

**Vehicle Research and Test Center
Oblique Side Pole Impact
World SID
2006 Toyota Sienna LE MPV
TRC Inc. Test Number: 080108**

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**Prepared For
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Section 1.0

Purpose and Test Procedure

Purpose

This side impact test is part of the proposed FMVSS 214 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 evaluate side impact protection of a 2006 Toyota Sienna LE MPV with the rigid pole. The test was conducted in accordance with the National Highway Traffic Safety Administration's Notice of Proposed Rulemaking (Docket No. NHTSA-2004-17694, May 17, 2004).

Section 2.0

Side Impact Test

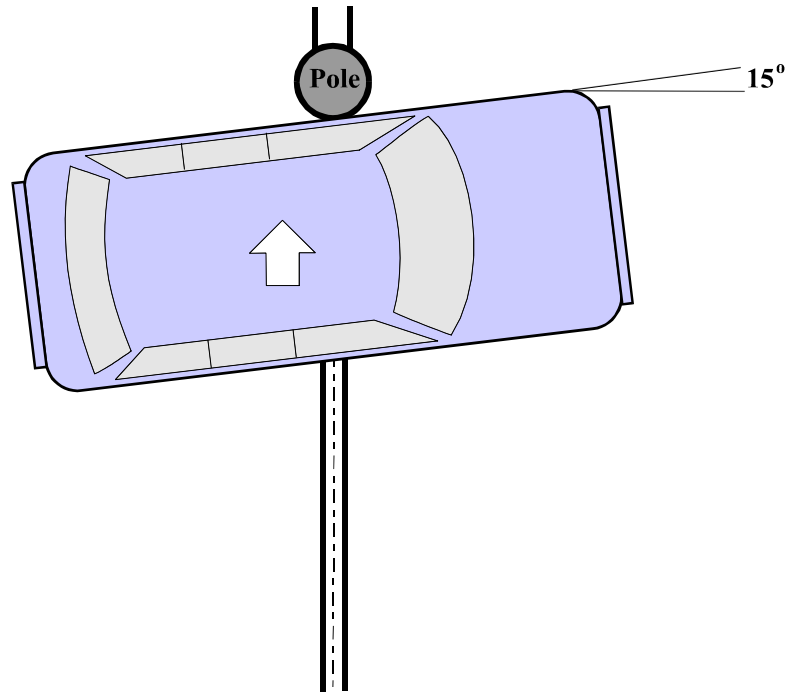
Summary of Side Impact Test

A 2006 Toyota Sienna LE MPV impacted an oblique rigid pole barrier at an angle of 285°, at a velocity of 32.2 km/h (20.0 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 January 8, 2008. Pre-test and post-test photographs of the test vehicle, the rigid pole barrier, and the side impact dummy (World SID) are included in Appendix A.

One restrained Side Impact Dummy (World SID) was placed in the driver (Pos. #1) designated seating position according to the instructions specified in the World SID Seating Procedure Draft 1.0. The World SID was calibrated prior to this test. The side impact test was documented by one (1) real-time camera and ten (10) high-speed digital cameras. Camera locations and other pertinent camera information are included in this report.

The World SID instrumentation is detailed in Table 4. Ninety-three (93) channels of acceleration, force, moment, and displacement data were collected for this test.

A summary of the side impact dummy (World SID) configuration and verification test data can be found in Appendix C. A total of 143 channels of data were recorded. Appendix B contains the vehicle, barrier, and dummy response data traces.



	Front World SID (#016)
HIC36 (g) CFC 1000	418
Upper Rib Deflection (mm) CFC 600	
Rib 1	34 mm
Rib 2	34 mm
Rib 3	38 mm
Lower Rib Deflection (mm) CFC 600	
Rib 1	52 mm
Rib 2	47 mm
Lower Spine Resultant (g) CFC 180	68 g
Pubic Symph. Force (N) CFC 600	1085 N

	2006 Toyota Sienna LE
Vehicle Test Weight	2009.6 kg (4430.4 lbs)
Impact Point (Horizontal)-behind center of front axle	1212 mm
Maximum Crush	433 mm Level 2
Impact Speed	19.8 mph

Data Acquisition Explanations

The driver dummy's head angular displacement Z-axis acceleration data channel, 11HEADCG00WSANZP, over scaled and recorded questionable data throughout the event.

The driver dummy's left knee inboard Y-axis force data channel, 11KNEELEINWSFOYP, recorded questionable data throughout the event.

The vehicle's left side sill at front seat Y-axis acceleration data channel, 14SILBFR0000ACYA, over scaled and recorded questionable data after 90 milliseconds.

Section 3

Summary of Test Results

Table 1 General Test Vehicle Parameter Data

Test Vehicle: 2006 Toyota Sienna LE MPV

Test Date: 01/08/08

TEST VEHICLE INFORMATION

Make	Toyota
Model	Sienna LE
Body Style	MPV
VIN	5TDZA23C36S448521
Color	Blue
Odometer Reading	21,177
Transmission	4-Speed Automatic
Final Drive	Front-wheel drive
Number of Cylinders	6
Engine Displacement	3.3 L
Engine Placement	Transverse
Air Conditioning	Yes
Power Windows	Yes
Power Seats	No
Cruise Control	Yes
Tinted Glass	Yes
Keyless Entry	Yes

TEST VEHICLE OPTIONS

Driver Front Airbag	Yes
Driver Side Curtain Airbag	Yes
Driver Side Torso Airbag	Yes
Rear Passenger Side/Curtain Airbag	Yes
Rear Passenger Side Torso Airbag	Yes
Power Steering	Yes
Power Door Locks	Yes
Tilt Wheel	Yes
Anti-lock Brakes	Yes
Traction Control	Yes
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	Toyota Motor Mfg.
Date of Manufacture	01/06

GVWR (kg)	2580
GAWR Front (kg)	1290
GAWR Rear (kg)	1290

Measured Parameter	Front	Mid	Rear	Total
Type of Seats	Bucket	Split Bench	Split Bench	
Number Of Occupants	2	N/A	6	8
Capacity Wt. (VCW)				550
Cargo Wt. (RCLW) (kg)				6

Table 1 General Test Vehicle Parameter Data, Continued

Test Vehicle: 2006 Toyota Sienna LE MPV

Test Date 01/08/08

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	563.6	411.8		590.6	448.6	
Right	kg	540.6	410.6		506.6	463.8	
Ratio	%	57.3	42.7		54.6	45.4	
Totals	kg	1104.2	822.4	1926.6	1097.2	912.4	2009.6

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1926.6
Weight of World SID ATD	kg	77.0
Rated Cargo/Luggage Weight (RCLW)	kg	6.0
Calculated Vehicle Target Weight (TVTW)	kg	2009.6

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG(aft of front axle)
As Delivered	mm	755	756	755	759	1293
As Tested	mm	793	793	758	768	1376
Fully Loaded	mm	745	750	745	754	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheelbase	mm	3030
Total Vehicle Length at Left Side	mm	4855
Total Vehicle Length at Centerline	mm	5085
Total Vehicle Length at Right Side	mm	4855
Weight of Ballast in Rear Cargo Area	kg	59.0
Amount of Stoddard Solvent in Fuel Tank	liters	75.0

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Impact Reference Line From Front Axle	mm	1215
Impact Point	mm	1212
Impact Point Difference	mm	3 mm Left

¹ Wheel dollies were used for this test.

Table 1 General Test Vehicle Parameter Data, Continued

Test Vehicle: 2006 Toyota Sienna LE MPV

Test Date 01/08/08

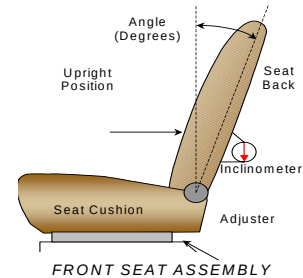
WORLD SID RIDING POSITION

The driver and passenger seat back is positioned to the manufacturer's designated angle.

Driver: Total Number of detents: N/A

Test detent (with the forward-most detent defined as 0): N/A

Driver seat back angle: The back was adjusted to 5.8° forward of vertical measured at the head restraint.

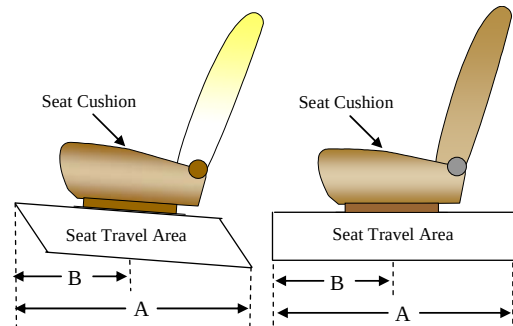


SEAT FORE/AFT POSITIONS

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

SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel	Placed in Position No.
Driver Seat	240 mm	120 mm
2 nd Row	153 mm	77 mm
Rear Seat	Fixed	Fixed



SEAT BELT UPPER ANCHORAGE

	Total No. of Positions	Placed in Position No.
Driver Seat	4	Full down
Rear Seat	N/A	N/A

Position number one is the uppermost adjustment position.

Table 1 General Test Vehicle Parameter Data, Continued

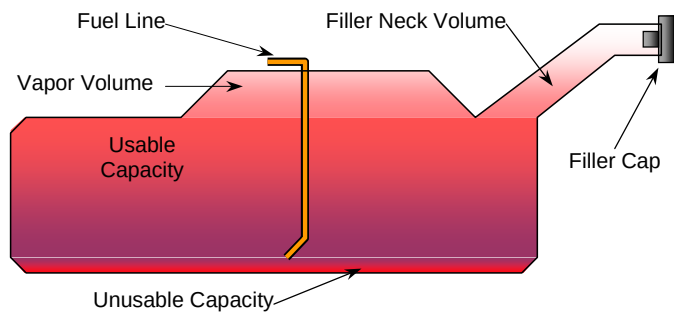
Test Vehicle: 2006 Toyota Sienna LE MPV

Test Date 01/08/08

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	80.6
Usable Capacity used for FMVSS 301	80.6
Actual Amount of Solvent used	75.0

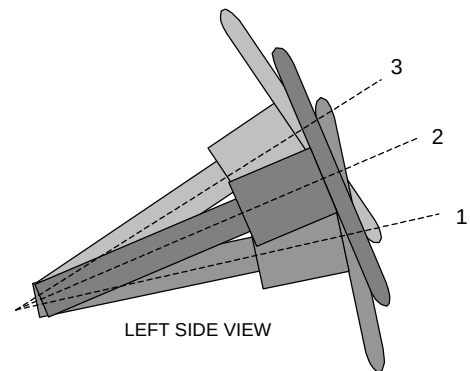
The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender. The standard fuel tank occupies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

STEERING WHEEL/COLUMN POSITIONS

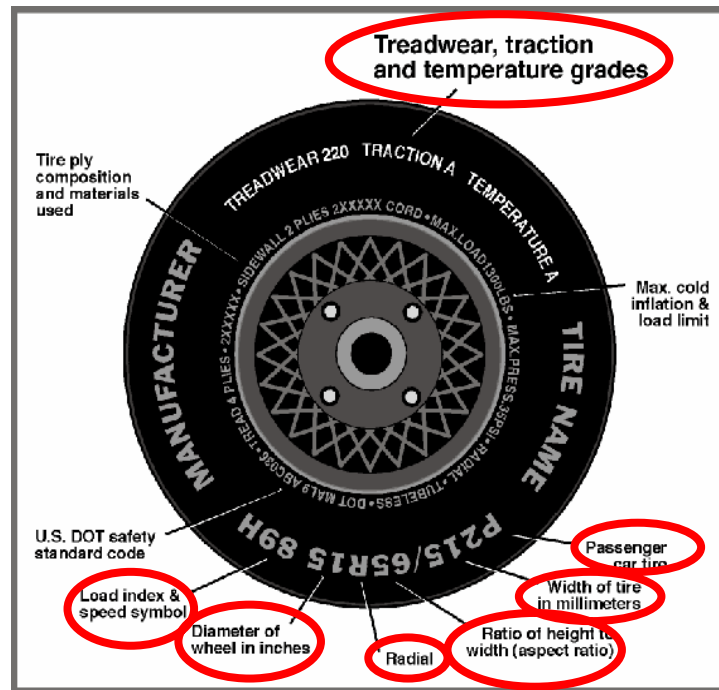
	Degrees	Fore/Aft Position, mm
Lowermost Position	N/A	N/A
Geometric Center Position	N/A	N/A
Uppermost Position	N/A	N/A

Table 2 Test Vehicle Tire Information

Test Vehicle: 2006 Toyota Sienna LE MPV

Test Date

01/08/08



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300	300
Cold / Test Pressure (kPa)	240	240
Recommended Tire Size	P215/65R16	P215/65R16
Tire Size on Vehicle	P215/65R16	P215/65R16
Tire Manufacturer	Dunlop	Dunlop
Tire Name	SP4000	SP4000
Radial	R	R
Wheel Diameter	16	16
Load Index & Speed Symbol	96T	96T
Treadwear	340	340
Traction Grade	A	A
Temperature Grade	A	A

Table 3 Post-Test Observations

Test Vehicle: 2006 Toyota Sienna LE MPV

Test Date 01/08/08

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat World SID
Dummy Type / Serial No.	World SID / 016
Head Contact	Airbag
Upper Torso Contact	Airbag
Lower Torso Contact	None
Left Knee Contact	Knee bolster
Right Knee Contact	Knee bolster

POST TEST door OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Locked/Unlocked Doors	Unlocked	Unlocked
Left Side Door Opening	Jammed & Latched	Jammed & Latched
Right Side Door Opening	Closed & Latched	Closed & 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	Broken
Window Damage	Broken
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

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

Section 4

Occupant and Vehicle Information

Table 4 World SID Instrumentation Data

Vehicle: 2006 Toyota Sienna LE MPV

Test Number: 080108

Driver Dummy Serial Number: 016

		Positive Direction		Negative Direction	
		Max.	Time	Max.	Time
Location		(g)	(ms)	(g)	(ms)
Head Acceleration	X	6.2	175.7	16.5	58.4
	Y	58.1	55.4	9.0	190.8
	Z	27.1	56.6	5.2	106.0
	R	65.0	56.6		
Head Angular Displacement ¹	X	4619.4	56.3	2590.5	44.0
	Y	889.2	55.9	871.4	71.2
	Z	71503.9	53.7	17870.6	53.0
Upper Neck Force	X	202.7	174.2	81.2	303.2
	Y	322.8	42.2	338.5	199.0
	Z	573.2	55.9	162.4	106.1
Upper Neck Moment	X	13.0	56.6	25.7	166.2
	Y	5.6	141.4	18.0	164.0
	Z	12.4	176.4	12.2	217.4
Lower Neck Force	X	225.3	172.2	99.6	275.6
	Y	754.9	42.6	403.0	180.2
	Z	783.5	56.5	274.7	199.1
Lower Neck Moment	X	68.5	47.3	86.1	189.5
	Y	18.6	304.2	50.0	173.4
	Z	11.2	69.2	12.8	212.7
Shoulder Force	X	121.5	116.1	873.4	47.6
	Y	292.5	112.6	1805.6	45.4
	Z	846.9	54.5	231.0	112.8
Shoulder Displacement	Y	51.6	55.4	0.4	5.4
Shoulder Acceleration	X	161.2	22.0	44.7	53.7
	Y	116.9	25.3	32.6	113.3
	Z	29.8	27.2	75.8	22.6
	R	176.8	22.0		

¹ See Data Acquisition Explanations

Table 4 World SID Instrumentation Data, Continued

Vehicle: 2006 Toyota Sienna LE MPV

Test Number: 080108

Driver Dummy Serial Number: 016

		Positive Direction		Negative Direction	
		Max.	Time	Max.	Time
Location		(g)	(ms)	(g)	(ms)
T1 Acceleration	X	6.9	135.9	11.2	63.1
	Y	44.9	54.8	11.9	136.4
	Z	10.7	61.0	2.9	103.8
	R	46.4	54.8		
T4 Acceleration	X	5.2	138.4	8.2	63.1
	Y	49.2	50.2	10.8	98.2
	Z	9.9	61.8	3.6	39.8
	R	49.4	50.2		
T12 Acceleration	X	7.6	72.5	9.9	38.6
	Y	67.3	50.6	13.5	113.2
	Z	8.2	61.8	5.3	105.0
	R	67.9	50.6		
Thorax Rib 1 Displacement	Y	34.2	54.5	2.0	171.0
Thorax Rib 1 Acceleration	X	89.0	20.6	83.1	113.4
	Y	85.4	21.5	85.0	114.1
	Z	196.5	112.7	68.3	114.1
	R	197.6	112.7		
Thorax Rib 2 Displacement	Y	33.5	52.7	2.8	218.6
Thorax Rib 2 Acceleration	X	130.0	20.7	98.0	21.7
	Y	93.7	20.8	84.1	24.4
	Z	19.0	26.4	27.7	42.9
	R	160.1	20.8		
Thorax Rib 3 Displacement	Y	38.0	53.3	3.4	208.0
Thorax Rib 3 Acceleration	X	117.0	20.5	70.3	23.7
	Y	156.0	20.7	95.7	24.0
	Z	40.4	25.1	54.9	42.1
	R	179.6	20.6		

Table 4 World SID Instrumentation Data, Continued

Vehicle: 2006 Toyota Sienna LE MPV

Test Number: 080108

Driver Dummy Serial Number: 016

		Positive Direction		Negative Direction	
		Max.	Time	Max.	Time
Location		(g)	(ms)	(g)	(ms)
Abdominal Rib 1 Displacement	Y	52.3	53.3	1.5	20.9
Abdominal Rib 1 Acceleration	X	175.4	20.2	112.4	20.9
	Y	226.7	41.1	91.2	40.8
	Z	68.4	41.4	60.2	41.0
	R	240.3	41.1		
Abdominal Rib 2 Displacement	Y	46.8	52.2	0.7	21.2
Abdominal Rib 2 Acceleration	X	99.2	20.2	56.7	22.8
	Y	126.3	35.8	104.7	41.0
	Z	38.6	40.9	73.1	41.2
	R	132.7	35.8		
Lumbar Force	X	212.8	73.0	355.3	44.6
	Y	536.9	43.0	735.8	109.7
	Z	992.3	70.9	158.7	109.4
Lumbar Moment	X	20.1	54.7	71.8	109.6
	Y	10.6	39.8	15.1	72.6
	Z	12.2	149.9	9.5	107.8
Pelvis Acceleration	X	7.5	56.4	15.1	43.8
	Y	59.2	42.8	19.7	95.0
	Z	13.8	45.6	6.8	72.0
	R	62.3	45.6		
Sacro-Iliac Left Force	X	398.5	36.9	654.4	55.8
	Y	33.2	80.6	3528.1	48.6
	Z	15.3	11.8	730.1	57.0
Sacro-Iliac Left Moment	X	41.7	162.3	116.7	48.2
	Y	14.1	199.4	52.3	45.9
	Z	64.5	44.6	20.2	63.7

Table 4 World SID Instrumentation Data, Continued

Vehicle: 2006 Toyota Sienna LE MPV

Test Number: 080108

Driver Dummy Serial Number: 016

		Positive Direction		Negative Direction	
		Max.	Time	Max.	Time
Location		(g)	(ms)	(g)	(ms)
Sacro-Iliac Right Force	X	249.3	105.8	366.9	50.2
	Y	2073.8	47.3	6.8	20.2
	Z	510.9	188.2	525.1	47.7
Sacro-Iliac Right Moment	X	25.8	71.5	78.1	49.1
	Y	22.9	183.1	8.8	80.6
	Z	17.7	62.2	61.8	46.3
Pubic Force	Y	1085.3	45.9	54.0	80.6
Left Femur Force	X	863.6	43.8	8.1	3.7
	Y	164.7	82.1	1882.6	46.2
	Z	353.8	109.3	1377.7	55.1
Left Mid Femur Force	X	222.4	51.4	98.1	87.1
	Y	121.7	119.1	553.9	54.9
	Z	540.9	84.2	754.3	43.0
Left Mid Femur Moment	X	102.4	56.7	11.1	105.5
	Y	57.6	43.5	2.1	302.7
	Z	31.1	70.2	0.4	1.1
Left Knee Outboard Force	Y	285.0	54.5	72.6	119.7
Left Knee Inboard Force ¹	Y	2.5	229.4	3.1	219.4
Right Mid Femur Force	X	51.6	70.1	75.2	57.0
	Y	17.2	297.1	277.7	68.6
	Z	248.8	113.7	1091.9	52.5
Right Mid Femur Moment	X	42.3	86.8	138.1	53.6
	Y	25.0	88.2	20.7	117.9
	Z	18.2	50.4	47.9	87.0

Positive Direction

Longitudinal: Forward

Lateral: Rightward

Vertical: Downward

¹ See Data Acquisition Explanations

Negative Direction

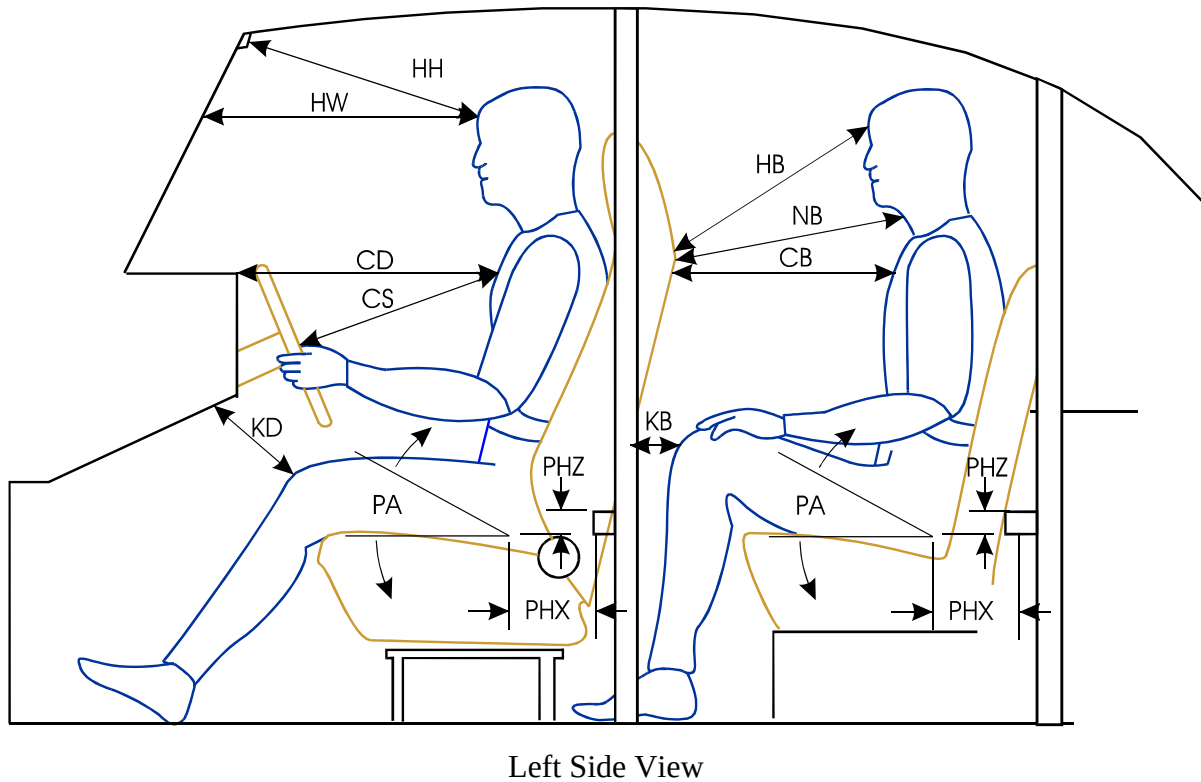
Longitudinal: Rearward

Lateral: Leftward

Vertical: Upward

Figure 1 World SID Longitudinal Clearance Dimensions

Vehicle: 2006 Toyota Sienna LE MPV



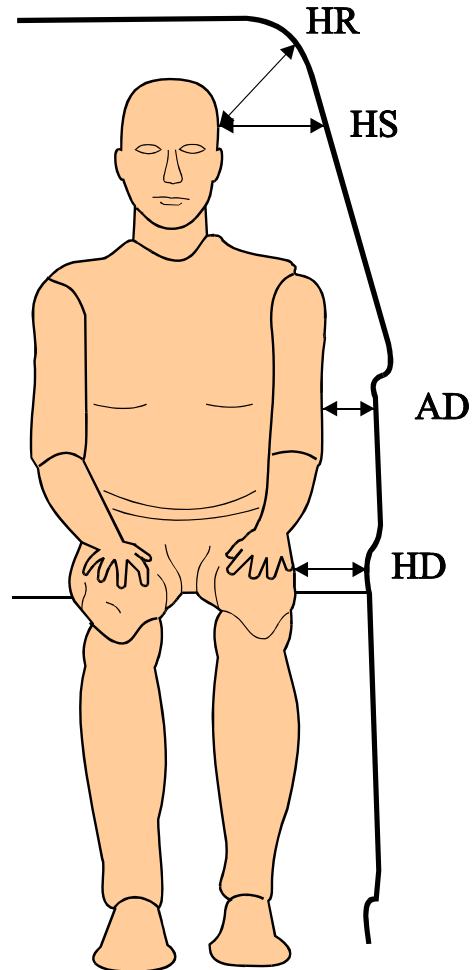
Note: All measurements are in millimeters with tolerance of ± 0.1 mm

Measurement	Driver World SID # 016
HH	416
HW	755
HZ	246
NR	471
CD	603
CS	345
KDL(KDA°)	52/(17.8°)
KDR(KDA°)	31/(18.9°)
PA°	N/A
PHX	294
PHZ	149

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

Figure 2 World SID Lateral Clearance Dimensions

Vehicle: 2006 Toyota Sienna LE MPV

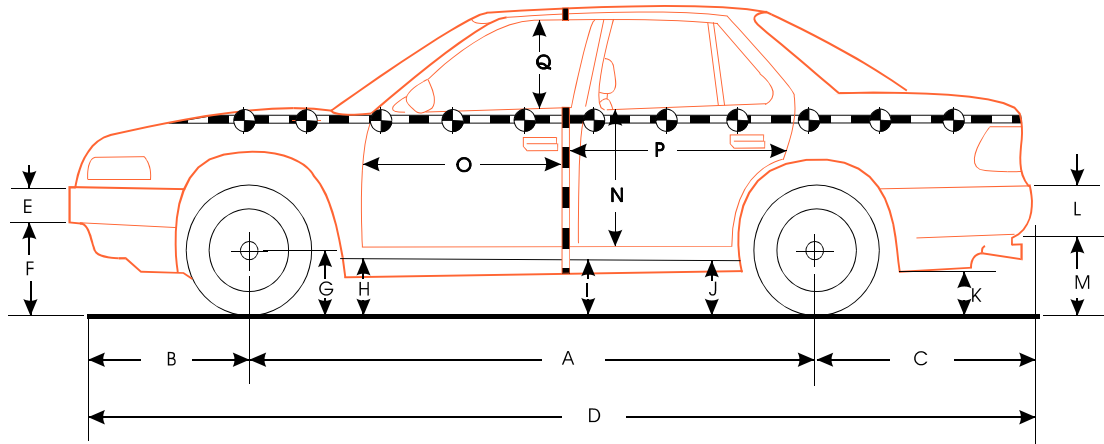


Note: All measurements are in millimeters with tolerance of ± 0.1 mm

Measurement	Driver World SID # 016
HR	290
HS	367
AD	Lower: 144 Upper: 185
HD	107

Figure 3 Vehicle Pre-Test And Post-Test Measurements

Vehicle: 2006 Toyota Sienna LE MPV



Left Side View

Note: 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	3030	3030	2936	94
B	960	960	1048	-88
C	1095	1095	1066	29
D	5085	5085	5044	41
E	160	160	160	0
F	440	488	536	-48
G	315	359	318	41
H	296	324	309	15
I	290	308	311	-3
J1	320	326	255	71
J2	268	274	293	-19
K	305	329	328	1
L	267	267	267	0
M	437	425	416	9
N	860	860	860	0
O	645	645	549	96
P	1700	1700	1583	117
Q	515	515	489	26
R	4855	4855	4862	-7
S	4855	4855	4781	74
T	1562	1562	1189	373

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 5 Vehicle Structural Measurements^{1,2}

	Elements	Pre-Test
1	Total Length	5085
2	Total Width	1975
3	Bumper Top Height	600
4	Bumper Bottom Height	415
5	Longitudinal Member Top Height	545
6	Longitudinal Member Bottom Height	421
7	Distance Between Longitudinal Members	1080
7'	Longitudinal Member Width	65
8	Engine Top Height	850
9	Engine Bottom Height	233
10	Engine and Gearbox Width	960
11	Front Bumper - Engine Distance	480
12	Front Shock Absorber Fixing Height	975
13	Bonnet Leading Edge Height	10
14	Front Shock Absorber Fixing Width	1400
15	Front Bumper - Front Axle Distance	960
16	Front Axle - A Pillar Distance	470
17	A Pillar - B Pillar Distance	1040
18	B Pillar - Rear Axle Distance	1512
19	B Pillar - C Pillar Distance	1176
20	Roof Sill Bottom Height	1560
21	Roof Sill Top Height	1590
22	Floor Sill Bottom Height	382
23	Floor Sill Top Height	400

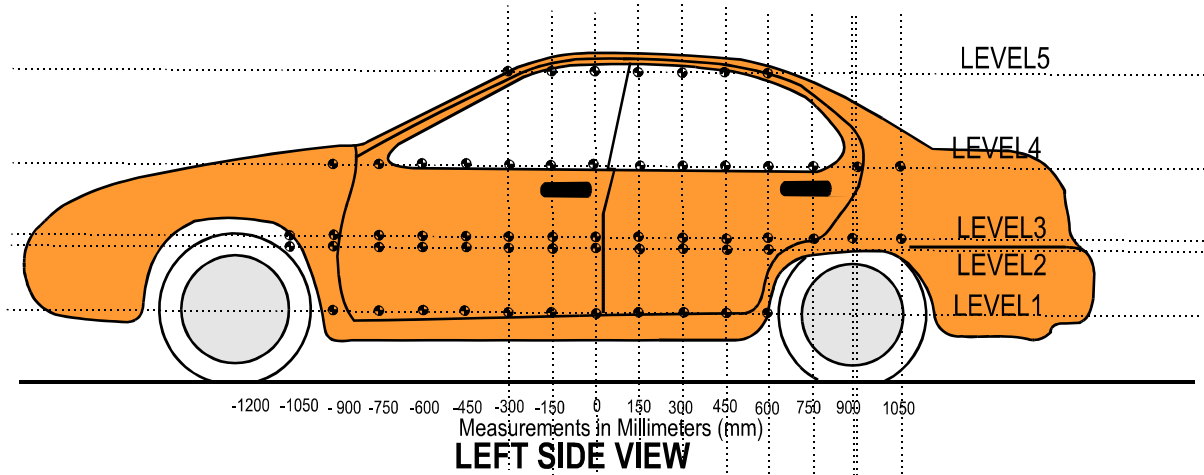
All distance measurements are in millimeters.

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

Vehicle: 2006 Toyota Sienna LE MPV



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

Measurements along the vertical 750 mm line shown above.

Measurements vehicle forward of the impact line are negative.

All measurements below in mm.

Level	Measurement Description	Height Above Ground
5	Window	1060
4	Window Sill	1025
3	Mid Door	700
2	Occupant H-Point	785
1	Sill Top	300

Table 6 Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2006 Toyota Sienna LE MPV

			(mm) From Impact Point													
Location	Height		-1292	-1142	-992	-842	-692	-542	-392	-242	-92	58	208	358	508	658
Level 1 Side Sill	300	Pre					934	920	919	919	919	919	919	917	916	915
		Post					938	851	783	708	622	540	603	694	762	797
		Crush					-4	69	136	211	297	379	316	223	154	118
Level 2 H-Point	785	Pre	970	974	974	970	972	974	976	978	979	981	983	982	982	981
		Post	1062	1048	1029	1008	996	906	816	725	620	548	629	777	805	834
		Crush	-92	-74	-55	-38	-24	68	160	253	359	433	354	205	177	147
Level 3 Mid-Door	700	Pre				974	973	975	976	977	978	979	980	979	979	979
		Post				1009	994	907	819	725	619	547	628	778	807	836
		Crush				-35	-21	68	157	252	359	432	352	201	172	143
Level 4 Window Sill	1025	Pre	860	882	896	906	915	922	931	938	943	949	940	957	980	962
		Post	968	971	966	954	956	883	803	717	622	552	625	744	797	808
		Crush	-108	-89	-70	-48	-41	39	128	221	321	397	315	213	183	154
Level 5 Window Top	1060	Pre				855	833	808	781	755	742	737	734	734	734	733
		Post				908	866	807	741	669	600	520	549	589	619	639
		Crush				-53	-33	1	40	86	142	217	185	145	115	94

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. The final distance to impact is determined after final dummy positioning. The pole is aligned with the center of gravity of the head.

Table 6 Vehicle Exterior Crush Profiles - All Levels, Continued

Vehicle: 2006 Toyota Sienna LE MPV

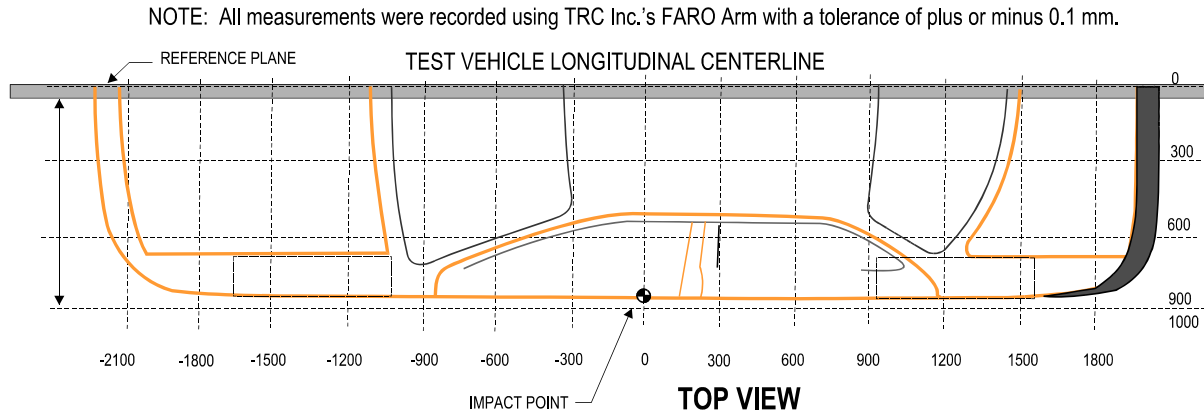
			(mm) From Impact Point												
Location	Height		808	958	1108	1258	1408	1558	1708	1858	2008	2158	2308	2458	2608
Level 1 Side Sill	300	Pre	914	913	914	918	930								
		Post	828	855	881	907	946								
		Crush	86	58	33	11	-16								
Level 2 H-Point	785	Pre	981	980	979	978	977	979							
		Post	863	891	921	949	979	972							
		Crush	118	89	58	29	-2	7							
Level 3 Mid-Door	700	Pre	978	977	976	975	976	982							
		Post	866	894	923	952	984	972							
		Crush	112	83	53	23	-8	10							
Level 4 Window Sill	1025	Pre	964	964	965	963	961	958							
		Post	839	868	897	925	952	978							
		Crush	125	96	68	38	9	-20							
Level 5 Window Top	1060	Pre	733	732	730	727	725	722							
		Post	660	680	698	715	722	719							
		Crush	73	52	32	12	3	3							

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

Figure 5 Vehicle Damage Profile Distances

Test Vehicle: 2006 Toyota Sienna LE MPV

Test Date: 01/08/08



MEASUREMENT CONVENTIONS:

Forward of the impact point (towards front of vehicle) is considered negative (-)

Rearward of the impact point (towards rear end of vehicle) is considered positive (+)

DAMAGE PROFILE DISTANCES

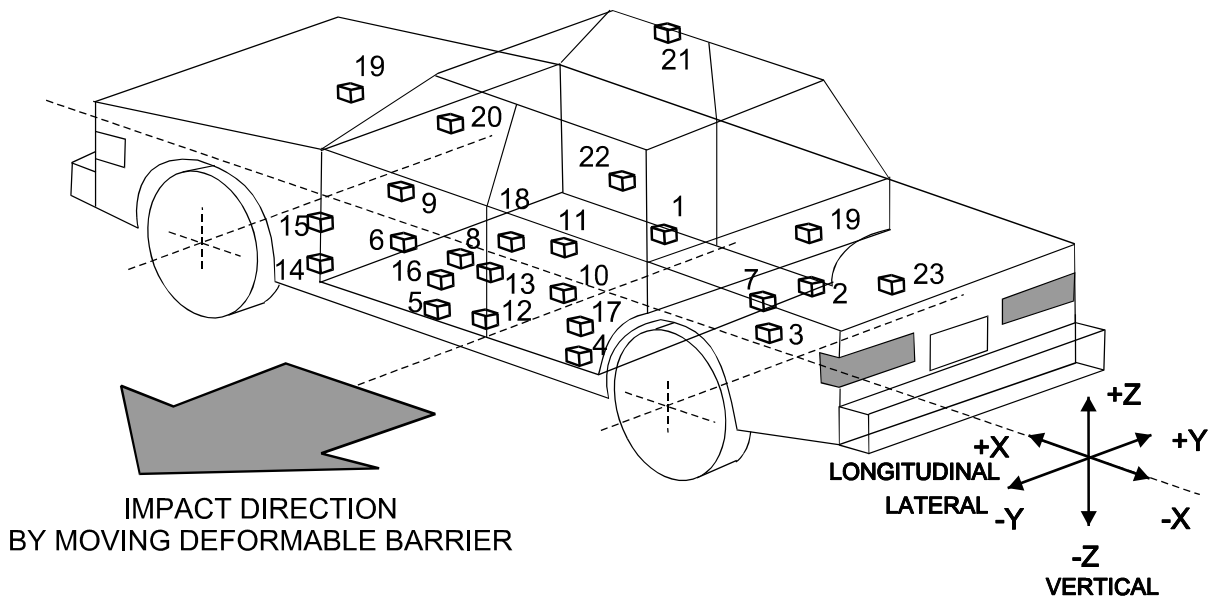
DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max. Static Crush (mm)
1	1558 mm	4	958	978	-20
2	958 mm	4	964	868	96
3	358 mm	1	917	694	223
4	-92 mm	2	979	620	359
5	-842 mm	4	906	954	-48
6	-1292 mm	4	860	968	-108

Reference plane is parallel to test vehicle longitudinal centerline.

Given dimensions = Reference plane to car body.

Figure 6 Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2006 Toyota Sienna LE MPV



- 1-Right Front Side Sill
- 2-Right Side Sill at Rear Seat
- 3-Rear Floorpan above Axle
- 4-Left Side Sill at Rear Seat
- 5-Left Front Side Sill
- 6-Left Front Door on Centerline
- 7-Right Rear Occupant Compartment
- 8-Left Front Door Mid Rear
- 9-Left Front Door Upper Centerline
- 10-Left Rear Door Mid Rear
- 11-Left Rear Door Upper Centerline
- 12-Left Side Lower B-pillar

- 13-Left Side Middle B-pillar
- 14-Left Side Lower A-pillar
- 15-Left Side Middle A-pillar
- 16-Left Side Front Seat Track at H-point
- 17-Left Rear Seat Track at H-point
- 18-Vehicle Center of Gravity
- 19-Top of Engine
- 20-Firewall
- 21-Right Side Roof Rail
- 22-Right Side Sill
- 23-Rear Deck Behind Rear Axle

Table 7 Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2006 Toyota Sienna LE MPV

Location	Coordinates (millimeters)			Positive Direction Max. Time (g) (ms)		Negative Direction Max. Time (g) (ms)	
	X	Y	Z				
1 Right Side Sill at Front Seat	3834	705	422				
Longitudinal				0.6	17.3	5.2	67.9
Lateral				13.4	13.4	0.6	206.6
Vertical				2.7	47.7	4.9	15.3
Resultant				13.9	13.7		
2 Right Side Sill at Rear Seat	2970	685	457				
Longitudinal				0.5	173.9	4.6	68.4
Lateral				12.8	14.0	0.7	206.4
Vertical				6.7	67.2	3.7	62.8
Resultant				13.5	14.0		
3 Rear Floorpan Above Axle	1875	0	544				
Longitudinal				1.2	173.8	3.4	71.8
Lateral				4.2	105.6	3.6	43.8
Vertical				13.2	55.8	1.2	196.5
Resultant				13.4	55.4		
4 Left Side Sill at Rear Seat	2955	692	451				
Longitudinal							
Lateral				66.0	49.0	16.7	56.2
Vertical							
Resultant							
5 Left Side Sill at Front Seat	3800	733	432				
Longitudinal							
Lateral ¹				1007.2	122.0	32.7	99.8
Vertical							
Resultant							

¹ See Data Acquisition Explanations

Table 7 Test Vehicle Accelerometer Locations and Data Summary, Continued

Vehicle: 2006 Toyota Sienna LE MPV

Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
	X	Y	Z	Max. (g)	Time (ms)	Max. (g)	Time (ms)
6 Left Front Door on Centerline	3835	850	794				
Longitudinal							
Lateral				82.9	8.9	49.6	17.5
Vertical							
Resultant							
7 Right Rear Occupant Compartment	2880	435	467				
Longitudinal							
Lateral				12.6	14.1	0.7	210.6
Vertical							
Resultant							
8 Left Front Door Mid-Rear	3430	850	794				
Longitudinal							
Lateral				101.1	15.5	28.2	20.3
Vertical							
Resultant							
9 Left Front Door Upper Centerline	3835	850	1074				
Longitudinal							
Lateral				76.9	11.9	25.6	21.8
Vertical							
Resultant							
10 Left Rear Door Mid Rear	2743	845	785				
Longitudinal							
Lateral				42.4	38.2	22.0	45.3
Vertical							
Resultant							

Table 7 Test Vehicle Accelerometer Locations and Data Summary, Continued

Vehicle: 2006 Toyota Sienna LE MPV

Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
	X	Y	Z	Max. (g)	Time (ms)	Max. (g)	Time (ms)
11 Left Rear Door Upper Centerline	2743	825	1115				
Longitudinal							
Lateral				46.7	47.4	24.8	58.2
Vertical							
Resultant							
12 Left Lower B-Pillar	3285	910	632				
Longitudinal							
Lateral				64.2	13.6	3.8	47.5
Vertical							
Resultant							
13 Left Middle B-Pillar	3280	892	1120				
Longitudinal							
Lateral				46.0	40.9	12.7	48.1
Vertical							
Resultant							
14 Left Lower A-Pillar	4320	880	626				
Longitudinal							
Lateral				25.2	16.4	3.6	31.1
Vertical							
Resultant							
15 Left Middle A-Pillar	4350	880	1000				
Longitudinal							
Lateral				14.6	17.0	1.7	1.2
Vertical							
Resultant							

Table 7 Test Vehicle Accelerometer Locations and Data Summary, Continued

Vehicle: 2006 Toyota Sienna LE MPV

Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
	X	Y	Z	Max. (g)	Time (ms)	Max. (g)	Time (ms)
16 Left Front Seat Track	3460	644	511				
Longitudinal							
Lateral				54.6	25.8	7.2	45.8
Vertical							
Resultant							
17 Left Rear Seat Track	2455	677	496				
Longitudinal							
Lateral				11.5	14.8	12.5	42.4
Vertical							
Resultant							
18 Vehicle CG	3436	0	471				
Longitudinal				0.9	49.4	4.6	71.0
Lateral				14.6	48.6	0.6	207.0
Vertical				43.5	44.9	29.8	49.6
Resultant				44.1	44.9		
19 Top of Engine	5162	0	852				
Longitudinal				3.1	132.8	12.0	51.0
Lateral				16.6	105.7	2.9	195.7
Vertical							
Resultant							
20 Firewall	4933	15	1023				
Longitudinal				2.6	88.2	12.5	34.2
Lateral				15.1	74.5	1.4	3.8
Vertical							
Resultant							

Table 7 Test Vehicle Accelerometer Locations and Data Summary, Continued

Vehicle: 2006 Toyota Sienna LE MPV

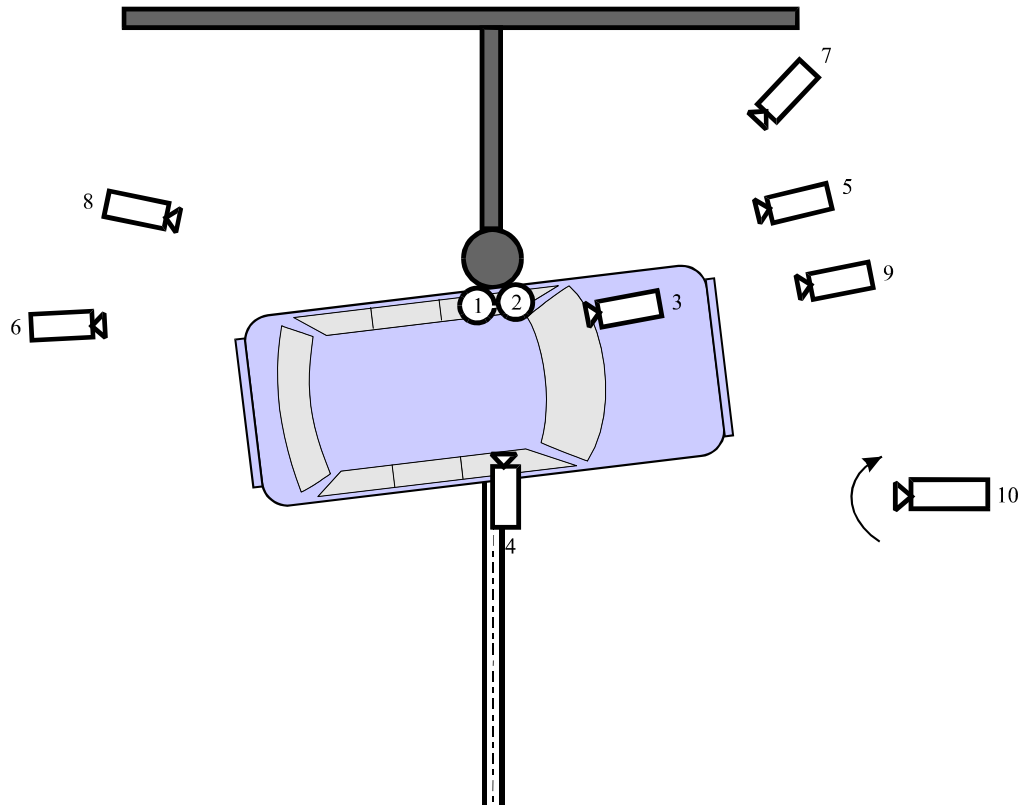
Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
	X	Y	Z	Max. (g)	Time (ms)	Max. (g)	Time (ms)
21 Right Side Roof Rail	3600	640	1655				
Longitudinal				2.2	38.2	8.8	53.2
Lateral				19.1	29.6	2.7	45.7
Vertical							
Resultant							
22 Right Side Sill	3722	845	264				
Longitudinal							
Lateral				14.9	14.1	0.8	206.2
Vertical							
Resultant							
23 Rear Deck Behind Rear Axle	900	0	541				
Longitudinal				2.2	171.8	7.8	72.2
Lateral				12.9	105.4	2.1	185.0
Vertical				2.3	58.4	2.8	48.2
Resultant				14.0	104.6		

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

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

Figure 7 High-Speed Camera Locations and Data Summary

Vehicle: 2006 Toyota Sienna LE MPV



No.	Camera View	Location (mm)			Angle (deg.)	Lens (mm)	Speed (fps)
		X	Y	Z			
1	Overhead Wide	670	0	-5620	90.0	6.5	1000
2	Overhead Tight	0	0	-5620	90.0	25	1000
3	Onboard Front - Driver	450	1510	-1340	2.0	12.5	1000
4	Onboard Side Front	1670	0	-1310	9.1	6.5	1000
5	Front Vehicle to Pole	0	4990	-1310	5.2	12.5	1000
6	Rear Vehicle to Pole	0	7890	-1320	4.1	12.5	1000
7	Left Front Angled	980	3590	-1280	6.4	12.5	1000
8	Left Rear Angled	2580	4180	-1310	6.8	12.5	1000
9	Vehicle Front on Driver	2100	4100	-1490	2.1	50	1000
10	Panning	N/A	N/A	N/A	N/A	Zoom	24
11	Underbody	0	0	-3260	90.0	25	1000

+X: Forward (referenced to Pole) from impact point
+Y: Rightward (referenced to Pole) from impact point
+Z: Downward from ground level
Vehicle was at a 15° angle to the rigid pole.

