

**Vehicle Research and Test Center
Oblique Side Pole Impact
WorldSID
2011 Cadillac CTS
TRC Inc. Test Number: 110830**

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**Prepared For
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TRC TEST NUMBER: 110830

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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 2011 Cadillac CTS impacted an oblique rigid pole barrier at an angle of 74.5° between the line of forward motion and the centerline of the vehicle, at a velocity of 32.5 km/h (20.2 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 30, 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.

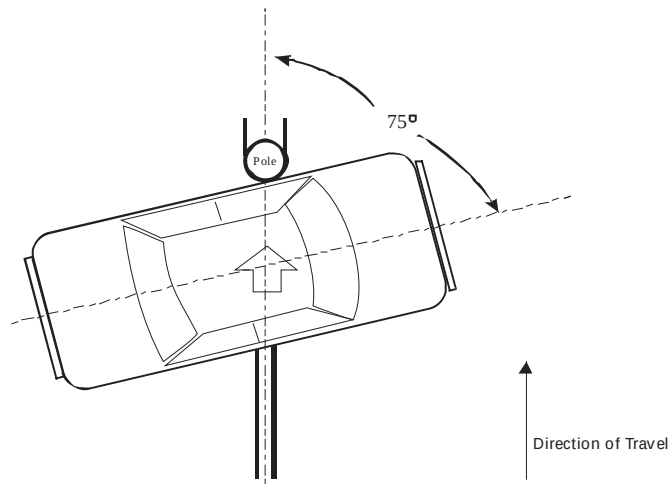
One restrained Side Impact Dummy (WorldSID) S/N 014, was placed in the driver (Position #1) designated seating position according to the instructions specified in the WorldSID Seating Procedure Draft 5.1. The WorldSID was calibrated prior to this test. The side impact test was documented by one (1) real-time 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. Ninety (90) dummy channels of acceleration, force, moment, and displacement data were collected for this test.

A summary of the side impact dummy (WorldSID) configuration and verification test data can be found in Appendix C. A total of 130 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	514
Thorax Rib Deflection (mm) CFC 600	
Rib 1	56
Rib 2	42
Rib 3	35
Abdomen Rib Deflection (mm) CFC 600	
Rib 1	35
Rib 2	40
Lower Spine Resultant (g) CFC 180	57.4
Pubic Symph. Force (N) CFC 600	924

	2011 Cadillac CTS
Vehicle Test Weight	1871.1 kg (4125.1 lbs)
Impact Point (Horizontal)-behind center of front axle	1604 mm
Impact Angle	74.5
Maximum Crush	339 mm Level 3
Impact Speed	32.5 km/h

Data Acquisition Explanations

The WorldSID dummy does not have a nose so any seating measurements must be referenced to the bridge of the nose. TRC's FARO program uses the nose tip to compute some of the measurements. When asked to measure the nose tip, the bridge of nose point was used instead (in the spreadsheet, nosebridge1 and nosetip1 are the same point). The final dummy measurement page should reference only the bridge of nose.

The Lumbar Moment about the Z-axis data is suspect.

The Left A-Pillar Side Sill Y-axis acceleration data channel malfunctioned prior to time zero.

The Rear Deck Centerline Behind Rear Axle X- and Y-axis acceleration data is suspect after 30 ms.

The Vehicle Center of Gravity X-, Y-, and Z-axis roll rate sensor data exceeded full scale at 16, 16 and 15 milliseconds, respectively.

Section 3

Summary of Test Results

Table 1 General Test Vehicle Parameter Data

Test Vehicle: 2011 Cadillac CTS

Test Date: 08/30/11

TEST VEHICLE INFORMATION

Make	Cadillac
Model	CTS
Body Style	4-door
VIN	1G6DA5EY9B0108746
Color	Silver
Odometer Reading	117
Transmission	Manual
Final Drive	Rear wheel drive
Number of Cylinders	6
Engine Displacement	3.0L
Engine Placement	V
Air Conditioning	Yes
Power Windows	Yes
Power Seats	Yes
Cruise Control	Yes
Tinted Glass	Yes
Keyless Entry	Yes

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	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors Corp
Date of Manufacture	7/10

GVWR (kg)	4782
GAWR Front (kg)	2232
GAWR Rear (kg)	2550

Measured Parameter	Front	Mid	Rear	Total
Type of Seats	Bucket	Not Applicable	Bench	
Number Of Occupants	2	Not Applicable	3	5
Capacity Wt. (VCW) (kg)				404

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: 2011 Cadillac CTS

Test Date: 08/30/11

TEST VEHICLE WEIGHTS

	Units	As Delivered (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	469.2	404.4		507.4	431.9	
Right	kg	449.6	416.8		480.8	451.0	
Ratio	%	52.8	47.2		52.8	47.2	
Totals	kg	918.8	821.2	1740.0	988.2	882.9	1871.1

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight	kg	1740.0
Weight of WorldSID ATD	kg	76.0
Rated Cargo/Luggage Weight (RCLW)	kg	64.0
Calculated Vehicle Target Weight (TVTW)	kg	1880.0

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG(aft of front axle)
As Delivered	mm	725	726	746	745	1364
As Tested	mm	715	716	737	733	1364
Fully Loaded	mm					

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheelbase	mm	2890
Total Vehicle Length at Left Side	mm	4645
Total Vehicle Length at Centerline	mm	4840
Total Vehicle Length at Right Side	mm	4645
Weight of Ballast	kg	3.1
Amount of Stoddard Solvent in Fuel Tank	liters	0.0

TEST VEHICLE IMPACT ACCURACY DATA

Measurement Description	Units	Intended	Actual	Difference
Impact Reference Line From Front Axle	mm	1603	1604	1
Impact Point Angle	Degrees	75	74.5	.5

Table 1 General Test Vehicle Parameter Data, Continued

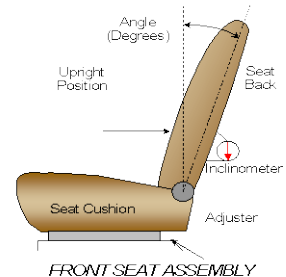
Test Vehicle: 2011 Cadillac CTS

Test Date: 08/30/11

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 25° as measured at torso angle with Oscar. The angle as measured at the head restraint post was 8.6°.

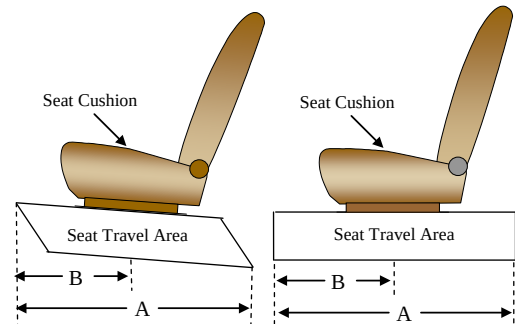


SEAT FORE/AFT POSITIONS

The total seat travel was measured from forward most position to rearmost position, irrespective of vertical seat height in those positions. The seat was set at the longitudinal mid position with vertical adjustment at the lowest position obtainable for the driver. The rear seating position was not tested.

SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel	Placed in Position No.
Driver Seat	260 mm	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	5	1
Rear Seat	Not applicable	Not applicable

Position number one is the uppermost adjustment position.

Table 1 General Test Vehicle Parameter Data, Continued

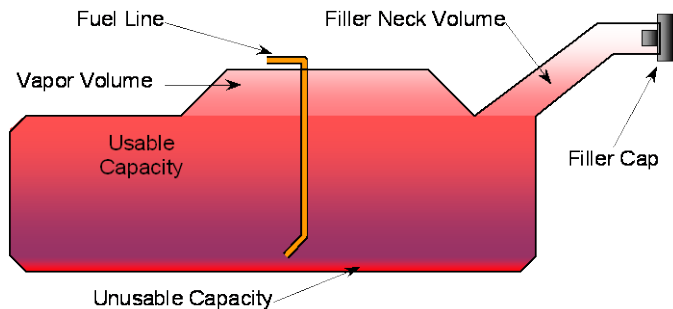
Test Vehicle: 2011 Cadillac CTS

Test Date: 08/30/11

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	68.1
Usable Capacity used for FMVSS 301	62.7-64.0
Actual Amount of Solvent used	0.0

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.

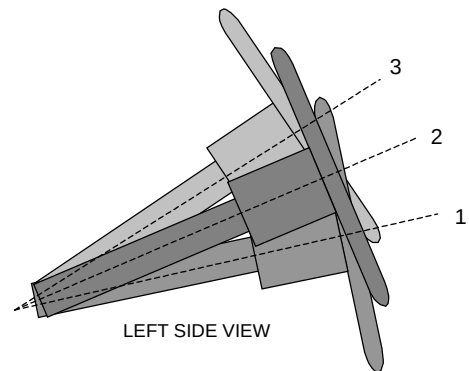


VEHICLE FUEL TANK ASSEMBLY

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 Tilt Position	Degrees
Lowermost Position	17.3
Geometric Center Position	20.7
Uppermost Position	24.1



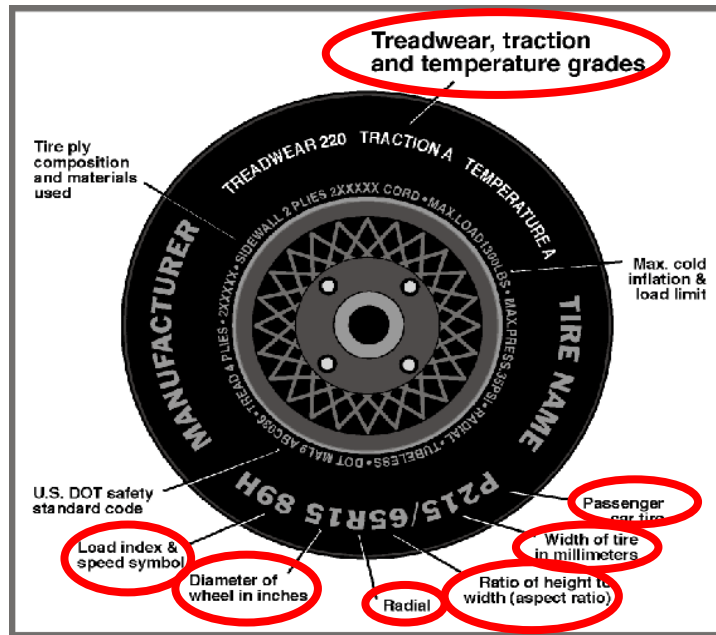
STEERING COLUMN ASSEMBLY

Steering Column Telescoping Position	(mm)
Full In Position	0.0
Full Out Position	55.0
Test Position	27.5

Table 2 Test Vehicle Tire Information

Test Vehicle: 2011 Cadillac CTS

Test Date: 08/30/11



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold / Test Pressure (kPa)	240	240
Recommended Tire Size	P235/55R17	P235/55R17
Tire Size on Vehicle	P235/55R17	P235/55R17
Tire Manufacturer	Michelin	Michelin
Tire Name	Pilot	Pilot
Radial	Yes	Yes
Wheel Diameter	17	17
Load Index & Speed Symbol	98H	98H
Treadwear	300	300
Traction Grade	A	A
Temperature Grade	A	A

Table 3 Post-Test Observations

Test Vehicle: 2011 Cadillac CTS

Test Date: 08/30/11

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 airbag
Lower Torso Contact	Door panel
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: 2011 Cadillac CTS

Test Date: 08/30/11

Driver Dummy Serial Number: 014

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Head Acceleration (g)	X	4.0	244.6	-25.6	55.8
	Y	64.9	55.0	-13.8	140.0
	Z	17.8	109.9	-1.4	28.2
	R	69.5	55.1		
Head Angular Displacement (rad/sec ²)	X	3848.4	57.0	-2153.2	41.3
	Y	1727.2	59.7	-1749.3	40.3
	Z	3465.3	62.6	-3257.4	48.7
Upper Neck Force (N)	X	549.7	63.3	-180.6	231.9
	Y	235.0	222.1	-587.0	142.2
	Z	151.8	236.9	-926.2	49.7
Upper Neck Moment (N-m)	X	42.6	140.1	-19.1	241.5
	Y	28.1	81.1	-29.7	120.8
	Z	21.7	62.2	-16.8	263.5
Lower Neck Force (N)	X	189.8	112.4	-699.7	60.8
	Y	729.4	45.4	-793.6	113.1
	Z	541.9	144.9	-1010.9	46.9
Lower Neck Moment (N-m)	X	62.0	222.2	-134.9	135.7
	Y	82.2	65.0	-52.2	127.1
	Z	18.2	62.4	-18.5	118.5
Shoulder Force (N)	X	217.7	26.9	-543.6	50.4
	Y	2247.8	42.4	-172.4	107.8
	Z	102.7	96.0	-565.8	45.8
Shoulder Displacement (mm)	Y	50.7	50.5	-6.1	130.9
Shoulder Acceleration (g)	X	54.9	17.5	-109.9	17.9
	Y	115.3	24.6	-163.2	17.1
	Z	182.6	17.4	-147.3	17.1
	R	225.9	17.1		

Table 4 WorldSID Instrumentation Data, Continued

Test Vehicle: 2011 Cadillac CTS

Test Date: 08/30/11

Driver Dummy Serial Number: 014

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
T1 Acceleration (g)	X	7.6	67.9	-13.1	32.7
	Y	42.6	48.6	-14.0	86.9
	Z	6.4	51.9	-4.9	90.7
	R	44.3	48.6		
T4 Acceleration (g)	X	8.1	66.9	-13.3	33.2
	Y	46.5	37.2	-16.3	85.0
	Z	6.4	51.9	-6.2	90.6
	R	47.7	37.1		
T12 Acceleration (g)	X	14.8	60.6	-13.4	30.7
	Y	56.7	36.9	-19.5	81.6
	Z	4.4	134.9	-7.5	90.7
	R	57.4	36.9		
Thorax Rib 1 Displacement (mm)	Y	55.6	48.6	-1.4	22.0
Thorax Rib 1 Acceleration (g)	X	27.7	31.9	-39.3	21.4
	Y	181.3	24.3	-51.7	27.6
	Z	66.3	31.5	-77.6	32.8
	R	183.9	24.3		
Thorax Rib 2 Displacement (mm)	Y	42.0	45.6	-1.6	295.6
Thorax Rib 2 Acceleration (g)	X	30.5	33.7	-51.1	27.8
	Y	186.6	24.2	-175.5	27.9
	Z	72.3	27.7	-86.3	28.0
	R	191.3	24.2		
Thorax Rib 3 Displacement (mm)	Y	35.3	42.7	-2.1	295.7
Thorax Rib 3 Acceleration (g)	X	33.4	31.7	-84.9	24.5
	Y	149.3	24.8	-176.6	29.9
	Z	80.6	29.8	-83.1	30.0
	R	176.8	29.9		

Table 4 WorldSID Instrumentation Data, Continued

Test Vehicle: 2011 Cadillac CTS

Test Date: 08/30/11

Driver Dummy Serial Number: 014

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Abdominal Rib 1 Displacement (mm)	Y	34.6	40.9	-2.0	16.4
Abdominal Rib 1 Acceleration ¹ (g)	X	31.3	14.9	-49.6	18.1
	Y	124.7	16.3	-83.6	29.5
	Z	49.3	29.4	-84.7	29.6
	R	130.7	16.3		
Abdominal Rib 2 Displacement (mm)	Y	40.4	39.9	-1.0	273.3
Abdominal Rib 2 Acceleration (g)	X	92.4	15.9	-96.4	18.1
	Y	102.6	22.4	-77.5	17.8
	Z	43.0	28.2	-72.4	28.4
	R	113.5	15.8		
Thorax Rib 1 Rotational Pot (deg)	Z	648.2	56.1	-202.1	21.1
Thorax Rib 2 Rotational Pot (deg)	Z	1007.0	41.0	-236.6	75.5
Thorax Rib 3 Rotational Pot (deg)	Z	111.7	17.9	-1851.6	62.3
Abdominal Rib 1 Rotational Pot (deg)	Z	63.4	44.7	-14.2	75.5
Abdominal Rib 2 Rotational Pot (deg)	Z	11.0	21.0	-30.5	56.1
Lumbar Force (N)	X	0.0	-8.6	0.0	-5.1
	Y	11.3	41.1	-6.6	81.3
	Z	46.3	28.2	-17.5	76.9
Lumbar Moment ¹ (N-m)	X	16.4	22.0	-12.8	44.8
	Y	46.6	28.2		
	Z	158.5	111.5	-949.1	40.5
Pelvis Acceleration (g)	X	3141.7	29.7	-7.6	5.4
	Y	30.5	41.4	-554.2	65.5
	Z				
	R				
Sacro-Iliac Left Force (N)	X				
	Y				
	Z				

¹ See Data Acquisition Explanations

Table 4 WorldSID Instrumentation Data, Continued

Test Vehicle: 2011 Cadillac CTS

Test Date: 08/30/11

Driver Dummy Serial Number: 014

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Sacro-Iliac Left Moment (N-m)	X	29.7	65.8	-85.4	38.0
	Y	31.1	49.3	-12.0	26.0
	Z	48.6	29.4	-27.1	56.0
Sacro-Iliac Right Force (N)	X	396.7	63.5	-551.3	30.4
	Y	1634.4	33.3	-20.0	177.5
	Z	112.8	16.7	-1222.4	63.8
Sacro-Iliac Right Moment (N-m)	X	50.3	52.6	-39.8	36.7
	Y	18.9	38.1	-17.5	68.9
	Z	43.6	29.3	-27.3	56.0
Pubic Force (N)	Y	924.5	40.0	-3.8	-17.8
Left Mid Femur Force (N)	X	73.0	97.6	-89.0	39.0
	Y	15.8	15.4	-691.7	41.0
	Z	231.4	17.2	-1533.8	42.3
Left Mid Femur Moment (N-m)	X	106.2	44.1	-24.8	26.1
	Y	38.5	124.0	-19.6	28.6
	Z	33.0	122.8	-25.0	38.8
Left Femoral Neck Force (N)	X	169.8	38.3	-578.6	123.8
	Y	1006.0	111.4	-108.2	28.9
	Z	1979.0	42.4	-42.8	15.2
Left Knee Outboard Force (N)	Y	459.4	42.1	-290.1	36.4
Left Knee Inboard Force (N)	Y	94.8	88.0	-1956.8	65.4
Right Femoral Neck Force (N)	X	498.4	60.9	-64.3	16.3
	Y	705.3	34.8	-540.8	61.1
	Z	14.5	15.8	-1136.6	57.4

Positive Direction

Longitudinal: Forward
Lateral: Rightward
Vertical: Downward

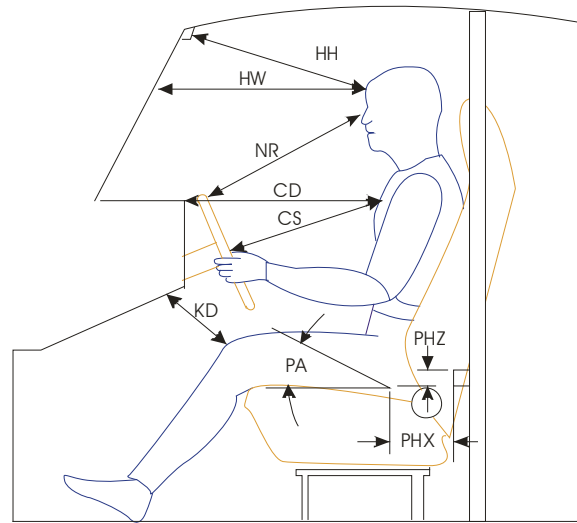
Negative Direction

Longitudinal: Rearward
Lateral: Leftward
Vertical: Upward

Figure 1 WorldSID Longitudinal Clearance Dimensions

Test Vehicle: 2011 Cadillac CTS

Test Date: 08/30/11



Left Side View

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

Measurement	Driver WorldSID # 014
HH	434
HW	728
HZ	214
NR ¹	522
CD	635
CS	451
KDL(KDA°)	187/(10.5°)
KDR(KDA°)	188/(9.9°)
PHX	114
PHZ	104

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	-0.3°
Head Y-Angle	0.7°
Thorax X-Angle	-0.5°
Thorax Y-Angle	0.0°
Pelvis X-Angle	1.7°
Pelvis Y-Angle	0.7°

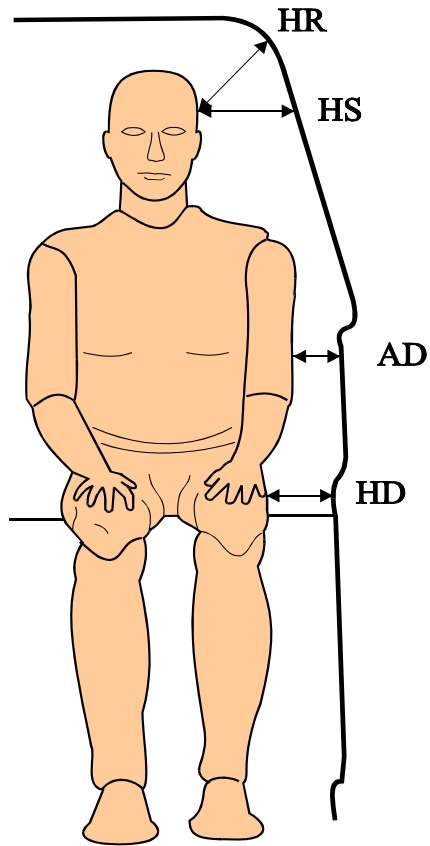
Note: Measurements recorded from WorldSID tilt sensors. The neck was moved forward 1 notch to level the head.

¹ NR was measured from bridge of nose

Figure 2 WorldSID Lateral Clearance Dimensions

Test Vehicle: 2011 Cadillac CTS

Test Date: 08/30/11



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

Measurement	Driver WorldSID # 014	
HR	217	
HS	320	
AD	Lower: 126	Upper: 94
HD	122	

Table 5 WorldSID Position Relative to Striker

Test Vehicle: 2011 Cadillac CTS

Test Date: 08/30/11

Driver Dummy Serial Number: 014

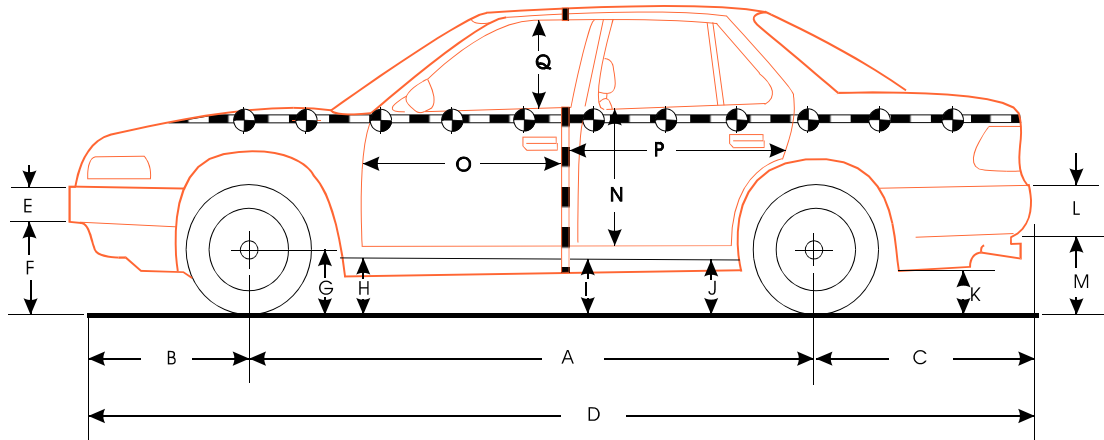
Location	Longitudinal X (mm)	Vertical Z (mm)
M_HEAD CG	-63.8	-556.3
M_SHOULDER BOLT	NA	NA
M_ELBOW	NA	NA
M_H POINT	152.4	-119.9
M_KNEE	527	-40.5
M_ANKLE	853.7	227.8
M_LOWER NECK	*45.7	375
M_SHOULDER	NA	NA
M_RIB 1	-11.9	-336.5
M_RIB 2	24.6	256.2
M_RIB 3	63.9	-192.4
M_RIB 4	84.7	-141.8
M_RIB 5	117.6	-47.1

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

Figure 3 Vehicle Pre-Test And Post-Test Measurements

Test Vehicle: 2011 Cadillac CTS

Test Date: 08/30/11



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	2890	2890	2790	100
B	835	835	835	0
C	1115	1115	1115	0
D	4840	4840	4802	38
E	153	153	153	0
F	400	375	388	-13
G	330	330	333	-3
G1	255	230	251	-21
H	260	232	250	-18
I	292	261	260	1
J1	225	192	213	-21
J2	290	257	250	7
K	357	344	366	-22
L	167	167	167	0
M	577	541	568	-27
N	775	775	775	0
O	965	965	950	15
P	1155	1155	1140	15
Q	390	390	355	35
R	4645	4645	4645	0
S	4645	4645	4590	55
T	1325	1325	1100	225

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: 2011 Cadillac CTS

Test Date: 08/30/11

	Elements	Pre-Test
1	Total Length	4840
2	Total Width	1790
3	Bumper Top Height	558
4	Bumper Bottom Height	441
5	Longitudinal Member Top Height	535
6	Longitudinal Member Bottom Height	44
7	Distance Between Longitudinal Members	920
7'	Longitudinal Member Width	90
8	Engine Top Height	940
9	Engine Bottom Height	228
10	Engine and Gearbox Width	550
11	Front Bumper - Engine Distance	700
12	Front Shock Absorber Fixing Height	850
13	Bonnet Leading Edge Height	733
14	Front Shock Absorber Fixing Width	900
15	Front Bumper - Front Axle Distance	835
16	Front Axle - A Pillar Distance	630
17	A Pillar - B Pillar Distance	1145
18	B Pillar - Rear Axle Distance	1090
19	B Pillar - C Pillar Distance	830
20	Roof Sill Bottom Height	1335
21	Roof Sill Top Height	1410
22	Floor Sill Bottom Height	395
23	Floor Sill Top Height	436

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

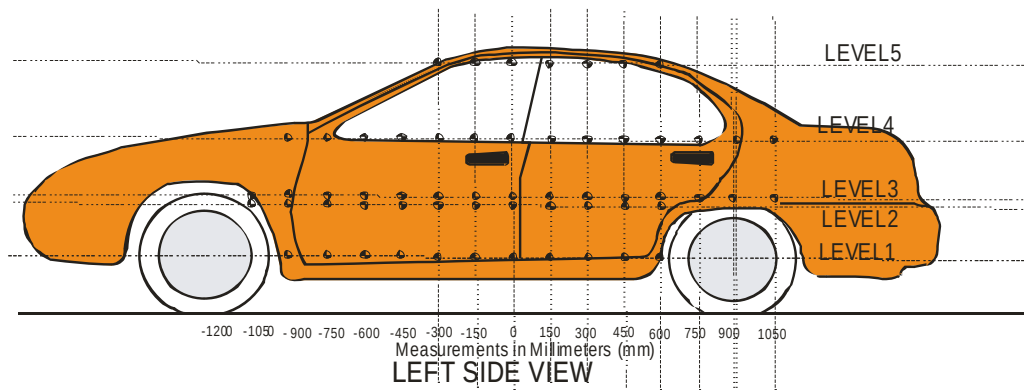
¹ Taken from INSIA report, "Structural Survey of Cars, Methodology of the Main Resistant Elements in the Car Body", March 1999.

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: 2011 Cadillac CTS

Test Date: 08/30/11



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	1431
4	Window Sill	932
3	Mid Door	702
2	Occupant H-Point	548
1	Side Sill	362

Table 7 Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2011 Cadillac CTS

		(mm) From Impact Point															
Location	Height		-1500	-1350	-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600
Level 1 Side Sill	362	Pre				872	867	870	871	872	872	873	876	875	872	870	866
		Post				925	897	862	825	783	738	673	580	619	717	787	845
		Crush				-53	-30	8	46	89	134	200	296	256	155	83	21
Level 2 H-Point	548	Pre			908	885	882	884	885	886	886	887	890	889	884	881	878
		Post			973	936	925	882	838	786	714	640	562	612	719	777	826
		Crush			-65	-51	-43	2	47	100	172	247	328	277	165	104	52
Level 3 Mid-Door	702	Pre		904	880	876	879	883	886	888	890	891	892	892	887	884	879
		Post		985	951	936	929	881	833	772	695	620	553	601	711	758	800
		Crush		-81	-71	-60	-50	2	53	116	195	271	339	291	176	126	79
Level 4 ¹ Window Sill	932	Pre		790	800	810	810	821	831	839	844	848	851	853	853	852	851
		Post		884	883	876	877	853	811	751	686	607	539	578	672	713	753
		Crush		-94	-83	-66	-67	-32	20	88	158	241	312	275	181	139	98
Level 5 Window Top	1431	Pre					770	731	689	650	612	585	573	566	564	564	567
		Post					821	769	709	650	592	534	471	465	484	515	540
		Crush					-51	-38	-20	0	20	51	102	101	80	49	27

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: 2011 Cadillac CTS

Table 7 Vehicle Exterior Crush Profiles - All Levels, Continued

			(mm) From Impact Point												
Location	Height		900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700
Level 1 Side Sill	362	Pre	894												
		Post	1039												
		Crush	-145												
Level 2 H-Point	548	Pre	903												
		Post	941												
		Crush	-38												
Level 3 Mid-Door	702	Pre	886	912											
		Post	896	914											
		Crush	-10	-2											
Level 4 Window Sill	932	Pre	862	841	837	833	0								
		Post	850	866	836	830	0								
		Crush	12	-25	1	3	0								
Level 5 Window Top	1431	Pre	574	579	588	598	0								
		Post	578	585	593	600	0								
		Crush	-4	-6	-5	-2	0								

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

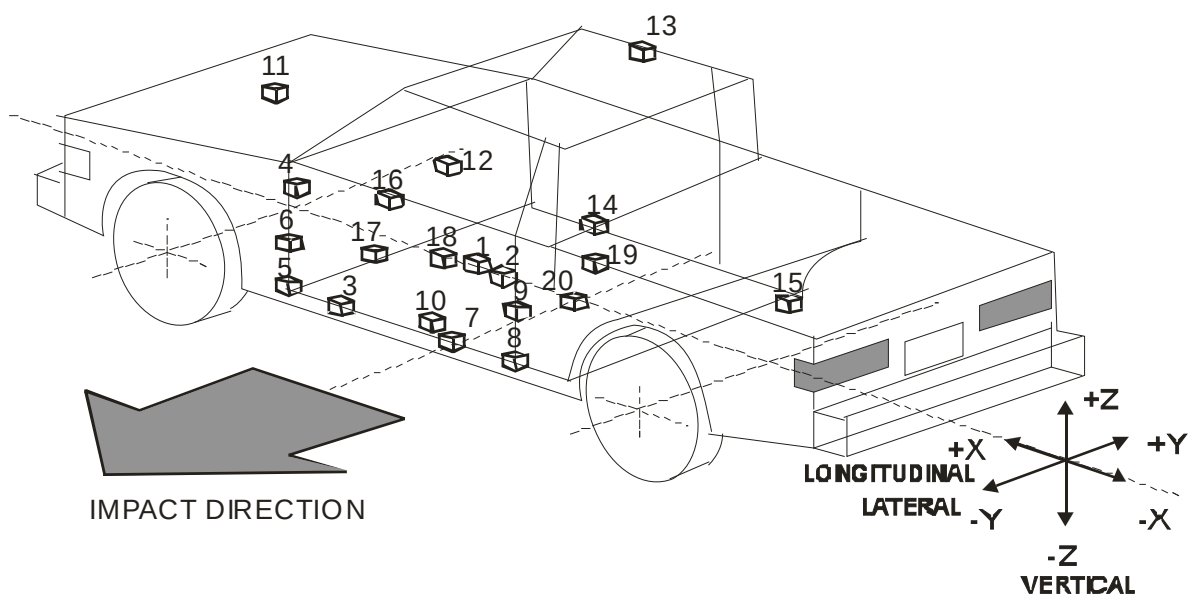
The crush profile grid is established prior to test day based on an estimated impact point.

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: 2011 Cadillac CTS

Test Date: 08/30/11



- 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: 2011 Cadillac CTS

Test Date: 08/30/11

Location		Coordinates (mm)			Positive Direction Max. Time		Negative Direction Max. Time	
		X	Y	Z	(g)	(ms)	(g)	(ms)
1	Vehicle CG	2010	102	480				
	Longitudinal				4.3	14.5	-11.5	21.4
	Lateral				33.1	46.2	-1.2	178.1
	Vertical				17.1	22.0	-11.1	17.3
	Resultant				34.2	46.3		
2	Vehicle CG Gyroscopes ¹	2055	102	480				
	Longitudinal °/sec				667.4	50.1	-114.4	140.7
	Lateral °/sec				439.3	20.3	-178.3	29.0
	Vertical °/sec				250.5	67.6	-215.0	24.9
3	Left Side Sill Between A-Pillar and Impact Line ¹	3160	702	335				
	Lateral				39.9	18.6	-9.9	23.2
4	Left Side Sill at A-Pillar	3360	702	331				
	Lateral				0.0	-20.0	0.0	-20.0
5	Left Side Lower A-Pillar	3470	812	494				
	Lateral				24.6	16.9	-7.8	23.8
6	Left Side Middle A-Pillar	3470	812	855				
	Lateral				18.2	17.0	-4.2	2.9
7	Left Side Sill at Rear Seat	2087	702	318				
	Lateral				39.9	12.8	-7.3	37.1
8	Left Side Lower B-Pillar ¹	2256	812	551				
	Lateral				80.6	12.3	-4.3	49.9
9	Left Side Middle B-Pillar	2256	812	890				
	Lateral				60.5	16.7	-3.4	50.0

Table 8 Test Vehicle Accelerometer Locations and Data Summary, Continued

Test Vehicle: 2011 Cadillac CTS

Test Date: 08/30/11

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	2472	580	315				
	Lateral				138.8	21.4	-18.4	45.9
11	Top of Engine	4113	75	932				
	Longitudinal				2.2	165.6	-16.9	52.4
	Lateral				23.1	48.6	-6.7	25.3
12	Firewall	3723	0	940				
	Lateral				10.4	84.1	-1.1	4.3
13	Right Side Roof Rail	2752	-592	1348				
	Lateral				17.5	44.4	-3.0	58.4
14	Right Side Sill	2780	-702	374				
	Lateral				15.2	35.1	-1.6	181.2
15	Rear Deck Behind Rear Axle	1050	27	547				
	Longitudinal				99.8	268.7	-13.9	45.6
	Lateral				86.7	268.9	-0.1	-10.3
16	Front Door Upper Centerline	2880	762	961				
	Lateral				104.0	10.3	-33.1	16.8
17	Front Door Centerline	2823	772	730				
	Lateral				98.3	13.0	-6.9	8.1
18	Front Door Mid Rear ¹	2478	757	716				
	Lateral				43.9	7.7	-15.0	46.3
19	Rear Door Upper Centerline	1915	757	1007				
	Lateral				61.9	35.6	-55.2	31.1
20	Rear Door Mid Rear	1670	755	732				
	Lateral				36.9	49.7	-9.1	67.5

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

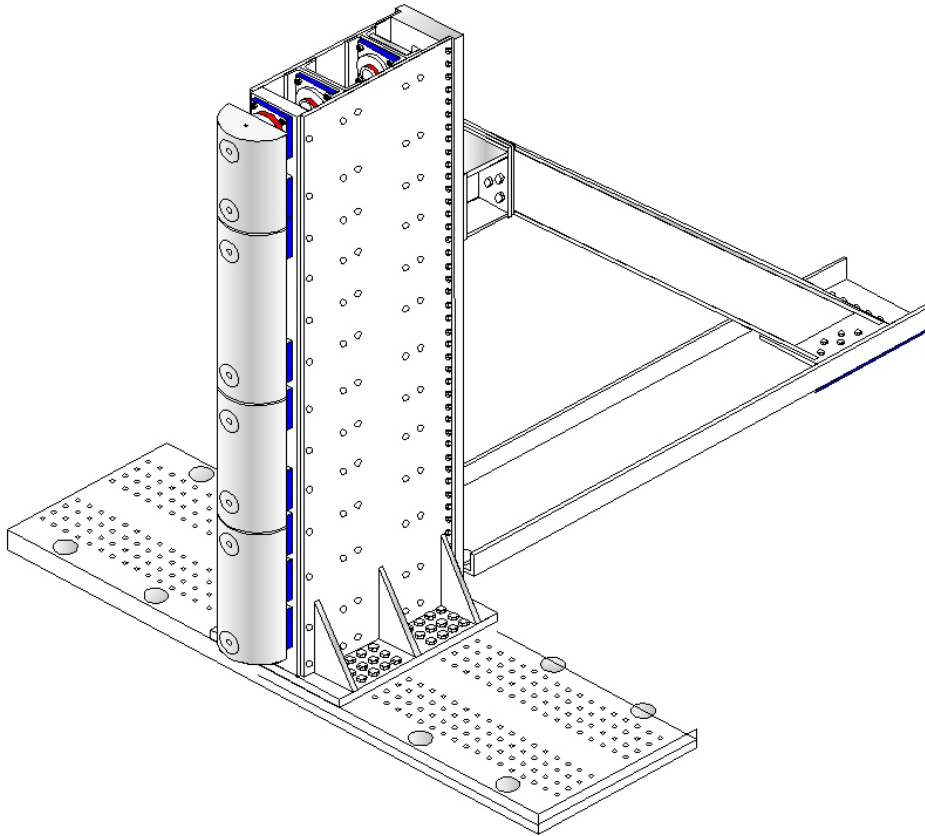
For acceleration data sign convention see Report Sign Convention in Appendix D.

Figure 6 Pole Load Cell Locations

Test Vehicle: 2011 Cadillac CTS

Test Date: 08/30/11

FOIL 300K RIGID POLE

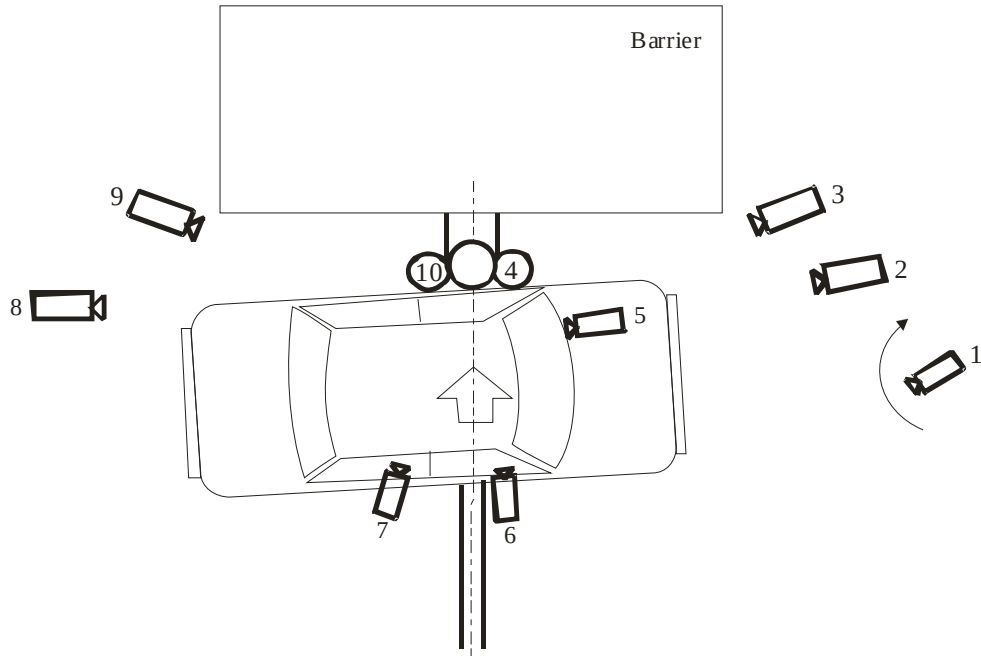


Load Cell Locations	
ID	Height From Top of Carrier (mm)
1	87
2	468
3	648
4	978
5	1168
6	1651
7	1816
8	2057

Figure 7 High-Speed Camera Locations and Data Summary

Test Vehicle: 2011 Cadillac CTS

Test Date: 08/30/11



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	8.5	1000
8	Rear view	12.5	1000
9	Rear oblique view	16	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

