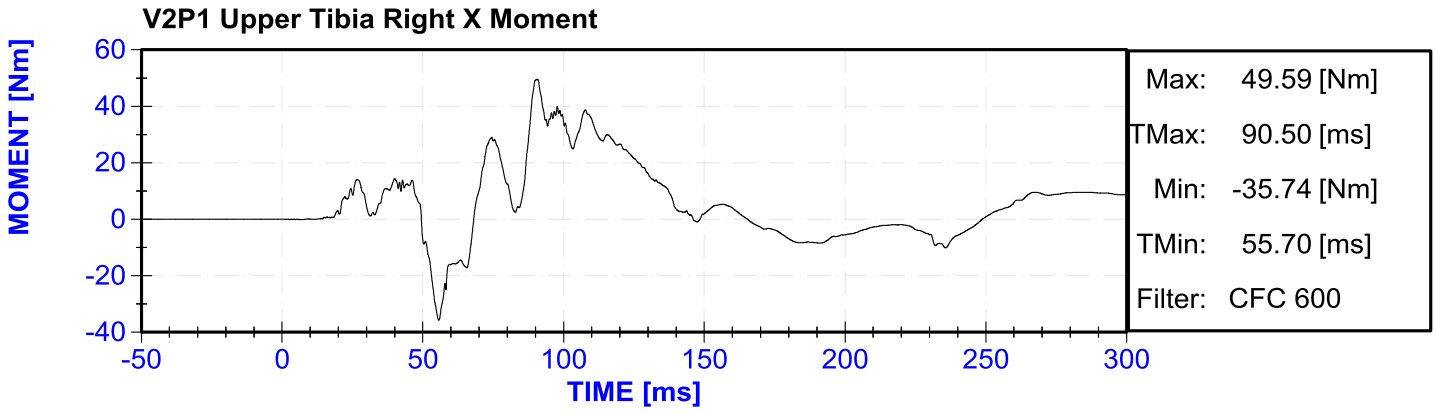
V2P1 Tibia Right Y Acceleration




V2P1 Upper Tibia Right X Force
FORCE [N]
TIME [ms]
Max: 288.62 [N]
TMax: 65.25 [ms]
Min: -432.32 [N]
TMin: 45.10 [ms]
Filter: CFC 600

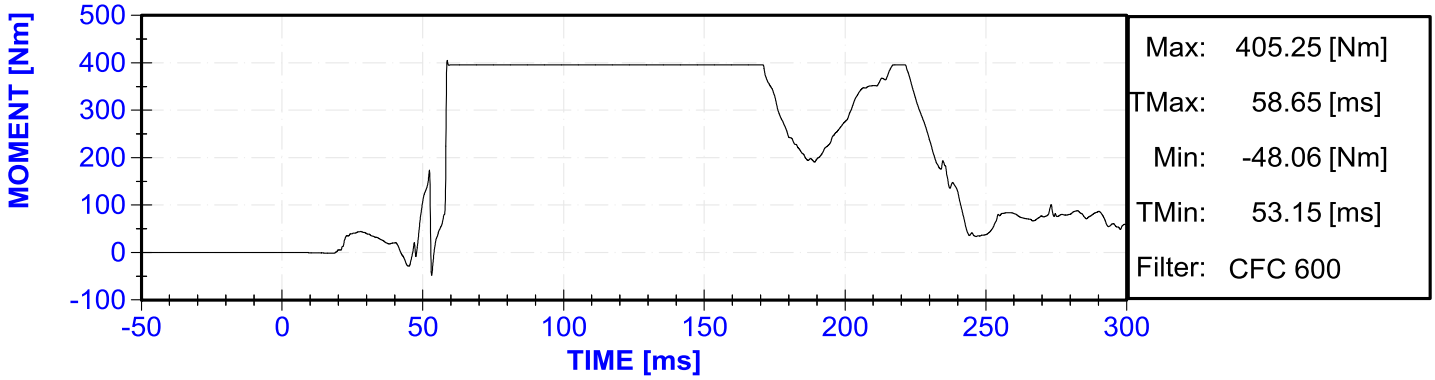

V2P1 Upper Tibia Right Y Force
FORCE [N]
TIME [ms]
Max: 325.09 [N]
TMax: 58.25 [ms]
Min: -341.91 [N]
TMin: 73.40 [ms]
Filter: CFC 600


V2P1 Upper Tibia Right Z Force
FORCE [N]
TIME [ms]
Max: 530.92 [N]
TMax: 110.10 [ms]
Min:-1741.45 [N]
TMin: 58.25 [ms]
Filter: CFC 600

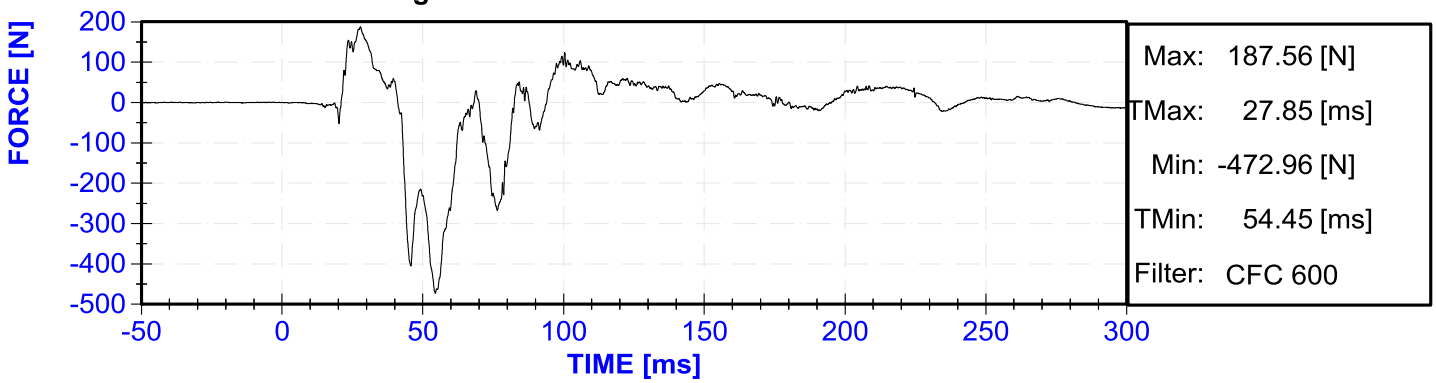

V2P1 Upper Tibia Right X Moment
MOMENT [Nm]
TIME [ms]
Max: 49.59 [Nm]
TMax: 90.50 [ms]
Min: -35.74 [Nm]
TMin: 55.70 [ms]
Filter: CFC 600

