Vehicle Research and Test Center

Oblique Side Pole Impact

WorldSID

2010 Suzuki SX4

TRC Inc. Test Number: 110801

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Final Report

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TRC TEST NUMBER: 110801

Project Manager, Margaret Susan

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Transportation Research Center Inc.

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Section 1.0

Purpose and Test Procedure

Purpose

This side impact test is part of FMVSS 214 Oblique Pole Side Impact Protection. It was conducted for the National Highway Traffic Safety Administration (NHTSA) and Vehicle Research and Test Center (VRTC) by Transportation Research Center Inc. (TRC Inc.). The purpose of this test was to refine the seating procedure for the 50th male WorldSID dummy and to begin to evaluate the performance of the post-FMVSS 214 fleet with the new dummy. The test was conducted in accordance with the National Highway Traffic Safety Administration's test procedure TP-214P-00 Draft4FR, August 2007.

Section 2.0

Side Impact Test

Summary of Side Impact Test

A 2010 Suzuki SX4 impacted an oblique rigid pole barrier at an angle of 75.0° between the line of forward motion and the centerline of the vehicle, at a velocity of 31.9 km/h (19.8 mph). The pole was aligned with the dummy's head center of gravity. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, Ohio on August 1, 2011. Pre-test and post-test photographs of the test vehicle, the rigid pole barrier, and the side impact dummy (WorldSID) are included in Appendix A.

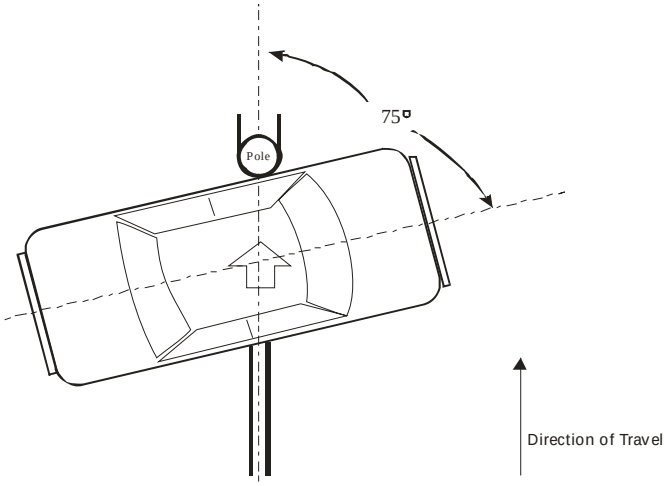
One restrained Side Impact Dummy (WorldSID) S/N 014, was placed in the driver (Position #1) designated seating position and seated using both the FMVSS 214 and the WorldSID Seating Procedure Draft Version 5.4. The seat cushion pitch and height were determined by FMVSS 214 instructions and set accordingly. This is the third test since the WorldSID was calibrated. The side impact test was documented by one (1) real-time camera and nine (9) high-speed digital cameras. Camera locations and other pertinent camera information are included in this report.

The driver front airbag, passenger front airbag, and passenger side curtain and torso airbags were disabled prior to the test performance.

The WorldSID instrumentation is detailed in Table 4. One-Hundred-and-One (101) dummy channels of acceleration, force, moment, and displacement data were collected for this test. Data was collected from one 40-channel chest band which was installed directly on the rib as detailed in Appendix E.

A summary of the side impact dummy (WorldSID) configuration and verification test data can be found in Appendix C. A total of 135 channels of data were recorded. Appendix B contains the vehicle, barrier, and dummy response data traces.

Test Results Summary



	Front WorldSID (#014)
HIC36 CFC 1000	195
Thorax Rib Deflection (mm) CFC 600	
Rib 1	24
Rib 2	30
Rib 3	35
Abdomen Rib Deflection (mm) CFC 600	
Rib 1	42
Rib 2	40
Lower Spine Resultant (g) CFC 180	53.3
Pubic Symph. Force (N) CFC 600	1107

	2010 Suzuki SX4
Vehicle Test Weight	1363.8 kg (3006.7 lbs)
Impact Point (Horizontal)-behind center of front axle	1266 mm
Impact Angle	75.0
Maximum Crush	284 mm Level 3
Impact Speed	31.9 km/h

Data Acquisition Explanations

The Abdominal Rib 2 X-axis acceleration data exceeded full scale at 15 ms.

The Lumbar Moment about the Z axis data is suspect.

The Vehicle Center of Gravity X-axis and Y-axis roll rate sensor data exceeded full scale at 40 and 45 ms respectively. The X-, Y-, and Z-axis data is suspect.

The Left Front Door Midrear Y-axis accelerometer was damaged at 10 ms.

The Left Front Door on Centerline Y-axis accelerometer was damaged at 11 ms.

Section 3

Summary of Test Results

Table 1 General Test Vehicle Parameter Data

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11

TEST VEHICLE INFORMATION

Make	Suzuki
Model	SX4
Body Style	4-door
VIN	J32YC5A24A6302712
Color	Silver
Odometer Reading	28
Transmission	Manual
Final Drive	Front wheel drive
Number of Cylinders	4
Engine Displacement	2.0L
Engine Placement	Transverse
Air Conditioning	Yes
Power Windows	Yes
Power Seats	No
Cruise Control	No
Tinted Glass	Yes
Keyless Entry	No

TEST VEHICLE OPTIONS

Driver Front Airbag	Yes[1]
Driver Side Curtain Airbag	Yes
Driver Side Torso Airbag	Yes
Rear Passenger Side Curtain Airbag	Yes
Rear Passenger Side Torso Airbag	---[2]
Power Steering	Yes
Power Door Locks	Yes
Tilt Wheel	Yes
Anti-lock Brakes	Yes
Traction Control	No
Bucket Seats	Yes
Rear Defroster	Yes
2-Door/4-Door	4
AM/FM Radio	Yes
CD Player	Yes
Sun Roof	No
Telescoping Steering Wheel/Column	No

DATA FROM CERTIFICATION LABEL

Manufactured By	Suzuki Motor Corporation
Date of Manufacture	11/09

GVWR (kg)	1710
GAWR Front (kg)	960
GAWR Rear (kg)	870

Measured Parameter	Front	Mid	Rear	Total
Type of Seats	Bucket	Not Applicable	Split Bench	
Number Of Occupants	2	Not Applicable	3	5
Capacity Wt. (VCW) (kg)				385

[1] Airbags were disabled prior to the test performance
[2] Not applicable to test mode.

Table 1 General Test Vehicle Parameter Data, Continued

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11

TEST VEHICLE WEIGHTS

	Units	As Delivered (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	375.8	252.6		414.8	268.4	
Right	kg	377.6	242.0		411.8	268.8	
Ratio	%	60.4	39.6		60.6	39.4	
Totals	kg	753.4	494.6	1248.0	826.6	537.2	1363.8

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight	kg	1248.0
Weight of WorldSID ATD	kg	76.0
Rated Cargo/Luggage Weight (RCLW)	kg	45.0
Calculated Vehicle Target Weight (TVTW)	kg	1369.0

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG(aft of front axle)
As Delivered	mm	698	700	706	710	991
As Tested	mm	686	688	693	696	985
Fully Loaded	mm	N/A	N/A	N/A	N/A	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheelbase	mm	2500
Total Vehicle Length at Left Side	mm	4310
Total Vehicle Length at Centerline	mm	4480
Total Vehicle Length at Right Side	mm	4310
Weight of Ballast	kg	0
Amount of Stoddard Solvent in Fuel Tank	liters	0

TEST VEHICLE IMPACT ACCURACY DATA

Measurement Description	Units	Intended	Actual	Difference
Impact Reference Line From Front Axle	mm	1262	1266	4
Impact Point Angle	Degrees	75	75.0	0

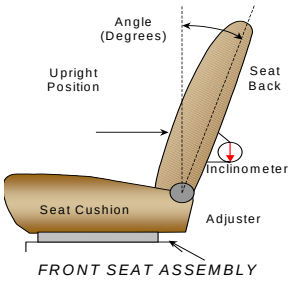
Table 1 General Test Vehicle Parameter Data, Continued

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11

WORLDSID RIDING POSITION

The driver seat back is positioned according to the procedure defined in SAE J826, “Devices for use in Defining and Measuring Vehicle Seating Accommodation”, November, 2008.

Driver seat back angle: The back was adjusted to 23.0° as measured at torso angle with Oscar._The angle as measured at the head restraint post was 10.8°.

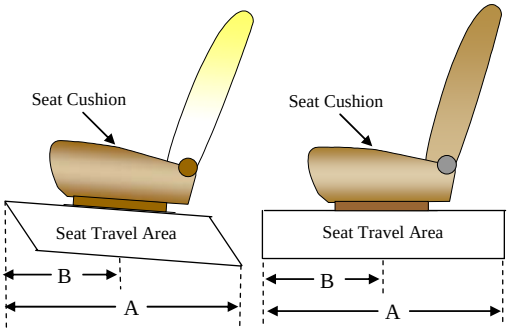


SEAT FORE/AFT POSITIONS

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 20 mm from the longitudinal mid position with vertical adjustment at the lowest position at mid angle obtainable for the driver. The rear seating position was not tested.

SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel	Placed in Position No.
Driver Seat	15 notches	20 mm rear of mid
Rear Seat	Not applicable	Not applicable



SEAT BELT UPPER ANCHORAGE

	Total No. of Positions	Placed in Position No.
Driver Seat	4	1
Rear Seat	Not applicable	Not applicable

Position number one is the uppermost adjustment position.

Table 1 General Test Vehicle Parameter Data, Continued

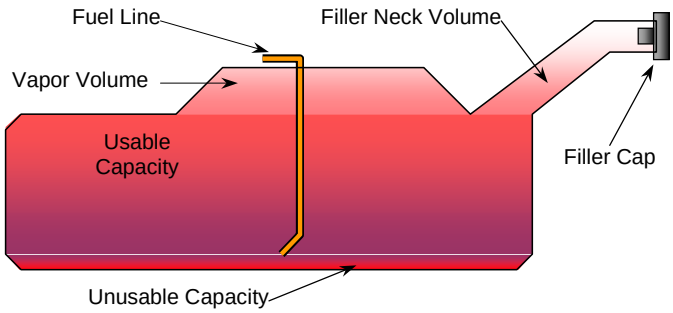
Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11

FUEL TANK

	Liters
Usable Capacity of "Standard Tank"	50.0
Usable Capacity used for FMVSS 301	46-47
Actual Amount of Solvent used	0.0

CAPACITY

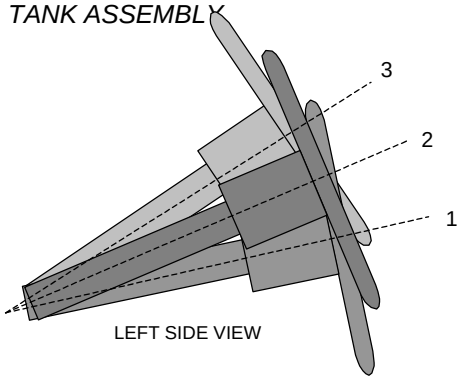
The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender. The standard fuel tank occupies the area under the rear seat.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed on the plate and the angle is measured.



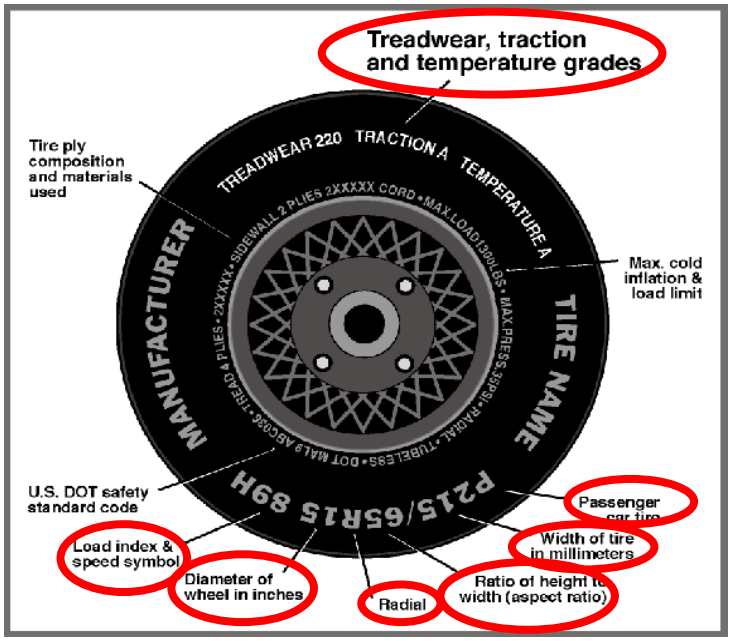
STEERING COLUMN ASSEMBLY

Steering Column Tilt Position	Degrees
Lowermost Position	23.0
Geometric Center Position	23.0
Uppermost Position	29.0

Steering Column Telescoping Position	(mm)
Full In Position	No Feature
Full Out Position	No Feature
Test Position	No Feature

Table 2 Test Vehicle Tire Information

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold / Test Pressure (kPa)	230	230
Recommended Tire Size	P195/65R15	P195/65R15
Tire Size on Vehicle	P195/65R15	P195/65R15
Tire Manufacturer	Yokohama	Yokohama
Tire Name	Avid S33	Avid S33
Radial	Yes	Yes
Wheel Diameter	15	15
Load Index & Speed Symbol	89H	89H
Treadwear	200	200
Traction Grade	B	B
Temperature Grade	A	A

Table 3 Post-Test Observations

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat WorldSID
Dummy Type / Serial No.	WorldSID / 014
Head Contact	Side curtain airbag, head restraint
Upper Torso Contact	Side seat airbag
Lower Torso Contact	Door panel, side seat airbag
Left Knee Contact	Door panel
Right Knee Contact	None

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Locked/Unlocked Doors	Unlocked	Unlocked
Left Side Door Opening	Jammed and latched	Jammed 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 vehicle
Sill Separation	Did not separate from vehicle
Windshield Damage	Windshield cracked
Window Damage	Driver's side window shattered
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 01	
	Installed	Operation
Front Airbag	Yes	No[1]
Torso Airbag	Yes	Yes
Head Airbag	No	Not applicable
Curtain Airbag	Yes	Yes
Seat Belt Pretensioner	Yes	Unknown
Seat Belt Load Limiter	No	Not applicable

[1] The driver front airbag was disabled for this test.

Section 4

Occupant and Vehicle Information

Table 4 WorldSID Instrumentation Data

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11

Driver Dummy Serial Number: 014

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Head Acceleration (g)	X	3.3	142.3	-15.3	57.9
	Y	40.8	57.4	-8.1	147.2
	Z	10.0	33.0	-6.2	70.6
	R	43.7	57.4		
Head Angular Displacement (rad/sec^2)	X	2077.5	99.2	-1372.1	139.2
	Y	1158.8	70.4	-1735.3	54.6
	Z	1402.4	54.9	-746.4	67.0
Upper Neck Force (N)	X	202.6	56.4	-119.3	141.8
	Y	160.6	39.9	-324.5	147.2
	Z	154.0	145.1	-562.5	53.3
Upper Neck Moment (N-m)	X	31.7	61.5	-26.5	98.5
	Y	15.1	74.9	-33.7	55.7
	Z	10.2	221.6	-6.0	73.3
Lower Neck Force (N)	X	359.6	45.0	-136.4	57.2
	Y	241.1	34.6	-277.5	99.3
	Z	419.1	145.2	-1084.8	55.1
Lower Neck Moment (N-m)	X	22.1	278.2	-63.5	149.4
	Y	21.5	283.6	-29.7	124.4
	Z	11.5	46.1	-8.0	283.0
Shoulder Force (N)	X	-0.2	-9.2	-656.0	45.6
	Y	1177.3	54.4	-223.9	42.2
	Z	111.2	14.5	-781.7	45.9
Shoulder Displacement (mm)	Y	24.9	53.8	-24.9	257.8
Shoulder Acceleration (g)	X	75.2	14.3	-81.0	15.2
	Y	227.5	45.4	-144.7	13.8
	Z	188.6	14.7	-208.6	15.4
	R	252.1	15.4		

Table 4 WorldSID Instrumentation Data, Continued

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11

Driver Dummy Serial Number: 014

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
T1 Acceleration (g)	X	7.2	42.1	-19.3	48.6
	Y	47.0	49.6	-12.5	18.0
	Z	14.3	50.6	-4.6	134.0
	R	52.3	49.5		
T4 Acceleration (g)	X	5.4	42.2	-10.2	49.8
	Y	48.4	50.0	-11.5	90.3
	Z	15.4	50.1	-4.9	134.2
	R	51.8	50.0		
T12 Acceleration (g)	X	14.5	50.0	-13.0	19.9
	Y	52.3	46.5	-13.7	85.4
	Z	6.4	51.2	-5.2	133.5
	R	53.3	46.6		
Thorax Rib 1 Displacement (mm)	Y	23.6	50.9	-1.1	201.6
Thorax Rib 1 Acceleration (g)	X	39.0	16.3	-32.4	53.0
	Y	126.9	45.4	-45.8	49.2
	Z	42.7	28.8	-24.2	18.2
	R	126.9	45.4		
Thorax Rib 2 Displacement (mm)	Y	29.6	52.0	-0.5	13.9
Thorax Rib 2 Acceleration (g)	X	29.4	14.1	-36.1	22.1
	Y	129.2	43.1	-30.9	47.3
	Z	26.5	28.5	-24.6	17.0
	R	129.6	43.1		
Thorax Rib 3 Displacement (mm)	Y	34.8	50.6	-0.5	13.6
Thorax Rib 3 Acceleration (g)	X	71.0	13.5	-40.0	14.6
	Y	137.5	41.1	-38.2	44.5
	Z	34.3	24.0	-29.5	39.4
	R	138.0	41.1		

Table 4 WorldSID Instrumentation Data, Continued

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11

Driver Dummy Serial Number: 014

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Abdominal Rib 1 Displacement (mm)	Y	42.2	48.8	-0.4	6.7
Abdominal Rib 1 Acceleration[1] (g)	X	103.5	12.4	-163.1	14.2
	Y	230.1	14.2	-70.9	19.0
	Z	45.8	19.8	-71.9	39.0
	R	282.1	14.2		
Abdominal Rib 2 Displacement (mm)	Y	39.9	46.5	-1.3	83.8
Abdominal Rib 2[1] Acceleration (g)	X	196.8	15.4	-412.3	15.0
	Y	258.2	15.0	-132.8	17.7
	Z	67.3	17.5	-74.1	40.8
	R	480.3	15.0		
Thorax Rib 1 Rotational Pot (deg)	Z	36.9	55.0	-1.3	272.5
Thorax Rib 2 Rotational Pot (deg)	Z	29.4	51.7	0.9	91.8
Thorax Rib 3 Rotational Pot (deg)	Z	18.4	44.8	-3.0	84.4
Abdominal Rib 1 Rotational Pot (deg)	Z	9.2	43.2	-10.1	81.5
Abdominal Rib 2 Rotational Pot (deg)	Z	3.3	44.4	-12.6	79.1
Lumbar Force (N)	X	601.1	52.8	-240.9	17.6
	Y	958.7	50.1	-391.3	82.0
	Z	-1.5	-19.5	-1775.4	56.5
Lumbar Moment[1] (N-m)	X	67.3	50.0	-20.0	89.3
	Y	9.3	18.1	-27.9	53.5
	Z	0.0	-1.6	0.0	-14.2
Pelvis Acceleration (g)	X	20.2	43.2	-13.4	33.2
	Y	65.1	39.1	-15.3	81.5
	Z	13.8	24.0	-28.2	45.5
	R	69.3	39.8		
Sacro-Iliac Left Force (N)	X	236.5	86.1	-994.8	45.9
	Y	4213.8	39.5	-6.7	-18.7
	Z	46.3	136.7	-818.3	33.1

[1] See Data Acquisition Explanations

Table 4 WorldSID Instrumentation Data, Continued

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11

Driver Dummy Serial Number: 014

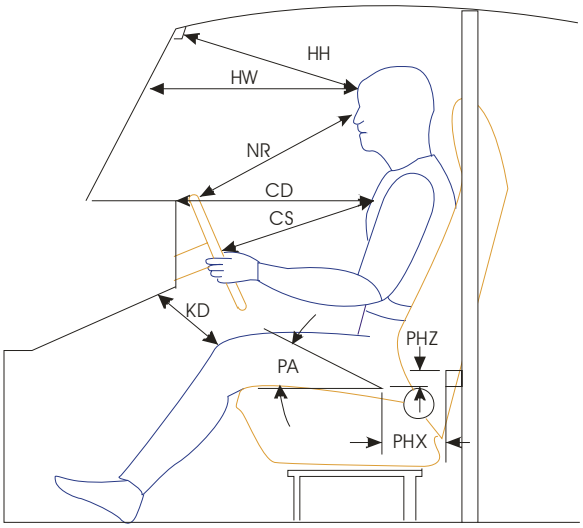
Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Sacro-Iliac Left Moment (N-m)	X	27.0	70.7	-74.8	39.5
	Y	30.9	44.1	-14.2	32.1
	Z	62.5	35.1	-23.5	52.5
Sacro-Iliac Right Force (N)	X	300.0	66.7	-462.8	34.8
	Y	2077.4	40.4	-7.4	10.3
	Z	3.6	-20.0	-1183.9	55.6
Sacro-Iliac Right Moment (N-m)	X	75.9	56.7	-44.6	39.2
	Y	20.6	47.1	-18.8	58.3
	Z	66.8	37.1	-33.3	51.7
Pubic Force (N)	Y	1107.1	38.9	-28.2	15.2
Left Mid Femur Force (N)	X	75.1	54.3	-15.3	177.1
	Y	7.7	-10.5	-703.9	47.4
	Z	54.4	79.4	-1535.0	48.8
Left Mid Femur Moment (N-m)	X	80.5	49.2	-4.3	17.4
	Y	25.4	106.1	-9.5	25.9
	Z	9.7	69.0	-40.4	44.2
Left Femoral Neck Force (N)	X	174.1	44.7	-176.3	69.2
	Y	873.9	45.3	-15.0	14.9
	Z	2397.3	45.2	-7.3	-10.5
Left Knee Outboard Force (N)	Y	299.1	70.3	-432.8	51.2
Left Knee Inboard Force (N)	Y	106.6	33.9	-1267.9	70.5
Right Femoral Neck Force (N)	X	486.7	65.6	-78.7	189.6
	Y	926.3	45.4	-654.0	65.5
	Z	30.9	125.7	-1120.7	58.5

Positive Direction
Longitudinal: Forward
Lateral: Rightward
Vertical: Downward

Negative Direction
Longitudinal: Rearward
Lateral: Leftward
Vertical: Upward

Figure 1 WorldSID Longitudinal Clearance Dimensions

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11



Left Side View

Note: All measurements are in millimeters with tolerance of ±0.1 mm

Measurement	Driver WorldSID # 014
HH	407
HW	713
HZ	218
NR[1]	501
CD	619
CS	395
KDL(KDA°)	117/(6.9°)
KDR(KDA°)	126/(6.2°)
PHX	144
PHZ	150

Note: 2-door vehicle shown. Rear dummy PHX and PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

Location	Measurement
Head X-Angle	0.1°
Head Y-Angle	1.0°
Thorax X-Angle	-0.1°
Thorax Y-Angle	0.0°
Pelvis X-Angle	0.4°
Pelvis Y-Angle	0.5°

Note: Measurements recorded from WorldSID tilt sensors. The neck was moved forward 1 notch to level the head.

[1] NR was measured from bridge of nose

Table 5 WorldSID Position Relative to Striker

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11

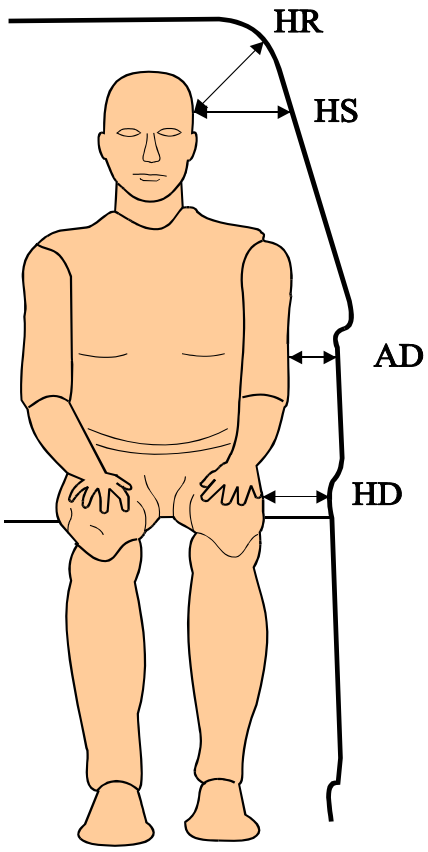
Driver Dummy Serial Number: 014

Location	Longitudinal X (mm)	Vertical Z (mm)
M_HEAD CG	-30.6	-509.3
M_SHOULDER BOLT	NA	NA
M_ELBOW	NA	NA
M_H POINT	144.5	150.0
M_KNEE	559.1	12.3
M_ANKLE	810.4	356.3
M_LOWER NECK	-2.1	-326.1
M_SHOULDER	NA	NA
M_RIB 1	30.3	-285.7
M_RIB 2	68.2	-211.7
M_RIB 3	107.4	-147.6
M_RIB 4	127.7	-98.4
M_RIB 5	144.8	-50.9

Note: All measurements are in millimeters with tolerance of ±0.1 mm
Positive values are forward and down relative to the striker.

Figure 2 WorldSID Lateral Clearance Dimensions

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11

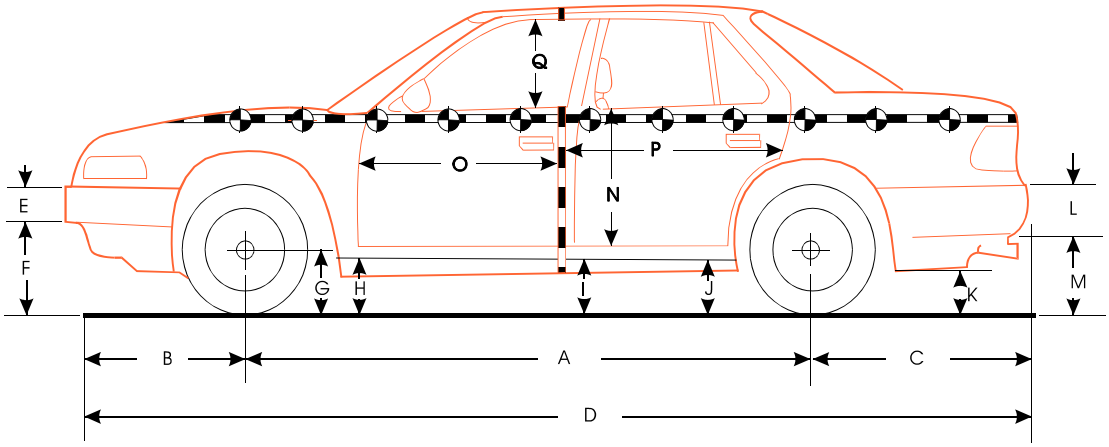


Note: All measurements are in millimeters with tolerance of ±0.1 mm

Measurement	Driver WorldSID # 014
HR	212
HS	325
AD	Lower: 92 Upper: 100
HD	79

Figure 3 Vehicle Pre-Test And Post-Test Measurements

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11



Left Side View

Note: Measurements were achieved by using a tape measure.

All dimensions are in millimeters with tolerance of ±0.1 mm

	Pre-Test (as delivered)	Pre-Test (as tested)	Post-Test (as tested)	Change
A	2500	2500	2445	55
B	900	900	900	0
C	1080	1080	1080	0
D	4480	4480	4420	60
E	145	145	145	0
F	404	ND	407	ND
G	293	300	295	5
G1	251	248	258	-10
H	260	260	270	-10
I	287	280	298	-18
J1	190	182	215	-33
J2	284	280	314	-34
K	318	ND	360	ND
L	222	222	222	0
M	426	ND	490	ND
N	722	722	726	-4
O	792	792	790	2
P	1166	1166	1100	66
Q	510	510	495	15
R	4310	4310	4322	-12
S	4310	4310	4251	59
T	1306	1306	1124	182

D = Length at centerline E and L = Bumper Thickness R = Right Side Length

S = Left Side Length T = Width at B-pillar J1 = To Pinch Weld J2 = To Sill

Table 6 Vehicle Structural Measurements[1,2]

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11

	Elements	Pre-Test
1	Total Length	4480
2	Total Width	724
3	Bumper Top Height	575
4	Bumper Bottom Height	400
5	Longitudinal Member Top Height	575
6	Longitudinal Member Bottom Height	400
7	Distance Between Longitudinal Members	1050
7´	Longitudinal Member Width	120
8	Engine Top Height	800
9	Engine Bottom Height	180
10	Engine and Gearbox Width	800
11	Front Bumper - Engine Distance	410
12	Front Shock Absorber Fixing Height	930
13	Bonnet Leading Edge Height	750
14	Front Shock Absorber Fixing Width	1125
15	Front Bumper - Front Axle Distance	NA
16	Front Axle - A Pillar Distance	575
17	A Pillar - B Pillar Distance	917
18	B Pillar - Rear Axle Distance	1022
19	B Pillar - C Pillar Distance	890
20	Roof Sill Bottom Height	1410
21	Roof Sill Top Height	1475
22	Floor Sill Bottom Height	315
23	Floor Sill Top Height	390

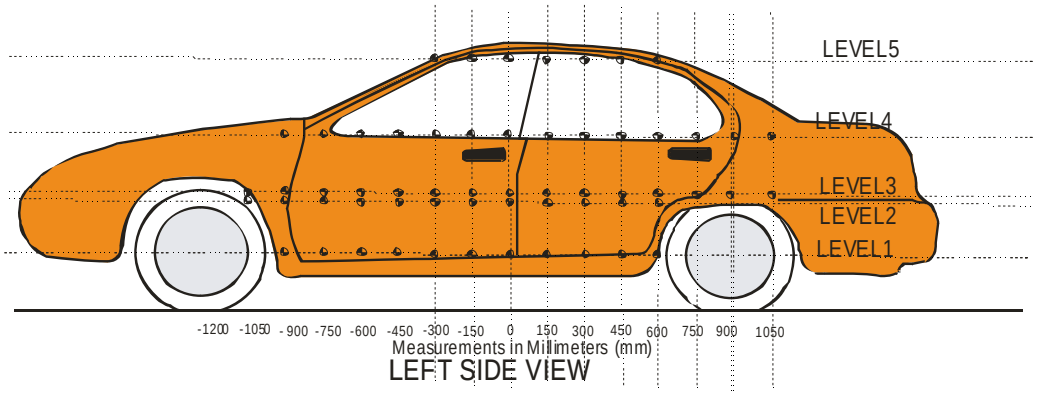
All distance measurements are in millimeters and achieved by using a tape measure.

[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.

Figure 4 Vehicle Side Measurements from Impact Point

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11



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

Measurements vehicle forward of the impact line are negative.

All measurements below in mm.

The target impact point was 89 mm rearward of the crush grid zero point taken at level 2.

Level	Measurement Description	Height Above Ground
5	Window Top	1482
4	Window Sill	883
3	Mid Door	664
2	Occupant H-Point	602
1	Side Sill	371

Vehicle: 2010 Suzuki SX4

Table 7 Vehicle Exterior Crush Profiles - All Levels

Location	Height		(mm) From Impact Point															
			-1500	-1350	-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750
Level 1 Side Sill	371	Pre						829	820	823	825	827	828	828	828	828	827	826
		Post						839	795	757	717	674	614	598	686	724	759	793
		Crush						-10	25	66	108	153	214	230	142	104	68	33
Level 2 H-Point	602	Pre					863	842	845	848	851	852	852	852	852	850	848	846
		Post					892	859	824	777	715	664	597	572	697	736	769	794
		Crush					-29	-17	21	71	136	188	255	280	155	114	79	52
Level 3 Mid-Door	664	Pre				868	855	843	846	849	852	854	855	856	856	853	851	849
		Post				909	885	861	823	776	708	657	592	572	697	739	768	794
		Crush				-41	-30	-18	23	73	144	197	263	284	159	114	83	55
Level 4[1] Window Sill	883	Pre				785	790	790	803	818	830	835	839	824	843	842	842	842
		Post				839	831	818	810	769	713	644	569	544	694	719	746	773
		Crush				-54	-41	-28	-7	49	117	191	270	280	149	123	96	69
Level 5 Window Top	1482	Pre					705	679	651	621	588	555	540	531	527	527	528	536
		Post					753	715	672	627	577	522	478	467	491	513	523	536
		Crush					-48	-36	-21	-6	11	33	62	64	36	14	5	0

All measurements were recorded using TRC Inc.'s FARO Arm with a tolerance of ± 0.1 mm.

Note: Negative measurements are vehicle forward of the impact point.
The crush profile grid is established prior to test day based on an estimated impact point.

[1] The target impact point was 89 mm rearward of the crush grid zero line.

Vehicle: 2010 Suzuki SX4

Table 7 Vehicle Exterior Crush Profiles - All Levels, Continued

Location	Height		(mm) From Impact Point												
			900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700
Level 1 Side Sill	371	Pre	836												
		Post	832												
		Crush	4												
Level 2 H-Point	602	Pre	851	865											
		Post	827	856											
		Crush	24	9											
Level 3 Mid-Door	664	Pre	849	864											
		Post	820	856											
		Crush	29	8											
Level 4 Window Sill	883	Pre	840	817	835										
		Post	799	804	846										
		Crush	41	13	-11										
Level 5 Window Top	1482	Pre	551	571	595										
		Post	554	574	597										
		Crush	-3	-3	-2										

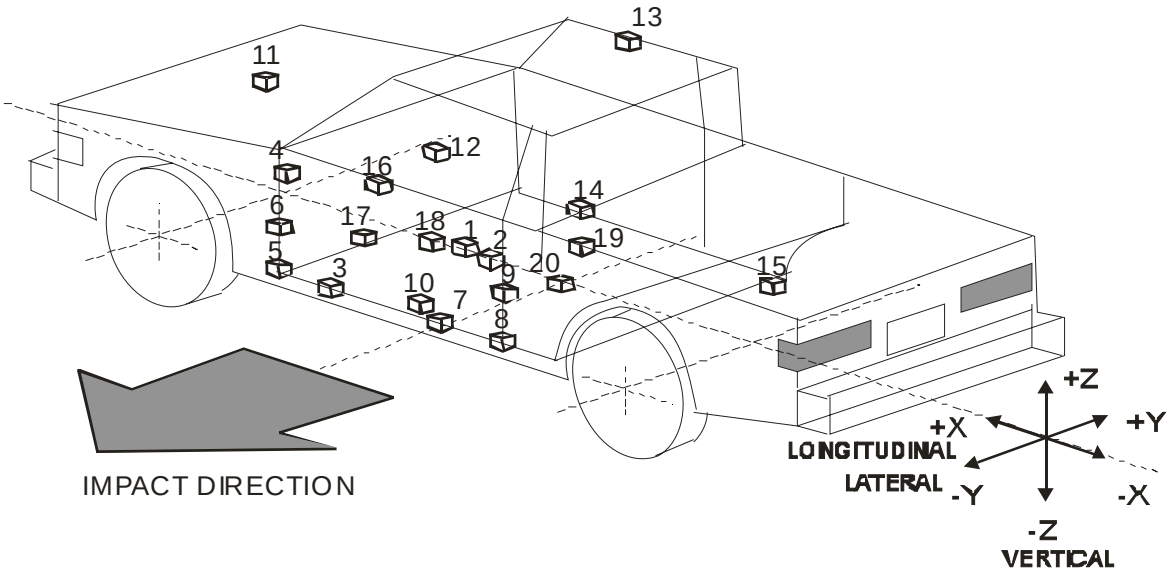
All measurements were recorded using TRC Inc.'s FARO Arm with a tolerance of ± 0.1 mm.

The crush profile grid is established prior to test day based on an estimated impact point.

[1] The target impact point was 89 mm rearward of the crush grid zero line.

Figure 5 Test Vehicle Accelerometer Locations and Data Summary

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11



1-Vehicle Center of Gravity
2-Vehicle Center of Gravity Gyroscopes
3-Left Floor Sill Between A-Pillar and Impact Line
4-Left Side Sill at A-Pillar
5-Left Side Lower A-Pillar
6-Left Side Middle A-Pillar
7-Left Side Sill at Rear Seat
8-Left Side Lower B-Pillar
9-Left Side Middle B-Pillar
10-Left Side Front Seat Track at H-point
11-Top of Engine
12-Center Firewall
13-Right Side Roof Rail
14-Right Side Floor Sill
15-Rear Deck Behind Rear Axle
16-Front Door Upper Centerline
17-Front Door Centerline
18-Front Door Mid Rear
19-Rear Door Upper Centerline
20-Rear Door Mid Rear

Table 8 Test Vehicle Accelerometer Locations and Data Summary

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11

Location		Coordinates (mm)			Positive Direction Max.	Positive Direction Time	Negative Direction Max.	Negative Direction Time
		X	Y	Z	(g)	(ms)	(g)	(ms)
1	Vehicle CG	2595	15	390				
	Longitudinal				8.6	31.8	-14.6	44.0
	Lateral				28.0	46.5	-0.4	250.5
	Vertical				9.4	38.6	-10.9	27.7
	Resultant				30.0	46.4		
2	Vehicle CG Gyroscopes[1]	2595	-15	390				
	Longitudinal ^{0}/sec				197.9	35.4	-63.5	308.0
	Lateral ^{0}/sec				237.4	28.0	-154.0	53.3
	Vertical ^{0}/sec				17.2	75.8	-20.8	82.2
3	Left Side Sill Between A-Pillar and Impact Line[1]	2980	-705	365				
	Lateral				48.5	12.2	-10.2	21.4
4	Left Side Sill at A-Pillar	3210	-695	365				
	Lateral				26.0	23.2	-5.1	40.6
5	Left Side Lower A-Pillar	3245	-788	495				
	Lateral				21.6	23.9	-7.4	10.7
6	Left Side Middle A-Pillar	3220	-793	825				
	Lateral				13.6	46.0	-1.5	2.7
7	Left Side Sill at Rear Seat	2060	-720	372				
	Lateral				40.6	14.7	-9.6	43.0
8	Left Side Lower B-Pillar	2275	-793	550				
	Lateral				80.5	12.2	-11.0	22.2
9	Left Side Middle B-Pillar	2245	-788	890				
	Lateral				53.3	15.8	-9.0	11.5

[1] See Data Acquisition Explanations

Table 8 Test Vehicle Accelerometer Locations and Data Summary, Continued

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11

Location		Coordinates (mm)			Positive Direction		Negative Direction	
		X	Y	Z	Max. (g)	Time (ms)	Max. (g)	Time (ms)
10	Left Side Front Seat Track at H-Point	2435	-520	358				
	Lateral				55.1	32.7	-6.6	39.6
11	Top of Engine	4095	0	775				
	Longitudinal				18.3	36.7	-3.5	87.7
	Lateral				14.3	61.9	-3.1	189.9
12	Firewall	3630	0	855				
	Lateral				12.5	47.3	-1.1	4.0
13	Right Side Roof Rail	2545	521	1440				
	Lateral				25.6	41.8	-1.6	49.9
14	Right Side Sill	2665	705	345				
	Lateral				23.8	47.3	-1.0	252.4
15	Rear Deck Behind Rear Axle	1375	0	485				
	Longitudinal				2.7	104.8	-9.2	32.0
	Lateral				28.3	46.2	-0.9	263.5
16	Front Door Upper Centerline	2754	-725	910				
	Lateral				64.5	15.7	-83.8	23.7
17	Front Door Centerline[1]	2754	-740	690				
	Lateral				349.0	25.3	-373.5	20.4
18	Front Door Mid Rear[1]	2422	-727	665				
	Lateral				114.5	11.6	-69.6	17.1
19	Rear Door Upper Centerline	1855	-728	955				
	Lateral				59.7	26.2	-12.4	40.2
20	Rear Door Mid Rear[1]	1600	-710	770				
	Lateral				75.1	24.2	-26.1	30.1

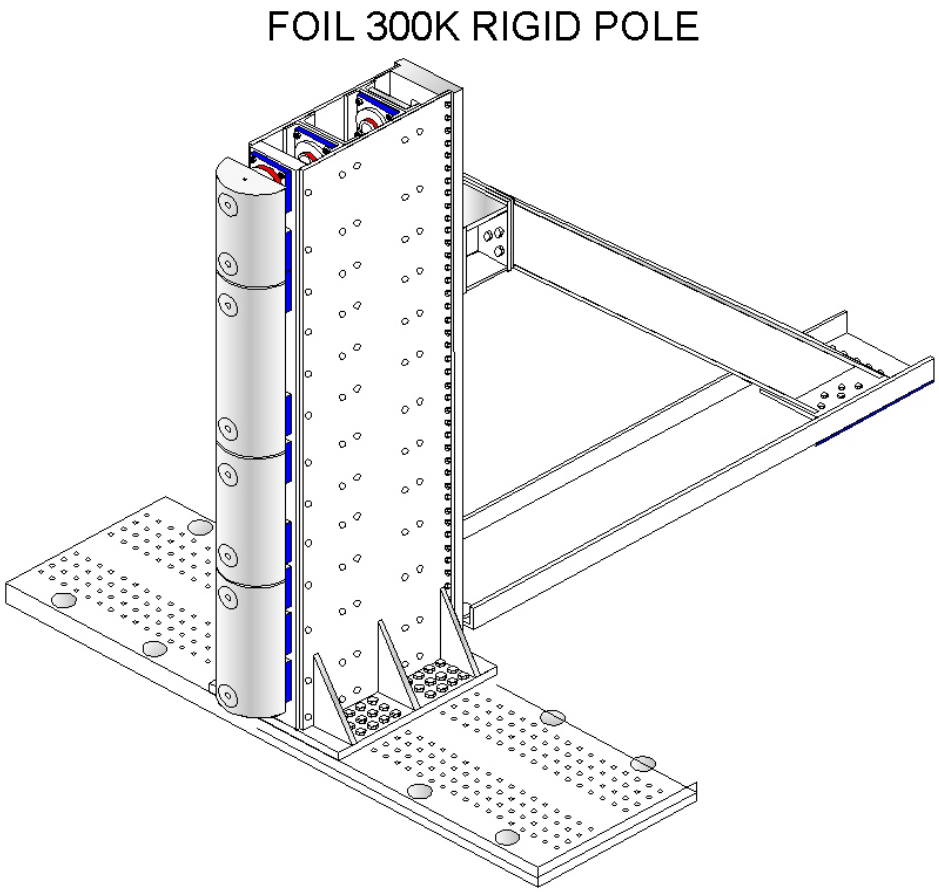
Reference: X: + Forward from rear bumper
Y: + Rightward from vehicle centerline
Z: + Upward from ground level

For acceleration data sign convention see Report Sign Convention in Appendix D.

[1] See Data Acquisition Explanations

Figure 6 Pole Load Cell Locations

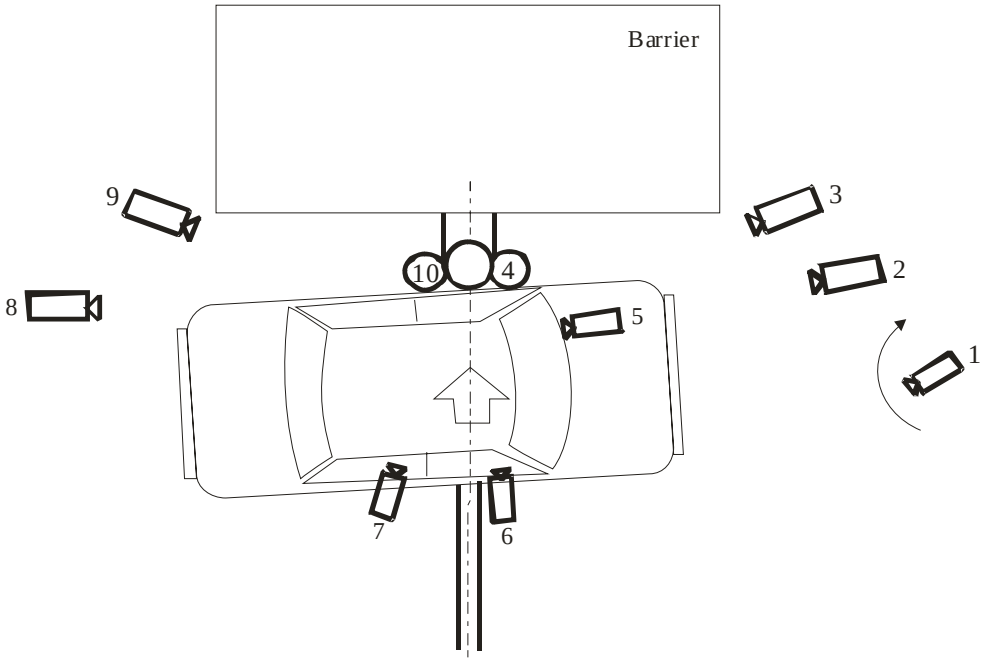
Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11



Load Cell Locations	
ID	**Height From Top of Carrier (mm)**
1	87
2	468
3	648
4	978
5	1168
6	1651
7	1816
8	2057

Figure 7 High-Speed Camera Locations and Data Summary

Test Vehicle: 2010 Suzuki SX4 Test Date: 08/01/11



No.	Camera View	Lens (mm)	Speed (fps)
1	Real-time	Zoom	30
2	Front view	25	1000
3	Front oblique	12.5	1000
4	Overhead tight	25	1000
5	Onboard vehicle front	12.5	1000
6	Onboard right front door	8.5	1000
7	Onboard right rear door	6.0	1000
8	Rear view	25	1000
9	Rear oblique view	12.5	1000
10	Overhead wide view	8.5	1000

Vehicle was at a 75° angle to the rigid pole.

Appendix A

Photographs

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 Front Tight View

Figure A-6 Post-Test Left Front Tight View

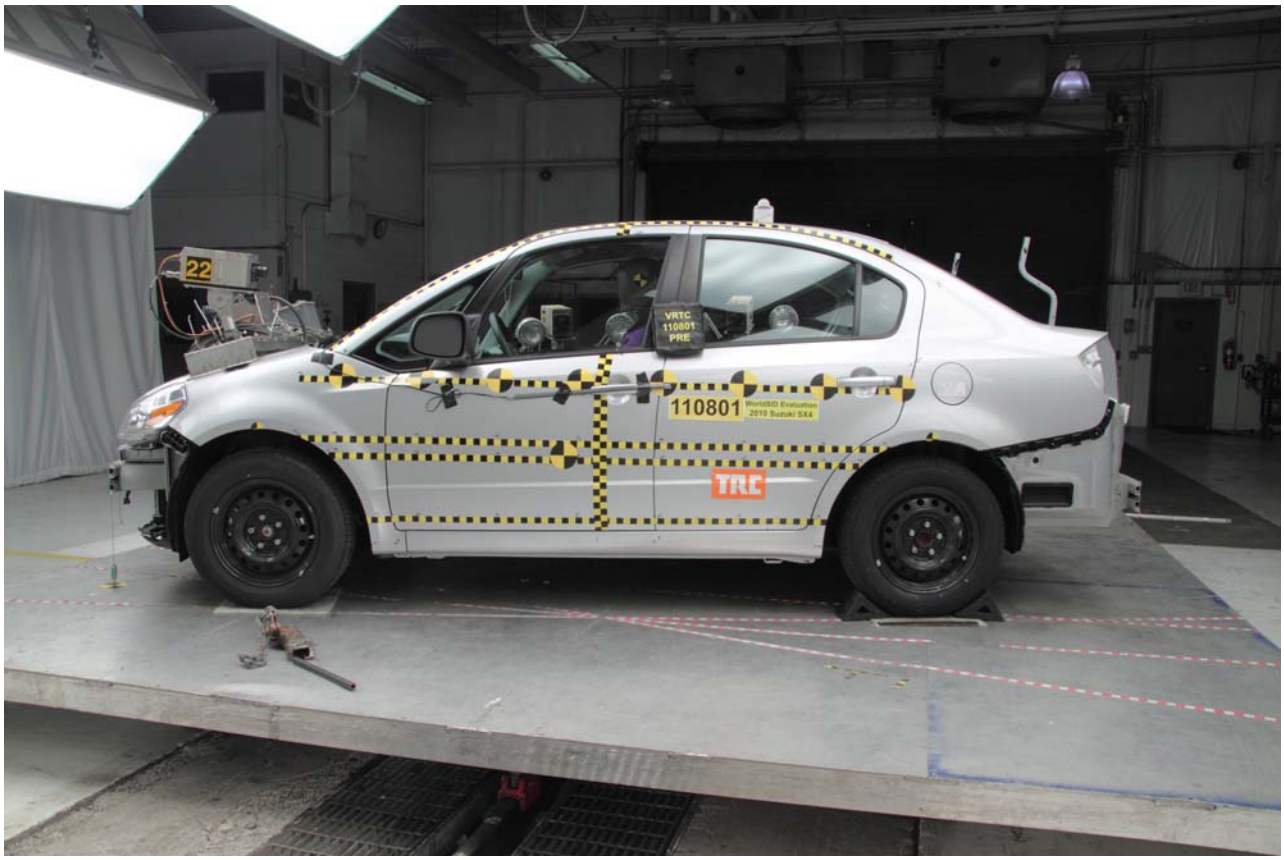


Figure A-7 Pre-Test Left Side View

Figure A-8 Post-Test Left Side View

Figure A-9 Pre-Test Left Rear View

Figure A-10 Post-Test Left Rear View

Photograph Not Taken

Figure A-11 Pre-Test Left Rear Tight View

Figure A-12 Post-Test Left Rear Tight View

Figure A-13 Pre-Test Rear View

Figure A-14 Post-Test Rear View

Figure A-15 Pre-Test Right Side View

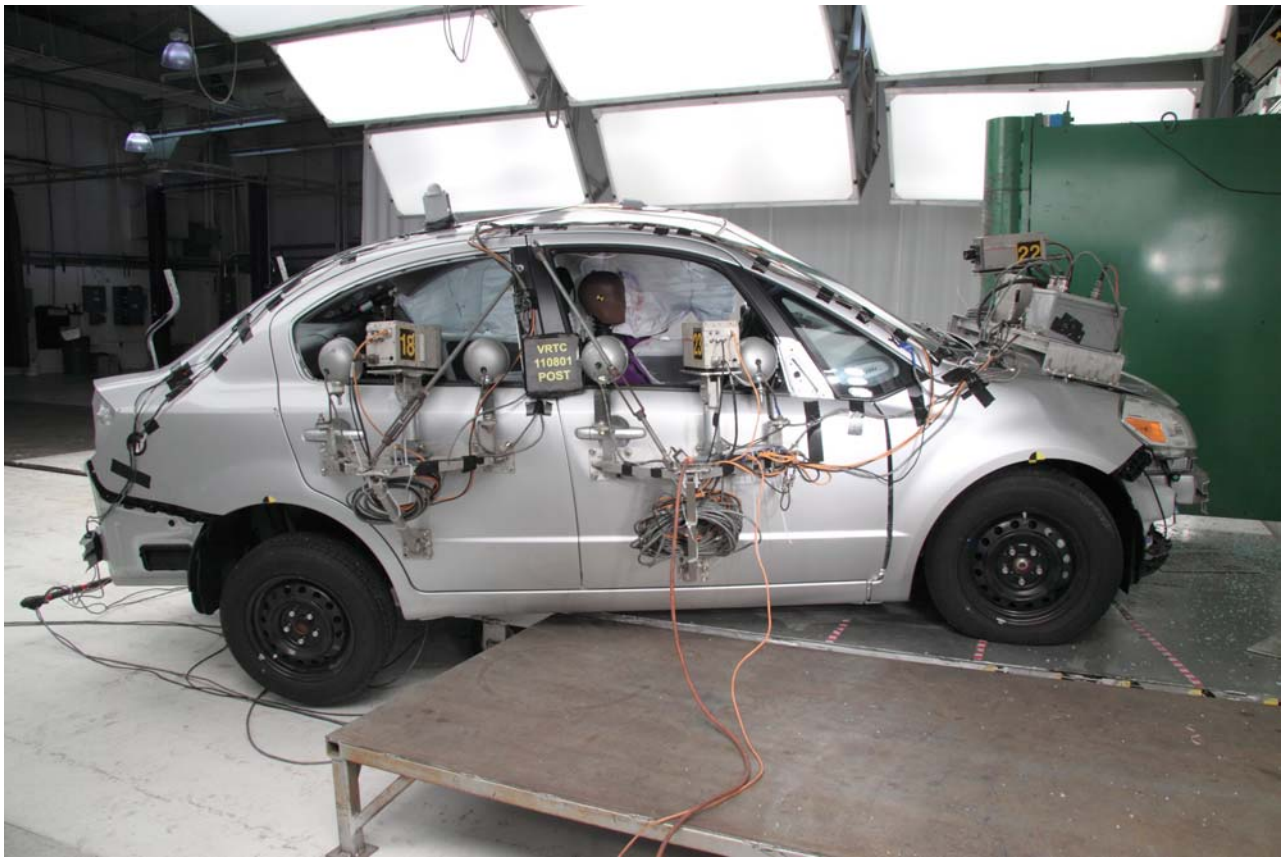


Figure A-16 Post-Test Right Side View

Figure A-17 Pre-Test Overhead View

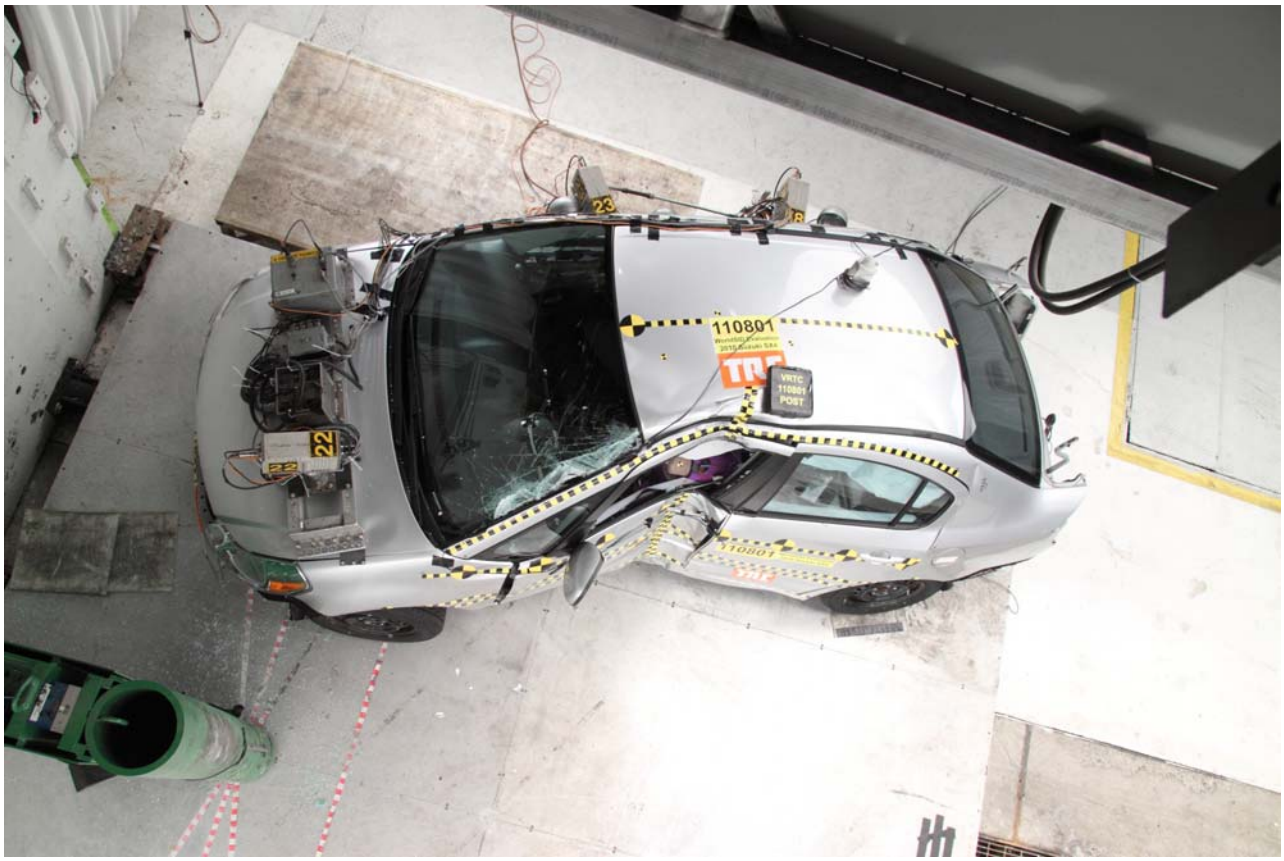


Figure A-18 Post-Test Overhead View

Figure A-19 Pre-Test Impact Point View

Figure A-20 Post-Test Impact Point View

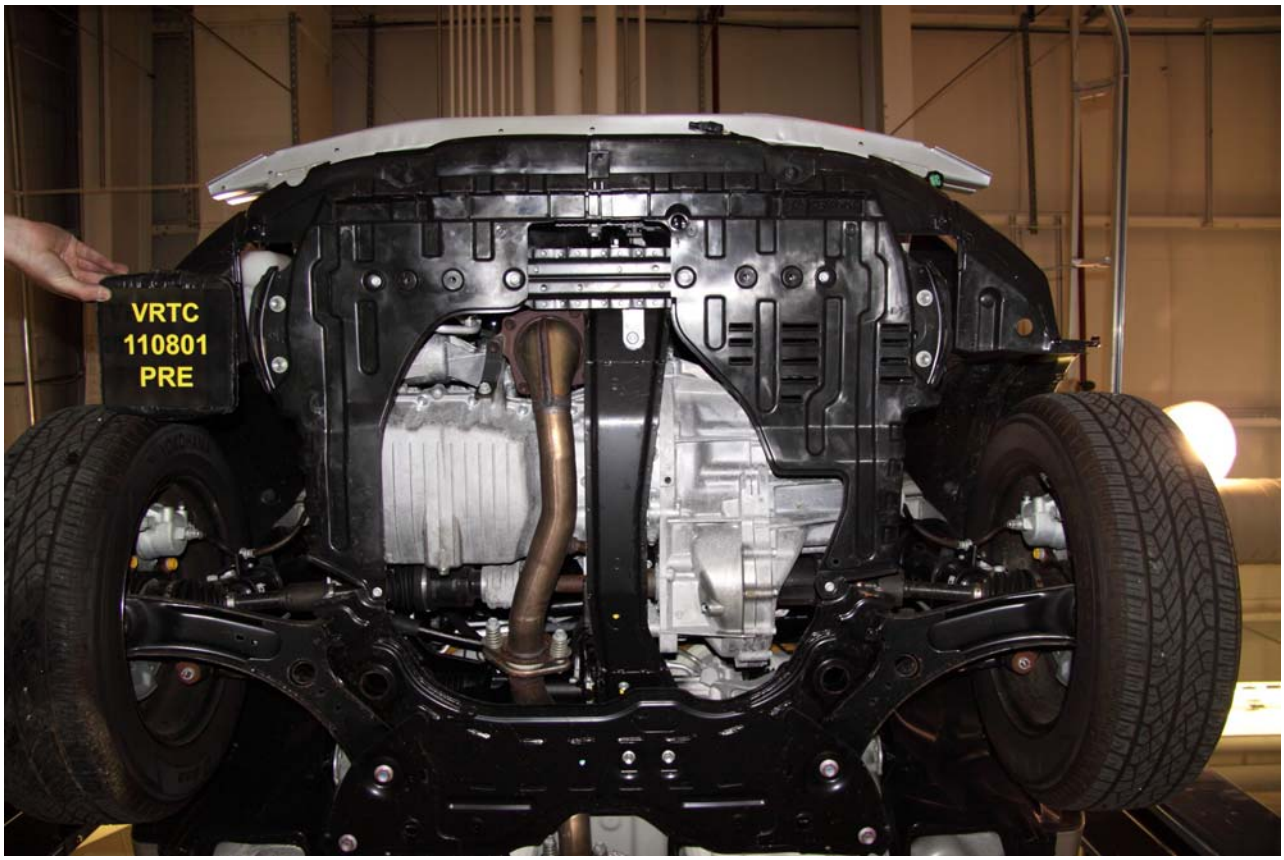


Figure A-21 Pre-Test Front Underbody View

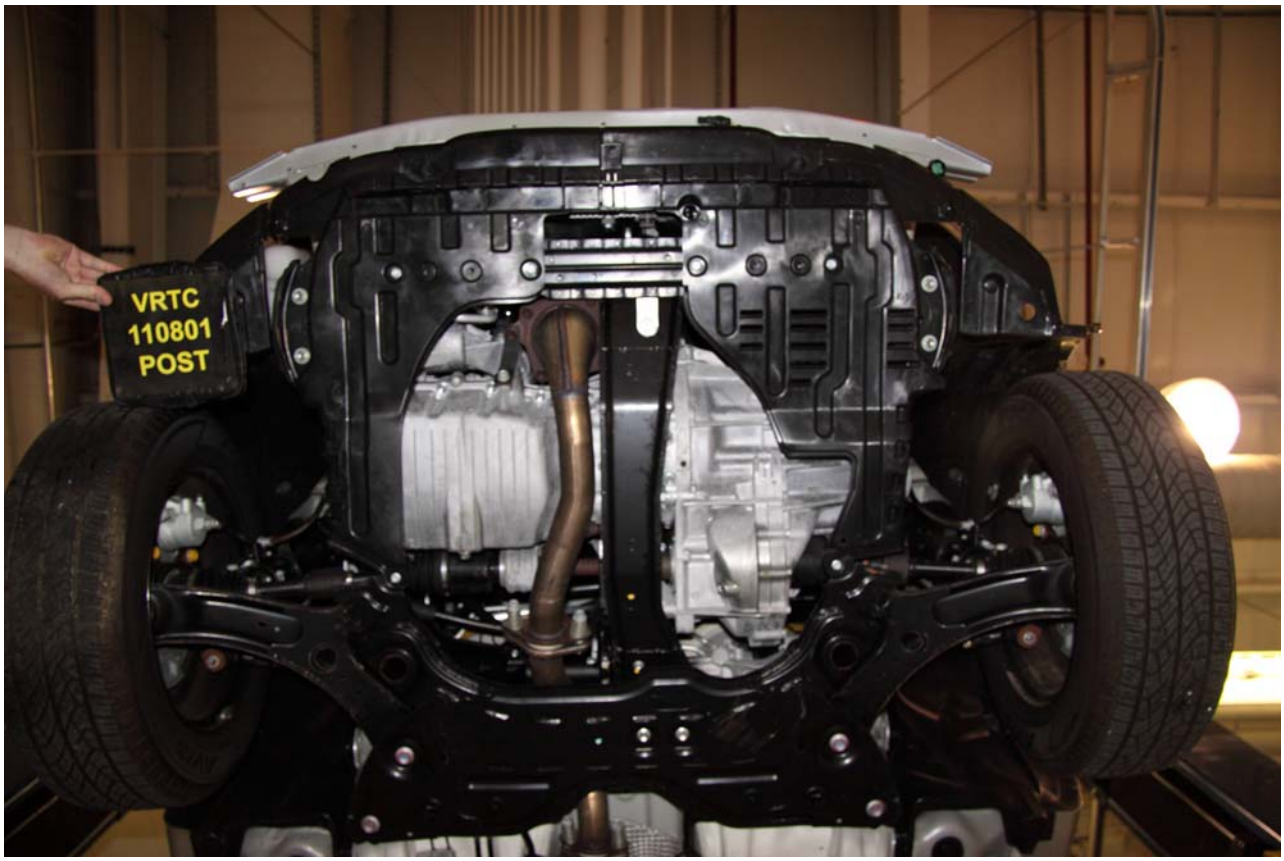


Figure A-22 Post-Test Front Underbody View

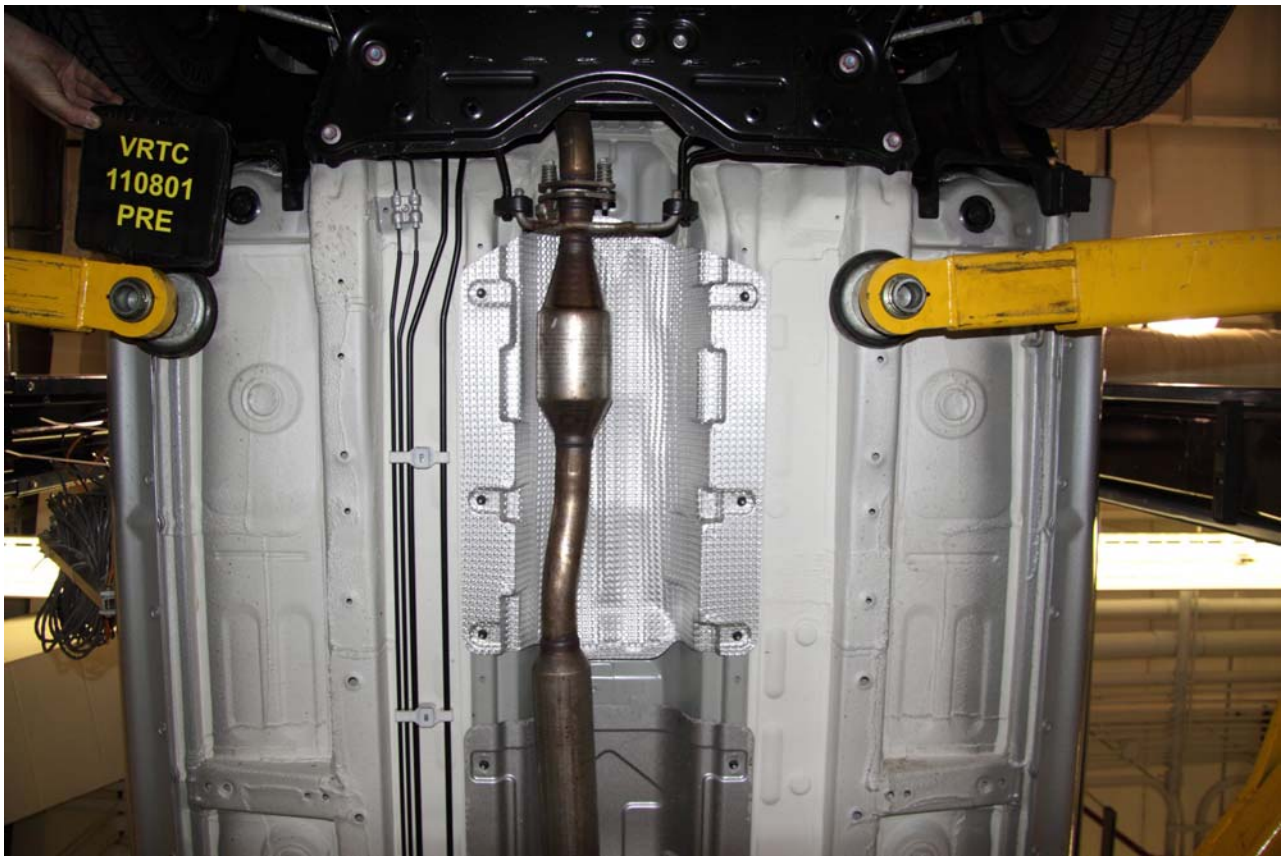


Figure A-23 Pre-Test Front Mid Underbody View

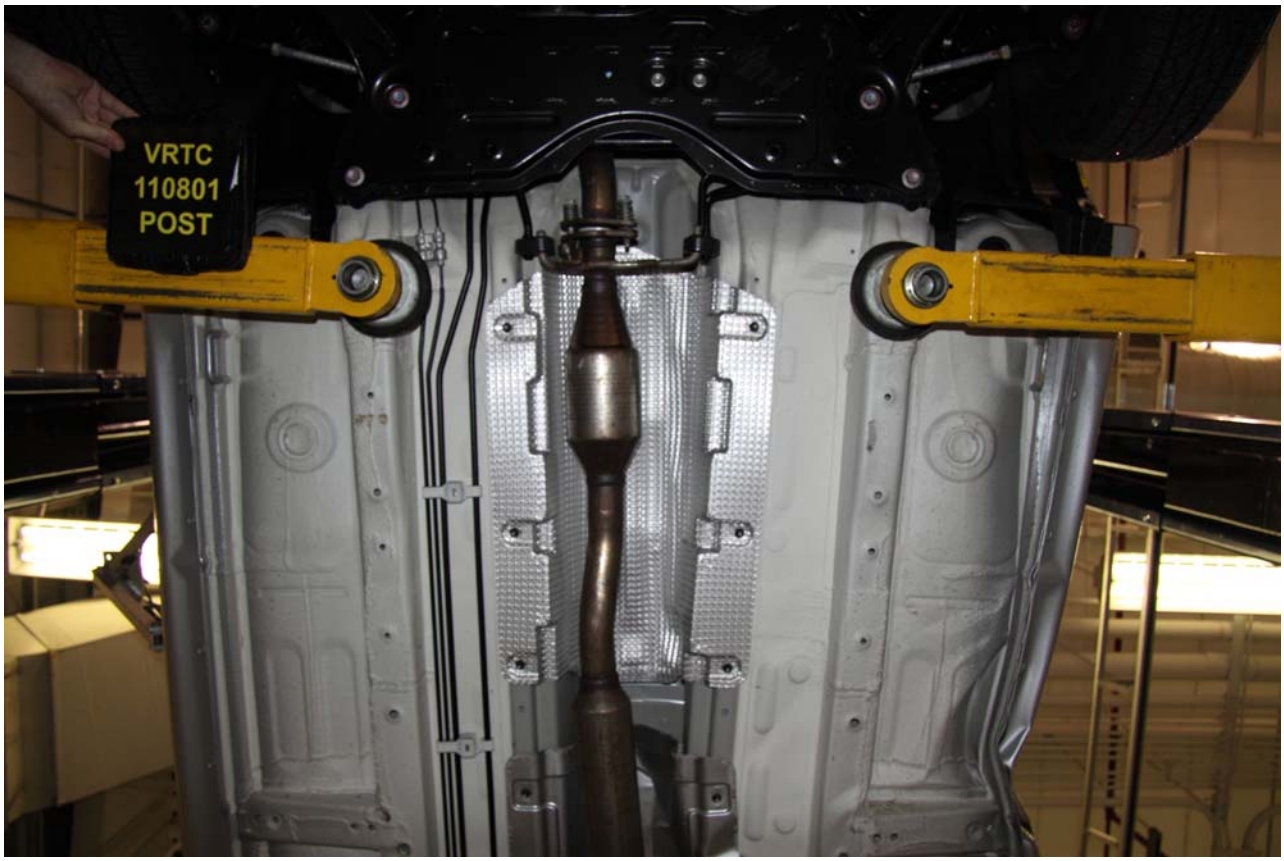


Figure A-24 Post-Test Front Mid Underbody View

Figure A-25 Pre-Test Mid Underbody View

Figure A-26 Post-Test Mid Underbody View

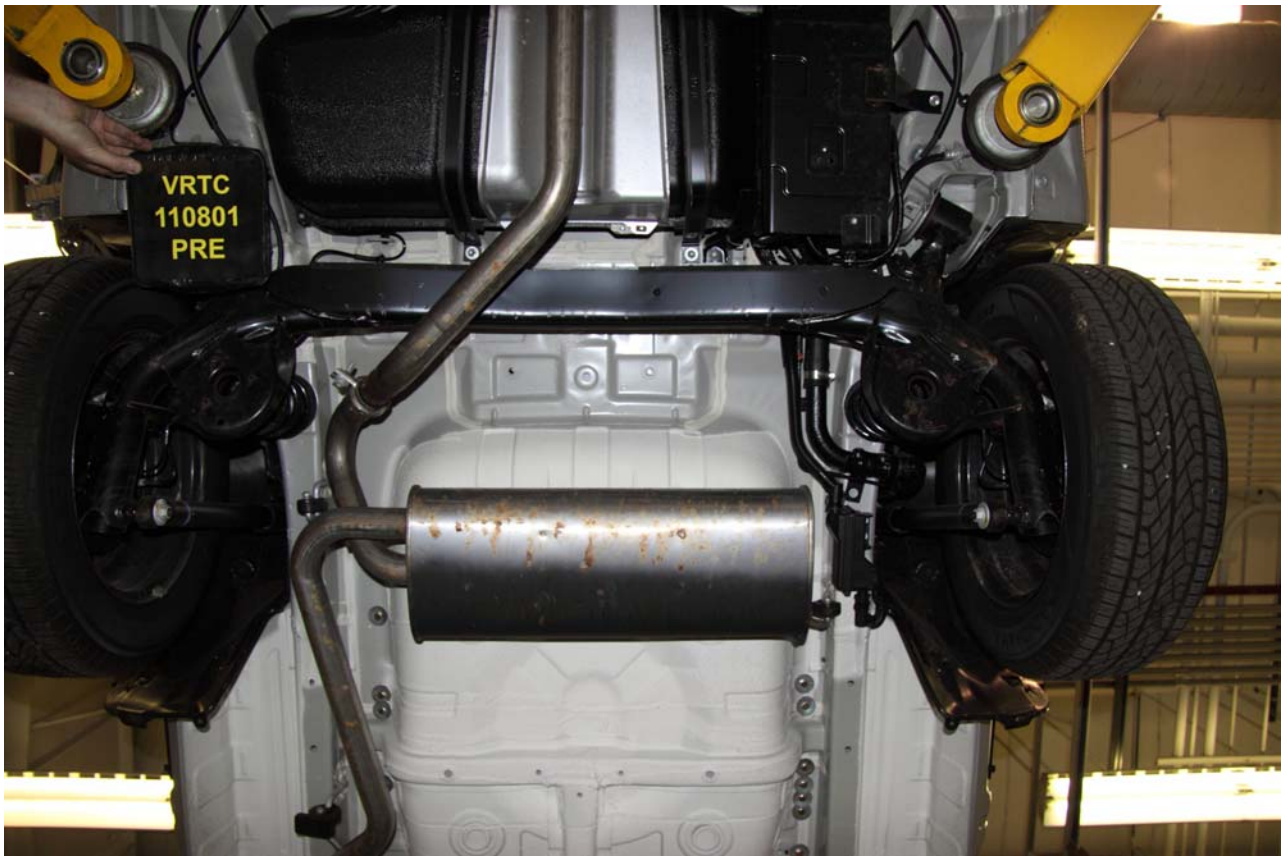


Figure A-27 Pre-Test Rear Mid Underbody View

Figure A-28 Post-Test Rear Mid Underbody View

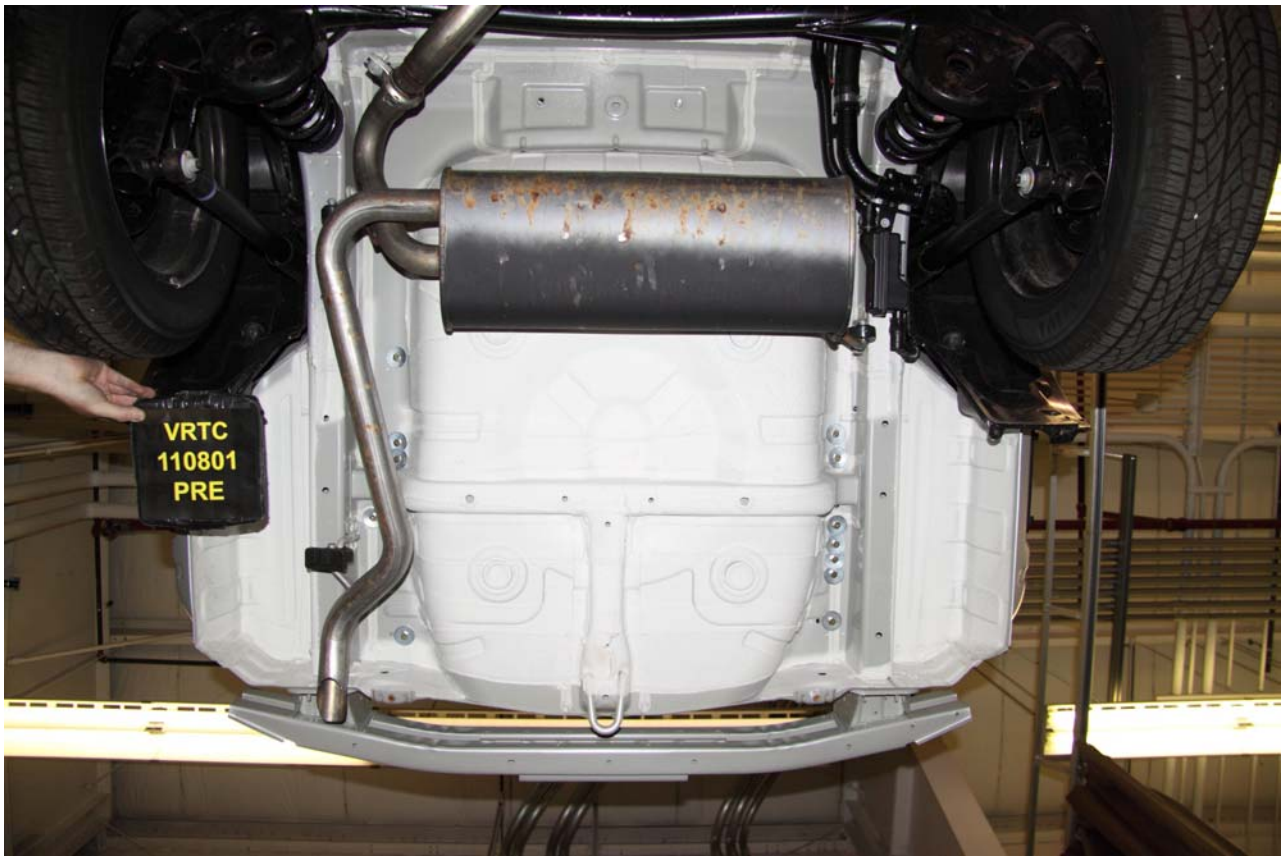


Figure A-29 Pre-Test Rear Underbody View

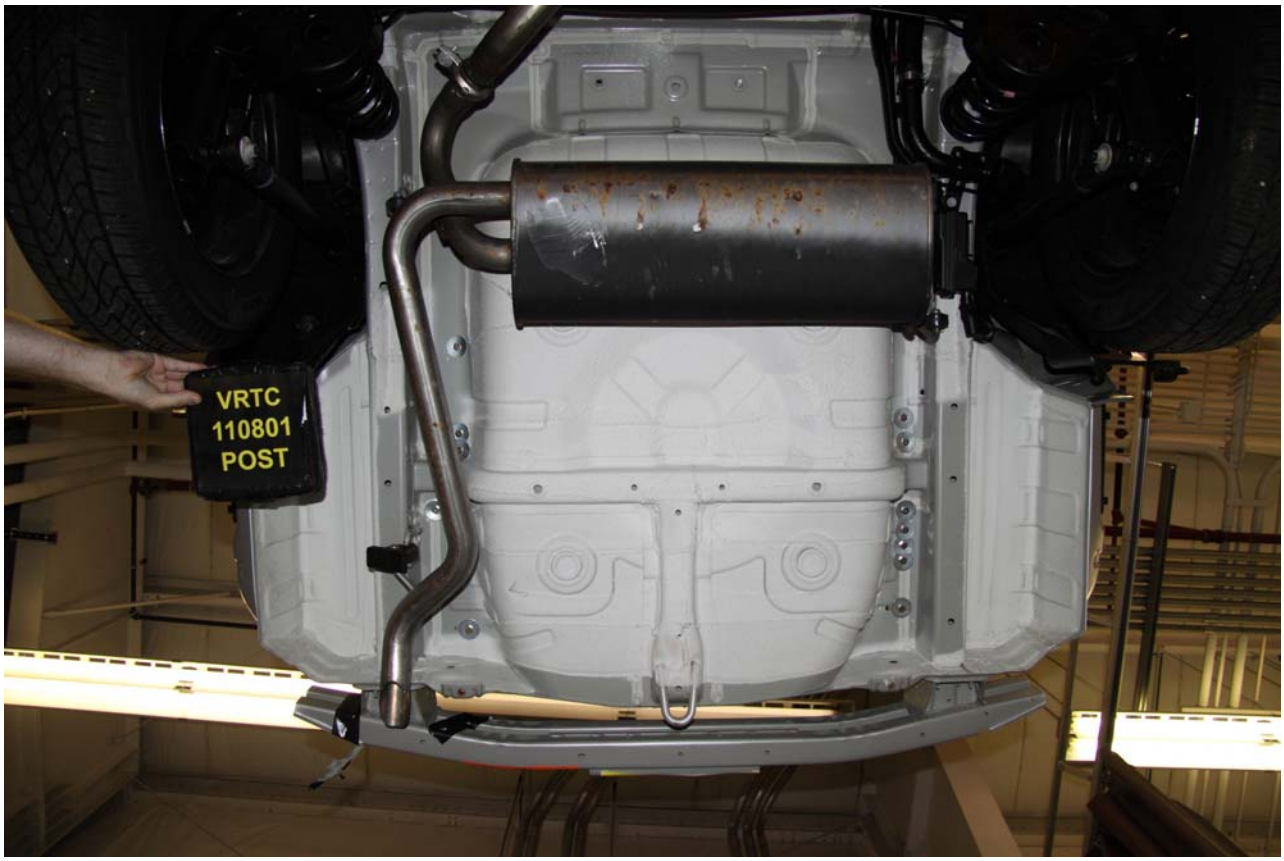


Figure A-30 Post-Test Rear Underbody View

Figure A-31 Pre-Test Driver Dummy - View 1

Figure A-32 Post-Test Driver Dummy - View 1

Figure A-33 Pre-Test Driver Dummy - View 2

Figure A-34 Post-Test Driver Dummy - View 2

Figure A-35 Pre-Test Driver Dummy - View 3

Intentionally Left Blank

Figure A-36 Pre-Test Driver Dummy - View 4

Photograph Not Taken

Figure A-37 Post-Test Driver Dummy - View 4

Figure A-38 Pre-Test Driver Dummy - View 5

Figure A-39 Post-Test Driver Dummy - View 5

Photograph Not Taken

Figure A-40 Pre-Test Driver Door Panel View

Figure A-41 Post-Test Driver Door Panel View

Figure A-42 Post-Test Driver Dummy Contact - View 1

Figure A-43 Post-Test Driver Dummy Contact - View 2

Figure A-44 Post-Test Driver Dummy Contact - View 3

Photograph Not Taken

Figure A-45 Post-Test Driver Dummy Overall View

Figure A-46 Vehicle Certification Label

Figure A-47 Tire Pressure Label

Appendix B

Data Plots

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

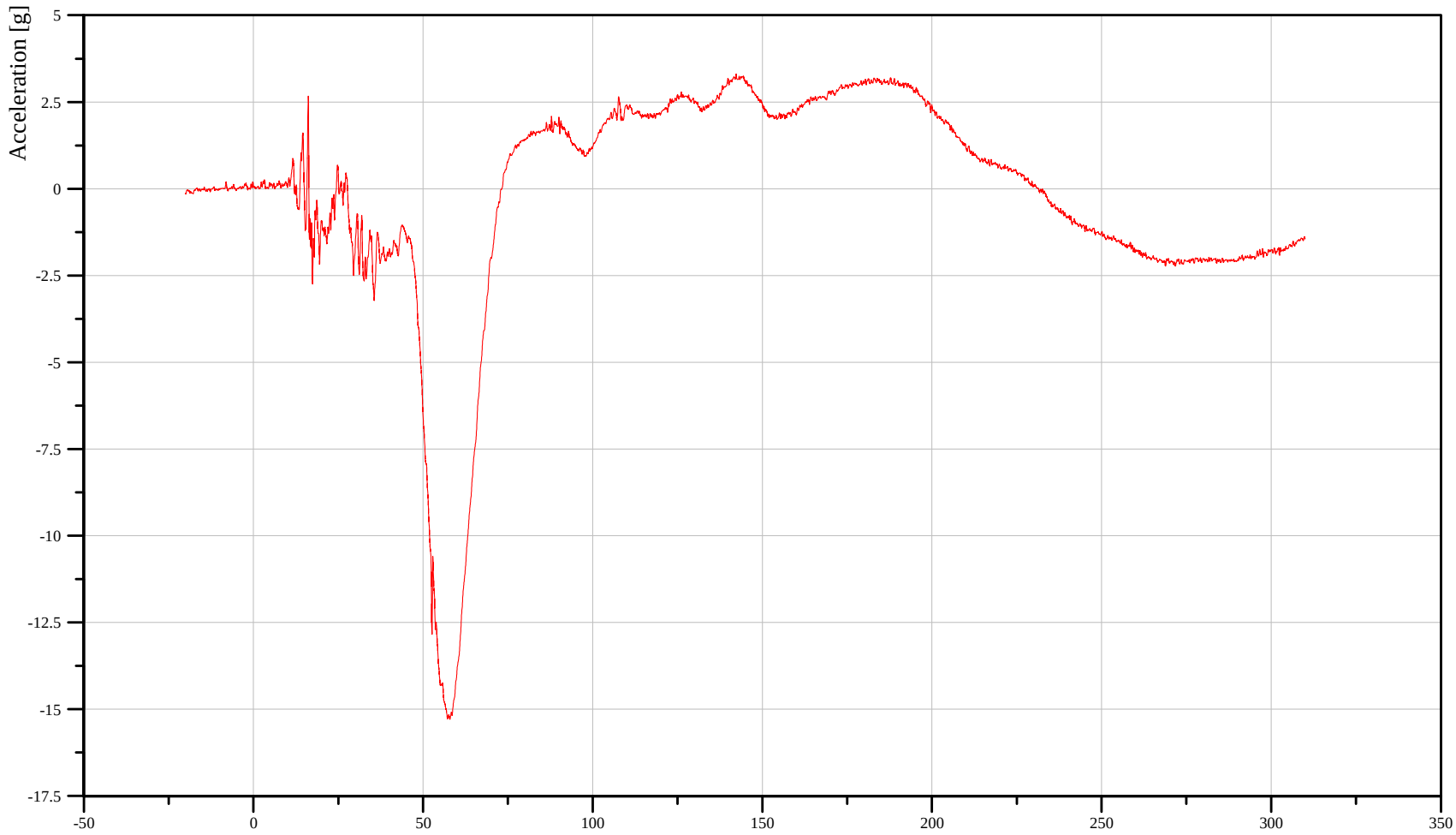
Head X-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11HEADCG00WSACXA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-15.29 g at 57.90 ms

Max. Value
3.30 g at 142.30 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

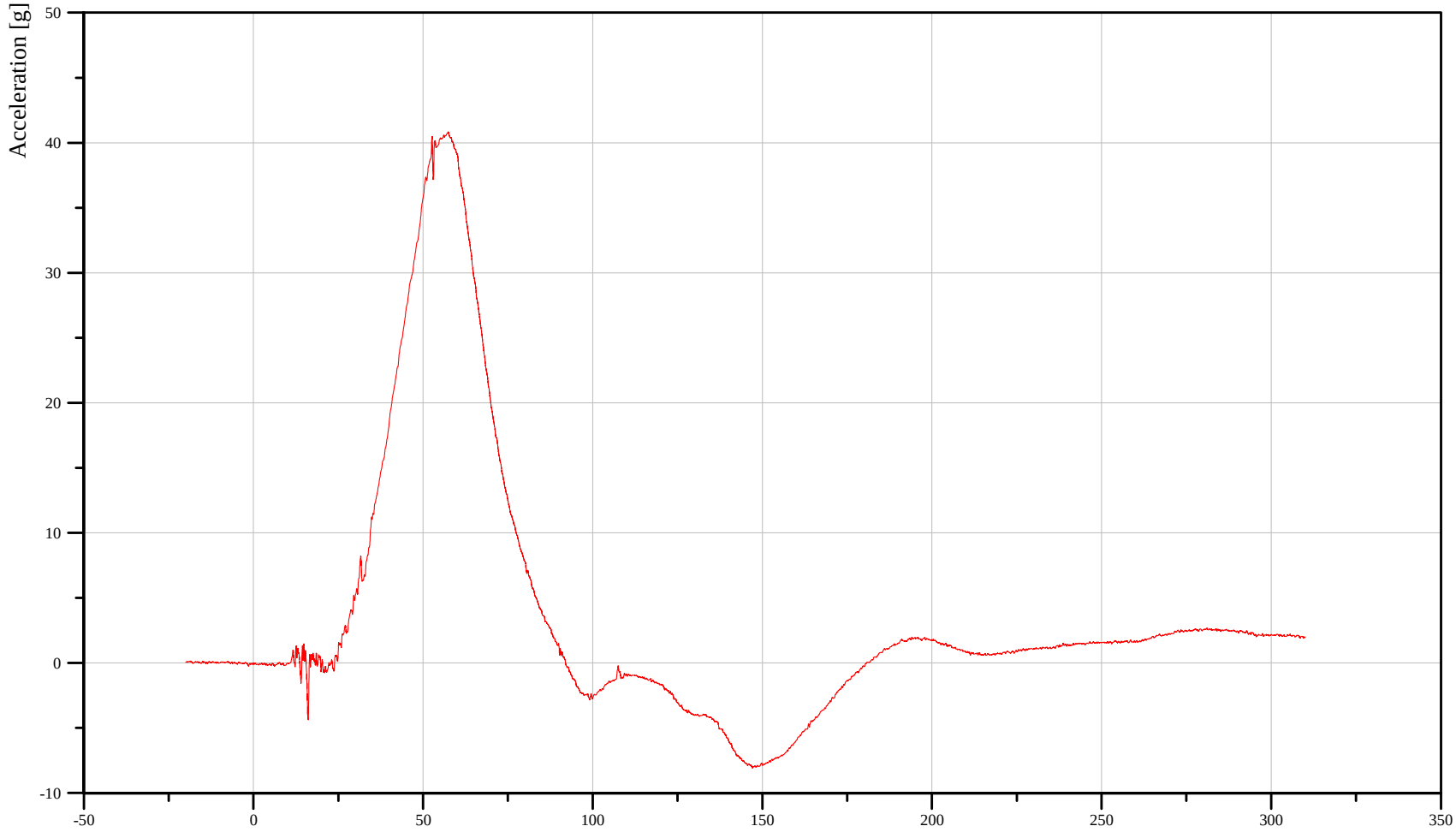
Head Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11HEADCG00WSACYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-8.06 g at 147.15 ms

Max. Value
40.84 g at 57.40 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

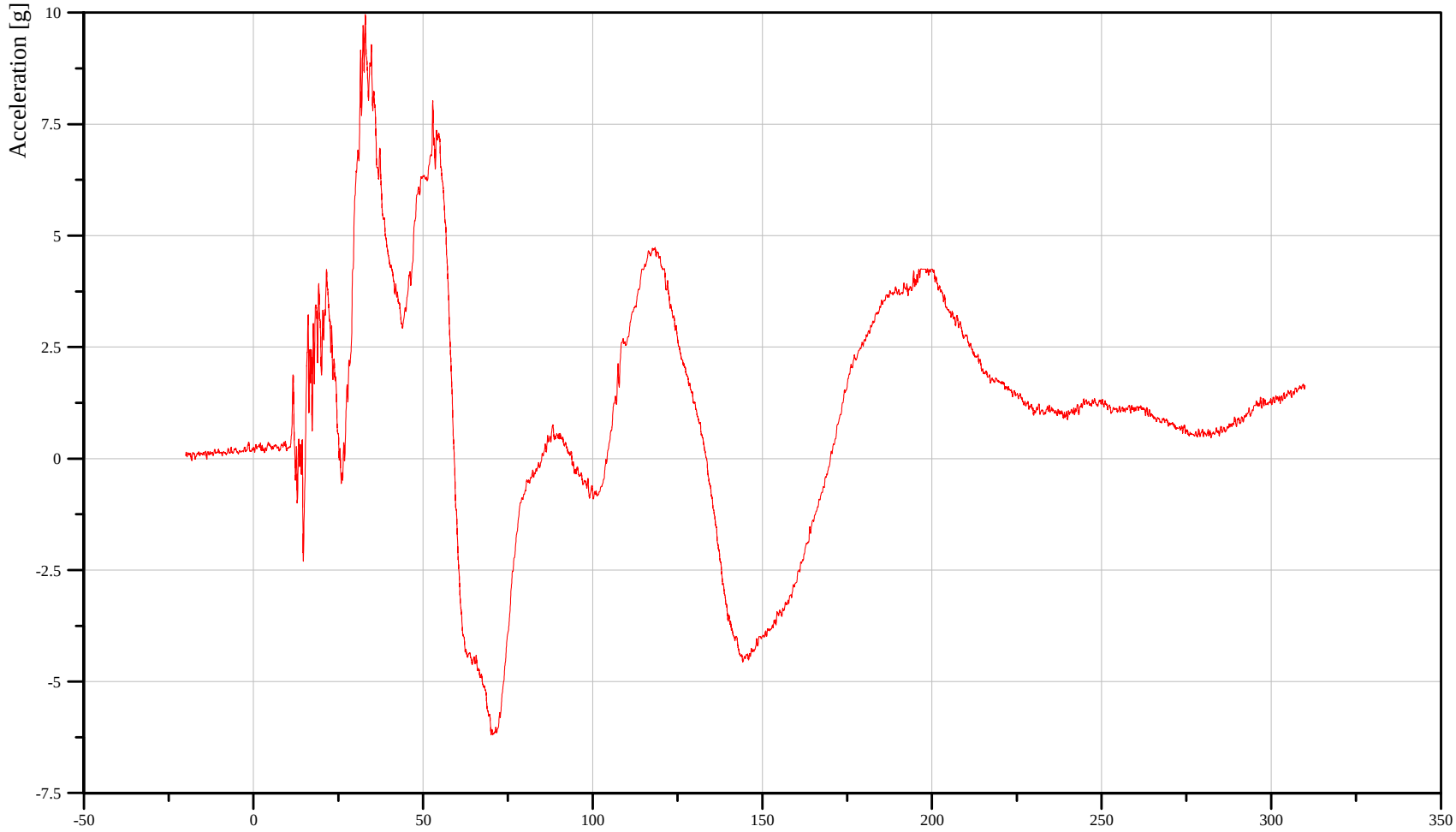
Head Z-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11HEADCG00WSACZA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-6.20 g at 70.55 ms

Max. Value
9.96 g at 32.95 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

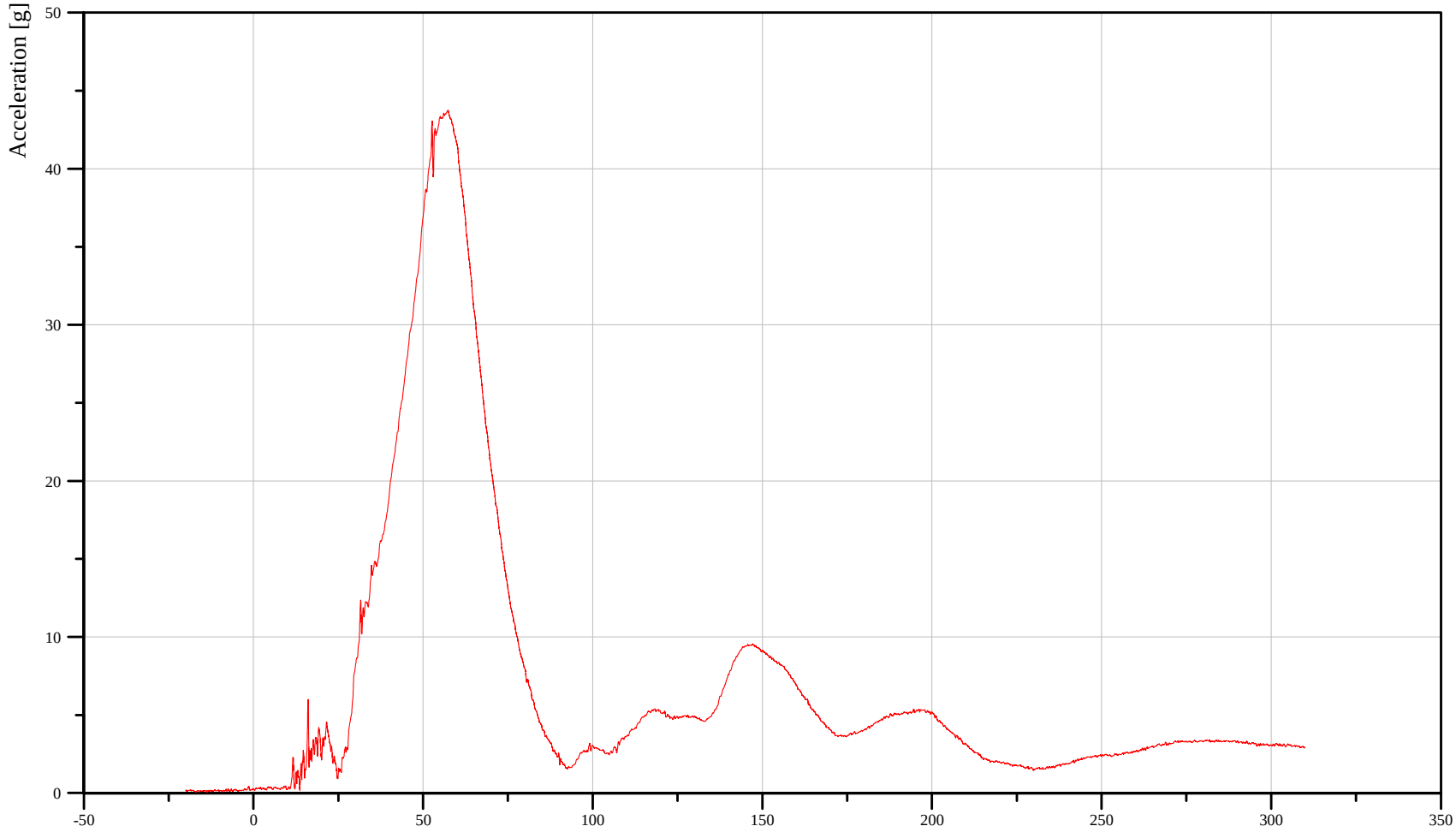
Head Resultant Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11HEADCG00WSACRA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
0.05 g at -13.70 ms

