Vehicle Research and Test Center
Soil Trip Rollover
of a 2007 Ford Expedition
TRC Inc. Test Number 091215

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TRC TEST NUMBER: 091215

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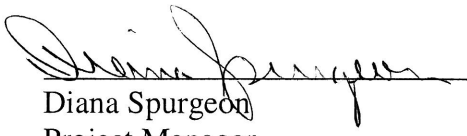

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TABLE OF CONTENTS

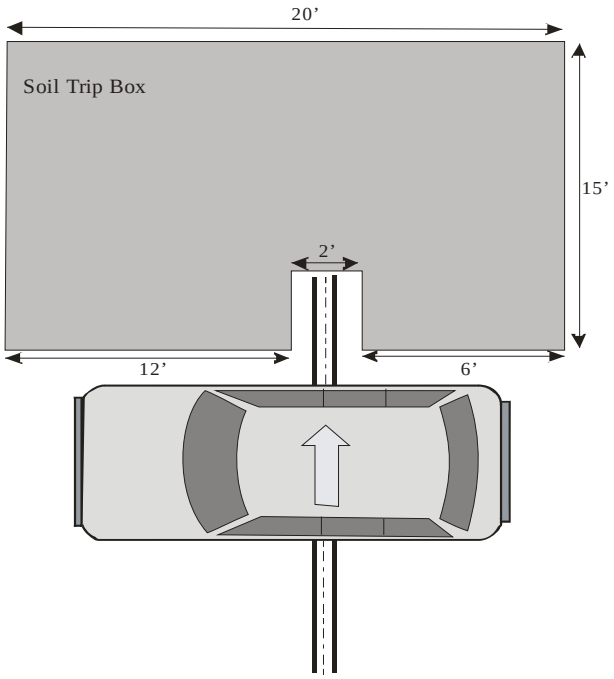
Section		Page No.
1	Purpose and Test Procedure	1
2	Summary of Test Results	2
3	Occupant and Vehicle Information	5
Data Sheet No.		**Page No.**
1	General Test and Vehicle Parameter Data	6
2	Seats and Seat Belts Data	9
3	Post-Test Observations	11
4	Dummy Measurements	13
5	Occupant Instrumentation Data	16
6	Vehicle Structural Measurements	19
7	Vehicle Exterior Crush Measurements	20
8	Vehicle Accelerometer Locations and Data Summary	33
9	High-Speed Camera Data	37
10	Dummy/Vehicle Temperature Stabilization Data	38
Appendix		
A	Photographs	A-1
B	Data Plots	B-1
C	Dummy Configuration and Performance Verification Data	C-1
D	Test Equipment List and Calibration Information	D-1
E	INSIA Report on Structural Measurements	E-1

SECTION 1

PURPOSE AND TEST PROCEDURE

This soil trip rollover crash test was conducted to investigate the dynamics of belted occupants during rollover crashes. This test was conducted with a modified 2007 Ford Expedition moving at 48.8 km/h (30.3 mph)[1], releasing the vehicle with its roll axis perpendicular to the direction of the soil trip area. The vehicle was modified by replacing the rear seat with a modified front seat to simulate similar characteristics in both seating positions. The center console was also removed. The test vehicle contained three (3) instrumented Part 572E dummies. The OEM belts and buckles were replaced in all positions. The driver, right front passenger, and left rear passenger positions were equipped with a non pretension 3-PT belt system[2]. The curtain airbags were fired manually at 100ms into the event.

The soil trip area was 300 square foot and filled with a number nine (#9) crushed limestone aggregate to a minimum depth of eight inches. It was conducted for the National Highway Traffic Safety Administration's (NHTSA) Vehicle Research and Test Center (VRTC) by the Transportation Research Center Inc. (TRC Inc.).



[1] Test Speed was calculated using the cable speed.

[2] Belt Systems were provided by TRW Automotive.

SECTION 2
SUMMARY OF TEST RESULTS

A 2007 Ford Expedition, containing three (3) instrumented Part 572E test dummies was released at 48.8 km/h (30.3 mph). The vehicle was towed in the lateral direction on a soap-covered runway. After release, the vehicle skidded into the soil, and made two (2) complete rotations coming to rest on its wheels. The soil trip rollover test was conducted by Transportation Research Center Inc. in East Liberty, Ohio on December 15, 2009. Pre- and post-test photographs of the test vehicle, and the dummies are included in Appendix A.

Three (3) restrained Part 572E Hybrid III 50th percentile adult male anthropomorphic test devices (dummies) were placed in the driver, right front, and left rear designated seating positions relative to the placement procedures specified in Appendix F of Laboratory Procedure TP208-14. The dummies were instrumented with head, chest, and pelvis triaxial accelerometers, upper and lower six-axis neck load cells, and a chest deflection potentiometer. The ATDs in position (1) and (4) were also instrumented with triaxial head rotational rate gyroscopes. The ATD in position three was instrumented with six (6) additional head accelerometers to complete a 9-array head configuration. All dummies were restrained by 3-point seat belts. All dummy instrumentation is detailed in this report. Seventy-eight (78) dummy channels of acceleration, force, moment, roll rate, and displacement data were collected for this test. A total of 178 channels of data were recorded.

The rollover test was documented by one (1) real-time camera and thirteen (13) high-speed digital cameras[1]. Camera locations and other pertinent camera information are included in this report.

Appendix A contains pre- & post-test photography. Appendix B contains the vehicle dummy response data traces. A summary of the front impact dummy configuration and verification test data can be found in Appendix C.

[1] One onboard high-speed digital camera view did not record a useable image. Details can be found on the High-Speed Camera Data page.

TEST RESULTS SUMMARY

	Left Front ATD(#001)	Right Front ATD(#110)	Left Rear ATD(#043)
HIC15 CFC 1000	12	27	7
HIC36 CFC 1000	14	37	14
Chest Clip 3 ms (g) CFC 180	11.7	11.1	7.8
Chest Deflection (mm) CFC 600	-1.6	-2.0	-1.3
Neck Injury (NIJ) (ms) CFC 600			
NTE	0.11	0.11	0.15
NTF	0.03	0.08	0.04
NCE	0.46	0.31	0.05
NCF	0.47	0.11	0.06
Neck Tension (N) CFC1000	329.7	566.2	466.4
Neck Compression (N) CFC1000	-2853.0	-1567.5	-305.2

	2007 Ford Expedition
Vehicle Test Weight	2932.5 kg[1]
Left Side - Maximum Crush	66 mm
Right Side - Maximum Crush	22 mm
Roof - Maximum Crush	74 mm
Impact Speed	48.8 km/h

NOTE: All vehicle and dummy measurements included in this report were achieved by using the coordinate measurement machine unless otherwise noted.

[1] The vehicle test weight is heavier for the soil trip test mode because of adding the structure to tow the vehicle laterally.

TEST NOTES:

The vehicle's center of gravity X-axis rotational rate gyroscope exceeded the full scale value at approximately 785.3 milliseconds.

The vehicle's center of gravity Z-axis rotational rate gyroscope exceeded the full scale value at approximately 1,809.5 milliseconds.

The vehicle's rear deck X-axis rotational rate gyroscope exceeded the full scale value at approximately 2,227.8 milliseconds.

The vehicle's rear deck Y-axis rotational rate gyro scope exceeded the full scale value at approximately 2,213.9 milliseconds.

The vehicle's rear deck Z-axis rotational rate gyroscope exceeded the full scale value at approximately 782.7 milliseconds.

The vehicle's left upper A-pillar X-, Y-, and Z-axis acceleration data channels became detached during the event and recorded questionable data.

The vehicle's right lower A-pillar X-axis acceleration data channel recorded questionable data after 983.9 milliseconds.

The vehicle's left upper B-pillar X-axis acceleration data channel recorded questionable data after 984 milliseconds.

The vehicle's left lower B-pillar Y-axis acceleration data channel recorded questionable data after 118 milliseconds.

The driver dummy lap belt force data channel recorded questionable data throughout the test event.

SECTION 3
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

TEST VEHICLE INFORMATION AND OPTIONS

Make	Ford	Driv. & Front Pass. Front Airbag	Yes
Model Year	2007	Driv. & Front Pass. Side Airbag	Yes
Model	Expedition	Driv. & Front Pass. Head Airbag	No
Body Style	4-door SUV	Driv. & Front Pass. Curtain Airbag[4]	Yes
		Driv. & Front Pass. Knee Airbag	No
VIN	1FMFU15597LA50943	Rear Pass. Front Airbag	No
Color	Dark Gray	Rear Pass. Side Airbag	No
Delivery Date	12/01/09	Rear Pass. Head Airbag	No
Odometer Reading	25,890	Rear Pass. Curtain Airbag	Yes
Dealer	---[1]	Rear Pass. Knee Airbag	No
Transmission	Automatic	Load Limiters	---[2]
Final Drive	Rear wheel drive	Anti-lock Brakes	Yes
Number of Cylinders	V8	All-Wheel Drive	No
Engine Displacement (L)	5.4	Pretensioners	---[2]
Engine Placement	Longitudinal	Air Conditioning	Yes
Roof Rack	Yes / Removed	Tilt Wheel	Yes
Sunroof / T-Top	No	Power Seats	Yes
Tinted Glass	Yes	Power Windows	Yes
Traction Control	Yes	Power Steering	Yes
Power Brakes	Yes	AM/FM CD	Yes
Front Disc	Yes	Automatic Door Locks	Yes
Rear Disc	Yes	Other	N/A
Does owner's manual provide instructions to turn off automatic door locks?			Yes

DATA FROM CERTIFICATION LABEL

Manufactured by	Ford Motor Co.
Date of Manufacture	02/07

GVWR (kg)	3357
GAWR Front (kg)	1497
GAWR Rear (kg)	1928

TEST VEHICLE SEAT TYPE AND CAPACITY

Measured Parameter	Front	Mid[3]	Rear[3]	Total
Type of Seats	Bucket	Split Bench	Split Bench	
Designated Seating Capacity (DSC)	2	3	3	8
Type of Seat Back	Manual Adjustable	Manual Adjustable	Fixed	
(A) Capacity Wt. (VCW) (kg)				748
(B) DSC x 68.08 kg				545
(A-B) Cargo Wt. (RCLW) (kg)				203

[1] Not Recorded.
[2] Owner's manual not available at the time the report was prepared, information unknown.
[3] The original seats were removed. A bucket seat was installed in the second row for this test.
[4] The curtain airbags were manually fired for this test.

DATA SHEET NO. 1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)[1]			As Tested (ATW)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	642.6	637.0		674.5	783.0	
Right	kg	612.2	662.4		670.0	805.0	
Ratio	%	49.1	50.9		45.8	54.2	
Totals	kg	1254.8	1299.4	2554.2	1344.5	1588.0	2932.5

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value[1]
(A) Total Delivered Weight (UVW)	kg	2254.2
(B) Weight of 2 P572M ATDs	kg	165.2
(C) Rated Cargo/Luggage Weight (RCLW)	kg	136.0
(A+B+C) Vehicle Target Weight (TVTW)	kg	2855.4

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	900[2]	897[2]	897[2]	899[2]	---[3]
As Tested	mm	908	887	878	854	1635
Fully Loaded	mm	---[3]	---[3]	---[3]	---[3]	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheelbase	mm	3020
Total Vehicle Length at Left Side	mm	---[3]
Total Vehicle Length at Centerline	mm	5208
Total Vehicle Length at Right Side	mm	---[3]
Weight of Ballast in Cargo Area	kg	0
Weight of Vehicle Components Removed	kg	Not Recorded
Amount of Stoddard Solvent in Fuel Tank	liters	98.4

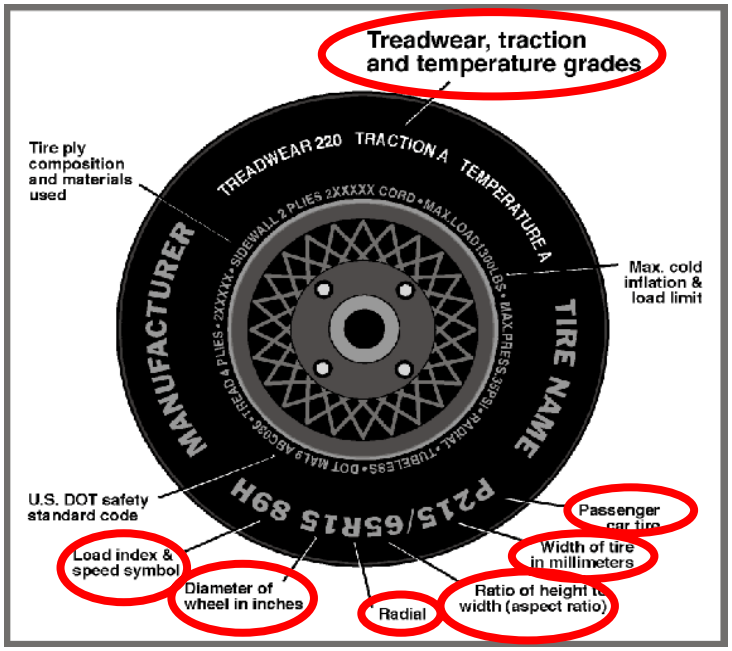
Vehicle parts removed to make Target Vehicle Test Weight: Spare tire.

[1] UVW and Target Test Weight was based on values recorded using a 5-passenger (DSC) vehicle as tested on December 3, 2008.
[2] Matched test conducted October 22, 2009.
[3] Measurement not requested.

DATA SHEET NO. 1 (CONTINUED)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09



DATA FROM TIRE PLACARD

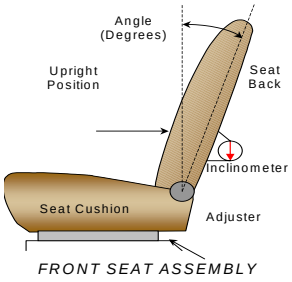
Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold / Test Pressure (kPa)	240	240
Recommended Tire Size	P265/70R17	P265/70R17
Tire Size on Vehicle	P265/70R17	P265/70R17
Tire Manufacturer	Continental	Continental
Tire Name	Contitrac	Contitrac
Load Index & Speed Symbol	113	113
Tread wear	520	520
Traction Grade	A	A
Temperature Grade	B	B

DATA SHEET NO. 2

SEATS AND SEAT BELTS DATA

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

DUMMY RIDING POSITION



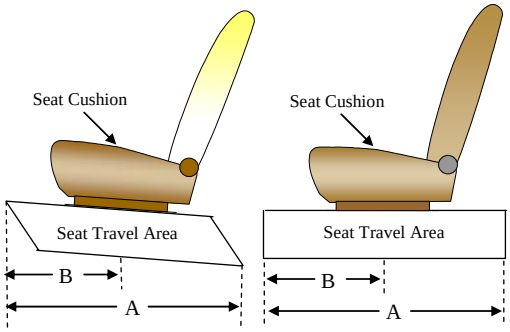
Driver: Total Number of detents:
Power seat; 220 mm of travel
Passenger: Total Number of detents: 23
Left Rear Passenger: Total Number of detents: 23
Driver seat back angle: 13.8°
Passenger seat back angle: 10.3°
Left rear seat back angle: 9.0°
The rear seat was replaced with a modified front seat to replicate the front occupant seat.

SEAT FORE/AFT POSITIONS

The total seat travel was measured from forward most position to rearmost position, irrespective of vertical seat height in those positions. The seat was set at the longitudinal mid position with vertical adjustment at the lowest position obtainable for both the driver and passenger.

SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel	Placed in Position No.
Driver Seat	220	Mid
Fr Pass	215	Mid
Rear Seat	215	17 of 22



Seat position number one is the full forward position.

SEAT BELT UPPER ANCHORAGE

	Total No. of Positions	Placed in Position No.
Driver Seat	5	3
Fr Pass	5	3
Rear Seat	Fixed	Fixed

Position number one is the uppermost adjustment position.

Note: Vertical height adjusted to match head to roof measurement with left rear dummy.

DATA SHEET NO. 2 (CONTINUED)

SEATS AND SEAT BELTS DATA

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

SEAT BELT CONFIGURATION

	Type	Configuration
Driver	3-PT: non pretension	C
Right Front Passenger	3-PT: non pretension	C
Left Rear Passenger	3-PT: non pretension	C

DATA SHEET NO. 3

POST-TEST OBSERVATIONS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Left Front Seat Driver	Right Front Passenger	Rear Seat Passenger
Dummy Type / Serial No.	Hybrid III 50th / 001	Hybrid III 50th / 110	Hybrid III 50th / 043
Head Contact	Curtain airbag, head restraint, headliner	Curtain airbag, head restraint, headliner	Curtain airbag, headliner
Upper Torso Contact	No visible contact	No visible contact	No visible contact
Lower Torso Contact	No visible contact	No visible contact	No visible contact
Left Knee Contact	No visible contact	No visible contact	No visible contact
Right Knee Contact	No visible contact	No visible contact	No visible contact

POST-TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Locked/Unlocked Doors	Unlocked	Unlocked
Left Side Door Opening	Closed and latched	Closed and latched
Right Side Door Opening	Closed and latched	Closed and latched
Seat Movement	None	None
Seat Back Failure	None	None

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Did not separate from the vehicle
Sill Separation	Did not separate from the vehicle
Windshield Damage	Cracked and broken separated at the roof
Window Damage	Right rear broke out
Other Notable Effects	Right front and right rear tires flattened

DATA SHEET NO. 3 (CONTINUED)

POST TEST OBSERVATIONS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 01		Right Front (Passenger) Occupant Location 03	
	Installed	Operation	Installed	Operation
Front Airbag	Yes	No	Yes	No
Side Airbag	Yes	No	Yes	No
Head Airbag	No	N/A	No	N/A
Curtain Airbag	Yes	Yes	Yes	Yes
Seat Belt Pretensioner	No	N/A	No	N/A
Seat Belt Load Limiter	Unknown	Unknown	Unknown	Unknown

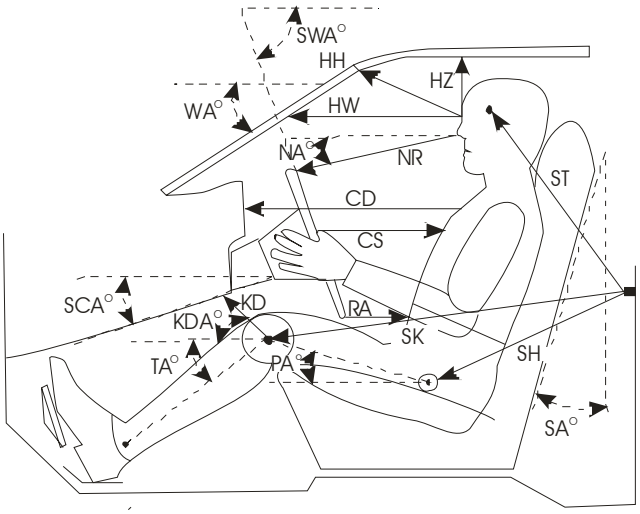
Restraint Type	Left Rear (Passenger) Occupant Location 04	
	Installed	Operation
Front Airbag	No	N/A
Side Airbag	No	N/A
Head Airbag	No	N/A
Curtain Airbag	Yes	Yes
Seat Belt Pretensioner	No	N/A
Seat Belt Load Limiter	Unknown	Unknown

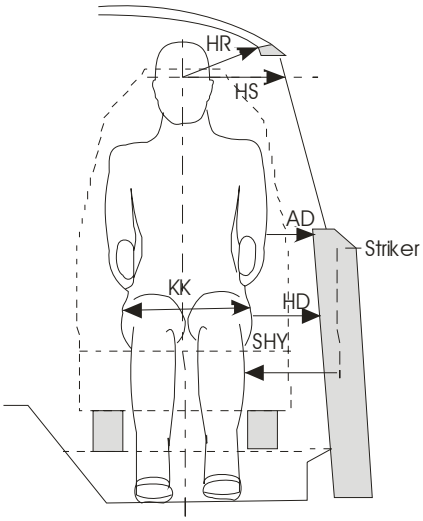
NOTE: The left and right side curtain airbags were deployed at 100 milliseconds using TRC Inc.'s airbag firing system.

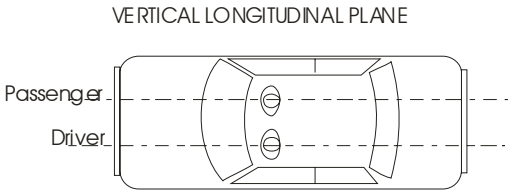
DATA SHEET NO. 4

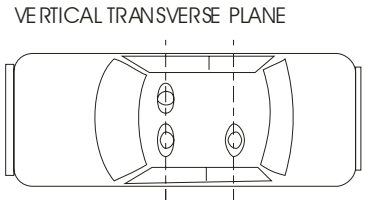
DUMMY MEASUREMENTS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09









DATA SHEET NO. 4 (CONTINUED)

DUMMY MEASUREMENTS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

FRONT SEAT OCCUPANTS

Code	Measurement Description	Driver (# 001)		Passenger (# 110)	
		Length (mm)	Angle(°)	Length (mm)	Angle (°)
WAº	Windshield Angle		---[1]		
SWAº	Steering Wheel Angle		---[2]		
SCAº	Steering Column Angle		---[2]		
SAº	Seat Back Angle (on headrest post)		13.8		10.3
HZ	Head to Roof (Z Direction)	246		212	
HH	Head to Header	441		430	
HW	Head to Windshield	710		660	
HR	Head to Side Header (Y Direction)	241		210	
NR	Nose to Rim	---[2]	---[2]		
CD	Chest to Dash	---[1]		---[1]	
CS	Steering Wheel to Chest	---[2]			
RA	Rim to Abdomen	---[2]			
KDL	Left Knee to Dash	191	9.5	161	
KDR	Right Knee to Dash	183	9.4	174	16.9
PAº	Pelvic Angle		22.0		26.5
TAº	Tibia Angle		---[1]		---[1]
KK	Knee to Knee (Y Direction)	276		231	
ST	Striker to Head	635	-31.9	673	-82.2
SK	Striker to Knee	596	-9.0	606	-8.3
SH	Striker to H-Point	221	11.8	209	-1.1
SHY	Striker to H-Point (Z Direction)	45		4	
HS	Head to Side Window (Y Direction)	318		304	
HD	H-Point to Door (Y Direction)	74		74	
AD	Arm to Door (Y Direction)	135		131	

The seat back angle (SA°) is measured relative to vertical; all other angles are measured relative to horizontal.
A negative angle indicates the measurement point was above the striker.

[1] Measurement is not available.

[2] Measurement is not available, steering column was removed pre-test.

DATA SHEET NO. 4 (CONTINUED)

DUMMY MEASUREMENTS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

LEFT REAR SEAT OCCUPANT

Code	Measurement Description	Left Rear Passenger (#043)	
		Length (mm)	Angle(°)
WA°	Windshield Angle		
SWA°	Steering Wheel Angle		
SCA°	Steering Column Angle		
SA°	Seat Back Angle (on headrest post)		9.0
HZ	Head to Roof (Z Direction)	245	
HH	Head to Header	601	
HW	Head to Windshield		
HR	Head to Side Header (Y Direction)	224	
NR	Nose to Rim		
CD	Chest to Dash	---[1]	
CS	Steering Wheel to Chest		
RA	Rim to Abdomen		
KDL	Left Knee to Dash (Seatback)	---[1]	---[1]
KDR	Right Knee to Dash (Seatback)	---[1]	
PA°	Pelvic Angle		24.8
TA°	Tibia Angle		---[1]
KK	Knee to Knee (Y Direction)	260	
ST	Striker to Head	542	-73.2
SK	Striker to Knee	680	2.8
SH	Striker to H-Point	320	26.9
SHY	Striker to H-Point (Z Direction)	145	
HS	Head to Side Window (Y Direction)	329	
HD	H-Point to Door (Y Direction)	74	
AD	Arm to Door (Y Direction)	200	

A negative angle indicates the measurement point was above the striker.

[1] Measurement not available.

DATA SHEET NO. 5

OCCUPANT INSTRUMENTATION DATA

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

LEFT FRONT

Location		Unit	Positive Direction Max.	Positive Direction Time (ms)	Negative Direction Max.	Negative Direction Time (ms)
Head Acceleration	X	g	3.0	2427.1	-11.2	2523.5
	Y	g	13.1	2523.8	-6.6	4330.3
	Z	g	12.9	2528.4	-2.2	4213.5
	R	g	19.8	2524.2		
Head Rate Gyro	X	°/s	1084.9	2535.0	-1011.9	2535.9
	Y	°/s	385.9	1974.6	-432.1	2386.0
	Z	°/s	327.1	617.4	-697.7	2535.0
Upper Neck Force	X	N	417.3	2537.0	-168.2	883.4
	Y	N	113.5	2179.6	-372.0	2541.1
	Z	N	329.7	4287.9	-2853.0	2534.8
Upper Neck Moment	X	Nm	24.1	2542.4	-19.8	2526.5
	Y	Nm	11.6	2539.6	-12.4	2525.9
	Z	Nm	10.7	649.4	-6.6	2581.3
Chest Acceleration	X	g	2.6	4216.2	-4.2	2535.4
	Y	g	8.8	2524.1	-5.9	4222.8
	Z	g	11.0	2533.8	-3.2	4220.4
	R	g	11.9	2534.0		
Chest Displacement	X	mm	1.8	1012.2	-1.6	4231.9
Lower Neck Force	X	N	708.4	2179.4	-2056.4	4329.8
	Y	N	3401.8	2535.8	-1214.5	4271.4
	Z	N	794.9	2526.1	-1863.0	4299.4
Lower Neck Moment	X	Nm	6.6	4266.3	-5.1	880.2
	Y	Nm	6.4	2526.2	-13.8	4311.9
	Z	Nm	2.8	2280.2	-18.0	2536.3
Pelvis Acceleration	X	g	3.1	4217.8	-3.8	1408.6
	Y	g	5.2	1371.2	-8.4	4218.6
	Z	g	9.7	2534.6	-3.0	4222.8
	R	g	9.9	2534.6		

Positive Direction
Longitudinal: Forward
Lateral: Rightward
Vertical: Downward

Negative Direction
Longitudinal: Rearward
Lateral: Leftward
Vertical: Upward

DATA SHEET NO. 5 (CONTINUED)

OCCUPANT INSTRUMENTATION DATA

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

RIGHT FRONT

Location		Unit	Positive Direction Max.	Positive Direction Time (ms)	Negative Direction Max.	Negative Direction Time (ms)
Head Acceleration	X	g	10.9	108.0	-13.9	107.8
	Y	g	10.9	3083.5	-32.0	108.2
	Z	g	13.7	107.3	-10.8	109.8
	R	g	34.1	108.2		
Head Front Acceleration	Y	g	12.9	3083.5	-22.4	4239.8
	Z	g	10.4	827.0	-7.2	109.9
Head Top Acceleration	X	g	6.5	109.4	-12.6	4234.3
	Y	g	19.6	3082.8	-52.6	108.4
Head Side Acceleration	X	g	110.3	107.4	-11.2	4239.5
	Z	g	24.4	107.6	-9.0	4202.3
Upper Neck Force	X	N	188.0	2238.6	-263.7	862.2
	Y	N	556.3	2219.7	-81.1	3122.5
	Z	N	566.2	111.8	-1567.5	107.4
Upper Neck Moment	X	Nm	29.8	1809.2	-27.5	842.0
	Y	Nm	9.6	3140.6	-17.3	844.4
	Z	Nm	5.4	4272.4	-13.9	4241.2
Lower Neck Force	X	N	210.5	3214.6	-150.9	860.1
	Y	N	307.5	4260.5	-135.0	1741.1
	Z	N	280.6	2579.4	-960.1	846.8
Lower Neck Moment	X	Nm	69.5	4263.4	-33.4	3122.6
	Y	Nm	82.3	848.0	-44.2	3232.1
	Z	Nm	16.3	4263.0	-6.6	1741.2
Chest Acceleration	X	g	4.1	3161.8	-2.6	2207.9
	Y	g	4.3	3126.0	-11.2	4230.0
	Z	g	7.8	833.1	-10.0	4199.6
	R	g	11.3	4230.0		
Chest Displacement	X	mm	2.5	4293.8	-2.0	2595.0
Pelvis Acceleration	X	g	3.0	3153.1	-3.7	815.4
	Y	g	4.1	3124.2	-8.3	1836.6
	Z	g	6.7	846.2	-8.6	4196.2
	R	g	9.9	4199.9		

Positive Direction
Longitudinal: Forward
Lateral: Rightward
Vertical: Downward

Negative Direction
Longitudinal: Rearward
Lateral: Leftward
Vertical: Upward

DATA SHEET NO. 5 (CONTINUED)

OCCUPANT INSTRUMENTATION DATA

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

LEFT REAR

Location		Unit	Positive Direction Max.	Positive Direction Time (ms)	Negative Direction Max.	Negative Direction Time (ms)
Head Acceleration	X	g	4.8	2145.2	-3.7	3108.2
	Y	g	8.8	3091.4	-8.5	4330.8
	Z	g	10.9	4286.6	-2.4	3117.5
	R	g	11.7	4297.2		
Head Rate Gyro	X	°/s	417.4	4438.7	-850.4	4297.0
	Y	°/s	373.9	1927.6	-343.5	2393.4
	Z	°/s	330.0	3101.0	-438.3	4303.4
Upper Neck Force	X	N	92.5	157.6	-131.7	3123.6
	Y	N	96.8	2133.4	-326.6	4327.6
	Z	N	466.4	4285.3	-305.2	1023.0
Upper Neck Moment	X	Nm	4.8	2230.1	-22.7	3105.4
	Y	Nm	7.2	2348.8	-11.3	4283.2
	Z	Nm	10.3	3116.1	-10.5	4332.6
Chest Acceleration	X	g	2.1	4233.2	-2.1	2279.0
	Y	g	7.5	3115.8	-5.2	4229.1
	Z	g	7.6	2267.2	-2.5	4222.4
	R	g	7.9	2267.5		
Chest Displacement	X	mm	1.0	4230.2	-1.3	624.2
Lower Neck Force	X	N	593.7	2137.1	-2578.6	4323.9
	Y	N	664.1	3199.5	-1380.9	4276.2
	Z	N	930.2	3104.1	-2134.8	4314.6
Lower Neck Moment	X	Nm	6.2	2277.4	-4.6	3110.4
	Y	Nm	5.0	3081.6	-17.5	4314.3
	Z	Nm	3.9	4286.2	-1.4	660.8
Pelvis Acceleration	X	g	2.3	1846.2	-4.2	2243.2
	Y	g	6.3	3127.4	-7.2	4235.6
	Z	g	8.4	2271.6	-6.2	1900.2
	R	g	9.4	2271.6		

Positive Direction
Longitudinal: Forward
Lateral: Rightward
Vertical: Downward

Negative Direction
Longitudinal: Rearward
Lateral: Leftward
Vertical: Upward

DATA SHEET NO. 6

VEHICLE STRUCTURAL MEASUREMENTS[1, 2]

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

STRUCTURAL MEASUREMENTS

	Elements	Pre-Test
1	Total Length	5208
2	Total Width	2007
3	Bumper Top Height	490
4	Bumper Bottom Height	415
5	Longitudinal Member Top Height	515
6	Longitudinal Member Bottom Height	435
7	Distance Between Longitudinal Members	845
7´	Longitudinal Member Width	100
8	Engine Top Height	991
9	Engine Bottom Height	291
10	Engine and Gearbox Width	750
11	Front Bumper - Engine Distance	650
12	Front Shock Absorber Fixing Height	821
13	Bonnet Leading Edge Height	1115
14	Front Shock Absorber Fixing Width	920
15	Front Bumper - Front Axle Distance	990
16	Front Axle - A Pillar Distance	675
17	A Pillar - B Pillar Distance	1065
18	B Pillar - Rear Axle Distance	1280
19	B Pillar - C Pillar Distance	995
20	Roof Sill Bottom Height	1653
21	Roof Sill Top Height	1792
22	Floor Sill Bottom Height	490
23	Floor Sill Top Height	543

All distance measurements are in millimeters and measured using a measuring tape.

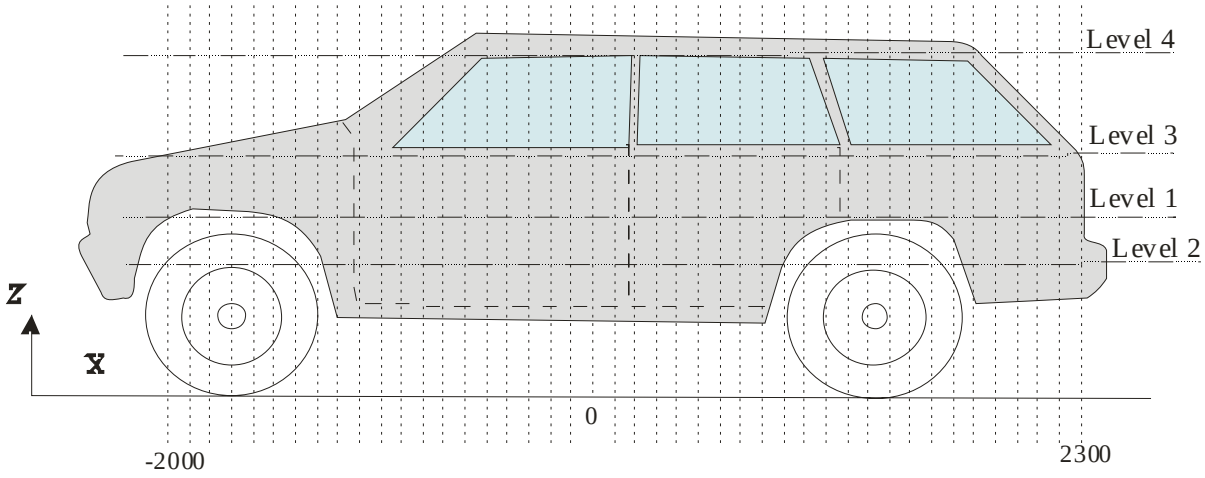
[1] Taken from INSIA report, "Structural Survey of Cars, Methodology of the Main Resistant Elements in the Car Body", March 1999.
[2] The vertical measurements from the ground are adjusted based on the test vehicle's pre-test attitude measurements.
[3] Measurement was not recorded.

DATA SHEET NO. 7

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Expedition

Test Program: Improved Restraints in Rollovers Test Date: 12/15/09



Left Side View

All measurements are in millimeters

Measurements are taken when the vehicle is in the "As Tested" configuration.

Measurements along the vertical 0 mm line shown above.

Horizontal measurement spacing is approximately 100 millimeters.

Level	Measurement Description	Height Above Ground (mm)
4	Window Top	1780
3	Window Sill	1140
2	Occupant H-Point	830
1	Mid Door	920

Levels 1 through 4 measurements were achieved using a tape measure.

DATA SHEET NO. 7 (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

LEFT SIDE CRUSH

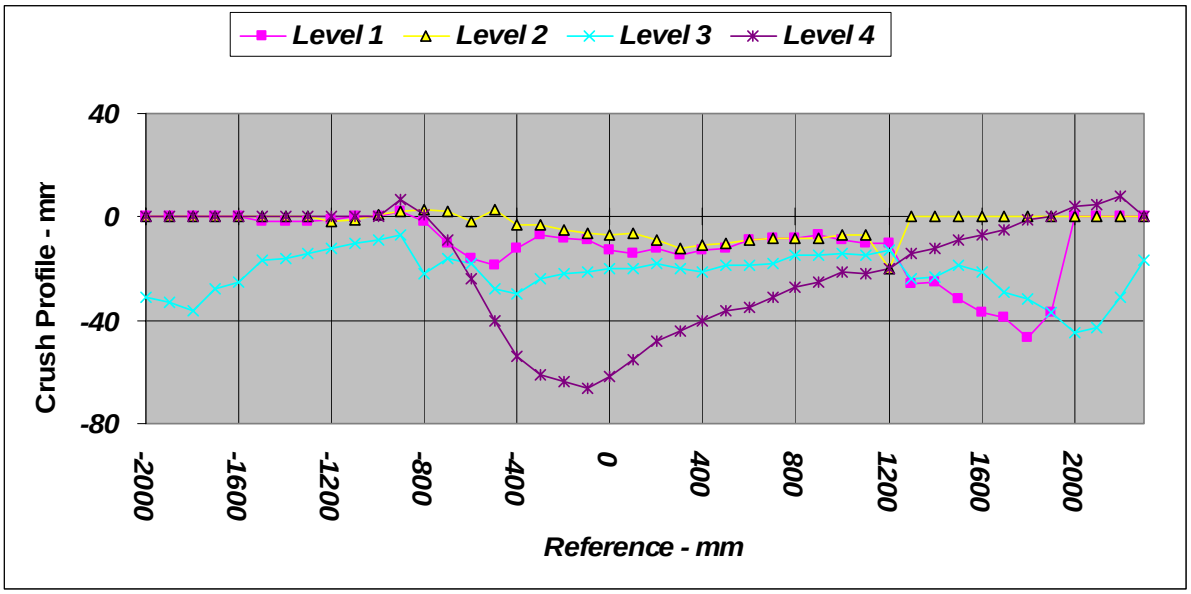
	Pre-Test				Post-Test				Difference			
	1	2	3	4	1	2	3	4	1	2	3	4
-2000			-857				-826				-31	
-1900			-875				-842				-33	
-1800			-888				-852				-36	
-1700			-898				-870				-28	
-1600			-907				-882				-25	
-1500	-978		-913		-976		-896		-2		-17	
-1400	-980		-919		-978		-903		-2		-16	
-1300	-977		-923		-975		-909		-2		-14	
-1200	-969	-981	-927		-968	-979	-915		-1	-2	-12	
-1100	-962	-975	-930		-962	-974	-920		0	-1	-10	
-1000	-964	-967	-933		-964	-968	-924		0	1	-9	
-900	-965	-967	-935	-883	-967	-969	-928	-890	2	2	-7	7
-800	-969	-971	-939	-851	-967	-974	-917	-852	-2	3	-22	1
-700	-972	-974	-942	-824	-962	-976	-926	-815	-10	2	-16	-9
-600	-975	-977	-945	-795	-959	-975	-927	-771	-16	-2	-18	-24
-500	-978	-979	-948	-763	-959	-982	-920	-723	-19	3	-28	-40
-400	-981	-982	-951	-731	-969	-979	-921	-677	-12	-3	-30	-54
-300	-983	-983	-954	-697	-976	-980	-930	-636	-7	-3	-24	-61
-200	-985	-985	-956	-684	-977	-980	-934	-620	-8	-5	-22	-64
-100	-986	-987	-958	-680	-977	-981	-937	-614	-9	-6	-21	-66
0	-987	-988	-960	-678	-974	-981	-940	-616	-13	-7	-20	-62
100	-989	-989	-961	-679	-975	-983	-941	-624	-14	-6	-20	-55
200	-989	-989	-962	-678	-977	-980	-944	-630	-12	-9	-18	-48
300	-989	-988	-963	-681	-974	-976	-943	-637	-15	-12	-20	-44
400	-990	-988	-964	-682	-977	-977	-943	-642	-13	-11	-21	-40
500	-990	-989	-964	-683	-978	-979	-945	-647	-12	-10	-19	-36
600	-989	-989	-965	-685	-980	-980	-946	-650	-9	-9	-19	-35
700	-989	-988	-965	-686	-981	-980	-947	-655	-8	-8	-18	-31
800	-989	-988	-964	-687	-981	-980	-949	-660	-8	-8	-15	-27
900	-988	-987	-964	-689	-981	-979	-949	-664	-7	-8	-15	-25
1000	-988	-986	-963	-690	-979	-979	-949	-669	-9	-7	-14	-21
1100	-988	-994	-962	-692	-978	-987	-947	-670	-10	-7	-15	-22
1200	-995	-999	-961	-692	-985	-979	-948	-672	-10	-20	-13	-20
1300	-1002		-958	-688	-976		-934	-674	-26		-24	-14
1400	-1002		-957	-687	-977		-934	-675	-25		-23	-12
1500	-1001		-956	-686	-969		-937	-677	-32		-19	-9
1600	-998		-954	-685	-961		-933	-678	-37		-21	-7
1700	-995		-957	-684	-956		-928	-679	-39		-29	-5
1800	-986		-955	-681	-939		-923	-680	-47		-32	-1
1900	-974		-953	-680	-937		-916	-680	-37		-37	0
2000			-950	-677			-905	-681			-45	4
2100			-947	-675			-904	-680			-43	5
2200			-945	-672			-914	-680			-31	8
2300			-942				-925				-17	

DATA SHEET NO. 7 (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

LEFT SIDE CRUSH



The side vehicle crush measurements and plot reported are lateral.

DATA SHEET NO. 7 (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Expedition

Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

RIGHT SIDE CRUSH

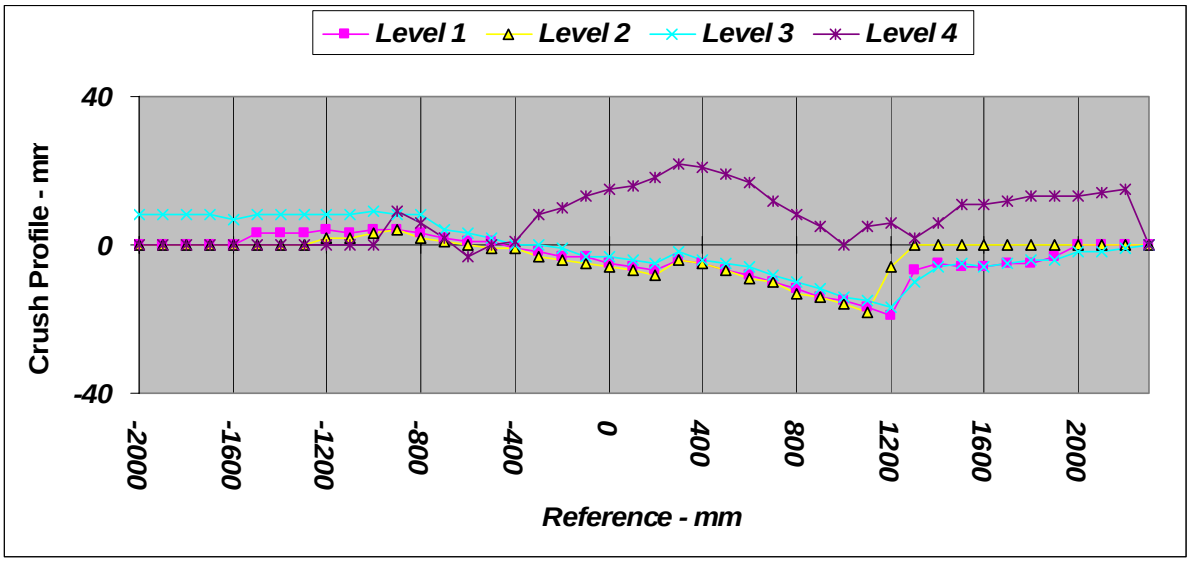
	Pre-Test				Post-Test				Difference			
	1	2	3	4	1	2	3	4	1	2	3	4
-2000			847				839				8	
-1900			864				856				8	
-1800			877				869				8	
-1700			887				879				8	
-1600			895				888				7	
-1500	975		902		972		894		3		8	
-1400	977		908		974		900		3		8	
-1300	975		912		972		904		3		8	
-1200	968	977	916		964	975	908		4	2	8	
-1100	960	973	920		957	971	912		3	2	8	
-1000	961	965	924		957	962	915		4	3	9	
-900	964	966	927	884	960	962	919	875	4	4	8	9
-800	968	969	931	854	965	967	923	848	3	2	8	6
-700	971	972	934	829	969	971	930	827	2	1	4	2
-600	974	975	938	798	973	975	935	801	1	0	3	-3
-500	977	977	941	767	976	978	939	767	1	-1	2	0
-400	979	980	944	731	980	981	944	730	-1	-1	0	1
-300	981	981	947	700	983	984	947	692	-2	-3	0	8
-200	983	983	950	689	986	987	951	679	-3	-4	-1	10
-100	984	984	952	684	987	989	955	671	-3	-5	-3	13
0	985	985	955	682	990	991	958	667	-5	-6	-3	15
100	986	986	958	681	992	993	962	665	-6	-7	-4	16
200	987	986	959	680	994	994	964	662	-7	-8	-5	18
300	986	985	960	679	990	989	962	657	-4	-4	-2	22
400	987	986	961	680	992	991	965	659	-5	-5	-4	21
500	987	986	963	682	994	993	968	663	-7	-7	-5	19
600	987	986	964	683	995	995	970	666	-8	-9	-6	17
700	987	986	964	684	997	996	972	672	-10	-10	-8	12
800	986	985	964	685	998	998	974	677	-12	-13	-10	8
900	986	985	964	687	1000	999	976	682	-14	-14	-12	5
1000	986	984	964	689	1001	1000	978	689	-15	-16	-14	0
1100	985	990	964	689	1002	1008	979	684	-17	-18	-15	5
1200	992	995	962	689	1011	1001	979	683	-19	-6	-17	6
1300	1000		961	688	1007		971	686	-7		-10	2
1400	1001		960	688	1006		966	682	-5		-6	6
1500	999		960	688	1005		965	677	-6		-5	11
1600	997		958	687	1003		964	676	-6		-6	11
1700	994		956	687	999		961	675	-5		-5	12
1800	985		954	686	990		958	673	-5		-4	13
1900	974		952	684	977		956	671	-3		-4	13
2000			950	683			952	670			-2	13
2100			947	682			949	668			-2	14
2200			945	681			946	666			-1	15
2300			942				942				0	

DATA SHEET NO. 7 (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

RIGHT SIDE CRUSH

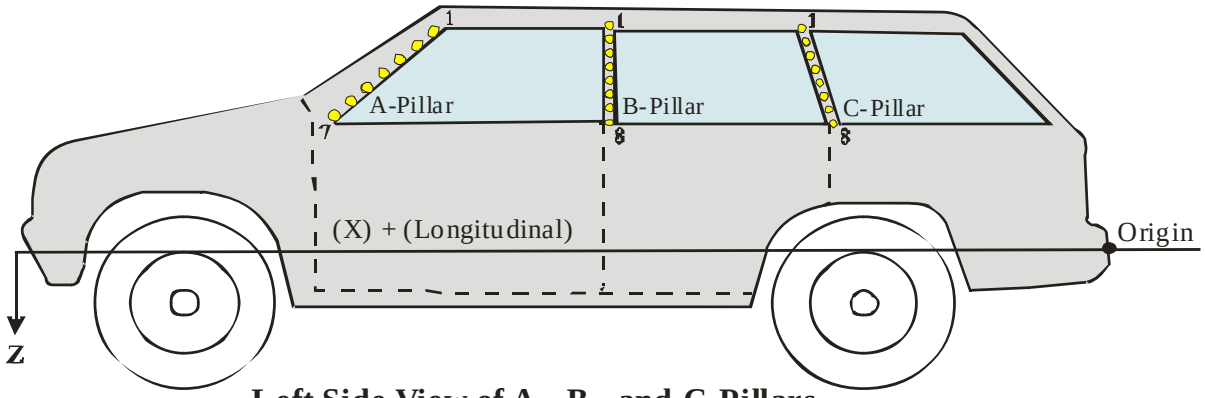


The side vehicle crush measurements and plot reported is lateral.

DATA SHEET NO. 7 (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09



Left Side View of A-, B-, and C-Pillars

Vertical measurement spacing is approximately 100 millimeters.

Points 1 through 7 on the A-Pillar are the same as measurements -900 through -300 on Level 1 of left and right side crush.

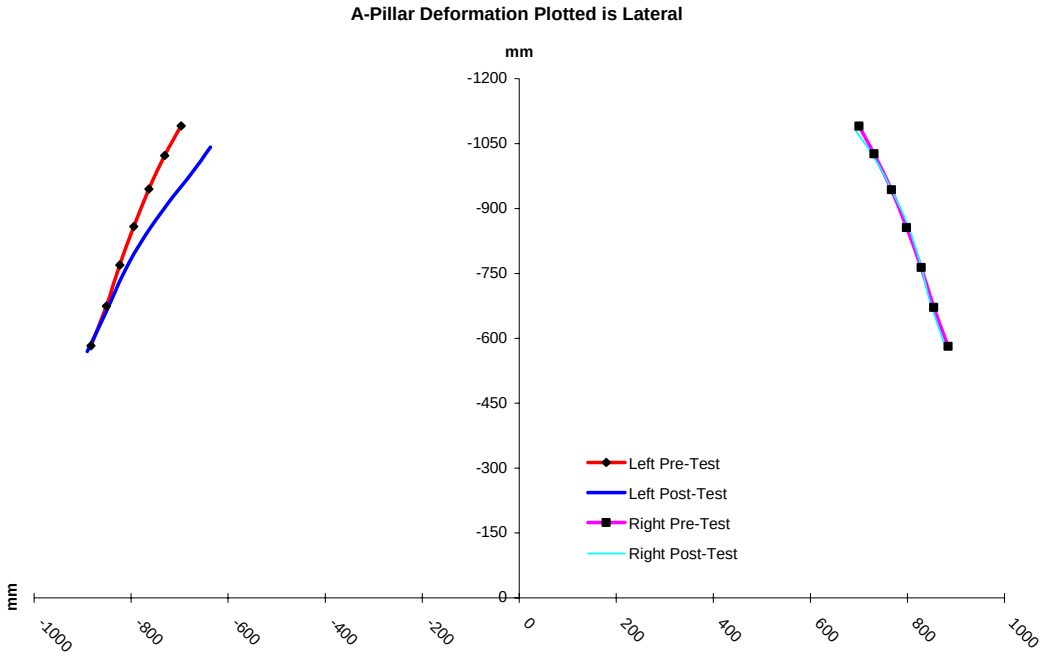
DATA SHEET NO. 7 (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

A-PILLAR MEASUREMENTS

Index	Pre-Test			Post-Test			Difference		
Left A-Pillar	X (mm)	Y (mm)	Z (mm)	X (mm)	Y (mm)	Z (mm)	X (mm)	Y (mm)	Z (mm)
(1)	3626	-883	-583	3623	-890	-569	4	8	-13
(2)	3529	-851	-675	3527	-852	-660	2	1	-14
(3)	3428	-824	-769	3426	-815	-752	2	-9	-17
(4)	3330	-795	-858	3328	-771	-837	2	-23	-22
(5)	3227	-763	-945	3224	-723	-912	3	-40	-32
(6)	3132	-731	-1022	3126	-677	-979	5	-54	-43
(7)	3024	-697	-1091	3018	-636	-1042	6	-60	-49
(8)	3626	-883	-583	3623	-890	-569	4	8	-13
Right A-Pillar									
(1)	3631	884	-581	3625	875	-591	6	9	10
(2)	3532	854	-672	3522	848	-680	10	6	8
(3)	3432	829	-764	3421	827	-771	11	2	8
(4)	3332	798	-856	3318	801	-860	14	-2	5
(5)	3229	767	-943	3212	767	-943	17	-1	0
(6)	3128	731	-1027	3107	730	-1021	21	2	-6
(7)	3018	700	-1091	2997	692	-1082	22	8	-9
(8)	3631	884	-581	3625	875	-591	6	9	10



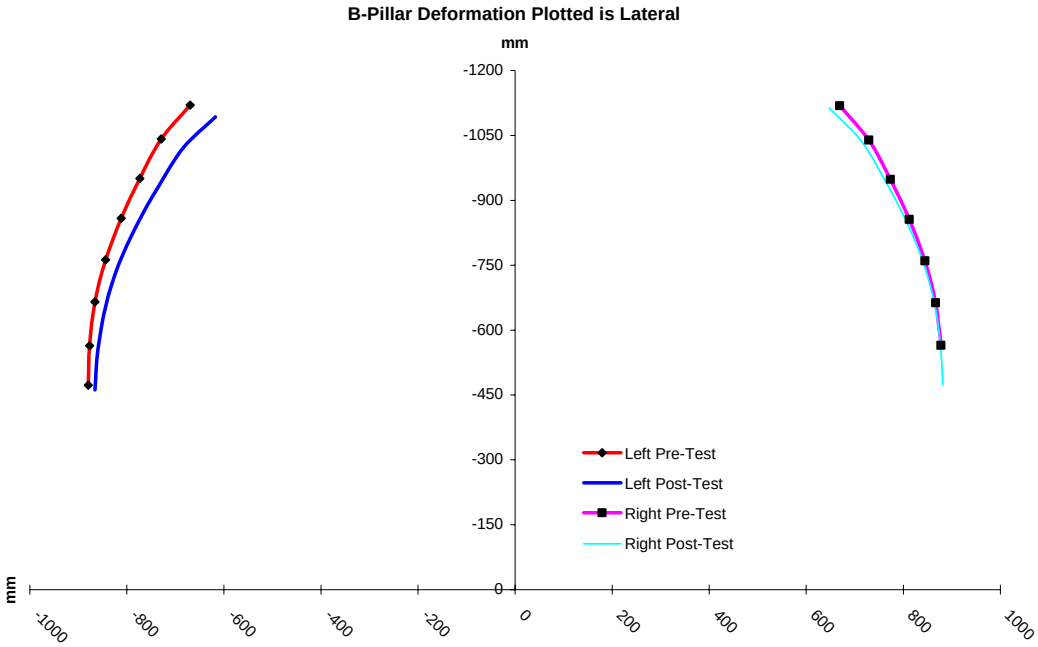
DATA SHEET NO. 7 (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

B-PILLAR MEASUREMENTS

Index	Pre-Test			Post-Test			Difference		
Left B-Pillar	X (mm)	Y (mm)	Z (mm)	X (mm)	Y (mm)	Z (mm)	X (mm)	Y (mm)	Z (mm)
(1)	2472	-670	-1120	2478	-617	-1093	-6	-52	-27
(2)	2479	-729	-1042	2484	-684	-1021	-5	-45	-20
(3)	2482	-773	-950	2487	-734	-933	-5	-39	-17
(4)	2487	-811	-858	2492	-779	-844	-6	-32	-14
(5)	2494	-844	-763	2499	-817	-751	-5	-26	-12
(6)	2499	-866	-665	2504	-844	-654	-5	-22	-11
(7)	2504	-877	-564	2508	-860	-554	-4	-17	-11
(8)	2503	-880	-473	2507	-866	-462	-5	-14	-11
Right B-Pillar									
(1)	2476	669	-1119	2464	647	-1113	12	22	-6
(2)	2482	729	-1039	2470	713	-1037	12	16	-2
(3)	2486	774	-949	2475	761	-949	11	12	0
(4)	2491	812	-856	2481	804	-858	10	9	2
(5)	2496	845	-760	2487	839	-763	9	6	3
(6)	2504	867	-663	2496	863	-667	8	4	4
(7)	2503	878	-565	2497	876	-568	6	1	3
(8)	2502	880	-470	2497	881	-474	5	-1	4



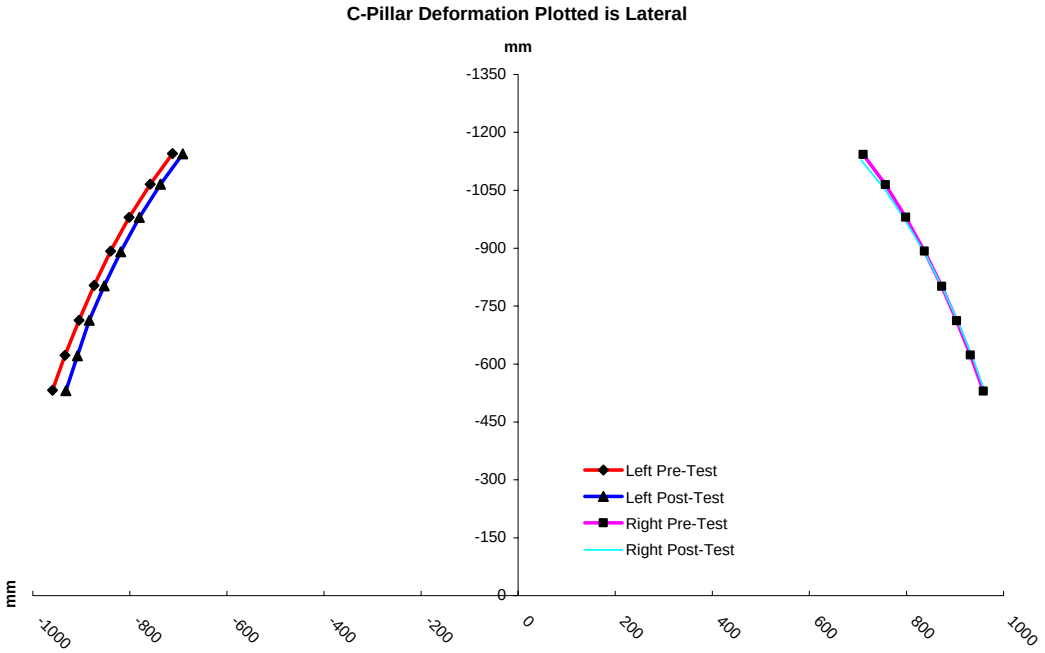
DATA SHEET NO. 7 (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

C-PILLAR MEASUREMENTS

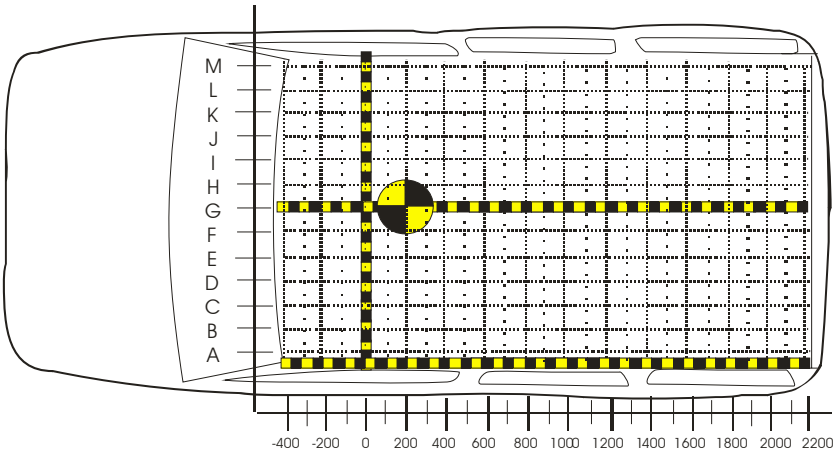
Index	Pre-Test			Post-Test			Difference		
Left C-Pillar	X (mm)	Y (mm)	Z (mm)	X (mm)	Y (mm)	Z (mm)	X (mm)	Y (mm)	Z (mm)
(1)	1560	-712	-1145	1571	-691	-1145	-11	-21	-1
(2)	1529	-758	-1066	1540	-737	-1066	-11	-21	0
(3)	1496	-801	-980	1506	-780	-980	-10	-21	0
(4)	1463	-839	-893	1473	-819	-891	-9	-21	-2
(5)	1431	-874	-804	1440	-853	-803	-9	-21	-1
(6)	1399	-905	-714	1408	-884	-713	-9	-21	0
(7)	1367	-934	-623	1375	-908	-621	-8	-26	-2
(8)	1334	-959	-532	1341	-932	-531	-7	-28	-2
Right C-Pillar									
(1)	1570	711	-1143	1566	707	-1128	4	4	-15
(2)	1535	757	-1065	1532	756	-1052	4	1	-13
(3)	1501	798	-980	1498	800	-967	4	-1	-13
(4)	1468	837	-893	1464	840	-881	4	-3	-12
(5)	1435	873	-801	1431	877	-791	4	-4	-10
(6)	1404	903	-713	1398	908	-703	6	-5	-10
(7)	1373	932	-624	1367	937	-614	6	-6	-10
(8)	1338	959	-530	1332	963	-521	6	-5	-9



DATA SHEET NO. 7 (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09



ROOF EXTERIOR CRUSH LEFT (ROWS A – D)

	Pre-Test				Post-Test				Difference			
	A	B	C	D	A	B	C	D	A	B	C	D
-400	-603	-494	-393	-291	-539	-440	-341	-241	-64	-54	-52	-50
-300	-603	-497	-397	-294	-534	-442	-346	-245	-69	-55	-51	-49
-200	-601	-497	-398	-295	-527	-426	-335	-246	-74	-71	-63	-49
-100	-601	-496	-398	-296	-527	-427	-334	-248	-74	-69	-64	-48
0	-597	-496	-396	-297	-527	-433	-339	-249	-70	-63	-57	-48
100	-600	-496	-395	-298	-538	-440	-344	-250	-62	-56	-51	-48
200	-600	-497	-396	-297	-543	-449	-350	-250	-57	-48	-46	-47
300	-601	-496	-396	-297	-549	-454	-358	-259	-52	-42	-38	-38
400	-602	-496	-396	-295	-554	-459	-360	-266	-48	-37	-36	-29
500	-600	-496	-395	-297	-560	-463	-366	-270	-40	-33	-29	-27
600	-602	-497	-396	-296	-566	-468	-370	-274	-36	-29	-26	-22
700	-601	-495	-396	-296	-569	-470	-373	-274	-32	-25	-23	-22
800	-600	-497	-397	-297	-571	-476	-376	-278	-29	-21	-21	-19
900	-600	-498	-398	-297	-574	-479	-379	-278	-26	-19	-19	-19
1000	-599	-497	-398	-297	-576	-479	-380	-279	-23	-18	-18	-18
1100	-600	-499	-398	-294	-578	-480	-381	-279	-22	-19	-17	-15
1200	-598	-498	-397	-296	-580	-481	-382	-281	-18	-17	-15	-15
1300	-598	-499	-398	-297	-581	-484	-384	-283	-17	-15	-14	-14
1400	-600	-497	-399	-299	-584	-485	-387	-286	-16	-12	-12	-13
1500	-601	-499	-398	-298	-586	-486	-386	-286	-15	-13	-12	-12
1600	-600	-498	-398	-292	-588	-487	-388	-283	-12	-11	-10	-9
1700	-600	-496	-396	-295	-590	-489	-388	-286	-10	-7	-8	-9
1800	-600	-497	-397	-294	-592	-489	-390	-289	-8	-8	-7	-5
1900	-601	-497	-396	-297	-594	-490	-390	-291	-7	-7	-6	-6
2000	-599	-499	-398	-297	-595	-493	-393	-292	-4	-6	-5	-5
2100	-600	-499	-399	-300	-597	-495	-394	-297	-3	-4	-5	-3
2200	-595	-497	0	-299	-594	-495	0	-296	-1	-2	0	-3

DATA SHEET NO. 7 (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

ROOF EXTERIOR CRUSH CENTER (ROWS E – I)

	Pre-Test					Post-Test					Difference				
	E	F	G	H	I	E	F	G	H	I	E	F	G	H	I
-400	-196	-98	3	101	201	-148	-51	48	145	244	-48	-47	-45	-44	-43
-300	-196	-96	3	100	203	-148	-49	46	141	243	-48	-47	-43	-41	-40
-200	-196	-99	2	99	203	-149	-55	43	139	240	-47	-44	-41	-40	-37
-100	-196	-98	2	98	202	-155	-58	37	134	236	-41	-40	-35	-36	-34
0	-199	-96	4	98	200	-162	-61	35	131	231	-37	-35	-31	-33	-31
100	-197	-96	4	99	198	-158	-63	33	128	228	-39	-33	-29	-29	-30
200	-196	-95	3	97	201	-160	-66	30	124	226	-36	-29	-27	-27	-25
300	-197	-95	3	95	200	-163	-68	29	122	222	-34	-27	-26	-27	-22
400	-195	-95	3	96	199	-166	-66	29	121	221	-29	-29	-26	-25	-22
500	-197	-97	3	97	198	-171	-71	26	120	220	-26	-26	-23	-23	-22
600	-196	-100	3	97	198	-175	-77	25	119	219	-21	-23	-22	-22	-21
700	-197	-100	3	97	200	-176	-80	23	118	220	-21	-20	-20	-21	-20
800	-198	-100	3	98	202	-180	-82	22	118	221	-18	-18	-19	-20	-19
900	-198	-100	3	100	201	-180	-83	19	118	219	-18	-17	-16	-18	-18
1000	-199	-99	1	100	200	-182	-82	19	116	217	-17	-17	-18	-16	-17
1100	-201	-98	2	97	199	-185	-82	17	114	214	-16	-16	-15	-17	-15
1200	-198	-96	1	95	198	-184	-83	16	112	214	-14	-13	-15	-17	-16
1300	-199	-99	0	95	200	-186	-86	14	110	212	-13	-13	-14	-15	-12
1400	-199	-97	1	96	198	-187	-85	13	109	209	-12	-12	-12	-13	-11
1500	-198	-97	1	97	197	-187	-88	11	107	209	-11	-9	-10	-10	-12
1600	-197	-99	2	95	198	-190	-89	11	106	210	-7	-10	-9	-11	-12
1700	-197	-97	3	95	200	-189	-90	11	104	209	-8	-7	-8	-9	-9
1800	-197	-97	3	95	200	-190	-91	9	103	207	-7	-6	-6	-8	-7
1900	-196	-98	3	95	197	-191	-93	8	102	204	-5	-5	-5	-7	-7
2000	-197	-99	3	95	200	-192	-95	7	101	205	-5	-4	-4	-6	-5
2100	-198	-99	4	103	200	-195	-95	7	108	205	-3	-4	-3	-5	-5
2200	-207	-105	3	97	198	-205	-103	6	101	202	-2	-2	-3	-4	-4

DATA SHEET NO. 7 (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

ROOF EXTERIOR CRUSH RIGHT (ROWS J – M)

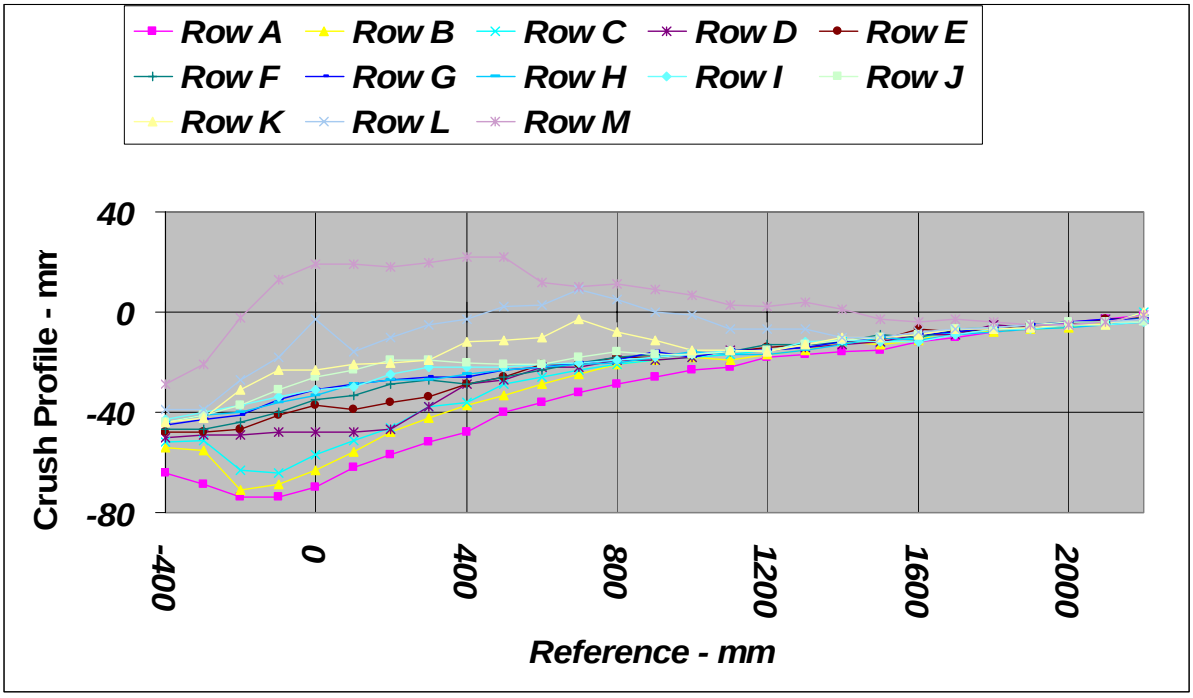
	Pre-Test				Post-Test				Difference			
	J	K	L	M	J	K	L	M	J	K	L	M
-400	304	396	508	595	348	440	547	624	-44	-44	-39	-29
-300	305	397	500	594	346	439	539	615	-41	-42	-39	-21
-200	302	397	502	593	339	428	529	595	-37	-31	-27	-2
-100	301	398	500	593	332	421	518	580	-31	-23	-18	13
0	300	399	500	593	326	422	503	574	-26	-23	-3	19
100	299	399	499	594	322	420	515	575	-23	-21	-16	19
200	302	401	500	594	321	421	510	576	-19	-20	-10	18
300	301	401	501	595	320	420	506	575	-19	-19	-5	20
400	299	399	501	595	319	411	504	573	-20	-12	-3	22
500	298	399	502	595	319	410	500	573	-21	-11	2	22
600	298	397	502	594	319	407	499	582	-21	-10	3	12
700	300	401	503	596	318	404	494	586	-18	-3	9	10
800	302	401	504	596	318	409	499	585	-16	-8	5	11
900	301	400	504	596	318	411	504	587	-17	-11	0	9
1000	302	400	505	595	319	415	506	588	-17	-15	-1	7
1100	299	399	504	596	315	414	511	593	-16	-15	-7	3
1200	300	399	503	596	315	415	510	594	-15	-16	-7	2
1300	299	399	499	598	312	412	506	594	-13	-13	-7	4
1400	300	399	499	596	311	409	509	595	-11	-10	-10	1
1500	298	398	497	596	308	408	507	599	-10	-10	-10	-3
1600	298	400	499	596	307	409	507	600	-9	-9	-8	-4
1700	299	400	499	596	306	407	506	599	-7	-7	-7	-3
1800	300	401	500	596	306	408	506	600	-6	-7	-6	-4
1900	299	397	497	597	304	403	502	602	-5	-6	-5	-5
2000	300	400	499	597	304	405	504	602	-4	-5	-5	-5
2100	301	401	500	598	305	406	504	602	-4	-5	-4	-4
2200	301	0	501	599	305	0	504	600	-4	0	-3	-1

DATA SHEET NO. 7 (CONTINUED)

VEHICLE EXTERIOR CRUSH MEASUREMENTS

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

ROOF CRUSH

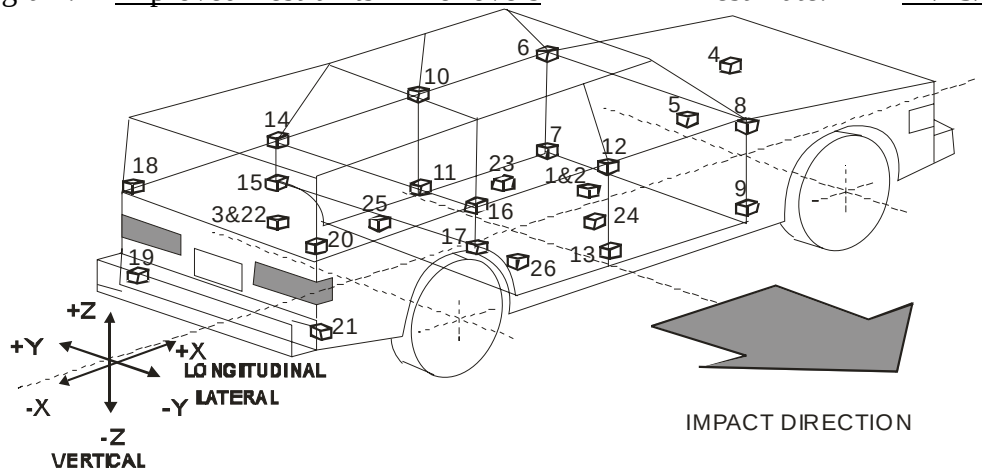


The roof crush measurements and plot reported are vertical.

DATA SHEET NO. 8

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09



Loc. No.	Accelerometer Location	Measurements (mm)		
		X	Y	Z
1	Vehicle Center of Gravity	2570	50	-
2	Vehicle Center of Gravity ROLL	2570	-55	-
3	Rear Deck (cargo area) ROLL	380	0	-
4	Top of Engine	4342	0	-
5	Bottom of Engine	4002	0	-
6	Left A-Pillar Upper	3035	-620	-
7	Left A-Pillar Lower	3536	-800	-
8	Right A-Pillar Upper	3035	620	-
9	Right A-Pillar Lower	3536	820	-
10	Left B-Pillar Upper	2475	-657	-
11	Left B-Pillar Lower	2455	-835	-
12	Right B-Pillar Upper	2472	657	-
13	Right B-Pillar Lower	2455	835	-
14	Left C-Pillar Upper	1615	-672	-
15	Left C-Pillar Lower	1740	-800	-
16	Right C-Pillar Upper	1625	672	-
17	Right C-Pillar Lower	1745	800	-
18	Left D-Pillar Upper	480	-610	-
19	Left D-Pillar Lower	295	-735	-
20	Right D-Pillar Upper	463	610	-
21	Right D-Pillar Lower	275	735	-
22	Vehicle Rear Deck	350	0	-
23	LF Seat Position (on floor)	2785	-420	-
24	RF Seat Position (on floor)	2785	420	-
25	LR Seat Position (on floor)	1825	-440	-
26	RR Seat Position (on floor)	1855	440	-

DATA SHEET NO. 8 (CONTINUED)

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

Location		Unit	Positive Direction Max.	Positive Direction Time (ms)	Negative Direction Max.	Negative Direction Time (ms)
(1) Vehicle Center of Gravity Acceleration	X	g	136.8	901.0	-198.9	2255.2
	Y	g	4.9	1333.0	-6.7	1814.6
	Z	g	8.3	789.8	-4.2	4127.8
	R	g	198.9	2255.2		
(2) Vehicle Center of Gravity Gyro[1]	X	°/s	679.7	1433.1	-1452.4	785.4
	Y	°/s	766.0	1810.8	-579.7	786.8
	Z	°/s	1594.0	785.7	-1266.0	1809.6
(3) Rear Deck Gyro (cargo area) [1]	X	°/s	817.7	2214.6	-932.8	2227.7
	Y	°/s	1342.8	3067.8	-1380.2	2214.0
	Z	°/s	1238.3	2214.5	-1228.1	2227.8
(4) Top of Engine	X	g	2.2	3115.3	-2.3	1328.1
	Y	g	14.6	1327.8	-6.6	1858.3
	Z	g	8.6	801.4	-8.1	1324.6
	R	g	16.1	1327.1		
(5) Bottom of Engine	X	g	2.6	1324.9	-2.0	2731.2
	Y	g	25.2	1324.6	-7.3	1827.3
	Z	g	6.2	802.1	-4.3	4171.7
	R	g	25.7	1324.6		
(6) Left A-Pillar Upper[1]	X	g	36.7	4235.4	-3.6	2633.8
	Y	g	21.4	4233.0	-25.5	4186.6
	Z	g	15.7	2492.1	-35.9	4187.3
	R	g	46.1	4187.1		
(7) Left A-Pillar Lower	X	g	2.9	1338.2	-2.4	1389.4
	Y	g	9.7	1333.4	-4.9	1826.6
	Z	g	7.5	980.6	-2.0	1356.6
	R	g	10.1	1333.4		
(8) Right A-Pillar Upper	X	g	11.3	105.0	-3.5	4145.9
	Y	g	4.2	3039.4	-10.8	2177.6
	Z	g	11.2	2178.1	-5.2	111.0
	R	g	15.5	2177.8		
(9) Right A-Pillar Lower[1]	X	g	3.3	1389.0	-2.2	2720.0
	Y	g	7.0	1337.4	-7.4	1826.2
	Z	g	6.6	834.6	-7.0	4129.0
	R	g	8.3	1337.3		

[1] See Test Notes.

DATA SHEET NO. 8 (CONTINUED)

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

Location		Unit	Positive Direction Max.	Positive Direction Time (ms)	Negative Direction Max.	Negative Direction Time (ms)
(10) Left B-Pillar Upper[1]	X	g	9.8	978.0	-188.8	983.7
	Y	g	8.3	789.0	-10.4	4161.9
	Z	g	12.0	975.6	-3.3	118.4
	R	g	189.1	983.7		
(11) Left B-Pillar Lower[1]	X	g	3.5	1337.5	-1.8	1377.4
	Y	g	15.2	2572.6	-5.8	1815.2
	Z	g	7.6	2519.0	-2.7	1822.2
	R	g	15.3	2572.6		
(12) Right B-Pillar Upper	X	g	3.5	111.8	-5.3	116.6
	Y	g	3.7	1354.6	-21.1	2165.9
	Z	g	9.1	773.8	-7.5	4157.8
	R	g	21.8	2166.0		
(13) Right B-Pillar Lower	X	g	3.5	1389.0	-2.3	1338.6
	Y	g	4.5	1391.4	-65.6	119.4
	Z	g	30.6	119.2	-6.4	4132.9
	R	g	72.3	119.4		
(14) Left C-Pillar Upper	X	g	13.0	105.8	-3.4	2231.2
	Y	g	10.6	108.4	-15.4	105.2
	Z	g	9.8	994.2	-5.3	119.1
	R	g	20.3	105.3		
(15) Left C-Pillar Lower	X	g	3.0	1338.1	-2.3	1389.0
	Y	g	8.1	1389.4	-6.1	1814.0
	Z	g	6.6	993.0	-5.0	121.3
	R	g	8.7	1389.4		
(16) Right C-Pillar Upper	X	g	3.7	104.1	-4.2	1350.3
	Y	g	13.6	105.4	-18.5	773.6
	Z	g	9.8	775.6	-7.4	117.5
	R	g	20.5	774.0		
(17) Right C-Pillar Lower	X	g	6.3	1809.0	-2.2	1338.8
	Y	g	5.5	1389.3	-25.5	1813.1
	Z	g	9.4	775.6	-5.7	4130.7
	R	g	26.9	1813.1		
(18) Left D-Pillar Upper	X	g	4.8	792.6	-21.8	103.4
	Y	g	12.5	2189.4	-8.9	2232.1
	Z	g	8.5	2236.6	-3.2	1390.1
	R	g	21.8	103.4		

[1] See Test Notes.

DATA SHEET NO. 8 (CONTINUED)

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09

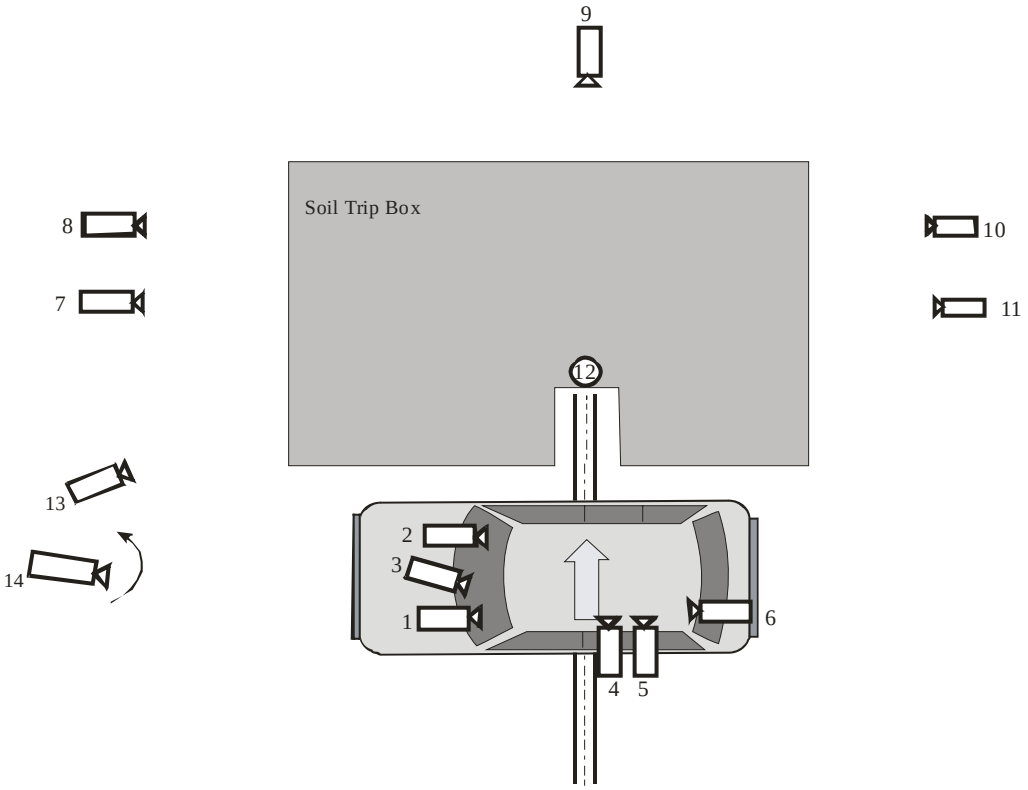
Location		Unit	Positive Direction Max.	Positive Direction Time (ms)	Negative Direction Max.	Negative Direction Time (ms)
(19) Left D-Pillar Lower	X	g	3.3	1810.0	-8.4	3073.7
	Y	g	8.7	1384.3	-18.1	2218.6
	Z	g	12.8	2231.5	-6.0	1779.2
	R	g	21.6	2218.6		
(20) Right D-Pillar Upper	X	g	29.2	1023.9	-4.2	1353.9
	Y	g	5.9	3059.9	-23.6	2188.6
	Z	g	17.6	789.4	-9.1	1023.7
	R	g	30.7	1023.9		
(21) Right D-Pillar Lower	X	g	6.4	2201.9	-3.1	1810.2
	Y	g	6.9	1384.3	-8.1	1818.1
	Z	g	14.8	2189.0	-7.2	1792.1
	R	g	15.4	2189.2		
(22) Vehicle Rear Deck	X	g	14.9	2213.0	-20.0	3074.5
	Y	g	8.0	1384.0	-19.4	2213.8
	Z	g	12.7	2225.7	-4.7	1786.7
	R	g	24.7	2213.4		
(23) LF Seat Position (on floor)	X	g	3.2	1336.9	-1.2	4172.3
	Y	g	5.9	1334.2	-6.6	1814.7
	Z	g	7.3	791.0	-4.6	1815.8
	R	g	7.8	1815.0		
(24) RF Seat Position (on floor)	X	g	2.2	1826.1	-1.8	2714.4
	Y	g	4.4	1334.0	-6.9	1815.2
	Z	g	6.4	833.0	-5.7	4133.9
	R	g	6.9	1815.2		
(25) LR Seat Position(on floor)	X	g	2.0	1818.8	-1.5	1375.6
	Y	g	7.6	1389.3	-7.7	1813.9
	Z	g	6.2	2214.6	-4.0	1802.2
	R	g	8.2	1814.3		
(26) RR Seat Position(on floor)	X	g	1.8	1383.3	-3.9	1834.7
	Y	g	5.8	1389.4	-8.7	1813.7
	Z	g	6.7	2237.4	-5.3	1811.5
	R	g	9.8	1813.8		

Reference: X: + Forward from rear bumper
Y: + Rightward from vehicle centerline
Z: + Downward from ground level
For acceleration data sign convention see Report Sign Convention in Appendix D.

DATA SHEET NO. 9

HIGH-SPEED CAMERA DATA

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09



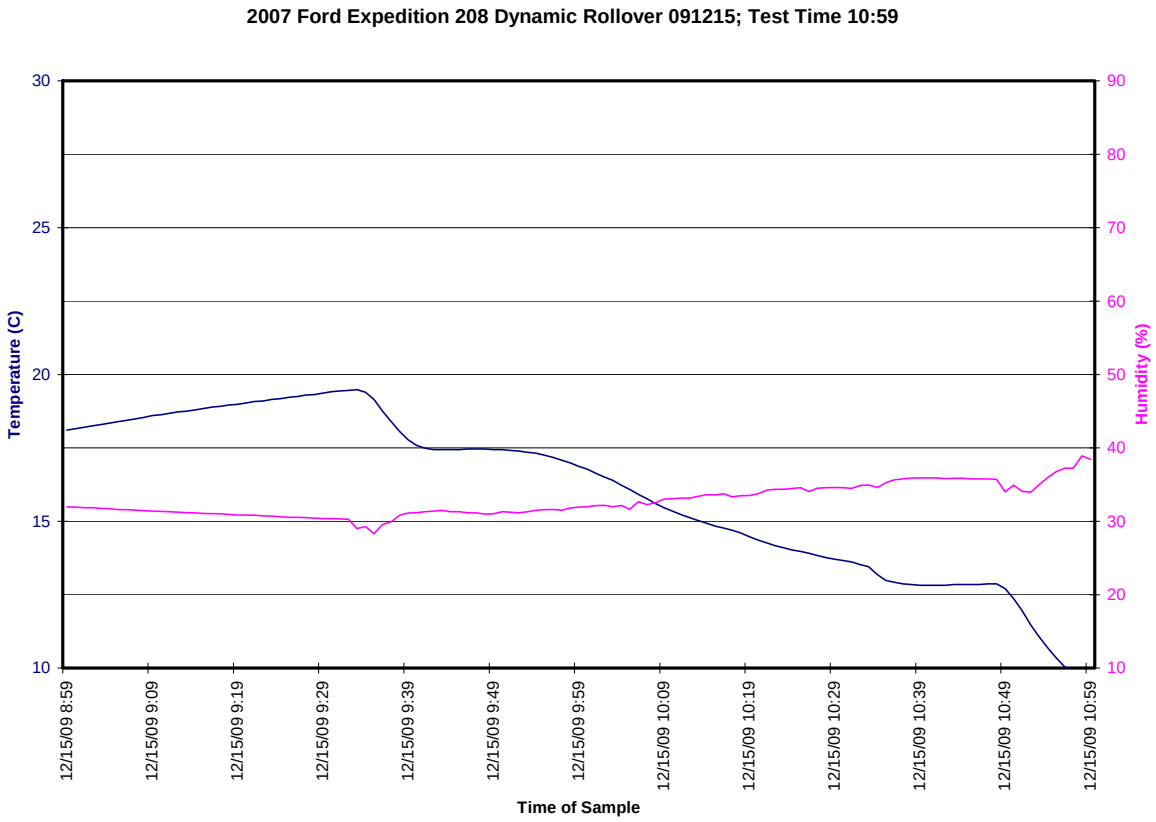
No.	Camera View	Camera Type	Lens (mm)	Speed (fps)	Trigger Delay (ms)
1	Driver Overall - Onboard	VRTC – 1	5.5	500	0
2	Passenger Overall - Onboard	VRTC – 2	6.5	500	0
3	Driver Pelvis Area - Onboard[1]	VRTC – 3	8	500	0
4	Rear Passenger Waste Up	Redlake – LE	6	500	0
5	Rear Passenger Overall	Redlake – LE	4.8	500	0
6	Rear Passenger Head	Redlake – LE	6	500	0
7	Vehicle Left Side Launch	Visario G2	10	500	0
8	Vehicle Left Side Later in Event	Redlake – LE	12.5	500	0
9	Downstream Wide	Visario G2	10	500	0
10	Vehicle Right Side Later in Event	Visario G1	16	500	0
11	Vehicle Right Side Launch	Visario G1	25	500	0
12	Overhead wide	Visario G1	12.5	500	0
13	Upstream Oblique Wide	Visario G1	12.5	500	0
14	Real-time Panning	Canon	zoom	24	

[1] Camera failed to record any useable image.

DATA SHEET NO. 10

DUMMY / VEHICLE TEMPERATURE STABILIZATION DATA

Test Vehicle: 2007 Ford Expedition
Test Program: Improved Restraints in Rollovers Test Date: 12/15/09



APPENDIX A

PHOTOGRAPHS

LIST OF PHOTOGRAPHS

Figure		Page
A-1	Pre-Test Front View	A-5
A-2	Post-Test Front View	A-5
A-3	Pre-Test Left Front View	A-6
A-4	Post-Test Left Front View	A-6
A-5	Pre-Test Left Side View	A-7
A-6	Post-Test Left Side View	A-7
A-7	Pre-Test Left Rear View	A-8
A-8	Post-Test Left Rear View	A-8
A-9	Pre-Test Rear View	A-9
A-10	Post-Test Rear View	A-9
A-11	Pre-Test Right Rear View	A-10
A-12	Post-Test Right Rear View	A-10
A-13	Pre-Test Right Side View	A-11
A-14	Post-Test Right Side View	A-11
A-15	Pre-Test Right Front View	A-12
A-16	Post-Test Right Front View	A-12
A-17	Pre-Test Front Underbody View	A-13
A-18	Post-Test Front Underbody View	A-13
A-19	Pre-Test Rear Underbody View	A-14
A-20	Post-Test Rear Underbody View	A-14
A-21	Pre-Test Windshield View	A-15
A-22	Post-Test Windshield View	A-15
A-23	Pre-Test Windshield View - Driver Dummy	A-16
A-24	Post-Test Windshield View - Driver Dummy	A-16
A-25	Pre-Test Driver Dummy - View 1	A-17
A-26	Post-Test Driver Dummy - View 1	A-17
A-27	Pre-Test Driver Dummy - View 2	A-18
A-28	Post-Test Driver Dummy - View 2	A-18

LIST OF PHOTOGRAPHS (CONTINUED)

Figure		Page
A-29	Pre-Test Driver Dummy - View 3	A-19
A-30	Post-Test Driver Dummy - View 3	A-19
A-31	Pre-Test Driver Dummy - View 4	A-20
A-32	Post-Test Driver Dummy - View 4 Photo Not Available	A-20
A-33	Pre-Test Driver Dummy - View 5	A-21
A-34	Post-Test Driver Dummy - View 5	A-21
A-35	Pre-Test Windshield View – Right Front Passenger	A-22
A-36	Post-Test Windshield View – Right Front Passenger	A-22
A-37	Pre-Test Right Front Passenger Dummy - View 1	A-23
A-38	Post-Test Right Front Passenger Dummy - View 1	A-23
A-39	Pre-Test Right Front Passenger Dummy - View 2	A-24
A-40	Post-Test Right Front Passenger Dummy - View 2	A-24
A-41	Pre-Test Right Front Passenger Dummy - View 3	A-25
A-42	Post-Test Right Front Passenger Dummy - View 3	A-25
A-43	Pre-Test Right Front Passenger Dummy - View 4	A-26
A-44	Post-Test Right Front Passenger Dummy - View 4 Photo Not Available	A-26
A-45	Pre-Test Right Front Passenger Dummy - View 5	A-27
A-46	Post-Test Right Front Passenger Dummy - View 5	A-27
A-47	Pre-Test Left Rear Passenger Dummy - View 1	A-28
A-48	Post-Test Left Rear Passenger Dummy - View 1	A-28
A-49	Pre-Test Left Rear Passenger Dummy - View 2	A-29
A-50	Post-Test Left Rear Passenger Dummy - View 2	A-29
A-51	Pre-Test Left Rear Passenger Dummy - View 3	A-30
A-52	Post-Test Left Rear Passenger Dummy - View 3	A-30
A-53	Pre-Test Left Rear Passenger Dummy - View 4	A-31
A-54	Post-Test Left Rear Passenger Dummy - View 4 Photo Not Available	A-31

LIST OF PHOTOGRAPHS (CONTINUED)

Figure		Page
A-55	Pre-Test Left Rear Passenger Dummy - View 5	A-32
A-56	Post-Test Left Rear Passenger Dummy - View 5	A-32
A-57	Vehicle Certification Label View	A-33
A-58	Vehicle Tire Pressure Label View	A-33
A-59	Post-Test Driver Overall View	A-34
A-60	Post-Test Driver Contact - View 1	A-34
A-61	Post-Test Driver Contact - View 2	A-35
A-62	Post-Test Driver Contact - View 3	A-35
A-63	Post-Test Right Front Passenger Overall View	A-36
A-64	Post-Test Right Front Passenger Contact - View 1	A-36
A-65	Post-Test Right Front Passenger Contact - View 2	A-37
A-66	Post-Test Left Rear Passenger Overall View	A-38
A-67	Post-Test Left Rear Passenger Contact View	A-38
A-68	Pre-Test Test Area - View 1	A-39
A-69	Post-Test Test Area - View 1	A-39
A-70	Pre-Test Test Area - View 2	A-40
A-71	Post-Test Test Area - View 2	A-40
A-72	Pre-Test Test Area - View 3	A-41
A-73	Post-Test Test Area - View 3	A-41

Figure A-1 Pre-Test Front View

Figure A-2 Post-Test Front View

Figure A-3 Pre-Test Left Front View

Figure A-4 Post-Test Left Front View

Figure A-5 Pre-Test Left Side View

Figure A-6 Post-Test Left Side View

Figure A-7 Pre-Test Left Rear View

Figure A-8 Post-Test Left Rear View

Figure A-9 Pre-Test Rear View

Figure A-10 Post-Test Rear View

Figure A-11 Pre-Test Right Rear View

Figure A-12 Post-Test Right Rear View

Figure A-13 Pre-Test Right Side View

Figure A-14 Post-Test Right Side View

Figure A-15 Pre-Test Right Front View

Figure A-16 Post-Test Right Front View

Figure A-17 Pre-Test Front Underbody View

Figure A-18 Post-Test Front Underbody View

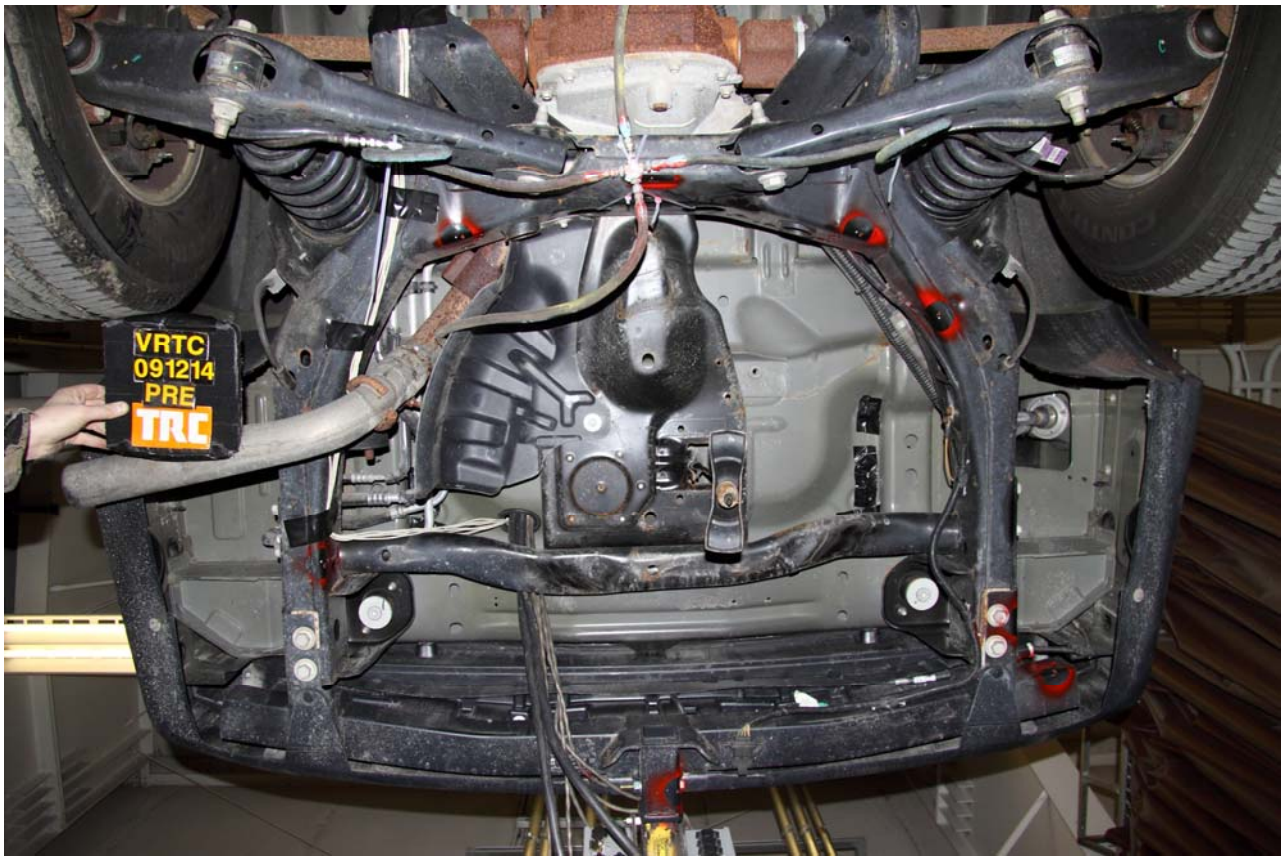


Figure A-19 Pre-Test Rear Underbody View

Figure A-20 Post-Test Rear Underbody View

Figure A-21 Pre-Test Windshield View

Figure A-22 Post-Test Windshield View

Figure A-23 Pre-Test Windshield View – Driver Dummy

Figure A-24 Post-Test Windshield View – Driver Dummy

Figure A-25 Pre-Test Driver Dummy - View 1

Figure A-26 Post-Test Driver Dummy - View 1

Figure A-27 Pre-Test Driver Dummy - View 2

Figure A-28 Post-Test Driver Dummy - View 2

Figure A-29 Pre-Test Driver Dummy - View 3

Figure A-30 Post-Test Driver Dummy - View 3

Figure A-31 Pre-Test Driver Dummy - View 4

Photo Not Available

Figure A-32 Post-Test Driver Dummy - View 4

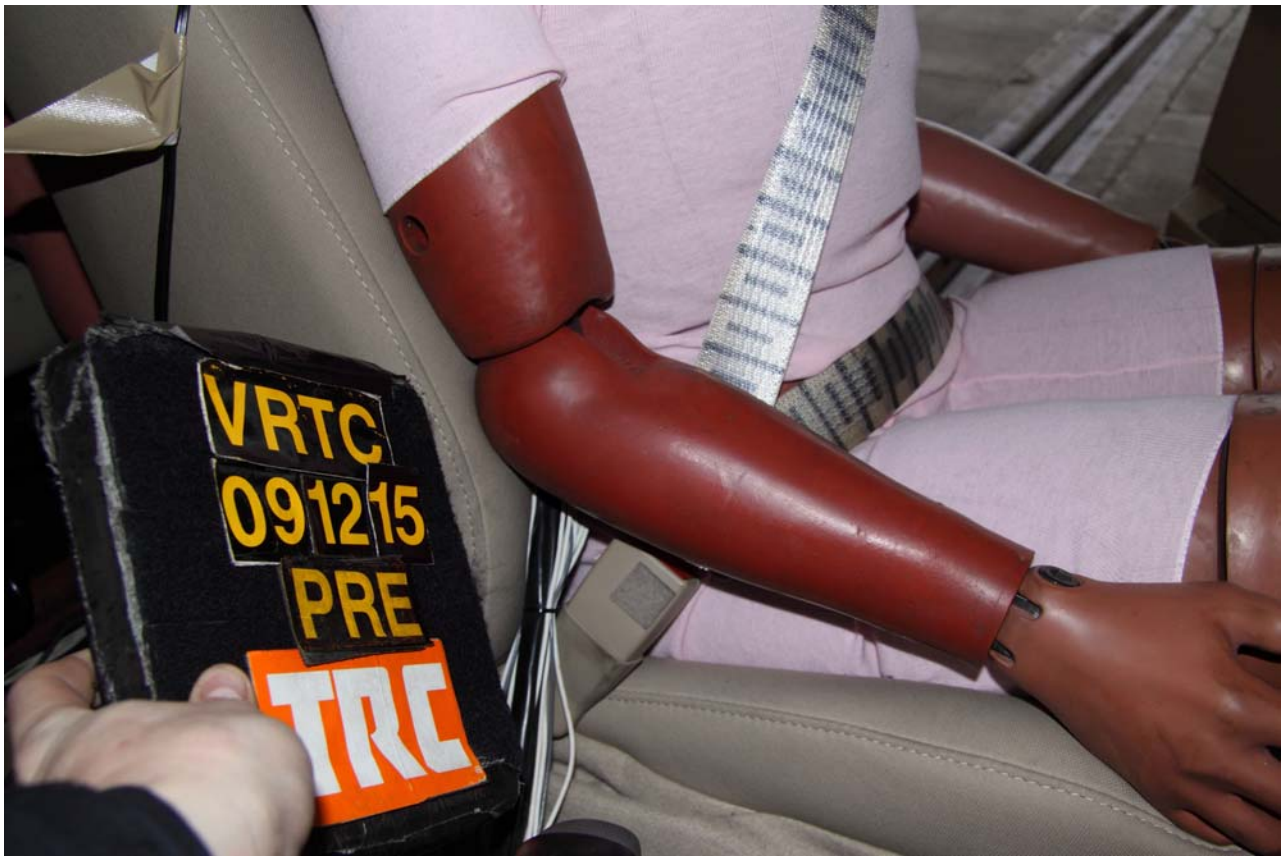


Figure A-33 Pre-Test Driver Dummy - View 5

Figure A-34 Post-Test Driver Dummy - View 5

Figure A-35 Pre-Test Windshield View – Right Front Passenger

Figure A-36 Post-Test Windshield View – Right Front Passenger

Figure A-37 Pre-Test Right Front Passenger Dummy - View 1

Figure A-38 Post-Test Right Front Passenger Dummy - View 1

Figure A-39 Pre-Test Right Front Passenger Dummy - View 2

Figure A-40 Post-Test Right Front Passenger Dummy - View 2

Figure A-41 Pre-Test Right Front Passenger Dummy - View 3

Figure A-42 Post-Test Right Front Passenger Dummy - View 3

Figure A-43 Pre-Test Right Front Passenger Dummy - View 4

Photo Not Available

Figure A-44 Post-Test Right Front Passenger Dummy - View 4

Figure A-45 Pre-Test Right Front Passenger Dummy - View 5

Figure A-46 Post-Test Right Front Passenger Dummy - View 5

Figure A-47 Pre-Test Left Rear Passenger Dummy - View 1

Figure A-48 Post-Test Left Rear Passenger Dummy - View 1

Figure A-49 Pre-Test Left Rear Passenger Dummy - View 2

Figure A-50 Post-Test Left Rear Passenger Dummy - View 2

Figure A-51 Pre-Test Left Rear Passenger Dummy - View 3

Figure A-52 Post-Test Left Rear Passenger Dummy - View 3

Figure A-53 Pre-Test Left Rear Passenger Dummy - View 4

Photo Not Available

Figure A-54 Post-Test Left Rear Passenger Dummy - View 4

Figure A-55 Pre-Test Left Rear Passenger Dummy - View 5

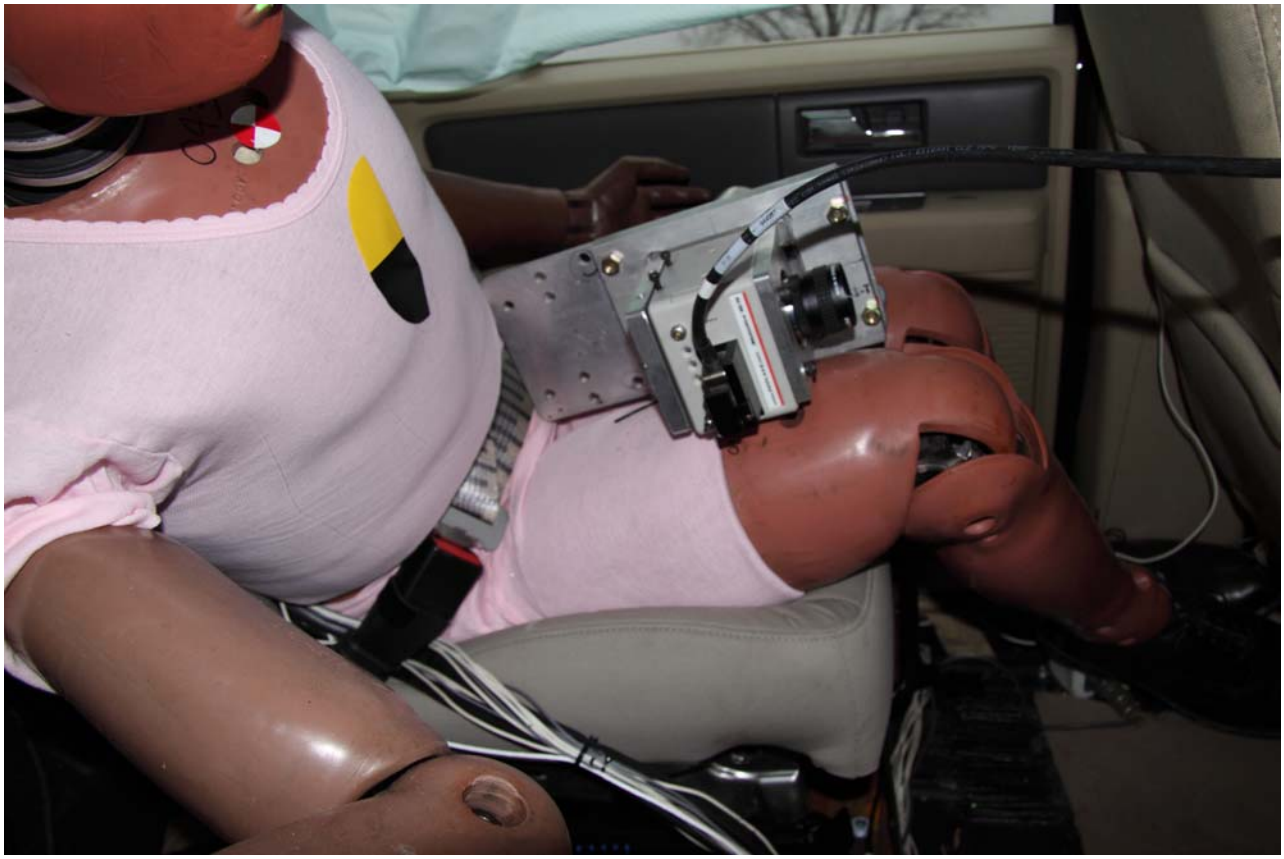


Figure A-56 Post-Test Left Rear Passenger Dummy - View 5

Figure A-57 Vehicle Certification Label View

Figure A-58 Vehicle Tire Pressure Label View

Figure A-59 Post-Test Driver Dummy Overall

Figure A-60 Post-Test Driver Dummy Contact - View 1

Figure A-61 Post-Test Driver Dummy Contact - View 2

Figure A-62 Post-Test Driver Dummy Contact - View 3

Figure A-63 Post-Test Right Front Passenger Dummy Overall

Figure A-64 Post-Test Right Front Passenger Dummy Contact - View 1

Figure A-65 Post-Test Right Front Passenger Dummy Contact - View 2

Intentionally Left Blank

Figure A-66 Post-Test Left Rear Passenger Dummy Overall

Figure A-67 Post-Test Left Rear Passenger Dummy Contact View

Figure A-68 Pre-Test Test Area - View 1

Figure A-69 Post-Test Test Area - View 1

Figure A-70 Pre-Test Test Area - View 2

Figure A-71 Post-Test Test Area - View 2

Figure A-72 Pre-Test Test Area - View 3

Figure A-73 Post-Test Test Area - View 3

APPENDIX B

DATA PLOTS

Soil Trip Rollover 2007 Ford Expedition

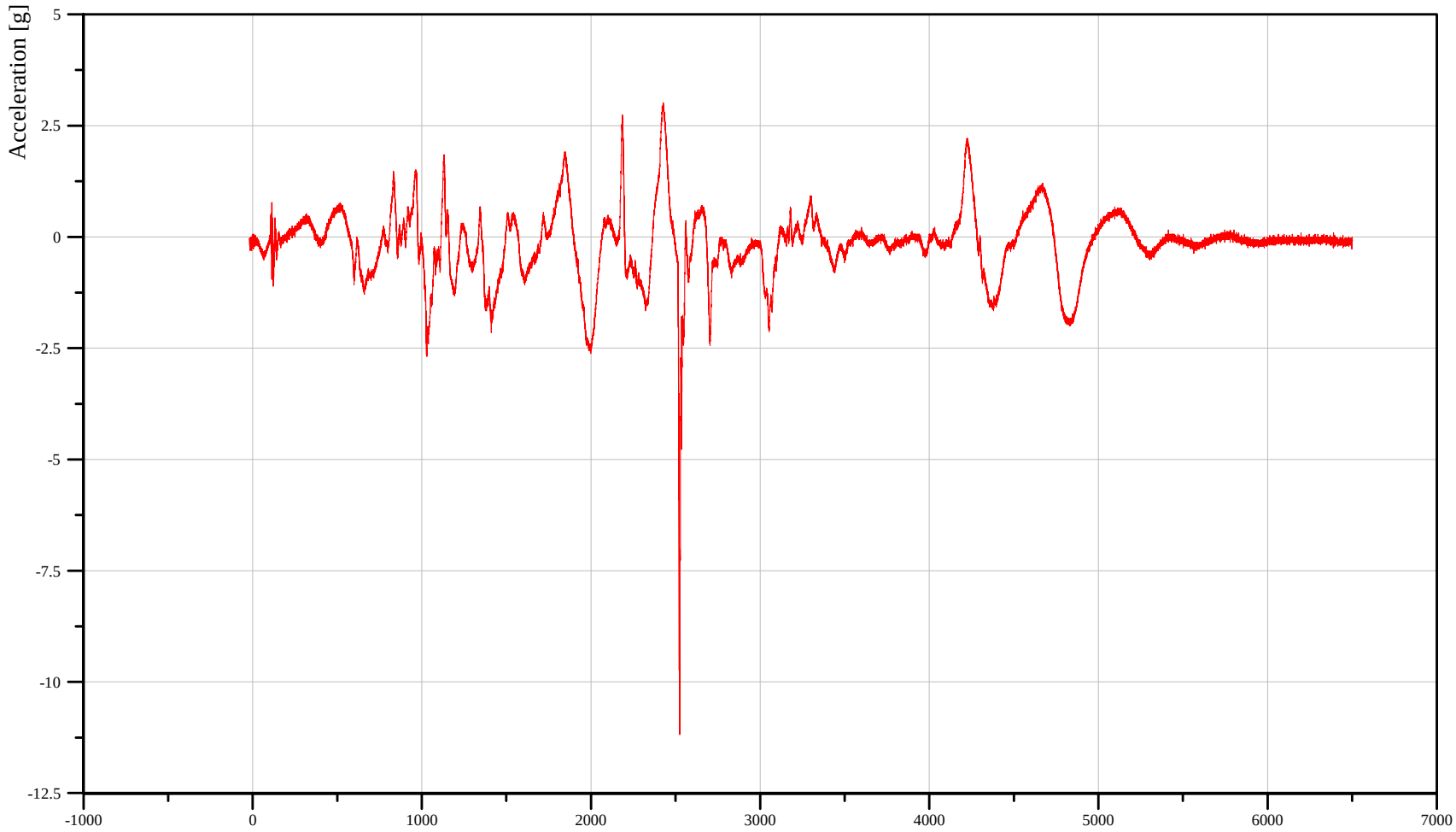
Driver Head X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11HEADCG00H3ACXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-11.18 g at 2,523.52 ms

Max. Value
3.02 g at 2,427.12 ms

Soil Trip Rollover 2007 Ford Expedition

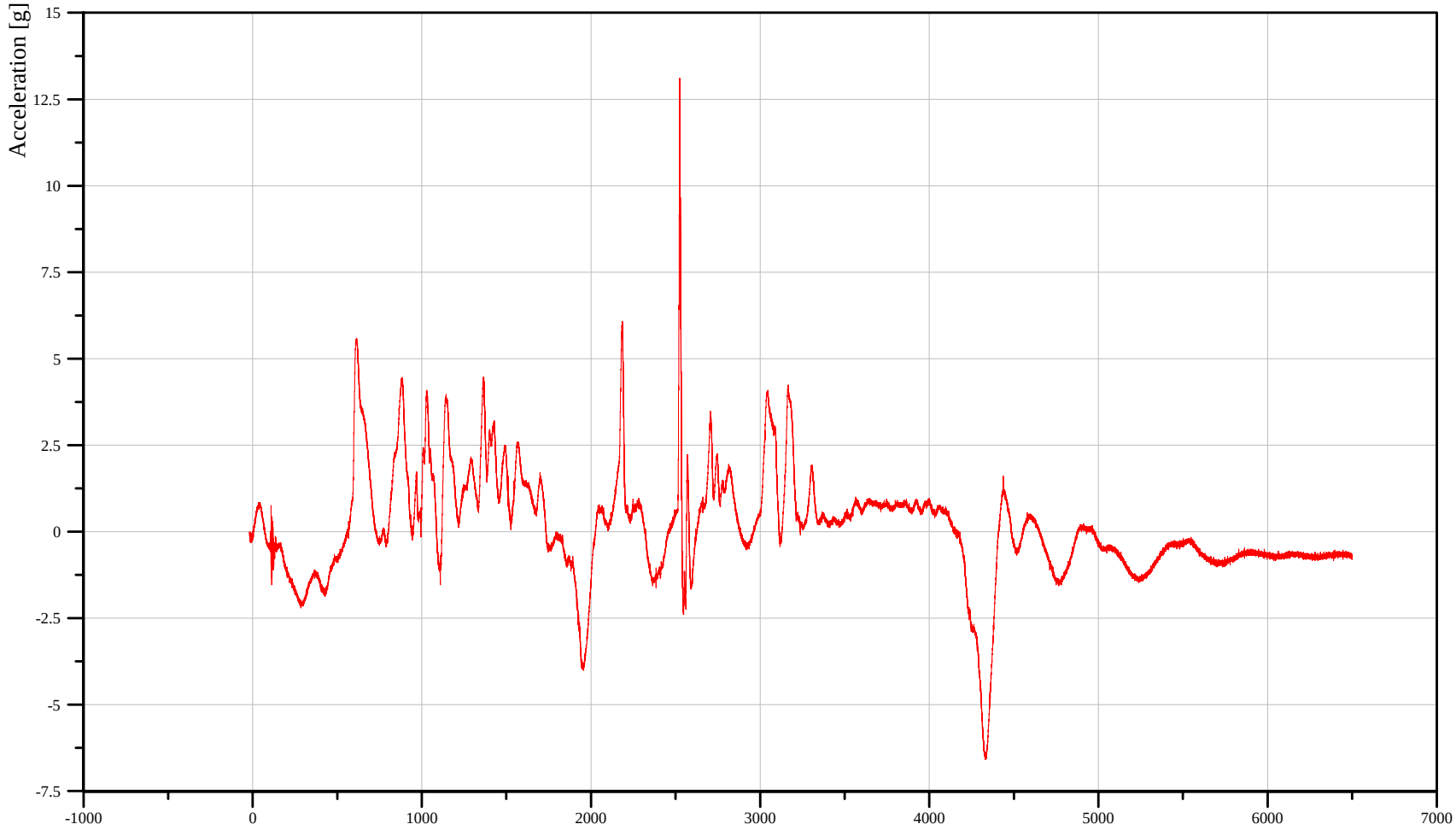
Driver Head Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11HEADCG00H3ACYA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-6.59 g at 4,330.32 ms

Max. Value
13.12 g at 2,523.76 ms

Soil Trip Rollover 2007 Ford Expedition

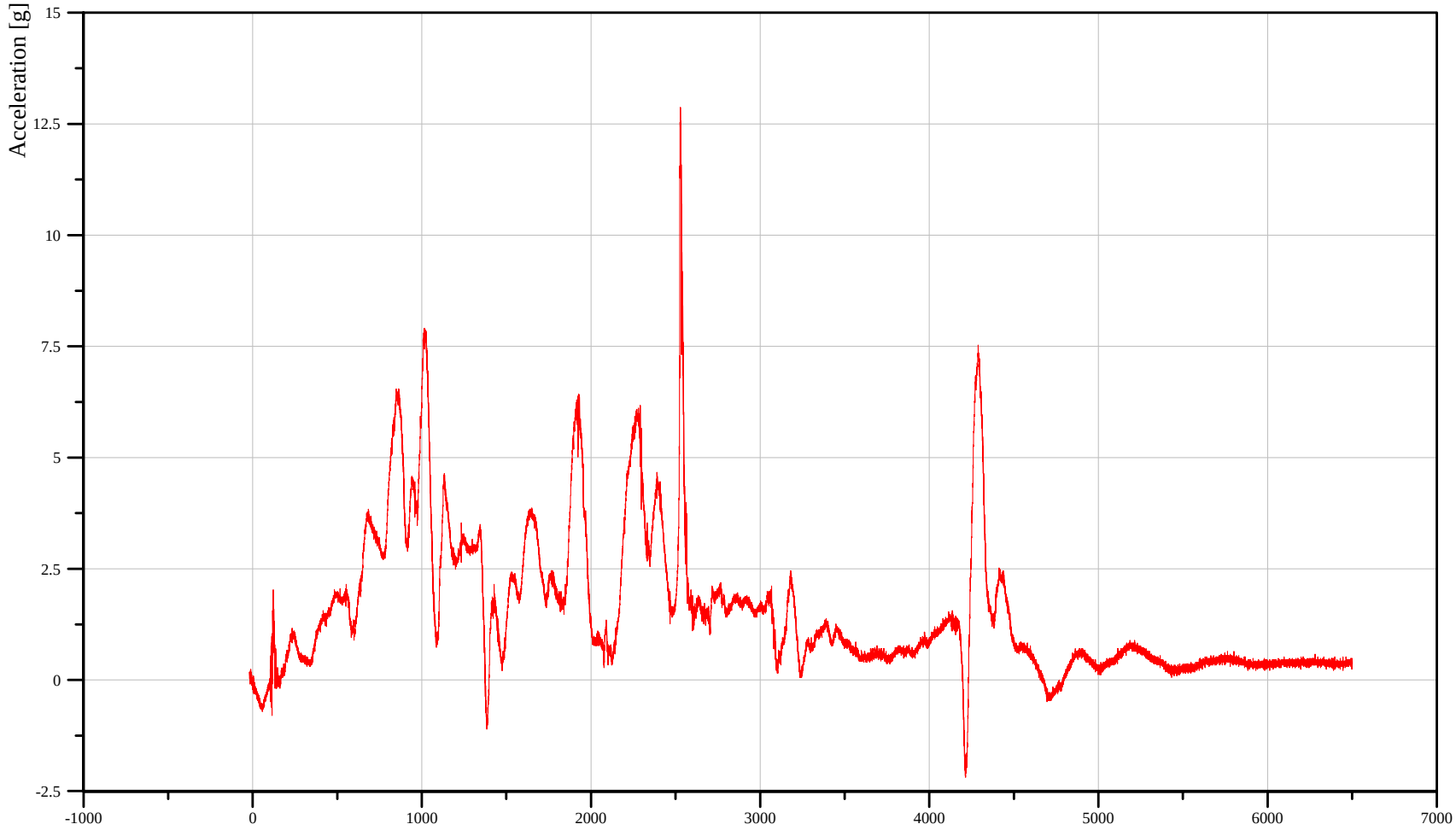
Driver Head Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11HEADCG00H3ACZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-2.19 g at 4,213.52 ms

Max. Value
12.88 g at 2,528.40 ms

Soil Trip Rollover 2007 Ford Expedition

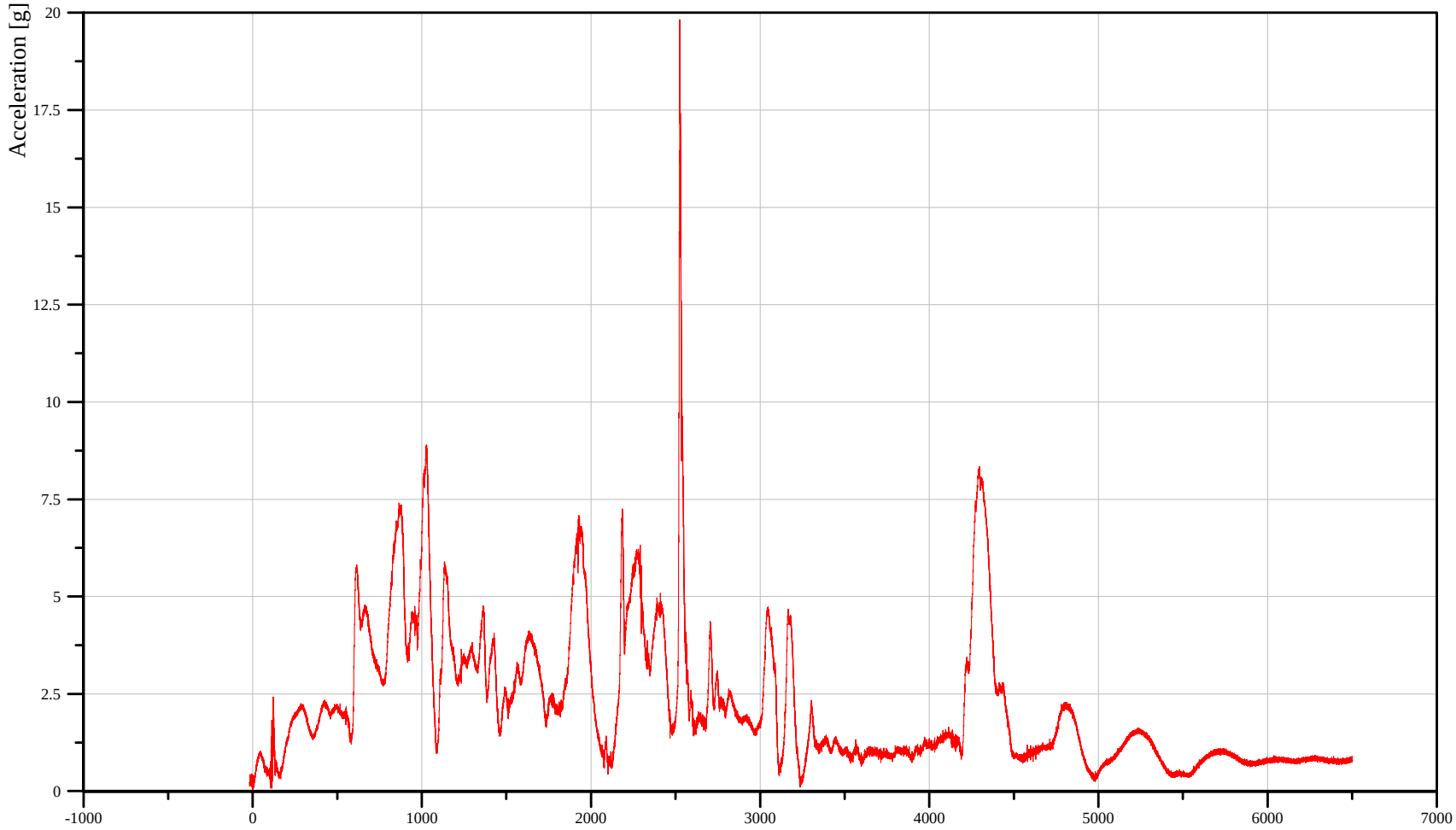
Driver Head Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11HEADCG00H3ACRA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
0.03 g at 2.64 ms

Max. Value
19.83 g at 2,524.24 ms

Soil Trip Rollover 2007 Ford Expedition

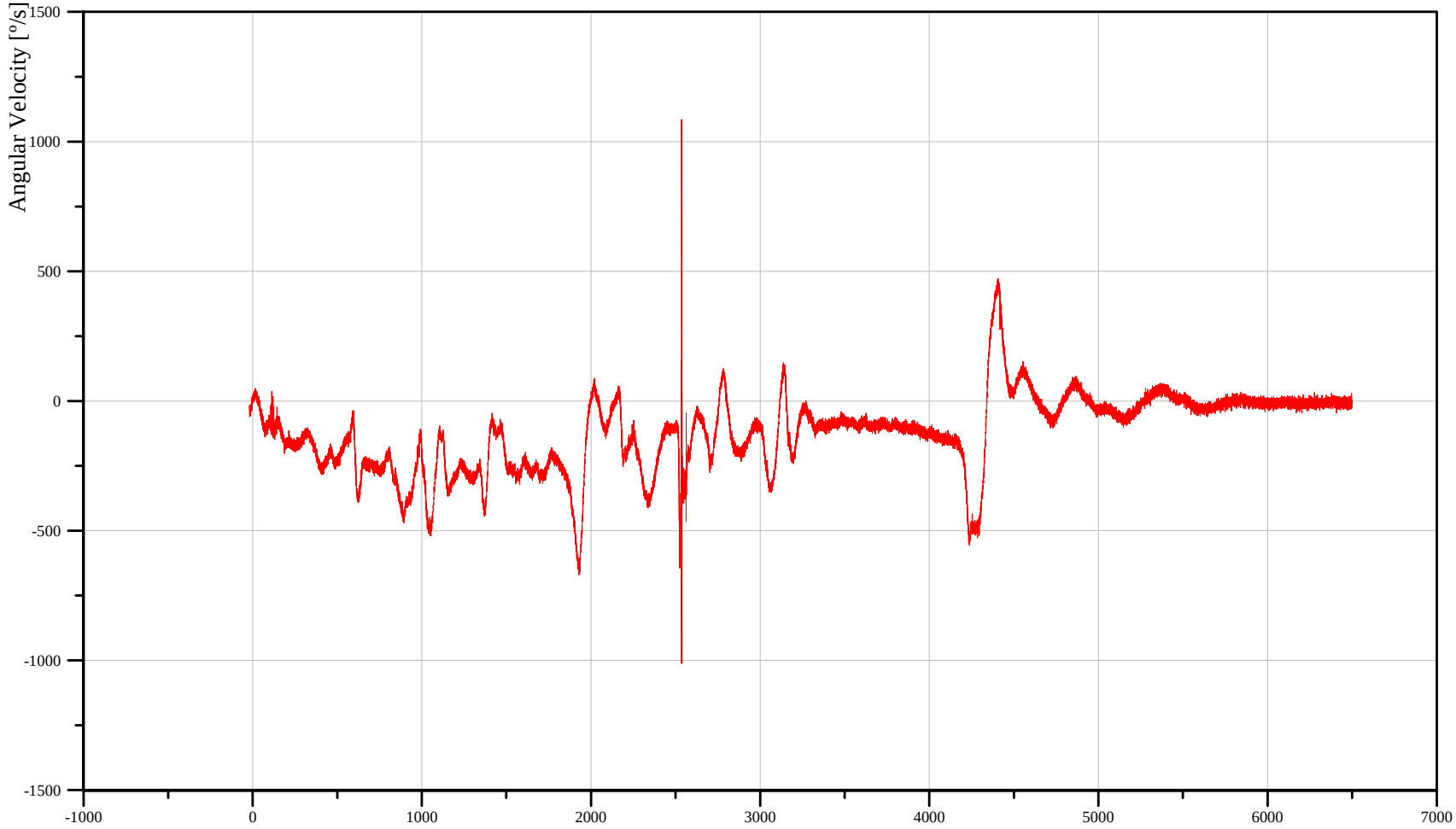
Driver Head (DTS ARS) Rate Gyro X

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11HEADCG00H3AVXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-1,011.85 °/s at 2,535.92 ms

Max. Value
1,084.86 °/s at 2,535.04 ms

Soil Trip Rollover 2007 Ford Expedition

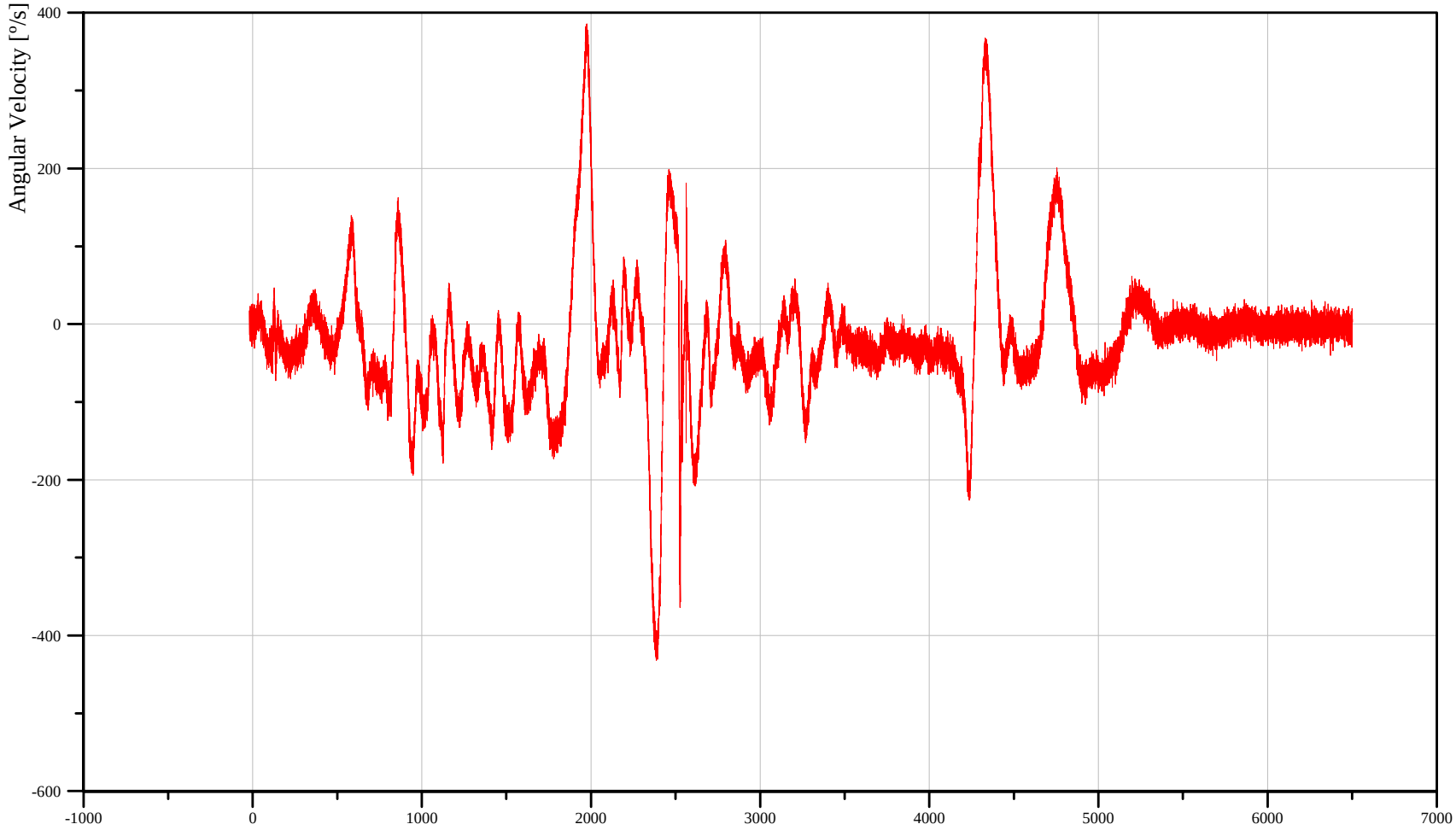
Driver Head (DTS ARS) Rate Gyro Y

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11HEADCG00H3AVYA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-432.12 °/s at 2,386.00 ms

Max. Value
385.86 °/s at 1,974.64 ms

Soil Trip Rollover 2007 Ford Expedition

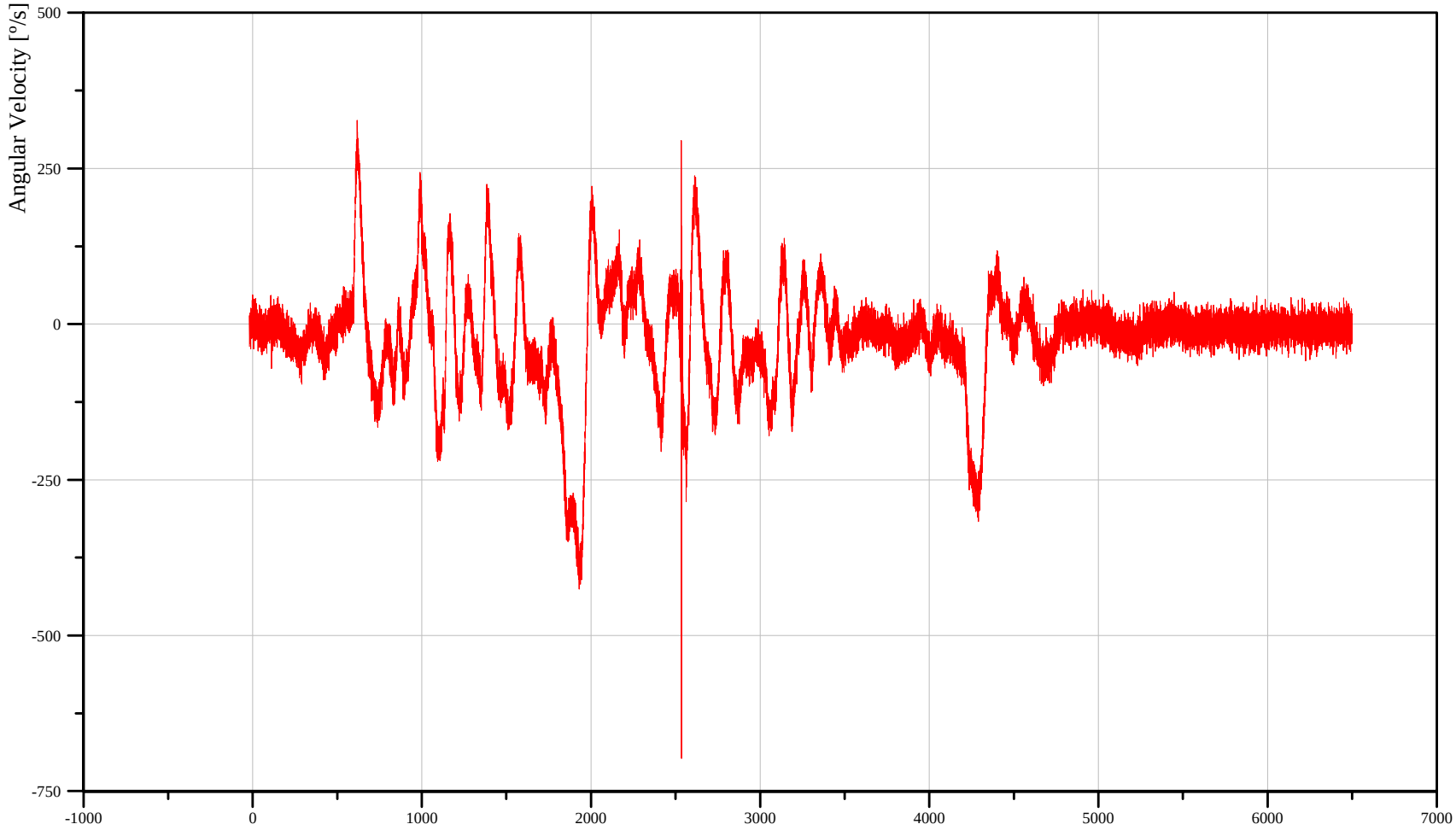
Driver Head (DTS ARS) Rate Gyro Z

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11HEADCG00H3AVZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-697.66 °/s at 2,534.96 ms

Max. Value
327.15 °/s at 617.44 ms

Soil Trip Rollover 2007 Ford Expedition

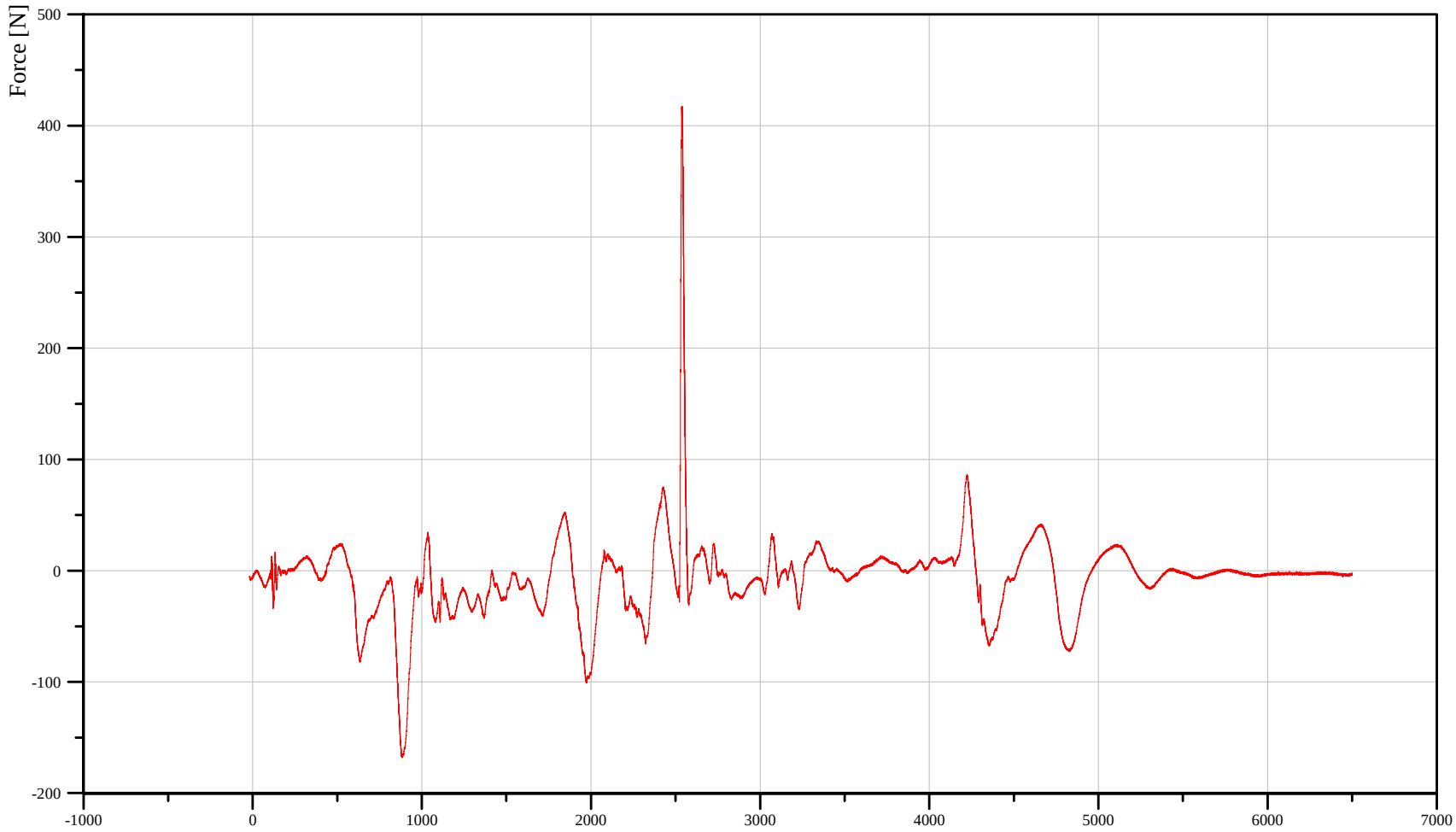
Driver Upper Neck X-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11NECKUP00H3FOXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-168.16 N at 883.36 ms

Max. Value
417.34 N at 2,536.96 ms

Soil Trip Rollover 2007 Ford Expedition

Driver Upper Neck Y-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

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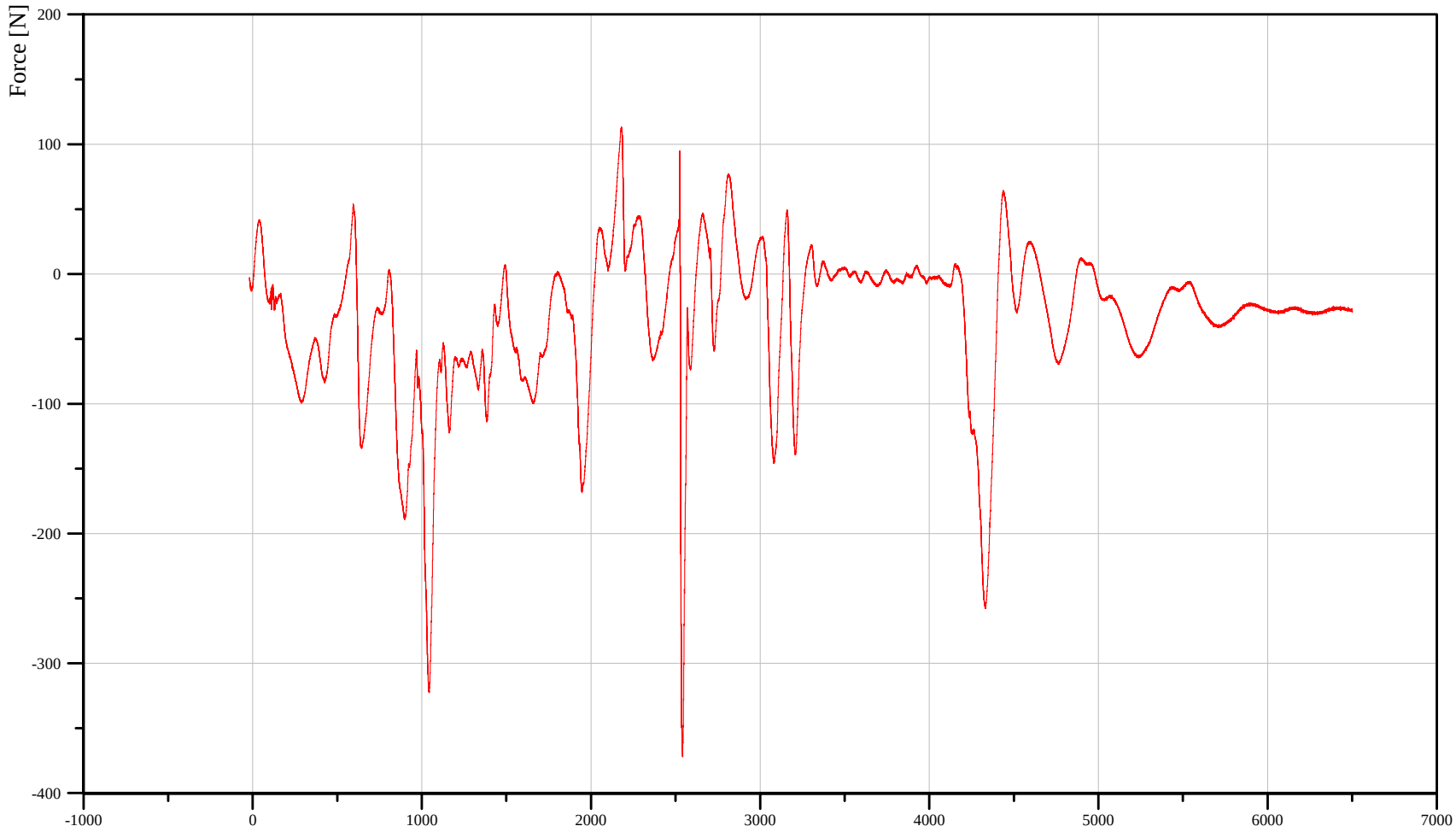
TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-372.04 N at 2,541.12 ms

Max. Value
113.46 N at 2,179.60 ms

Soil Trip Rollover 2007 Ford Expedition

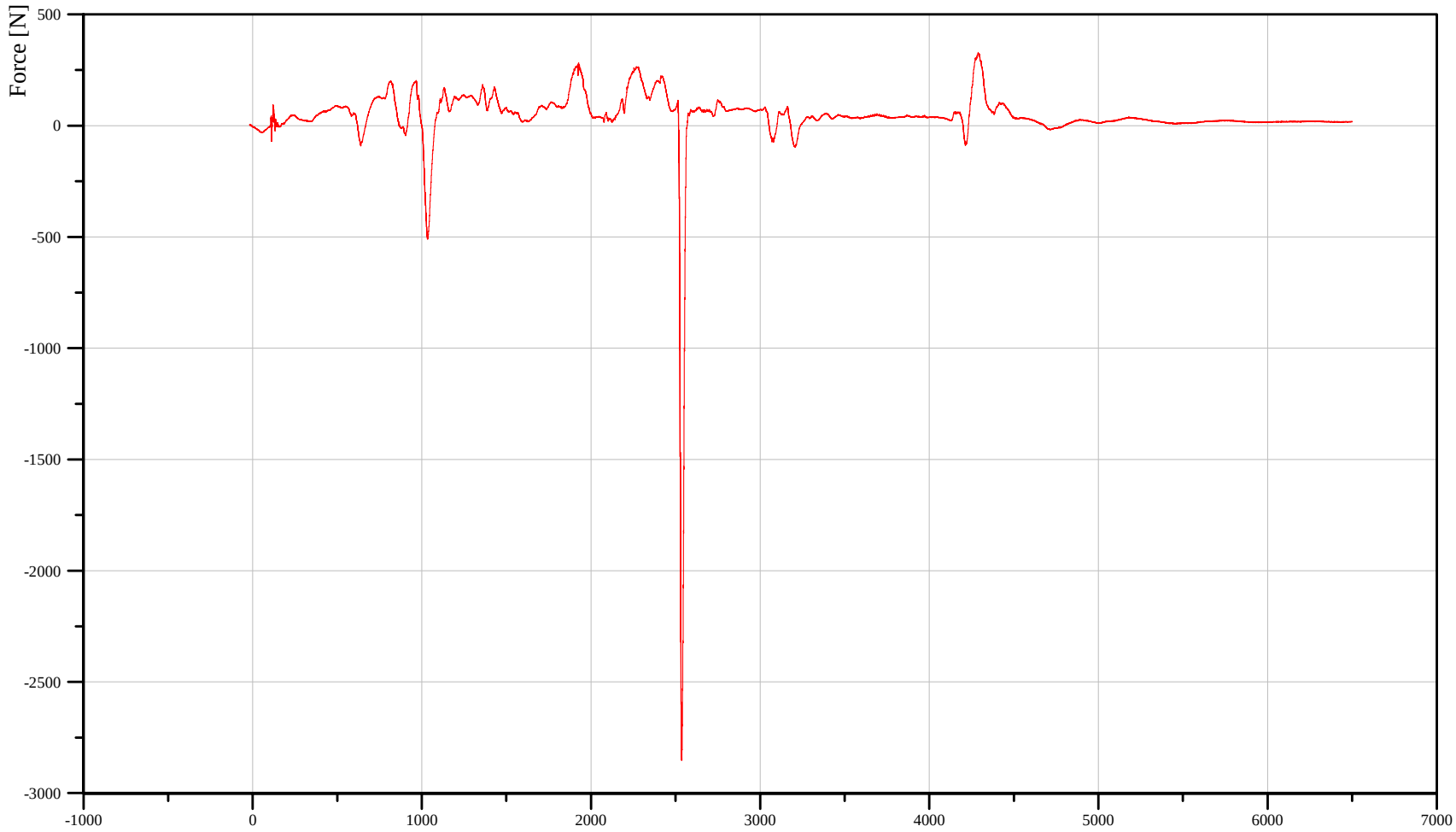
Driver Upper Neck Z-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11NECKUP00H3FOZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-2,852.97 N at 2,534.80 ms

Max. Value
329.68 N at 4,287.92 ms

Soil Trip Rollover 2007 Ford Expedition

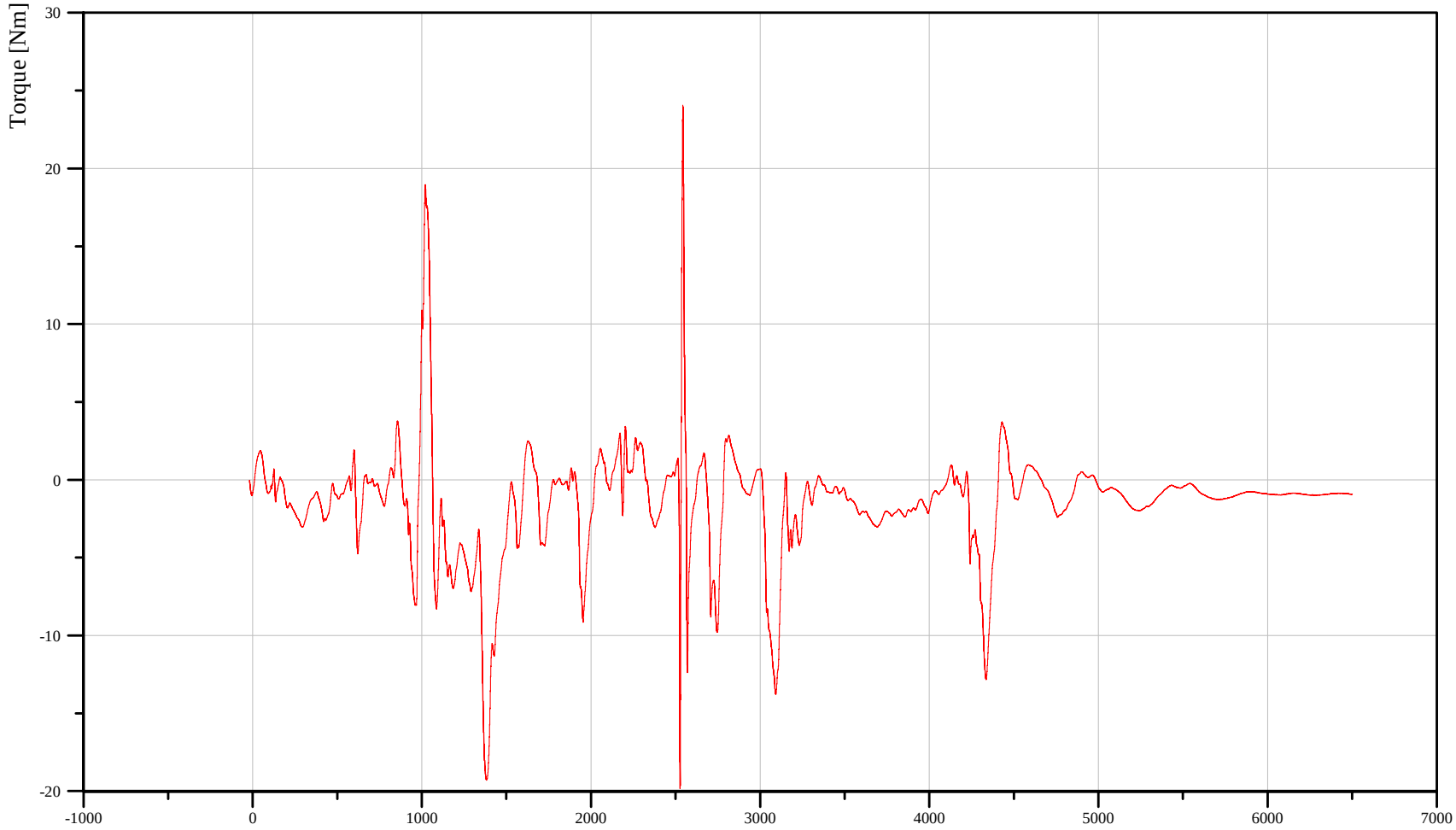
Driver Upper Neck Moment About X Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11NECKUP00H3MOXB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-19.83 Nm at 2,526.48 ms