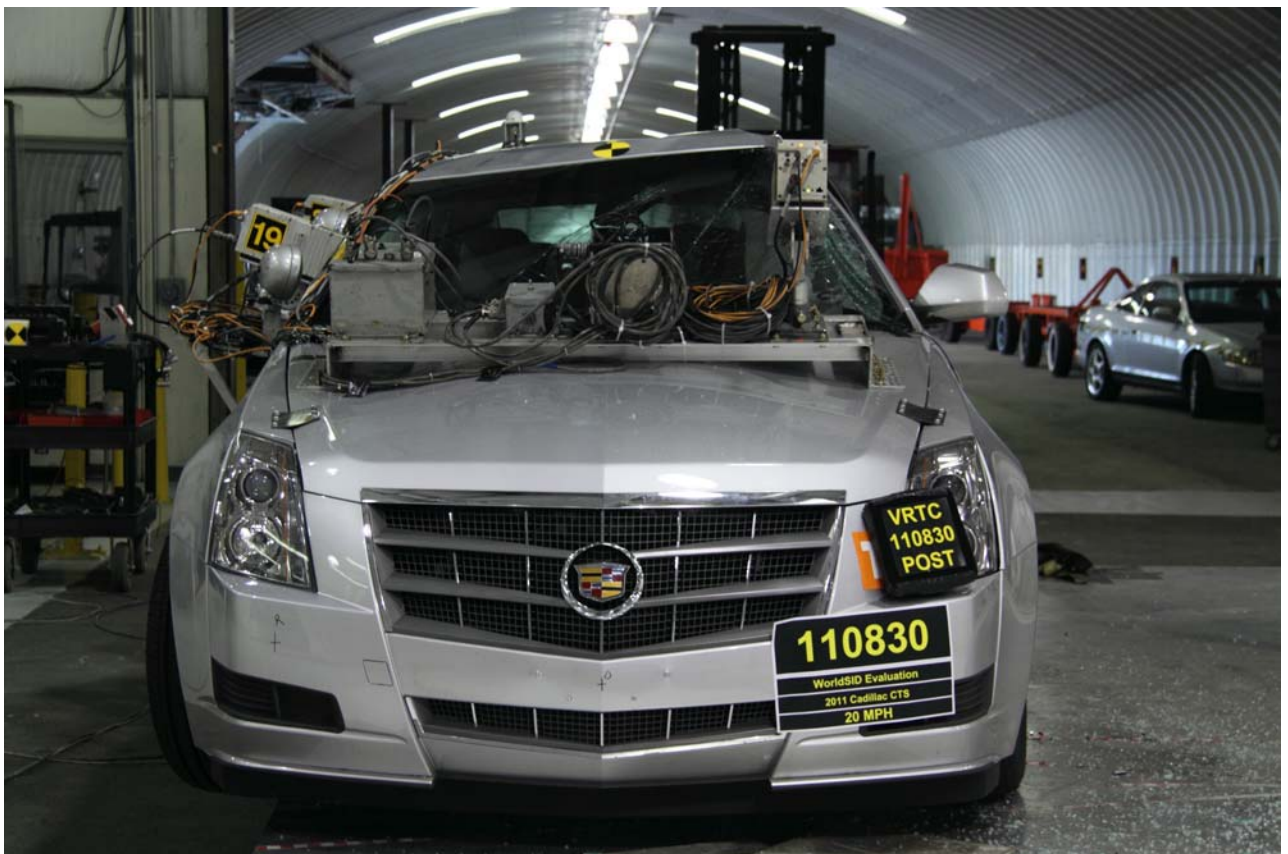


Figure A-2 Post-Test Front View



Figure A-3 Pre-Test Left Front View

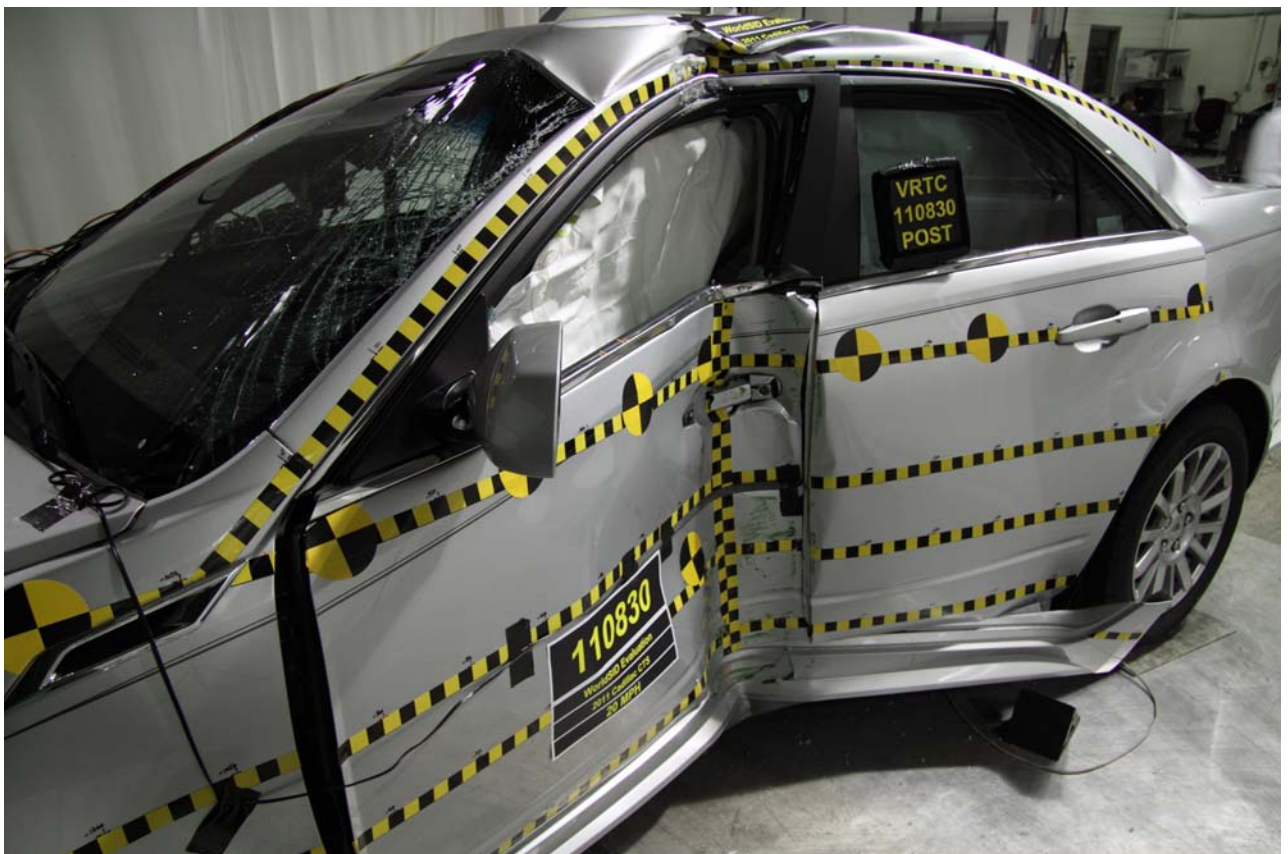


Figure A-4 Post-Test Left Front View

Photograph Not Taken

Figure A-5 Pre-Test Left Front Tight View

Photograph Not Taken

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

Photograph Not Taken

Figure A-15 Pre-Test Right Side View

Photograph Not Taken

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

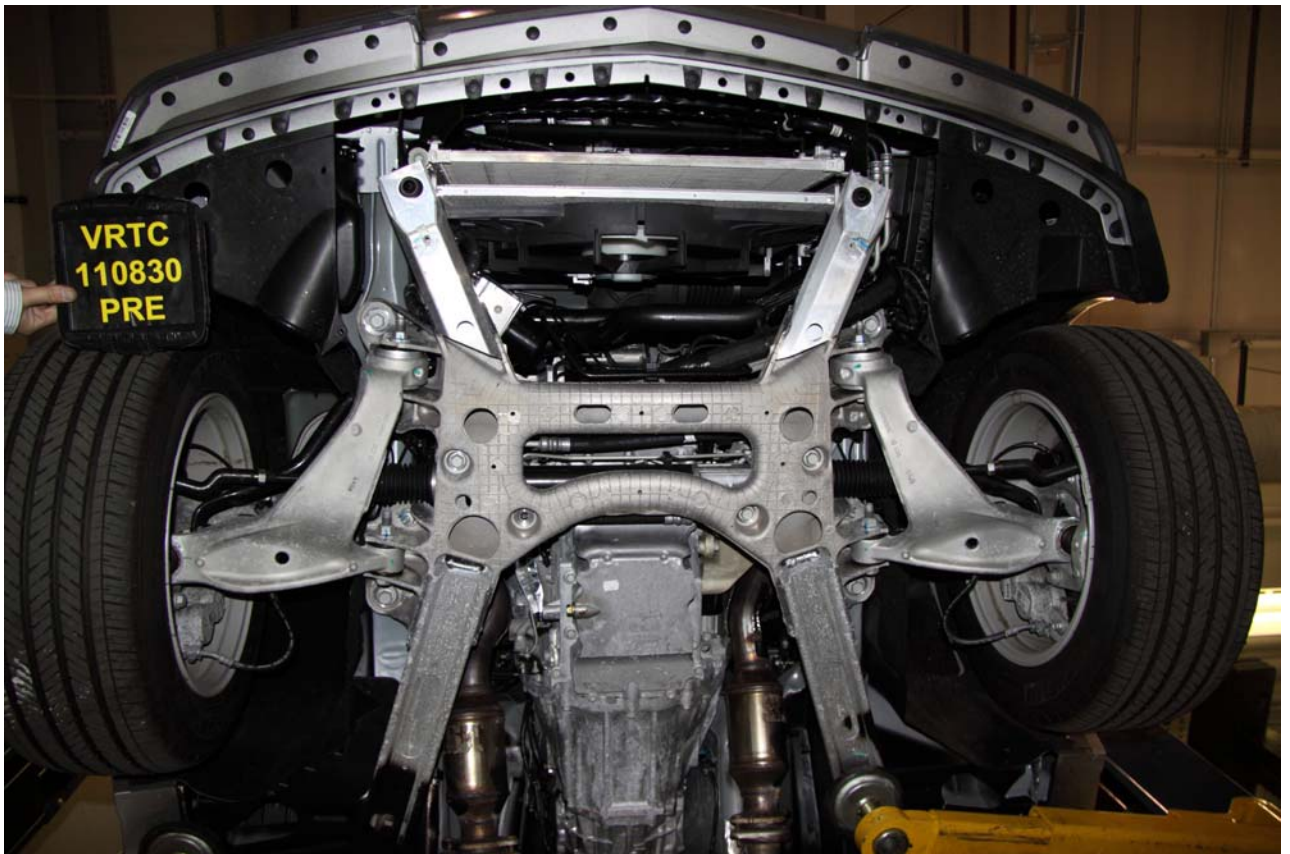


Figure A-21 Pre-Test Front Underbody View

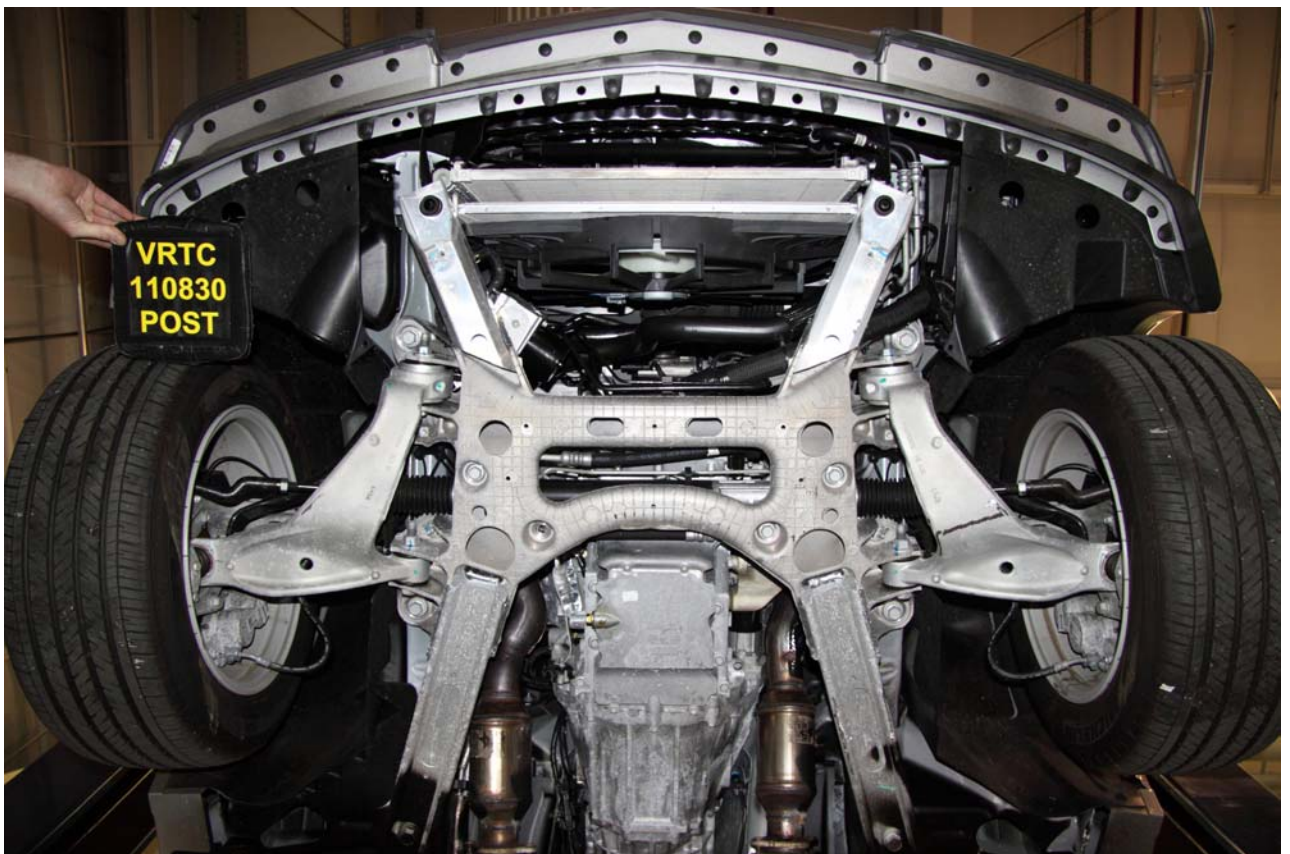


Figure A-22 Post-Test Front Underbody View

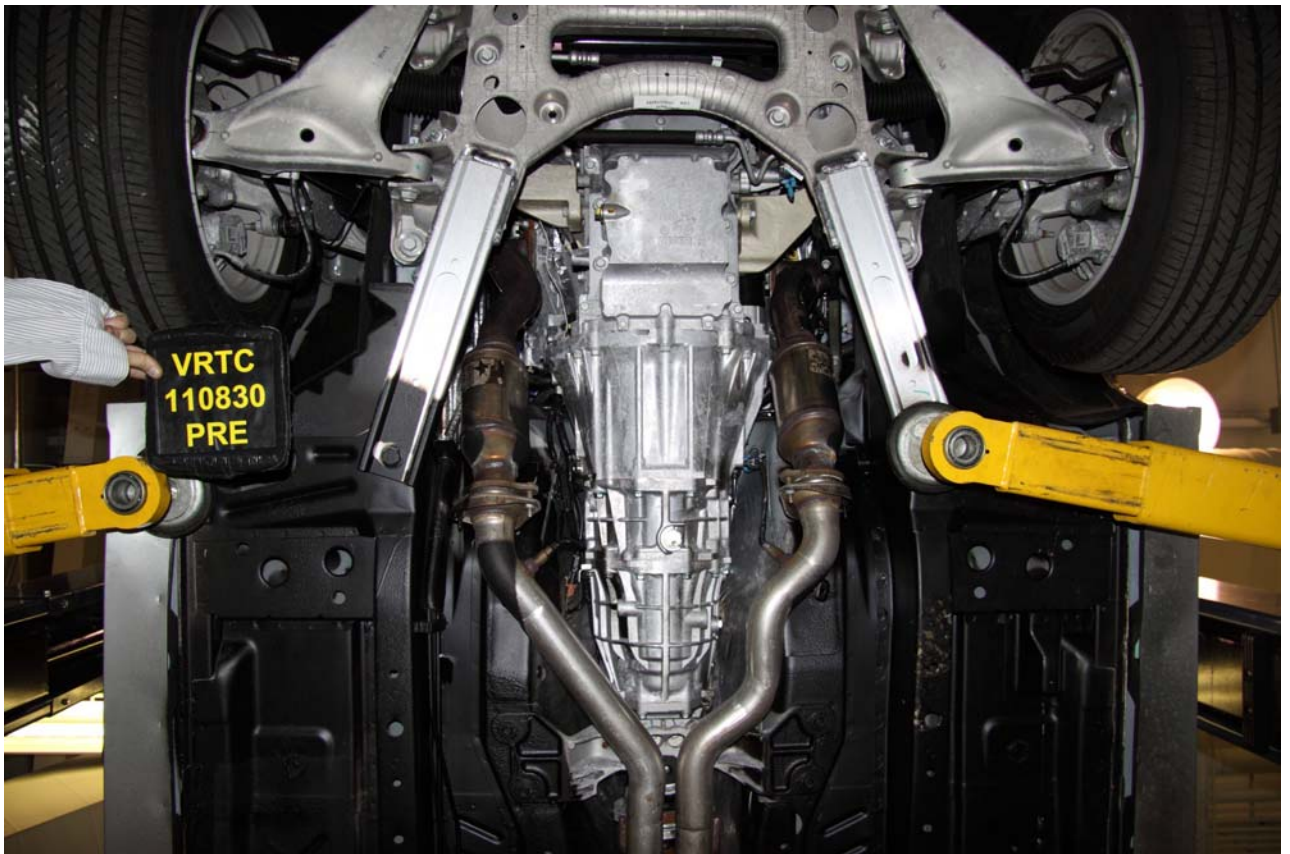


Figure A-23 Pre-Test Front Mid Underbody View



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

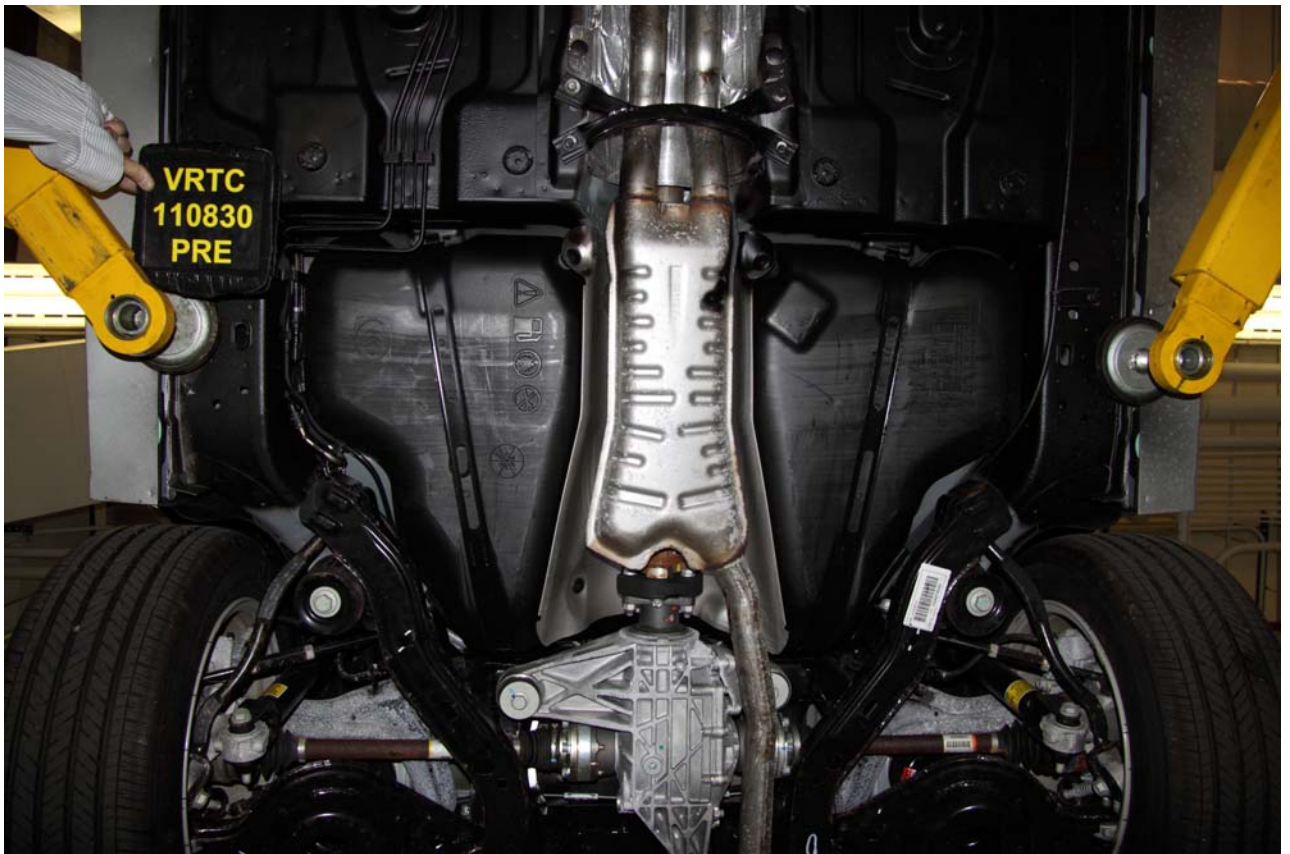


Figure A-27 Pre-Test Rear Mid Underbody View

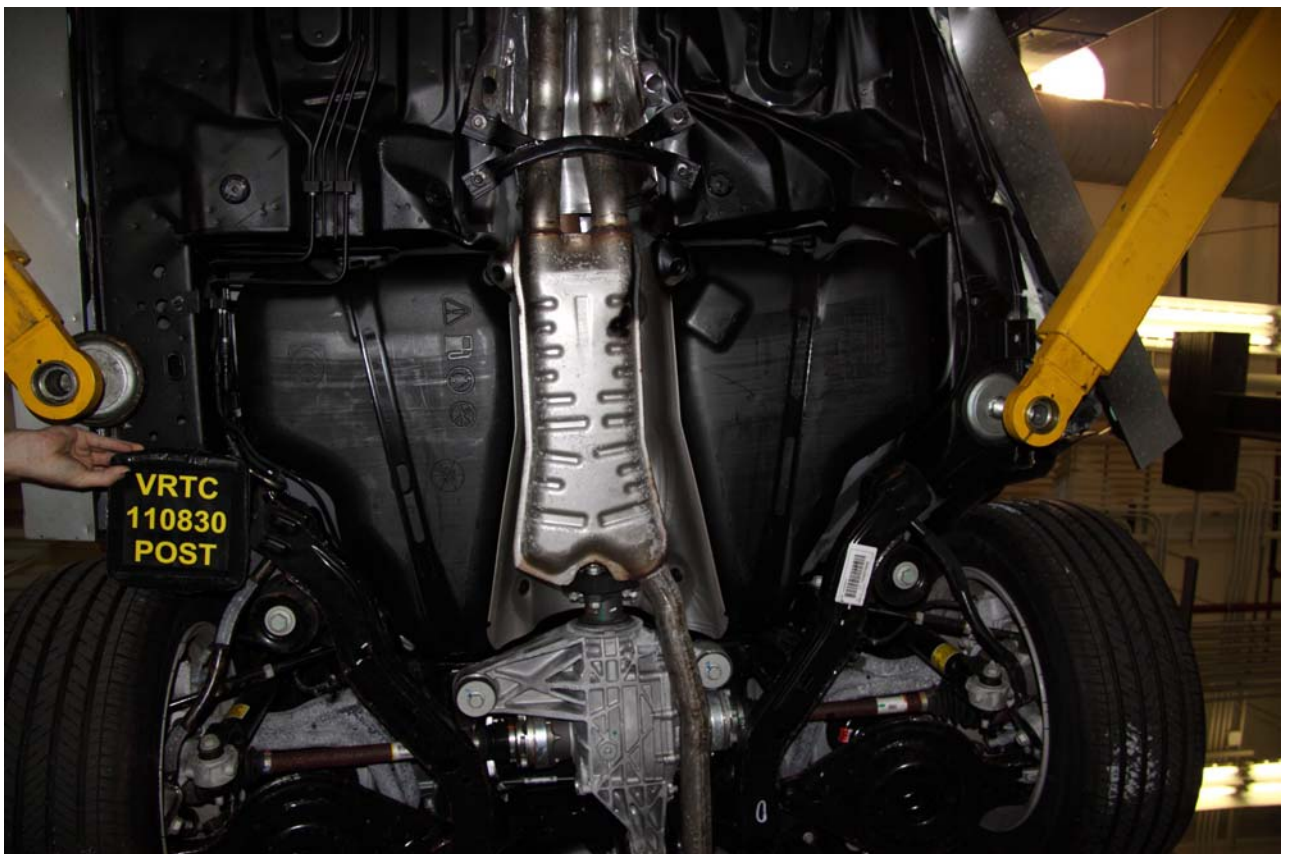


Figure A-28 Post-Test Rear Mid Underbody View

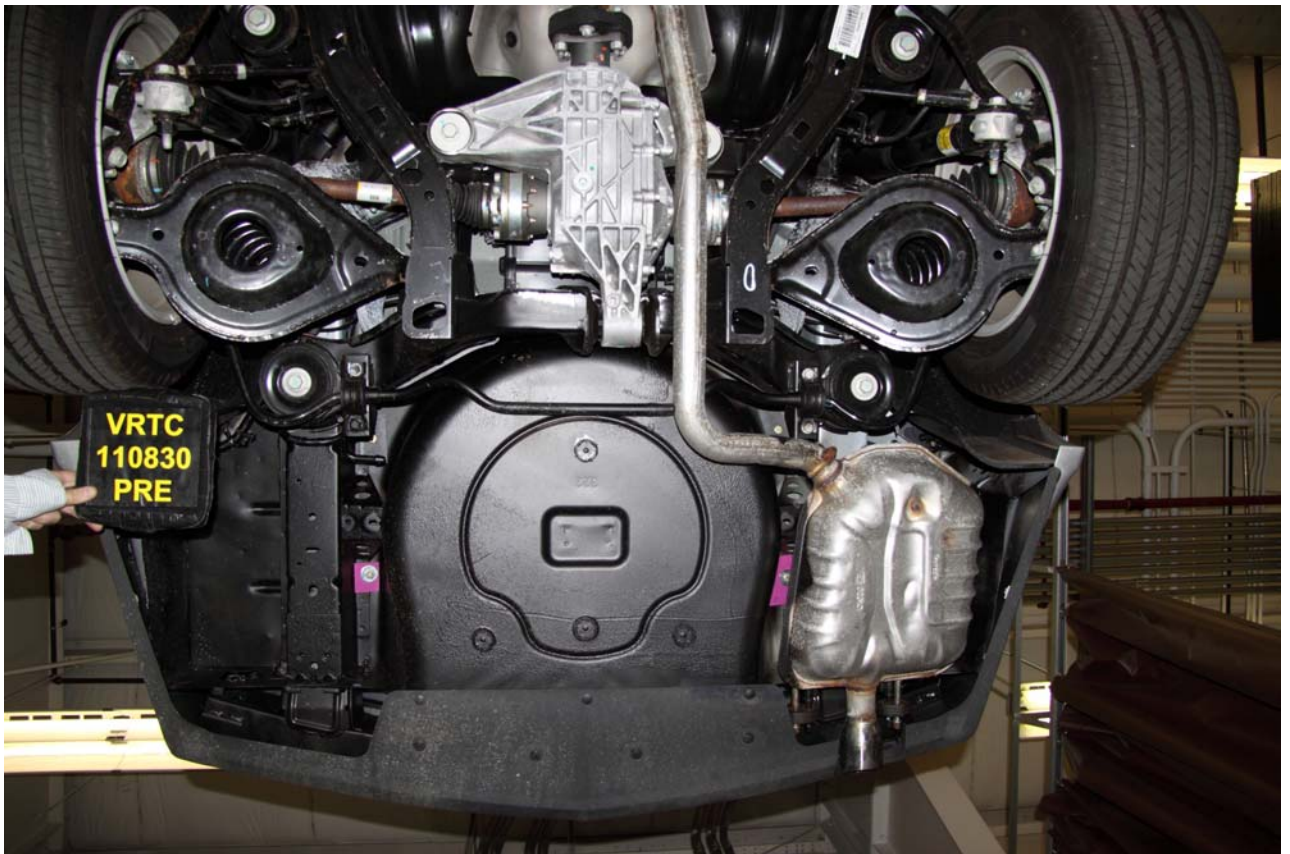


Figure A-29 Pre-Test Rear Underbody View

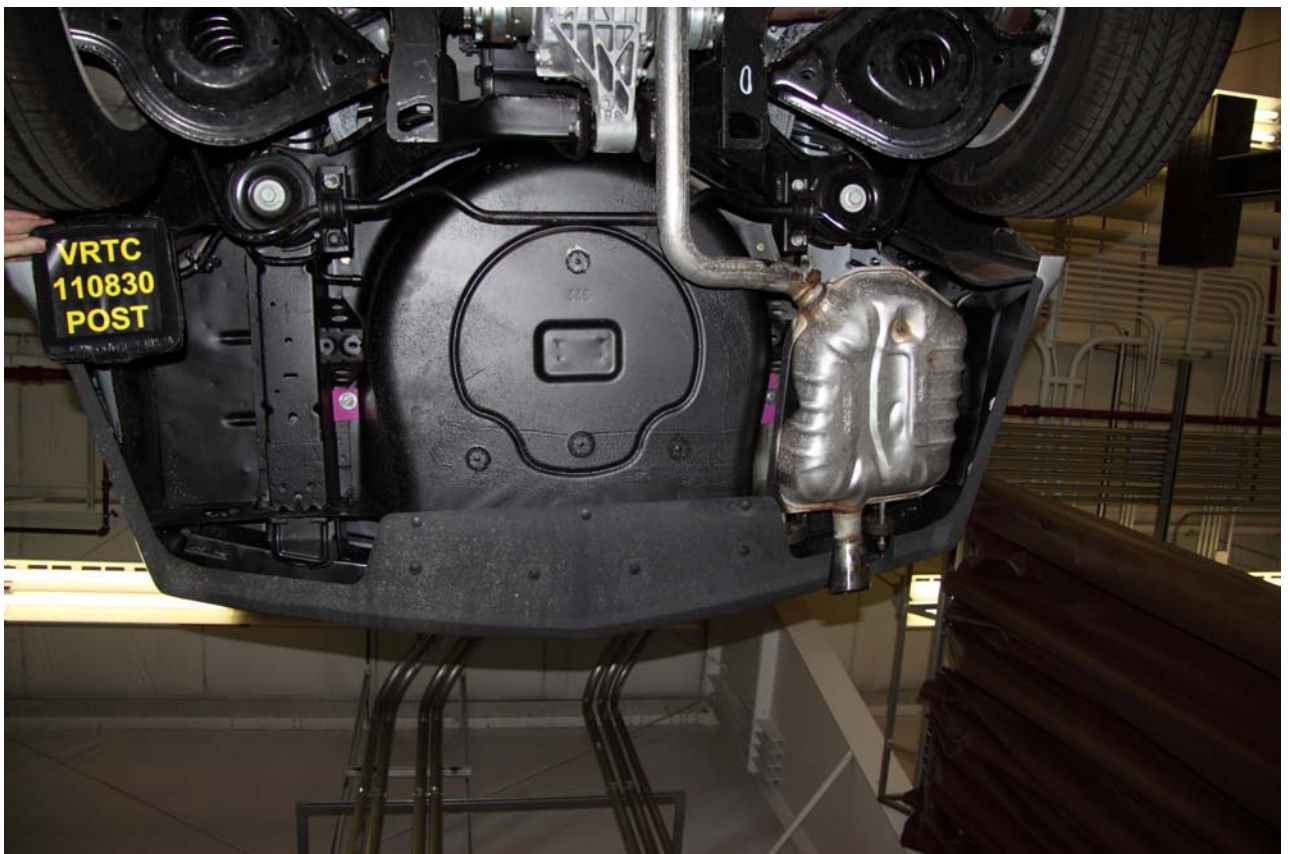


Figure A-30 Post-Test Rear Underbody View



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

Photograph Not Taken

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

Photograph Not Taken

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

Intentionally Left Blank



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



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



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 Contact - View 4

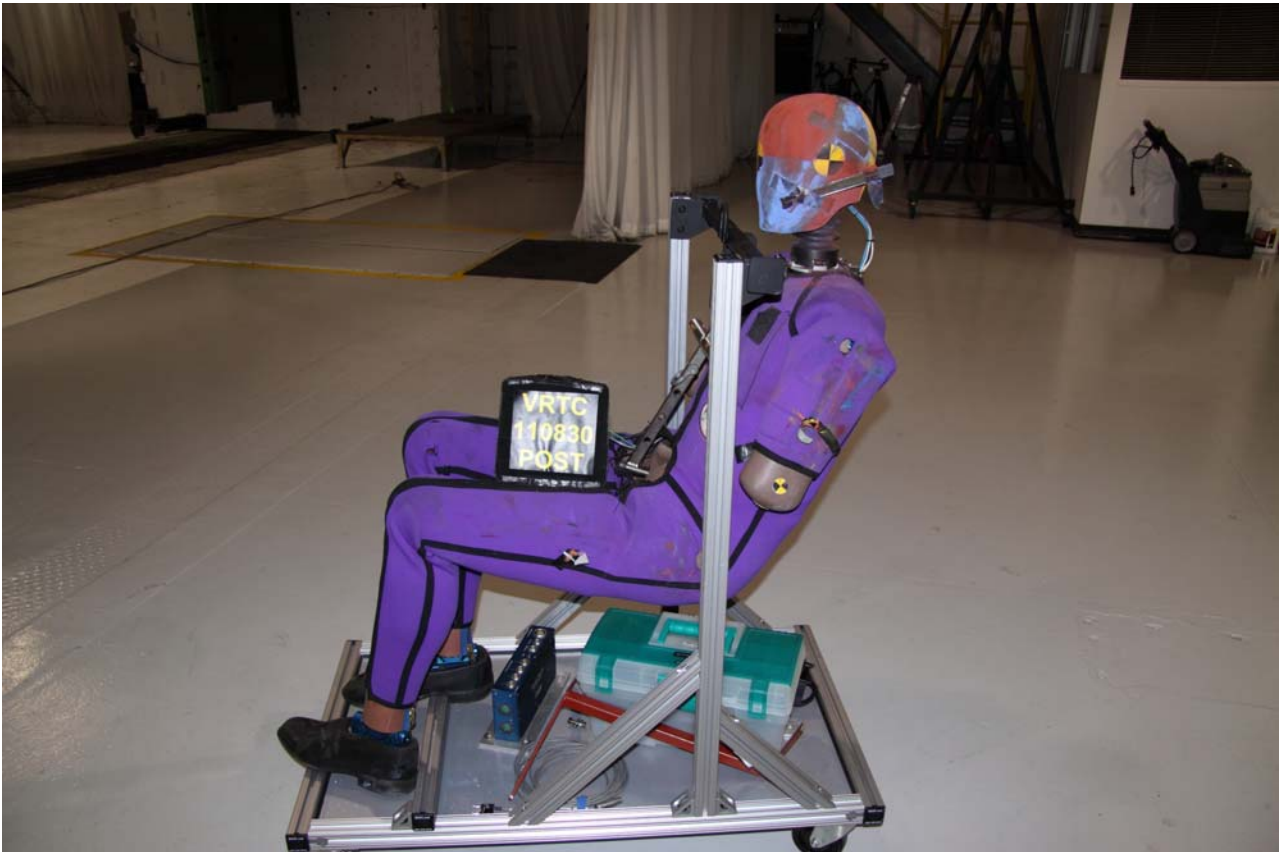


Figure A-46 Post-Test Driver Dummy Overall View

Intentionally Left Blank

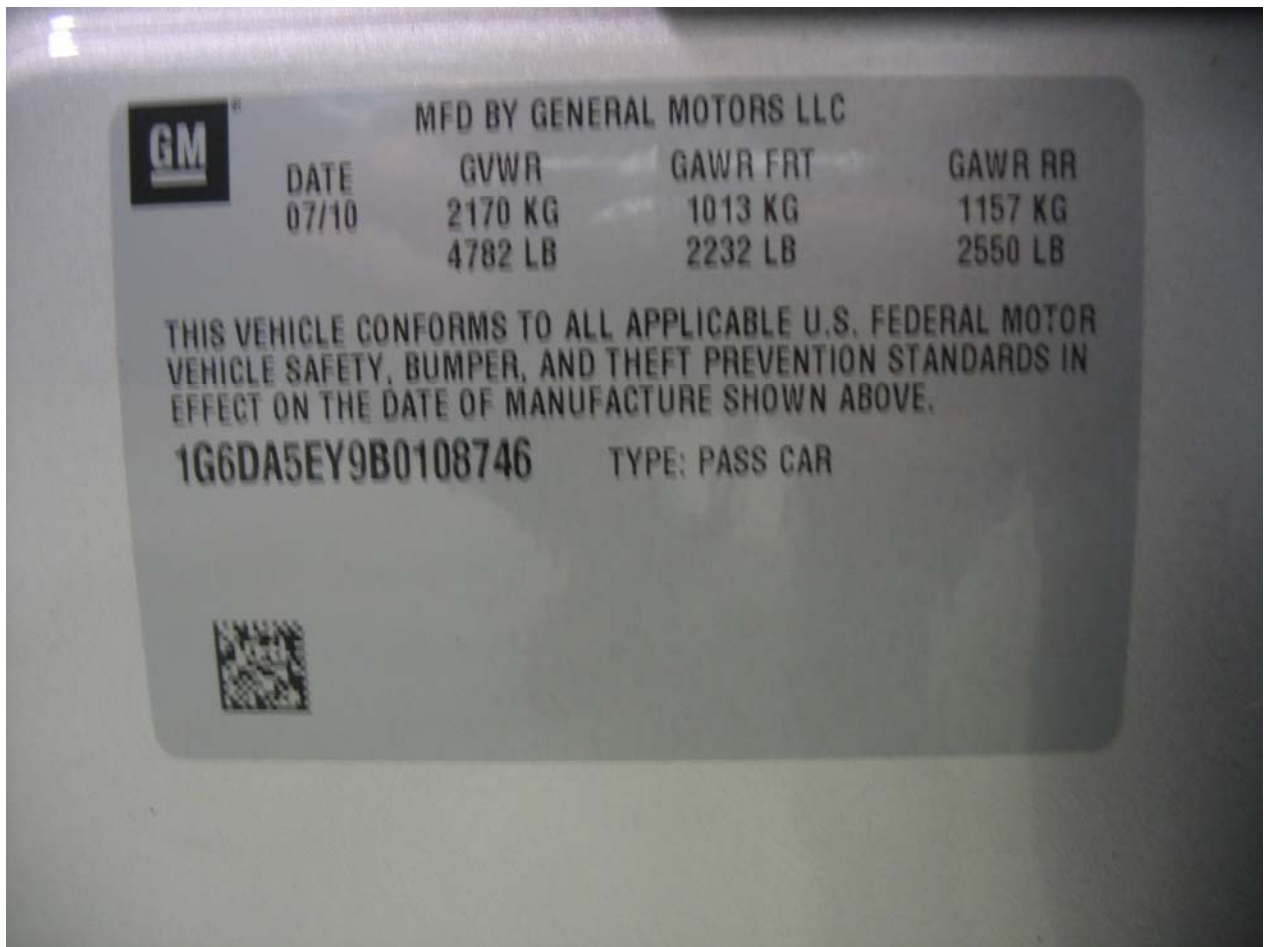


Figure A-47 Vehicle Certification Label

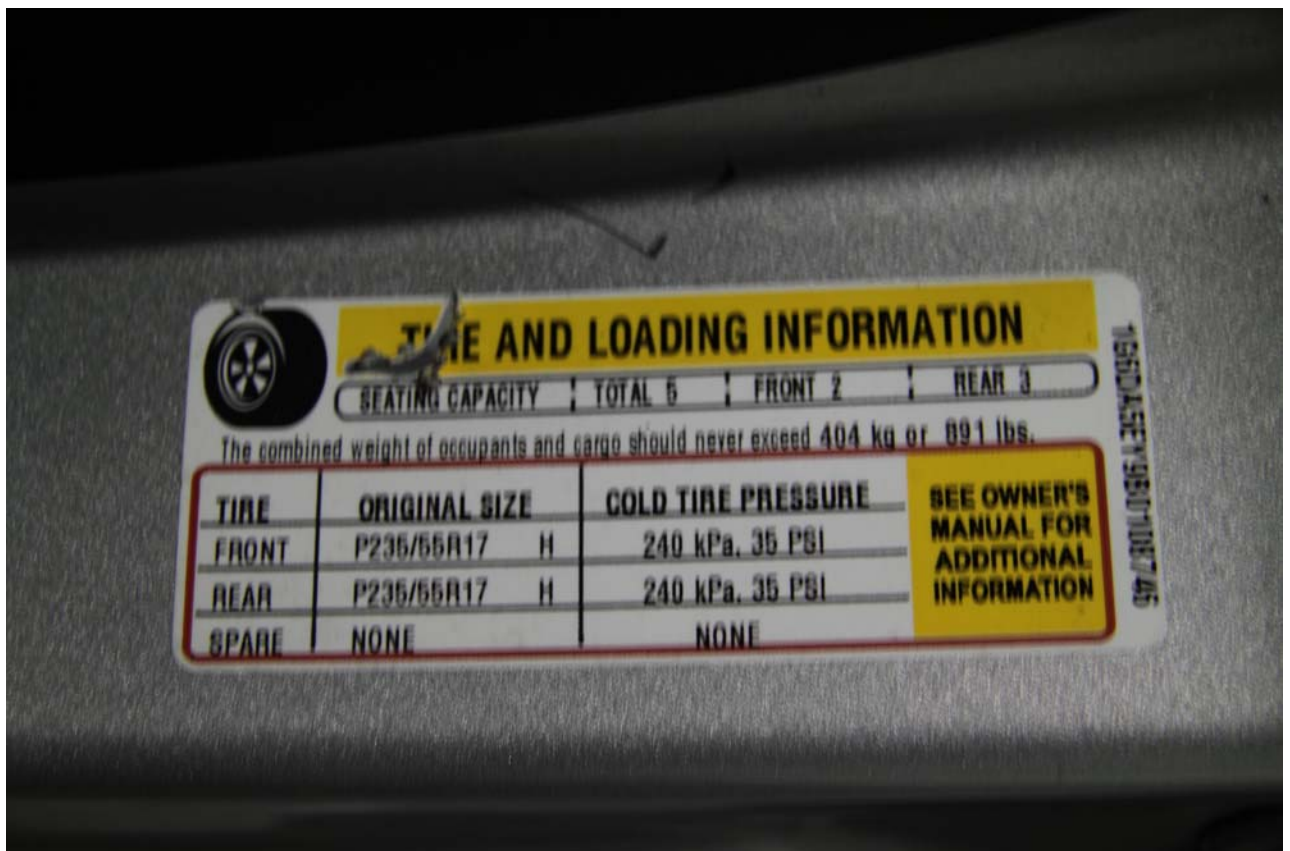


Figure A-48 Tire Pressure Label

Appendix B

Data Plots



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

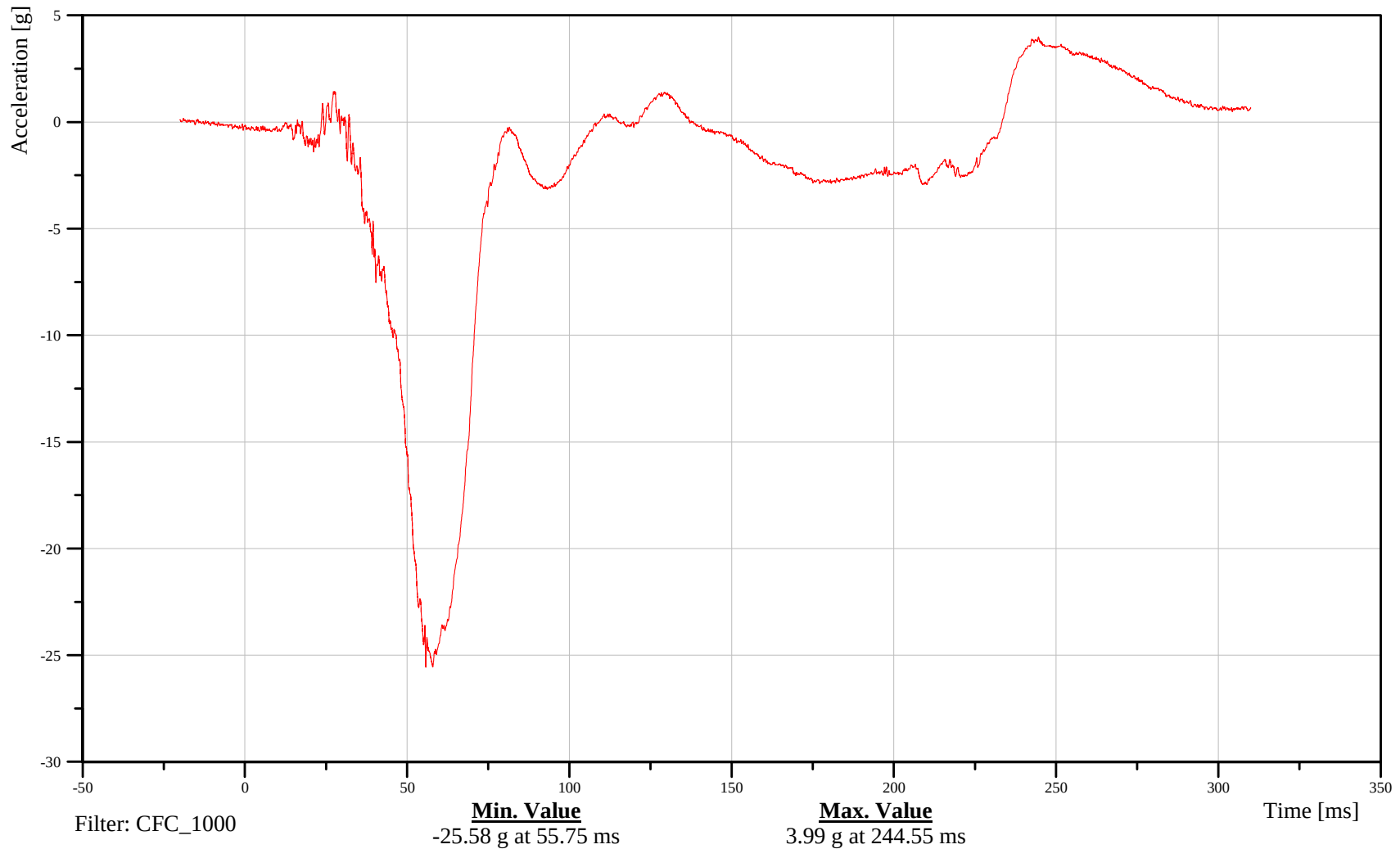
Head X-Axis Acceleration

Customer: VRTC

11HEADCG00WSACXA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-2

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

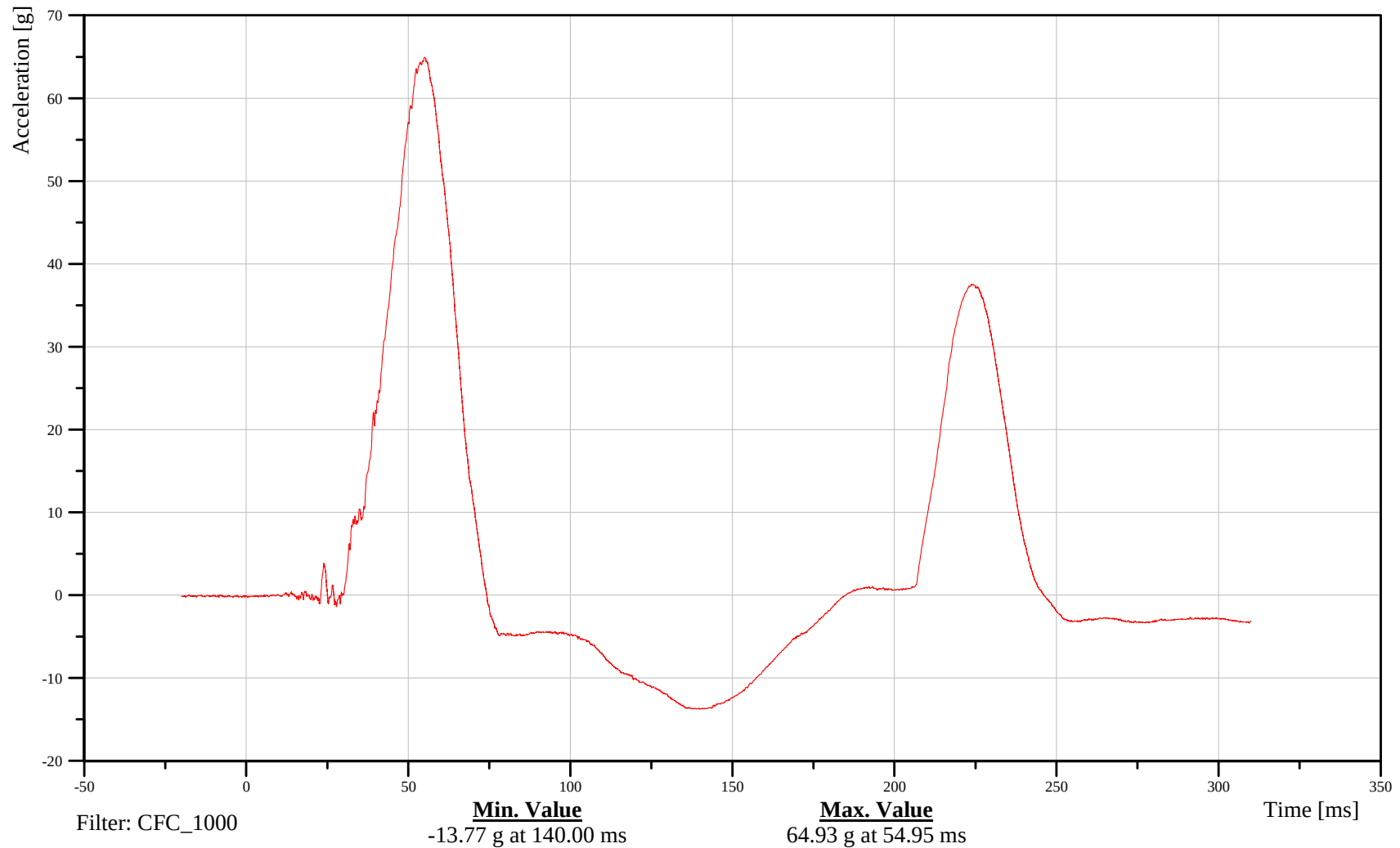
Head Y-Axis Acceleration

Customer: VRTC

11HEADCG00WSACYA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-3

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

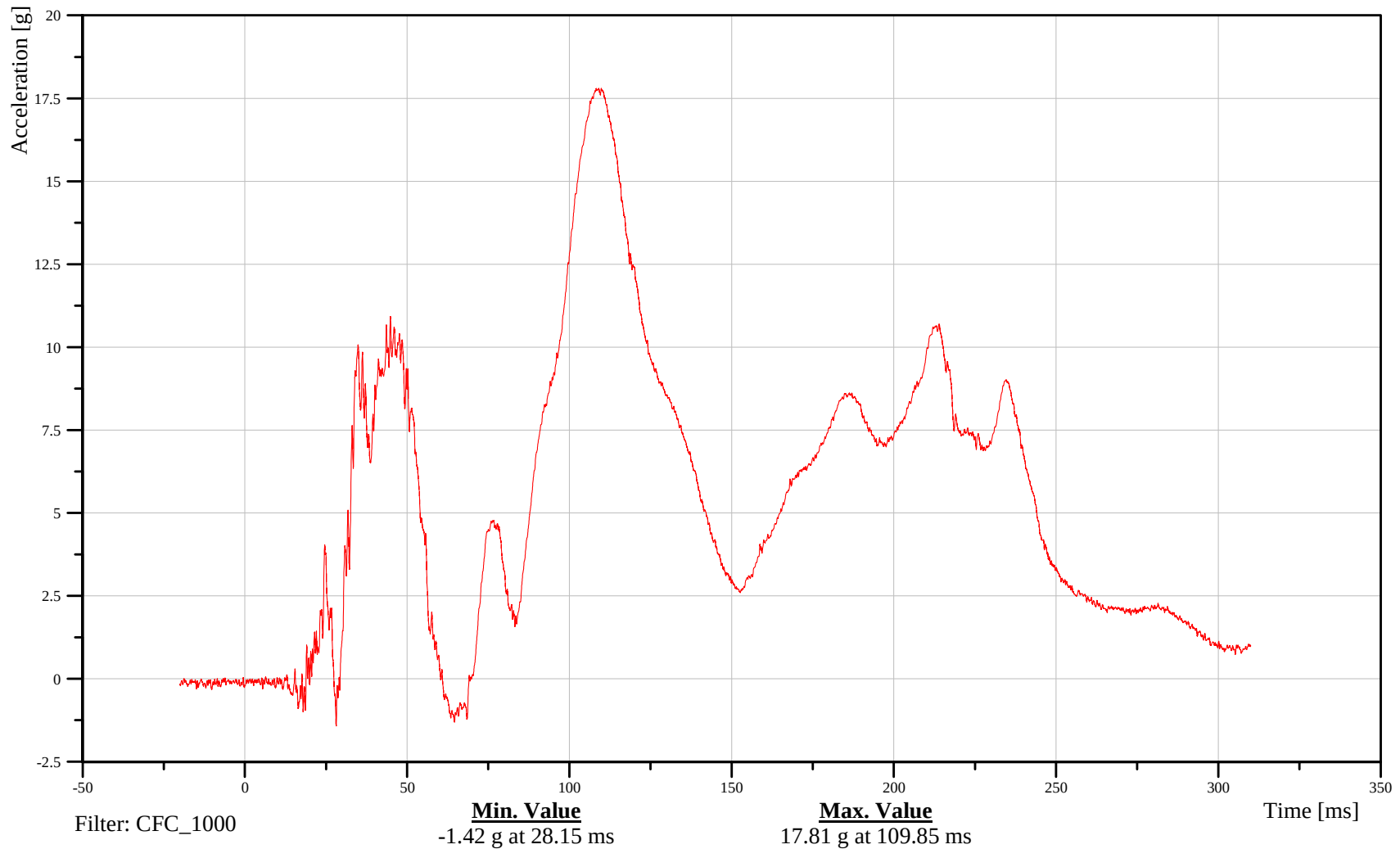
Head Z-Axis Acceleration

Customer: VRTC

11HEADCG00WSACZA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-4

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

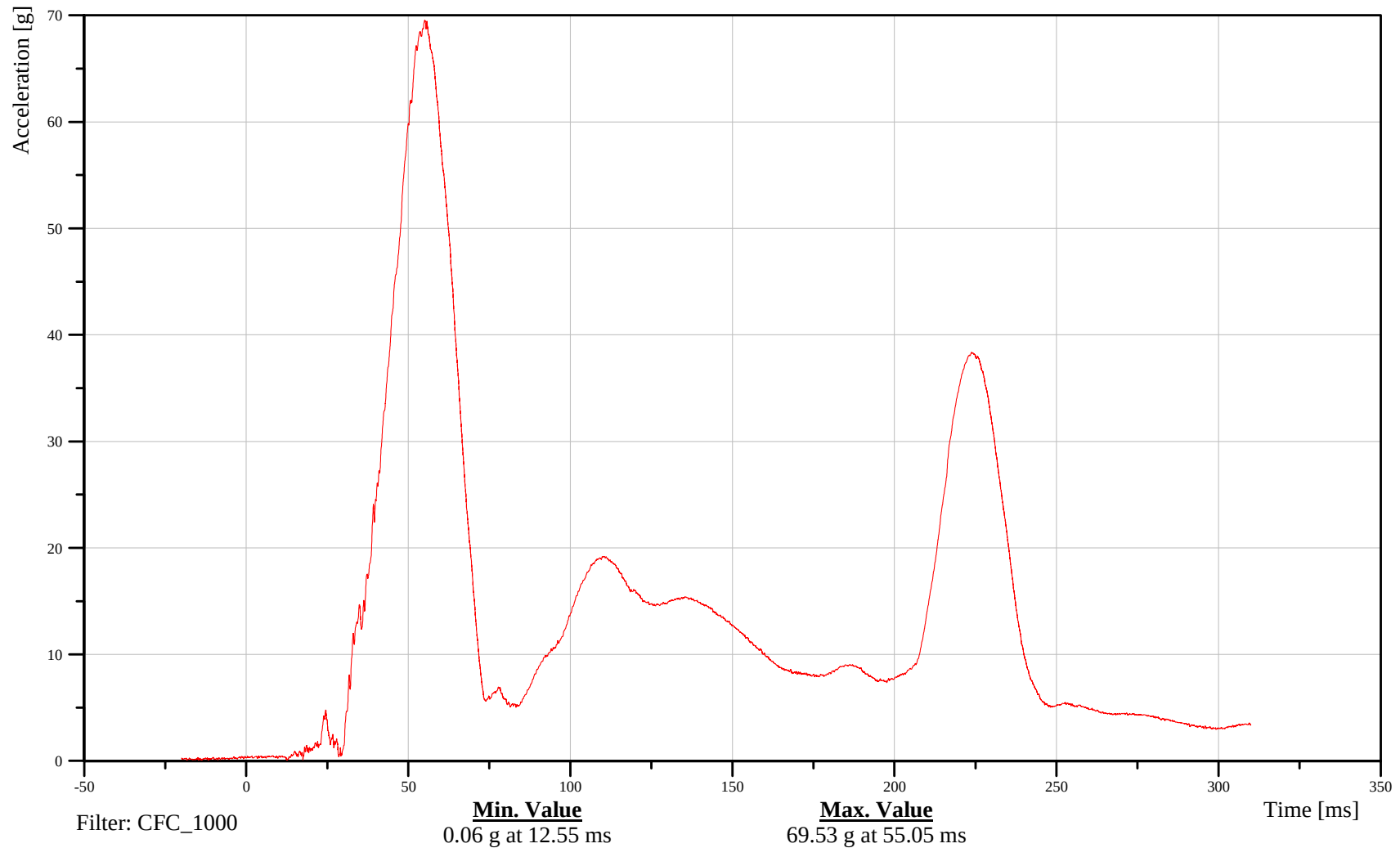
Head Resultant Acceleration

Customer: VRTC

11HEADCG00WSACRA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-5

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

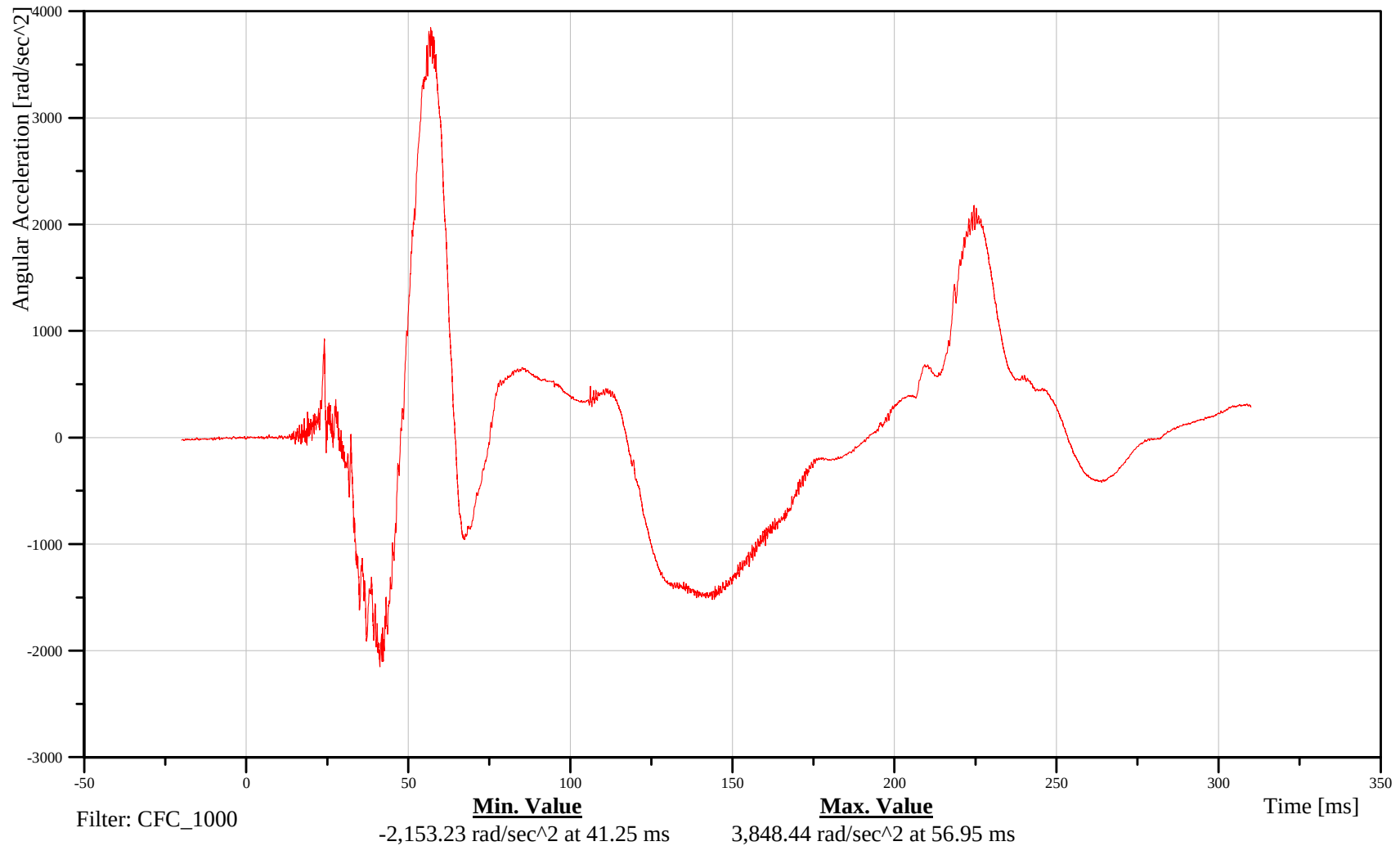
Head X-Axis Angular Displacement

Customer: VRTC

11HEADCG00WSAAXA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-6

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

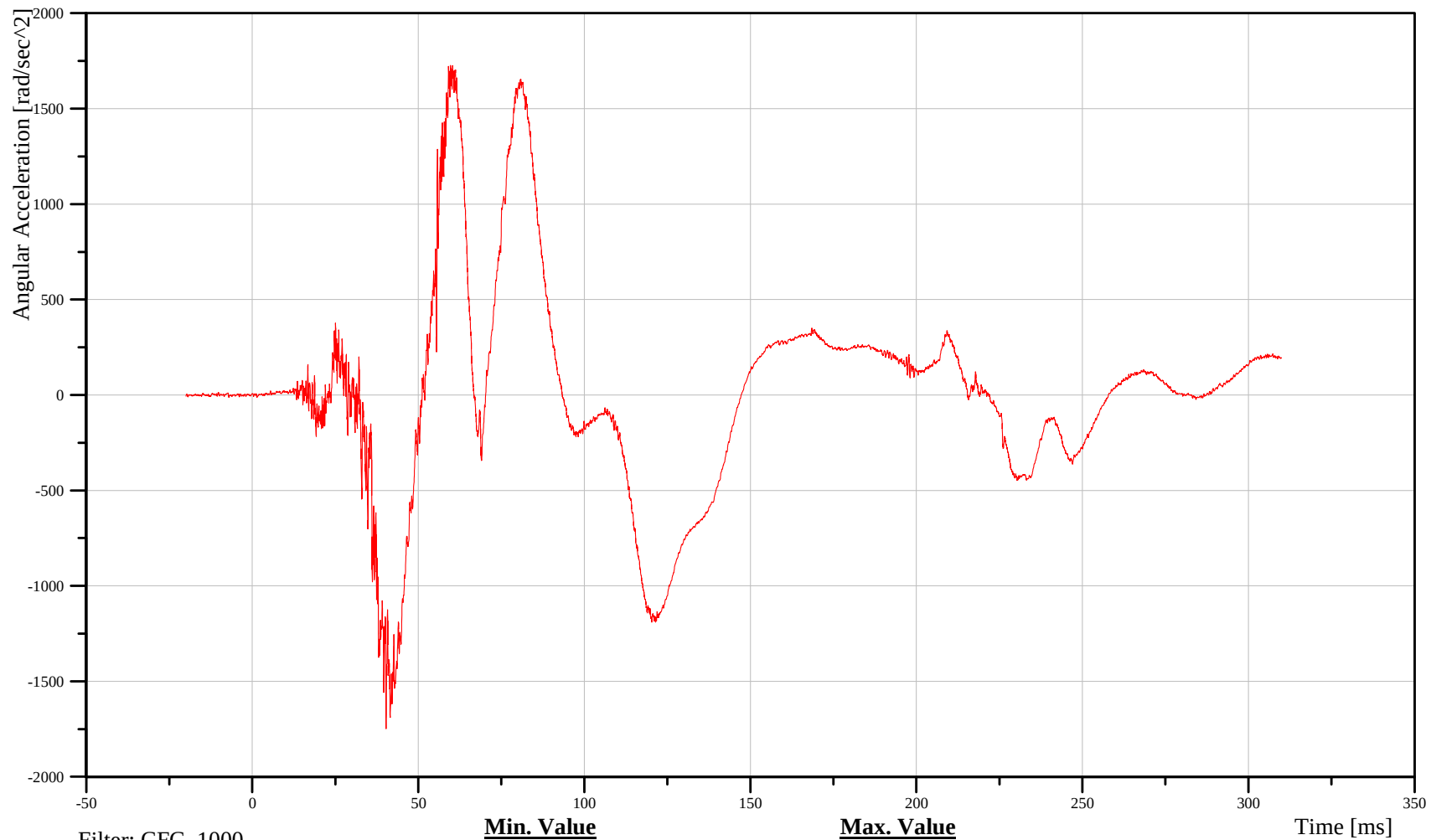
Head Y-Axis Angular Displacement

Customer: VRTC

11HEADCG00WSAAYA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-7

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

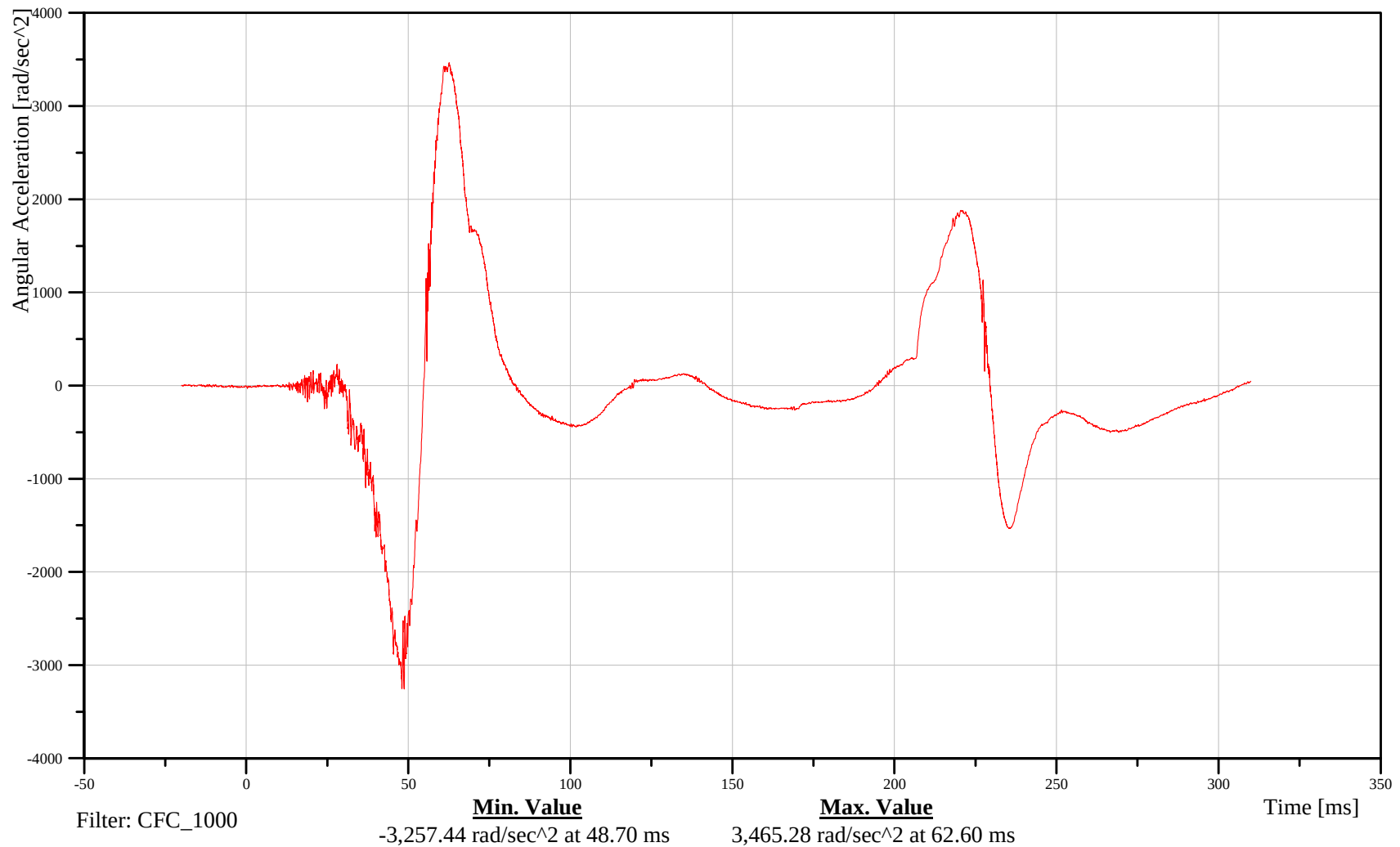
Head Z-Axis Angular Displacement

Customer: VRTC

11HEADCG00WSAAZA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-8

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

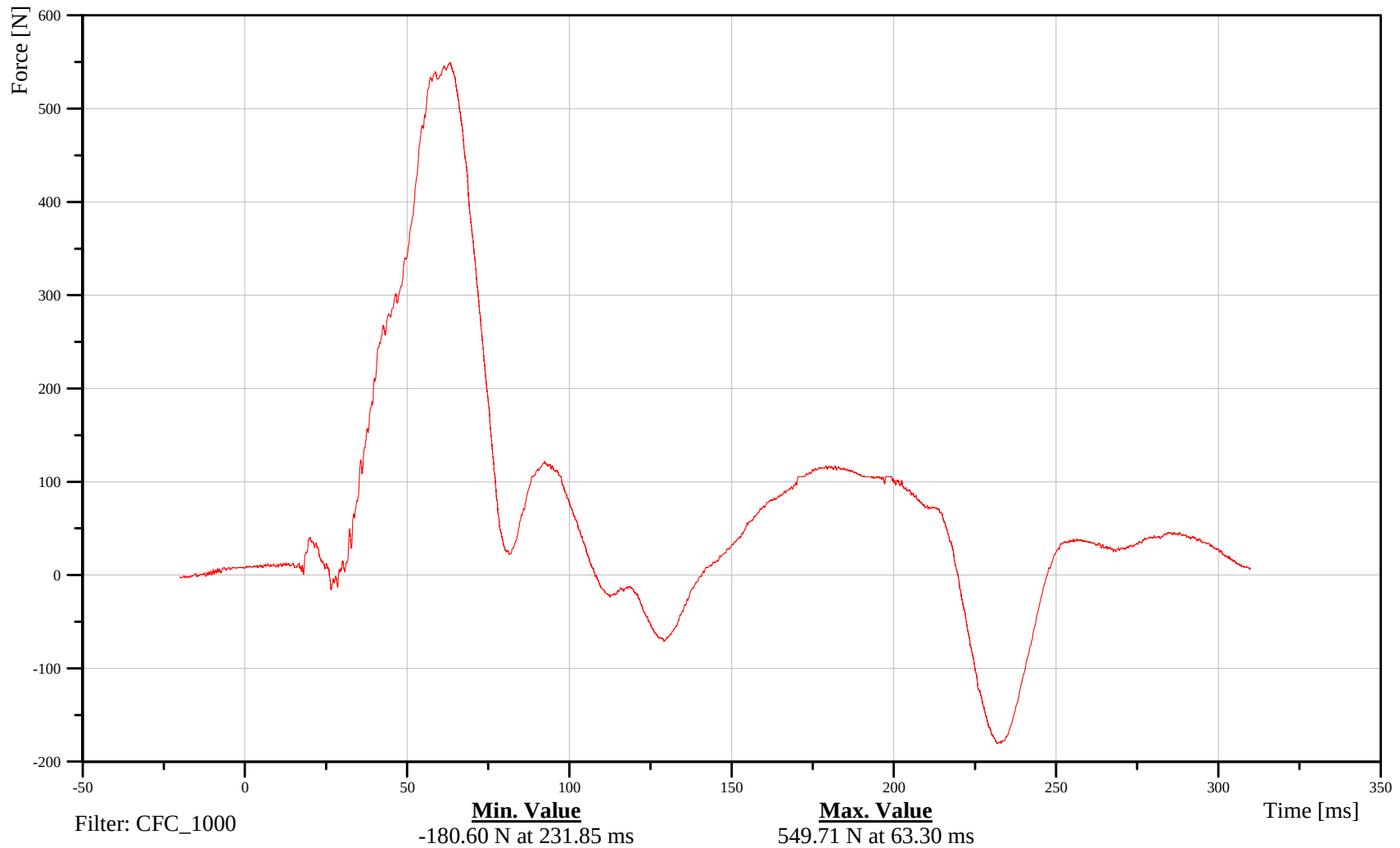
Upper Neck X-Axis Force

Customer: VRTC

11NECKUP00WSFOXA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-9

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

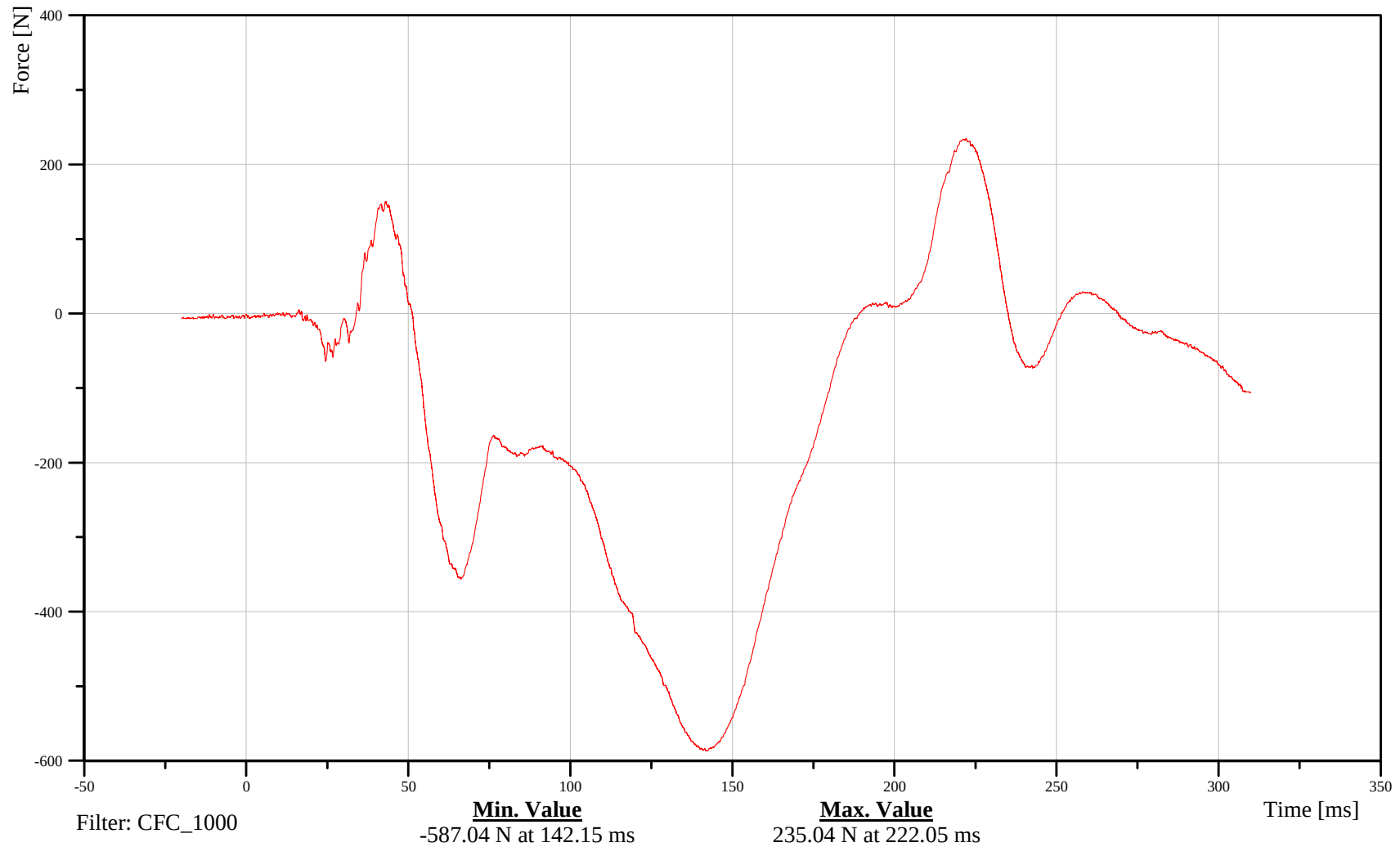
Upper Neck Y-Axis Force

Customer: VRTC

11NECKUP00WSFOYA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-10

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

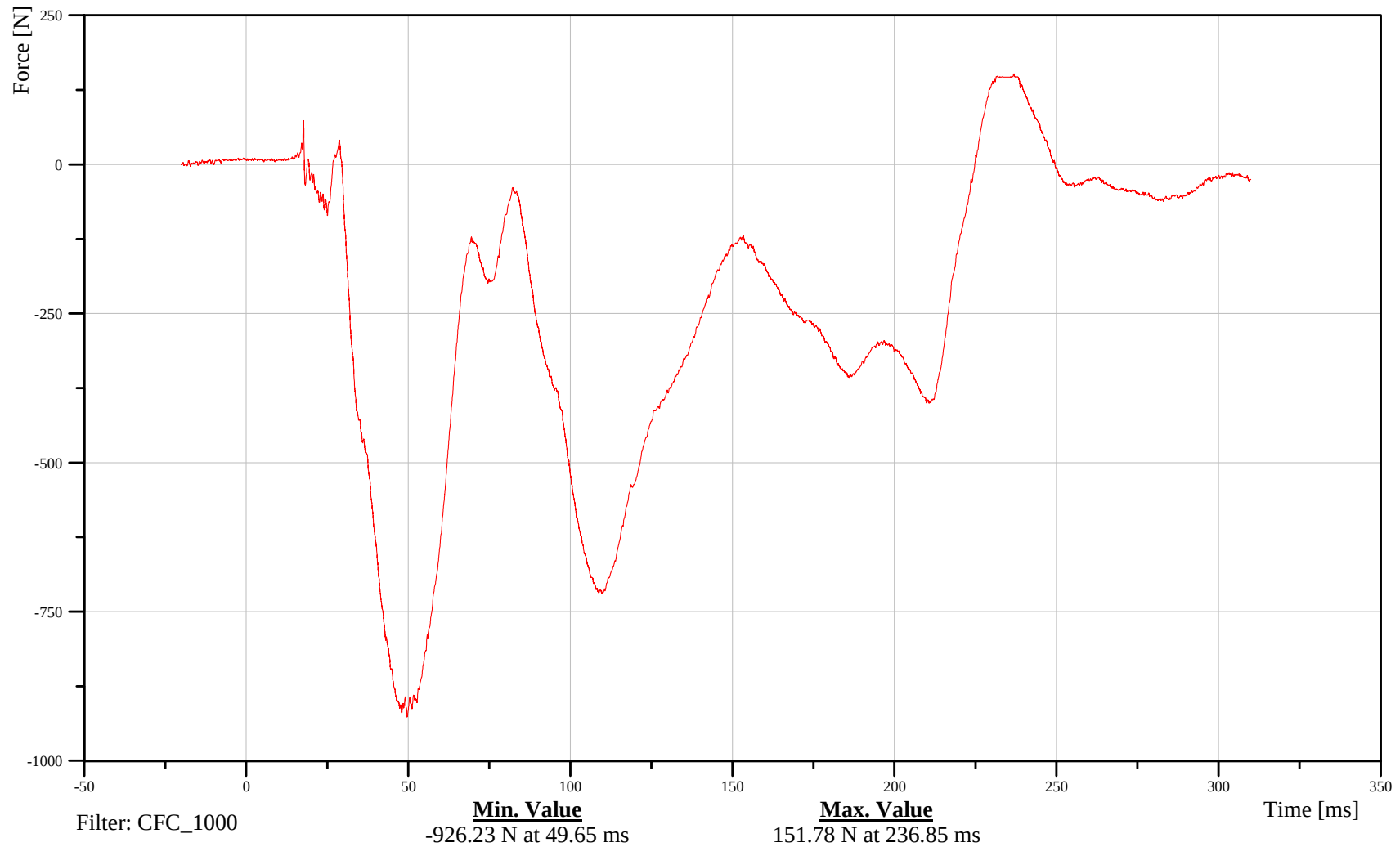
Upper Neck Z-Axis Force

Customer: VRTC

11NECKUP00WSFOZA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-11

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

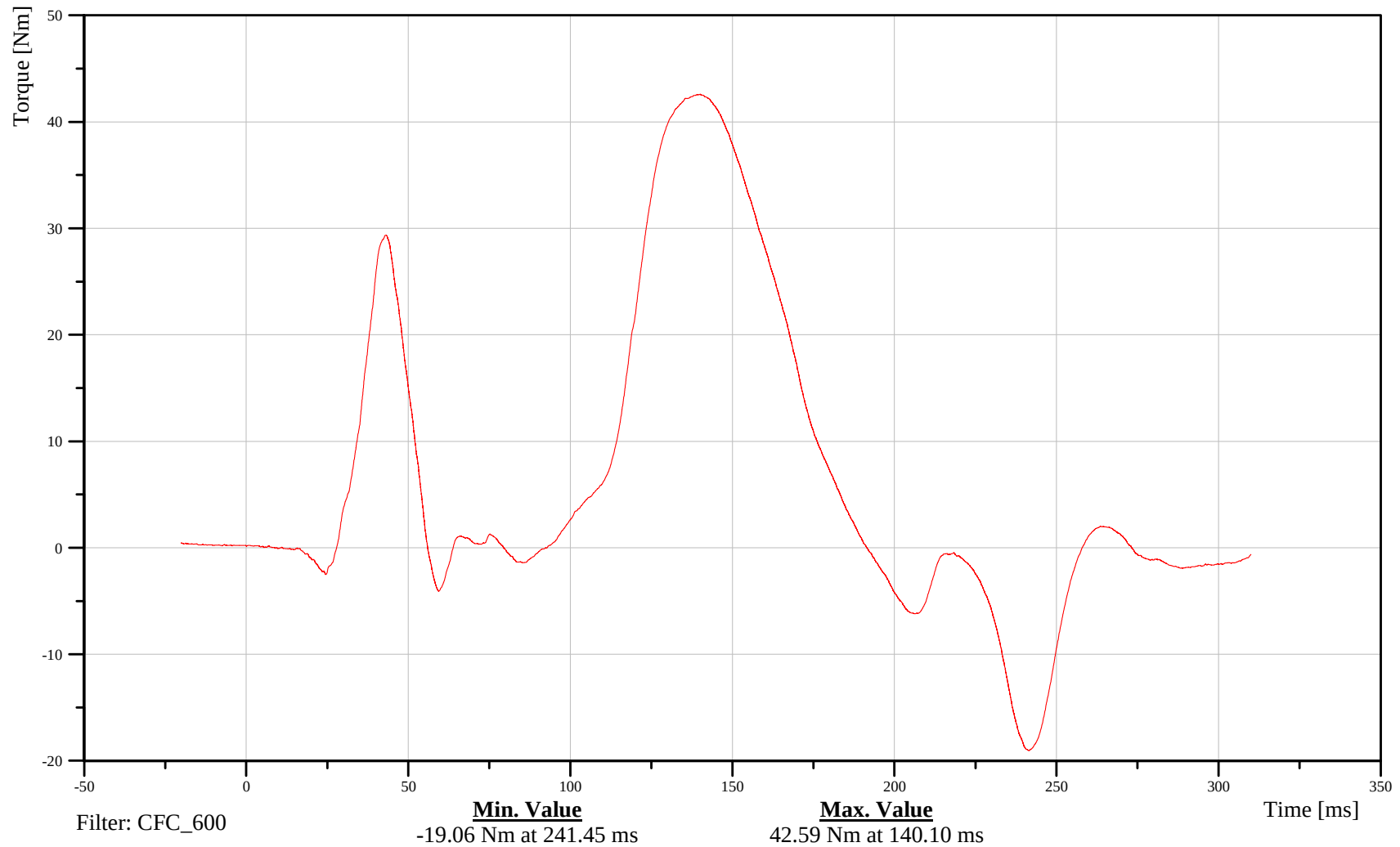
Upper Neck Moment About X Axis

Customer: VRTC

11NECKUP00WSMOXB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-12

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

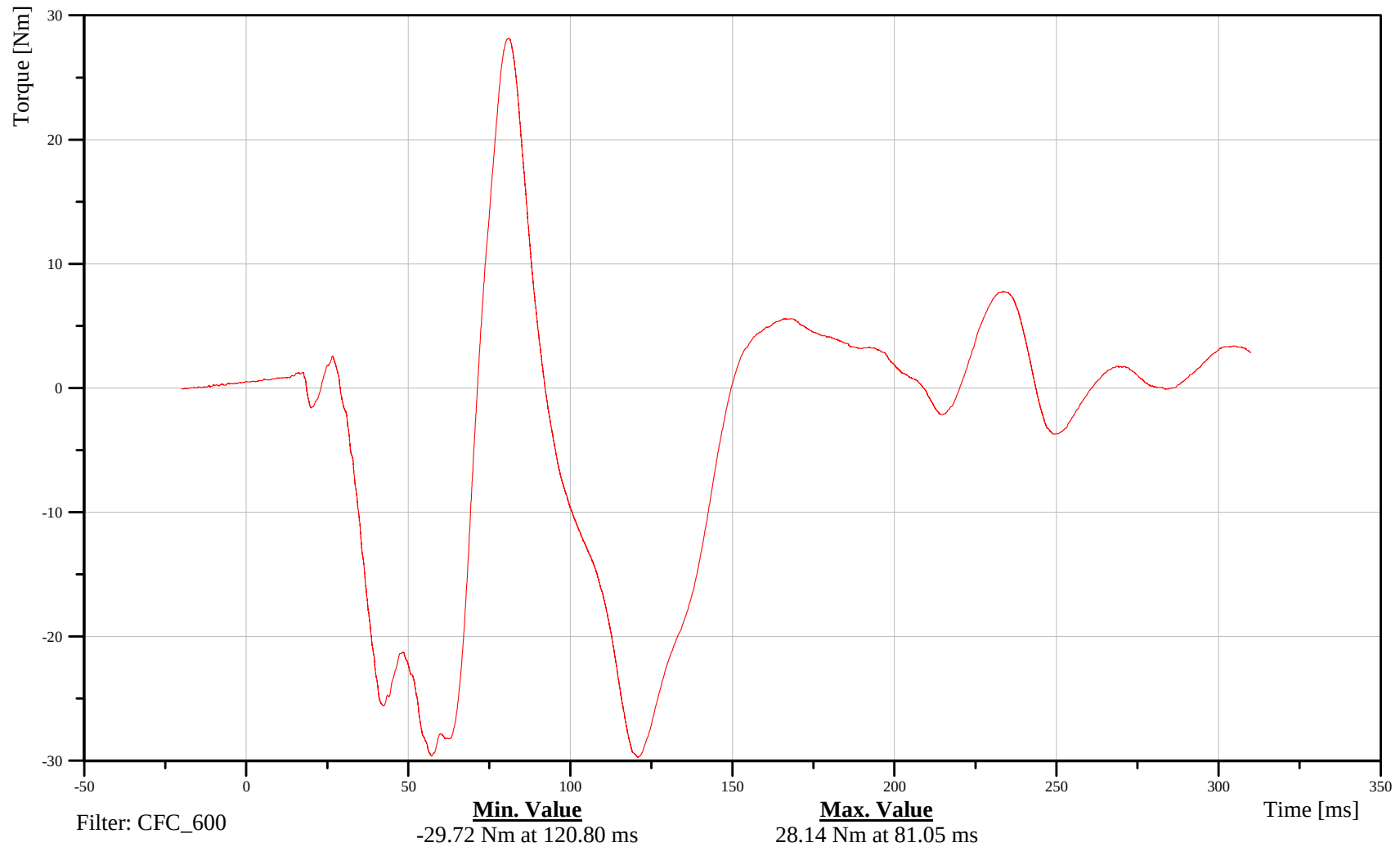
Upper Neck Moment About Y Axis

Customer: VRTC

11NECKUP00WSMOYB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-13

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

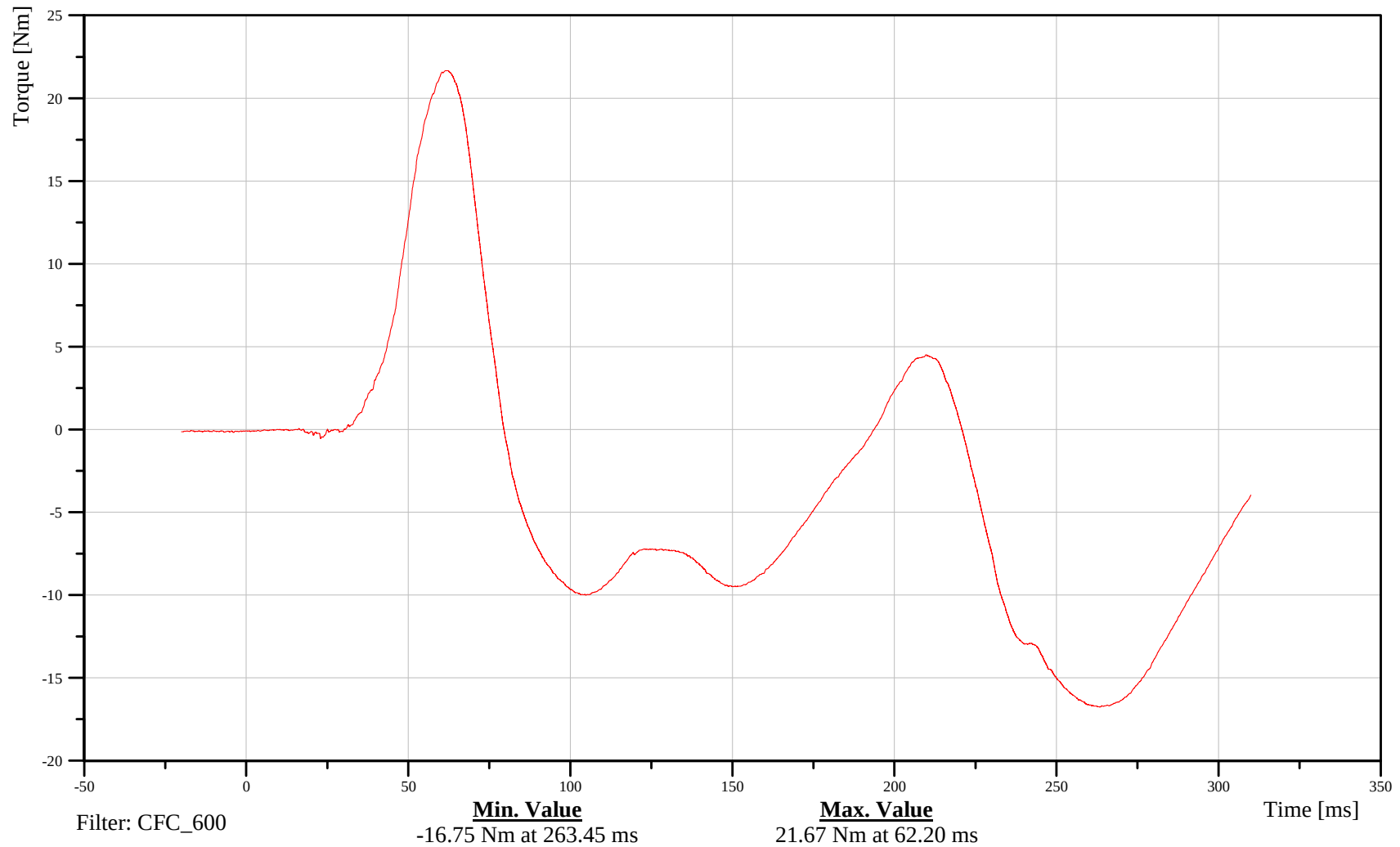
Upper Neck Moment About Z Axis

Customer: VRTC

11NECKUP00WSMOZB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-14

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

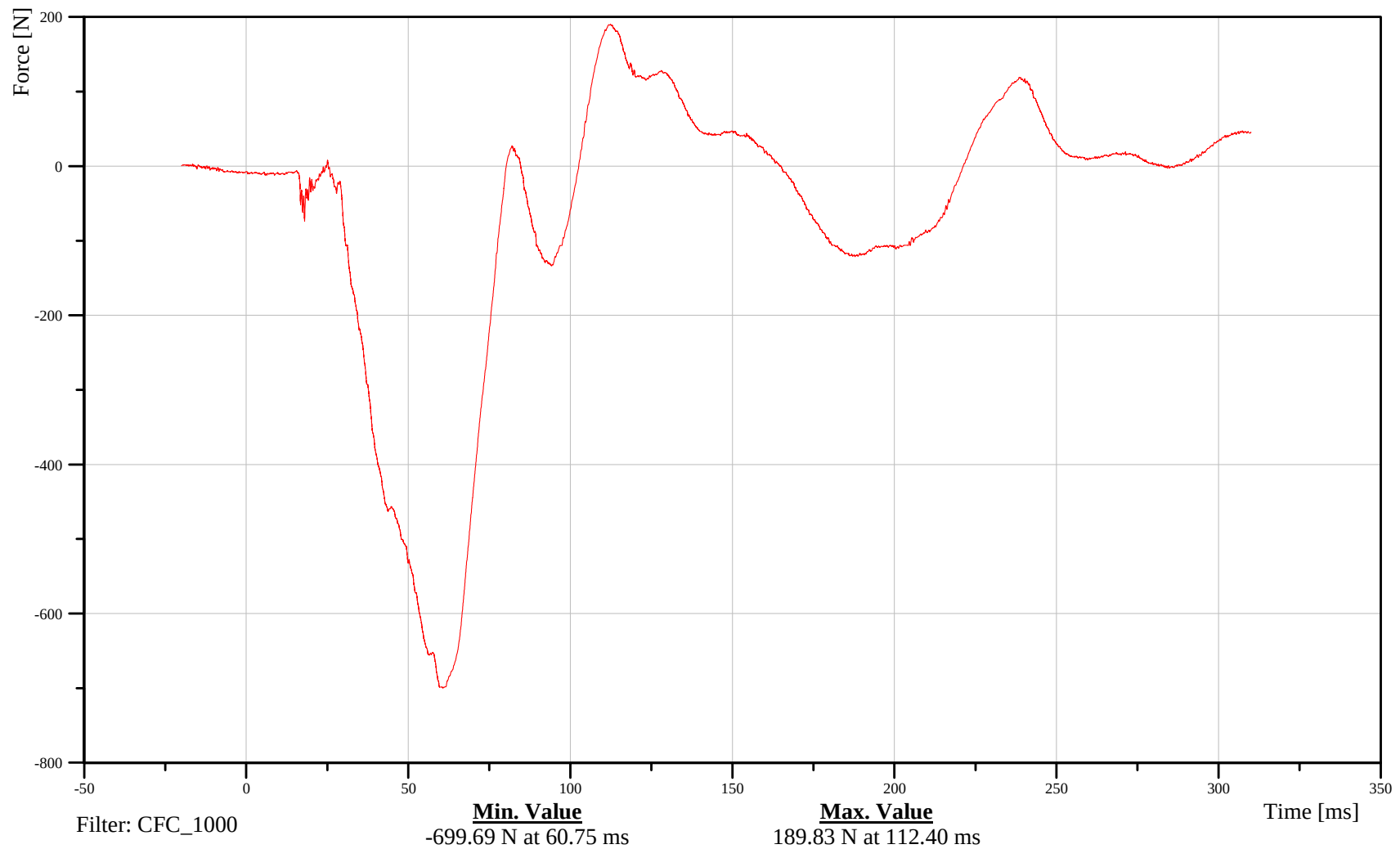
Lower Neck X-Axis Force

Customer: VRTC

11NECKLO00WSFOXA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-15

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

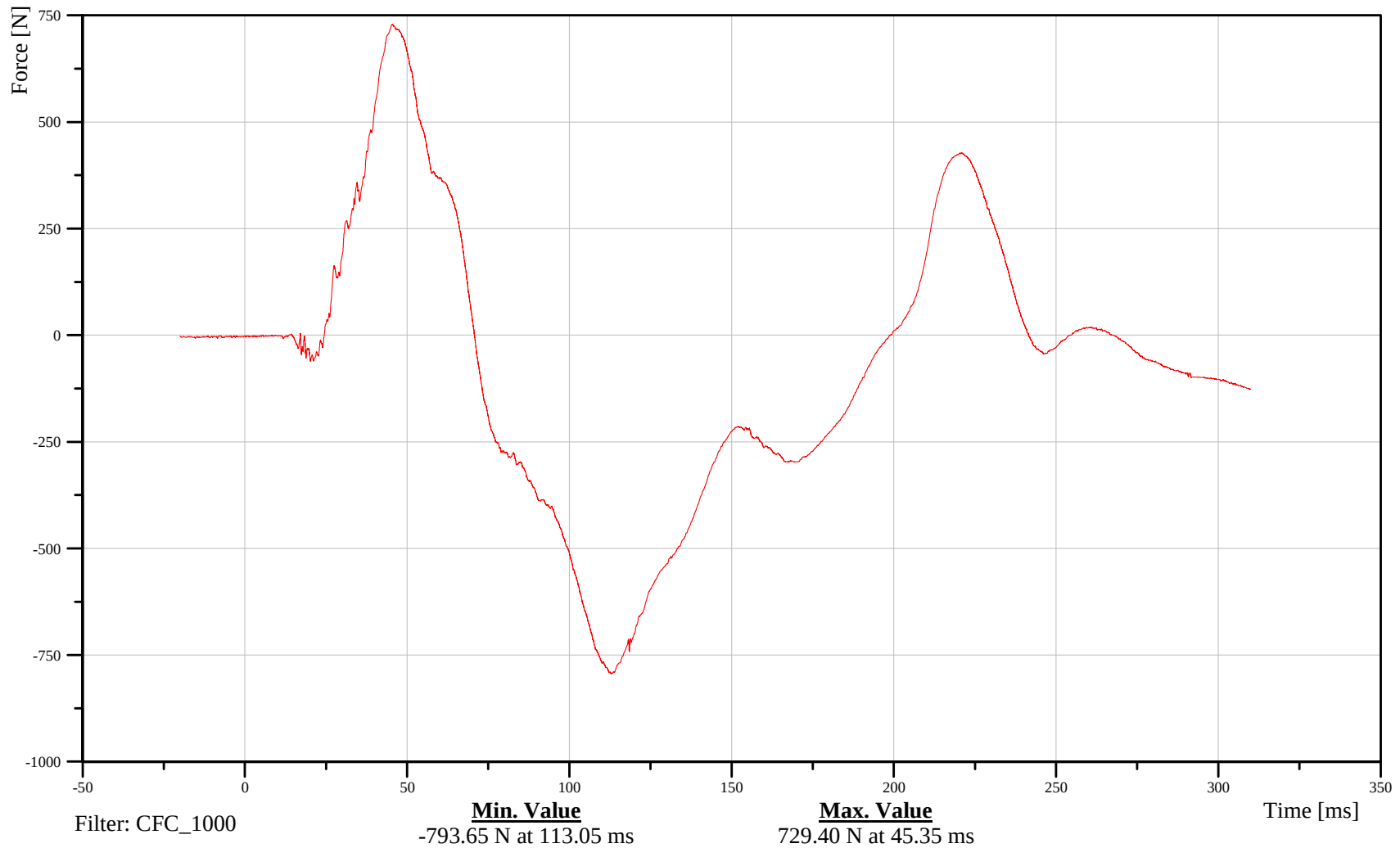
Lower Neck Y-Axis Force

Customer: VRTC

11NECKLO00WSFOYA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-16

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

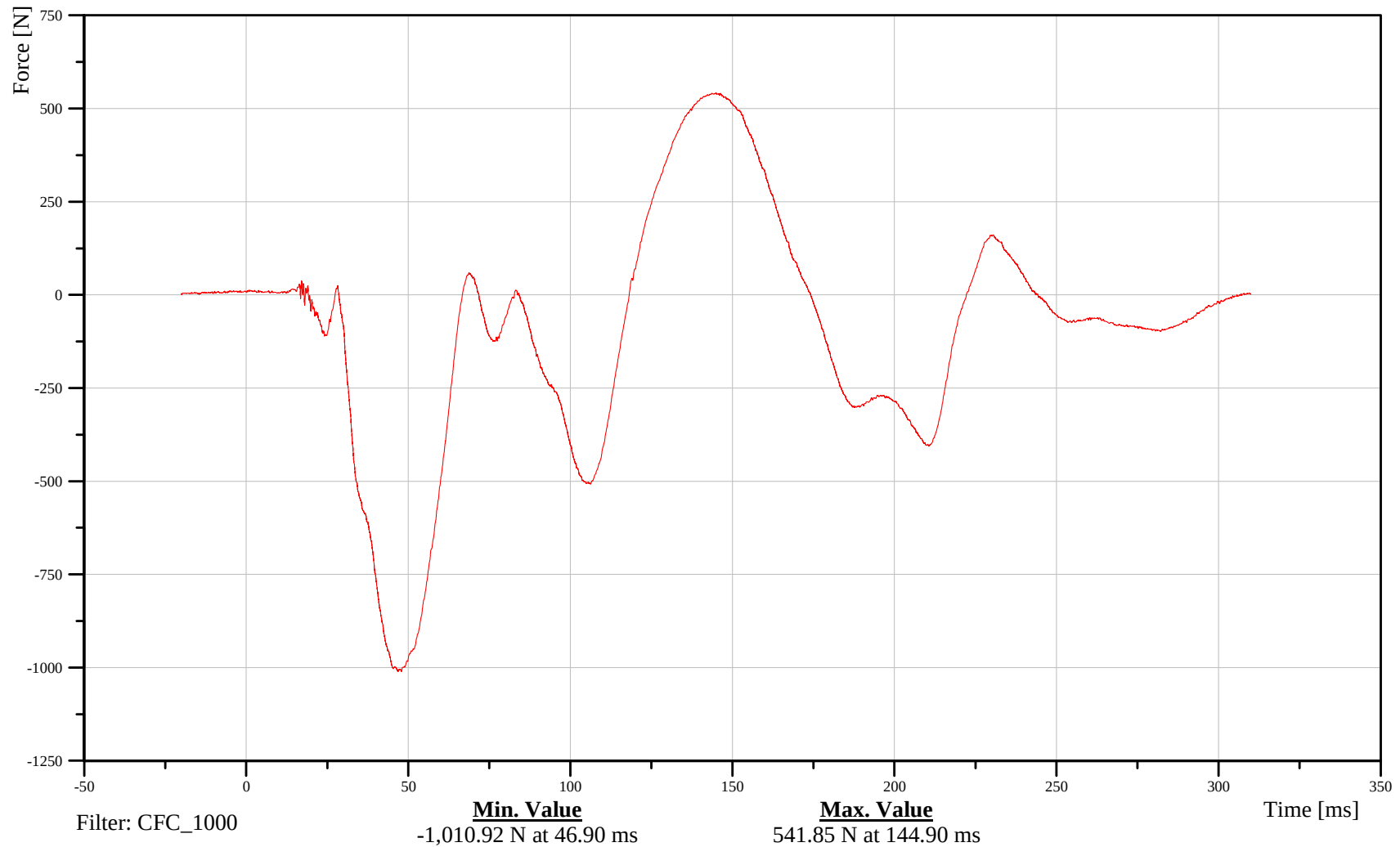
Lower Neck Z-Axis Force

Customer: VRTC

11NECKLO00WSFOZA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-17

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