Max. Value
43.75 g at 57.35 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

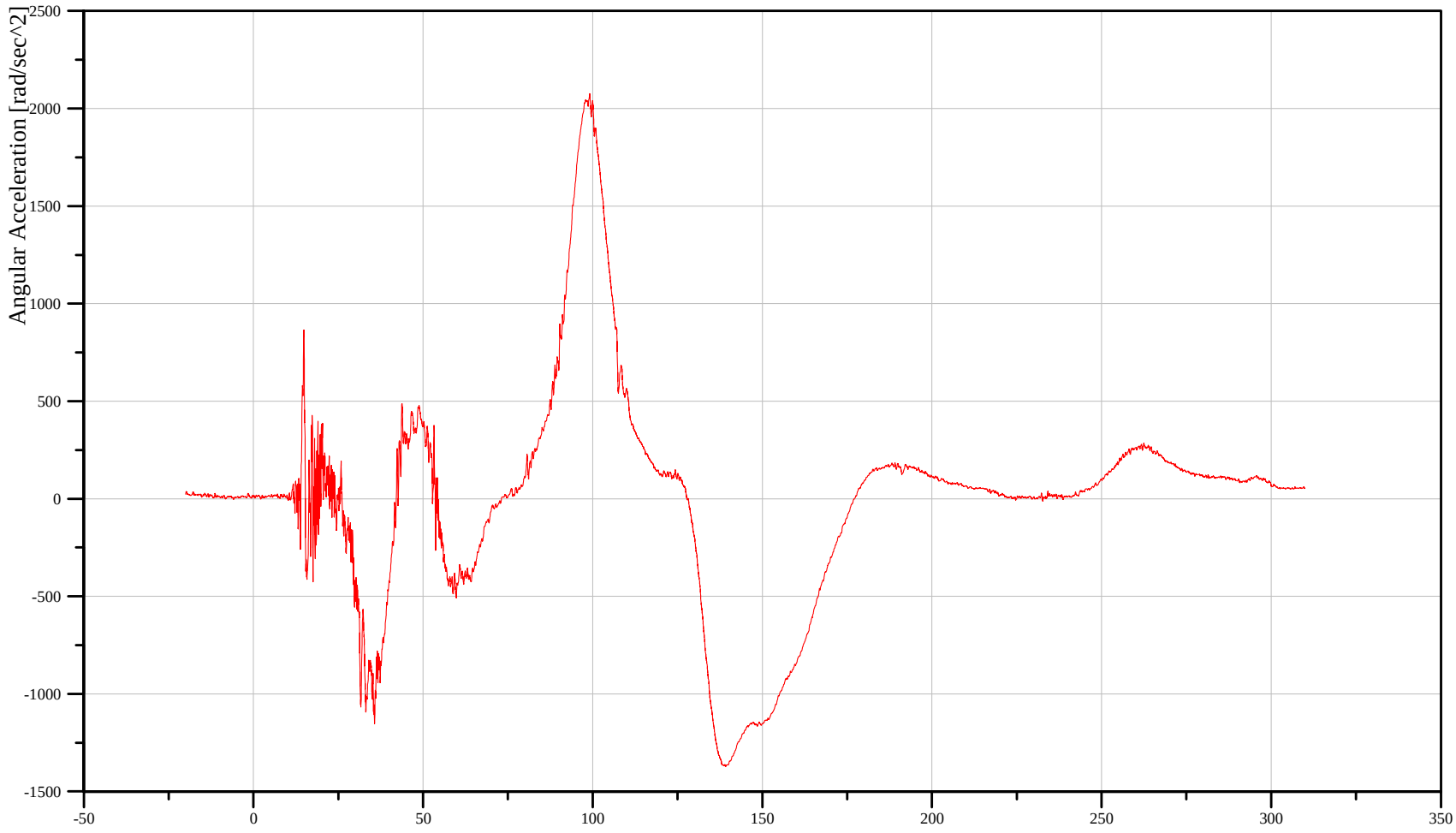
Head X-Axis Angular Displacement

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11HEADCG00WSAAXA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value	Max. Value
-1,372.06 rad/sec^2 at 139.20 ms	2,077.53 rad/sec^2 at 99.15 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

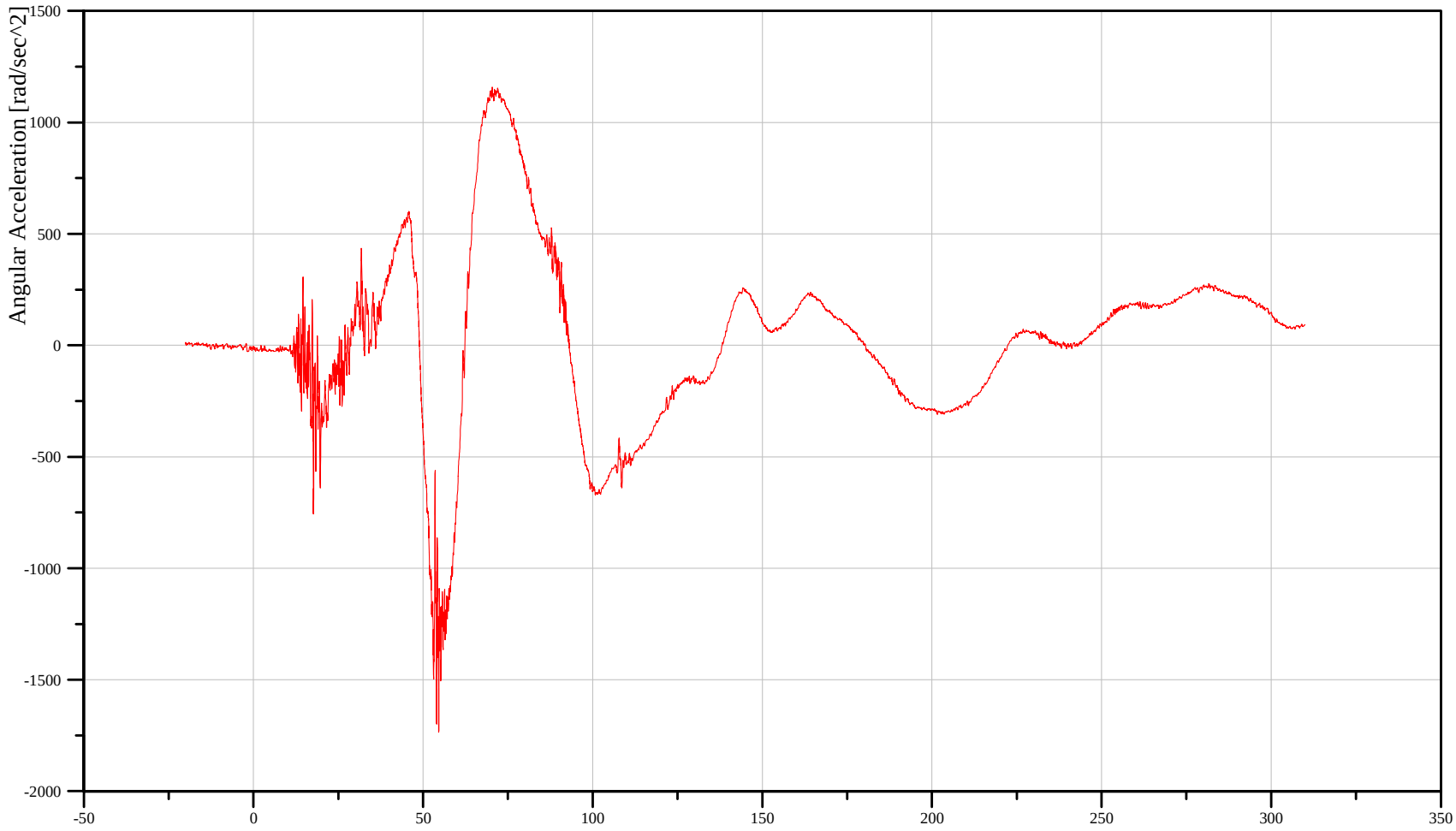
Head Y-Axis Angular Displacement

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11HEADCG00WSAAYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value	Max. Value
-1,735.33 rad/sec^2 at 54.60 ms	1,158.77 rad/sec^2 at 70.40 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

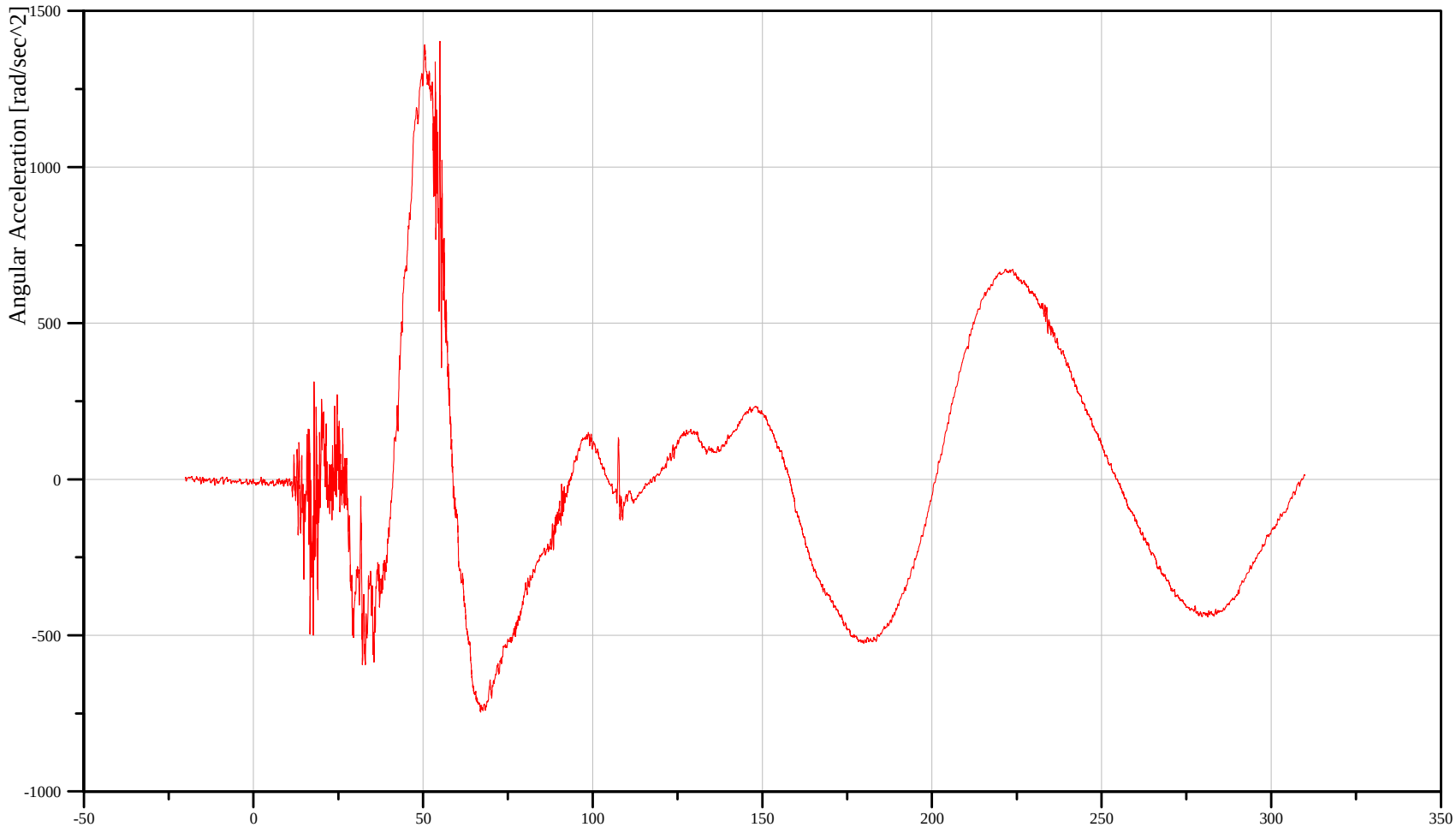
Head Z-Axis Angular Displacement

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11HEADCG00WSAAZA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value	Max. Value
-746.41 rad/sec^2 at 66.95 ms	1,402.37 rad/sec^2 at 54.90 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

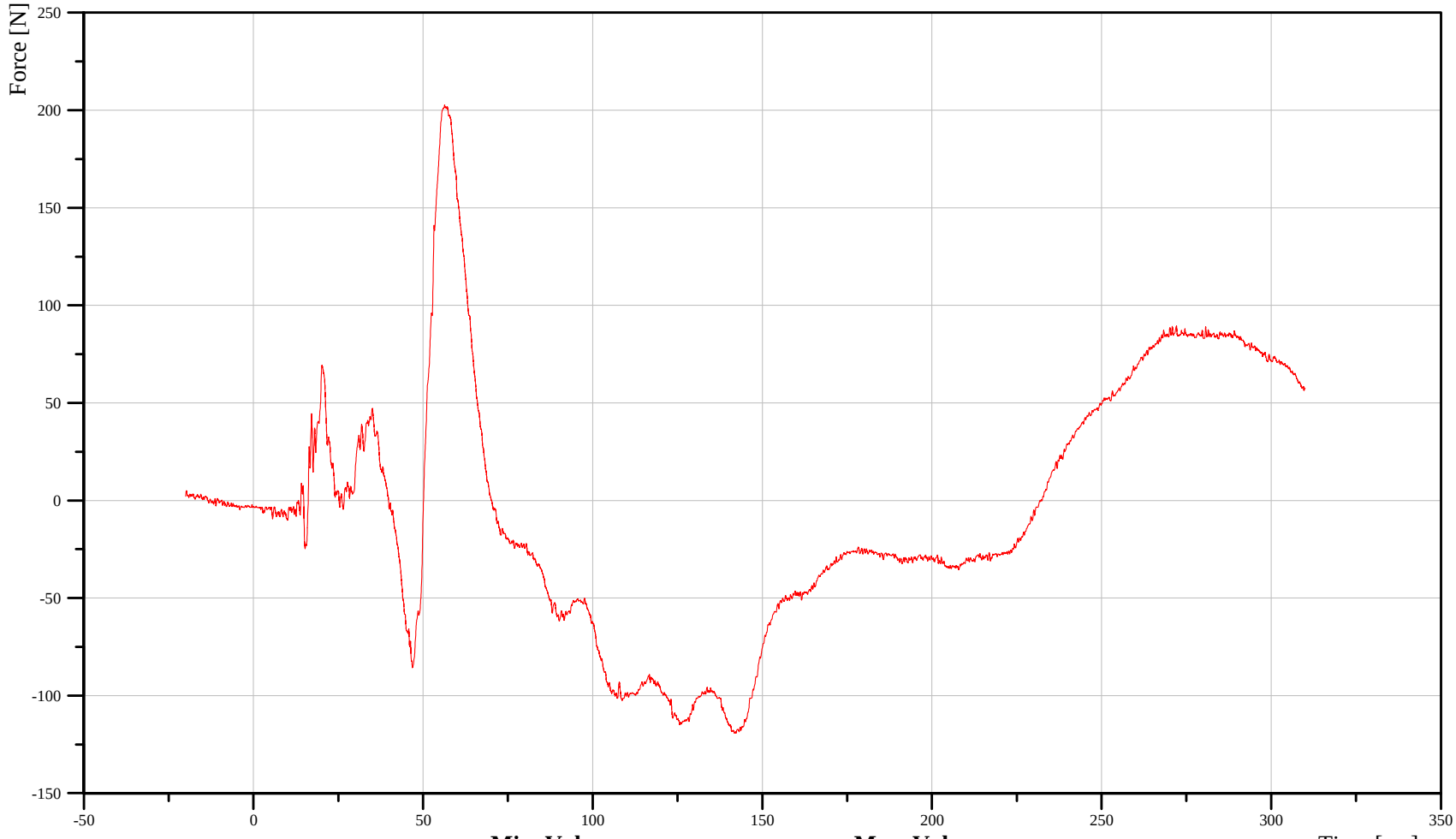
Upper Neck X-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11NECKUP00WSFOXA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-119.33 N at 141.80 ms

Max. Value
202.65 N at 56.35 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

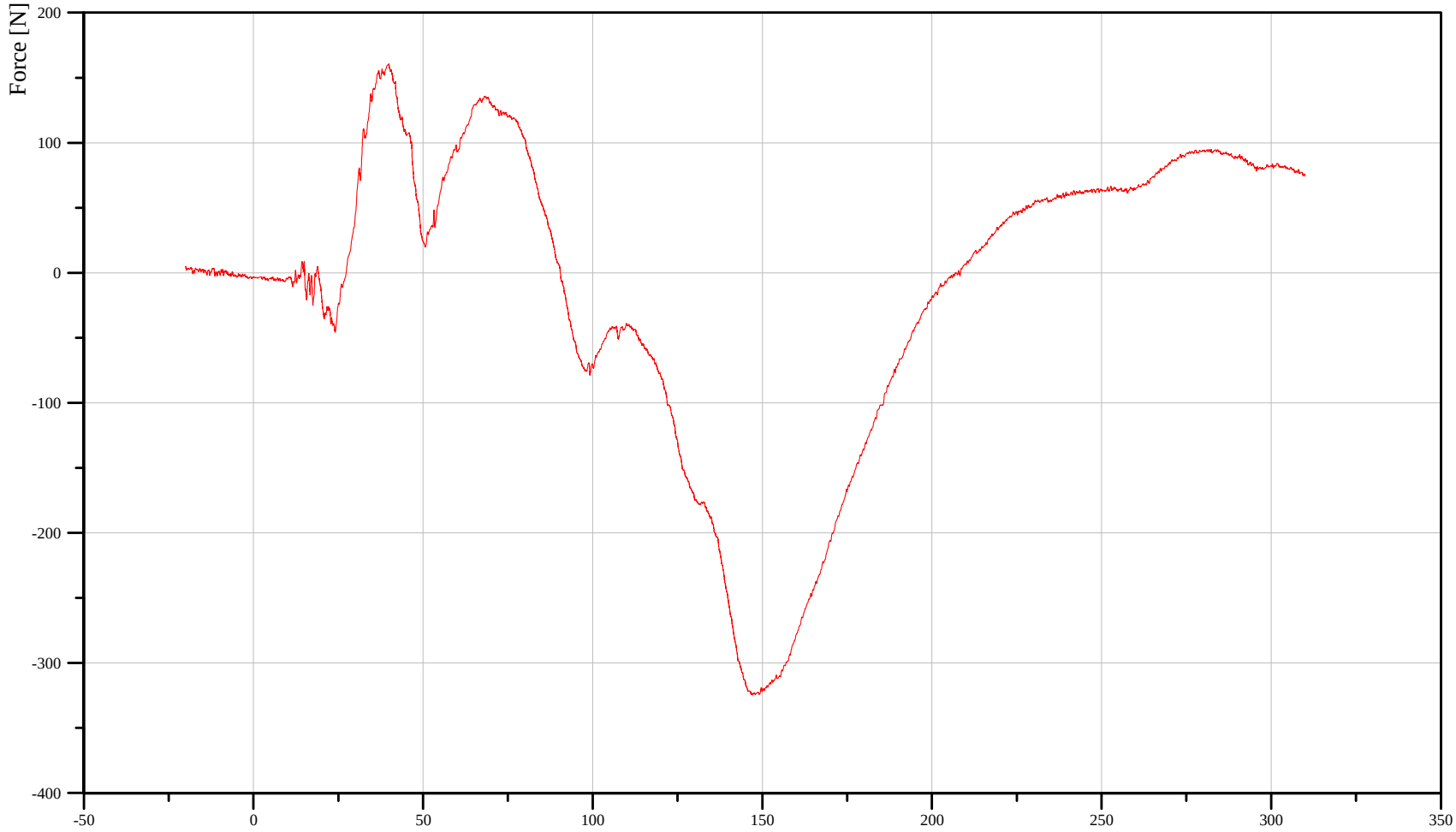
Upper Neck Y-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11NECKUP00WSFOYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-324.51 N at 147.20 ms

Max. Value
160.58 N at 39.85 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

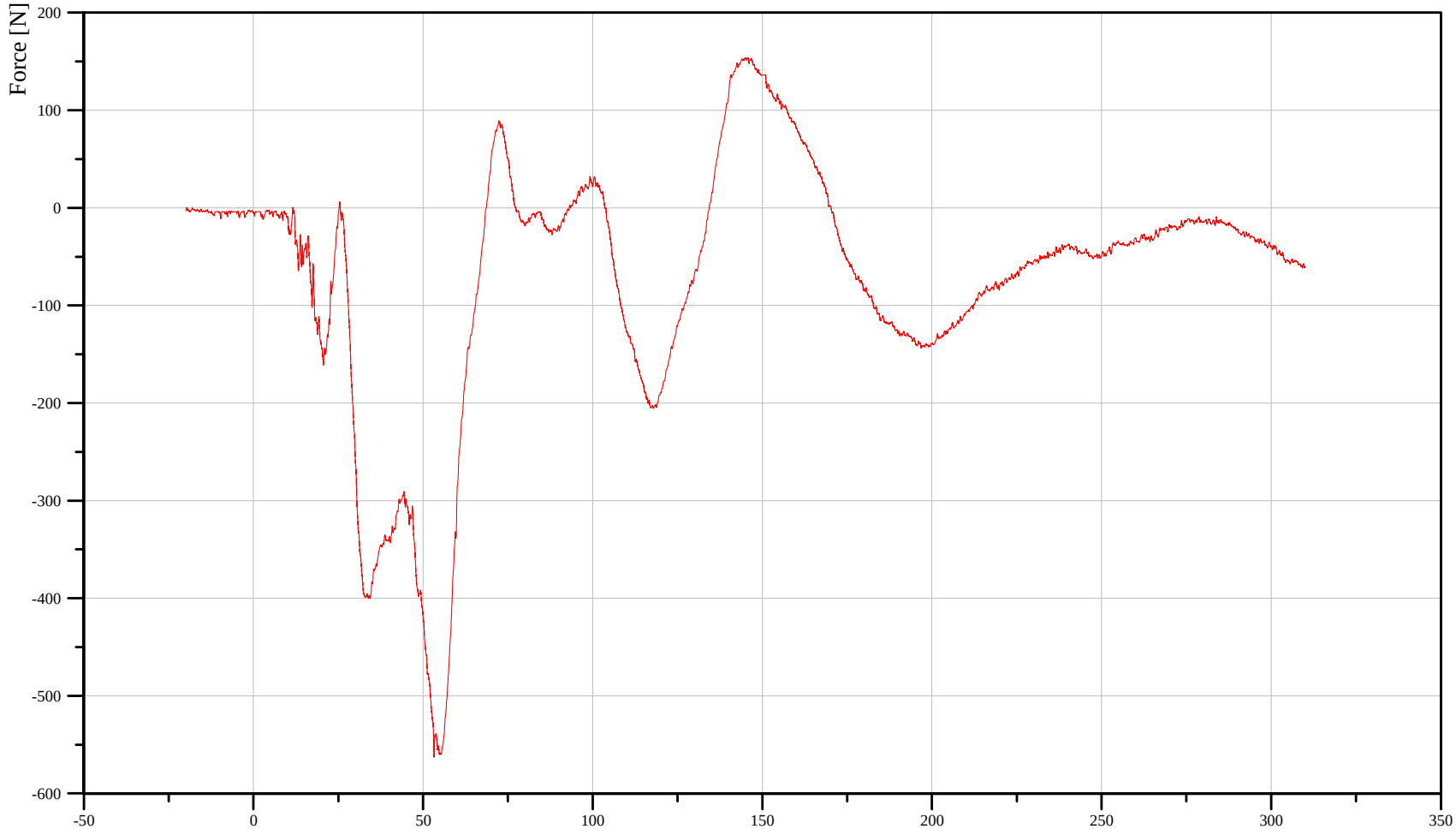
Upper Neck Z-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11NECKUP00WSFOZA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-562.54 N at 53.25 ms

Max. Value
153.98 N at 145.05 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

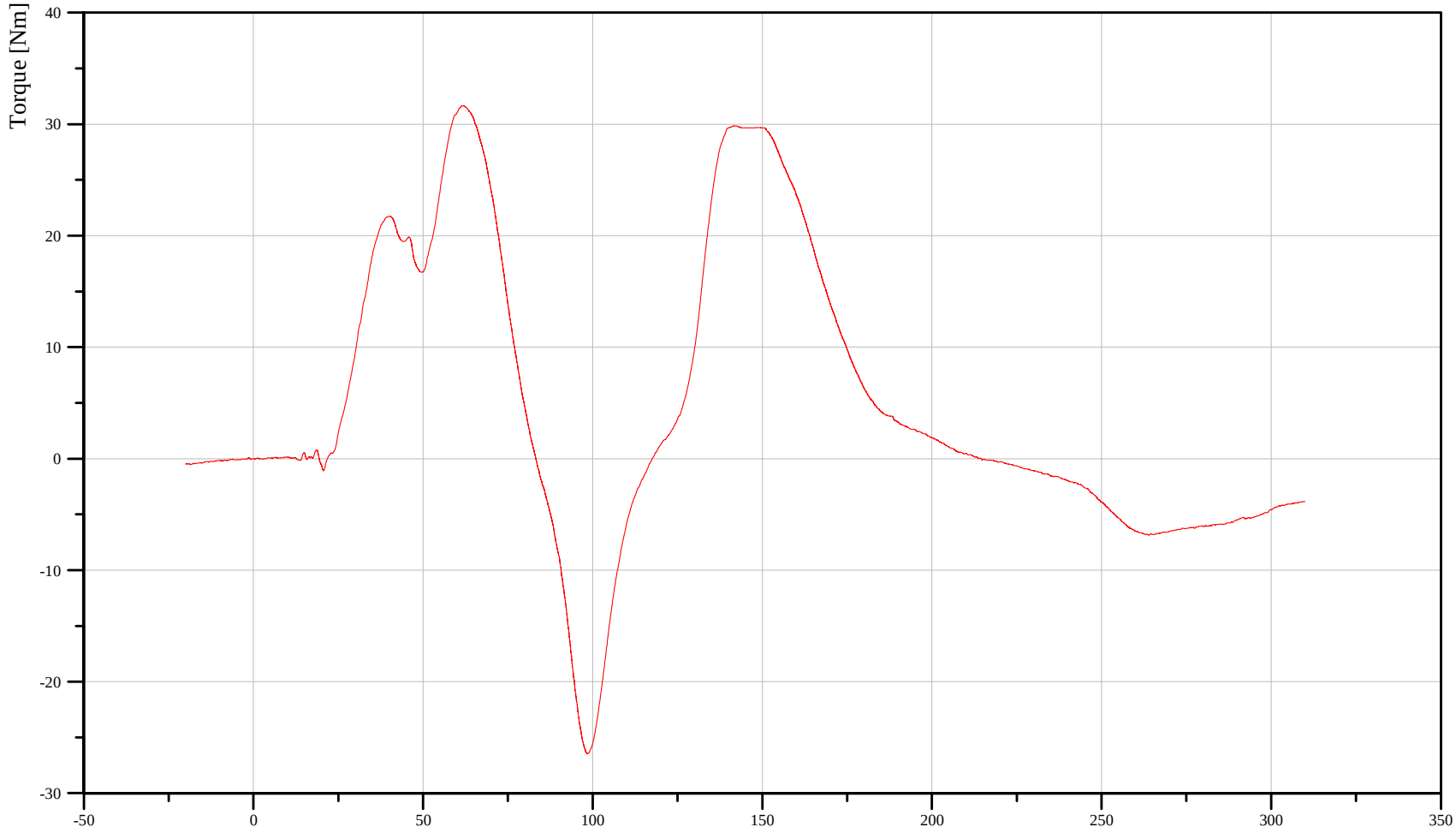
Upper Neck Moment About X Axis

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11NECKUP00WSMOXB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-26.46 Nm at 98.50 ms

Max. Value
31.66 Nm at 61.50 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

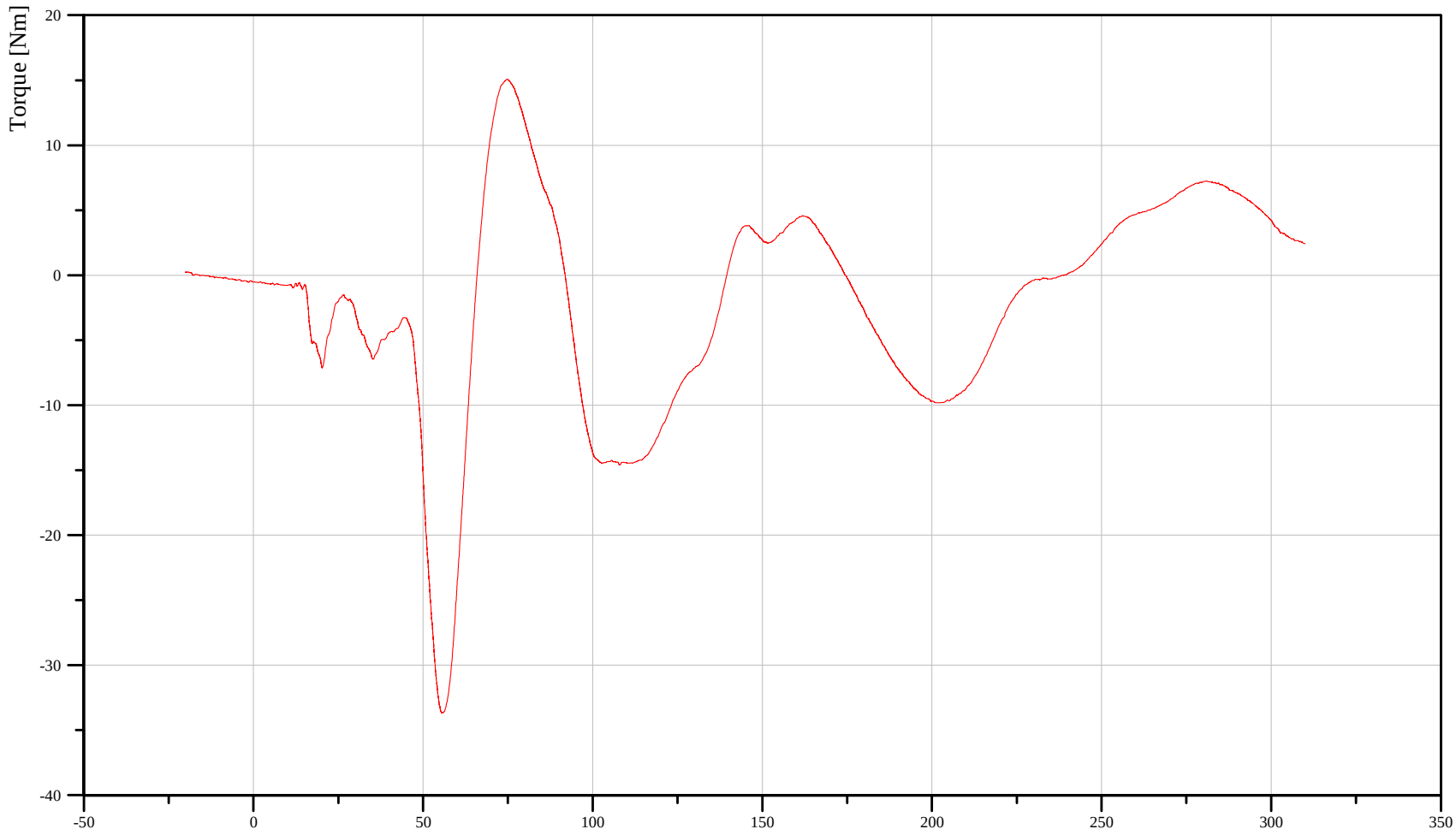
Upper Neck Moment About Y Axis

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11NECKUP00WSMOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-33.67 Nm at 55.70 ms

Max. Value
15.08 Nm at 74.85 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

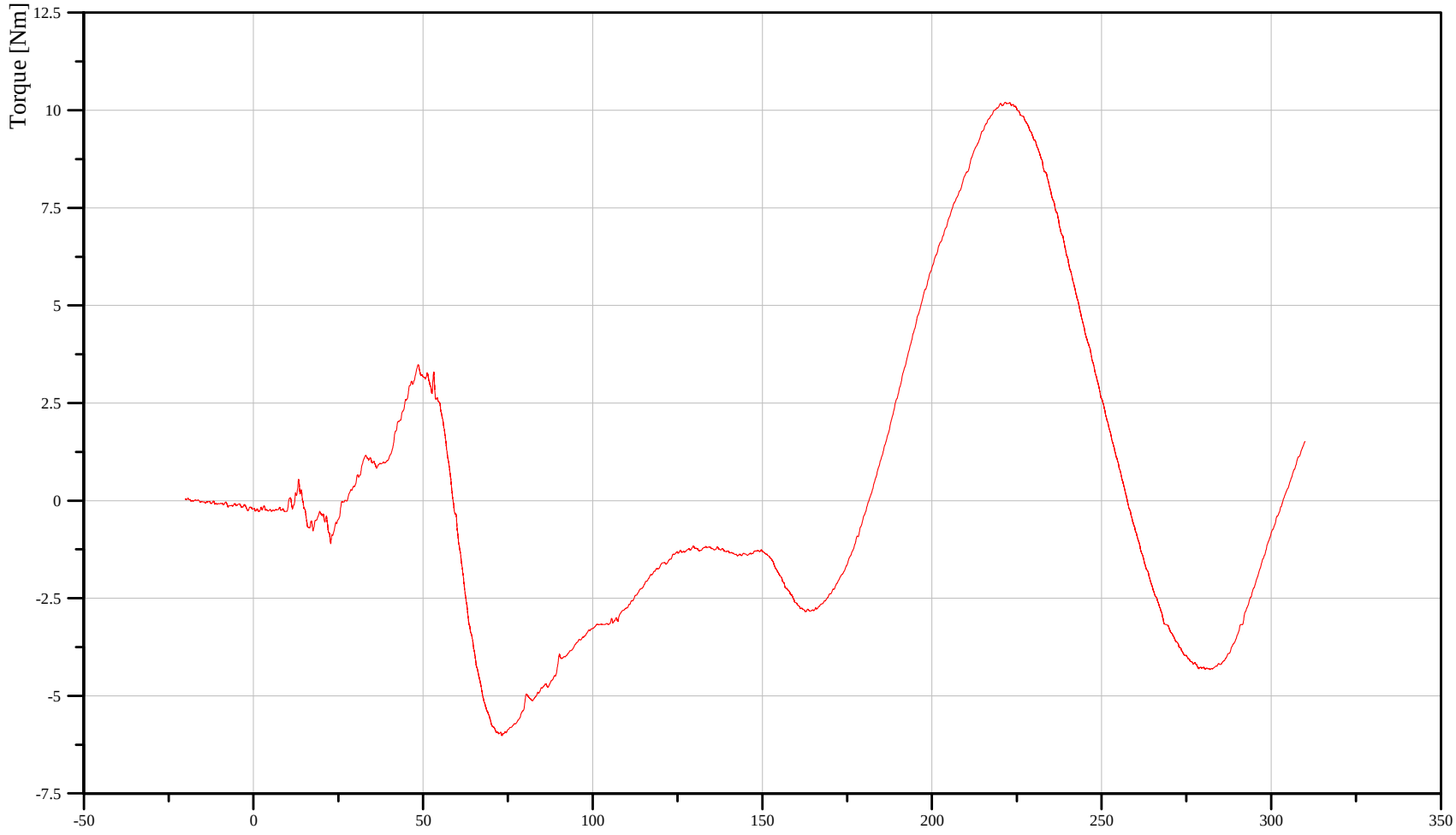
Upper Neck Moment About Z Axis

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11NECKUP00WSMOZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-6.02 Nm at 73.30 ms

Max. Value
10.20 Nm at 221.55 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

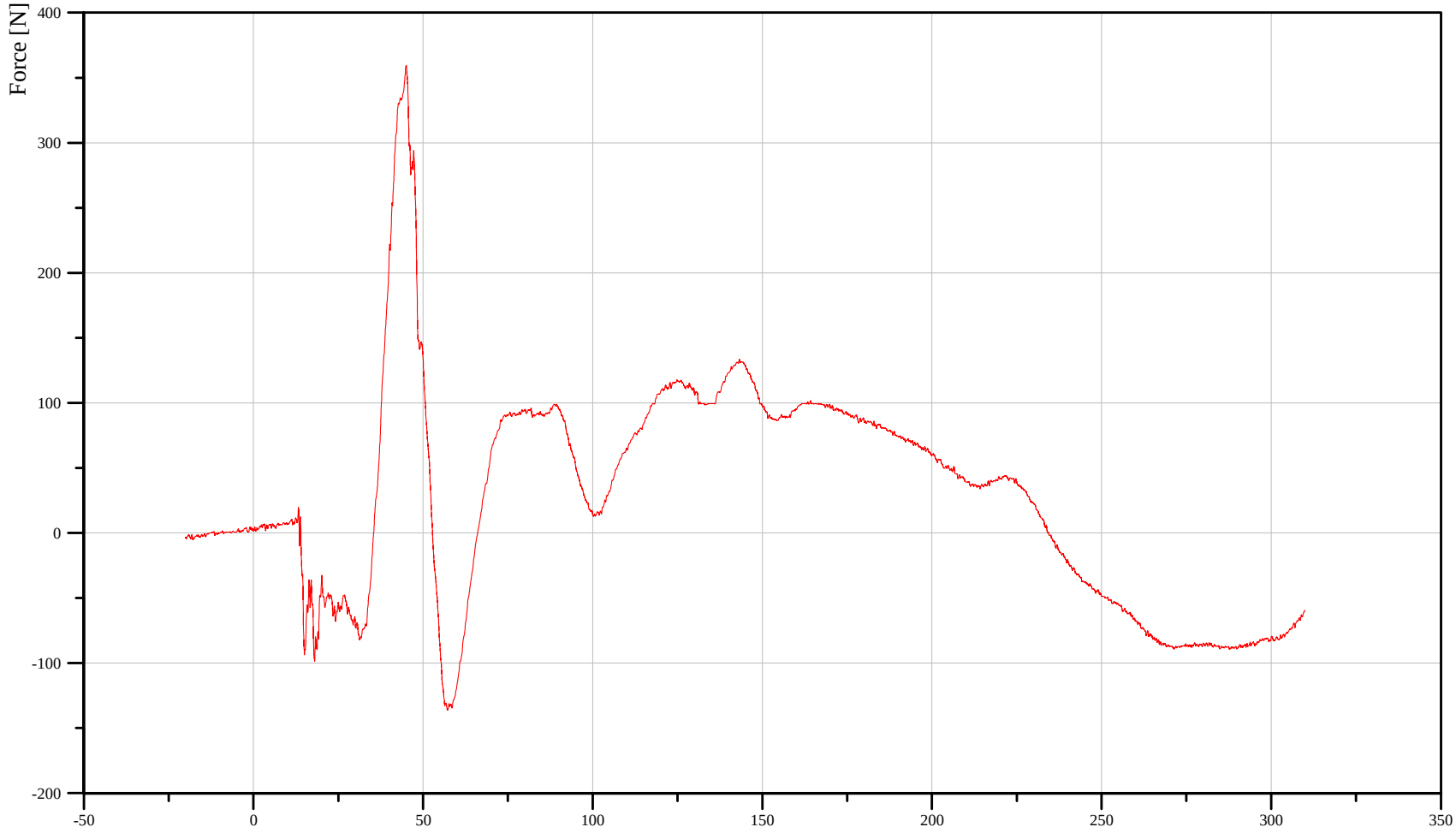
Lower Neck X-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11NECKLO00WSFOXA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-136.36 N at 57.20 ms

Max. Value
359.60 N at 45.00 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

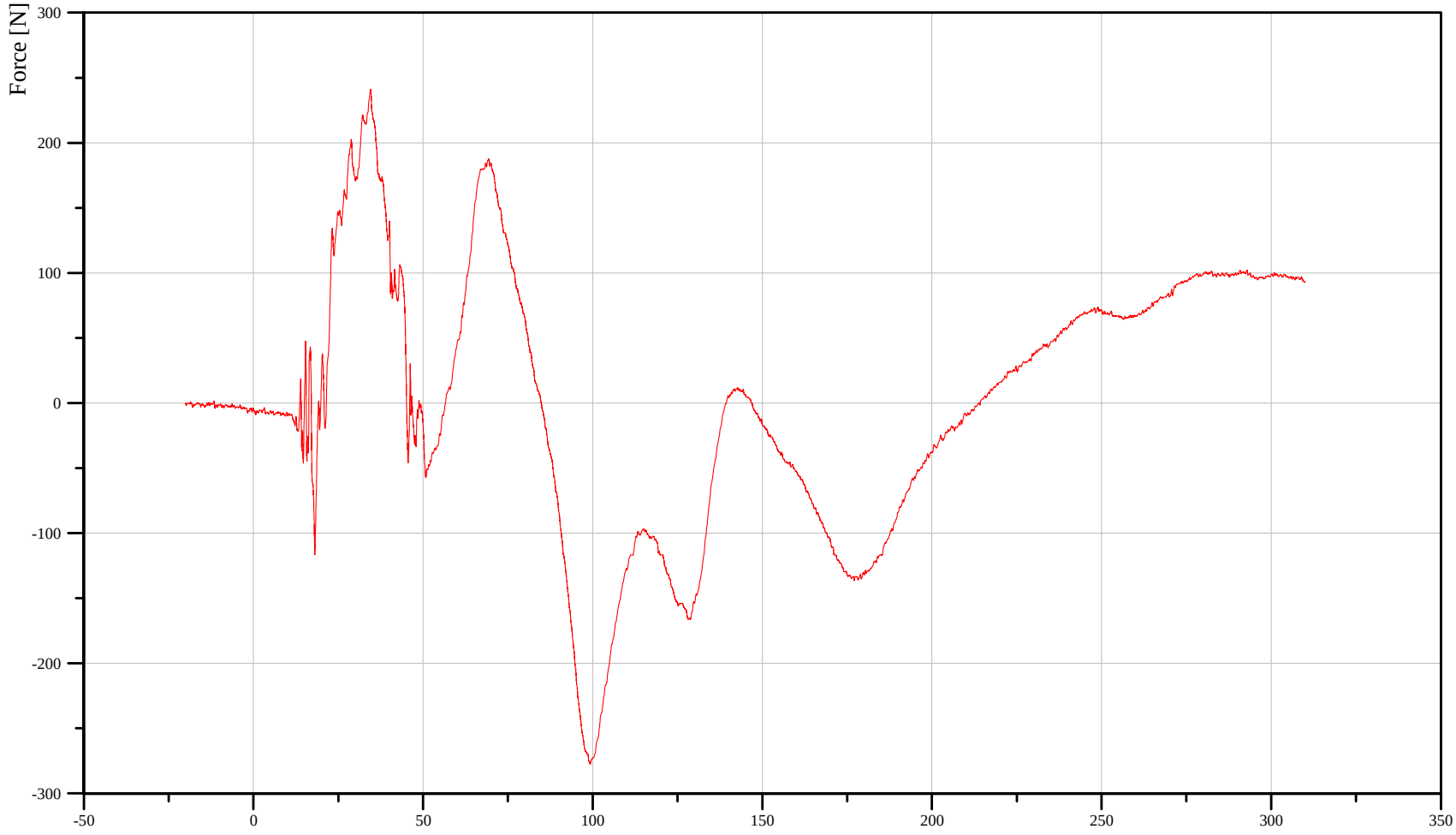
Lower Neck Y-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11NECKLO00WSFOYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-277.46 N at 99.30 ms

Max. Value
241.14 N at 34.55 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

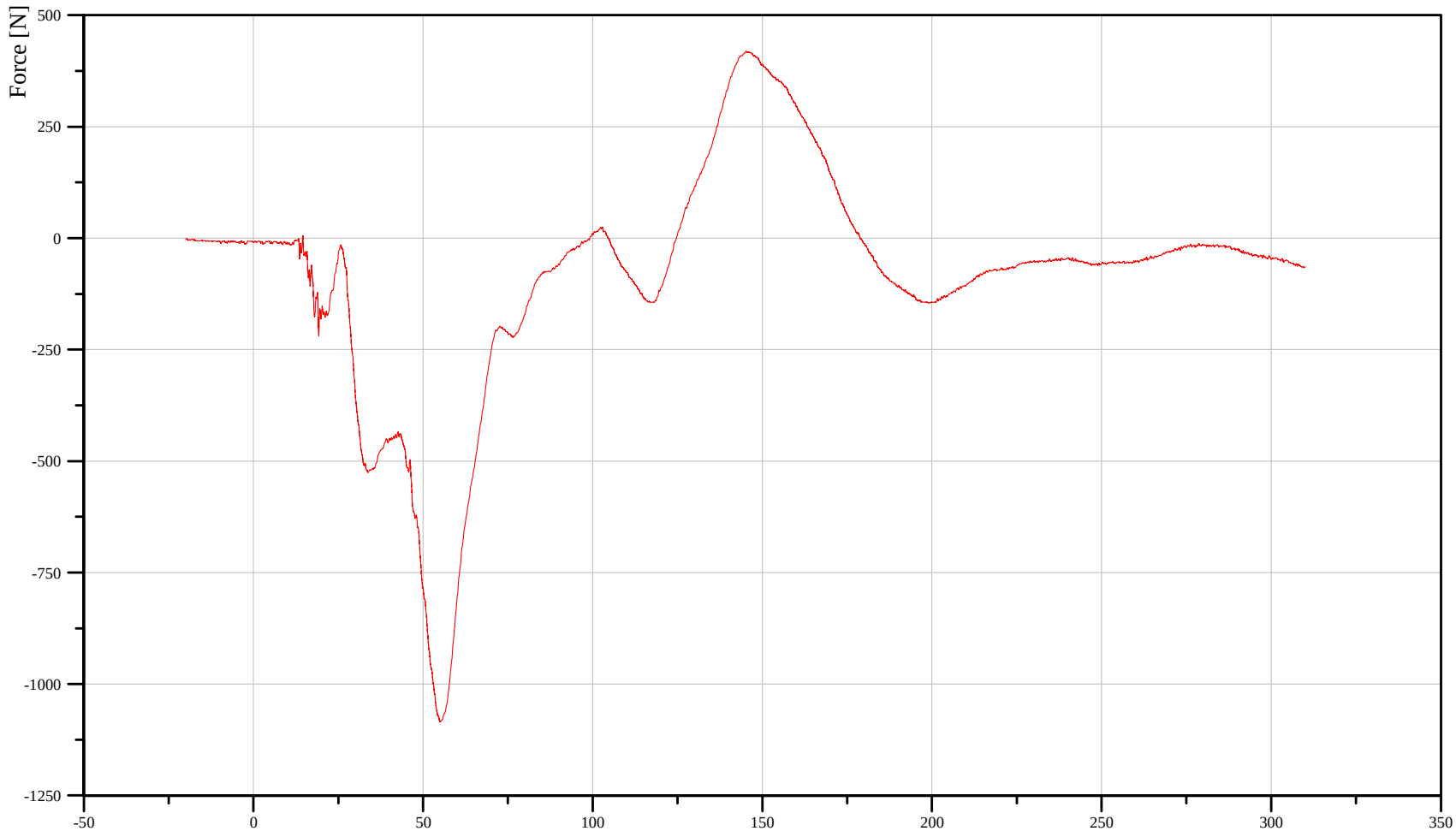
Lower Neck Z-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11NECKLO00WSFOZA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-1,084.82 N at 55.05 ms

Max. Value
419.13 N at 145.20 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

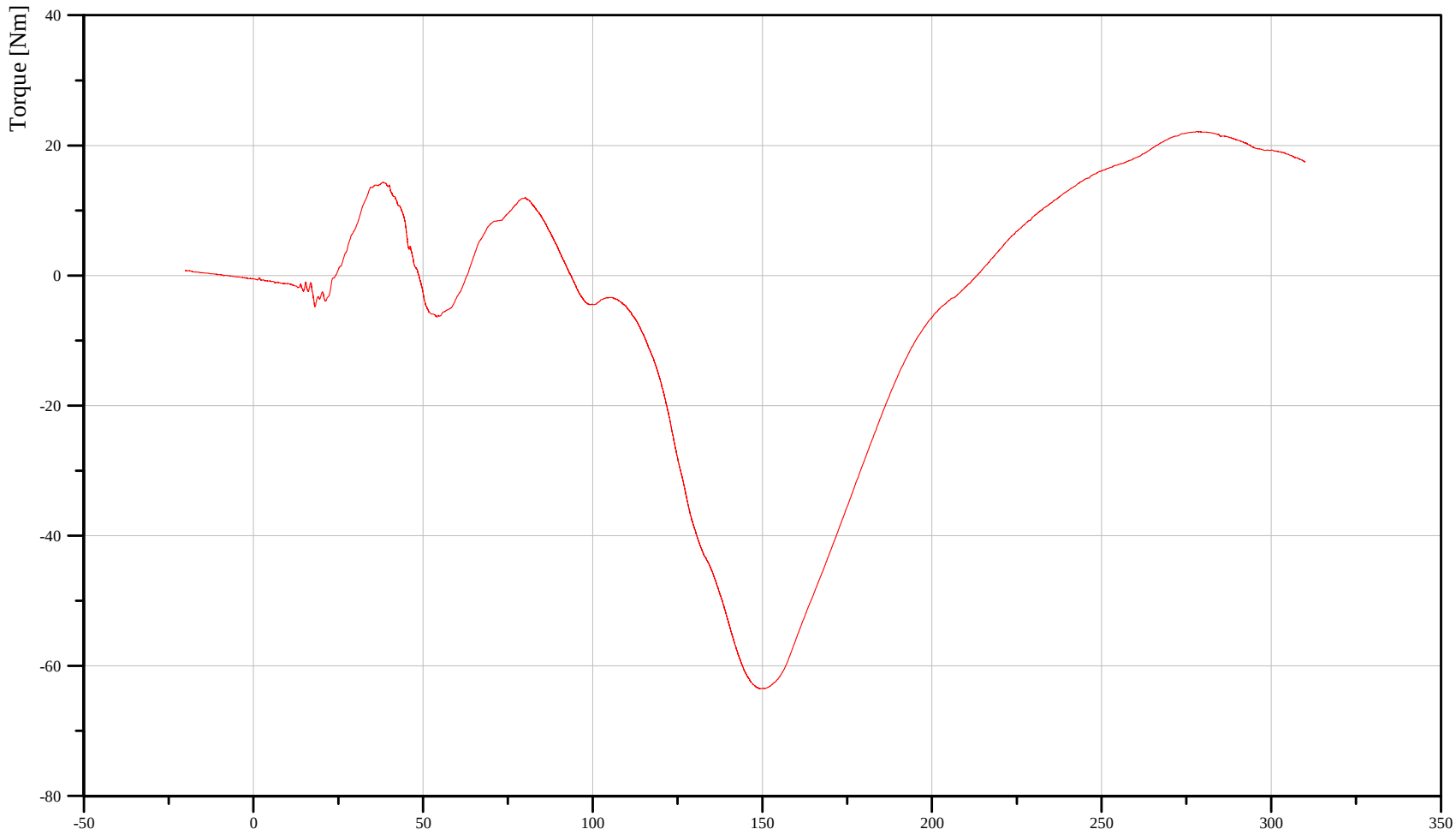
Lower Neck Moment About X Axis

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11NECKLO00WSMOXB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-63.49 Nm at 149.35 ms

Max. Value
22.13 Nm at 278.15 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

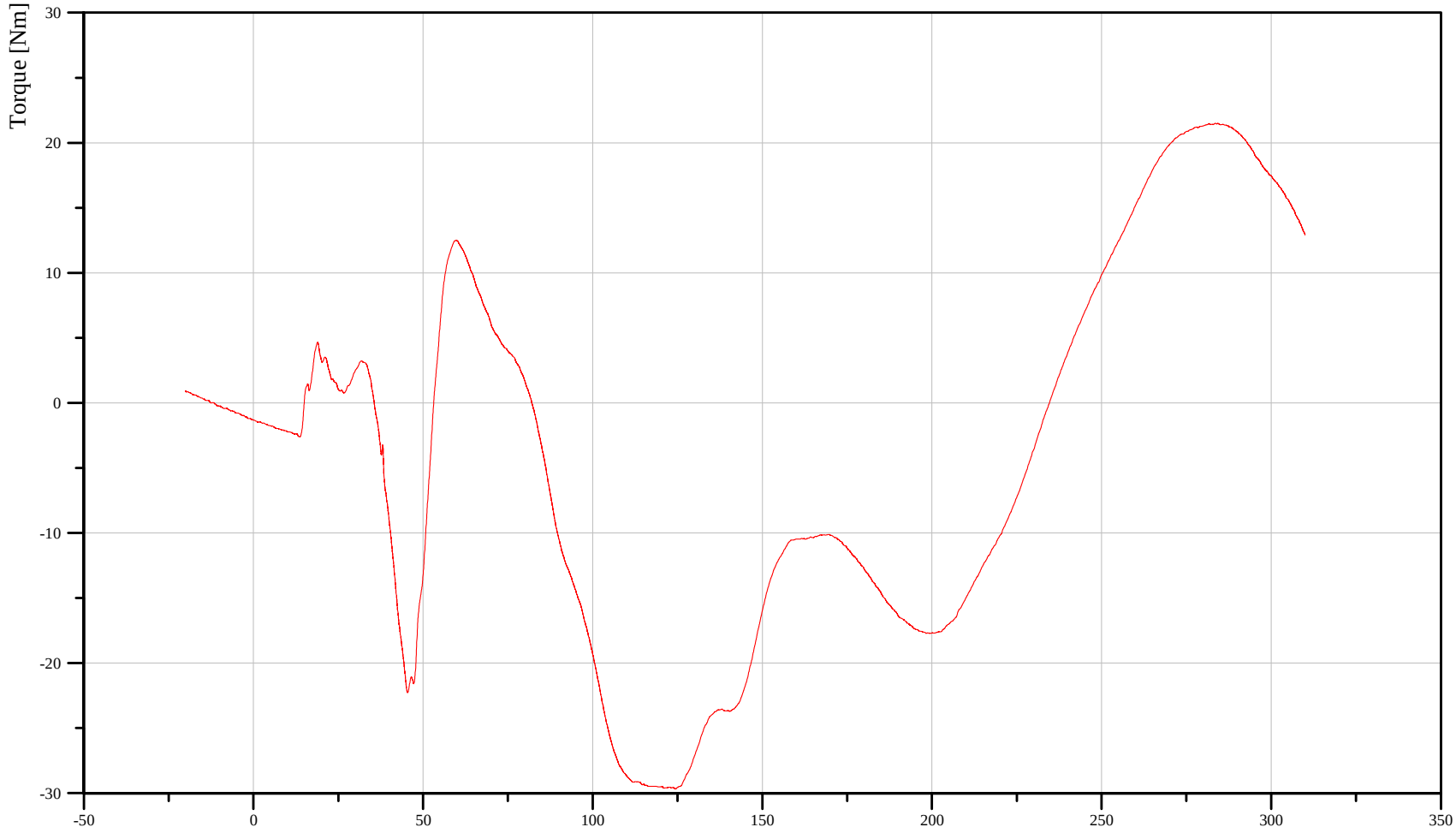
Lower Neck Moment About Y Axis

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11NECKLO00WSMOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-29.67 Nm at 124.40 ms

Max. Value
21.49 Nm at 283.60 ms

110801

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

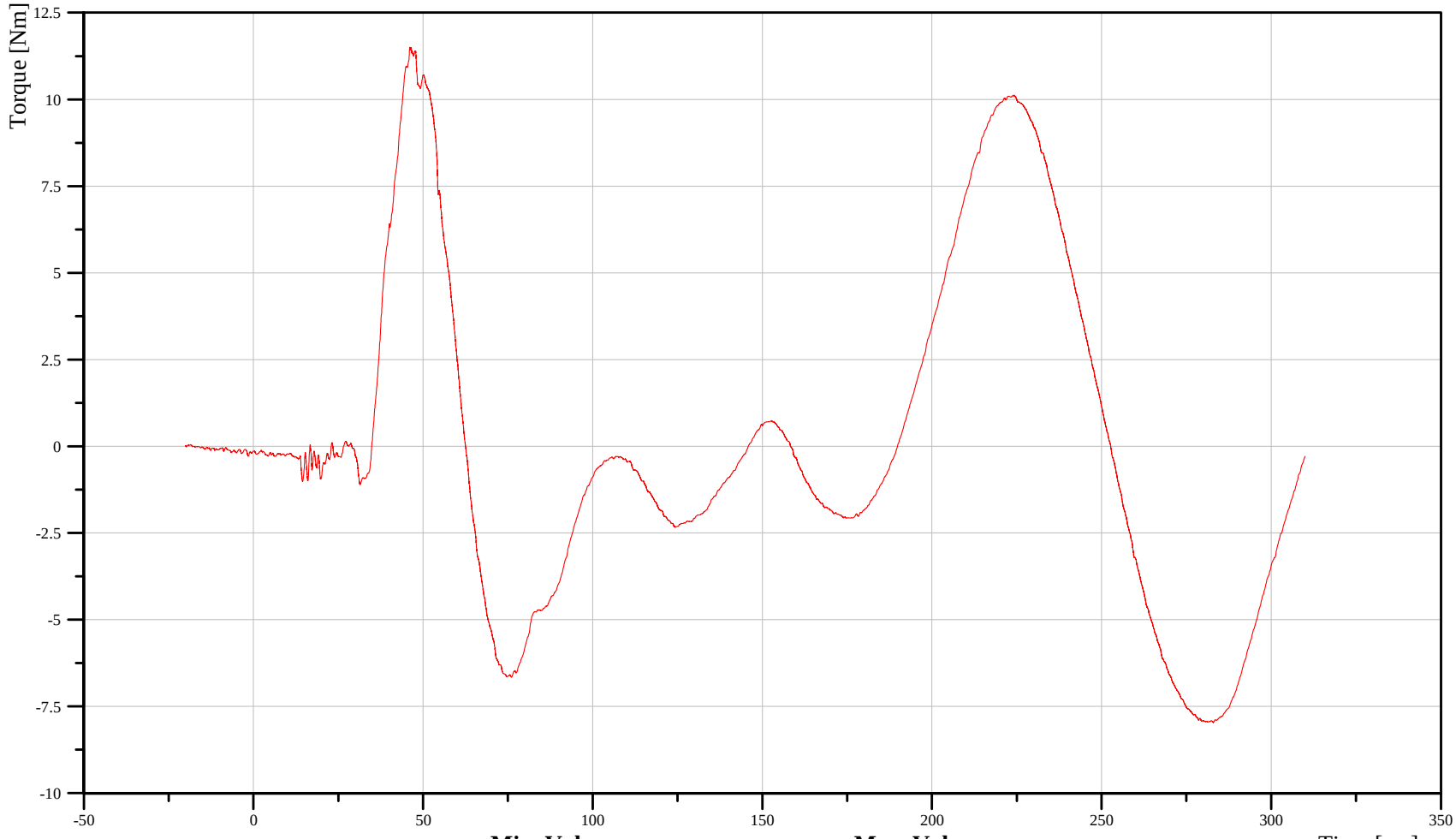
Lower Neck Moment About Z Axis

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11NECKLO00WSMOZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-7.96 Nm at 282.95 ms

Max. Value
11.51 Nm at 46.10 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

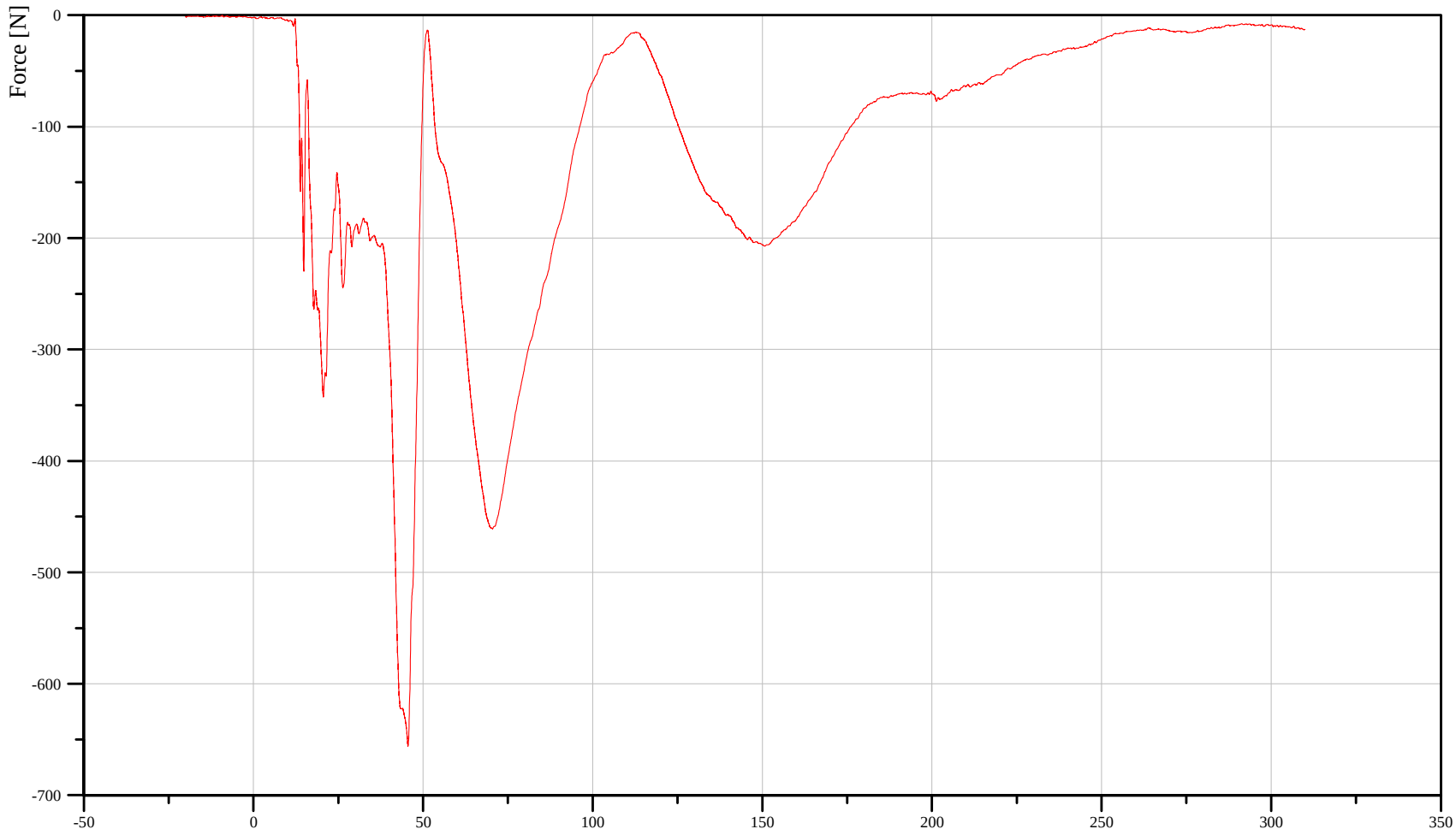
Shoulder X-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SHLDLE00WSFOXB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-655.99 N at 45.55 ms

Max. Value
-0.17 N at -9.20 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

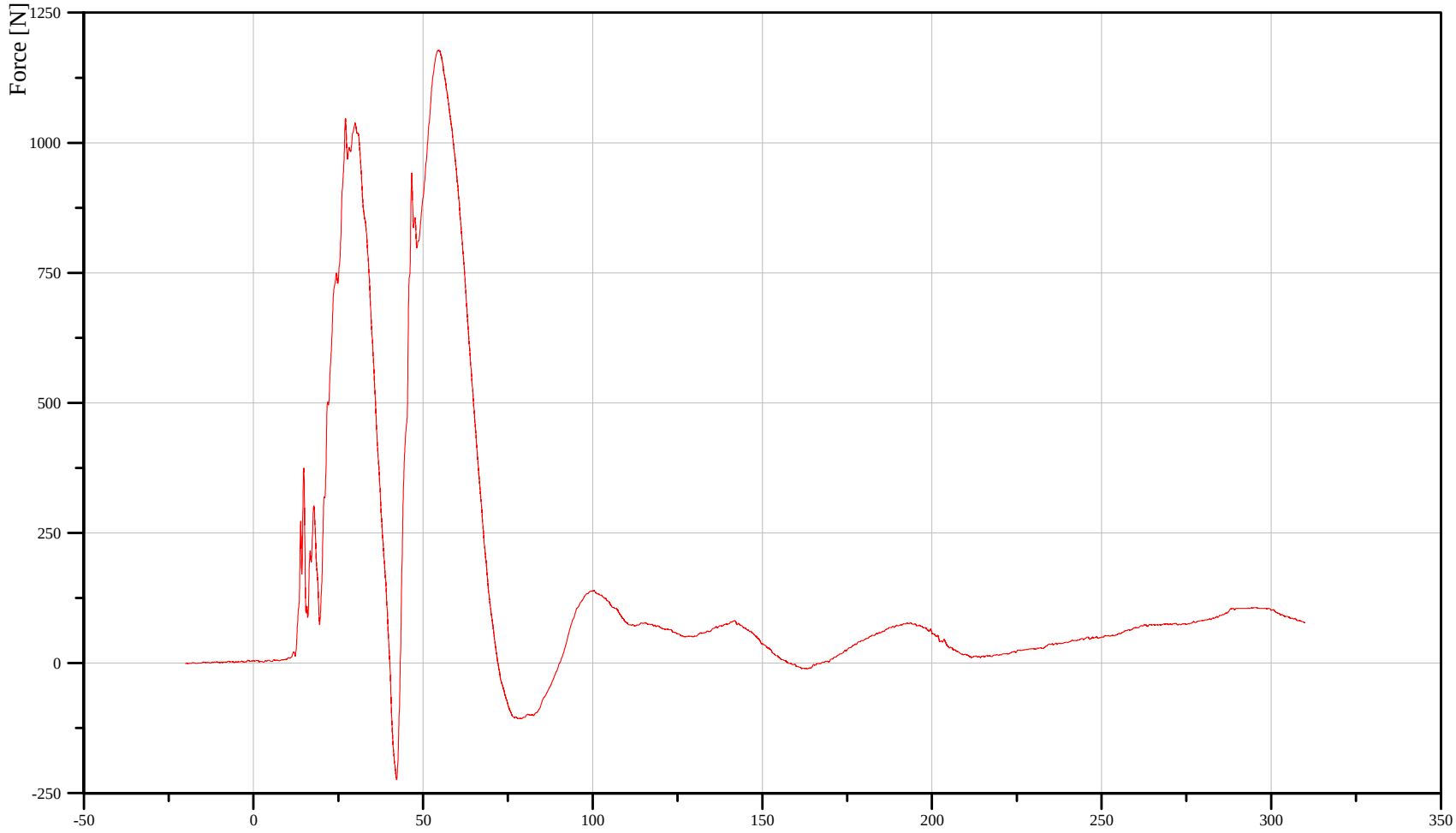
Shoulder Y-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SHLDLE00WSFOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-223.87 N at 42.20 ms

Max. Value
1,177.32 N at 54.40 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

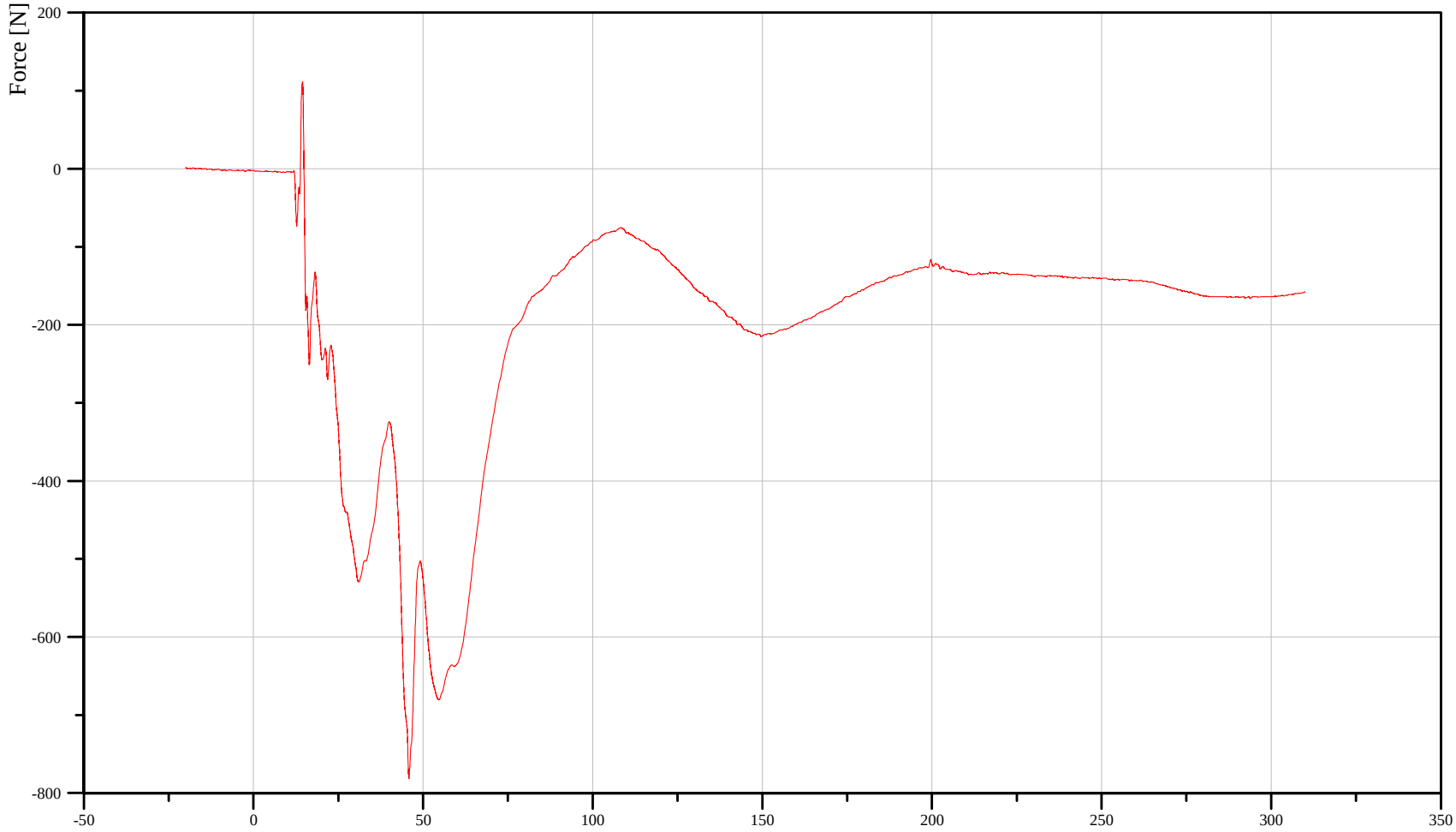
Shoulder Z-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SHLDLE00WSFOZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-781.67 N at 45.85 ms

Max. Value
111.24 N at 14.45 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

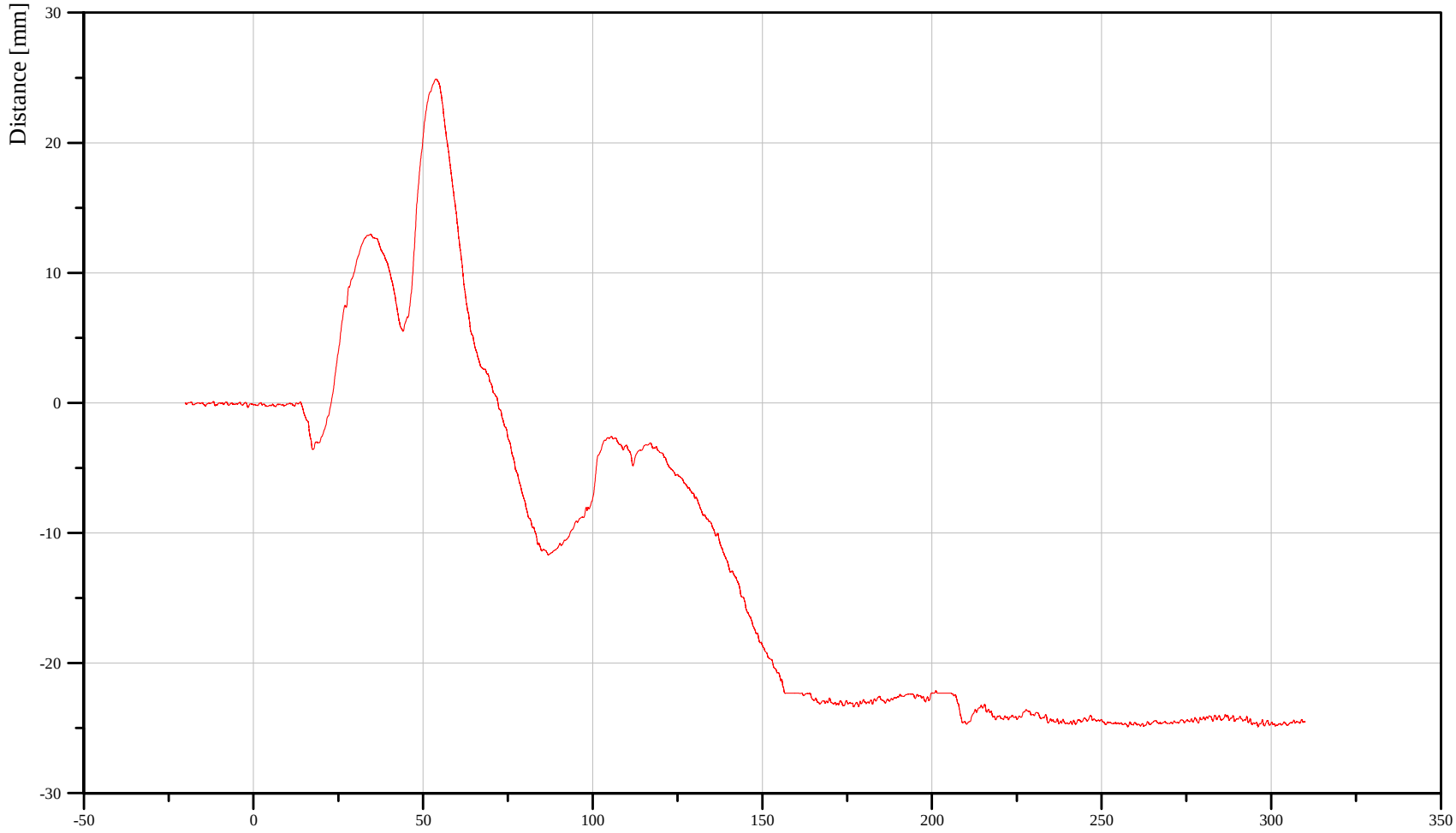
Shoulder Y-Axis Displacement

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SHLDLE00WSDSYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-24.90 mm at 257.80 ms

Max. Value
24.91 mm at 53.80 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

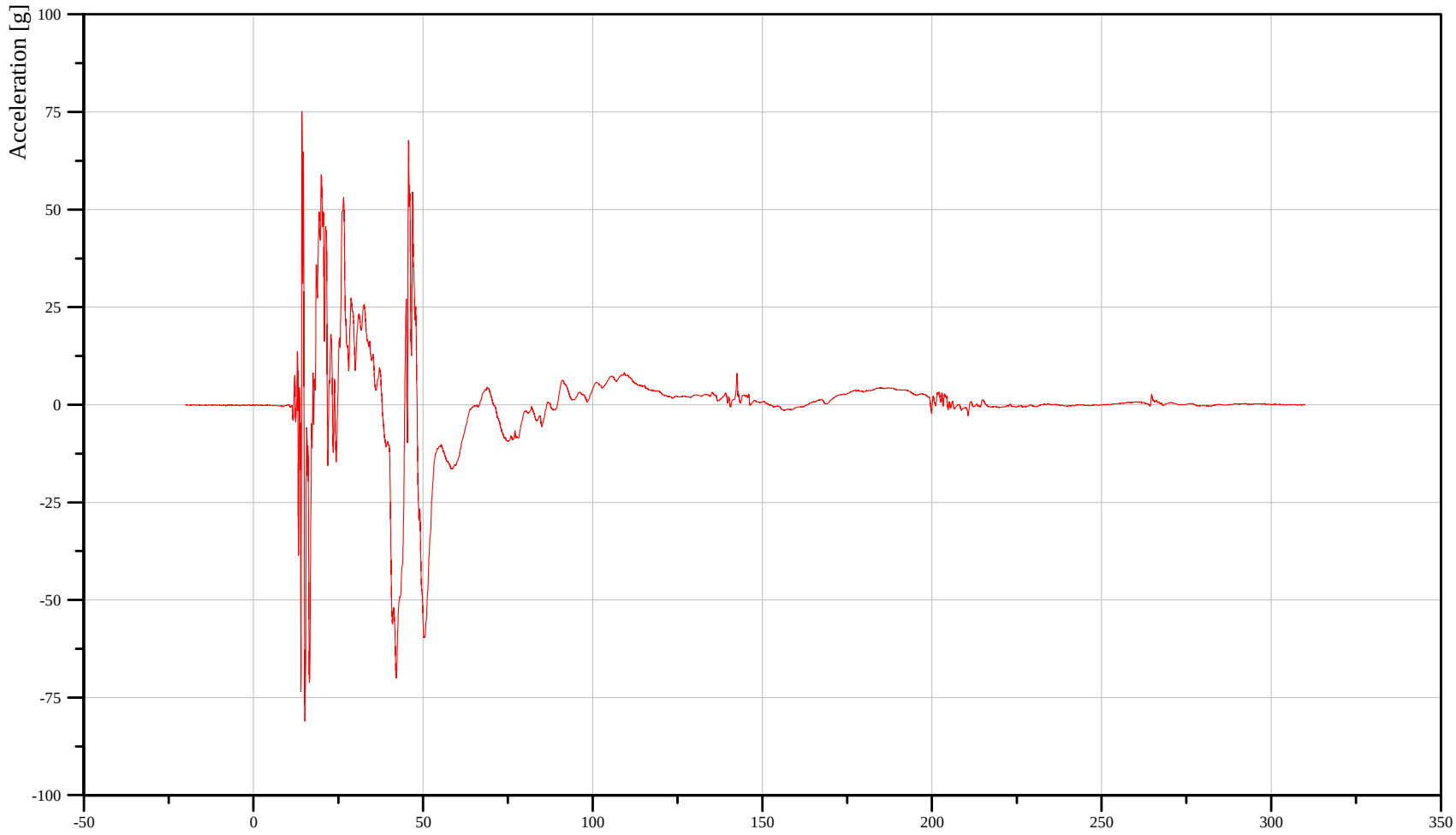
Shoulder X-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SHLDLE00WSACXA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-81.05 g at 15.15 ms

Max. Value
75.16 g at 14.30 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

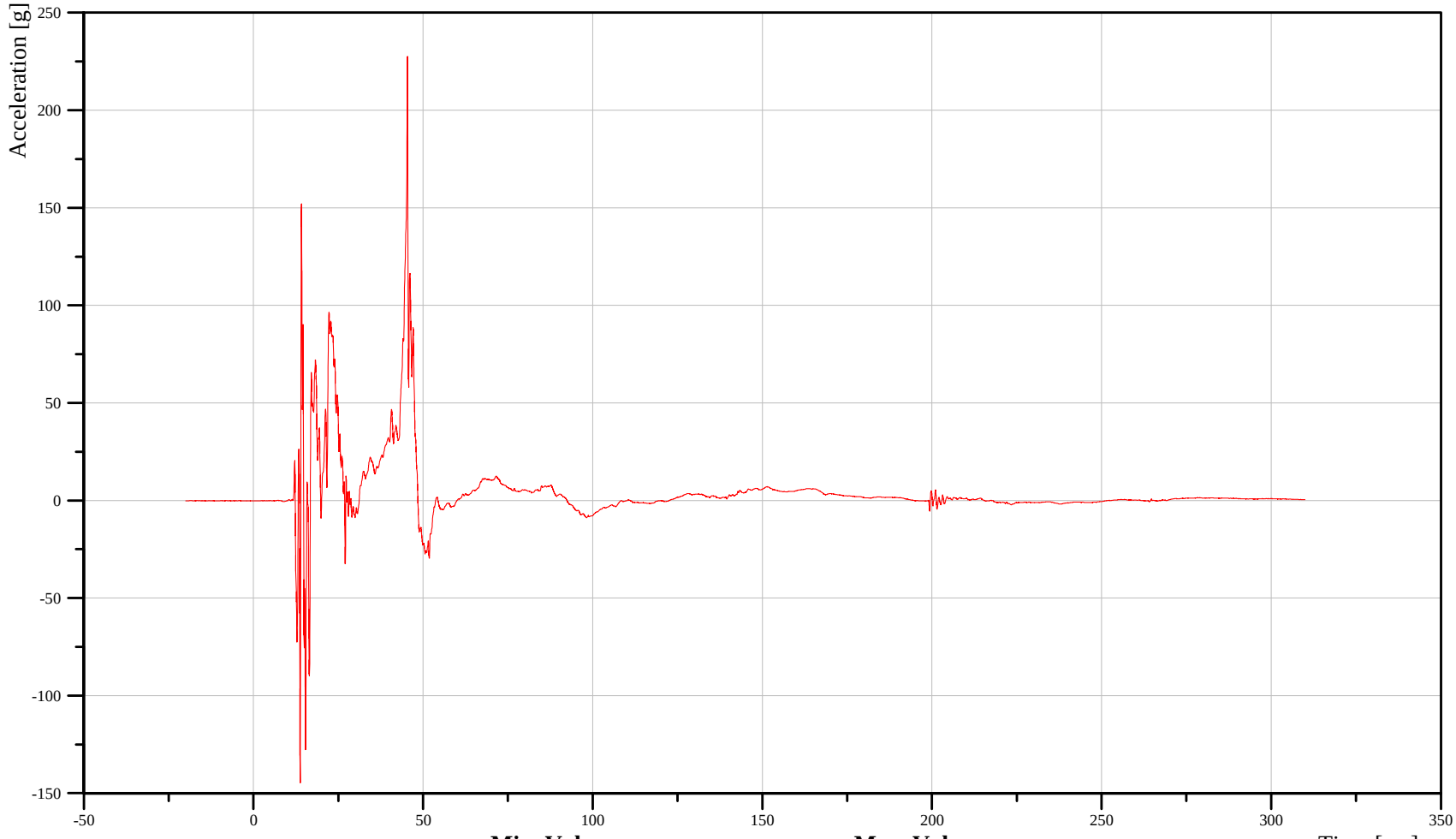
Shoulder Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SHLDLE00WSACYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-144.73 g at 13.80 ms

Max. Value
227.49 g at 45.40 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

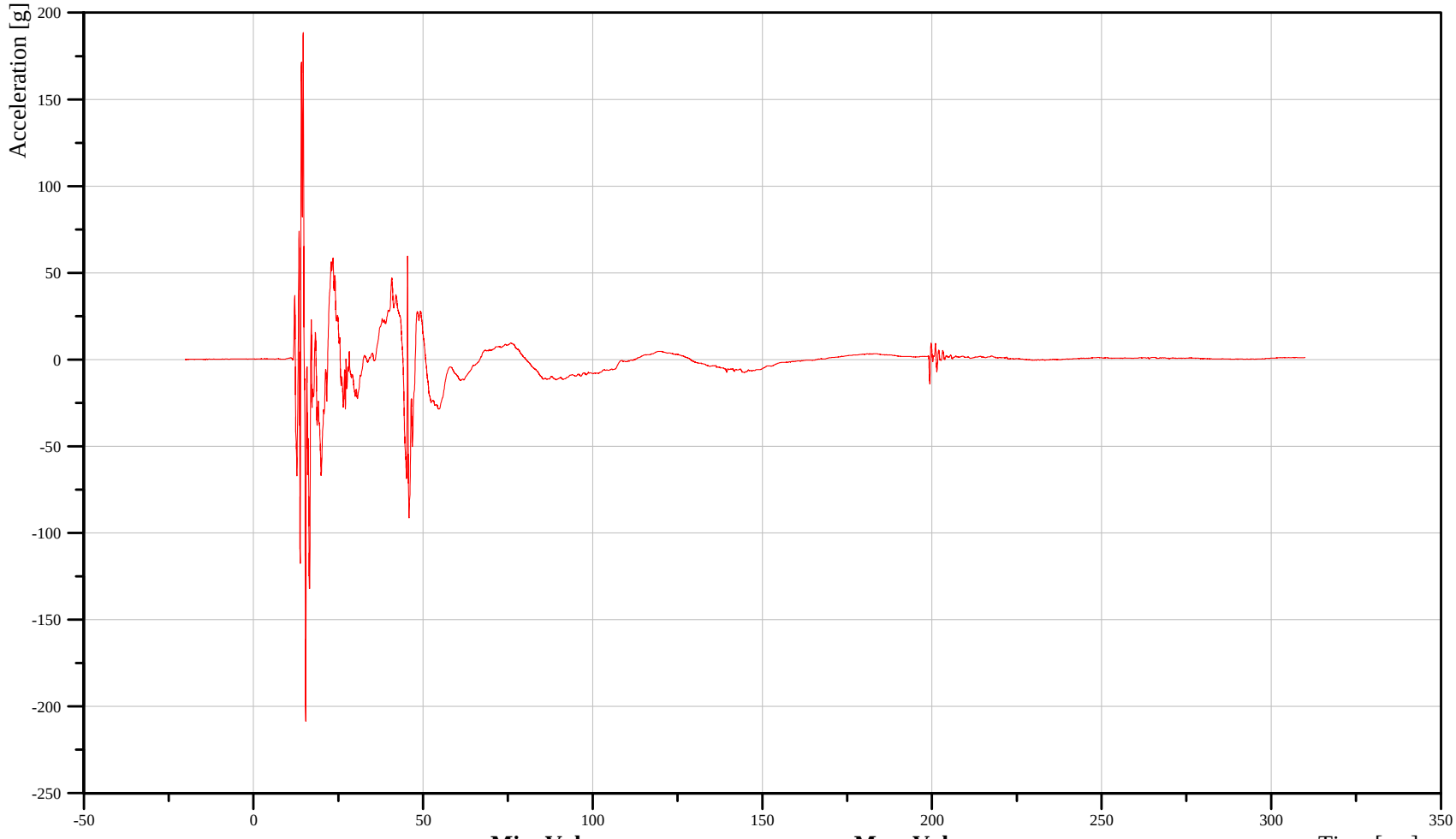
Shoulder Z-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SHLDLE00WSACZA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-208.60 g at 15.40 ms

Max. Value
188.56 g at 14.70 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

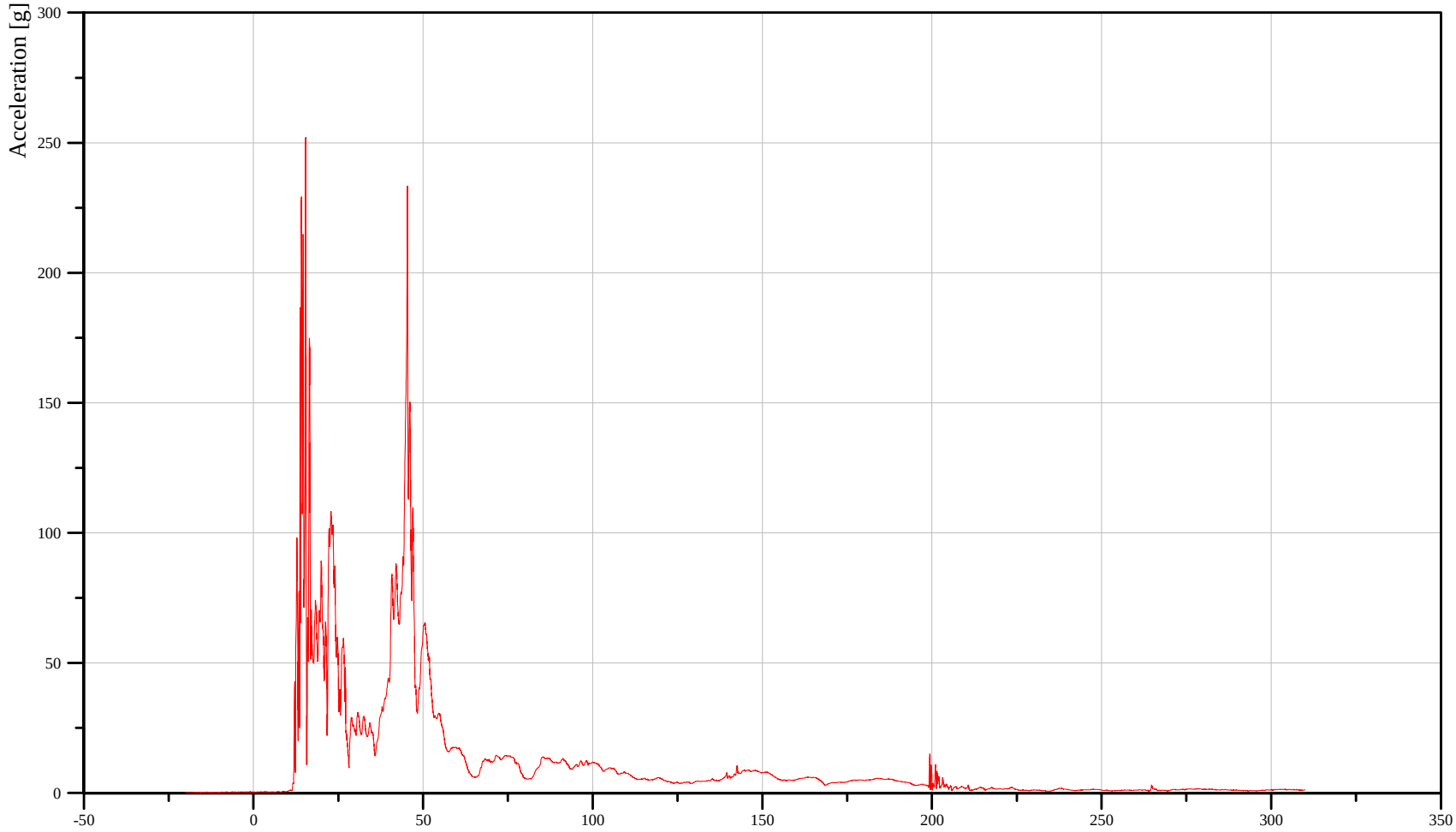
Shoulder Resultant Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SHLDLE00WSACRA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
0.16 g at -14.25 ms

Max. Value
252.12 g at 15.40 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

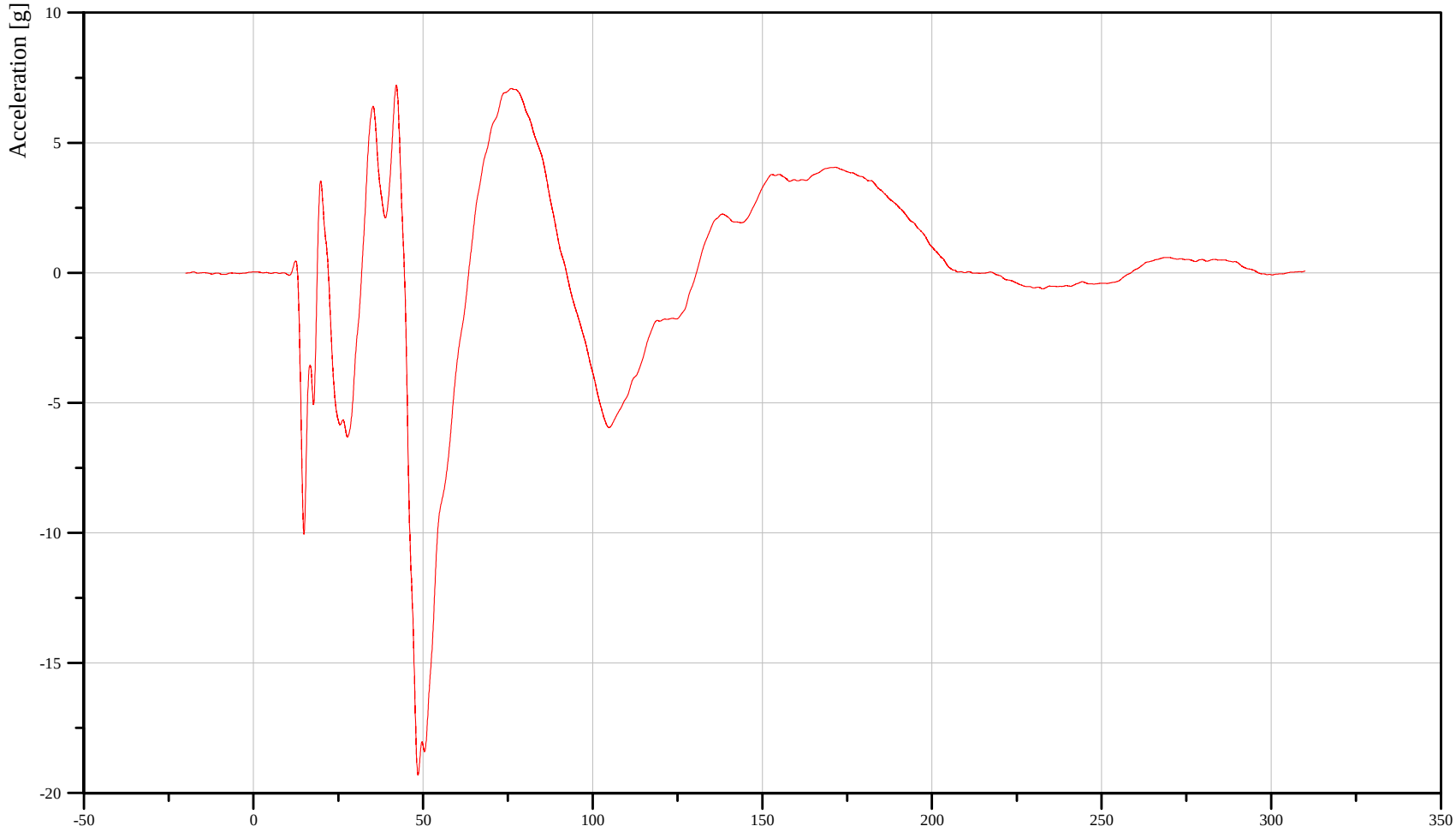
T1 X-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11THSP0100WSACXC

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_180

Min. Value
-19.31 g at 48.55 ms

Max. Value
7.21 g at 42.10 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

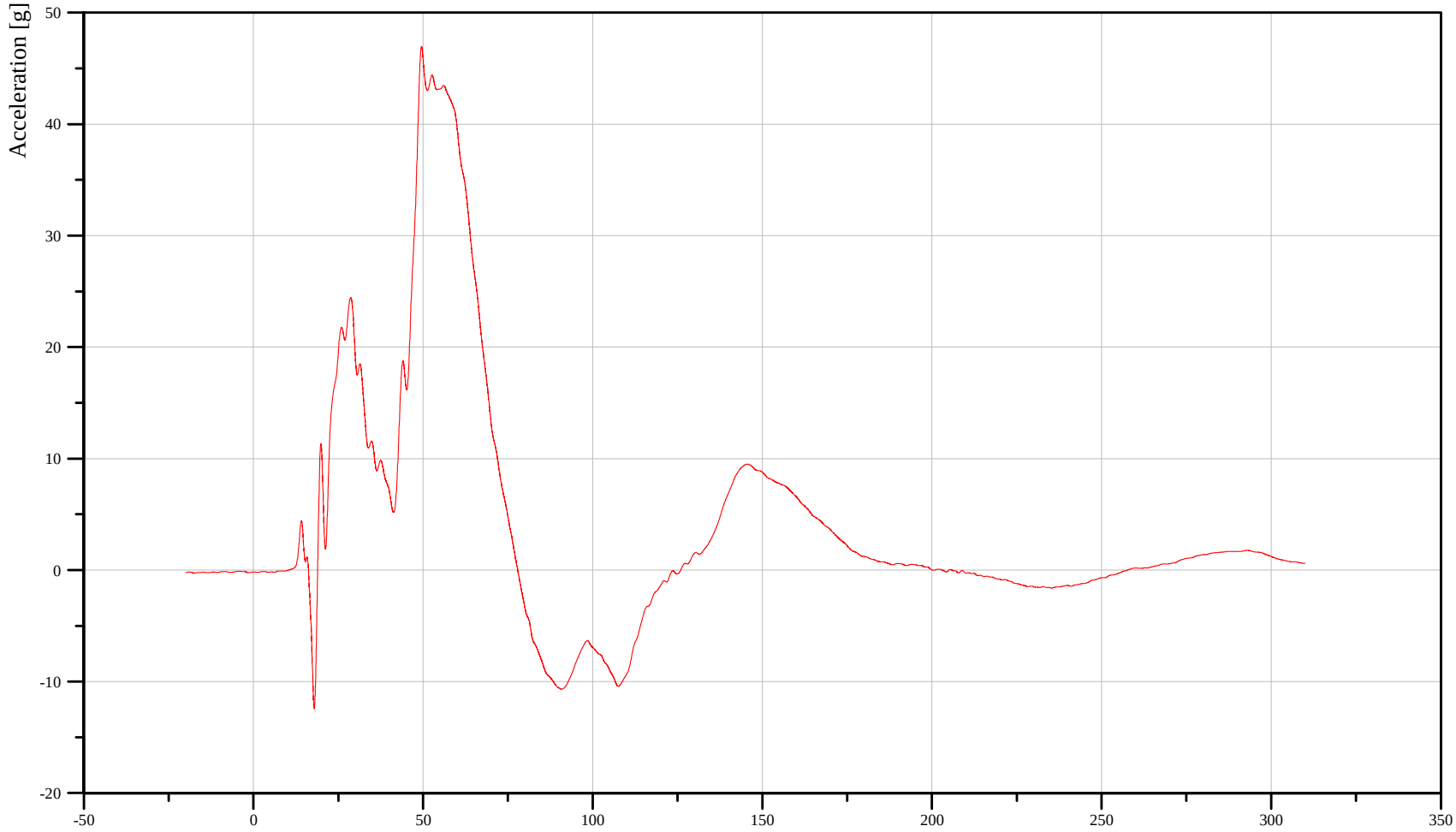
T1 Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11THSP0100WSACYC