Appendix A

Photographs



Figure A-1 Post-Test Front View



Figure A-2 Post-Test Left Front View



Figure A-3 Pre-Test Left Side View



Figure A-4 Post-Test Left Side View



Figure A-5 Pre-Test Left Rear View



Figure A-6 Post-Test Left Rear View



Figure A-7 Post-Test Rear View



Figure A-8 Pre-Test Right Rear View



Figure A-9 Post-Test Right Side View



Figure A-10 Post-Test Right Front View



Figure A-11 Post-Test Overhead View

Intentionally Left Blank



Figure A-12 Pre-Test Fuel Filler Cap View

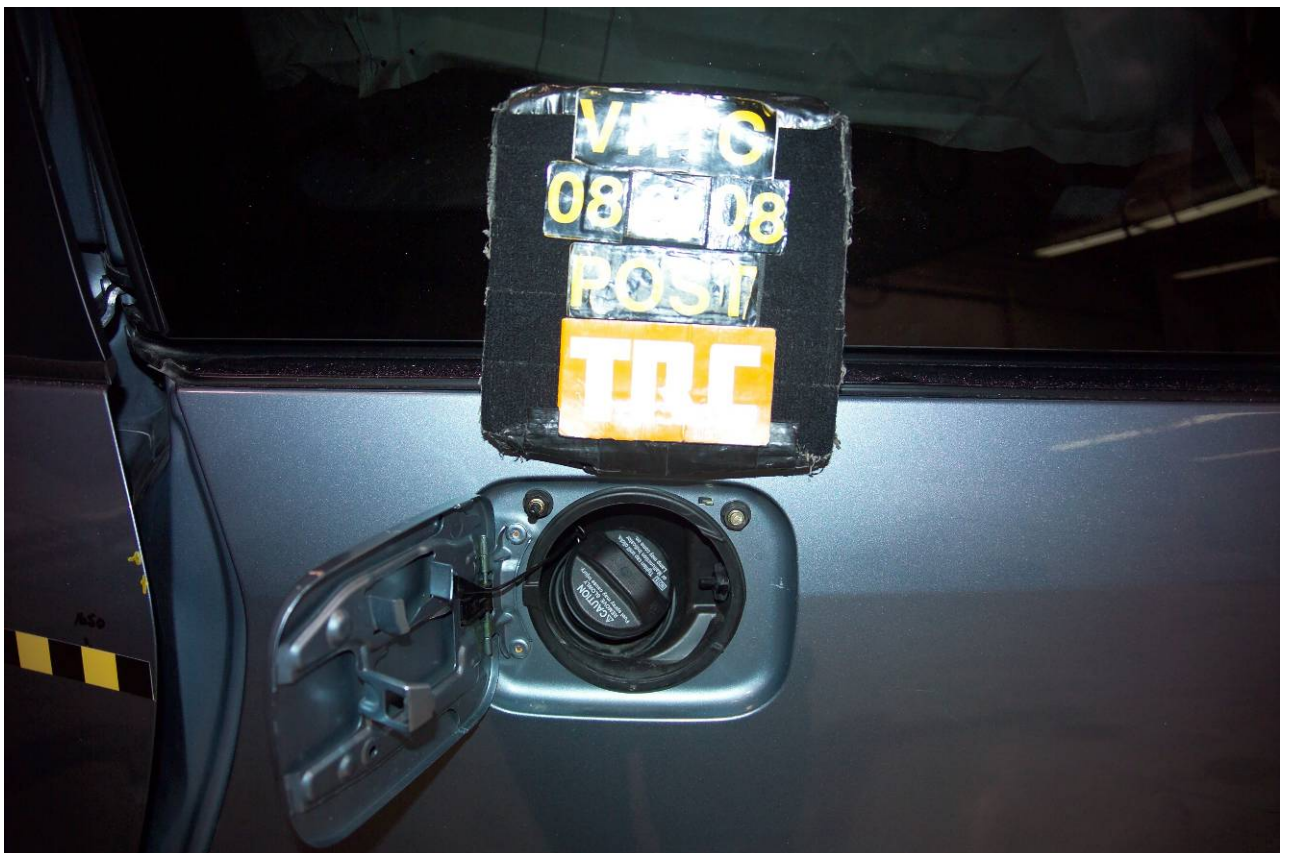


Figure A-13 Post-Test Fuel Filler Cap View



Figure A-14 Pre-Test Pole Barrier Front View



Figure A-15 Post-Test Pole Barrier Front View



Figure A-16 Pre-Test Driver Dummy Side View



Figure A-17 Post-Test Driver Dummy Side View

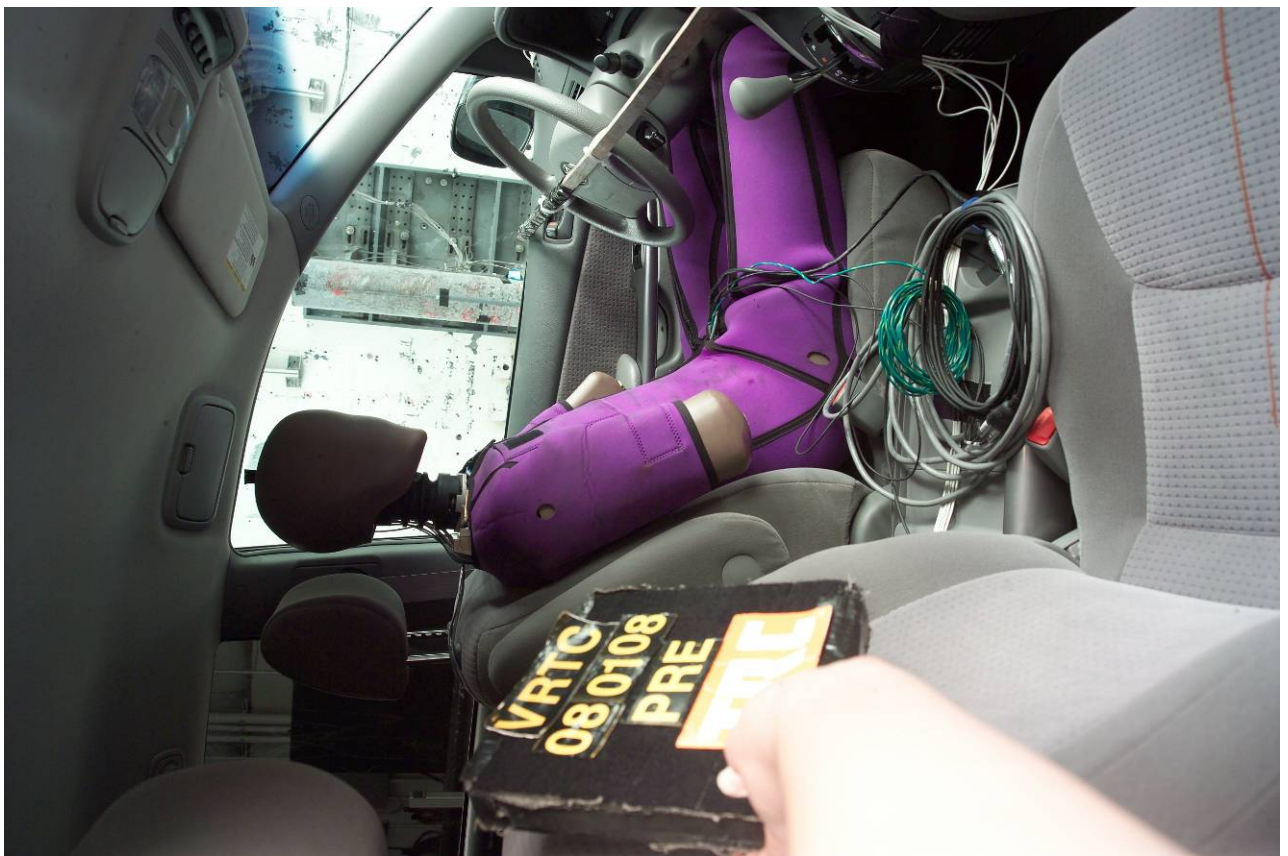


Figure A-18 Pre-Test Right Side Dummy Occupant Compartment View



Figure A-19 Post-Test Right Side Dummy Occupant Compartment View



Figure A-20 Pre-Test Driver Dummy and Door Clearance View



Figure A-21 Post-Test Driver Dummy and Door Clearance View



Figure A-22 Pre-Test Driver Dummy Showing Belts, Chalking, and Contact Switches

Intentionally Left Blank



Figure A-23 Pre-Test Driver Door Panel View



Figure A-24 Post-Test Driver Door Panel View



Figure A-25 Post-Test Driver Dummy Head Contact View

Intentionally Left Blank



Figure A-26 Certification Label



Figure A-27 Tire and Loading Information Label



Figure A-28 Pre-Test Ballast View

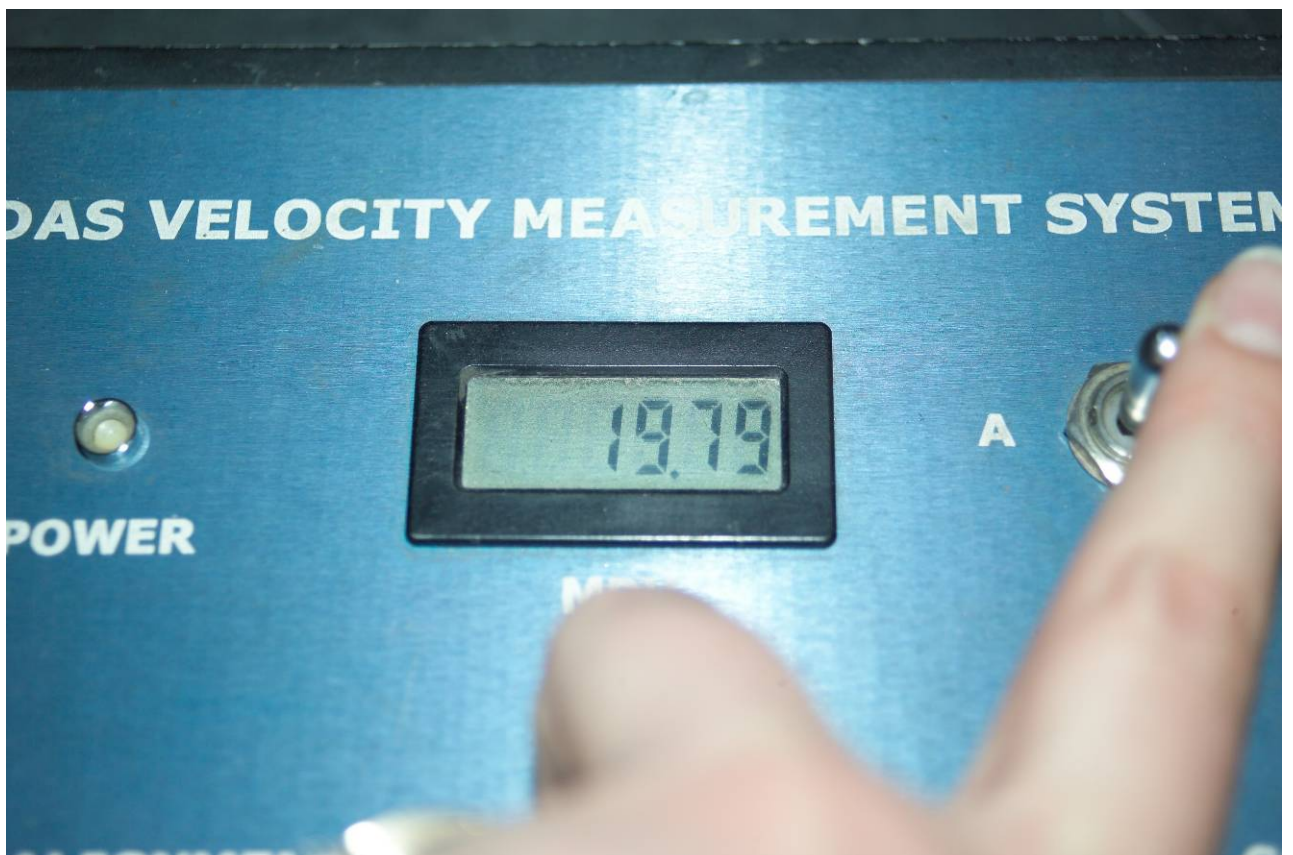


Figure A-29 Post-Test Digital Read-Out - View 1

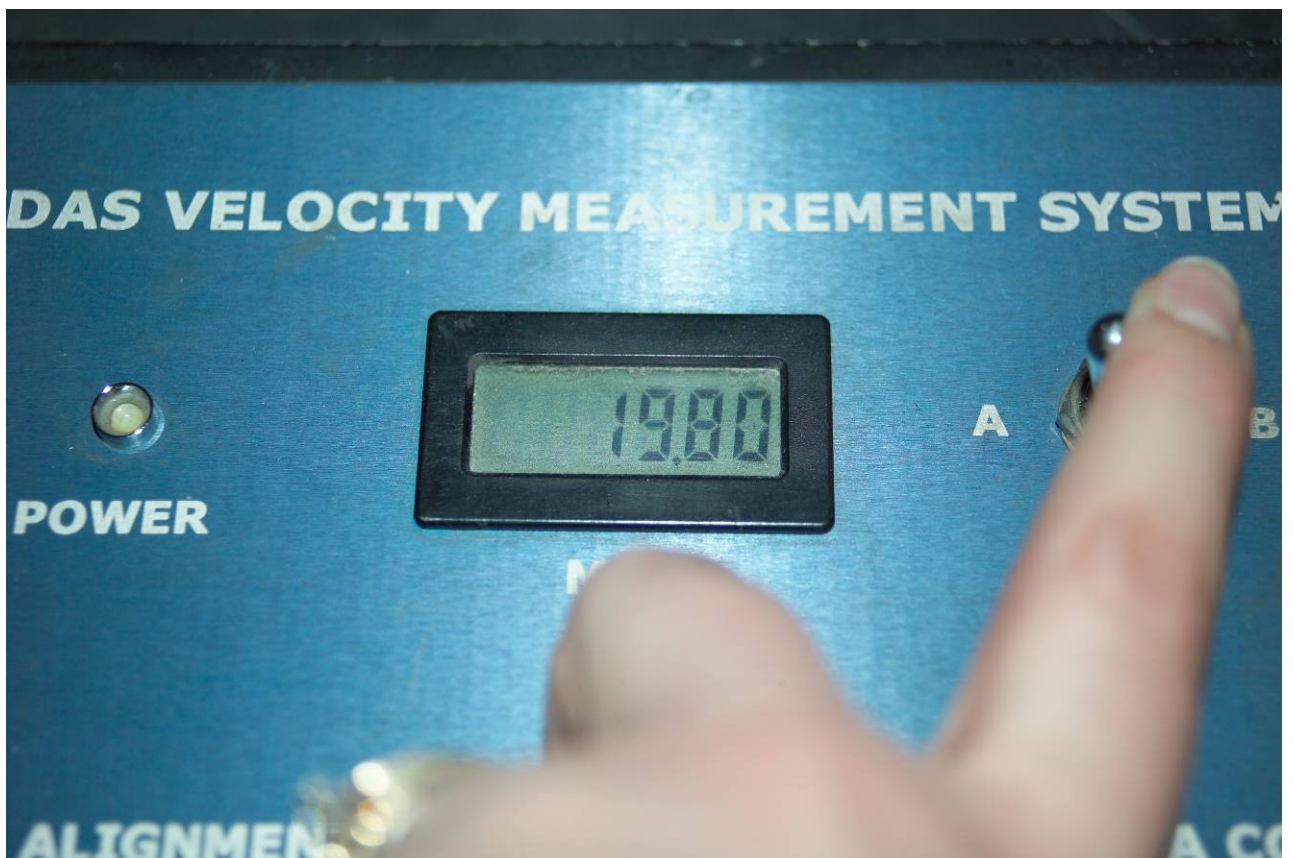


Figure A-30 Post-Test Digital Read-Out - View 2

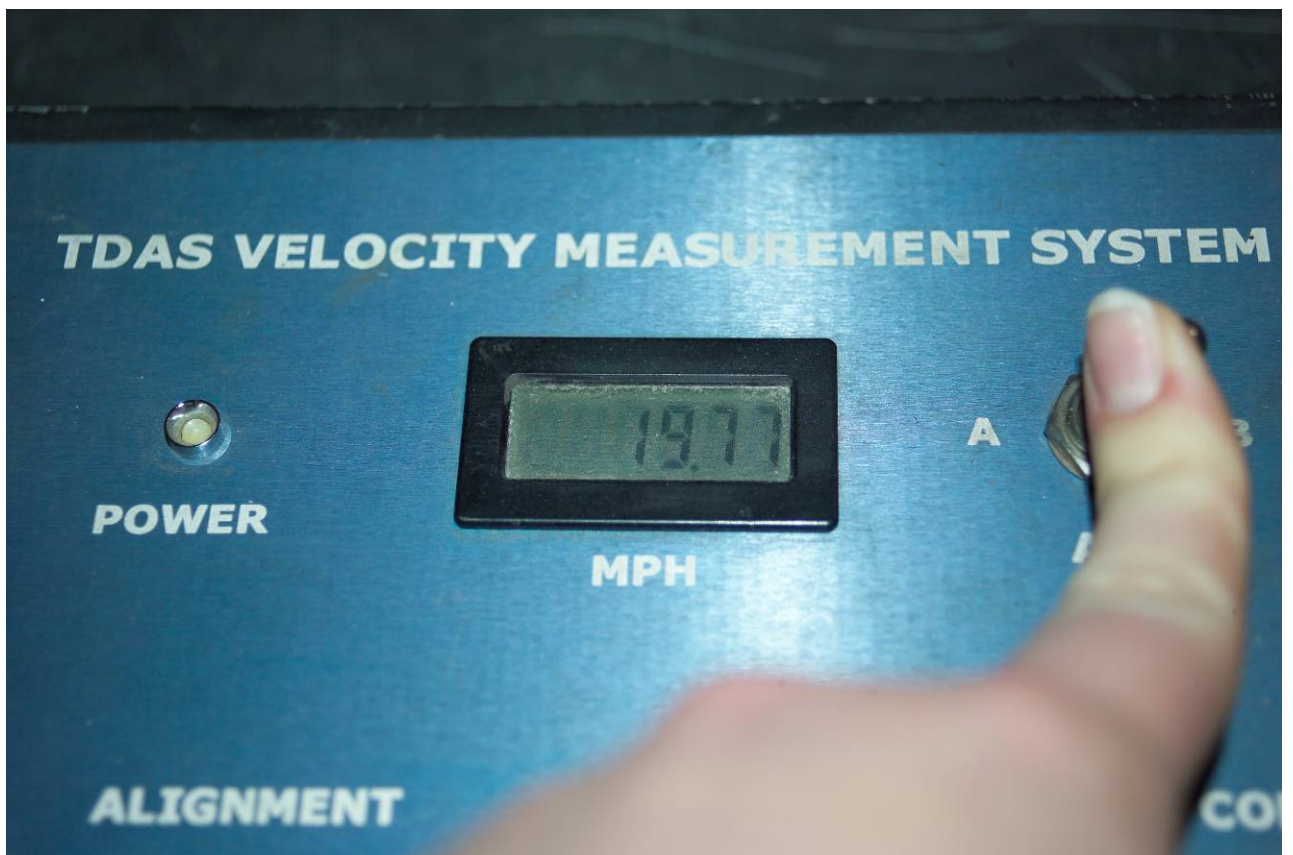


Figure A-31 Post-Test Digital Read-Out - View 3

Appendix B

Data Plots



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

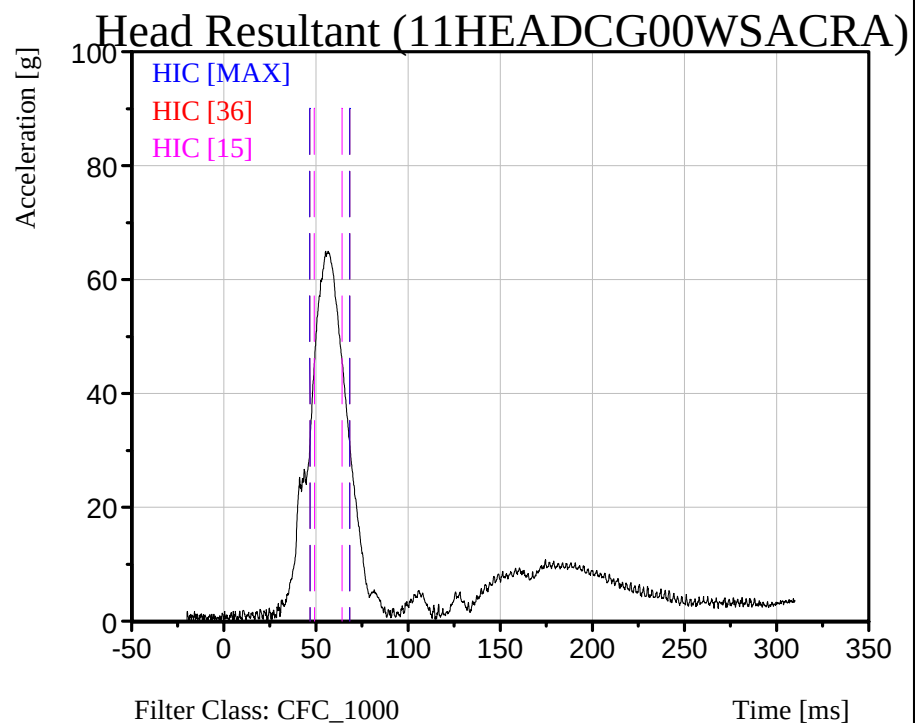
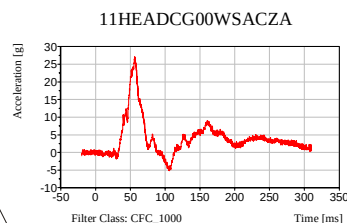
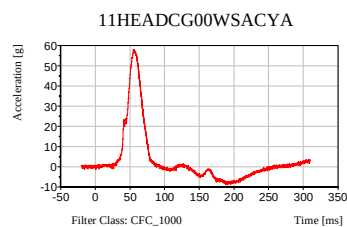
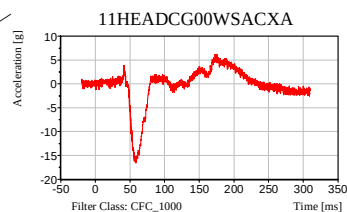
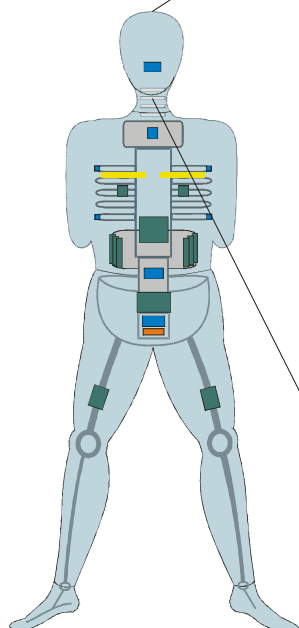
Date: 1/8/2008
Time: 15:51

Head Injury Criterion (HIC)

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 080108



	<u>T1</u> (Begin)	<u>T2</u> (End)	<u>Avg. g T1 to T2</u>
HIC [Max.] = 417.80	46.80 ms	68.48 ms	51.68 g
HIC [36] = 417.80	46.80 ms	68.48 ms	51.68 g
HIC [15] = 379.84	49.28 ms	64.32 ms	57.60 g

Dummy:
Seating Position:
Driver

HIC Source Code: SAE J2052 ISO/TC22/SC12/WG3 N 282 (Issued 1990-03-16)