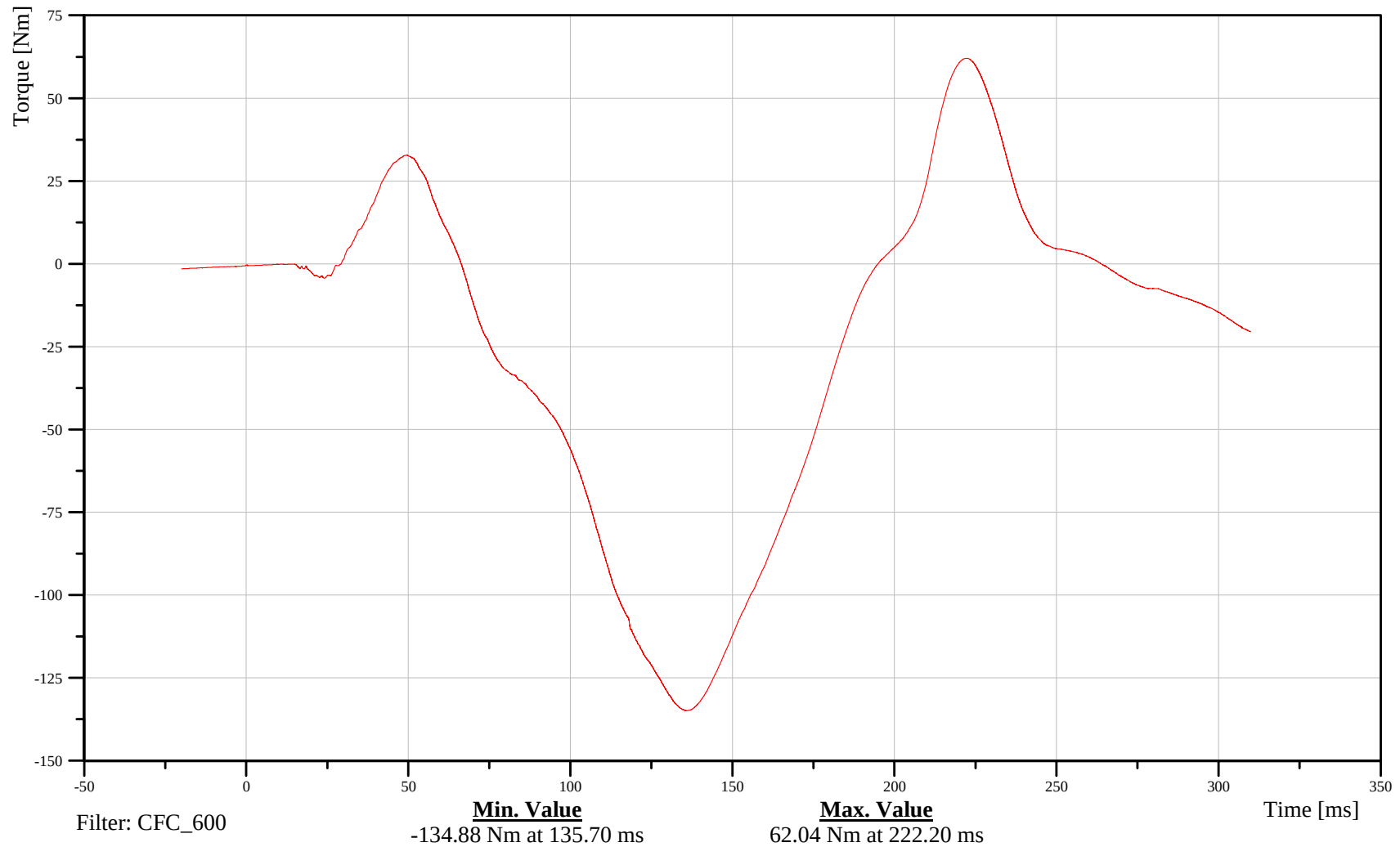
Lower Neck Moment About X Axis

Customer: VRTC

11NECKLO00WSMOXB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-18

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

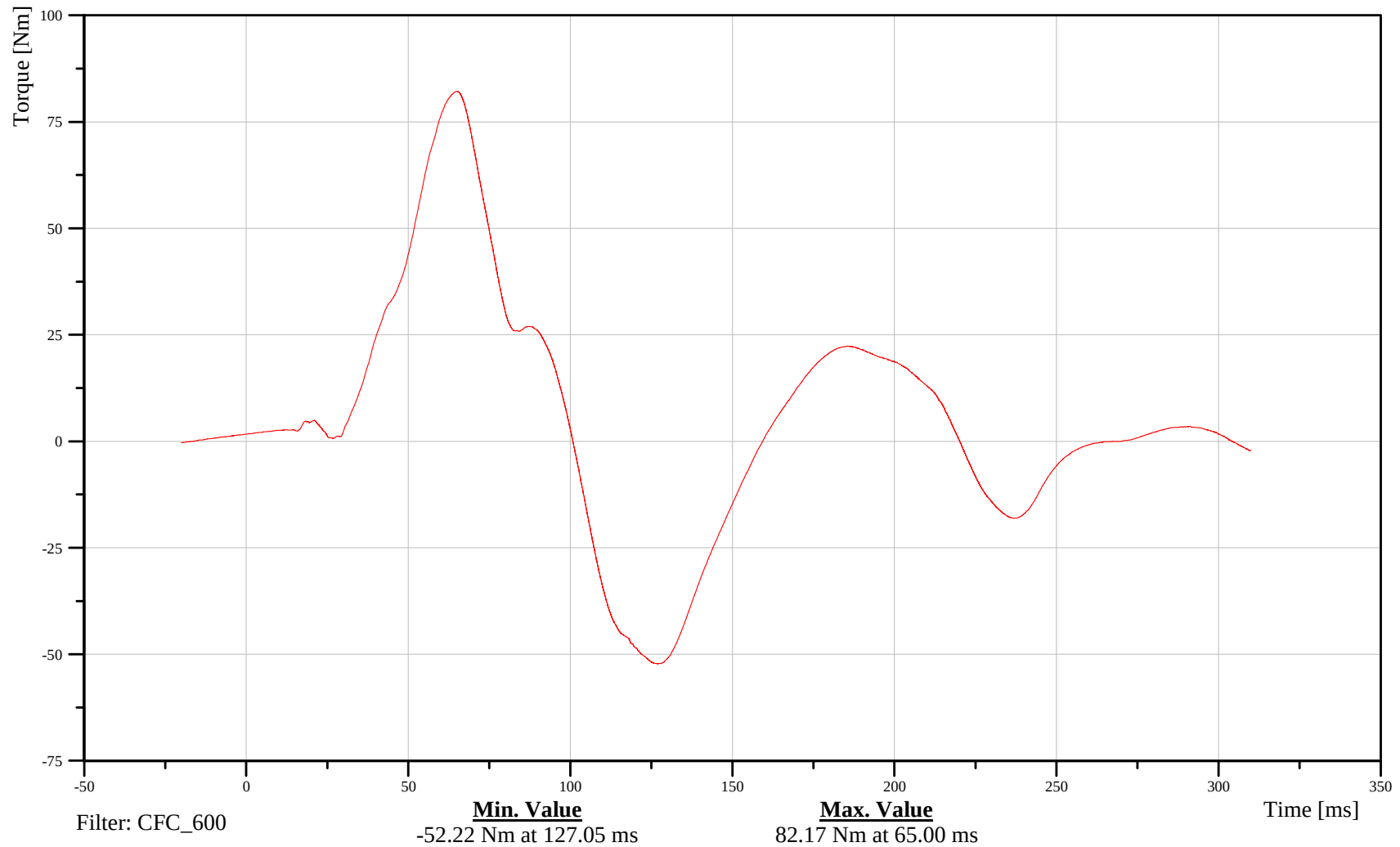
Lower Neck Moment About Y Axis

Customer: VRTC

11NECKLO00WSMOYB

TRC Inc. Test Lab: CTF

Test Number: 110830





2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

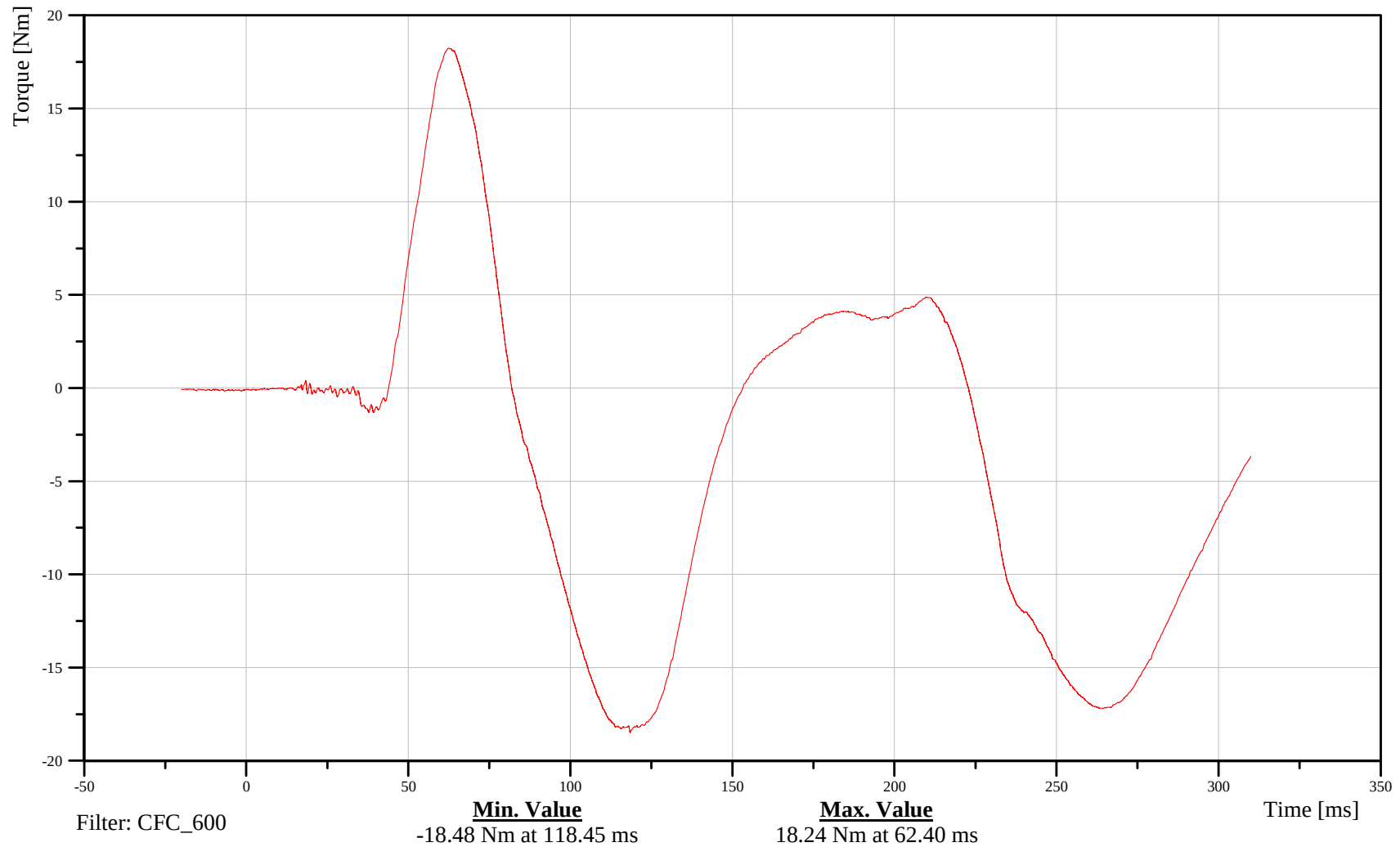
Lower Neck Moment About Z Axis

Customer: VRTC

11NECKLO00WSMOZB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-20

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

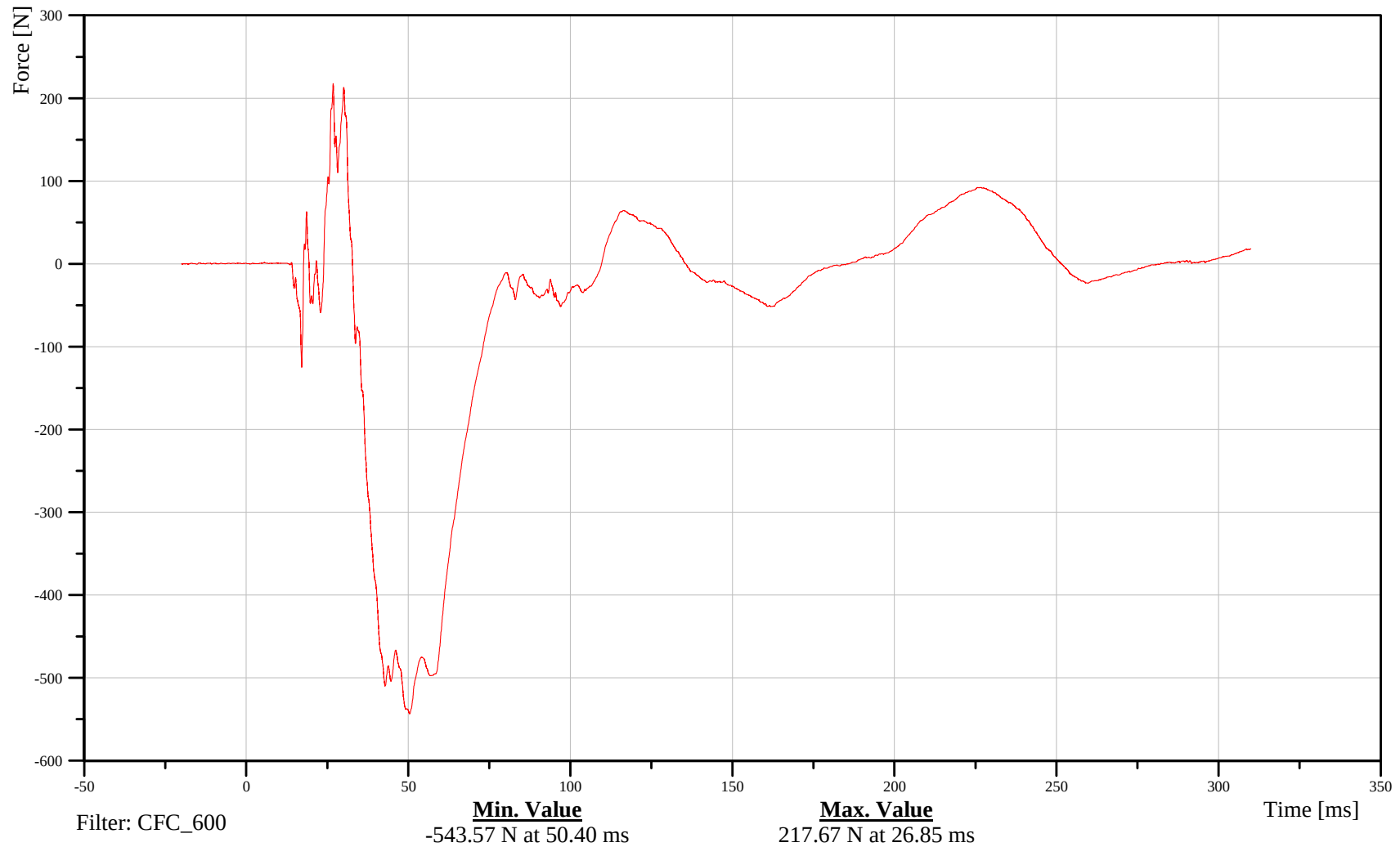
Shoulder X-Axis Force

Customer: VRTC

11SHLDLE00WSFOXB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-21

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

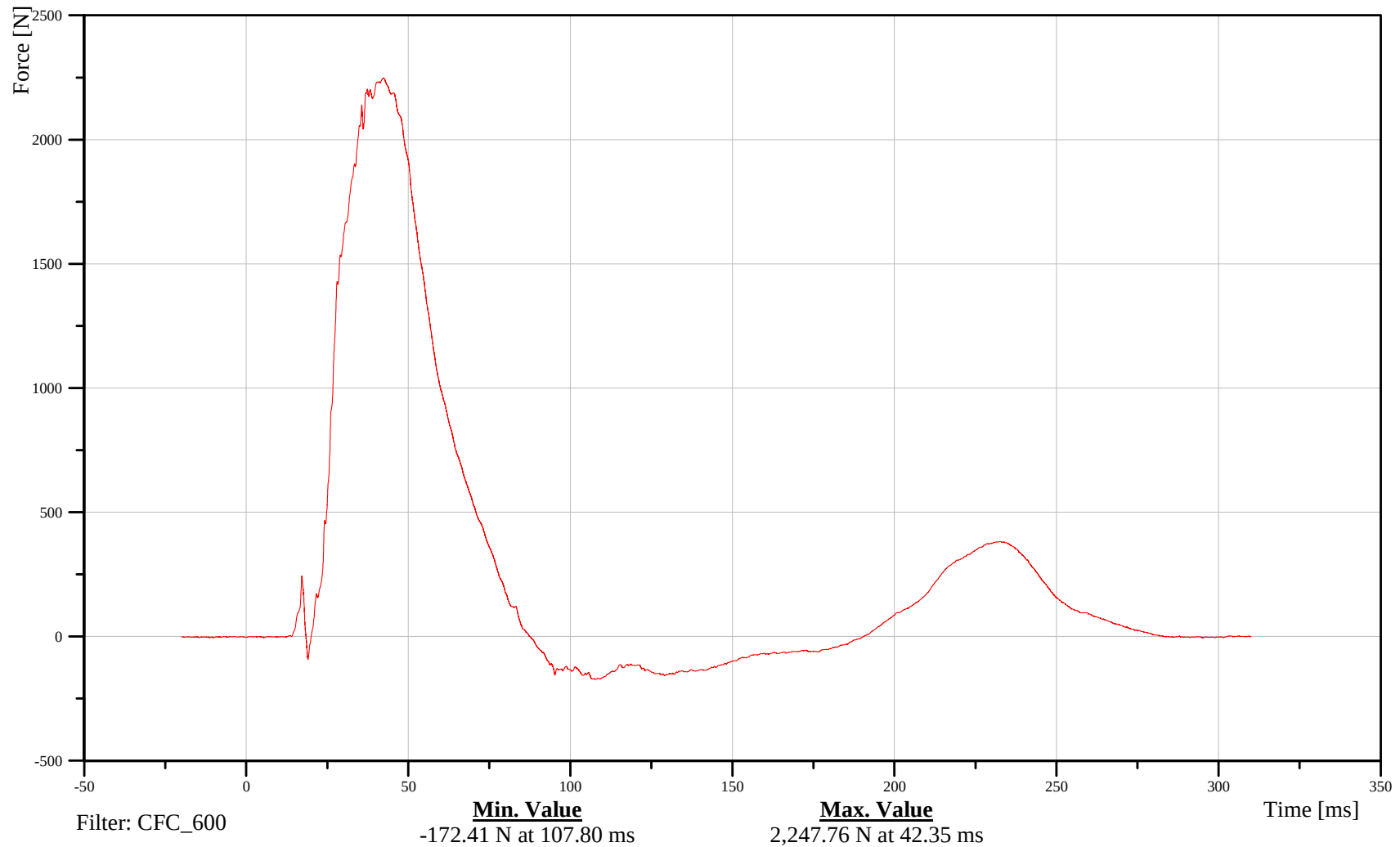
Shoulder Y-Axis Force

Customer: VRTC

11SHLDLE00WSFOYB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-22

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

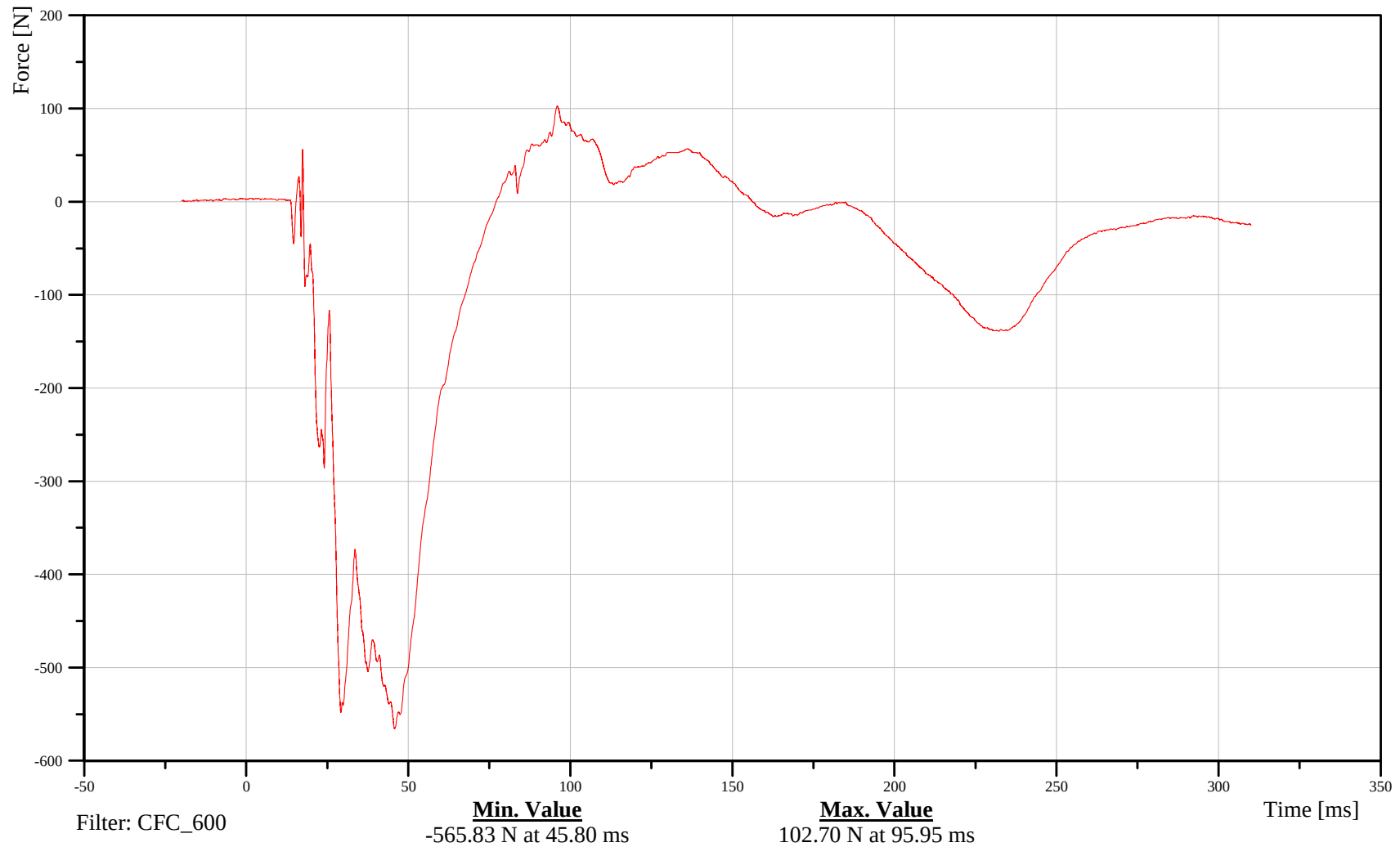
Shoulder Z-Axis Force

Customer: VRTC

11SHLDLE00WSFOZB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-23

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

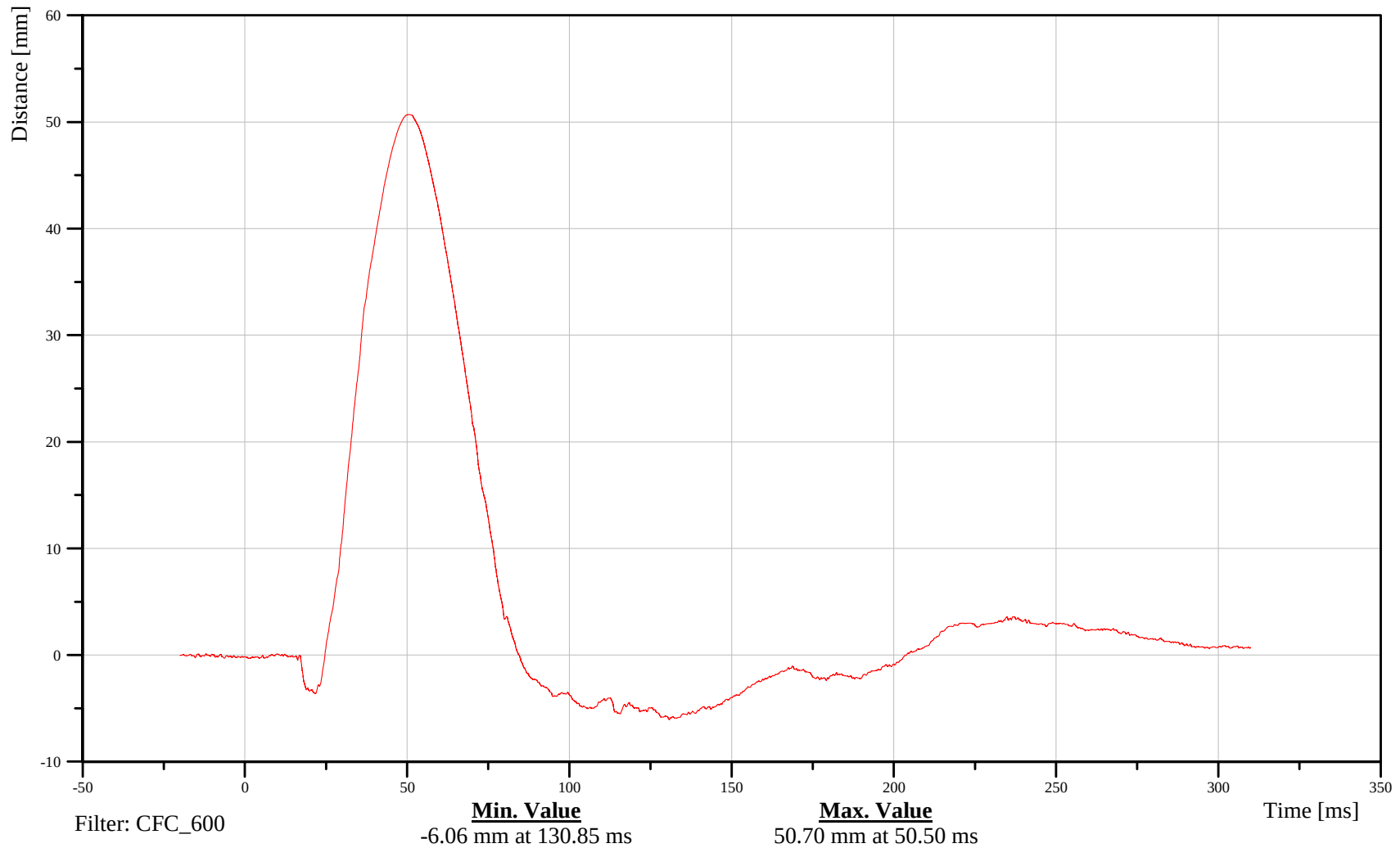
Shoulder Y-Axis Displacement

Customer: VRTC

11SHLDLE00WSDSYB

TRC Inc. Test Lab: CTF

Test Number: 110830





2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

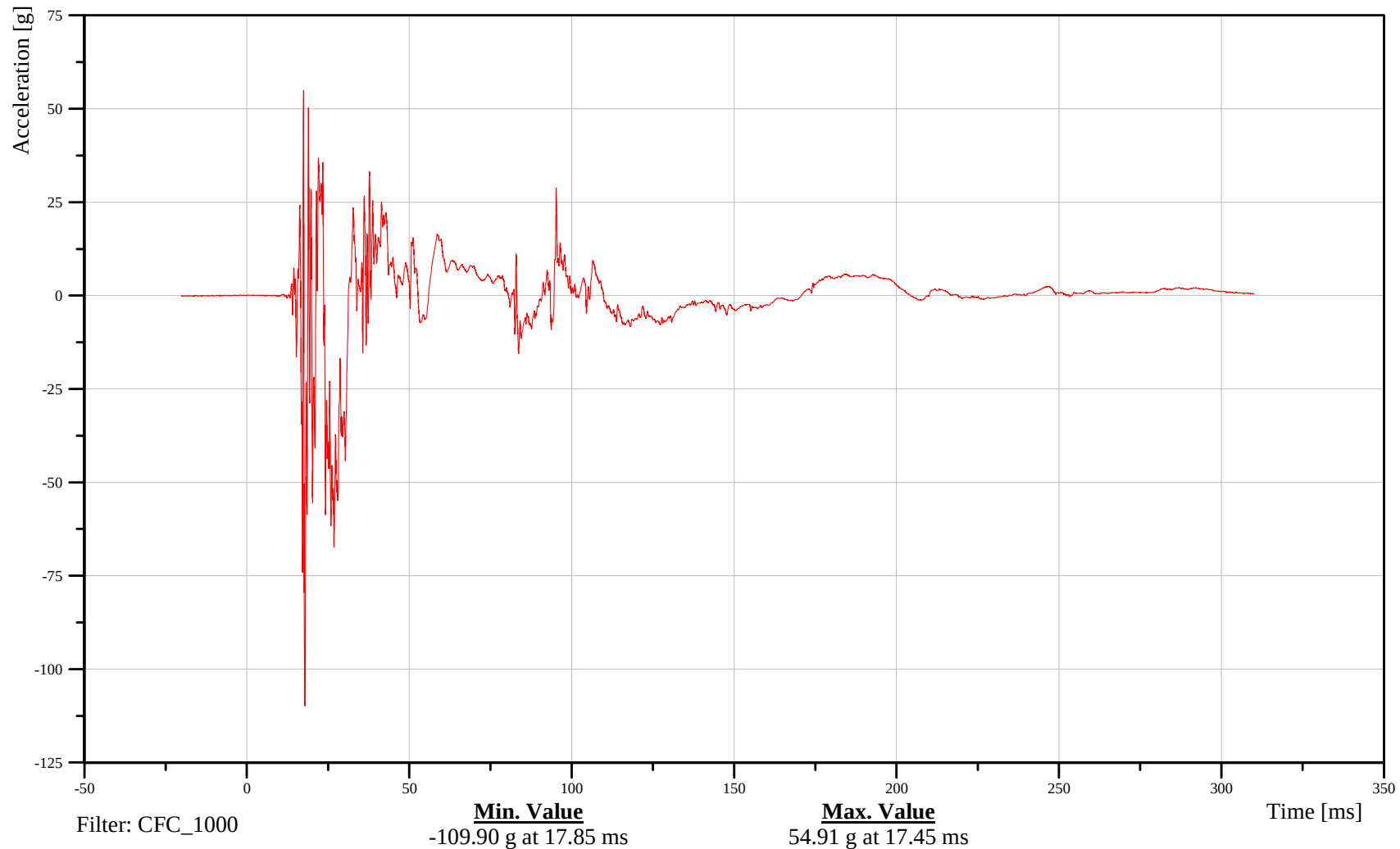
Shoulder X-Axis Acceleration

Customer: VRTC

11SHLDLE00WSACXA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-25

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

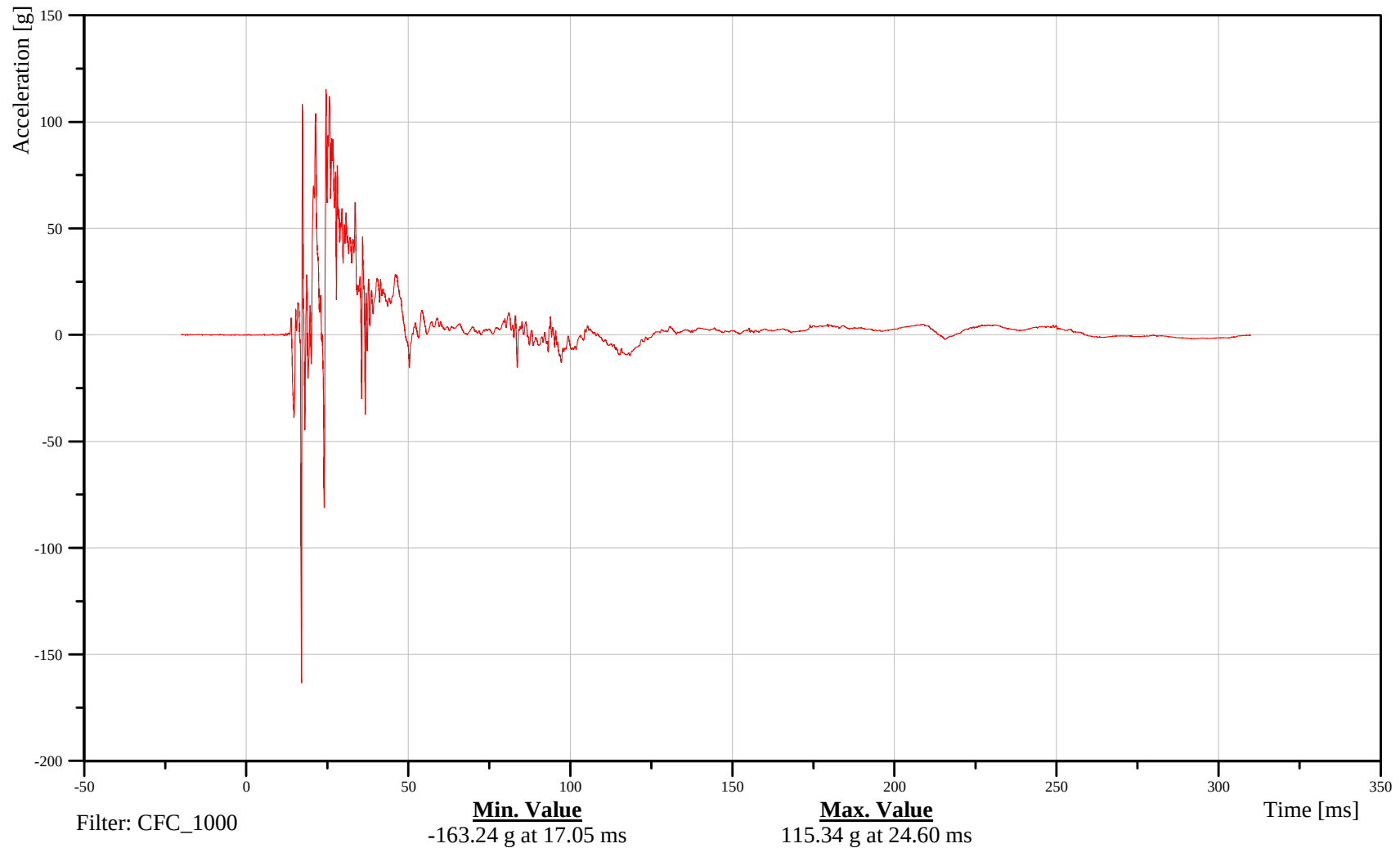
Shoulder Y-Axis Acceleration

Customer: VRTC

11SHLDLE00WSACYA

TRC Inc. Test Lab: CTF

Test Number: 110830





2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

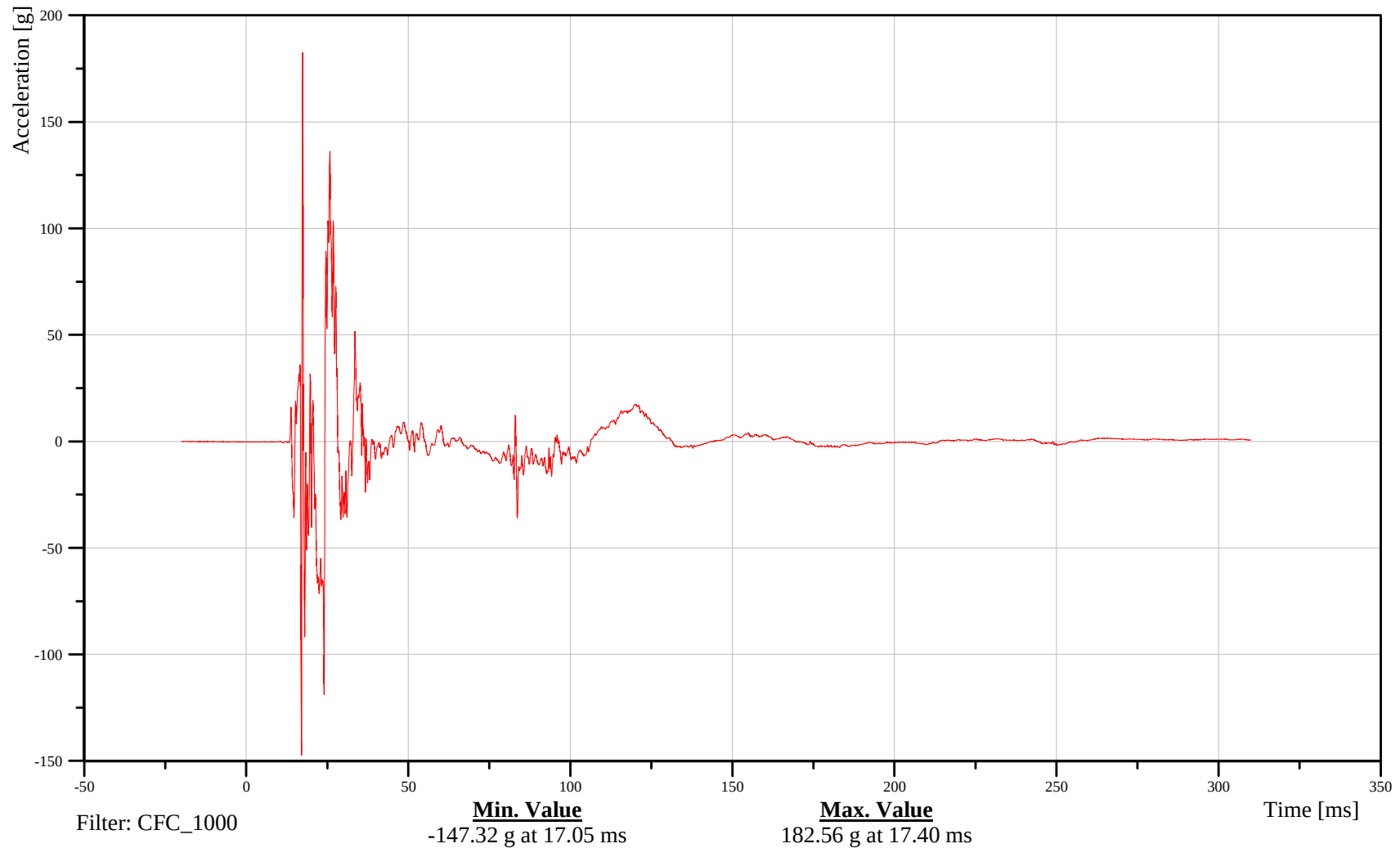
Shoulder Z-Axis Acceleration

Customer: VRTC

11SHLDLE00WSACZA

TRC Inc. Test Lab: CTF

Test Number: 110830





2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

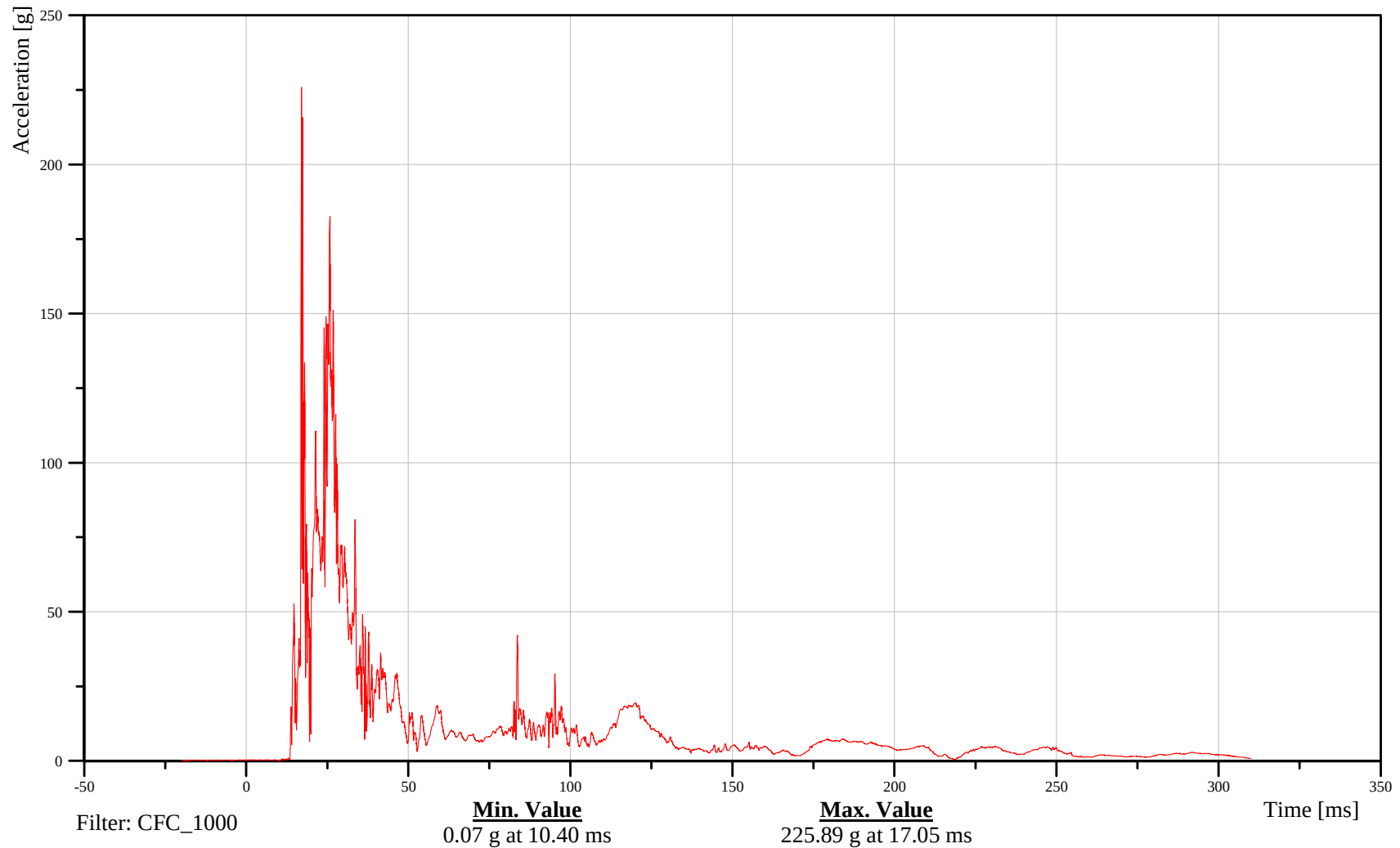
Shoulder Resultant Acceleration

Customer: VRTC

11SHLDLE00WSACRA

TRC Inc. Test Lab: CTF

Test Number: 110830





2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

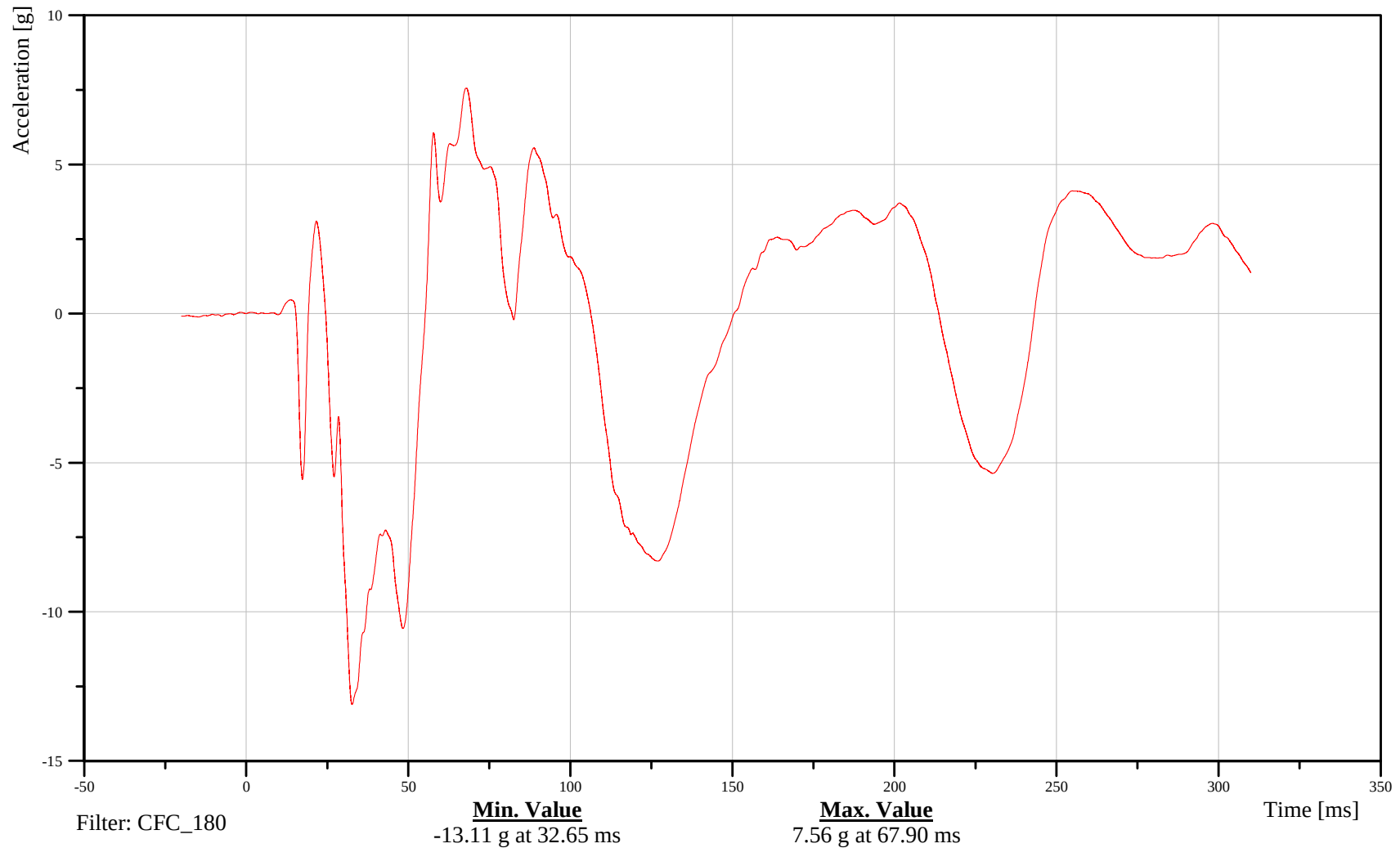
T1 X-Axis Acceleration

Customer: VRTC

11THSP0100WSACXC

TRC Inc. Test Lab: CTF

Test Number: 110830





2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

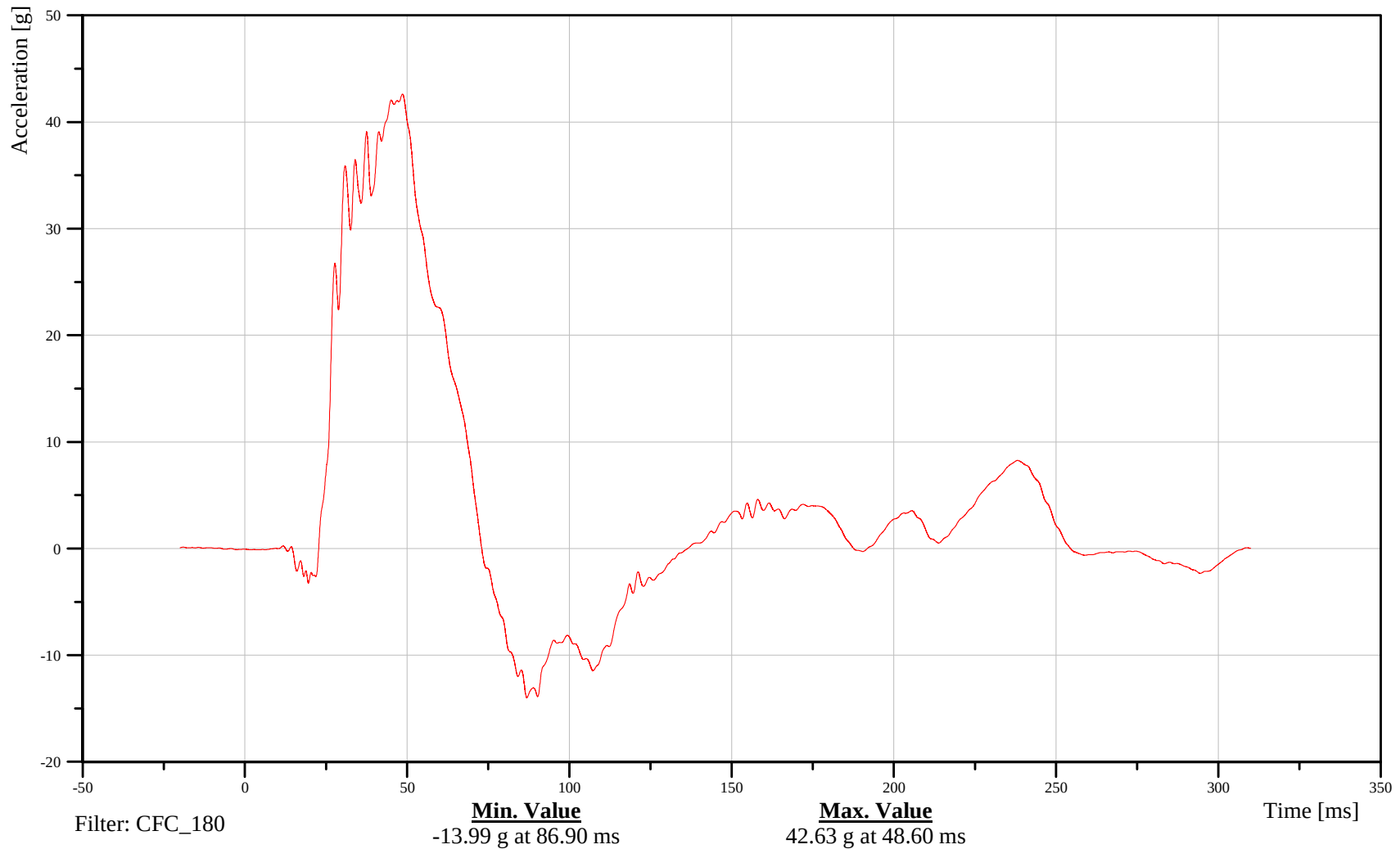
T1 Y-Axis Acceleration

Customer: VRTC

11THSP0100WSACYC

TRC Inc. Test Lab: CTF

Test Number: 110830



B-30

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

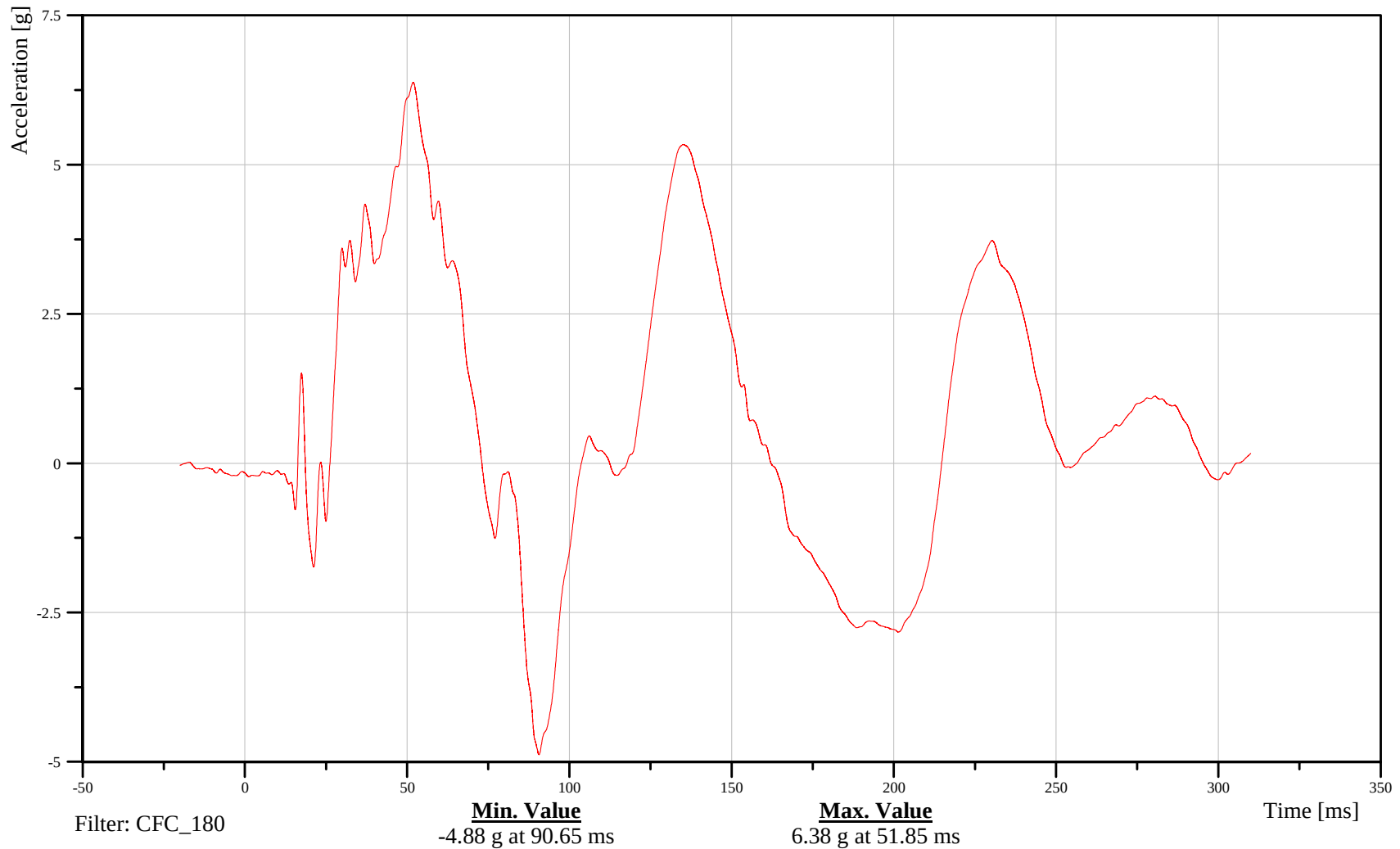
T1 Z-Axis Acceleration

Customer: VRTC

11THSP0100WSACZC

TRC Inc. Test Lab: CTF

Test Number: 110830



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110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

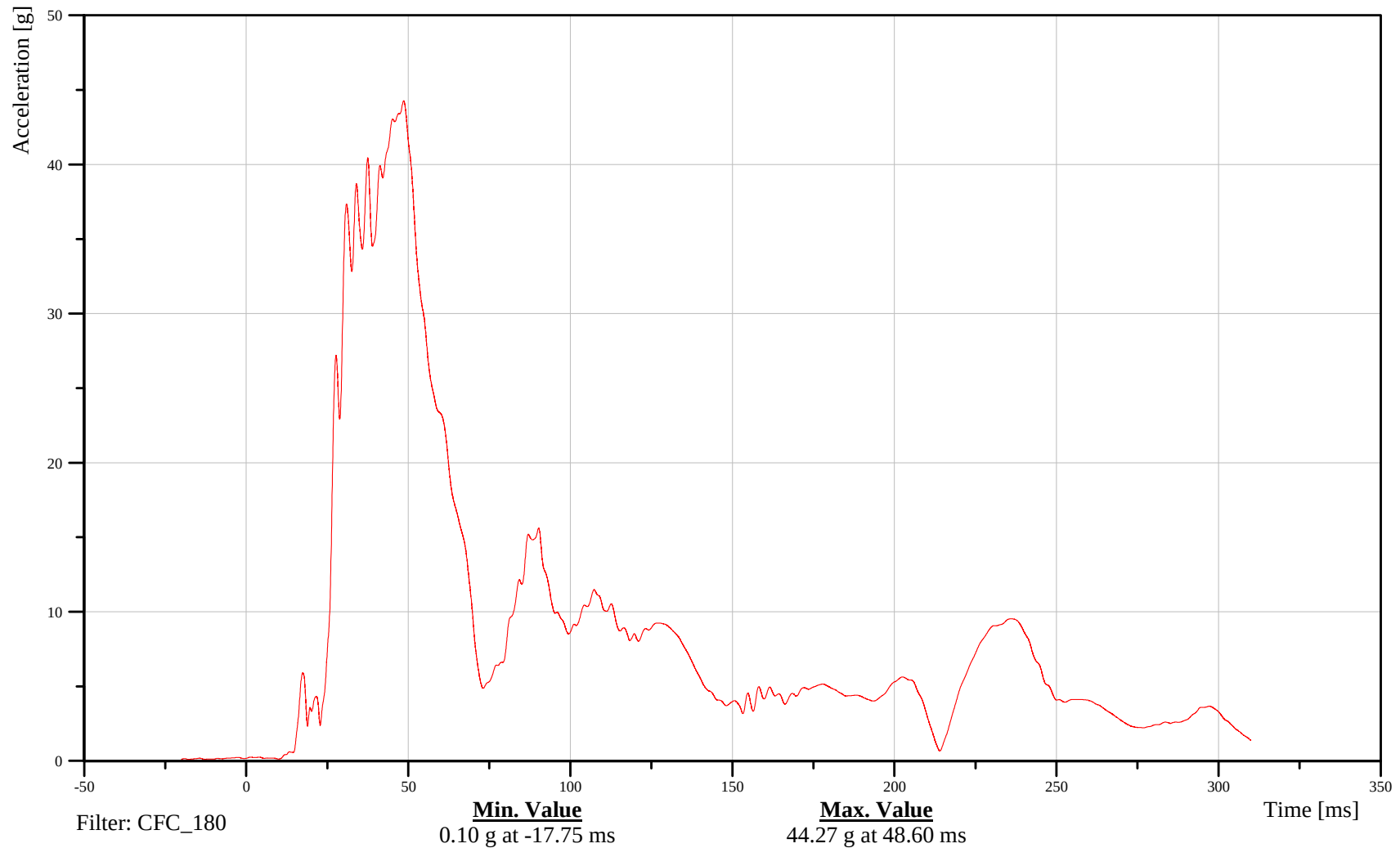
T1 Resultant Acceleration

Customer: VRTC

11THSP0100WSACRC

TRC Inc. Test Lab: CTF

Test Number: 110830



B-32

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

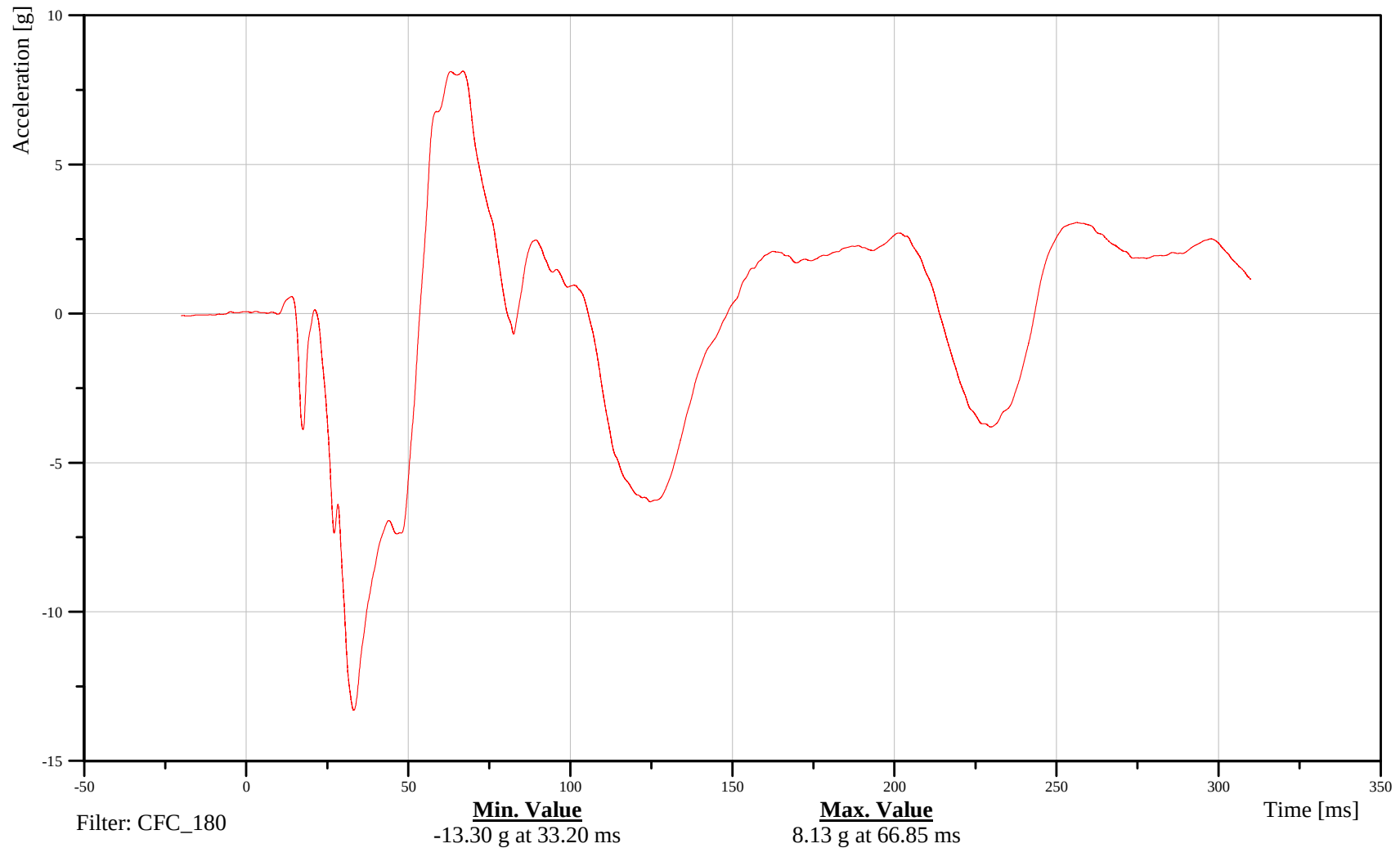
T4 X-Axis Acceleration

Customer: VRTC

11THSP0400WSACXC

TRC Inc. Test Lab: CTF

Test Number: 110830



B-33

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

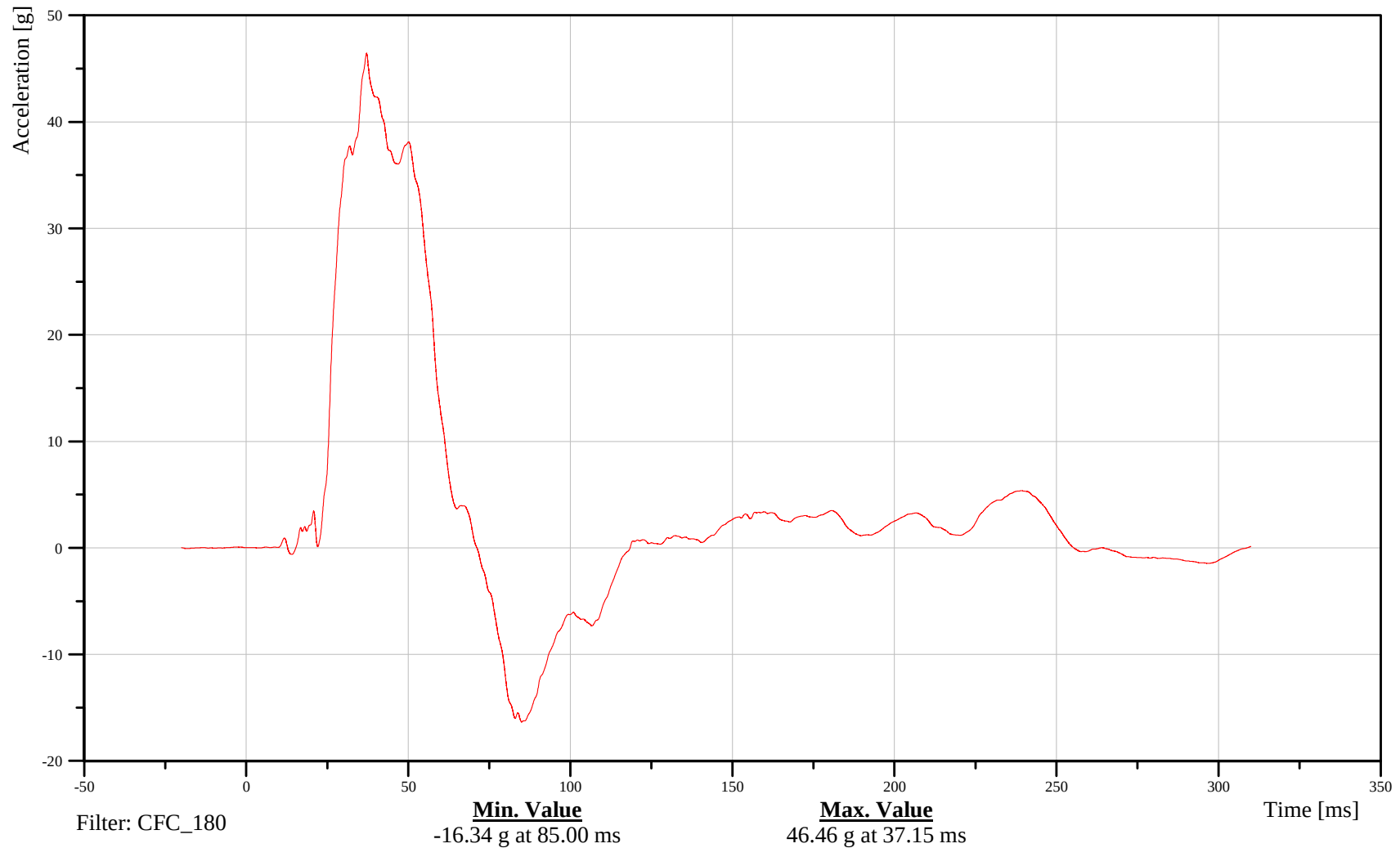
T4 Y-Axis Acceleration

Customer: VRTC

11THSP0400WSACYC

TRC Inc. Test Lab: CTF

Test Number: 110830



B-34

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

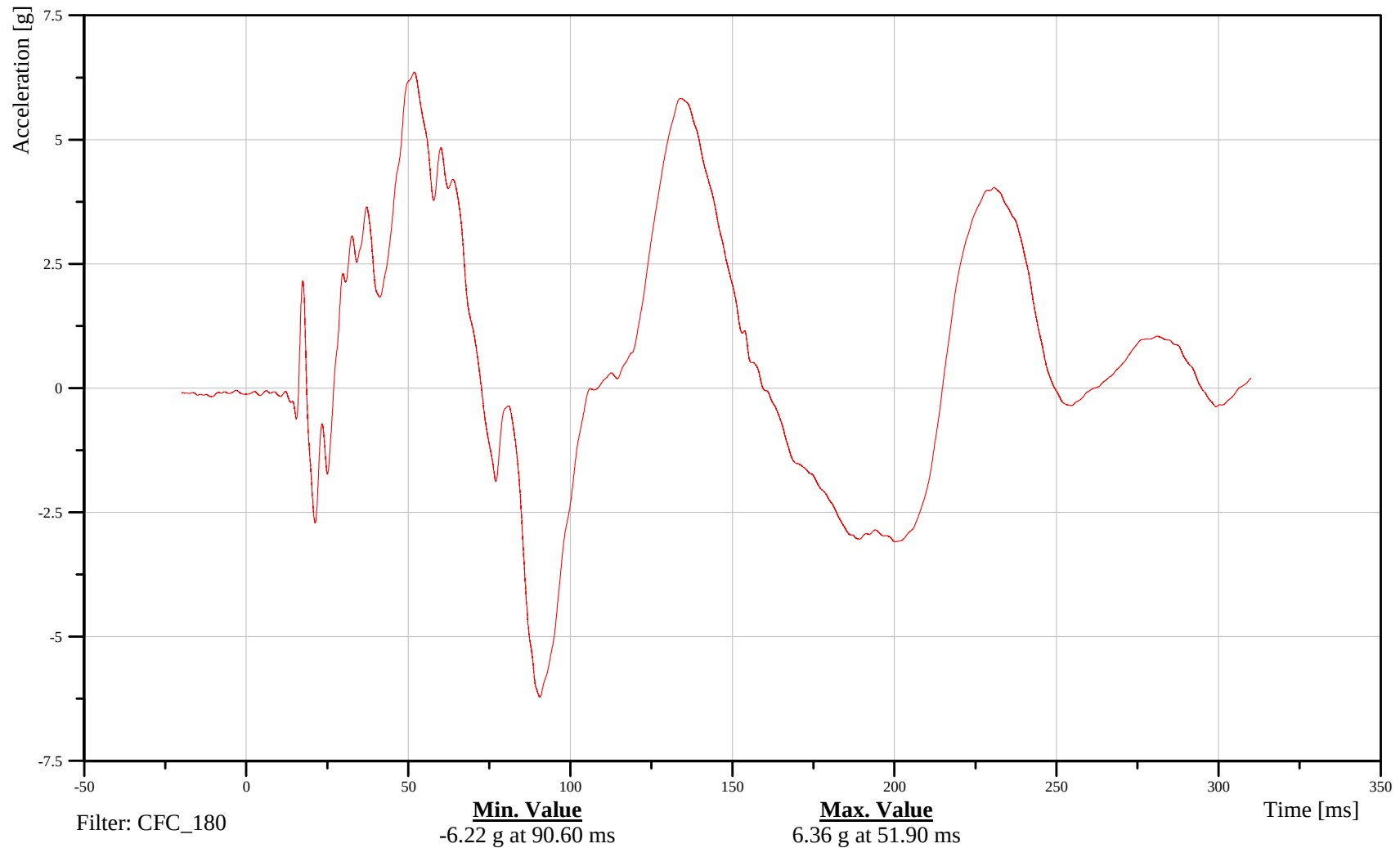
T4 Z-Axis Acceleration

Customer: VRTC

11THSP0400WSACZC

TRC Inc. Test Lab: CTF

Test Number: 110830



B-35

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

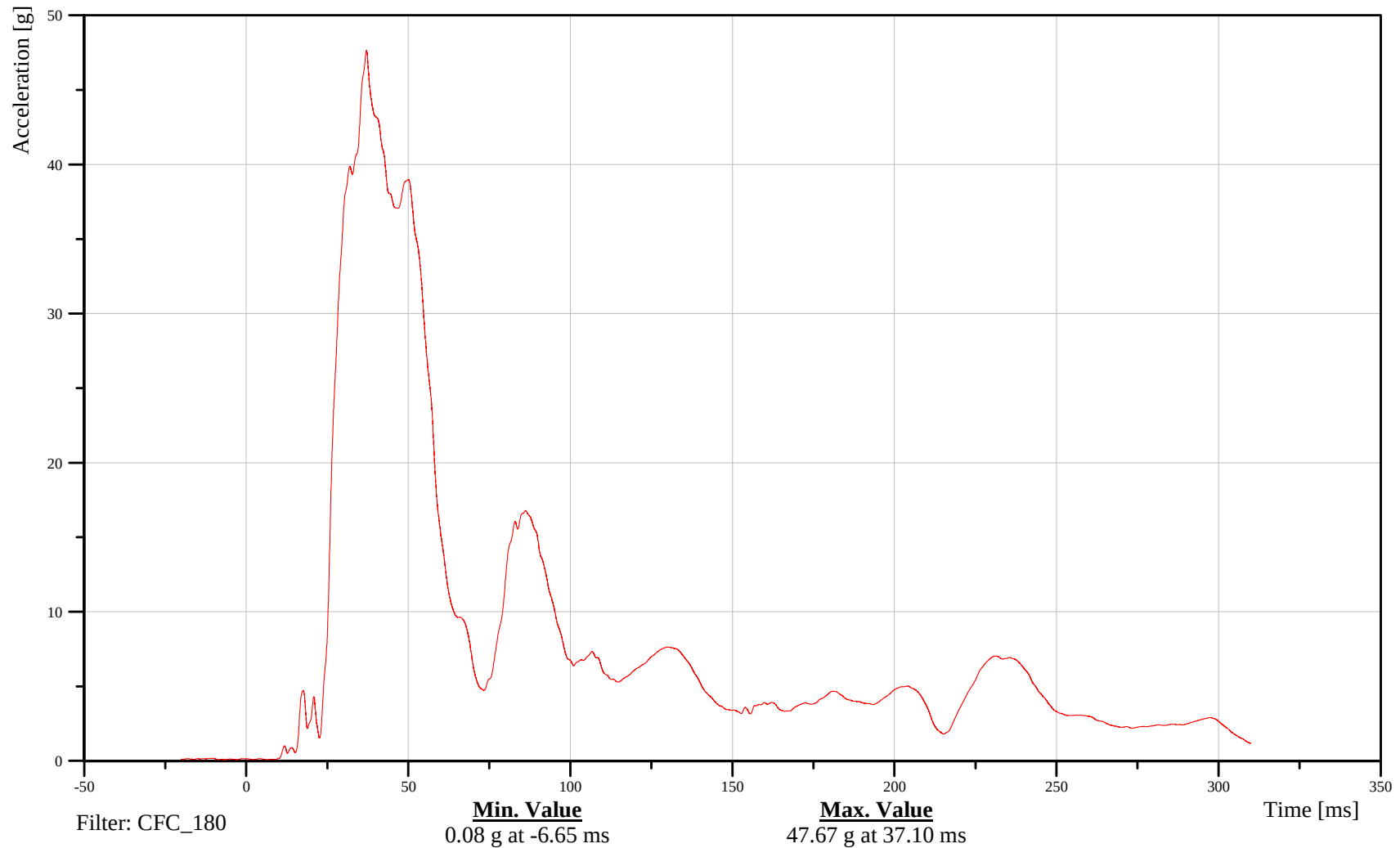
T4 Resultant Acceleration

Customer: VRTC

11THSP0400WSACRC

TRC Inc. Test Lab: CTF

Test Number: 110830



B-36

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

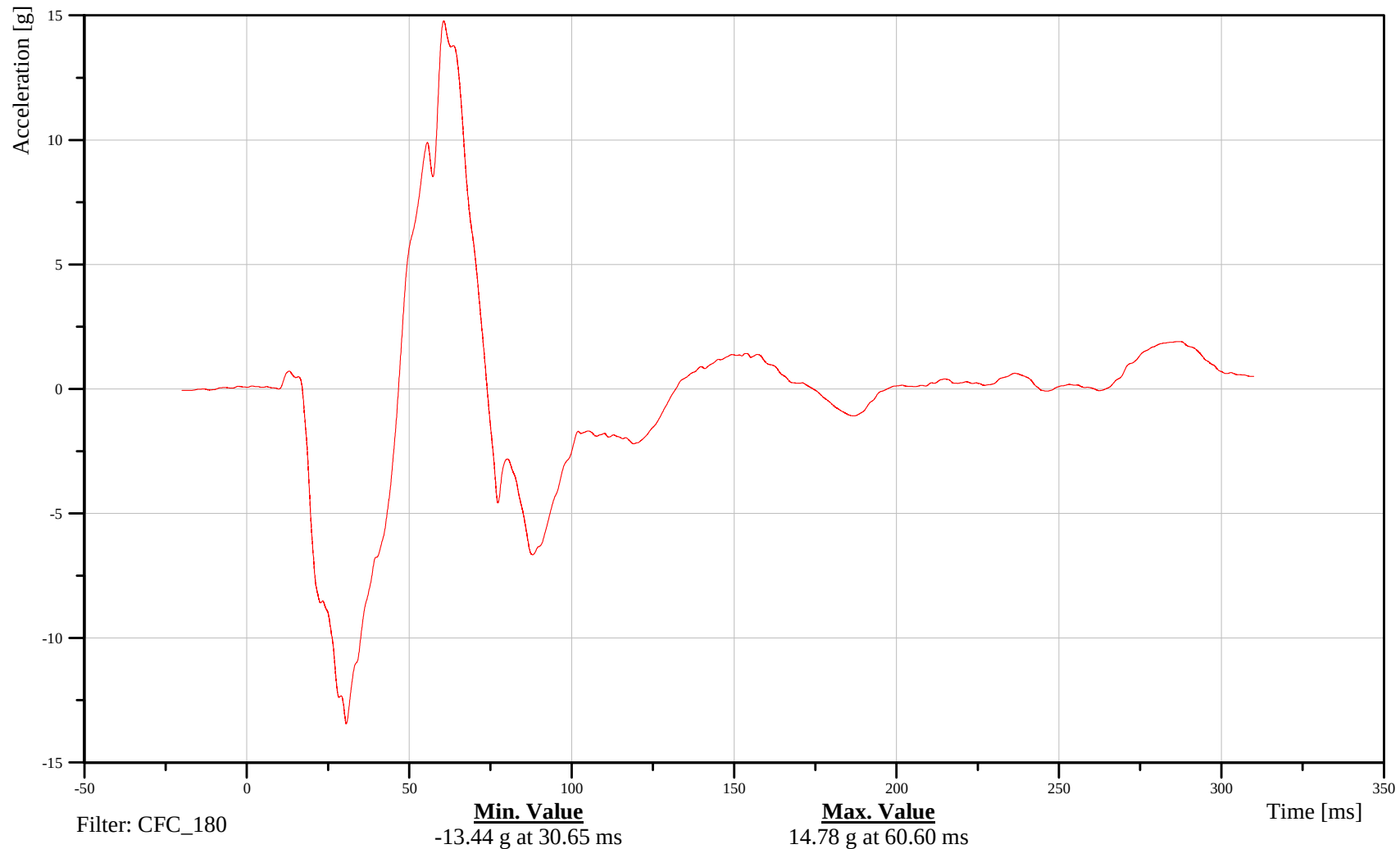
T12 X-Axis Acceleration

Customer: VRTC

11THSP1200WSACXC

TRC Inc. Test Lab: CTF

Test Number: 110830



B-37

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

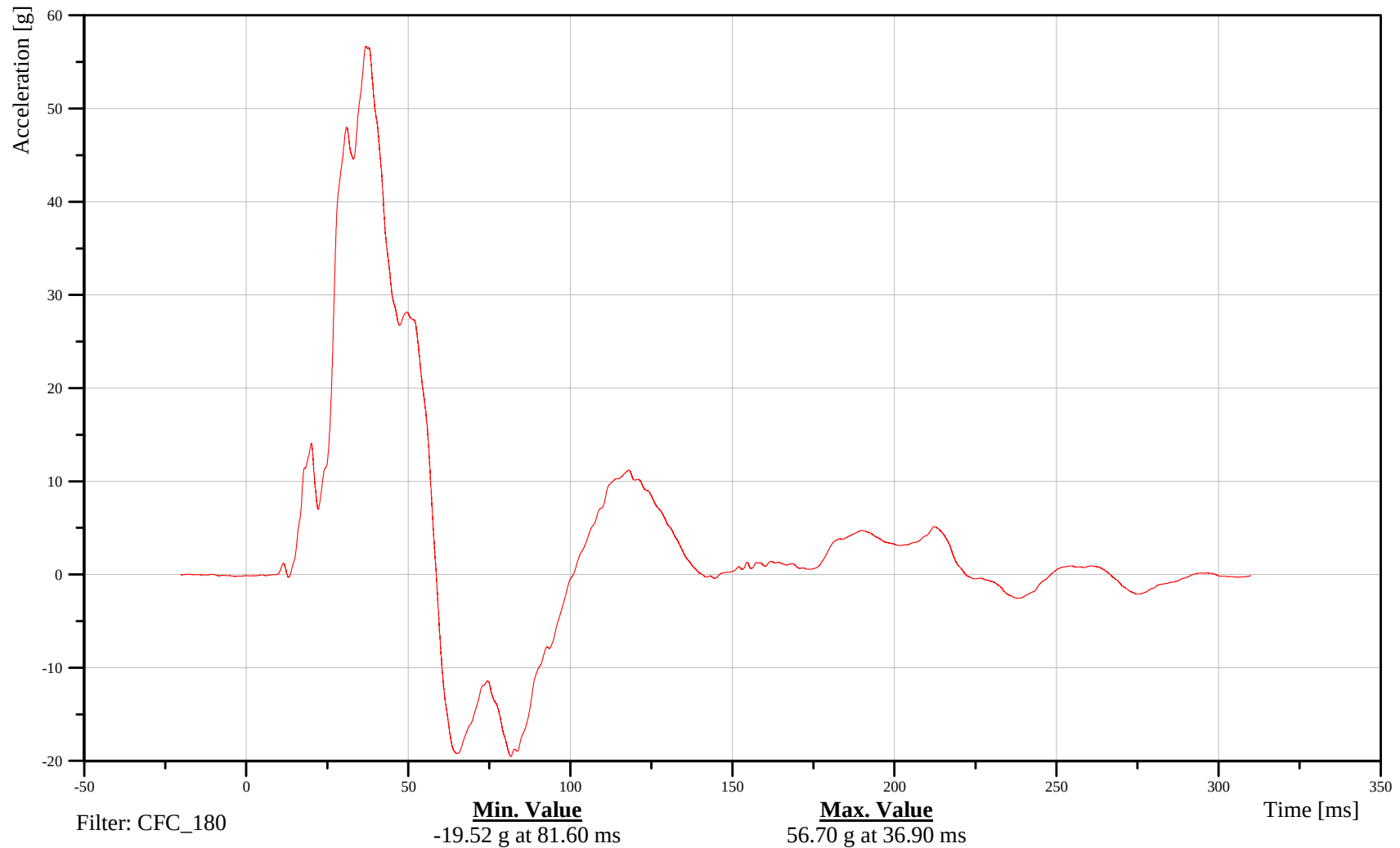
T12 Y-Axis Acceleration

Customer: VRTC

11THSP1200WSACYC

TRC Inc. Test Lab: CTF

Test Number: 110830



B-38

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

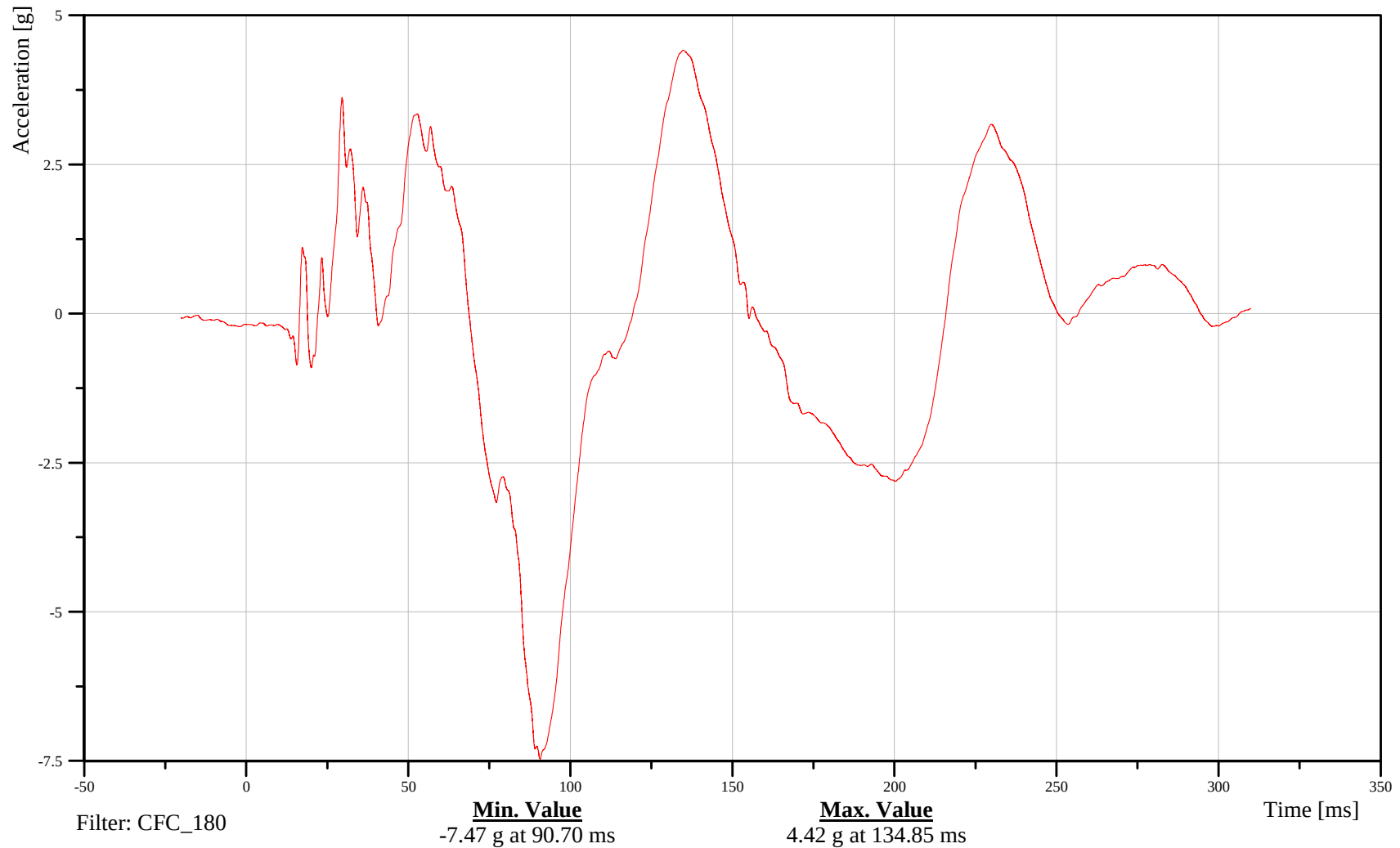
T12 Z-Axis Acceleration

Customer: VRTC

11THSP1200WSACZC

TRC Inc. Test Lab: CTF

Test Number: 110830



B-39

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

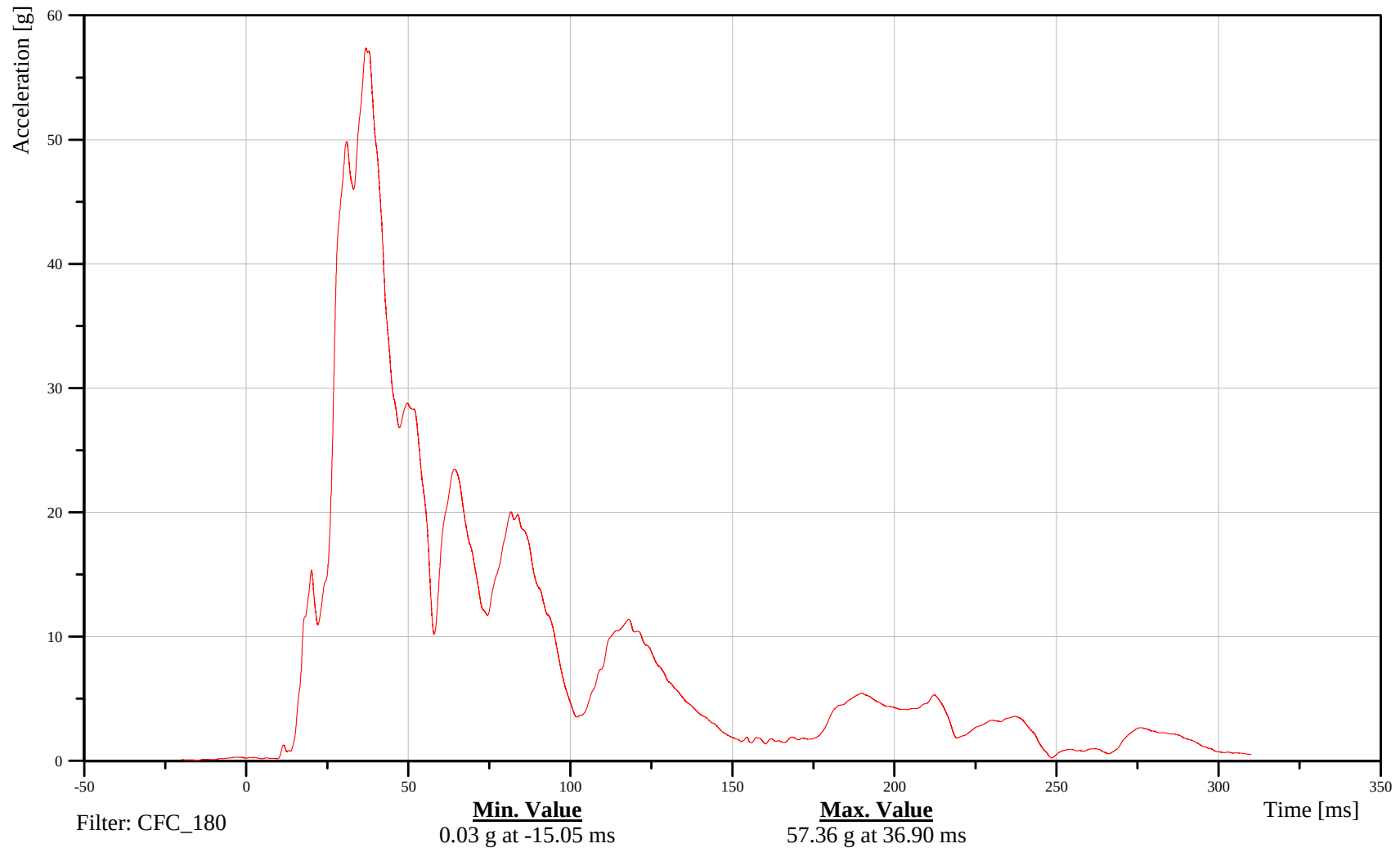
T12 Resultant Acceleration

Customer: VRTC

11THSP1200WSACRC

TRC Inc. Test Lab: CTF

Test Number: 110830



B-40

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

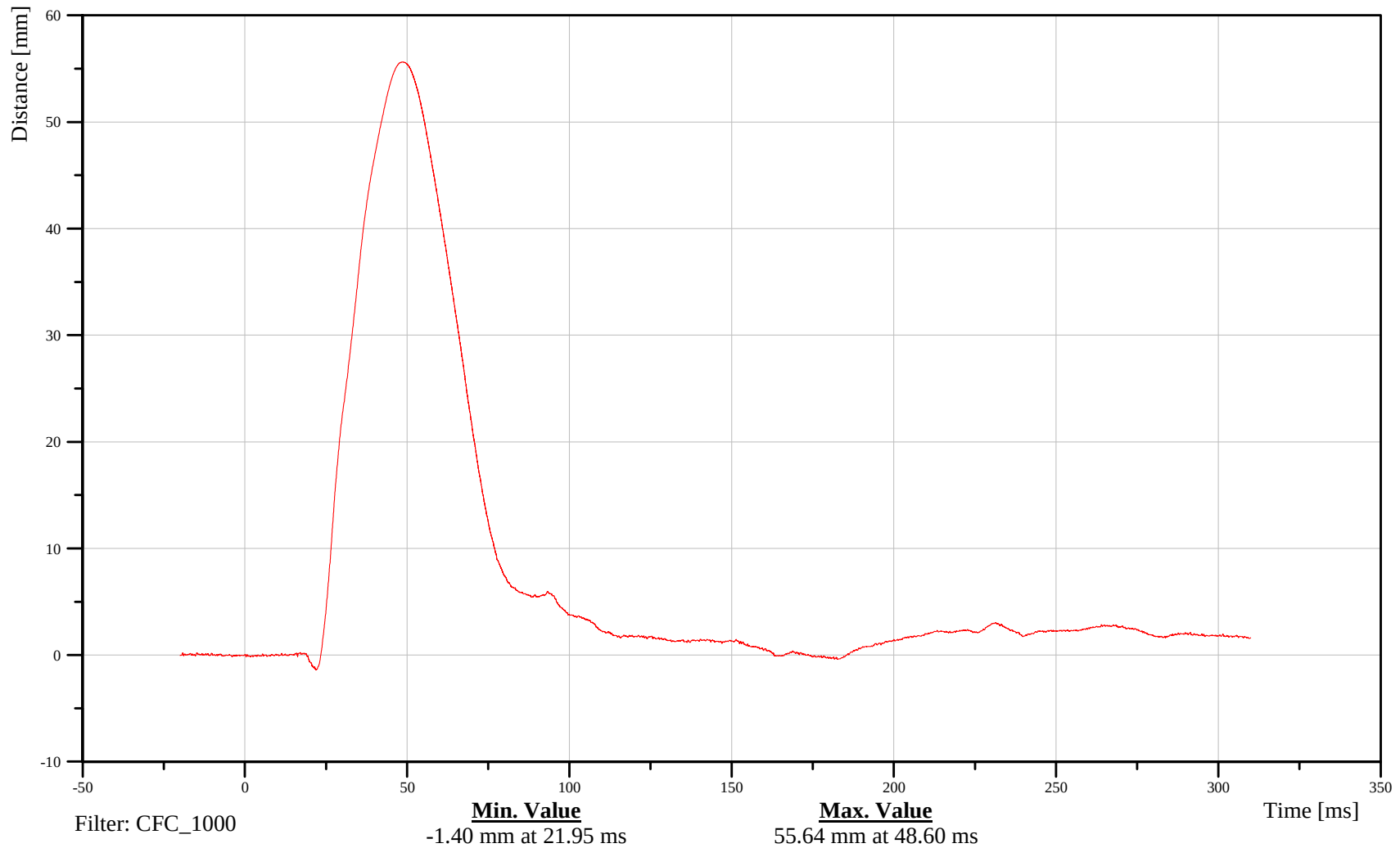
Thorax Rib 1 Y-Axis Displacement

Customer: VRTC

11TRRILE01WSDSYA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-41

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

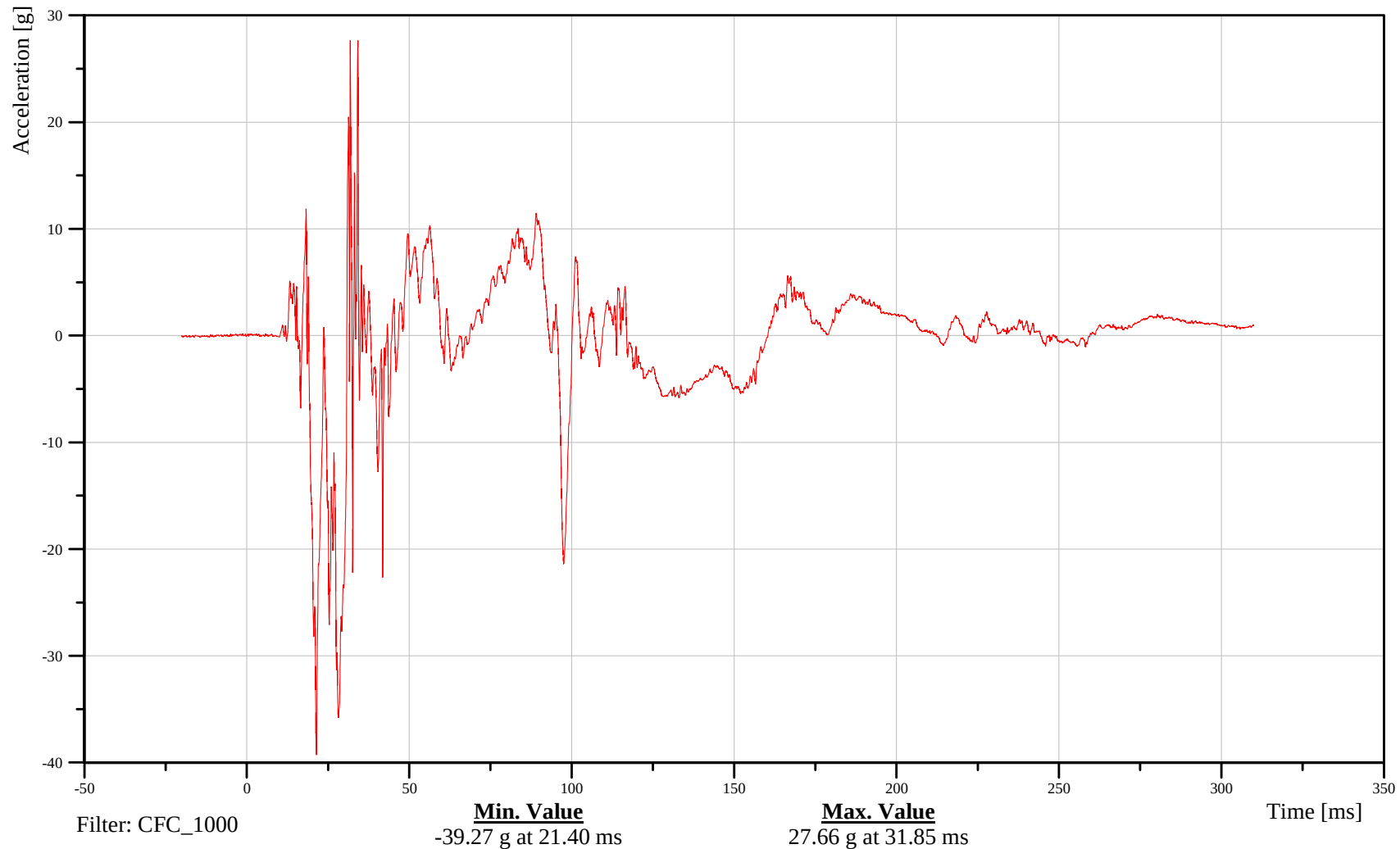
Thorax Rib 1 X-Axis Acceleration

Customer: VRTC

11TRRILE01WSACXA

TRC Inc. Test Lab: CTF

Test Number: 110830



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110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