V2P1 Upper Tibia Right Y Moment

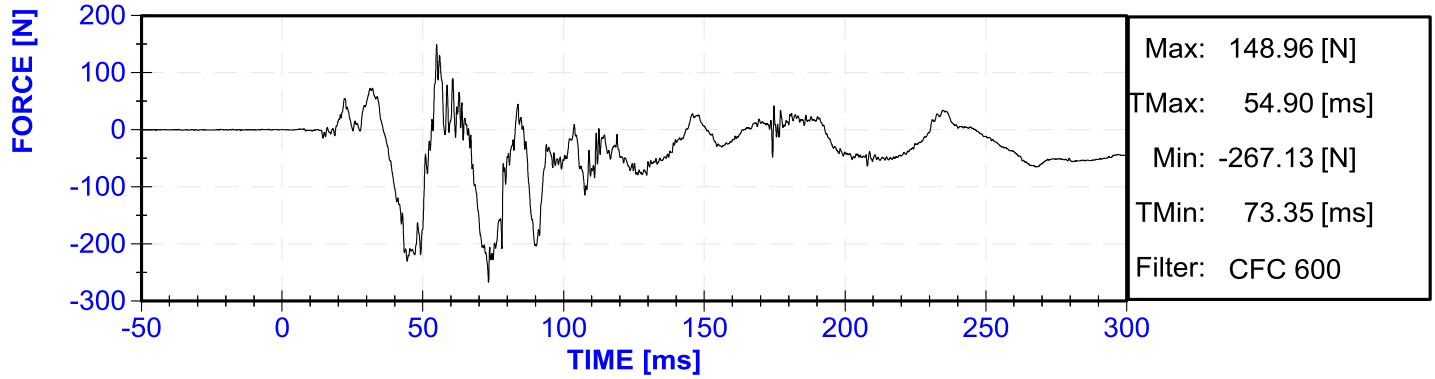
QUESTIONABLE AFTER 58 MS



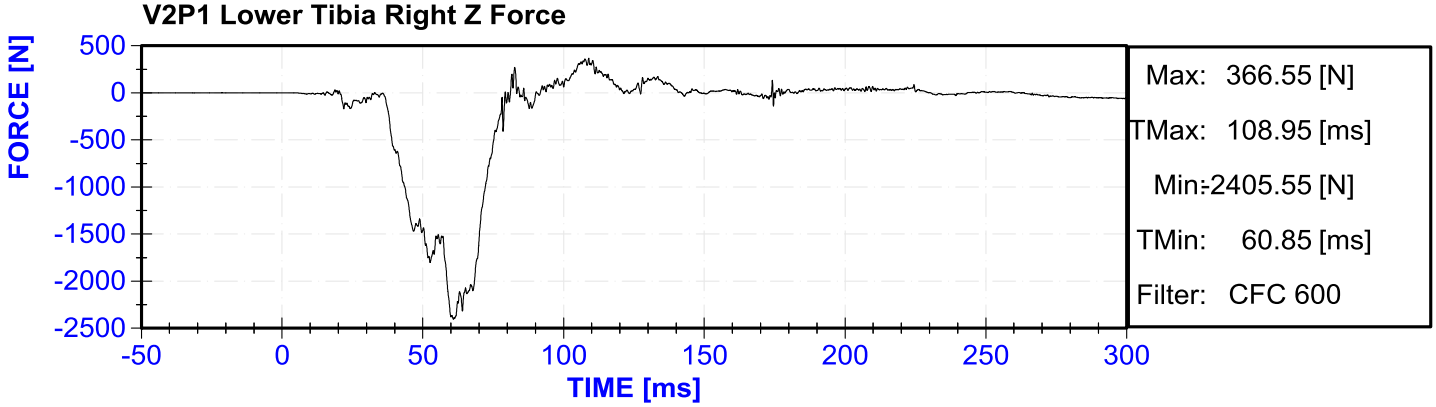
V2P1 Lower Tibia Right X Force



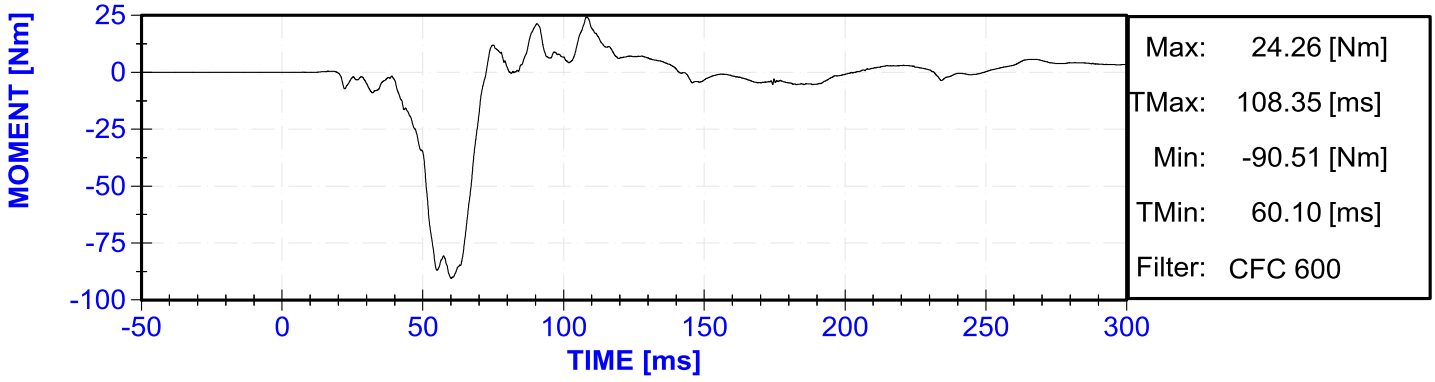
V2P1 Lower Tibia Right Y Force



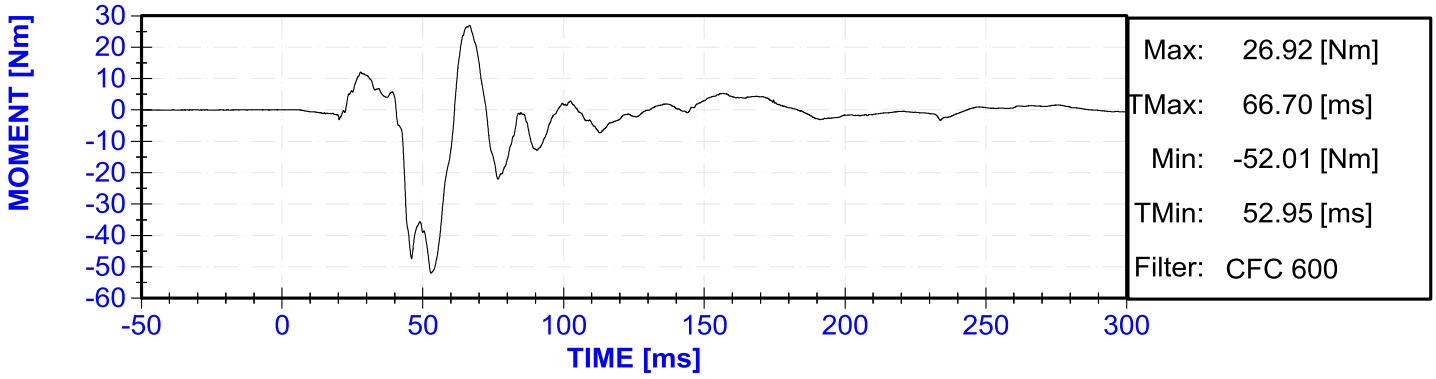
V2P1 Lower Tibia Right Z Force



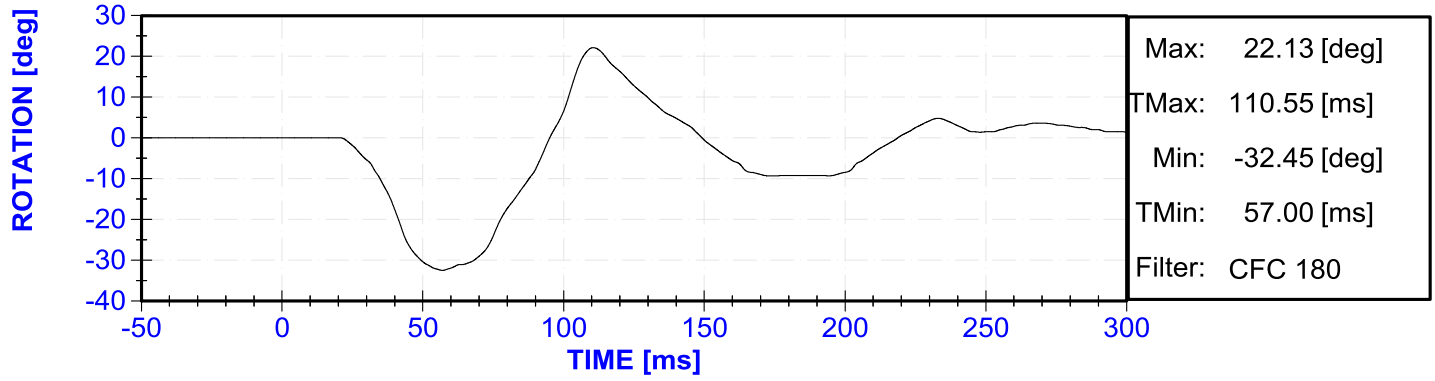
V2P1 Lower Tibia Right X Moment



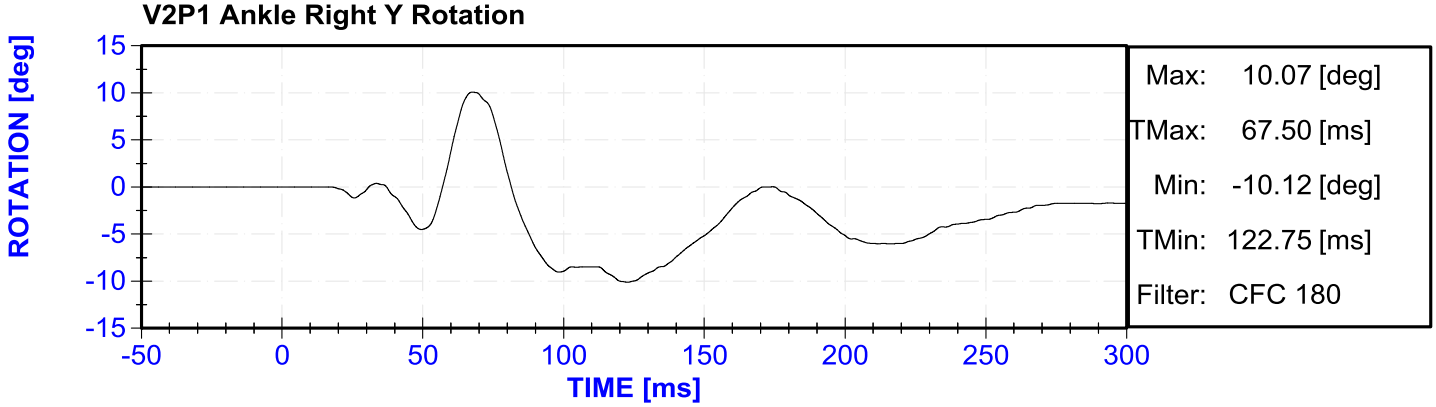
V2P1 Lower Tibia Right Y Moment



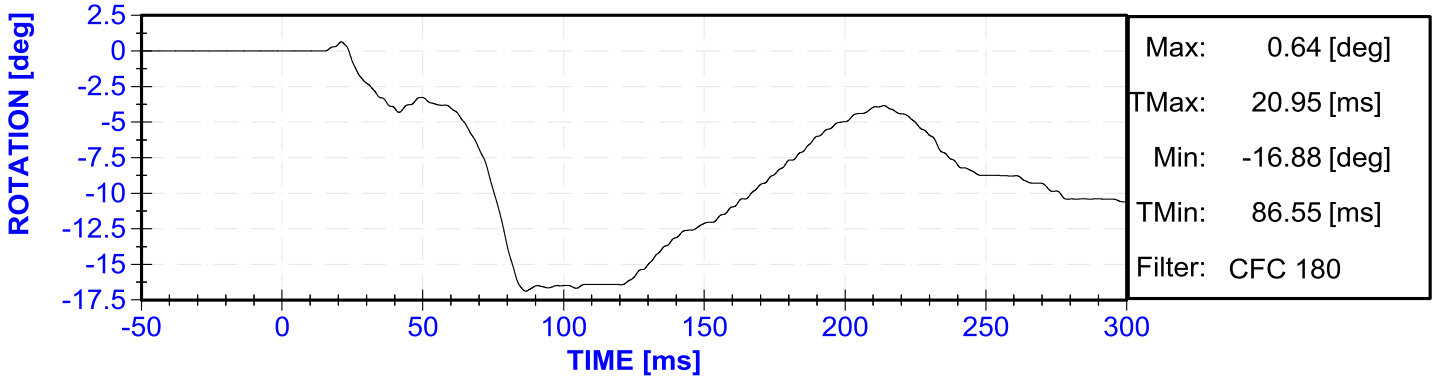
V2P1 Ankle Right X Rotation



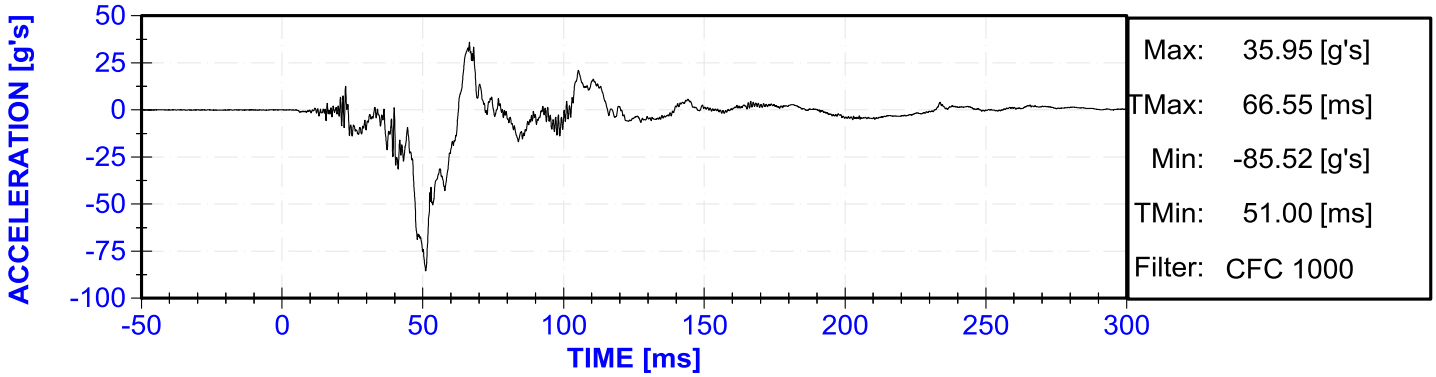
V2P1 Ankle Right Y Rotation



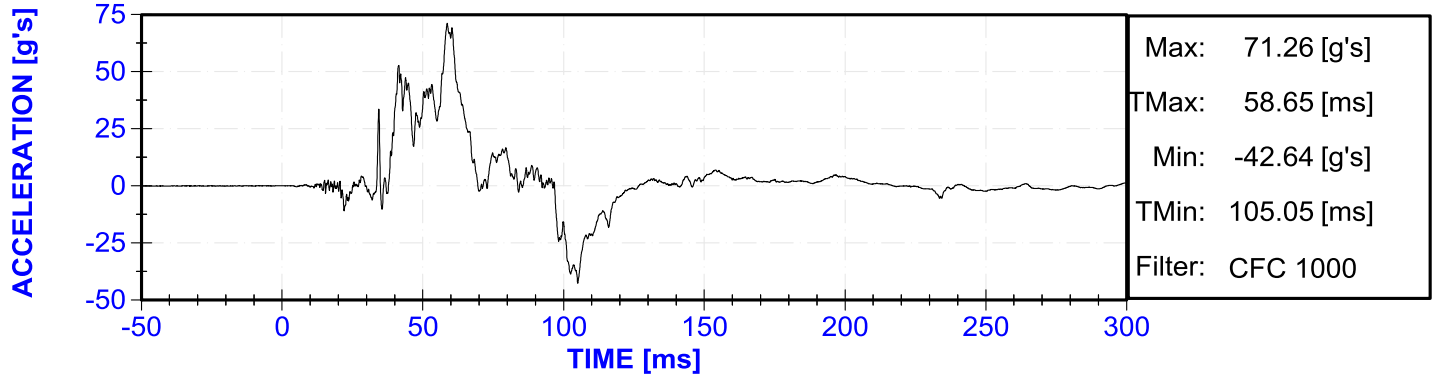
V2P1 Ankle Right Z Rotation



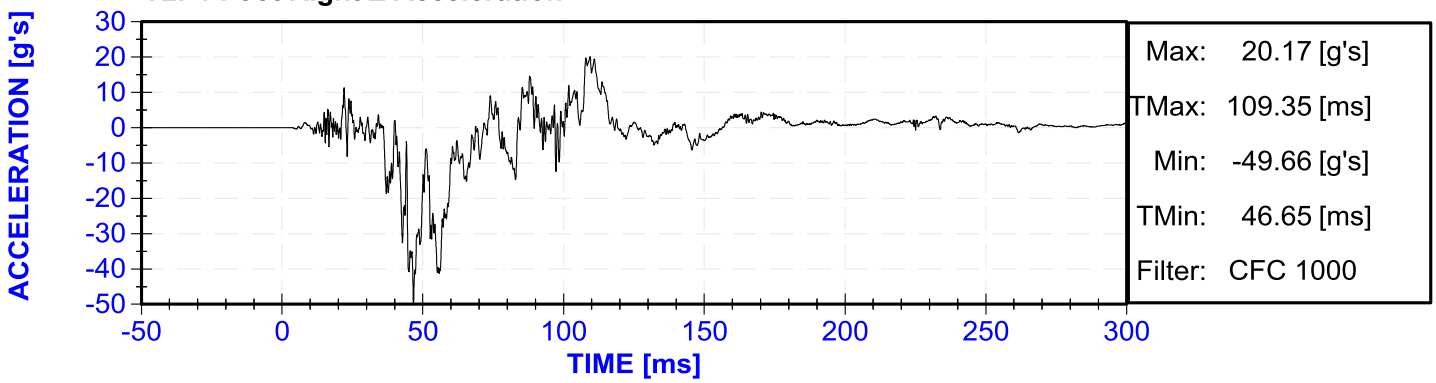
V2P1 Foot Right X Acceleration



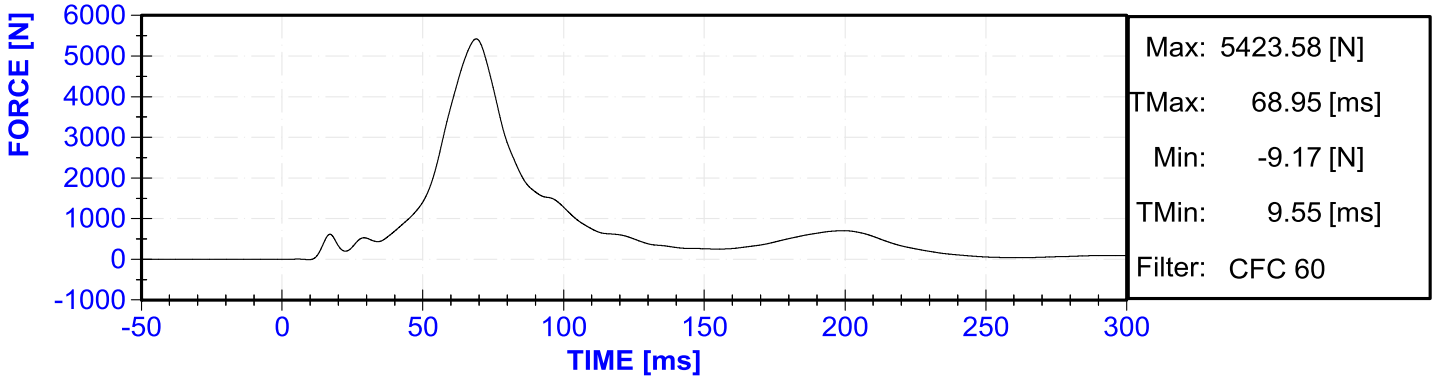
V2P1 Foot Right Y Acceleration



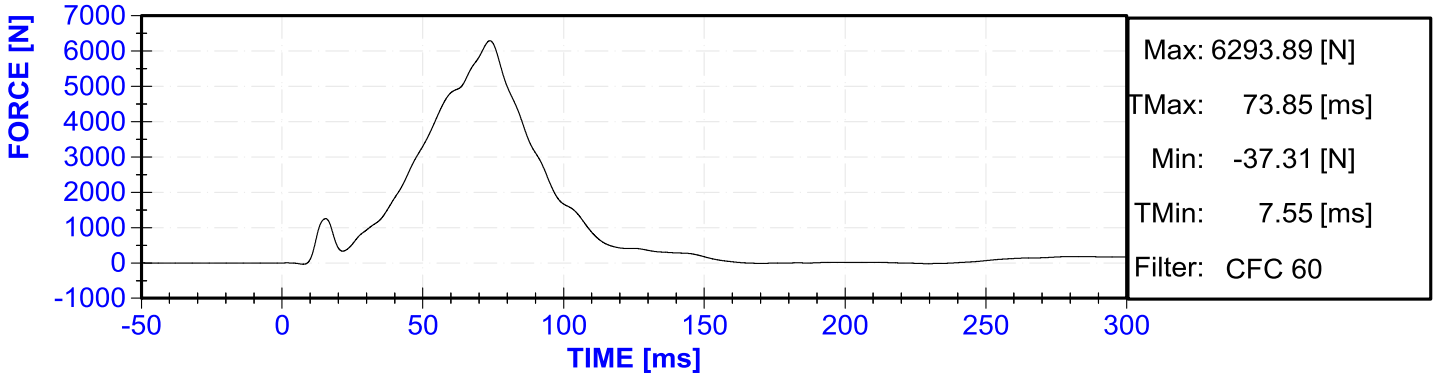
V2P1 Foot Right Z Acceleration



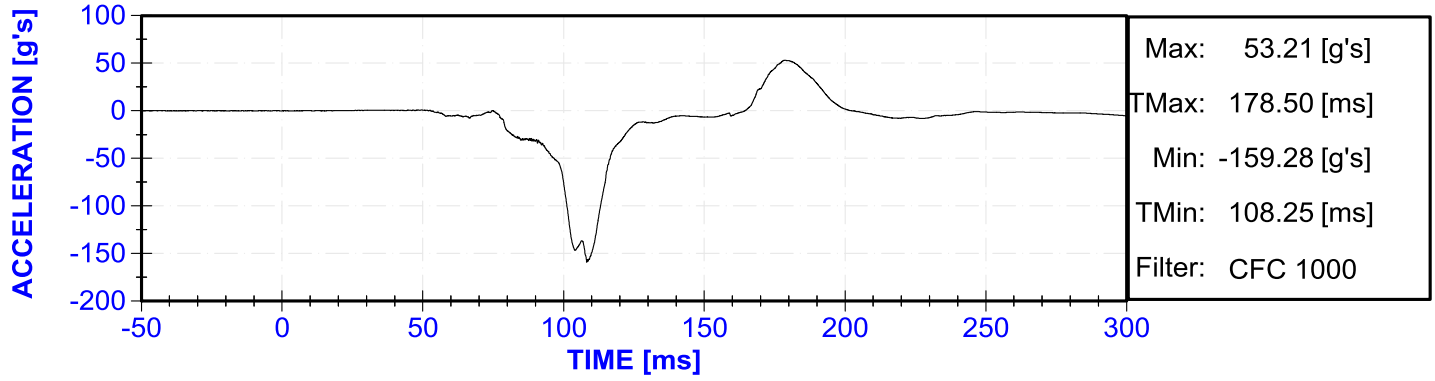
V2 Driver Lap Belt Force



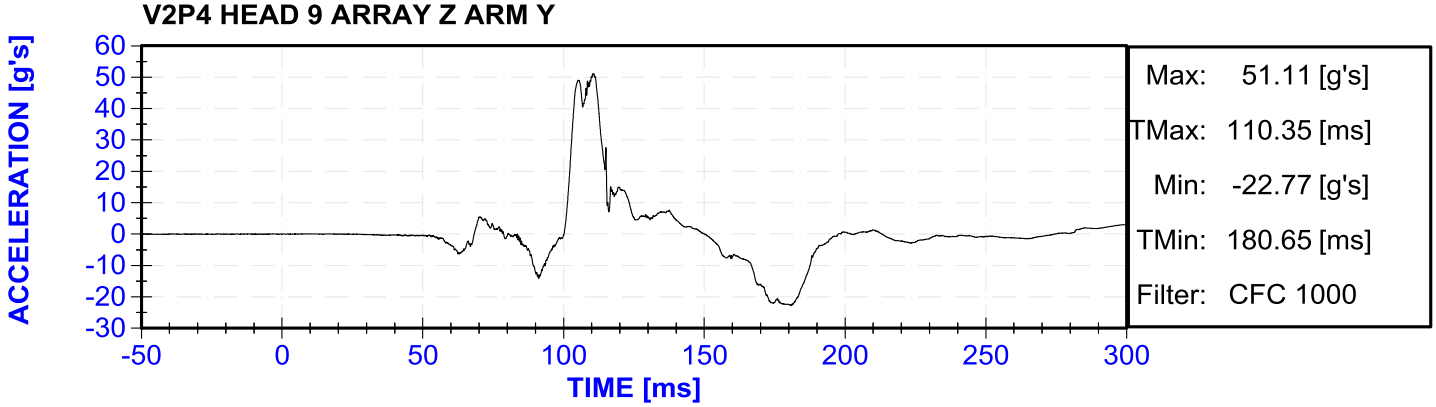
V2 Driver Shoulder Belt Upper Force



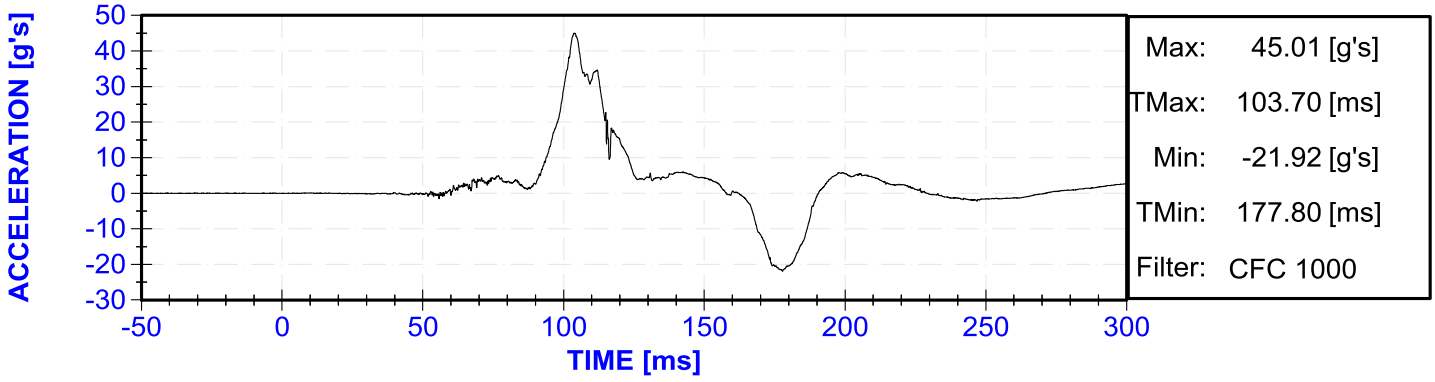
V2P4 HEAD 9 ARRAY Z ARM X



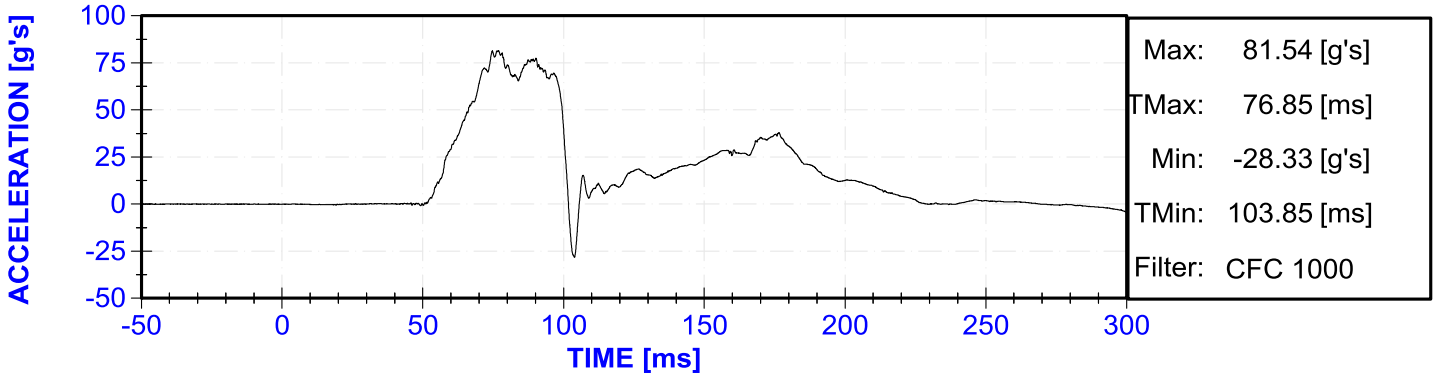
V2P4 HEAD 9 ARRAY Z ARM Y



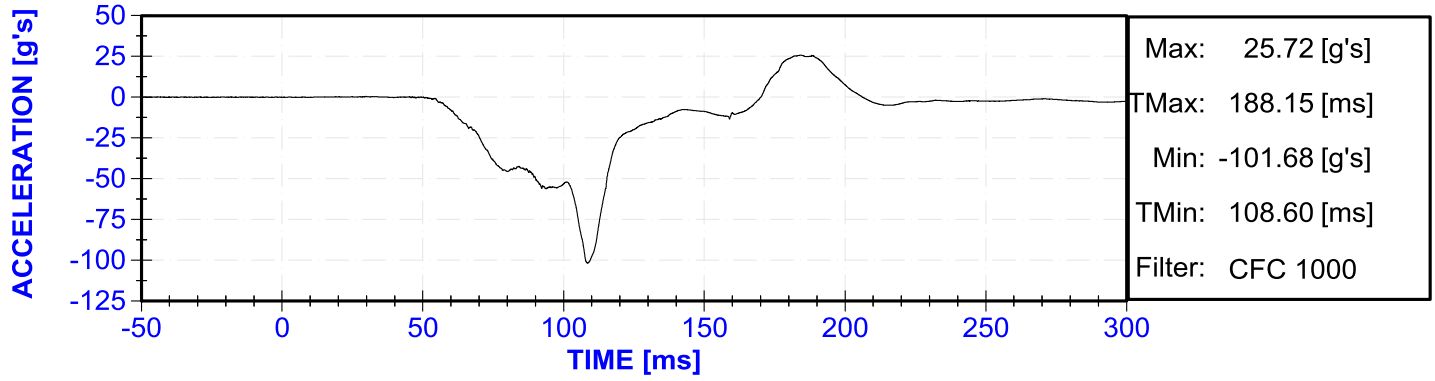
V2P4 HEAD 9 ARRAY X ARM Y



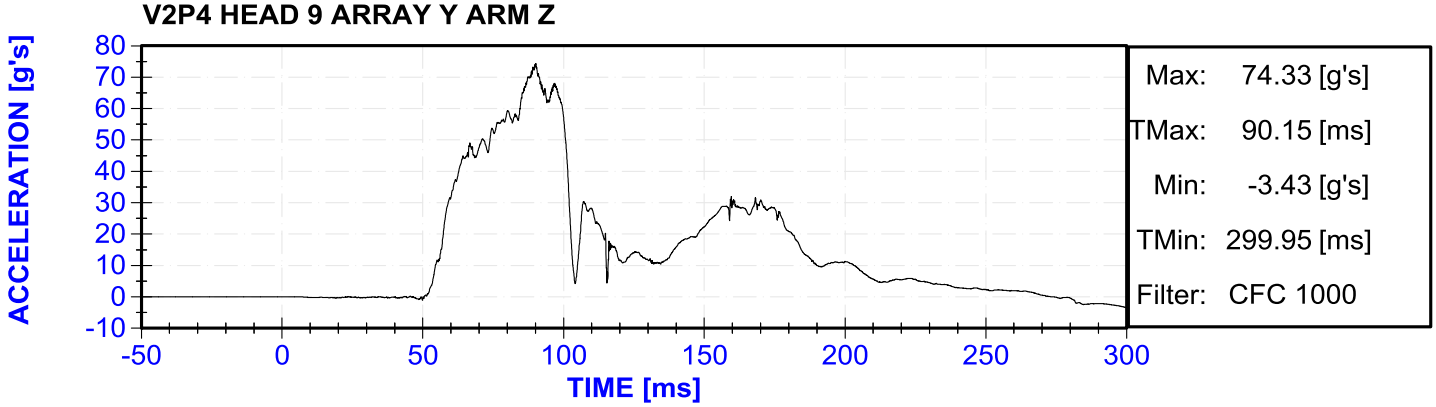
V2P4 HEAD 9 ARRAY X ARM Z



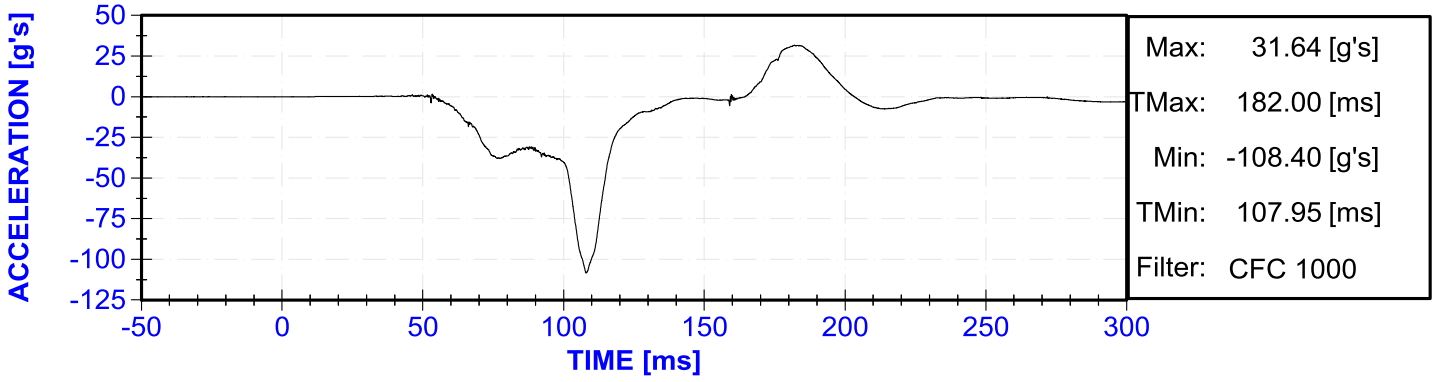
V2P4 HEAD 9 ARRAY Y ARM X



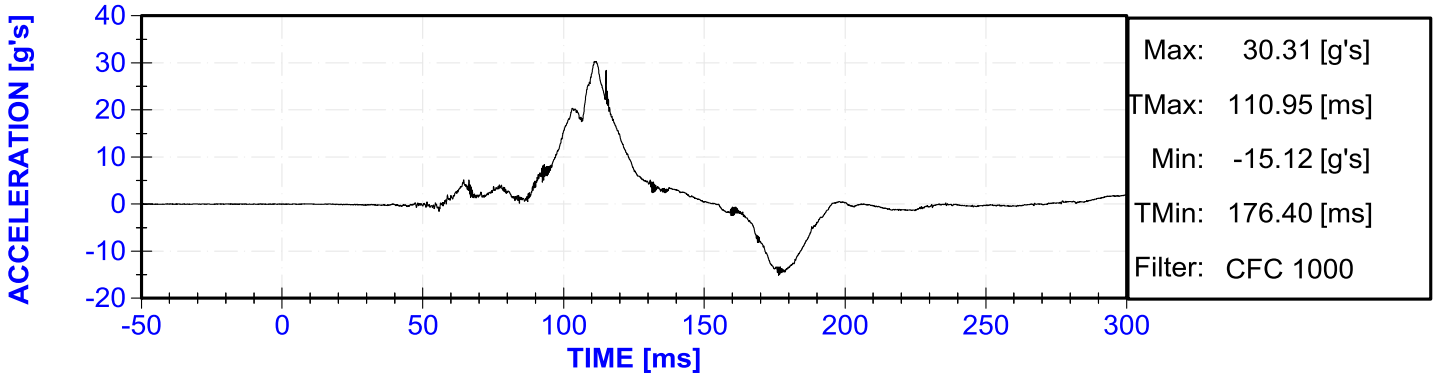
V2P4 HEAD 9 ARRAY Y ARM Z



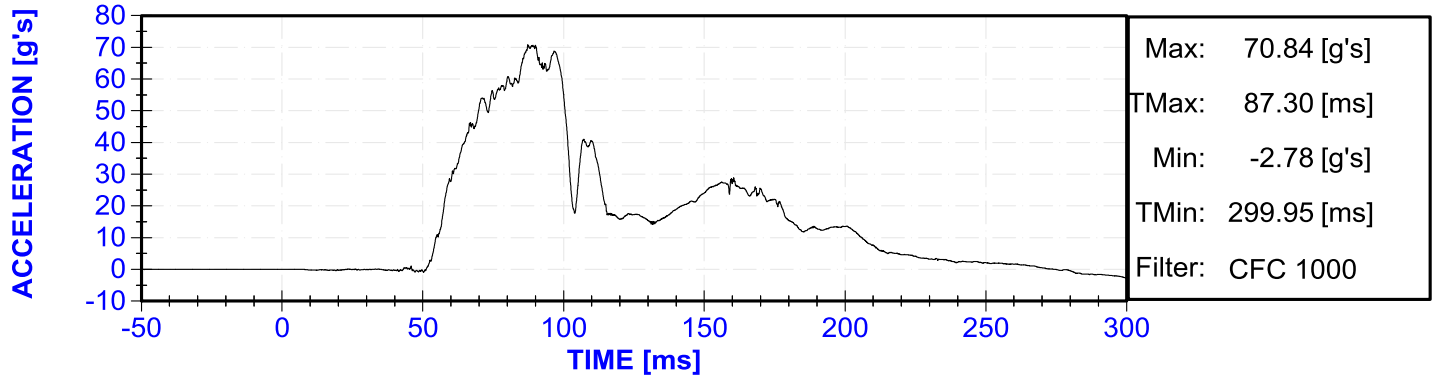
V2P4 HEAD CG X



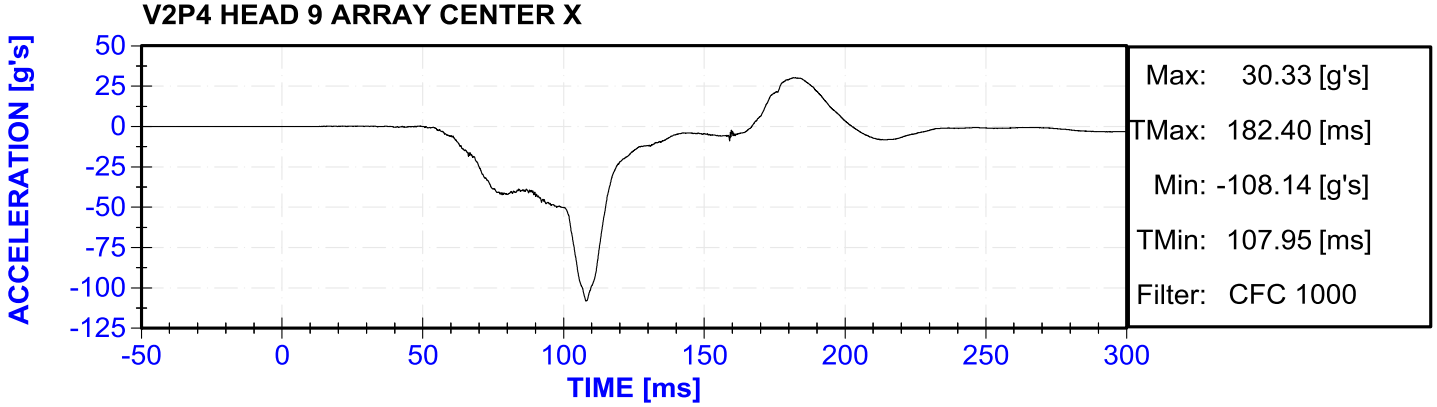
V2P4 HEAD CG Y



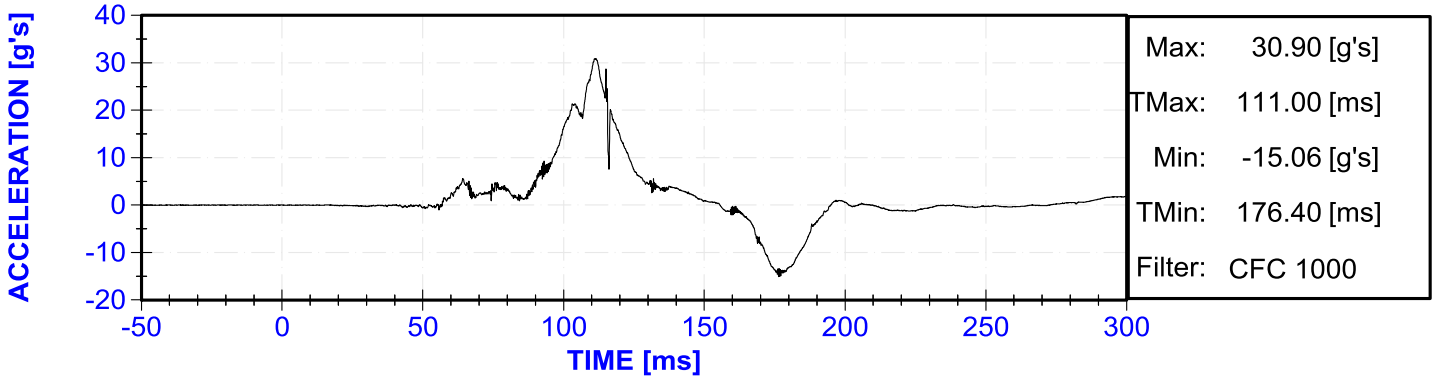
V2P4 HEAD CG Z



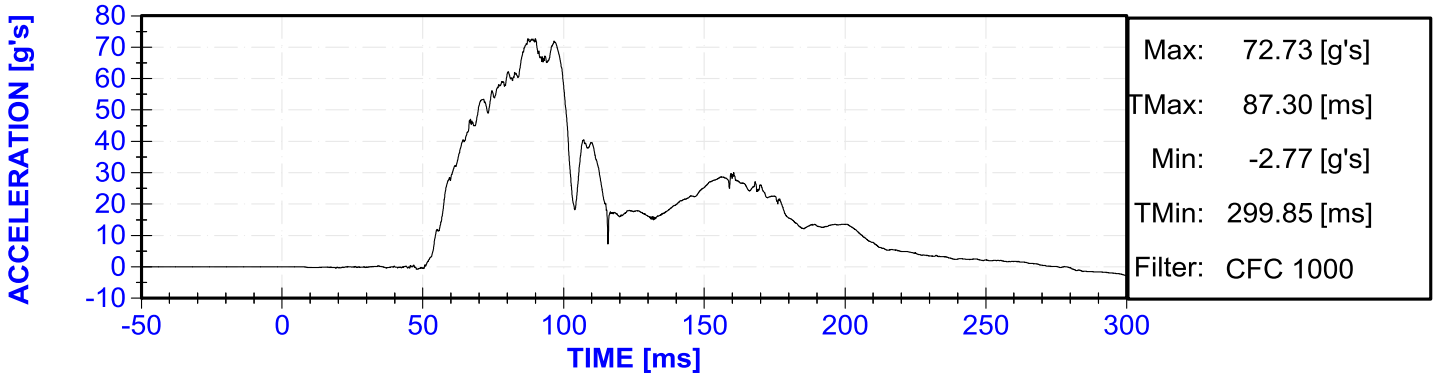
V2P4 HEAD 9 ARRAY CENTER X



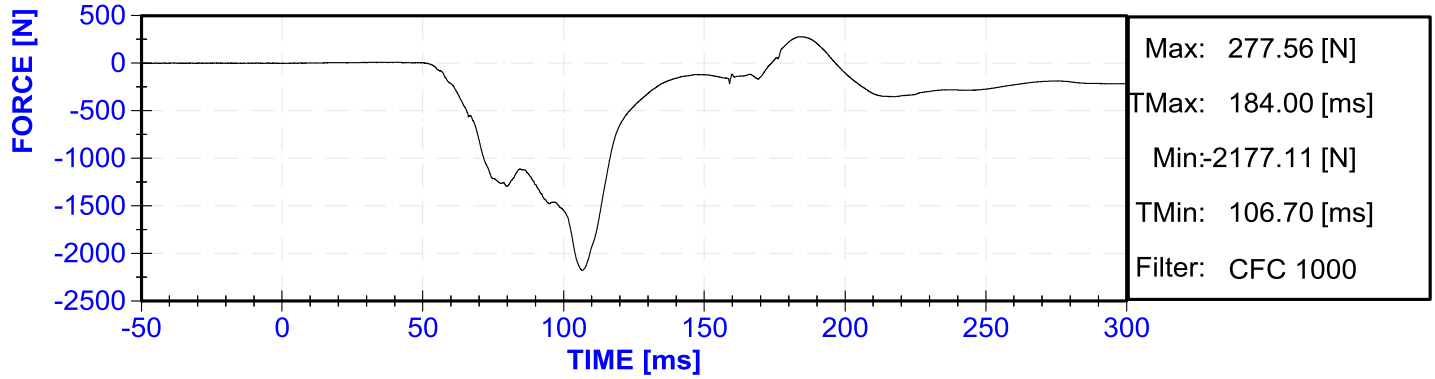