B-2

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

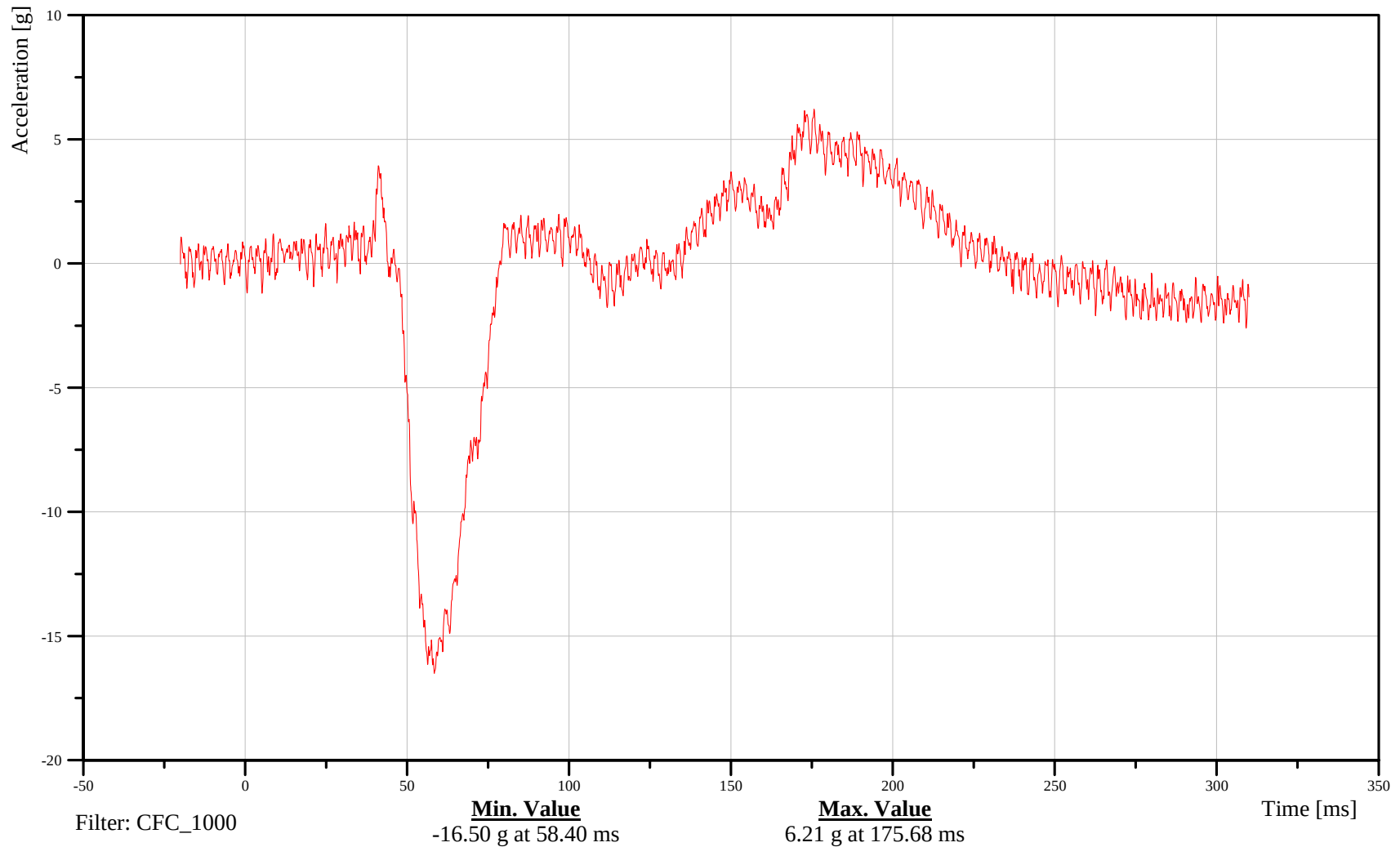
Head X-Axis Acceleration

Customer: VRTC

11HEADCG00WSACXA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-3

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

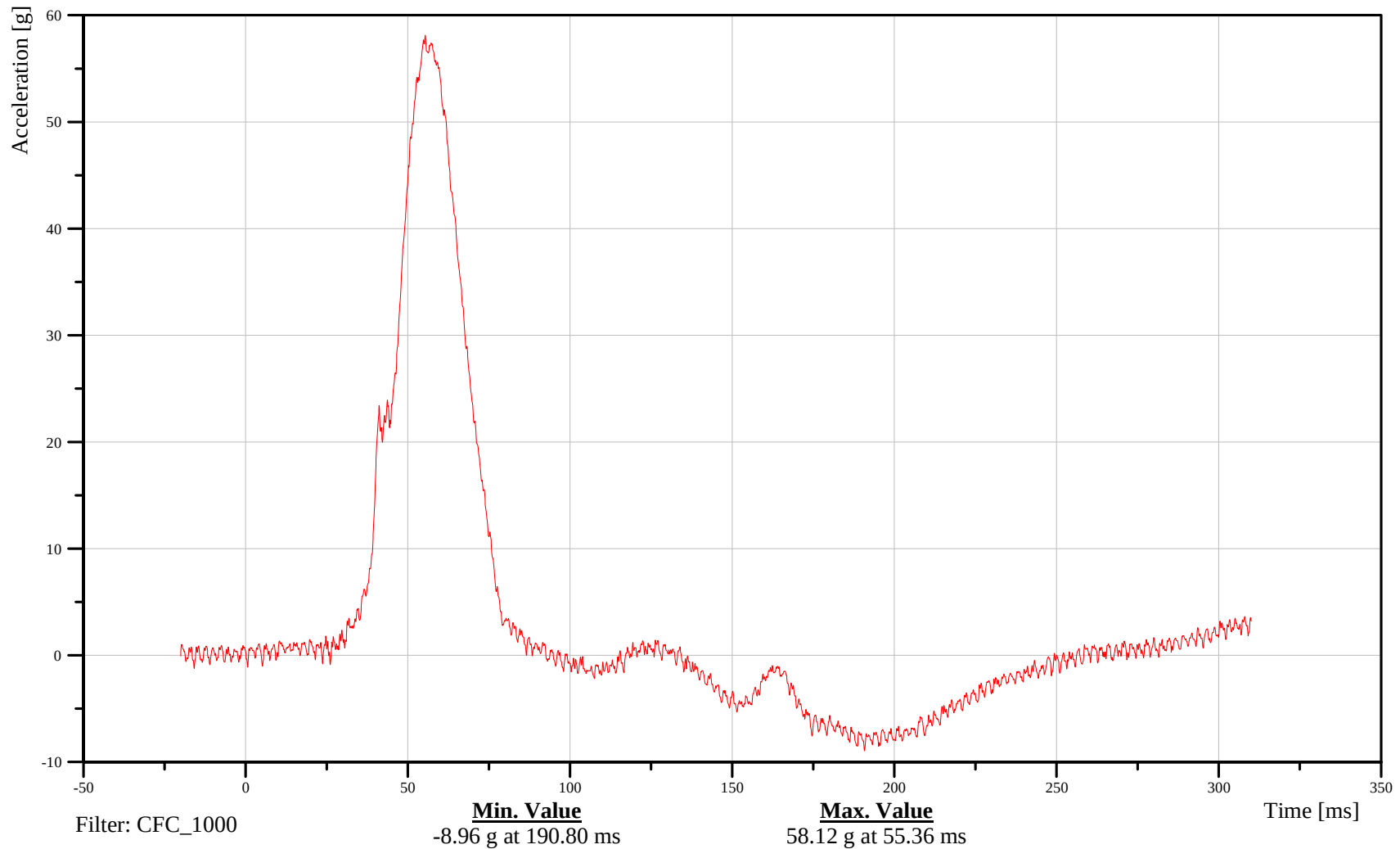
Head Y-Axis Acceleration

Customer: VRTC

11HEADCG00WSACYA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-4

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

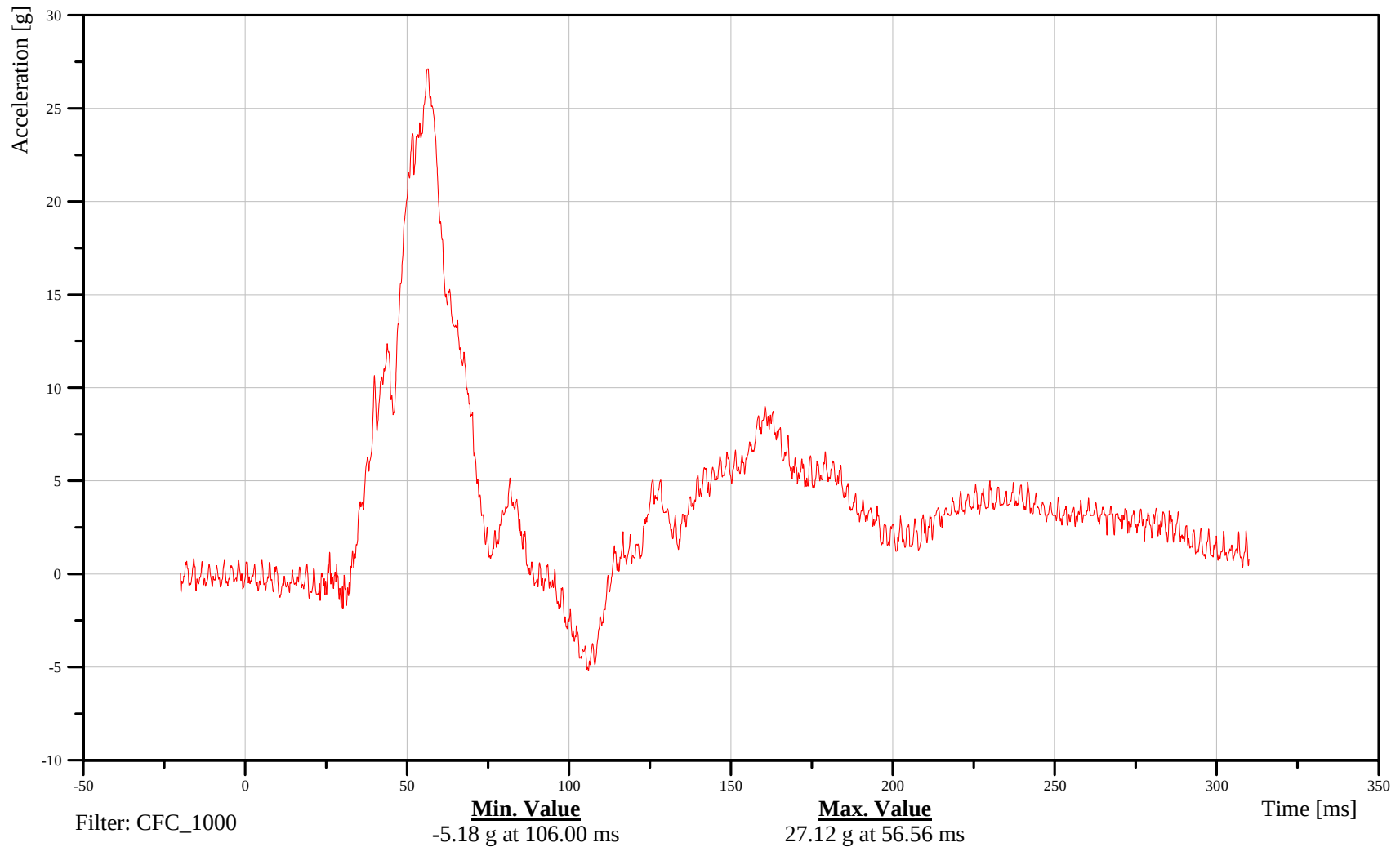
Head Z-Axis Acceleration

Customer: VRTC

11HEADCG00WSACZA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-5

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

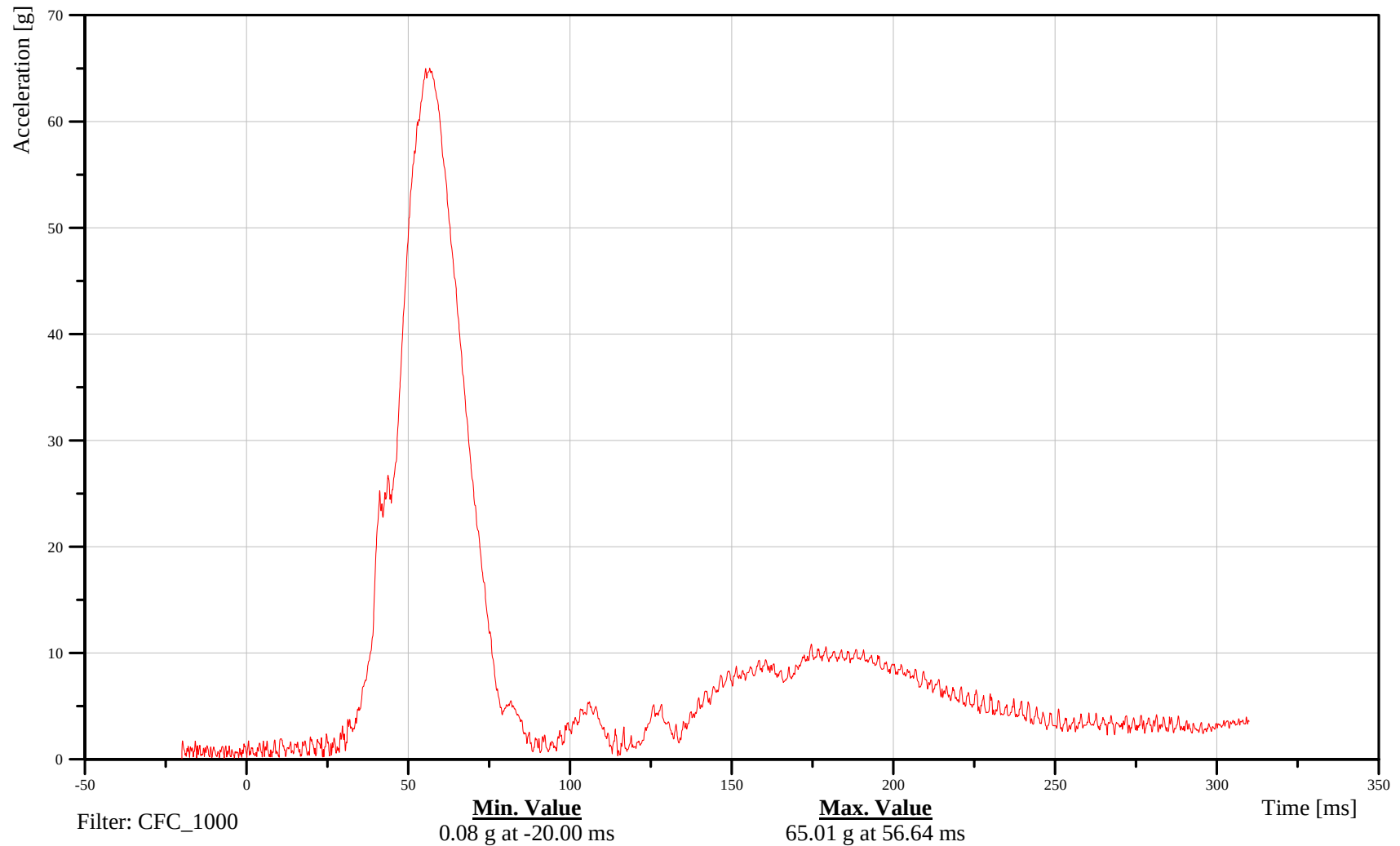
Head Resultant Acceleration

Customer: VRTC

11HEADCG00WSACRA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-6

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

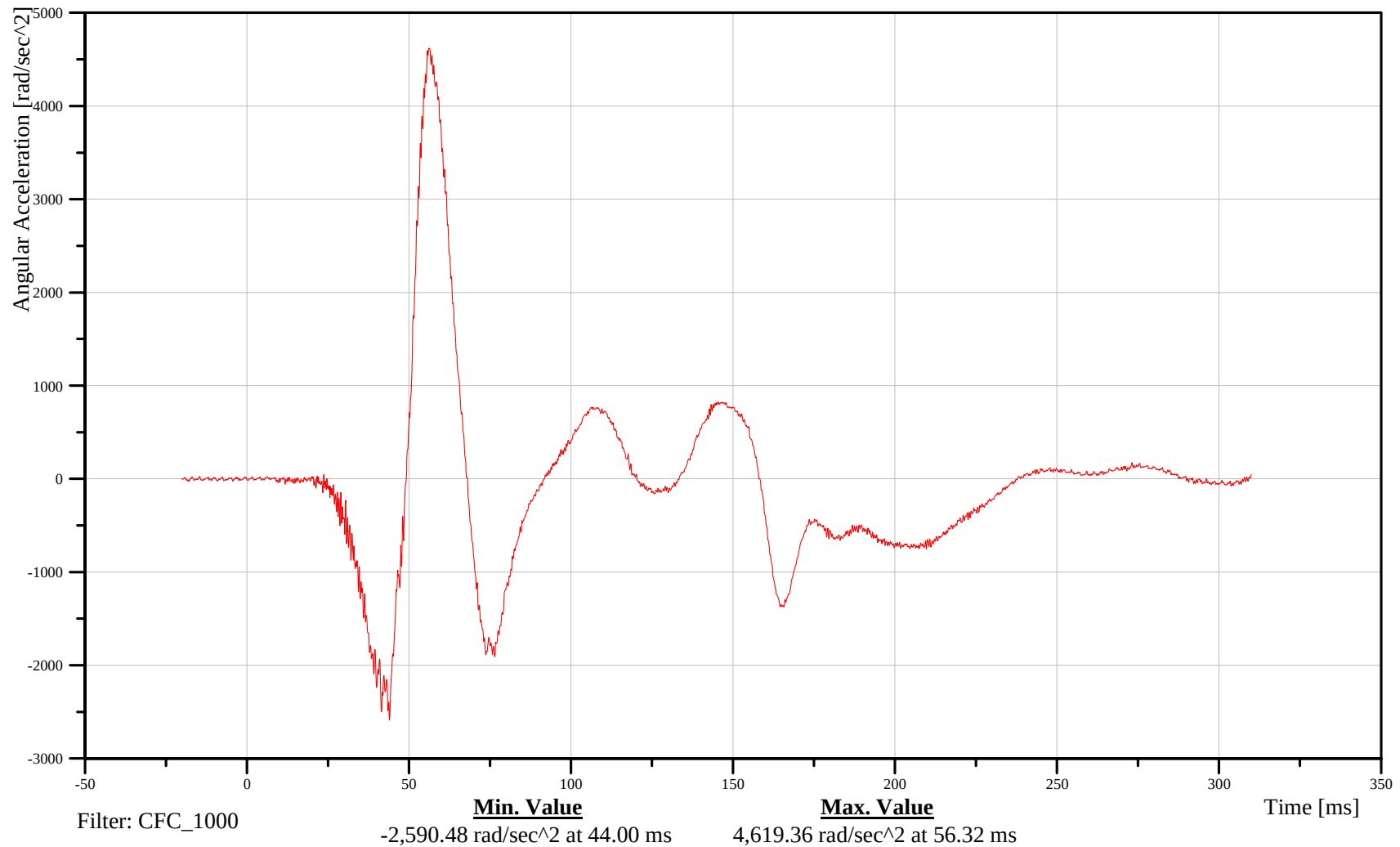
Head X-Axis Angular Displacement

Customer: VRTC

11HEADC00WSANXA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-7

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

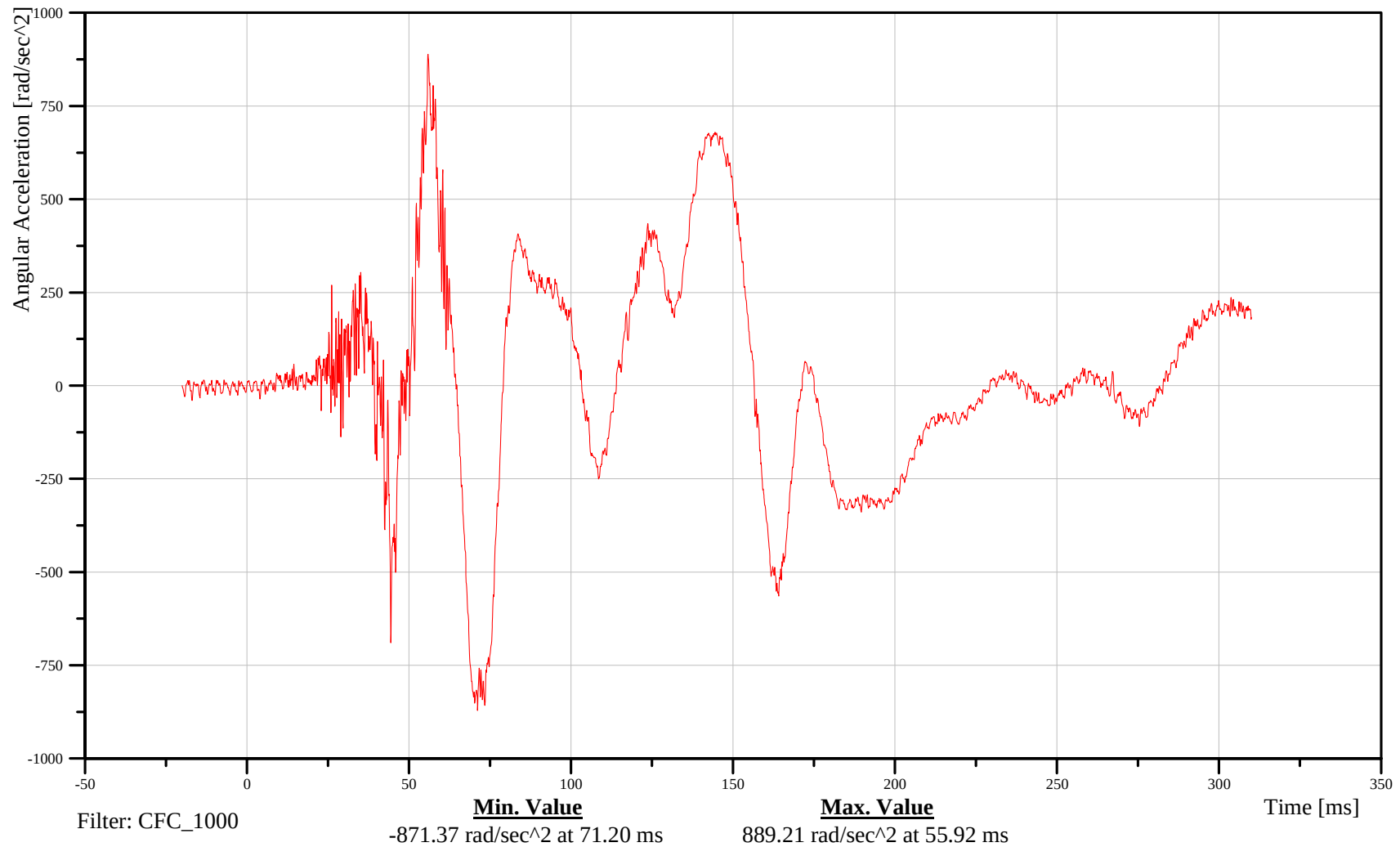
Head Y-Axis Angular Displacement

Customer: VRTC

11HEADCG00WSANYA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-8

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

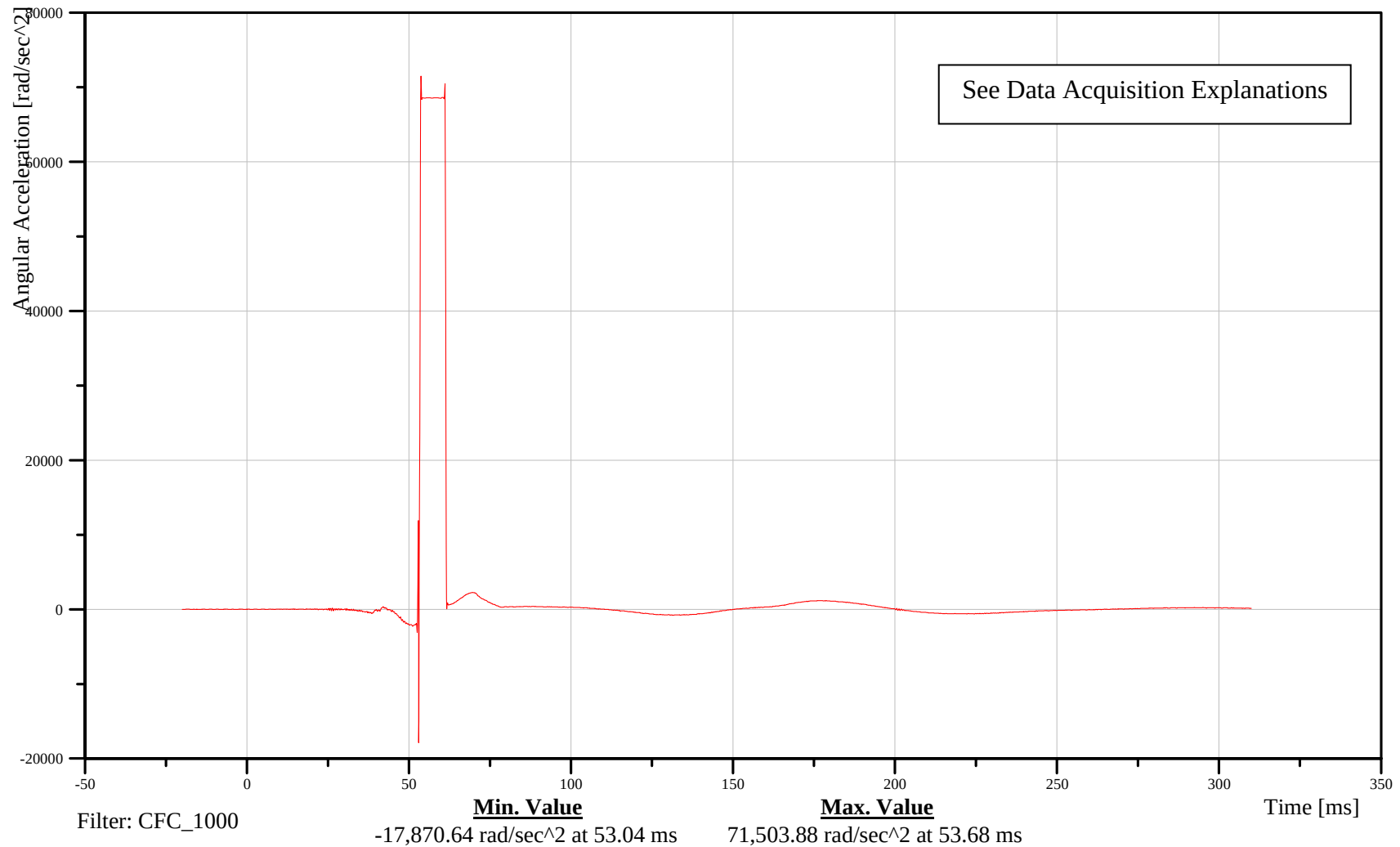
Head Z-Axis Angular Displacement

Customer: VRTC

11HEADCG00WSANZA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-9

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

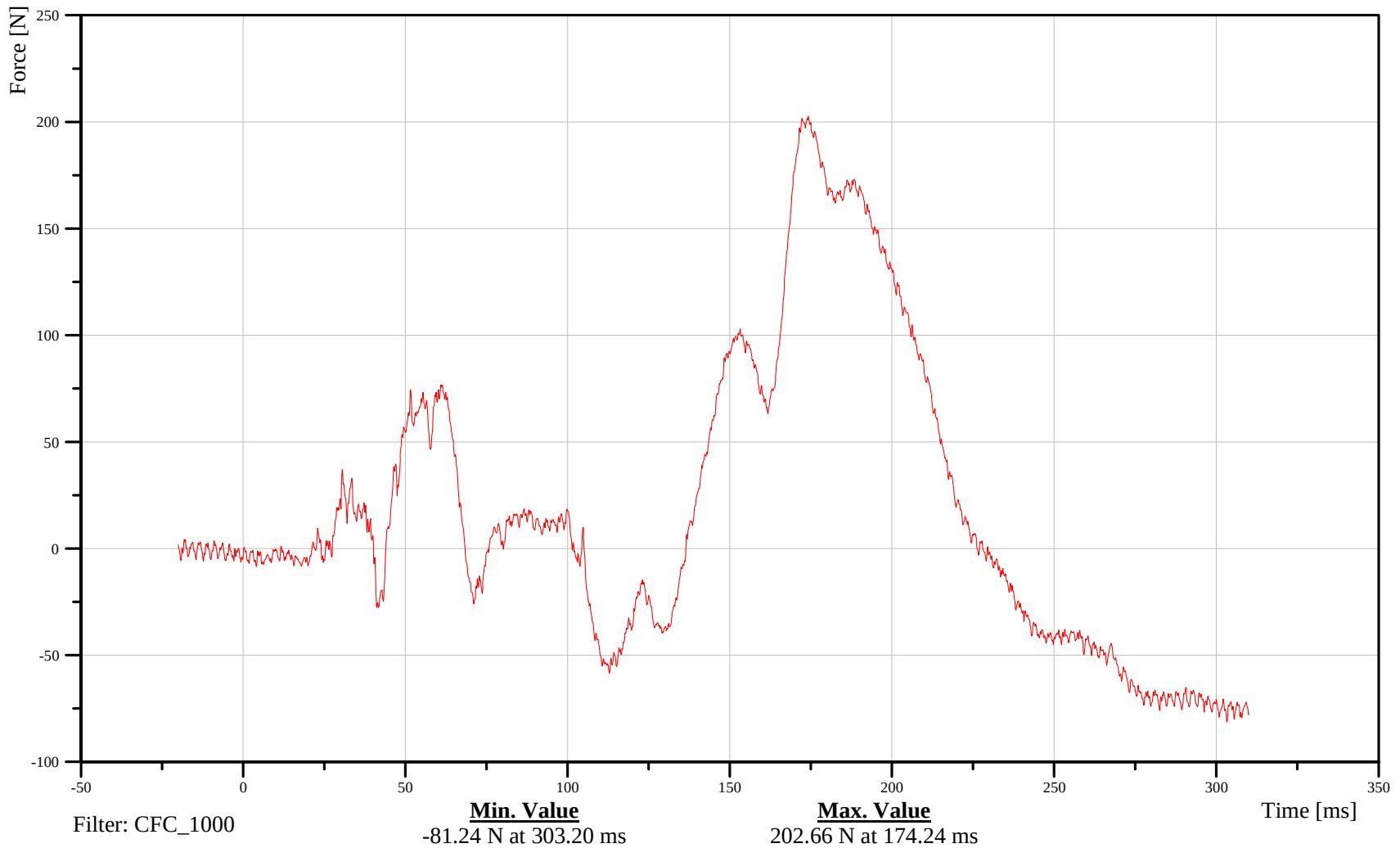
Upper Neck X-Axis Force

Customer: VRTC

11NECKUP00WSFOXA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-10

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

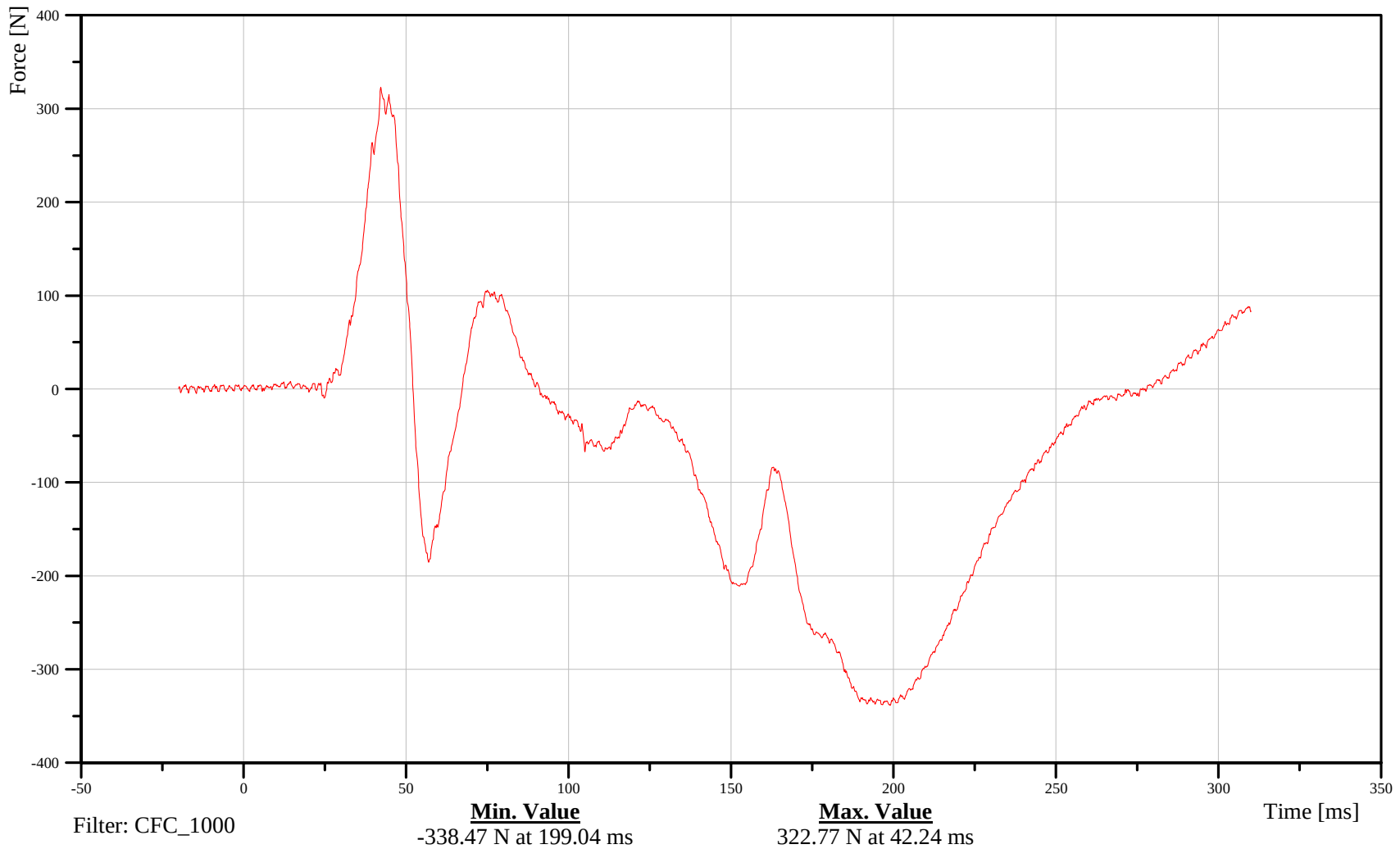
Upper Neck Y-Axis Force

Customer: VRTC

11NECKUP00WSFOYA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-11

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

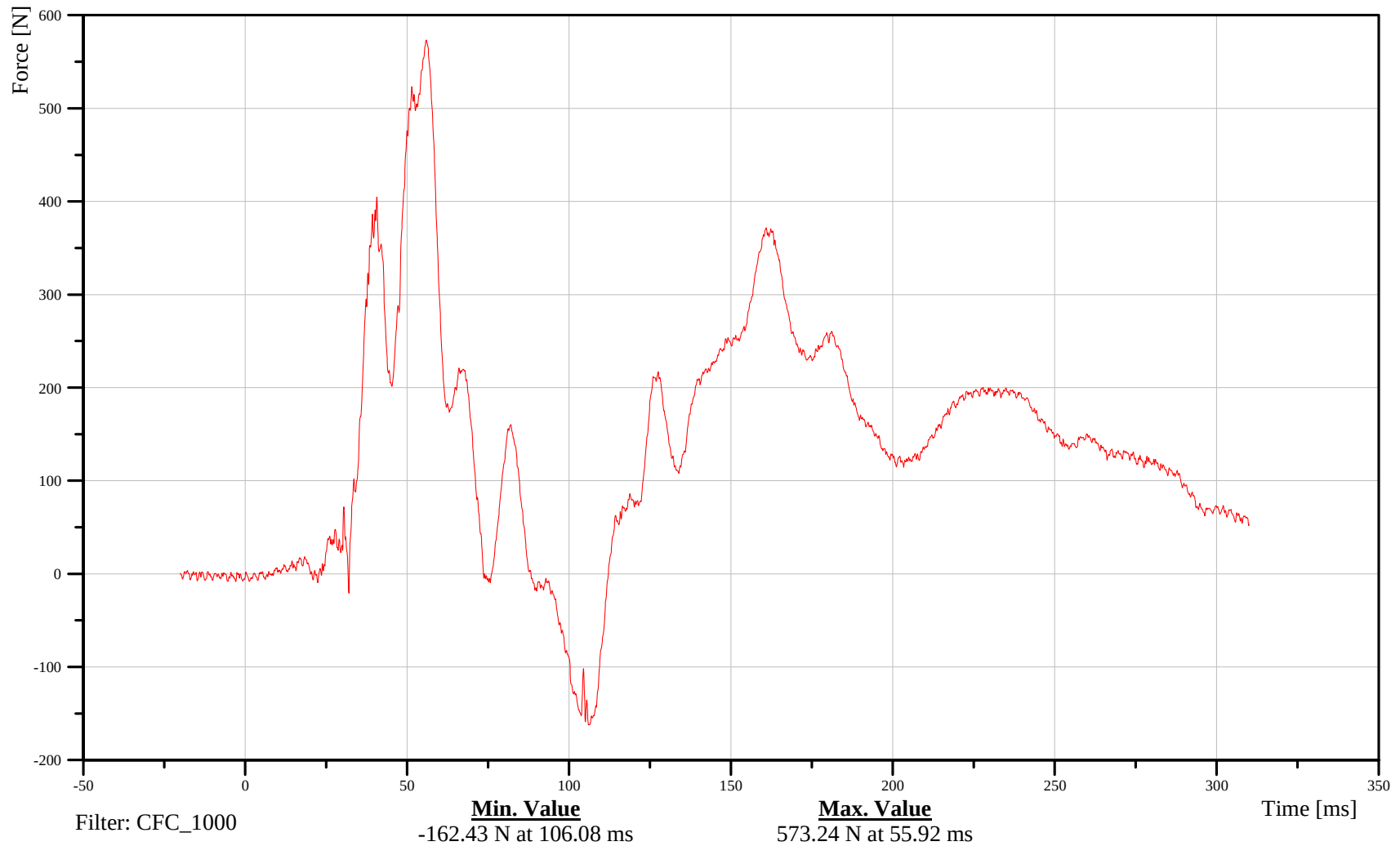
Upper Neck Z-Axis Force

Customer: VRTC

11NECKUP00WSFOZA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

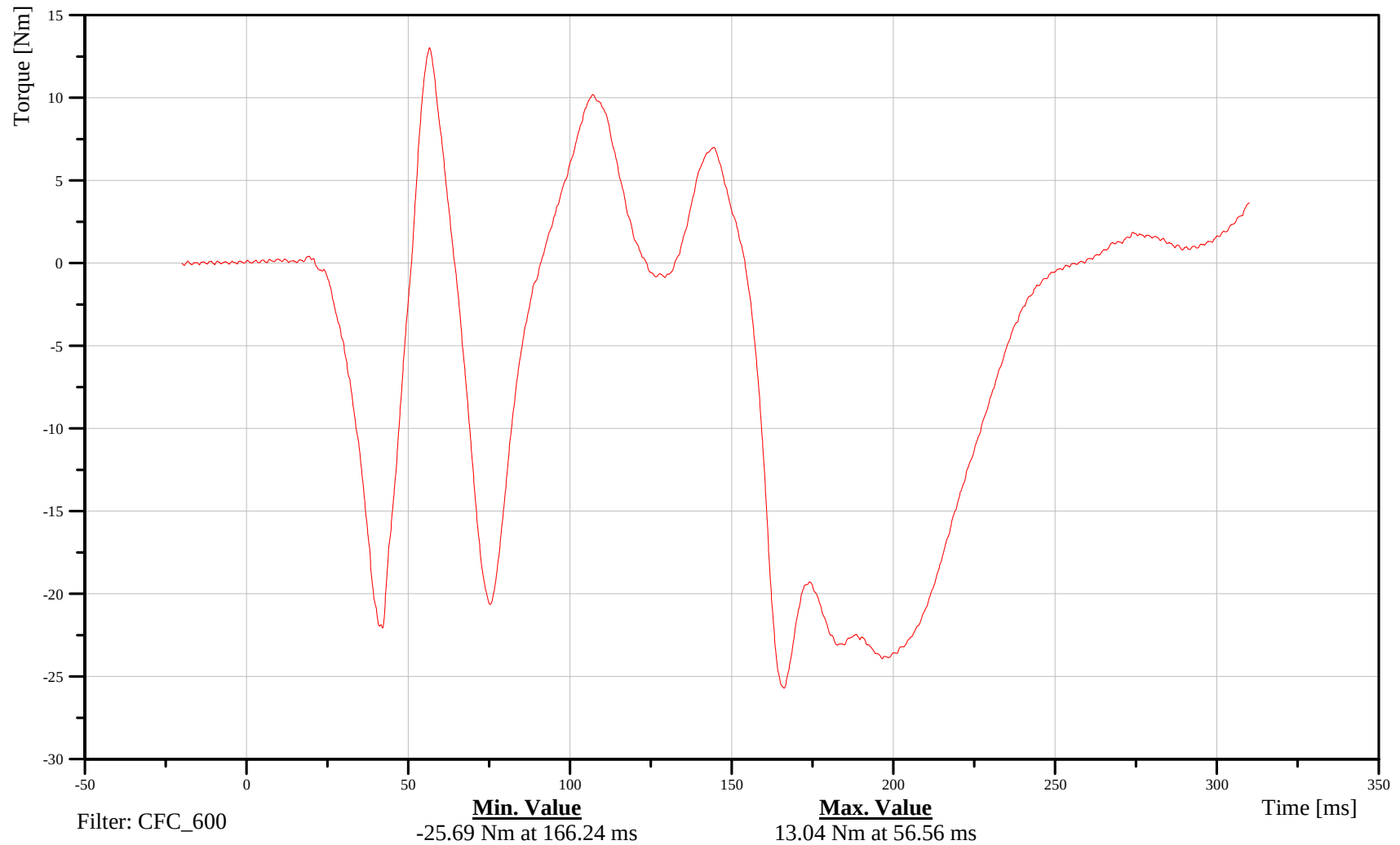
Upper Neck Moment About X Axis

Customer: VRTC

11NECKUP00WSMOXB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-13

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

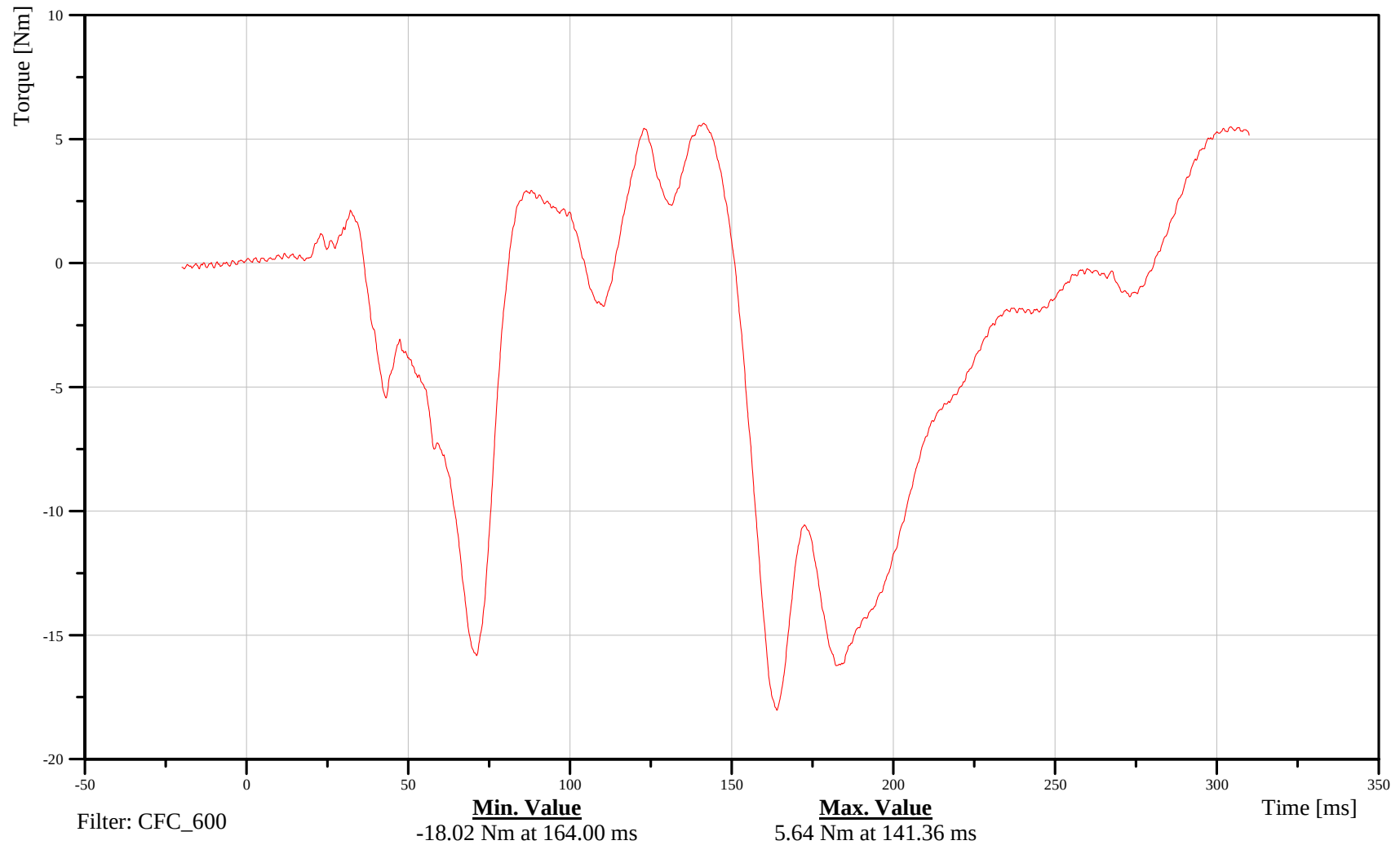
Upper Neck Moment About Y Axis

Customer: VRTC

11NECKUP00WSMOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-14

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

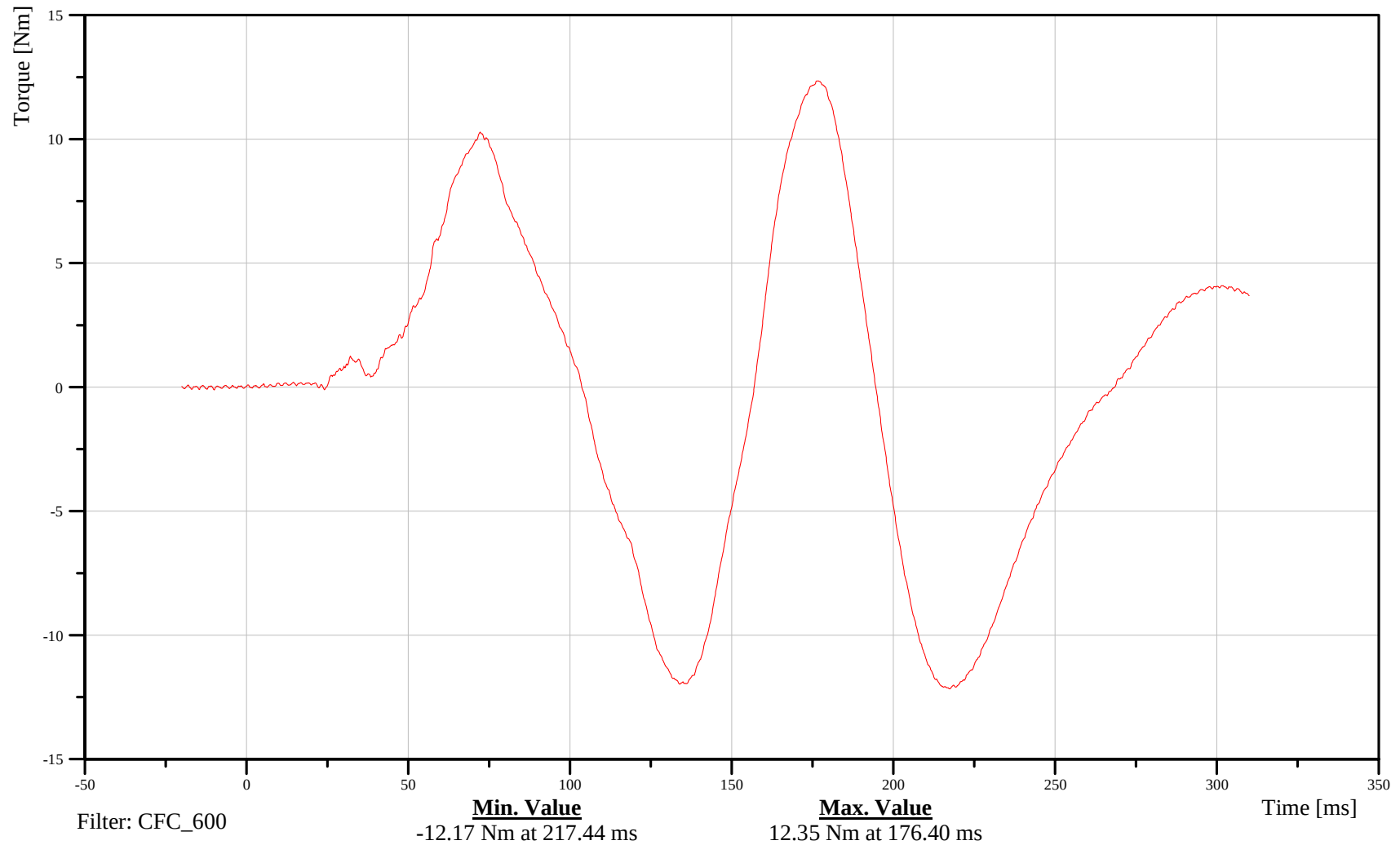
Upper Neck Moment About Z Axis

Customer: VRTC

11NECKUP00WSMOZB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-15

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

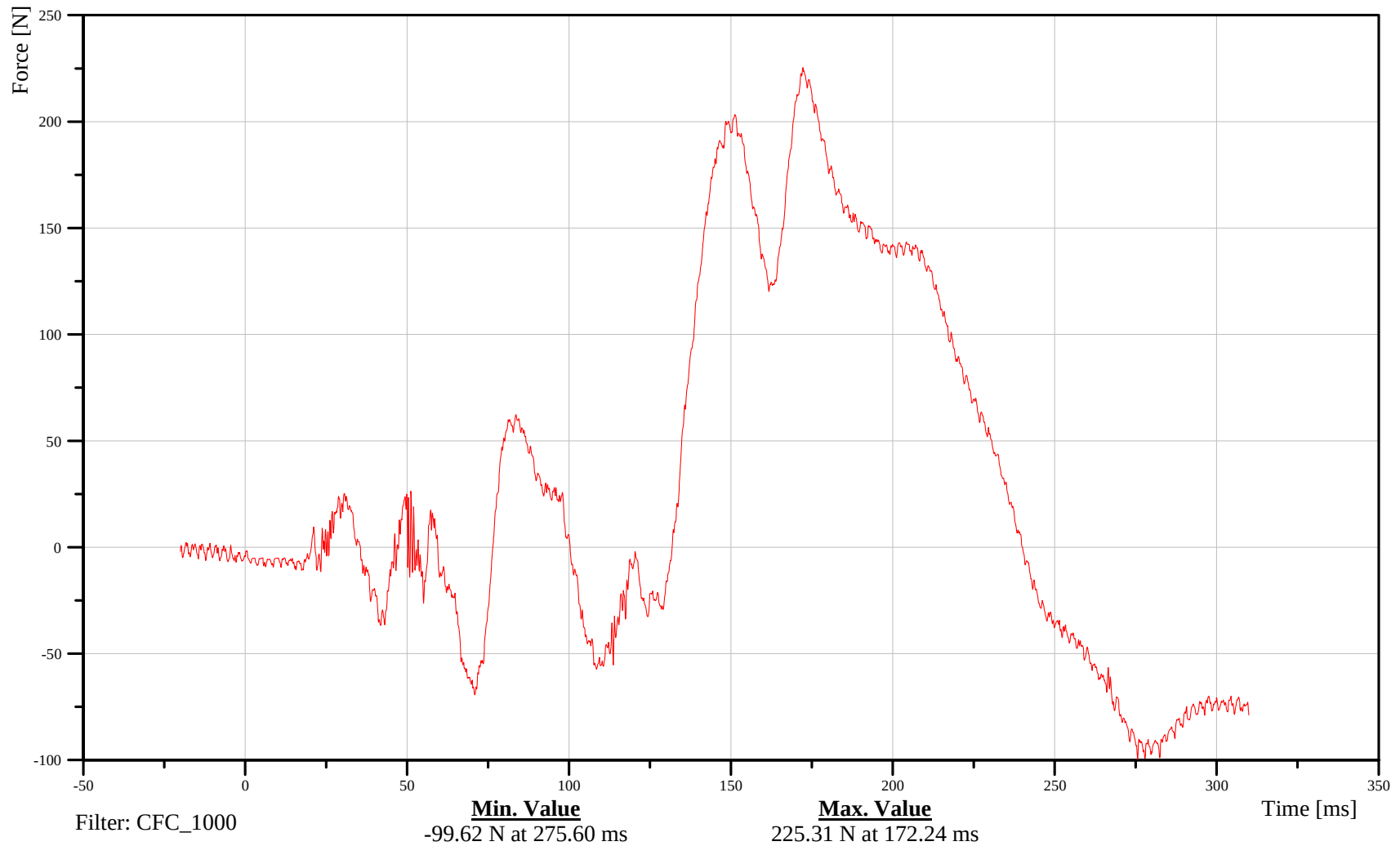
Lower Neck X-Axis Force

Customer: VRTC

11NECKLO00WSFOXA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-16

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

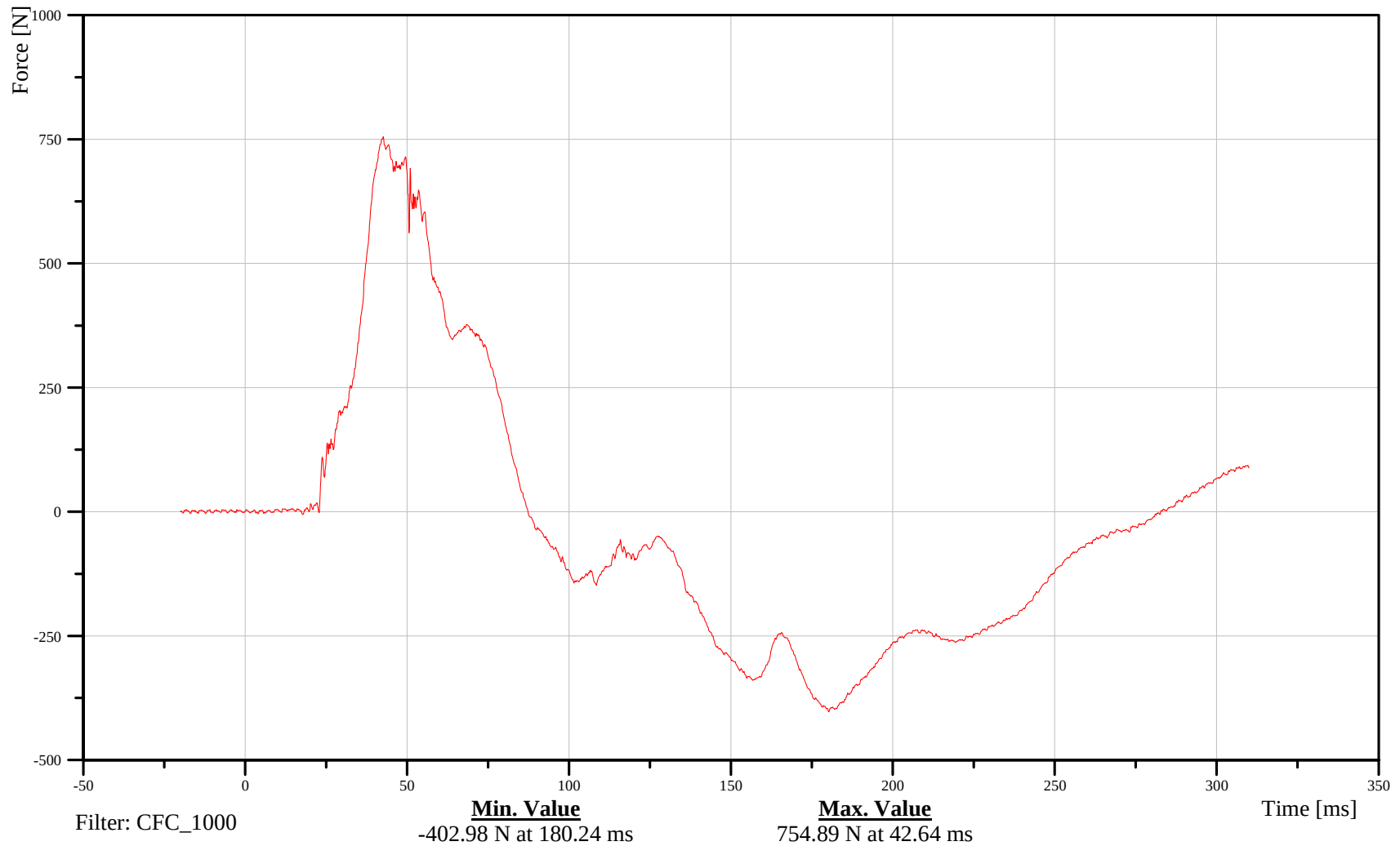
Lower Neck Y-Axis Force

Customer: VRTC

11NECKLO00WSFOYA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-17

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

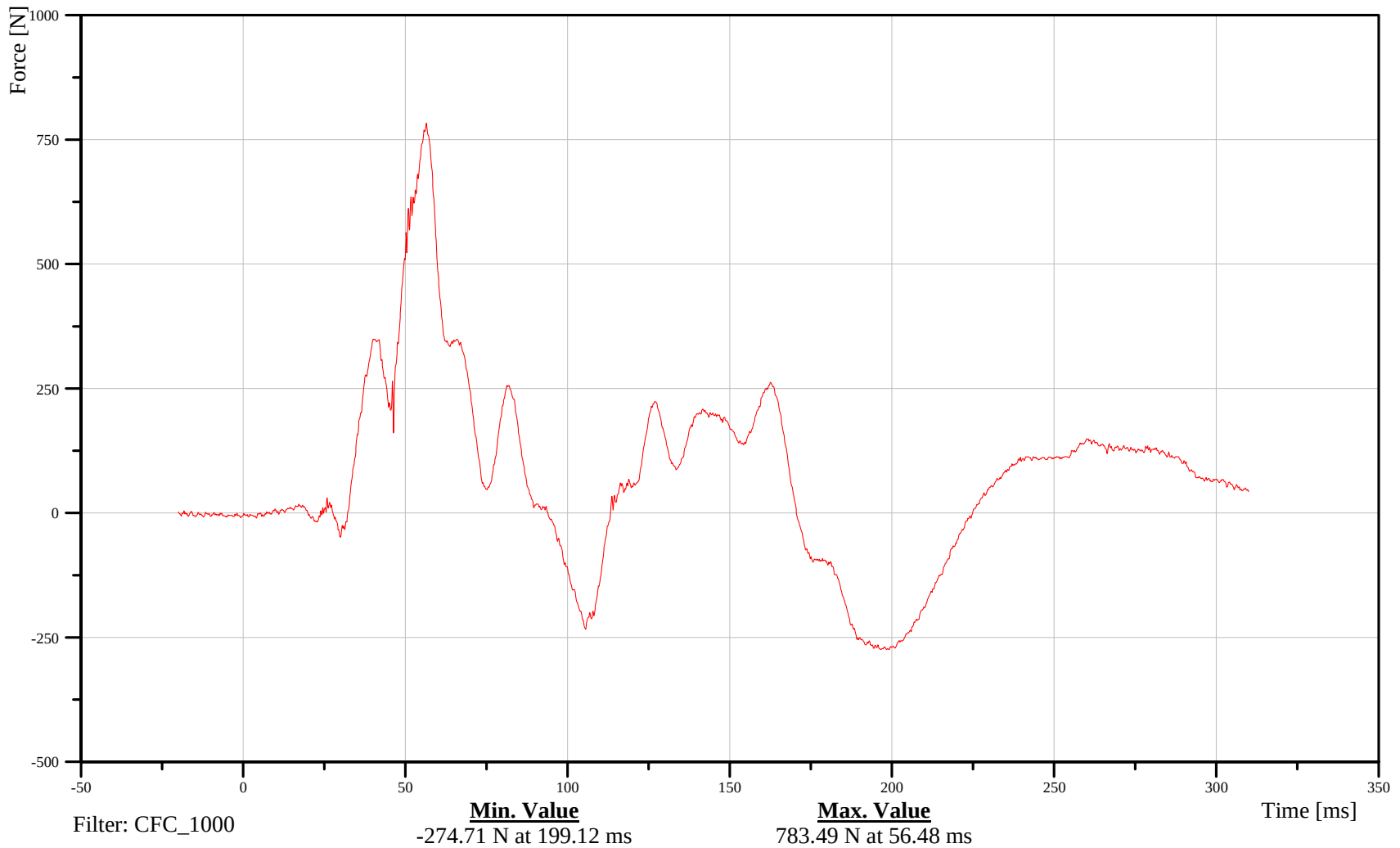
Lower Neck Z-Axis Force

Customer: VRTC

11NECKLO00WSFOZA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