Max. Value
24.06 Nm at 2,542.40 ms

Soil Trip Rollover 2007 Ford Expedition

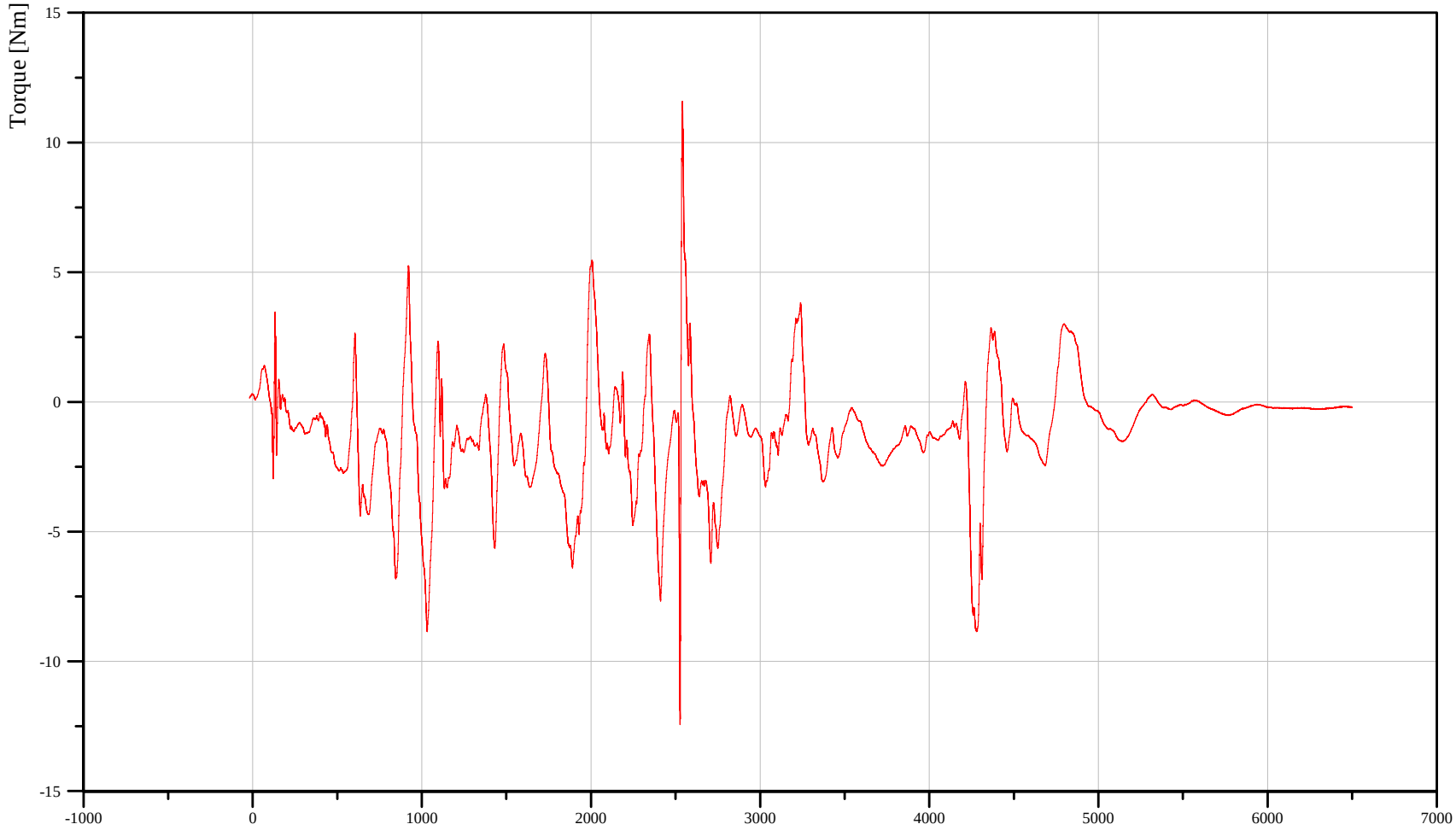
Driver Upper Neck Moment About Y Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11NECKUP00H3MOYB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-12.44 Nm at 2,525.92 ms

Max. Value
11.58 Nm at 2,539.60 ms

Soil Trip Rollover 2007 Ford Expedition

Driver Upper Neck Moment About Z Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

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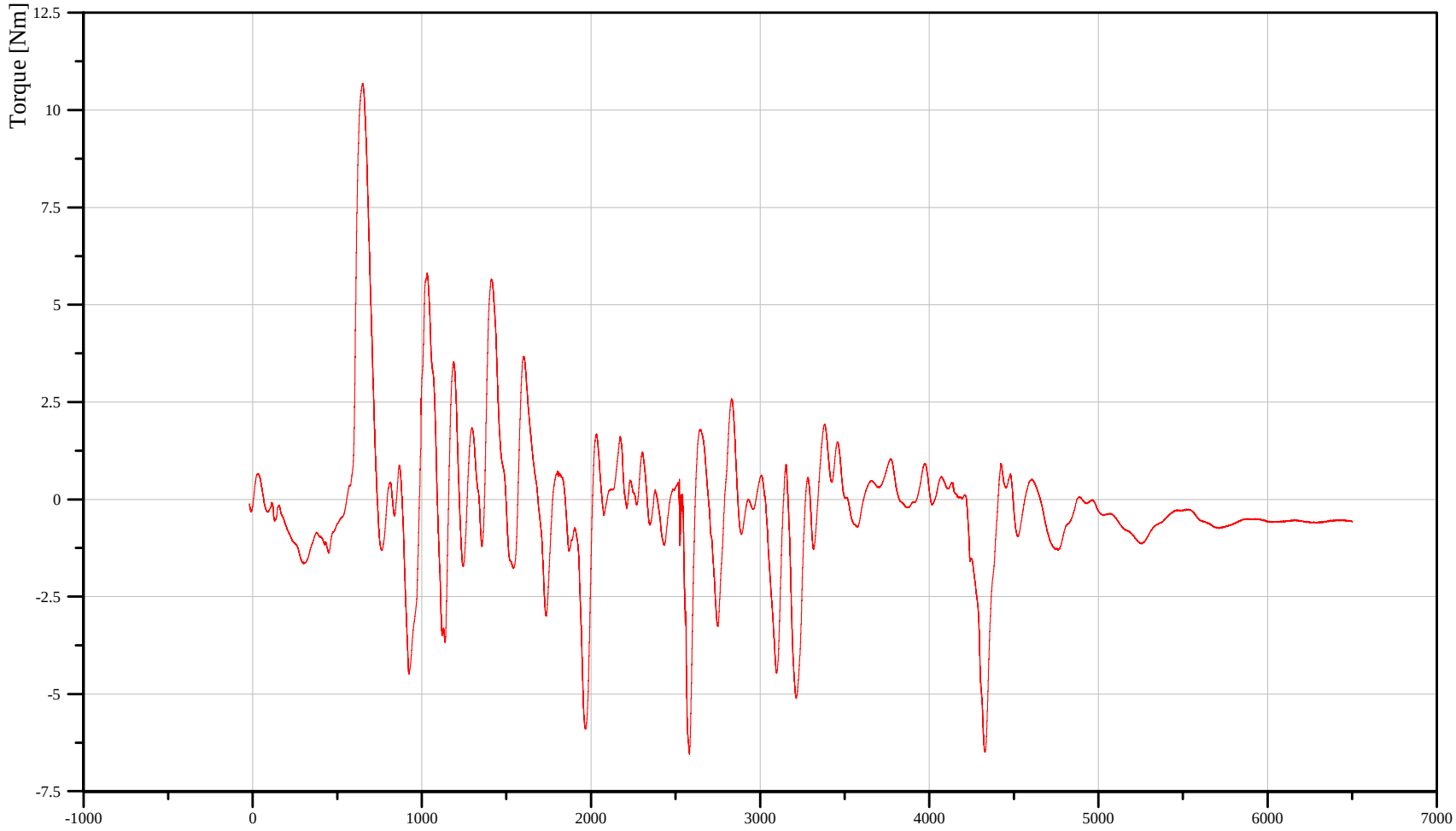
TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-6.56 Nm at 2,581.28 ms

Max. Value
10.69 Nm at 649.44 ms

Soil Trip Rollover 2007 Ford Expedition

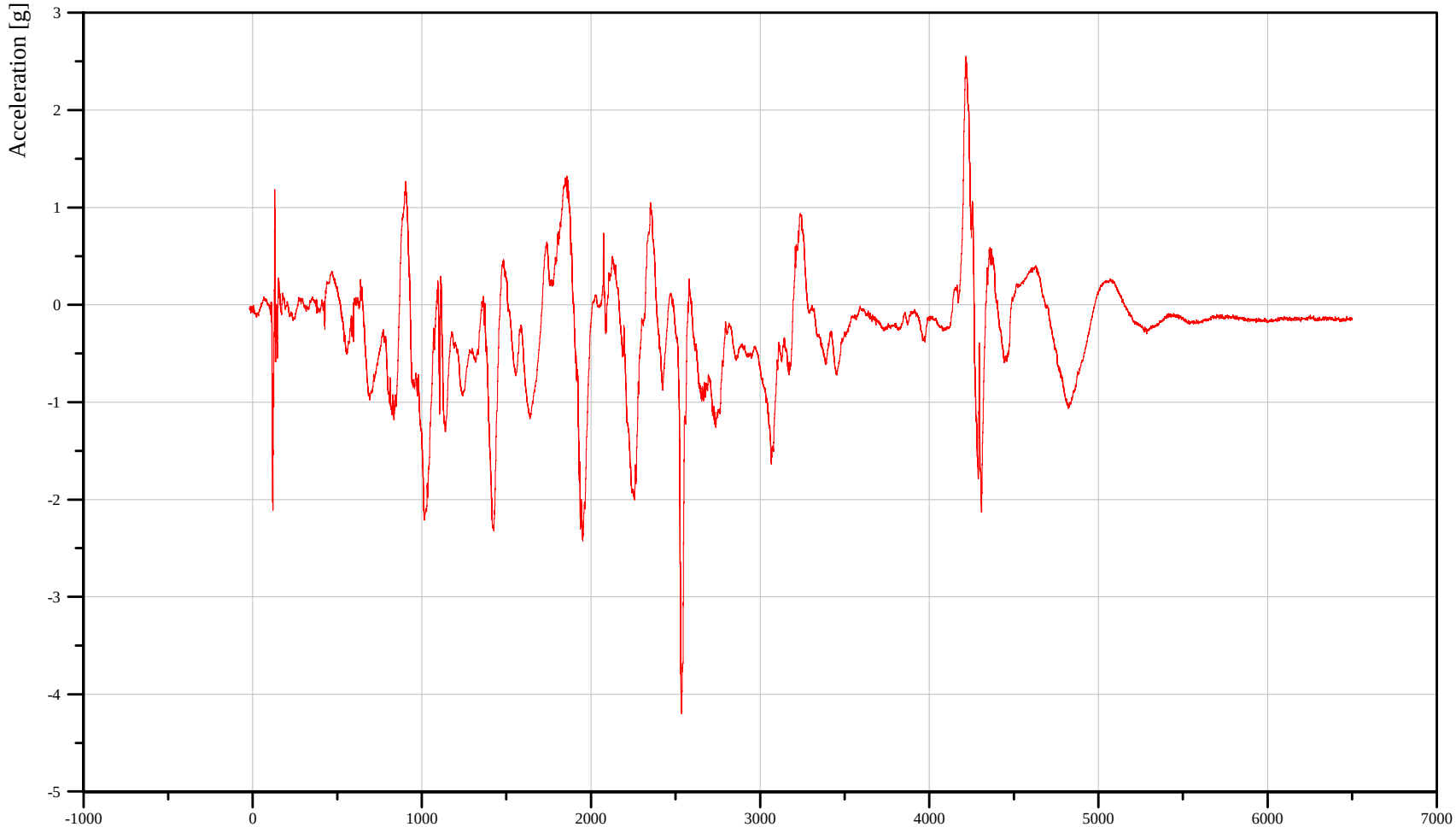
Driver Chest X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11CHSTCG00H3ACXC

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_180

Min. Value
-4.20 g at 2,535.44 ms

Max. Value
2.55 g at 4,216.24 ms

Soil Trip Rollover 2007 Ford Expedition

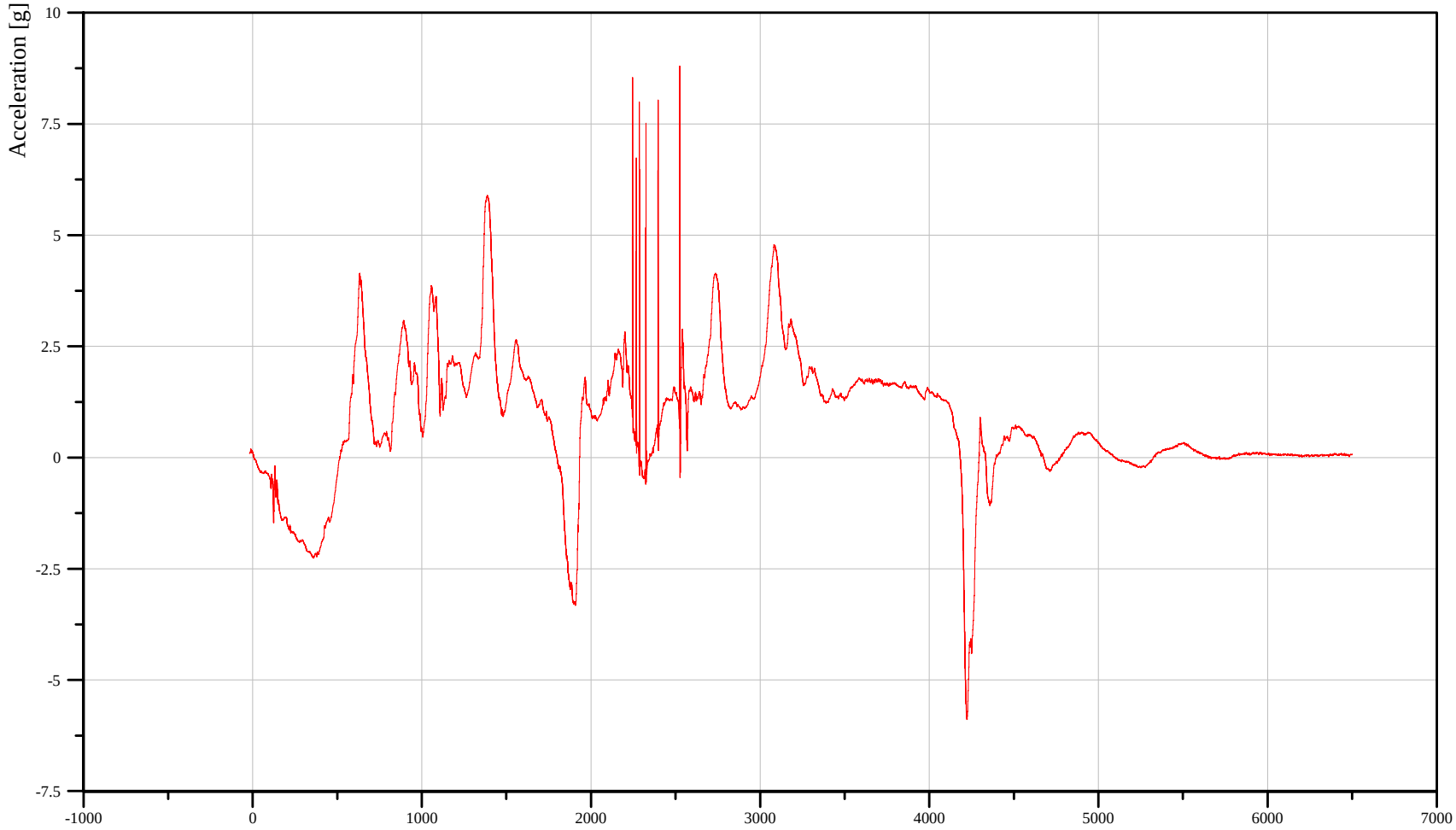
Driver Chest Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11CHSTCG00H3ACYC

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_180

Min. Value
-5.89 g at 4,222.80 ms

Max. Value
8.80 g at 2,524.08 ms

Soil Trip Rollover 2007 Ford Expedition

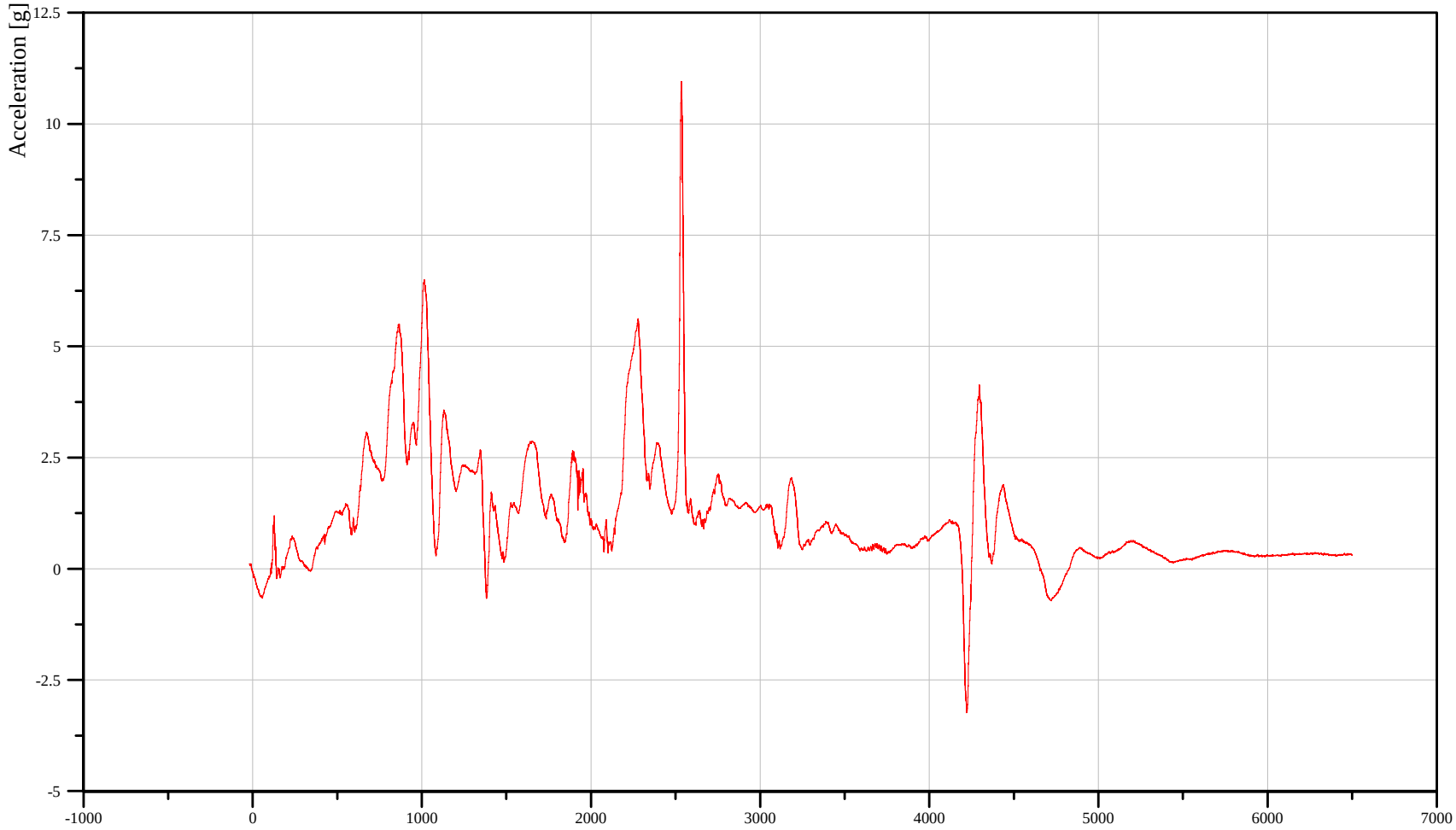
Driver Chest Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11CHSTCG00H3ACZC

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_180

Min. Value
-3.24 g at 4,220.40 ms

Max. Value
10.96 g at 2,533.76 ms

Soil Trip Rollover 2007 Ford Expedition

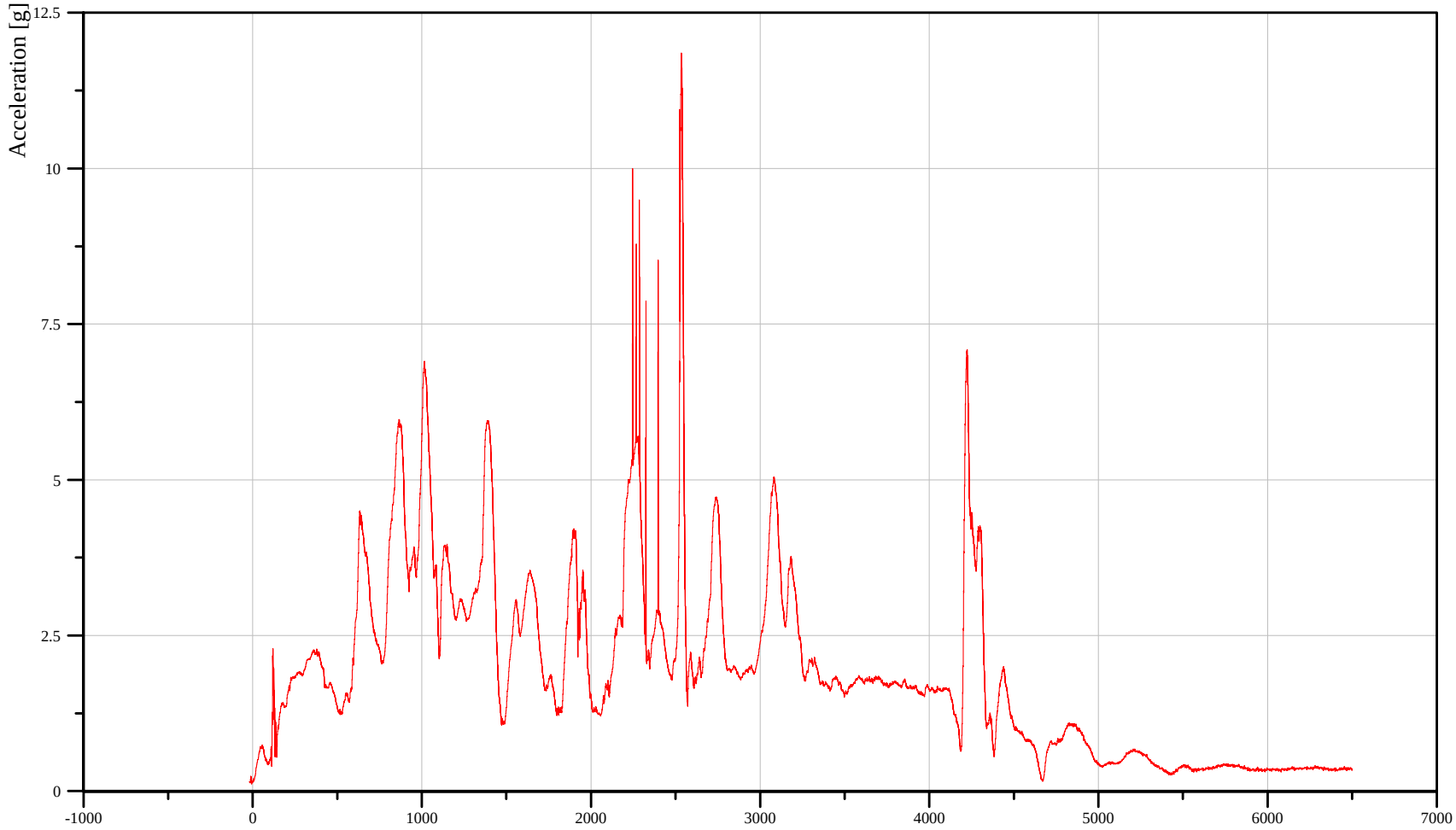
Driver Chest Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11CHSTCG00H3ACRC

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_180

Min. Value
0.11 g at -6.80 ms

Max. Value
11.85 g at 2,534.00 ms

Soil Trip Rollover 2007 Ford Expedition

Driver Chest X-Axis Displacement

Date: 12/15/2009
Time: 11:09

Customer: VRTC

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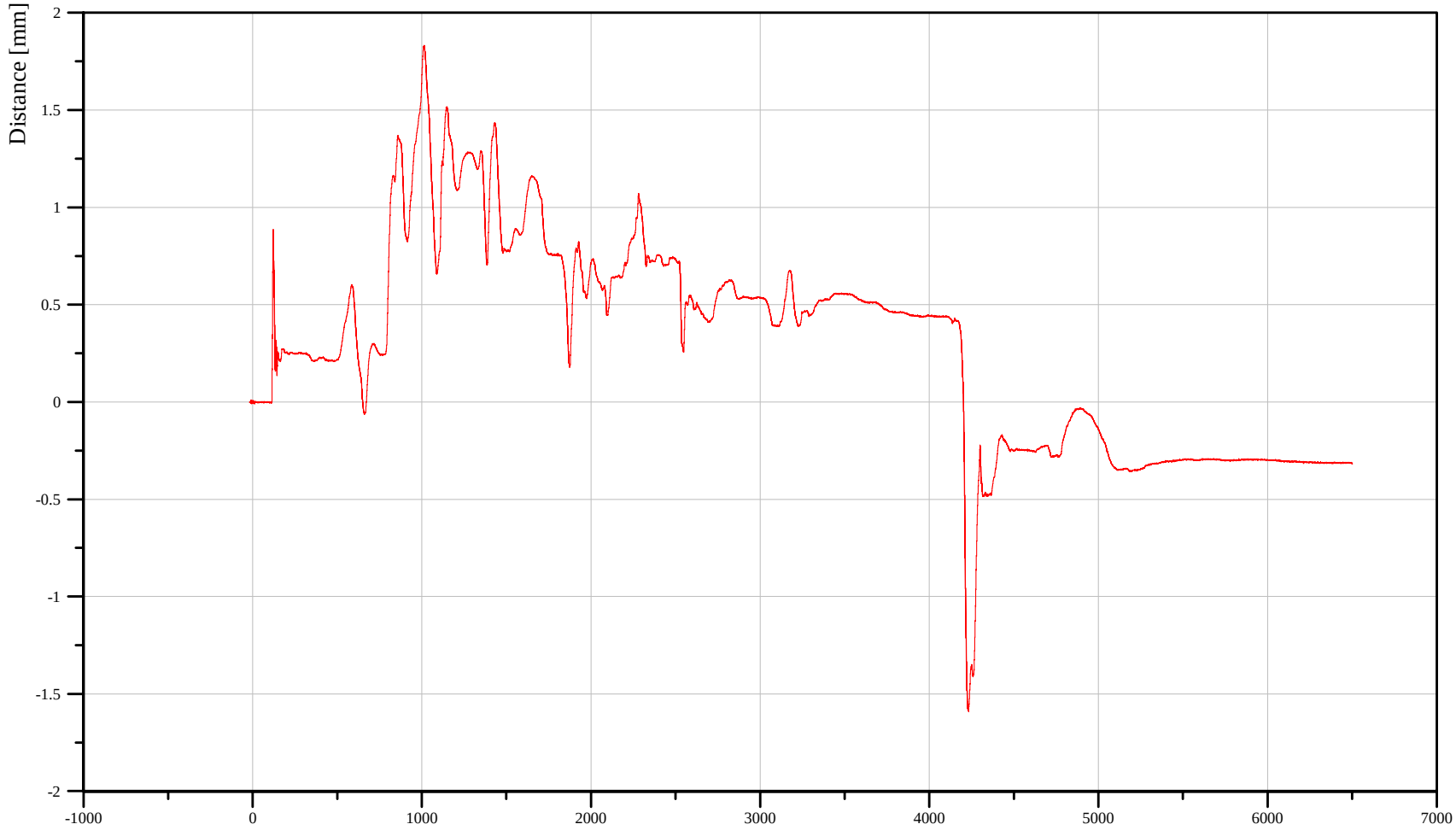
TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-1.59 mm at 4,231.92 ms

Max. Value
1.83 mm at 1,012.24 ms

Soil Trip Rollover 2007 Ford Expedition

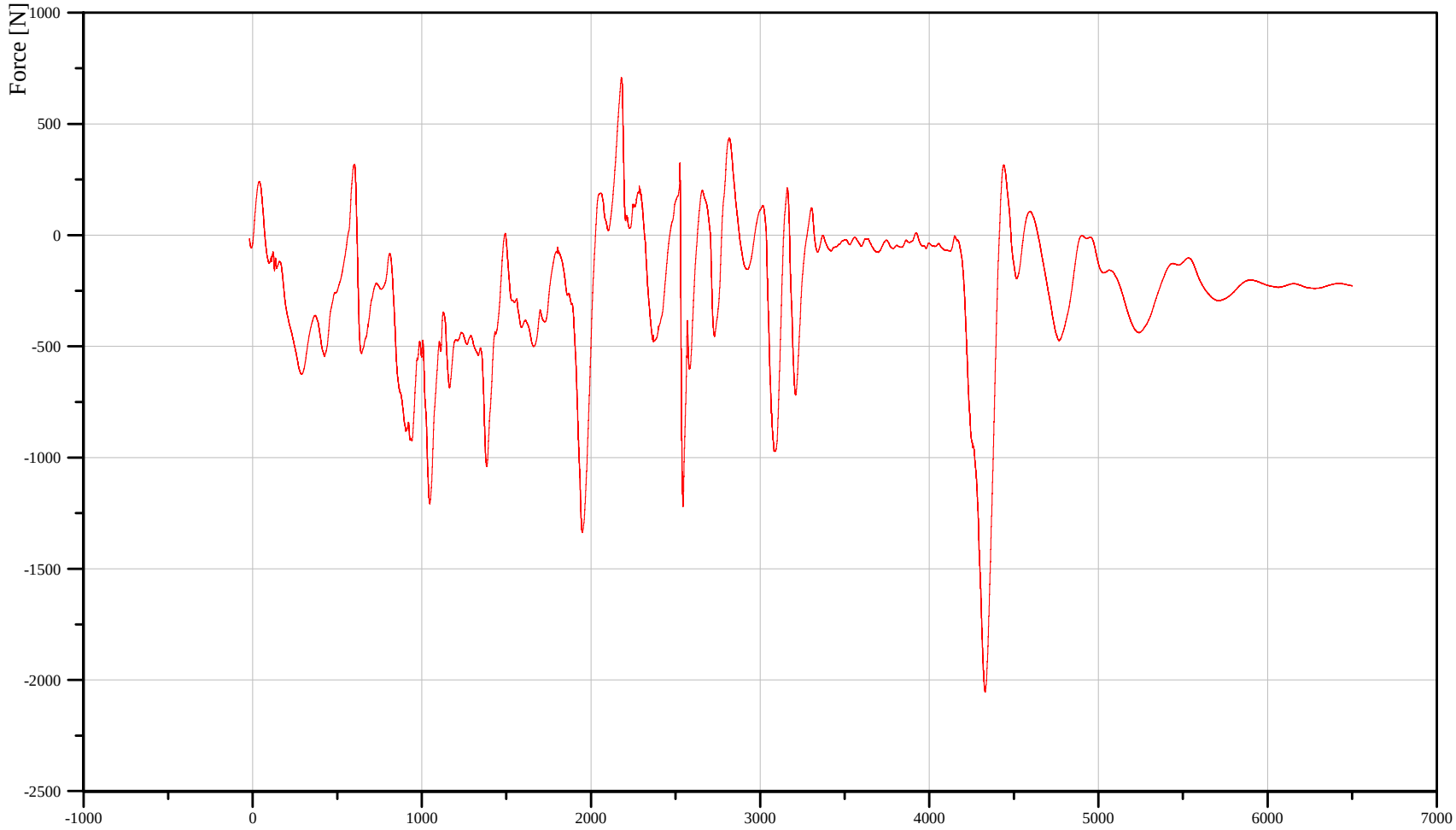
Driver Lower Neck X-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11NECKLO00H3FOXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-2,056.45 N at 4,329.84 ms

Max. Value
708.38 N at 2,179.44 ms

Soil Trip Rollover 2007 Ford Expedition

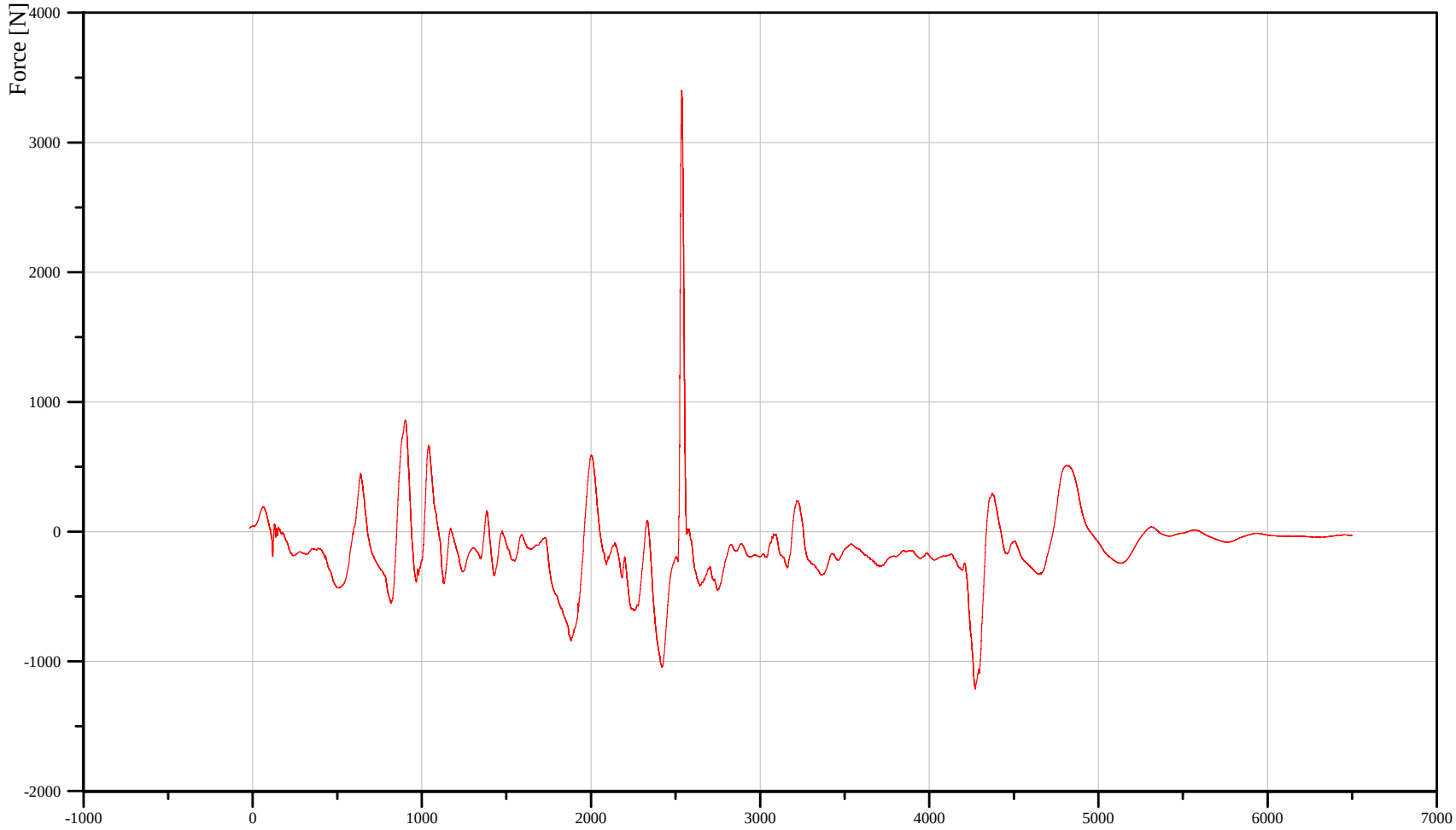
Driver Lower Neck Y-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11NECKLO00H3FOYA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-1,214.45 N at 4,271.36 ms

Max. Value
3,401.82 N at 2,535.84 ms

091215

Soil Trip Rollover 2007 Ford Expedition

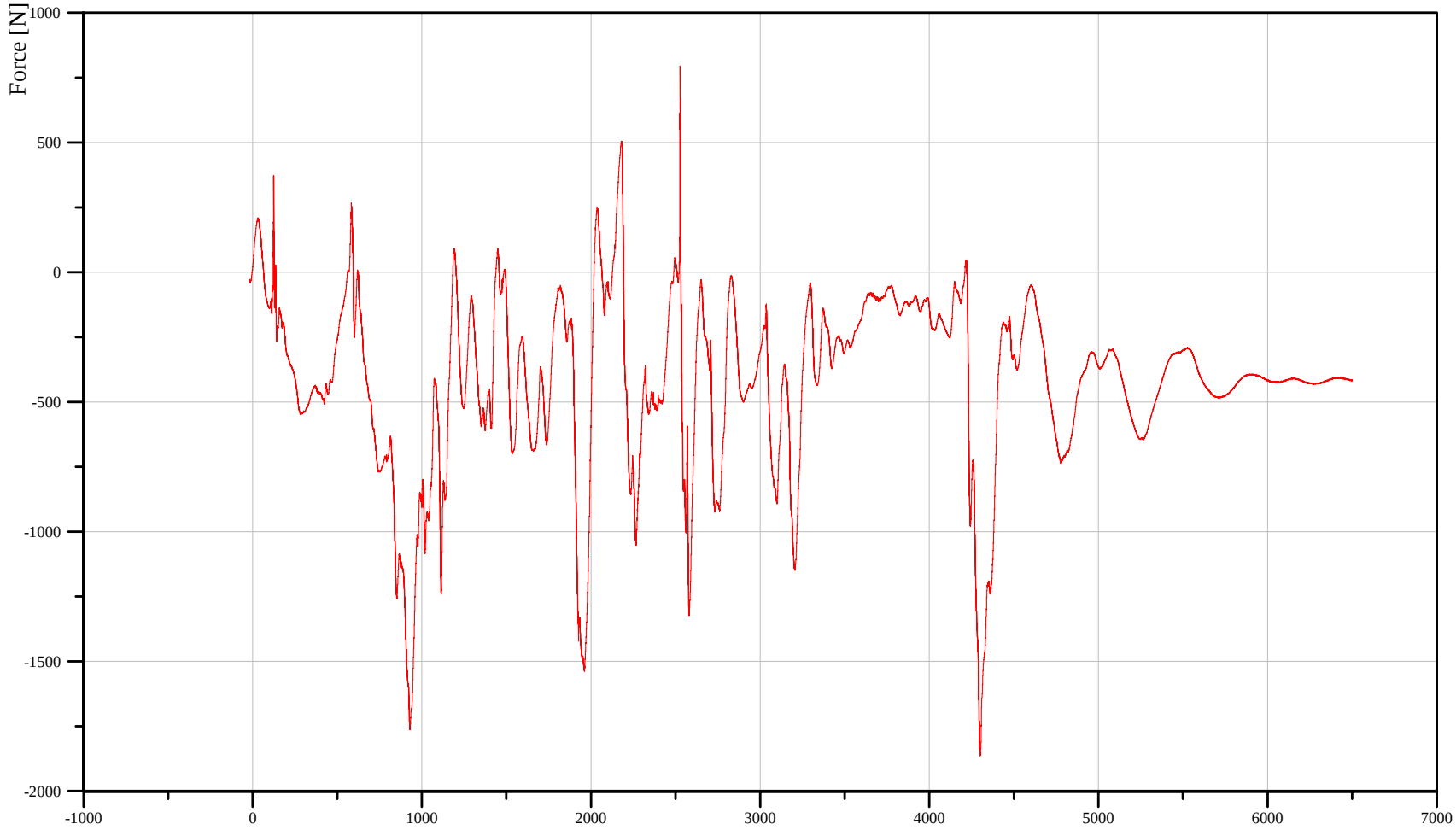
Driver Lower Neck Z-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11NECKLO00H3FOZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-1,862.97 N at 4,299.44 ms

Max. Value
794.89 N at 2,526.08 ms

091215

Soil Trip Rollover 2007 Ford Expedition

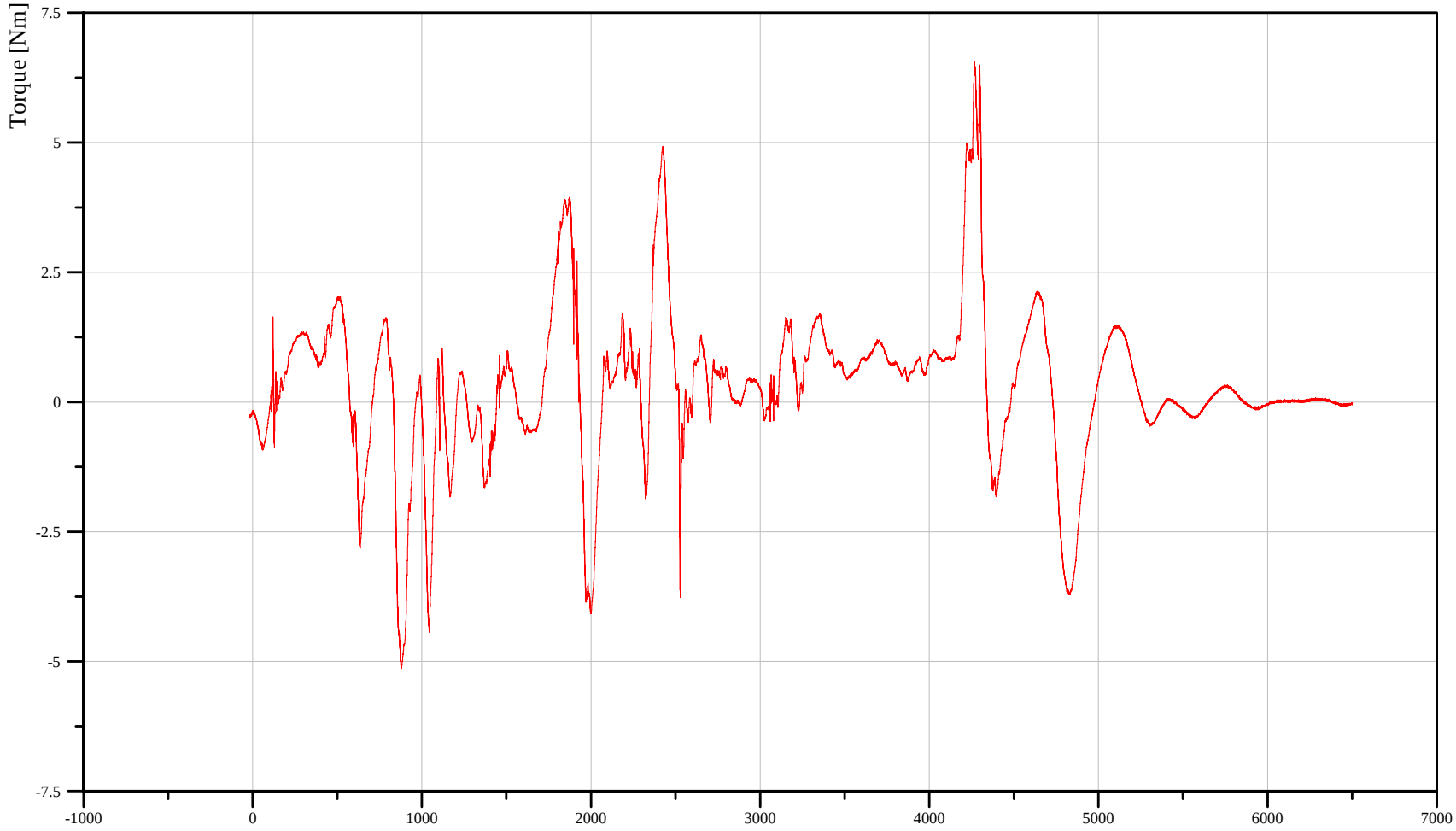
Driver Lower Neck Moment About X Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11NECKLO00H3MOXB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-5.13 Nm at 880.16 ms

Max. Value
6.56 Nm at 4,266.32 ms

Soil Trip Rollover 2007 Ford Expedition

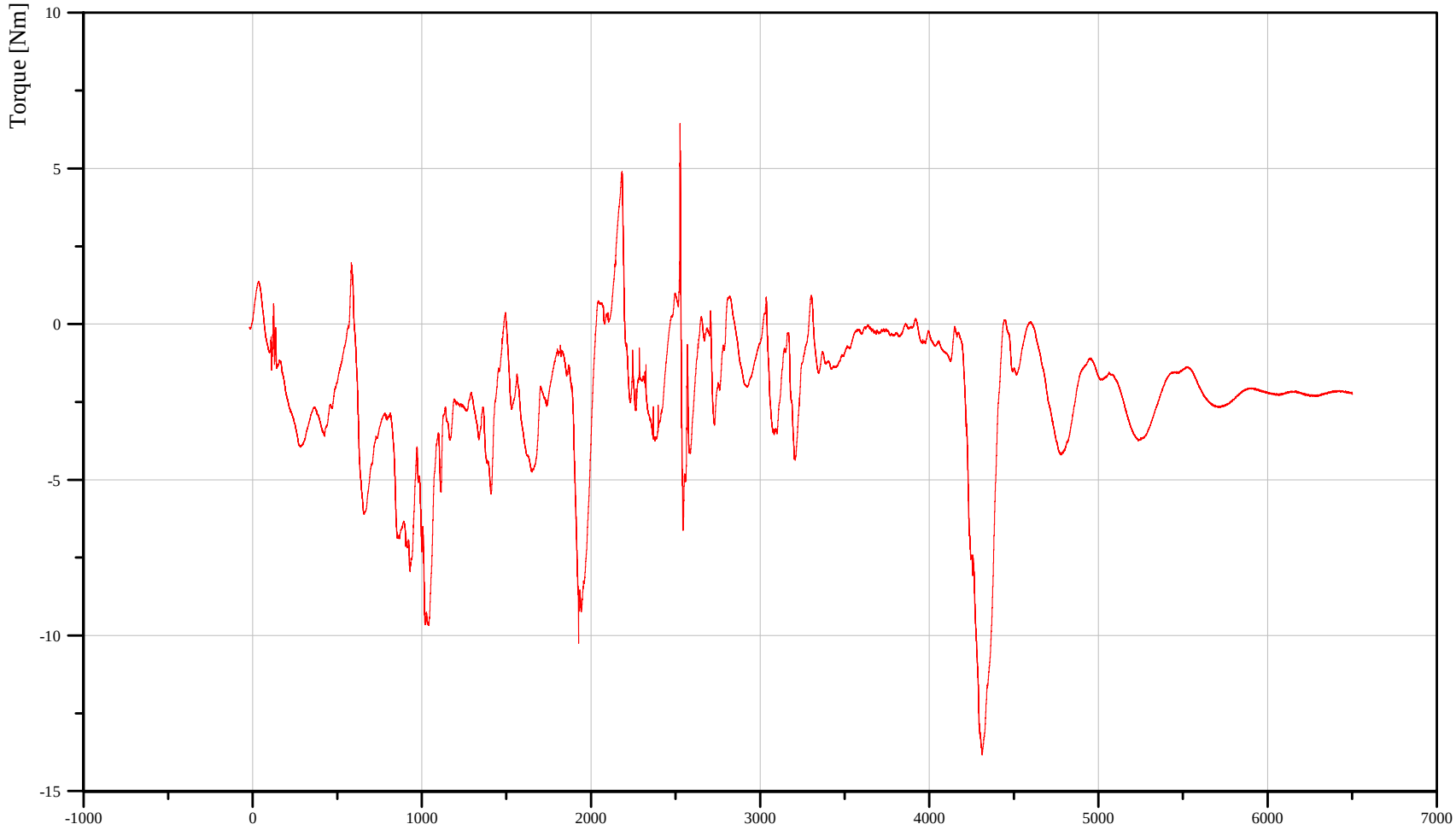
Driver Lower Neck Moment About Y Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11NECKLO00H3MOYB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-13.84 Nm at 4,311.92 ms

Max. Value
6.44 Nm at 2,526.16 ms

Soil Trip Rollover 2007 Ford Expedition

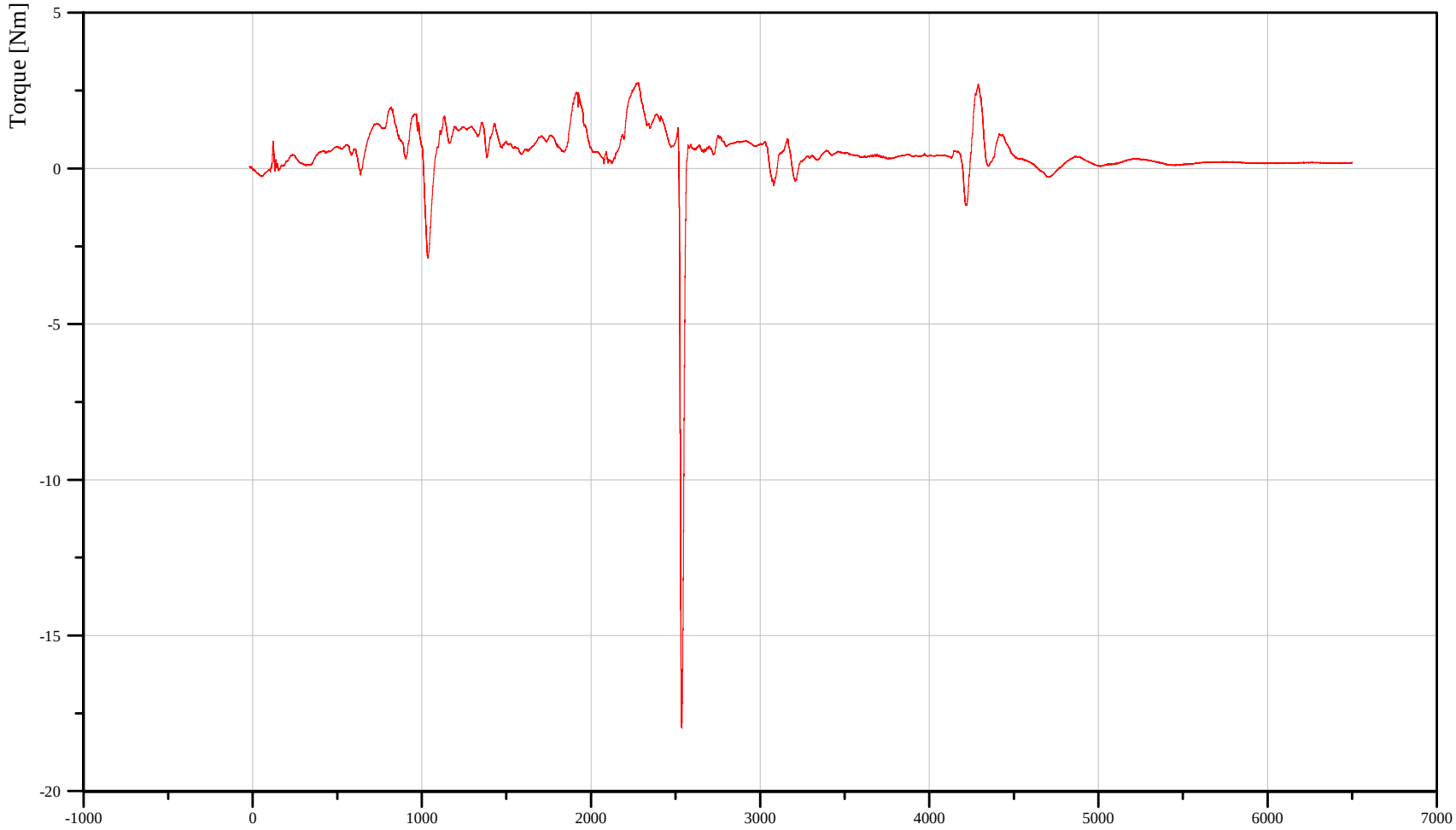
Driver Lower Neck Moment About Z Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11NECKLO00H3MOZB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-17.98 Nm at 2,536.32 ms

Max. Value
2.76 Nm at 2,280.16 ms

Soil Trip Rollover 2007 Ford Expedition

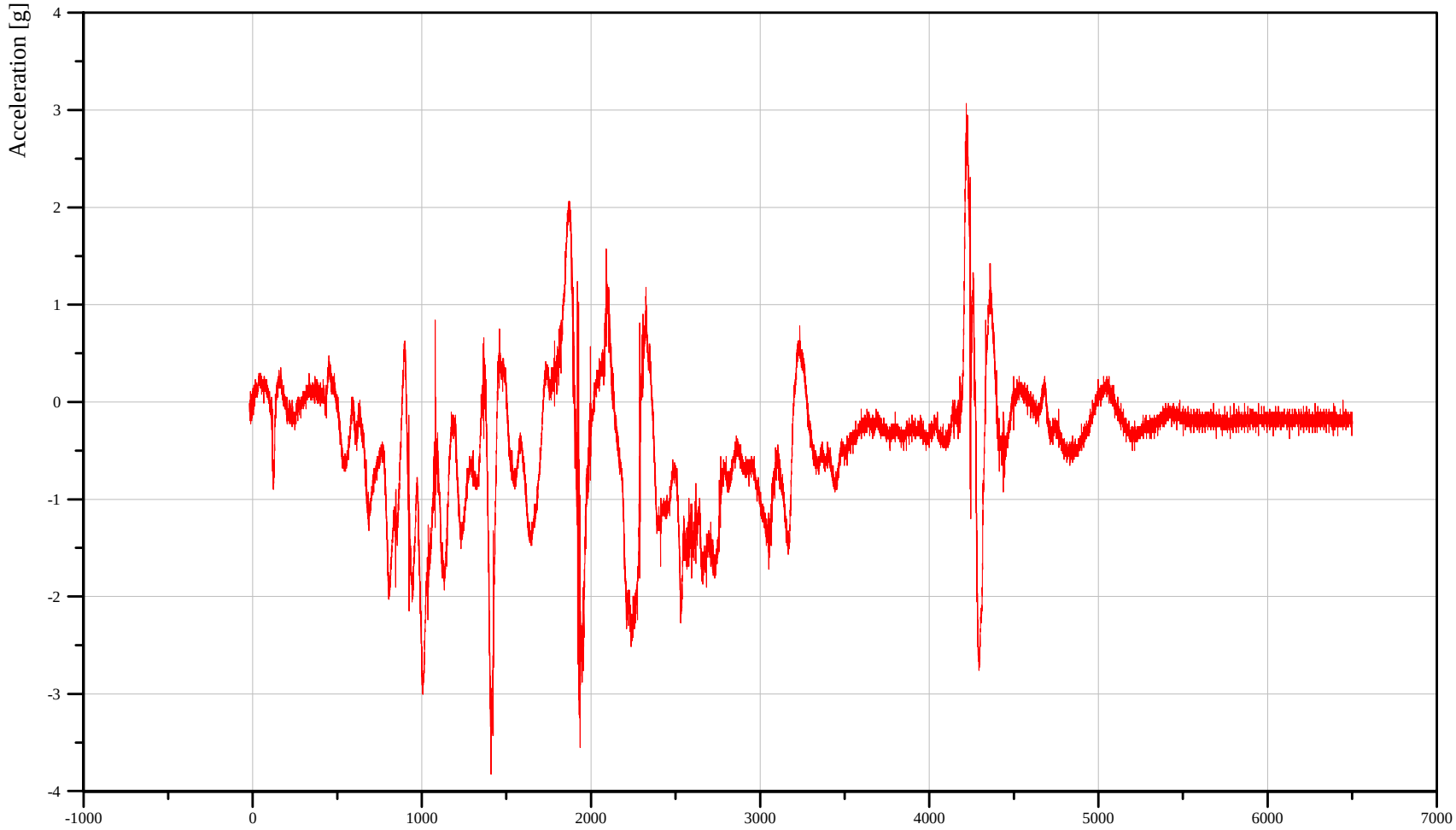
Driver Pelvis X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11PELVCG00H3ACXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-3.83 g at 1,408.64 ms

Max. Value
3.07 g at 4,217.76 ms

Soil Trip Rollover 2007 Ford Expedition

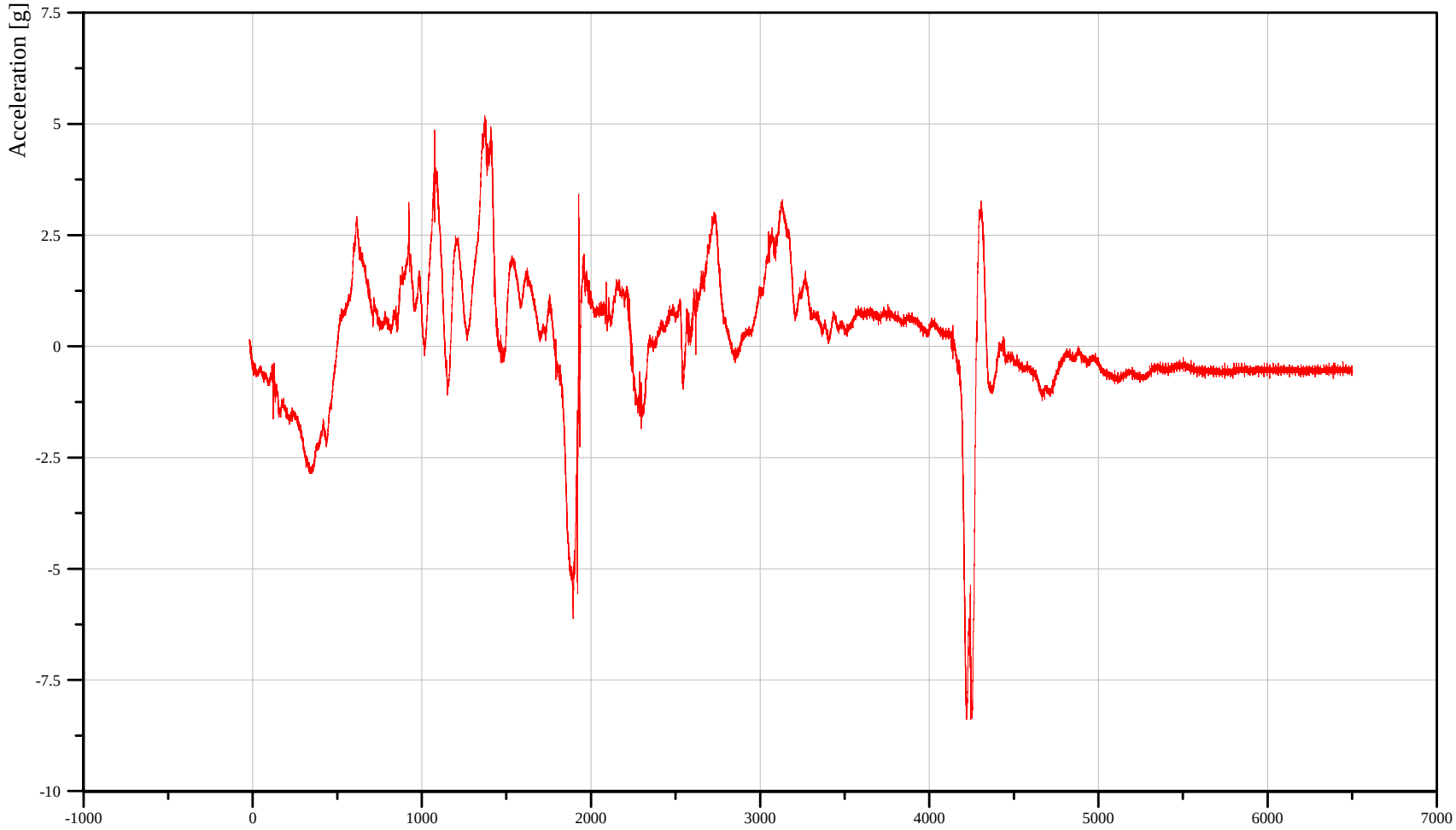
Driver Pelvis Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11PELVCG00H3ACYA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-8.39 g at 4,218.56 ms

Max. Value
5.19 g at 1,371.20 ms

Soil Trip Rollover 2007 Ford Expedition

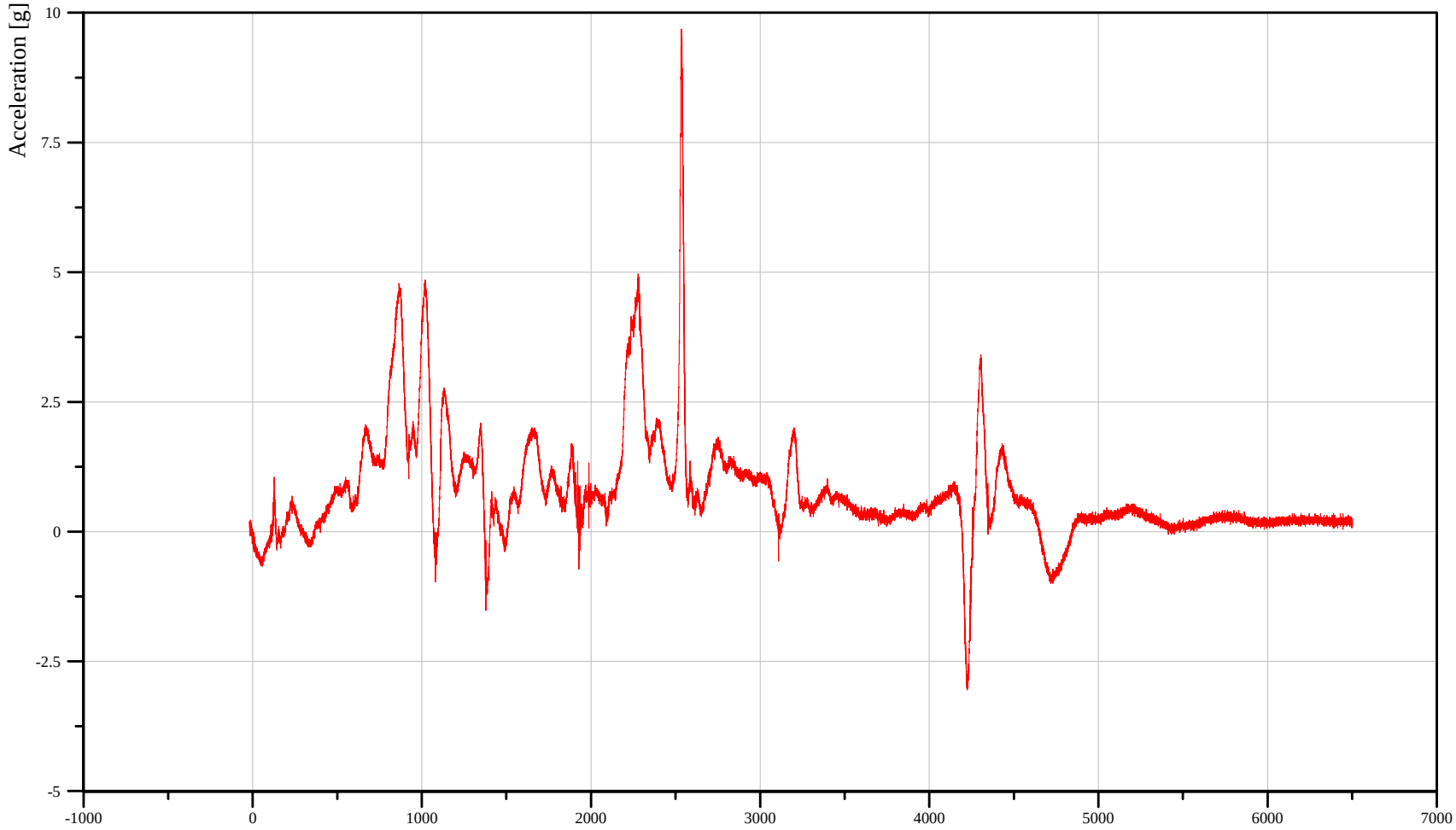
Driver Pelvis Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11PELVCG00H3ACZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-3.05 g at 4,222.80 ms

Max. Value
9.69 g at 2,534.56 ms

Soil Trip Rollover 2007 Ford Expedition

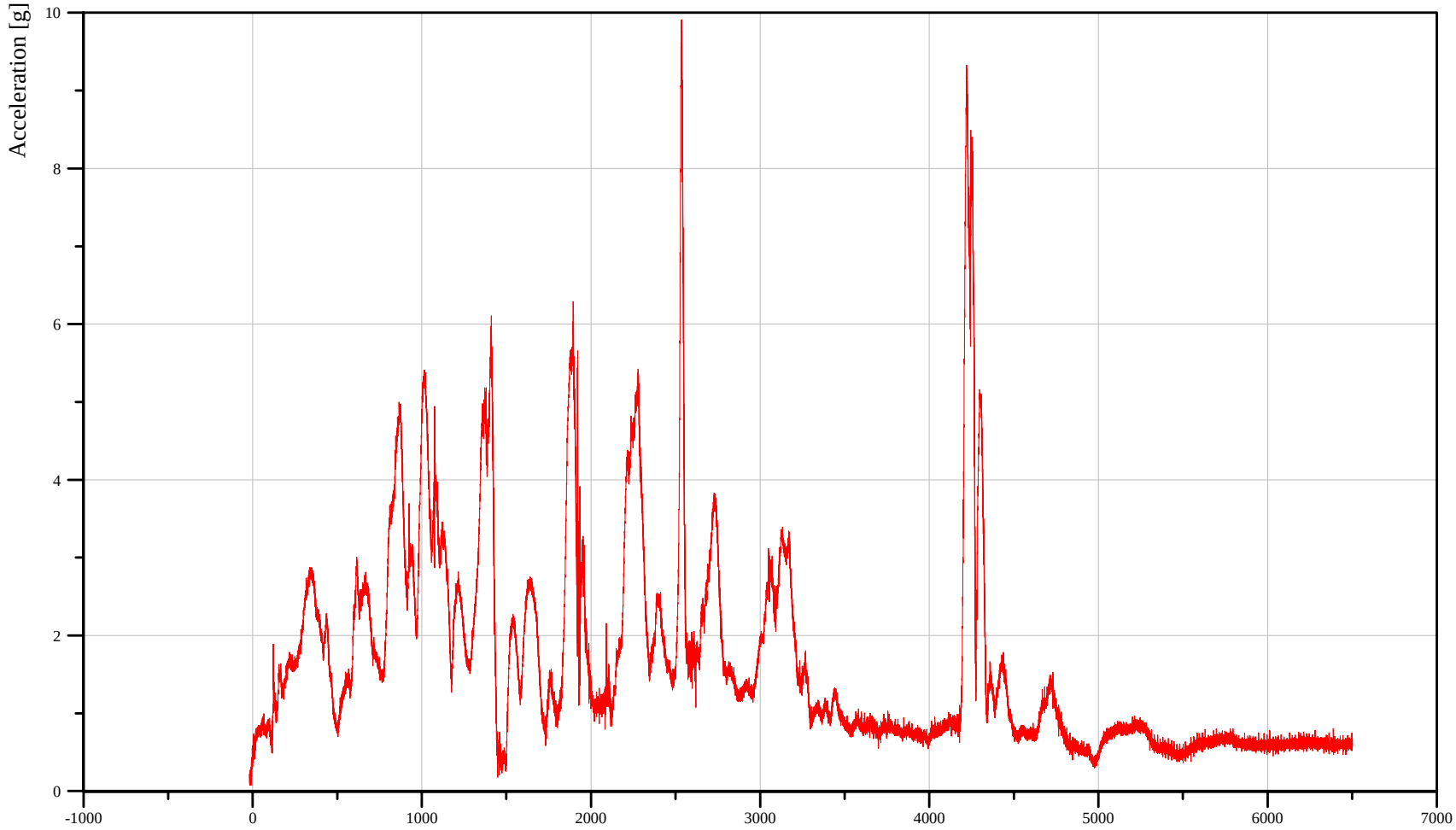
Driver Pelvis Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11PELVCG00H3ACRA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
0.08 g at -8.96 ms

Max. Value
9.91 g at 2,534.56 ms

Soil Trip Rollover 2007 Ford Expedition

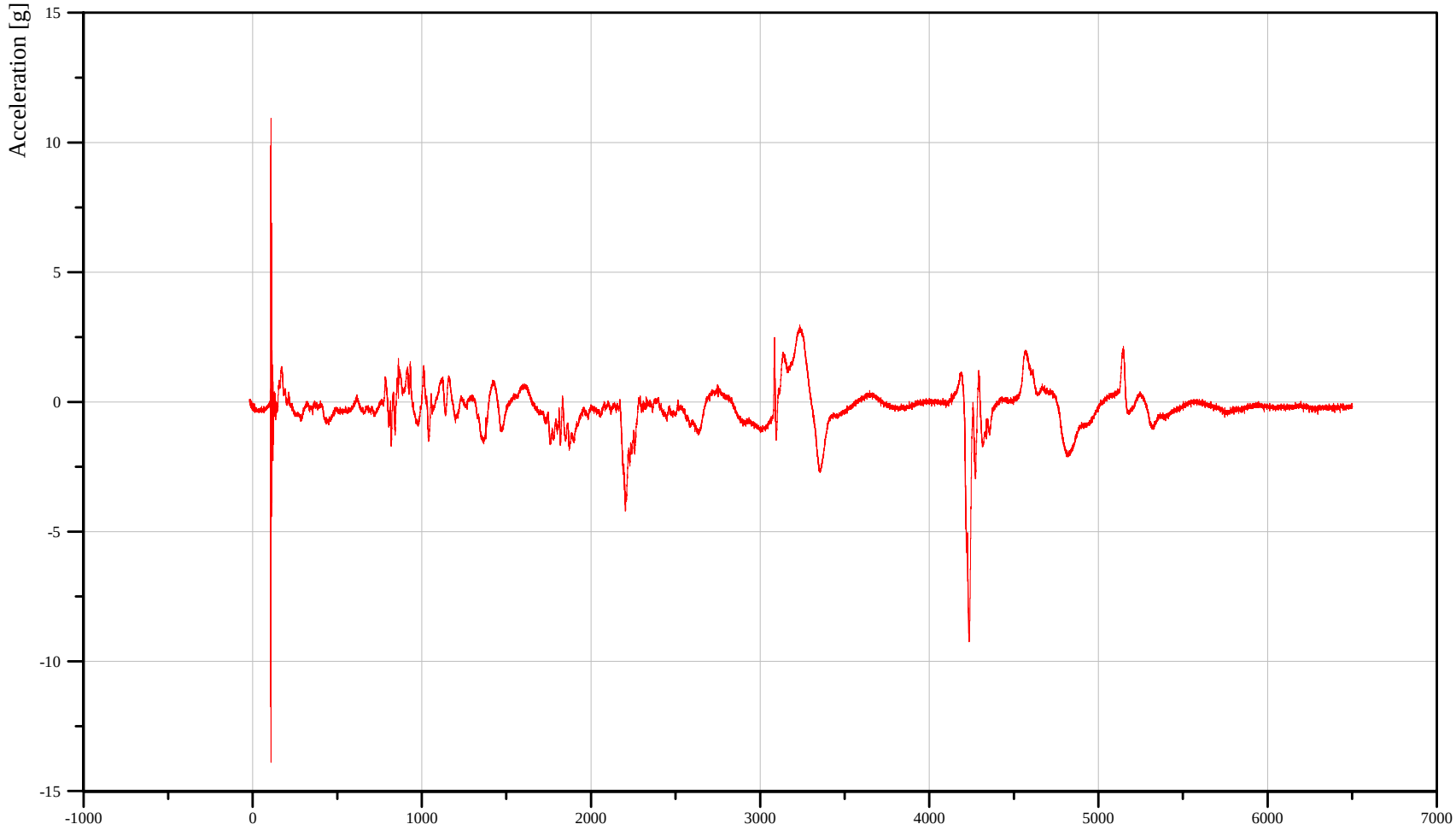
Right Front Passenger Head X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13HEADCG00H3ACXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-13.89 g at 107.76 ms

Max. Value
10.93 g at 108.00 ms

Soil Trip Rollover 2007 Ford Expedition

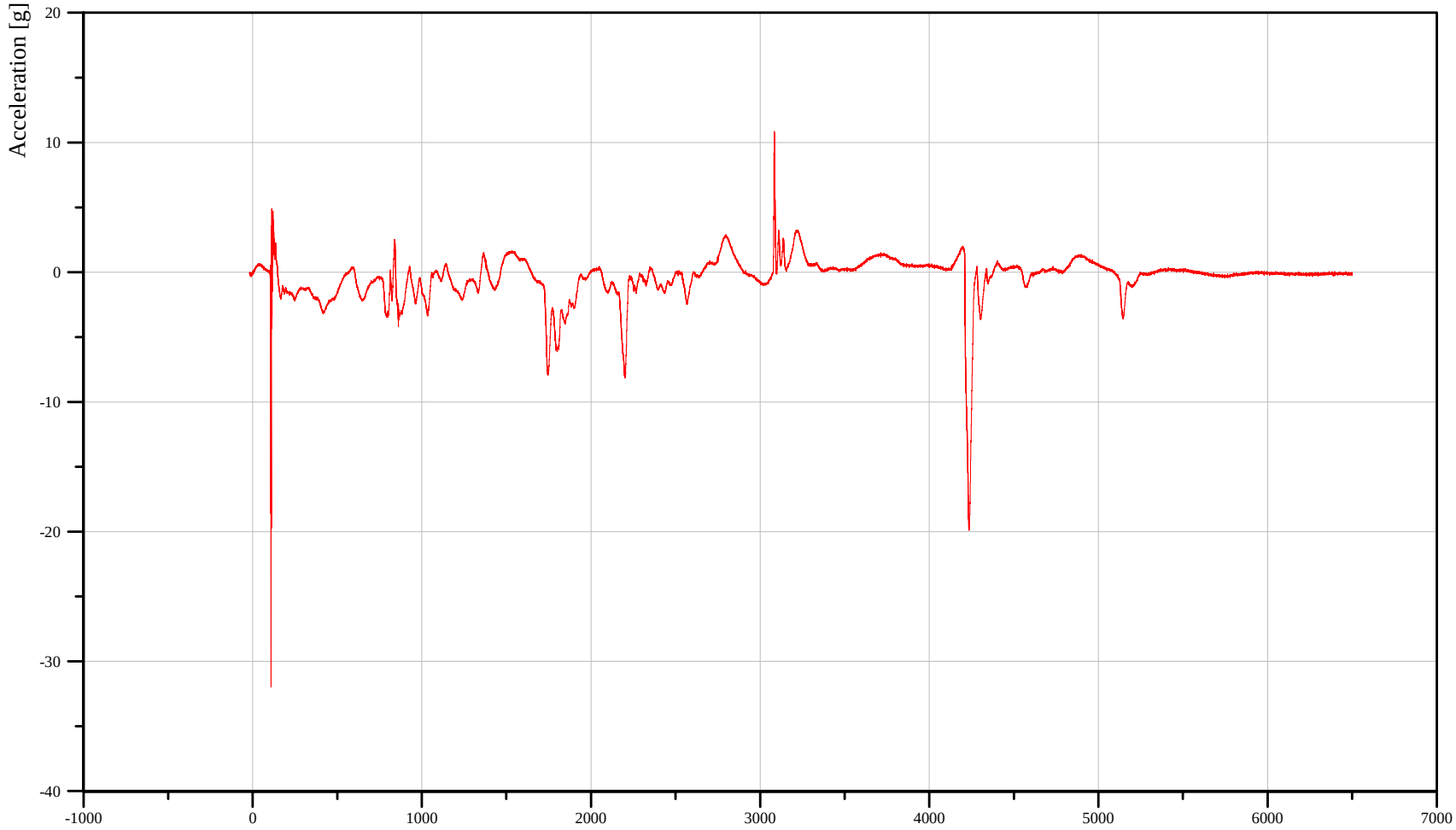
Right Front Passenger Head Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13HEADCG00H3ACYA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-31.96 g at 108.24 ms

Max. Value
10.86 g at 3,083.52 ms

Soil Trip Rollover 2007 Ford Expedition

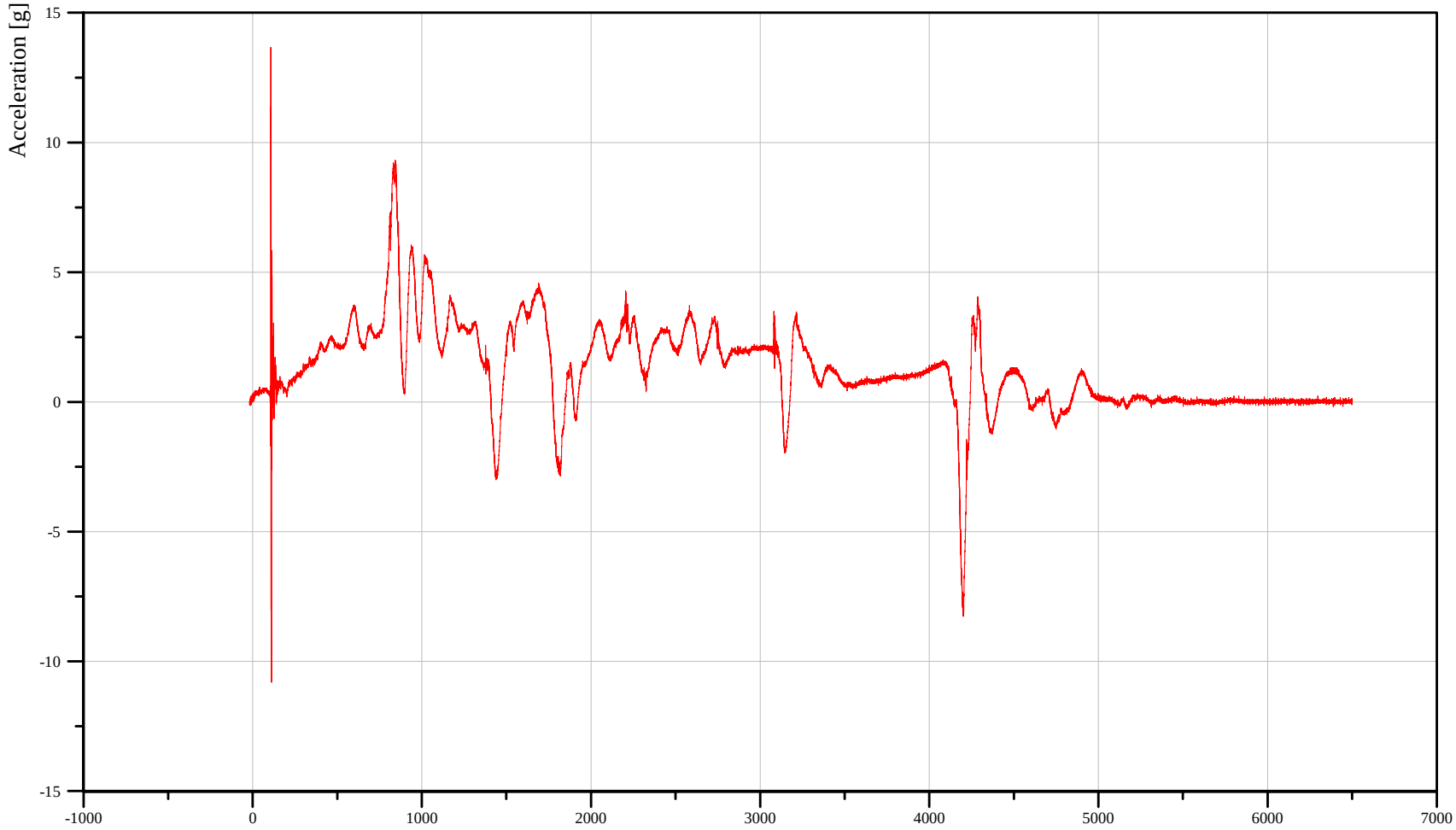
Right Front Passenger Head Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13HEADCG00H3ACZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-10.81 g at 109.84 ms

Max. Value
13.67 g at 107.28 ms

Soil Trip Rollover 2007 Ford Expedition

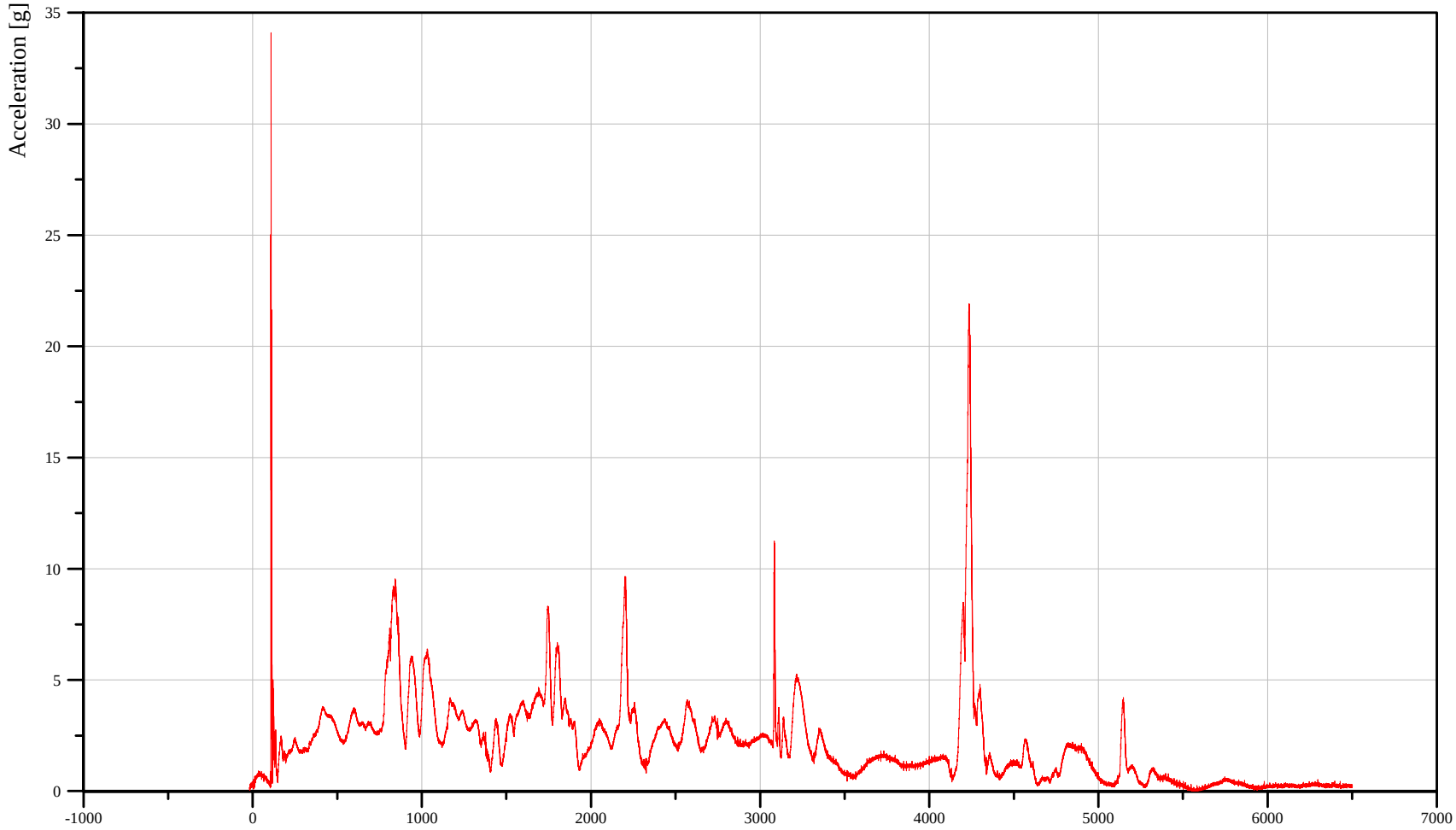
Right Front Passenger Head Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13HEADCG00H3ACRA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
0.02 g at 5,551.12 ms

Max. Value
34.11 g at 108.24 ms

Soil Trip Rollover 2007 Ford Expedition

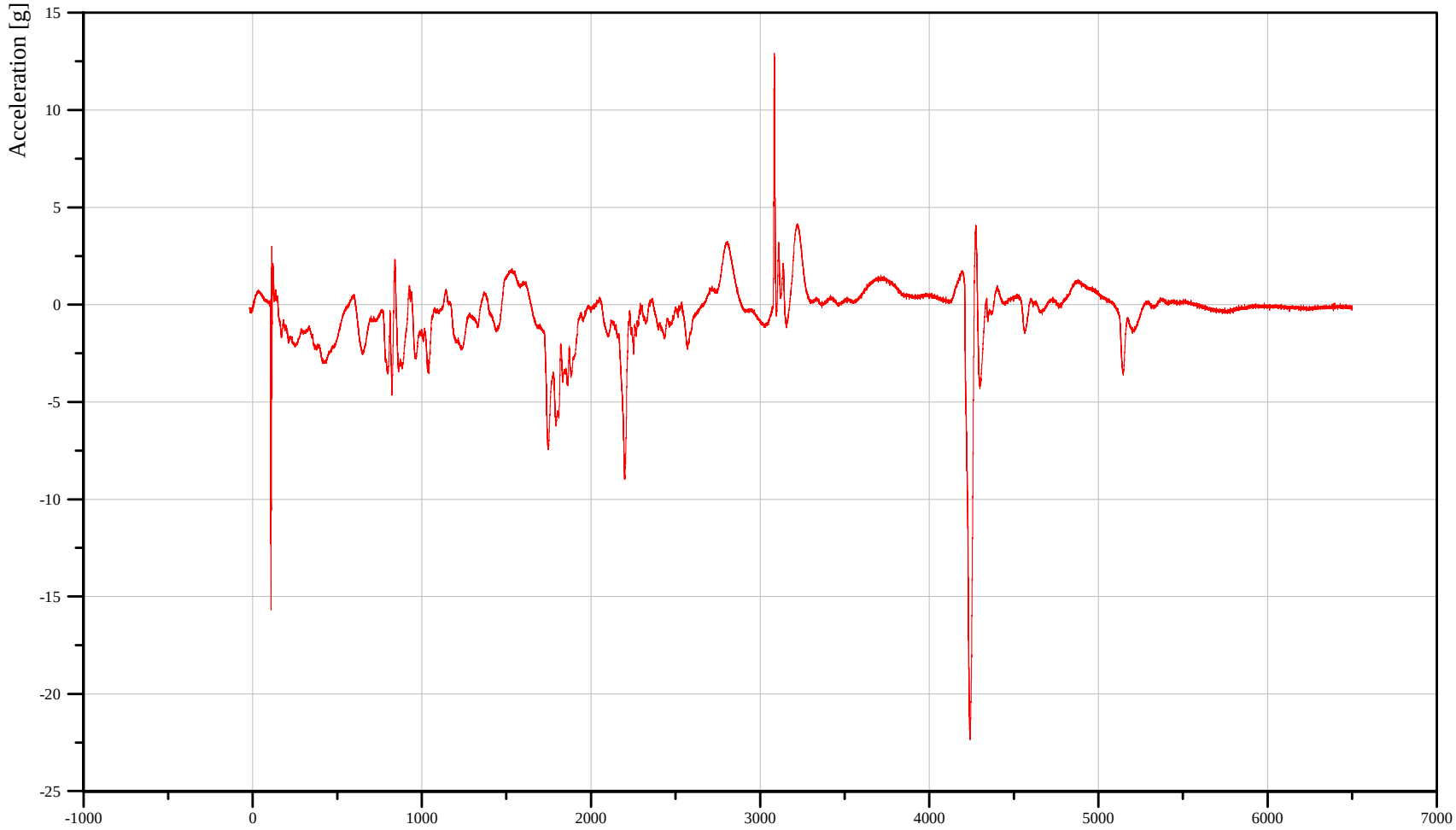
Right Front Passenger Head Front Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13HEADFR00H3ACYA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-22.35 g at 4,239.76 ms

Max. Value
12.92 g at 3,083.52 ms

Soil Trip Rollover 2007 Ford Expedition

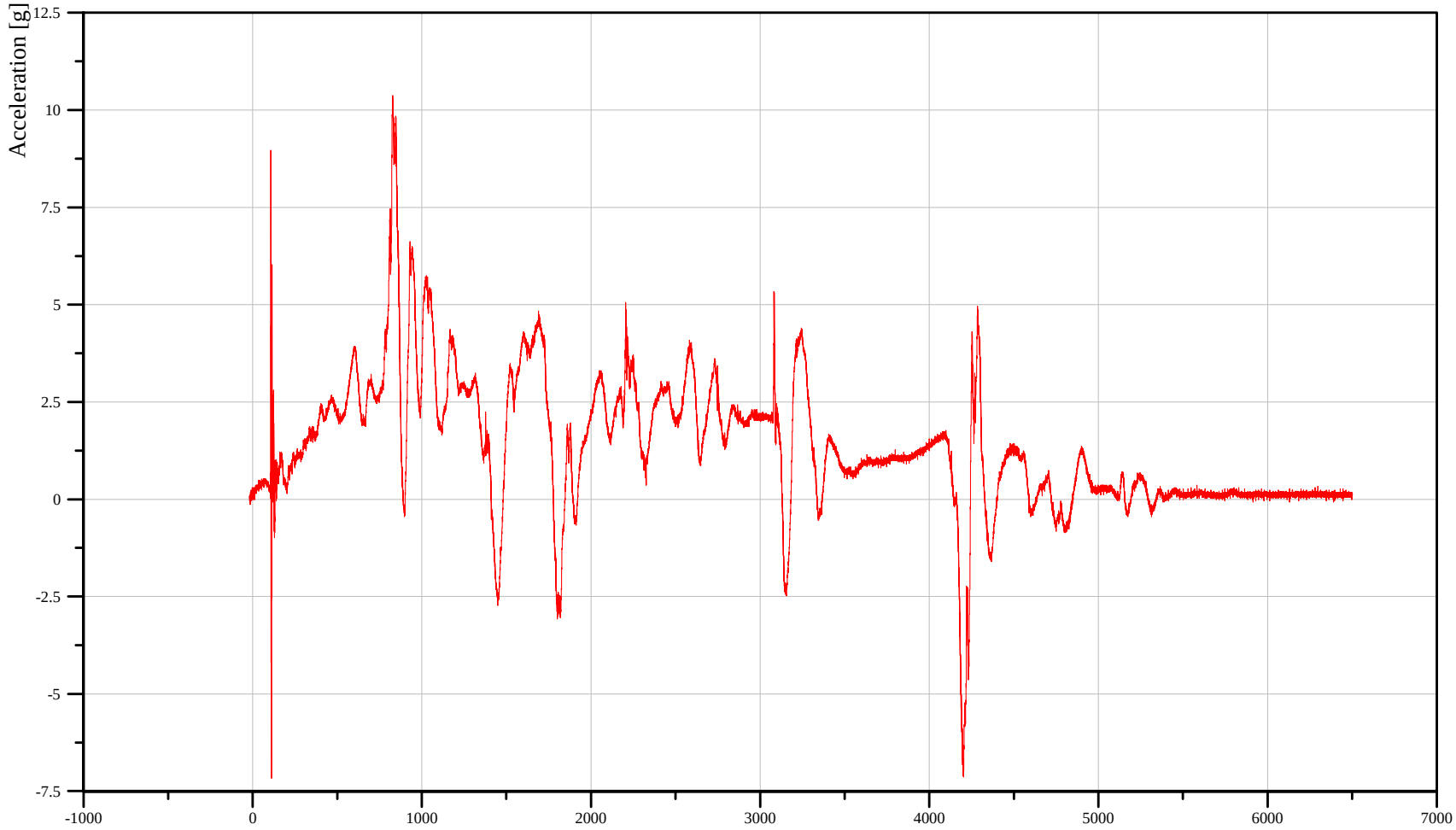
Right Front Passenger Head Front Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13HEADFR00H3ACZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-7.17 g at 109.92 ms

Max. Value
10.37 g at 827.04 ms

Soil Trip Rollover 2007 Ford Expedition

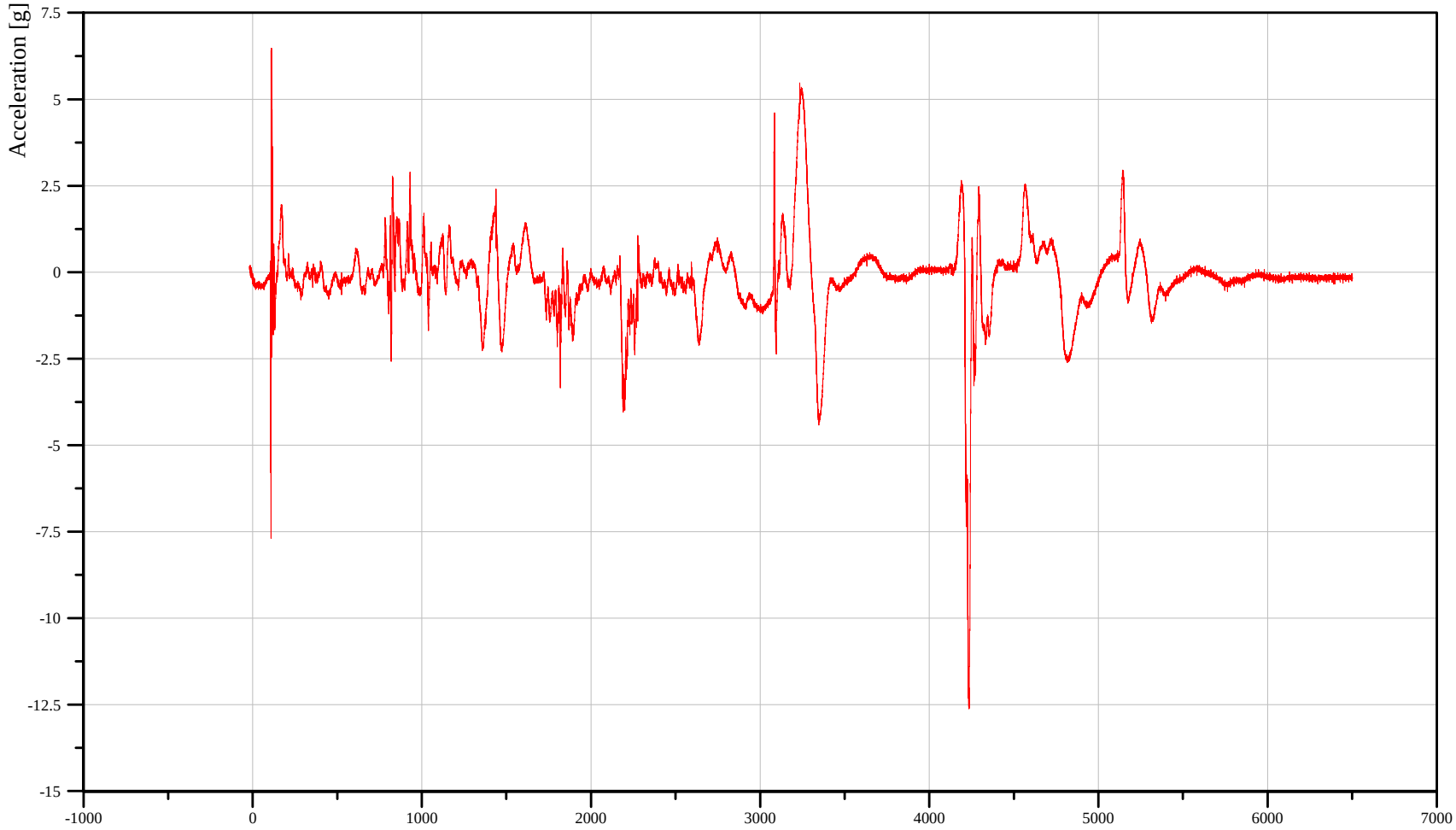
Right Front Passenger Head Top X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13HEADUP00H3ACXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-12.62 g at 4,234.32 ms

Max. Value
6.48 g at 109.44 ms

Soil Trip Rollover 2007 Ford Expedition

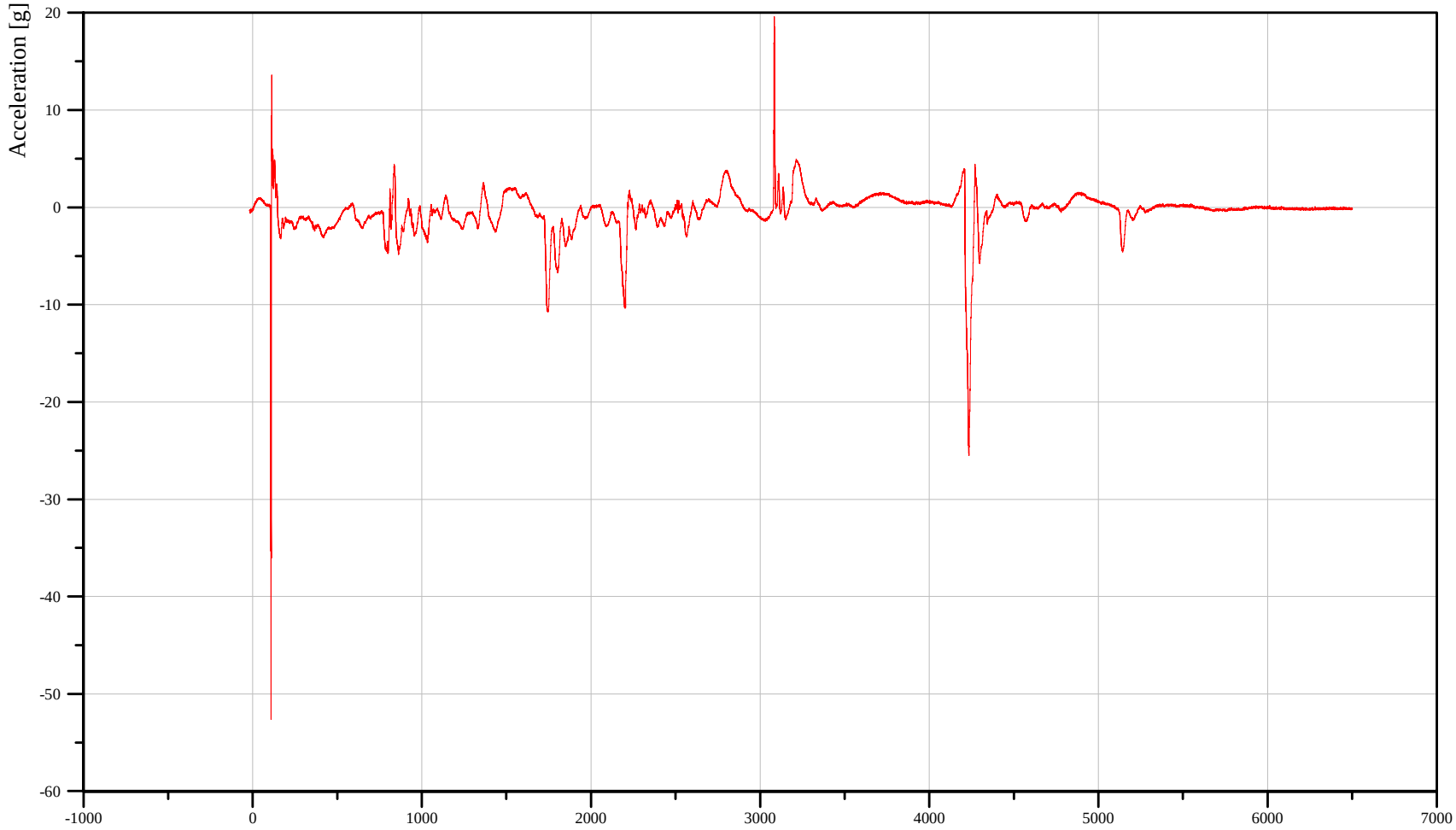
Right Front Passenger Head Top Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13HEADUP00H3ACYA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-52.62 g at 108.40 ms

Max. Value
19.60 g at 3,082.80 ms

Soil Trip Rollover 2007 Ford Expedition

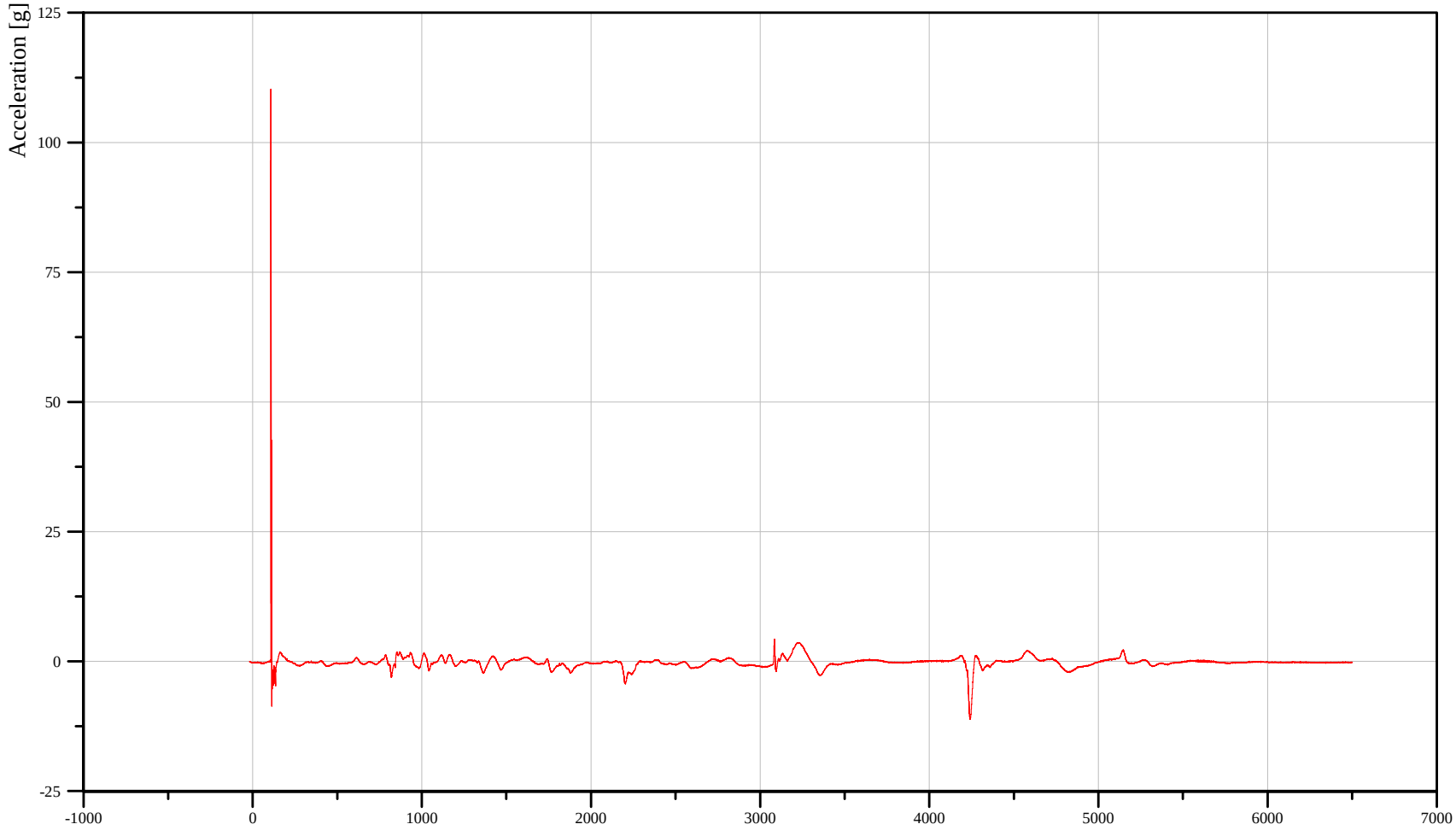
Right Front Passenger Head Left X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13HEADLE00H3ACXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-11.21 g at 4,239.52 ms

Max. Value
110.31 g at 107.44 ms

Soil Trip Rollover 2007 Ford Expedition

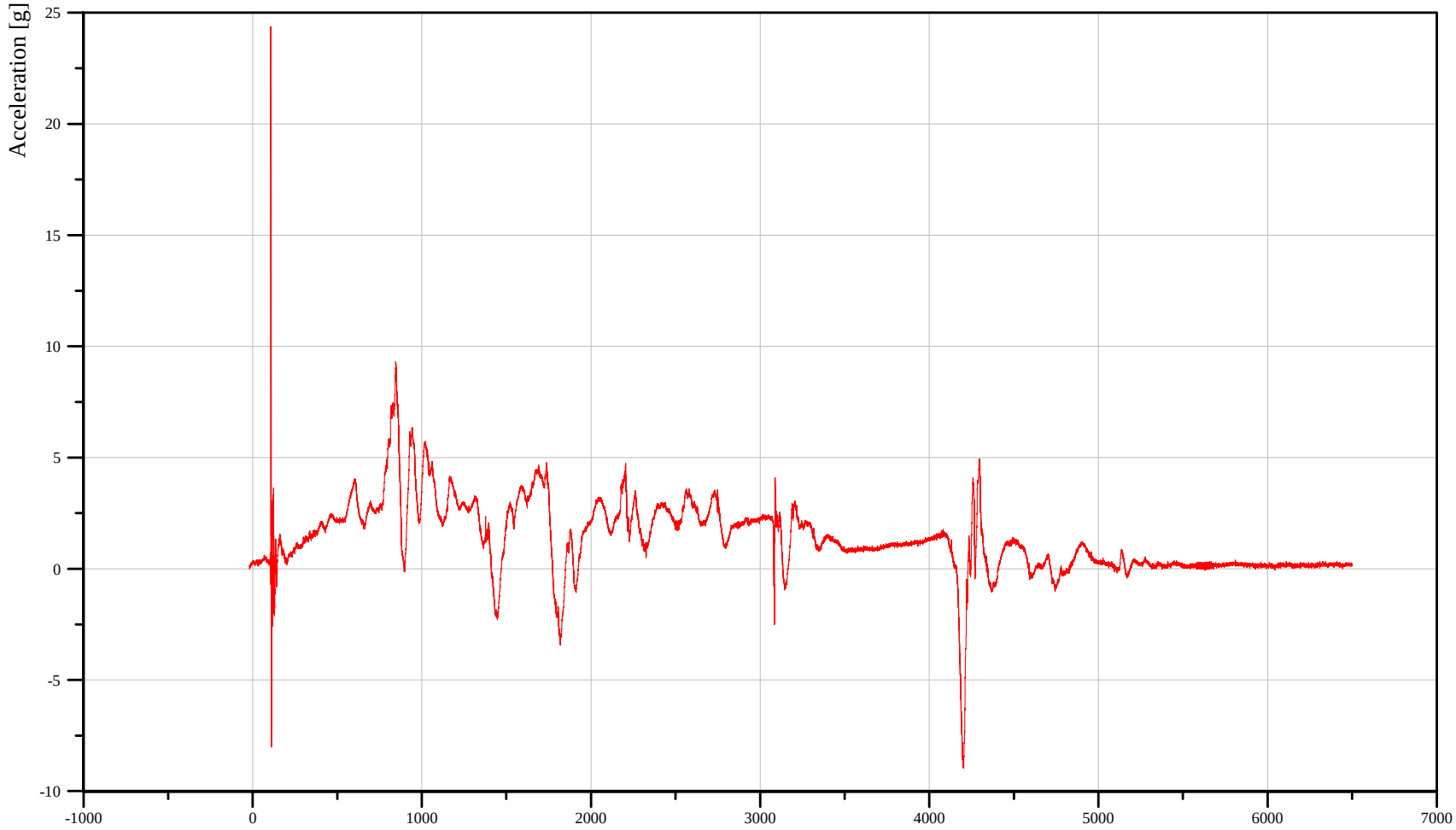
Right Front Passenger Head Left Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13HEADLE00H3ACZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-8.98 g at 4,202.32 ms

Max. Value
24.37 g at 107.60 ms

Soil Trip Rollover 2007 Ford Expedition

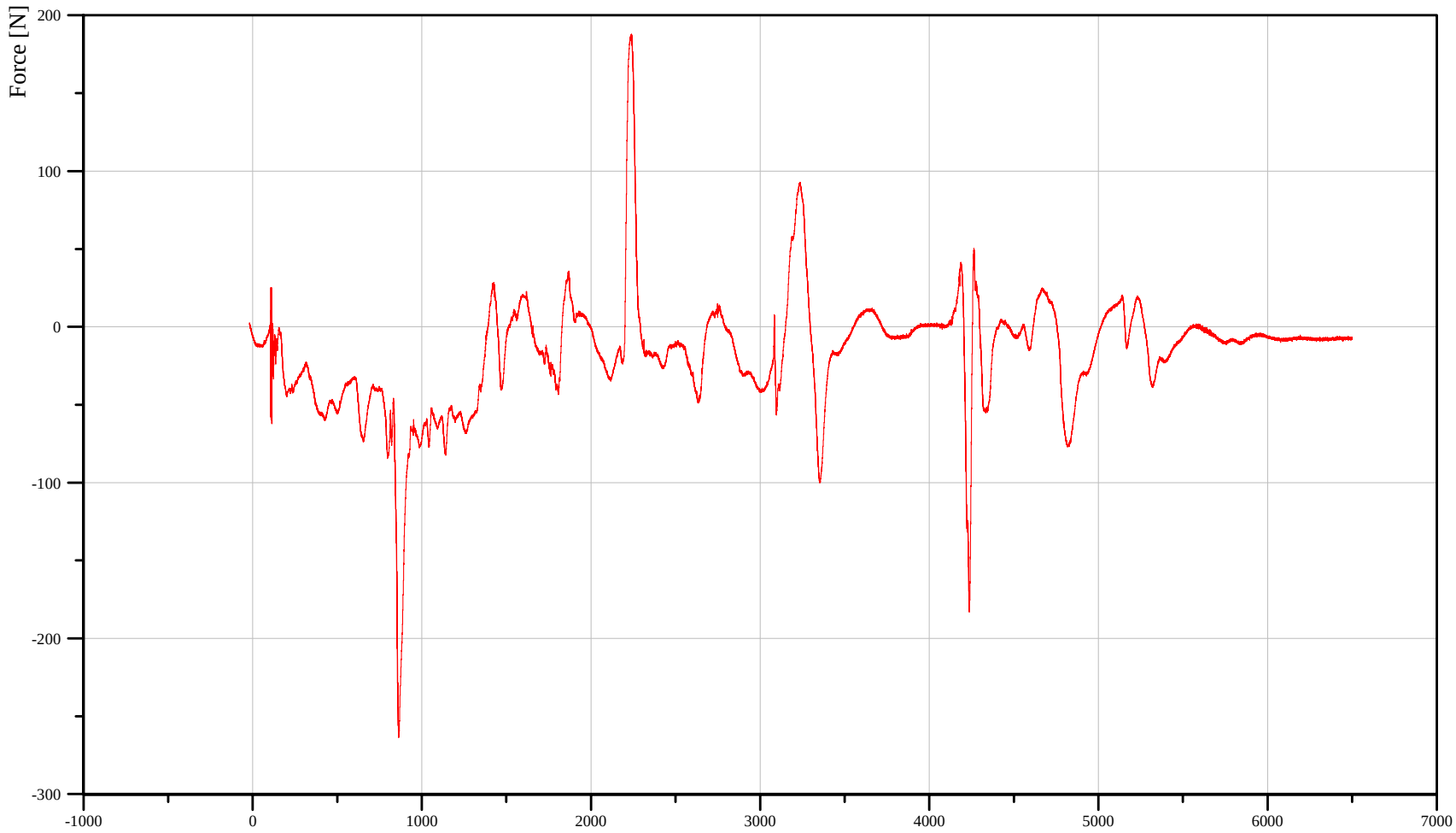
Right Front Passenger Upper Neck X-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13NECKUP00H3FOXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-263.70 N at 862.16 ms

Max. Value
187.98 N at 2,238.64 ms

Soil Trip Rollover 2007 Ford Expedition

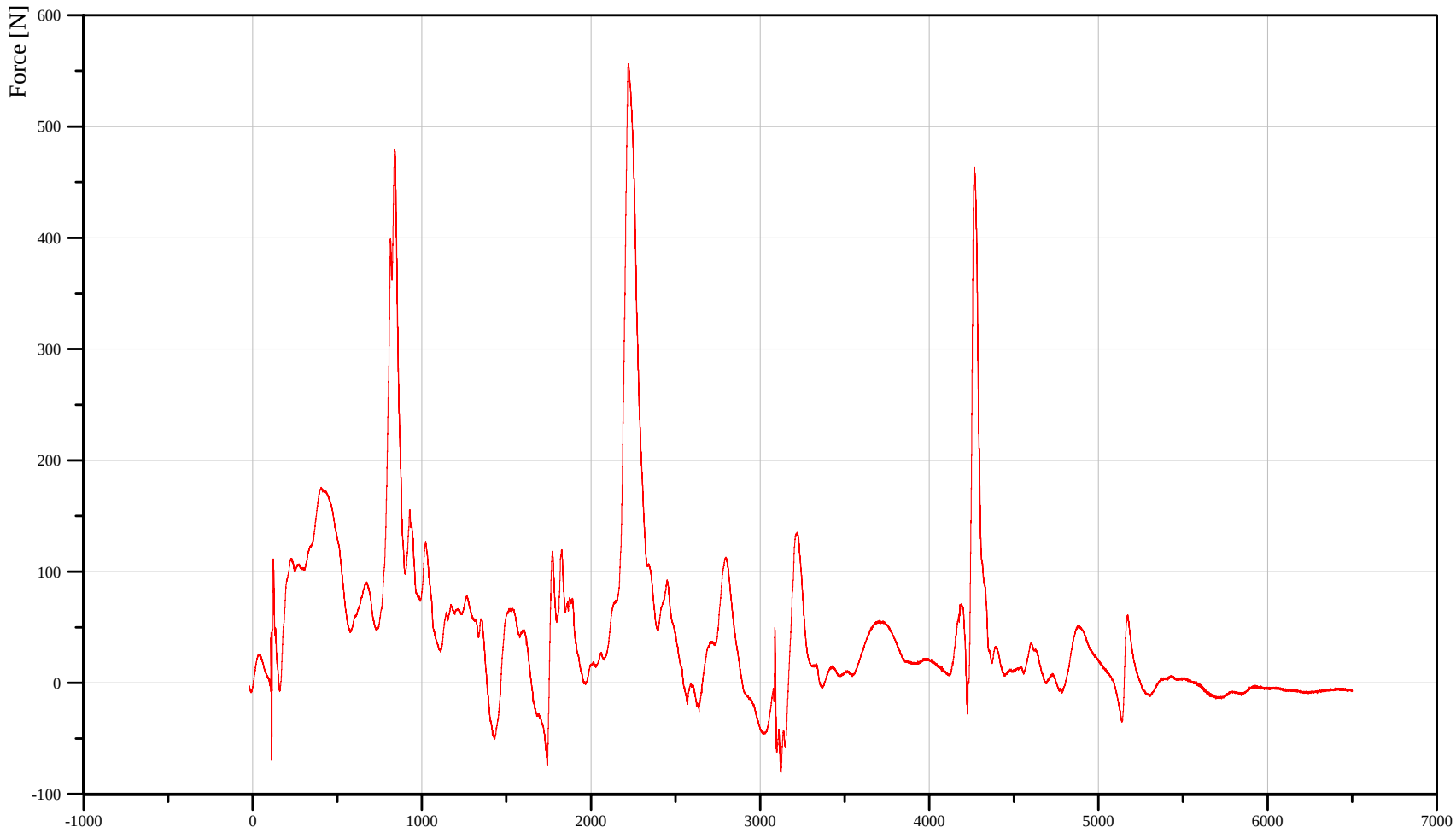
Right Front Passenger Upper Neck Y-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13NECKUP00H3FOYA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-81.11 N at 3,122.48 ms

Max. Value
556.33 N at 2,219.68 ms

Soil Trip Rollover 2007 Ford Expedition

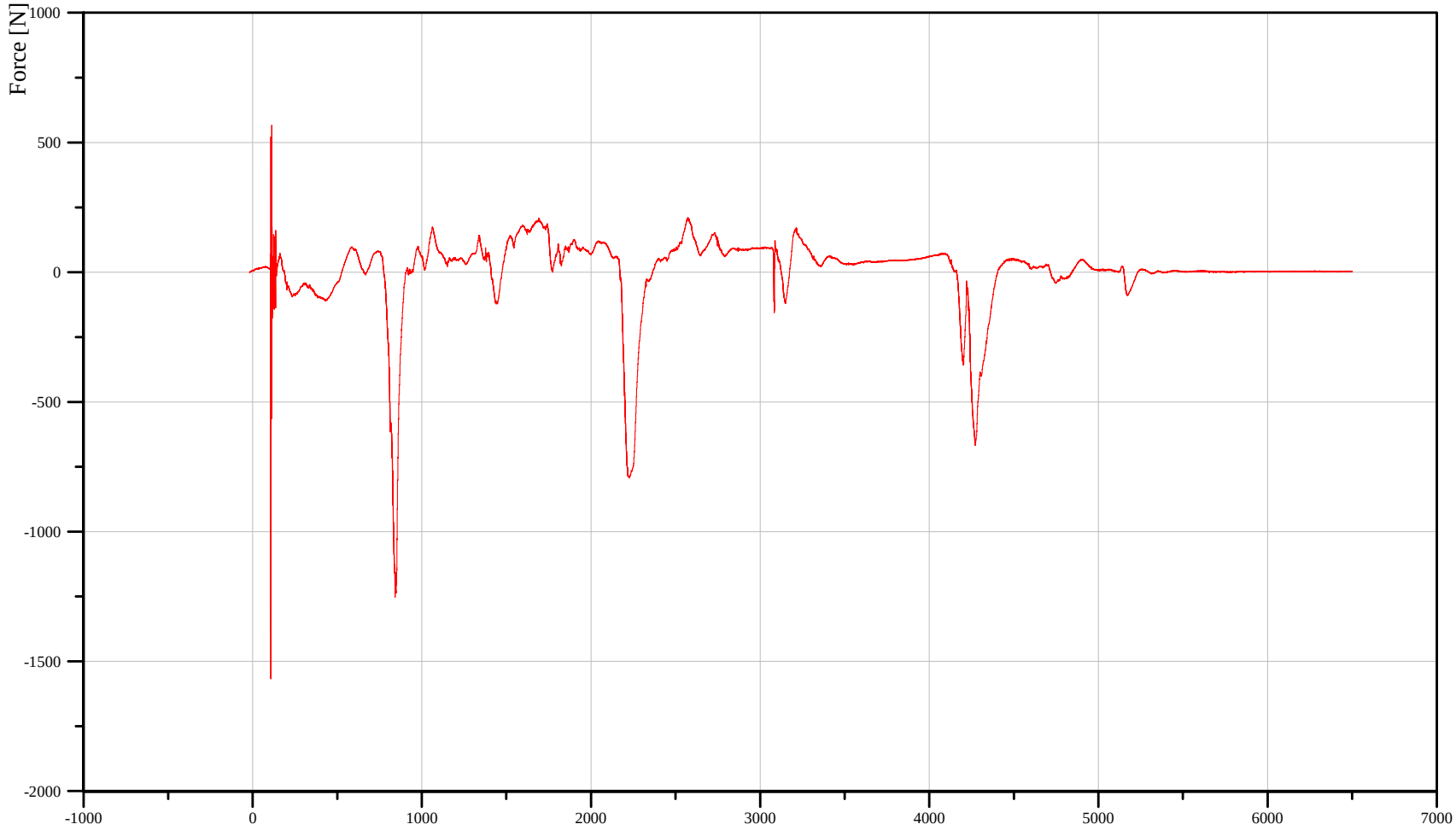
Right Front Passenger Upper Neck Z-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13NECKUP00H3FOZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-1,567.48 N at 107.44 ms

Max. Value
566.25 N at 111.84 ms

Soil Trip Rollover 2007 Ford Expedition

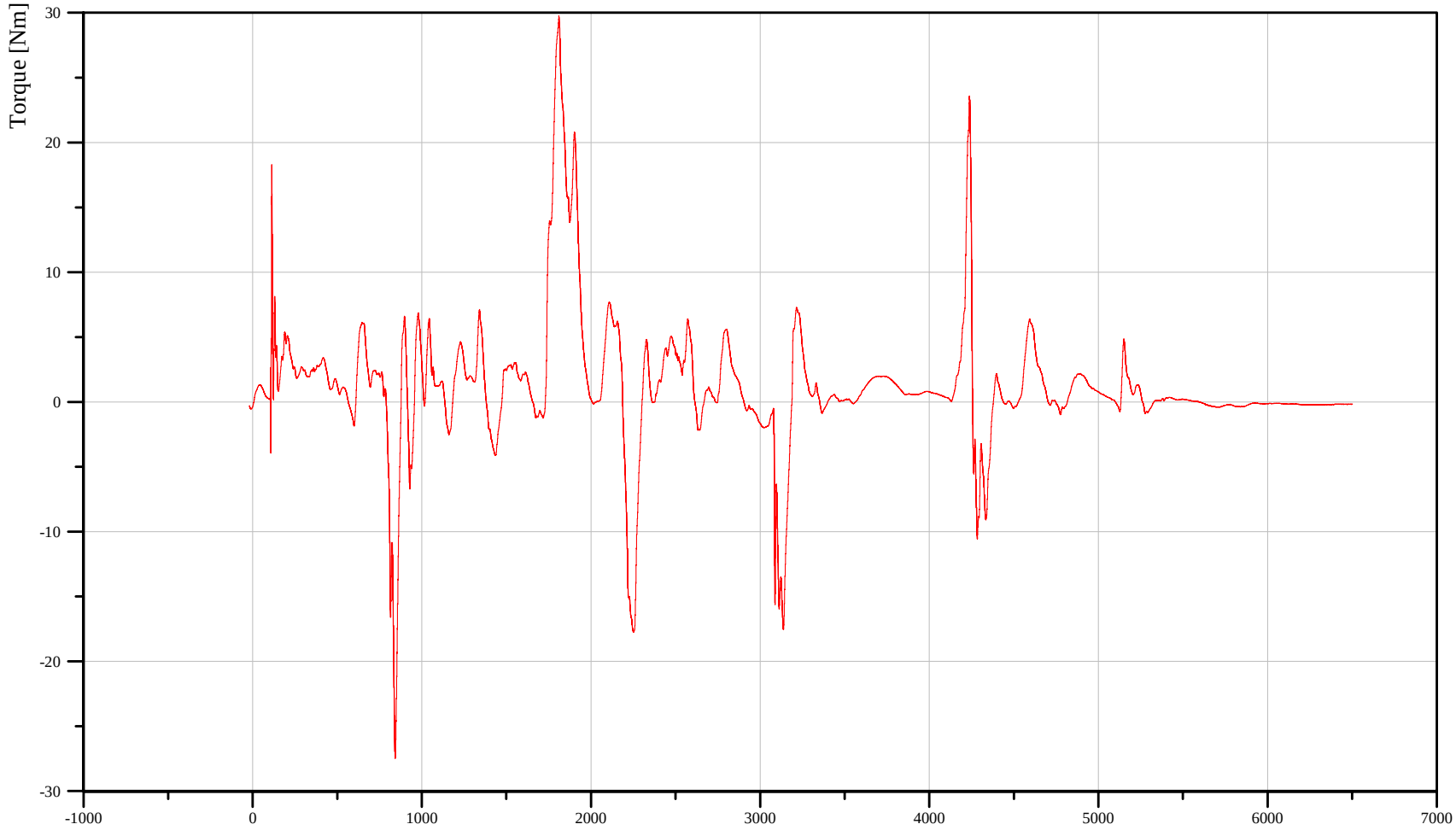
Right Front Passenger Upper Neck Moment About X Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13NECKUP00H3MOXB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-27.48 Nm at 842.00 ms

Max. Value
29.78 Nm at 1,809.20 ms

Soil Trip Rollover 2007 Ford Expedition

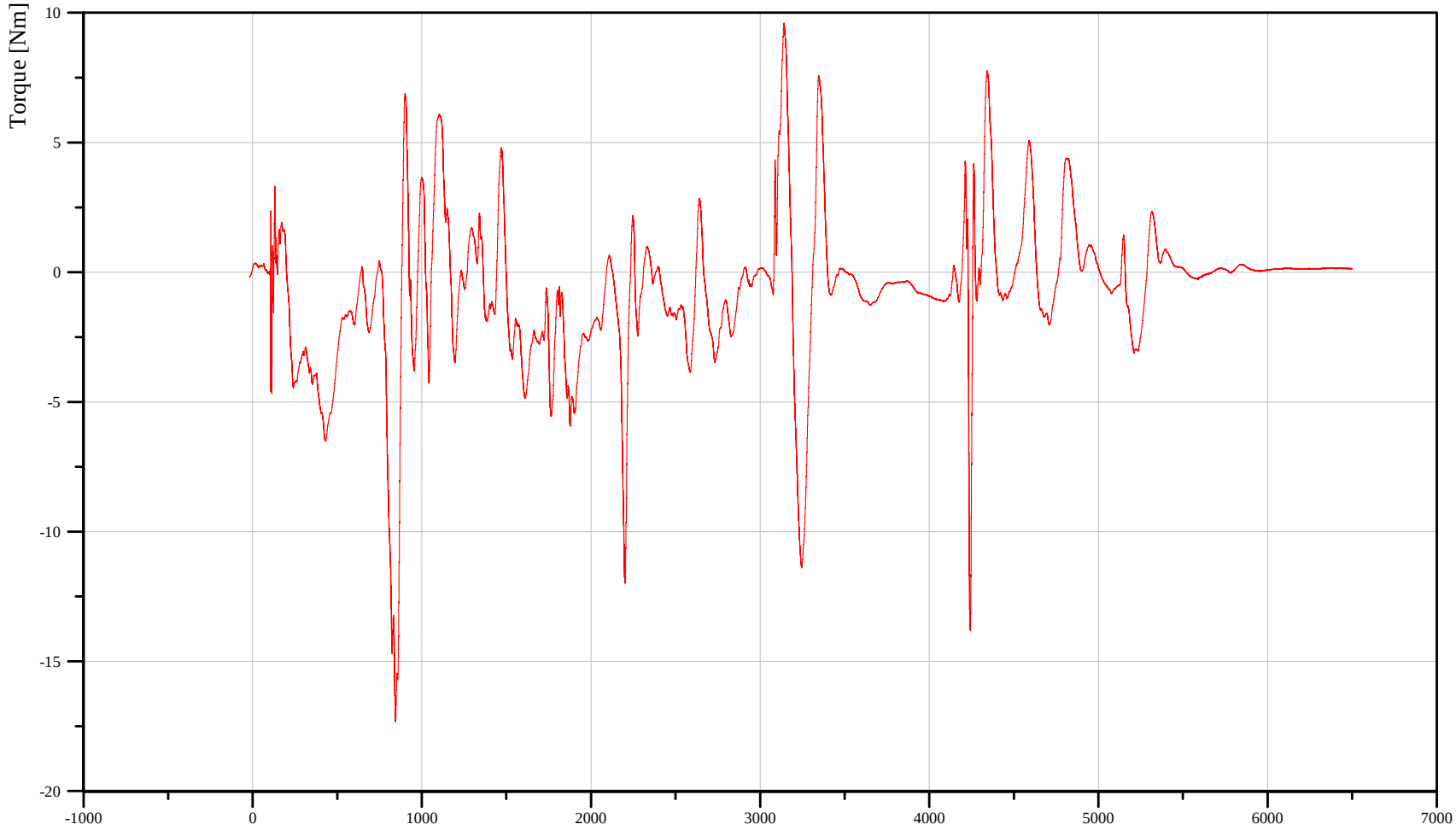
Right Front Passenger Upper Neck Moment About Y Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13NECKUP00H3MOYB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-17.34 Nm at 844.40 ms

Max. Value
9.61 Nm at 3,140.64 ms

Soil Trip Rollover 2007 Ford Expedition

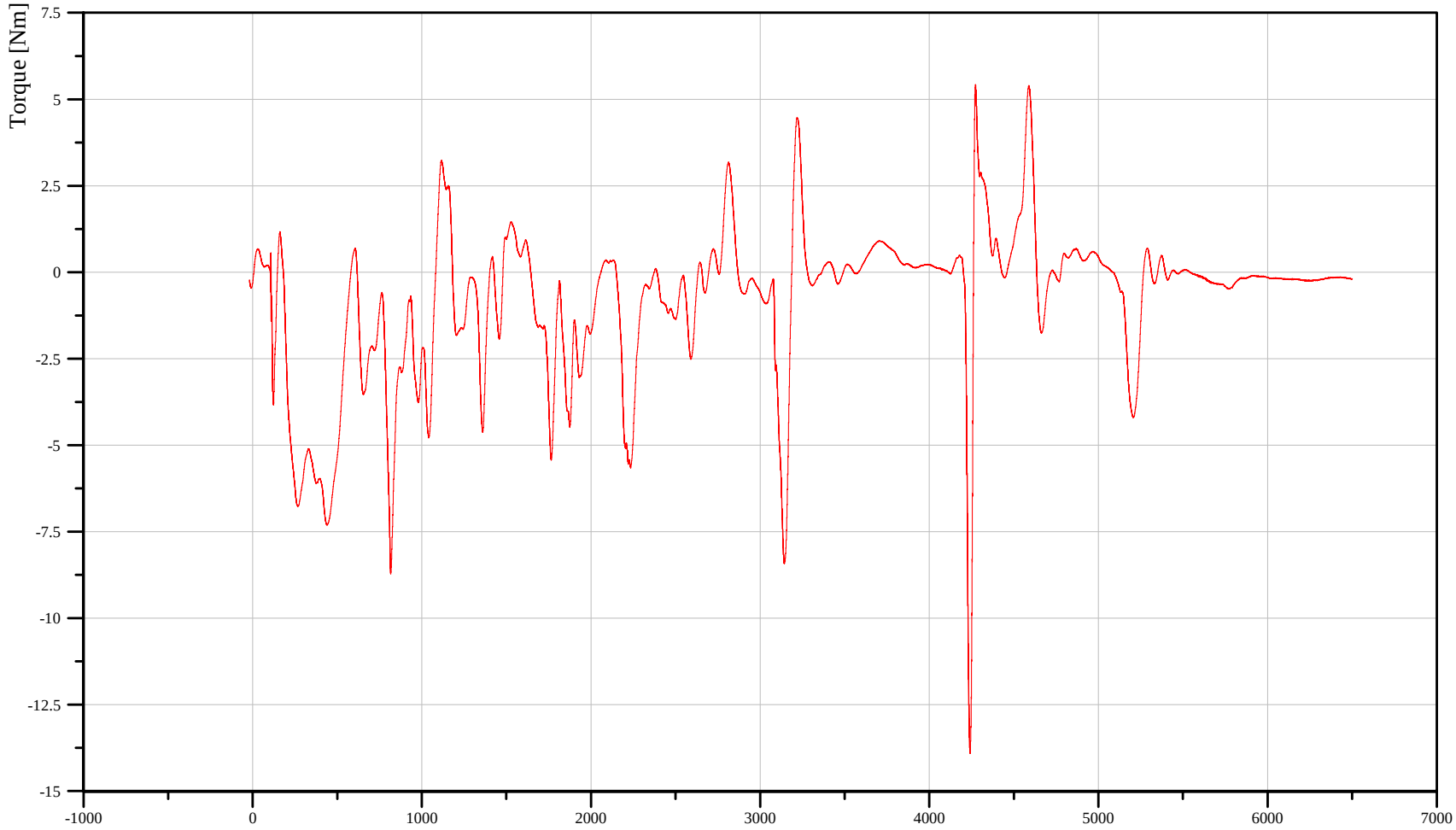
Right Front Passenger Upper Neck Moment About Z Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13NECKUP00H3MOZB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-13.91 Nm at 4,241.20 ms

Max. Value
5.43 Nm at 4,272.40 ms

Soil Trip Rollover 2007 Ford Expedition

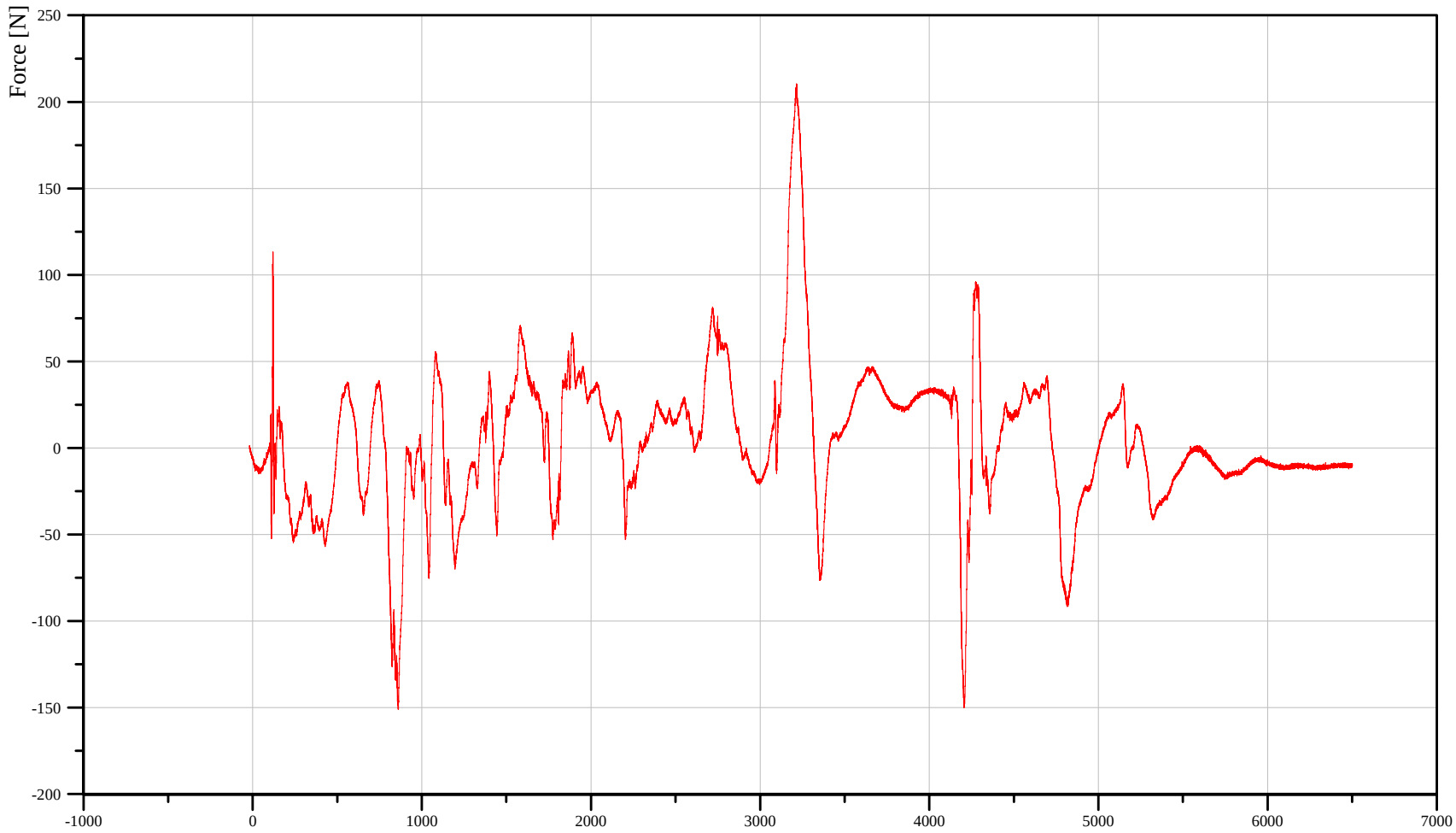
Right Front Passenger Lower Neck X-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13NECKLO00H3FOXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-150.94 N at 860.08 ms

Max. Value
210.55 N at 3,214.64 ms

Soil Trip Rollover 2007 Ford Expedition

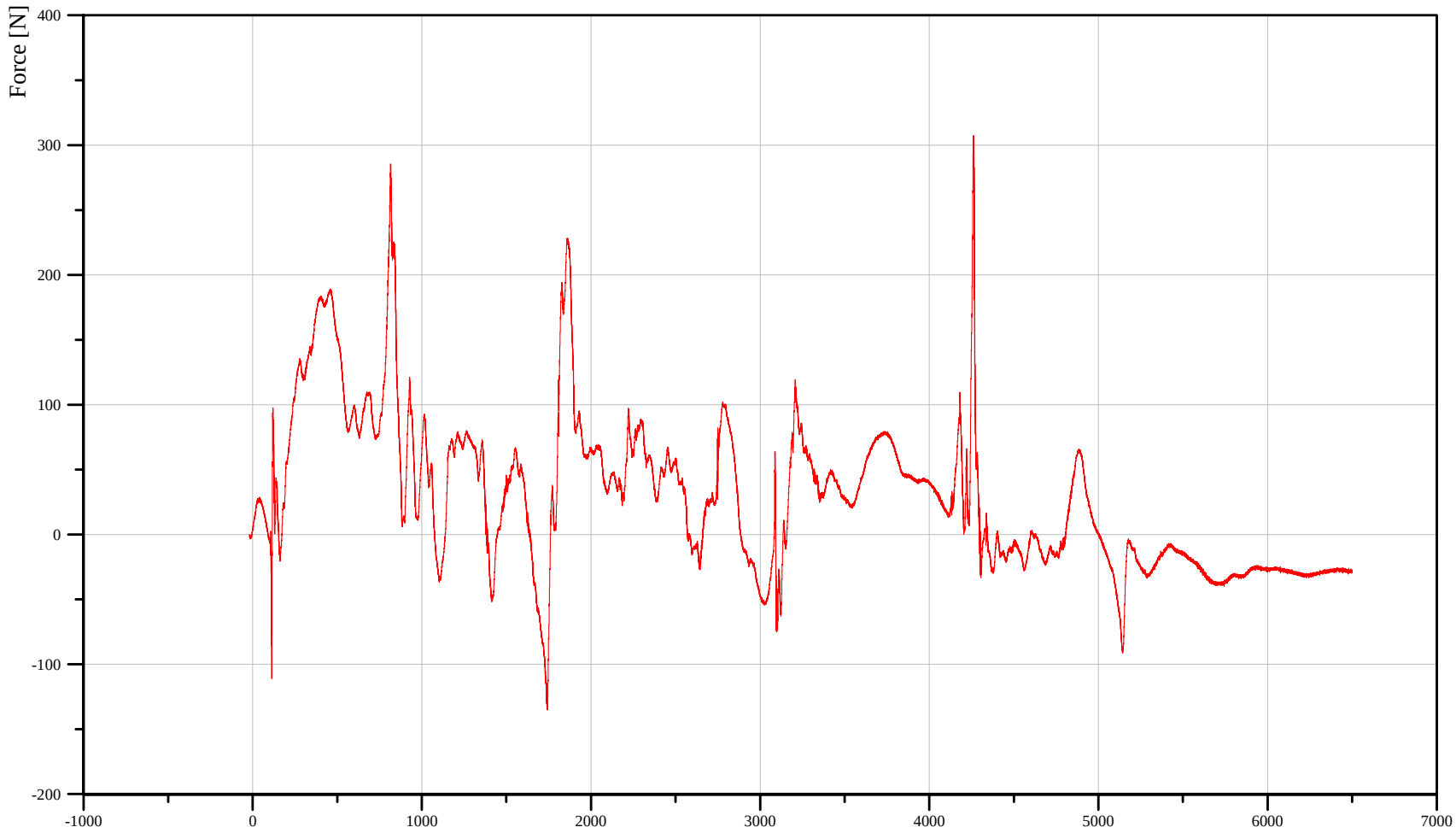
Right Front Passenger Lower Neck Y-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13NECKLO00H3FOYA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-135.02 N at 1,741.12 ms

Max. Value
307.51 N at 4,260.48 ms

Soil Trip Rollover 2007 Ford Expedition

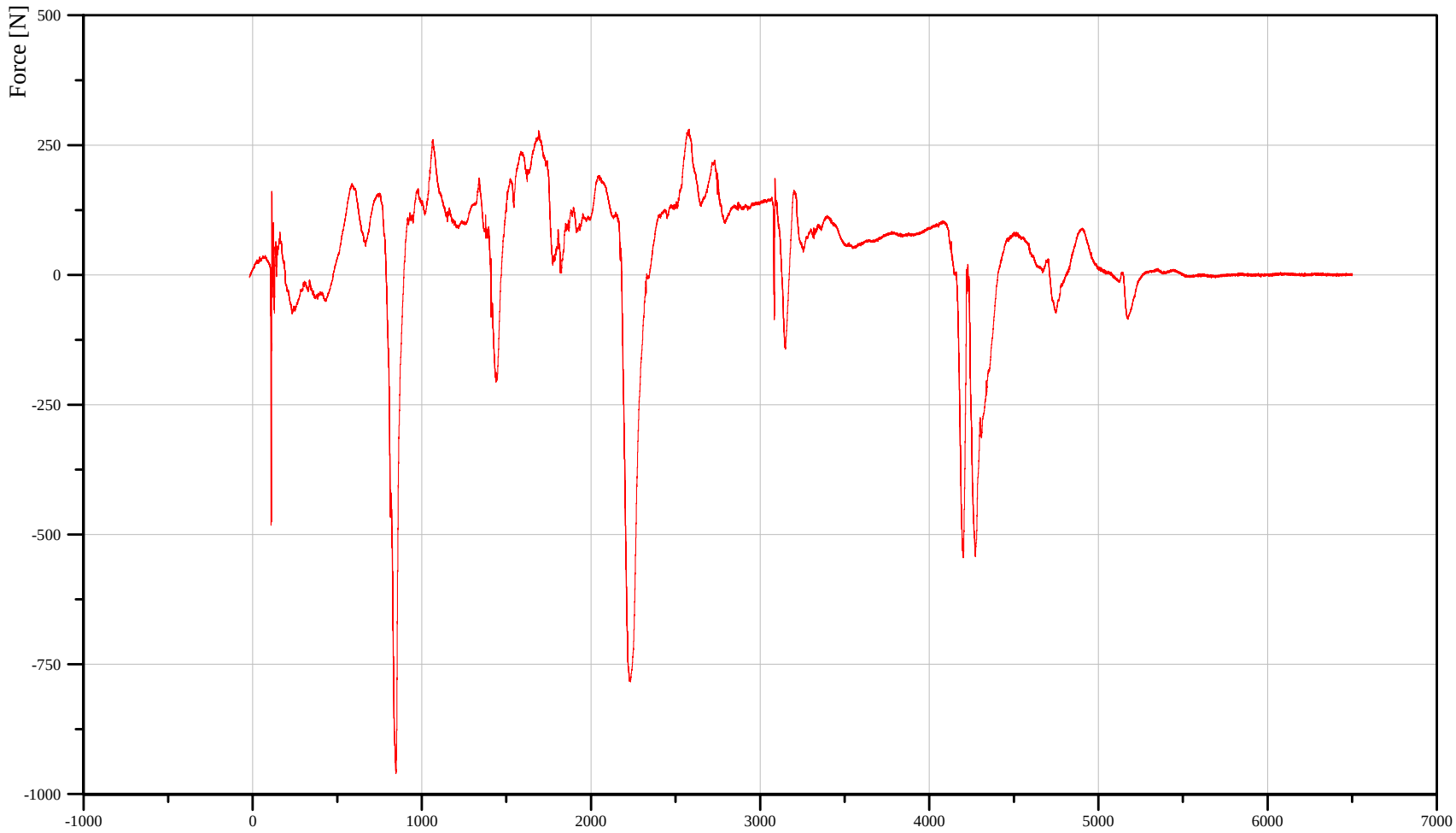
Right Front Passenger Lower Neck Z-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13NECKLO00H3FOZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-960.13 N at 846.80 ms

Max. Value
280.62 N at 2,579.36 ms

Soil Trip Rollover 2007 Ford Expedition

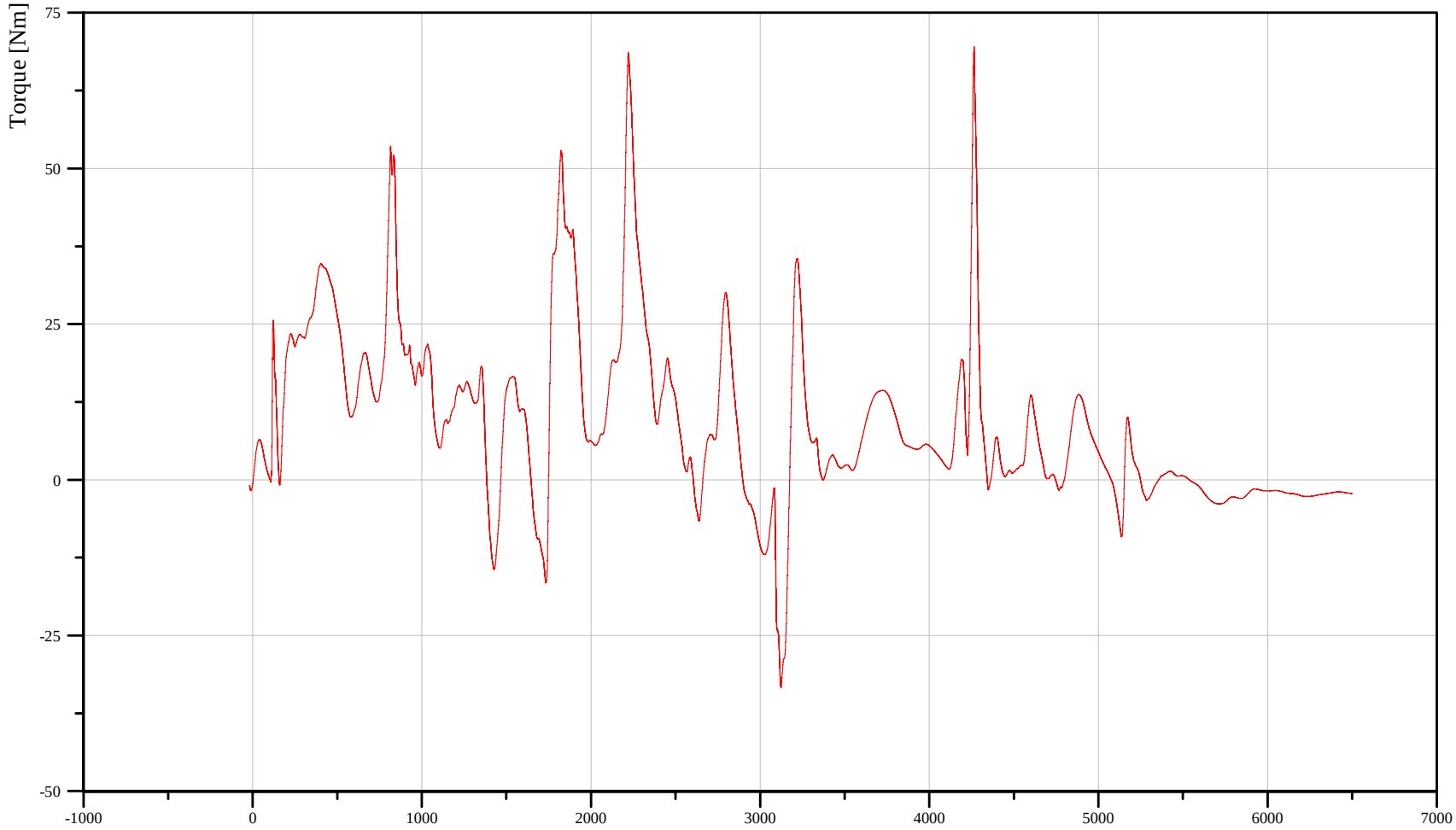
Right Front Passenger Lower Neck Moment About X Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13NECKLO00H3MOXB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-33.36 Nm at 3,122.64 ms

Max. Value
69.54 Nm at 4,263.36 ms

Soil Trip Rollover 2007 Ford Expedition

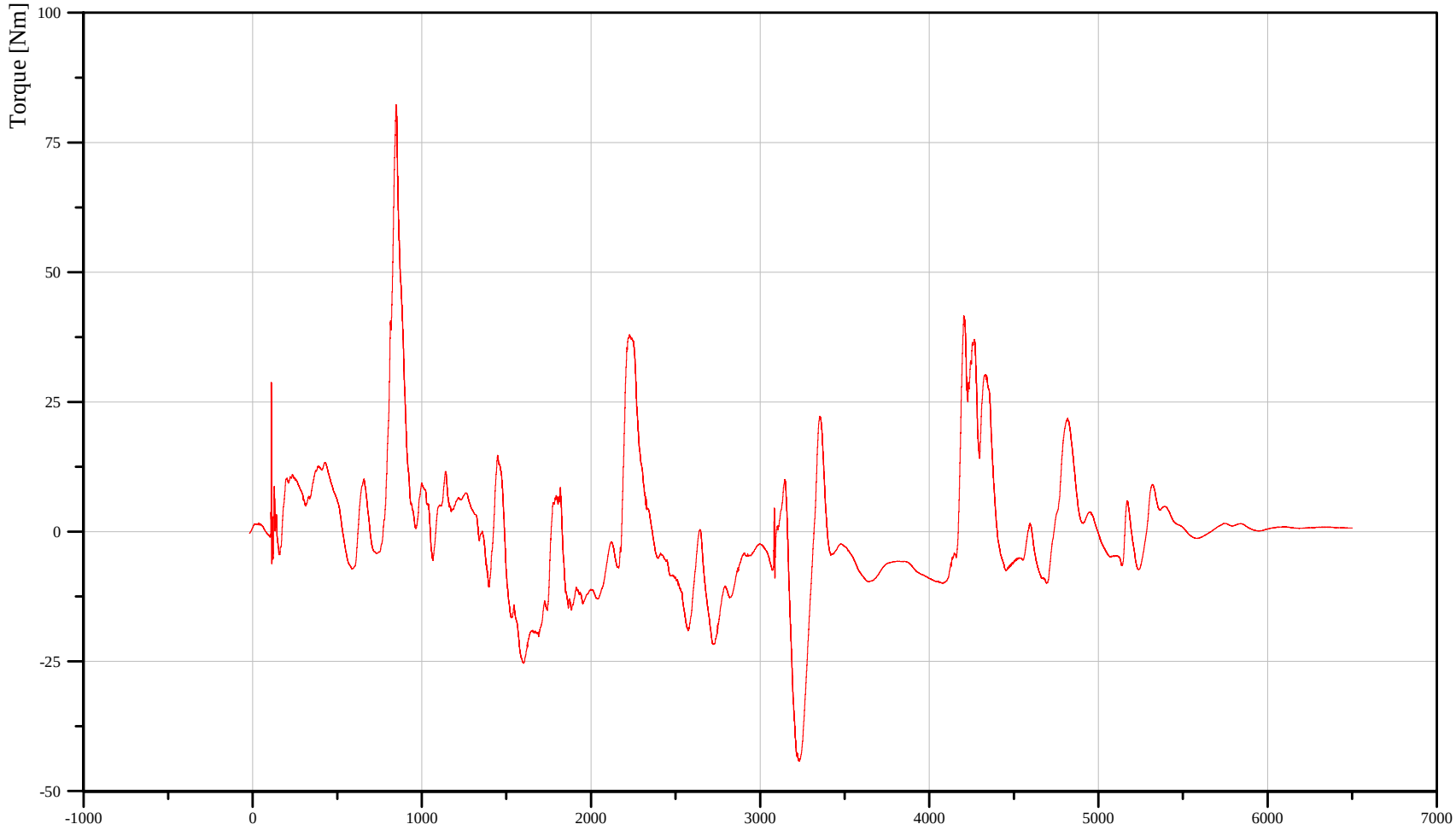
Right Front Passenger Lower Neck Moment About Y Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13NECKLO00H3MOYB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-44.21 Nm at 3,232.08 ms