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_180

Min. Value
-12.46 g at 17.95 ms

Max. Value
46.97 g at 49.55 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

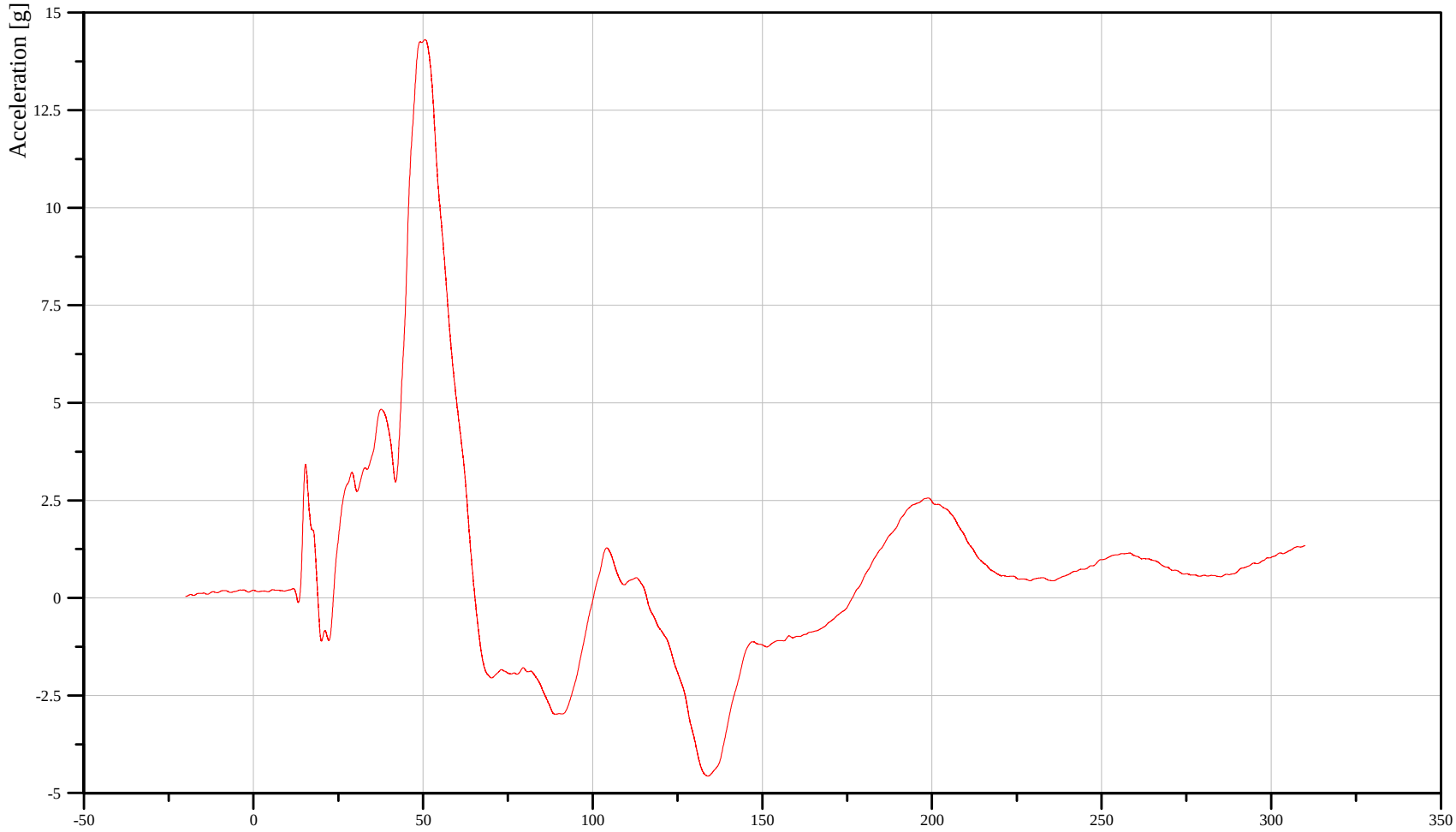
T1 Z-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11THSP0100WSACZC

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_180

Min. Value
-4.57 g at 133.95 ms

Max. Value
14.31 g at 50.60 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

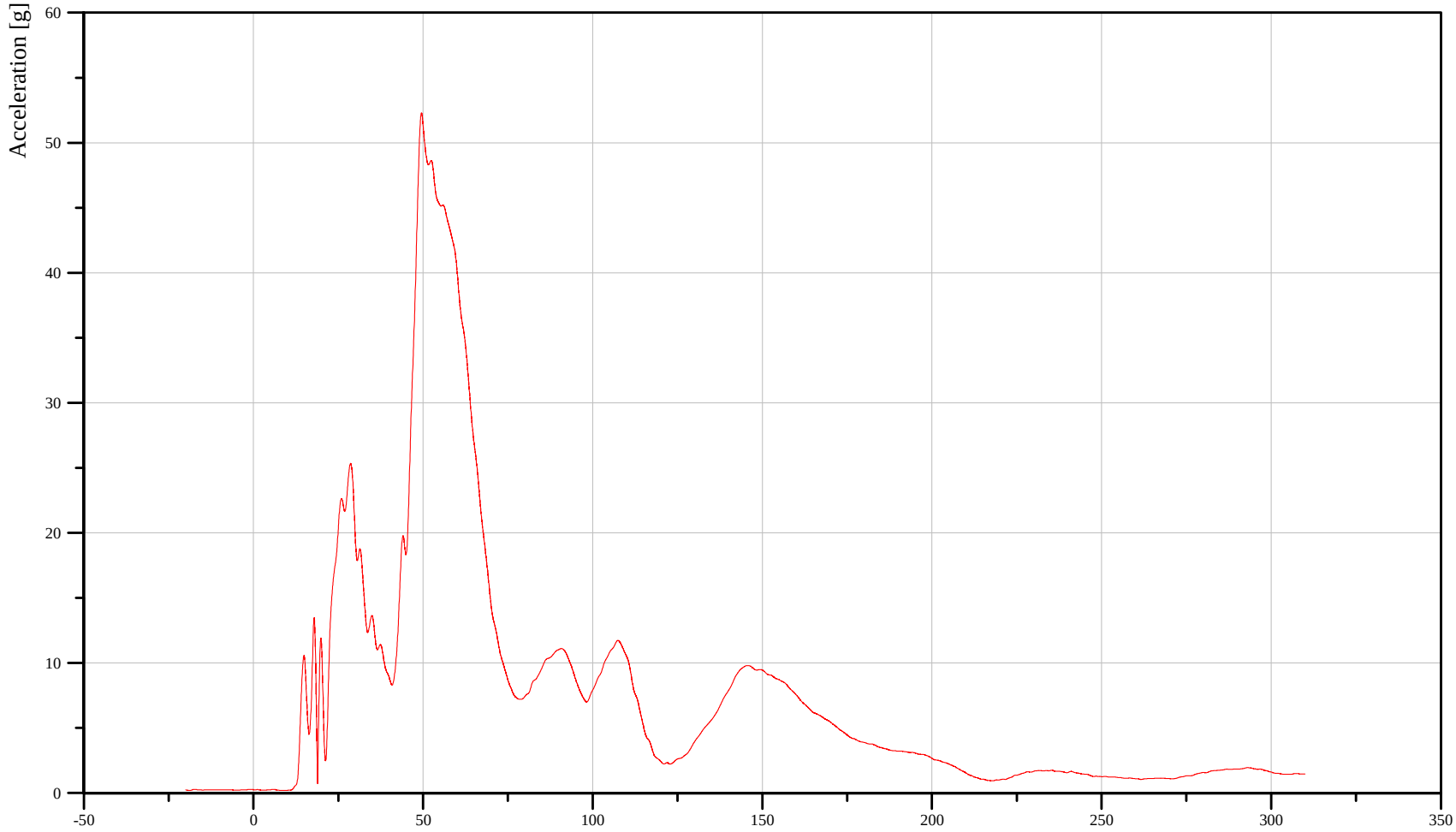
T1 Resultant Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11THSP0100WSACRC

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_180

Min. Value
0.19 g at -18.95 ms

Max. Value
52.30 g at 49.50 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

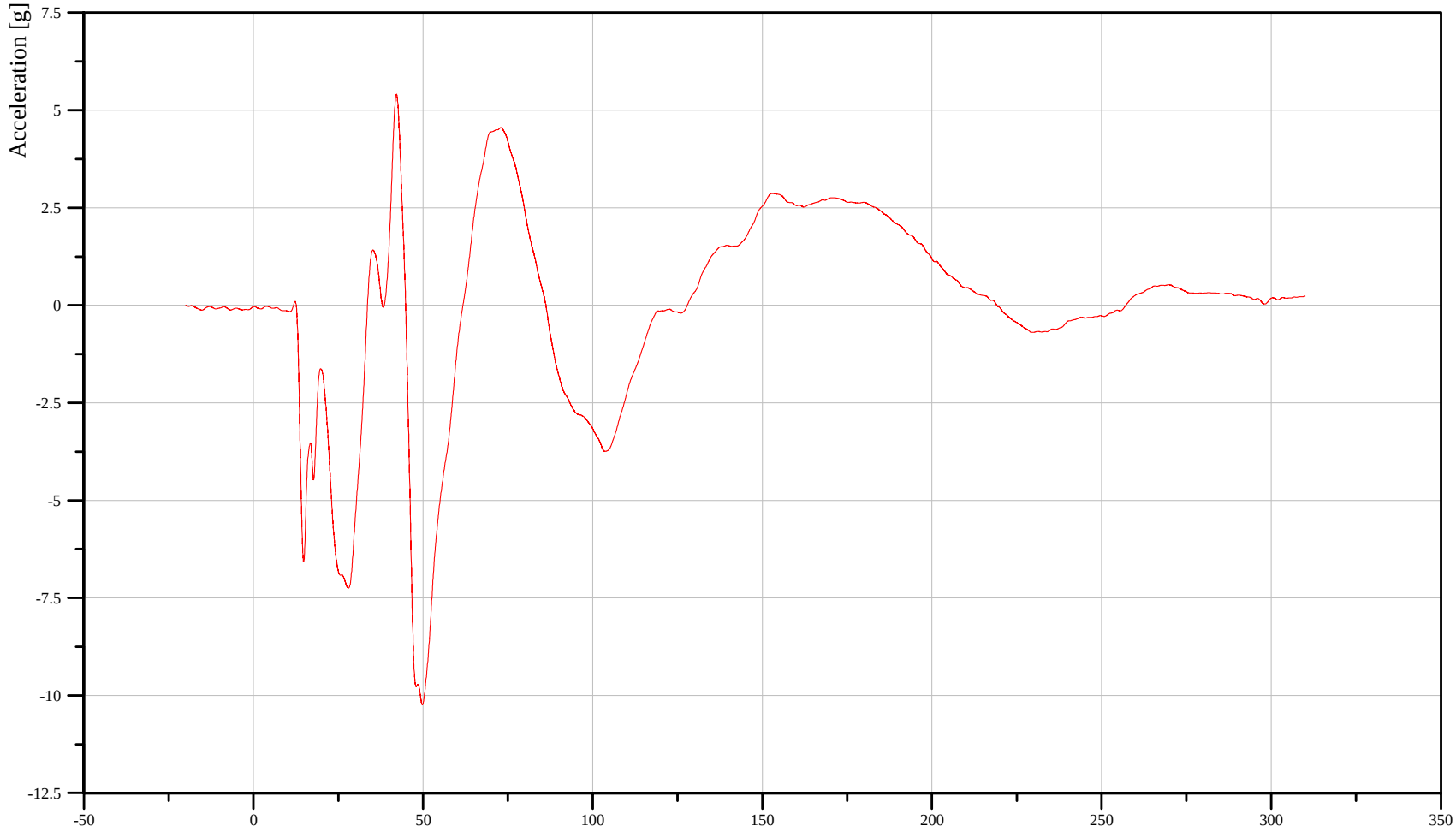
T4 X-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11THSP0400WSACXC

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_180

Min. Value
-10.24 g at 49.80 ms

Max. Value
5.41 g at 42.15 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

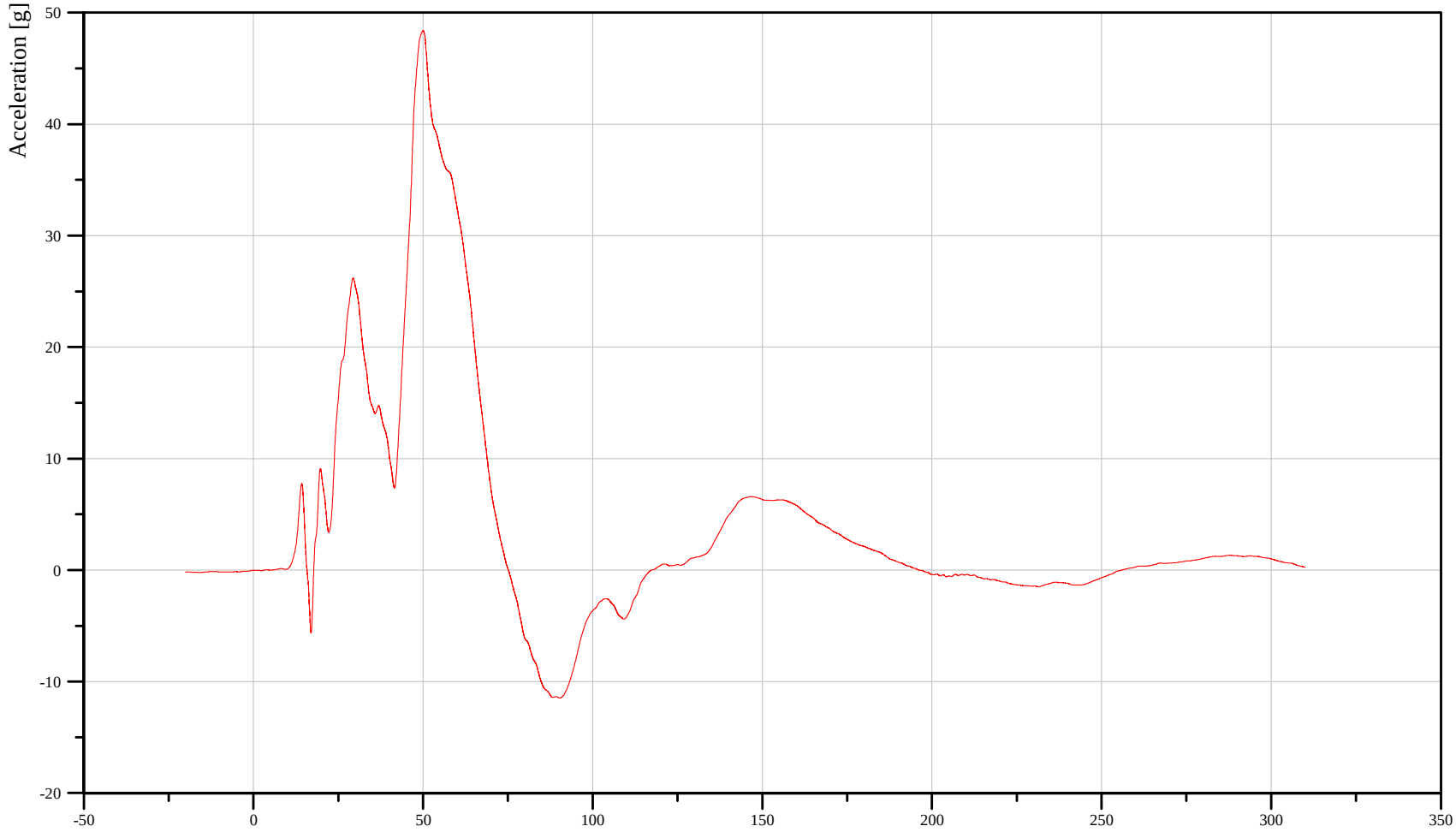
T4 Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11THSP0400WSACYC

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_180

Min. Value
-11.47 g at 90.30 ms

Max. Value
48.40 g at 50.00 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

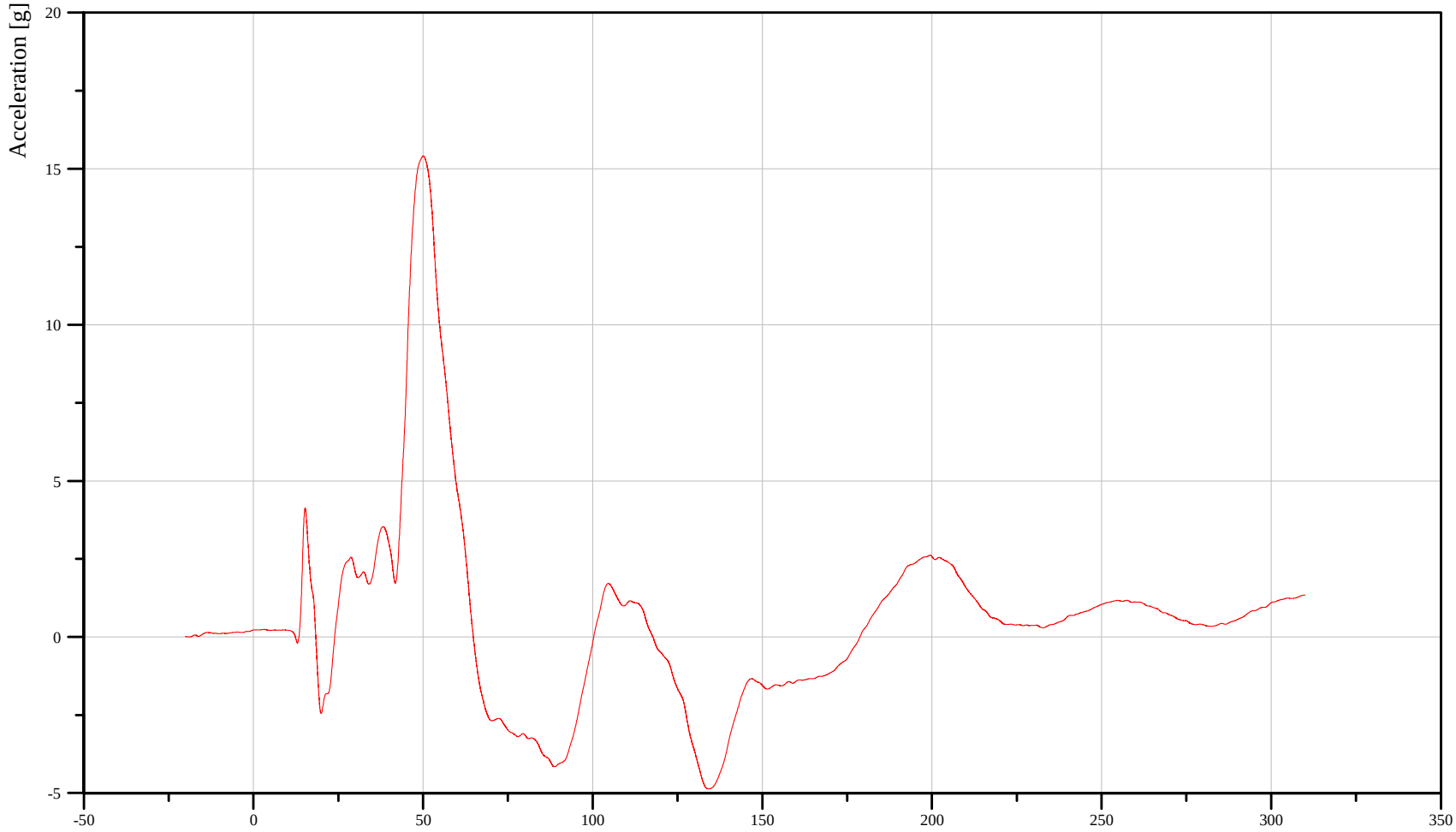
T4 Z-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11THSP0400WSACZC

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_180

Min. Value
-4.86 g at 134.15 ms

Max. Value
15.41 g at 50.05 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

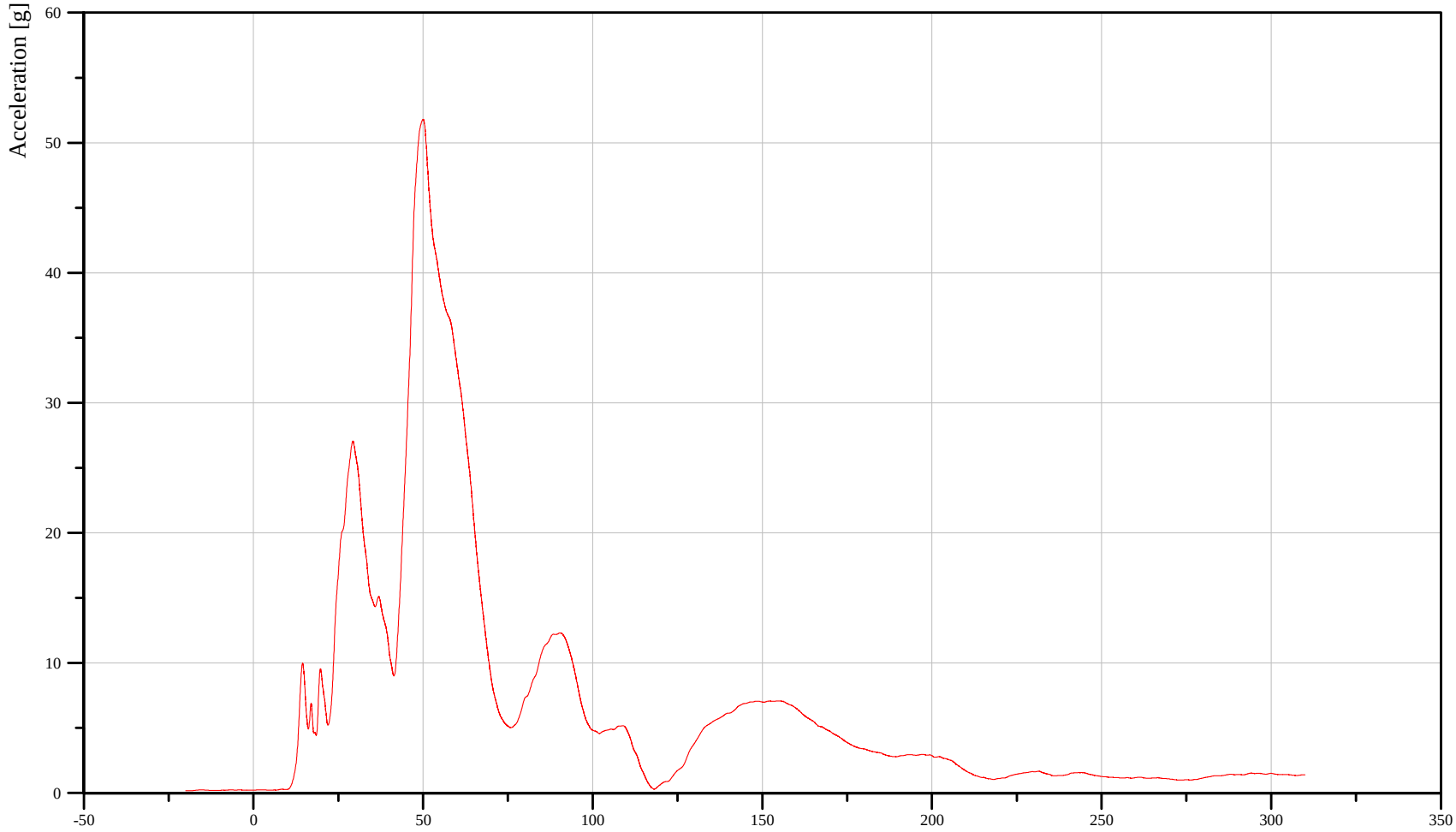
T4 Resultant Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11THSP0400WSACRC

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_180

Min. Value
0.17 g at -19.55 ms

Max. Value
51.81 g at 50.00 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

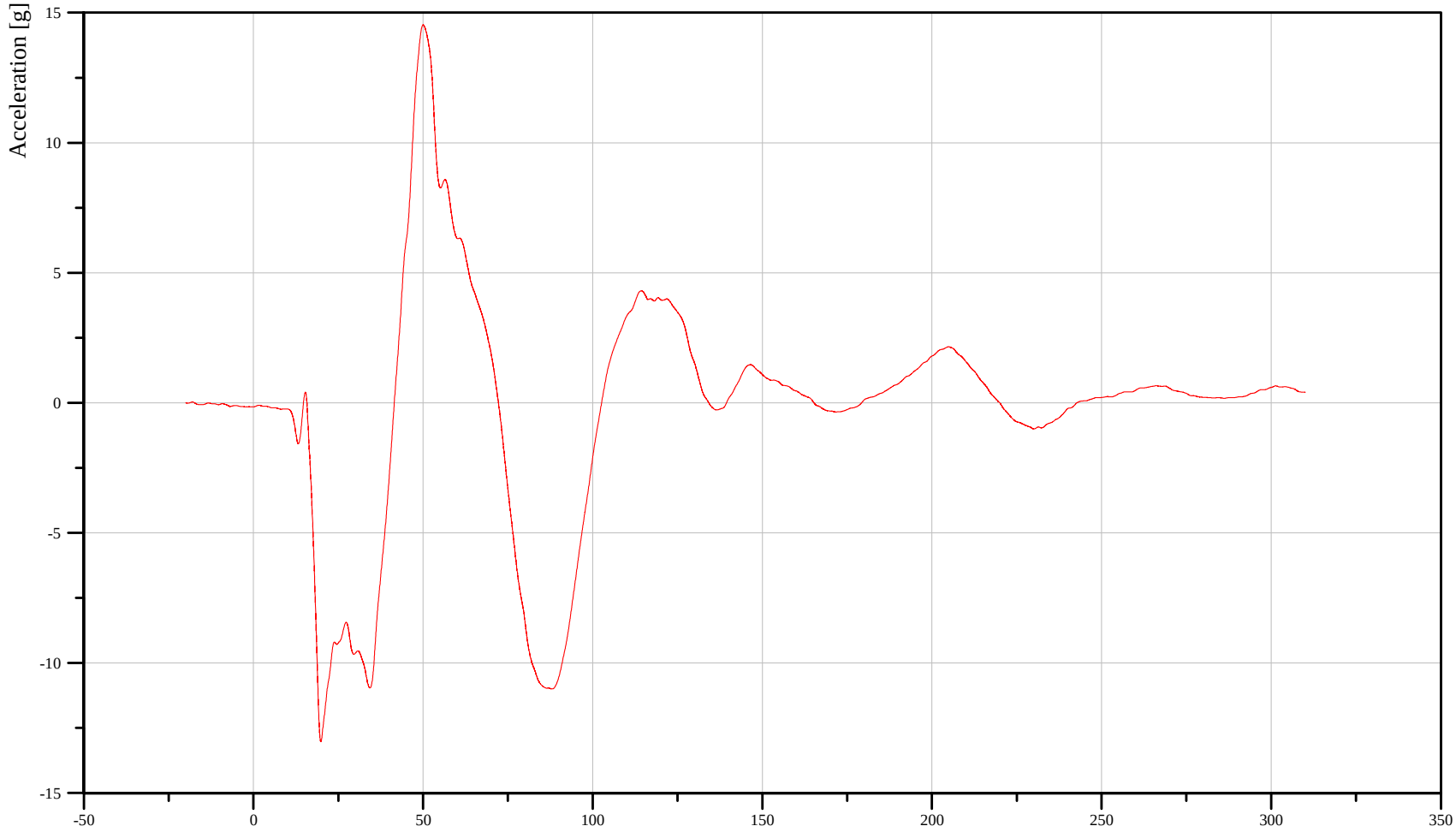
T12 X-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11THSP1200WSACXC

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_180

Min. Value
-13.03 g at 19.90 ms

Max. Value
14.53 g at 50.00 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

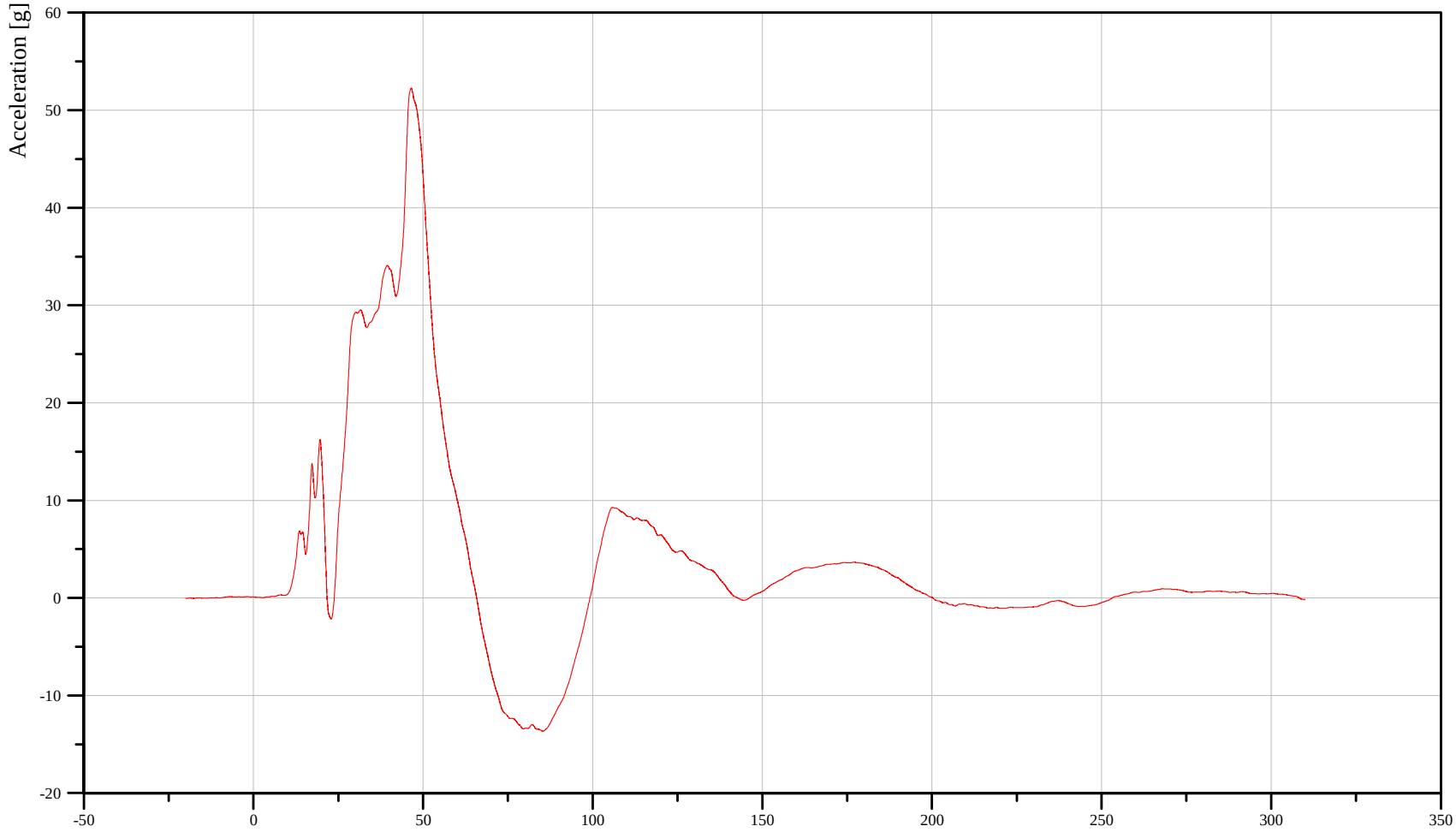
T12 Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11THSP1200WSACYC

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_180

Min. Value
-13.66 g at 85.35 ms

Max. Value
52.27 g at 46.50 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

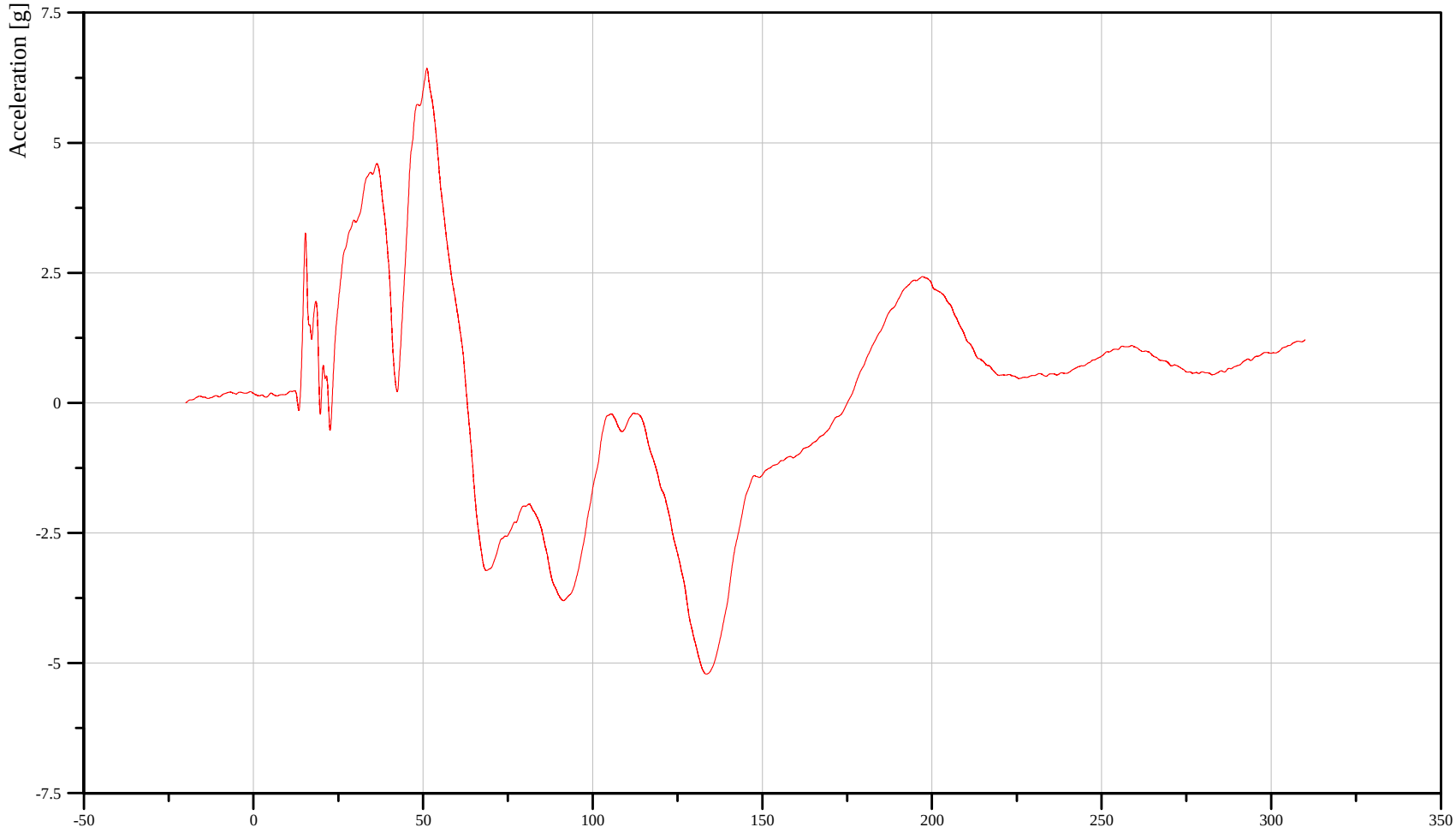
T12 Z-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11THSP1200WSACZC

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_180

Min. Value
-5.21 g at 133.45 ms

Max. Value
6.43 g at 51.15 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

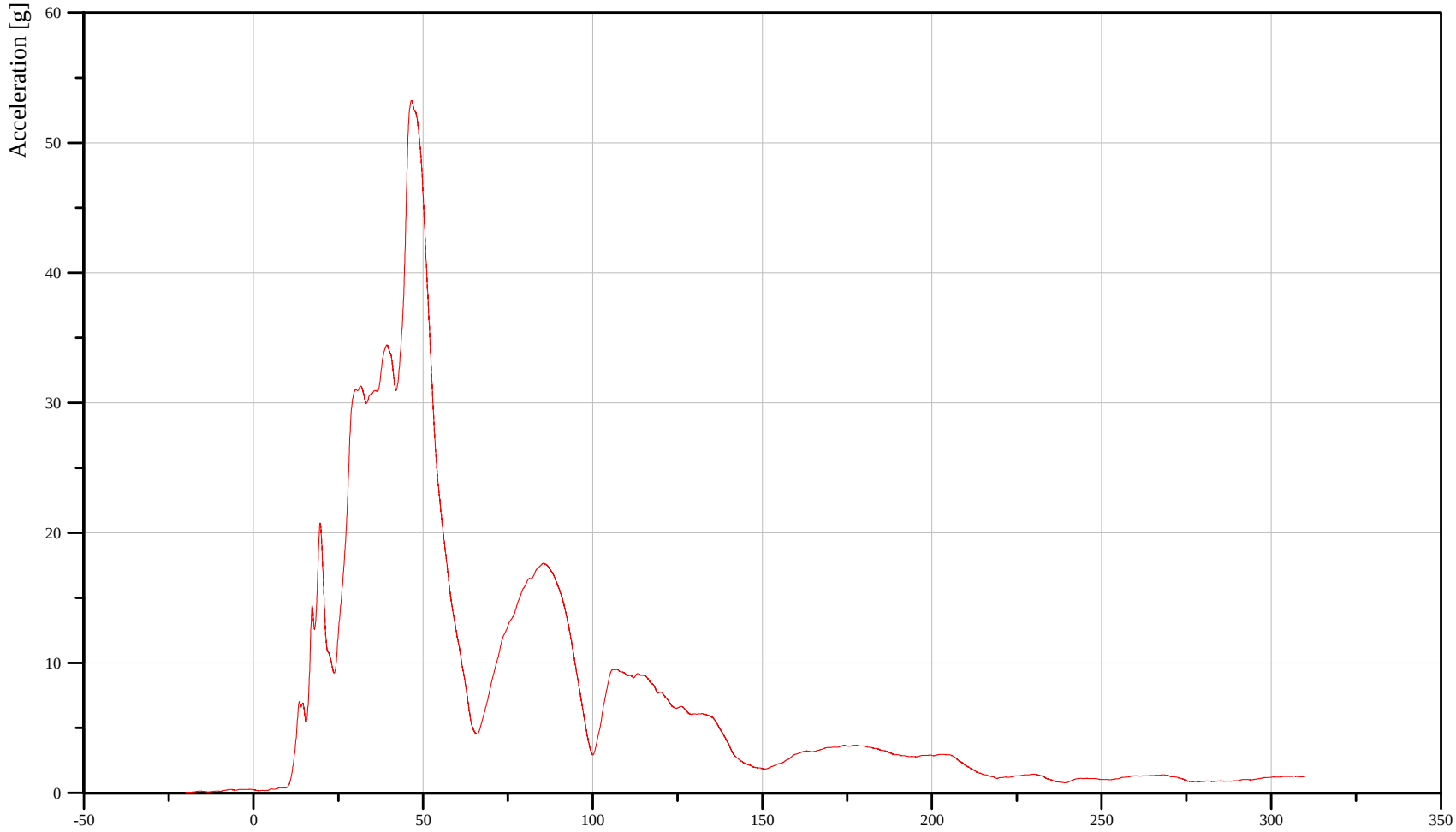
T12 Resultant Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11THSP1200WSACRC

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_180

Min. Value
0.05 g at -19.40 ms

Max. Value
53.26 g at 46.60 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

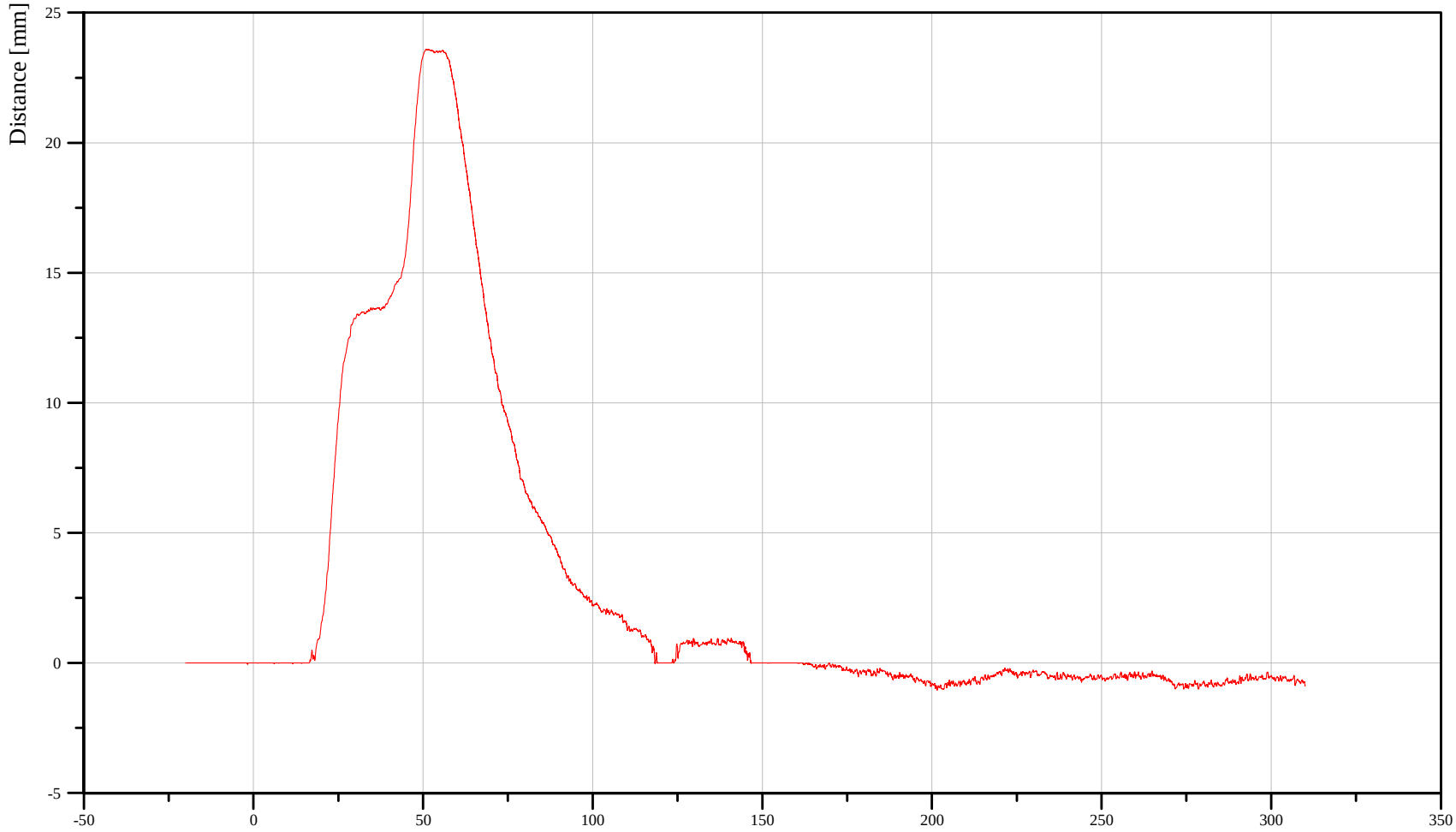
Thorax Rib 1 Y-Axis Displacement

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE01WSDSYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-1.05 mm at 201.55 ms

Max. Value
23.60 mm at 50.90 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

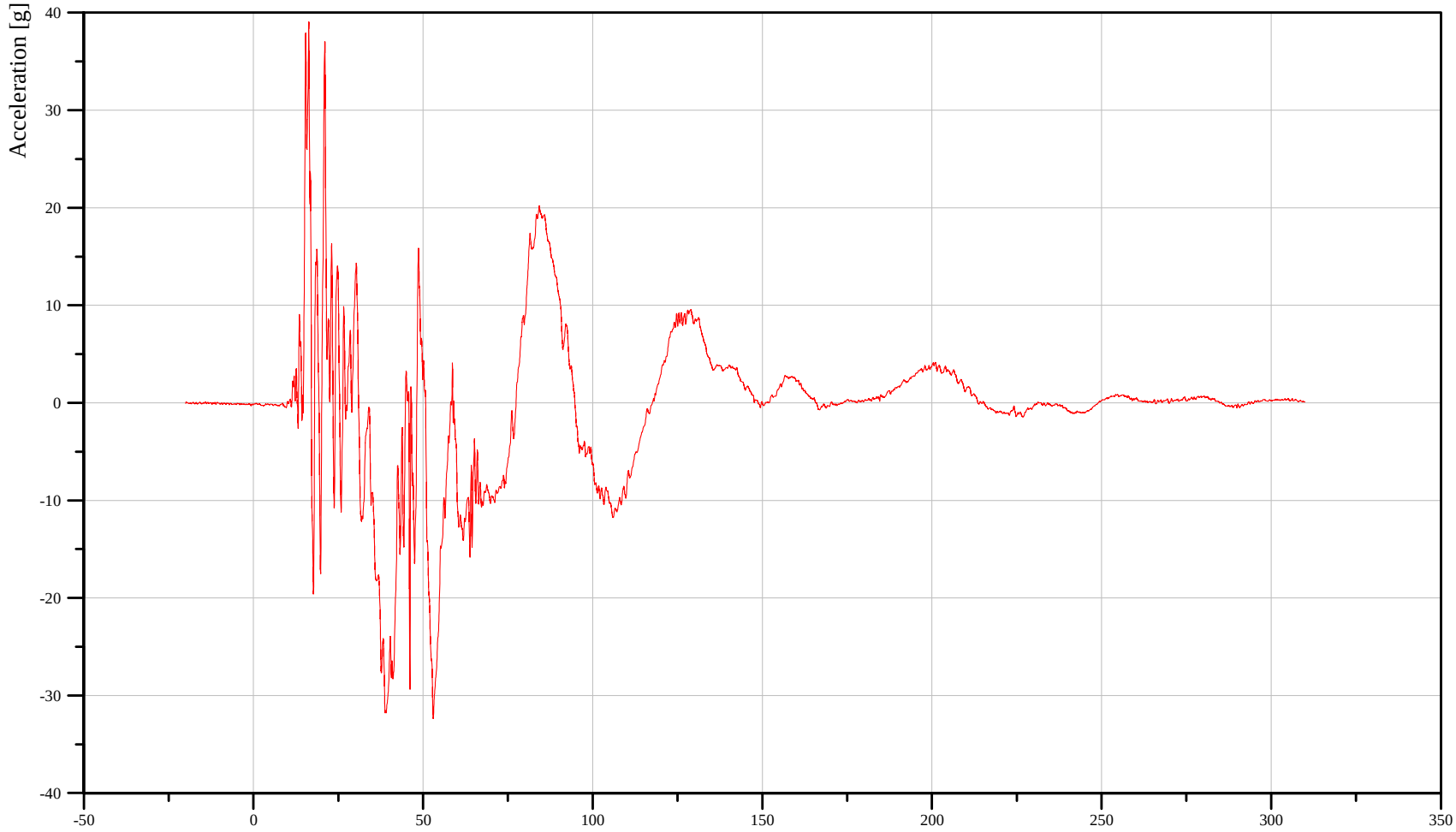
Thorax Rib 1 X-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE01WSACXA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-32.36 g at 53.00 ms

Max. Value
39.05 g at 16.30 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

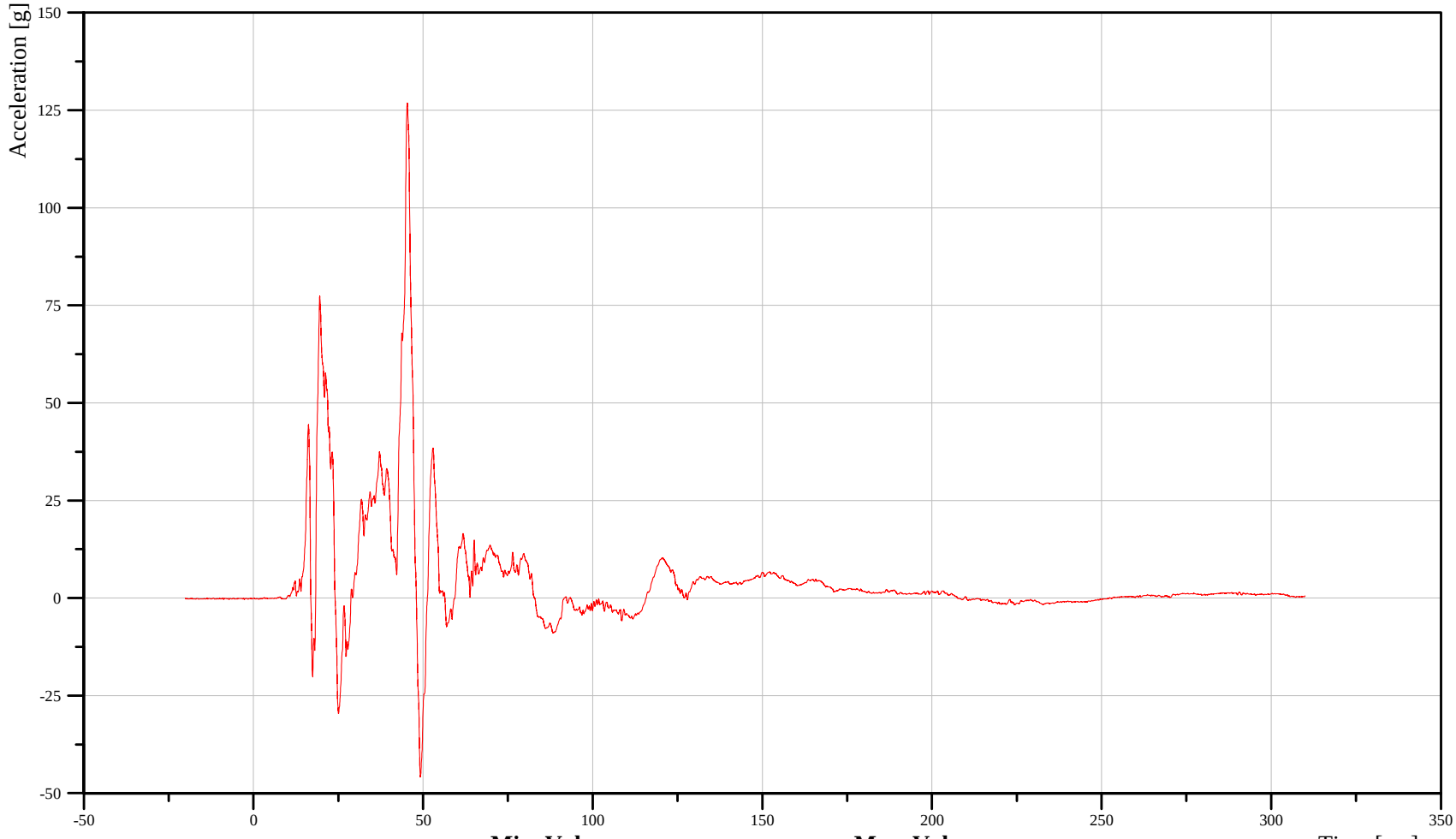
Thorax Rib 1 Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE01WSACYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-45.82 g at 49.20 ms

Max. Value
126.92 g at 45.35 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

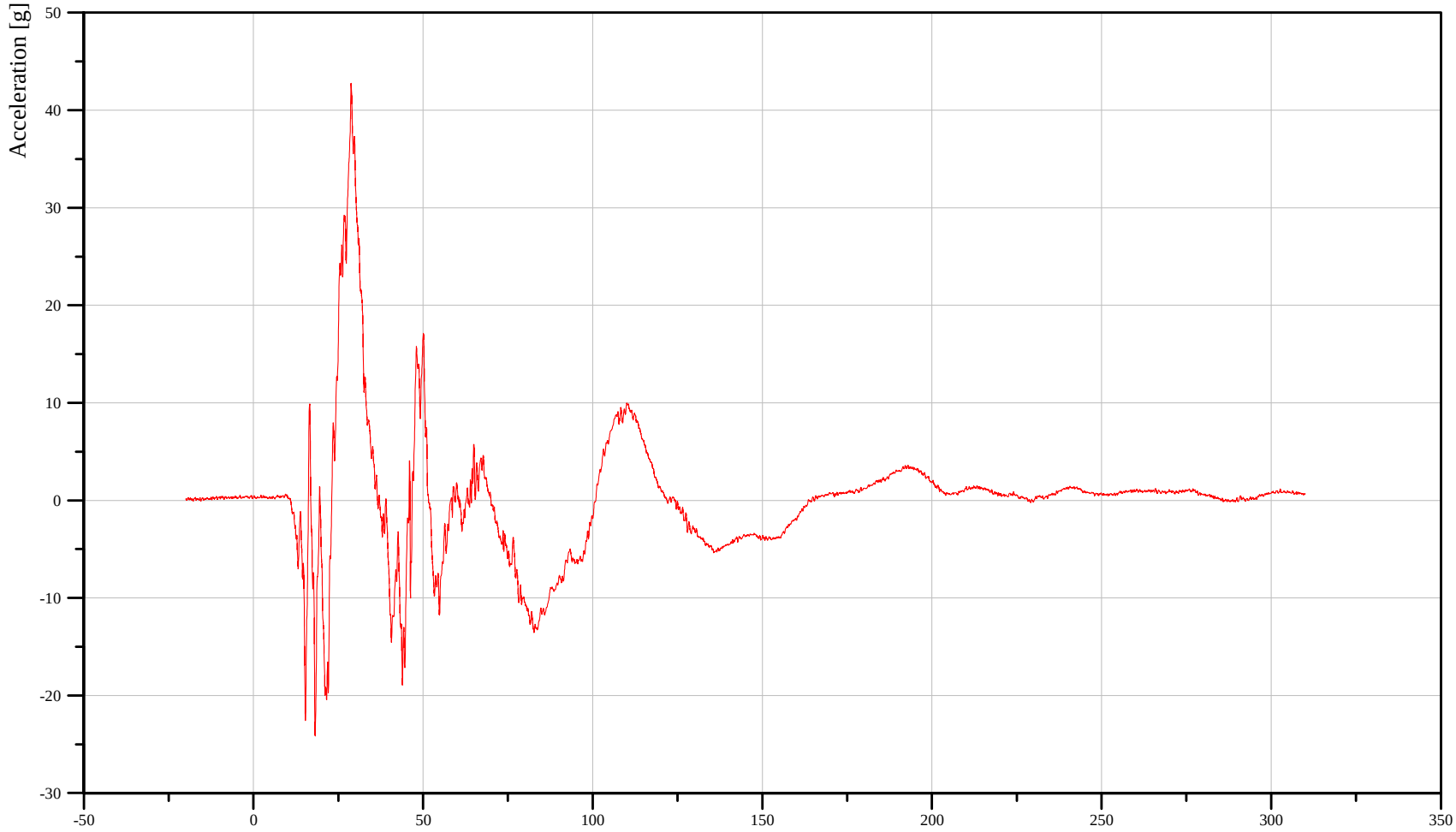
Thorax Rib 1 Z-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE01WSACZA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-24.15 g at 18.20 ms

Max. Value
42.75 g at 28.80 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

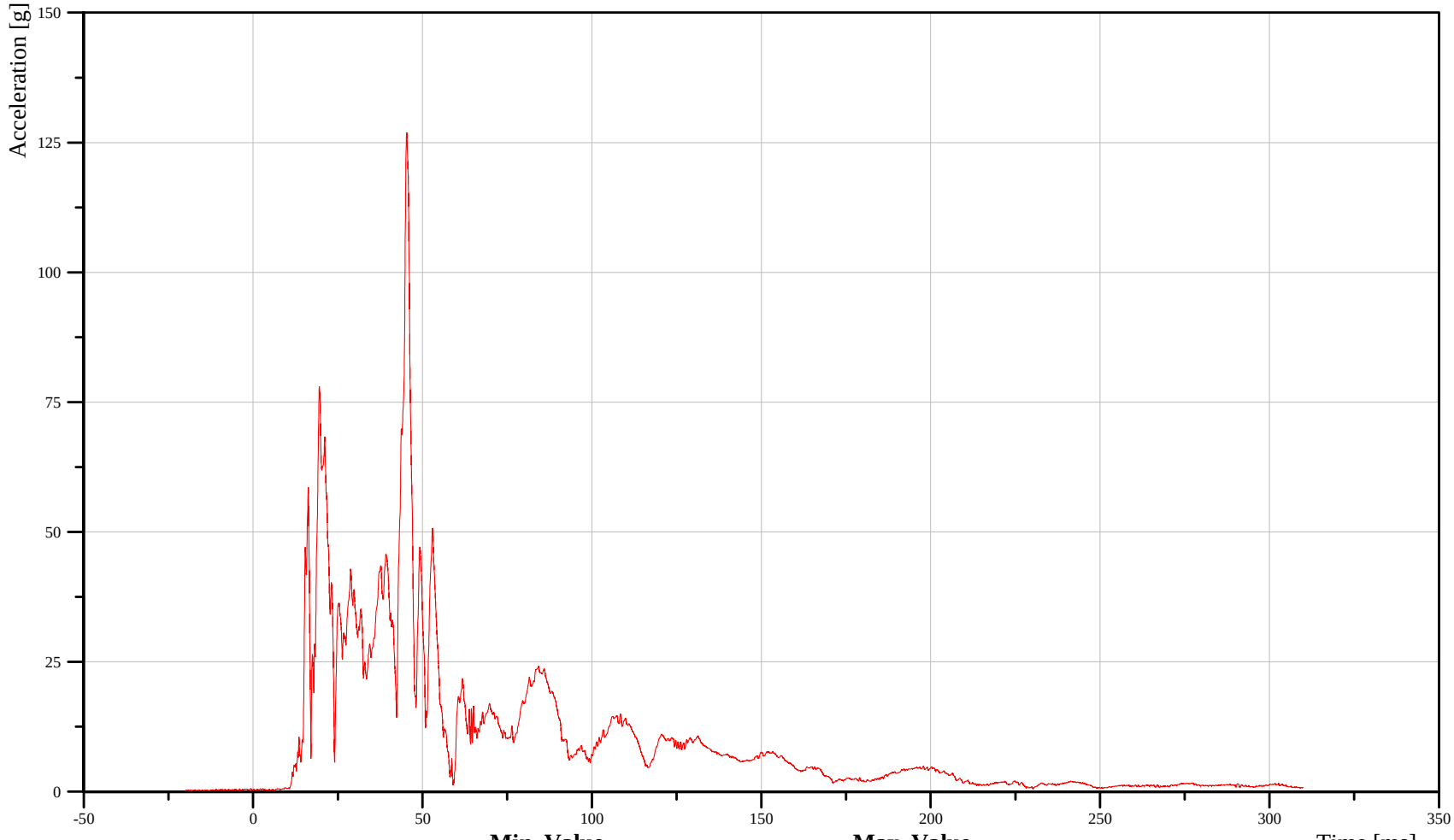
Thorax Rib 1 Resultant Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE01WSACRA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
0.08 g at -18.15 ms

Max. Value
126.94 g at 45.35 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

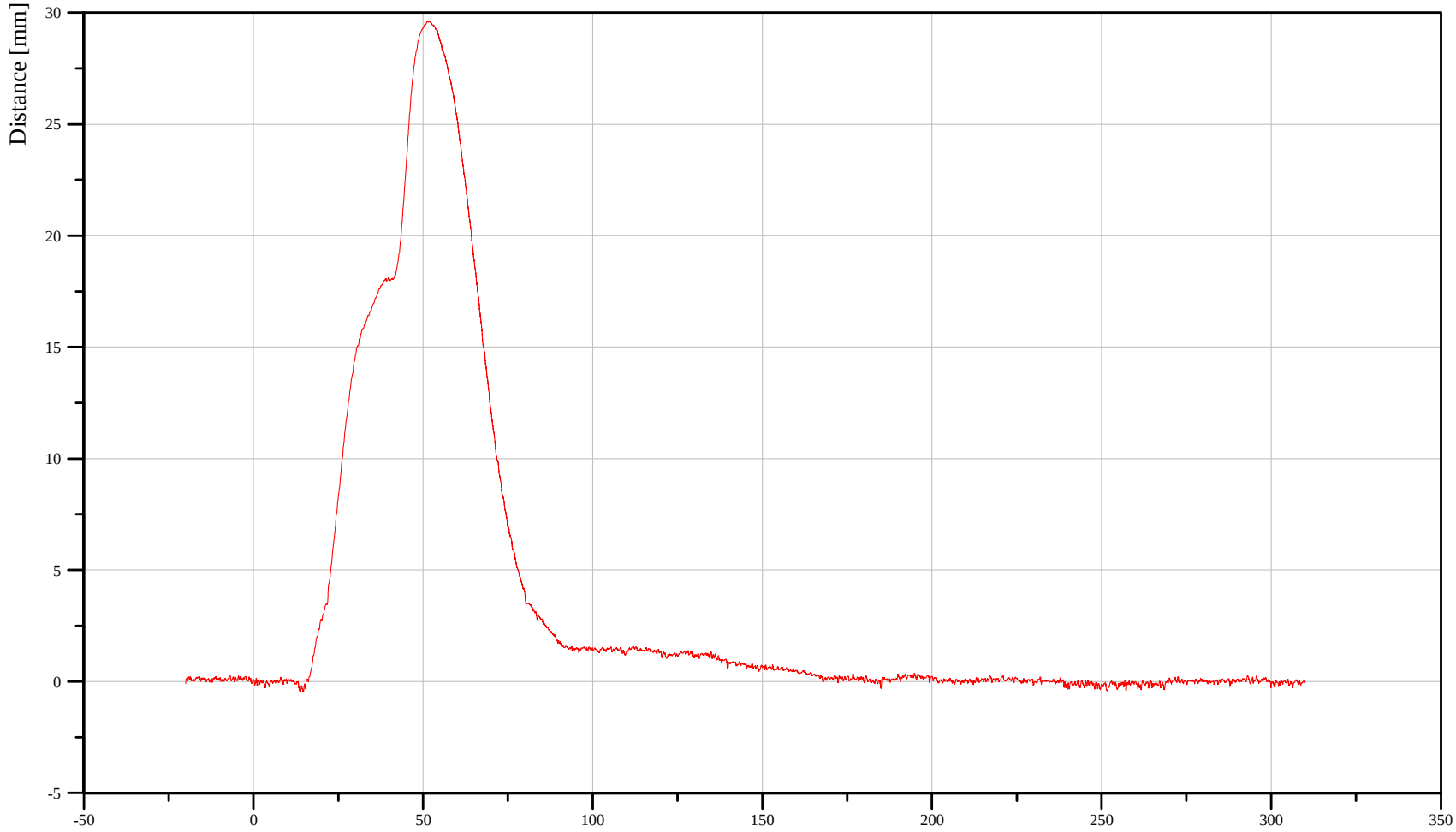
Thorax Rib 2 Y-Axis Displacement

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE02WSDSYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-0.47 mm at 13.85 ms

Max. Value
29.62 mm at 51.95 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

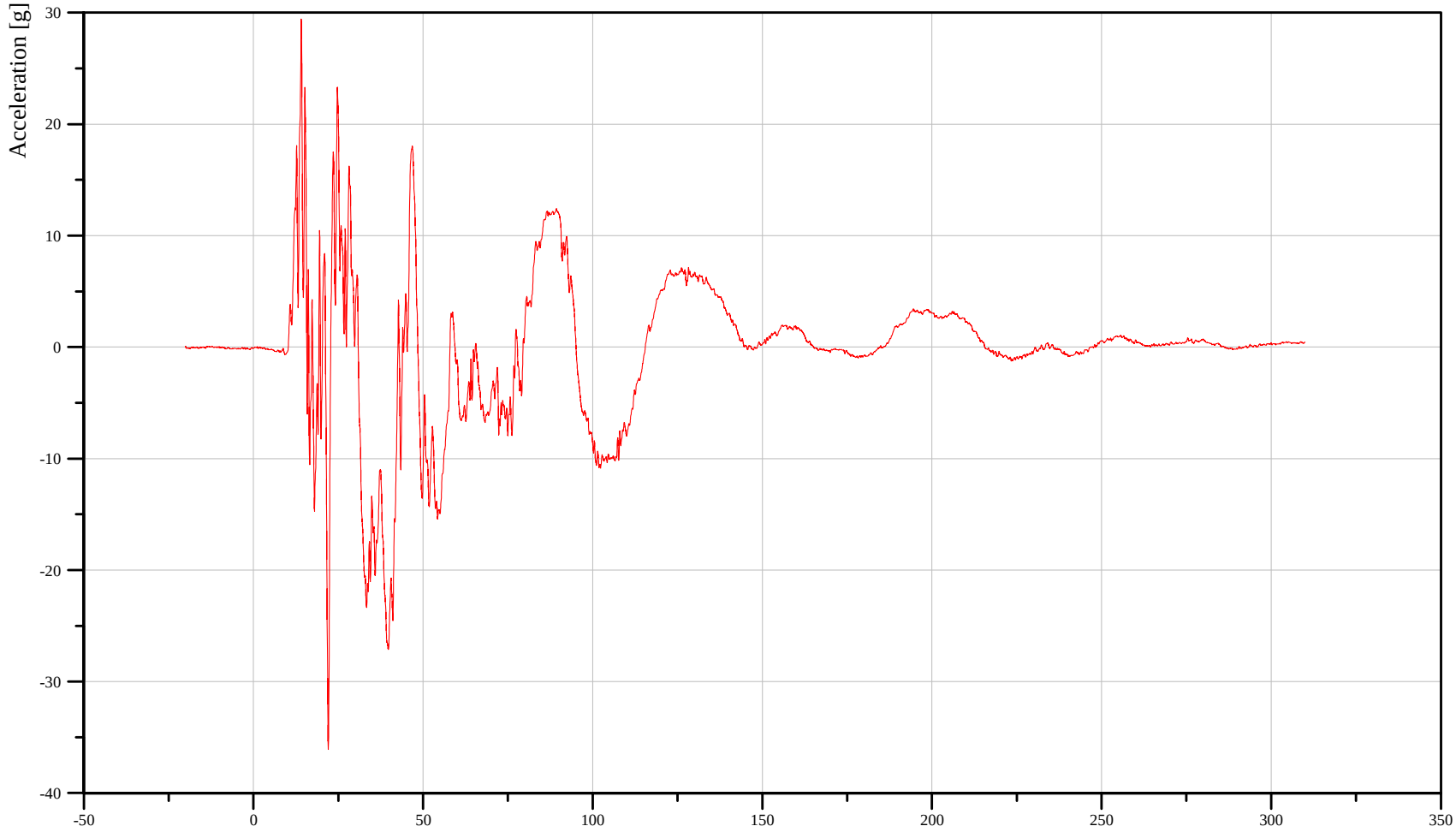
Thorax Rib 2 X-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE02WSACXA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-36.09 g at 22.05 ms

Max. Value
29.43 g at 14.10 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

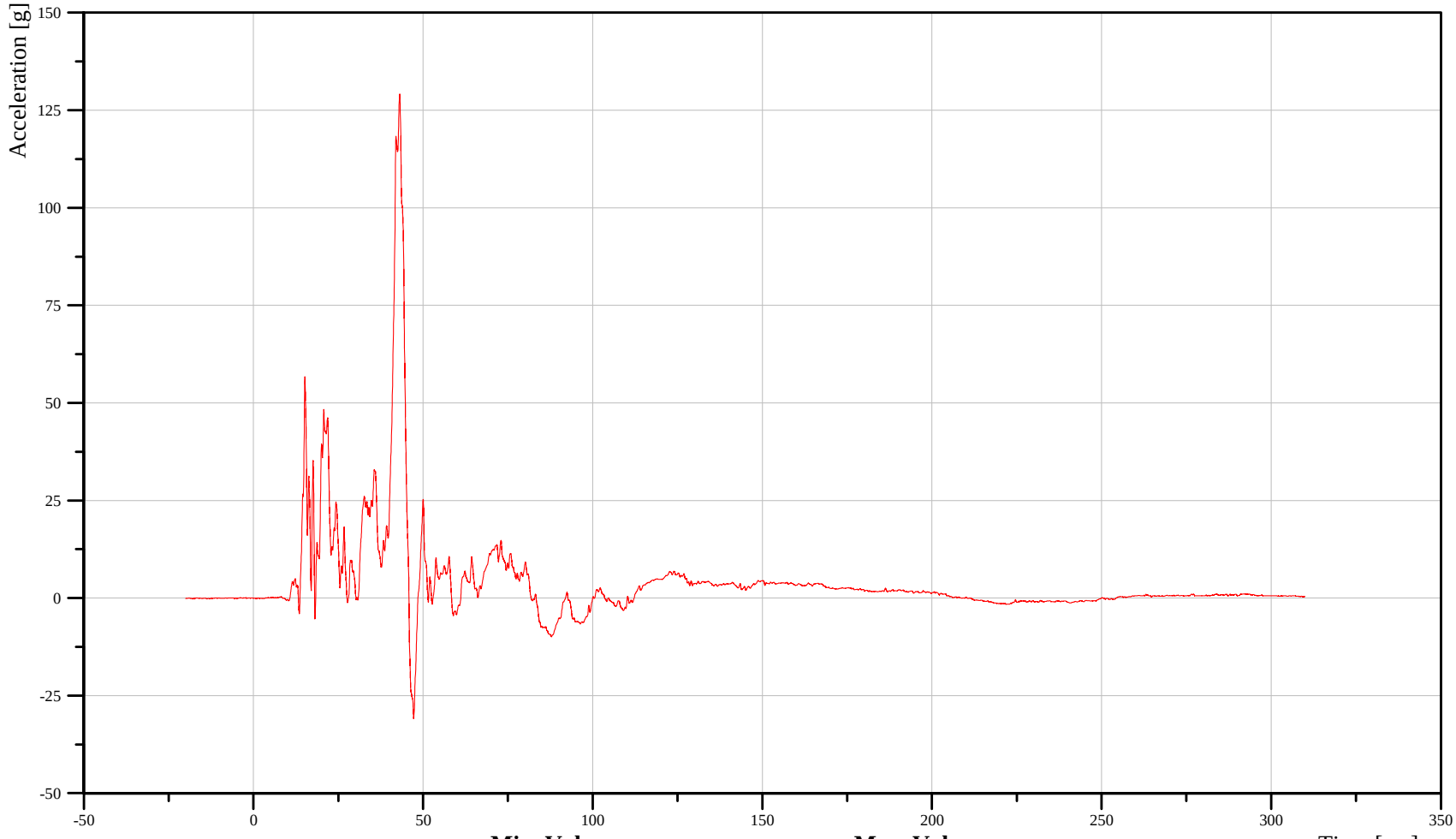
Thorax Rib 2 Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE02WSACYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-30.86 g at 47.25 ms

Max. Value
129.18 g at 43.10 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

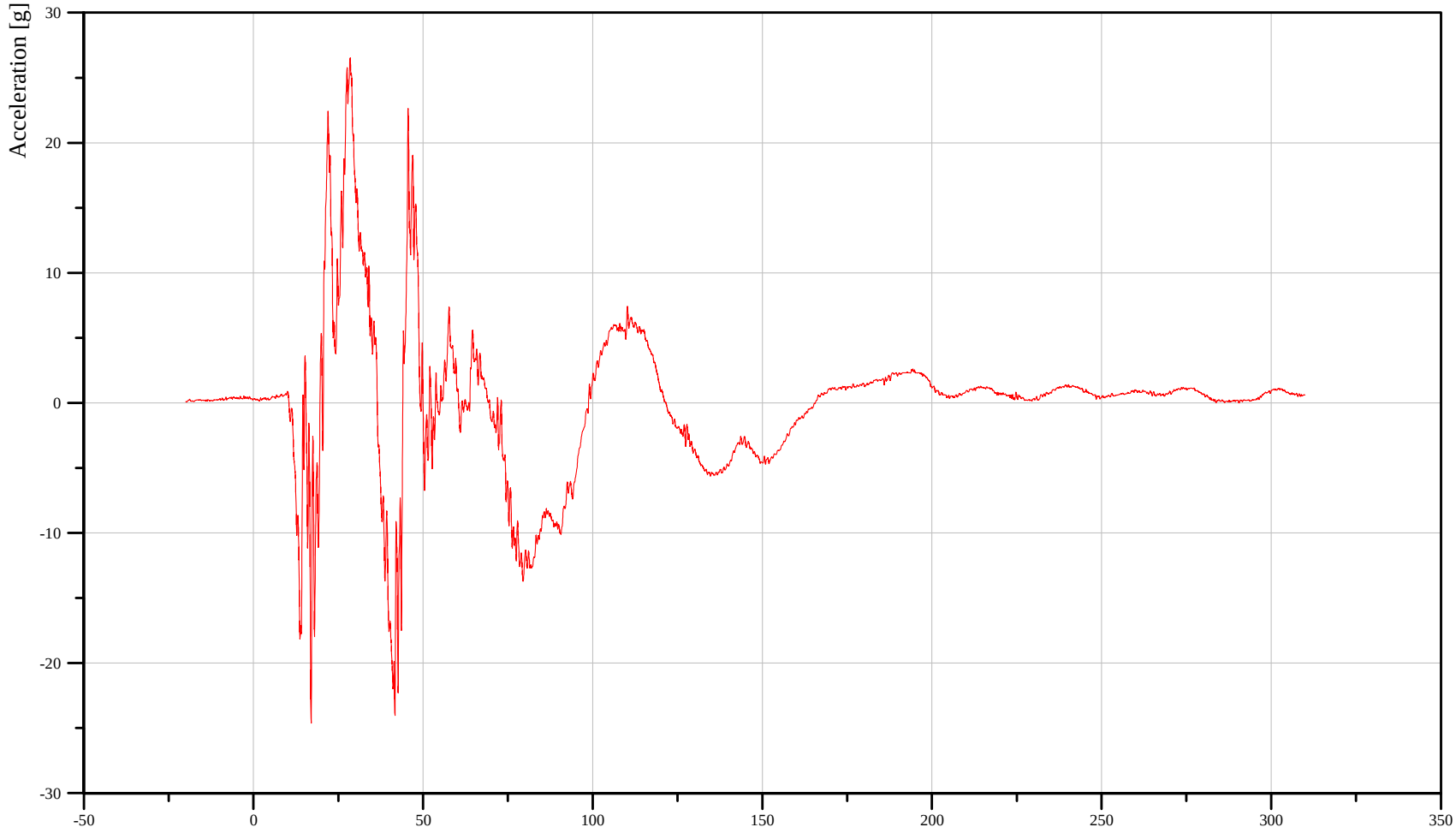
Thorax Rib 2 Z-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE02WSACZA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-24.61 g at 17.00 ms

Max. Value
26.52 g at 28.50 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

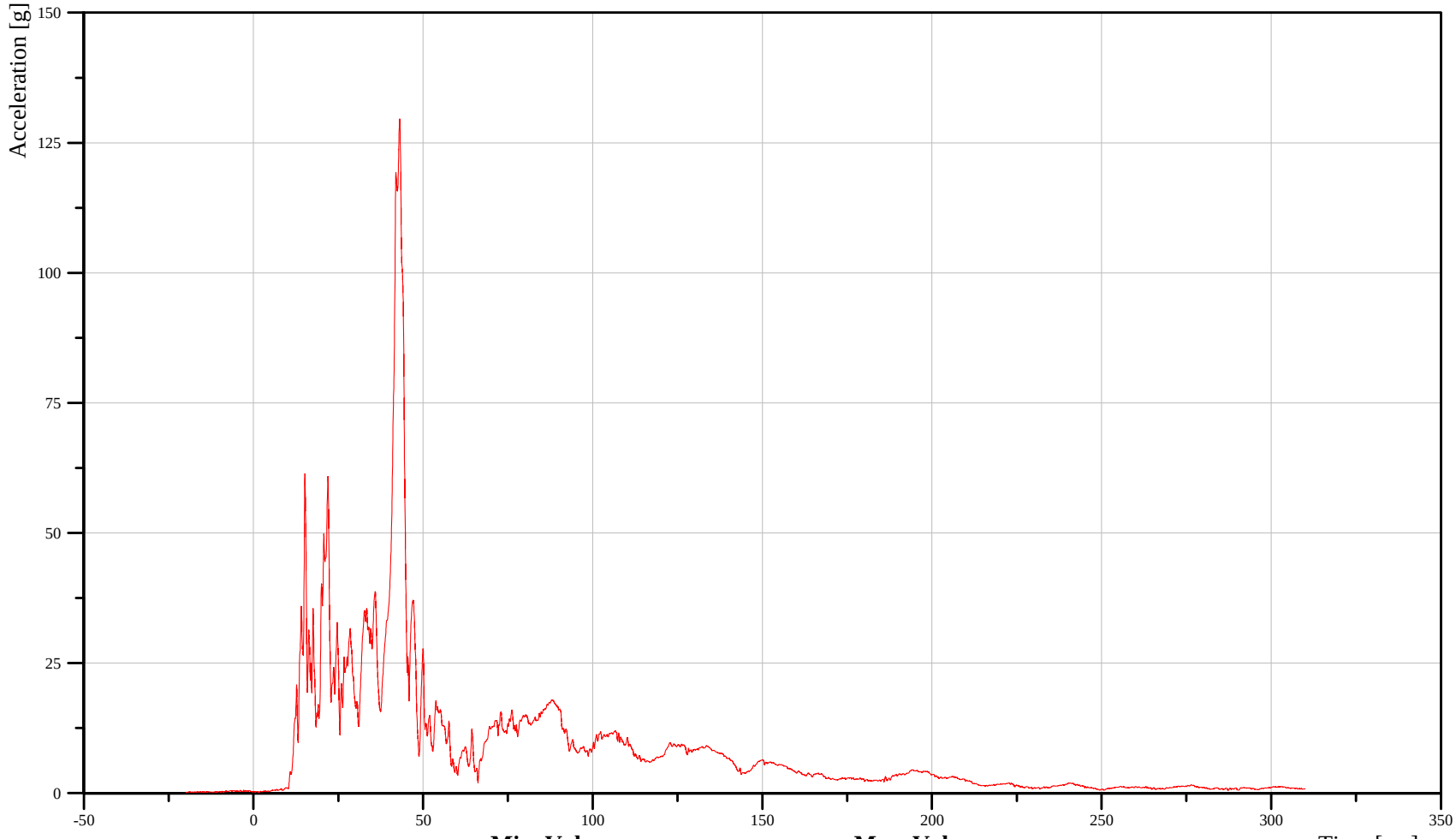
Thorax Rib 2 Resultant Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE02WSACRA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
0.11 g at -19.80 ms

Max. Value
129.62 g at 43.10 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

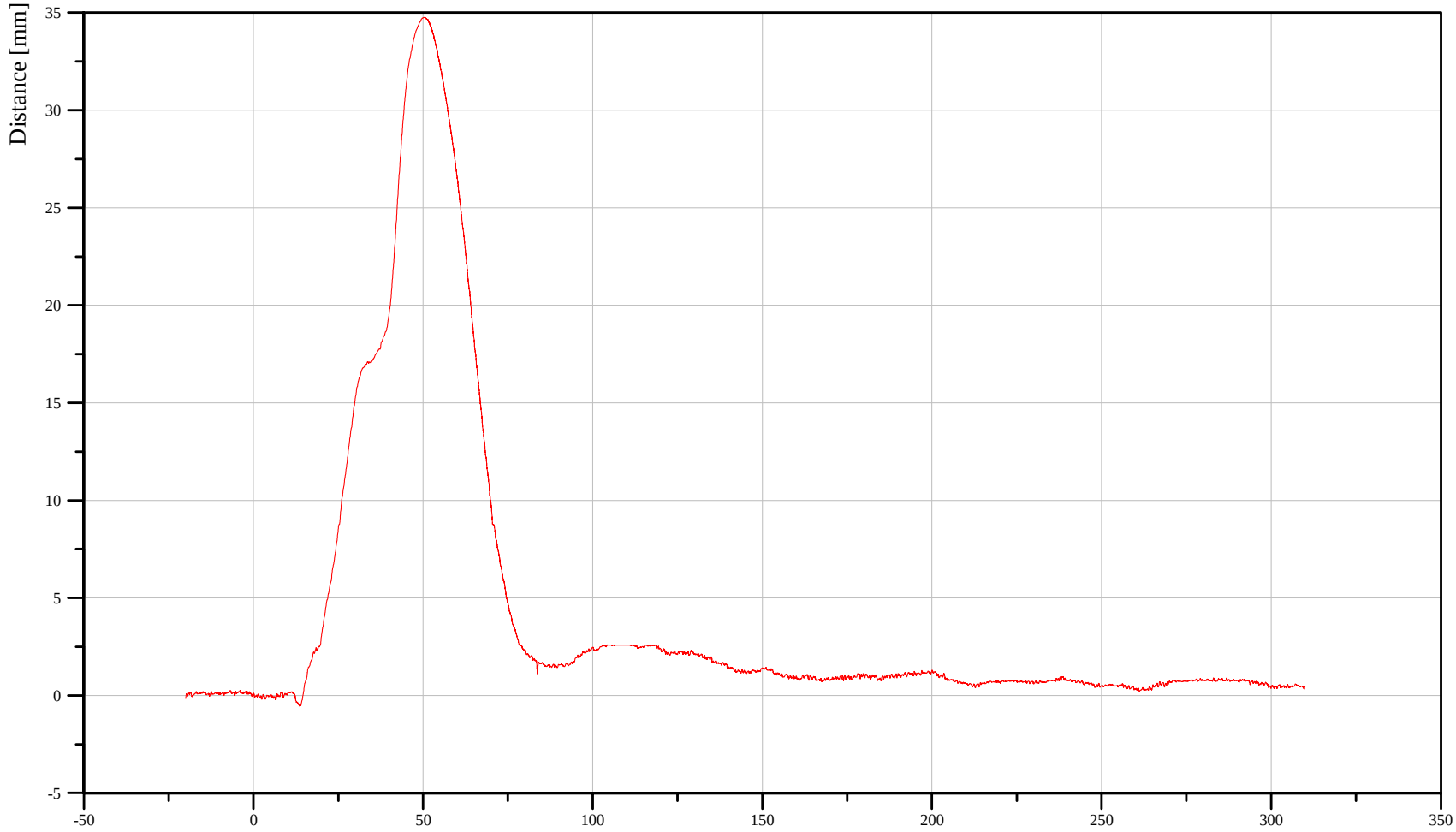
Thorax Rib 3 Y-Axis Displacement

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE03WSDSYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-0.53 mm at 13.55 ms

Max. Value
34.76 mm at 50.55 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

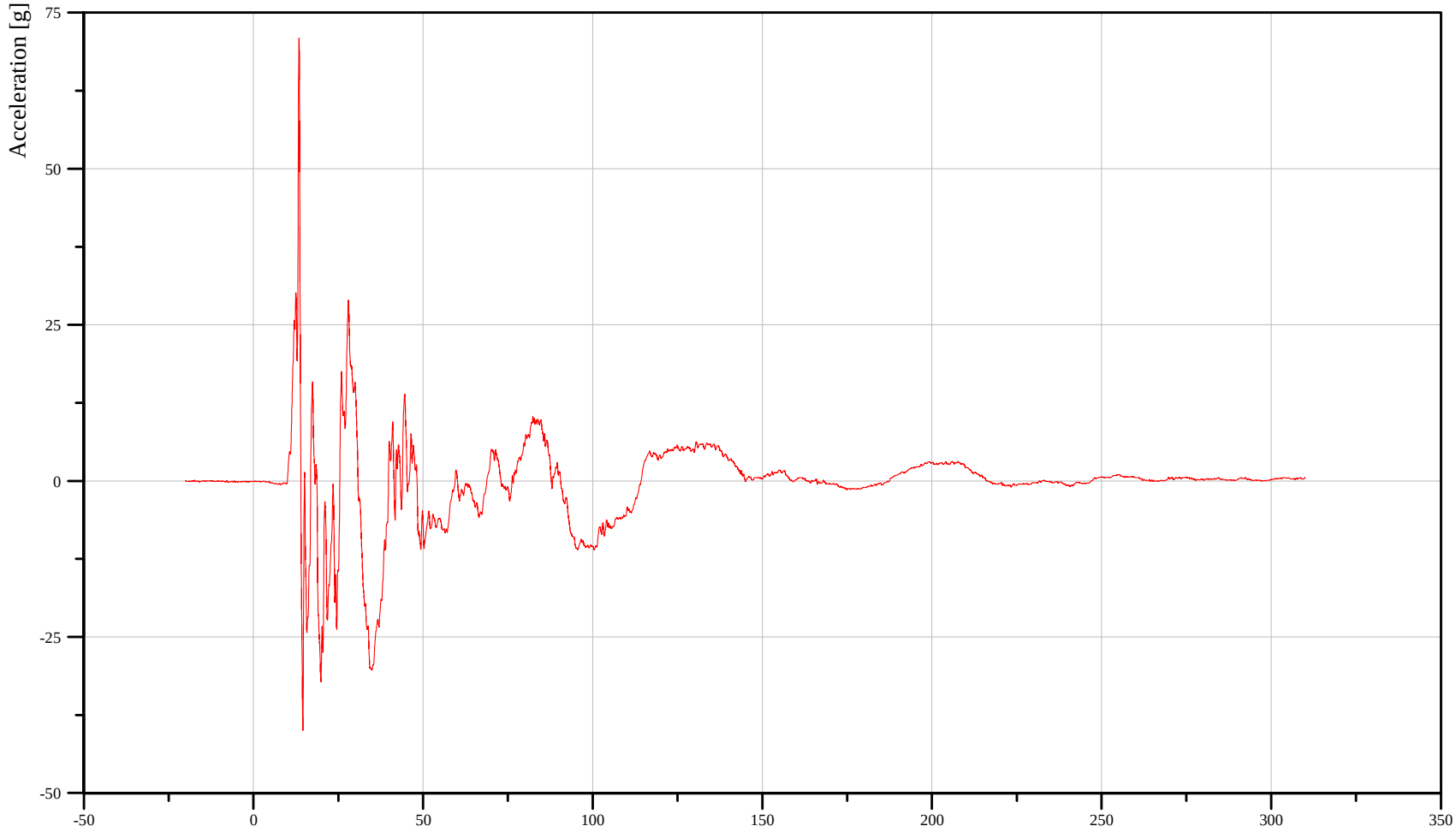
Thorax Rib 3 X-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE03WSACXA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-40.00 g at 14.55 ms

Max. Value
70.99 g at 13.45 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

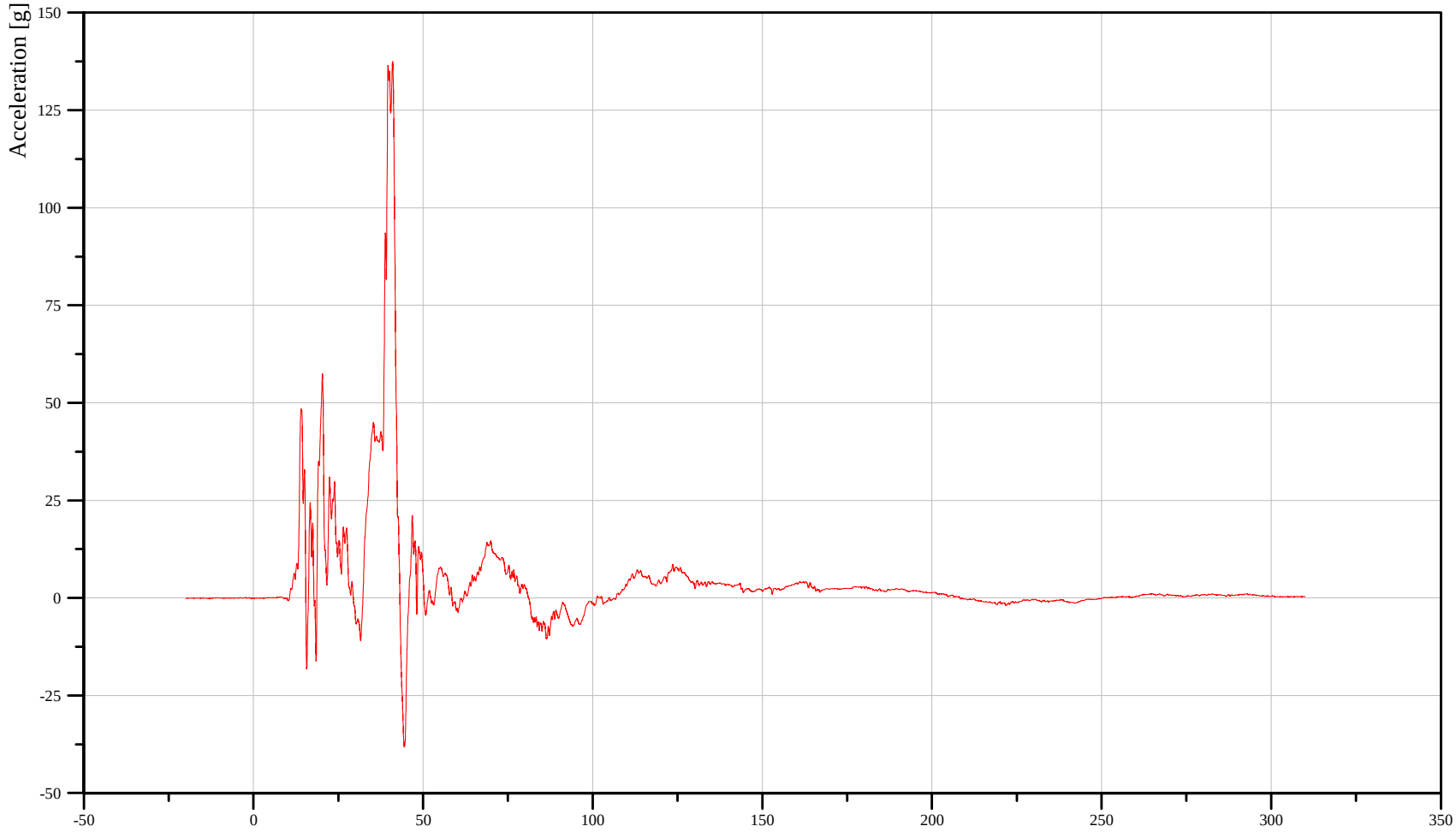
Thorax Rib 3 Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE03WSACYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-38.17 g at 44.50 ms

Max. Value
137.53 g at 41.05 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

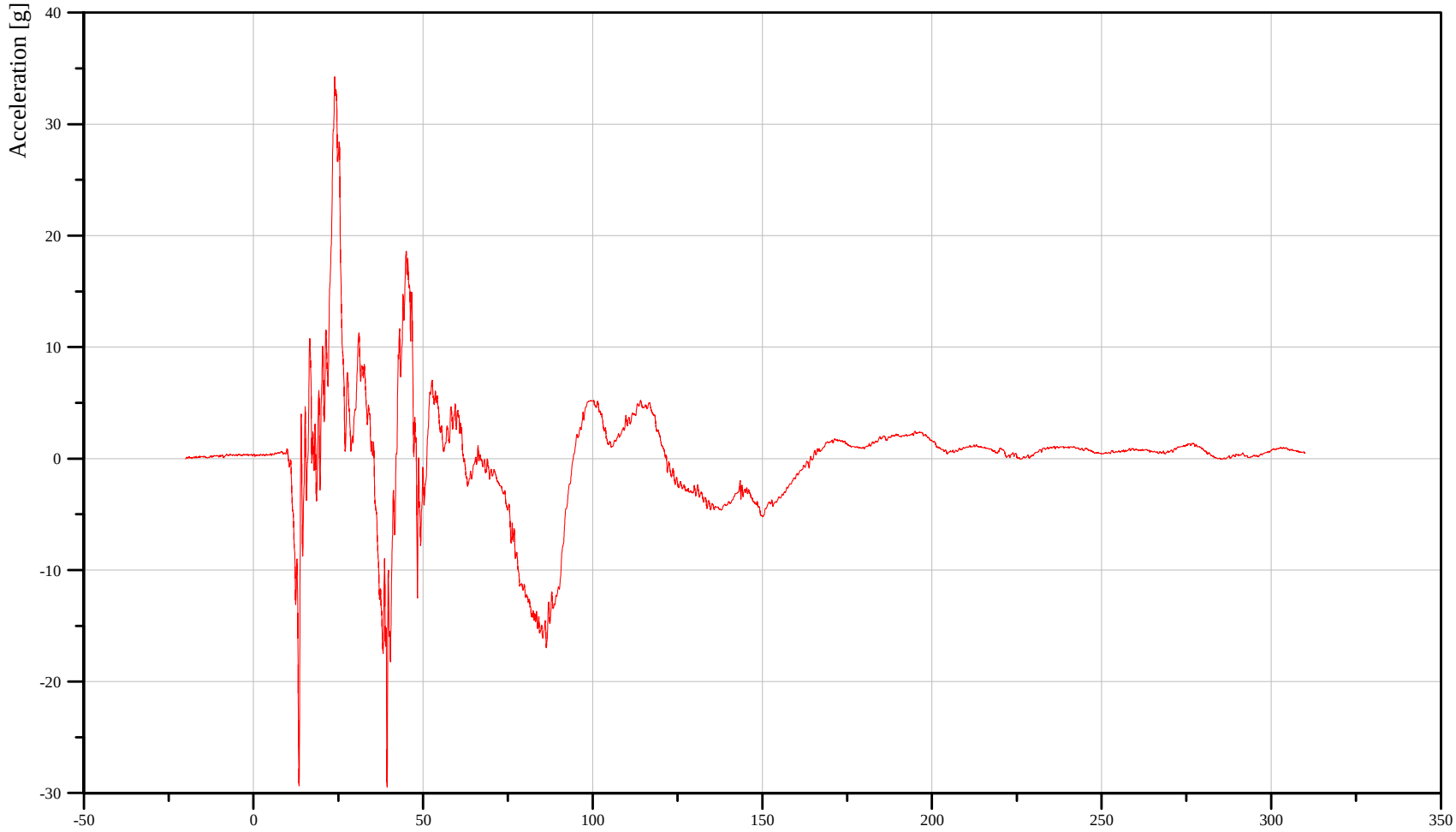
Thorax Rib 3 Z-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE03WSACZA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-29.48 g at 39.40 ms

Max. Value
34.25 g at 23.95 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