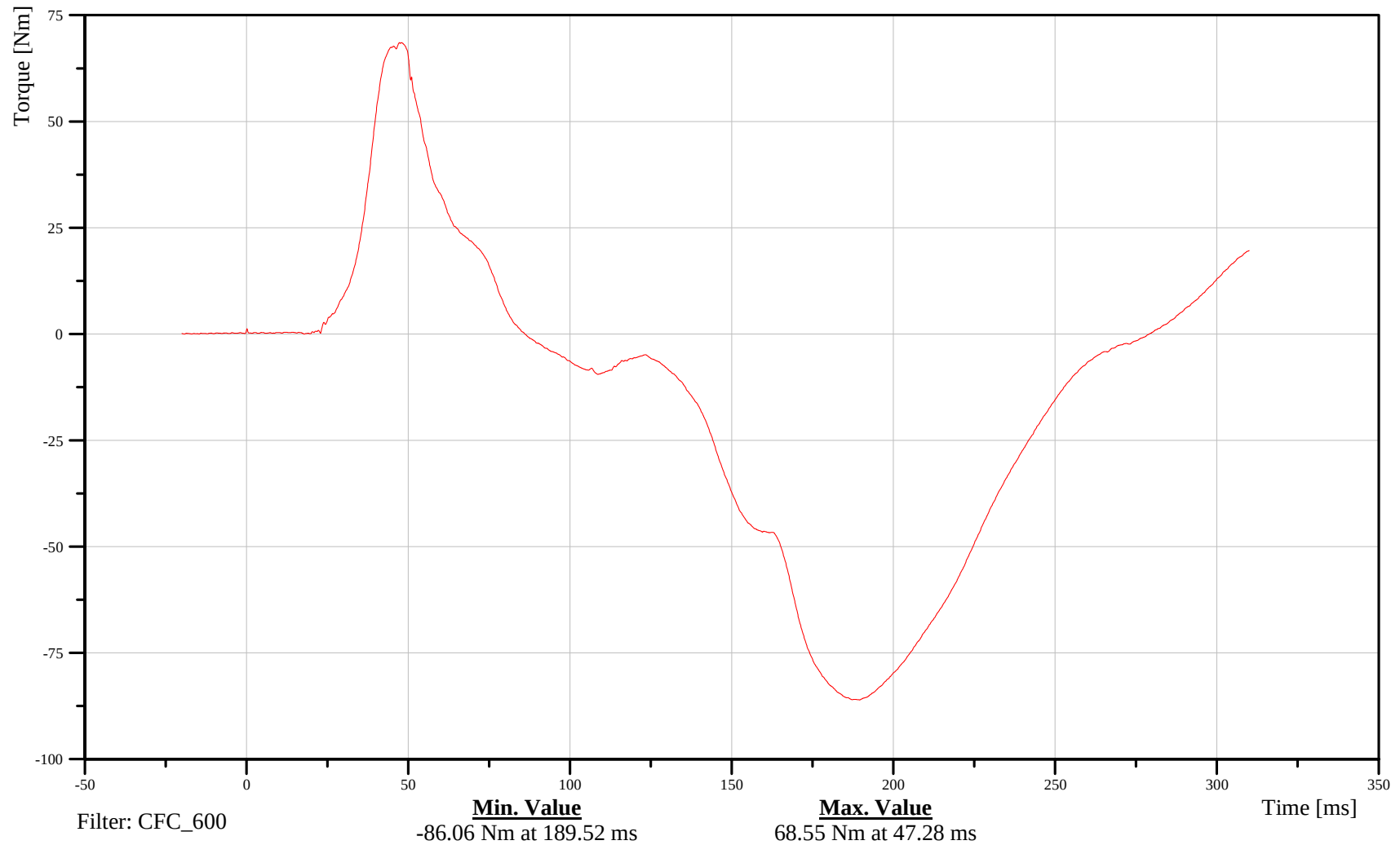
Lower Neck Moment About X Axis

Customer: VRTC

11NECKLO00WSMOXB

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

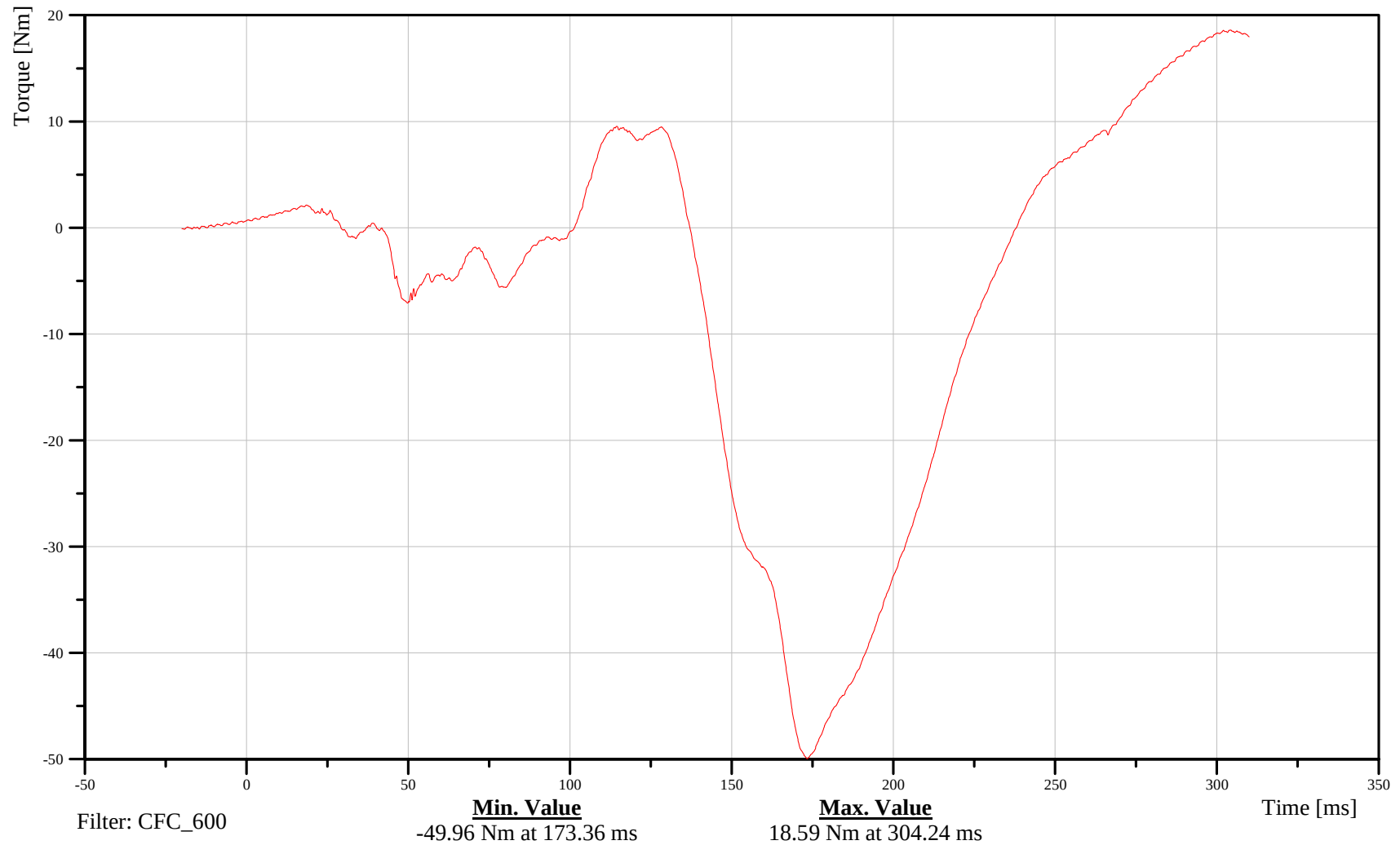
Lower Neck Moment About Y Axis

Customer: VRTC

11NECKLO00WSMOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-20

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

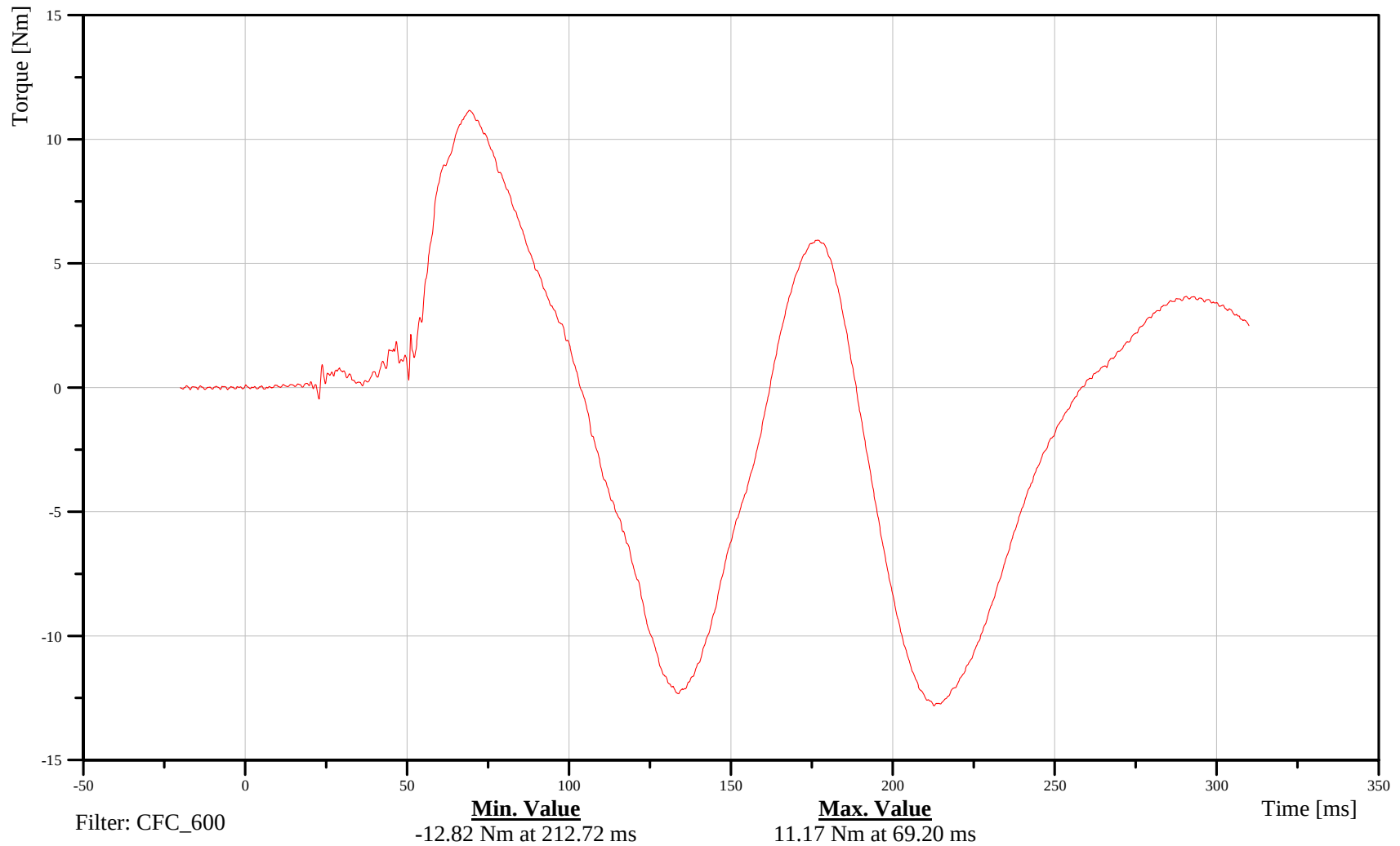
Lower Neck Moment About Z Axis

Customer: VRTC

11NECKLO00WSMOZB

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

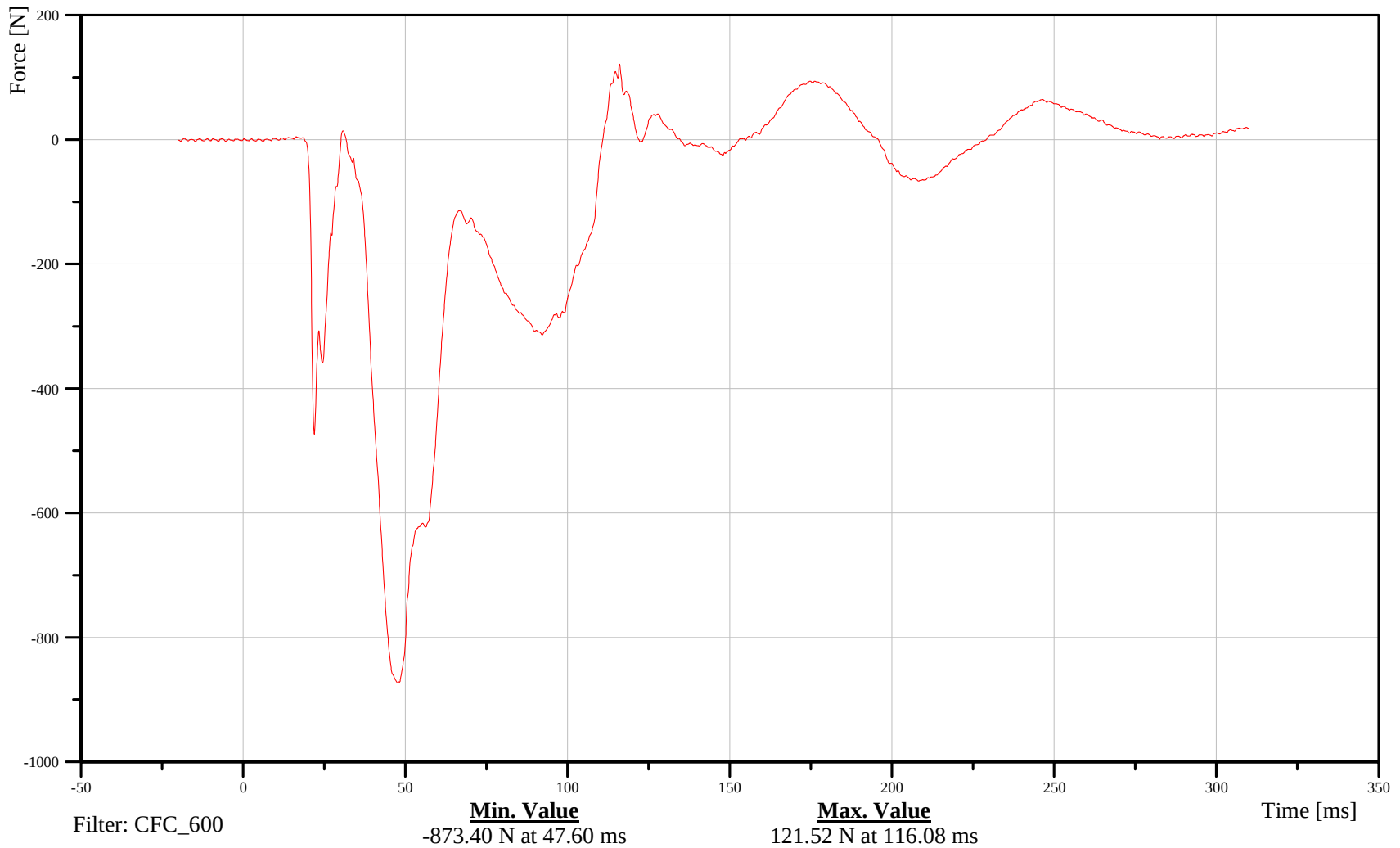
Shoulder X-Axis Force

Customer: VRTC

11SHLDLE00WSFOXB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-22

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

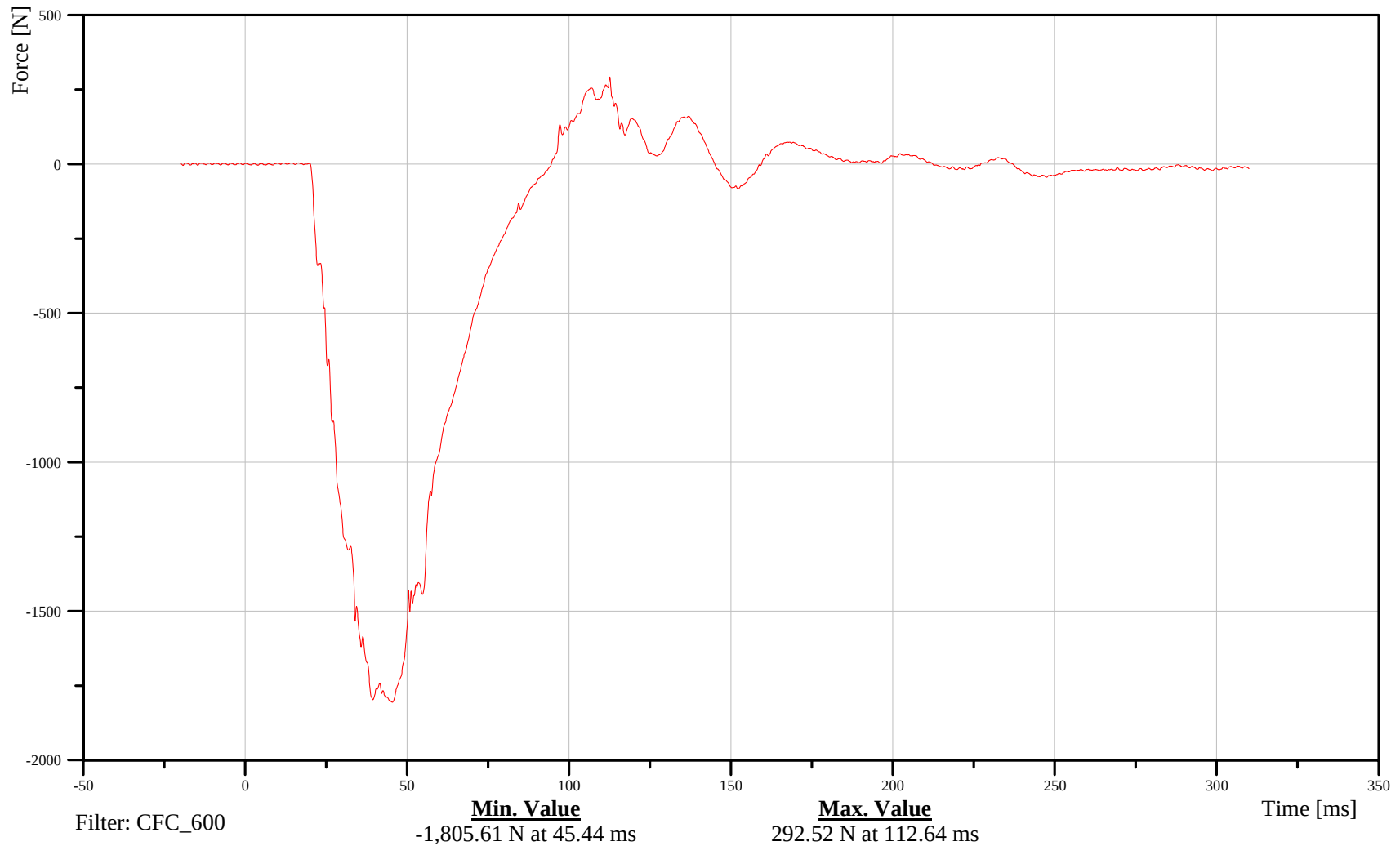
Shoulder Y-Axis Force

Customer: VRTC

11SHLDLE00WSFOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-23

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

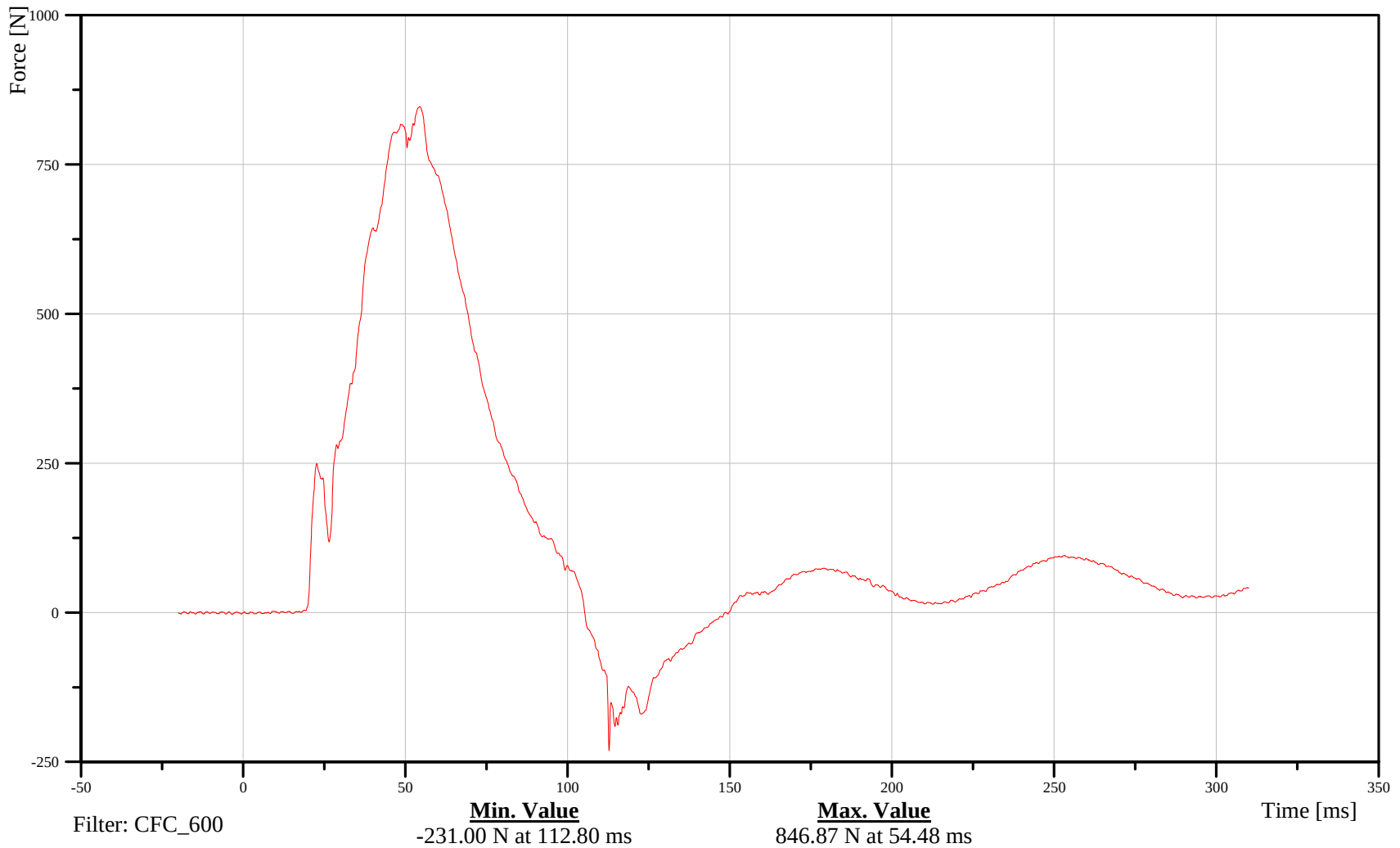
Shoulder Z-Axis Force

Customer: VRTC

11SHLDLE00WSFOZB

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

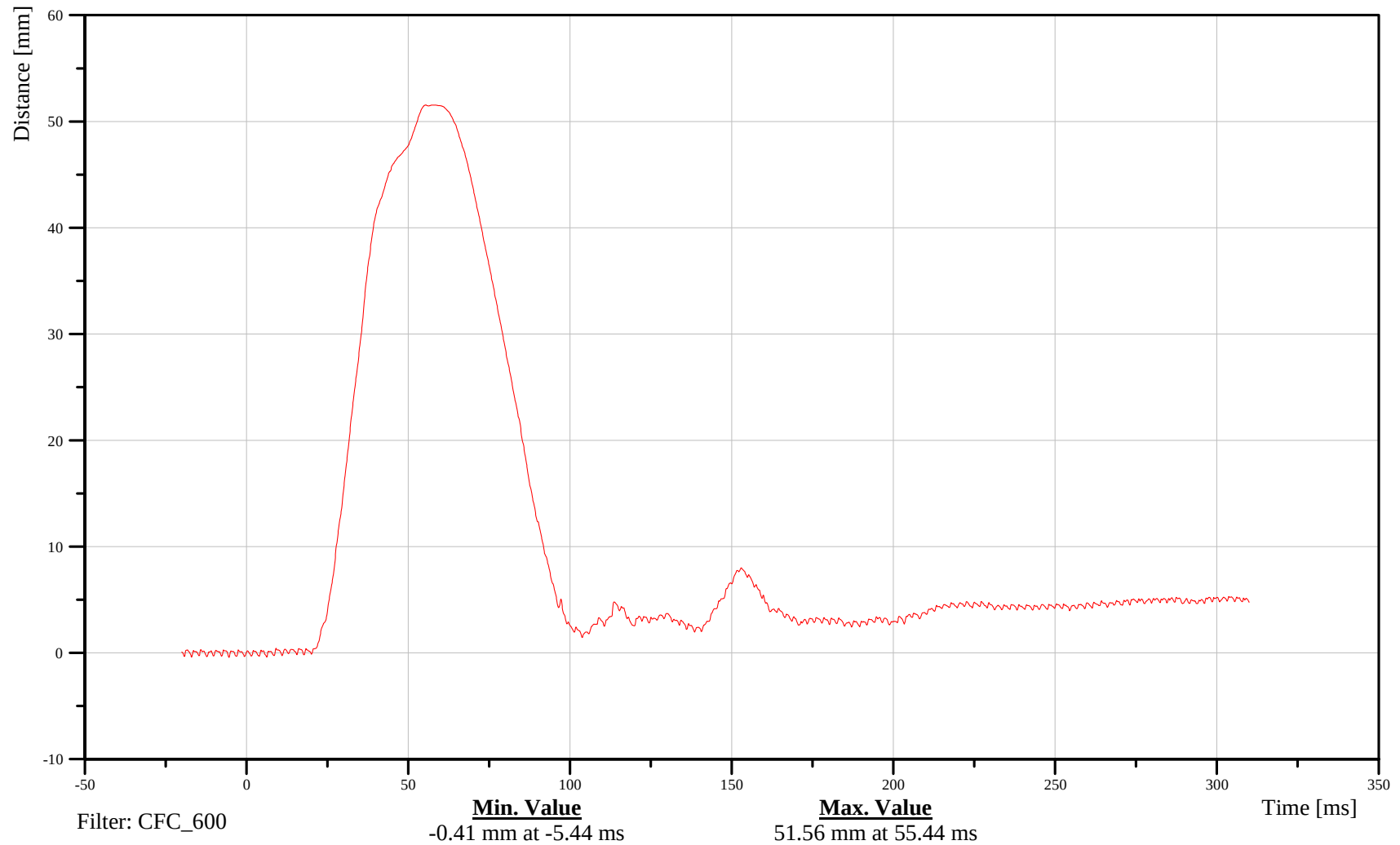
Shoulder Y-Axis Displacement

Customer: VRTC

11SHLDLE00WSDSYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-25

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

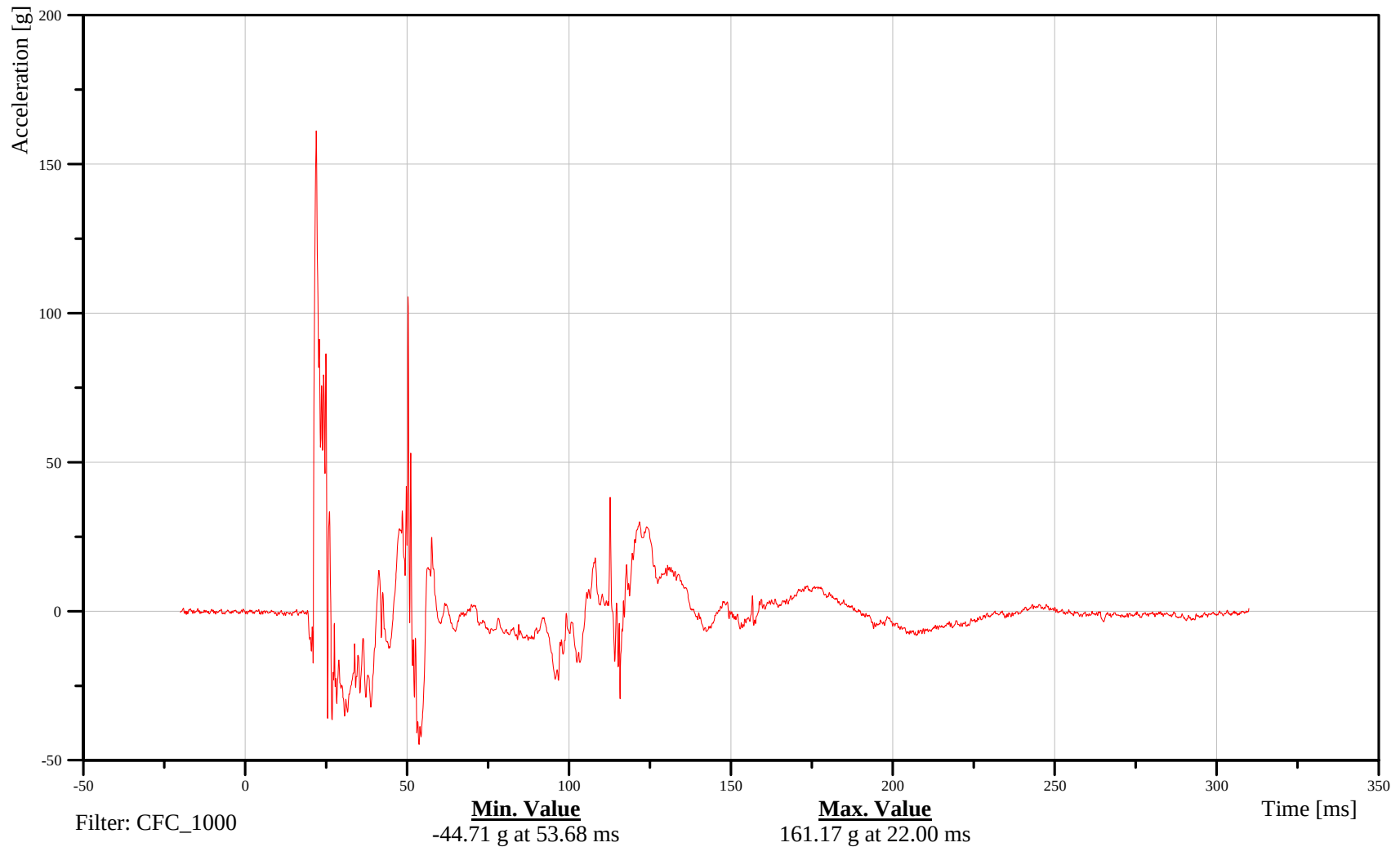
Shoulder X-Axis Acceleration

Customer: VRTC

11SHLDLE00WSACXA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

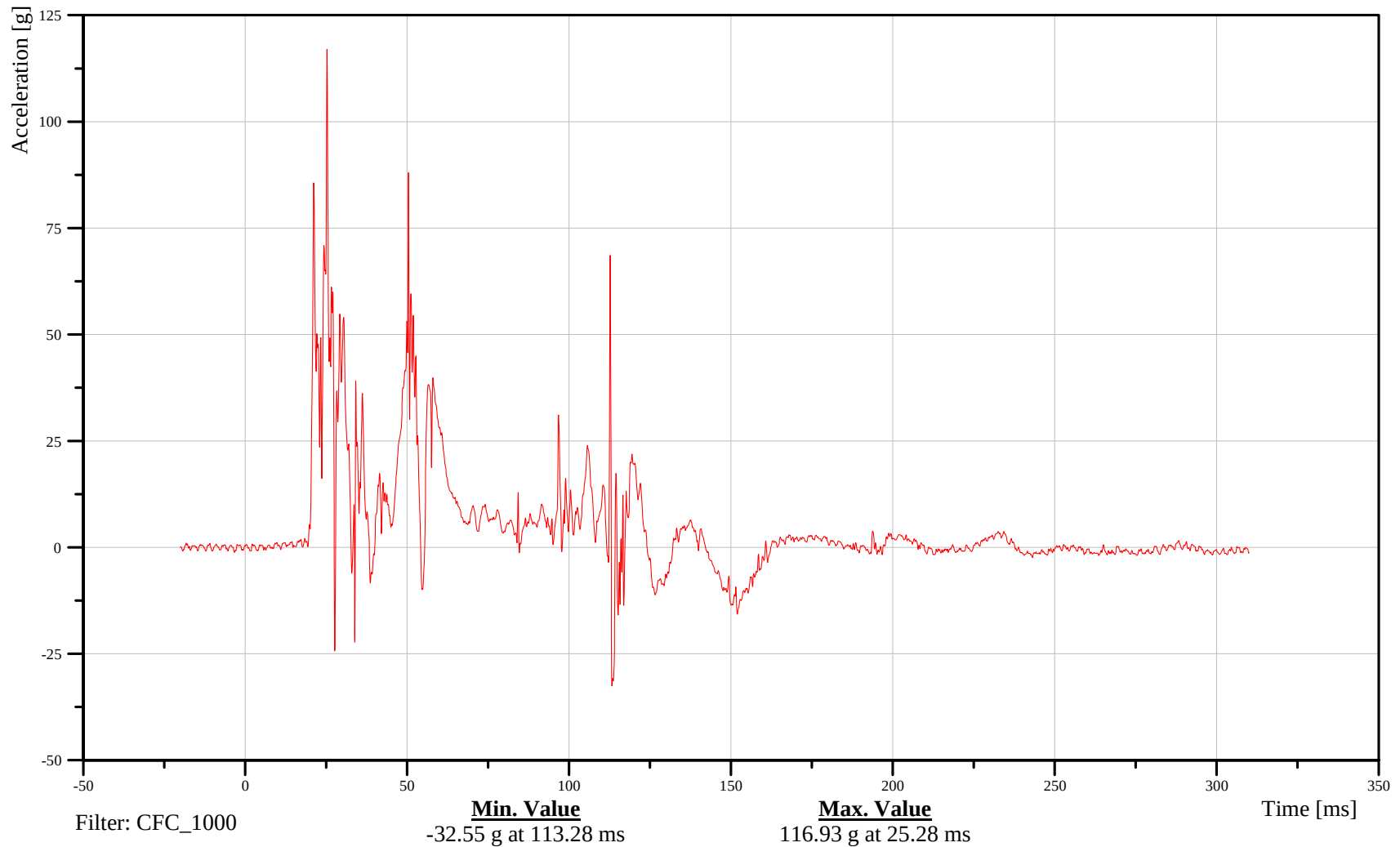
Shoulder Y-Axis Acceleration

Customer: VRTC

11SHLDLE00WSACYA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

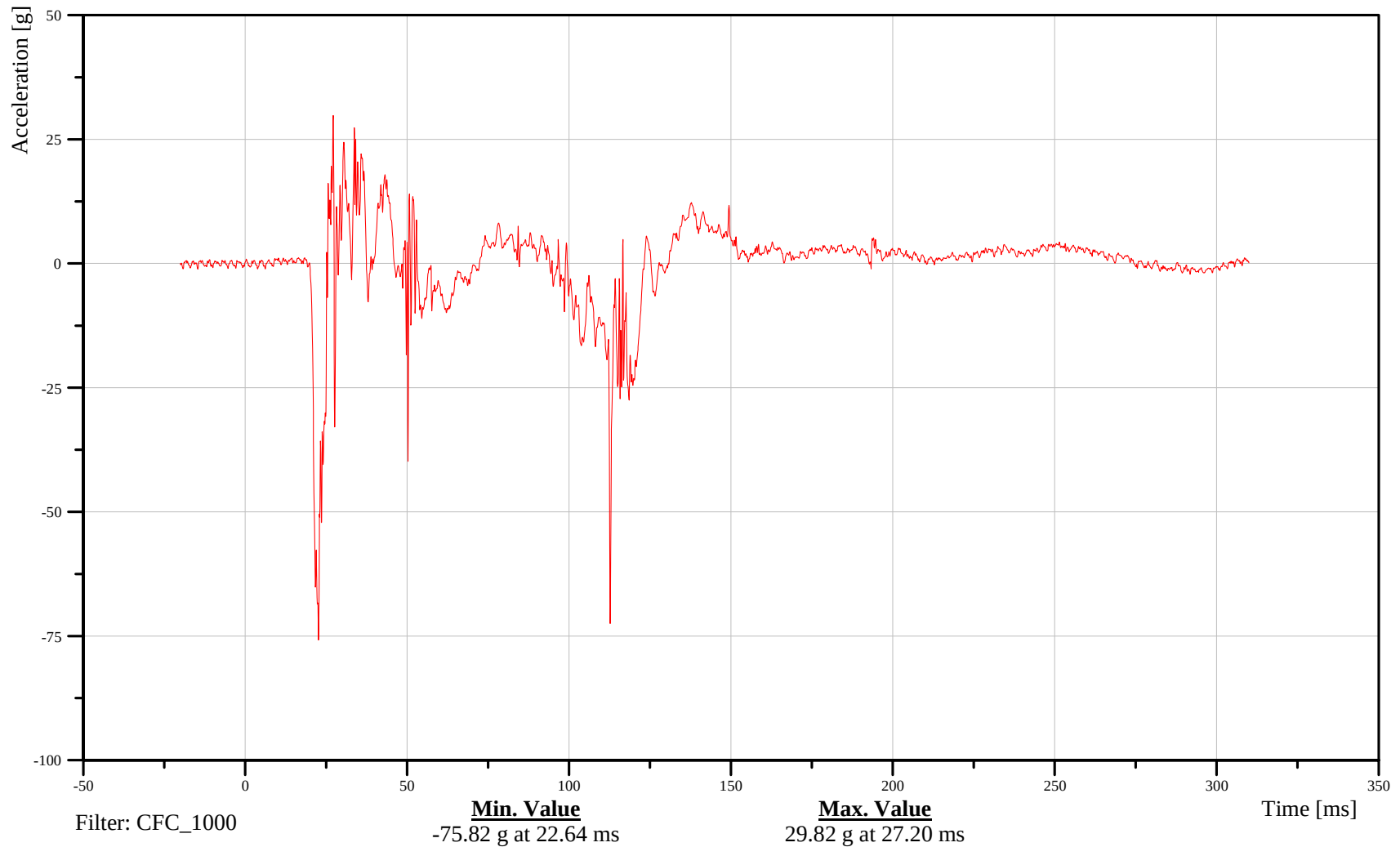
Shoulder Z-Axis Acceleration

Customer: VRTC

11SHLDLE00WSACZA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

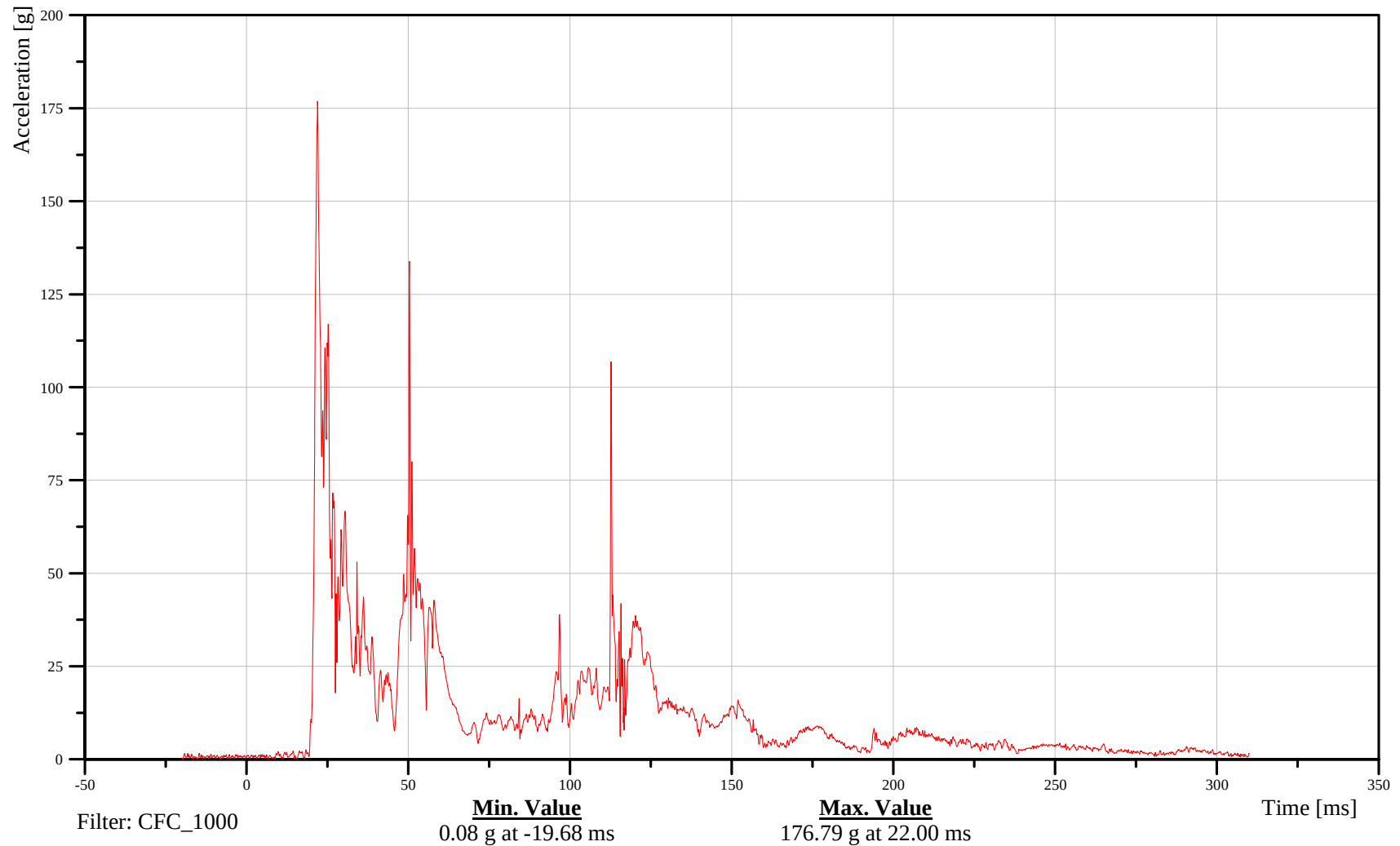
Shoulder Resultant Acceleration

Customer: VRTC

11SHLDLE00WSACRA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-29

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

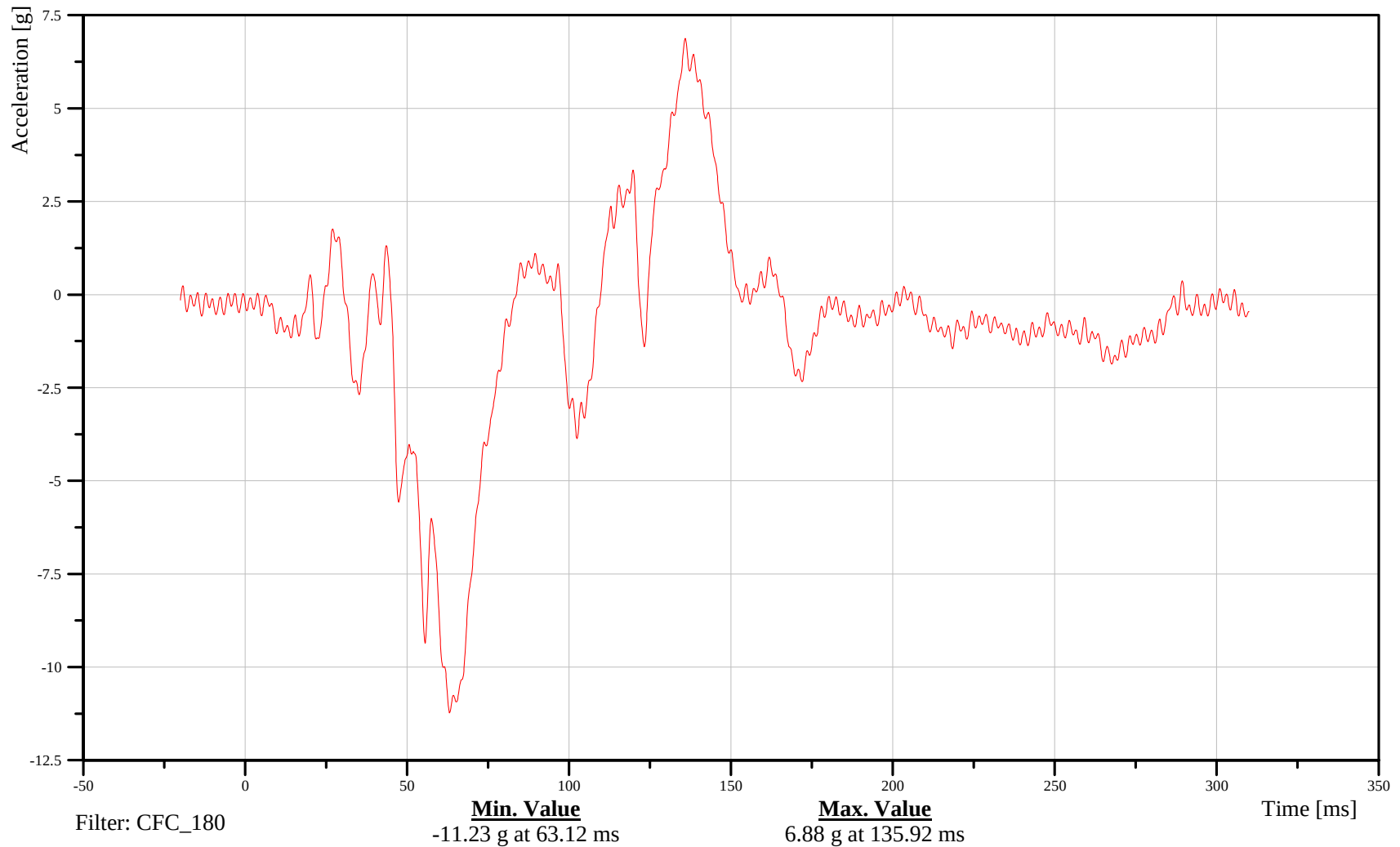
T1 X-Axis Acceleration

Customer: VRTC

11THSP0100WSACXC

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

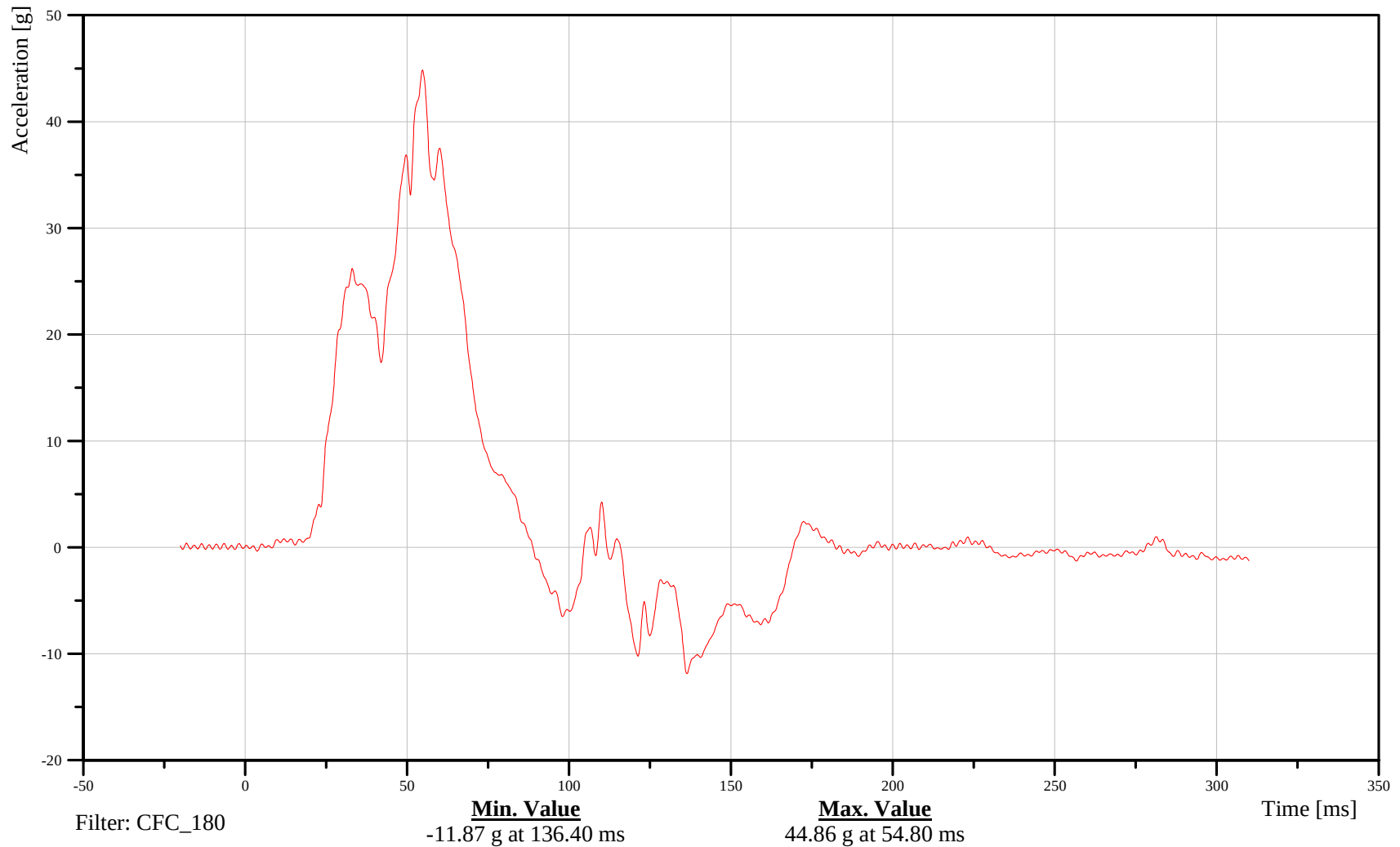
T1 Y-Axis Acceleration

Customer: VRTC

11THSP0100WSACYC

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

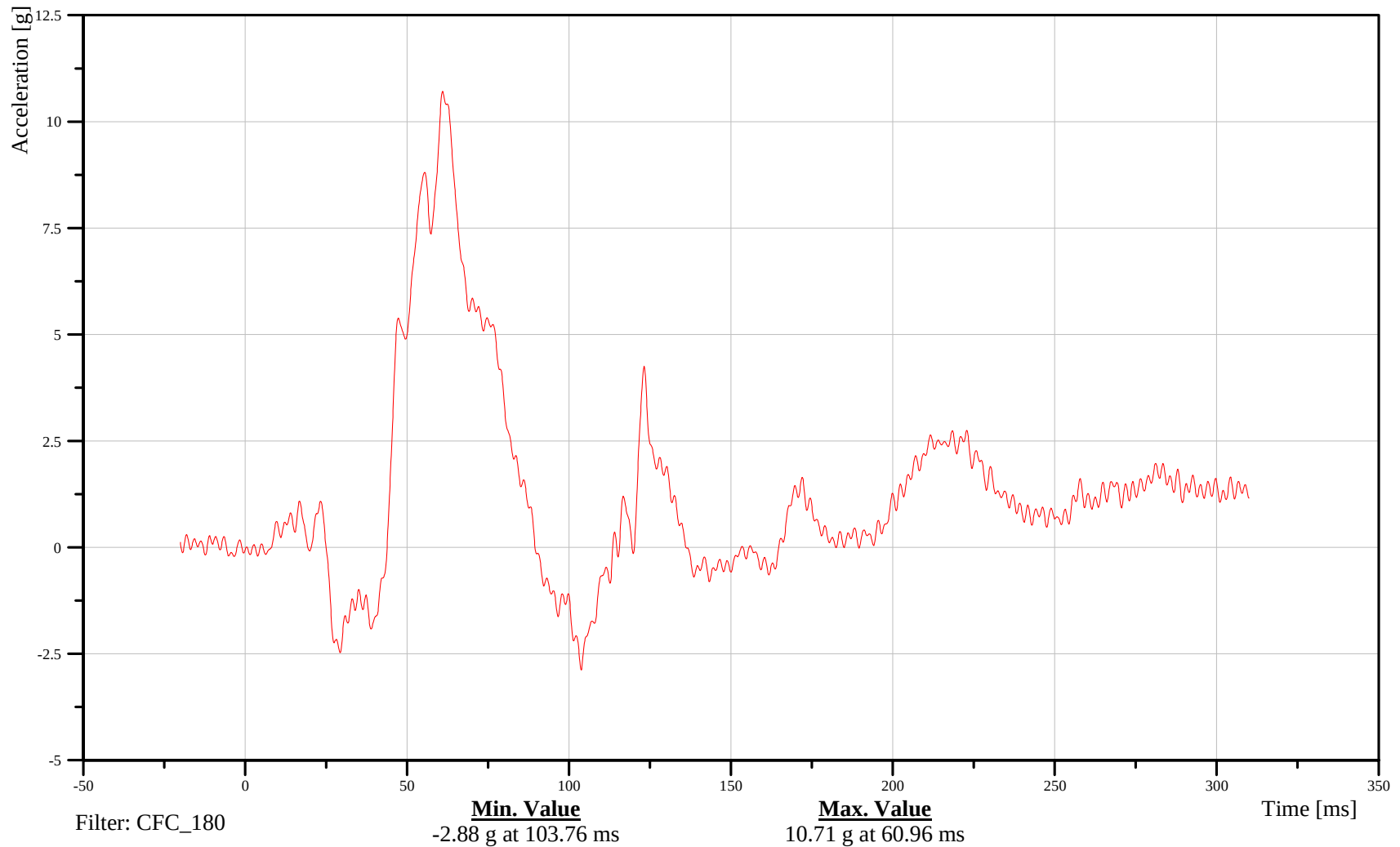
T1 Z-Axis Acceleration

Customer: VRTC

11THSP0100WSACZC

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

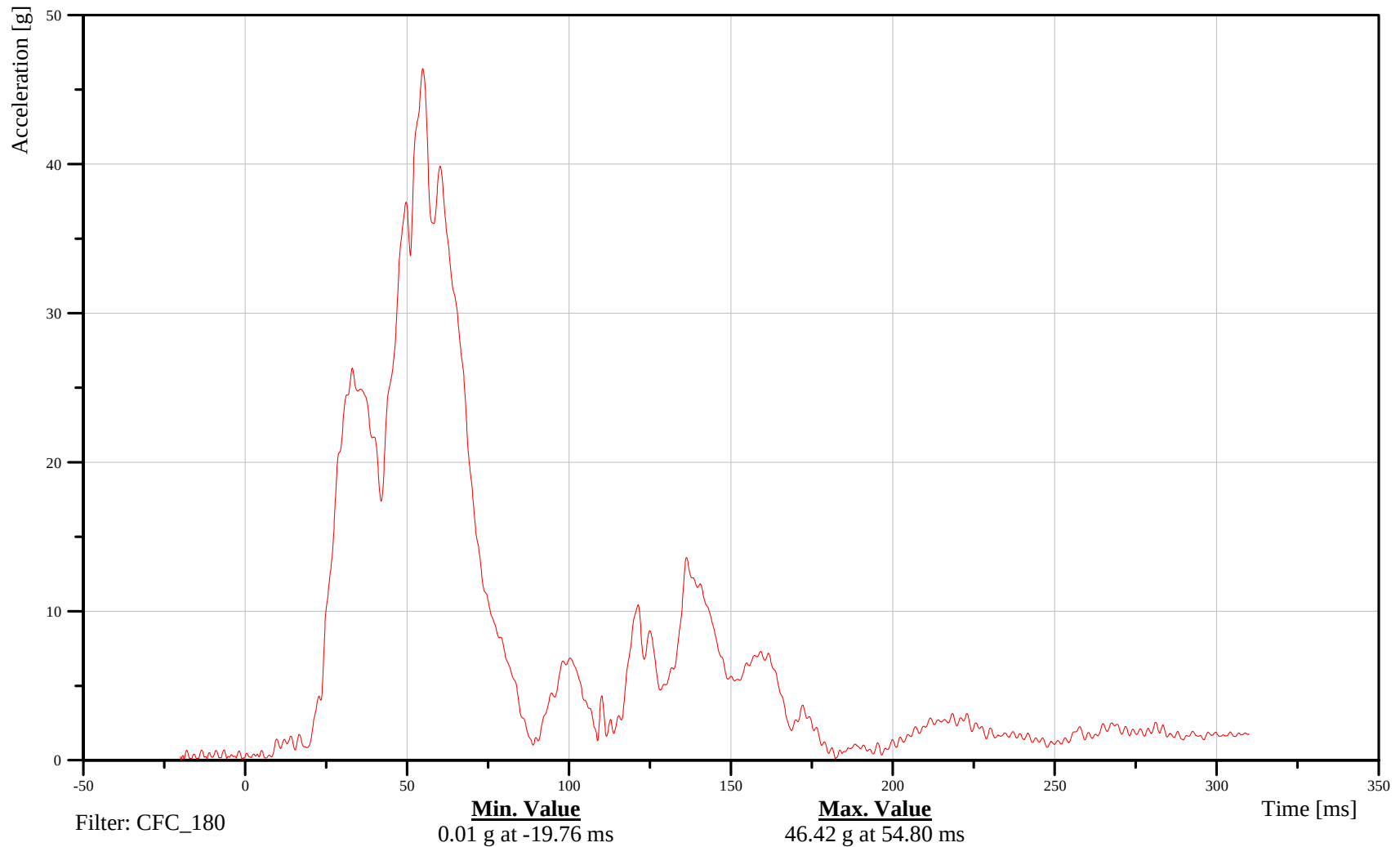
T1 Resultant Acceleration

Customer: VRTC

11THSP0100WSACRC

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

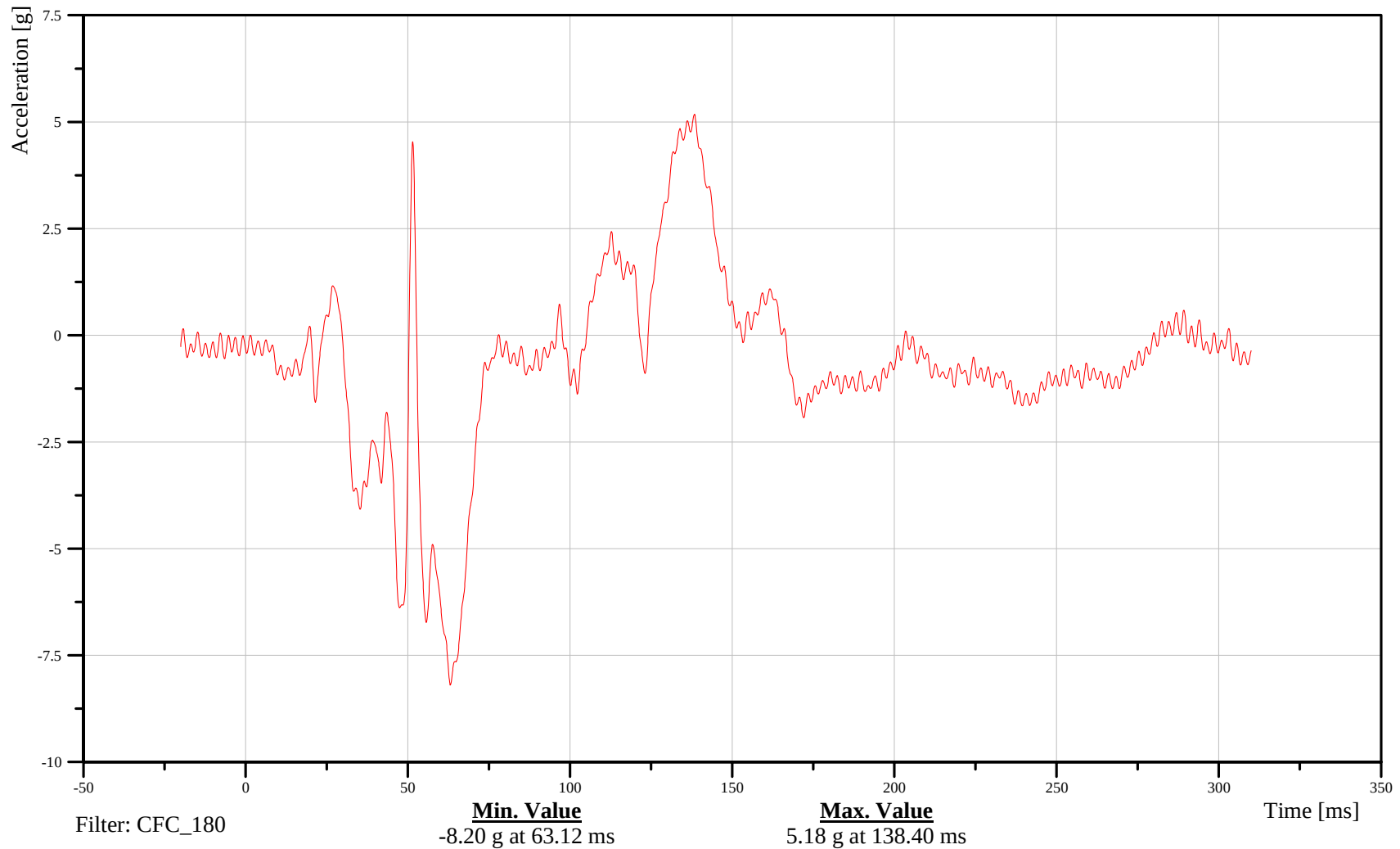
T4 X-Axis Acceleration

Customer: VRTC

11THSP0400WSACXC

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

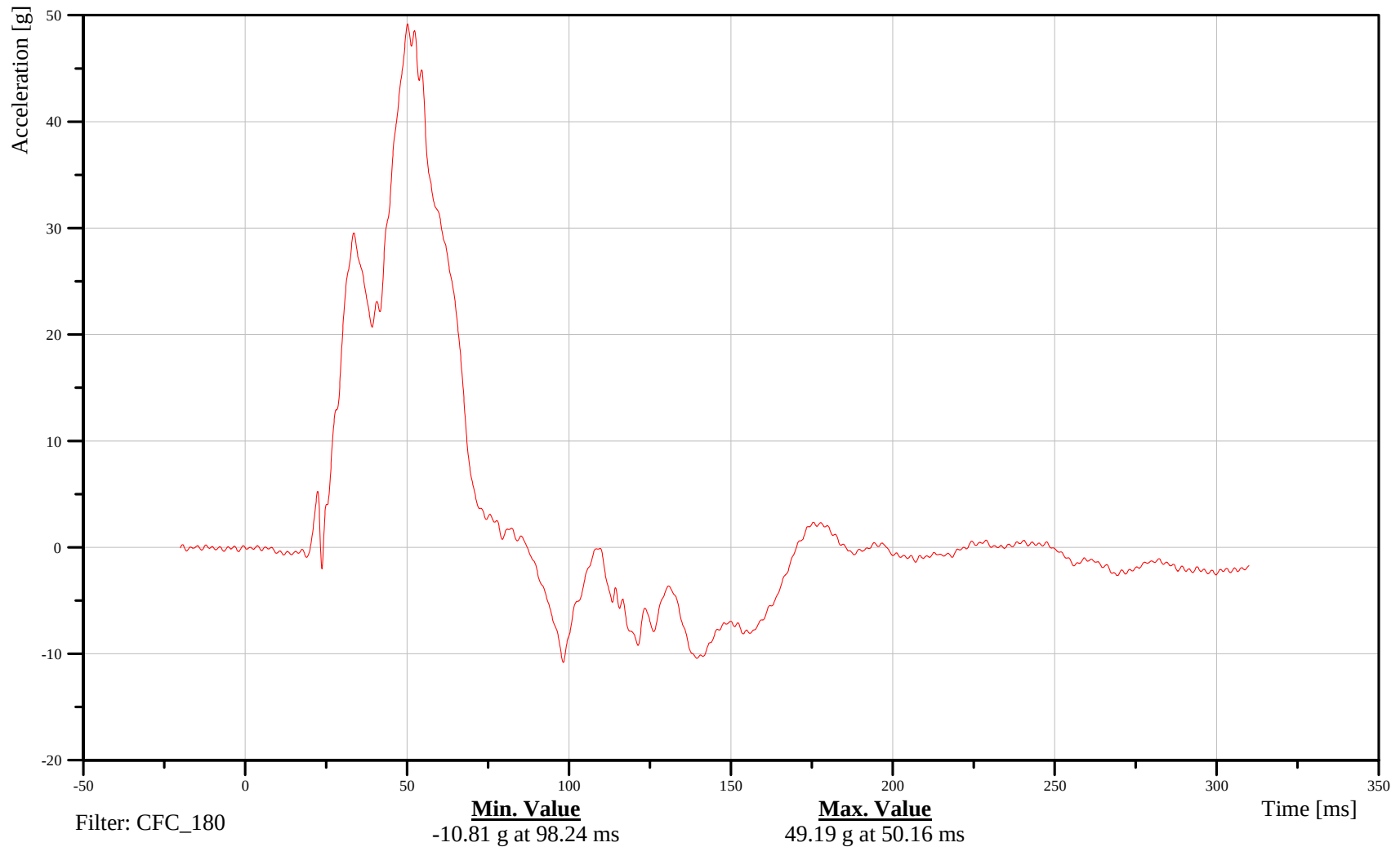
T4 Y-Axis Acceleration

Customer: VRTC

11THSP0400WSACYC

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

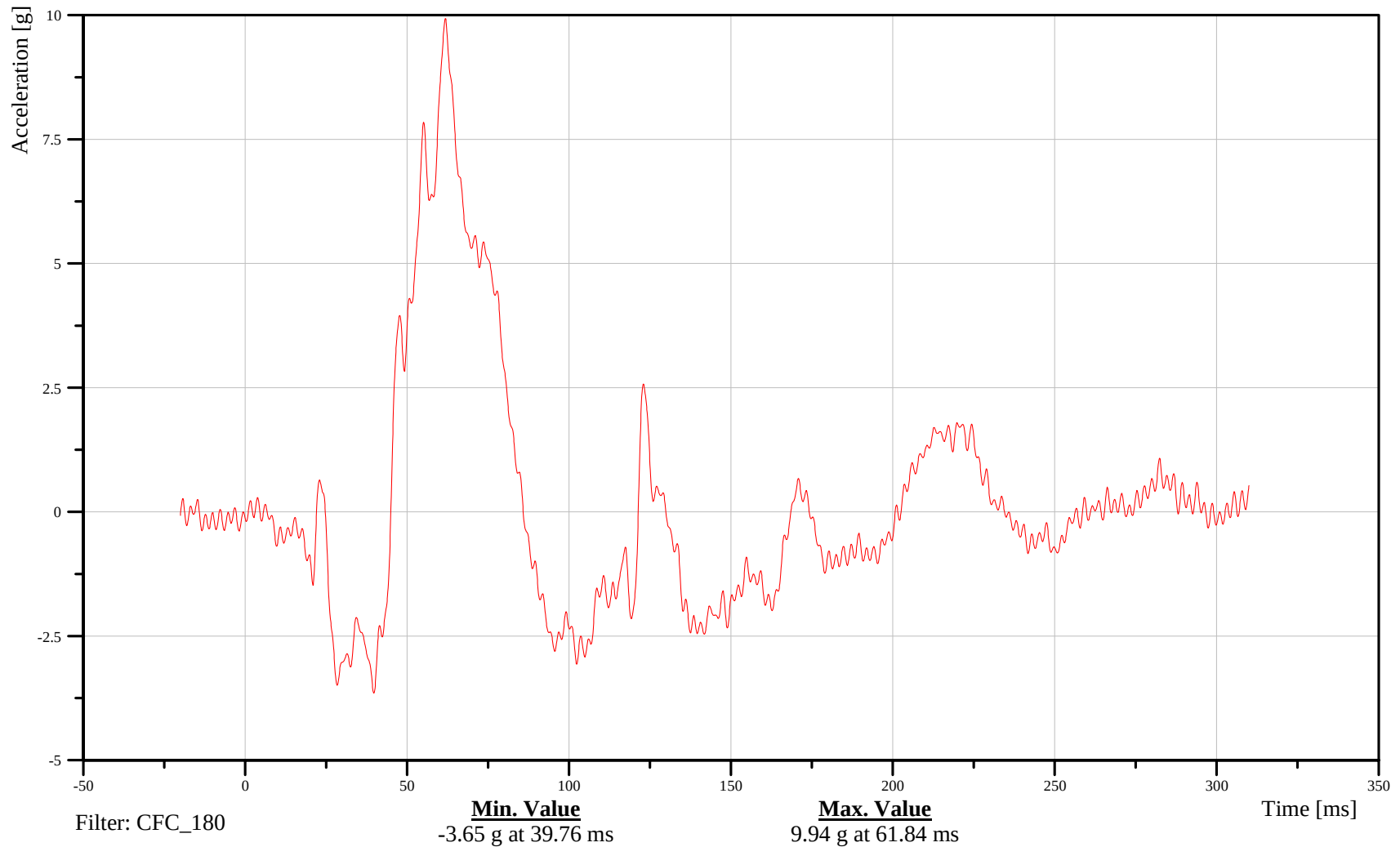
T4 Z-Axis Acceleration

Customer: VRTC

11THSP0400WSACZC

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

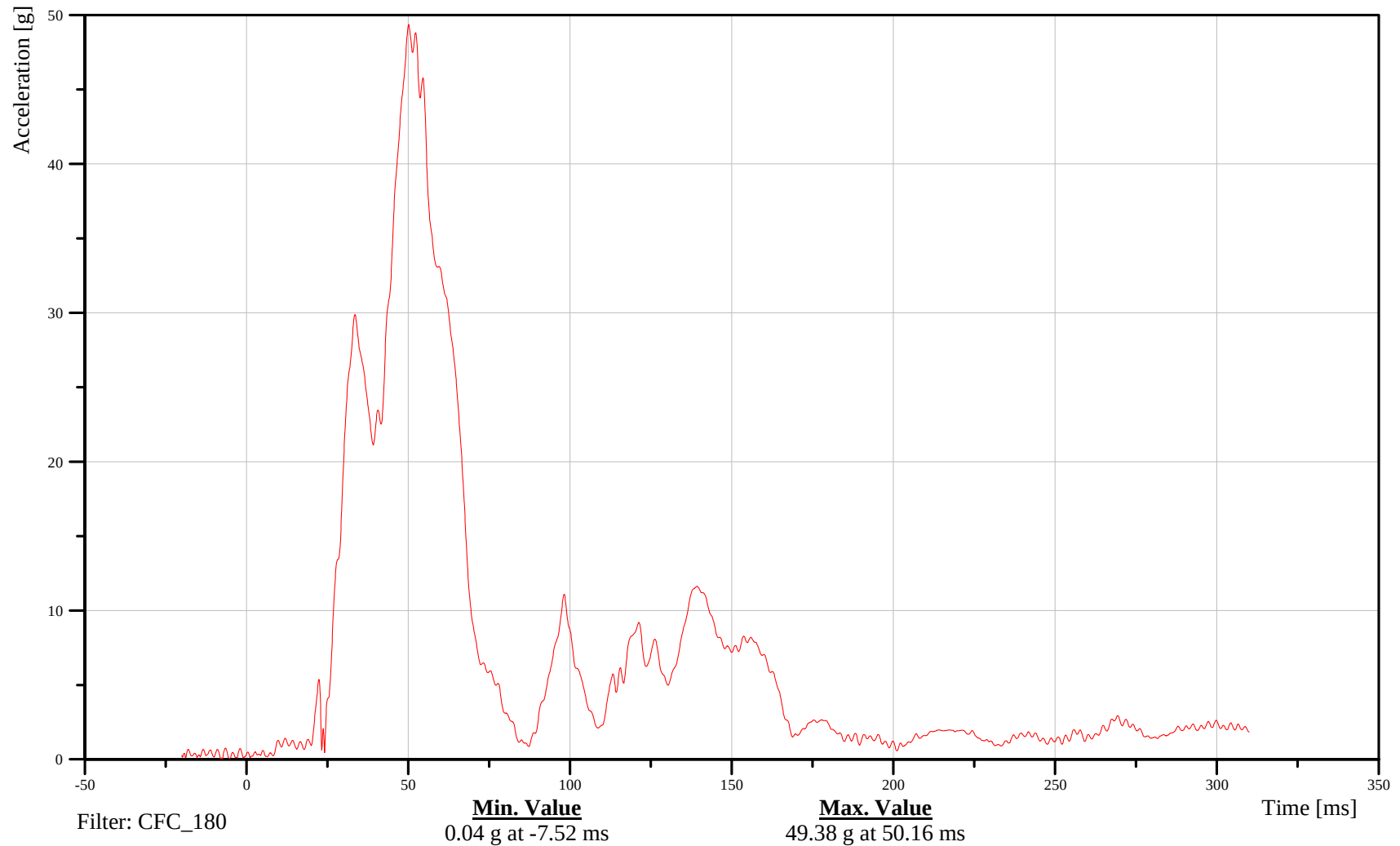
T4 Resultant Acceleration

Customer: VRTC

11THSP0400WSACRC

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

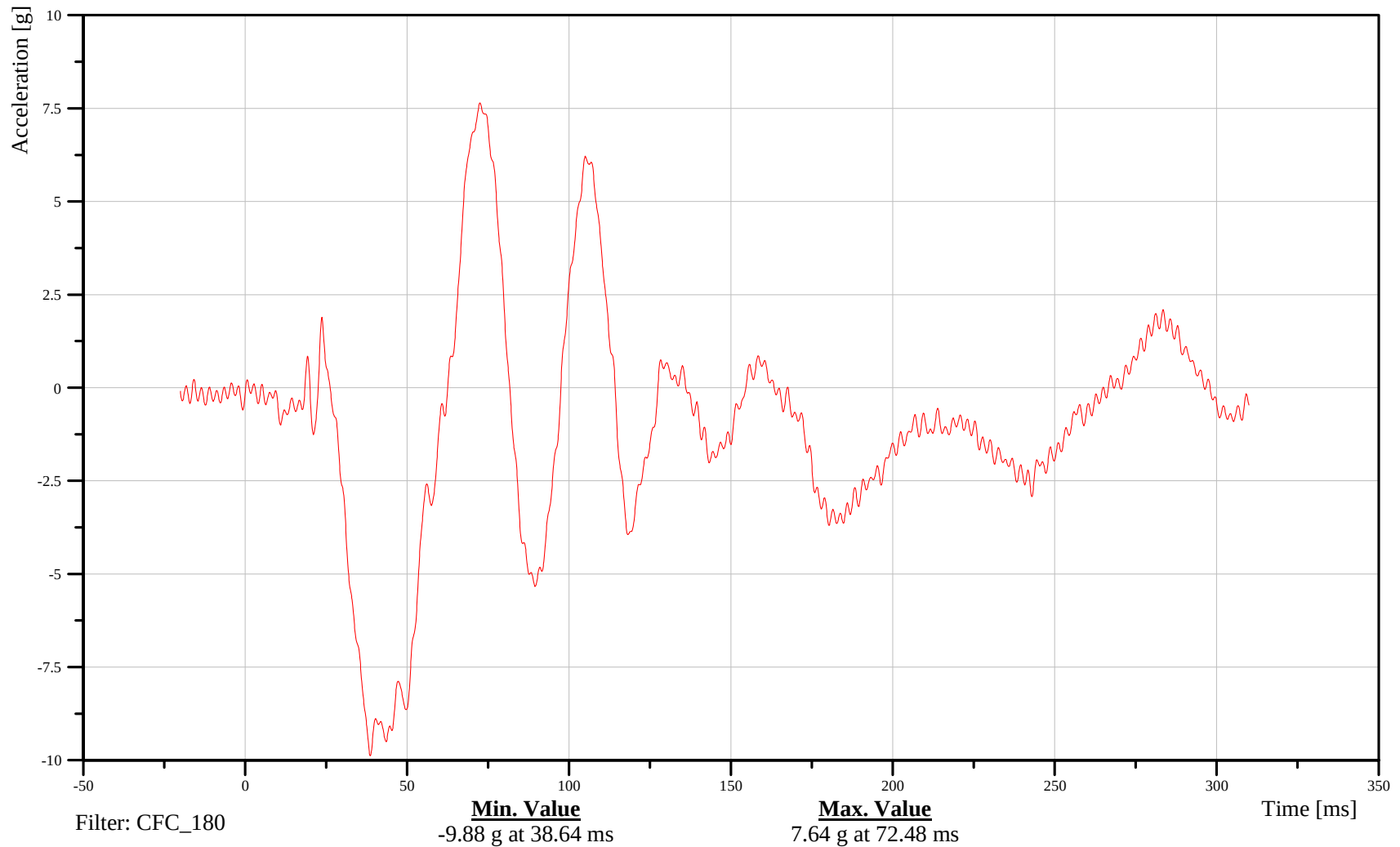
T12 X-Axis Acceleration

Customer: VRTC

11THSP1200WSACXC

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