V2P4 HEAD 9 ARRAY CENTER Y



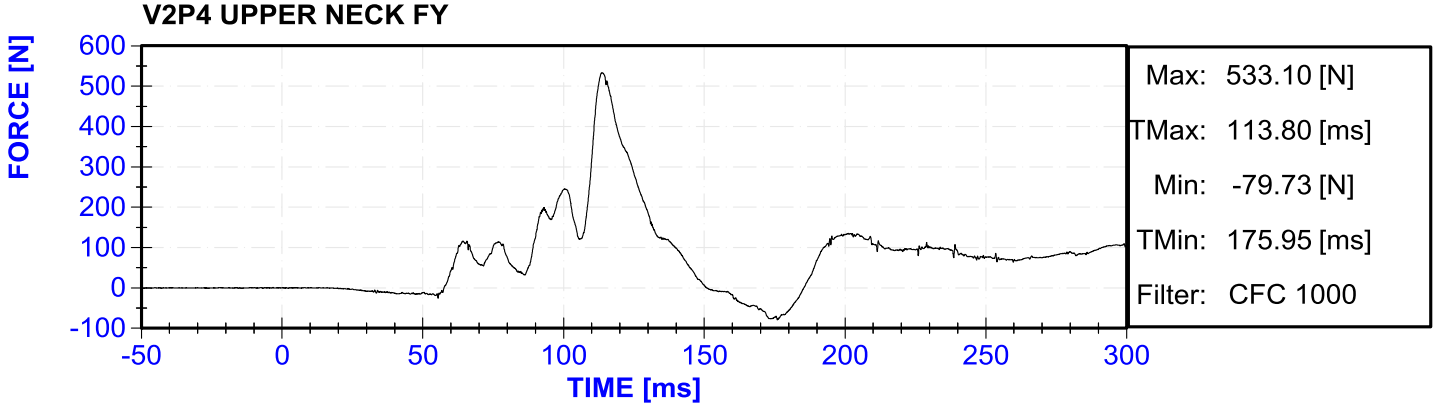
V2P4 HEAD 9 ARRAY CENTER Z



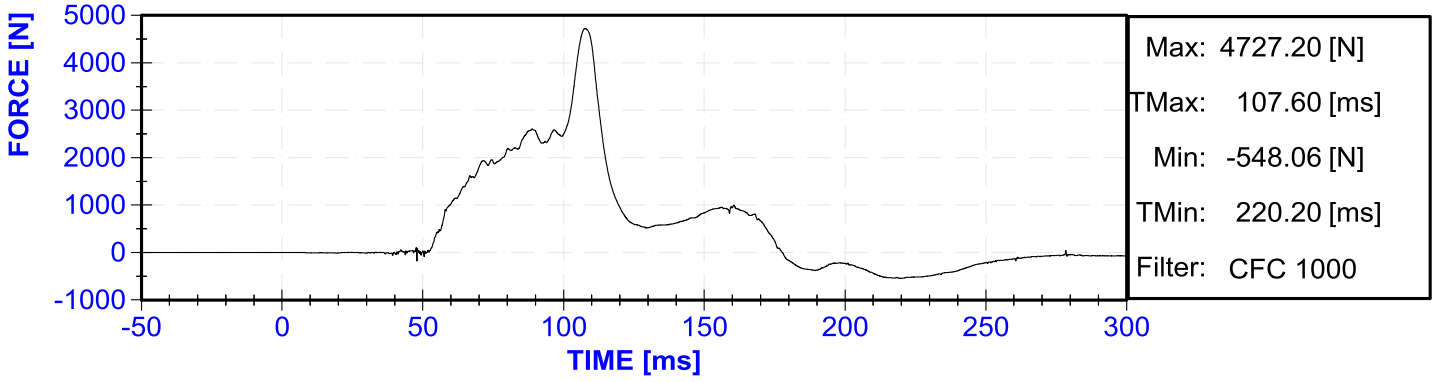
V2P4 UPPER NECK FX



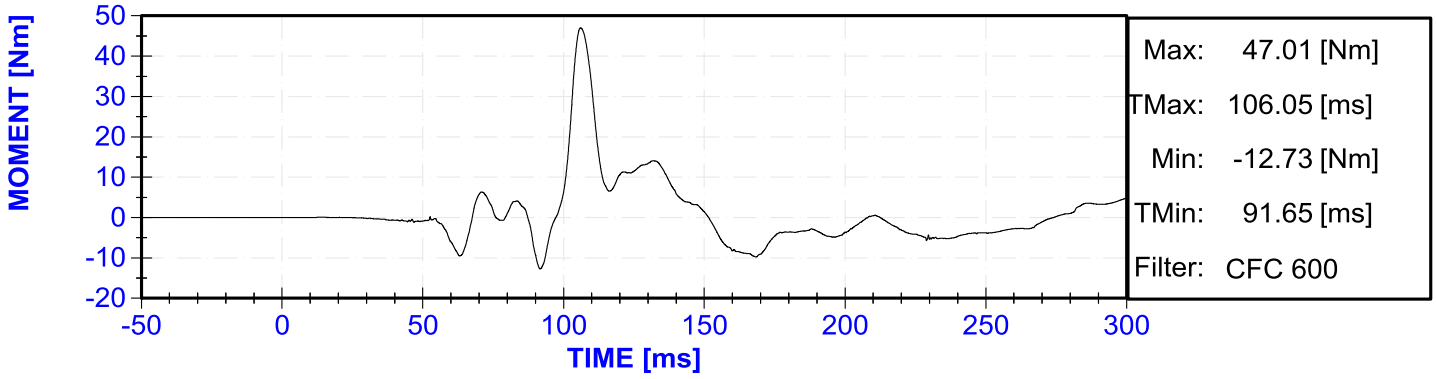
V2P4 UPPER NECK FY



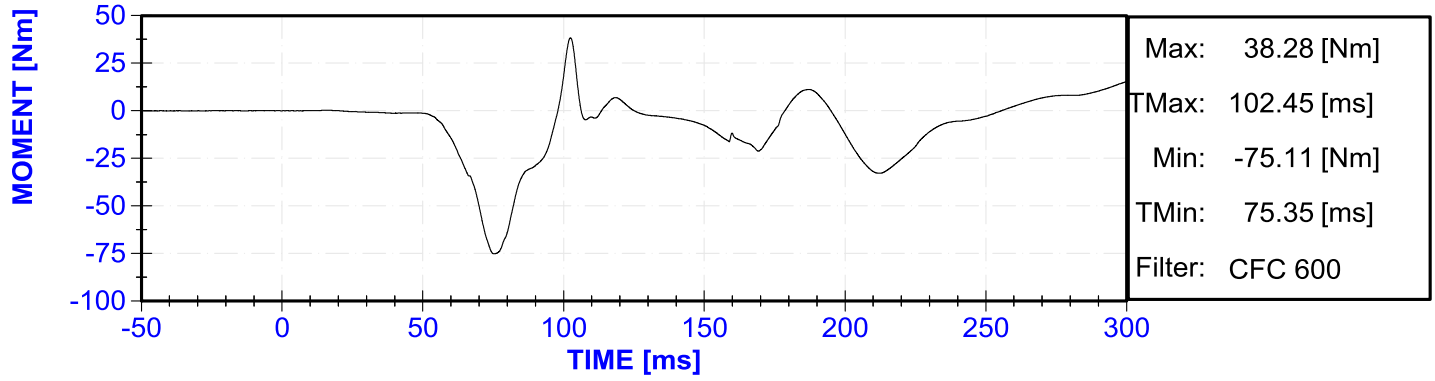
V2P4 UPPER NECK FZ



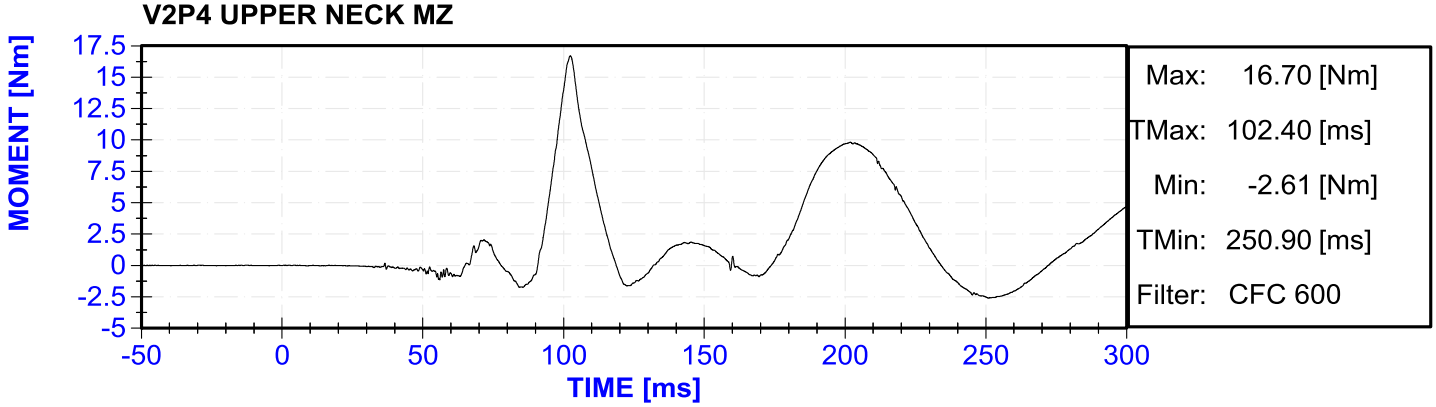
V2P4 UPPER NECK MX



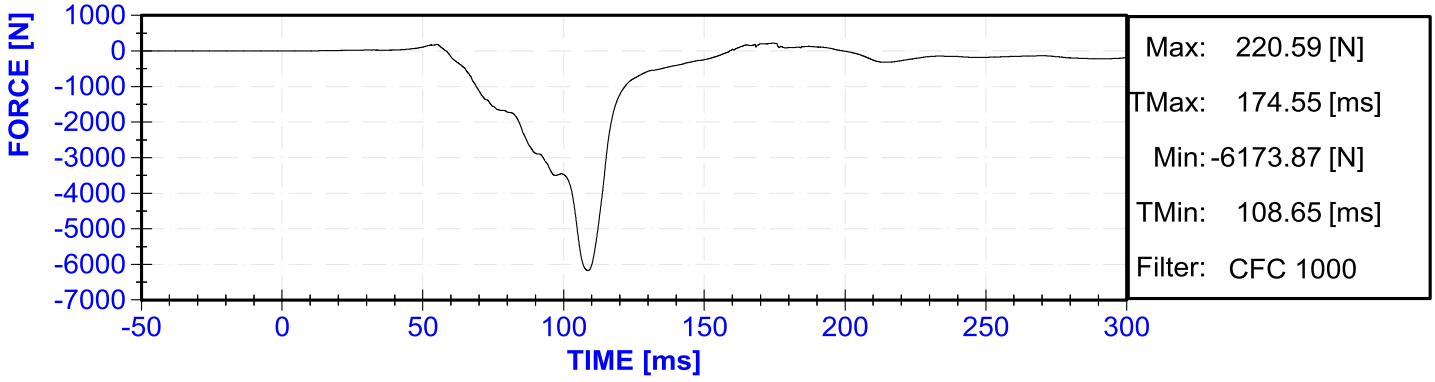
V2P4 UPPER NECK MY



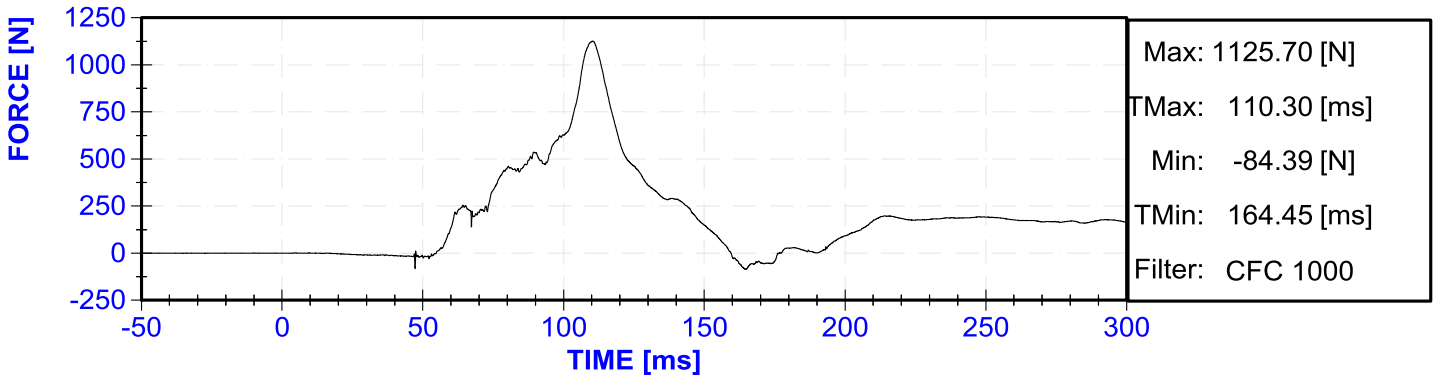
V2P4 UPPER NECK MZ



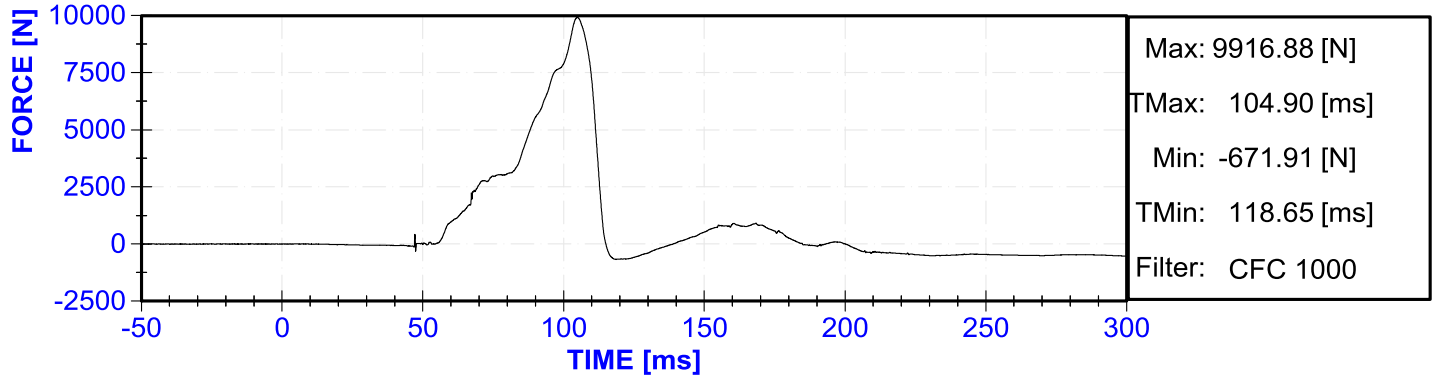
V2P4 LOWER NECK FX



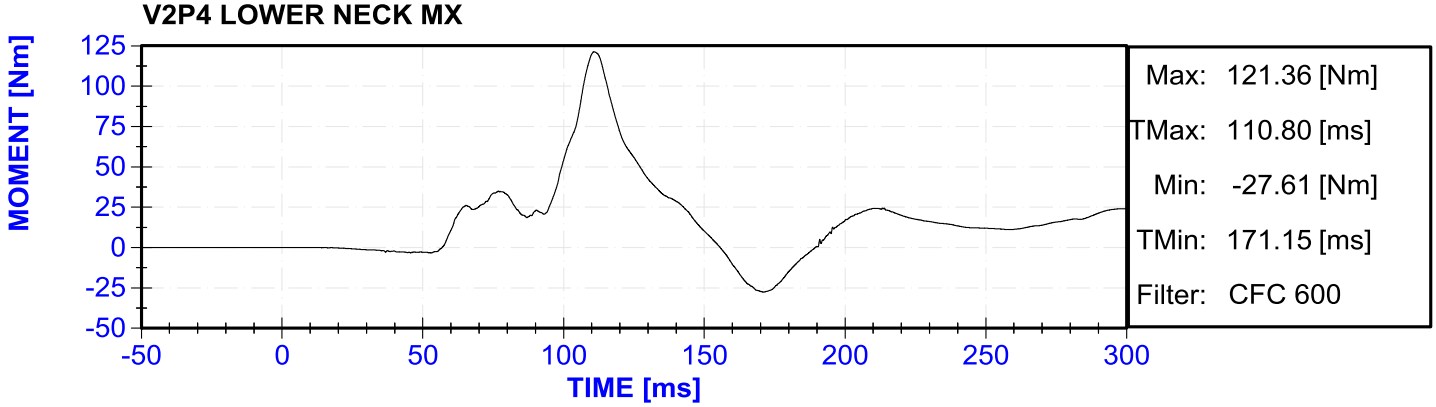
V2P4 LOWER NECK FY



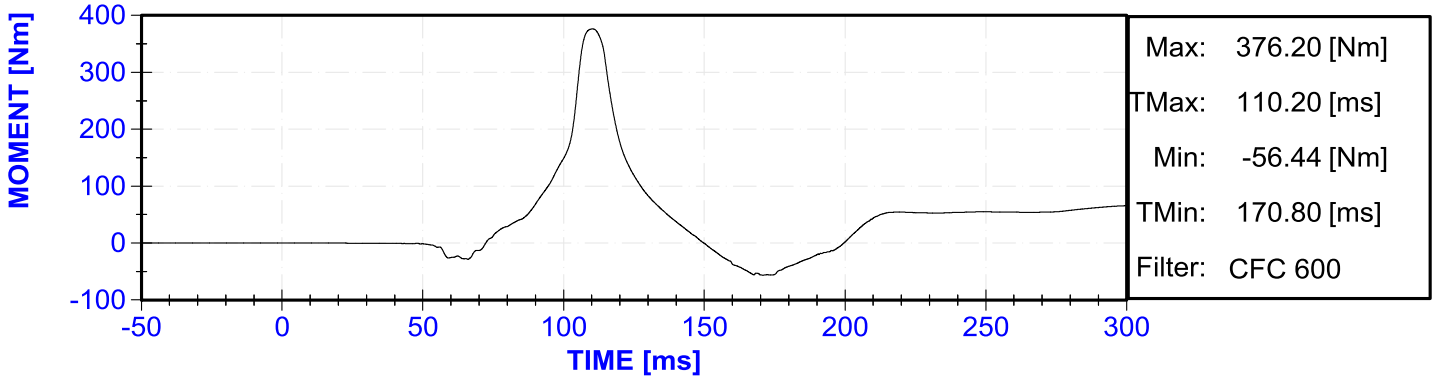
V2P4 LOWER NECK FZ



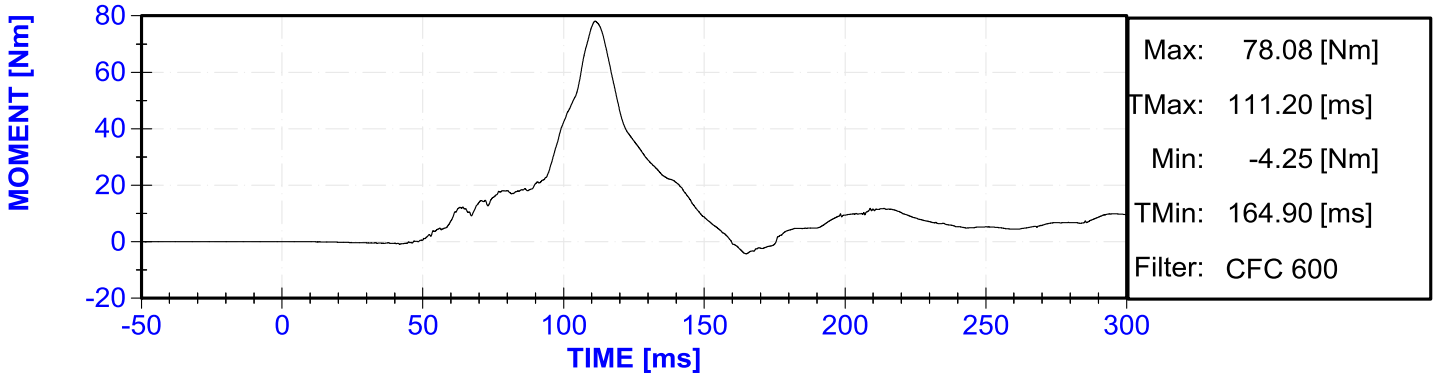
V2P4 LOWER NECK MX



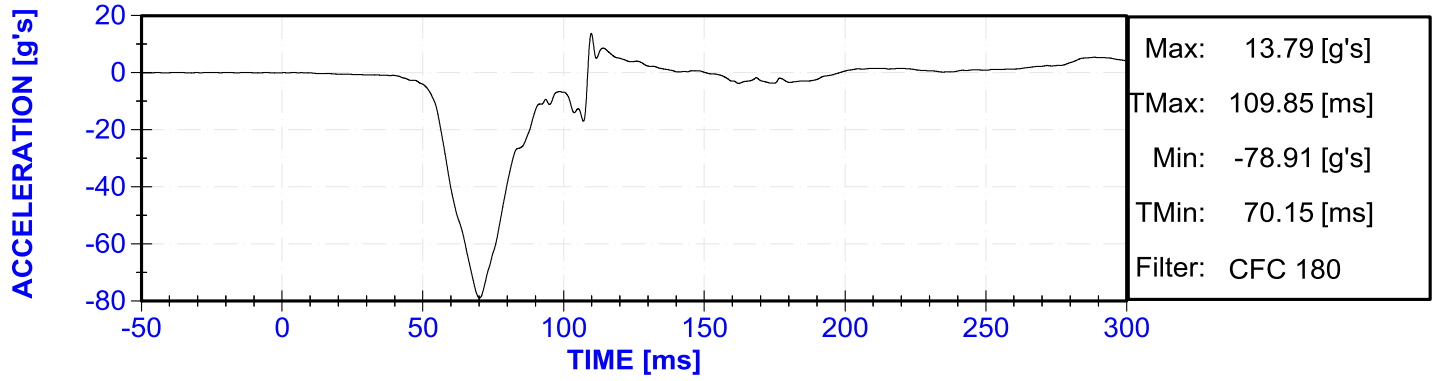
V2P4 LOWER NECK MY



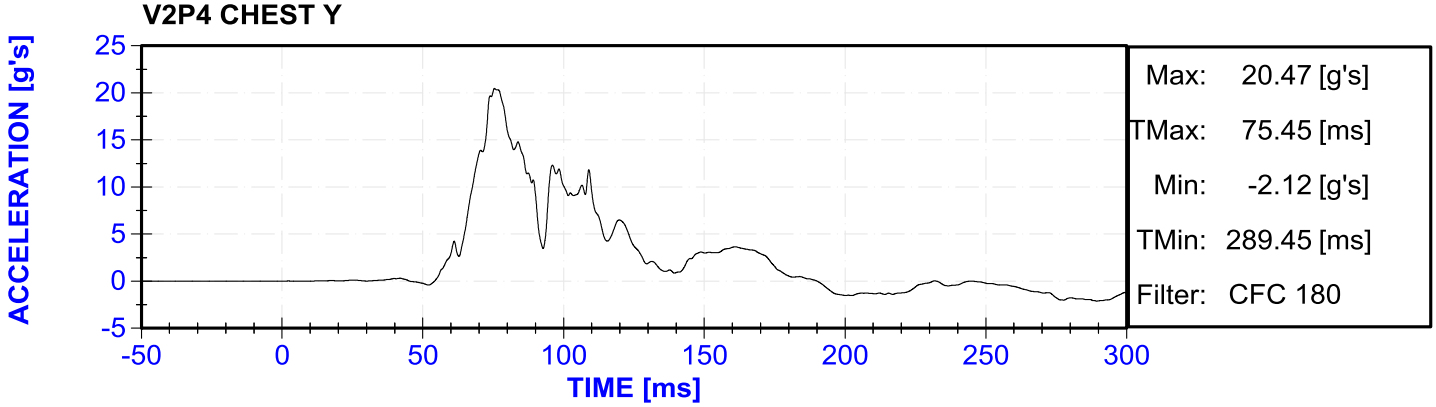
V2P4 LOWER NECK MZ



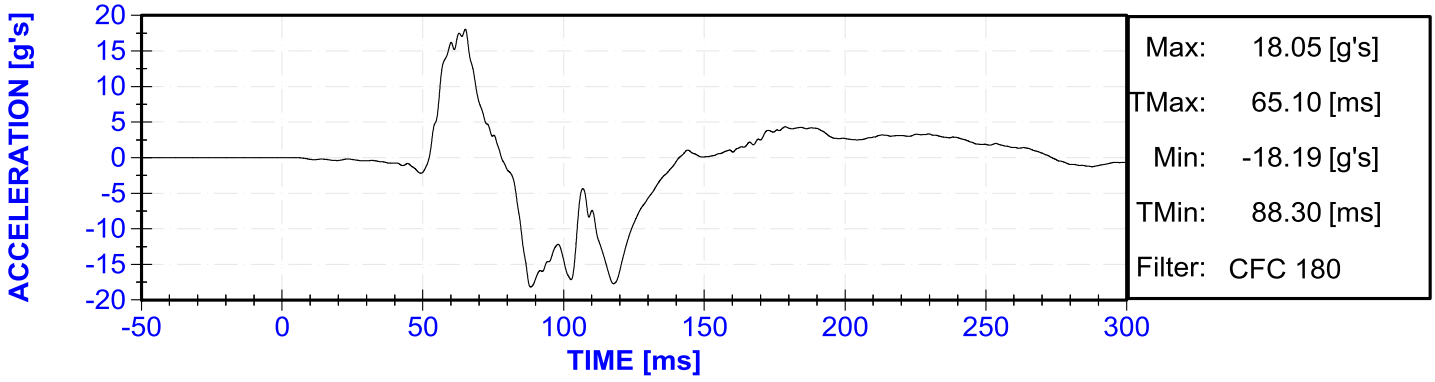
V2P4 CHEST X



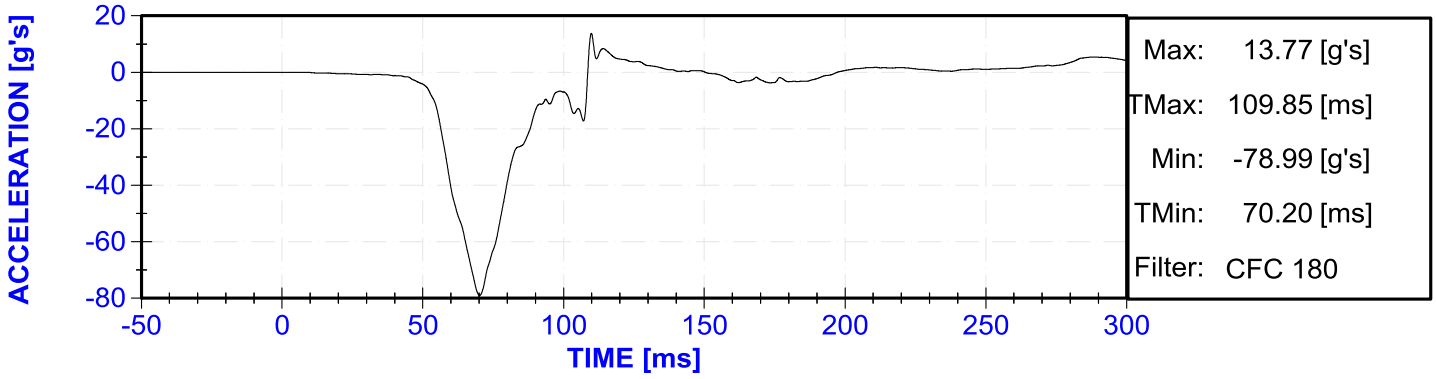
V2P4 CHEST Y



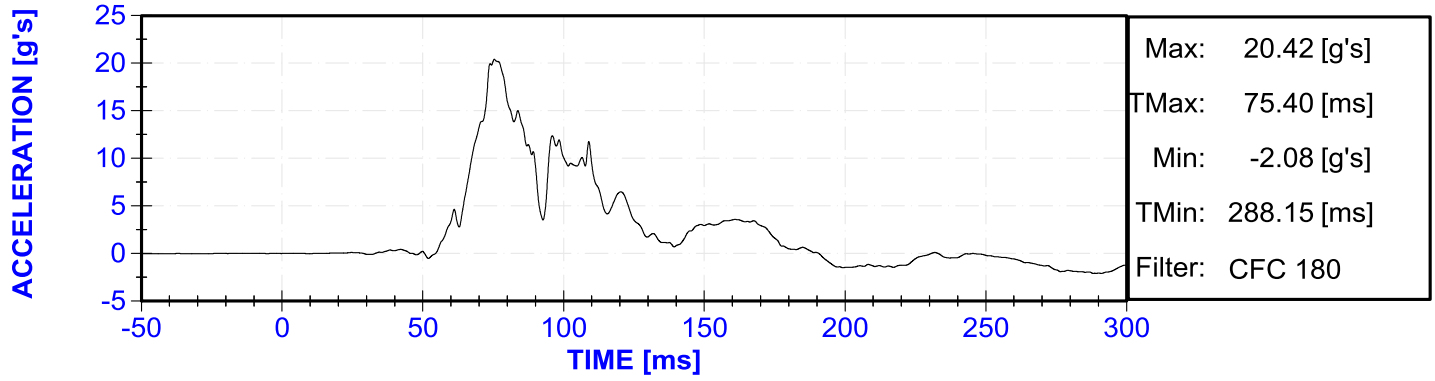
V2P4 CHEST Z



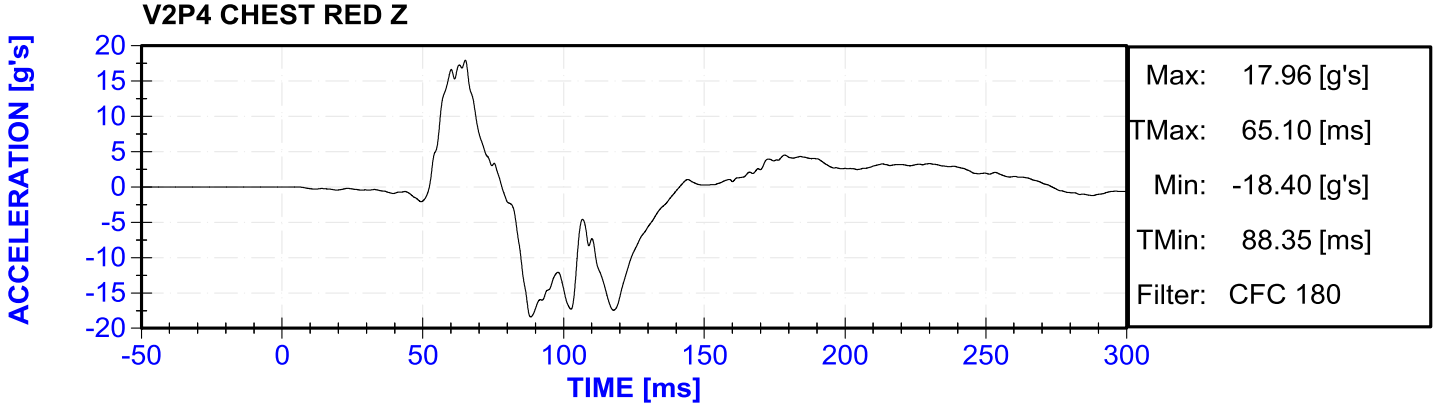
V2P4 CHEST RED X



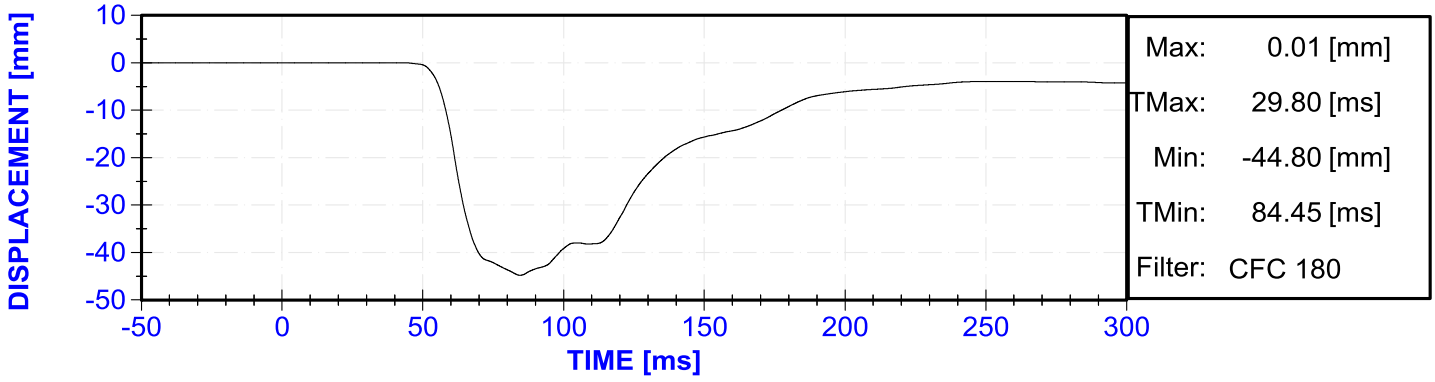
V2P4 CHEST RED Y



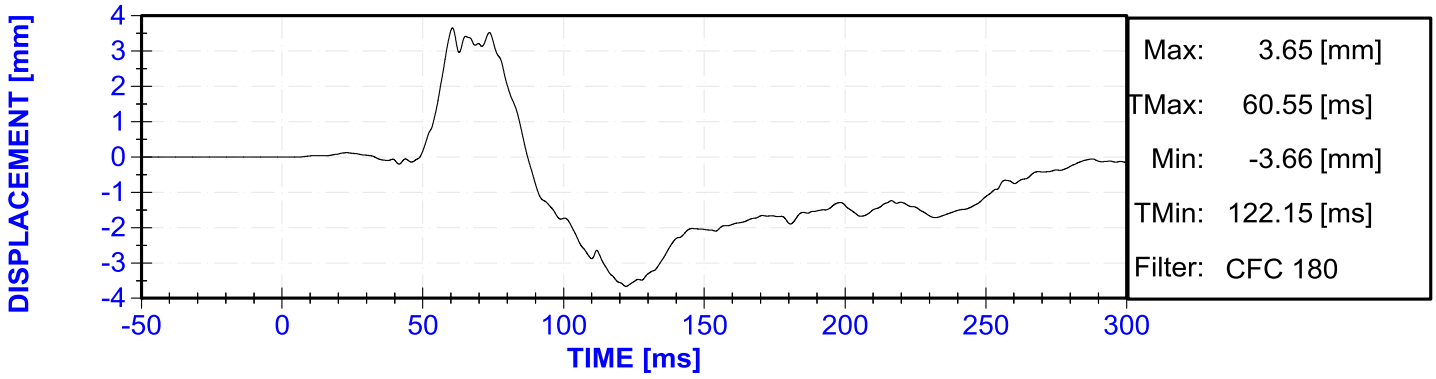
V2P4 CHEST RED Z



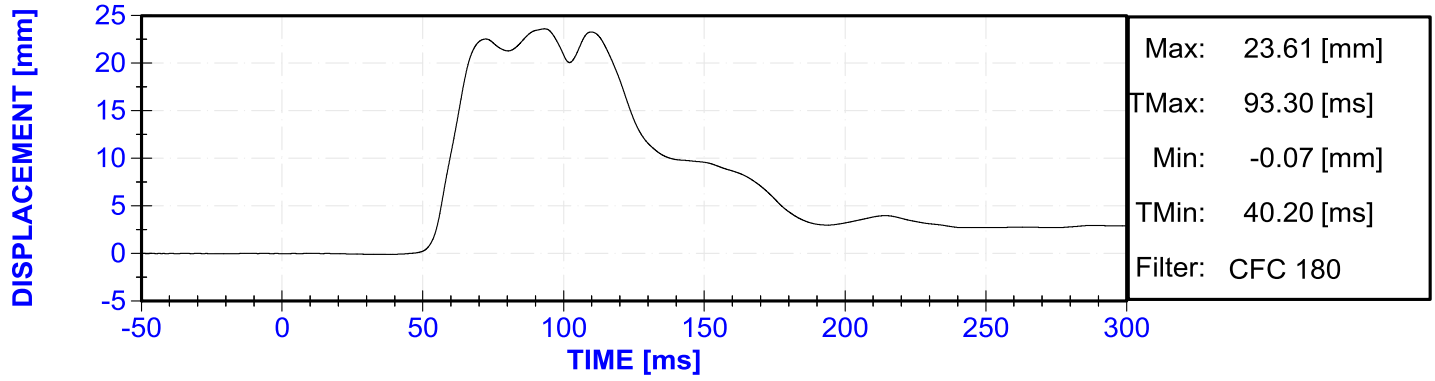
V2P4 CHEST DISPLACEMENT



V2P4 8 STRING POD - UR TOP

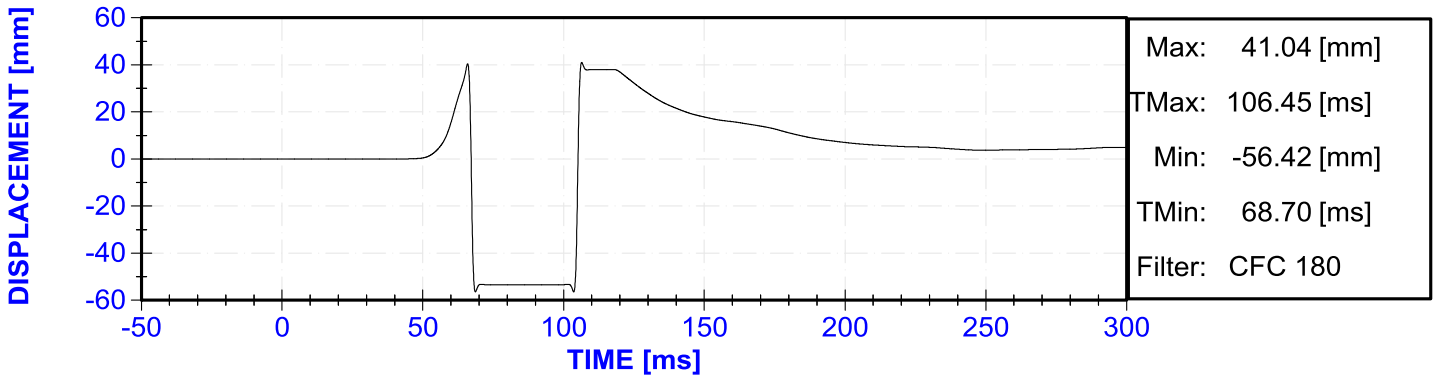


V2P4 8 STRING POD - UR MID

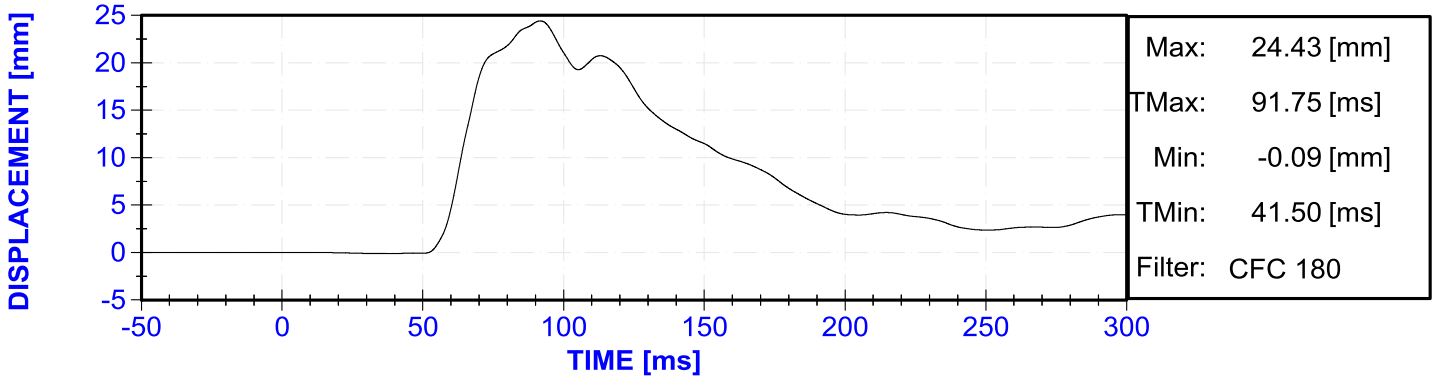


V2P4 8 STRING POD - LR MID

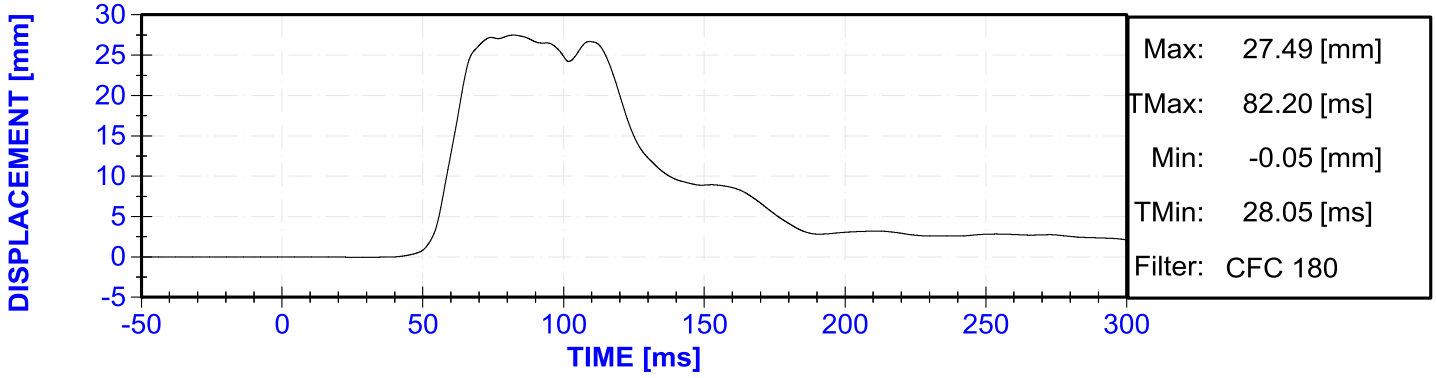
QUESTIONABLE 66 - 105 MS



V2P4 8 STRING POD - LR BOTTOM



V2P4 8 STRING POD - UL TOP



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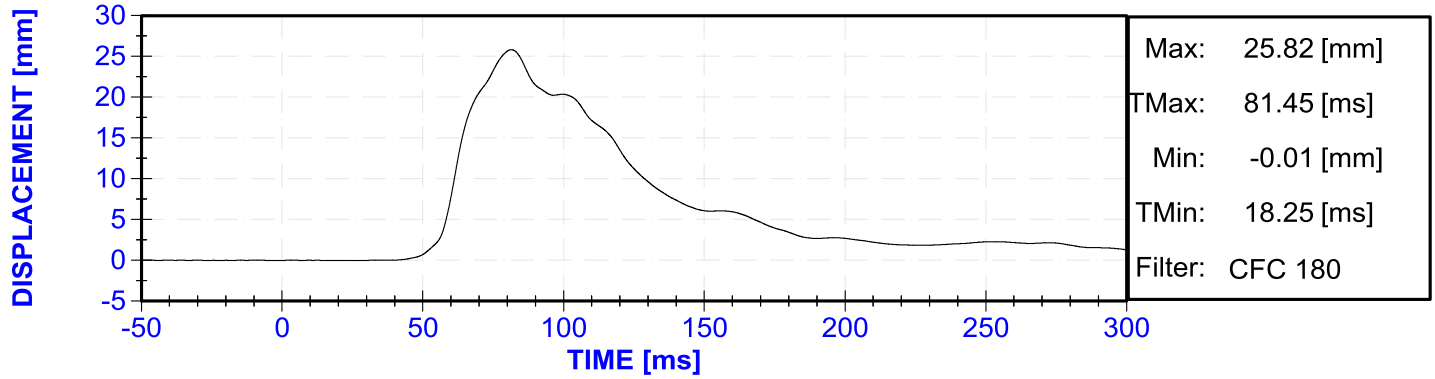
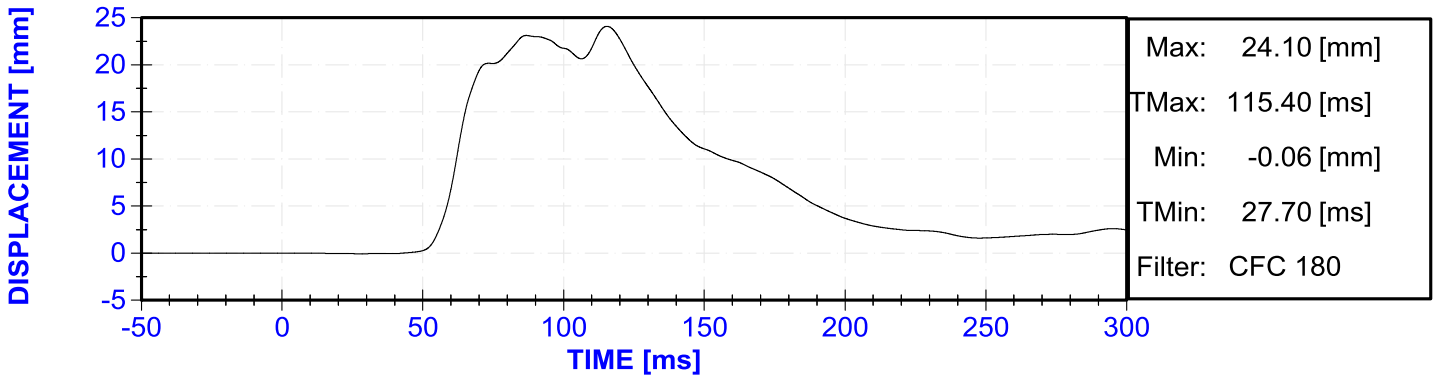
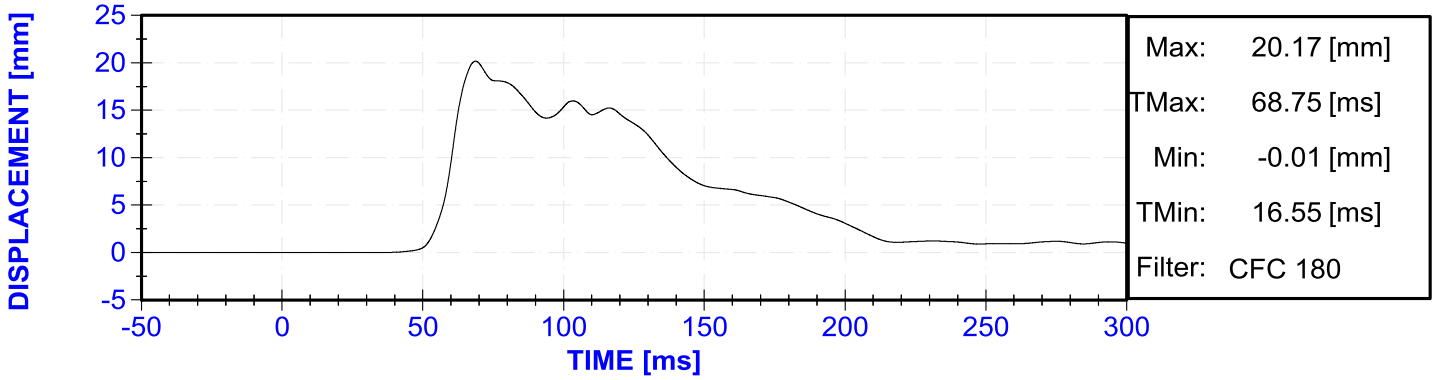