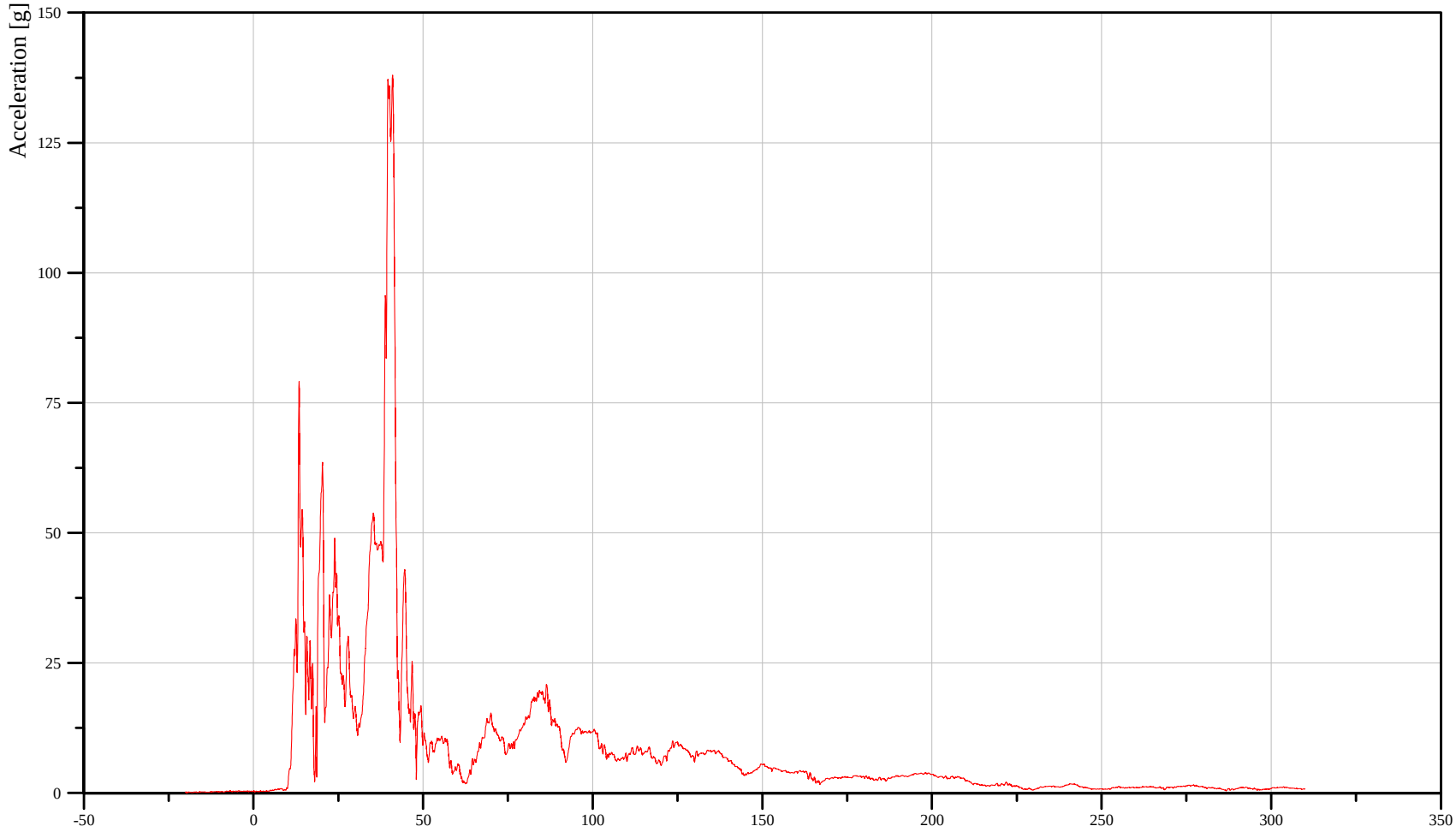
Thorax Rib 3 Resultant Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE03WSACRA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
0.07 g at -19.35 ms

Max. Value
137.99 g at 41.05 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

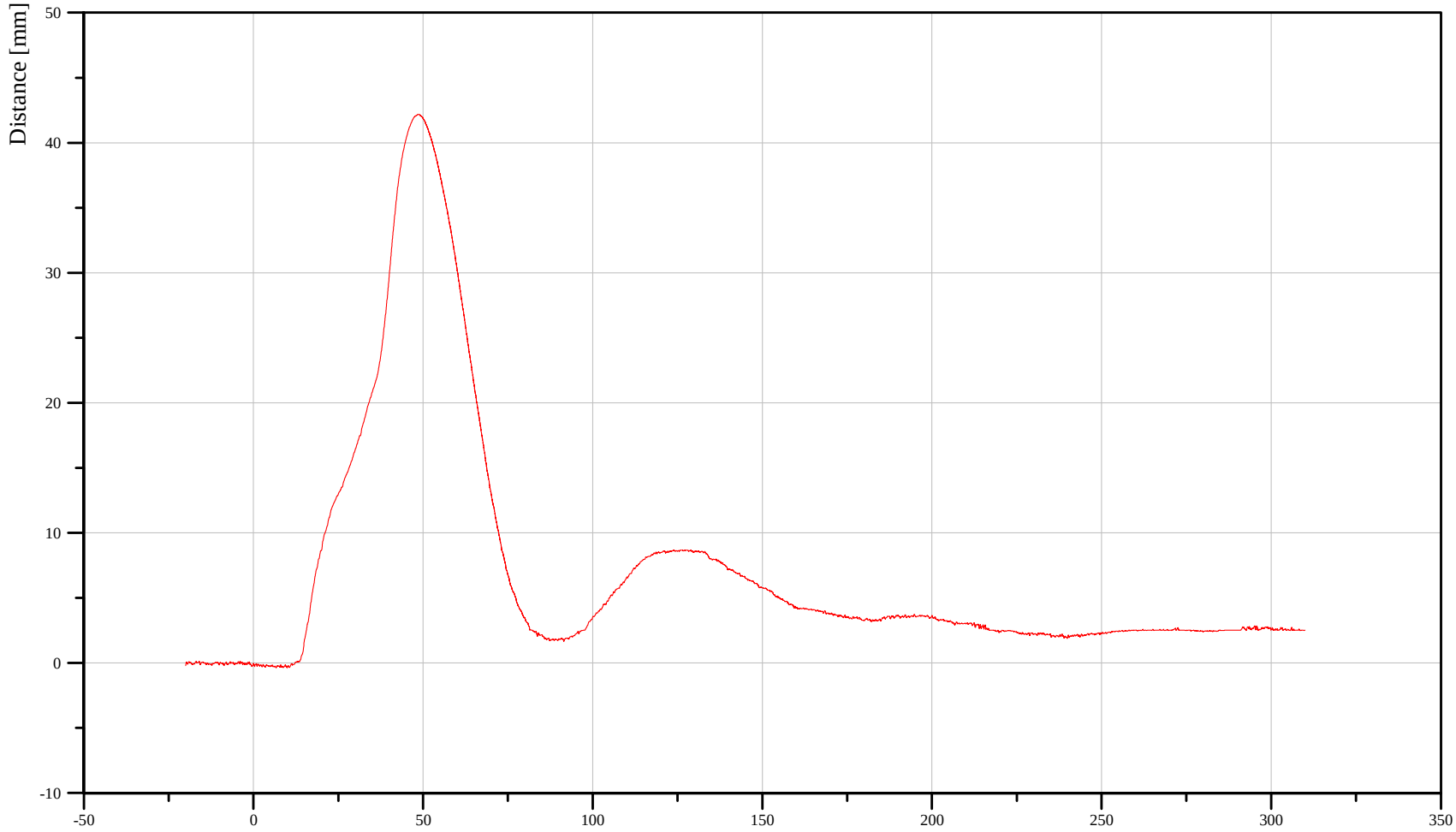
Abdominal Rib 1 Y-Axis Displacement

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11ABRILE01WSDSYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-0.37 mm at 6.70 ms

Max. Value
42.18 mm at 48.75 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

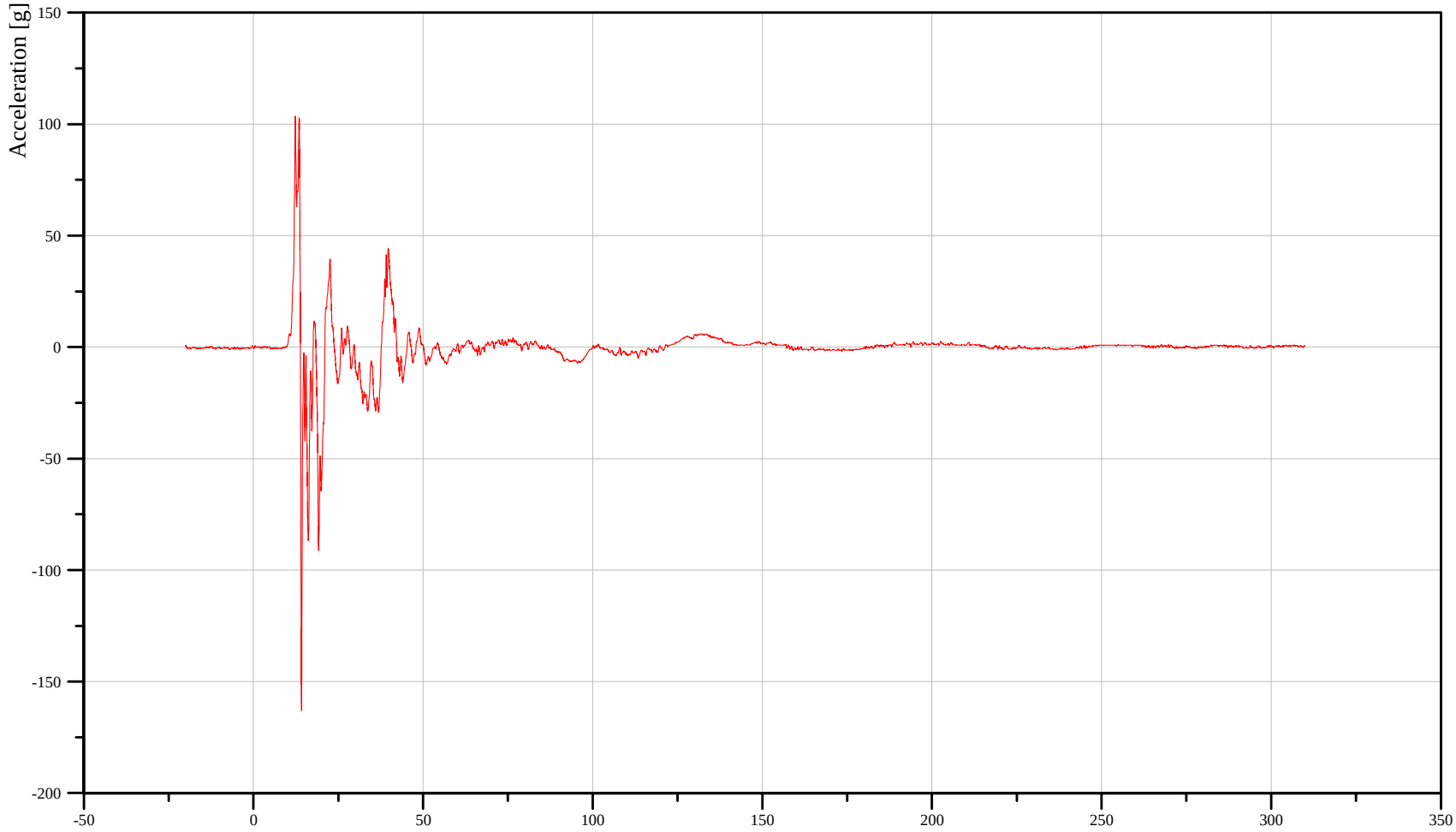
Abdominal Rib 1 X-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11ABRILE01WSACXA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-163.13 g at 14.15 ms

Max. Value
103.49 g at 12.35 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

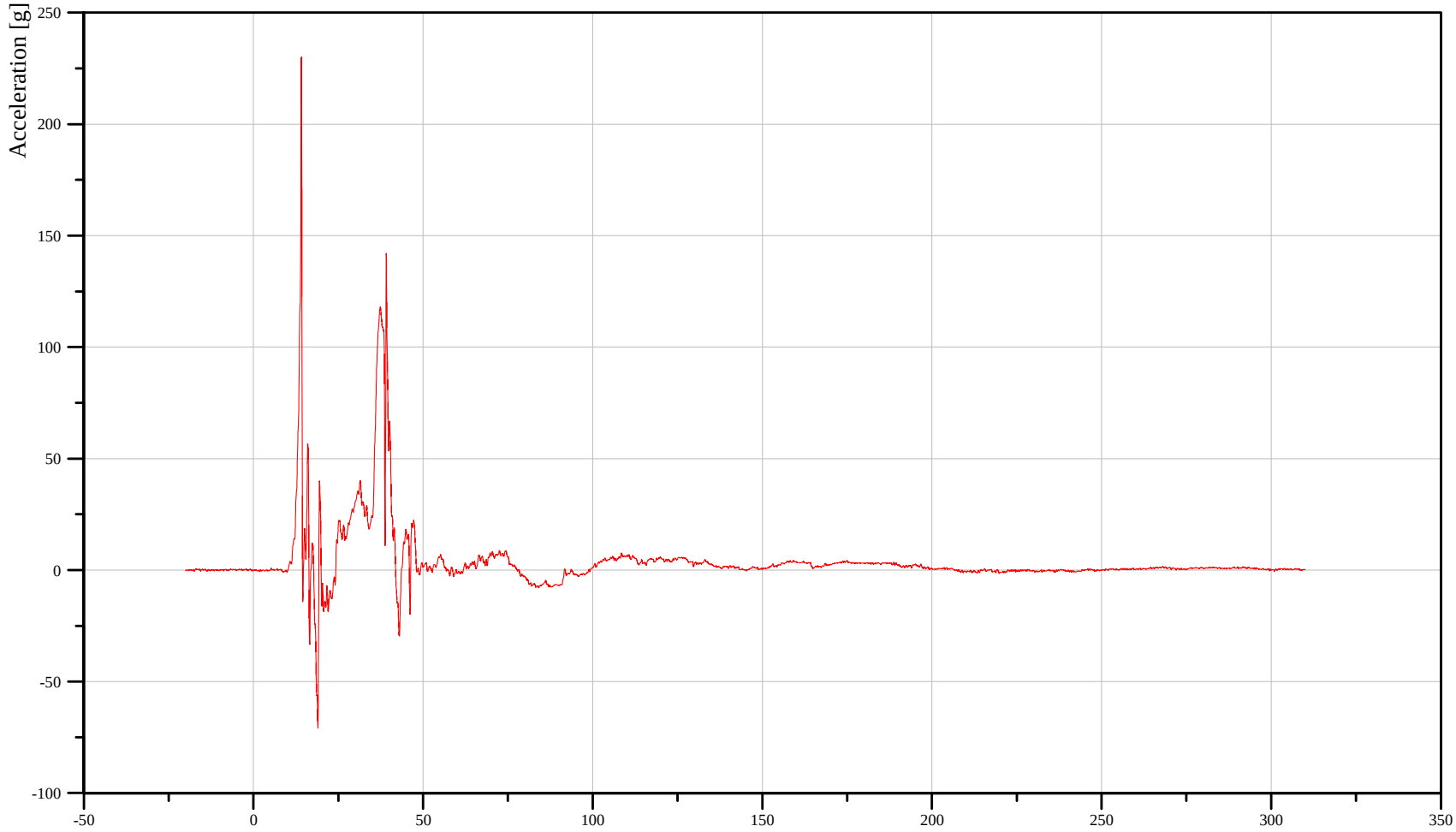
Abdominal Rib 1 Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11ABRILE01WSACYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-70.89 g at 19.00 ms

Max. Value
230.06 g at 14.15 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

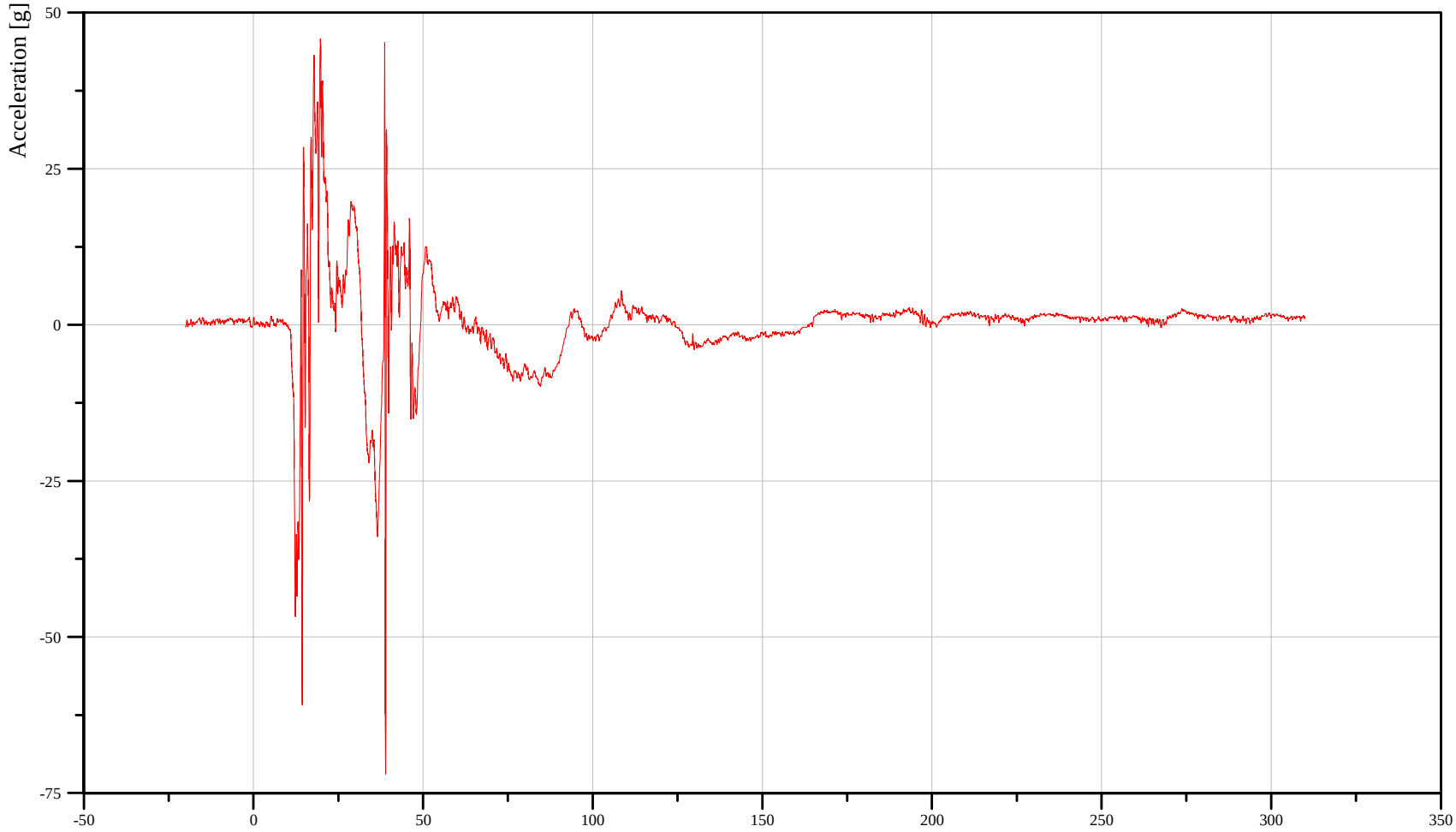
Abdominal Rib 1 Z-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11ABRILE01WSACZA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-71.94 g at 38.95 ms

Max. Value
45.82 g at 19.75 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

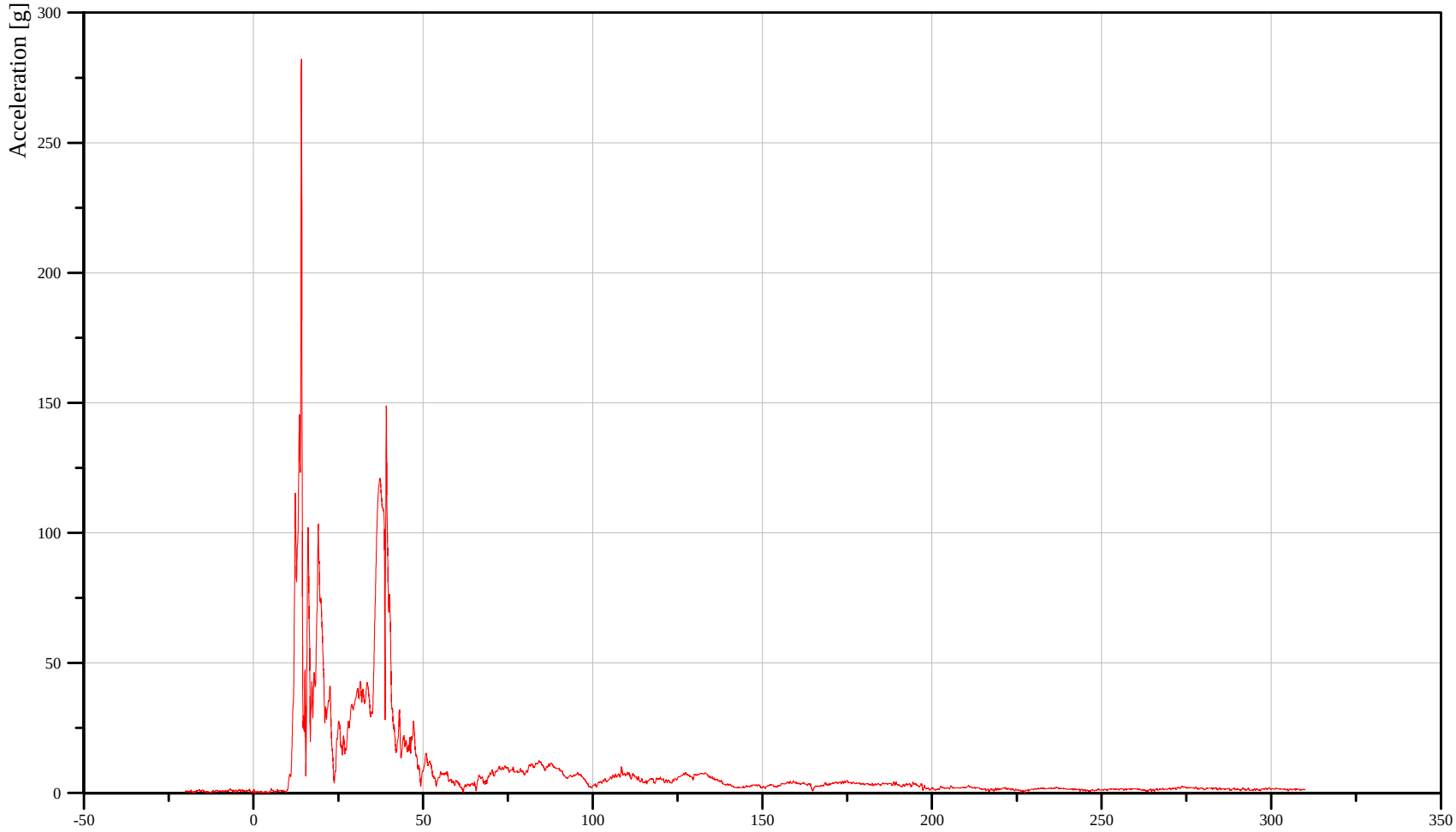
Abdominal Rib 1 Resultant Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11ABRILE01WSACRA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
0.07 g at 0.35 ms

Max. Value
282.11 g at 14.15 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

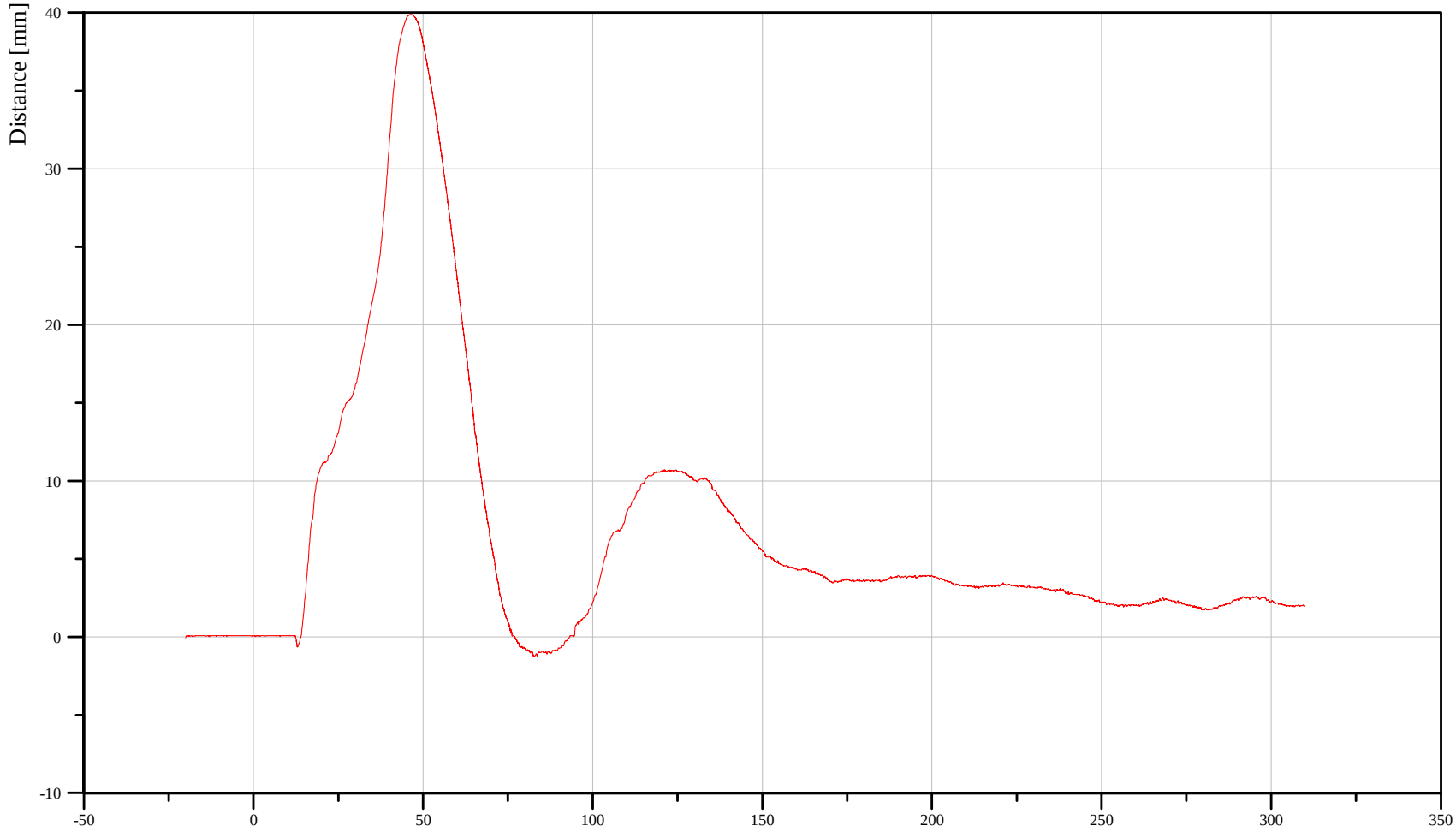
Abdominal Rib 2 Y-Axis Displacement

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11ABRILE02WSDSYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-1.27 mm at 83.75 ms

Max. Value
39.90 mm at 46.50 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

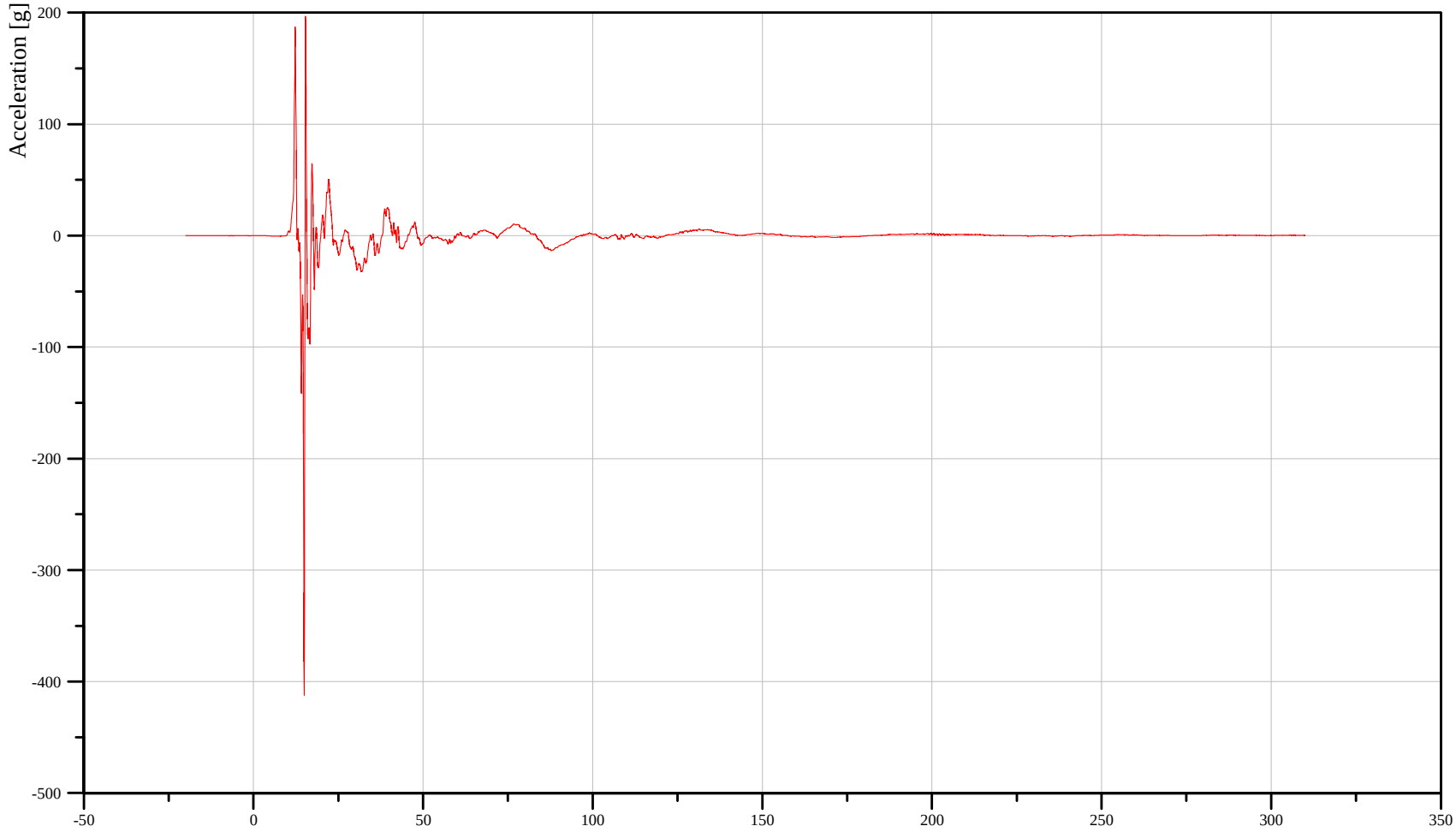
Abdominal Rib 2 X-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11ABRILE02WSACXA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-412.26 g at 14.95 ms

Max. Value
196.85 g at 15.35 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

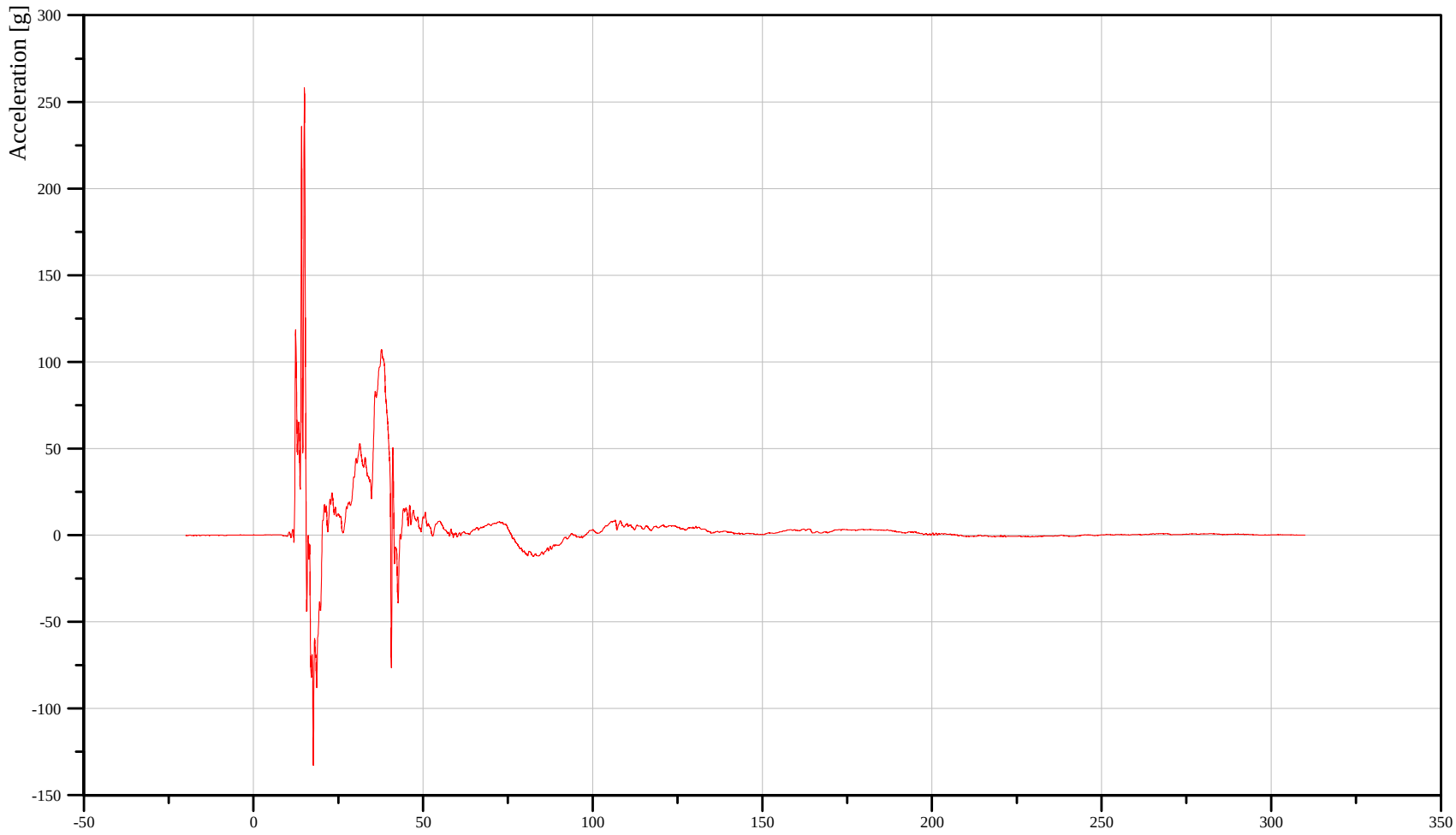
Abdominal Rib 2 Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11ABRILE02WSACYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-132.82 g at 17.65 ms

Max. Value
258.23 g at 15.00 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

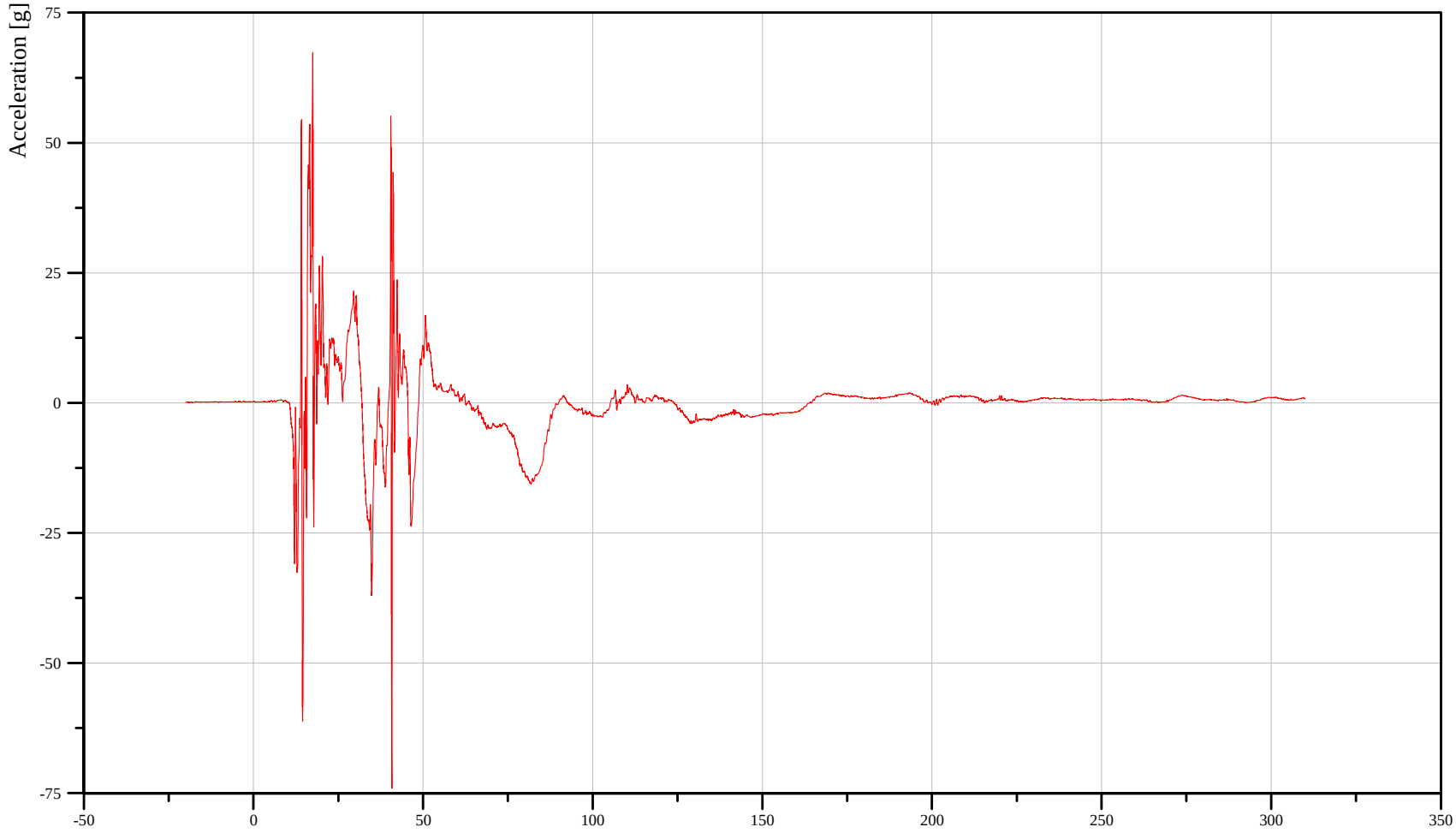
Abdominal Rib 2 Z-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11ABRILE02WSACZA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-74.10 g at 40.80 ms

Max. Value
67.31 g at 17.45 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

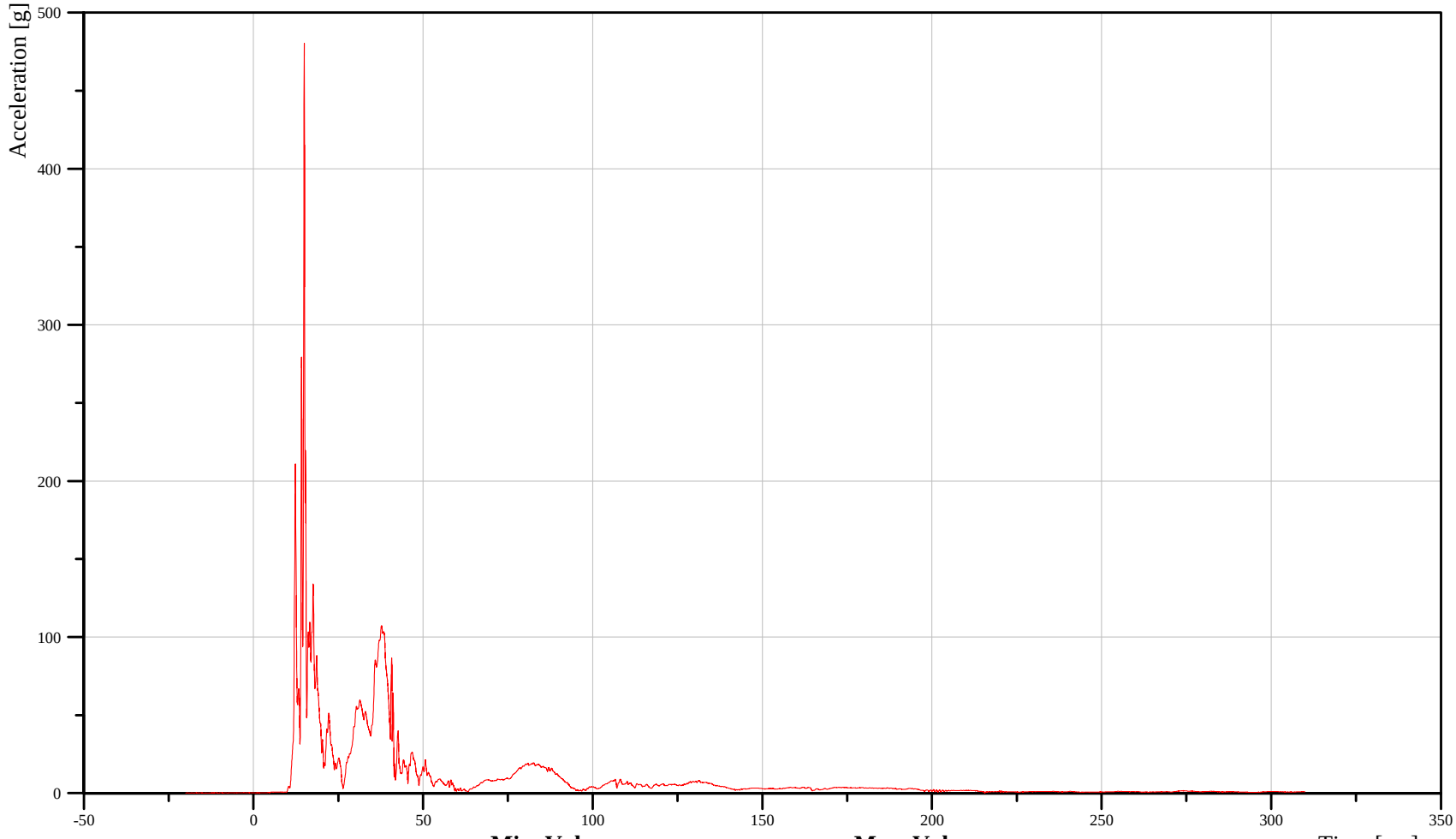
Abdominal Rib 2 Resultant Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11ABRILE02WSACRA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
0.10 g at -10.15 ms

Max. Value
480.33 g at 14.95 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

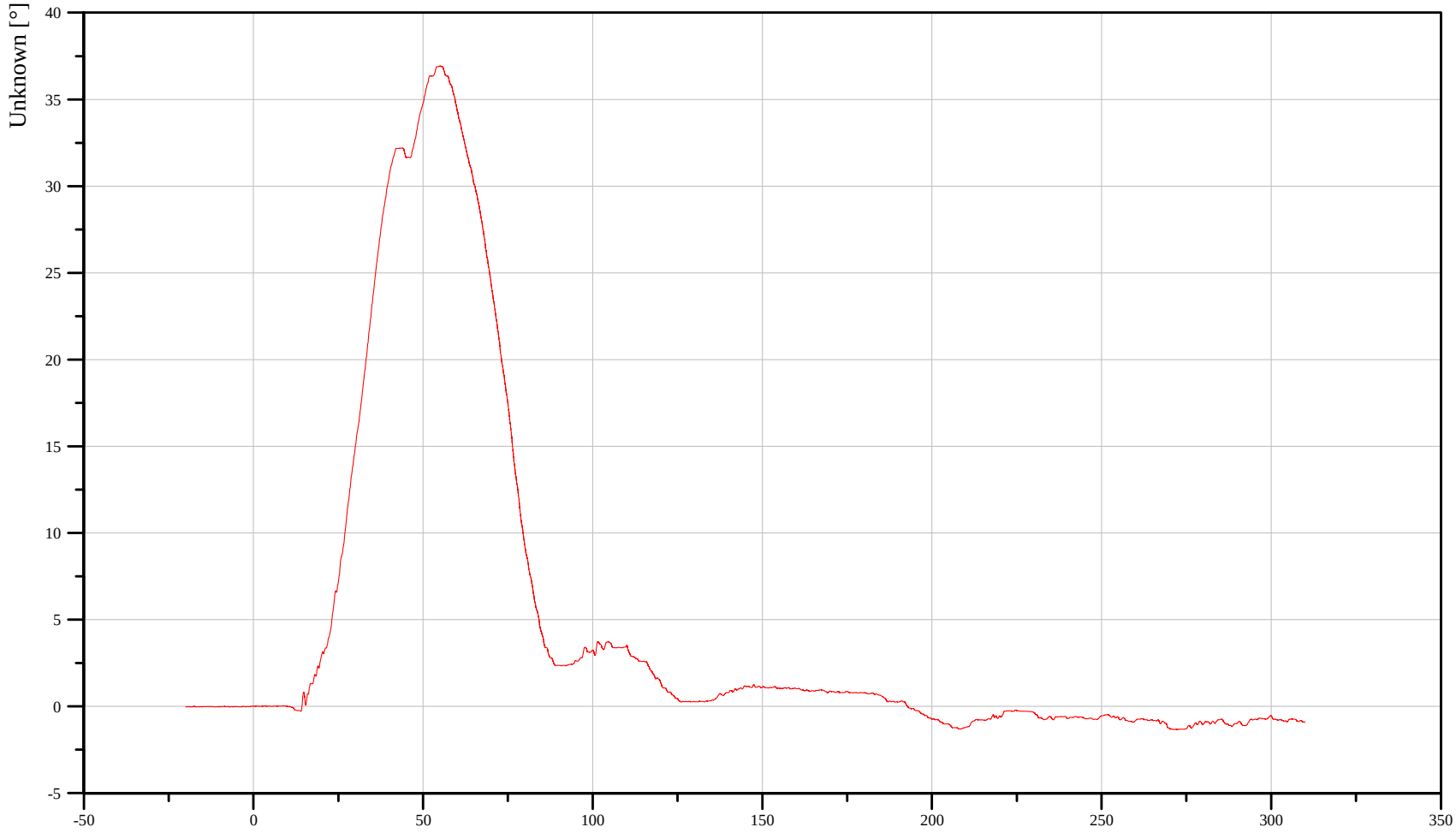
Thorax Rib 1 Rotary Pot

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE01WSANZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-1.33 ° at 272.50 ms

Max. Value
36.92 ° at 55.00 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

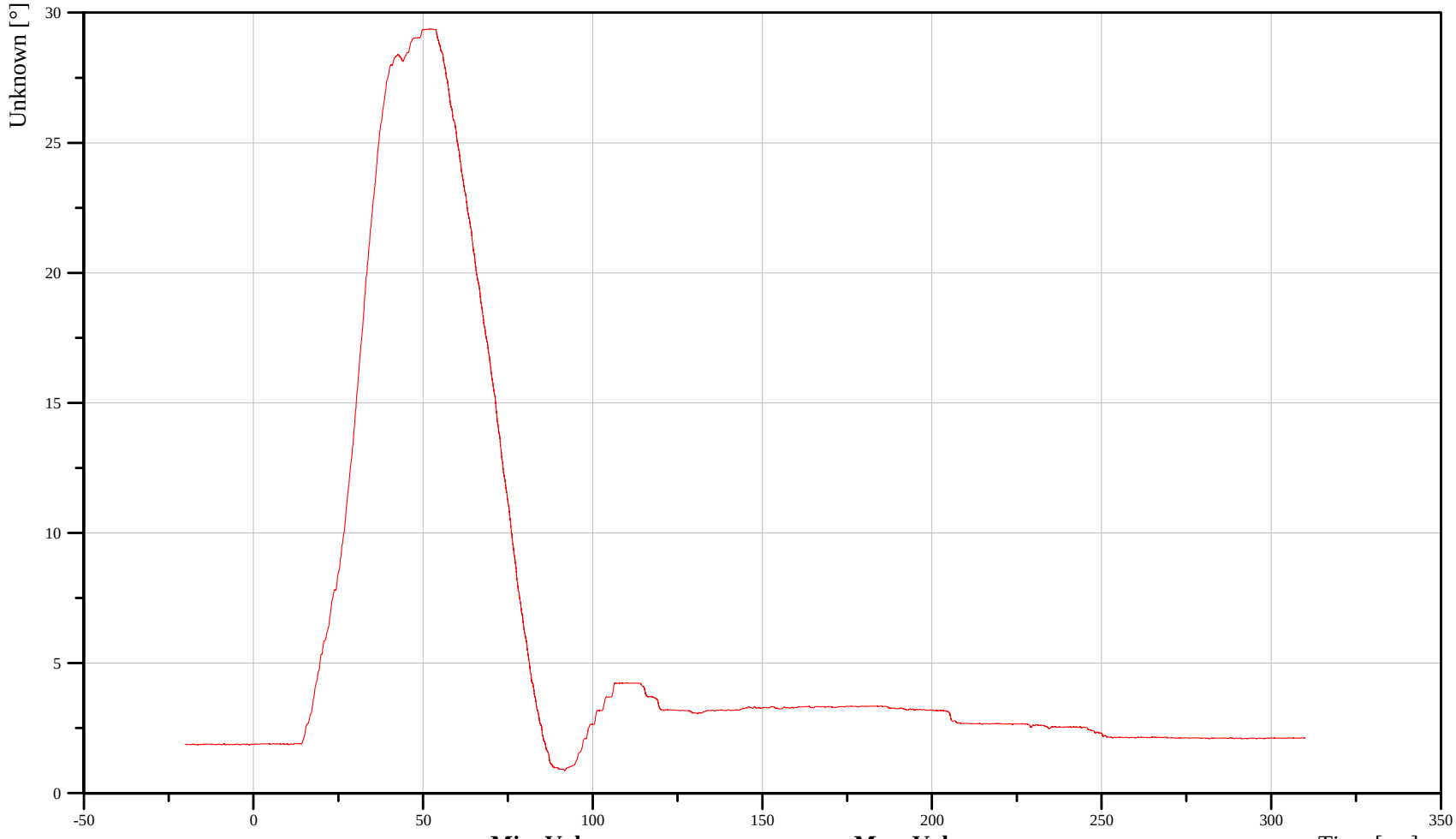
Thorax Rib 2 Rotary Pot

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE02WSANZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
0.88 ° at 91.80 ms

Max. Value
29.38 ° at 51.65 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

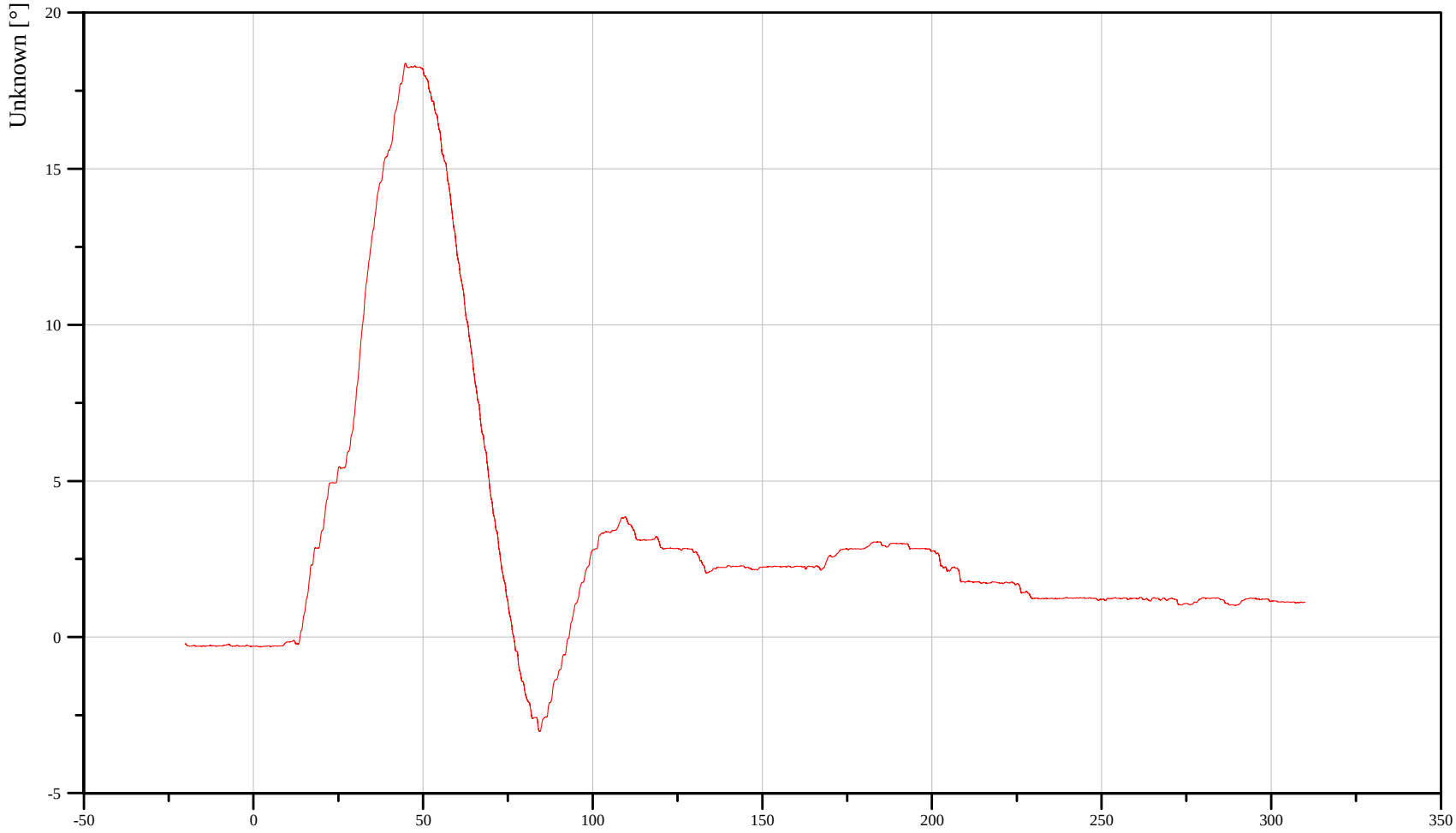
Thorax Rib 3 Rotary Pot

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11TRRILE03WSANZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-3.02 ° at 84.40 ms

Max. Value
18.38 ° at 44.80 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

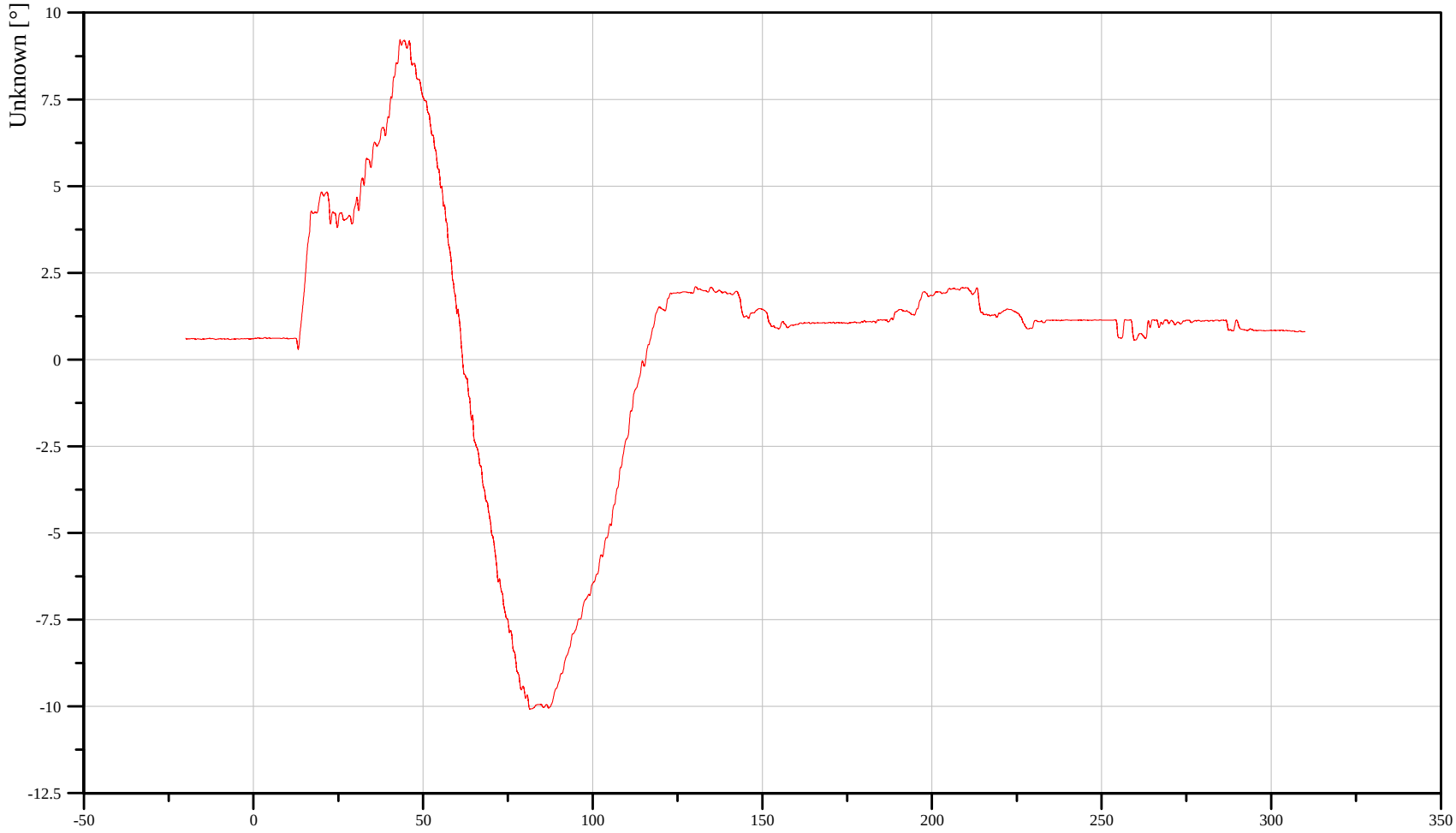
Abdominal Rib 1 Rotary Pot

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11ABRILE01WSANZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-10.08 ° at 81.45 ms

Max. Value
9.22 ° at 43.20 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

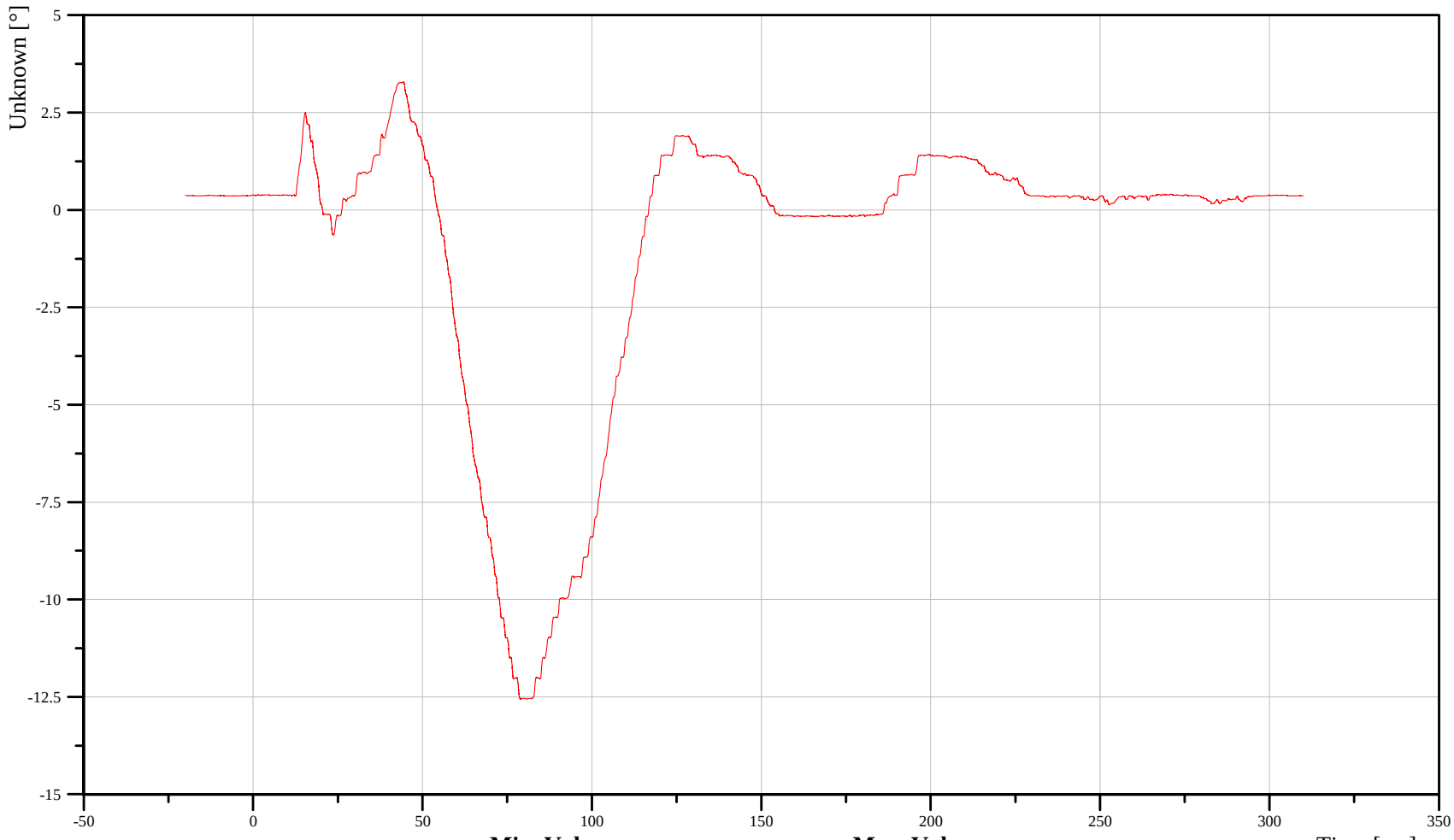
Abdominal Rib 2 Rotary Pot

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11ABRILE02WSANZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-12.55 ° at 79.05 ms

Max. Value
3.29 ° at 44.40 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

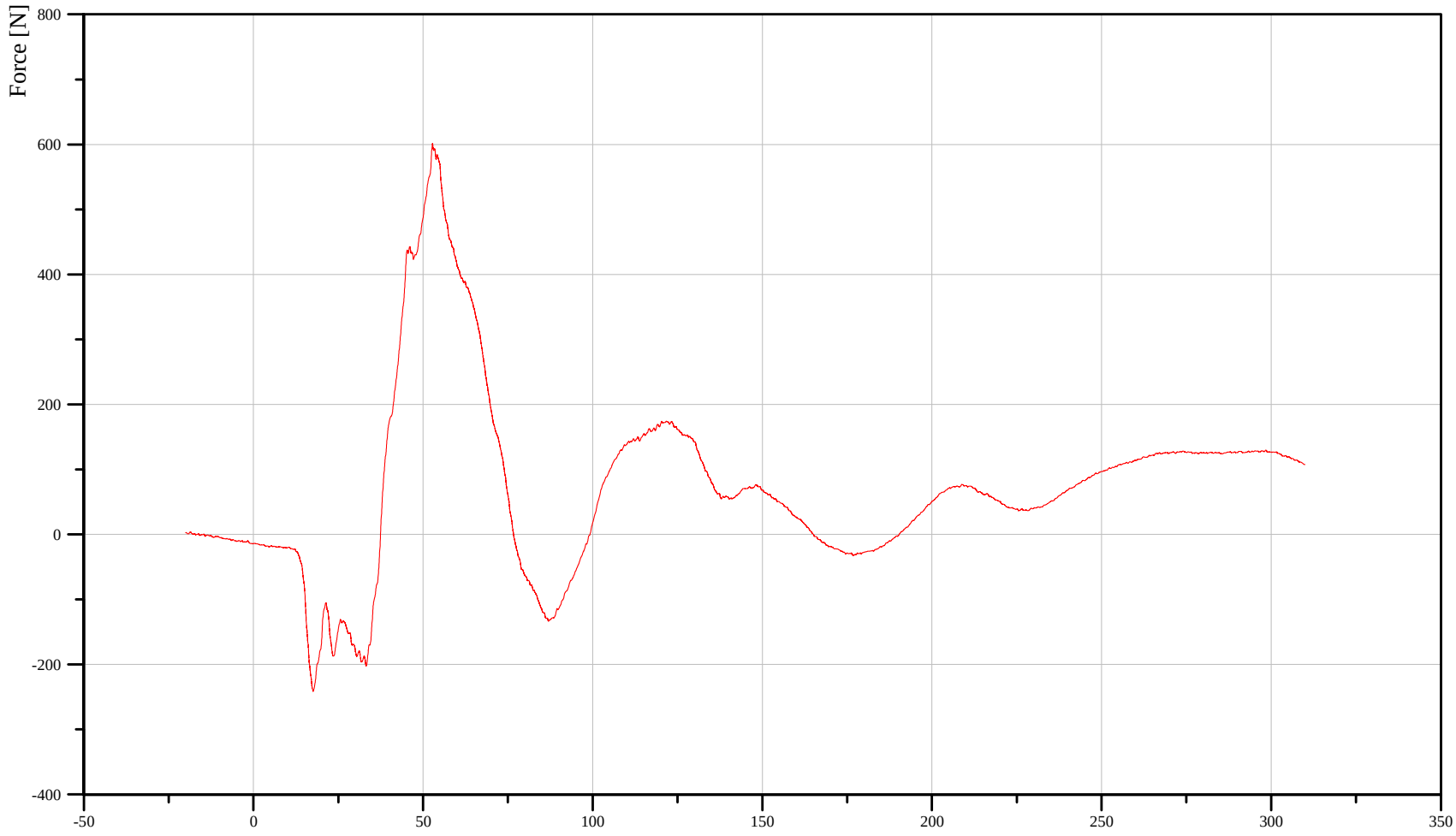
Lumbar X-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11LUSP0000WSFOXB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-240.92 N at 17.60 ms

Max. Value
601.08 N at 52.75 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

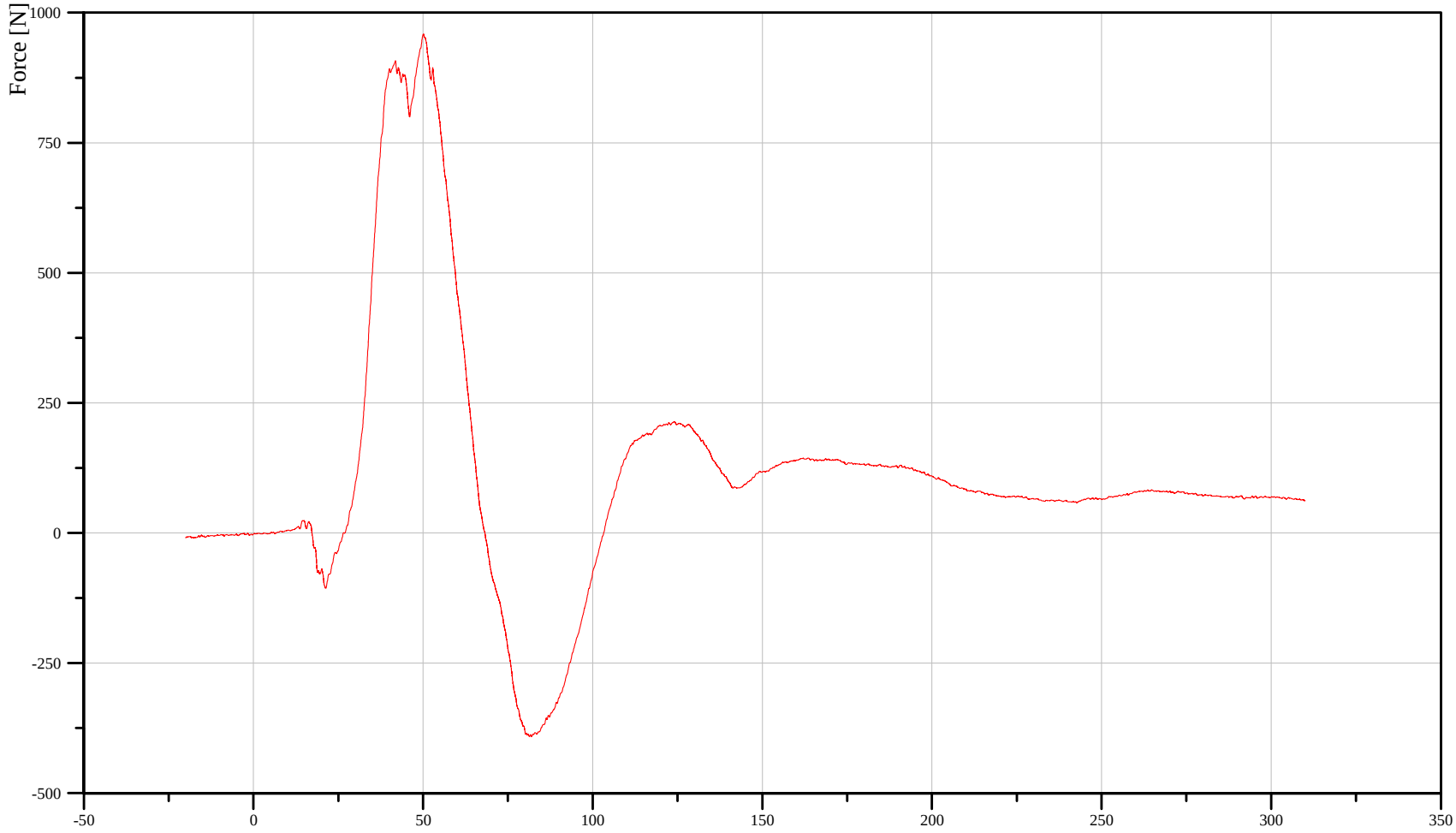
Lumbar Y-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11LUSP0000WSFOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-391.32 N at 82.00 ms

Max. Value
958.70 N at 50.10 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

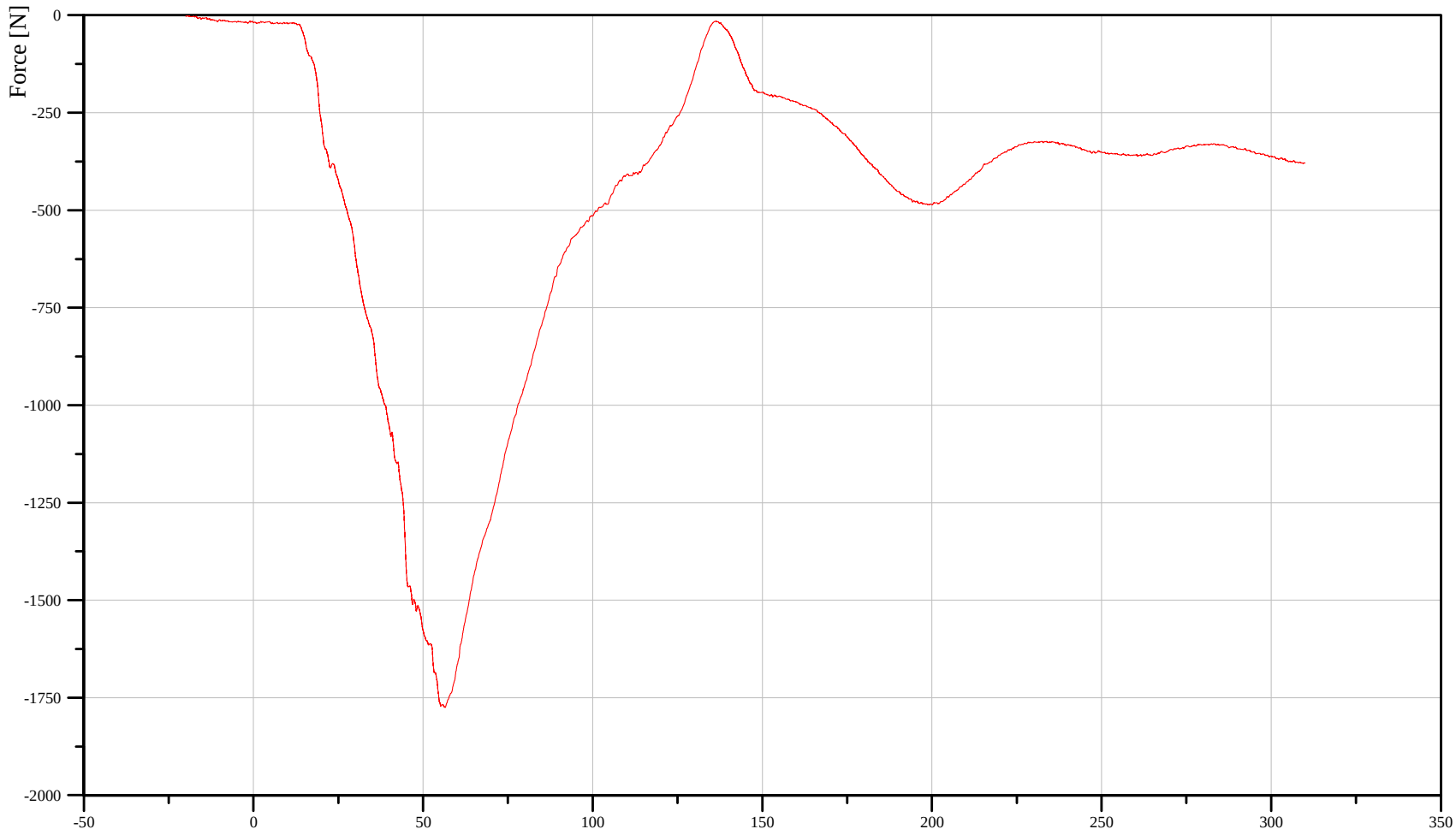
Lumbar Z-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11LUSP0000WSFOZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-1,775.37 N at 56.50 ms

Max. Value
-1.48 N at -19.45 ms

110801

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

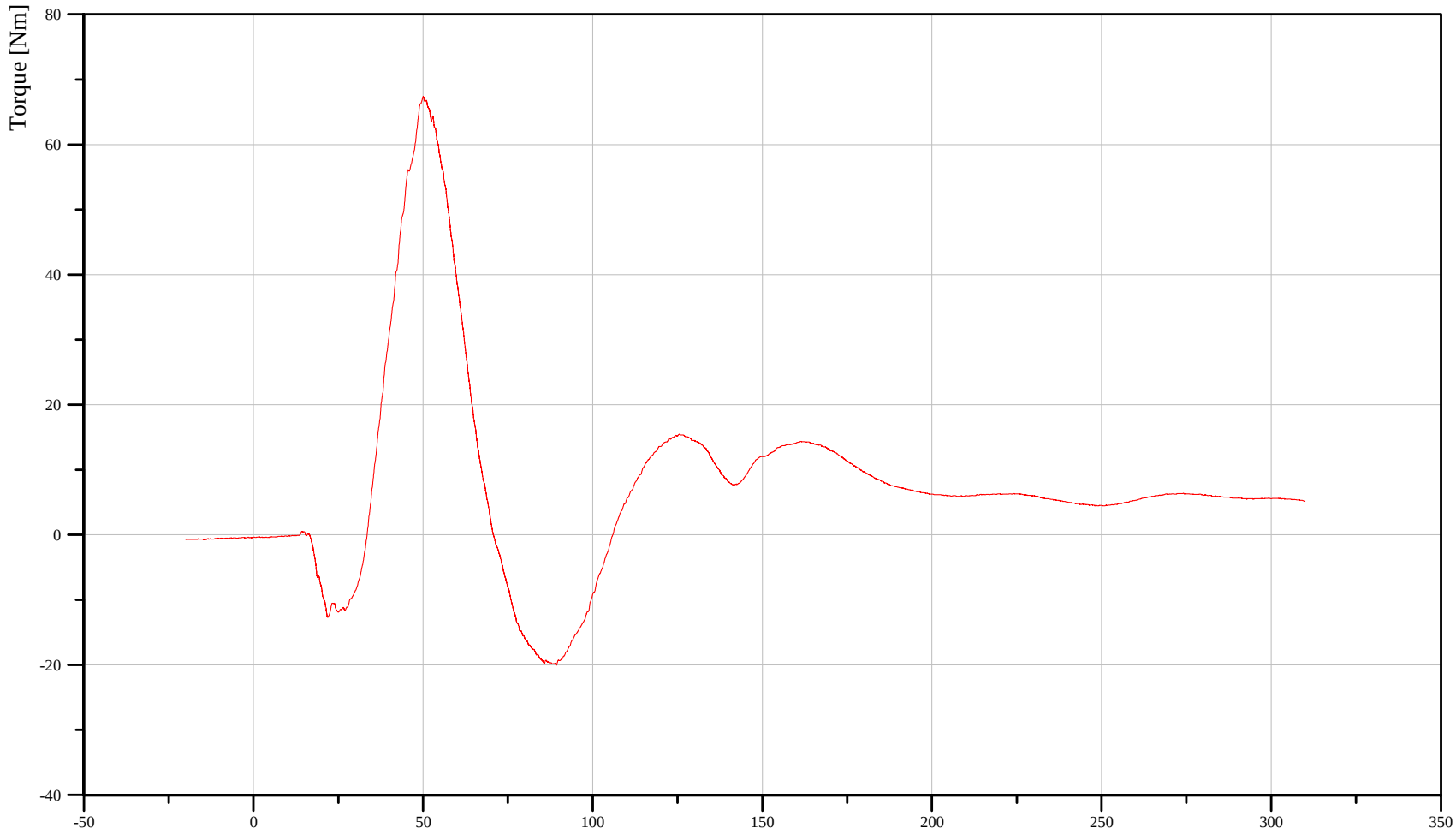
Lumbar Moment About X Axis

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11LUSP0000WSMOXB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-20.03 Nm at 89.30 ms

Max. Value
67.35 Nm at 50.00 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

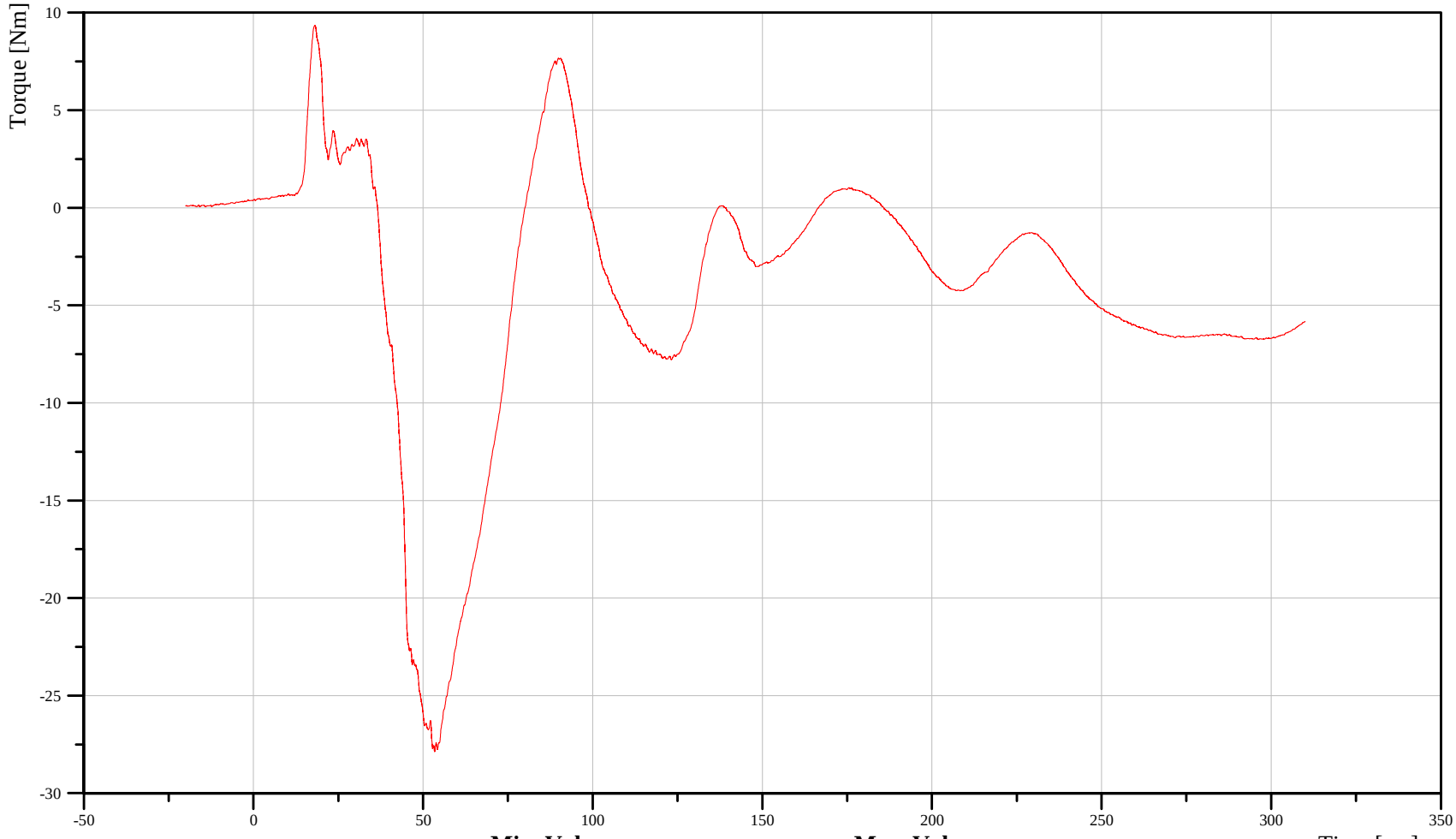
Lumbar Moment About Y Axis

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11LUSP0000WSMOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-27.86 Nm at 53.45 ms

Max. Value
9.35 Nm at 18.10 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

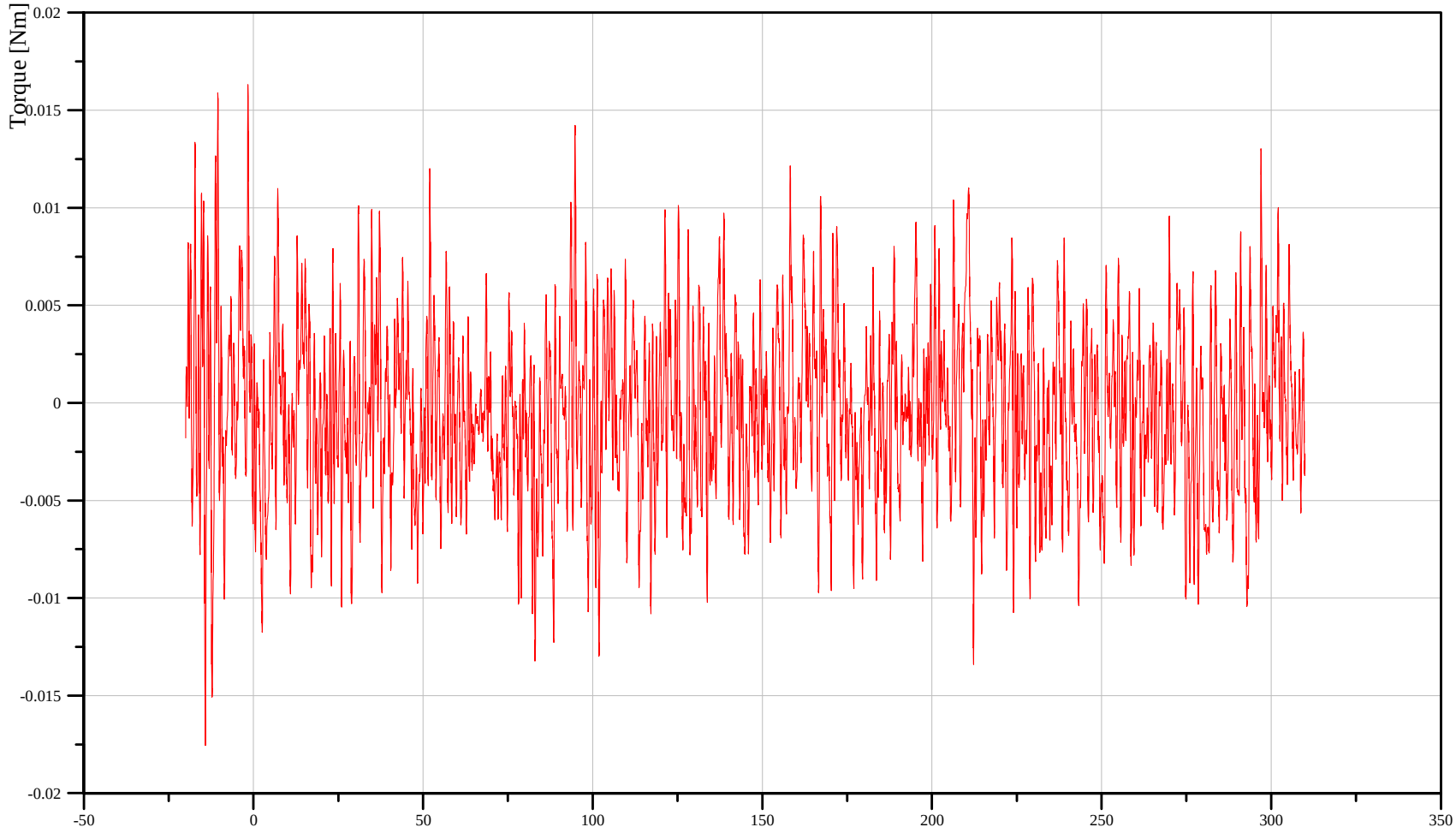
Lumbar Moment About Z Axis

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11LUSP0000WSMOZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-0.02 Nm at -14.20 ms

Max. Value
0.02 Nm at -1.60 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

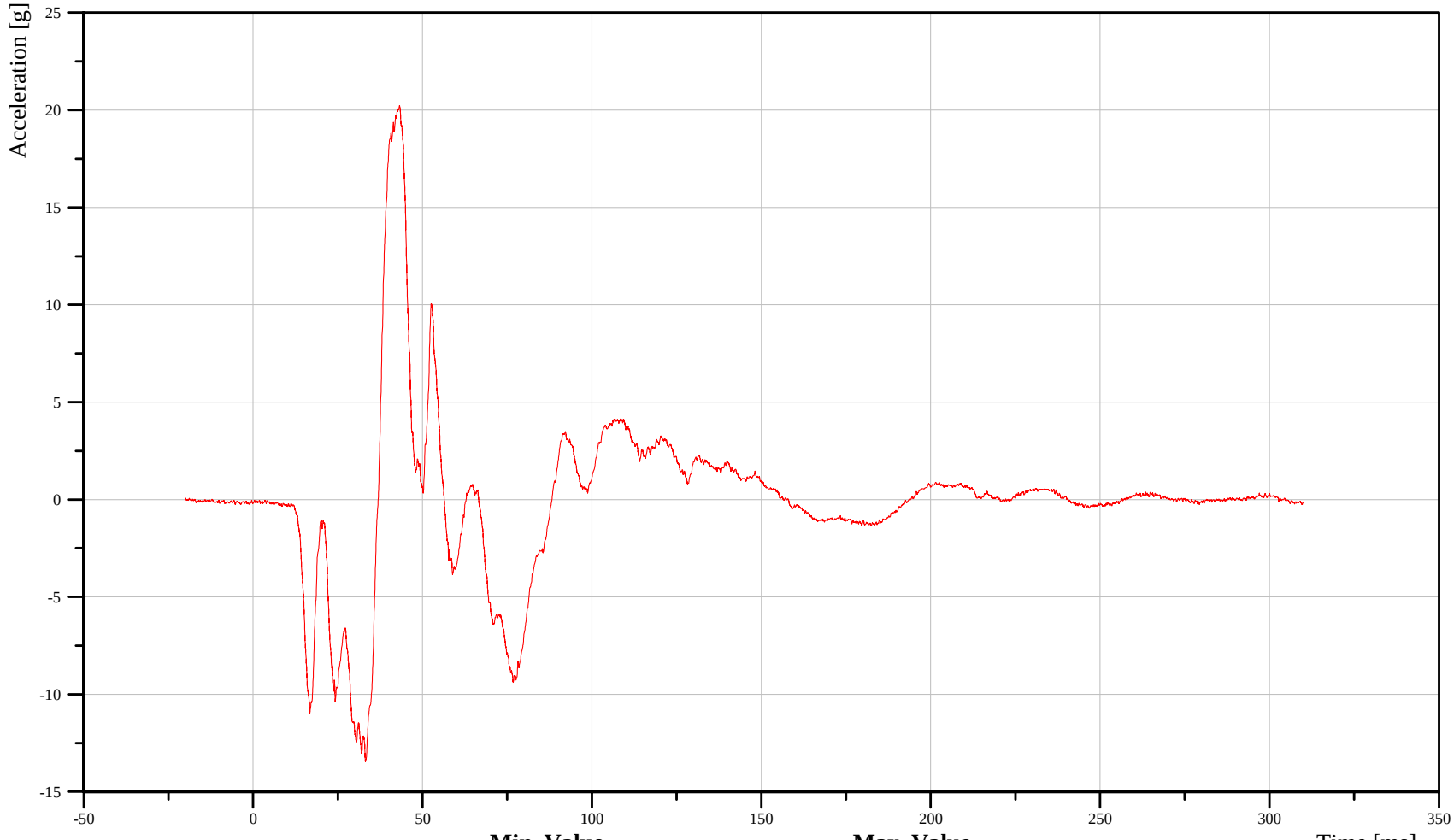
Pelvis X-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11PELVCG00WSACXA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-13.44 g at 33.20 ms

Max. Value
20.22 g at 43.20 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

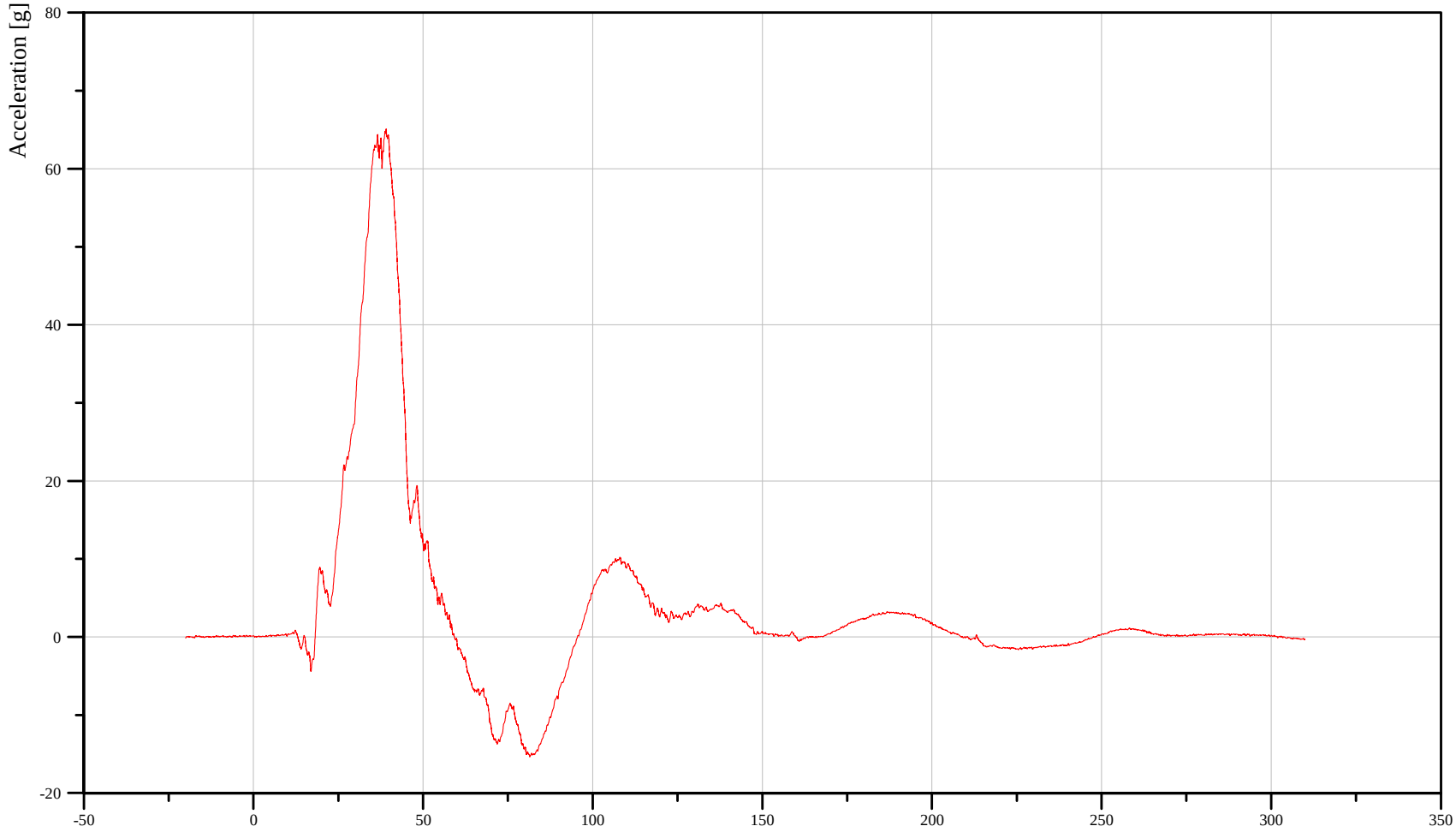
Pelvis Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11PELVCG00WSACYA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-15.34 g at 81.45 ms

Max. Value
65.09 g at 39.10 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

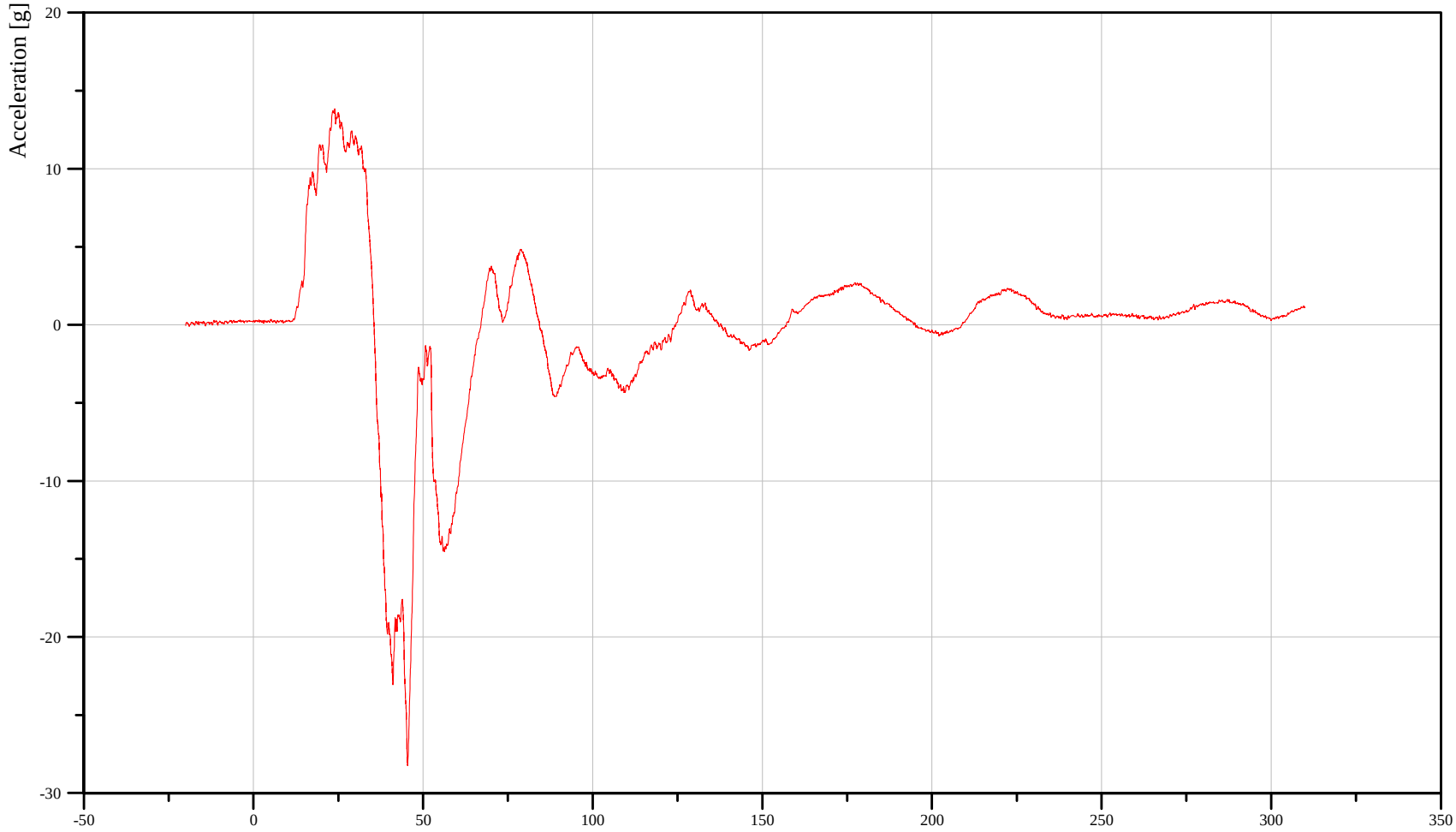
Pelvis Z-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11PELVCG00WSACZA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-28.22 g at 45.45 ms

Max. Value
13.85 g at 24.00 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