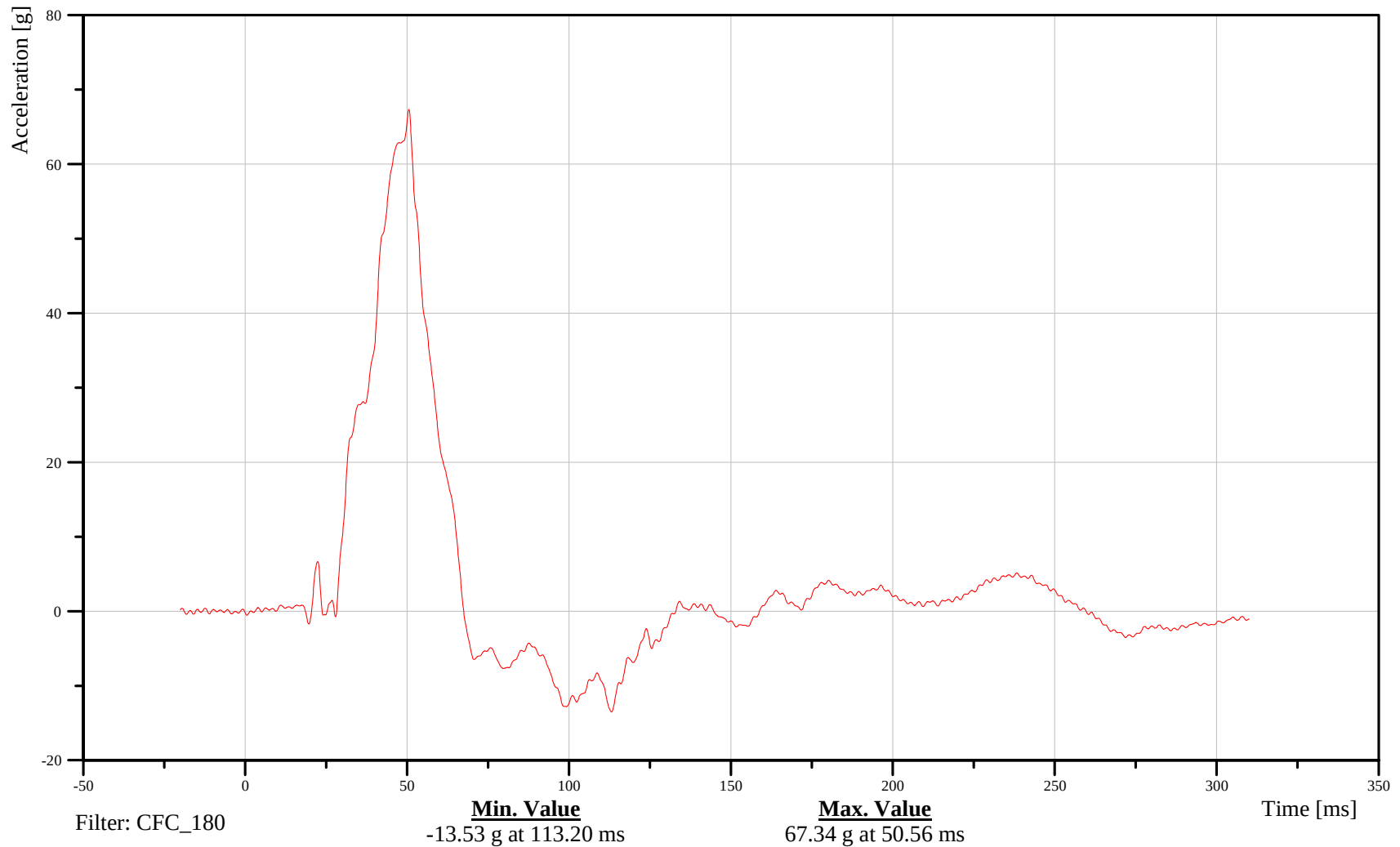
T12 Y-Axis Acceleration

Customer: VRTC

11THSP1200WSACYC

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

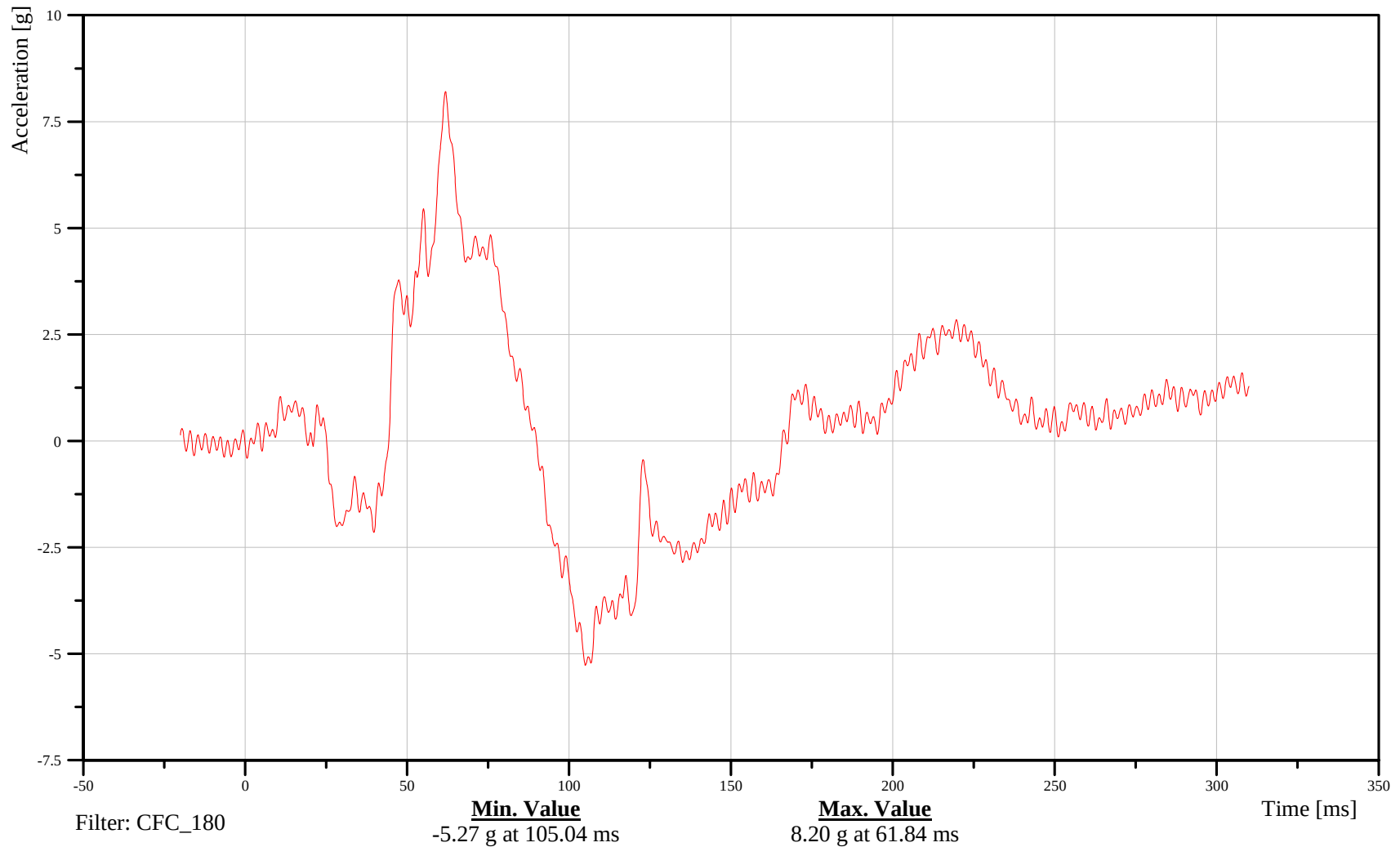
T12 Z-Axis Acceleration

Customer: VRTC

11THSP1200WSACZC

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

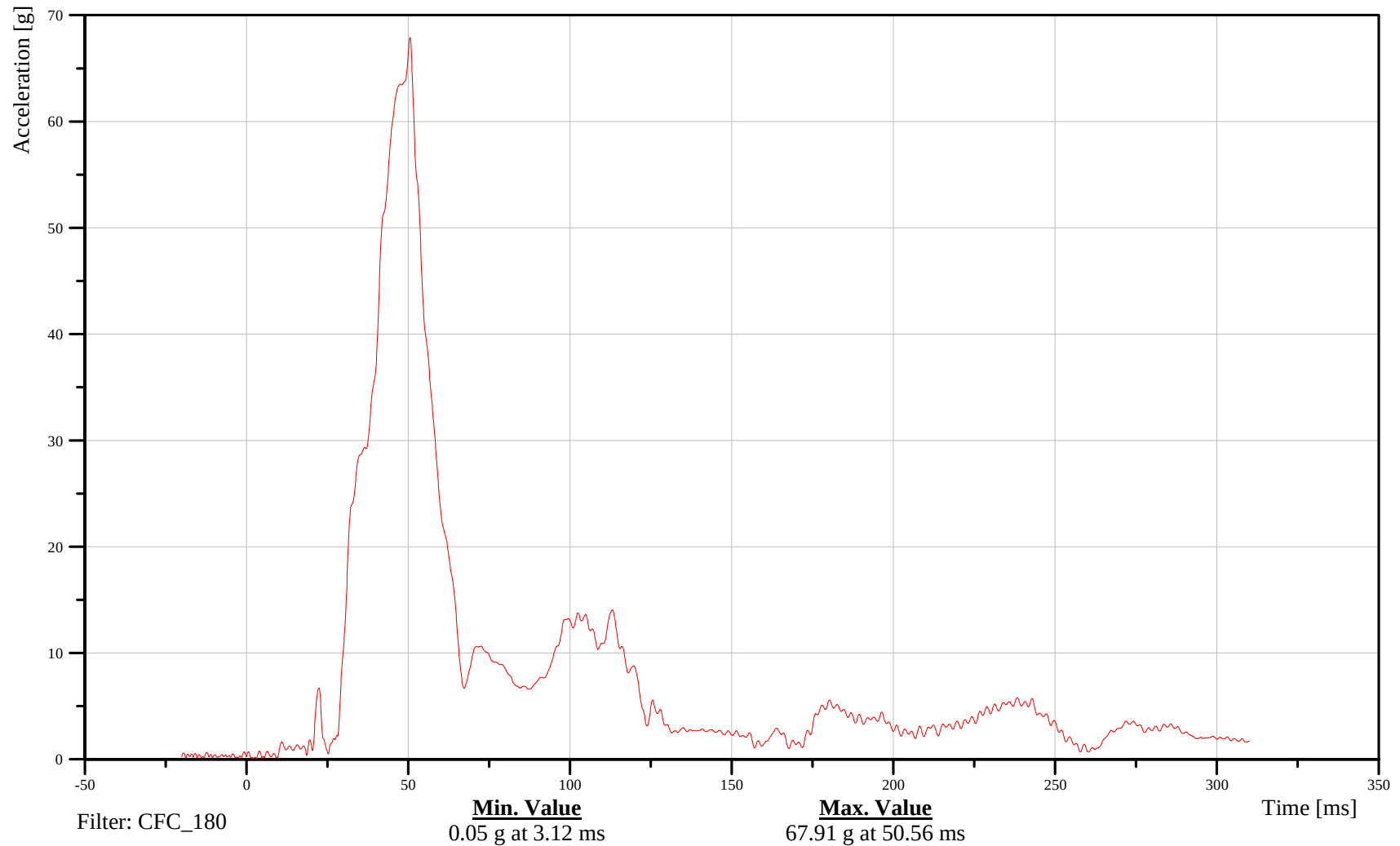
T12 Resultant Acceleration

Customer: VRTC

11THSP1200WSACRC

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

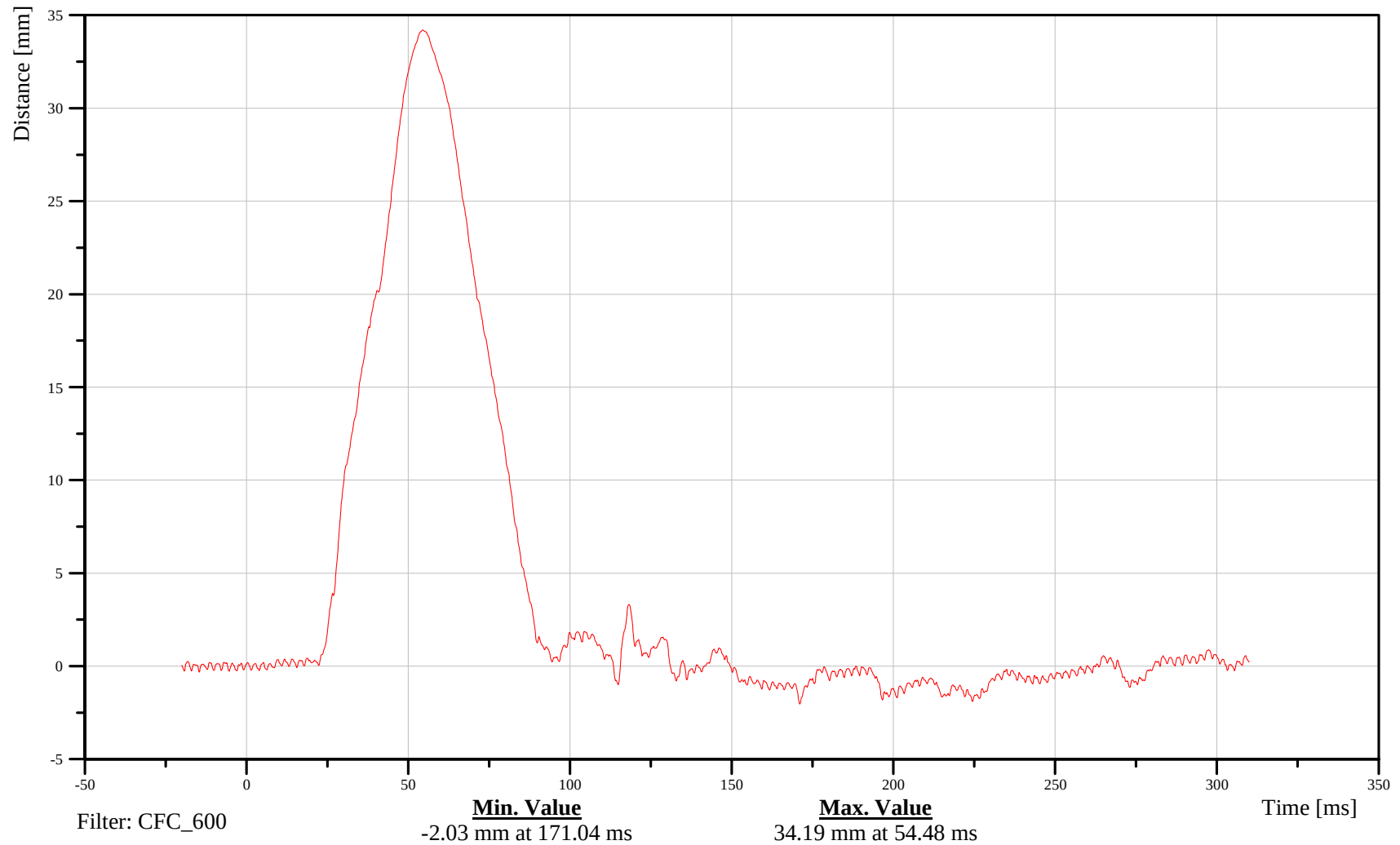
Thorax Rib 1 Y-Axis Displacement

Customer: VRTC

11TRRILE01WSDSYB

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

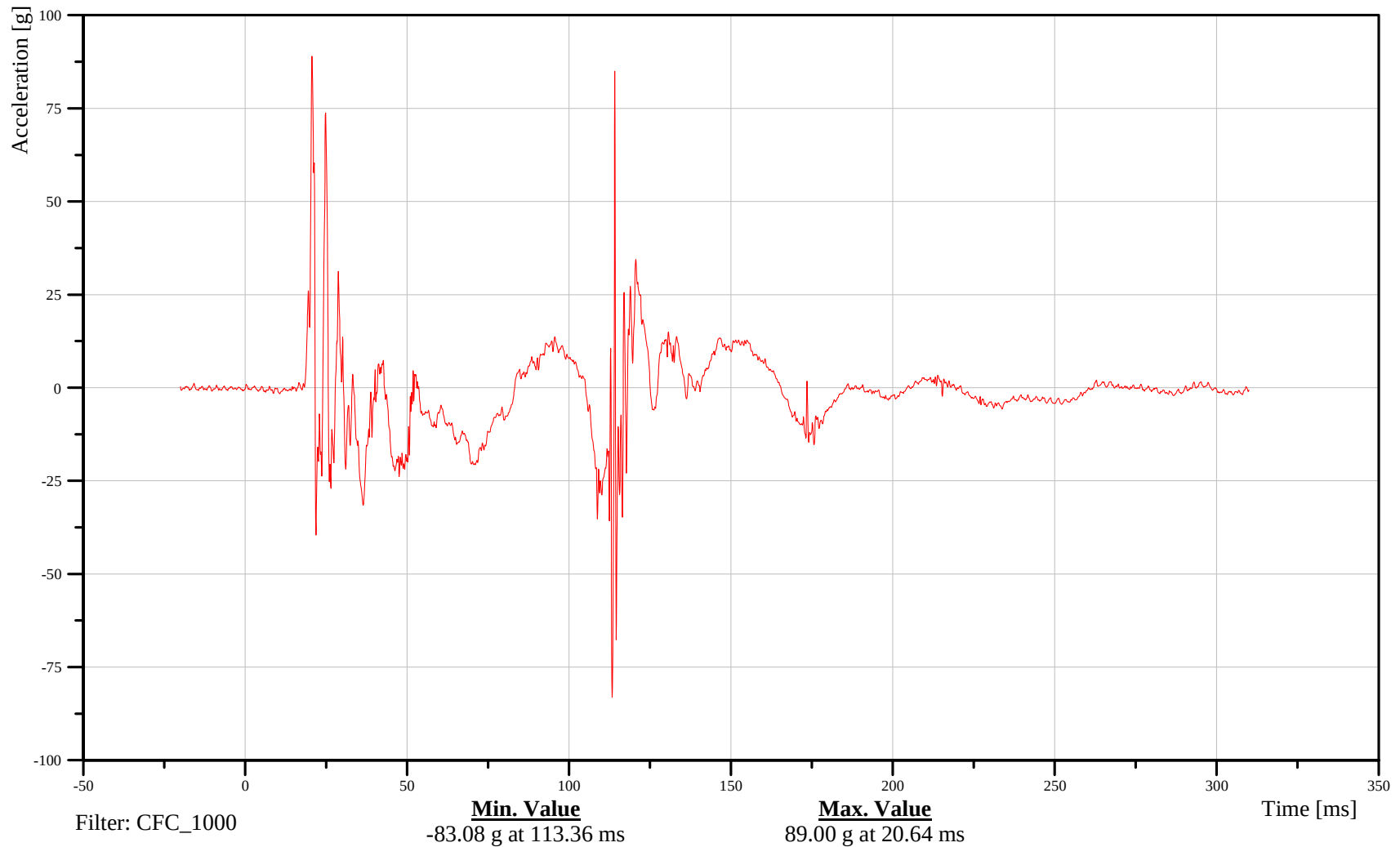
Thorax Rib 1 X-Axis Acceleration

Customer: VRTC

11TRRILE01WSACXA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

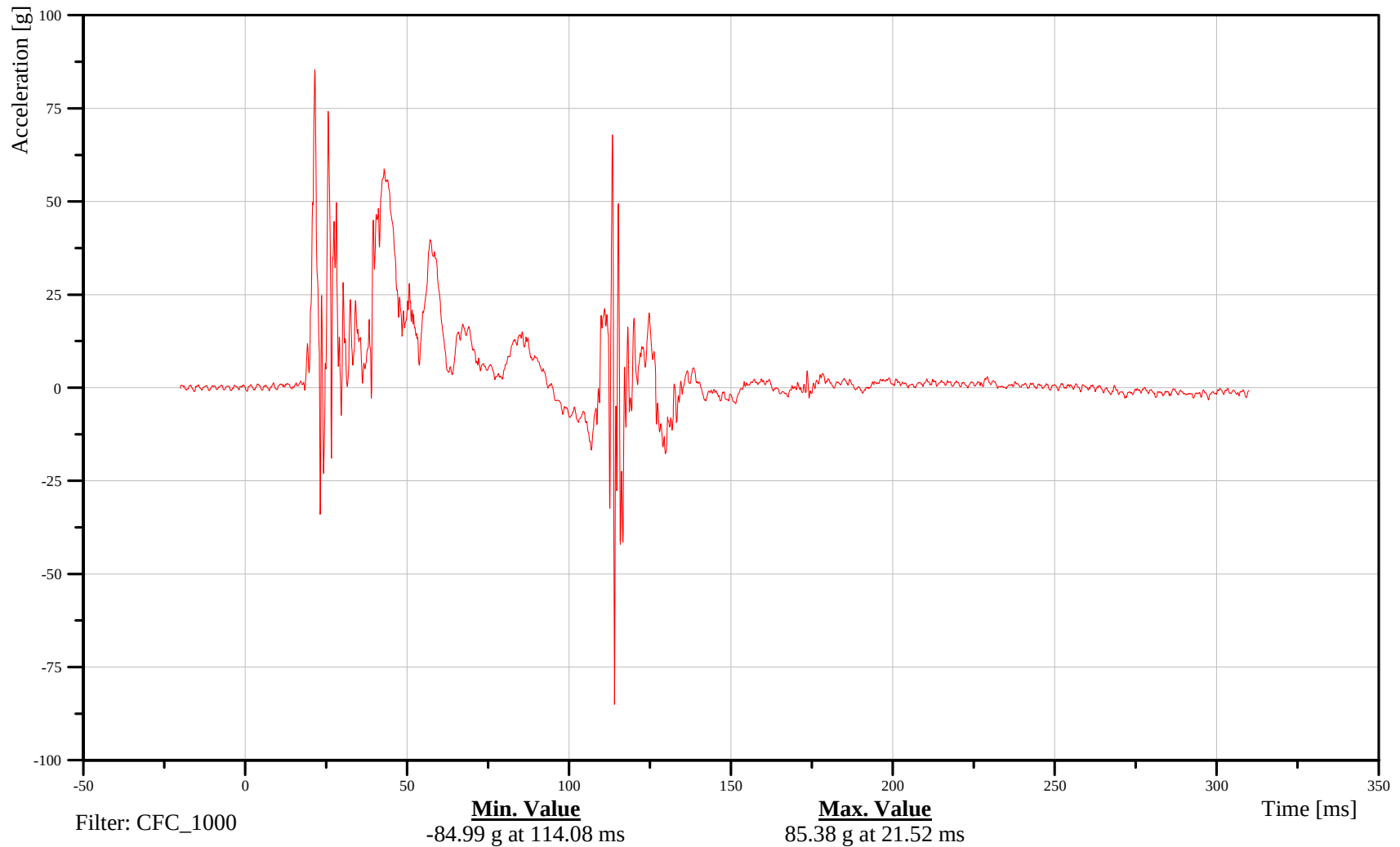
Thorax Rib 1 Y-Axis Acceleration

Customer: VRTC

11TRRILE01WSACYA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

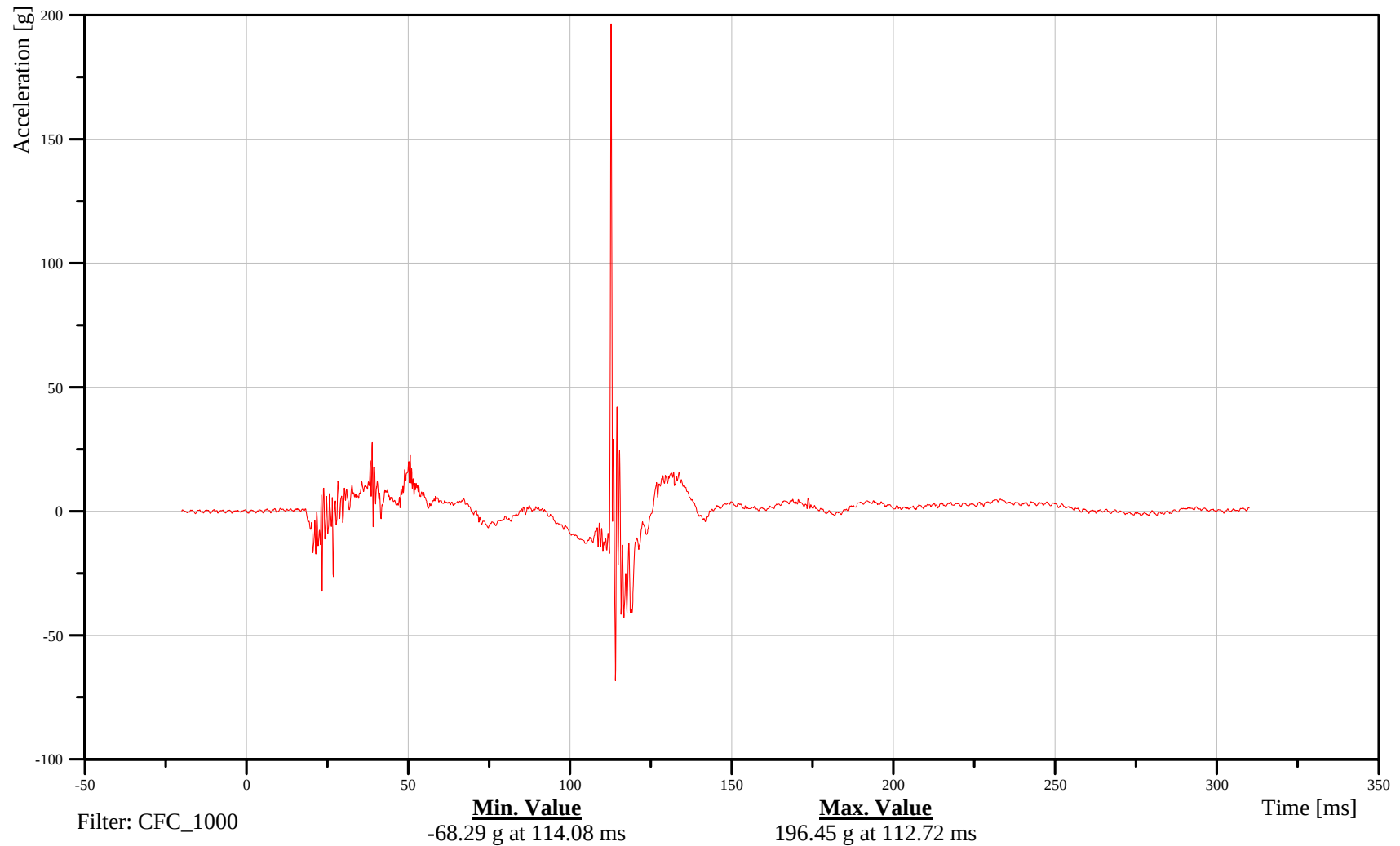
Thorax Rib 1 Z-Axis Acceleration

Customer: VRTC

11TRRILE01WSACZA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

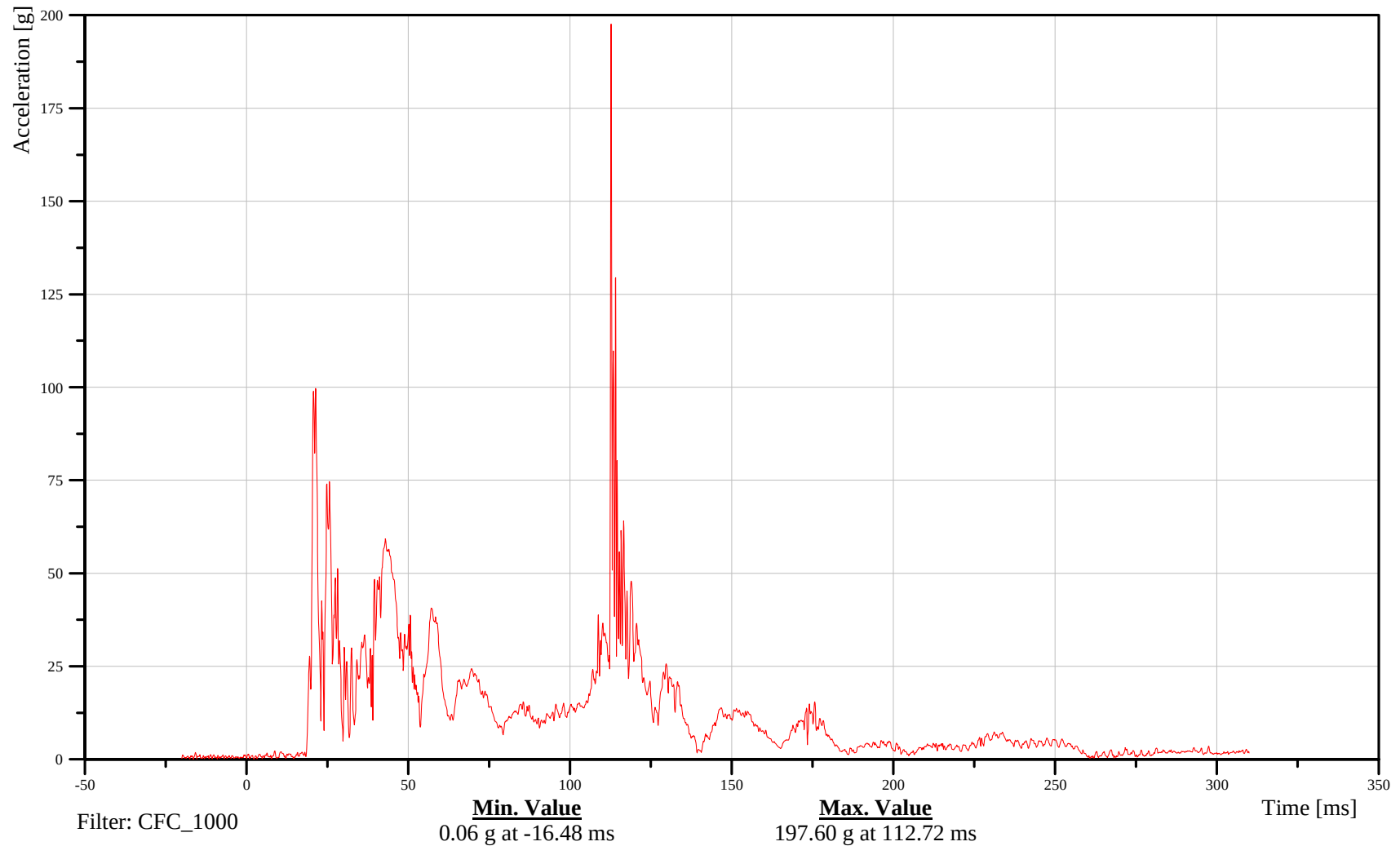
Thorax Rib 1 Resultant Acceleration

Customer: VRTC

11TRRILE01WSACRA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

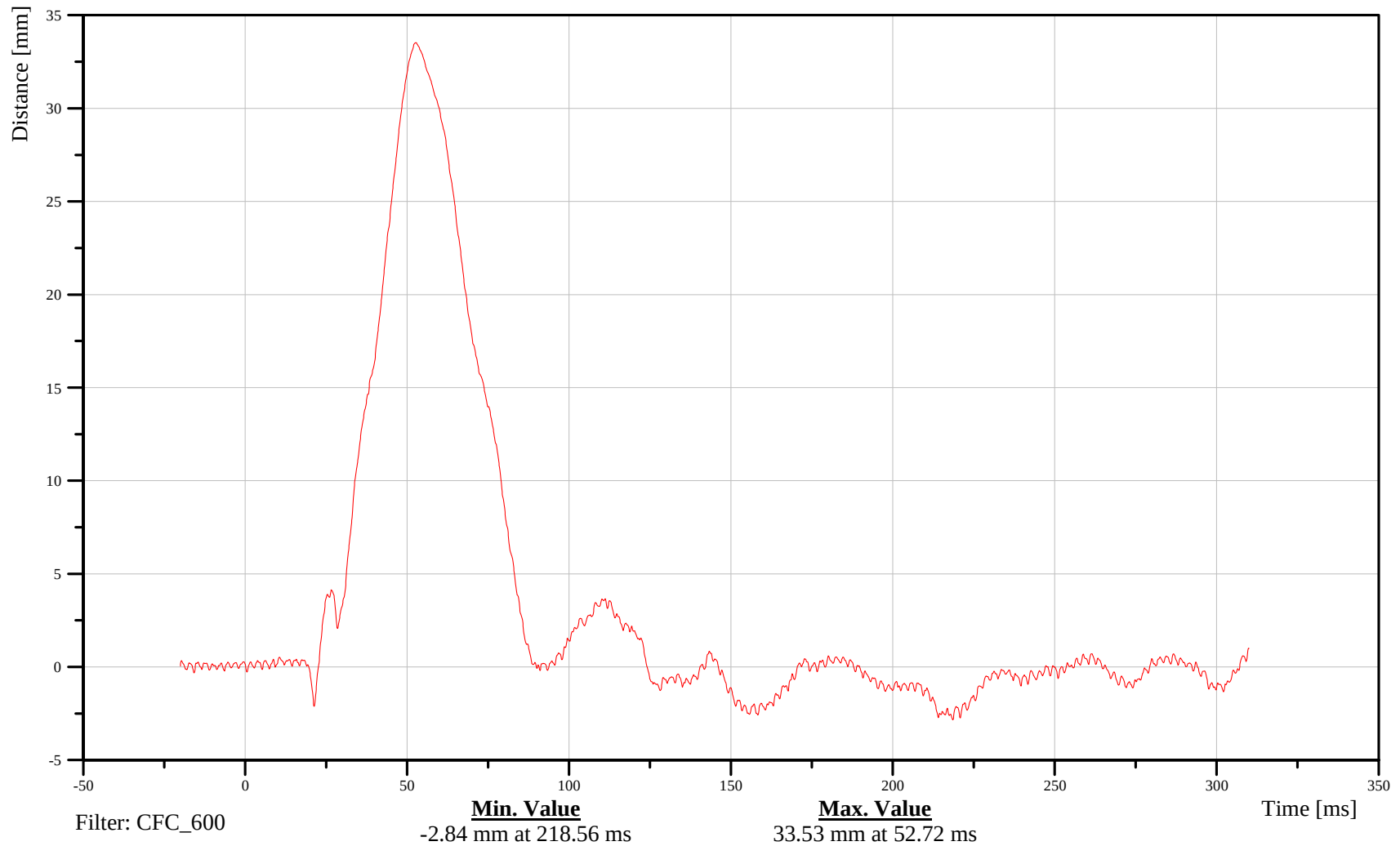
Thorax Rib 2 Y-Axis Displacement

Customer: VRTC

11TRRILE02WSDSYB

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

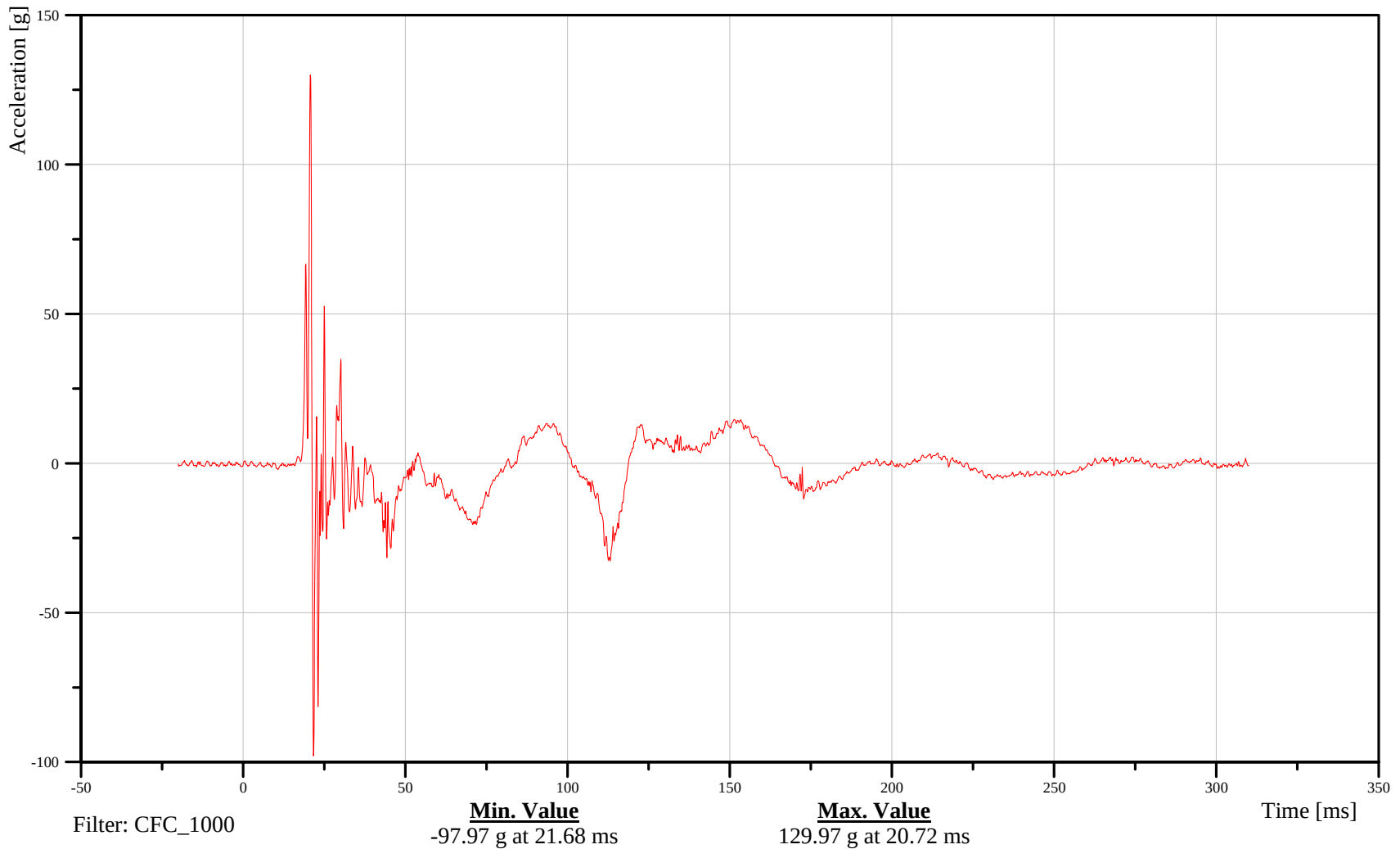
Thorax Rib 2 X-Axis Acceleration

Customer: VRTC

11TRRILE02WSACXA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

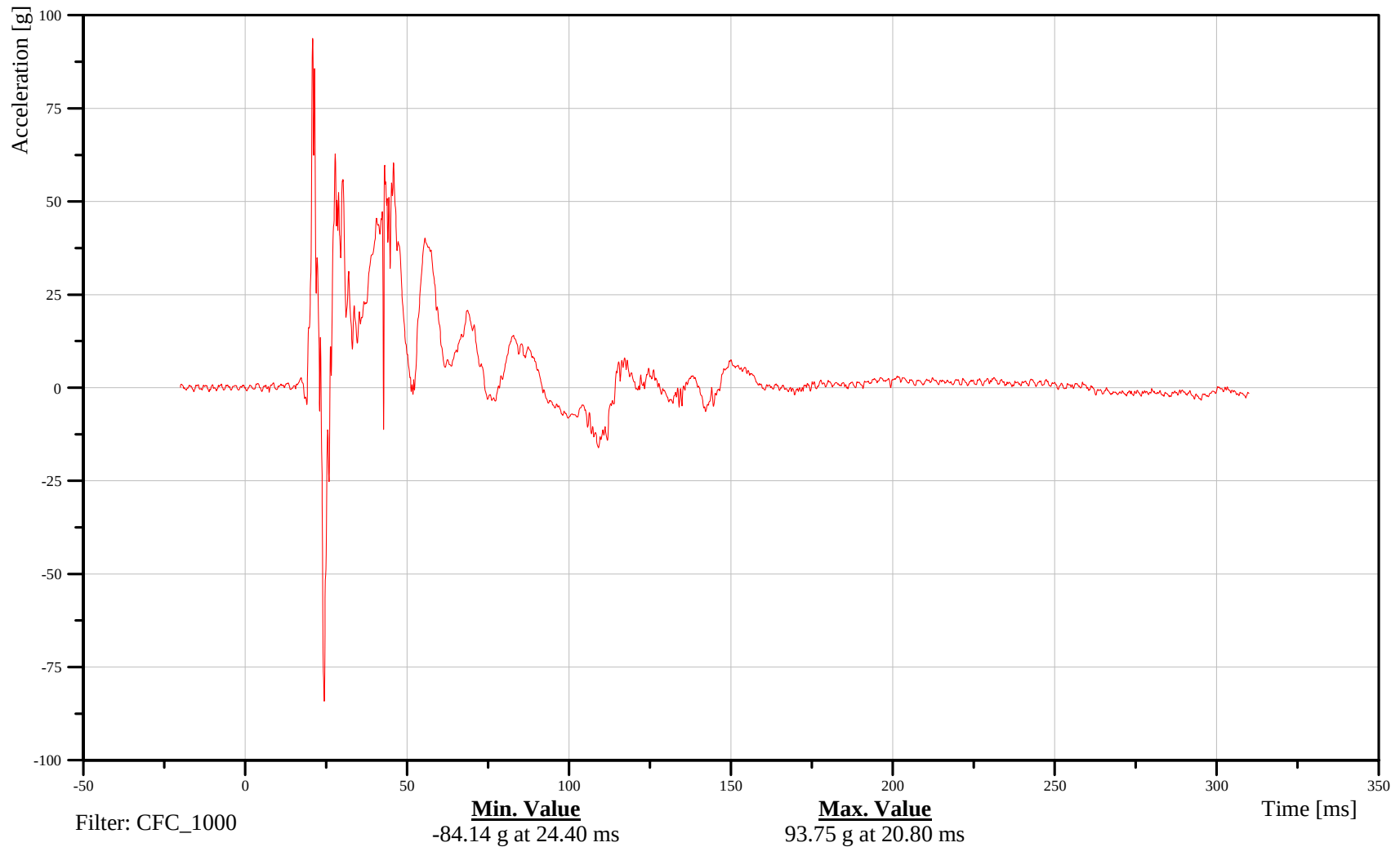
Thorax Rib 2 Y-Axis Acceleration

Customer: VRTC

11TRRILE02WSACYA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

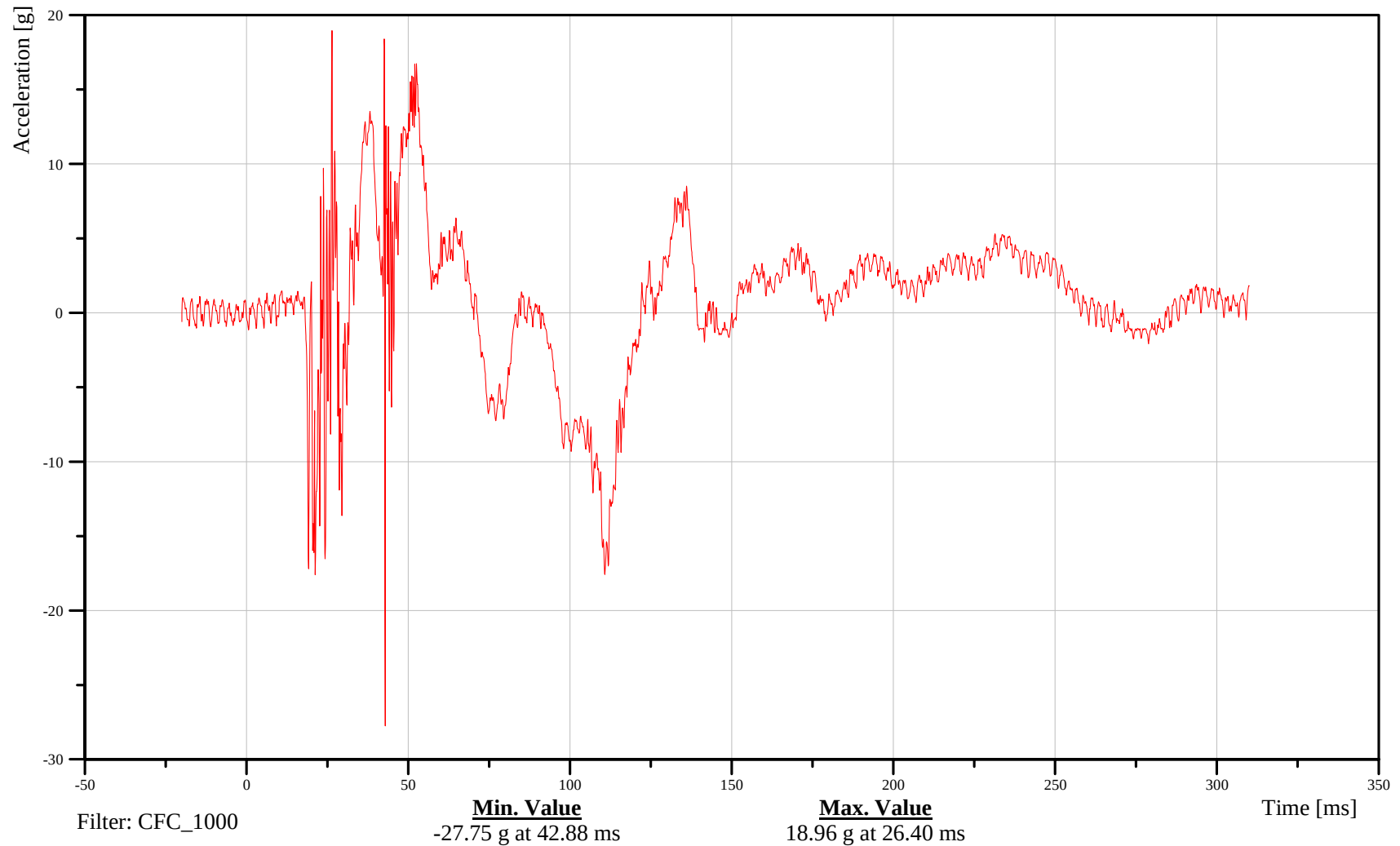
Thorax Rib 2 Z-Axis Acceleration

Customer: VRTC

11TRRILE02WSACZA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

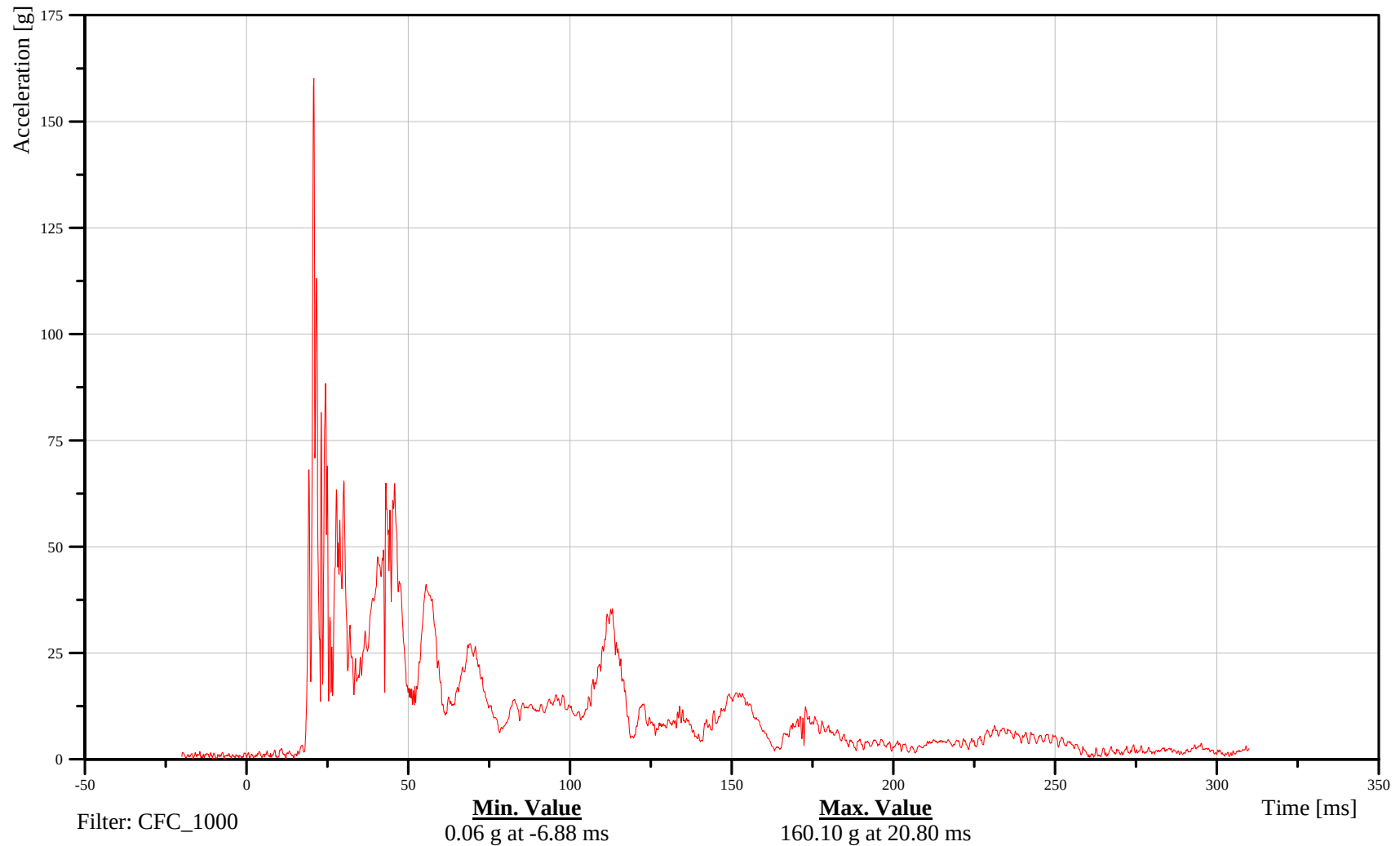
Thorax Rib 2 Resultant Acceleration

Customer: VRTC

11TRRILE02WSACRA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

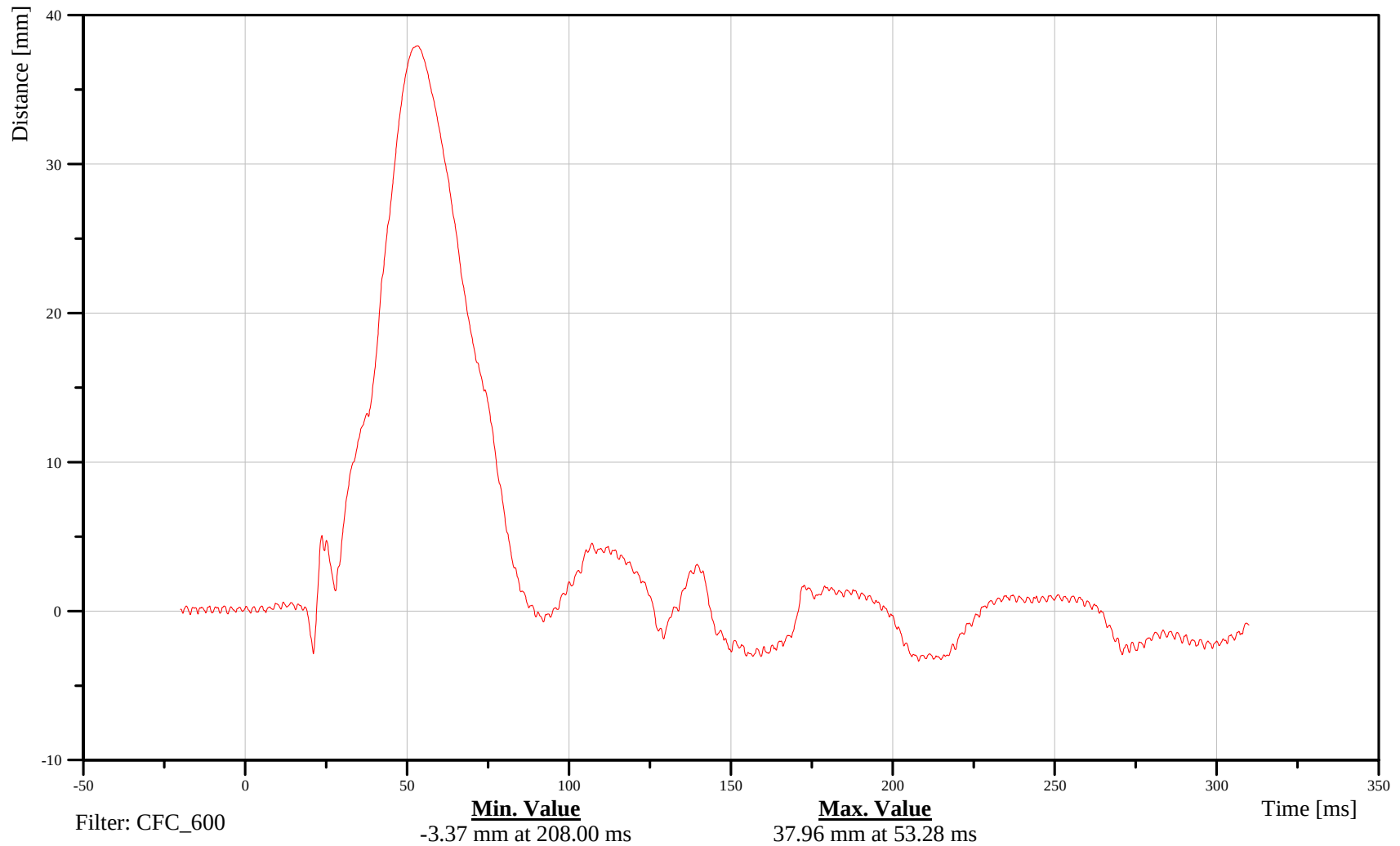
Thorax Rib 3 Y-Axis Displacement

Customer: VRTC

11TRRILE03WSDSYB

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

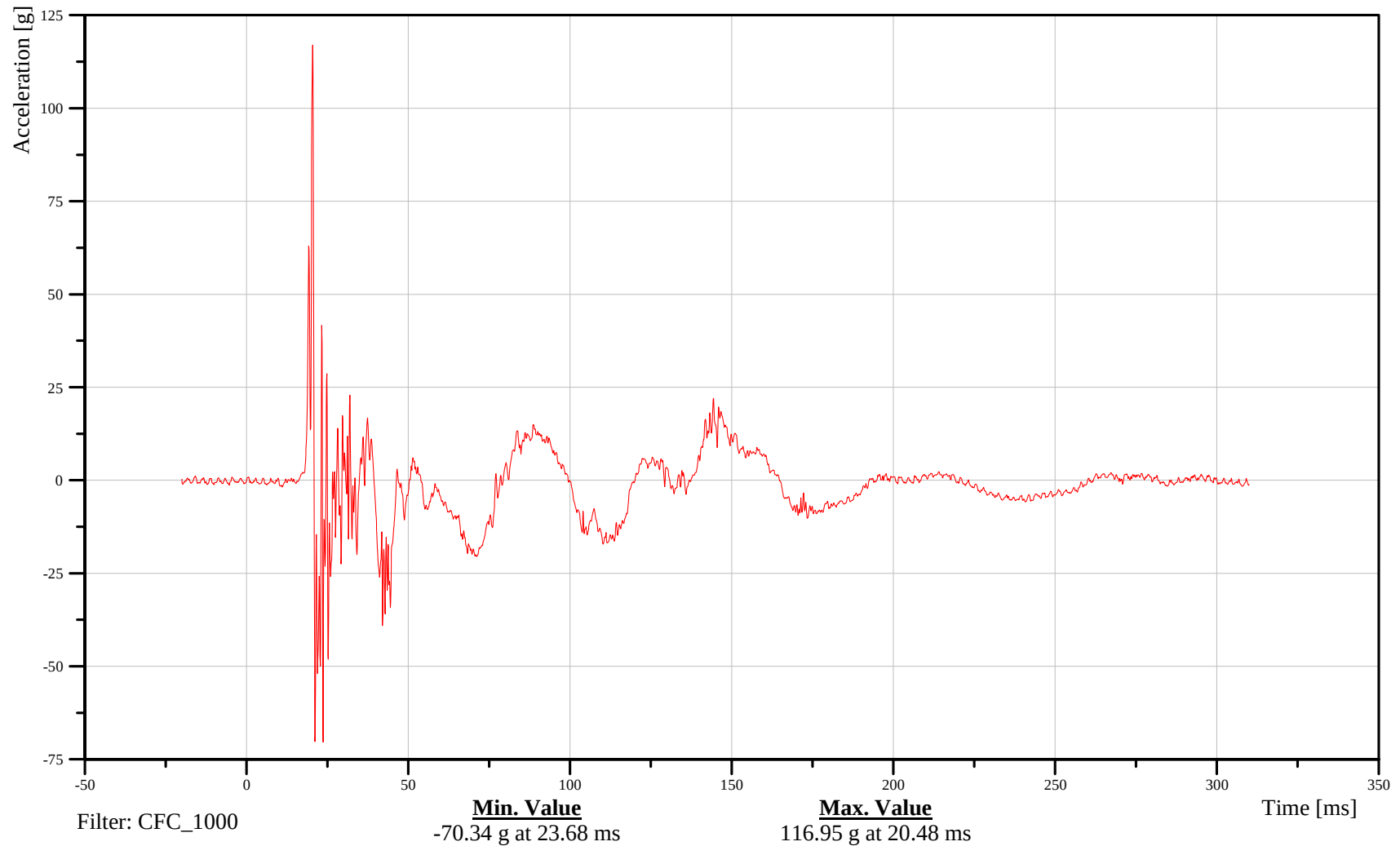
Thorax Rib 3 X-Axis Acceleration

Customer: VRTC

11TRRILE03WSACXA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

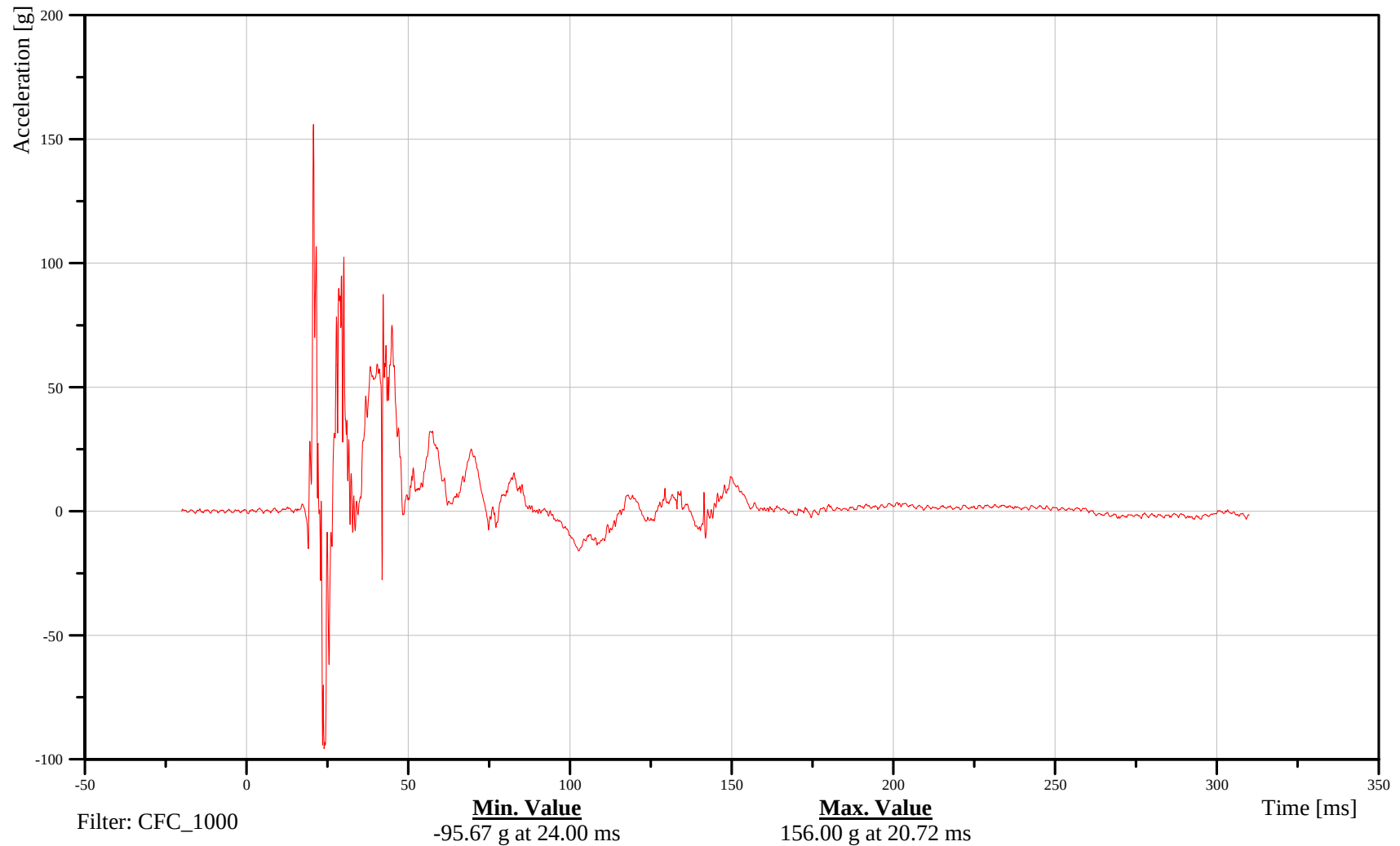
Thorax Rib 3 Y-Axis Acceleration

Customer: VRTC

11TRRILE03WSACYA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

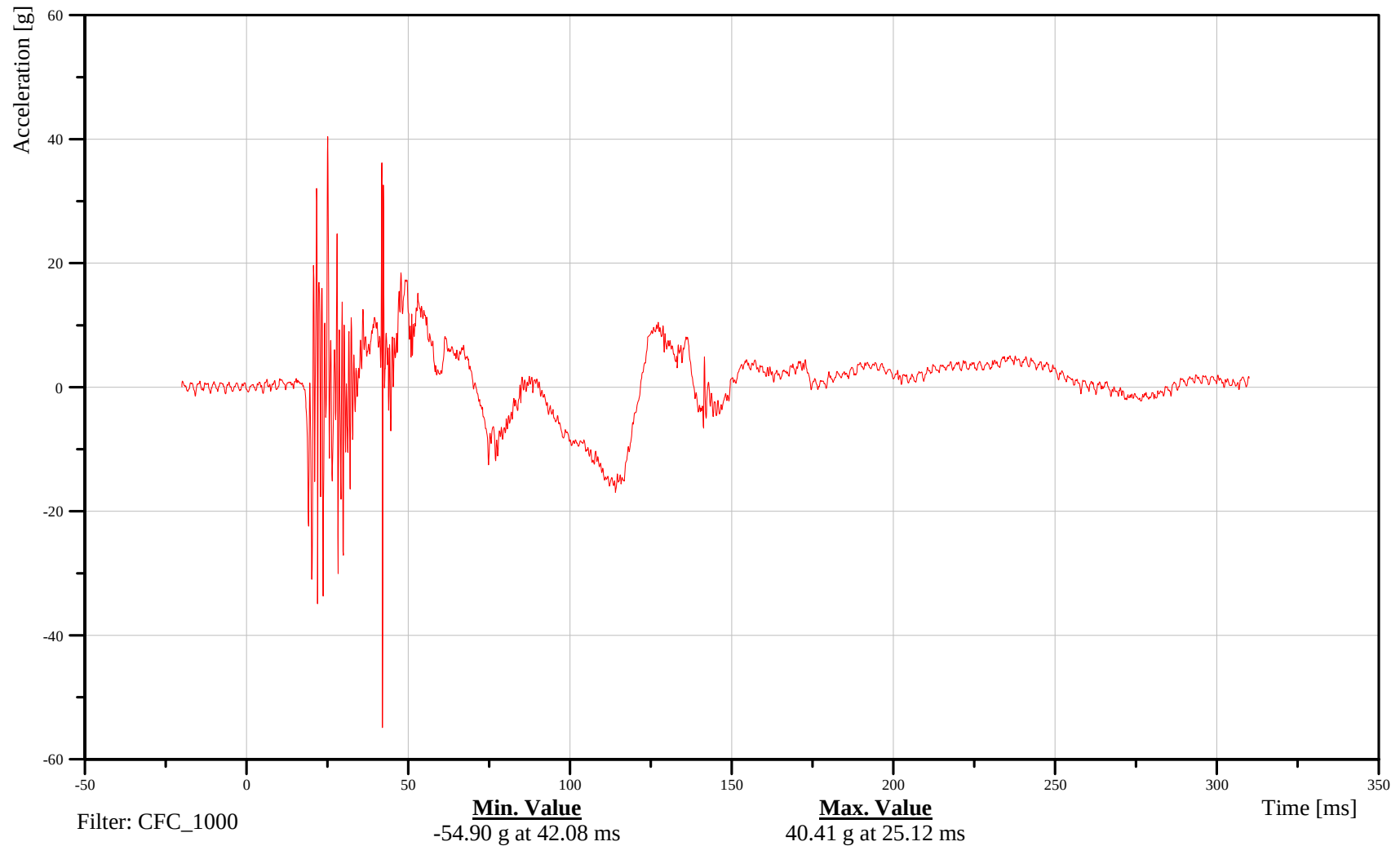
Thorax Rib 3 Z-Axis Acceleration

Customer: VRTC

11TRRILE03WSACZA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

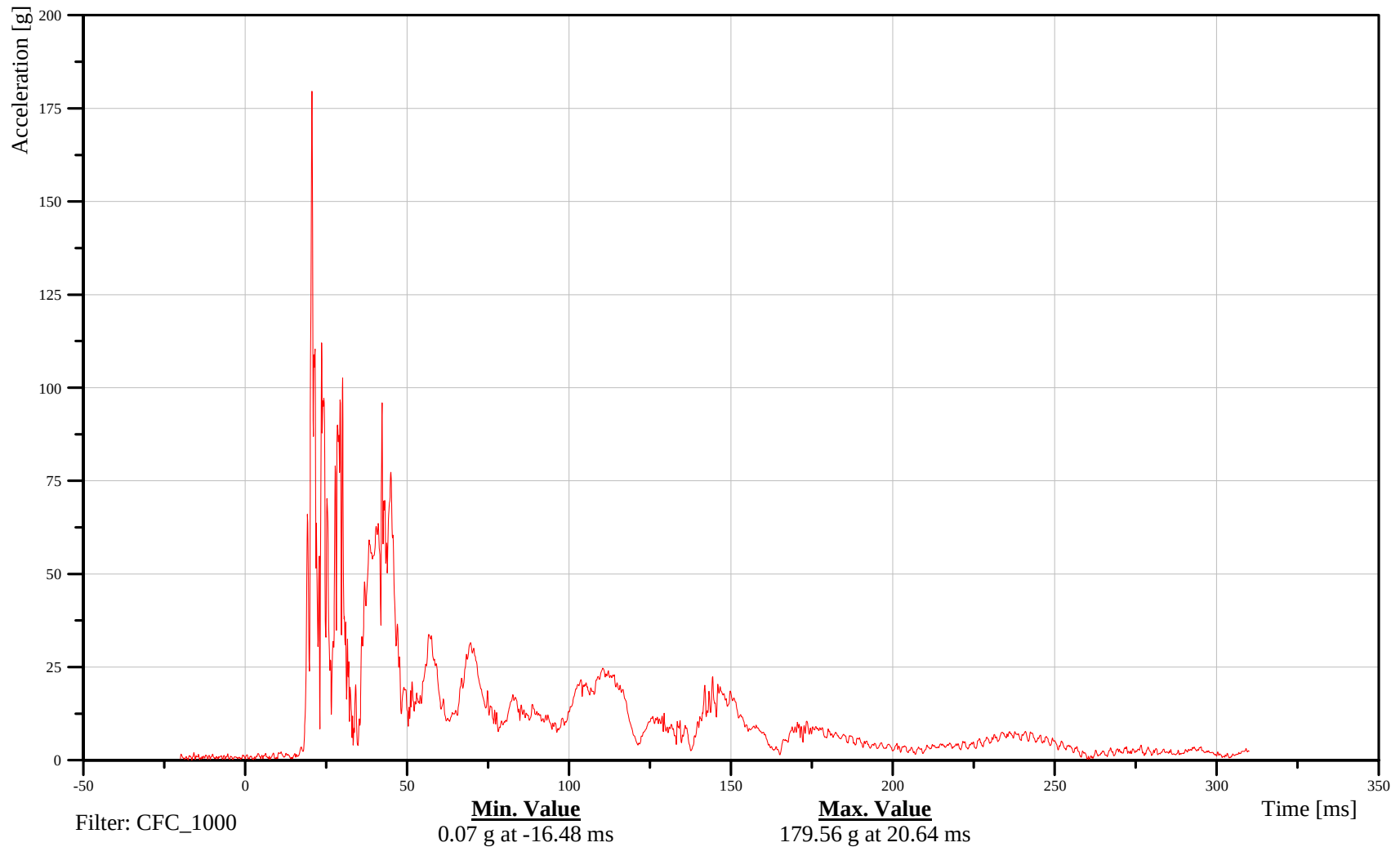
Thorax Rib 3 Resultant Acceleration

Customer: VRTC

11TRRILE03WSACRA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

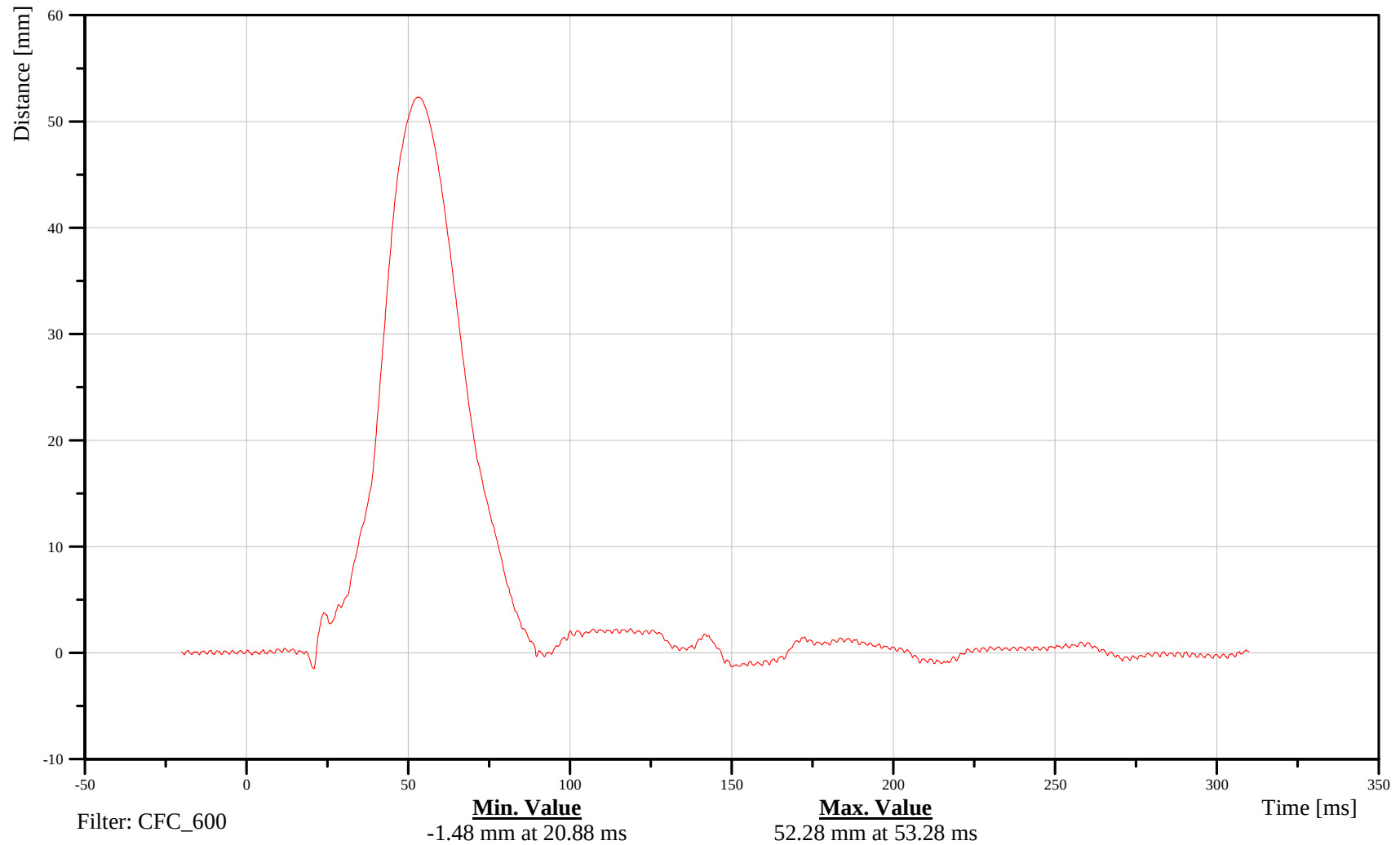
Abdominal Rib 1 Y-Axis Displacement

Customer: VRTC

11ABRILE01WSDSYB

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

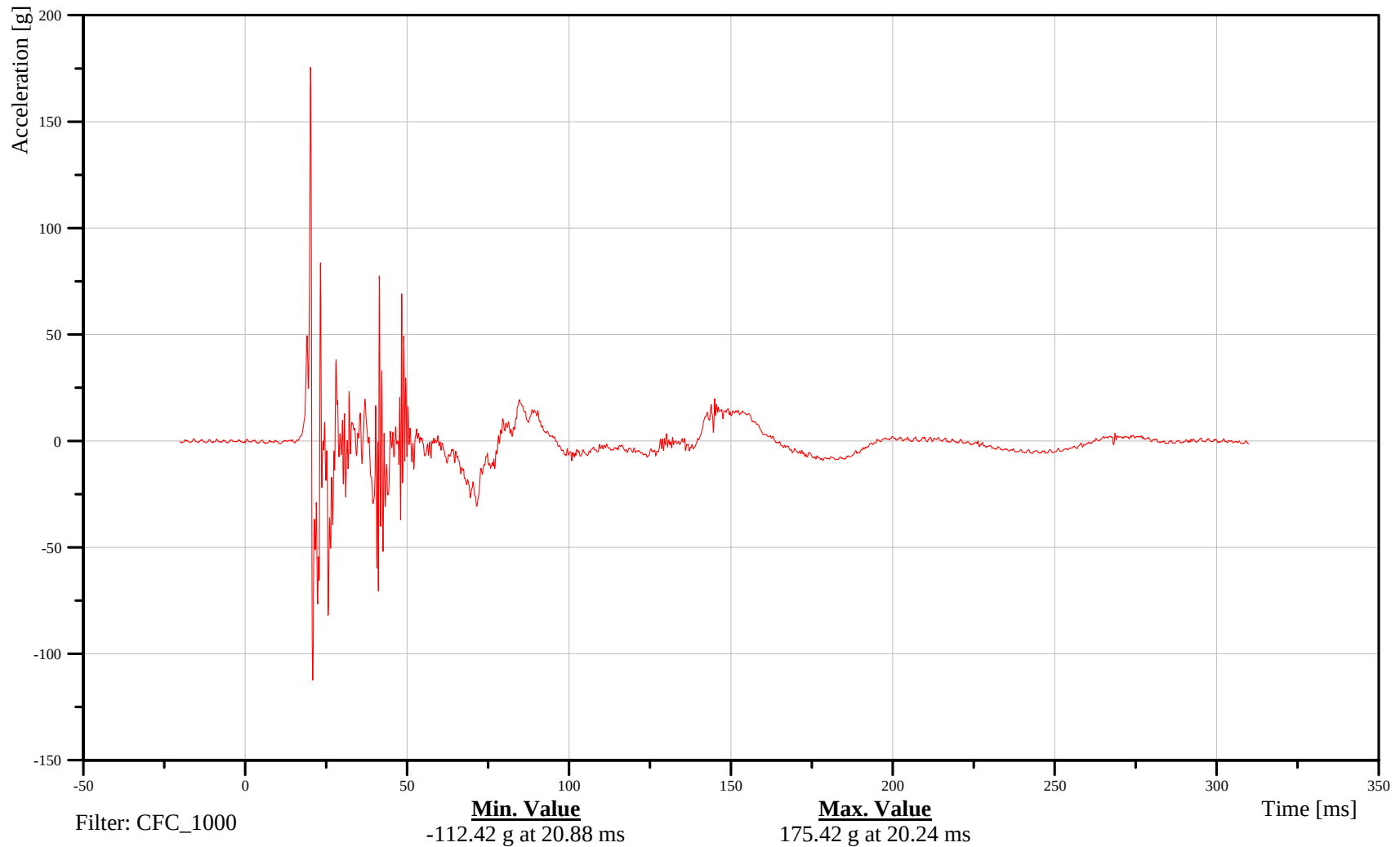
Abdominal Rib 1 X-Axis Acceleration

Customer: VRTC

11ABRILE01WSACXA

TRC Inc. Test Lab: CTF

Test Number: 080108



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080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