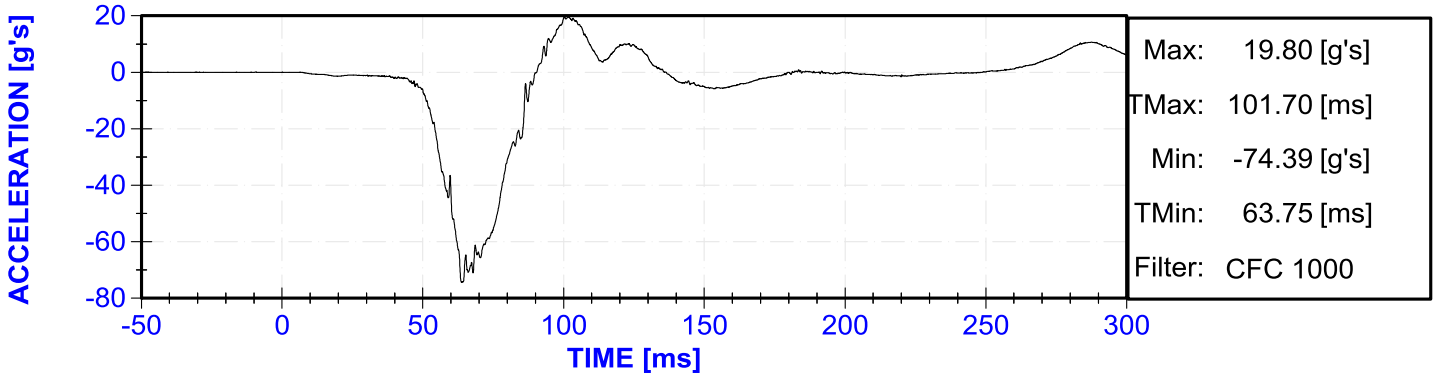
V2P4 8 STRING POD - LL MID



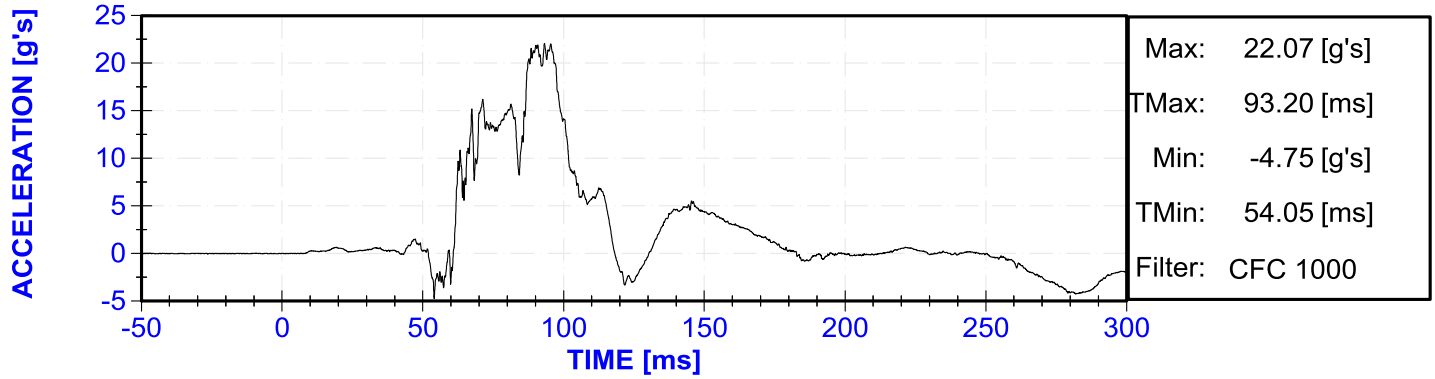
V2P4 8 STRING POD - LL BOTTOM



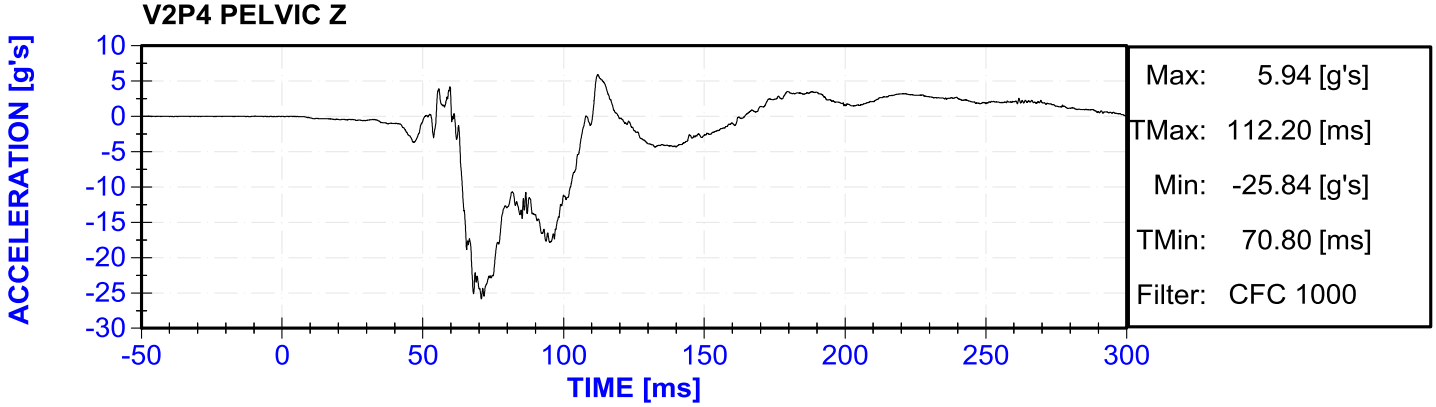
V2P4 PELVIC X



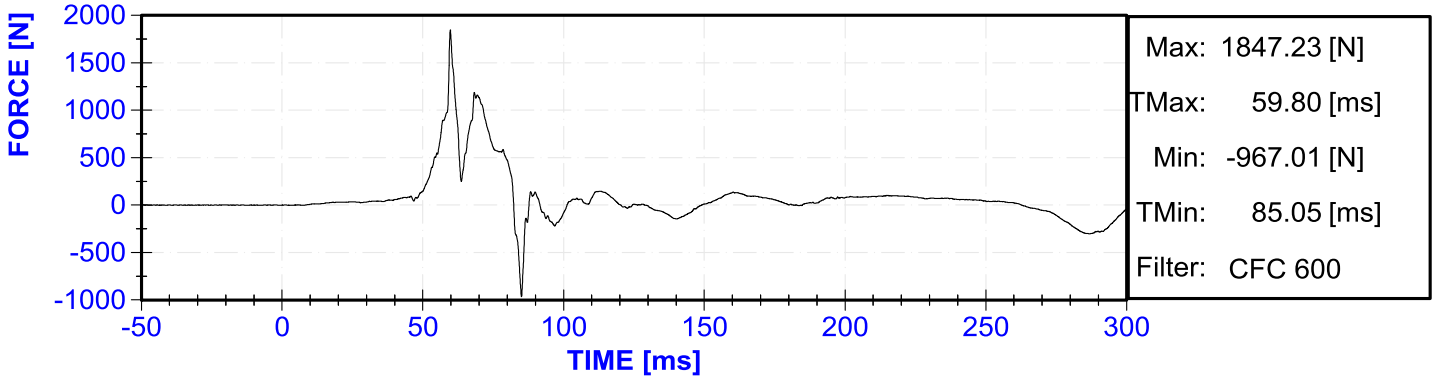
V2P4 PELVIC Y



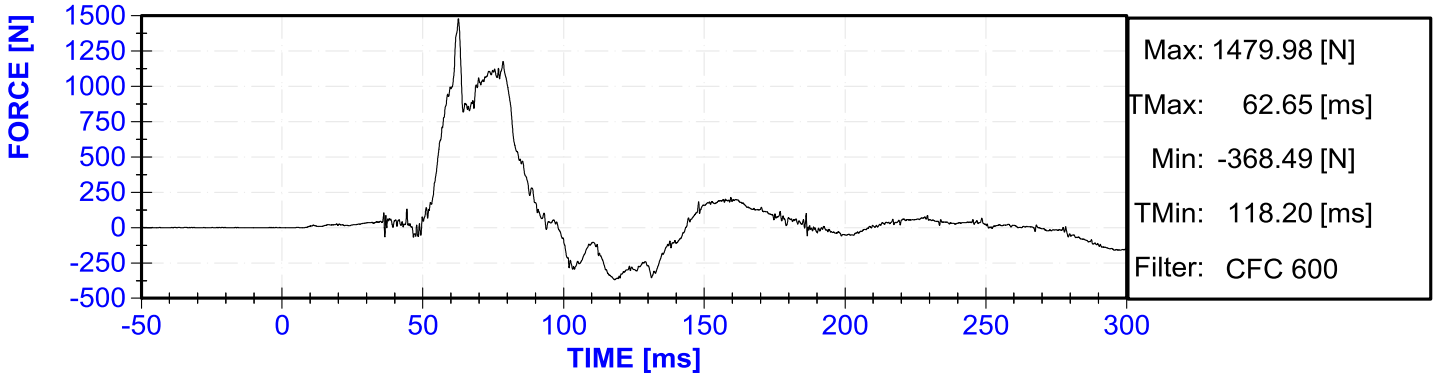
V2P4 PELVIC Z



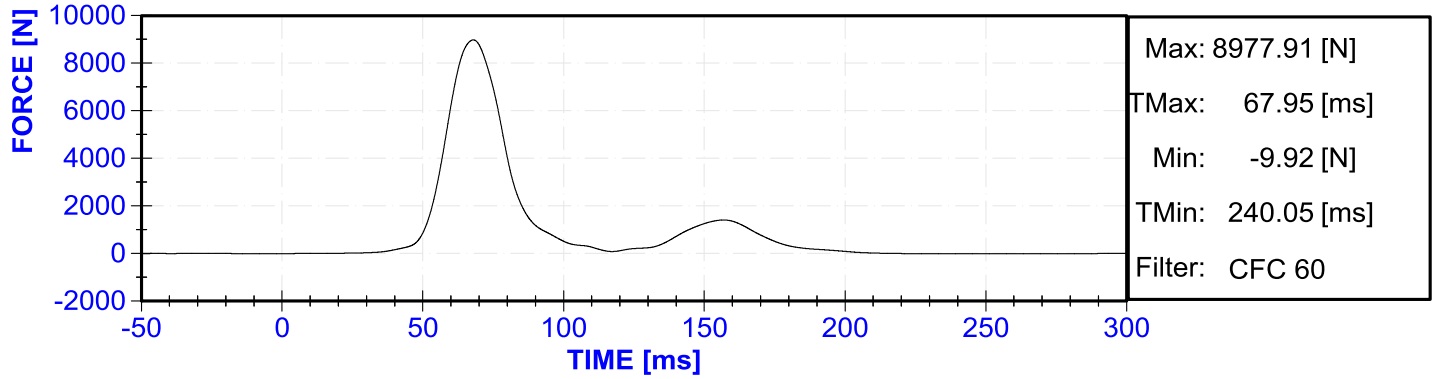
V2P4 LEFT FEMUR FZ



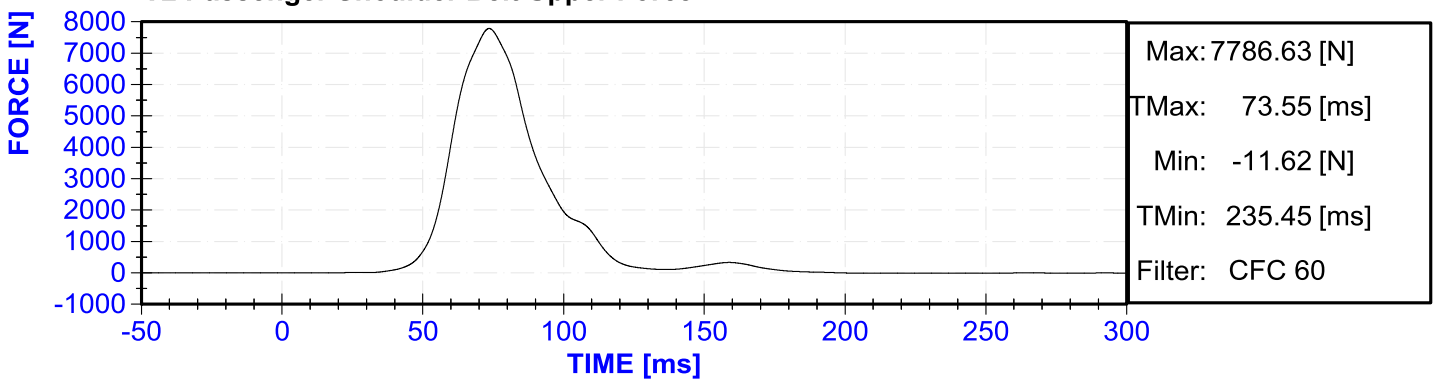
V2P4 RIGHT FEMUR FZ



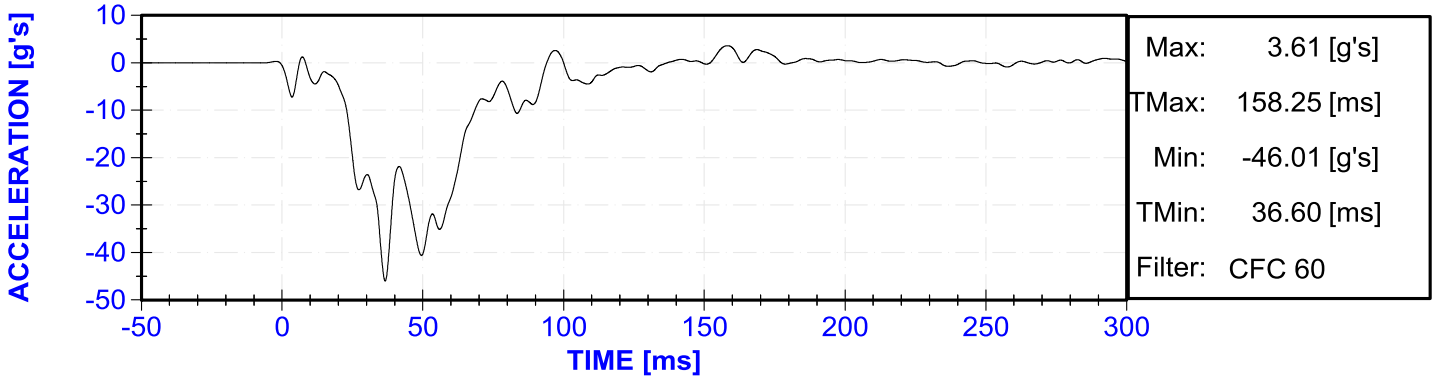
V2 Passenger Lap Belt Force



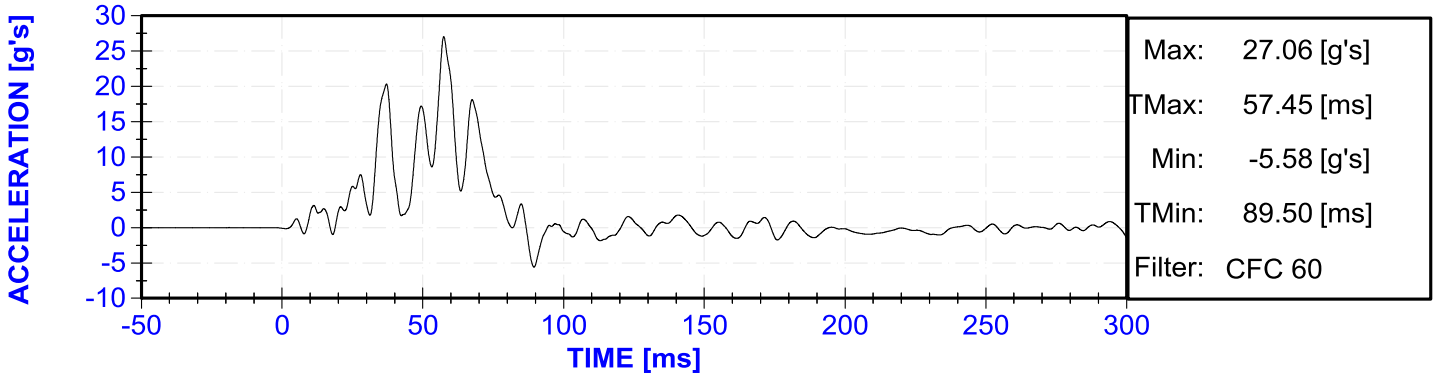
V2 Passenger Shoulder Belt Upper Force



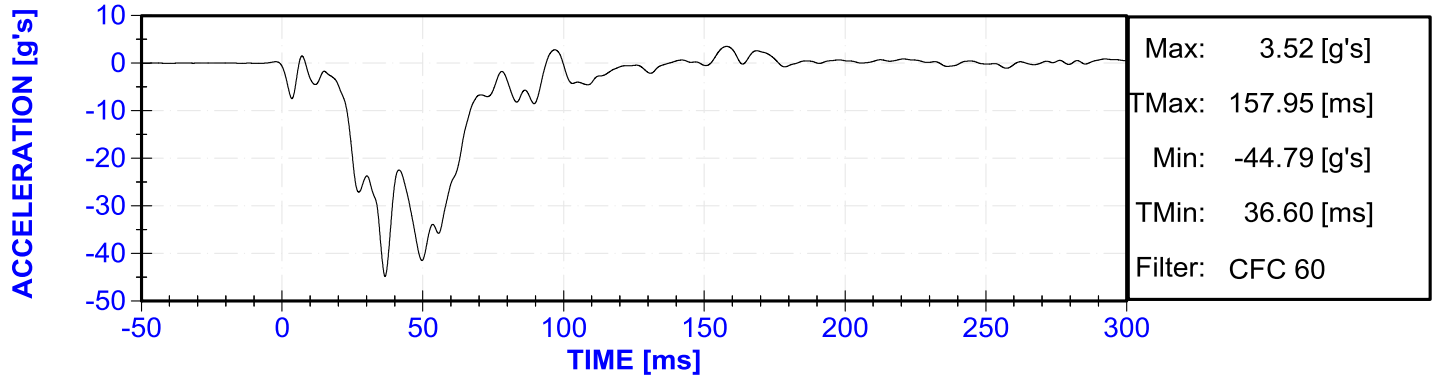
V2 Left Rear Sill X Acceleration



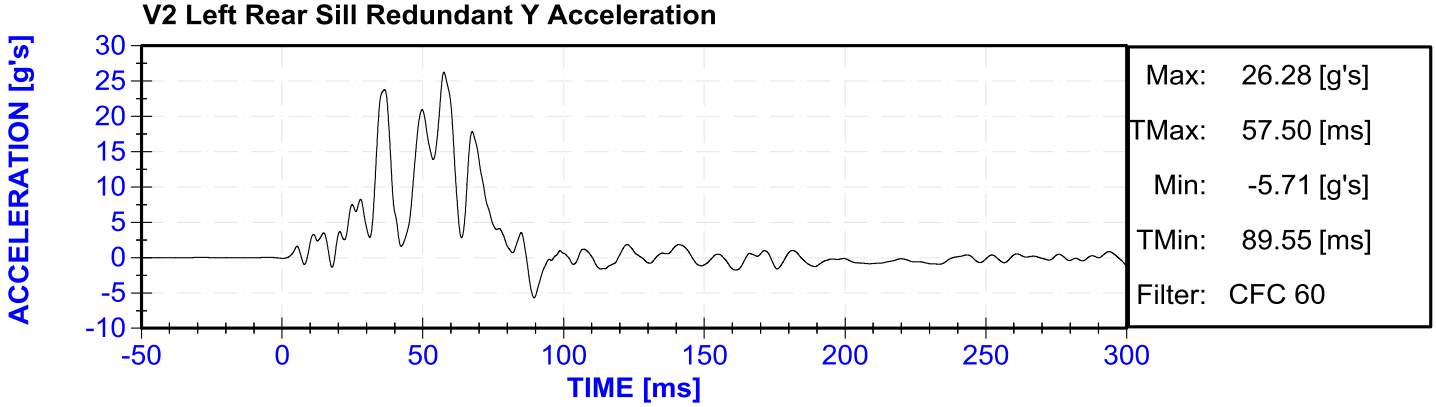
V2 Left Rear Sill Y Acceleration



V2 Left Rear Sill Redundant X Acceleration

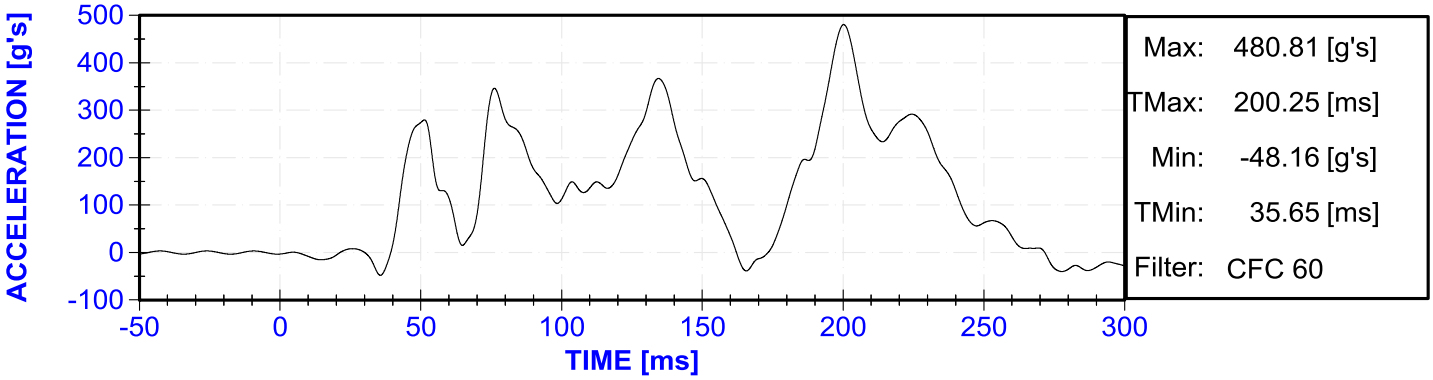


V2 Left Rear Sill Redundant Y Acceleration



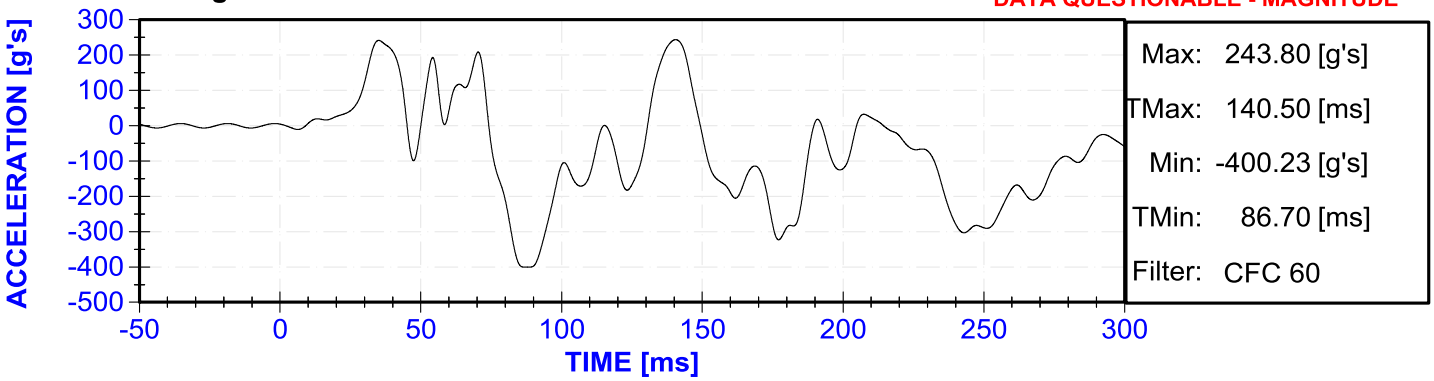
V2 Right Rear Sill X Acceleration

DATA QUESTIONABLE - MAGNITUDE

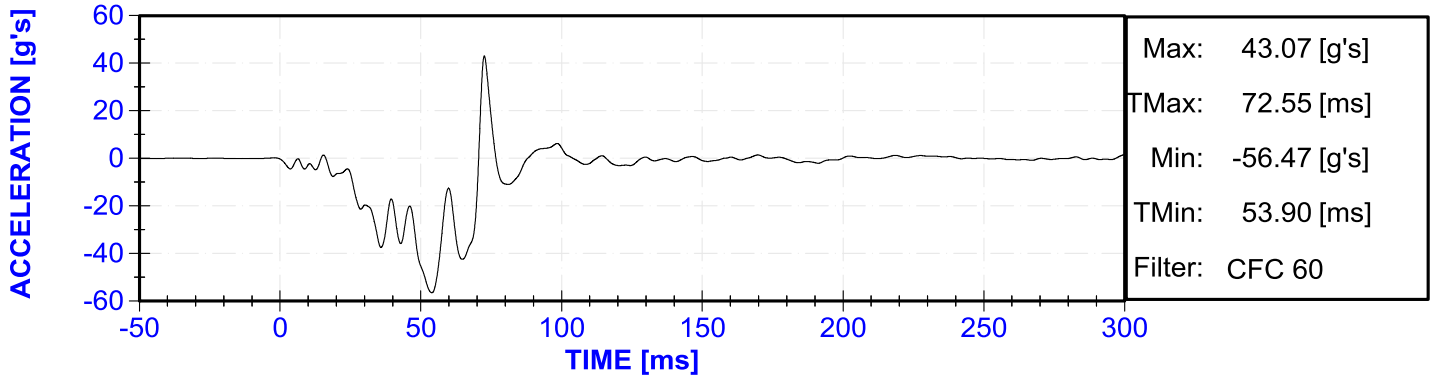


V2 Right Rear Sill Y Acceleration

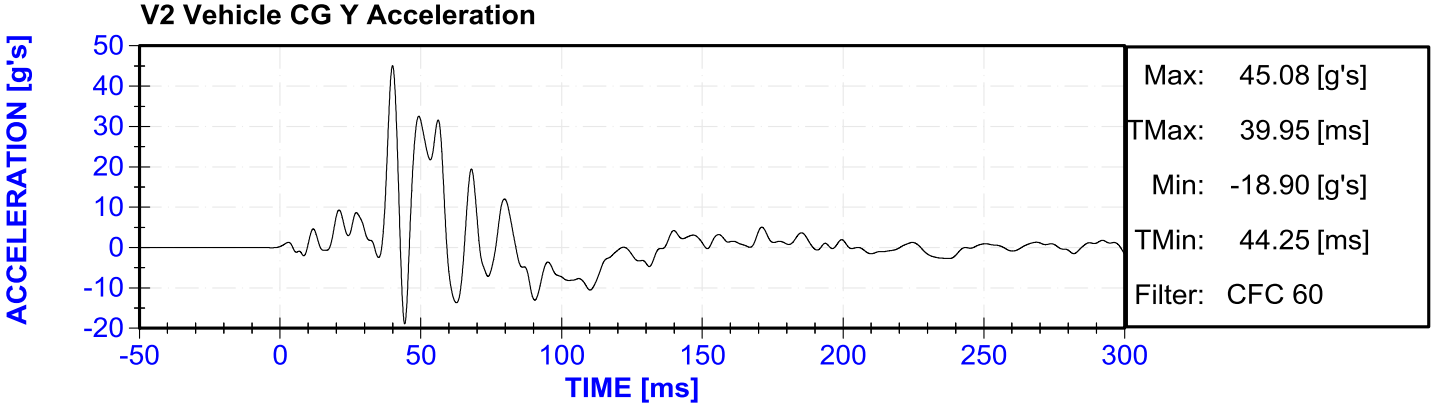
DATA QUESTIONABLE - MAGNITUDE



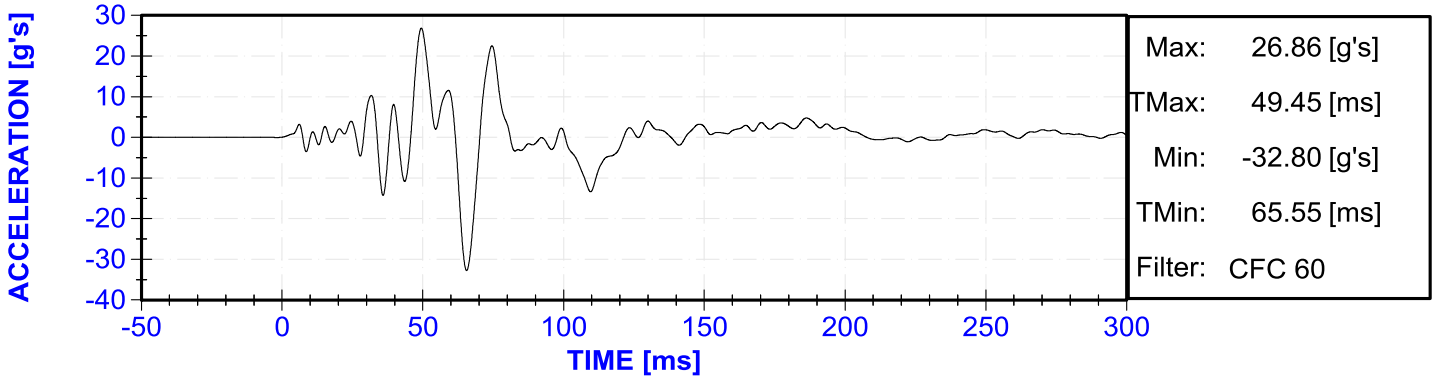
V2 Vehicle CG X Acceleration



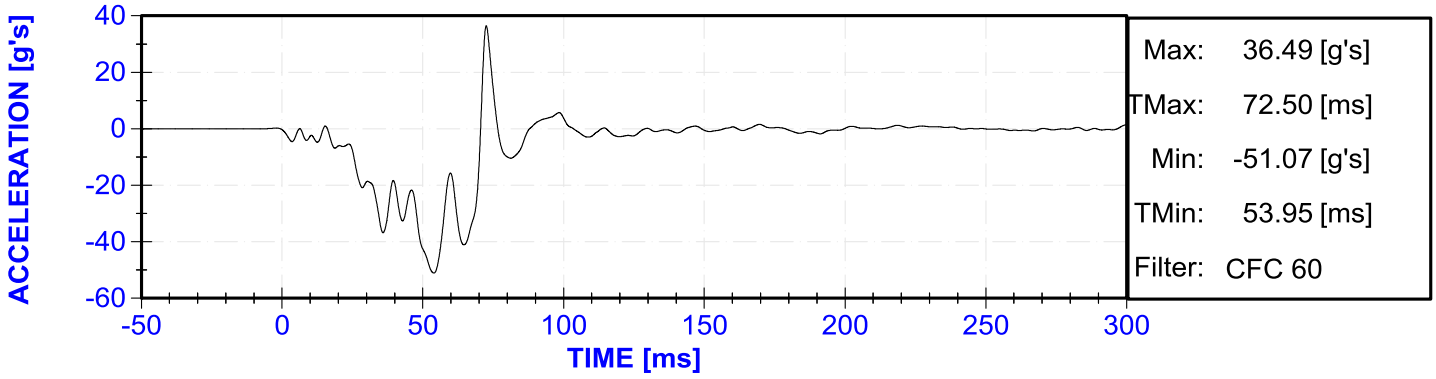
V2 Vehicle CG Y Acceleration



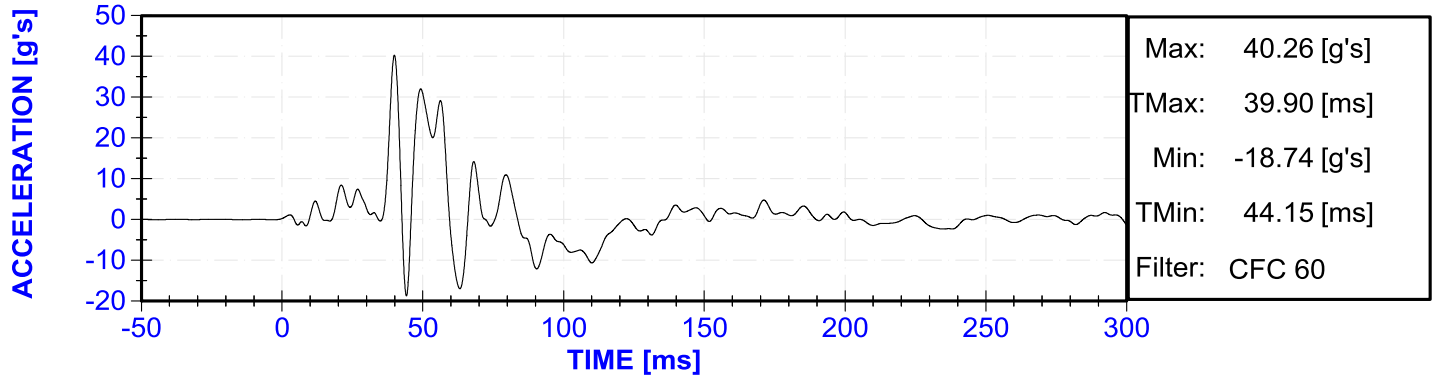
V2 Vehicle CG Z Acceleration



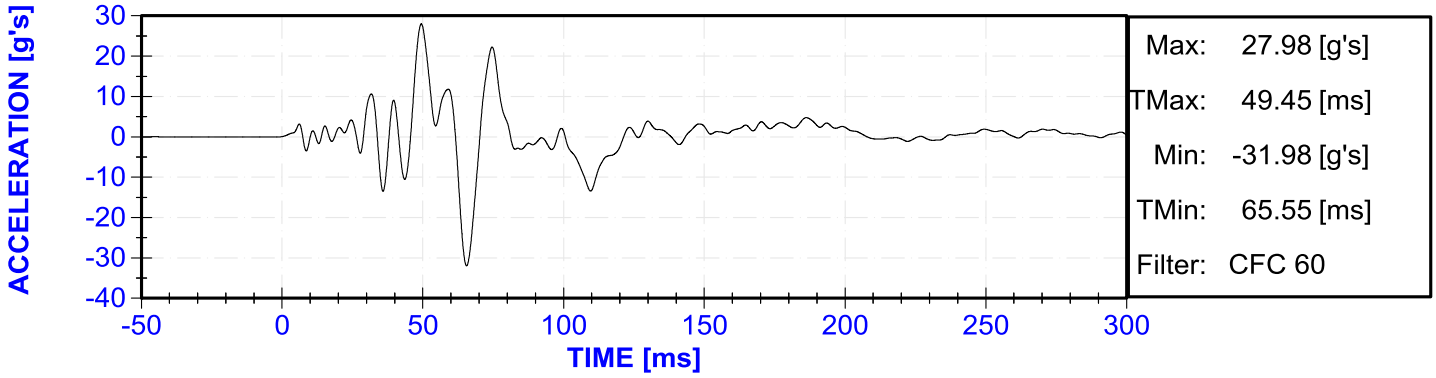
V2 Vehicle CG Redundant X Acceleration



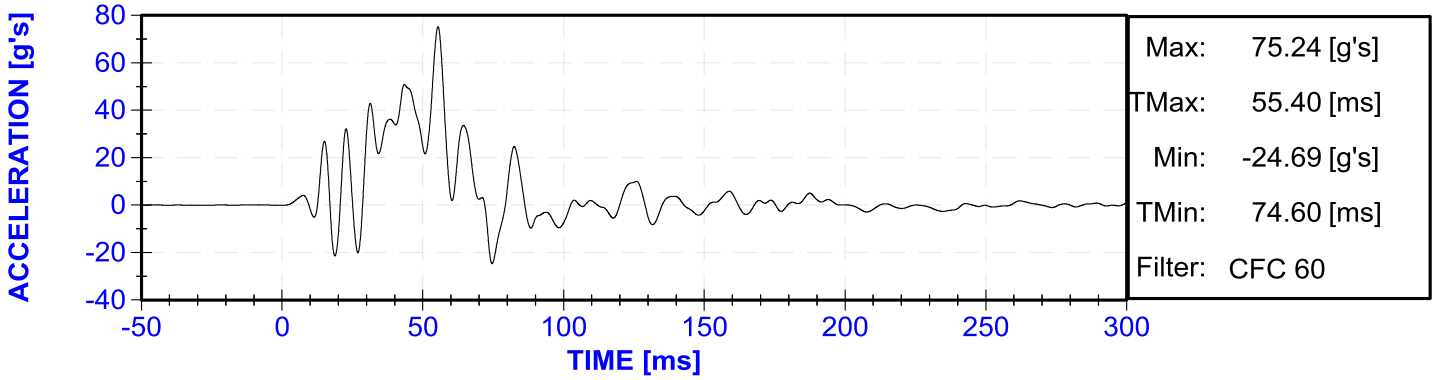
V2 Vehicle CG Redundant Y Acceleration



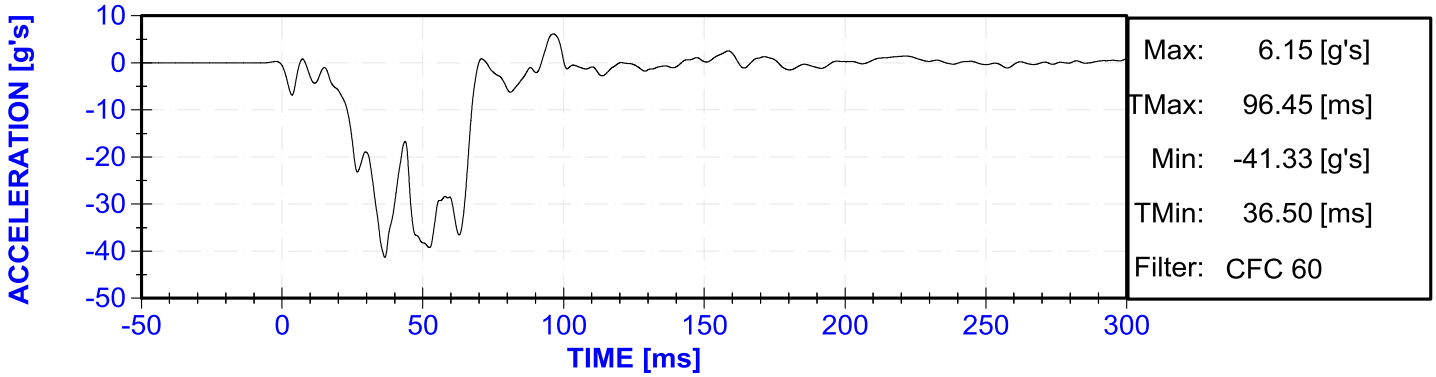
V2 Vehicle CG Redundant Z Acceleration



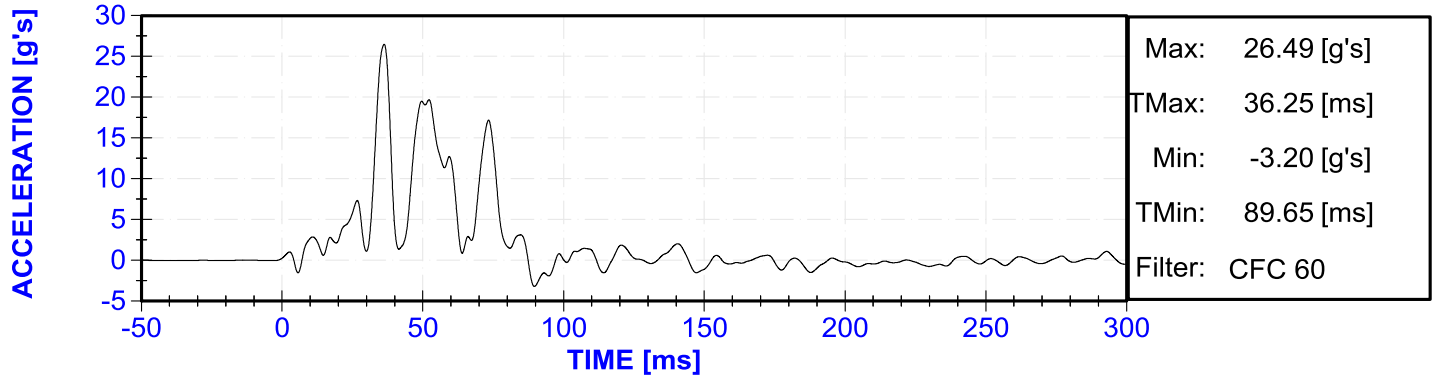
V2 Instrument Panel X Acceleration



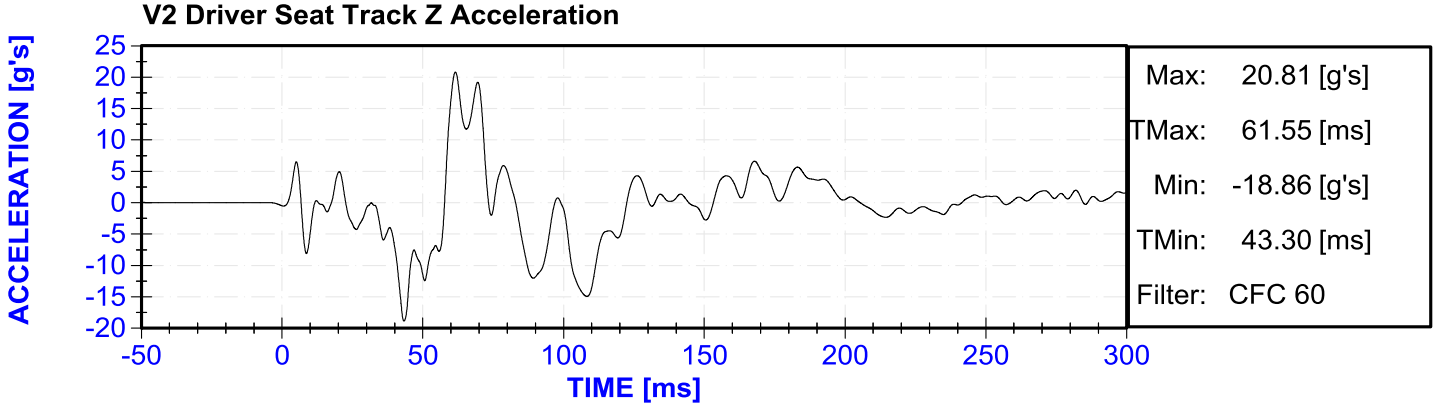
V2 Driver Seat Track X Acceleration



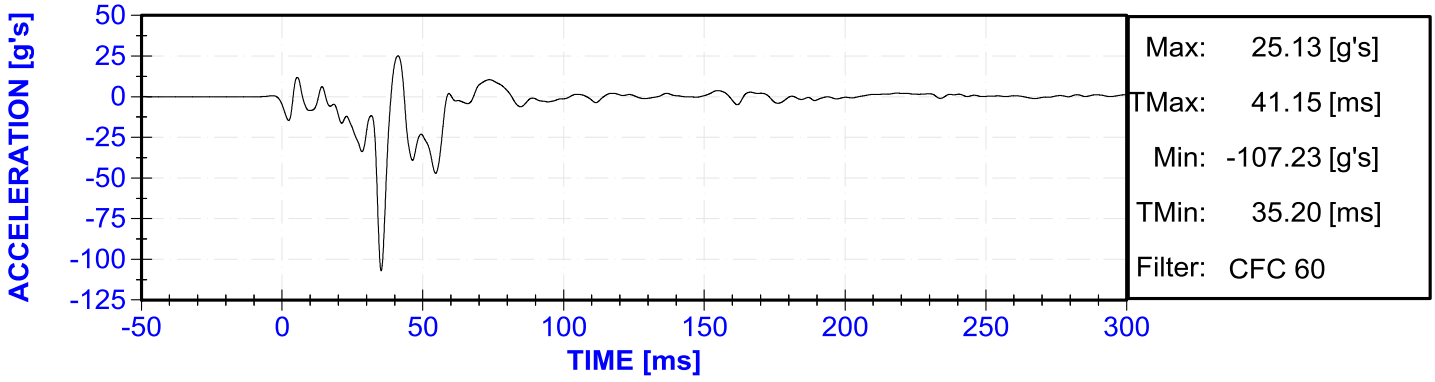
V2 Driver Seat Track Y Acceleration



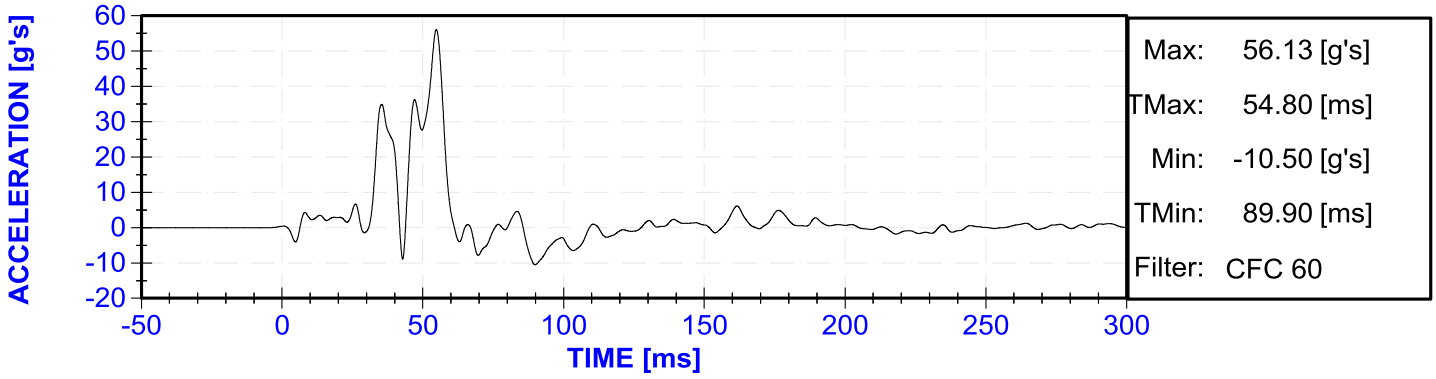
V2 Driver Seat Track Z Acceleration



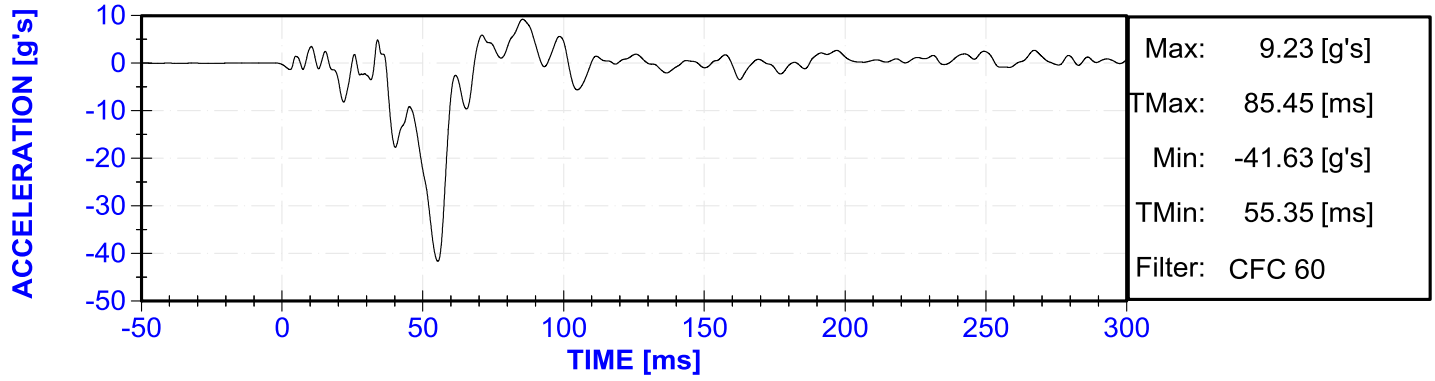
V2 Driver Floor Pan X Acceleration



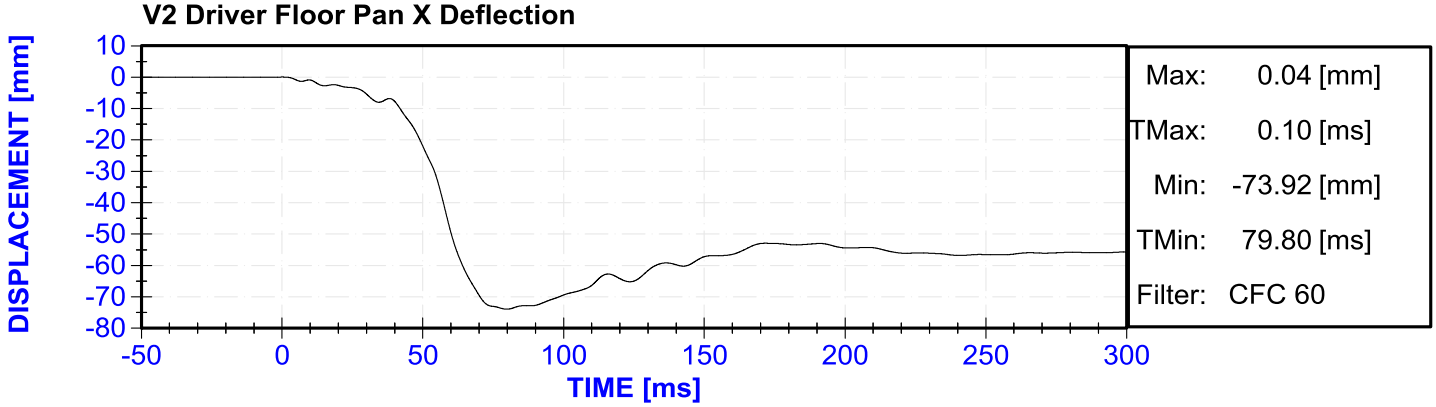
V2 Driver Floor Pan Y Acceleration

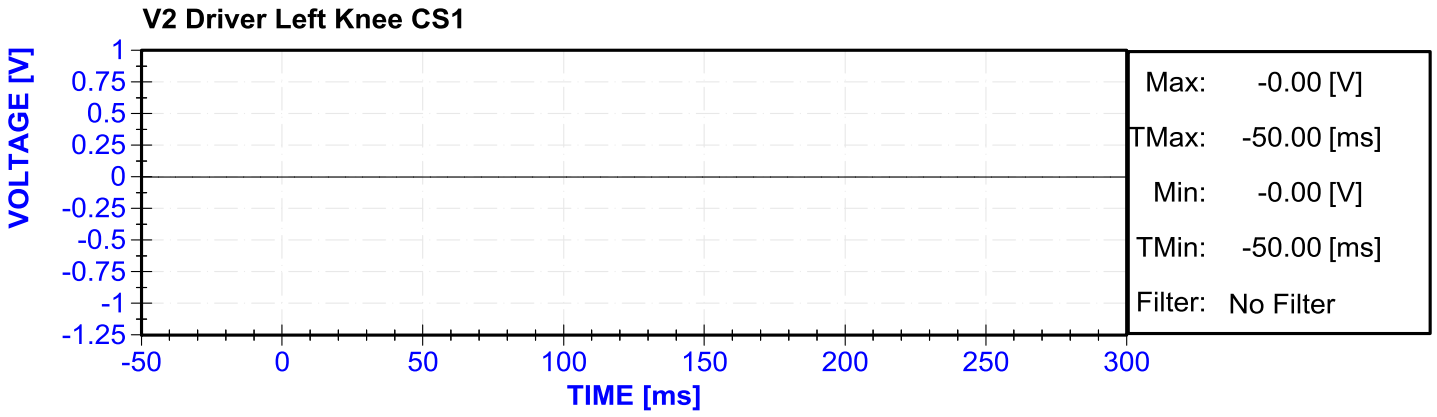


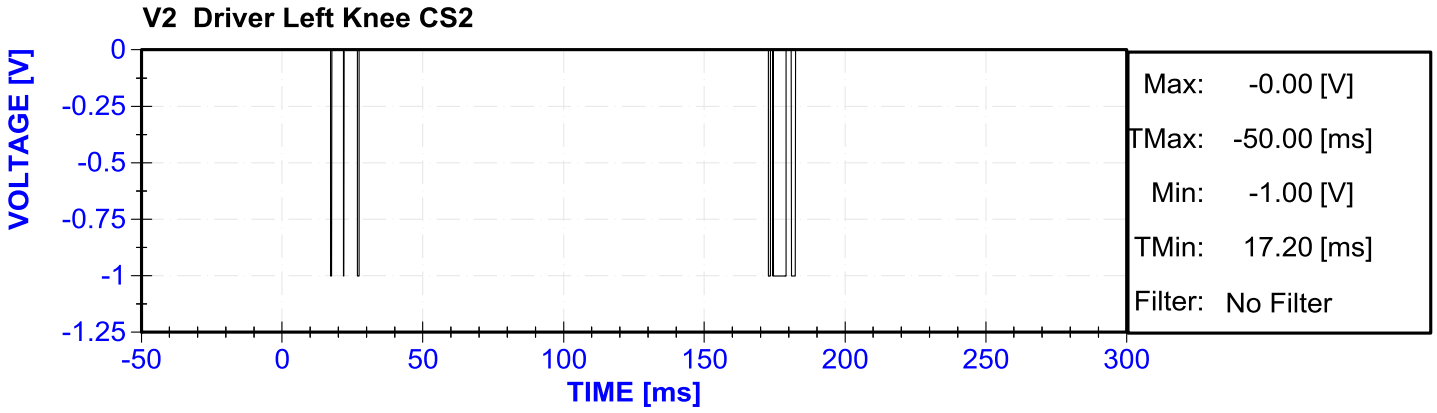
V2 Driver Floor Pan Z Acceleration

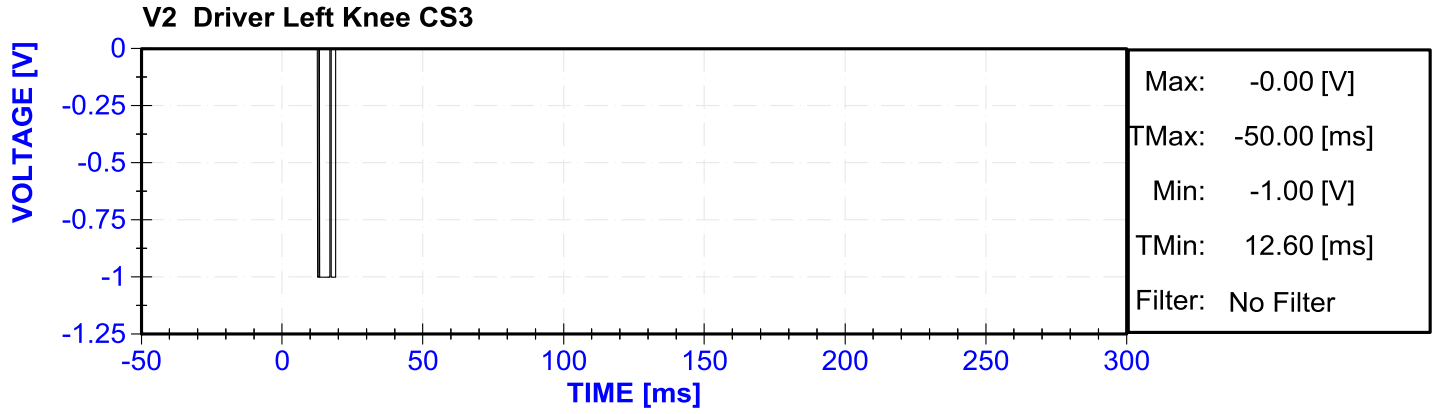


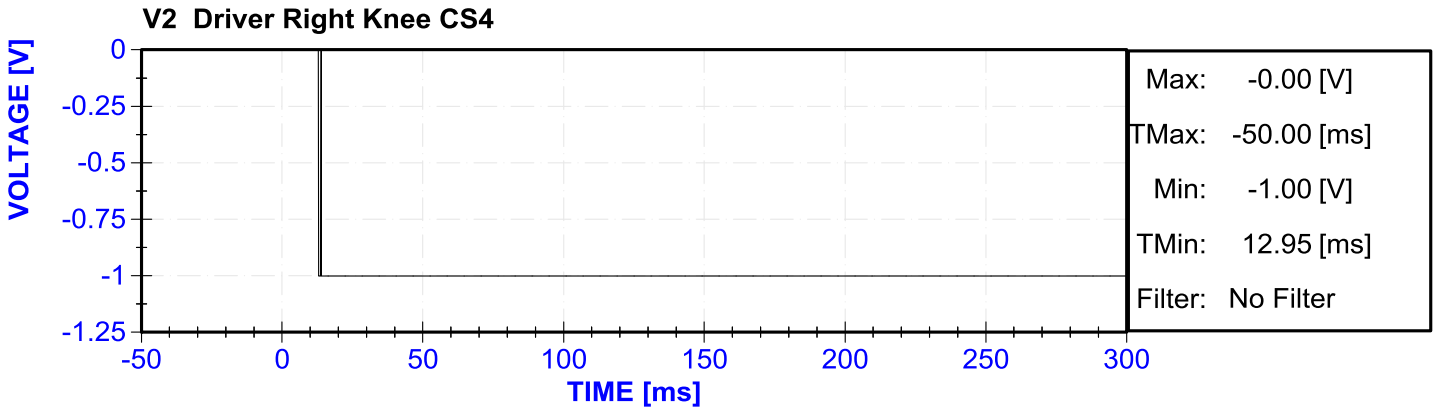
V2 Driver Floor Pan X Deflection

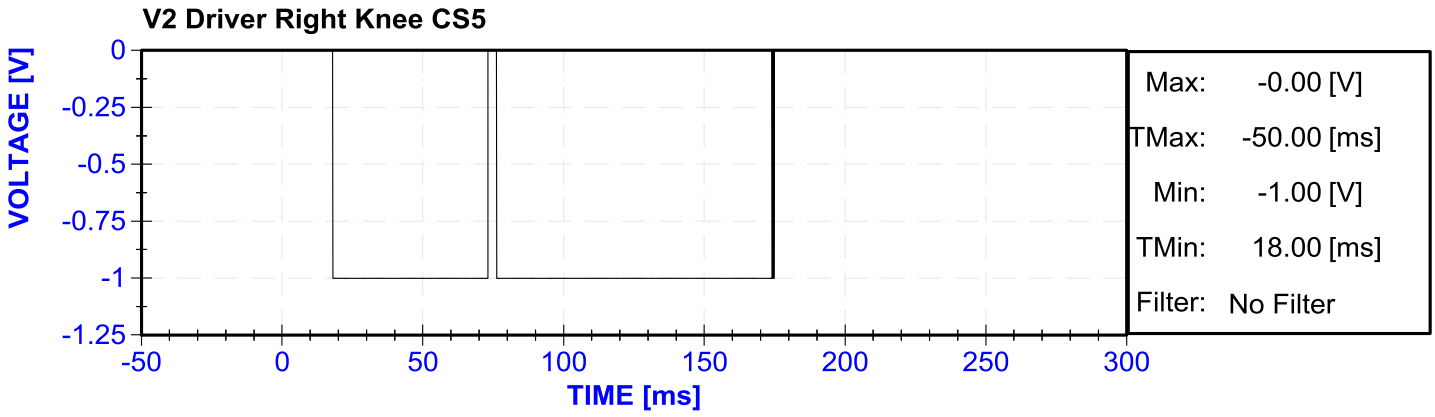


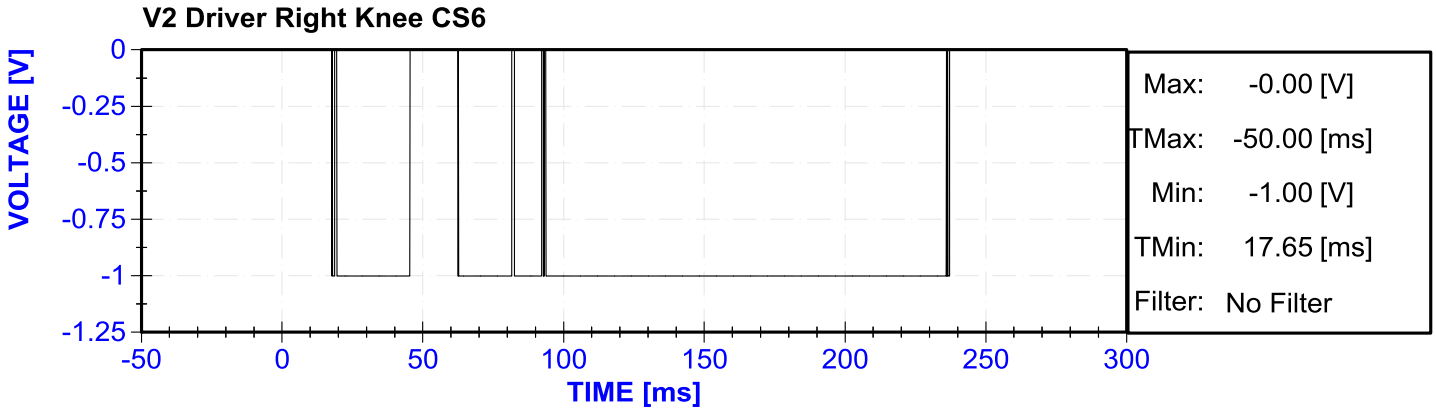

V2 Driver Left Knee CS1
VOLTAGE [V]
1
0.75
0.5
0.25
0
-0.25
-0.5
-0.75
-1
-1.25
-50
0
50
100
150
200
250
300
TIME [ms]
Max: -0.00 [V]
TMax: -50.00 [ms]
Min: -0.00 [V]
TMin: -50.00 [ms]
Filter: No Filter

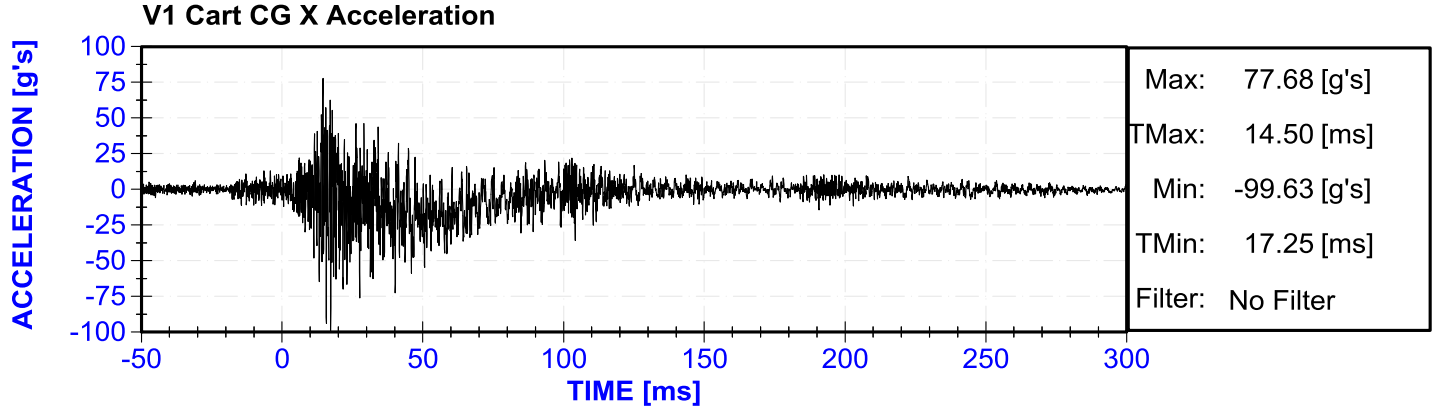

V2 Driver Left Knee CS2
VOLTAGE [V]
0
-0.25
-0.5
-0.75
-1
-1.25
-50
0
50
100
150
200
250
300
TIME [ms]
Max: -0.00 [V]
TMax: -50.00 [ms]
Min: -1.00 [V]
TMin: 17.20 [ms]
Filter: No Filter

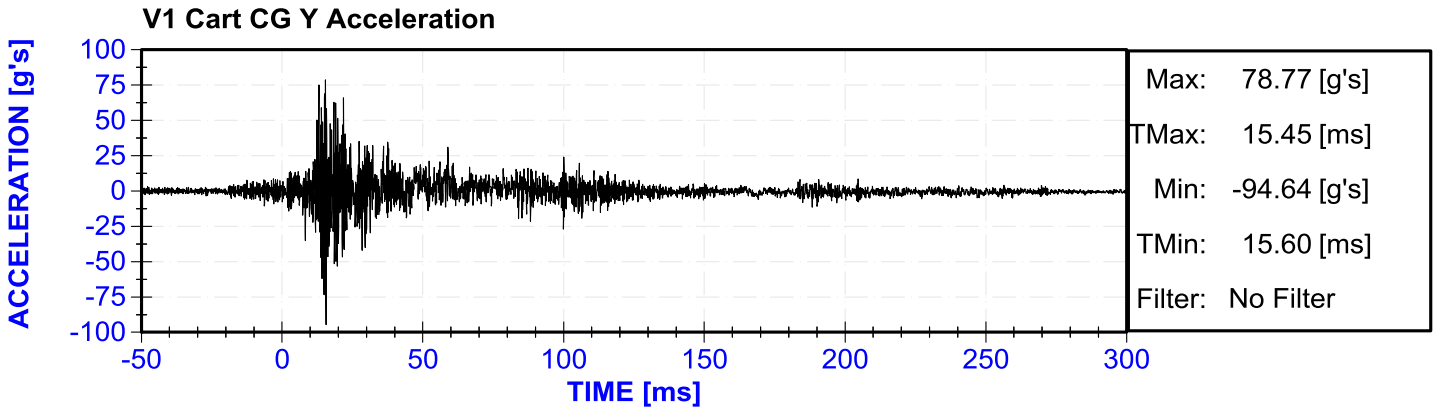

V2 Driver Left Knee CS3
VOLTAGE [V]
0
-0.25
-0.5
-0.75
-1
-1.25
-50
0
50
100
150
200
250
300
TIME [ms]
Max: -0.00 [V]
TMax: -50.00 [ms]
Min: -1.00 [V]
TMin: 12.60 [ms]
Filter: No Filter

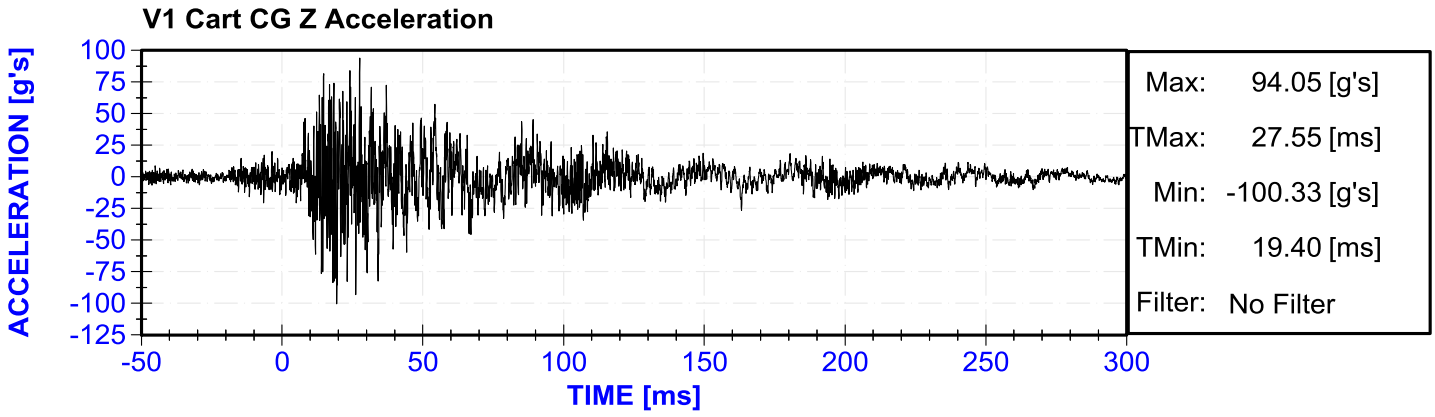

V2 Driver Right Knee CS4
VOLTAGE [V]
0
-0.25
-0.5
-0.75
-1
-1.25
-50
0
50
100
150
200
250
300
TIME [ms]
Max: -0.00 [V]
TMax: -50.00 [ms]
Min: -1.00 [V]
TMin: 12.95 [ms]
Filter: No Filter