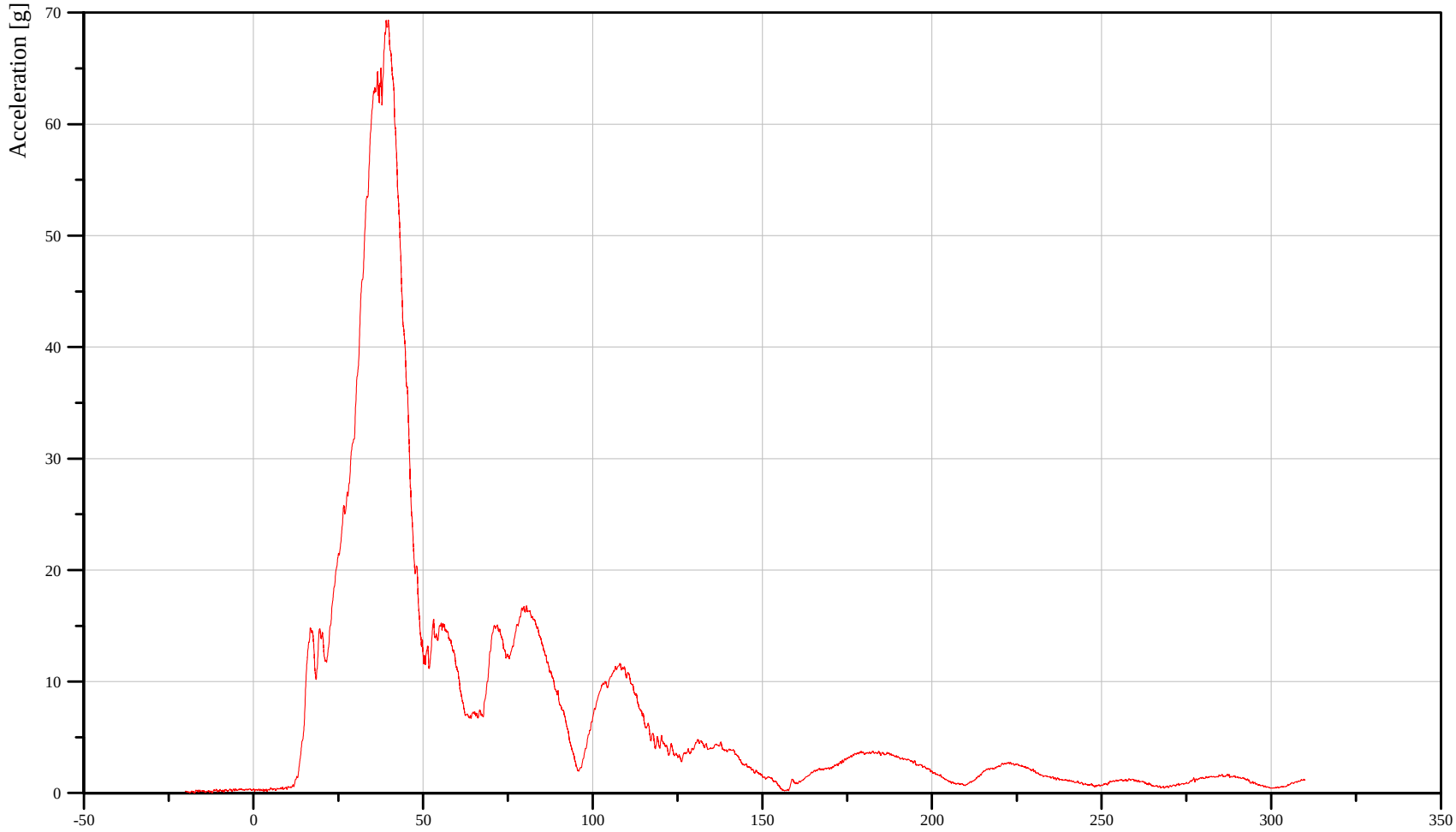
Pelvis Resultant Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11PELVCG00WSACRA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
0.03 g at -12.15 ms

Max. Value
69.34 g at 39.75 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

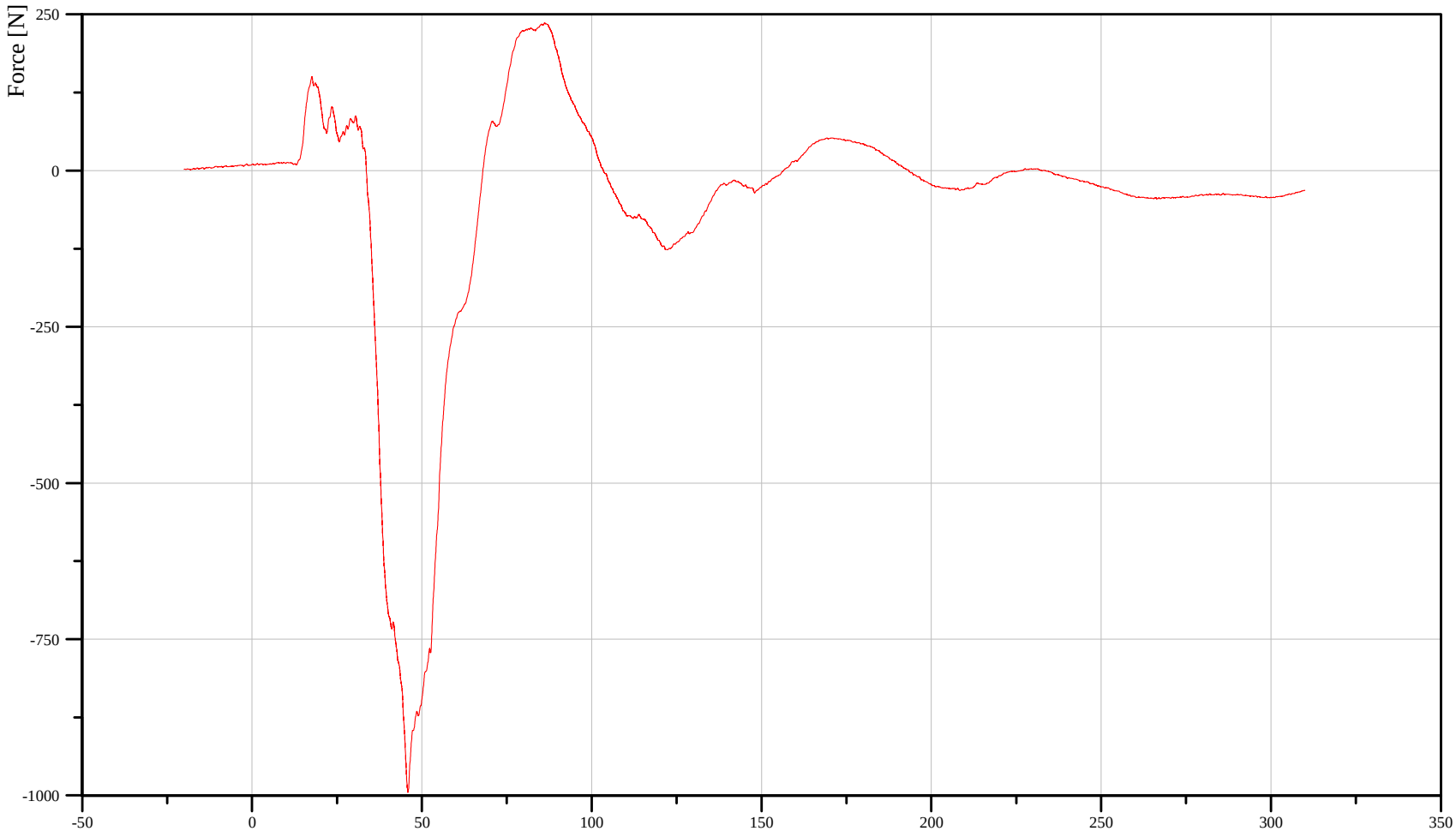
Sacro-Iliac Left X-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SACRLE00WSFOXB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-994.85 N at 45.90 ms

Max. Value
236.55 N at 86.10 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

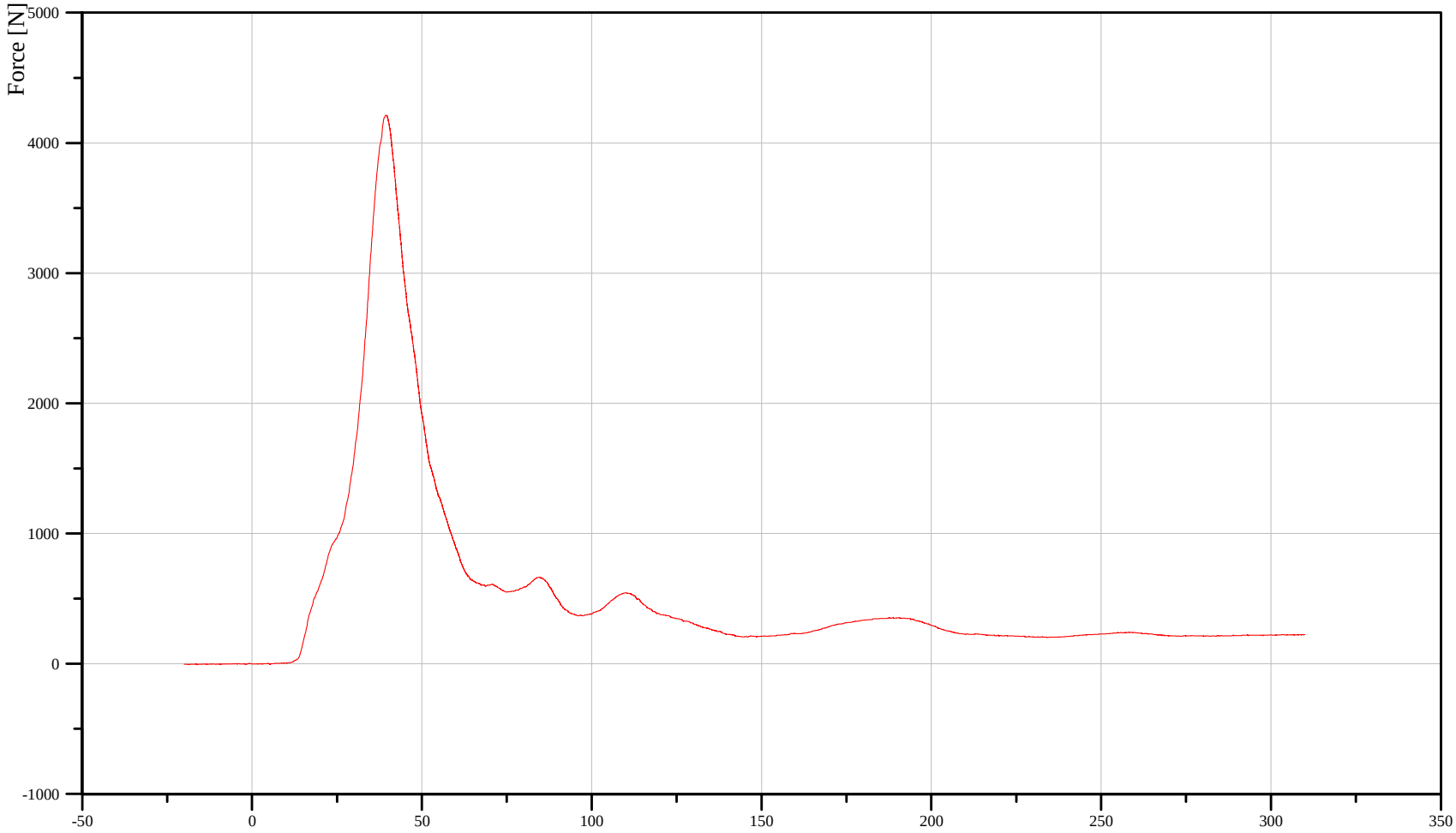
Sacro-Iliac Left Y-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SACRLE00WSFOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-6.74 N at -18.65 ms

Max. Value
4,213.81 N at 39.50 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

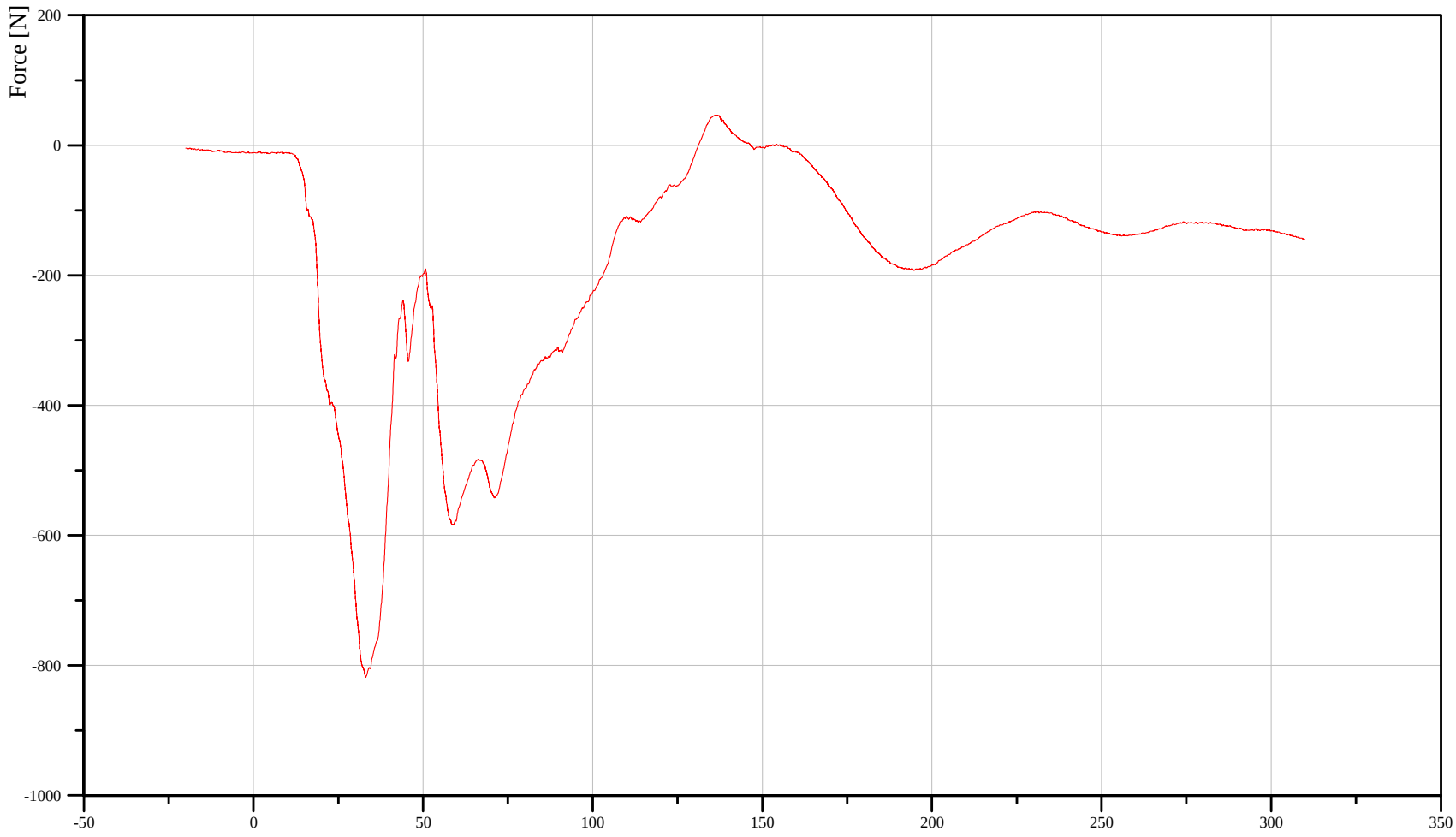
Sacro-Iliac Left Z-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SACRLE00WSFOZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-818.30 N at 33.10 ms

Max. Value
46.31 N at 136.65 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

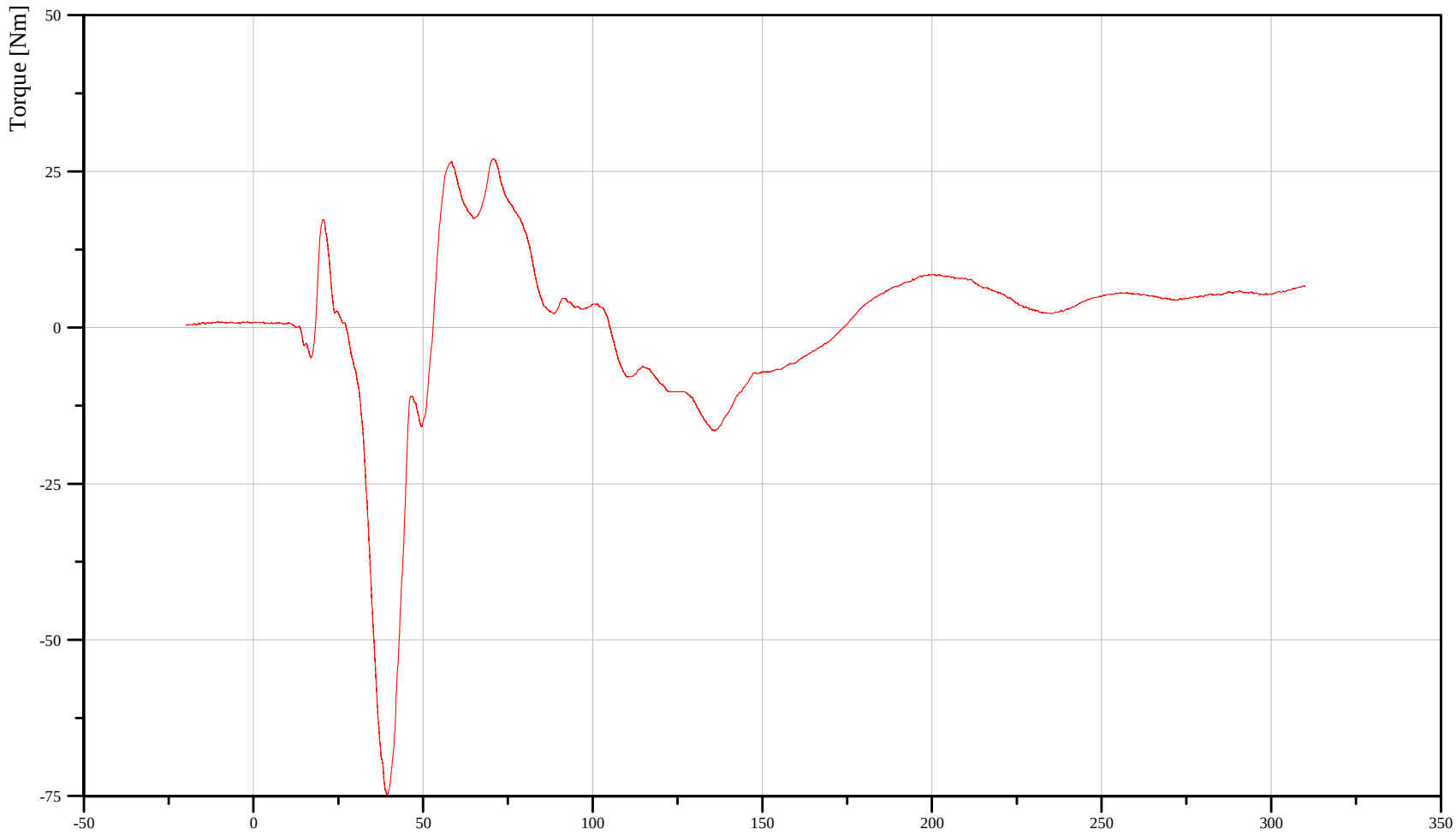
Date: 08/01/2011
Time: 16:46

Sacro-Iliac Left Moment About X Axis

Customer: VRTC

11SACRLE00WSMOXB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value	**Max. Value**
-74.77 Nm at 39.45 ms	27.03 Nm at 70.70 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

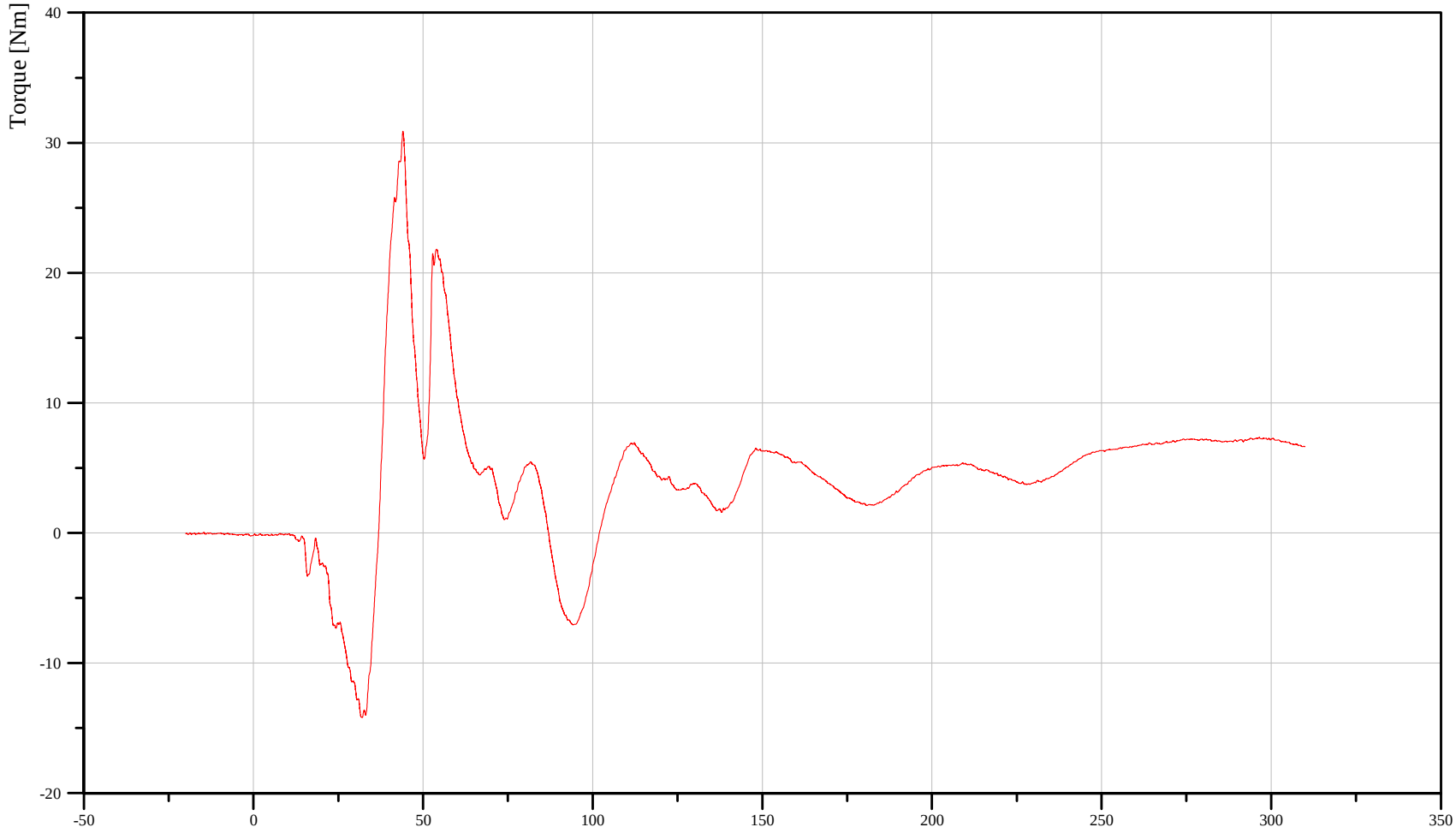
Date: 08/01/2011
Time: 16:46

Sacro-Iliac Left Moment About Y Axis

Customer: VRTC

11SACRLE00WSMOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value	Max. Value
-14.20 Nm at 32.05 ms	30.89 Nm at 44.05 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

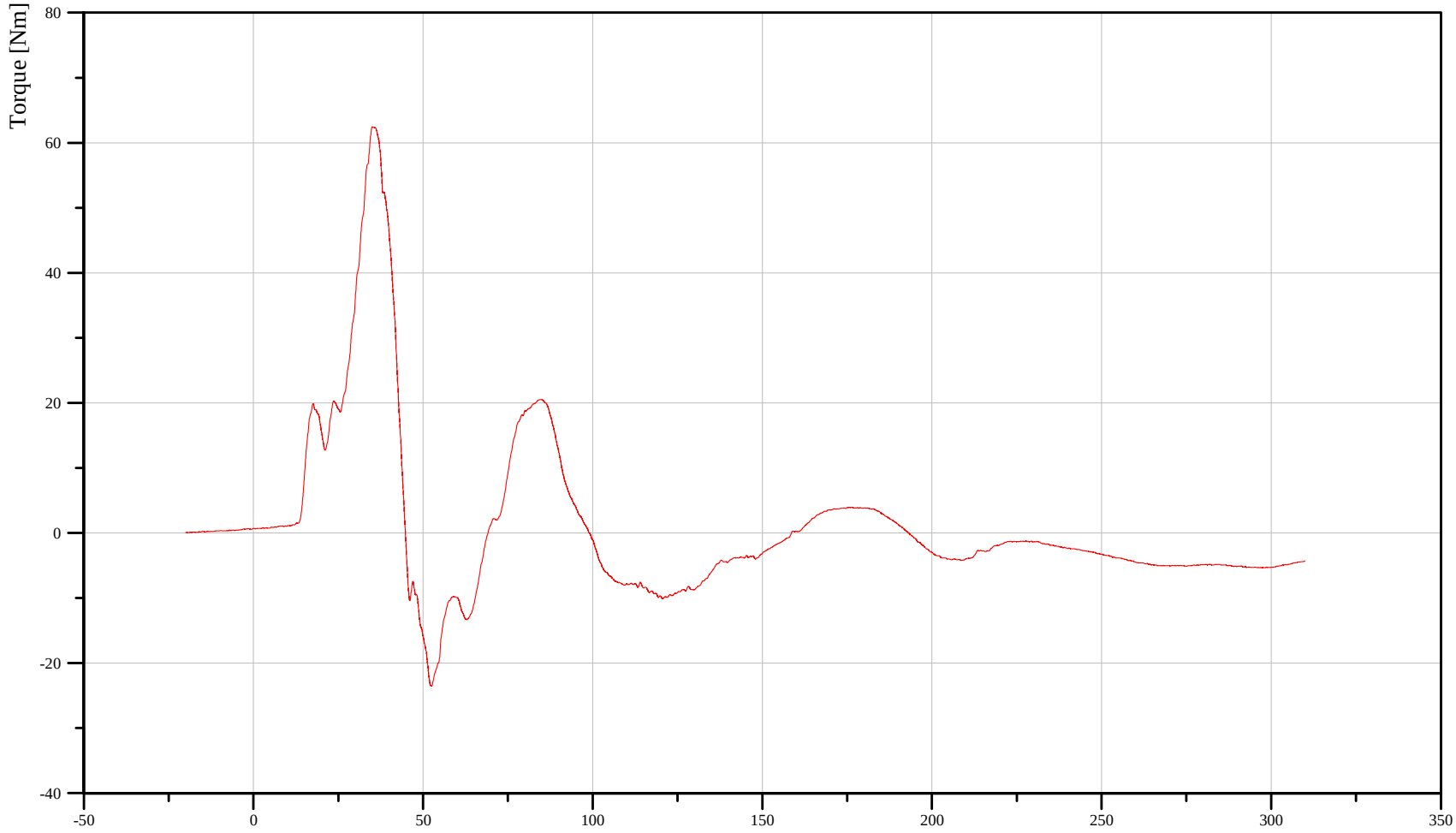
Sacro-Iliac Left Moment About Z Axis

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SACRLE00WSMOZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-23.53 Nm at 52.45 ms

Max. Value
62.47 Nm at 35.05 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

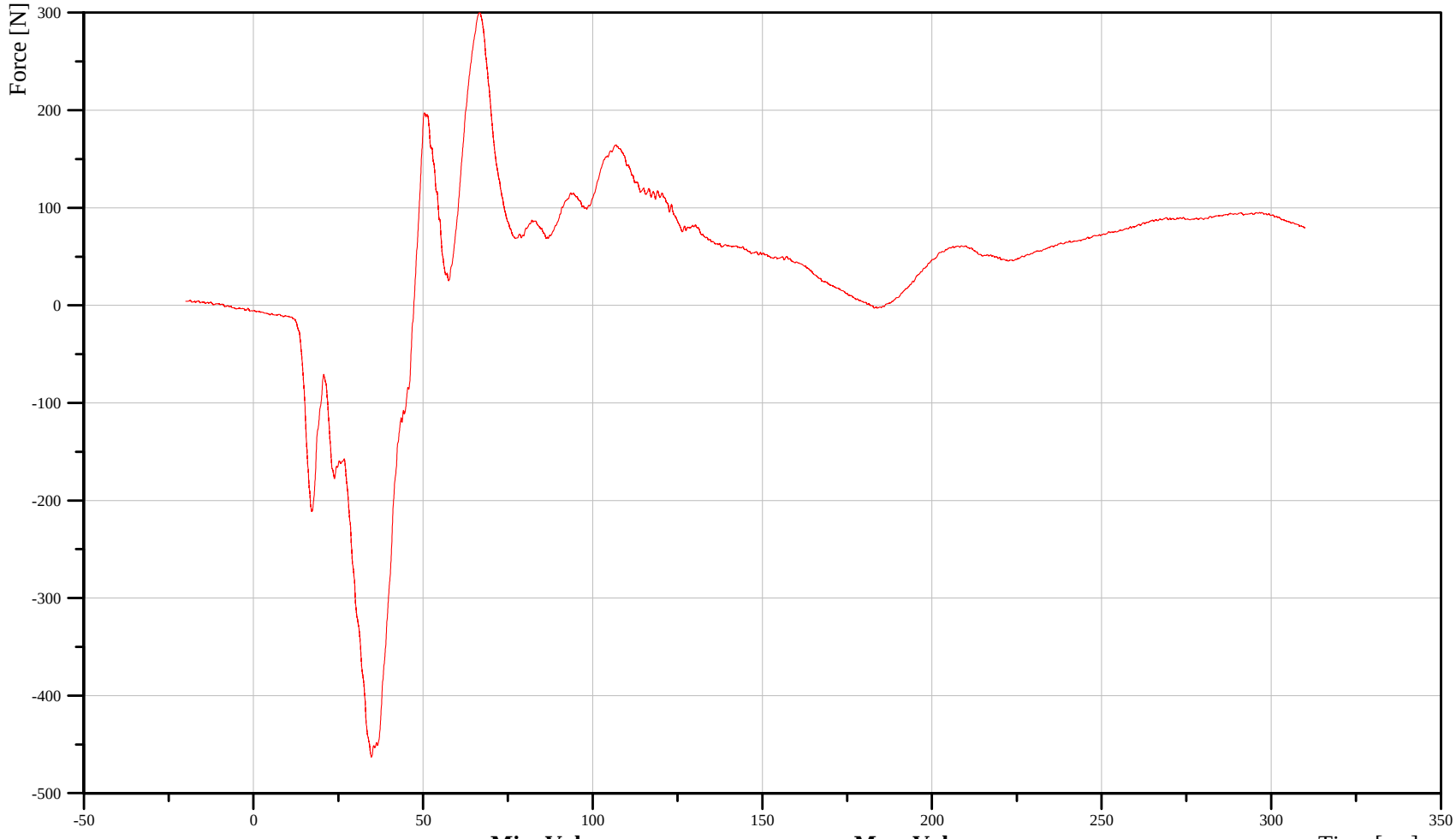
Sacro-Iliac Right X-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SACRRI00WSFOXB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-462.83 N at 34.80 ms

Max. Value
299.96 N at 66.65 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

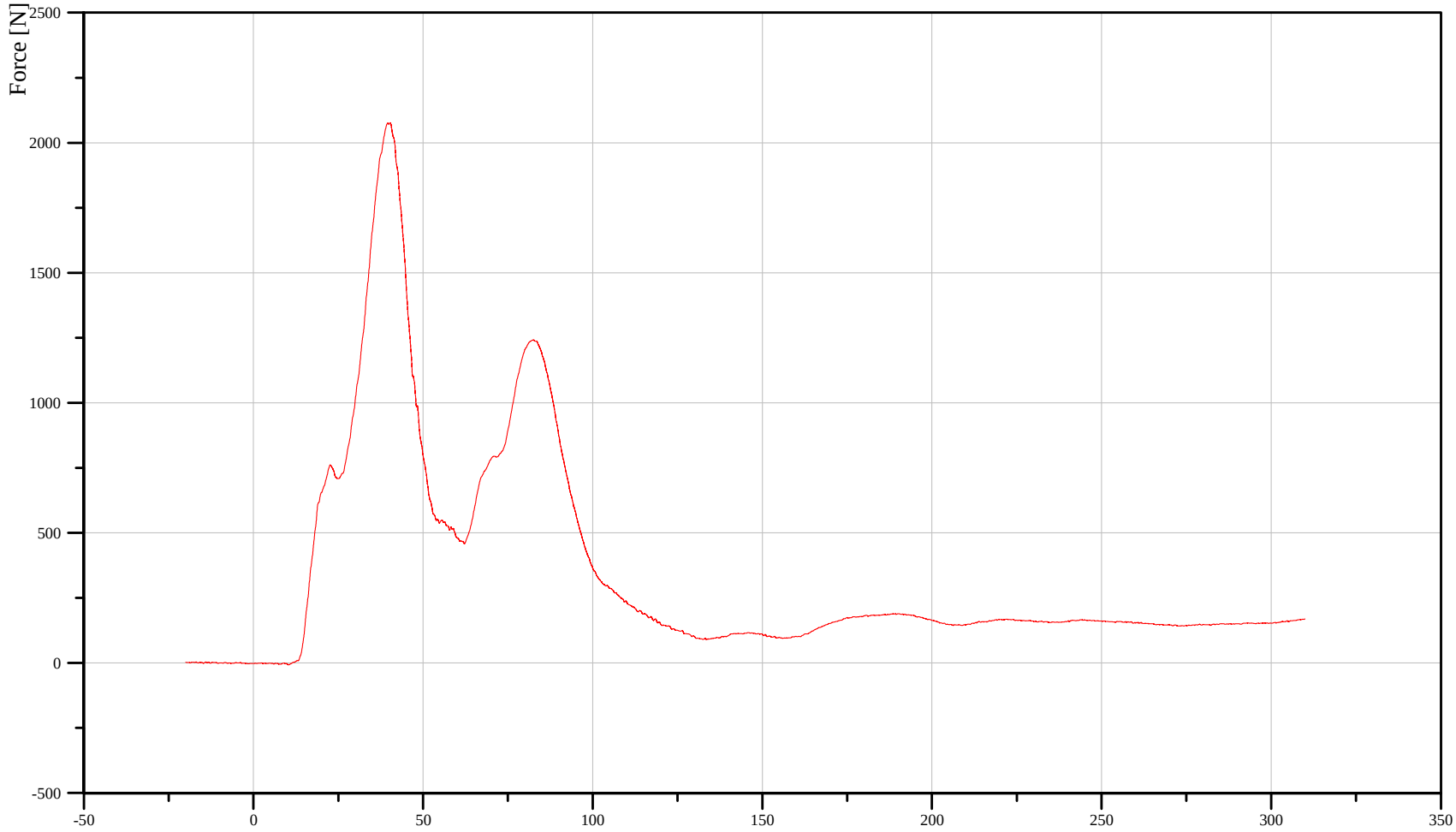
Sacro-Iliac Right Y-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SACRRI00WSFOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-7.41 N at 10.30 ms

Max. Value
2,077.35 N at 40.35 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

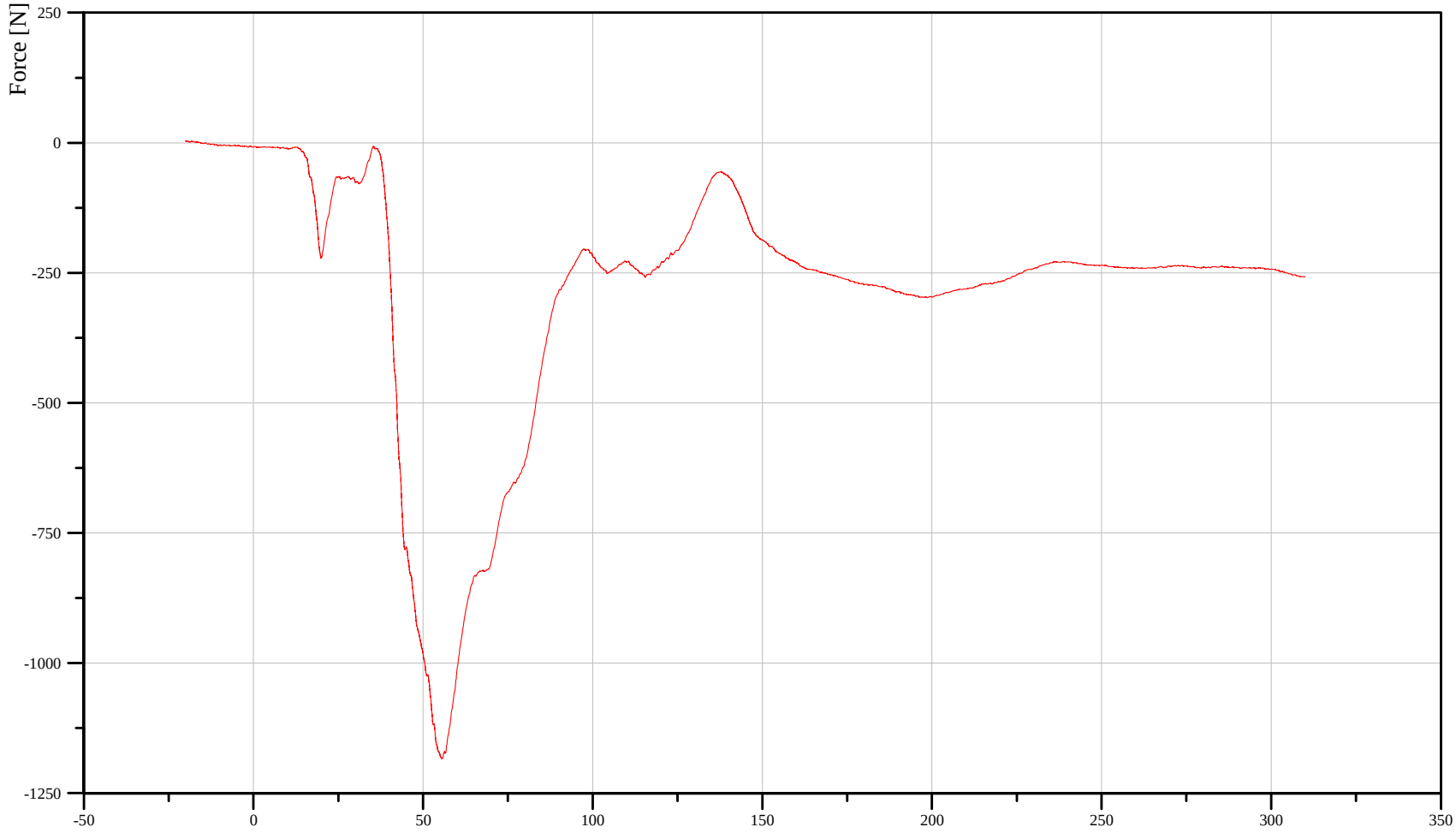
Sacro-Iliac Right Z-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SACRRI00WSFOZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-1,183.93 N at 55.60 ms

Max. Value
3.64 N at -20.00 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

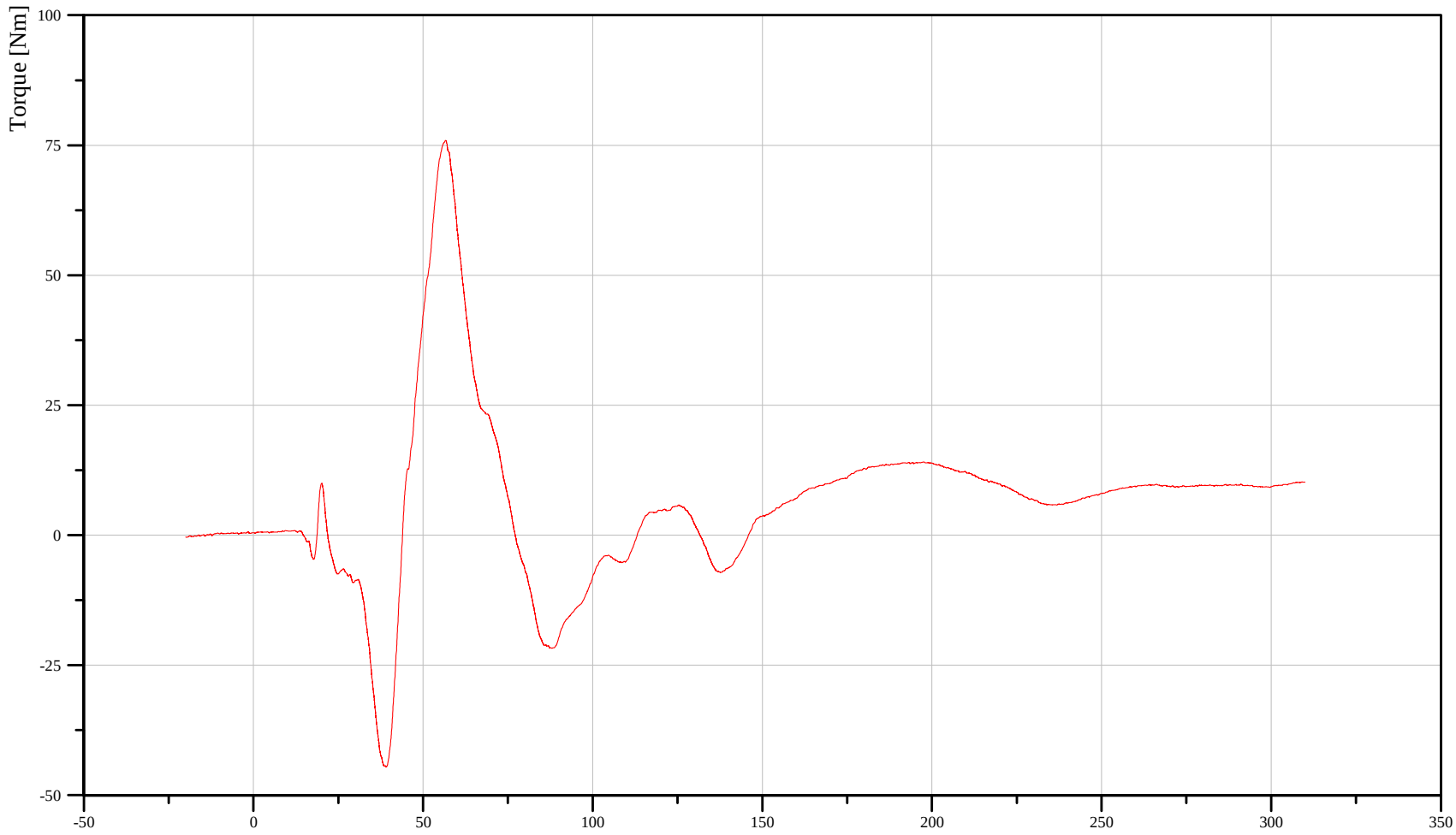
Sacro-Iliac Right Moment About X Axis

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SACRRI00WSMOXB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-44.55 Nm at 39.20 ms

Max. Value
75.93 Nm at 56.70 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

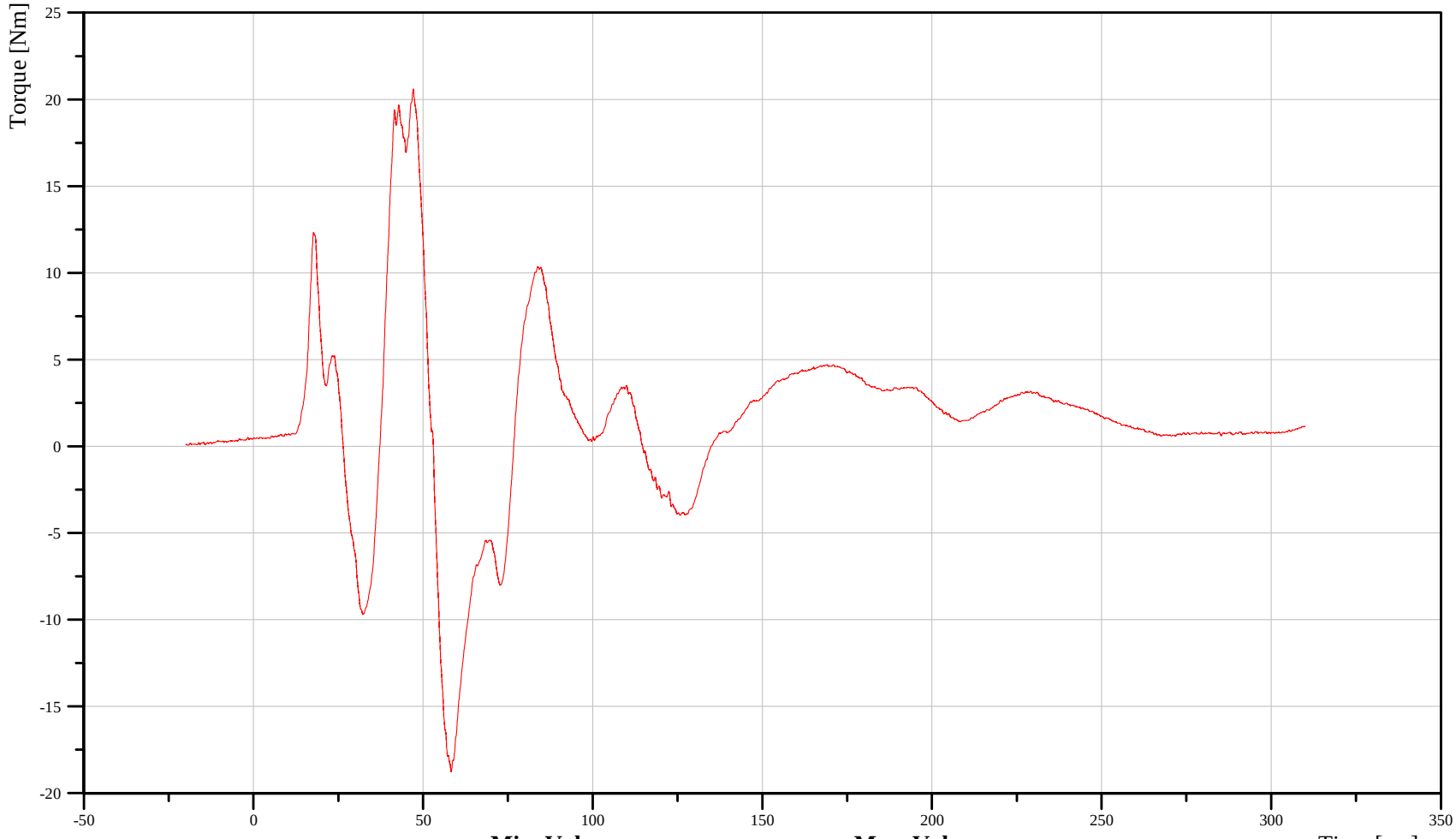
Sacro-Iliac Right Moment About Y Axis

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SACRRI00WSMOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-18.76 Nm at 58.30 ms

Max. Value
20.58 Nm at 47.10 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

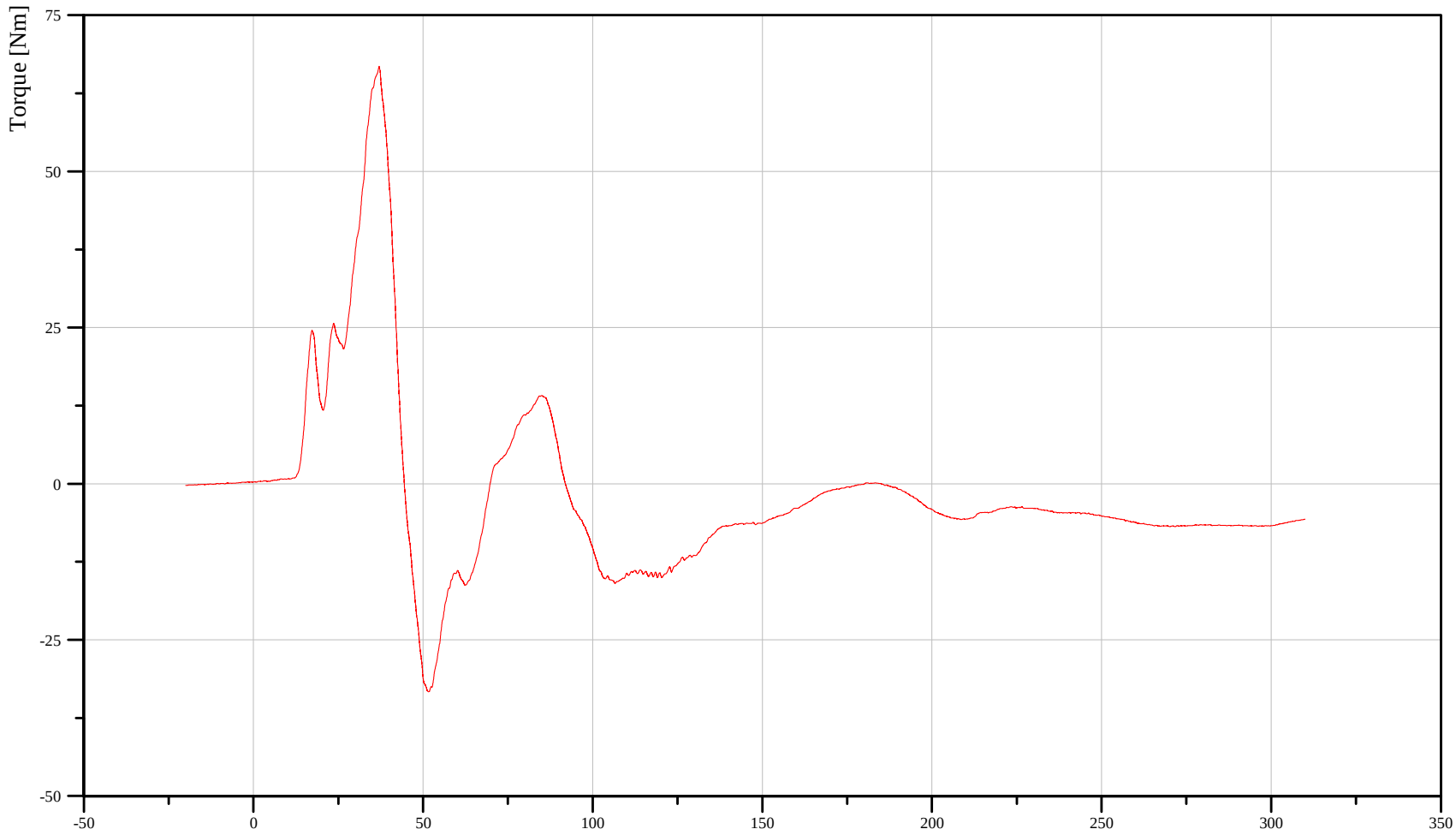
Date: 08/01/2011
Time: 16:46

Sacro-Iliac Right Moment About Z Axis

Customer: VRTC

11SACRRI00WSMOZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-33.31 Nm at 51.65 ms

Max. Value
66.83 Nm at 37.05 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

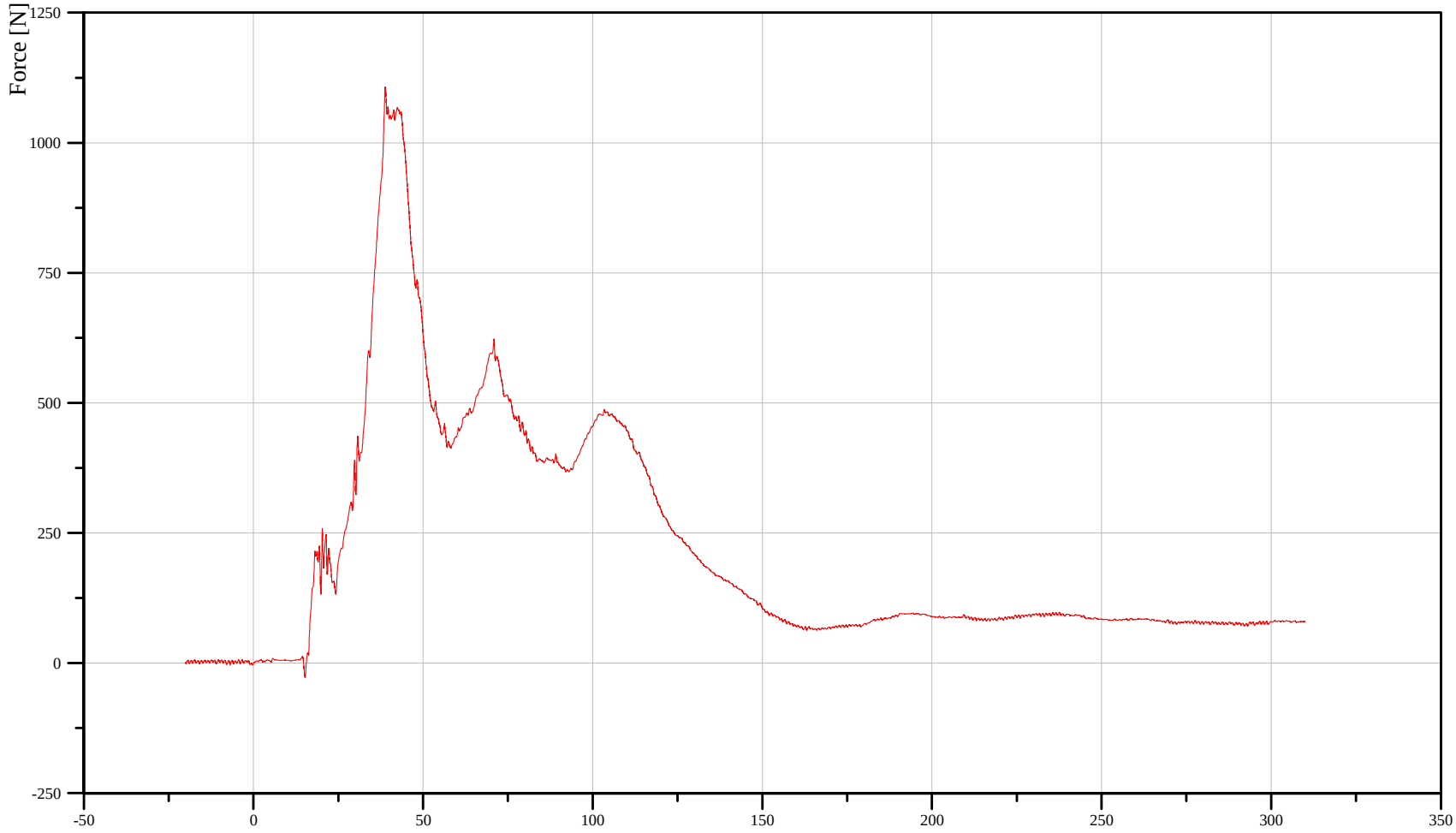
Pubic Symphysis Y-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11PUBC0000WSFOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-28.24 N at 15.20 ms

Max. Value
1,107.14 N at 38.85 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

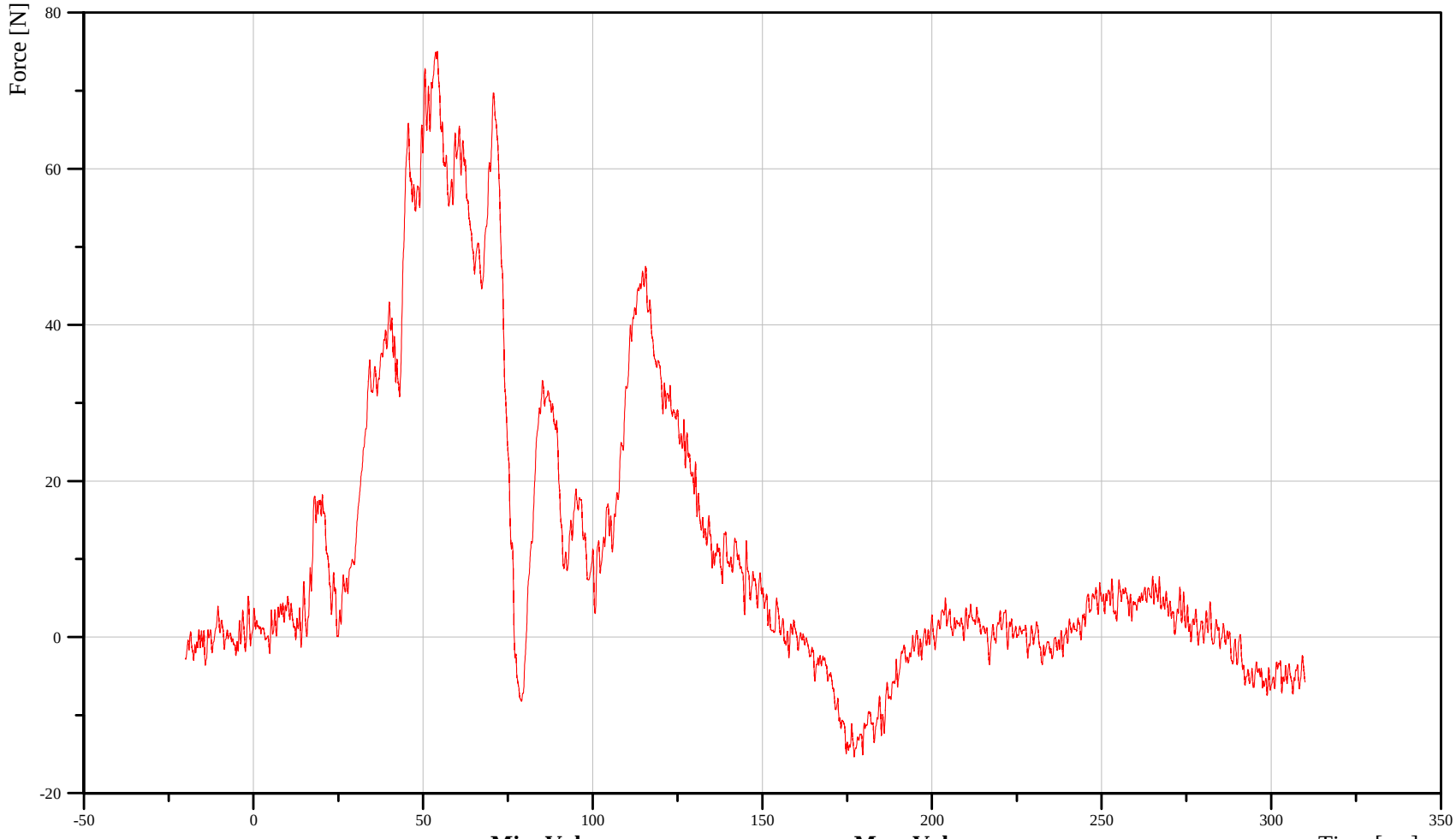
Left Mid Femur X-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11FEMRLEMIWSFOXB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-15.31 N at 177.10 ms

Max. Value
75.05 N at 54.25 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

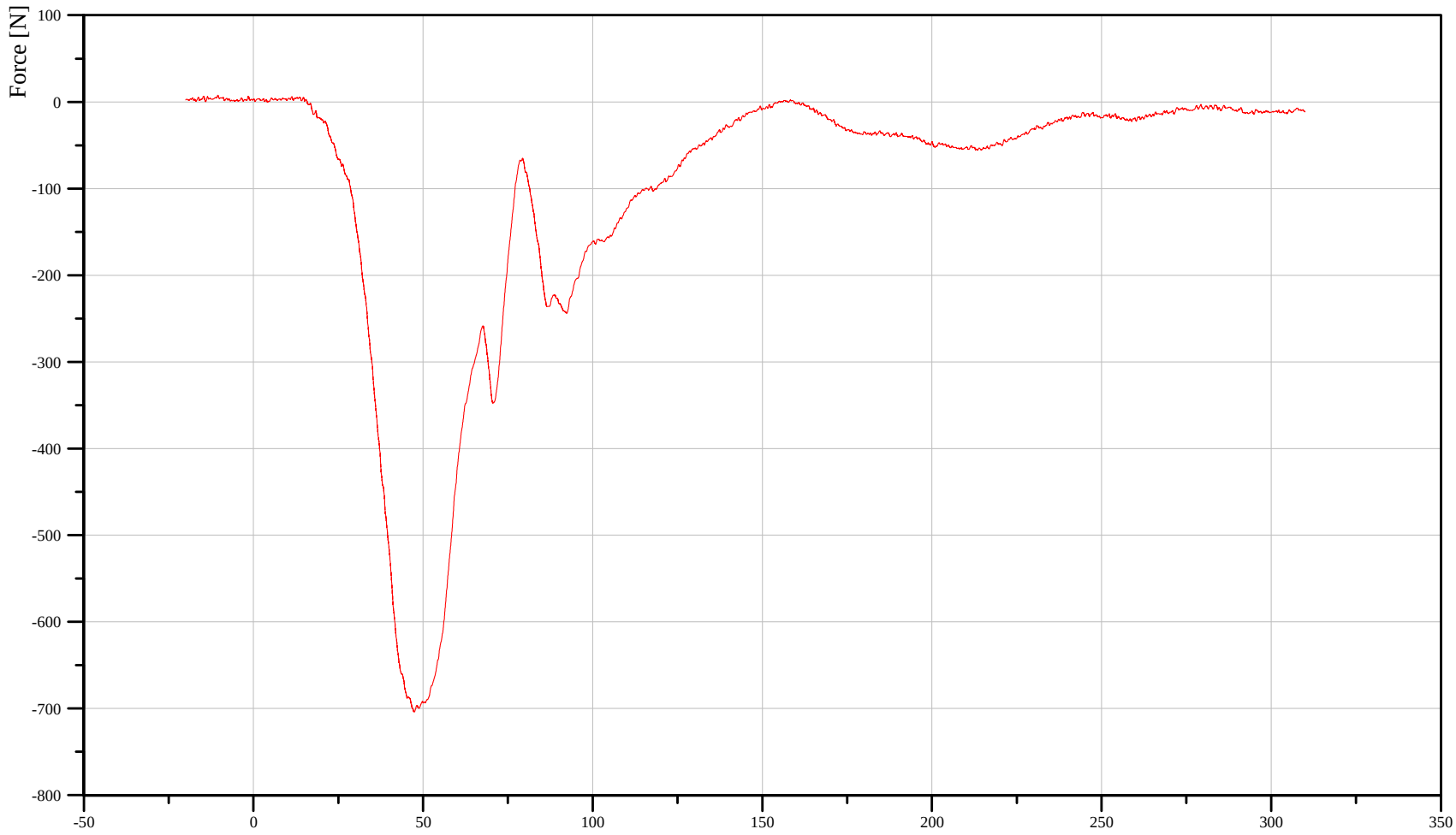
Left Mid Femur Y-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11FEMRLEMIWSFOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-703.92 N at 47.40 ms

Max. Value
7.68 N at -10.50 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

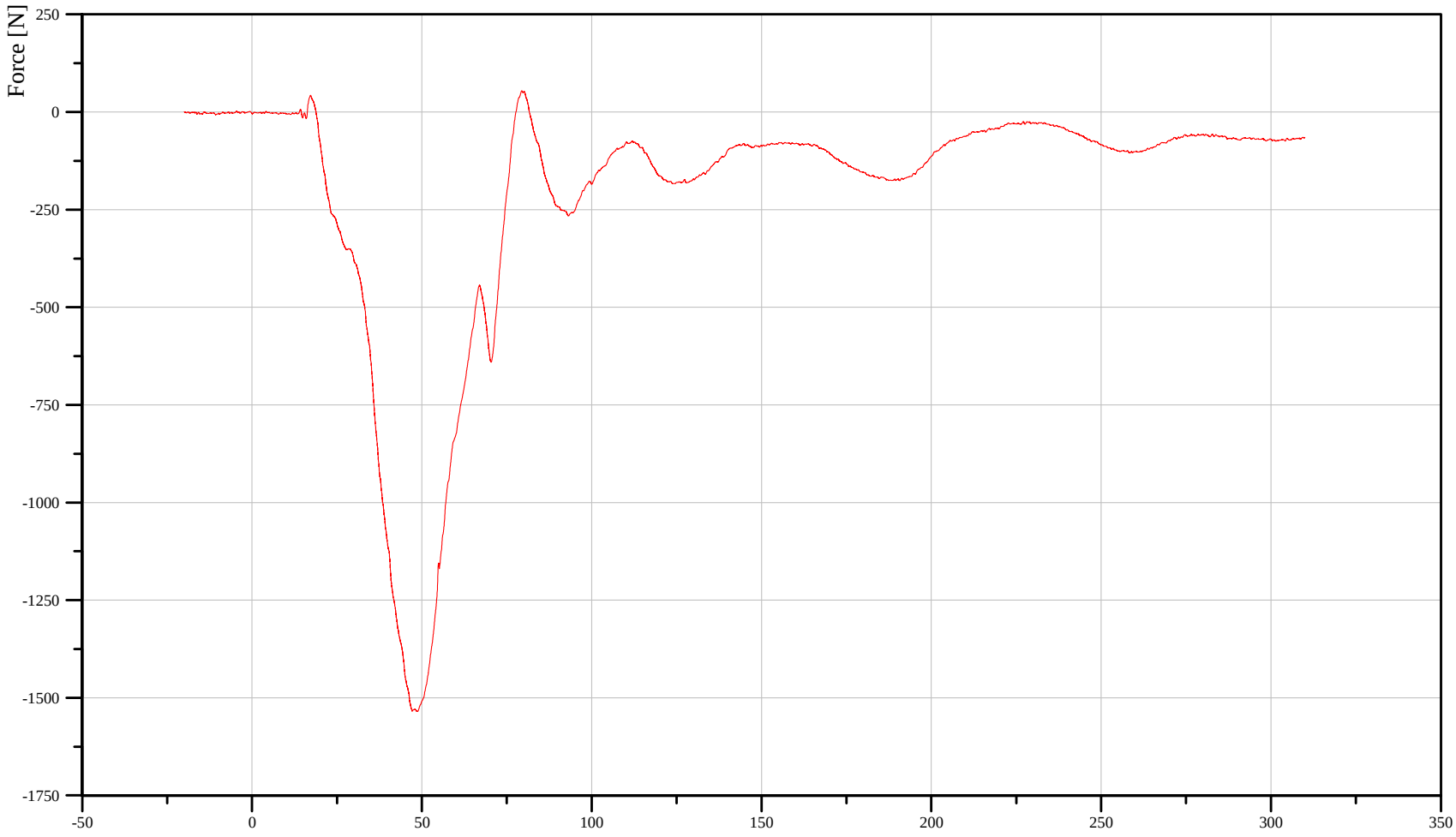
Left Mid Femur Z-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11FEMRLEMIWSFOZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-1,535.04 N at 48.75 ms

Max. Value
54.38 N at 79.40 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

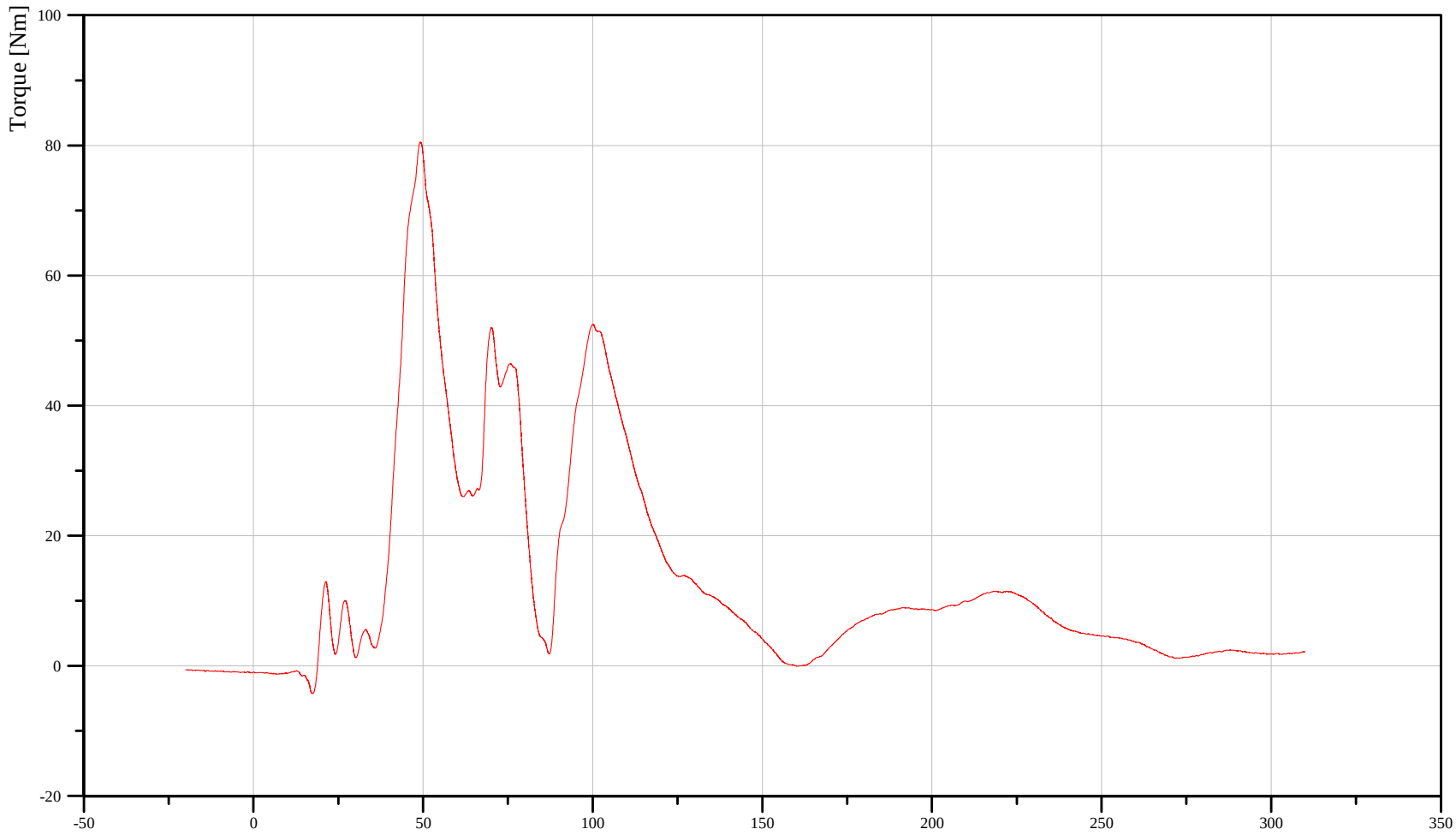
Left Mid Femur Moment Mx

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11FEMRLEMIWSMOXB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-4.25 Nm at 17.40 ms

Max. Value
80.51 Nm at 49.20 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

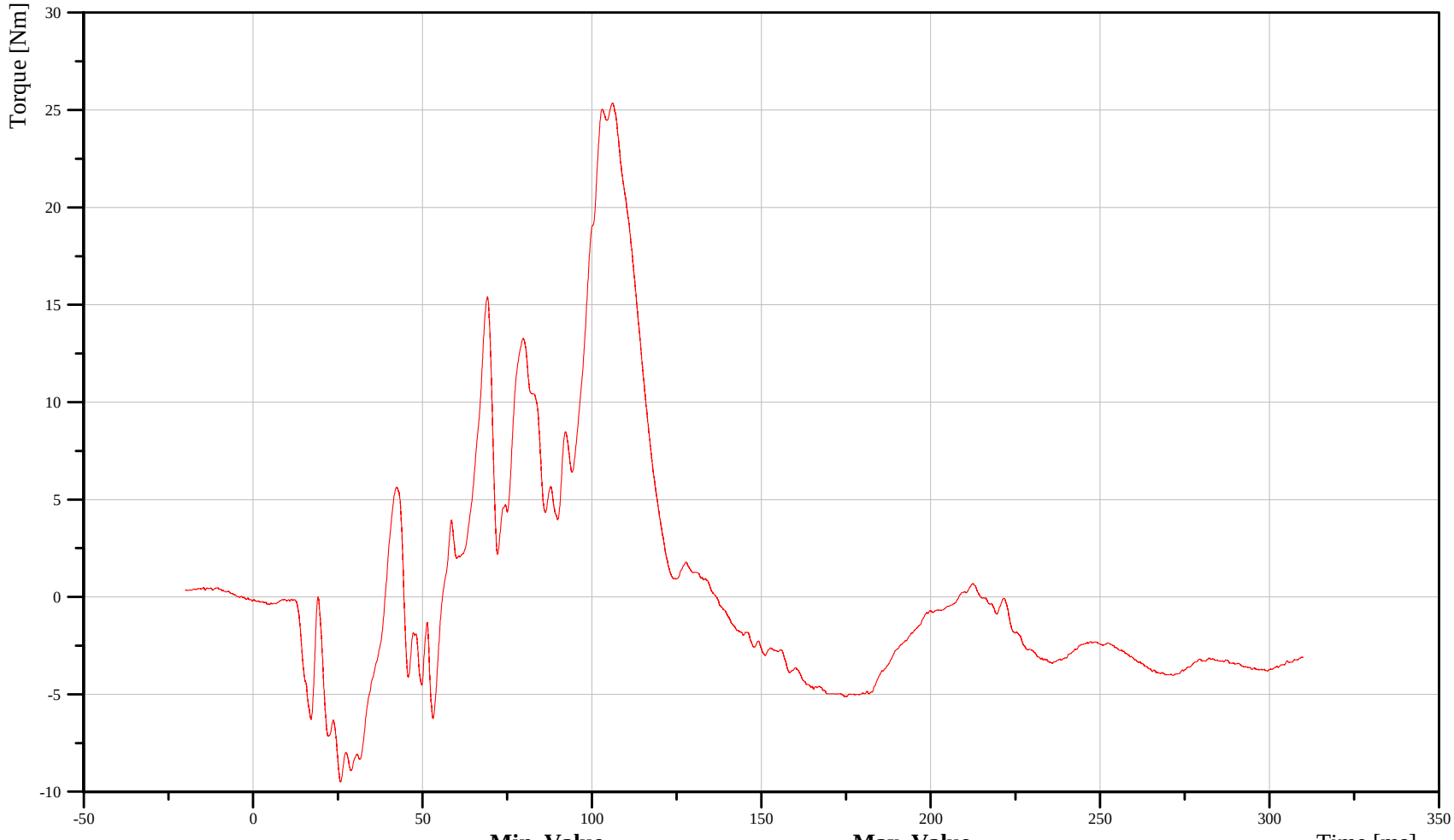
Left Mid Femur Moment My

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11FEMRLEMIWSMOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-9.51 Nm at 25.85 ms

Max. Value
25.36 Nm at 106.05 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

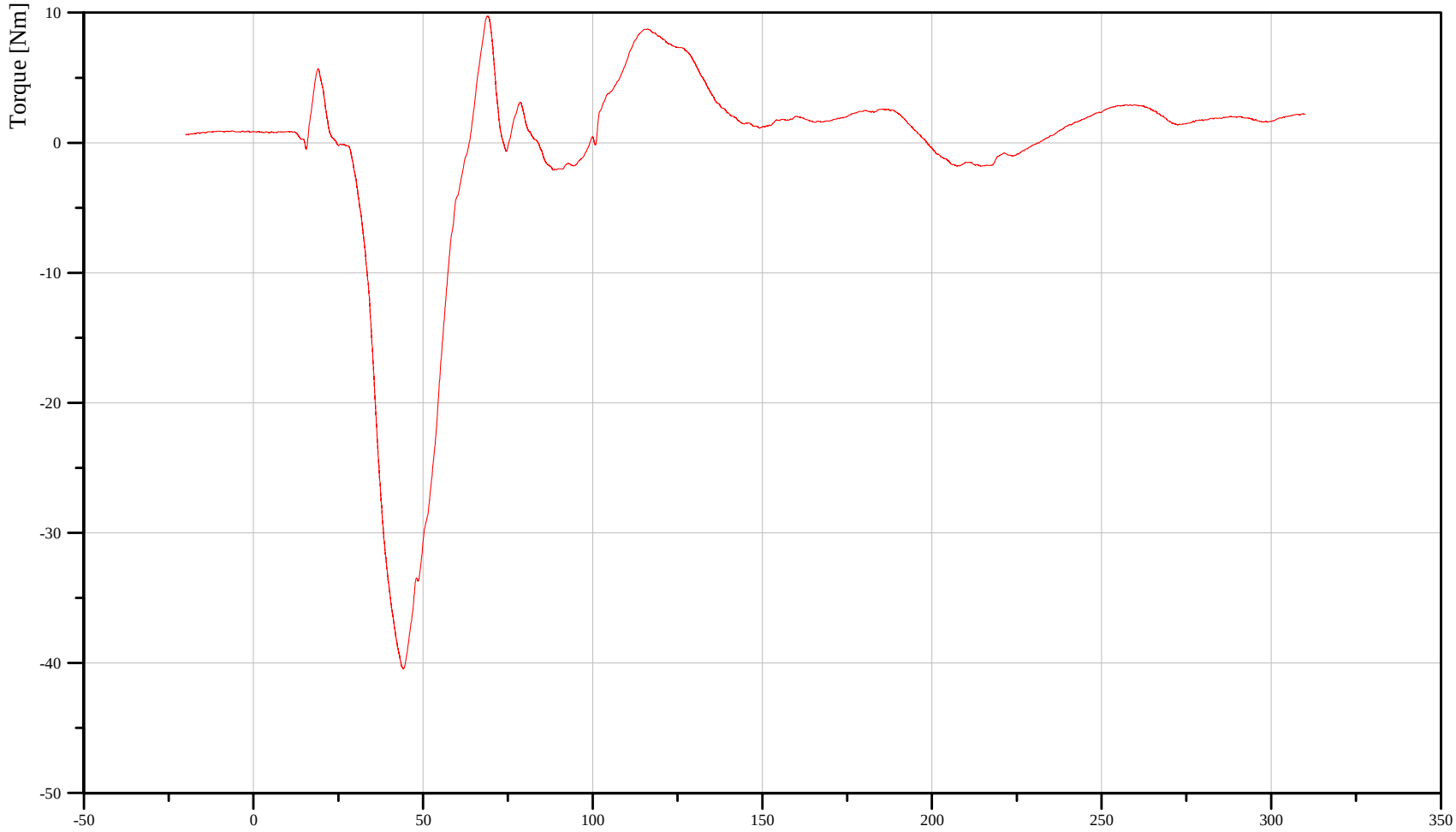
Left Mid Femur Moment Mz

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11FEMRLEMIWSMOZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-40.45 Nm at 44.20 ms

Max. Value
9.73 Nm at 68.95 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

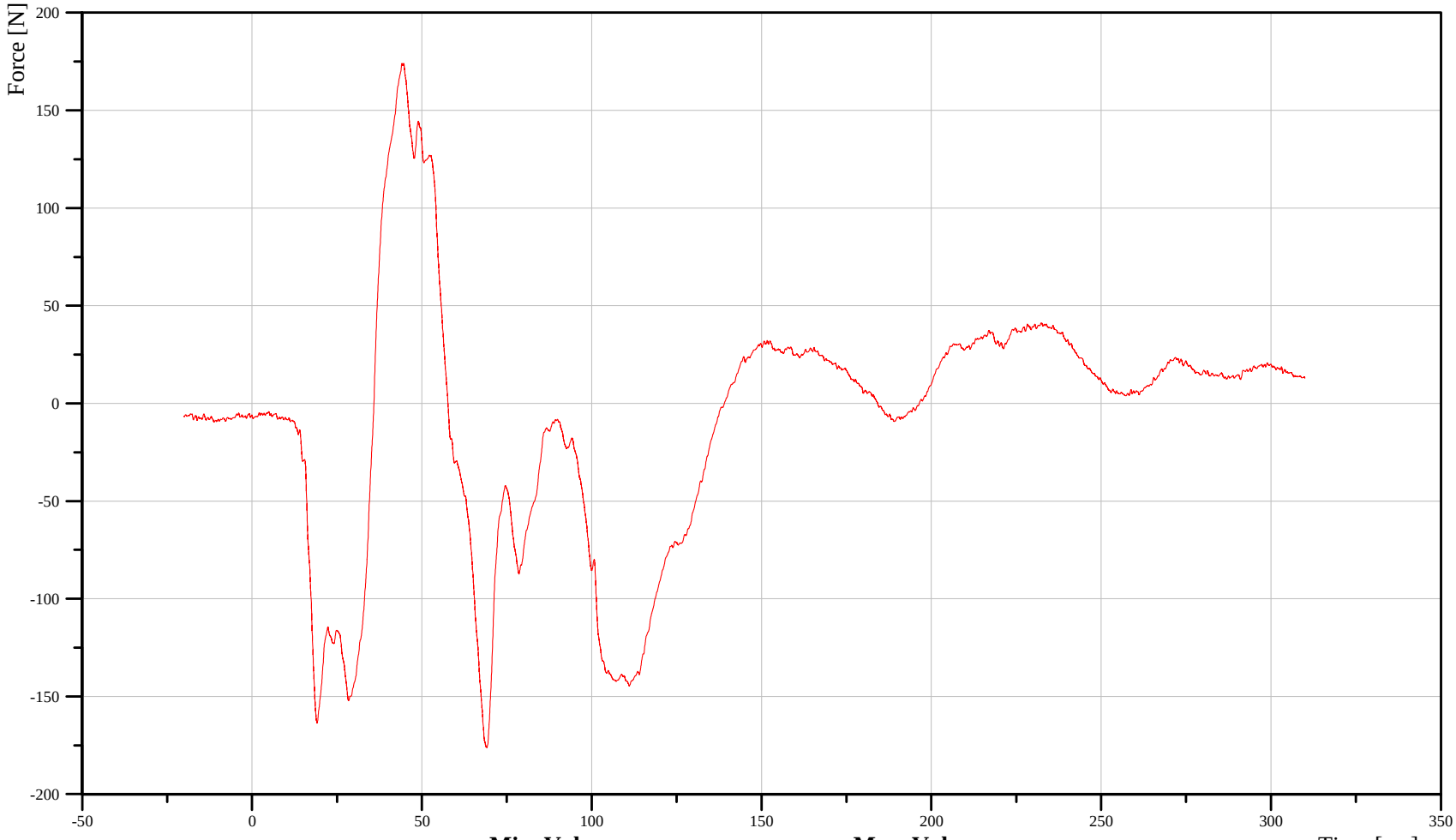
Left Femoral Neck X-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11FEMRLL00WSFOXB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-176.30 N at 69.15 ms

Max. Value
174.06 N at 44.65 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

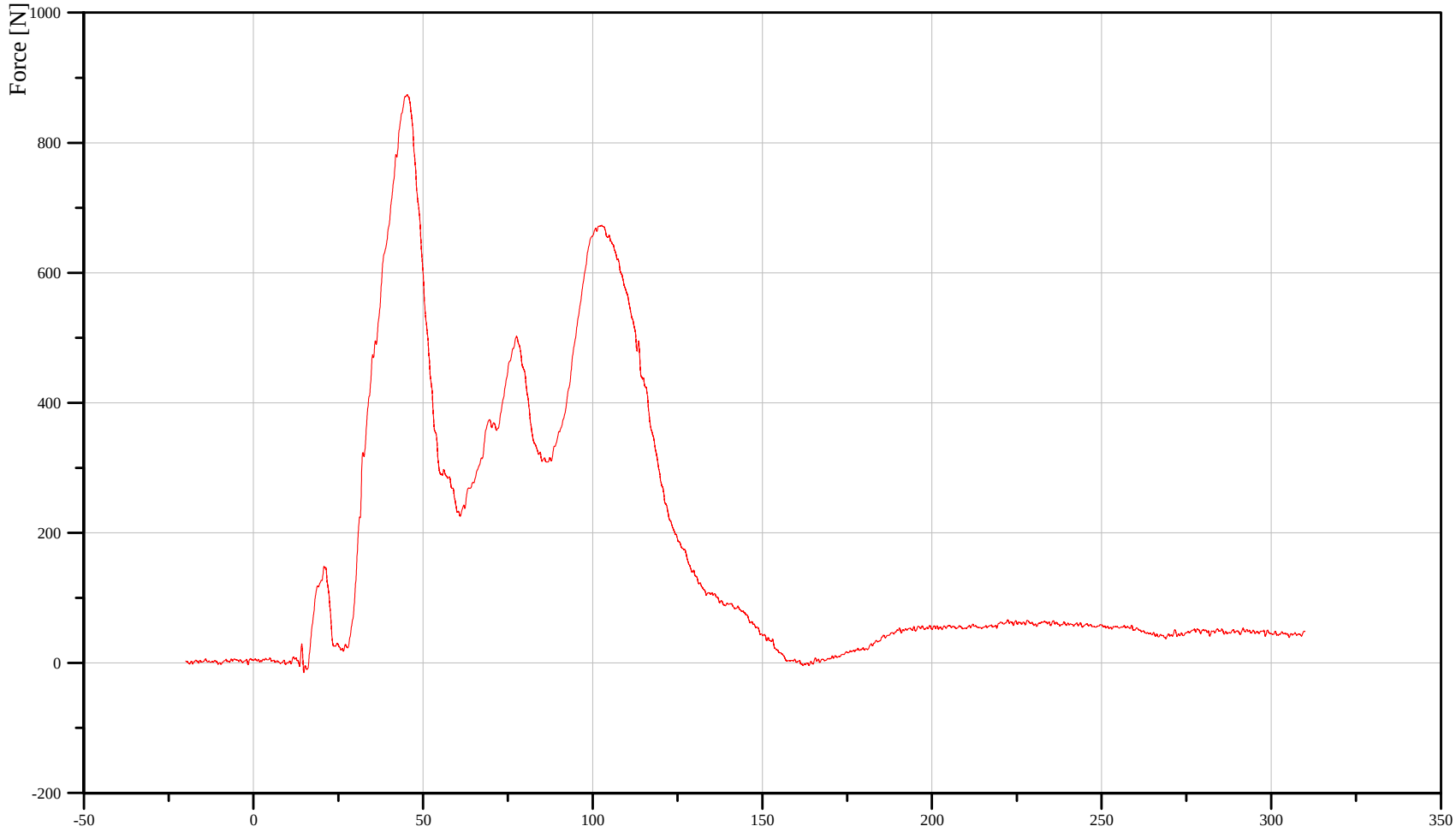
Left Femoral Neck Y-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11FEMRLL00WSFOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-15.03 N at 14.85 ms

Max. Value
873.91 N at 45.25 ms

B-101

110801

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

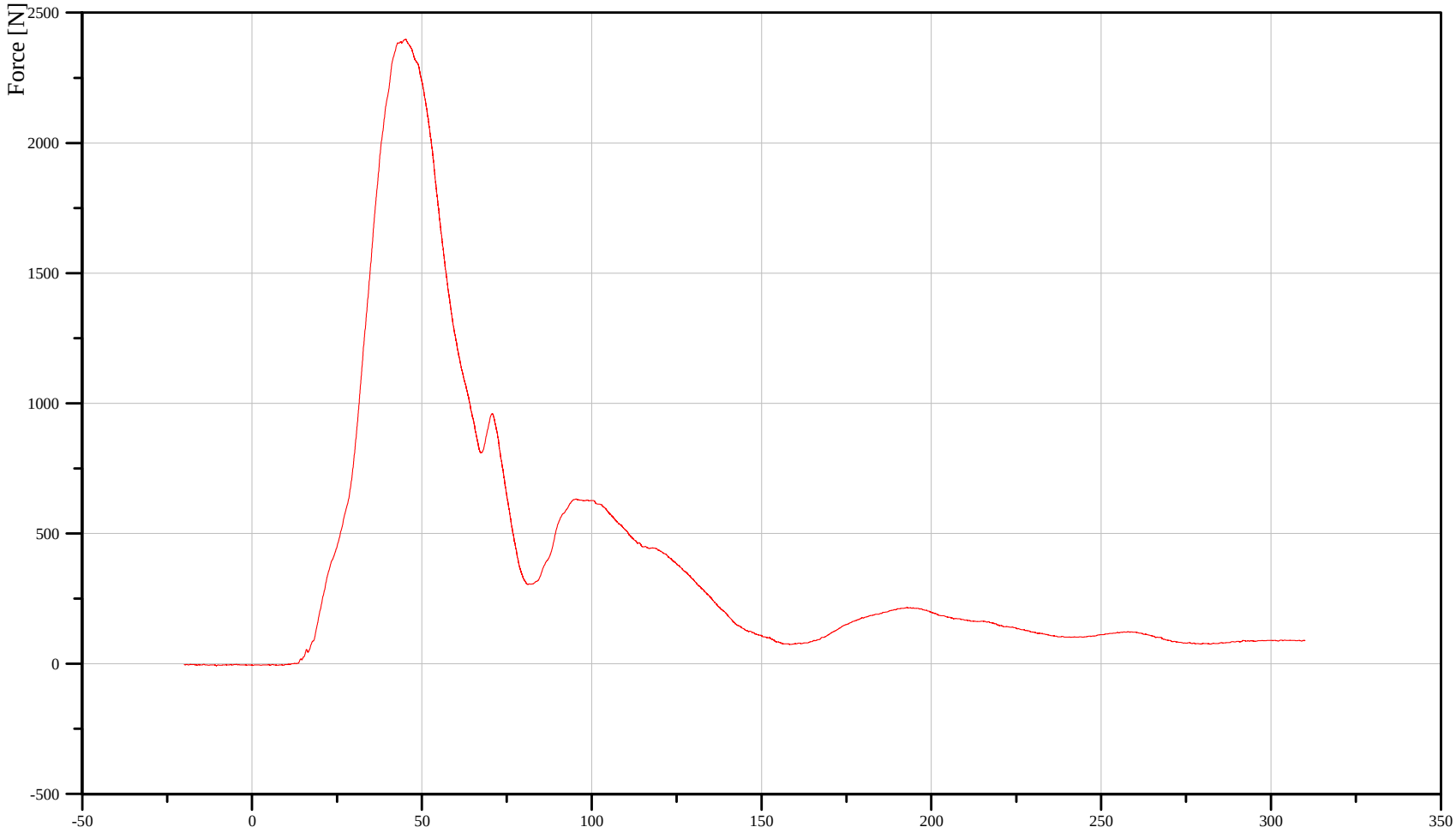
Left Femoral Neck Z-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11FEMRLL00WSFOZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-7.28 N at -10.45 ms

Max. Value
2,397.30 N at 45.20 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

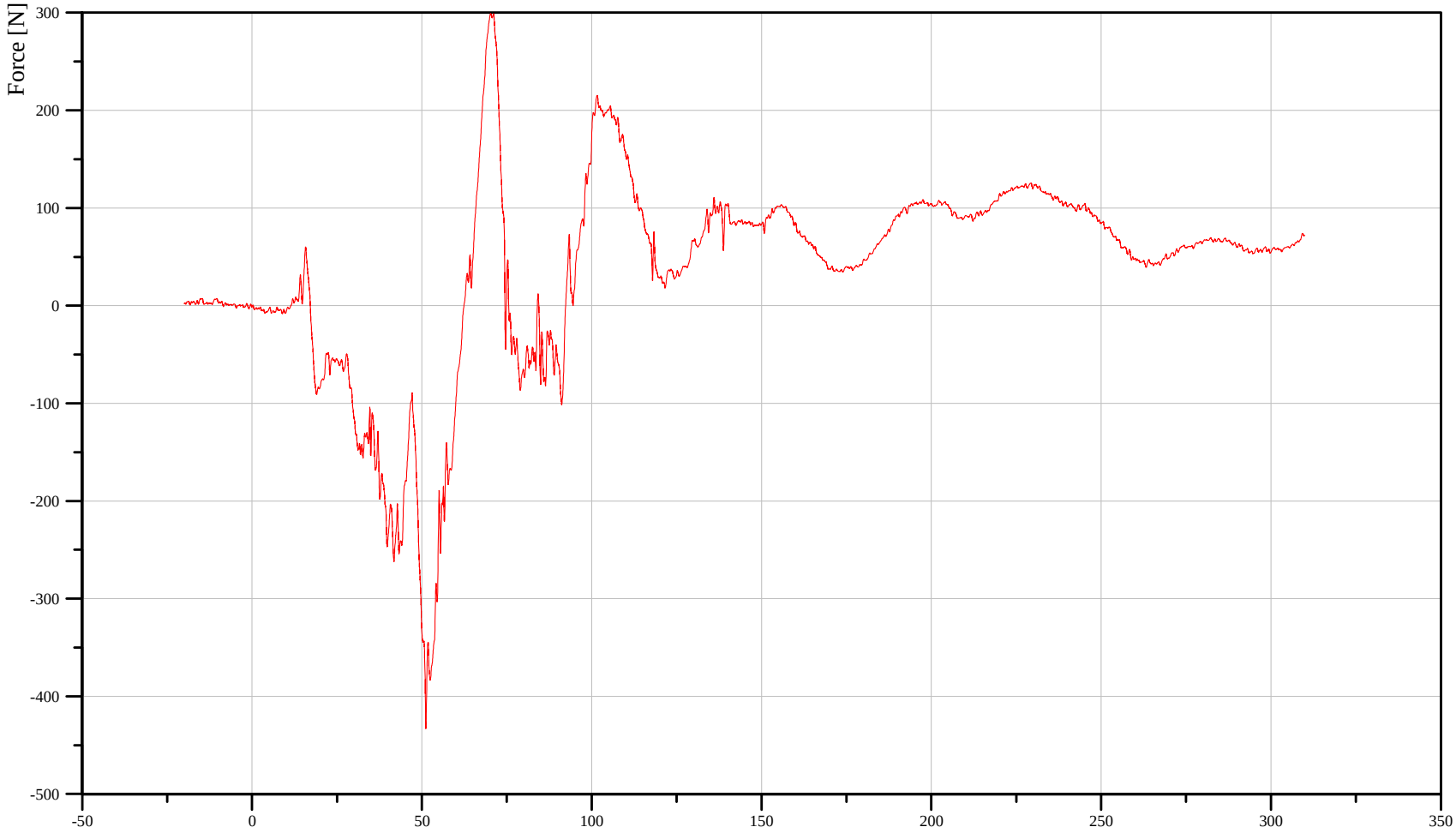
Left Knee Outboard Y-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11KNEELEOUWSFOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-432.82 N at 51.20 ms

Max. Value
299.09 N at 70.25 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

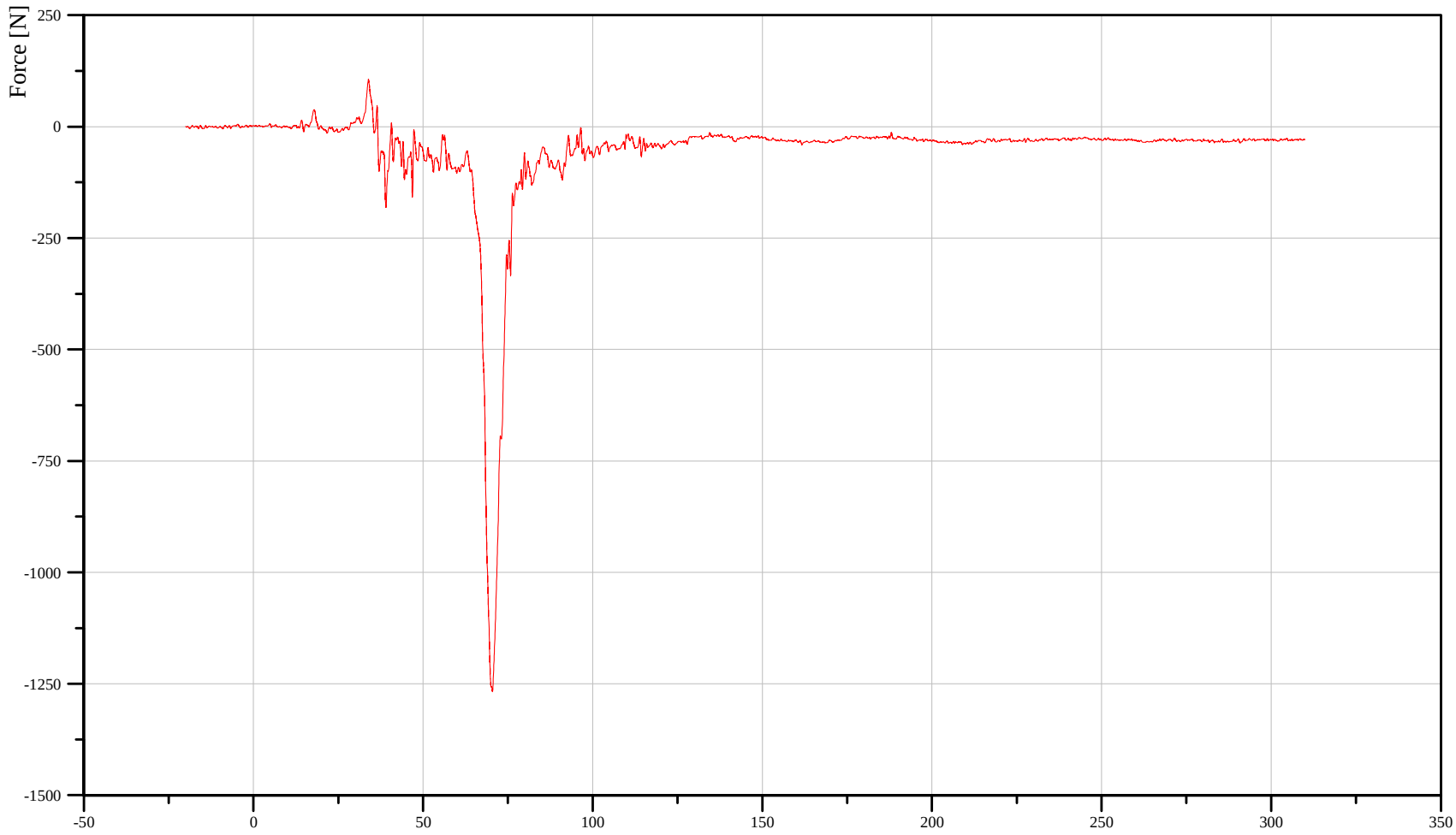
Left Knee Inboard Y-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11KNEELEINWSFOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-1,267.92 N at 70.45 ms