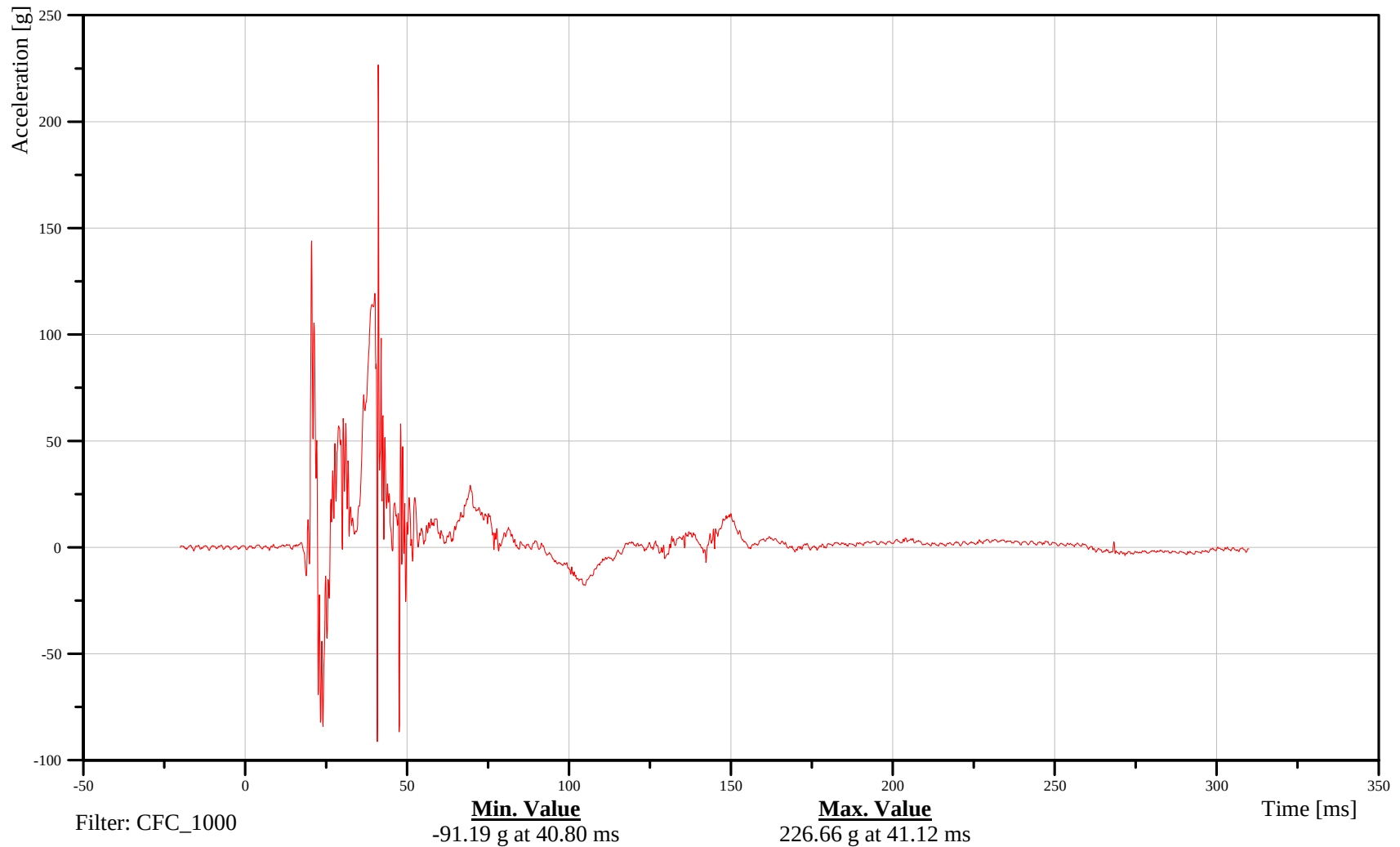
Abdominal Rib 1 Y-Axis Acceleration

Customer: VRTC

11ABRILE01WSACYA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-59

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

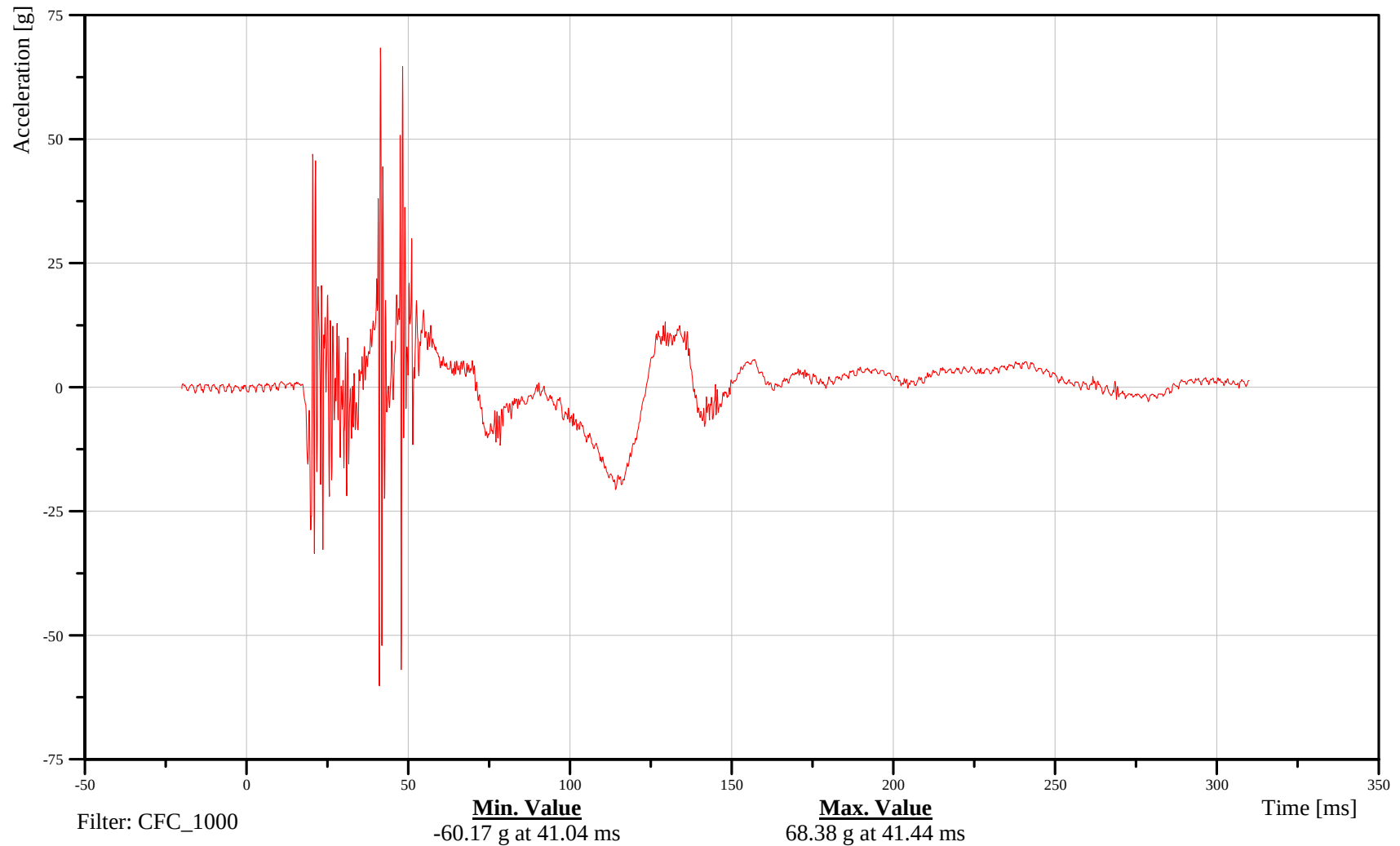
Abdominal Rib 1 Z-Axis Acceleration

Customer: VRTC

11ABRILE01WSACZA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-60

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

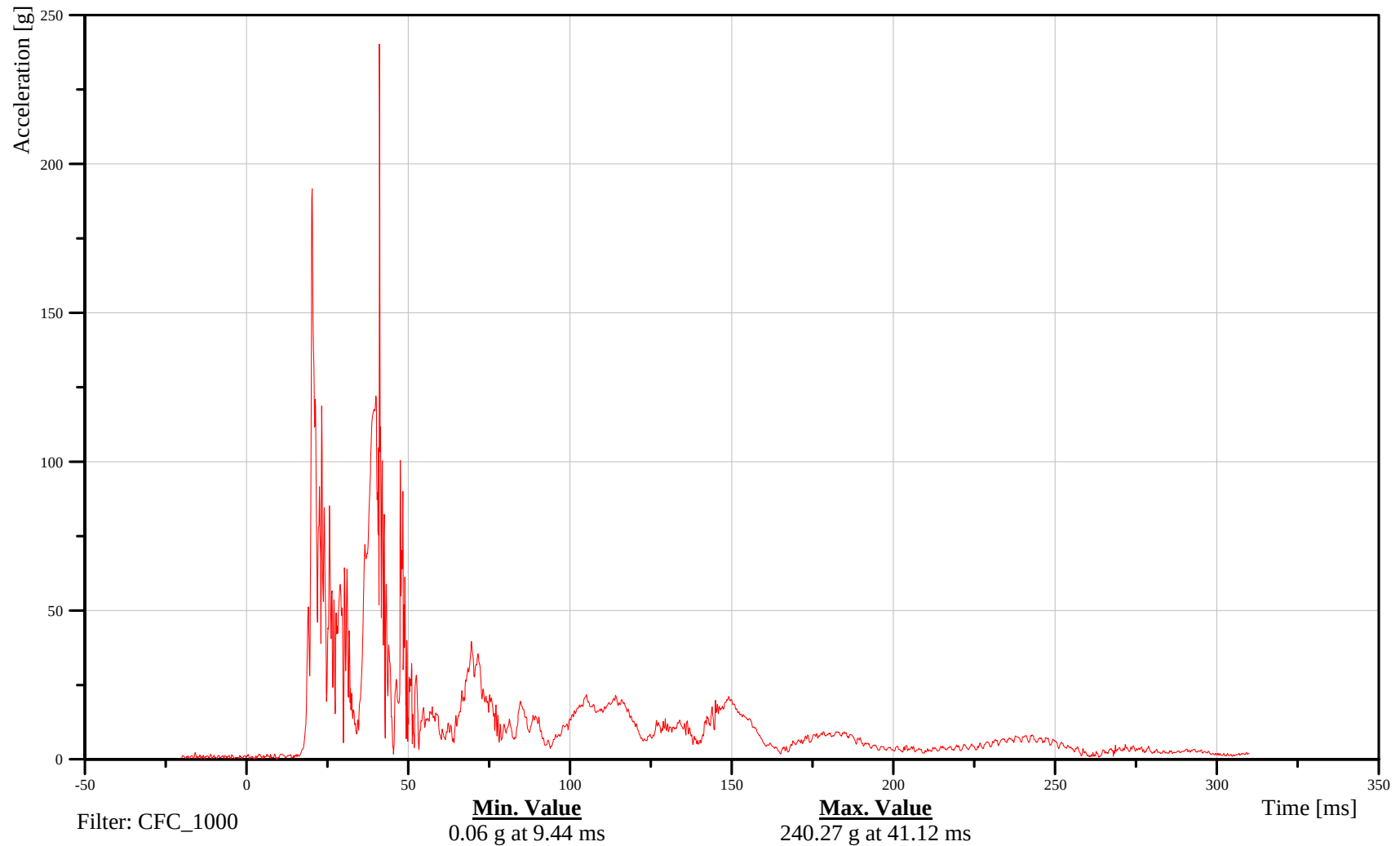
Abdominal Rib 1 Resultant Acceleration

Customer: VRTC

11ABRILE01WSACRA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-61

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

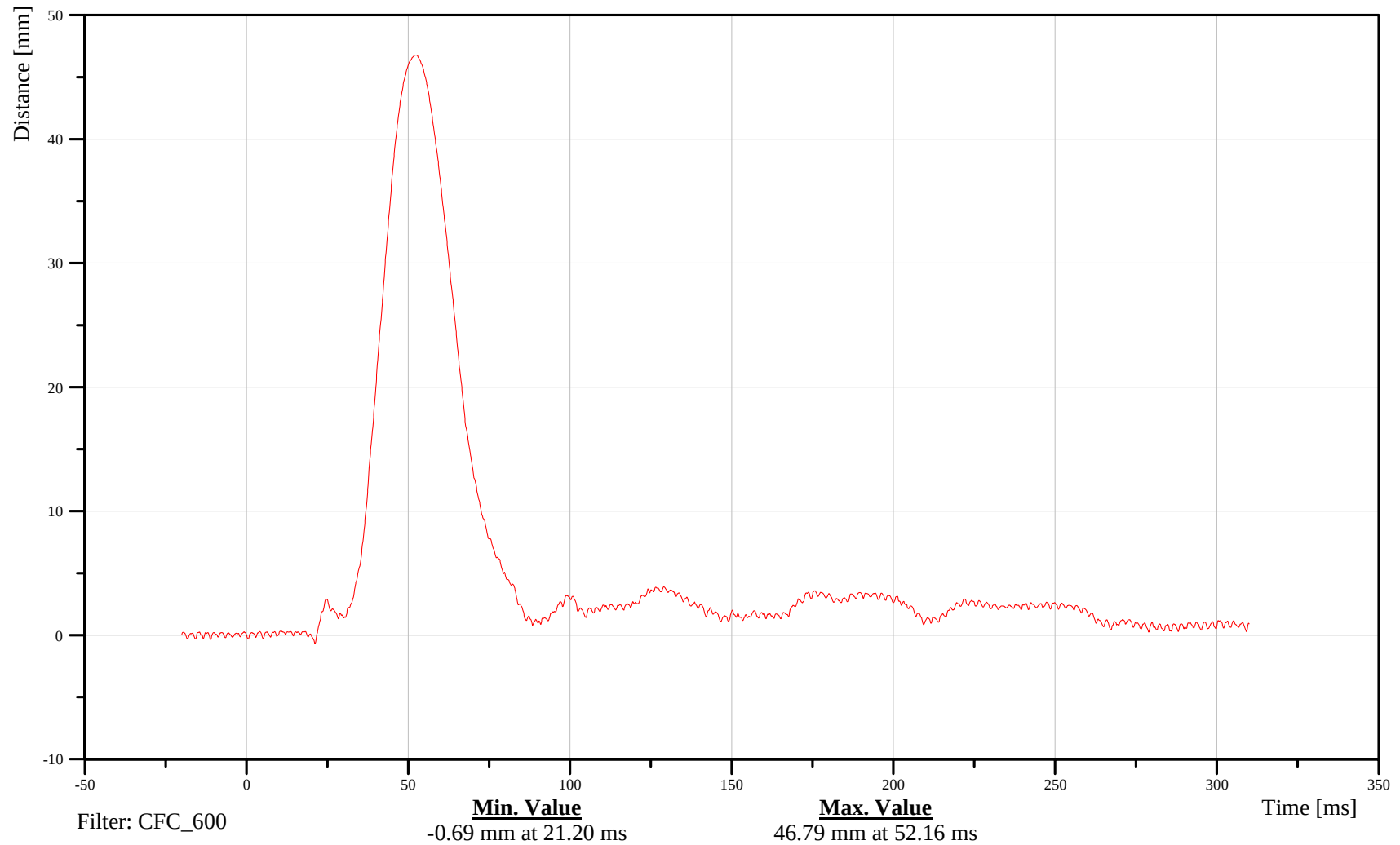
Abdominal Rib 2 Y-Axis Displacement

Customer: VRTC

11ABRILE02WSDSYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-62

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

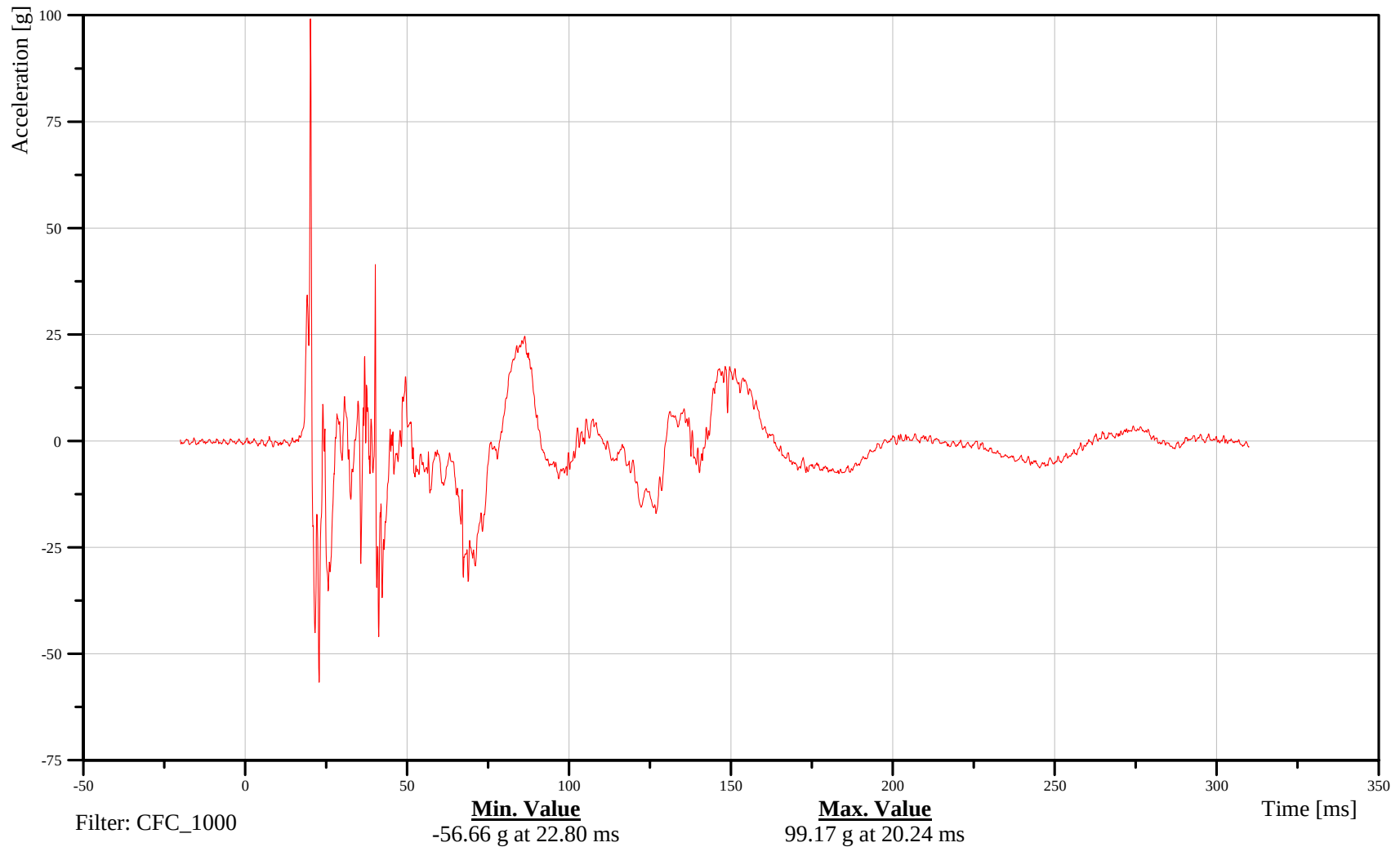
Abdominal Rib 2 X-Axis Acceleration

Customer: VRTC

11ABRILE02WSACXA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-63

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

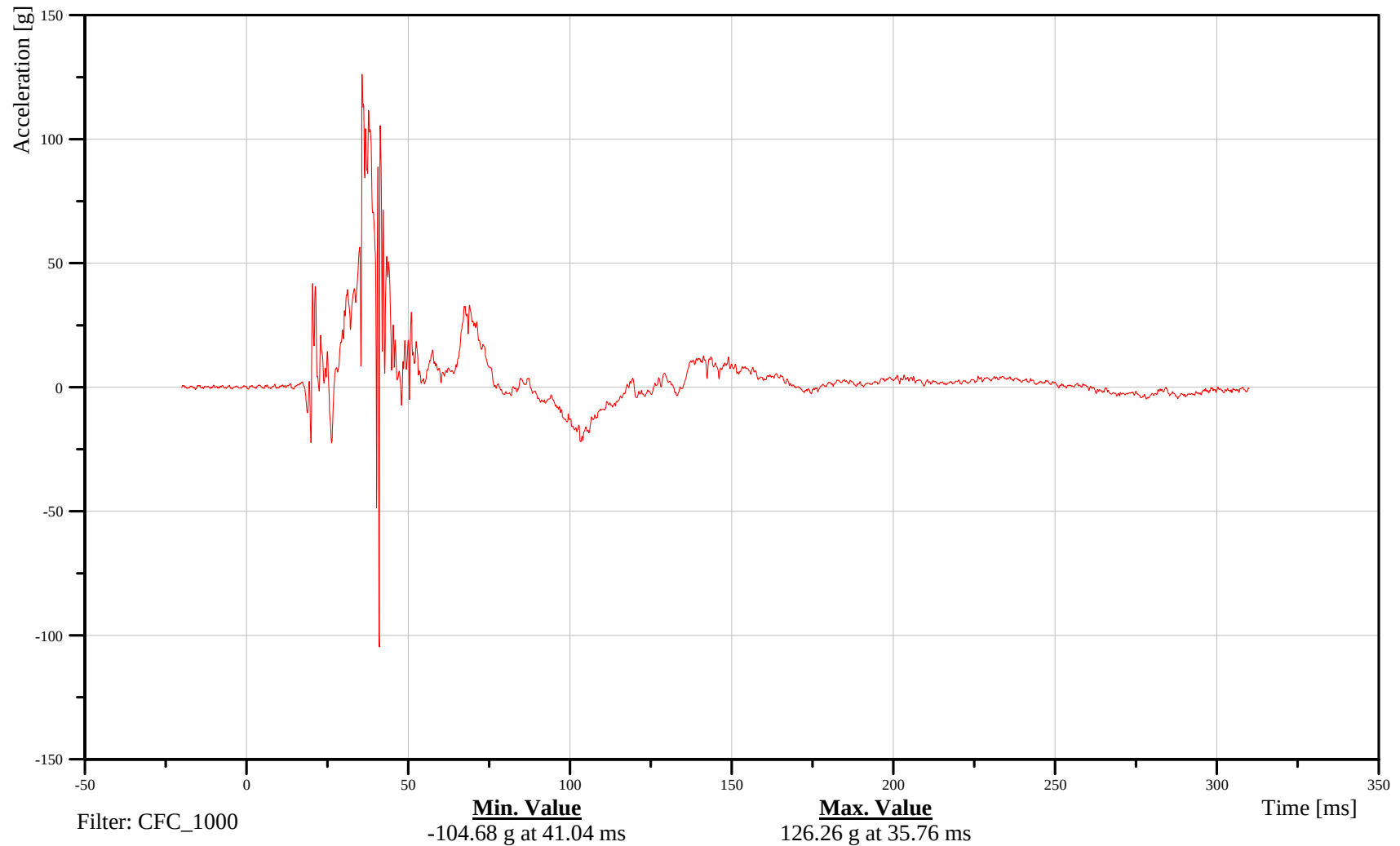
Abdominal Rib 2 Y-Axis Acceleration

Customer: VRTC

11ABRILE02WSACYA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-64

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

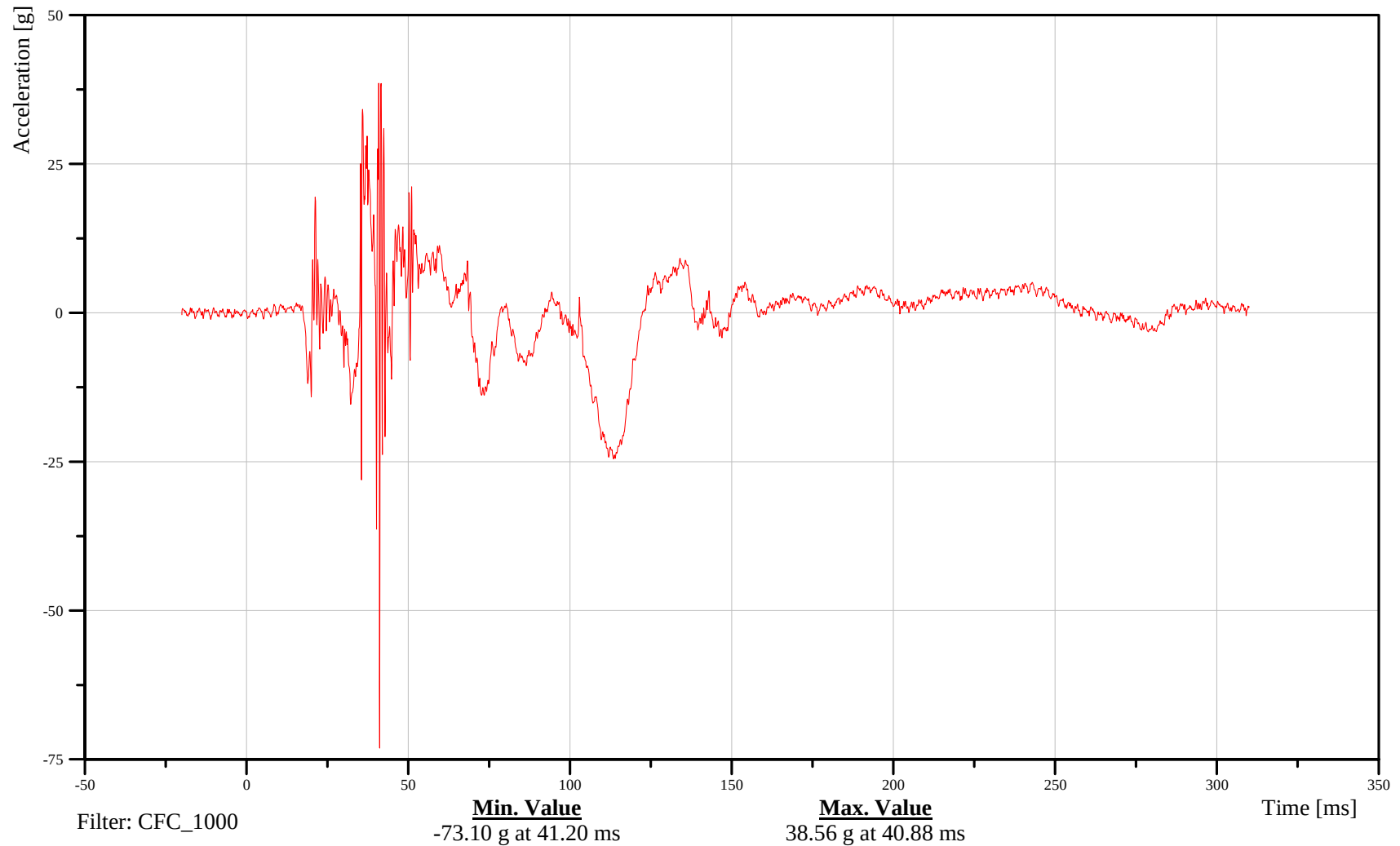
Abdominal Rib 2 Z-Axis Acceleration

Customer: VRTC

11ABRILE02WSACZA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-65

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

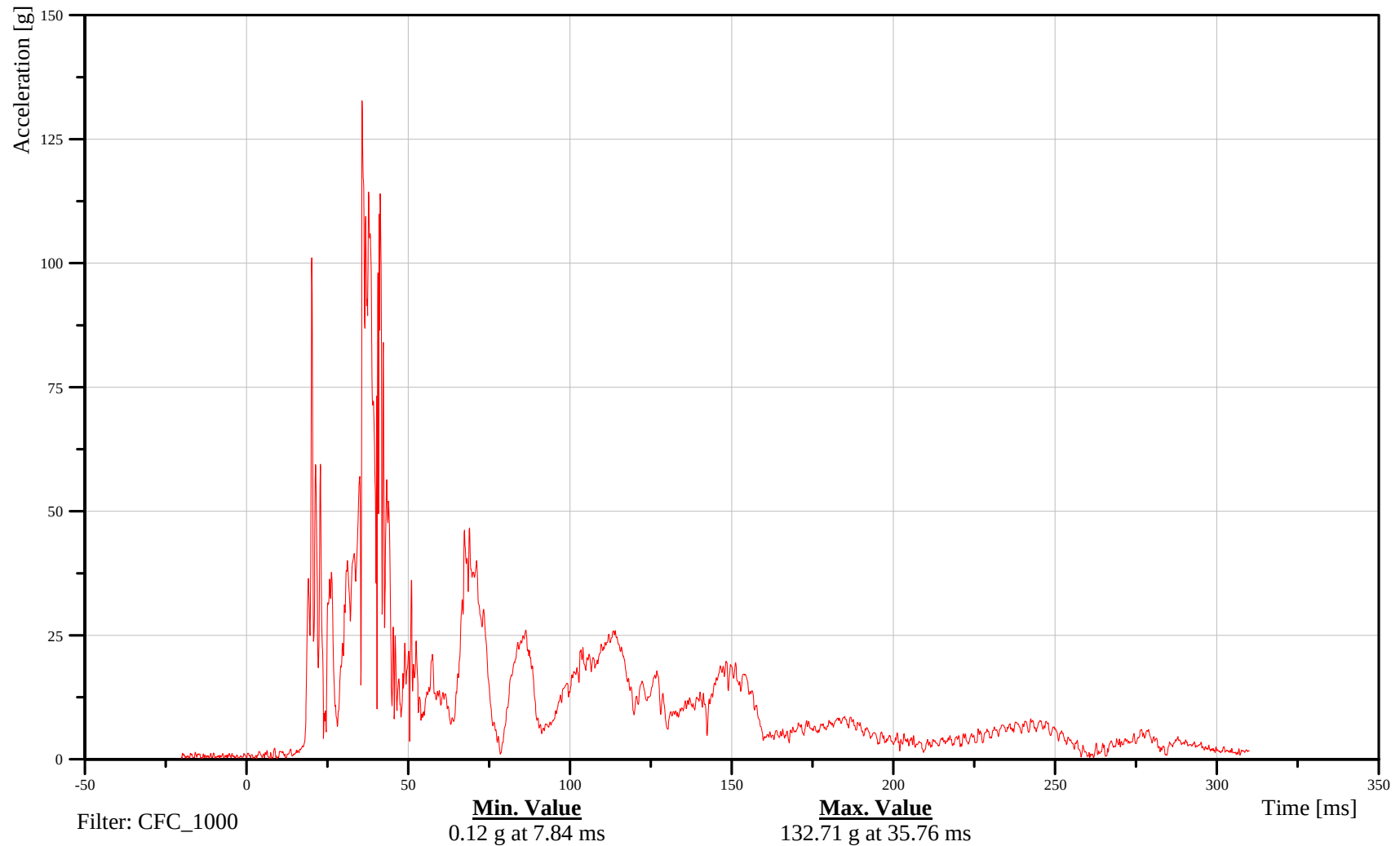
Abdominal Rib 2 Resultant Acceleration

Customer: VRTC

11ABRILE02WSACRA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-66

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

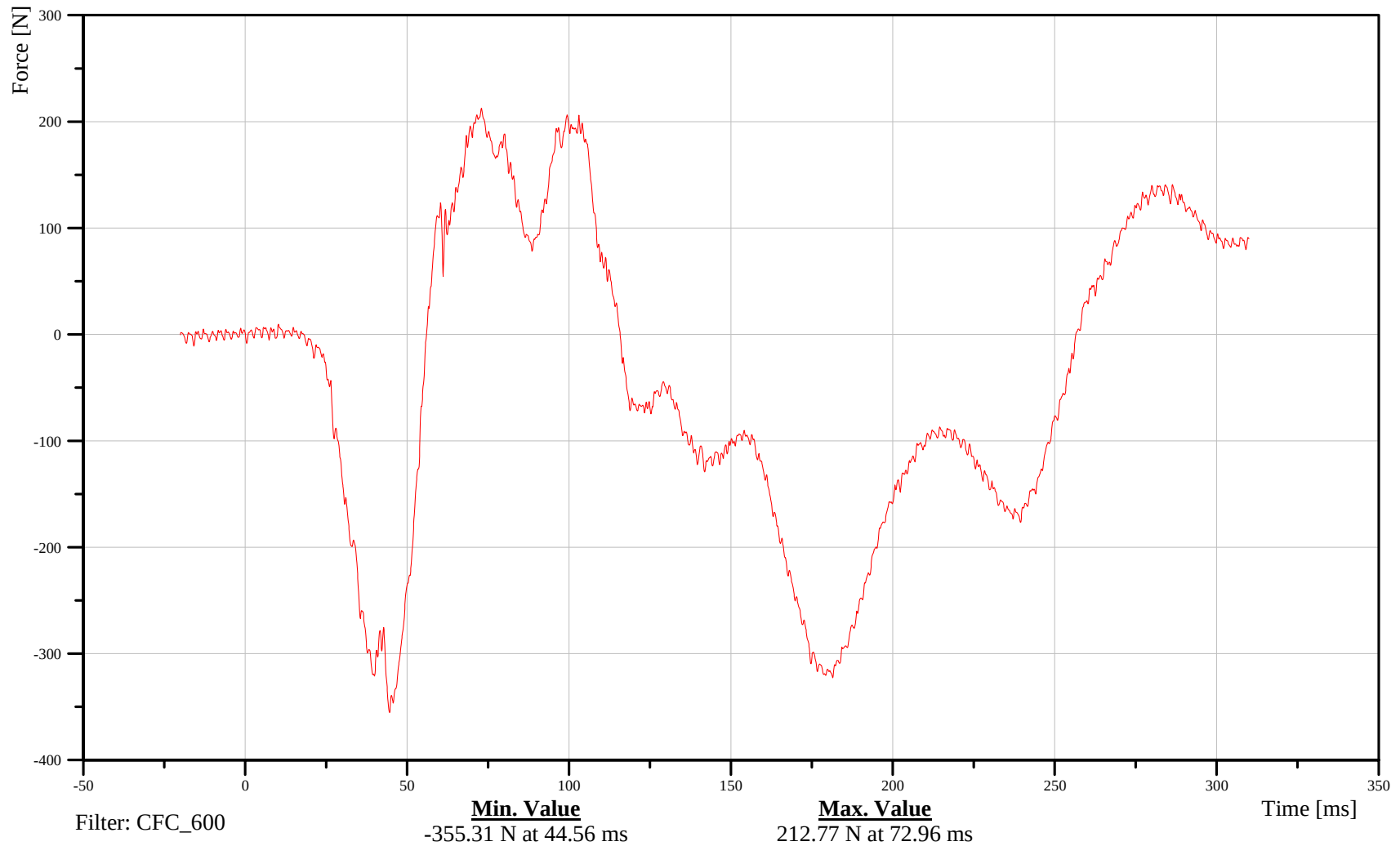
Lumbar X-Axis Force

Customer: VRTC

11LUSP0000WSFOXB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-67

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

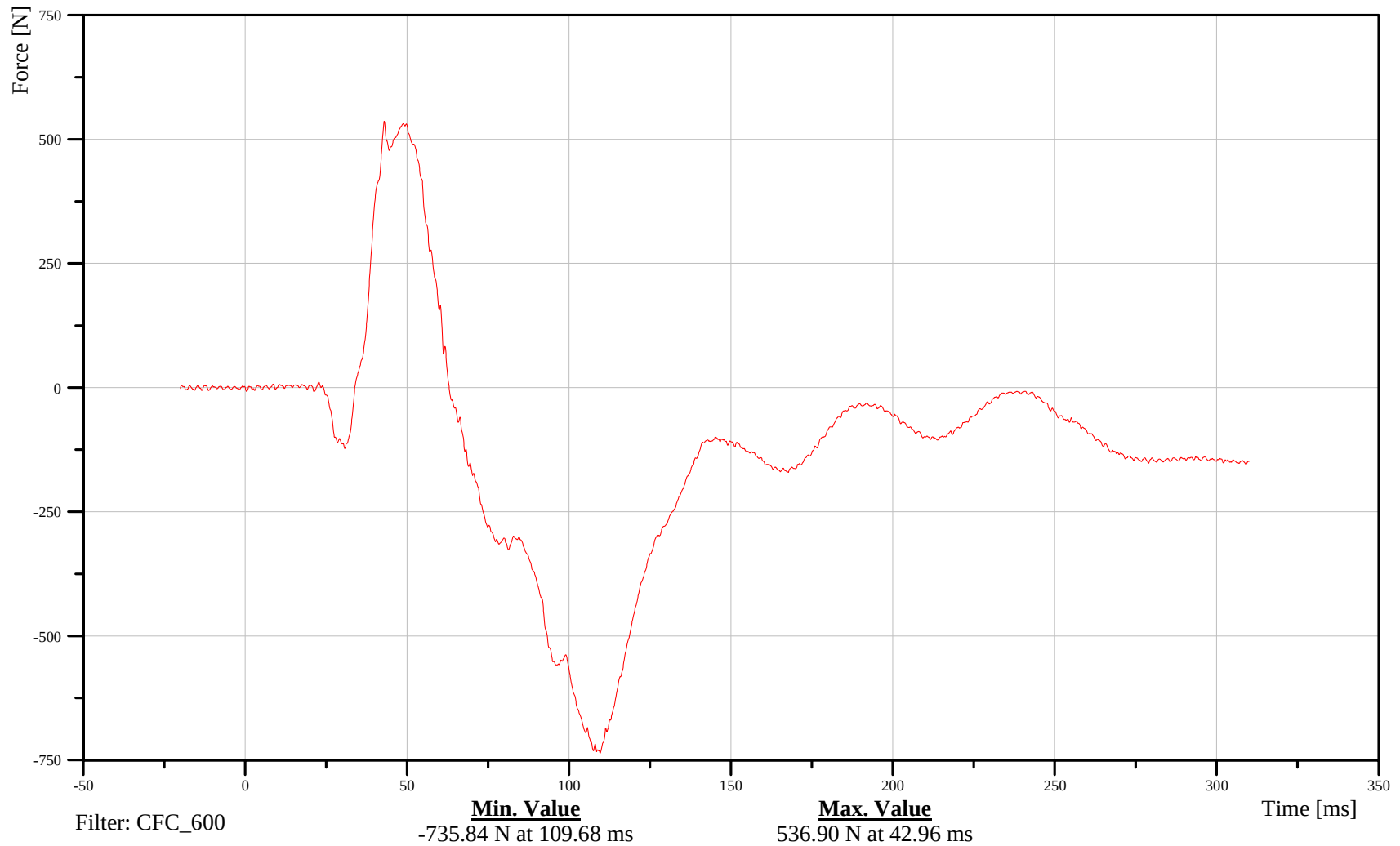
Lumbar Y-Axis Force

Customer: VRTC

11LUSP0000WSFOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-68

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

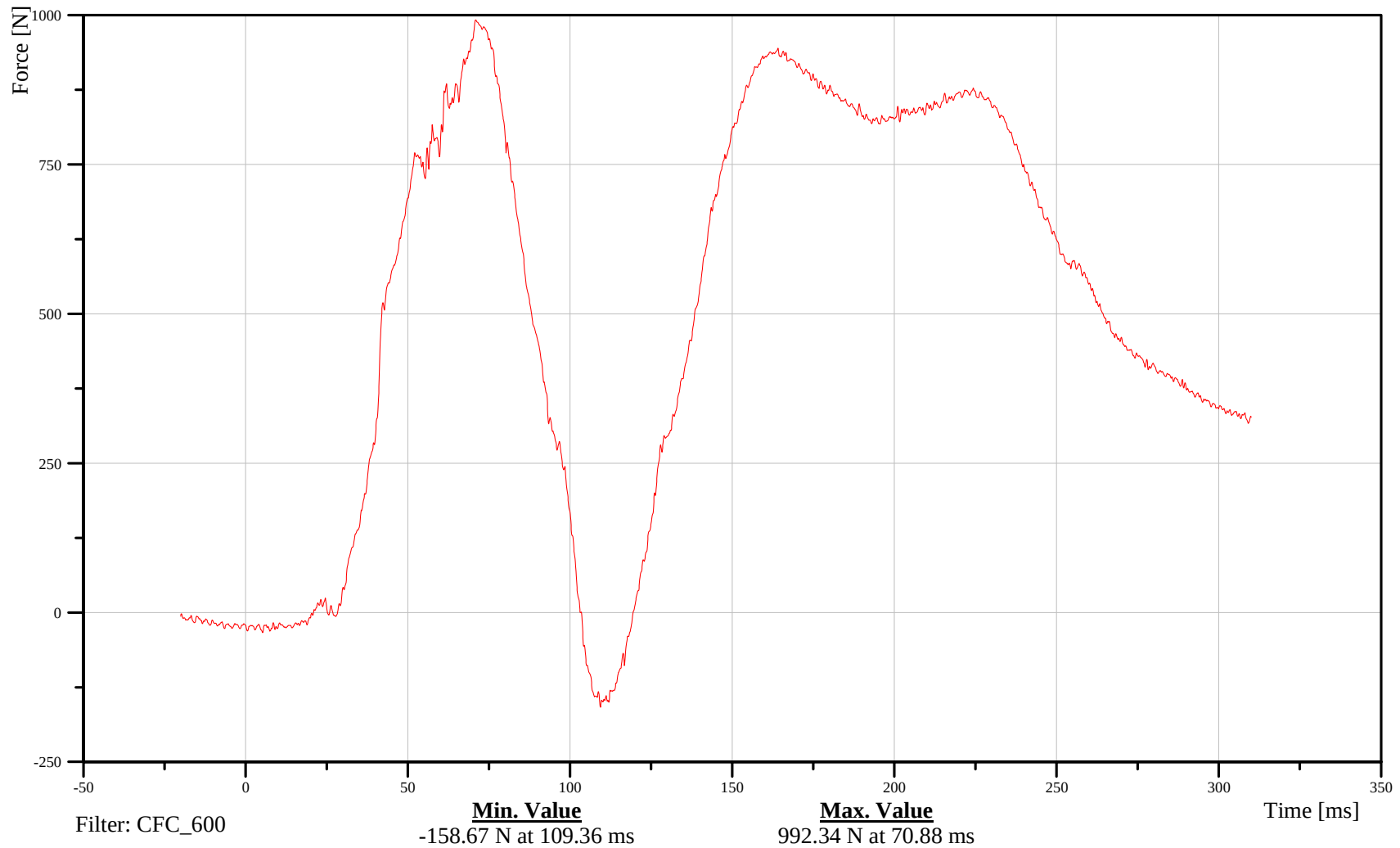
Lumbar Z-Axis Force

Customer: VRTC

11LUSP0000WSFOZB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-69

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

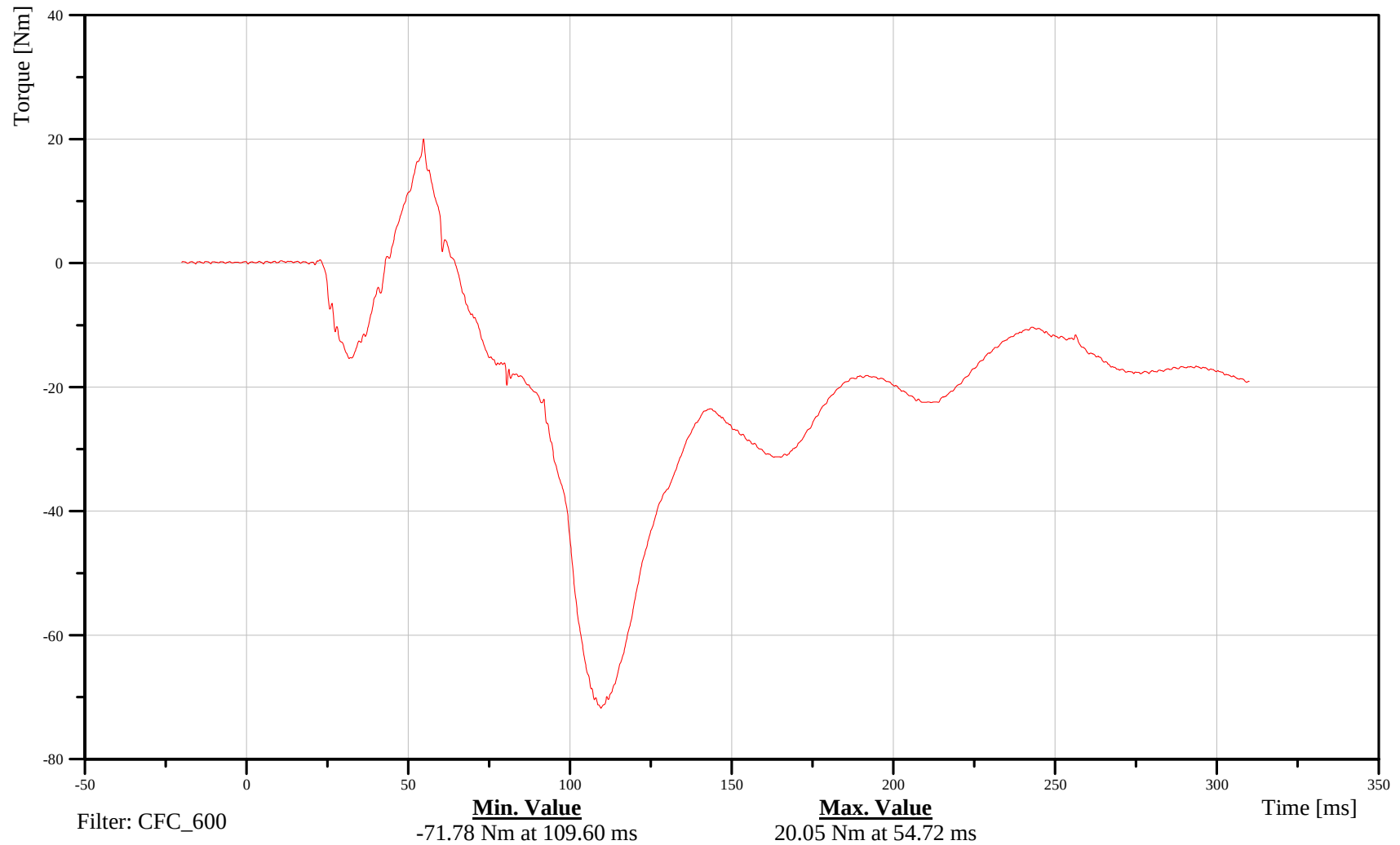
Lumbar Moment About X Axis

Customer: VRTC

11LUSP0000WSMOXB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-70

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

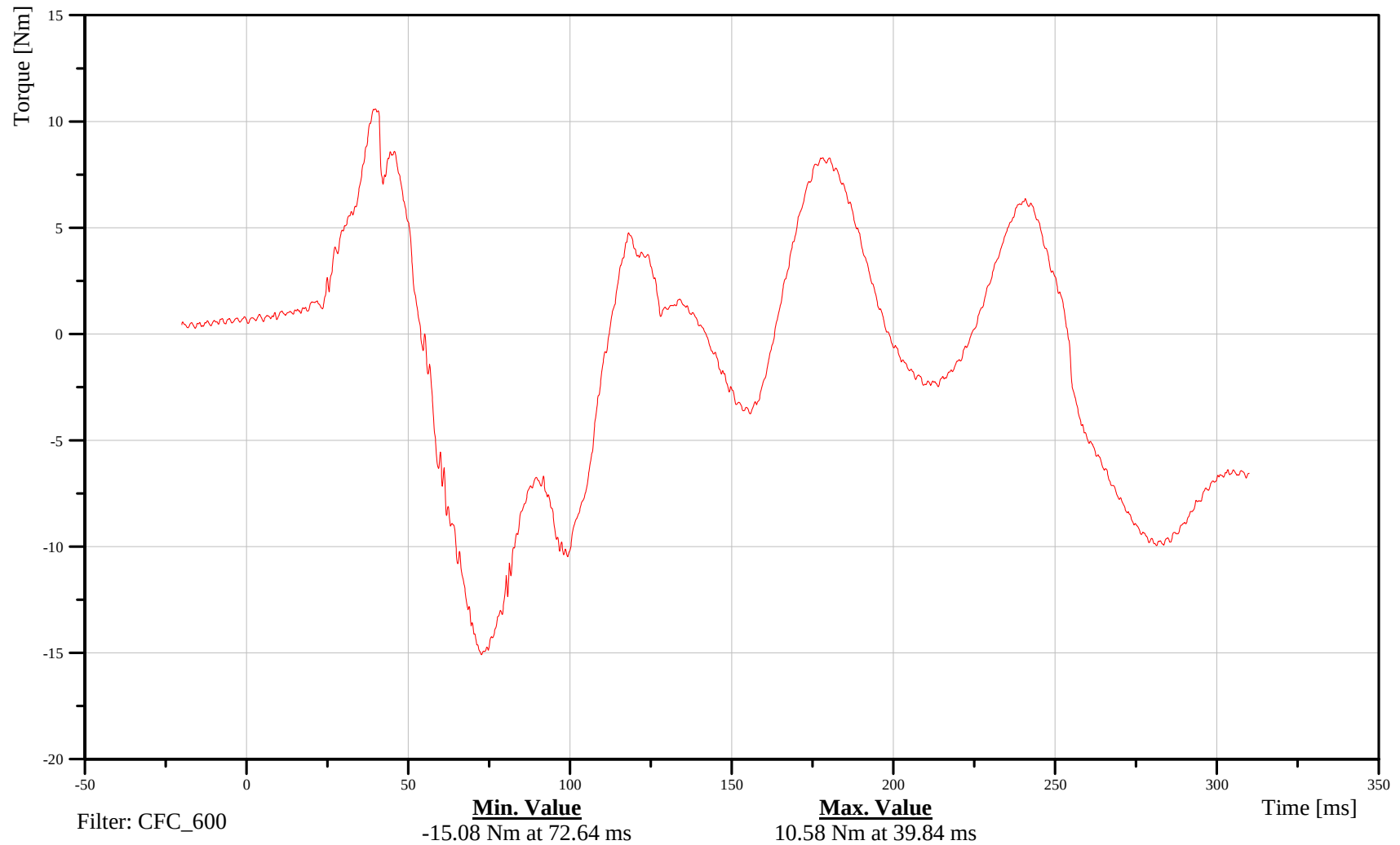
Lumbar Moment About Y Axis

Customer: VRTC

11LUSP0000WSMOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-71

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

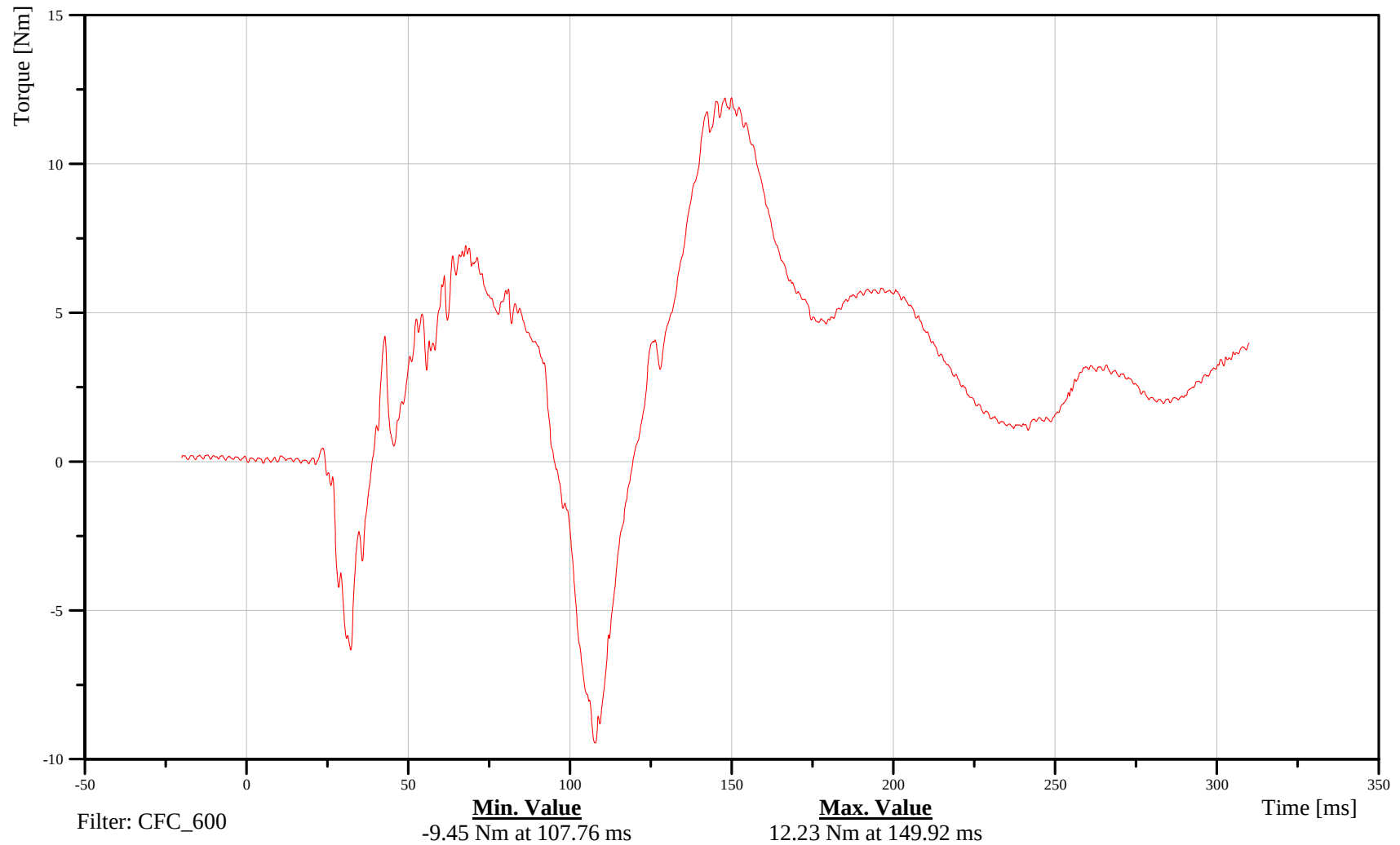
Lumbar Moment About Z Axis

Customer: VRTC

11LUSP0000WSMOZB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-72

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

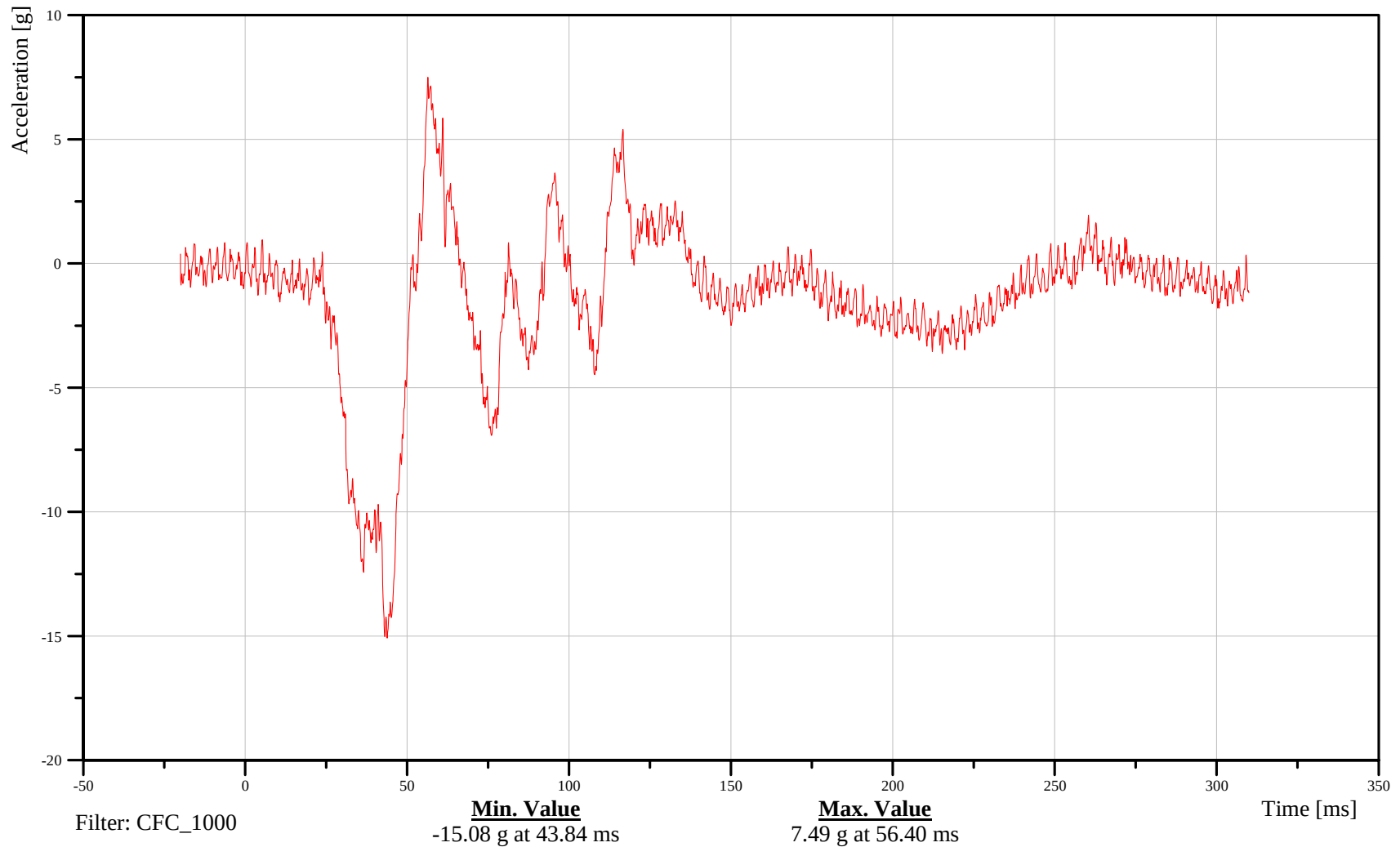
Pelvis X-Axis Acceleration

Customer: VRTC

11PELVCG00WSACXA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-73

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

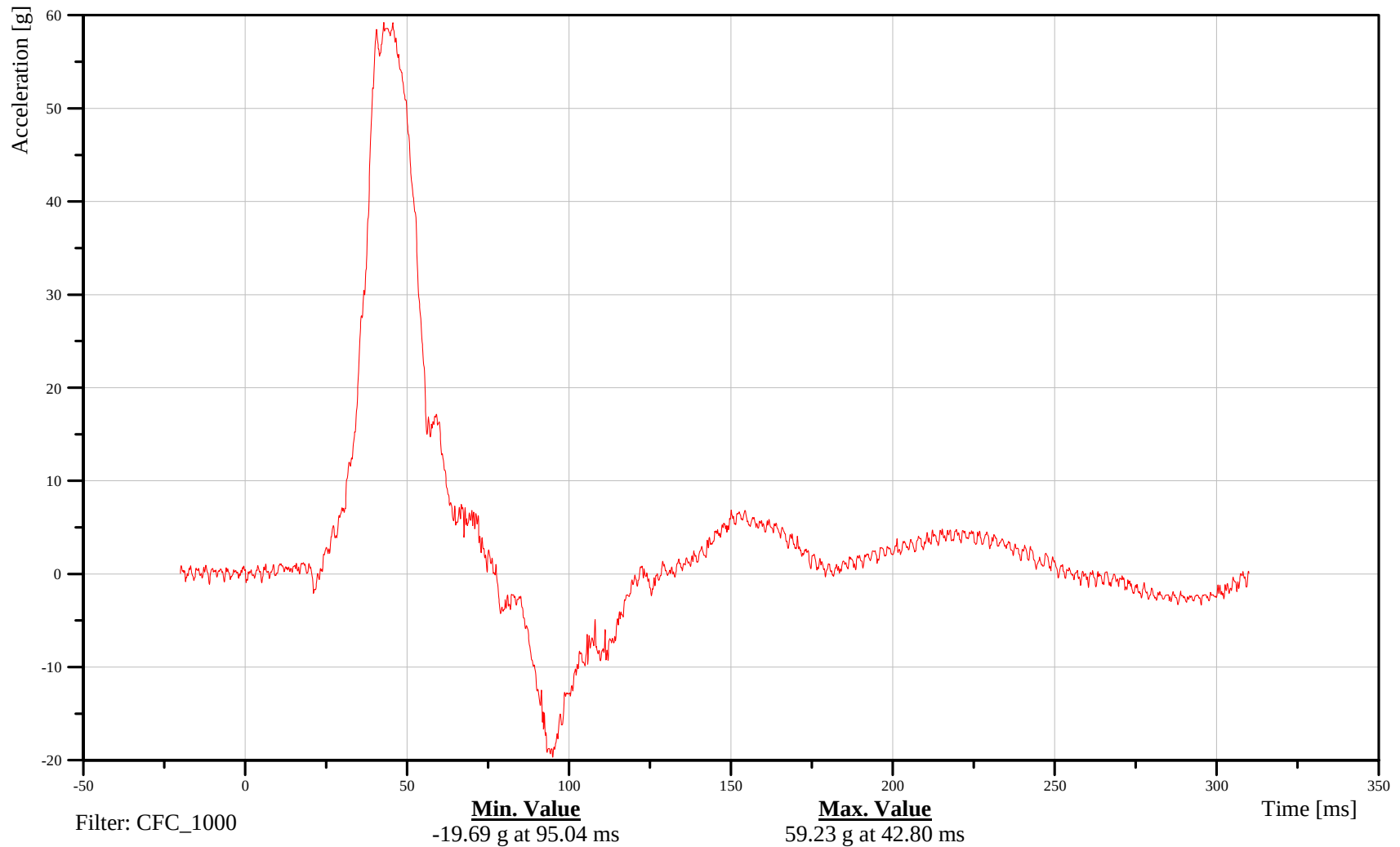
Pelvis Y-Axis Acceleration

Customer: VRTC

11PELVCG00WSACYA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-74

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

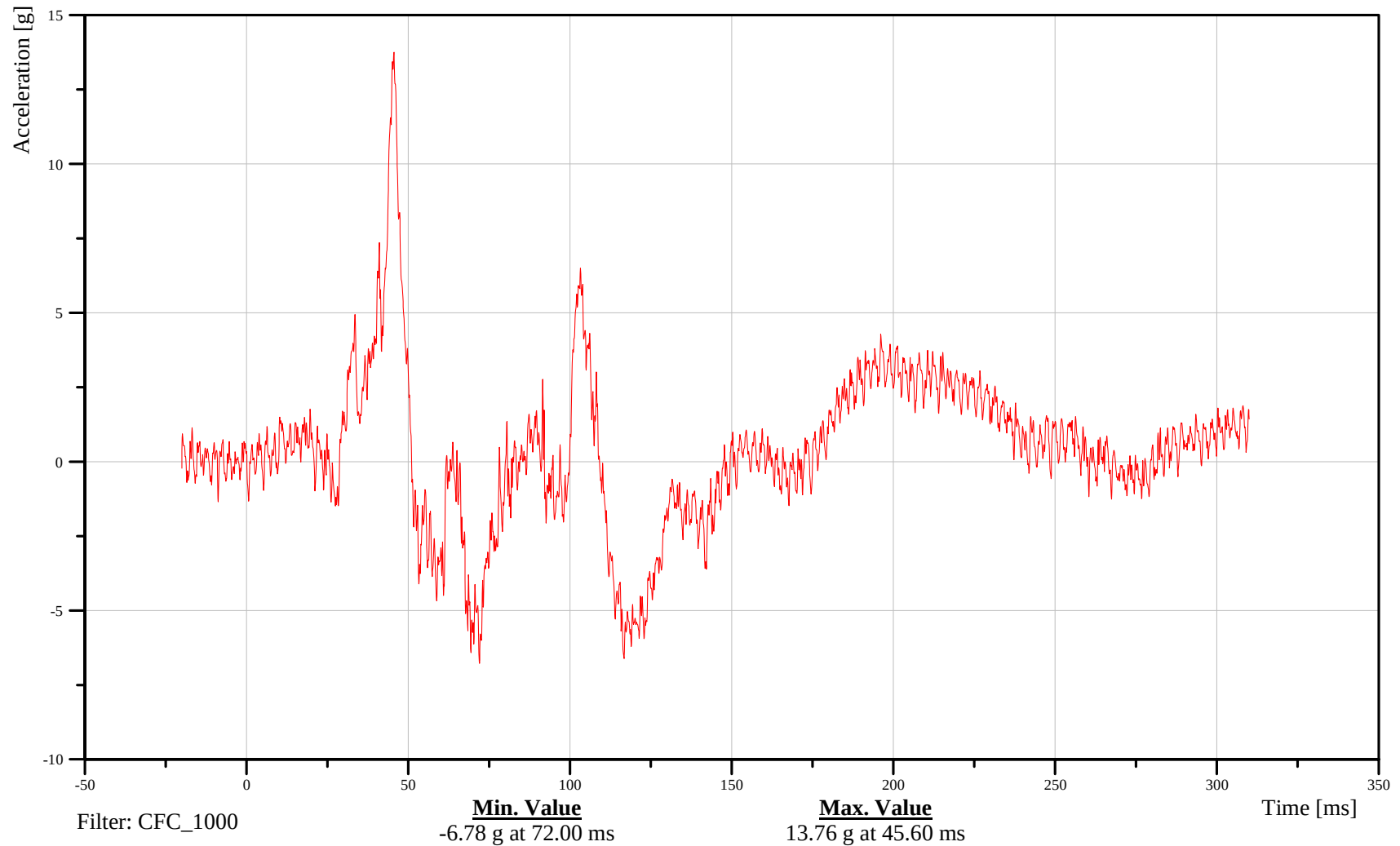
Pelvis Z-Axis Acceleration

Customer: VRTC

11PELVCG00WSACZA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-75

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

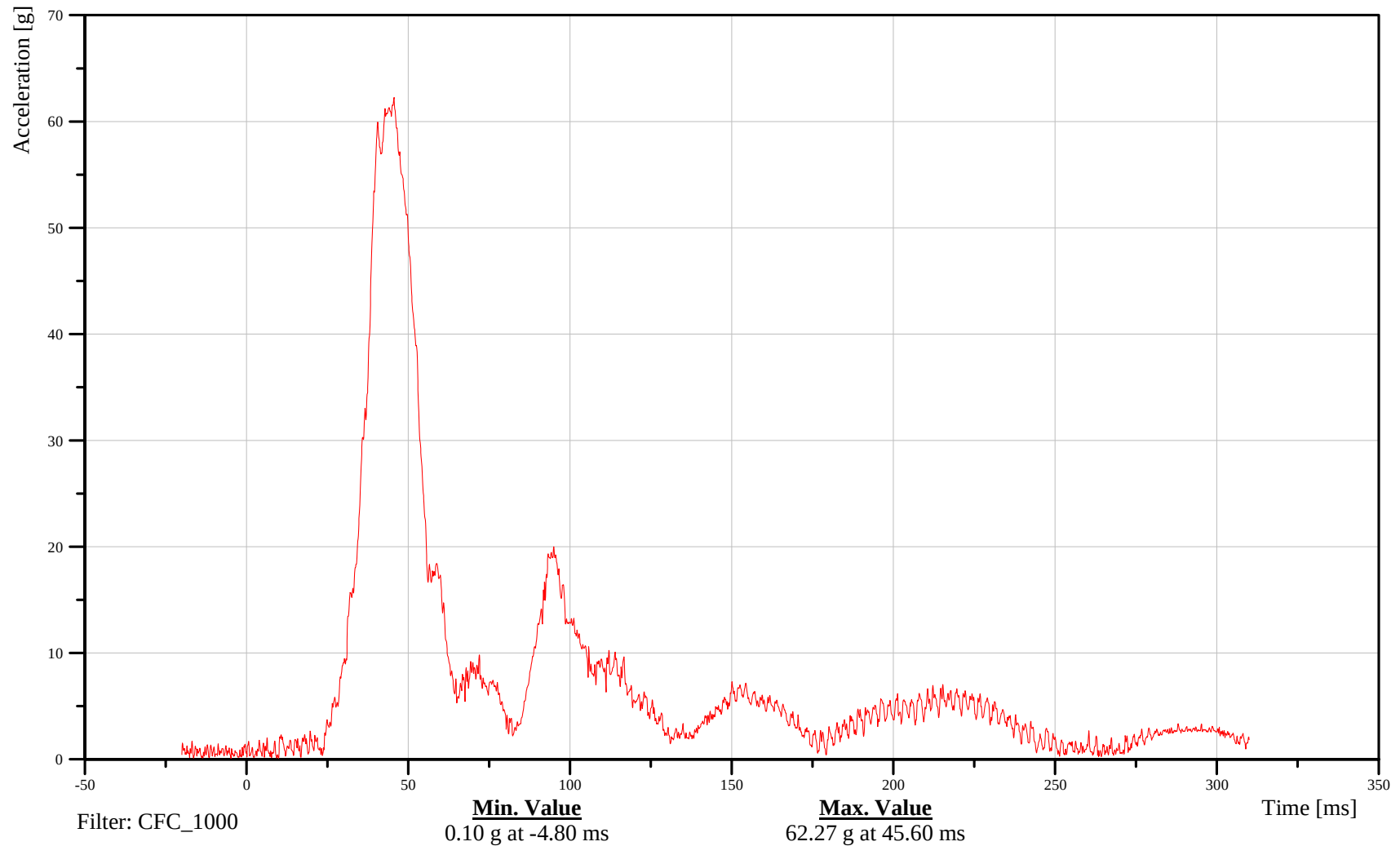