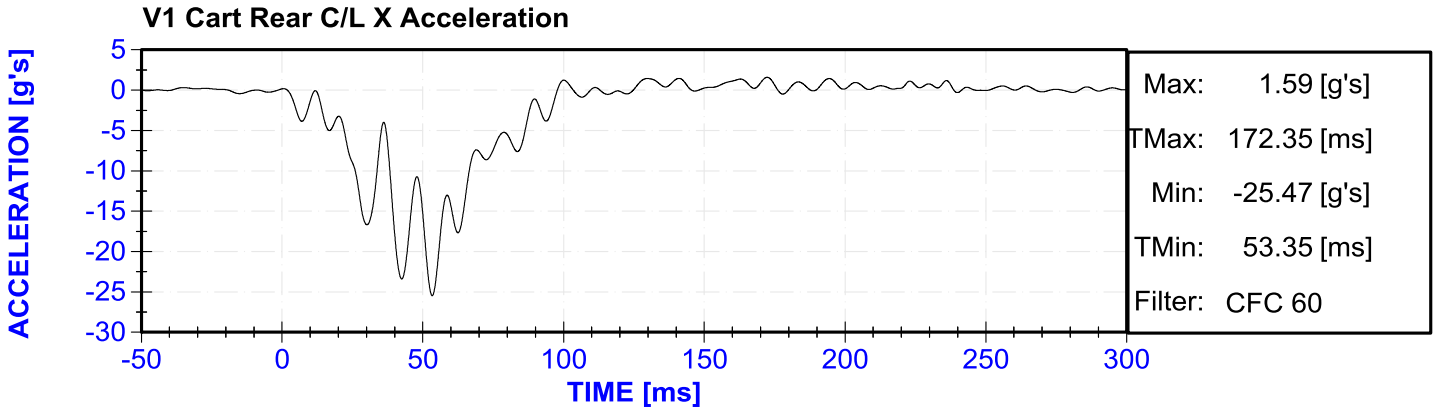

V2 Driver Right Knee CS5
VOLTAGE [V]
0
-0.25
-0.5
-0.75
-1
-1.25
-50
0
50
100
150
200
250
300
TIME [ms]
Max: -0.00 [V]
TMax: -50.00 [ms]
Min: -1.00 [V]
TMin: 18.00 [ms]
Filter: No Filter

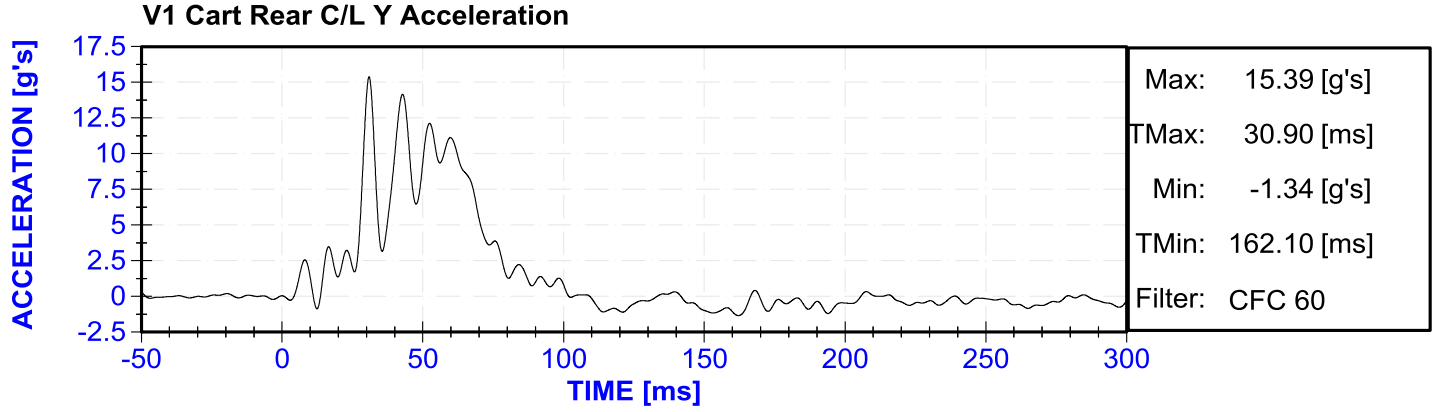

V2 Driver Right Knee CS6
VOLTAGE [V]
0
-0.25
-0.5
-0.75
-1
-1.25
-50
0
50
100
150
200
250
300
TIME [ms]
Max: -0.00 [V]
TMax: -50.00 [ms]
Min: -1.00 [V]
TMin: 17.65 [ms]
Filter: No Filter

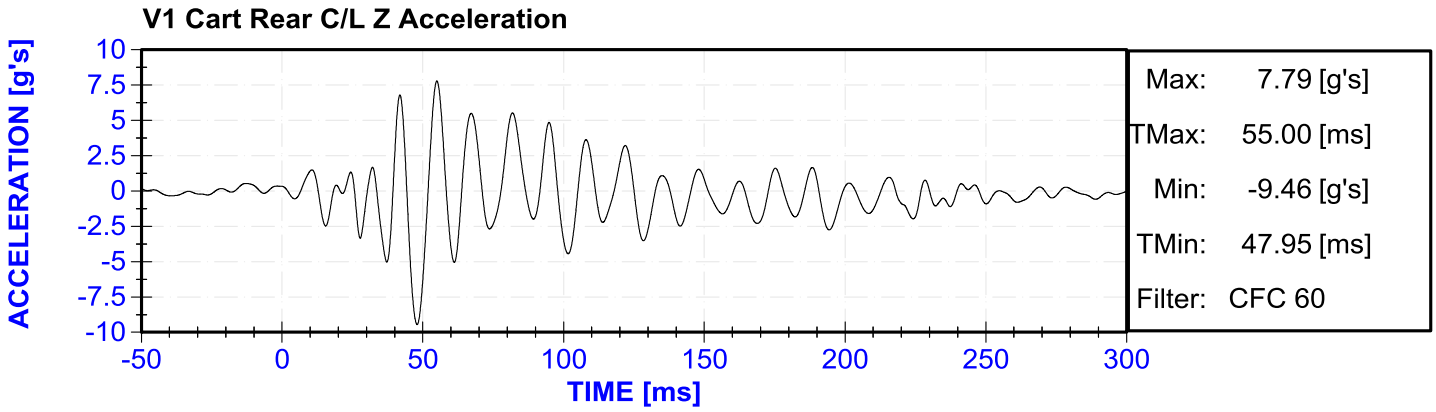

V1 Cart CG X Acceleration
ACCELERATION [g's]
100
75
50
25
0
-25
-50
-75
-100
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 77.68 [g's]
TMax: 14.50 [ms]
Min: -99.63 [g's]
TMin: 17.25 [ms]
Filter: No Filter


V1 Cart CG Y Acceleration
ACCELERATION [g's]
100
75
50
25
0
-25
-50
-75
-100
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 78.77 [g's]
TMax: 15.45 [ms]
Min: -94.64 [g's]
TMin: 15.60 [ms]
Filter: No Filter

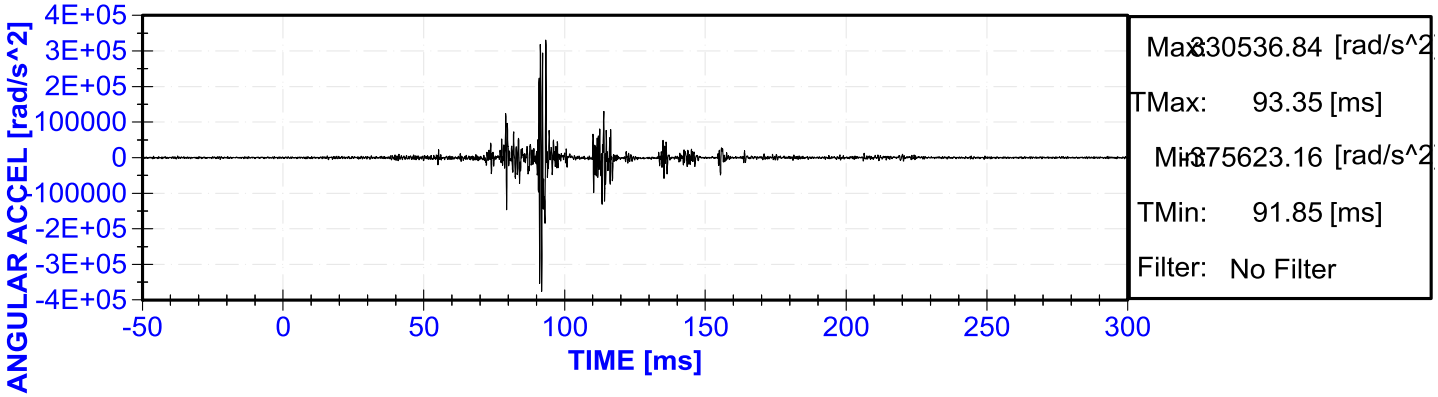

V1 Cart CG Z Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 94.05 [g's]
TMax: 27.55 [ms]
Min: -100.33 [g's]
TMin: 19.40 [ms]
Filter: No Filter


V1 Cart Rear C/L X Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 1.59 [g's]
TMax: 172.35 [ms]
Min: -25.47 [g's]
TMin: 53.35 [ms]
Filter: CFC 60

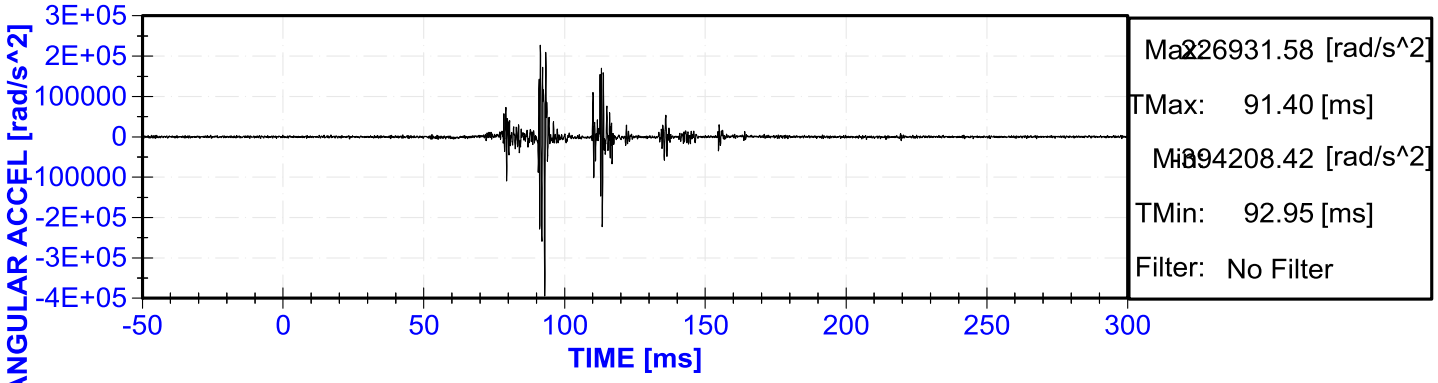

V1 Cart Rear C/L Y Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 15.39 [g's]
TMax: 30.90 [ms]
Min: -1.34 [g's]
TMin: 162.10 [ms]
Filter: CFC 60


V1 Cart Rear C/L Z Acceleration
ACCELERATION [g's]
TIME [ms]
Max: 7.79 [g's]
TMax: 55.00 [ms]
Min: -9.46 [g's]
TMin: 47.95 [ms]
Filter: CFC 60

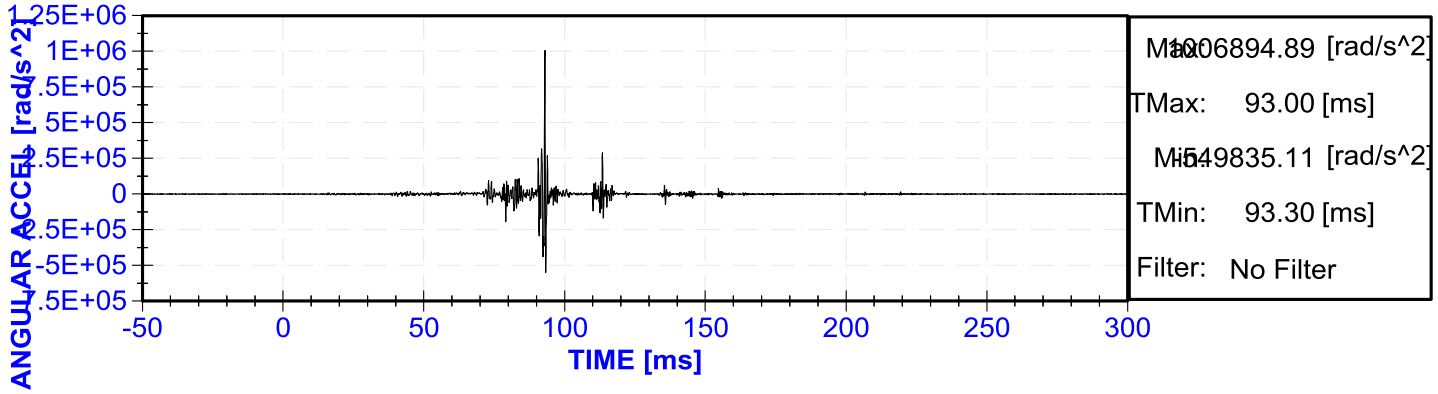
V2P1 HEAD ANGULAR ACCELERATION X [SIMON]



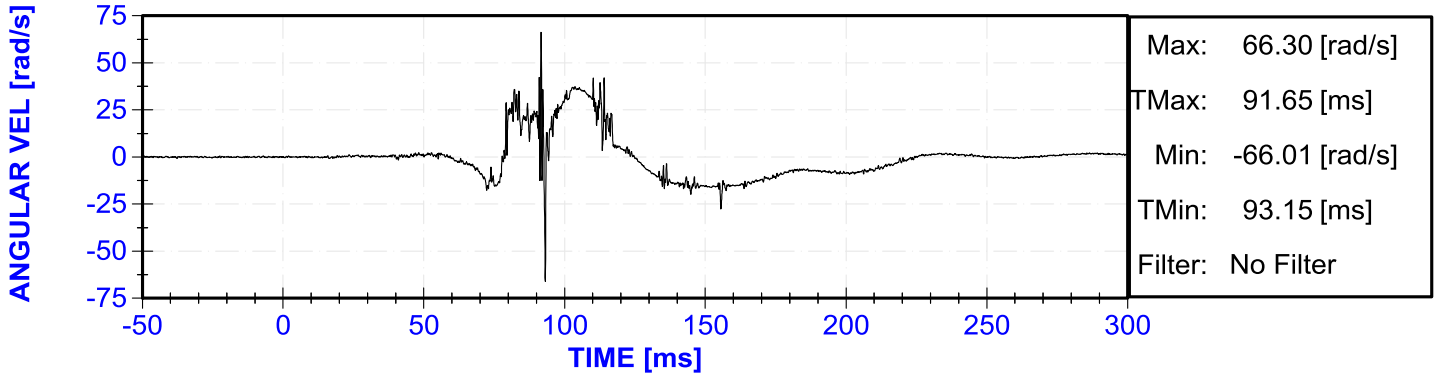
V2P1 HEAD ANGULAR ACCELERATION Y [SIMON]



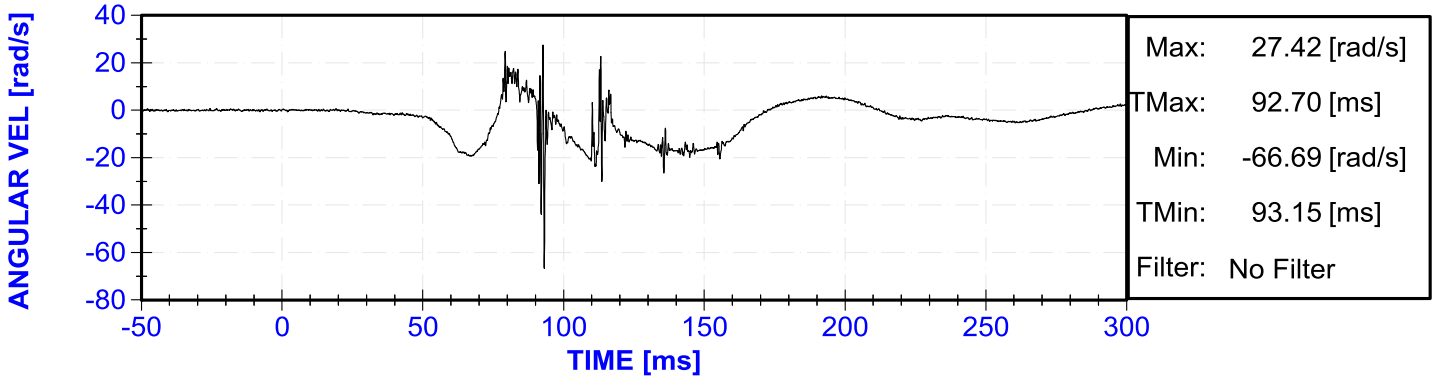
V2P1 HEAD ANGULAR ACCELERATION Z [SIMON]



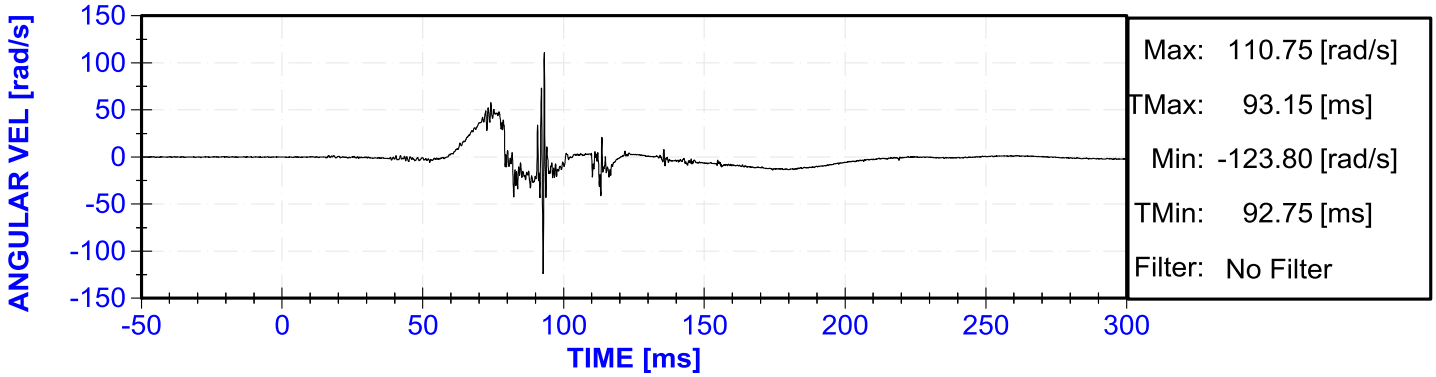
V2P1 HEAD ANGULAR VELOCITY X [SIMON]



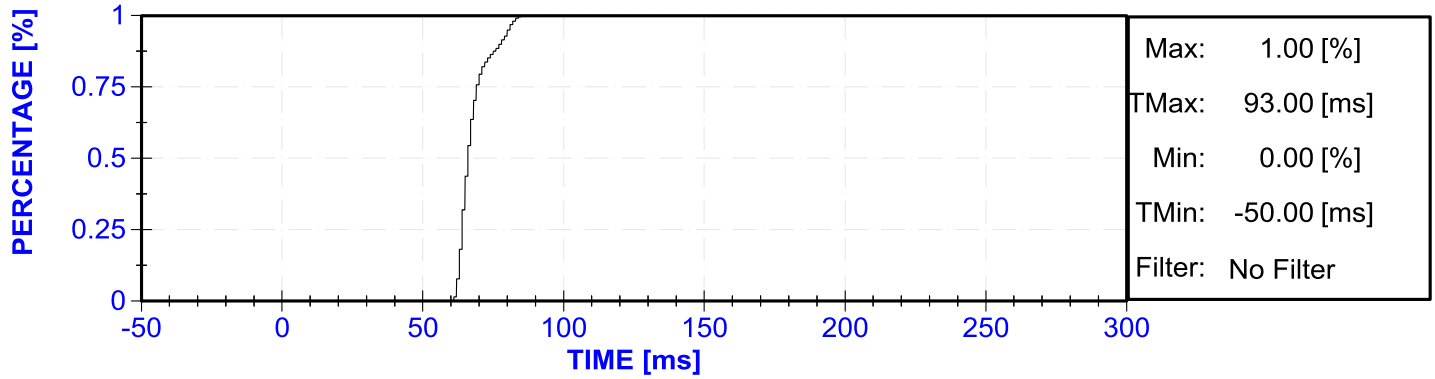
V2P1 HEAD ANGULAR VELOCITY Y [SIMON]



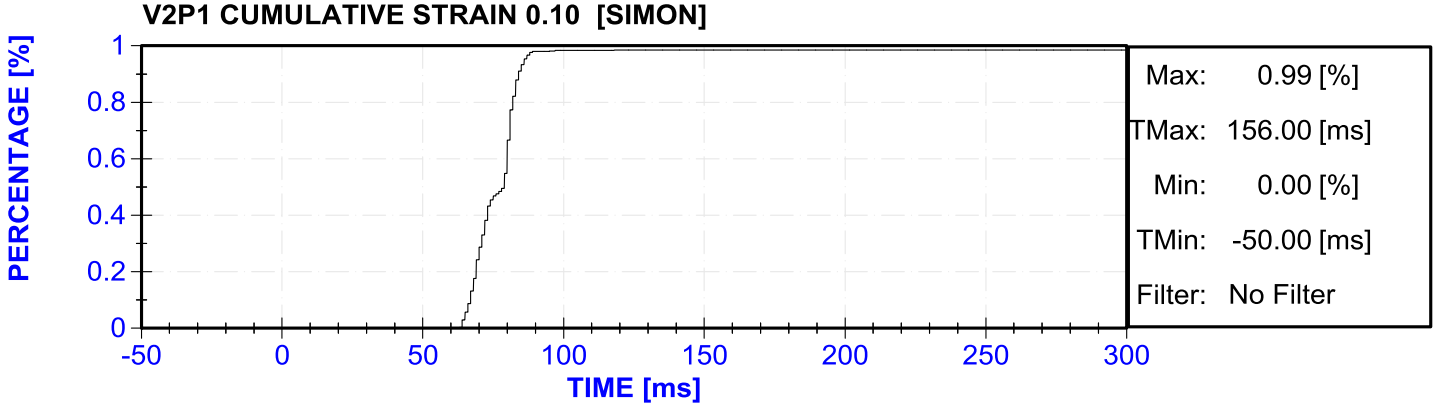
V2P1 HEAD ANGULAR VELOCITY Z [SIMON]



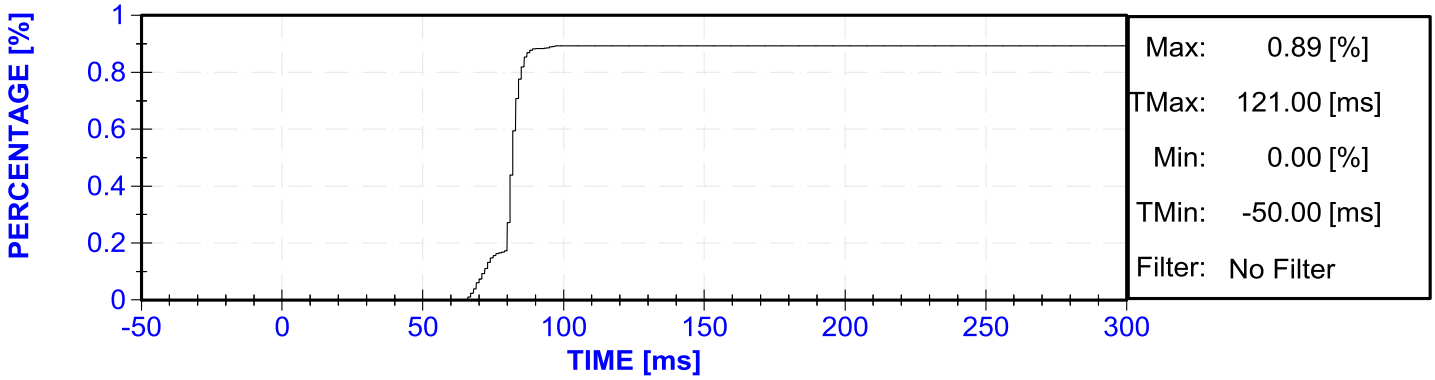
V2P1 CUMULATIVE STRAIN 0.05 [SIMON]



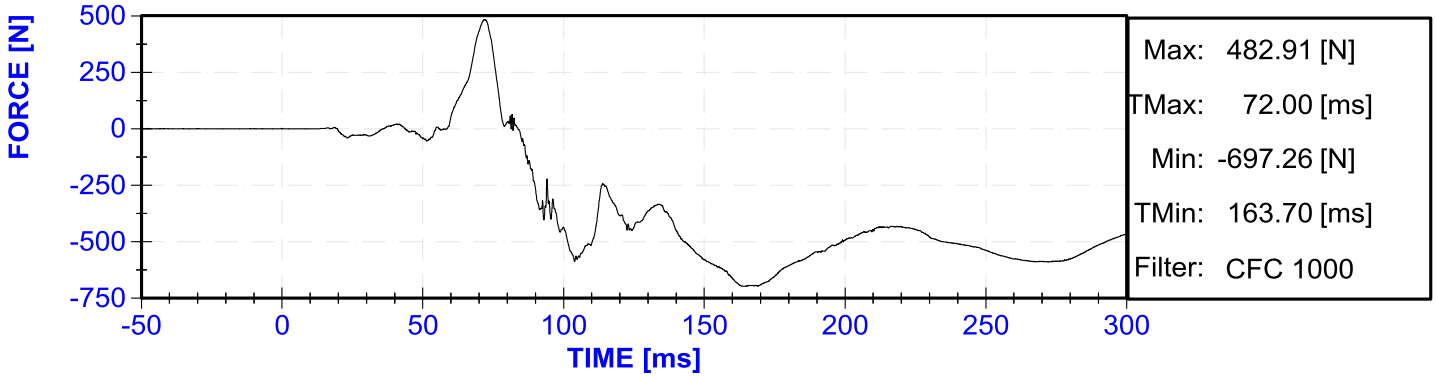
V2P1 CUMULATIVE STRAIN 0.10 [SIMON]



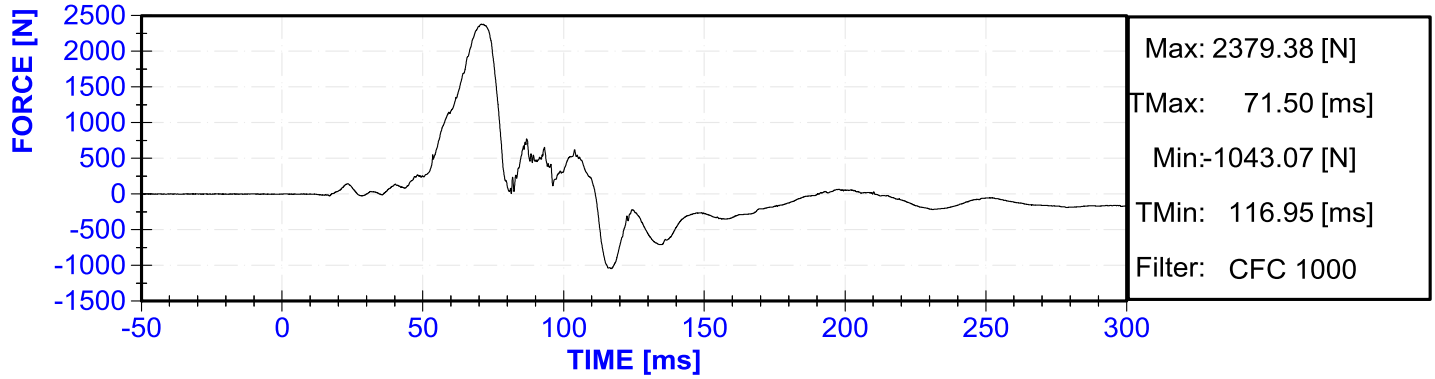
V2P1 CUMULATIVE STRAIN 0.15 [SIMON]



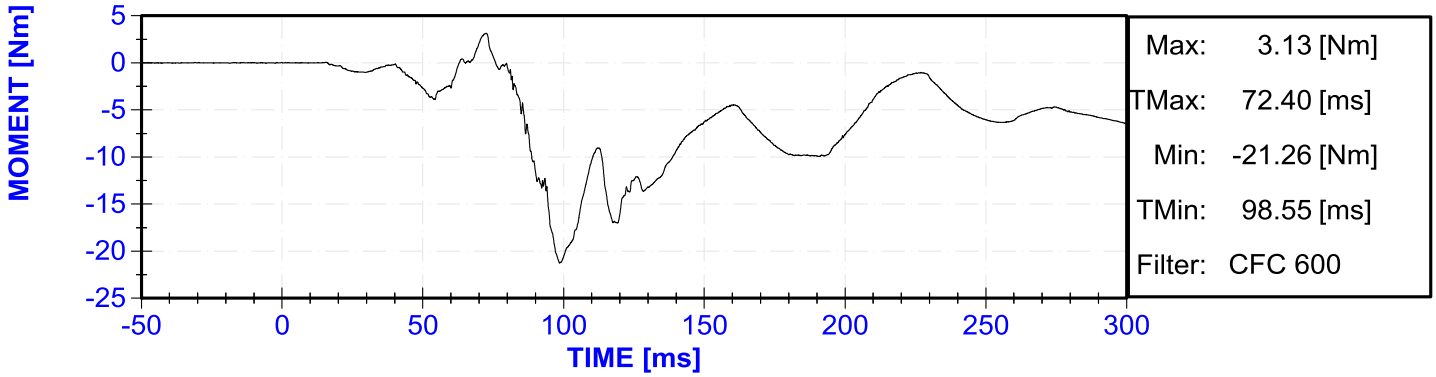
V2P1 Fx on head acting through the O.C. joint only



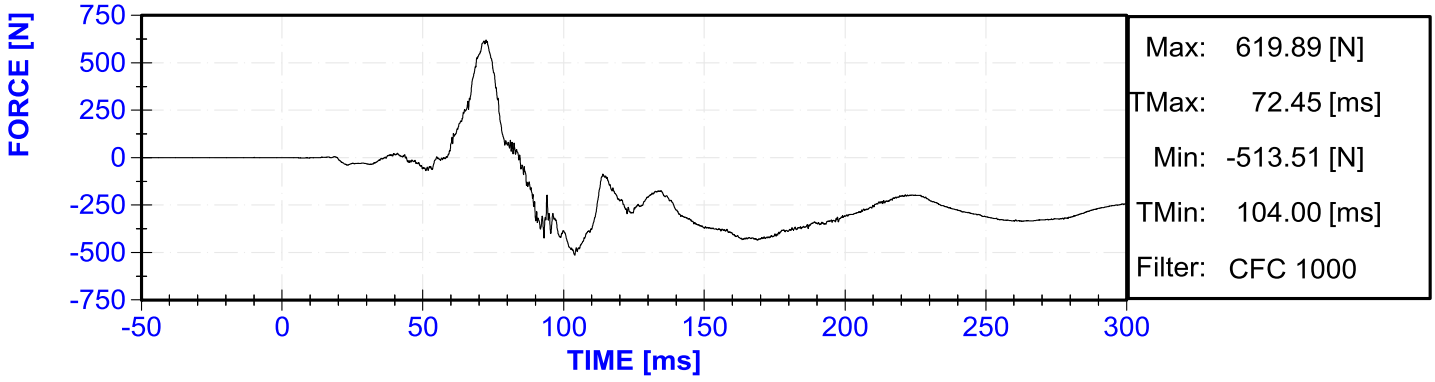
V2P1 Fz on head acting through the O.C. joint only



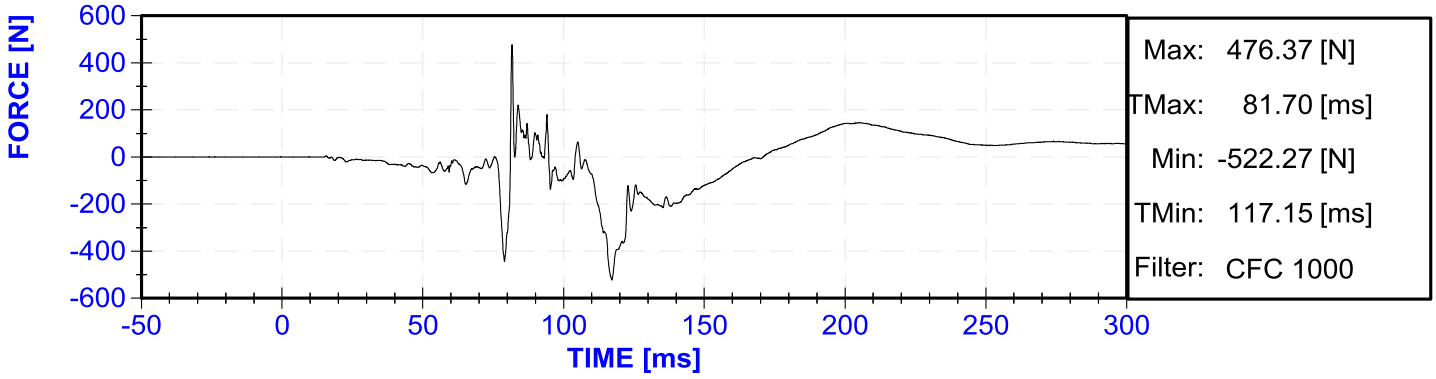
V2P1 My on head acting through the O.C. joint only



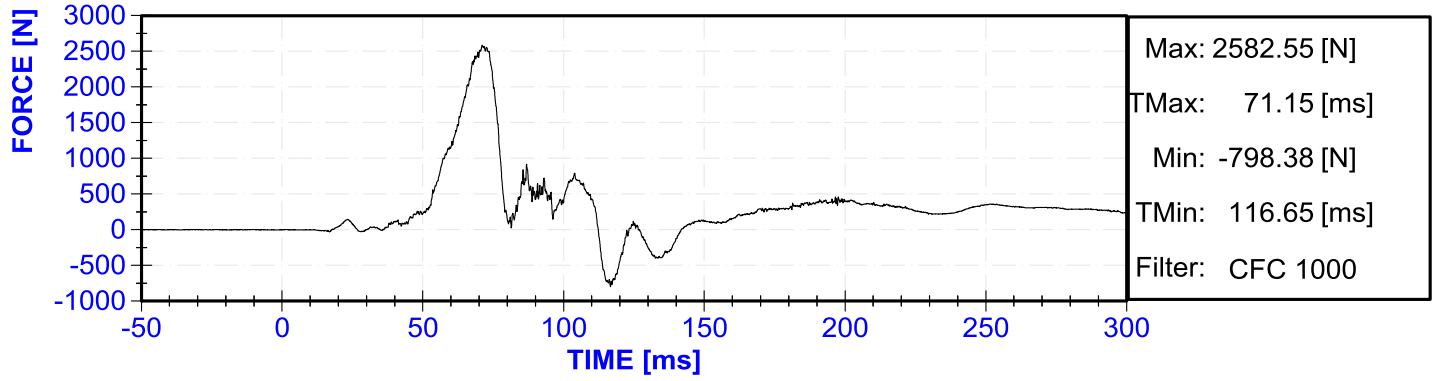
V2P1 Fx on head acting through the total neck section



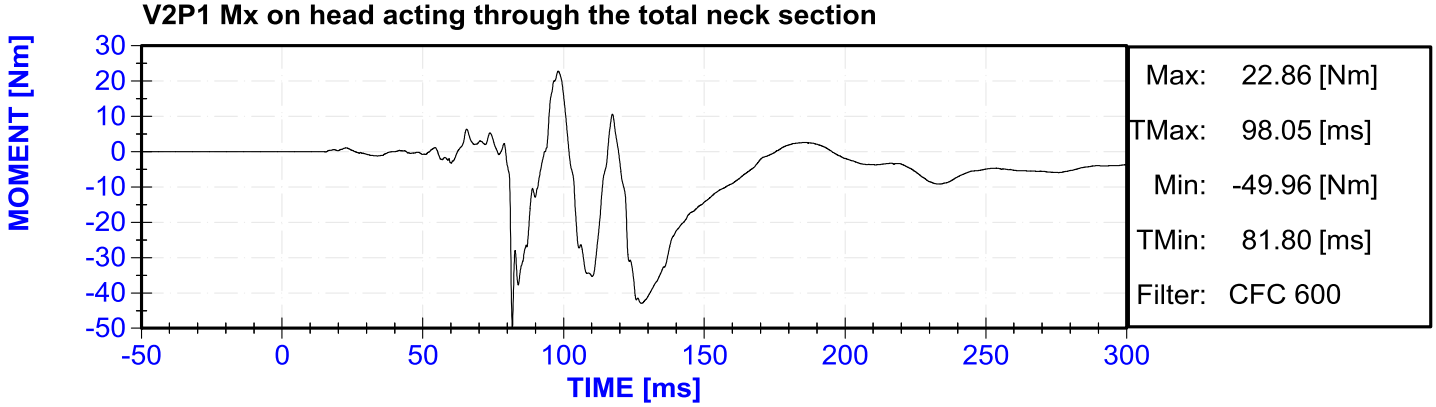
V2P1 Fy on head acting through the total neck section



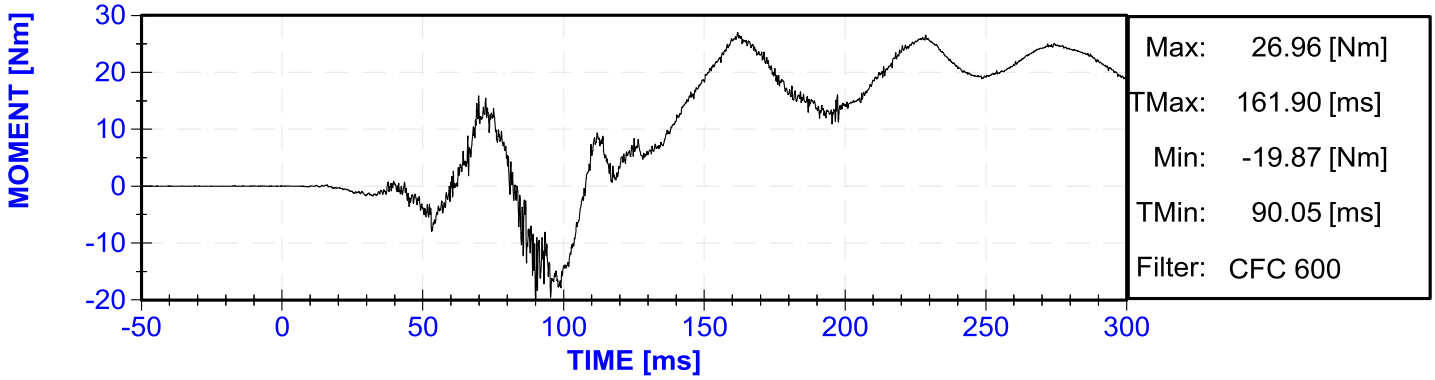
V2P1 Fz on head acting through the total neck section



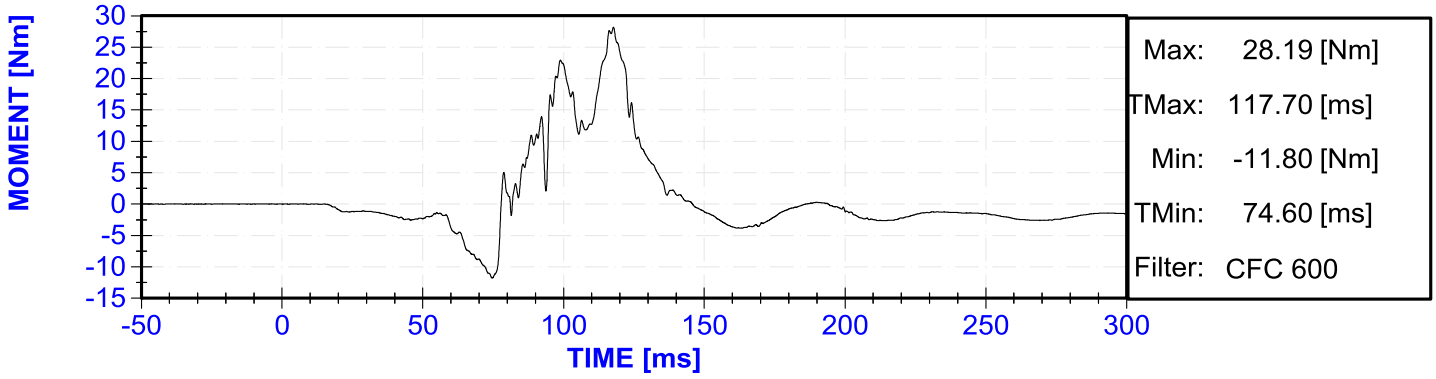
V2P1 Mx on head acting through the total neck section



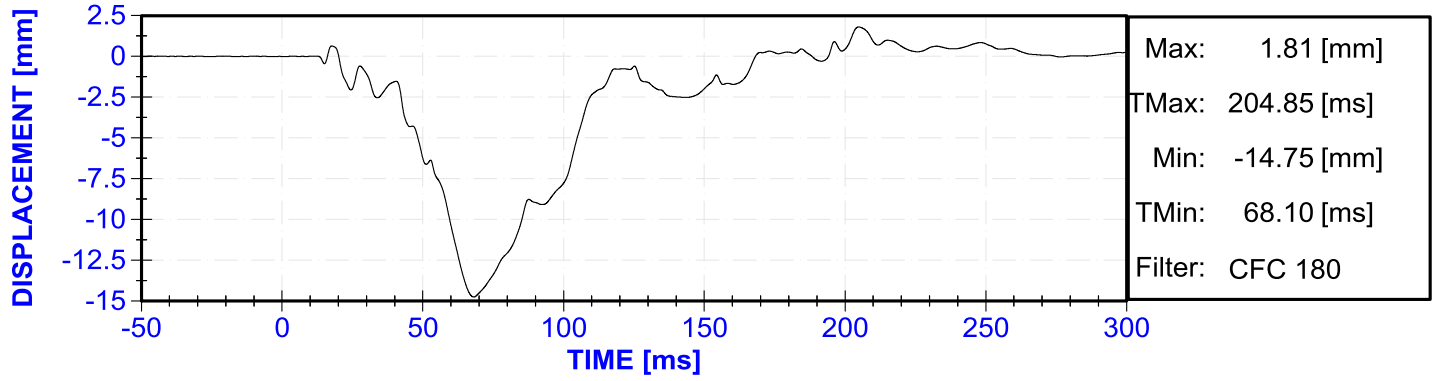
V2P1 My on head acting through the total neck section