Max. Value
82.34 Nm at 848.00 ms

091215

Soil Trip Rollover 2007 Ford Expedition

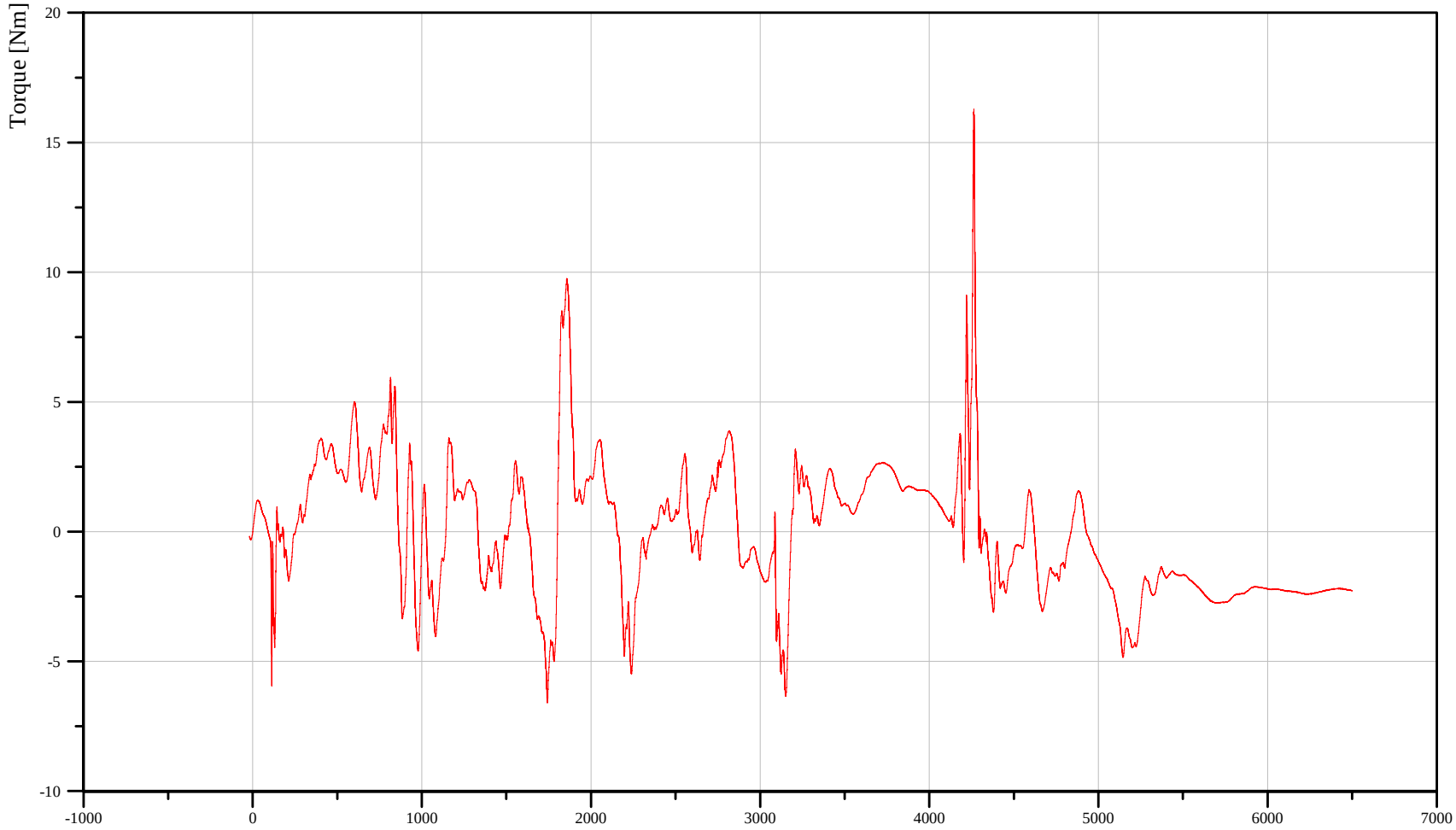
Right Front Passenger Lower Neck Moment About Z Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13NECKLO00H3MOZB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-6.60 Nm at 1,741.20 ms

Max. Value
16.29 Nm at 4,262.96 ms

091215

Soil Trip Rollover 2007 Ford Expedition

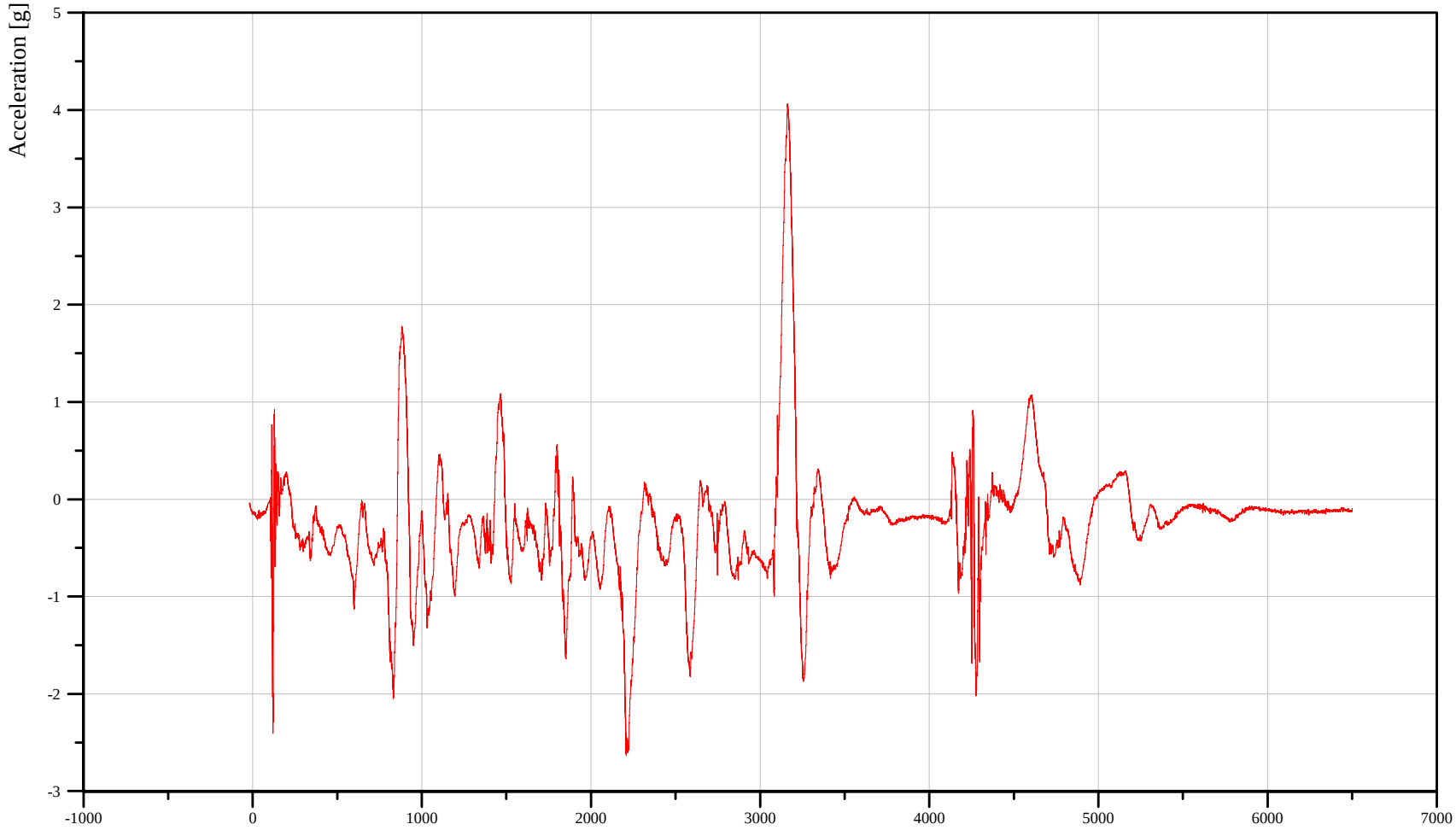
Right Front Passenger Chest X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13CHSTCG00H3ACXC

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_180

Min. Value
-2.64 g at 2,207.92 ms

Max. Value
4.07 g at 3,161.76 ms

Soil Trip Rollover 2007 Ford Expedition

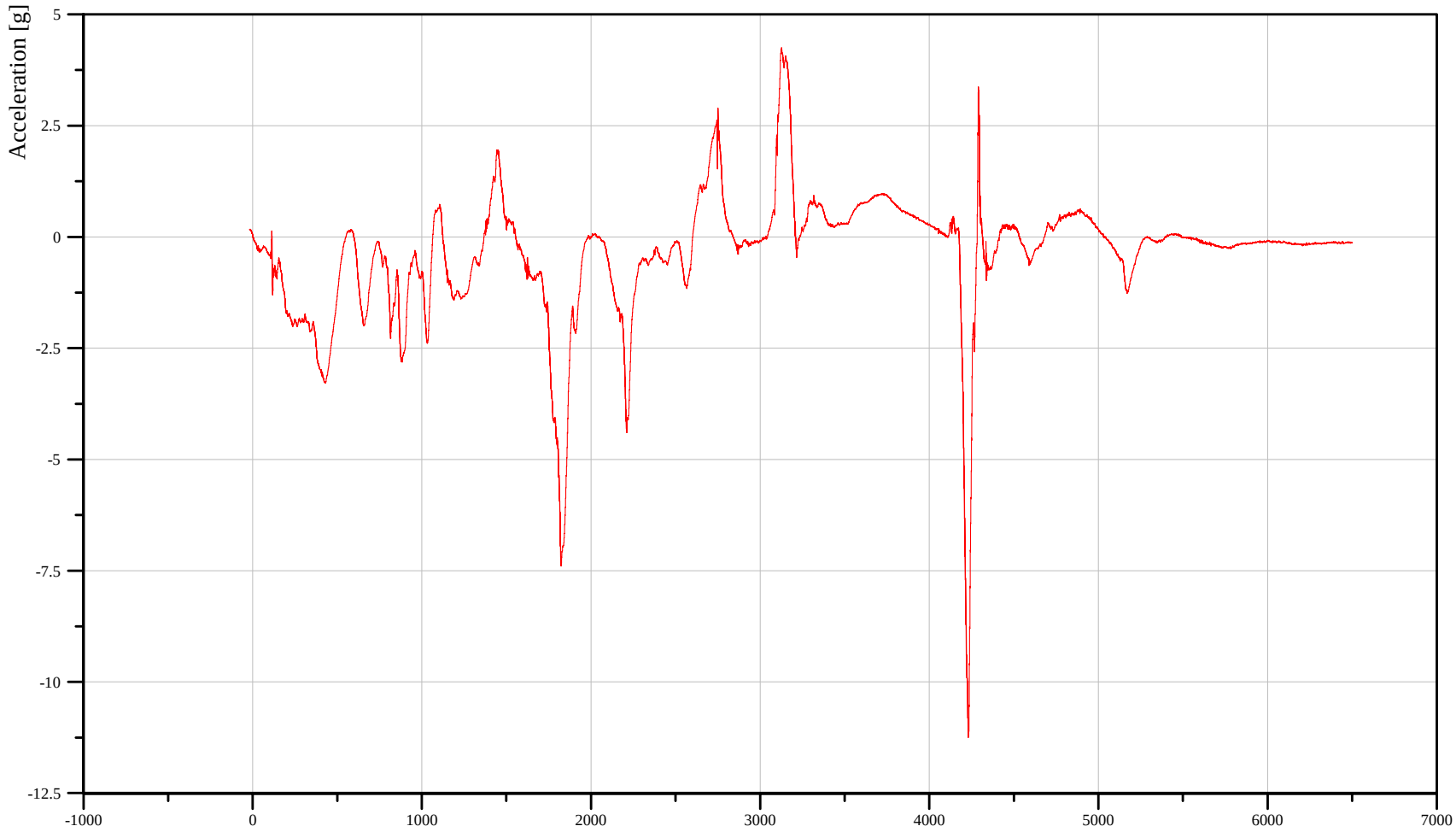
Right Front Passenger Chest Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13CHSTCG00H3ACYC

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_180

Min. Value
-11.25 g at 4,230.00 ms

Max. Value
4.26 g at 3,126.00 ms

091215

Soil Trip Rollover 2007 Ford Expedition

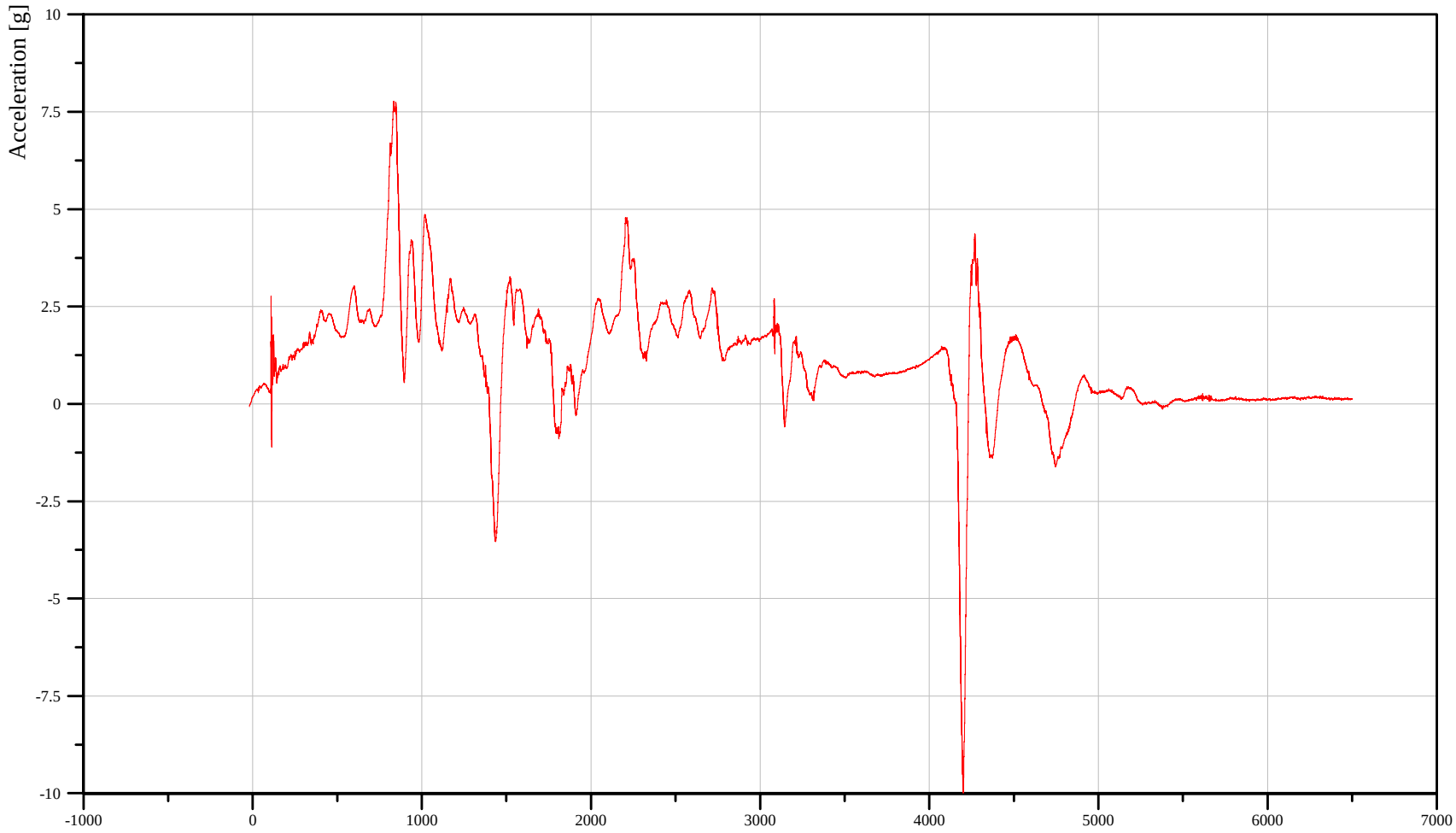
Right Front Passenger Chest Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13CHSTCG00H3ACZC

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_180

Min. Value
-9.99 g at 4,199.60 ms

Max. Value
7.76 g at 833.12 ms

Soil Trip Rollover 2007 Ford Expedition

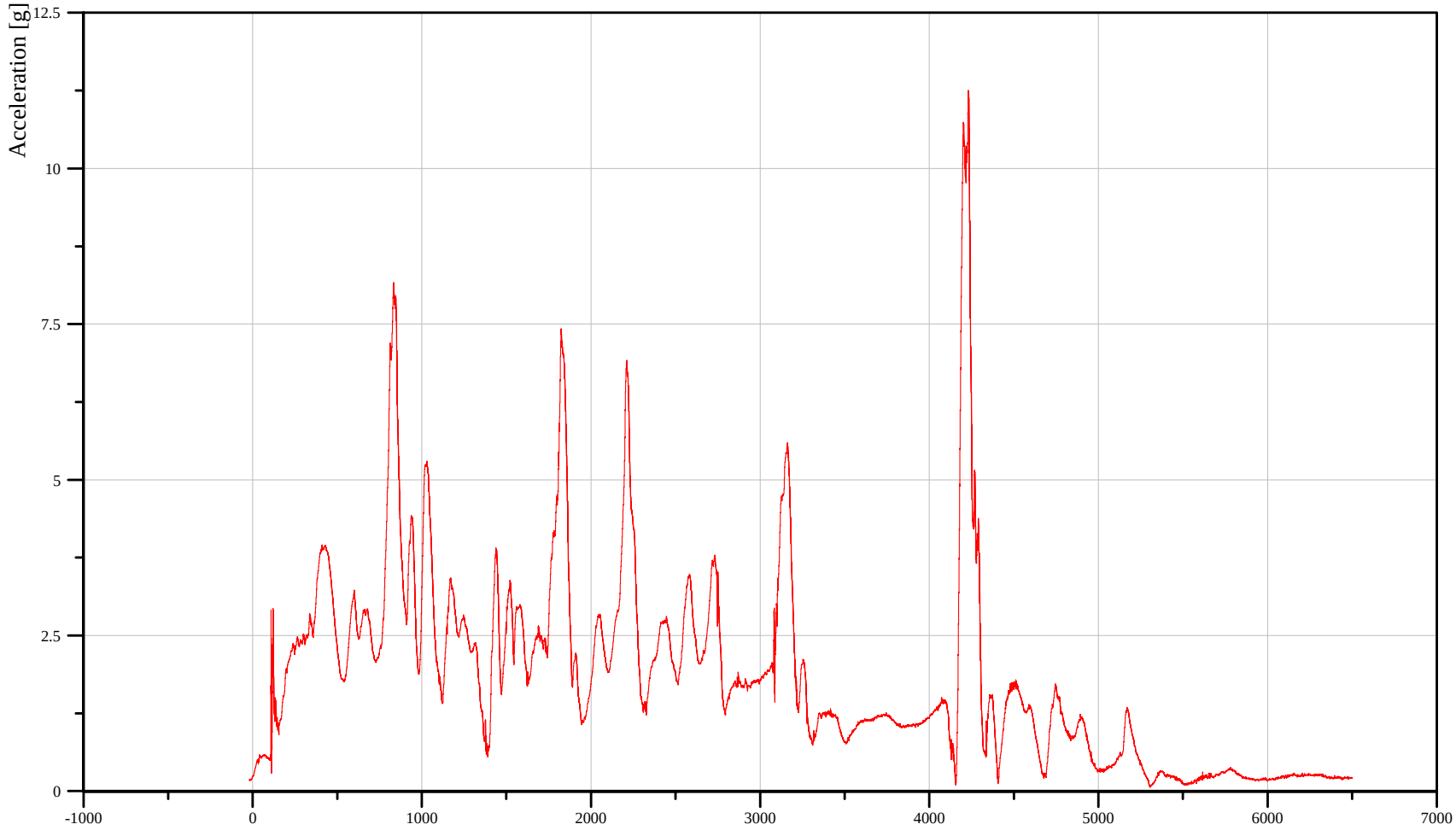
Right Front Passenger Chest Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13CHSTCG00H3ACRC

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_180

Min. Value
0.06 g at 5,304.64 ms

Max. Value
11.26 g at 4,230.00 ms

Soil Trip Rollover 2007 Ford Expedition

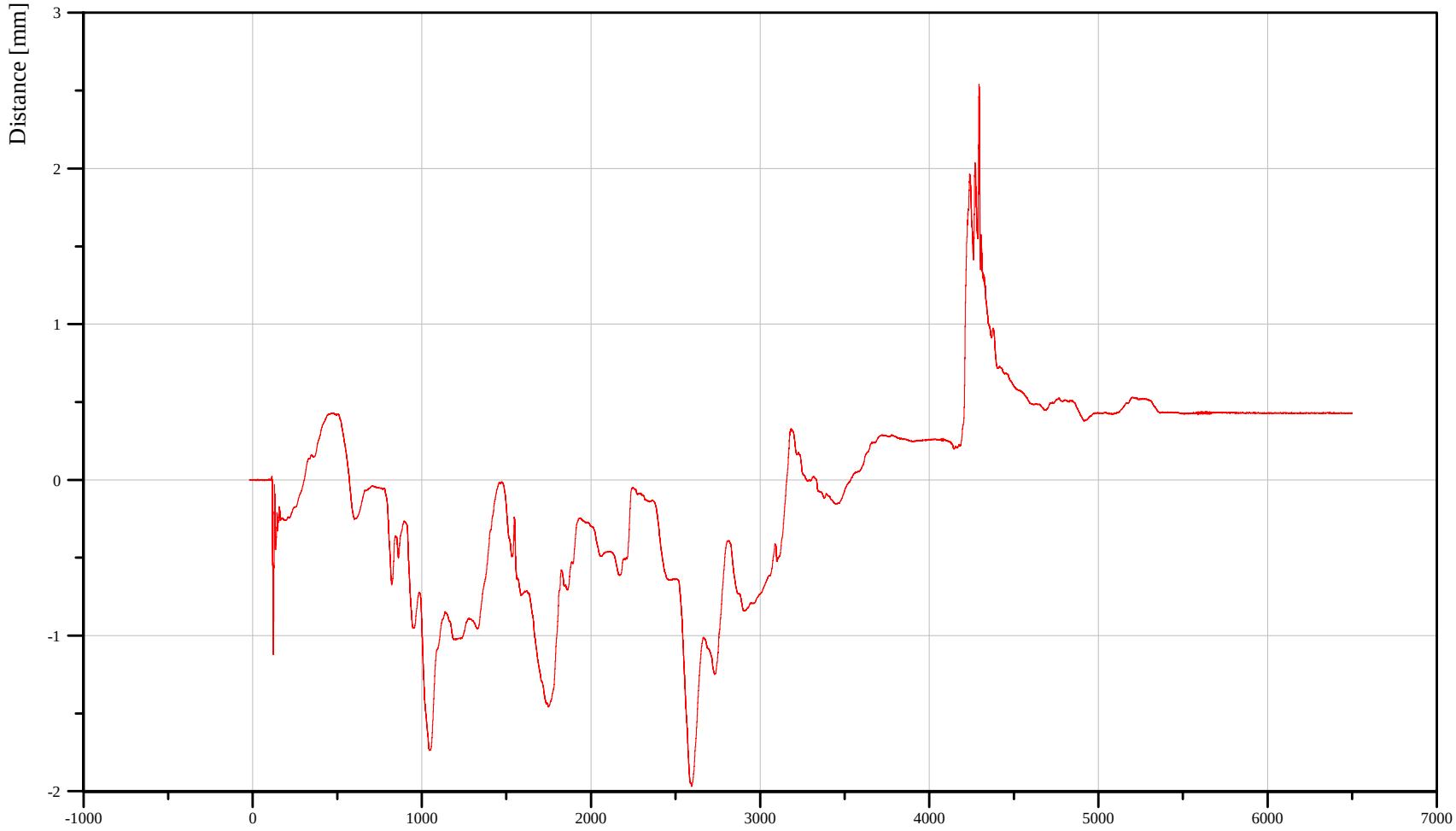
Right Front Passenger Chest X-Axis Displacement

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13CHST0000H3DSXB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-1.97 mm at 2,594.96 ms

Max. Value
2.54 mm at 4,293.76 ms

091215

Soil Trip Rollover 2007 Ford Expedition

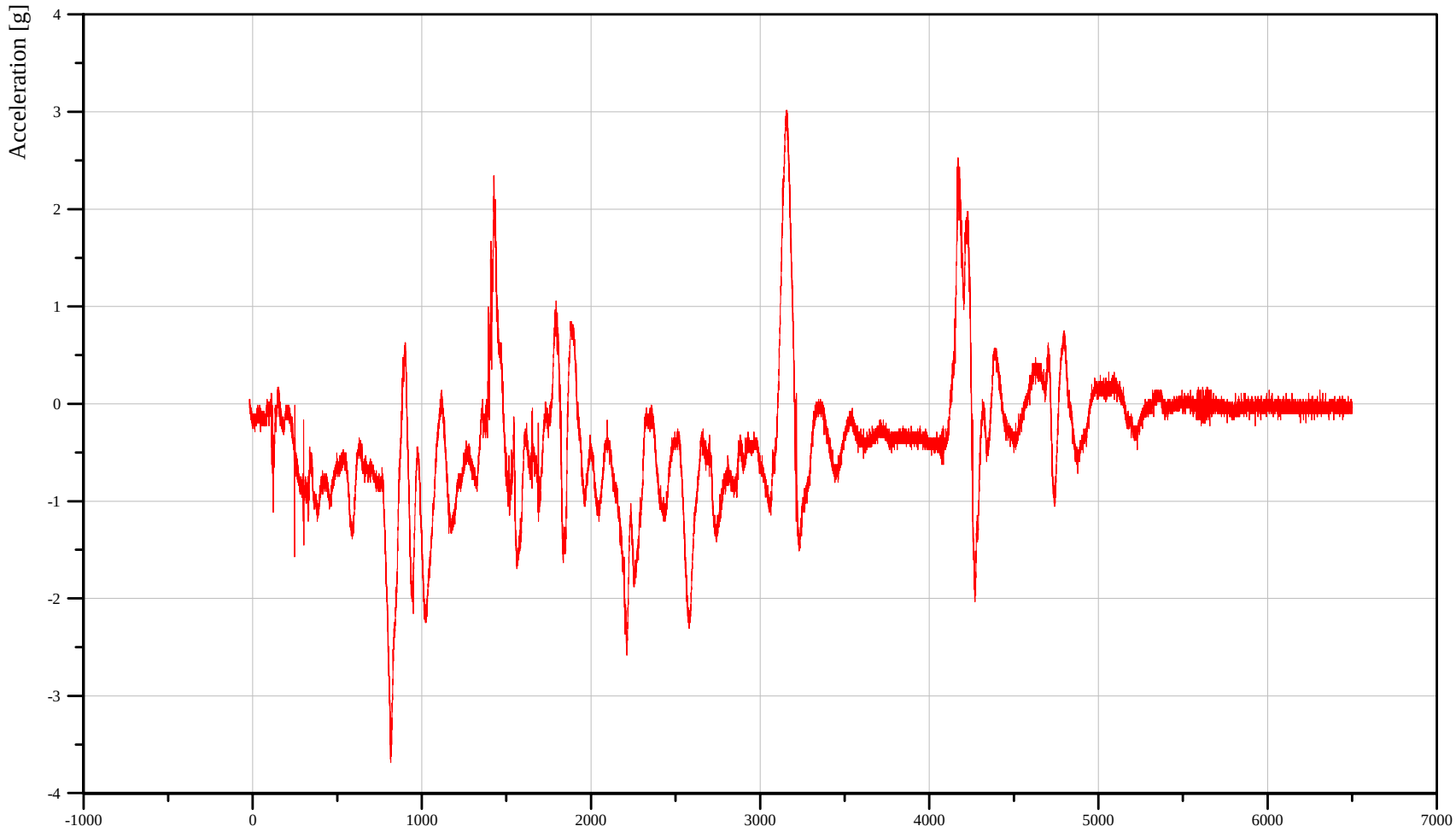
Right Front Passenger Pelvis X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13PELVCG00H3ACXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-3.68 g at 815.44 ms

Max. Value
3.02 g at 3,153.12 ms

Soil Trip Rollover 2007 Ford Expedition

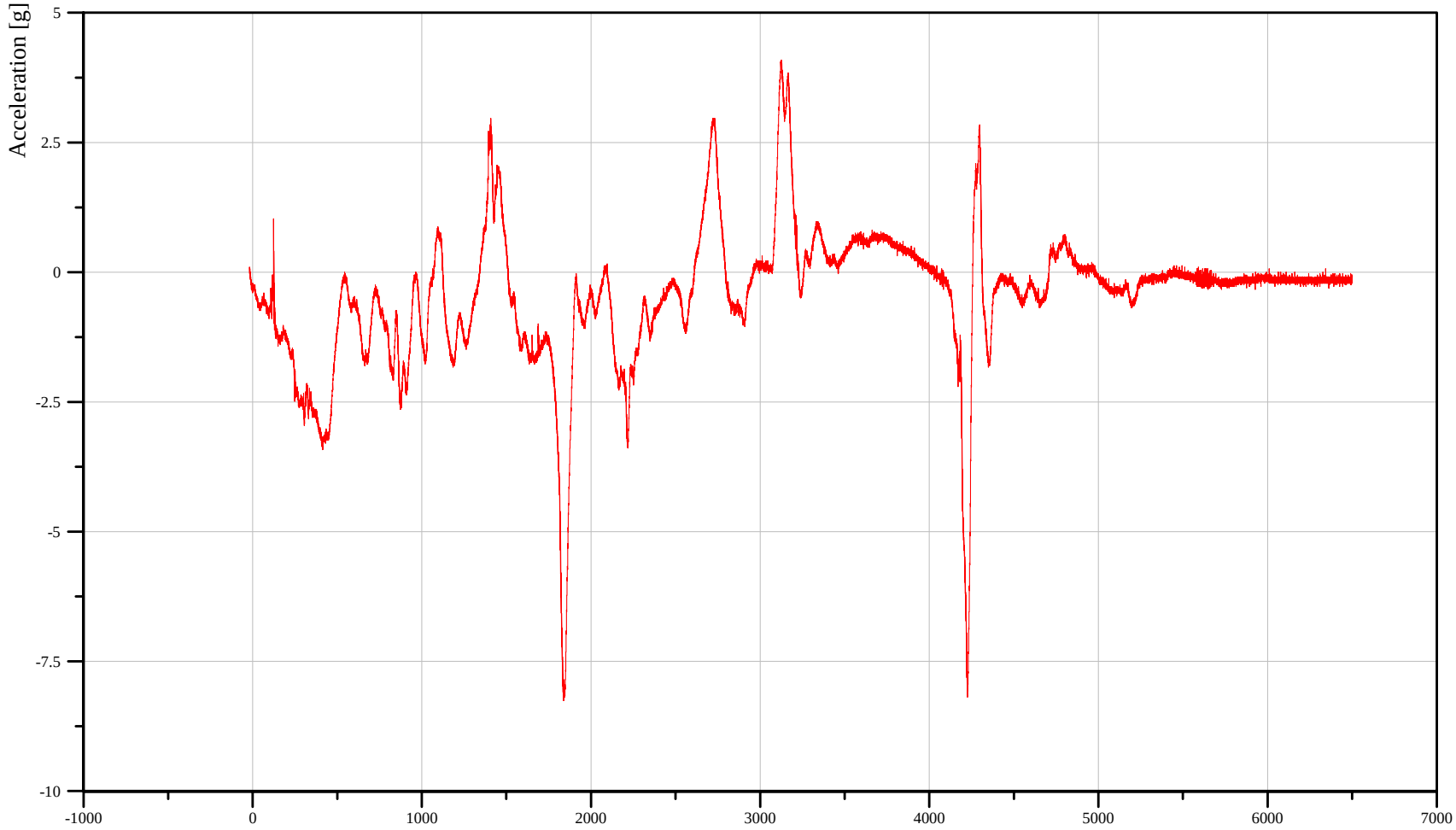
Right Front Passenger Pelvis Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13PELVCG00H3ACYA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-8.25 g at 1,836.64 ms

Max. Value
4.09 g at 3,124.24 ms

Soil Trip Rollover 2007 Ford Expedition

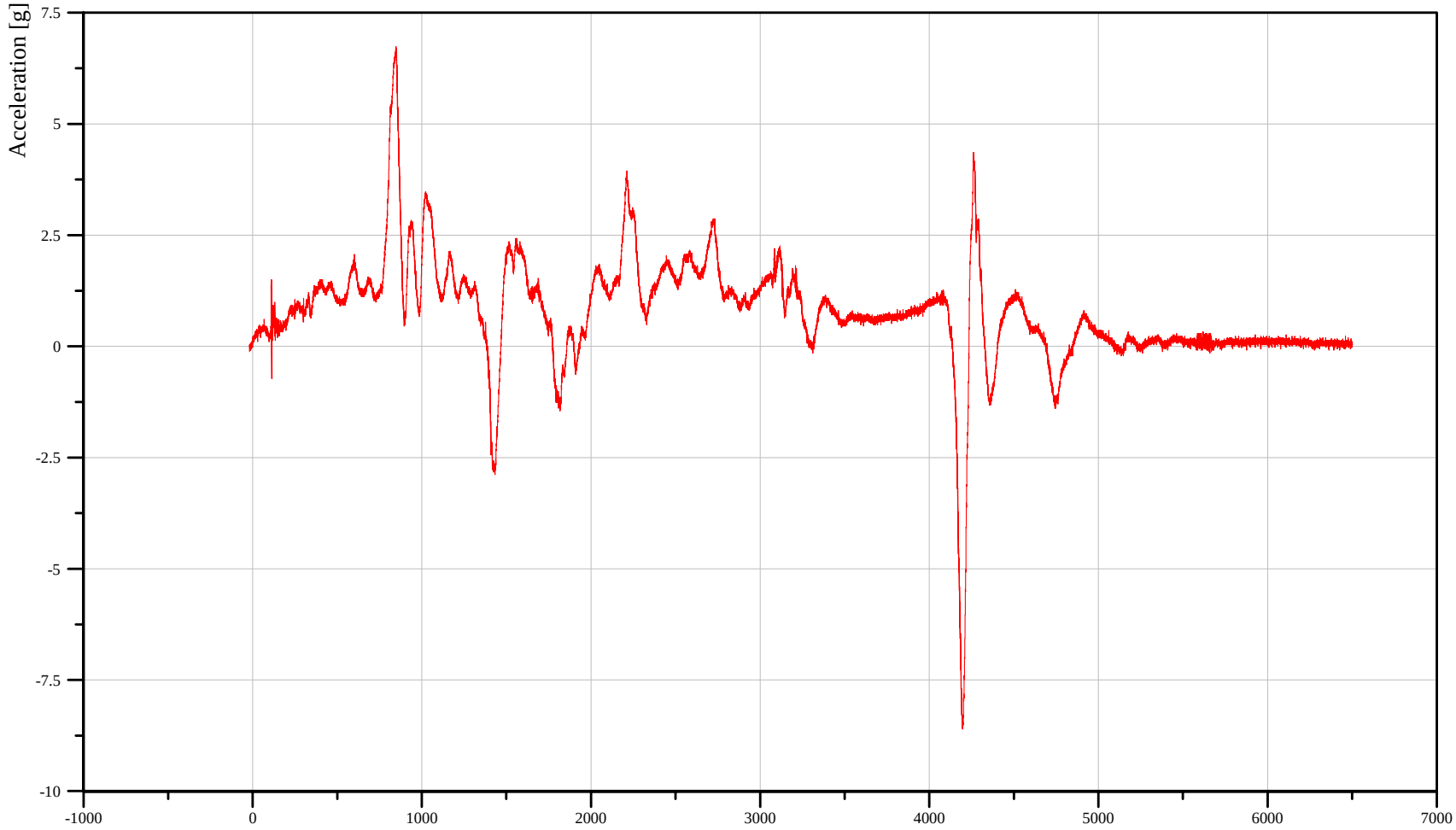
Right Front Passenger Pelvis Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13PELVCG00H3ACZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-8.61 g at 4,196.24 ms

Max. Value
6.74 g at 846.16 ms

Soil Trip Rollover 2007 Ford Expedition

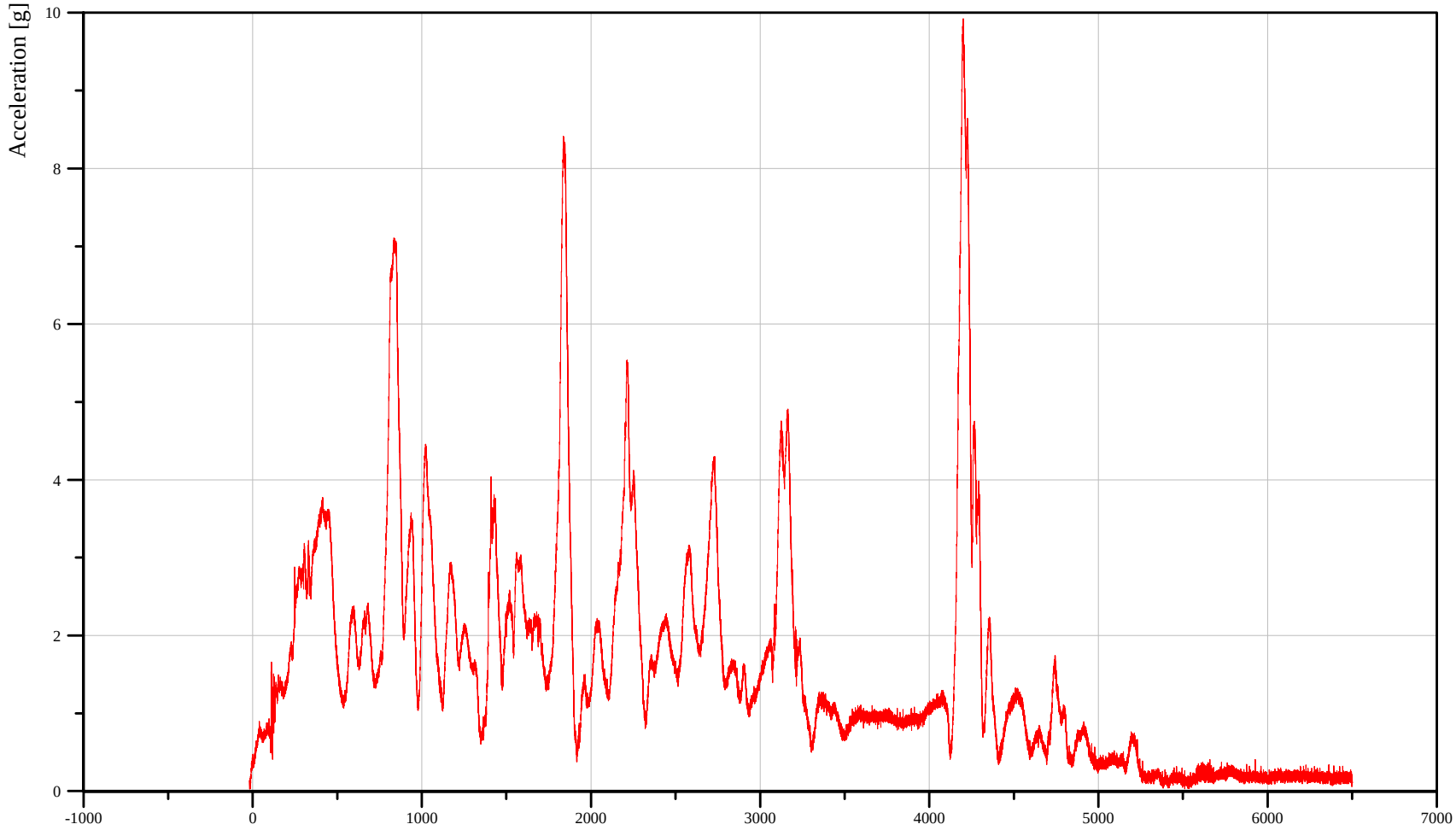
Right Front Passenger Pelvis Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13PELVCG00H3ACRA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
0.03 g at -18.56 ms

Max. Value
9.93 g at 4,199.92 ms

Soil Trip Rollover 2007 Ford Expedition

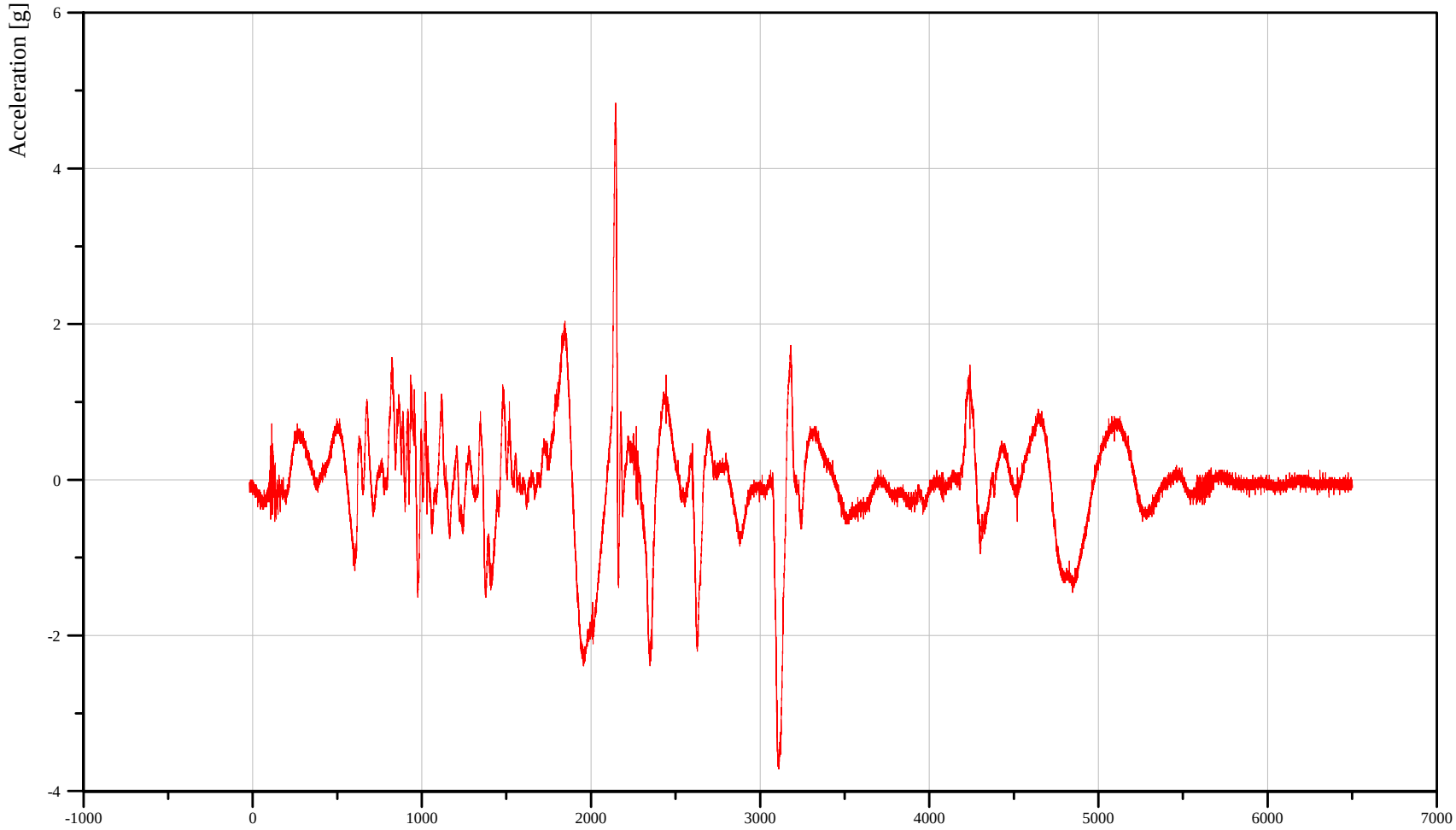
Left Rear Passenger Head X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14HEADCG00H3ACXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-3.71 g at 3,108.24 ms

Max. Value
4.84 g at 2,145.20 ms

Soil Trip Rollover 2007 Ford Expedition

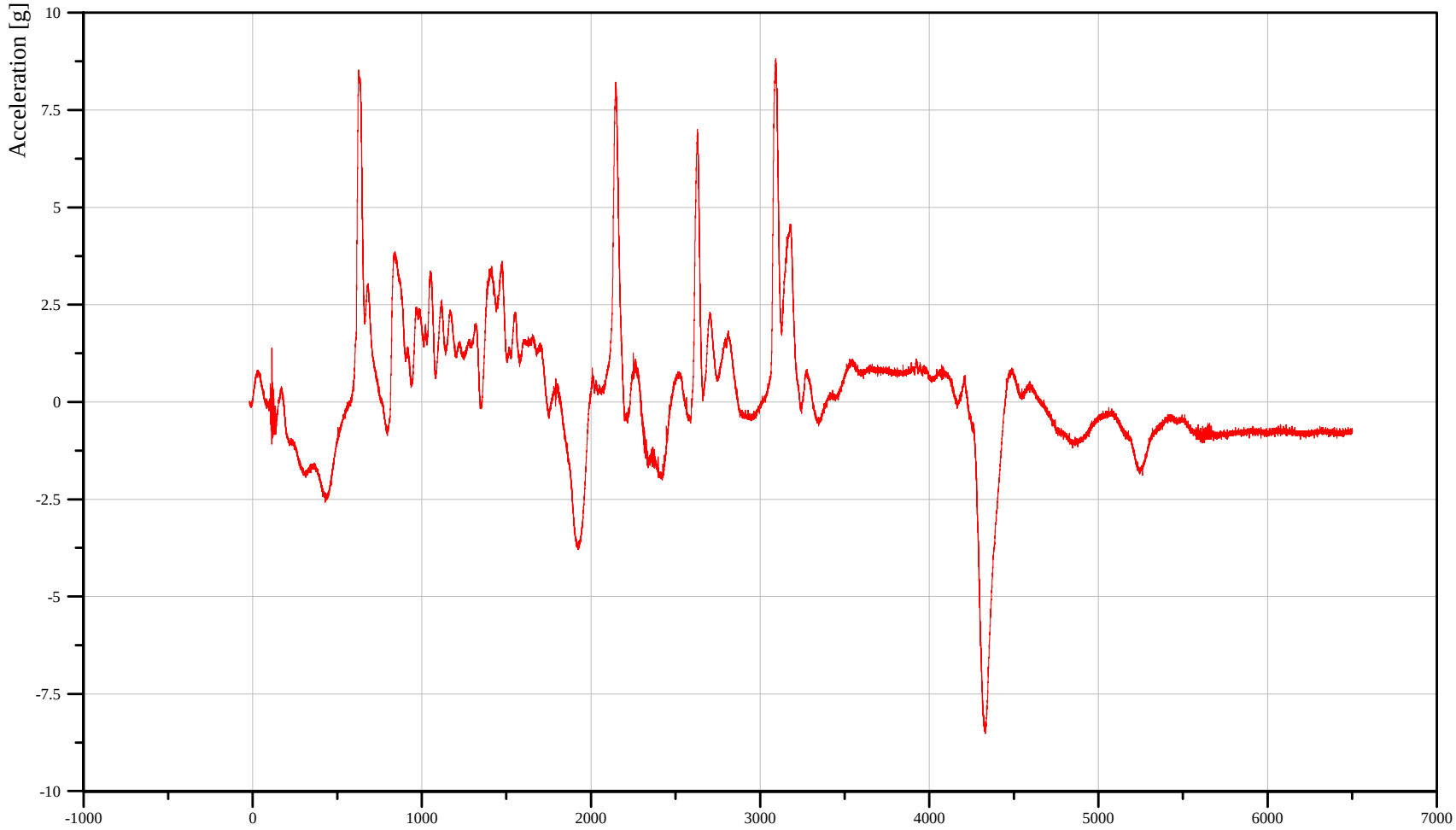
Left Rear Passenger Head Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14HEADCG00H3ACYA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-8.53 g at 4,330.80 ms

Max. Value
8.82 g at 3,091.36 ms

Soil Trip Rollover 2007 Ford Expedition

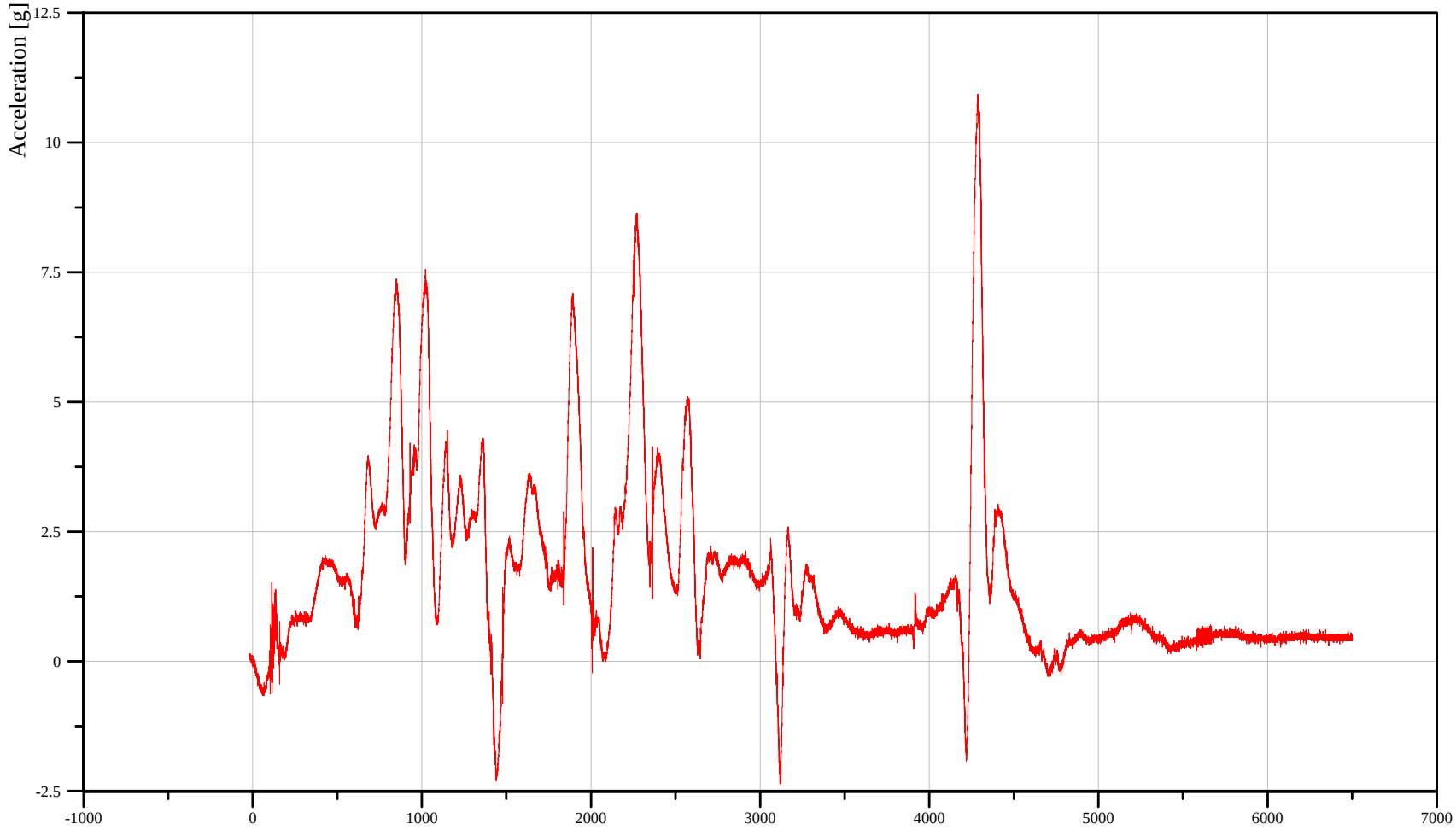
Left Rear Passenger Head Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14HEADCG00H3ACZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-2.36 g at 3,117.52 ms

Max. Value
10.93 g at 4,286.56 ms

Soil Trip Rollover 2007 Ford Expedition

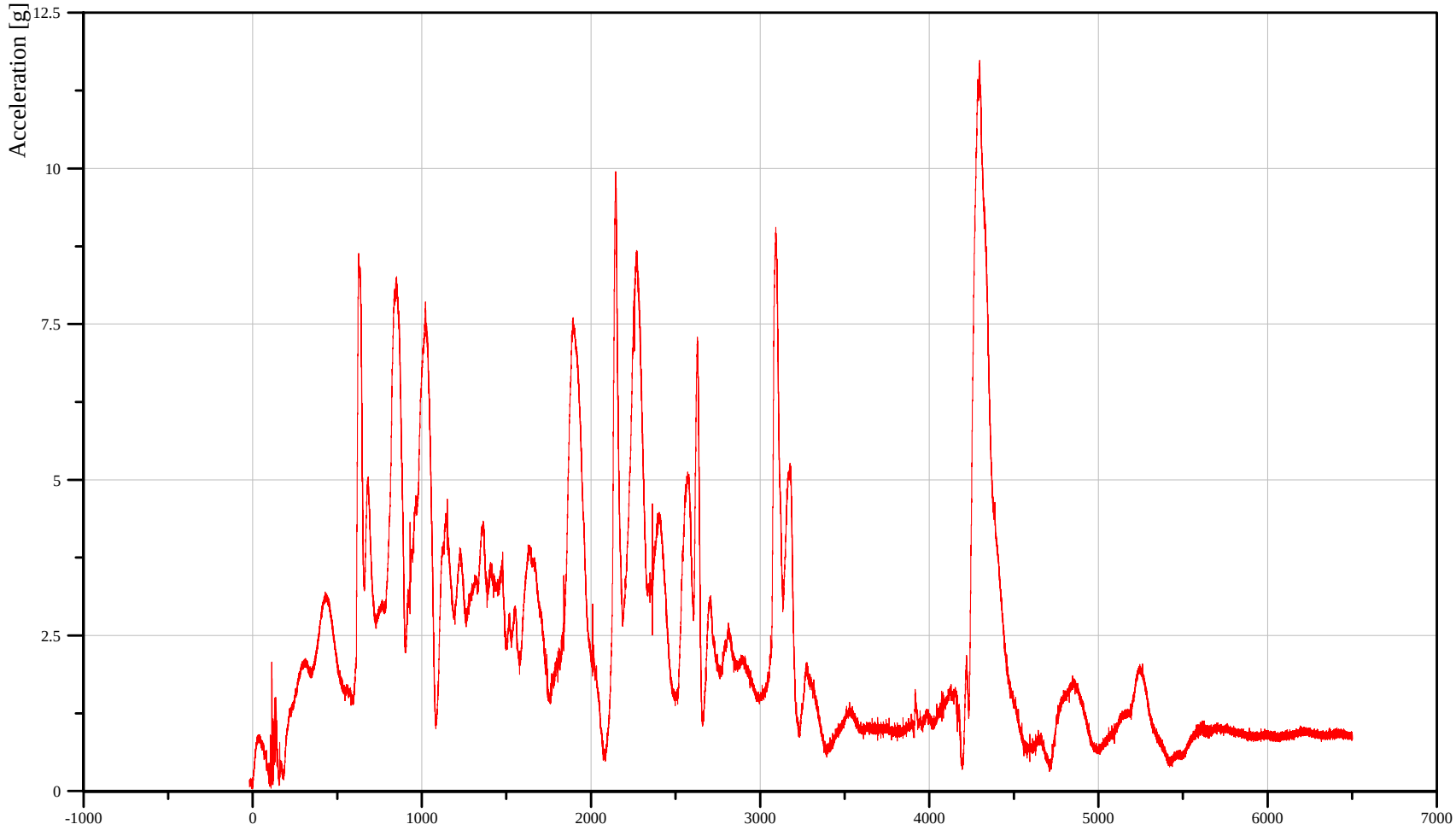
Left Rear Passenger Head Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14HEADCG00H3ACRA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
0.04 g at -3.04 ms

Max. Value
11.74 g at 4,297.20 ms

Soil Trip Rollover 2007 Ford Expedition

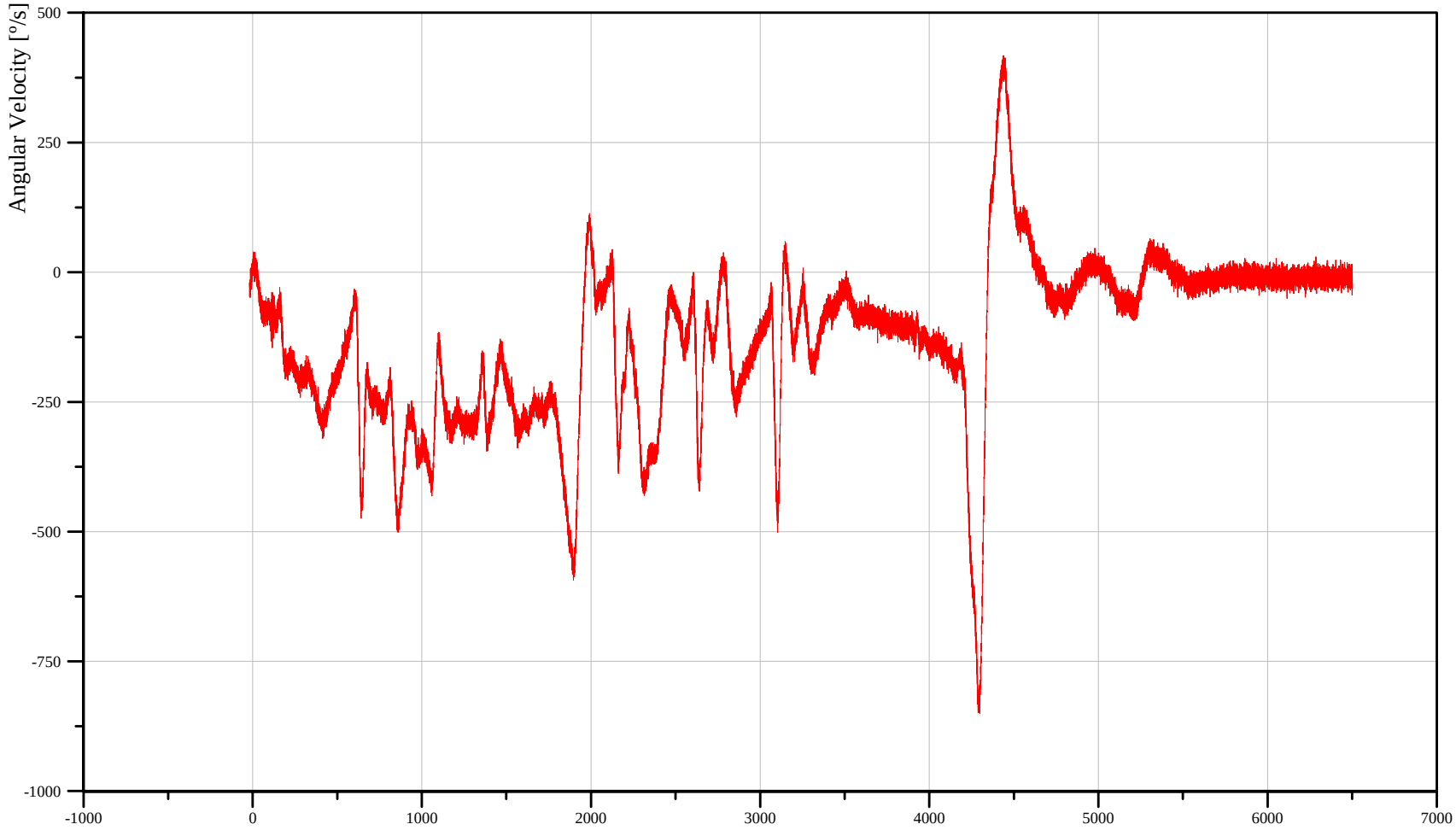
Left Rear Passenger Head (DTS ARS) Rate Gyro X

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14HEADCG00H3AVXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-850.41 °/s at 4,297.04 ms

Max. Value
417.45 °/s at 4,438.72 ms

Soil Trip Rollover 2007 Ford Expedition

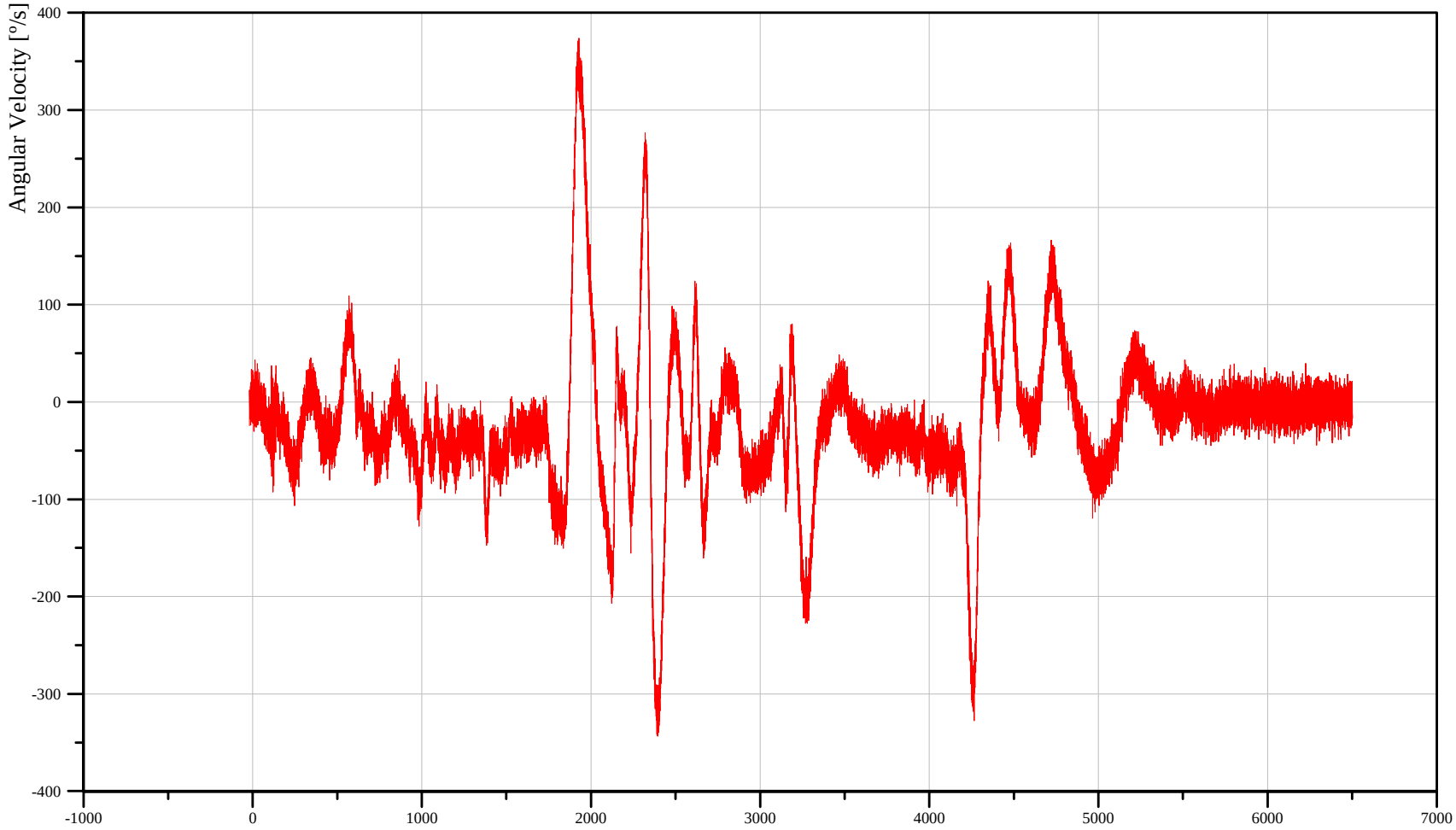
Left Rear Passenger Head (DTS ARS) Rate Gyro Y

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14HEADCG00H3AVYA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-343.46 °/s at 2,393.36 ms

Max. Value
373.95 °/s at 1,927.60 ms

Soil Trip Rollover 2007 Ford Expedition

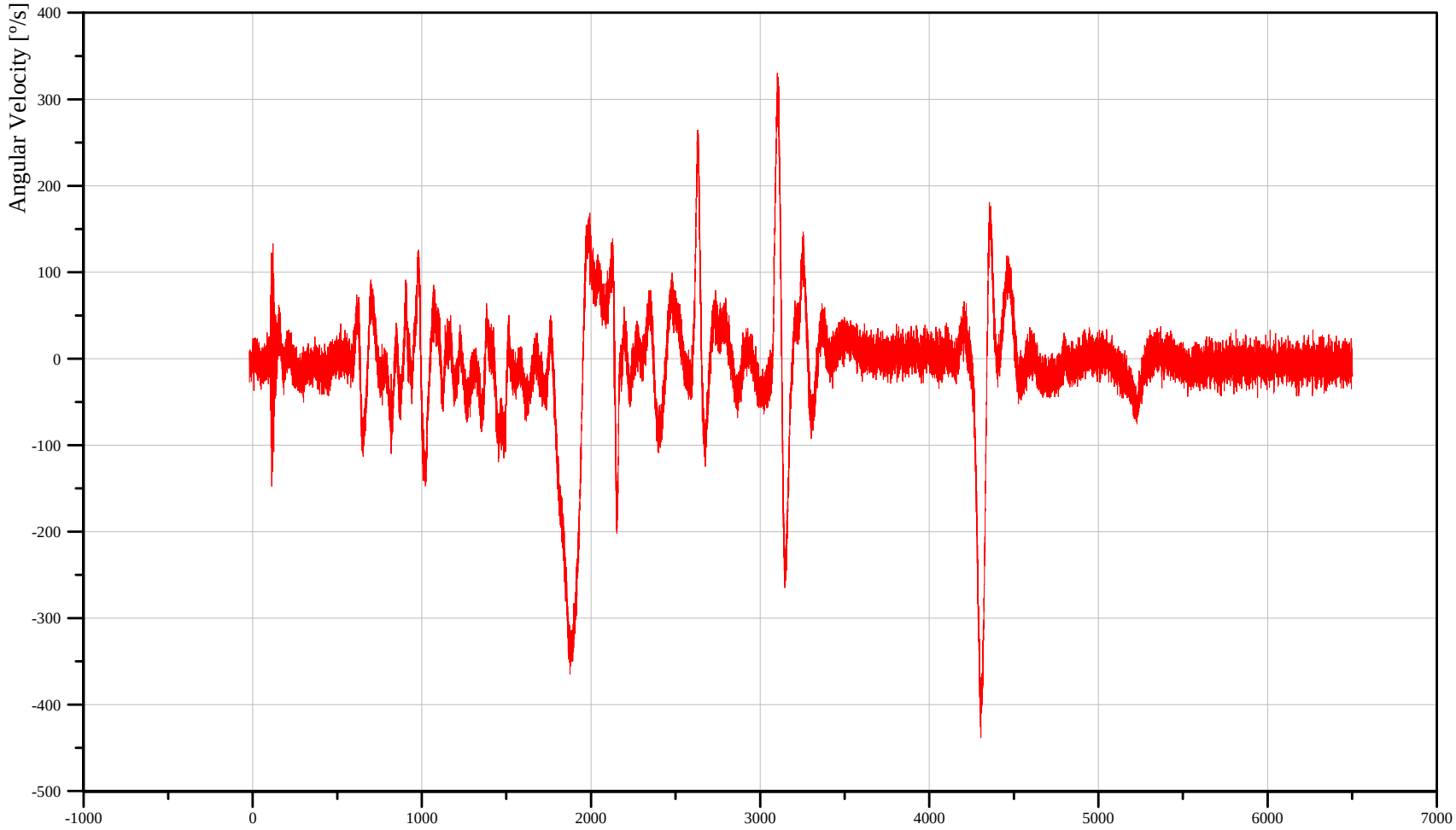
Left Rear Passenger Head (DTS ARS) Rate Gyro Z

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14HEADCG00H3AVZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-438.35 °/s at 4,303.36 ms

Max. Value
330.03 °/s at 3,100.96 ms

Soil Trip Rollover 2007 Ford Expedition

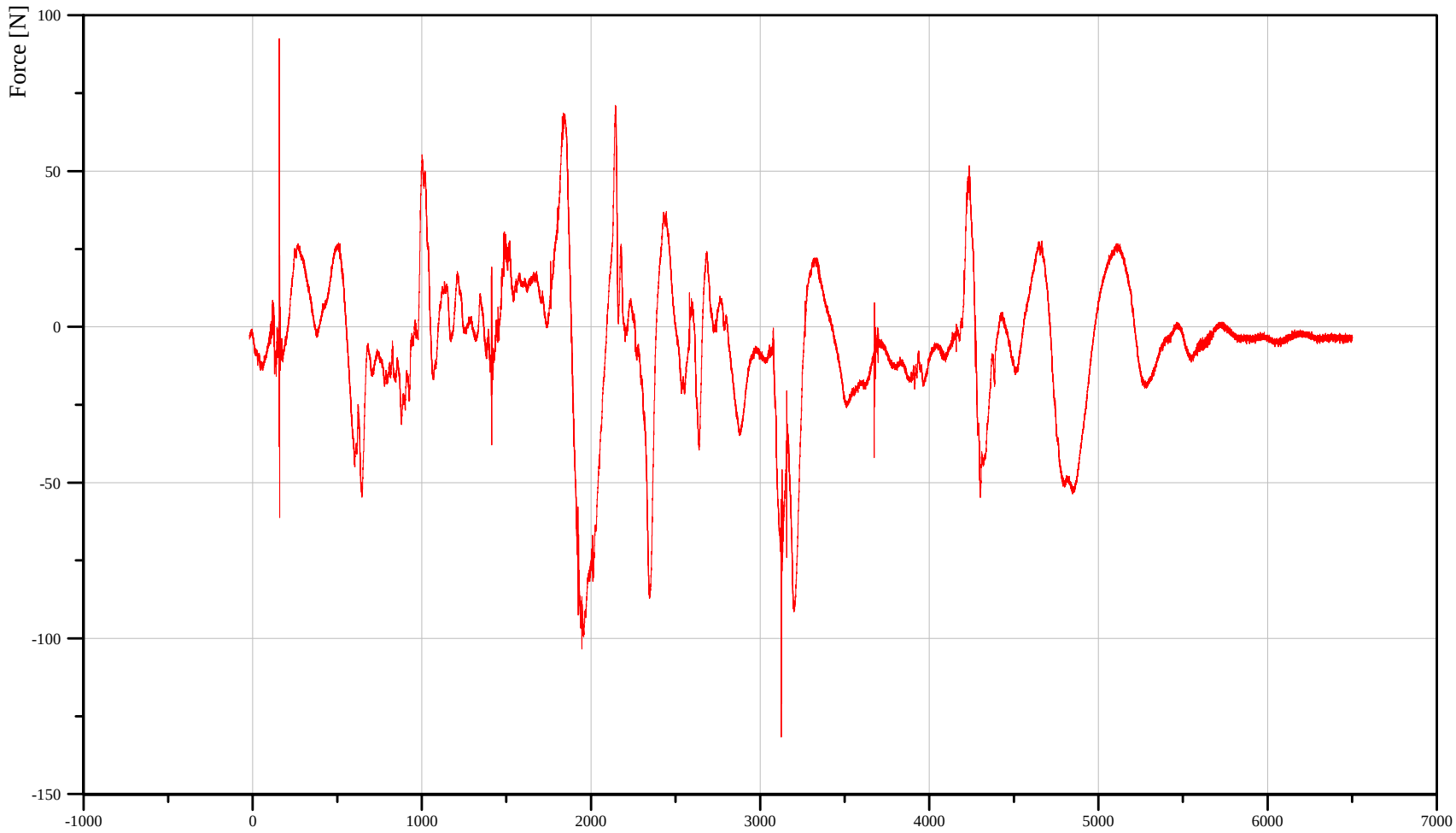
Left Rear Passenger Upper Neck X-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14NECKUP00H3FOXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-131.67 N at 3,123.60 ms

Max. Value
92.53 N at 157.60 ms

Soil Trip Rollover 2007 Ford Expedition

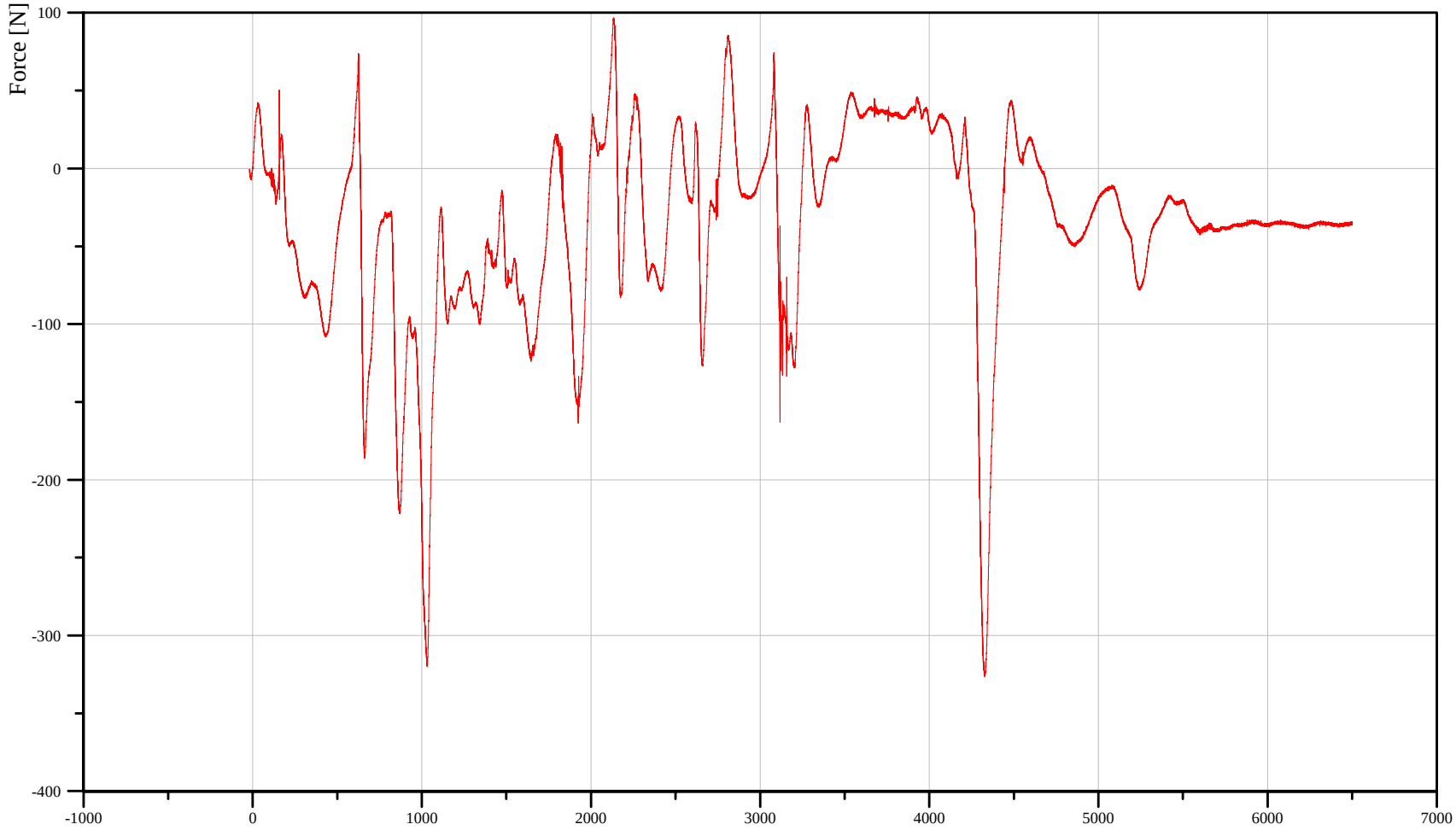
Left Rear Passenger Upper Neck Y-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14NECKUP00H3FOYA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-326.59 N at 4,327.60 ms

Max. Value
96.79 N at 2,133.44 ms

Soil Trip Rollover 2007 Ford Expedition

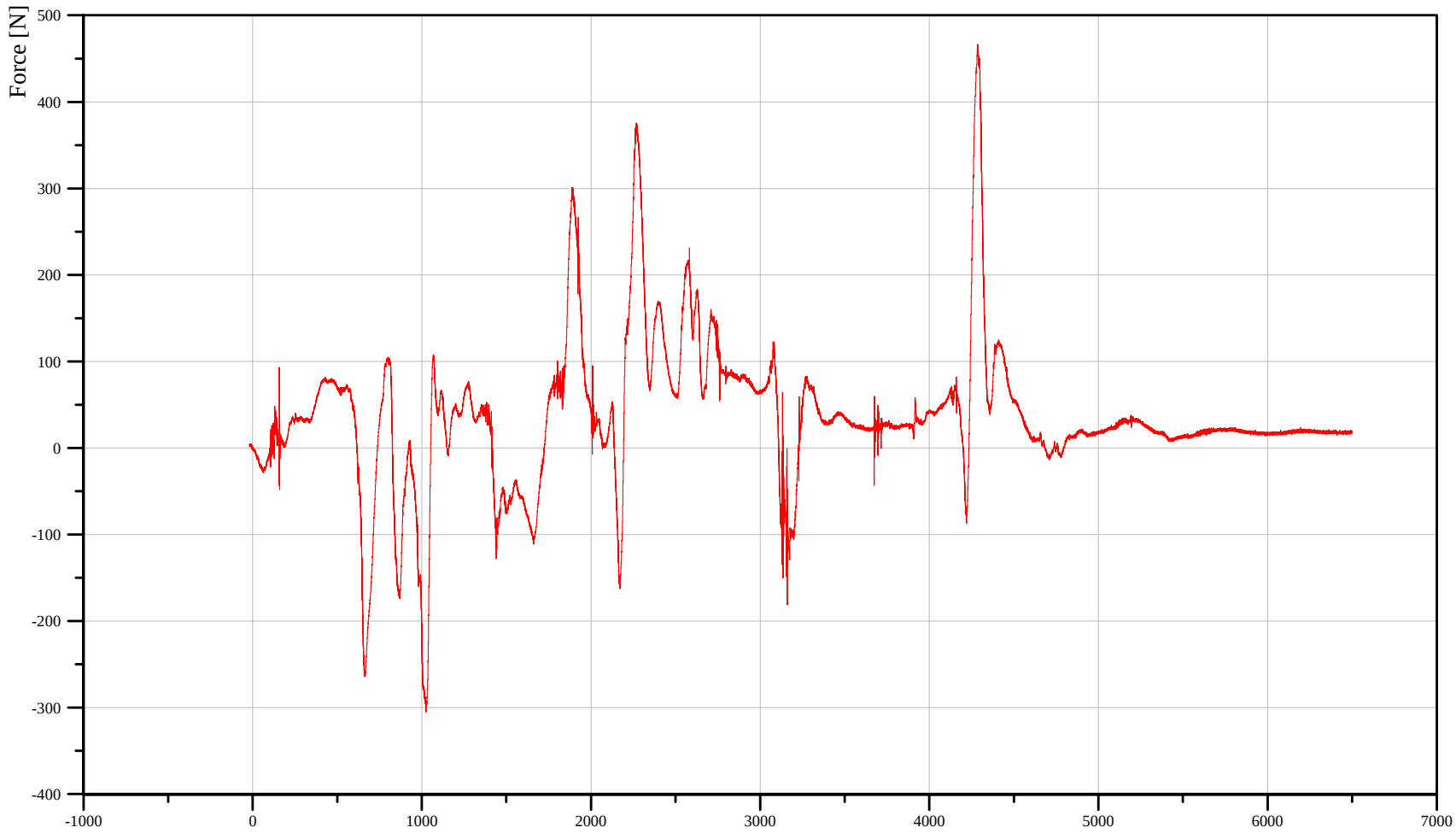
Left Rear Passenger Upper Neck Z-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14NECKUP00H3FOZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-305.21 N at 1,023.04 ms

Max. Value
466.42 N at 4,285.28 ms

091215

Soil Trip Rollover 2007 Ford Expedition

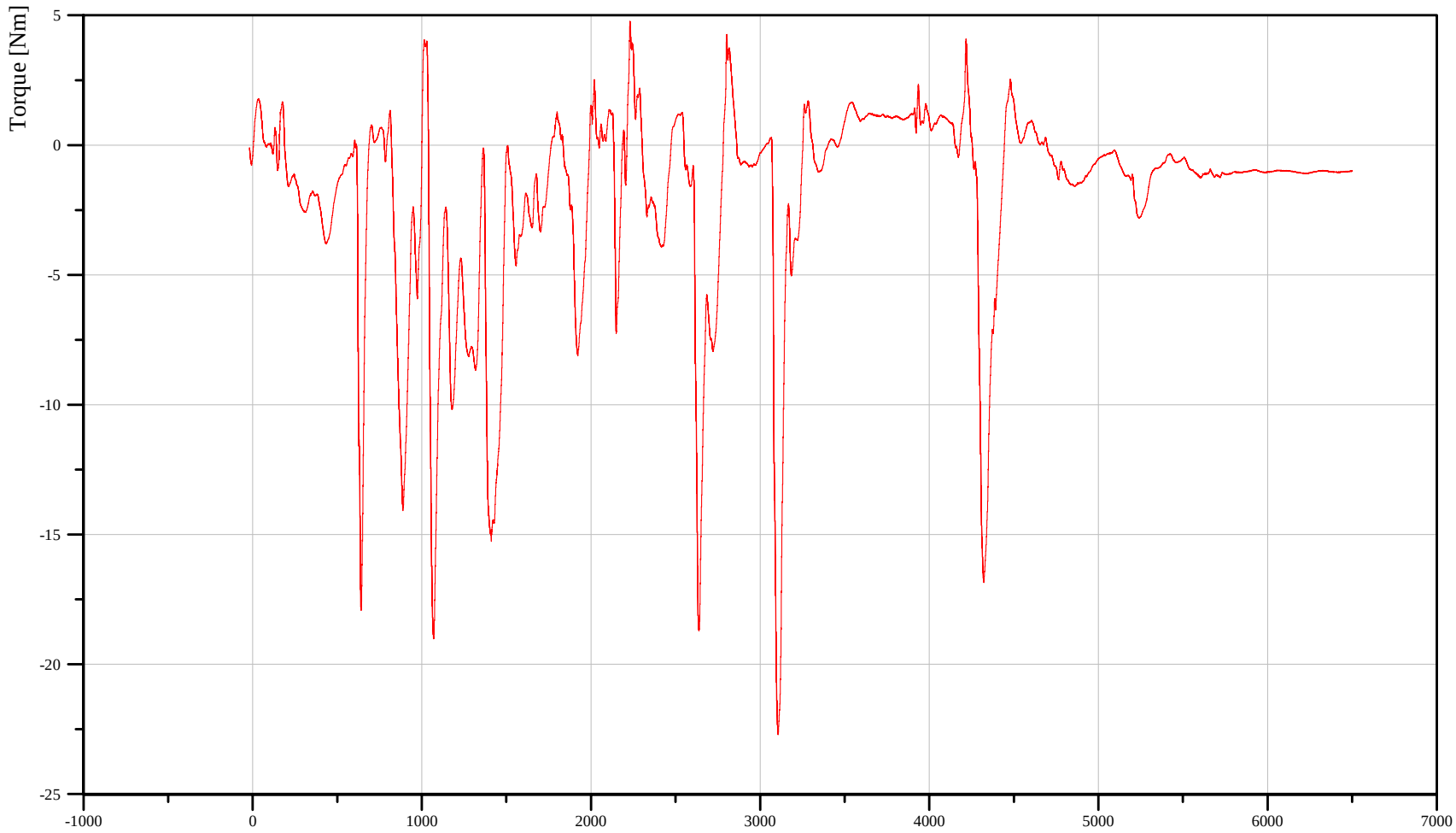
Left Rear Passenger Upper Neck Moment About X Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14NECKUP00H3MOXB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-22.70 Nm at 3,105.36 ms

Max. Value
4.78 Nm at 2,230.08 ms

091215

Soil Trip Rollover 2007 Ford Expedition

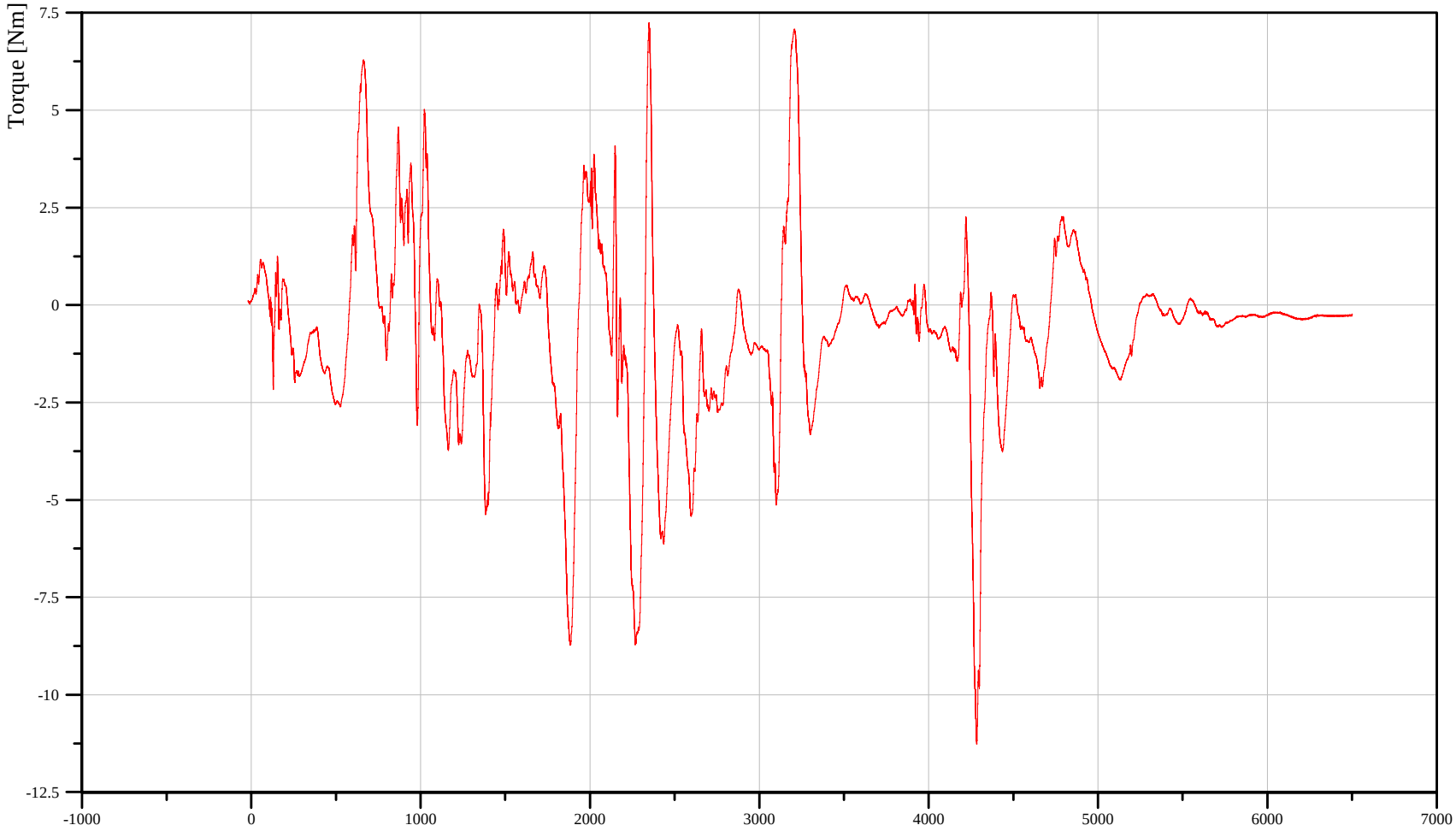
Left Rear Passenger Upper Neck Moment About Y Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14NECKUP00H3MOYB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-11.27 Nm at 4,283.20 ms

Max. Value
7.25 Nm at 2,348.80 ms

091215

Soil Trip Rollover 2007 Ford Expedition

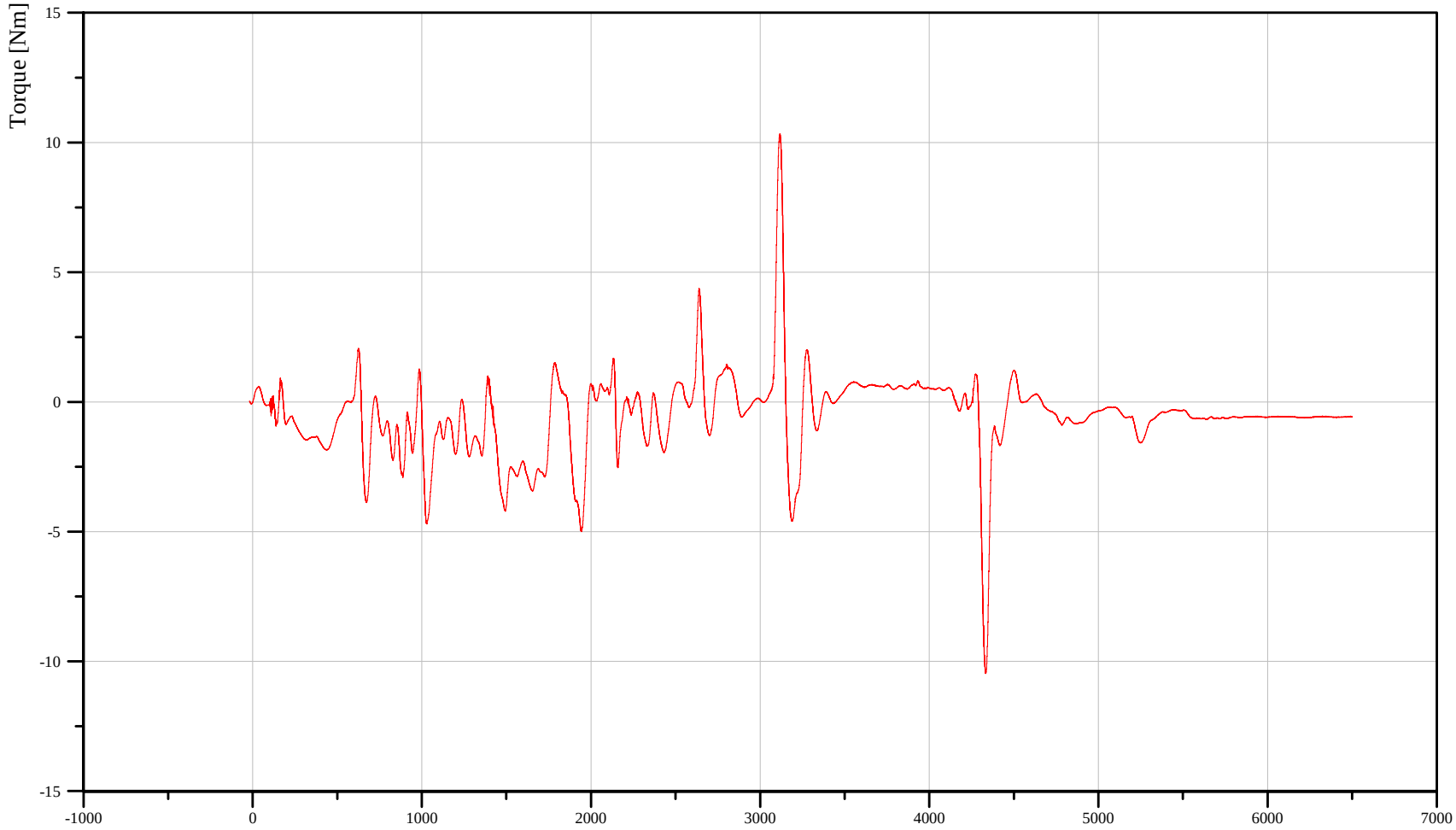
Left Rear Passenger Upper Neck Moment About Z Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14NECKUP00H3MOZB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-10.46 Nm at 4,332.64 ms

Max. Value
10.34 Nm at 3,116.08 ms

Soil Trip Rollover 2007 Ford Expedition

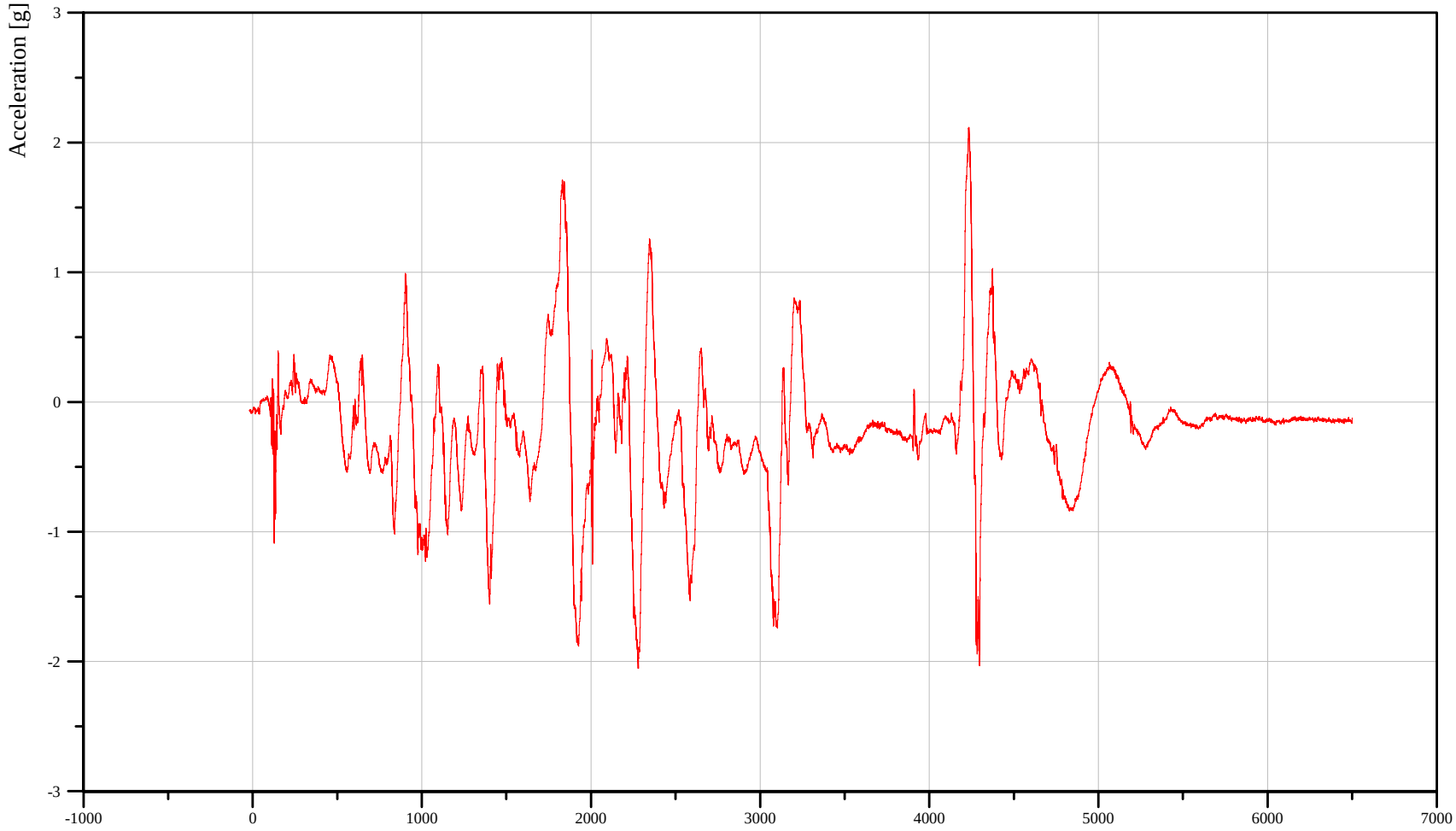
Left Rear Passenger Chest X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14CHSTCG00H3ACXC

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_180

Min. Value
-2.05 g at 2,279.04 ms

Max. Value
2.12 g at 4,233.20 ms

091215

Soil Trip Rollover 2007 Ford Expedition

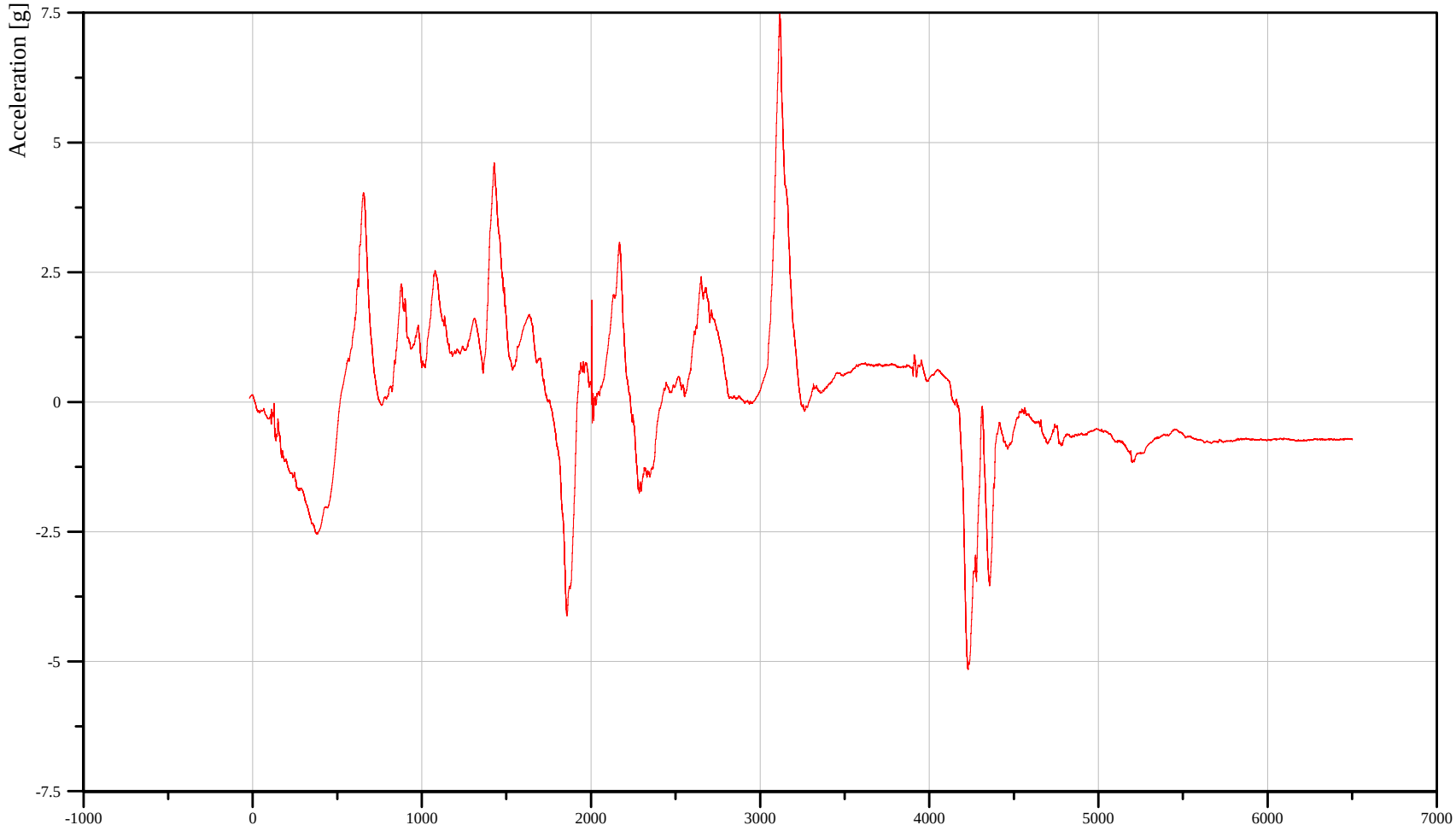
Left Rear Passenger Chest Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14CHSTCG00H3ACYC

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_180

Min. Value
-5.16 g at 4,229.12 ms

Max. Value
7.48 g at 3,115.84 ms

Soil Trip Rollover 2007 Ford Expedition

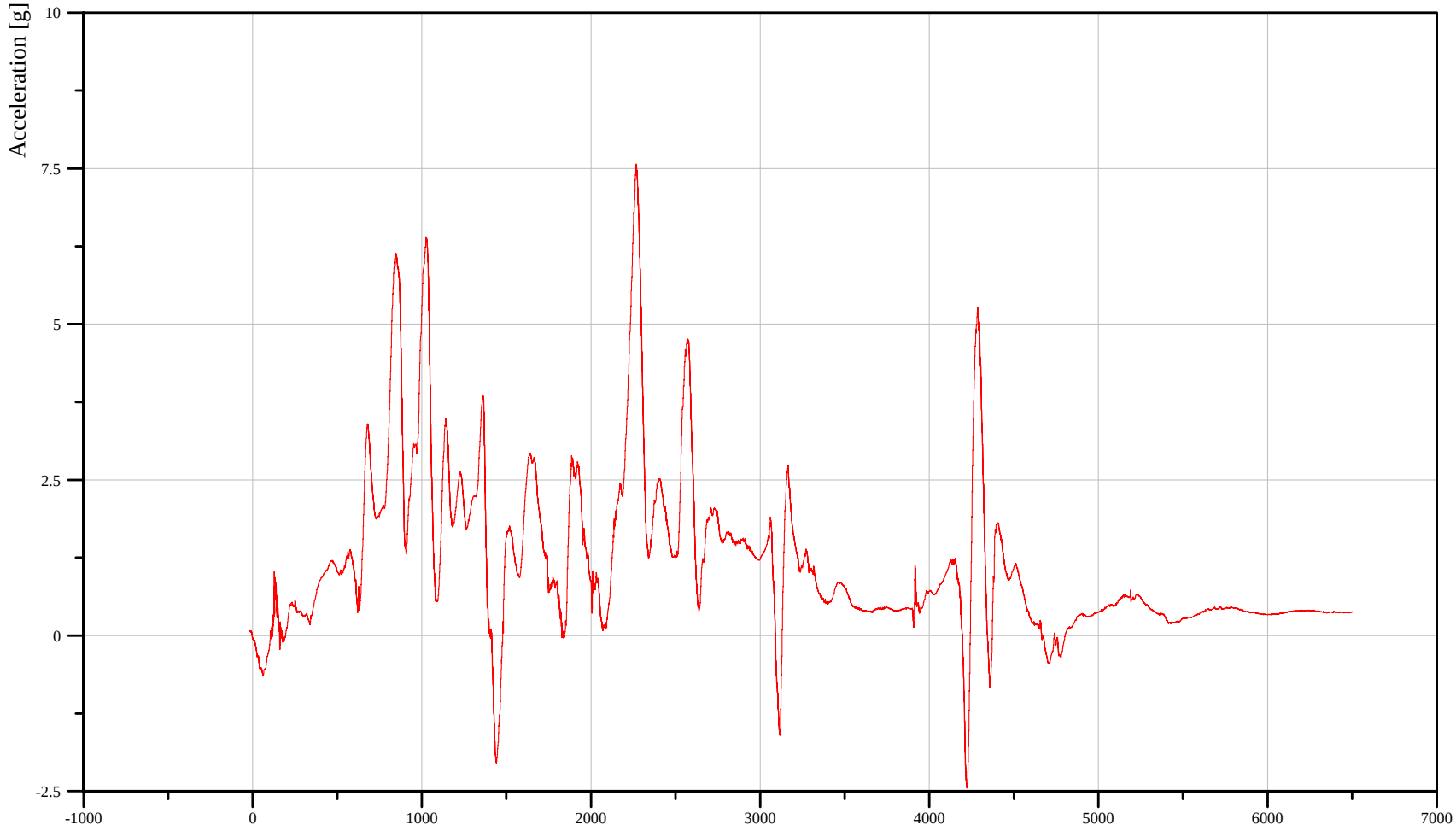
Left Rear Passenger Chest Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14CHSTCG00H3ACZC

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_180

Min. Value
-2.45 g at 4,222.40 ms

Max. Value
7.57 g at 2,267.20 ms

Soil Trip Rollover 2007 Ford Expedition

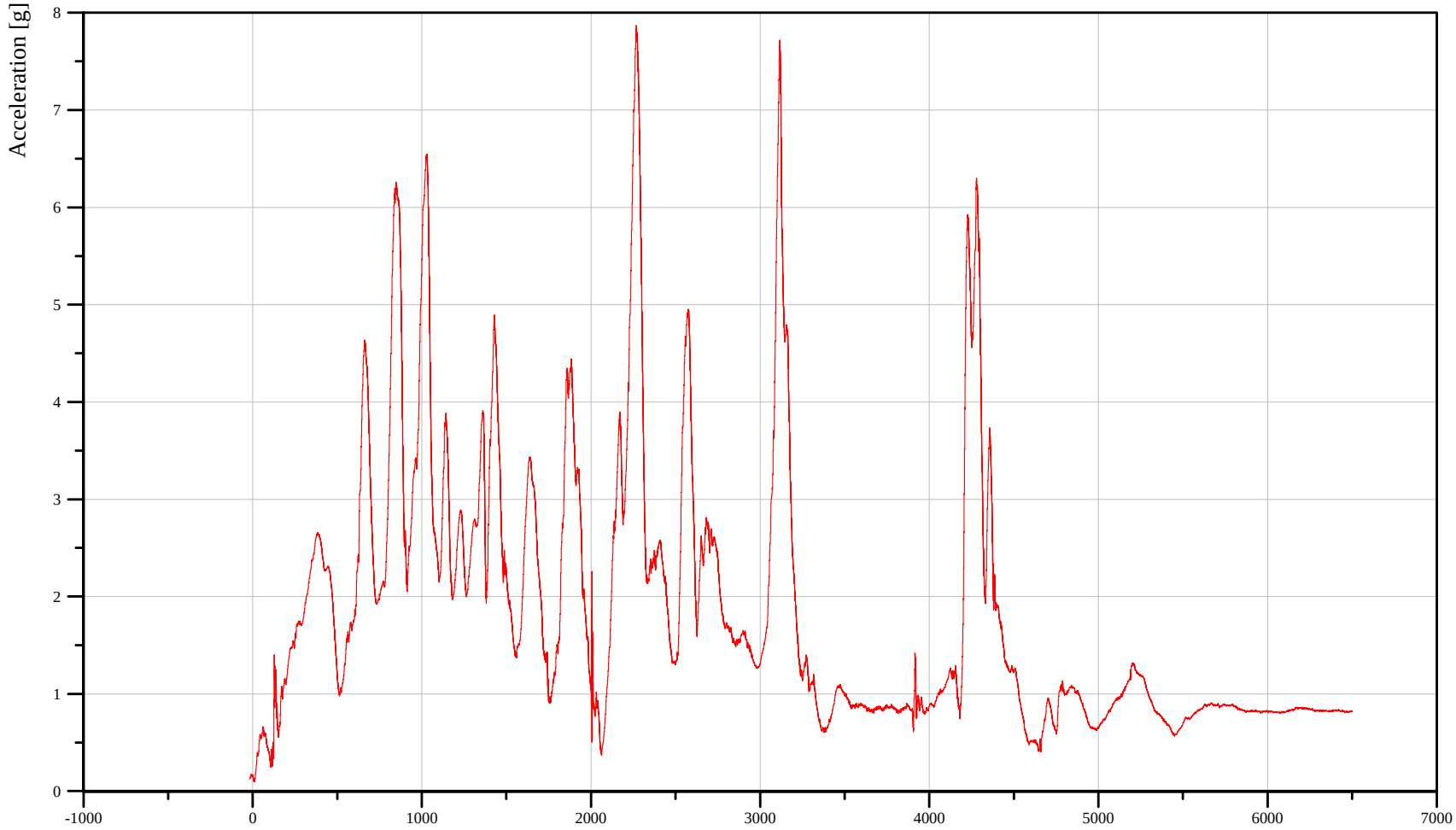
Left Rear Passenger Chest Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14CHSTCG00H3ACRC

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_180

Min. Value
0.10 g at 9.04 ms

Max. Value
7.87 g at 2,267.52 ms

Soil Trip Rollover 2007 Ford Expedition

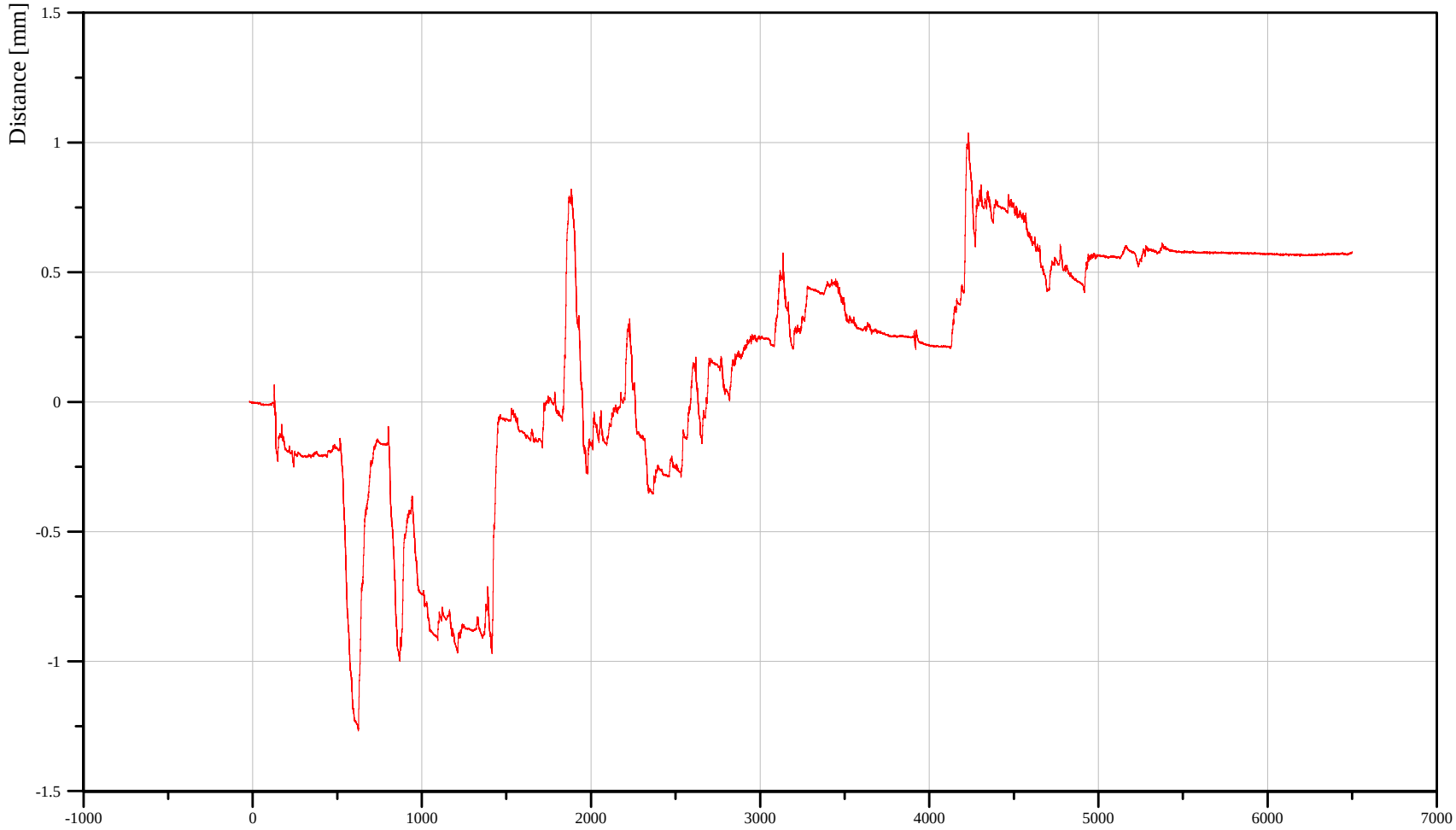
Left Rear Passenger Chest X-Axis Displacement

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14CHST0000H3DSXB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-1.27 mm at 624.16 ms

Max. Value
1.04 mm at 4,230.24 ms

Soil Trip Rollover 2007 Ford Expedition

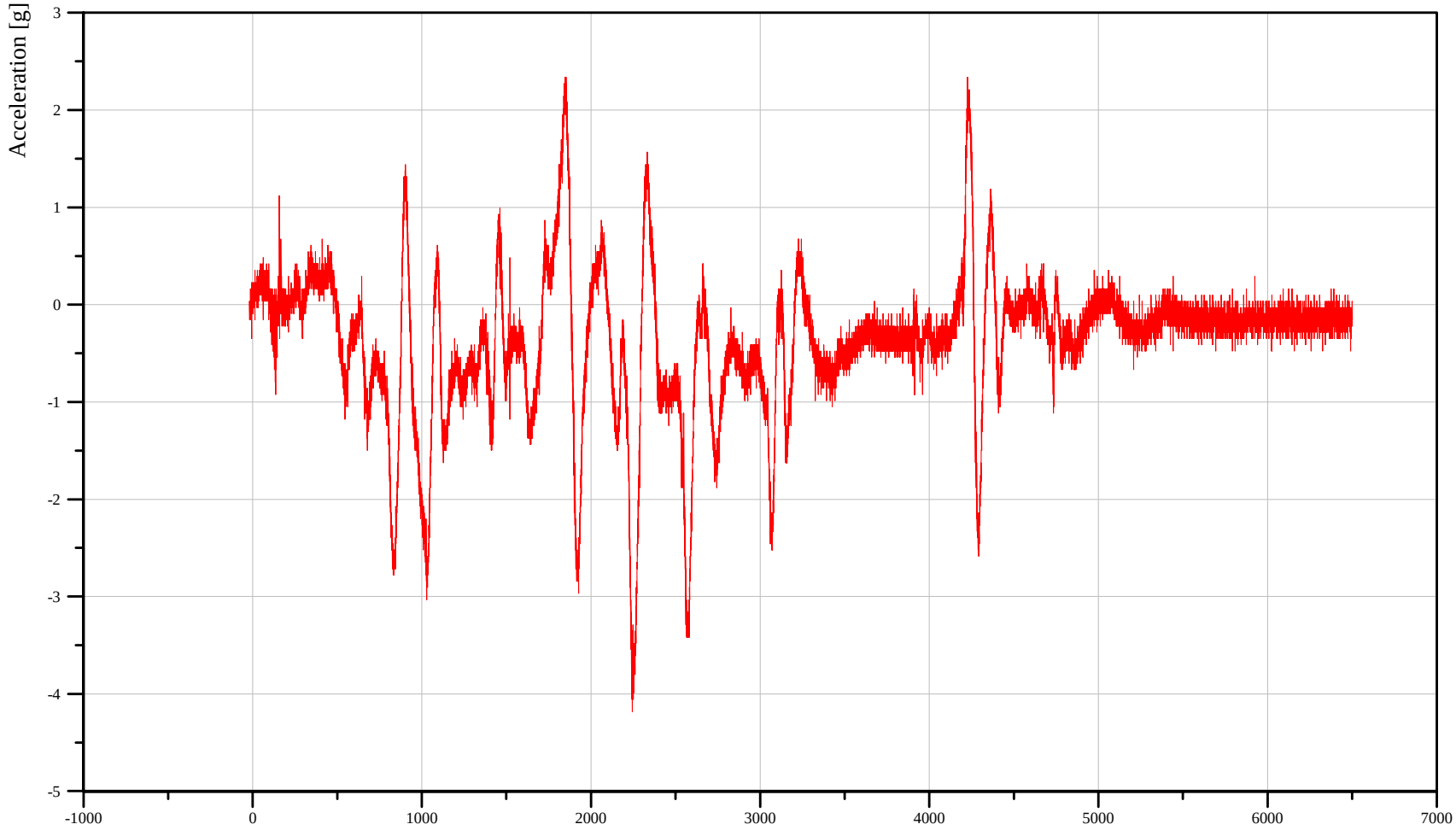
Left Rear Passenger Pelvis X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14PELVCG00H3ACXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-4.18 g at 2,243.20 ms

Max. Value
2.34 g at 1,846.24 ms

Soil Trip Rollover 2007 Ford Expedition

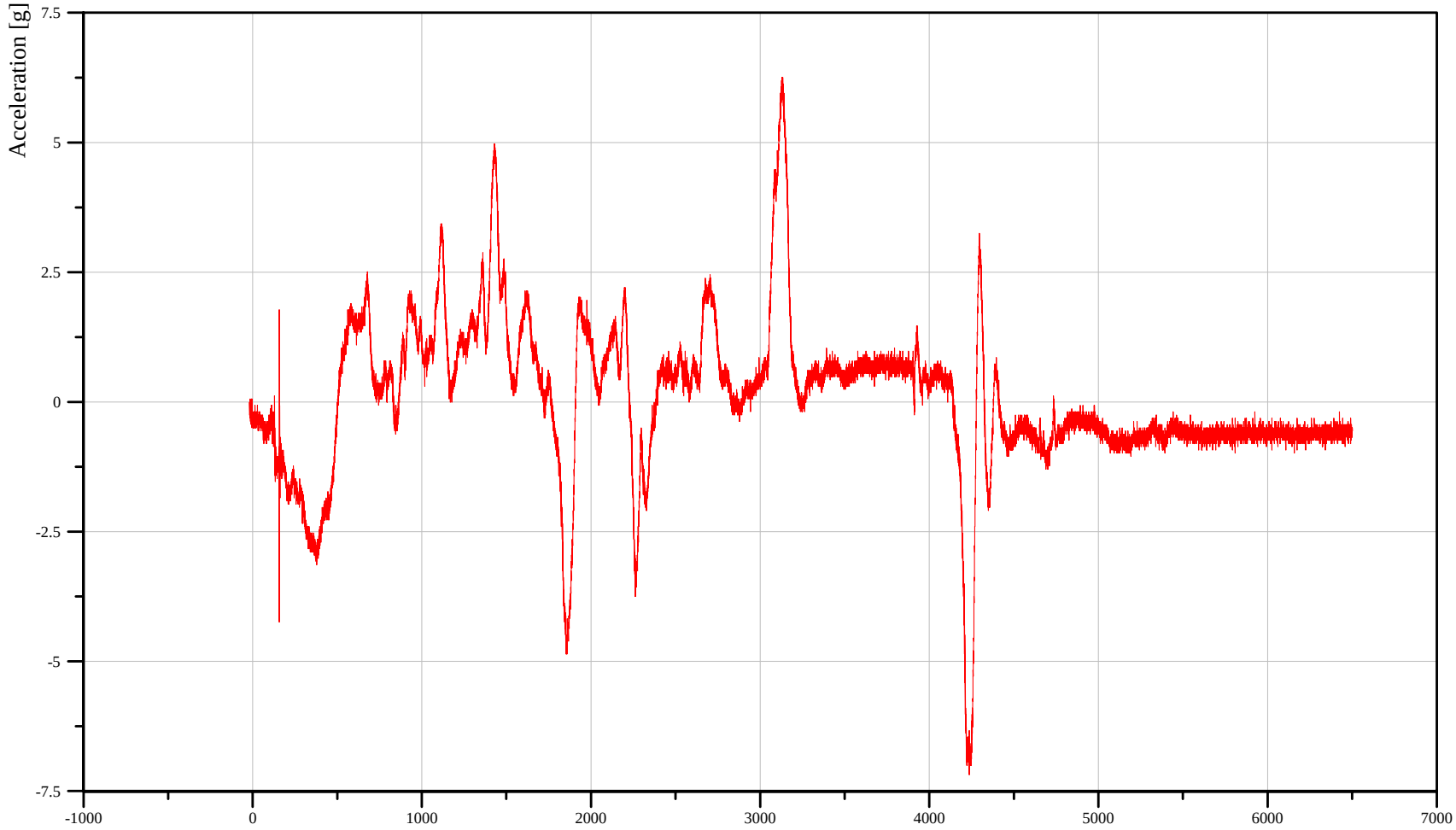
Left Rear Passenger Pelvis Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14PELVCG00H3ACYA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-7.19 g at 4,235.60 ms

Max. Value
6.26 g at 3,127.44 ms

Soil Trip Rollover 2007 Ford Expedition

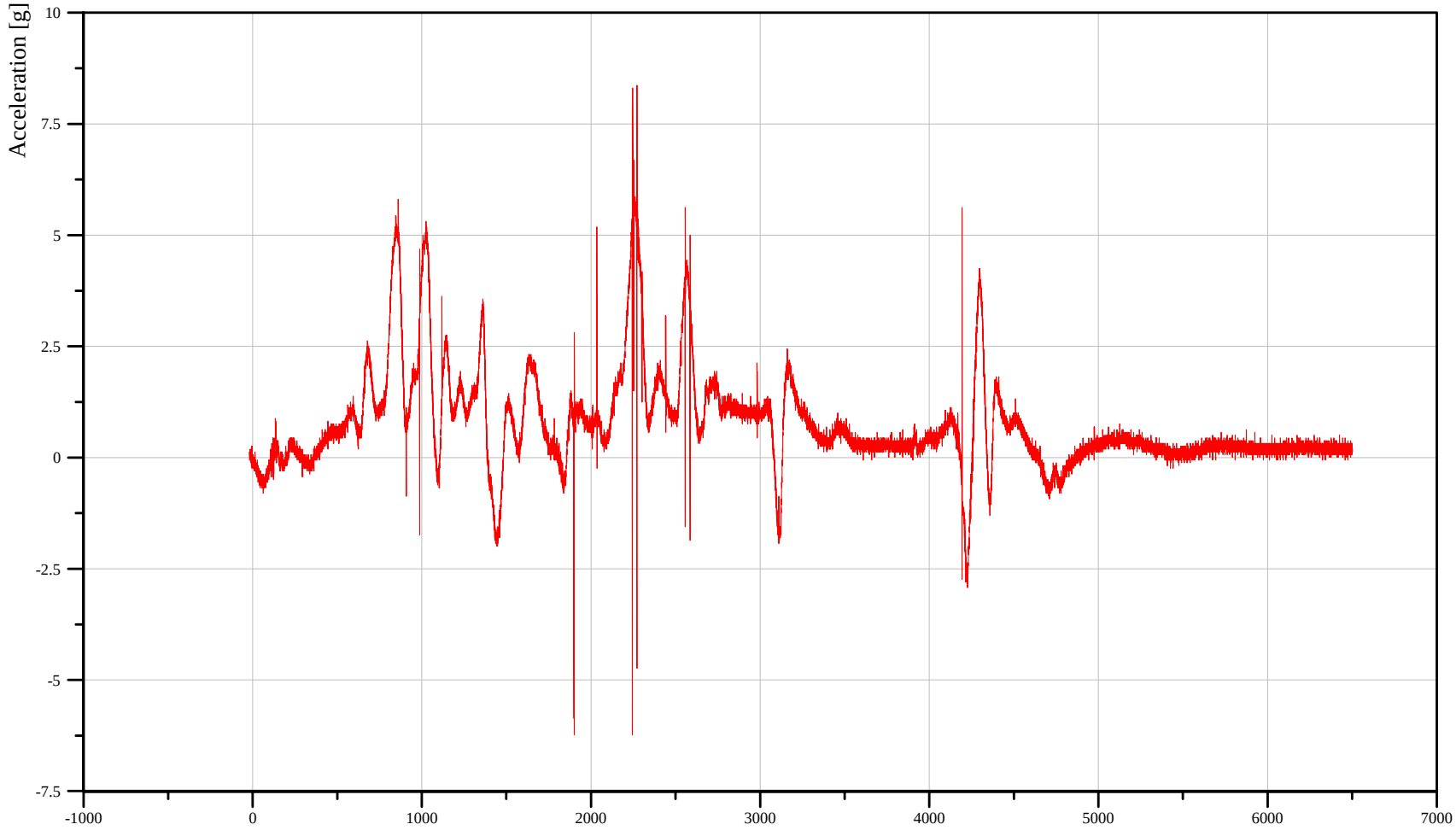
Left Rear Passenger Pelvis Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14PELVCG00H3ACZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-6.24 g at 1,900.16 ms

Max. Value
8.37 g at 2,271.60 ms

Soil Trip Rollover 2007 Ford Expedition

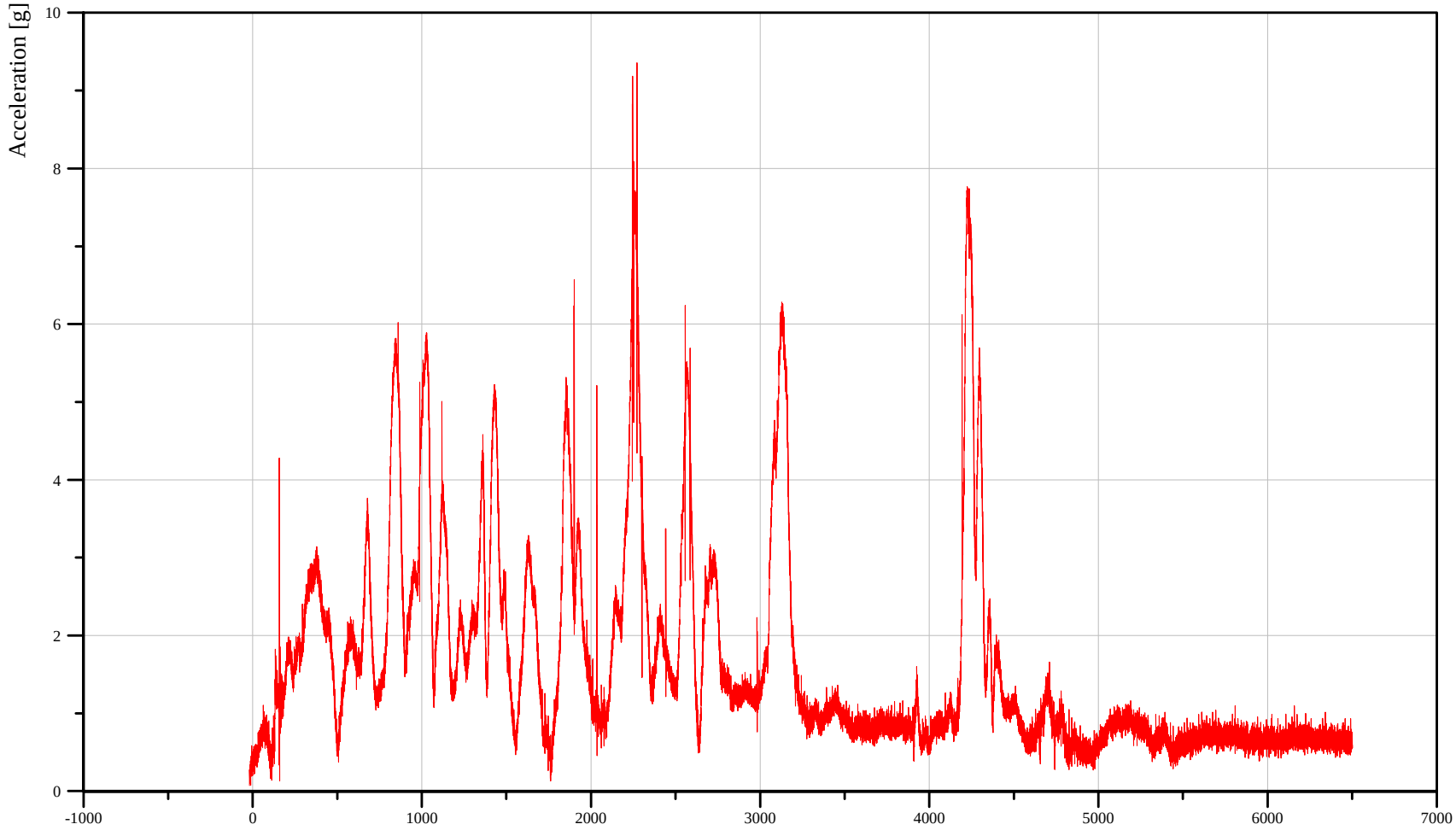
Left Rear Passenger Pelvis Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14PELVCG00H3ACRA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
0.07 g at -19.04 ms

Max. Value
9.36 g at 2,271.60 ms

Soil Trip Rollover 2007 Ford Expedition

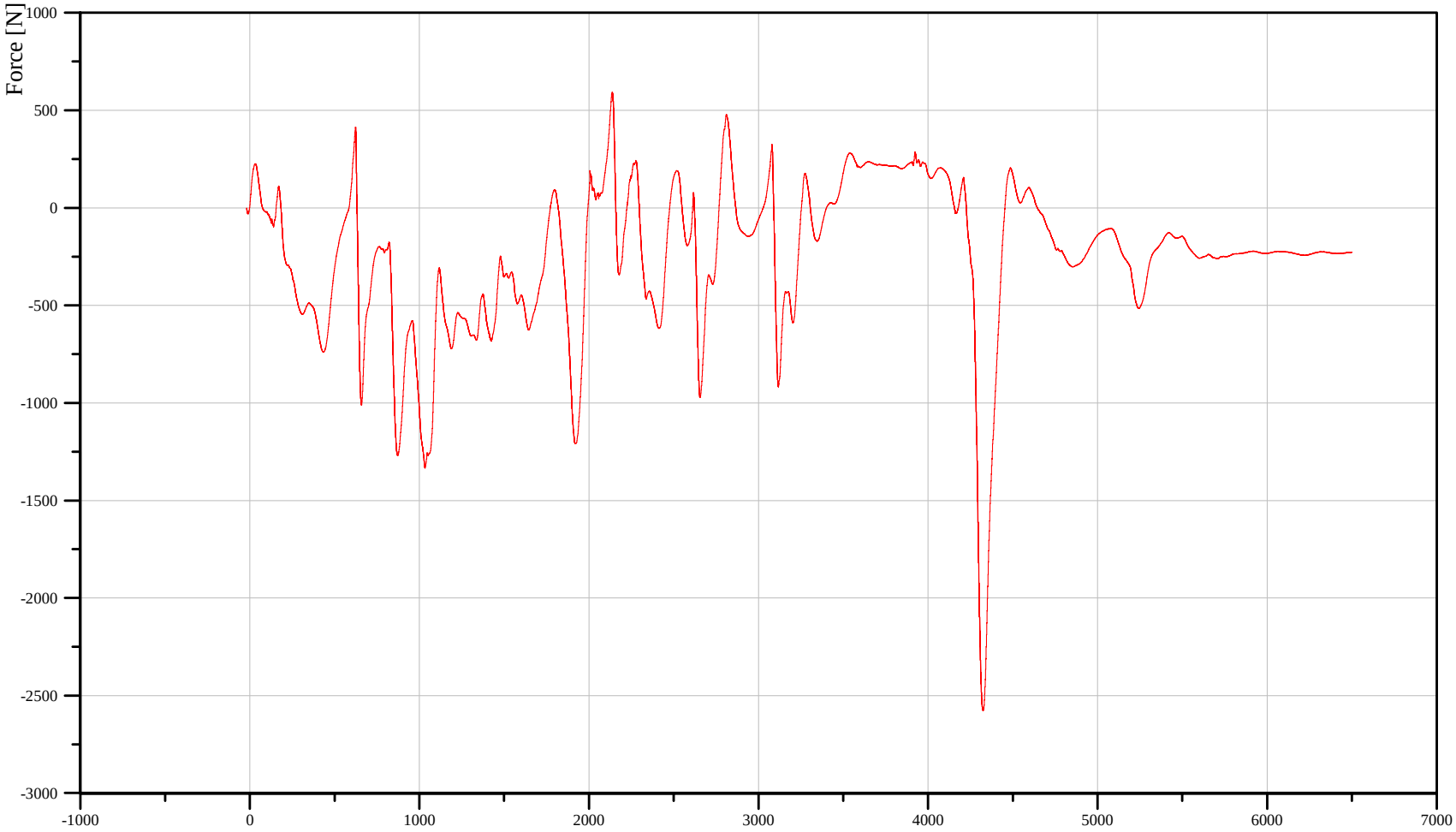
Left Rear Passenger Lower Neck X-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14NECKLO00H3FOXA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-2,578.63 N at 4,323.92 ms

Max. Value
593.73 N at 2,137.12 ms

091215

Soil Trip Rollover 2007 Ford Expedition

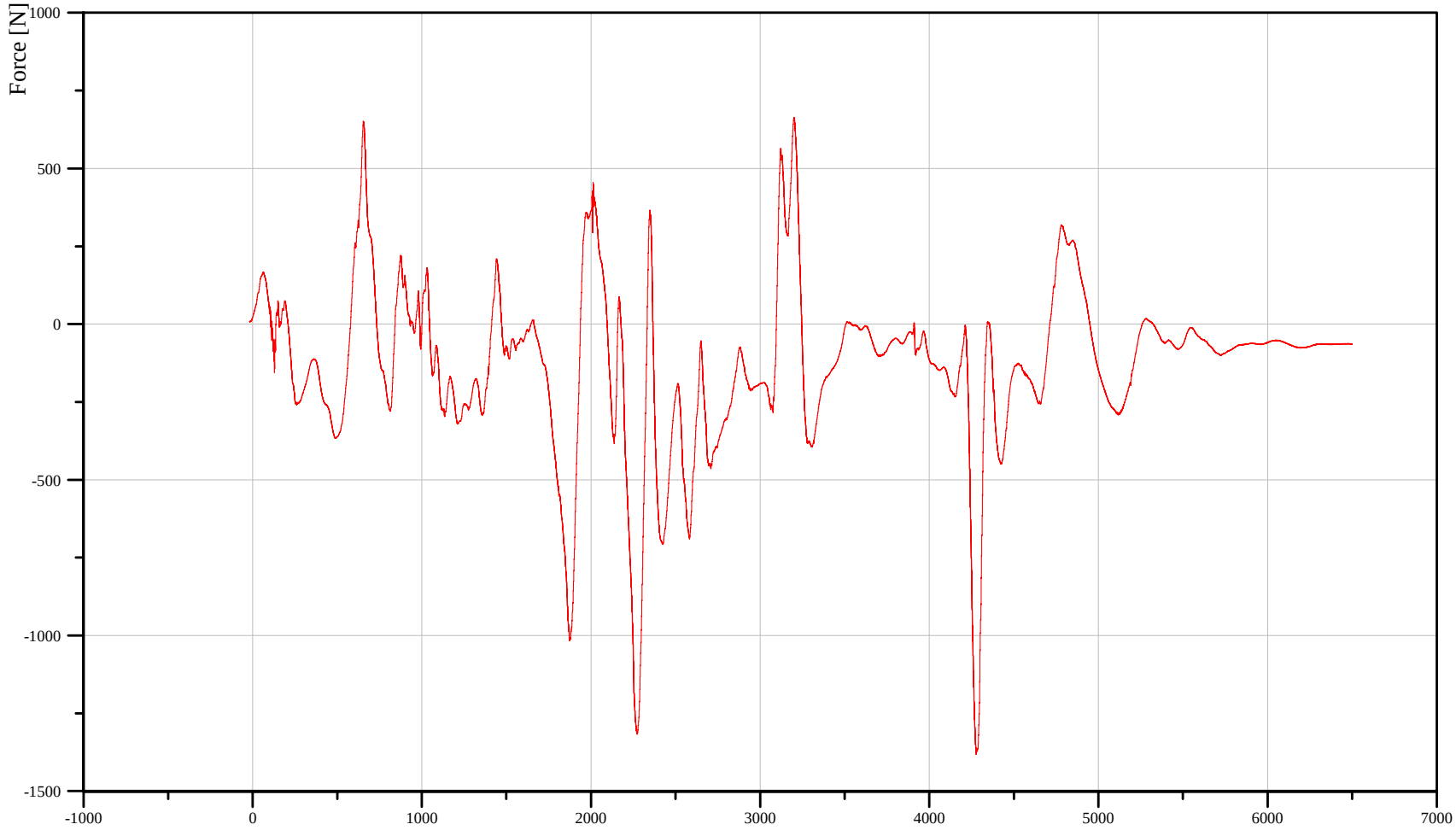
Left Rear Passenger Lower Neck Y-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14NECKLO00H3FOYA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-1,380.94 N at 4,276.24 ms

Max. Value
664.06 N at 3,199.52 ms

Soil Trip Rollover 2007 Ford Expedition

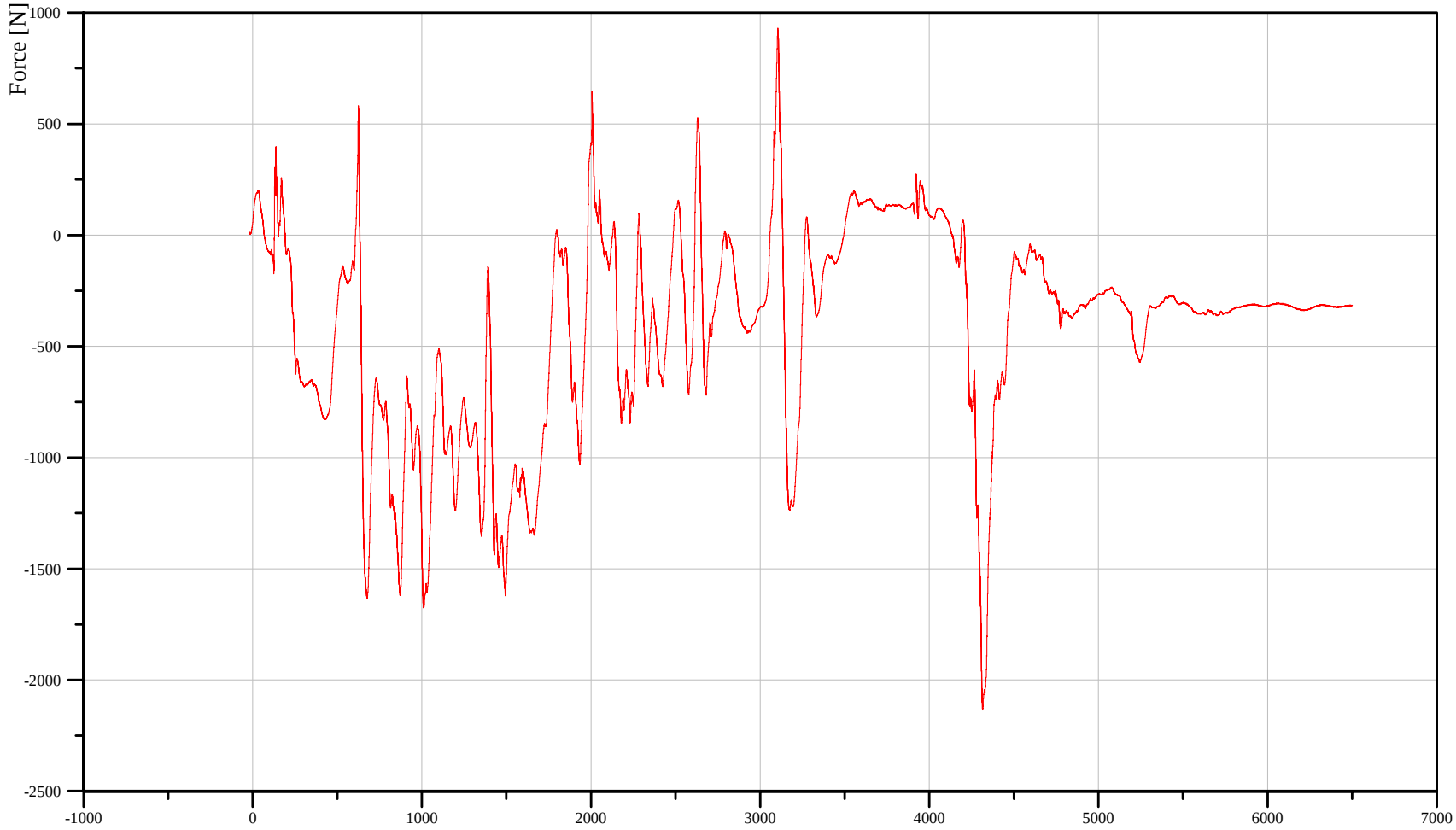
Left Rear Passenger Lower Neck Z-Axis Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14NECKLO00H3FOZA

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-2,134.83 N at 4,314.56 ms

Max. Value
930.23 N at 3,104.08 ms

Soil Trip Rollover 2007 Ford Expedition

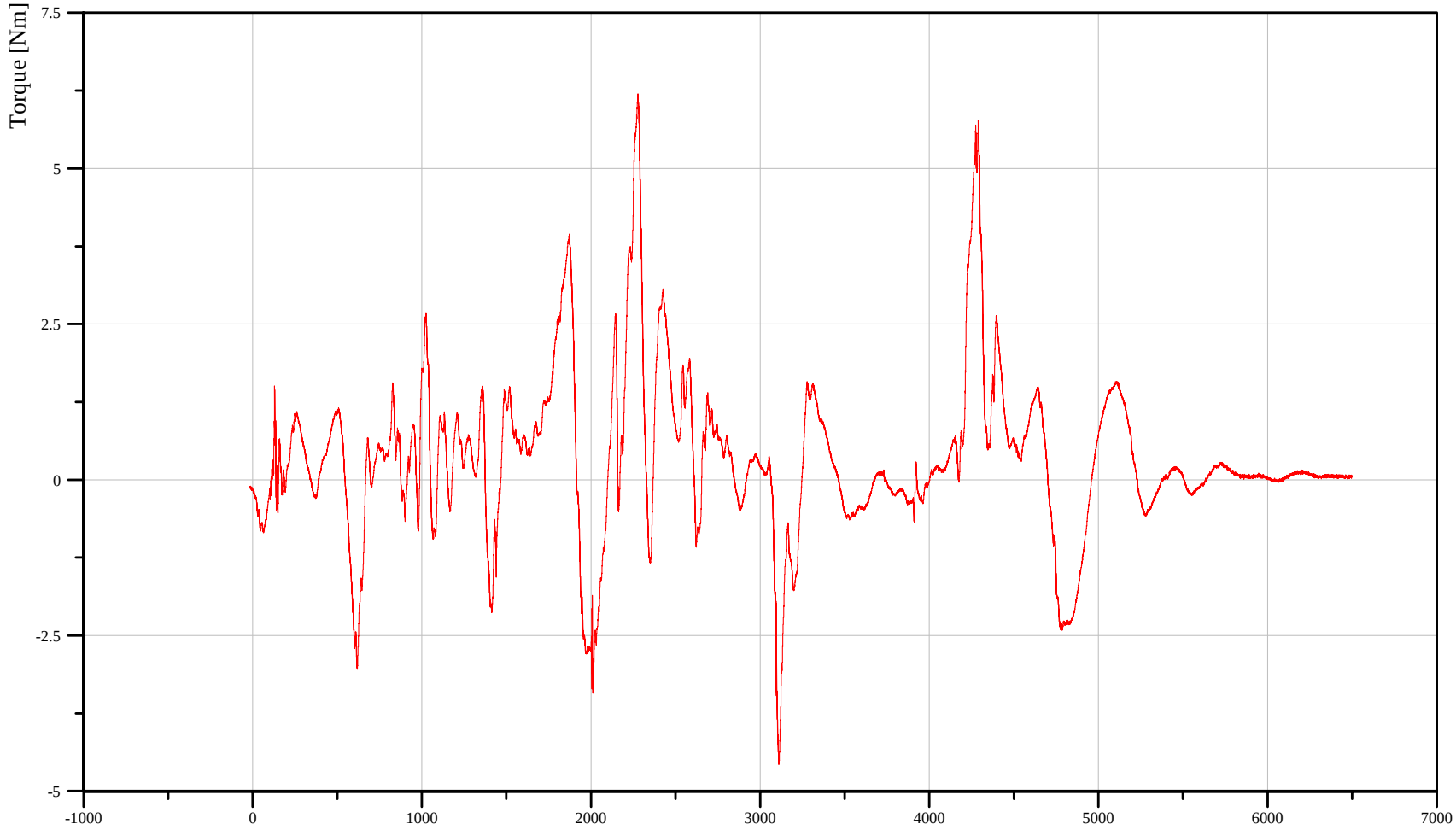
Left Rear Passenger Lower Neck Moment About X Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14NECKLO00H3MOXB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-4.57 Nm at 3,110.40 ms

Max. Value
6.20 Nm at 2,277.36 ms

091215

Soil Trip Rollover 2007 Ford Expedition

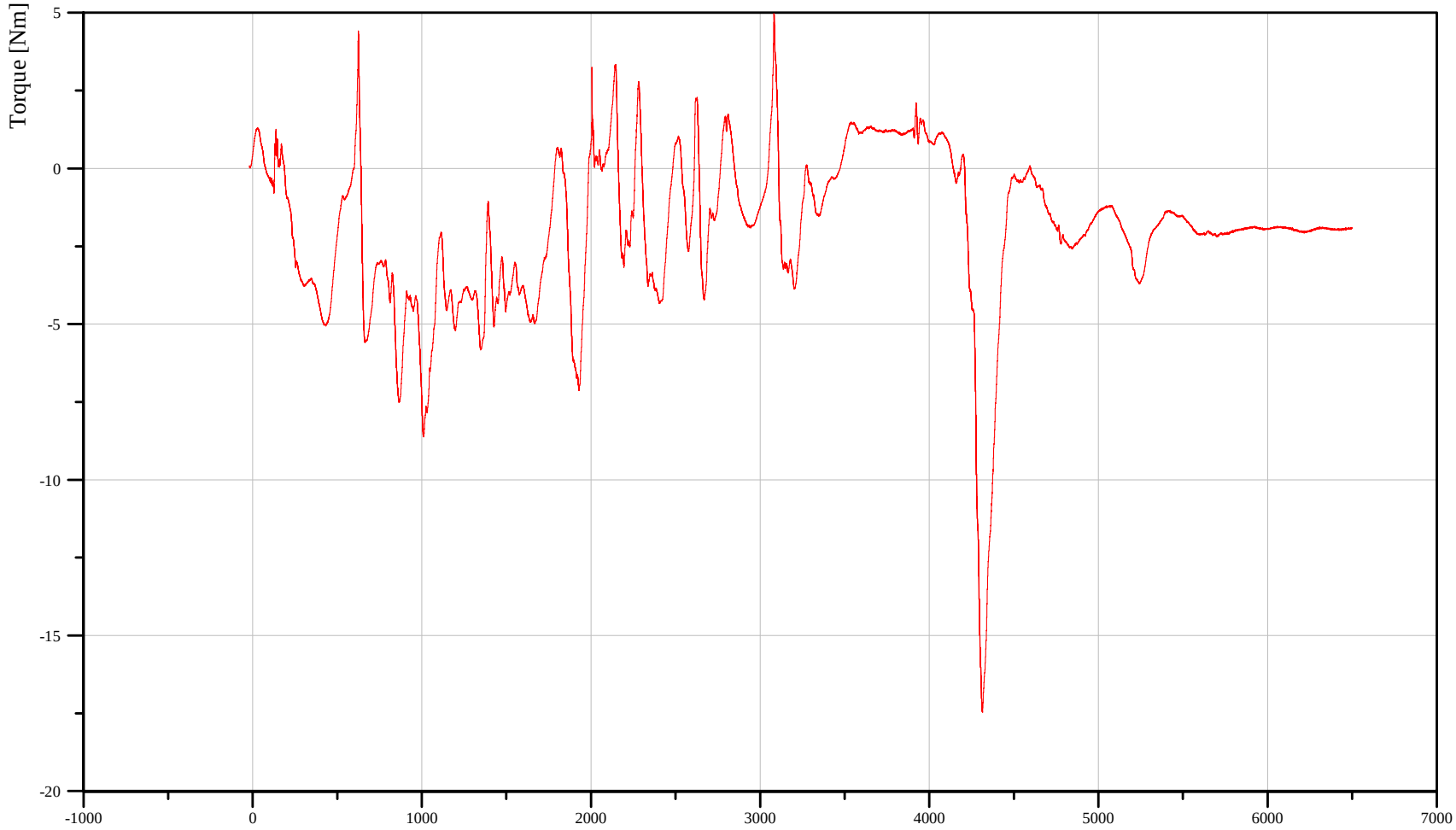
Left Rear Passenger Lower Neck Moment About Y Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14NECKLO00H3MOYB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-17.47 Nm at 4,314.32 ms

Max. Value
4.98 Nm at 3,081.60 ms

Soil Trip Rollover 2007 Ford Expedition

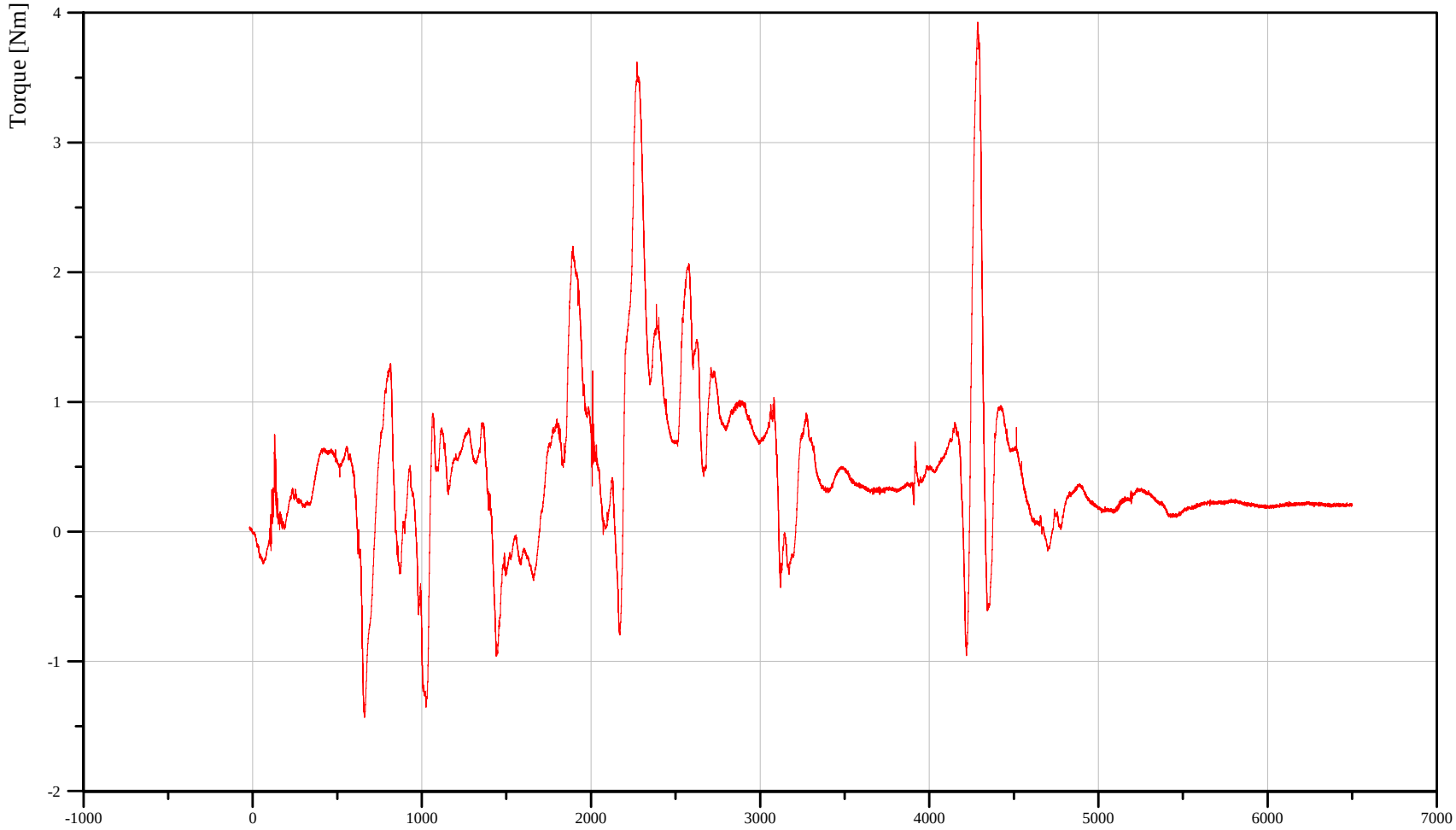
Left Rear Passenger Lower Neck Moment About Z Axis