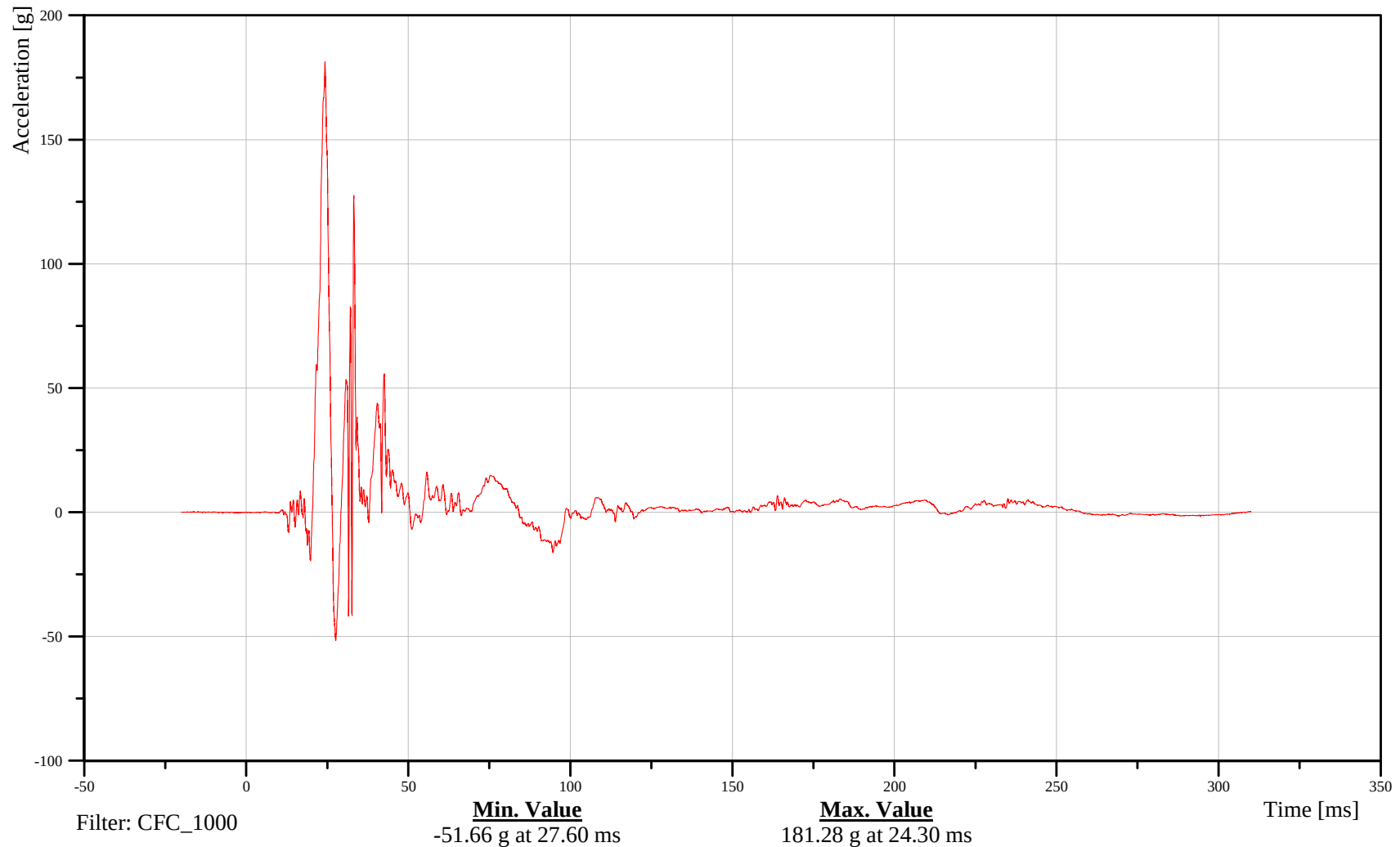
Thorax Rib 1 Y-Axis Acceleration

Customer: VRTC

11TRRILE01WSACYA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-43

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

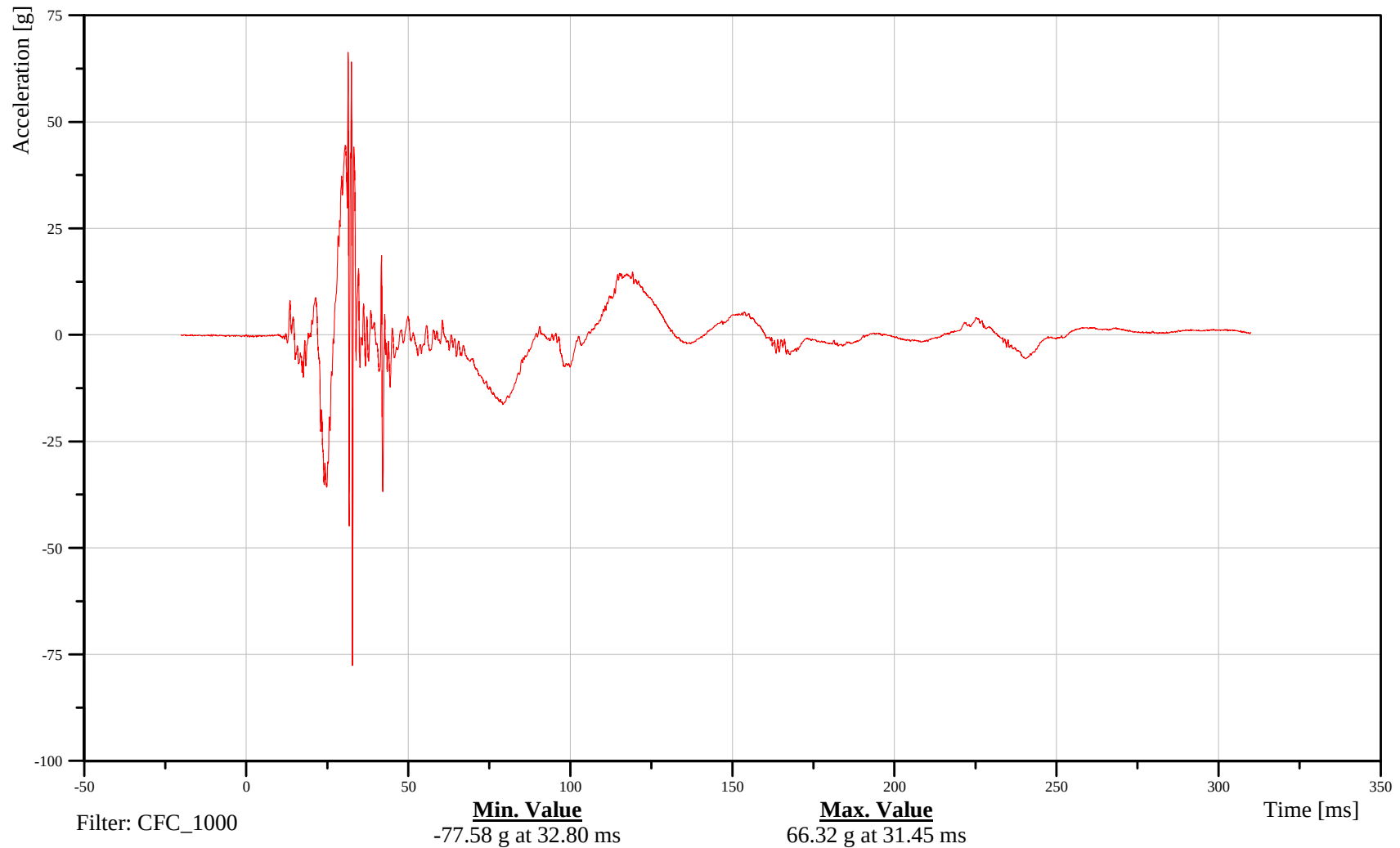
Thorax Rib 1 Z-Axis Acceleration

Customer: VRTC

11TRRILE01WSACZA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-44

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

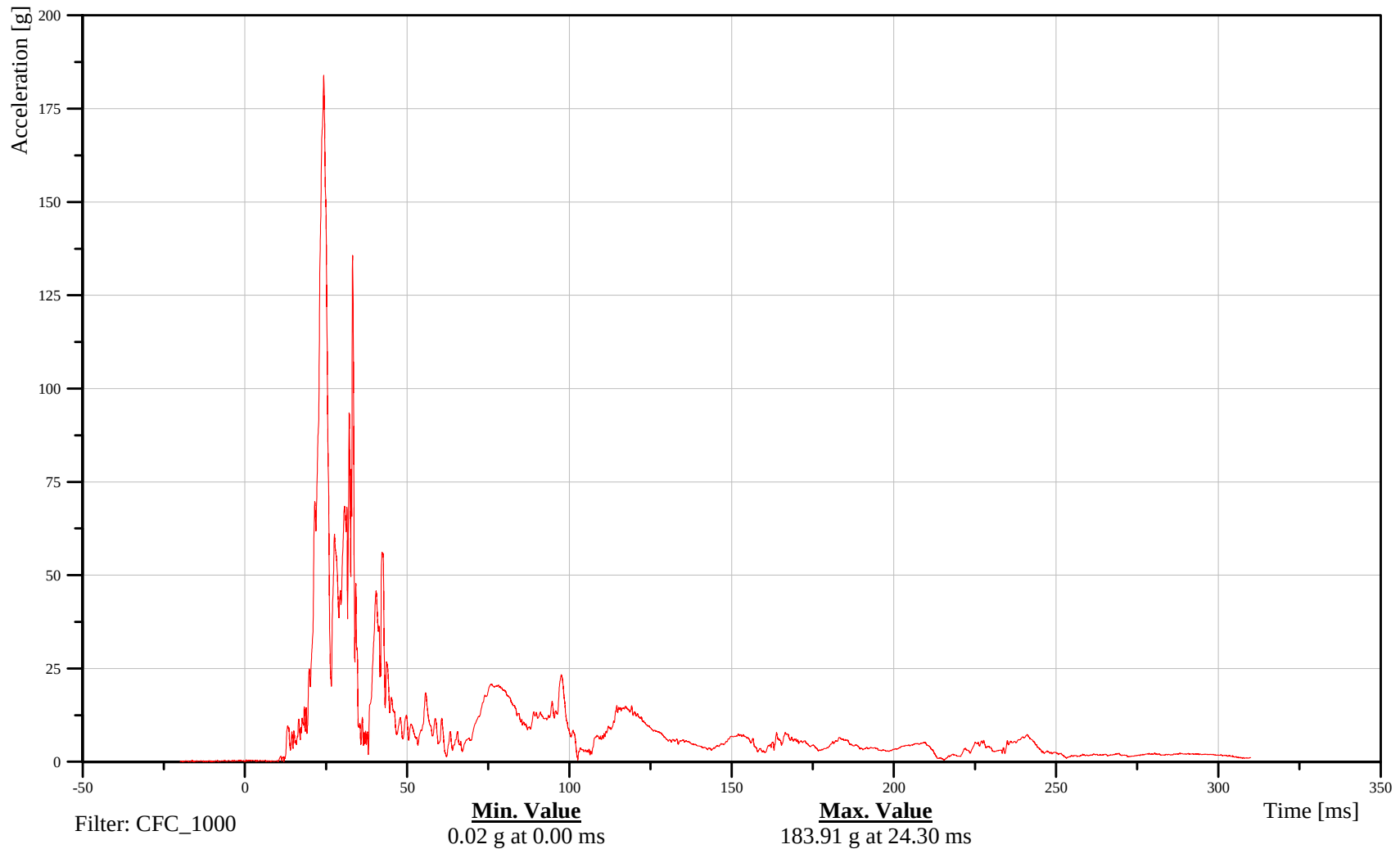
Thorax Rib 1 Resultant Acceleration

Customer: VRTC

11TRRILE01WSACRA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-45

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

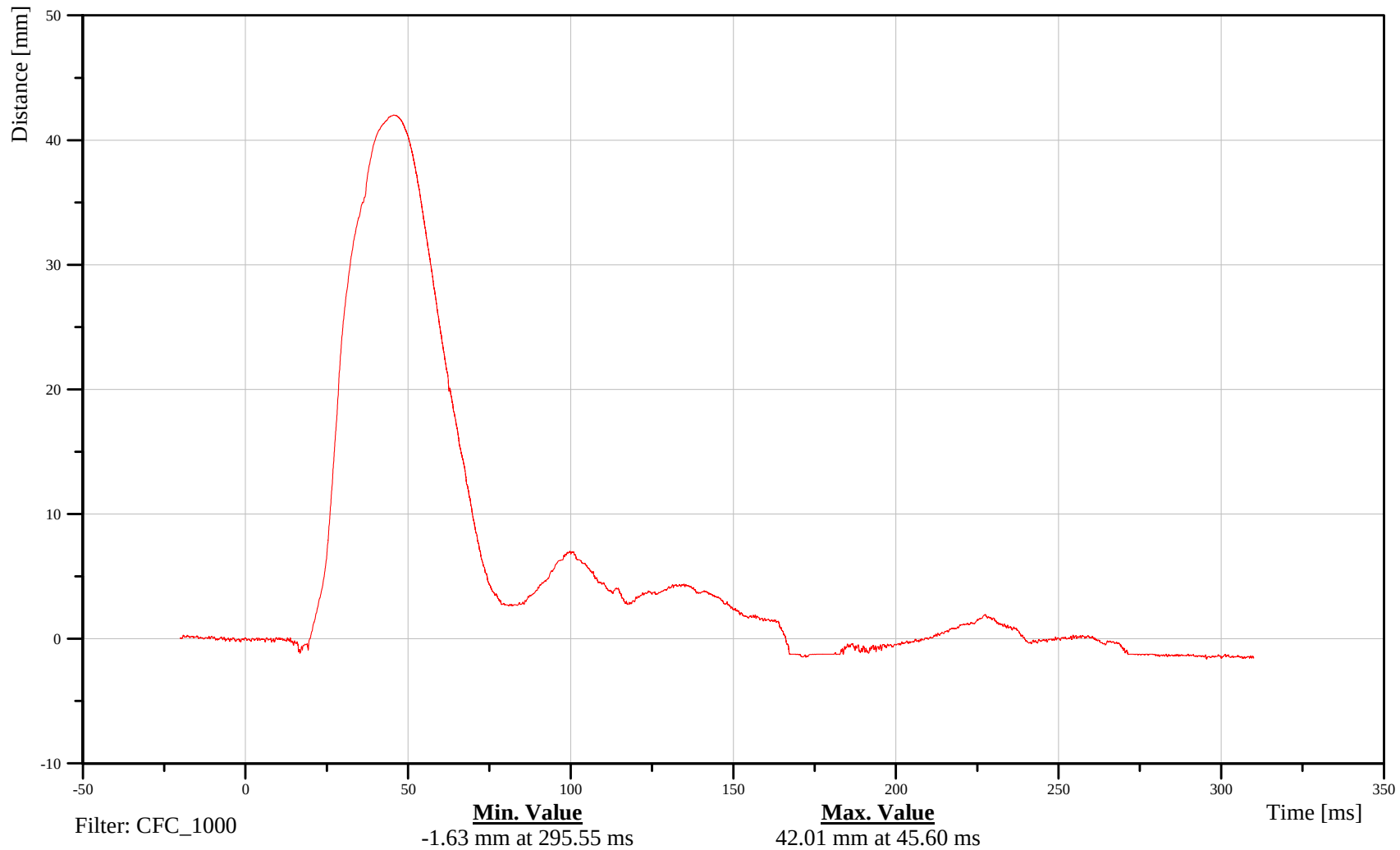
Thorax Rib 2 Y-Axis Displacement

Customer: VRTC

11TRRILE02WSDSYA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-46

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

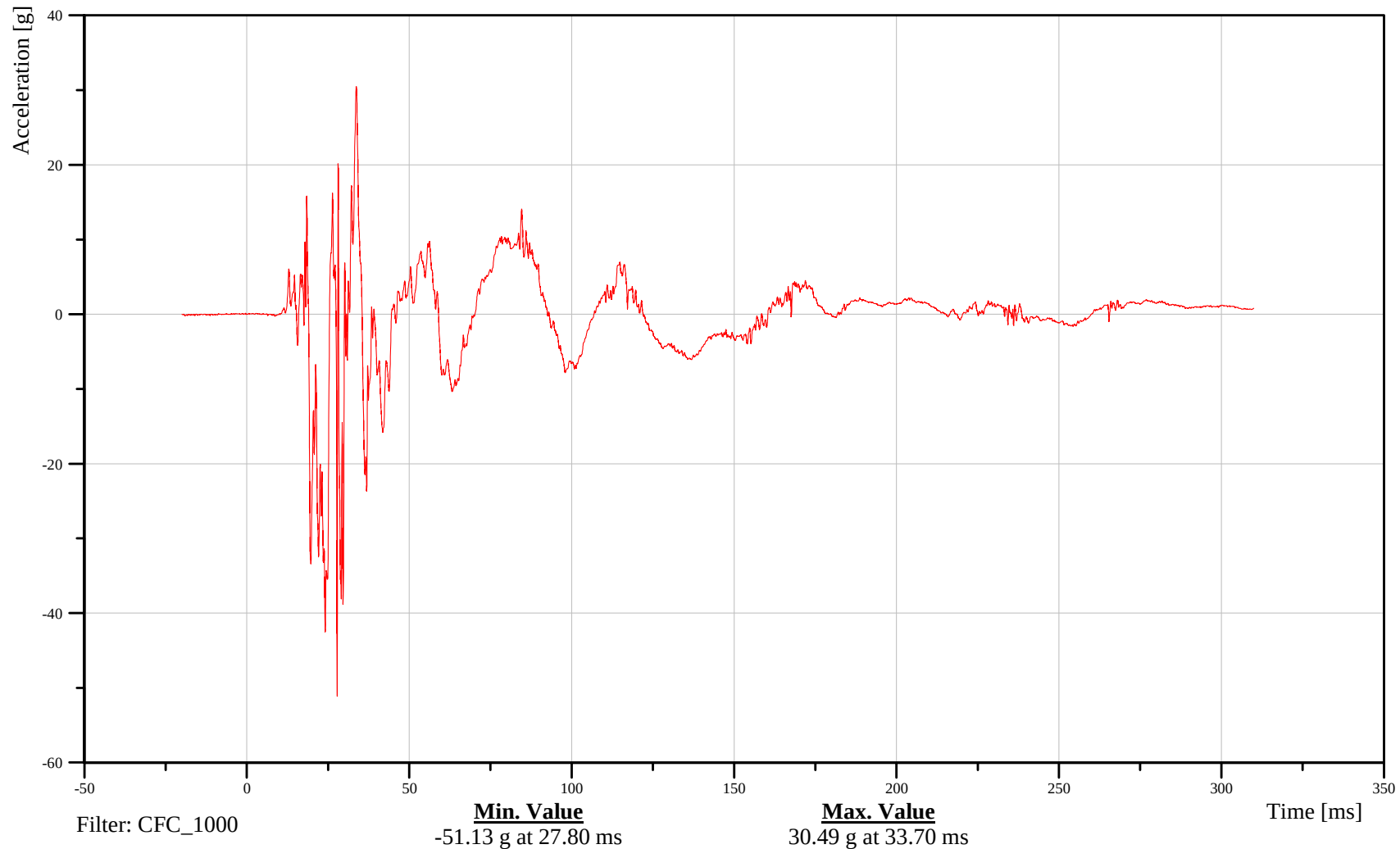
Thorax Rib 2 X-Axis Acceleration

Customer: VRTC

11TRRILE02WSACXA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-47

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

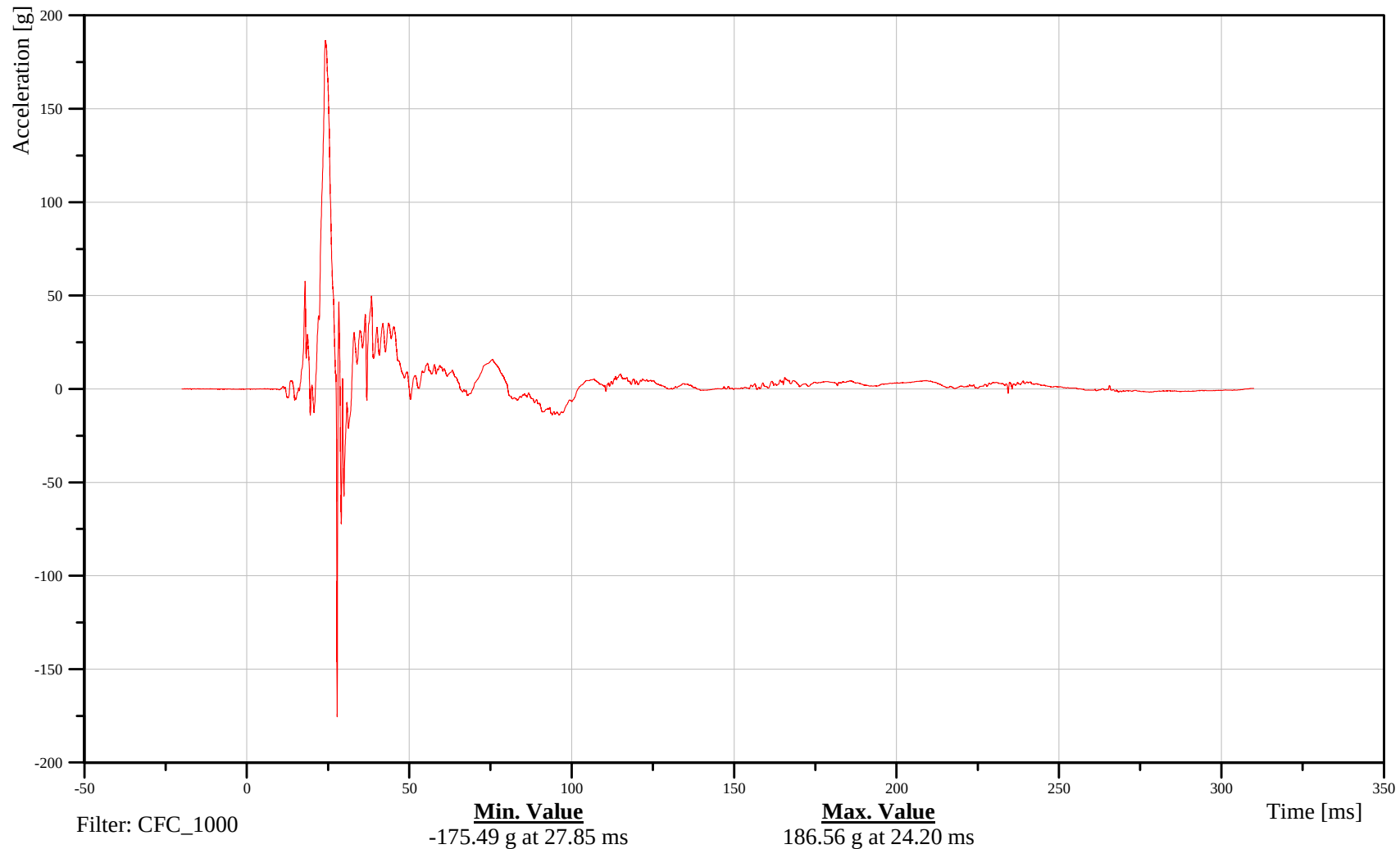
Thorax Rib 2 Y-Axis Acceleration

Customer: VRTC

11TRRILE02WSACYA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-48

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

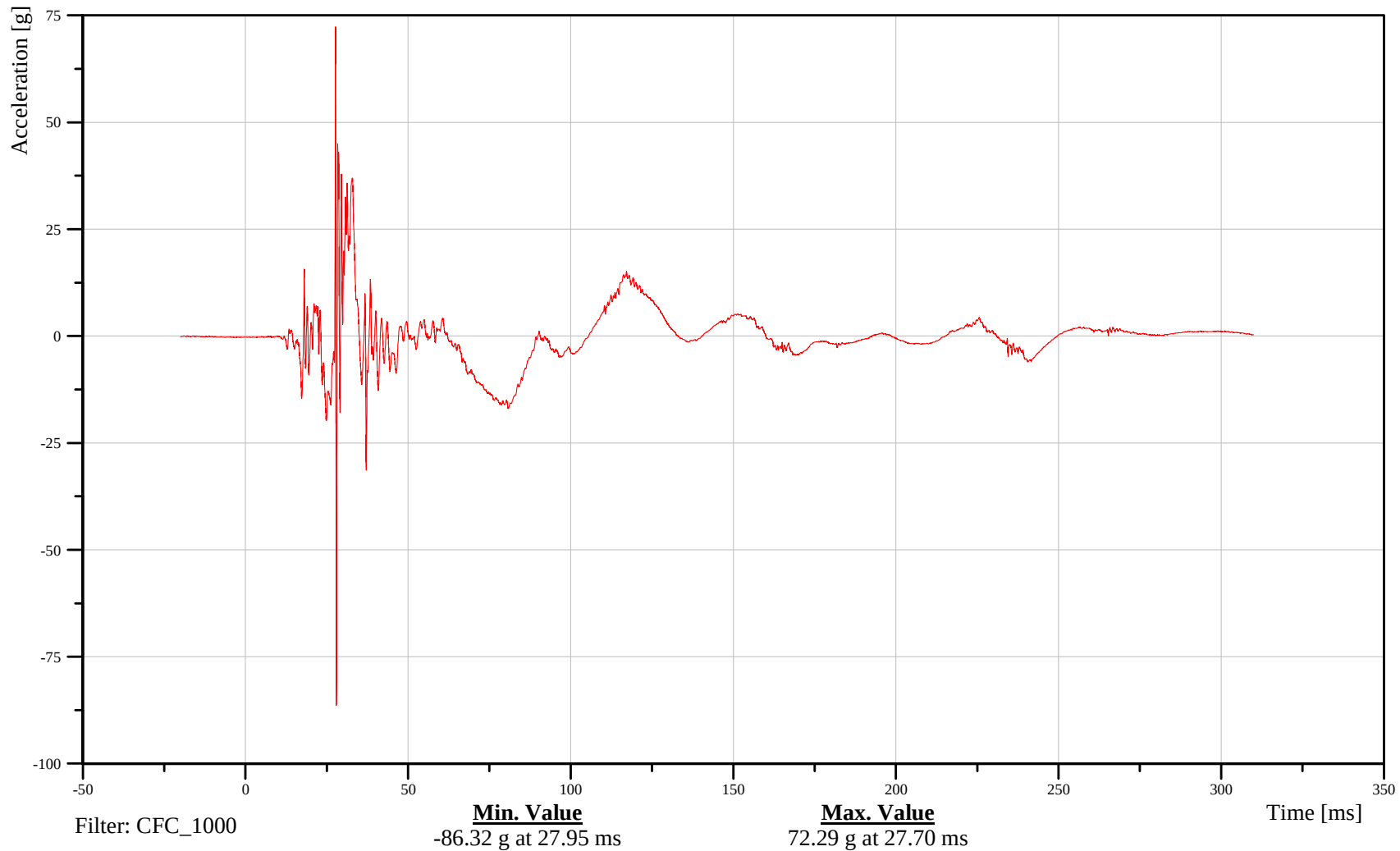
Thorax Rib 2 Z-Axis Acceleration

Customer: VRTC

11TRRILE02WSACZA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-49

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

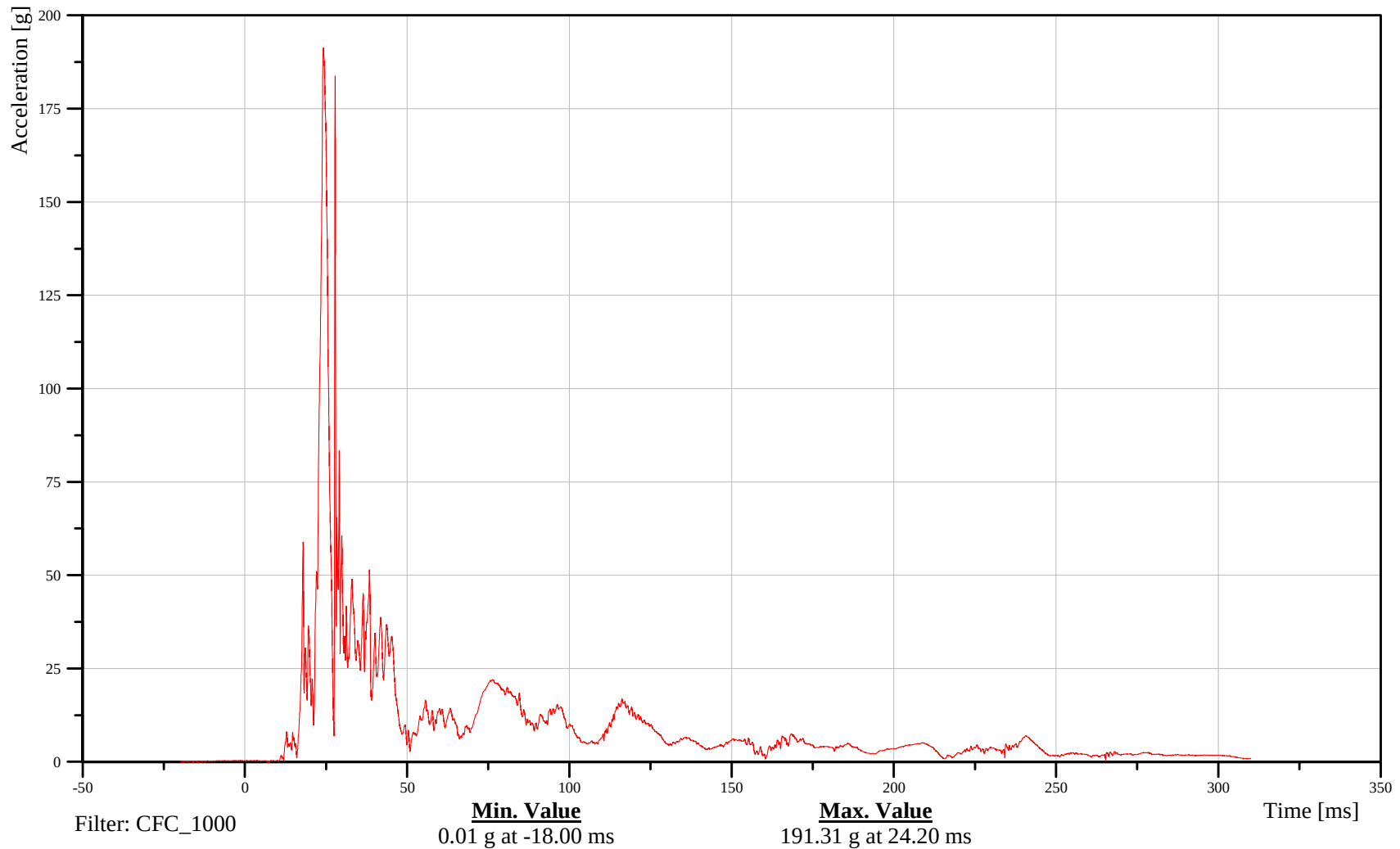
Thorax Rib 2 Resultant Acceleration

Customer: VRTC

11TRRILE02WSACRA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-50

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

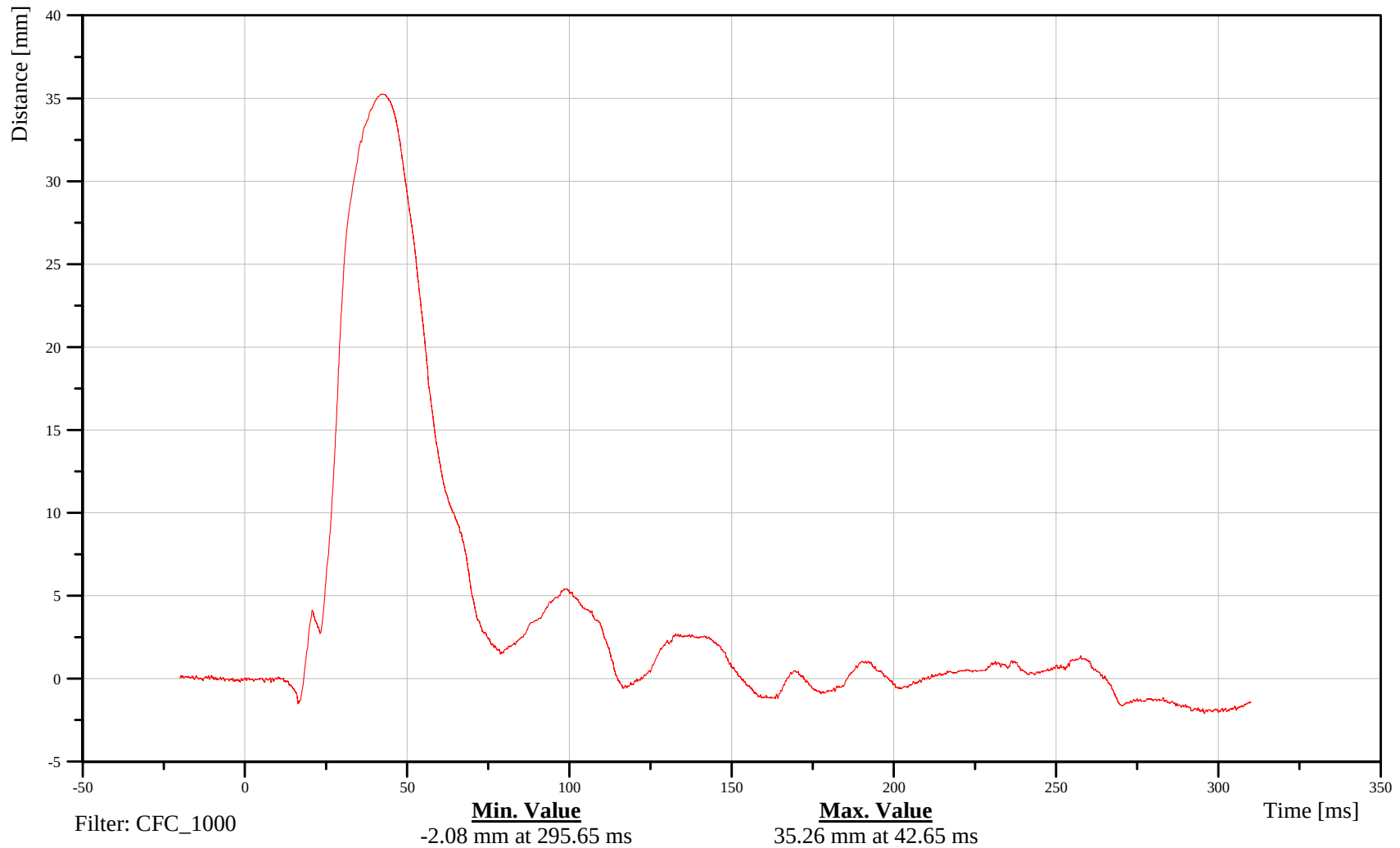
Thorax Rib 3 Y-Axis Displacement

Customer: VRTC

11TRRILE03WSDSYA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-51

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

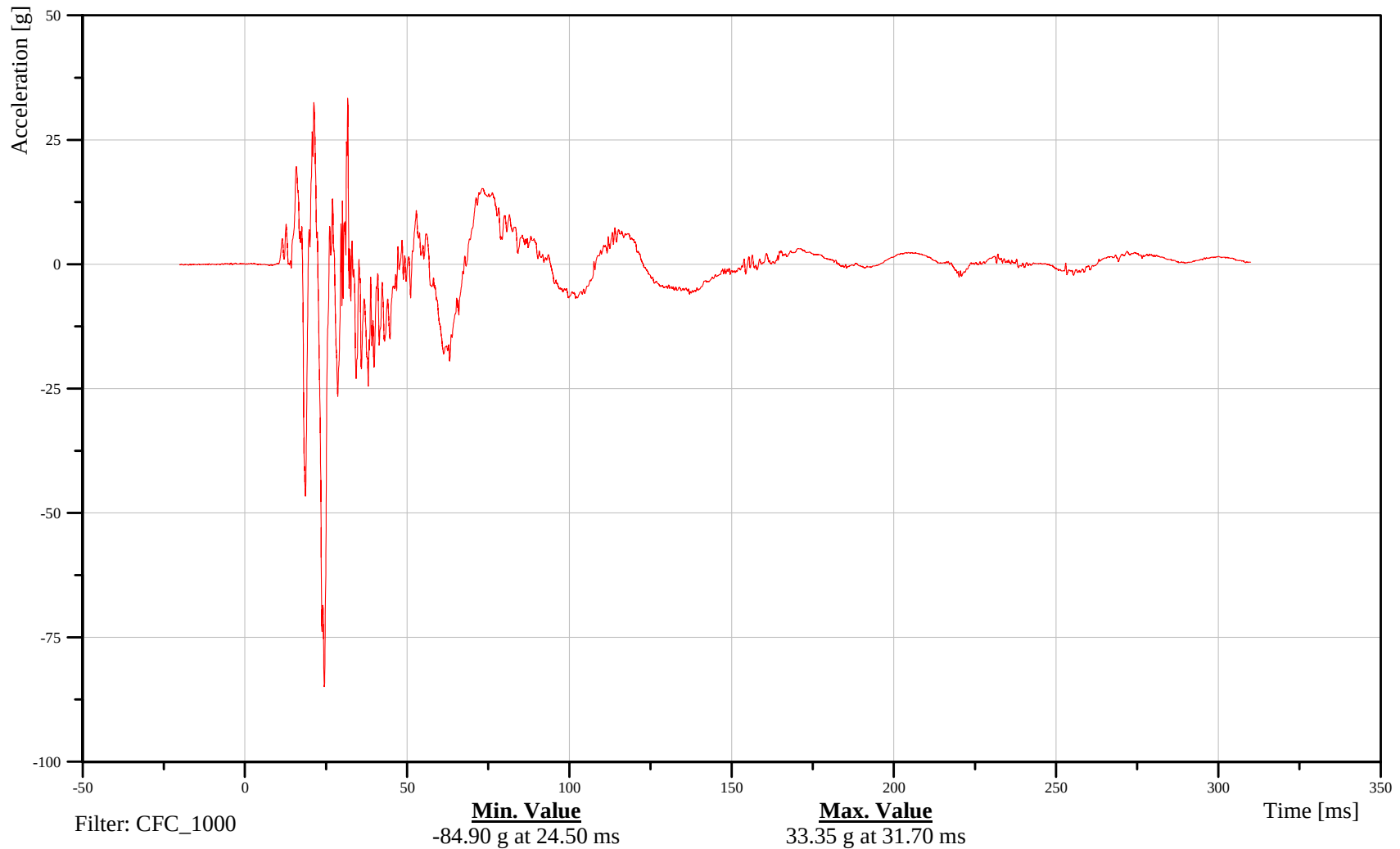
Thorax Rib 3 X-Axis Acceleration

Customer: VRTC

11TRRILE03WSACXA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-52

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

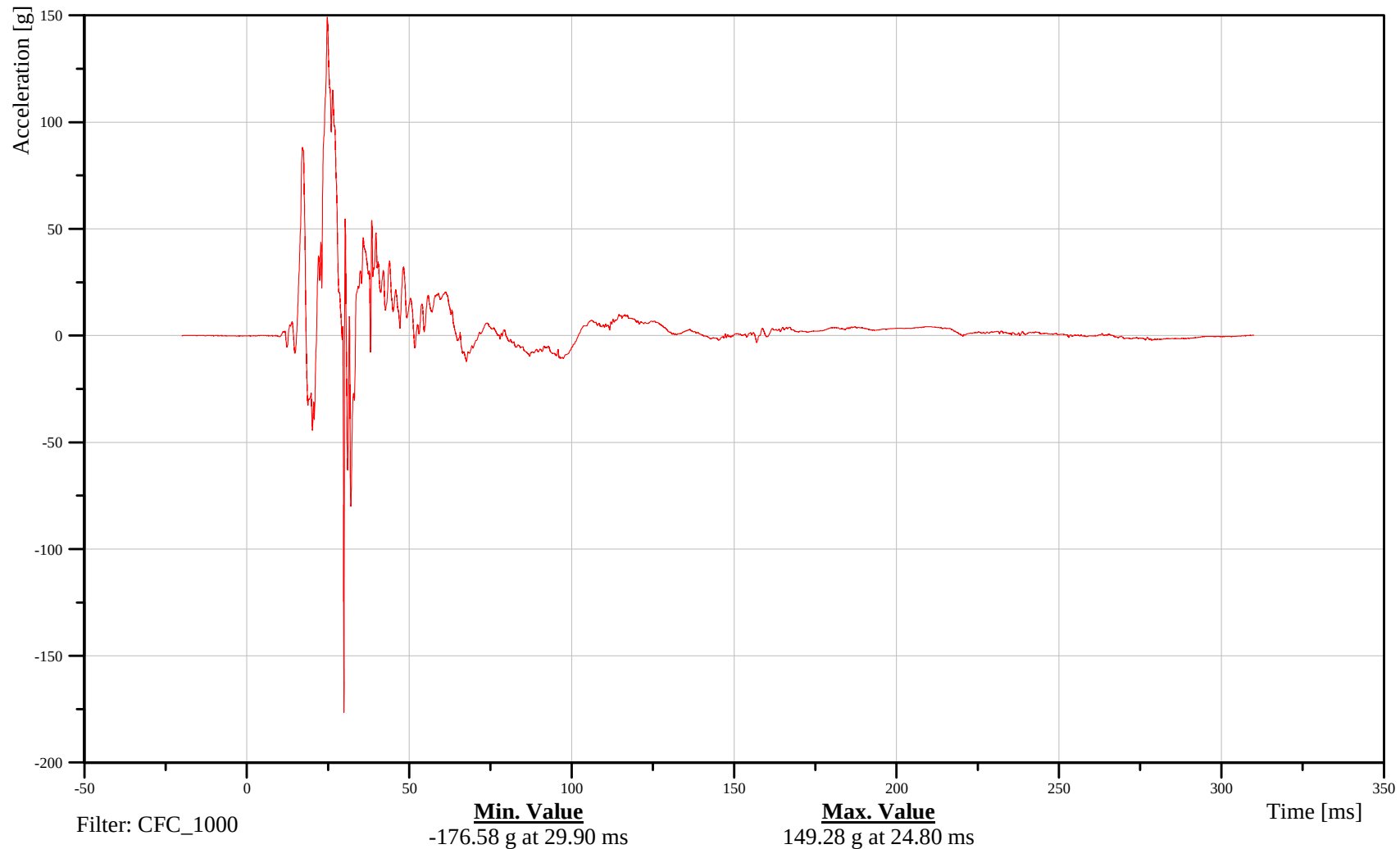
Thorax Rib 3 Y-Axis Acceleration

Customer: VRTC

11TRRILE03WSACYA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-53

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

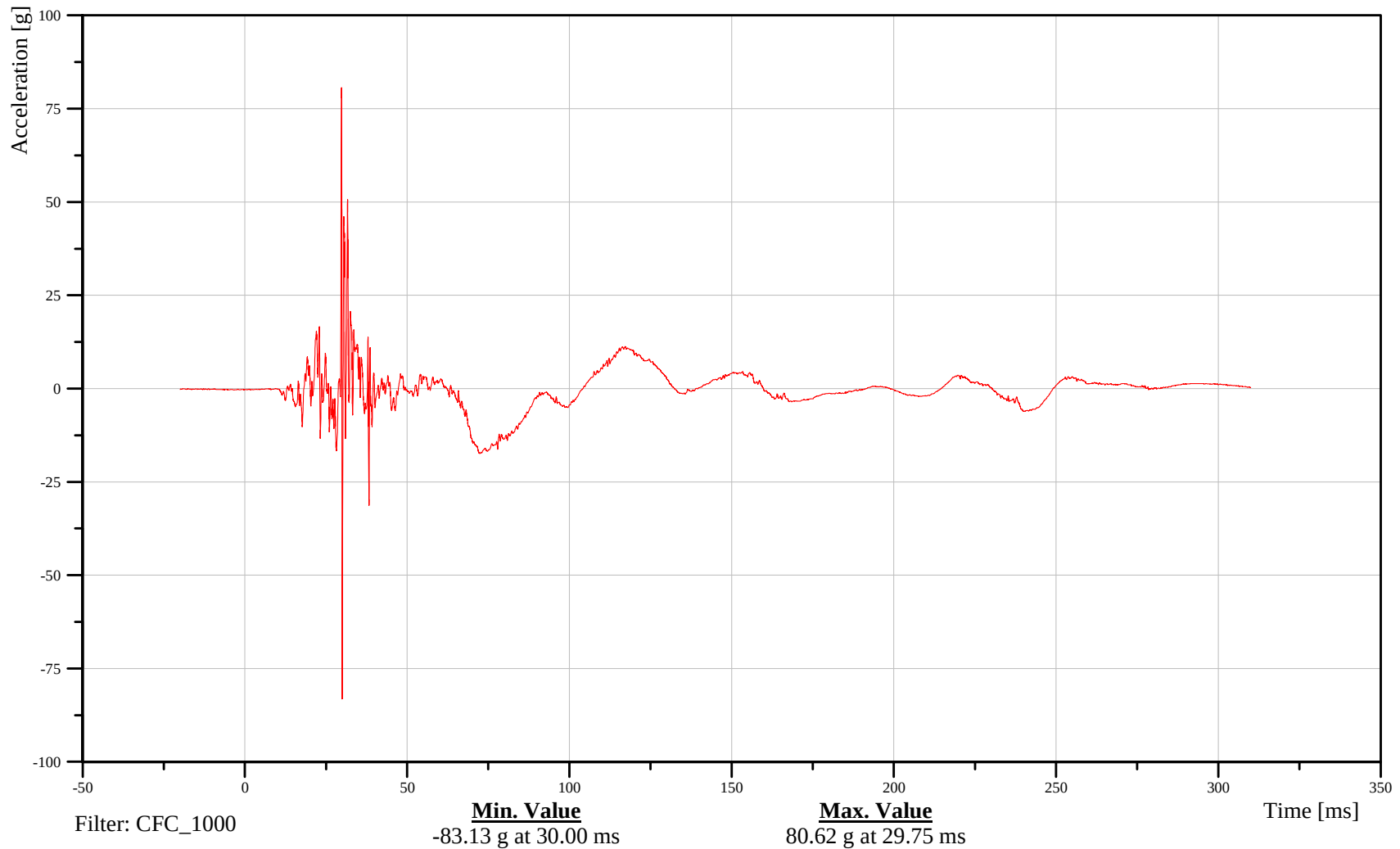
Thorax Rib 3 Z-Axis Acceleration

Customer: VRTC

11TRRILE03WSACZA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-54

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

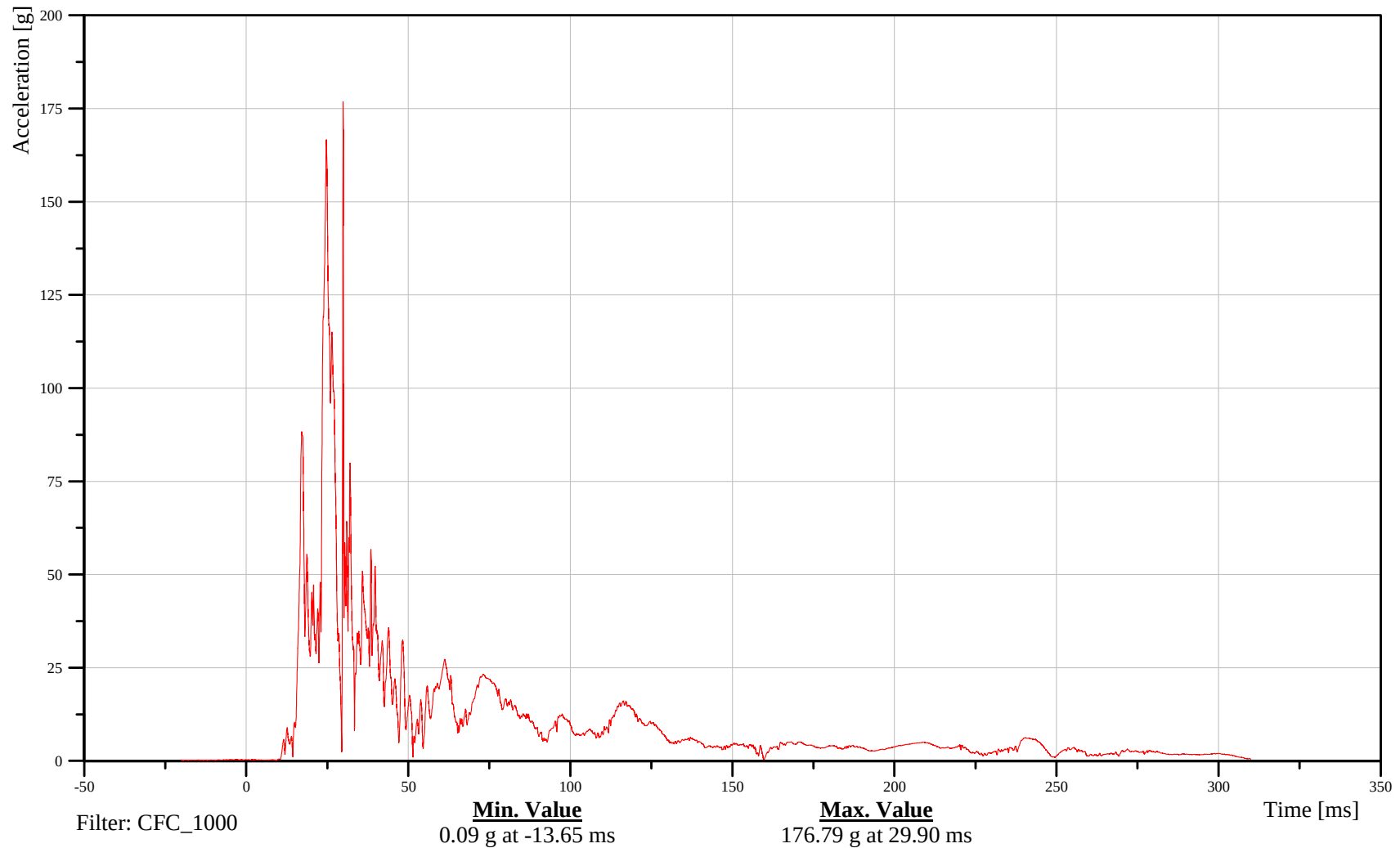
Thorax Rib 3 Resultant Acceleration

Customer: VRTC

11TRRILE03WSACRA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-55

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

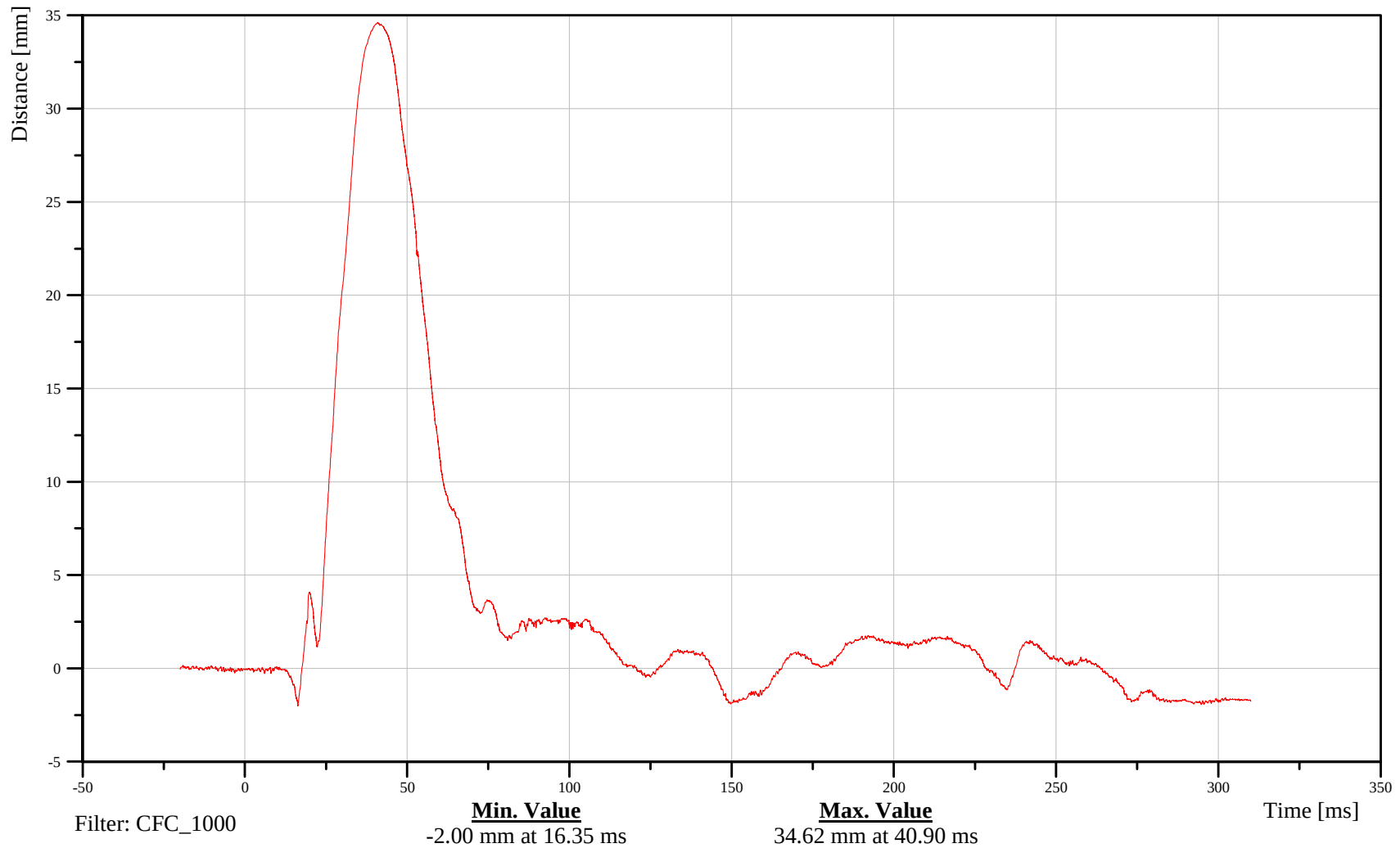
Abdominal Rib 1 Y-Axis Displacement

Customer: VRTC

11ABRILE01WSDSYA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-56

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

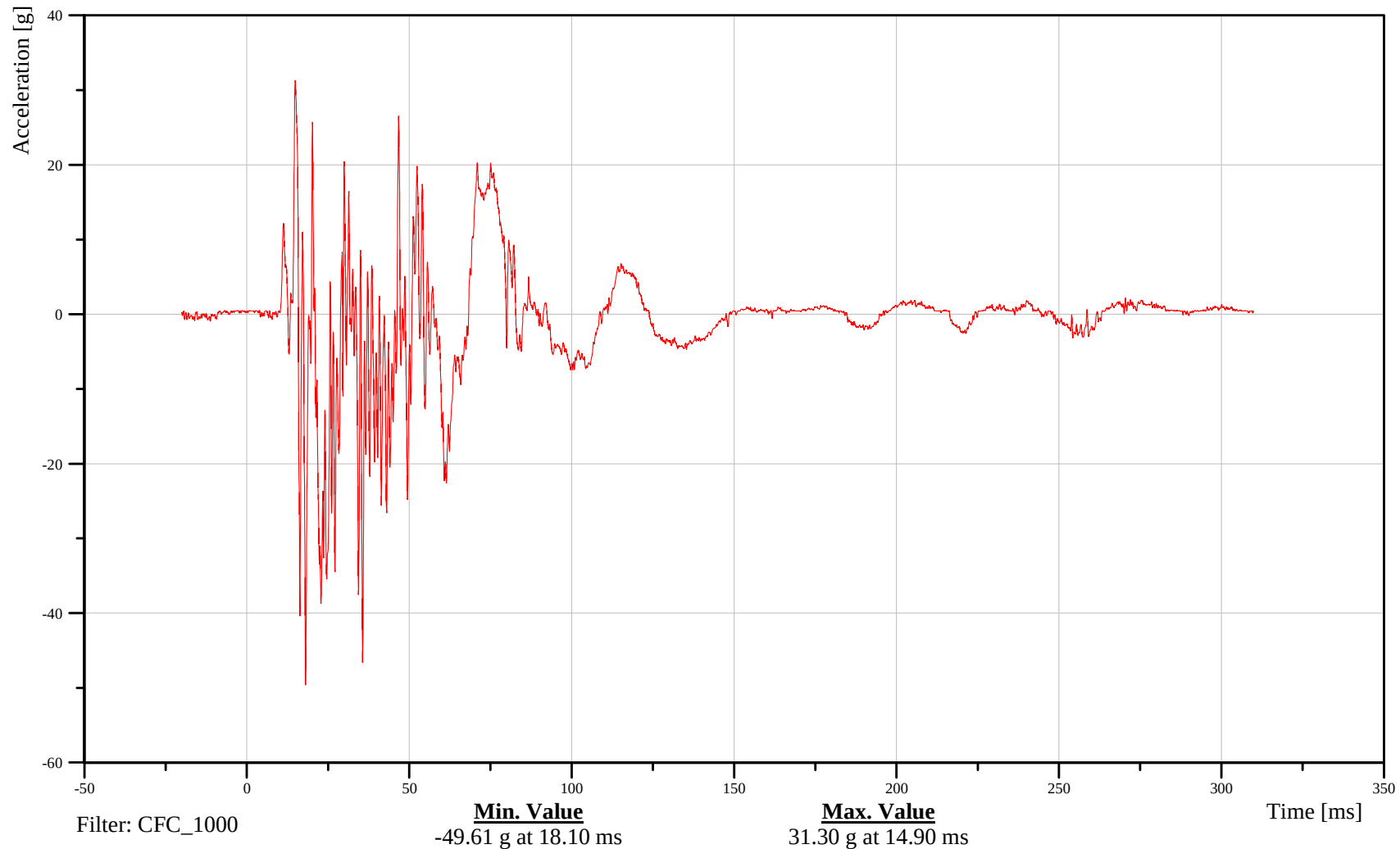
Abdominal Rib 1 X-Axis Acceleration

Customer: VRTC

11ABRILE01WSACXA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-57

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

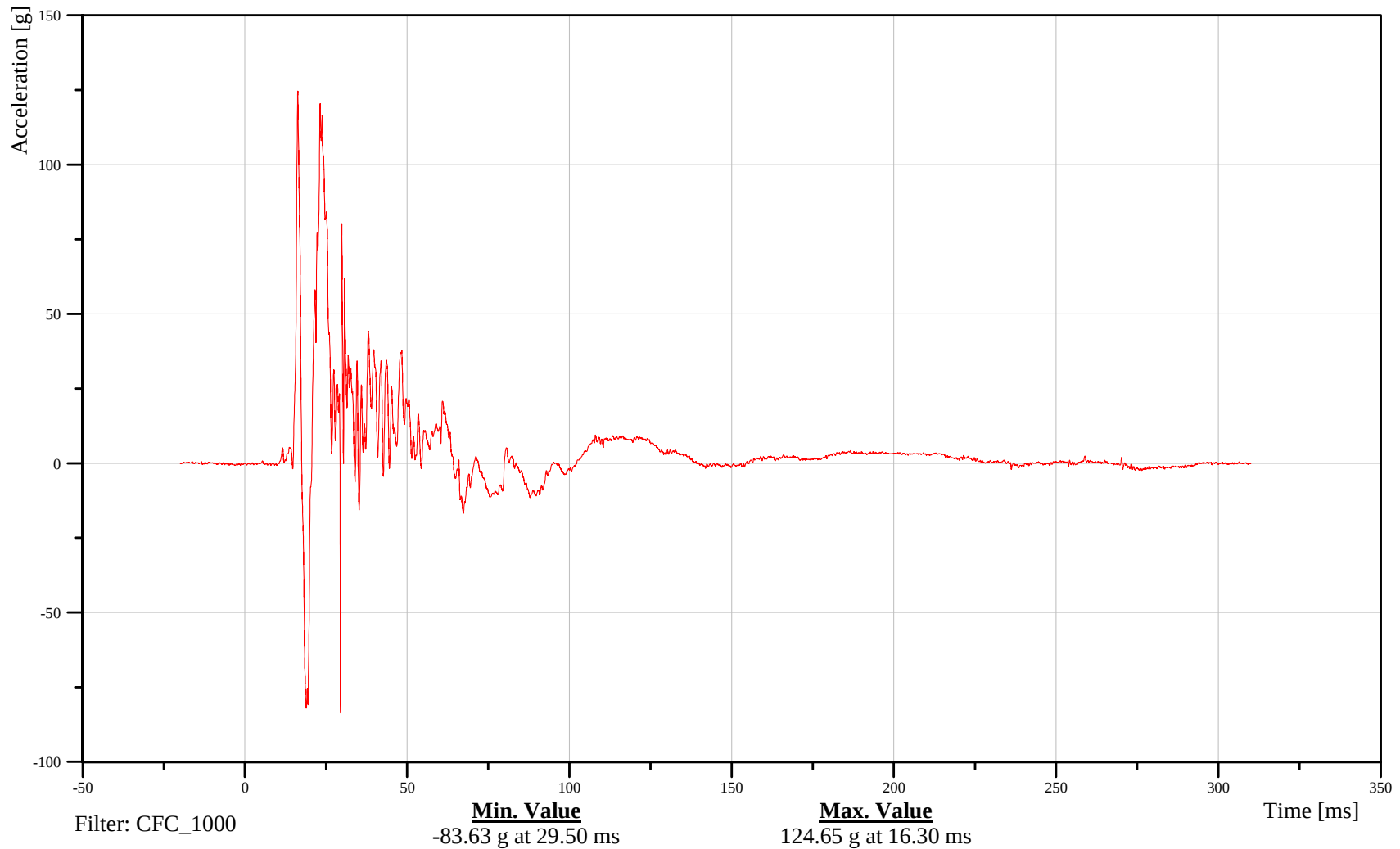
Abdominal Rib 1 Y-Axis Acceleration

Customer: VRTC

11ABRILE01WSACYA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-58

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

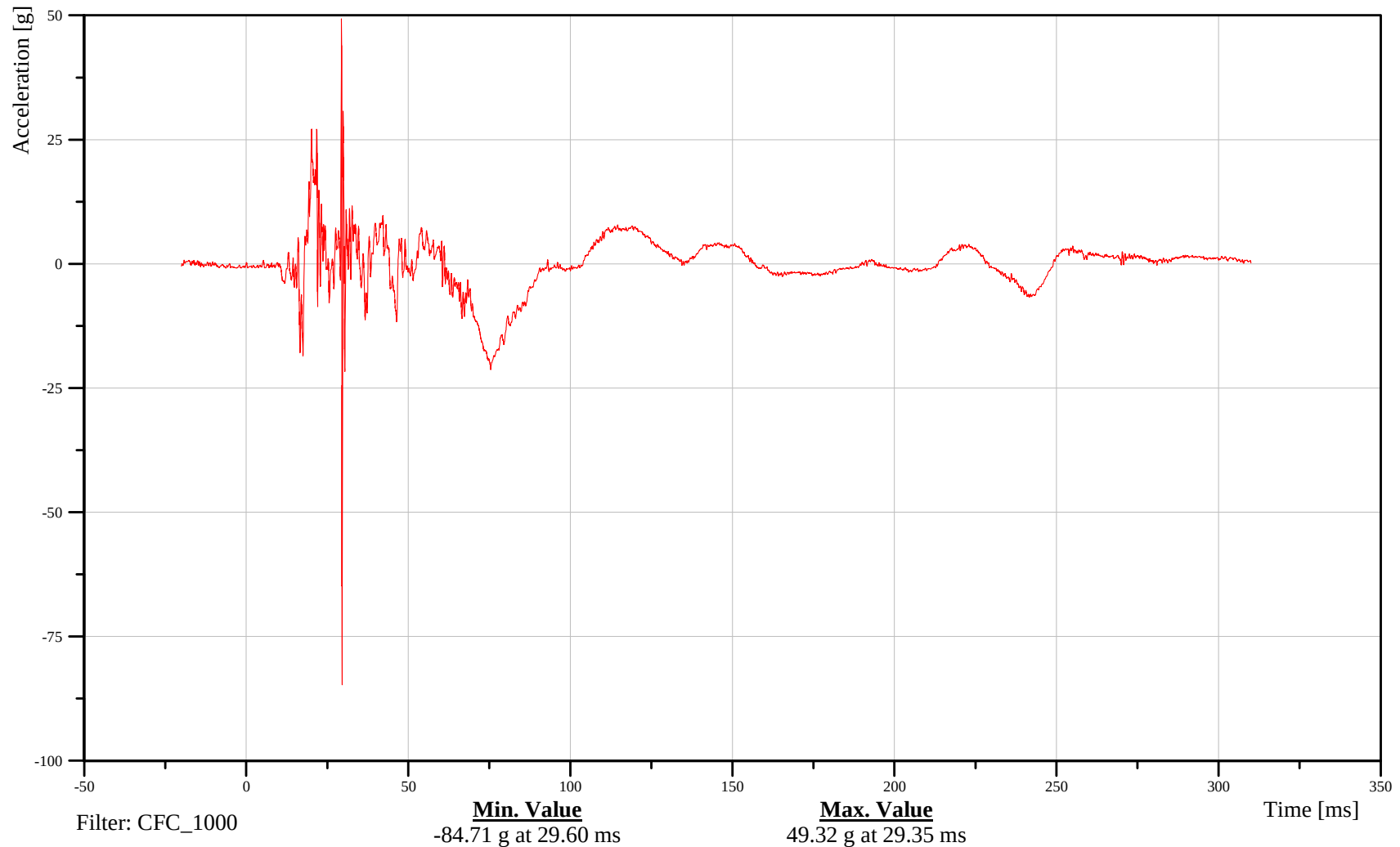
Abdominal Rib 1 Z-Axis Acceleration

Customer: VRTC

11ABRILE01WSACZA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-59

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

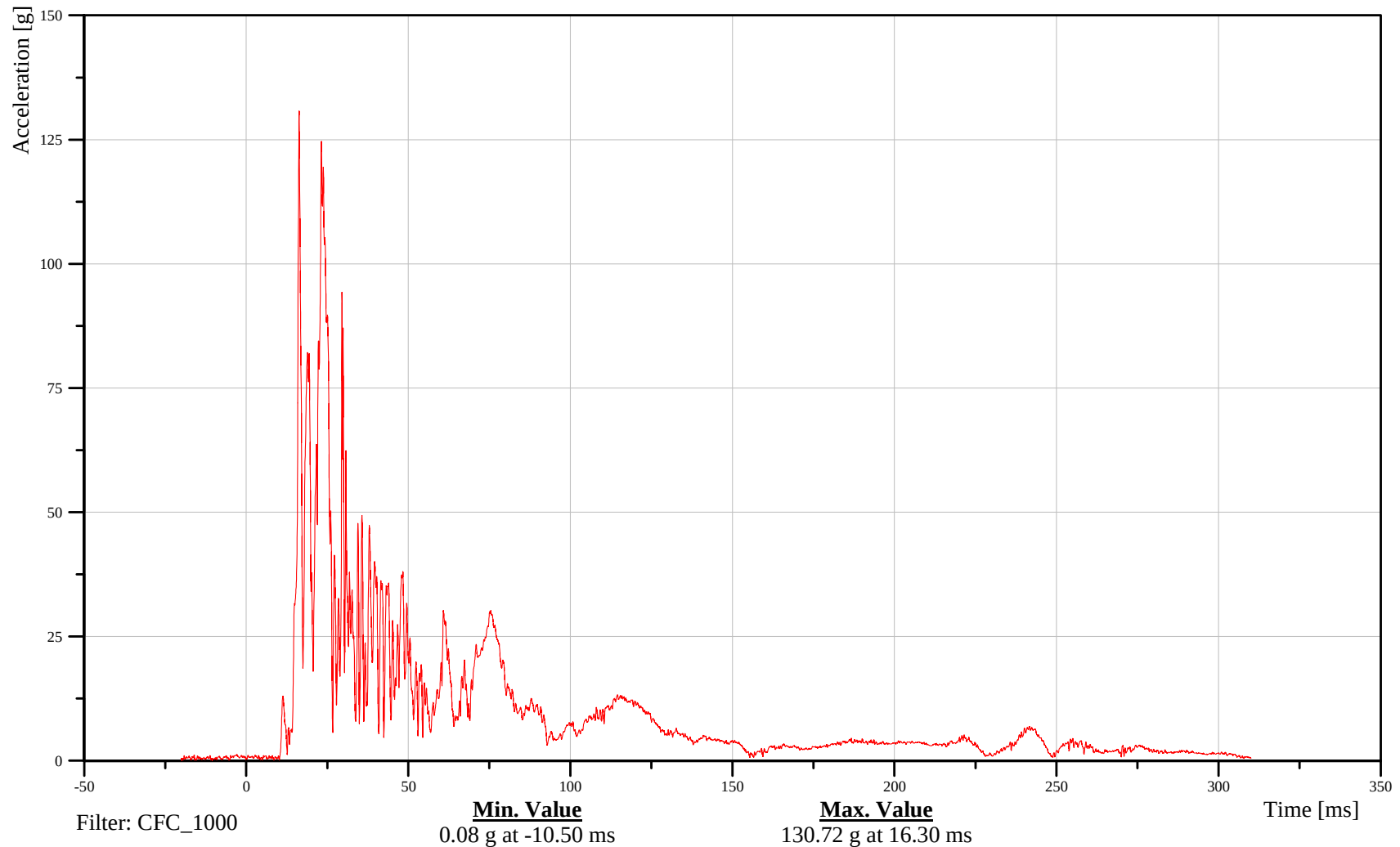
Abdominal Rib 1 Resultant Acceleration

Customer: VRTC

11ABRILE01WSACRA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-60

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

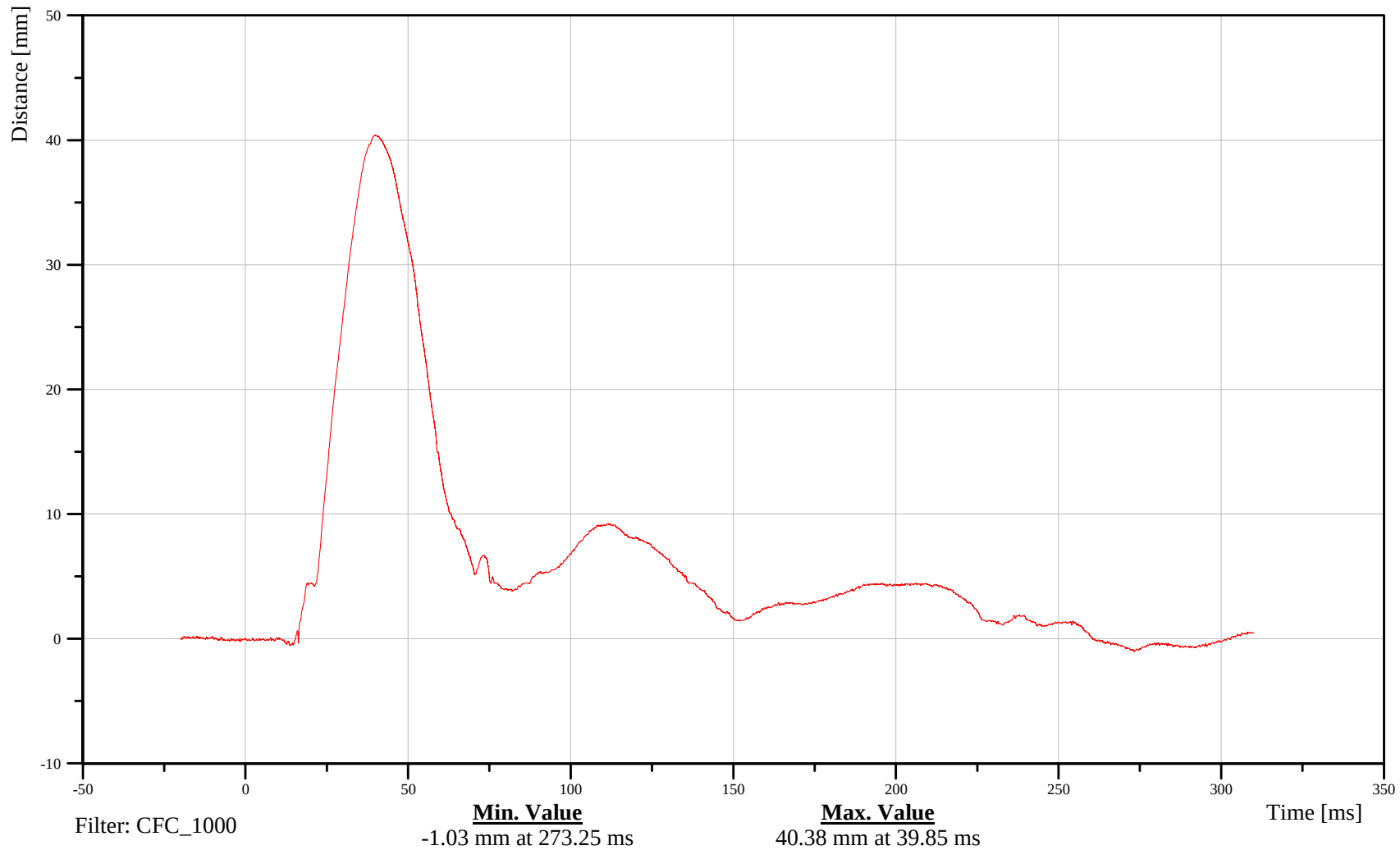
Abdominal Rib 2 Y-Axis Displacement

Customer: VRTC

11ABRILE02WSDSYA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-61

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

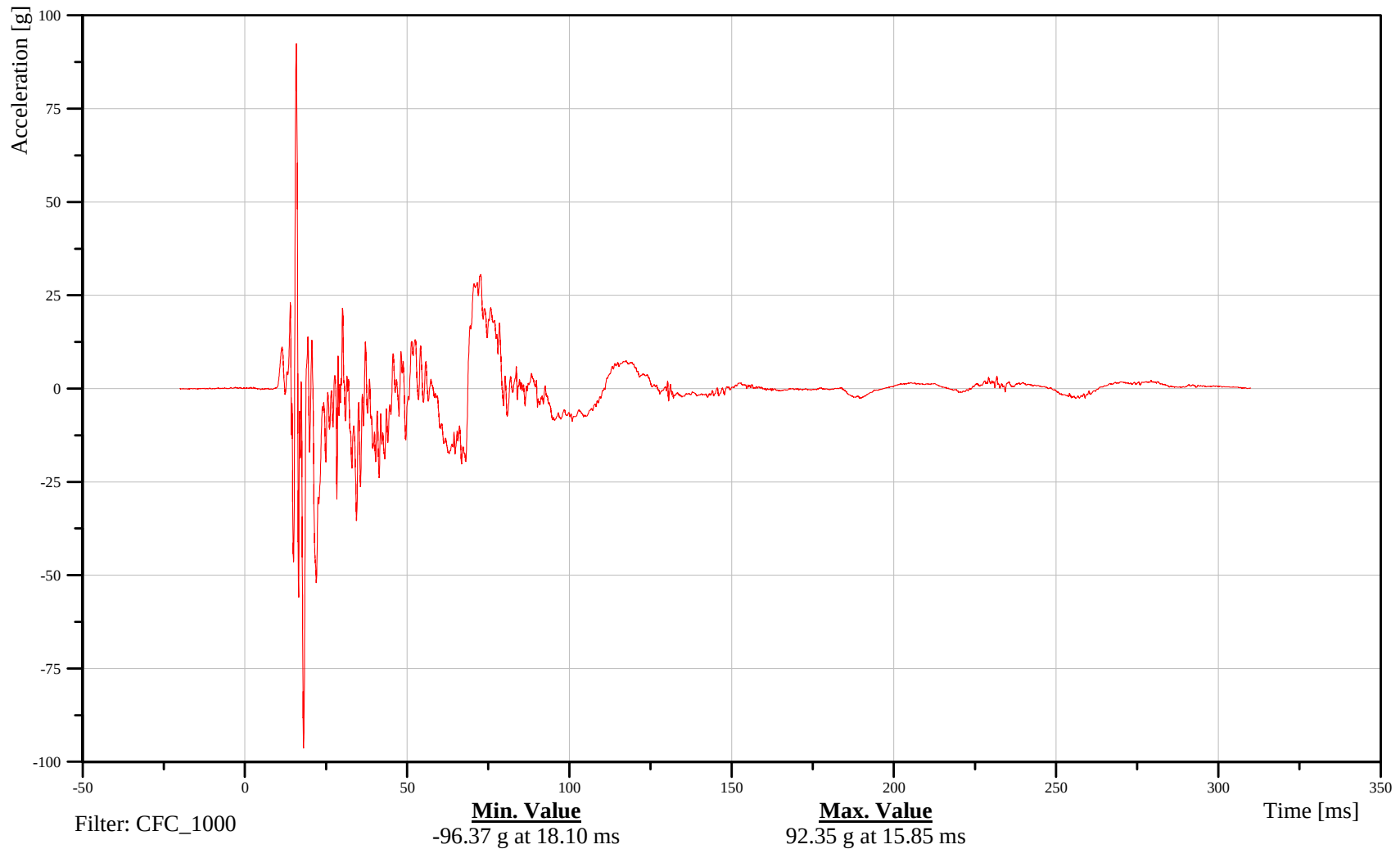
Abdominal Rib 2 X-Axis Acceleration

Customer: VRTC

11ABRILE02WSACXA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-62

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

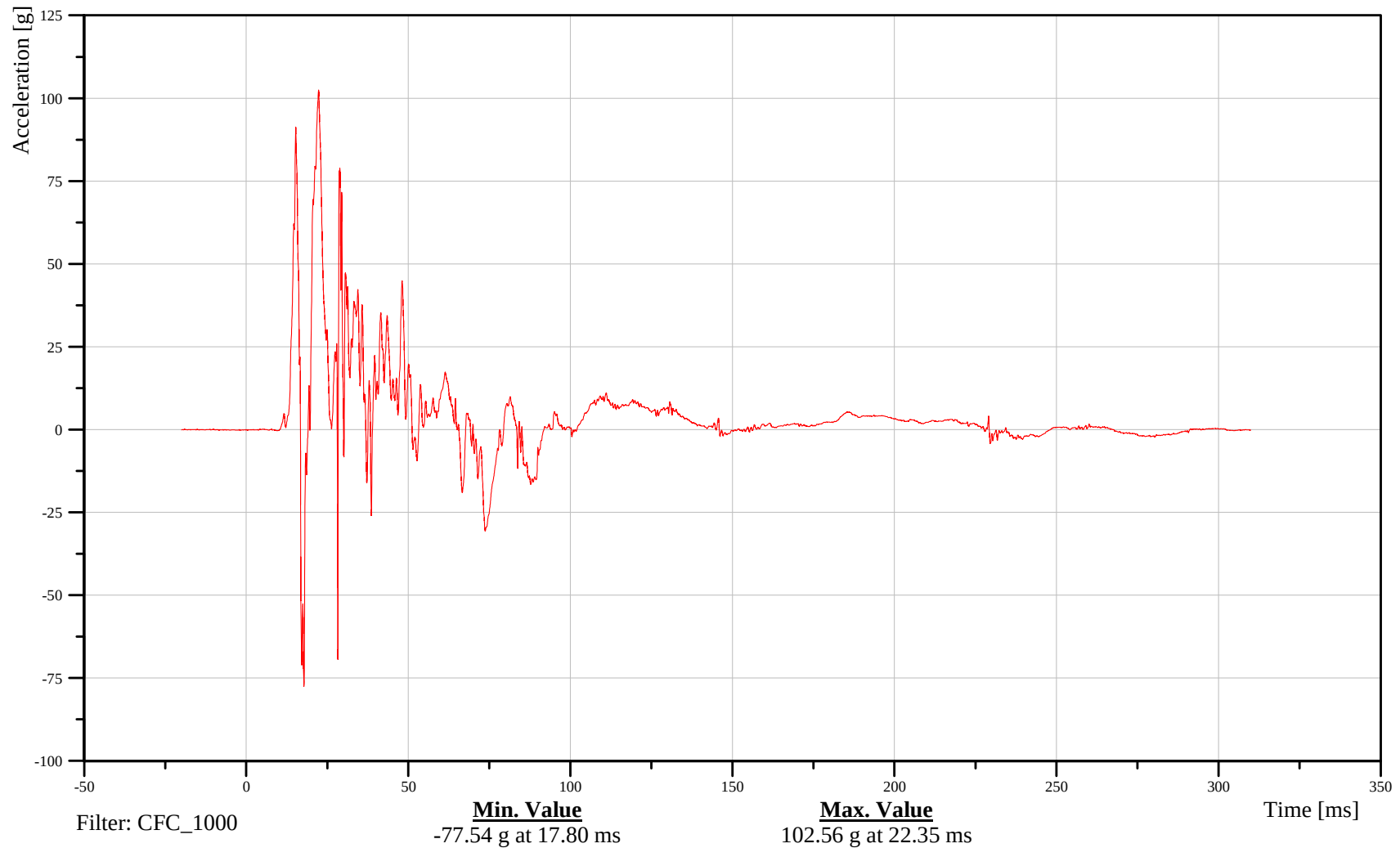
Abdominal Rib 2 Y-Axis Acceleration

Customer: VRTC

11ABRILE02WSACYA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-63

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

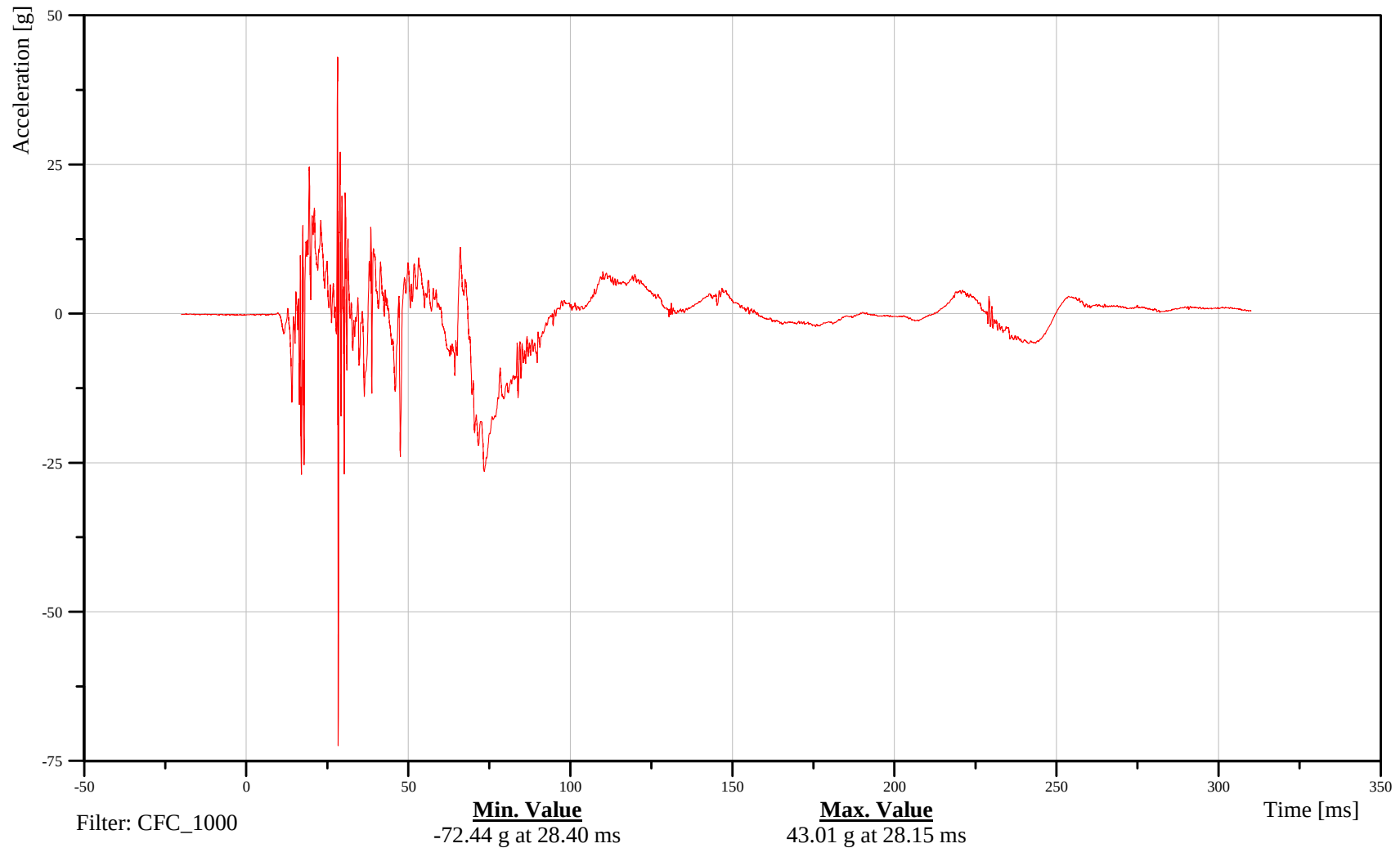
Abdominal Rib 2 Z-Axis Acceleration

Customer: VRTC

11ABRILE02WSACZA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-64

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

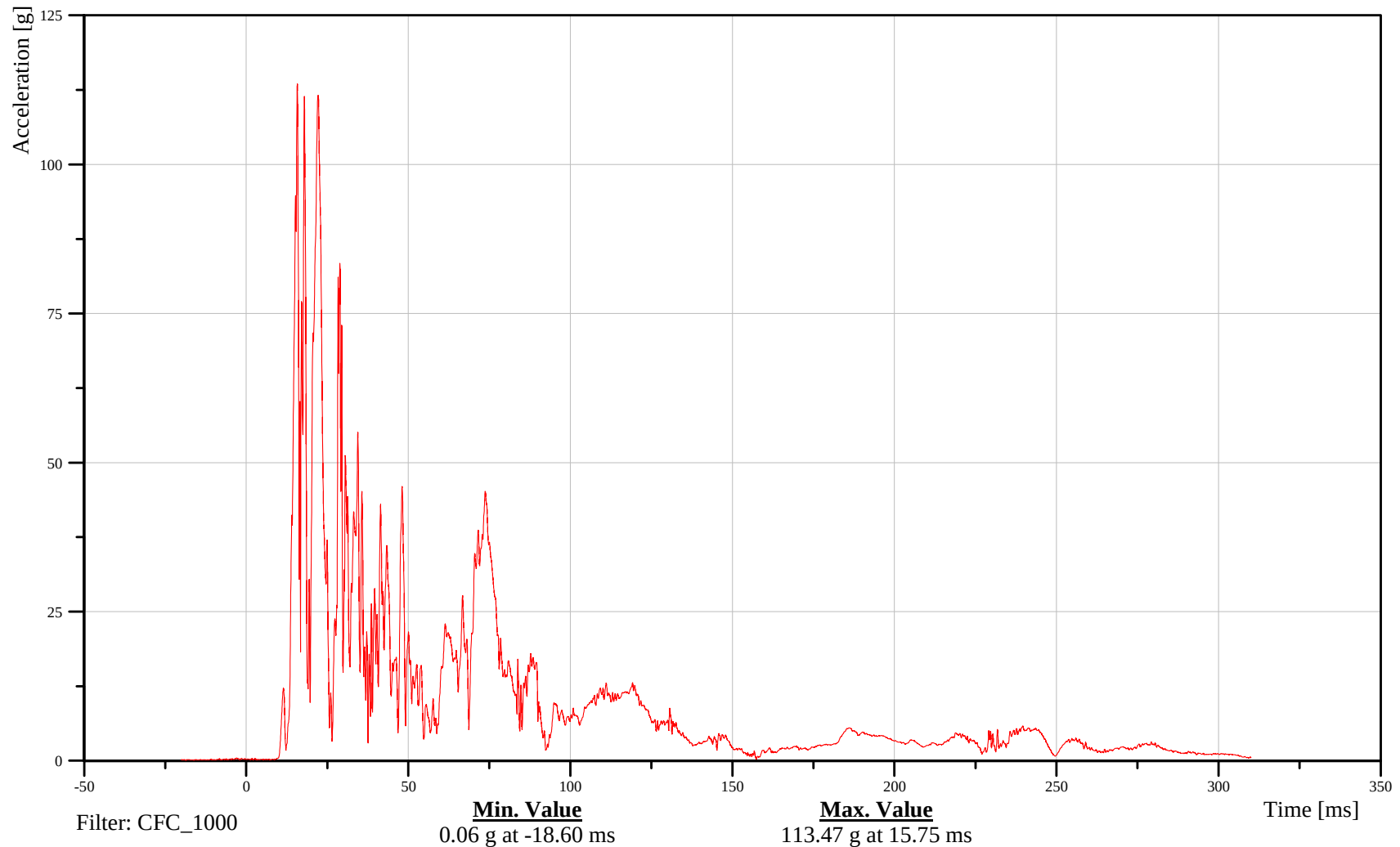
Abdominal Rib 2 Resultant Acceleration

Customer: VRTC

11ABRILE02WSACRA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-65

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

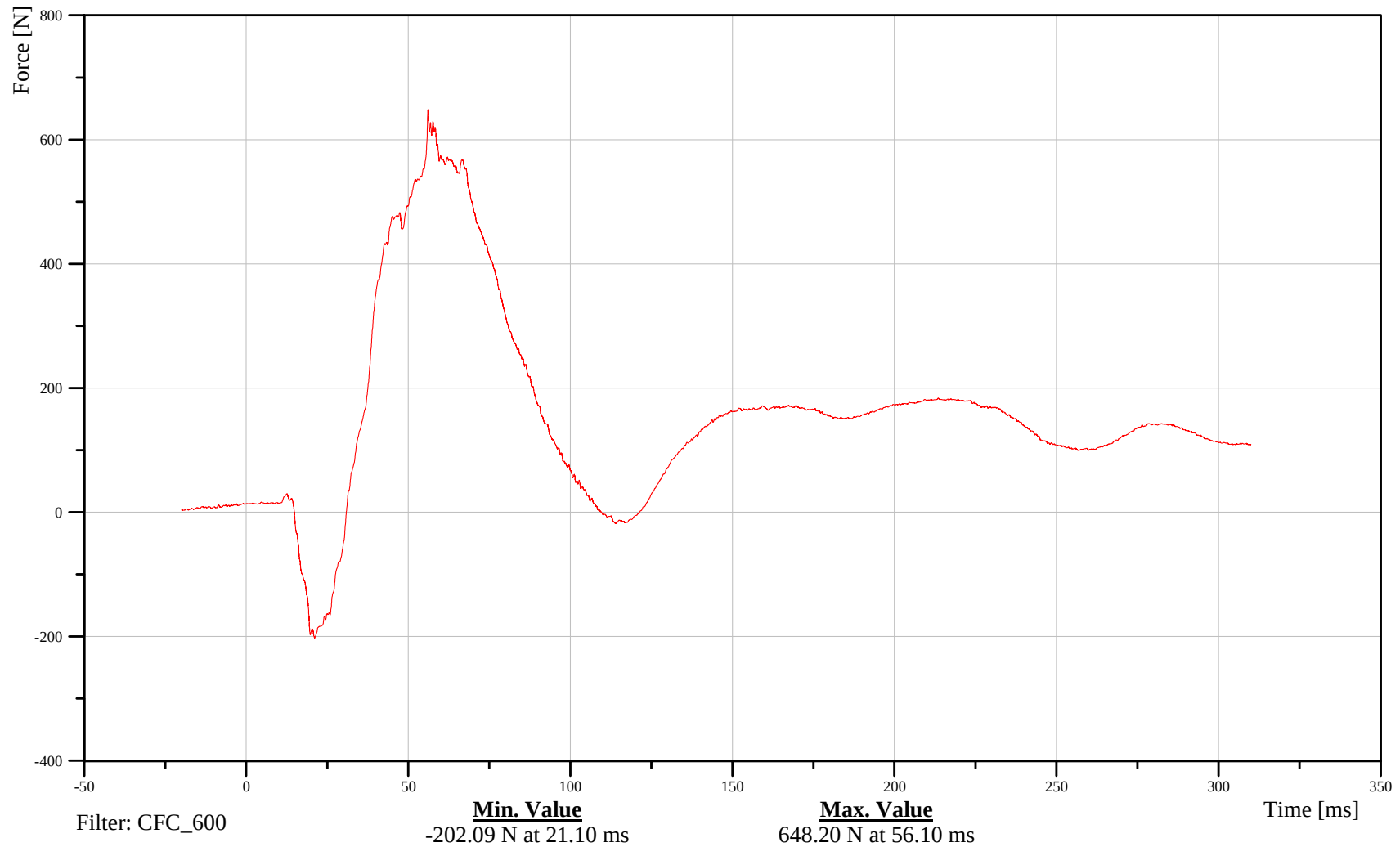
Lumbar X-Axis Force

Customer: VRTC

11LUSP0000WSFOXB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-66