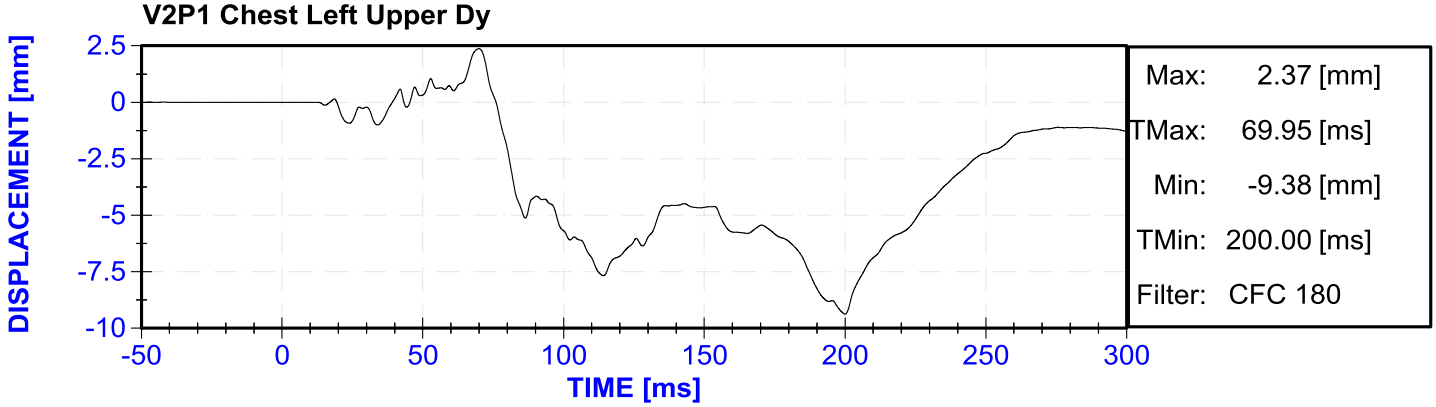
V2P1 Mz on head acting through the total neck section



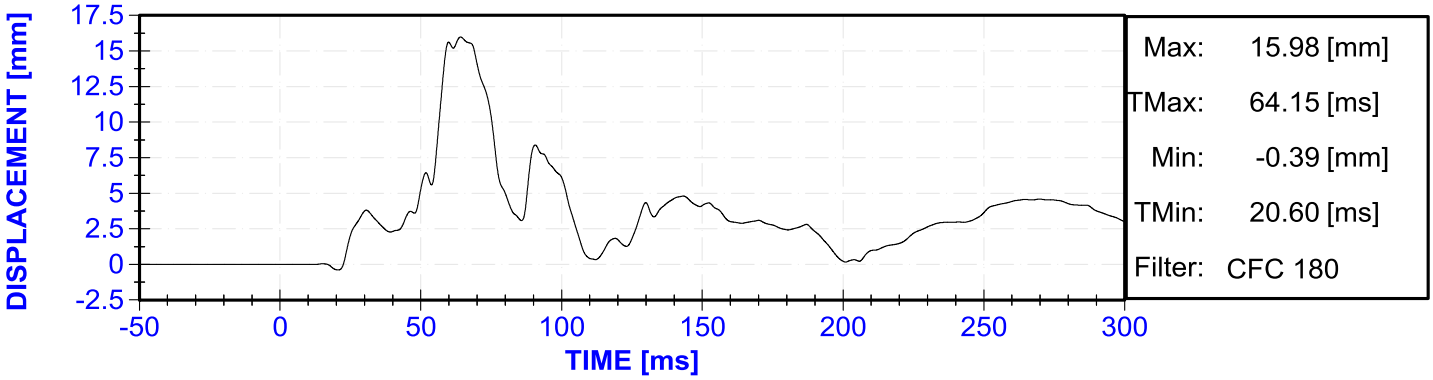
V2P1 Chest Left Upper Dx



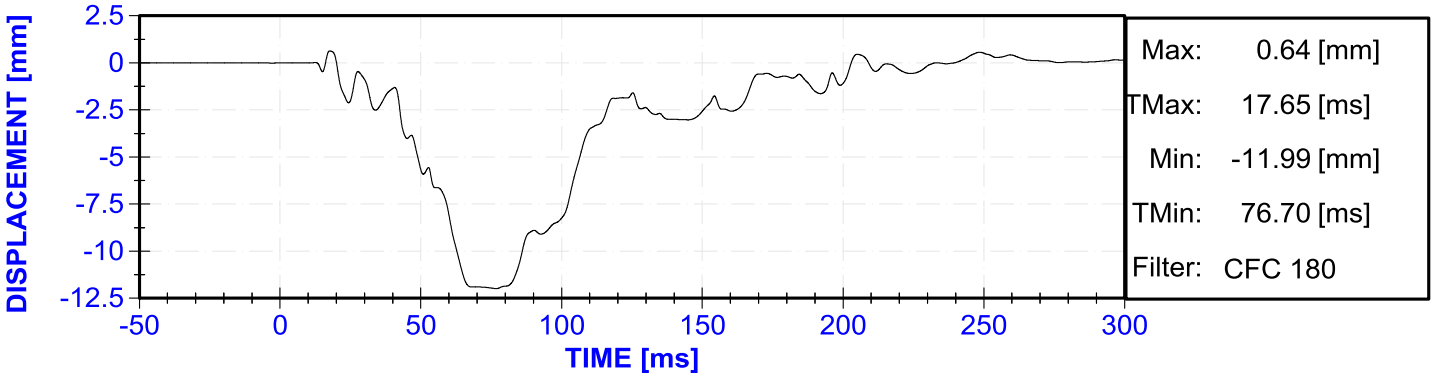
V2P1 Chest Left Upper Dy



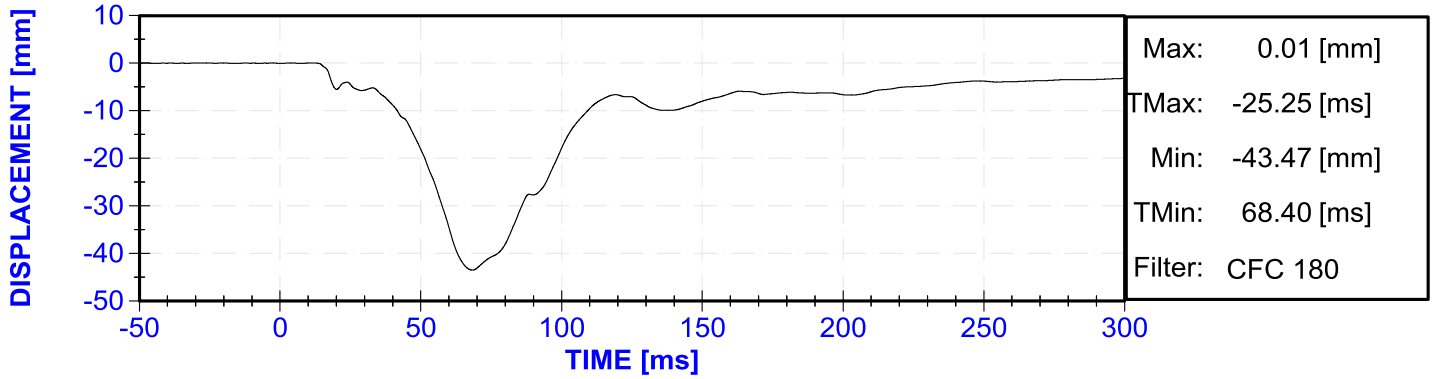
V2P1 Chest Left Upper Dz



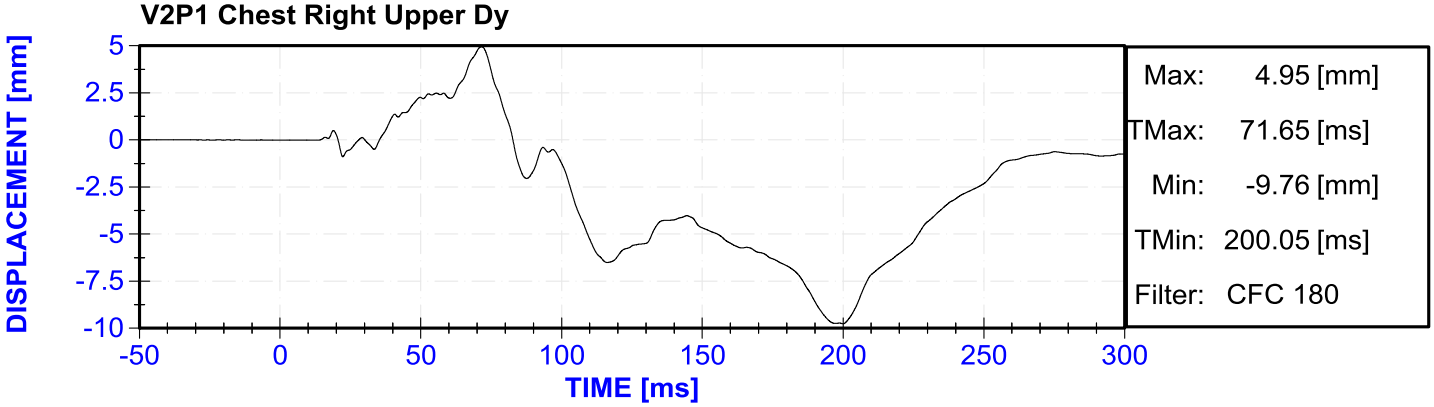
V2P1 Chest Left Upper D



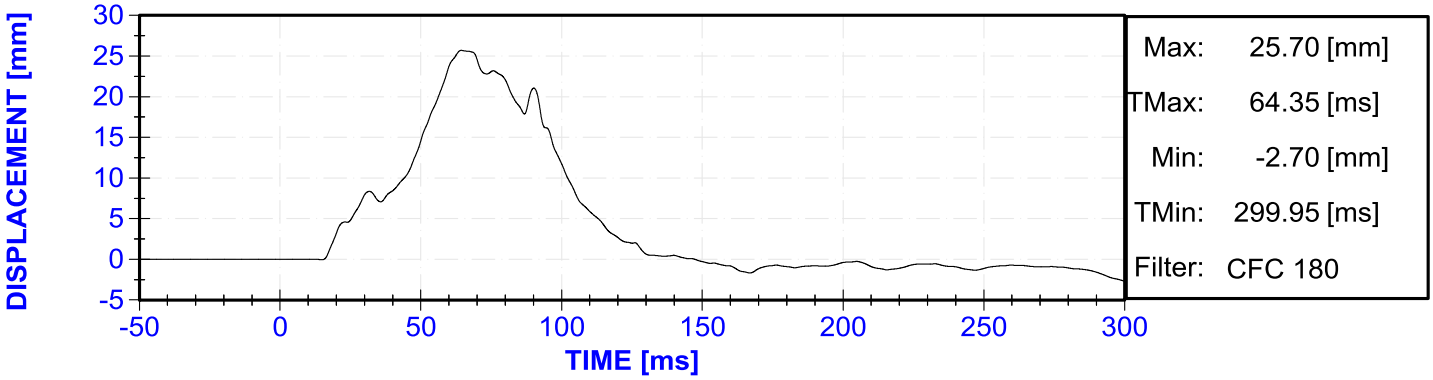
V2P1 Chest Right Upper Dx



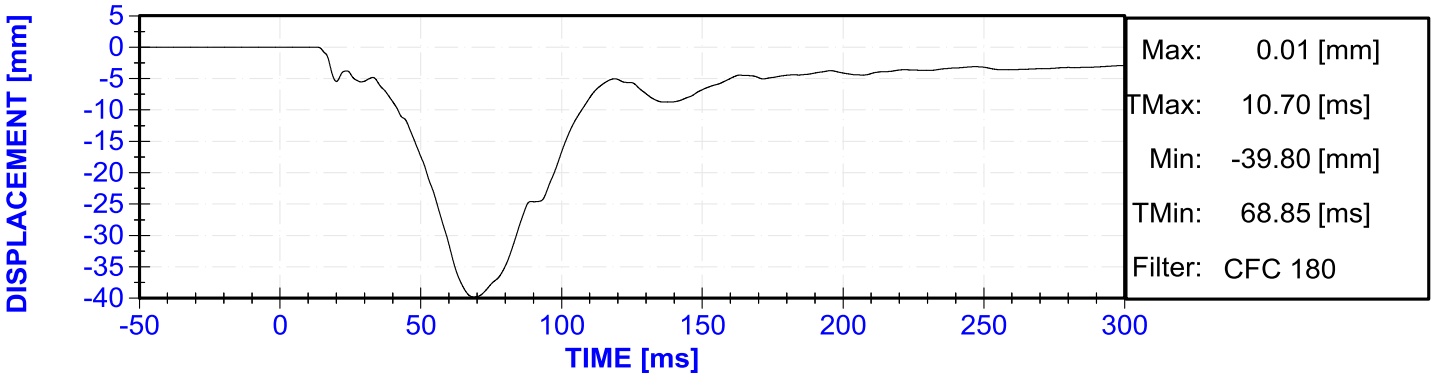
V2P1 Chest Right Upper Dy



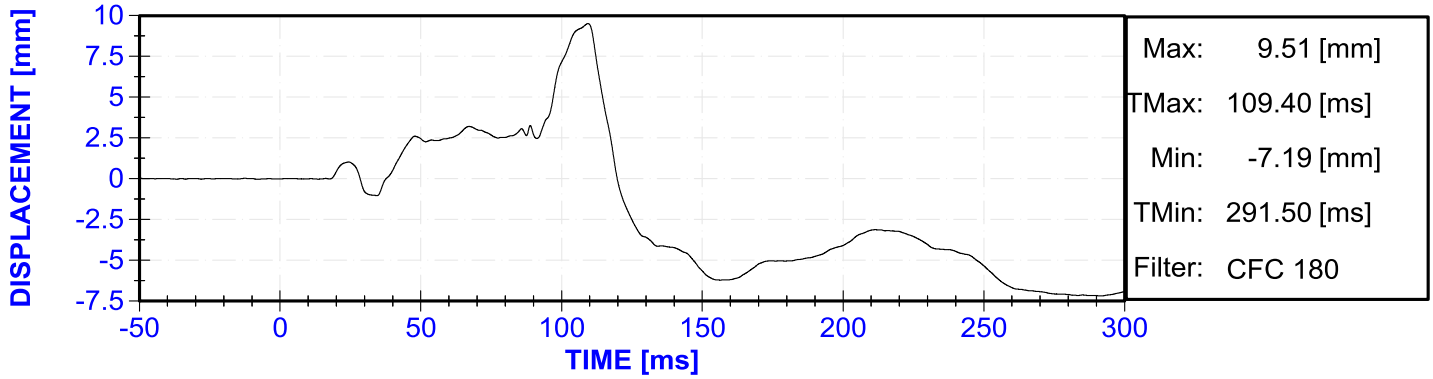
V2P1 Chest Right Upper Dz



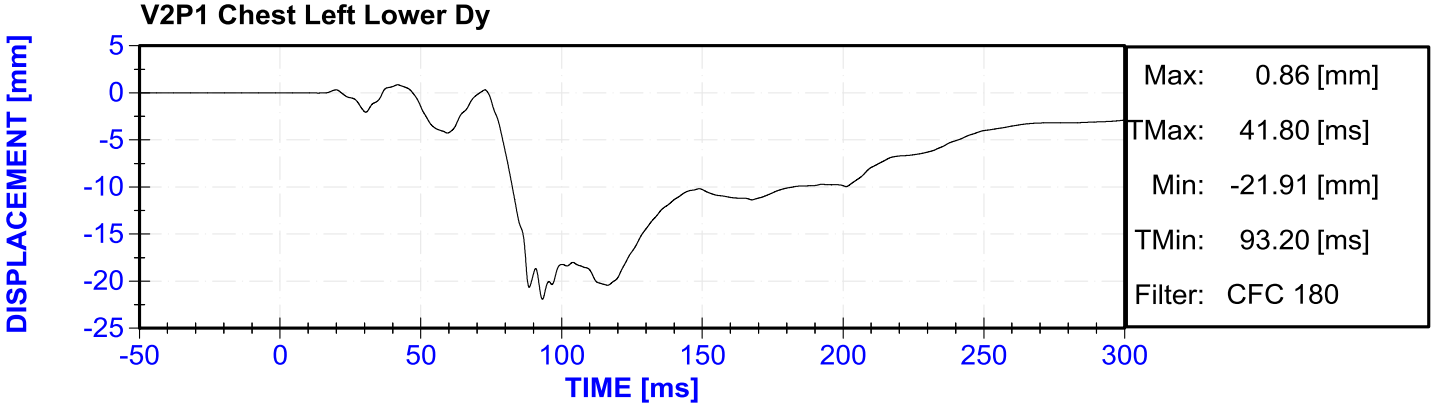
V2P1 Chest Right Upper D



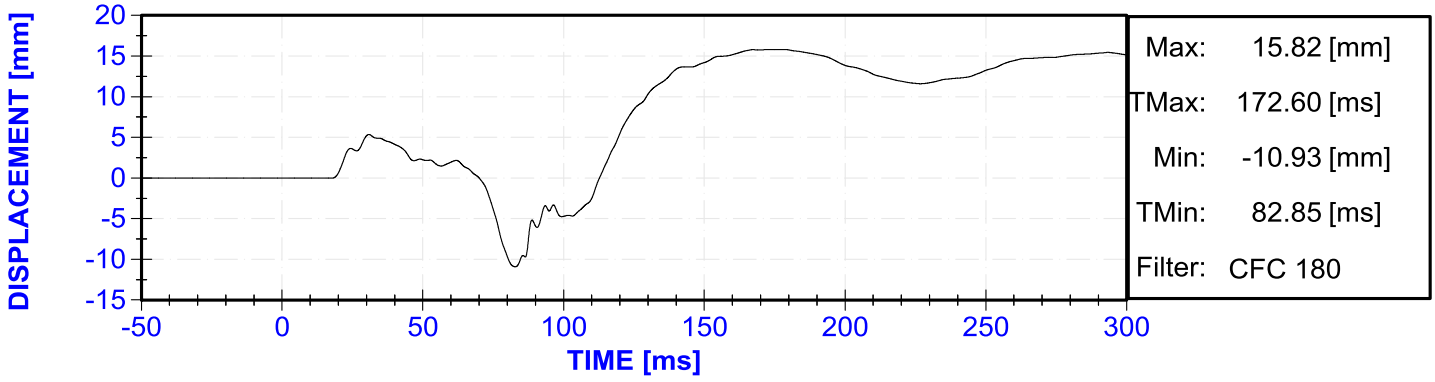
V2P1 Chest Left Lower Dx



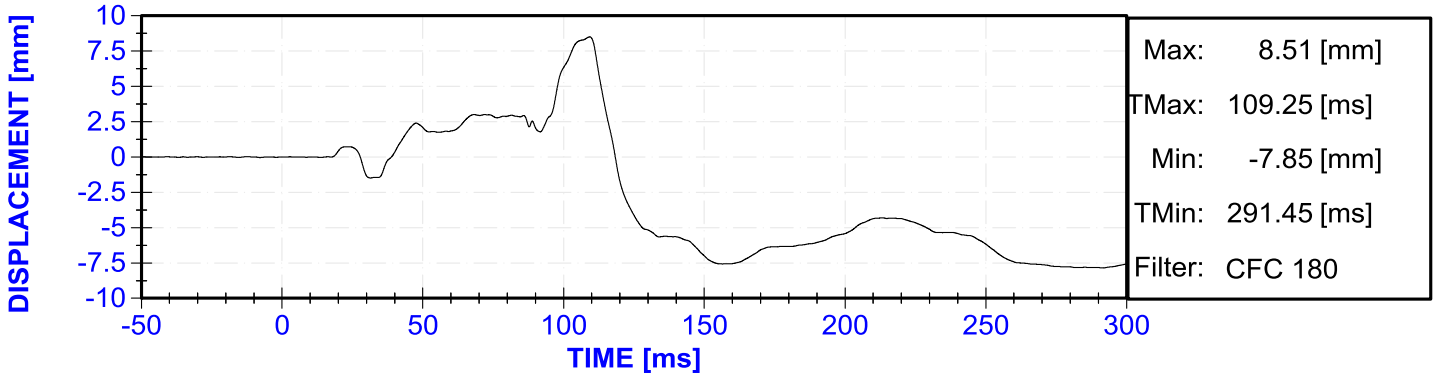
V2P1 Chest Left Lower Dy



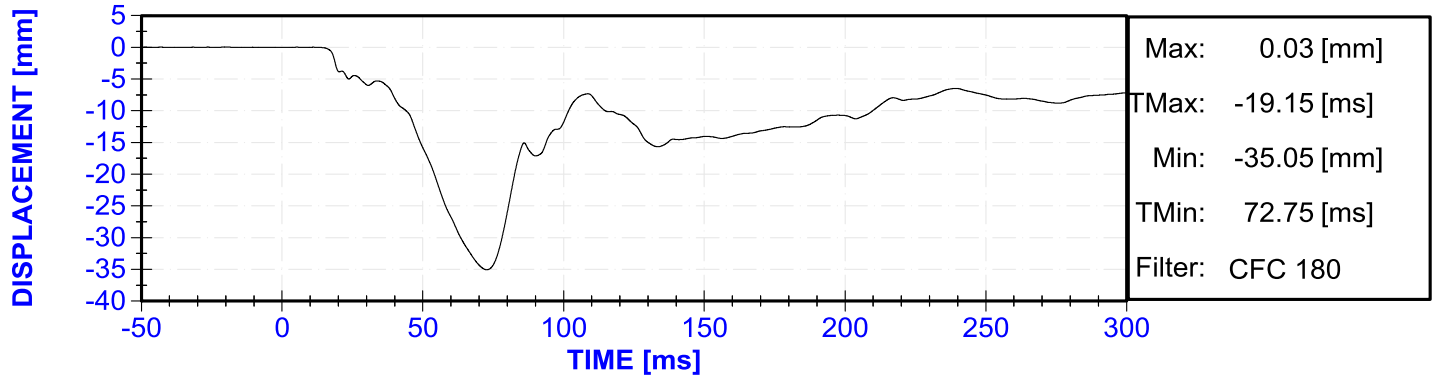
V2P1 Chest Left Lower Dz



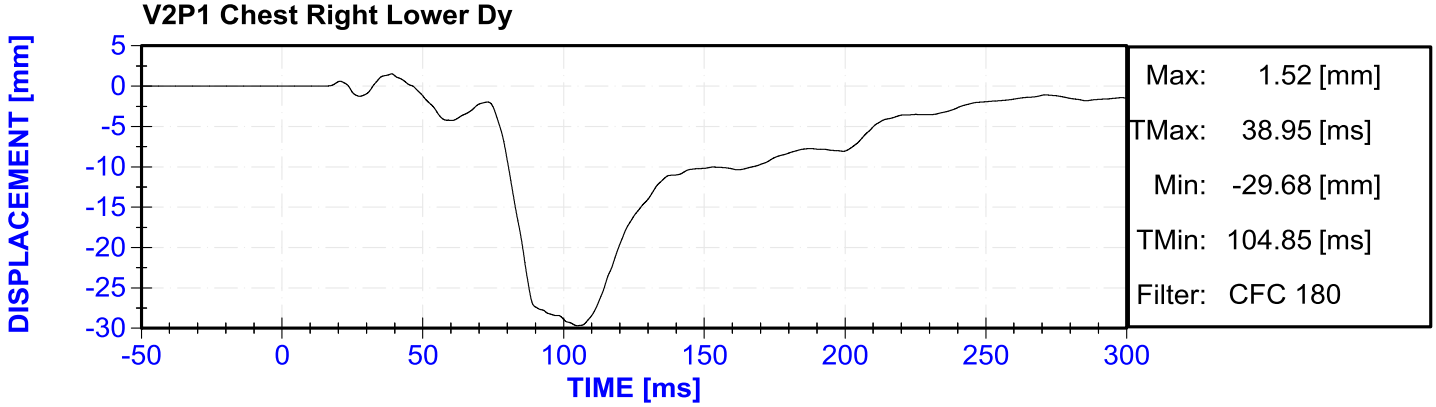
V2P1 Chest Left Lower D



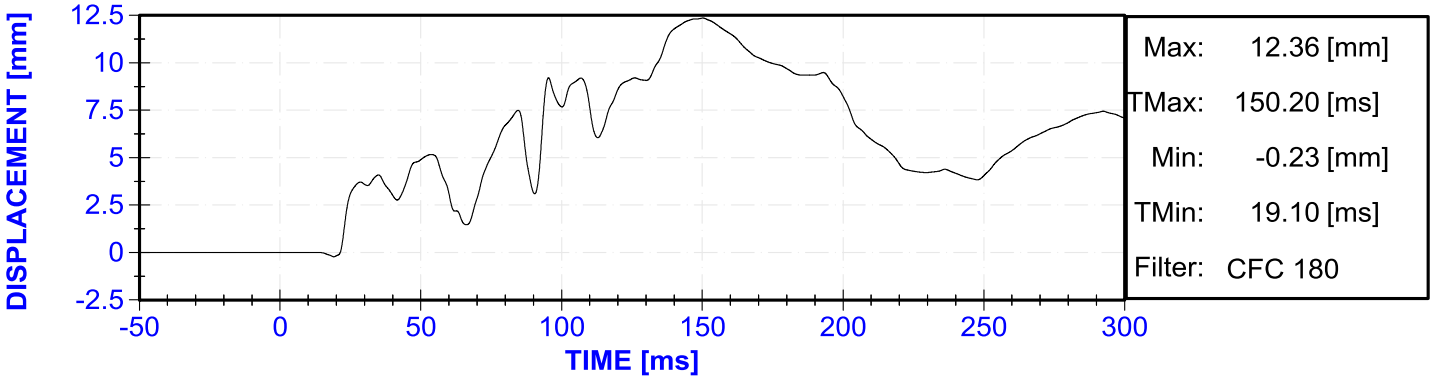
V2P1 Chest Right Lower Dx



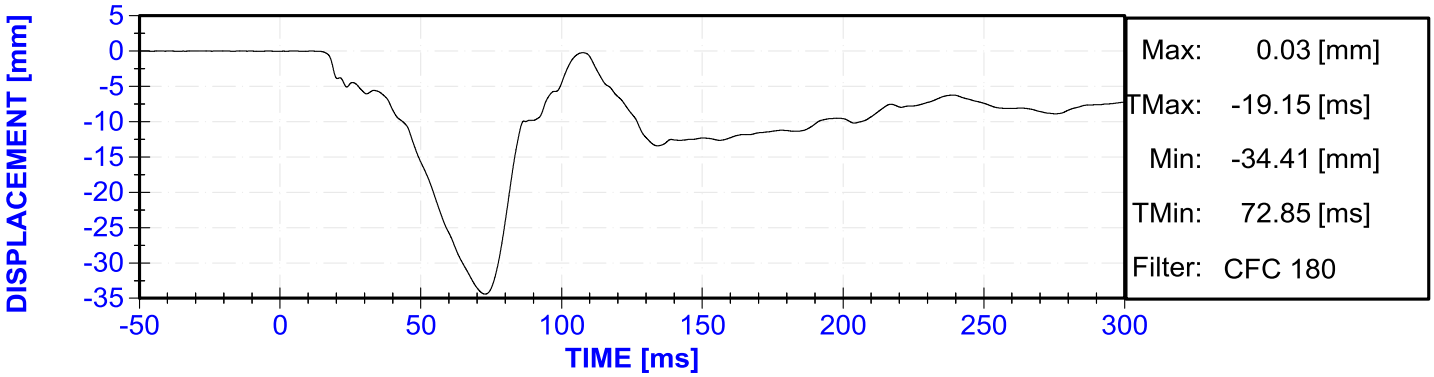
V2P1 Chest Right Lower Dy



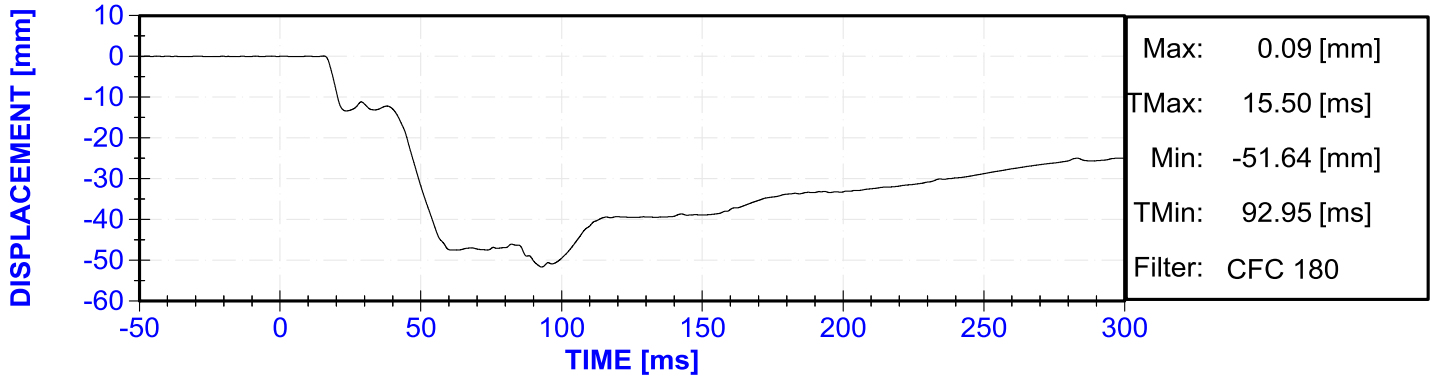
V2P1 Chest Right Lower Dz



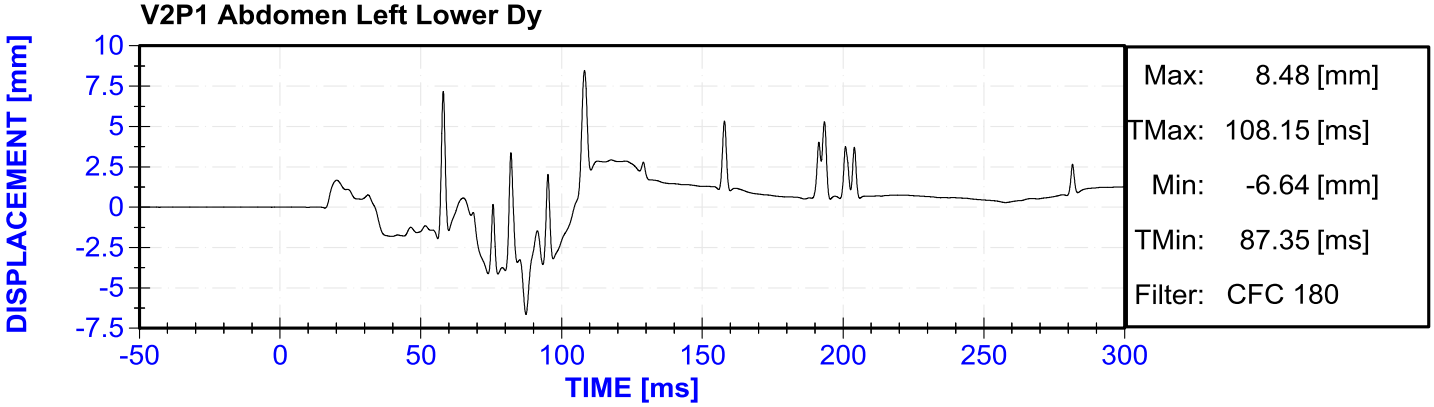
V2P1 Chest Right Lower D



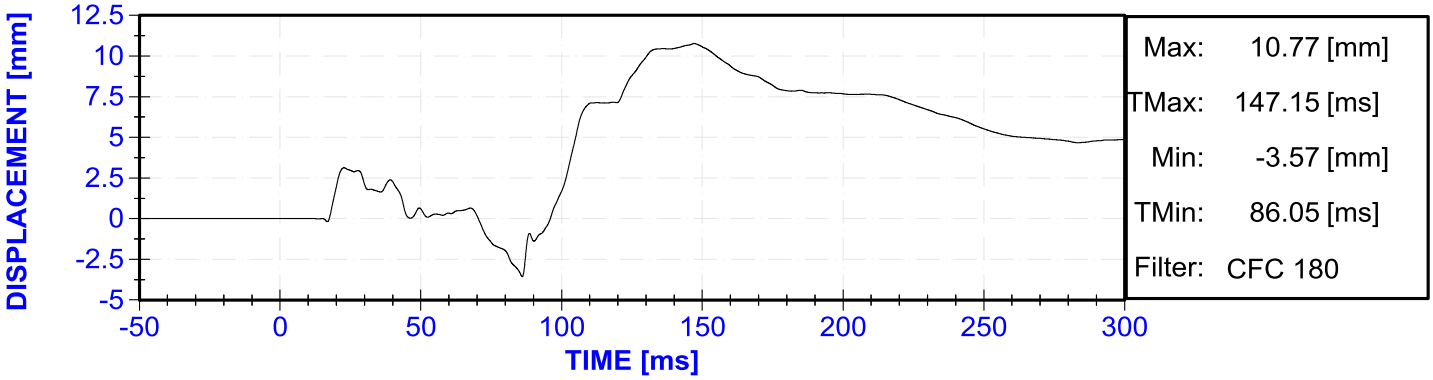
V2P1 Abdomen Left Lower Dx



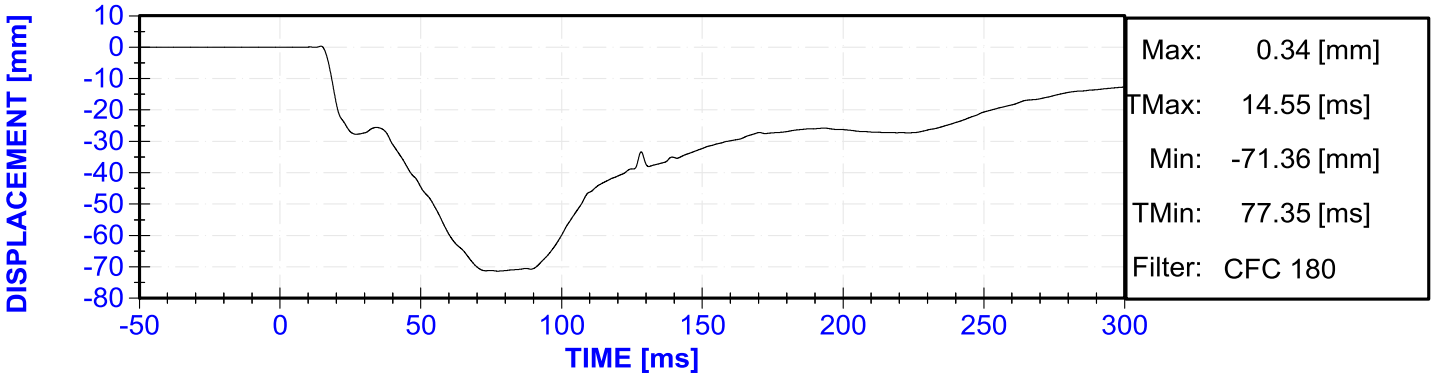
V2P1 Abdomen Left Lower Dy



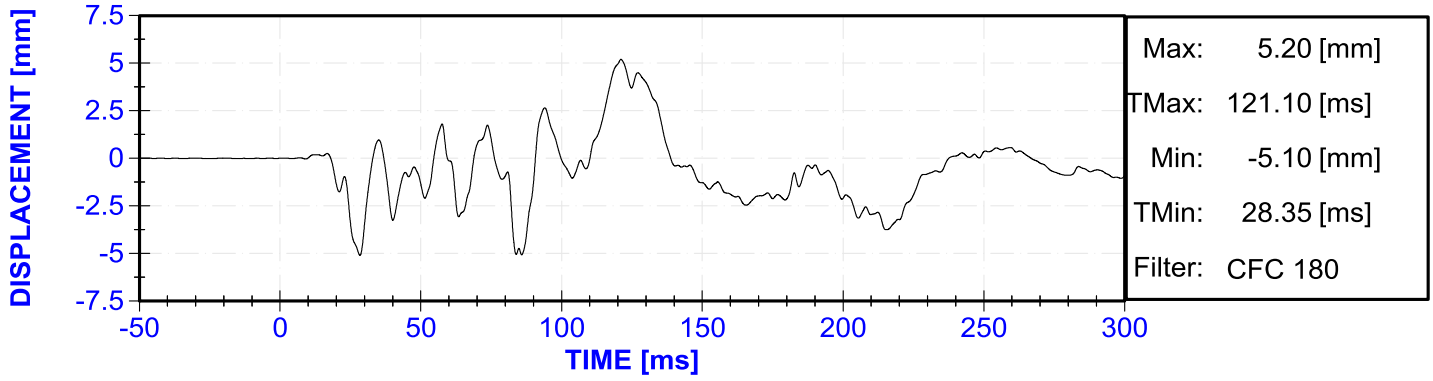
V2P1 Abdomen Left Lower Dz



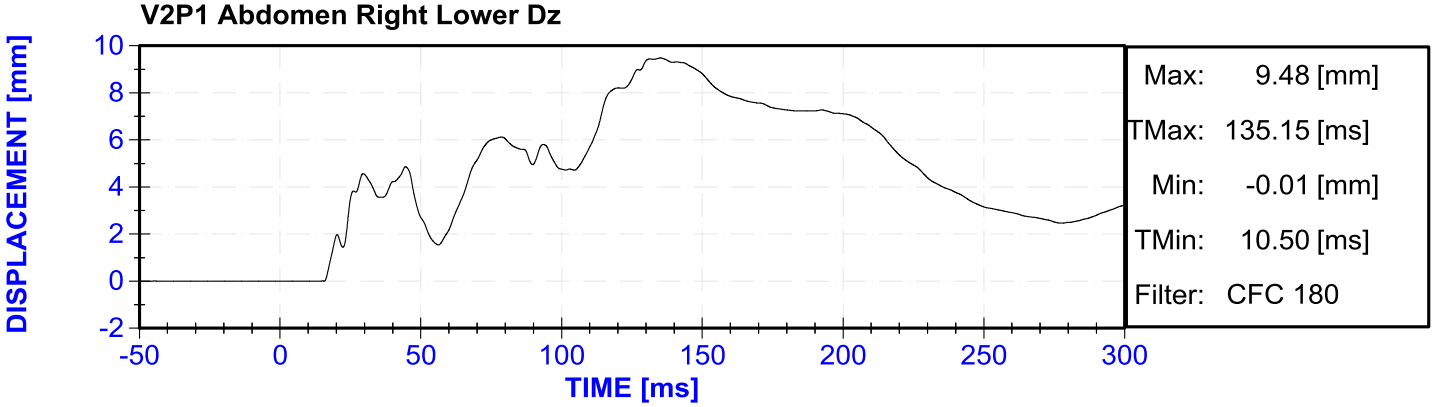
V2P1 Abdomen Right Lower Dx



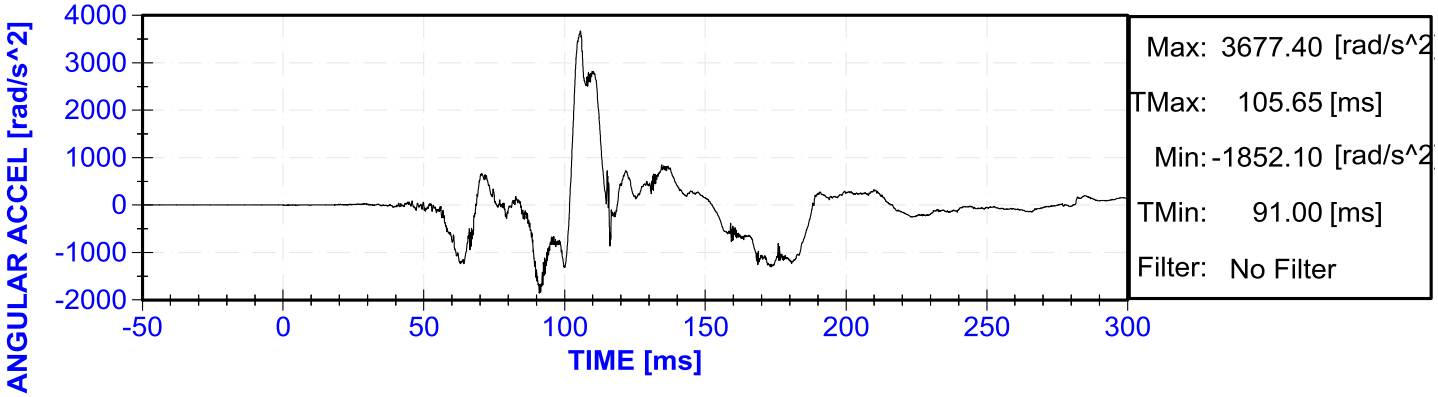
V2P1 Abdomen Right Lower Dy



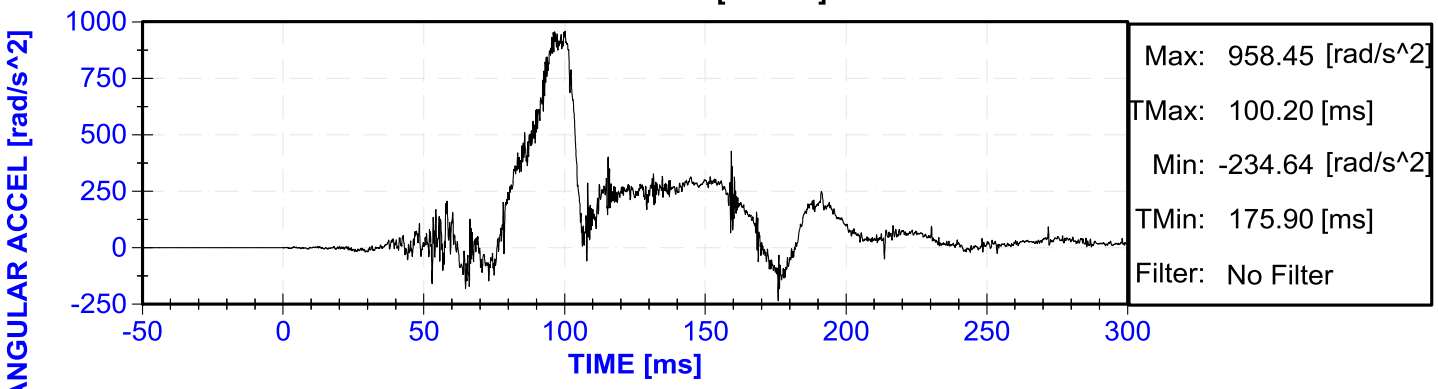
V2P1 Abdomen Right Lower Dz



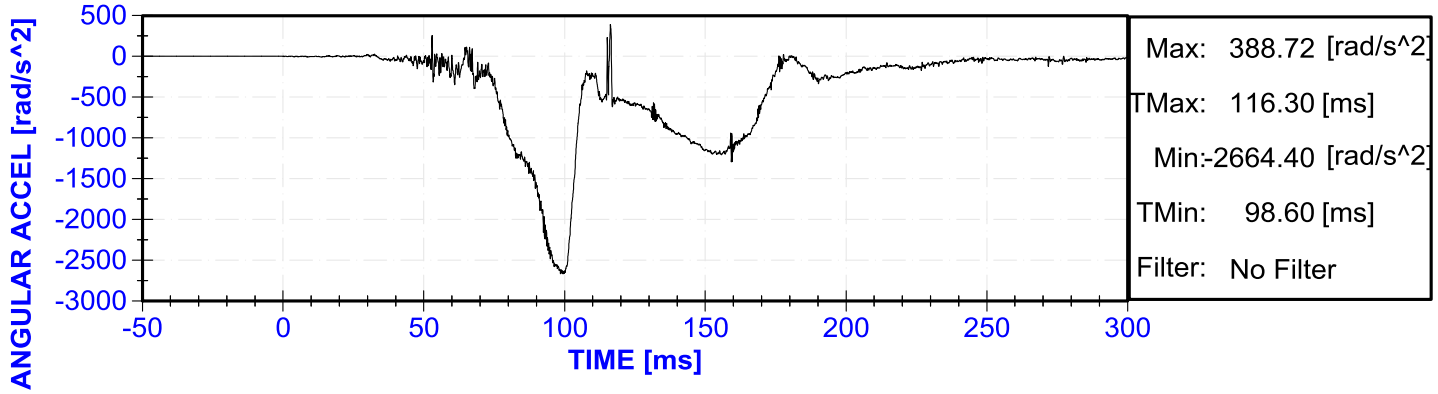
V2P4 HEAD ANGULAR ACCELERATION X [SIMON]