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14NECKLO00H3MOZB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-1.43 Nm at 660.80 ms

Max. Value
3.93 Nm at 4,286.24 ms

Soil Trip Rollover 2007 Ford Expedition

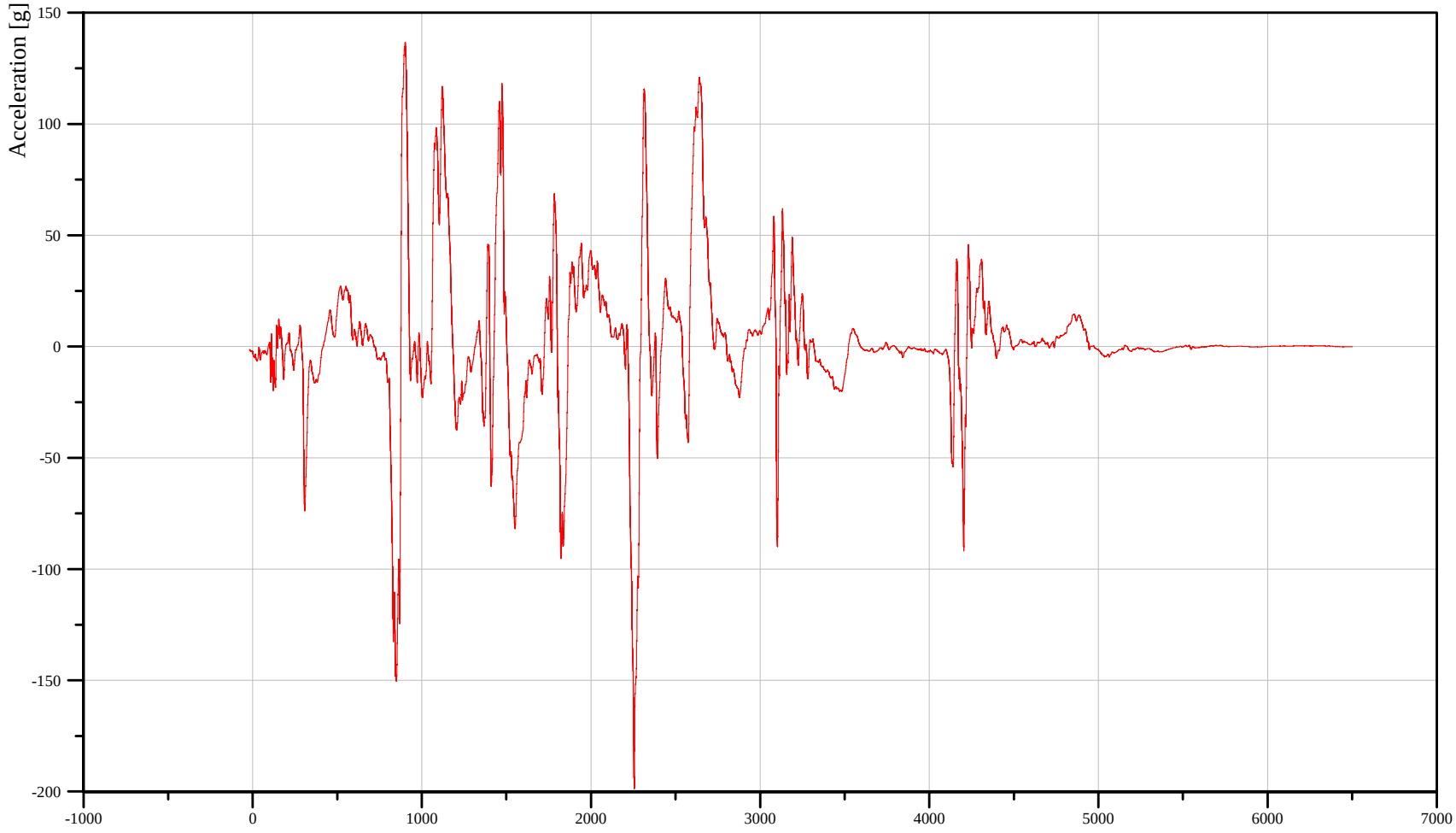
Vehicle Center of Gravity X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10VEHCCG0000ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-198.86 g at 2,255.20 ms

Max. Value
136.78 g at 901.04 ms

Soil Trip Rollover 2007 Ford Expedition

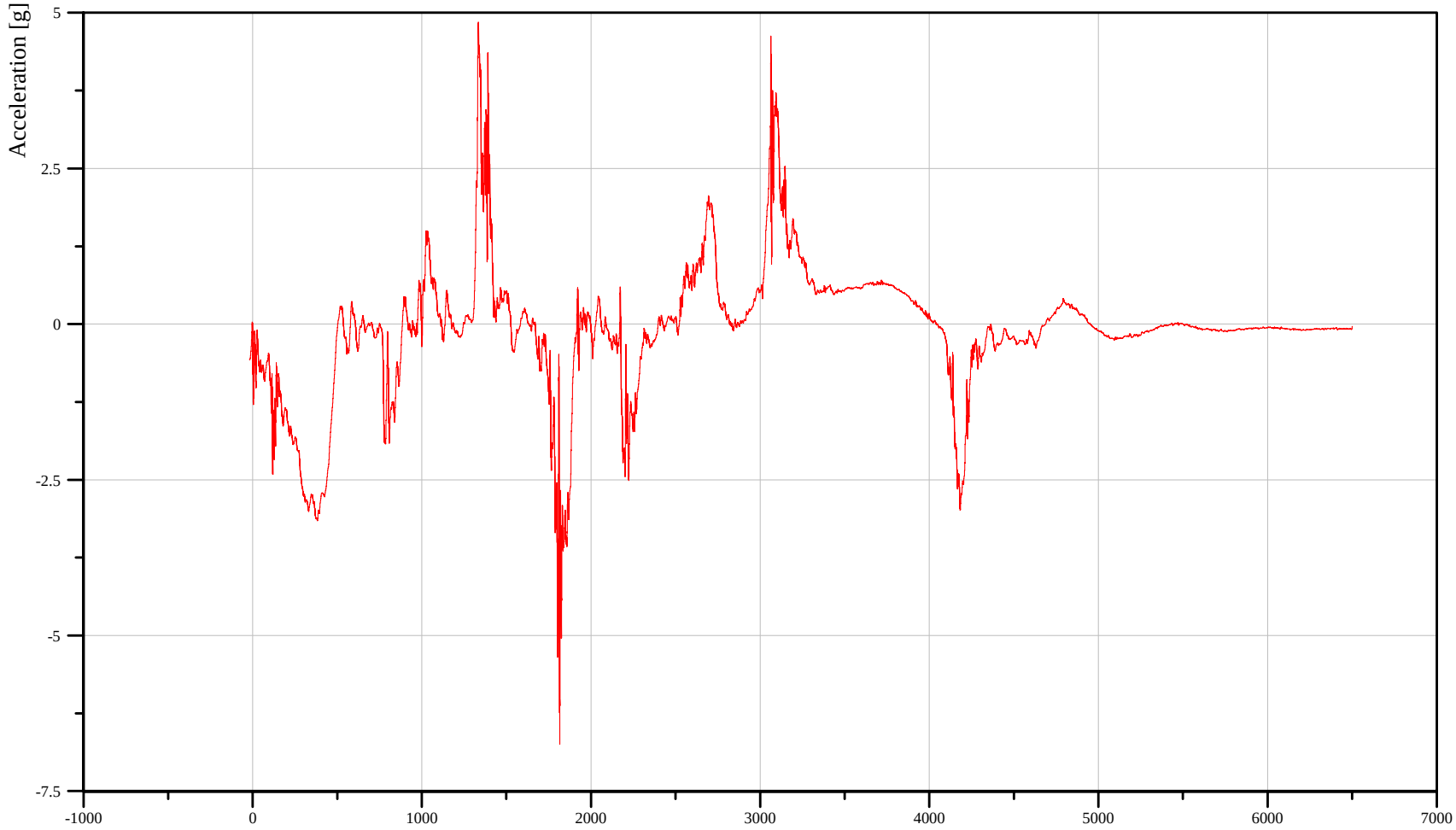
Vehicle Center of Gravity Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10VEHCCG0000ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-6.75 g at 1,814.64 ms

Max. Value
4.85 g at 1,332.96 ms

Soil Trip Rollover 2007 Ford Expedition

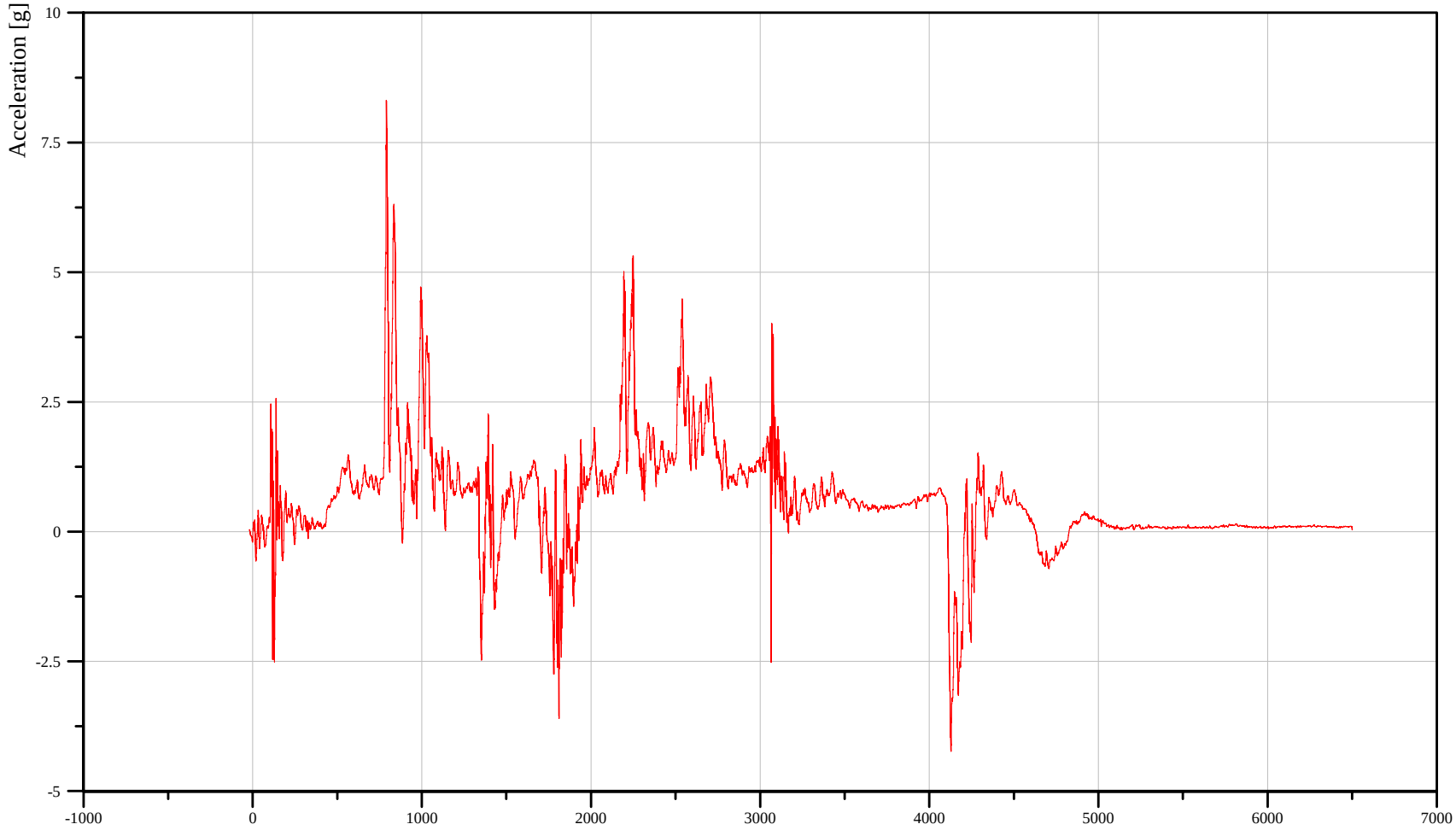
Vehicle Center of Gravity Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10VEHCCG0000ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-4.24 g at 4,127.76 ms

Max. Value
8.31 g at 789.84 ms

Soil Trip Rollover 2007 Ford Expedition

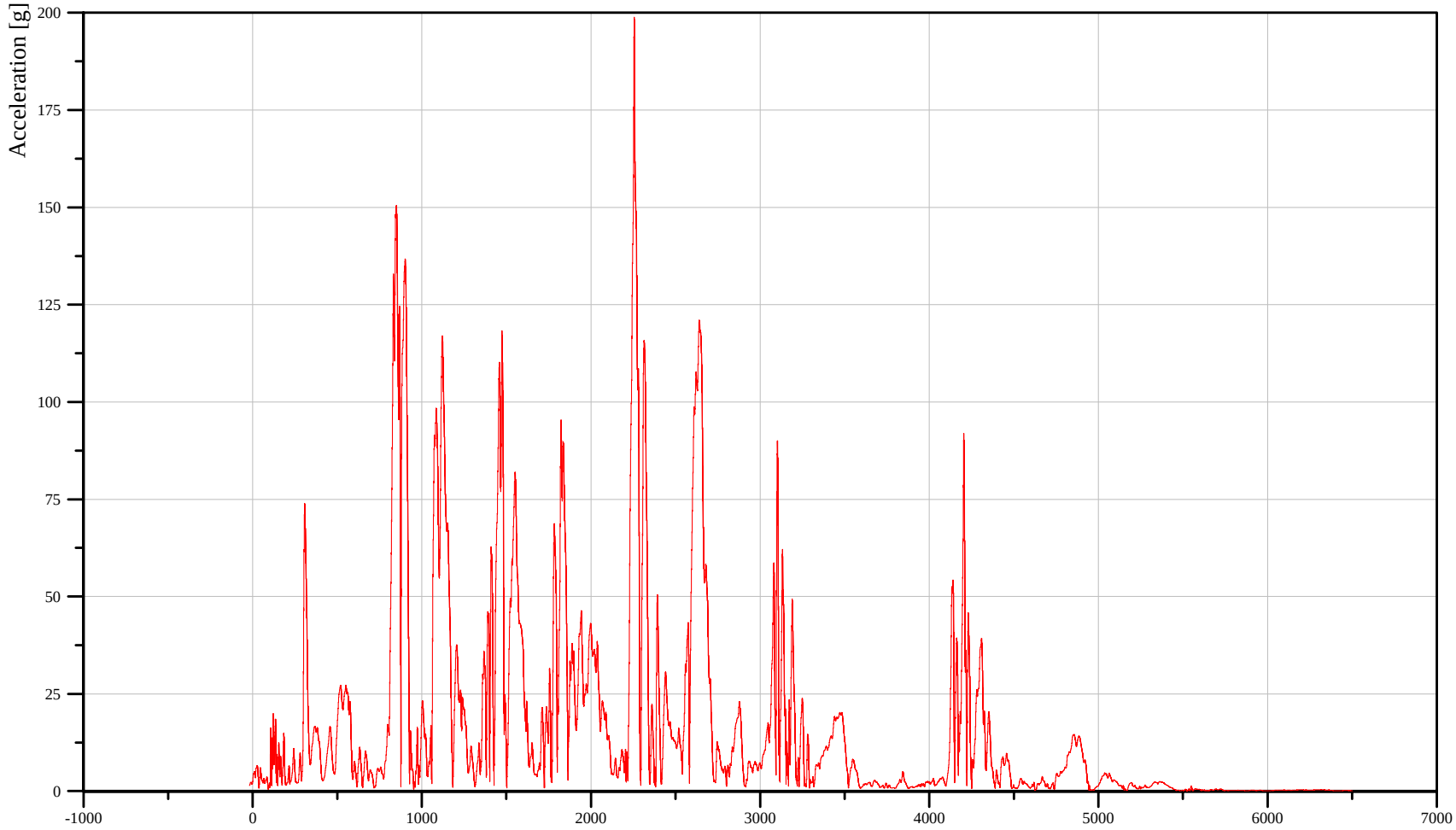
Vehicle Center of Gravity Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10VEHCCG0000ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.08 g at 5,522.96 ms

Max. Value
198.89 g at 2,255.20 ms

Soil Trip Rollover 2007 Ford Expedition

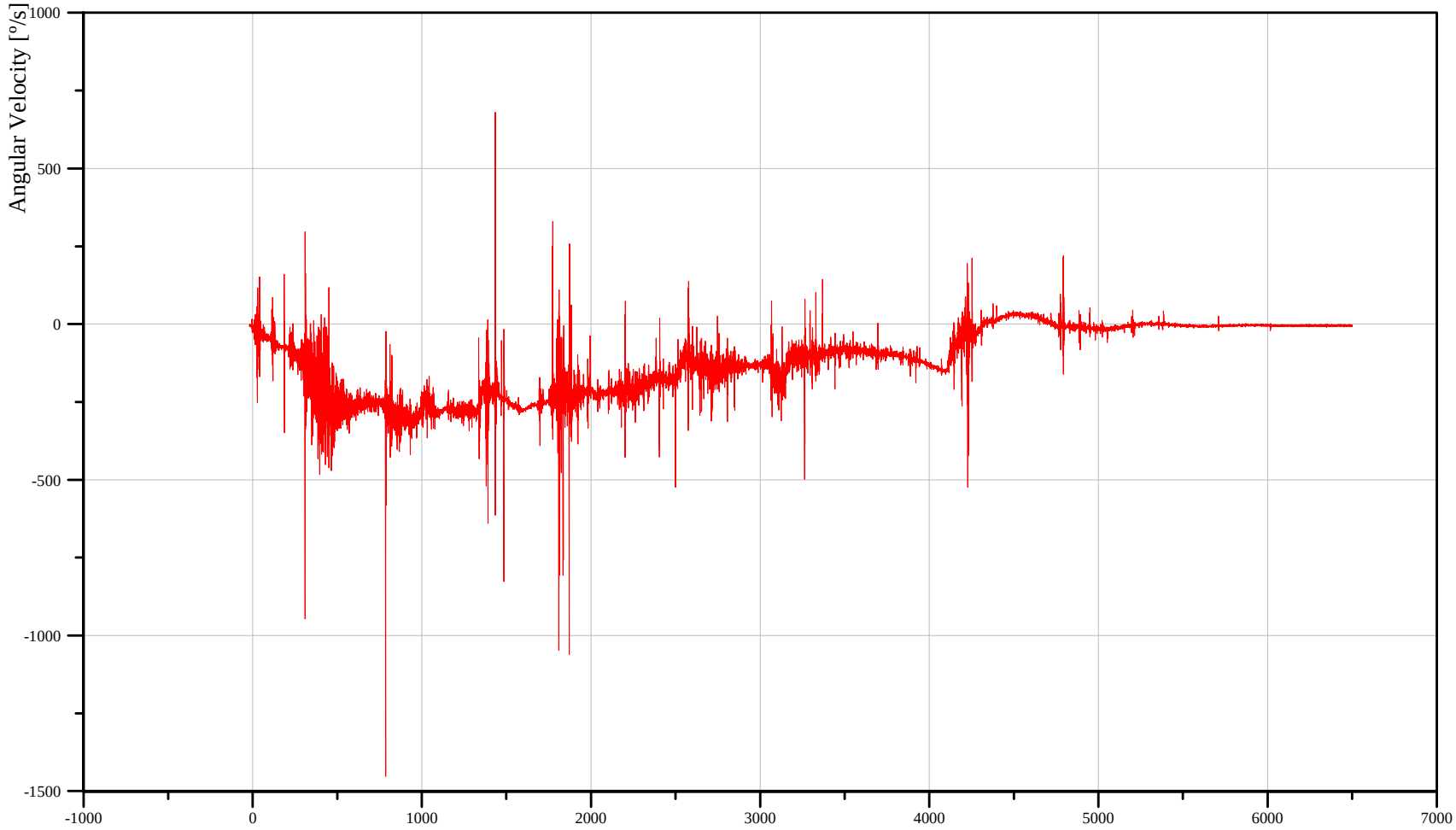
Vehicle Roll Rate

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10VEHCCG0000AVXB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-1,452.41 °/s at 785.36 ms

Max. Value
679.73 °/s at 1,433.12 ms

Soil Trip Rollover 2007 Ford Expedition

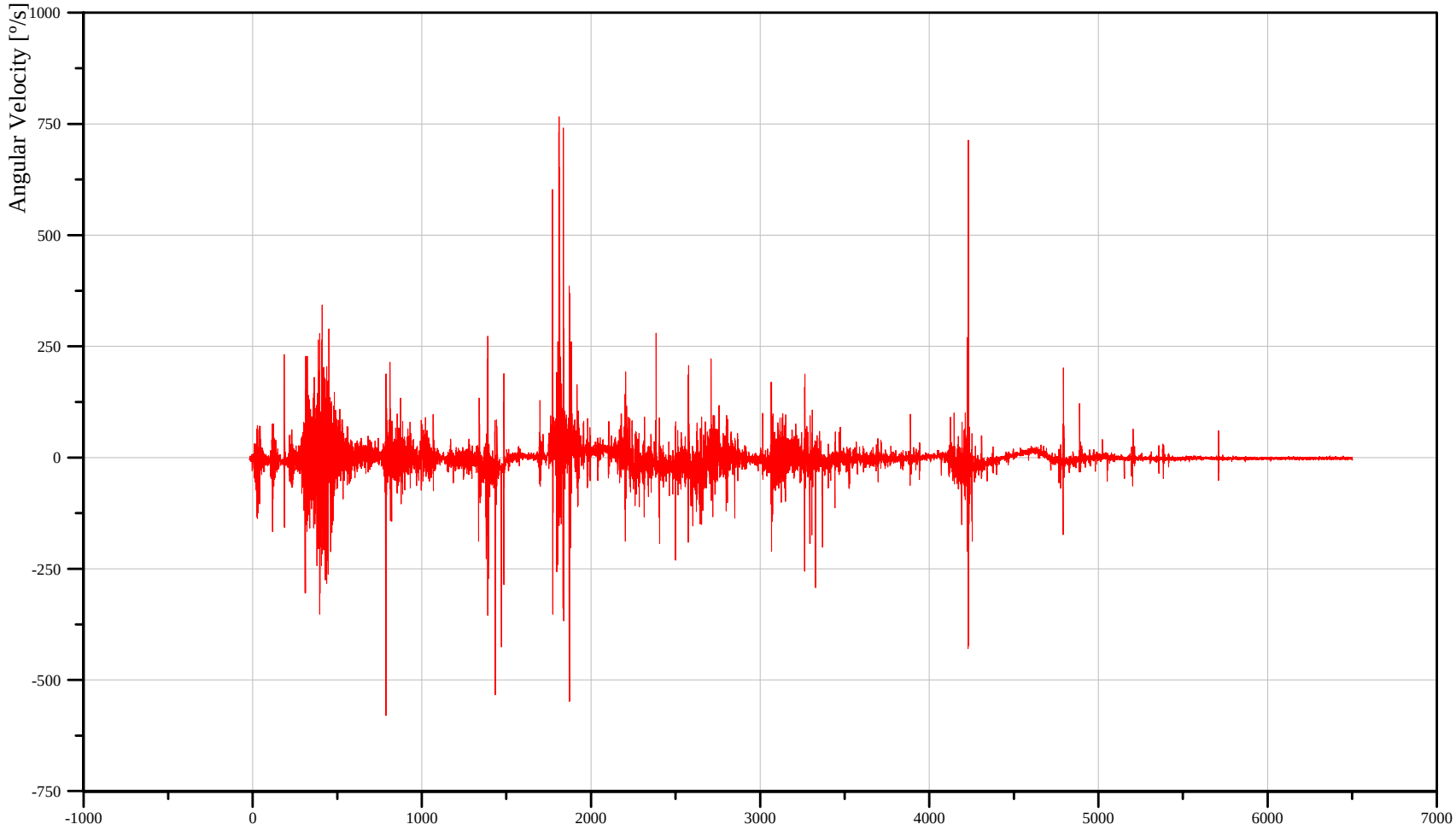
Vehicle Pitch Rate

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10VEHCCG0000AVYB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-579.71 °/s at 786.80 ms

Max. Value
766.02 °/s at 1,810.80 ms

Soil Trip Rollover 2007 Ford Expedition

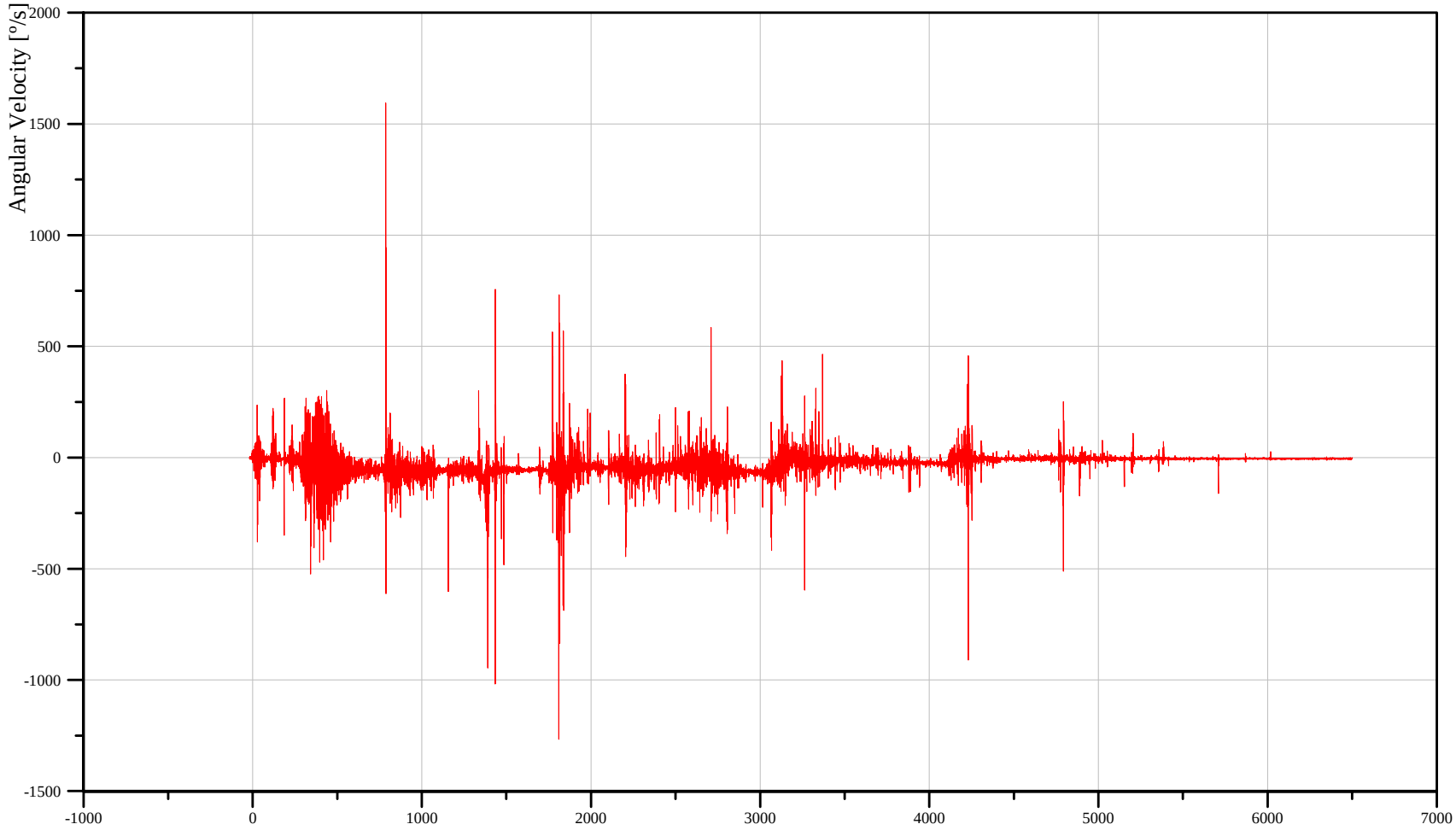
Vehicle Yaw Rate

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10VEHCCG0000AVZB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-1,266.00 °/s at 1,809.60 ms

Max. Value
1,594.01 °/s at 785.68 ms

Soil Trip Rollover 2007 Ford Expedition

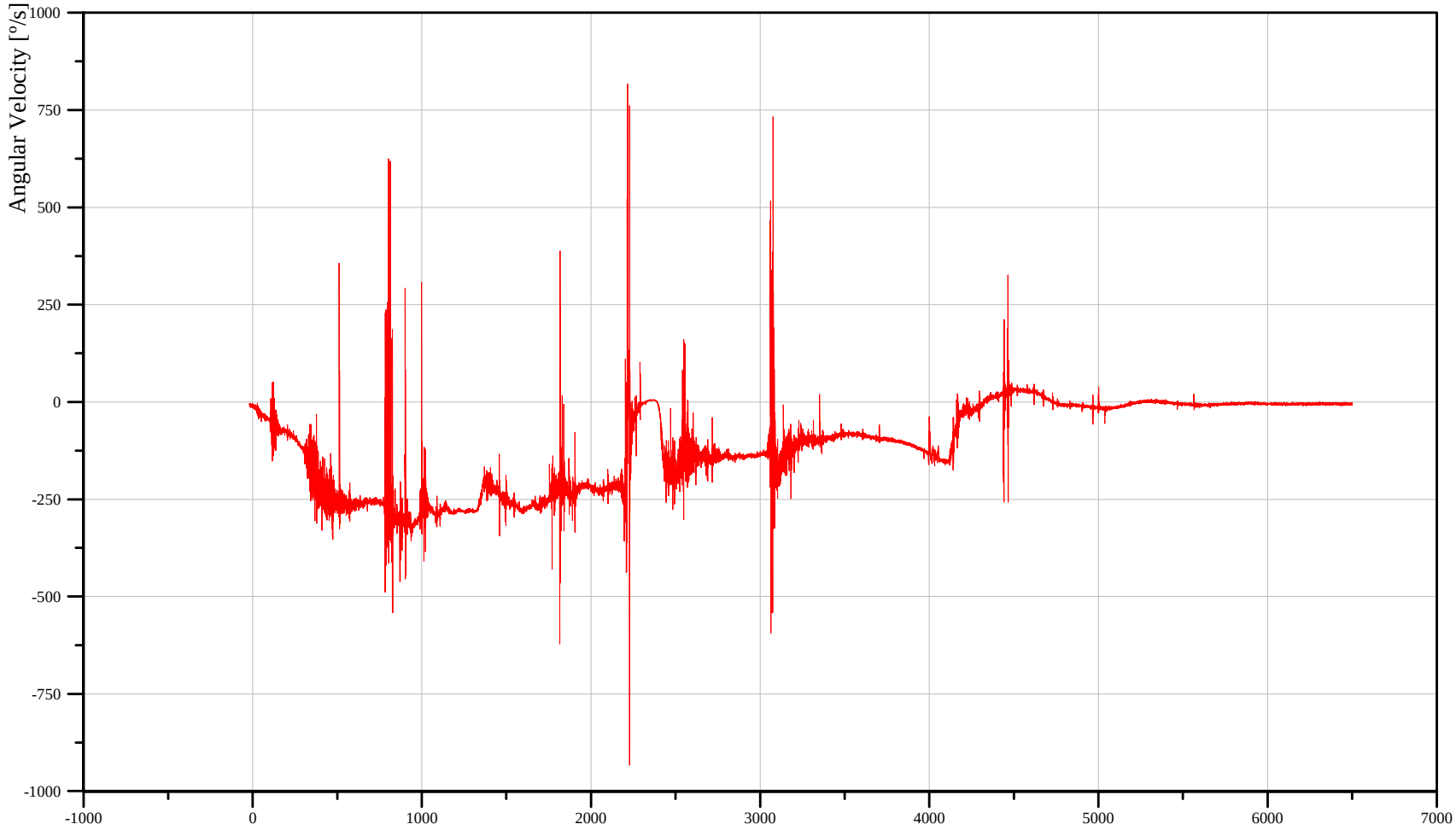
Rear Deck Roll Rate Redundant

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10VEHCREDK00AVXB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-932.76 °/s at 2,227.68 ms

Max. Value
817.67 °/s at 2,214.56 ms

Soil Trip Rollover 2007 Ford Expedition

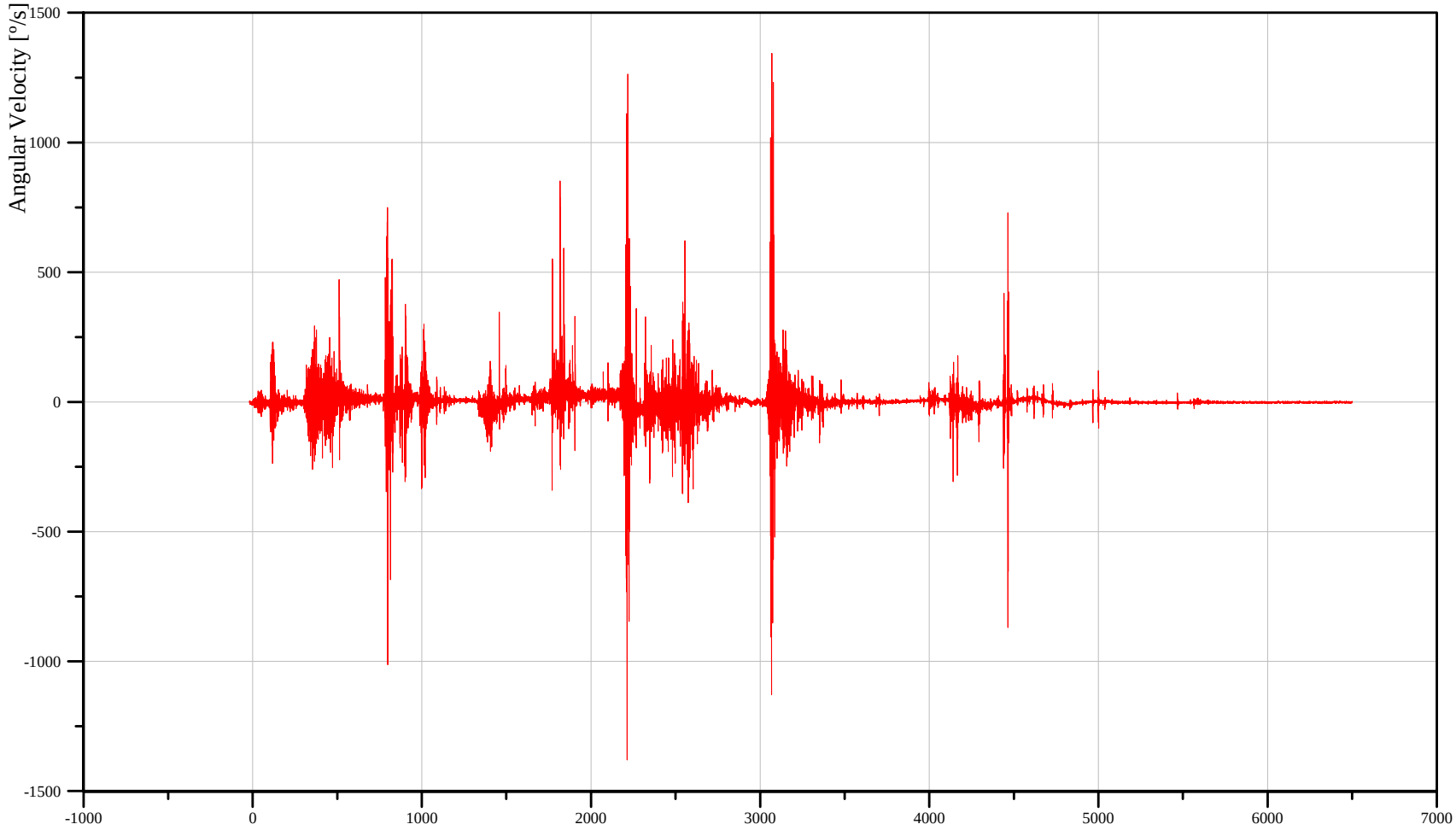
Rear Deck Pitch Rate Redundant

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10VEHCREDK00AVYB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-1,380.24 °/s at 2,214.00 ms

Max. Value
1,342.84 °/s at 3,067.76 ms

Soil Trip Rollover 2007 Ford Expedition

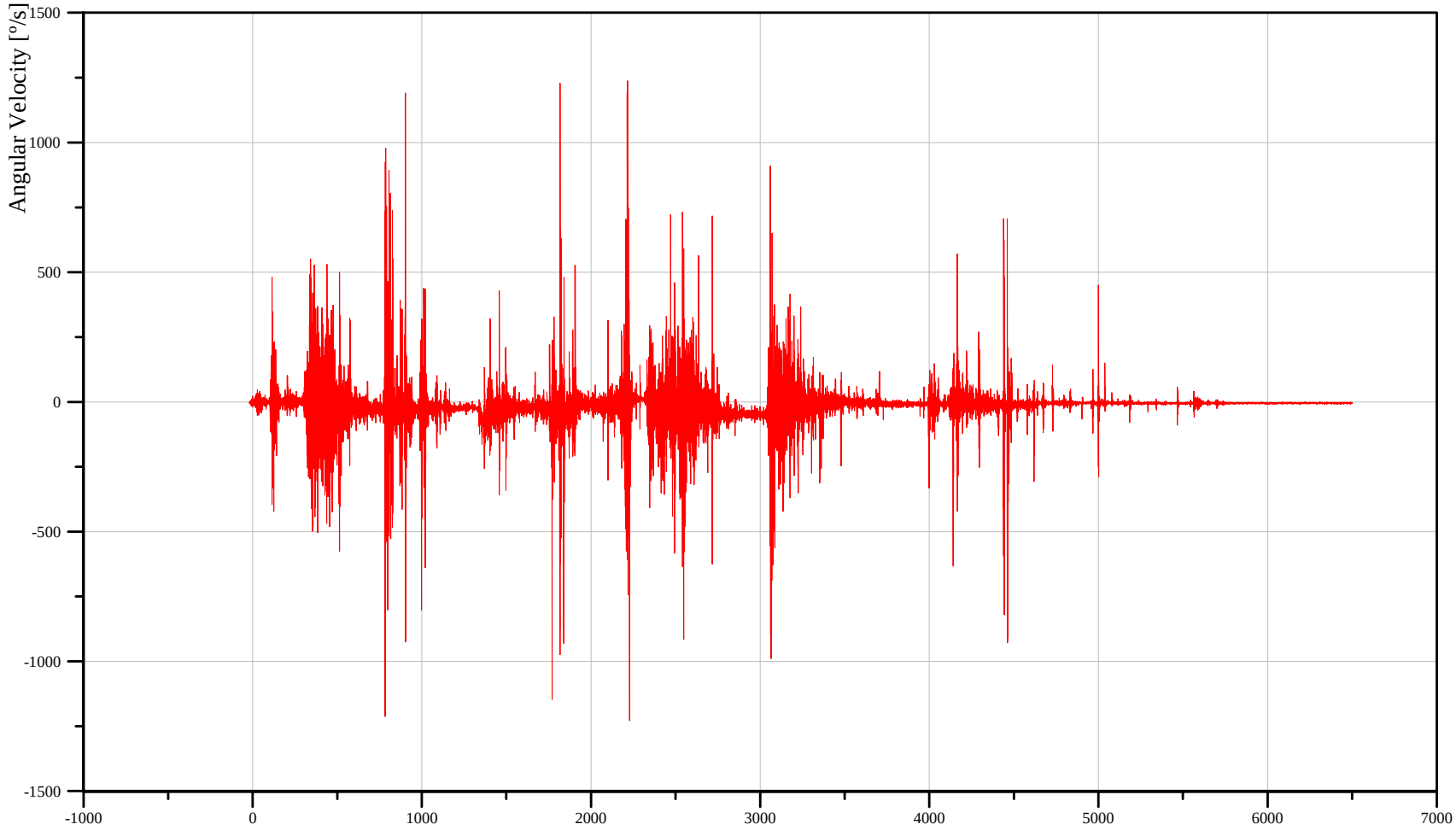
Rear Deck Yaw Rate Redundant

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10VEHCREDK00AVZB

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_600

Min. Value
-1,228.11 °/s at 2,227.84 ms

Max. Value
1,238.27 °/s at 2,214.48 ms

Soil Trip Rollover 2007 Ford Expedition

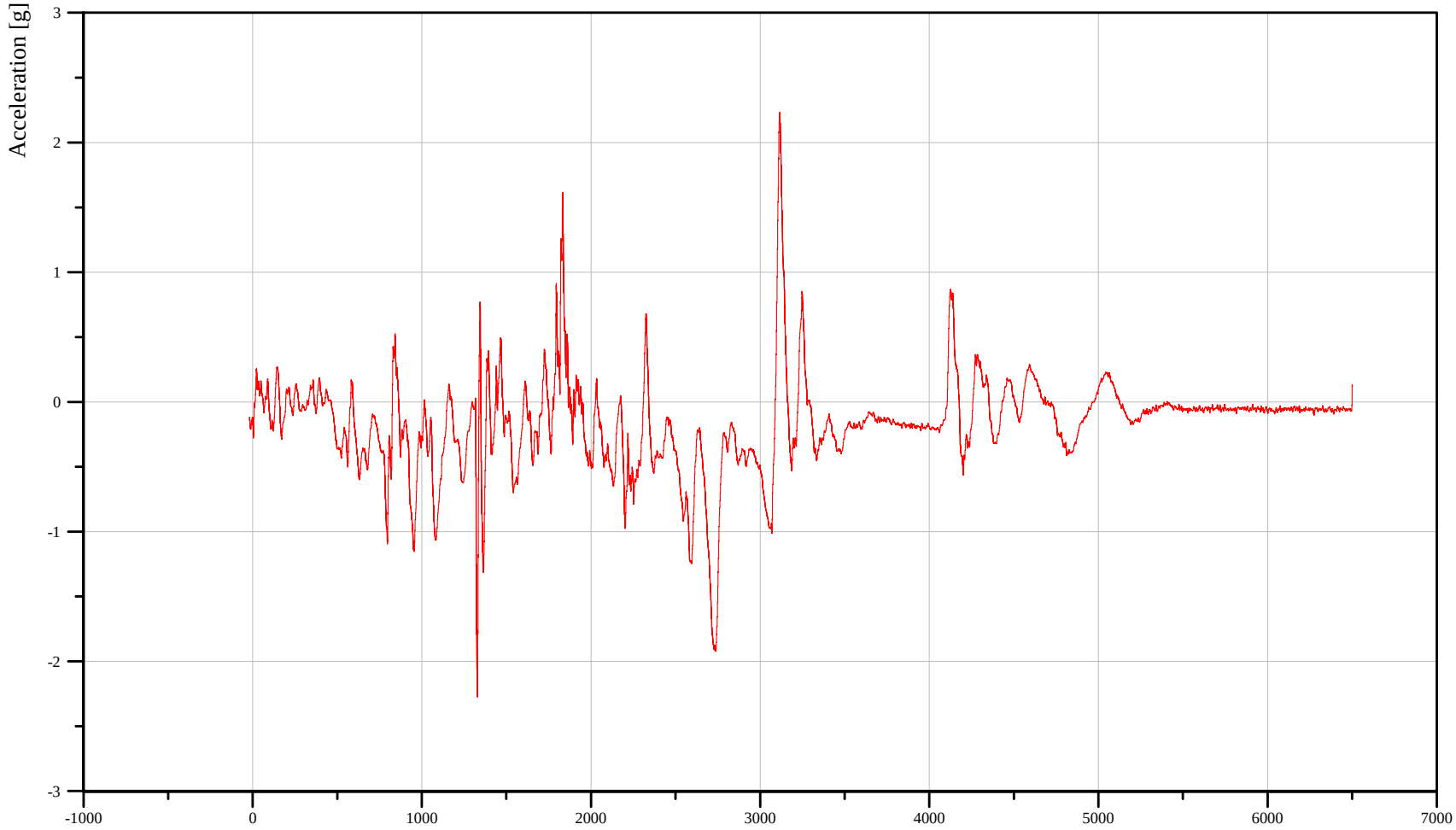
Top of Engine X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10ENGNTP0000ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-2.28 g at 1,328.08 ms

Max. Value
2.23 g at 3,115.28 ms

091215

Soil Trip Rollover 2007 Ford Expedition

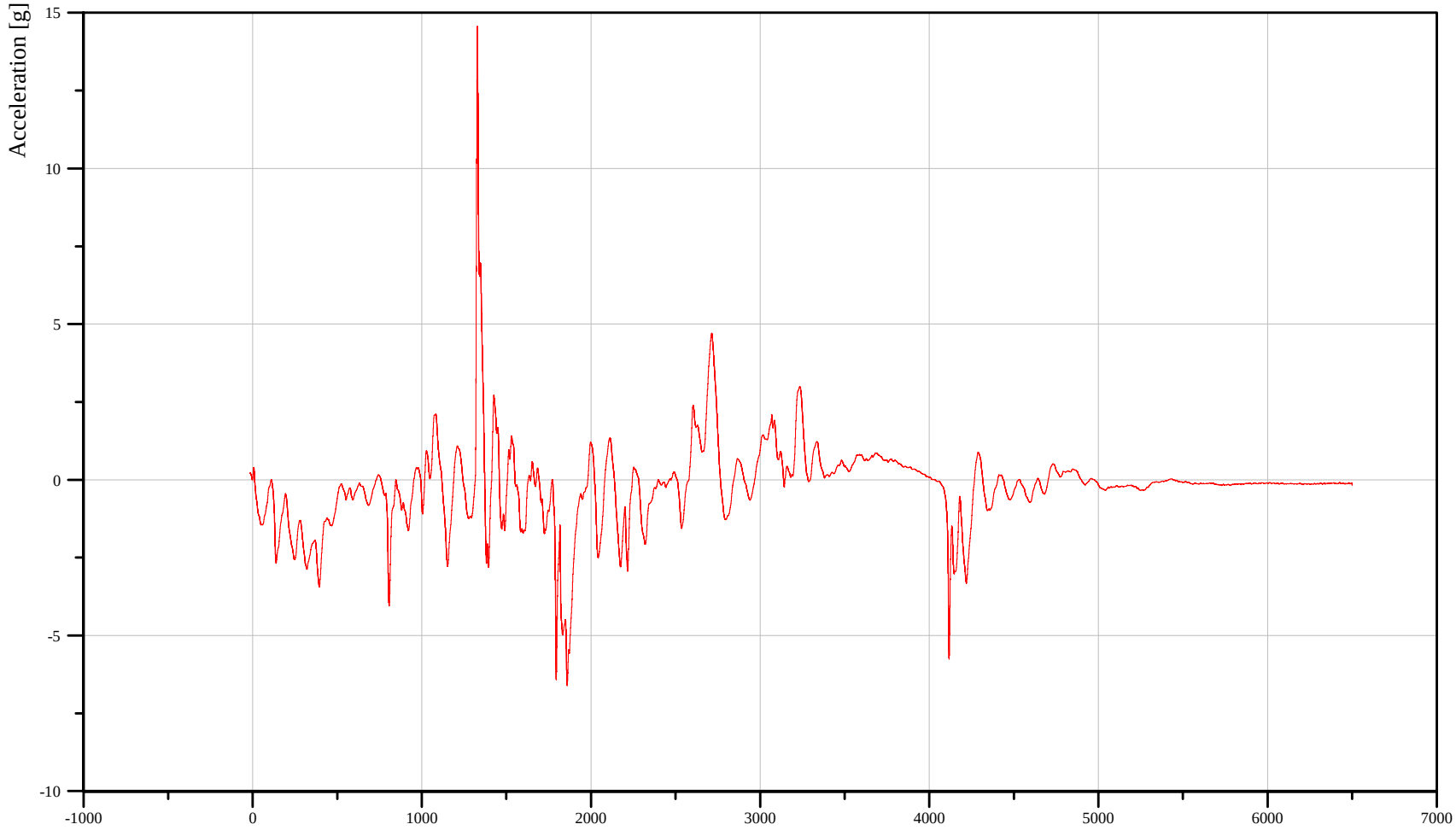
Top of Engine Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10ENGNTP0000ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-6.61 g at 1,858.32 ms

Max. Value
14.57 g at 1,327.76 ms

Soil Trip Rollover 2007 Ford Expedition

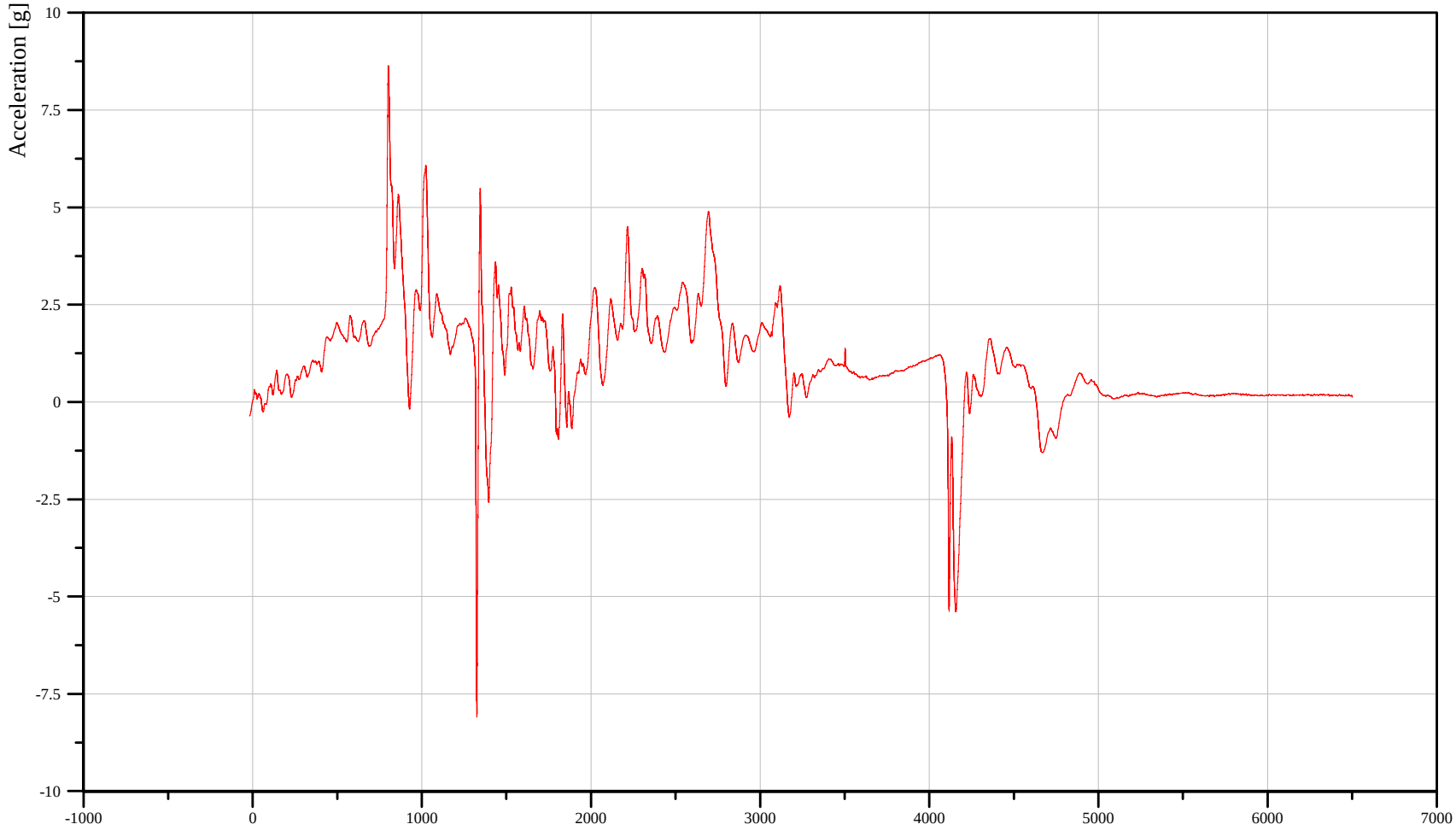
Top of Engine Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10ENGNTP0000ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-8.09 g at 1,324.64 ms

Max. Value
8.65 g at 801.44 ms

Soil Trip Rollover 2007 Ford Expedition

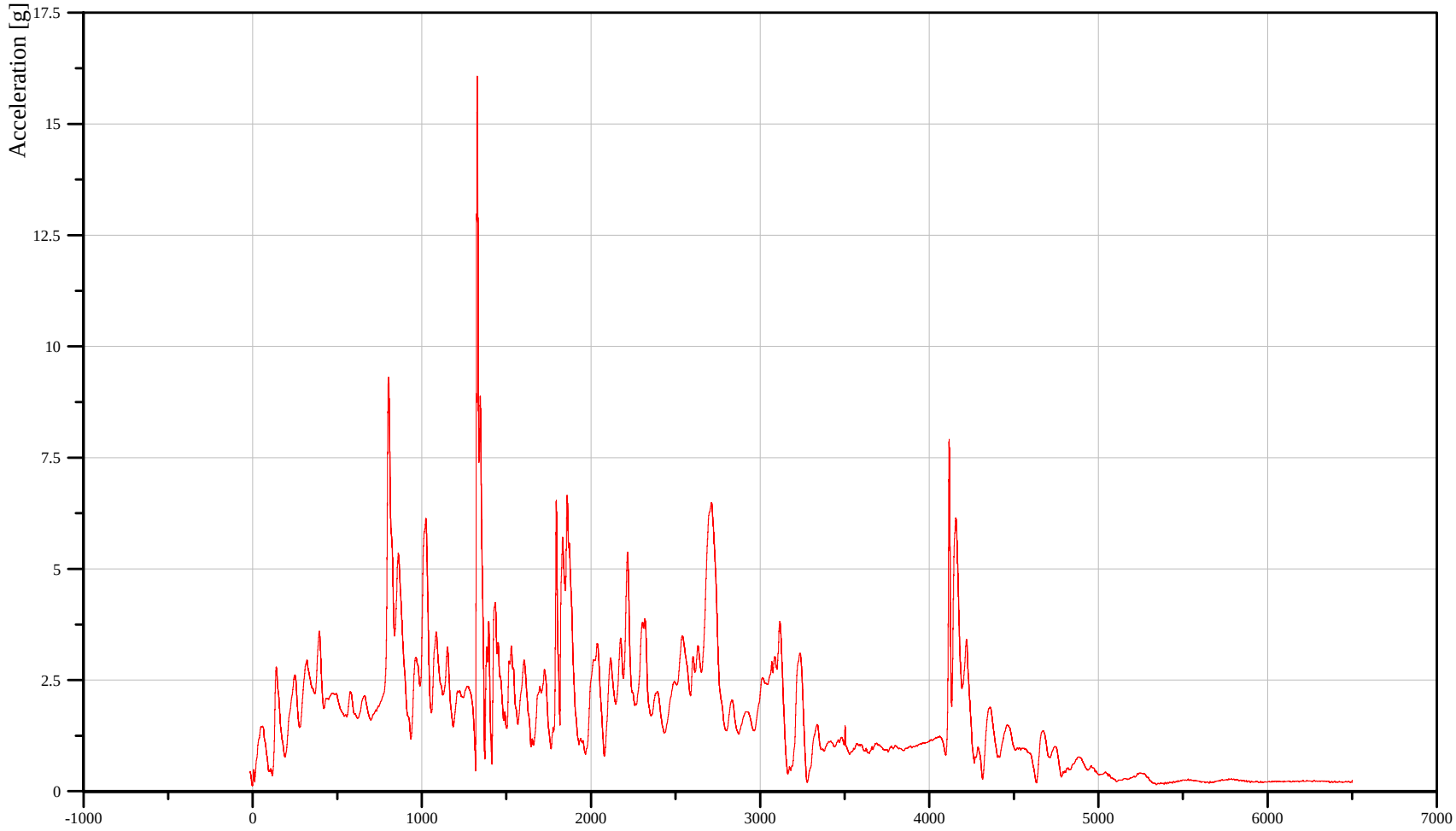
Top of Engine Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10ENGNTP0000ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.12 g at -1.68 ms

Max. Value
16.07 g at 1,327.12 ms

Soil Trip Rollover 2007 Ford Expedition

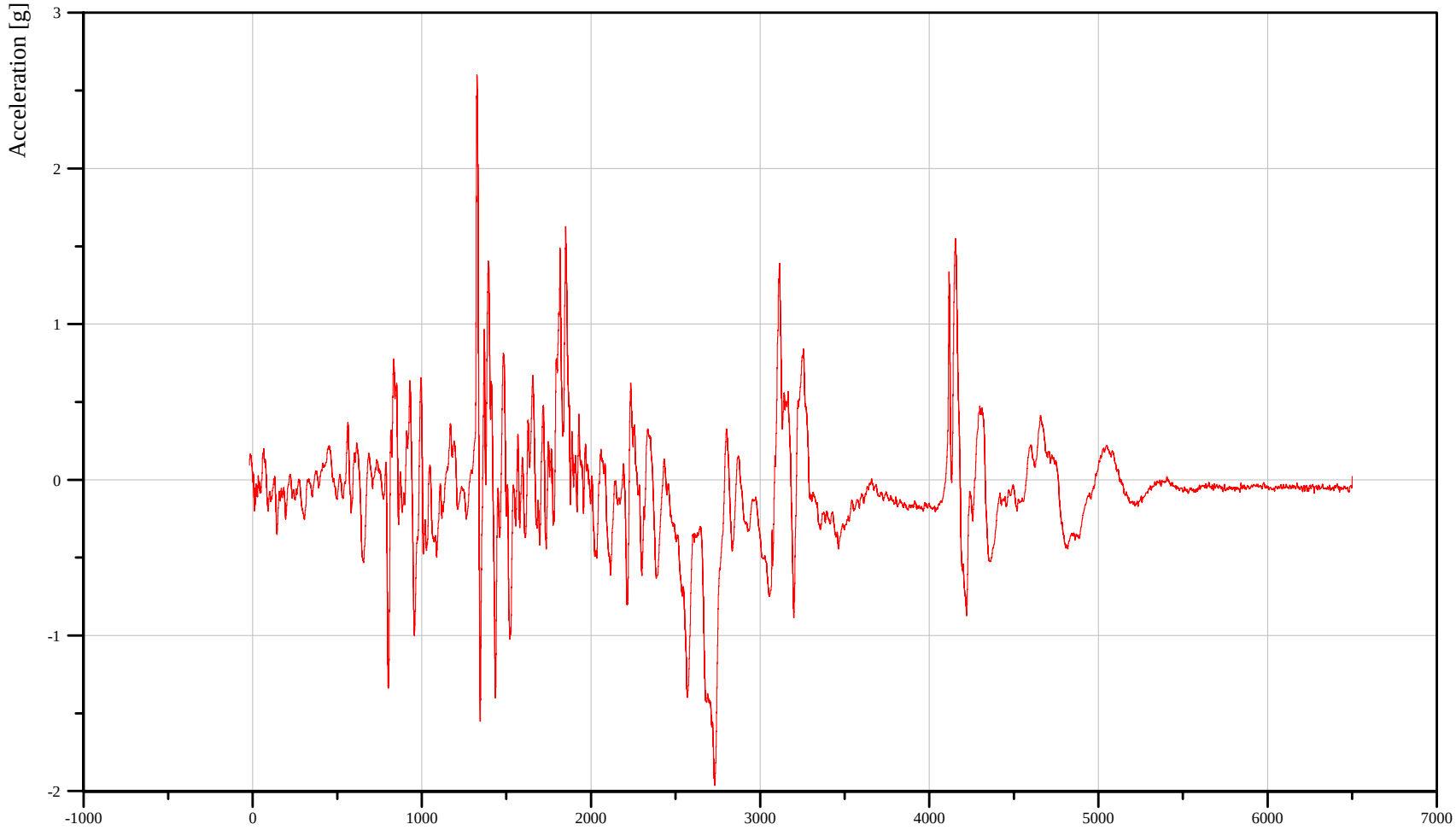
Bottom of Engine X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10ENGNBO0000ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-1.96 g at 2,731.20 ms

Max. Value
2.60 g at 1,324.88 ms

Soil Trip Rollover 2007 Ford Expedition

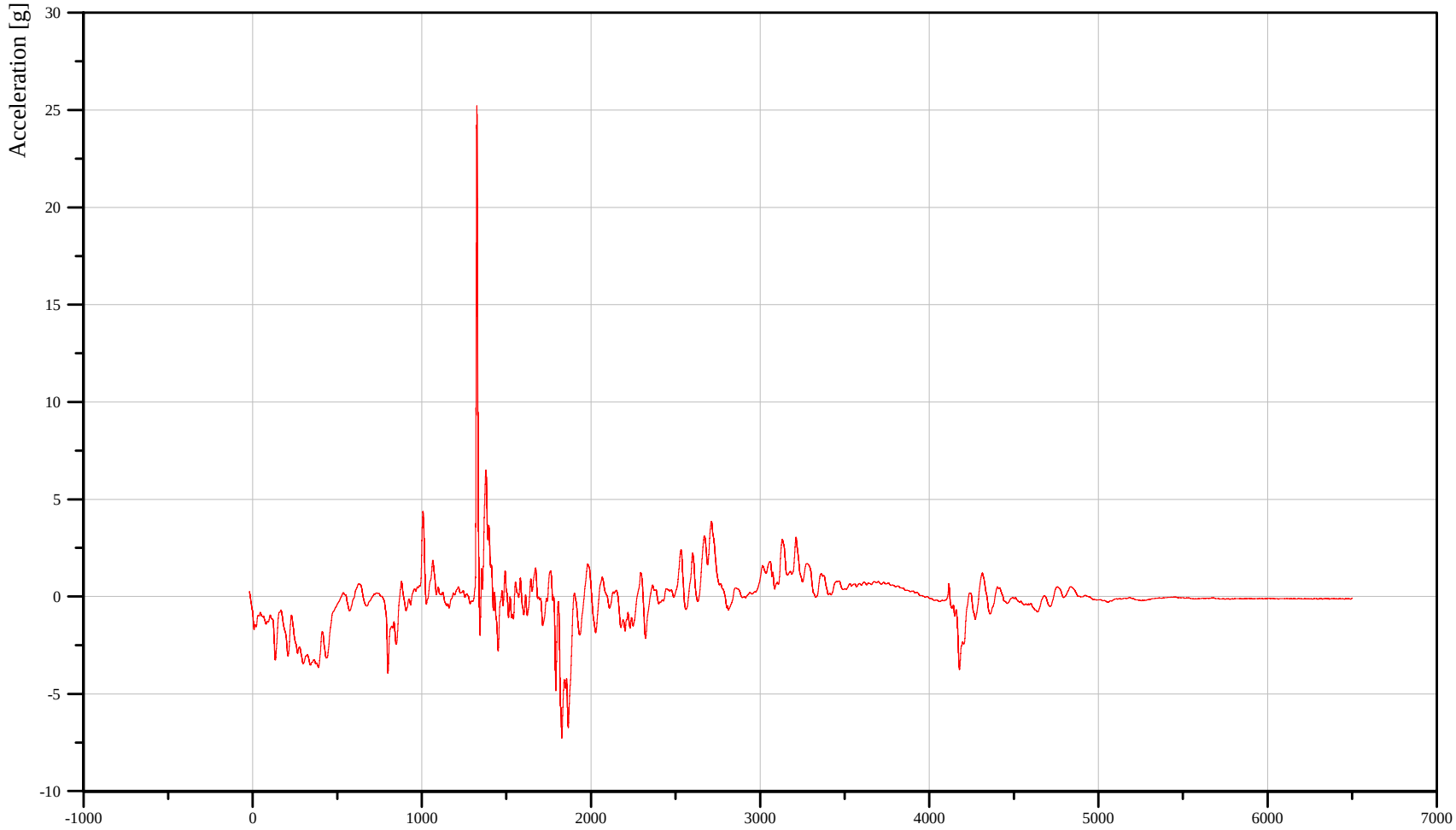
Bottom of Engine Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10ENGNBO0000ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-7.28 g at 1,827.28 ms

Max. Value
25.22 g at 1,324.56 ms

Soil Trip Rollover 2007 Ford Expedition

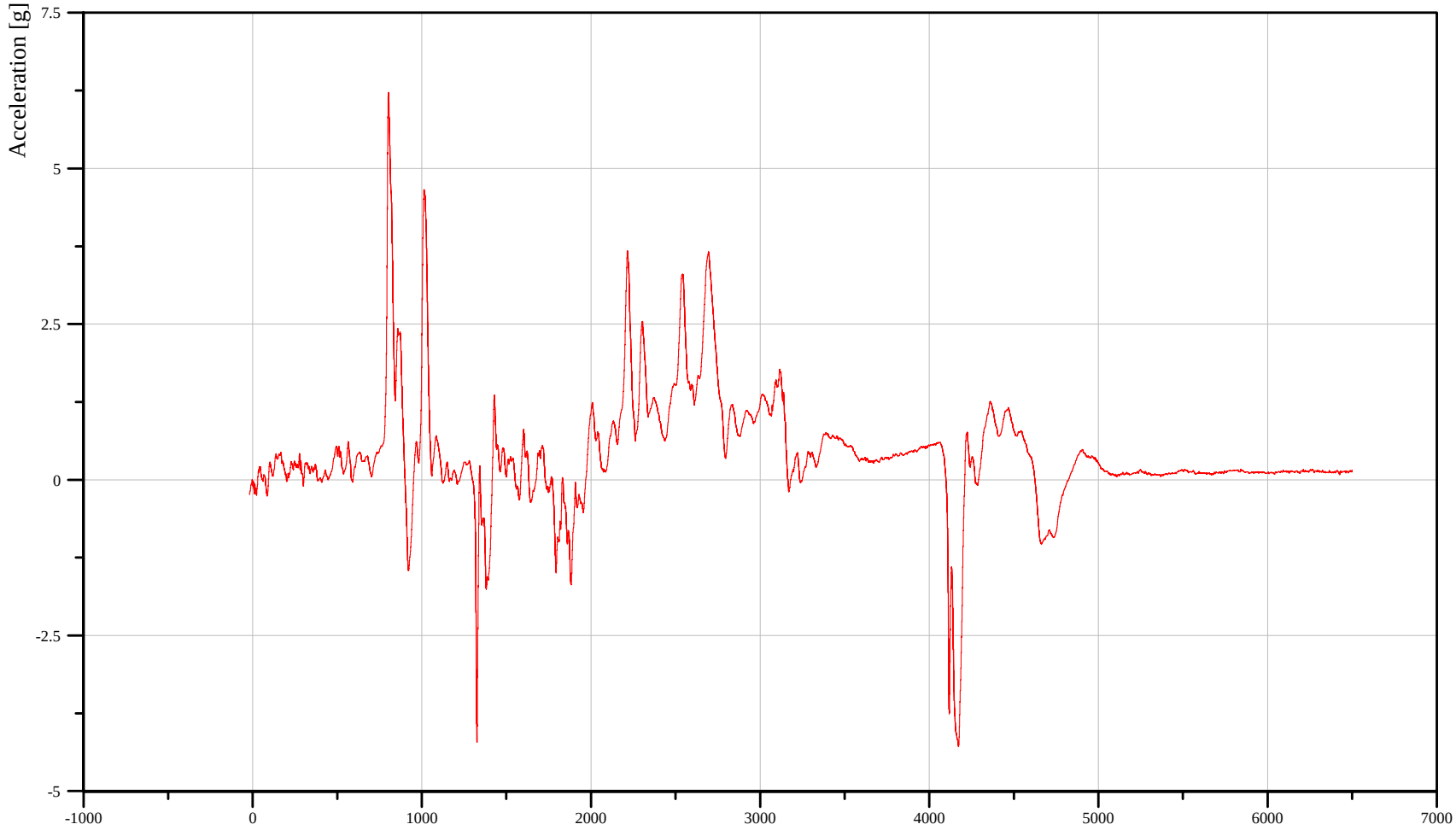
Bottom of Engine Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10ENGNBO0000ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-4.28 g at 4,171.68 ms

Max. Value
6.22 g at 802.08 ms

Soil Trip Rollover 2007 Ford Expedition

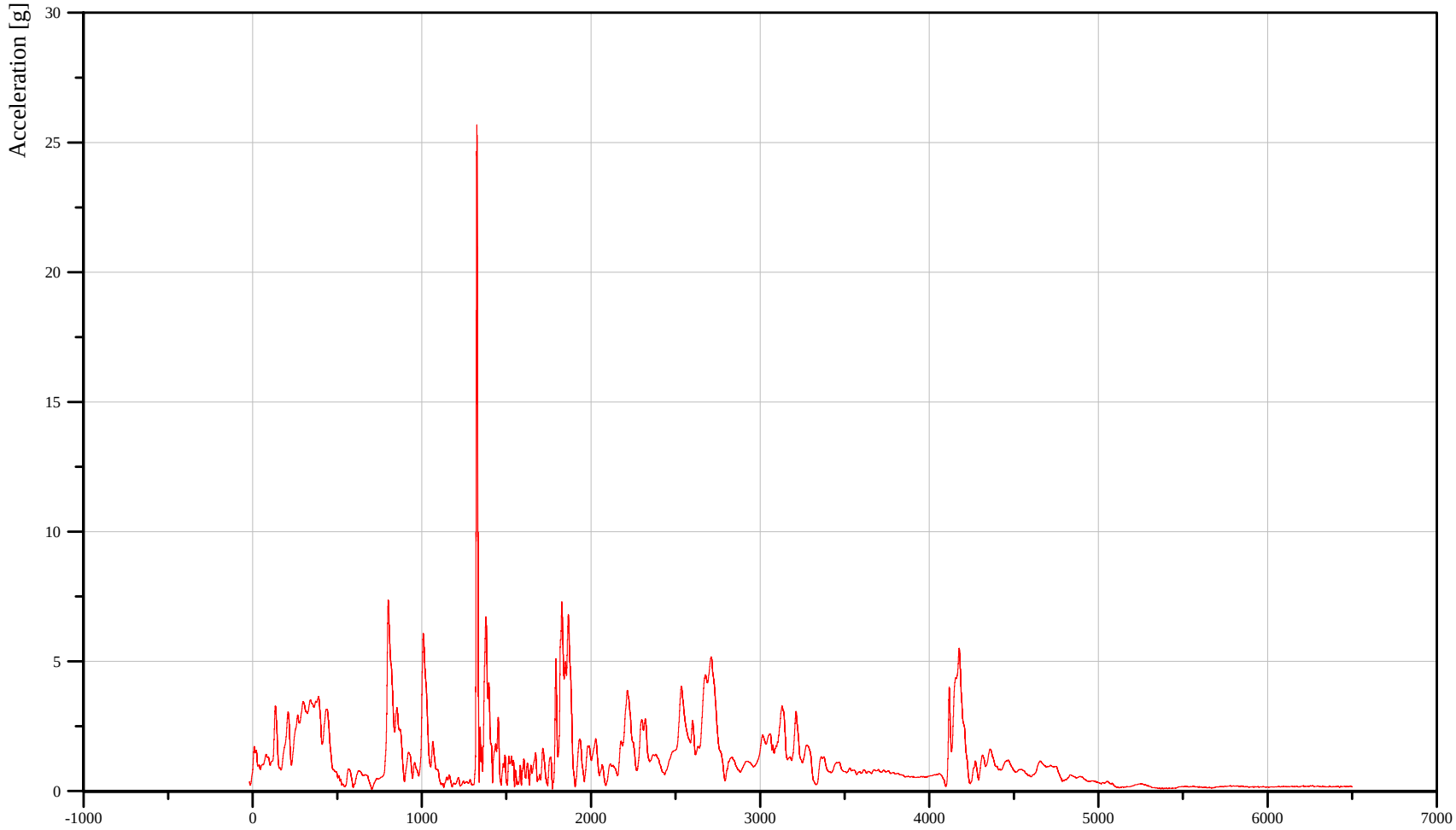
Bottom of Engine Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10ENGNBO0000ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.07 g at 704.00 ms

Max. Value
25.69 g at 1,324.56 ms

Soil Trip Rollover 2007 Ford Expedition

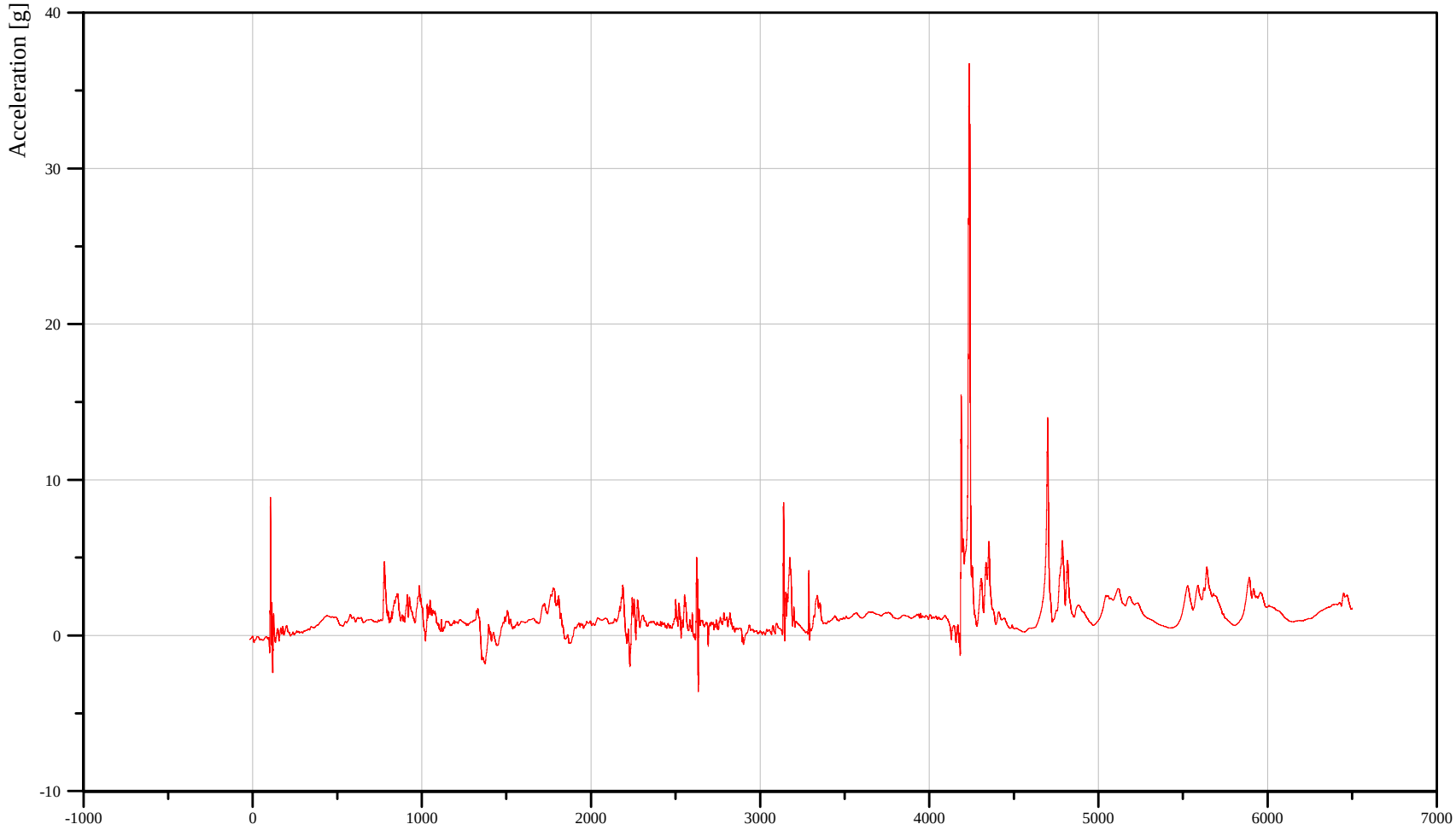
Left A-Pillar Upper X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILUPLE00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-3.62 g at 2,633.84 ms

Max. Value
36.74 g at 4,235.36 ms

Soil Trip Rollover 2007 Ford Expedition

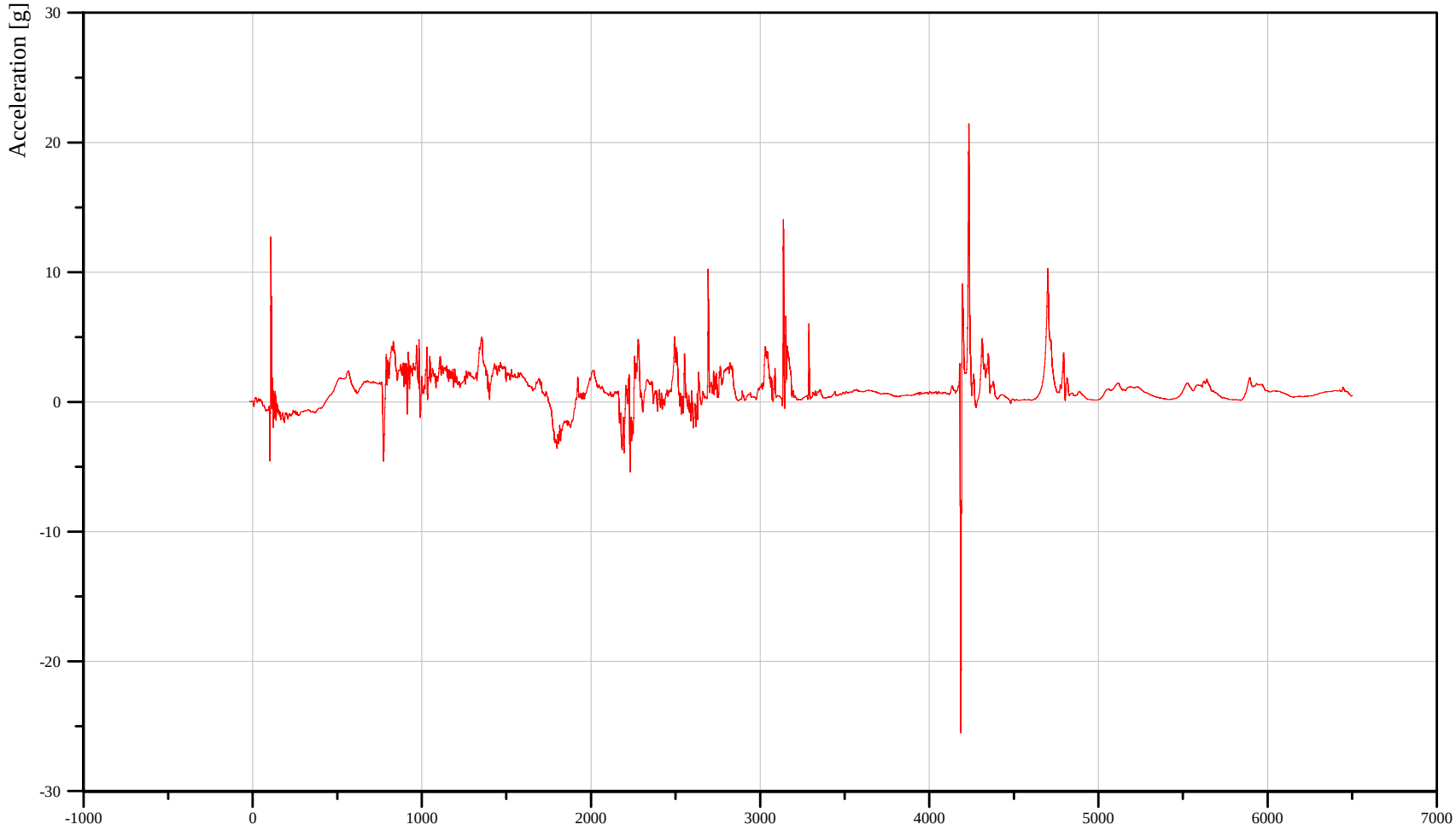
Left A-Pillar Upper Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILUPLE00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-25.53 g at 4,186.64 ms

Max. Value
21.44 g at 4,233.04 ms

Soil Trip Rollover 2007 Ford Expedition

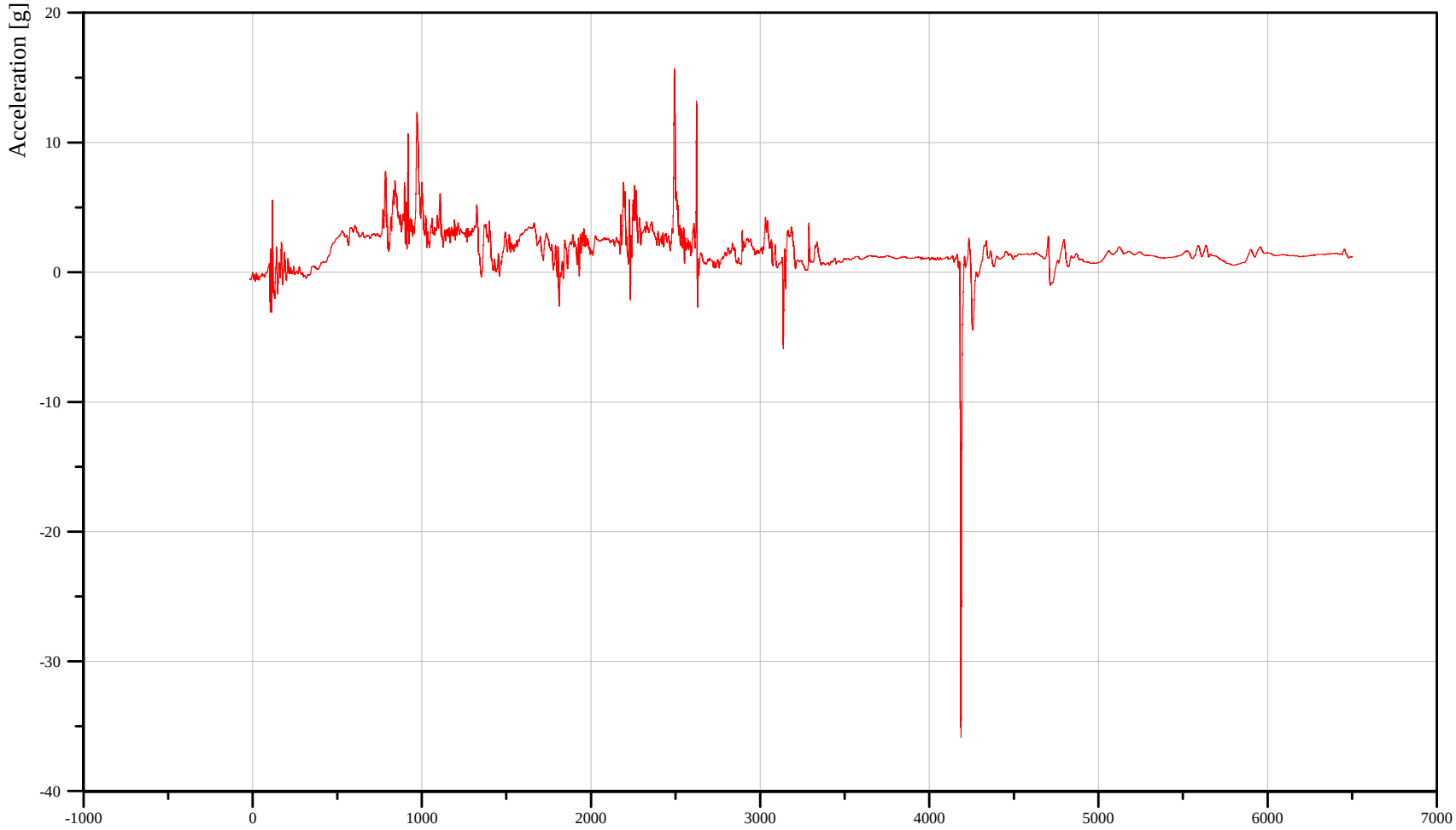
Left A-Pillar Upper Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILUPLE00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-35.87 g at 4,187.28 ms

Max. Value
15.73 g at 2,492.08 ms

Soil Trip Rollover 2007 Ford Expedition

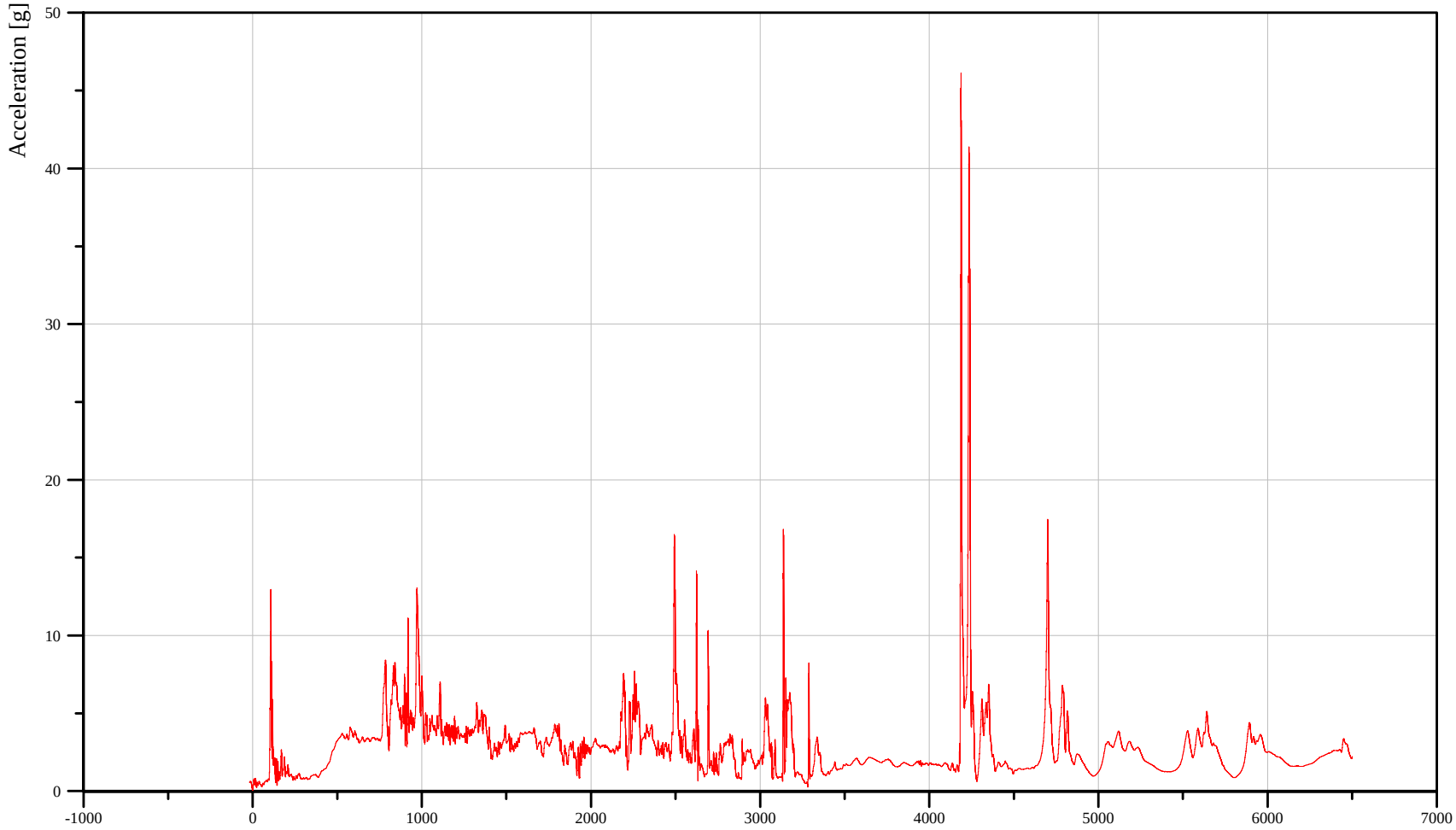
Left A-Pillar Upper Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILUPLE00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.06 g at -0.80 ms

Max. Value
46.13 g at 4,187.12 ms

Soil Trip Rollover 2007 Ford Expedition

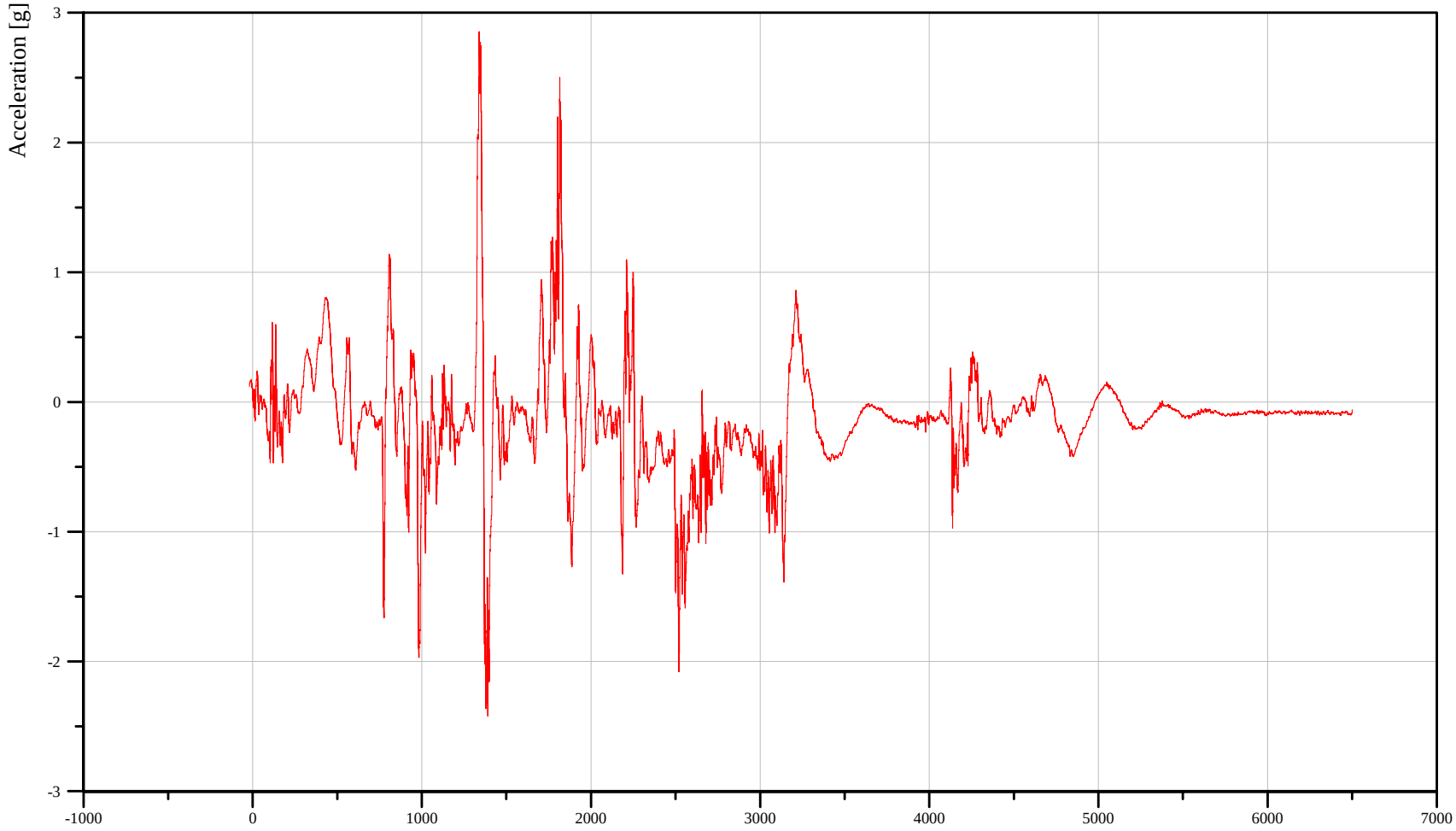
Left A-Pillar Lower X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILLOLE00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-2.42 g at 1,389.36 ms

Max. Value
2.86 g at 1,338.24 ms

091215

Soil Trip Rollover 2007 Ford Expedition

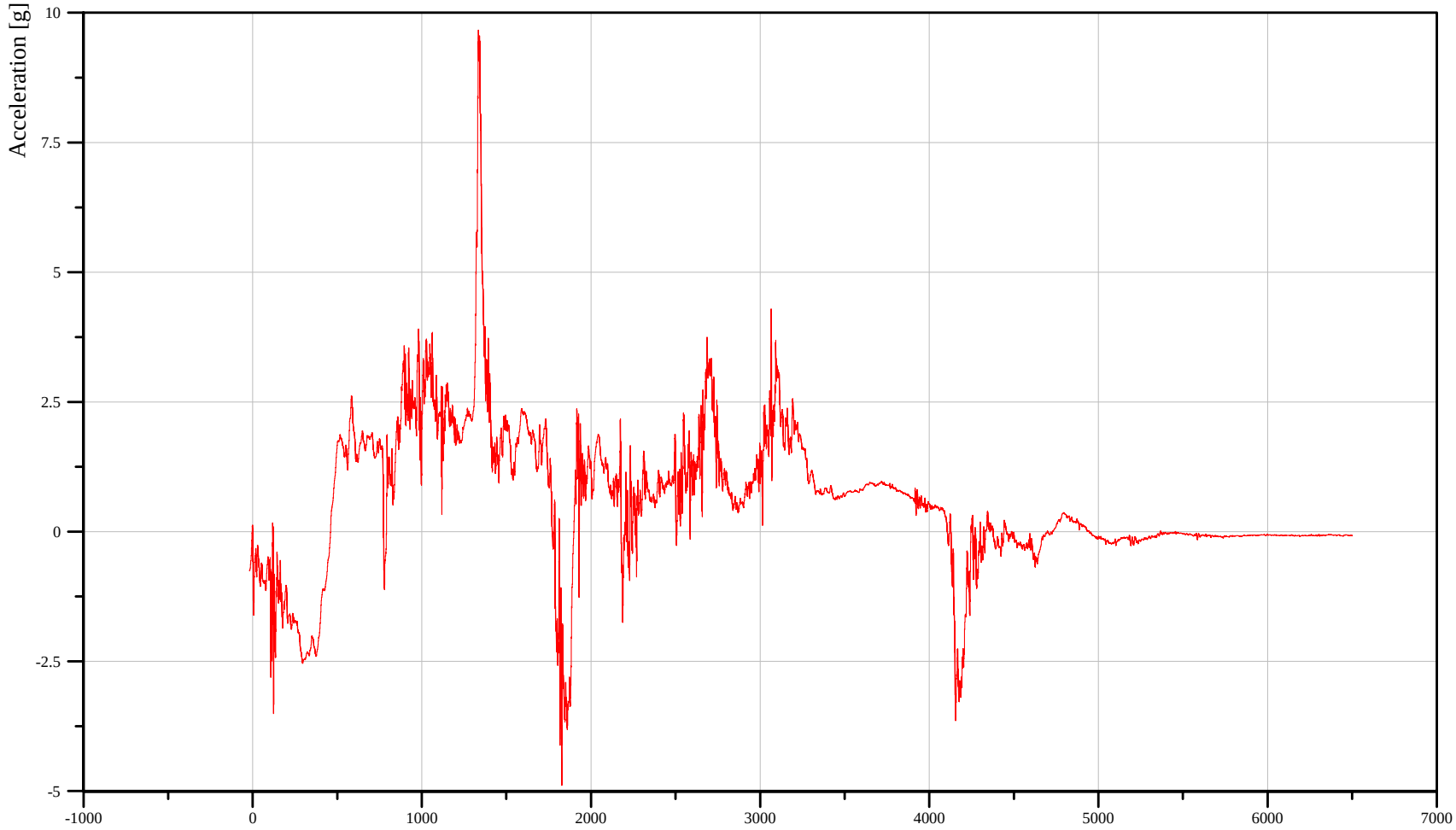
Left A-Pillar Lower Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILLOLE00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-4.89 g at 1,826.64 ms

Max. Value
9.67 g at 1,333.44 ms

Soil Trip Rollover 2007 Ford Expedition

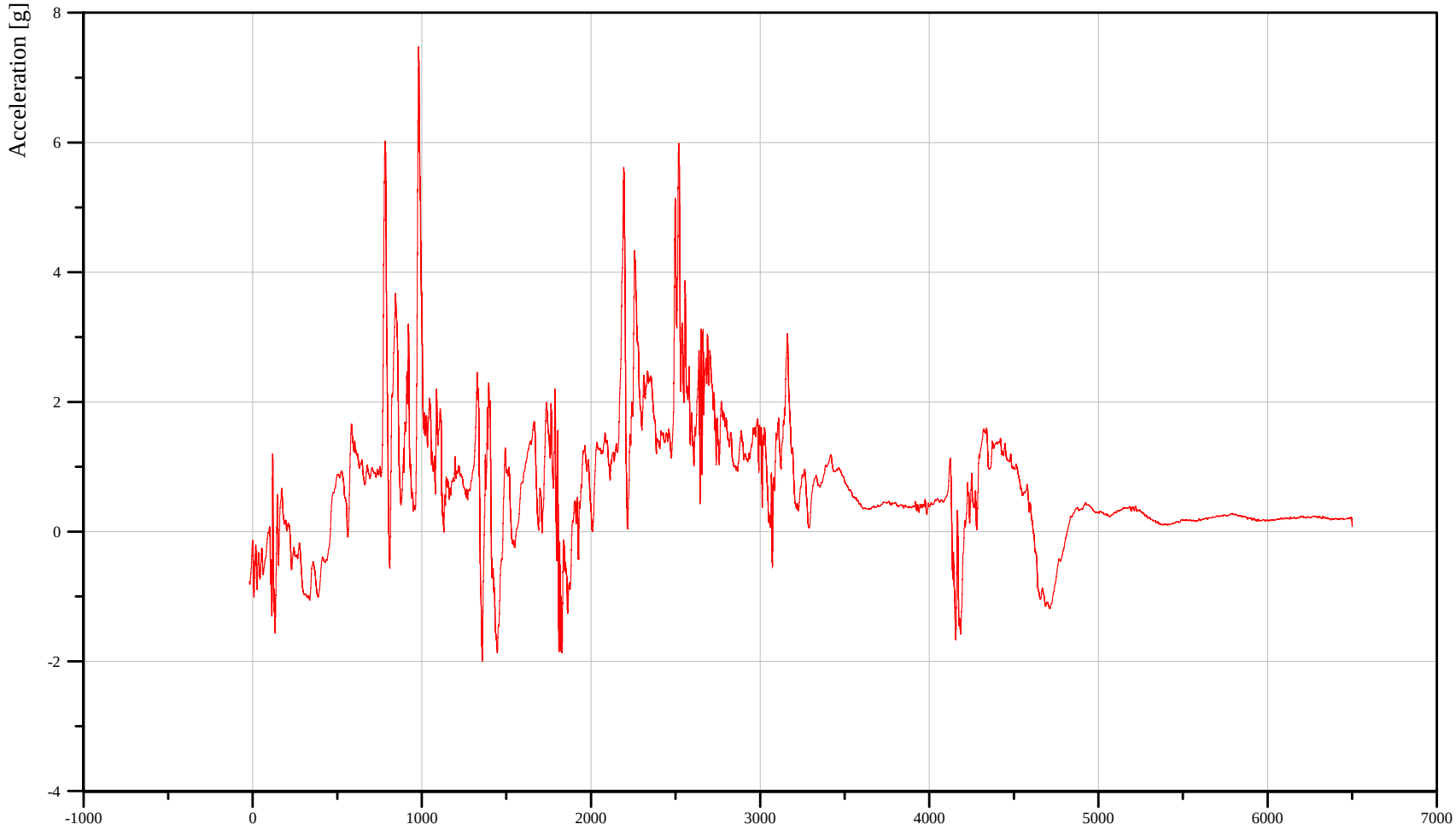
Left A-Pillar Lower Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILLOLE00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-2.00 g at 1,356.64 ms

Max. Value
7.47 g at 980.64 ms

Soil Trip Rollover 2007 Ford Expedition

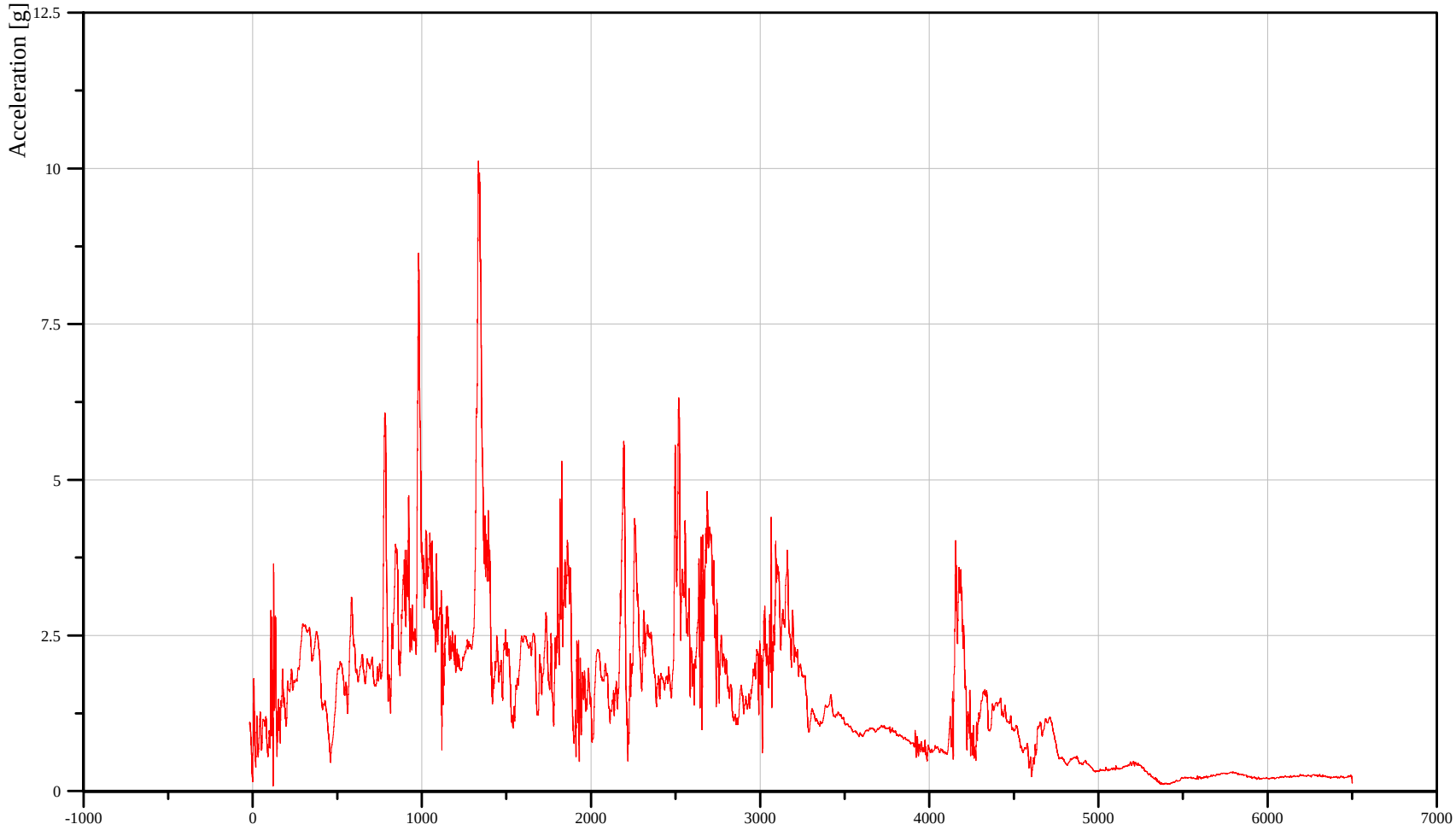
Left A-Pillar Lower Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILLOLE00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.08 g at 120.08 ms

Max. Value
10.12 g at 1,333.44 ms

Soil Trip Rollover 2007 Ford Expedition

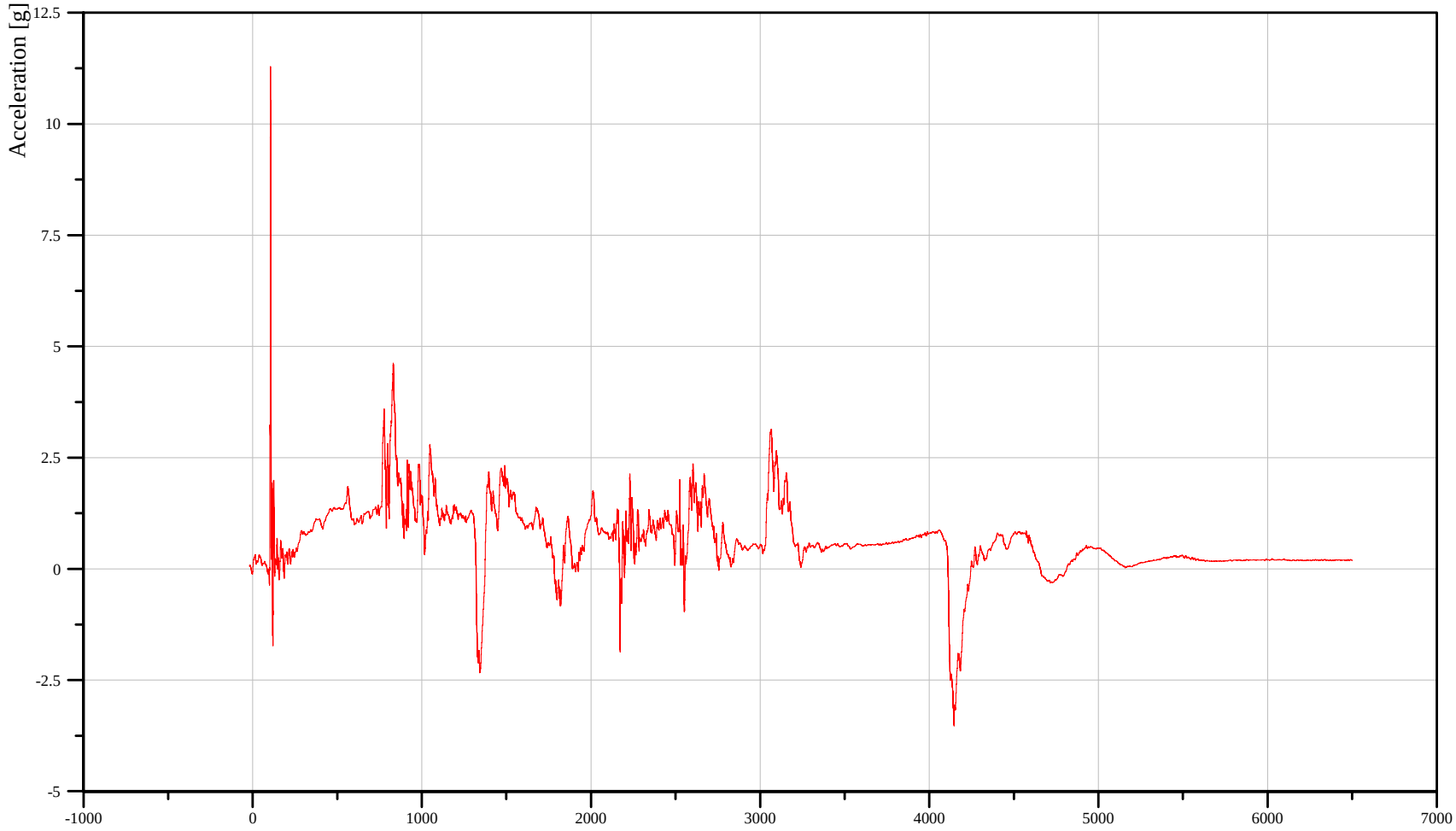
Right A-Pillar Upper X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILUPRI00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-3.53 g at 4,145.92 ms

Max. Value
11.29 g at 104.96 ms

Soil Trip Rollover 2007 Ford Expedition

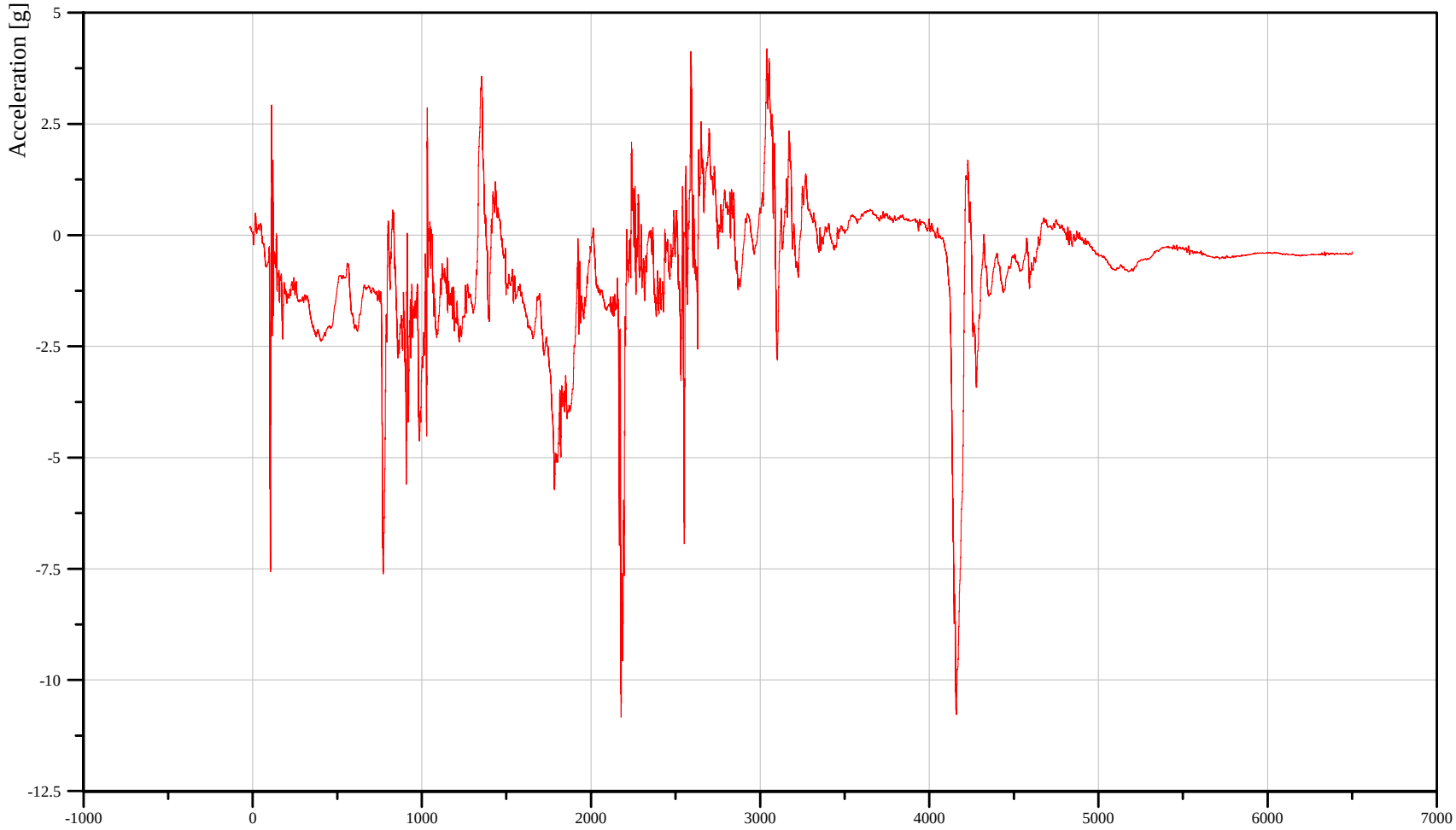
Right A-Pillar Upper Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILUPRI00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-10.84 g at 2,177.60 ms

Max. Value
4.20 g at 3,039.36 ms

Soil Trip Rollover 2007 Ford Expedition

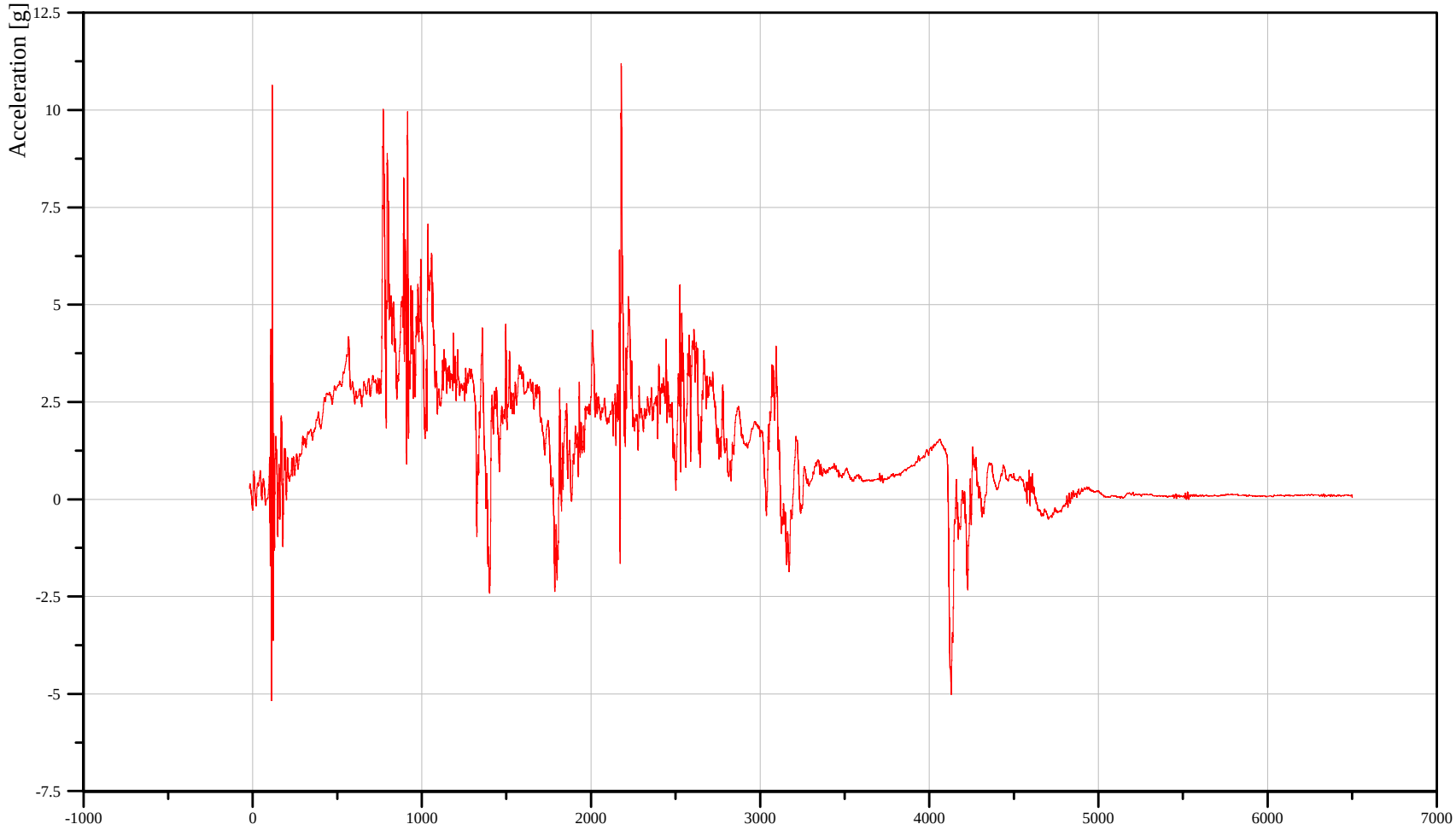
Right A-Pillar Upper Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILUPRI00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-5.17 g at 111.04 ms

Max. Value
11.20 g at 2,178.08 ms

Soil Trip Rollover 2007 Ford Expedition

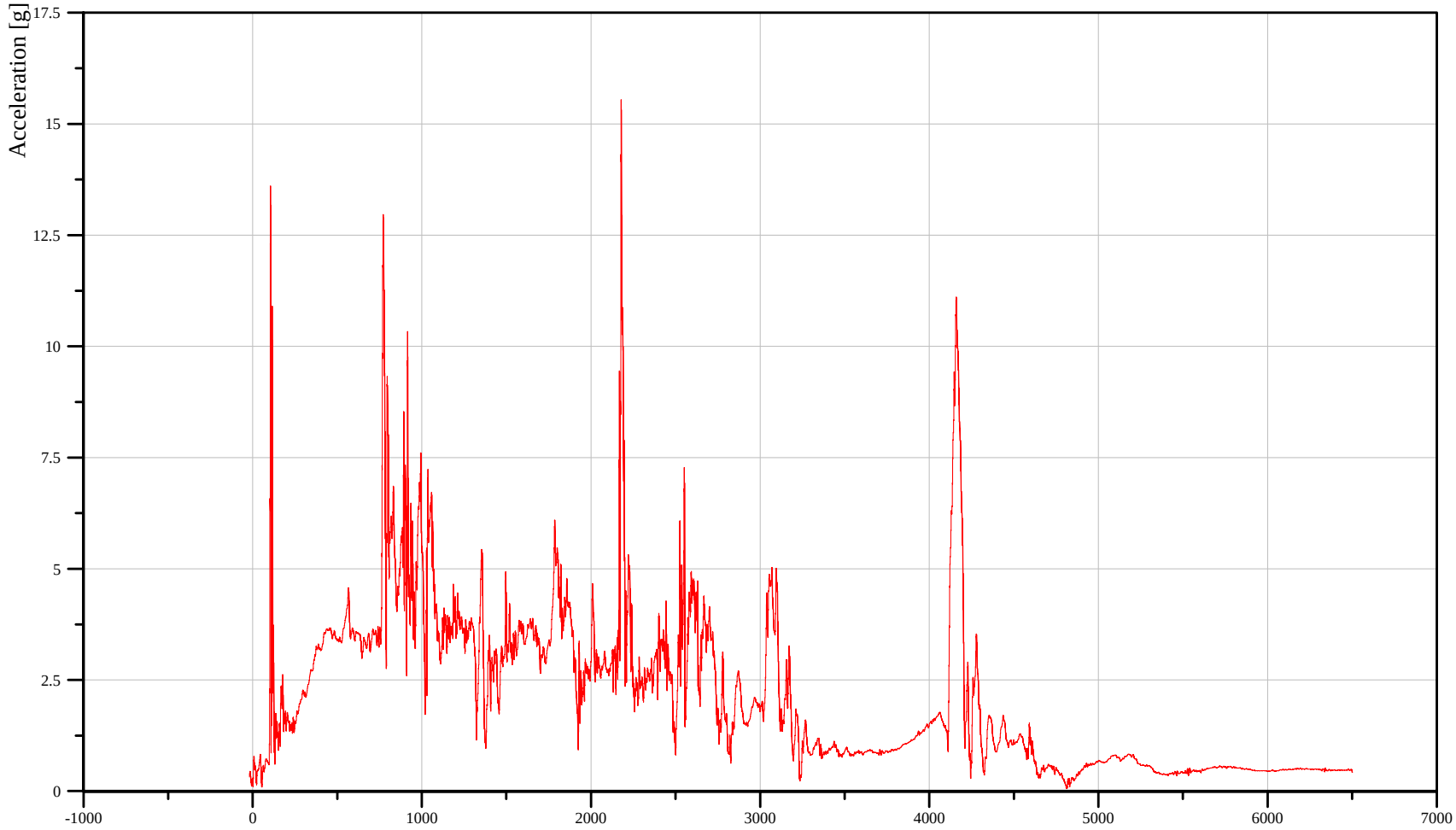
Right A-Pillar Upper Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILUPRI00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.06 g at 4,814.48 ms

Max. Value
15.55 g at 2,177.84 ms

Soil Trip Rollover 2007 Ford Expedition

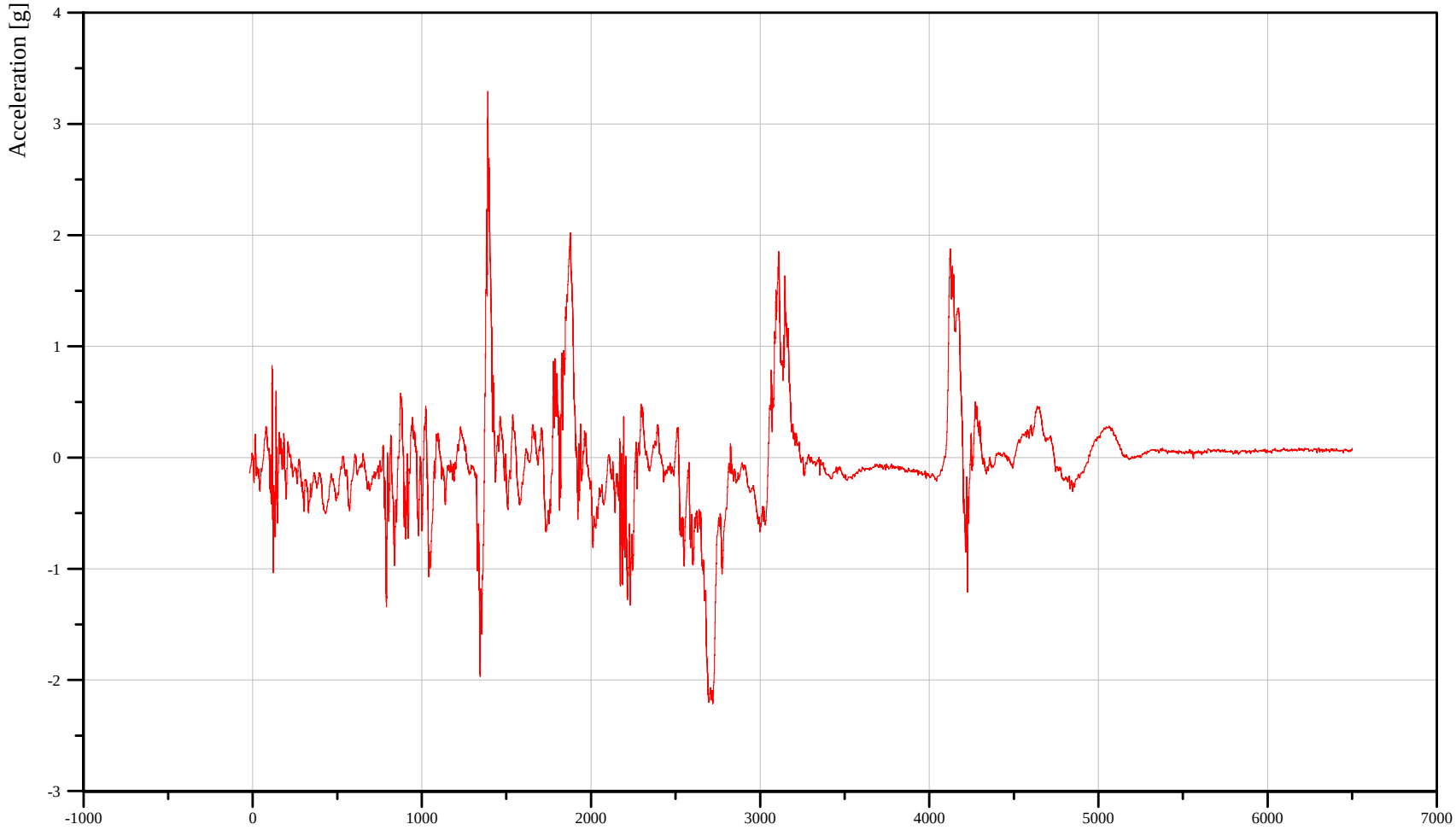
Right A-Pillar Lower X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILLORI00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-2.21 g at 2,720.00 ms

Max. Value
3.29 g at 1,389.04 ms

Soil Trip Rollover 2007 Ford Expedition

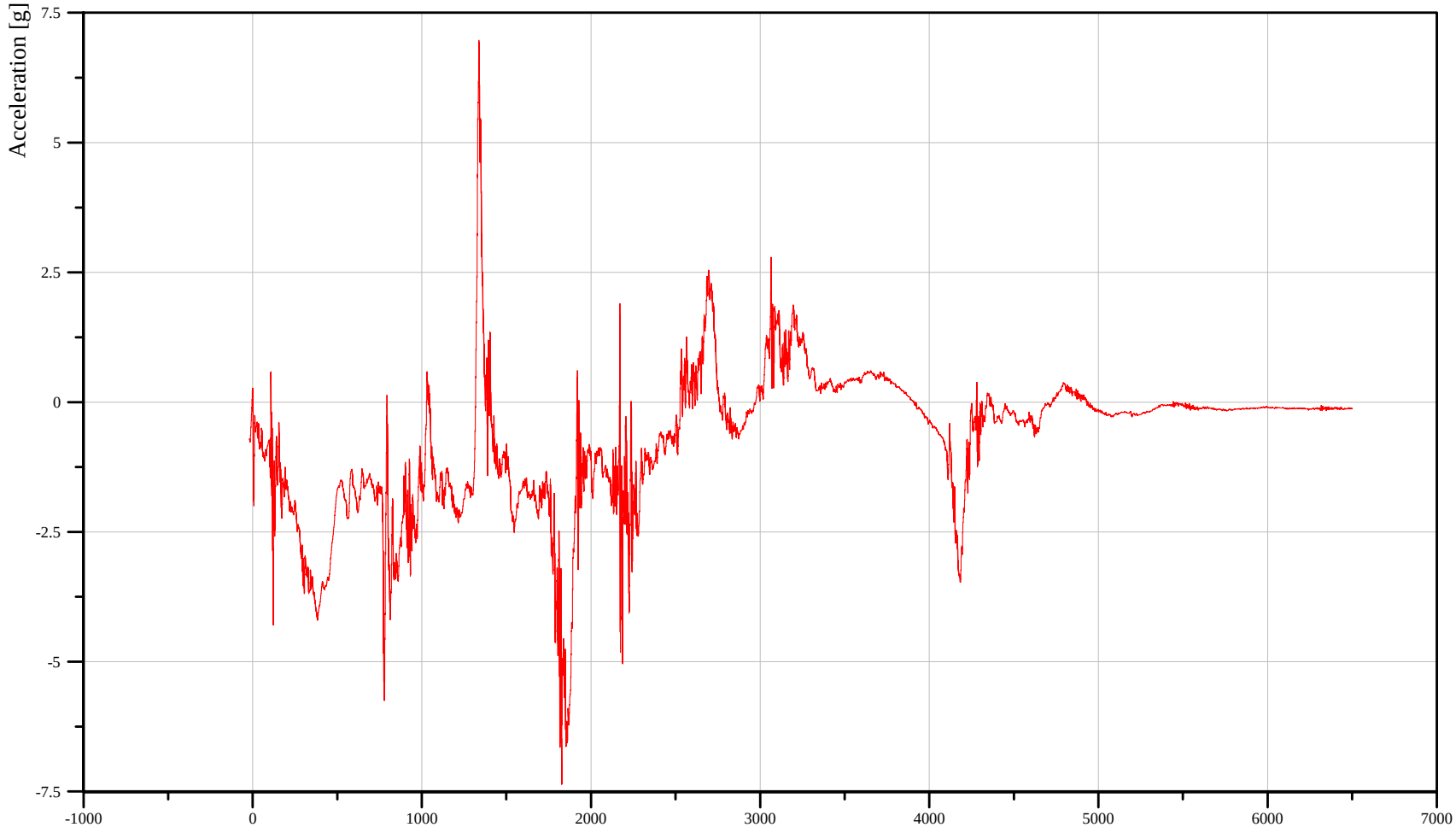
Right A-Pillar Lower Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILLORI00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-7.36 g at 1,826.16 ms

Max. Value
6.97 g at 1,337.44 ms

Soil Trip Rollover 2007 Ford Expedition

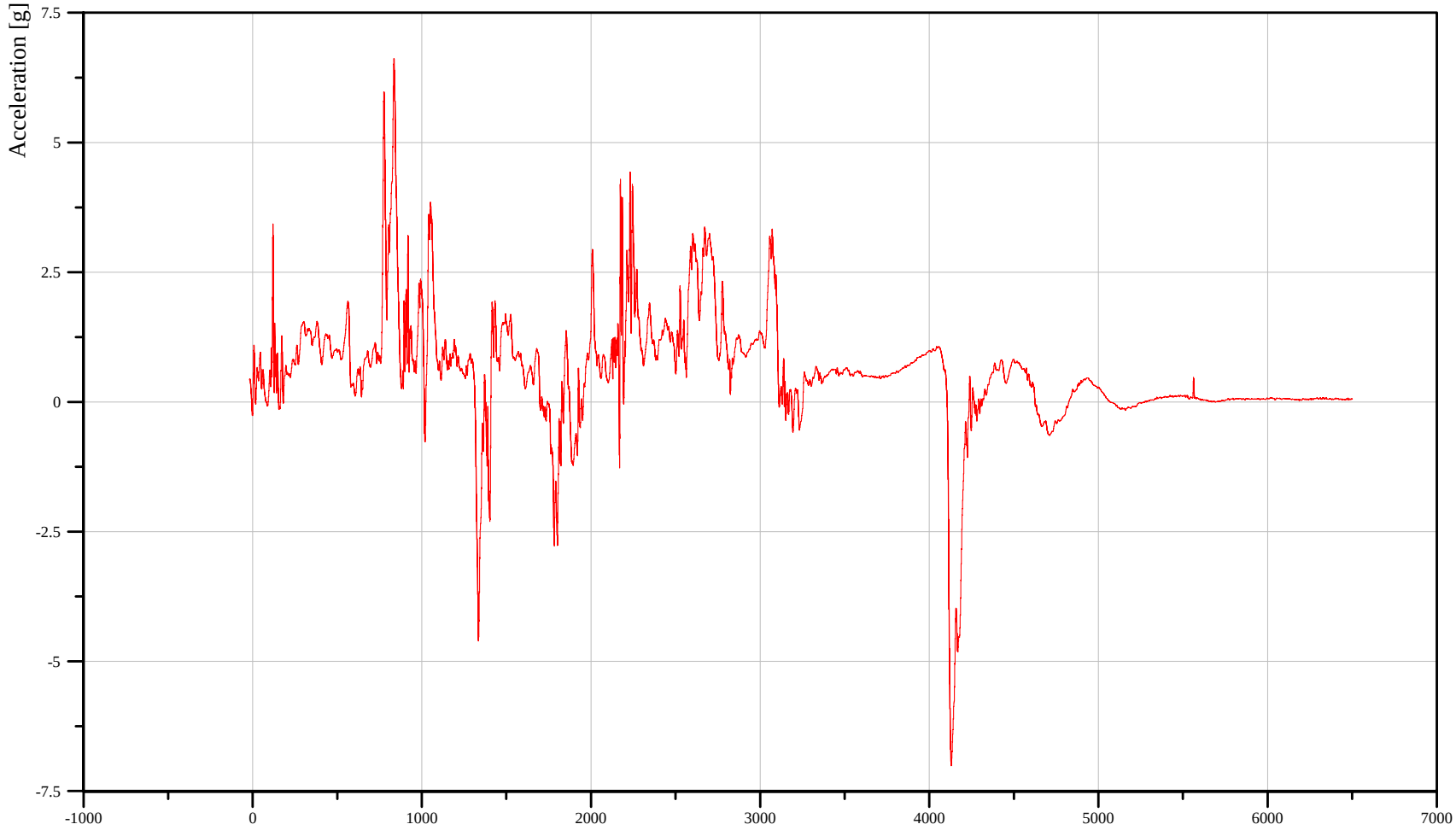
Right A-Pillar Lower Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILLORI00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-7.01 g at 4,128.96 ms

Max. Value
6.62 g at 834.64 ms

Soil Trip Rollover 2007 Ford Expedition

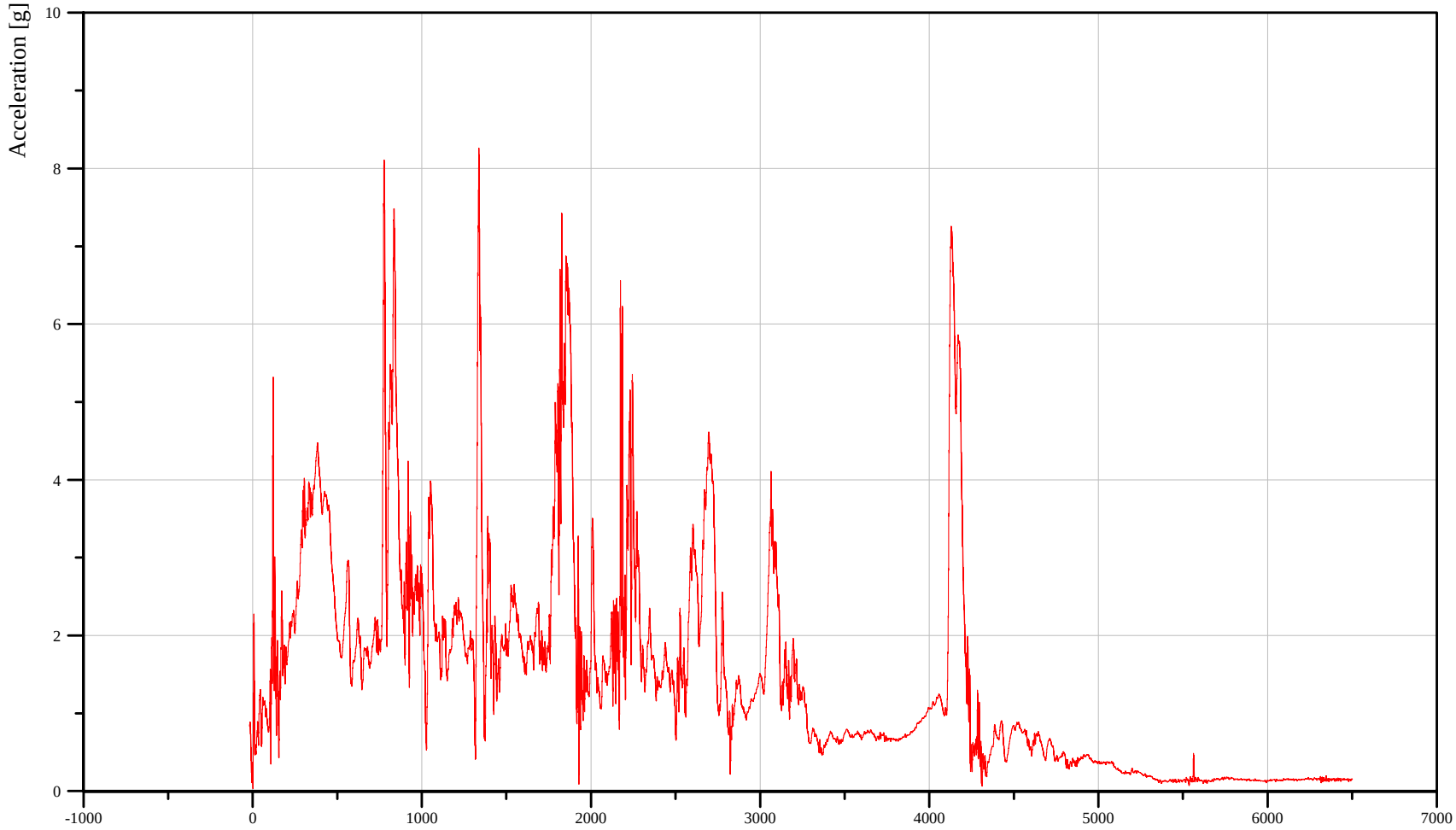
Right A-Pillar Lower Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10APILLORI00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.03 g at 1.20 ms

Max. Value
8.26 g at 1,337.28 ms

Soil Trip Rollover 2007 Ford Expedition

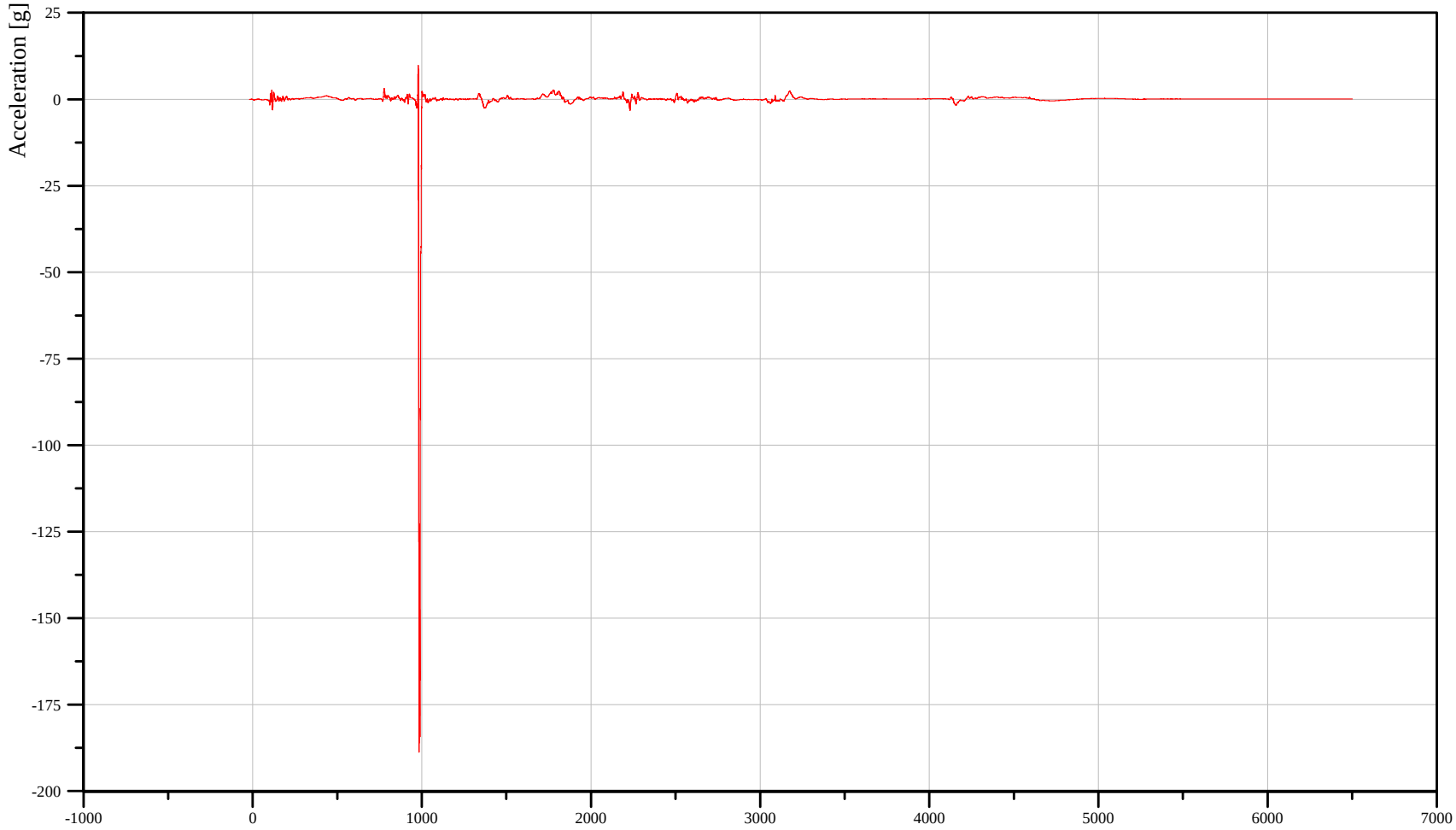
Left B-Pillar Upper X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILUPLE00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-188.82 g at 983.68 ms

Max. Value
9.82 g at 978.00 ms

Soil Trip Rollover 2007 Ford Expedition

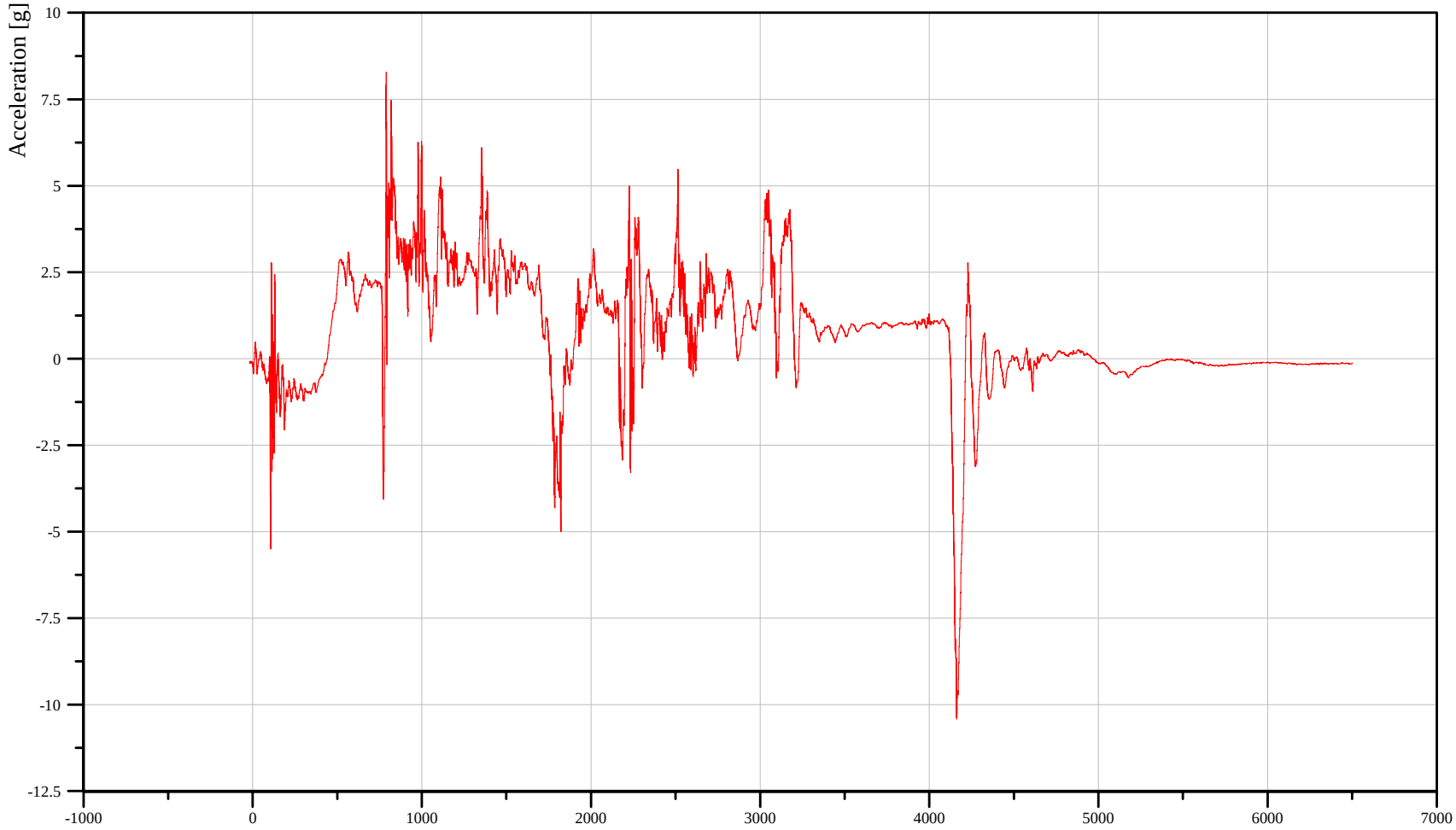
Left B-Pillar Upper Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILUPLE00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-10.42 g at 4,161.92 ms

Max. Value
8.29 g at 788.96 ms

Soil Trip Rollover 2007 Ford Expedition

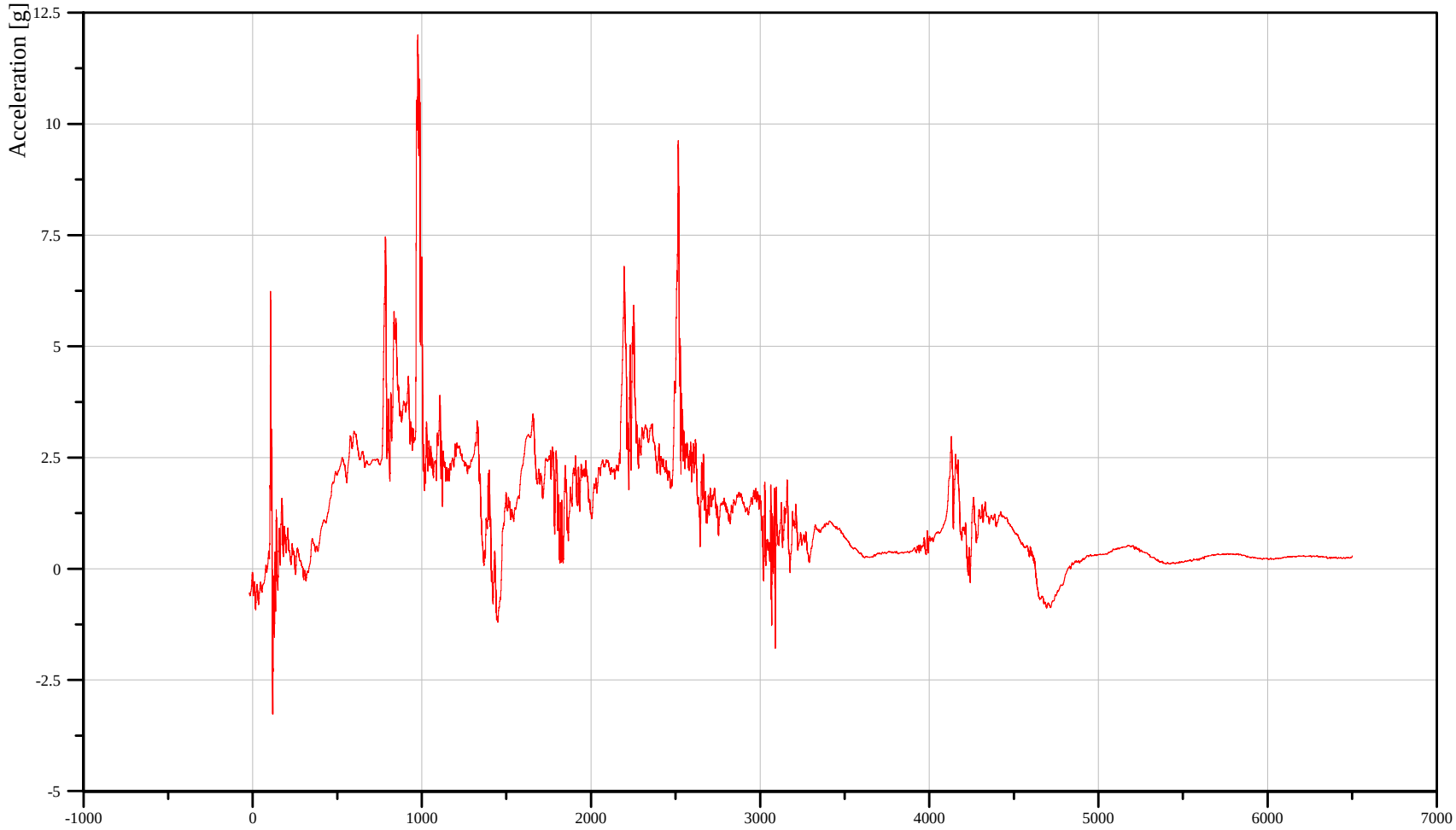
Left B-Pillar Upper Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILUPLE00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-3.27 g at 118.40 ms

Max. Value
12.00 g at 975.60 ms

Soil Trip Rollover 2007 Ford Expedition

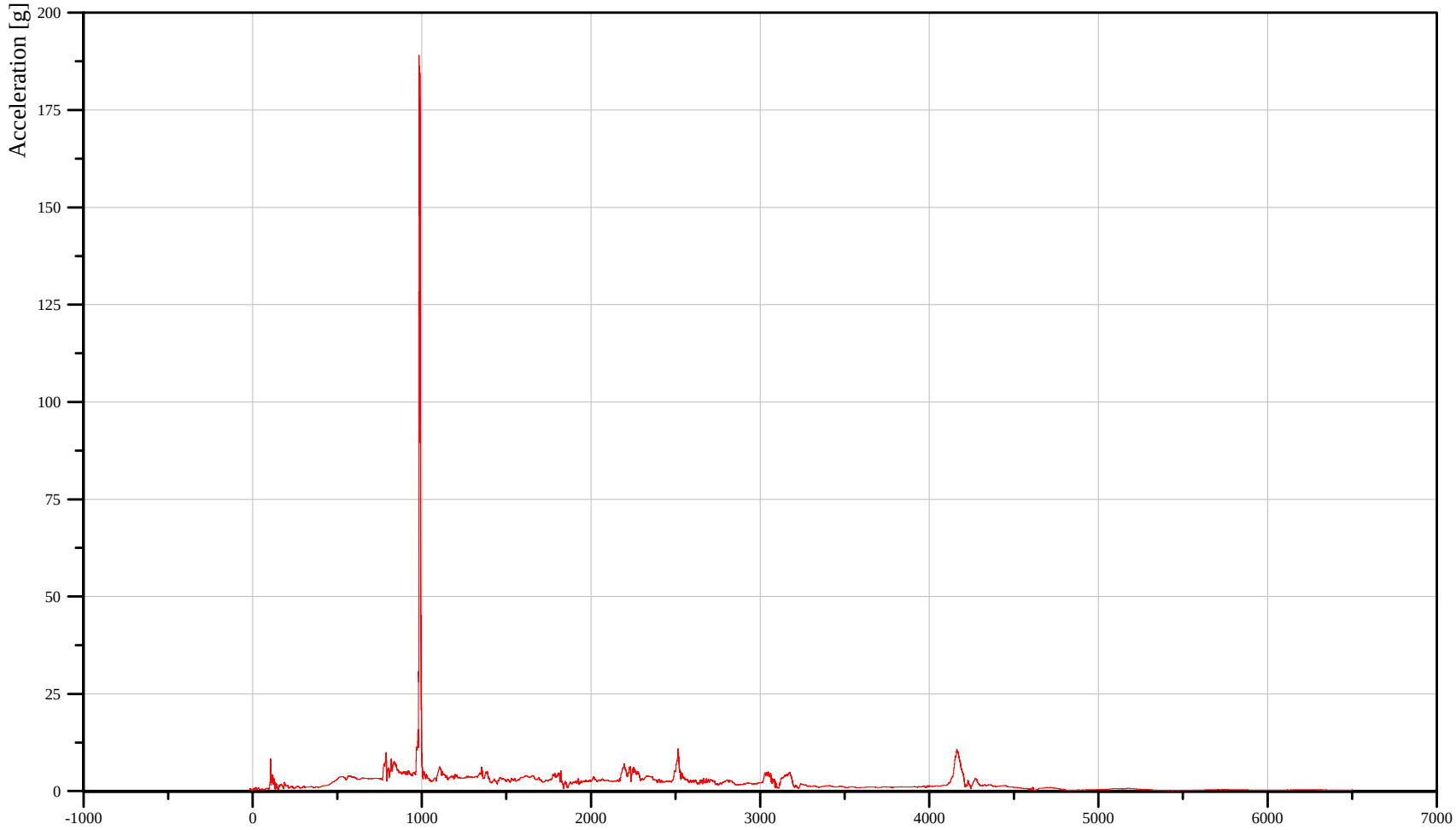
Left B-Pillar Upper Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILUPLE00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.12 g at -2.40 ms