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

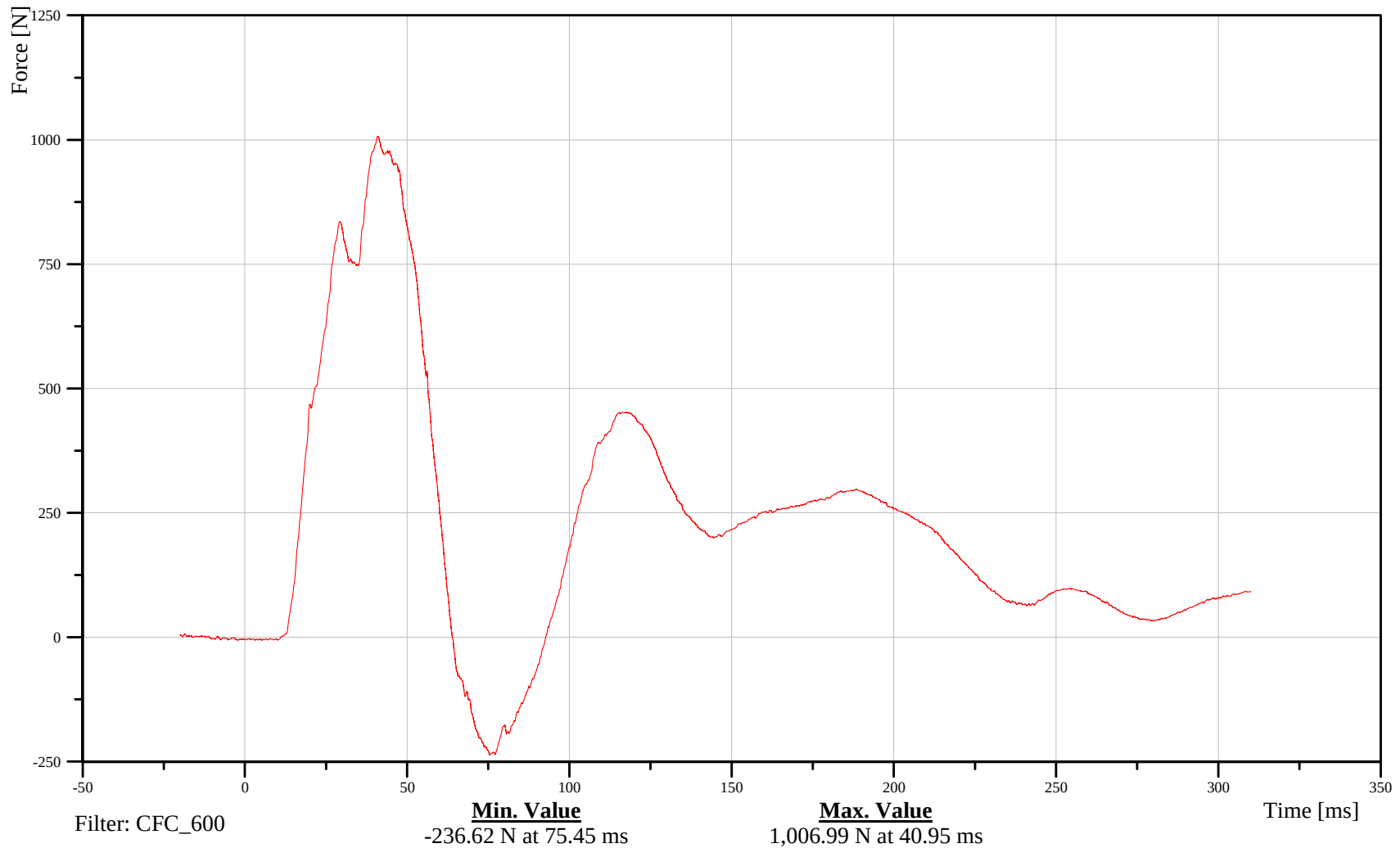
Lumbar Y-Axis Force

Customer: VRTC

11LUSP0000WSFOYB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-67

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

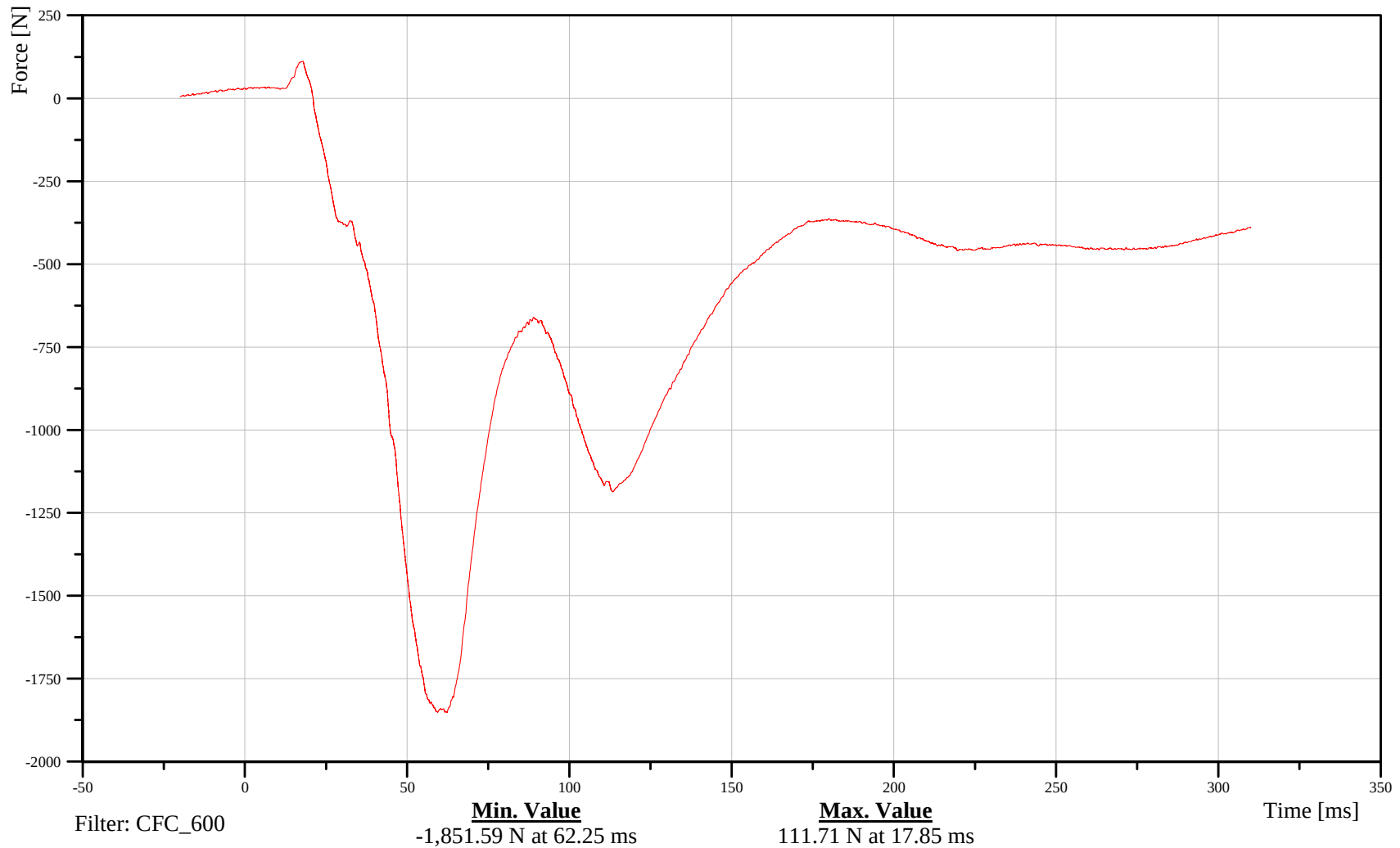
Lumbar Z-Axis Force

Customer: VRTC

11LUSP0000WSFOZB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-68

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

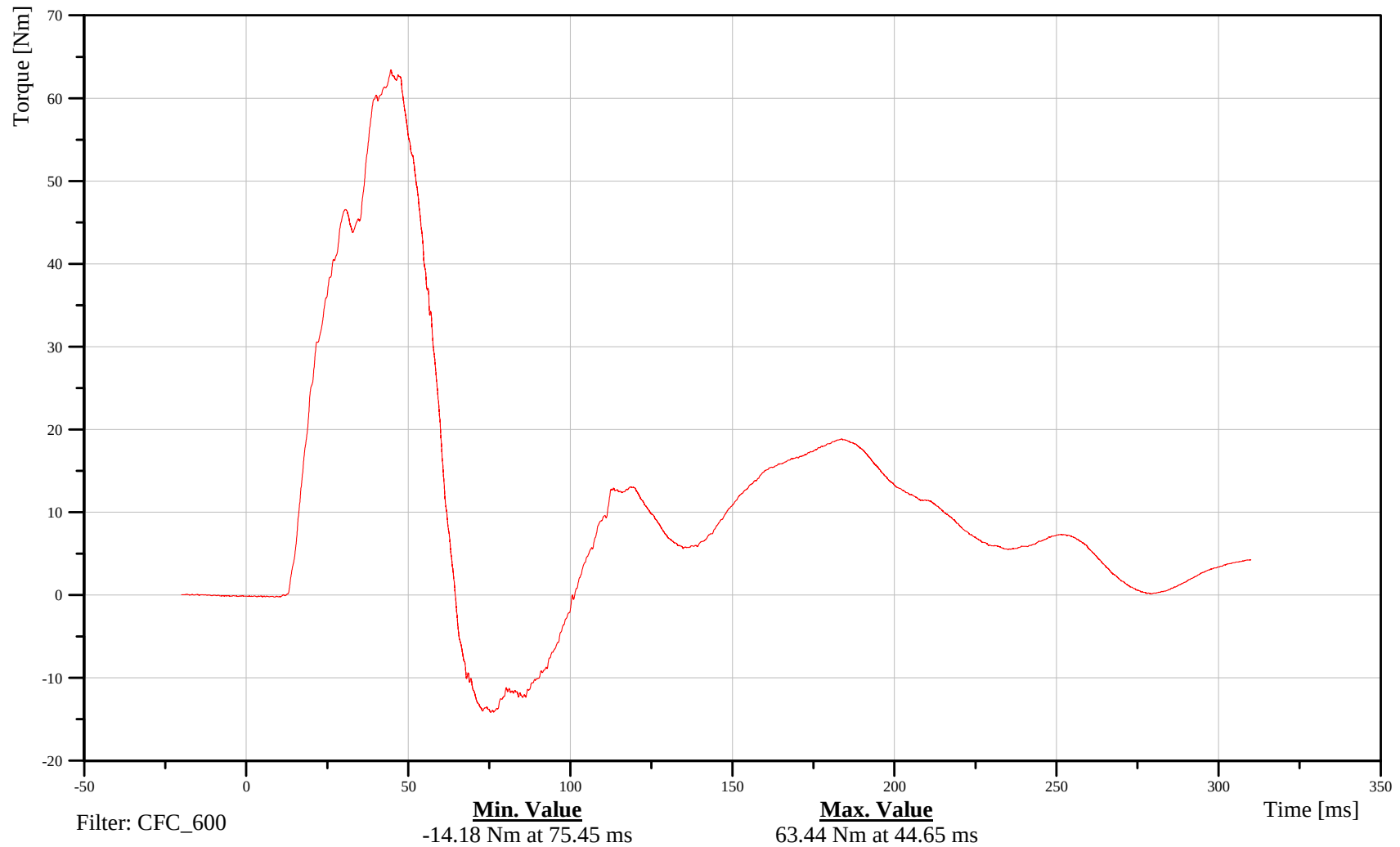
Lumbar Moment About X Axis

Customer: VRTC

11LUSP0000WSMOXB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-69

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

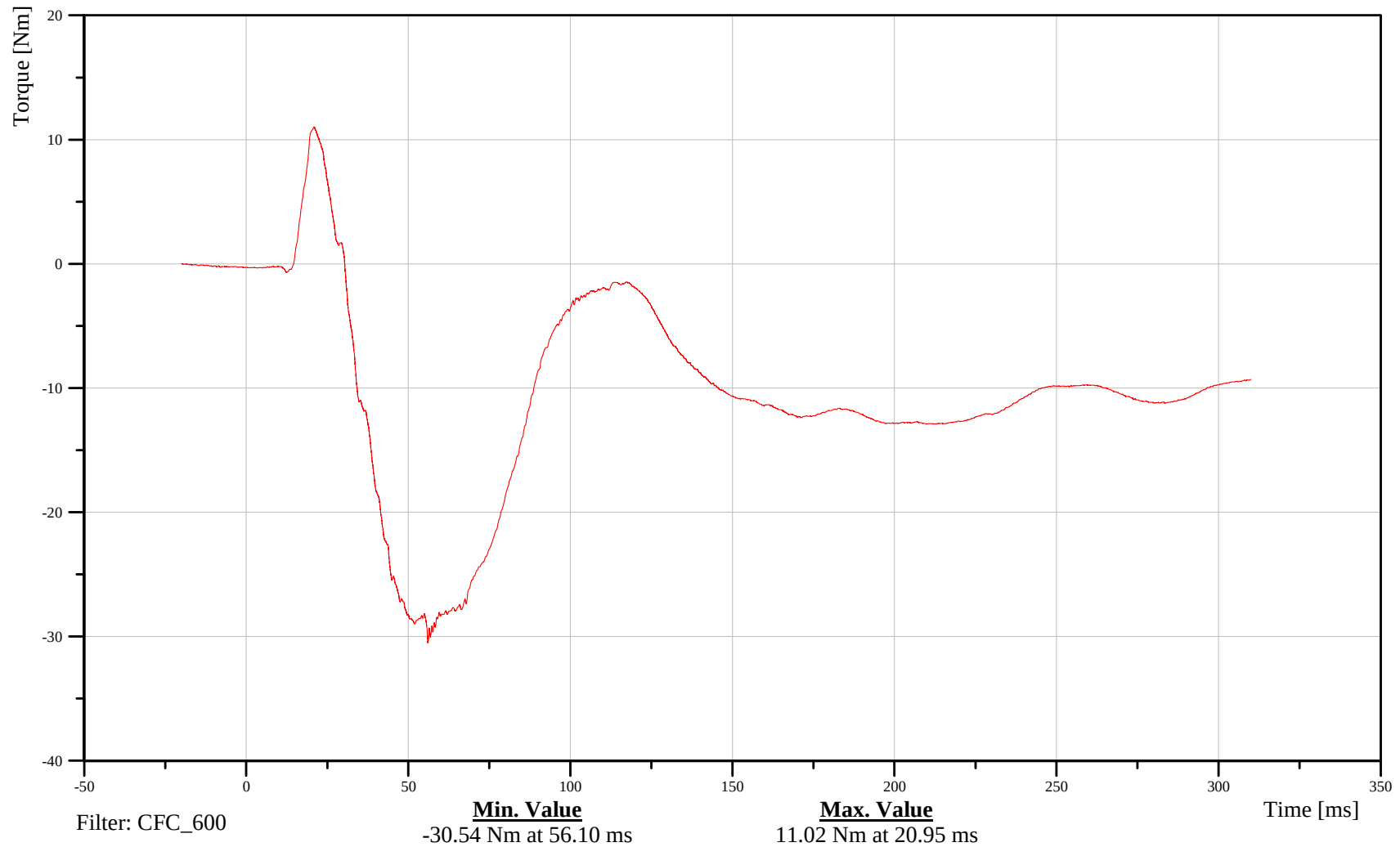
Lumbar Moment About Y Axis

Customer: VRTC

11LUSP0000WSMOYB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-70

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

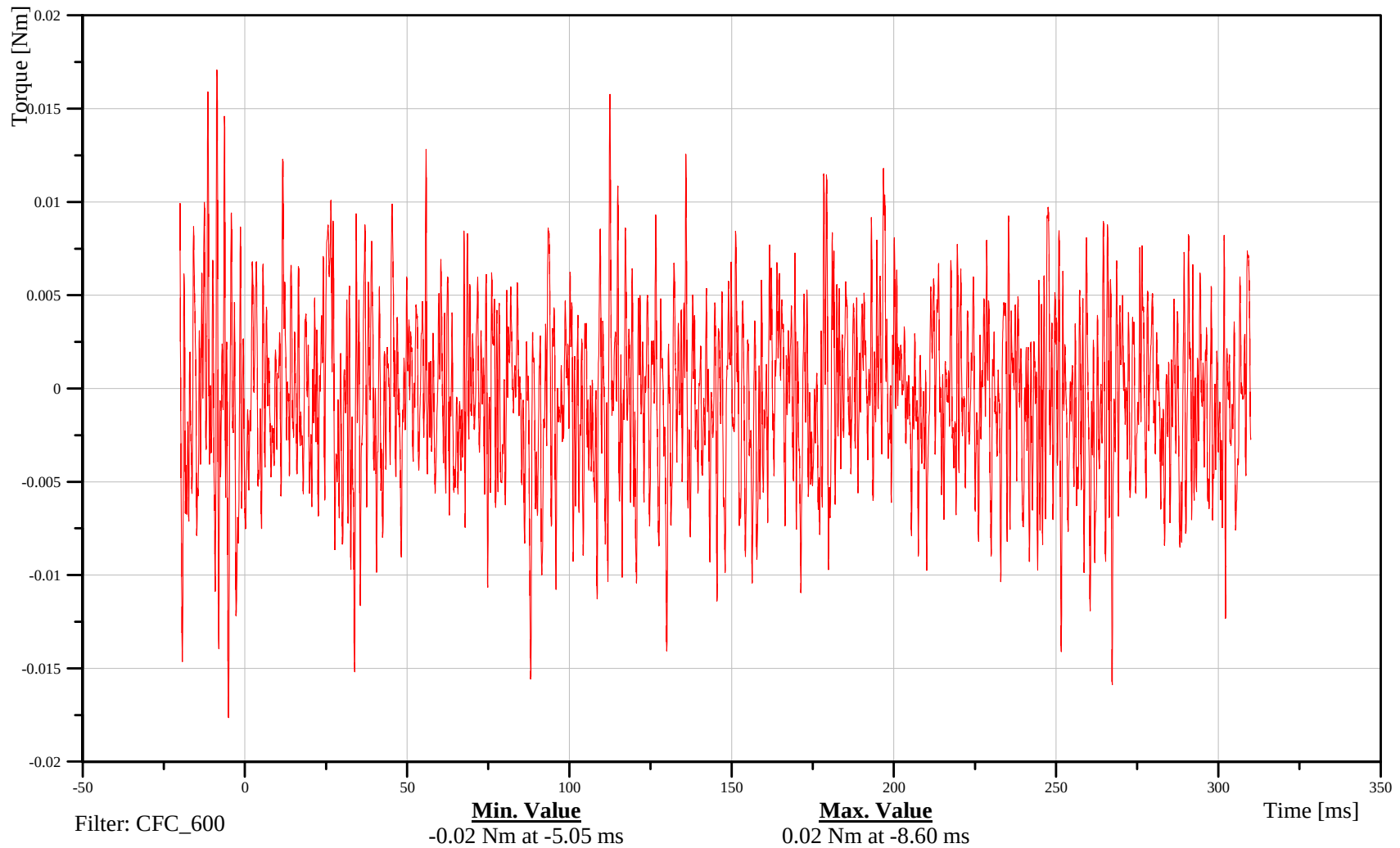
Lumbar Moment About Z Axis

Customer: VRTC

11LUSP0000WSMOZB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-71

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

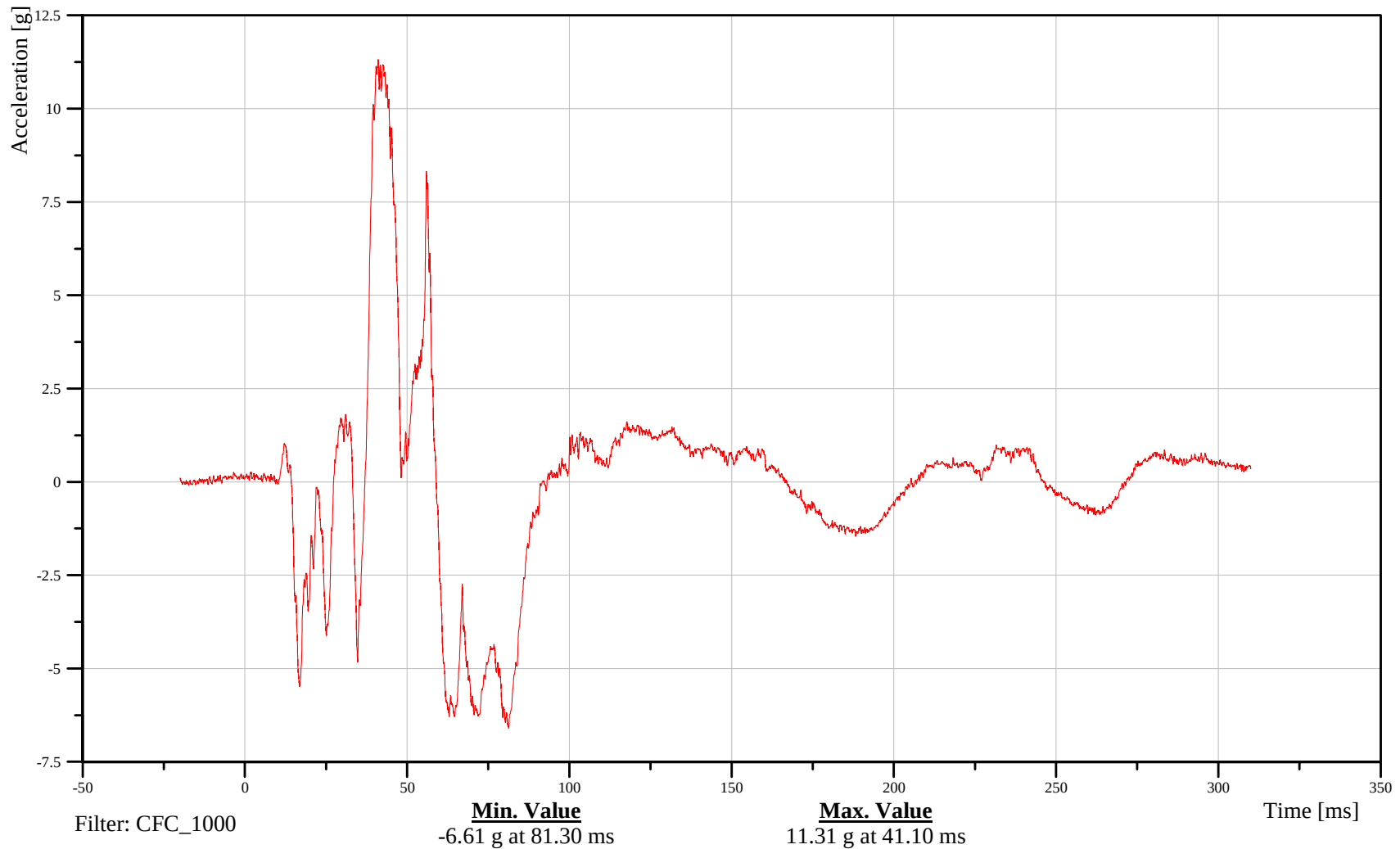
Pelvis X-Axis Acceleration

Customer: VRTC

11PELVCG00WSACXA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-72

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

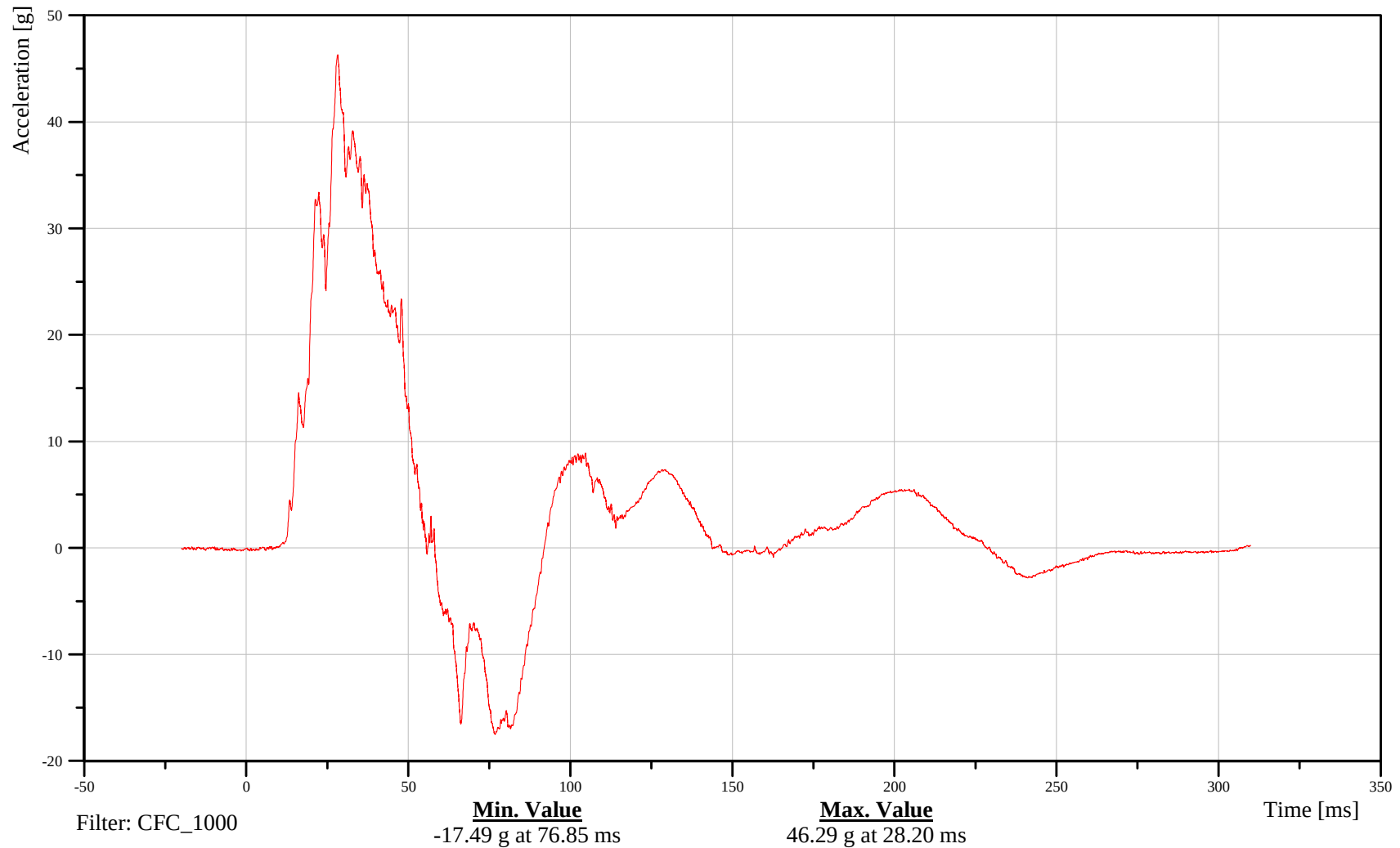
Pelvis Y-Axis Acceleration

Customer: VRTC

11PELVCG00WSACYA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-73

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

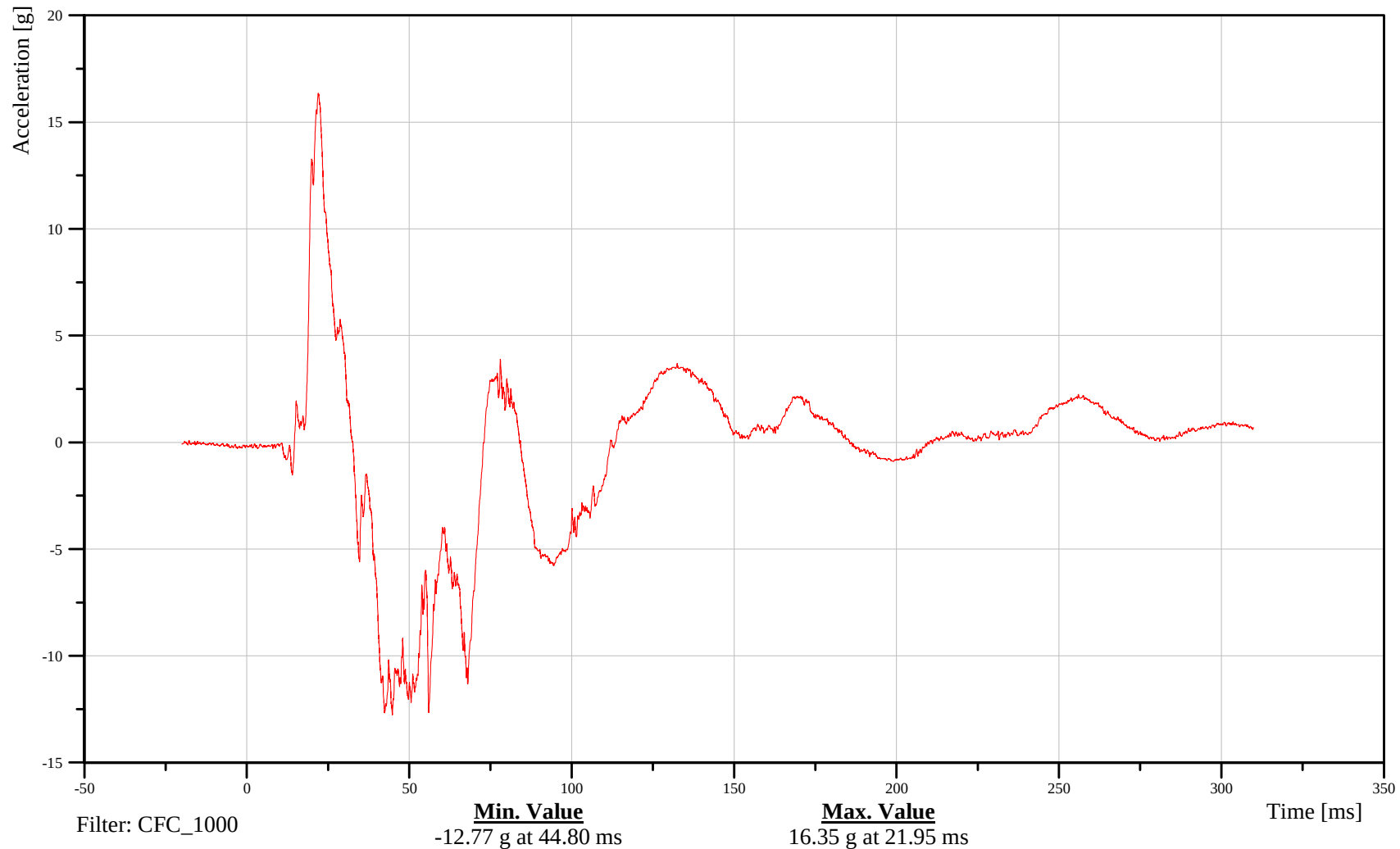
Pelvis Z-Axis Acceleration

Customer: VRTC

11PELVCG00WSACZA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-74

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

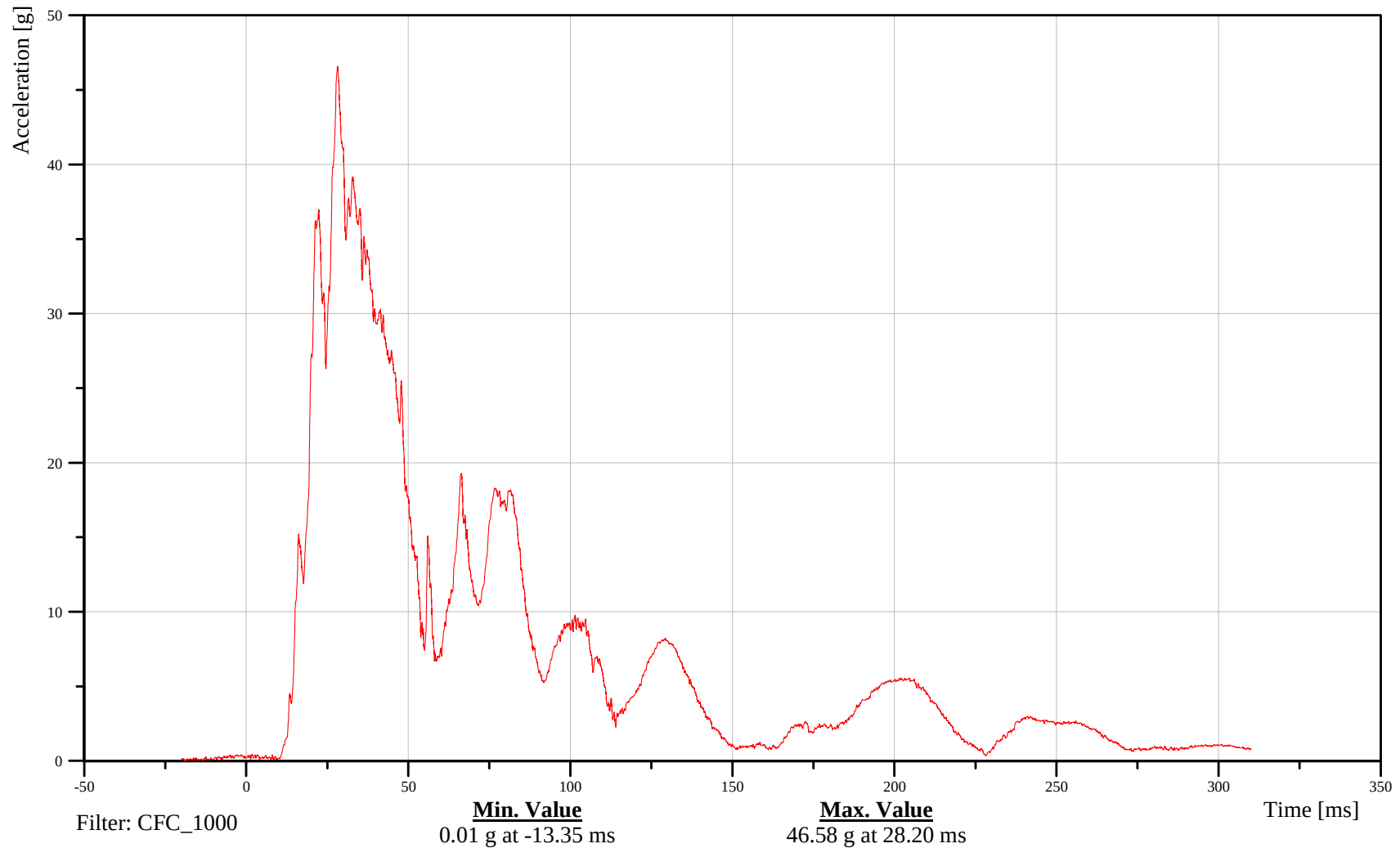
Pelvis Resultant Acceleration

Customer: VRTC

11PELVCG00WSACRA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-75

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

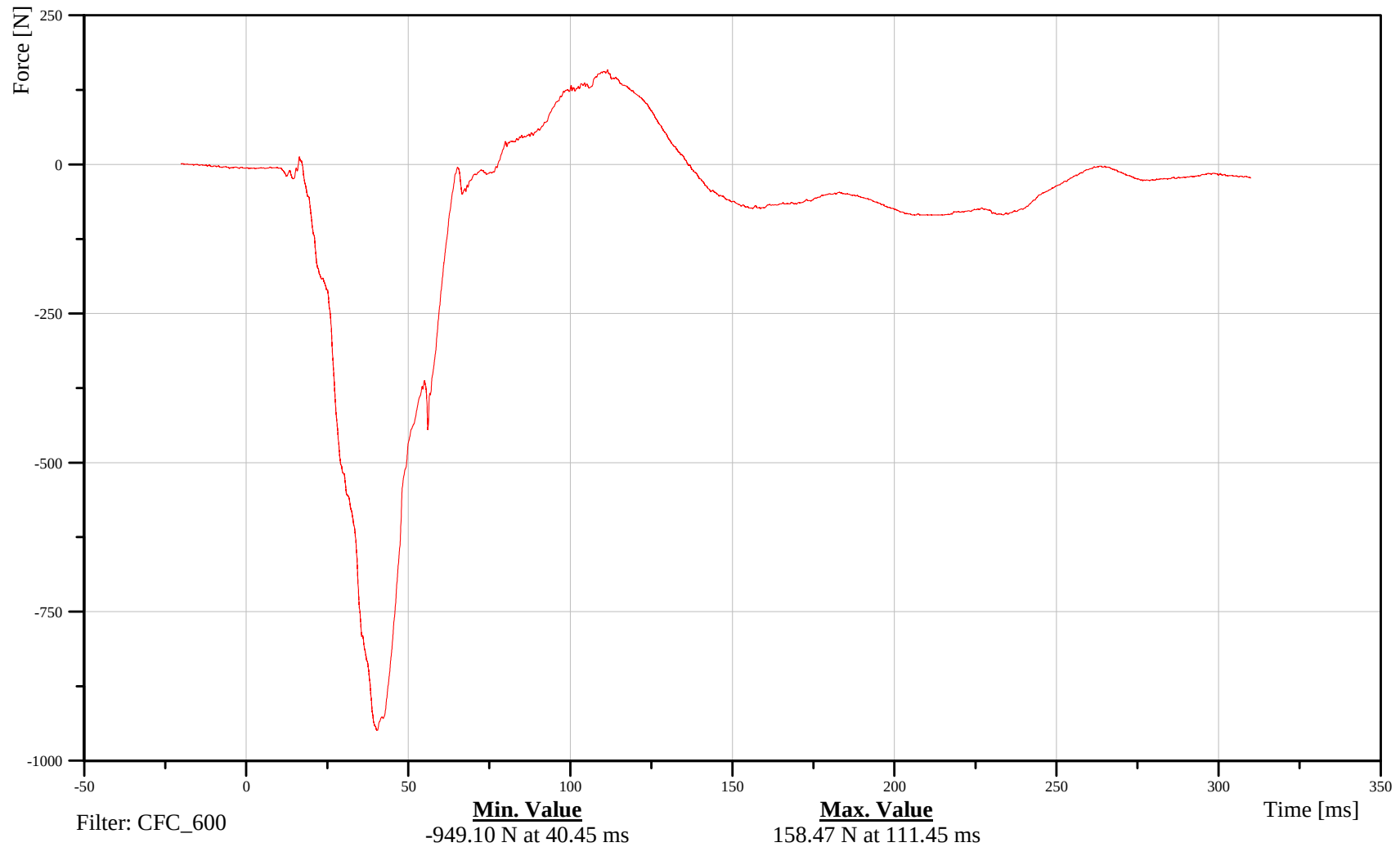
Sacro-Iliac Left X-Axis Force

Customer: VRTC

11SACRLE00WSFOXB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-76

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

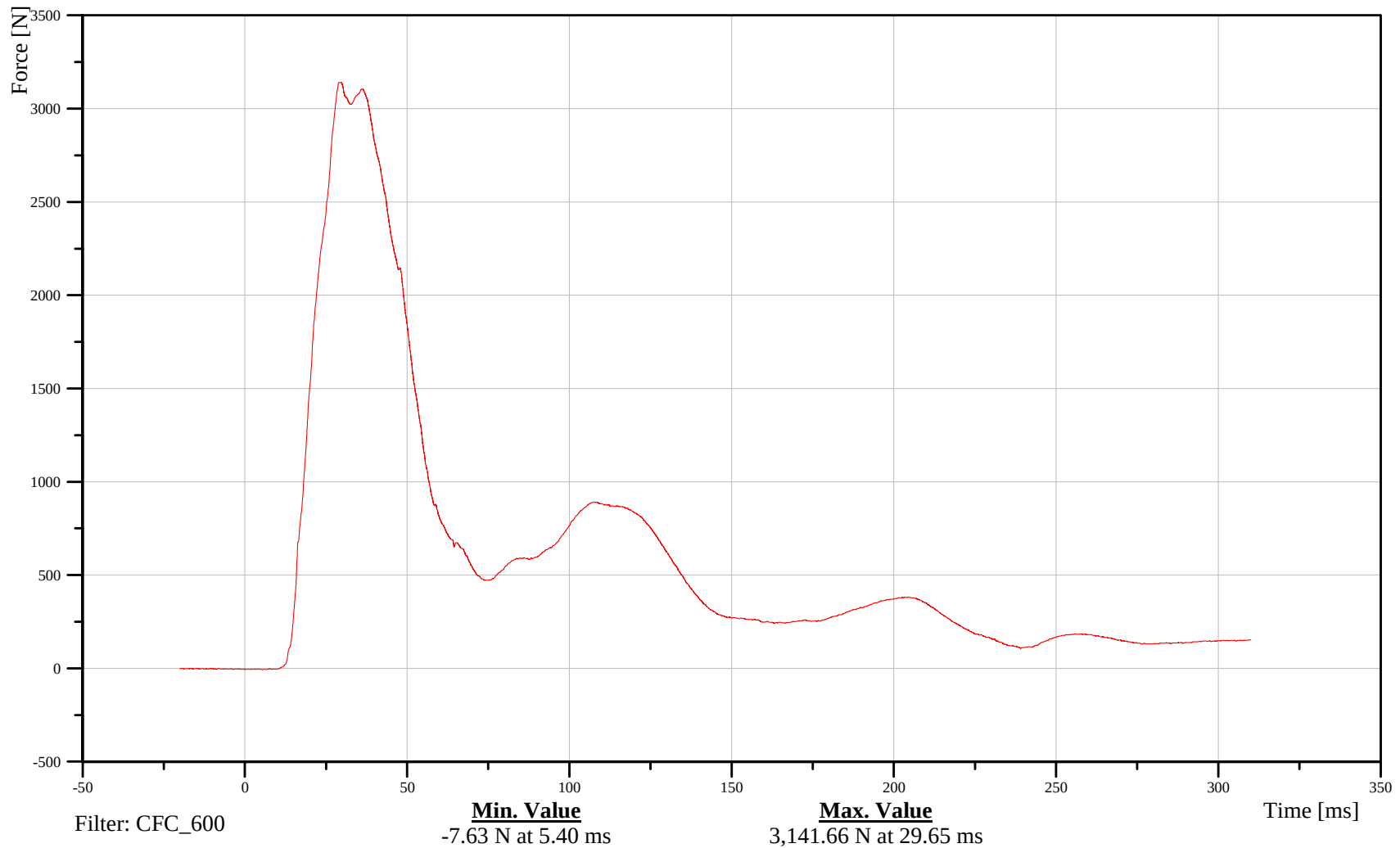
Sacro-Iliac Left Y-Axis Force

Customer: VRTC

11SACRLE00WSFOYB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-77

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

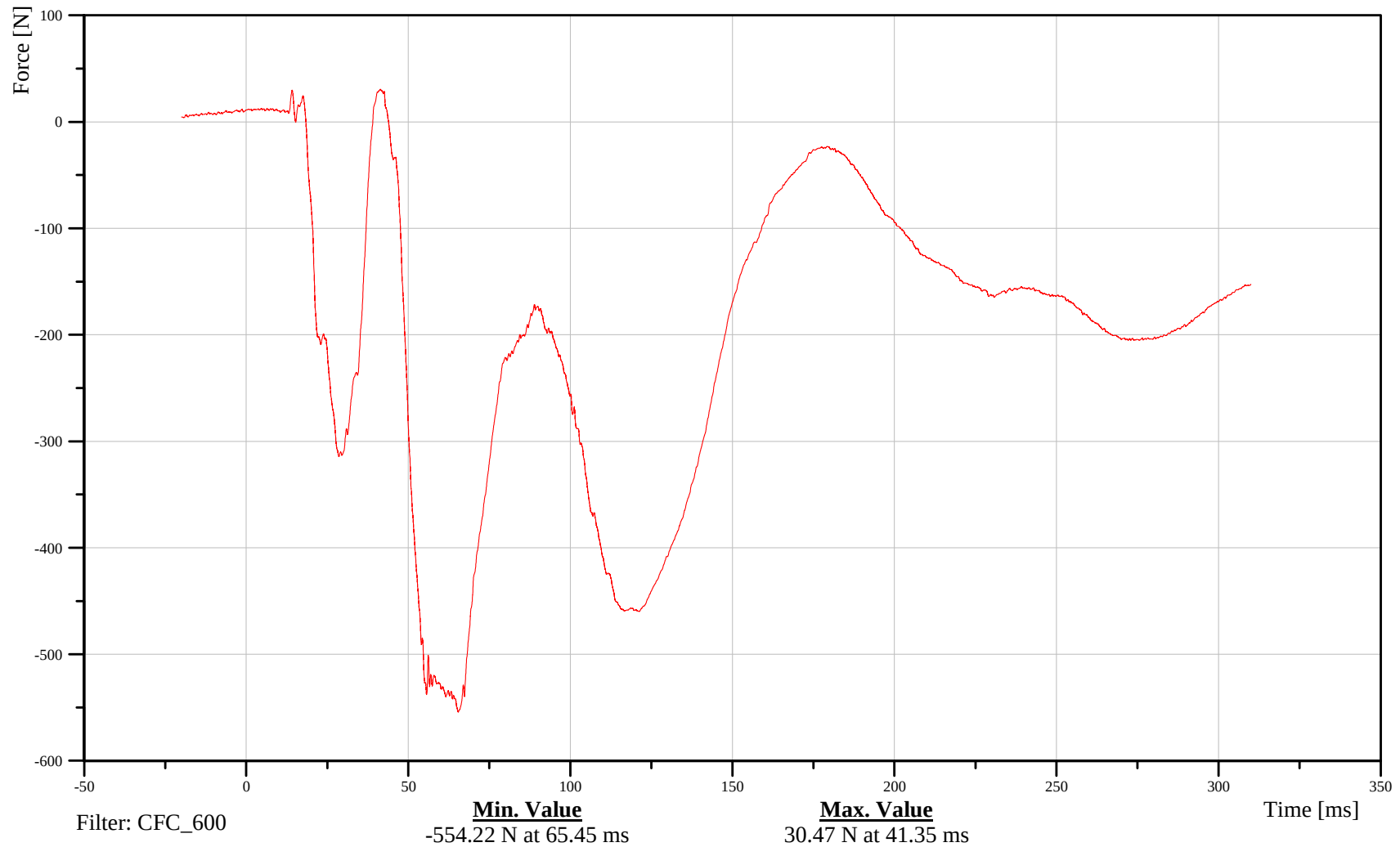
Sacro-Iliac Left Z-Axis Force

Customer: VRTC

11SACRLE00WSFOZB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-78

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

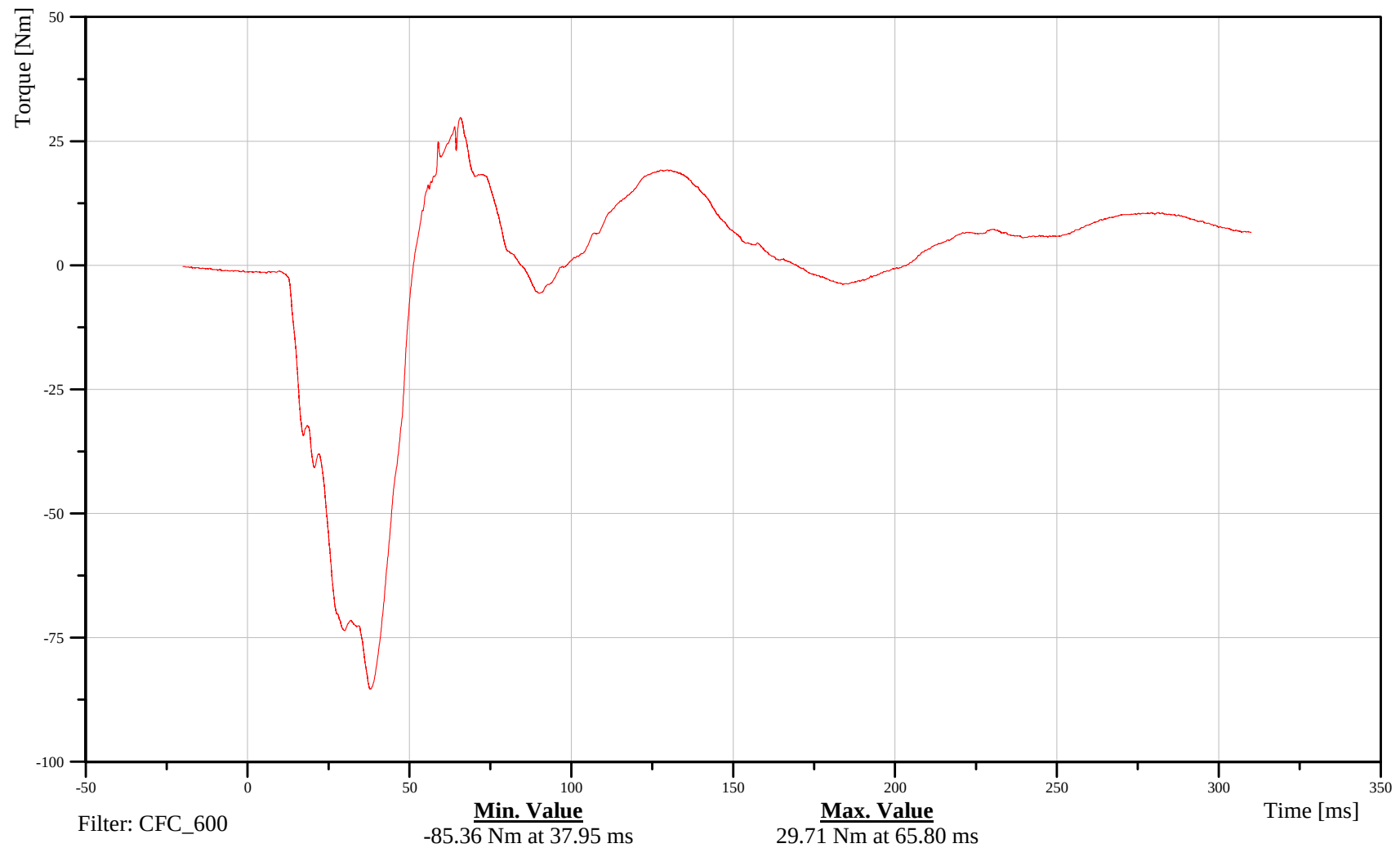
Sacro-Iliac Left Moment About X Axis

Customer: VRTC

11SACRLE00WSMOXB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-79

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

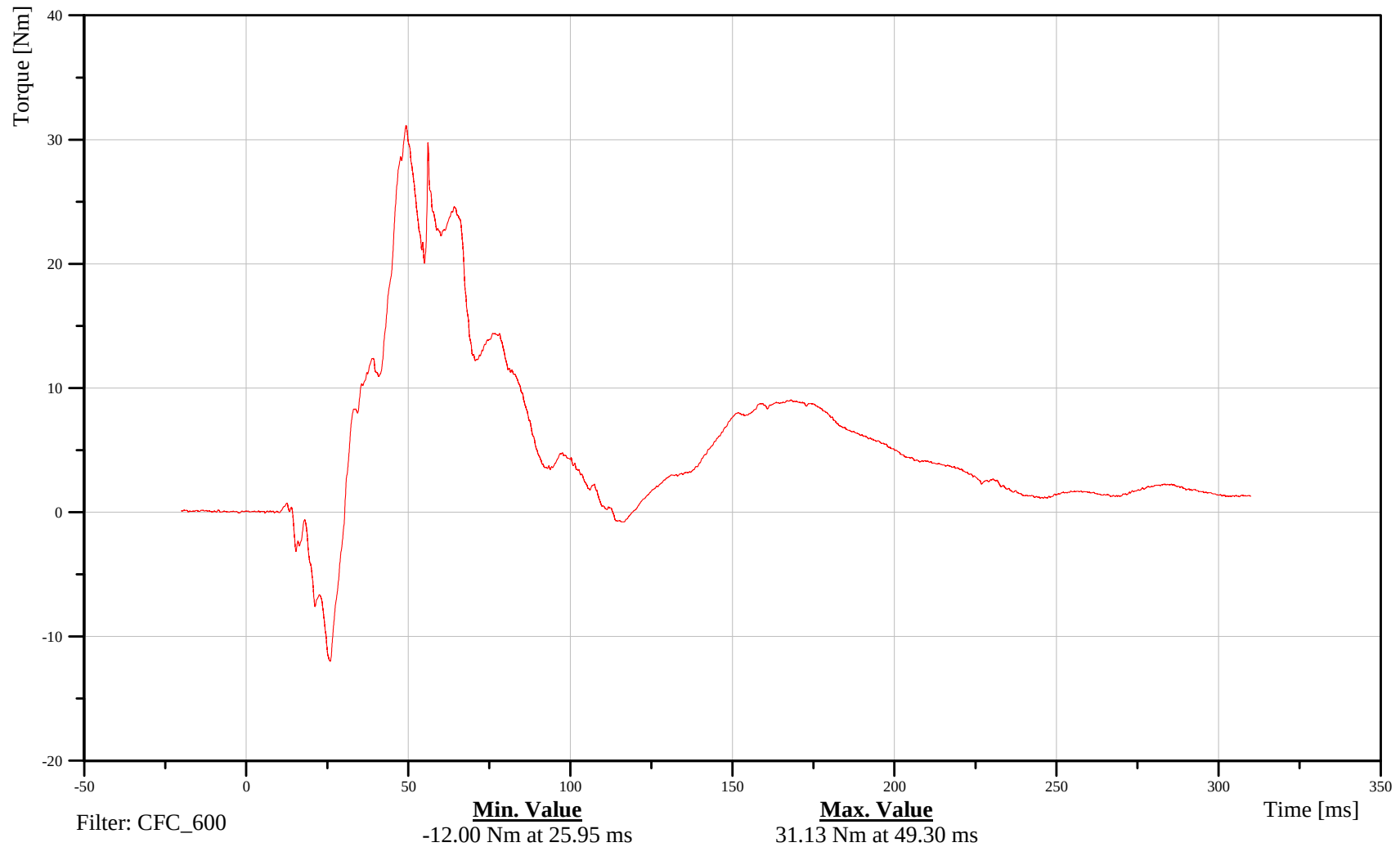
Sacro-Iliac Left Moment About Y Axis

Customer: VRTC

11SACRLE00WSMOYB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-80

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

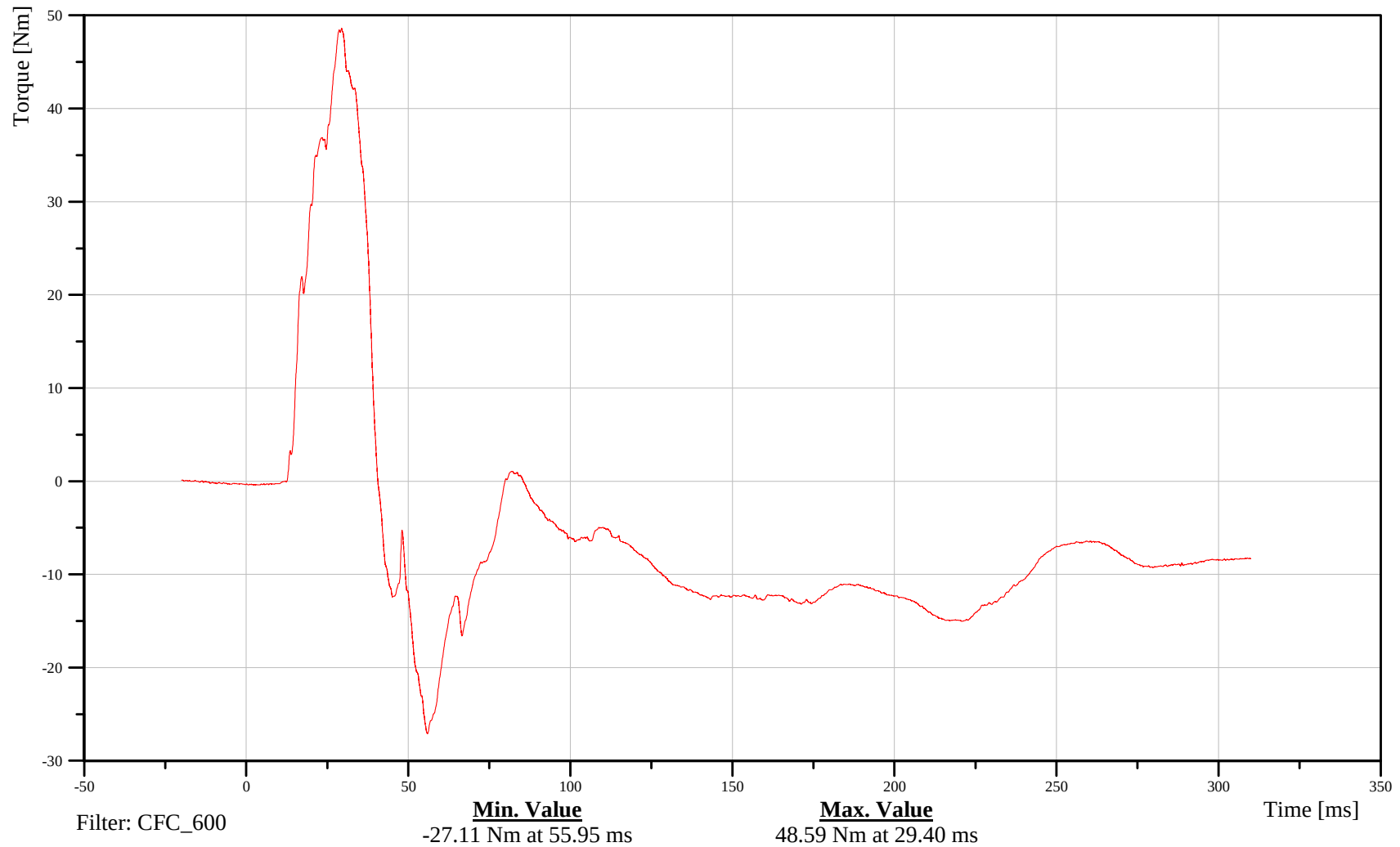
Sacro-Iliac Left Moment About Z Axis

Customer: VRTC

11SACRLE00WSMOZB

TRC Inc. Test Lab: CTF

Test Number: 110830





2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

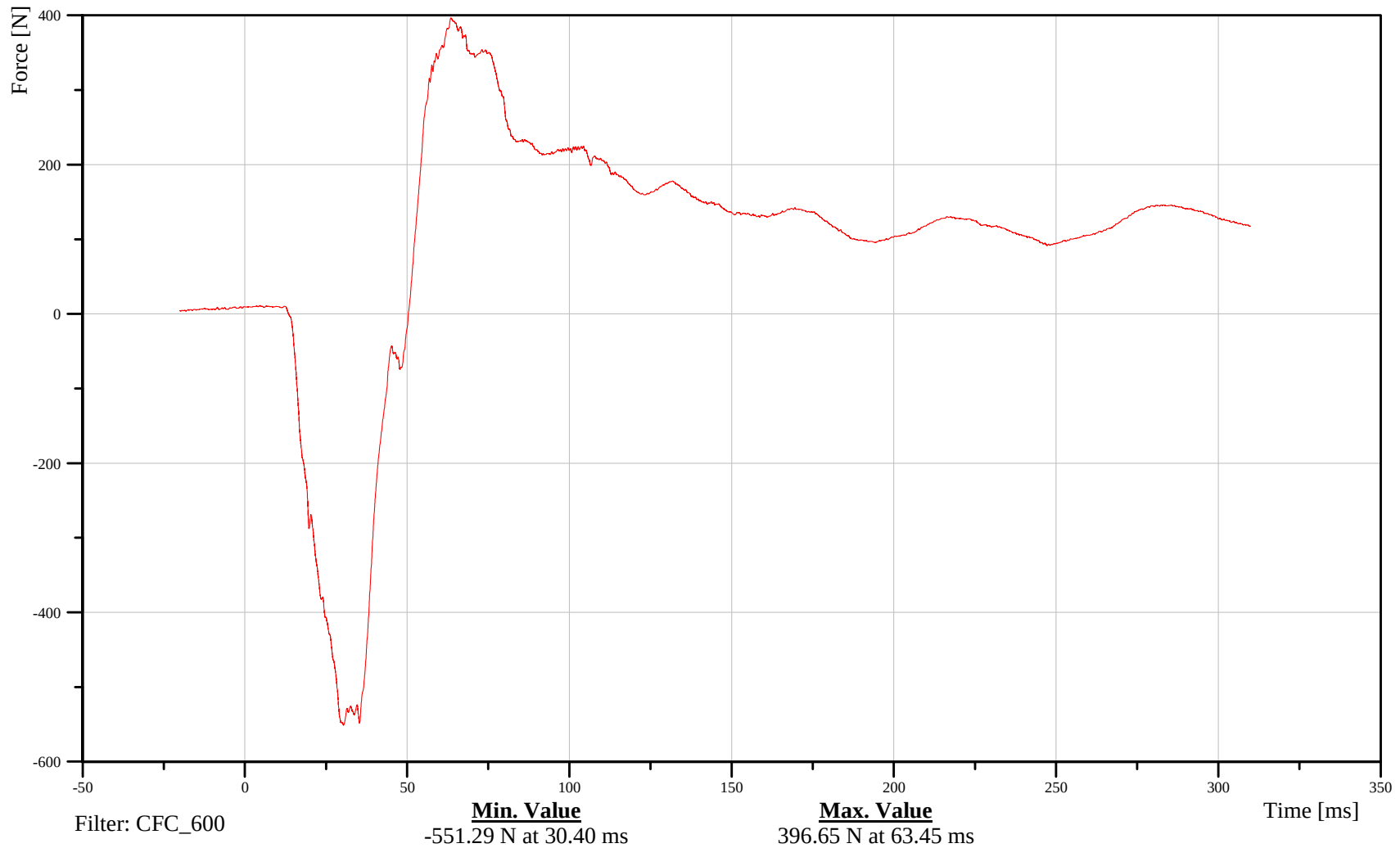
Sacro-Iliac Right X-Axis Force

Customer: VRTC

11SACRRI00WSFOXB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-82

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

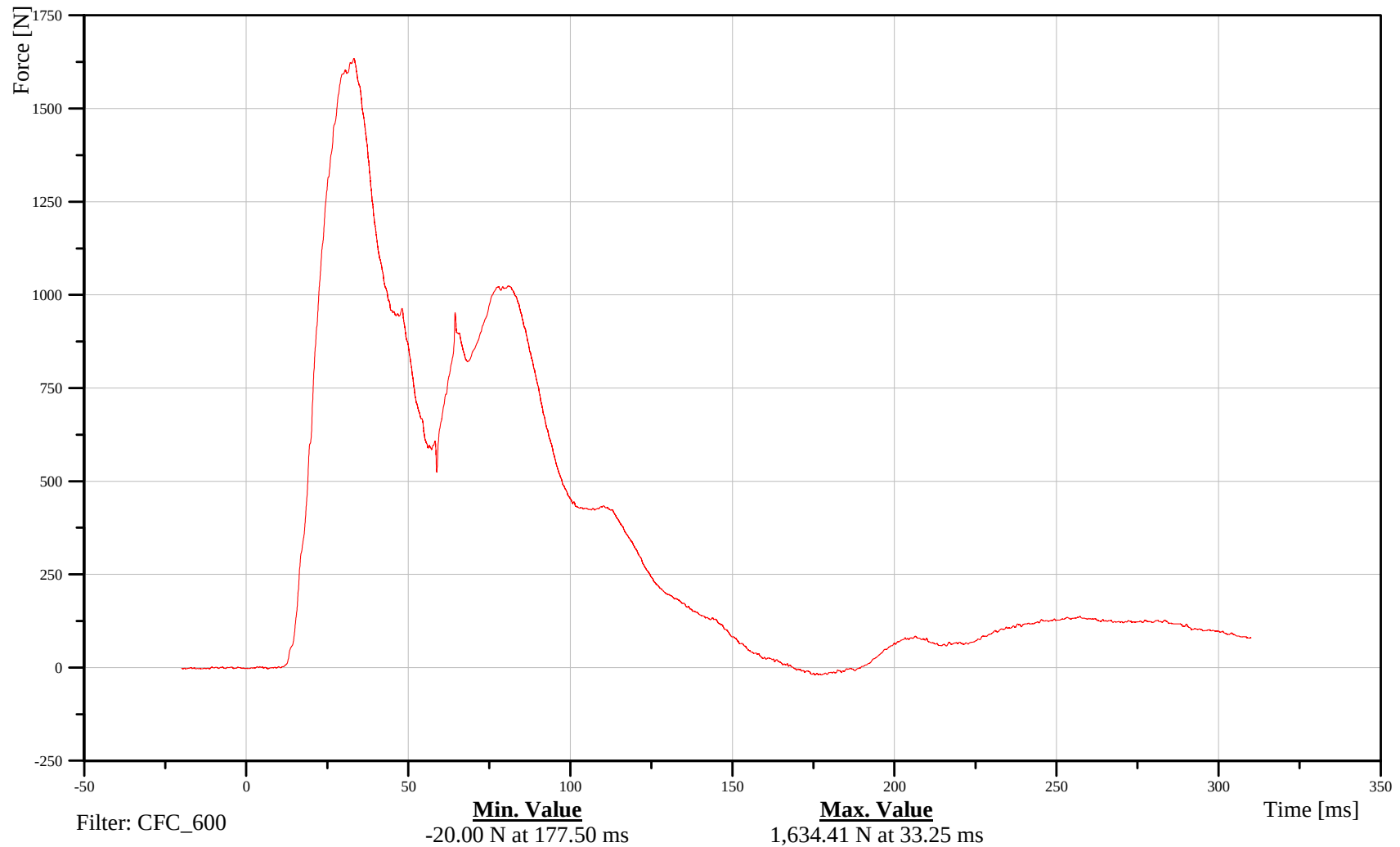
Sacro-Iliac Right Y-Axis Force

Customer: VRTC

11SACRRI00WSFOYB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-83

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

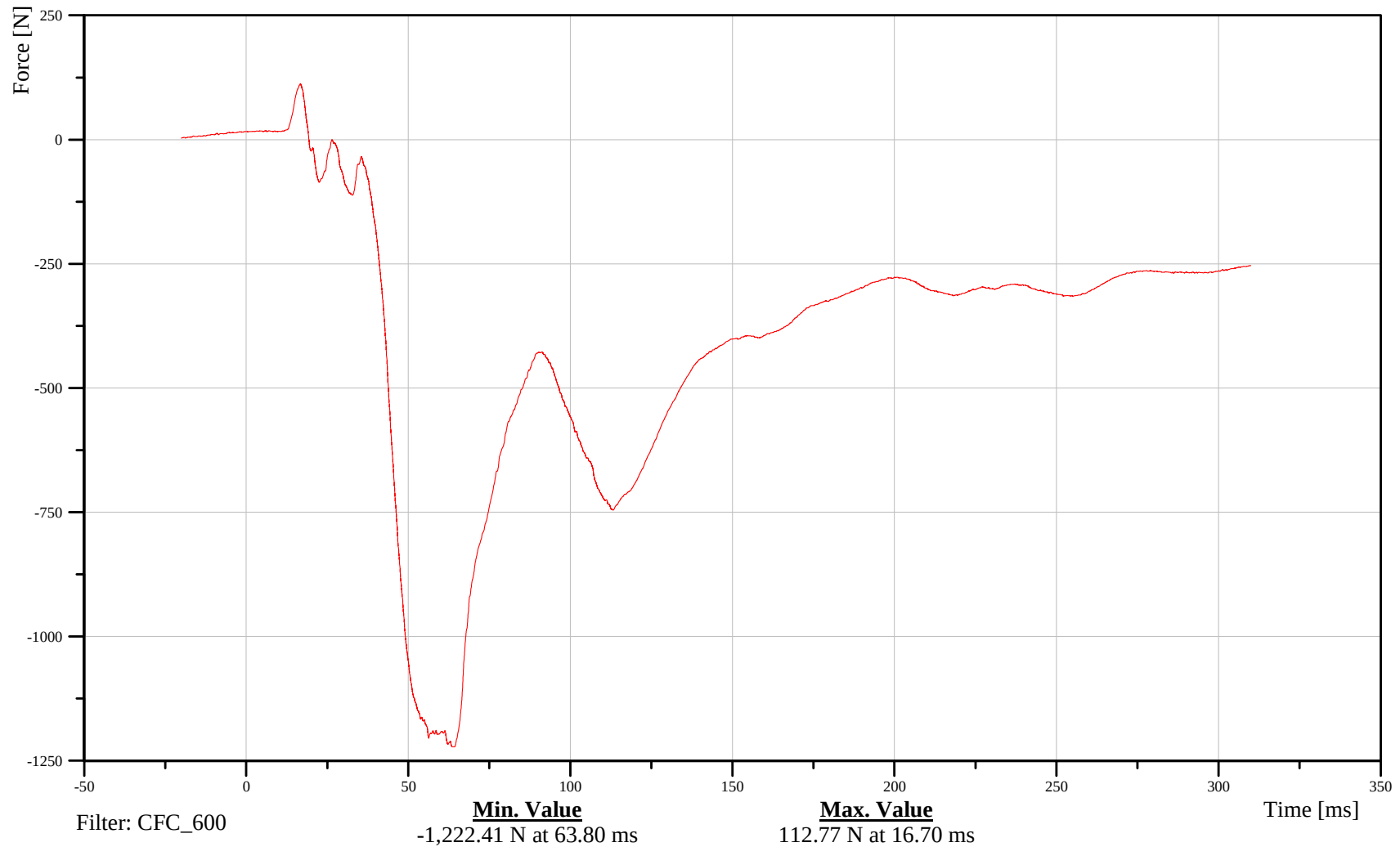
Sacro-Iliac Right Z-Axis Force

Customer: VRTC

11SACRRI00WSFOZB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-84

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

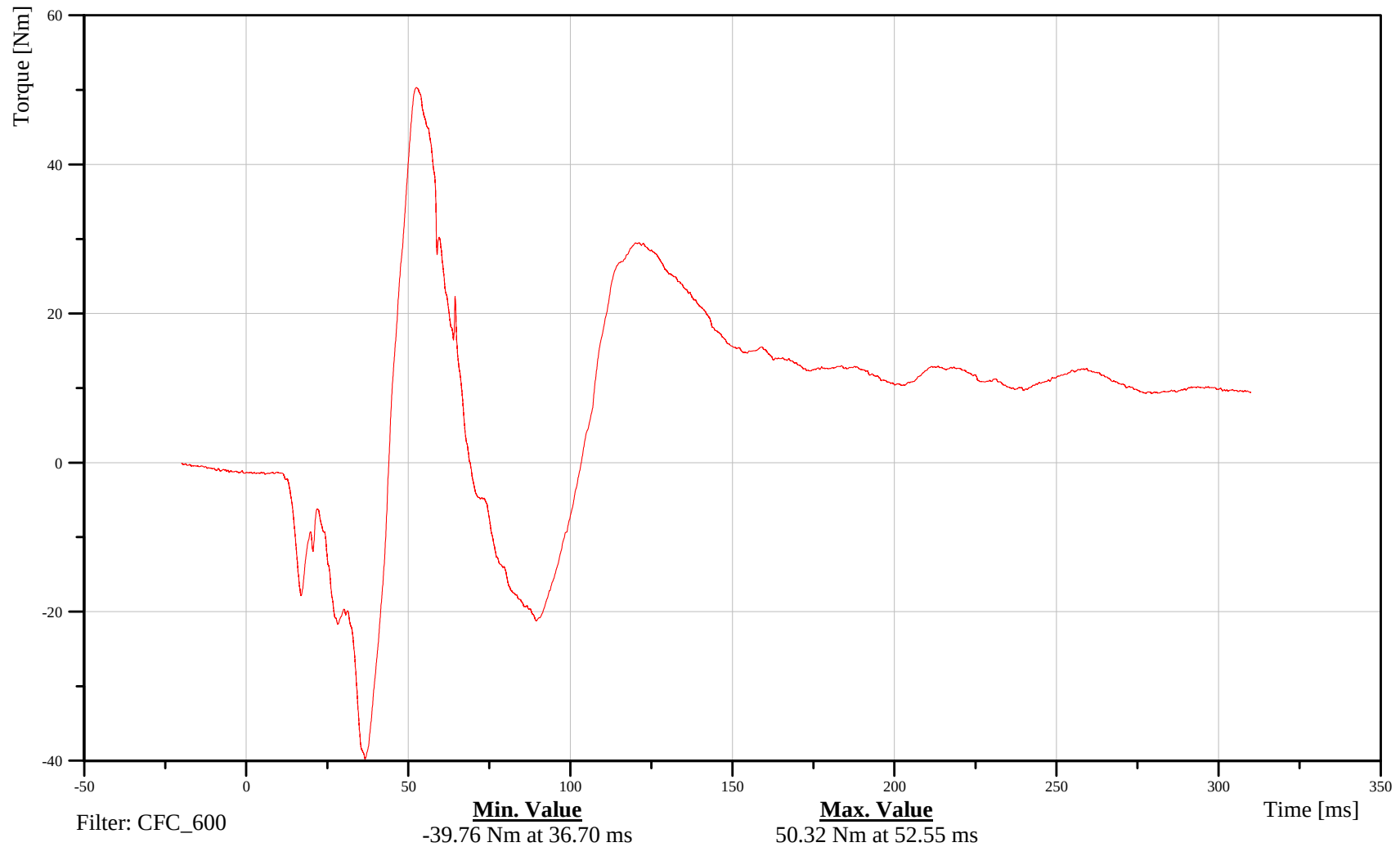
Sacro-Iliac Right Moment About X Axis

Customer: VRTC

11SACRRI00WSMOXB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-85

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

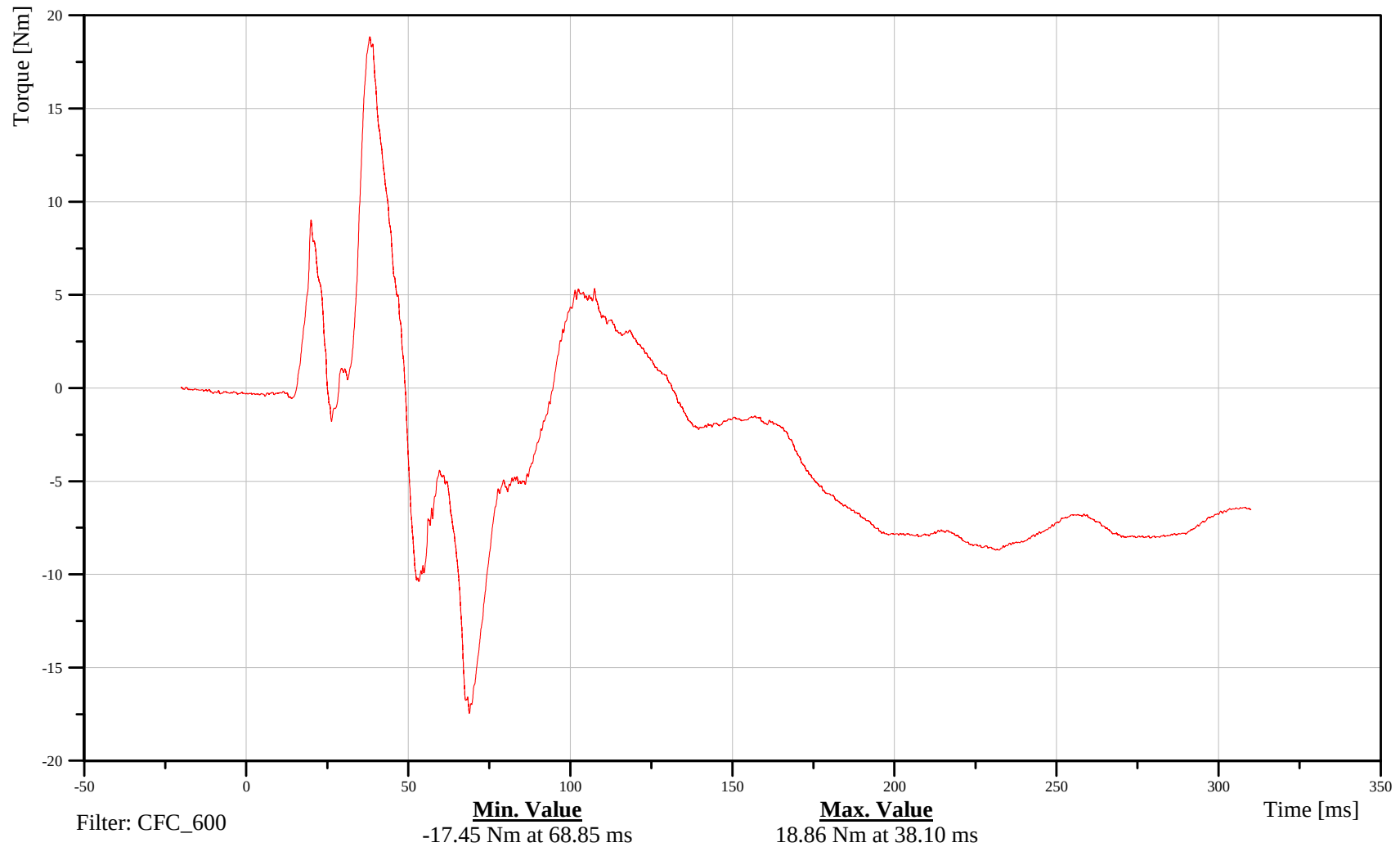
Sacro-Iliac Right Moment About Y Axis

Customer: VRTC

11SACRRI00WSMOYB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-86

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

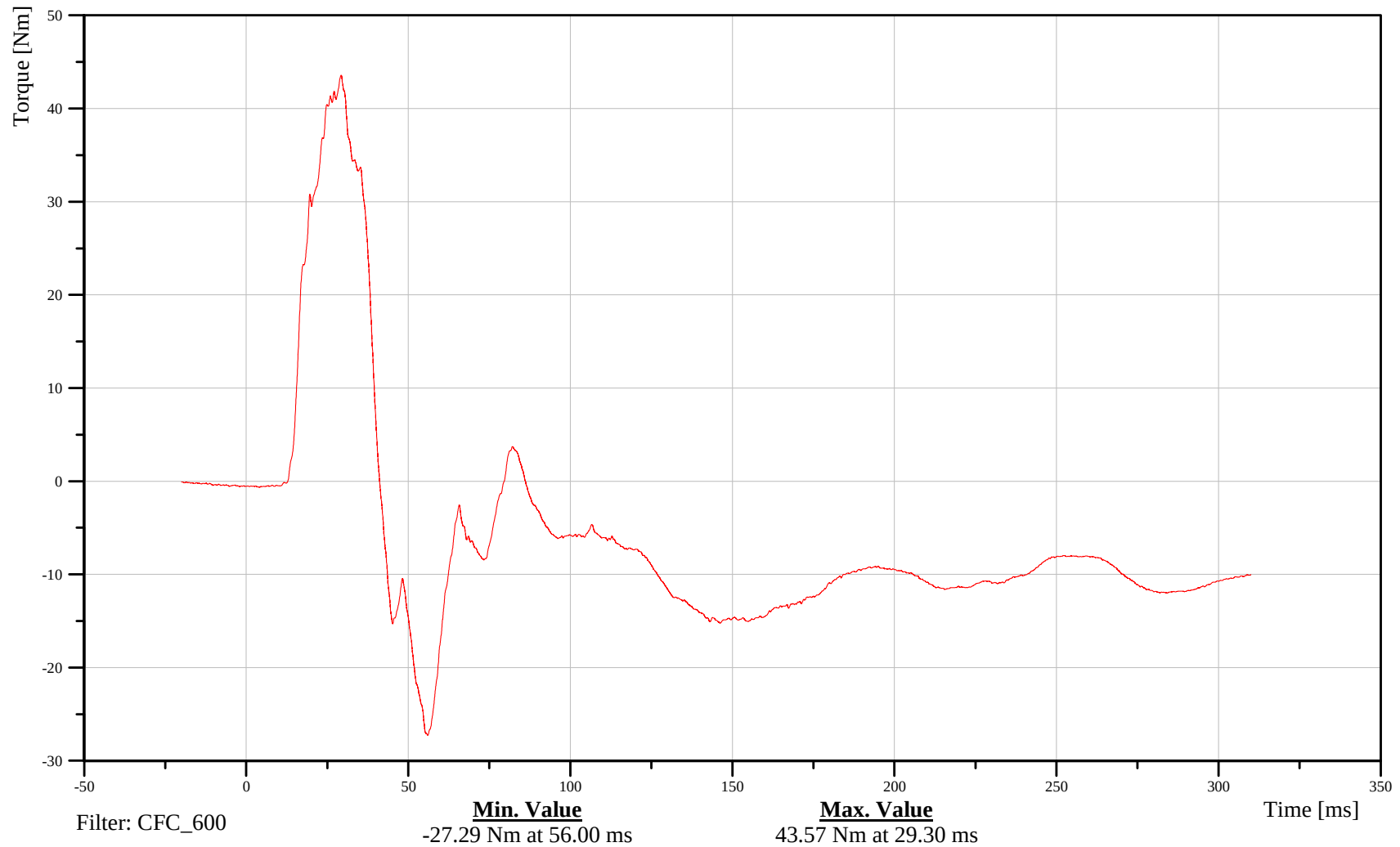
Sacro-Iliac Right Moment About Z Axis

Customer: VRTC

11SACRRI00WSMOZB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-87

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

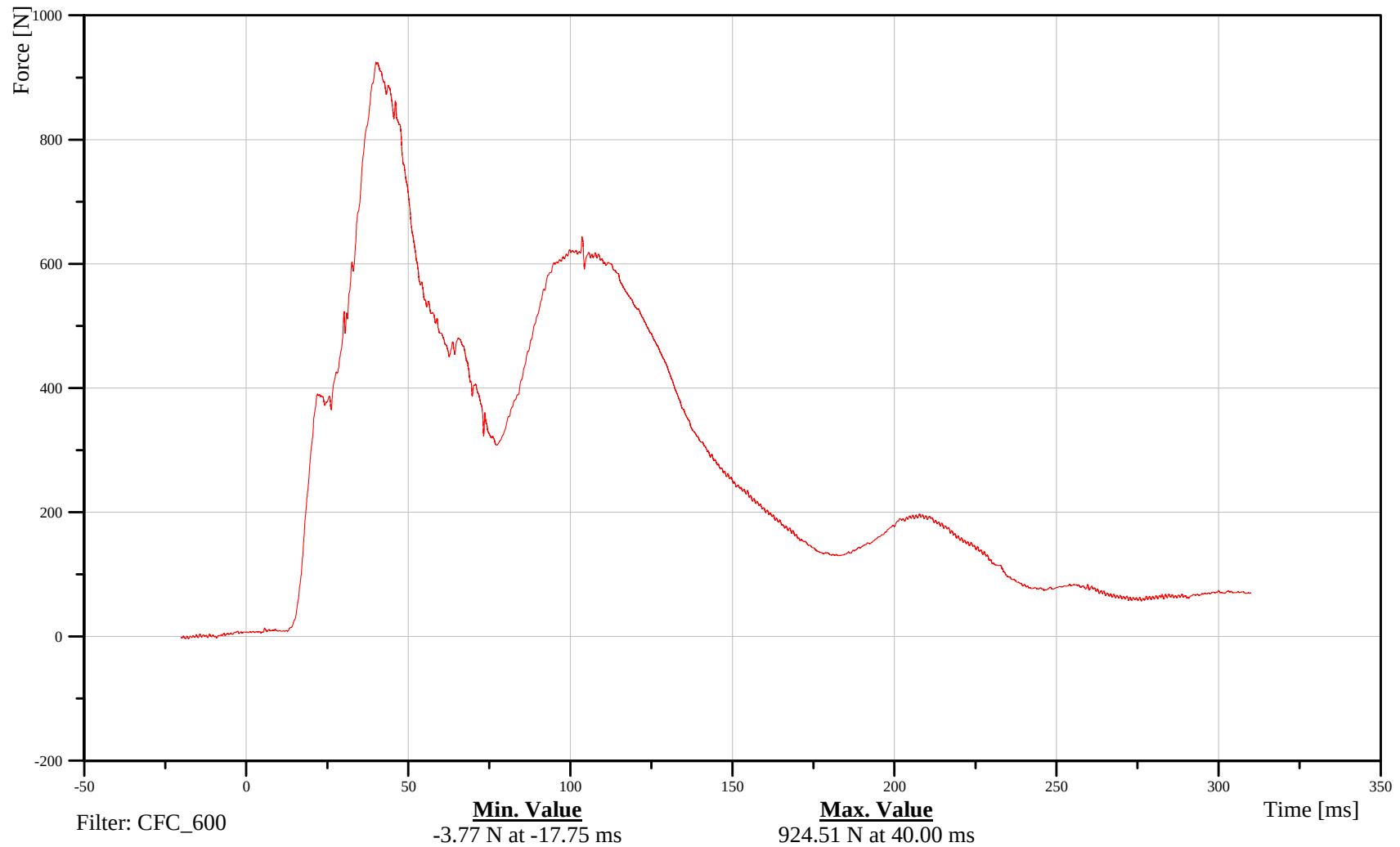
Pubic Symphysis Y-Axis Force

Customer: VRTC

11PUBC0000WSFOYB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-88

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

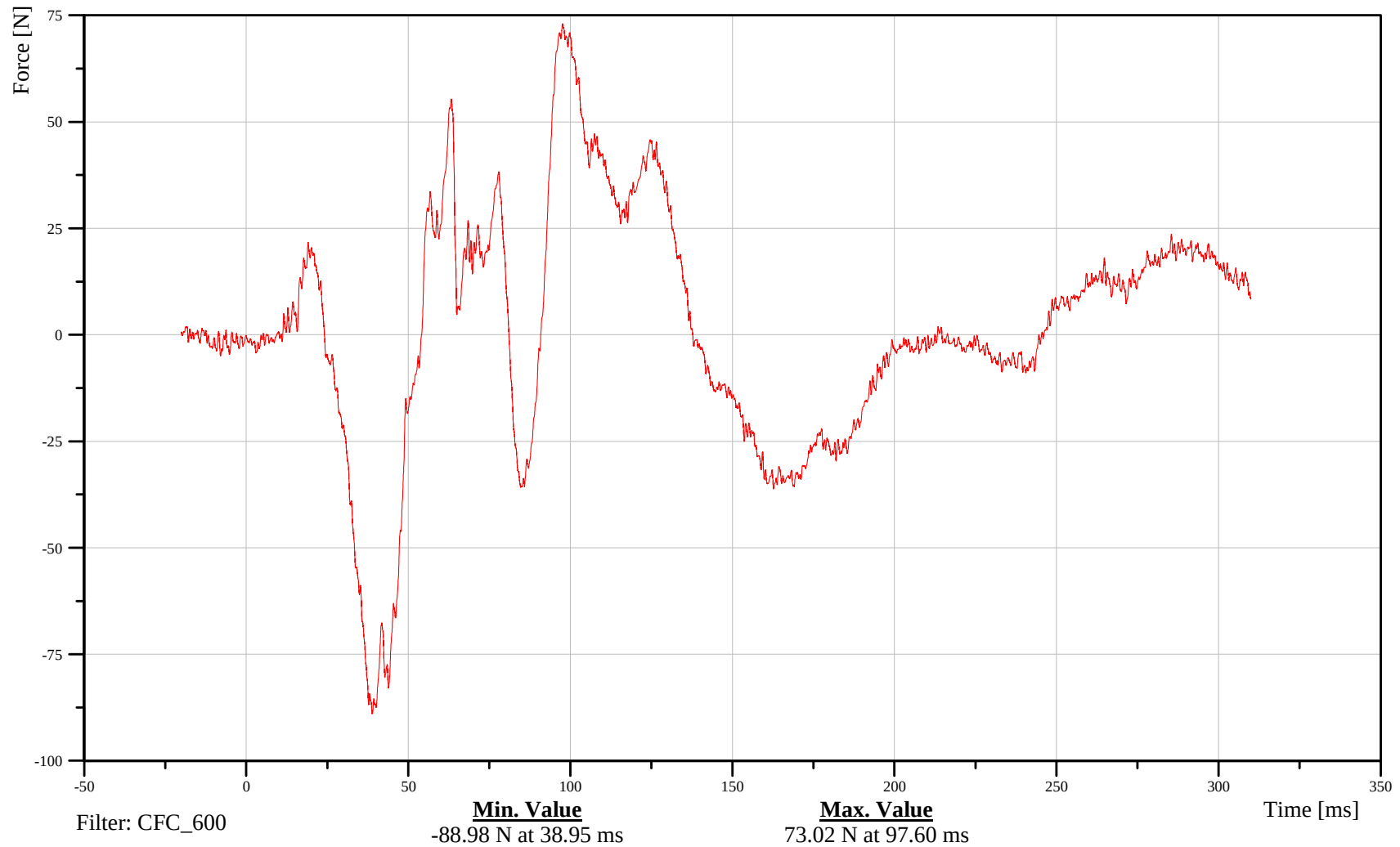
Left Mid Femur X-Axis Force

Customer: VRTC

11FEMRLEMIWSFOXB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-89

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

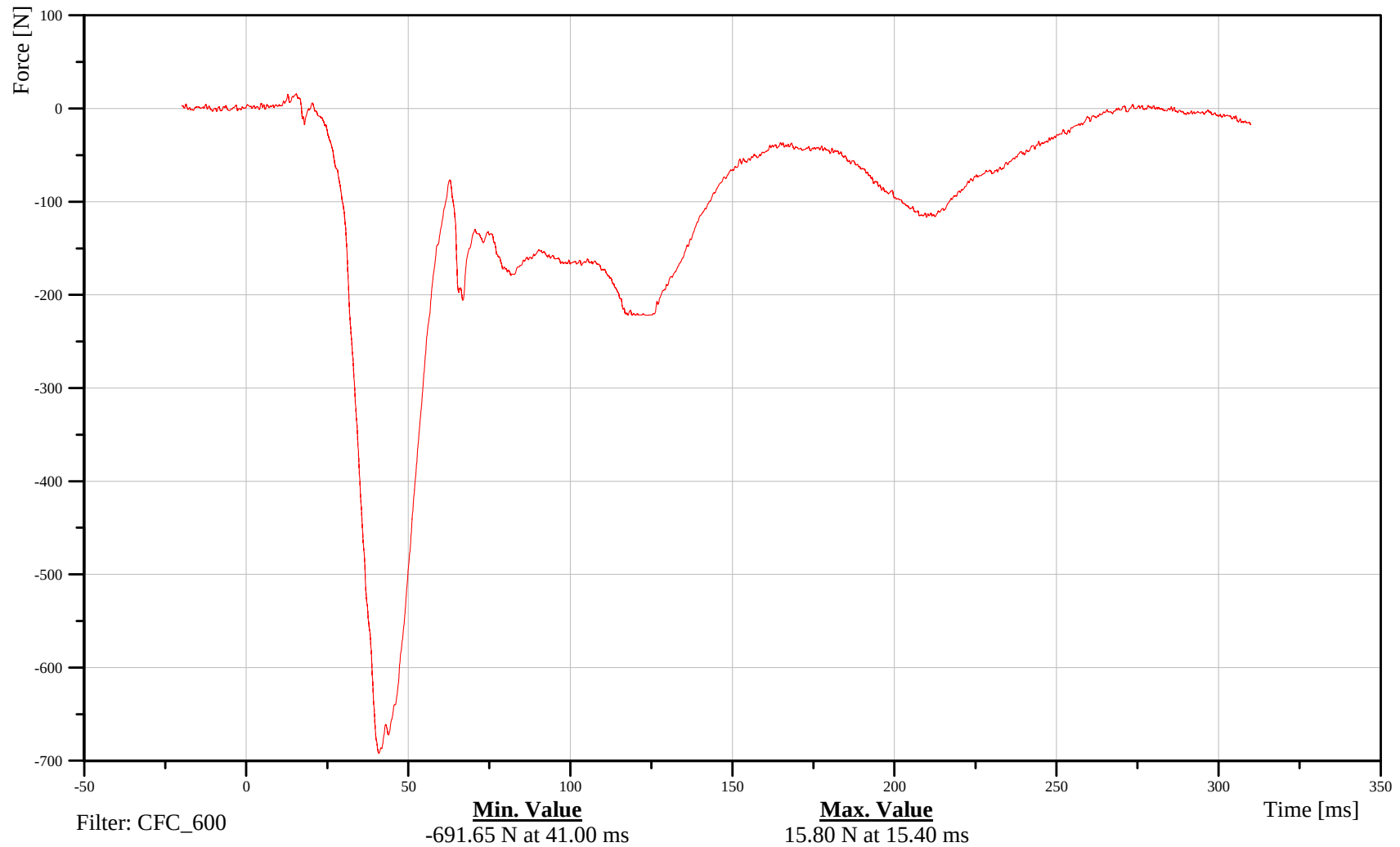
Left Mid Femur Y-Axis Force

Customer: VRTC

11FEMRLEMIWSFOYB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-90