Pelvis Resultant Acceleration

Customer: VRTC

11PELVCG00WSACRA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-76

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

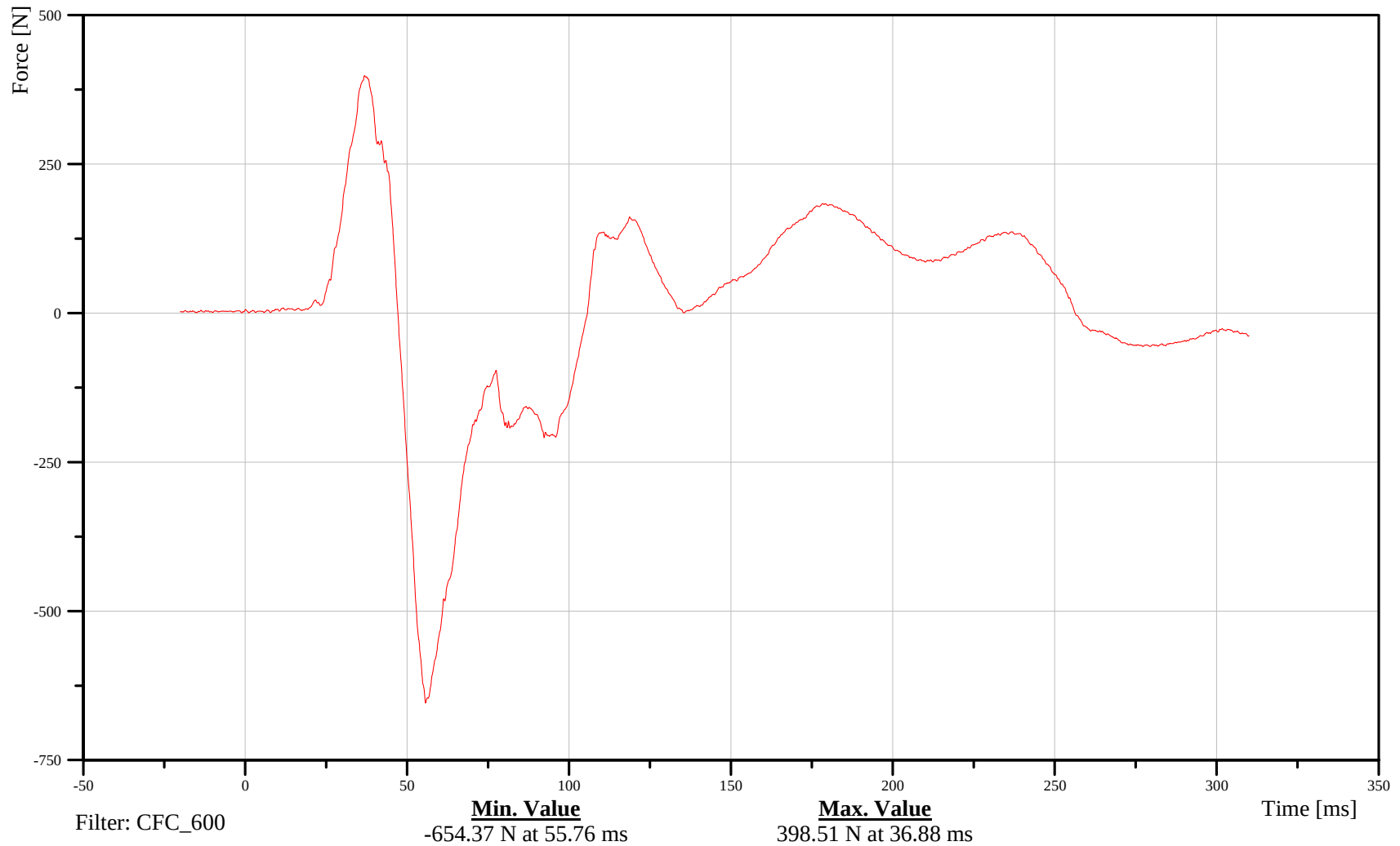
Sacro-Iliac Left X-Axis Force

Customer: VRTC

11SACRLE00WSFOXB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-77

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

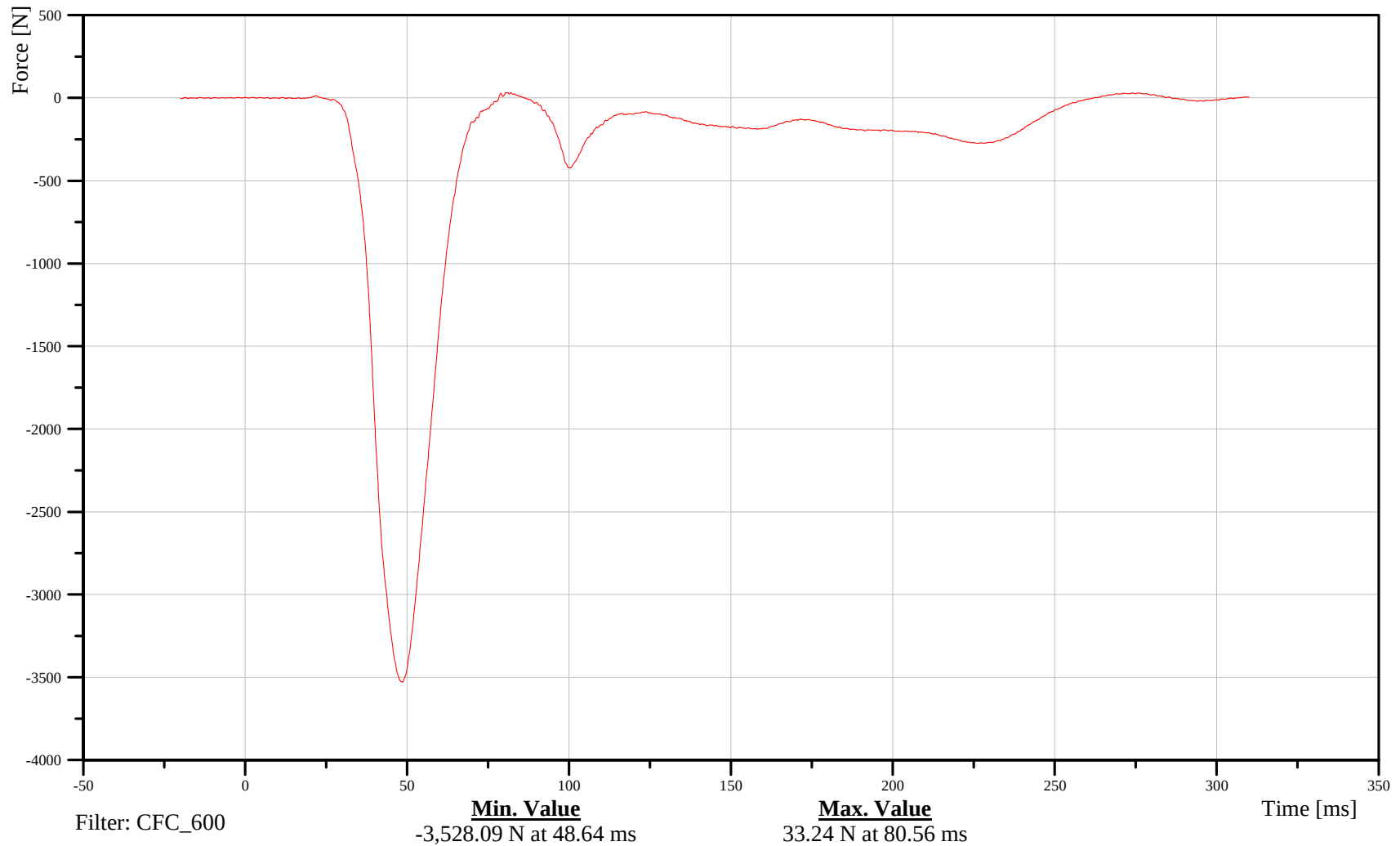
Sacro-Iliac Left Y-Axis Force

Customer: VRTC

11SACRLE00WSFOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-78

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

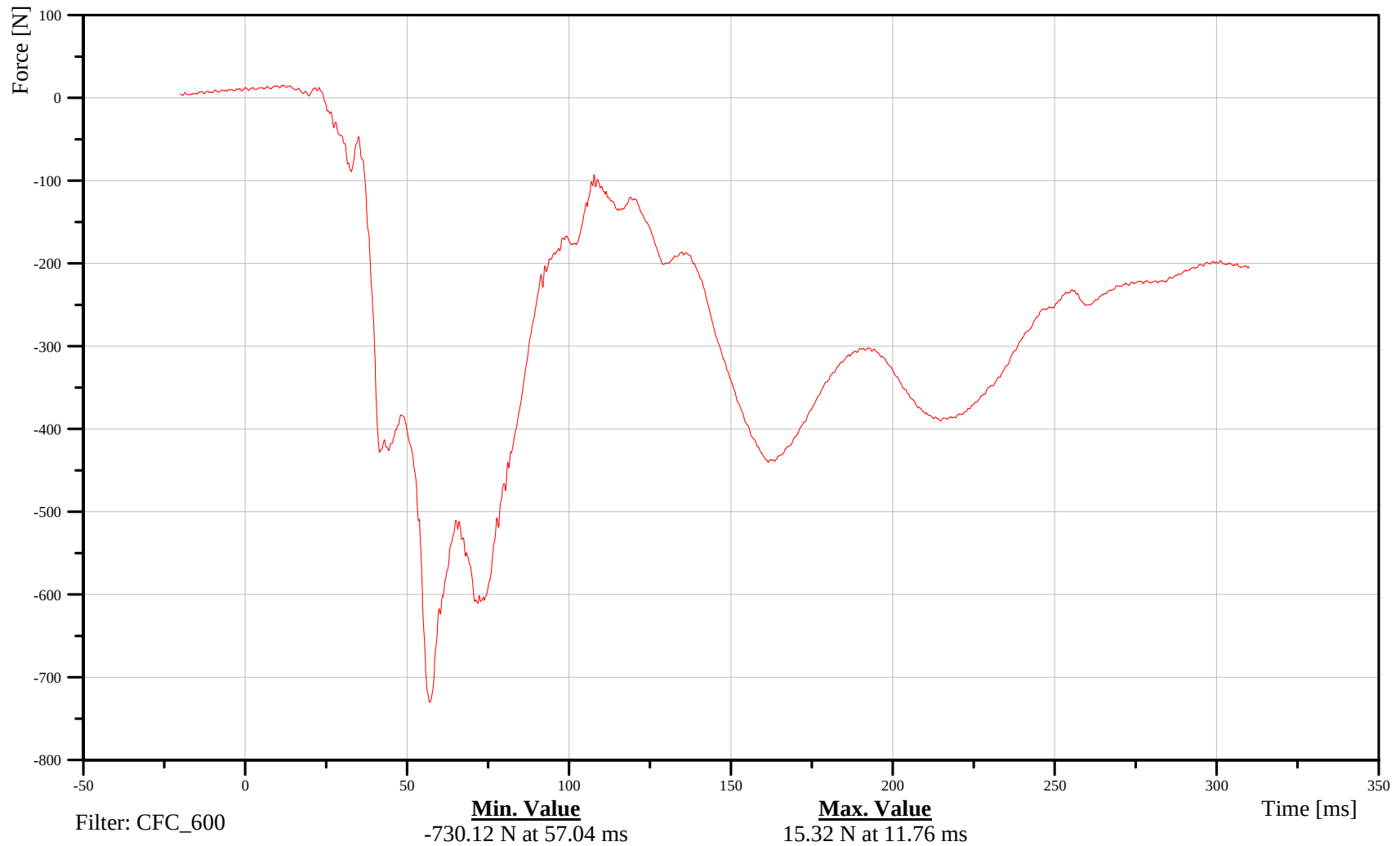
Sacro-Iliac Left Z-Axis Force

Customer: VRTC

11SACRLE00WSFOZB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-79

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

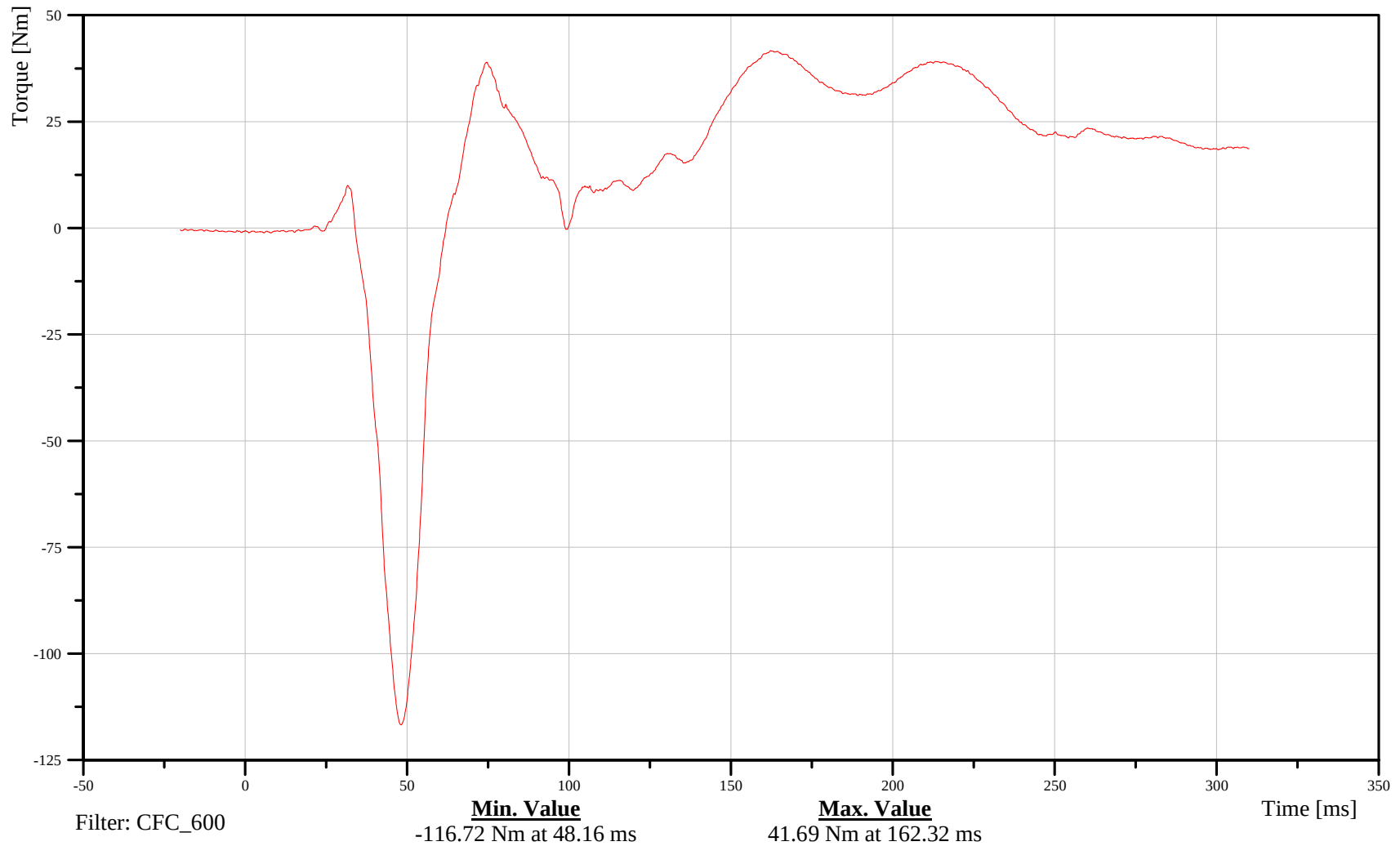
Sacro-Iliac Left Moment About X Axis

Customer: VRTC

11SACRLE00WSMOXB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-80

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

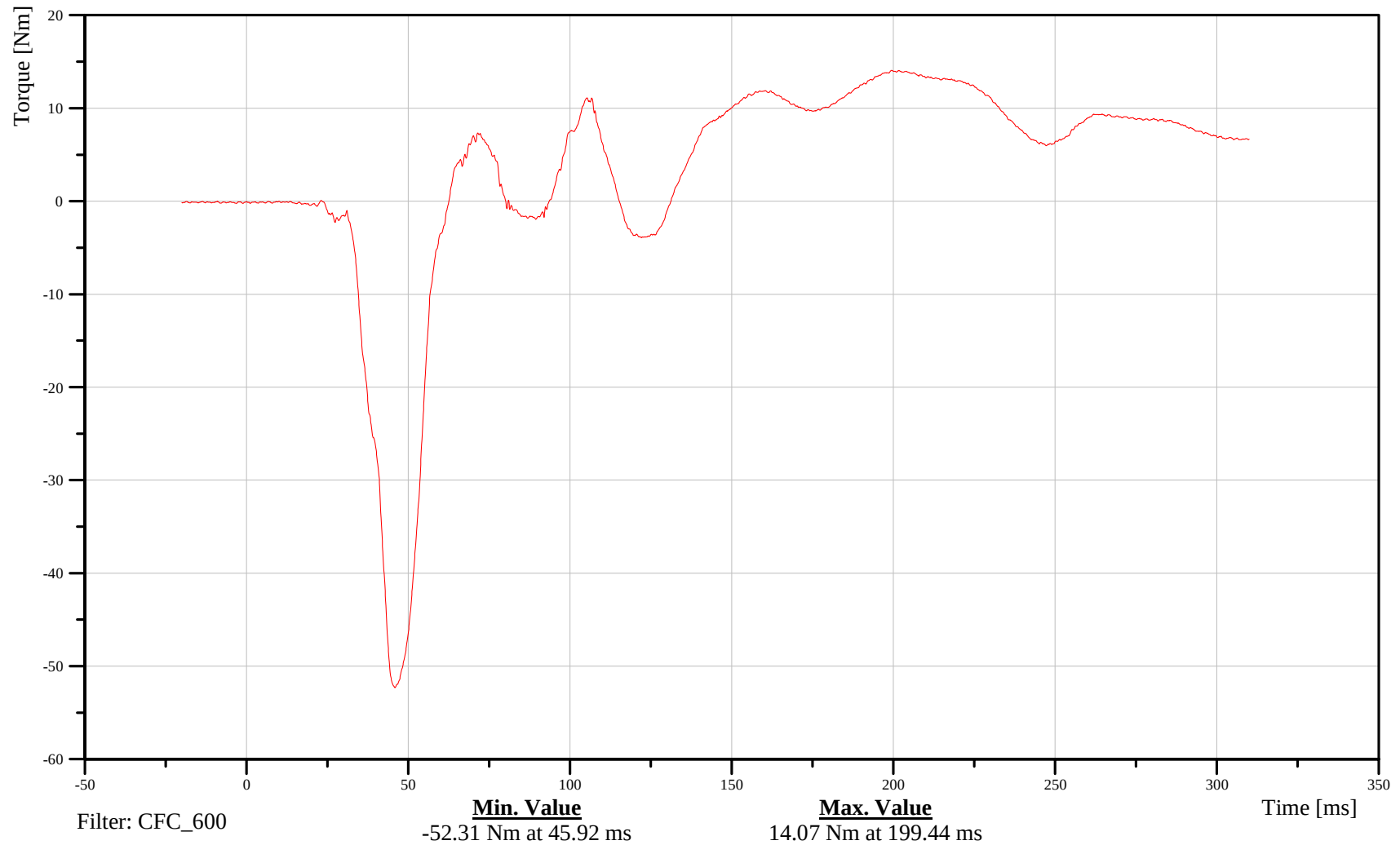
Sacro-Iliac Left Moment About Y Axis

Customer: VRTC

11SACRLE00WSMOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-81

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

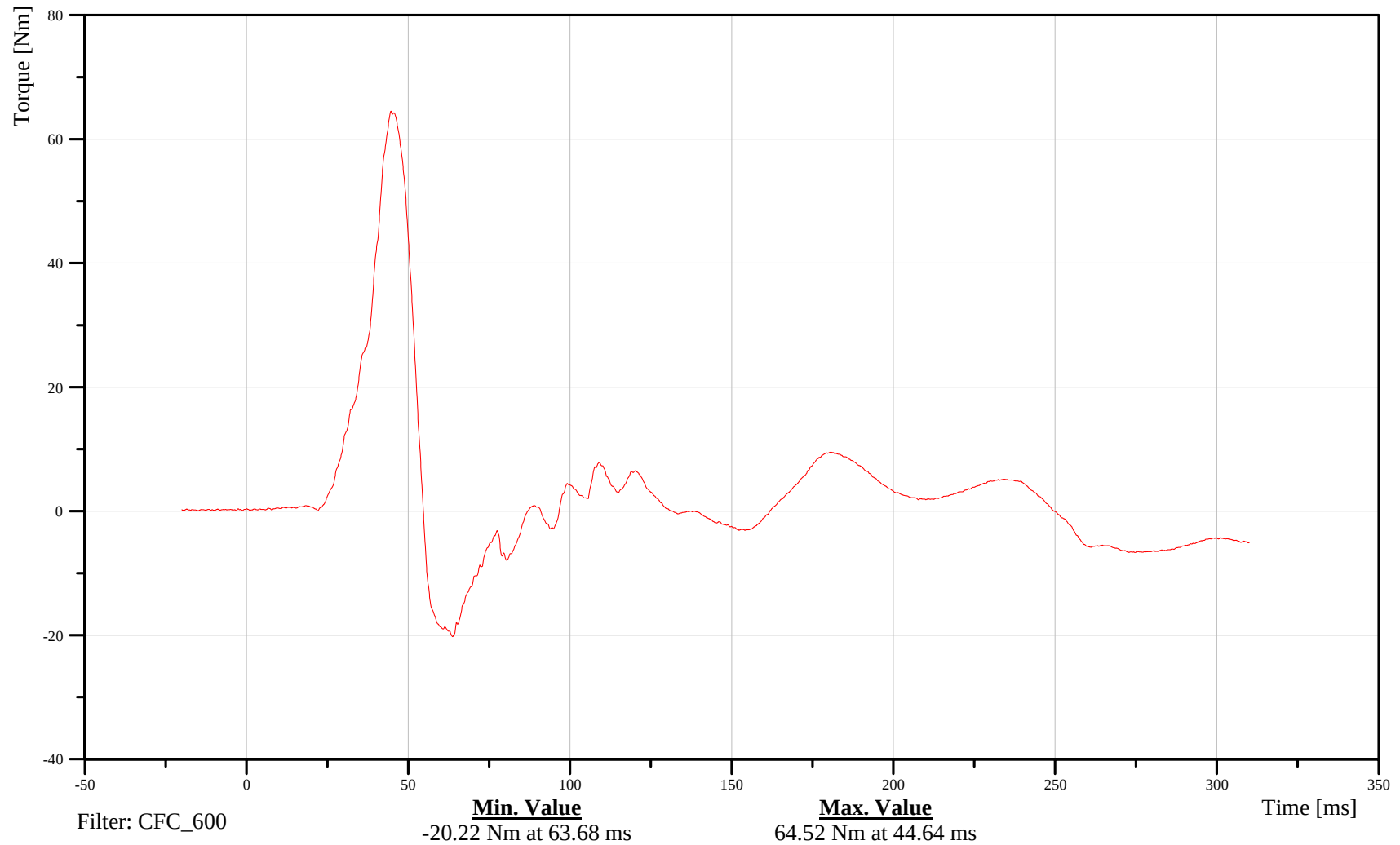
Sacro-Iliac Left Moment About Z Axis

Customer: VRTC

11SACRLE00WSMOZB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-82

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

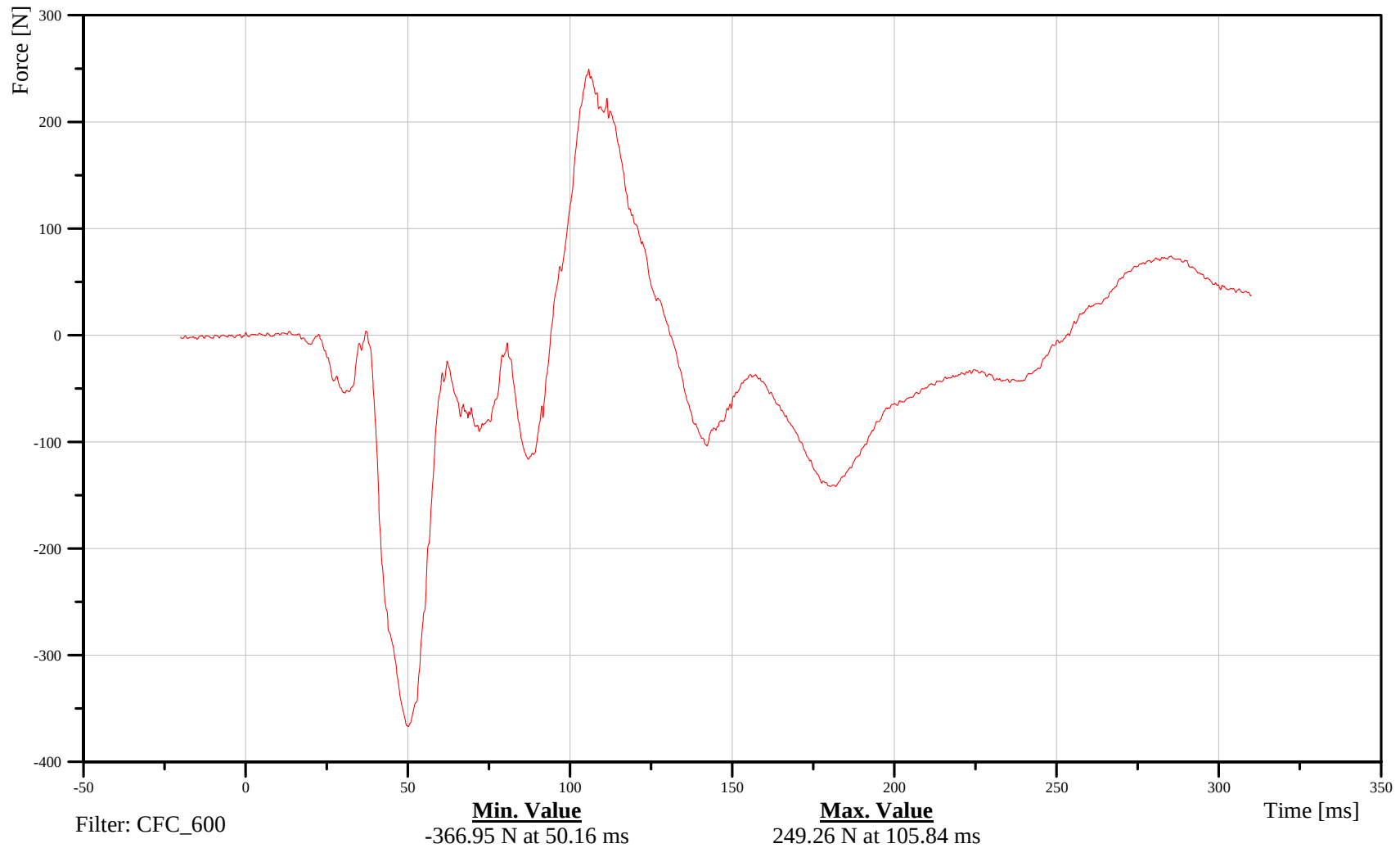
Sacro-Iliac Right X-Axis Force

Customer: VRTC

11SACRRI00WSFOXB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-83

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

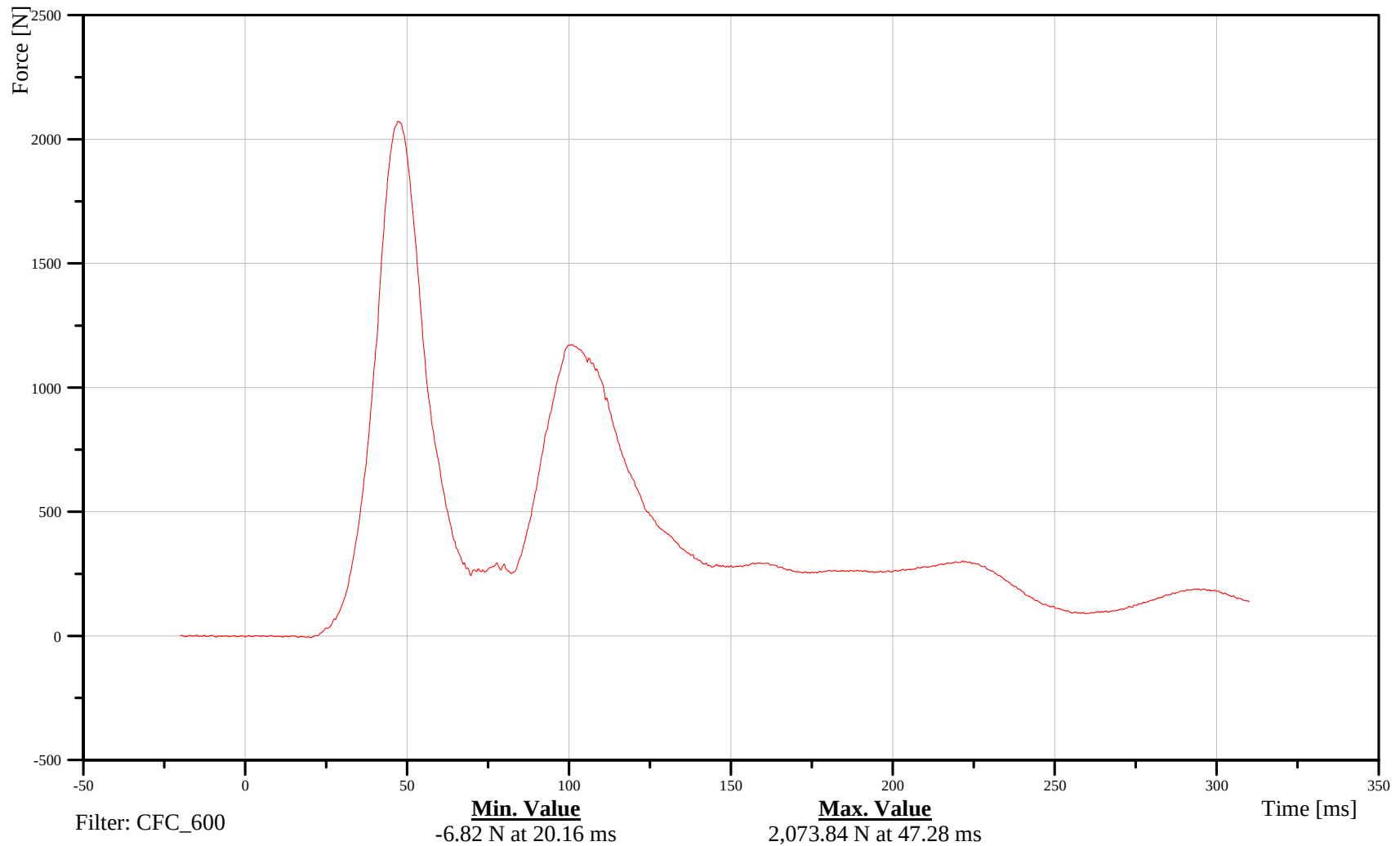
Sacro-Iliac Right Y-Axis Force

Customer: VRTC

11SACRRI00WSFOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-84

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

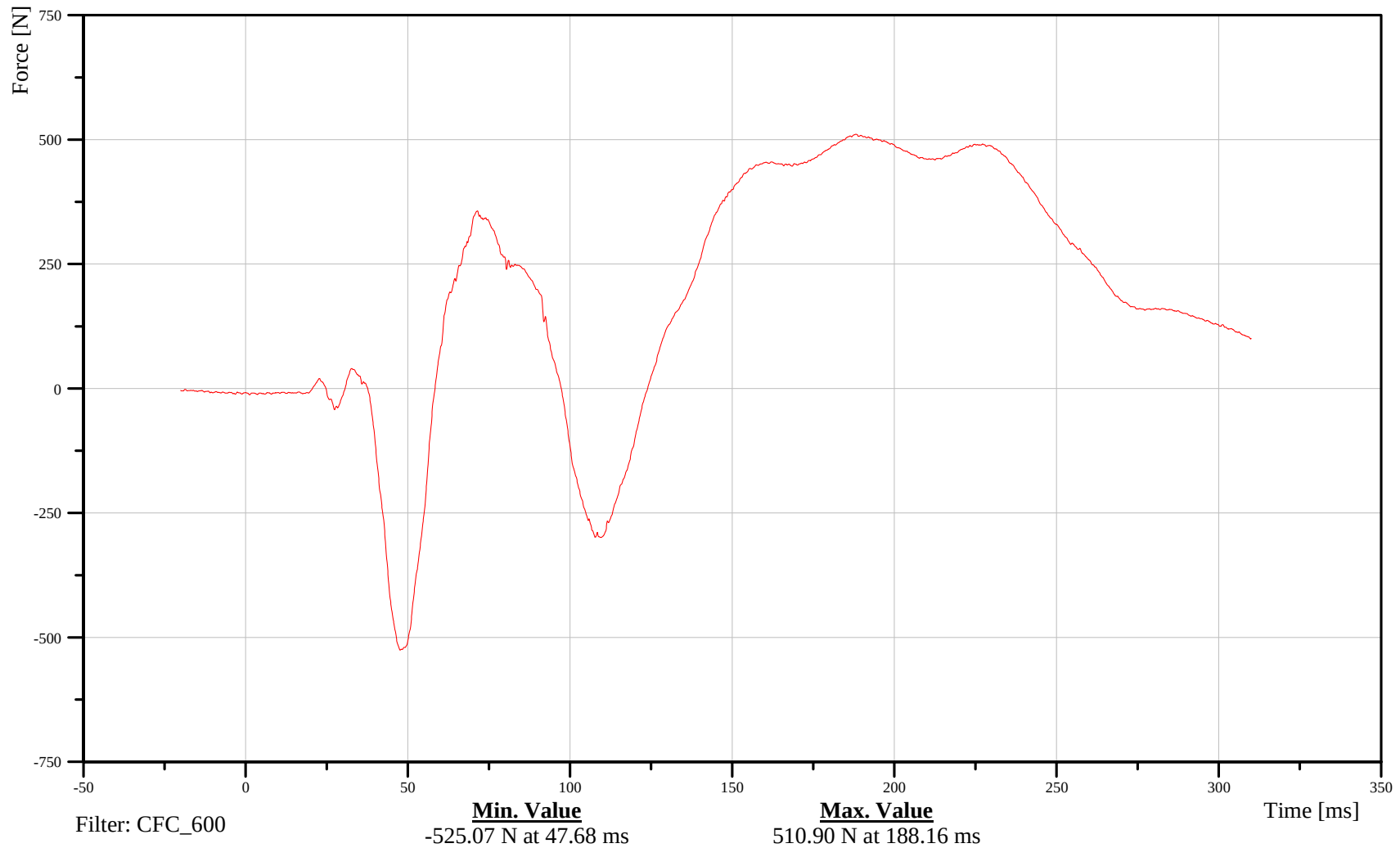
Sacro-Iliac Right Z-Axis Force

Customer: VRTC

11SACRRI00WSFOZB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-85

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

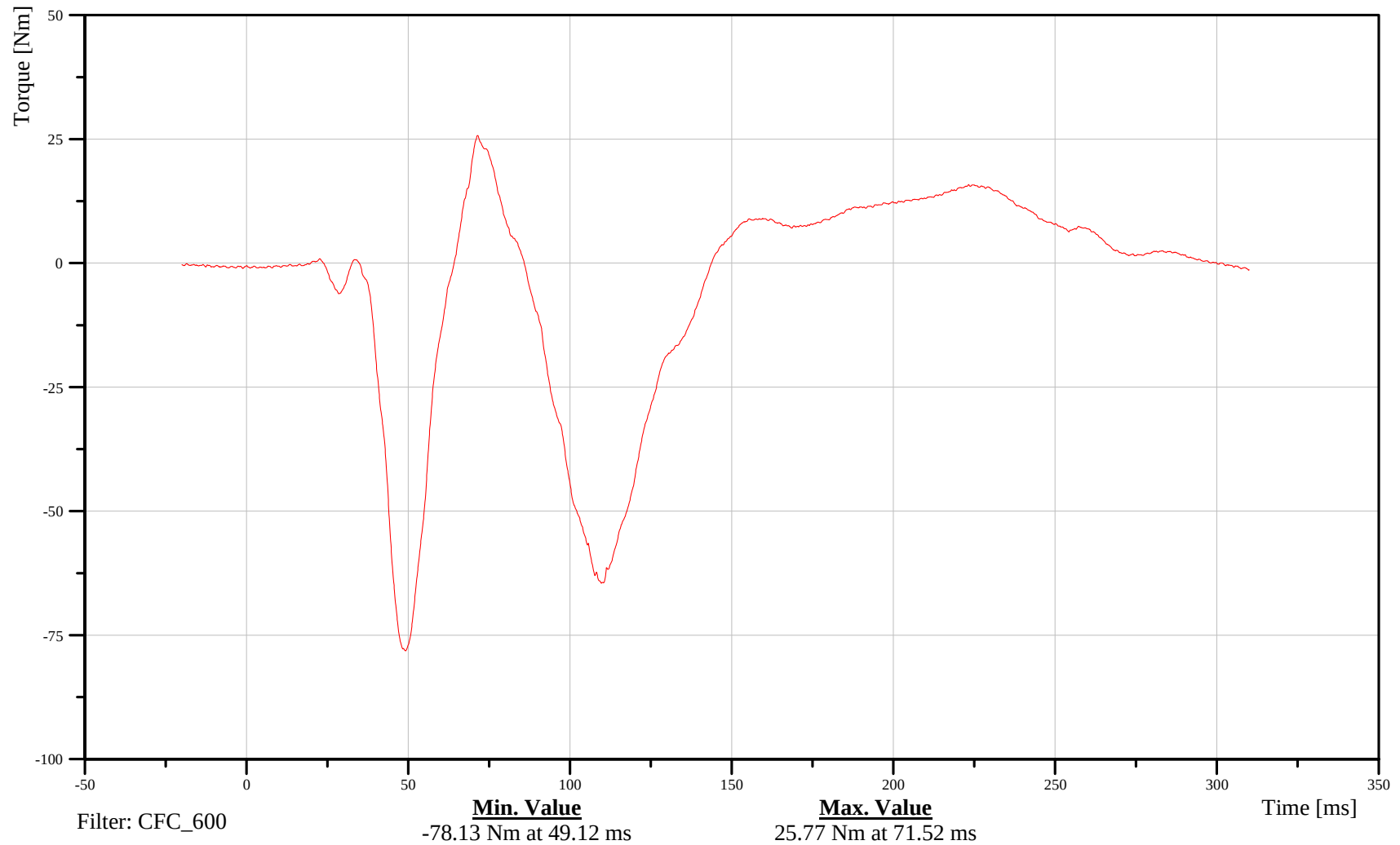
Sacro-Iliac Right Moment About X Axis

Customer: VRTC

11SACRRI00WSMOXB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-86

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

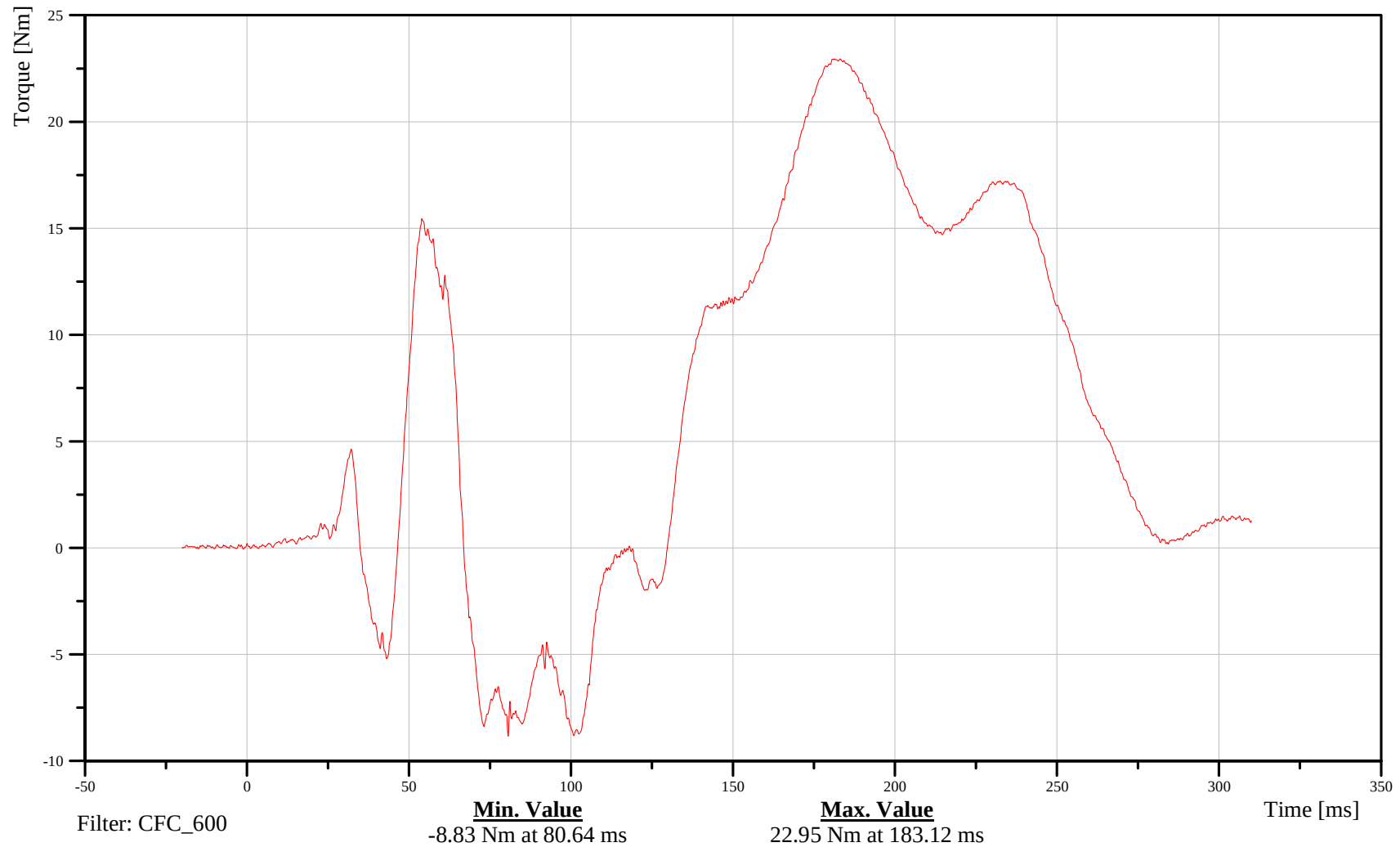
Sacro-Iliac Right Moment About Y Axis

Customer: VRTC

11SACRRI00WSMOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-87

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

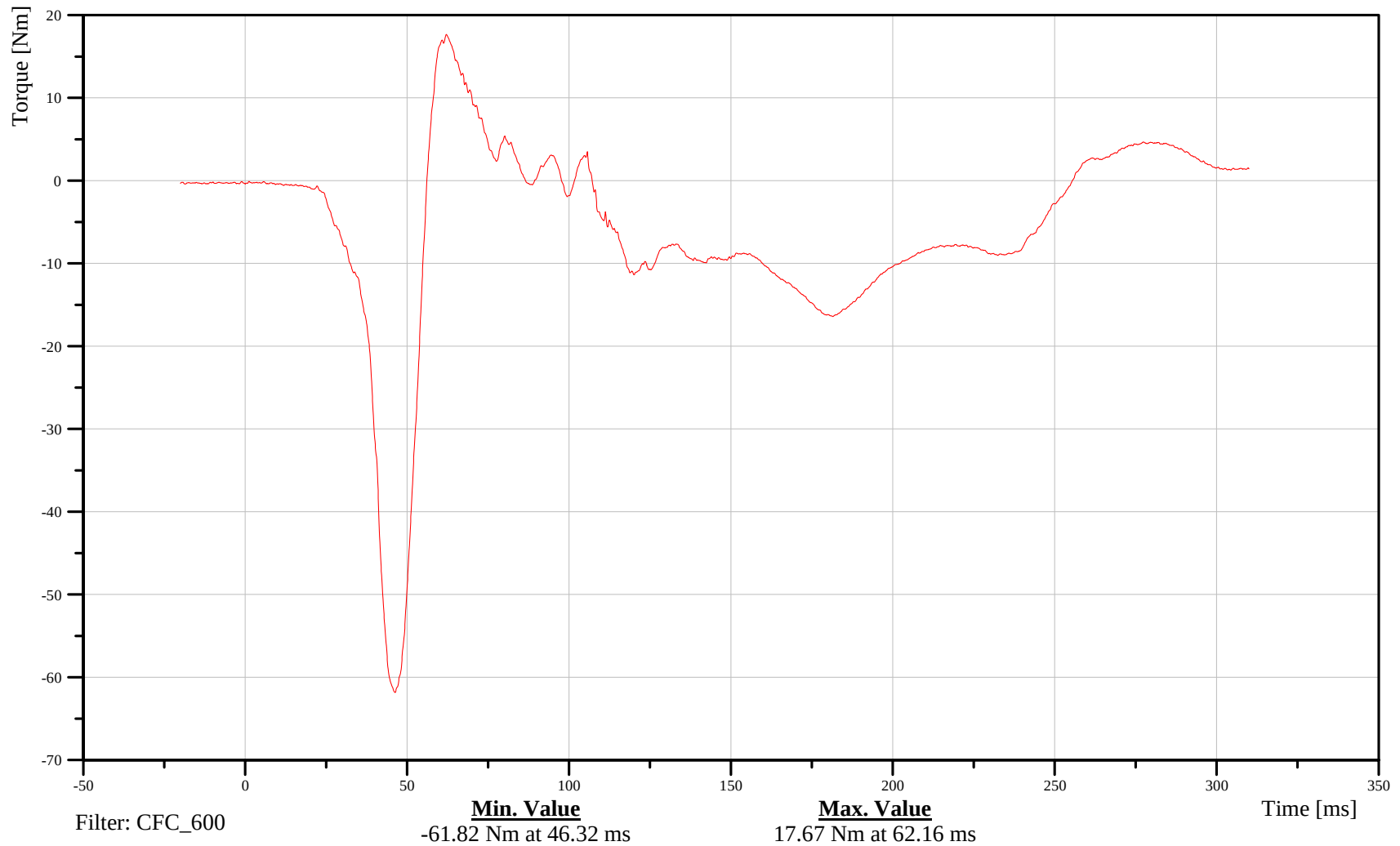
Sacro-Iliac Right Moment About Z Axis

Customer: VRTC

11SACRRI00WSMOZB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-88

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

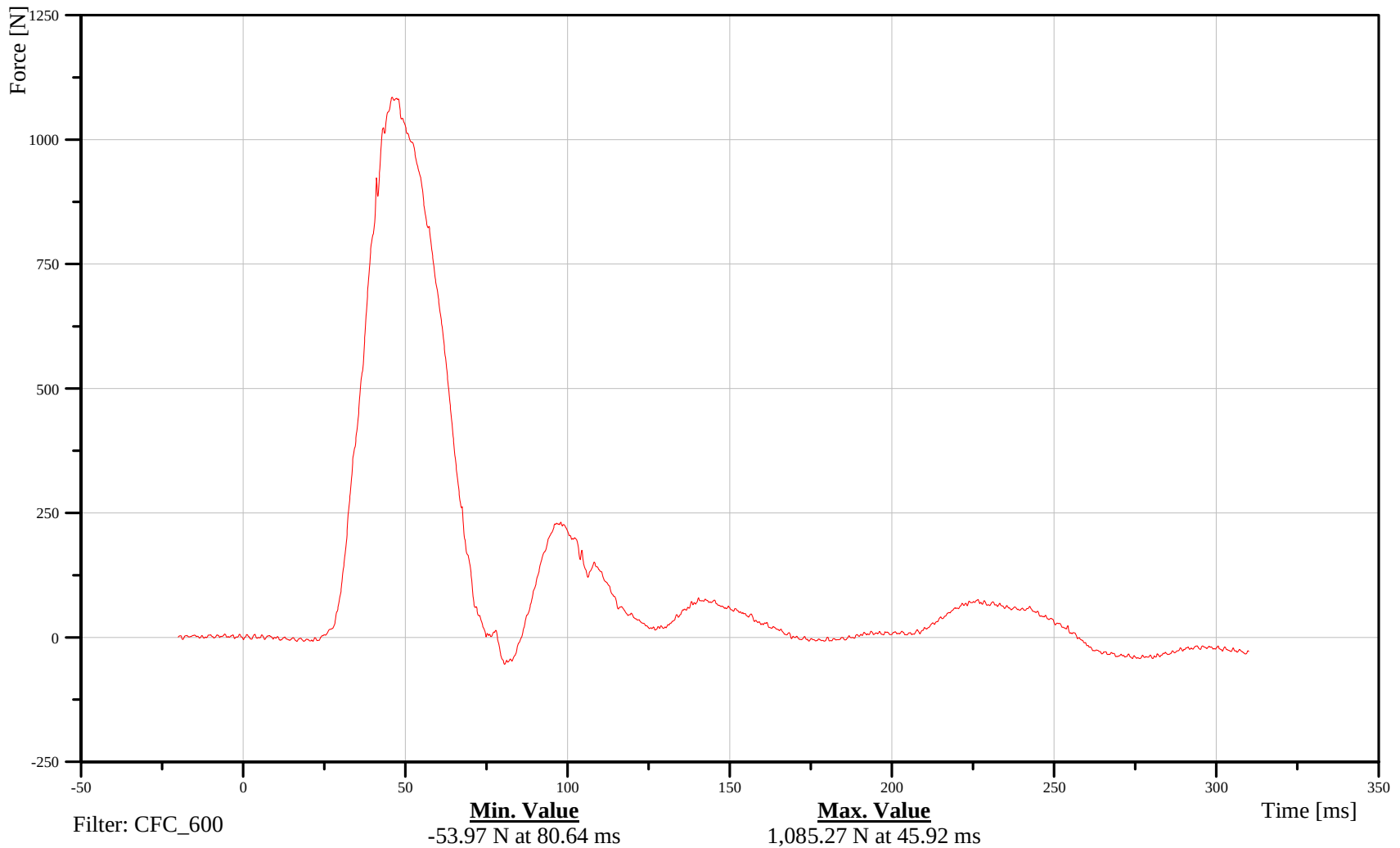
Pubic Y-Axis Force

Customer: VRTC

11PUBC0000WSFOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-89

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

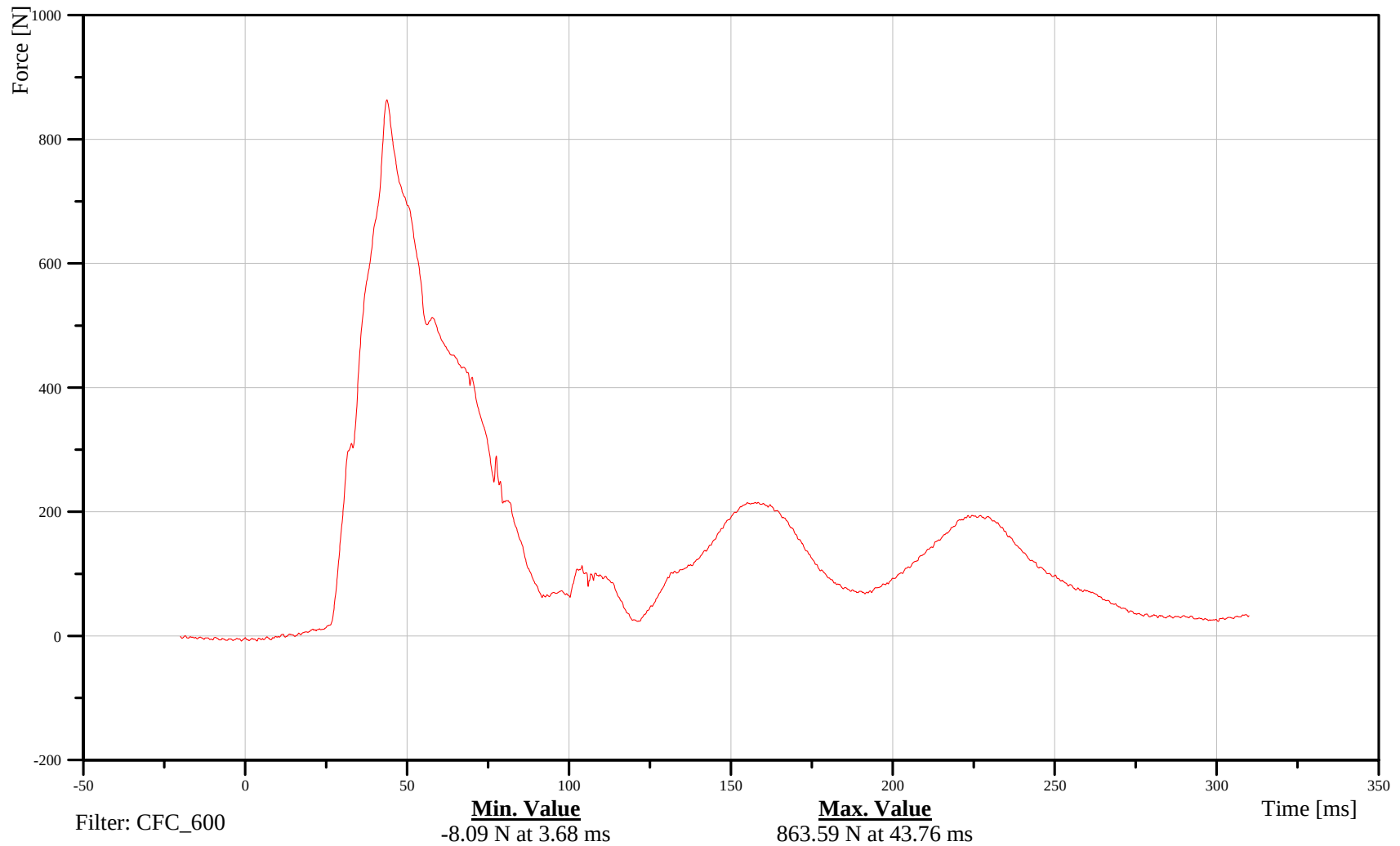
Left Femur X-Axis Force

Customer: VRTC

11FEACLE00WSFOXB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-90

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

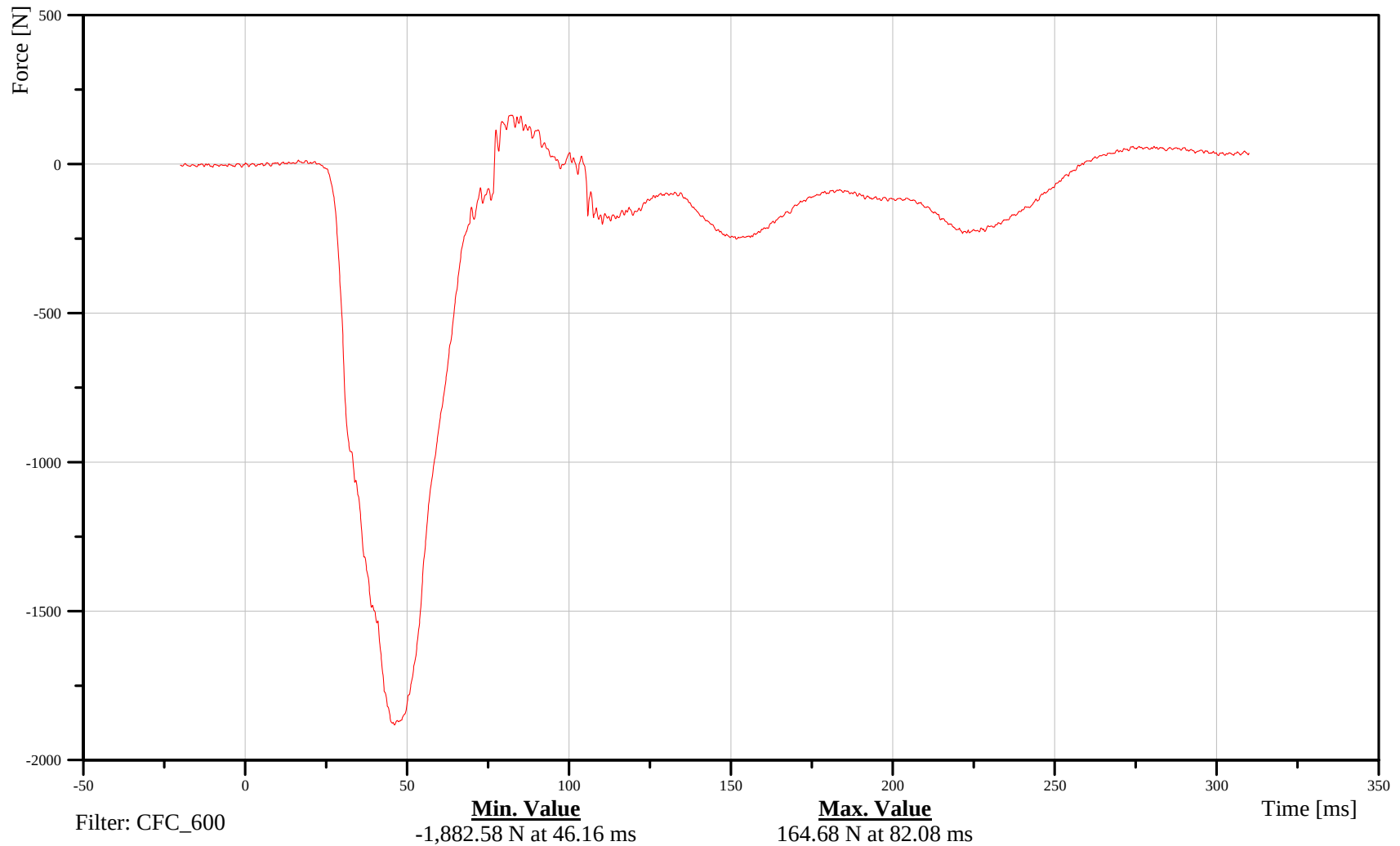
Left Femur Y-Axis Force

Customer: VRTC

11FEACLE00WSFOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-91

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

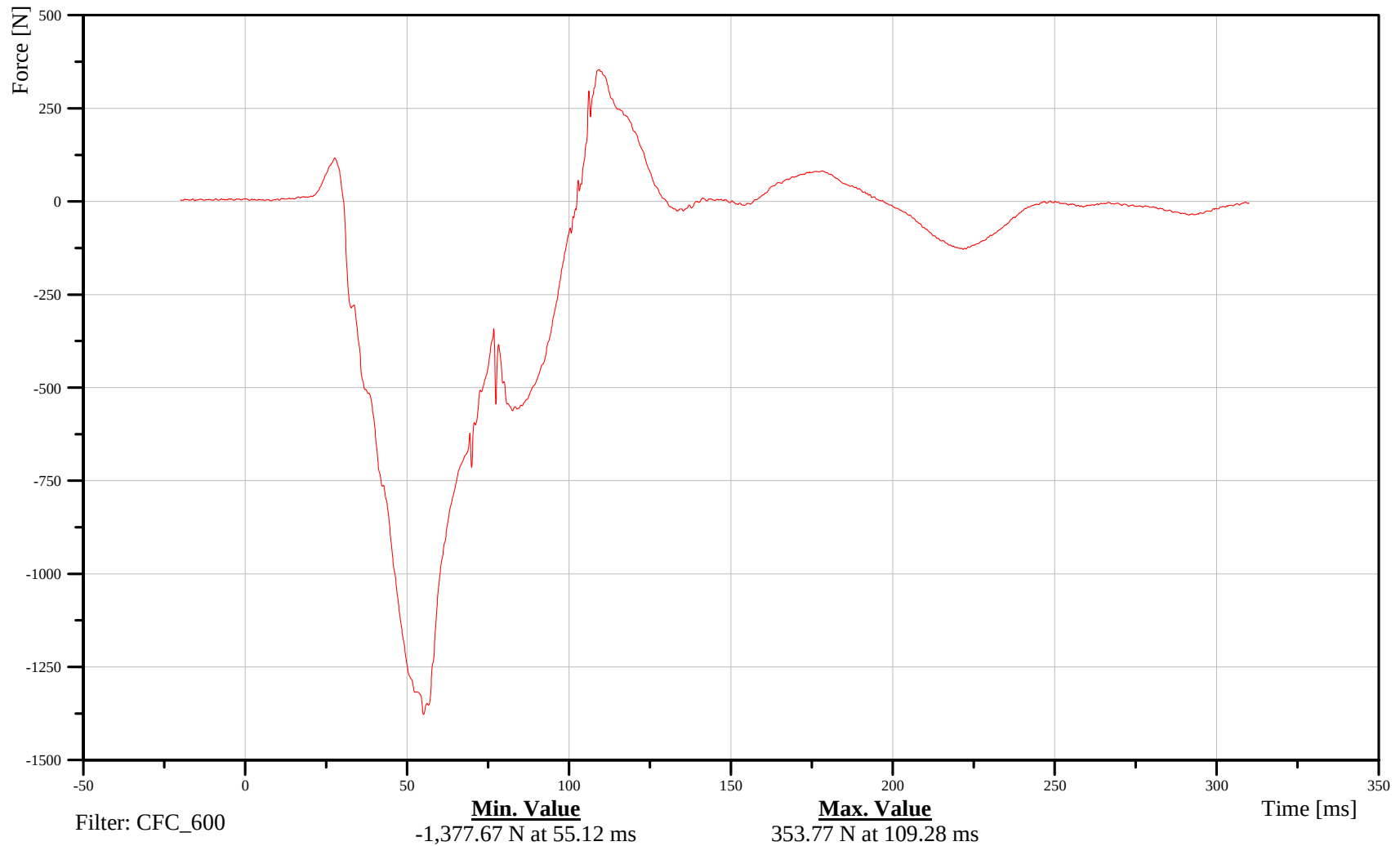
Left Femur Z-Axis Force

Customer: VRTC

11FEACLE00WSFOZB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-92

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

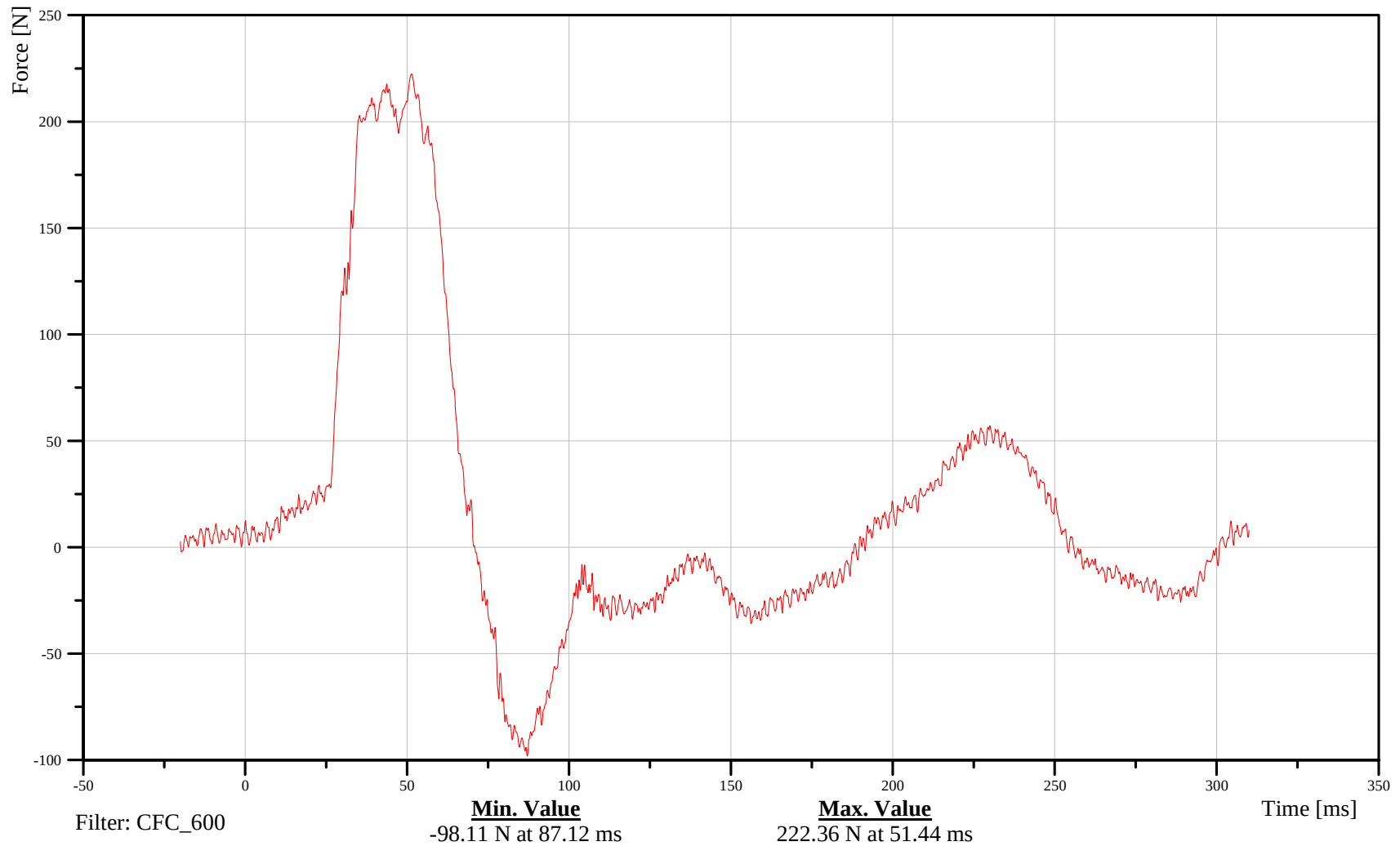