Max. Value
189.11 g at 983.68 ms

091215

Soil Trip Rollover 2007 Ford Expedition

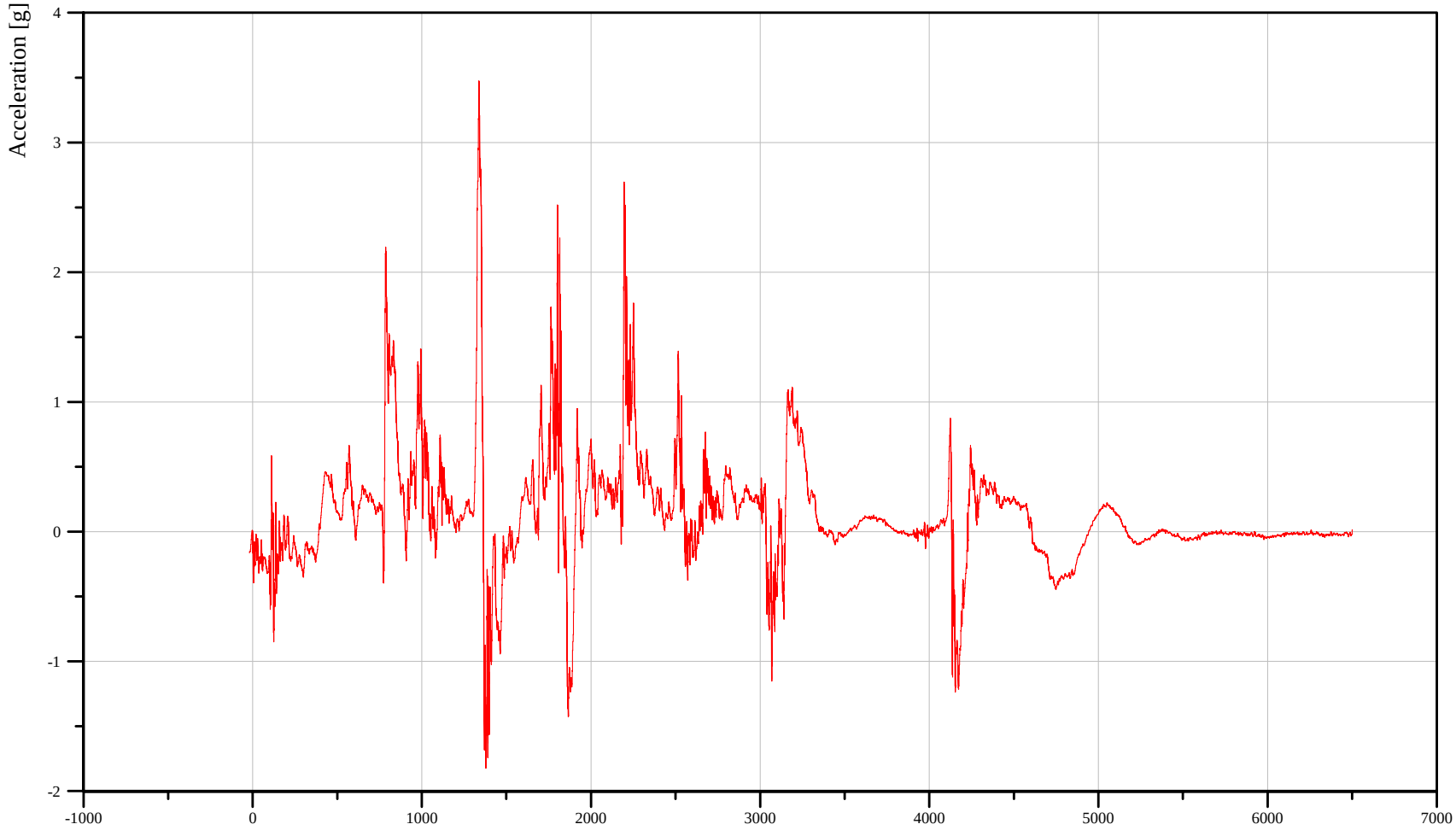
Left B-Pillar Lower X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILLOLE00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-1.82 g at 1,377.44 ms

Max. Value
3.48 g at 1,337.52 ms

Soil Trip Rollover 2007 Ford Expedition

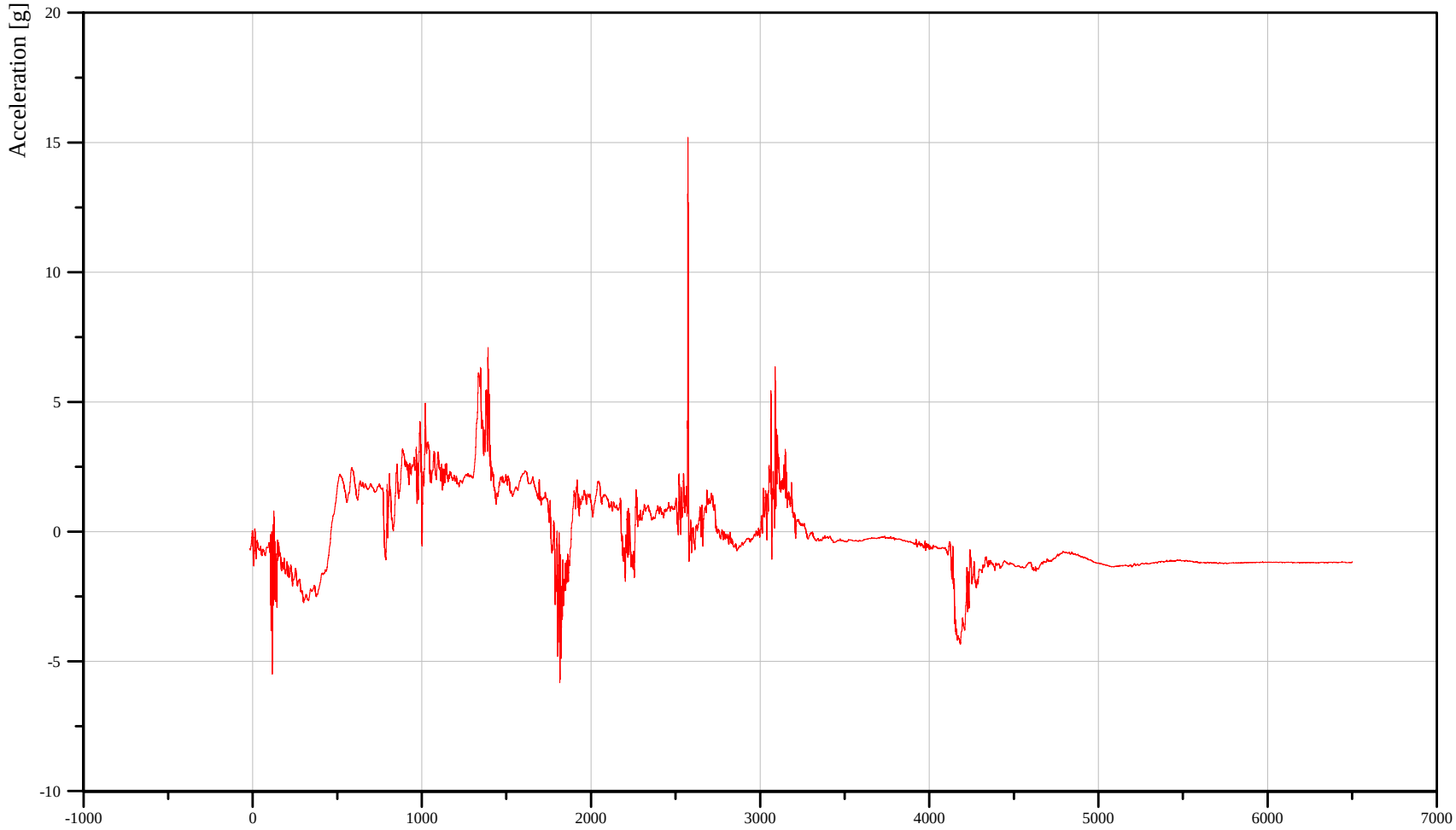
Left B-Pillar Lower Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILLOLE00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-5.82 g at 1,815.20 ms

Max. Value
15.19 g at 2,572.64 ms

091215

Soil Trip Rollover 2007 Ford Expedition

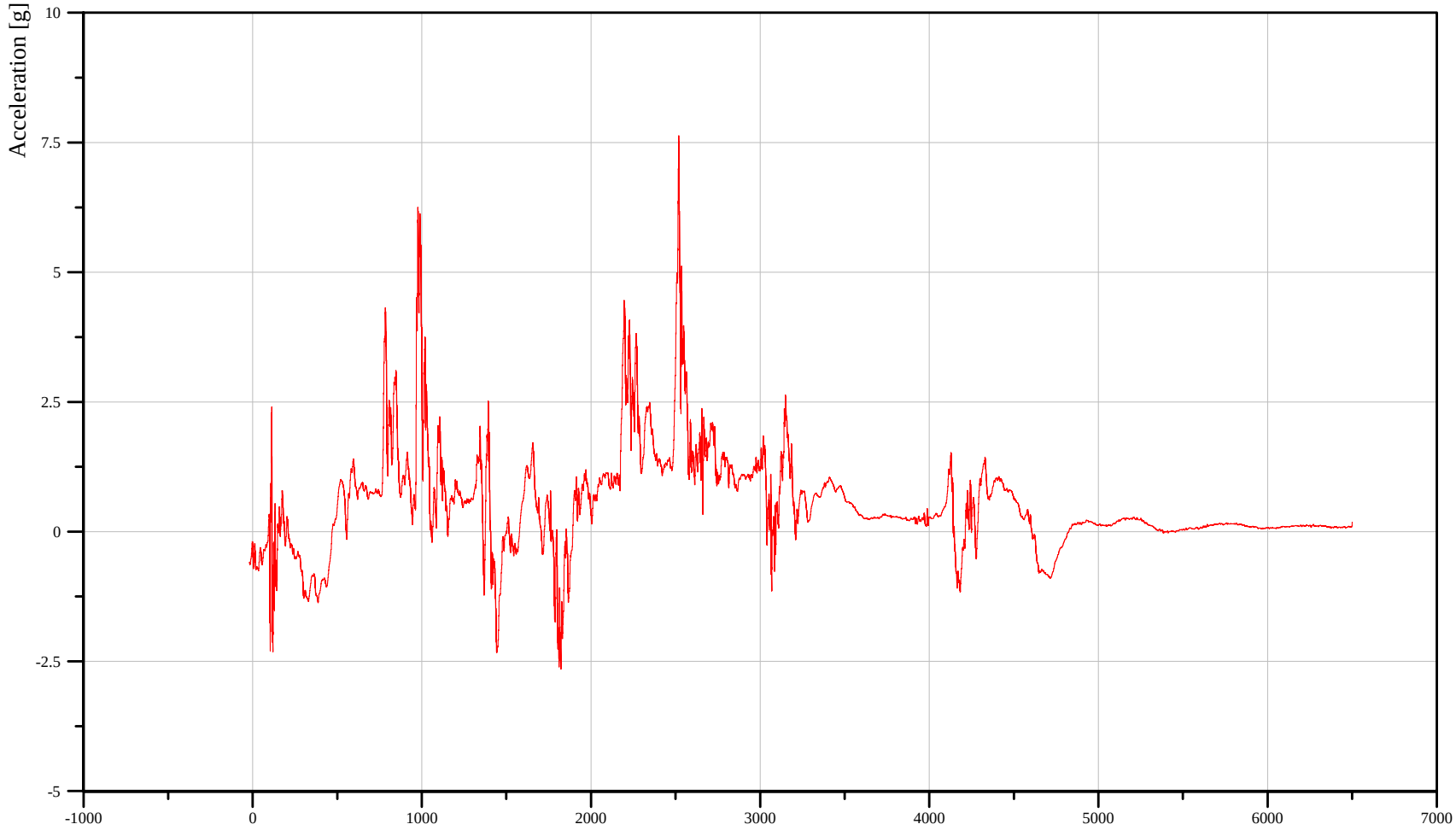
Left B-Pillar Lower Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILLOLE00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-2.65 g at 1,822.16 ms

Max. Value
7.64 g at 2,518.96 ms

091215

Soil Trip Rollover 2007 Ford Expedition

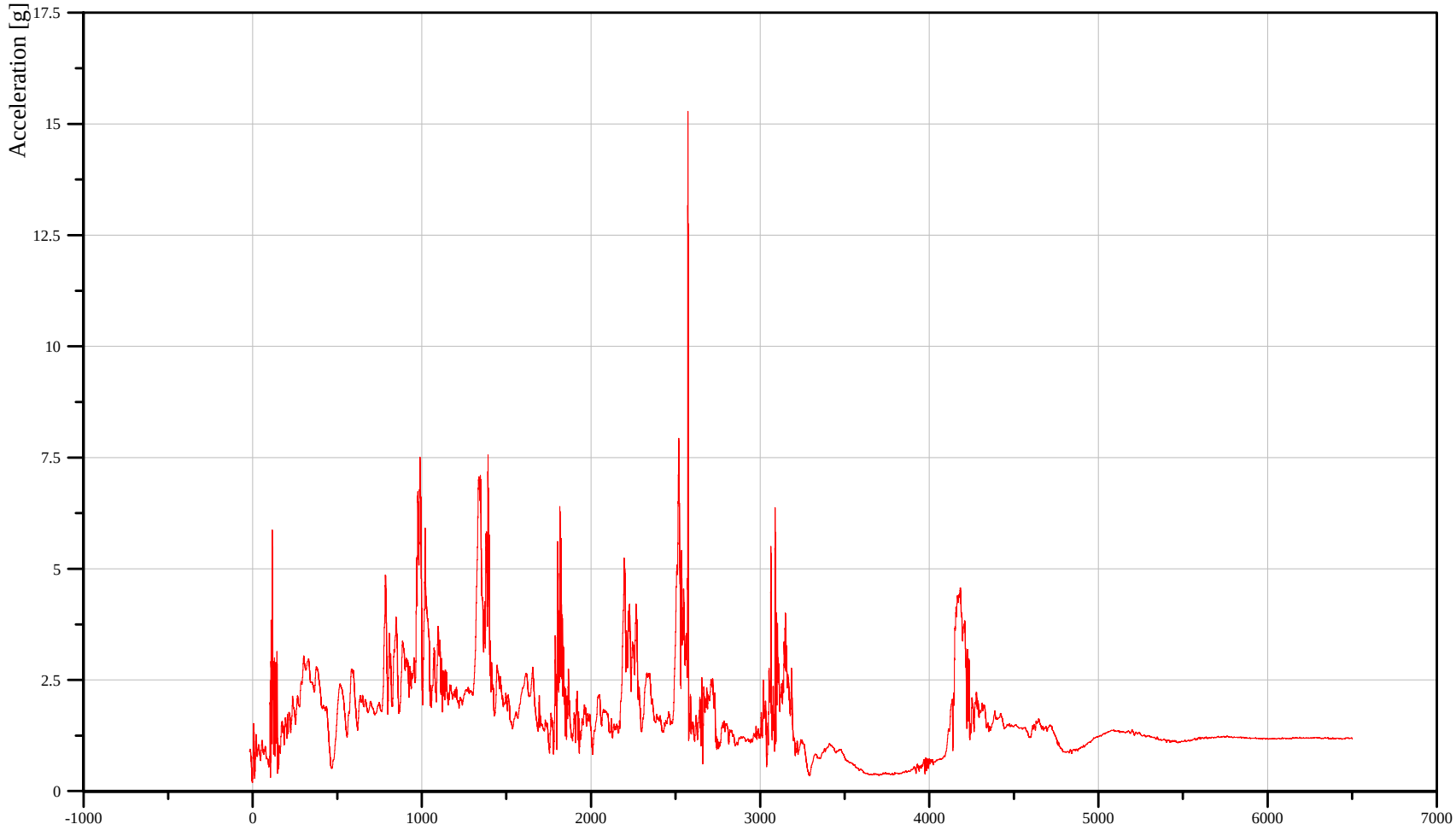
Left B-Pillar Lower Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILLOLE00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.20 g at -2.16 ms

Max. Value
15.29 g at 2,572.64 ms

Soil Trip Rollover 2007 Ford Expedition

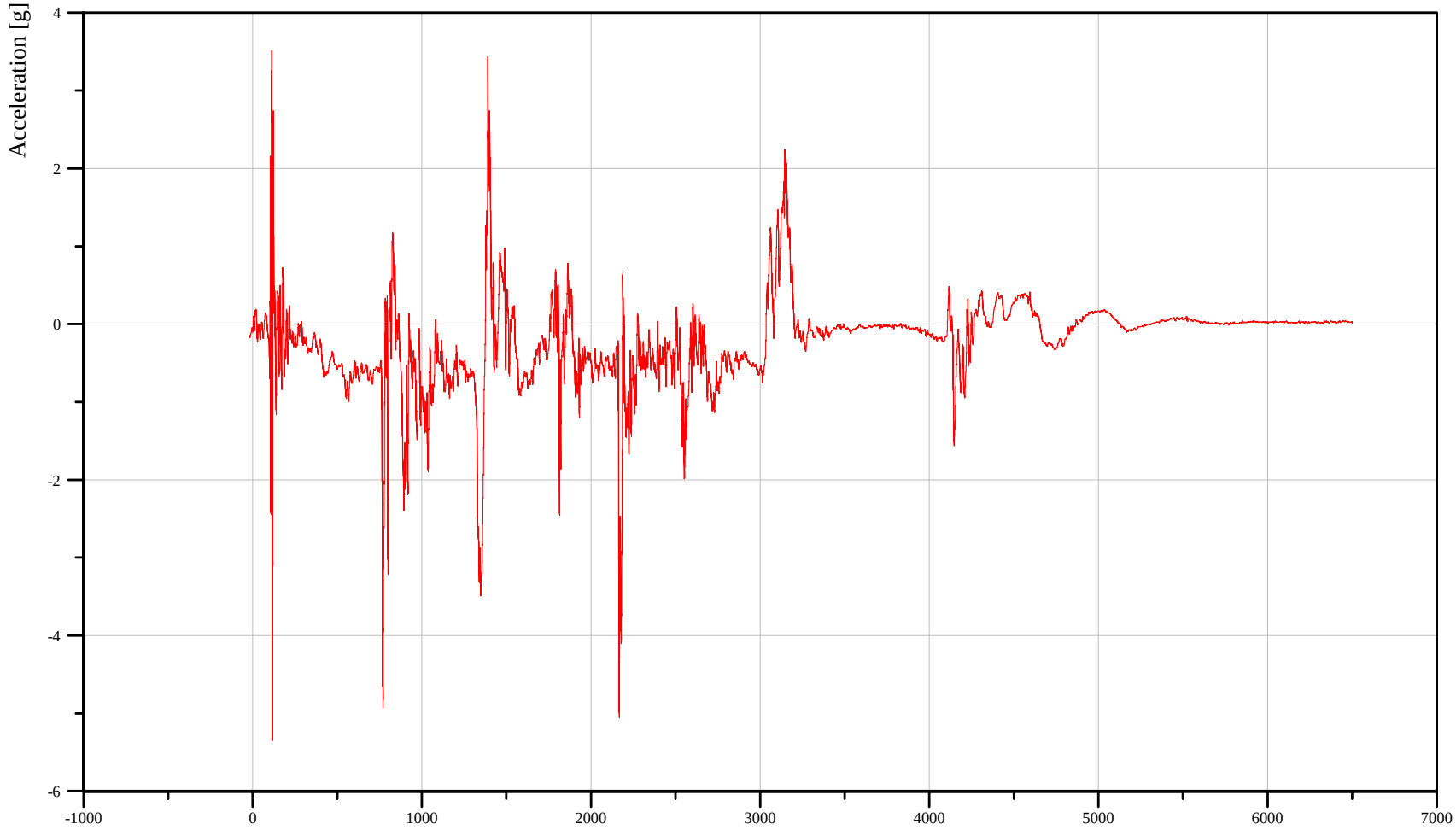
Right B-Pillar Upper X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILUPRI00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-5.35 g at 116.56 ms

Max. Value
3.52 g at 111.76 ms

Soil Trip Rollover 2007 Ford Expedition

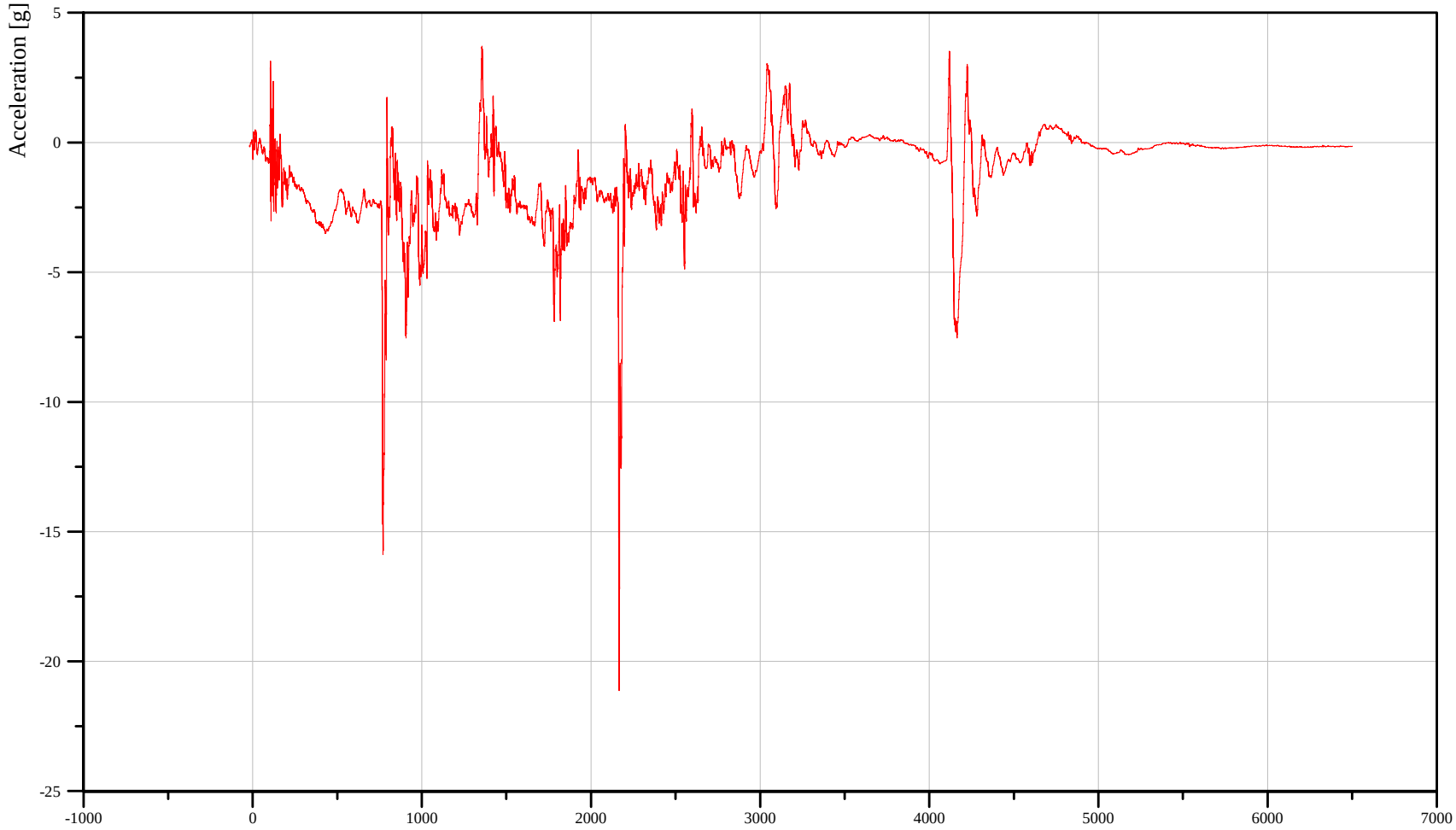
Right B-Pillar Upper Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILUPRI00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-21.12 g at 2,165.92 ms

Max. Value
3.71 g at 1,354.64 ms

Soil Trip Rollover 2007 Ford Expedition

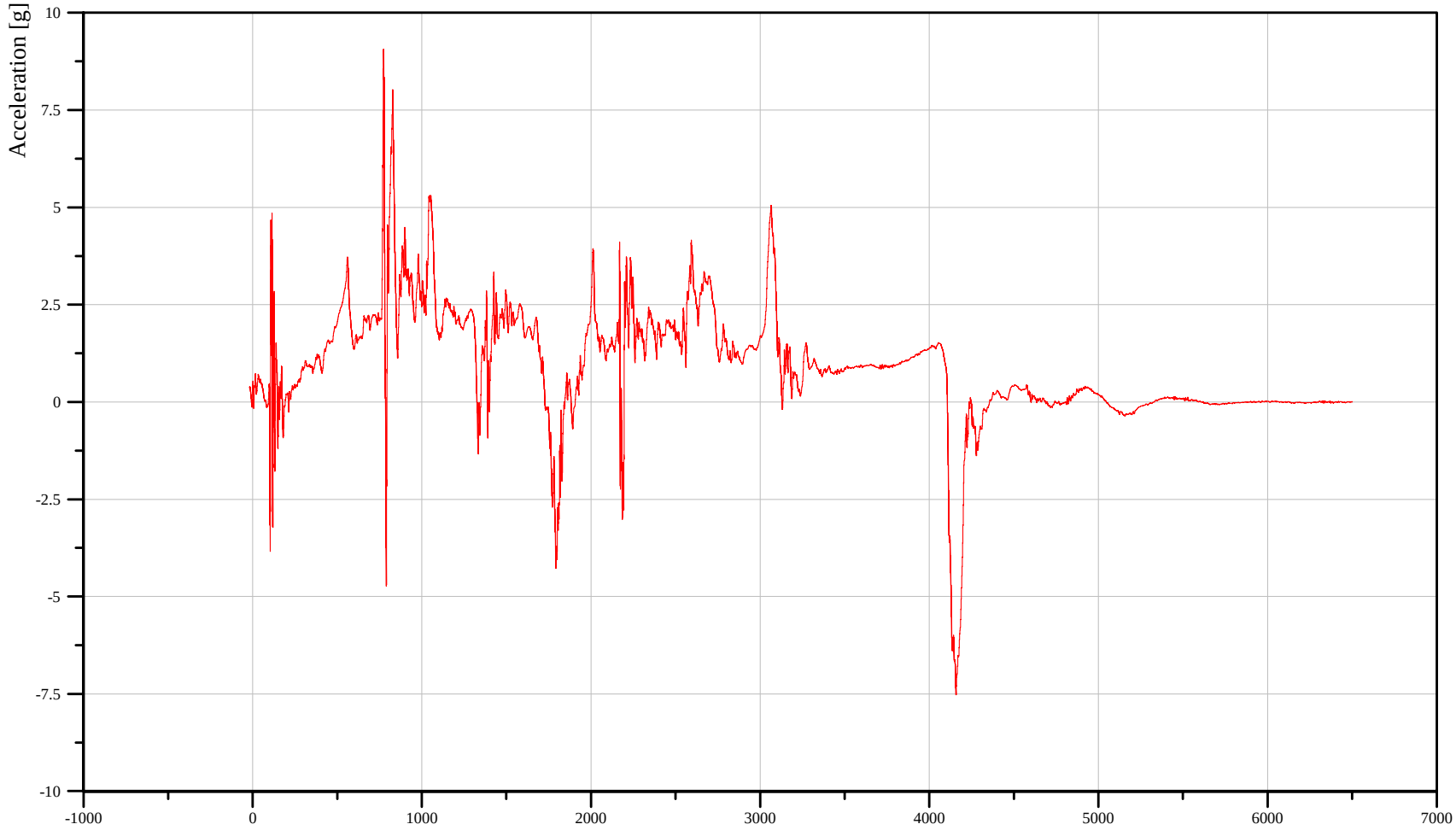
Right B-Pillar Upper Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILUPRI00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-7.52 g at 4,157.84 ms

Max. Value
9.07 g at 773.76 ms

091215

Soil Trip Rollover 2007 Ford Expedition

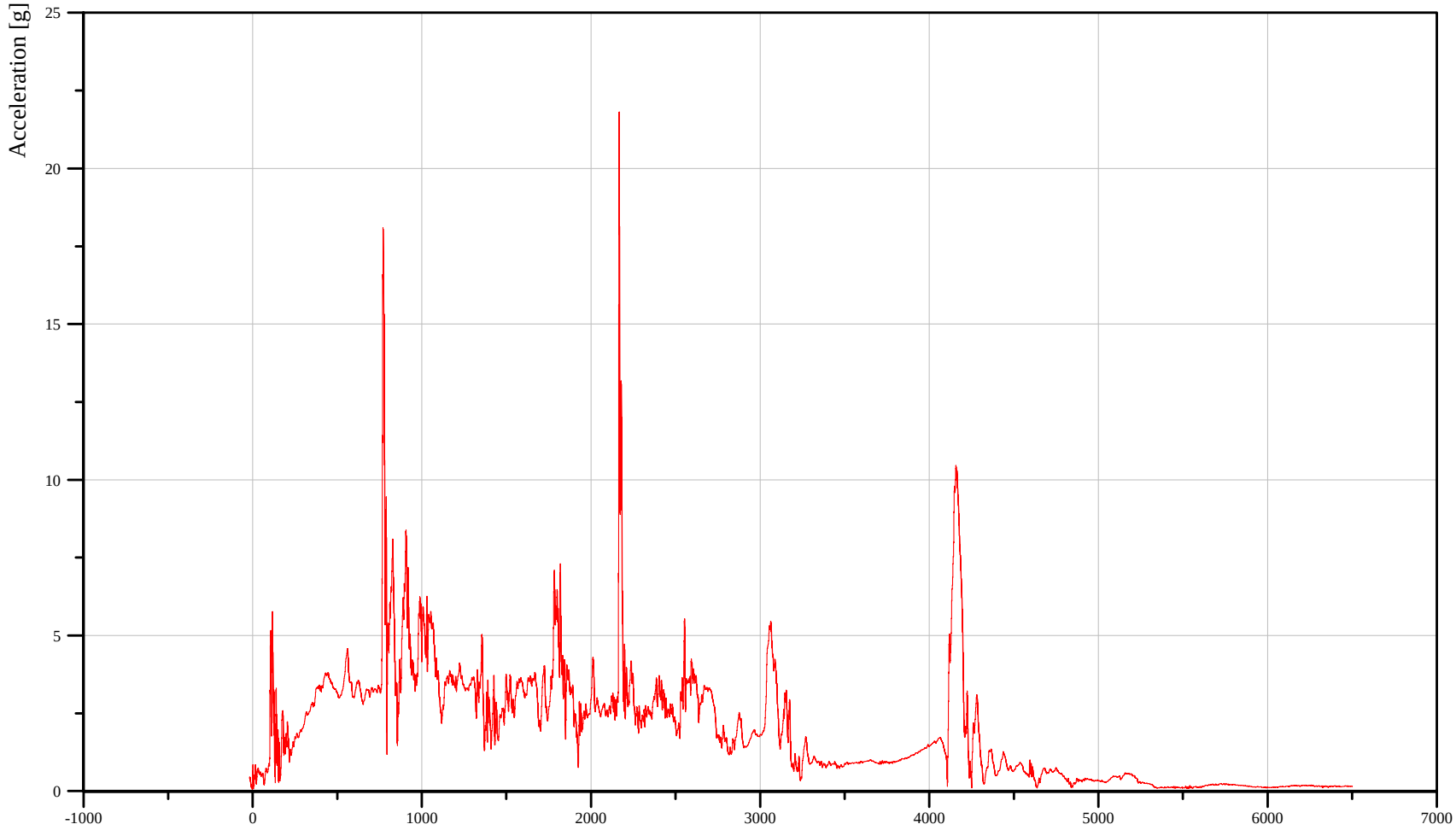
Right B-Pillar Upper Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILUPRI00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.05 g at -2.48 ms

Max. Value
21.81 g at 2,166.00 ms

091215

Soil Trip Rollover 2007 Ford Expedition

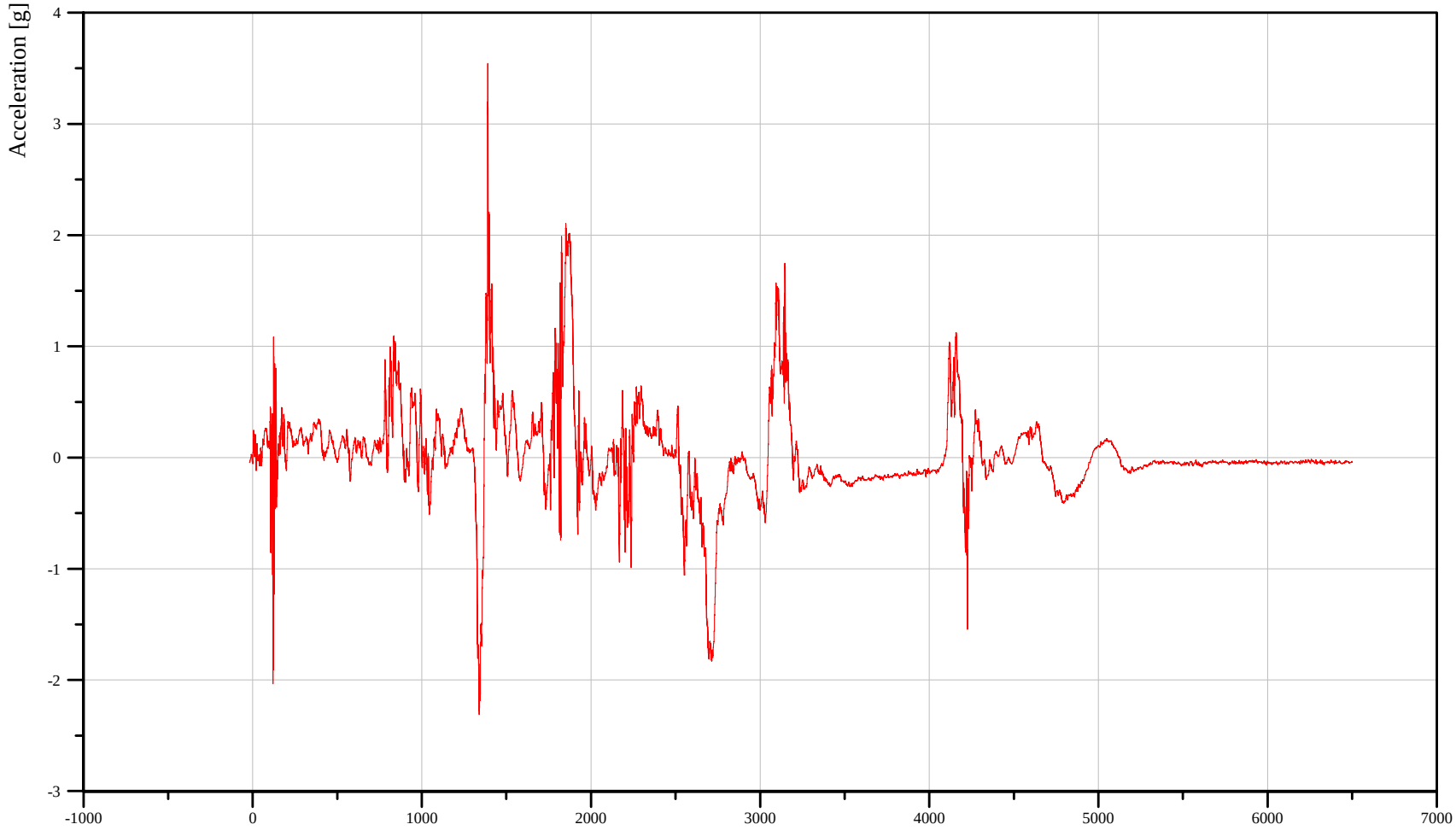
Right B-Pillar Lower X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILLORI00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-2.31 g at 1,338.64 ms

Max. Value
3.54 g at 1,389.04 ms

Soil Trip Rollover 2007 Ford Expedition

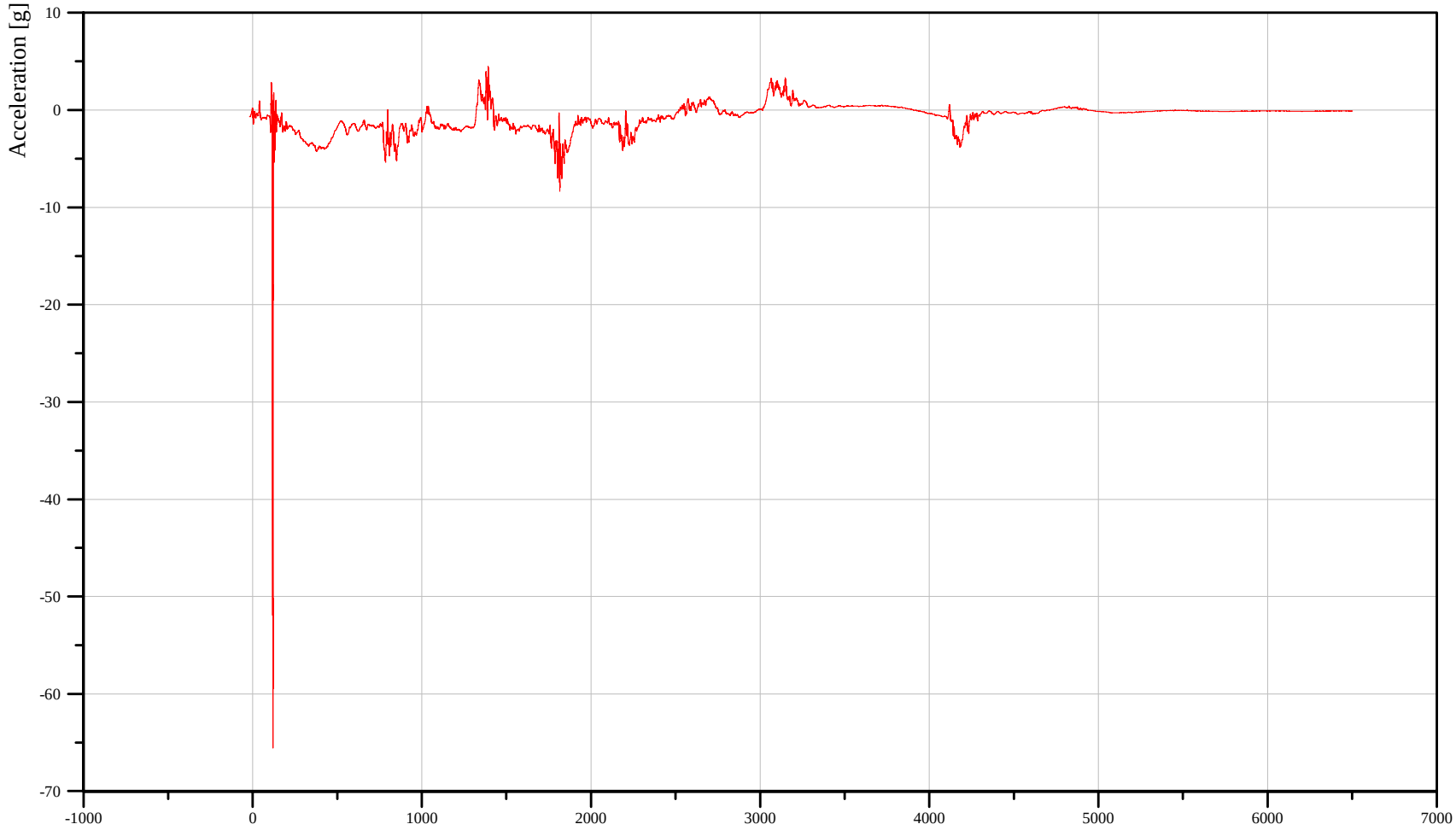
Right B-Pillar Lower Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILLORI00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-65.56 g at 119.36 ms

Max. Value
4.51 g at 1,391.36 ms

Soil Trip Rollover 2007 Ford Expedition

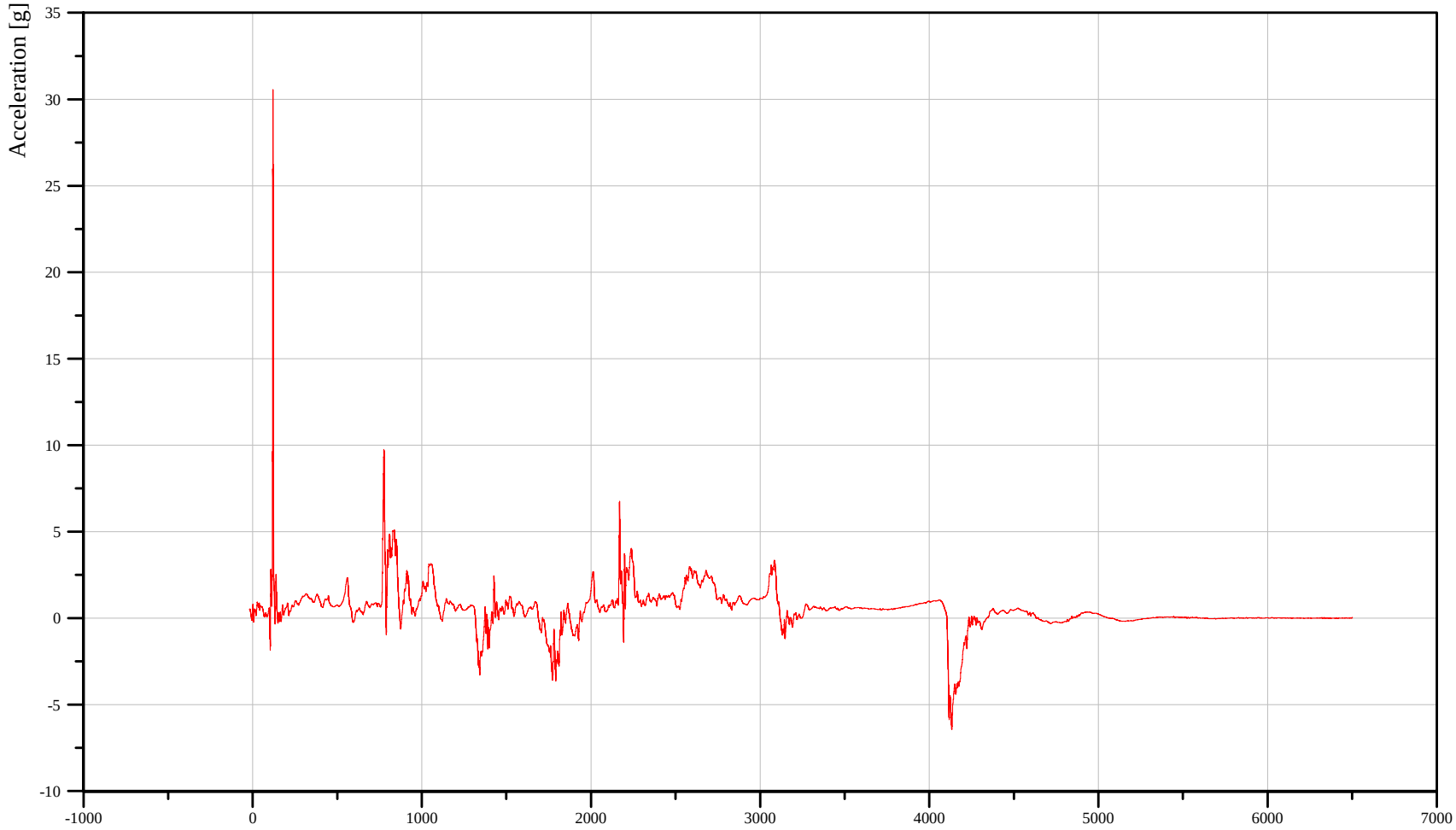
Right B-Pillar Lower Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILLORI00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-6.43 g at 4,132.88 ms

Max. Value
30.55 g at 119.20 ms

Soil Trip Rollover 2007 Ford Expedition

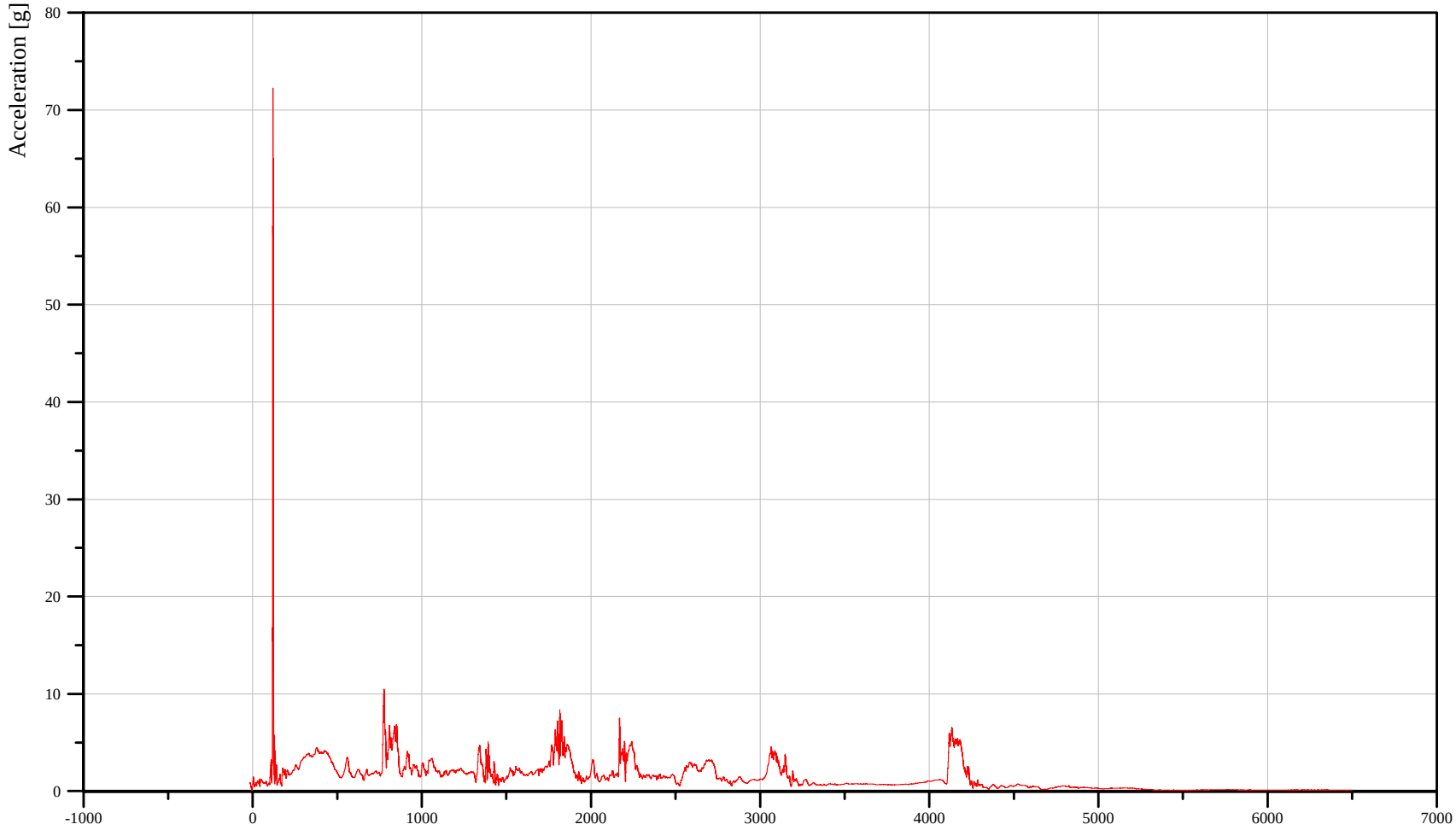
Right B-Pillar Lower Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10BPILLORI00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.05 g at 5,522.16 ms

Max. Value
72.27 g at 119.36 ms

Soil Trip Rollover 2007 Ford Expedition

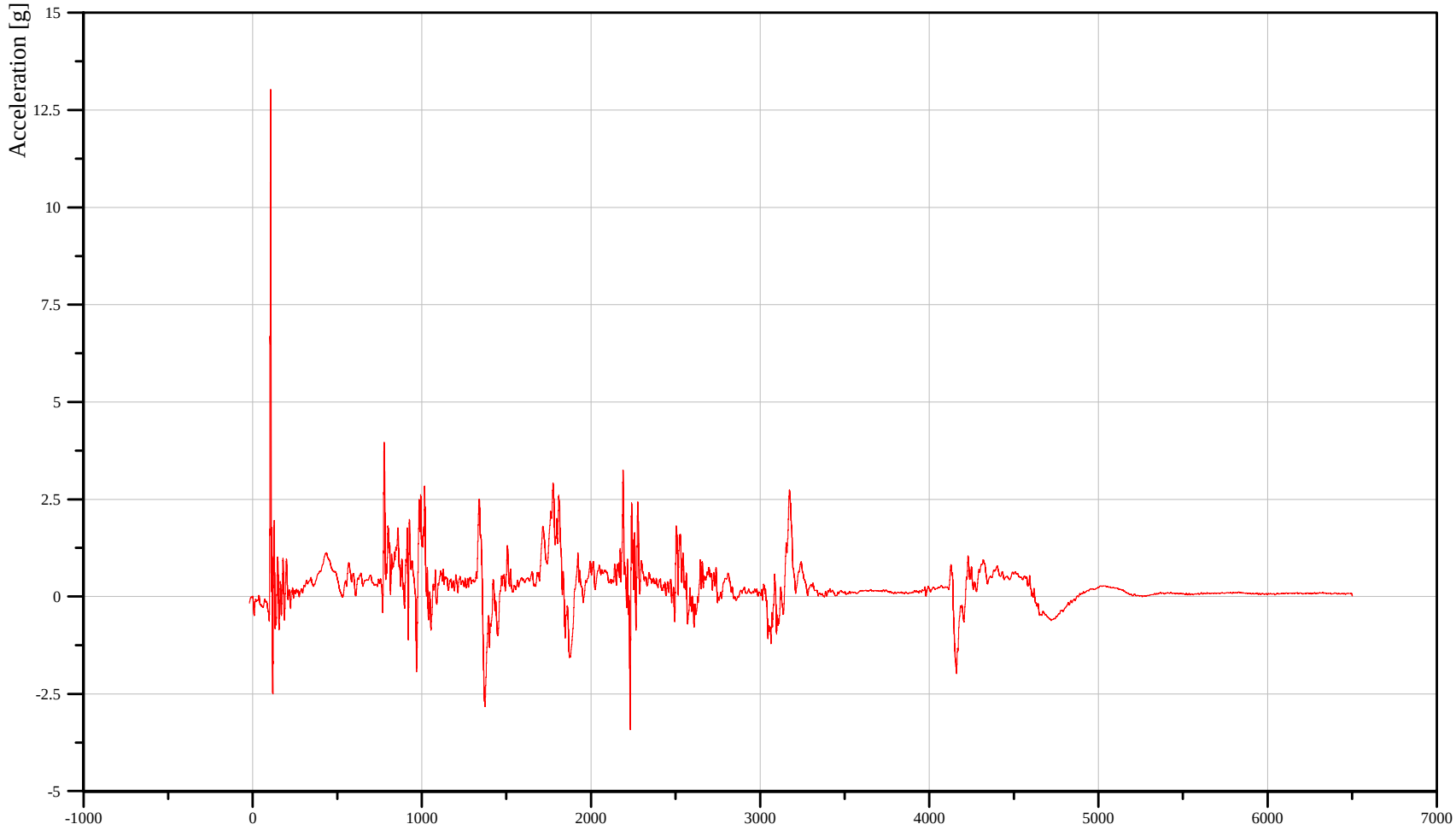
Left C-Pillar Upper X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILUPLE00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-3.42 g at 2,231.20 ms

Max. Value
13.03 g at 105.76 ms

Soil Trip Rollover 2007 Ford Expedition

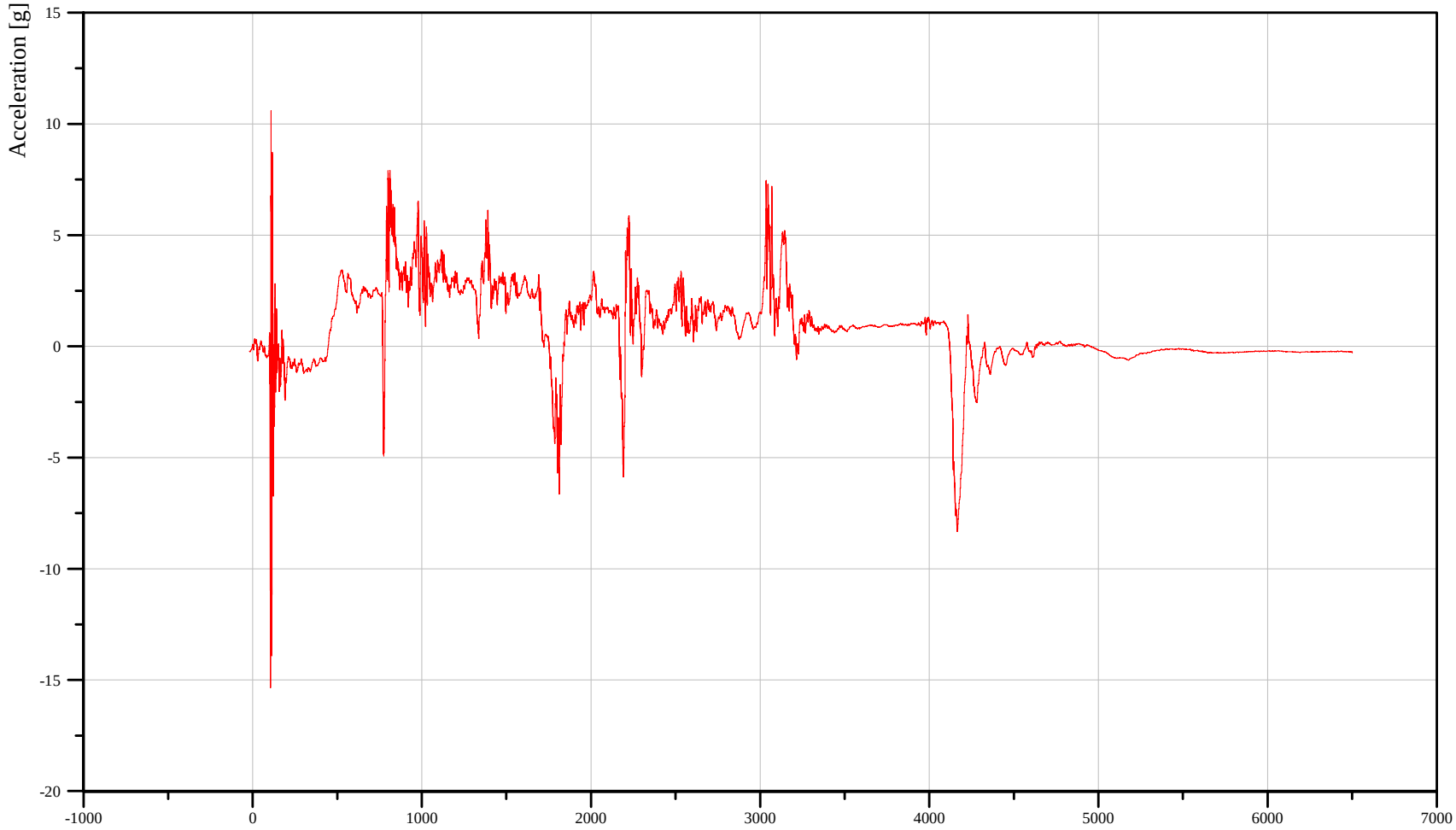
Left C-Pillar Upper Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILUPLE00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-15.35 g at 105.20 ms

Max. Value
10.60 g at 108.40 ms

Soil Trip Rollover 2007 Ford Expedition

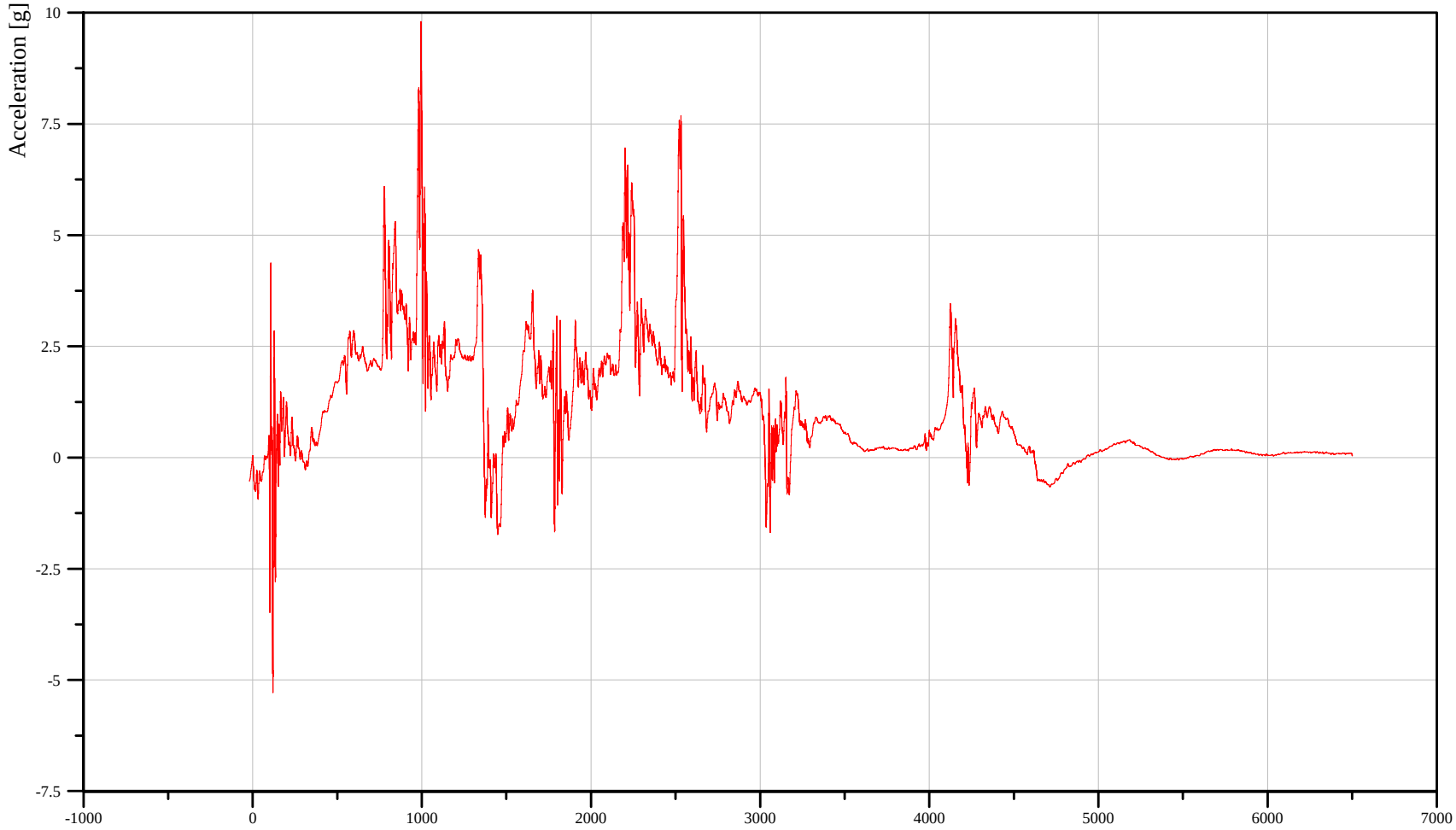
Left C-Pillar Upper Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILUPLE00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-5.29 g at 119.12 ms

Max. Value
9.81 g at 994.16 ms

Soil Trip Rollover 2007 Ford Expedition

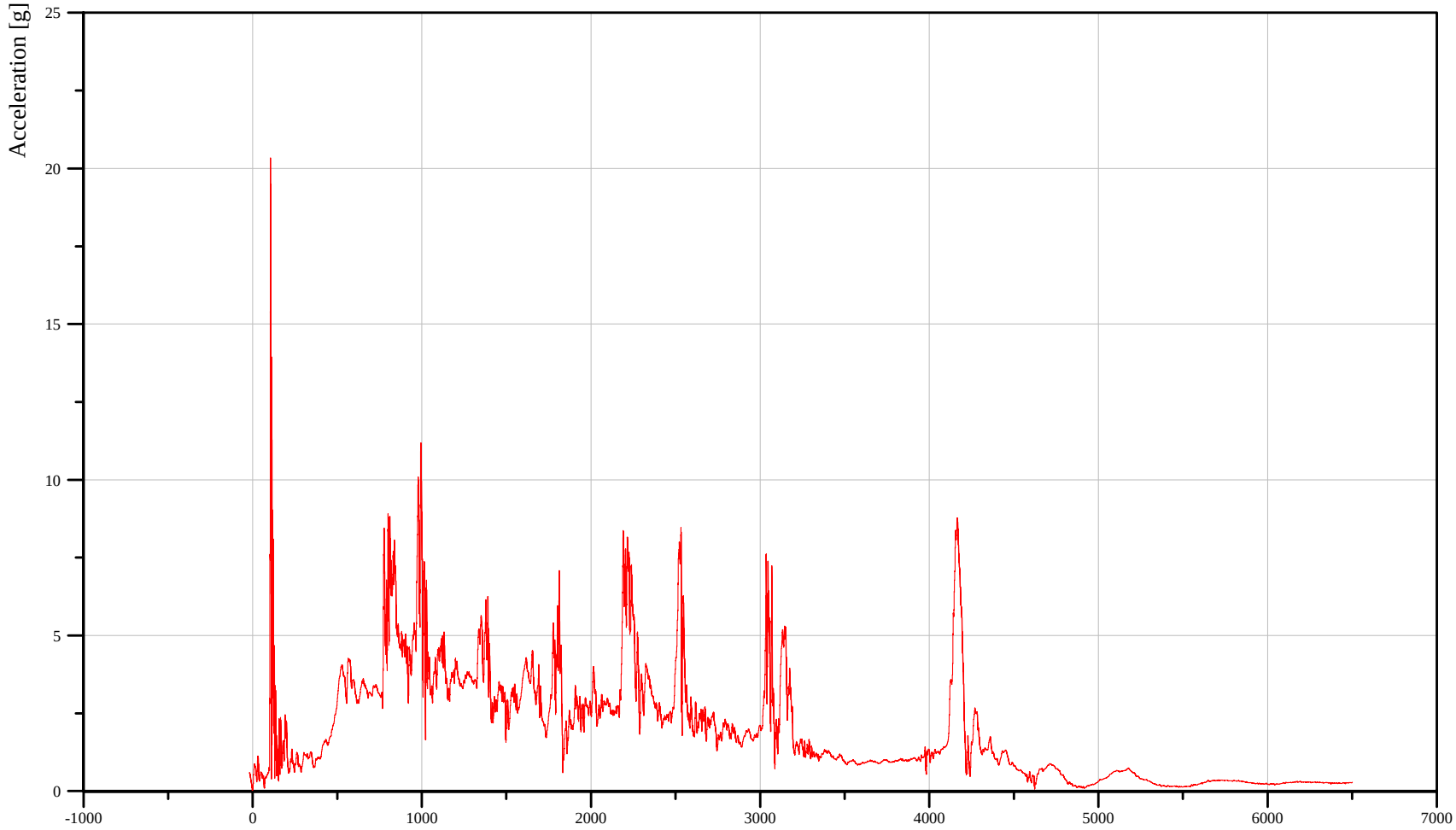
Left C-Pillar Upper Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILUPLE00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.02 g at -1.92 ms

Max. Value
20.34 g at 105.28 ms

Soil Trip Rollover 2007 Ford Expedition

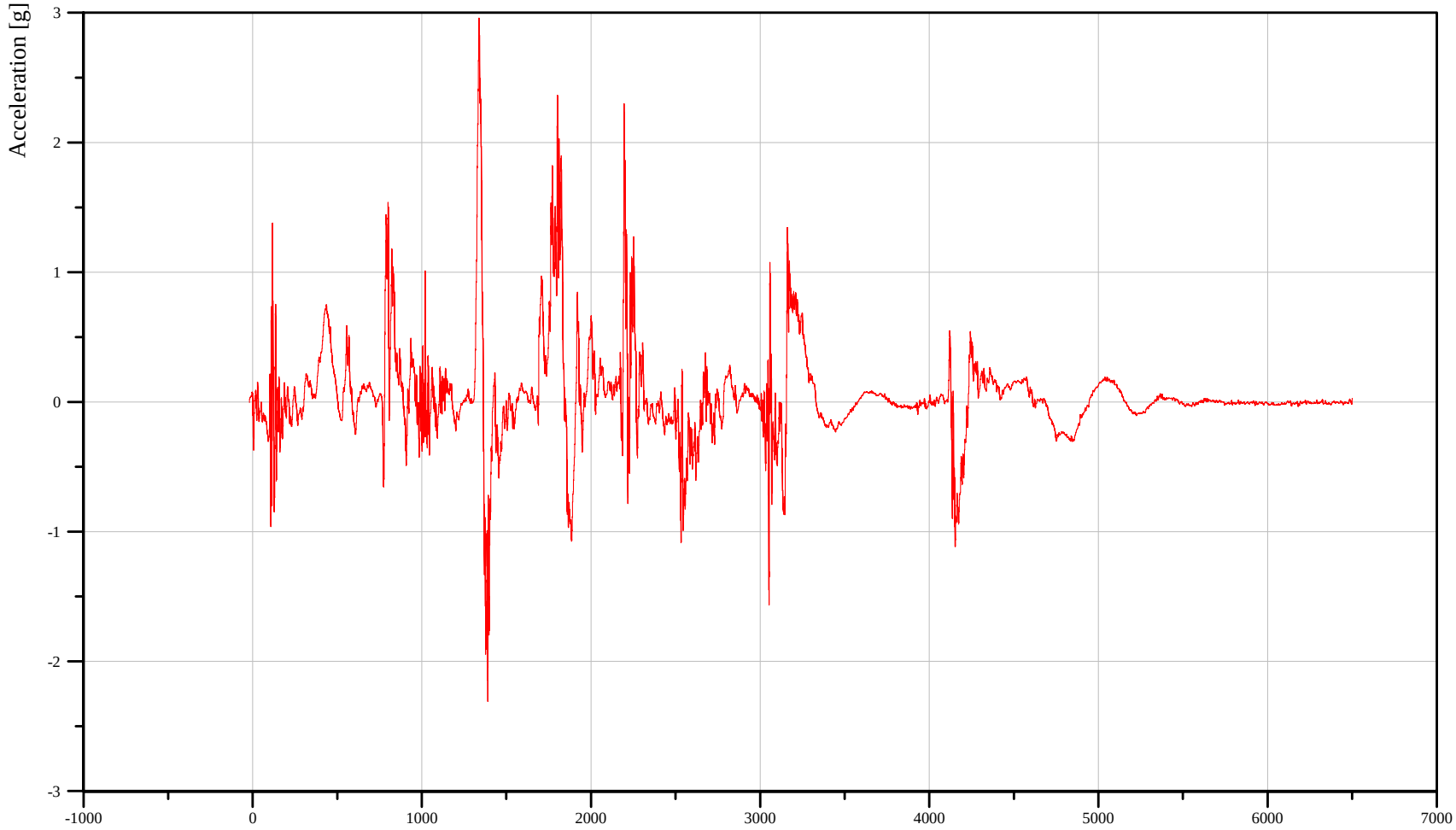
Left C-Pillar Lower X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILLOLE00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-2.31 g at 1,389.04 ms

Max. Value
2.96 g at 1,338.08 ms

091215

Soil Trip Rollover 2007 Ford Expedition

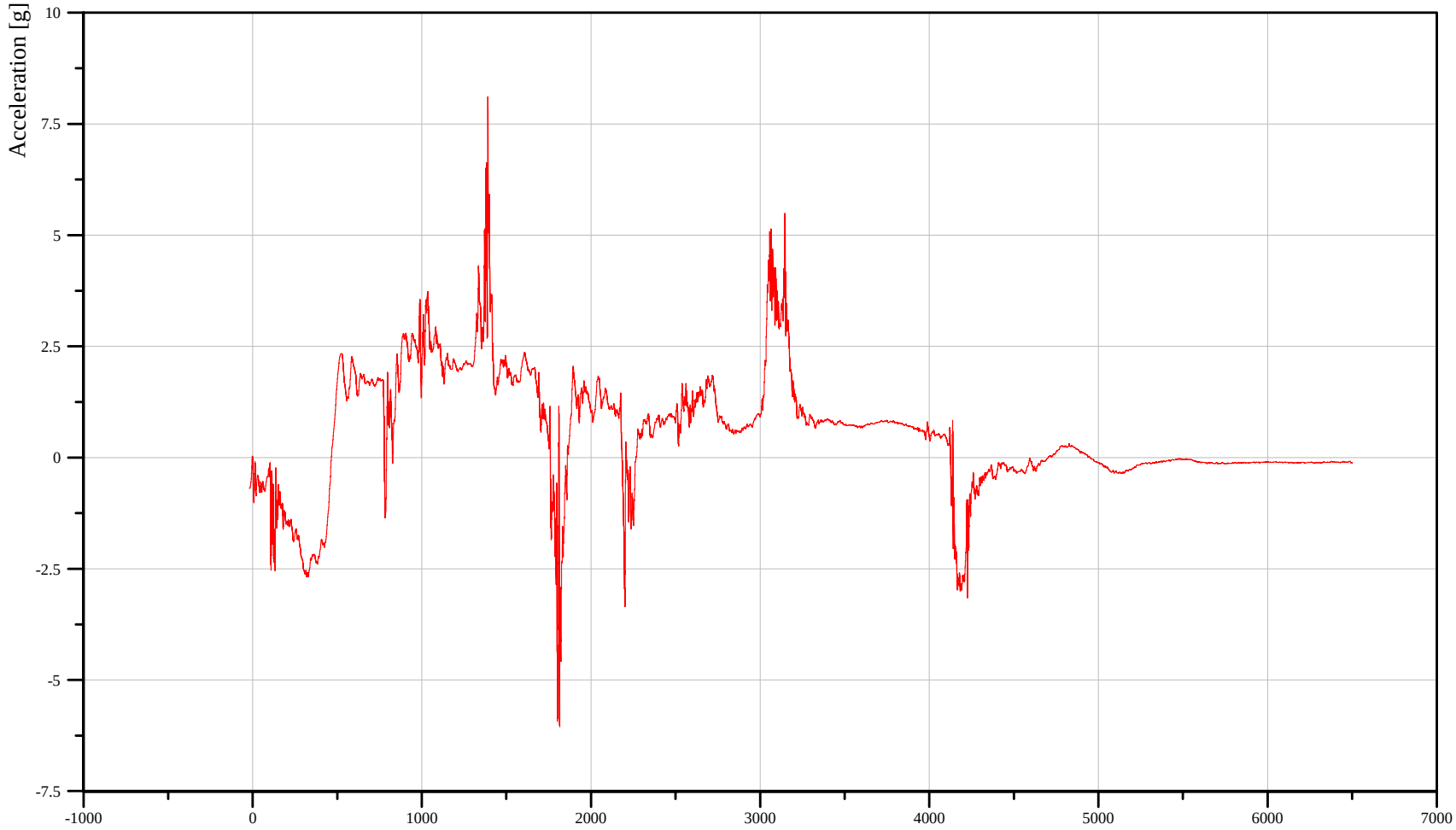
Left C-Pillar Lower Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILLOLE00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-6.05 g at 1,814.00 ms

Max. Value
8.11 g at 1,389.36 ms

Soil Trip Rollover 2007 Ford Expedition

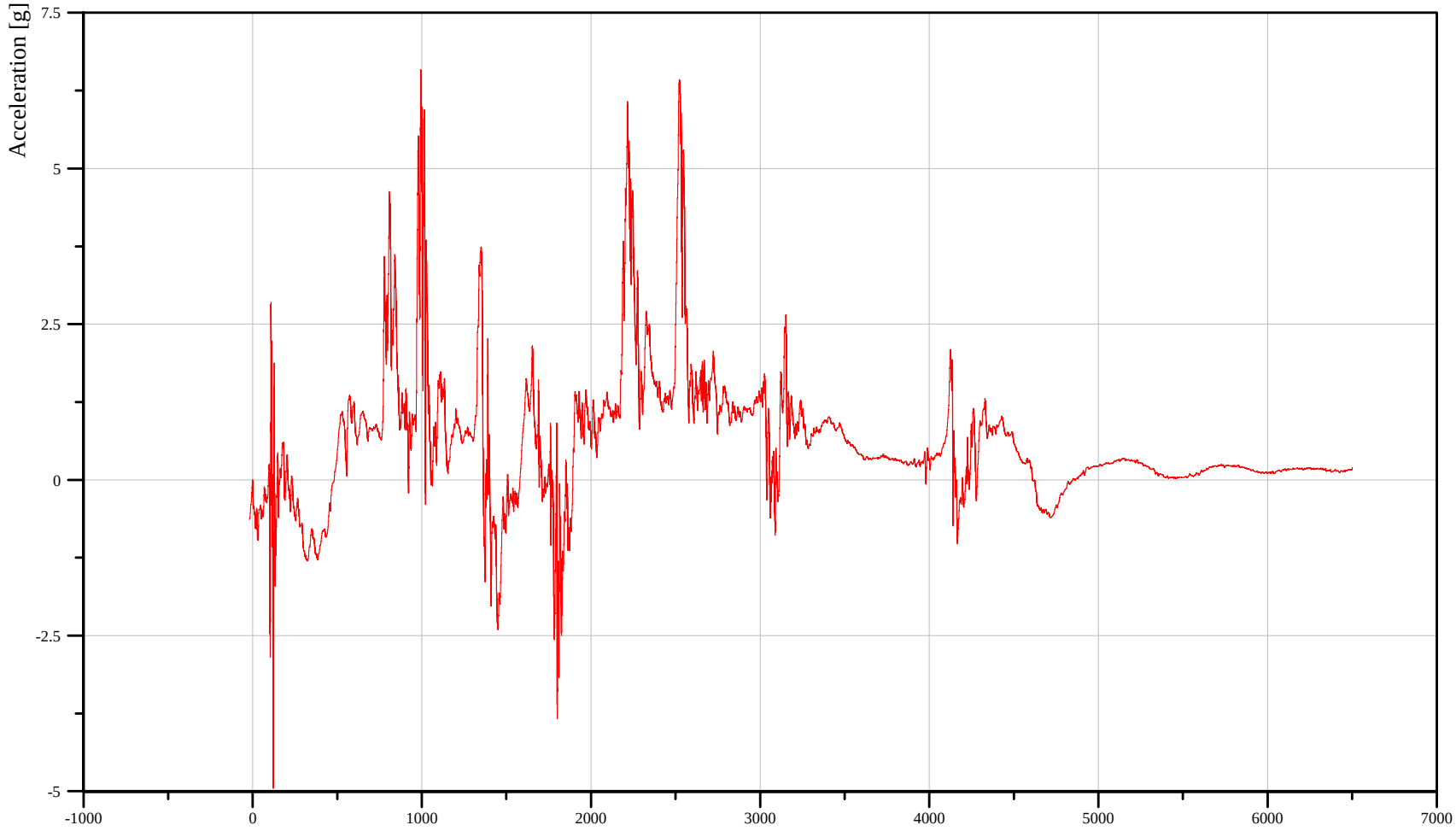
Left C-Pillar Lower Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILLOLE00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-4.96 g at 121.28 ms

Max. Value
6.58 g at 993.04 ms

Soil Trip Rollover 2007 Ford Expedition

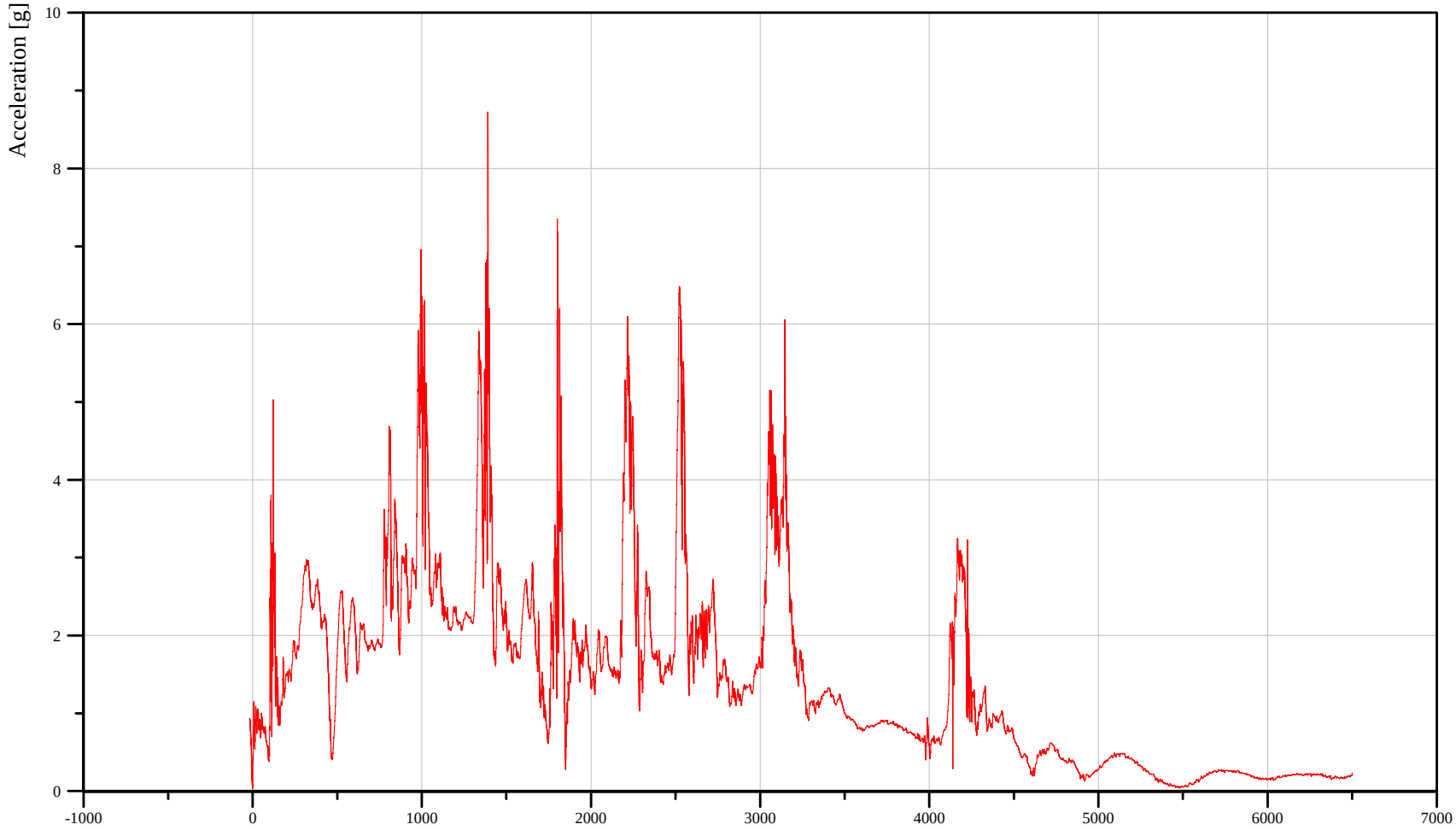
Left C-Pillar Lower Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILLOLE00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.03 g at -0.64 ms

Max. Value
8.73 g at 1,389.36 ms

Soil Trip Rollover 2007 Ford Expedition

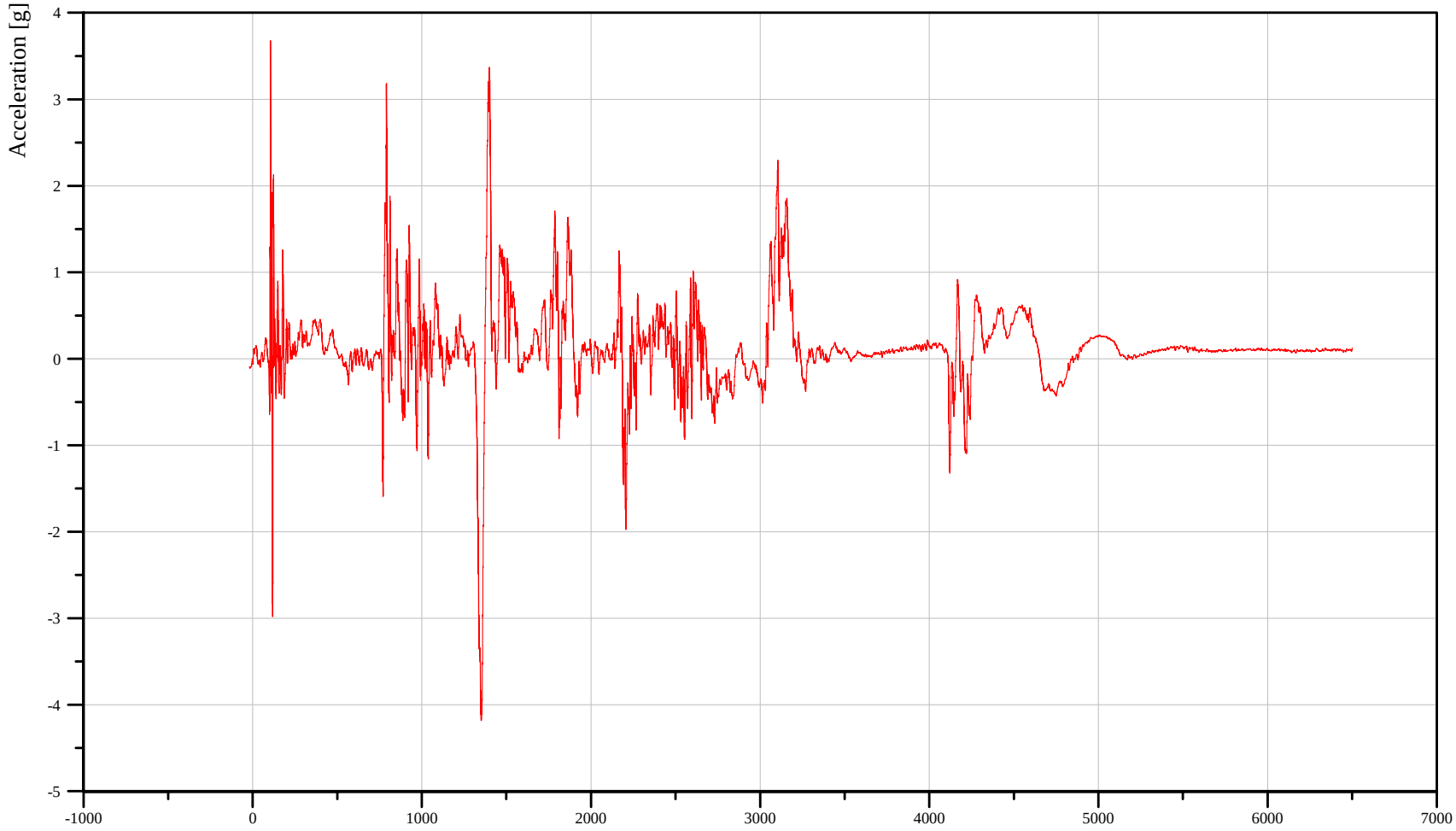
Right C-Pillar Upper X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILUPRI00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-4.18 g at 1,350.32 ms

Max. Value
3.68 g at 104.08 ms

Soil Trip Rollover 2007 Ford Expedition

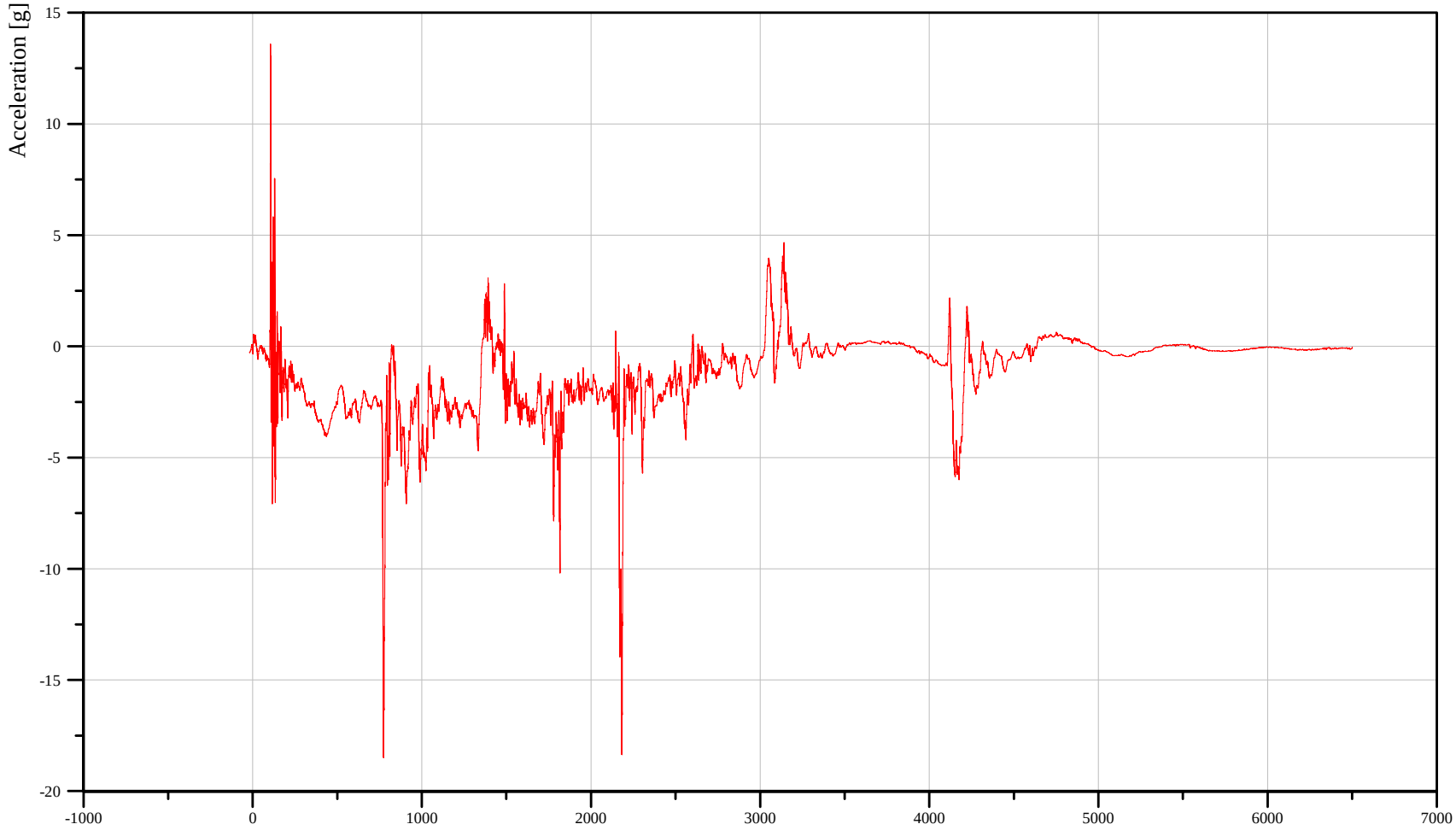
Right C-Pillar Upper Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILUPRI00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-18.51 g at 773.60 ms

Max. Value
13.60 g at 105.36 ms

Soil Trip Rollover 2007 Ford Expedition

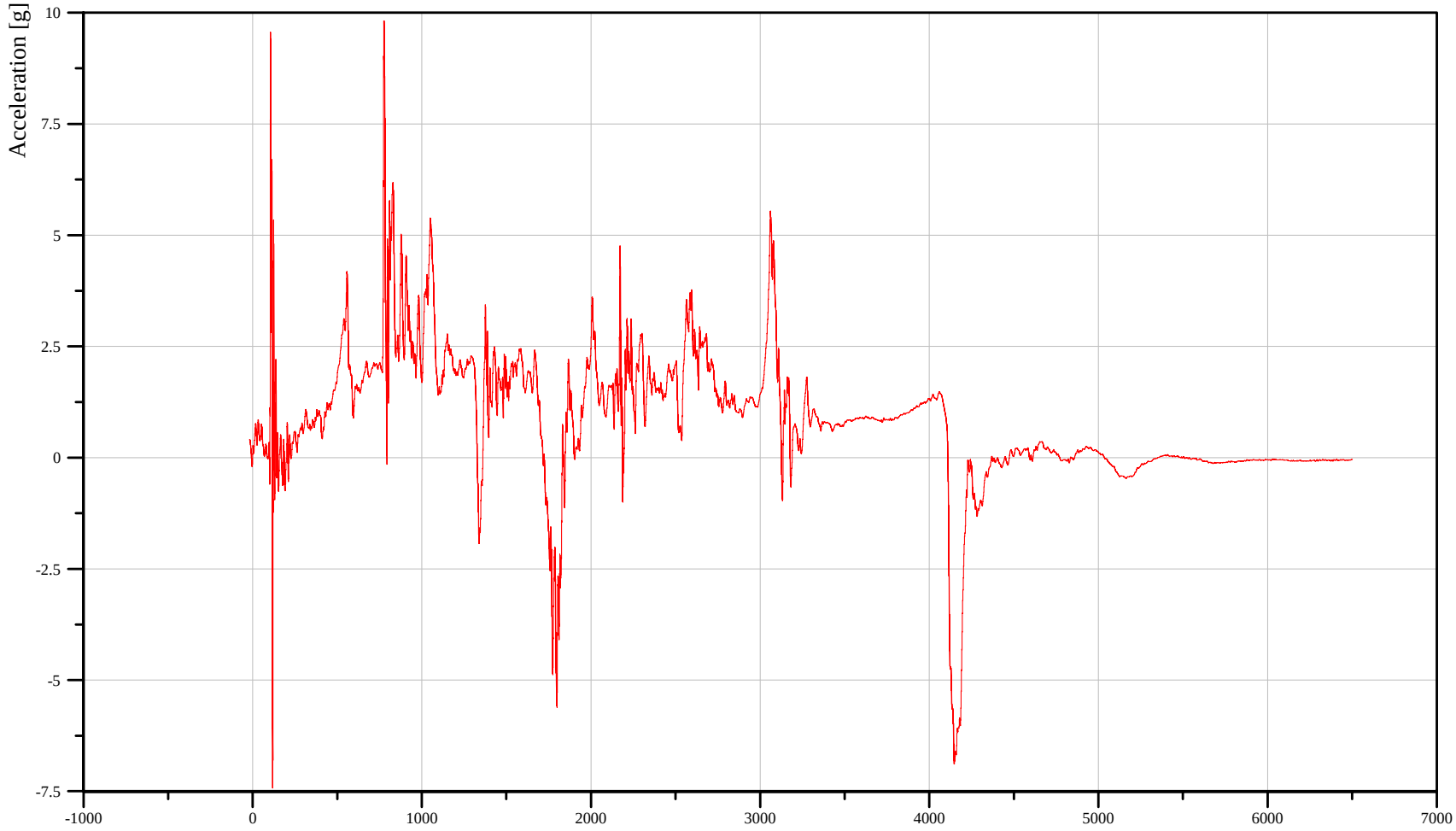
Right C-Pillar Upper Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILUPRI00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-7.43 g at 117.52 ms

Max. Value
9.82 g at 775.60 ms

Soil Trip Rollover 2007 Ford Expedition

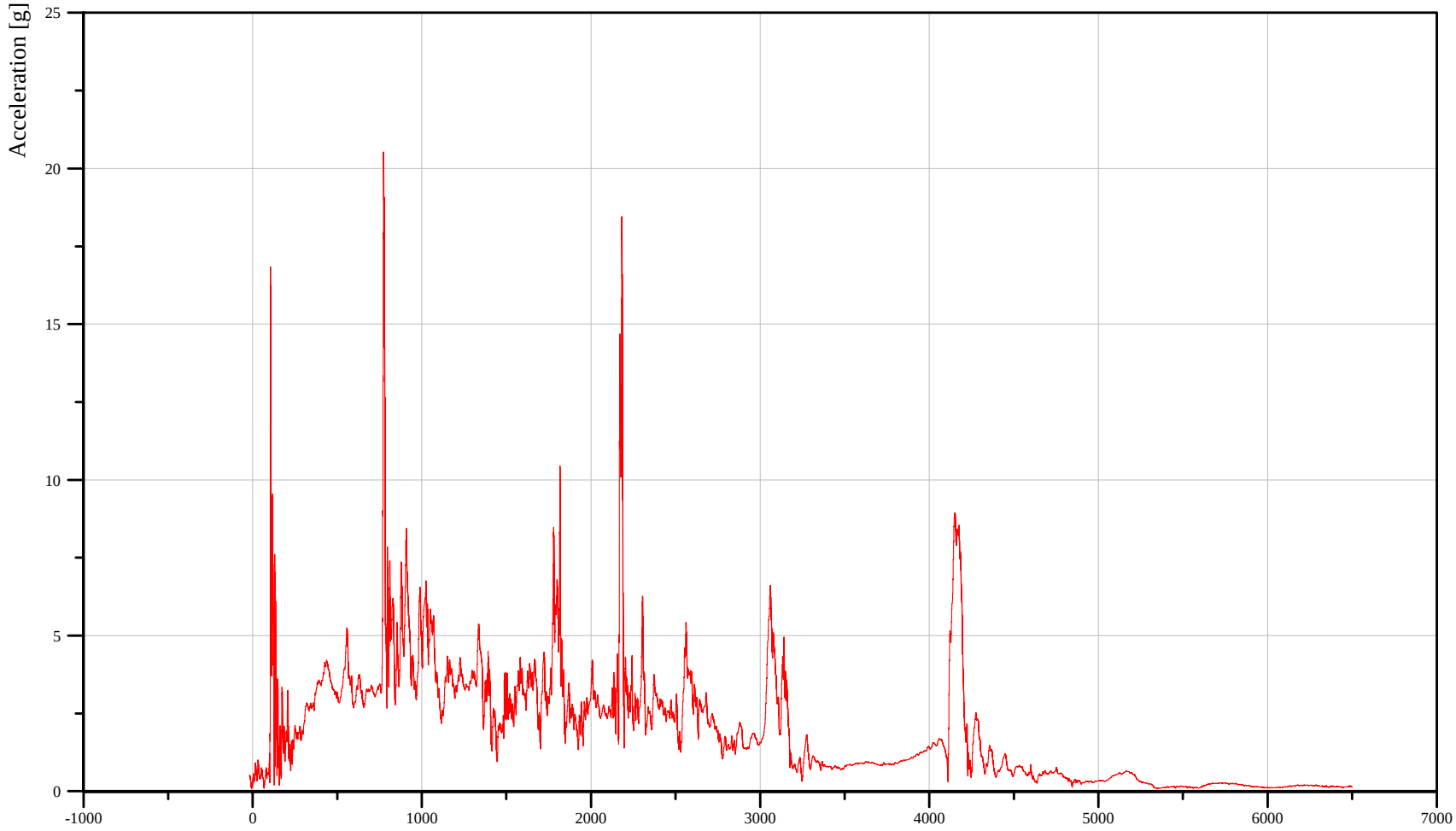
Right C-Pillar Upper Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILUPRI00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.08 g at -7.52 ms

Max. Value
20.53 g at 774.00 ms

B-150

091215

Soil Trip Rollover 2007 Ford Expedition

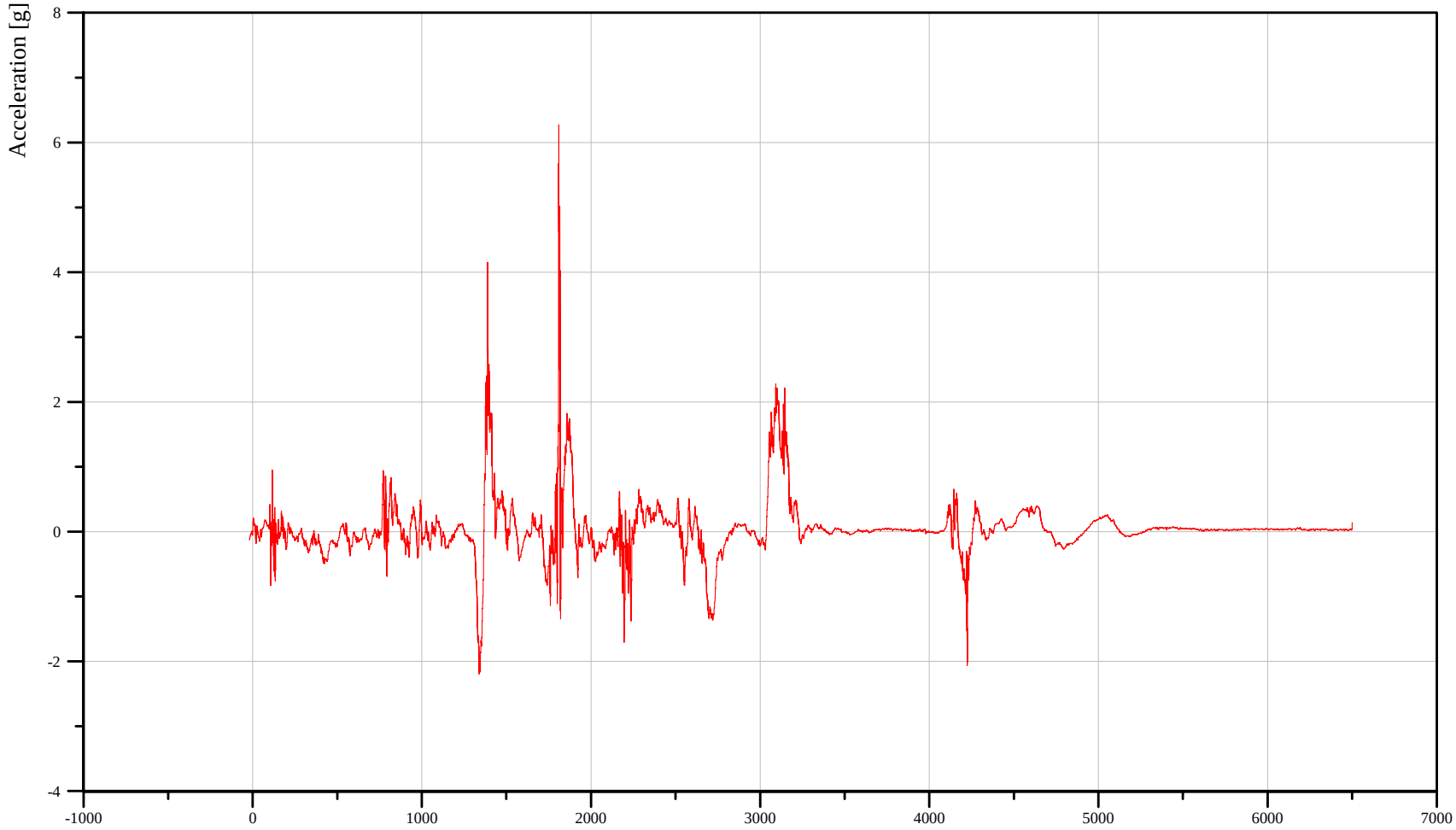
Right C-Pillar Lower X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILLORI00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-2.19 g at 1,338.80 ms

Max. Value
6.27 g at 1,809.04 ms

Soil Trip Rollover 2007 Ford Expedition

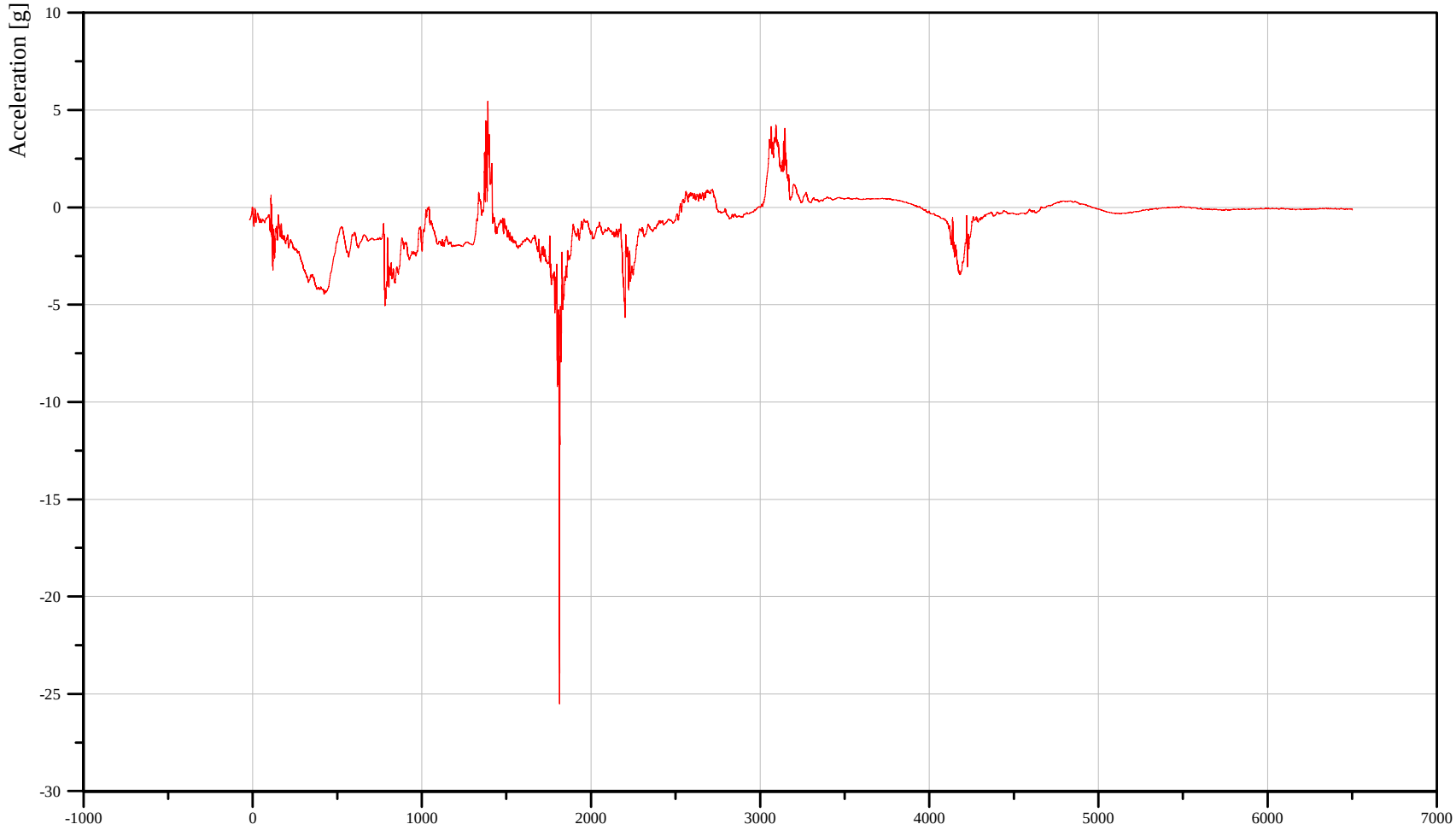
Right C-Pillar Lower Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILLORI00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-25.52 g at 1,813.12 ms

Max. Value
5.45 g at 1,389.28 ms

Soil Trip Rollover 2007 Ford Expedition

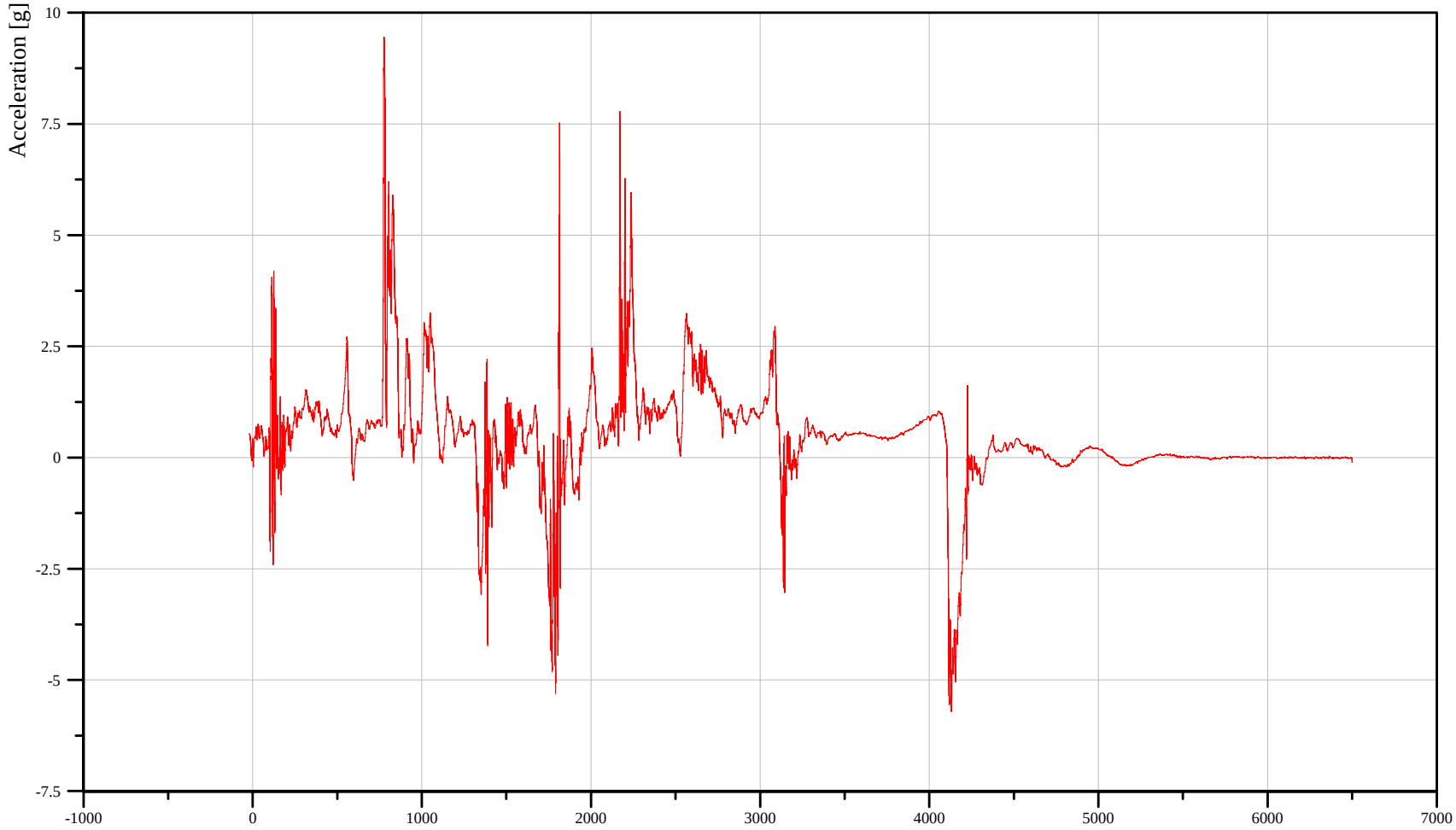
Right C-Pillar Lower Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILLORI00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-5.71 g at 4,130.72 ms

Max. Value
9.45 g at 775.60 ms

Soil Trip Rollover 2007 Ford Expedition

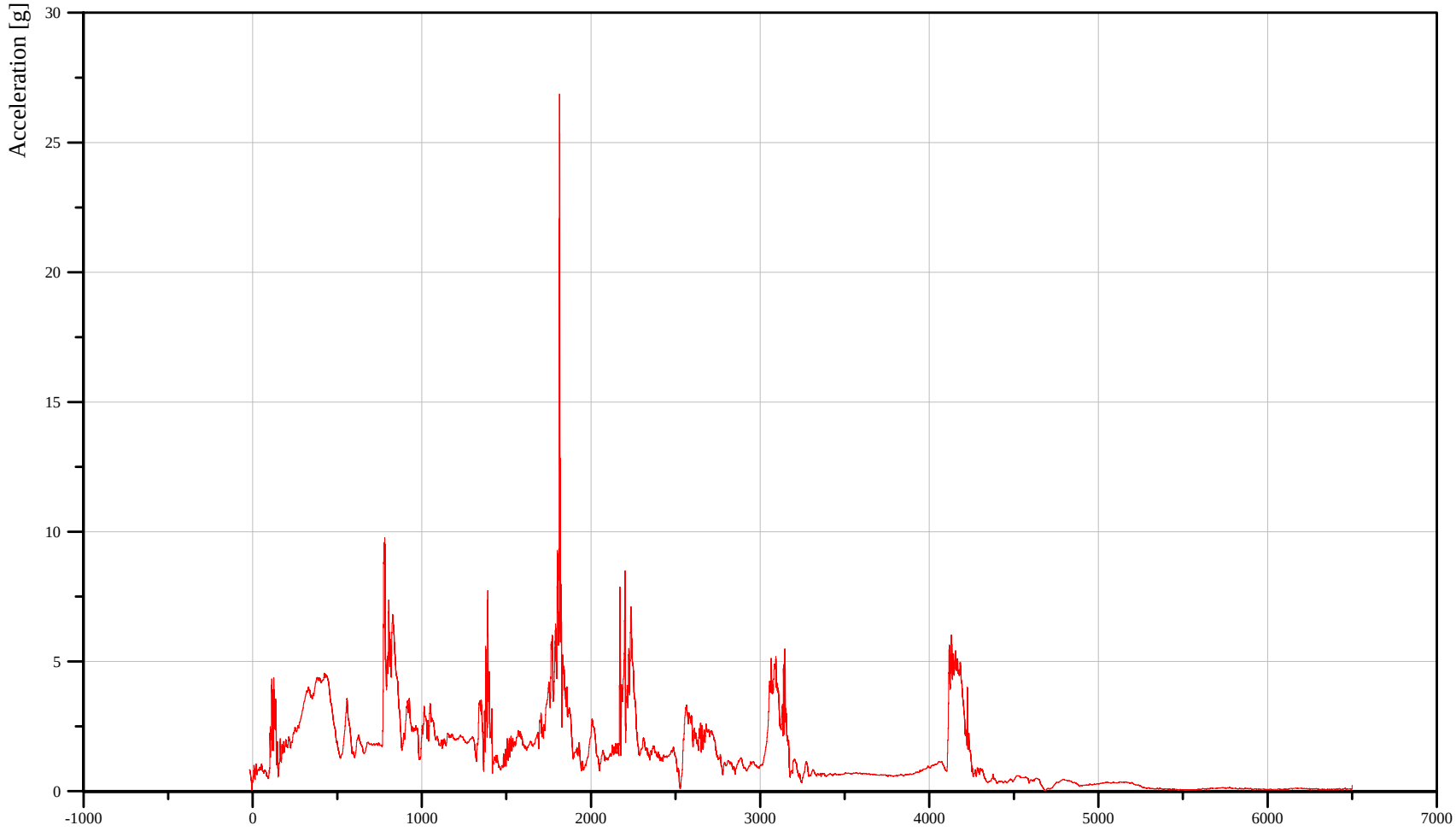
Right C-Pillar Lower Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10CPILLORI00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.01 g at 4,684.08 ms

Max. Value
26.88 g at 1,813.12 ms

Soil Trip Rollover 2007 Ford Expedition

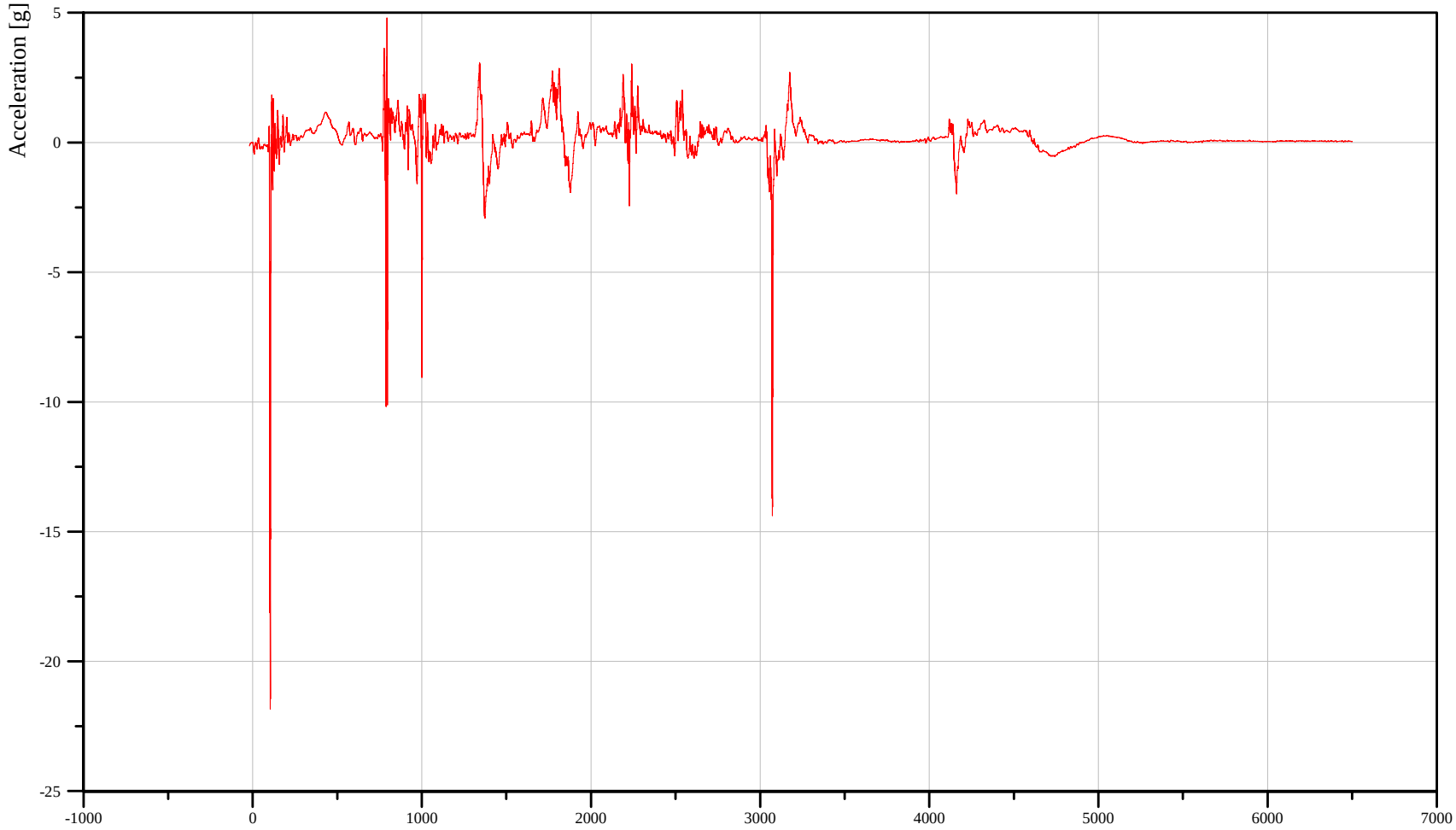
Left D-Pillar Upper X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILUPLE00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-21.84 g at 103.44 ms

Max. Value
4.81 g at 792.64 ms

Soil Trip Rollover 2007 Ford Expedition

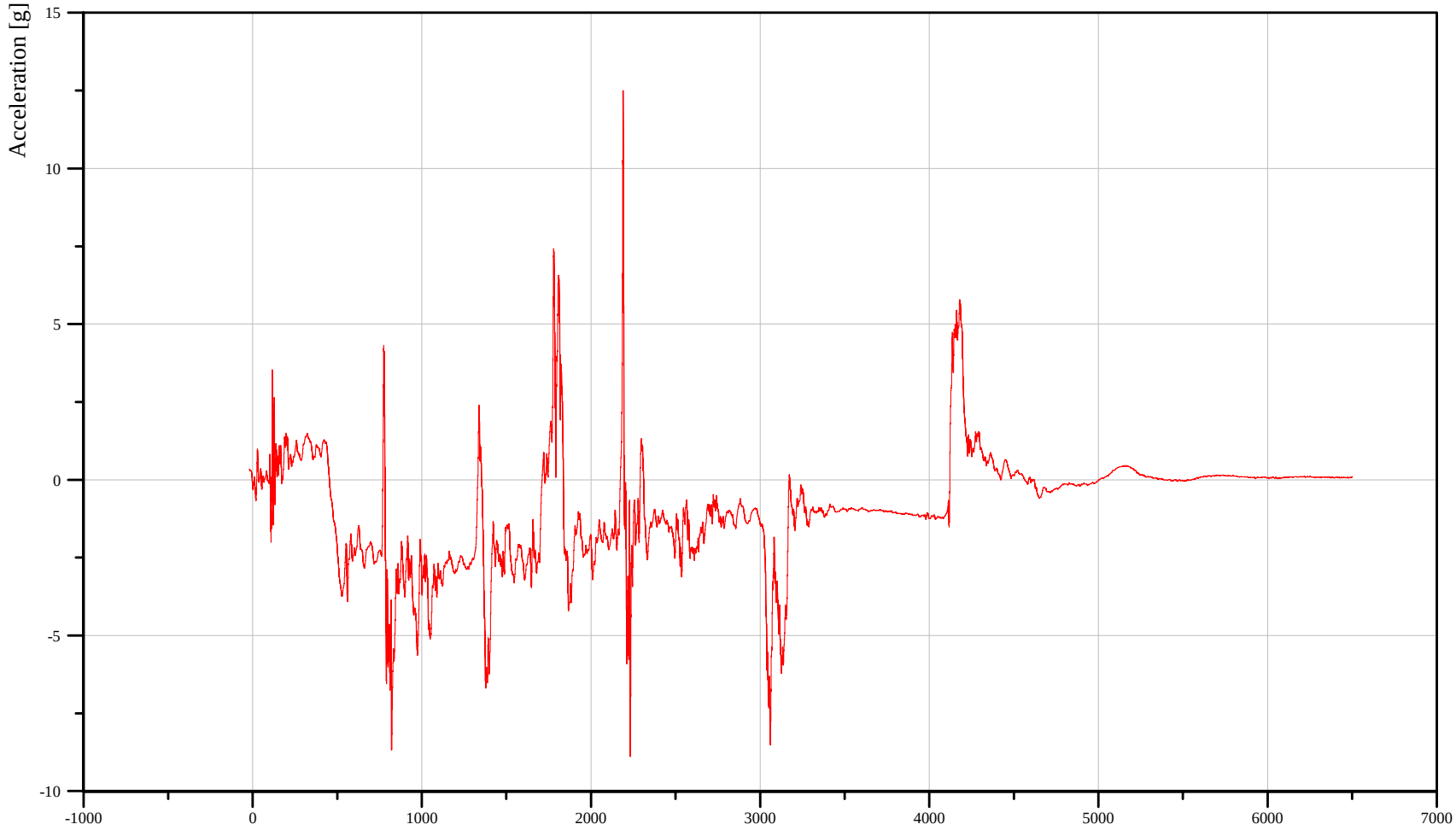
Left D-Pillar Upper Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILUPLE00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-8.89 g at 2,232.08 ms

Max. Value
12.50 g at 2,189.44 ms

091215

Soil Trip Rollover 2007 Ford Expedition

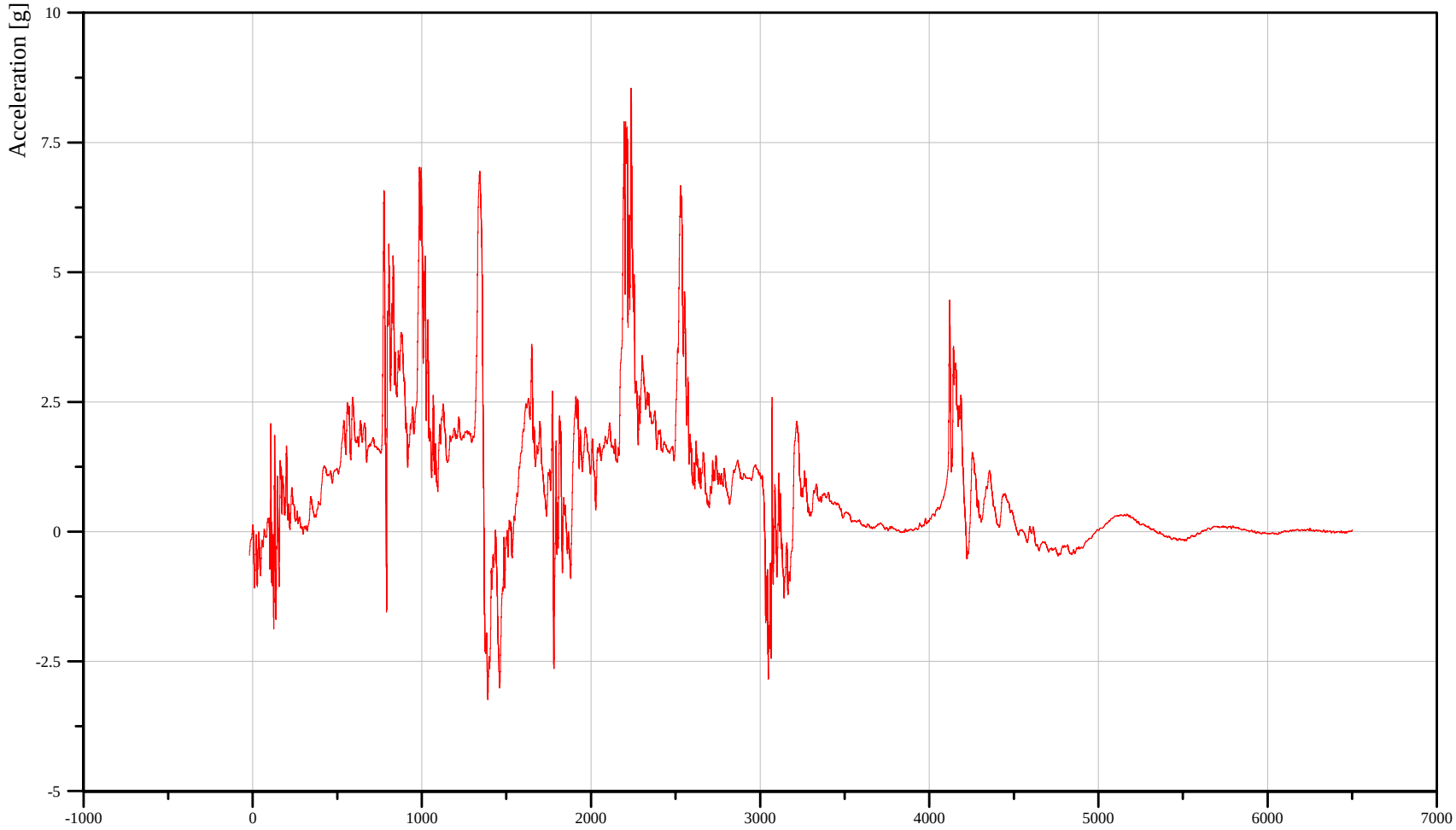
Left D-Pillar Upper Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILUPLE00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-3.24 g at 1,390.08 ms

Max. Value
8.55 g at 2,236.64 ms

Soil Trip Rollover 2007 Ford Expedition

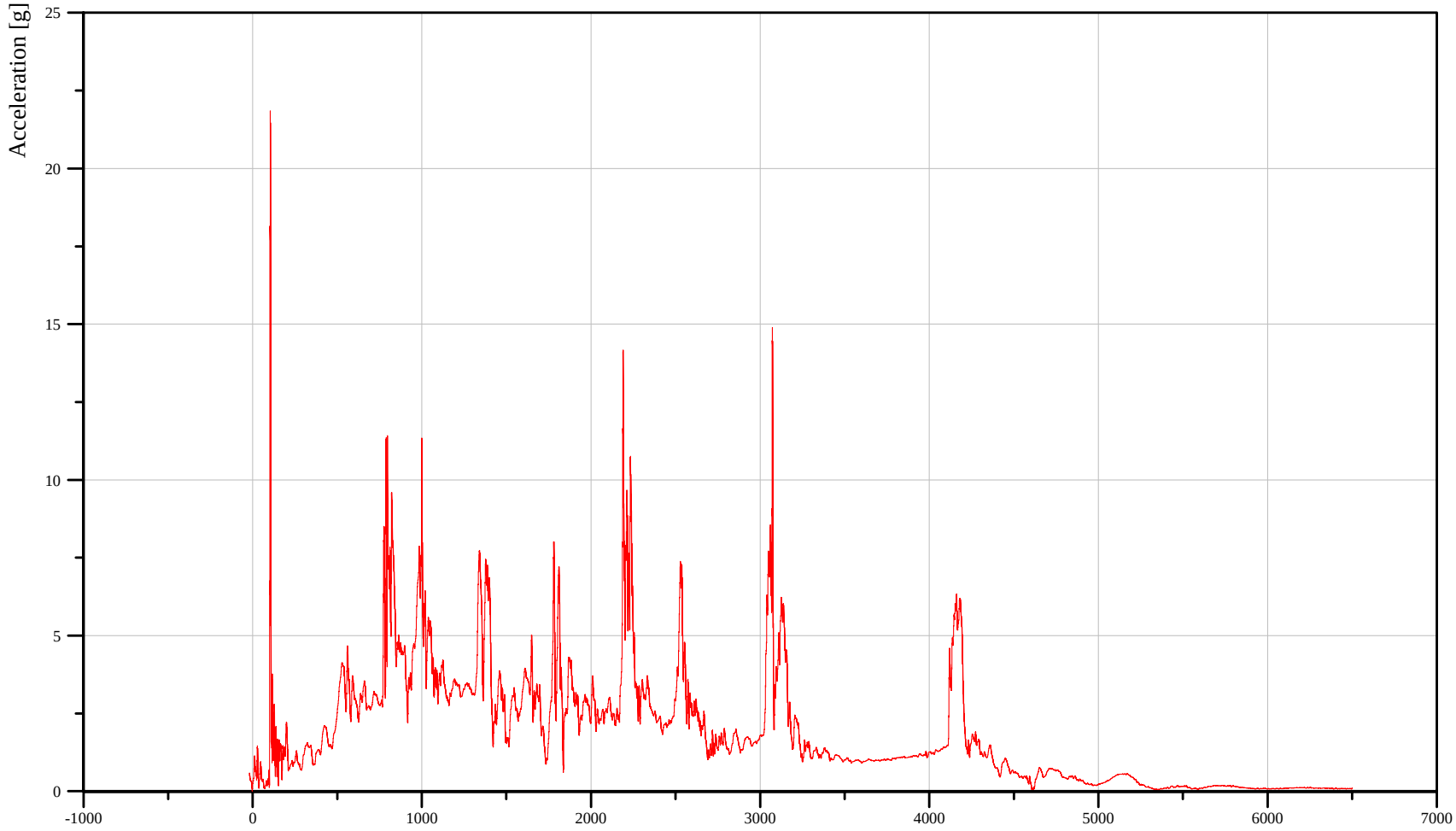
Left D-Pillar Upper Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILUPLE00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.01 g at -2.80 ms

Max. Value
21.85 g at 103.44 ms

Soil Trip Rollover 2007 Ford Expedition

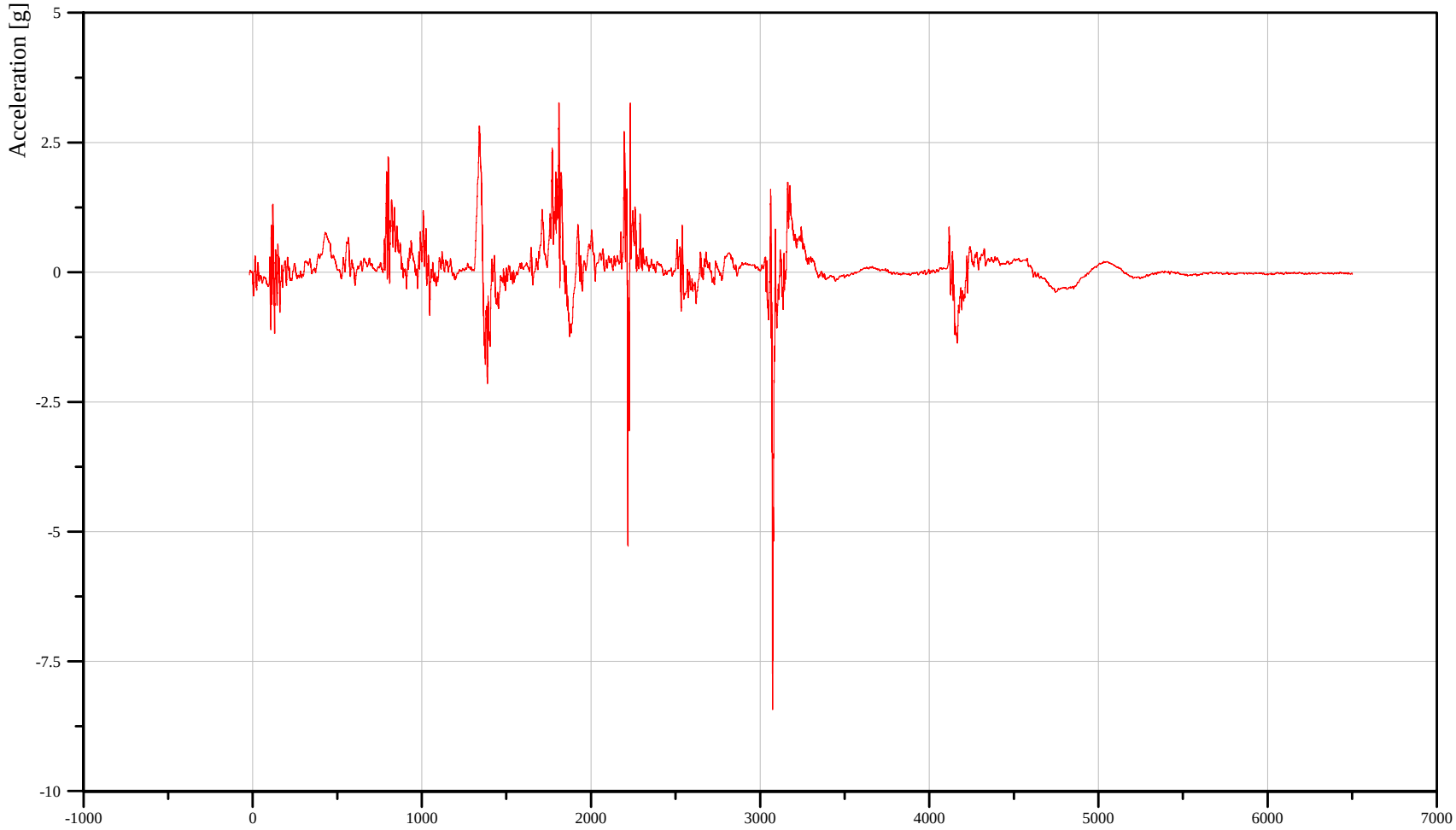
Left D-Pillar Lower X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILLOLE00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-8.43 g at 3,073.68 ms

Max. Value
3.27 g at 1,810.00 ms

Soil Trip Rollover 2007 Ford Expedition

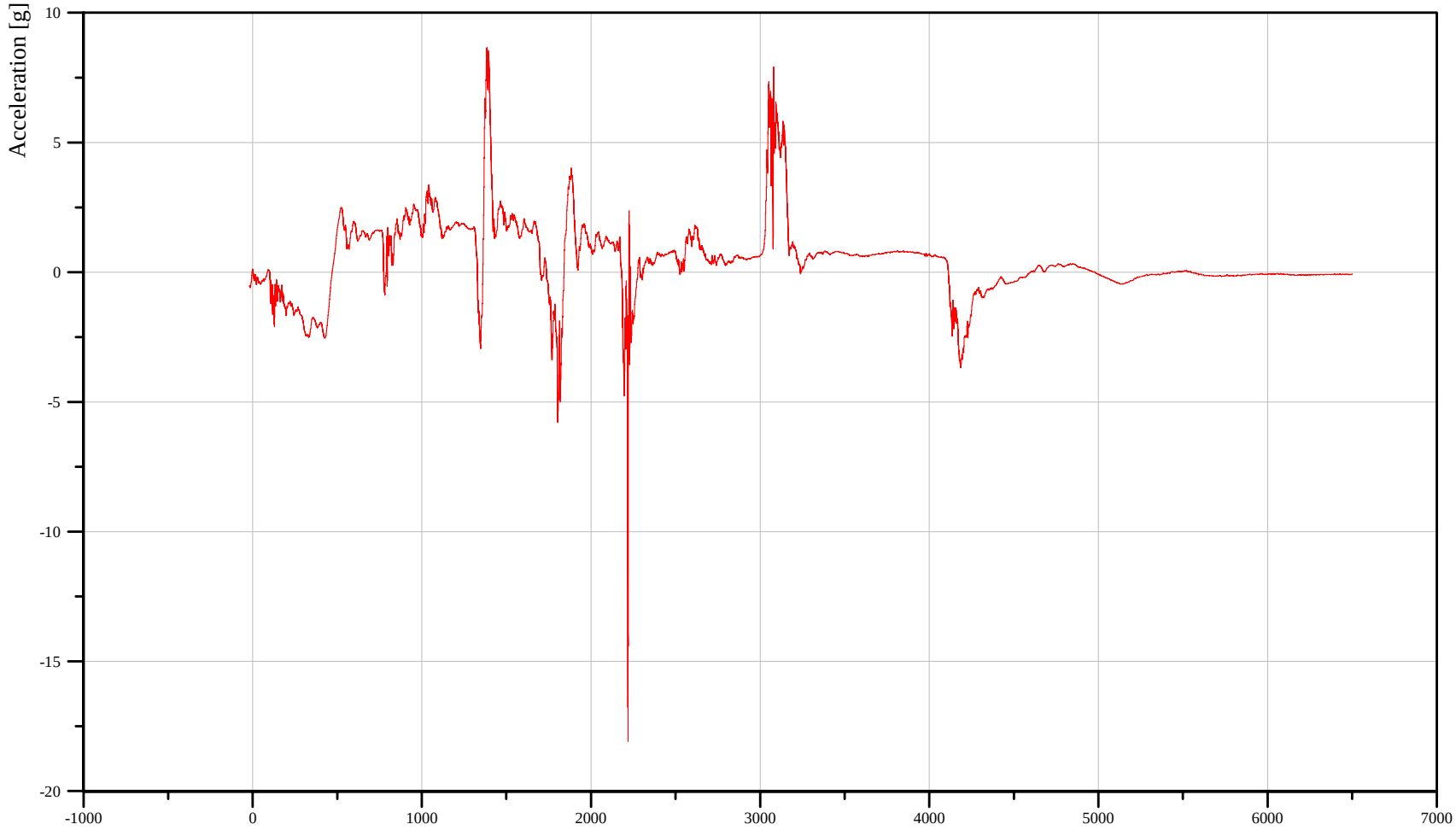
Left D-Pillar Lower Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILLOLE00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-18.08 g at 2,218.56 ms

Max. Value
8.65 g at 1,384.32 ms

Soil Trip Rollover 2007 Ford Expedition

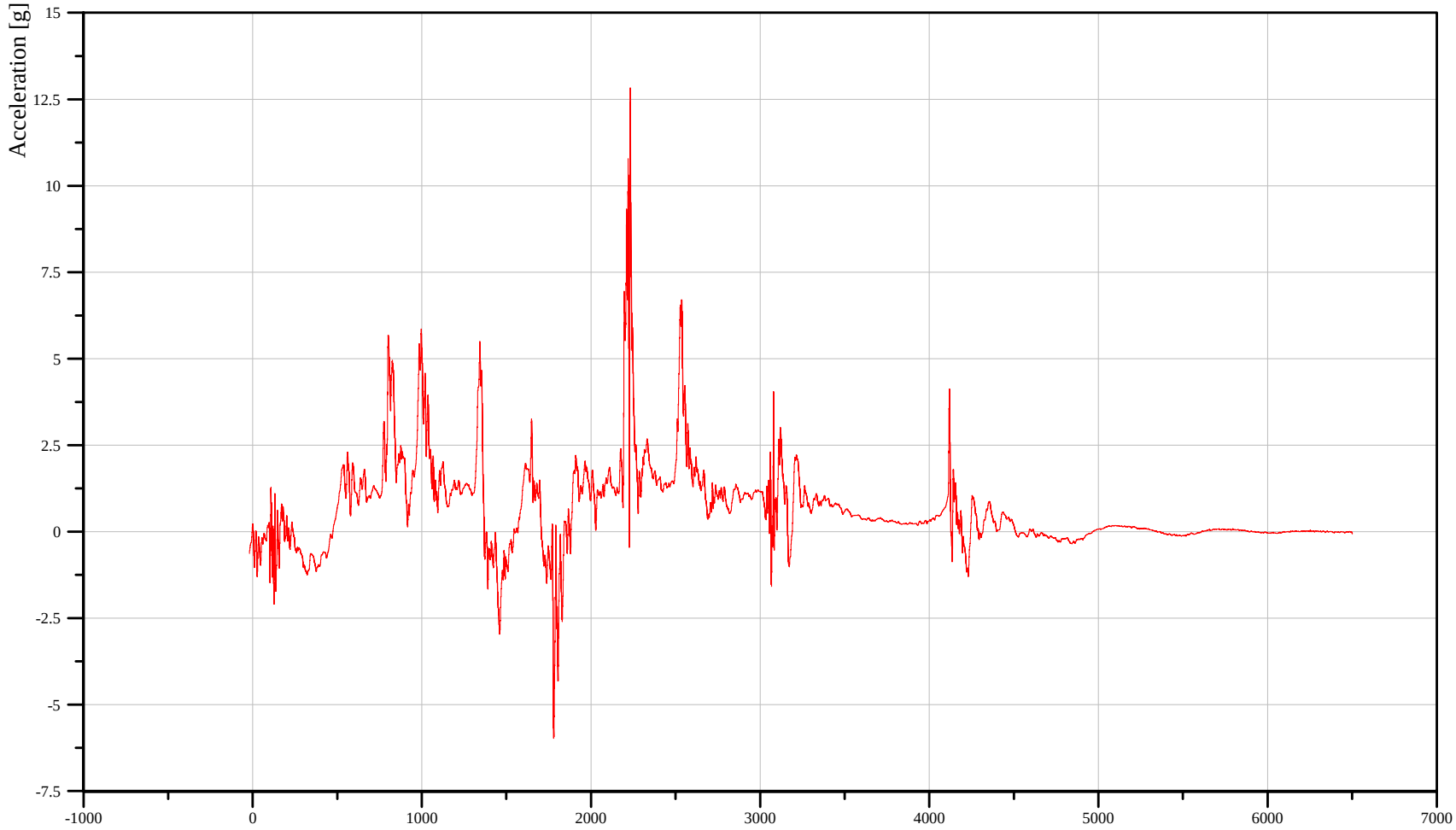
Left D-Pillar Lower Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILLOLE00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-5.97 g at 1,779.20 ms

Max. Value
12.83 g at 2,231.52 ms

Soil Trip Rollover 2007 Ford Expedition

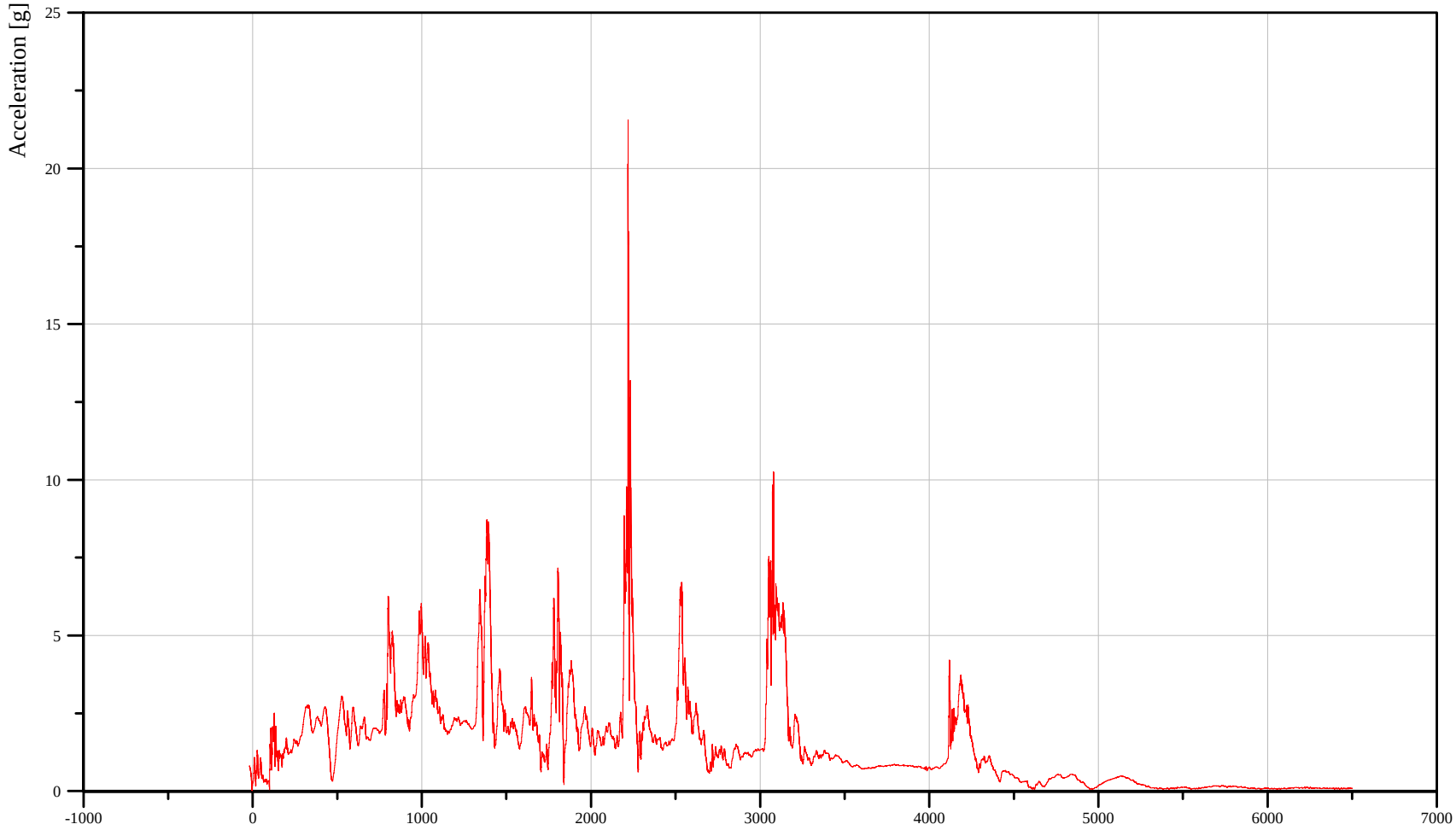
Left D-Pillar Lower Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILLOLE00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.02 g at -3.68 ms

Max. Value
21.56 g at 2,218.56 ms

Soil Trip Rollover 2007 Ford Expedition

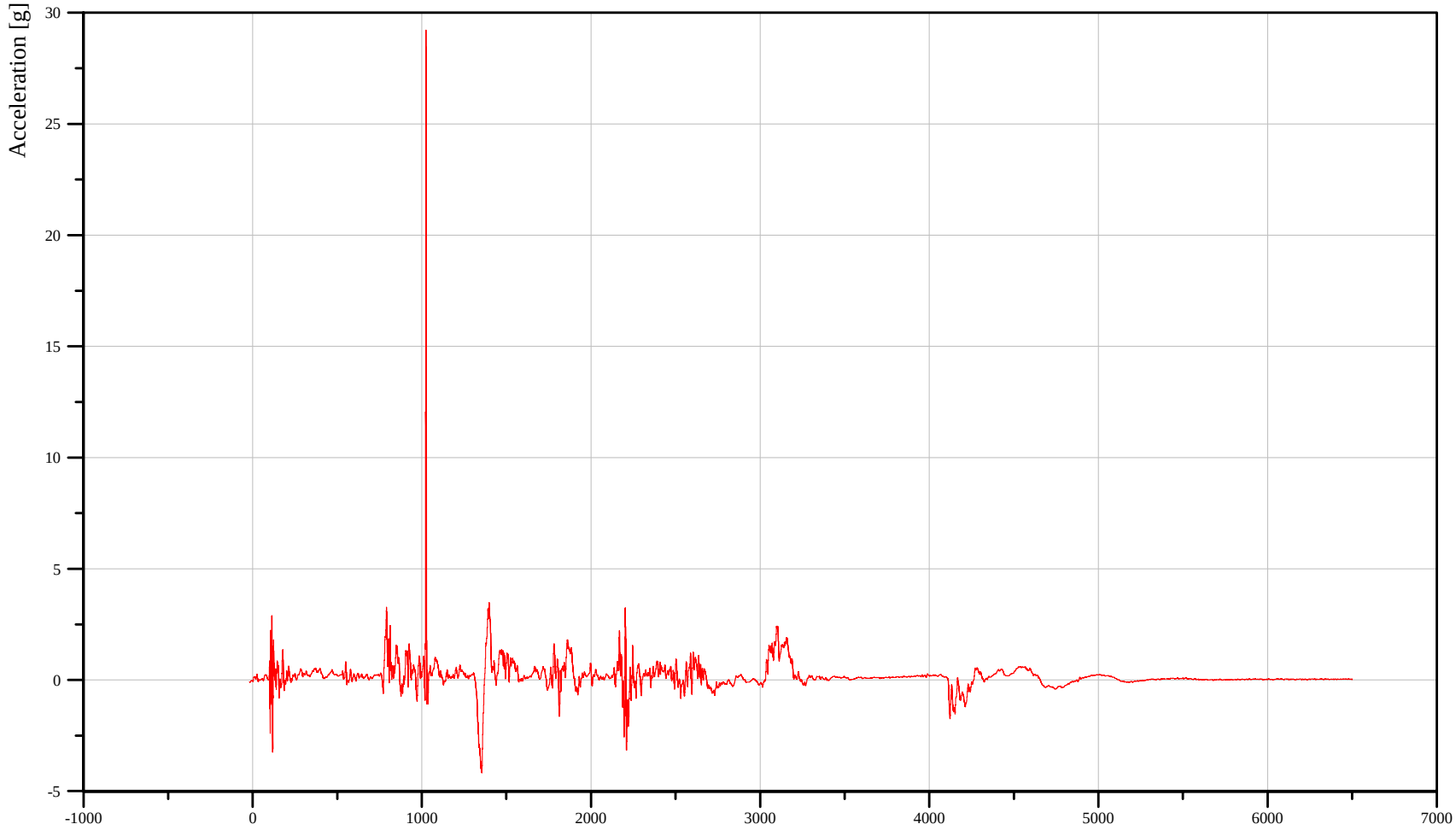
Right D-Pillar Upper X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILUPRI00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-4.18 g at 1,353.92 ms

Max. Value
29.23 g at 1,023.92 ms

Soil Trip Rollover 2007 Ford Expedition

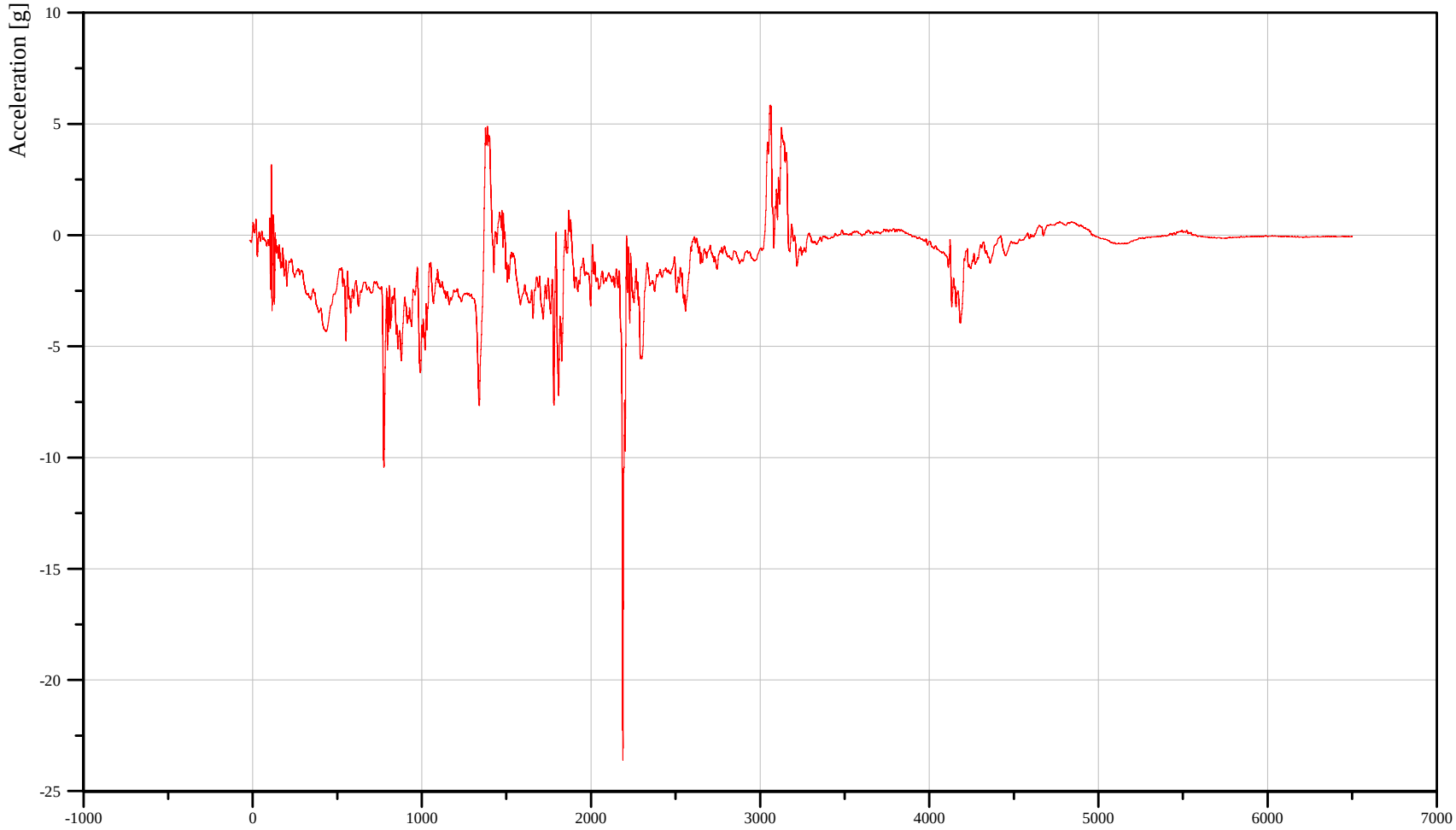
Right D-Pillar Upper Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILUPRI00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-23.62 g at 2,188.56 ms