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

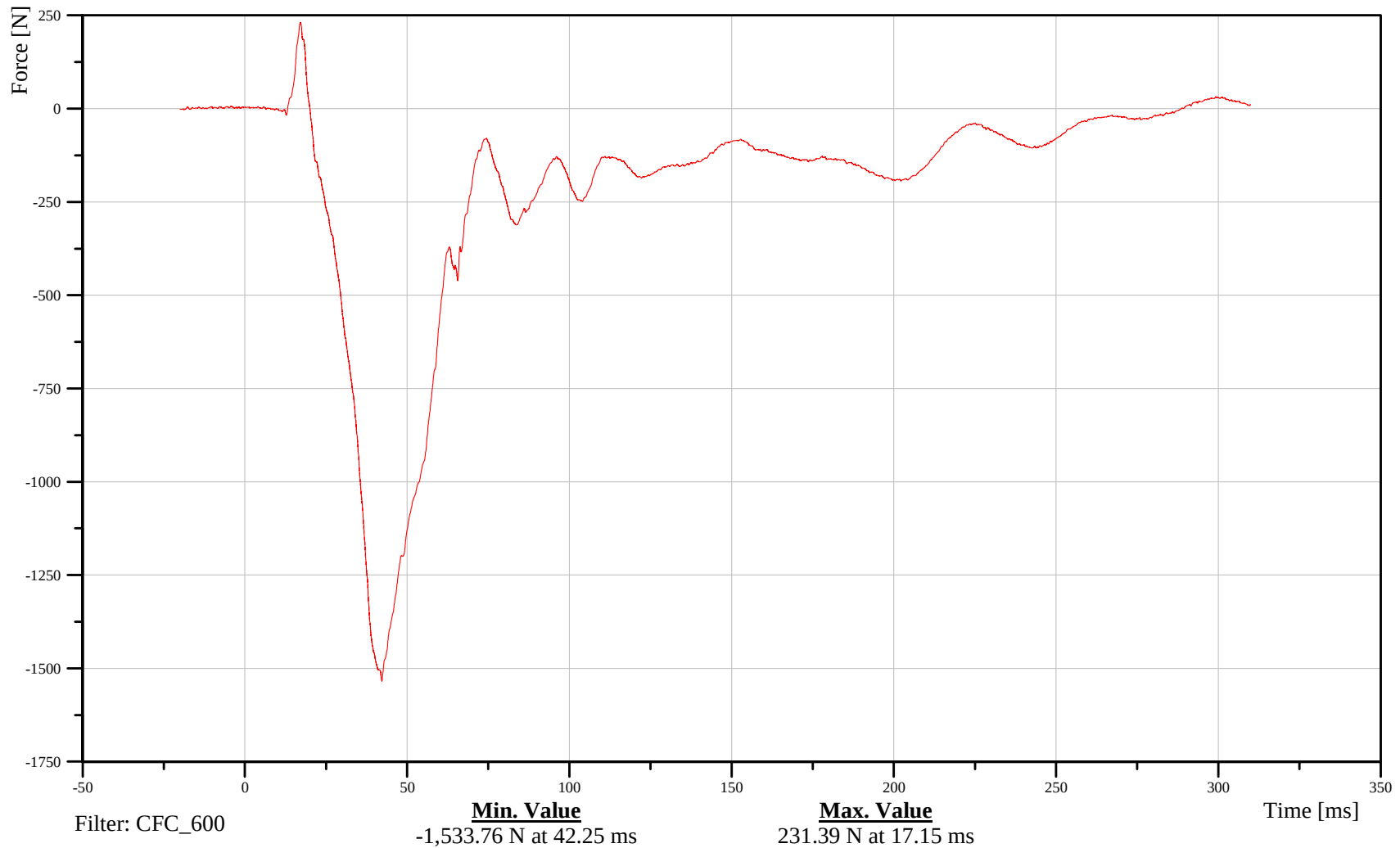
Left Mid Femur Z-Axis Force

Customer: VRTC

11FEMRLEMIWSFOZB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-91

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

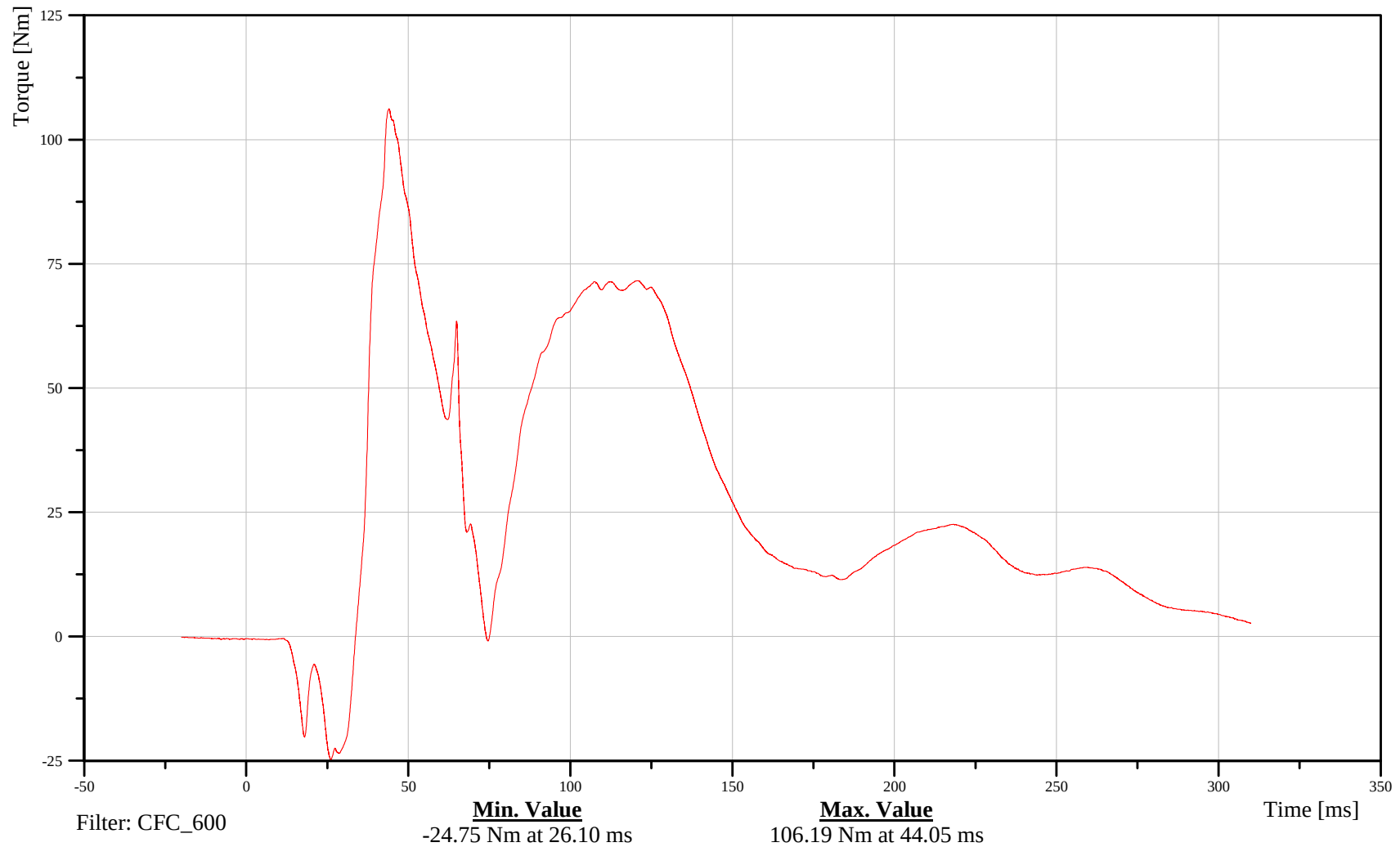
Left Mid Femur Moment Mx

Customer: VRTC

11FEMRLEMIWSMOXB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-92

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

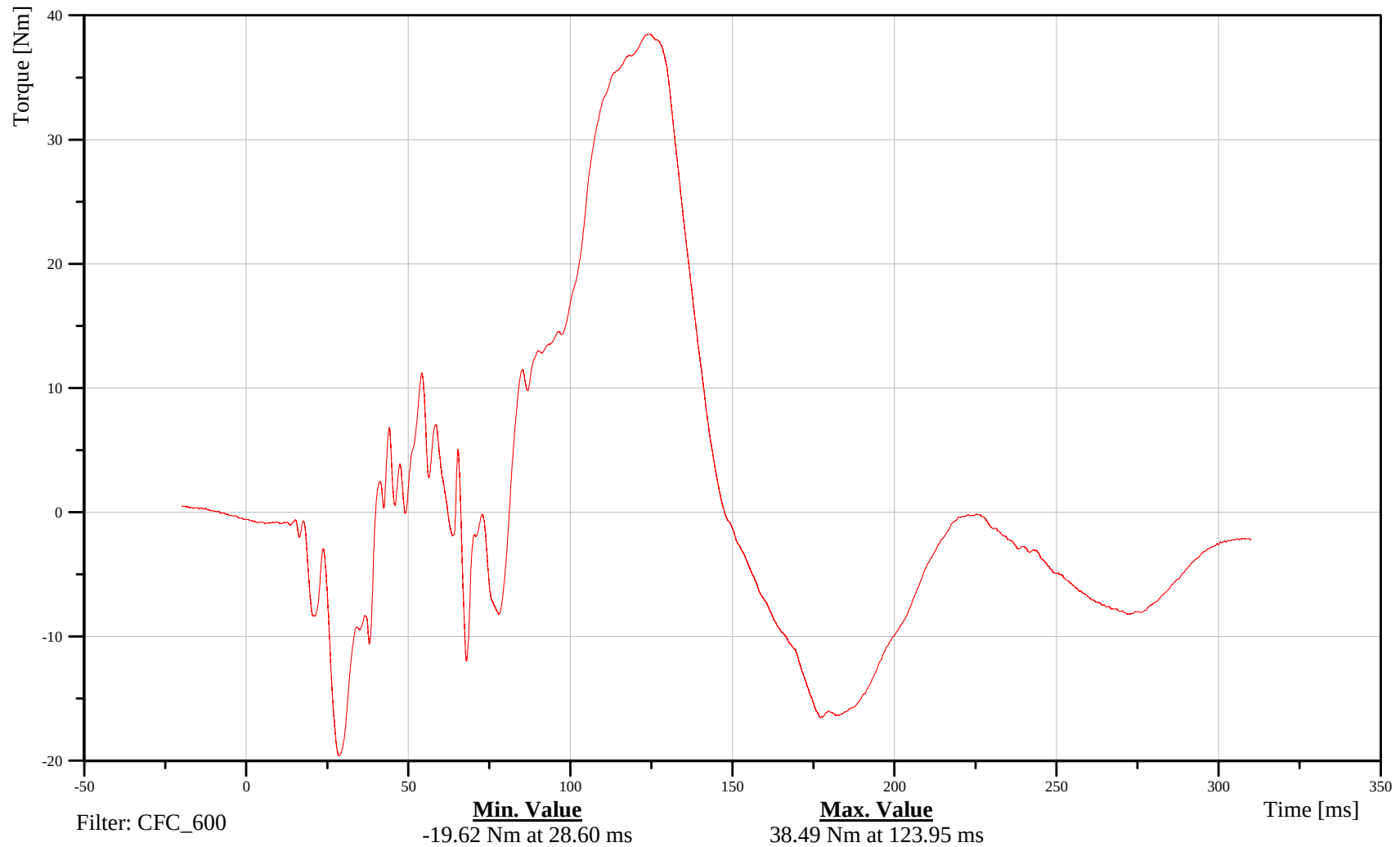
Left Mid Femur Moment My

Customer: VRTC

11FEMRLEMIWSMOYB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-93

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

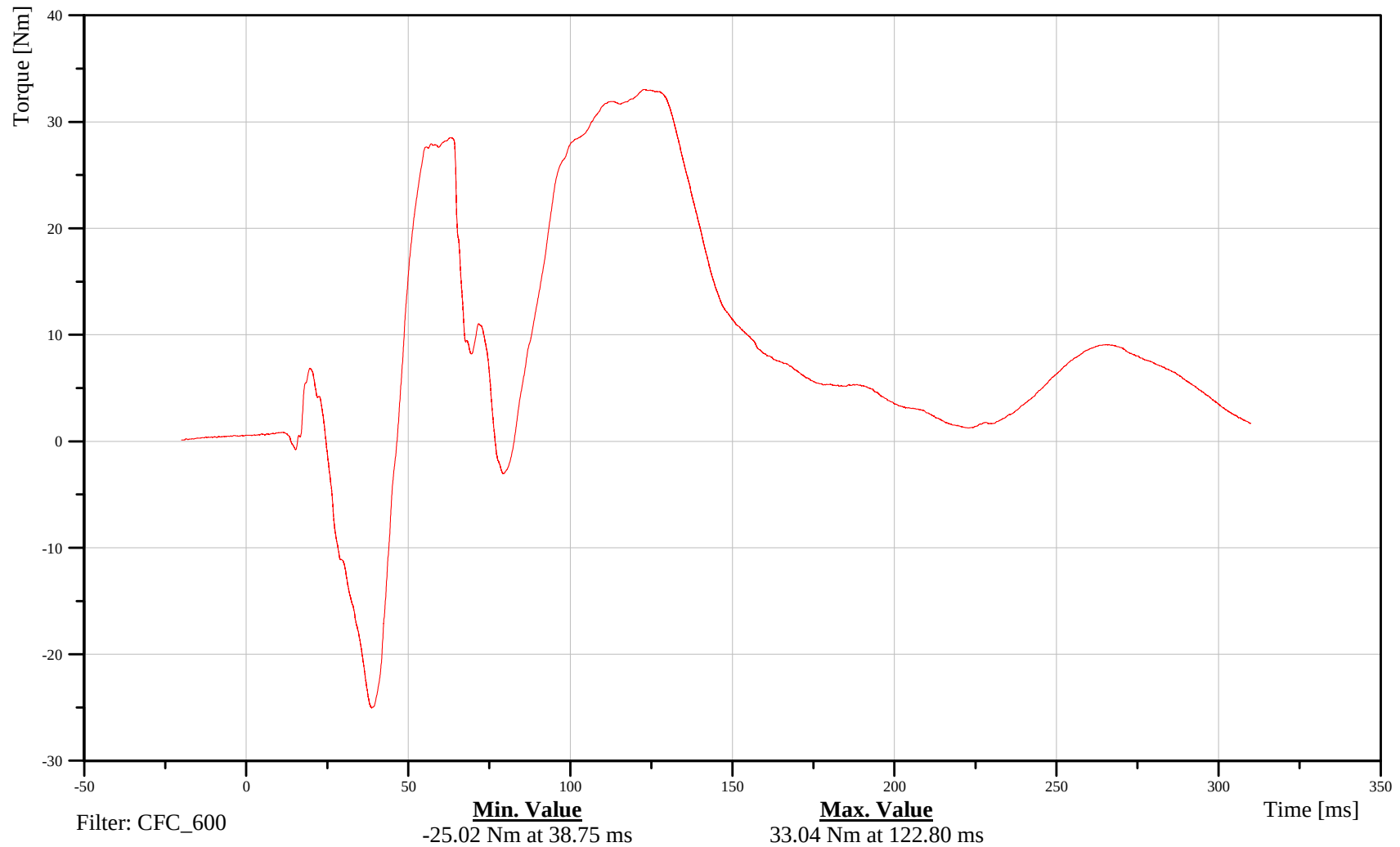
Left Mid Femur Moment Mz

Customer: VRTC

11FEMRLEMIWSMOZB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-94

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

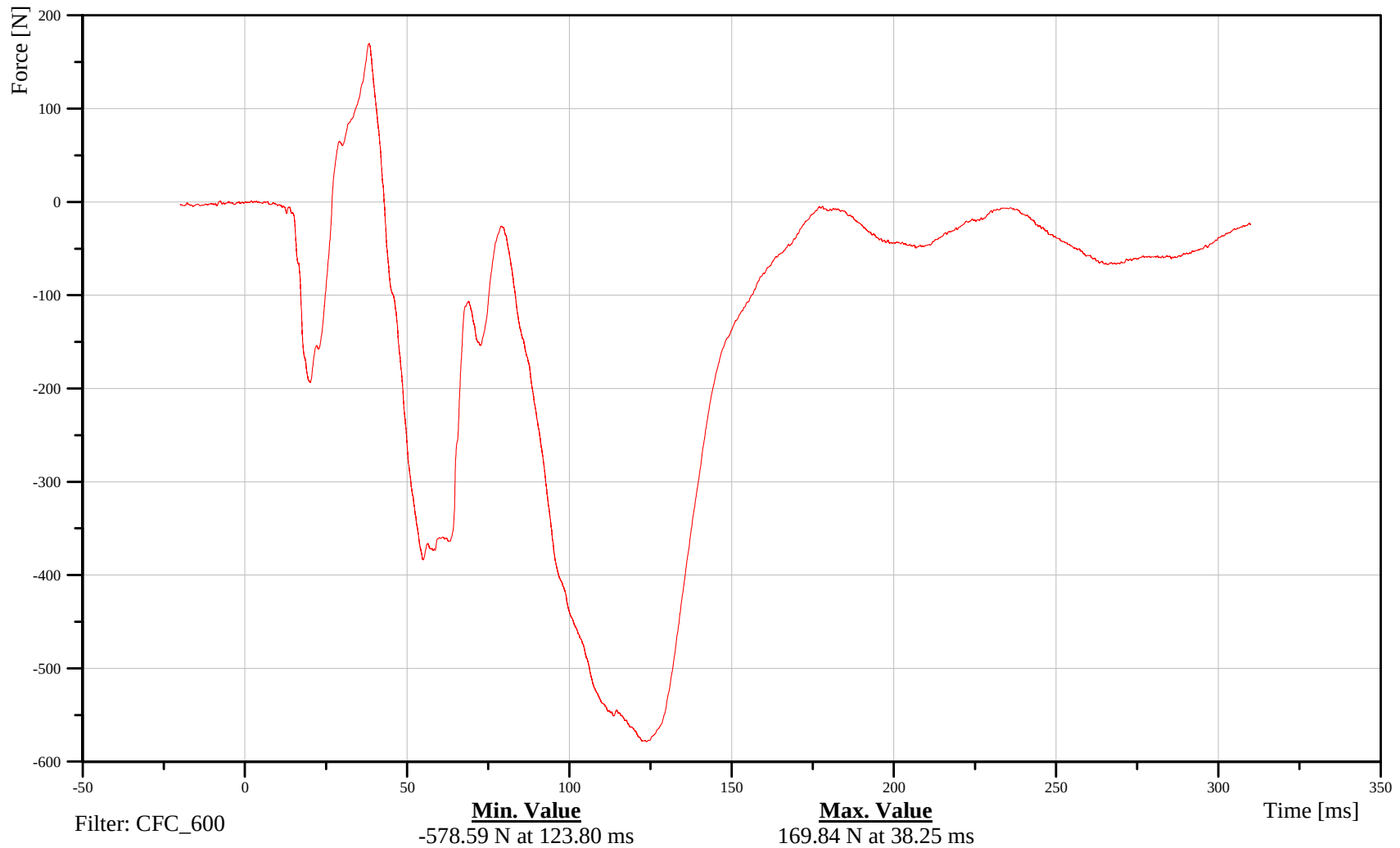
Left Femoral Neck X-Axis Force

Customer: VRTC

11FEMRLL00WSFOXB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-95

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

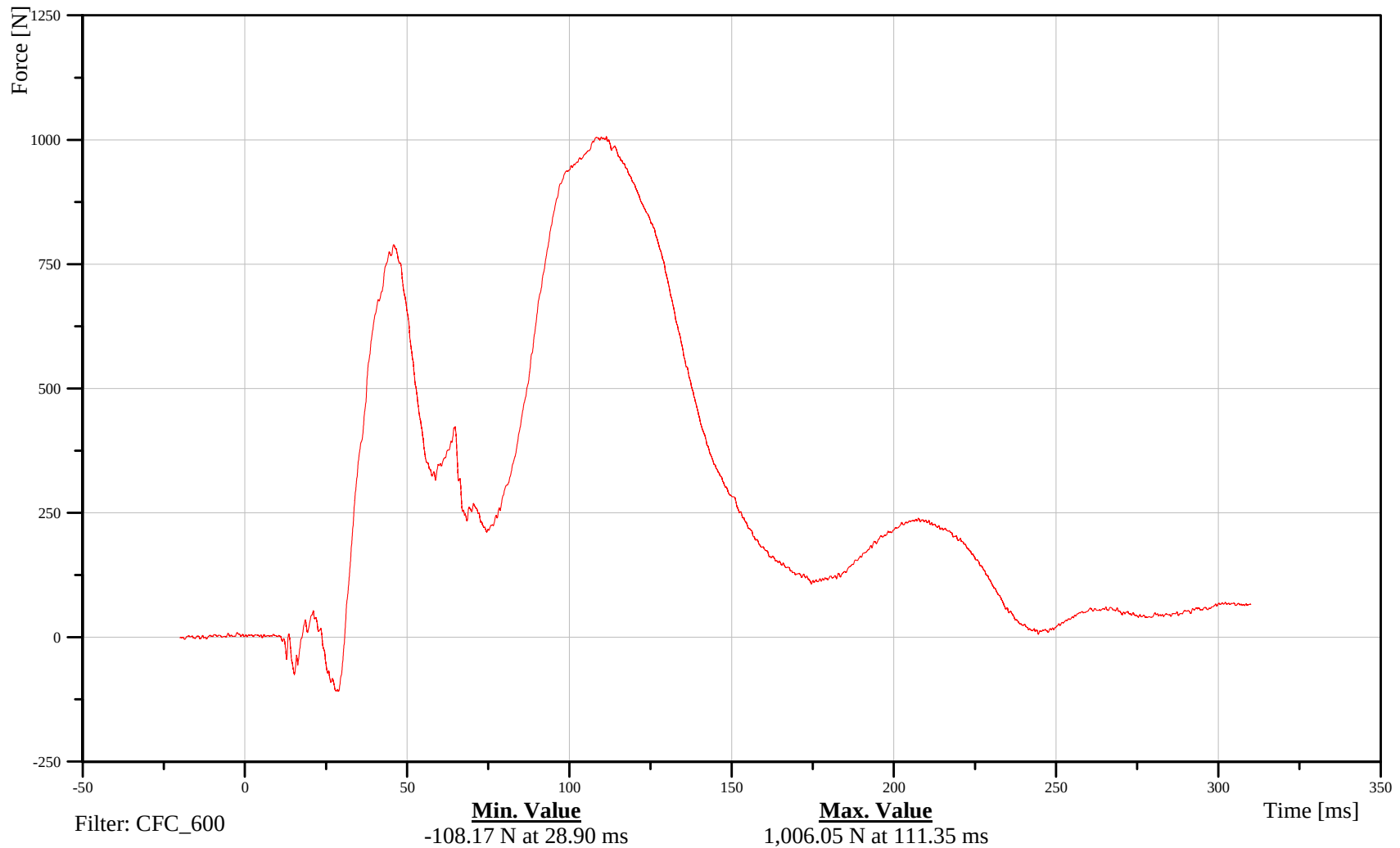
Left Femoral Neck Y-Axis Force

Customer: VRTC

11FEMRLL00WSFOYB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-96

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

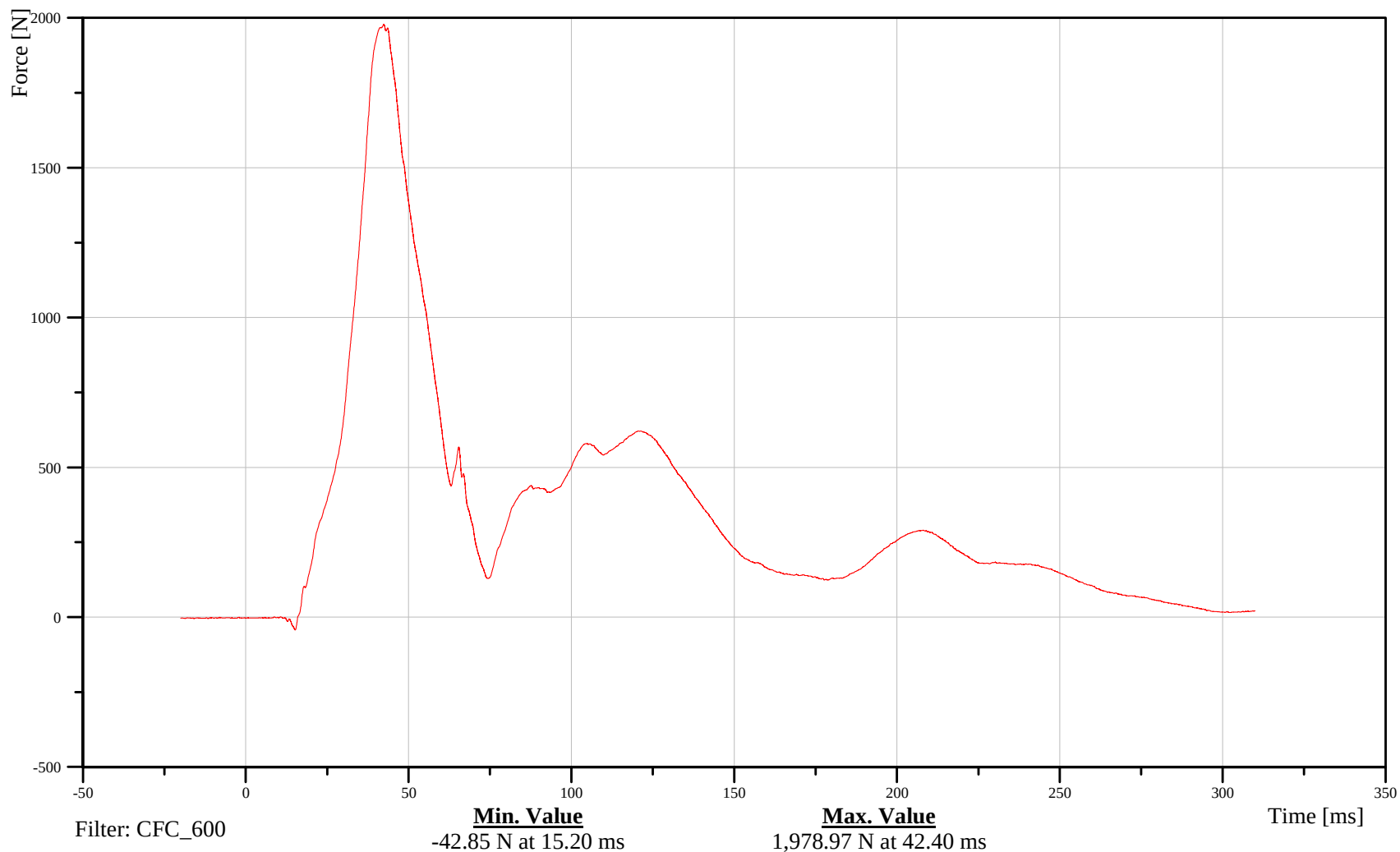
Left Femoral Neck Z-Axis Force

Customer: VRTC

11FEMRLL00WSFOZB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-97

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

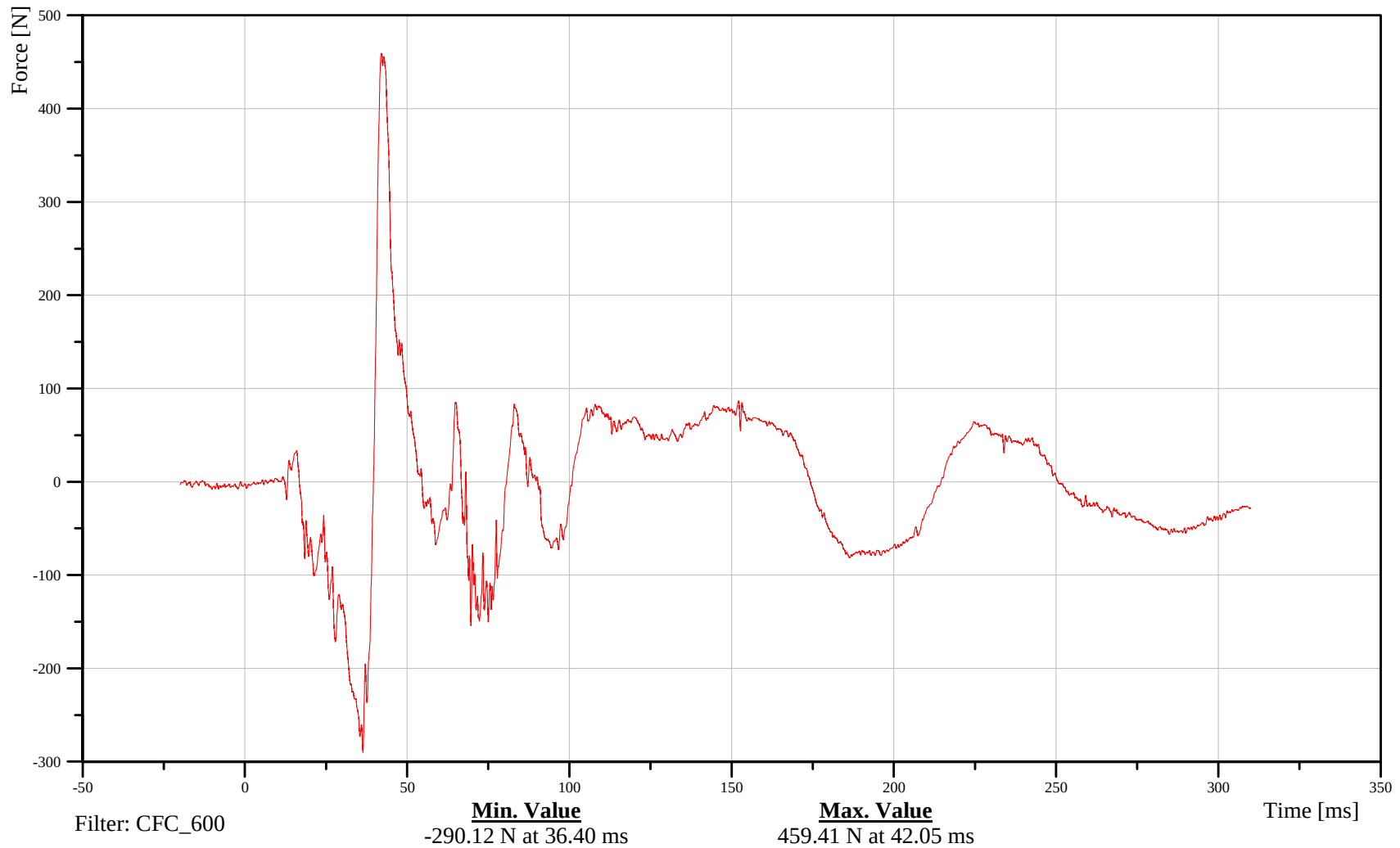
Left Knee Outboard Y-Axis Force

Customer: VRTC

11KNEELEOUWSFOYB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-98

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

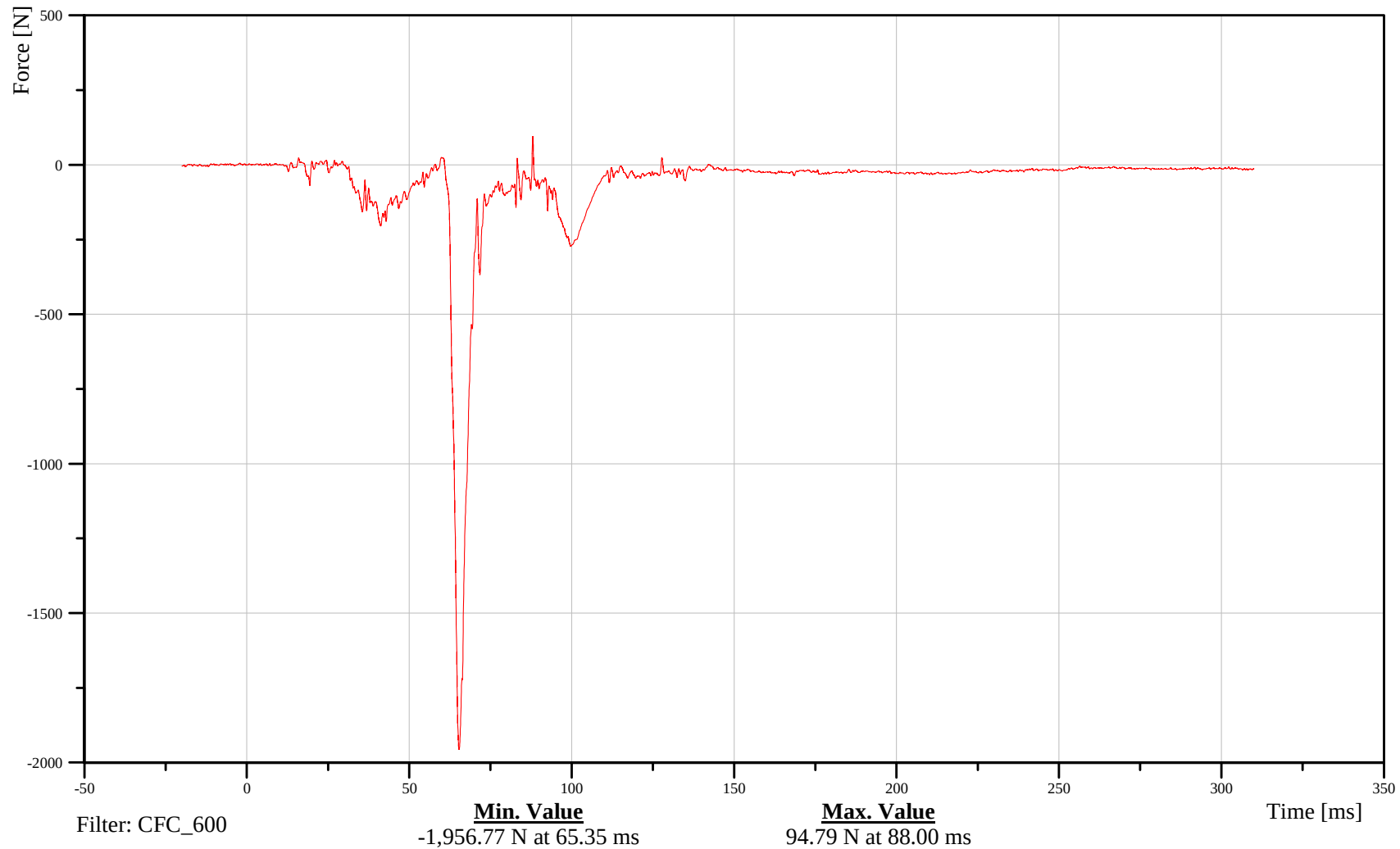
Left Knee Inboard Y-Axis Force

Customer: VRTC

11KNEELEINWSFOYB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-99

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

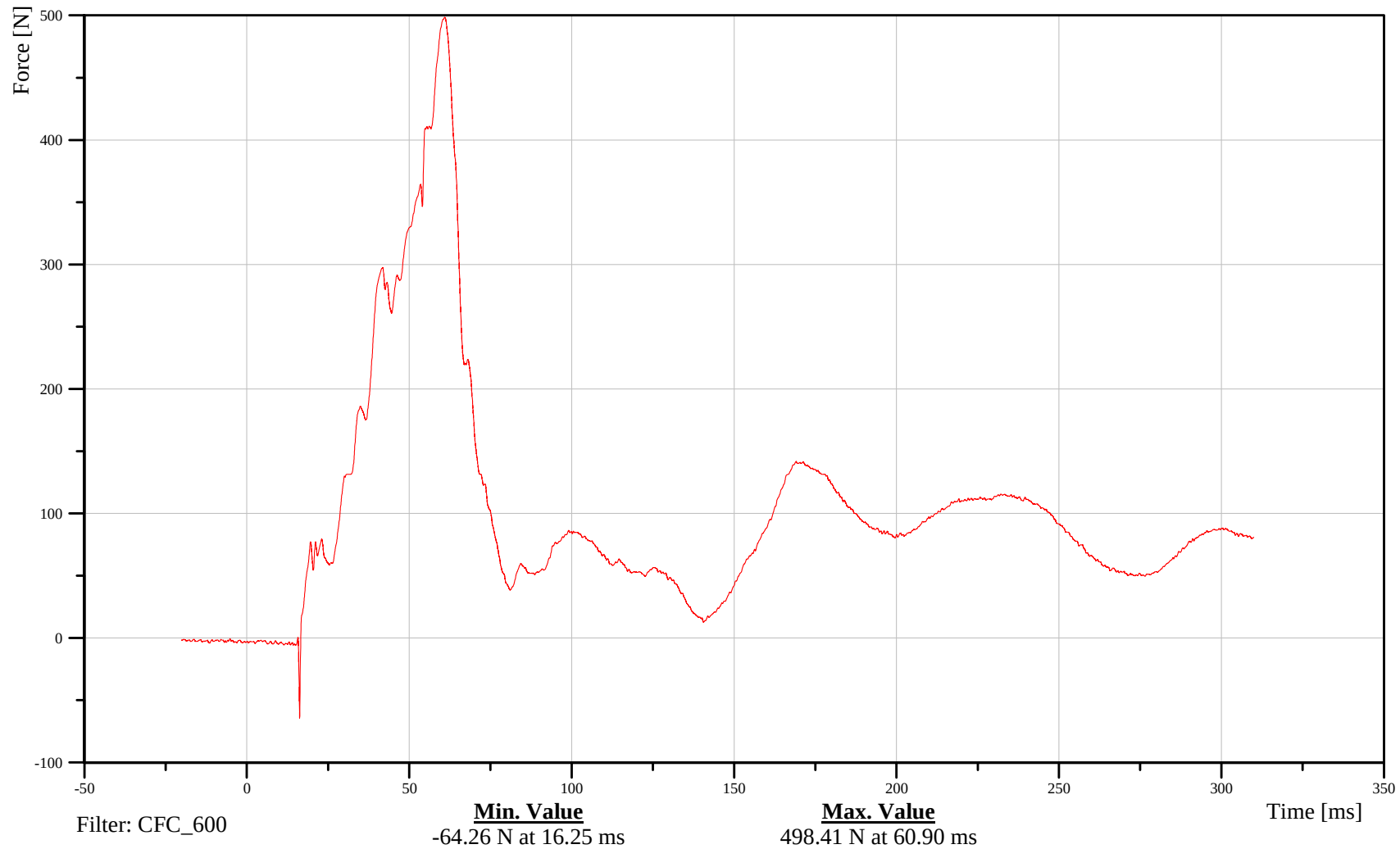
Right Femoral Neck X-Axis Force

Customer: VRTC

11FEMRRL00WSFOXB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-100

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

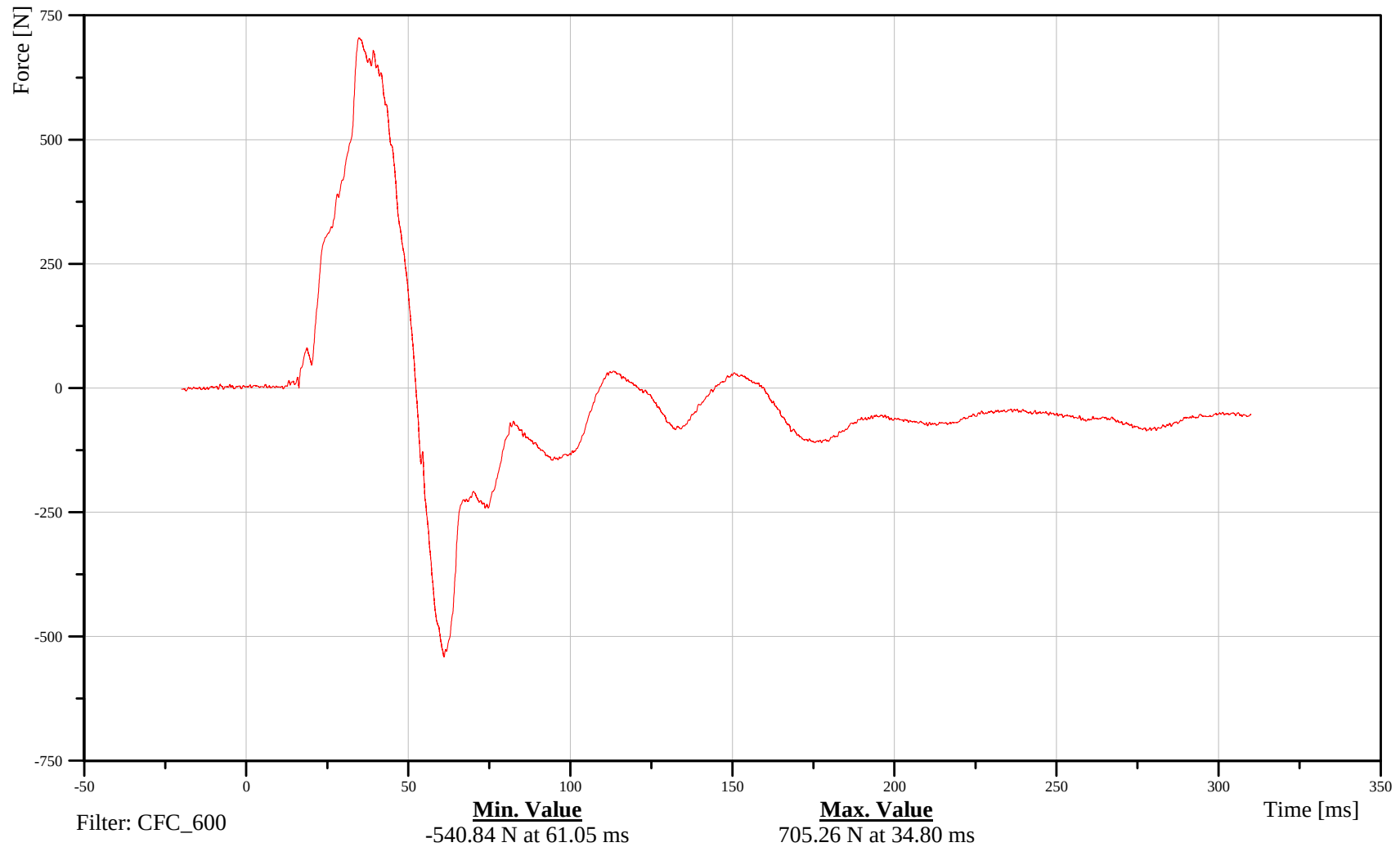
Right Femoral Neck Y-Axis Force

Customer: VRTC

11FEMRRL00WSFOYB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-101

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

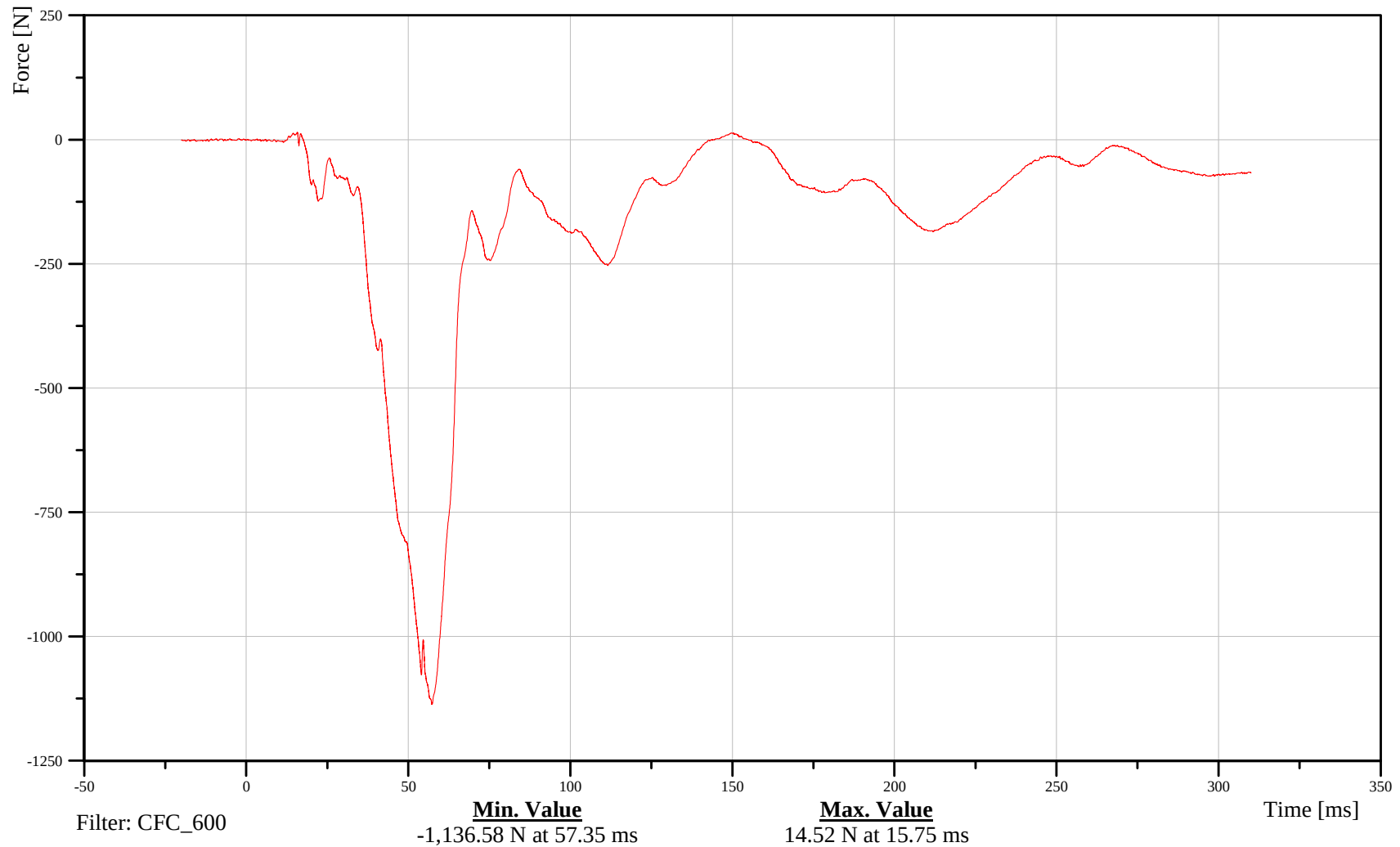
Right Femoral Neck Z-Axis Force

Customer: VRTC

11FEMRRL00WSFOZB

TRC Inc. Test Lab: CTF

Test Number: 110830



B-102

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

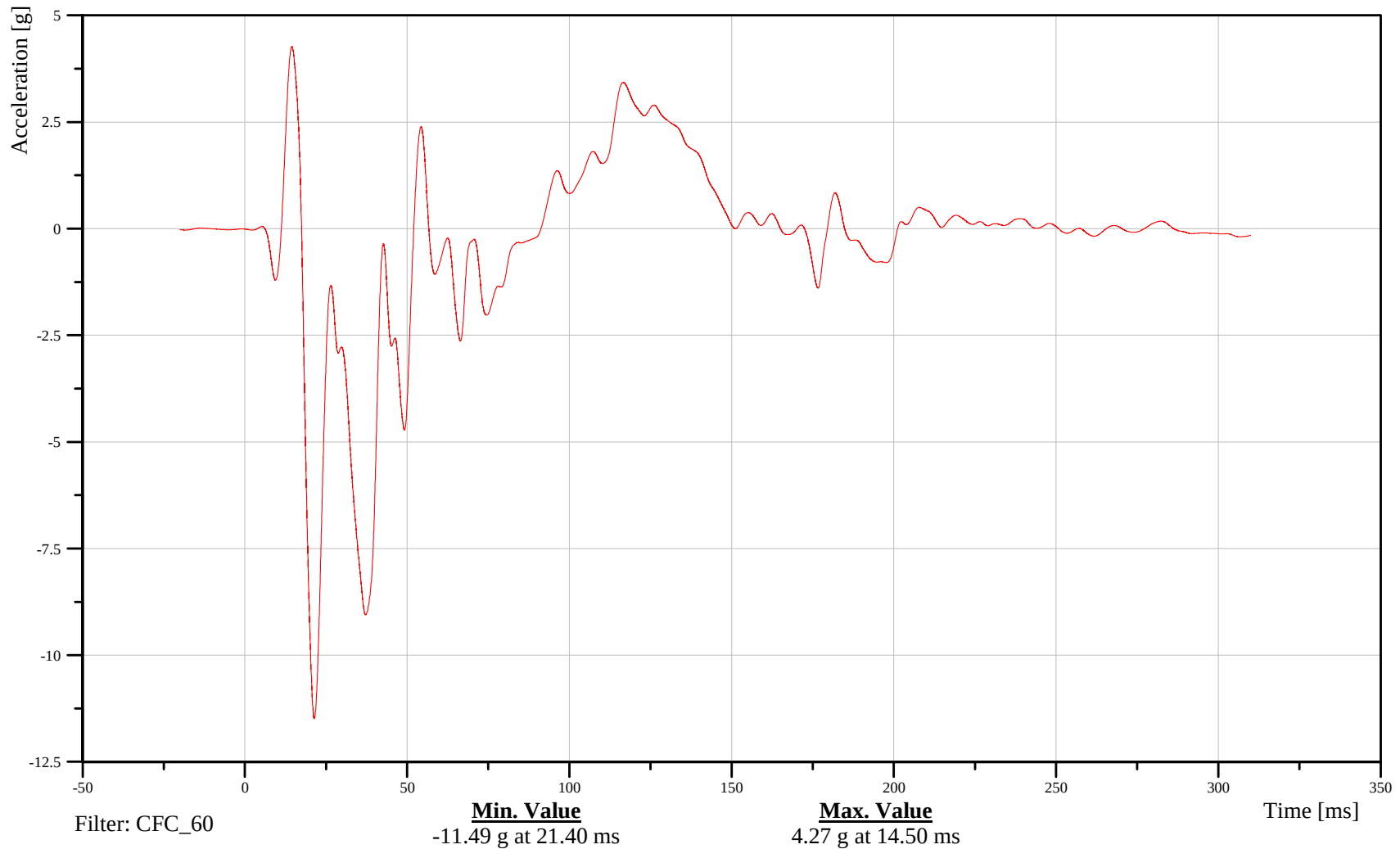
Vehicle Center of Gravity X-Axis Acceleration

Customer: VRTC

10VEHCCG0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-103

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

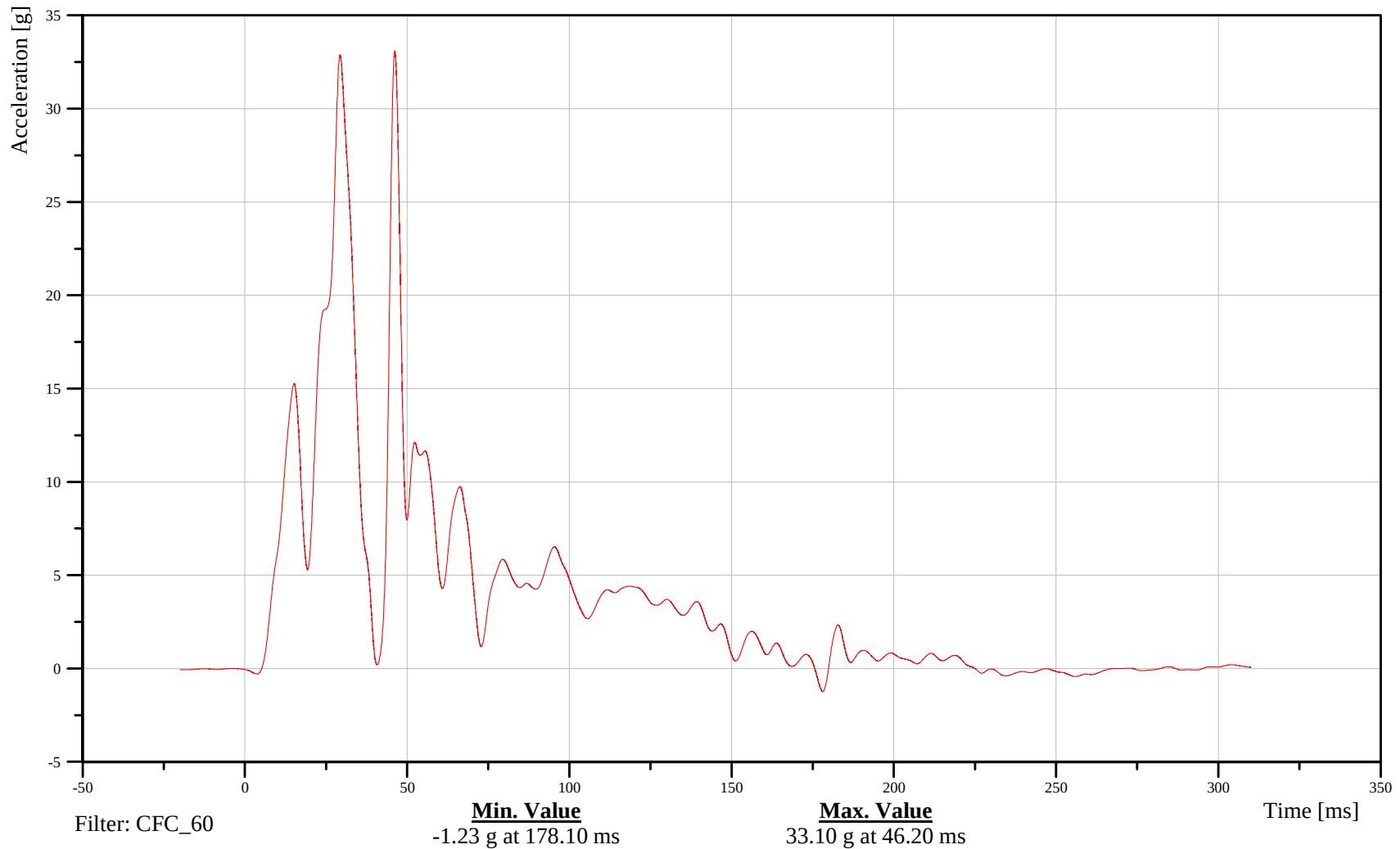
Vehicle Center of Gravity Y-Axis Acceleration

Customer: VRTC

10VEHCCG0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-104

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

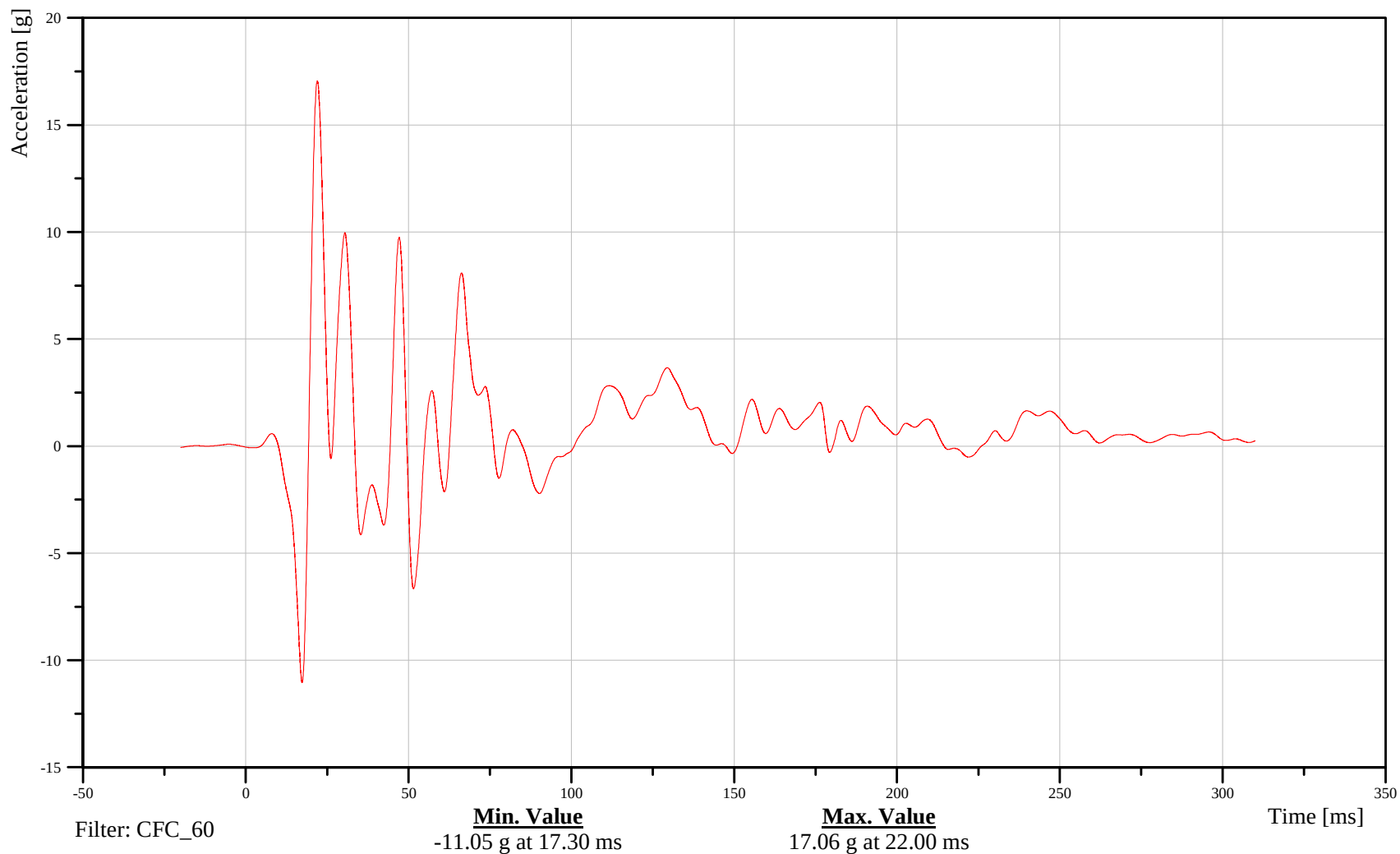
Vehicle Center of Gravity Z-Axis Acceleration

Customer: VRTC

10VEHCCG0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-105

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

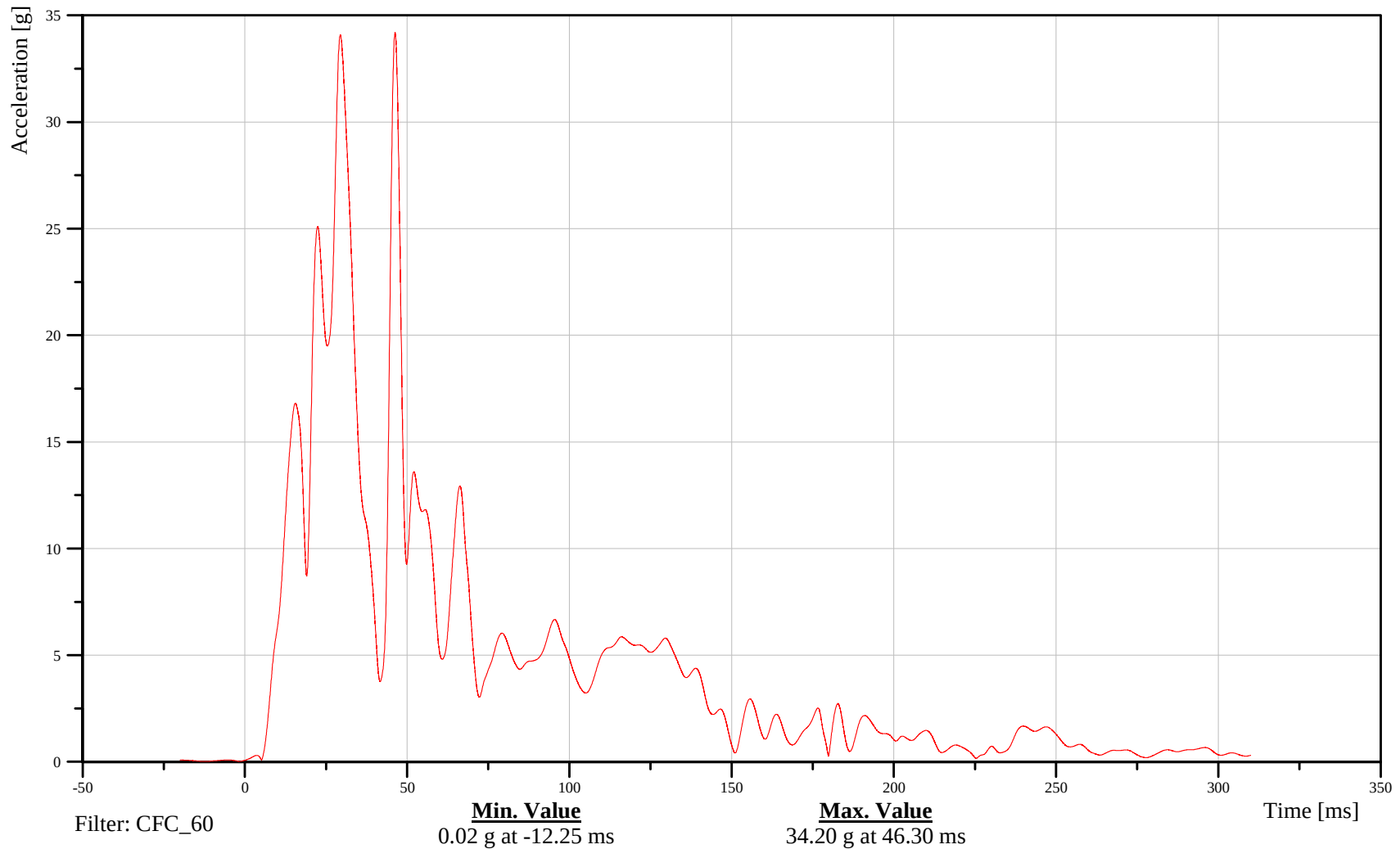
Vehicle Center of Gravity Resultant Acceleration

Customer: VRTC

10VEHCCG0000ACRD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-106

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

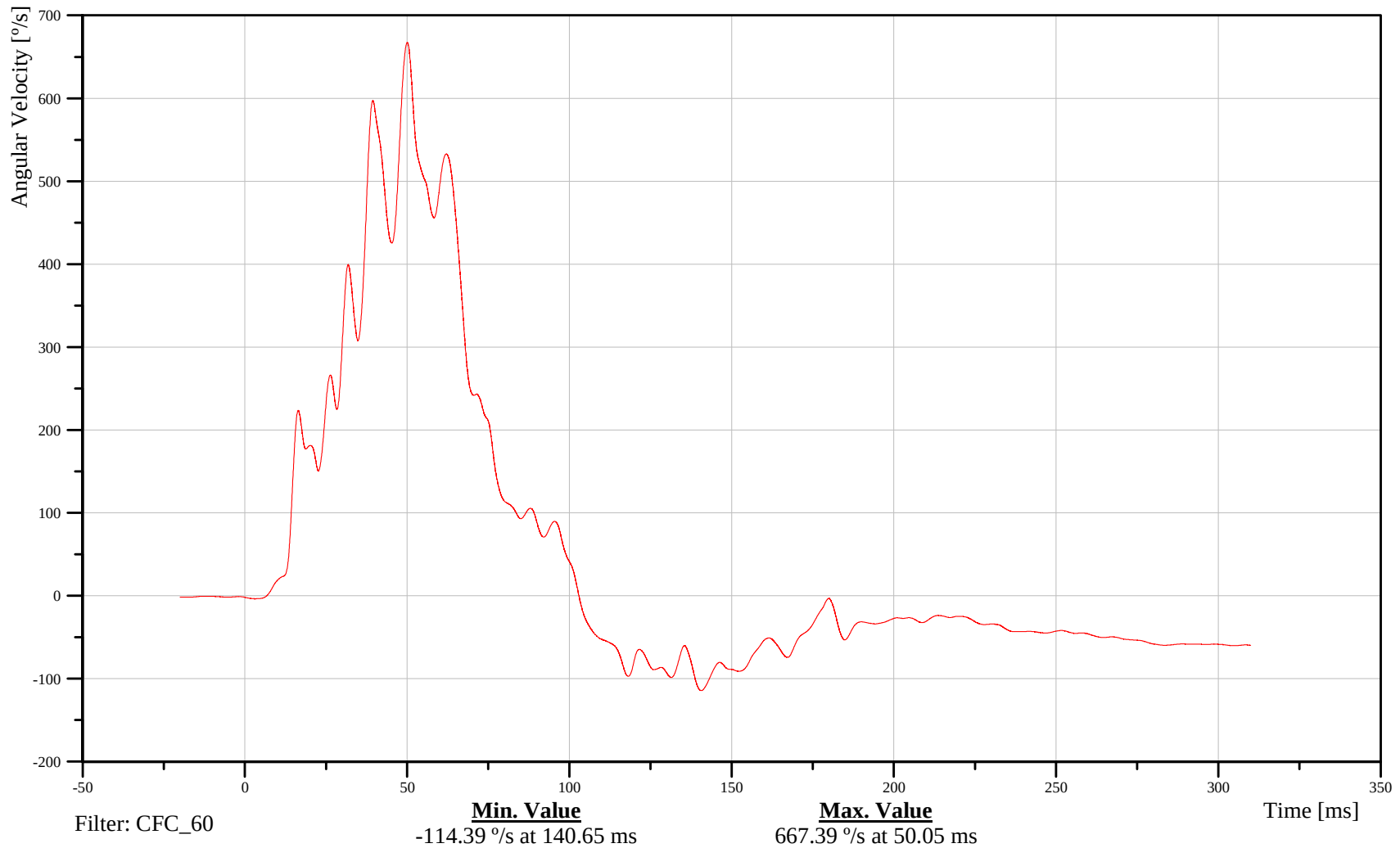
Vehicle Center of Gravity Roll Rate Gyroscope

Customer: VRTC

10VEHCCG0000AVXD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-107

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

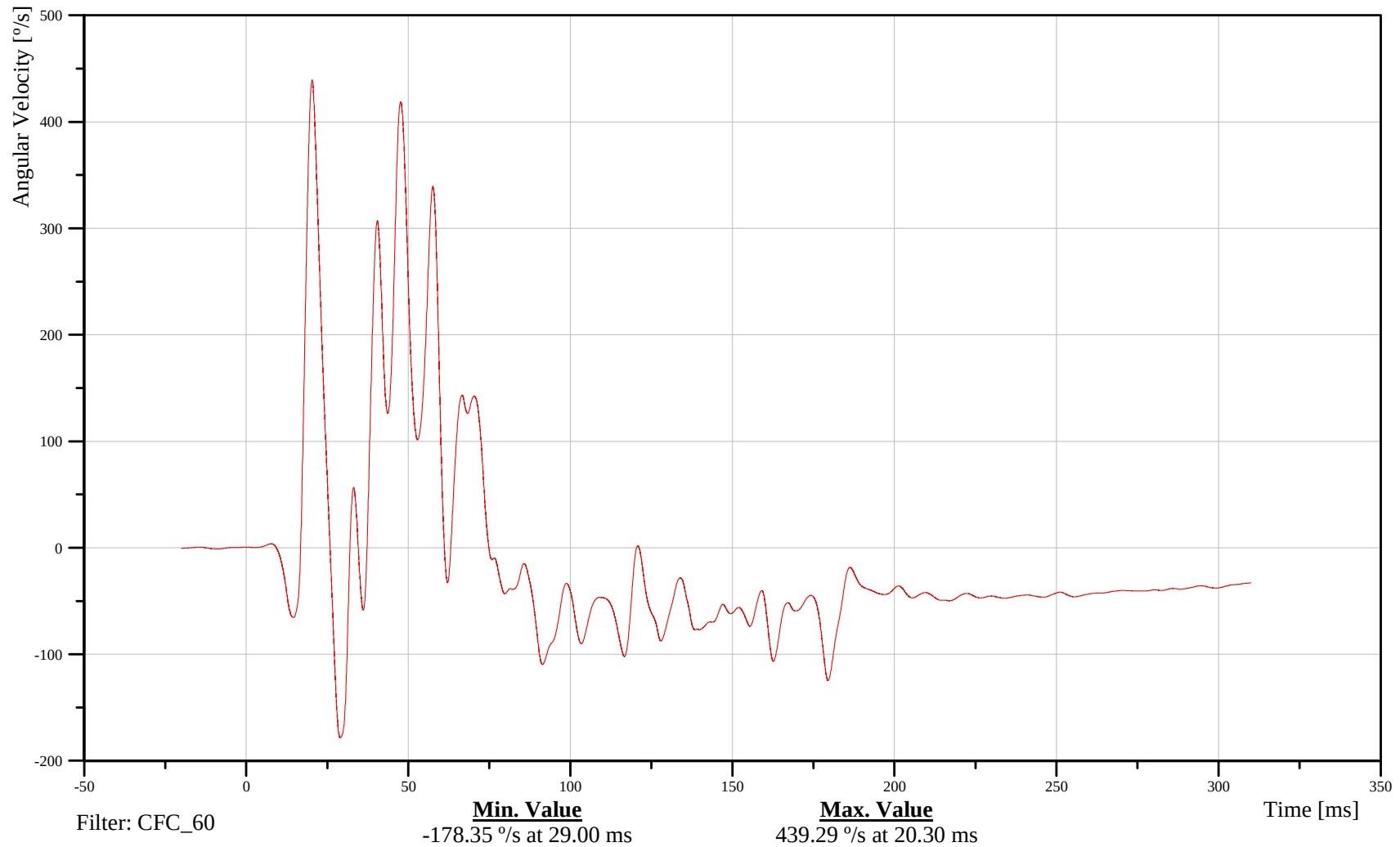
Vehicle Center of Gravity Pitch Rate Gyroscope

Customer: VRTC

10VEHCCG0000AVYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-108

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

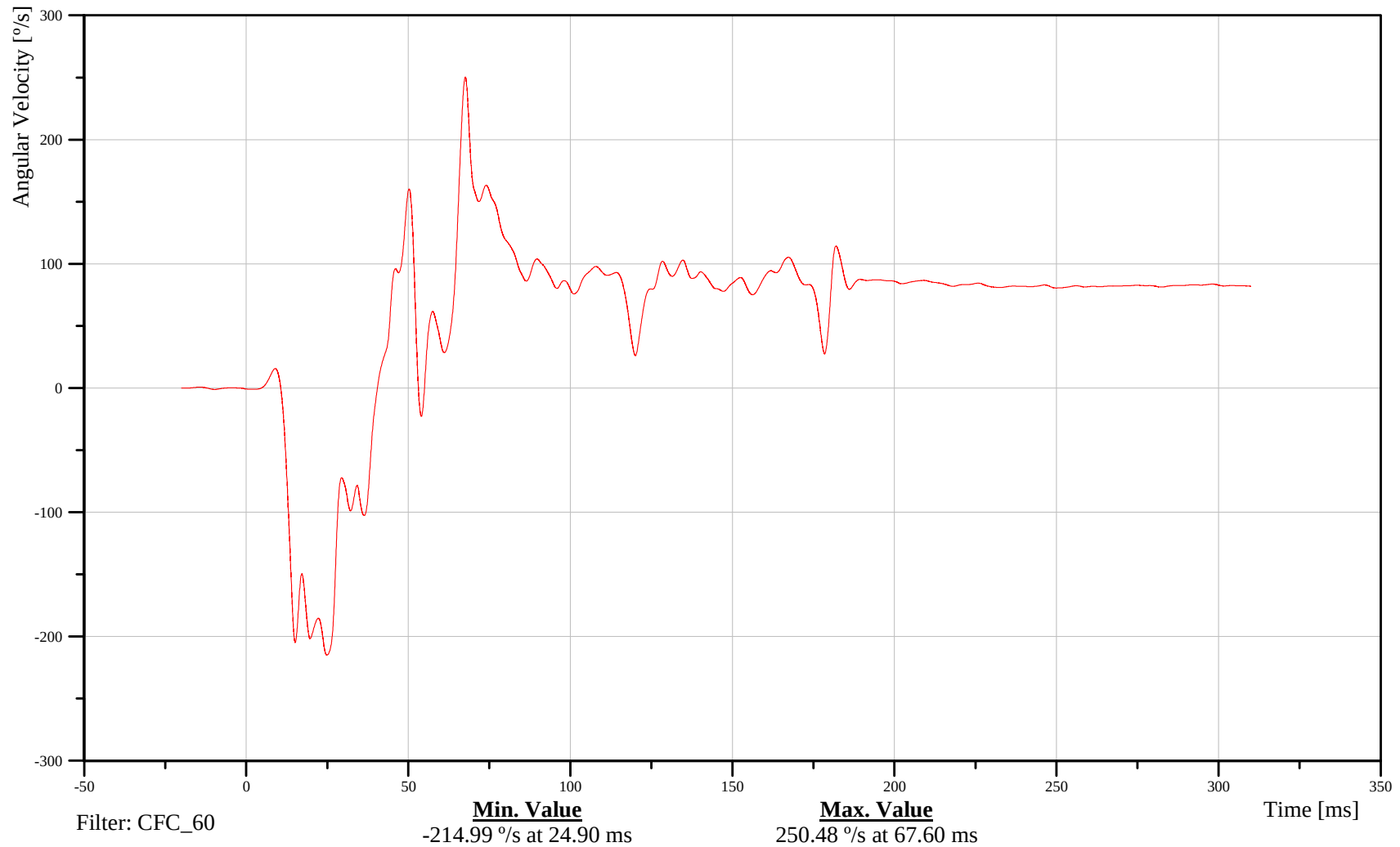
Vehicle Center of Gravity Yaw Rate Gyroscope

Customer: VRTC

10VEHCCG0000AVZD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-109

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

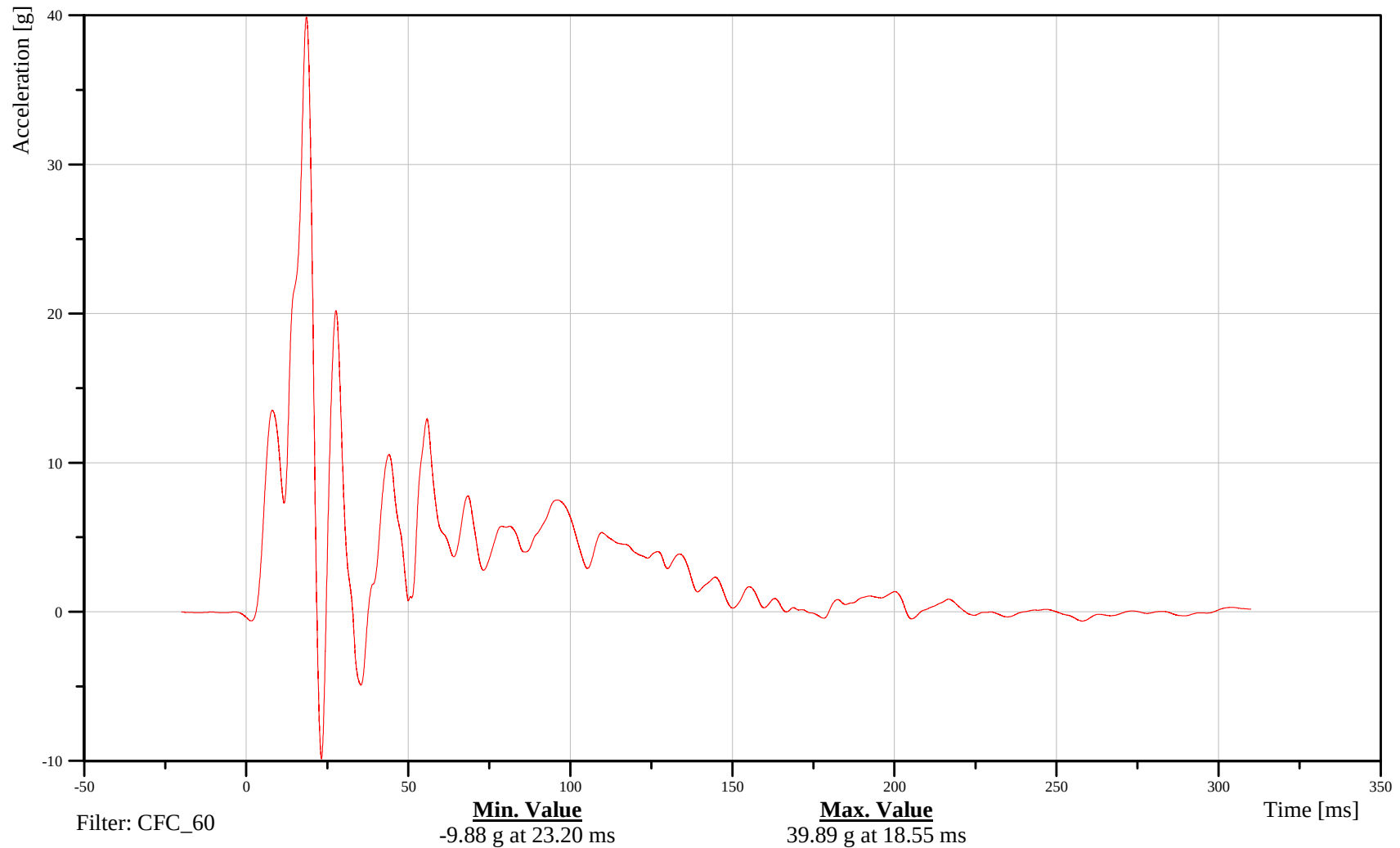
Left Side Sill Near Impact Point Y-Axis Acceleration

Customer: VRTC

11SILBRE0100ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-110

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

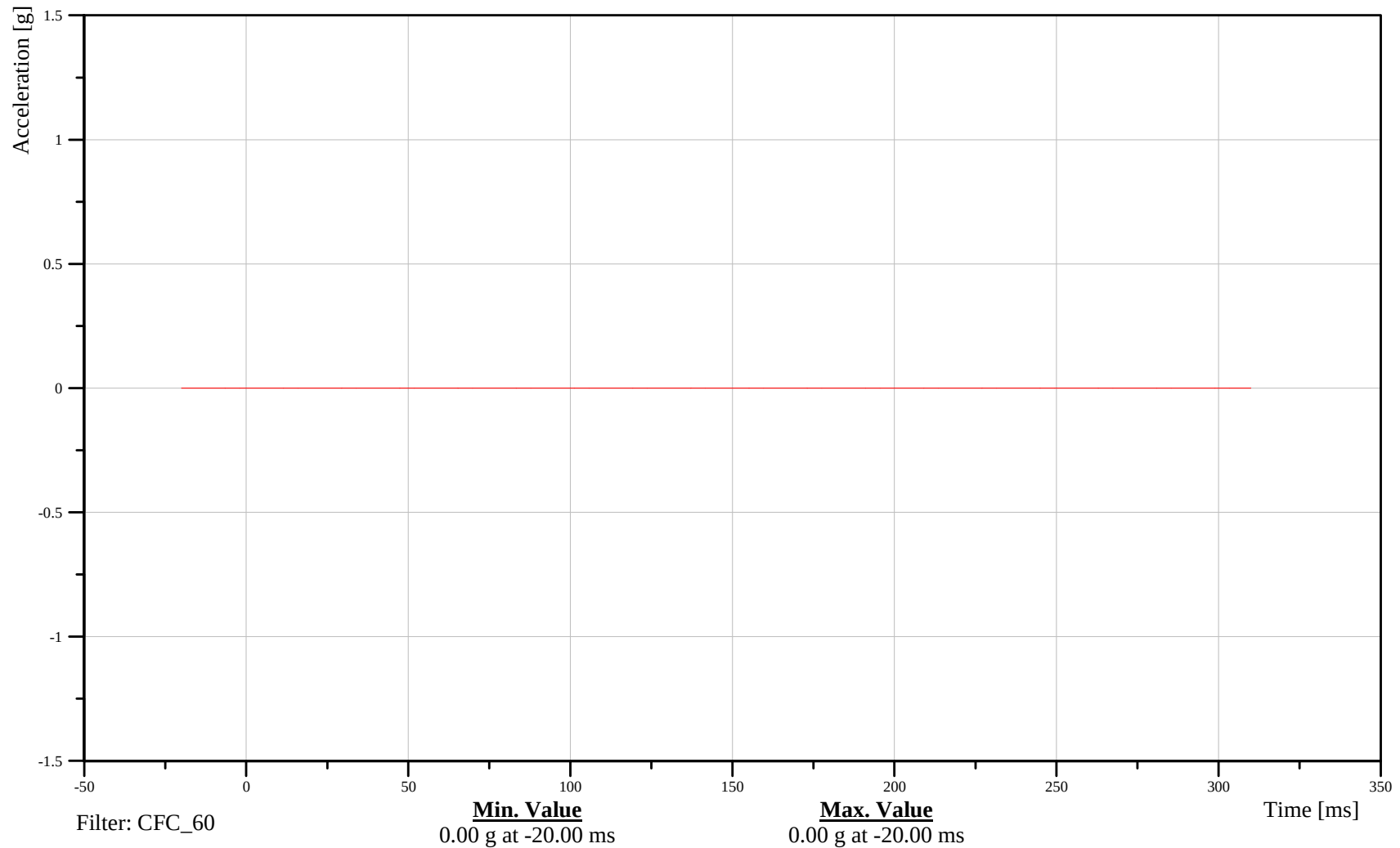
Left A-Pillar Side Sill Y-Axis Acceleration

Customer: VRTC

14SILBFR0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-111

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

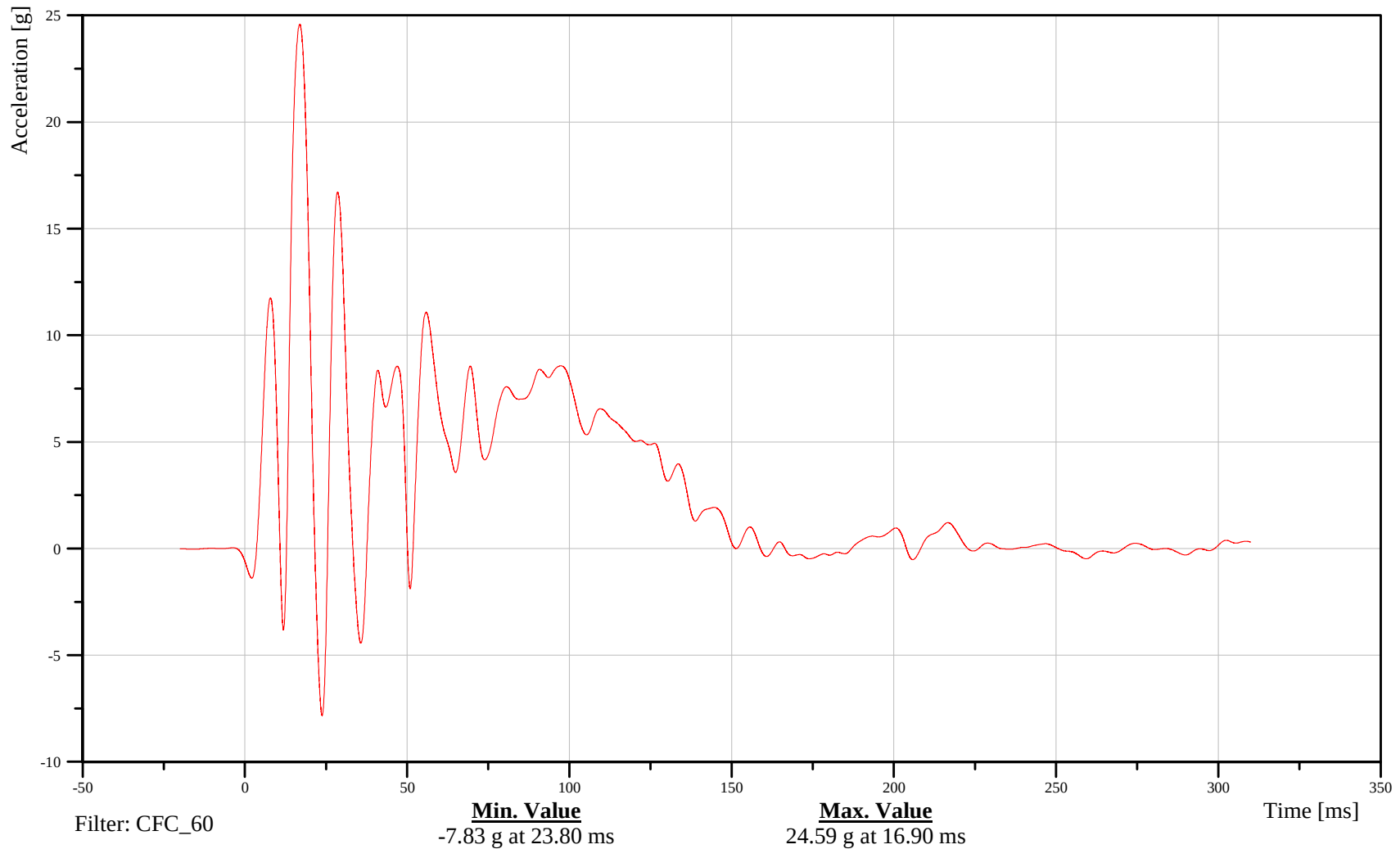
Left Lower A-Pillar Y-Axis Acceleration

Customer: VRTC

11APILLO0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-112

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

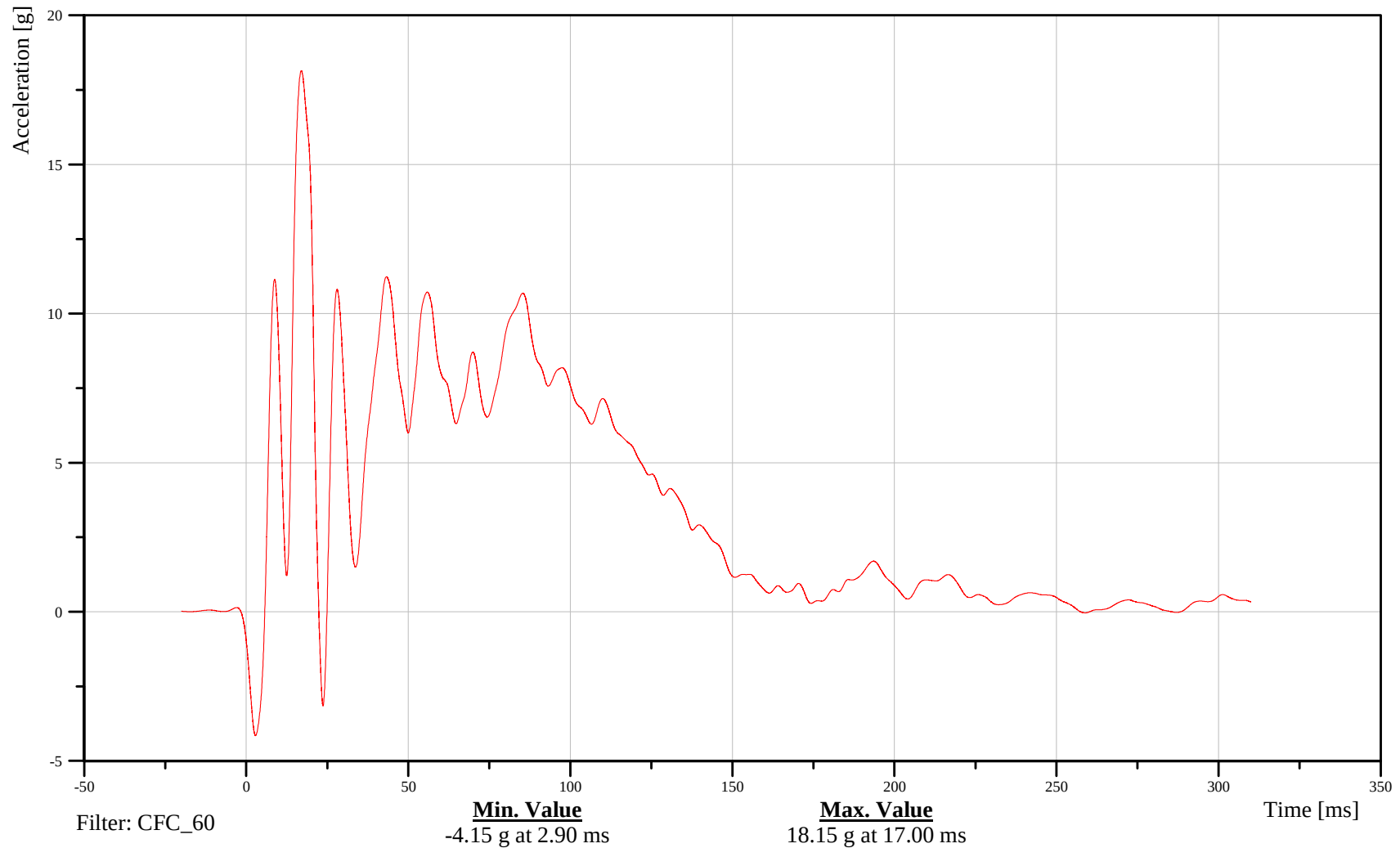
Left Mid A-Pillar Y-Axis Acceleration

Customer: VRTC

11APILMI0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-113

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

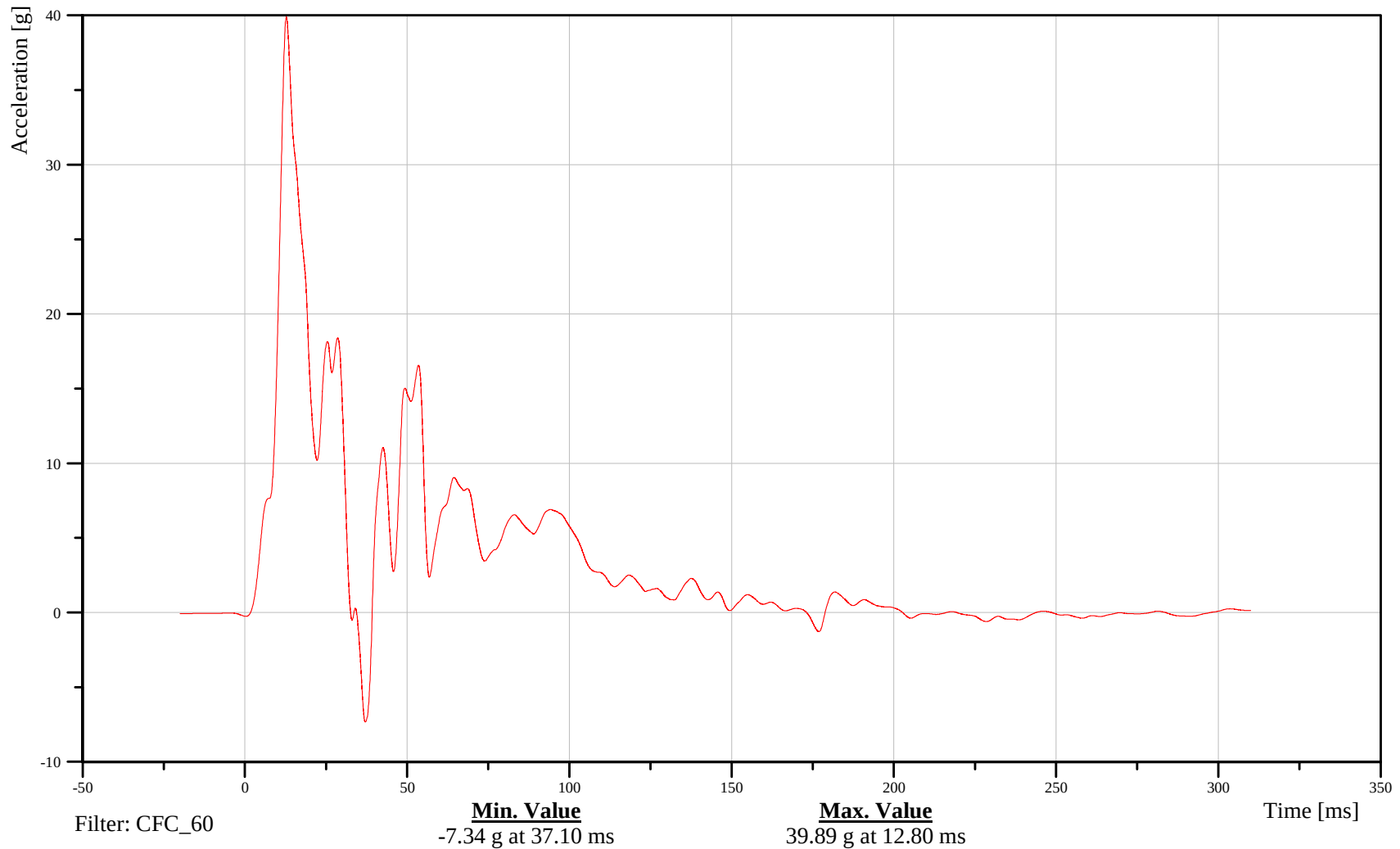
Left Side Sill at Rear Seat Y-Axis Acceleration