Max. Value
106.56 N at 33.90 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

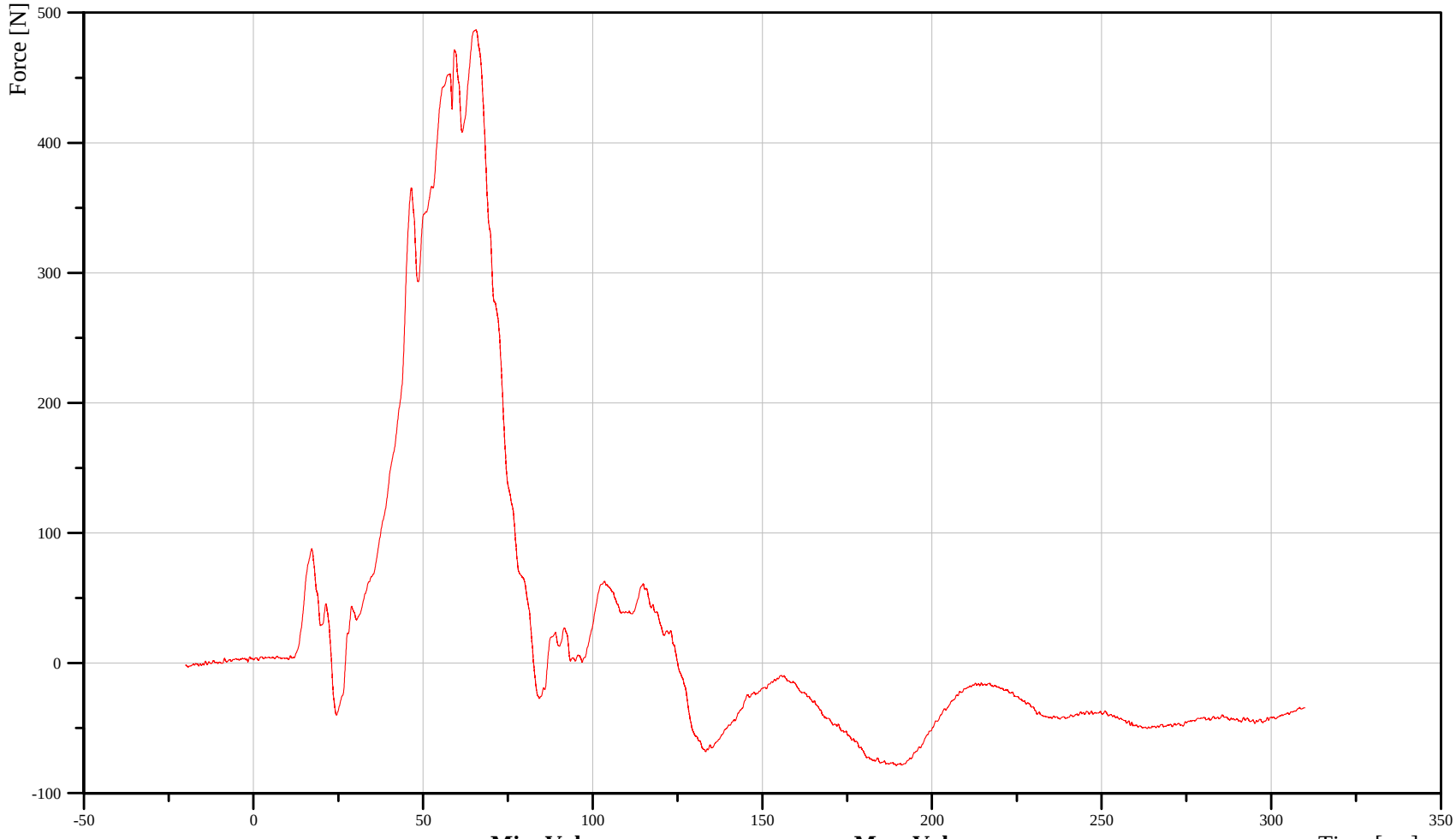
Right Femoral Neck X-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11FEMRRL00WSFOXB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-78.72 N at 189.55 ms

Max. Value
486.70 N at 65.55 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

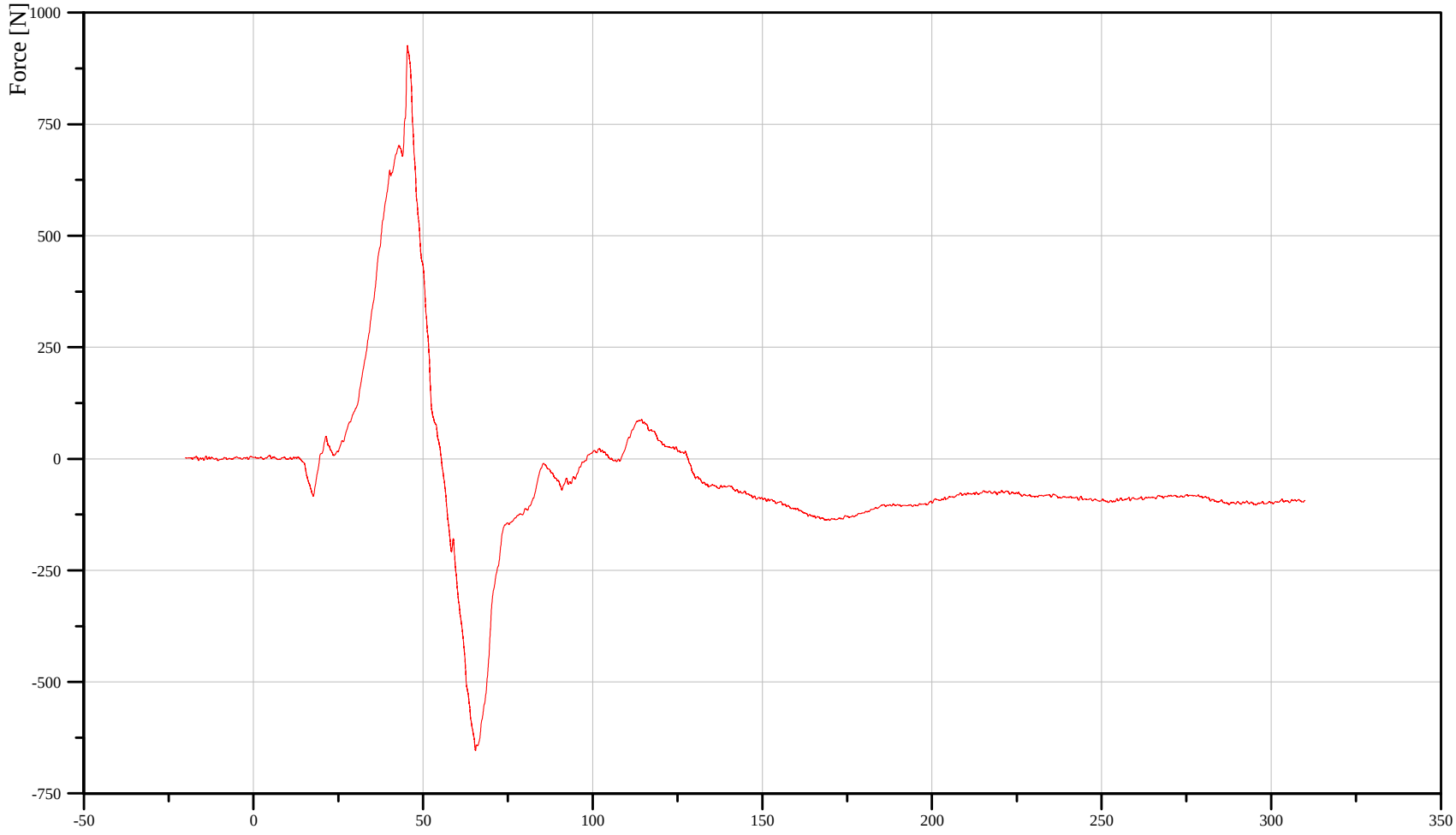
Right Femoral Neck Y-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11FEMRRL00WSFOYB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value
-654.00 N at 65.45 ms

Max. Value
926.33 N at 45.40 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

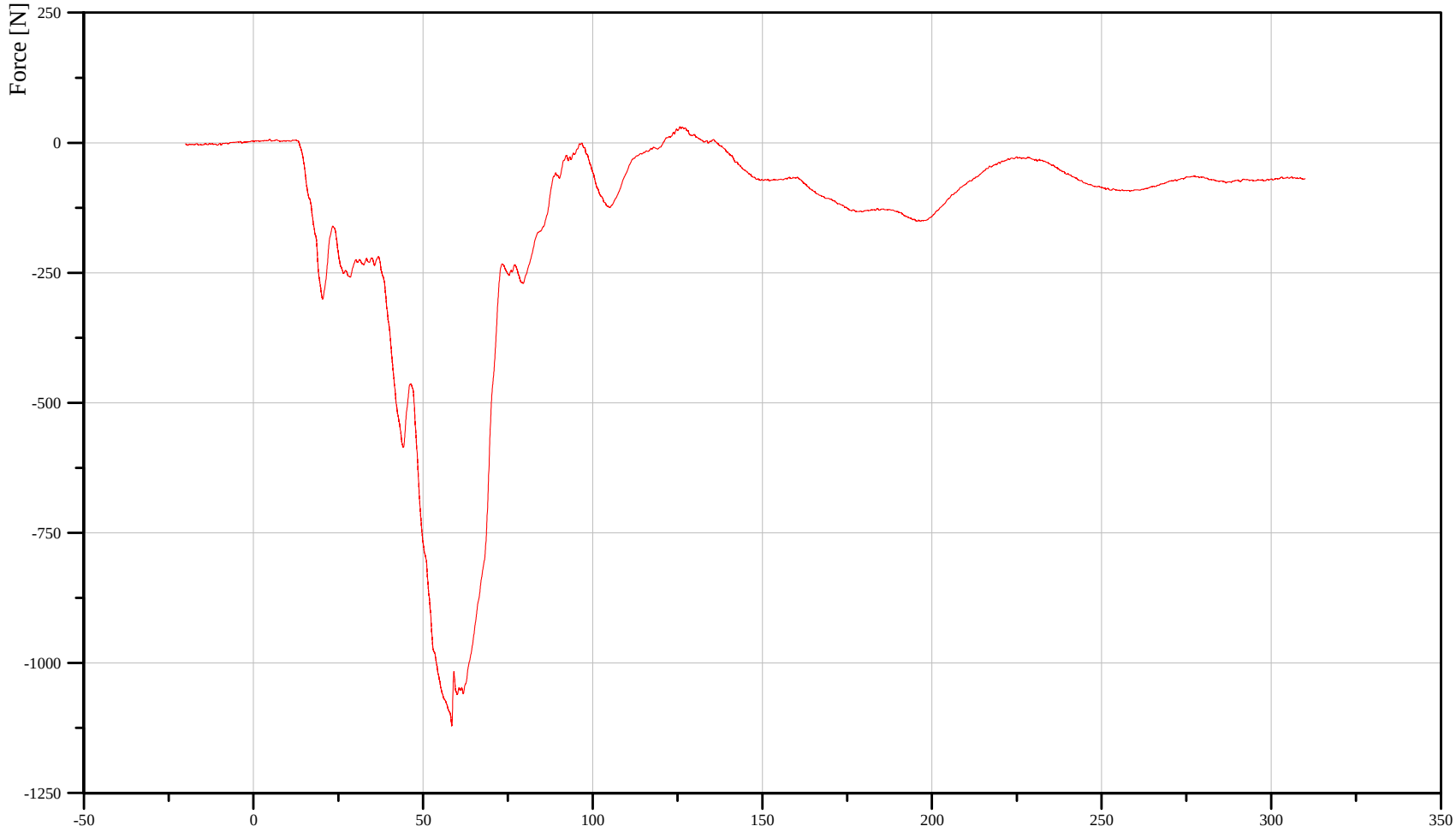
Right Femoral Neck Z-Axis Force

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11FEMRRL00WSFOZB

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_600

Min. Value	Max. Value
-1,120.69 N at 58.45 ms	30.87 N at 125.70 ms

B-107

110801

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

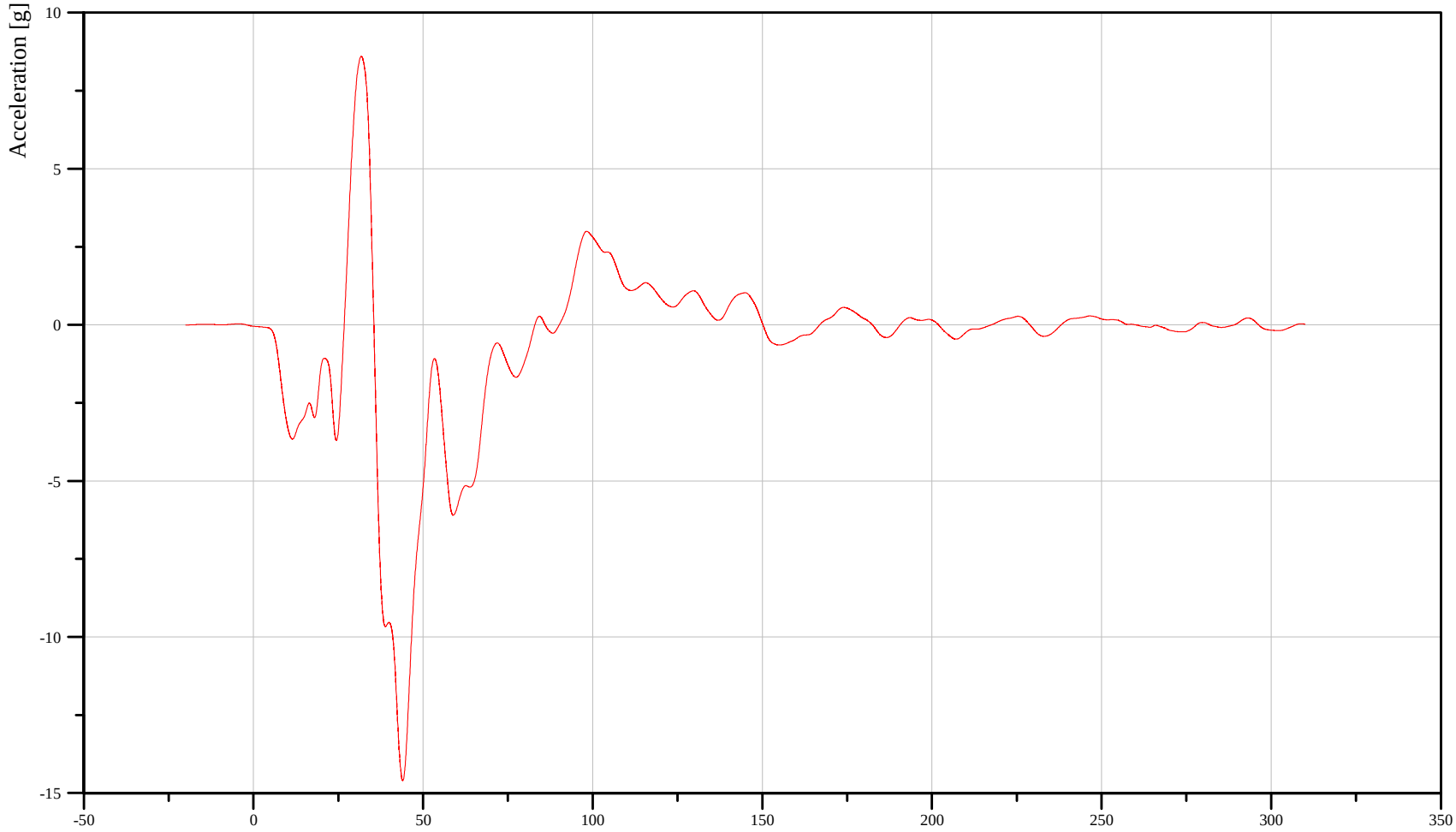
Vehicle Center of Gravity X-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

10VEHCCG0000ACXD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-14.60 g at 44.00 ms

Max. Value
8.61 g at 31.80 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

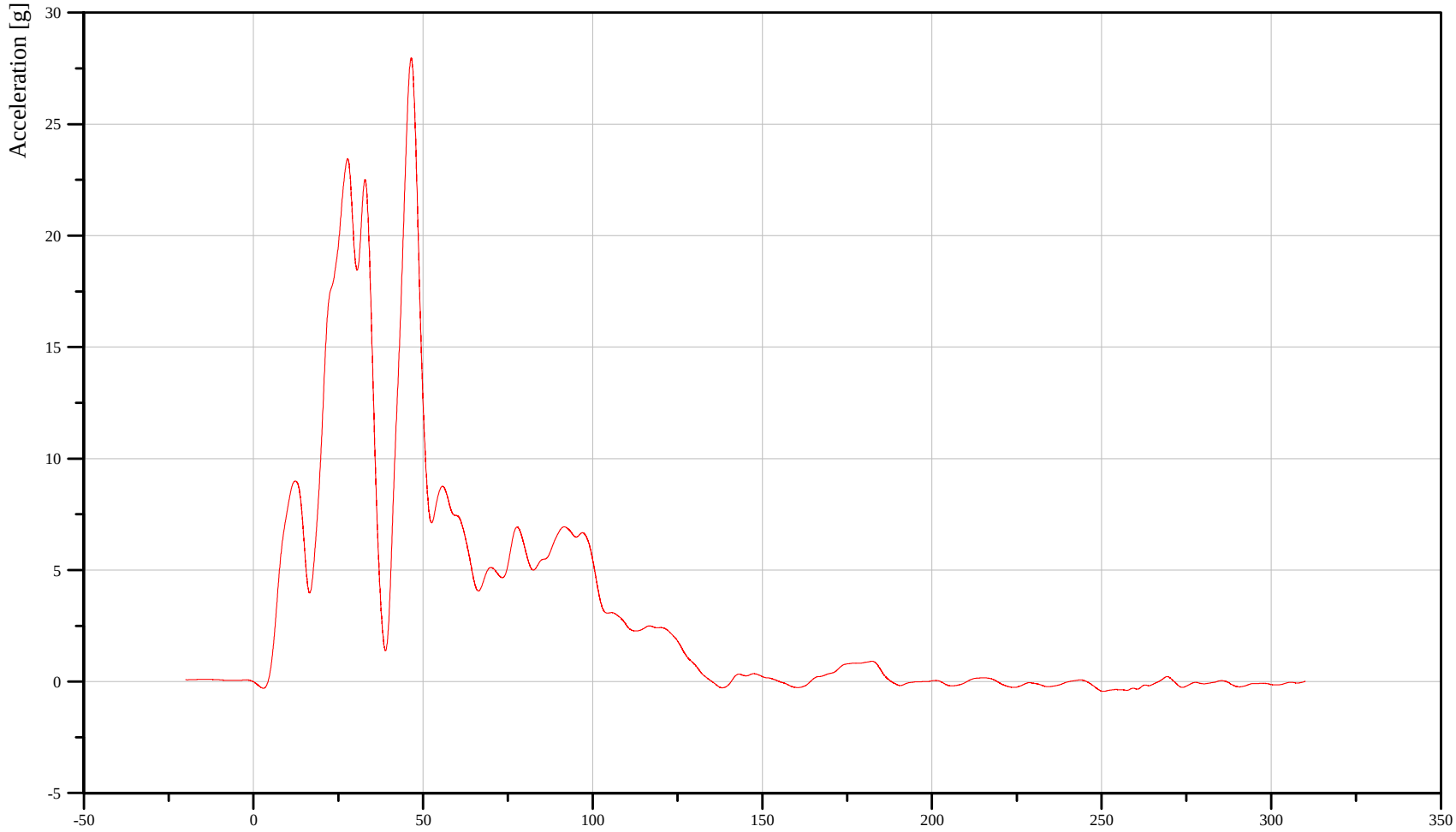
Vehicle Center of Gravity Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

10VEHCCG0000ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-0.44 g at 250.50 ms

Max. Value
27.97 g at 46.50 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

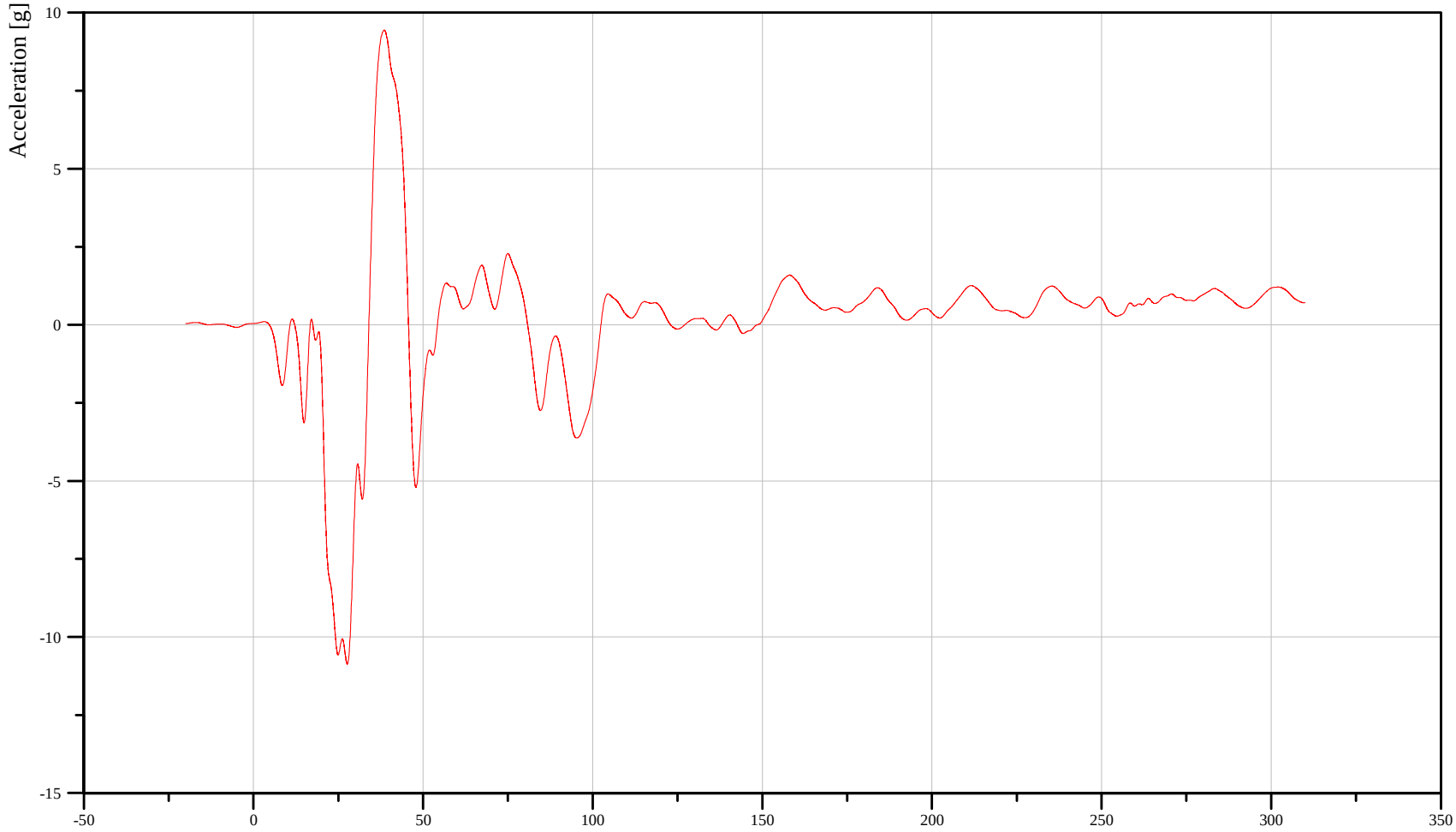
Vehicle Center of Gravity Z-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

10VEHCCG0000ACZD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-10.87 g at 27.65 ms

Max. Value
9.44 g at 38.55 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

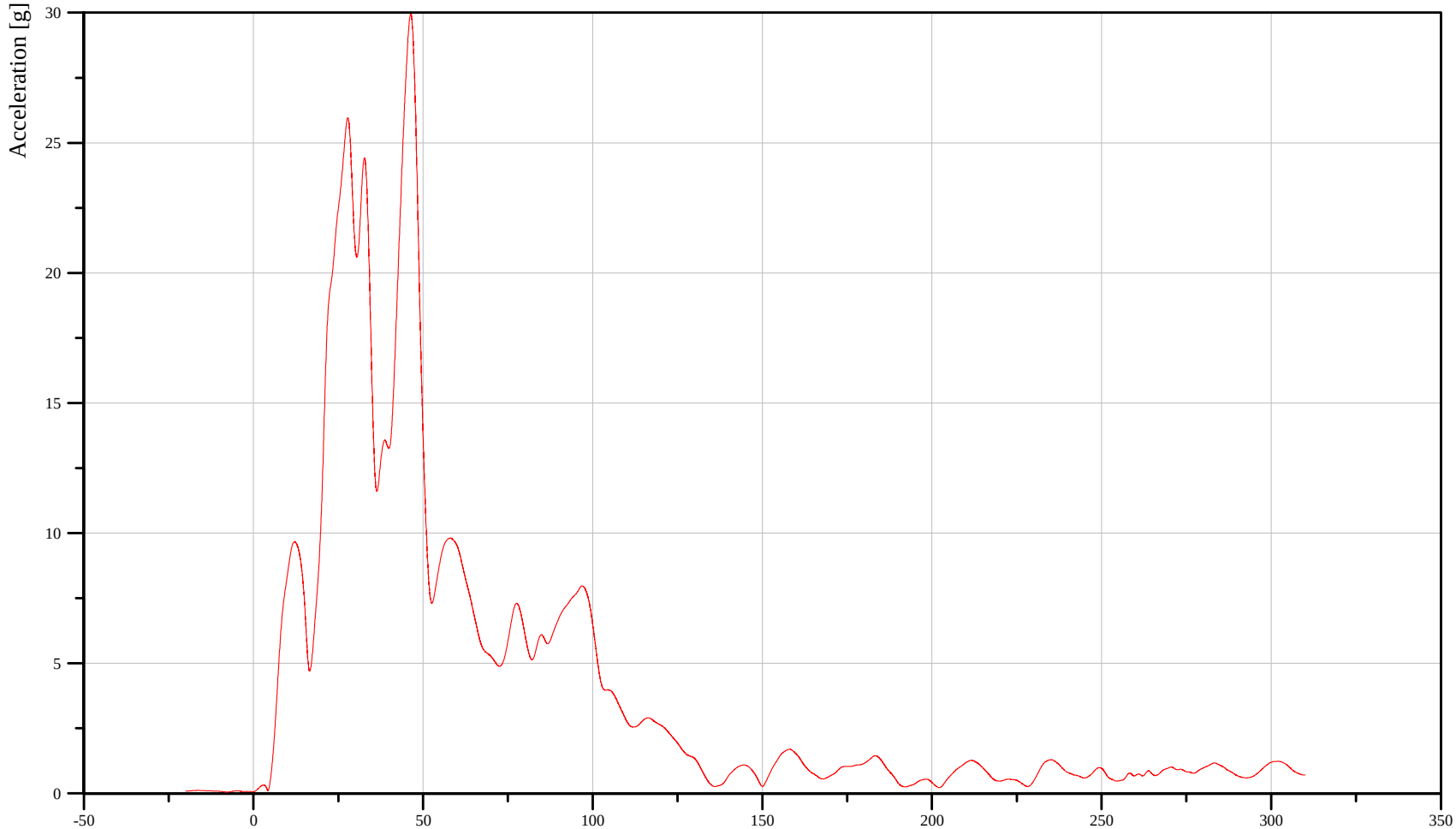
Vehicle Center of Gravity Resultant Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

10VEHCCG0000ACRD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
0.06 g at -7.75 ms

Max. Value
29.95 g at 46.35 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

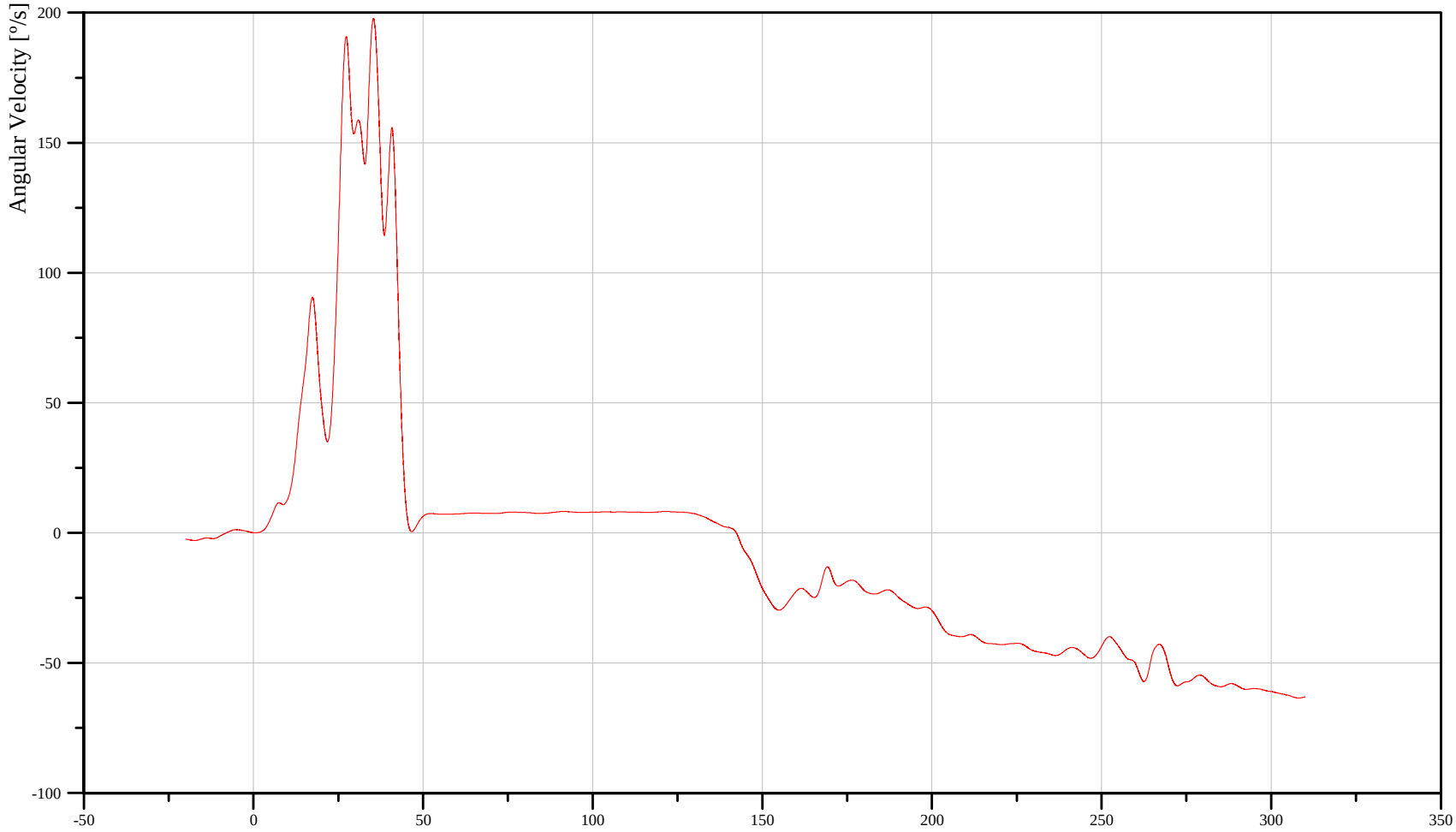
Vehicle Center of Gravity Roll Rate Gyroscope

Date: 08/01/2011
Time: 16:46

Customer: VRTC

10VEHCCG0000AVXD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-63.46 °/s at 308.00 ms

Max. Value
197.86 °/s at 35.35 ms

110801

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

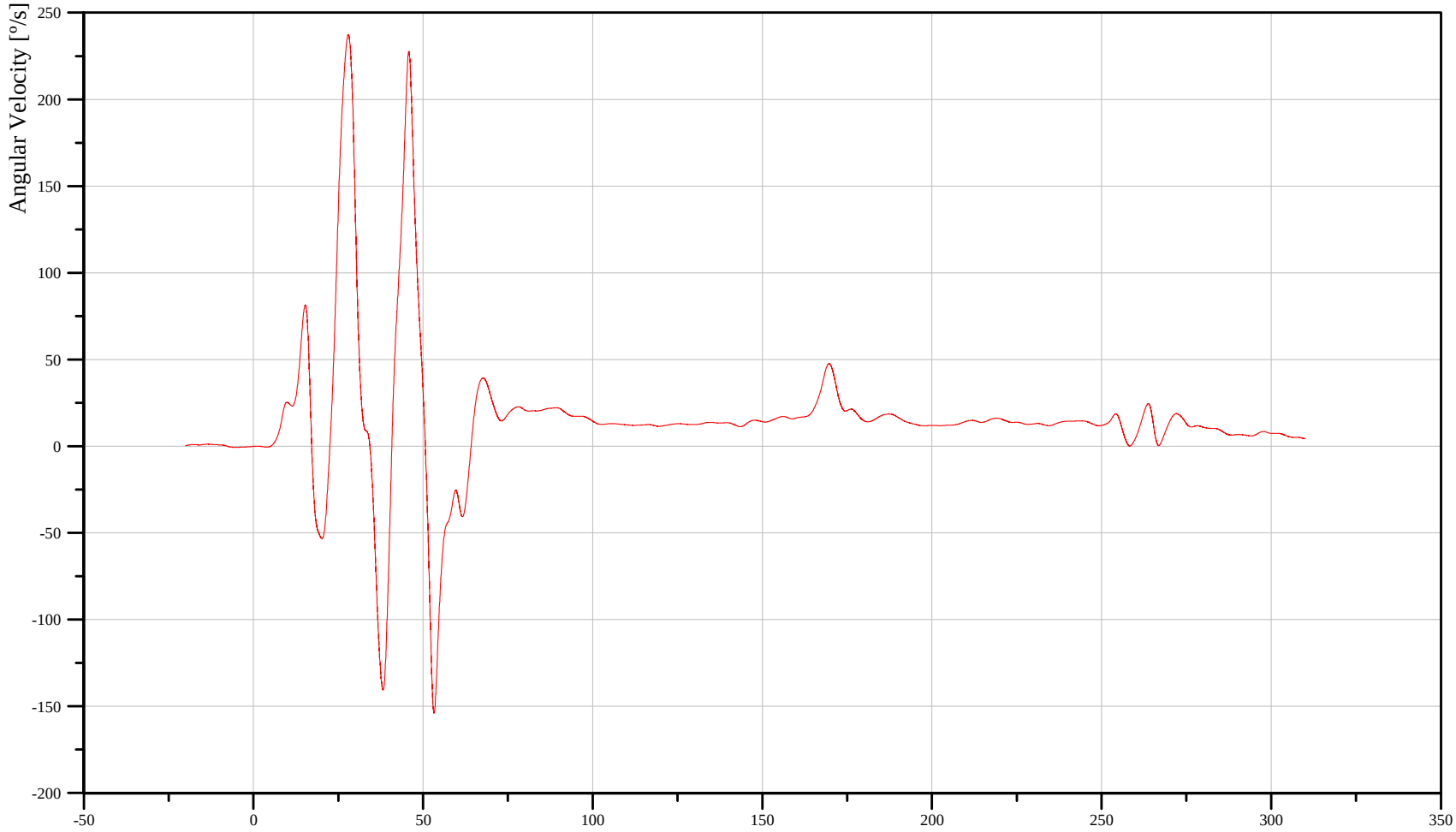
Vehicle Center of Gravity Pitch Rate Gyroscope

Date: 08/01/2011
Time: 16:46

Customer: VRTC

10VEHCCG0000AVYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-154.03 °/s at 53.25 ms

Max. Value
237.41 °/s at 27.95 ms

110801

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

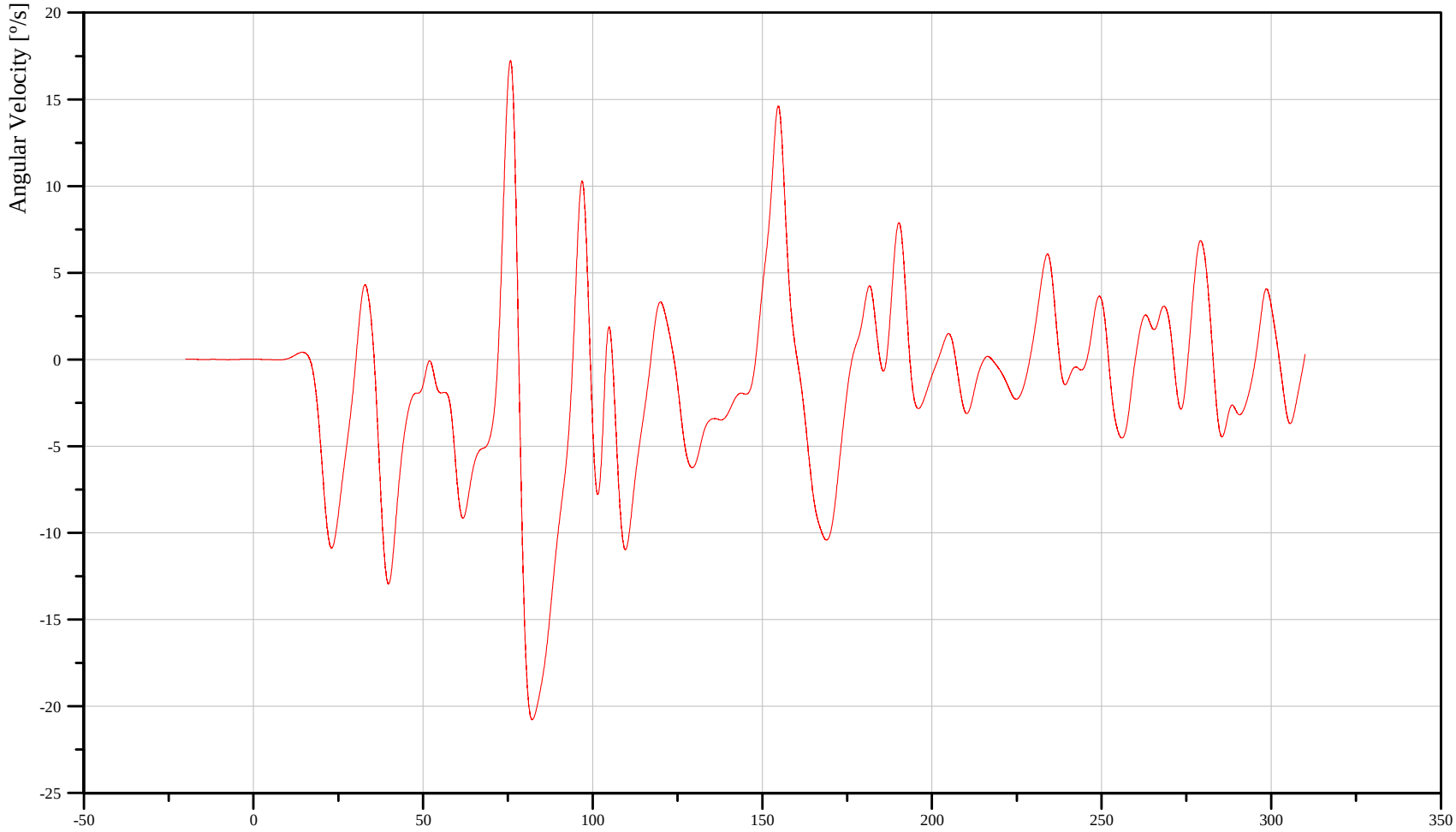
Vehicle Center of Gravity Yaw Rate Gyroscope

Date: 08/01/2011
Time: 16:46

Customer: VRTC

10VEHCCG0000AVZD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-20.77 °/s at 82.20 ms

Max. Value
17.24 °/s at 75.75 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

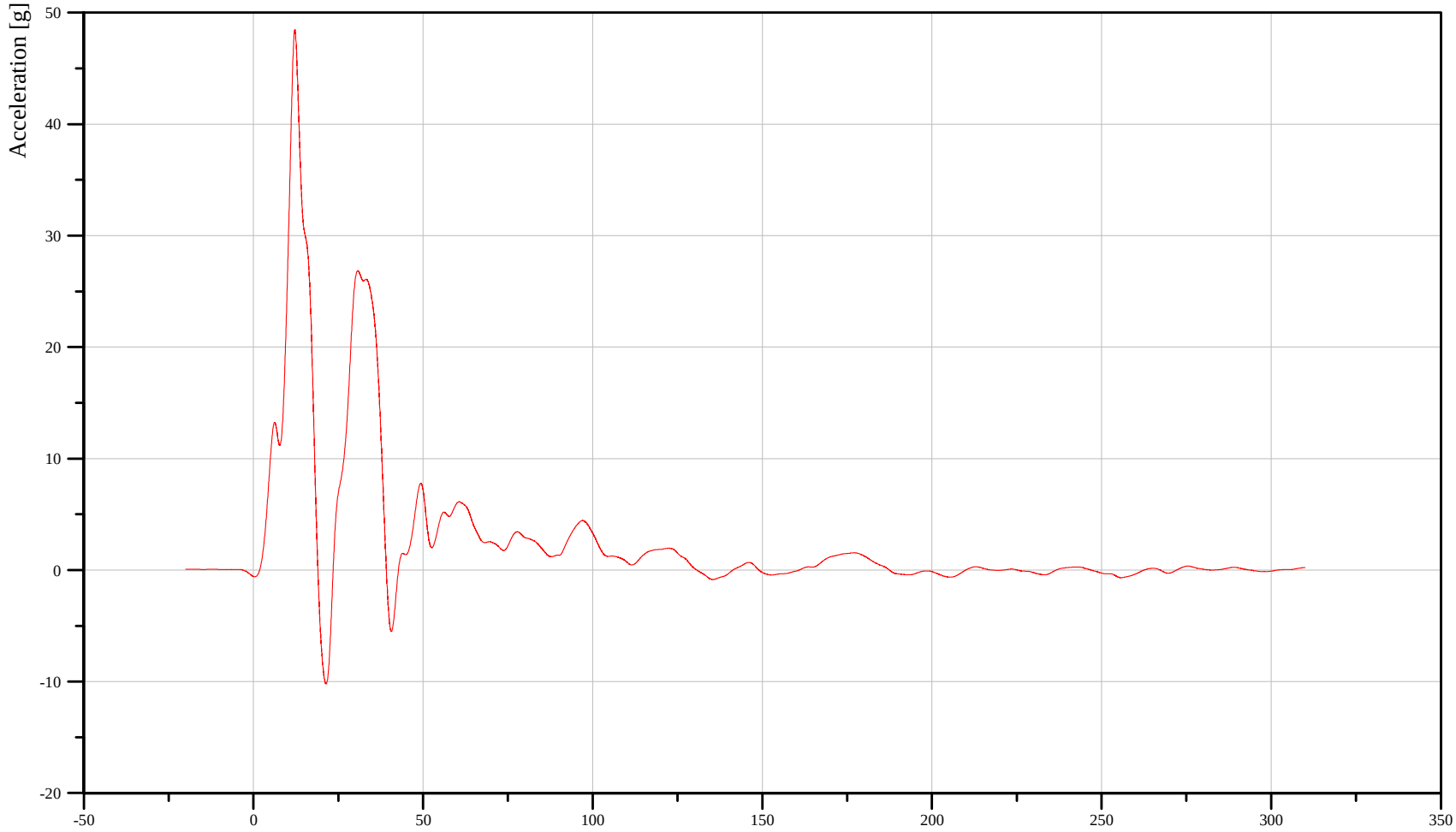
Left Side Sill Near Impact Point Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SILBRE0100ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-10.22 g at 21.40 ms

Max. Value
48.50 g at 12.20 ms

110801

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

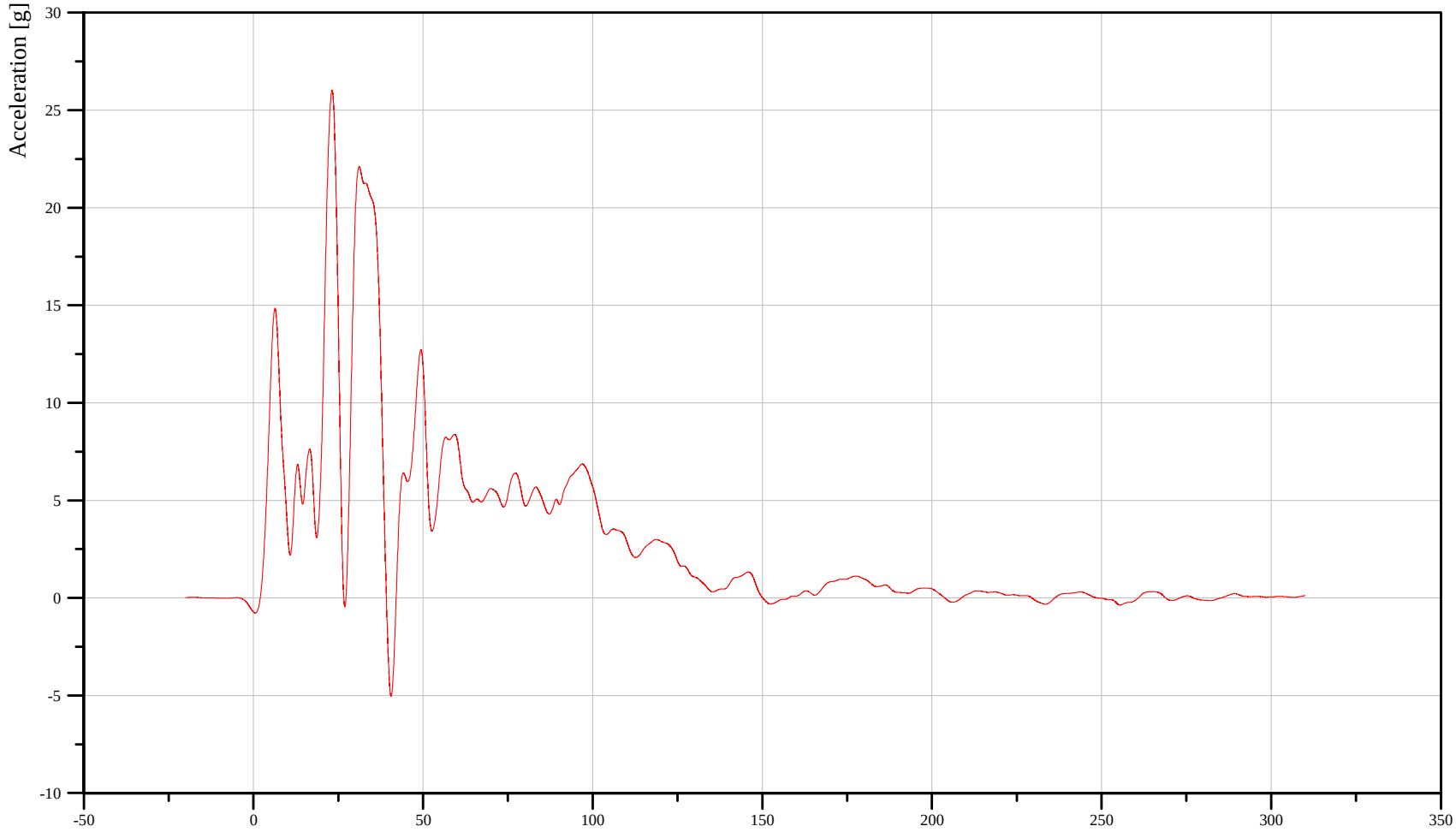
Left A-Pillar Side Sill Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

14SILBFR0000ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-5.05 g at 40.55 ms

Max. Value
26.04 g at 23.20 ms

110801

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

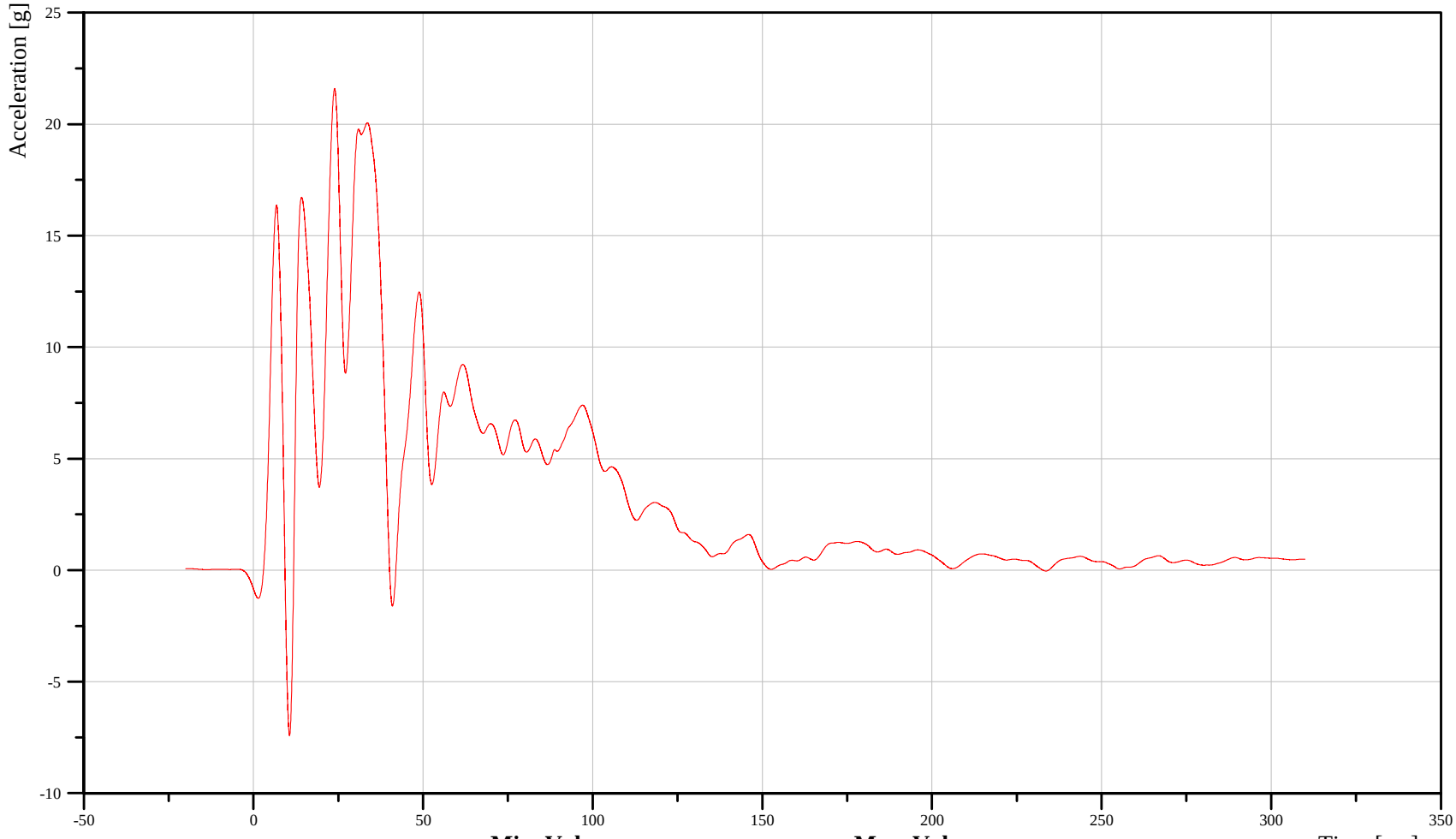
Left Lower A-Pillar Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11APILLO0000ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-7.41 g at 10.65 ms

Max. Value
21.59 g at 23.90 ms

110801

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

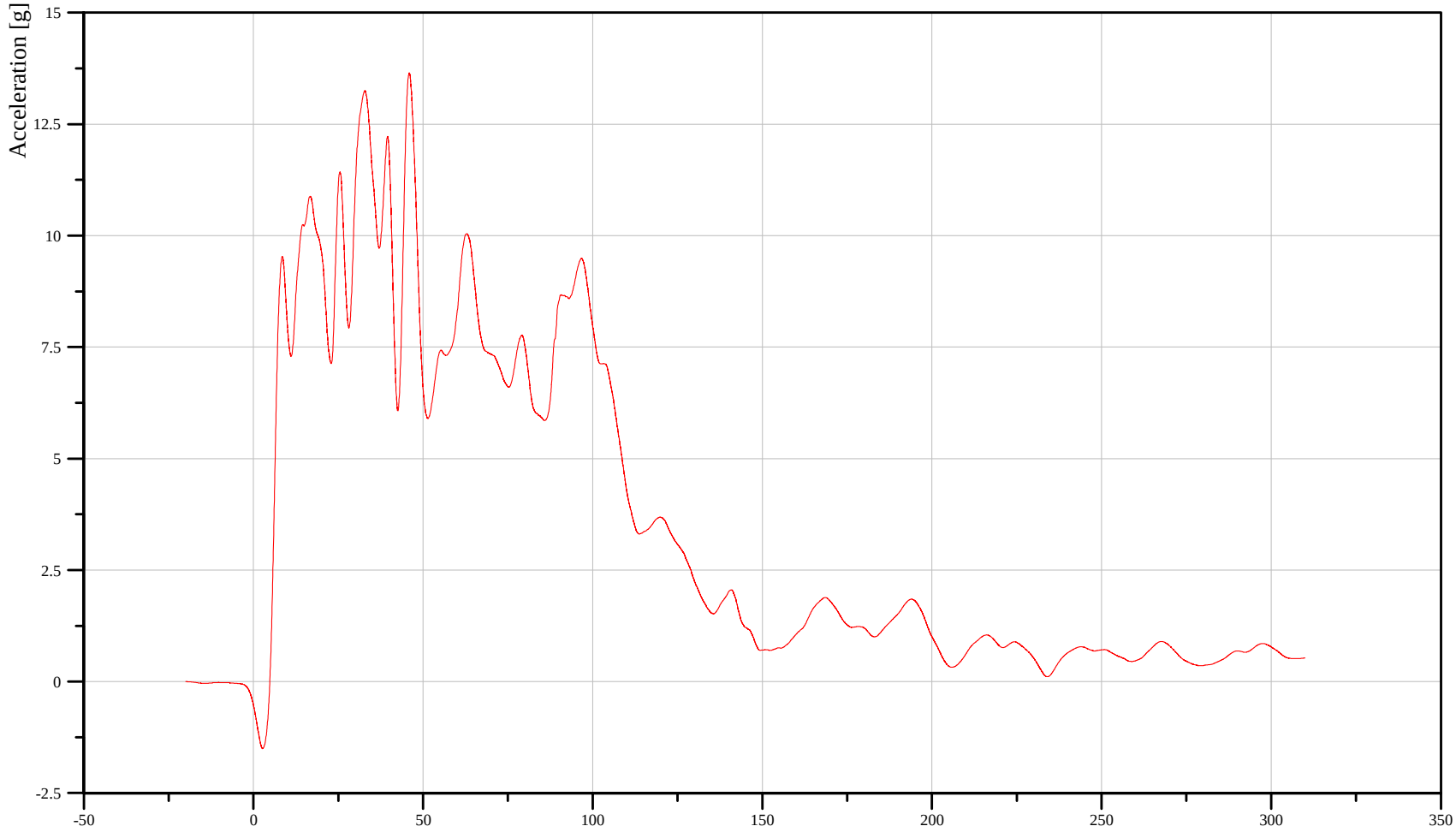
Left Mid A-Pillar Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11APILMI0000ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-1.50 g at 2.70 ms

Max. Value
13.65 g at 45.95 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

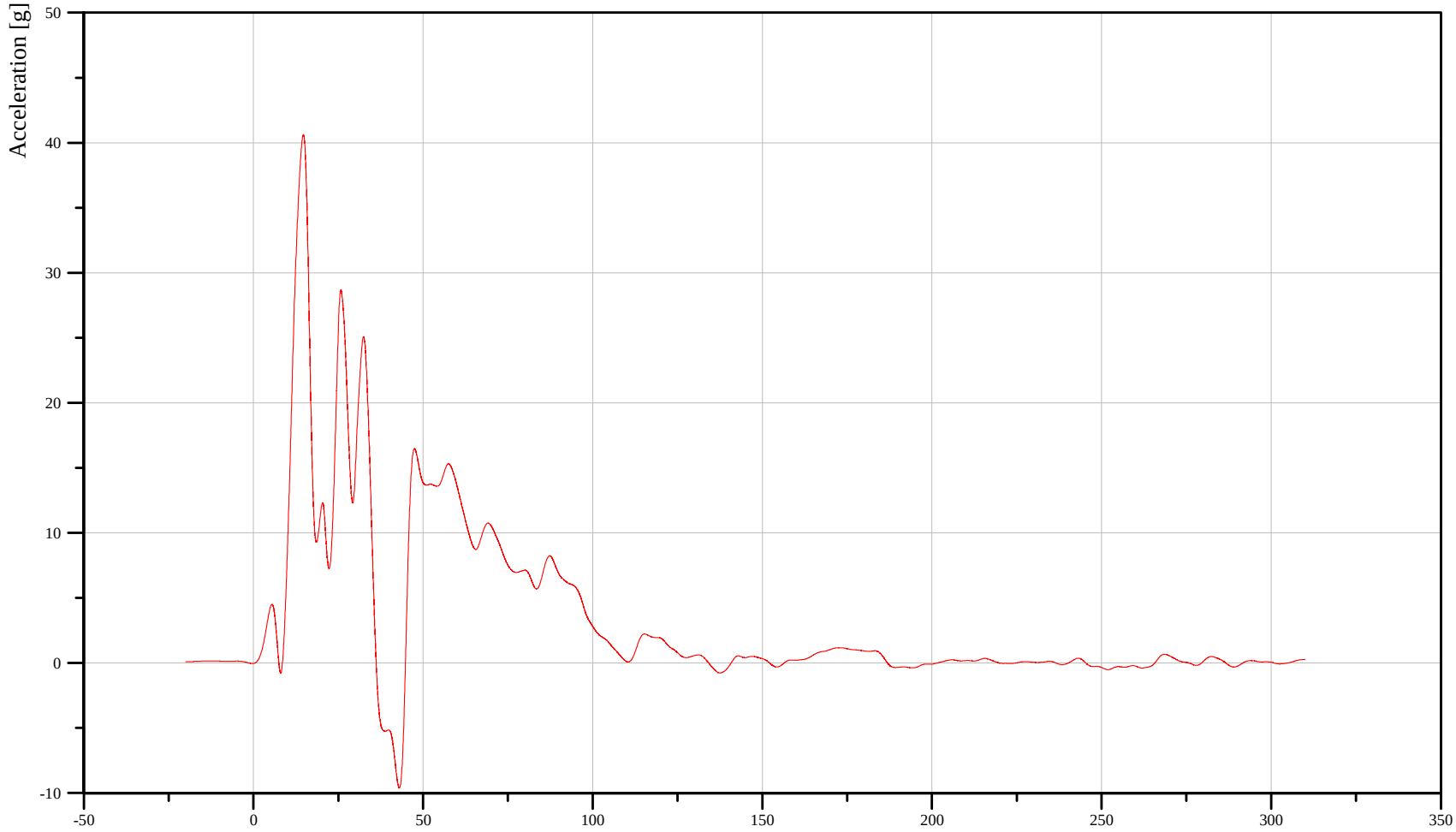
Left Side Sill at Rear Seat Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

14SILBRE0000ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-9.61 g at 43.00 ms

Max. Value
40.63 g at 14.70 ms

110801

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

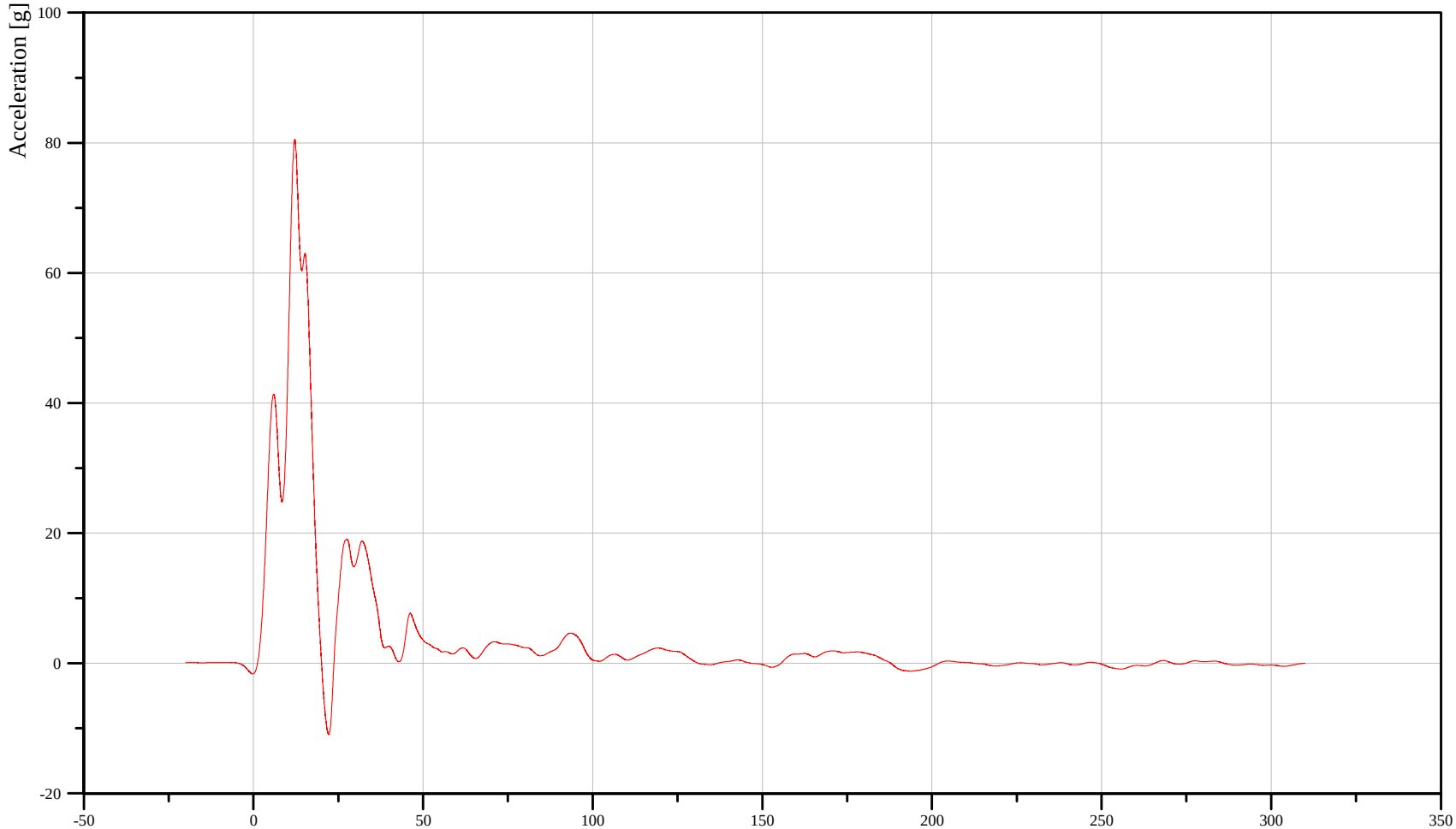
Left Lower B-Pillar Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

14BPILLO0000ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-10.98 g at 22.20 ms

Max. Value
80.53 g at 12.15 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

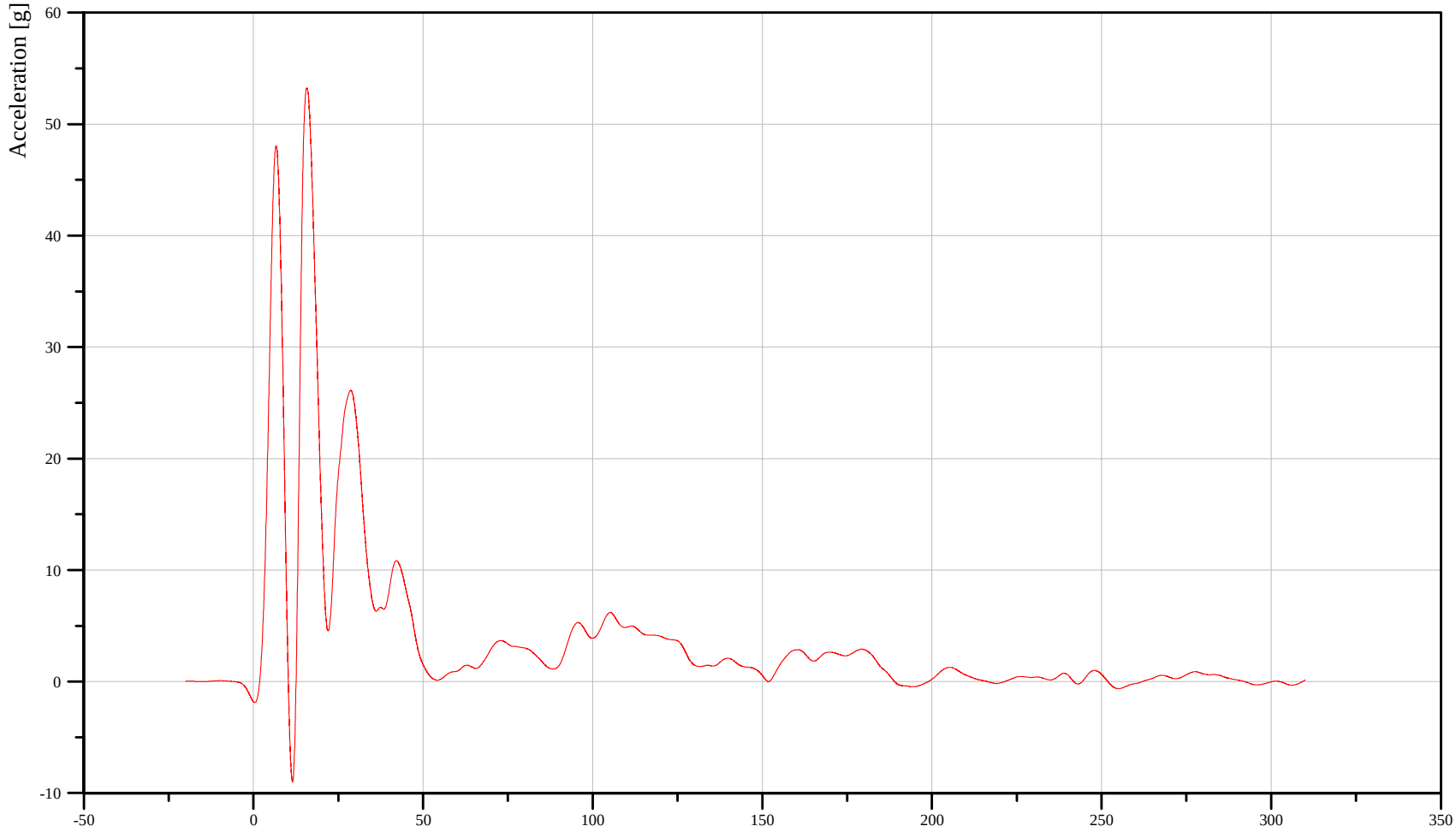
Left Mid B-Pillar Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

14BPILMI0000ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-8.99 g at 11.50 ms

Max. Value
53.26 g at 15.75 ms

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2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

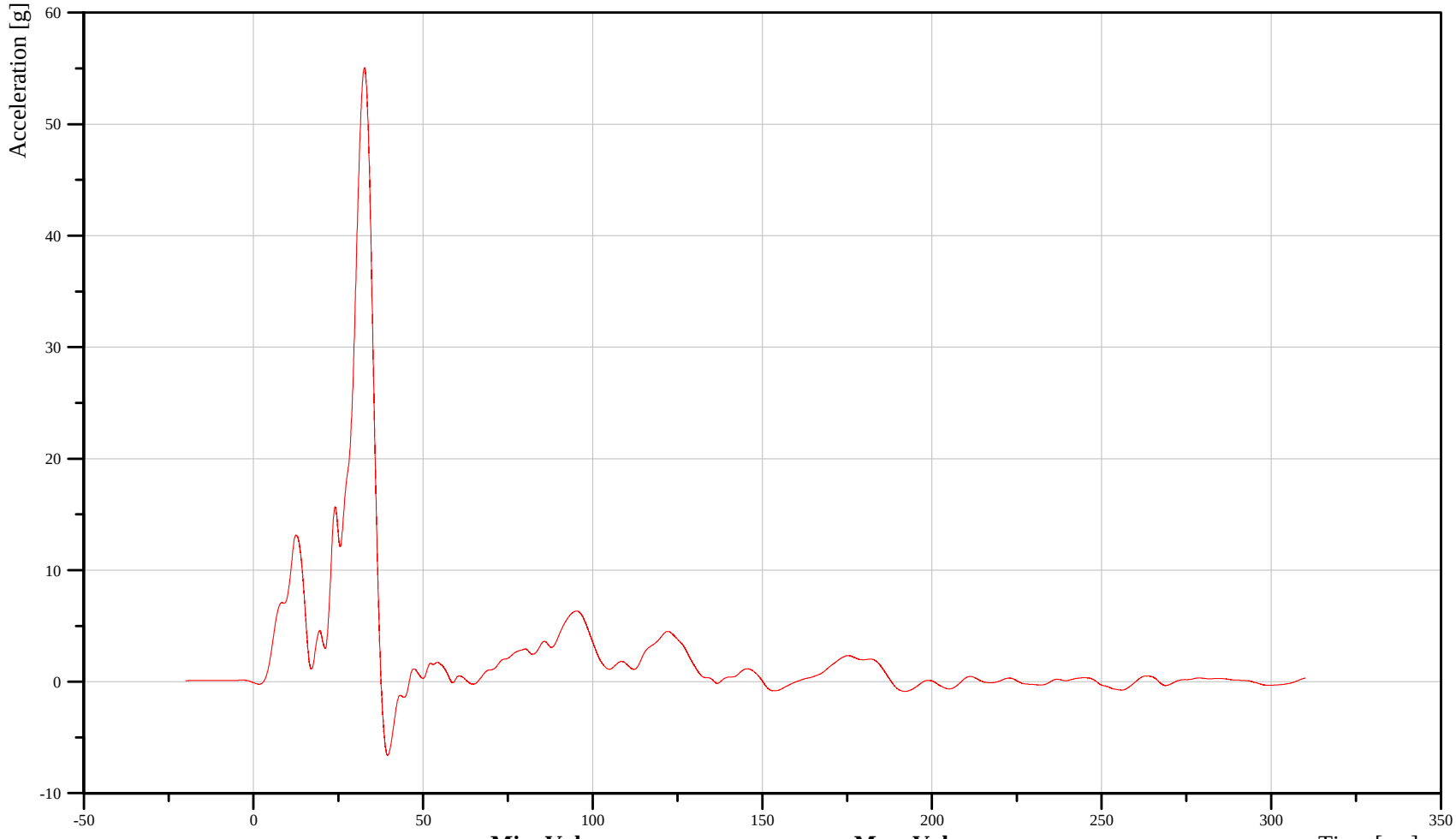
Left Front Seat Track at H-Point Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11SETRFR0000ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-6.60 g at 39.60 ms

Max. Value
55.06 g at 32.70 ms

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2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

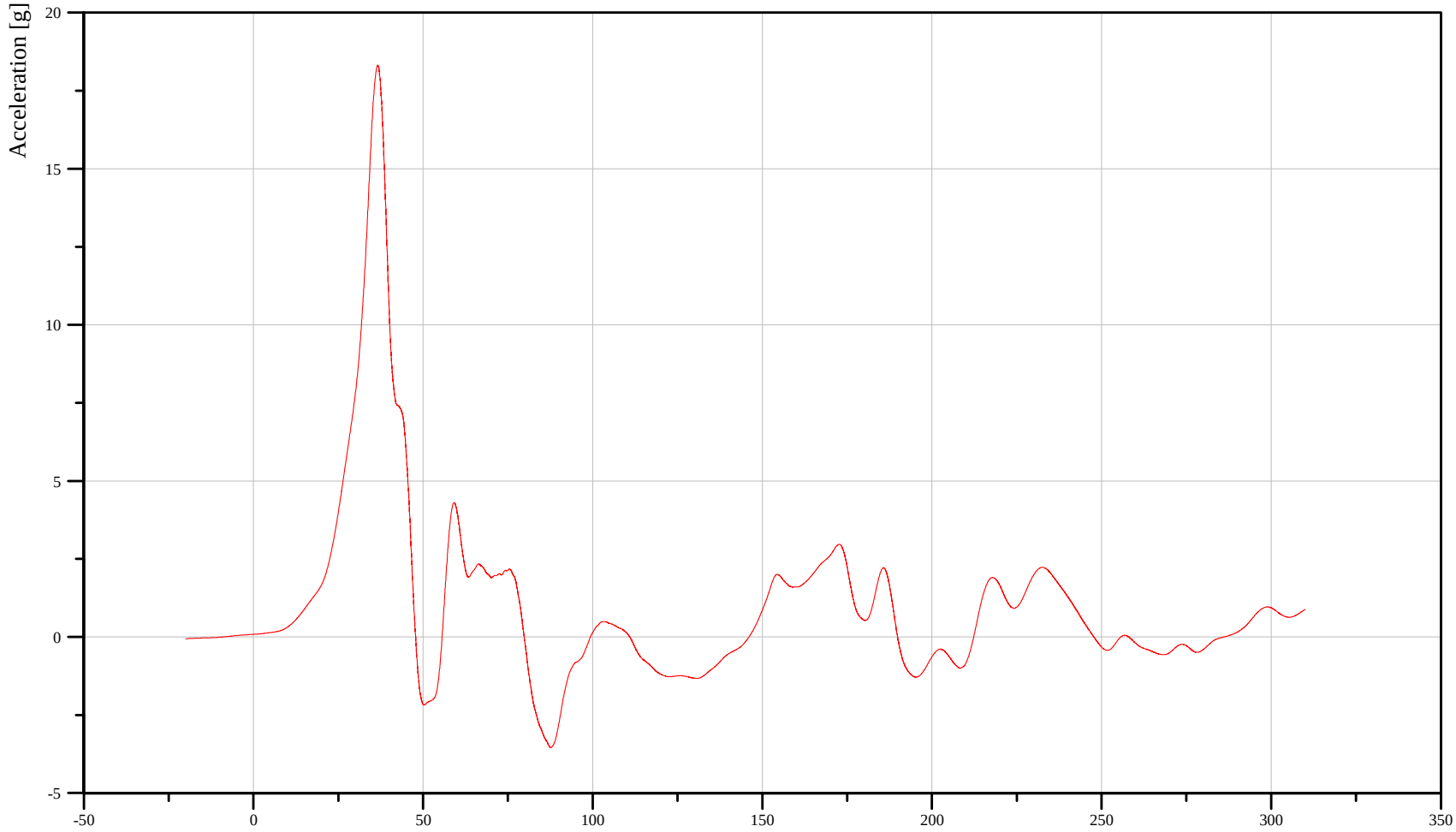
Top of Engine X-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

12ENGNTP0000ACXD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-3.54 g at 87.65 ms

Max. Value
18.32 g at 36.65 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

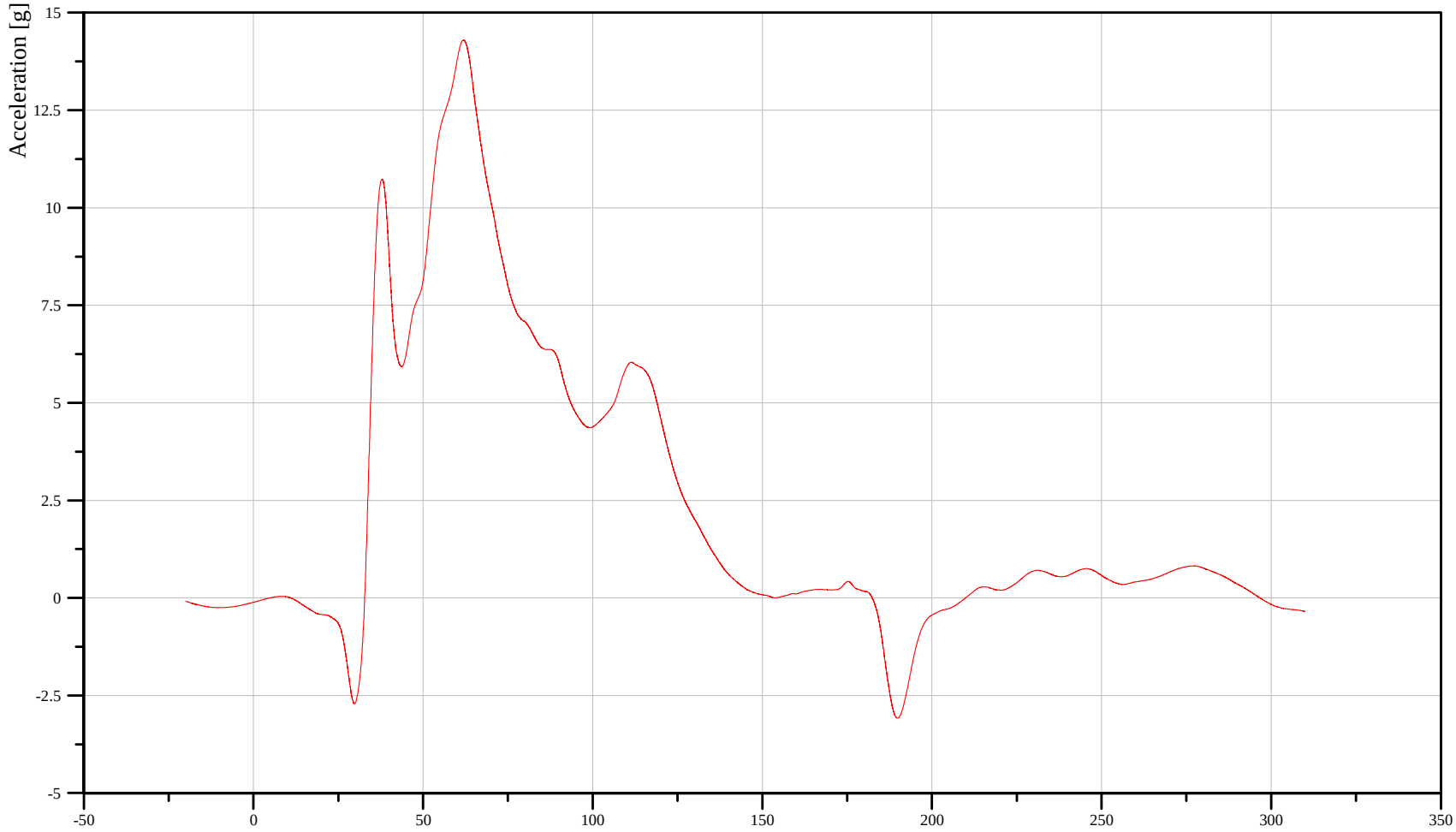
Top of Engine Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

12ENGNTP0000ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-3.08 g at 189.85 ms

Max. Value
14.30 g at 61.90 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

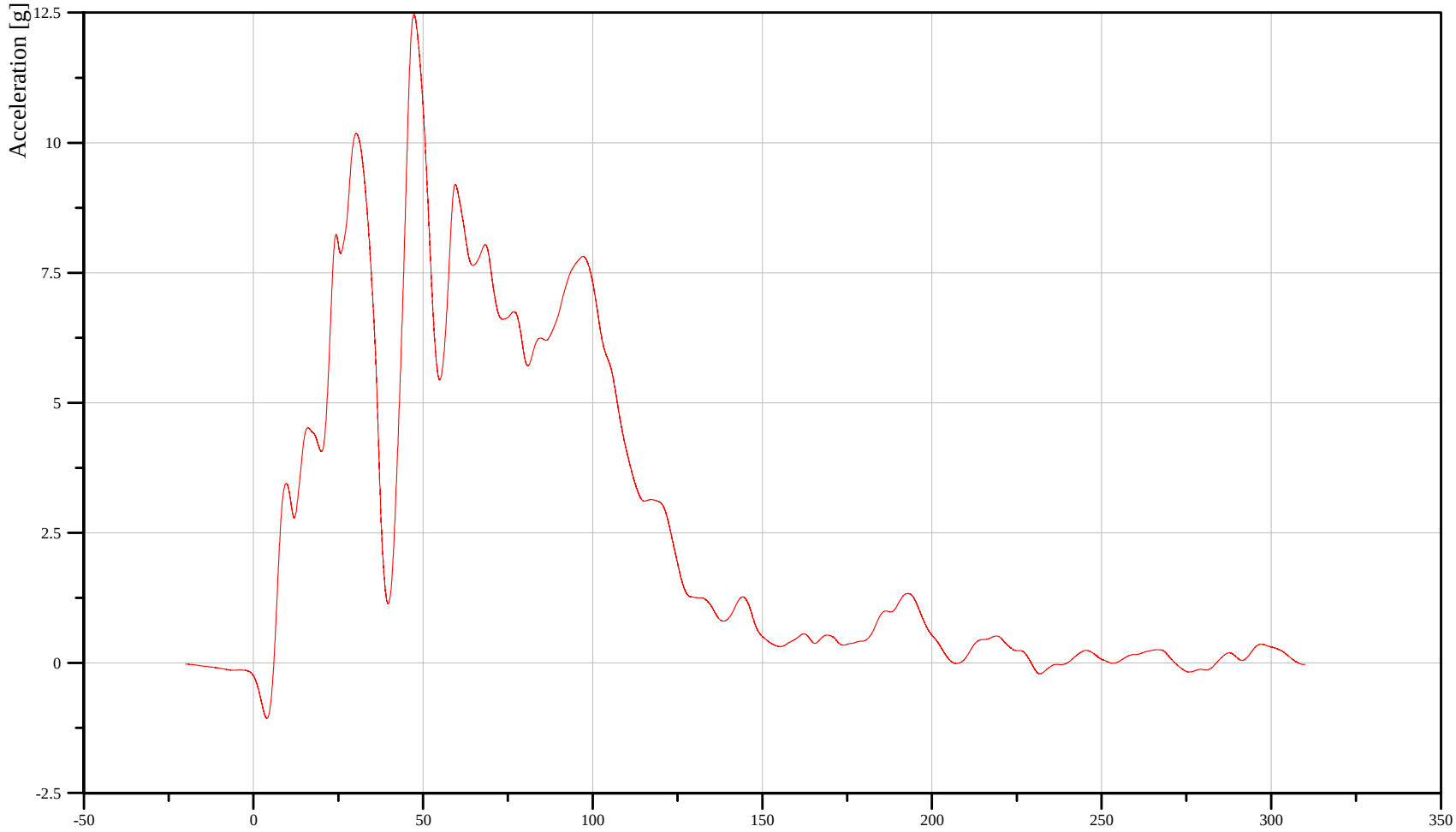
Firewall Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

12VEHC000000ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-1.07 g at 3.95 ms

Max. Value
12.47 g at 47.30 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

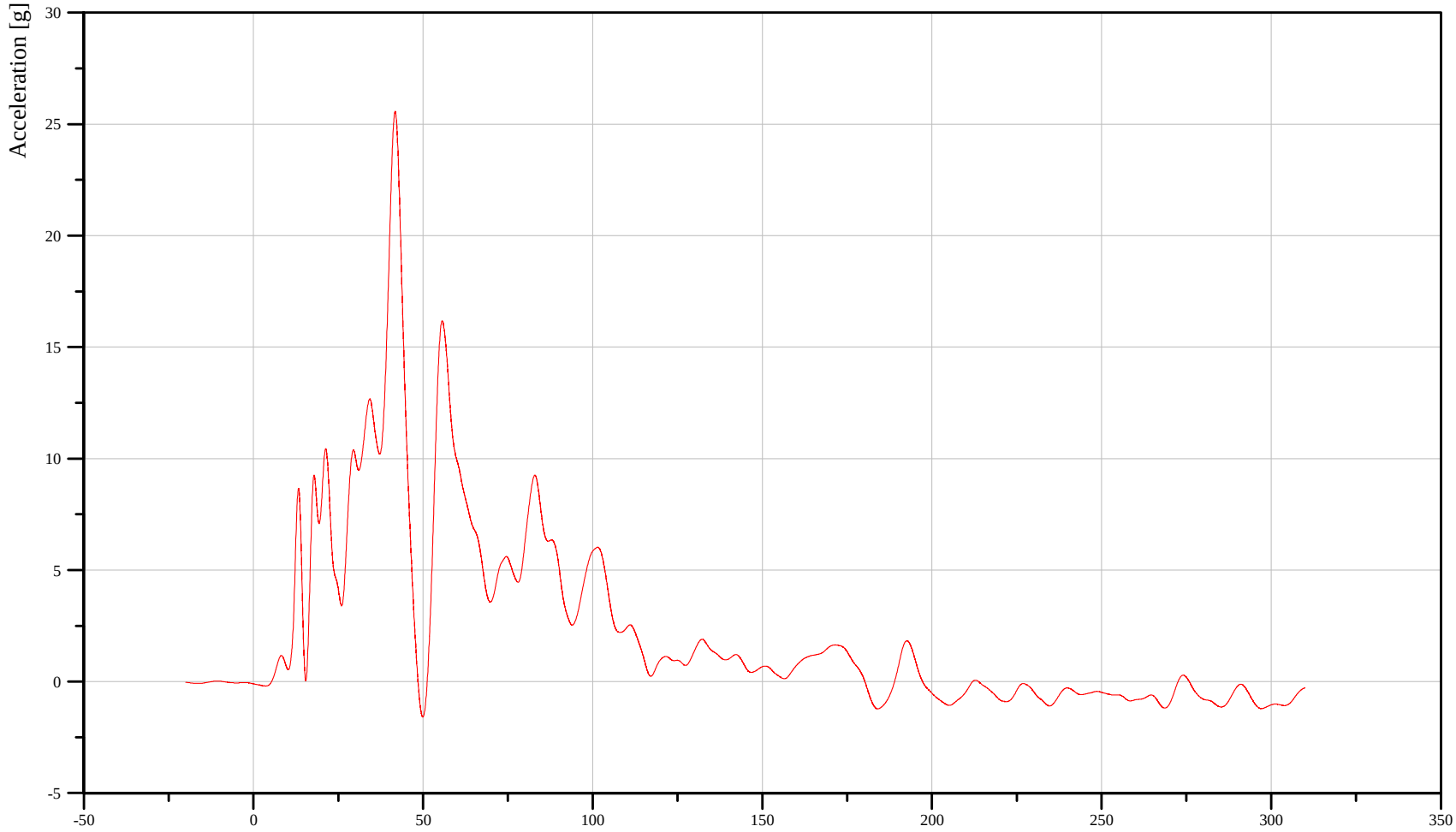
Right Side Roof Rail Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

13ROOF000000ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-1.59 g at 49.90 ms

Max. Value
25.58 g at 41.75 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

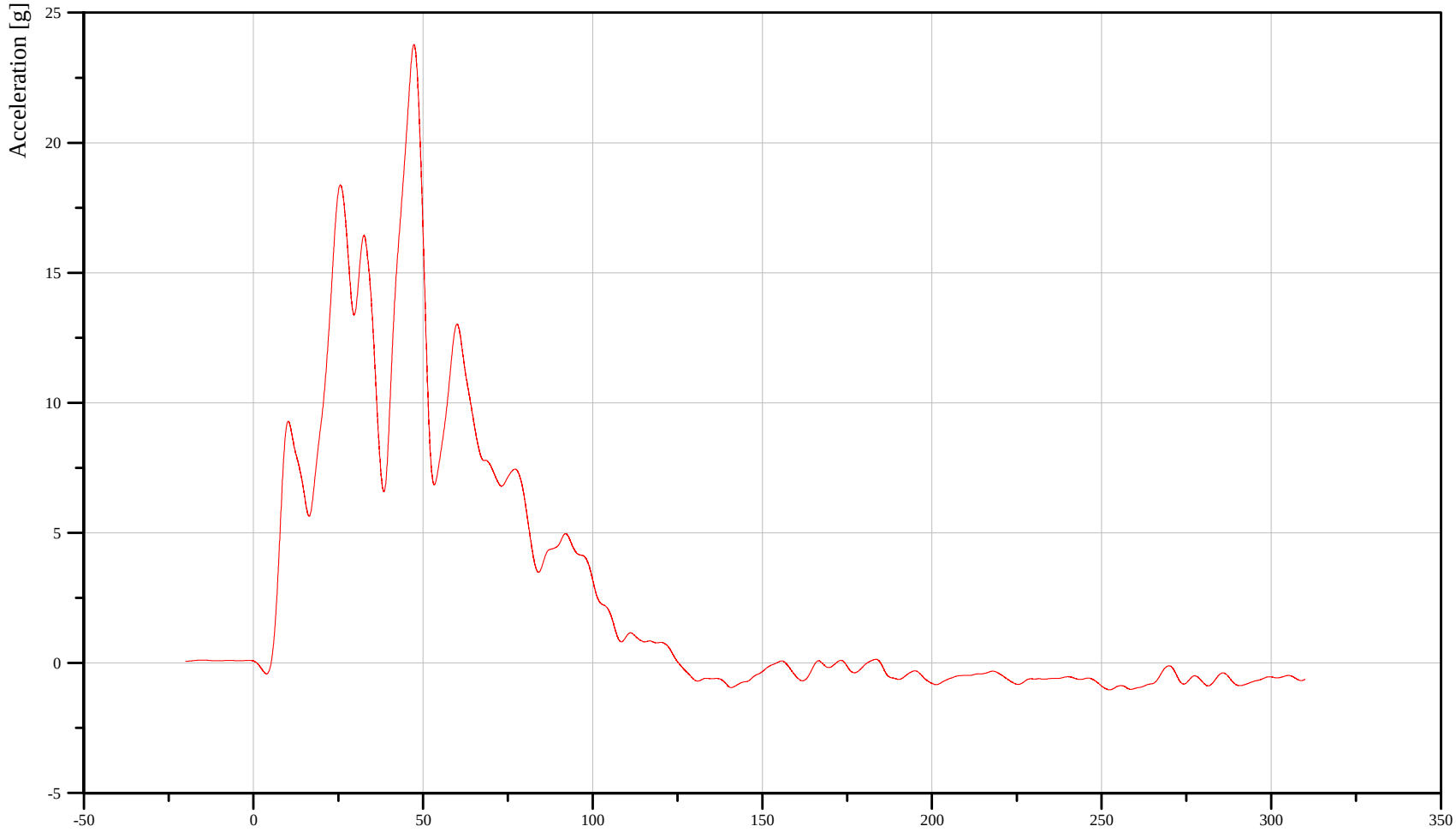
Right Side Sill Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

13SILBFR0000ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-1.03 g at 252.35 ms

Max. Value
23.78 g at 47.30 ms

110801

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

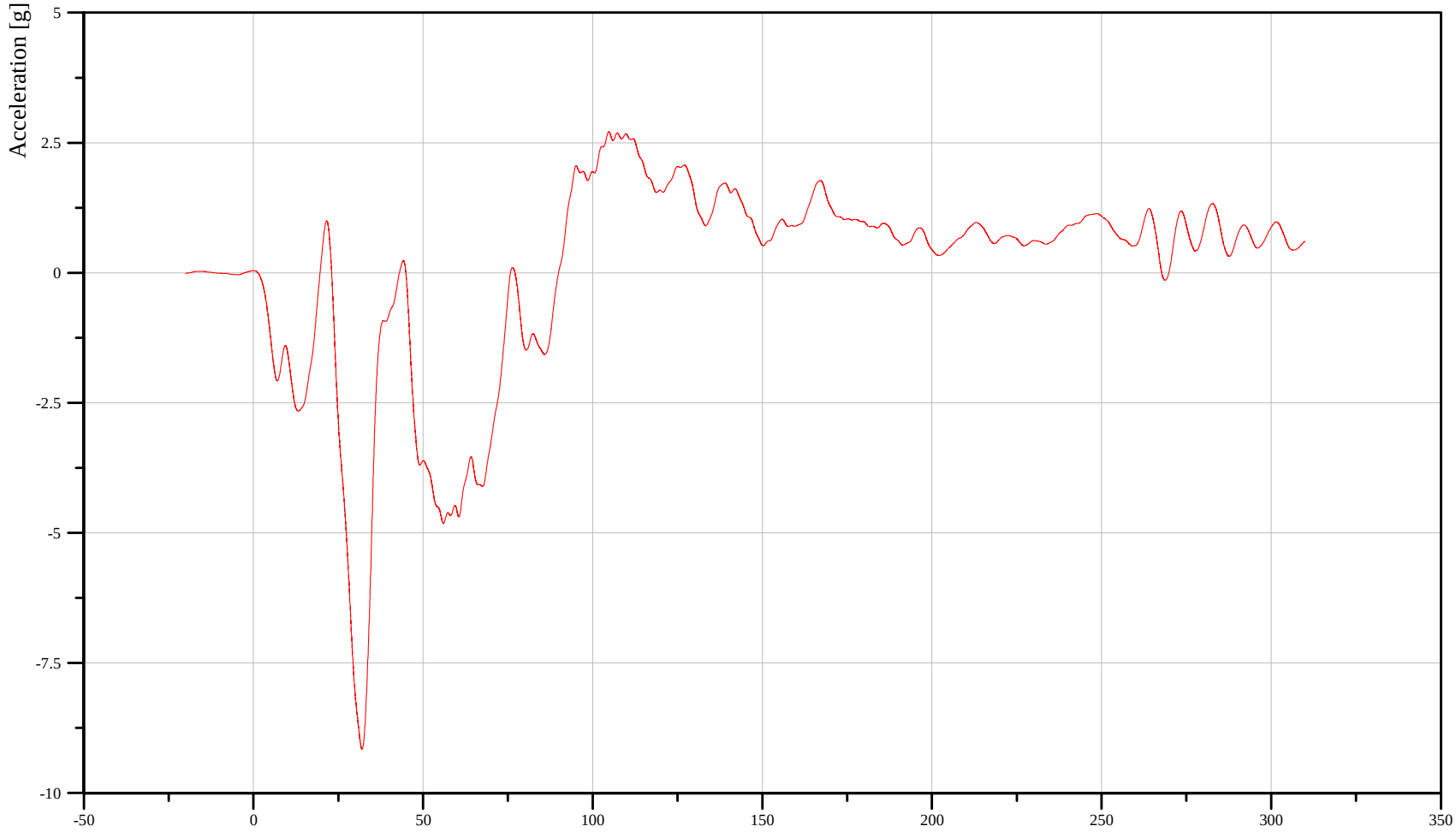
Rear Deck Behind Rear Axle X-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

18DECK000000ACXD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-9.16 g at 32.00 ms

Max. Value
2.71 g at 104.75 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

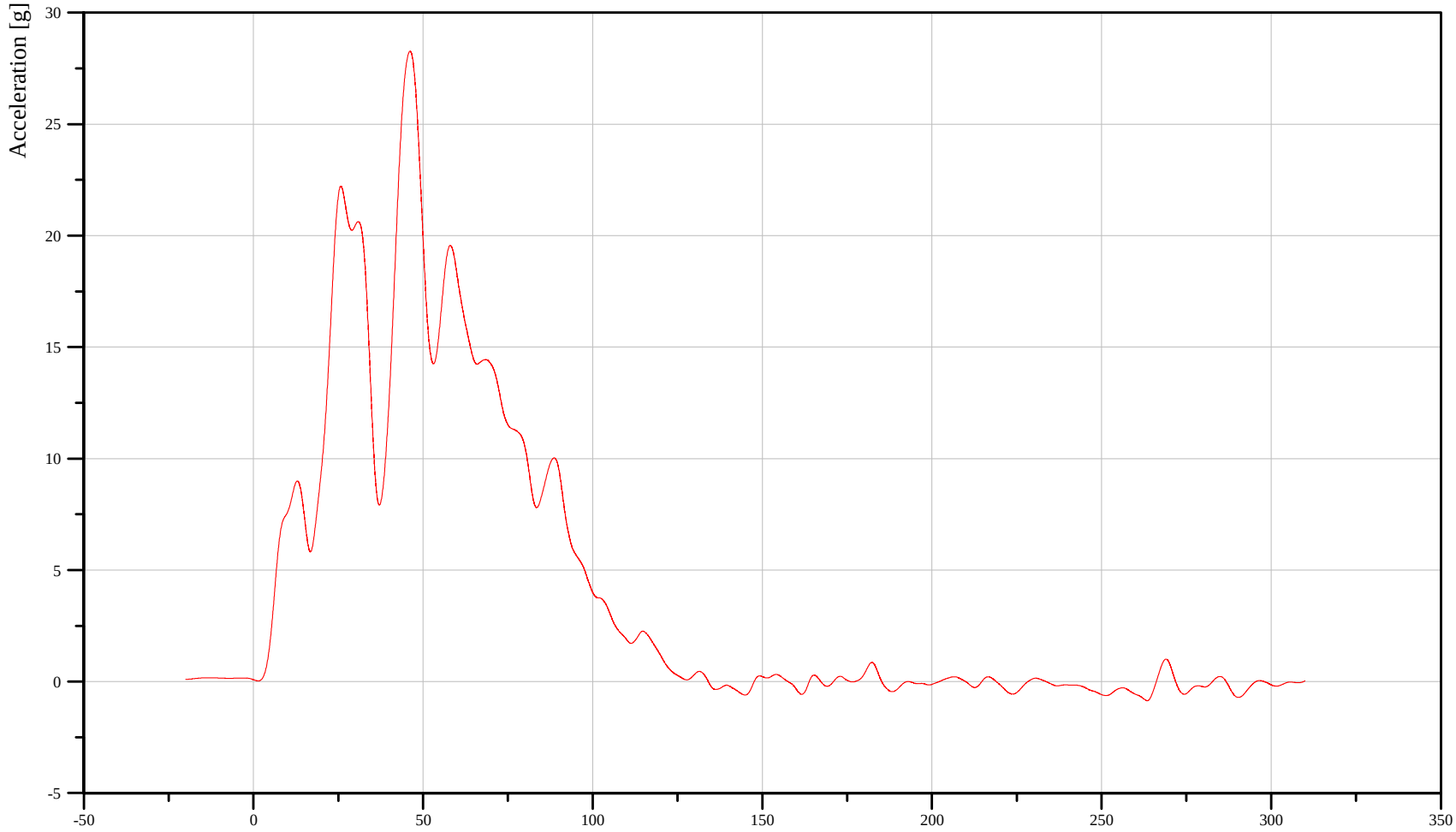
Rear Deck Behind Rear Axle Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