Max. Value
5.85 g at 3,059.92 ms

Soil Trip Rollover 2007 Ford Expedition

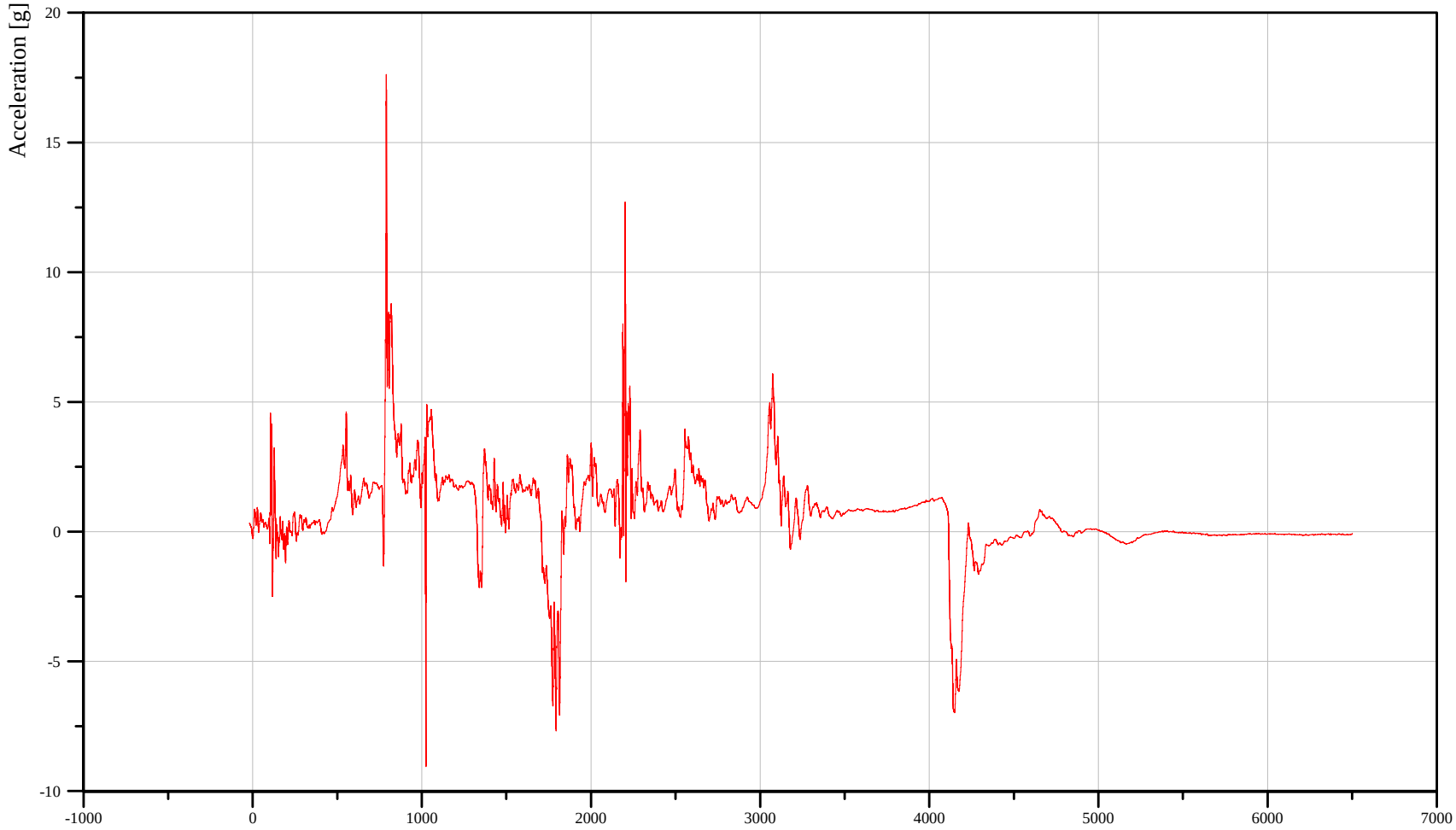
Right D-Pillar Upper Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILUPRI00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-9.05 g at 1,023.68 ms

Max. Value
17.63 g at 789.36 ms

Soil Trip Rollover 2007 Ford Expedition

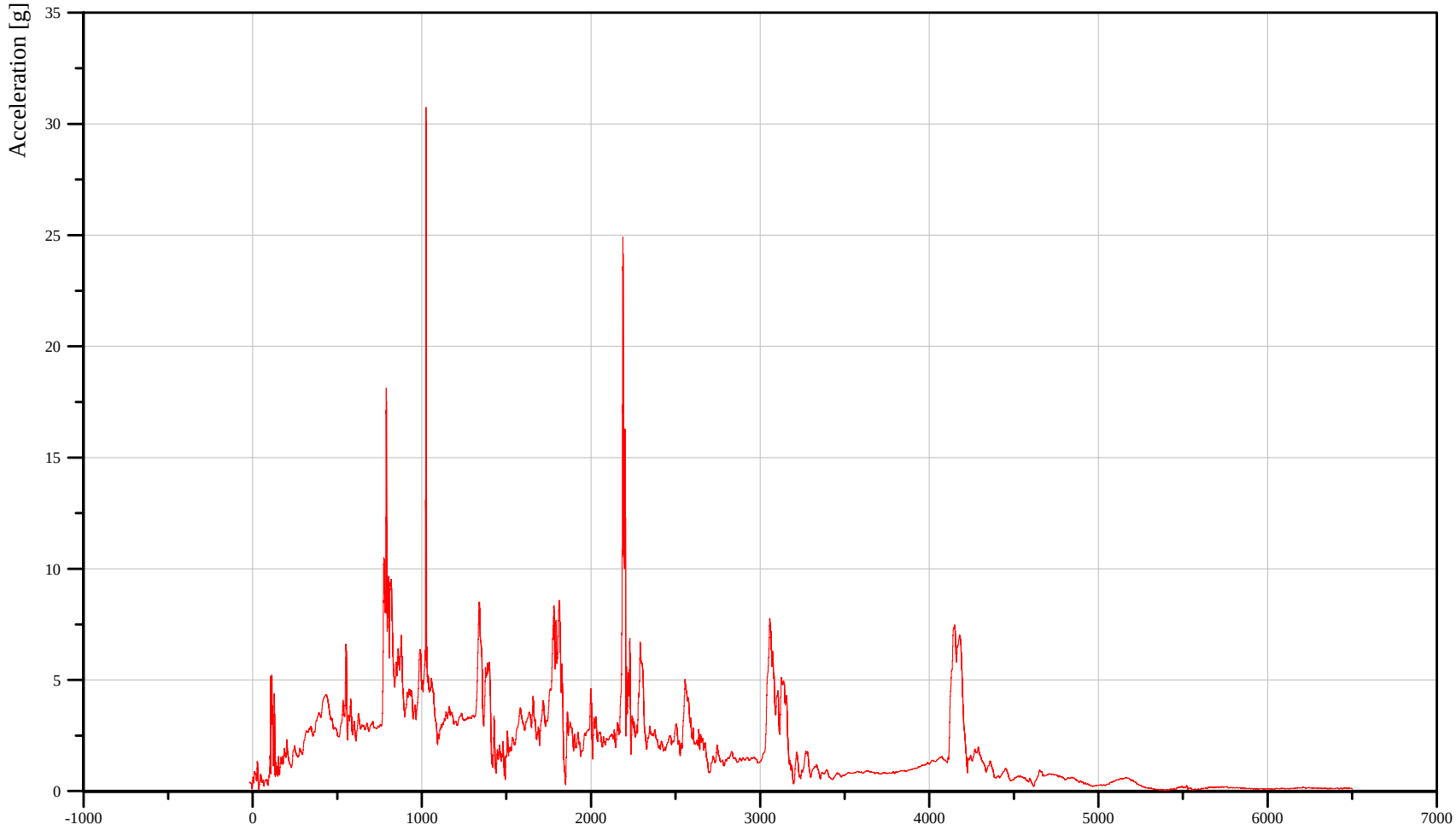
Right D-Pillar Upper Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILUPRI00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.04 g at 5,419.28 ms

Max. Value
30.75 g at 1,023.92 ms

Soil Trip Rollover 2007 Ford Expedition

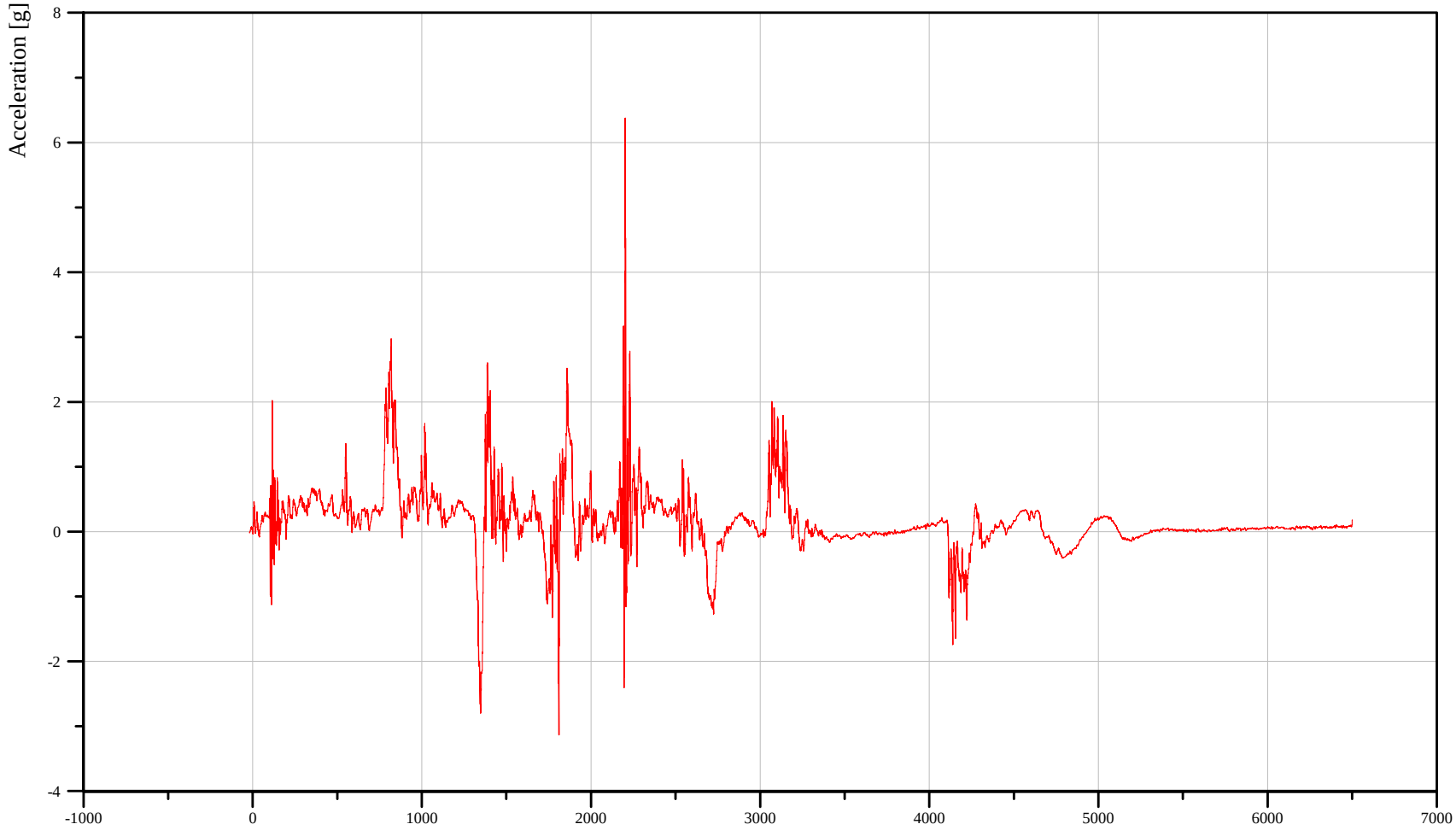
Right D-Pillar Lower X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILLORI00ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-3.13 g at 1,810.24 ms

Max. Value
6.38 g at 2,201.92 ms

Soil Trip Rollover 2007 Ford Expedition

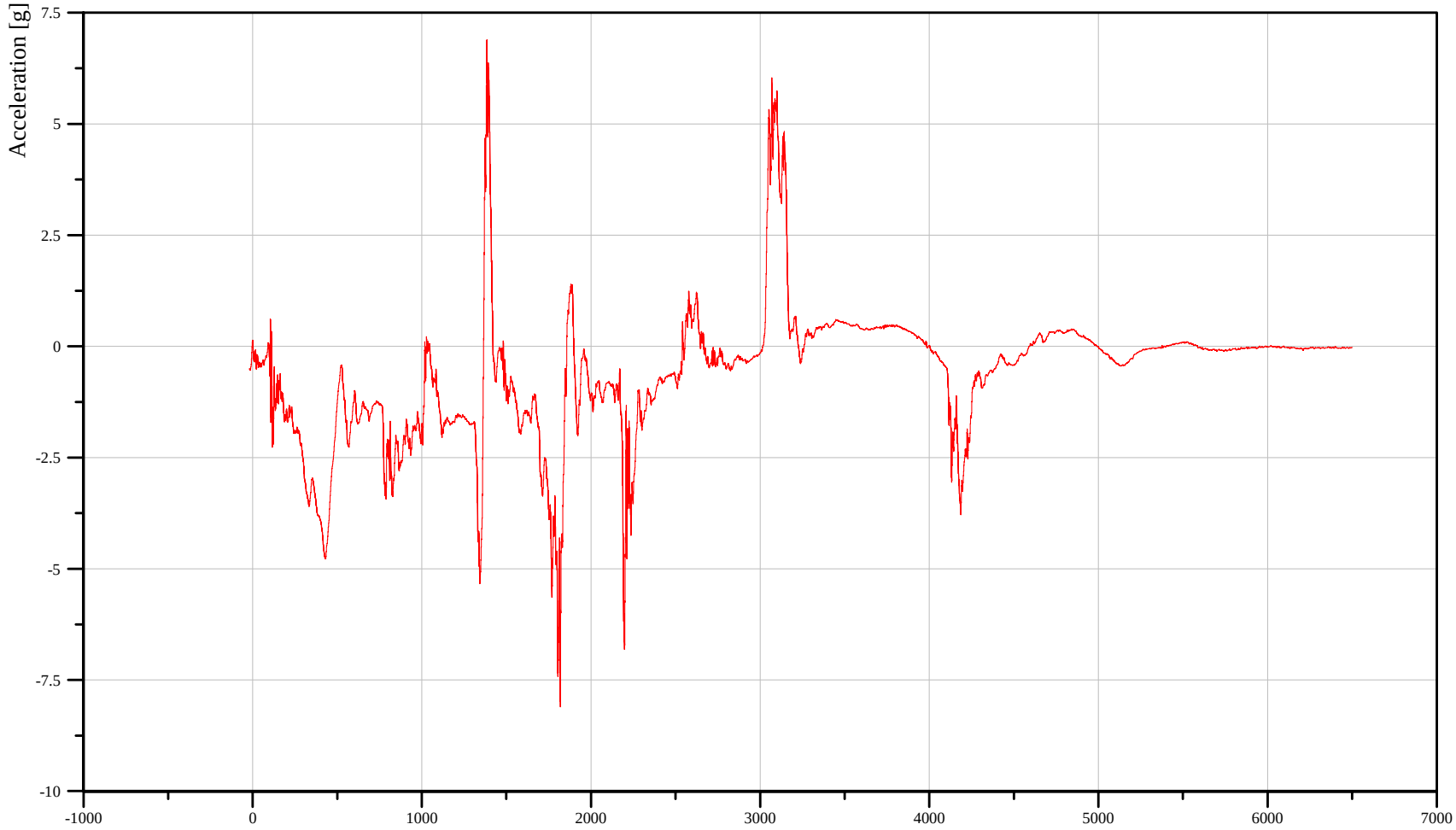
Right D-Pillar Lower Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILLORI00ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-8.10 g at 1,818.08 ms

Max. Value
6.89 g at 1,384.32 ms

Soil Trip Rollover 2007 Ford Expedition

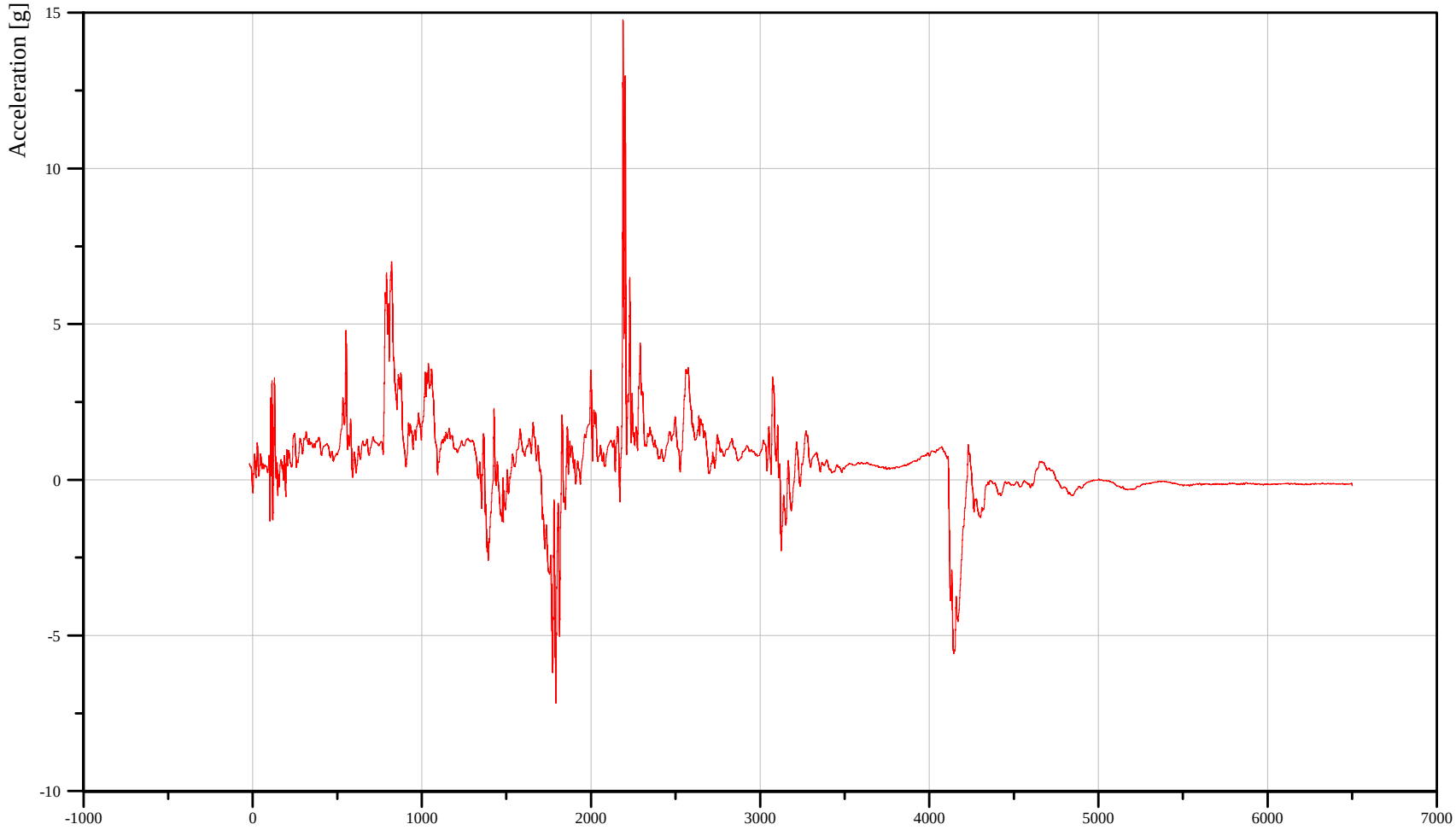
Right D-Pillar Lower Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILLORI00ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-7.17 g at 1,792.08 ms

Max. Value
14.78 g at 2,188.96 ms

Soil Trip Rollover 2007 Ford Expedition

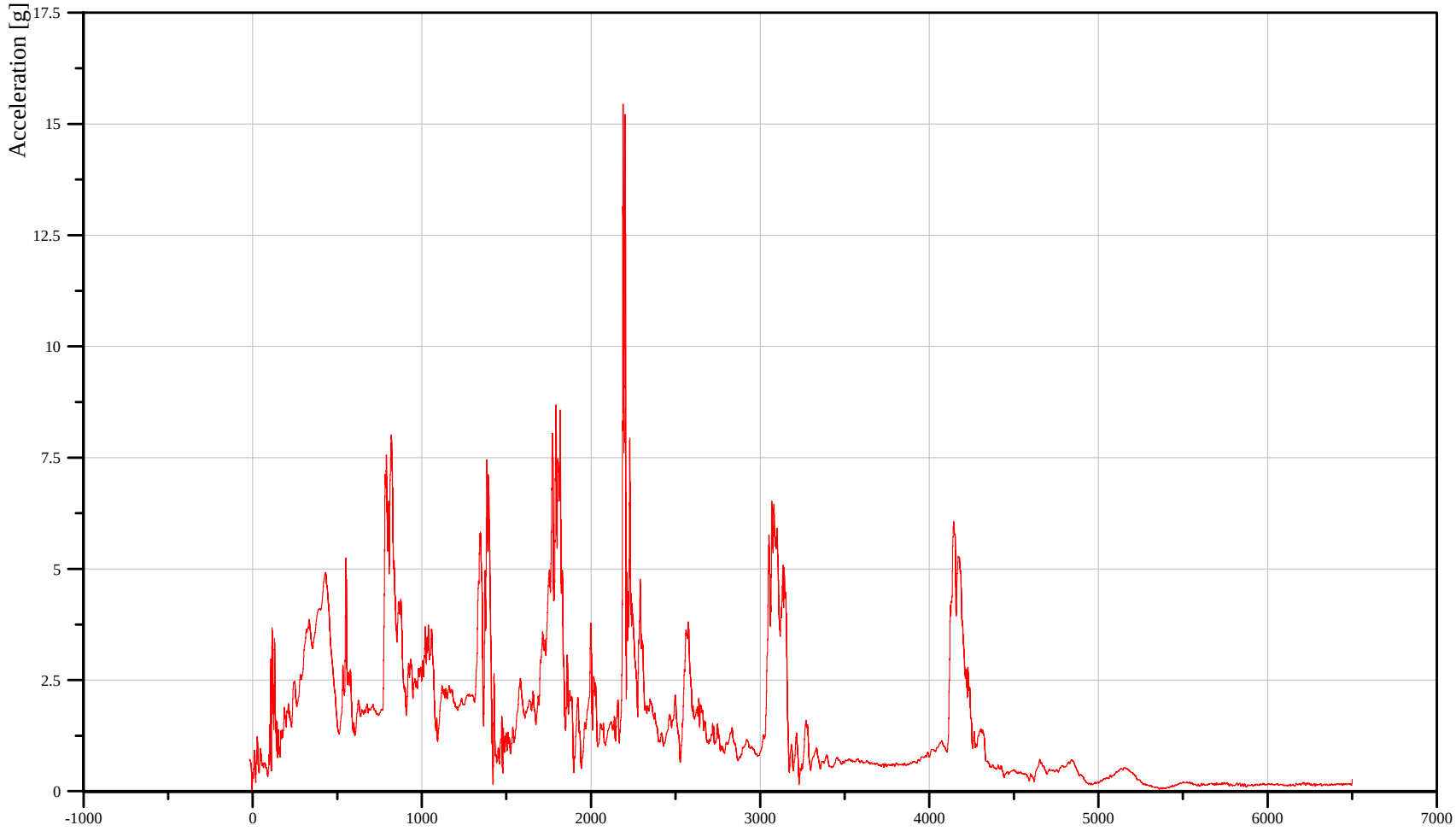
Right D-Pillar Lower Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

10DPILLORI00ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.04 g at -3.92 ms

Max. Value
15.44 g at 2,189.20 ms

091215

Soil Trip Rollover 2007 Ford Expedition

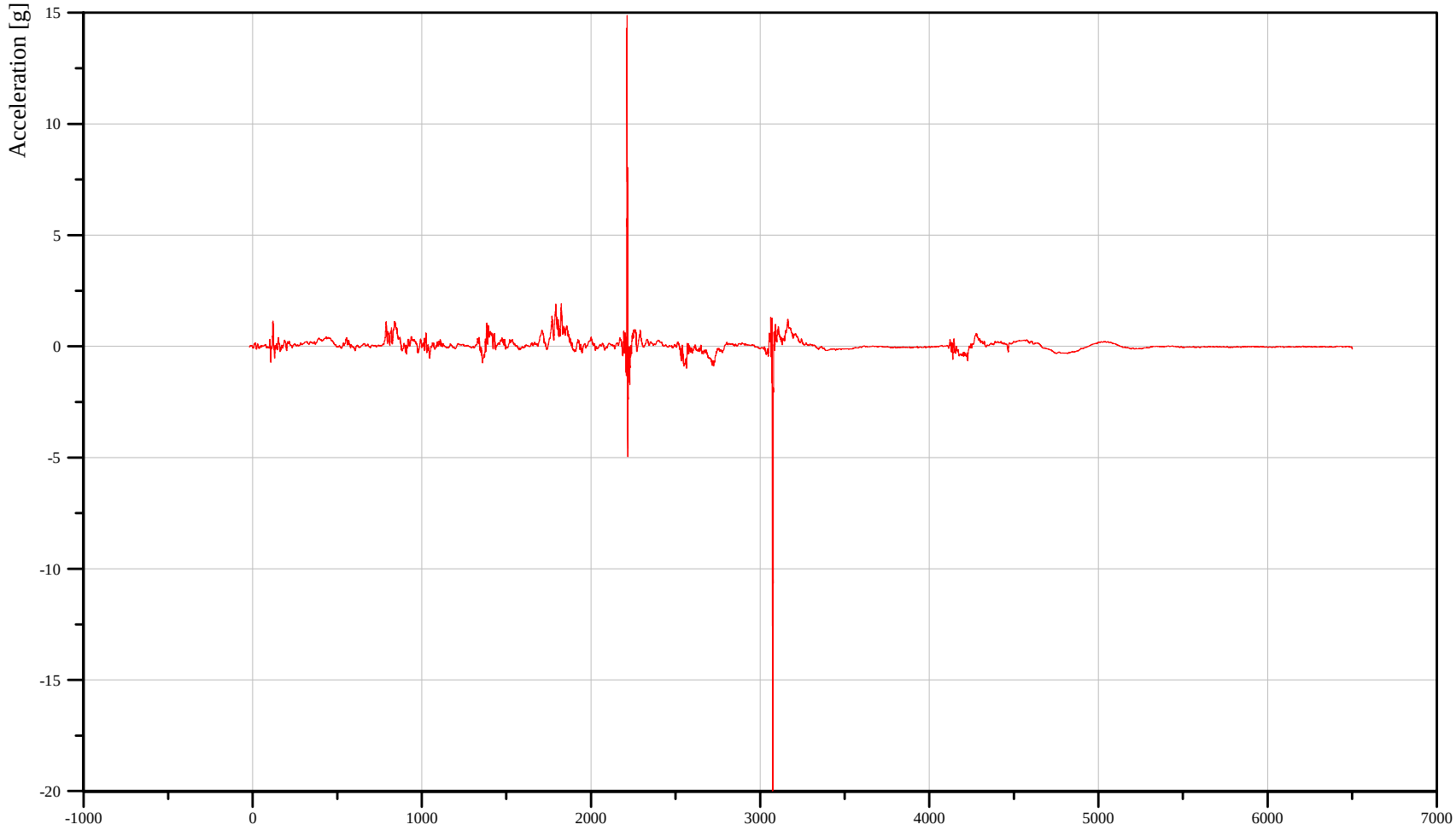
Vehicle Rear Deck X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

102RDK000000ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-19.99 g at 3,074.48 ms

Max. Value
14.88 g at 2,212.96 ms

Soil Trip Rollover 2007 Ford Expedition

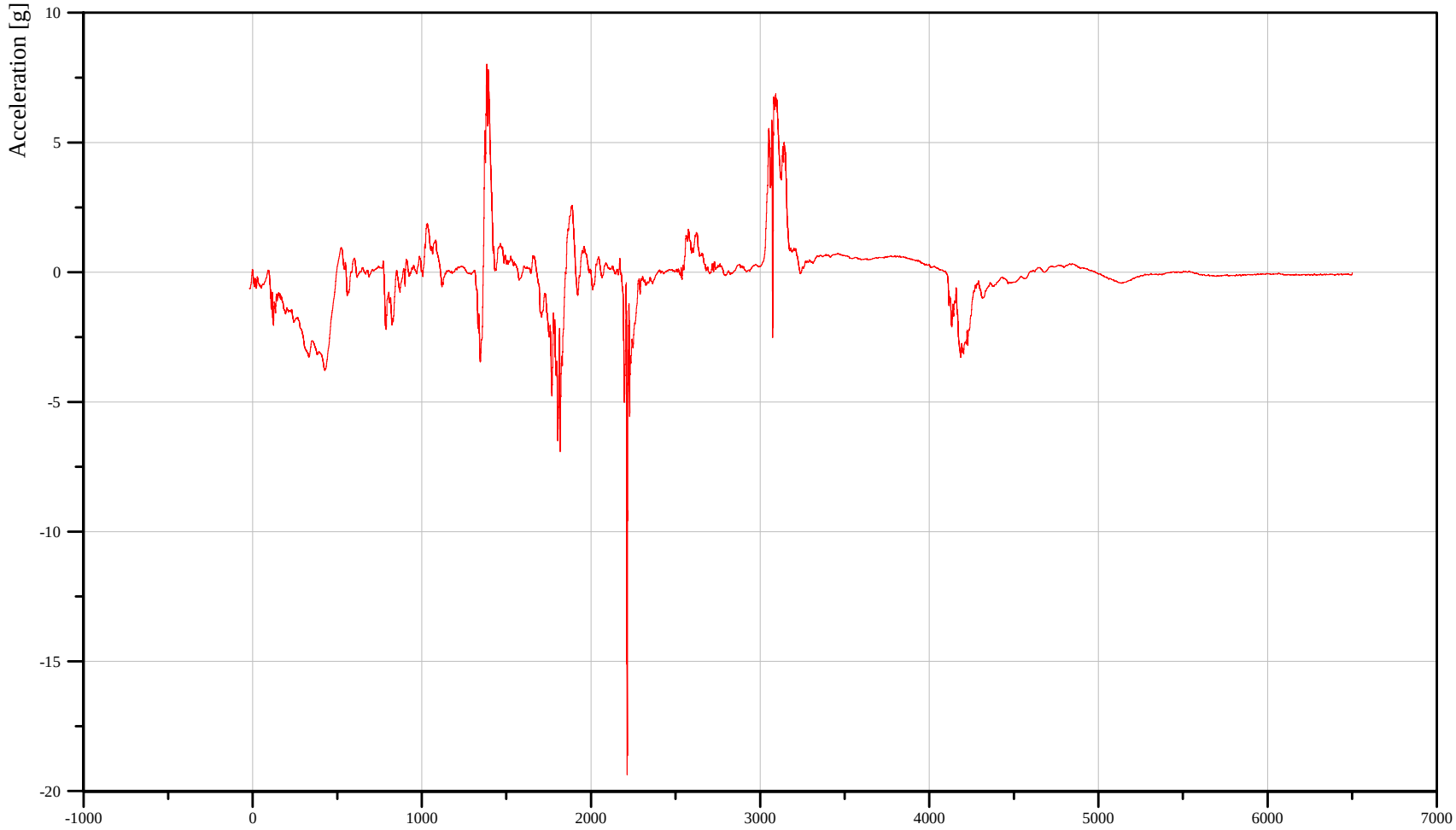
Vehicle Rear Deck Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

102RDK000000ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-19.37 g at 2,213.84 ms

Max. Value
8.02 g at 1,384.00 ms

Soil Trip Rollover 2007 Ford Expedition

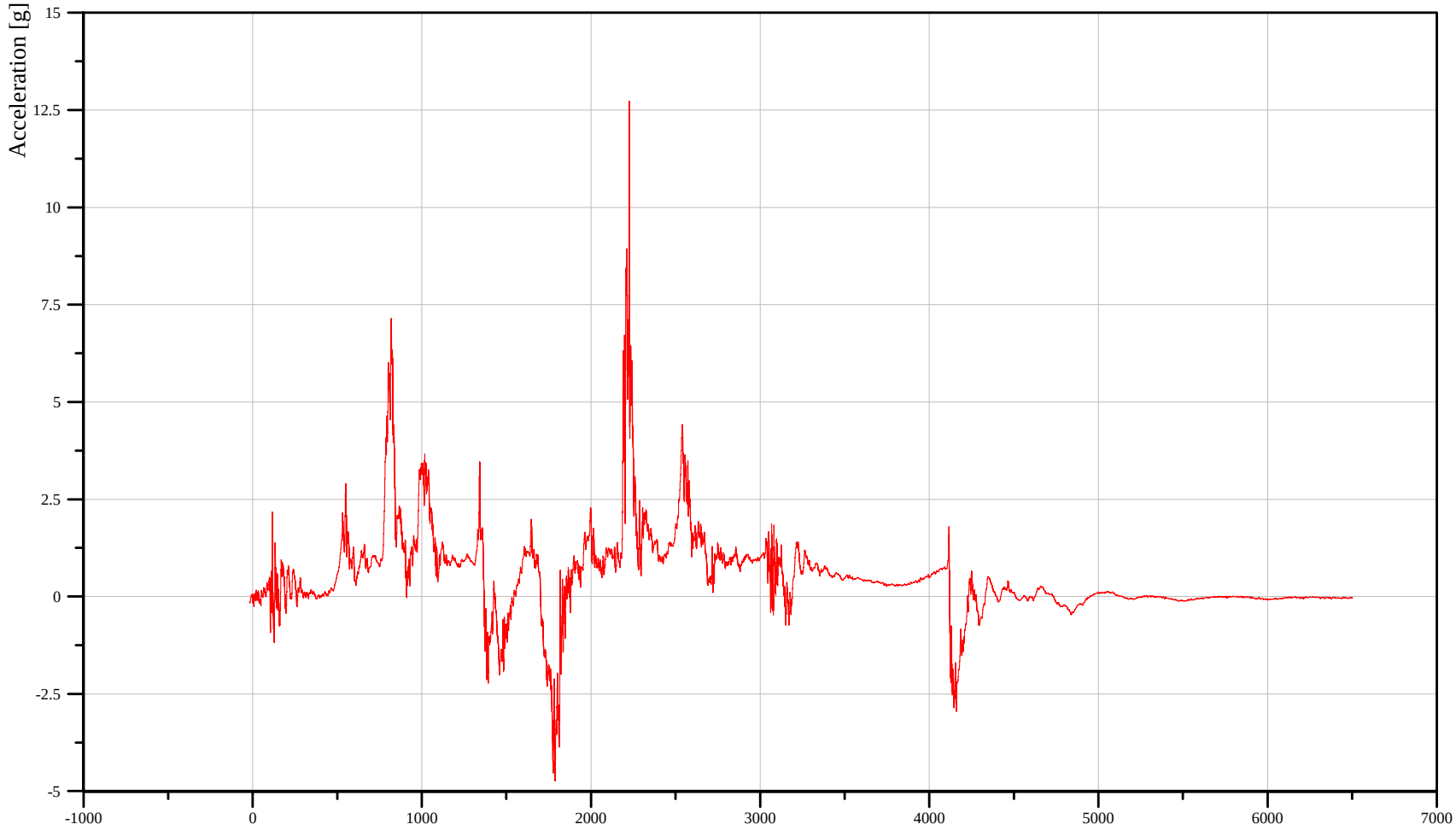
Vehicle Rear Deck Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

102RDK000000ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-4.74 g at 1,786.72 ms

Max. Value
12.73 g at 2,225.68 ms

Soil Trip Rollover 2007 Ford Expedition

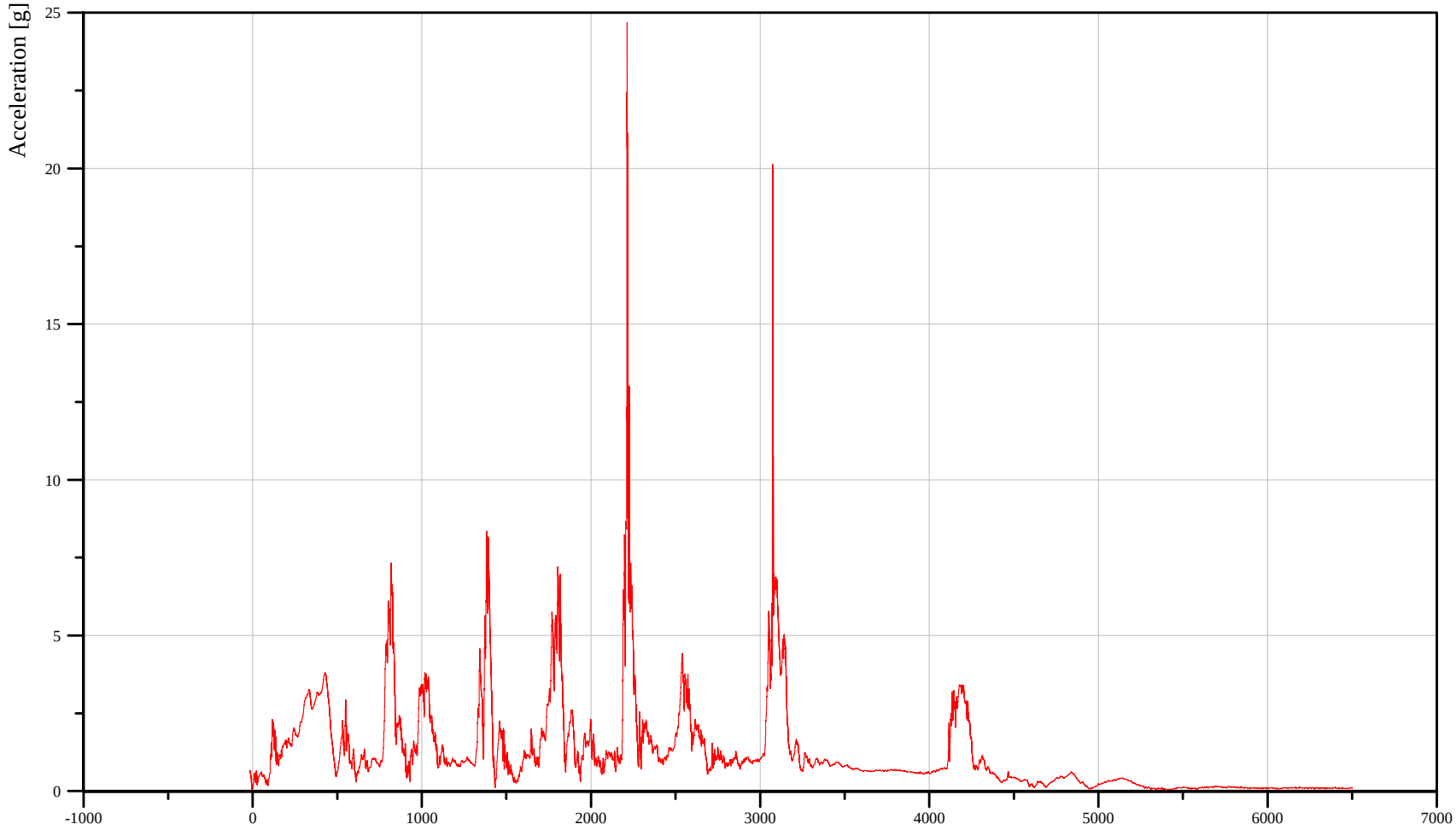
Vehicle Rear Deck Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

102RDK000000ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.04 g at 5,398.80 ms

Max. Value
24.68 g at 2,213.36 ms

Soil Trip Rollover 2007 Ford Expedition

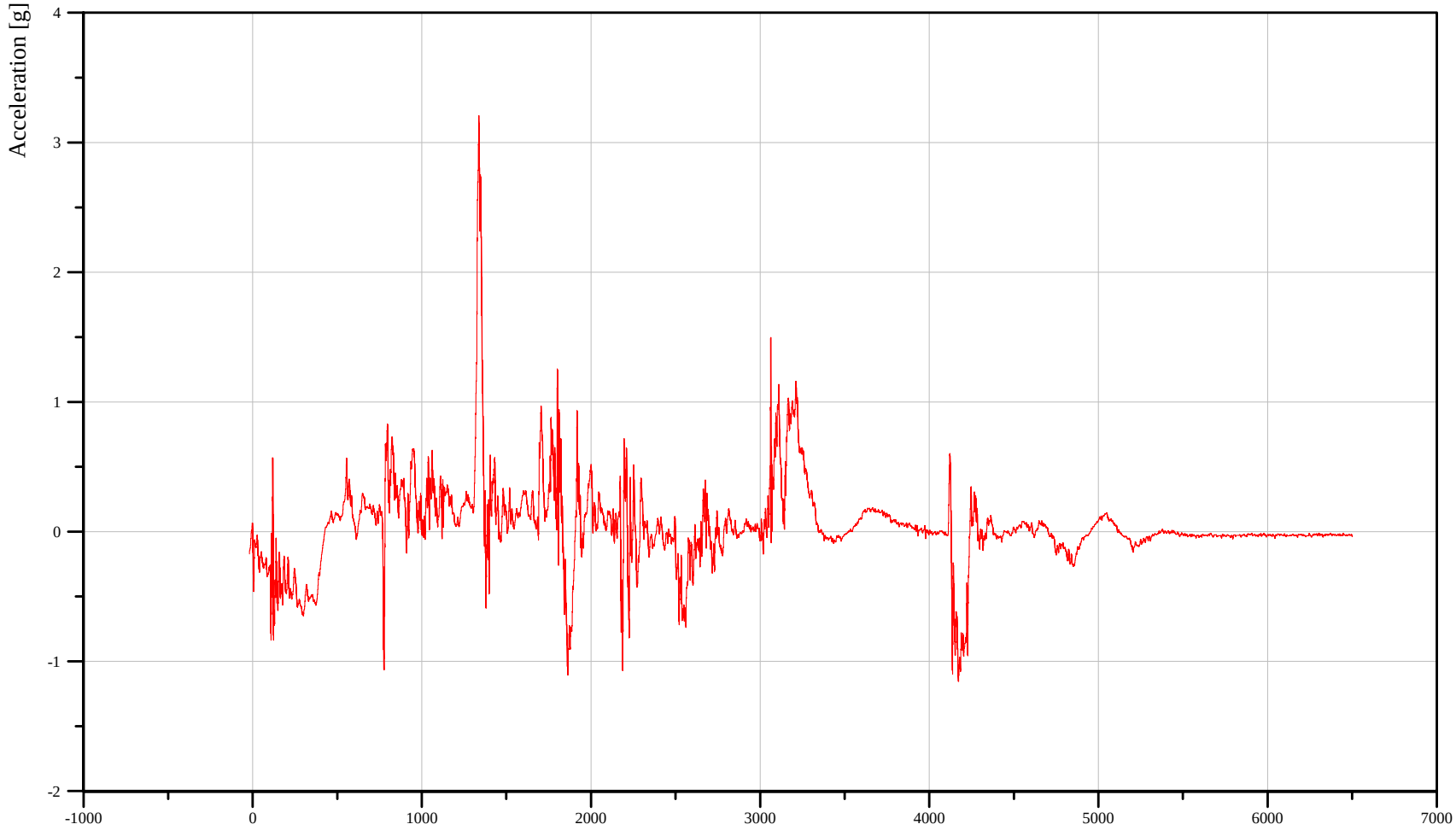
LF Seat Position (on floor) X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11SEAT000000ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-1.15 g at 4,172.32 ms

Max. Value
3.21 g at 1,336.88 ms

Soil Trip Rollover 2007 Ford Expedition

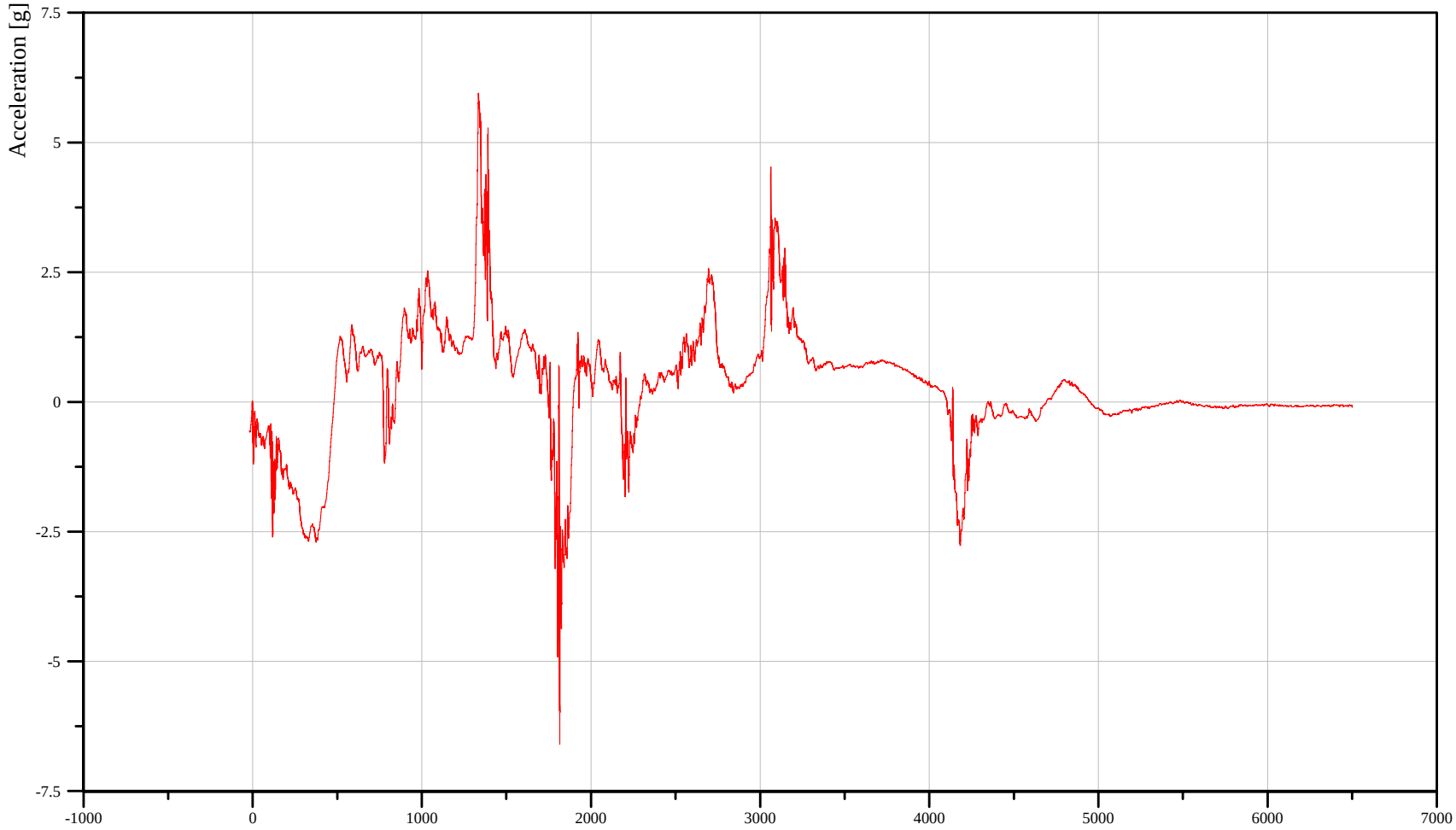
LF Seat Position (on floor) Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11SEAT000000ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-6.60 g at 1,814.72 ms

Max. Value
5.95 g at 1,334.16 ms

Soil Trip Rollover 2007 Ford Expedition

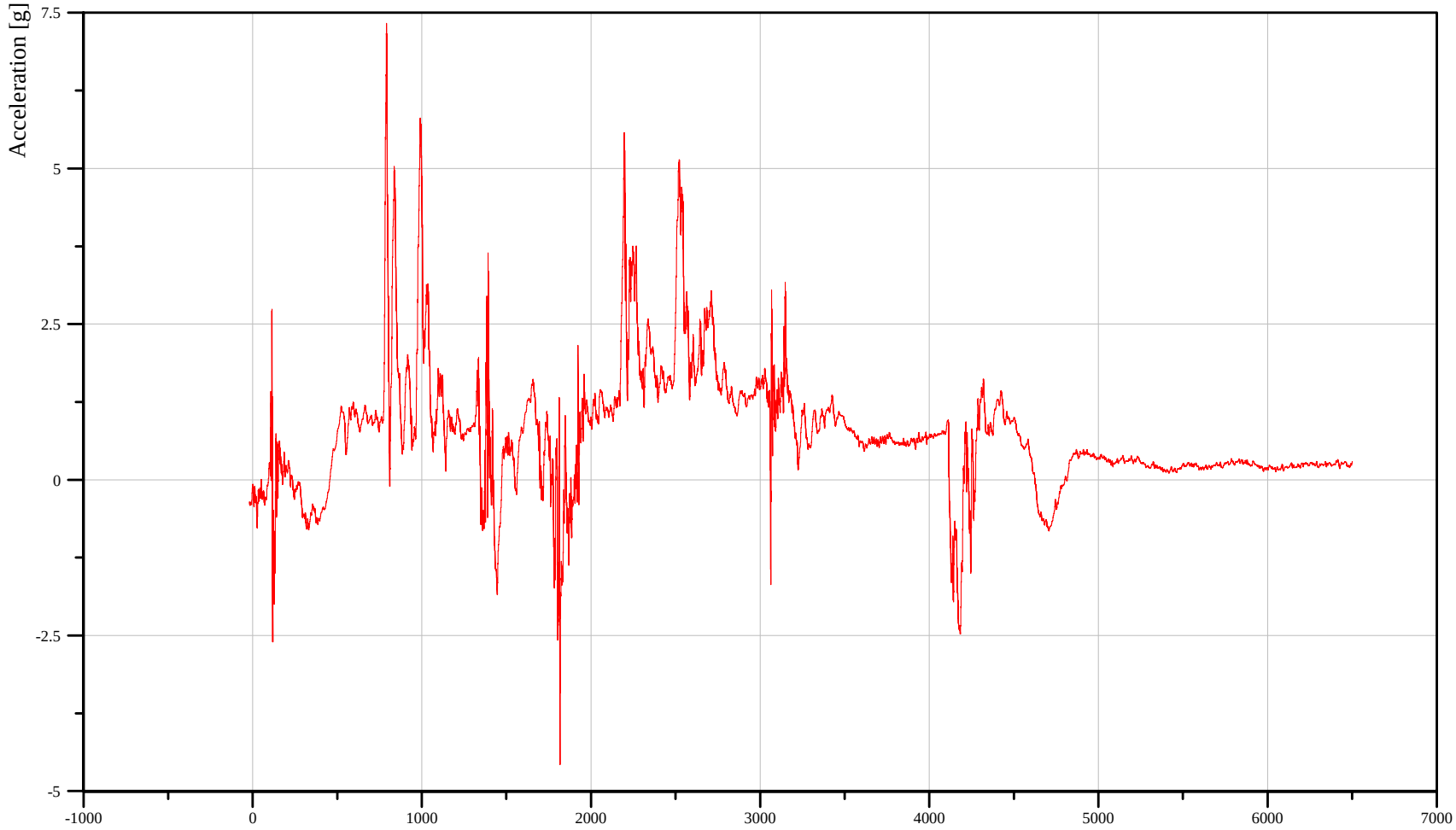
LF Seat Position (on floor) Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11SEAT000000ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-4.57 g at 1,815.76 ms

Max. Value
7.33 g at 790.96 ms

Soil Trip Rollover 2007 Ford Expedition

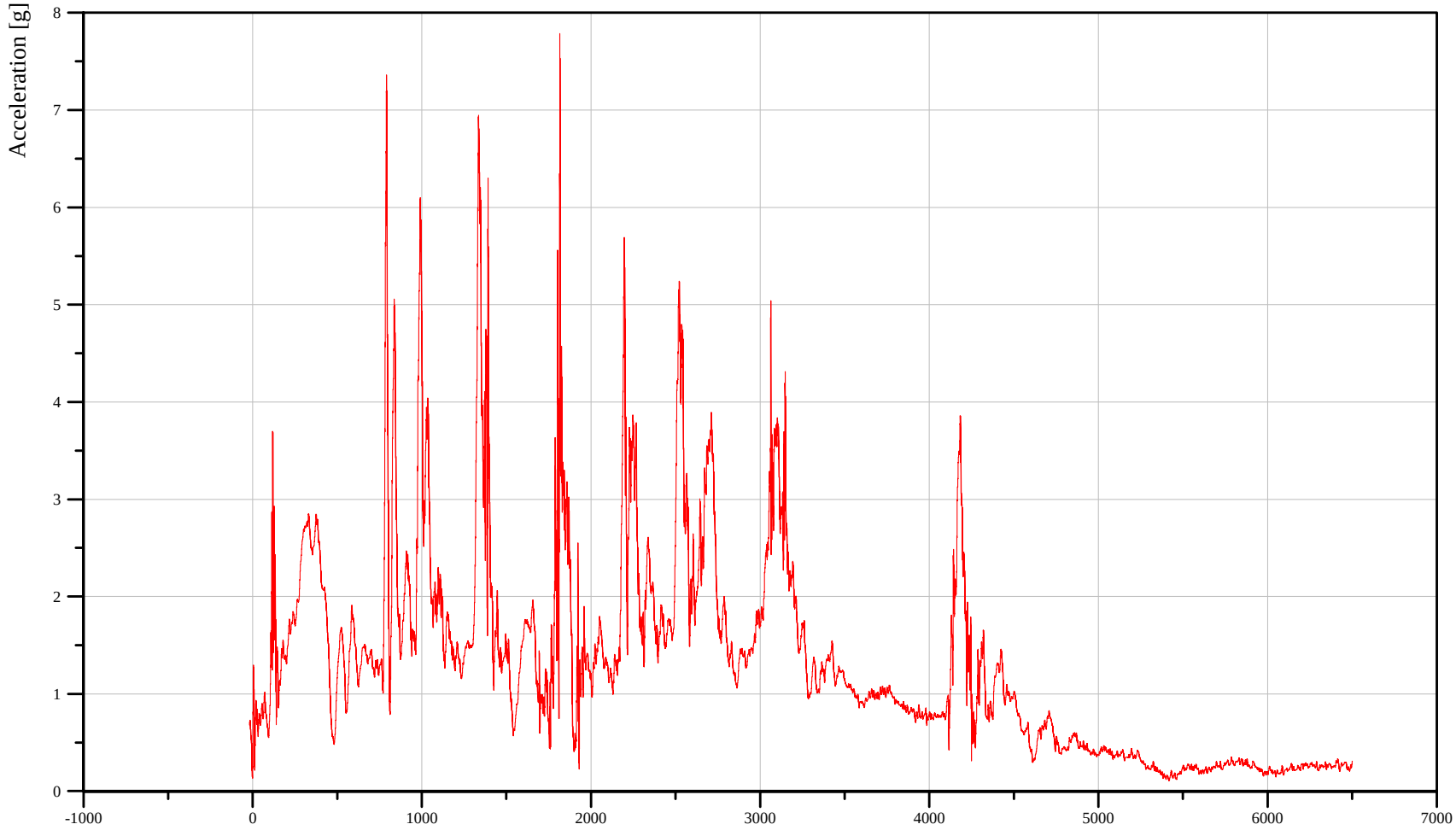
LF Seat Position (on floor) Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11SEAT000000ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.11 g at 5,416.96 ms

Max. Value
7.79 g at 1,815.04 ms

Soil Trip Rollover 2007 Ford Expedition

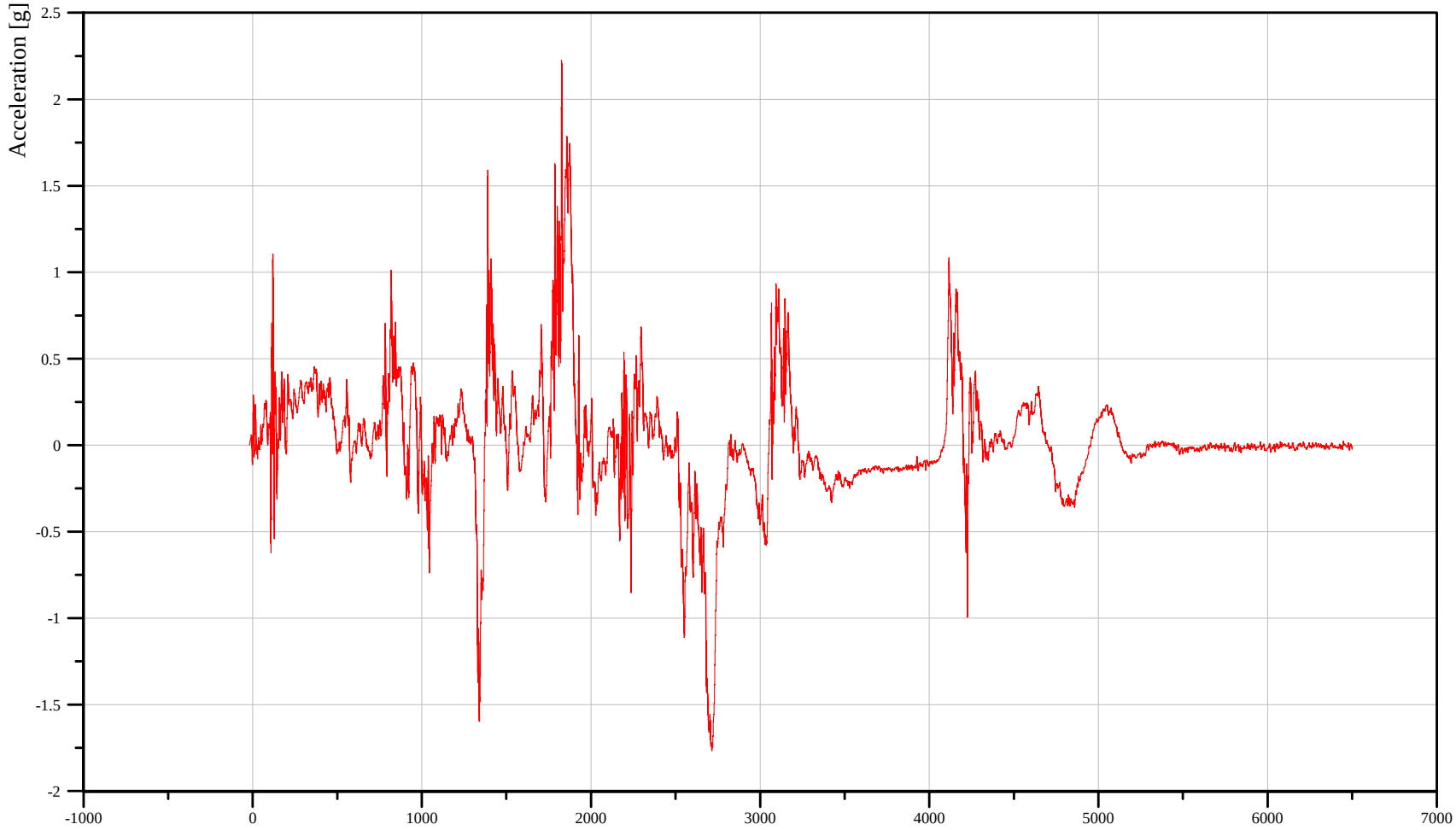
RF Seat Position (on floor) X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13SEAT000000ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-1.77 g at 2,714.40 ms

Max. Value
2.22 g at 1,826.08 ms

Soil Trip Rollover 2007 Ford Expedition

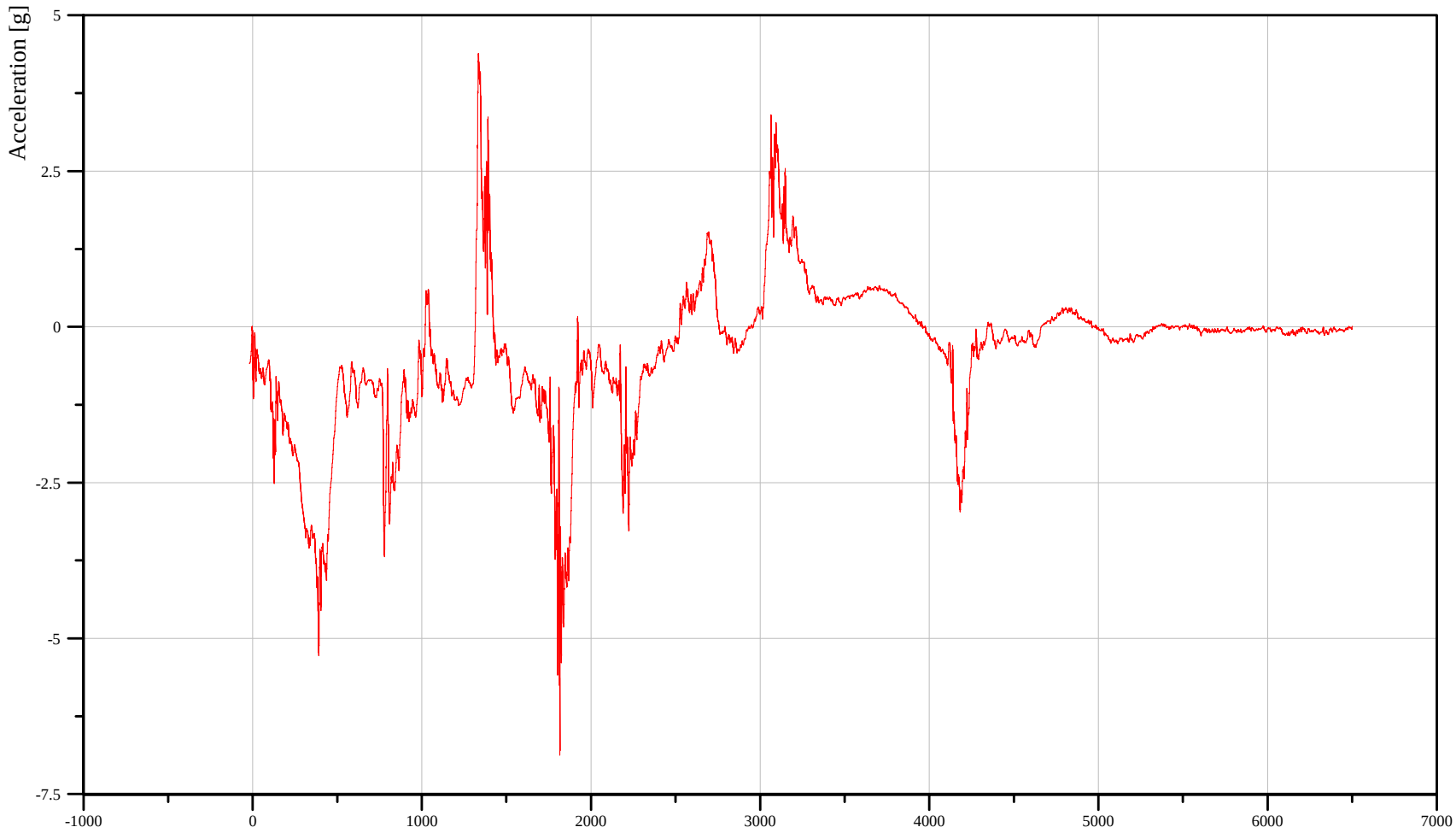
RF Seat Position (on floor) Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13SEAT000000ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-6.88 g at 1,815.20 ms

Max. Value
4.39 g at 1,334.00 ms

Soil Trip Rollover 2007 Ford Expedition

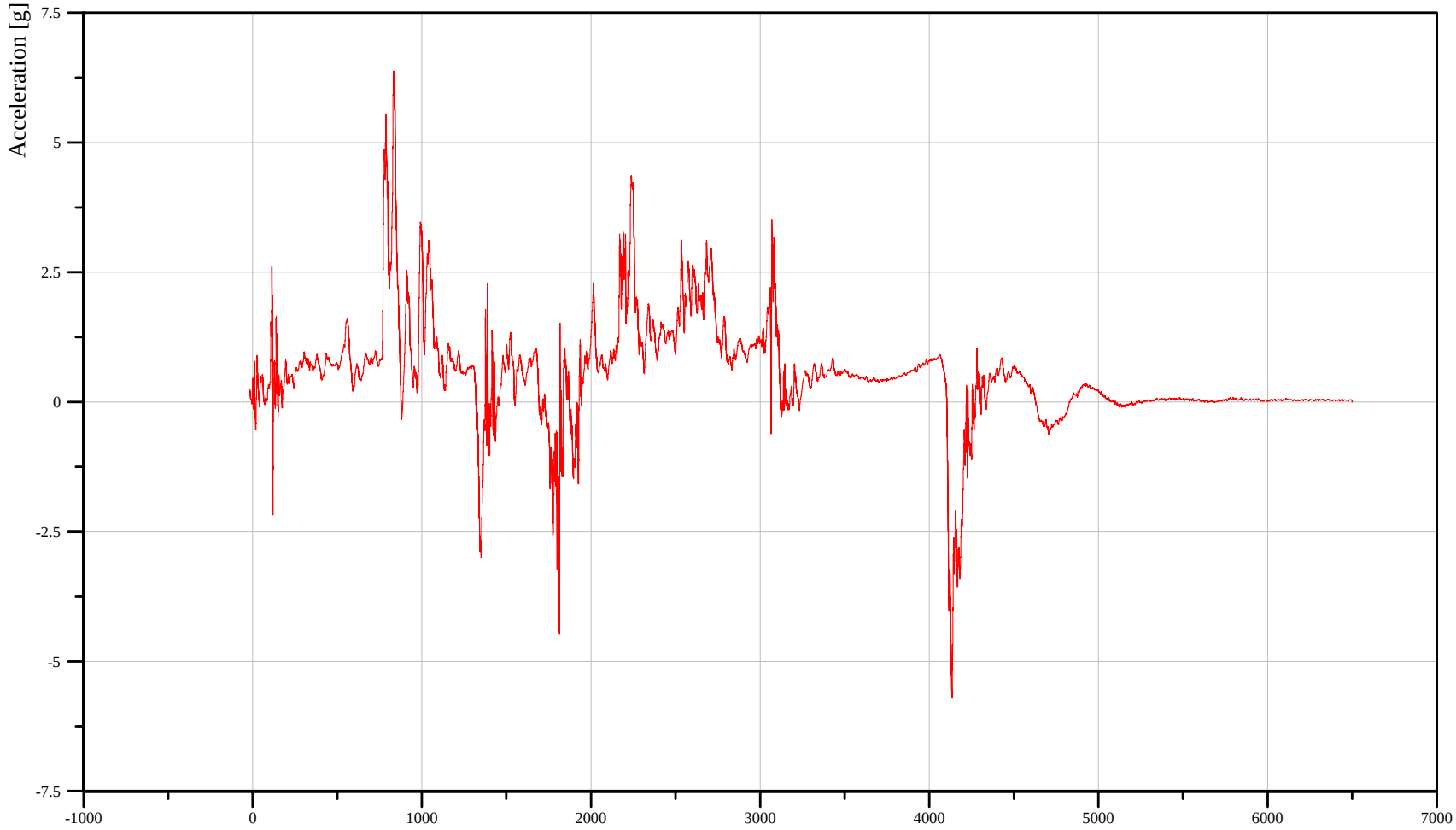
RF Seat Position (on floor) Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13SEAT000000ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-5.71 g at 4,133.92 ms

Max. Value
6.38 g at 832.96 ms

091215

Soil Trip Rollover 2007 Ford Expedition

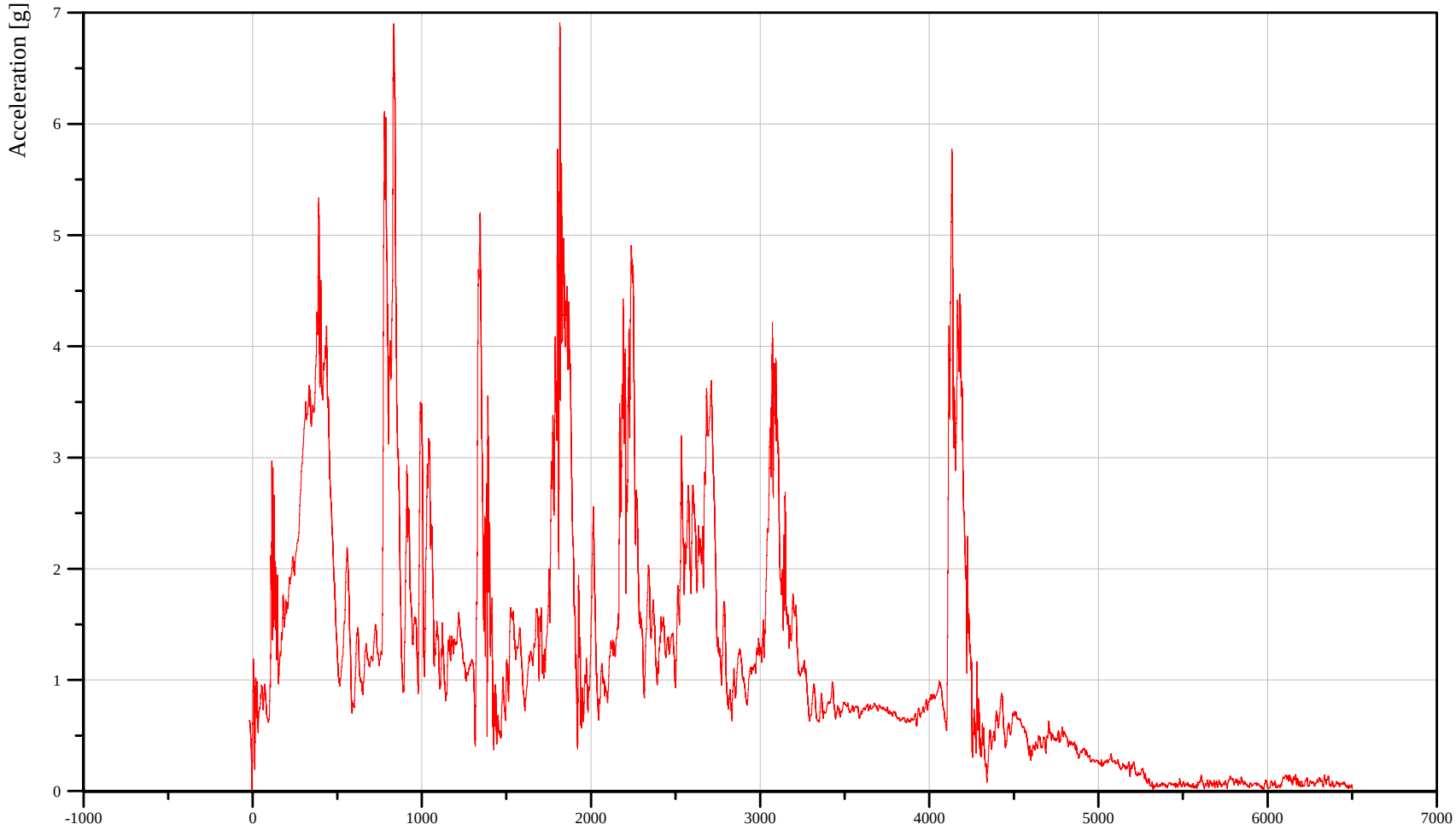
RF Seat Position (on floor) Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13SEAT000000ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.01 g at -3.84 ms

Max. Value
6.91 g at 1,815.20 ms

Soil Trip Rollover 2007 Ford Expedition

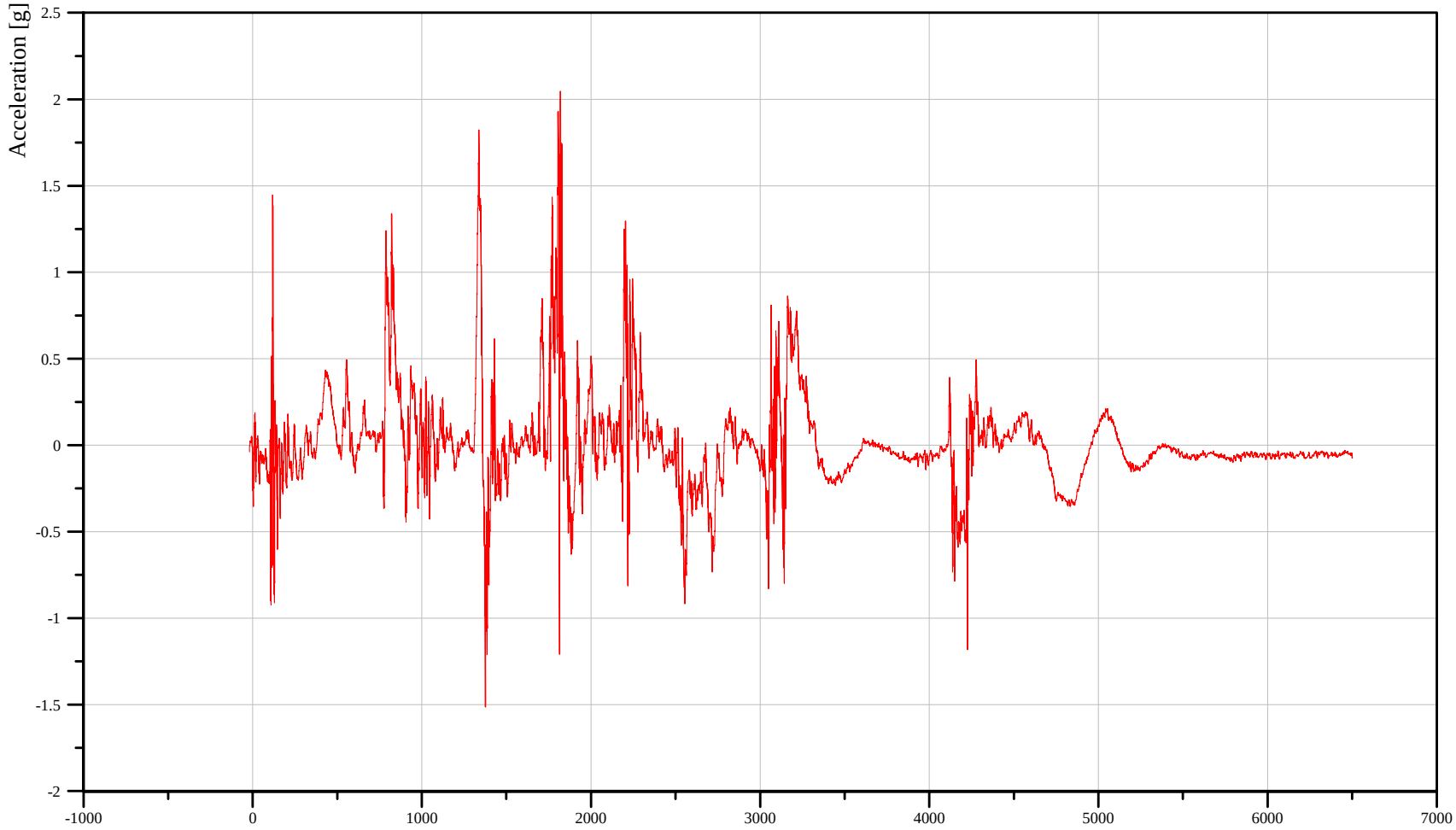
LR Seat Position (on floor) X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14SEAT000000ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-1.51 g at 1,375.60 ms

Max. Value
2.05 g at 1,818.80 ms

Soil Trip Rollover 2007 Ford Expedition

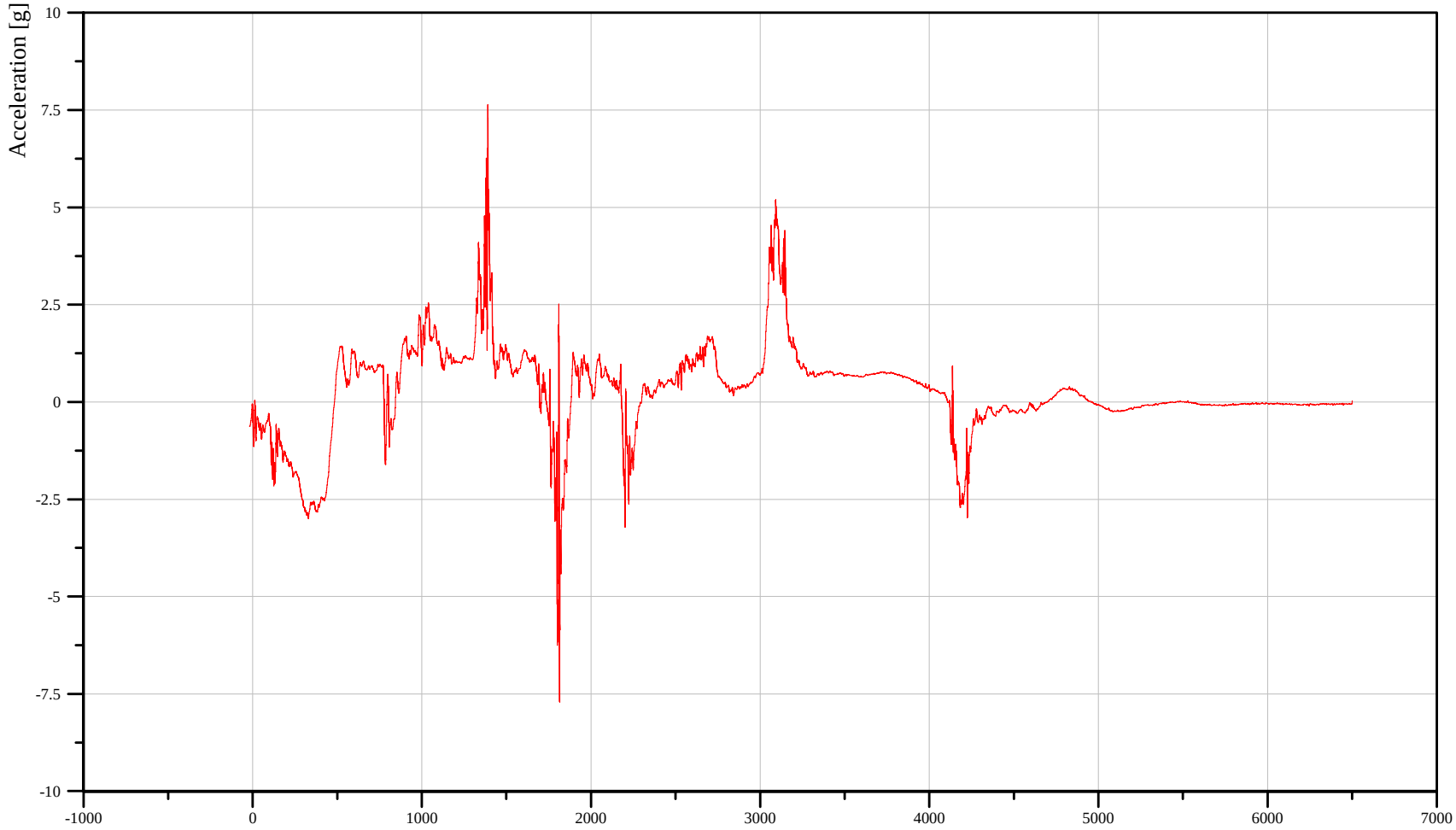
LR Seat Position (on floor) Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14SEAT000000ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-7.71 g at 1,813.92 ms

Max. Value
7.64 g at 1,389.28 ms

Soil Trip Rollover 2007 Ford Expedition

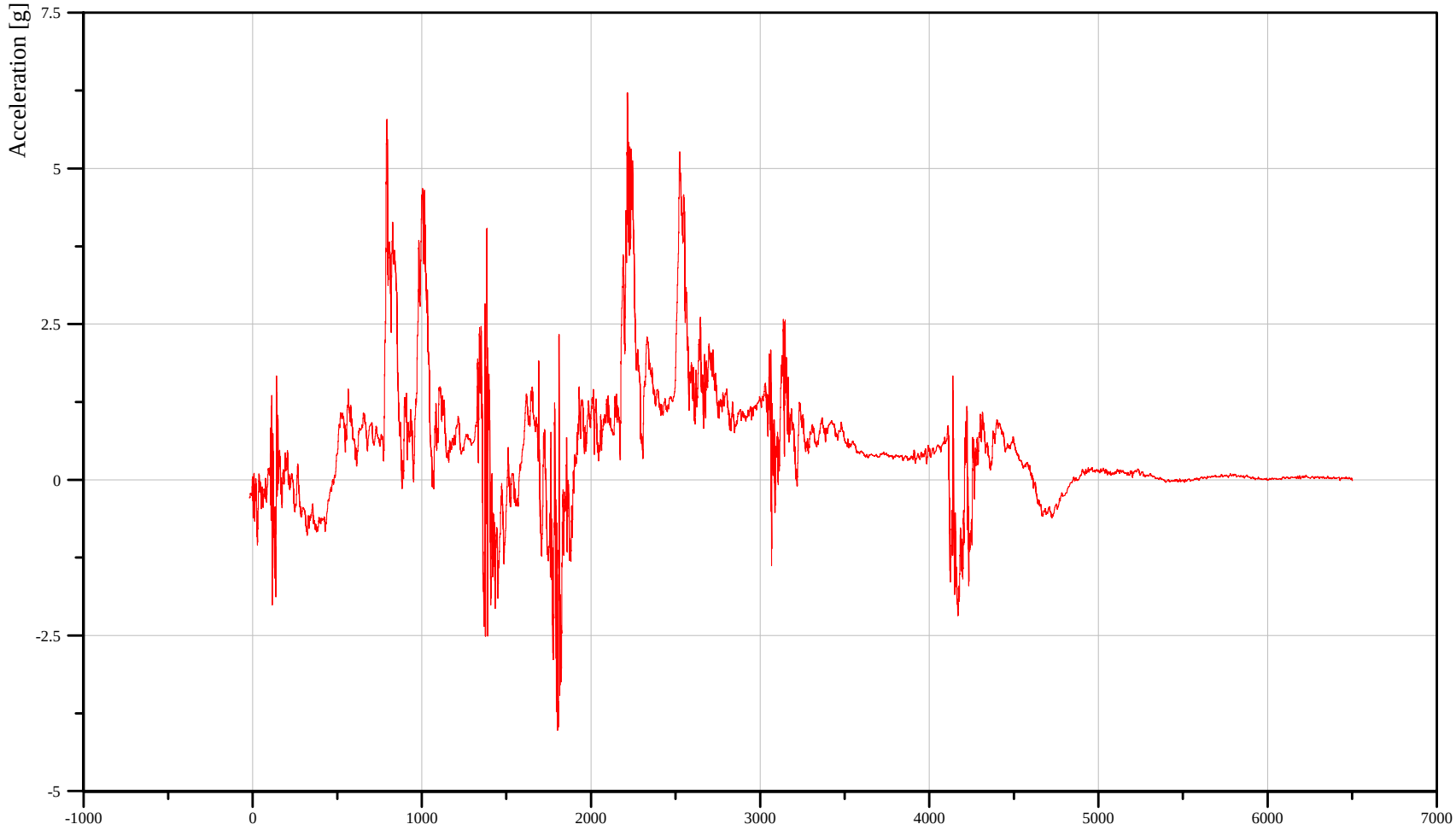
LR Seat Position (on floor) Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14SEAT000000ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-4.02 g at 1,802.16 ms

Max. Value
6.21 g at 2,214.56 ms

Soil Trip Rollover 2007 Ford Expedition

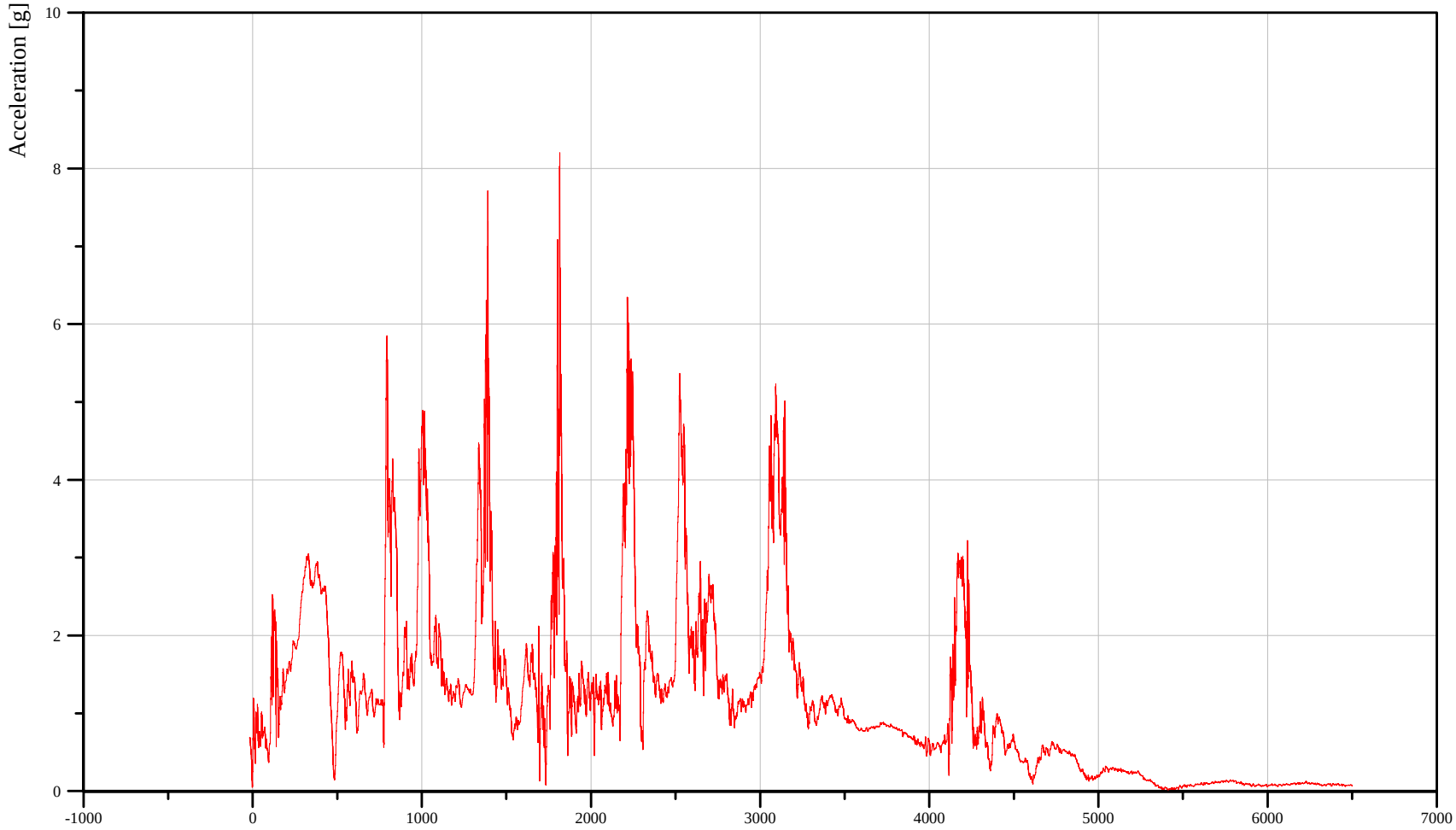
LR Seat Position (on floor) Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14SEAT000000ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.02 g at 5,408.96 ms

Max. Value
8.20 g at 1,814.32 ms

Soil Trip Rollover 2007 Ford Expedition

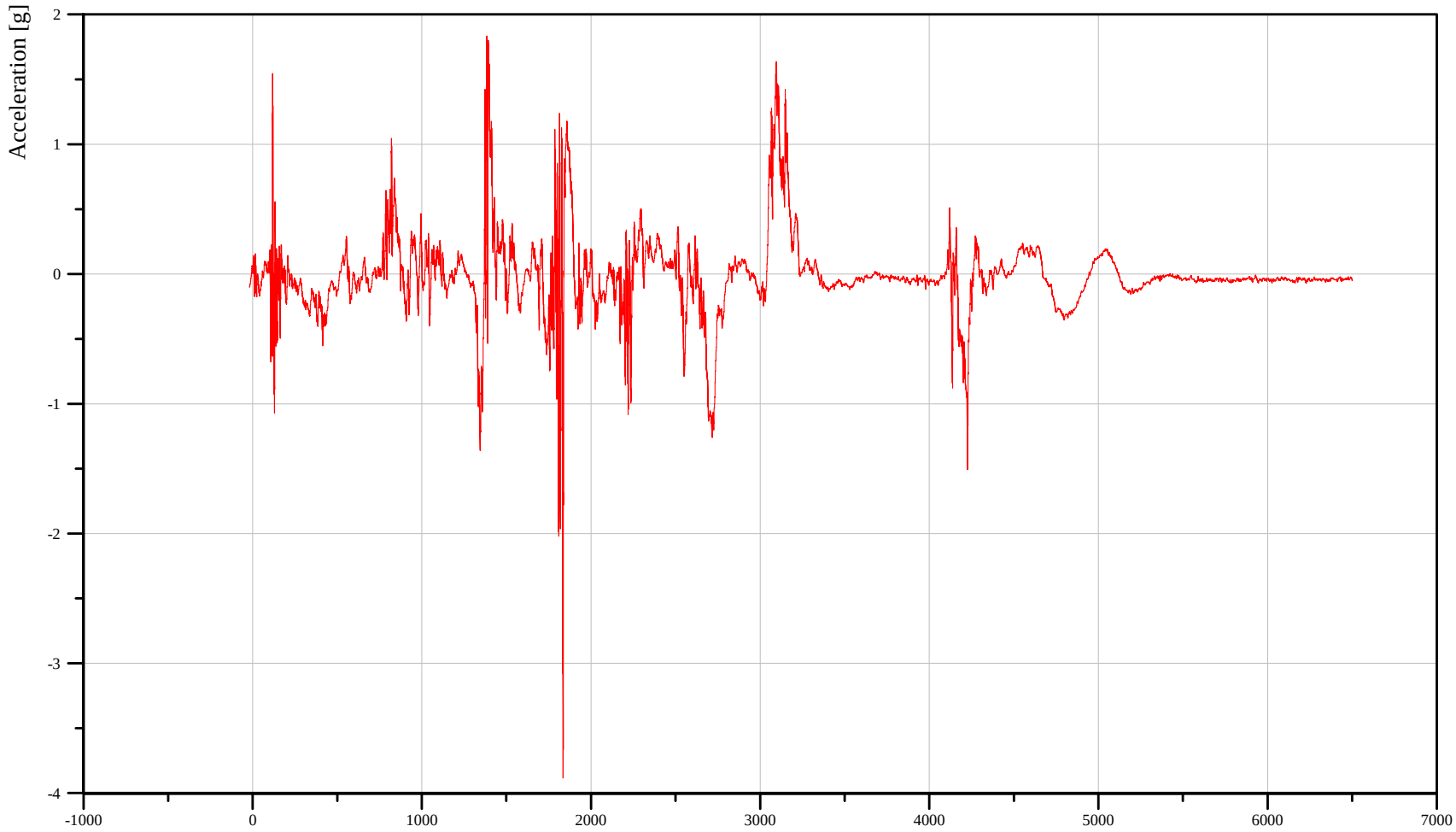
RR Seat Position (on floor) X-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

16SEAT000000ACXD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-3.88 g at 1,834.72 ms

Max. Value
1.83 g at 1,383.28 ms

Soil Trip Rollover 2007 Ford Expedition

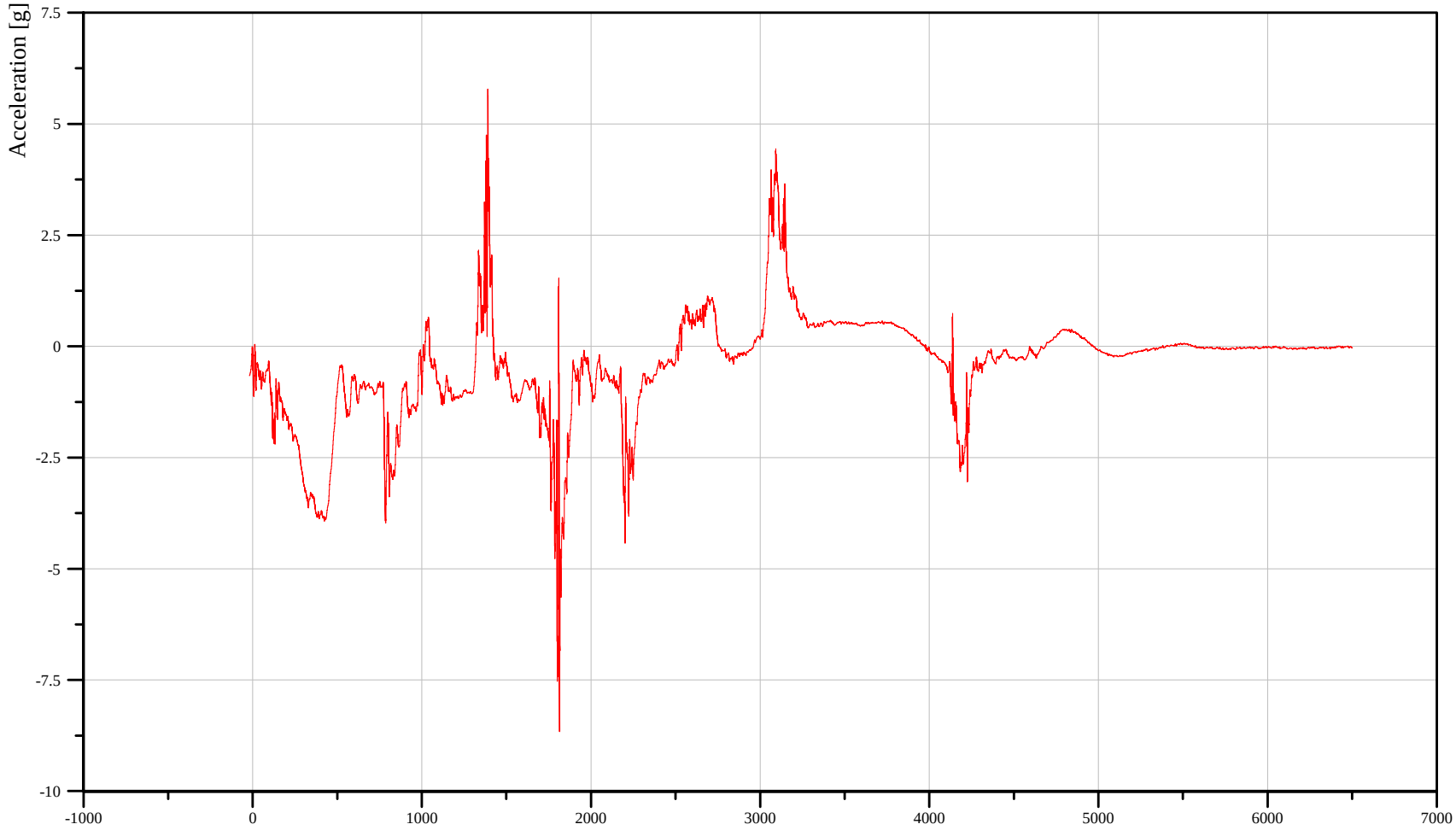
RR Seat Position (on floor) Y-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

16SEAT000000ACYD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-8.66 g at 1,813.68 ms

Max. Value
5.78 g at 1,389.44 ms

Soil Trip Rollover 2007 Ford Expedition

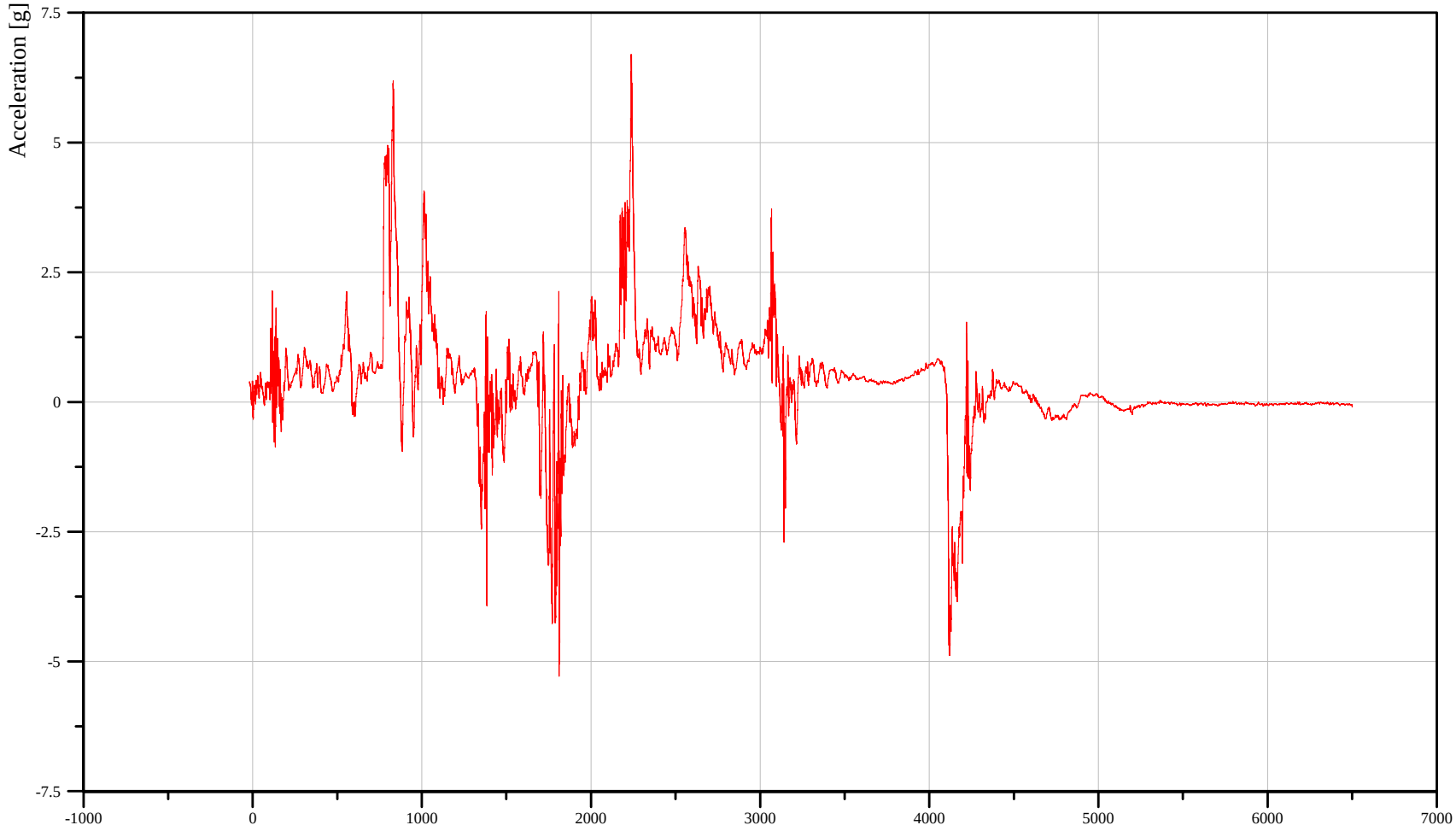
RR Seat Position (on floor) Z-Axis Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

16SEAT000000ACZD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-5.28 g at 1,811.52 ms

Max. Value
6.70 g at 2,237.36 ms

091215

Soil Trip Rollover 2007 Ford Expedition

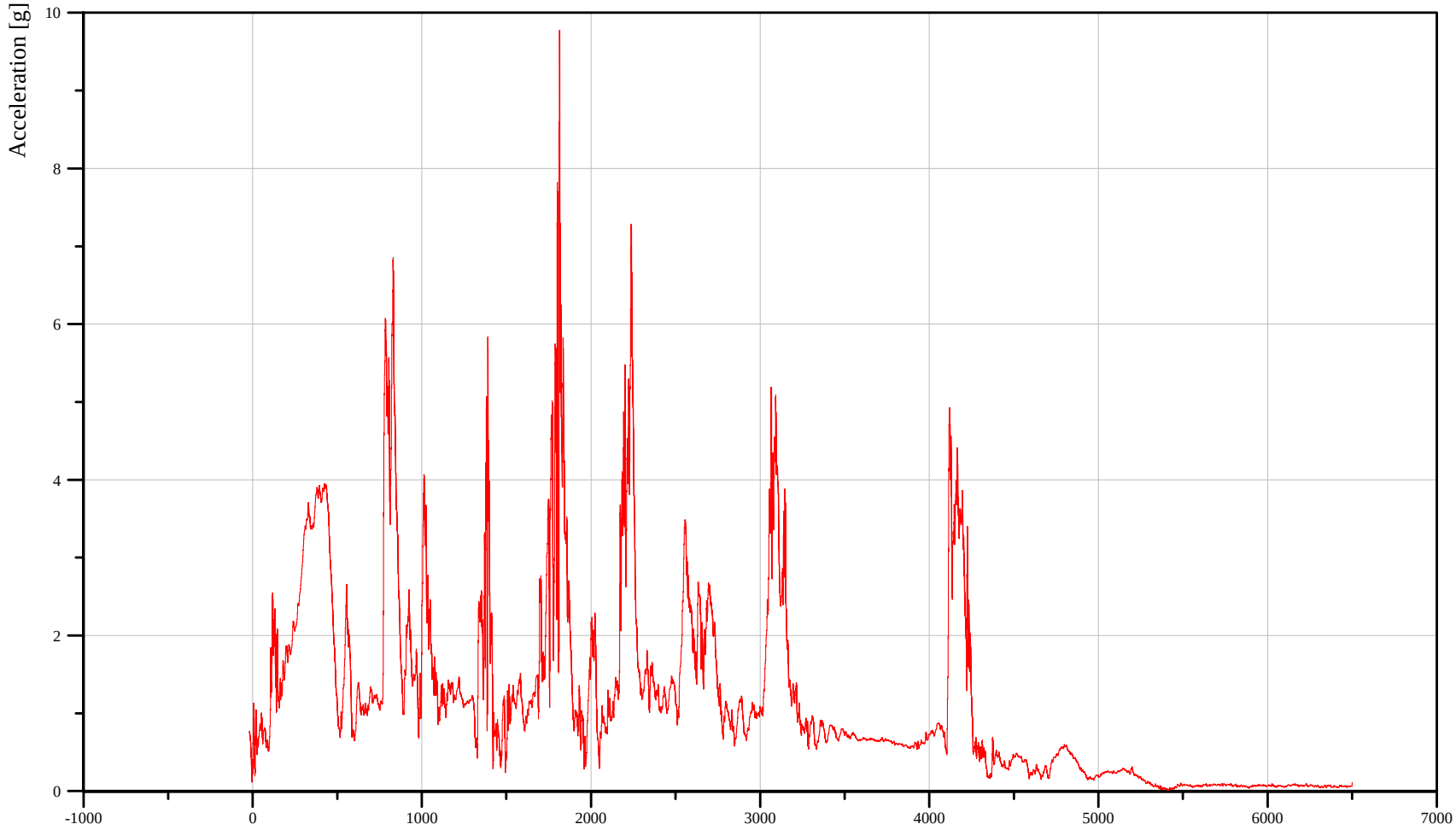
RR Seat Position (on floor) Resultant Acceleration

Date: 12/15/2009
Time: 11:09

Customer: VRTC

16SEAT000000ACRD

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.01 g at 5,409.76 ms

Max. Value
9.78 g at 1,813.76 ms

Soil Trip Rollover 2007 Ford Expedition

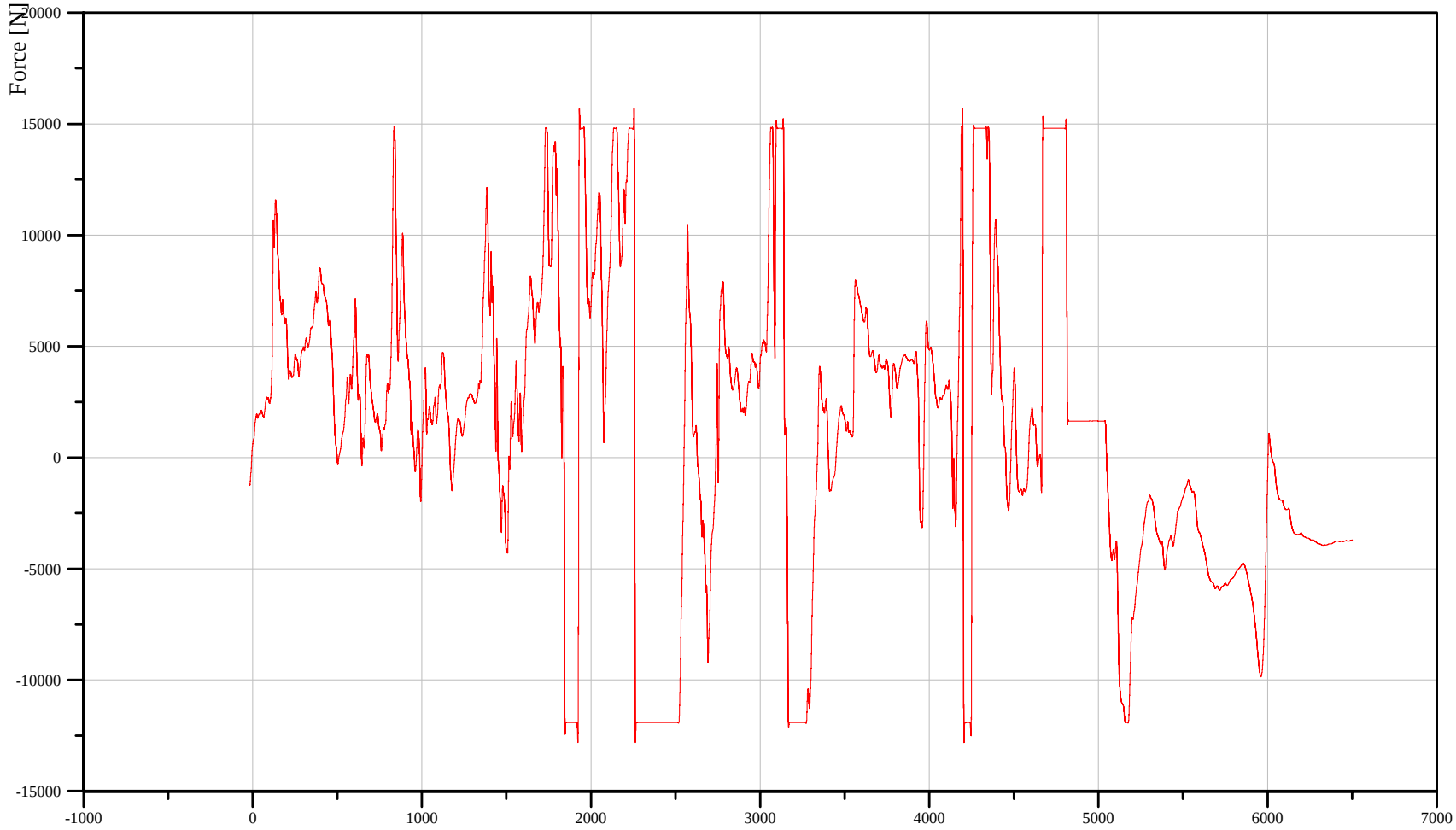
Driver Lap Belt Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11SEBE0000B5FO0D

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-12,814.44 N at 2,262.40 ms

Max. Value
15,695.67 N at 2,253.92 ms

Soil Trip Rollover 2007 Ford Expedition

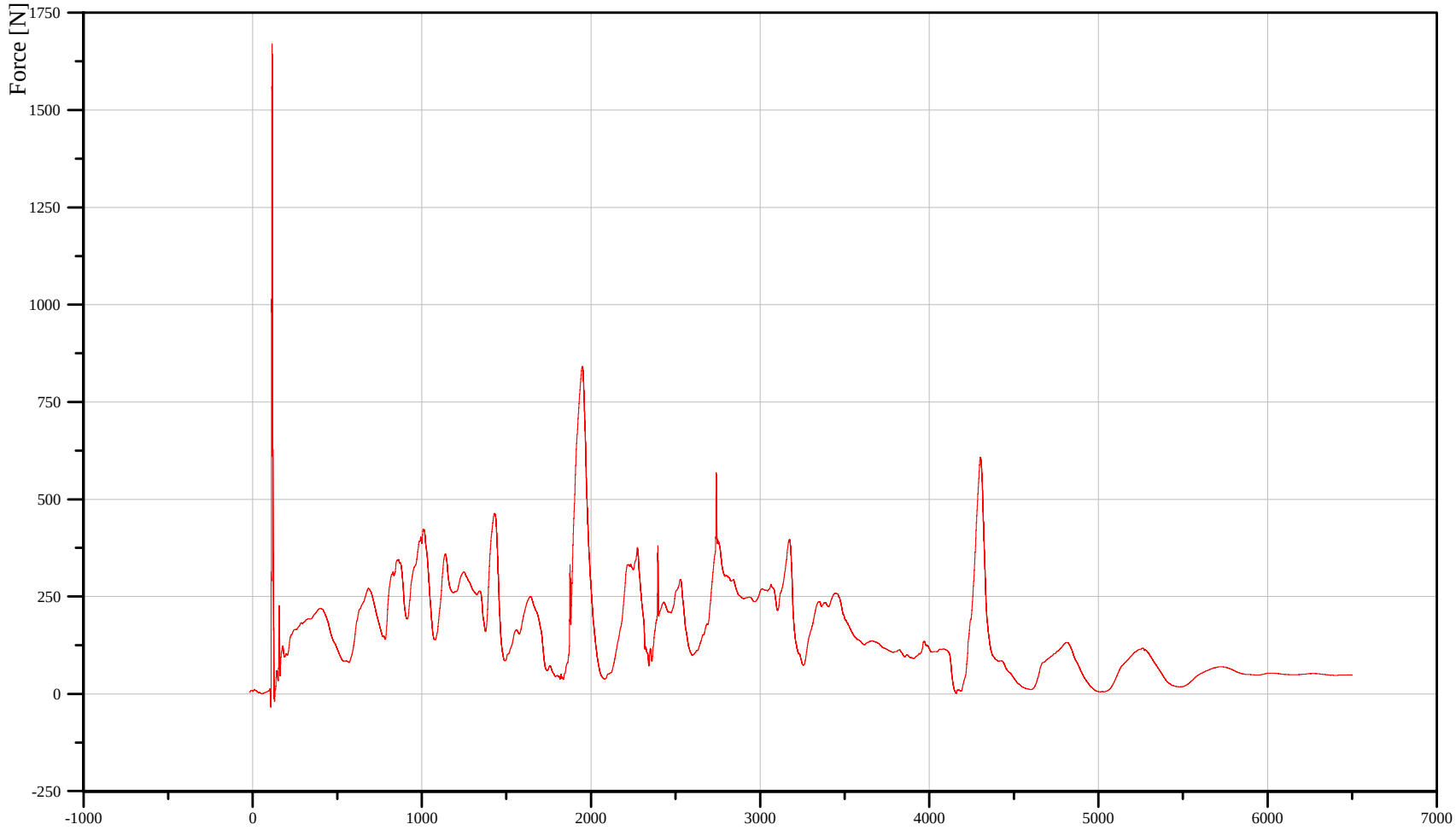
Driver Shoulder Belt Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11SEBE0000B3FO0D

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-34.62 N at 106.40 ms

Max. Value
1,670.97 N at 114.08 ms

Soil Trip Rollover 2007 Ford Expedition

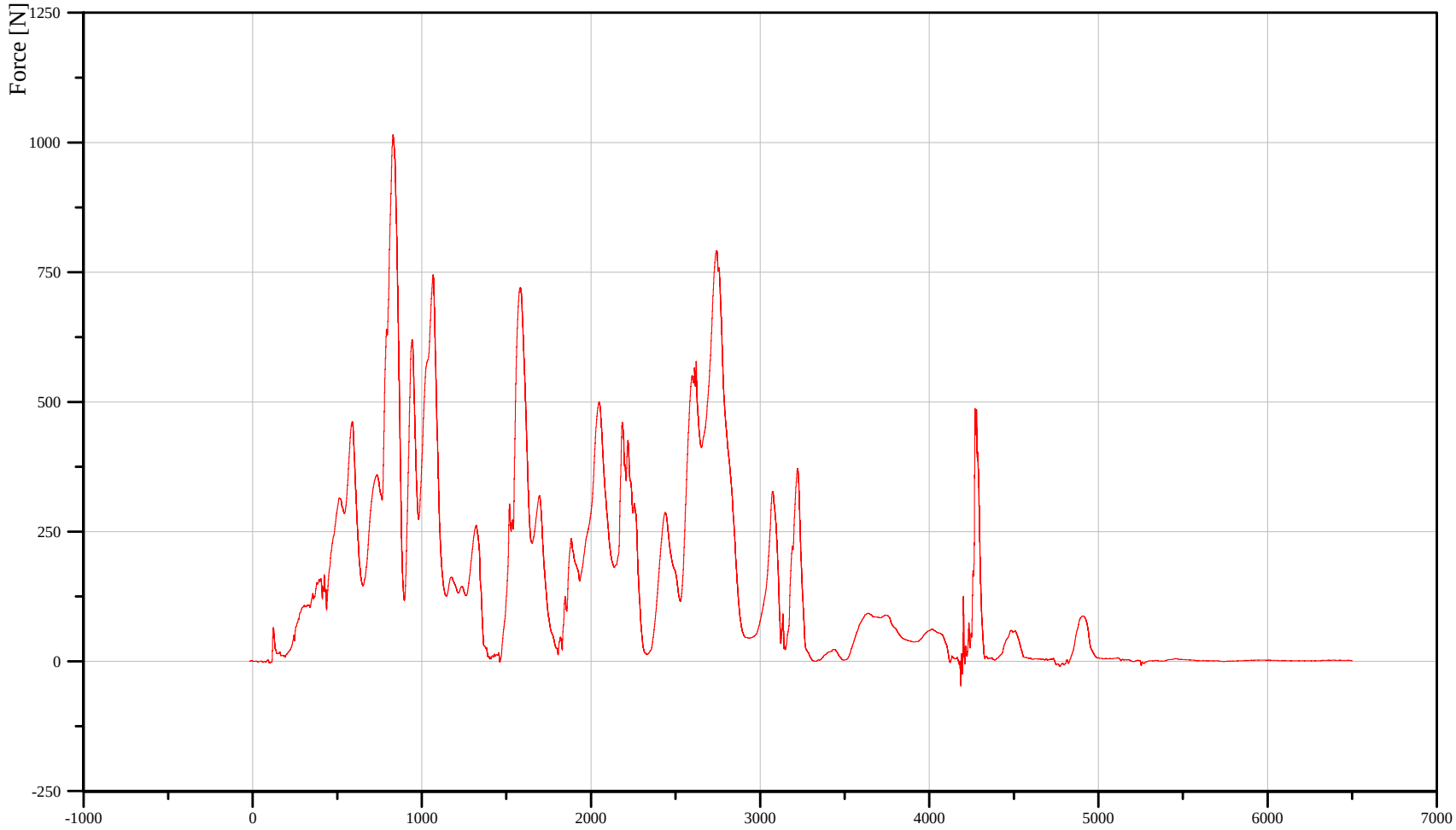
Right Front Passenger Lap Belt Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13SEBE0000B5FO0D

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-47.20 N at 4,185.68 ms

Max. Value
1,014.83 N at 829.12 ms

091215

Soil Trip Rollover 2007 Ford Expedition

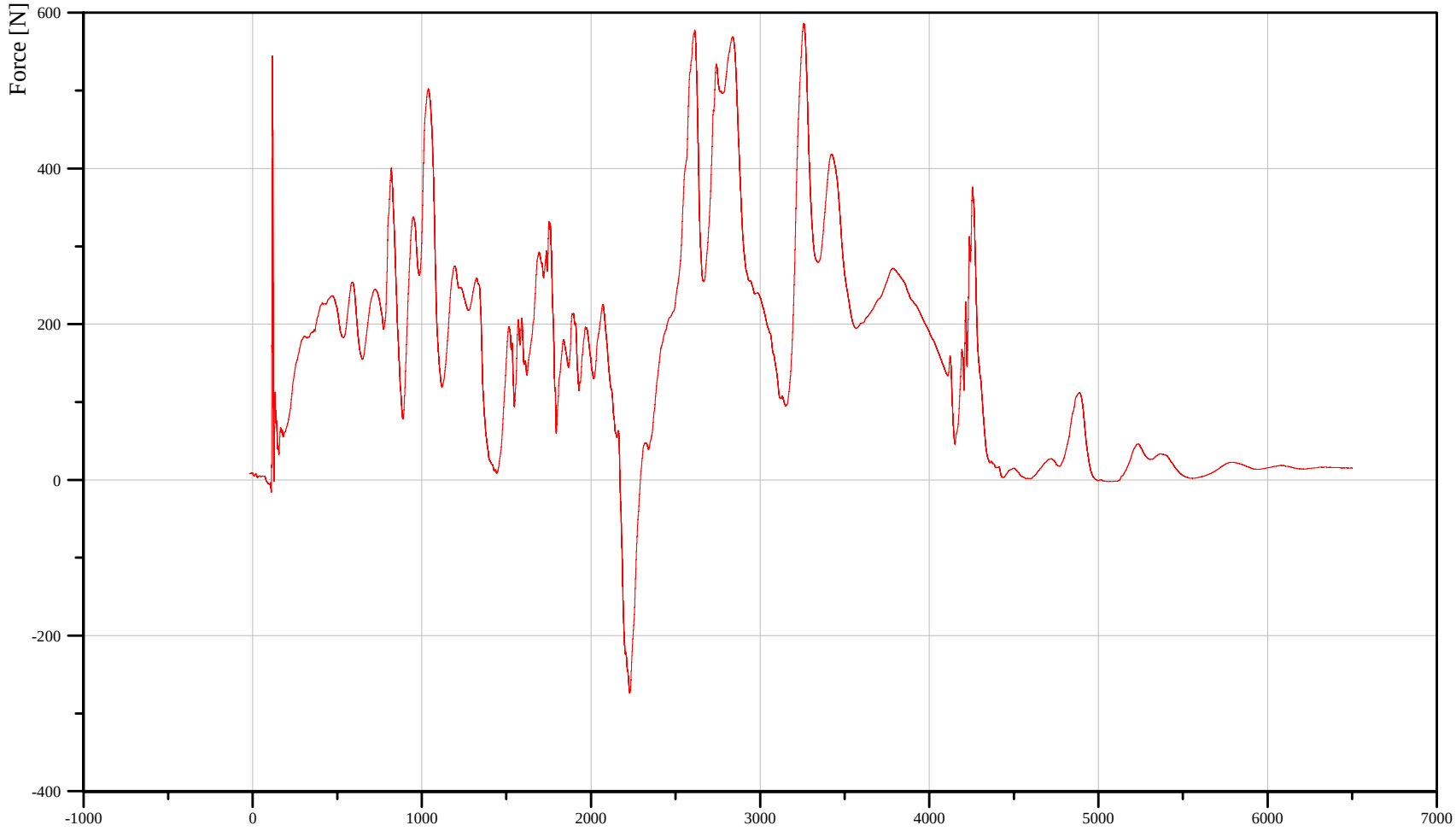
Right Front Passenger Shoulder Belt Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13SEBE0000B3FO0D

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-274.08 N at 2,228.40 ms

Max. Value
586.34 N at 3,257.12 ms

091215

Soil Trip Rollover 2007 Ford Expedition

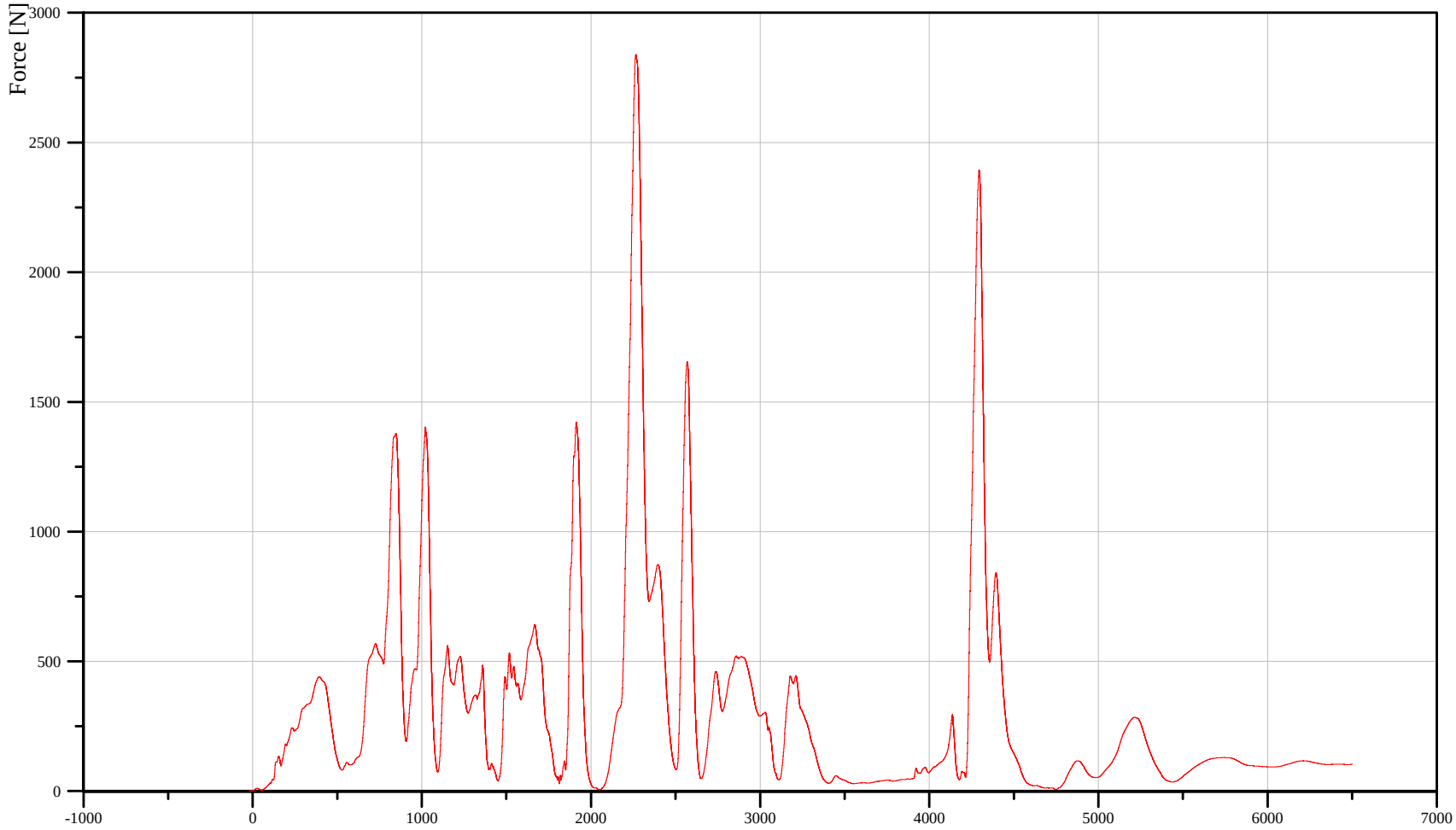
Left Rear Passenger Lap Belt Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14SEBE0000B5FO0D

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
0.15 N at -20.00 ms

Max. Value
2,839.25 N at 2,264.24 ms

Soil Trip Rollover 2007 Ford Expedition

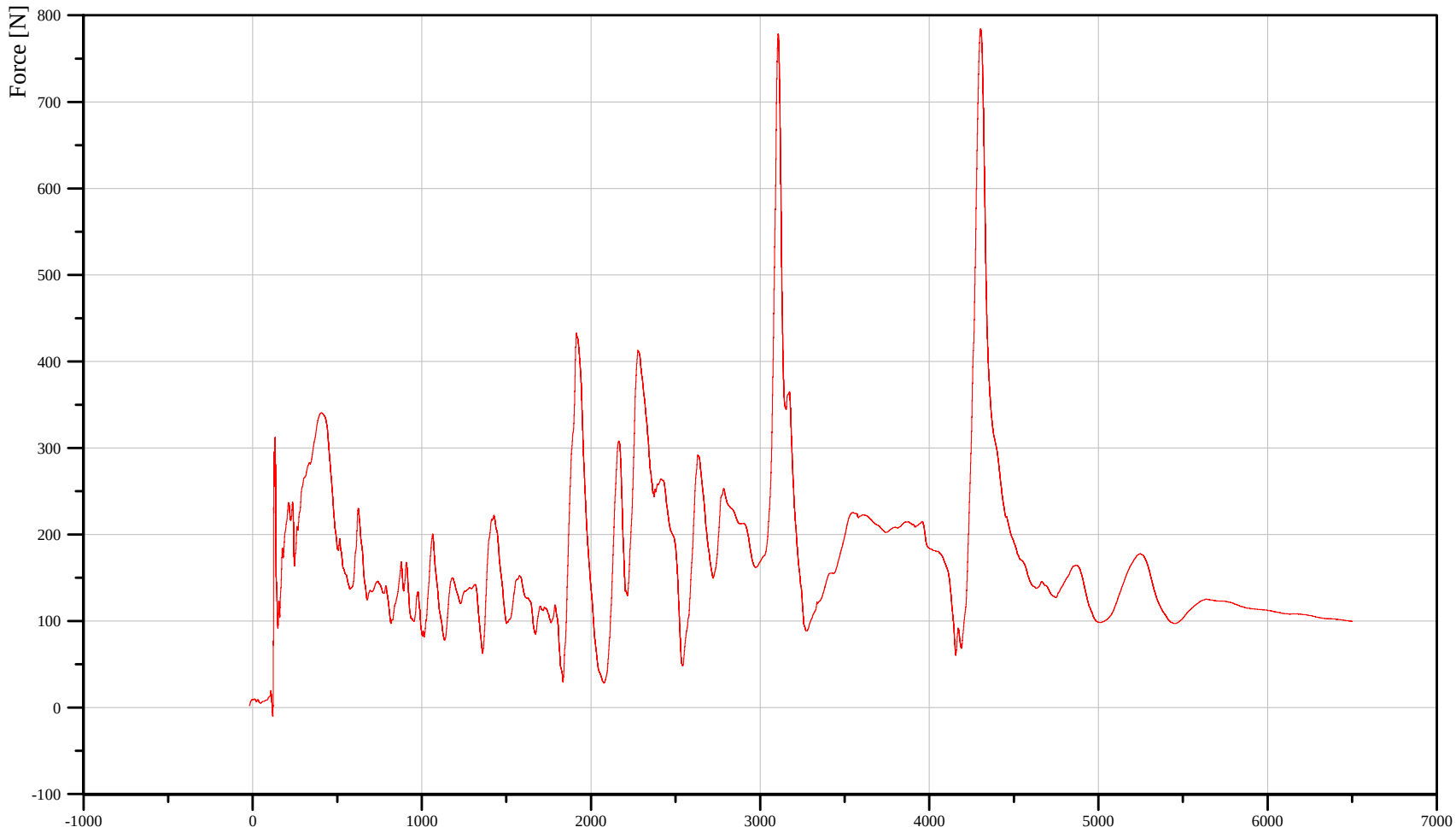
Left Rear Passenger Shoulder Belt Force

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14SEBE0000B3FO0D

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_60

Min. Value
-9.93 N at 118.56 ms

Max. Value
784.50 N at 4,302.32 ms

Soil Trip Rollover 2007 Ford Expedition

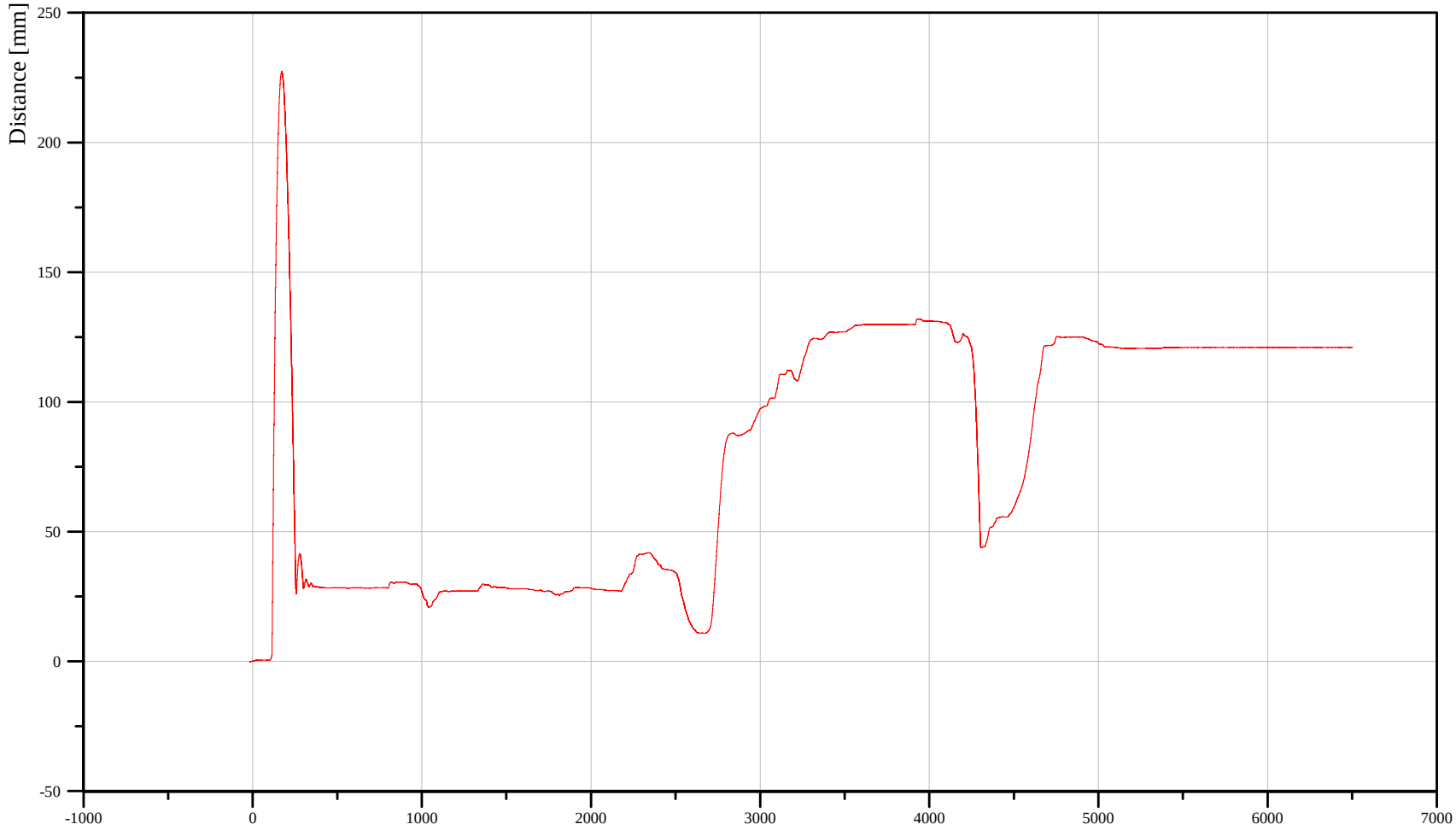
Driver Seat Belt Spool Potentiometer

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11SEBE0000B5DS0A

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-0.21 mm at -16.96 ms

Max. Value
227.44 mm at 170.56 ms

Soil Trip Rollover 2007 Ford Expedition

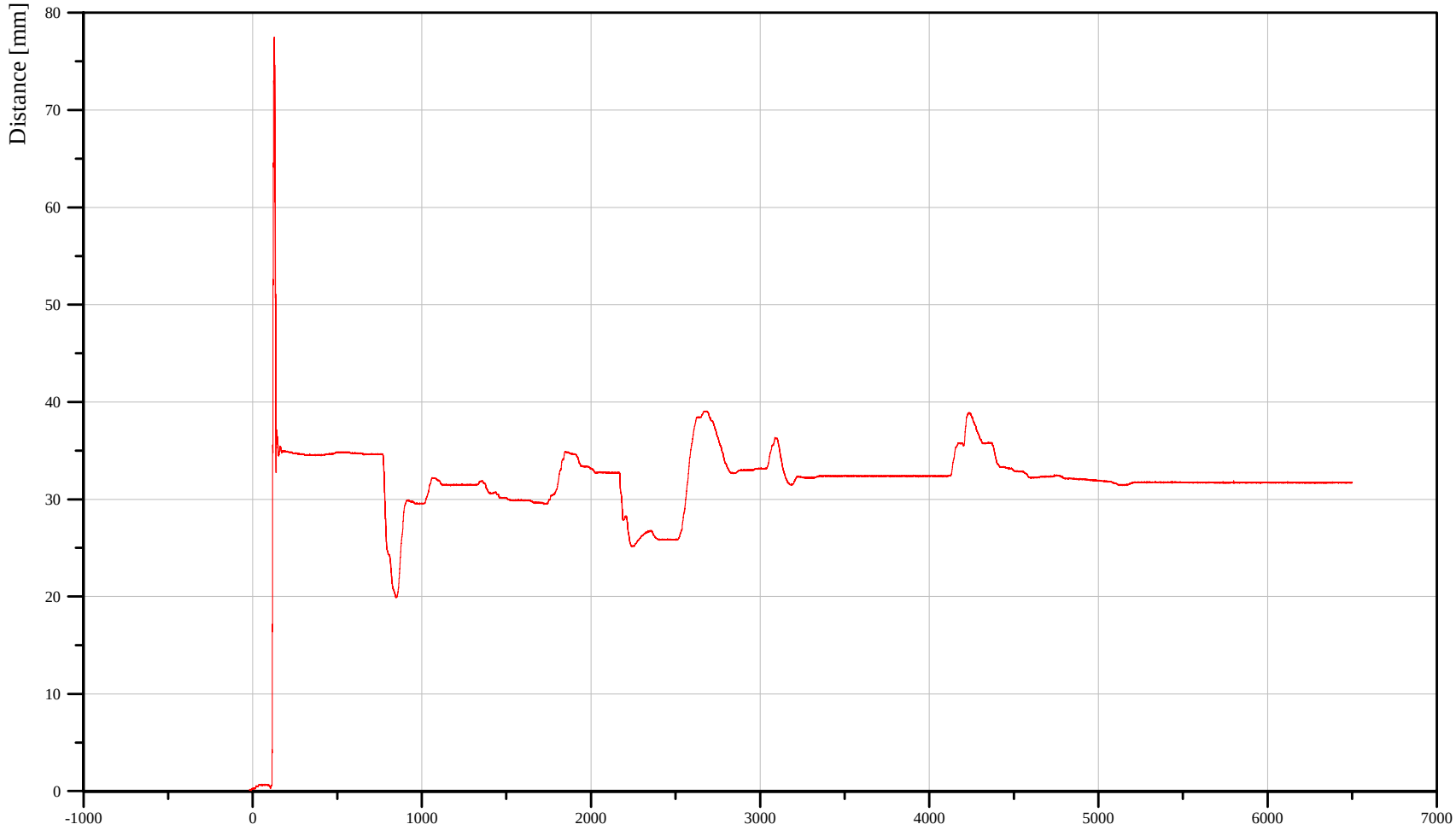
Right Front Passenger Belt Spool Potentiometer

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13SEBE0000B5DS0A

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
0.06 mm at -9.92 ms

Max. Value
77.50 mm at 126.40 ms

Soil Trip Rollover 2007 Ford Expedition

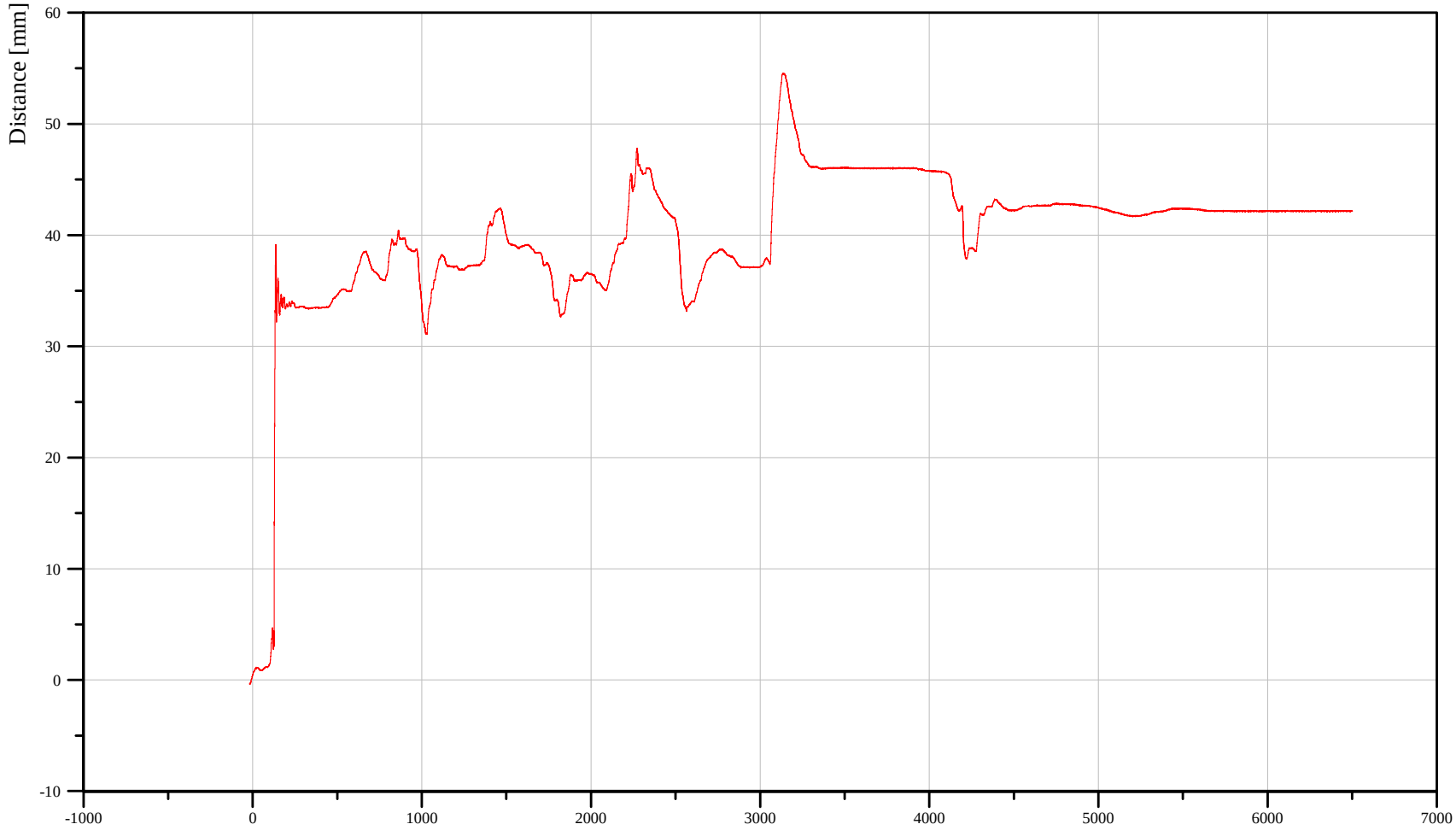
Left Rear Passenger Belt Spool Potentiometer

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14SEBE0000B5DS0A

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
-0.41 mm at -16.96 ms

Max. Value
54.55 mm at 3,133.44 ms

091215

Soil Trip Rollover 2007 Ford Expedition

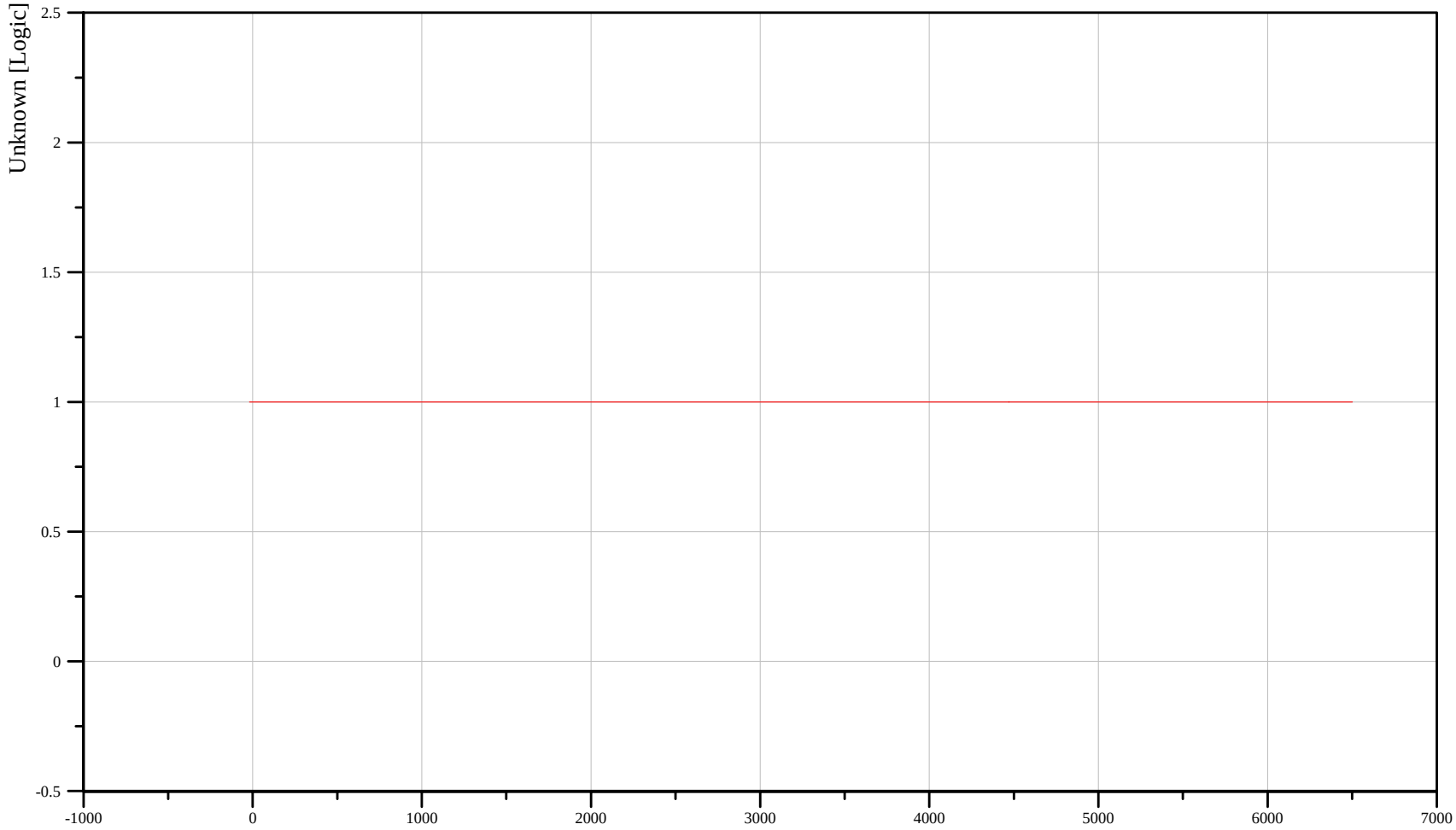
Driver Head Contact

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11CONT000023EV00

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: Unfiltered

Min. Value
1.00 Logic at -20.00 ms

Max. Value
1.00 Logic at -20.00 ms

Soil Trip Rollover 2007 Ford Expedition

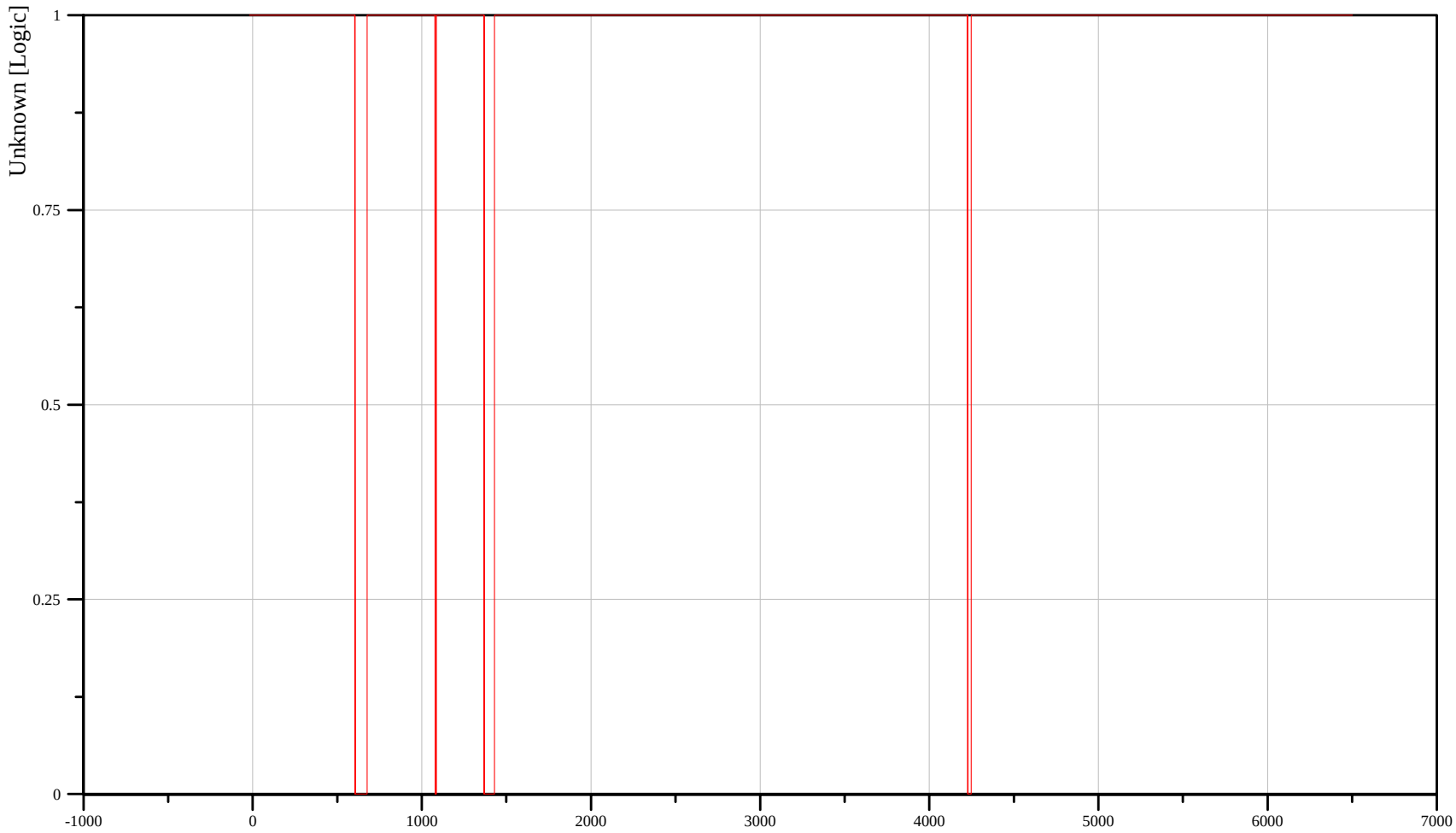
Driver Thorax Contact

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11CONT000024EV00

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: Unfiltered

Min. Value
0.00 Logic at 604.56 ms

Max. Value
1.00 Logic at -20.00 ms

Soil Trip Rollover 2007 Ford Expedition

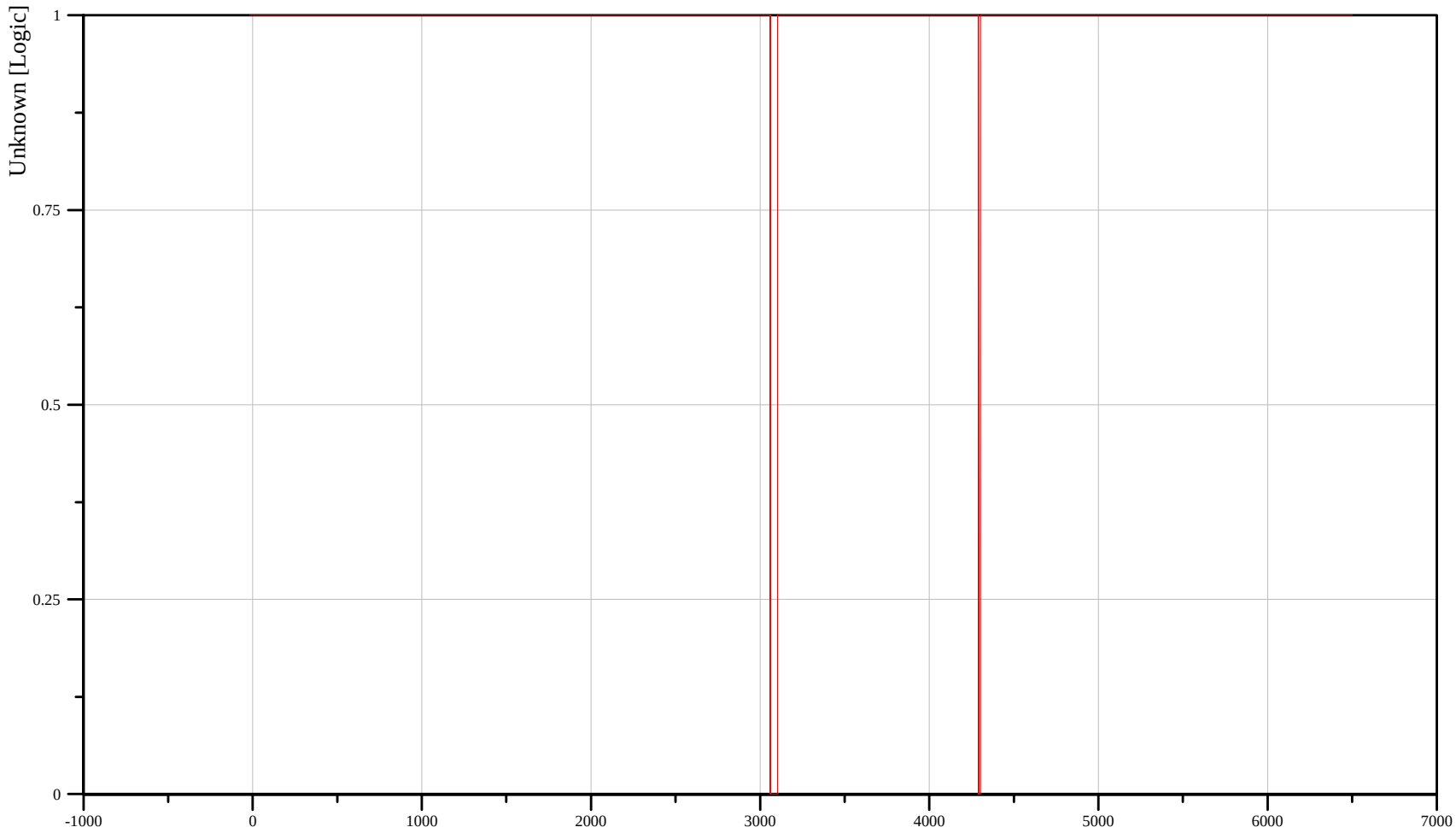
Driver Pelvis Contact

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11CONT000025EV00

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: Unfiltered

Min. Value
0.00 Logic at 3,059.76 ms

Max. Value
1.00 Logic at -20.00 ms

Soil Trip Rollover 2007 Ford Expedition

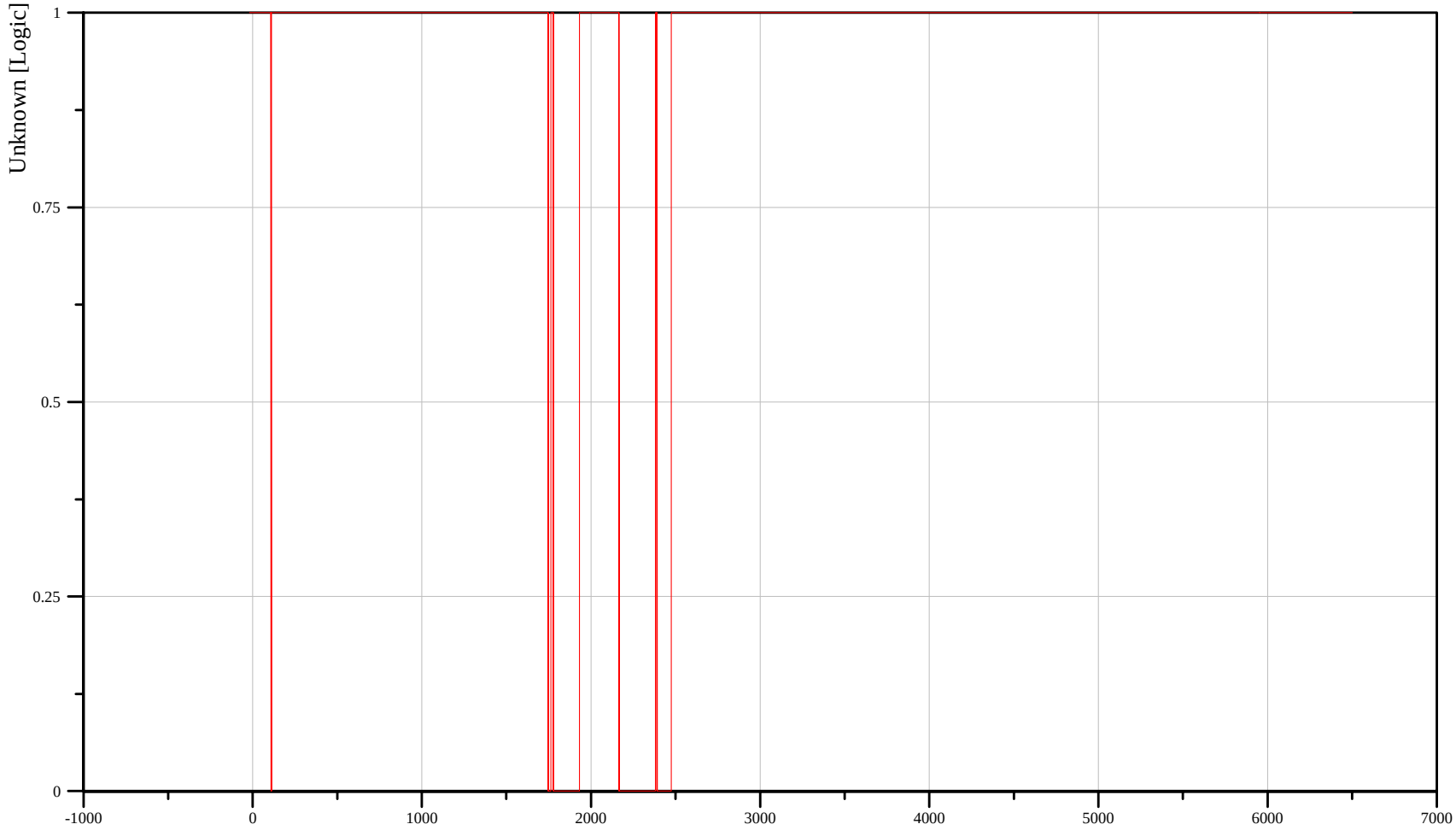
Right Front Passenger Head Contact Switch