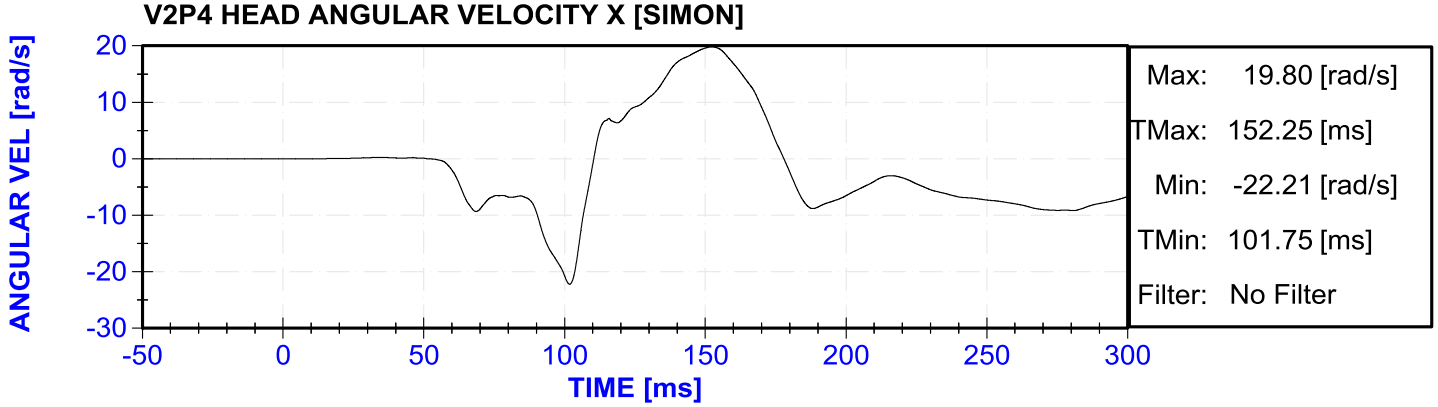
V2P4 HEAD ANGULAR ACCELERATION Y [SIMON]



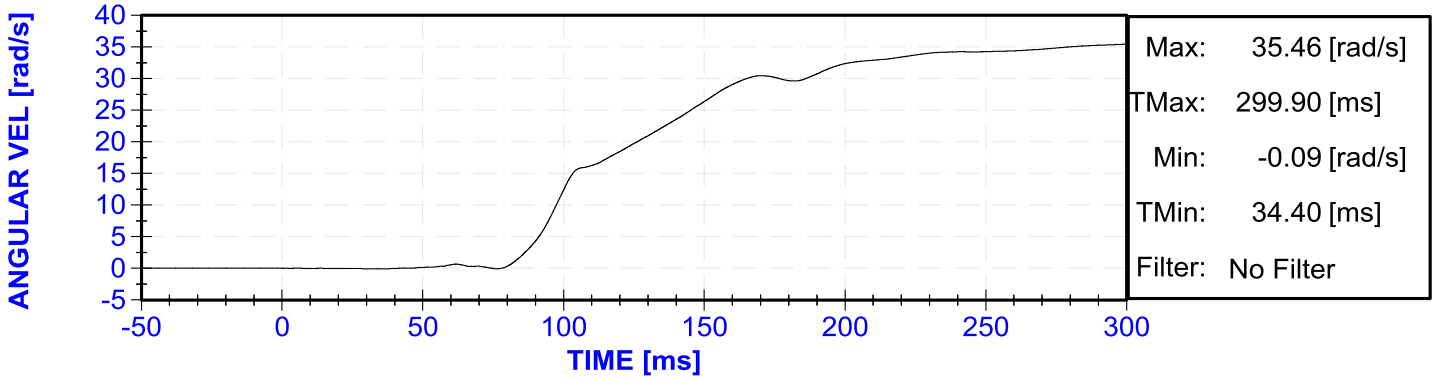
V2P4 HEAD ANGULAR ACCELERATION Z [SIMON]



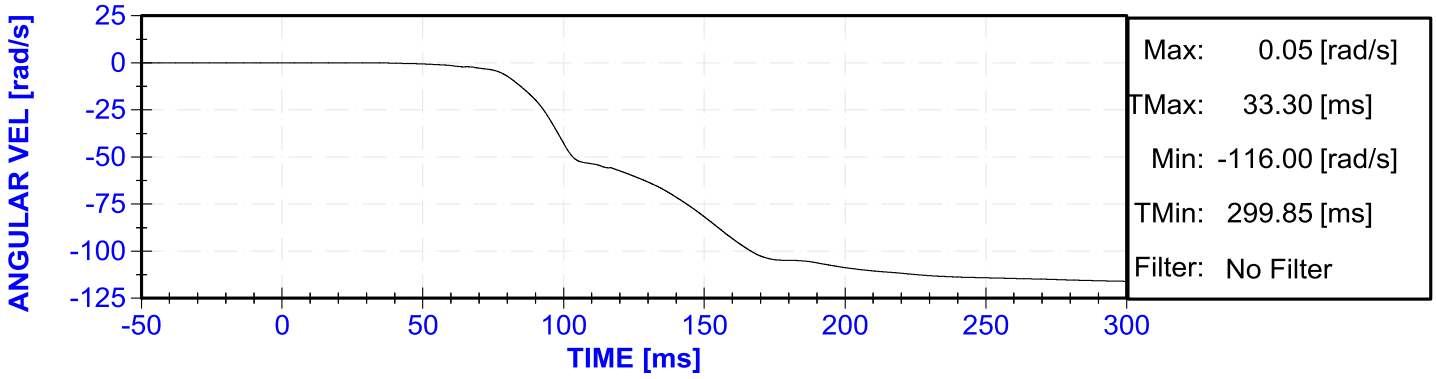
V2P4 HEAD ANGULAR VELOCITY X [SIMON]



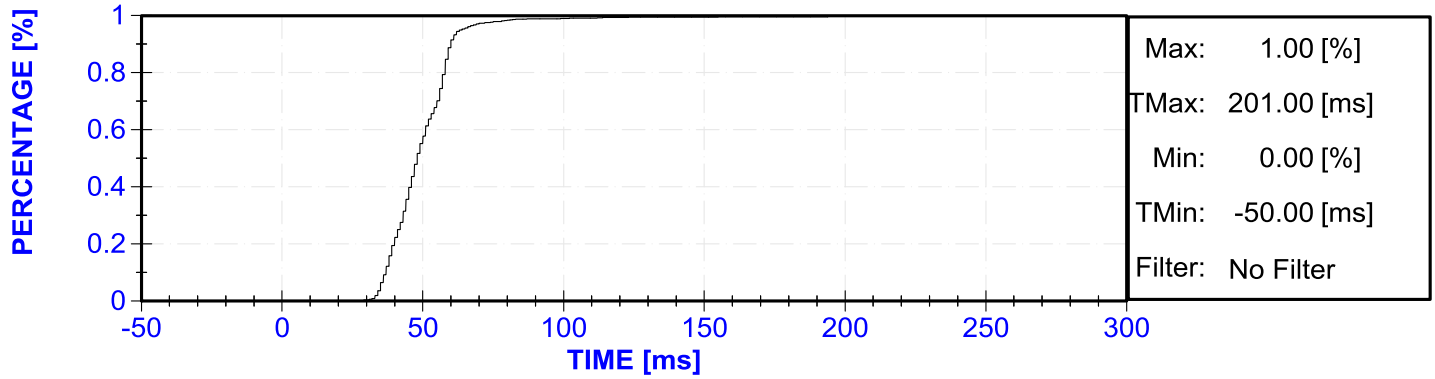
V2P4 HEAD ANGULAR VELOCITY Y [SIMON]



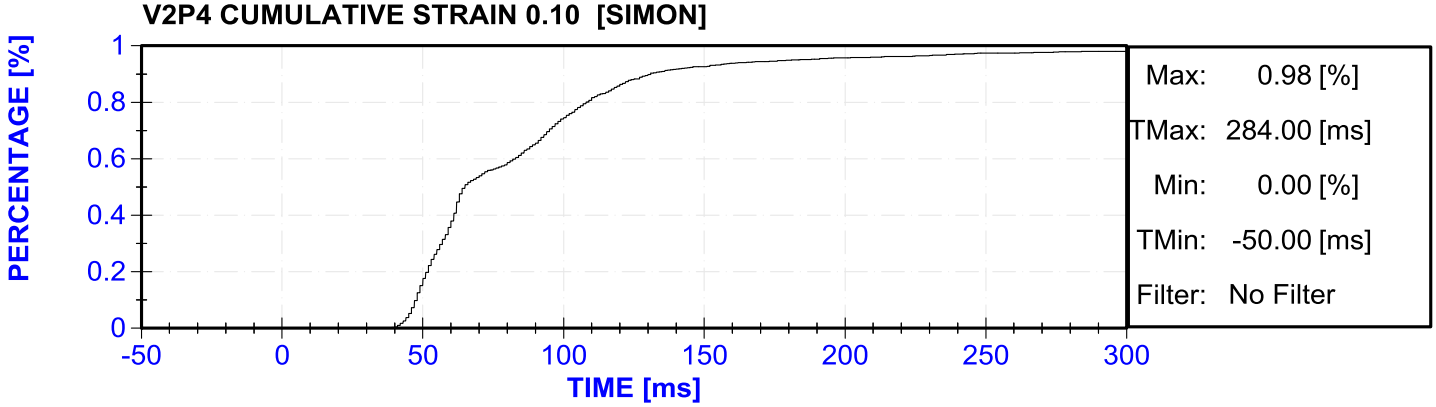
V2P4 HEAD ANGULAR VELOCITY Z [SIMON]



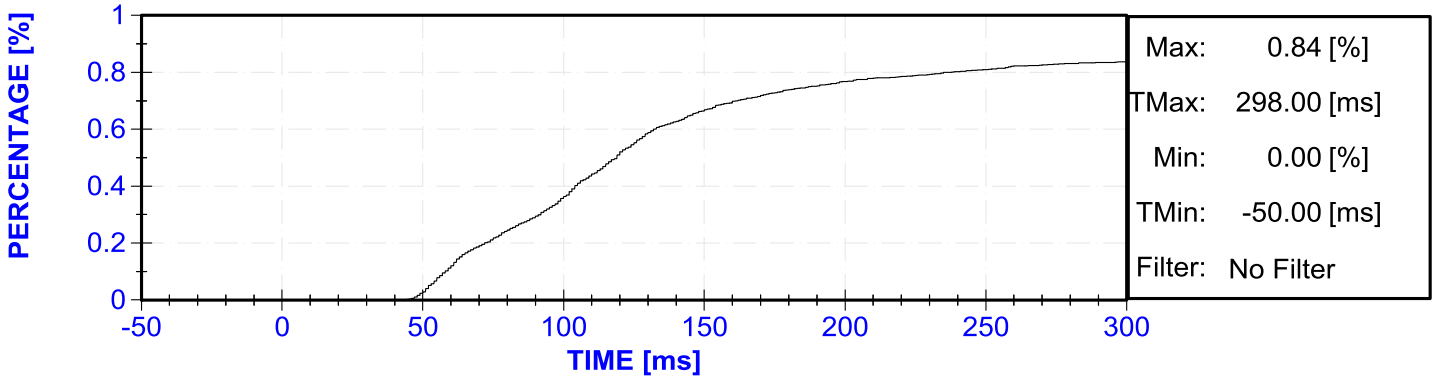
V2P4 CUMULATIVE STRAIN 0.05 [SIMON]



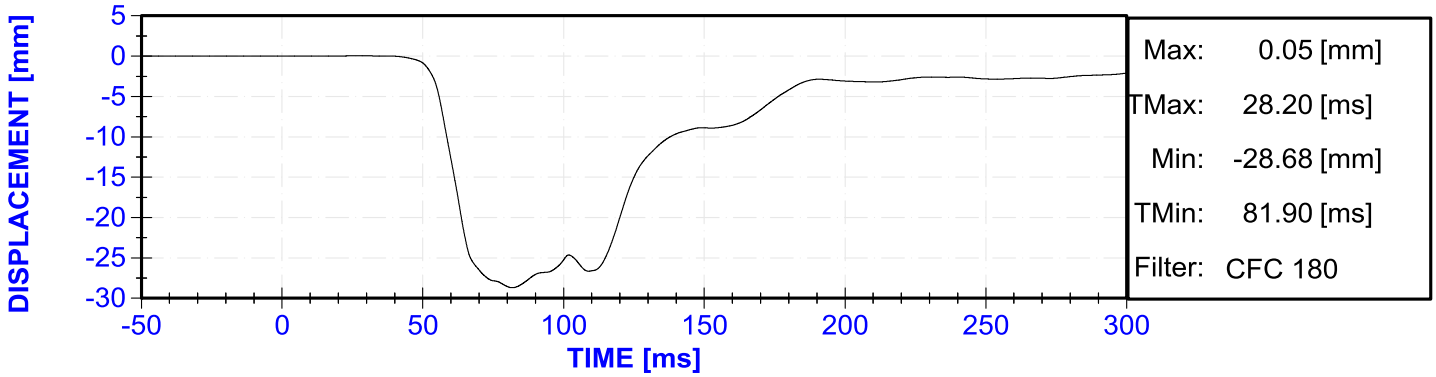
V2P4 CUMULATIVE STRAIN 0.10 [SIMON]



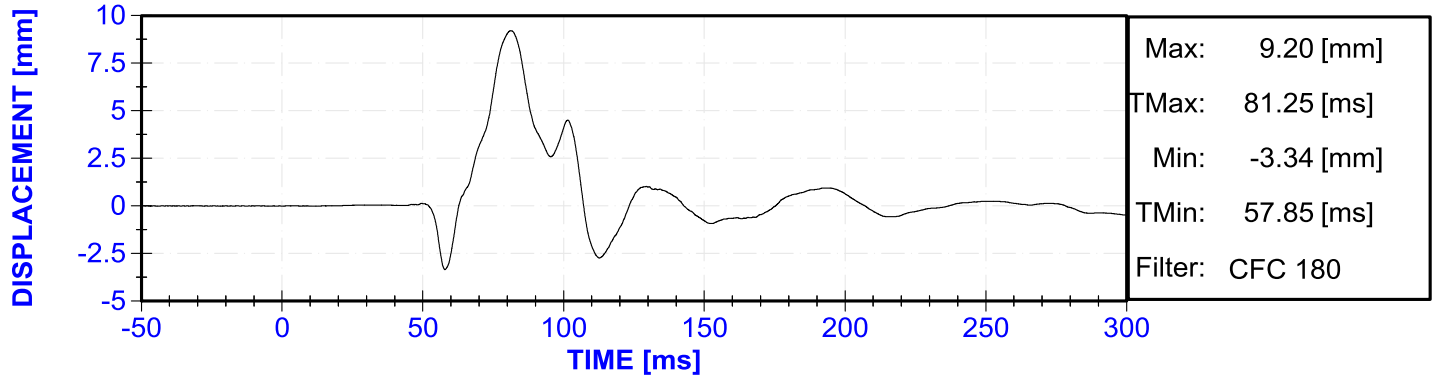
V2P4 CUMULATIVE STRAIN 0.15 [SIMON]



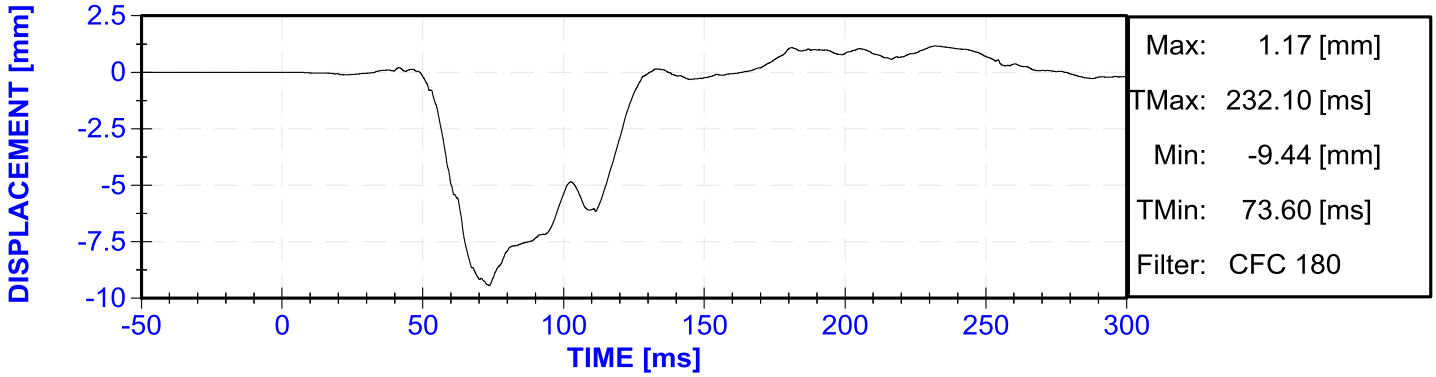
V2P4 CHEST UPPER LEFT X [COMPUTED, MM]



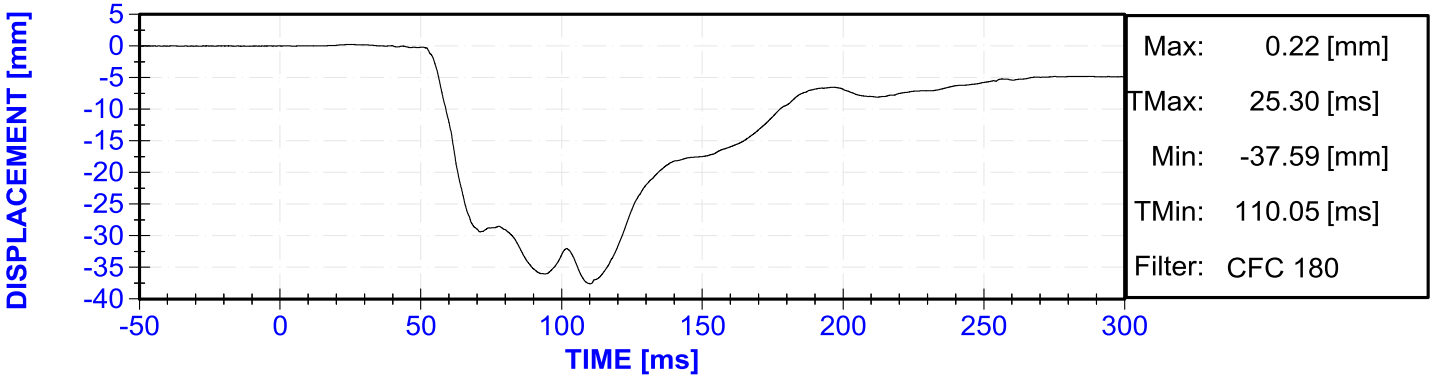
V2P4 CHEST UPPER LEFT Y [COMPUTED, MM]



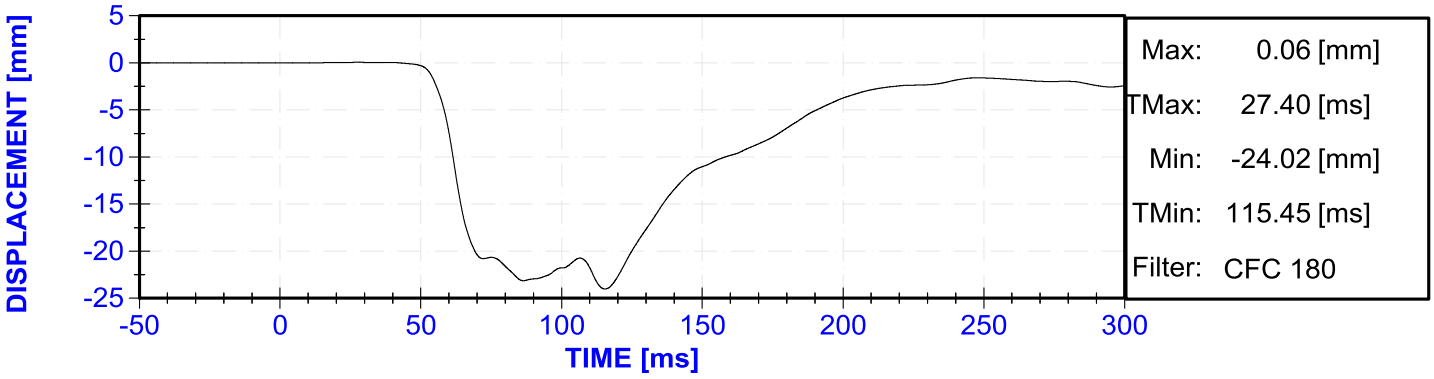
V2P4 CHEST UPPER RIGHT X [COMPUTED, MM]



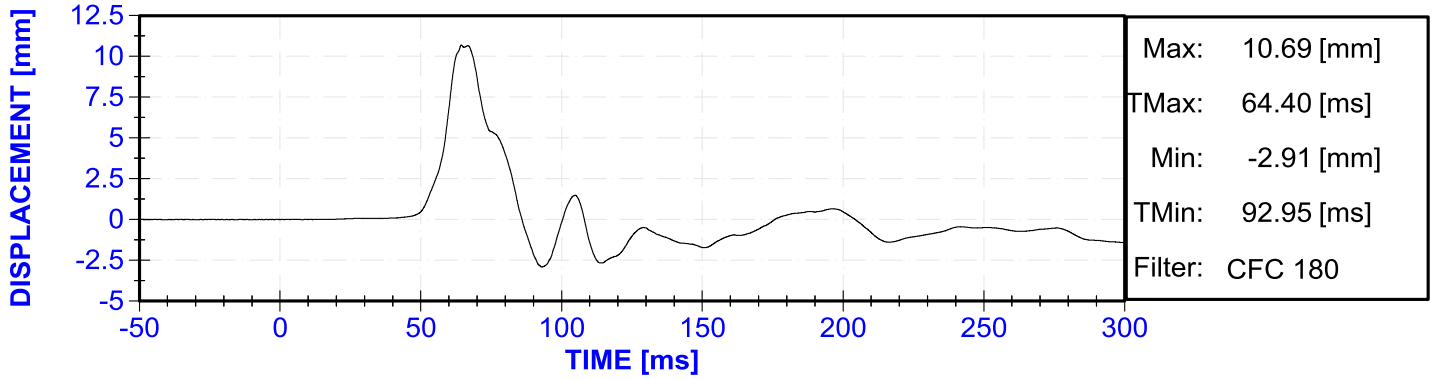
V2P4 CHEST UPPER RIGHT Y [COMPUTED, MM]



V2P4 CHEST LOWER LEFT X [COMPUTED, MM]

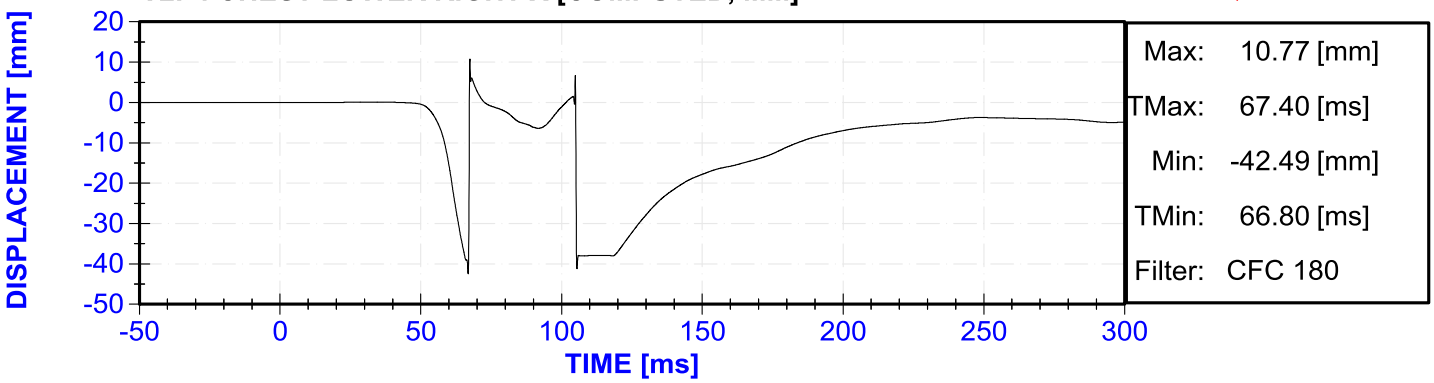


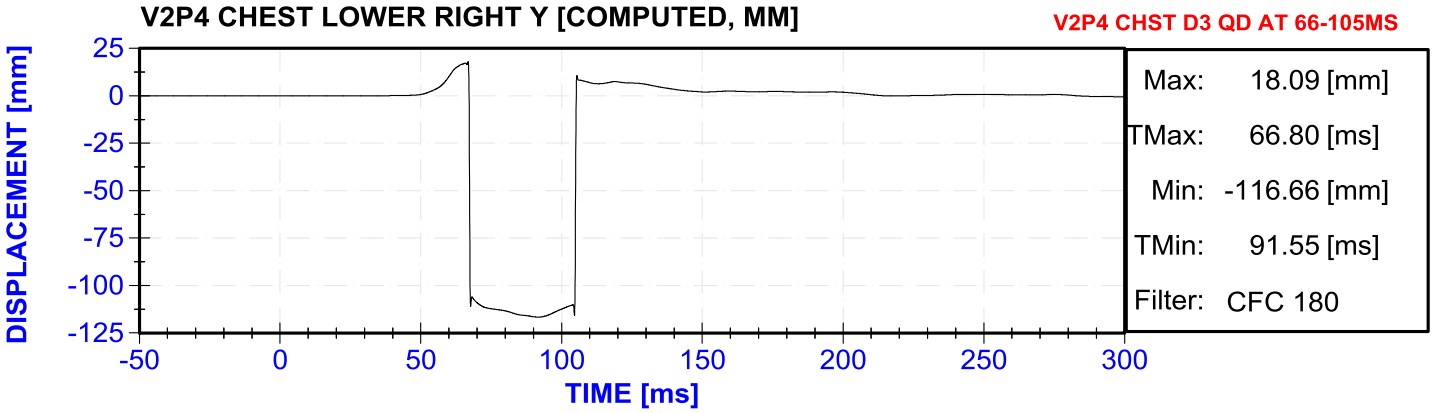
V2P4 CHEST LOWER LEFT Y [COMPUTED, MM]



V2P4 CHEST LOWER RIGHT X [COMPUTED, MM]

V2P4 CHST D3 QD AT 66-105MS




V2P4 CHEST LOWER RIGHT Y [COMPUTED, MM]
V2P4 CHST D3 QD AT 66-105MS
DISPLACEMENT [mm]
25
0
-25
-50
-75
-100
-125
-50
0
50
100
150
200
250
300
TIME [ms]
Max: 18.09 [mm]
TMax: 66.80 [ms]
Min: -116.66 [mm]
TMin: 91.55 [ms]
Filter: CFC 180

APPENDIX C

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

TABLE OF CONTENT		
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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 Hybrid III	50TH Male 5th Female	0007

Table 2 – THOR6 Set File

LFTX	LFTY	LFTZ	RFTX	RFTY	RFTZ
Left Ankle X Rotation	Left Ankle Y Rotation	Left Ankle Z Rotation	Right Ankle X Rotation	Right Ankle X Rotation	Right Ankle X Rotation
-0.45826	14.266	0	-0.26949	10.57	0

Table 3 – THOR Dummy Initial SetUp Information

THOR – MK S/N: 0007									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	Upper Right Base										
Thorax CRUX	Upper Right Mid										
Thorax CRUX	Upper Right Elbow										
Thorax CRUX	Upper Left Base										
Thorax CRUX	Upper Left Mid										
Thorax CRUX	Upper Left Elbow										
Thorax CRUX	Lower Right Base										
Thorax CRUX	Lower Right Mid										
Thorax CRUX	Lower Right Elbow										
Thorax CRUX	Lower Left Base										
Thorax CRUX	Lower Left Mid										
Thorax CRUX	Lower left Elbow										
Thorax CRUX	Right Abdomen X										
DGSP	Right Abdomen Y										
DGSP	Left Abdomen Z										
DGSP	Left Abdomen X										
DGSP	Left Abdomen Y										
DGSP	Upper Right Base										

Table 4 – Pre-Test Inspection Report

THOR Inspection Checklist

Date: July 20, 2011
NHTSA Representative: James Saunders
Witness(es):
Inspection type (circle one): (PRE) POST
Dummy S/N: 007
Dummy Description: THOR
Date of last Certification or Inspection: 7/20/2011
Tests conducted since last full certification or inspection: This past inspection was done for the 2011 Ford Fiesta RB0224 – Test #11
Known errors in data channels (no data, clipping, unexpected drops):
Physical evidence of damage:
Anecdotal evidence of damage:
Equipment delivered to Borrower:

HEAD	
(Y) / N	Rear head cap mounts securely to head
(Y) / N	Head skin fits securely over skull
(Y) / N	Head skin shows no sign of tears or damage
(Y) / N	Interior components of skull cavity (ballast, accelerometer mount, accelerometers) securely attached
(Y) / N	Head securely mounted to OC joint
OTHER	
NECK	
(Y) / N	Neck cables slide freely through holes in neck plates
(Y) / N	Neck cables show no sign of fraying, broken strands, or kinking
Y / (N)	No evidence of debonding between neck pucks and plates If N – indicate which interface (where plate/puck 1 attach to upper neck load cell): • Between Puck 4 and 5
Y / (N)	No evidence of debonding or permanent compression in neck soft stop assemblies - Front neck soft stop is loose
(Y) / N	Neck securely attached to upper neck load cell
(Y) / N	Neck securely attached to lower neck load cell
(Y) / N	Neck pitch change joint mechanism mating teeth are engaged
OTHER	
SPINE	
(Y) / N	No evidence of debonding between thoracic spine flex joint and metal plates

Y / N	No evidence of debonding between lumbar spine flex joint and metal plates
(Y) / N	Lumbar spine pitch change joint mechanism mating teeth are engaged
OTHER	
SHOULDER	
Y / (N)	Urethane shoulder pads show no evidence of contact - Slight abrasion on both pads
(Y) / N	Clavicles securely attached to sternum and shoulder
Y / (N)	No evidence of debonding, tearing, or permanent compression of posterior soft stops - Left soft stop slightly debonded
OTHER	
THORAX	
Y / (N)	No evidence of contact at top, bottom, or interior faces of rib damping material - Left, right interior on rib 4
Y / (N)	No evidence of debonding between rib damping material and ribs - Left side Rib #5 debonding
(Y) / N	CRUX anterior arms securely attached to anterior ribs
(Y) / N	CRUX posterior arms securely attached to double gimbals, spine
(Y) / N	Urethane bib is securely attached to ribs with no sign of tearing or washer penetration
(Y) / N	Ribs securely attached to posterior spine
(Y) / N	Rib stiffeners show no evidence of bending (no gaps between ribs and stiffeners)
OTHER	

ABDOMEN	
Y / (N)	No evidence of tearing, cuts, or broken stitches in upper abdomen bag and zipper - There is a small tear top left side
(Y) / N	Upper abdomen insert securely attached to spine

Y / N	Upper abdomen insert shows no evidence of permanent set
(Y) / N	No evidence of tearing, cuts, or broken stitches in lower abdomen bag and zipper
(Y) / N	Lower abdomen insert securely attached to spine
(Y) / N	Lower abdomen insert shows no evidence of permanent set
OTHER	
PELVIS	
(Y) / N	Pelvis flesh fits securely over pelvis bones
(Y) / N	H-point tool fits securely into hole on both sides of pelvis
OTHER	
FEMUR	
(Y) / N	Acetabular load cells firmly attached
(Y) / N	Femur load cells firmly attached
(Y) / N	No evidence of deformation of knee slider bump stop
Y / (N)	No cuts, tears, or suffing of knee flesh - Left knee is scuffed and cut - Right knee is scuffed
OTHER	
LOWER EXTREMITY (LX)	
(Y) / N	Rotational potentiometers in ankle securely attached
(Y) / N	Achilles tendon provides resistance to dorsiflexion
(Y) / N	No evidence of debonding, tearing, or permanent compression of ankle soft stops

OTHER	Right leg shin has horizontal cut in flesh
JACKET	
(Y) / N	Rib stiffeners show no sign of permanent deformation
(Y) / N	No evidence of tears or holes in jacket fabric, velcro, or zippers
OTHER	

Table 5 – Post-Test Inspection Report

THOR Inspection Checklist

Date: July 25, 2011
NHTSA Representative: James Saunders
Witness(es):
Inspection type (circle one): PRE (POST)
Dummy S/N: 007
Dummy Description: THOR
Date of last Certification or Inspection: 7/20/2011
Tests conducted since last full certification or inspection: This past inspection was done for the 2011 Ford Fiesta RB0224 – Test #11
Known errors in data channels (no data, clipping, unexpected drops):
Physical evidence of damage:
Anecdotal evidence of damage:
Equipment delivered to Borrower:

HEAD	
(Y) / N	Rear head cap mounts securely to head
(Y) / N	Head skin fits securely over skull
Y / (N)	Head skin shows no sign of tears or damage - There are visible small cuts on the forehead
(Y) / N	Interior components of skull cavity (ballast, accelerometer mount, accelerometers) securely attached
(Y) / N	Head securely mounted to OC joint
OTHER	
NECK	
(Y) / N	Neck cables slide freely through holes in neck plates
(Y) / N	Neck cables show no sign of fraying, broken strands, or kinking
Y / (N)	No evidence of debonding between neck pucks and plates If N – indicate which interface (where plate/puck 1 attach to upper neck load cell):
Y / (N)	No evidence of debonding or permanent compression in neck soft stop assemblies
(Y) / N	Neck securely attached to upper neck load cell
(Y) / N	Neck securely attached to lower neck load cell
(Y) / N	Neck pitch change joint mechanism mating teeth are engaged
OTHER	
SPINE	
(Y) / N	No evidence of debonding between thoracic spine flex joint and metal plates

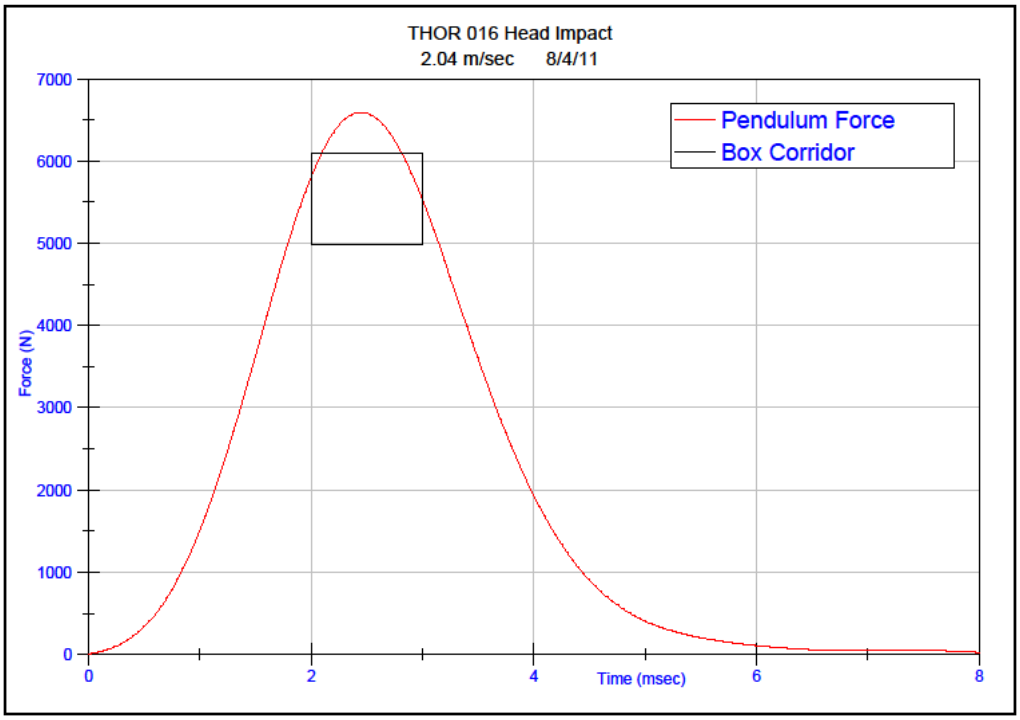
Y / N	No evidence of debonding between lumbar spine flex joint and metal plates
(Y) / N	Lumbar spine pitch change joint mechanism mating teeth are engaged
OTHER	
SHOULDER	
Y / (N)	Urethane shoulder pads show no evidence of contact - There are scuffs on both of the shoulder pads
(Y) / N	Clavicles securely attached to sternum and shoulder
Y / (N)	No evidence of debonding, tearing, or permanent compression of posterior soft stops - Left soft stop debonding on the top corner
OTHER	
THORAX	
Y / (N)	No evidence of contact at top, bottom, or interior faces of rib damping material - Left, right interior on rib 4
Y / (N)	No evidence of debonding between rib damping material and ribs
(Y) / N	CRUX anterior arms securely attached to anterior ribs
(Y) / N	CRUX posterior arms securely attached to double gimbals, spine
(Y) / N	Urethane bib is securely attached to ribs with no sign of tearing or washer penetration
(Y) / N	Ribs securely attached to posterior spine
(Y) / N	Rib stiffeners show no evidence of bending (no gaps between ribs and stiffeners)
OTHER	

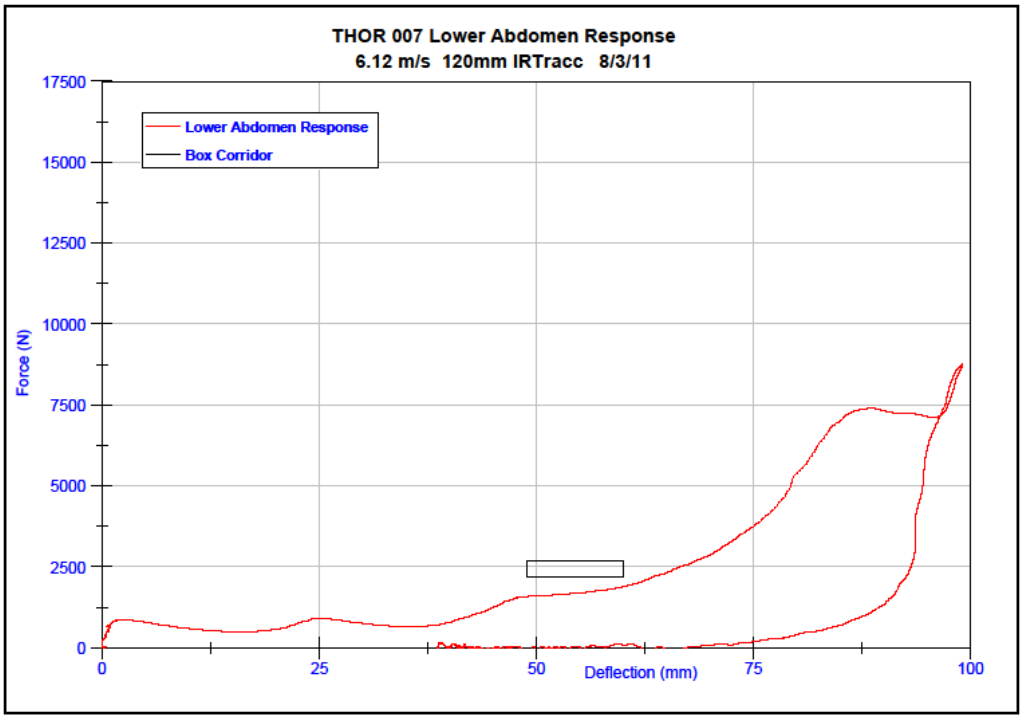
ABDOMEN	
Y / (N)	No evidence of tearing, cuts, or broken stitches in upper abdomen bag and zipper - There is a small hole in the top of the bag
(Y) / N	Upper abdomen insert securely attached to spine