18DECK000000ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-0.86 g at 263.50 ms

Max. Value
28.27 g at 46.15 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

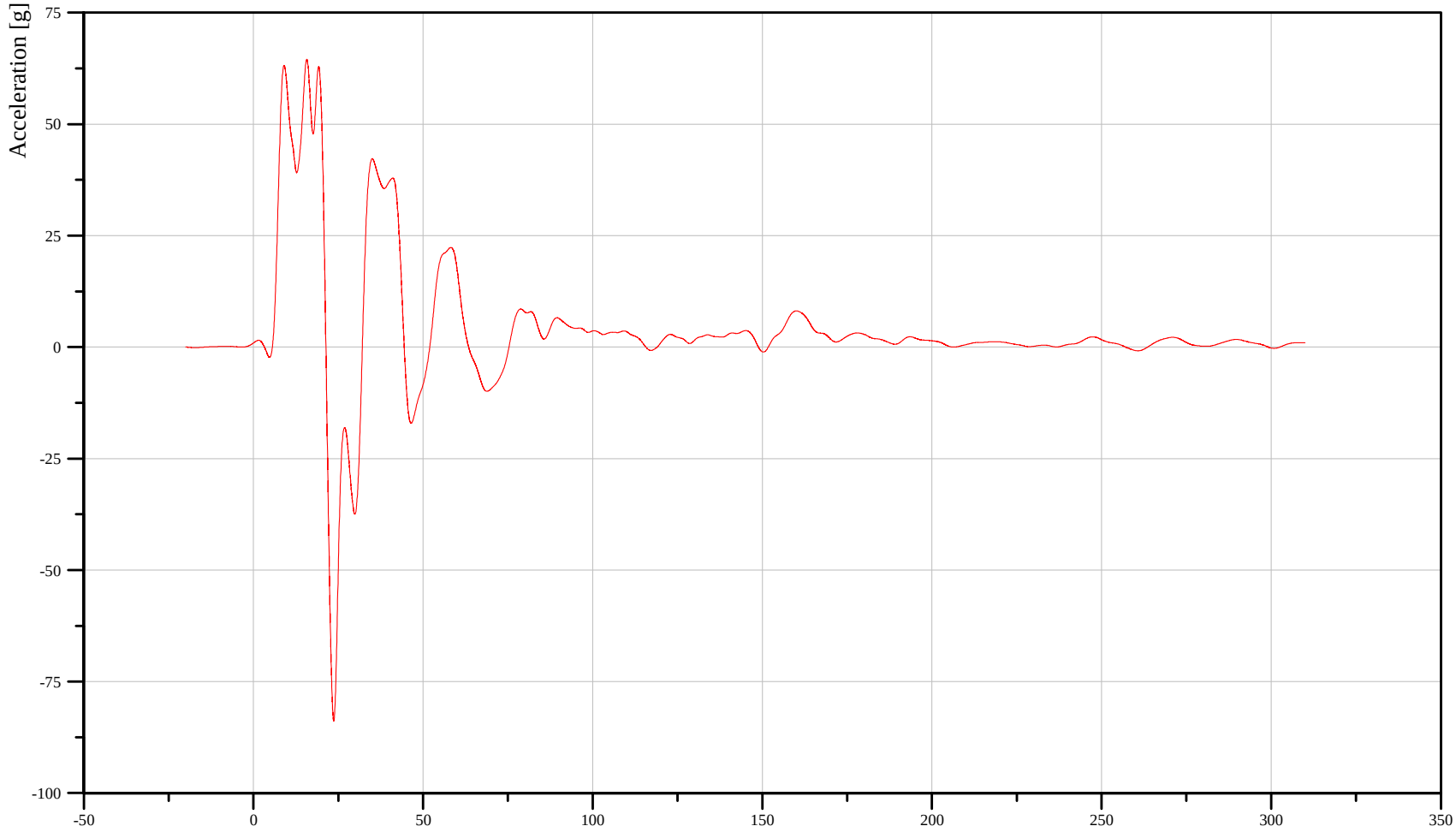
Left Front Door on Center Line X-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11DOORFR0000ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-83.80 g at 23.70 ms

Max. Value
64.54 g at 15.70 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

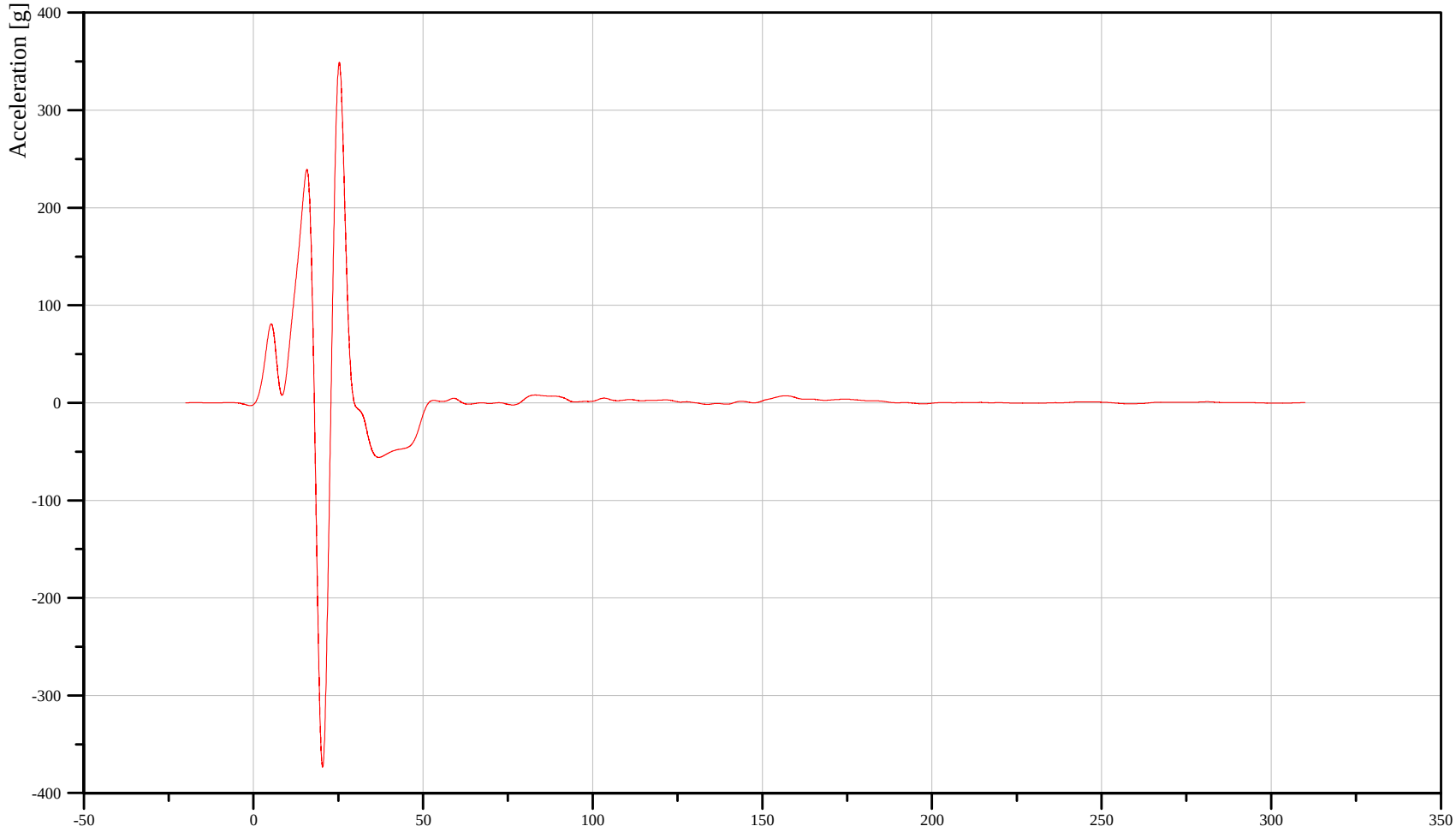
Midrear of Left Front Door Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11DOORMIRE00ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-373.48 g at 20.40 ms

Max. Value
349.01 g at 25.30 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

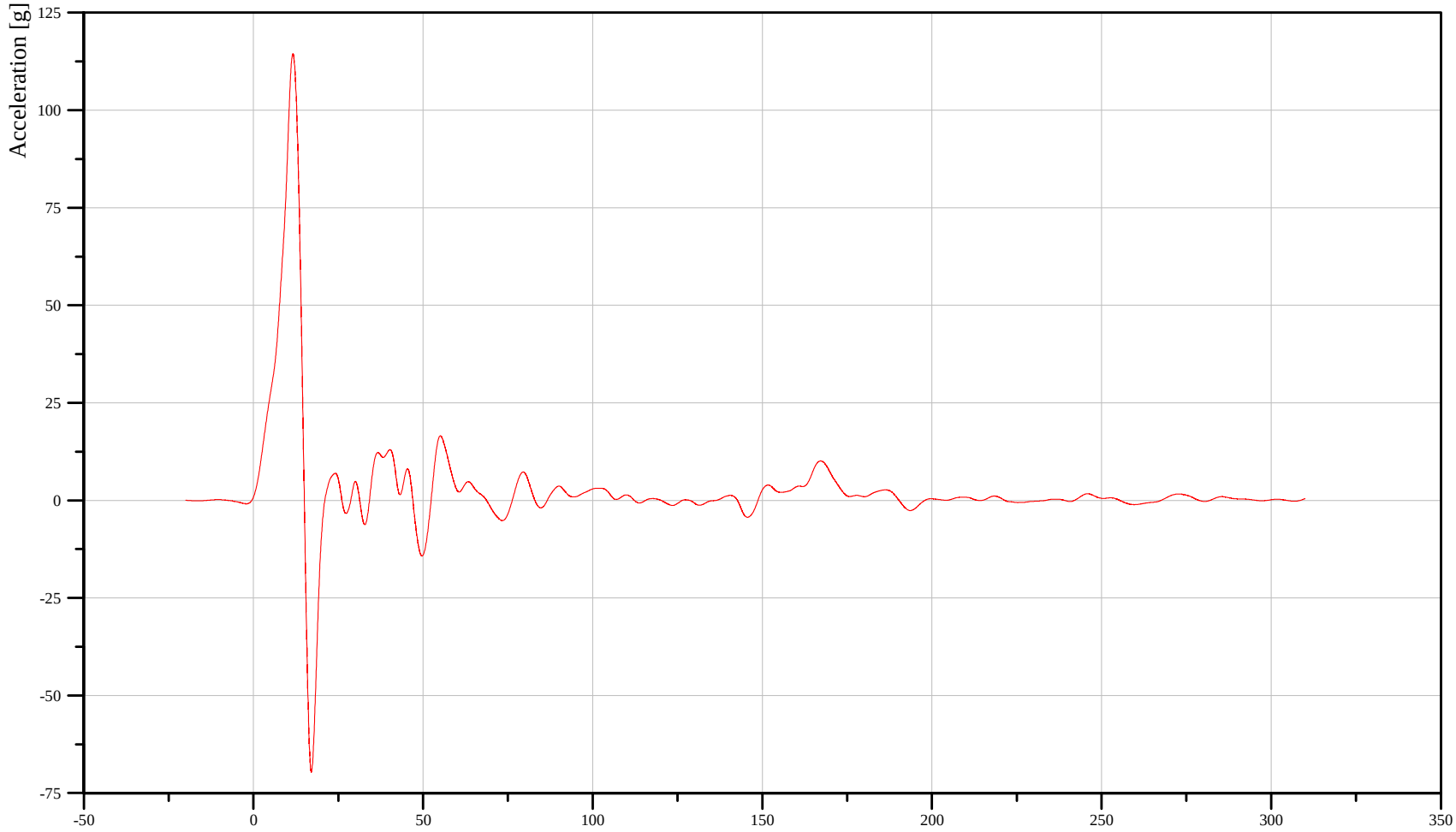
Left Front Door Upper Centerline Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11DOORLEFRUPACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-69.65 g at 17.05 ms

Max. Value
114.50 g at 11.60 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

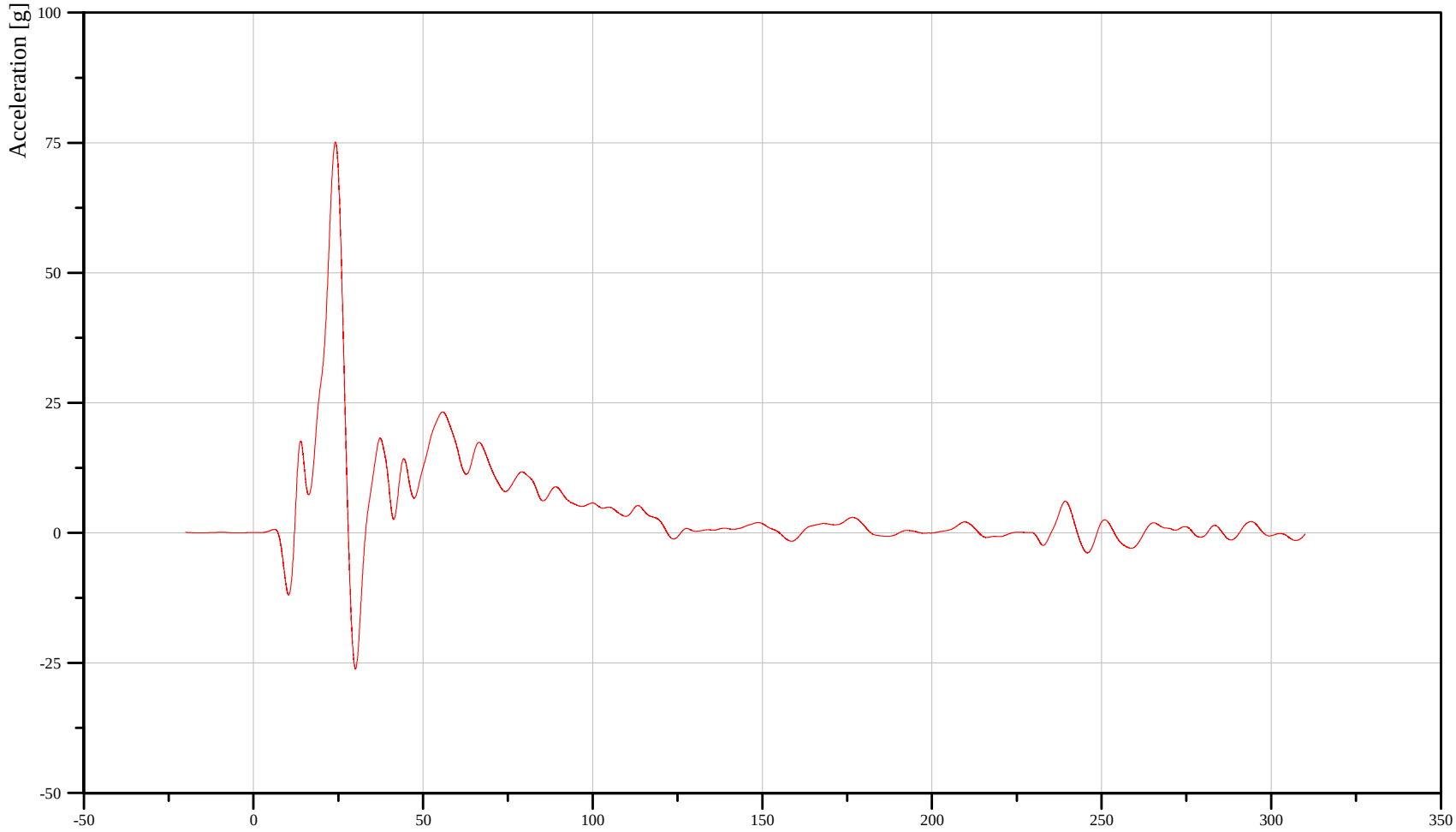
Midrear of Left Rear Door Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

14DOORMIRE00ACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-26.11 g at 30.10 ms

Max. Value
75.13 g at 24.15 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

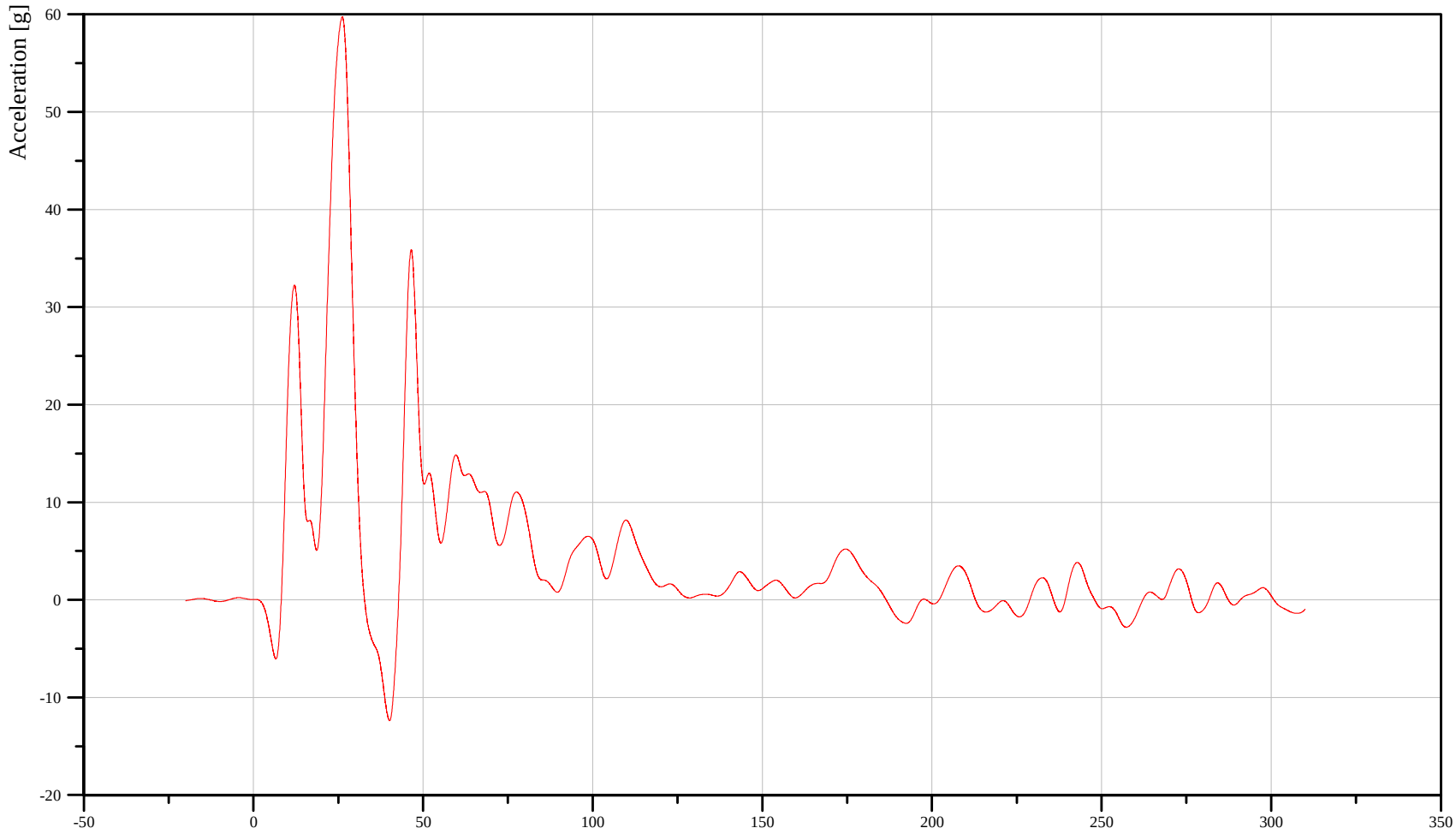
Left Rear Door Upper Centerline Y-Axis Acceleration

Date: 08/01/2011
Time: 16:46

Customer: VRTC

14DOORLEREUPACYD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-12.39 g at 40.15 ms

Max. Value
59.74 g at 26.15 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

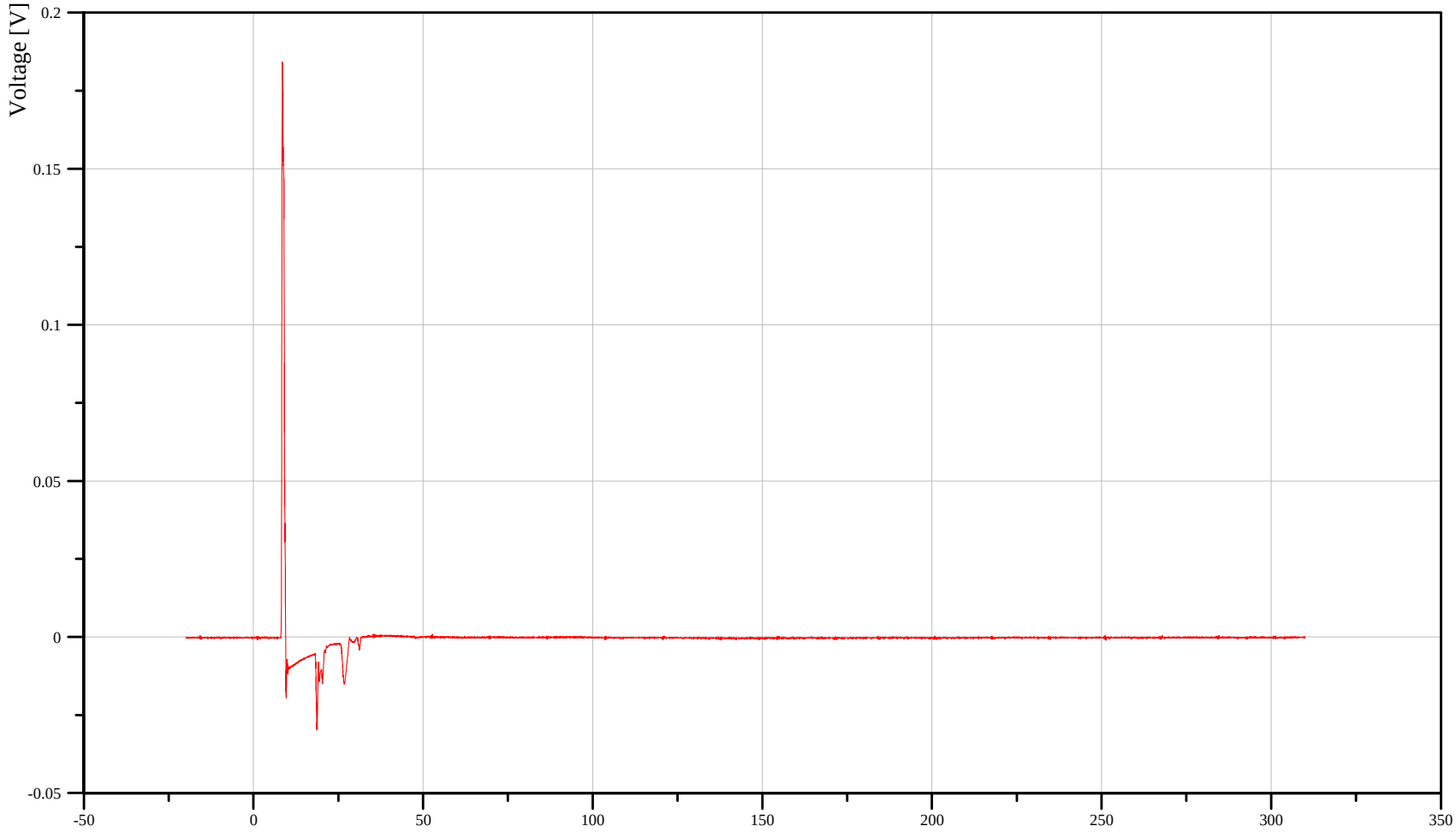
Driver Side Curtain Inductor

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11AIRBTPLE00EV0A

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
-0.03 V at 18.75 ms

Max. Value
0.18 V at 8.55 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

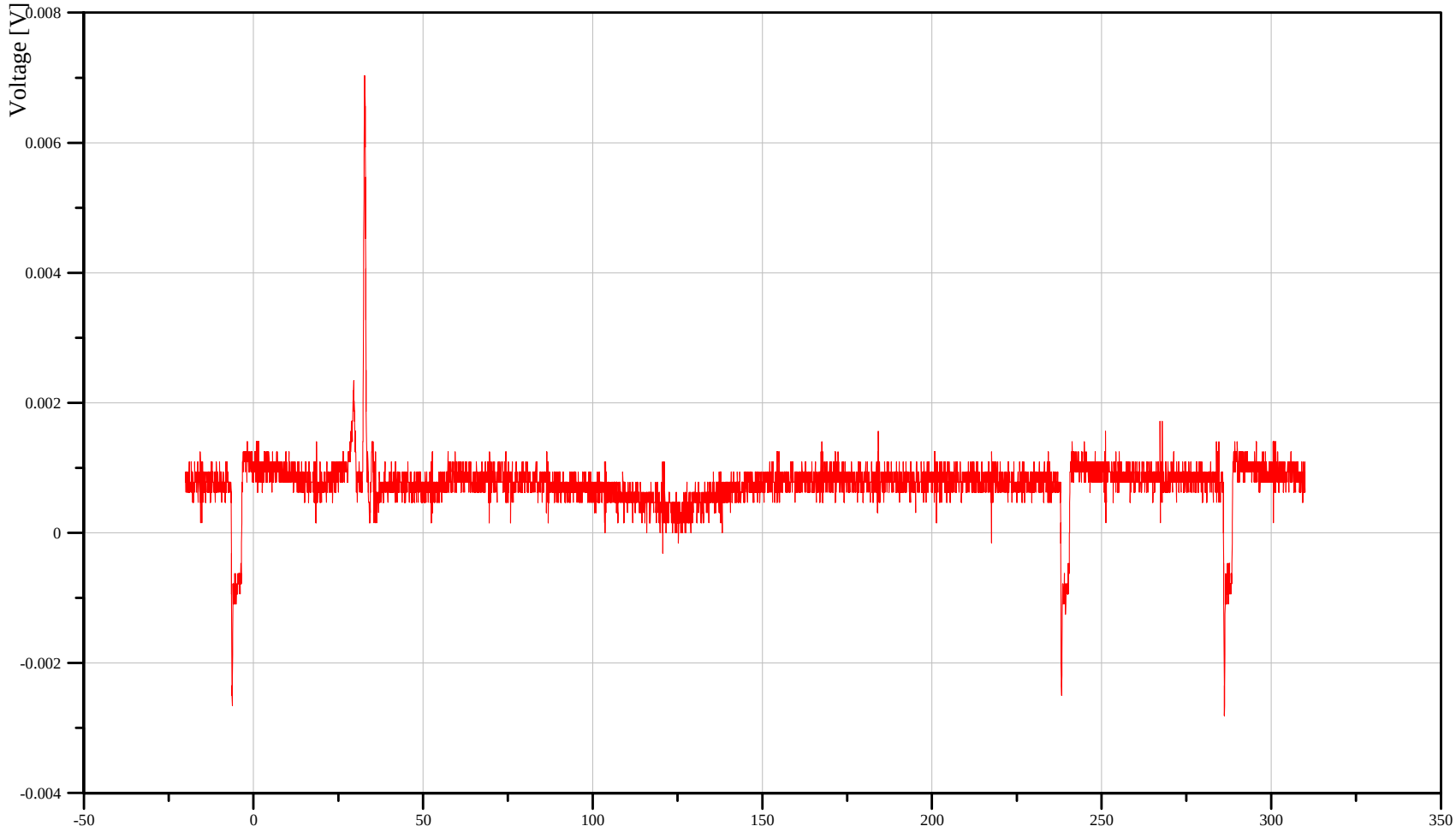
Driver Torso Airbag Fire Inductor

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11AIR02N0000EVOA

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_1000

Min. Value
0.00 V at 286.20 ms

Max. Value
0.01 V at 32.70 ms

110801

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

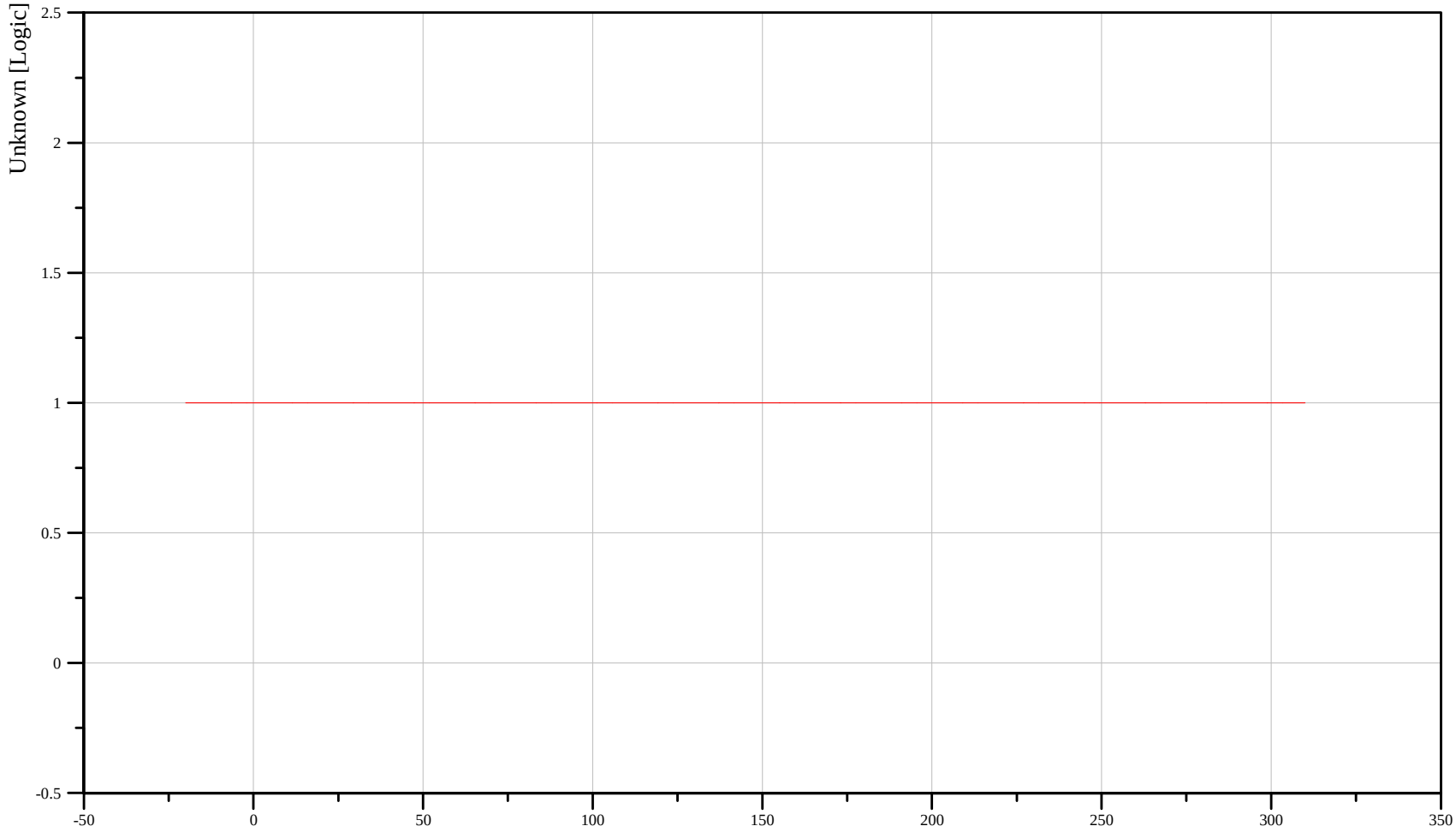
Head Contact Switch

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11CONT000001VO00

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: Unfiltered

Min. Value
1.00 Logic at -20.00 ms

Max. Value
1.00 Logic at -20.00 ms

110801

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

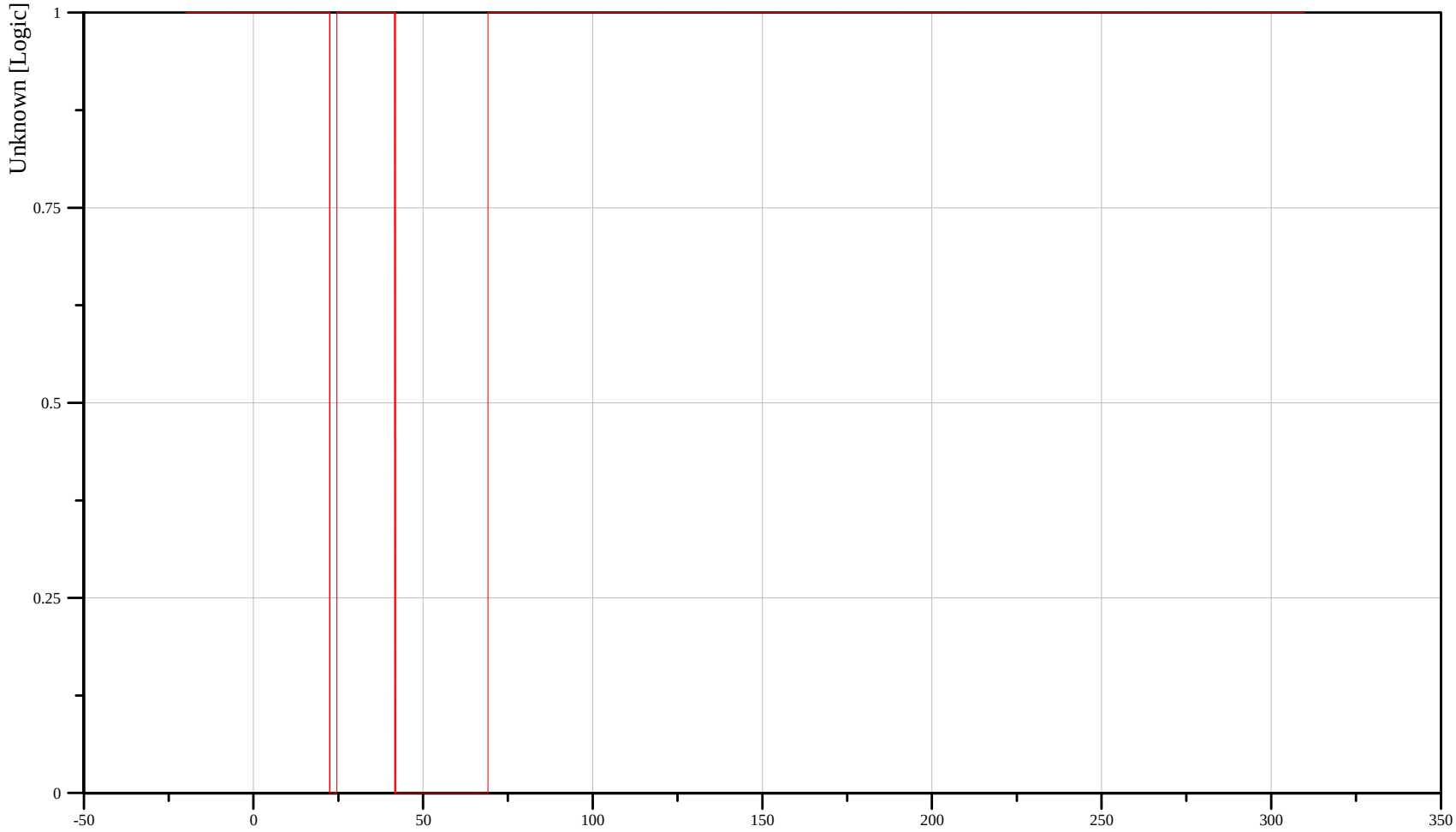
Shoulder Contact Switch

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11CONT000002VO00

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: Unfiltered

Min. Value
0.00 Logic at 22.55 ms

Max. Value
1.00 Logic at -20.00 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

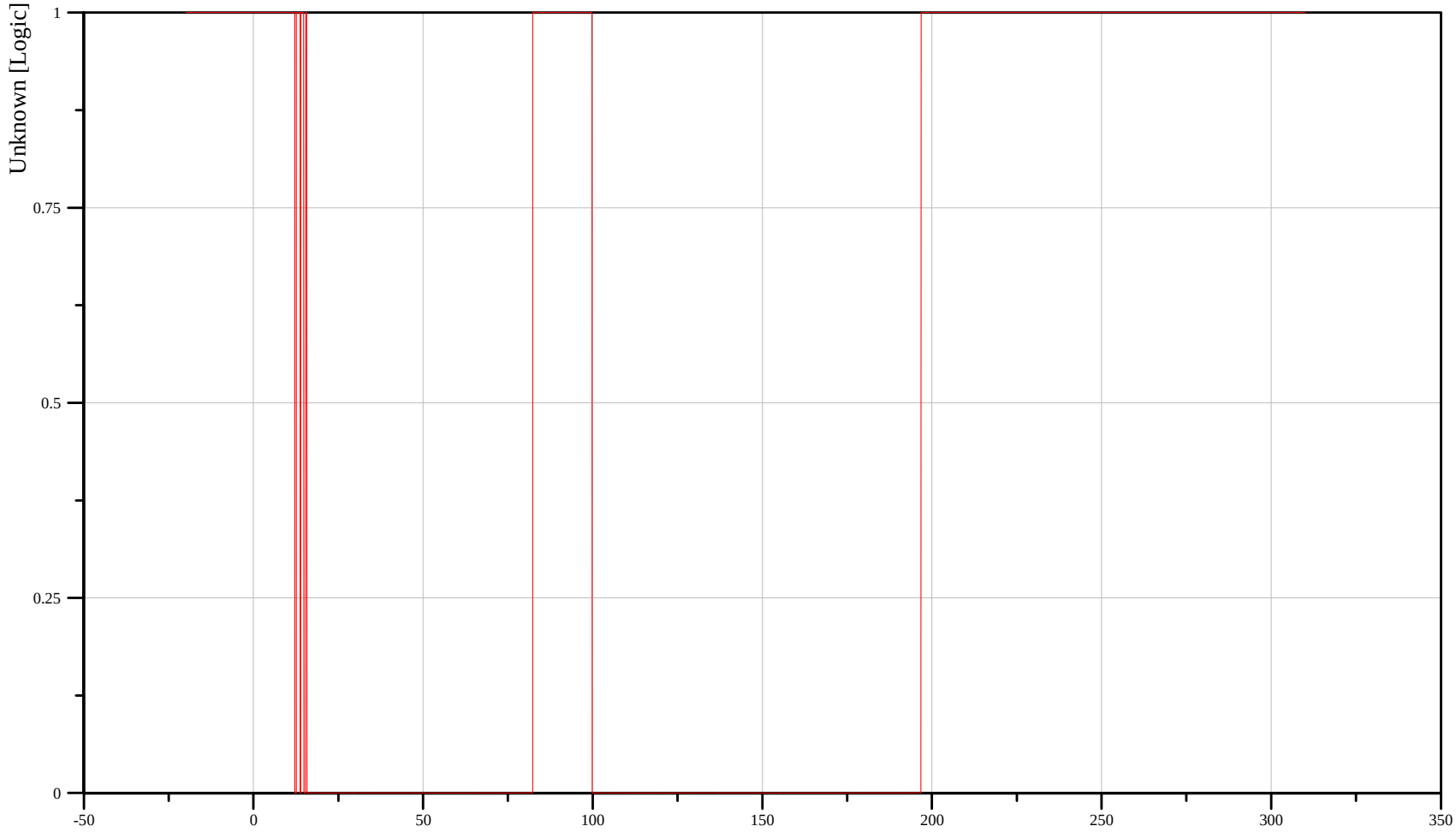
Torso Contact Switch

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11CONT000003VO00

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: Unfiltered

Min. Value
0.00 Logic at 12.20 ms

Max. Value
1.00 Logic at -20.00 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

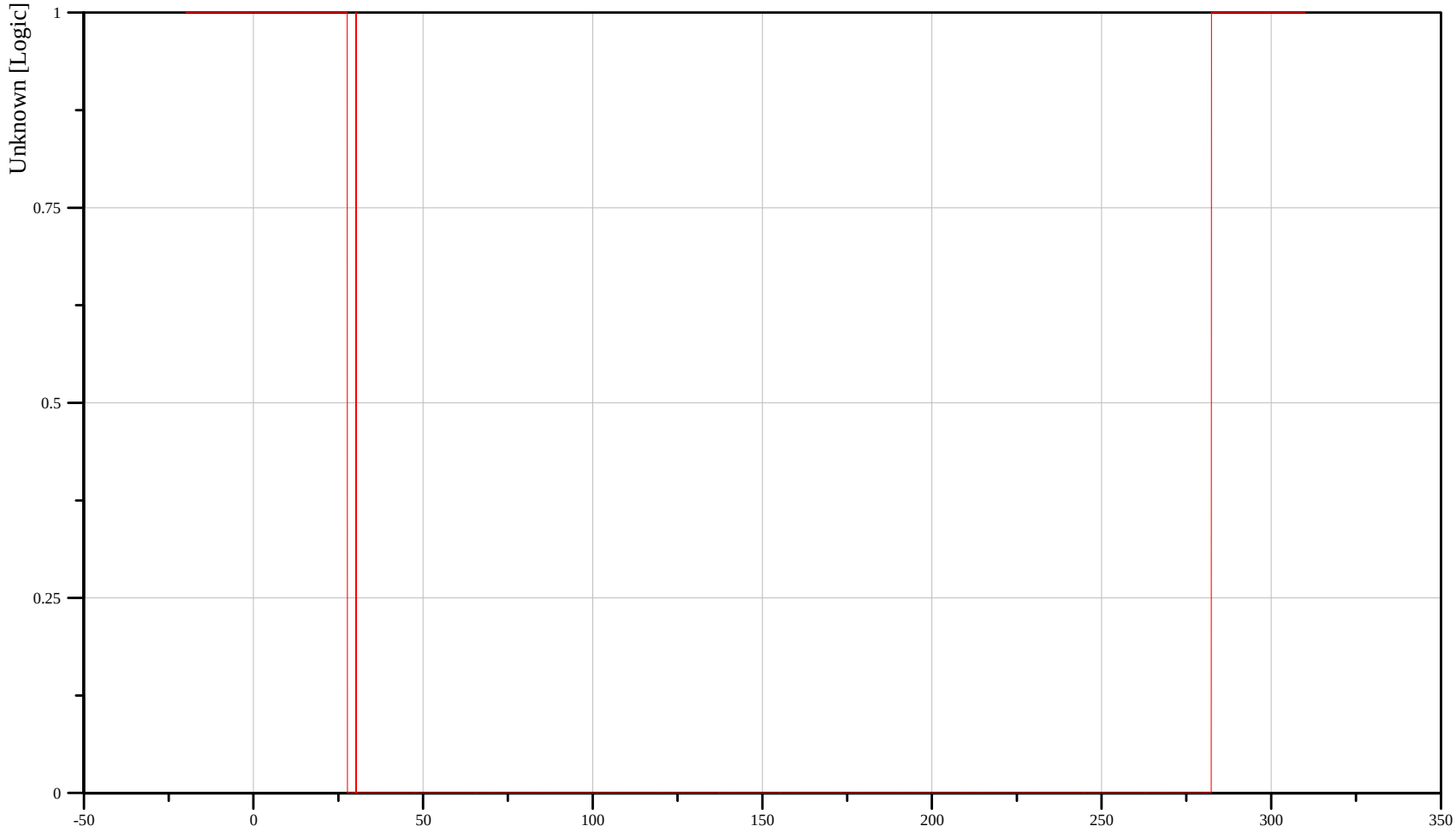
Left Contact Switch

Date: 08/01/2011
Time: 16:46

Customer: VRTC

11CONT000004VO00

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: Unfiltered

Min. Value
0.00 Logic at 27.70 ms

Max. Value
1.00 Logic at -20.00 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

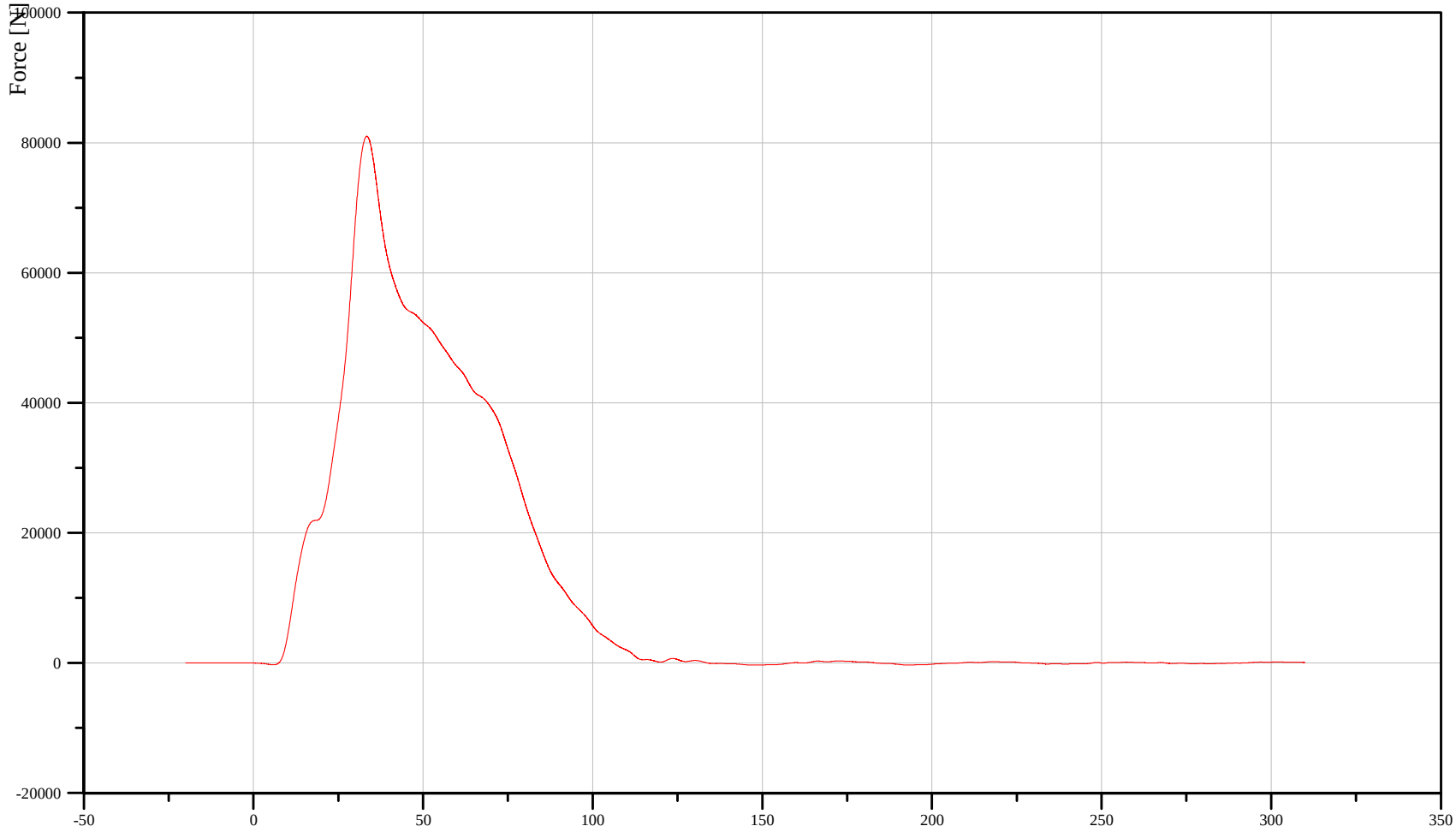
Pole Load Cell 1

Date: 08/01/2011
Time: 16:46

Customer: VRTC

K0FBAR010000FOXD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-333.89 N at 193.05 ms

Max. Value
80,994.92 N at 33.40 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

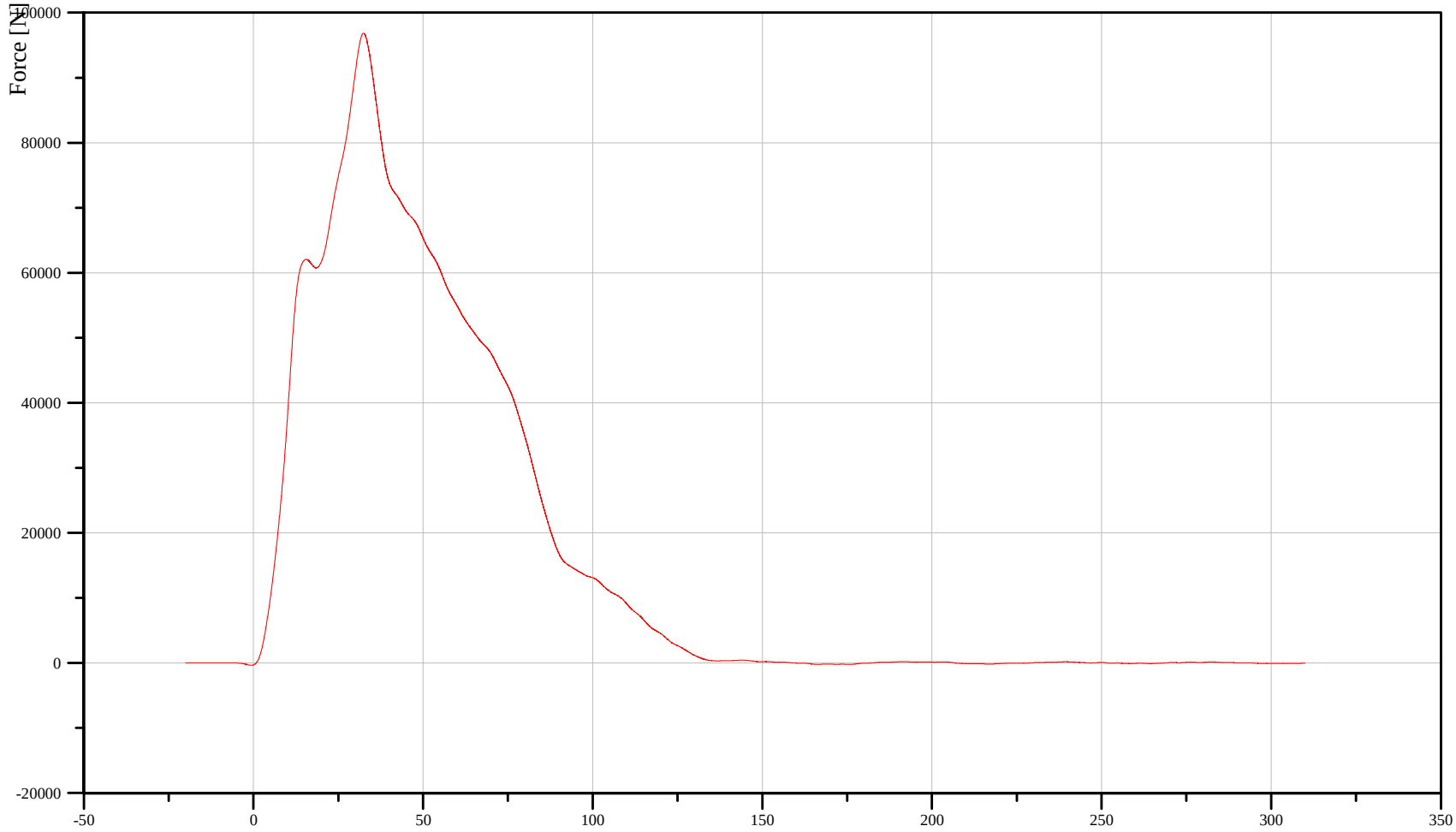
Pole Load Cell 2

Date: 08/01/2011
Time: 16:46

Customer: VRTC

K0FBAR020000FOXD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-361.40 N at -0.60 ms

Max. Value
96,848.51 N at 32.45 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

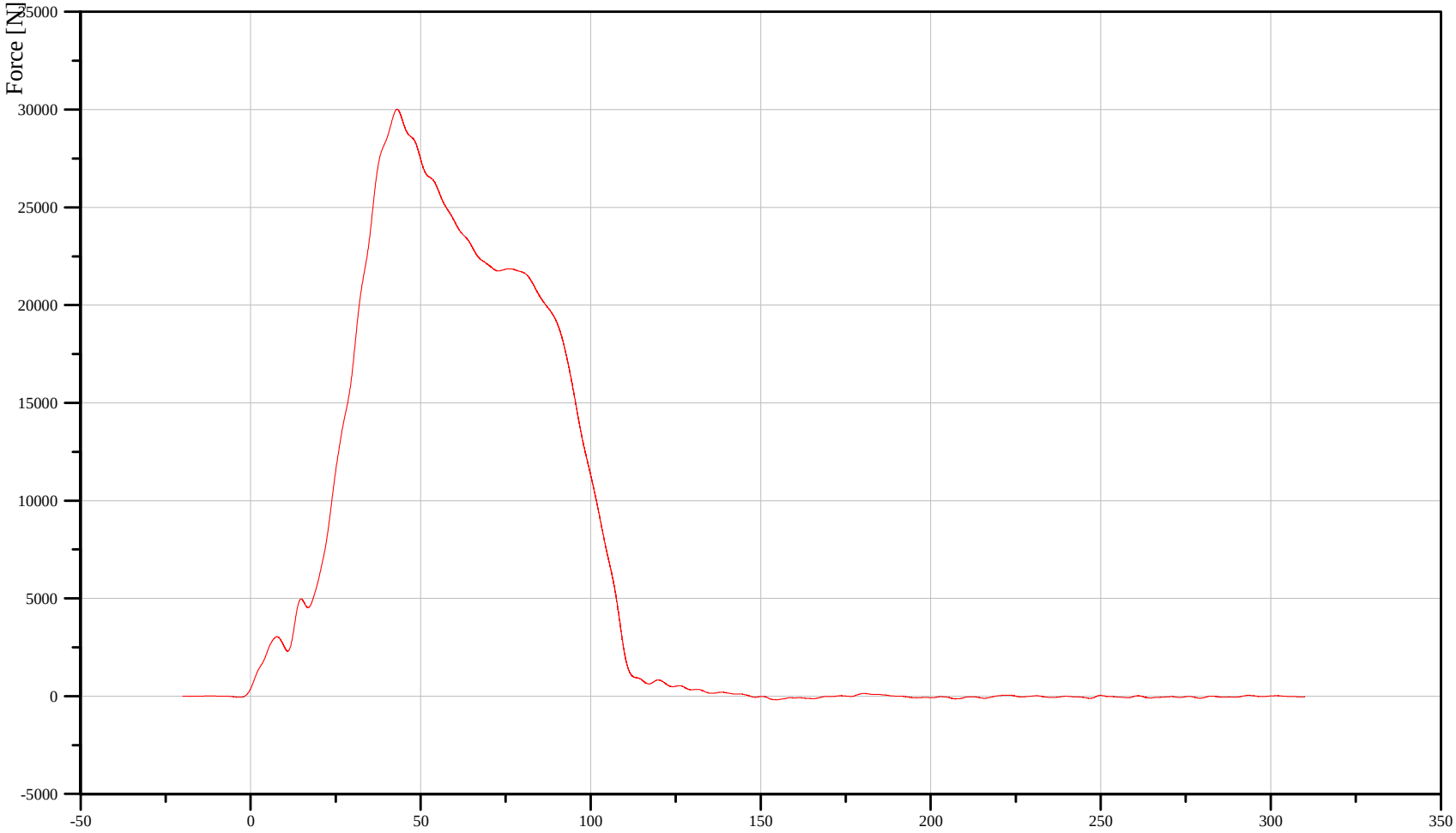
Pole Load Cell 3

Date: 08/01/2011
Time: 16:46

Customer: VRTC

K0FBAR030000FOXD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value	**Max. Value**
-182.33 N at 154.65 ms	30,018.40 N at 43.10 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

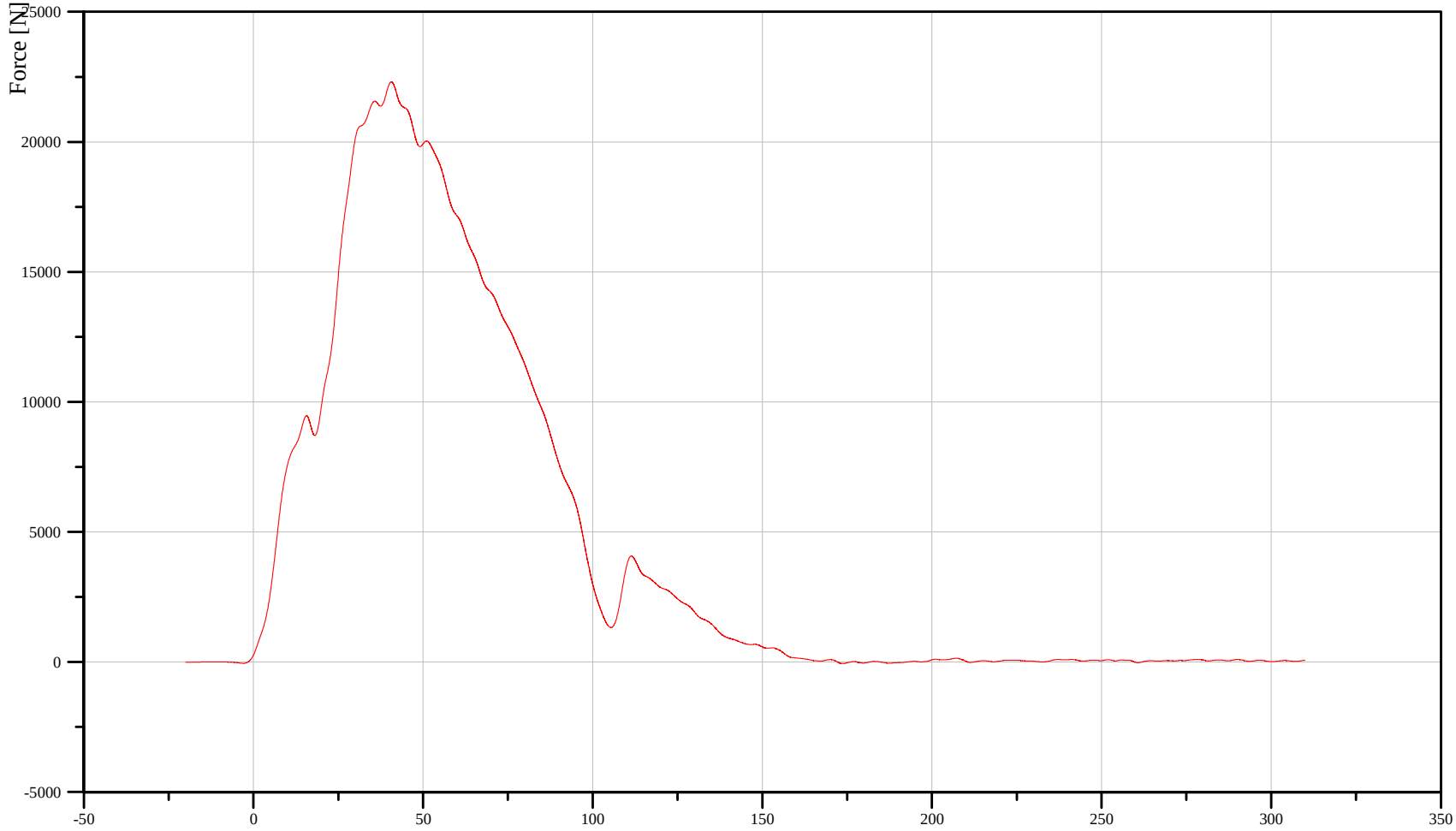
Pole Load Cell 4

Date: 08/01/2011
Time: 16:46

Customer: VRTC

K0FBAR040000FOXD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-59.07 N at 173.60 ms

Max. Value
22,310.17 N at 40.65 ms

110801

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

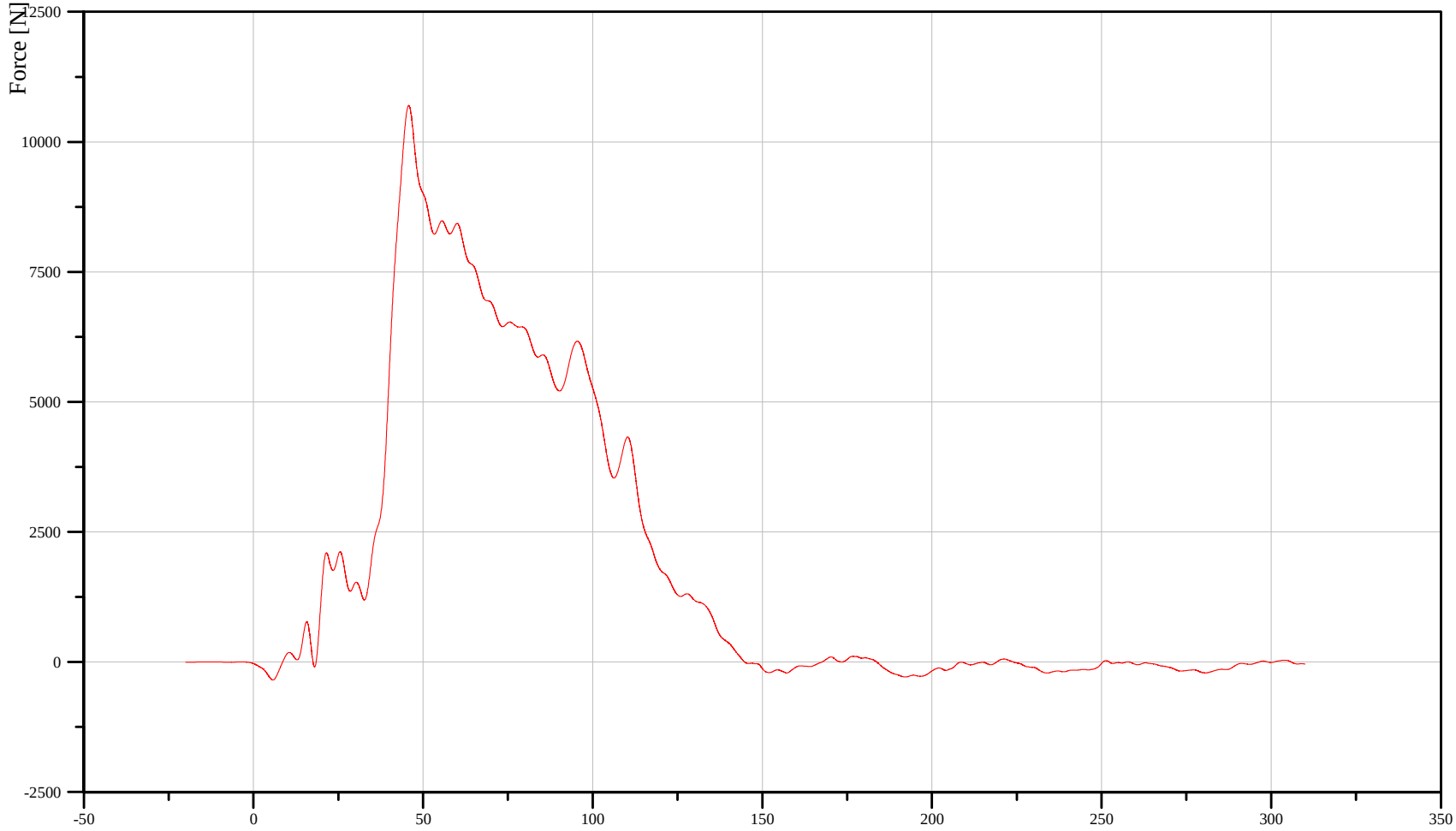
Pole Load Cell 5

Date: 08/01/2011
Time: 16:46

Customer: VRTC

K0FBAR050000FOXD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-346.48 N at 5.75 ms

Max. Value
10,701.32 N at 45.75 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

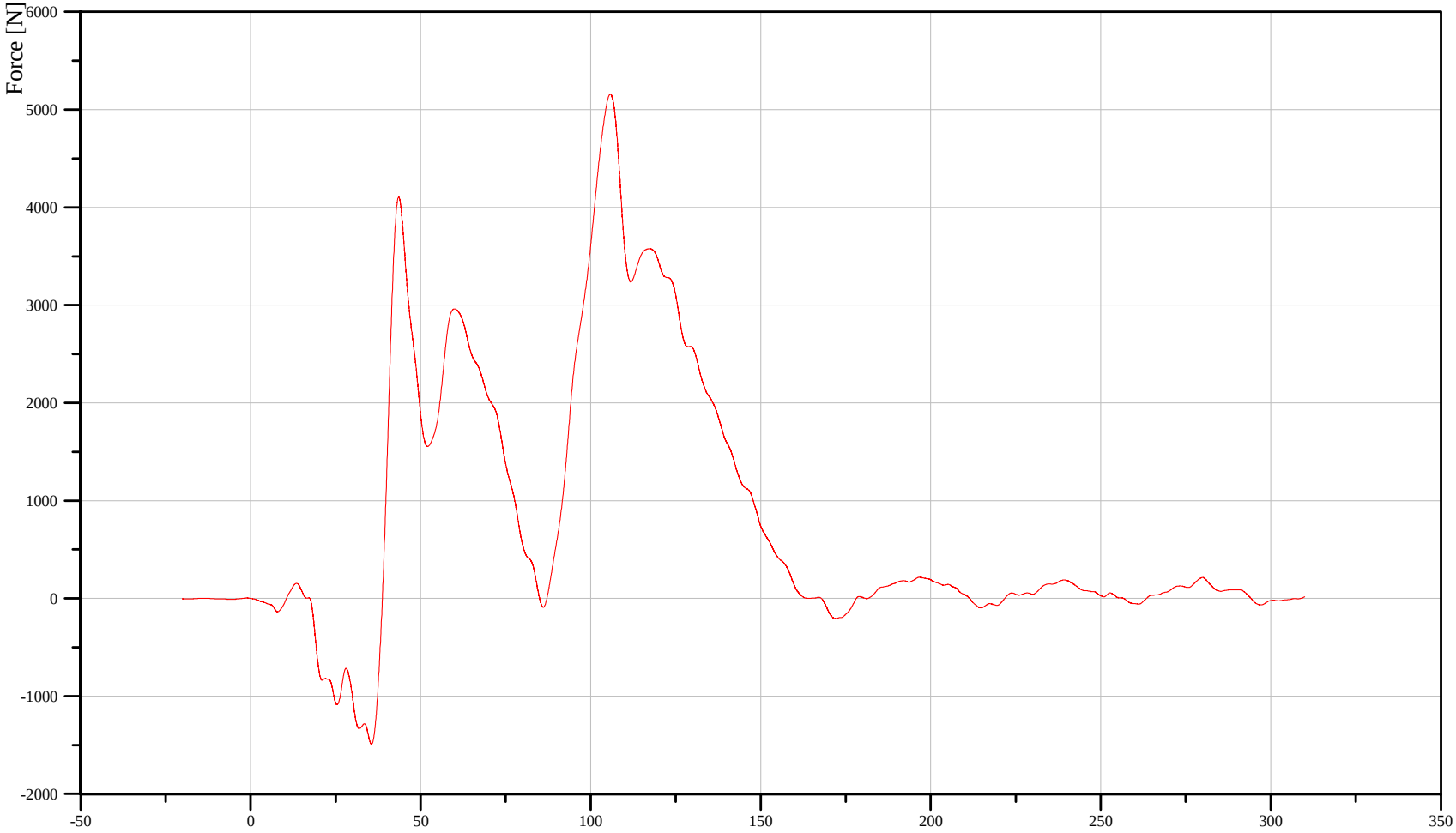
Pole Load Cell 6

Date: 08/01/2011
Time: 16:46

Customer: VRTC

K0FBAR060000FOXD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-1,490.59 N at 35.55 ms

Max. Value
5,157.97 N at 105.75 ms

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

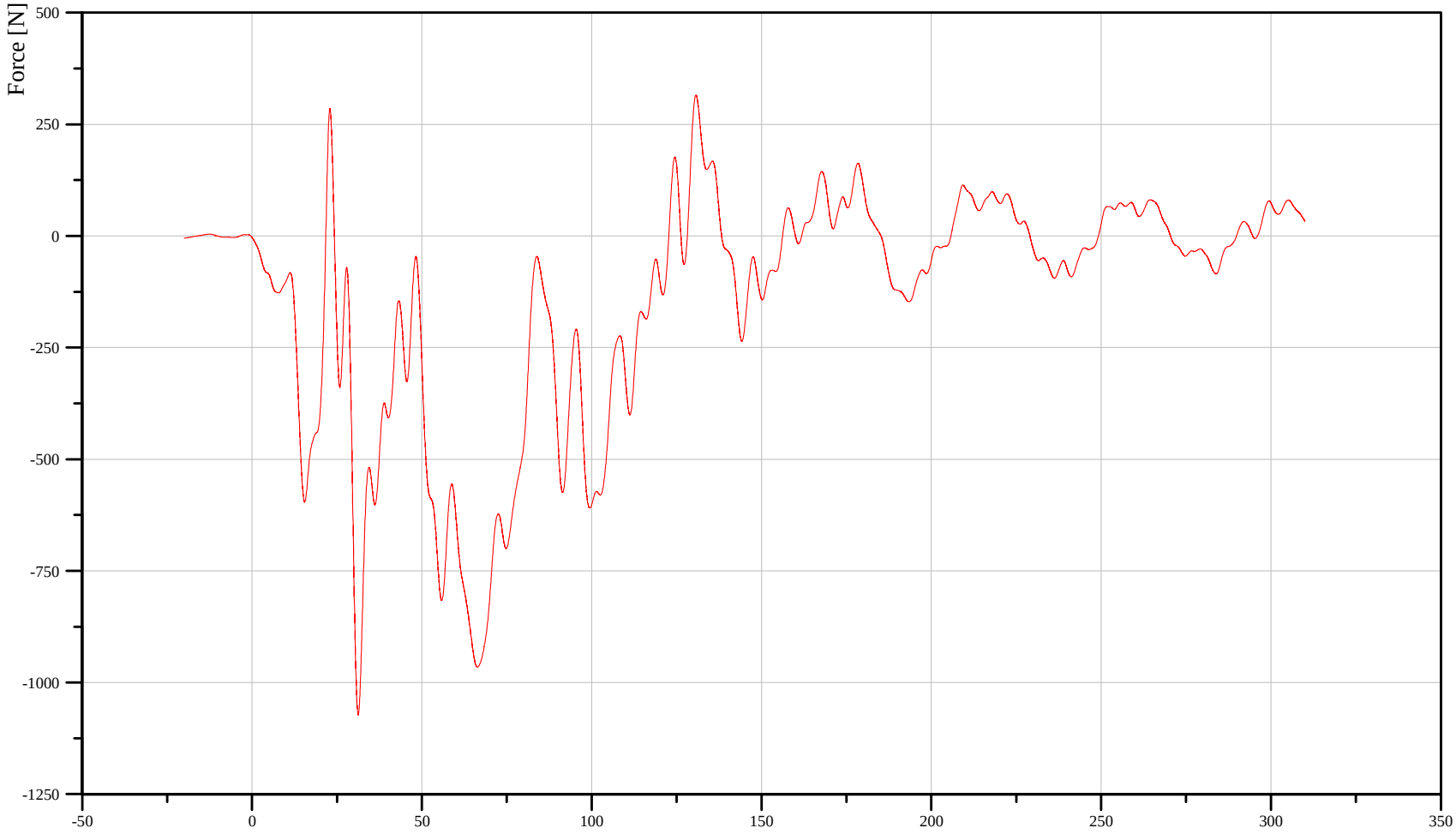
Pole Load Cell 7

Date: 08/01/2011
Time: 16:46

Customer: VRTC

K0FBAR070000FOXD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-1,072.42 N at 31.25 ms

Max. Value
315.77 N at 130.70 ms

110801

2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph

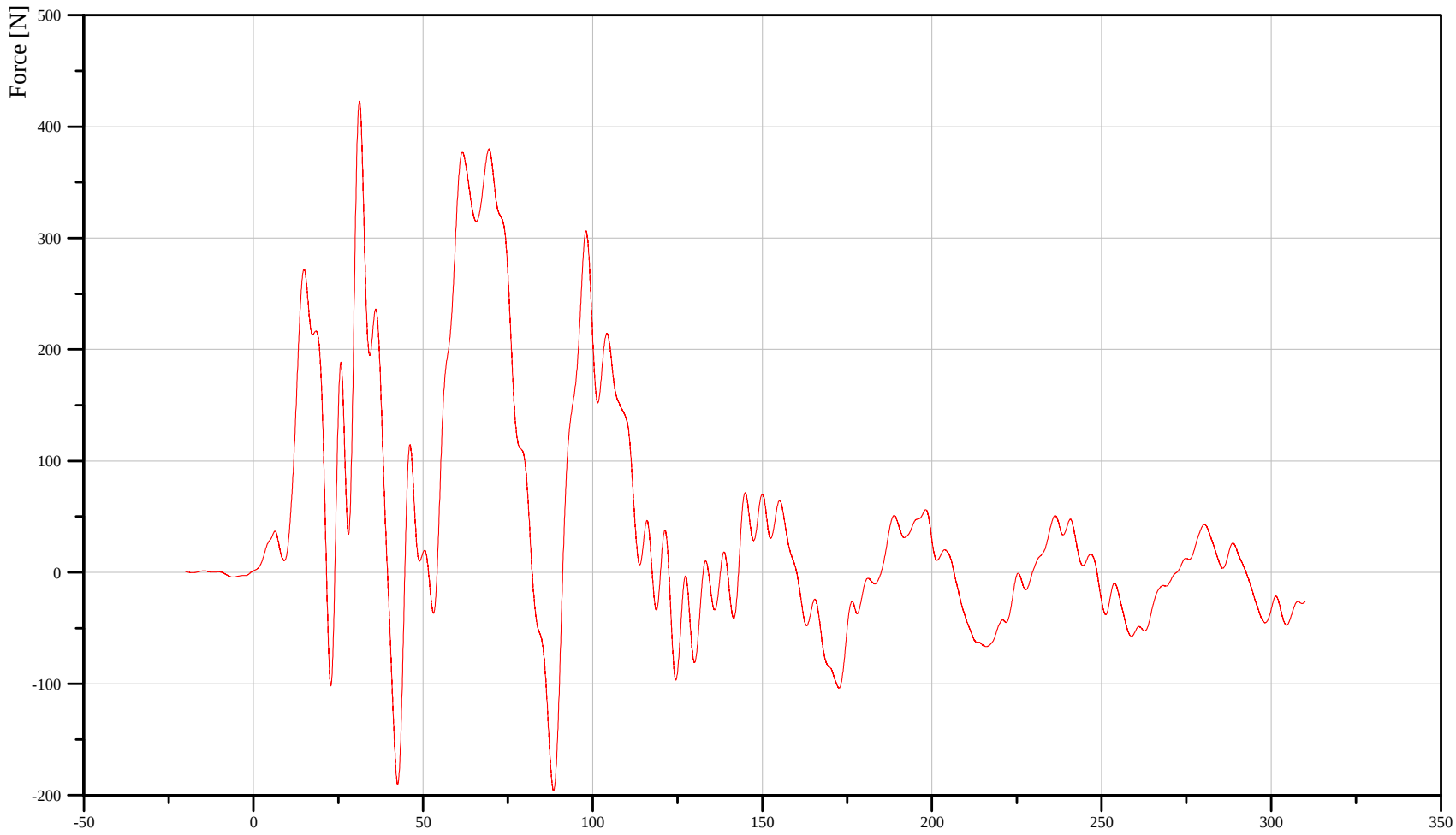
Pole Load Cell 8

Date: 08/01/2011
Time: 16:46

Customer: VRTC

K0FBAR080000FOXD

TRC Inc. Test Lab: CTF
Test Number: 110801



Filter: CFC_60

Min. Value
-195.99 N at 88.50 ms

Max. Value
422.95 N at 31.25 ms

Appendix C

WorldSID Configuration and Performance Verification Data

Calibration Test Results

Pre-Test

WorldSID: 014

Configured for Left Side Impact

Transportation Research Center Inc.

Front Head Drop
WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-1
Test Date: 6/7/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Peak Head Resultant Acceleration	225 - 275 g	243.9 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	-13.8 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician

Approved

Specification Source: ISO 15830-2, dated 12/1/2005
with Polarity in accordance with J211

06.07.2011 12:23:07 606

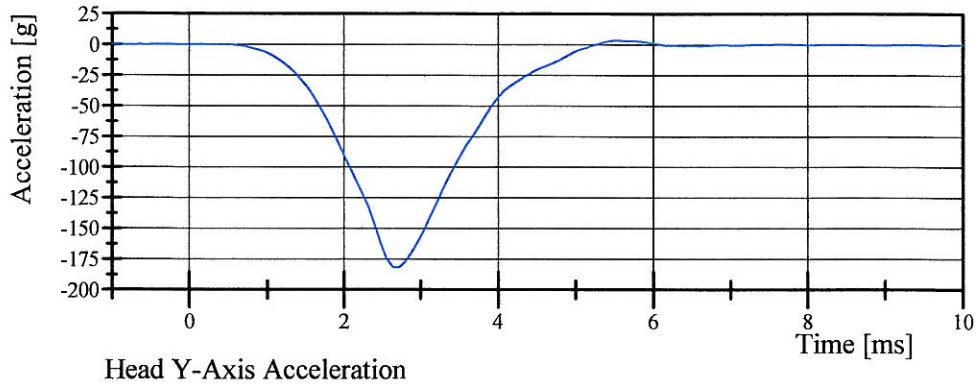
Transportation Research Center Inc.

Front Head Drop

WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-1

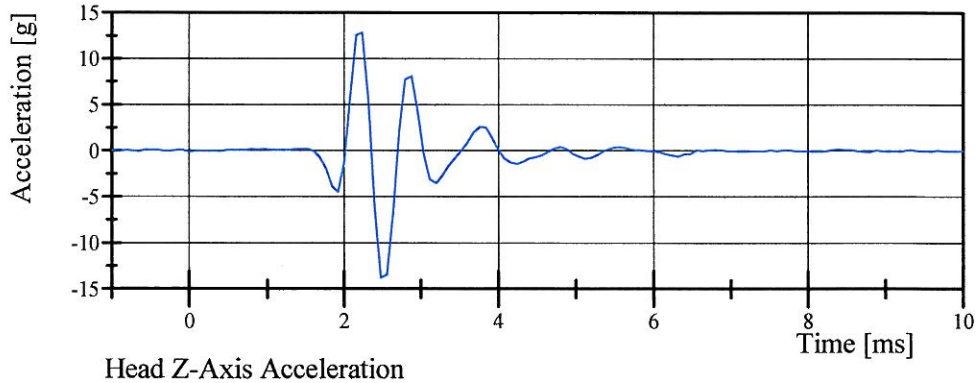
Test Date: 6/7/2011

Head X-Axis Acceleration



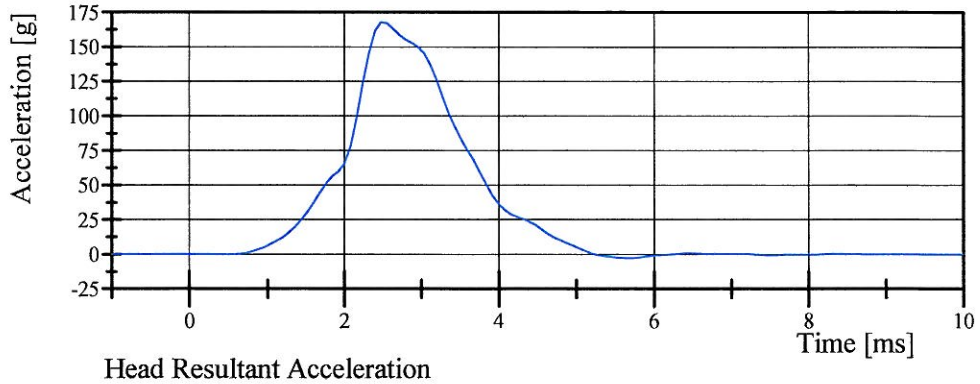
Filter Class: CFC_1000
Max: 3.6 gn at 5.5 ms
Min: -181.7 gn at 2.7 ms

Head Y-Axis Acceleration



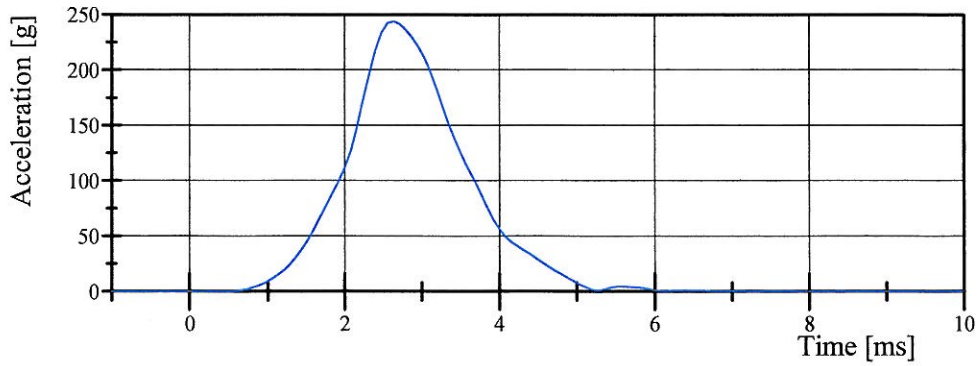
Filter Class: CFC_1000
Max: 12.8 gn at 2.2 ms
Min: -13.8 gn at 2.5 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 168.1 gn at 2.5 ms
Min: -2.8 gn at 5.7 ms

Head Resultant Acceleration



Filter Class: CFC_1000
Max: 243.9 gn at 2.6 ms
Min: 0.0 gn at -0.3 ms

Specification Source: ISO 15830-2, dated 12/1/2005
with Polarity in accordance with J211

06.07.2011 12:23:15 606

Transportation Research Center Inc.

Left Lateral Head Drop
WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-1
Test Date: 6/7/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Peak Head Resultant Acceleration	99 - 121 g	114.9 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-8.8 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician

Approved

Specification Source: ISO 15830-2, dated 12/1/2005
with Polarity in accordance with J211

06.07.2011 14:47:00 608

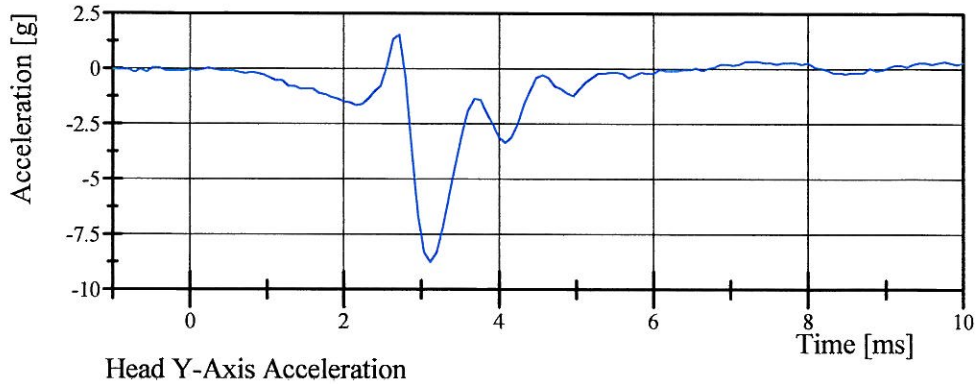
Transportation Research Center Inc.

Left Lateral Head Drop

WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-1

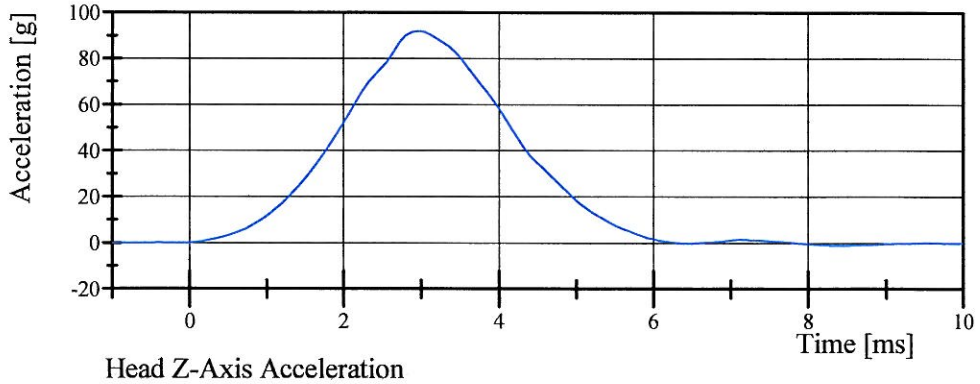
Test Date: 6/7/2011

Head X-Axis Acceleration



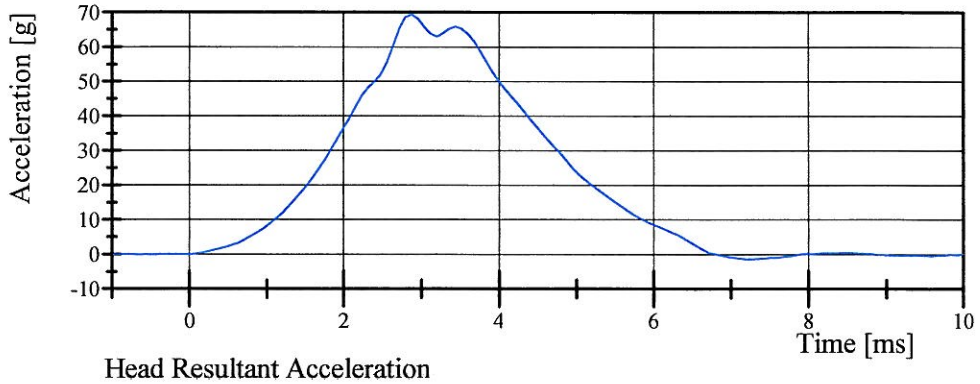
Filter Class: CFC_1000
Max: 1.5 gn at 2.7 ms
Min: -8.8 gn at 3.1 ms

Head Y-Axis Acceleration



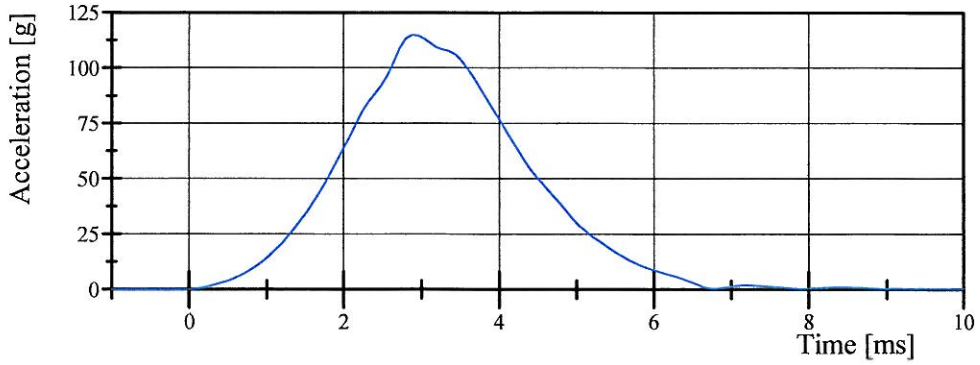
Filter Class: CFC_1000
Max: 92.0 gn at 3.0 ms
Min: -1.0 gn at 8.3 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 69.4 gn at 2.9 ms
Min: -1.4 gn at 7.2 ms

Head Resultant Acceleration



Filter Class: CFC_1000
Max: 114.9 gn at 2.9 ms
Min: 0.0 gn at -0.8 ms

Specification Source: ISO 15830-2, dated 12/1/2005
with Polarity in accordance with J211

06.07.2011 14:47:06 608

Transportation Research Center Inc.

Right Lateral Head Drop
WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-1
Test Date: 6/8/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	61 %	Yes
Peak Head Resultant Acceleration	99 - 121 g	111.3 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	6.5 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician

Approved

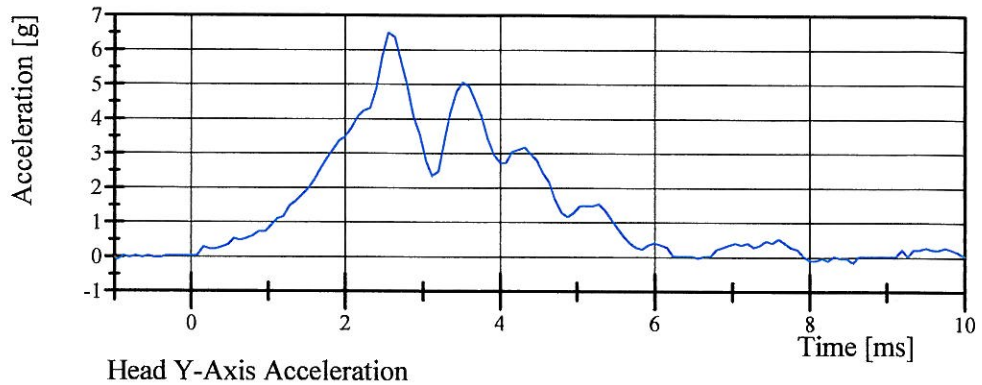
Specification Source: ISO 15830-2, dated 12/1/2005
with Polarity in accordance with J211

06.08.2011 07:27:45 607

Transportation Research Center Inc.

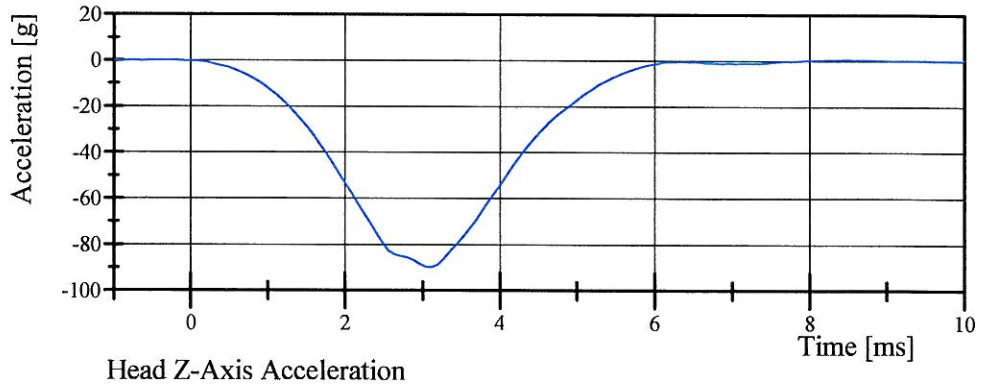
Right Lateral Head Drop
WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-1
Test Date: 6/8/2011

Head X-Axis Acceleration



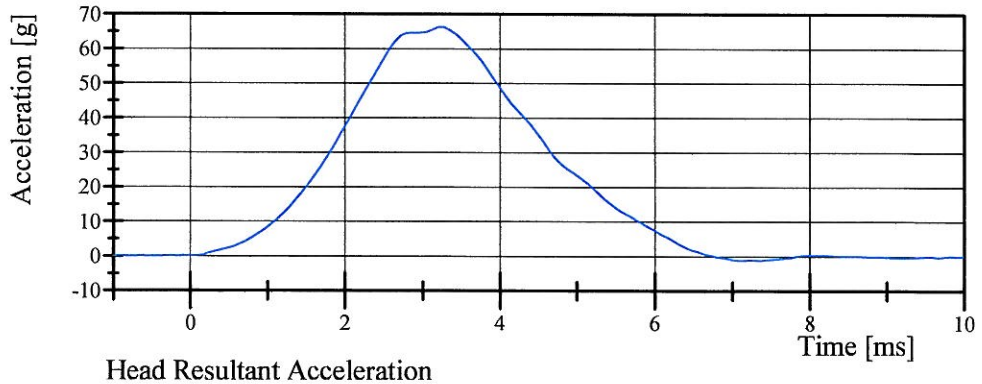
Filter Class: CFC_1000
Max: 6.5 gn at 2.6 ms
Min: -0.2 gn at 8.6 ms

Head Y-Axis Acceleration



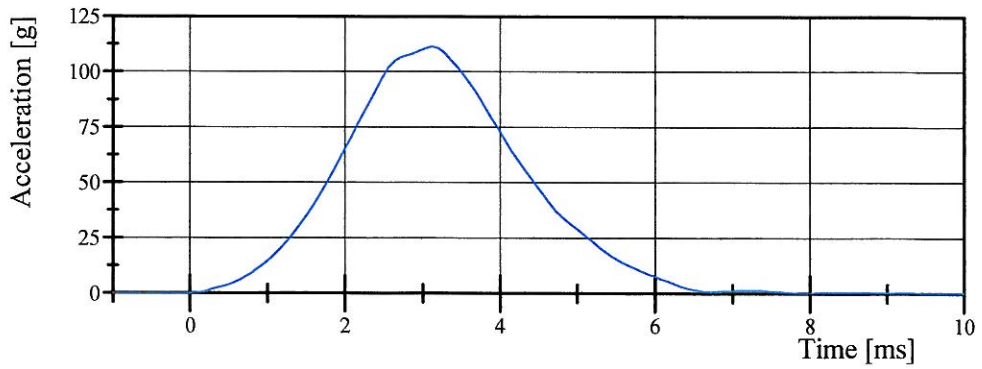
Filter Class: CFC_1000
Max: 0.7 gn at 8.5 ms
Min: -89.9 gn at 3.1 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 66.3 gn at 3.3 ms
Min: -1.1 gn at 7.1 ms

Head Resultant Acceleration



Filter Class: CFC_1000
Max: 111.3 gn at 3.1 ms
Min: 0.0 gn at -0.2 ms

Specification Source: ISO 15830-2, dated 12/1/2005
with Polarity in accordance with J211

06.08.2011 07:27:52 607

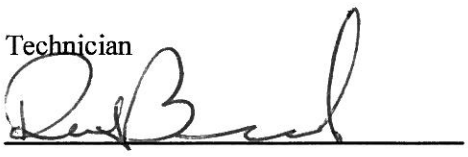
Transportation Research Center Inc.

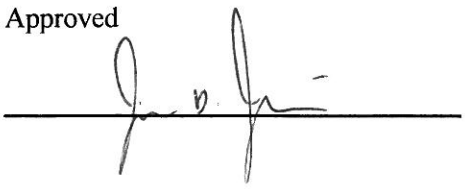
Left Lateral Neck
WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-3
Test Date: 6/8/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Pendulum Velocity	(-3.3) - (-3.5) m/s	-3.48 m/s	Yes
Pendulum Integrated Velocity Change at 4 ms	0.77 - 1.04 m/s	0.842 m/s	Yes
Change at 8 ms	1.6 - 2.16 m/s	1.933 m/s	Yes
Change at 12 ms	2.43 - 3.29 m/s	3.225 m/s	Yes
Maximum Headform Flexion	(-50) - (-61) deg	-55.9 deg	Yes
Headform Flexion Decay - from Peak to Zero Degrees	58 - 72 ms	59.5 ms	Yes
Total Neck Occipital Condyles Moment	55 - 68 N·m	64.4 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	71 - 87 ms	79.0 ms	Yes
Maximum Forward Pot Rotation			
Peak	(-32) - (-39) °	-36.1 °	Yes
Time of Peak	56 - 68 ms	59.9 ms	Yes
Maximum Rear Pot Rotation			
Peak	(-30) - (-37) °	-32.6 °	Yes
Time of Peak	56 - 68 ms	57.7 ms	Yes

Test meets specifications.