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13CONT000026EV00

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: Unfiltered

Min. Value
0.00 Logic at 108.16 ms

Max. Value
1.00 Logic at -20.00 ms

Soil Trip Rollover 2007 Ford Expedition

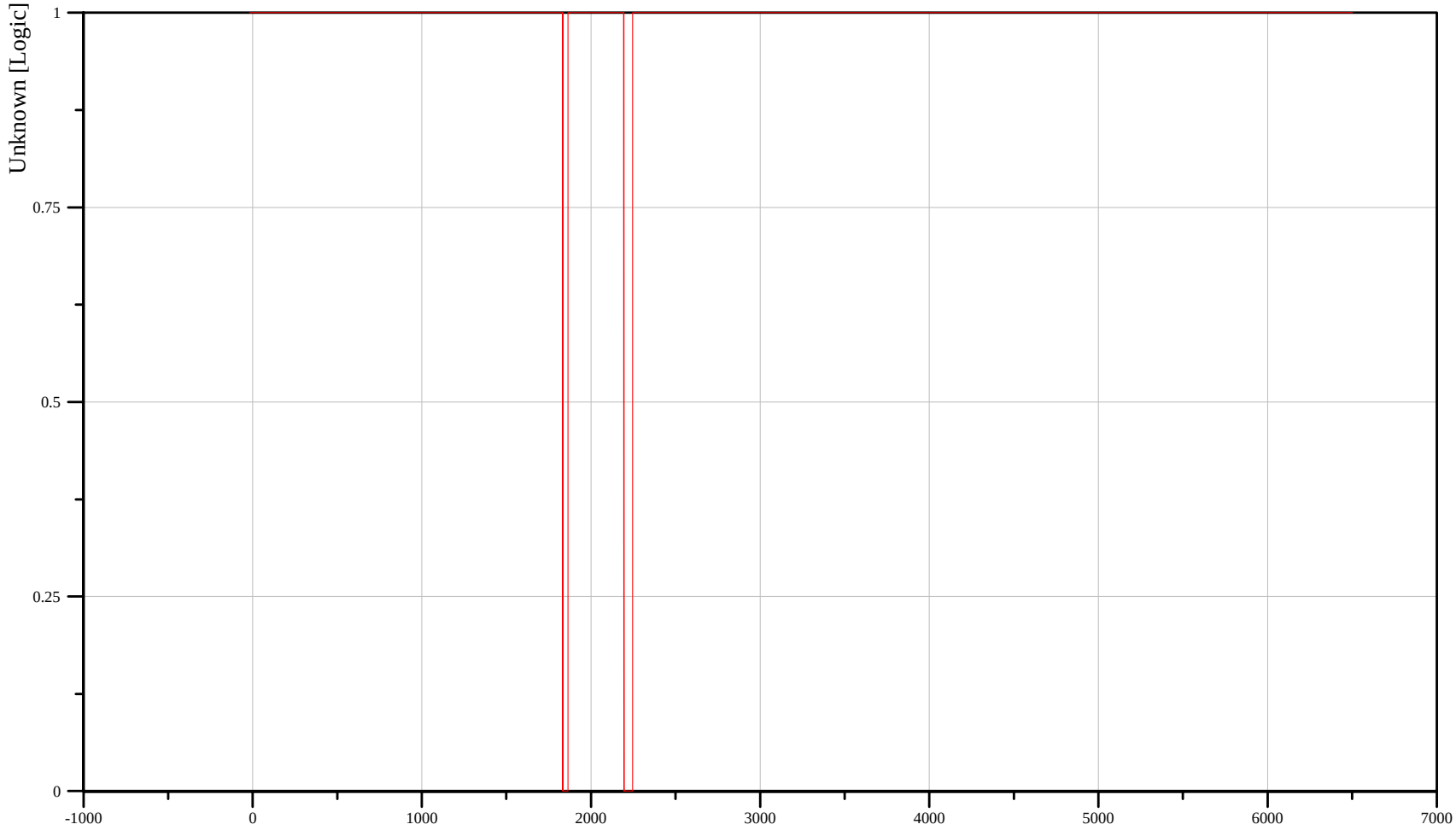
Right Front Passenger Thorax Contact Switch

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13CONT000027EV00

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: Unfiltered

Min. Value
0.00 Logic at 1,832.72 ms

Max. Value
1.00 Logic at -20.00 ms

Soil Trip Rollover 2007 Ford Expedition

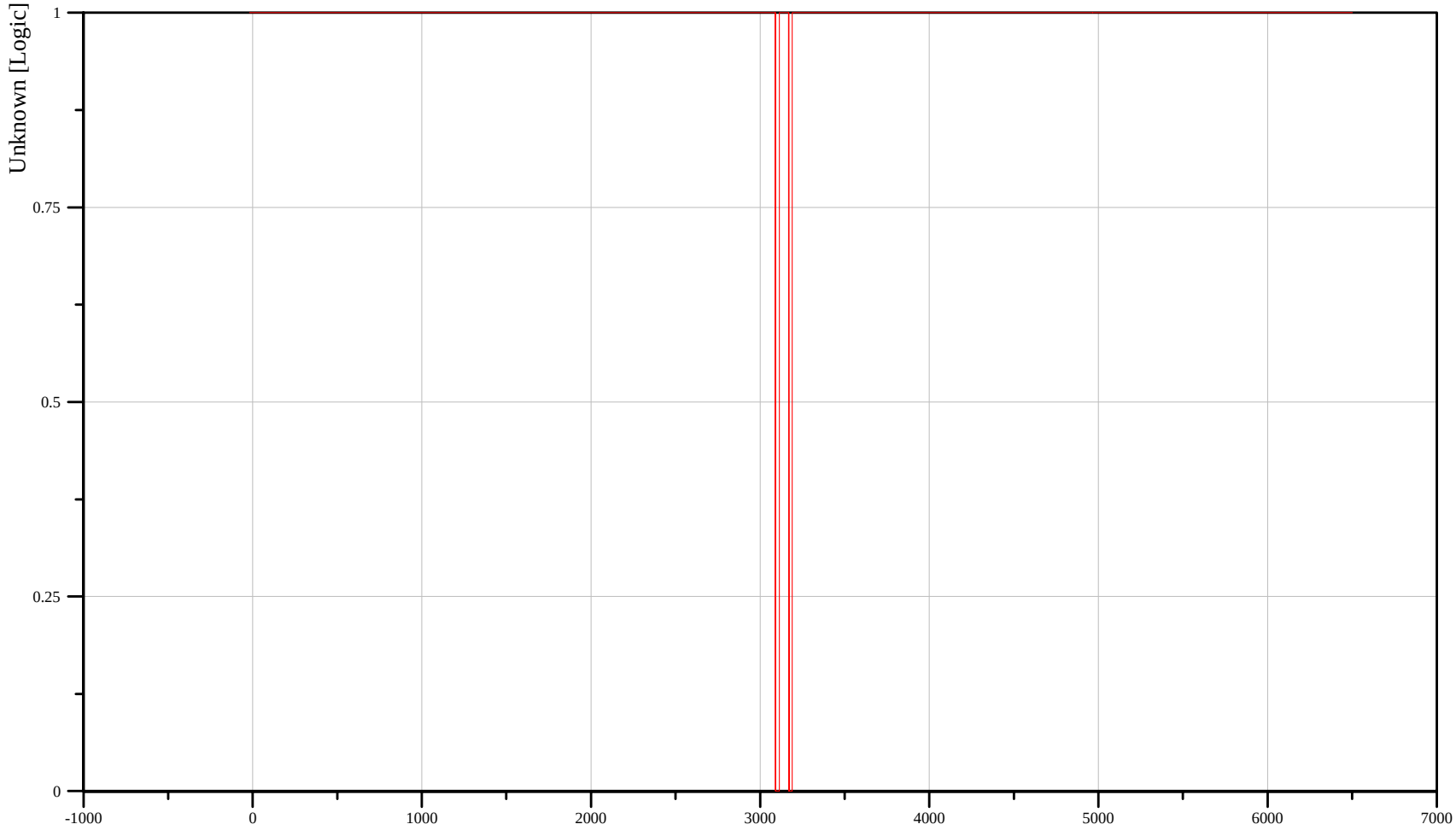
Right Front Passenger Pelvis Contact Switch

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13CONT000028EV00

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: Unfiltered

Min. Value
0.00 Logic at 3,090.72 ms

Max. Value
1.00 Logic at -20.00 ms

Soil Trip Rollover 2007 Ford Expedition

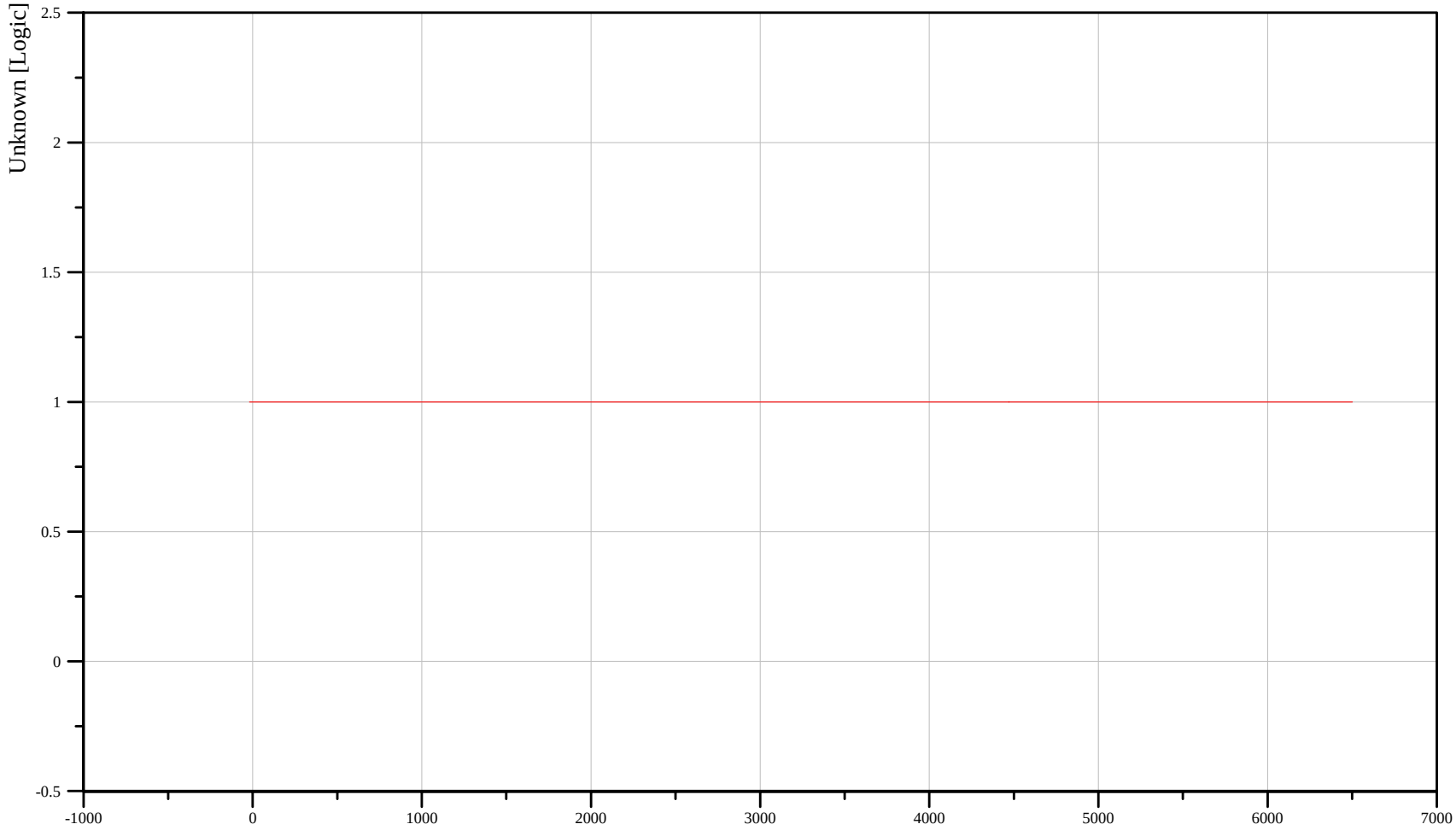
Left Rear Passenger Head Contact

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14CONT000029EV00

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: Unfiltered

Min. Value
1.00 Logic at -20.00 ms

Max. Value
1.00 Logic at -20.00 ms

Soil Trip Rollover 2007 Ford Expedition

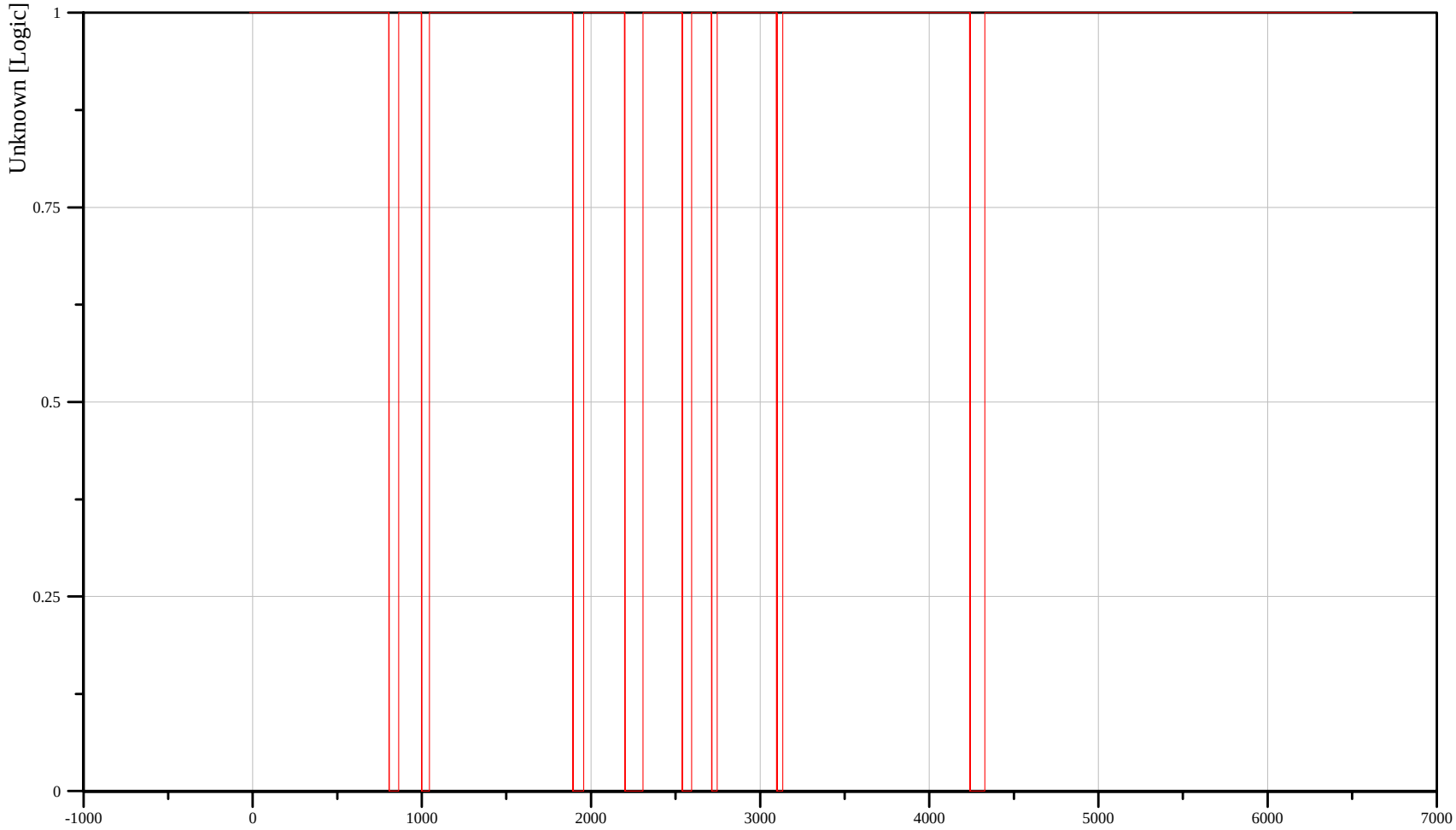
Left Rear Passenger Thorax Contact

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14CONT000030EV00

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: Unfiltered

Min. Value
0.00 Logic at 806.16 ms

Max. Value
1.00 Logic at -20.00 ms

Soil Trip Rollover 2007 Ford Expedition

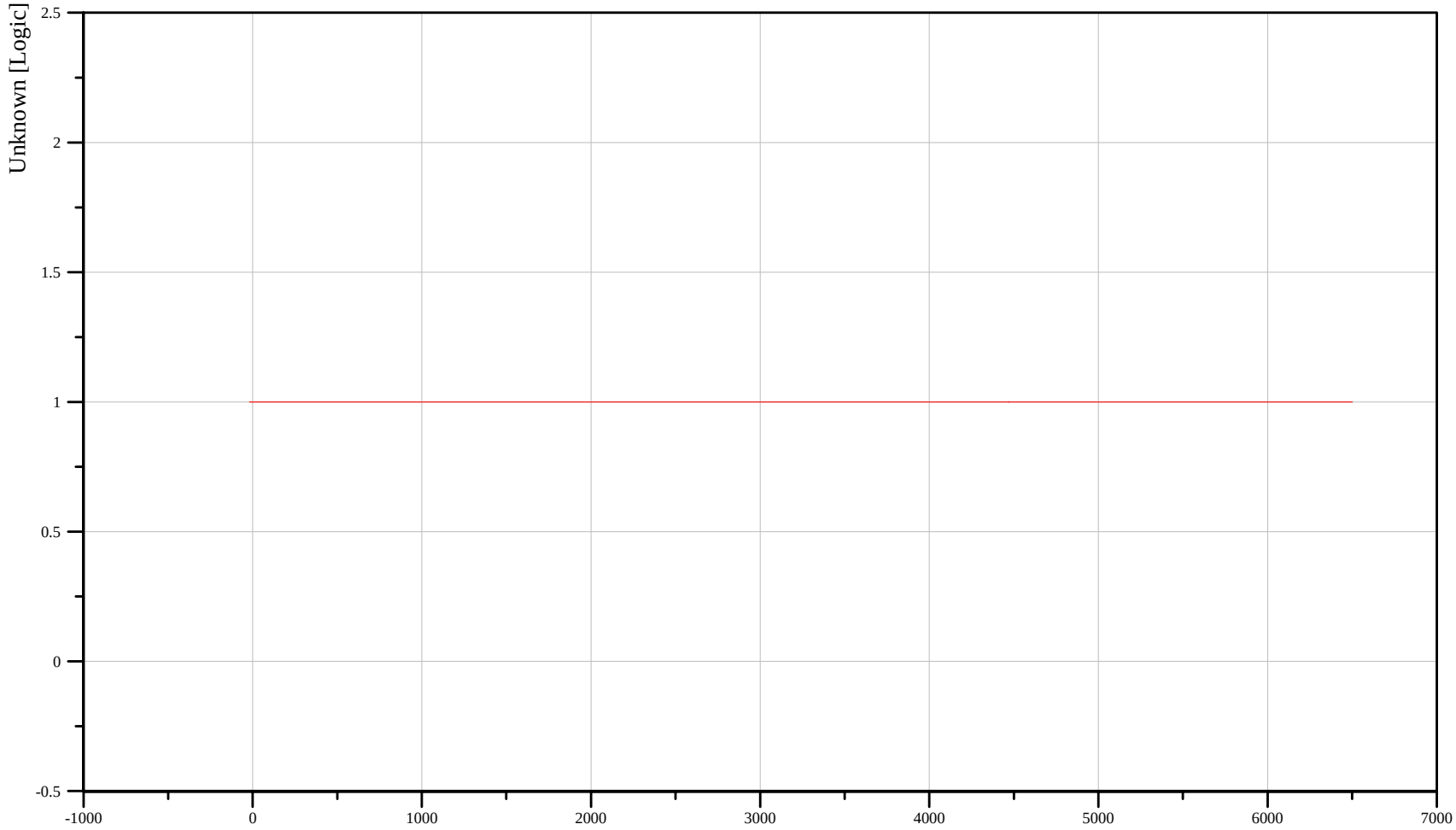
Left Rear Passenger Pelvis Contact

Date: 12/15/2009
Time: 11:09

Customer: VRTC

14CONT000031EV00

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: Unfiltered

Min. Value
1.00 Logic at -20.00 ms

Max. Value
1.00 Logic at -20.00 ms

Soil Trip Rollover 2007 Ford Expedition

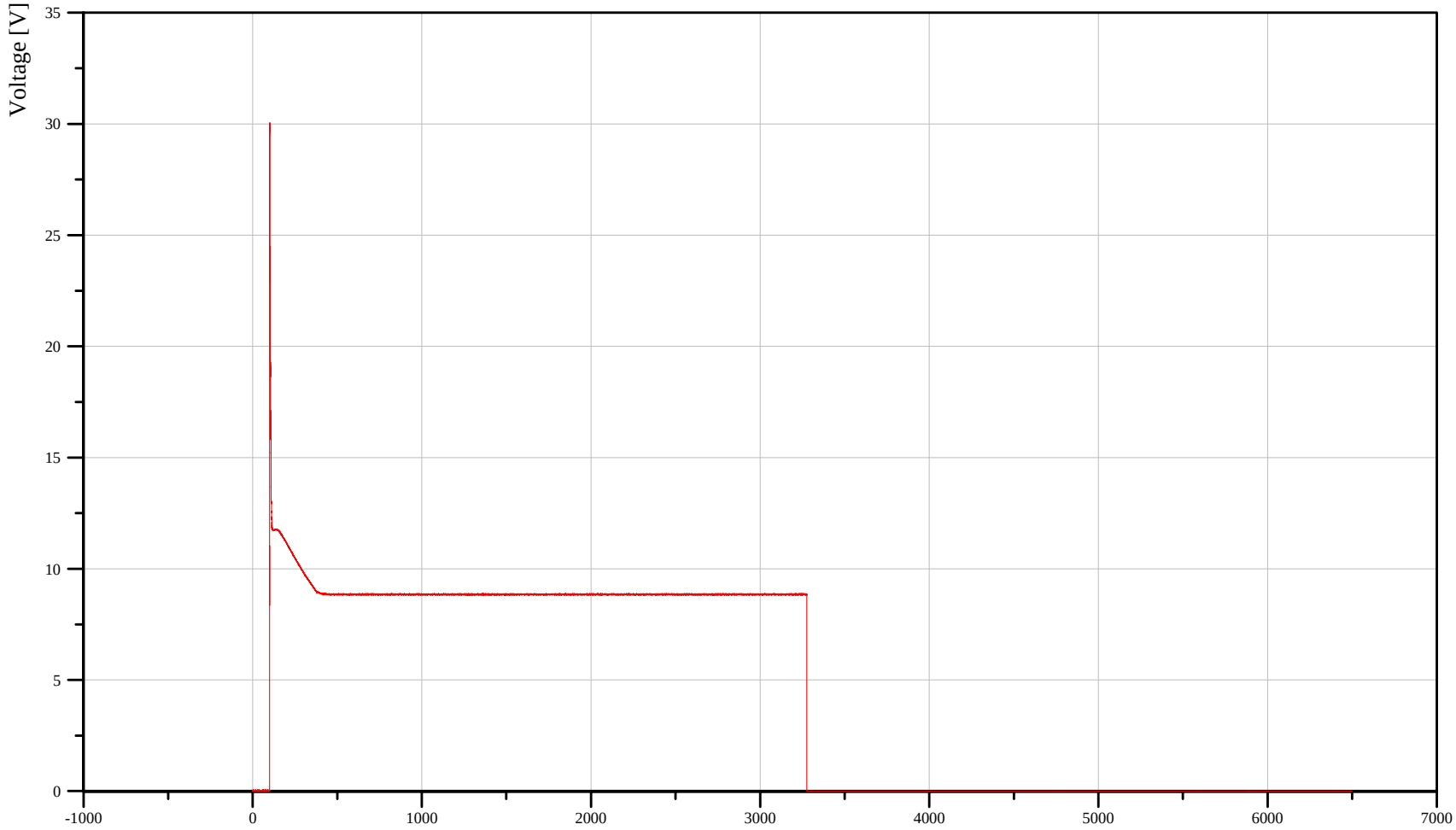
Left Side Curtain Voltage

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11AIRB000000VO0A

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
0.00 V at 0.72 ms

Max. Value
30.05 V at 101.12 ms

Soil Trip Rollover 2007 Ford Expedition

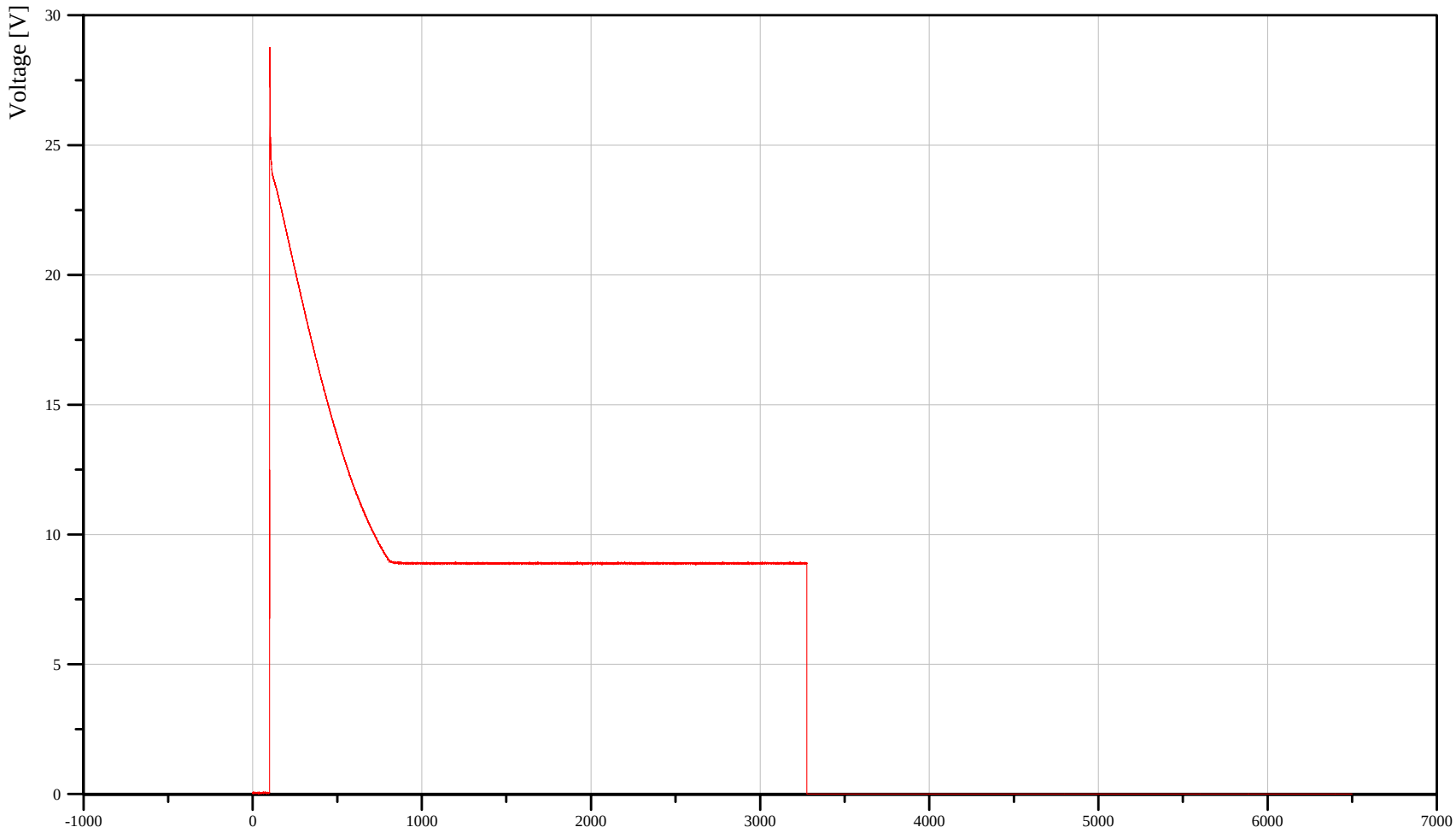
Right Side Curtain Voltage

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13AIRB000000VO0A

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
0.00 V at 31.84 ms

Max. Value
28.76 V at 101.28 ms

Soil Trip Rollover 2007 Ford Expedition

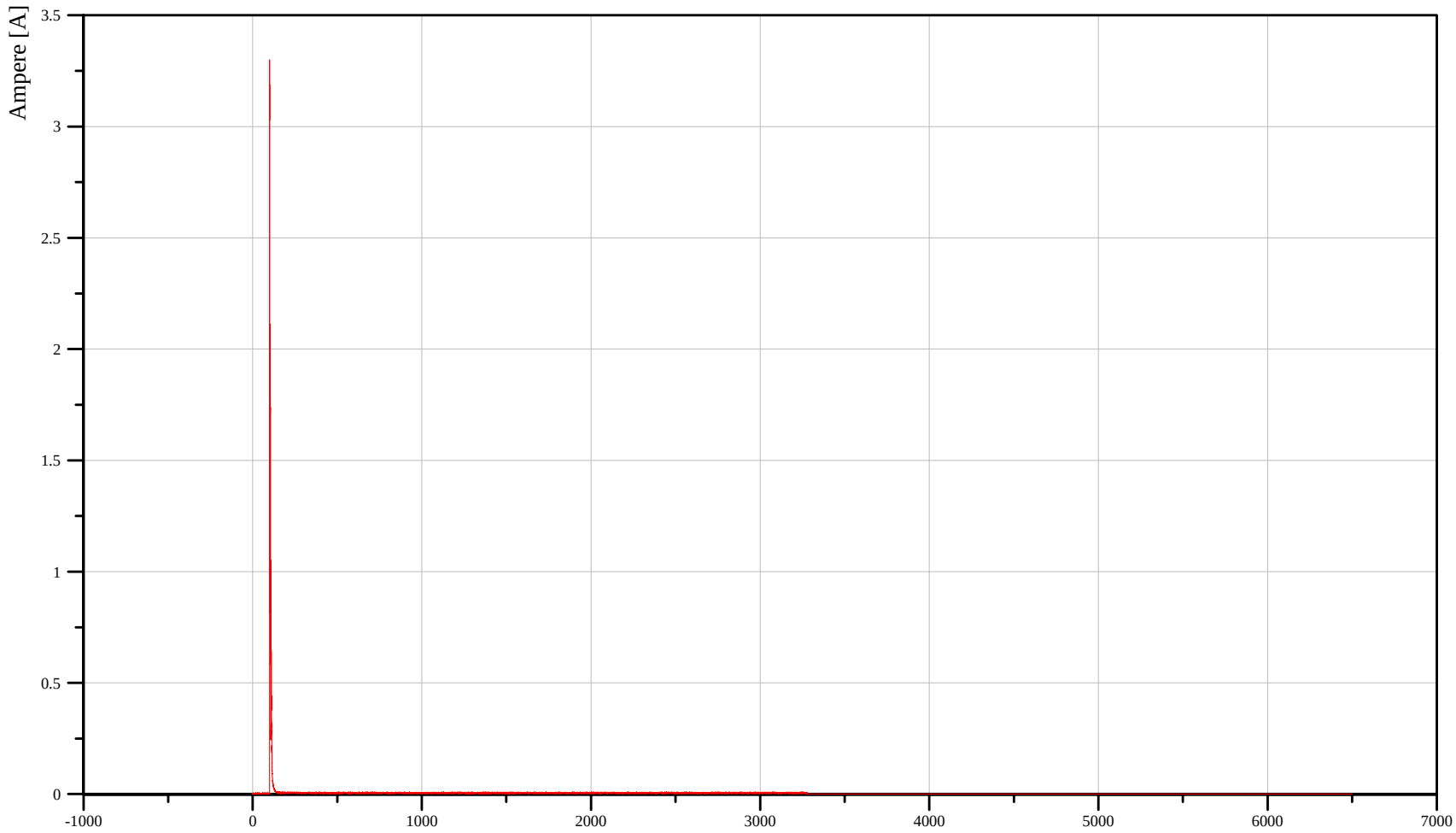
Left Side Curtain Current

Date: 12/15/2009
Time: 11:09

Customer: VRTC

11AIRB000000CU0A

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
0.00 A at 0.72 ms

Max. Value
3.30 A at 100.40 ms

Soil Trip Rollover 2007 Ford Expedition

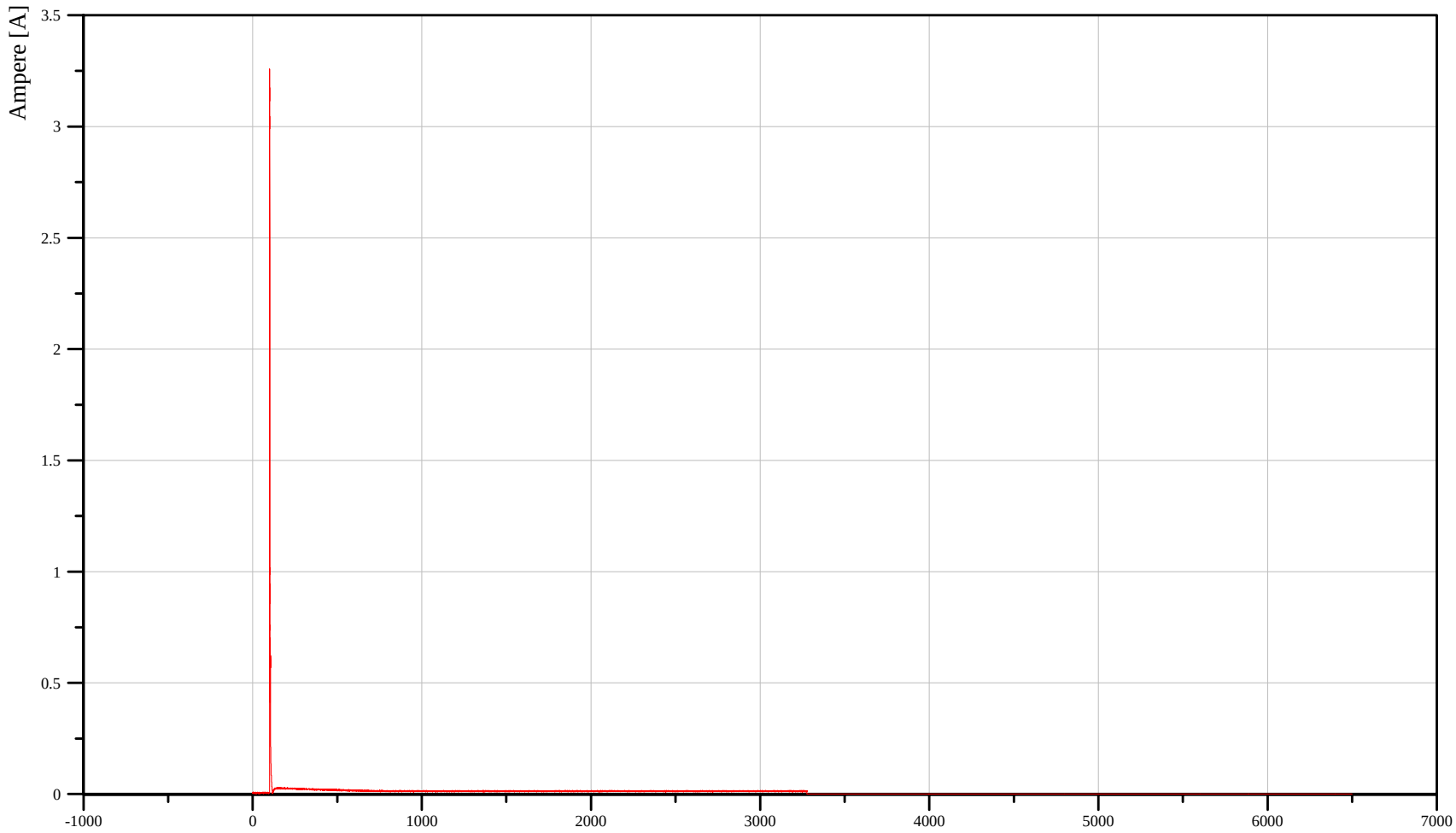
Right Side Curtain Current

Date: 12/15/2009
Time: 11:09

Customer: VRTC

13AIRB000000CU0A

TRC Inc. Test Lab: CTF
Test Number: 091215



Filter: CFC_1000

Min. Value
0.00 A at 3,276.08 ms

Max. Value
3.26 A at 100.56 ms

091215

APPENDIX C
ATD CONFIGURATION AND PERFORMANCE VERIFICATION DATA

Calibration Test Results

Pre-Test

Driver Dummy S/N: 001

Transportation Research Center Inc.

Front Head Drop
HIII 50th Serial No. 001 Certification No. 12-1
Test Date: 10/28/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Peak Head Resultant Acceleration	225 - 275 g	271.7 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	11.3 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician

Approved

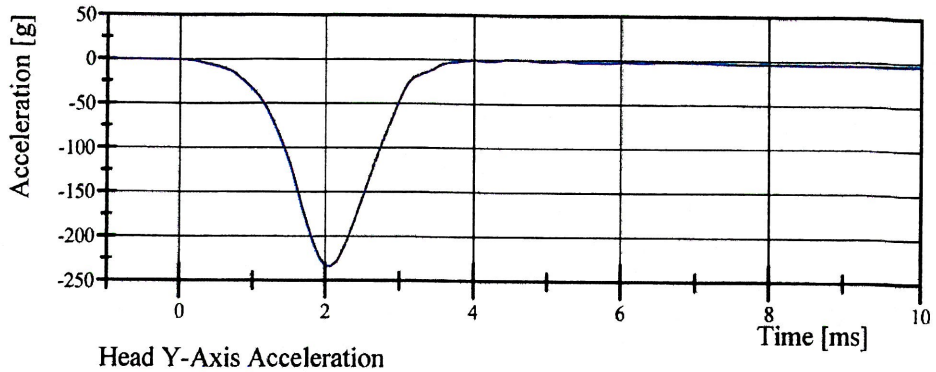
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 10:17:54 611

Transportation Research Center Inc.

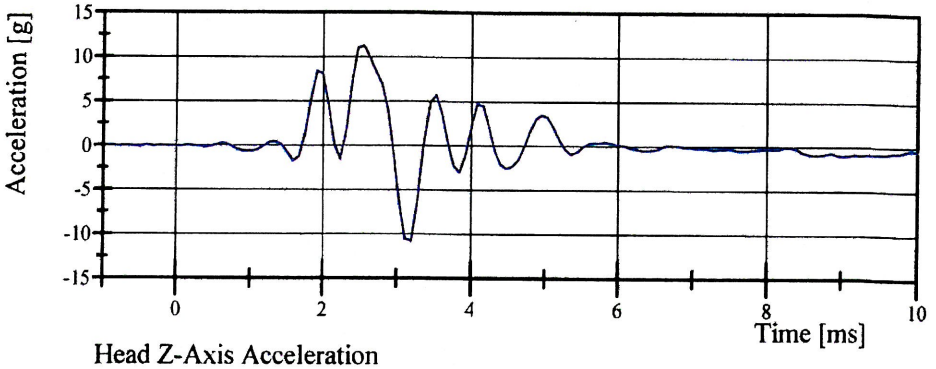
Front Head Drop
HIII 50th Serial No. 001 Certification No. 12-1
Test Date: 10/28/2009

Head X-Axis Acceleration



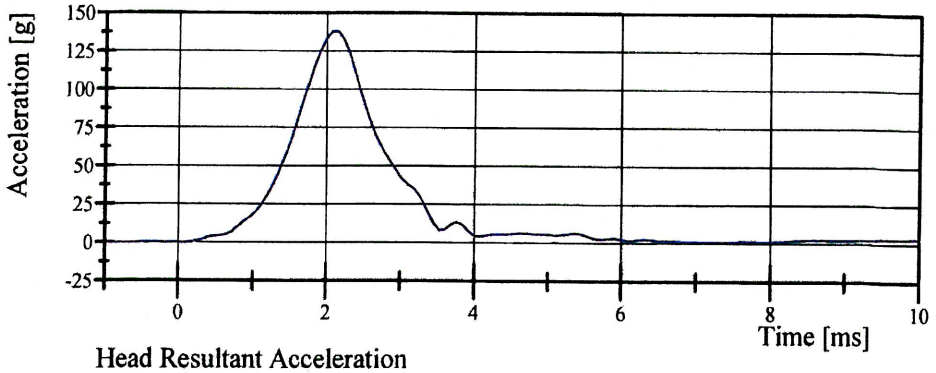
Filter Class: CFC_1000
Max: 0.7 g at 4.5 ms
Min: -234.1 g at 2.1 ms

Head Y-Axis Acceleration



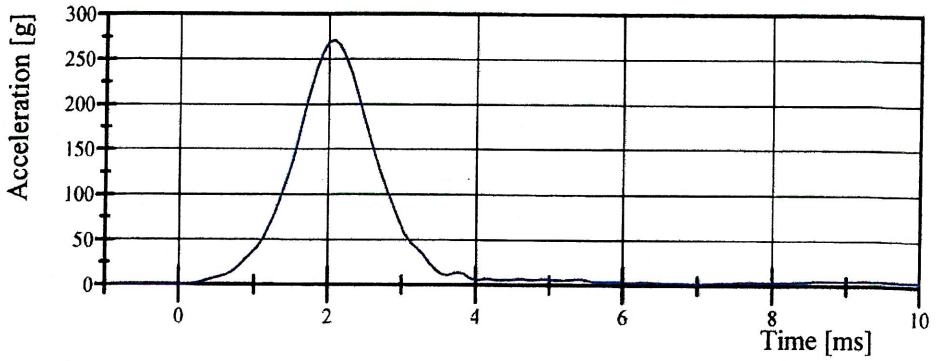
Filter Class: CFC_1000
Max: 11.3 g at 2.6 ms
Min: -10.8 g at 3.2 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 138.0 g at 2.2 ms
Min: -0.1 g at -1.0 ms

Head Resultant Acceleration



Filter Class: CFC_1000
Max: 271.7 g at 2.1 ms
Min: 0.0 g at 0.0 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 10:18:01 611

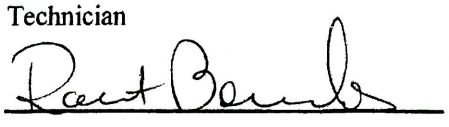
Transportation Research Center Inc.

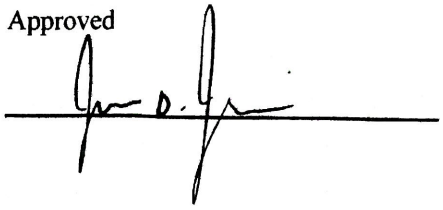
Neck Flexion
HIII 50th Serial No. 001 Certification No. 12-2
Test Date: 10/28/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	6.928 m/s	Yes
Pendulum Acceleration Decay Crossing -5g	34 - 42 ms	36.2 ms	Yes
Pendulum Acceleration at 10ms	(-22.5) - (-27.5) g	-26.91 g	Yes
Pendulum Acceleration at 20ms	(-17.6) - (-22.6) g	-22.39 g	Yes
Pendulum Acceleration at 30ms	(-12.5) - (-18.5) g	-18.01 g	Yes
Pendulum Acceleration > 30ms	>= (-29.0) g	-18.01 g	Yes
Total Head D-Plane Rotation			
Peak	(-64) - (-78) °	-70.2 °	Yes
Time of Peak	57 - 64 ms	58.7 ms	Yes
Total Head D-Plane Rotation Decay to 0°	113 - 128 ms	115.0 ms	Yes
Total Neck Occipital Condyles Moment			
Peak	88 - 108 N·m	102.3 N·m	Yes
Time of Peak	47 - 58 ms	49.8 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	97 - 107 ms	97.0 ms	Yes

Test meets specifications.

Comments:

Technician 

Approved 

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 11:30:15 2963

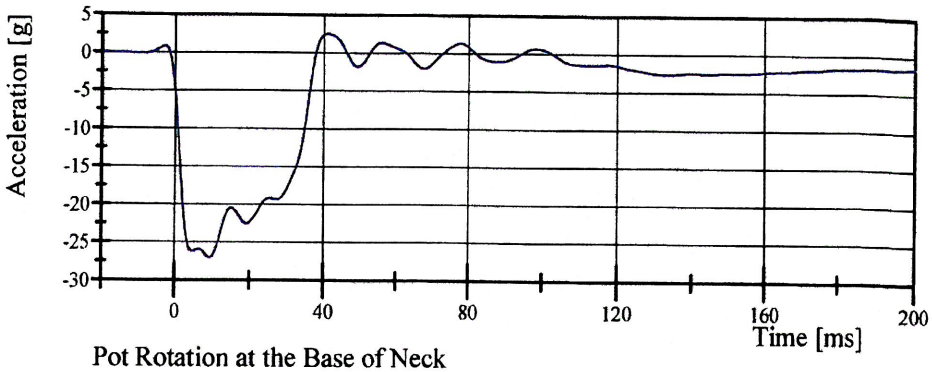
Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 001 Certification No. 12-2

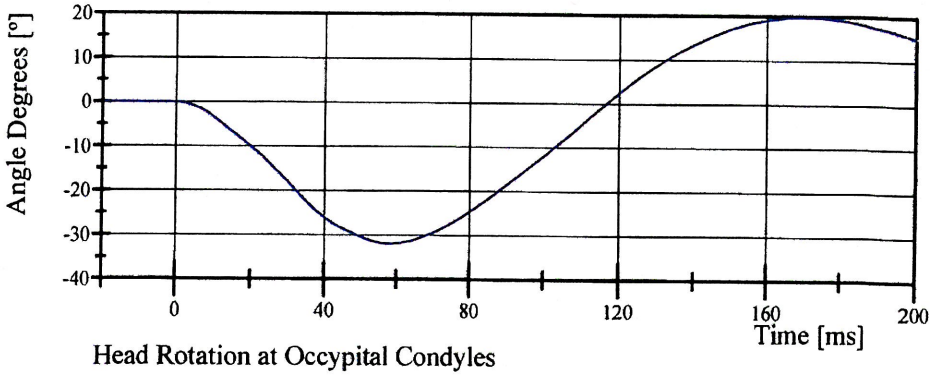
Test Date: 10/28/2009

Pendulum Acceleration



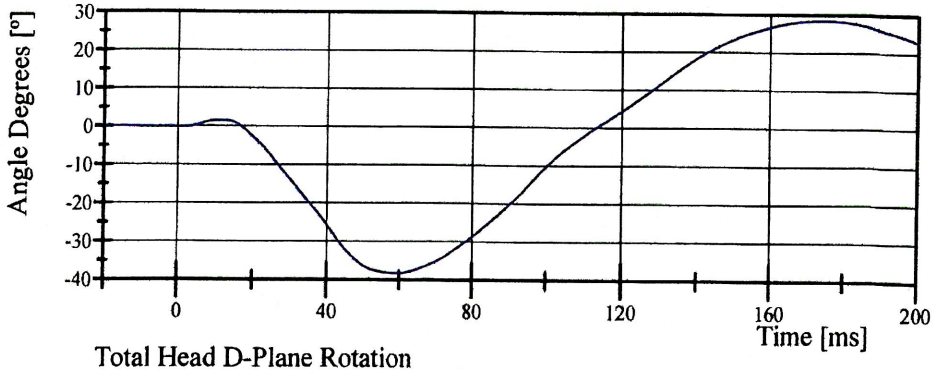
Filter Class: CFC_60
Max: 2.6 g at 41.0 ms
Min: -27.0 g at 9.5 ms

Pot Rotation at the Base of Neck



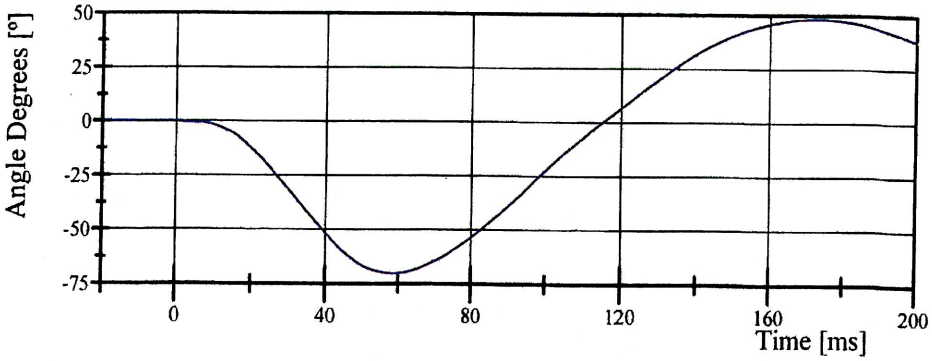
Filter Class: CFC_60
Max: 19.9 ° at 169.6 ms
Min: -32.0 ° at 58.2 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 28.5 ° at 174.6 ms
Min: -38.3 ° at 59.3 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 48.3 ° at 172.9 ms
Min: -70.2 ° at 58.7 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 11:30:22 2963

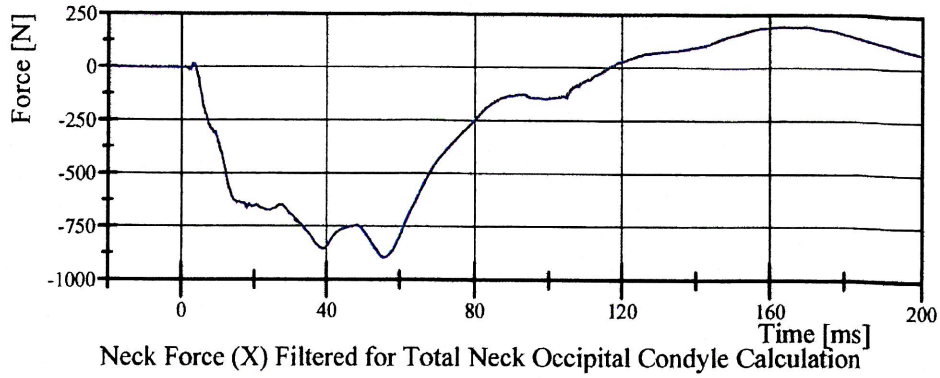
Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 001 Certification No. 12-2

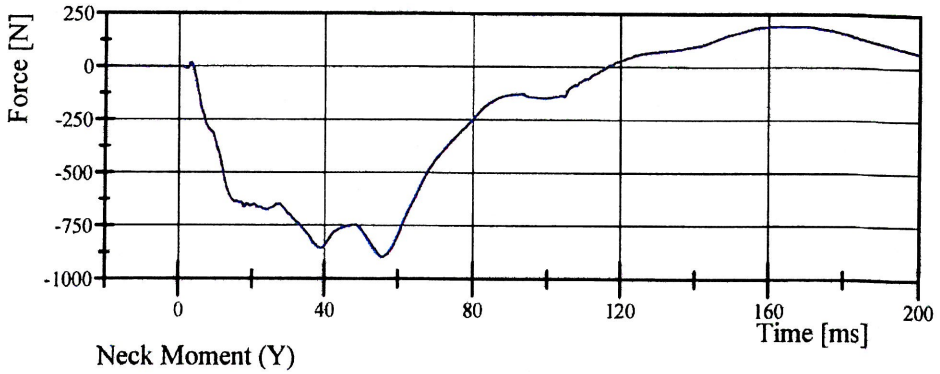
Test Date: 10/28/2009

Neck Force (X)



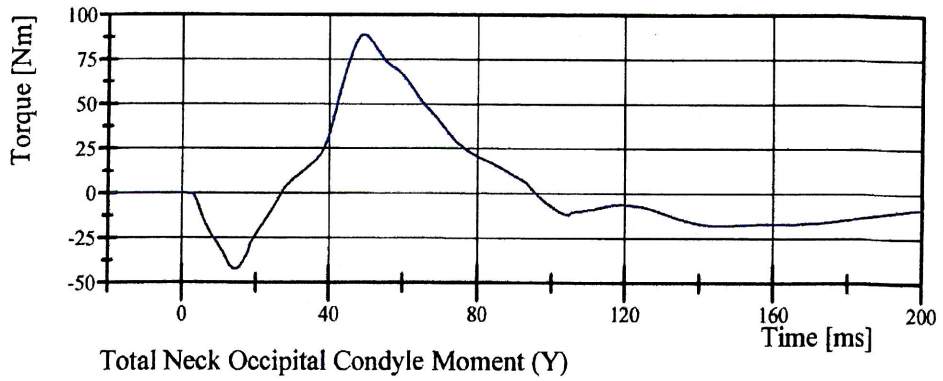
Filter Class: CFC_1000
Max: 196.5 N at 163.9 ms
Min: -896.1 N at 55.8 ms

Neck Force (X) Filtered for Total Neck Occipital Condyle Calculation



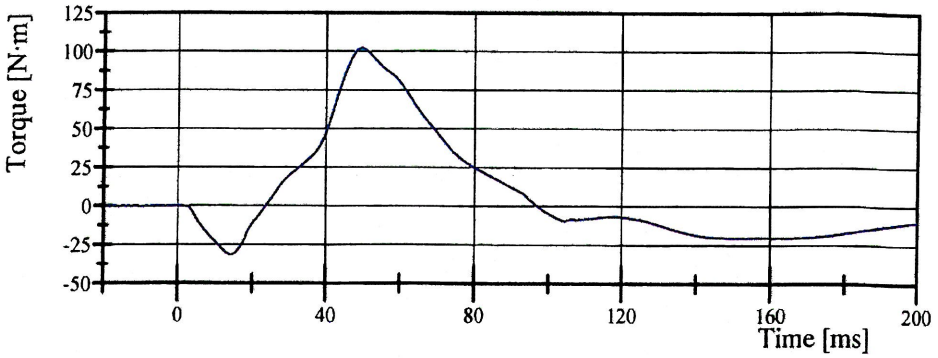
Filter Class: CFC_600
Max: 195.7 N at 163.9 ms
Min: -895.7 N at 55.8 ms

Neck Moment (Y)



Filter Class: CFC_600
Max: 89.0 Nm at 49.5 ms
Min: -42.4 Nm at 14.4 ms

Total Neck Occipital Condyle Moment (Y)



Filter Class: CFC_600
Max: 102.3 N·m at 49.8 ms
Min: -31.5 N·m at 14.2 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 11:30:23 2963

Transportation Research Center Inc.

Neck Extension
HIII 50th Serial No. 001 Certification No. 12-1
Test Date: 10/28/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Pendulum Velocity	(-5.95) - (-6.18) m/s	-5.990 m/s	Yes
Pendulum Acceleration Decay Crossing 5g	38 - 46 ms	44.6 ms	Yes
Pendulum Acceleration at 10ms	17.2 - 21.2 g	18.36 g	Yes
Pendulum Acceleration at 20ms	14.0 - 19.0 g	16.29 g	Yes
Pendulum Acceleration at 30ms	11.0 - 16.0 g	12.67 g	Yes
Pendulum Acceleration > 30ms	<= 22.0 g	12.67 g	Yes
Total Head D-Plane Rotation			
Peak	81 - 106 °	88.2 °	Yes
Time of Peak	72 - 82 ms	76.4 ms	Yes
Total Head D-Plane Rotation Decay to 0°	147 - 174 ms	153.8 ms	Yes
Total Neck Occipital Condyles Moment			
Peak	(-53) - (-80) N·m	-62.6 N·m	Yes
Time of Peak	65 - 79 ms	65.3 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	120 - 148 ms	140.6 ms	Yes

Test meets specifications.

Comments:

Technician

Approved

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 12:30:03 3050

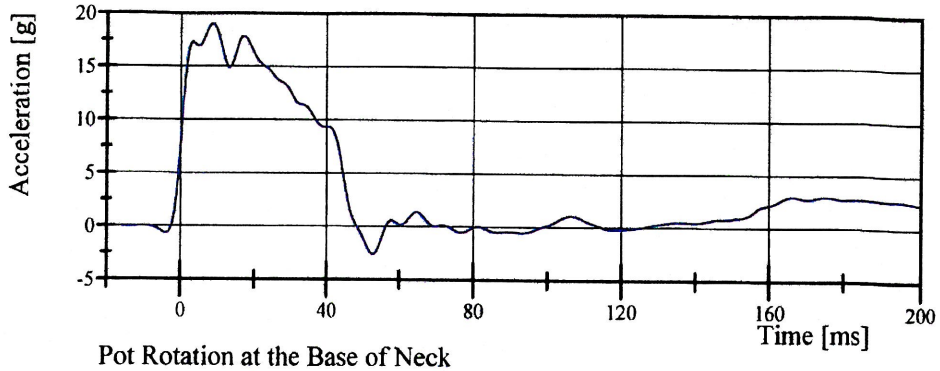
Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 001 Certification No. 12-1

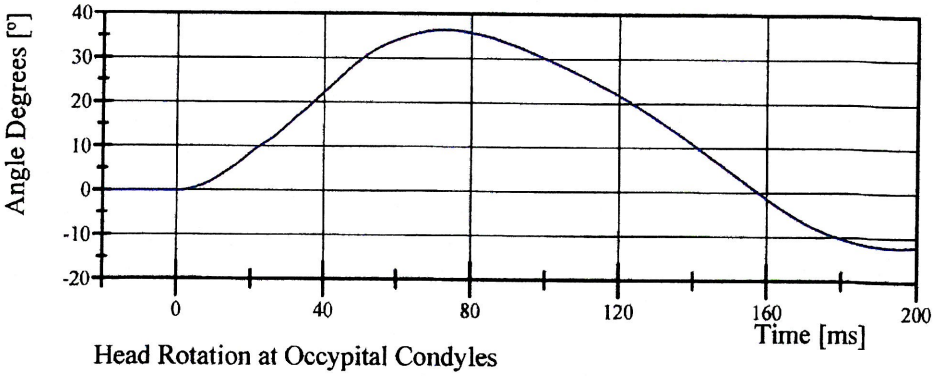
Test Date: 10/28/2009

Pendulum Acceleration



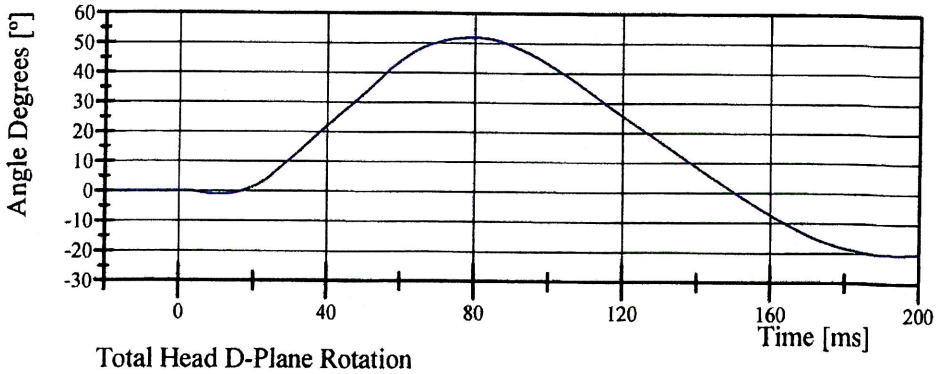
Filter Class: CFC_60
Max: 19.0 g at 8.6 ms
Min: -2.6 g at 52.9 ms

Pot Rotation at the Base of Neck



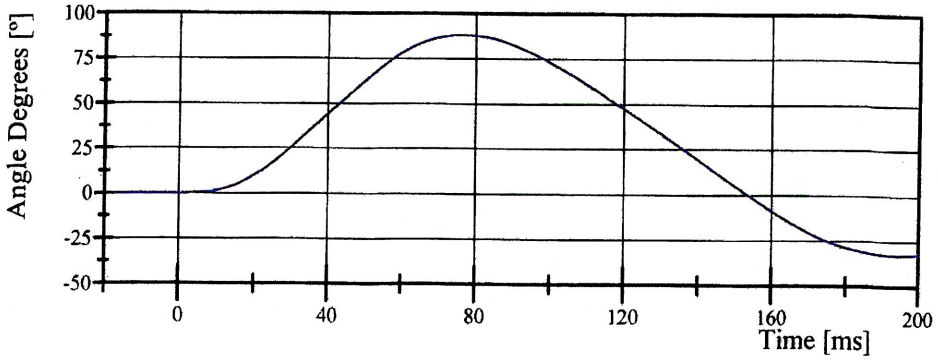
Filter Class: CFC_60
Max: 36.5 ° at 73.0 ms
Min: -12.2 ° at 195.2 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 52.0 ° at 79.8 ms
Min: -20.3 ° at 194.6 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 88.2 ° at 76.4 ms
Min: -32.5 ° at 195.0 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 12:30:10 3050

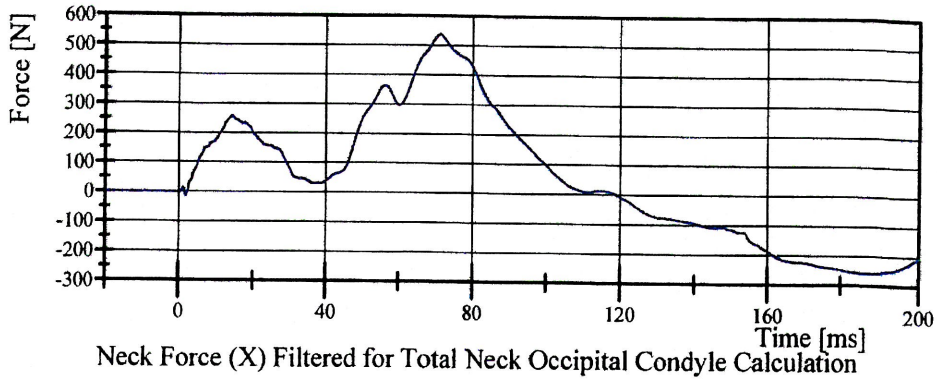
Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 001 Certification No. 12-1

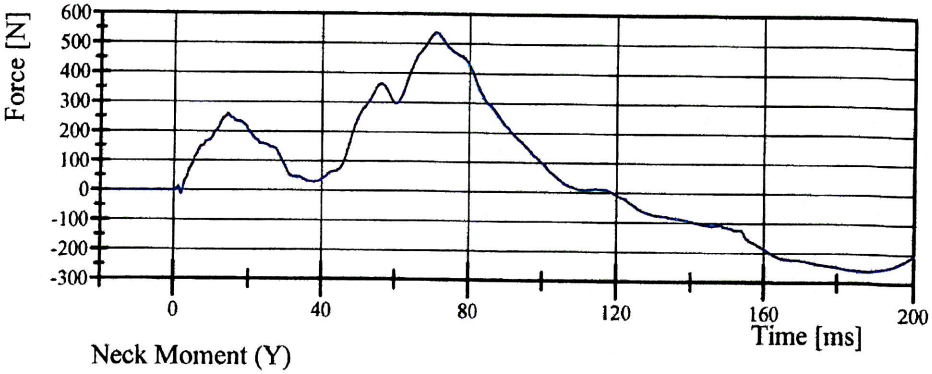
Test Date: 10/28/2009

Neck Force (X)



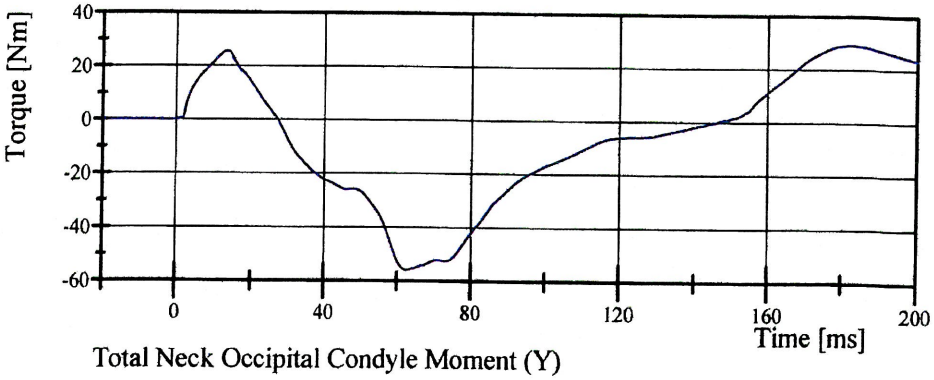
Filter Class: CFC_1000
Max: 539.5 N at 71.0 ms
Min: -259.2 N at 188.0 ms

Neck Force (X) Filtered for Total Neck Occipital Condyle Calculation



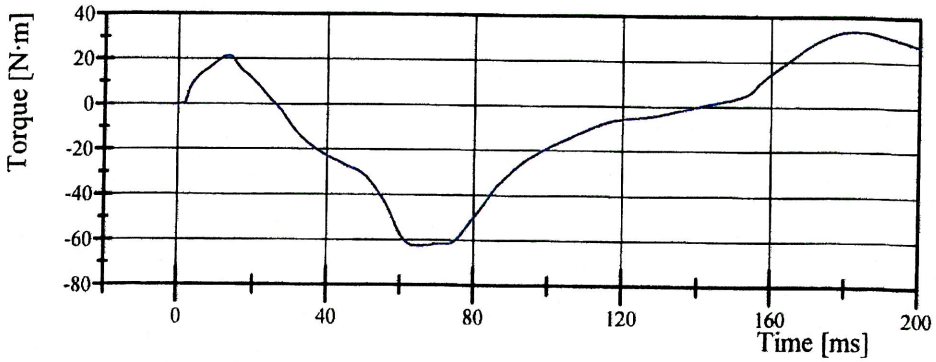
Filter Class: CFC_600
Max: 539.2 N at 71.0 ms
Min: -258.4 N at 188.0 ms

Neck Moment (Y)



Filter Class: CFC_600
Max: 29.2 Nm at 182.3 ms
Min: -55.9 Nm at 62.9 ms

Total Neck Occipital Condyle Moment (Y)



Filter Class: CFC_600
Max: 33.7 N·m at 183.1 ms
Min: -62.6 N·m at 65.3 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 12:30:11 3050

Transportation Research Center Inc.

Front Thorax
HIII 50th Serial No. 001 Certification No. 12-2
Test Date: 10/28/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.622 m/s	Yes
Probe Force Peak	(-5,160) - (-5,893) N	-5,661.4 N	Yes
Maximum Chest Compression	(-63.5) - (-72.6) mm	-68.08 mm	Yes
Internal Hysteresis	65 - 85 %	71.9 %	Yes

Test meets specifications.

Comments:

Technician

Approved

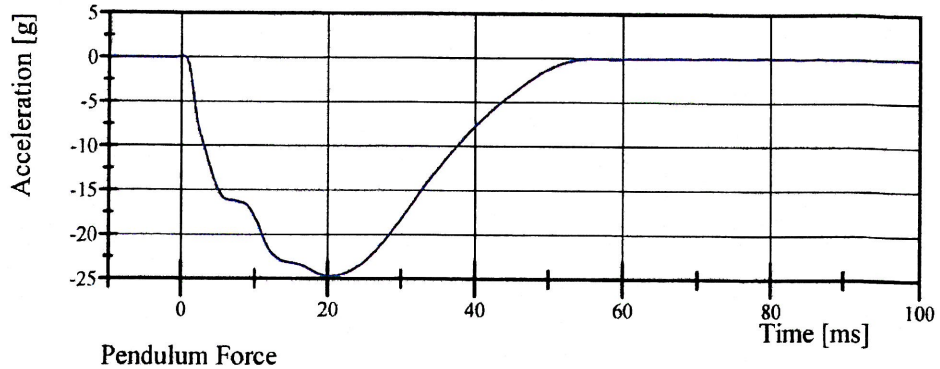
Specification Source: CFR49 Part 572 Subpart P
with Polarity in accordance with J211

10.28.2009 15:06:48 381

Transportation Research Center Inc.

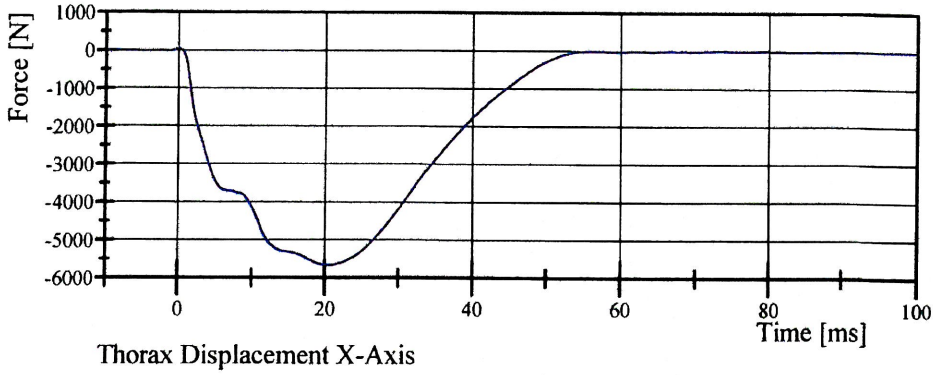
Front Thorax
HIII 50th Serial No. 001 Certification No. 12-2
Test Date: 10/28/2009

Pendulum Acceleration



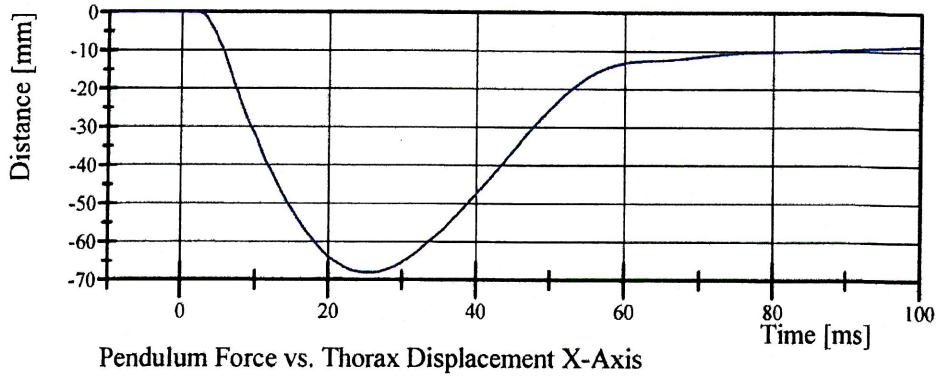
Filter Class: CFC_180
Max: 0.2 g at 0.1 ms
Min: -24.7 g at 20.7 ms

Pendulum Force



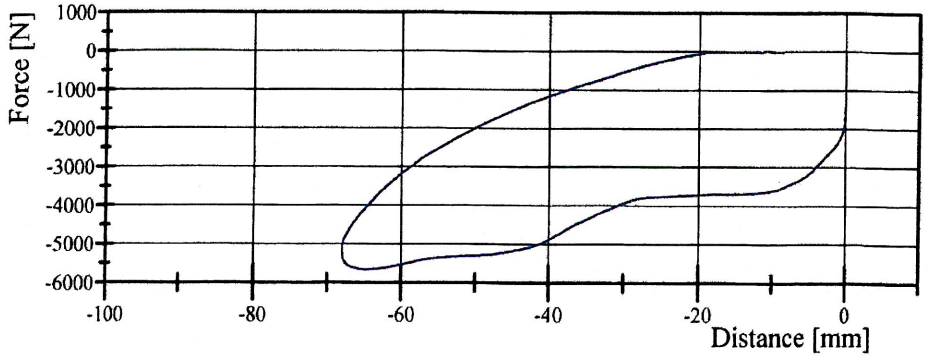
Filter Class: CFC_180
Max: 43.9 N at 0.1 ms
Min: -5,661.4 N at 20.7 ms

Thorax Displacement X-Axis



Filter Class: CFC_600
Max: 0.0 mm at -2.2 ms
Min: -68.1 mm at 26.1 ms

Pendulum Force vs. Thorax Displacement X-Axis



Filter Class: CFC_180
Max: 43.9 N at -0.0 mm
Min: -5,661.4 N at -65.0 mm

Specification Source: CFR49 Part 572 Subpart P
with Polarity in accordance with J211

10.28.2009 15:06:56 381

Transportation Research Center Inc

Hybrid III Hip Range of Motion

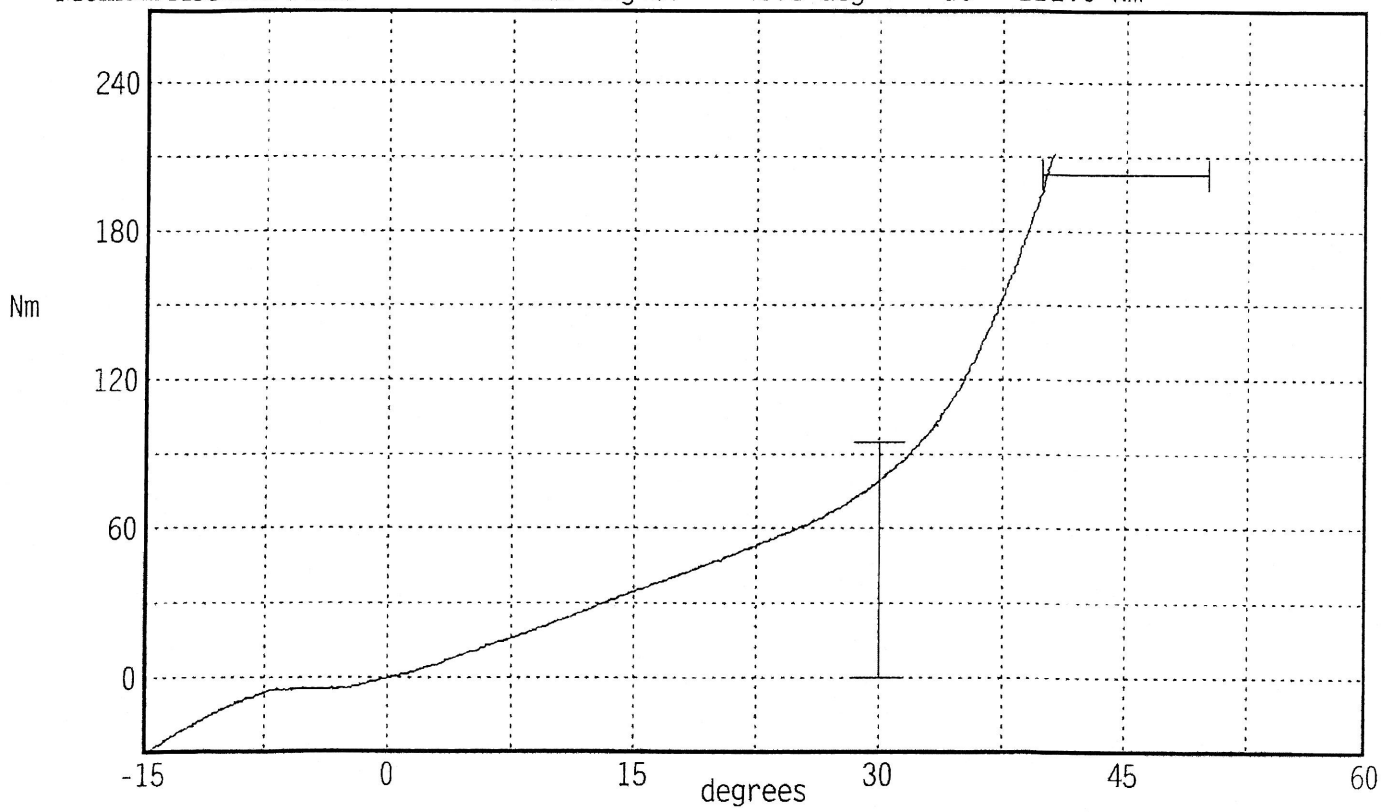
Serial Number: 001L
Test Number: 001C12
Comments:

Date: 10/28/2009
Time: 12:45

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.8 °C	Pass
Humidity	10 - 70	45 %	Pass
Moment at 30 deg	<= 94.9	79.3 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	40.4 deg	Pass
Average Velocity	5.0 - 10.0	7.5 deg/sec	Pass

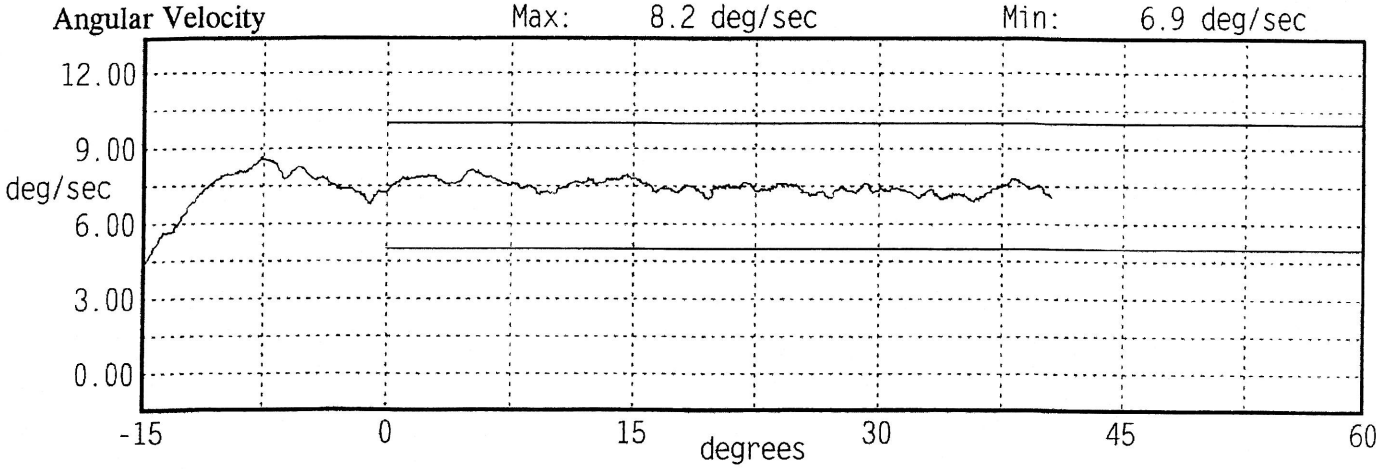
Moment About H-Point

Peak Moment: 211.0 Nm at 40.6 deg
Peak Angle: 40.6 deg at 211.0 Nm



Angular Velocity

Max: 8.2 deg/sec Min: 6.9 deg/sec



Transportation Research Center Inc

Hybrid III Hip Range of Motion

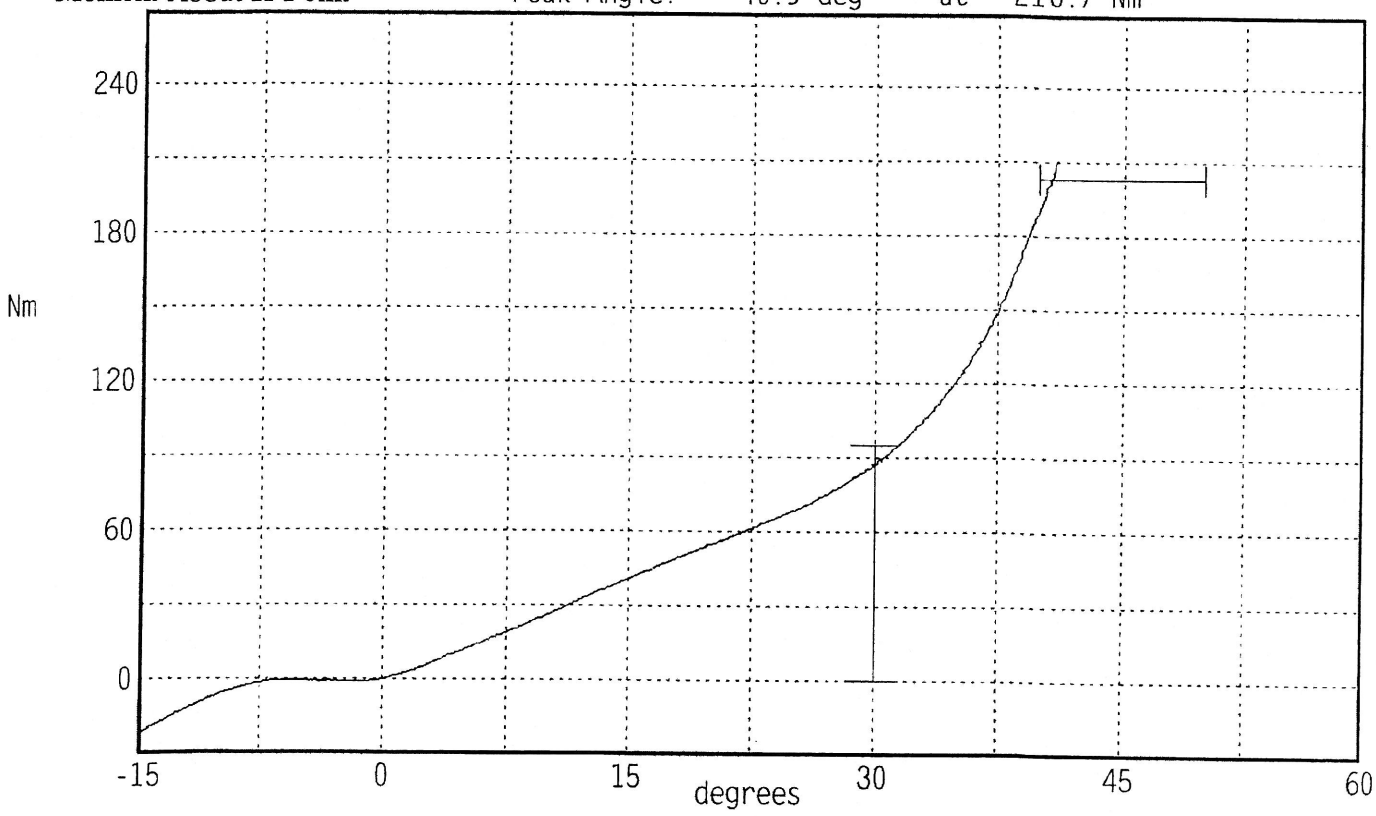
Serial Number: 001R
Test Number: 001C12
Comments:

Date: 10/28/2009
Time: 13:20

TEST PARAMETER	SPECIFICATION	TEST RESULTS		
Temperature	18.9 - 25.6	21.9	°C	Pass
Humidity	10 - 70	43	%	Pass
Moment at 30 deg	<= 94.9	87.7	Nm	Pass
Angle at 203 Nm	40.0 - 50.0	40.7	deg	Pass
Average Velocity	5.0 - 10.0	7.4	deg/sec	Pass

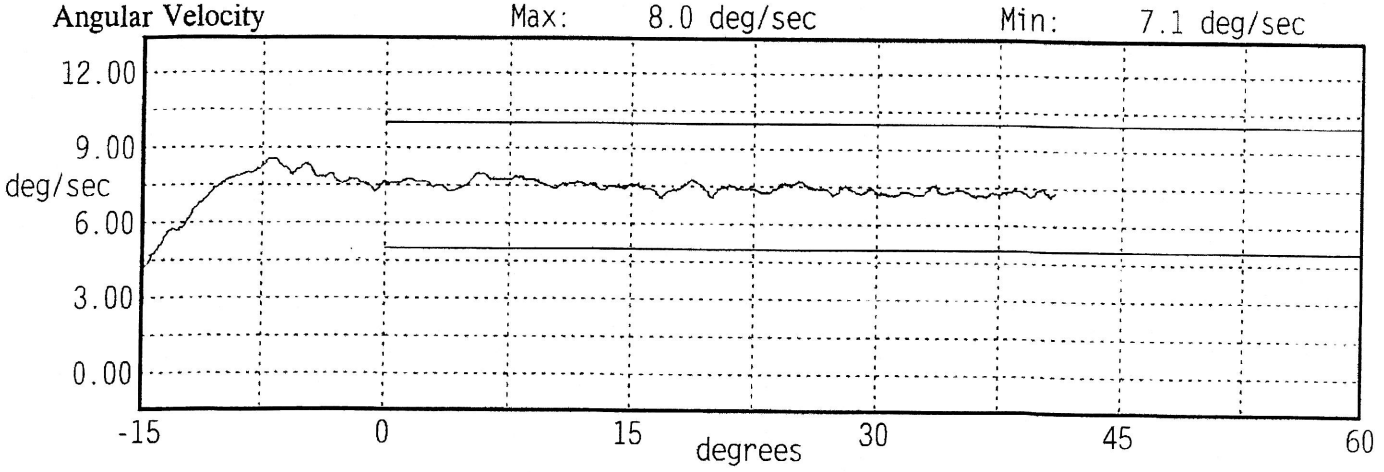
Moment About H-Point

Peak Moment: 210.7 Nm at 40.9 deg
Peak Angle: 40.9 deg at 210.7 Nm



Angular Velocity

Max: 8.0 deg/sec Min: 7.1 deg/sec



Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. 001 Certification No. 12-2
Test Date: 10/28/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.106 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,574.32 N	Yes

Test meets specifications.

Comments:

Technician

Approved

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

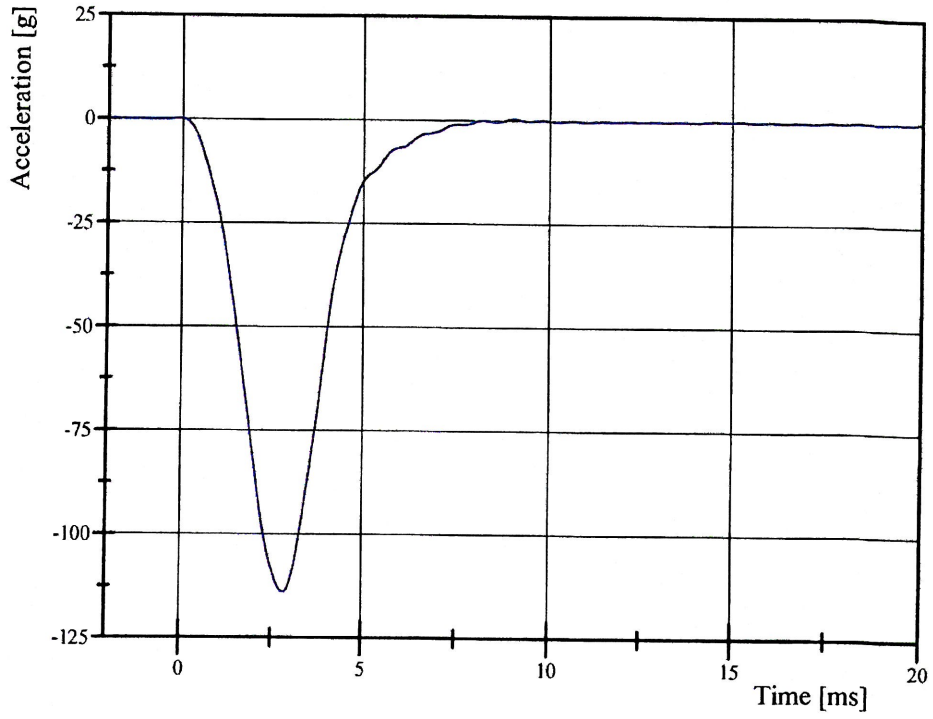
10.28.2009 12:05:33 1689

091215

Transportation Research Center Inc.

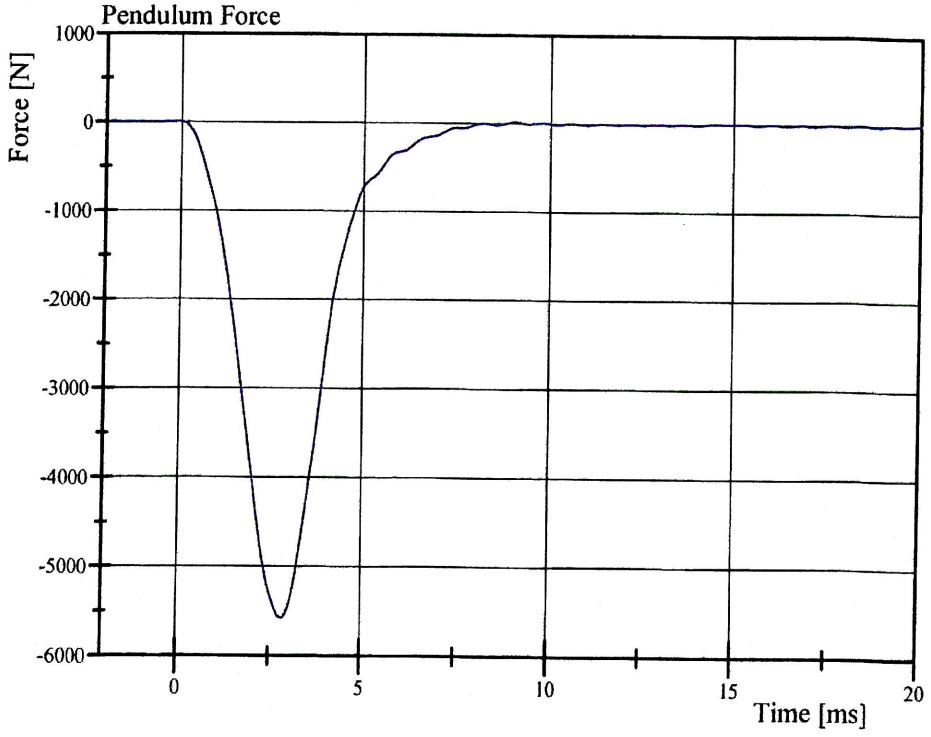
Left Knee Femur Response Test
HIII 50th Serial No. 001 Certification No. 12-2
Test Date: 10/28/2009

Pendulum Acceleration



Filter Class: CFC_600
Max: 0.4 g at 9.0 ms
Min: -113.9 g at 2.8 ms

Pendulum Force



Filter Class: CFC_600
Max: 19.6 N at 9.0 ms
Min: -5,574.3 N at 2.8 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 12:05:40 1689

Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. 001 Certification No. 12-1
Test Date: 10/28/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.102 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-4,962.01 N	Yes

Test meets specifications.

Comments:

Technician

Approved

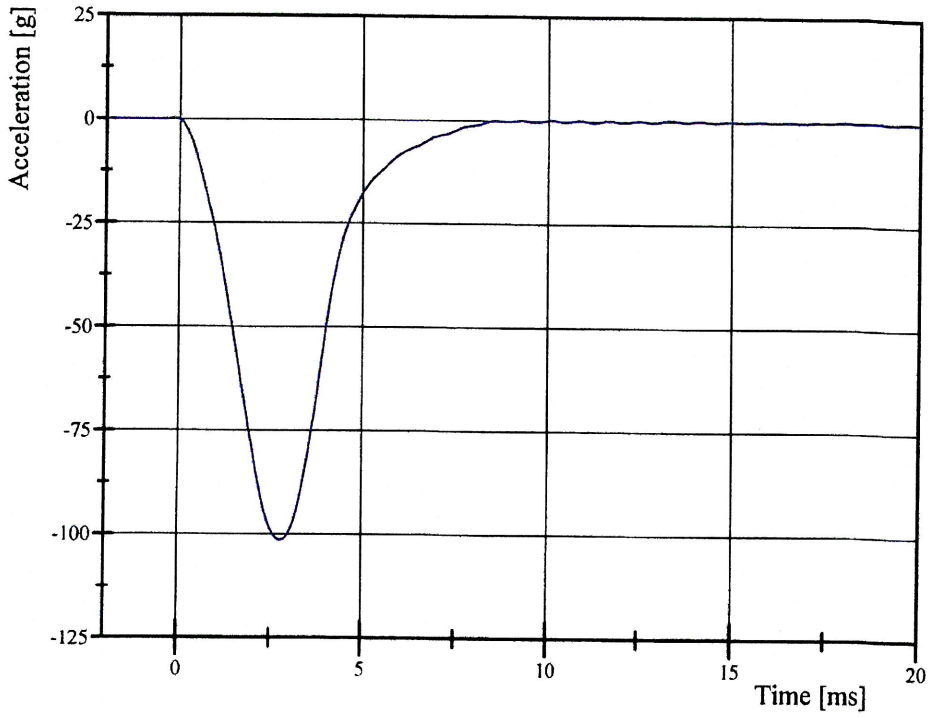
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 11:25:04 1689

Transportation Research Center Inc.

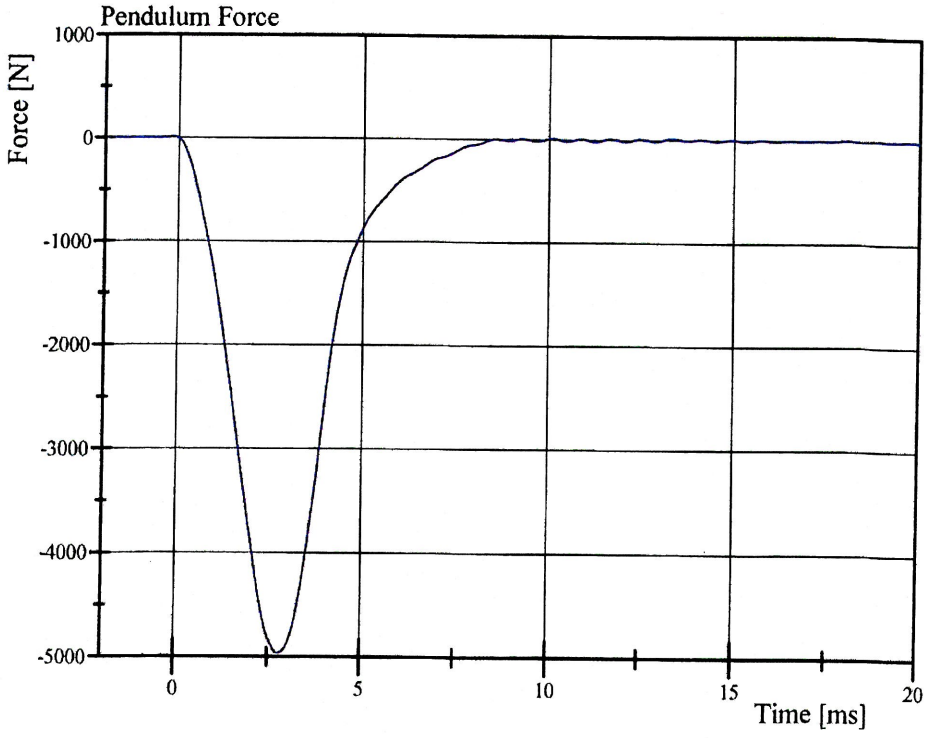
Right Knee Femur Response Test
HIII 50th Serial No. 001 Certification No. 12-1
Test Date: 10/28/2009

Pendulum Acceleration



Filter Class: CFC_600
Max: 0.3 g at 13.4 ms
Min: -101.4 g at 2.8 ms

Pendulum Force



Filter Class: CFC_600
Max: 15.9 N at 13.4 ms
Min: -4,962.0 N at 2.8 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 11:25:13 1689

091215

Transportation Research Center Inc.
572E HIII 50th Male Dummy
External Dimensions
Serial No. 001 Calibration No. 12

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	883	Yes
B	Shoulder Pivot Height	505.5 - 520.7	516	Yes
C	H-Point Height	83.8 - 88.9	87	Yes
D	H-Point From Seatback	134.6 - 139.7	137	Yes
E	Shoulder Pivot From Backline	83.8 - 94.0	93	Yes
F	Thigh Clearance	139.7 - 154.9	153	Yes
G	Back Of Elbow To Wrist Pivot	289.6 - 304.8	297	Yes
H	Skull Cap To Backline	40.6 - 45.7	45	Yes
I	Shoulder-Elbow Length	330.2 - 345.4	339	Yes
J	Elbow Rest Height	190.5 - 210.8	200	Yes
K	Buttock Knee Length	579.1 - 604.5	597	Yes
L	Popliteal Height	429.3 - 454.7	437	Yes
M	Knee Pivot Height	485.1 - 500.4	498	Yes
N	Buttock Popliteal Length	452.1 - 477.5	465	Yes
O	Chest Depth	213.4 - 228.6	228	Yes
P	Foot Length	251.5 - 266.7	260	Yes
V	Shoulder Breadth	421.6 - 436.9	429	Yes
W	Foot Breadth	91.4 - 106.7	99	Yes
Y	Chest Circumference	970.3 - 1000.8	995	Yes
Z	Waist Circumference	835.7 - 866.1	860	Yes
AA	Location For Chest Circumference	429.3 - 434.3	430	Yes
BB	Location For Waist Circumference	226.1 - 231.1	229	Yes

Technician

Approved

Calibration Test Results

Pre-Test

Right Front Passenger Dummy S/N: 110

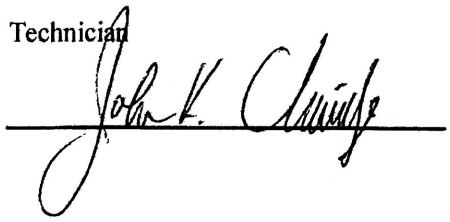
Transportation Research Center Inc.

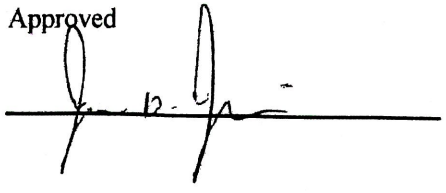
Front Head Drop
HIII 50th Serial No. 110 Certification No. 32-1
Test Date: 10/28/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Peak Head Resultant Acceleration	225 - 275 g	245.0 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	-1.8 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician 

Approved 

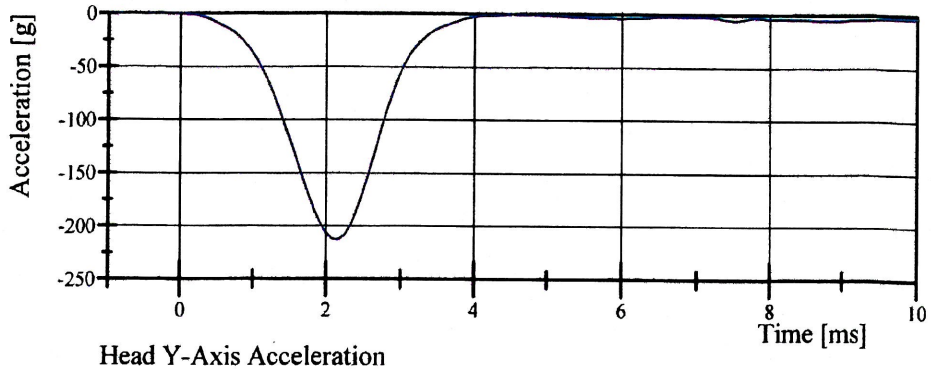
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 14:06:32 612

Transportation Research Center Inc.

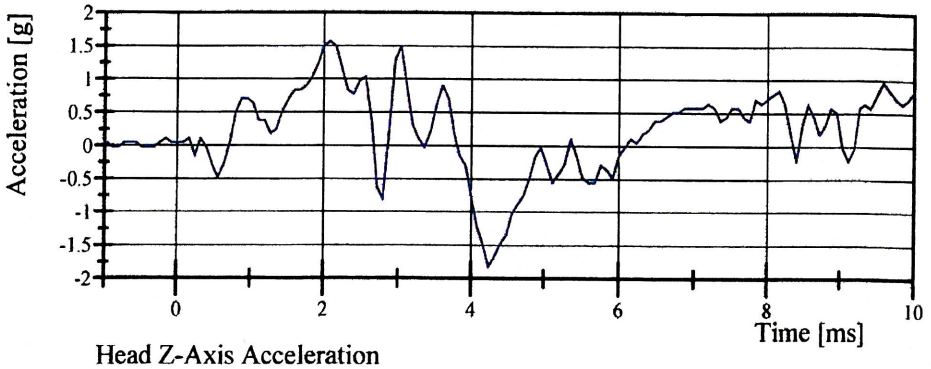
Front Head Drop
HIII 50th Serial No. 110 Certification No. 32-1
Test Date: 10/28/2009

Head X-Axis Acceleration



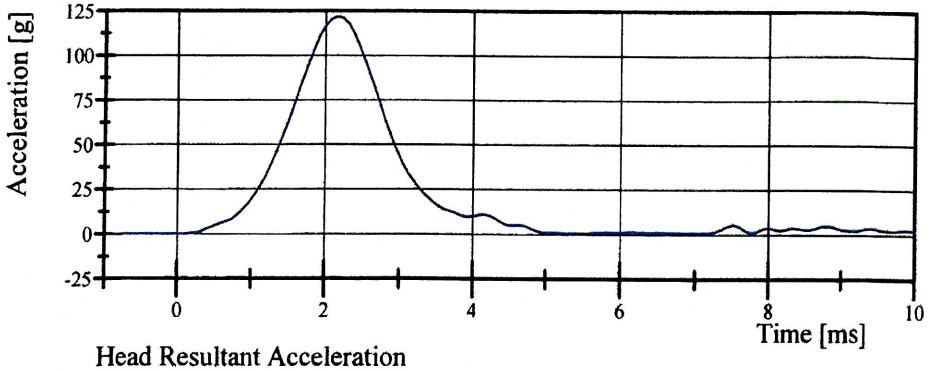
Filter Class: CFC_1000
Max: 0.0 g at -0.8 ms
Min: -212.5 g at 2.2 ms

Head Y-Axis Acceleration



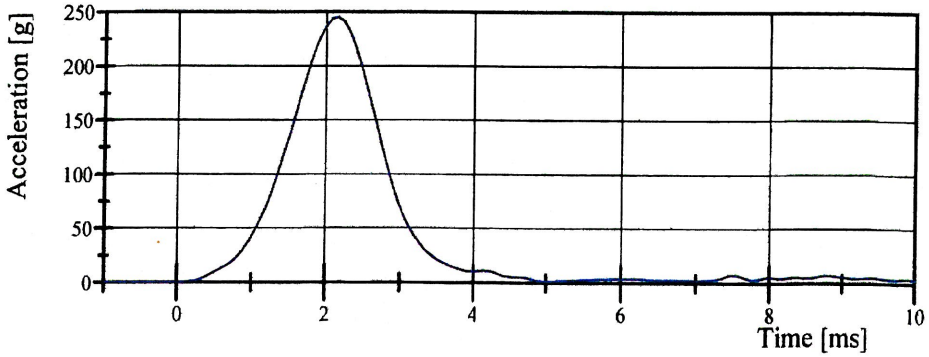
Filter Class: CFC_1000
Max: 1.6 g at 2.1 ms
Min: -1.8 g at 4.2 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 121.9 g at 2.2 ms
Min: -0.2 g at -0.8 ms

Head Resultant Acceleration



Filter Class: CFC_1000
Max: 245.0 g at 2.2 ms
Min: 0.0 g at -0.4 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 14:06:42 612

Transportation Research Center Inc.

Neck Flexion
HIII 50th Serial No. 110 Certification No. 32-3
Test Date: 10/29/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	44 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	6.948 m/s	Yes
Pendulum Acceleration Decay Crossing -5g	34 - 42 ms	37.1 ms	Yes
Pendulum Acceleration at 10ms	(-22.5) - (-27.5) g	-25.90 g	Yes
Pendulum Acceleration at 20ms	(-17.6) - (-22.6) g	-22.18 g	Yes
Pendulum Acceleration at 30ms	(-12.5) - (-18.5) g	-17.53 g	Yes
Pendulum Acceleration > 30ms	>= (-29.0) g	-17.53 g	Yes
Total Head D-Plane Rotation Peak	(-64) - (-78) °	-73.4 °	Yes
Total Head D-Plane Rotation Time of Peak	57 - 64 ms	60.9 ms	Yes
Total Head D-Plane Rotation Decay to 0°	113 - 128 ms	122.6 ms	Yes
Total Neck Occipital Condyles Moment Peak	88 - 108 N·m	96.5 N·m	Yes
Total Neck Occipital Condyles Moment Time of Peak	47 - 58 ms	50.3 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	97 - 107 ms	101.7 ms	Yes

Test meets specifications.

Comments:

Technician

Approved

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 08:16:13 1750

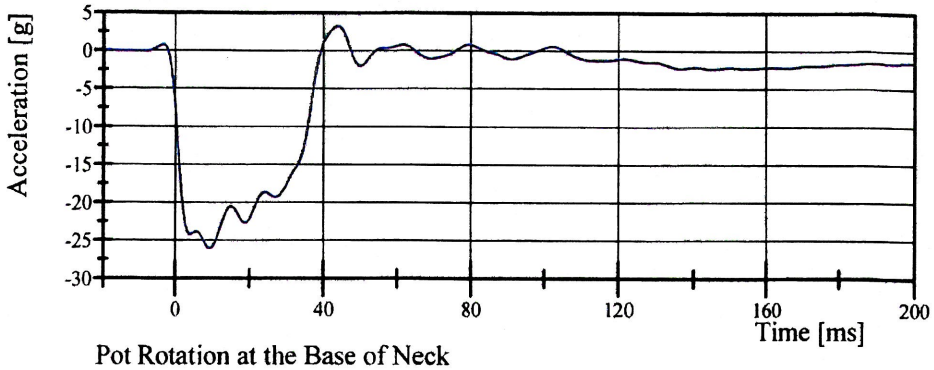
Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 110 Certification No. 32-3

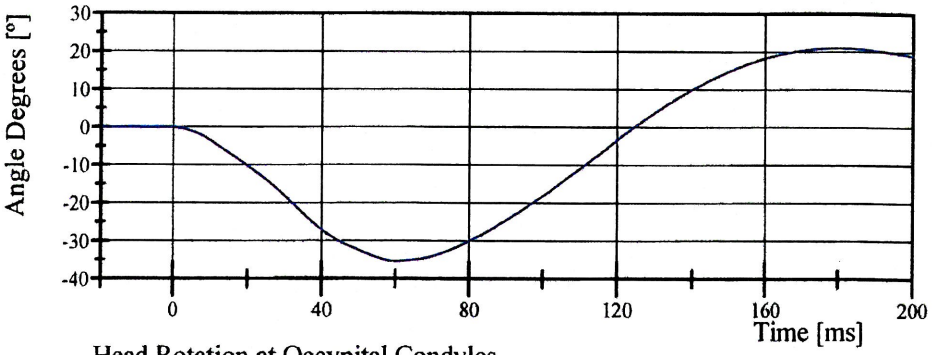
Test Date: 10/29/2009

Pendulum Acceleration



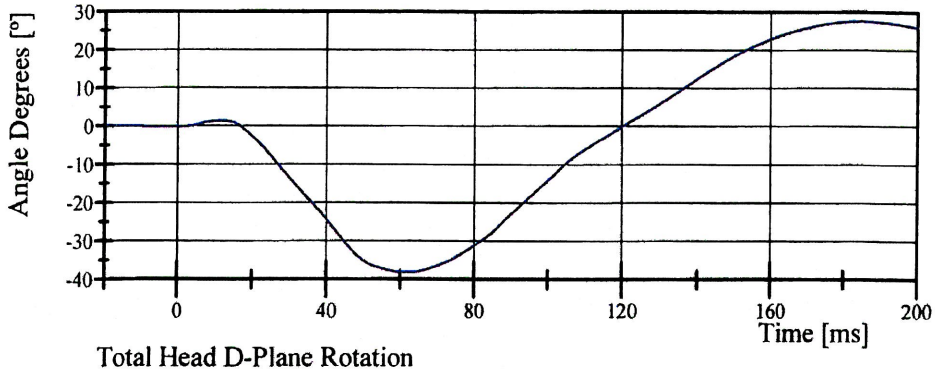
Filter Class: CFC_60
Max: 3.3 g at 43.8 ms
Min: -26.1 g at 9.4 ms

Pot Rotation at the Base of Neck



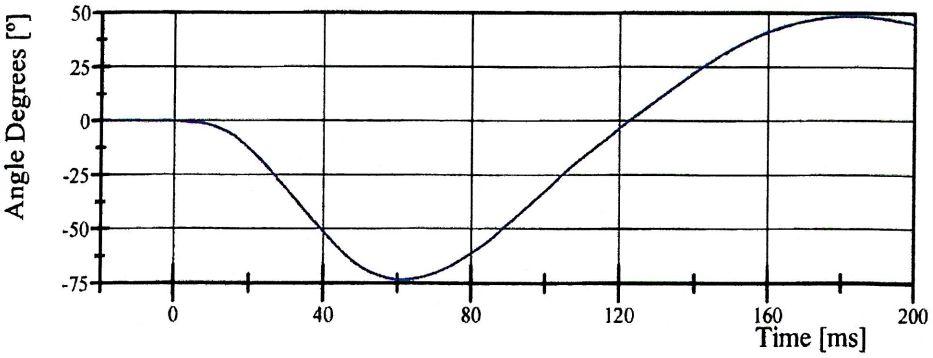
Filter Class: CFC_60
Max: 21.0 ° at 179.8 ms
Min: -35.3 ° at 60.5 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 27.6 ° at 185.0 ms
Min: -38.1 ° at 61.7 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 48.5 ° at 182.9 ms
Min: -73.4 ° at 60.9 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 08:16:20 1750

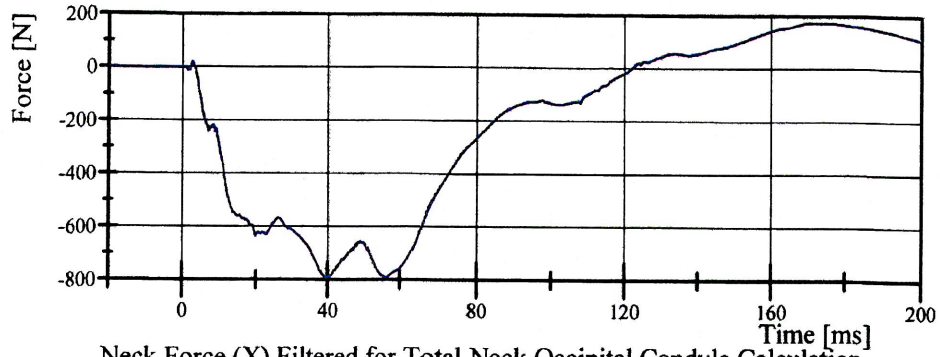
Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 110 Certification No. 32-3

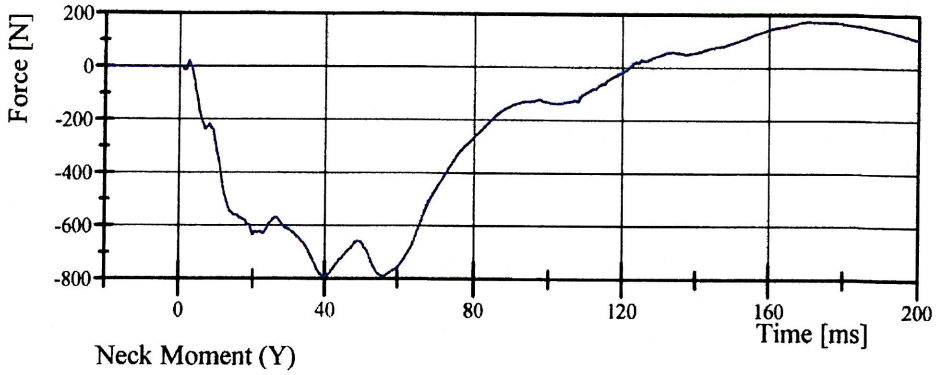
Test Date: 10/29/2009

Neck Force (X)



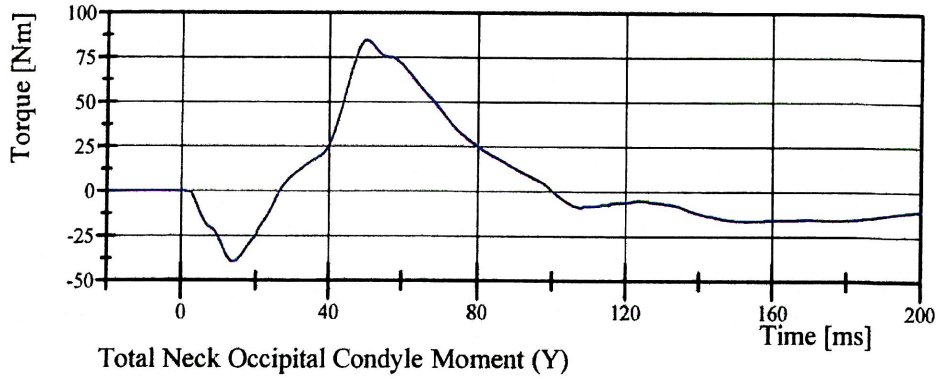
Filter Class: CFC_1000
Max: 176.8 N at 171.0 ms
Min: -793.3 N at 39.6 ms

Neck Force (X) Filtered for Total Neck Occipital Condyle Calculation



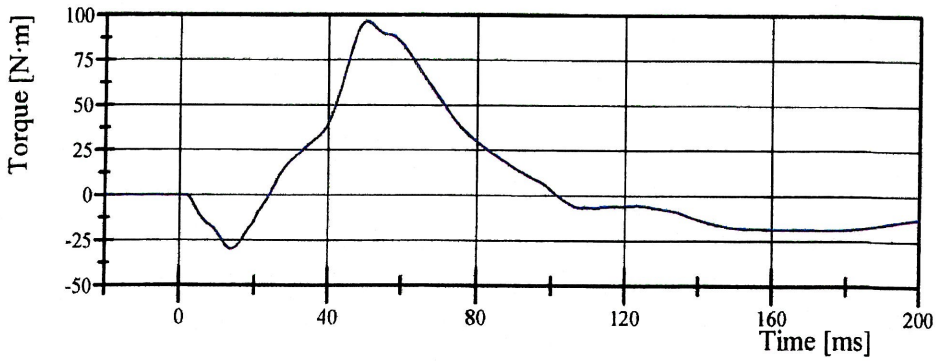
Filter Class: CFC_600
Max: 176.2 N at 171.1 ms
Min: -792.8 N at 39.7 ms

Neck Moment (Y)



Filter Class: CFC_600
Max: 84.7 Nm at 50.2 ms
Min: -39.6 Nm at 13.8 ms

Total Neck Occipital Condyle Moment (Y)



Filter Class: CFC_600
Max: 96.5 N·m at 50.3 ms
Min: -30.0 N·m at 13.7 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 08:16:21 1750

Transportation Research Center Inc.

Neck Extension
HIII 50th Serial No. 110 Certification No. 32-1
Test Date: 10/29/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Pendulum Velocity	(-5.95) - (-6.18) m/s	-5.980 m/s	Yes
Pendulum Acceleration Decay Crossing 5g	38 - 46 ms	41.7 ms	Yes
Pendulum Acceleration at 10ms	17.2 - 21.2 g	19.05 g	Yes
Pendulum Acceleration at 20ms	14.0 - 19.0 g	17.11 g	Yes
Pendulum Acceleration at 30ms	11.0 - 16.0 g	14.13 g	Yes
Pendulum Acceleration > 30ms	<= 22.0 g	14.13 g	Yes
Total Head D-Plane Rotation			
Peak	81 - 106 °	91.1 °	Yes
Time of Peak	72 - 82 ms	78.4 ms	Yes
Total Head D-Plane Rotation Decay to 0°	147 - 174 ms	158.2 ms	Yes
Total Neck Occipital Condyles Moment			
Peak	(-53) - (-80) N·m	-66.8 N·m	Yes
Time of Peak	65 - 79 ms	72.4 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	120 - 148 ms	144.5 ms	Yes

Test meets specifications.

Comments:

Technician John K. Chmielewski

Approved

Specification Source: CFR49 Part 572 Subpart E with Polarity in accordance with J211

10.29.2009 09:25:53 1881

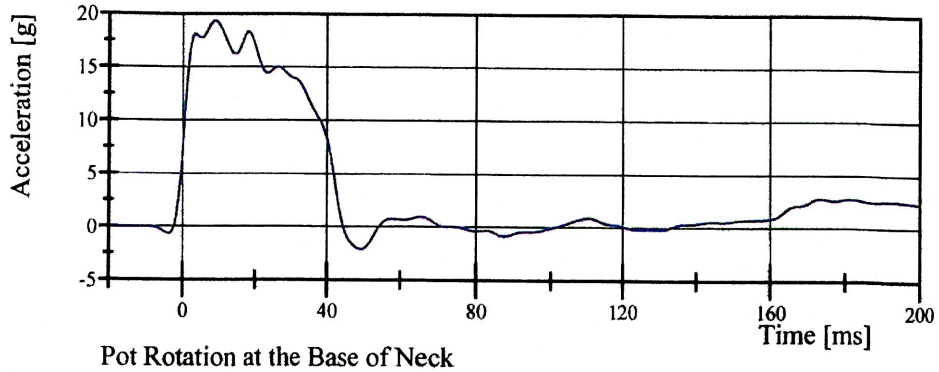
Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 110 Certification No. 32-1

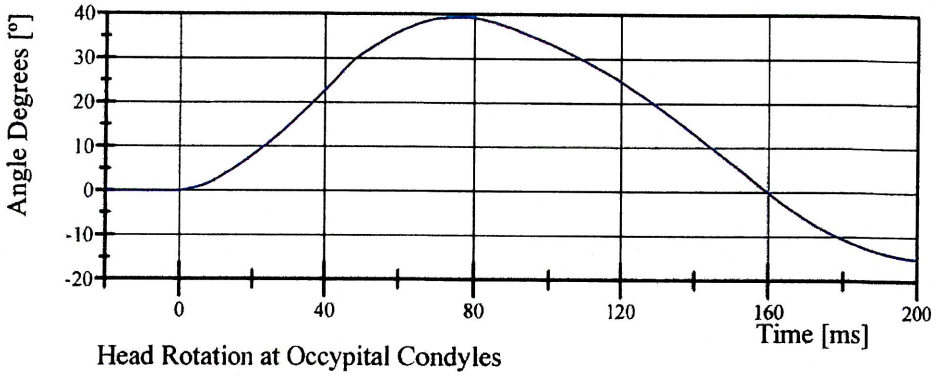
Test Date: 10/29/2009

Pendulum Acceleration



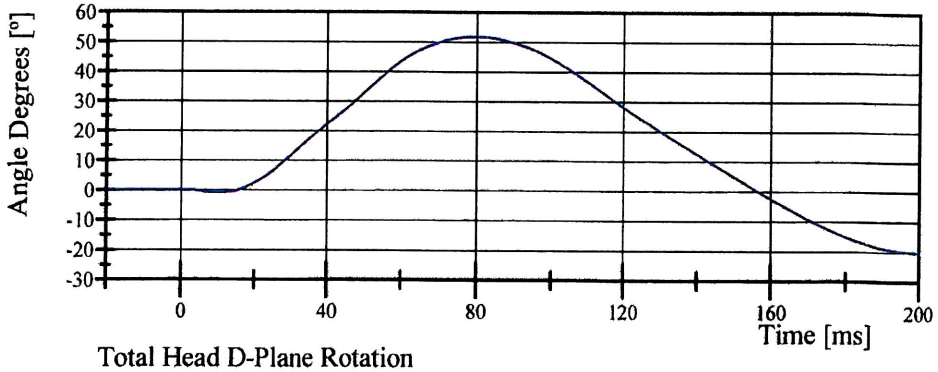
Filter Class: CFC_60
Max: 19.4 g at 8.8 ms
Min: -2.1 g at 49.4 ms

Pot Rotation at the Base of Neck



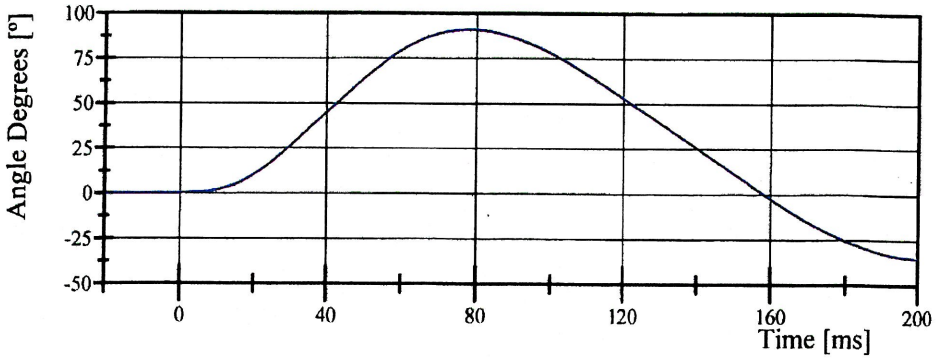
Filter Class: CFC_60
Max: 39.4 ° at 77.2 ms
Min: -14.9 ° at 200.0 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 51.8 ° at 80.0 ms
Min: -20.2 ° at 200.0 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 91.1 ° at 78.4 ms
Min: -35.1 ° at 200.0 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 09:26:02 1881

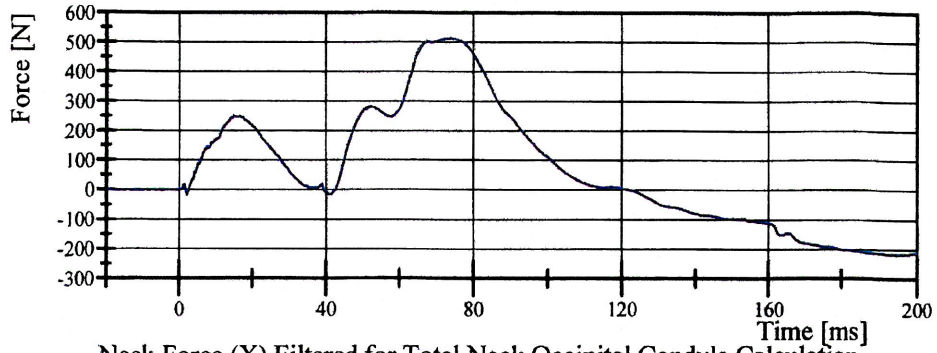
Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 110 Certification No. 32-1

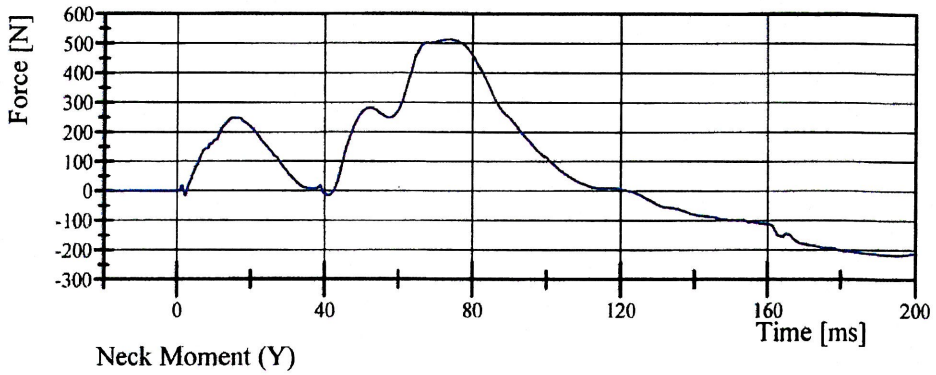
Test Date: 10/29/2009

Neck Force (X)



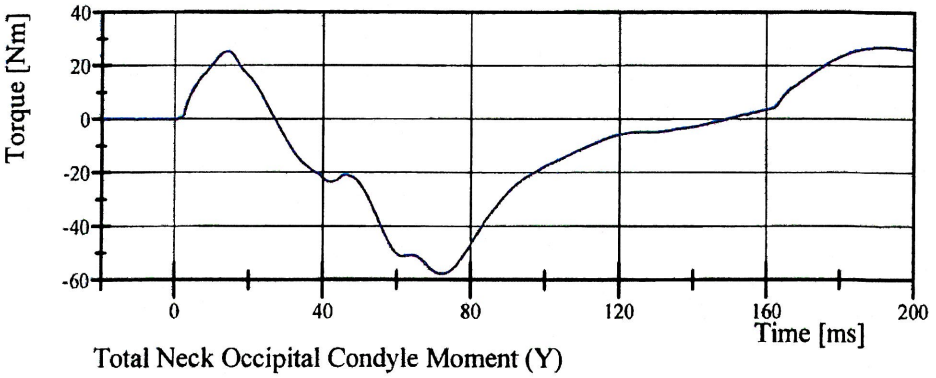
Filter Class: CFC_1000
Max: 515.6 N at 73.8 ms
Min: -219.0 N at 194.6 ms

Neck Force (X) Filtered for Total Neck Occipital Condyle Calculation



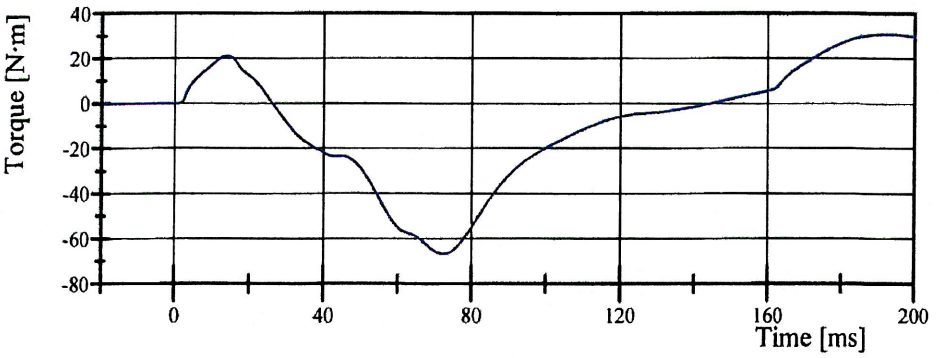
Filter Class: CFC_600
Max: 515.1 N at 73.9 ms
Min: -218.4 N at 194.6 ms

Neck Moment (Y)



Filter Class: CFC_600
Max: 26.9 Nm at 192.2 ms
Min: -57.7 Nm at 72.3 ms

Total Neck Occipital Condyle Moment (Y)



Filter Class: CFC_600
Max: 30.7 N·m at 192.3 ms
Min: -66.8 N·m at 72.4 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 09:26:03 1881

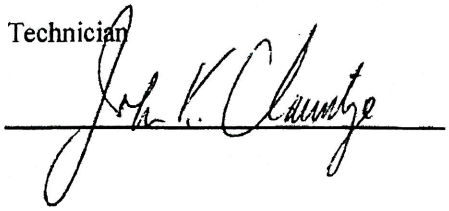
Transportation Research Center Inc.

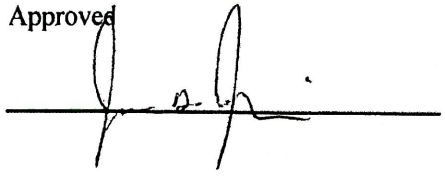
Front Thorax
HIII 50th Serial No. 110 Certification No. 32-1
Test Date: 10/29/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	44 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.642 m/s	Yes
Probe Force Peak	(-5,160) - (-5,893) N	-5,609.3 N	Yes
Maximum Chest Compression	(-63.5) - (-72.6) mm	-71.69 mm	Yes
Internal Hysteresis	65 - 85 %	71.1 %	Yes

Test meets specifications.

Comments:

Technician 

Approved 

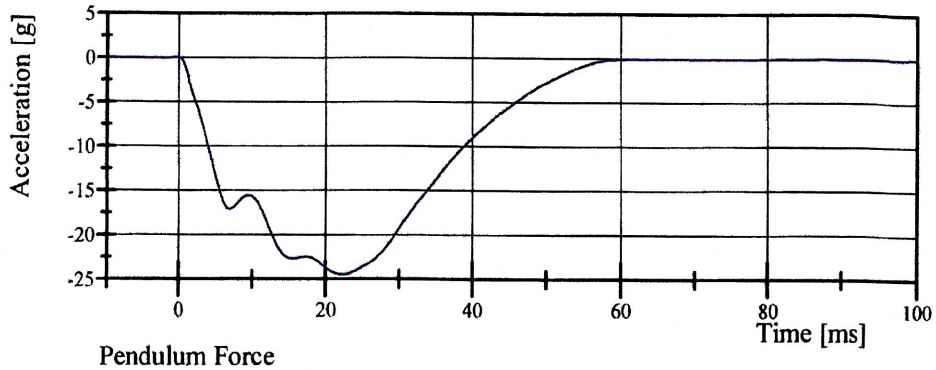
Specification Source: CFR49 Part 572 Subpart P
with Polarity in accordance with J211

10.29.2009 11:32:31 1544

Transportation Research Center Inc.

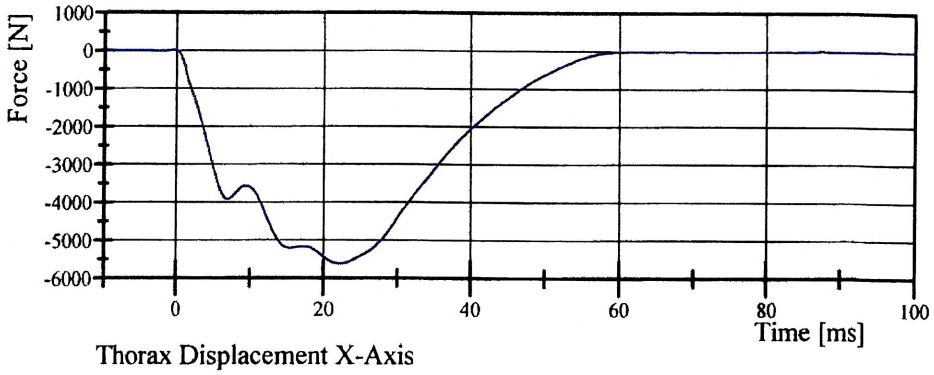
Front Thorax
HIII 50th Serial No. 110 Certification No. 32-1
Test Date: 10/29/2009

Pendulum Acceleration



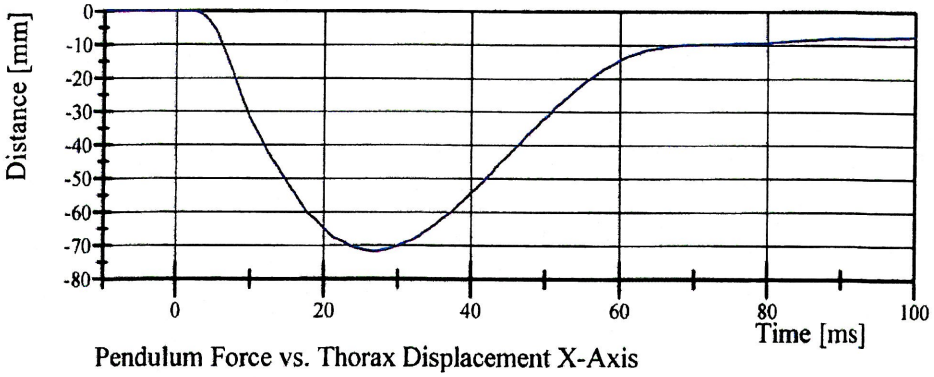
Filter Class: CFC_180
Max: 0.1 g at -0.2 ms
Min: -24.5 g at 22.3 ms

Pendulum Force



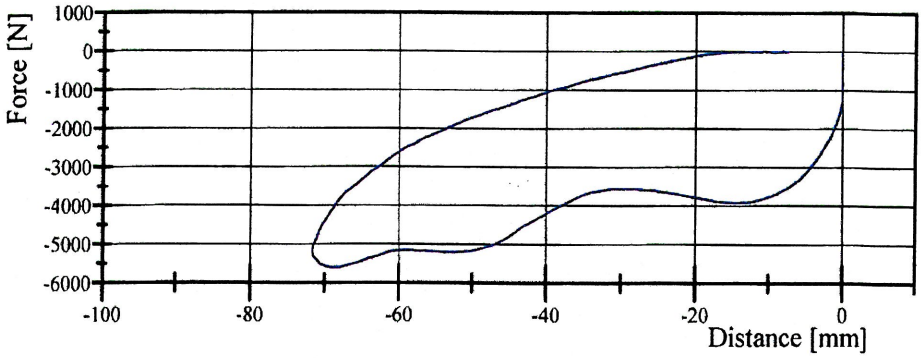
Filter Class: CFC_180
Max: 25.2 N at -0.2 ms
Min: -5,609.3 N at 22.3 ms

Thorax Displacement X-Axis



Filter Class: CFC_600
Max: 0.0 mm at -9.0 ms
Min: -71.7 mm at 26.8 ms

Pendulum Force vs. Thorax Displacement X-Axis



Filter Class: CFC_180
Max: 25.2 N at 0.0 mm
Min: -5,609.3 N at -68.6 mm

Specification Source: CFR49 Part 572 Subpart P
with Polarity in accordance with J211

10.29.2009 11:32:39 1544

Transportation Research Center Inc

Hybrid III Hip Range of Motion

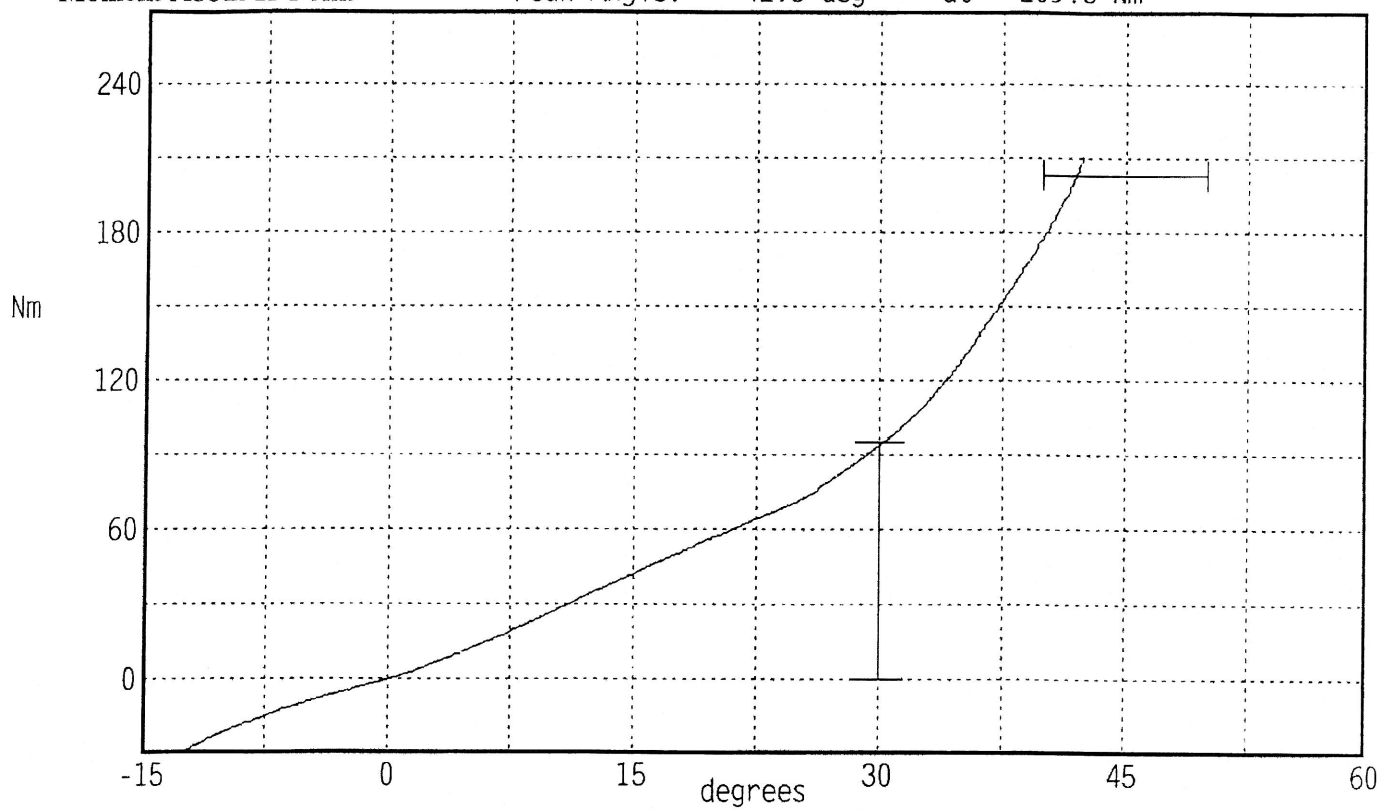
Serial Number: 110L
Test Number: 110C32
Comments:

Date: 10/28/2009
Time: 15:53

TEST PARAMETER	SPECIFICATION	TEST RESULTS		
Temperature	18.9 - 25.6	21.8	°C	Pass
Humidity	10 - 70	45	%	Pass
Moment at 30 deg	<= 94.9	94.1	Nm	Pass
Angle at 203 Nm	40.0 - 50.0	42.0	deg	Pass
Average Velocity	5.0 - 10.0	7.4	deg/sec	Pass

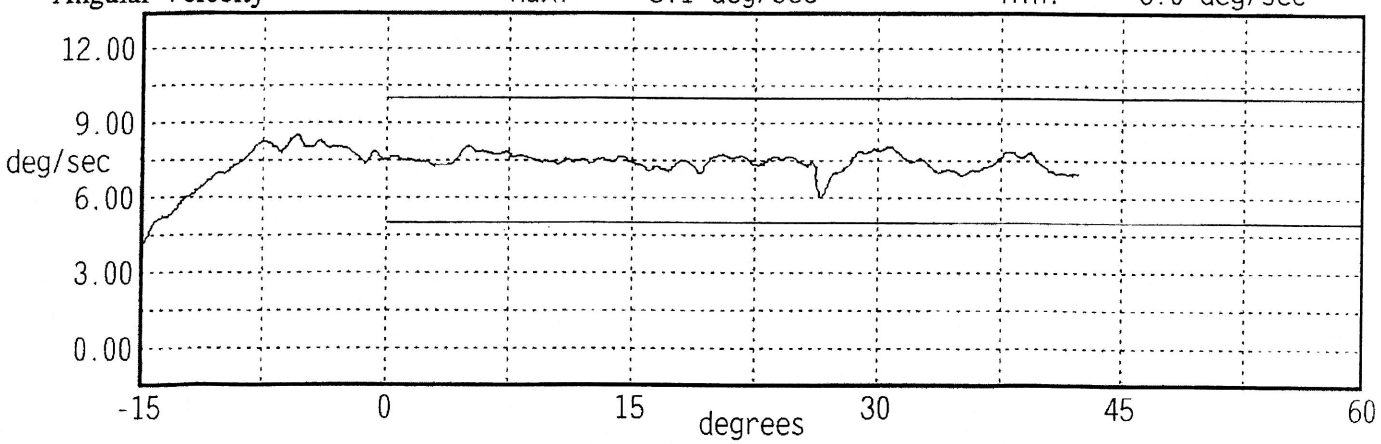
Moment About H-Point

Peak Moment: 210.5 Nm at 42.3 deg
Peak Angle: 42.3 deg at 209.3 Nm



Angular Velocity

Max: 8.1 deg/sec Min: 6.0 deg/sec



Transportation Research Center Inc

Hybrid III Hip Range of Motion

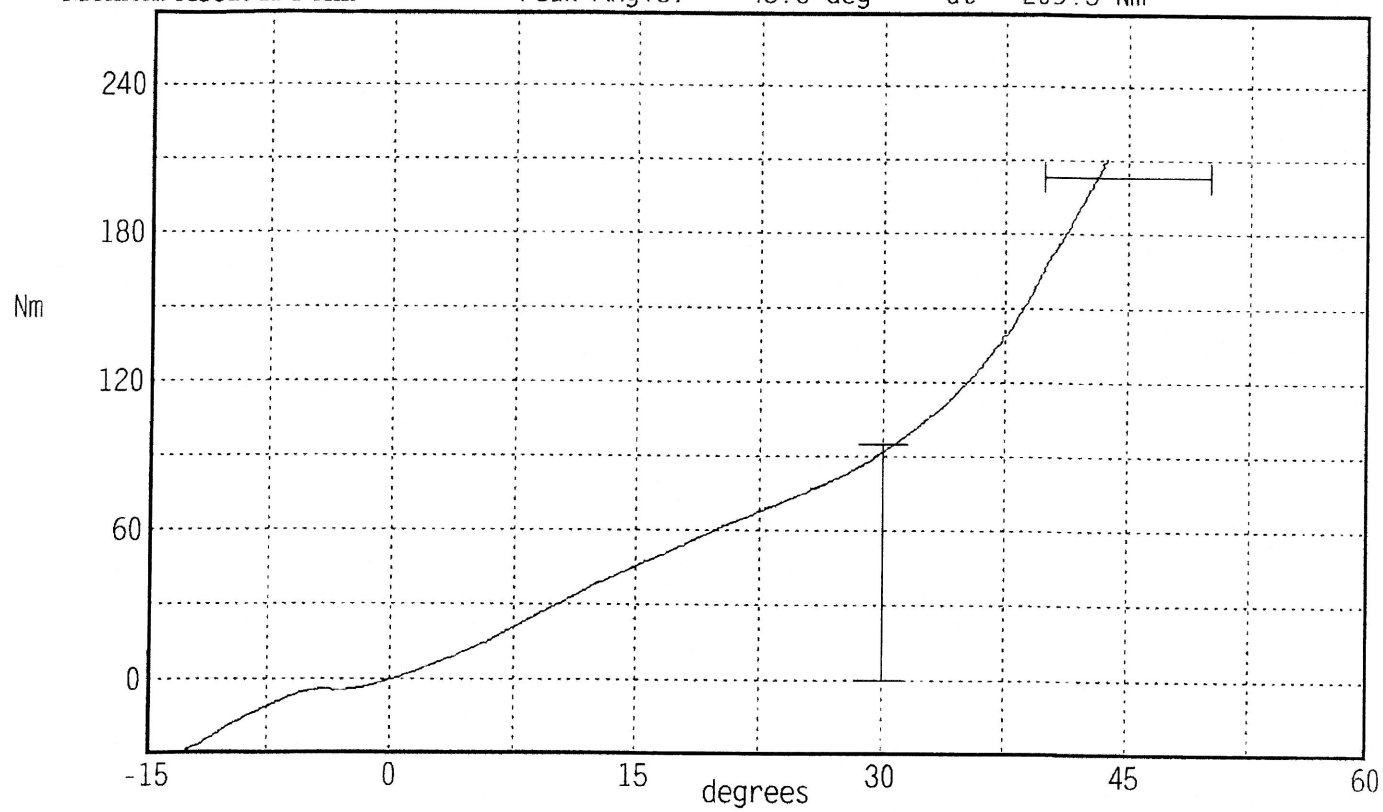
Serial Number: 110R
Test Number: 110C32
Comments:

Date: 10/28/2009
Time: 16:01

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.8 °C	Pass
Humidity	10 - 70	45 %	Pass
Moment at 30 deg	<= 94.9	92.0 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	43.1 deg	Pass
Average Velocity	5.0 - 10.0	7.5 deg/sec	Pass

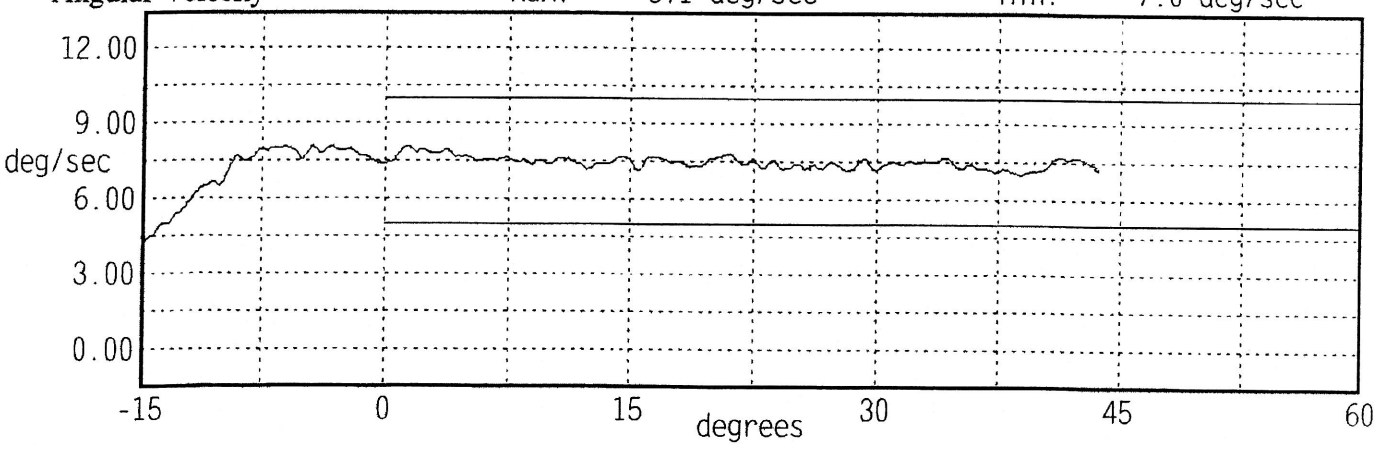
Moment About H-Point

Peak Moment: 210.5 Nm at 43.6 deg
Peak Angle: 43.6 deg at 209.5 Nm



Angular Velocity

Max: 8.1 deg/sec Min: 7.0 deg/sec



Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. 110 Certification No. 32-1
Test Date: 10/28/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.095 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,199.84 N	Yes

Test meets specifications.

Comments:

Technician

Approved

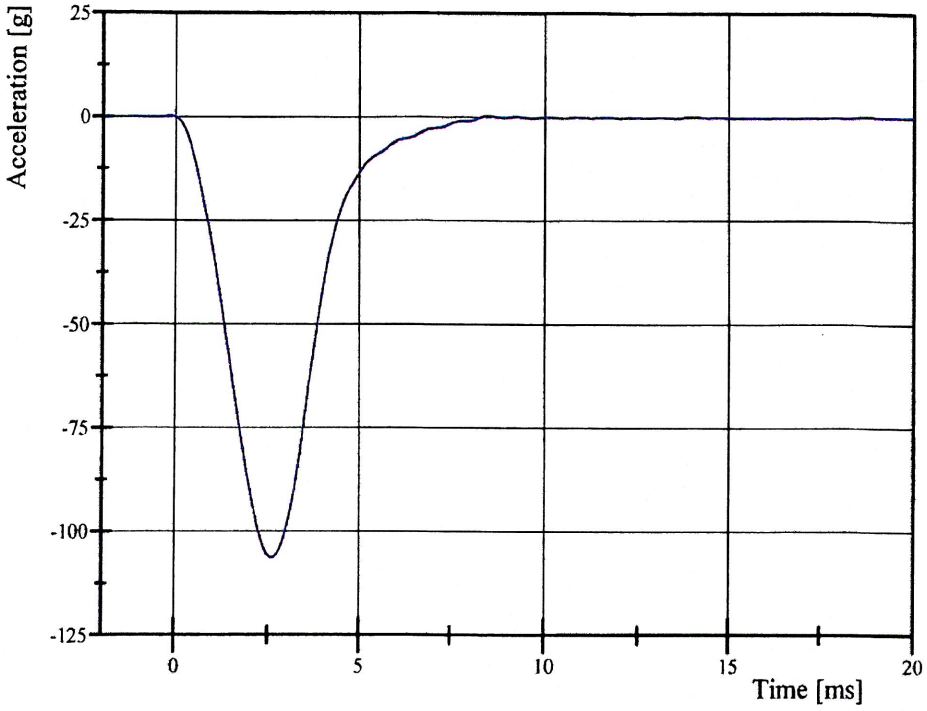
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 13:49:43 1698

Transportation Research Center Inc.