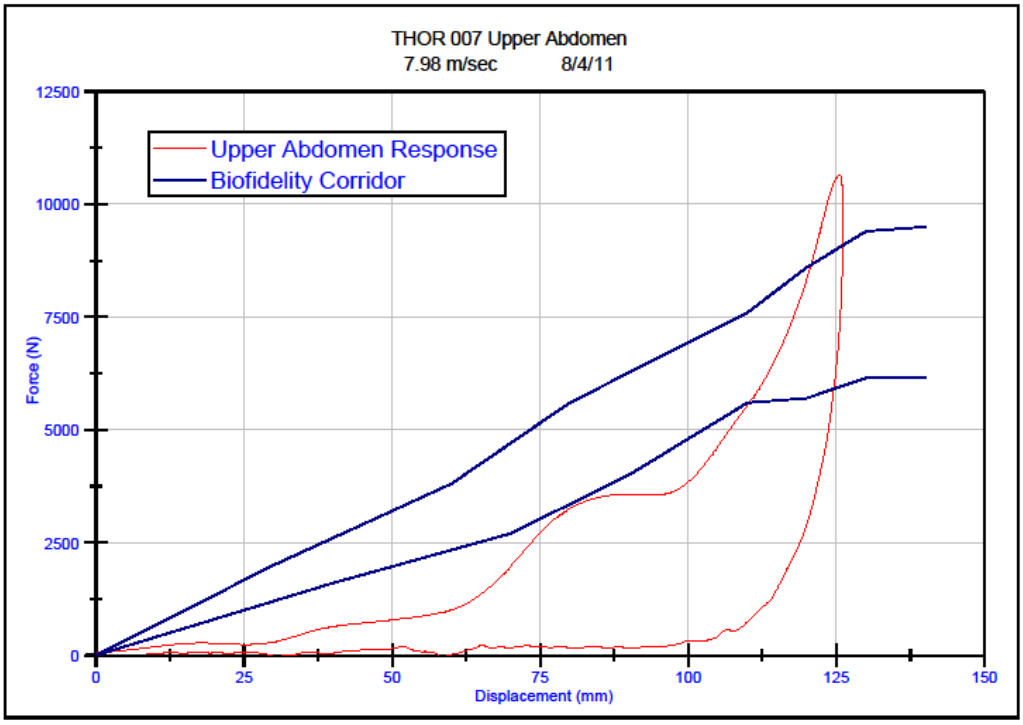
Y / N	Upper abdomen insert shows no evidence of permanent set
Y / (N)	No evidence of tearing, cuts, or broken stitches in lower abdomen bag and zipper - There is a small hole and broken stitches on the top right corner
(Y) / N	Lower abdomen insert securely attached to spine
(Y) / N	Lower abdomen insert shows no evidence of permanent set
OTHER	
PELVIS	
(Y) / N	Pelvis flesh fits securely over pelvis bones
(Y) / N	H-point tool fits securely into hole on both sides of pelvis
OTHER	
FEMUR	
(Y) / N	Acetabular load cells firmly attached
(Y) / N	Femur load cells firmly attached
(Y) / N	No evidence of deformation of knee slider bump stop
Y / (N)	No cuts, tears, or suffing of knee flesh - Left knee is scuffed and cut - Right knee is scuffed
OTHER	
LOWER EXTREMITY (LX)	
(Y) / N	Rotational potentiometers in ankle securely attached
(Y) / N	Achilles tendon provides resistance to dorsiflexion
(Y) / N	No evidence of debonding, tearing, or permanent compression of ankle soft stops
OTHER	There is a horizontal cut on the right shin

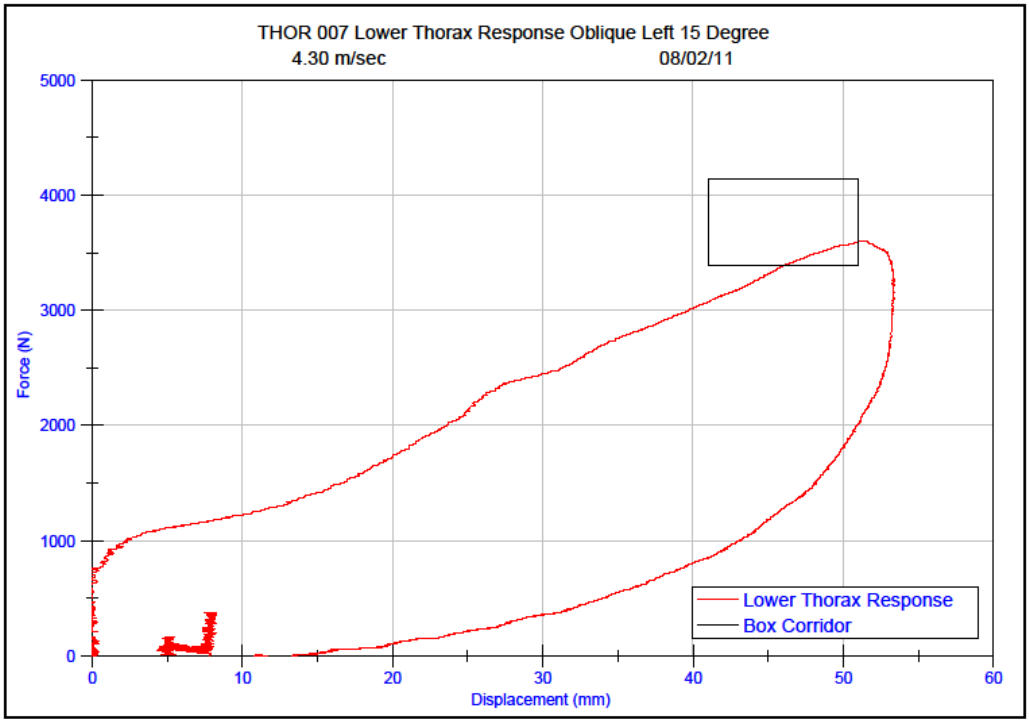
JACKET	
(Y) / N	Rib stiffeners show no sign of permanent deformation
(Y) / N	No evidence of tears or holes in jacket fabric, velcro, or zippers
OTHER	

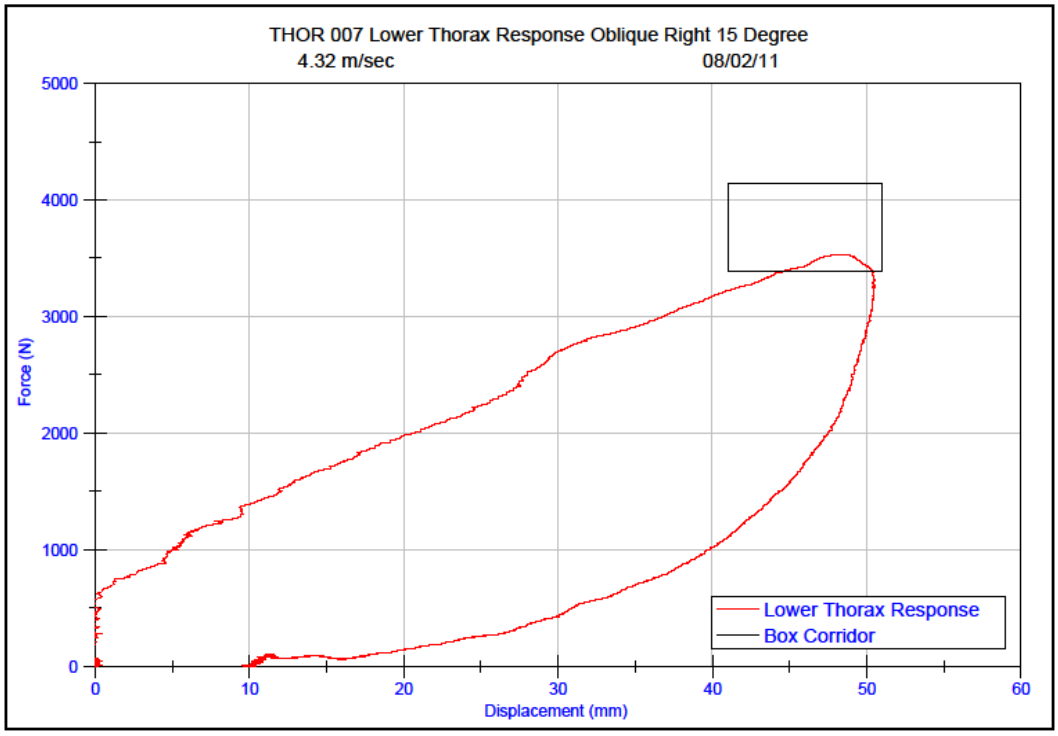
Dummy Calibration Plots

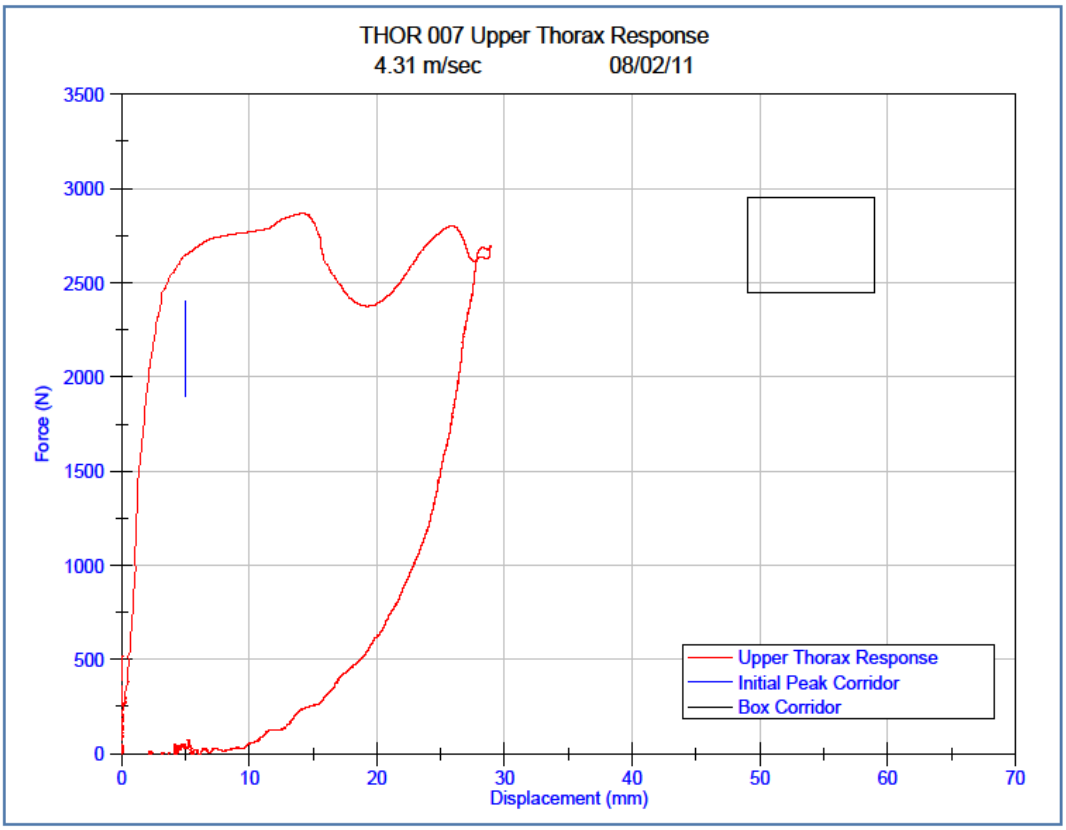

THOR 016 Head Impact
2.04 m/sec 8/4/11
Pendulum Force
Box Corridor
Force (N)
Time (msec)
7000
6000
5000
4000
3000
2000
1000
0
0
2
4
6
8

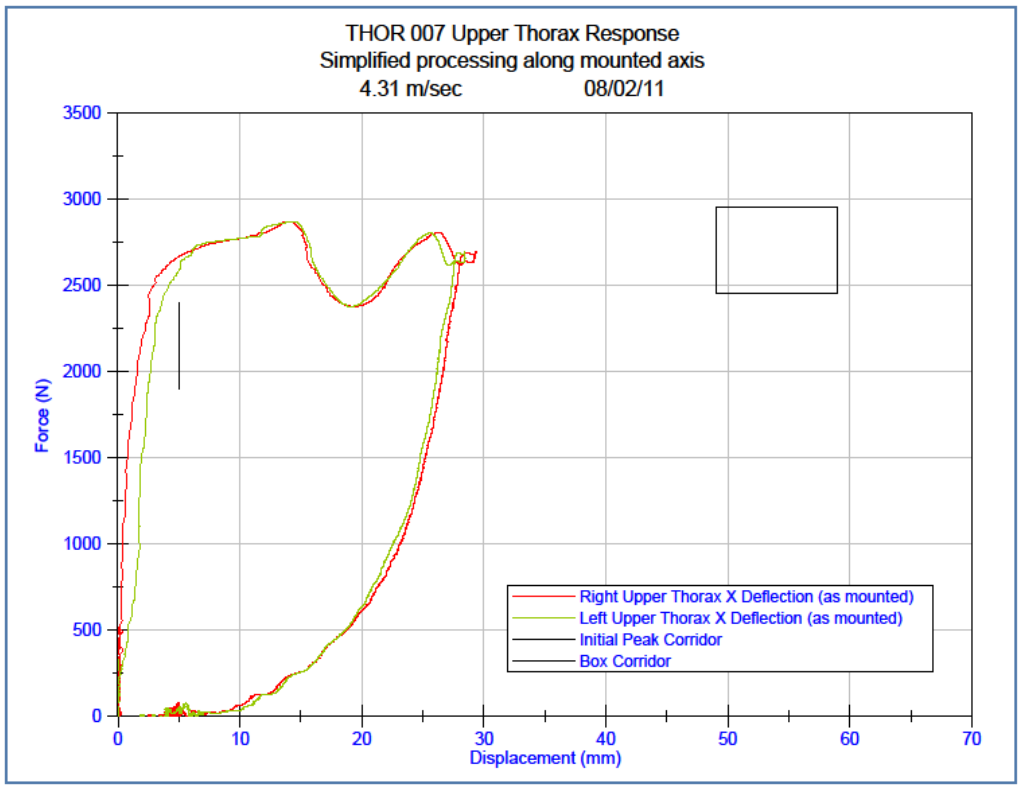

THOR 007 Lower Abdomen Response
6.12 m/s 120mm IRTracc 8/3/11
Lower Abdomen Response
Box Corridor
Force (N)
Deflection (mm)
17500
15000
12500
10000
7500
5000
2500
0
0
25
50
75
100


THOR 007 Upper Abdomen
7.98 m/sec 8/4/11
Upper Abdomen Response
Biofidelity Corridor
Force (N)
Displacement (mm)
12500
10000
7500
5000
2500
0
0
25
50
75
100
125
150

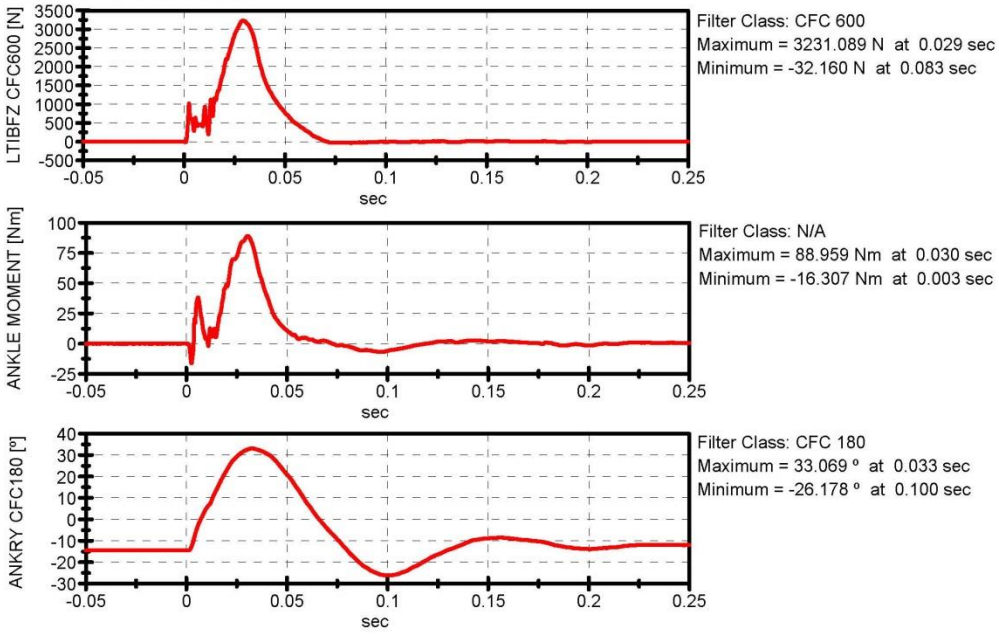

THOR 007 Lower Thorax Response Oblique Left 15 Degree
4.30 m/sec 08/02/11
Lower Thorax Response
Box Corridor
Force (N)
Displacement (mm)
5000
4000
3000
2000
1000
0
0
10
20
30
40
50
60


THOR 007 Lower Thorax Response Oblique Right 15 Degree
4.32 m/sec
08/02/11
Force (N)
Displacement (mm)
Lower Thorax Response
Box Corridor

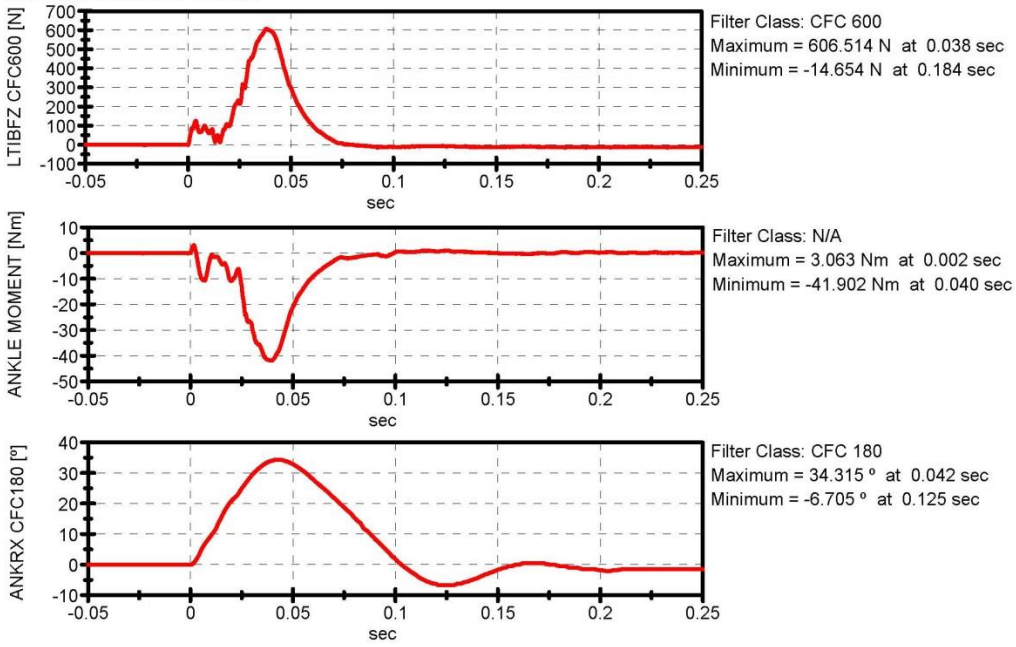

THOR 007 Upper Thorax Response
4.31 m/sec
08/02/11
Force (N)
Displacement (mm)
Upper Thorax Response
Initial Peak Corridor
Box Corridor


THOR 007 Upper Thorax Response
Simplified processing along mounted axis
4.31 m/sec
08/02/11
Force (N)
Displacement (mm)
Right Upper Thorax X Deflection (as mounted)
Left Upper Thorax X Deflection (as mounted)
Initial Peak Corridor
Box Corridor

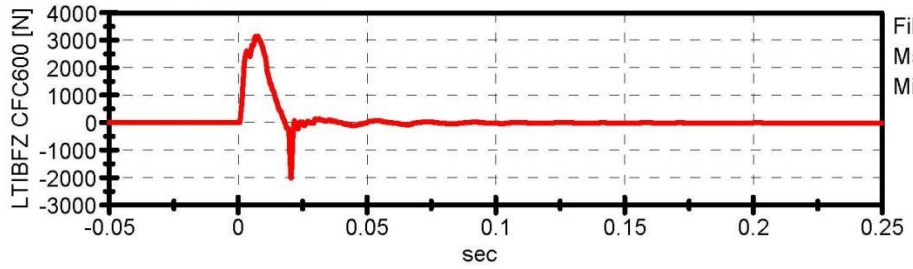
Test Performer: Vehicle Research and Test Center
Test Type: Dorsiflexion/Ball of Foot
Test Name: LX103R_2011_07_12_DORSI_01
Test Date: 12.07.2011 13:03:52



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

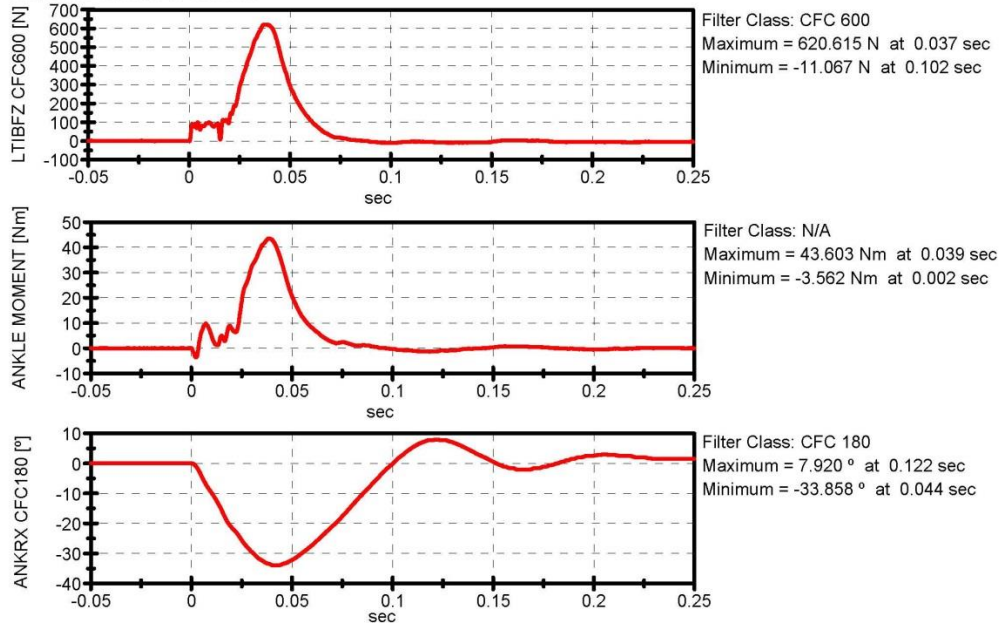


Test Performer: Vehicle Research and Test Center
Test Type: Heel of Foot
Test Name: LX103R_2011_07_12_HEEL_01
Test Date: 12.07.2011 12:23:32

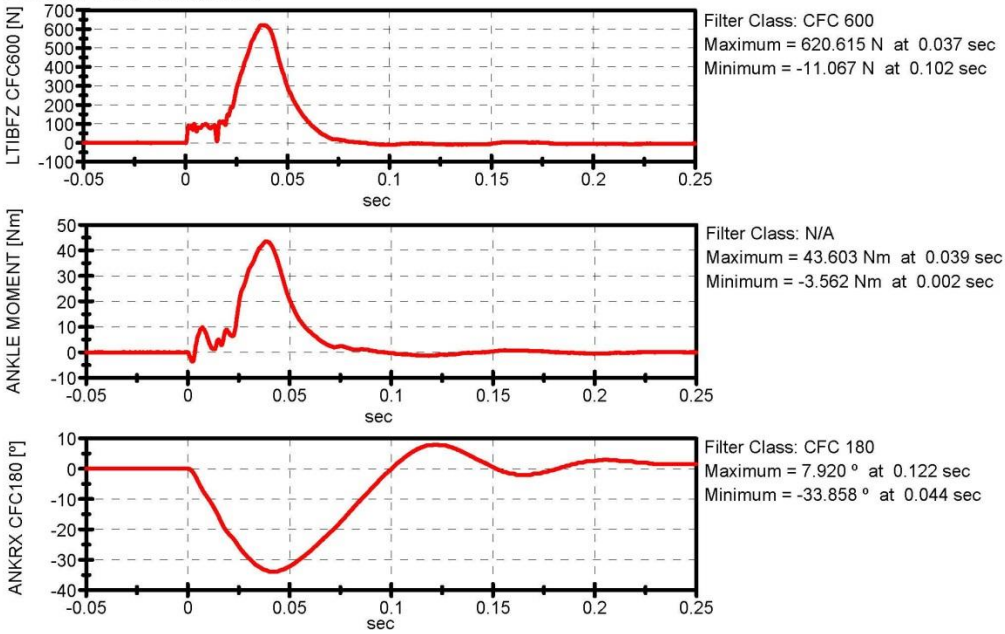


Filter Class: CFC 600
Maximum = 3140.967 N at 0.008 sec
Minimum = -2014.830 N at 0.021 sec

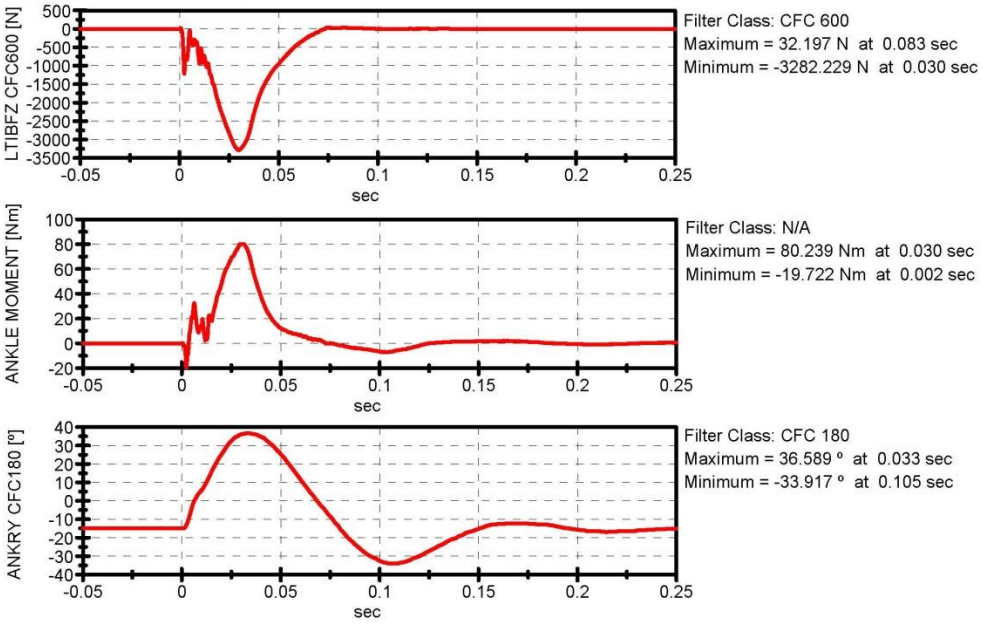
Test Performer: Vehicle Research and Test Center
Test Type: Inversion
Test Name: LX103R_2011_07_12_INVER_01
Test Date: 12.07.2011 13:33:12



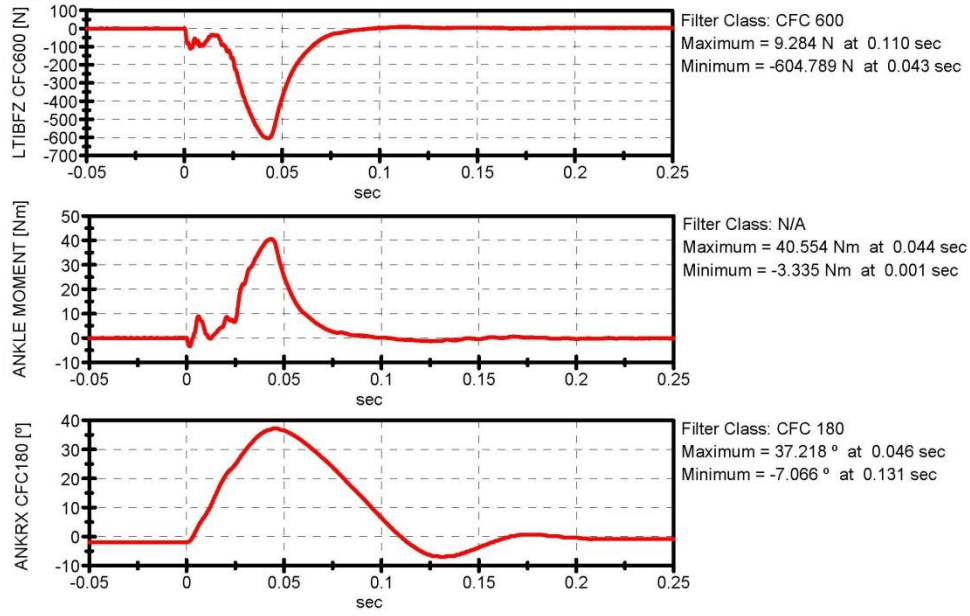
Test Performer: Vehicle Research and Test Center
Test Type: Inversion
Test Name: LX103R_2011_07_12_INVER_01
Test Date: 12.07.2011 13:33:12



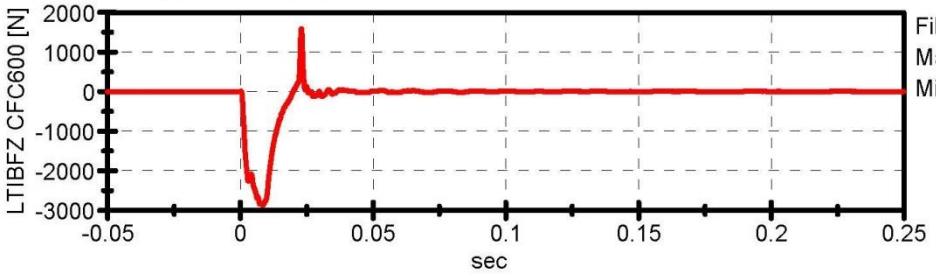
Test Performer: Vehicle Research and Test Center
Test Type: Dorsiflexion/Ball of Foot
Test Name: LX104L_2011_07_11_DORSI_02
Test Date: 12.07.2011 07:30:24



Test Performer: Vehicle Research and Test Center
Test Type: Eversion
Test Name: LX104L_2011_07_12_EVER_01
Test Date: 12.07.2011 08:58:27

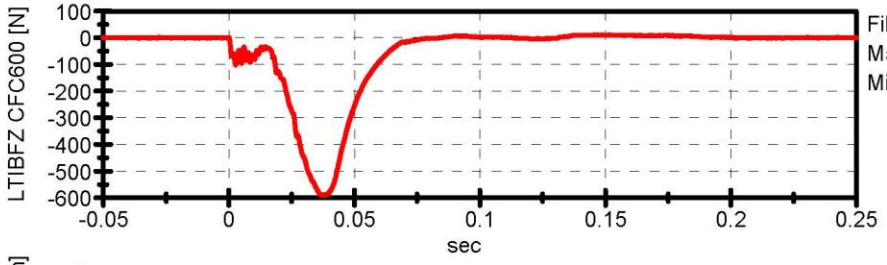


Test Performer: Vehicle Research and Test Center
Test Type: Heel of Foot
Test Name: LX104L_2011_07_12_HEEL_01
Test Date: 12.07.2011 10:26:09

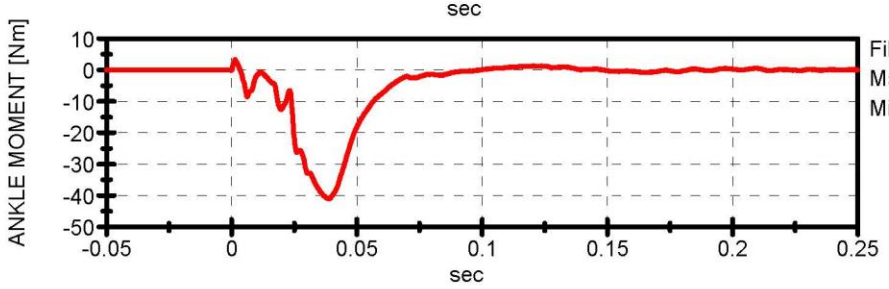


Filter Class: CFC 600
Maximum = 1590.985 N at 0.023 sec
Minimum = -2861.040 N at 0.008 sec

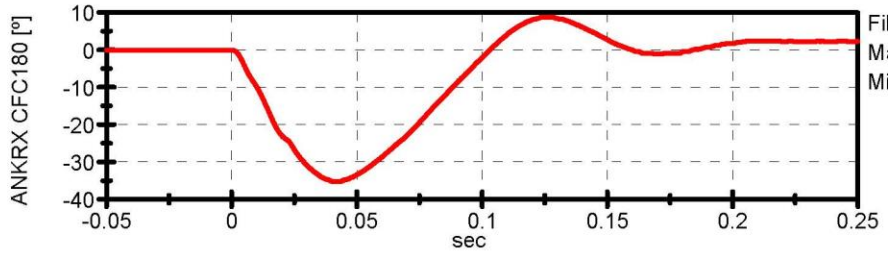
Test Performer: Vehicle Research and Test Center
Test Type: Inversion
Test Name: LX104L_2011_07_12_INVER_01
Test Date: 12.07.2011 08:18:46



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



Filter Class: N/A
Maximum = 3.314 Nm at 0.001 sec
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

Additional Measurements & Data Calculations

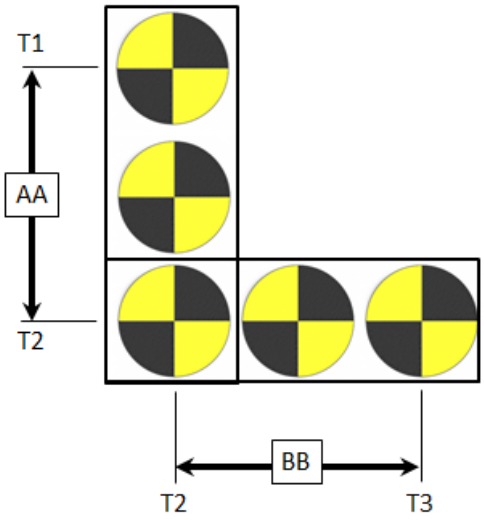
ADDITIONAL TARGETS

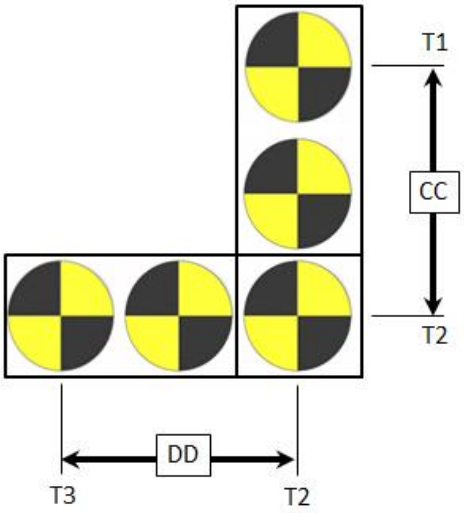
Overhead Reference Targets:

AA (T1 to T2)	237	mm
BB (T2 to T3)	237	mm

Ground Reference Targets:

CC (T1 to T2)	236	mm
DD (T2 to T3)	236	mm





Appendix E

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 F

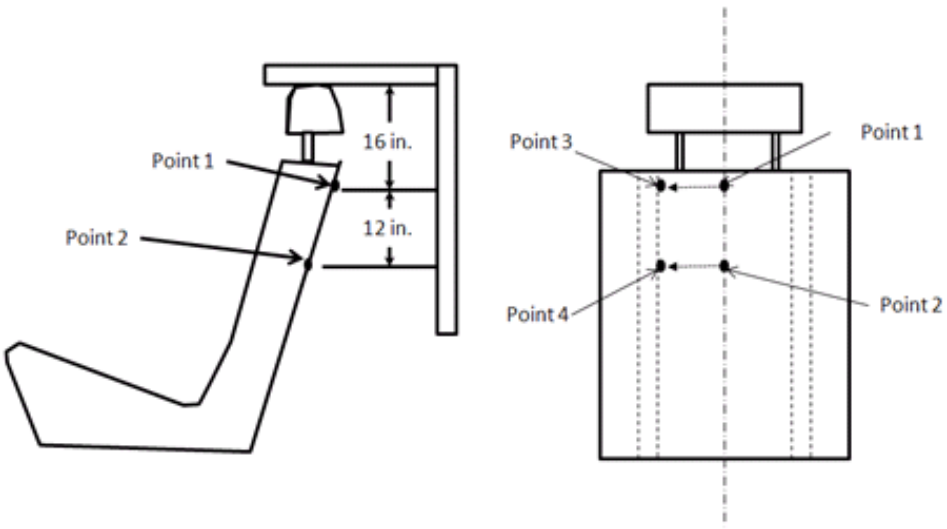
CMM MEASUREMENT PROCEDURES

SECTION F.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 F.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 F.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.

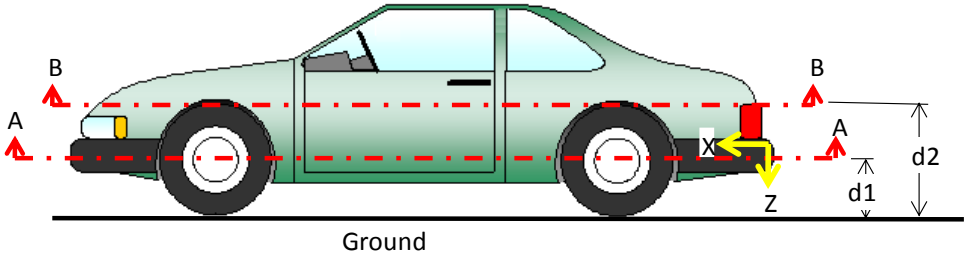


Figure F.3.1 - Pre-Test Cross-Sections

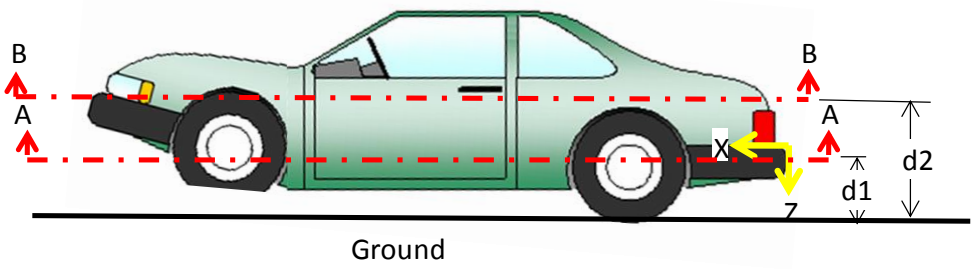


Figure F.3.2 - Post-Test Cross-Sections

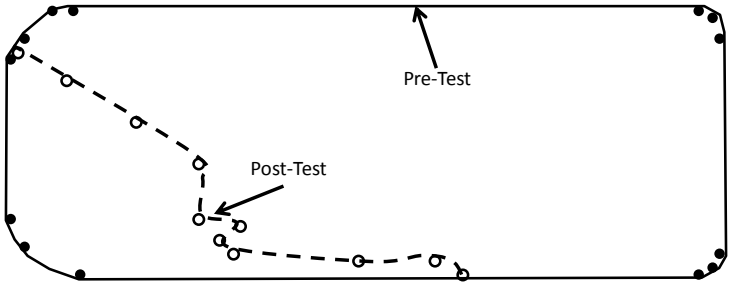


Figure F.3.3 - Plot of Cross-Section

SECTION F.4

DASH PROFILE MEASUREMENT PROCEDURE

The following procedure was used in order to obtain the dash profile measurements required for this test. Please see the diagram on the following page for further clarifications:

1. Left Plane: create a vertical plane that is parallel to the longitudinal axis of the vehicle and is located 150mm to the left of the center of the steering wheel (Figure 31).

2. Left Line: create a line on the IP/Knee Bolster at the intersection of the Left Plane and the IP/KneeBolster

3. L1: create a point on the dash that is located on the Left Line and is 450 mm above the floorboard (with floor mats removed). Note this is the Left IP point for the IP5 file and IP Left in DATA SHEET NO.13 (CONTINUED) - VEHICLE INTRUSION MEASUREMENTS.

4. Lt1: From L1 move up the Left Line 50 mm

5. Lt2: From Lt1 move up the Left Line 50 mm

6. Ltn: Mark points at 50 mm increments along Left Line until the window sill is reached.

7. Lb1: From L1 move down the Left Line 50 mm

8. Lb2: From Lb1 move down the Left Line 50 mm

9. Lbn: Mark points at 50 mm increments along Left Line until the bottom of the IP/Knee Bolster is reached.

10. Right Plane: create a vertical plane that is parallel to the longitudinal axis of the vehicle and is located 150mm to the right of the center of the steering wheel (Figure 31).

11. Right Line: create a line on the IP/Knee Bolster at the intersection of the Right Plane and the IP/KneeBolster

12. R1: create a point on the dash that is located on the Right Line and is 450 mm above the floorboard (with floor mats removed). Note this is the Right IP point for the IP5 file and IP Right in DATA SHEET NO.13 (CONTINUED) - VEHICLE INTRUSION MEASUREMENTS.

13. Rt1: From R1 move up the Right Line 50 mm

14. Rt2: From Rt1 move up the Right Line 50 mm

15. Rtn: Mark points at 50 mm increments along Right Line until the window sill is reached.

16. Rb1: From R1 move down the Right Line 50 mm

17. Rb2: From Rb1 move down the Right Line 50 mm

18. Rbn: Mark points at 50 mm increments along Right Line until the bottom of the IP/Knee Bolster is reached.

19. If dash panel or knee bolster loosens or breaks away in the crash, the post-test measurements are taken by pressing and holding the panel against the underlying structure. 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 picture.