Comments:

Technician 

Approved 

Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.08.2011 14:10:53 1307

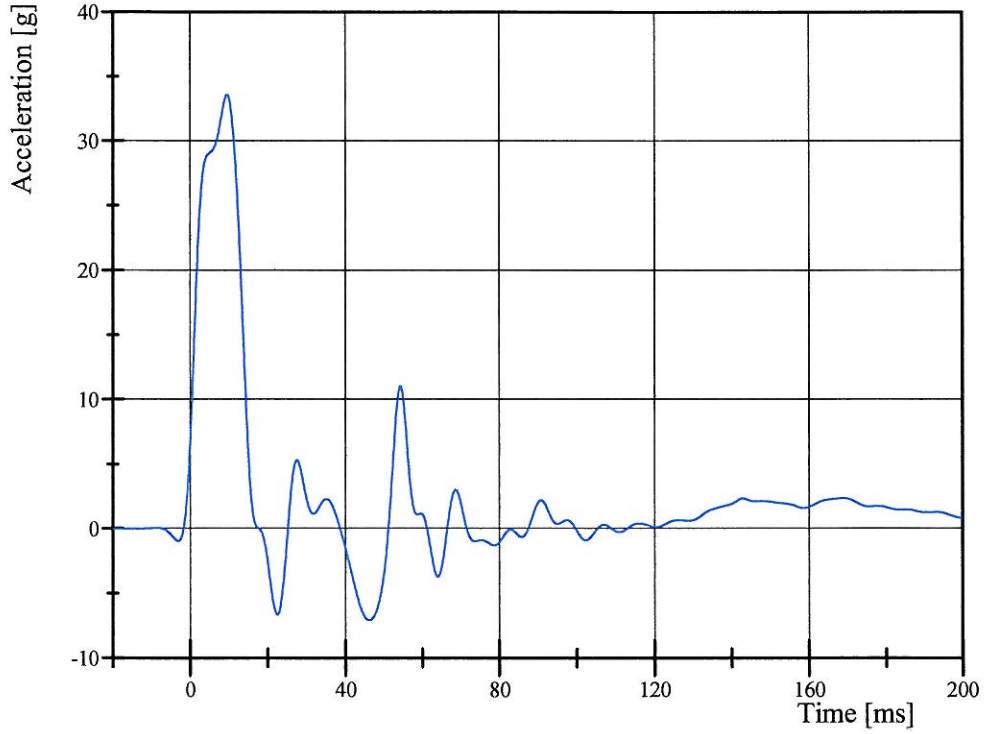
Transportation Research Center Inc.

Left Lateral Neck

WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-3

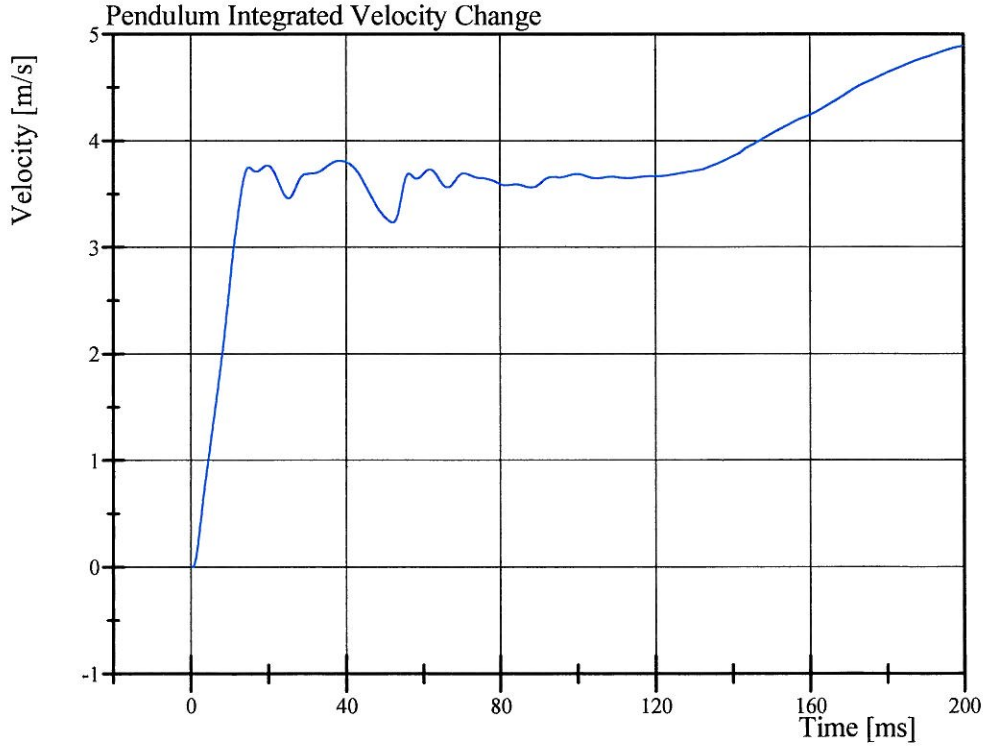
Test Date: 6/8/2011

Pendulum Acceleration



Filter Class: CFC_60
Max: 33.6 gn at 9.8 ms
Min: -7.1 gn at 46.2 ms

Pendulum Integrated Velocity Change



Filter Class: CFC_180
Max: 4.9 m/s at 200.0 ms
Min: -0.0 m/s at 0.2 ms

Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.08.2011 14:11:02 1307

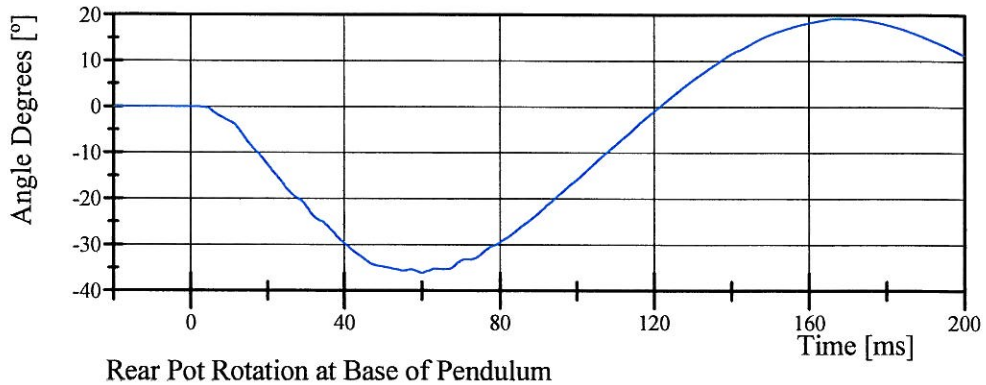
Transportation Research Center Inc.

Left Lateral Neck

WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-3

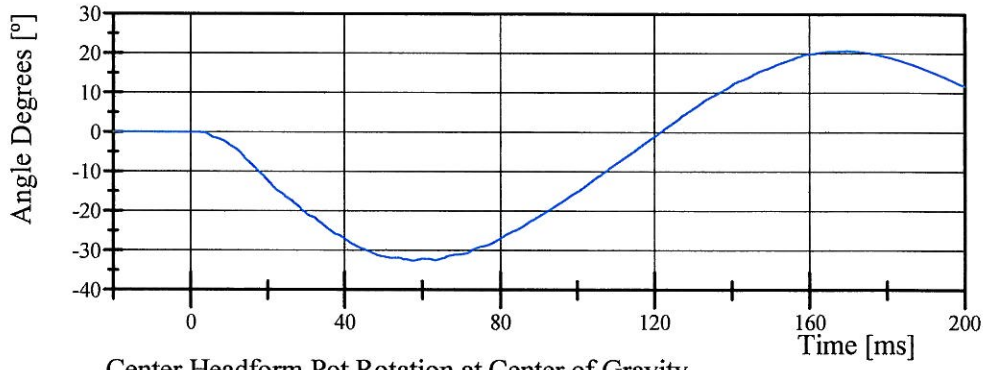
Test Date: 6/8/2011

Forward Pot Rotation at Base of Pendulum



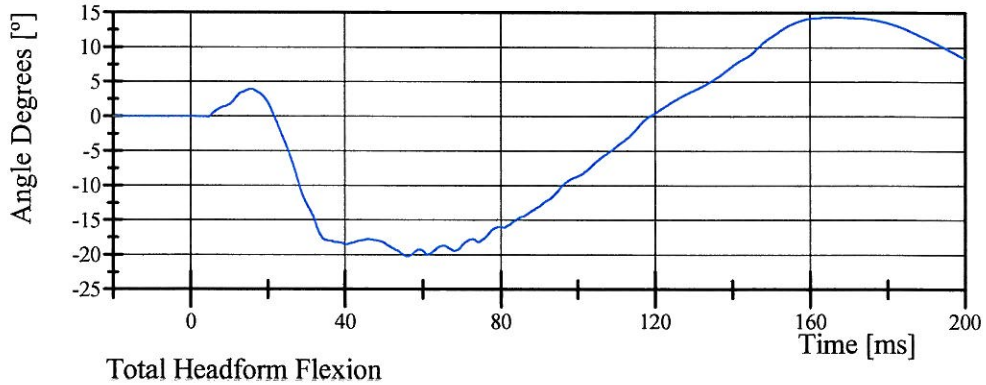
Filter Class: CFC_1000
Max: 19.3 ° at 167.2 ms
Min: -36.1 ° at 59.9 ms

Rear Pot Rotation at Base of Pendulum



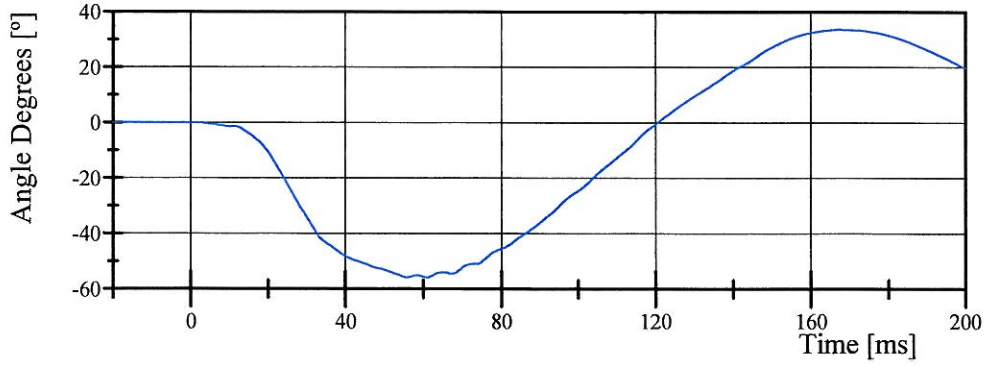
Filter Class: CFC_1000
Max: 20.7 ° at 170.2 ms
Min: -32.6 ° at 57.7 ms

Center Headform Pot Rotation at Center of Gravity



Filter Class: CFC_1000
Max: 14.4 ° at 166.5 ms
Min: -20.2 ° at 55.8 ms

Total Headform Flexion



Filter Class: CFC_1000
Max: 33.7 ° at 167.4 ms
Min: -55.9 ° at 61.0 ms

Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.08.2011 14:11:03 1307

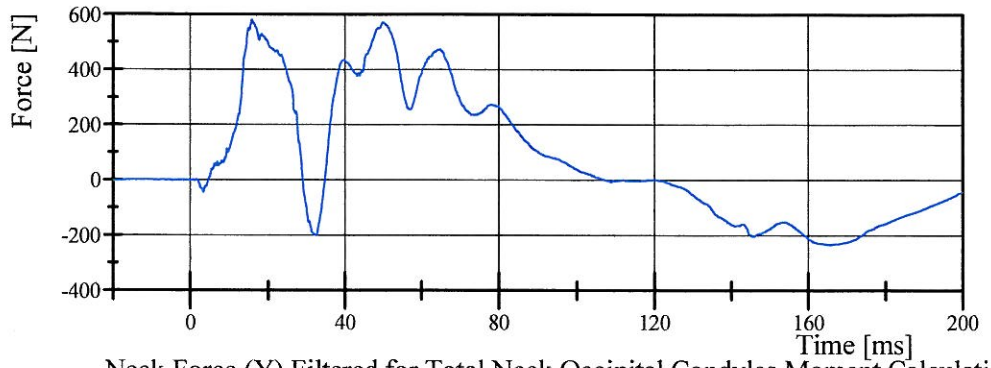
Transportation Research Center Inc.

Left Lateral Neck

WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-3

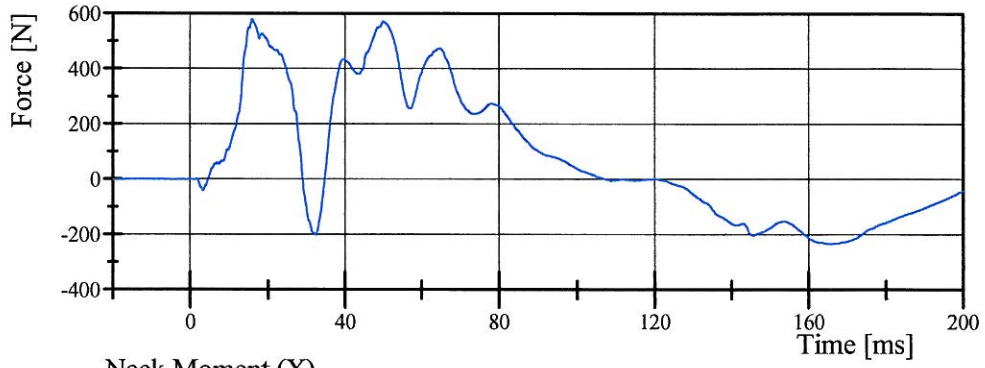
Test Date: 6/8/2011

Neck Force (Y)



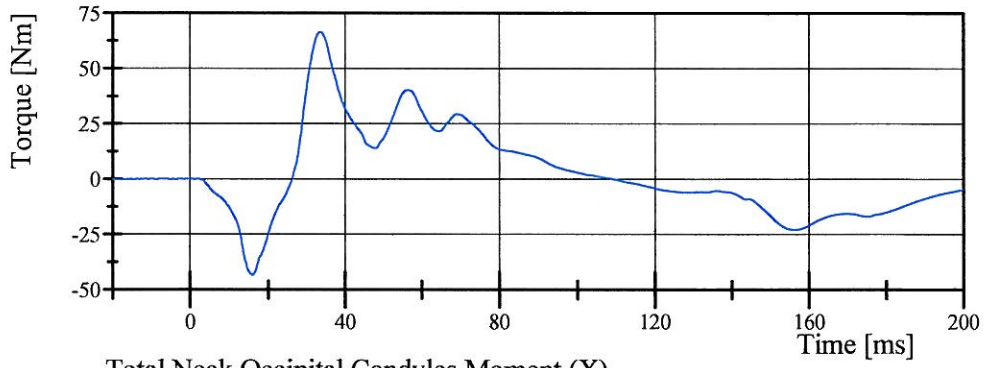
Filter Class: CFC_1000
Max: 581.3 N at 15.8 ms
Min: -234.0 N at 165.8 ms

Neck Force (Y) Filtered for Total Neck Occipital Condyles Moment Calculation



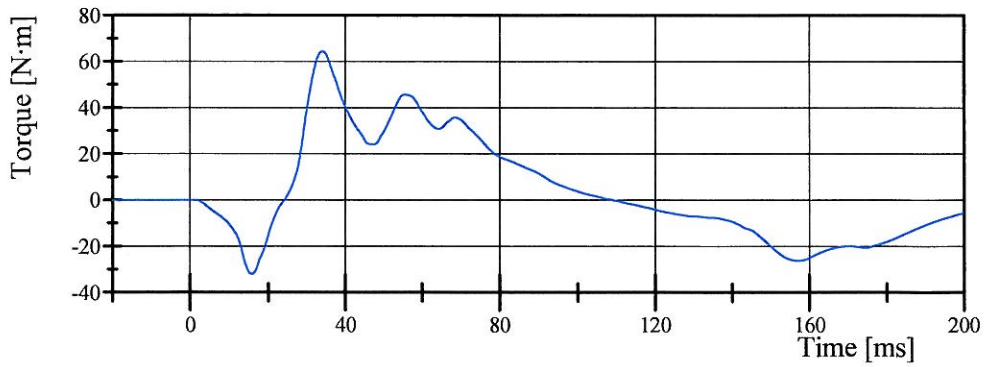
Filter Class: CFC_600
Max: 579.2 N at 15.9 ms
Min: -233.0 N at 165.7 ms

Neck Moment (X)



Filter Class: CFC_600
Max: 66.5 Nm at 33.5 ms
Min: -43.4 Nm at 15.9 ms

Total Neck Occipital Condyles Moment (X)



Filter Class: Without_(Consta
Max: 64.4 N·m at 34.1 ms
Min: -32.1 N·m at 15.9 ms

Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.08.2011 14:11:04 1307

Transportation Research Center Inc.

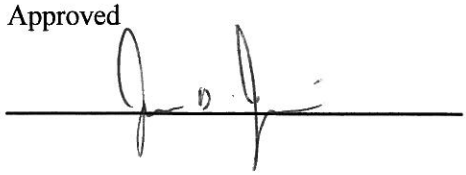
Left Lateral Shoulder
WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-3
Test Date: 6/28/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	51 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.35 m/s	Yes
Impactor Force	(-2,600) - (-3,300) N	-2,876.6 N	Yes
Shoulder Displacement	35 - 44 mm	41.5 mm	Yes

Test meets specifications.

Comments:

Technician 

Approved 

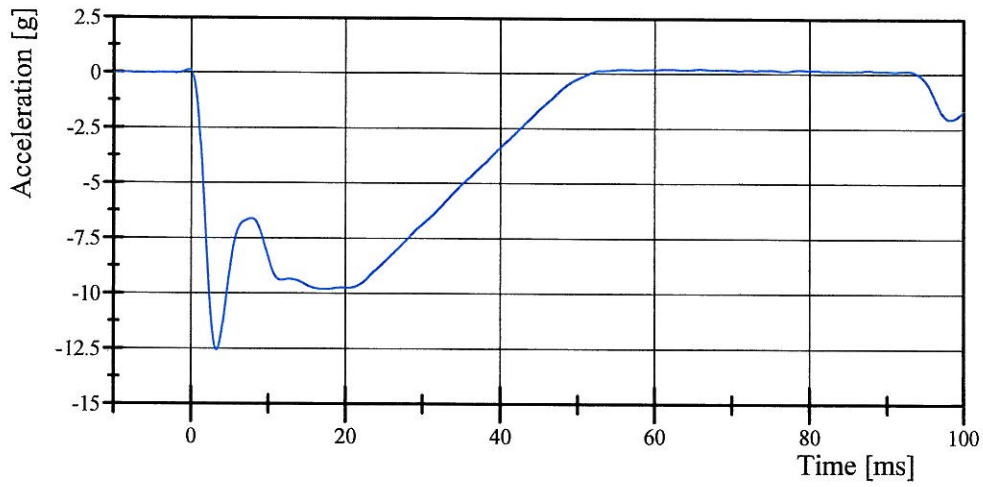
Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.28.2011 11:38:32 3996

Transportation Research Center Inc.

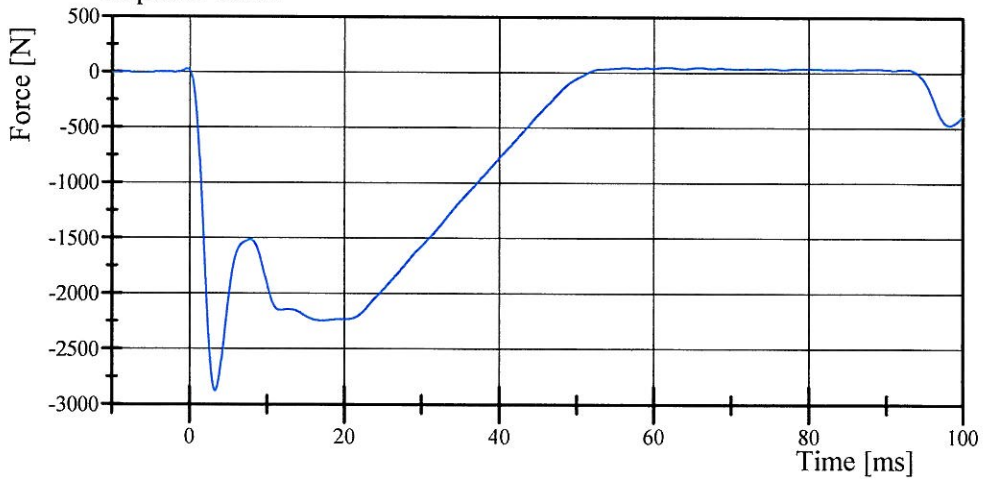
Left Lateral Shoulder
WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-3
Test Date: 6/28/2011

Impactor Acceleration



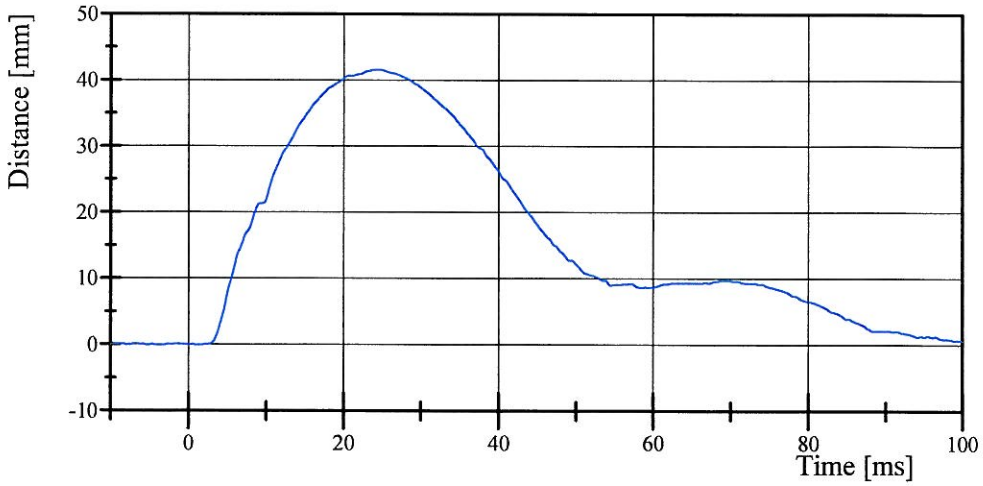
Filter Class: CFC_180
Max: 0.2 gn at 65.9 ms
Min: -12.6 gn at 3.3 ms

Impactor Force



Filter Class: CFC_180
Max: 49.7 N at 65.9 ms
Min: -2,876.6 N at 3.3 ms

Shoulder Displacement



Filter Class: CFC_600
Max: 41.5 mm at 24.6 ms
Min: -0.1 mm at -3.8 ms

Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.28.2011 11:38:39 3996

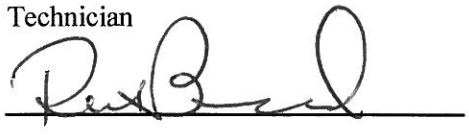
Transportation Research Center Inc.

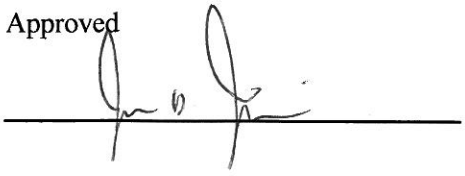
Left Lateral Thorax with Arm
WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-4
Test Date: 6/28/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
Impactor Velocity	6.6 - 6.8 m/s	6.79 m/s	Yes
Impactor Force	(-4,700) - (-6,400) N	-5,473.2 N	Yes
Upper Thorax Rib Displacement	35 - 47 mm	40.3 mm	Yes
Center Thorax Rib Displacement	42 - 57 mm	47.2 mm	Yes
Lower Thorax Rib Displacement	40 - 54 mm	39.2 mm	No
Upper Spine Lateral Acceleration	24 - 33 g	30.1 g	Yes
Lower Spine Lateral Acceleration	20 - 28 g	21.6 g	Yes

Test does not meet specifications.

Comments:Ok per A.Louden

Technician 

Approved 

Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

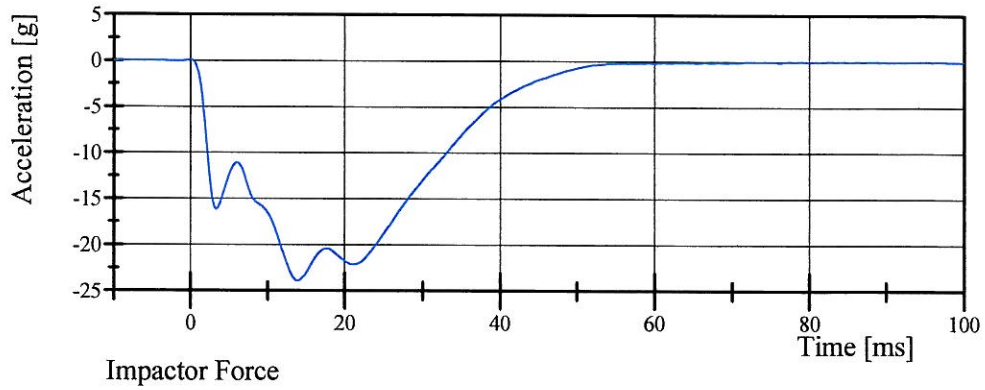
06.28.2011 11:20:05 3997

TRC

Transportation Research Center Inc.

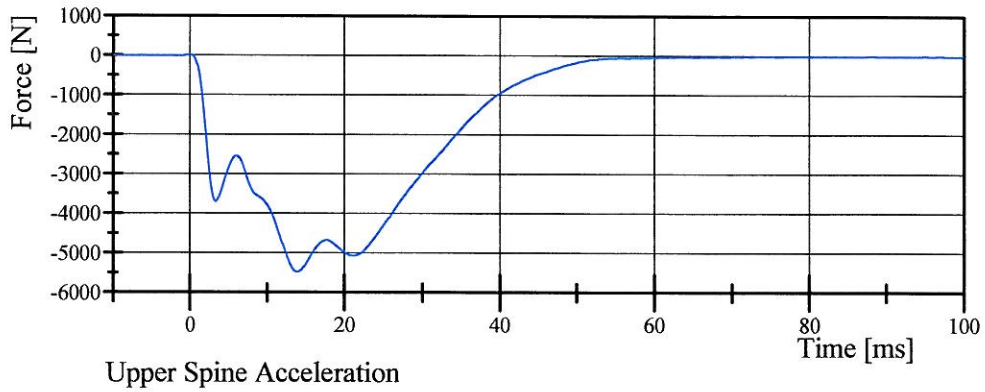
Left Lateral Thorax with Arm
WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-4
Test Date: 6/28/2011

Impactor Acceleration



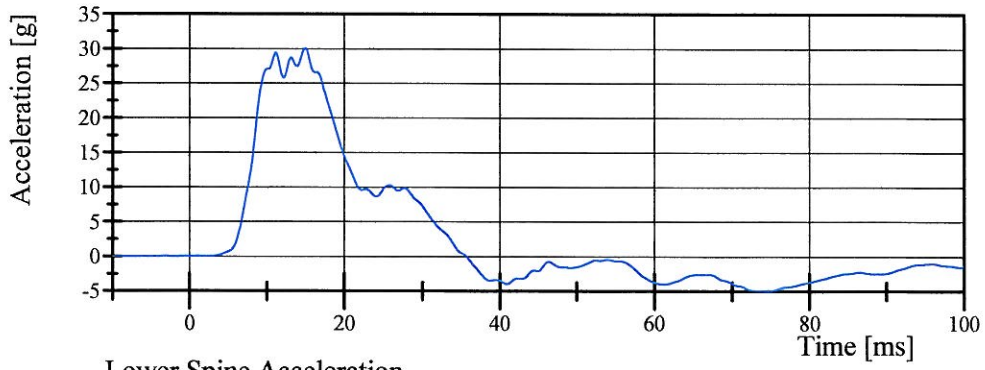
Filter Class: CFC_180
Max: 0.1 gn at -0.0 ms
Min: -23.9 gn at 13.9 ms

Impactor Force



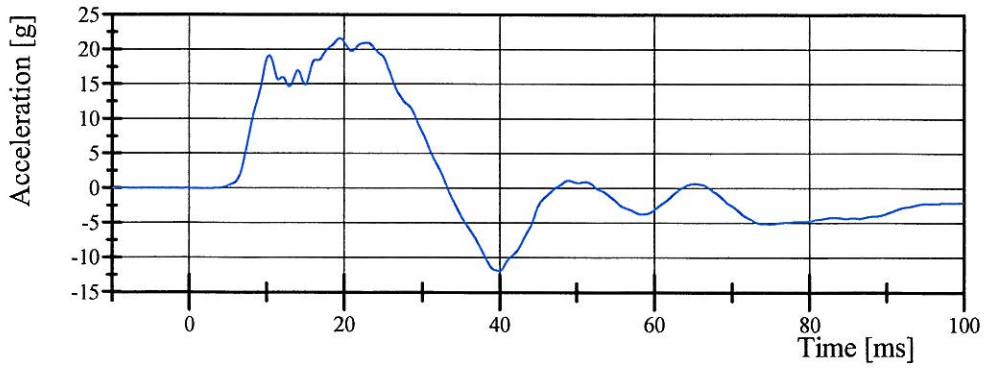
Filter Class: CFC_180
Max: 20.8 N at -0.0 ms
Min: -5,473.2 N at 13.9 ms

Upper Spine Acceleration



Filter Class: CFC_180
Max: 30.1 gn at 15.0 ms
Min: -5.0 gn at 74.5 ms

Lower Spine Acceleration



Filter Class: CFC_180
Max: 21.6 gn at 19.5 ms
Min: -11.9 gn at 40.0 ms

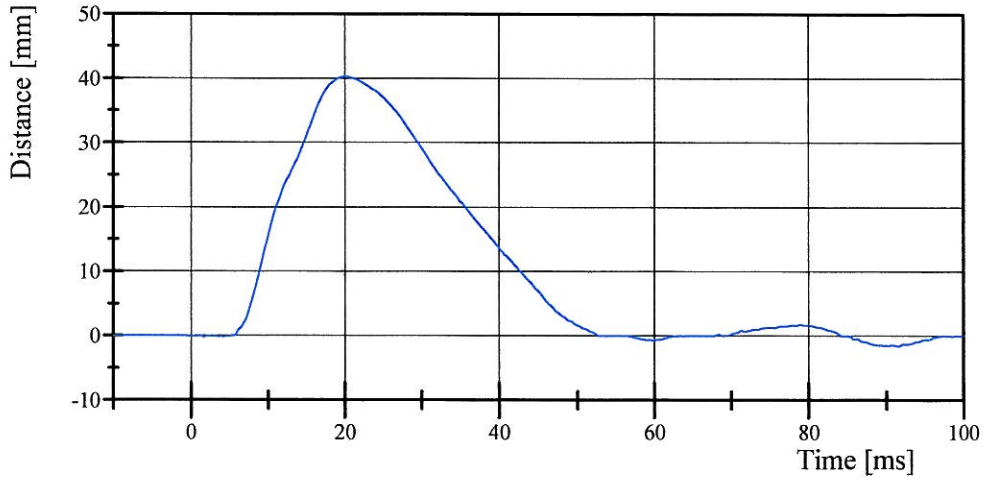
Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.28.2011 11:20:49 3997

Transportation Research Center Inc.

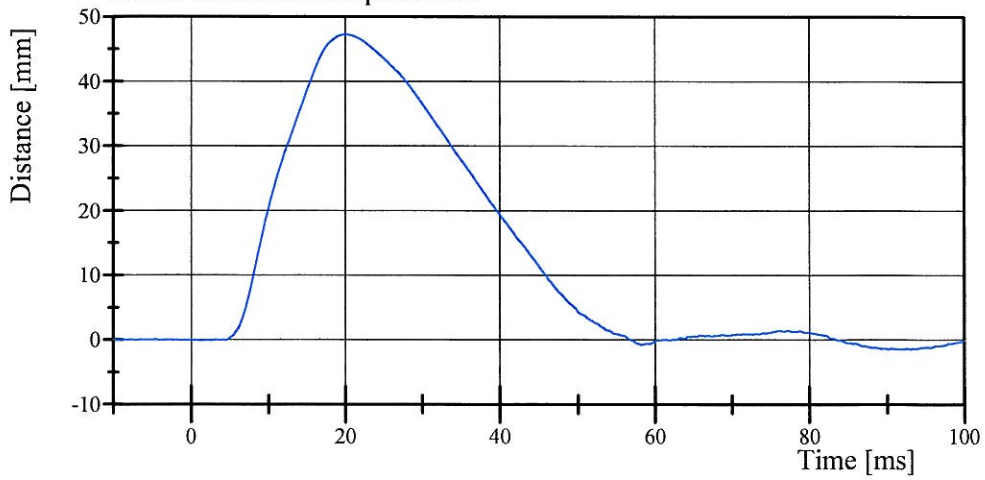
Left Lateral Thorax with Arm
WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-4
Test Date: 6/28/2011

Upper Thorax Rib Displacement



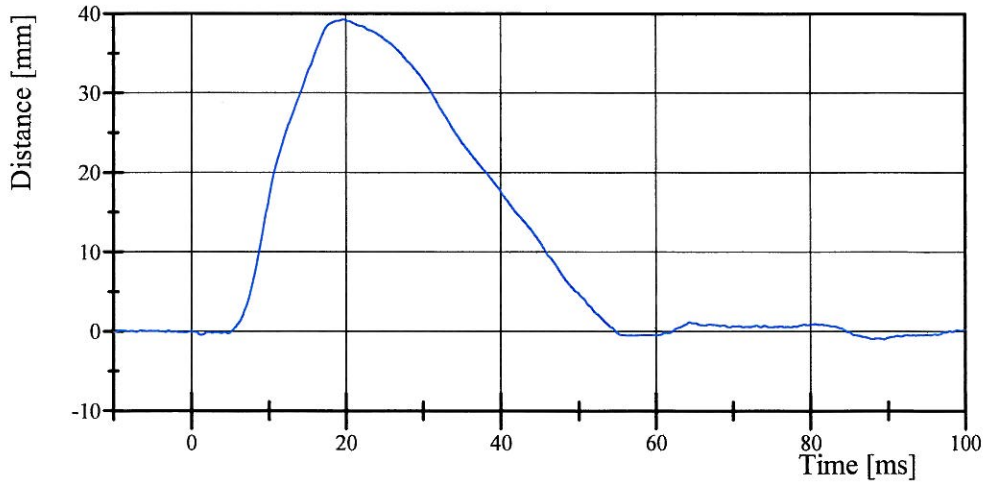
Filter Class: CFC_600
Max: 40.3 mm at 20.2 ms
Min: -1.6 mm at 91.6 ms

Center Thorax Rib Displacement



Filter Class: CFC_600
Max: 47.2 mm at 20.0 ms
Min: -1.5 mm at 91.9 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600
Max: 39.2 mm at 19.7 ms
Min: -1.0 mm at 89.4 ms

Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.28.2011 11:20:49 3997

Transportation Research Center Inc.

Left Lateral Thorax without Arm
WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-2
Test Date: 6/28/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	51 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.368 m/s	Yes
Impactor Force	(-3,200) - (-3,900) N	-3,492.5 N	Yes
Upper Thorax Rib Displacement	34 - 43 mm	41.0 mm	Yes
Center Thorax Rib Displacement	34 - 43 mm	41.6 mm	Yes
Lower Thorax Rib Displacement	34 - 43 mm	37.4 mm	Yes
Upper Spine Lateral Acceleration	12 - 17 g	14.5 g	Yes
Lower Spine Lateral Acceleration	15 - 21 g	13.4 g	No

Test does not meet specifications.

Comments: Ok per A.Louden

Technician

Approved

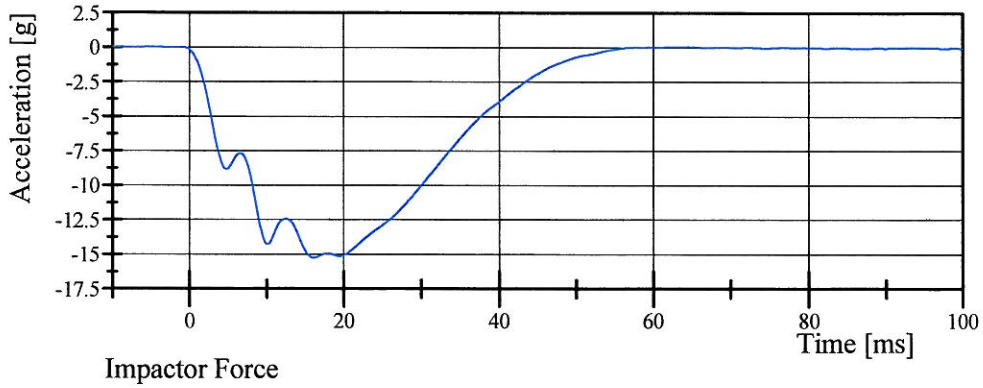
Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.28.2011 11:14:51 4010

Transportation Research Center Inc.

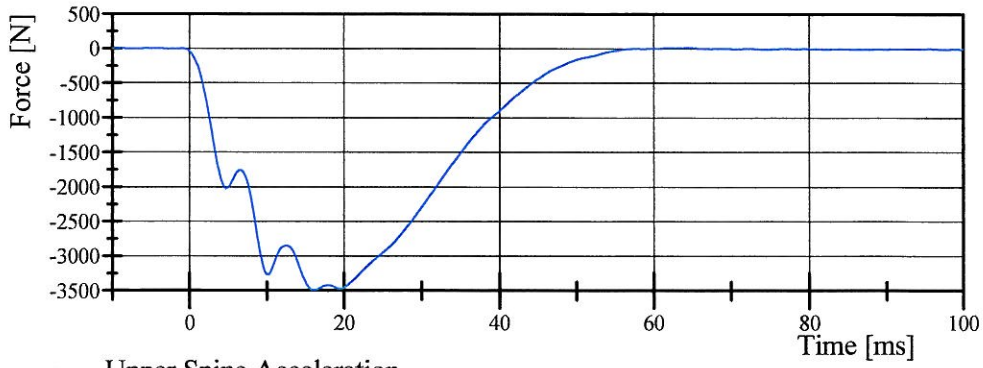
Left Lateral Thorax without Arm
WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-2
Test Date: 6/28/2011

Impactor Acceleration



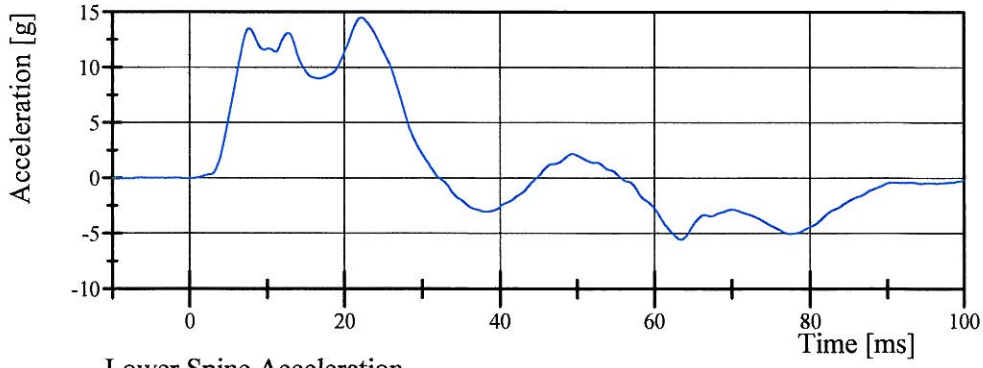
Filter Class: CFC_180
Max: 0.1 gn at 64.6 ms
Min: -15.2 gn at 16.1 ms

Impactor Force



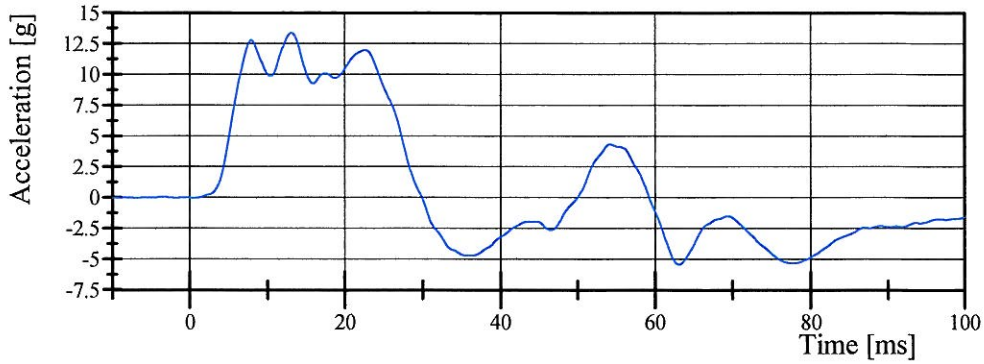
Filter Class: CFC_180
Max: 16.4 N at 64.6 ms
Min: -3,492.5 N at 16.1 ms

Upper Spine Acceleration



Filter Class: CFC_180
Max: 14.5 gn at 22.2 ms
Min: -5.5 gn at 63.5 ms

Lower Spine Acceleration



Filter Class: CFC_180
Max: 13.4 gn at 13.1 ms
Min: -5.4 gn at 63.2 ms

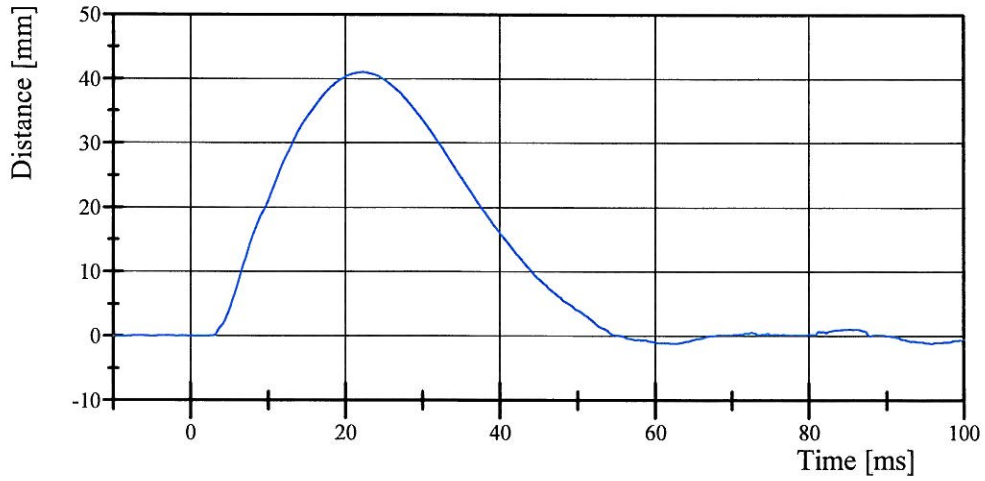
Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.28.2011 11:15:40 4010

Transportation Research Center Inc.

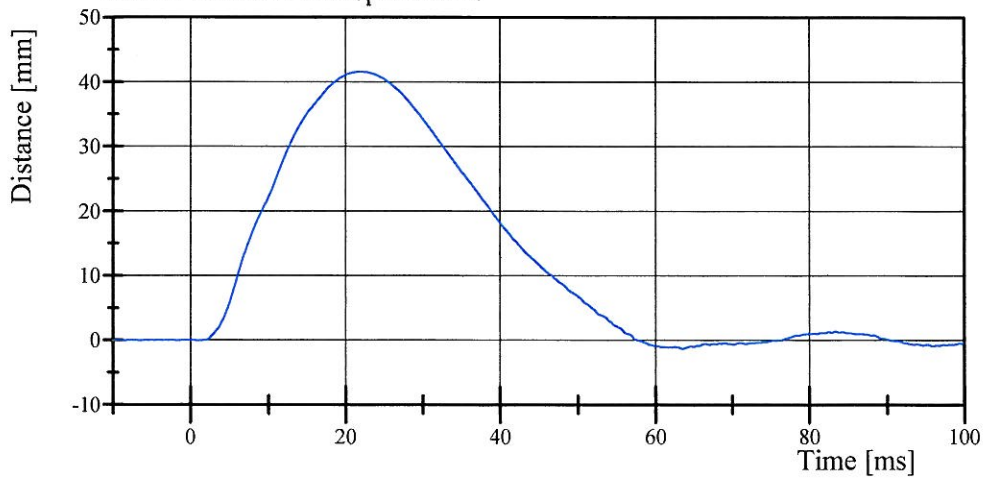
Left Lateral Thorax without Arm
WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-2
Test Date: 6/28/2011

Upper Thorax Rib Displacement



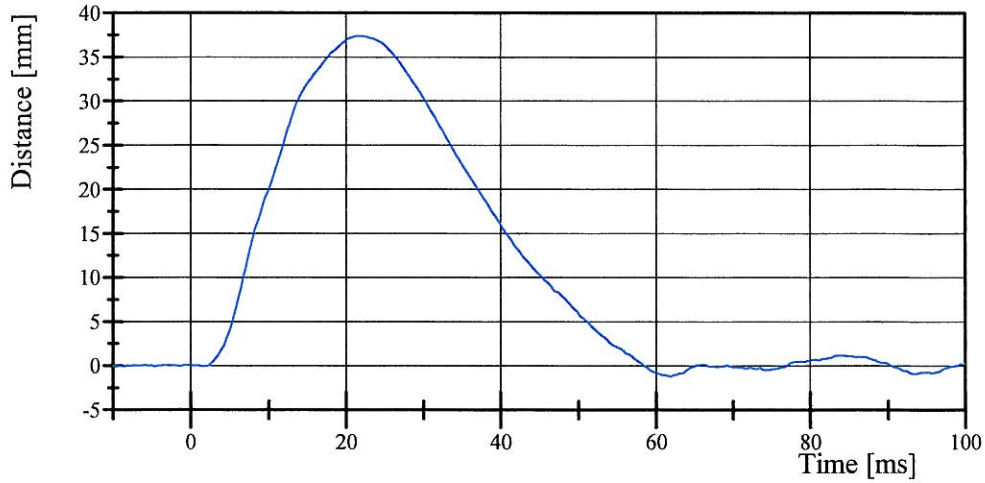
Filter Class: CFC_600
Max: 41.0 mm at 22.3 ms
Min: -1.2 mm at 62.5 ms

Center Thorax Rib Displacement



Filter Class: CFC_600
Max: 41.6 mm at 21.9 ms
Min: -1.3 mm at 63.5 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600
Max: 37.4 mm at 21.6 ms
Min: -1.2 mm at 61.8 ms

Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.28.2011 11:15:41 4010

Transportation Research Center Inc.

Left Lateral Abdomen
WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-4
Test Date: 6/28/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.39 m/s	Yes
Impactor Force	(-2,600) - (-3,300) N	-2,911.9 N	Yes
Upper Abdominal Rib Displacement	33 - 41 mm	37.1 mm	Yes
Lower Abdominal Rib Displacement	31 - 39 mm	35.0 mm	Yes
Lower Spine Lateral Acceleration	15 - 20 g	15.8 g	Yes

Test meets specifications.

Comments:

Technician

Approved

Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.28.2011 12:55:55 3996

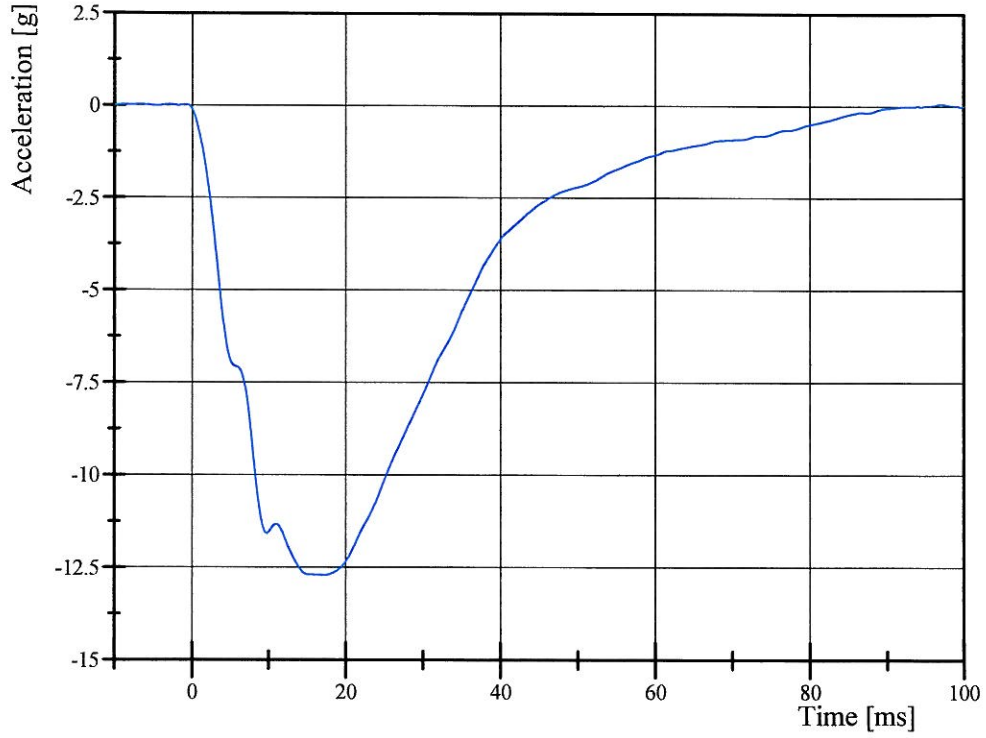
Transportation Research Center Inc.

Left Lateral Abdomen

WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-4

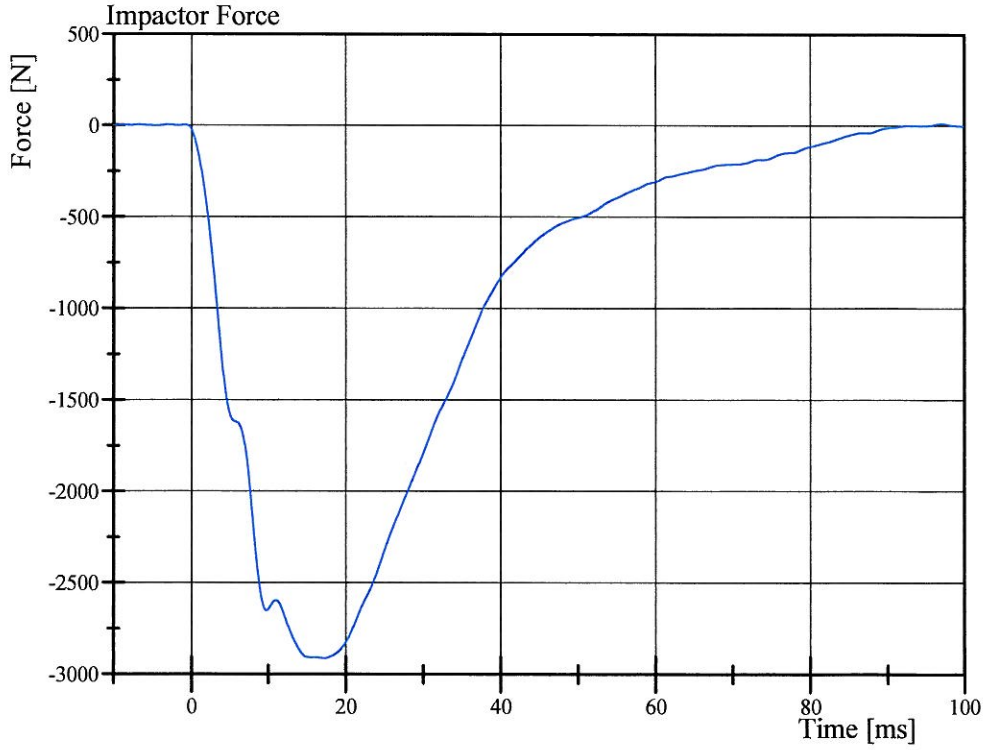
Test Date: 6/28/2011

Impactor Acceleration



Filter Class: CFC_180
Max: 0.1 gn at 97.1 ms
Min: -12.7 gn at 17.3 ms

Impactor Force



Filter Class: CFC_180
Max: 13.5 N at 97.1 ms
Min: -2,911.9 N at 17.3 ms

Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.28.2011 12:56:03 3996

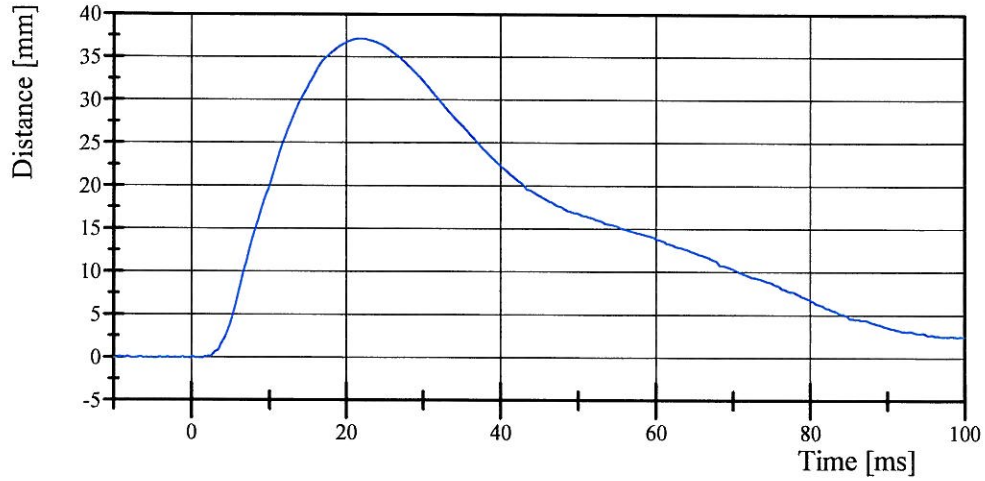
Transportation Research Center Inc.

Left Lateral Abdomen

WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-4

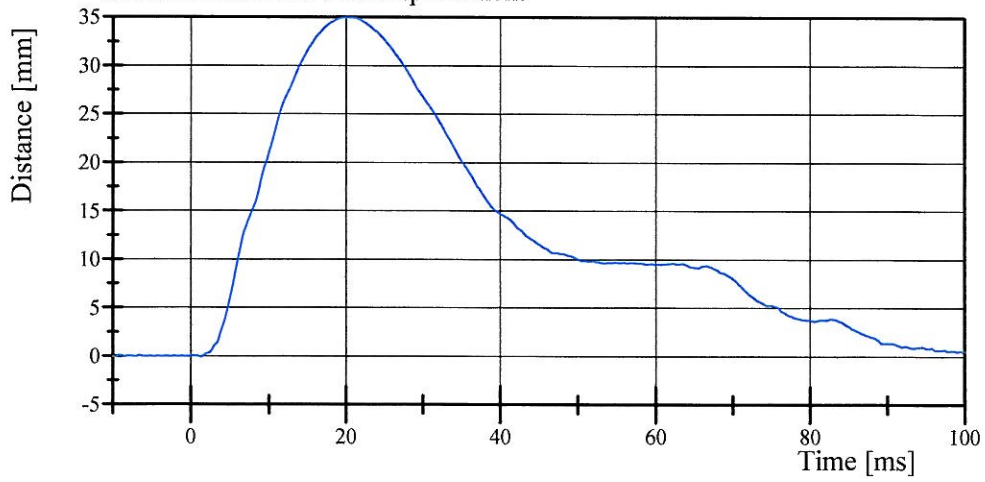
Test Date: 6/28/2011

Upper Abdominal Rib Displacement



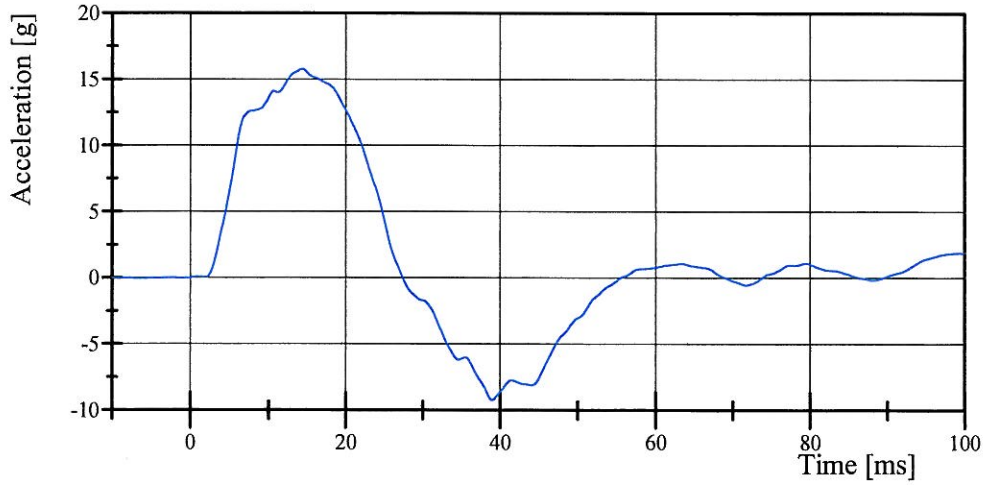
Filter Class: CFC_600
Max: 37.1 mm at 21.9 ms
Min: -0.1 mm at -5.5 ms

Lower Abdominal Rib Displacement



Filter Class: CFC_600
Max: 35.0 mm at 20.2 ms
Min: -0.1 mm at 1.3 ms

Lower Spine Acceleration (Y)



Filter Class: CFC_180
Max: 15.8 gn at 14.4 ms
Min: -9.2 gn at 39.0 ms

Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.28.2011 12:56:04 3996

Transportation Research Center Inc.

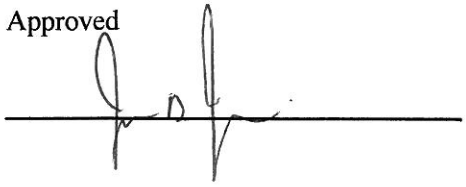
Left Lateral Pelvis
WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-1
Test Date: 6/28/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Impactor Velocity	6.6 - 6.8 m/s	6.78 m/s	Yes
Impactor Force	(-6,300) - (-7,800) N	-7,322.3 N	Yes
Pelvis Lateral Acceleration	41 - 51 g	44.4 g	Yes
Lower Spine Lateral Acceleration	10 - 14 g	11.3 g	Yes

Test meets specifications.

Comments:

Technician 

Approved 

Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.28.2011 12:35:55 3999

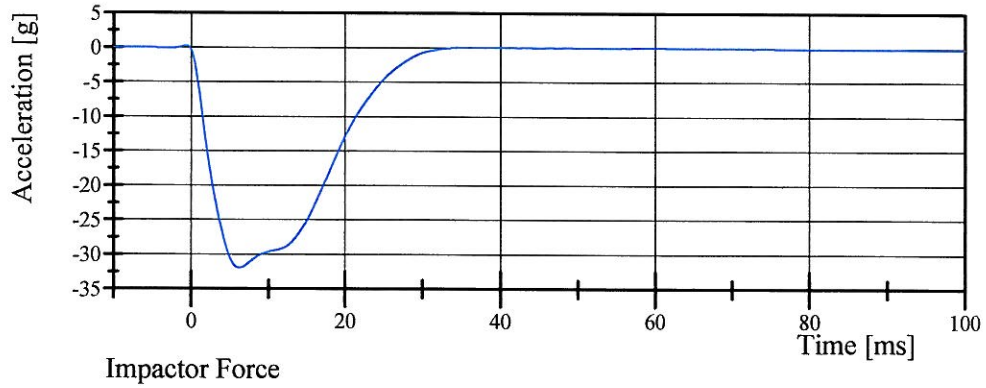
Transportation Research Center Inc.

Left Lateral Pelvis

WorldSID ISO 15830-2 Serial No. 014 Certification No. 7-1

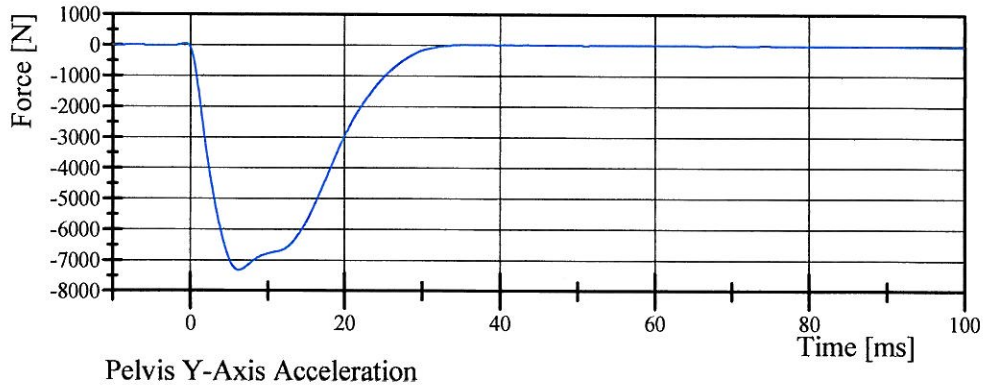
Test Date: 6/28/2011

Impactor Acceleration



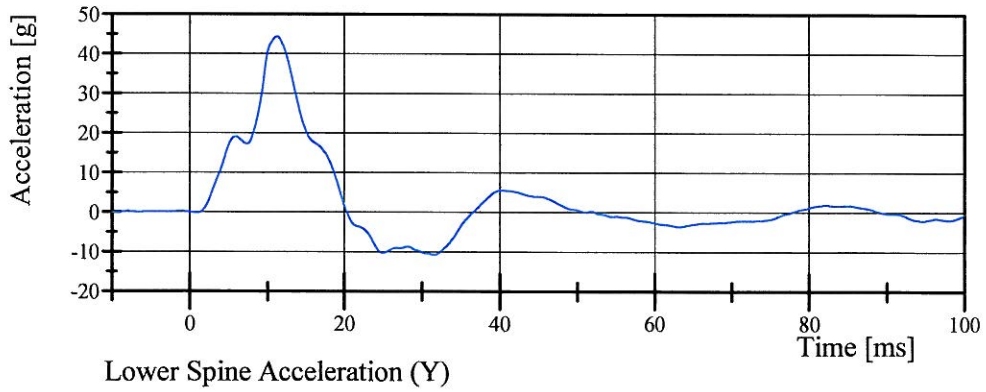
Filter Class: CFC_180
Max: 0.3 gn at -0.6 ms
Min: -32.0 gn at 6.2 ms

Impactor Force



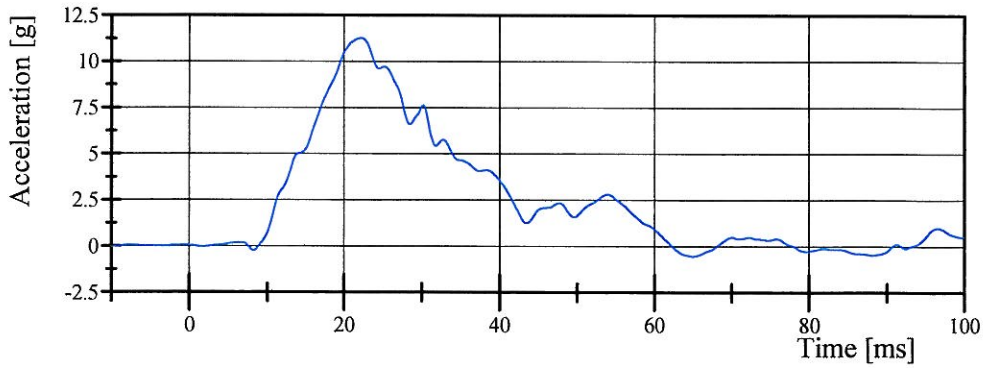
Filter Class: CFC_180
Max: 58.3 N at -0.6 ms
Min: -7,322.3 N at 6.2 ms

Pelvis Y-Axis Acceleration



Filter Class: CFC_180
Max: 44.4 gn at 11.3 ms
Min: -10.6 gn at 31.6 ms

Lower Spine Acceleration (Y)



Filter Class: CFC_180
Max: 11.3 gn at 22.2 ms
Min: -0.5 gn at 64.9 ms

Specification Source: ISO 15830-2 dated 12/1/2005
with polarity in accordance with SAE J211

06.28.2011 12:36:03 3999

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 110801

Ref	Transducer ID	Description	ISO Signal I.D.	Polarity	FScale	Units	Assembly
1	Trig D1	EVENT	10ZERO000000VO0A	Bipolar	1	Logic	
2	ChestBand	ChestBand	11CB33GI1??1????	Bipolar	100	mv	
3	ChestBand	ChestBand	11CB34al????1????	Bipolar	100	mv	
4	ChestBand	ChestBand	11CB35al????1????	Bipolar	100	mv	
5	ChestBand	ChestBand	11CB36al????1????	Bipolar	100	mv	
6	ChestBand	ChestBand	11CB37al???10???	Bipolar	100	mv	
7	ChestBand	ChestBand	11CB38al????1????	Bipolar	100	mv	
8	ChestBand	ChestBand	11CB39al????1????	Bipolar	100	mv	
9	ChestBand	ChestBand	11CB40al????1????	Bipolar	100	mv	
10	P49235	Linear Acceleration X	11IMUXG????1????	Bipolar	2000	g	
11	P51963	Linear Acceleration Y	11IMUYG????1????	Bipolar	2000	g	
12	P64161	Linear Acceleration Z	11IMUZG????1????	Bipolar	2000	g	
13	ARS-12K-ARS2630	Rotational Velocity X	11IMUXDEG??1????	Bipolar	12000	°/s	
14	ARS-12K-ARS0253	Rotational Velocity Y	11IMUYDEG??1????	Bipolar	12000	°/s	
15	ARS-12K-ARS2240	Rotational Velocity Z	11IMUZDEG??1????	Bipolar	12000	°/s	
16	P68556	Vehicle Center of Gravity X-Axis Acceleration	10VEHCCG0000ACXA	Bipolar	1000	g	
17	P68547	Vehicle Center of Gravity Y-Axis Acceleration	10VEHCCG0000ACYA	#NAME?	1000	g	
18	P68553	Vehicle Center of Gravity Z-Axis Acceleration	10VEHCCG0000ACZA	#NAME?	1000	g	
19	P64865	LEFT SIDE SILL Between A-Pillar & Impact Poi	11SILBRE0100ACYA	Bipolar	2000	g	
20	P63194	Left A Pillar Side Sill Y-Axis Acceleration (Locat	14SILBFR0000ACYA	Bipolar	1000	g	
21	P57139	Left Lower A-Pillar Y-Axis Acceleration 1/3 from	11APILLO0000ACYA	#NAME?	2000	g	
22	P57150	Left Mid A-Pillar Y-Axis Acceleration 2/3 from fl	11APILMI0000ACYA	#NAME?	2000	g	
23	P57155	Left Side Sill at Rear Seat Y-Axis Acceleration	14SILBRE0000ACYA	Bipolar	2000	g	
24	P62559	Left Lower B-Pillar Y-Axis Acceleration 1/3 fron	14BPILLO0000ACYA	#NAME?	2000	g	
25	P67027	Left Mid B-Pillar Y-Axis Acceleration 2/3 from fl	14BPILMI0000ACYA	#NAME?	2000	g	
26	P57127	Left Front Seat Track @ H-Point Y-Axis Acceler	11SETRFR0000ACYA	Bipolar	2000	g	
27	P66706	Top of Engine X-Axis Acceleration (Location 10	12ENGNTP0000ACXA	#NAME?	1000	g	
28	P61997	Top of Engine Y-Axis Acceleration (Location 10	12ENGNTP0000ACYA	#NAME?	1000	g	
29	P66891	Firewall Centerline Y-Axis Acceleration (Locatio	12VEHC000000ACYA	#NAME?	1000	g	
30	P62808	Right Side Roof Rail (in line with impact point) Y	13ROOF000000ACYA	Bipolar	1000	g	
31	P66701	Right Side Floor Sill (in-line with impact location	13SILBFR0000ACYA	#NAME?	1000	g	
32	P68762	Rear Deck Centerline Behind Rear Axle X-Axis	18DECK000000ACXA	Bipolar	1000	g	
33	P68761	Rear Deck Centerline Behind Rear Axle Y-Axis	18DECK000000ACYA	Bipolar	1000	g	
34	ARS-1500-ARS1091	VEHICLE CENTER OF GRAVITY (X) ROLL RA	10VEHCCG0000AVXA	Bipolar	1500	°/s	
35	ARS-1500-ARS0665	VEHICLE CENTER OF GRAVITY (Y) PITCH R	10VEHCCG0000AVYA	Bipolar	1500	°/s	
36	ARS-1500-ARS2609	VEHICLE CENTER OF GRAVITY (Z) YAW RA	10VEHCCG0000AVZA	Bipolar	1500	°/s	
37	P57152	Left Front Door on Center Line Y-Axis Accelera	11DOORFR0000ACYA	Bipolar	2000	g	
38	P57167	Midrear of Left Front Door Y-Axis Acceleration	11DOORMIRE00ACYA	Bipolar	2000	g	

Channel Report Test Number 110801

Ref	Transducer ID	Description	ISO Signal I.D.	Polarity	FScale	Units	Assembly
39	P57180	Left Front Door Upper Centerline Y-Axis Accele	11DOORLEFRUPACYA	Bipolar	2000	g	
40	P66894	Midrear of Left Rear Door Y-Axis Acceleration	14DOORMIRE00ACYA	Bipolar	2000	g	
41	P61726	Left Rear Door Upper Centerline Y-Axis Accele	14DOORLEREUPACYA	Bipolar	2000	g	
42	ABFire1	Driver Side Curtain Fire Inductor	11AIRBTPLE00EV0A	Bipolar	5	V	
43	ABFire2	LH Torso Airbag Fire Inductor	11AIR02N0000EVOA	Bipolar	5	V	
44	Bit.00	Head Contact Switch	11CONT000001VO00	Bipolar	1	Logic	
45	Bit.01	Shoulder Contact Switch	11CONT000002VO00	Bipolar	1	Logic	
46	Bit.02	Torso Contact Switch	11CONT000003VO00	Bipolar	1	Logic	
47	Bit.03	Leg Contact Switch	11CONT000004VO00	Bipolar	1	Logic	
48	5763-86-FX	POLE LOAD CELL 1	K0FBAR010000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.001
49	5763-91-FX	POLE LOAD CELL 2	K0FBAR020000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.002
50	5763-89-FX	POLE LOAD CELL 3	K0FBAR030000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.003
51	5763-77-FX	POLE LOAD CELL 4	K0FBAR040000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.004
52	5763-90-FX	POLE LOAD CELL 5	K0FBAR050000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.005
53	5763-88-FX	POLE LOAD CELL 6	K0FBAR060000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.006
54	5763-92-FX	POLE LOAD CELL 7	K0FBAR070000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.007
55	5763-78-FX	POLE LOAD CELL 8	K0FBAR080000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.008

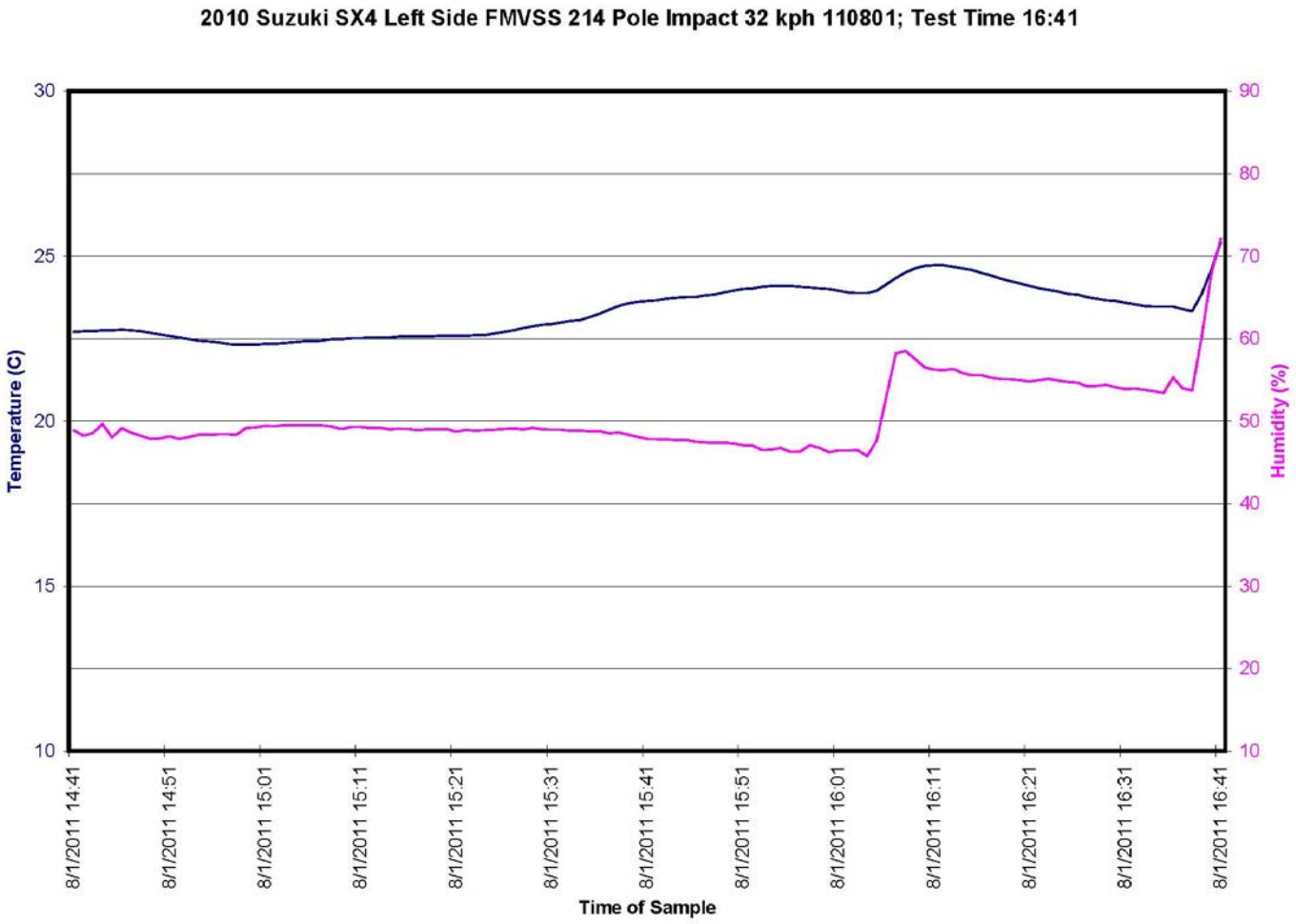
Command File Test Number 110801

Channel	ISO mnemonic	Channel Title	Filter	Flip	Zero	Full Scale	V5 Index
1	11HEADCG00WSACXP	Head X-Axis Acceleration	1000	+	yes	400	1
2	11HEADCG00WSACYP	Head Y-Axis Acceleration	1000	+	yes	400	2
3	11HEADCG00WSACZP	Head Z-Axis Acceleration	1000	+	yes	400	3
3A	11HEADCG00WSACRA	Head Resultant Acceleration	1000				
4	11HEADCG00WSAAXP	Head X-Axis Angular Displacement	1000	+	yes	50000	4
5	11HEADCG00WSAAYP	Head Y-Axis Angular Displacement	1000	+	yes	50000	5
6	11HEADCG00WSAAZP	Head Z-Axis Angular Displacement	1000	+	yes	50000	6
7	11NECKUP00WSFOXP	Upper Neck X-Axis Force	1000	+	yes	10000	7
8	11NECKUP00WSFOYP	Upper Neck Y-Axis Force	1000	+	yes	10000	8
9	11NECKUP00WSFOZP	Upper Neck Z-Axis Force	1000	+	yes	12000	9
10	11NECKUP00WSMOXP	Upper Neck Moment About X Axis	600	+	yes	300	10
11	11NECKUP00WSMOYP	Upper Neck Moment About Y Axis	600	+	yes	300	11
12	11NECKUP00WSMOZP	Upper Neck Moment About Z Axis	600	+	yes	200	12
13	11NECKLO00WSFOXP	Lower Neck X-Axis Force	1000	+	yes	10000	13
14	11NECKLO00WSFOYP	Lower Neck Y-Axis Force	1000	+	yes	10000	14
15	11NECKLO00WSFOZP	Lower Neck Z-Axis Force	1000	+	yes	12000	15
16	11NECKLO00WSMOXP	Lower Neck Moment About X Axis	600	+	yes	300	16
17	11NECKLO00WSMOYP	Lower Neck Moment About Y Axis	600	+	yes	300	17
18	11NECKLO00WSMOZP	Lower Neck Moment About Z Axis	600	+	yes	200	18
19	11SHLDLE00WSFOXP	Shoulder X-Axis Force	600	+	yes	5000	19
20	11SHLDLE00WSFOYP	Shoulder Y-Axis Force	600	+	yes	10000	20
21	11SHLDLE00WSFOZP	Shoulder Z-Axis Force	600	+	yes	5000	21
22	11SHLDLE00WSDSYP	Shoulder Y-Axis Displacement	600	+	yes	90	22
23	11SHLDLE00WSACXP	Shoulder X-Axis Acceleration	1000	+	yes	400	23
24	11SHLDLE00WSACYP	Shoulder Y-Axis Acceleration	1000	+	yes	400	24
25	11SHLDLE00WSACZP	Shoulder Z-Axis Acceleration	1000	+	yes	400	25
25A	11SHLDLE00WSACRA	Shoulder Resultant Acceleration	1000				
26	11THSP0100WSACXP	T1 X-Axis Acceleration	180	+	yes	400	26
27	11THSP0100WSACYP	T1 Y-Axis Acceleration	180	+	yes	400	27
28	11THSP0100WSACZP	T1 Z-Axis Acceleration	180	+	yes	400	28
28A	11THSP0100WSACRA	T1 Resultant Acceleration	180				
29	11THSP0400WSACXP	T4 X-Axis Acceleration	180	+	yes	400	29
30	11THSP0400WSACYP	T4 Y-Axis Acceleration	180	+	yes	400	30
31	11THSP0400WSACZP	T4 Z-Axis Acceleration	180	+	yes	400	31
31A	11THSP0400WSACRA	T4 Resultant Acceleration	180				
32	11THSP1200WSACXP	T12 X-Axis Acceleration	180	+	yes	400	32
33	11THSP1200WSACYP	T12 Y-Axis Acceleration	180	+	yes	400	33
34	11THSP1200WSACZP	T12 Z-Axis Acceleration	180	+	yes	400	34
34A	11THSP1200WSACRA	T12 Resultant Acceleration	180				
35	11TRRILE01WSDSYP	Thorax Rib 1 Y-Axis Displacement	600	+	yes	90	35

Channel	ISO mnemonic	Channel Title	Filter	Flip	Zero	Full Scale	V5 Index
36	11TRRILE01WSACXP	Thorax Rib 1 X-Axis Acceleration	1000	+	yes	400	36
37	11TRRILE01WSACYP	Thorax Rib 1 Y-Axis Acceleration	1000	+	yes	400	37
38	11TRRILE01WSACZP	Thorax Rib 1 Z-Axis Acceleration	1000	+	yes	400	38
38A	11TRRILE01WSACRA	Thorax Rib 1 Resultant Acceleration	1000				
39	11TRRILE02WSDSYP	Thorax Rib 2 Y-Axis Displacement	600	+	yes	90	39
40	11TRRILE02WSACXP	Thorax Rib 2 X-Axis Acceleration	1000	+	yes	400	40
41	11TRRILE02WSACYP	Thorax Rib 2 Y-Axis Acceleration	1000	+	yes	400	41
42	11TRRILE02WSACZP	Thorax Rib 2 Z-Axis Acceleration	1000	+	yes	400	42
42A	11TRRILE02WSACRA	Thorax Rib 2 Resultant Acceleration	1000				
43	11TRRILE03WSDSYP	Thorax Rib 3 Y-Axis Displacement	600	+	yes	90	43
44	11TRRILE03WSACXP	Thorax Rib 3 X-Axis Acceleration	1000	+	yes	400	44
45	11TRRILE03WSACYP	Thorax Rib 3 Y-Axis Acceleration	1000	+	yes	400	45
46	11TRRILE03WSACZP	Thorax Rib 3 Z-Axis Acceleration	1000	+	yes	400	46
46A	11TRRILE03WSACRA	Thorax Rib 3 Resultant Acceleration	1000				
47	11ABRILE01WSDSYP	Abdominal Rib 1 Y-Axis Displacement	600	+	yes	90	47
48	11ABRILE01WSACXP	Abdominal Rib 1 X-Axis Acceleration	1000	+	yes	400	48
49	11ABRILE01WSACYP	Abdominal Rib 1 Y-Axis Acceleration	1000	+	yes	400	49
50	11ABRILE01WSACZP	Abdominal Rib 1 Z-Axis Acceleration	1000	+	yes	400	50
50A	11ABRILE01WSACRA	Abdominal Rib 1 Resultant Acceleration	1000				
51	11ABRILE02WSDSYP	Abdominal Rib 2 Y-Axis Displacement	600	+	yes	90	51
52	11ABRILE02WSACXP	Abdominal Rib 2 X-Axis Acceleration	1000	+	yes	400	52
53	11ABRILE02WSACYP	Abdominal Rib 2 Y-Axis Acceleration	1000	+	yes	400	53
54	11ABRILE02WSACZP	Abdominal Rib 2 Z-Axis Acceleration	1000	+	yes	400	54
54A	11ABRILE02WSACRA	Abdominal Rib 2 Resultant Acceleration	1000				
55	11TRRILE01WSANZP	Thorax Rib 1 Rotary Pot	600	+	no	90	55
56	11TRRILE02WSANZP	Thorax Rib 2 Rotary Pot	600	+	no	90	56
57	11TRRILE03WSANZP	Thorax Rib 3 Rotary Pot	600	+	no	90	57
58	11ABRILE01WSANZP	Abdominal Rib 1 Rotary Pot	600	+	no	90	58
59	11ABRILE02WSANZP	Abdominal Rib 2 Rotary Pot	600	+	no	90	59
60	11LUSP0000WSFOXP	Lumbar X-Axis Force	600	+	yes	10000	60
61	11LUSP0000WSFOYP	Lumbar Y-Axis Force	600	+	yes	10000	61
62	11LUSP0000WSFOZP	Lumbar Z-Axis Force	600	+	yes	12000	62
63	11LUSP0000WSMOXP	Lumbar Moment About X Axis	600	+	yes	300	63
64	11LUSP0000WSMOYP	Lumbar Moment About Y Axis	600	+	yes	300	64
65	11LUSP0000WSMOZP	Lumbar Moment About Z Axis	600	+	yes	200	65
66	11PELVCG00WSACXP	Pelvis X-Axis Acceleration	1000	+	yes	400	66
67	11PELVCG00WSACYP	Pelvis Y-Axis Acceleration	1000	+	yes	400	67
68	11PELVCG00WSACZP	Pelvis Z-Axis Acceleration	1000	+	yes	400	68
68A	11PELVCG00WSACRA	Pelvis Resultant Acceleration	1000				
69	11SACRLE00WSFOXP	Sacro-Iliac Left X-Axis Force	600	+	yes	6000	69
70	11SACRLE00WSFOYP	Sacro-Iliac Left Y-Axis Force	600	+	yes	6000	70

Channel	ISO mnemonic	Channel Title	Filter	Flip	Zero	Full Scale	V5 Index
71	11SACRLE00WSFOZP	Sacro-Iliac Left Z-Axis Force	600	+	yes	6000	71
72	11SACRLE00WSMOXP	Sacro-Iliac Left Moment About X Axis	600	+	yes	1000	72
73	11SACRLE00WSMOYP	Sacro-Iliac Left Moment About Y Axis	600	+	yes	400	73
74	11SACRLE00WSMOZP	Sacro-Iliac Left Moment About Z Axis	600	+	yes	400	74
75	11SACRRI00WSFOXP	Sacro-Iliac Right X-Axis Force	600	+	yes	6000	75
76	11SACRRI00WSFOYP	Sacro-Iliac Right Y-Axis Force	600	+	yes	6000	76
77	11SACRRI00WSFOZP	Sacro-Iliac Right Z-Axis Force	600	+	yes	6000	77
78	11SACRRI00WSMOXP	Sacro-Iliac Right Moment About X Axis	600	+	yes	1000	78
79	11SACRRI00WSMOYP	Sacro-Iliac Right Moment About Y Axis	600	+	yes	400	79
80	11SACRRI00WSMOZP	Sacro-Iliac Right Moment About Z Axis	600	+	yes	400	80
81	11PUBC0000WSFOYP	Pubic Symphysis Y-Axis Force	600	+	yes	12000	81
82	11FEMRLEMIWSFOXP	Left Mid Femur X-Axis Force	600	+	yes	15000	82
83	11FEMRLEMIWSFOYP	Left Mid Femur Y-Axis Force	600	+	yes	15000	83
84	11FEMRLEMIWSFOZP	Left Mid Femur Z-Axis Force	600	+	yes	15000	84
85	11FEMRLEMIWSMOXP	Left Mid Femur Moment Mx	600	+	yes	350	85
86	11FEMRLEMIWSMOYP	Left Mid Femur Moment My	600	+	yes	350	86
87	11FEMRLEMIWSMOZP	Left Mid Femur Moment Mz	600	+	yes	300	87
88	11FEMRLL00WSFOXP	Left Femoral Neck X-Axis Force	600	+	yes	10000	88
89	11FEMRLL00WSFOYP	Left Femoral Neck Y-Axis Force	600	+	yes	25000	89
90	11FEMRLL00WSFOZP	Left Femoral Neck Z-Axis Force	600	+	yes	10000	90
91	11KNEELEOUWSFOYP	Left Knee Outboard Y-Axis Force	600	+	yes	20000	91
92	11KNEELEINWSFOYP	Left Knee Inboard Y-Axis Force	600	+	yes	20000	92
93	11FEMRRL00WSFOXP	Right Femoral Neck X-Axis Force	600	+	yes	10000	93
94	11FEMRRL00WSFOYP	Right Femoral Neck Y-Axis Force	600	+	yes	25000	94
95	11FEMRRL00WSFOZP	Right Femoral Neck Z-Axis Force	600	+	yes	10000	95
96	10VEHCCG0000ACXA	Vehicle Center of Gravity X-Axis Acceleration	60	+	yes	1000	96
97	10VEHCCG0000ACYA	Vehicle Center of Gravity Y-Axis Acceleration	60	+	yes	1000	97
98	10VEHCCG0000ACZA	Vehicle Center of Gravity Z-Axis Acceleration	60	+	yes	1000	98
98A	10VEHCCG0000ACRA	Vehicle Center of Gravity Resultant Acceleration	60				
99	10VEHCCG0000AVXA	Vehicle Center of Gravity Roll Rate Gyroscope	60	+	yes	1500	99
100	10VEHCCG0000AVYA	Vehicle Center of Gravity Pitch Rate Gyroscope	60	+	yes	1500	100
101	10VEHCCG0000AVZA	Vehicle Center of Gravity Yaw Rate Gyroscope	60	+	yes	1500	101
102	11SILBRE0100ACYA	Left Side Sill Near Impact Point Y-Axis Acceleration	60	+	yes	2000	102
103	14SILBFR0000ACYA	Left A-Pillar Side Sill Y-Axis Acceleration	60	+	yes	1000	103
104	11APILLO0000ACYA	Left Lower A-Pillar Y-Axis Acceleration	60	+	yes	2000	104
105	11APILMI0000ACYA	Left Mid A-Pillar Y-Axis Acceleration	60	+	yes	2000	105
106	14SILBRE0000ACYA	Left Side Sill at Rear Seat Y-Axis Acceleration	60	+	yes	1000	106
107	14BPILLO0000ACYA	Left Lower B-Pillar Y-Axis Acceleration	60	+	yes	2000	107
108	14BPILMI0000ACYA	Left Mid B-Pillar Y-Axis Acceleration	60	+	yes	2000	108
109	11SETRFR0000ACYA	Left Front Seat Track at H-Point Y-Axis Acceleration	60	+	yes	2000	109
110	12ENGNTP0000ACXA	Top of Engine X-Axis Acceleration	60	+	yes	1000	110

Channel	ISO mnemonic	Channel Title	Filter	Flip	Zero	Full Scale	V5 Index
111	12ENGNTP0000ACYA	Top of Engine Y-Axis Acceleration	60	+	yes	1000	111
112	12VEHC000000ACYA	Firewall Y-Axis Acceleration	60	-	yes	1000	112
113	13ROOF000000ACYA	Right Side Roof Rail Y-Axis Acceleration	60	-	yes	1000	113
114	13SILBFR0000ACYA	Right Side Sill Y-Axis Acceleration	60	-	yes	1000	114
115	18DECK000000ACXA	Rear Deck Behind Rear Axle X-Axis Acceleration	60	+	yes	1000	115
116	18DECK000000ACYA	Rear Deck Behind Rear Axle Y-Axis Acceleration	60	-	yes	1000	116
117	11DOORFR0000ACYA	Left Front Door on Center Line X-Axis Acceleration	60	+	yes	2000	117
118	11DOORMIRE00ACYA	Midrear of Left Front Door Y-Axis Acceleration	60	+	yes	2000	118
119	11DOORLEFRUPACYA	Left Front Door Upper Centerline Y-Axis Acceleration	60	+	yes	2000	119
120	14DOORMIRE00ACYA	Midrear of Left Rear Door Y-Axis Acceleration	60	+	yes	2000	120
121	14DOORLEREUPACYA	Left Rear Door Upper Centerline Y-Axis Acceleration	60	+	yes	2000	121
122	11AIRBTPLE00EV0A	Driver Side Curtain Inductor	1000	+	no	5	122
123	11AIR02N0000EVOA	Driver Torso Airbag Fire Inductor	1000	+	no	5	123
124	11CONT000001VO00	Head Contact Switch	0	+	no	1	124
125	11CONT000002VO00	Shoulder Contact Switch	0	+	no	1	125
126	11CONT000003VO00	Torso Contact Switch	0	+	no	1	126
127	11CONT000004VO00	Left Contact Switch	0	+	no	1	127
128	K0FBAR010000FOXA	Pole Load Cell 1	60	+	yes	200000	128
129	K0FBAR020000FOXA	Pole Load Cell 2	60	+	yes	200000	129
130	K0FBAR030000FOXA	Pole Load Cell 3	60	+	yes	200000	130
131	K0FBAR040000FOXA	Pole Load Cell 4	60	+	yes	200000	131
132	K0FBAR050000FOXA	Pole Load Cell 5	60	+	yes	200000	132
133	K0FBAR060000FOXA	Pole Load Cell 6	60	+	yes	200000	133
134	K0FBAR070000FOXA	Pole Load Cell 7	60	+	yes	200000	134
135	K0FBAR080000FOXA	Pole Load Cell 8	60	+	yes	200000	135


2010 Suzuki SX4 Left Side FMVSS 214 Pole Impact 32 kph 110801; Test Time 16:41
Temperature (C)
Humidity (%)
30
25
20
15
10
90
80
70
60
50
40
30
20
10
8/1/2011 14:41
8/1/2011 14:51
8/1/2011 15:01
8/1/2011 15:11
8/1/2011 15:21
8/1/2011 15:31
8/1/2011 15:41
8/1/2011 15:51
8/1/2011 16:01
8/1/2011 16:11
8/1/2011 16:21
8/1/2011 16:31
8/1/2011 16:41
Time of Sample

Appendix E

Chest Band Information

APPENDIX - CHEST BAND INFORMATION

One 40-channel chest band was installed directly on the rib denoted in the table using double-sided foam tape to ensure that the band followed the rib's motion (Figures 1 and 2). The band was used in this test to determine the shape of the rib contour throughout the crash event. Pertinent information regarding the location of the band on the dummy (Table 1) may be used for processing the chest band data in RBandPC or CrashStar software. In addition to the chest band, an aluminum block with 3 linear accelerometers and 3 angular rate sensors (Figure 3) was installed at the top of the front of the spine box beneath the sternum bib in order to track the motion of the spine box in 3D. FARO data locating three points on the chest band prior to the dummy being in pre-test seated ready position are included in Table 1. However, FARO data locating the block with the accelerometers and angular rate sensors is not available. Table 1 and Figure 4 show results from processing the chest band data using CrashStar. Note the shape of the rib contour resulting from the soft, flexible sternum combined with the loading during the crash event. Maximum deflection was determined using the forced angle method by Pintar et al., 2009. Information related to the chest band or motion block used in this test may be directed to heather.rhule@dot.gov.

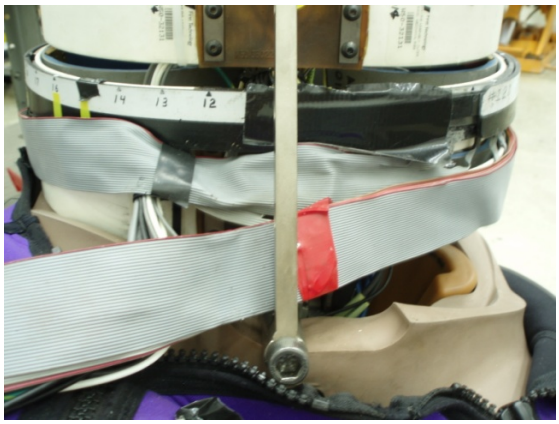


Figure 1. Front of dummy showing chest band location

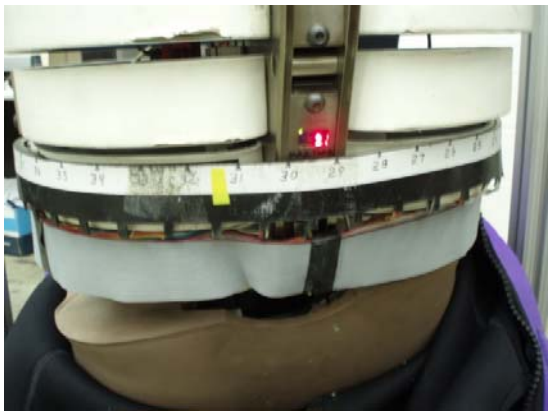


Figure 2. Rear of dummy showing chest band location

Figure 3. Aluminum block with 3 linear accelerometers and 3 angular rate sensors installed. Block was mounted to plate shown and secured to dummy front spine box at the top

Table 1. Chest Band Information

Test date	08/01/2011		
Test vehicle	Suzuki SX4		
Chest band location	Abdomen rib 1		
Chest circumference	965.2 mm		
Number of active gages	38		
Gage closest to spine	29		
Distance from spine	12.7 mm (see Figure 2)		
Gage closest to sternum	10		
Distance from sternum	12.7 mm (see Figure 1)		
FARO Data	X-coordinate	Y-coordinate	Z-coordinate
(Anchor) Chest Band Gage 29	-37.6023	-16.5859	-296.8485
Chest Band Gage 10	229.9813	20.9492	-286.813
Chest Band Gage 1	102.0209	179.2998	-288.033
Maximum half-chest deflection (forced angle method) from chest band data (mm)	42.4735		
Angle from spine-sternum line to maximum deflection (forced angle method) from chest band data (deg)	85.4974		

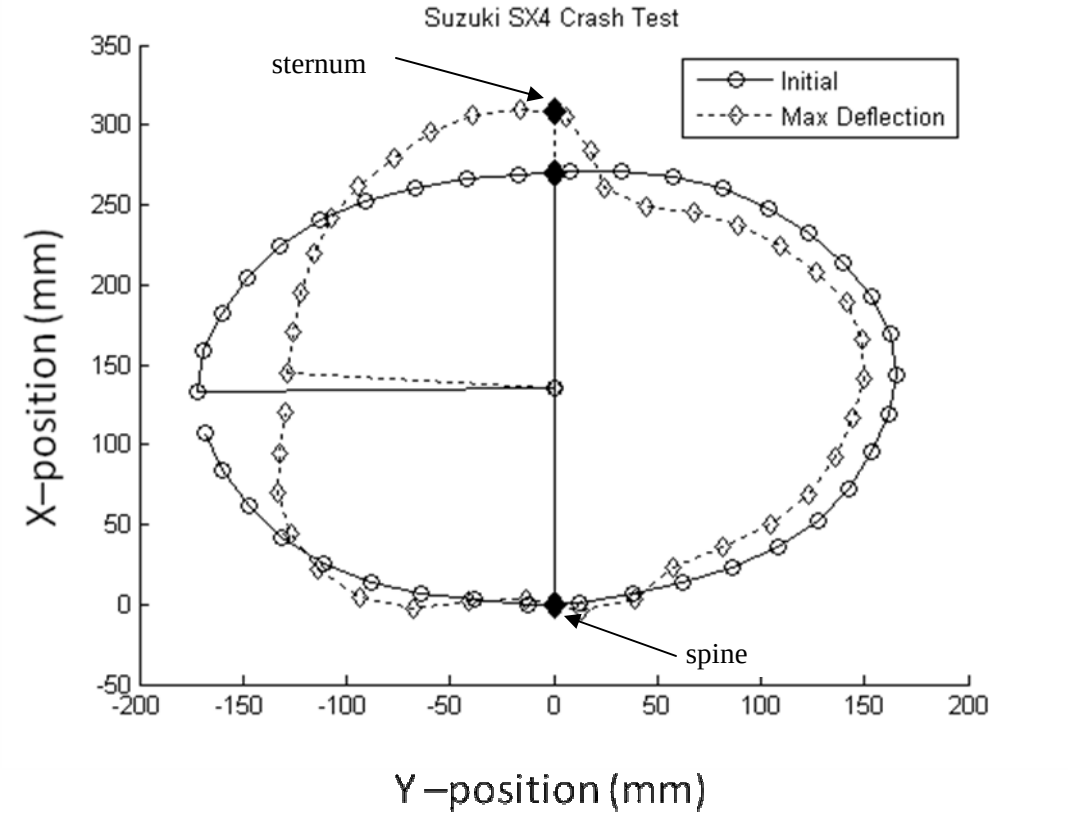


Figure 4. Chest band contours at initial position and maximum deflection, where maximum deflection was determined using the forced angle method (Pintar et al., 2009) and was limited to chest band gages to the left of the sternum. Contours were aligned such that the spine-sternum lines coincide.

Pintar, F., Humm, J., Yoganandan, N., Martin, P. (2009) Test Program To Define Oblique Chest Loading In Side Impact. SAE paper number 09-0557. The 19th International Technical Conference on the Enhanced Safety of Vehicles, Washington D.C.