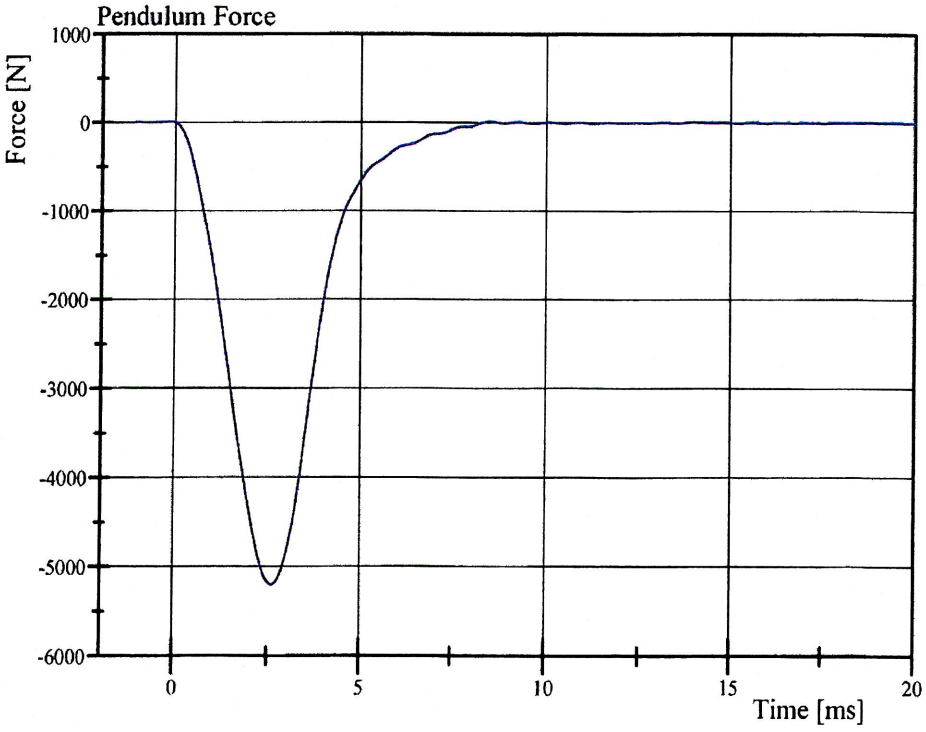
Left Knee Femur Response Test
HIII 50th Serial No. 110 Certification No. 32-1
Test Date: 10/28/2009

Pendulum Acceleration



Filter Class: CFC_600
Max: 0.3 g at 8.5 ms
Min: -106.3 g at 2.6 ms

Pendulum Force



Filter Class: CFC_600
Max: 16.3 N at 8.5 ms
Min: -5,199.8 N at 2.6 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 13:49:51 1698

Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. 110 Certification No. 32-3
Test Date: 10/28/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	44 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.100 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,606.17 N	Yes

Test meets specifications.

Comments:

Technician

Approved

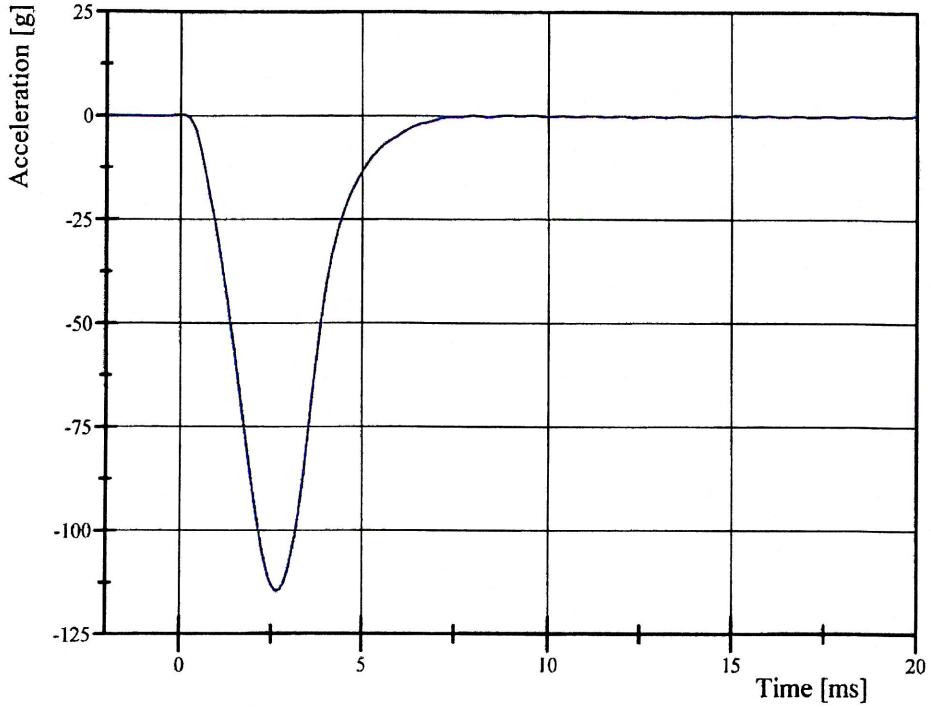
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 15:03:23 1818

Transportation Research Center Inc.

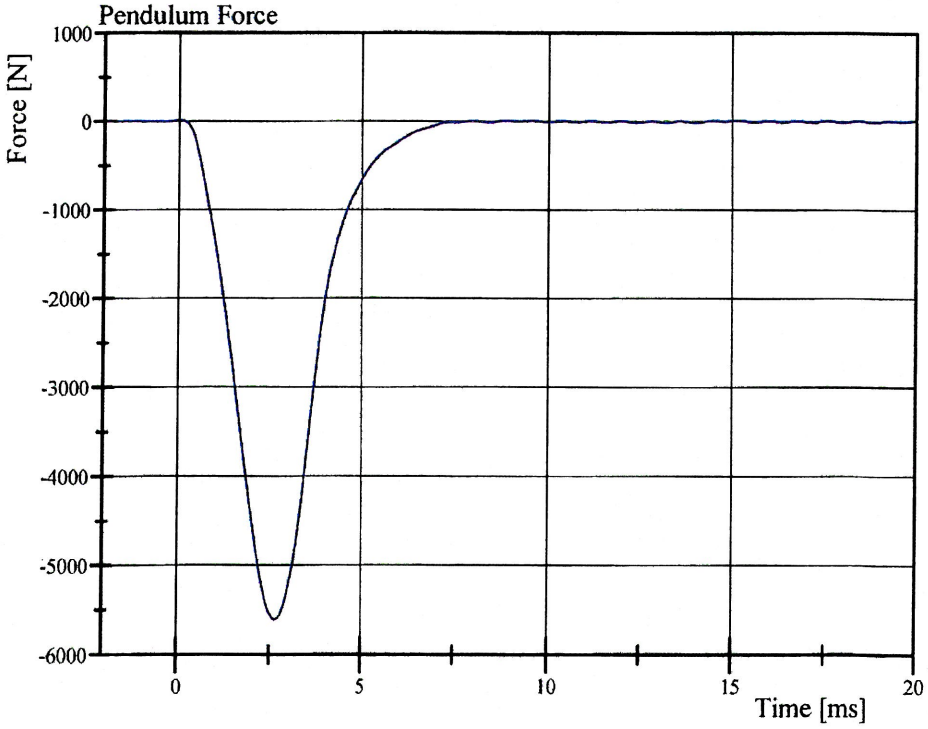
Right Knee Femur Response Test
HIII 50th Serial No. 110 Certification No. 32-3
Test Date: 10/28/2009

Pendulum Acceleration



Filter Class: CFC_600
Max: 0.3 g at 0.0 ms
Min: -114.6 g at 2.6 ms

Pendulum Force



Filter Class: CFC_600
Max: 15.2 N at 0.0 ms
Min: -5,606.2 N at 2.6 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.28.2009 15:03:38 1818

Transportation Research Center Inc.
572E HIII 50th Male Dummy
External Dimensions
Serial No. 110 Calibration No. 32

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	885	Yes
B	Shoulder Pivot Height	505.5 - 520.7	513	Yes
C	H-Point Height	83.8 - 88.9	87	Yes
D	H-Point From Seatback	134.6 - 139.7	138	Yes
E	Shoulder Pivot From Backline	83.8 - 94.0	93	Yes
F	Thigh Clearance	139.7 - 154.9	152	Yes
G	Back Of Elbow To Wrist Pivot	289.6 - 304.8	293	Yes
H	Skull Cap To Backline	40.6 - 45.7	45	Yes
I	Shoulder-Elbow Length	330.2 - 345.4	337	Yes
J	Elbow Rest Height	190.5 - 210.8	202	Yes
K	Buttock Knee Length	579.1 - 604.5	598	Yes
L	Popliteal Height	429.3 - 454.7	443	Yes
M	Knee Pivot Height	485.1 - 500.4	495	Yes
N	Buttock Popliteal Length	452.1 - 477.5	473	Yes
O	Chest Depth	213.4 - 228.6	225	Yes
P	Foot Length	251.5 - 266.7	260	Yes
V	Shoulder Breadth	421.6 - 436.9	431	Yes
W	Foot Breadth	91.4 - 106.7	100	Yes
Y	Chest Circumference	970.3 - 1000.8	997	Yes
Z	Waist Circumference	835.7 - 866.1	863	Yes
AA	Location For Chest Circumference	429.3 - 434.3	430	Yes
BB	Location For Waist Circumference	226.1 - 231.1	230	Yes

Technician

Approved

Calibration Test Results

Pre-Test

Left Rear Passenger Dummy S/N: 043

Transportation Research Center Inc.

Front Head Drop
HIII 50th Serial No. 043 Certification No. 8-1
Test Date: 10/29/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	44 %	Yes
Peak Head Resultant Acceleration	225 - 275 g	256.5 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	5.0 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician

Approved

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 07:59:32 610

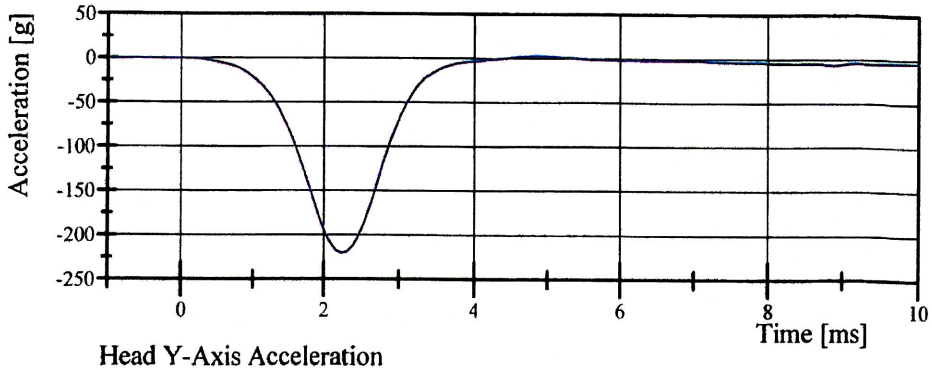
Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 043 Certification No. 8-1

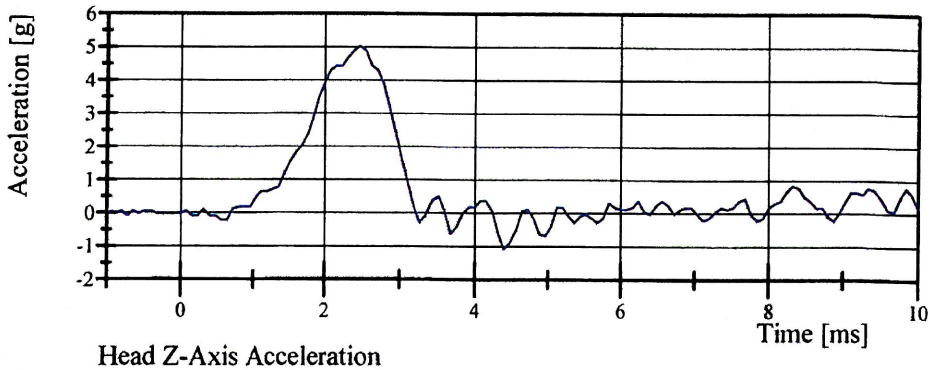
Test Date: 10/29/2009

Head X-Axis Acceleration



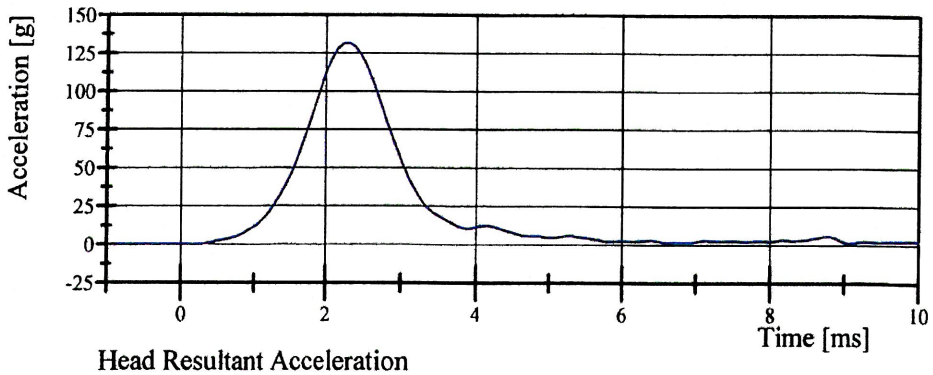
Filter Class: CFC_1000
Max: 3.1 g at 4.8 ms
Min: -220.3 g at 2.2 ms

Head Y-Axis Acceleration



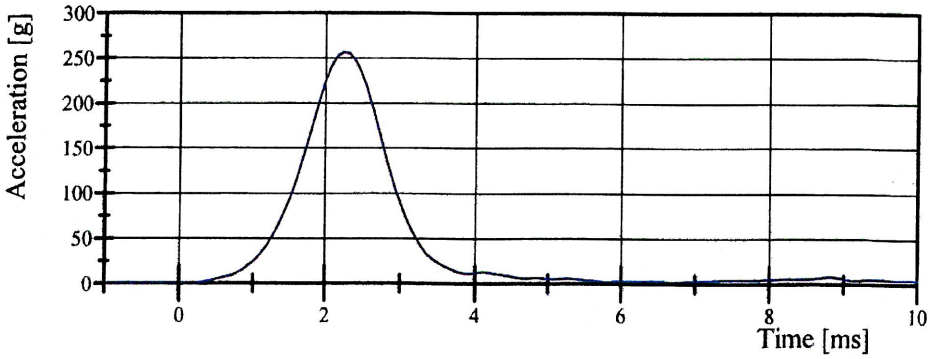
Filter Class: CFC_1000
Max: 5.0 g at 2.5 ms
Min: -1.1 g at 4.4 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 132.0 g at 2.3 ms
Min: -0.1 g at -1.0 ms

Head Resultant Acceleration



Filter Class: CFC_1000
Max: 256.5 g at 2.2 ms
Min: 0.0 g at -1.0 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 07:59:38 610

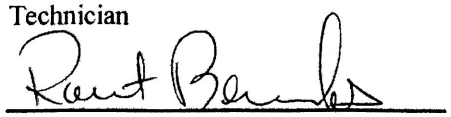
Transportation Research Center Inc.

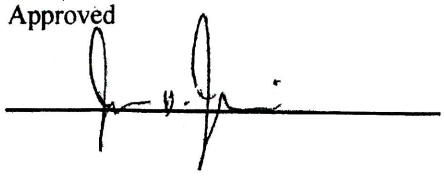
Neck Flexion
HIII 50th Serial No. 043 Certification No. 8-1
Test Date: 10/29/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	6.949 m/s	Yes
Pendulum Acceleration Decay Crossing -5g	34 - 42 ms	38.6 ms	Yes
Pendulum Acceleration at 10ms	(-22.5) - (-27.5) g	-25.87 g	Yes
Pendulum Acceleration at 20ms	(-17.6) - (-22.6) g	-22.44 g	Yes
Pendulum Acceleration at 30ms	(-12.5) - (-18.5) g	-15.85 g	Yes
Pendulum Acceleration > 30ms	>= (-29.0) g	-15.85 g	Yes
Total Head D-Plane Rotation Peak	(-64) - (-78) °	-68.3 °	Yes
Total Head D-Plane Rotation Time of Peak	57 - 64 ms	60.4 ms	Yes
Total Head D-Plane Rotation Decay to 0°	113 - 128 ms	121.1 ms	Yes
Total Neck Occipital Condyles Moment Peak	88 - 108 N·m	97.3 N·m	Yes
Total Neck Occipital Condyles Moment Time of Peak	47 - 58 ms	51.3 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	97 - 107 ms	98.2 ms	Yes

Test meets specifications.

Comments:

Technician 

Approved 

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 09:59:39 2964

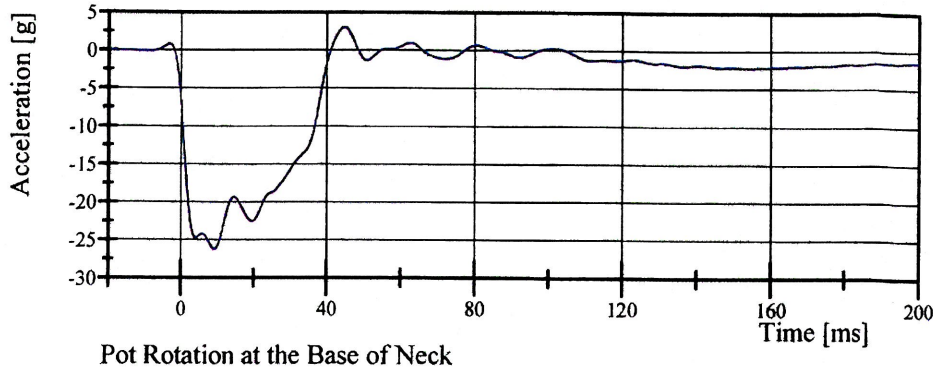
Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 043 Certification No. 8-1

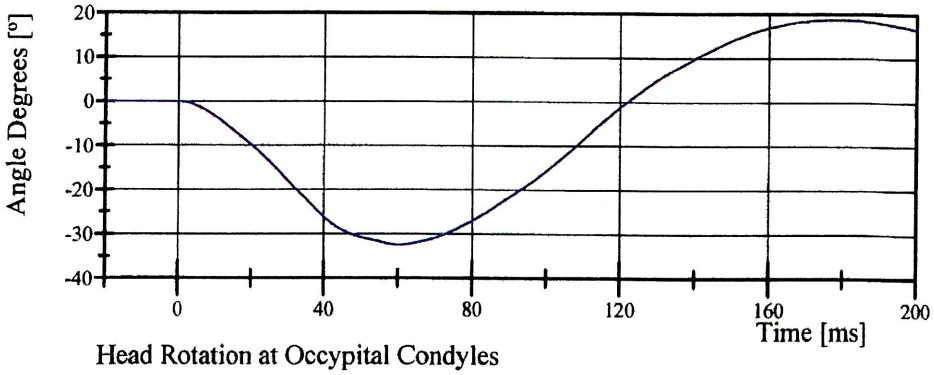
Test Date: 10/29/2009

Pendulum Acceleration



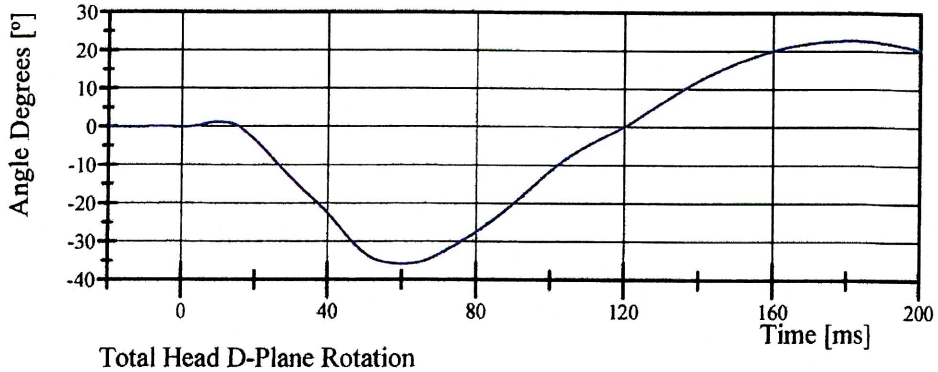
Filter Class: CFC_60
Max: 3.1 g at 44.9 ms
Min: -26.2 g at 9.3 ms

Pot Rotation at the Base of Neck



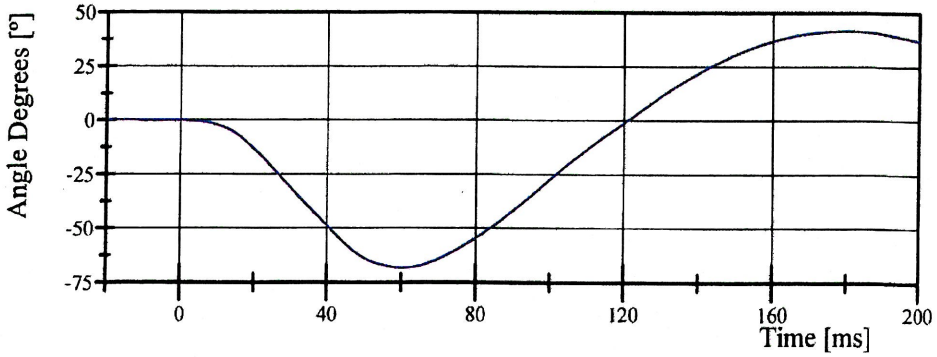
Filter Class: CFC_60
Max: 18.9 ° at 178.3 ms
Min: -32.4 ° at 60.4 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 22.8 ° at 181.4 ms
Min: -35.8 ° at 60.4 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 41.7 ° at 179.5 ms
Min: -68.3 ° at 60.4 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 09:59:45 2964

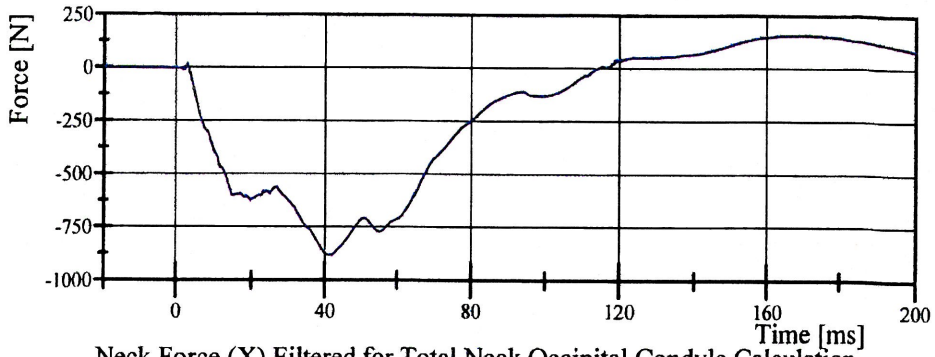
Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 043 Certification No. 8-1

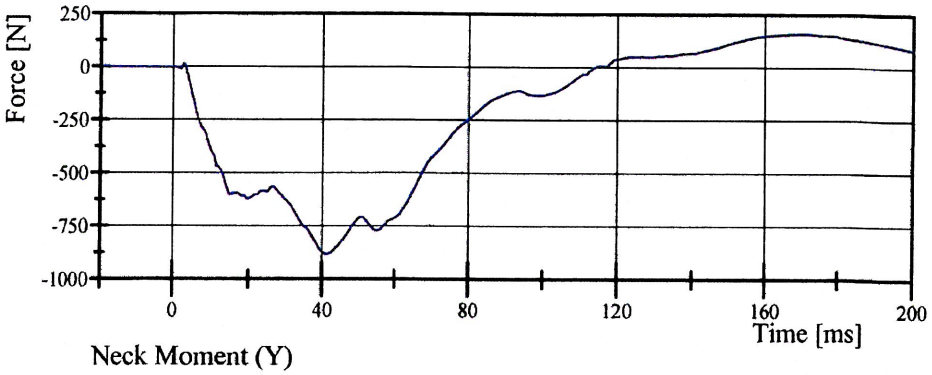
Test Date: 10/29/2009

Neck Force (X)



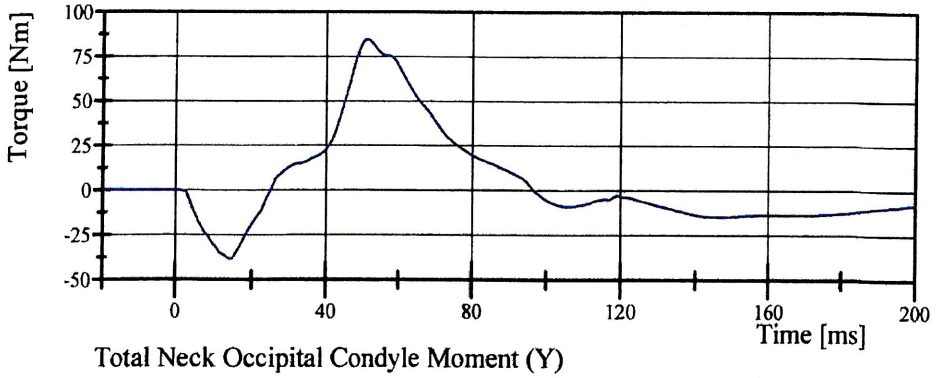
Filter Class: CFC_1000
Max: 162.4 N at 170.1 ms
Min: -881.4 N at 41.0 ms

Neck Force (X) Filtered for Total Neck Occipital Condyle Calculation



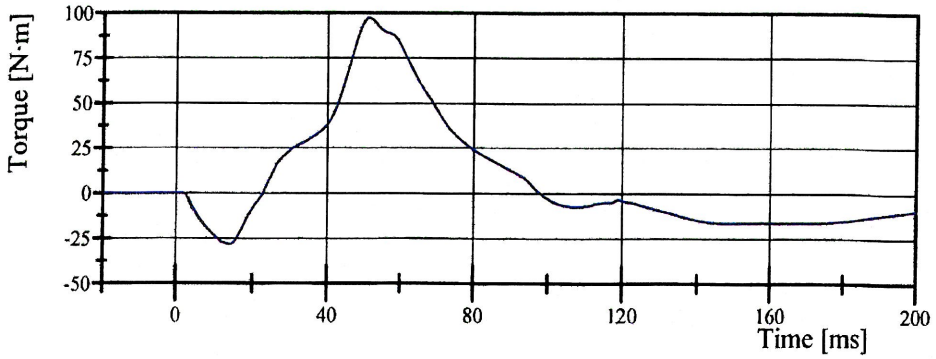
Filter Class: CFC_600
Max: 162.2 N at 170.2 ms
Min: -881.2 N at 41.2 ms

Neck Moment (Y)



Filter Class: CFC_600
Max: 84.8 Nm at 51.2 ms
Min: -38.4 Nm at 14.6 ms

Total Neck Occipital Condyle Moment (Y)



Filter Class: CFC_600
Max: 97.3 N·m at 51.3 ms
Min: -28.3 N·m at 14.0 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 09:59:46 2964

Transportation Research Center Inc.

Neck Extension
HIII 50th Serial No. 043 Certification No. 8-1
Test Date: 10/29/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Pendulum Velocity	(-5.95) - (-6.18) m/s	-5.979 m/s	Yes
Pendulum Acceleration Decay Crossing 5g	38 - 46 ms	43.1 ms	Yes
Pendulum Acceleration at 10ms	17.2 - 21.2 g	19.35 g	Yes
Pendulum Acceleration at 20ms	14.0 - 19.0 g	16.43 g	Yes
Pendulum Acceleration at 30ms	11.0 - 16.0 g	14.11 g	Yes
Pendulum Acceleration > 30ms	<= 22.0 g	14.11 g	Yes
Total Head D-Plane Rotation			
Peak	81 - 106 °	92.1 °	Yes
Time of Peak	72 - 82 ms	77.9 ms	Yes
Total Head D-Plane Rotation Decay to 0°	147 - 174 ms	161.0 ms	Yes
Total Neck Occipital Condyles Moment			
Peak	(-53) - (-80) N·m	-64.7 N·m	Yes
Time of Peak	65 - 79 ms	73.6 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	120 - 148 ms	145.1 ms	Yes

Test meets specifications.

Comments:

Technician

Approved

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 10:31:19 3043

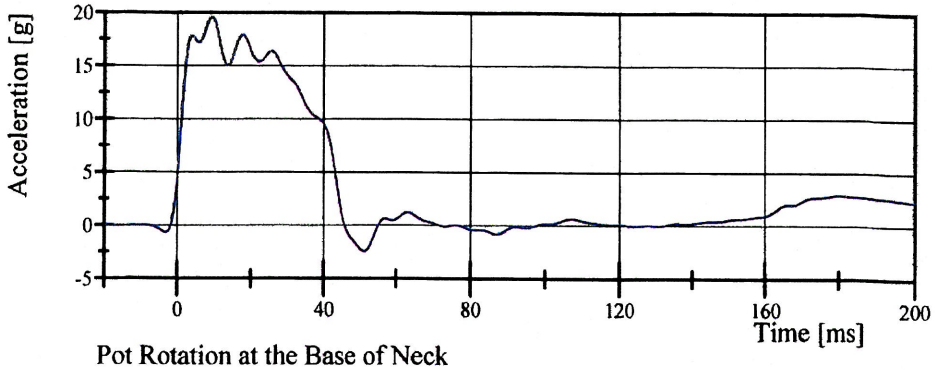
Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 043 Certification No. 8-1

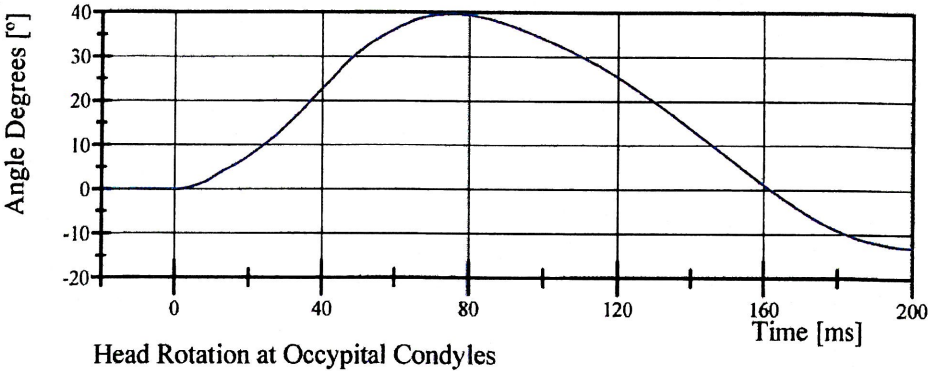
Test Date: 10/29/2009

Pendulum Acceleration



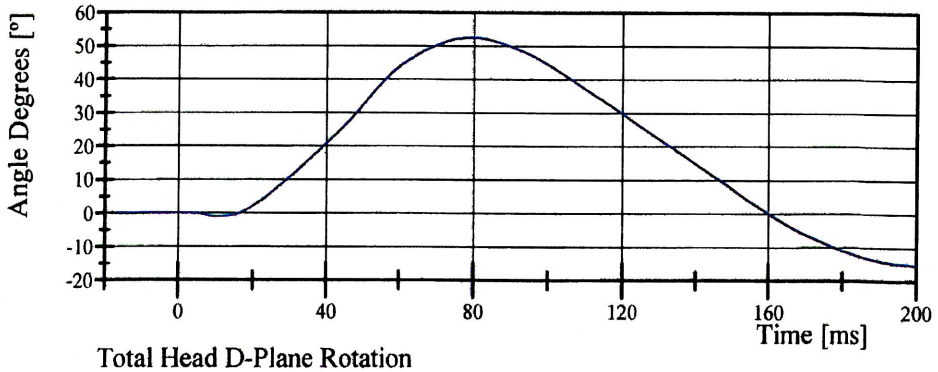
Filter Class: CFC_60
Max: 19.6 g at 9.3 ms
Min: -2.4 g at 51.1 ms

Pot Rotation at the Base of Neck



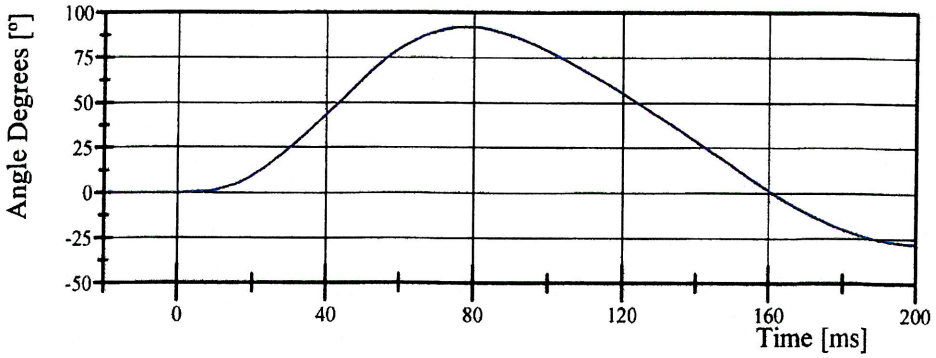
Filter Class: CFC_60
Max: 39.7 ° at 75.7 ms
Min: -13.0 ° at 200.0 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 52.5 ° at 79.9 ms
Min: -15.2 ° at 200.0 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 92.1 ° at 77.9 ms
Min: -28.1 ° at 200.0 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 10:31:25 3043

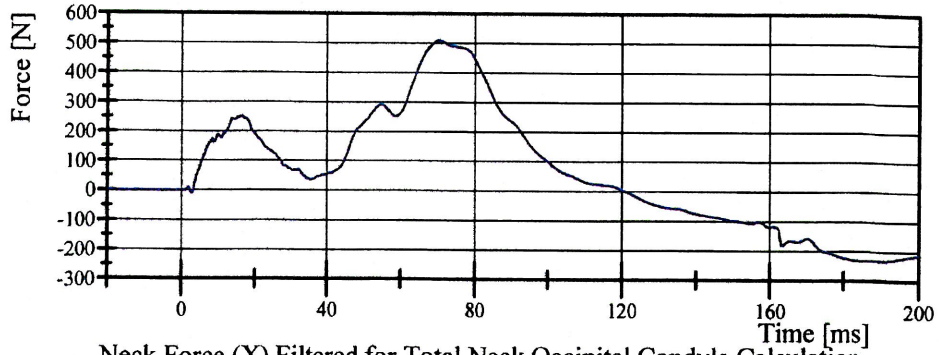
Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 043 Certification No. 8-1

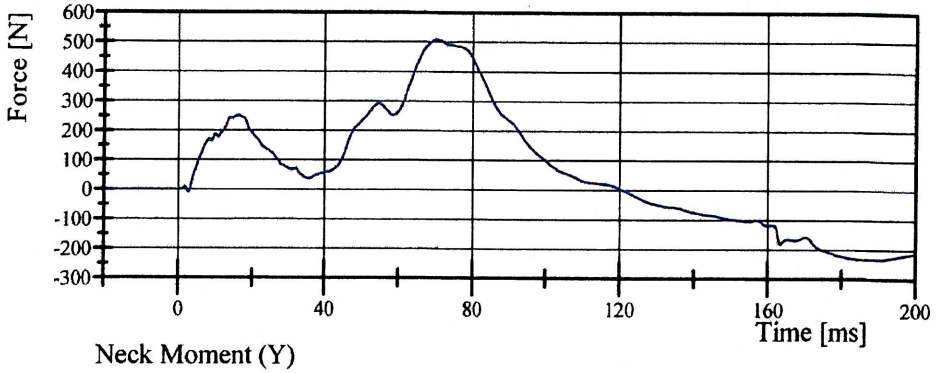
Test Date: 10/29/2009

Neck Force (X)



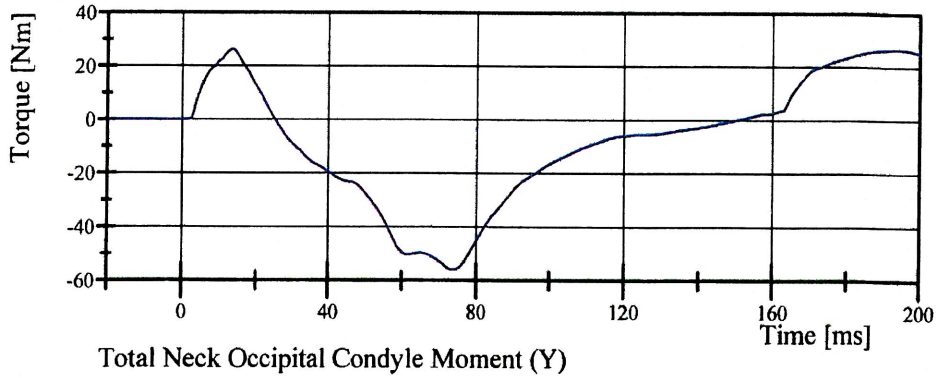
Filter Class: CFC_1000
Max: 510.4 N at 69.9 ms
Min: -233.1 N at 190.2 ms

Neck Force (X) Filtered for Total Neck Occipital Condyle Calculation



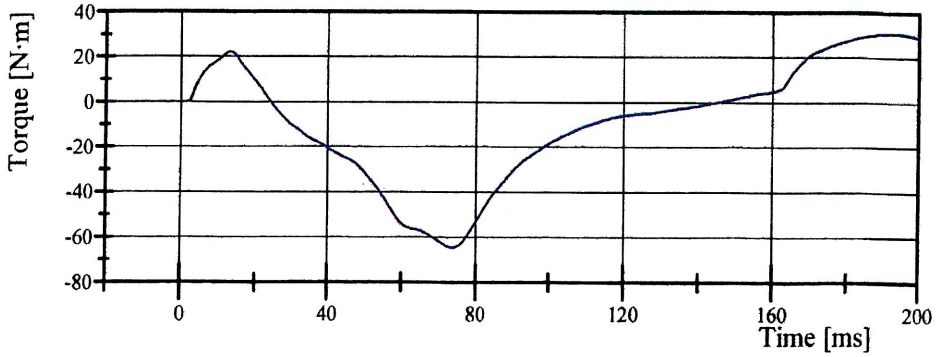
Filter Class: CFC_600
Max: 510.3 N at 70.1 ms
Min: -232.6 N at 190.2 ms

Neck Moment (Y)



Filter Class: CFC_600
Max: 26.6 Nm at 194.1 ms
Min: -56.0 Nm at 73.7 ms

Total Neck Occipital Condyle Moment (Y)



Filter Class: CFC_600
Max: 30.7 N·m at 192.6 ms
Min: -64.7 N·m at 73.6 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 10:31:26 3043

Transportation Research Center Inc.

Front Thorax
HIII 50th Serial No. 043 Certification No. 8-1
Test Date: 10/29/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	44 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.651 m/s	Yes
Probe Force Peak	(-5,160) - (-5,893) N	-5,518.9 N	Yes
Maximum Chest Compression	(-63.5) - (-72.6) mm	-71.49 mm	Yes
Internal Hysteresis	65 - 85 %	74.0 %	Yes

Test meets specifications.

Comments:

Technician

Approved

Specification Source: CFR49 Part 572 Subpart P
with Polarity in accordance with J211

10.29.2009 11:06:27 381

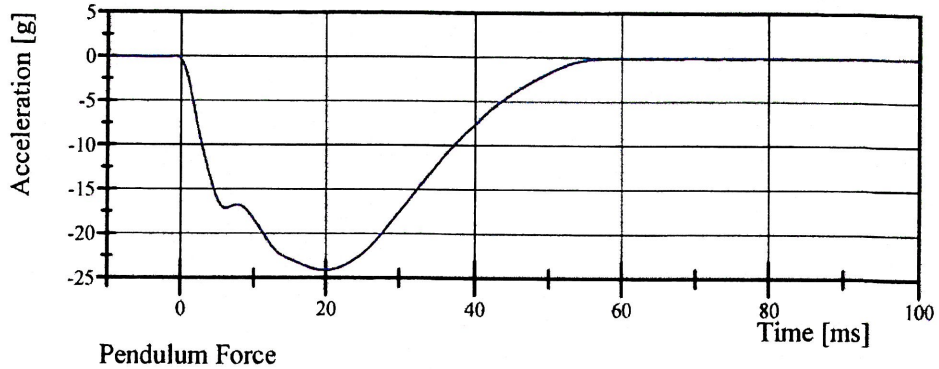
Transportation Research Center Inc.

Front Thorax

HIII 50th Serial No. 043 Certification No. 8-1

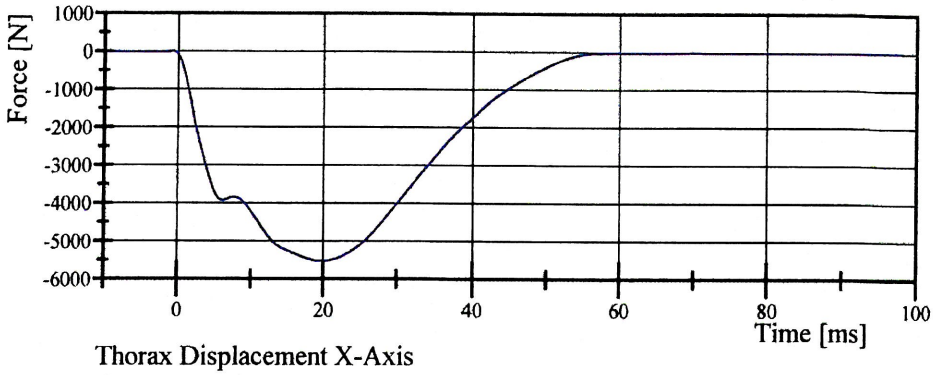
Test Date: 10/29/2009

Pendulum Acceleration



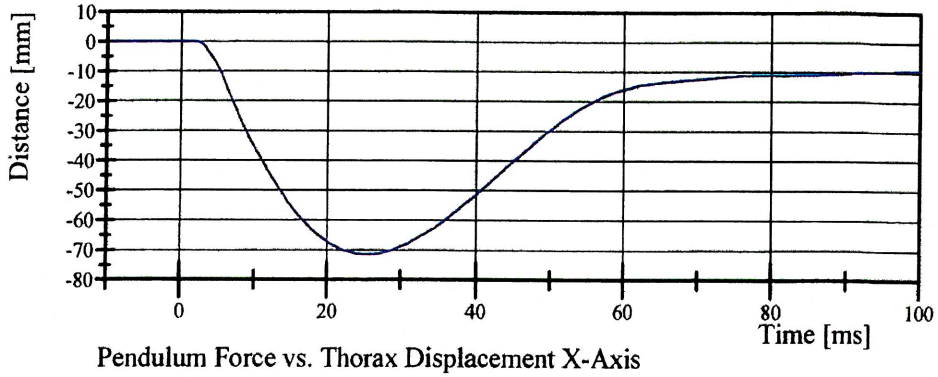
Filter Class: CFC_180
Max: 0.1 g at -0.7 ms
Min: -24.1 g at 19.7 ms

Pendulum Force



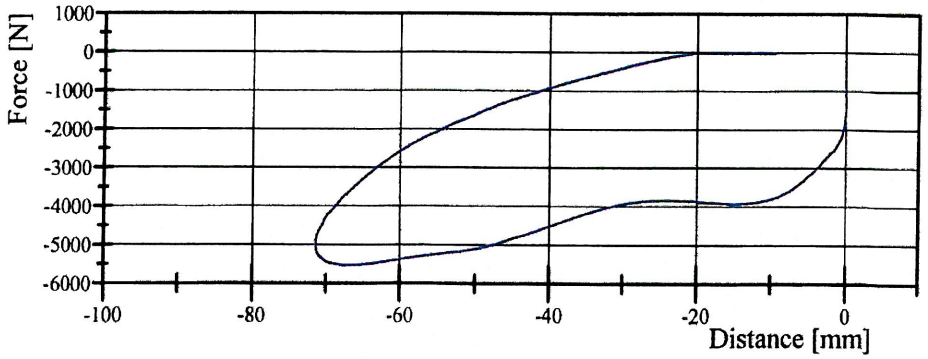
Filter Class: CFC_180
Max: 14.1 N at -0.7 ms
Min: -5,518.9 N at 19.7 ms

Thorax Displacement X-Axis



Filter Class: CFC_600
Max: 0.1 mm at 1.8 ms
Min: -71.5 mm at 25.8 ms

Pendulum Force vs. Thorax Displacement X-Axis



Filter Class: CFC_180
Max: 14.1 N at 0.0 mm
Min: -5,518.9 N at -66.7 mm

Specification Source: CFR49 Part 572 Subpart P
with Polarity in accordance with J211

10.29.2009 11:06:34 381

Transportation Research Center Inc

Hybrid III Hip Range of Motion

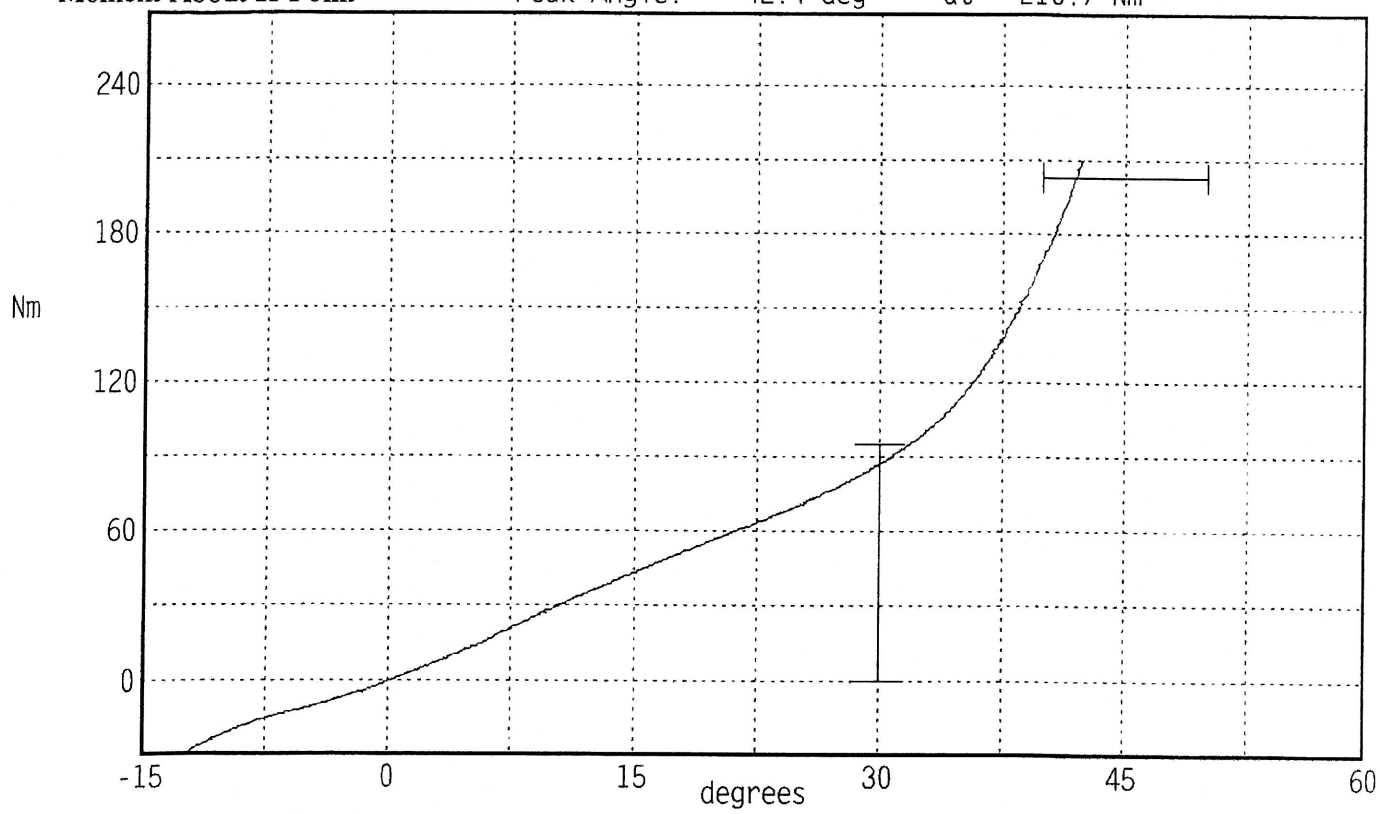
Serial Number: 043L
Test Number: 043C08
Comments:

Date: 10/29/2009
Time: 08:41

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.7 °C	Pass
Humidity	10 - 70	44 %	Pass
Moment at 30 deg	<= 94.9	87.3 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	42.0 deg	Pass
Average Velocity	5.0 - 10.0	7.4 deg/sec	Pass

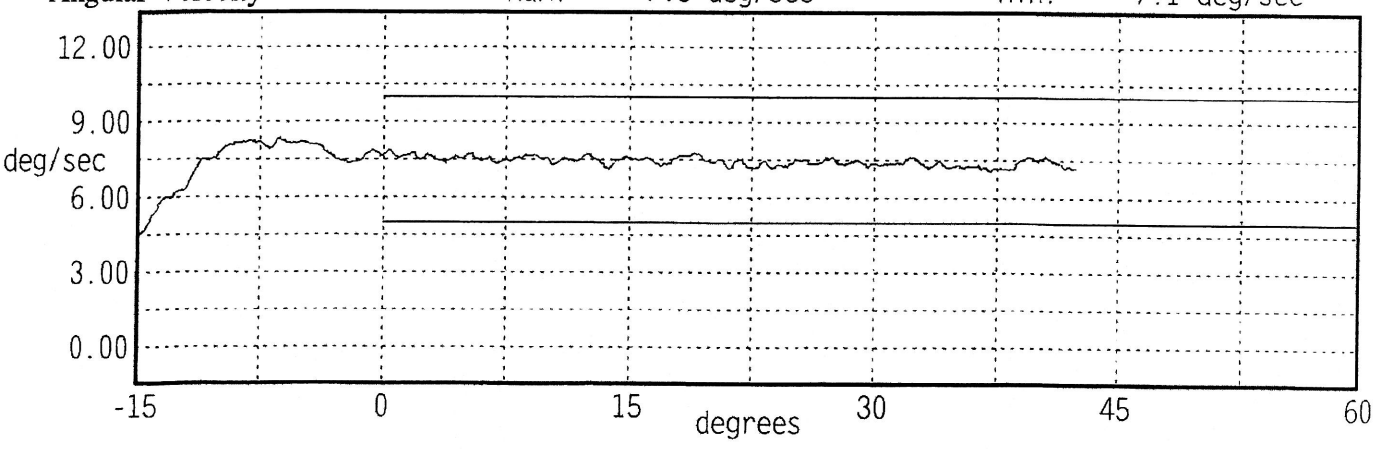
Moment About H-Point

Peak Moment: 210.7 Nm at 42.4 deg
Peak Angle: 42.4 deg at 210.7 Nm



Angular Velocity

Max: 7.8 deg/sec Min: 7.1 deg/sec



Transportation Research Center Inc

Hybrid III Hip Range of Motion

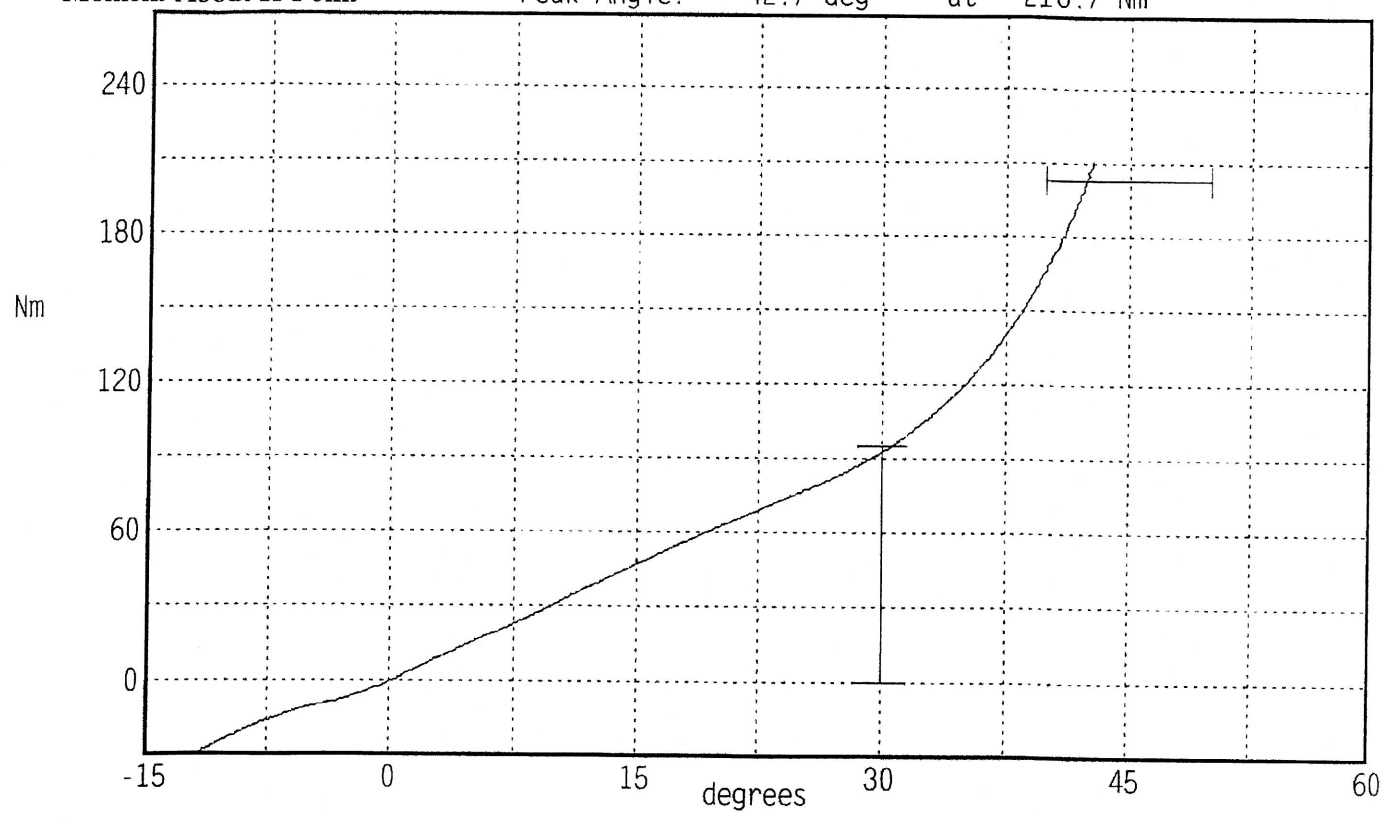
Serial Number: 043R
Test Number: 043C08
Comments:

Date: 10/29/2009
Time: 09:14

TEST PARAMETER	SPECIFICATION	TEST RESULTS		
Temperature	18.9 - 25.6	21.9	°C	Pass
Humidity	10 - 70	44	%	Pass
Moment at 30 deg	<= 94.9	92.7	Nm	Pass
Angle at 203 Nm	40.0 - 50.0	42.3	deg	Pass
Average Velocity	5.0 - 10.0	7.4	deg/sec	Pass

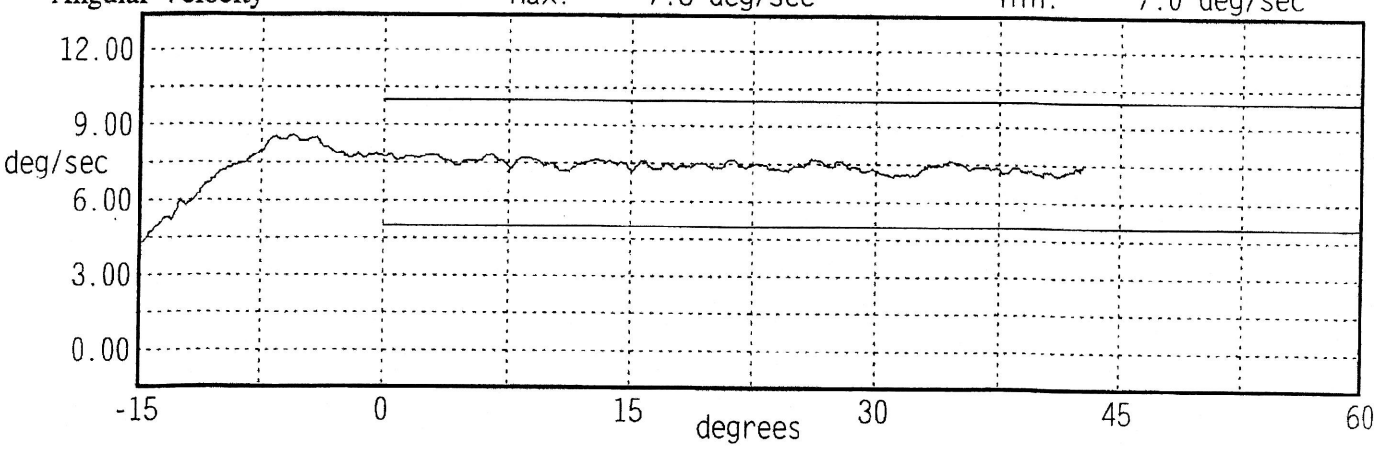
Moment About H-Point

Peak Moment: 210.7 Nm at 42.7 deg
Peak Angle: 42.7 deg at 210.7 Nm



Angular Velocity

Max: 7.8 deg/sec Min: 7.0 deg/sec



Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. 043 Certification No. 8-1
Test Date: 10/29/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	44 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.117 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,243.39 N	Yes

Test meets specifications.

Comments:

Technician

Approved

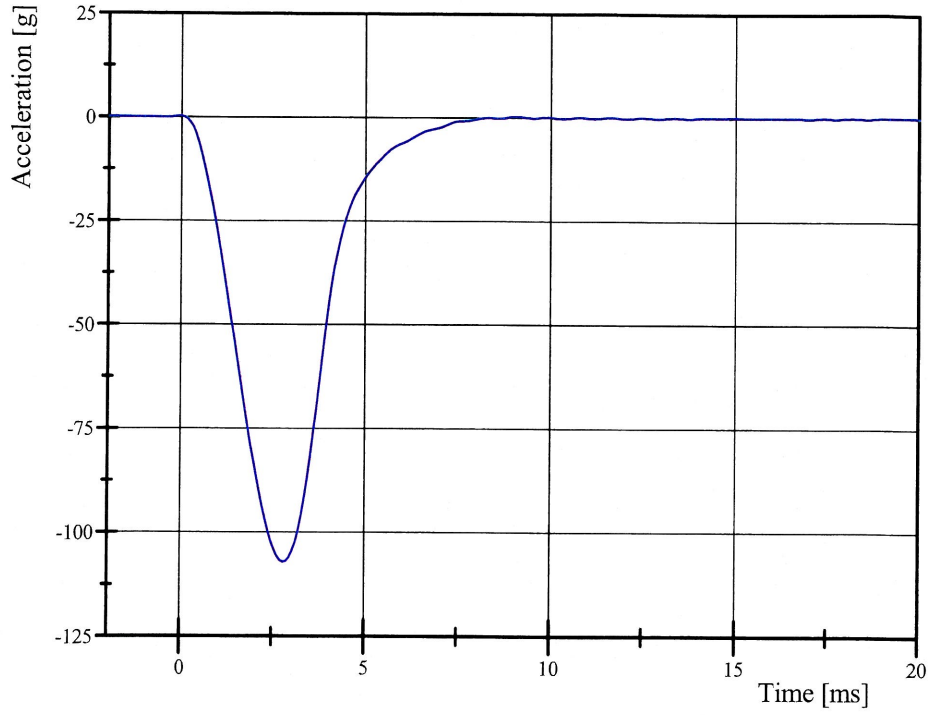
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 08:26:09 1814

Transportation Research Center Inc.

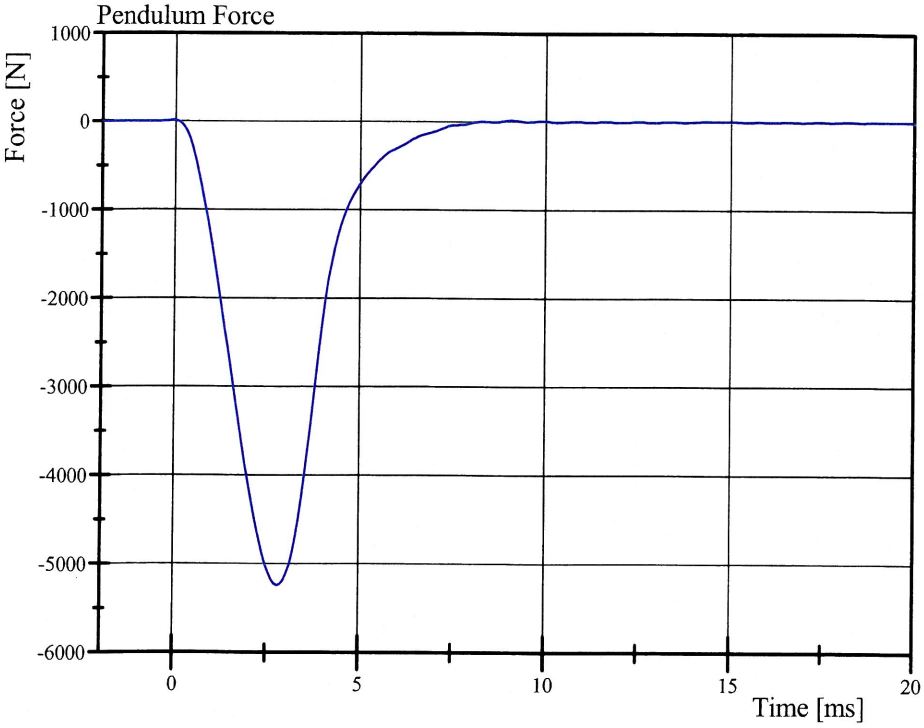
Left Knee Femur Response Test
HIII 50th Serial No. 043 Certification No. 8-1
Test Date: 10/29/2009

Pendulum Acceleration



Filter Class: CFC_600
Max: 0.3 g at 9.0 ms
Min: -107.2 g at 2.8 ms

Pendulum Force



Filter Class: CFC_600
Max: 14.7 N at 9.0 ms
Min: -5,243.4 N at 2.8 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 08:26:16 1814

Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. 043 Certification No. 8-1
Test Date: 10/29/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	44 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.117 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,090.55 N	Yes

Test meets specifications.

Comments:

Technician

Approved

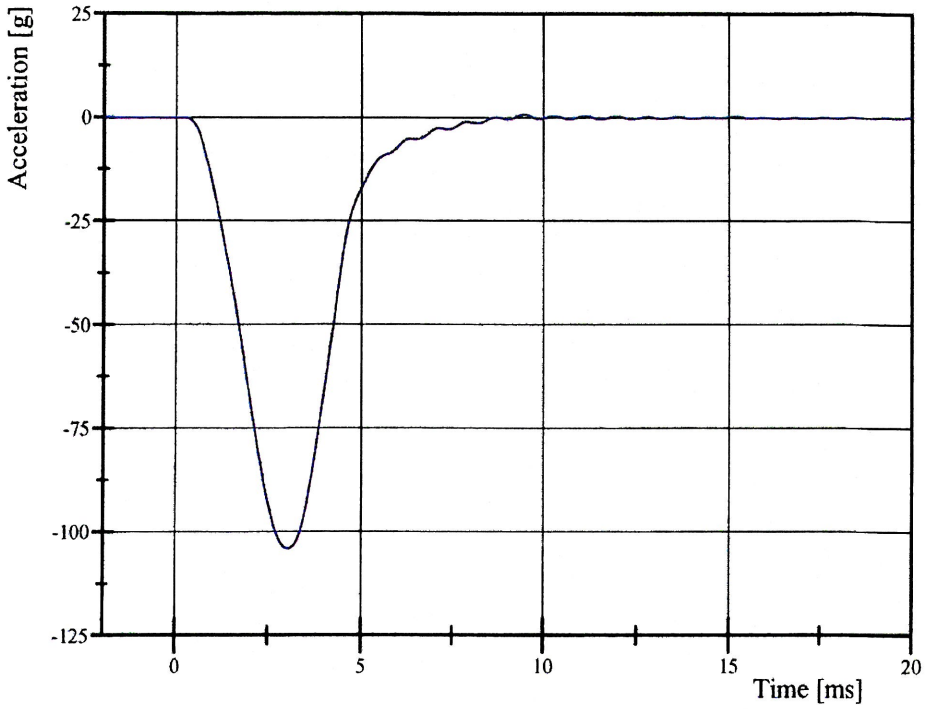
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 08:29:45 1815

Transportation Research Center Inc.

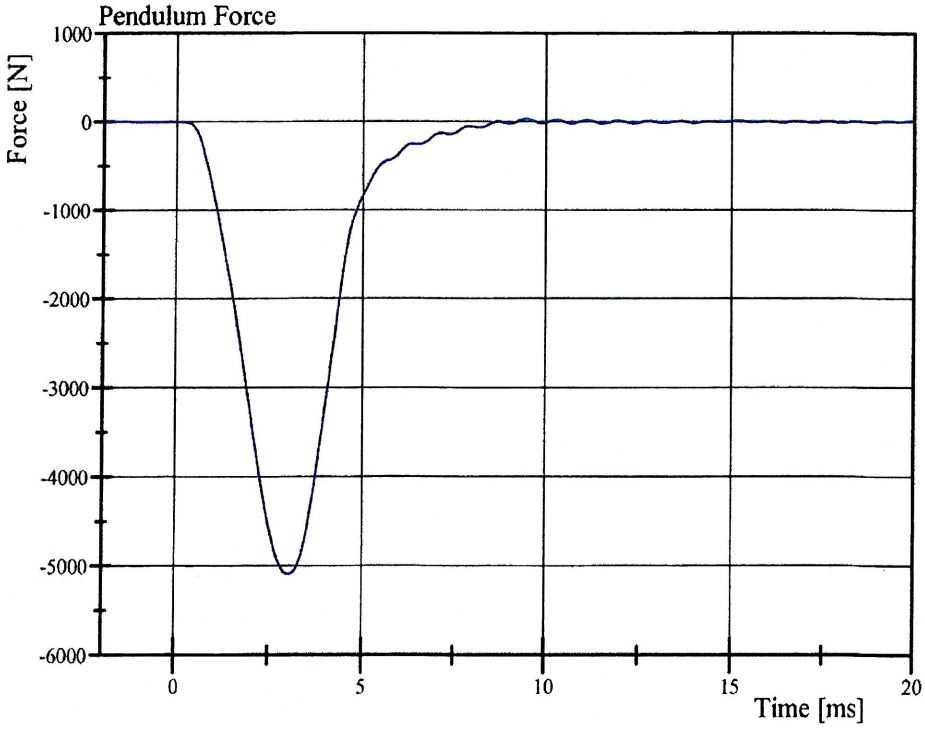
Right Knee Femur Response Test
HIII 50th Serial No. 043 Certification No. 8-1
Test Date: 10/29/2009

Pendulum Acceleration



Filter Class: CFC_600
Max: 0.7 g at 9.4 ms
Min: -104.0 g at 3.0 ms

Pendulum Force



Filter Class: CFC_600
Max: 35.5 N at 9.4 ms
Min: -5,090.5 N at 3.0 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

10.29.2009 08:29:51 1815

Transportation Research Center Inc.
572E HIII 50th Male Dummy
External Dimensions
Serial No. 043
Calibration No. 08

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	884	Yes
B	Shoulder Pivot Height	505.5 - 520.7	518	Yes
C	H-Point Height	83.8 - 88.9	87	Yes
D	H-Point From Seatback	134.6 - 139.7	136	Yes
E	Shoulder Pivot From Backline	83.8 - 94.0	89	Yes
F	Thigh Clearance	139.7 - 154.9	153	Yes
G	Back Of Elbow To Wrist Pivot	289.6 - 304.8	294	Yes
H	Skull Cap To Backline	40.6 - 45.7	45	Yes
I	Shoulder-Elbow Length	330.2 - 345.4	333	Yes
J	Elbow Rest Height	190.5 - 210.8	205	Yes
K	Buttock Knee Length	579.1 - 604.5	601	Yes
L	Popliteal Height	429.3 - 454.7	438	Yes
M	Knee Pivot Height	485.1 - 500.4	495	Yes
N	Buttock Popliteal Length	452.1 - 477.5	470	Yes
O	Chest Depth	213.4 - 228.6	222	Yes
P	Foot Length	251.5 - 266.7	260	Yes
V	Shoulder Breadth	421.6 - 436.9	430	Yes
W	Foot Breadth	91.4 - 106.7	100	Yes
Y	Chest Circumference	970.3 - 1000.8	988	Yes
Z	Waist Circumference	835.7 - 866.1	861	Yes
AA	Location For Chest Circumference	429.3 - 434.3	430	Yes
BB	Location For Waist Circumference	226.1 - 231.1	230	Yes

Comments:

Technician

Approved

Revised 3/13/3003

091215

APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

Sign Convention
SAE J211 MAR95

Accelerometers:	+X: Forward	
	+Y: Rightward	
	+Z: Downward	
Potentiometers:	+Chest longitudinal deflection:	Outward
	+Chest lateral deflection:	Rightward
	+Seat belt displacement:	Outward
	+Seat belt extension:	Elongation
	+Knee slider displacement:	Distance between femur and tibia increased (in relation to a seated dummy)
Rotation potentiometers:		
	+About the X-axis:	Left foot-eversion
		Right foot-inversion
	+About the Y-axis:	Left/right foot-dorsiflexion
	+About the Z-axis:	Left foot-internal
		Right foot-external
Load cells:	+Femur force:	Tension
	+Seat belt force:	Tension
	+Barrier force:	Tension
Neck load cells:	+X force:	Head pushed rearward
	+Y force:	Head pushed leftward
	+Z force:	Head pulled upward (tension on neck)
	+X moment:	Left ear rotating toward left shoulder
	+Y moment:	Chin rotating toward chest
	+Z moment:	Chin rotating toward left shoulder
Tibia load cells:	+X force:	Ankle forward, knee rearward
	+Y force:	Ankle rightward, knee leftward
	+Z force:	Tension
	+X moment:	Bottom of tibia moving leftward
	+Y moment:	Bottom of tibia moving rearward

Sign Convention (Continued)
SAE J211 MAR95

Lumbar load cells:	+X force:	Chest rearward, pelvis forward
	+Y force:	Chest leftward, pelvis rightward
	+Z force:	Chest upward, pelvis downward
	+X moment:	Left shoulder toward left hip
	+Y moment:	Sternum toward front of legs
	+Z moment:	Right shoulder forward, left shoulder rearward

Frequency Response Classes
SAE J211 MAR95

Typical Test Measurements	Channel Class
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	600
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Head Form Accelerations	1000

The direction column on the following sheets describes the transducer output as mounted and wired in the test location. The polarity column indicates whether a polarity change occurred during data acquisition to conform to J211 MAR95. See Report Sign Convention sheet for description of data output as presented in the report: occasionally channels have been adjusted in post-acquisition processing to conform to J211 MAR95.

Channel Report Test Number 091215

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
1	Trig D1	10ZERO000000VO0A	EVENT	1	Logic	Bipolar	
2	P52086	11PELVCG00H3ACZA	Pelvis Accel Z	1000	g	-Bipolar	1-001 VRTC H3 50th.022
3	P51954	11HEADCG00H3ACXA	Head Accel X	1000	g	-Bipolar	1-001 VRTC H3 50th.001
4	P58726	11HEADCG00H3ACYA	Head Accel Y	1000	g	-Bipolar	1-001 VRTC H3 50th.002
5	P51266	11HEADCG00H3ACZA	Head Accel Z	1000	g	-Bipolar	1-001 VRTC H3 50th.003
6	ARS-12K-ARS1082	11HEADCG00H3AVXA	Head (DTS ARS) Rate Gyro X	12000	°/s	Bipolar	1-001 HIII 50th VRTC.031
7	ARS-12K-ARS2630	11HEADCG00H3AVYA	Head(DTS ARS) Rate Gyro Y	12000	°/s	Bipolar	1-001 HIII 50th VRTC.032
8	ARS-12K-ARS1034	11HEADCG00H3AVZA	Head (DTS ARS) Rate Gyro Z	12000	°/s	Bipolar	1-001 HIII 50th VRTC.033
9	IF-205-261-FX	11NECKUP00H3FOXA	Neck Force X	8896	N	-Bipolar	1-001 VRTC H3 50th.007
10	IF-205-261-FY	11NECKUP00H3FOYA	Neck Force Y	8896	N	Bipolar	1-001 VRTC H3 50th.008
11	IF-205-261-FZ	11NECKUP00H3FOZA	Neck Force Z	13344	N	Bipolar	1-001 VRTC H3 50th.009
12	IF-205-261-MX	11NECKUP00H3MOXA	Neck Moment X	282.5	Nm	-Bipolar	1-001 VRTC H3 50th.010
13	IF-205-261-MY	11NECKUP00H3MOYA	Neck Moment Y	282.5	Nm	Bipolar	1-001 VRTC H3 50th.011
14	IF-205-261-MZ	11NECKUP00H3MOZA	Neck Moment Z	282.5	Nm	Bipolar	1-001 VRTC H3 50th.012
15	P52081	11CHSTCG00H3ACXA	Chest Accel X	1000	g	Bipolar	1-001 VRTC H3 50th.013
16	02I02I05-F11	11CHSTCG00H3ACYA	Chest Accel Y	1000	g	-Bipolar	1-001 VRTC H3 50th.014
17	P58771	11CHSTCG00H3ACZA	Chest Accel Z	1000	g	-Bipolar	1-001 VRTC H3 50th.015
18	CST001	11CHST0000H3DSXA	Chest Deflection X	84	mm	Bipolar	1-001 VRTC H3 50th.019
19	1794A-249-FX	11NECKLO00H3FOXA	Lower Neck Force X	8896	N	-Bipolar	1-001 VRTC H3 50th.025
20	1794A-249-FY	11NECKLO00H3FOYA	Lower Neck Force Y	8896	N	Bipolar	1-001 VRTC H3 50th.026
21	1794A-249-FZ	11NECKLO00H3FOZA	Lower Neck Force Z	13345	N	Bipolar	1-001 VRTC H3 50th.027
22	1794A-249-MX	11NECKLO00H3MOXA	Lower Neck Moment X	282.5	Nm	-Bipolar	1-001 VRTC H3 50th.028
23	1794A-249-MY	11NECKLO00H3MOYA	Lower Neck Moment Y	282.5	Nm	Bipolar	1-001 VRTC H3 50th.029
24	1794A-249-MZ	11NECKLO00H3MOZA	Lower Neck Moment Z	282.5	Nm	Bipolar	1-001 VRTC H3 50th.030
25	P58870	11PELVCG00H3ACXA	Pelvis Accel X	1000	g	-Bipolar	1-001 VRTC H3 50th.020
26	P52071	11PELVCG00H3ACYA	Pelvis Accel Y	1000	g	-Bipolar	1-001 VRTC H3 50th.021
27	05G20-L12	13HEADCG00H3ACXA	Head Accel X	1000	g	Bipolar	3-110 HIII 50th FTSS.001
28	02A18-N15	13HEADCG00H3ACYA	Head Accel Y	1000	g	-Bipolar	3-110 HIII 50th FTSS.002
29	02I02I05-F09	13HEADCG00H3ACZA	Head Accel Z	1000	g	-Bipolar	3-110 HIII 50th FTSS.003
30	P51712	13HEADFR00H3ACYA	Head (FT) Accel Y	1000	g	-Bipolar	3-110 HIII 50th FTSS.004
31	P51717	13HEADFR00H3ACZA	Head (FT) Accel Z	1000	g	-Bipolar	3-110 HIII 50th FTSS.005
32	P50099	13HEADUP00H3ACXA	Head (TP) Accel X	1000	g	Bipolar	3-110 HIII 50th FTSS.006
33	B02A25-N01	13HEADUP00H3ACYA	Head (TP) Accel Y	1000	g	-Bipolar	3-110 HIII 50th FTSS.007
34	02A18-N01	13HEADLE00H3ACXA	Head (LT) Accel X	1000	g	Bipolar	3-110 HIII 50th FTSS.008

Channel Report Test Number 091215

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
35	03F03J01-R11	13HEADLE00H3ACZA	Head (LT) Accel Z	1000	g	-Bipolar	3-110 HIII 50th FTSS.009
36	1716A-1597-FX	13NECKUP00H3FOXA	Neck Force X	8896.4	N	-Bipolar	3-110 HIII 50th FTSS.010
37	1716A-1597-FY	13NECKUP00H3FOYA	Neck Force Y	8896.4	N	Bipolar	3-110 HIII 50th FTSS.011
38	1716A-1597-FZ	13NECKUP00H3FOZA	Neck Force Z	13344.6	N	Bipolar	3-110 HIII 50th FTSS.012
39	1716A-1597-MX	13NECKUP00H3MOXA	Neck Moment X	282.4	Nm	-Bipolar	3-110 HIII 50th FTSS.013
40	1716A-1597-MY	13NECKUP00H3MOYA	Neck Moment Y	282.4	Nm	Bipolar	3-110 HIII 50th FTSS.014
41	1716A-1597-MZ	13NECKUP00H3MOZA	Neck Moment Z	282.4	Nm	Bipolar	3-110 HIII 50th FTSS.015
42	1794A-0216-FX	13NECKLO00H3FOXA	Neck Lower Force X	13345	N	-Bipolar	3-110 HIII 50th FTSS.016
43	1794A-0216-FY	13NECKLO00H3FOYA	Neck Lower Force Y	13344.6	N	Bipolar	3-110 HIII 50th FTSS.017
44	1794A-0216-FZ	13NECKLO00H3FOZA	Neck Lower Force Z	13344.6	N	Bipolar	3-110 HIII 50th FTSS.018
45	1794A-0216-MX	13NECKLO00H3MOXA	Neck Lower Moment X	452	Nm	-Bipolar	3-110 HIII 50th FTSS.019
46	1794A-0216-MY	13NECKLO00H3MOYA	Neck Lower Moment Y	452	Nm	Bipolar	3-110 HIII 50th FTSS.020
47	1794A-0216-MZ	13NECKLO00H3MOZA	Neck Lower Moment Z	452	Nm	Bipolar	3-110 HIII 50th FTSS.021
48	99H12-F24	13CHSTCG00H3ACXA	Chest Accel X	1000	g	Bipolar	3-110 HIII 50th FTSS.022
49	02I02I05-F04	13CHSTCG00H3ACYA	Chest Accel Y	1000	g	-Bipolar	3-110 HIII 50th FTSS.023
50	03D03C27-N07	13CHSTCG00H3ACZA	Chest Accel Z	1000	g	-Bipolar	3-110 HIII 50th FTSS.024
51	CST110	13CHST0000H3DSXA	Chest Deflection X	84	mm	Bipolar	3-110 HIII 50th FTSS.028
52	P52008	13PELVCG00H3ACXA	Pelvis Accel X	1000	g	-Bipolar	3-110 HIII 50th FTSS.029
53	04J04I20-Z24	13PELVCG00H3ACYA	Pelvis Accel Y	1000	g	-Bipolar	3-110 HIII 50th FTSS.030
54	98H13-F19	13PELVCG00H3ACZA	Pelvis Accel Z	1000	g	-Bipolar	3-110 HIII 50th FTSS.031
55	P52023	14HEADCG00H3ACXA	Head Accel X	1000	g	-Bipolar	4-043 HIII 50th VRTC.001
56	P52013	14HEADCG00H3ACYA	Head Accel Y	1000	g	-Bipolar	4-043 HIII 50th VRTC.002
57	P52083	14HEADCG00H3ACZA	Head Accel Z	1000	g	-Bipolar	4-043 HIII 50th VRTC.003
58	ARS-12K-ARS2240	14HEADCG00H3AVXA	Head (DTS ARS) Rate Gyro X	12000	°/s	Bipolar	4-043 HIII 50th VRTC.025
59	ARS-12K-ARS2238	14HEADCG00H3AVYA	Head (DTS ARS) Rate Gyro Y	12000	°/s	Bipolar	4-043 HIII 50th VRTC.026
60	ARS-12K-ARS0253	14HEADCG00H3AVZA	Head (DTS ARS) Rate Gyro Z	12000	°/s	Bipolar	4-043 HIII 50th VRTC.027
61	1716A-798-FX	14NECKUP00H3FOXA	Upper Neck Force X	8896	N	-Bipolar	4-043 HIII 50th VRTC.004
62	1716A-798-FY	14NECKUP00H3FOYA	Upper Neck Force Y	8896	N	Bipolar	4-043 HIII 50th VRTC.005
63	1716A-798-FZ	14NECKUP00H3FOZA	Upper Neck Force Z	13344	N	Bipolar	4-043 HIII 50th VRTC.006
64	1716A-798-MX	14NECKUP00H3MOXA	Upper Neck Moment X	282	Nm	-Bipolar	4-043 HIII 50th VRTC.007
65	1716A-798-MY	14NECKUP00H3MOYA	Upper Neck Moment Y	282	Nm	Bipolar	4-043 HIII 50th VRTC.008
66	1716A-798-MZ	14NECKUP00H3MOZA	Upper Neck Moment Z	282	Nm	Bipolar	4-043 HIII 50th VRTC.009
67	P16899	14CHSTCG00H3ACXA	Chest Accel X	400	g	Bipolar	4-043 HIII 50th VRTC.010
68	P16517	14CHSTCG00H3ACYA	Chest Accel Y	400	g	-Bipolar	4-043 HIII 50th VRTC.011

Channel Report Test Number 091215

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
69	P51702	14CHSTCG00H3ACZA	Chest Accel Z	400	g	-Bipolar	4-043 HIII 50th VRTC.012
70	84892-A-CST043	14CHST0000H3DSXA	Chest Deflection X	84	mm	-Bipolar	4-043 HIII 50th VRTC.013
71	1794A-250-FX	14NECKLO00H3FOXA	Lower Neck Force X	8896	N	-Bipolar	4-043 HIII 50th VRTC.016
72	1794A-250-FY	14NECKLO00H3FOYA	Lower Neck Force Y	8896	N	Bipolar	4-043 HIII 50th VRTC.017
73	1794A-250-FZ	14NECKLO00H3FOZA	Lower Neck Force Z	13345	N	Bipolar	4-043 HIII 50th VRTC.018
74	1794A-250-MX	14NECKLO00H3MOXA	Lower Neck Moment X	282	Nm	-Bipolar	4-043 HIII 50th VRTC.019
75	1794A-250-MY	14NECKLO00H3MOYA	Lower Neck Moment Y	282	Nm	Bipolar	4-043 HIII 50th VRTC.020
76	1794A-250-MZ	14NECKLO00H3MOZA	Lower Neck Moment Z	282	Nm	Bipolar	4-043 HIII 50th VRTC.021
77	P52108	14PELVCG00H3ACXA	Pelvis Accel X	2000	g	-Bipolar	4-043 HIII 50th VRTC.022
78	P51710	14PELVCG00H3ACYA	Pelvis Accel Y	2000	g	-Bipolar	4-043 HIII 50th VRTC.023
79	P16225	14PELVCG00H3ACZA	Pelvis Accel Z	2000	g	-Bipolar	4-043 HIII 50th VRTC.024
80	P58544	10VEHCCG0000ACXA	Vehicle Center of Gravity X-axis Acce	1500	g	Bipolar	
81	P46509	10VEHCCG0000ACYA	Vehicle Center of Gravity Y-axis Acce	1500	g	-Bipolar	
82	P61314	10VEHCCG0000ACZA	Vehicle Center of Gravity Z-axis Acce	1500	g	-Bipolar	
83	ARS-1500-ARS1055	10VEHCCG0000AVXA	Vehicle Center of Gravity ROLL RATE	1500	°/s	Bipolar	
84	ARS-1500-ARS0738	10VEHCCG0000AVYA	Vehicle Center of Gravity PITCH RAT	1500	°/s	-Bipolar	
85	ARS-1500-ARS1091	10VEHCCG0000AVZA	Vehicle Center of Gravity YAW RATE	1500	°/s	-Bipolar	
86	ARS-1500-ARS0665	10VEHCREDK00AVXA	Rear Deck (cargo area) ROLL RATE	1500	°/s	Bipolar	
87	ARS-1500-ARS0737	10VEHCREDK00AVYA	Rear Deck (cargo area) PITCH RATE	1500	°/s	Bipolar	
88	ARS-1500-ARS0732	10VEHCREDK00AVZA	Rear Deck (cargo area) YAW RATE	1500	°/s	-Bipolar	
89	P63169	10ENGNTP0000ACXA	Top of Engine X-axis AccelTop of En	2000	g	Bipolar	
90	P61742	10ENGNTP0000ACYA	Top of Engine Y-axis Accel	2000	g	-Bipolar	
91	P48116	10ENGNTP0000ACZA	Top of Engine Z-axis Accel	2000	g	-Bipolar	
92	P61297	10ENGNBO0000ACXA	Bottom of Engine X-axis Accel	2000	g	Bipolar	
93	P61344	10ENGNBO0000ACYA	Bottom of Engine Y-axis Accel	2000	g	-Bipolar	
94	P63161	10ENGNBO0000ACZA	Left Bottom of Engine Z-axis Accel	2000	g	Bipolar	
95	P61424	10APILUPLE00ACXA	Left A-Pillar Upper X-Axis Acceleratio	2000	g	-Bipolar	
96	P61282	10APILUPLE00ACYA	Left A-Pillar Upper Y-Axis Acceleratio	2000	g	-Bipolar	
97	P63134	10APILUPLE00ACZA	Left A-Pillar Upper Z-Axis Acceleratio	2000	g	Bipolar	
98	P58024	10APILLOLE00ACXA	Left A-Pillar Lower X-Axis Acceleratio	2000	g	Bipolar	
99	P63139	10APILLOLE00ACYA	Left A-Pillar Lower Y-Axis Acceleratio	2000	g	Bipolar	
100	P57160	10APILLOLE00ACZA	Left A-Pillar Lower Z-Axis Acceleratio	2000	g	-Bipolar	
101	P62208	10APILUPRI00ACXA	Right A-Pillar Upper X-Axis Accelerati	2000	g	-Bipolar	
102	P63135	10APILUPRI00ACYA	Right A-Pillar Upper Y-Axis Accelerati	2000	g	Bipolar	

Channel Report Test Number 091215

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
103	P46517	10APILUPRI00ACZA	Right A-Pillar Upper Z-Axis Accelerati	2000	g	Bipolar	
104	P63125	10APILLORI00ACXA	Right A-Pillar Lower X-Axis Accelerati	2000	g	Bipolar	
105	P62204	10APILLORI00ACYA	Right A-Pillar Lower Y-Axis Accelerati	2000	g	-Bipolar	
106	P62216	10APILLORI00ACZA	Right A-Pillar Lower Z-Axis Accelerati	2000	g	-Bipolar	
107	P57185	10BPILUPLE00ACXA	Left B-Pillar Upper X-Axis Acceleratio	2000	g	-Bipolar	
108	P61752	10BPILUPLE00ACYA	Left B-Pillar Upper Y-Axis Acceleratio	2000	g	Bipolar	
109	P62546	10BPILUPLE00ACZA	Left B-Pillar Upper Z-Axis Acceleratio	2000	g	-Bipolar	
110	P62225	10BPILLOLE00ACXA	Left B-Pillar Lower X-Axis Acceleratio	2000	g	Bipolar	
111	P62197	10BPILLOLE00ACYA	Left B-Pillar Lower Y-Axis Acceleratio	2000	g	Bipolar	
112	P62630	10BPILLOLE00ACZA	Left B-Pillar Lower Z-Axis Acceleratio	2000	g	-Bipolar	
113	P61765	10BPILUPRI00ACXA	Right B-Pillar Upper X-Axis Accelerati	2000	g	Bipolar	
114	P61747	10BPILUPRI00ACYA	Right B-Pillar Upper Y-Axis Accelerati	2000	g	-Bipolar	
115	P63189	10BPILUPRI00ACZA	Right B-Pillar Upper Z-Axis Accelerati	2000	g	-Bipolar	
116	P57781	10BPILLORI00ACXA	Right B-Pillar Lower X-Axis Accelerati	2000	g	Bipolar	
117	P61400	10BPILLORI00ACYA	Right B-Pillar Lower Y-Axis Accelerati	2000	g	-Bipolar	
118	P61319	10BPILLORI00ACZA	Right B-Pillar Lower Z-Axis Accelerati	2000	g	-Bipolar	
119	P63131	10CPILUPLE00ACXA	Left C-Pillar Upper X-Axis Acceleratio	2000	g	-Bipolar	
120	P64806	10CPILUPLE00ACYA	Left C-Pillar Upper Y-Axis Acceleratio	2000	g	Bipolar	
121	P62573	10CPILUPLE00ACZA	Left C-Pillar Upper Z-Axis Acceleratio	2000	g	-Bipolar	
122	P62628	10CPILLOLE00ACXA	Left C-Pillar Lower X-Axis Acceleratio	2000	g	-Bipolar	
123	P61269	10CPILLOLE00ACYA	Left C-Pillar Lower Y-Axis Acceleratio	2000	g	Bipolar	
124	P49042	10CPILLOLE00ACZA	Left C-Pillar Lower Z-Axis Acceleratio	2000	g	-Bipolar	
125	P61754	10CPILUPRI00ACXA	Right C-Pillar Upper X-Axis Accelerat	2000	g	-Bipolar	
126	P61732	10CPILUPRI00ACYA	Right C-Pillar Upper Y-Axis Accelerat	2000	g	-Bipolar	
127	P61733	10CPILUPRI00ACZA	Right C-Pillar Upper Z-Axis Accelerati	2000	g	-Bipolar	
128	P63168	10CPILLORI00ACXA	Right C-Pillar Lower X-Axis Accelerat	2000	g	-Bipolar	
129	P57784	10CPILLORI00ACYA	Right C-Pillar Lower Y-Axis Accelerat	2000	g	-Bipolar	
130	P61434	10CPILLORI00ACZA	Right C-Pillar Lower Z-Axis Accelerati	2000	g	-Bipolar	
131	P61325	10DPILUPLE00ACXA	Left D-Pillar Upper X-Axis Acceleratio	2000	g	Bipolar	
132	P62627	10DPILUPLE00ACYA	Left D-Pillar Upper Y-Axis Acceleratio	2000	g	-Bipolar	
133	P63141	10DPILUPLE00ACZA	Left D-Pillar Upper Z-Axis Acceleratio	2000	g	-Bipolar	
134	P63123	10DPILLOLE00ACXA	Left D-Pillar Lower X-Axis Acceleratio	2000	g	Bipolar	
135	P34982	10DPILLOLE00ACYA	Left D-Pillar Lower Y-Axis Acceleratio	2000	g	Bipolar	
136	P62632	10DPILLOLE00ACZA	Left D-Pillar Lower Z-Axis Acceleratio	2000	g	-Bipolar	

Channel Report Test Number 091215

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
137	P61774	10DPILUPRI00ACXA	Right D-Pillar Upper X-Axis Accelerat	2000	g	Bipolar	
138	P61746	10DPILUPRI00ACYA	Right D-Pillar Upper Y-Axis Accelerat	2000	g	-Bipolar	
139	P61361	10DPILUPRI00ACZA	Right D-Pillar Upper Z-Axis Accelerati	2000	g	-Bipolar	
140	A044158	10DPILLORI00ACXA	Right D-Pillar Lower X-Axis Accelerat	2000	g	Bipolar	
141	P57332	10DPILLORI00ACYA	Right D-Pillar Lower Y-Axis Accelerat	2000	g	-Bipolar	
142	P61388	10DPILLORI00ACZA	Right D-Pillar Lower Z-Axis Accelerati	2000	g	-Bipolar	
143	P57876	102RDK000000ACXA	Vehicle Rear Deck X-axis Acceleratio	2000	g	Bipolar	
144	P57207	102RDK000000ACYA	Vehicle Rear Deck Y-axis Acceleratio	2000	g	Bipolar	
145	P61536	102RDK000000ACZA	Vehicle Rear Deck Z-axis Acceleratio	2000	g	-Bipolar	
146	P62203	11SEAT000000ACXA	LF Seat Position (on floor) X-axis Acc	2000	g	Bipolar	
147	P62222	11SEAT000000ACYA	LF Seat Position (on floor) Y-axis Acc	2000	g	-Bipolar	
148	P63126	11SEAT000000ACZA	LF Seat Position (on floor) Z-axis Acc	2000	g	-Bipolar	
149	P57430	13SEAT000000ACXA	RF Seat Position (on floor) X-axis Acc	2000	g	Bipolar	
150	P61736	13SEAT000000ACYA	RF Seat Position (on floor) Y-axis Acc	2000	g	Bipolar	
151	P61317	13SEAT000000ACZA	RF Seat Position (on floor) Z-axis Acc	2000	g	-Bipolar	
152	P58576	14SEAT000000ACXA	LR Seat Position (on floor) X-axis Acc	2000	g	Bipolar	
153	P62555	14SEAT000000ACYA	LR Seat Position (on floor) Y-axis Acc	2000	g	-Bipolar	
154	P61735	14SEAT000000ACZA	LR Seat Position (on floor) Z-axis Acc	2000	g	-Bipolar	
155	P61453	16SEAT000000ACXA	RR Seat Position (on floor) X-axis Acc	2000	g	Bipolar	
156	P57790	16SEAT000000ACYA	RR Seat Position (on floor) Y-axis Acc	2000	g	Bipolar	
157	P34212	16SEAT000000ACZA	RR Seat Position (on floor) Z-axis Acc	2000	g	-Bipolar	
158	3419-829	11SEBE0000B5FO0A	Driver Lap Belt Force	13344	N	Bipolar	
159	X08013	11SEBE0000B3FO0A	Driver Shoulder Belt Force	13344	N	Bipolar	
160	3419-830	13SEBE0000B5FO0A	Front Pass. Lap Belt Force	13344	N	Bipolar	
161	X08010	13SEBE0000B3FO0A	Front Pass. Shldr. Belt Force	13344	N	Bipolar	
162	3419T-828	14SEBE0000B5FO0A	Left Rear Pass. Lap Belt Force	13344	N	Bipolar	
163	X08014	14SEBE0000B3FO0A	Left Rear Pass. Shldr. Belt Force	13344	N	Bipolar	
164	K1506281A	11SEBE0000B5DS0A	Driver Seat Belt Spool Potentiometer	750	mm	Bipolar	
165	G1805342B	13SEBE0000B5DS0A	Right Front Belt Spool Potentiometers	750	mm	Bipolar	
166	B1801244B	14SEBE0000B5DS0A	Left Rear Passenger Belt Spool Poter	750	mm	Bipolar	
167	Bit.00	11CONT000023EV00	DRIV. Head Contact Switch	1	Logic	Bipolar	
168	Bit.01	11CONT000024EV00	DRIV. Thorax Contact Switch	1	Logic	Bipolar	
169	Bit.02	11CONT000025EV00	DRIV. Pelvis Contact Switch	1	Logic	Bipolar	
170	Bit.03	13CONT000026EV00	Pass. Head Contact Switch	1	Logic	Bipolar	

Channel Report Test Number 091215

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
171	Bit.05	13CONT000027EV00	Pass. Thorax Contact Switch	1	Logic	Bipolar	
172	Bit.06	13CONT000028EV00	Pass. Pelvis Contact Switch	1	Logic	Bipolar	
173	Bit.07	14CONT000029EV00	Left Rear Pass. Head Contact Switch	1	Logic	Bipolar	
174	Bit.08	14CONT000030EV00	Left Rear Pass. Thorax Contact Switc	1	Logic	Bipolar	
175	Bit.09	14CONT000031EV00	Left Rear Pass. Pelvis Contact Switch	1	Logic	Bipolar	
176	ABT squib volts	11AIRB000000VO0A	Left Side Curtain Voltage	50	V	Bipolar	
177	ABT squib volts	13AIRB000000VO0A	Right Side Curtain Voltage	50	V	Bipolar	

Command File Test Number 091215

Chan	ISO mnemonic	Channel Title	Filte	Fl	Zer	Full Scale
1	11HEADCG00H3ACXA	Driver Head X-Axis Acceleration	1000	+	yes	1000
2	11HEADCG00H3ACYA	Driver Head Y-Axis Acceleration	1000	+	yes	1000
3	11HEADCG00H3ACZA	Driver Head Z-Axis Acceleration	1000	+	yes	1000
3A	11HEADCG00H3ACRA	Driver Head Resultant Acceleration	1000			
4	11HEADCG00H3AVXA	Driver Head (DTS ARS) Rate Gyro X	1000	+	yes	12000
5	11HEADCG00H3AVYA	Driver Head (DTS ARS) Rate Gyro Y	1000	+	yes	12000
6	11HEADCG00H3AVZA	Driver Head (DTS ARS) Rate Gyro Z	1000	+	yes	12000
7	11NECKUP00H3FOXA	Driver Upper Neck X-Axis Force	1000	+	yes	8896
8	11NECKUP00H3FOYA	Driver Upper Neck Y-Axis Force	1000	+	yes	8896
9	11NECKUP00H3FOZA	Driver Upper Neck Z-Axis Force	1000	+	yes	13344
10	11NECKUP00H3MOXA	Driver Upper Neck Moment About X Axis	600	+	yes	282.5
11	11NECKUP00H3MOYA	Driver Upper Neck Moment About Y Axis	600	+	yes	282.5
12	11NECKUP00H3MOZA	Driver Upper Neck Moment About Z Axis	600	+	yes	282.5
13	11CHSTCG00H3ACXA	Driver Chest X-Axis Acceleration	180	+	yes	1000
14	11CHSTCG00H3ACYA	Driver Chest Y-Axis Acceleration	180	+	yes	1000
15	11CHSTCG00H3ACZA	Driver Chest Z-Axis Acceleration	180	+	yes	1000
15A	11CHSTCG00H3ACRA	Driver Chest Resultant Acceleration	180			
16	11CHST0000H3DSXA	Driver Chest X-Axis Displacement	600	+	yes	84
17	11NECKLO00H3FOXA	Driver Lower Neck X-Axis Force	1000	+	yes	8896
18	11NECKLO00H3FOYA	Driver Lower Neck Y-Axis Force	1000	+	yes	8896
19	11NECKLO00H3FOZA	Driver Lower Neck Z-Axis Force	1000	+	yes	13345
20	11NECKLO00H3MOXA	Driver Lower Neck Moment About X Axis	600	+	yes	282.5
21	11NECKLO00H3MOYA	Driver Lower Neck Moment About Y Axis	600	+	yes	282.5
22	11NECKLO00H3MOZA	Driver Lower Neck Moment About Z Axis	600	+	yes	282.5
23	11PELVCG00H3ACXA	Driver Pelvis X-Axis Acceleration	1000	+	yes	1000
24	11PELVCG00H3ACYA	Driver Pelvis Y-Axis Acceleration	1000	+	yes	1000
25	11PELVCG00H3ACZA	Driver Pelvis Z-Axis Acceleration	1000	+	yes	1000
25A	11PELVCG00H3ACRA	Driver Pelvis Resultant Acceleration	1000			
26	13HEADCG00H3ACXA	Right Front Passenger Head X-Axis Acceleration	1000	+	yes	1000
27	13HEADCG00H3ACYA	Right Front Passenger Head Y-Axis Acceleration	1000	+	yes	1000
28	13HEADCG00H3ACZA	Right Front Passenger Head Z-Axis Acceleration	1000	+	yes	1000
28A	13HEADCG00H3ACRA	Right Front Passenger Head Resultant Acceleration	1000			
29	13HEADFR00H3ACYA	Right Front Passenger Head Front Y-Axis Acceleration	1000	+	yes	1000
30	13HEADFR00H3ACZA	Right Front Passenger Head Front Z-Axis Acceleration	1000	+	yes	1000
31	13HEADUP00H3ACXA	Right Front Passenger Head Top X-Axis Acceleration	1000	+	yes	1000
32	13HEADUP00H3ACYA	Right Front Passenger Head Top Y-Axis Acceleration	1000	+	yes	1000
33	13HEADLE00H3ACXA	Right Front Passenger Head Left X-Axis Acceleration	1000	+	yes	1000

Command File Test Number 091215

Chan	ISO mnemonic	Channel Title	Filte	Fl	Zer	Full Scale
34	13HEADLE00H3ACZA	Right Front Passenger Head Left Z-Axis Acceleration	1000	+	yes	1000
35	13NECKUP00H3FOXA	Right Front Passenger Upper Neck X-Axis Force	1000	+	yes	8896.4
36	13NECKUP00H3FOYA	Right Front Passenger Upper Neck Y-Axis Force	1000	+	yes	8896.4
37	13NECKUP00H3FOZA	Right Front Passenger Upper Neck Z-Axis Force	1000	+	yes	13344.6
38	13NECKUP00H3MOXA	Right Front Passenger Upper Neck Moment About X Axis	600	+	yes	282.4
39	13NECKUP00H3MOYA	Right Front Passenger Upper Neck Moment About Y Axis	600	+	yes	282.4
40	13NECKUP00H3MOZA	Right Front Passenger Upper Neck Moment About Z Axis	600	+	yes	282.4
41	13NECKLO00H3FOXA	Right Front Passenger Lower Neck X-Axis Force	1000	+	yes	13345
42	13NECKLO00H3FOYA	Right Front Passenger Lower Neck Y-Axis Force	1000	+	yes	13344.6
43	13NECKLO00H3FOZA	Right Front Passenger Lower Neck Z-Axis Force	1000	+	yes	13344.6
44	13NECKLO00H3MOXA	Right Front Passenger Lower Neck Moment About X Axis	600	+	yes	452
45	13NECKLO00H3MOYA	Right Front Passenger Lower Neck Moment About Y Axis	600	+	yes	452
46	13NECKLO00H3MOZA	Right Front Passenger Lower Neck Moment About Z Axis	600	+	yes	452
47	13CHSTCG00H3ACXA	Right Front Passenger Chest X-Axis Acceleration	180	+	yes	1000
48	13CHSTCG00H3ACYA	Right Front Passenger Chest Y-Axis Acceleration	180	+	yes	1000
49	13CHSTCG00H3ACZA	Right Front Passenger Chest Z-Axis Acceleration	180	+	yes	1000
49A	13CHSTCG00H3ACRA	Right Front Passenger Chest Resultant Acceleration	180			
50	13CHST0000H3DSXA	Right Front Passenger Chest X-Axis Displacement	600	+	yes	84
51	13PELVCG00H3ACXA	Right Front Passenger Pelvis X-Axis Acceleration	1000	+	yes	1000
52	13PELVCG00H3ACYA	Right Front Passenger Pelvis Y-Axis Acceleration	1000	+	yes	1000
53	13PELVCG00H3ACZA	Right Front Passenger Pelvis Z-Axis Acceleration	1000	+	yes	1000
53A	13PELVCG00H3ACRA	Right Front Passenger Pelvis Resultant Acceleration	1000			
54	14HEADCG00H3ACXA	Left Rear Passenger Head X-Axis Acceleration	1000	+	yes	1000
55	14HEADCG00H3ACYA	Left Rear Passenger Head Y-Axis Acceleration	1000	+	yes	1000
56	14HEADCG00H3ACZA	Left Rear Passenger Head Z-Axis Acceleration	1000	+	yes	1000
56A	14HEADCG00H3ACRA	Left Rear Passenger Head Resultant Acceleration	1000			
57	14HEADCG00H3AVXA	Left Rear Passenger Head (DTS ARS) Rate Gyro X	1000	+	yes	12000
58	14HEADCG00H3AVYA	Left Rear Passenger Head (DTS ARS) Rate Gyro Y	1000	+	yes	12000
59	14HEADCG00H3AVZA	Left Rear Passenger Head (DTS ARS) Rate Gyro Z	1000	+	yes	12000
60	14NECKUP00H3FOXA	Left Rear Passenger Upper Neck X-Axis Force	1000	+	yes	8896
61	14NECKUP00H3FOYA	Left Rear Passenger Upper Neck Y-Axis Force	1000	+	yes	8896
62	14NECKUP00H3FOZA	Left Rear Passenger Upper Neck Z-Axis Force	1000	+	yes	13344
63	14NECKUP00H3MOXA	Left Rear Passenger Upper Neck Moment About X Axis	600	+	yes	282
64	14NECKUP00H3MOYA	Left Rear Passenger Upper Neck Moment About Y Axis	600	+	yes	282
65	14NECKUP00H3MOZA	Left Rear Passenger Upper Neck Moment About Z Axis	600	+	yes	282
66	14CHSTCG00H3ACXA	Left Rear Passenger Chest X-Axis Acceleration	180	+	yes	400
67	14CHSTCG00H3ACYA	Left Rear Passenger Chest Y-Axis Acceleration	180	+	yes	400

Command File Test Number 091215

Chan	ISO mnemonic	Channel Title	Filte	Fl	Zer	Full Scale
68	14CHSTCG00H3ACZA	Left Rear Passenger Chest Z-Axis Acceleration	180	+	yes	400
68A	14CHSTCG00H3ACRA	Left Rear Passenger Chest Resultant Acceleration	180			
69	14CHST0000H3DSXA	Left Rear Passenger Chest X-Axis Displacement	600	+	yes	84
70	14PELVCG00H3ACXA	Left Rear Passenger Pelvis X-Axis Acceleration	1000	+	yes	2000
71	14PELVCG00H3ACYA	Left Rear Passenger Pelvis Y-Axis Acceleration	1000	+	yes	2000
72	14PELVCG00H3ACZA	Left Rear Passenger Pelvis Z-Axis Acceleration	1000	+	yes	2000
72A	14PELVCG00H3ACRA	Left Rear Passenger Pelvis Resultant Acceleration	1000			
73	14NECKLO00H3FOXA	Left Rear Passenger Lower Neck X-Axis Force	1000	+	yes	8896
74	14NECKLO00H3FOYA	Left Rear Passenger Lower Neck Y-Axis Force	1000	+	yes	8896
75	14NECKLO00H3FOZA	Left Rear Passenger Lower Neck Z-Axis Force	1000	+	yes	13345
76	14NECKLO00H3MOXA	Left Rear Passenger Lower Neck Moment About X Axis	600	+	yes	282
77	14NECKLO00H3MOYA	Left Rear Passenger Lower Neck Moment About Y Axis	600	+	yes	282
78	14NECKLO00H3MOZA	Left Rear Passenger Lower Neck Moment About Z Axis	600	+	yes	282
79	10VEHCCG0000ACXA	Vehicle Center of Gravity X-Axis Acceleration	60	+	yes	2000
80	10VEHCCG0000ACYA	Vehicle Center of Gravity Y-Axis Acceleration	60	+	yes	2000
81	10VEHCCG0000ACZA	Vehicle Center of Gravity Z-Axis Acceleration	60	+	yes	2000
81A	10VEHCCG0000ACRA	Vehicle Center of Gravity Resultant Acceleration	60			
82	10VEHCCG0000AVXA	Vehicle Roll Rate	600	+	yes	1500
83	10VEHCCG0000AVYA	Vehicle Pitch Rate	600	+	yes	1500
84	10VEHCCG0000AVZA	Vehicle Yaw Rate	600	+	yes	1500
85	10VEHCREDK00AVXA	Rear Deck Roll Rate Redundant	600	+	yes	1500
86	10VEHCREDK00AVYA	Rear Deck Pitch Rate Redundant	600	+	yes	1500
87	10VEHCREDK00AVZA	Rear Deck Yaw Rate Redundant	600	+	yes	1500
88	10ENGNTP0000ACXA	Top of Engine X-Axis Acceleration	60	+	yes	2000
89	10ENGNTP0000ACYA	Top of Engine Y-Axis Acceleration	60	+	yes	2000
90	10ENGNTP0000ACZA	Top of Engine Z-Axis Acceleration	60	+	yes	2000
90A	10ENGNTP0000ACRA	Top of Engine Resultant Acceleration	60			
91	10ENGNBO0000ACXA	Bottom of Engine X-Axis Acceleration	60	+	yes	2000
92	10ENGNBO0000ACYA	Bottom of Engine Y-Axis Acceleration	60	+	yes	2000
93	10ENGNBO0000ACZA	Bottom of Engine Z-Axis Acceleration	60	+	yes	2000
93A	10ENGNBO0000ACRA	Bottom of Engine Resultant Acceleration	60			
94	10APILUPLE00ACXA	Left A-Pillar Upper X-Axis Acceleration	60	+	yes	2000
95	10APILUPLE00ACYA	Left A-Pillar Upper Y-Axis Acceleration	60	+	yes	2000
96	10APILUPLE00ACZA	Left A-Pillar Upper Z-Axis Acceleration	60	+	yes	2000
96A	10APILUPLE00ACRA	Left A-Pillar Upper Resultant Acceleration	60			
97	10APILLOLE00ACXA	Left A-Pillar Lower X-Axis Acceleration	60	+	yes	2000
98	10APILLOLE00ACYA	Left A-Pillar Lower Y-Axis Acceleration	60	+	yes	2000

Command File Test Number 091215

Chan	ISO mnemonic	Channel Title	Filte	Fl	Zer	Full Scale
99	10APILLOLE00ACZA	Left A-Pillar Lower Z-Axis Acceleration	60	+	yes	2000
99A	10APILLOLE00ACRA	Left A-Pillar Lower Resultant Acceleration	60			
100	10APILUPRI00ACXA	Right A-Pillar Upper X-Axis Acceleration	60	+	yes	2000
101	10APILUPRI00ACYA	Right A-Pillar Upper Y-Axis Acceleration	60	+	yes	2000
102	10APILUPRI00ACZA	Right A-Pillar Upper Z-Axis Acceleration	60	+	yes	2000
102A	10APILUPRI00ACRA	Right A-Pillar Upper Resultant Acceleration	60			
103	10APILLORI00ACXA	Right A-Pillar Lower X-Axis Acceleration	60	+	yes	2000
104	10APILLORI00ACYA	Right A-Pillar Lower Y-Axis Acceleration	60	+	yes	2000
105	10APILLORI00ACZA	Right A-Pillar Lower Z-Axis Acceleration	60	+	yes	2000
105A	10APILLORI00ACRA	Right A-Pillar Lower Resultant Acceleration	60			
106	10BPILUPLE00ACXA	Left B-Pillar Upper X-Axis Acceleration	60	+	yes	2000
107	10BPILUPLE00ACYA	Left B-Pillar Upper Y-Axis Acceleration	60	+	yes	2000
108	10BPILUPLE00ACZA	Left B-Pillar Upper Z-Axis Acceleration	60	+	yes	2000
108A	10BPILUPLE00ACRA	Left B-Pillar Upper Resultant Acceleration	60			
109	10BPILLOLE00ACXA	Left B-Pillar Lower X-Axis Acceleration	60	+	yes	2000
110	10BPILLOLE00ACYA	Left B-Pillar Lower Y-Axis Acceleration	60	+	yes	2000
111	10BPILLOLE00ACZA	Left B-Pillar Lower Z-Axis Acceleration	60	+	yes	2000
111A	10BPILLOLE00ACRA	Left B-Pillar Lower Resultant Acceleration	60			
112	10BPILUPRI00ACXA	Right B-Pillar Upper X-Axis Acceleration	60	+	yes	2000
113	10BPILUPRI00ACYA	Right B-Pillar Upper Y-Axis Acceleration	60	+	yes	2000
114	10BPILUPRI00ACZA	Right B-Pillar Upper Z-Axis Acceleration	60	+	yes	2000
114A	10BPILUPRI00ACRA	Right B-Pillar Upper Resultant Acceleration	60			
115	10BPILLORI00ACXA	Right B-Pillar Lower X-Axis Acceleration	60	+	yes	2000
116	10BPILLORI00ACYA	Right B-Pillar Lower Y-Axis Acceleration	60	+	yes	2000
117	10BPILLORI00ACZA	Right B-Pillar Lower Z-Axis Acceleration	60	+	yes	2000
117A	10BPILLORI00ACRA	Right B-Pillar Lower Resultant Acceleration	60			
118	10CPILUPLE00ACXA	Left C-Pillar Upper X-Axis Acceleration	60	+	yes	2000
119	10CPILUPLE00ACYA	Left C-Pillar Upper Y-Axis Acceleration	60	+	yes	2000
120	10CPILUPLE00ACZA	Left C-Pillar Upper Z-Axis Acceleration	60	+	yes	2000
120A	10CPILUPLE00ACRA	Left C-Pillar Upper Resultant Acceleration	60			
121	10CPILLOLE00ACXA	Left C-Pillar Lower X-Axis Acceleration	60	+	yes	2000
122	10CPILLOLE00ACYA	Left C-Pillar Lower Y-Axis Acceleration	60	+	yes	2000
123	10CPILLOLE00ACZA	Left C-Pillar Lower Z-Axis Acceleration	60	+	yes	2000
123A	10CPILLOLE00ACRA	Left C-Pillar Lower Resultant Acceleration	60			
124	10CPILUPRI00ACXA	Right C-Pillar Upper X-Axis Acceleration	60	+	yes	2000
125	10CPILUPRI00ACYA	Right C-Pillar Upper Y-Axis Acceleration	60	+	yes	2000
126	10CPILUPRI00ACZA	Right C-Pillar Upper Z-Axis Acceleration	60	+	yes	2000

Command File Test Number 091215

Chan	ISO mnemonic	Channel Title	Filte	Fl	Zer	Full Scale
126A	10CPILUPRI00ACRA	Right C-Pillar Upper Resultant Acceleration	60			
127	10CPILLORI00ACXA	Right C-Pillar Lower X-Axis Acceleration	60	+	yes	2000
128	10CPILLORI00ACYA	Right C-Pillar Lower Y-Axis Acceleration	60	+	yes	2000
129	10CPILLORI00ACZA	Right C-Pillar Lower Z-Axis Acceleration	60	+	yes	2000
129A	10CPILLORI00ACRA	Right C-Pillar Lower Resultant Acceleration	60			
130	10DPILUPLE00ACXA	Left D-Pillar Upper X-Axis Acceleration	60	+	yes	2000
131	10DPILUPLE00ACYA	Left D-Pillar Upper Y-Axis Acceleration	60	+	yes	2000
132	10DPILUPLE00ACZA	Left D-Pillar Upper Z-Axis Acceleration	60	+	yes	2000
132A	10DPILUPLE00ACRA	Left D-Pillar Upper Resultant Acceleration	60			
133	10DPILLOLE00ACXA	Left D-Pillar Lower X-Axis Acceleration	60	+	yes	2000
134	10DPILLOLE00ACYA	Left D-Pillar Lower Y-Axis Acceleration	60	+	yes	2000
135	10DPILLOLE00ACZA	Left D-Pillar Lower Z-Axis Acceleration	60	+	yes	2000
135A	10DPILLOLE00ACRA	Left D-Pillar Lower Resultant Acceleration	60			
136	10DPILUPRI00ACXA	Right D-Pillar Upper X-Axis Acceleration	60	+	yes	2000
137	10DPILUPRI00ACYA	Right D-Pillar Upper Y-Axis Acceleration	60	+	yes	2000
138	10DPILUPRI00ACZA	Right D-Pillar Upper Z-Axis Acceleration	60	+	yes	2000
138A	10DPILUPRI00ACRA	Right D-Pillar Upper Resultant Acceleration	60			
139	10DPILLORI00ACXA	Right D-Pillar Lower X-Axis Acceleration	60	+	yes	2000
140	10DPILLORI00ACYA	Right D-Pillar Lower Y-Axis Acceleration	60	+	yes	2000
141	10DPILLORI00ACZA	Right D-Pillar Lower Z-Axis Acceleration	60	+	yes	2000
141A	10DPILLORI00ACRA	Right D-Pillar Lower Resultant Acceleration	60			
142	102RDK000000ACXA	Vehicle Rear Deck X-Axis Acceleration	60	+	yes	2000
143	102RDK000000ACYA	Vehicle Rear Deck Y-Axis Acceleration	60	+	yes	2000
144	102RDK000000ACZA	Vehicle Rear Deck Z-Axis Acceleration	60	+	yes	2000
144A	102RDK000000ACRA	Vehicle Rear Deck Resultant Acceleration	60			
145	11SEAT000000ACXA	LF Seat Position (on floor) X-Axis Acceleration	60	+	yes	2000
146	11SEAT000000ACYA	LF Seat Position (on floor) Y-Axis Acceleration	60	+	yes	2000
147	11SEAT000000ACZA	LF Seat Position (on floor) Z-Axis Acceleration	60	+	yes	2000
147A	11SEAT000000ACRA	LF Seat Position (on floor) Resultant Acceleration	60			
148	13SEAT000000ACXA	RF Seat Position (on floor) X-Axis Acceleration	60	+	yes	2000
149	13SEAT000000ACYA	RF Seat Position (on floor) Y-Axis Acceleration	60	+	yes	2000
150	13SEAT000000ACZA	RF Seat Position (on floor) Z-Axis Acceleration	60	+	yes	2000
150A	13SEAT000000ACRA	RF Seat Position (on floor) Resultant Acceleration	60			
151	14SEAT000000ACXA	LR Seat Position (on floor) X-Axis Acceleration	60	+	yes	2000
152	14SEAT000000ACYA	LR Seat Position (on floor) Y-Axis Acceleration	60	+	yes	2000
153	14SEAT000000ACZA	LR Seat Position (on floor) Z-Axis Acceleration	60	+	yes	2000
153A	14SEAT000000ACRA	LR Seat Position (on floor) Resultant Acceleration	60			

Command File Test Number 091215

Chan	ISO mnemonic	Channel Title	Filte	Fl	Zer	Full Scale
154	16SEAT000000ACXA	RR Seat Position (on floor) X-Axis Acceleration	60	+	yes	2000
155	16SEAT000000ACYA	RR Seat Position (on floor) Y-Axis Acceleration	60	+	yes	2000
156	16SEAT000000ACZA	RR Seat Position (on floor) Z-Axis Acceleration	60	+	yes	2000
156A	16SEAT000000ACRA	RR Seat Position (on floor) Resultant Acceleration	60			
157	11SEBE0000B5FO0A	Driver Lap Belt Force	60	+	yes	13344
158	11SEBE0000B3FO0A	Driver Shoulder Belt Force	60	+	yes	13344
159	13SEBE0000B5FO0A	Right Front Passenger Lap Belt Force	60	+	yes	13344
160	13SEBE0000B3FO0A	Right Front Passenger Shoulder Belt Force	60	+	yes	13344
161	14SEBE0000B5FO0A	Left Rear Passenger Lap Belt Force	60	+	yes	13344
162	14SEBE0000B3FO0A	Left Rear Passenger Shoulder Belt Force	60	+	yes	13344
163	11SEBE0000B5DS0A	Driver Seat Belt Spool Potentiometer	1000	+	yes	750
164	13SEBE0000B5DS0A	Right Front Passenger Belt Spool Potentiometer	1000	+	yes	750
165	14SEBE0000B5DS0A	Left Rear Passenger Belt Spool Potentiometer	1000	+	yes	750
166	11CONT000023EV00	Driver Head Contact	0	+	no	1
167	11CONT000024EV00	Driver Thorax Contact	0	+	no	1
168	11CONT000025EV00	Driver Pelvis Contact	0	+	no	1
169	13CONT000026EV00	Right Front Passenger Head Contact Switch	0	+	no	1
170	13CONT000027EV00	Right Front Passenger Thorax Contact Switch	0	+	no	1
171	13CONT000028EV00	Right Front Passenger Pelvis Contact Switch	0	+	no	1
172	14CONT000029EV00	Left Rear Passenger Head Contact	0	+	no	1
173	14CONT000030EV00	Left Rear Passenger Thorax Contact	0	+	no	1
174	14CONT000031EV00	Left Rear Passenger Pelvis Contact	0	+	no	1
175	11AIRB000000VO0A	Left Side Curtain Voltage	1000	+	no	50
176	13AIRB000000VO0A	Right Side Curtain Voltage	1000	+	no	50
177	11AIRB000000CU0A	Left Side Curtain Current	1000	+	no	5
178	13AIRB000000CU0A	Right Side Curtain Current	1000	+	no	5

APPENDIX E

INSIA Report on Structural Measurements

STRUCTURAL SURVEY OF CARS. MEASUREMENT METHODOLOGY OF THE MAIN RESISTANT ELEMENTS IN THE CAR BODY

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March, 1999

REPORT DOCUMENTATION PAGE
Title: *STRUCTURAL SURVEY OF CARS. MEASUREMENT METHODOLOGY OF THE MAIN RESISTANT ELEMENTS IN THE CAR BODY*
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Performing Organisation name and address: INSIA – University Institute for Automobile Research Carretera de Valencia, Km. 7 – Campus Sur de la Universidad Politécnica de Madrid 28031 – Madrid – Spain
Suplementary notes: Under contract to: THE EUROPEAN COMMUNITY Project: "Improvement of Crash Compatibility between Cars" Contract Nº: RO – 97 – SC.1064
Abstract: The main aim of this working package -*Structural Survey of Cars*- is the reduction of incompatibilities, both structural and geometric, between passenger vehicles and their potential collision partners. The understanding of these incompatibilities needs a previous step for the knowledge of the existing car fleet. Firstly, it is necessary to select the main resistant elements in the car body. These elements have to be chosen from the point of view of the sort of collision that we want to study, that is to say, frontal and side impacts. Detailed measurements have been taken from exterior and interior elements, spread to a total number of 74 models selected from the main vehicle manufacturers at Spain. All of them are being sold this year. Using the information available from the previous measurements in vehicles, the geometric characteristics of the main resistant elements involved in the geometric compatibility between cars will be defined. This report shows the methodology followed to get these measurements.
Subject terms: Crash compatibility, geometric compatibility, resistant elements, measure methodology
Date: March, 1999

1.- METHODOLOGY.

Detailed measurements have been taken from exterior and interior elements. Using the information available from the previous measurements in vehicles, the geometric characteristics of the main resistant elements involved in the geometric compatibility between cars have been defined. These elements are presented in the following figures, and have been divided in two main groups according to the vehicle zones studied in this project.

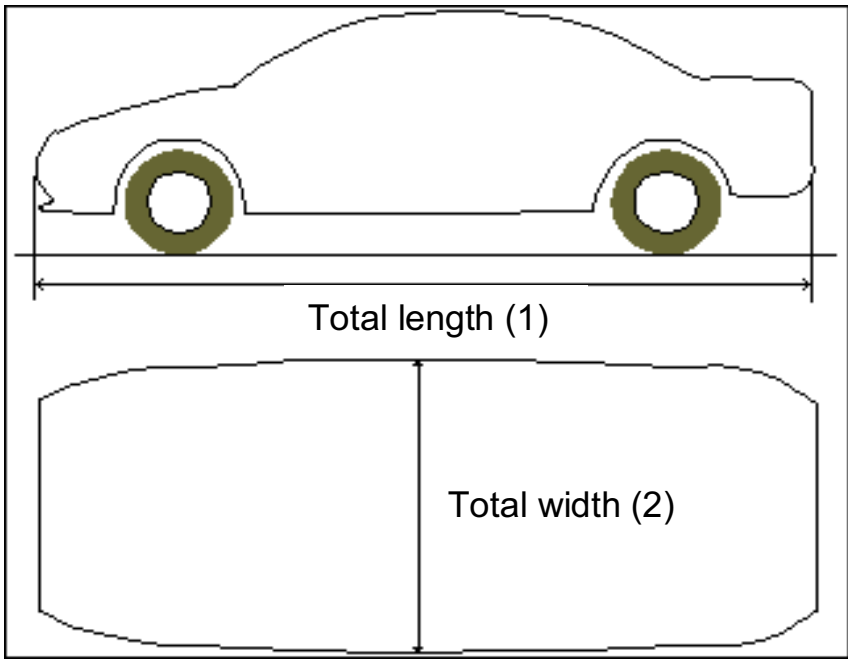

Figure 1.- Definition of the main resistant elements. General dimensions.

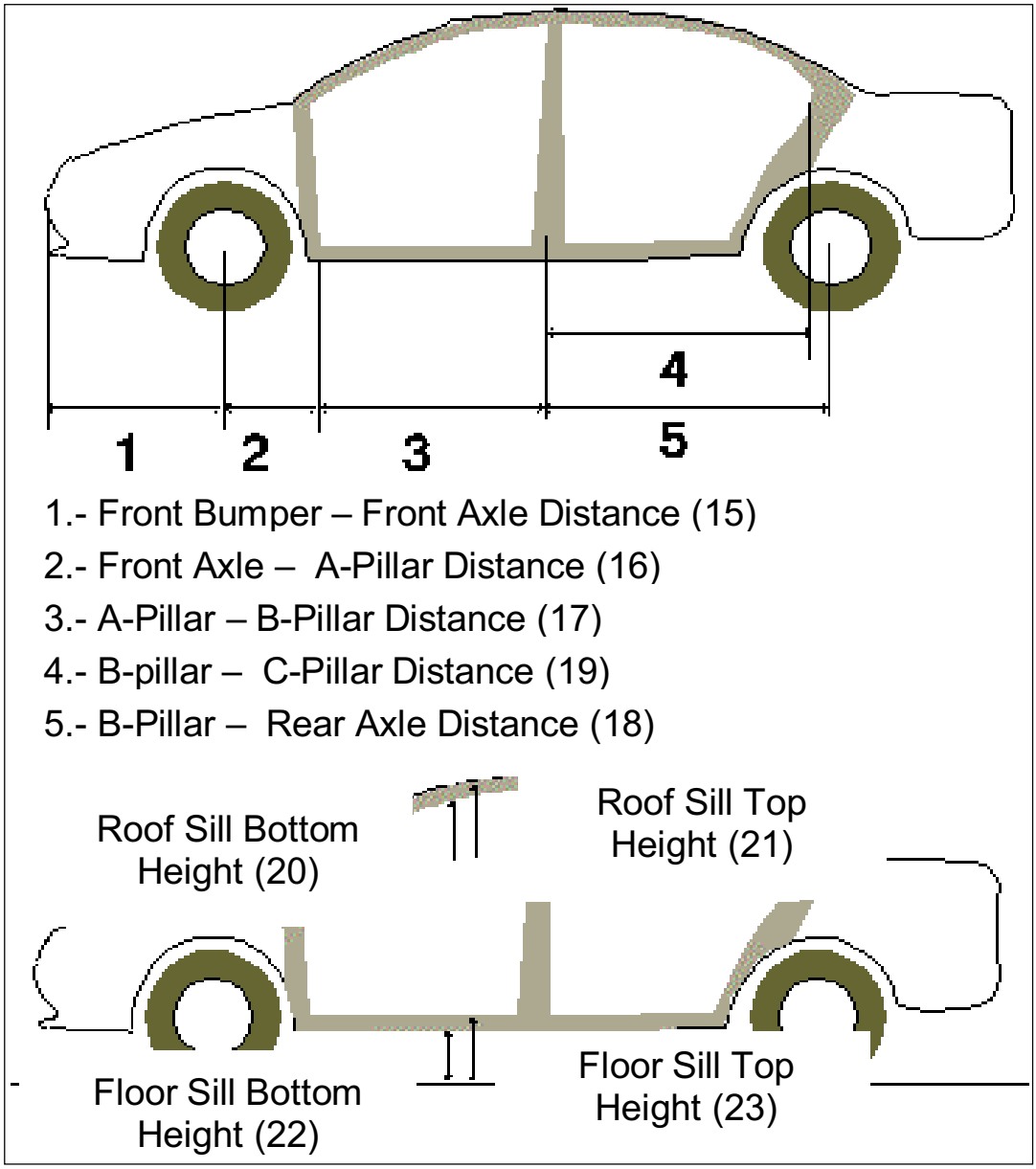

Figure 2.- Definition of the main resistant elements. Side elements.

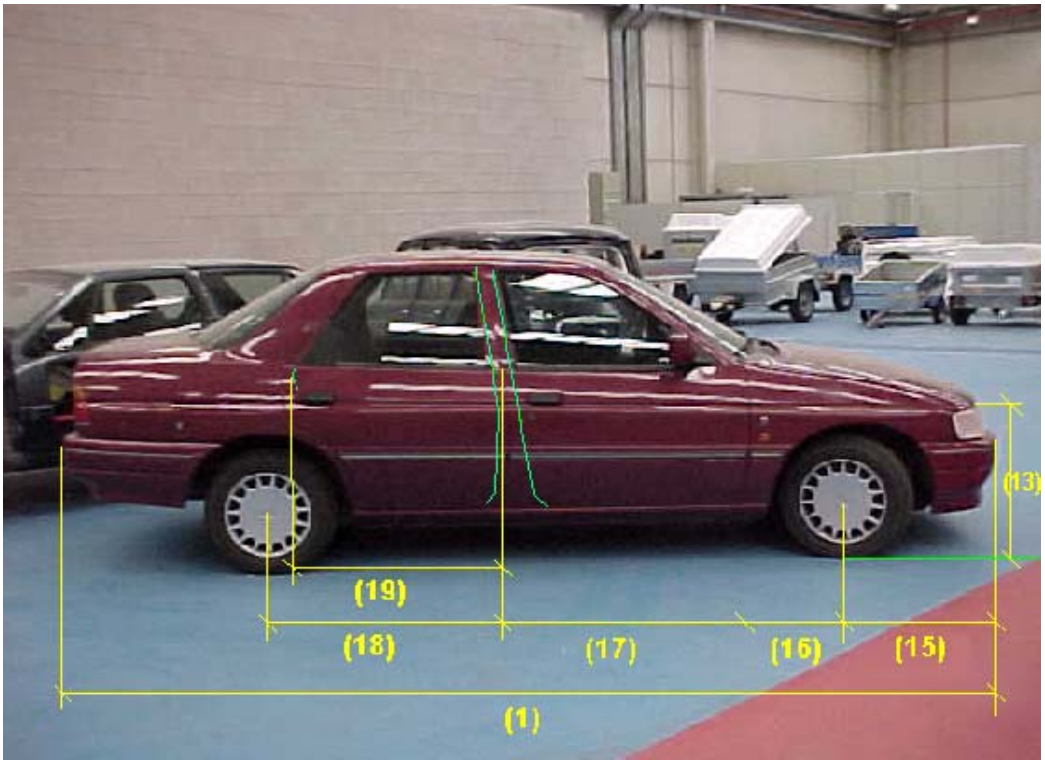

Figure 3.- Measurements of the side resistant elements (outer).

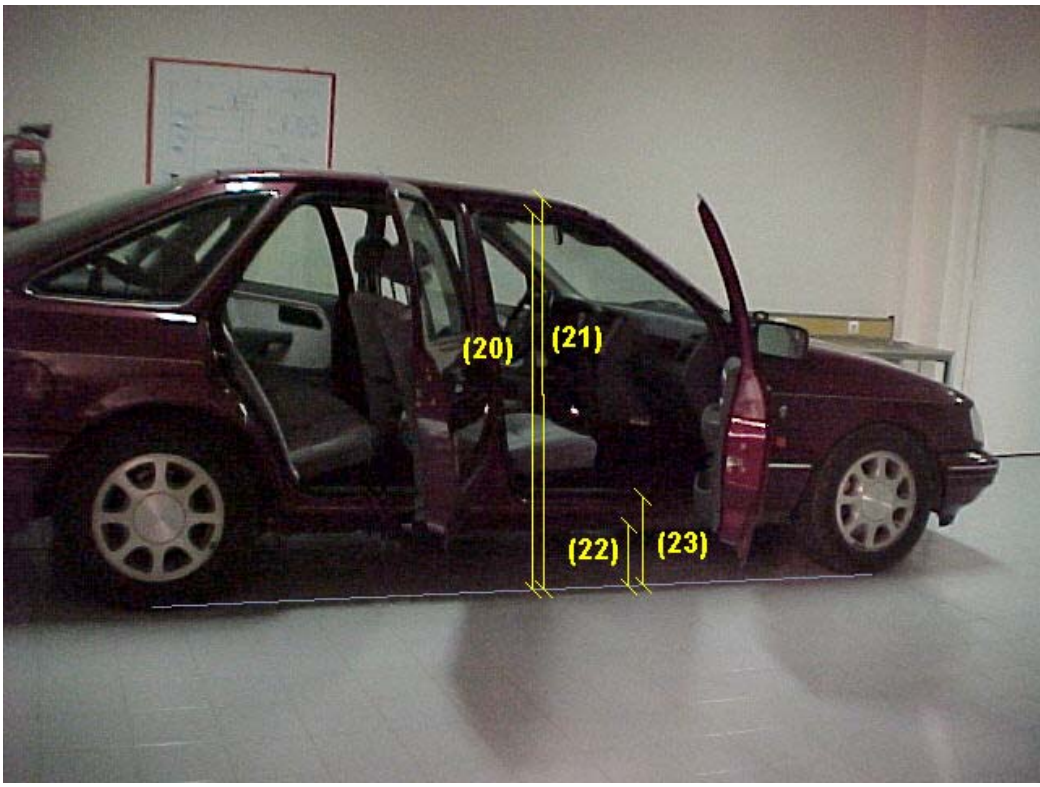

Figure 4.- Measurements of the side resistant elements (inner).

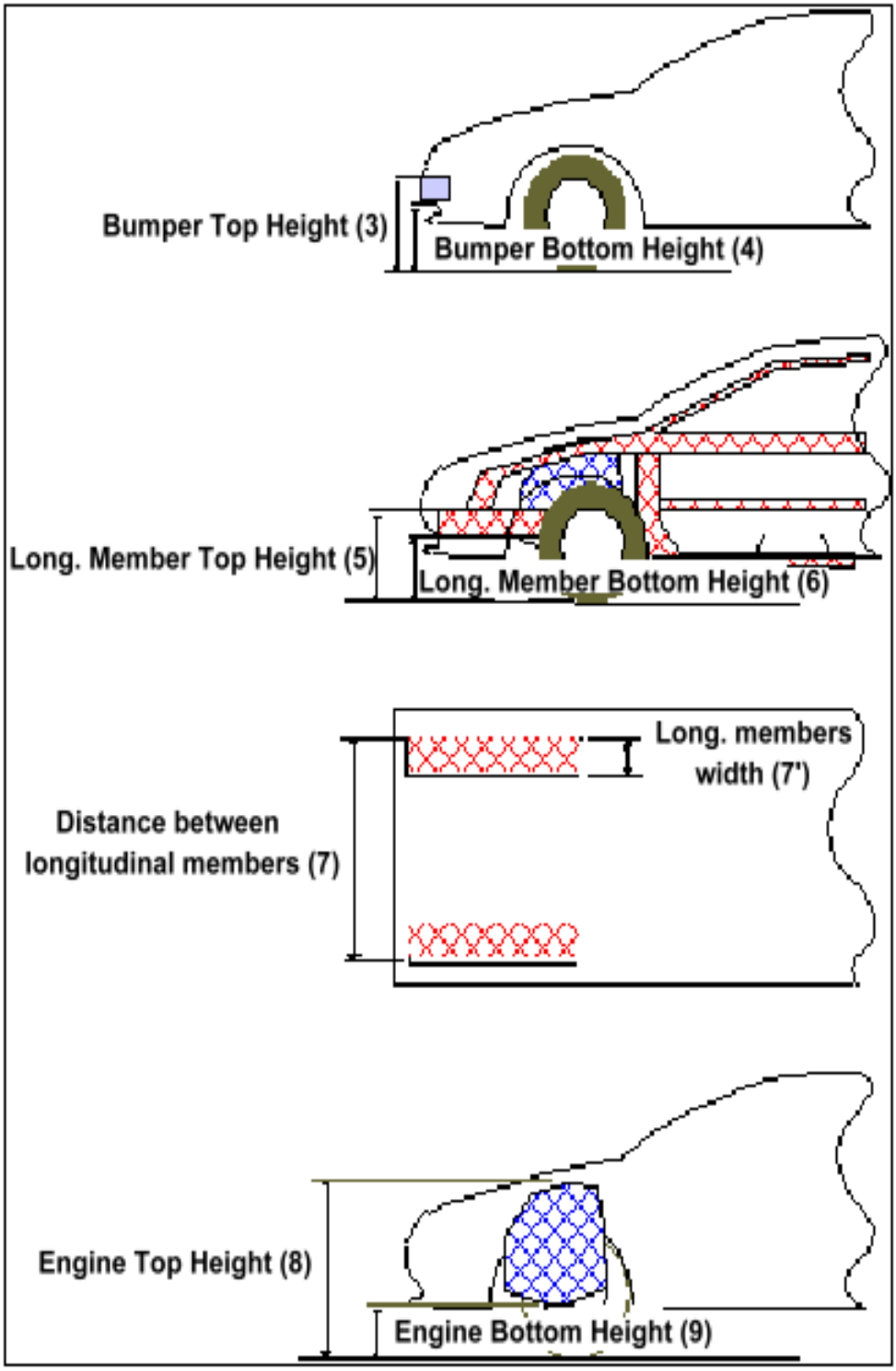

Figure 5.- Definition of the main resistant elements. Front elements.

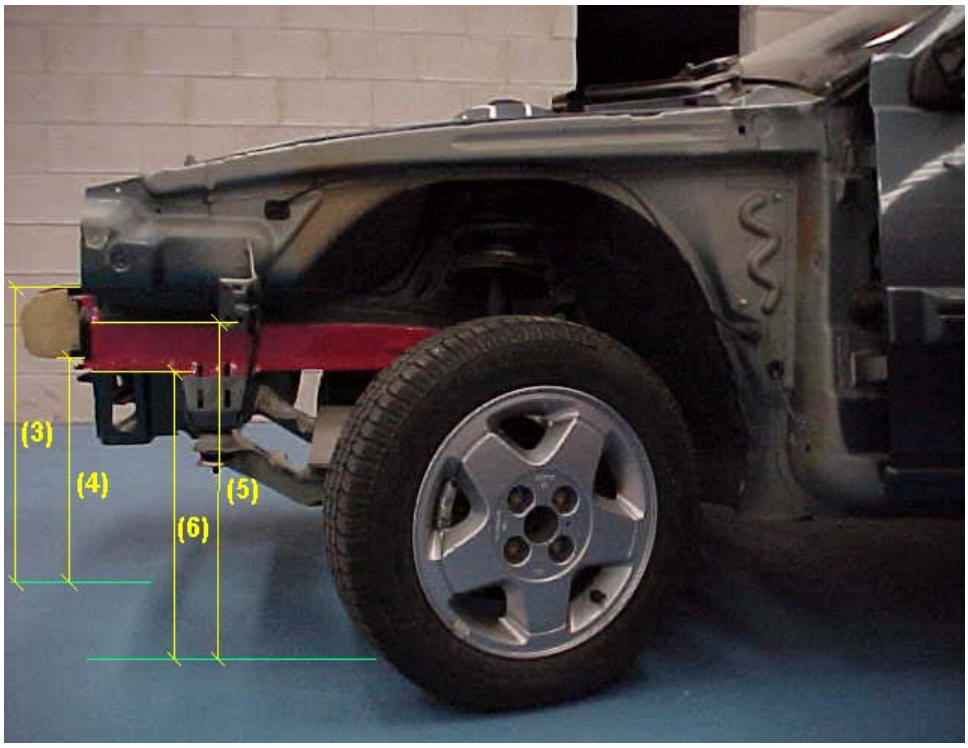

Figure 6.- Measurements of the main resistant elements. Front elements 1.

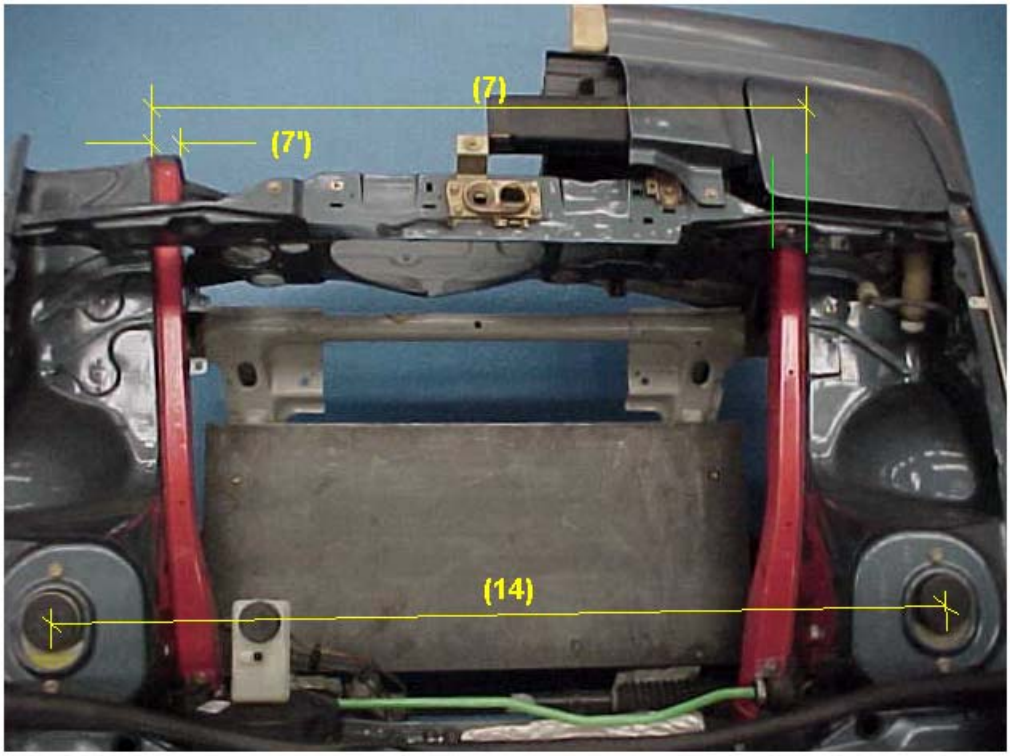

Figure 7.- Measurements of the main resistant elements. Front elements 2.

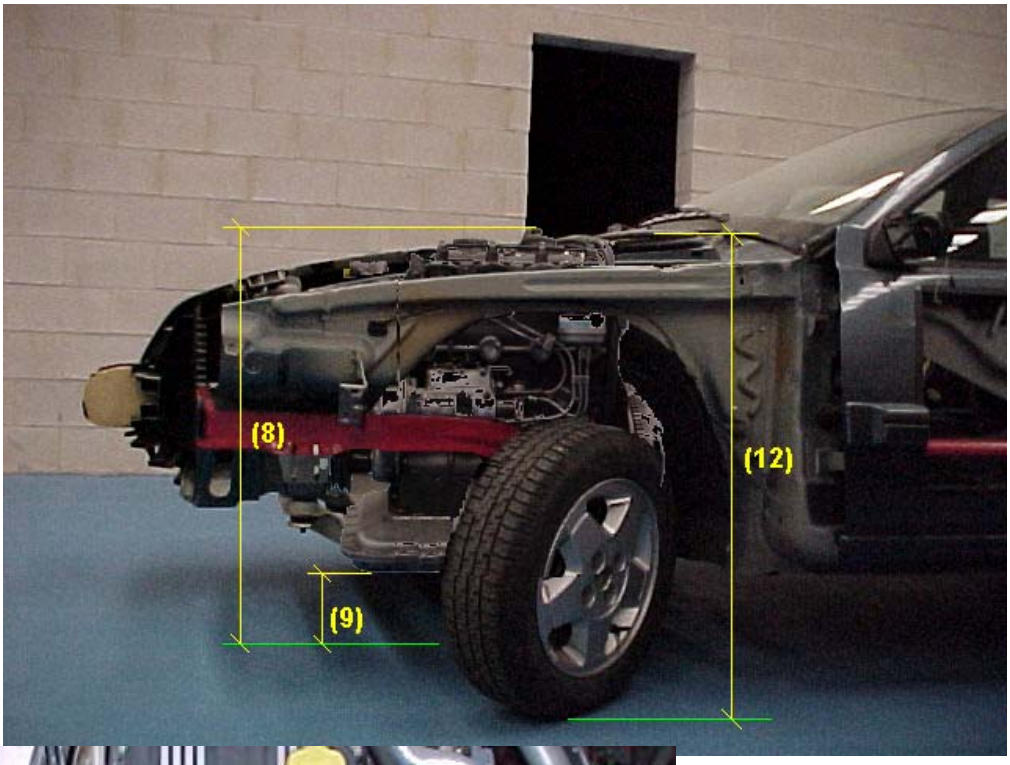

Figure 8.- Measurements of the main resistant elements. Front elements 3.

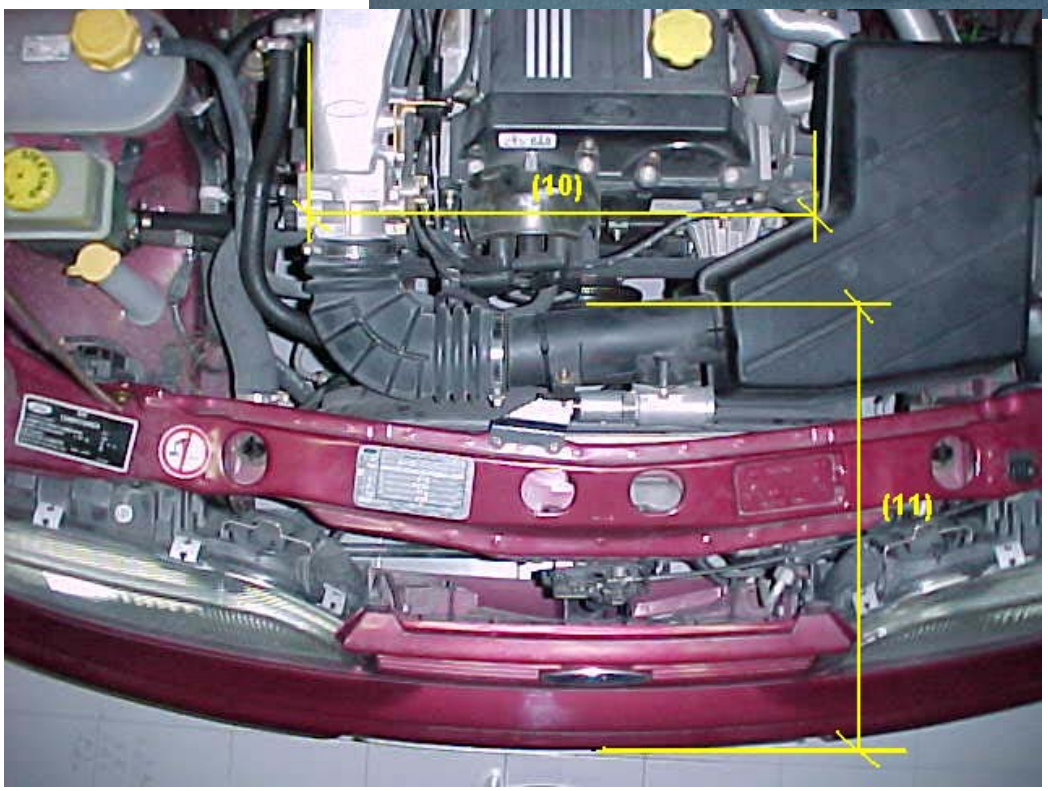

Figure 9.- Definition of the main resistant elements. Front elements (Longitudinal engine).

The procedure considered to measure these elements is described as follows, where it is indicated the location of these ones in the Excel Sheet (SURVEY.XLS) into brackets:

FRONT ELEMENTS

• **Total Length –(1)- (Side & Front Sheets - C column)**: distance between the point in the front bumper further on and the point in the rear bumper further back.

• **Weight (Side & Front Sheets - D column)**: mass, including an average driver weight (70 kg), and the fuel tank mass (at half-capacity).

• **Total Width –(2)- (Side & Front Sheets - E column)**: distance between the outer side points in a transverse plane of the vehicle (middle plane between the front and rear axles).

• **Bumper bottom height –(4)- (Front Sheet G column)**: distance between the ground and the lowest point on the front bumper, being a resistant member (aerodynamic elements under the front bumper are not considered).

• **Bumper top height –(3)- (Front Sheet H column)**: distance between the ground and the highest point on the front bumper, being a resistant member (aerodynamic elements are not considered).

• **Longitudinal member top height –(5)- (Front Sheet I column)**: distance between the ground and the highest point on the longitudinal members, measured approximately in the front bumper-longitudinal member joint (when accessible).

• **Longitudinal member bottom height –(6)- (Front Sheet J column)**: distance between the ground and the lowest point on the longitudinal members, measured approximately in the front bumper-longitudinal member joint.

• **Distance between longitudinal members (Front Sheet K column)**: transverse distance between extreme points in longitudinal members, measured approximately in the front bumper-longitudinal member joint.

Depending on the accessibility of these members, the extreme points are the inner points (I) or the outer points (O).

• **Longitudinal member width -7'- (Front Sheet L column)**: width of one of the longitudinal members, measured approximately in the front bumper-longitudinal member joint.

• **Engine top height (8) (Front Sheet N column)**: distance between the ground and the highest point on the engine that can be a resistant member in case of accident (usually, the highest point on the head, or the highest point of the inlet or exhaust manifolds).

• **Engine bottom height (9) (Front Sheet M column)**: distance between the ground and the lowest point on the engine (usually, the lowest point on the crankcase).

• **Engine and Gearbox width (10) (Front Sheet O & P columns)**:

- Transverse *configuration engine*: distance between extreme points in the gearbox-cylinder block unit or others resistant members attached to the cylinder block unit, i.e. fan belts (from a front point of view).

- *Longitudinal configuration engine*: distance between extreme points in the cylinder block unit (from a front point of view).

• **Front bumper - Engine distance (11) (Front Sheet Q column)**: distance between the point in the front bumper further on and the point in the engine further on that is a resistant element, i.e. the further on point of the exhaust manifold placed in the front of the engine.

• **Front shock absorber fixing width (14) (Front Sheet R column)**: transverse distance between the front shock absorber - body car joints.

• **Front shock absorber fixing height (12) (Front Sheet S column)**: distance between the ground and the front shock absorber-body car joint.

• **Bonnet leading edge height (Front Sheet T column)**: distance between the ground and the bonnet edge further on.

SIDE ELEMENTS

• **Front bumper - Front axle distance (15) (Side Sheet G column)**: distance between the point in the front bumper further on and the middle point in the front tyre-road contact patch.

• **Front axle - A Pillar distance (16) (Side Sheet H column)**: distance between the middle point in the front tyre-road contact patch and the point in the A-pillar further back.

• **A Pillar - B Pillar distance (17) (Side Sheet I column)**: distance between the point in the A-pillar further back and the middle point in the B-pillar.

• **B Pillar - C Pillar distance (19) (Side Sheet J column)**: distance between the middle point in the B-pillar and the point in the C-pillar further back (only 4/5-door vehicles).

• **B Pillar - Rear axle distance (18) (Side Sheet K column)**: distance between the middle point in the B-pillar and the middle point in the rear tyre-road contact patch.

• **Roof sill bottom height (20) (Side Sheet L column)**: distance between the ground and the lowest point on the roof sill, measured in the front door middle point.

• **Roof sill top height (21) (Side Sheet M column)**: distance between the ground and the highest point on the roof sill (usually located in the sill-roof joint), measured in the front door middle point.

• **Floor sill bottom height (22) (Side Sheet N column)**: distance between the ground and the lowest point on the floor sill, measured in the front door middle point.

• **Floor sill top height (23) (Side Sheet O column)**: distance between the ground and the highest point on the floor sill, measured in the front door middle point.

NOTE

- N/A: dimension not available.