Customer: VRTC

14SILBRE0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-114

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

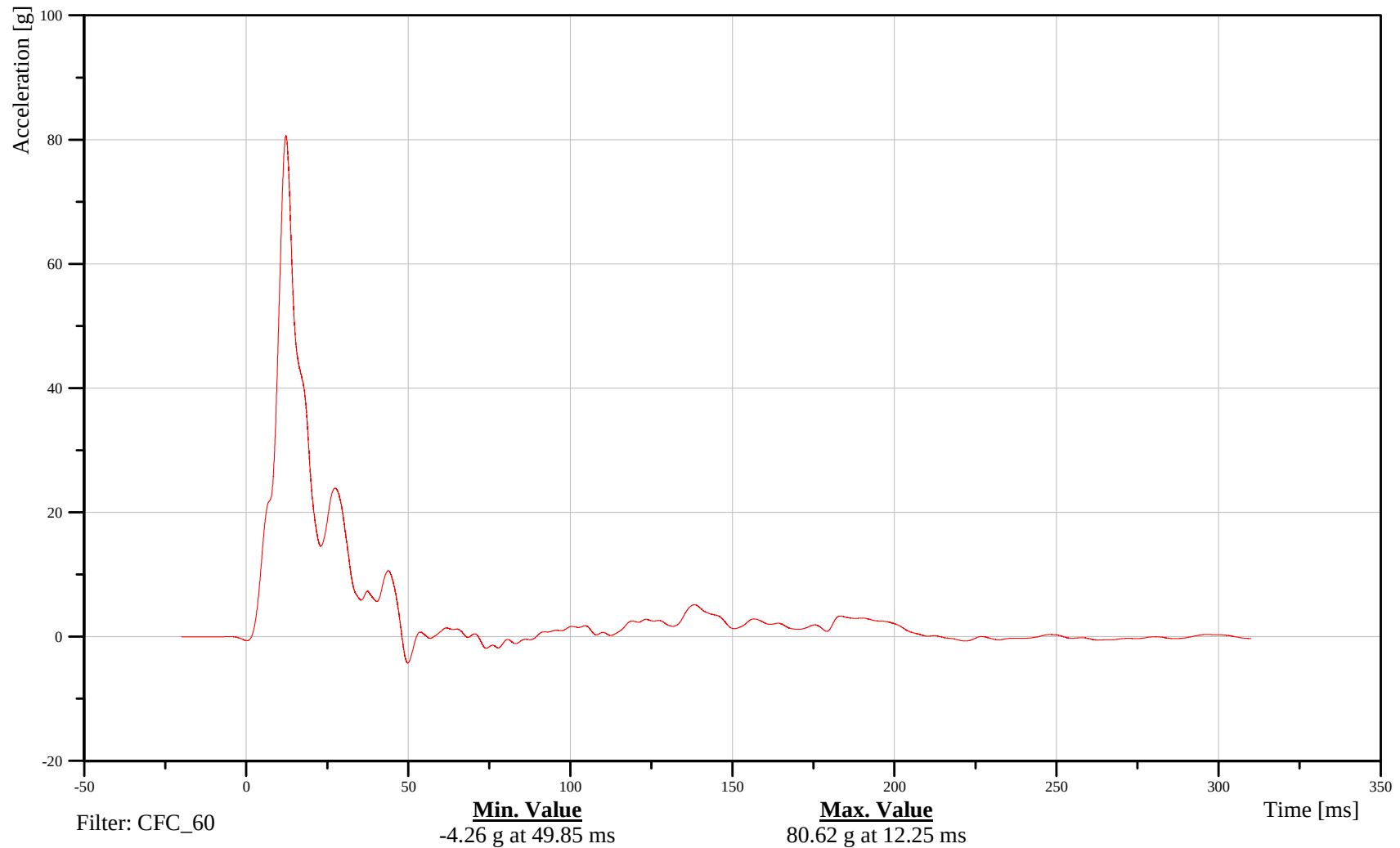
Left Lower B-Pillar Y-Axis Acceleration

Customer: VRTC

14BPILLO0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-115

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

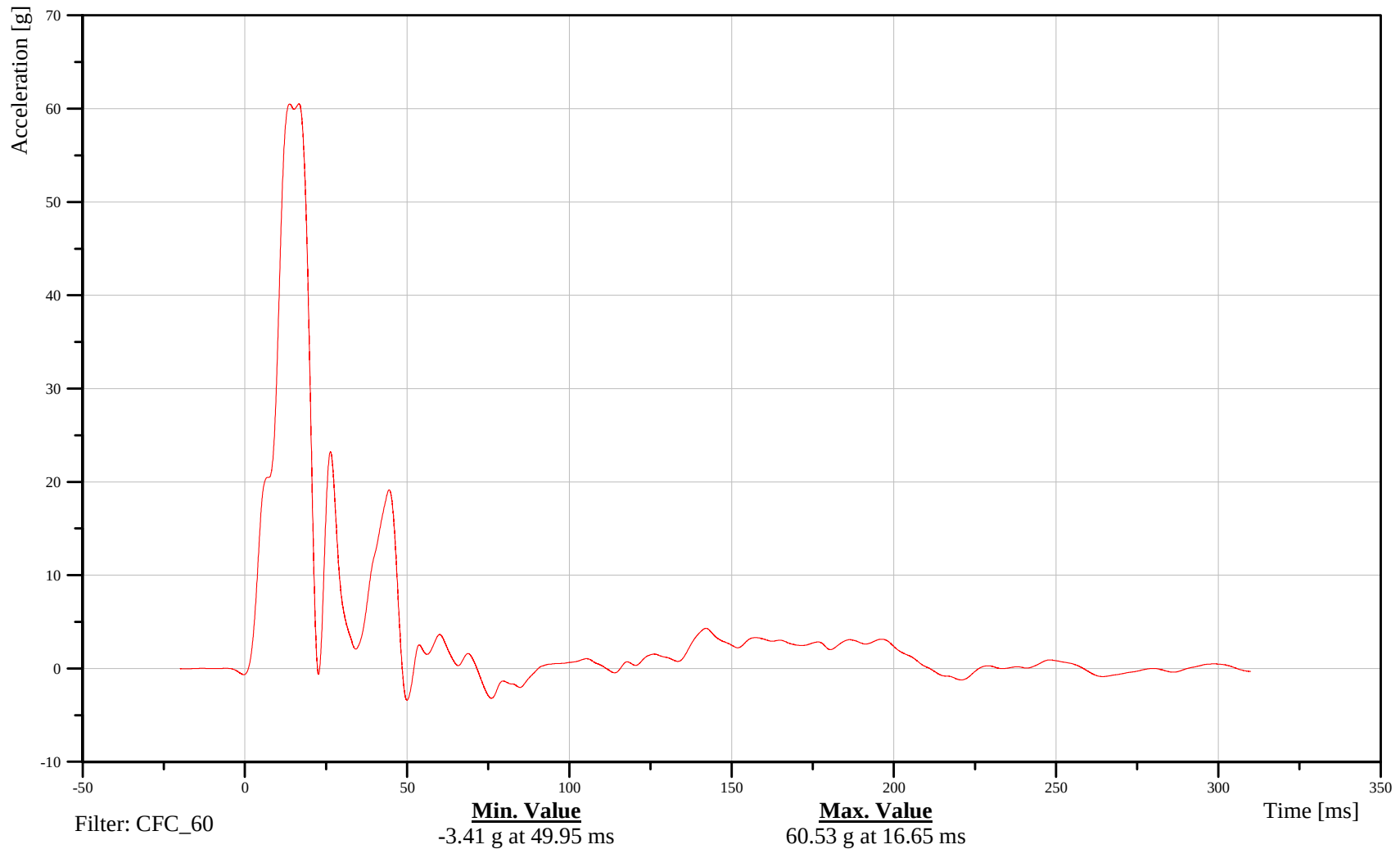
Left Mid B-Pillar Y-Axis Acceleration

Customer: VRTC

14BPILMI0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-116

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

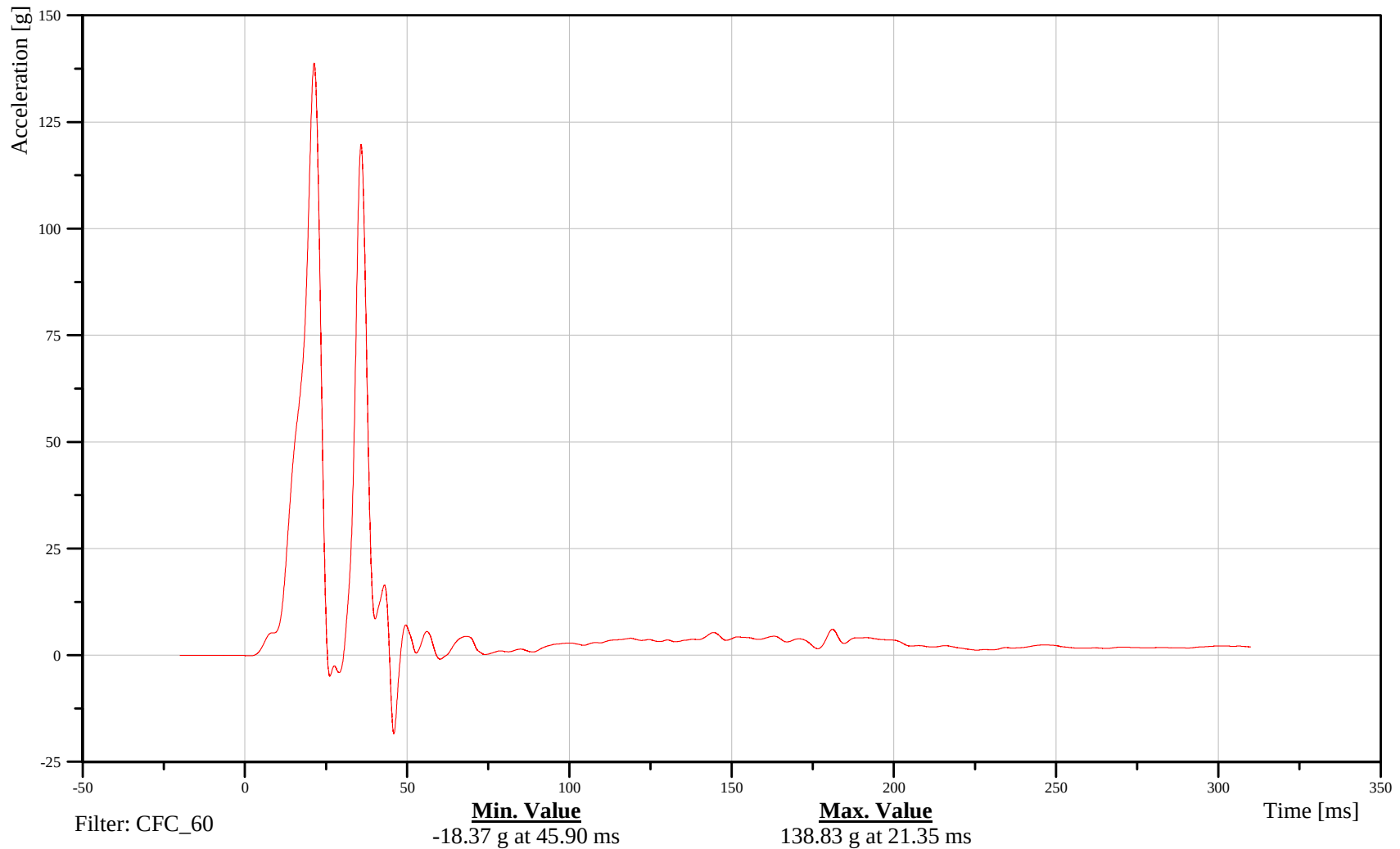
Left Front Seat Track at H-Point Y-Axis Acceleration

Customer: VRTC

11SETRFR0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-117

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

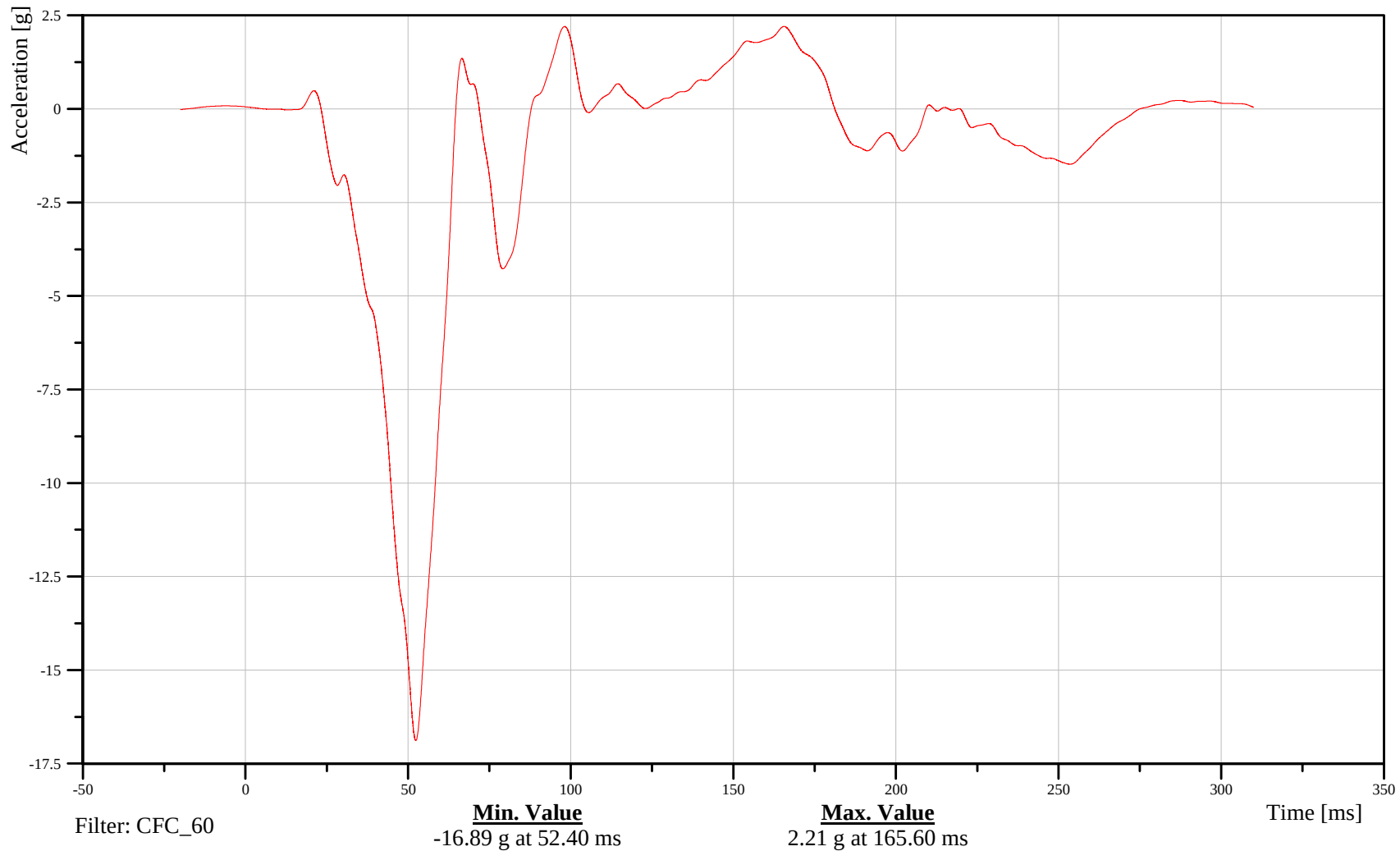
Top of Engine X-Axis Acceleration

Customer: VRTC

12ENGNTTP0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-118

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

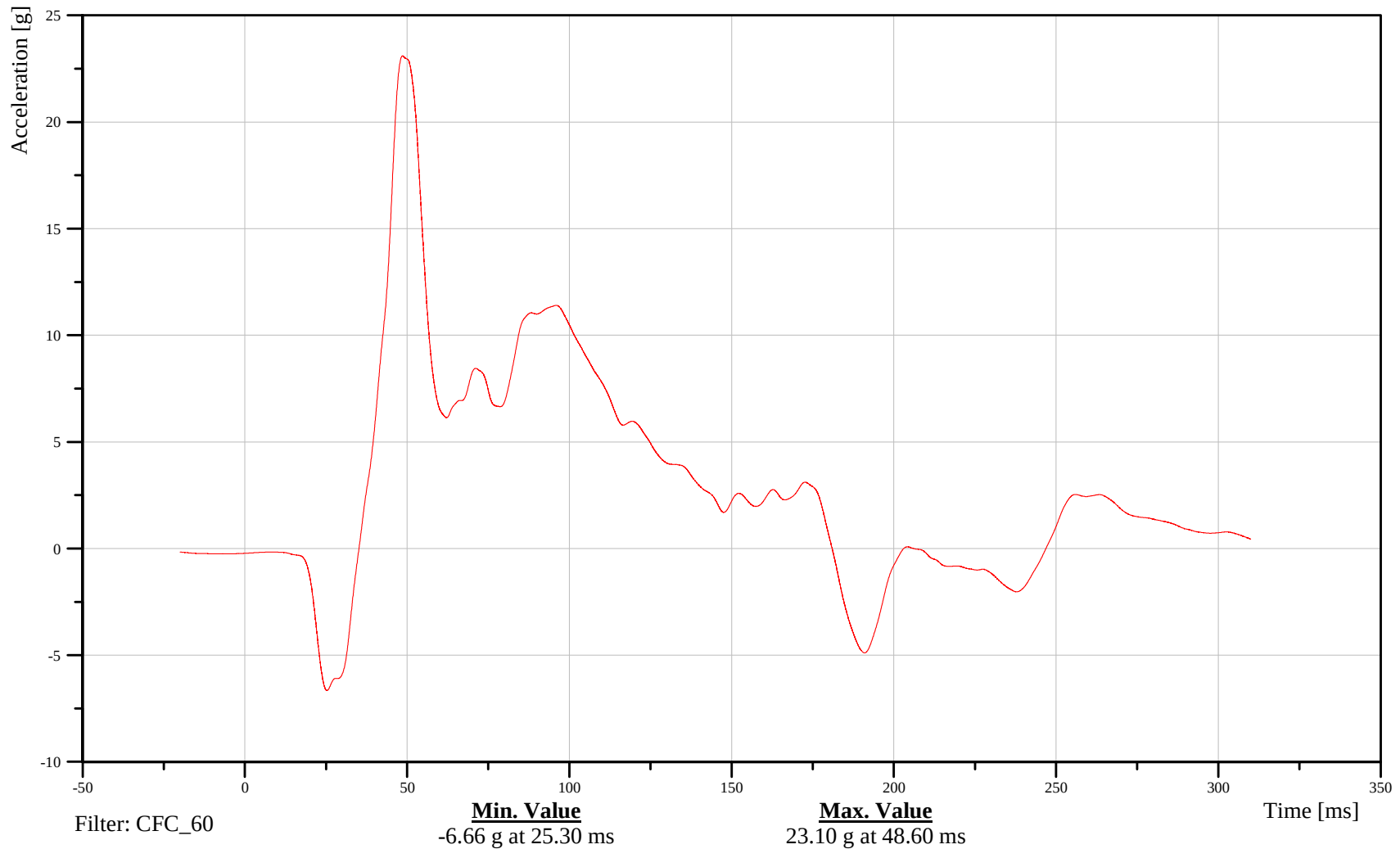
Top of Engine Y-Axis Acceleration

Customer: VRTC

12ENGNTTP0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-119

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

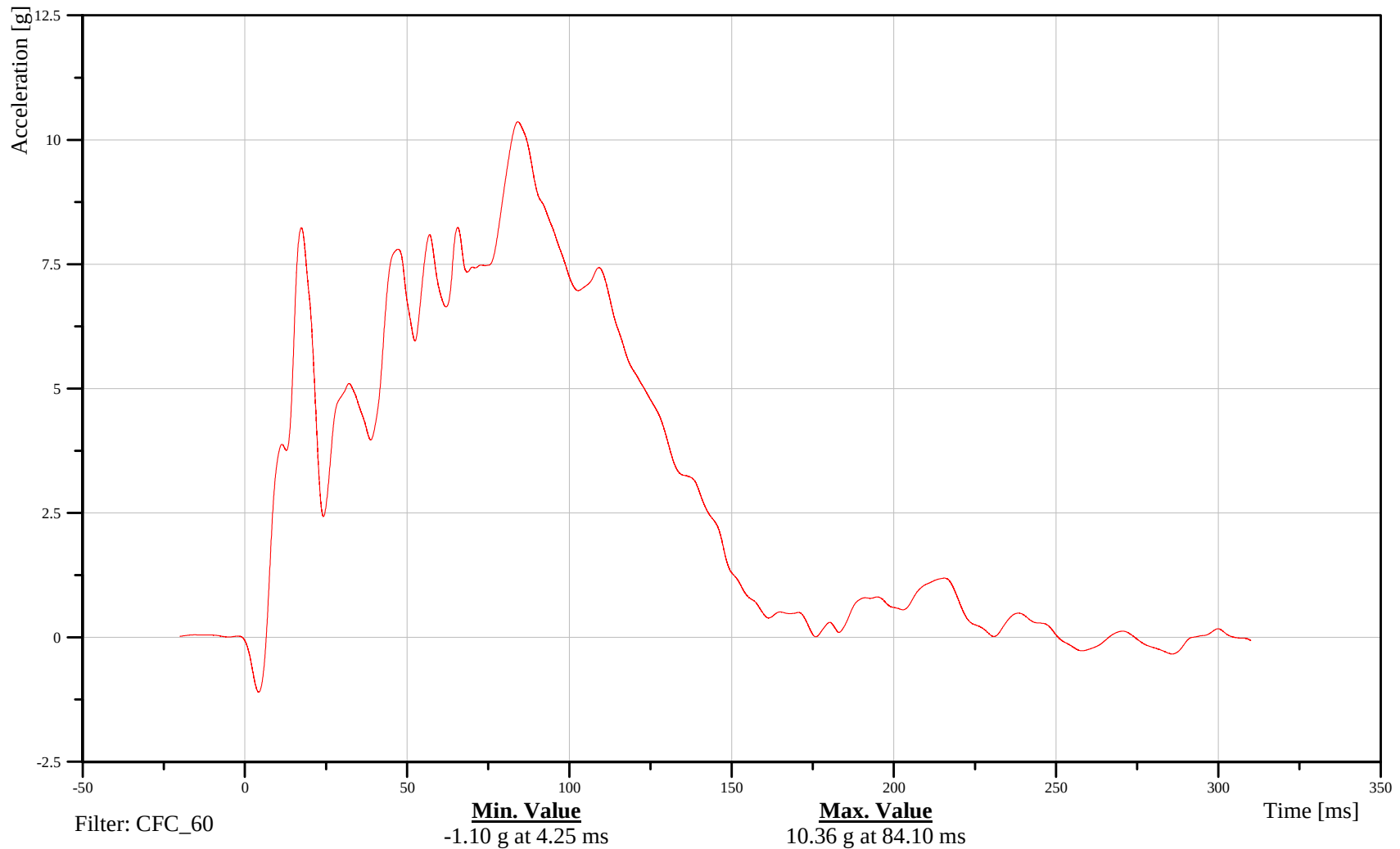
Firewall Y-Axis Acceleration

Customer: VRTC

12VEHC000000ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-120

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

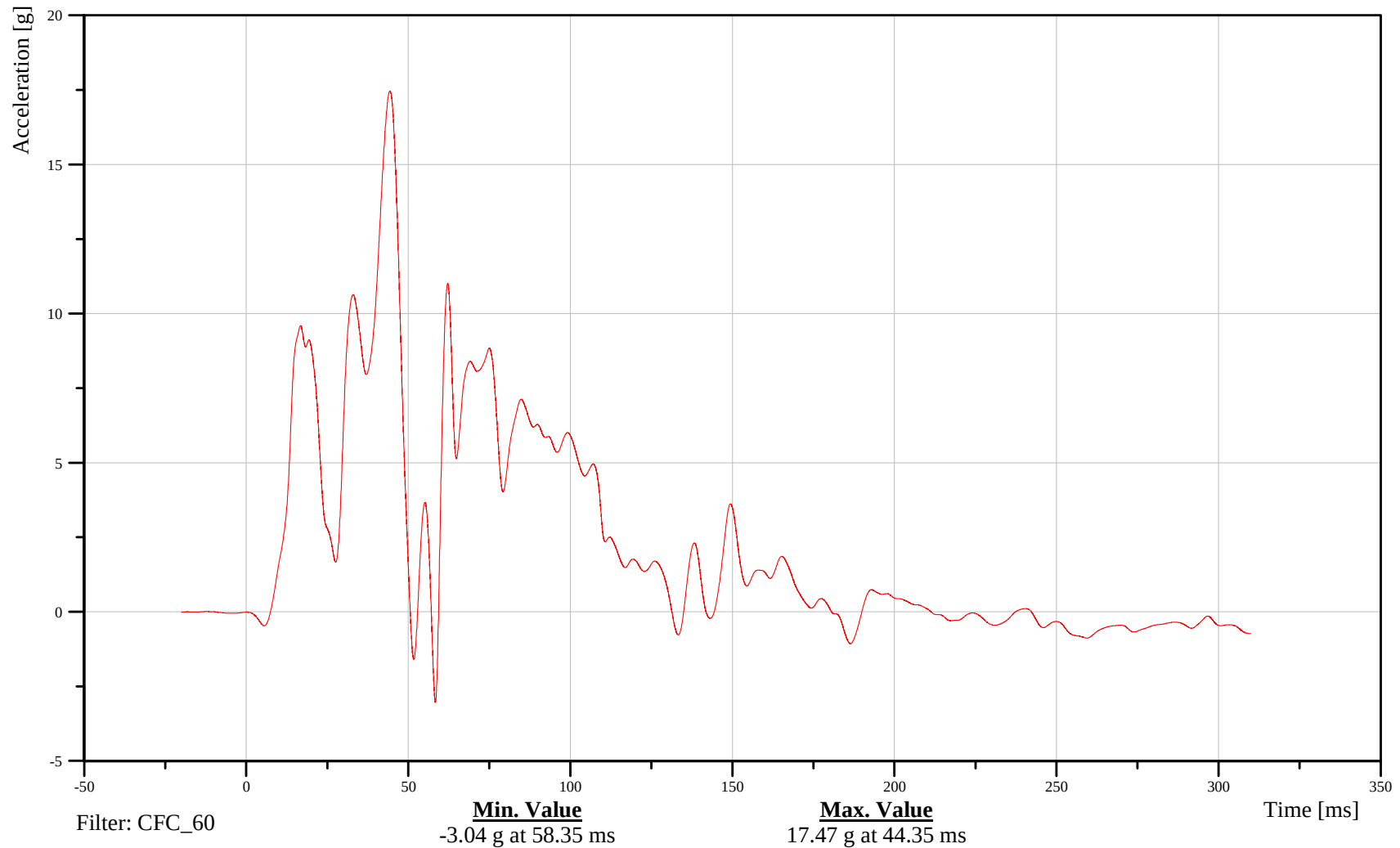
Right Side Roof Rail Y-Axis Acceleration

Customer: VRTC

13ROOF000000ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-121

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

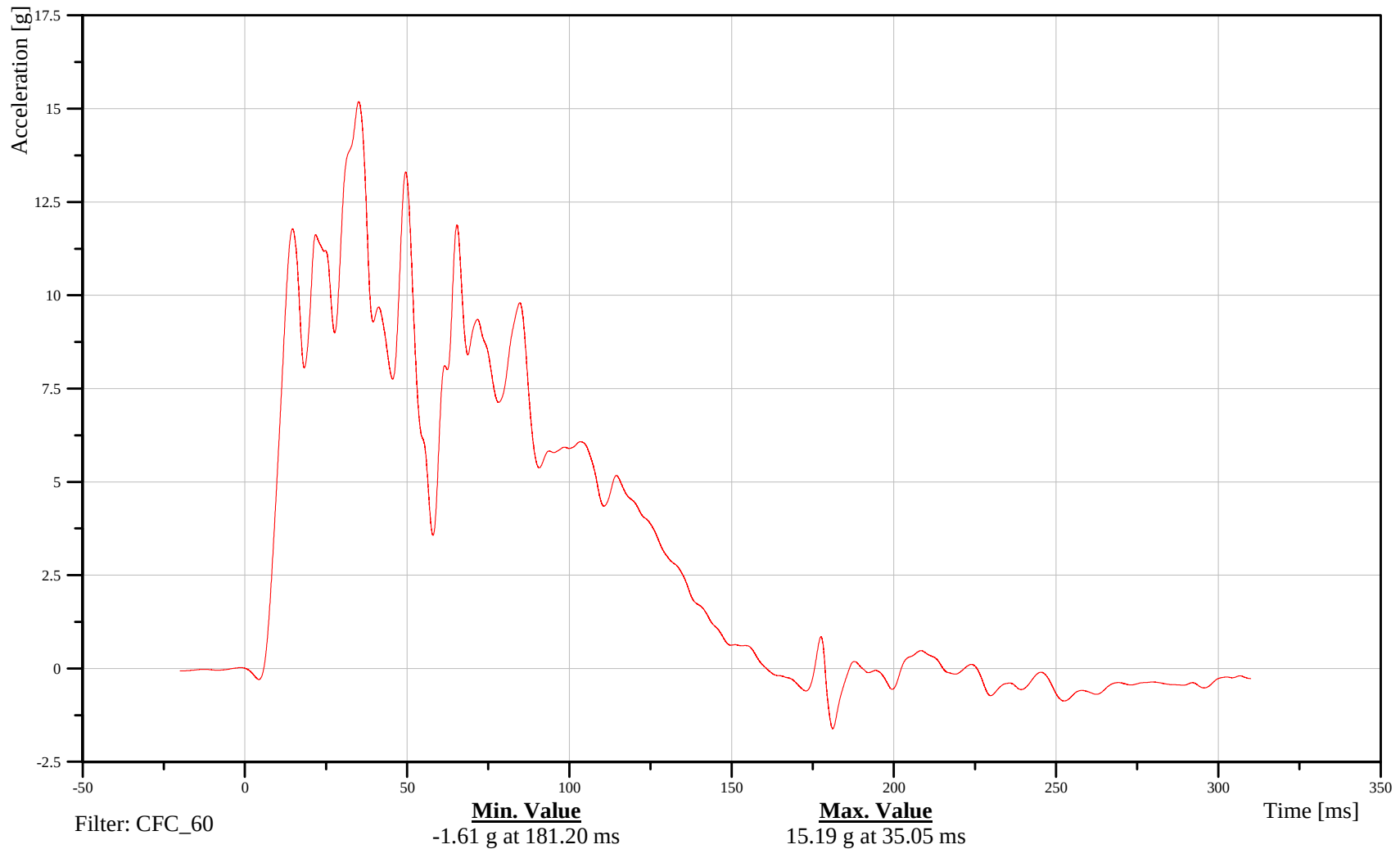
Right Side Sill Y-Axis Acceleration

Customer: VRTC

13SILBFR0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-122

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

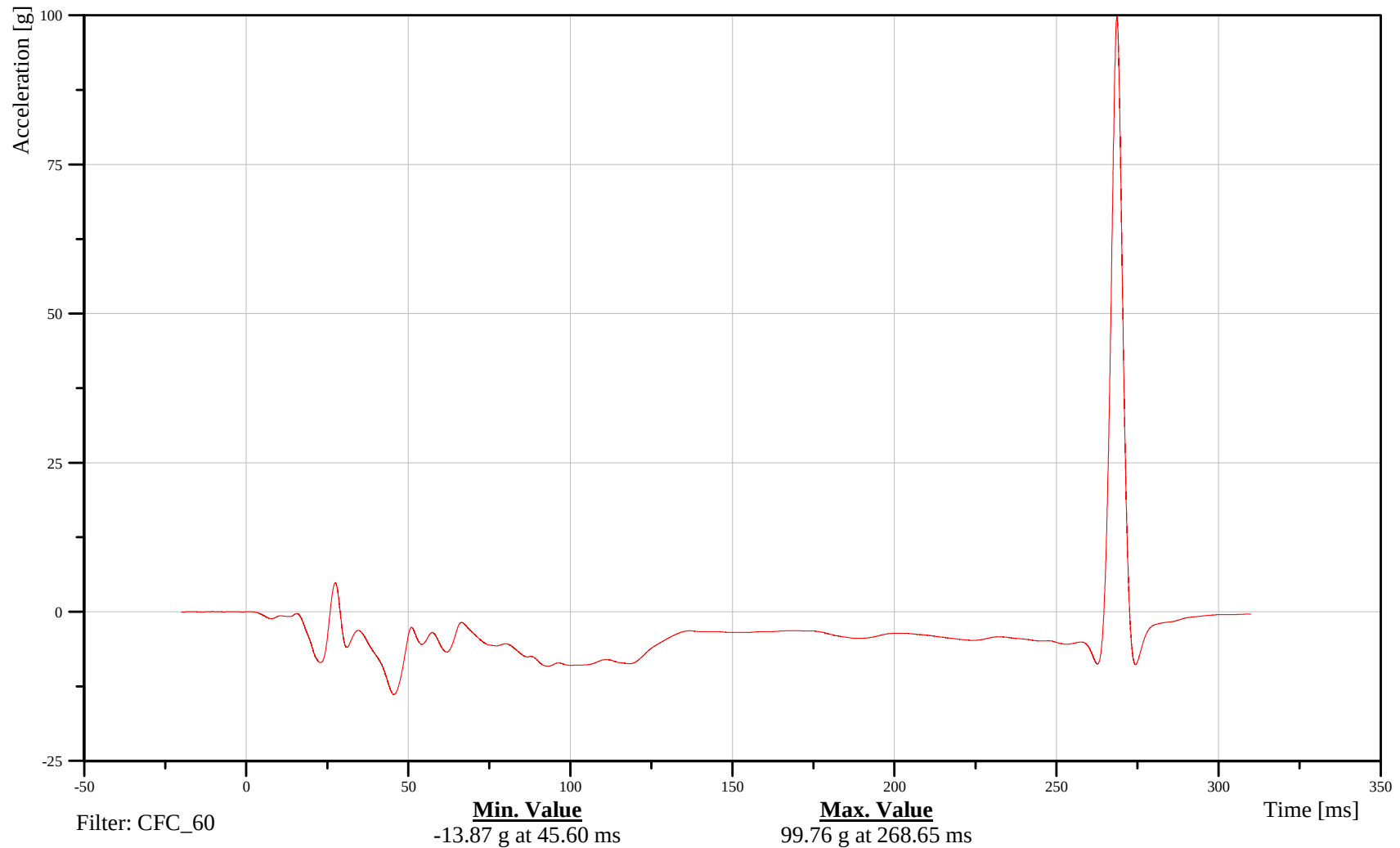
Rear Deck Behind Rear Axle X-Axis Acceleration

Customer: VRTC

18DECK000000ACXD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-123

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

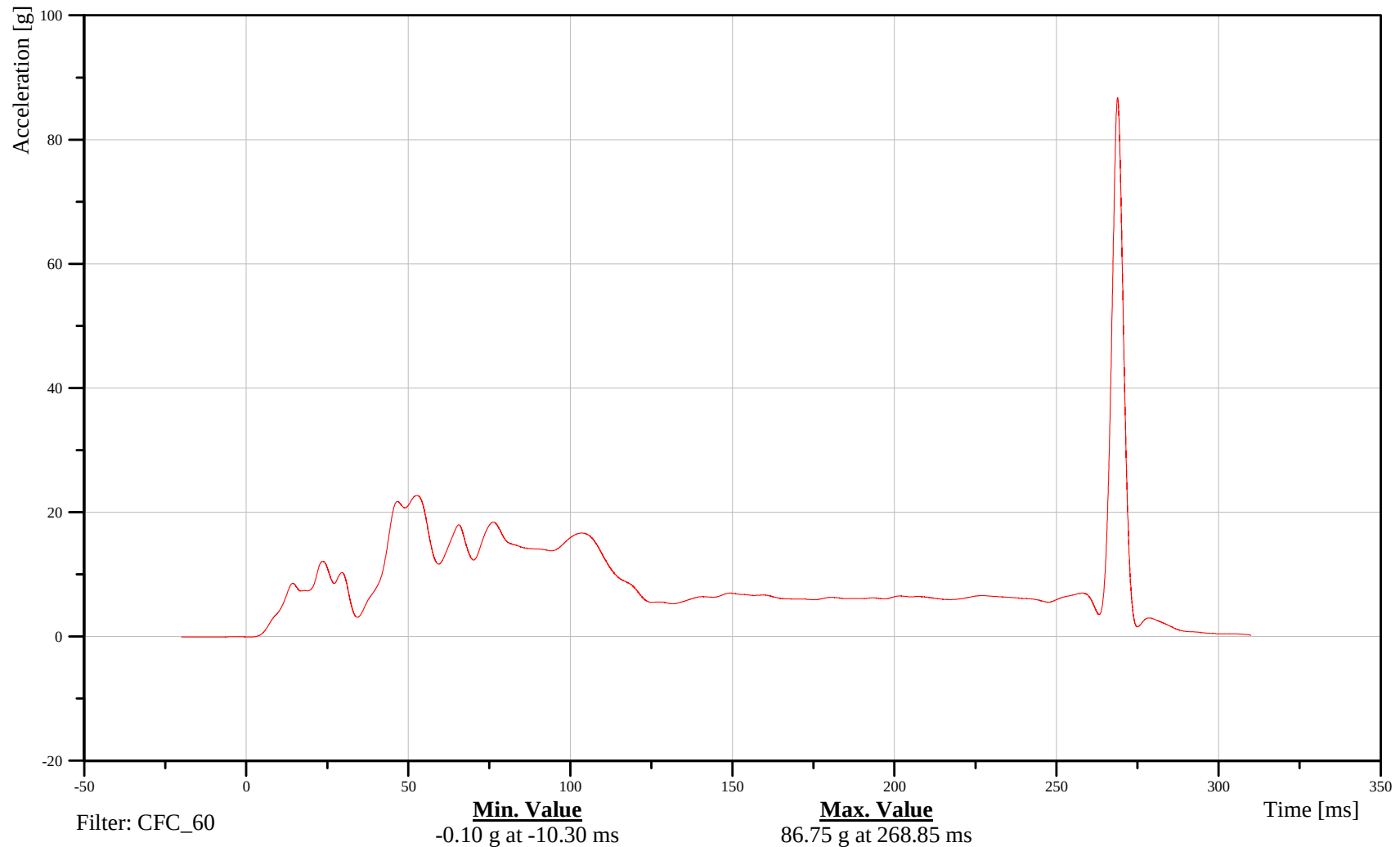
Rear Deck Behind Rear Axle Y-Axis Acceleration

Customer: VRTC

18DECK000000ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-124

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

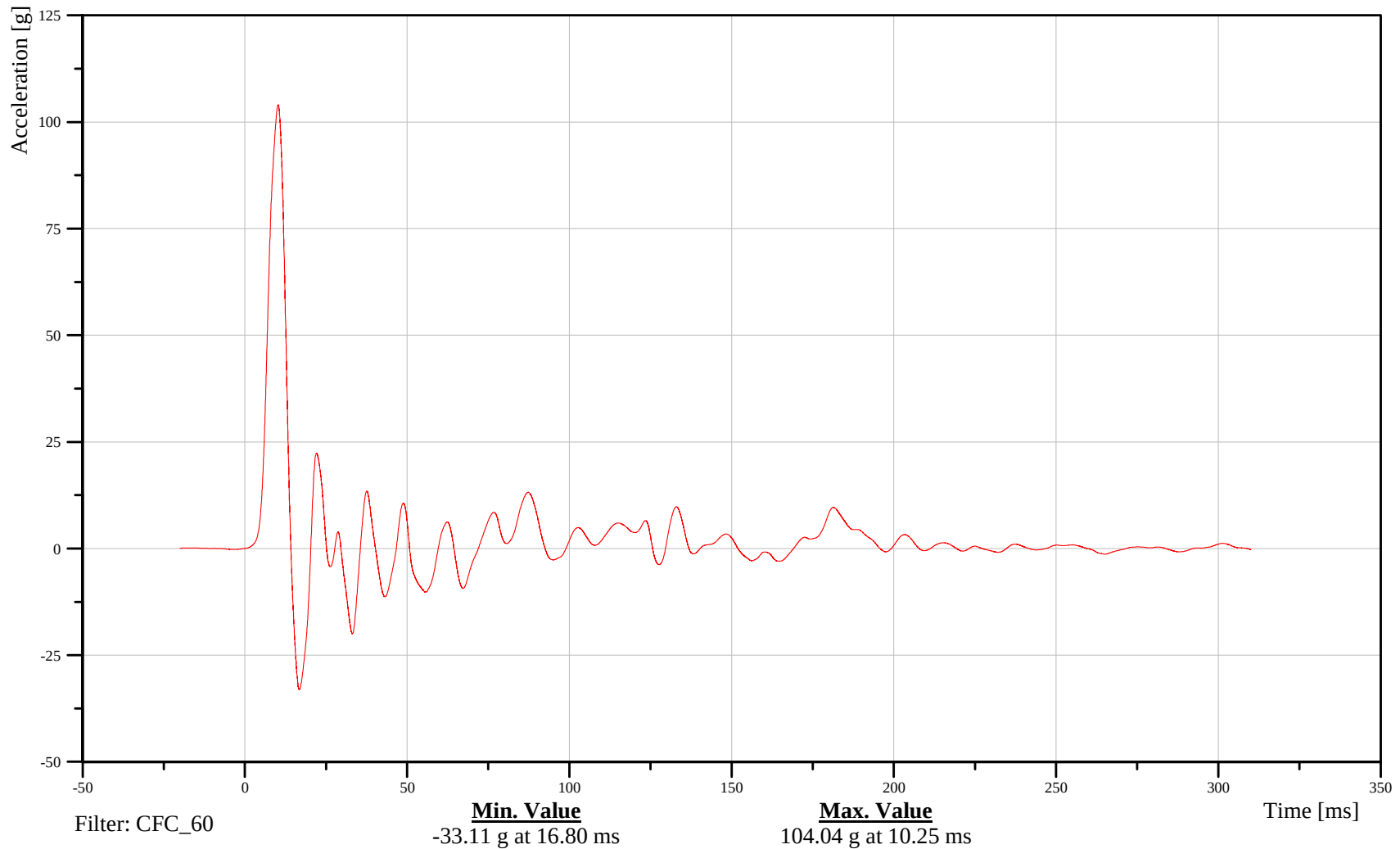
Left Front Door on Center Line X-Axis Acceleration

Customer: VRTC

11DOORFR0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-125

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

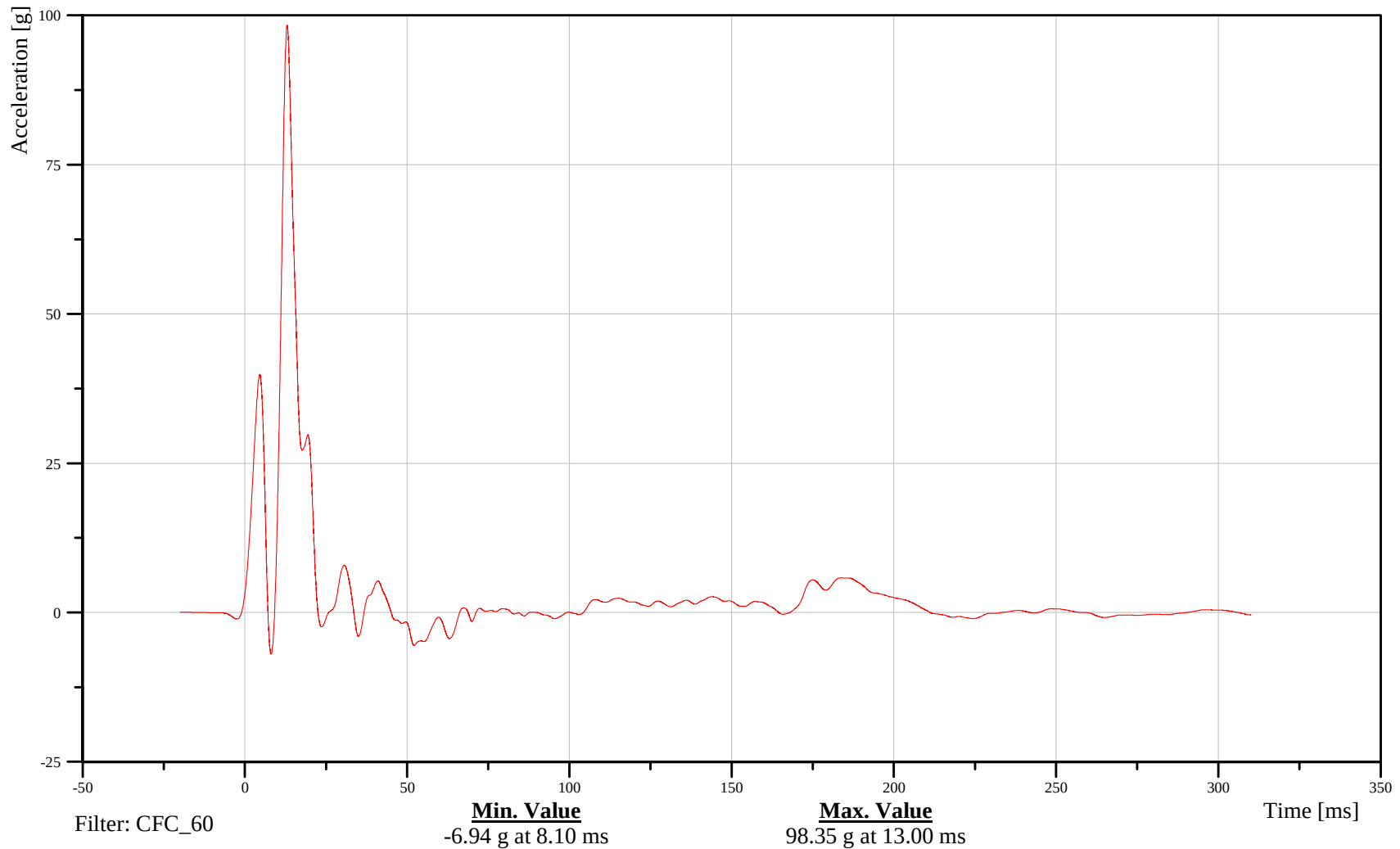
Midrear of Left Front Door Y-Axis Acceleration

Customer: VRTC

11DOORMIRE00ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-126

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

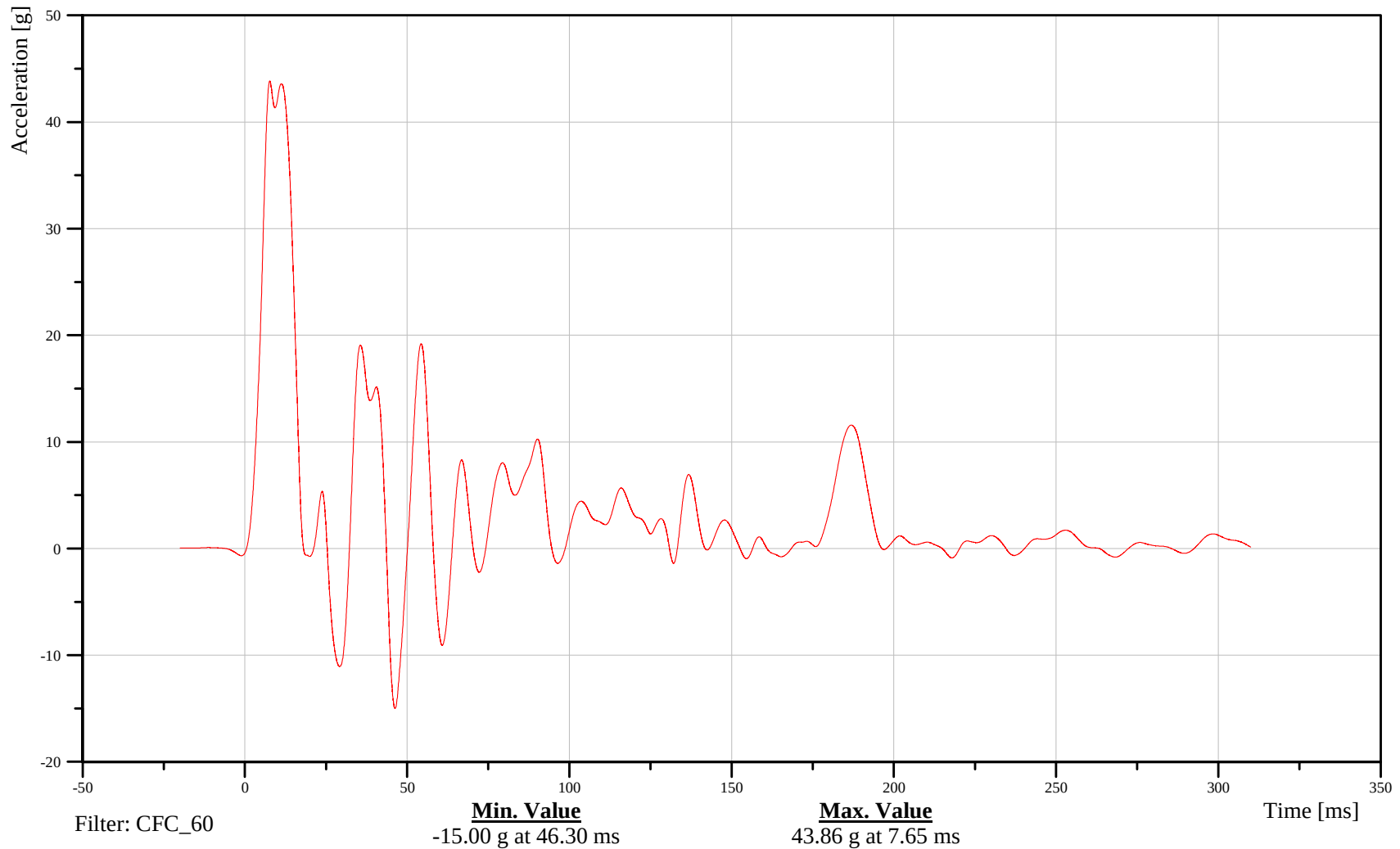
Left Front Door Upper Centerline Y-Axis Acceleration

Customer: VRTC

11DOORLEFRUPACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-127

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

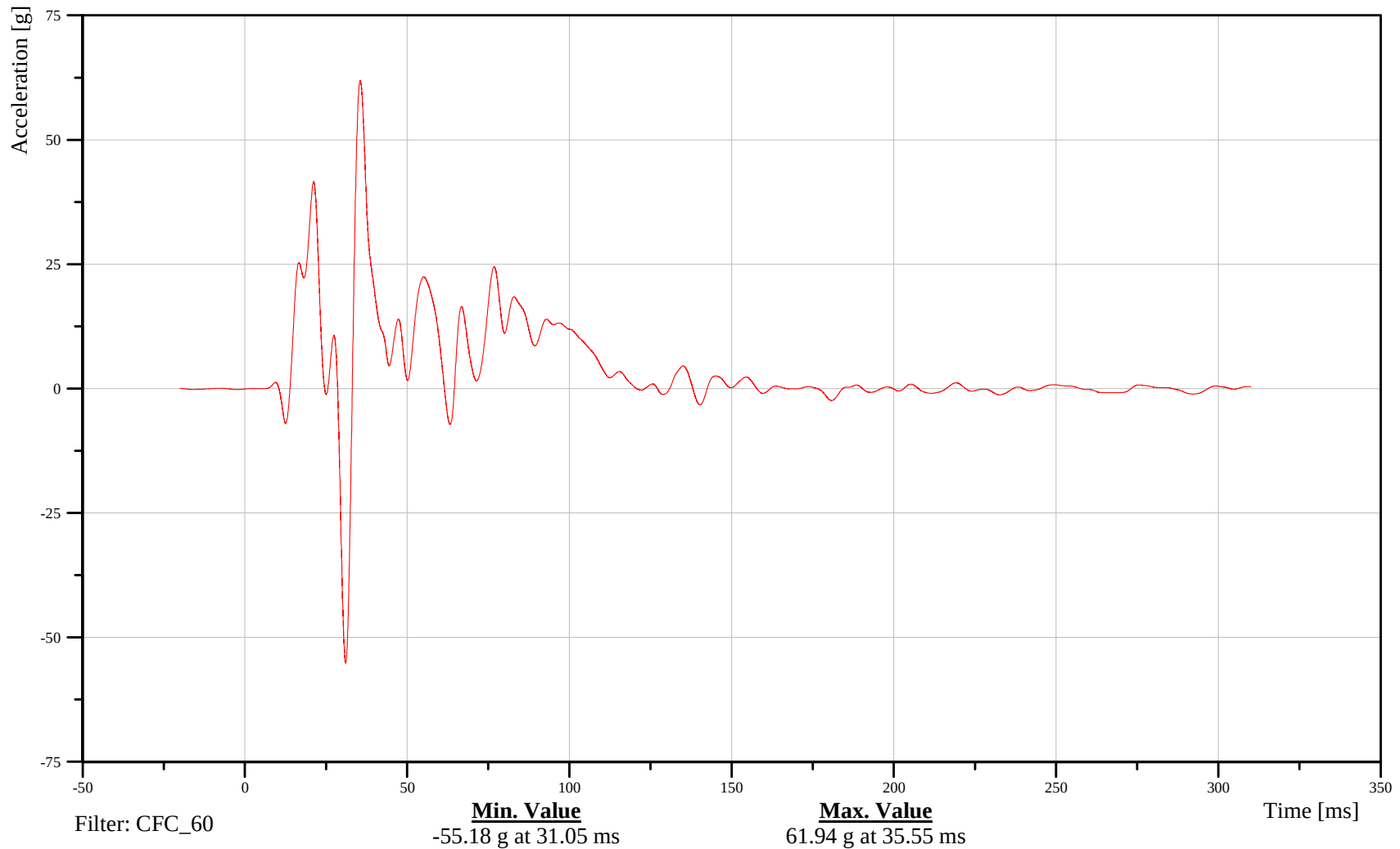
Midrear of Left Rear Door Y-Axis Acceleration

Customer: VRTC

14DOORMIRE00ACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-128

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

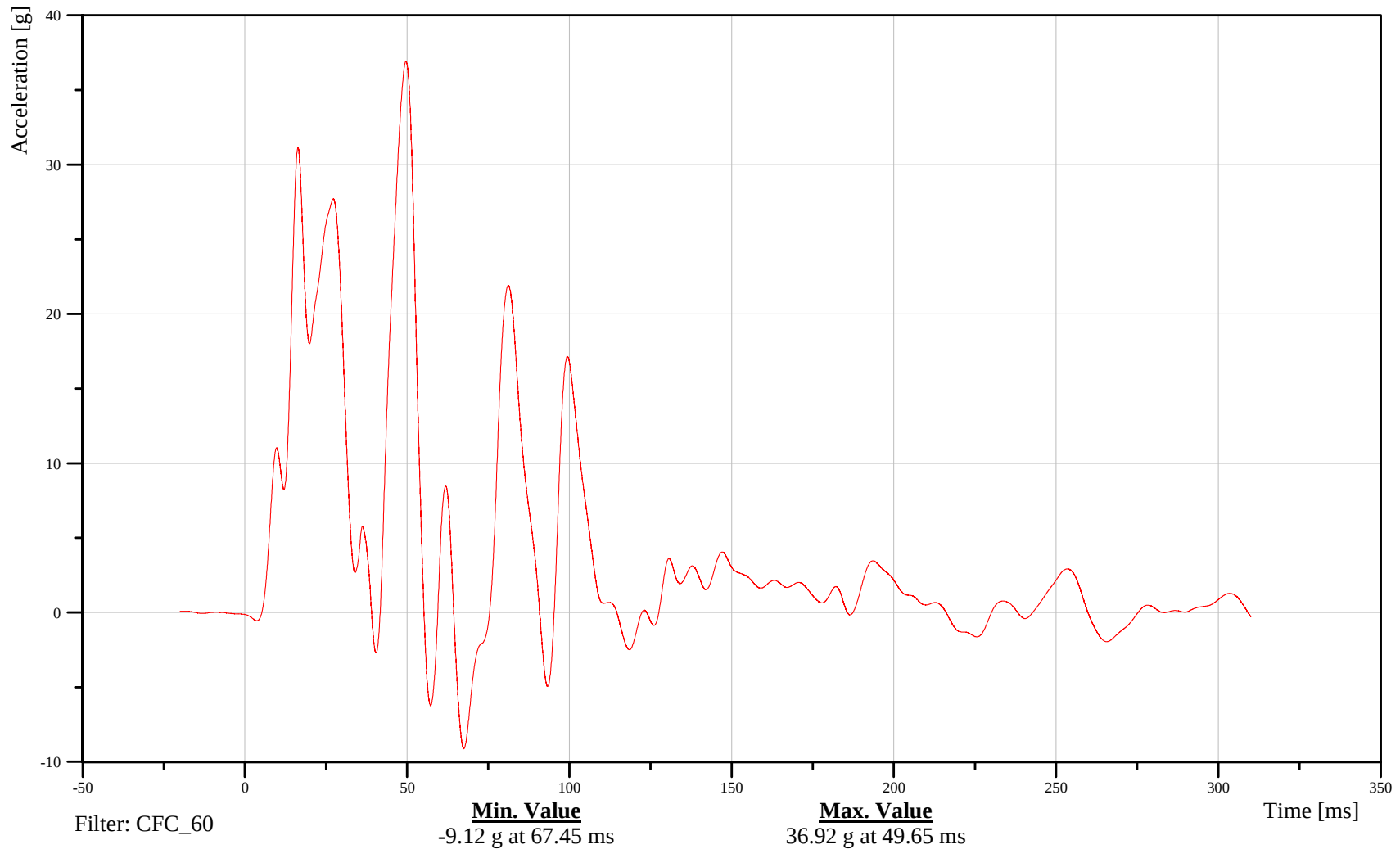
Left Rear Door Upper Centerline Y-Axis Acceleration

Customer: VRTC

14DOORLEREUPACYD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-129

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

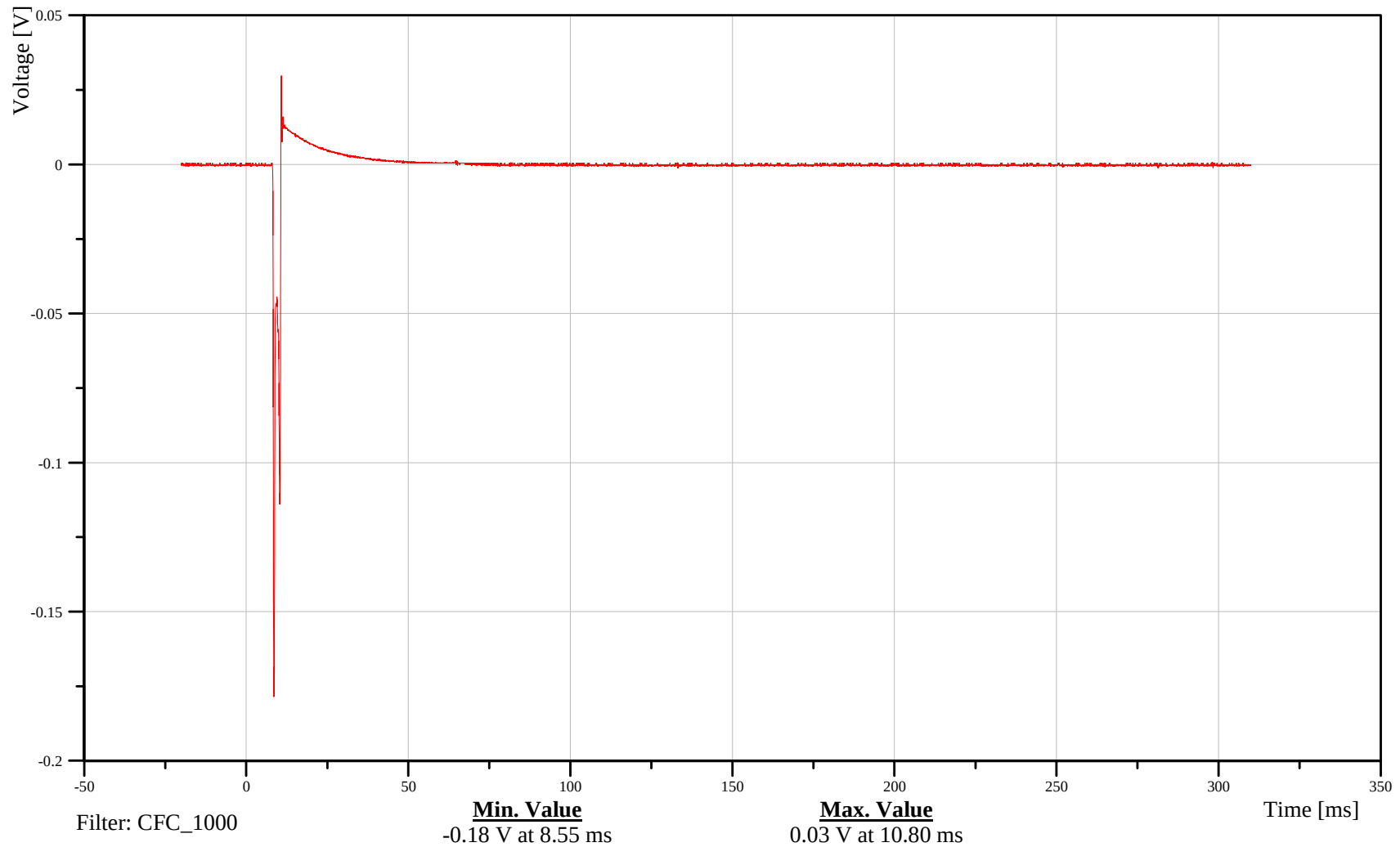
Driver Side Curtain Inductor

Customer: VRTC

11AIRBTPLE00EV0A

TRC Inc. Test Lab: CTF

Test Number: 110830



B-130

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

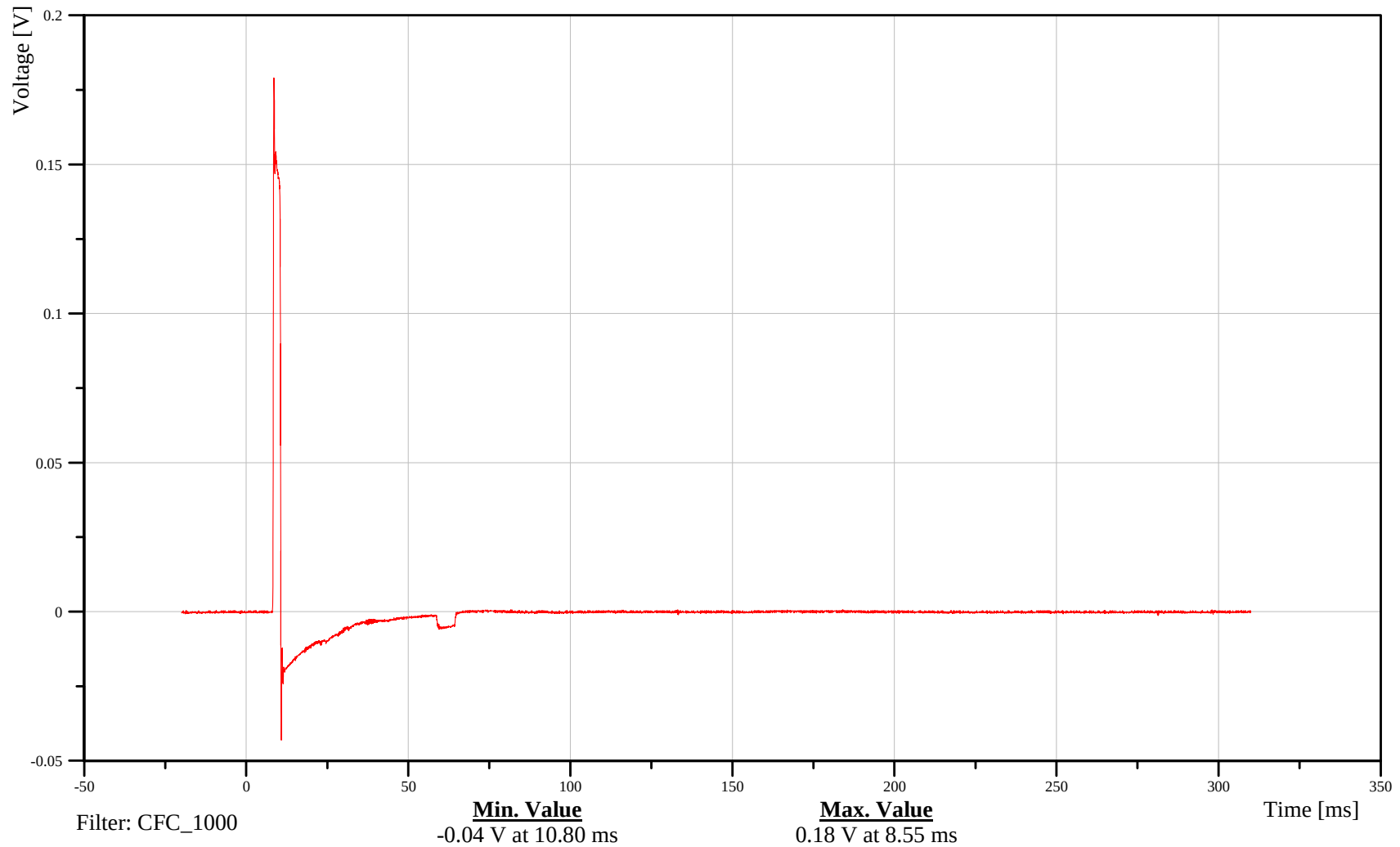
Driver Torso Airbag Fire Inductor

Customer: VRTC

11AIR02N0000EVOA

TRC Inc. Test Lab: CTF

Test Number: 110830



B-131

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

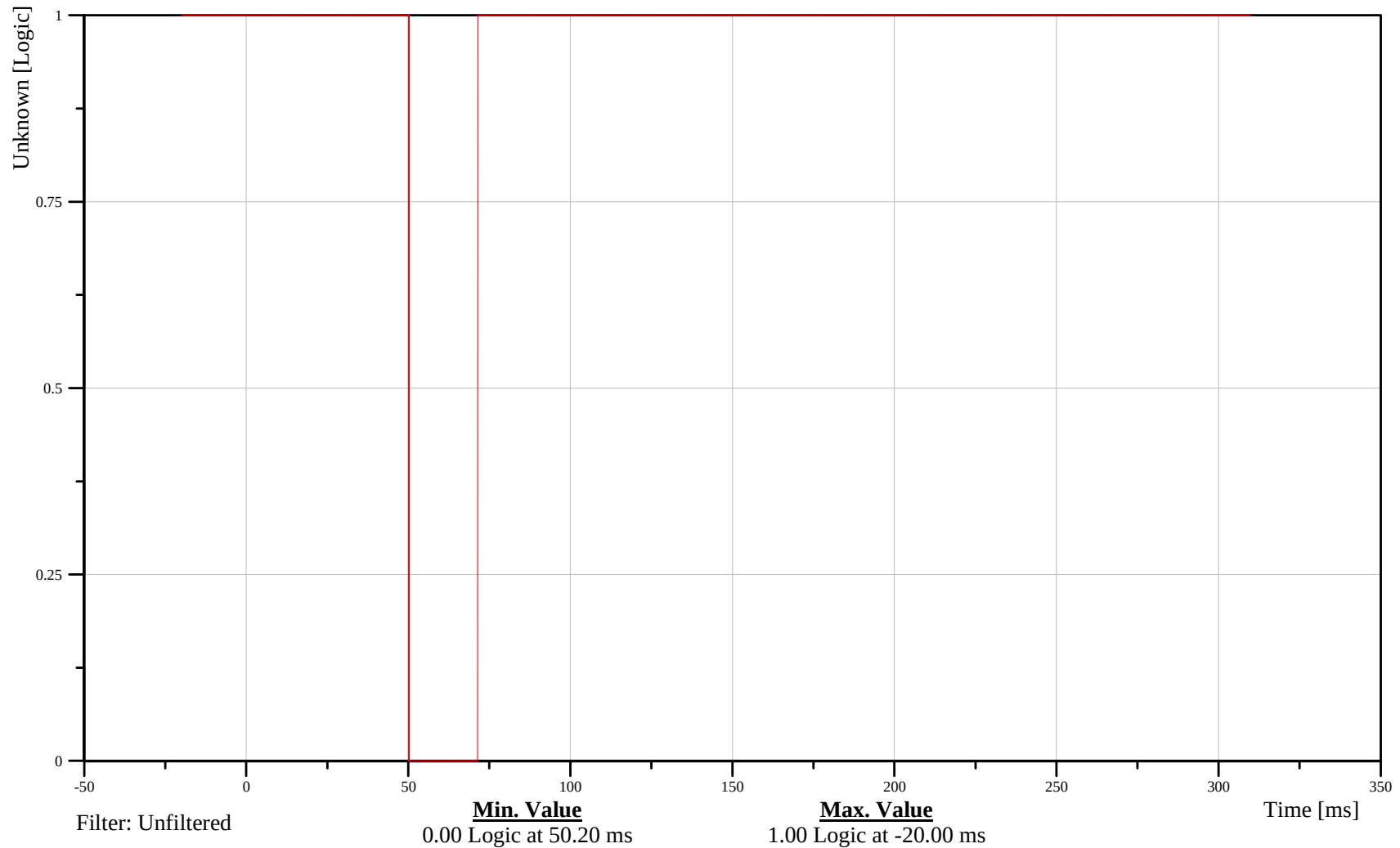
Head Contact Switch

Customer: VRTC

11CONT000001VO00

TRC Inc. Test Lab: CTF

Test Number: 110830



B-132

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

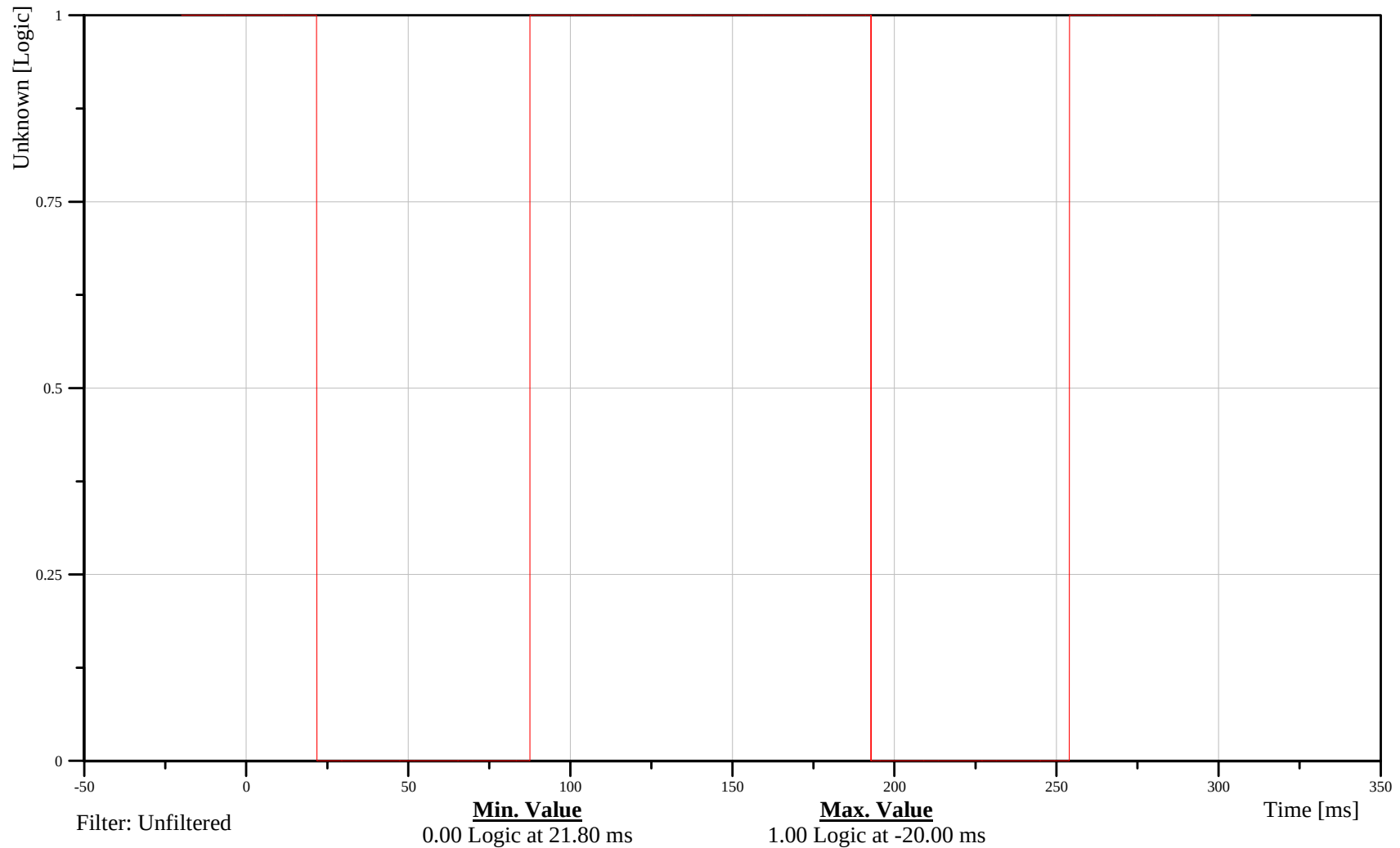
Shoulder Contact Switch

Customer: VRTC

11CONT000002VO00

TRC Inc. Test Lab: CTF

Test Number: 110830



B-133

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

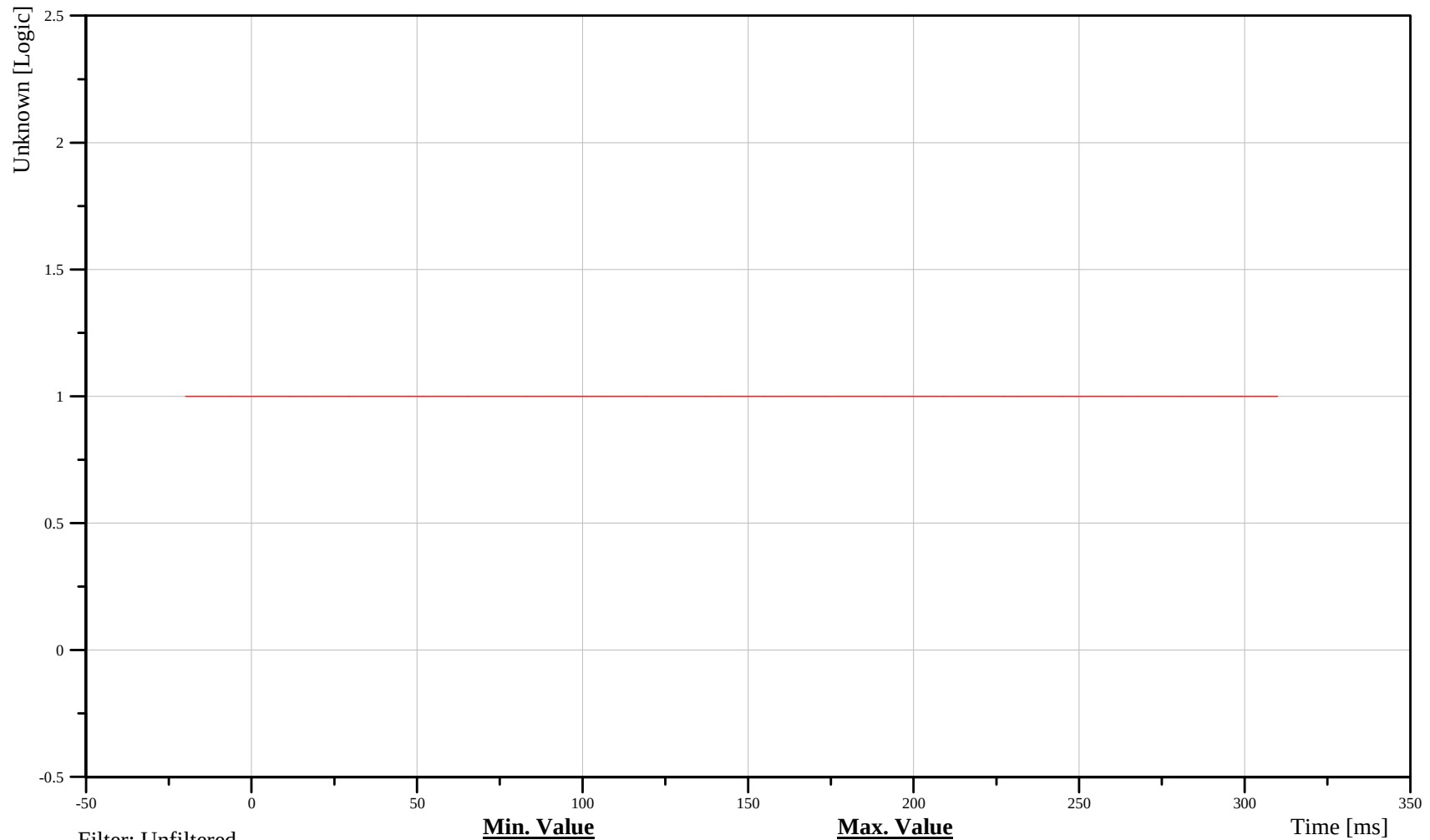
Torso Contact Switch

Customer: VRTC

11CONT000003VO00

TRC Inc. Test Lab: CTF

Test Number: 110830



B-134

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

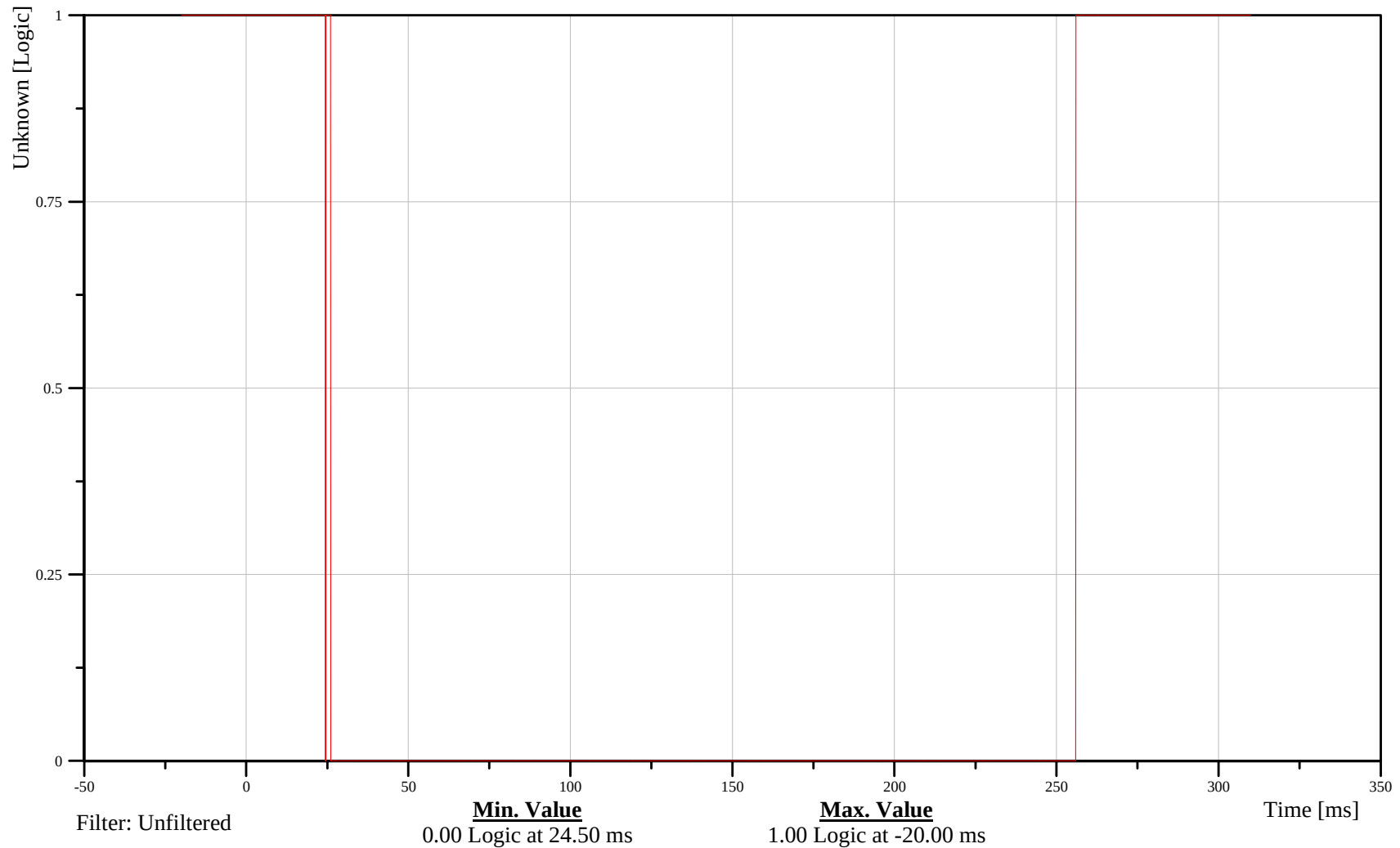
Left Contact Switch

Customer: VRTC

11CONT000004VO00

TRC Inc. Test Lab: CTF

Test Number: 110830



B-135

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Pole Load Cell 1

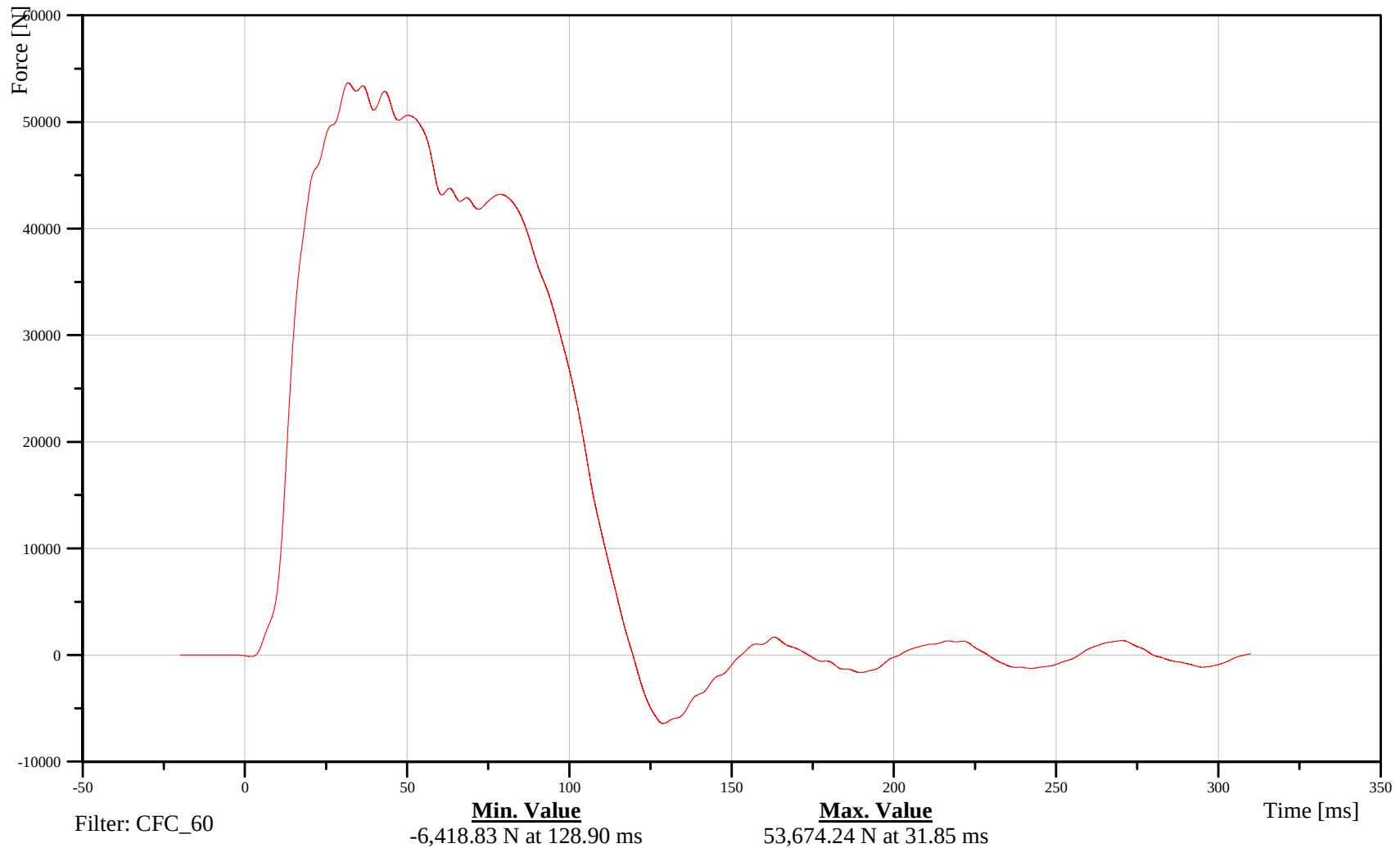
Date: 08/30/2011
Time: 07:29

Customer: VRTC

K0FBAR010000FOXD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-136

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Pole Load Cell 2

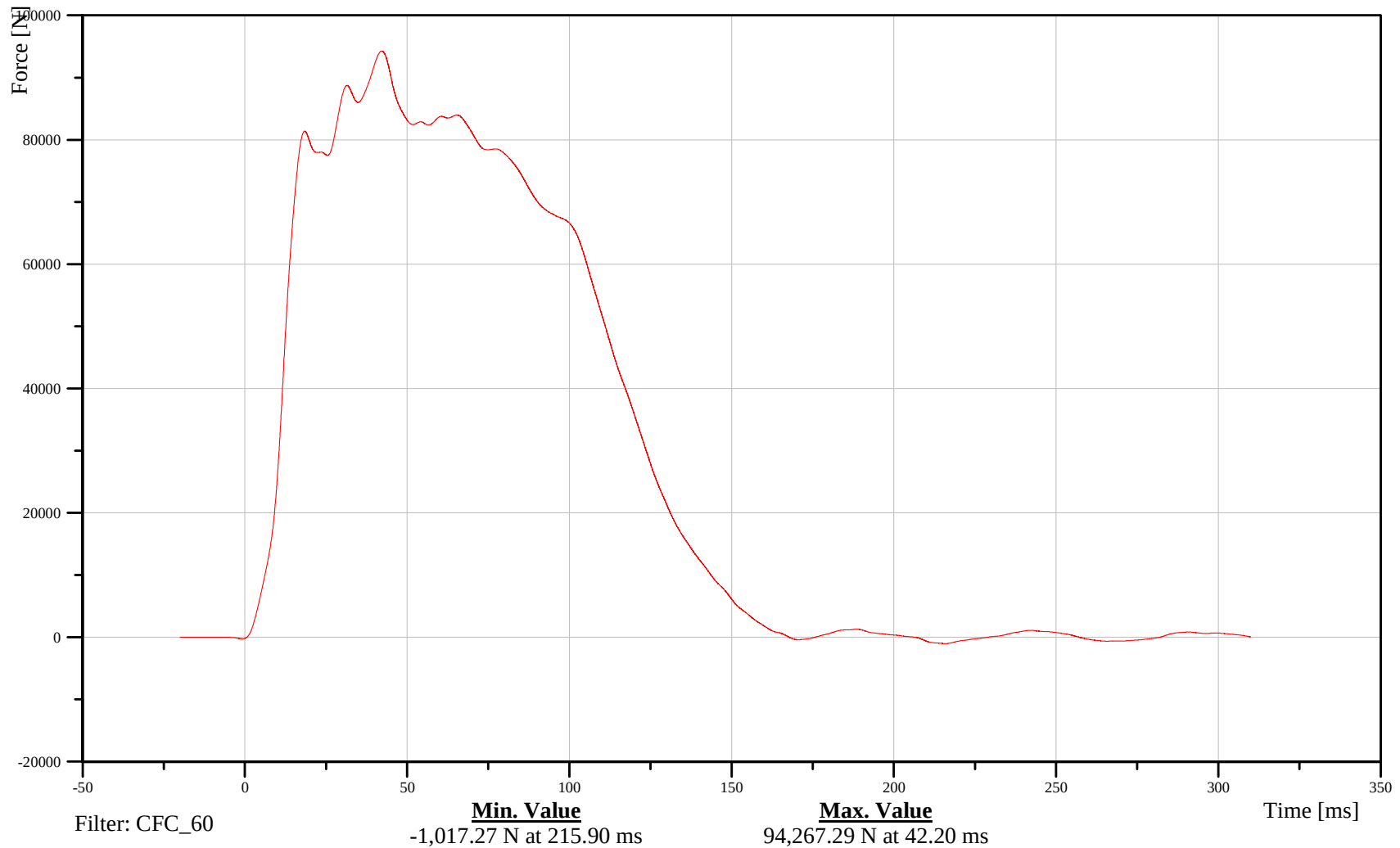
Date: 08/30/2011
Time: 07:29

Customer: VRTC

K0FBAR020000FOXD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-137

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

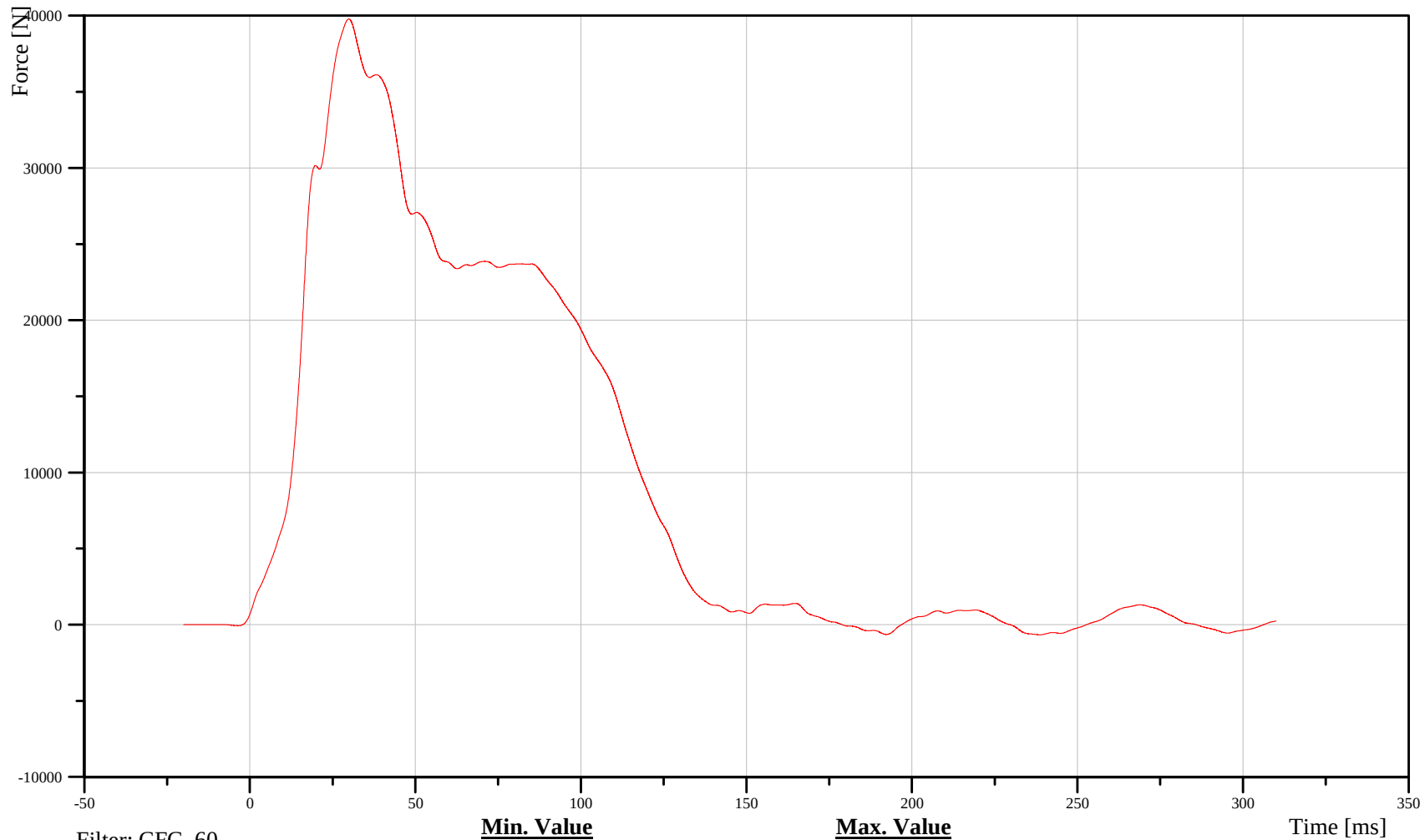
Pole Load Cell 3

Customer: VRTC

K0FBAR030000FOXD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-138

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

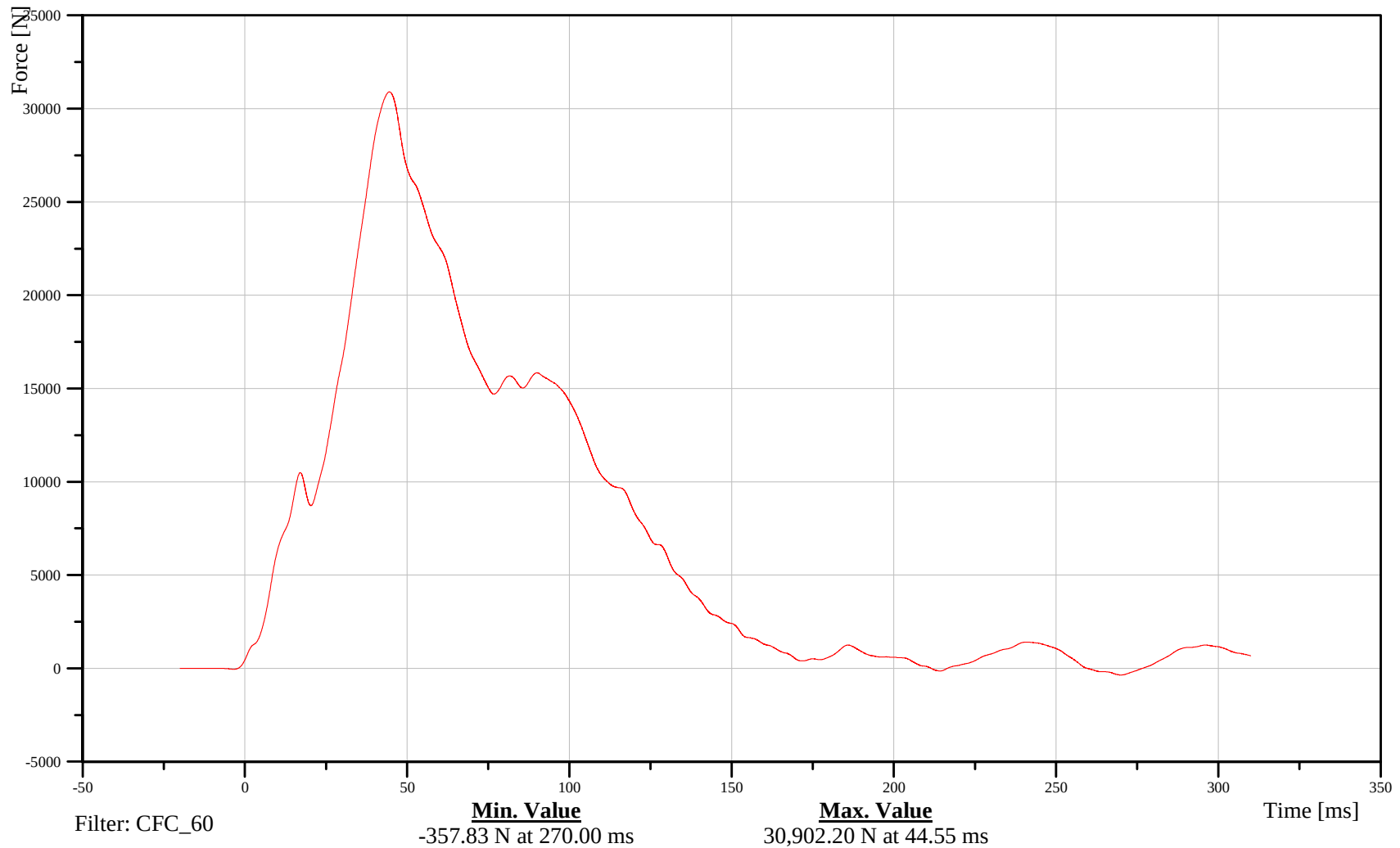
Pole Load Cell 4

Customer: VRTC

K0FBAR040000FOXD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-139

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Pole Load Cell 5

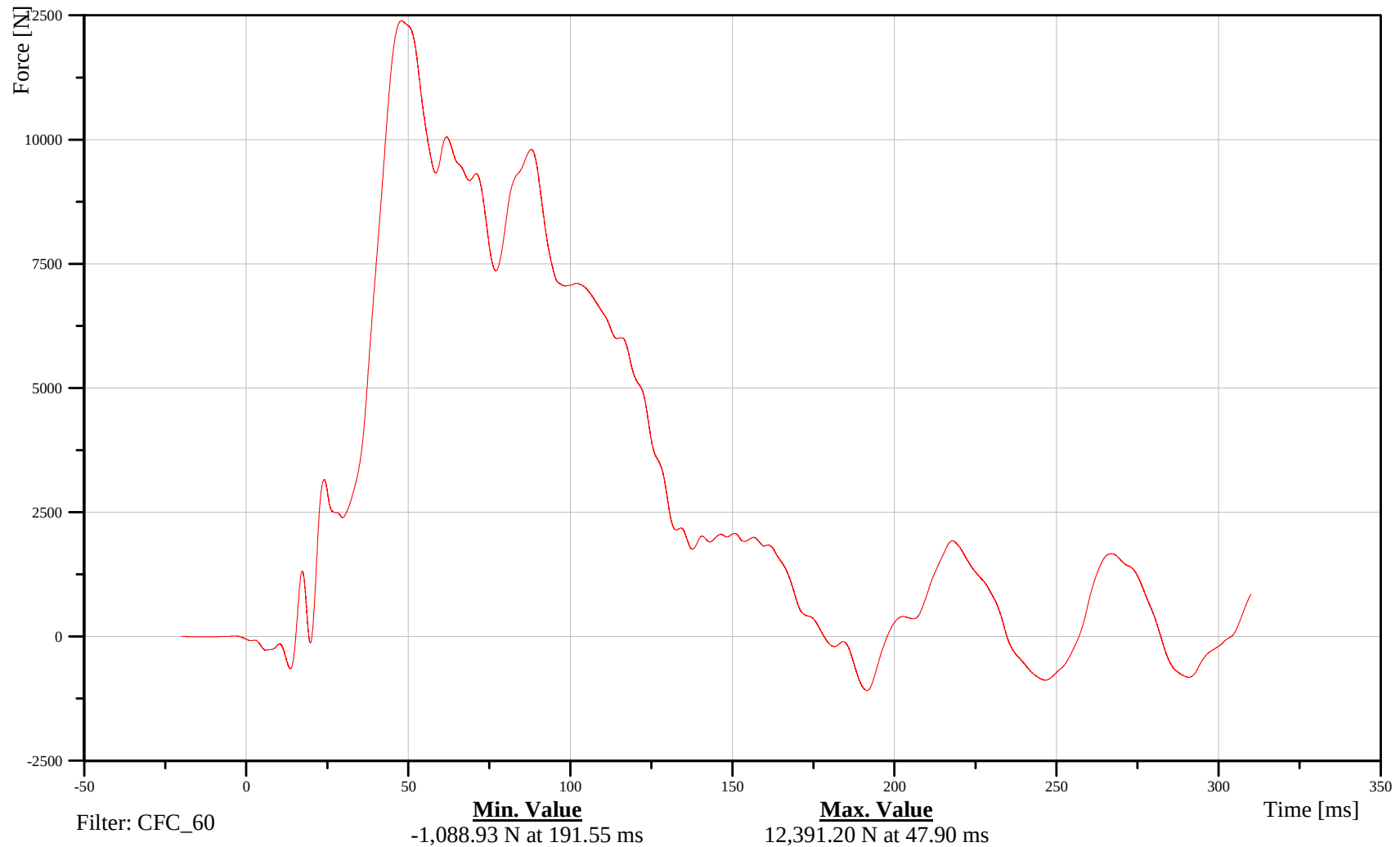
Date: 08/30/2011
Time: 07:29

Customer: VRTC

K0FBAR050000FOXD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-140

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Date: 08/30/2011
Time: 07:29

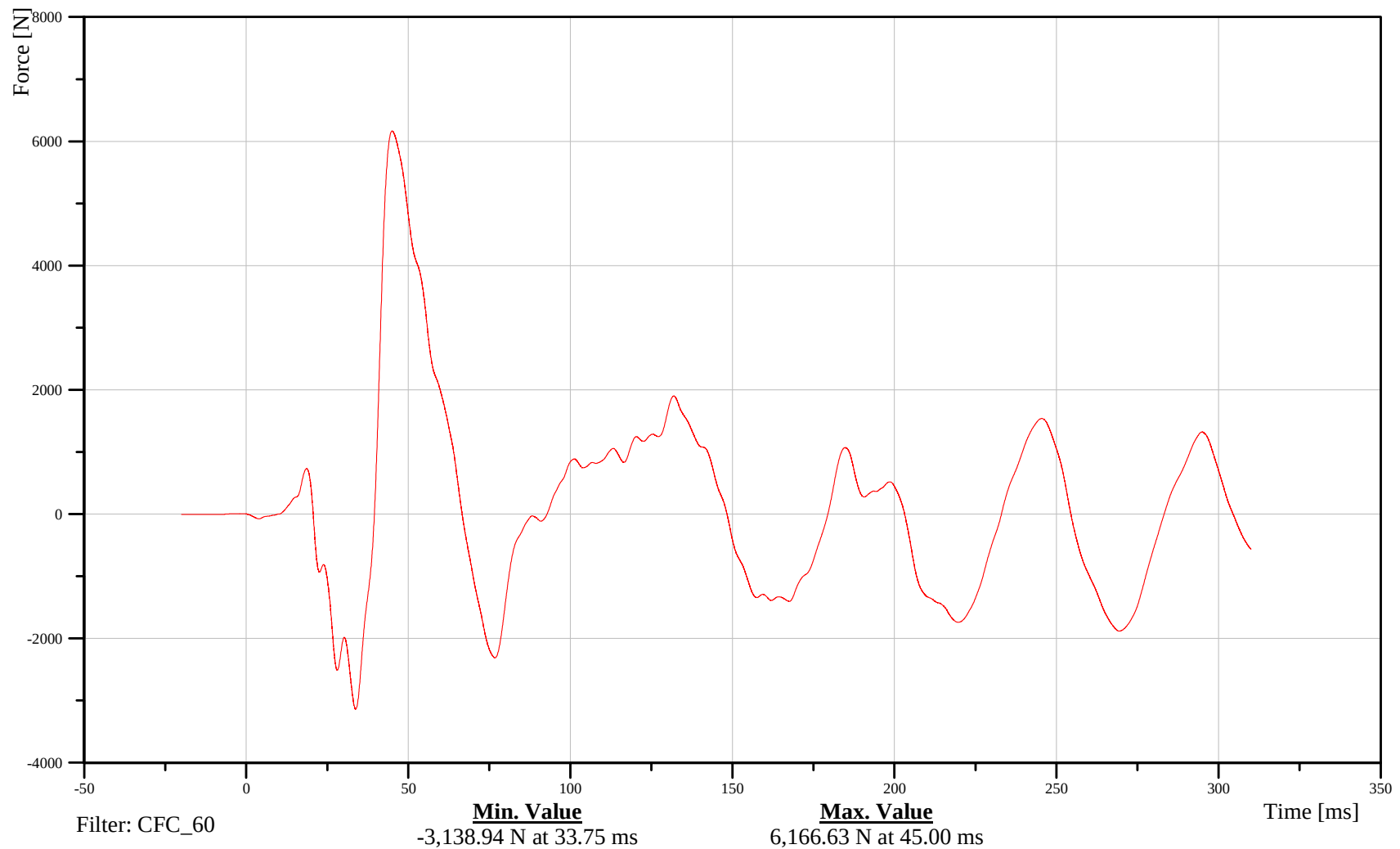
Pole Load Cell 6

Customer: VRTC

K0FBAR060000FOXD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-141

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Pole Load Cell 7

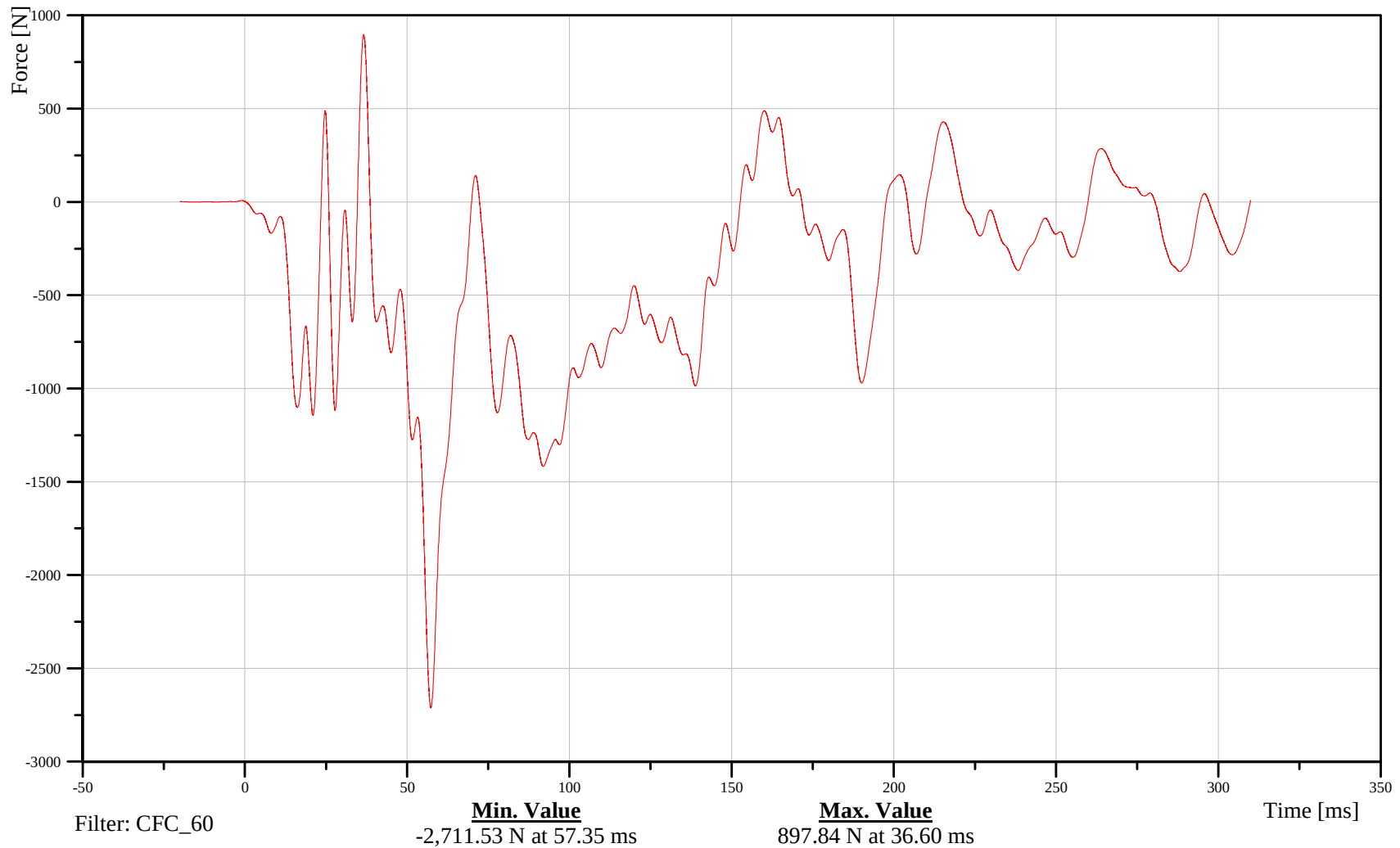
Date: 08/30/2011
Time: 07:29

Customer: VRTC

K0FBAR070000FOXD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-142

110830



2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph

Pole Load Cell 8

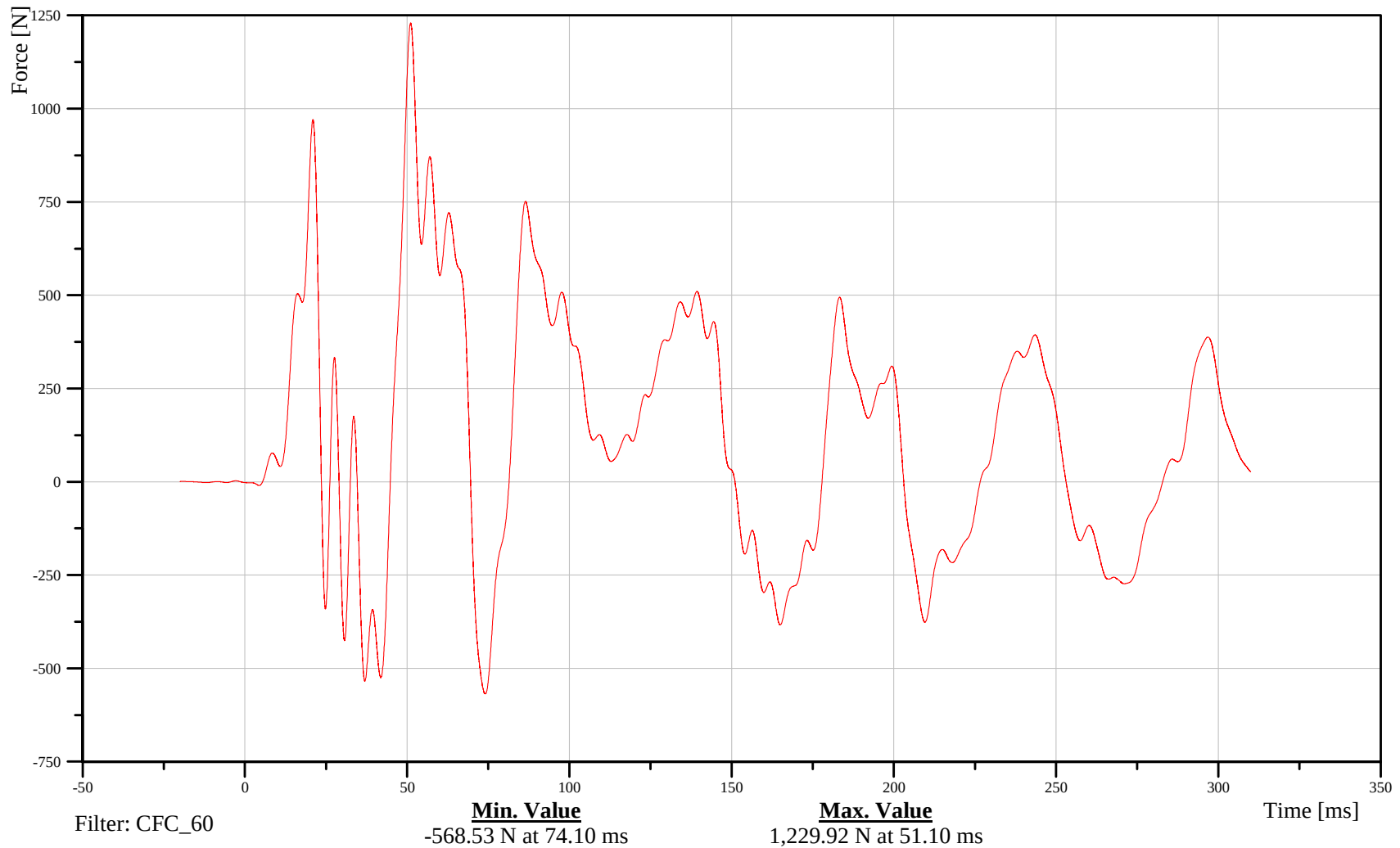
Date: 08/30/2011
Time: 07:29

Customer: VRTC

K0FBAR080000FOXD

TRC Inc. Test Lab: CTF

Test Number: 110830



B-143

110830

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. 8-2

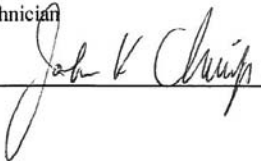
Test Date: 8/12/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Peak Head Resultant Acceleration	225 - 275 g	256.2 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	-5.5 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

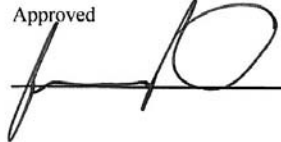
Test meets specifications.

Comments:

Technician



Approved



Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.12.2011 10:42:19 614

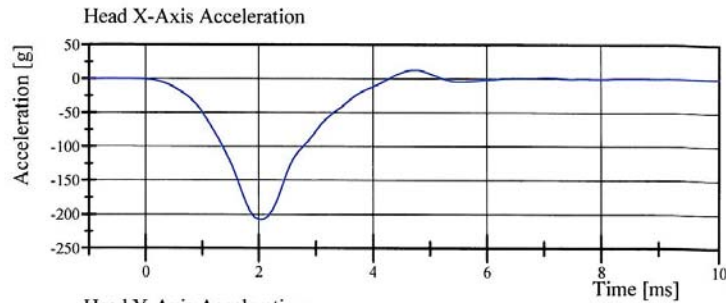


Transportation Research Center Inc.

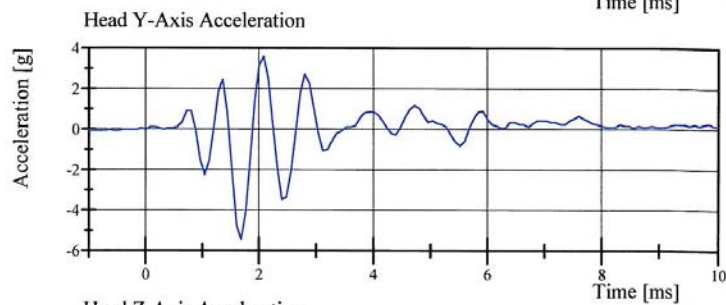
Front Head Drop

WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-2

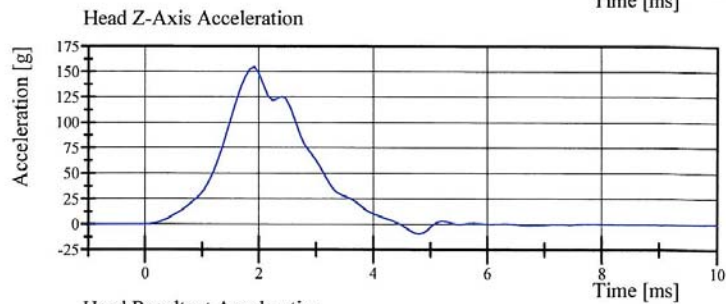
Test Date: 8/12/2011



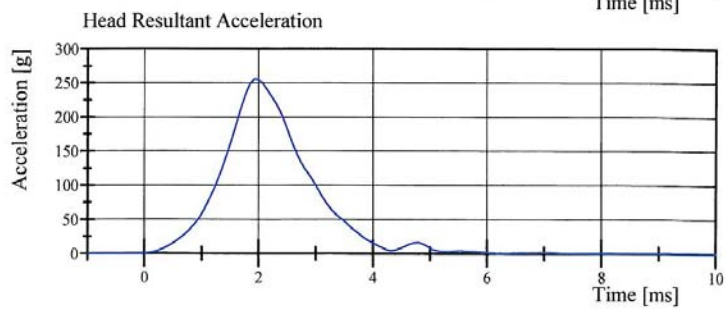
Filter Class: CFC_1000
Max: 13.1 gn at 4.7 ms
Min: -208.0 gn at 2.0 ms



Filter Class: CFC_1000
Max: 3.6 gn at 2.1 ms
Min: -5.5 gn at 1.7 ms



Filter Class: CFC_1000
Max: 154.5 gn at 1.9 ms
Min: -9.5 gn at 4.8 ms



Filter Class: CFC_1000
Max: 256.2 gn at 1.9 ms
Min: 0.0 gn at -0.6 ms

Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.12.2011 10:42:36 614



Transportation Research Center Inc.

Left Lateral Head Drop

WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-4

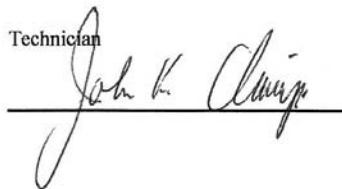
Test Date: 8/12/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Peak Head Resultant Acceleration	99 - 121 g	115.3 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	3.5 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

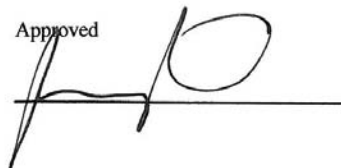
Test meets specifications.

Comments:

Technician



Approved



Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.12.2011 13:26:00 605

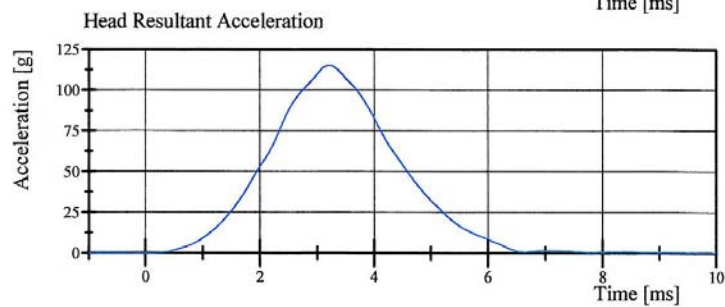
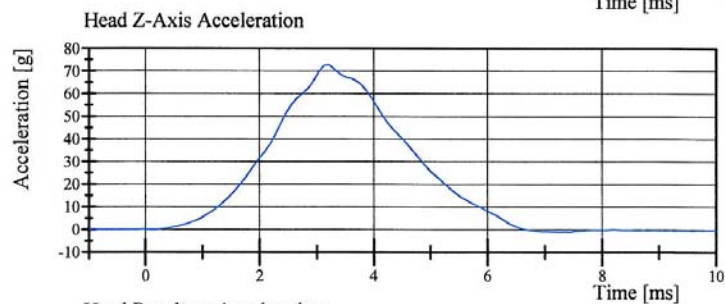
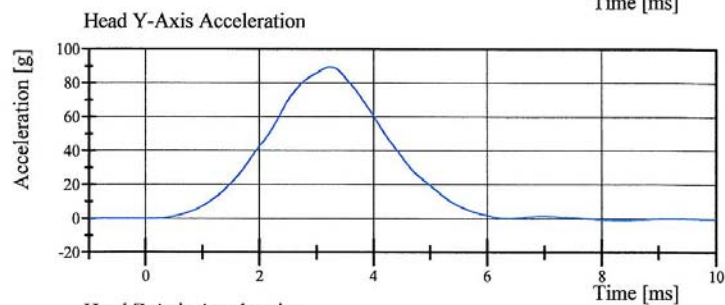
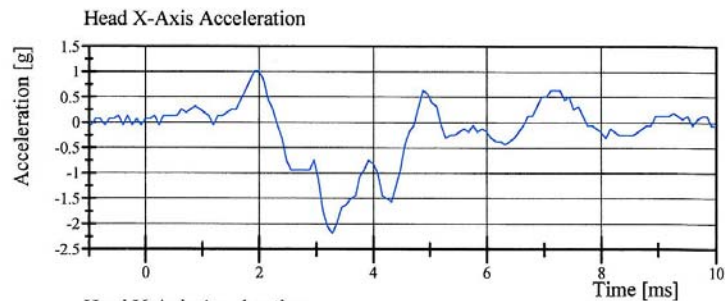


Transportation Research Center Inc.

Left Lateral Head Drop

WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-4

Test Date: 8/12/2011



Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.12.2011 13:26:21 605



Transportation Research Center Inc.

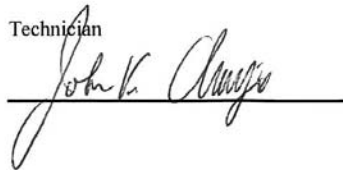
Right Lateral Head Drop
WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-2
Test Date: 8/12/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Peak Head Resultant Acceleration	99 - 121 g	114.5 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-3.8 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

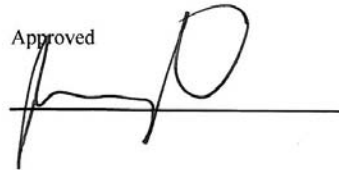
Test meets specifications.

Comments:

Technician



Approved



Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.12.2011 10:16:33 606

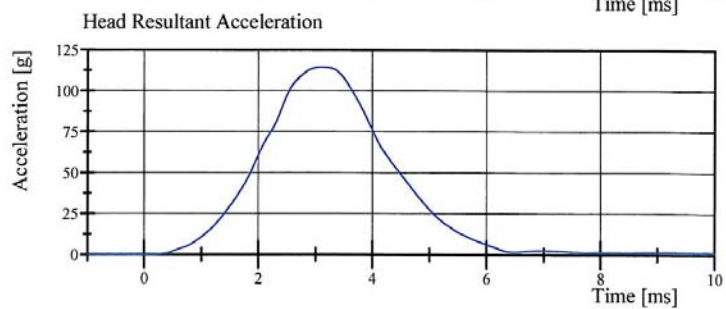
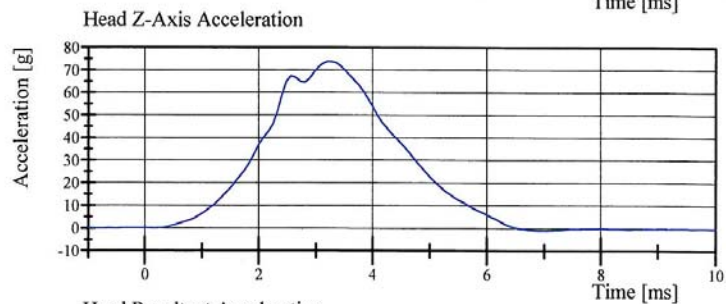
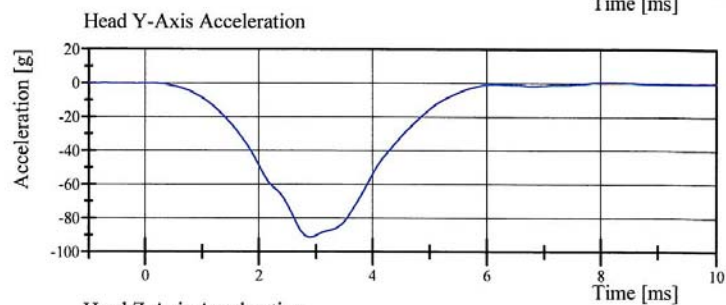
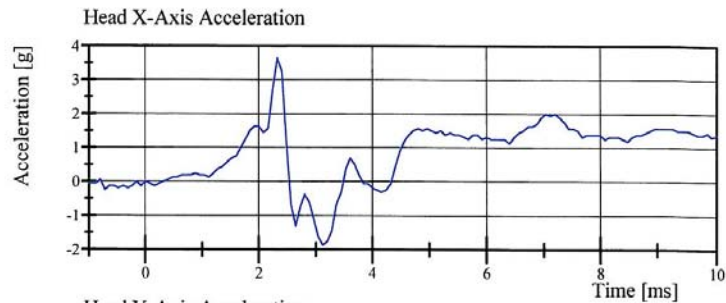


Transportation Research Center Inc.

Right Lateral Head Drop

WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-2

Test Date: 8/12/2011



Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.12.2011 10:16:58 606



Transportation Research Center Inc.

Left Lateral Neck

WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-2

Test Date: 8/15/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	61 %	Yes
Pendulum Velocity	(-3.3) - (-3.5) m/s	-3.45 m/s	Yes
Pendulum Integrated Velocity Change at 4 ms	0.77 - 1.04 m/s	0.991 m/s	Yes
Change at 8 ms	1.6 - 2.16 m/s	2.059 m/s	Yes
Change at 12 ms	2.43 - 3.29 m/s	3.238 m/s	Yes
Maximum Headform Flexion	(-50) - (-61) deg	-51.7 deg	Yes
Headform Flexion Decay - from Peak to Zero Degrees	58 - 72 ms	60.2 ms	Yes
Total Neck Occipital Condyles Moment	55 - 68 N·m	63.5 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) °	-32.1 °	Yes
Time of Peak	56 - 68 ms	61.0 ms	Yes
Maximum Rear Pot Rotation			
Peak	(-30) - (-37) °	-32.2 °	Yes
Time of Peak	56 - 68 ms	56.6 ms	Yes

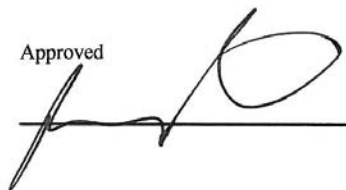
Test meets specifications.

Comments:

Technician



Approved



Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.15.2011 10:27:55 1321

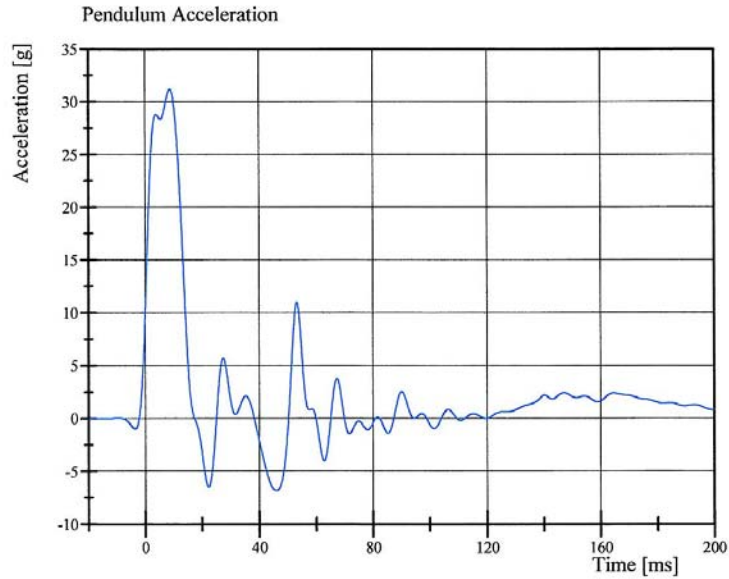


Transportation Research Center Inc.

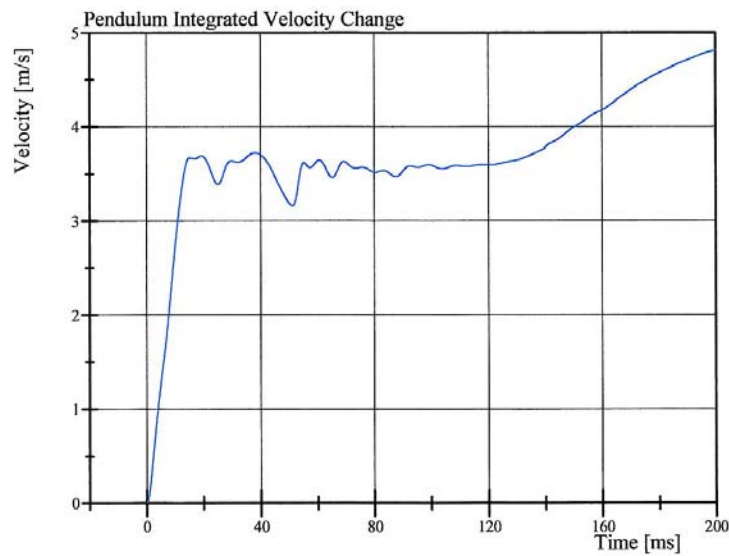
Left Lateral Neck

WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-2

Test Date: 8/15/2011



Filter Class: CFC_60
Max: 31.2 gn at 8.9 ms
Min: -6.8 gn at 45.9 ms



Filter Class: CFC_180
Max: 4.8 m/s at 200.0 ms
Min: 0.0 m/s at 0.0 ms

Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.15.2011 10:28:06 1321

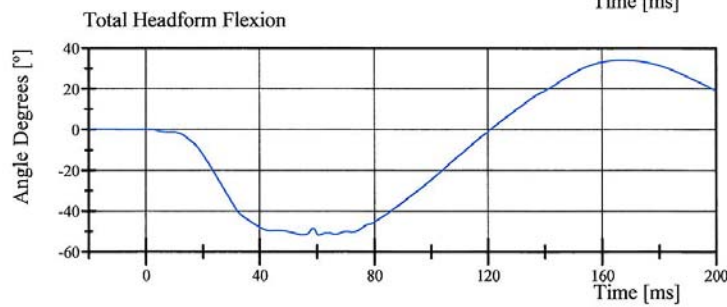
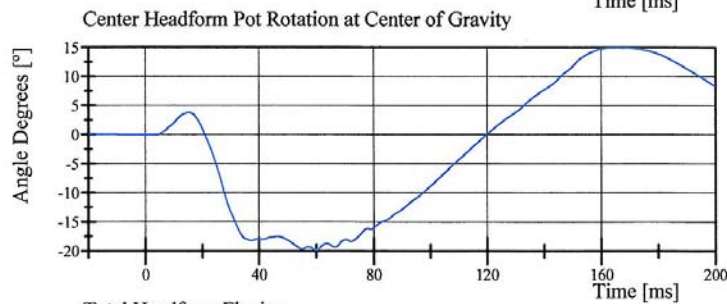
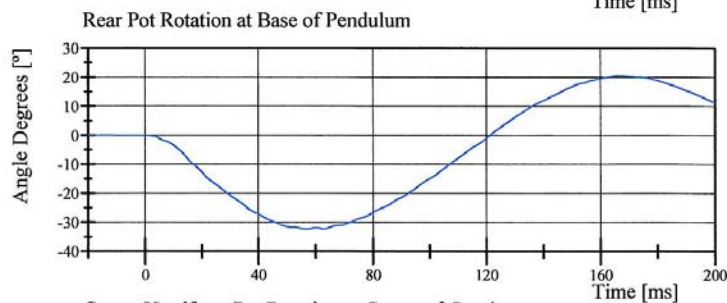
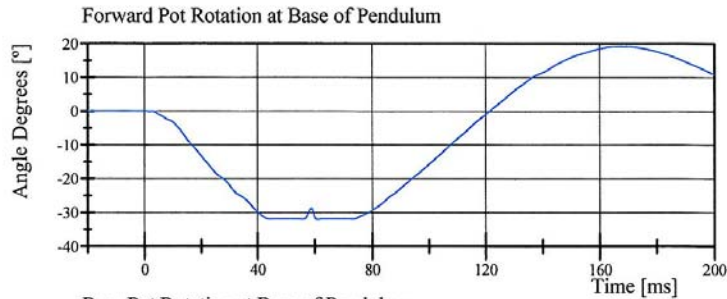


Transportation Research Center Inc.

Left Lateral Neck

WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-2

Test Date: 8/15/2011



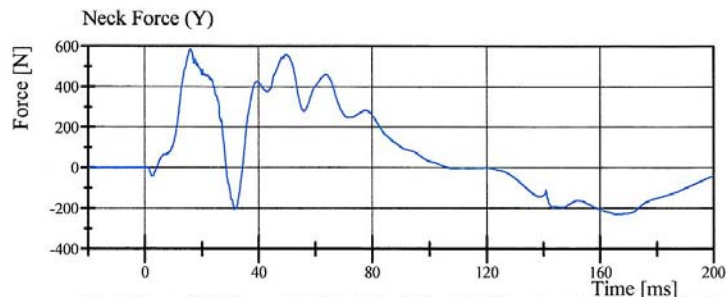
Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.15.2011 10:28:06 1321

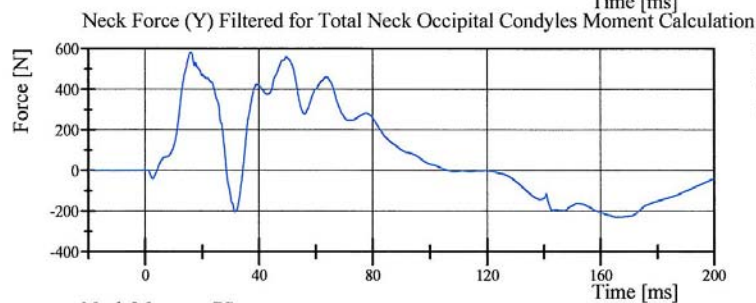


Transportation Research Center Inc.

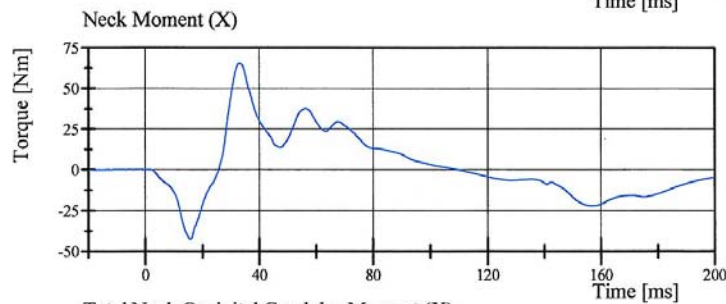
Left Lateral Neck
WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-2
Test Date: 8/15/2011



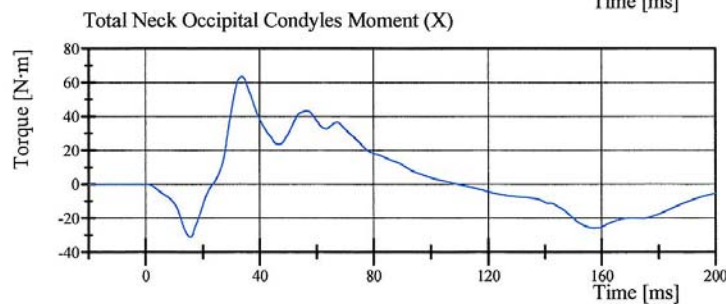
Filter Class: CFC_1000
Max: 584.7 N at 16.0 ms
Min: -229.3 N at 165.6 ms



Filter Class: CFC_600
Max: 584.6 N at 16.1 ms
Min: -228.9 N at 165.6 ms



Filter Class: CFC_600
Max: 65.6 Nm at 33.0 ms
Min: -42.5 Nm at 15.8 ms



Filter Class: Without_(Consta
Max: 63.5 N·m at 33.7 ms
Min: -31.2 N·m at 15.7 ms

Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.15.2011 10:28:07 1321



Transportation Research Center Inc.

Left Lateral Shoulder

WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-1

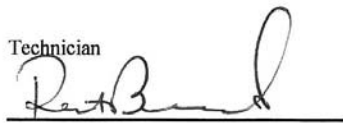
Test Date: 8/15/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.0 °C	Yes
Relative Humidity	10 - 70 %	62 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Impactor Force	(-2,600) - (-3,300) N	-3,149.1 N	Yes
Shoulder Displacement	35 - 44 mm	38.1 mm	Yes

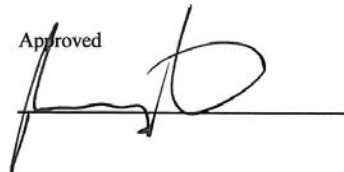
Test meets specifications.

Comments:

Technician



Approved



Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.16.2011 11:05:54 3997

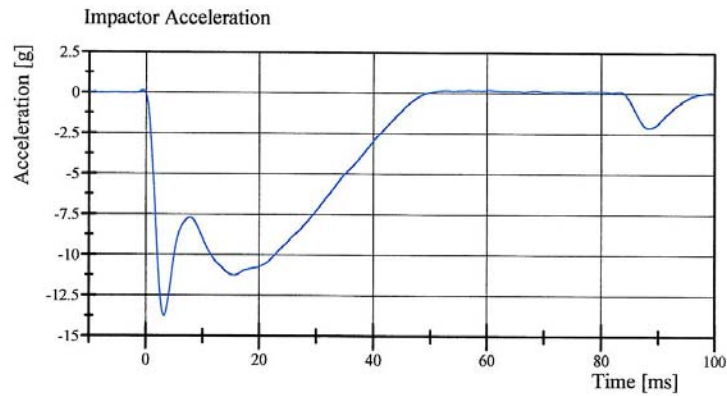


Transportation Research Center Inc.

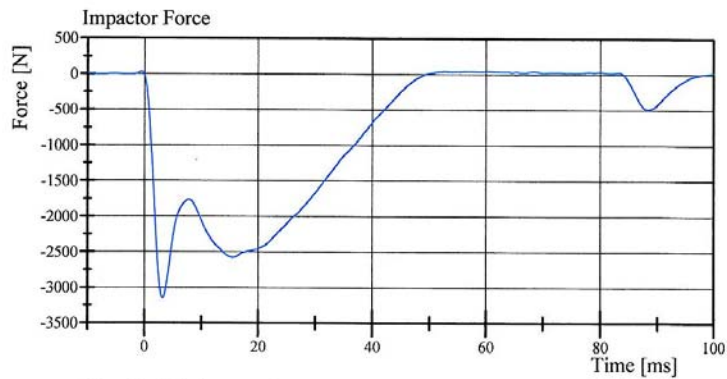
Left Lateral Shoulder

WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-1

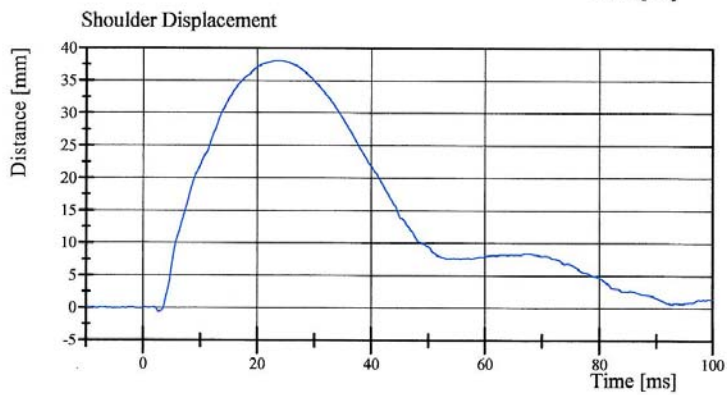
Test Date: 8/15/2011



Filter Class: CFC_180
Max: 0.2 gn at 60.5 ms
Min: -13.7 gn at 3.3 ms



Filter Class: CFC_180
Max: 43.5 N at 60.5 ms
Min: -3,149.1 N at 3.3 ms



Filter Class: CFC_600
Max: 38.1 mm at 23.7 ms
Min: -0.6 mm at 2.8 ms

Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.16.2011 11:06:03 3997



Transportation Research Center Inc.

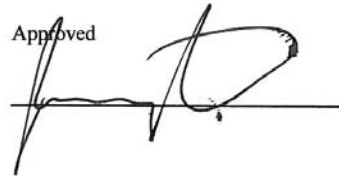
Left Lateral Thorax with Arm
WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-1
Test Date: 8/15/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	61 %	Yes
Impactor Velocity	6.6 - 6.8 m/s	6.77 m/s	Yes
Impactor Force	(-4,900) - (-5,800) N	-5,258.1 N	Yes
Upper Thorax Rib Displacement	35 - 47 mm	41.3 mm	Yes
Center Thorax Rib Displacement	46 - 56 mm	47.3 mm	Yes
Lower Thorax Rib Displacement	39 - 46 mm	40.7 mm	Yes
Upper Spine Lateral Acceleration	28 - 37 g	27.9 g	No
Lower Spine Lateral Acceleration	22 - 28 g	23.1 g	Yes

Test does not meet specifications.

Comments:

Technician


Approved


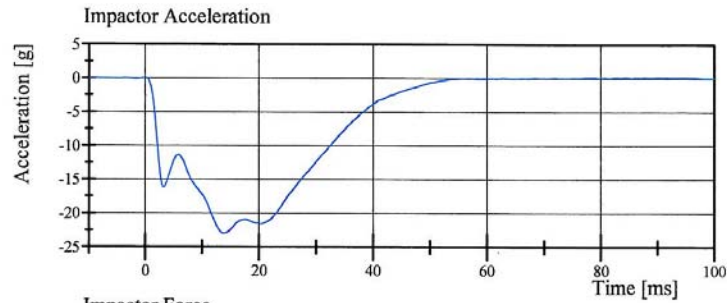
Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.16.2011 11:10:11 4000

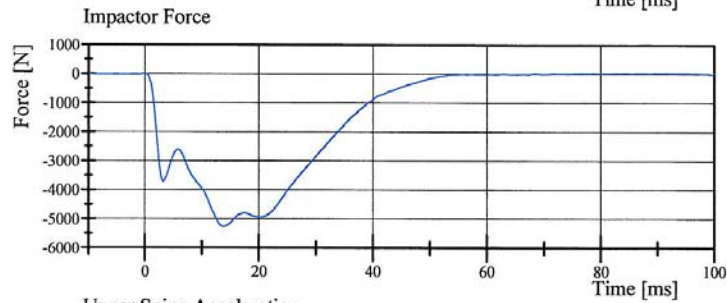


Transportation Research Center Inc.

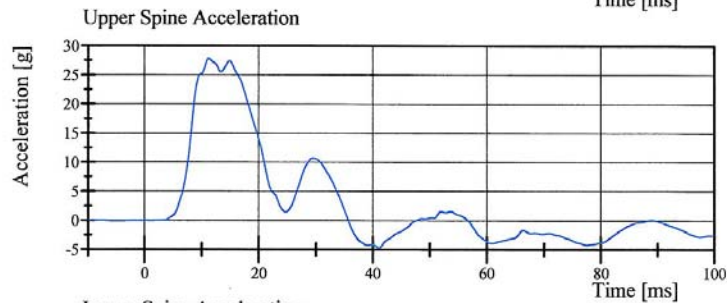
Left Lateral Thorax with Arm
WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-1
Test Date: 8/15/2011



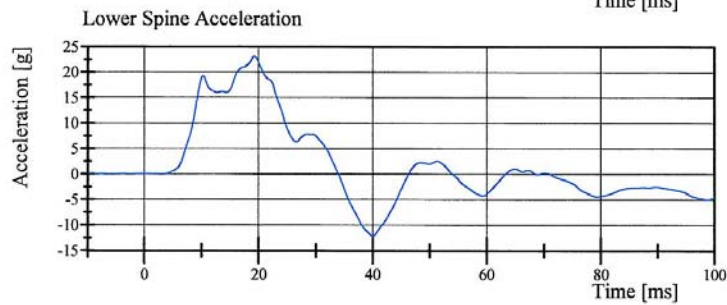
Filter Class: CFC_180
Max: 0.2 gn at 89.8 ms
Min: -23.0 gn at 13.8 ms



Filter Class: CFC_180
Max: 43.1 N at 89.8 ms
Min: -5,258.1 N at 13.8 ms



Filter Class: CFC_180
Max: 27.9 gn at 11.3 ms
Min: -4.7 gn at 41.1 ms



Filter Class: CFC_180
Max: 23.1 gn at 19.3 ms
Min: -12.1 gn at 40.0 ms

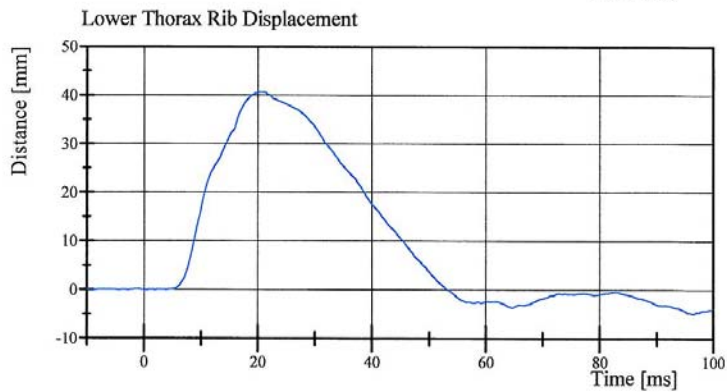
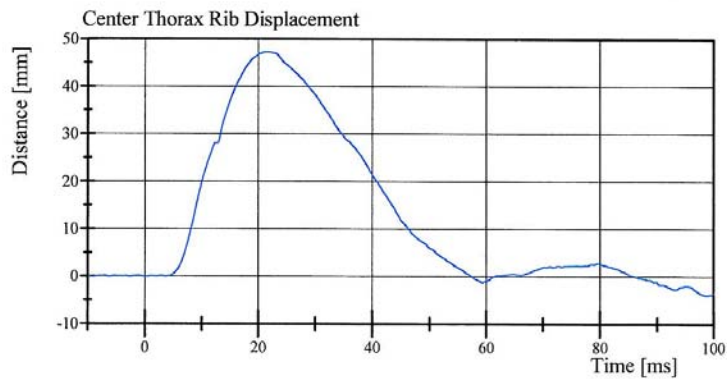
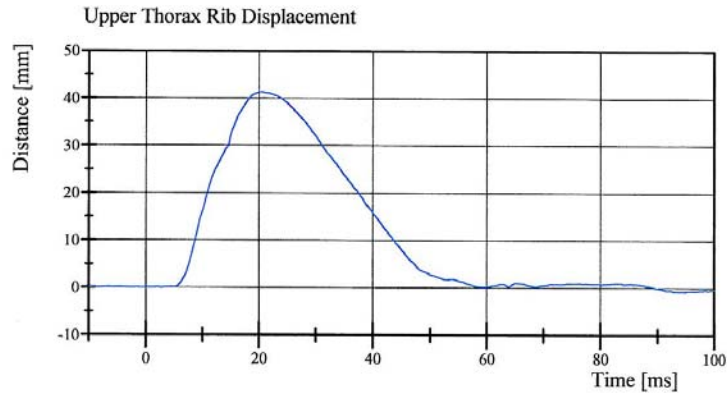
Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.16.2011 11:10:43 4000



Transportation Research Center Inc.

Left Lateral Thorax with Arm
WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-1
Test Date: 8/15/2011



Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.16.2011 11:10:44 4000



Transportation Research Center Inc.

Left Lateral Thorax without Arm
WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-3
Test Date: 8/15/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.382 m/s	Yes
Impactor Force	(-3,200) - (-3,800) N	-3,460.0 N	Yes
Upper Thorax Rib Displacement	33 - 43 mm	39.9 mm	Yes
Center Thorax Rib Displacement	35 - 43 mm	40.6 mm	Yes
Lower Thorax Rib Displacement	32 - 40 mm	37.2 mm	Yes
Upper Spine Lateral Acceleration	14 - 20 g	14.5 g	Yes
Lower Spine Lateral Acceleration	14 - 22 g	15.5 g	Yes

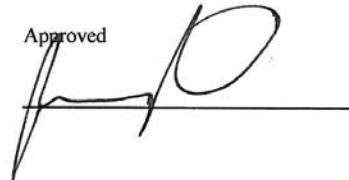
Test meets specifications.

Comments:

Technician



Approved



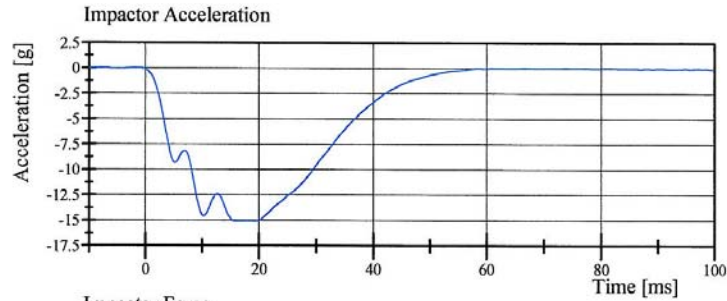
Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.16.2011 11:08:08 4000

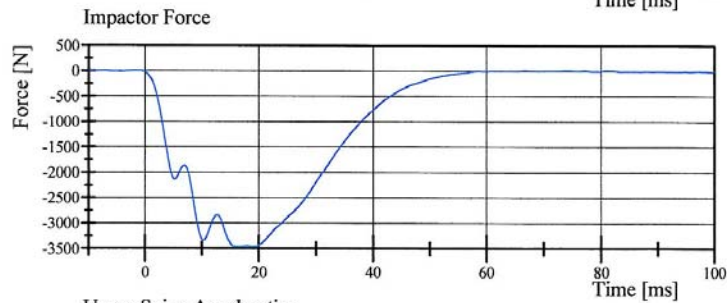


Transportation Research Center Inc.

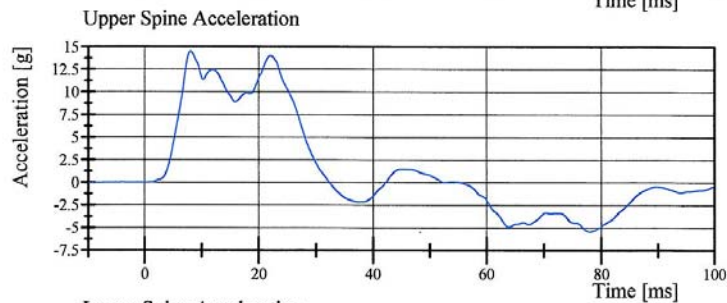
Left Lateral Thorax without Arm
WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-3
Test Date: 8/15/2011



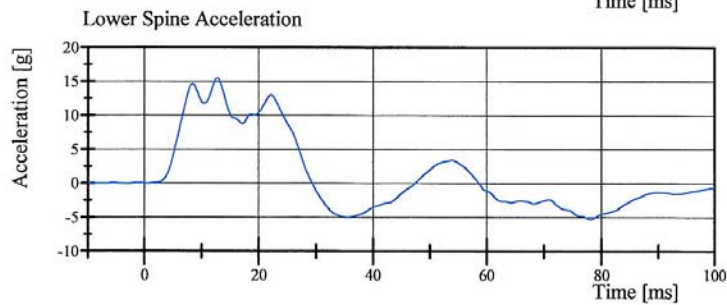
Filter Class: CFC_180
Max: 0.1 gn at 81.1 ms
Min: -15.1 gn at 15.9 ms



Filter Class: CFC_180
Max: 14.3 N at 81.1 ms
Min: -3,460.0 N at 15.9 ms



Filter Class: CFC_180
Max: 14.5 gn at 8.1 ms
Min: -5.4 gn at 78.0 ms



Filter Class: CFC_180
Max: 15.5 gn at 12.8 ms
Min: -5.3 gn at 78.2 ms

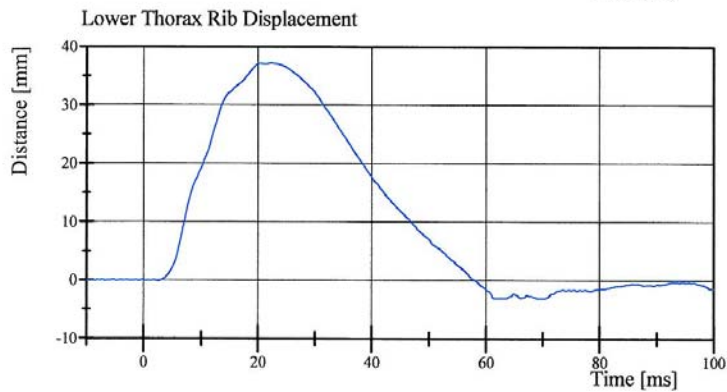
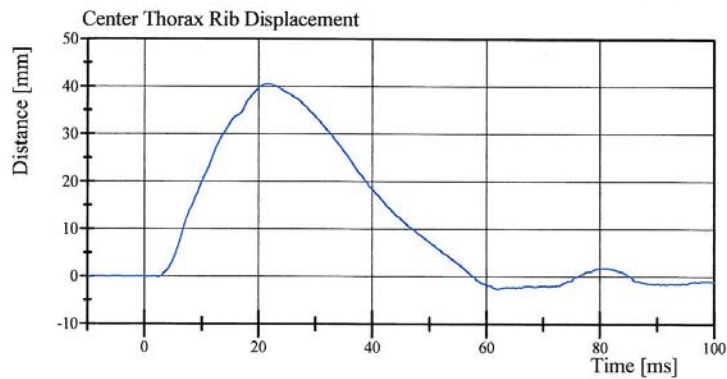
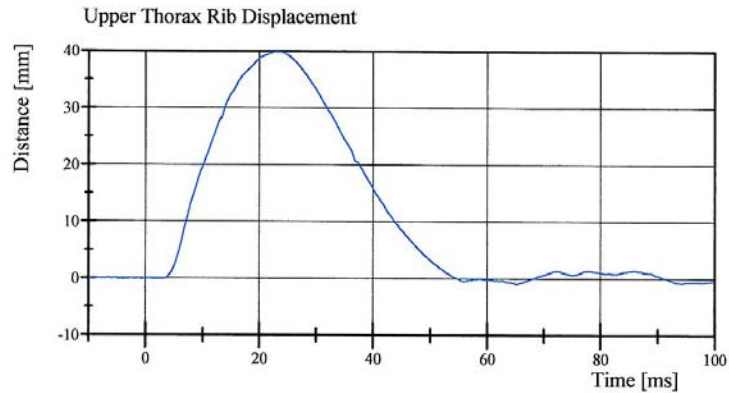
Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.16.2011 11:08:17 4000



Transportation Research Center Inc.

Left Lateral Thorax without Arm
WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-3
Test Date: 8/15/2011



Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.16.2011 11:08:18 4000



Transportation Research Center Inc.

Left Lateral Abdomen

WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-2

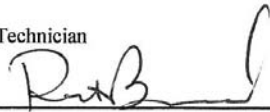
Test Date: 8/15/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	60 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.39 m/s	Yes
Impactor Force	(-2,700) - (-3,100) N	-2,911.1 N	Yes
Upper Abdominal Rib Displacement	33 - 40 mm	33.2 mm	Yes
Lower Abdominal Rib Displacement	30 - 36 mm	31.8 mm	Yes
Lower Spine Lateral Acceleration	15 - 20 g	16.9 g	Yes

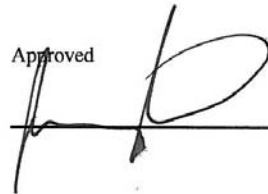
Test meets specifications.

Comments:

Technician



Approved



Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.16.2011 11:13:05 4003

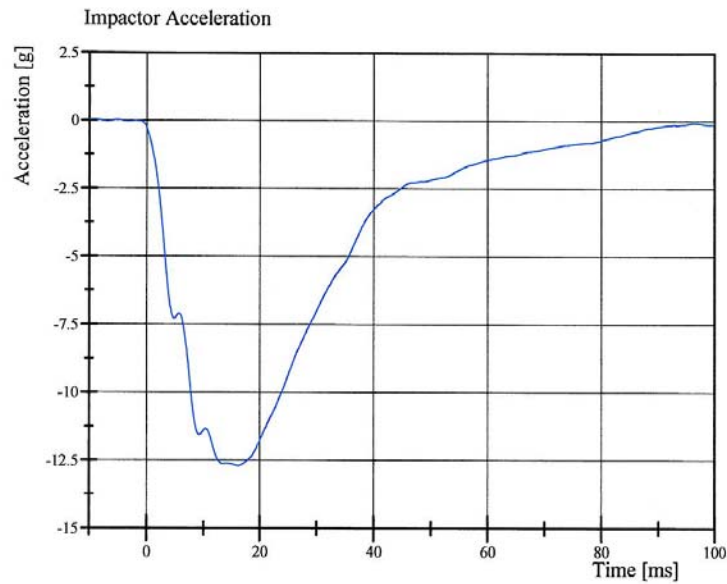


Transportation Research Center Inc.

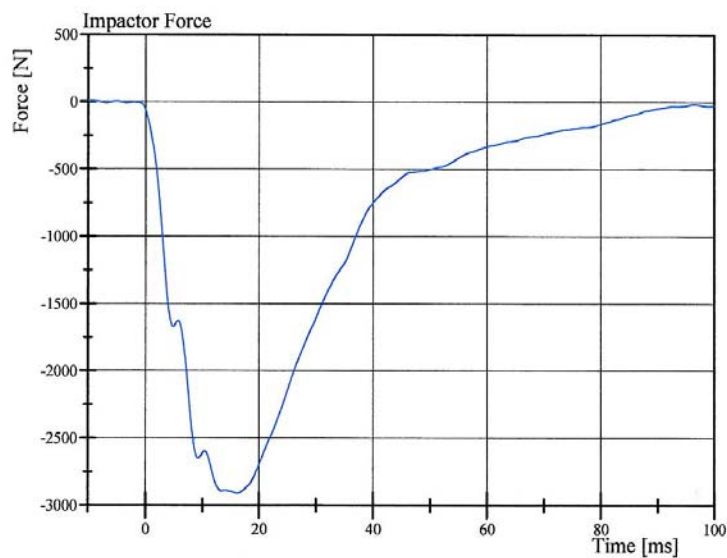
Left Lateral Abdomen

WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-2

Test Date: 8/15/2011



Filter Class: CFC_180
Max: 0.0 gn at -9.4 ms
Min: -12.7 gn at 16.2 ms



Filter Class: CFC_180
Max: 8.6 N at -9.4 ms
Min: -2,911.1 N at 16.2 ms

Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.16.2011 11:13:13 4003



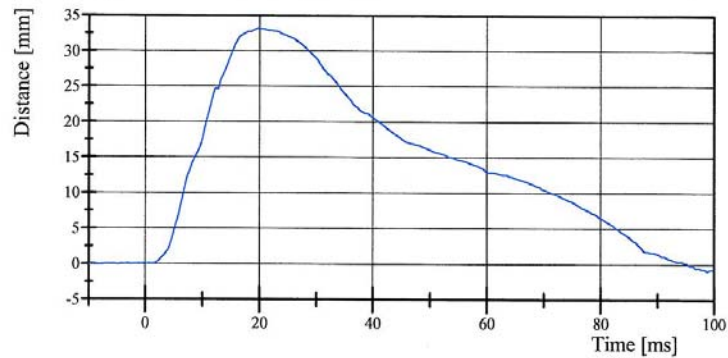
Transportation Research Center Inc.

Left Lateral Abdomen

WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-2

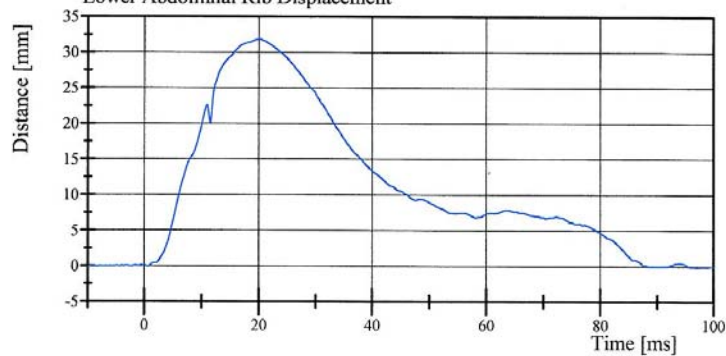
Test Date: 8/15/2011

Upper Abdominal Rib Displacement



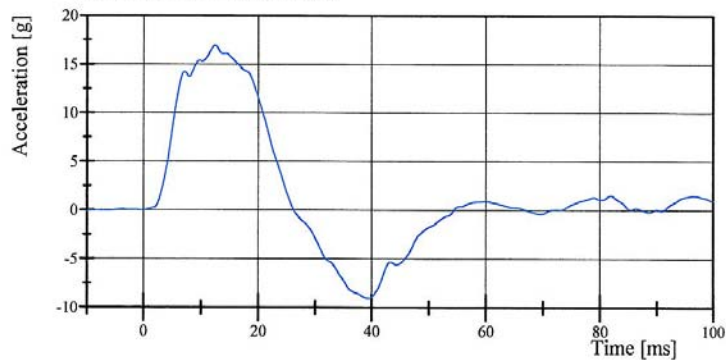
Filter Class: CFC_600
Max: 33.2 mm at 19.9 ms
Min: -0.9 mm at 98.9 ms

Lower Abdominal Rib Displacement



Filter Class: CFC_600
Max: 31.8 mm at 20.3 ms
Min: -0.2 mm at 97.1 ms

Lower Spine Acceleration (Y)



Filter Class: CFC_180
Max: 16.9 gn at 12.5 ms
Min: -9.1 gn at 39.5 ms

Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.16.2011 11:13:14 4003



Transportation Research Center Inc.

Left Lateral Pelvis

WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-1

Test Date: 8/15/2011

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Impactor Velocity	6.6 - 6.8 m/s	6.77 m/s	Yes
Impactor Force	(-6,300) - (-7,800) N	-7,472.8 N	Yes
Pelvis Lateral Acceleration	41 - 51 g	48.7 g	Yes
Lower Spine Lateral Acceleration	10 - 14 g	11.9 g	Yes

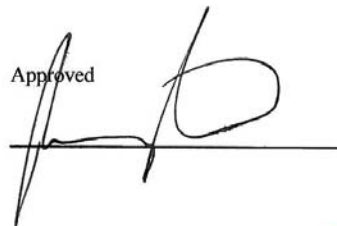
Test meets specifications.

Comments:

Technician



Approved



Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.16.2011 11:16:01 3992

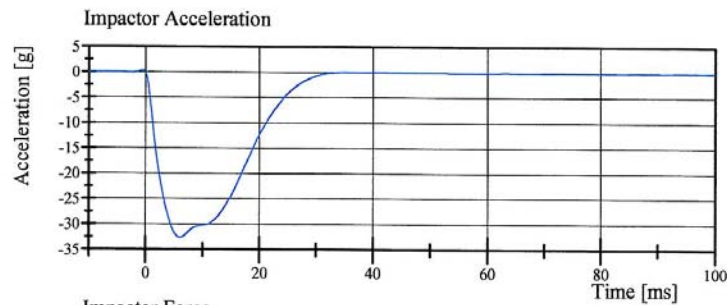


Transportation Research Center Inc.

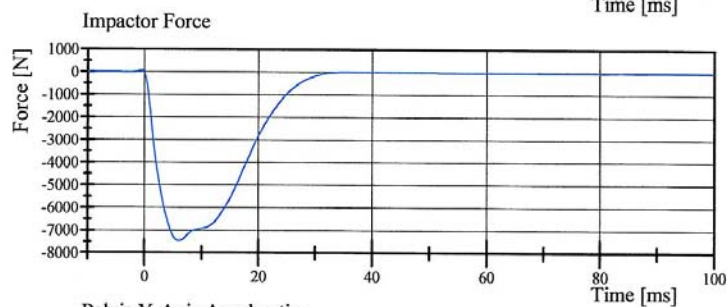
Left Lateral Pelvis

WorldSID ISO 15830-2 Serial No. 014 Certification No. 8-1

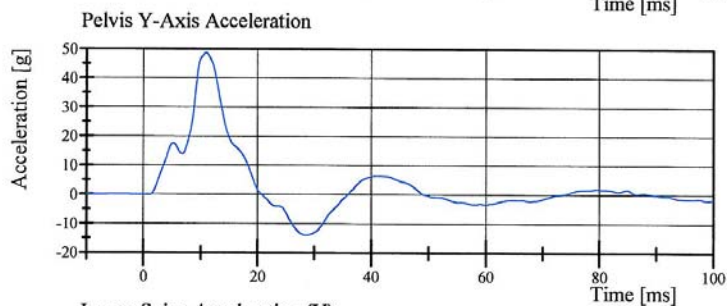
Test Date: 8/15/2011



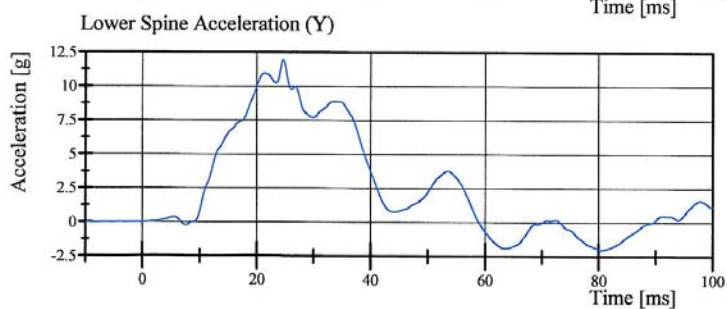
Filter Class: CFC_180
Max: 0.4 gn at -0.5 ms
Min: -32.6 gn at 6.1 ms



Filter Class: CFC_180
Max: 83.2 N at -0.5 ms
Min: -7,472.8 N at 6.1 ms



Filter Class: CFC_180
Max: 48.7 gn at 11.0 ms
Min: -14.0 gn at 28.6 ms



Filter Class: CFC_180
Max: 11.9 gn at 24.7 ms
Min: -2.0 gn at 80.4 ms

Specification Source: ISO 15830-2, dated 02/10/2009
with Polarity in accordance with J211

08.16.2011 11:16:12 3992



Appendix D

Test Equipment List and Calibration Information

Sign Convention
SAE J211 MAR95

Accelerometers: +X: Forward
 +Y: Rightward
 +Z: Downward

<u>Potentiometers:</u>	+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

<u>Tibia load cells:</u>	+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

<u>Lumbar load cells:</u>	+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

<u>Typical Test Measurements</u>	<u>Channel Class</u>
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 110830

Ref	Transducer ID	Description	ISO Signal I.D.	Polarity	FScale	Units	Assembly
1	Trig D1	EVENT	10ZERO000000VO0A	Bipolar		1 Logic	
2	P49880	Vehicle Center of Gravity X-Axis Acceleration	10VEHCCG0000ACXA	Bipolar	1000	g	
3	P54832	Vehicle Center of Gravity Y-Axis Acceleration	10VEHCCG0000ACYA	-Bipolar	1000	g	
4	P46962	Vehicle Center of Gravity Z-Axis Acceleration	10VEHCCG0000ACZA	-Bipolar	1000	g	
5	P68761	LEFT SIDE SILL Between A-Pillar & Impact Poi	00FOOTRI00H3ACXA	Bipolar	2000	g	
6	P68762	Left A Pillar Side Sill Y-Axis Acceleration (Locat	14SILBFR0000ACYA	Bipolar	1000	g	
7	P57127	Left Lower A-Pillar Y-Axis Acceleration 1/3 from	11APILLO0000ACYA	-Bipolar	2000	g	
8	P57155	Left Mid A-Pillar Y-Axis Acceleration 2/3 from fl	11APILMI0000ACYA	-Bipolar	2000	g	
9	P62671	Left Side Sill at Rear Seat Y-Axis Acceleration	14SILBRE0000ACYA	Bipolar	1000	g	
10	P67027	Left Lower B-Pillar Y-Axis Acceleration 1/3 from	14BPILLO0000ACYA	-Bipolar	2000	g	
11	P62559	Left Mid B-Pillar Y-Axis Acceleration 2/3 from fl	14BPILMI0000ACYA	-Bipolar	2000	g	
12	P66705	Left Front Seat Track @ H-Point Y-Axis Acceler	11SETFRF0000ACYA	Bipolar	2000	g	
13	P57165	Top of Engine X-Axis Acceleration (Location 10	12ENGNTF0000ACXA	Bipolar	1000	g	
14	P57144	Top of Engine Y-Axis Acceleration (Location 10	12ENGNTF0000ACYA	-Bipolar	1000	g	
15	P68548	Firewall Centerline Y-Axis Acceleration (Locatio	12VEHC000000ACYA	Bipolar	1000	g	
16	P67055	Right Side Roof Rail (in line with impact point)	13RROOF000000ACYA	-Bipolar	1000	g	
17	P73573	Right Side Floor Sill (in-line with impact locati	13SILBFR0000ACYA	-Bipolar	1000	g	
18	P57150	Rear Deck Centerline Behind Rear Axle X-Axis	18DECK000000ACXA	Bipolar	1000	g	
19	P57139	Rear Deck Centerline Behind Rear Axle Y-Axis	18DECK000000ACYA	-Bipolar	1000	g	
20	ARS-1500-ARS0665	VEHICLE CENTER OF GRAVITY (X) ROLL R	10VEHCCG0000AVXA	Bipolar	1500	%s	
21	ARS-1500-ARS1091	VEHICLE CENTER OF GRAVITY (Y) PITCH R	10VEHCCG0000AVYA	Bipolar	1500	%s	
22	ARS-1500-ARS2609	VEHICLE CENTER OF GRAVITY (Z) YAW R	10VEHCCG0000AVZA	-Bipolar	1500	%s	
23	P69075	Left Front Door on Center Line Y-Axis Accelera	11DOORFR0000ACYA	Bipolar	1000	g	
24	P73566	Midrear of Left Front Door Y-Axis Acceleration	11DOORMIRE00ACYA	Bipolar	1000	g	
25	P73567	Left Front Door Upper Centerline Y-Axis Accele	11DOORLEFRUPACYA	Bipolar	1000	g	
26	P68766	Midrear of Left Rear Door Y-Axis Acceleration	14DOORMIRE00ACYA	Bipolar	1000	g	
27	P68767	Left Rear Door Upper Centerline Y-Axis Accele	14DOORLEREUPACYA	Bipolar	1000	g	
28	IP1006	Driver Side Curtain Fire Inductor	11AIRBTPL00EVOA	Bipolar	5	V	
29	IP1011	LH Torso Airbag Fire Inductor	11AIR02N0000EVOA	Bipolar	5	V	
30	Bit.00	Head Contact Switch	11CONT000001VO00	Bipolar	1	Logic	
31	Bit.01	Shoulder Contact Switch	11CONT000002VO00	Bipolar	1	Logic	
32	Bit.02	Torso Contact Switch	11CONT000003VO00	Bipolar	1	Logic	
33	Bit.03	Leg Contact Switch	11CONT000004VO00	Bipolar	1	Logic	
34	5763-86-FX	POLE LOAD CELL 1	K0FBAR010000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.001
35	5763-91-FX	POLE LOAD CELL 2	K0FBAR020000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.002
36	5763-89-FX	POLE LOAD CELL 3	K0FBAR030000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.003
37	5763-77-FX	POLE LOAD CELL 4	K0FBAR040000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.004
38	5763-90-FX	POLE LOAD CELL 5	K0FBAR050000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.005

Channel Report Test Number 110830

Ref	Transducer ID	Description
39	5763-88-FX	POLE LOAD CELL 6
40	5763-92-FX	POLE LOAD CELL 7
41	5763-78-FX	POLE LOAD CELL 8

ISO Signal I.D.	Polarity	FScale	Units	Assembly
K0FBAR060000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.006
K0FBAR070000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.007
K0FBAR080000FOXA	Bipolar	200000	N	0-Barrier Segmented Pole.008

Command File Test Number 110830

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
34A	11THSP1200WSACRA	T12 Resultant Acceleration	180				
35	11TRRILE01WSDSYP	Thorax Rib 1 Y-Axis Displacement	600	+	yes	90	35
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	11LUSP0000WSFOXP	Lumbar X-Axis Force	600	+	yes	10000	55
56	11LUSP0000WSFOYP	Lumbar Y-Axis Force	600	+	yes	10000	56
57	11LUSP0000WSFOZP	Lumbar Z-Axis Force	600	+	yes	12000	57
58	11LUSP0000WSMOXP	Lumbar Moment About X Axis	600	+	yes	300	58
59	11LUSP0000WSMOYP	Lumbar Moment About Y Axis	600	+	yes	300	59
60	11LUSP0000WSMOZP	Lumbar Moment About Z Axis	600	+	yes	200	60
61	11PELVCG00WSACXP	Pelvis X-Axis Acceleration	1000	+	yes	400	61
62	11PELVCG00WSACYP	Pelvis Y-Axis Acceleration	1000	+	yes	400	62
63	11PELVCG00WSACZP	Pelvis Z-Axis Acceleration	1000	+	yes	400	63
63A	11PELVCG00WSACRA	Pelvis Resultant Acceleration	1000				
64	11SACRLE00WSFOXP	Sacro-Iliac Left X-Axis Force	600	+	yes	6000	64
65	11SACRLE00WSFOYP	Sacro-Iliac Left Y-Axis Force	600	+	yes	6000	65
66	11SACRLE00WSFOZP	Sacro-Iliac Left Z-Axis Force	600	+	yes	6000	66

Channel	ISO mnemonic	Channel Title	Filter	Flip	Zero	Full Scale	V5 Index
71	11SACRR100WSFOYP	Sacro-Iliac Right Y-Axis Force	600	+	yes	6000	71
72	11SACRR100WSFOZP	Sacro-Iliac Right Z-Axis Force	600	+	yes	6000	72
73	11SACRR100WSMOXP	Sacro-Iliac Right Moment About X Axis	600	+	yes	1000	73
74	11SACRR100WSMOYP	Sacro-Iliac Right Moment About Y Axis	600	+	yes	400	74
75	11SACRR100WSMOZP	Sacro-Iliac Right Moment About Z Axis	600	+	yes	400	75
76	11PUBC0000WSFOYP	Pubic Symphysis Y-Axis Force	600	+	yes	12000	76
77	11FEMRLEMIWSFOXP	Left Mid Femur X-Axis Force	600	+	yes	15000	77
78	11FEMRLEMIWSFOYP	Left Mid Femur Y-Axis Force	600	+	yes	15000	78
79	11FEMRLEMIWSFOZP	Left Mid Femur Z-Axis Force	600	+	yes	15000	79
80	11FEMRLEMIWSMOXP	Left Mid Femur Moment Mx	600	+	yes	350	80
81	11FEMRLEMIWSMOYP	Left Mid Femur Moment My	600	+	yes	350	81
82	11FEMRLEMIWSMOZP	Left Mid Femur Moment Mz	600	+	yes	300	82
83	11FEMRLL00WSFOXP	Left Femoral Neck X-Axis Force	600	+	yes	10000	83
84	11FEMRLL00WSFOYP	Left Femoral Neck Y-Axis Force	600	+	yes	25000	84
85	11FEMRLL00WSFOZP	Left Femoral Neck Z-Axis Force	600	+	yes	10000	85
86	11KNEELEOUWSFOYP	Left Knee Outboard Y-Axis Force	600	+	yes	20000	86
87	11KNEELEINWSFOYP	Left Knee Inboard Y-Axis Force	600	+	yes	20000	87
88	11FEMRRLO0WSFOXP	Right Femoral Neck X-Axis Force	600	+	yes	10000	88
89	11FEMRRLO0WSFOYP	Right Femoral Neck Y-Axis Force	600	+	yes	25000	89
90	11FEMRRLO0WSFOZP	Right Femoral Neck Z-Axis Force	600	+	yes	10000	90
91	10VEHCCG0000ACXA	Vehicle Center of Gravity X-Axis Accelerat:	60	+	yes	1000	91
92	10VEHCCG0000ACYA	Vehicle Center of Gravity Y-Axis Accelerat:	60	+	yes	1000	92
93	10VEHCCG0000ACZA	Vehicle Center of Gravity Z-Axis Accelerat:	60	+	yes	1000	93
93A	10VEHCCG0000ACRA	Vehicle Center of Gravity Resultant Accele:	60				
94	10VEHCCG0000AVXA	Vehicle Center of Gravity Roll Rate Gyrosc	60	+	yes	1500	94
95	10VEHCCG0000AVYA	Vehicle Center of Gravity Pitch Rate Gyros	60	+	yes	1500	95
96	10VEHCCG0000AVZA	Vehicle Center of Gravity Yaw Rate Gyrosc	60	+	yes	1500	96
97	11SILBRE0100ACYA	Left Side Sill Near Impact Point Y-Axis Ac	60	+	yes	2000	97
98	14SILBFR0000ACYA	Left A-Pillar Side Sill Y-Axis Acceleratio	60	+	yes	1000	98
99	11APILLO0000ACYA	Left Lower A-Pillar Y-Axis Acceleration	60	+	yes	2000	99
100	11APILMI0000ACYA	Left Mid A-Pillar Y-Axis Acceleration	60	+	yes	2000	100
101	14SILBRE0000ACYA	Left Side Sill at Rear Seat Y-Axis Accelera	60	+	yes	1000	101
102	14BPILLO0000ACYA	Left Lower B-Pillar Y-Axis Acceleration	60	+	yes	2000	102
103	14BPILMI0000ACYA	Left Mid B-Pillar Y-Axis Acceleration	60	+	yes	2000	103
104	11SETRFR0000ACYA	Left Front Seat Track at H-Point Y-Axis Ac	60	+	yes	2000	104
105	12ENGNTPO000ACXA	Top of Engine X-Axis Acceleration	60	+	yes	1000	105
106	12ENGNTPO000ACYA	Top of Engine Y-Axis Acceleration	60	+	yes	1000	106
107	12VEHC0000000ACYA	Firewall Y-Axis Acceleration	60	+	yes	1000	107
108	13ROOF0000000ACYA	Right Side Roof Rail Y-Axis Acceleration	60	+	yes	1000	108
109	13SILBFR0000ACYA	Right Side Sill Y-Axis Acceleration	60	+	yes	1000	109
110	18DECK0000000ACXA	Rear Deck Behind Rear Axle X-Axis Accelera	60	+	yes	1000	110

Channel	ISO mnemonic	Channel Title	Filter	Flip	Zero	Full Scale	V5 Index
111	18DECK000000ACYA	Rear Deck Behind Rear Axle Y-Axis Accelerat	60	+	yes	1000	111
112	11DOORFR00000ACYA	Left Front Door on Center Line X-Axis Acce	60	+	yes	2000	112
113	11DOORMIRE000ACYA	Midrear of Left Front Door Y-Axis Accelerat	60	+	yes	2000	113
114	11DOORLEFRUPACYA	Left Front Door Upper Centerline Y-Axis Ac	60	+	yes	2000	114
115	14DOORMIRE000ACYA	Midrear of Left Rear Door Y-Axis Accelerat	60	+	yes	2000	115
116	14DOORLEREUPACYA	Left Rear Door Upper Centerline Y-Axis Acc	60	+	yes	2000	116
117	11AIRBTPL000EVOA	Driver Side Curtain Inductor	1000	+	no	5	117
118	11AIR02N00000EVOA	Driver Torso Airbag Fire Inductor	1000	+	no	5	118
119	11CONT0000001VO00	Head Contact Switch	0	+	no	1	119
120	11CONT0000002VO00	Shoulder Contact Switch	0	+	no	1	120
121	11CONT0000003VO00	Torso Contact Switch	0	+	no	1	121
122	11CONT0000004VO00	Left Contact Switch	0	+	no	1	122
123	K0FBAR010000FOXA	Pole Load Cell 1	60	+	yes	200000	123
124	K0FBAR020000FOXA	Pole Load Cell 2	60	+	yes	200000	124
125	K0FBAR030000FOXA	Pole Load Cell 3	60	+	yes	200000	125
126	K0FBAR040000FOXA	Pole Load Cell 4	60	+	yes	200000	126
127	K0FBAR050000FOXA	Pole Load Cell 5	60	+	yes	200000	127
128	K0FBAR060000FOXA	Pole Load Cell 6	60	+	yes	200000	128
129	K0FBAR070000FOXA	Pole Load Cell 7	60	+	yes	200000	129
130	K0FBAR080000FOXA	Pole Load Cell 8	60	+	yes	200000	130

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110830

2011 Cadillac CTS Left Side FMVSS 214 Pole Impact 32 kph 110830; Test Time 14:40