Left Mid Femur X-Axis Force

Customer: VRTC

11FEMRLEMIWSFOXB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-93

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

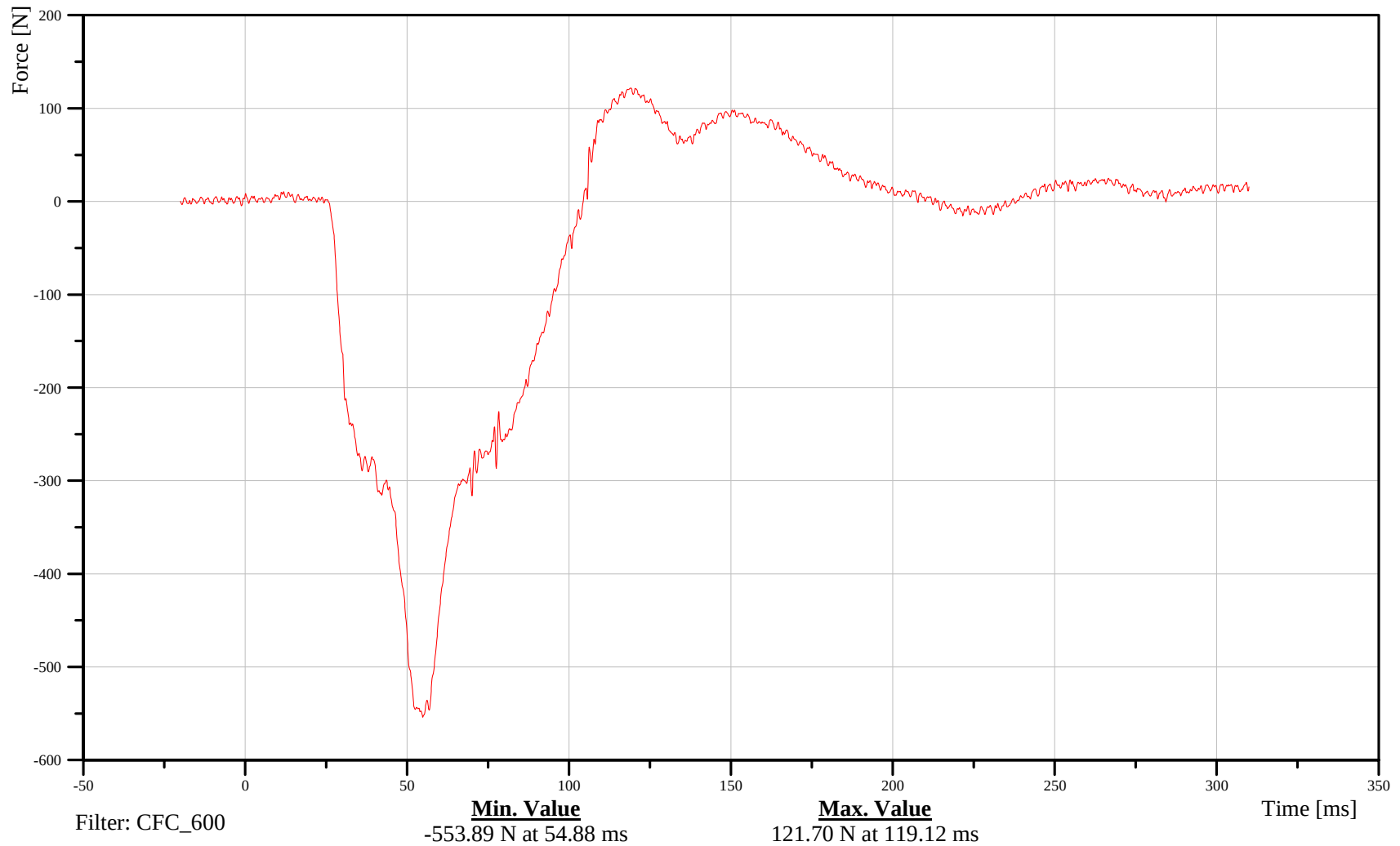
Left Mid Femur Y-Axis Force

Customer: VRTC

11FEMRLEMIWSFOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-94

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

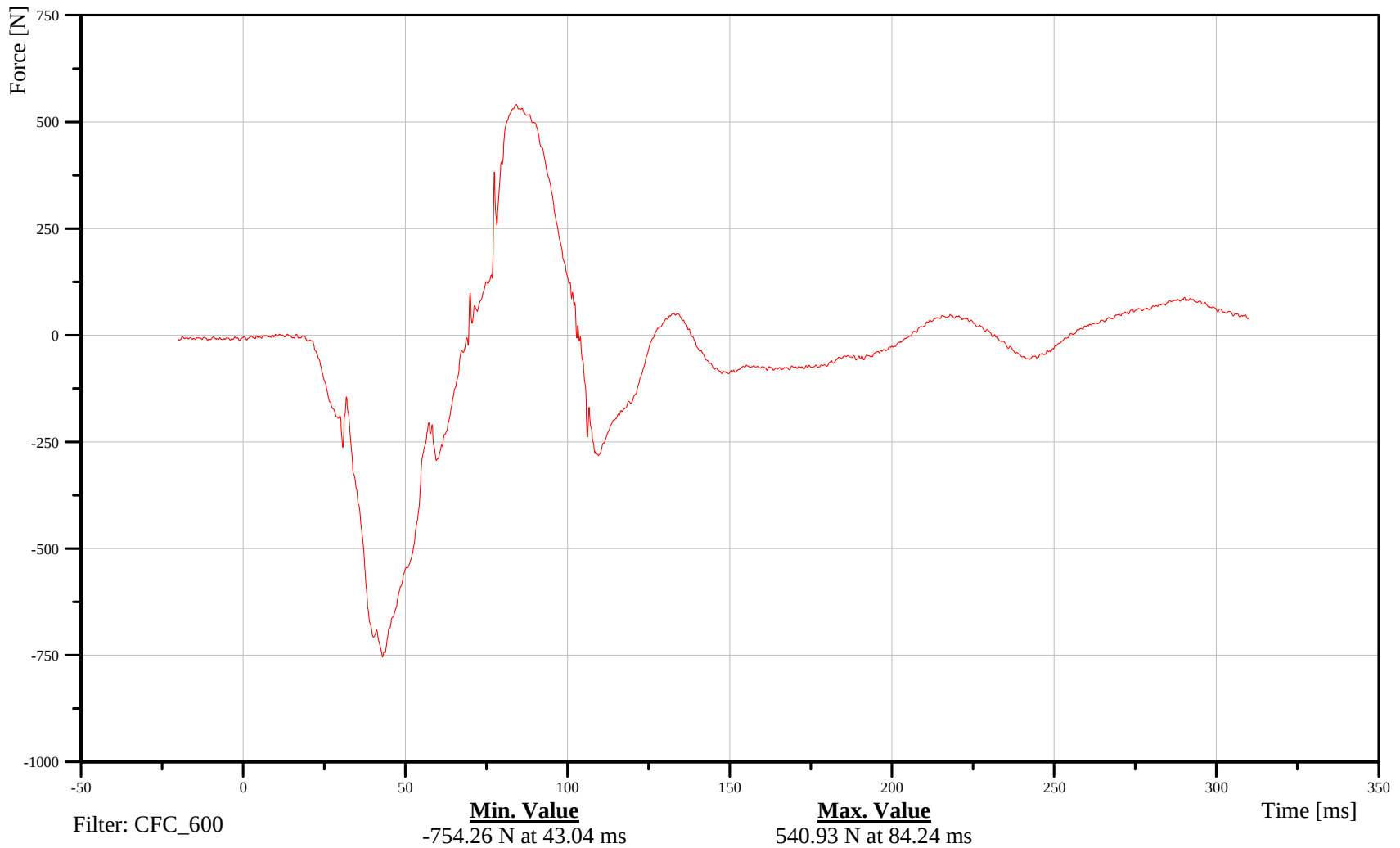
Left Mid Femur Z-Axis Force

Customer: VRTC

11FEMRLEMIWSFOZB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-95

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

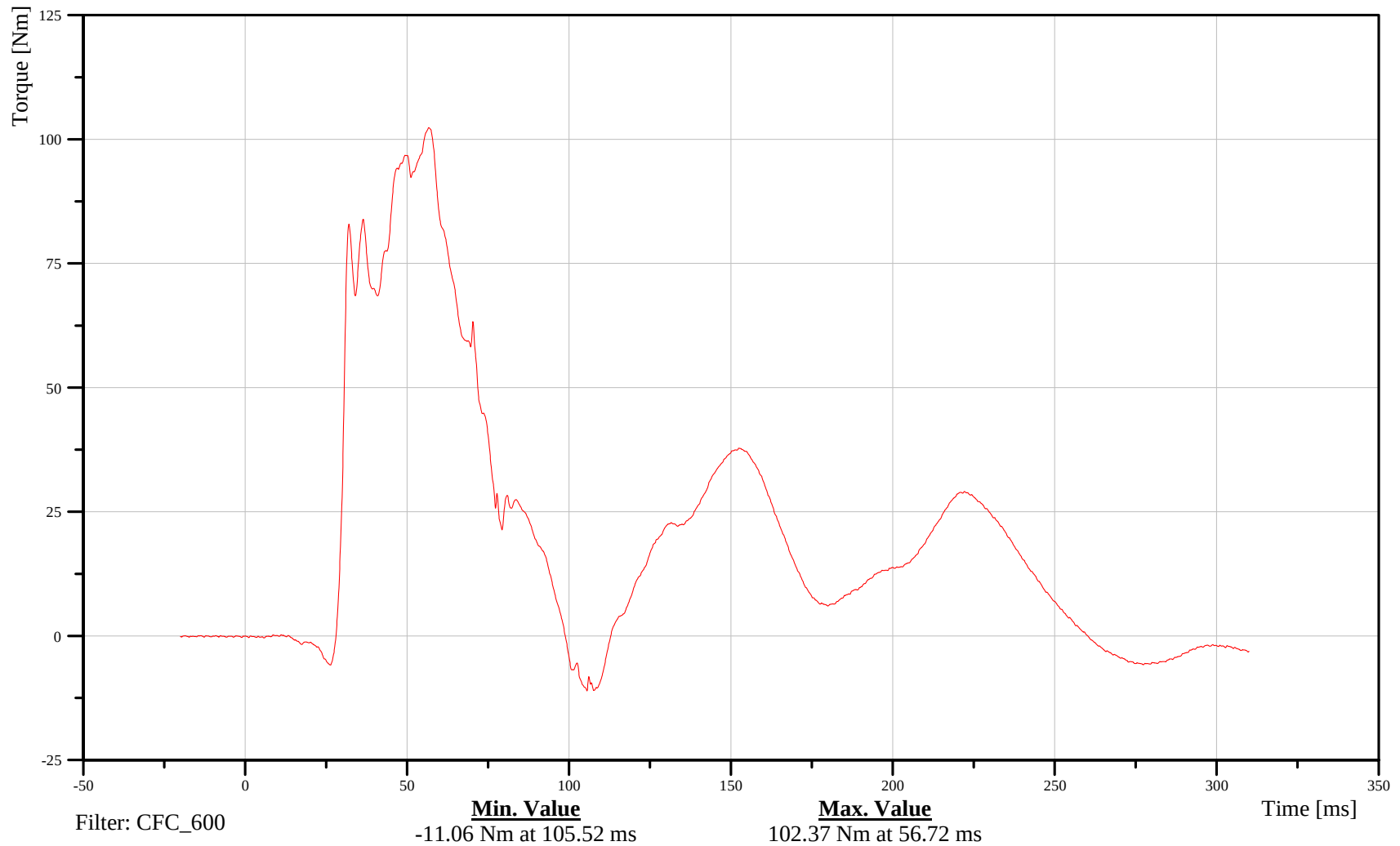
Left Mid Femur Moment About X Axis

Customer: VRTC

11FEMRLEMIWSMOXB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-96

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

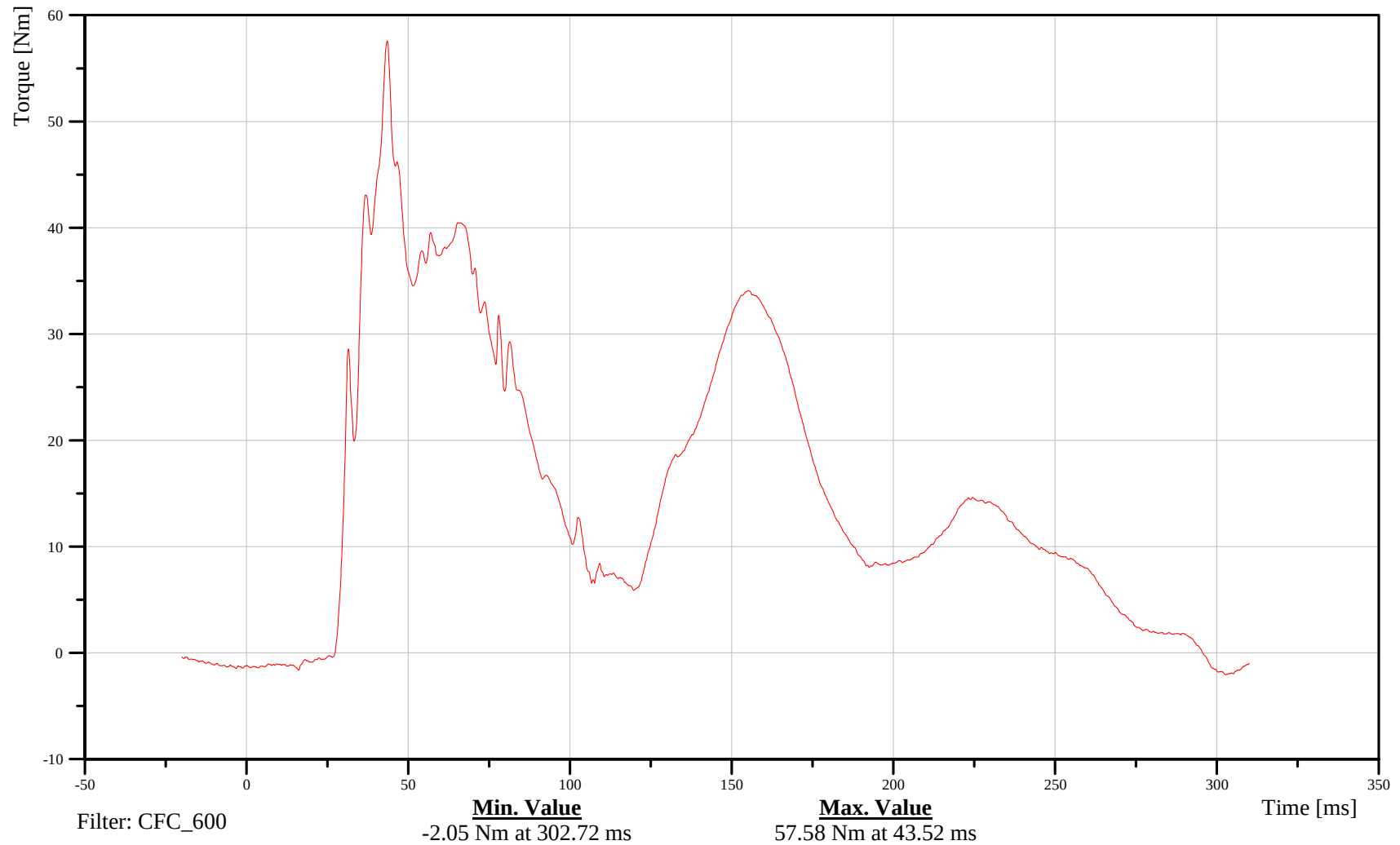
Left Mid Femur Moment About Y Axis

Customer: VRTC

11FEMRLEMIWSMOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-97

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

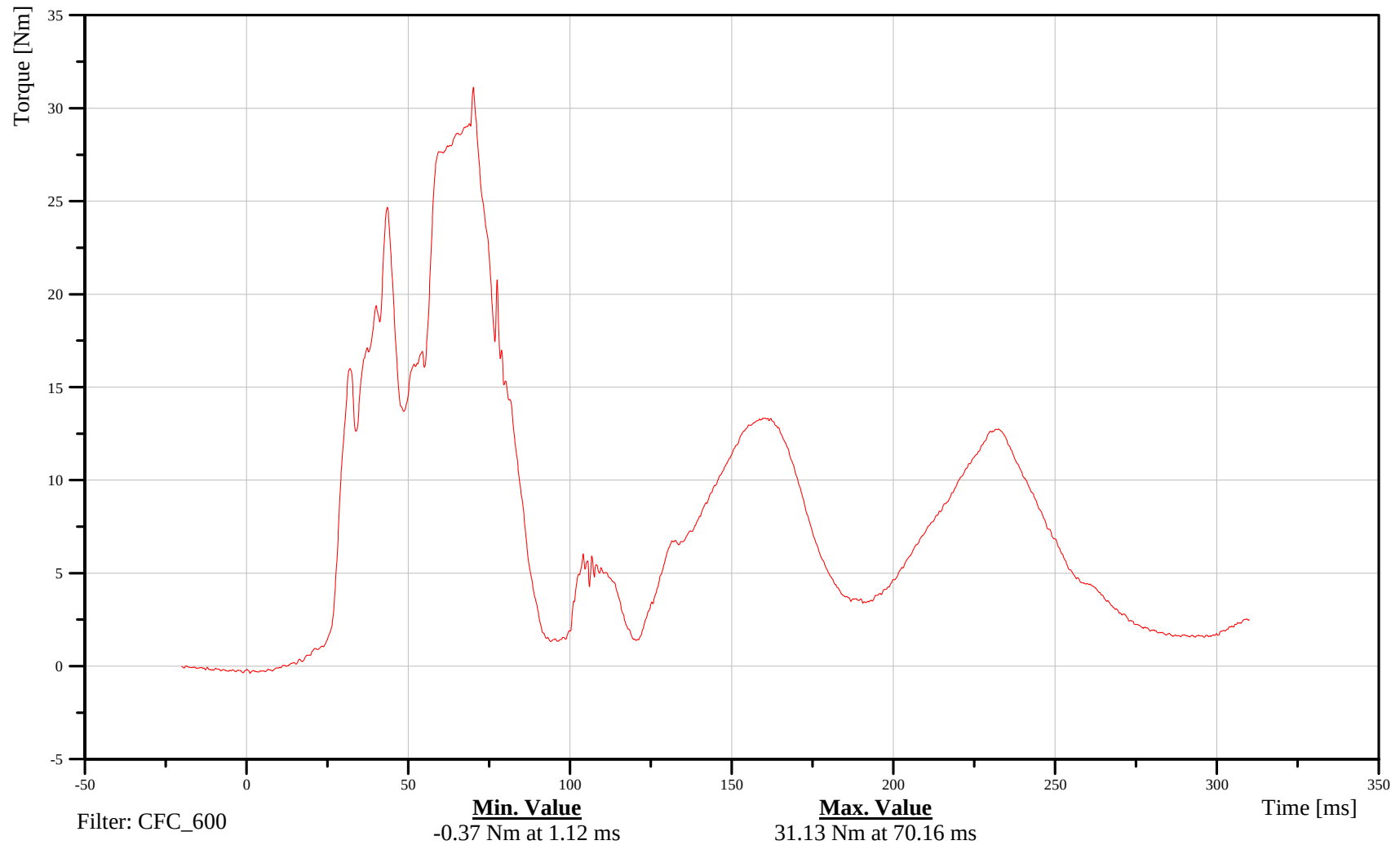
Left Mid Femur Moment About Z Axis

Customer: VRTC

11FEMRLEMIWSMOZB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-98

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

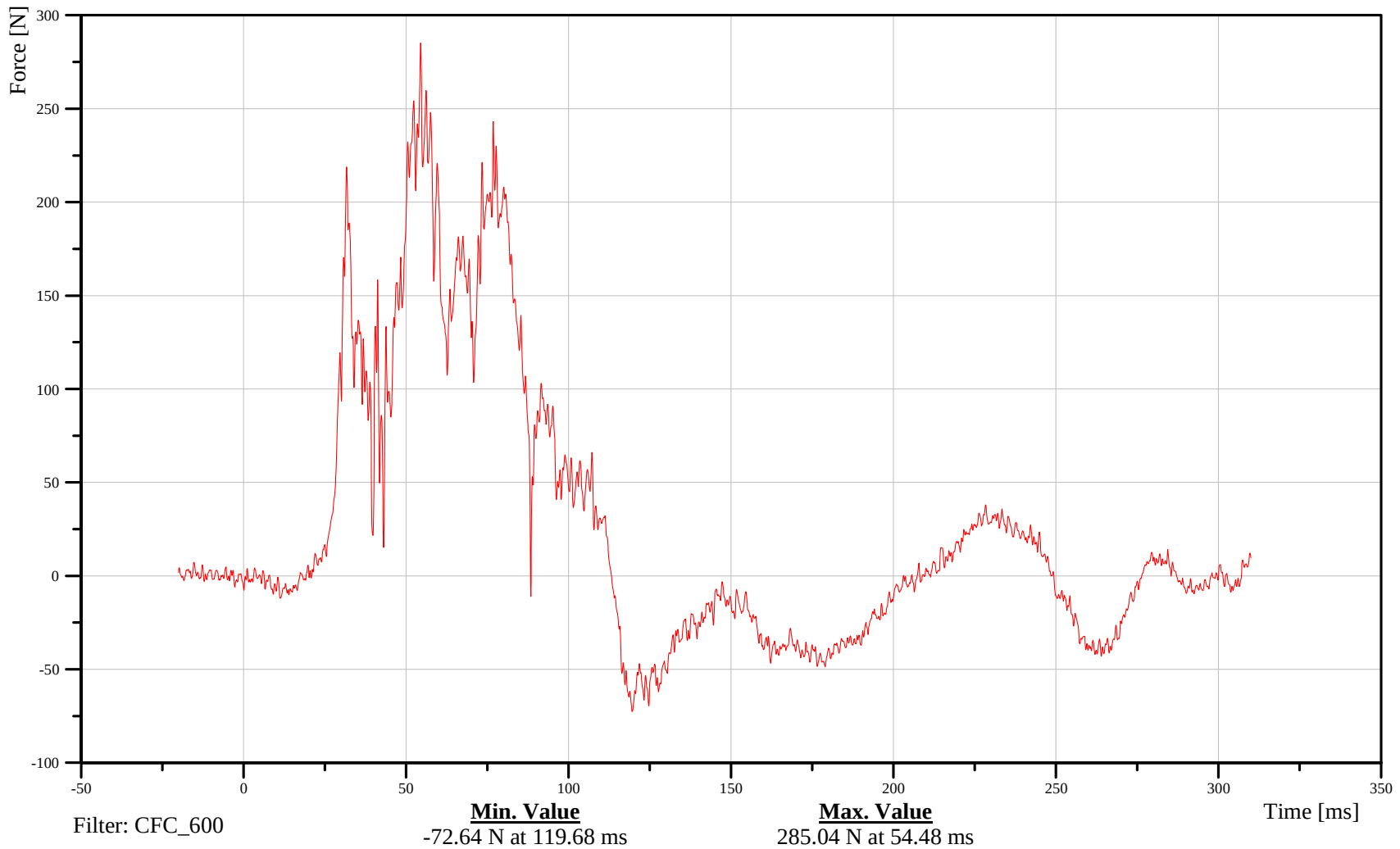
Left Knee Outboard Y-Axis Force

Customer: VRTC

11KNEELEOUWSFOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-99

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

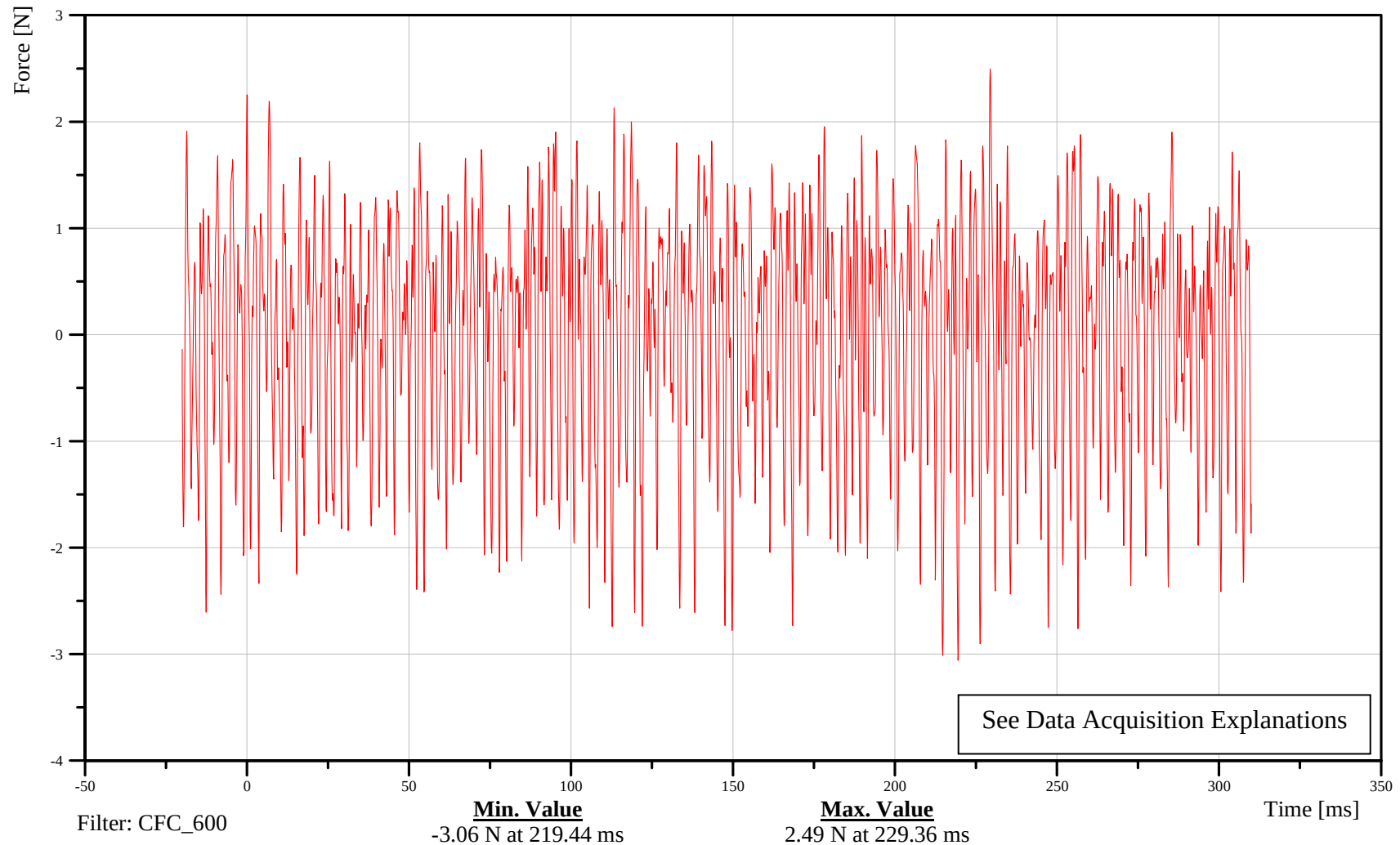
Left Knee Inboard Y-Axis Force

Customer: VRTC

11KNEELEINWSFOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-100

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

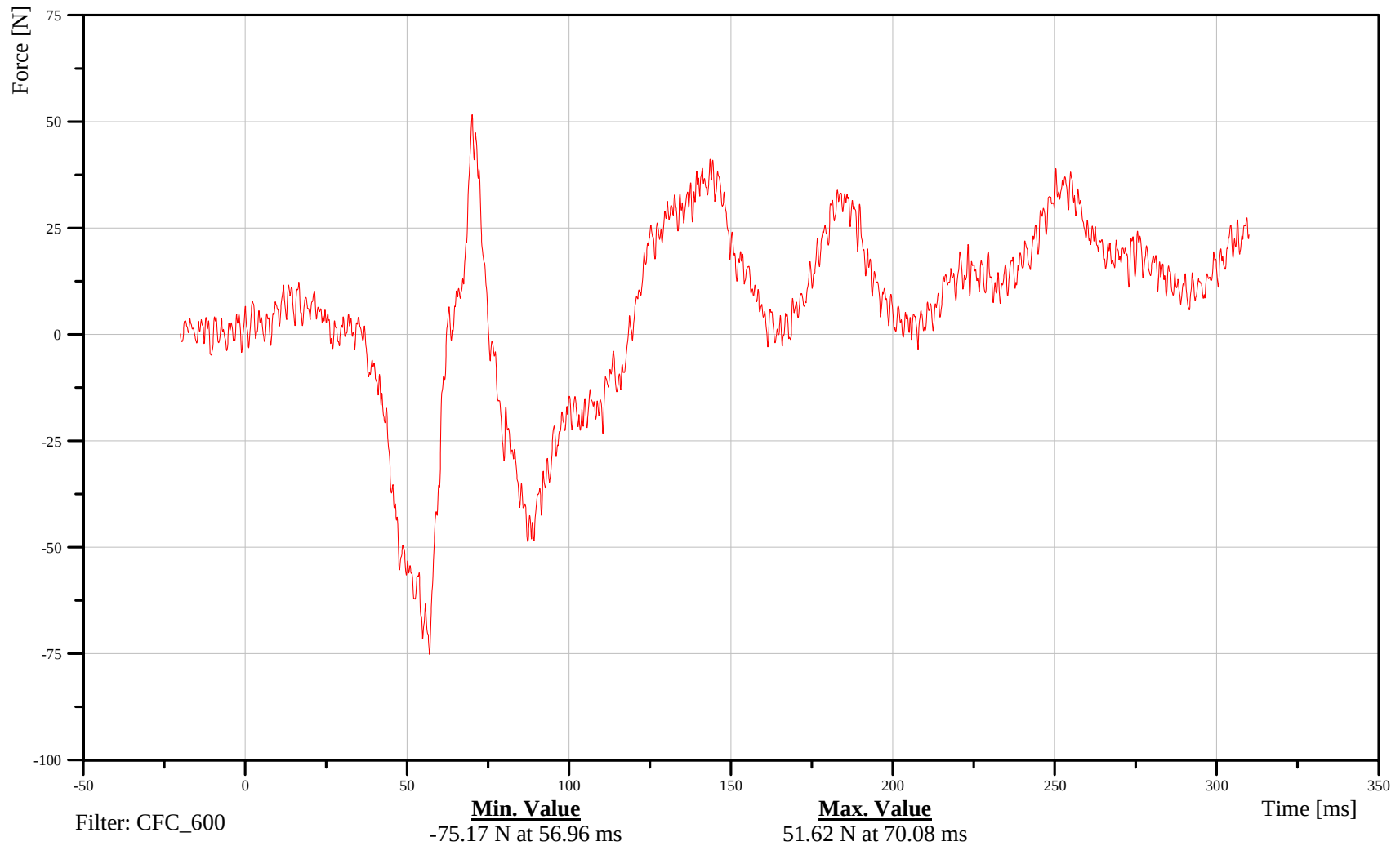
Right Mid Femur X-Axis Force

Customer: VRTC

11FEMRRIWSFOXB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-101

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

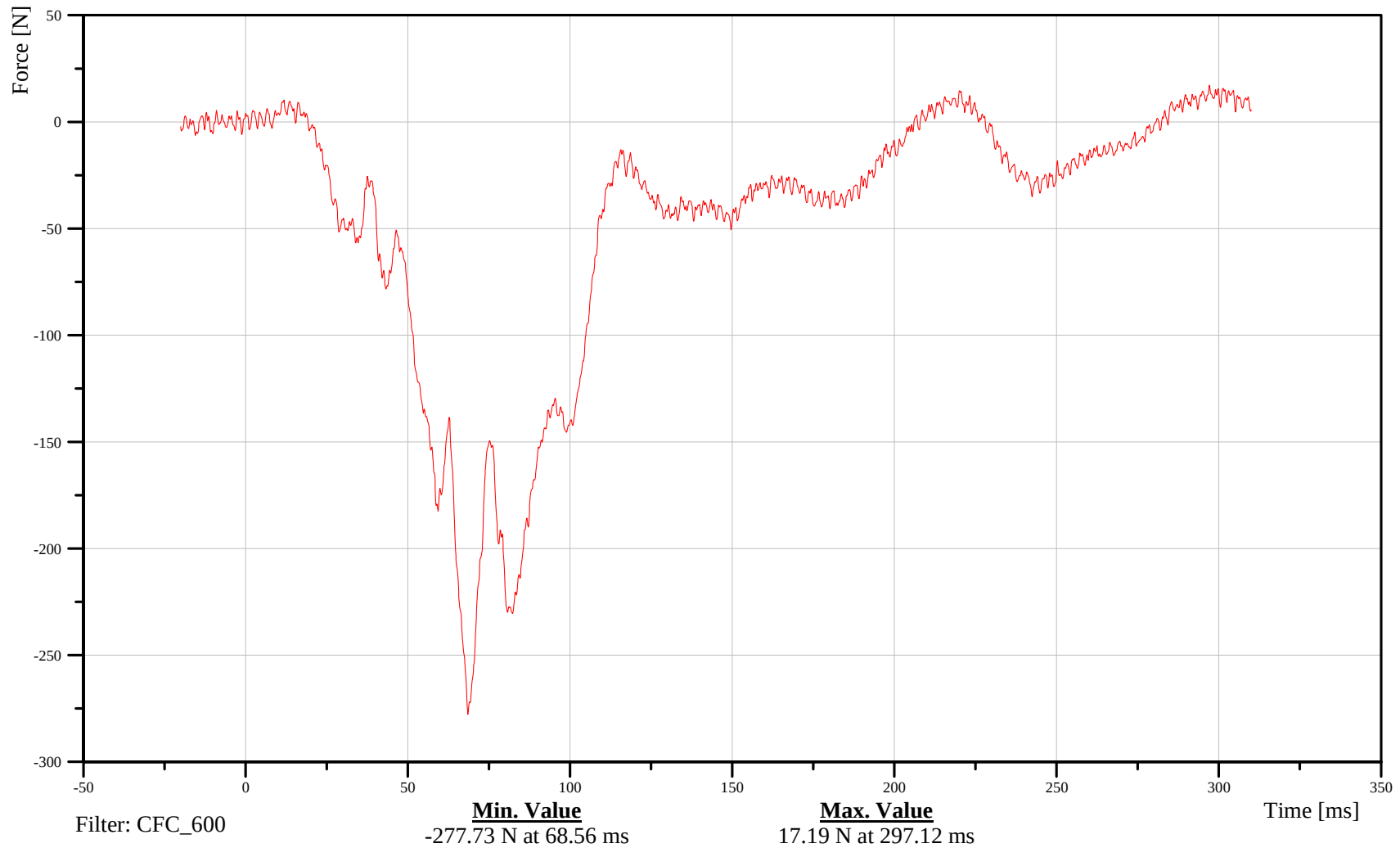
Right Mid Femur Y-Axis Force

Customer: VRTC

11FEMRRIMIWSFOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-102

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

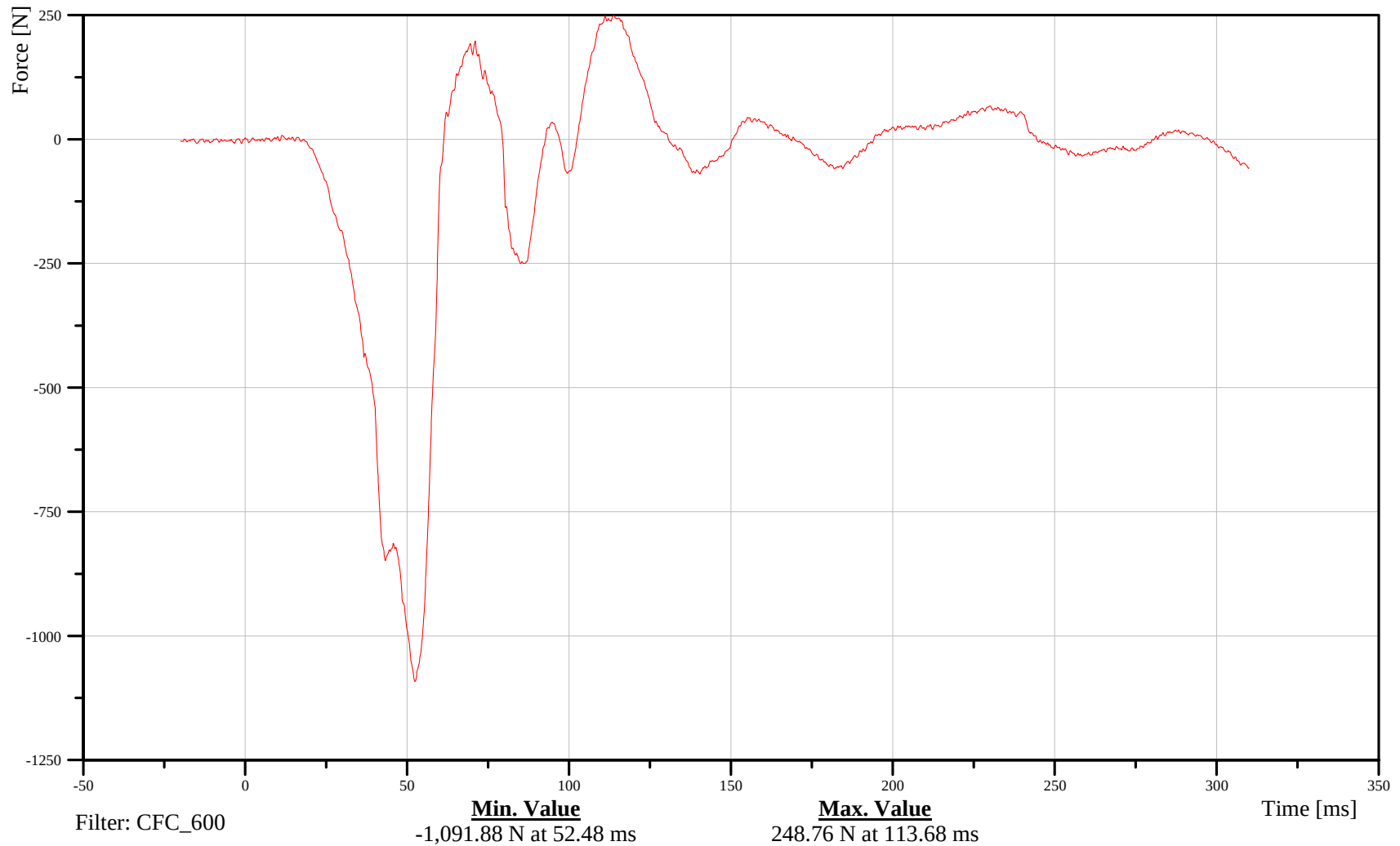
Right Mid Femur Z-Axis Force

Customer: VRTC

11FEMRRIMIWSFOZB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-103

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

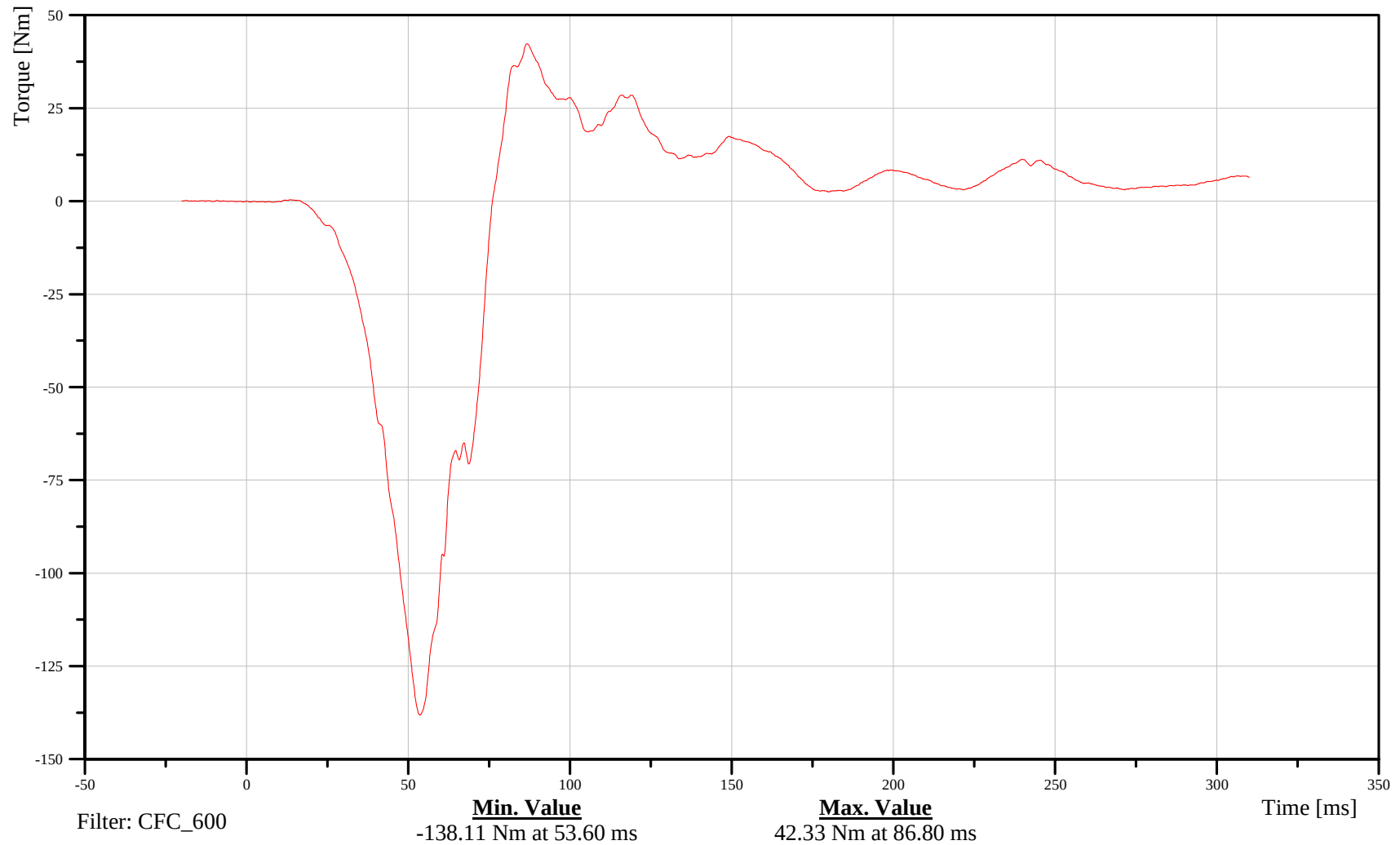
Right Mid Femur Moment About X Axis

Customer: VRTC

11FEMRRIMIWSMOXB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-104

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

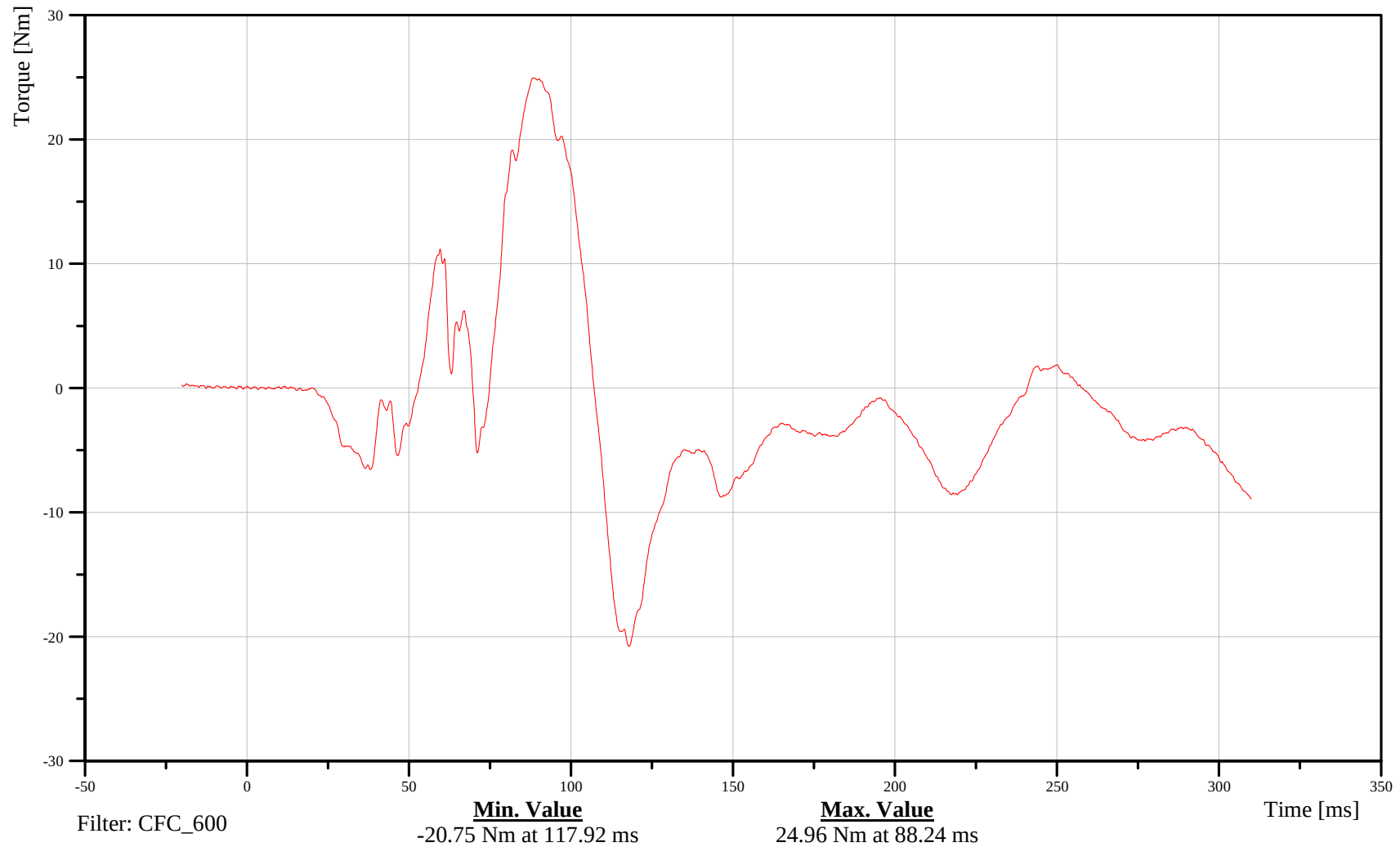
Right Mid Femur Moment About Y Axis

Customer: VRTC

11FEMRRIMIWSMOYB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-105

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

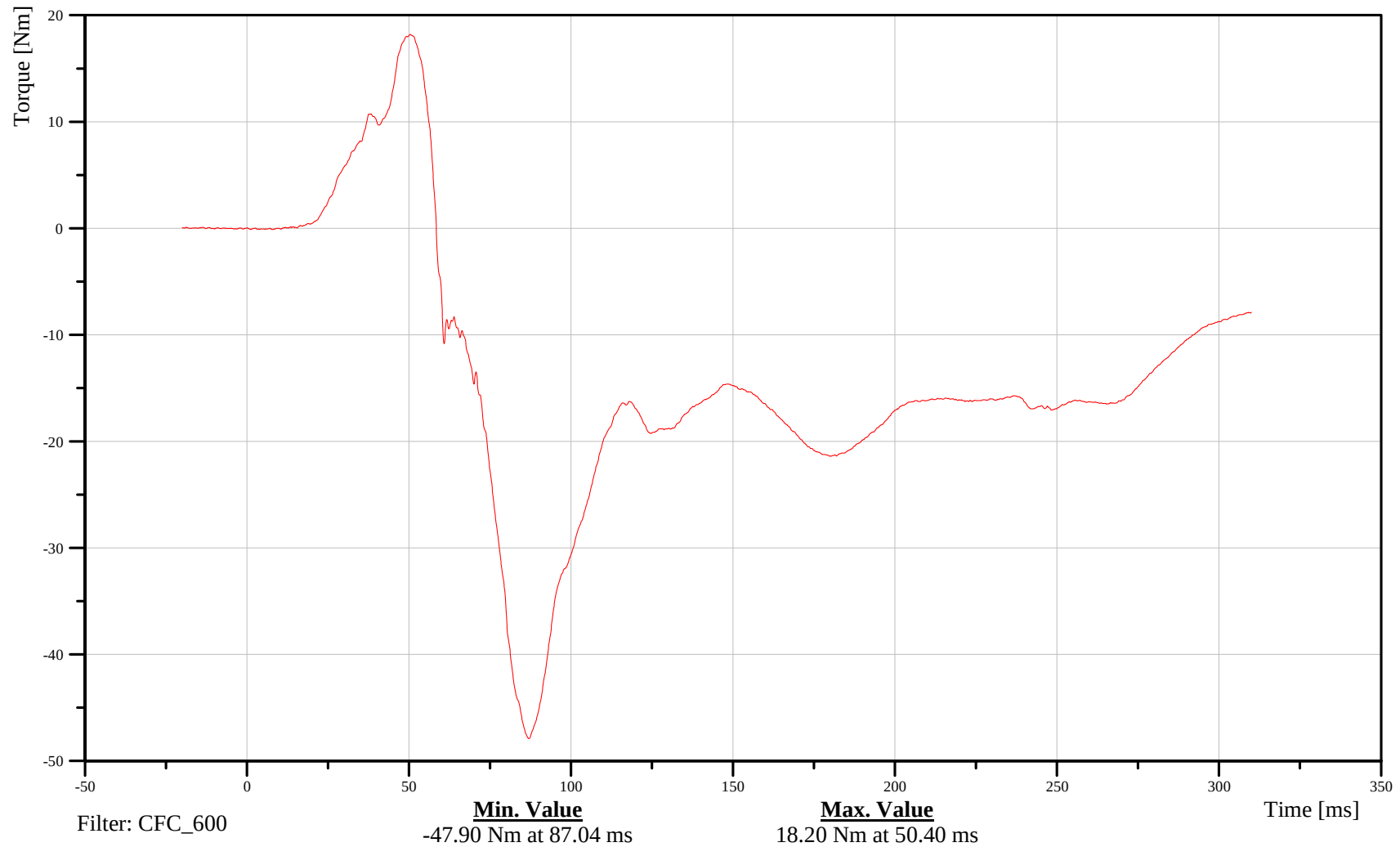
Right Mid Femur Moment About Z Axis

Customer: VRTC

11FEMRRIMIWSMOZB

TRC Inc. Test Lab: CTF

Test Number: 080108



B-106

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

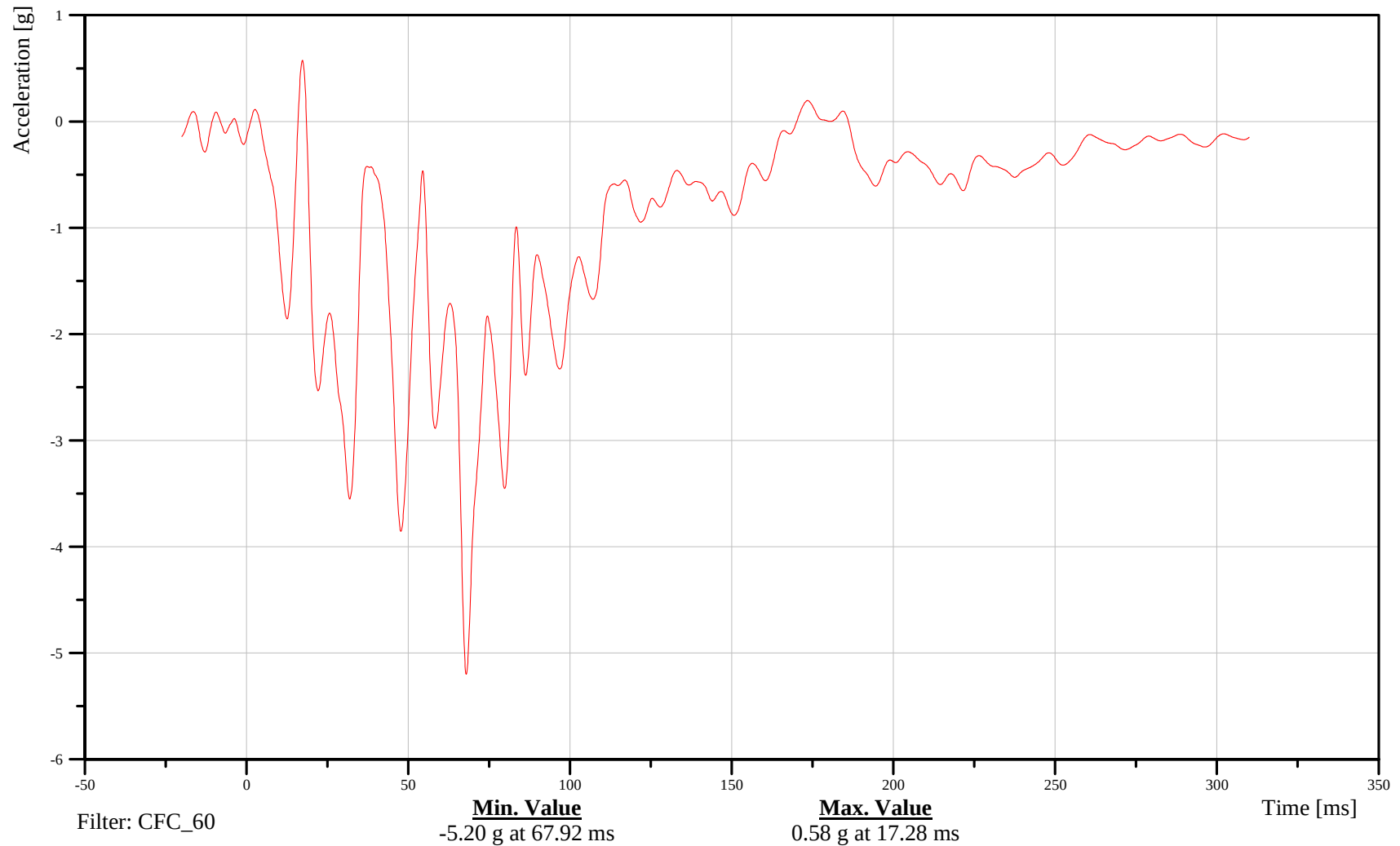
Right Side Sill at Front Seat X-Axis Acceleration

Customer: VRTC

16SILBFR0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-107

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

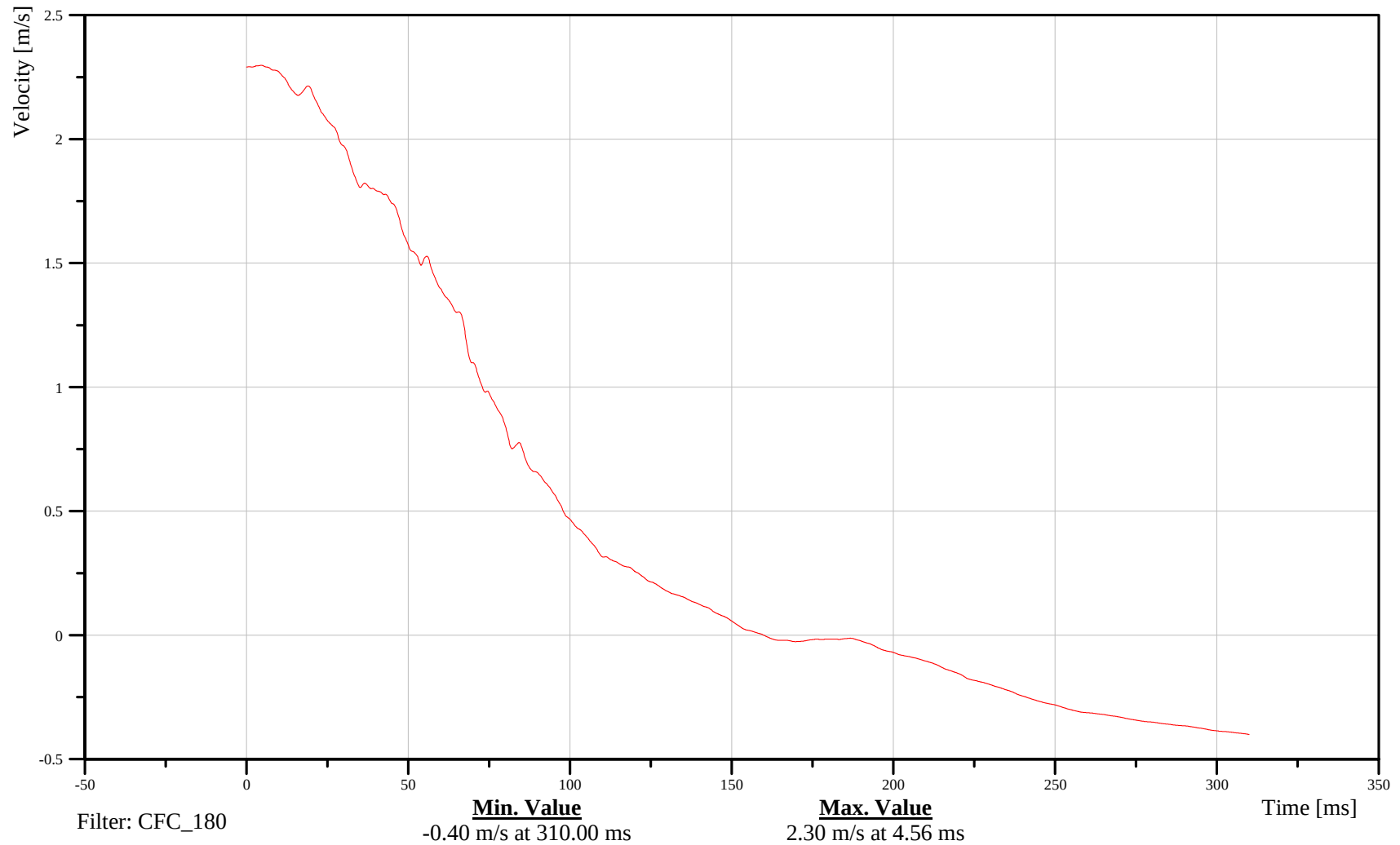
Right Side Sill at Front Seat X-Axis Velocity

Customer: VRTC

16SILBFR0000VEXC

TRC Inc. Test Lab: CTF

Test Number: 080108



B-108

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

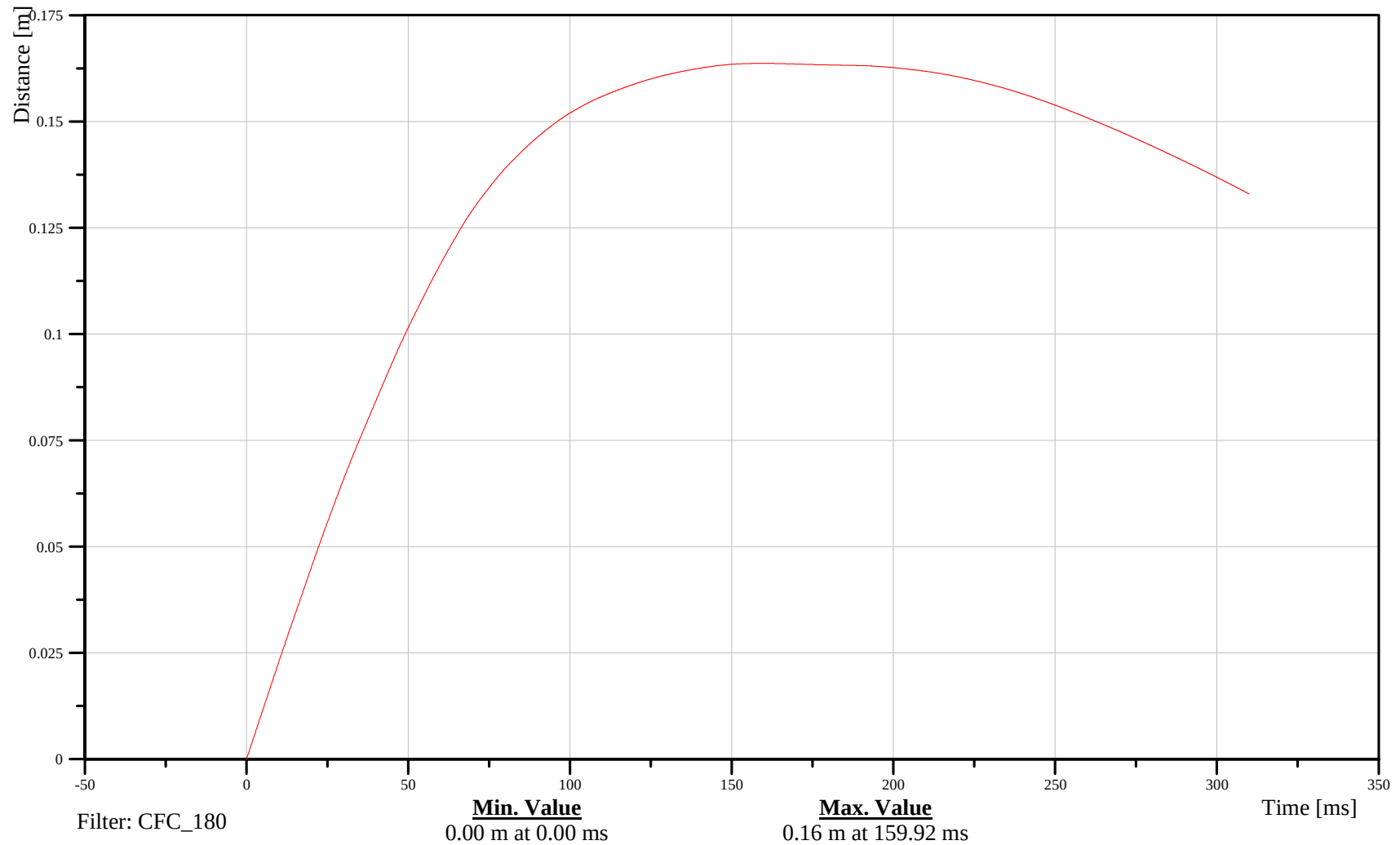
Right Side Sill at Front Seat X-Axis Displacement

Customer: VRTC

16SILBFR0000DCXC

TRC Inc. Test Lab: CTF

Test Number: 080108



B-109

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

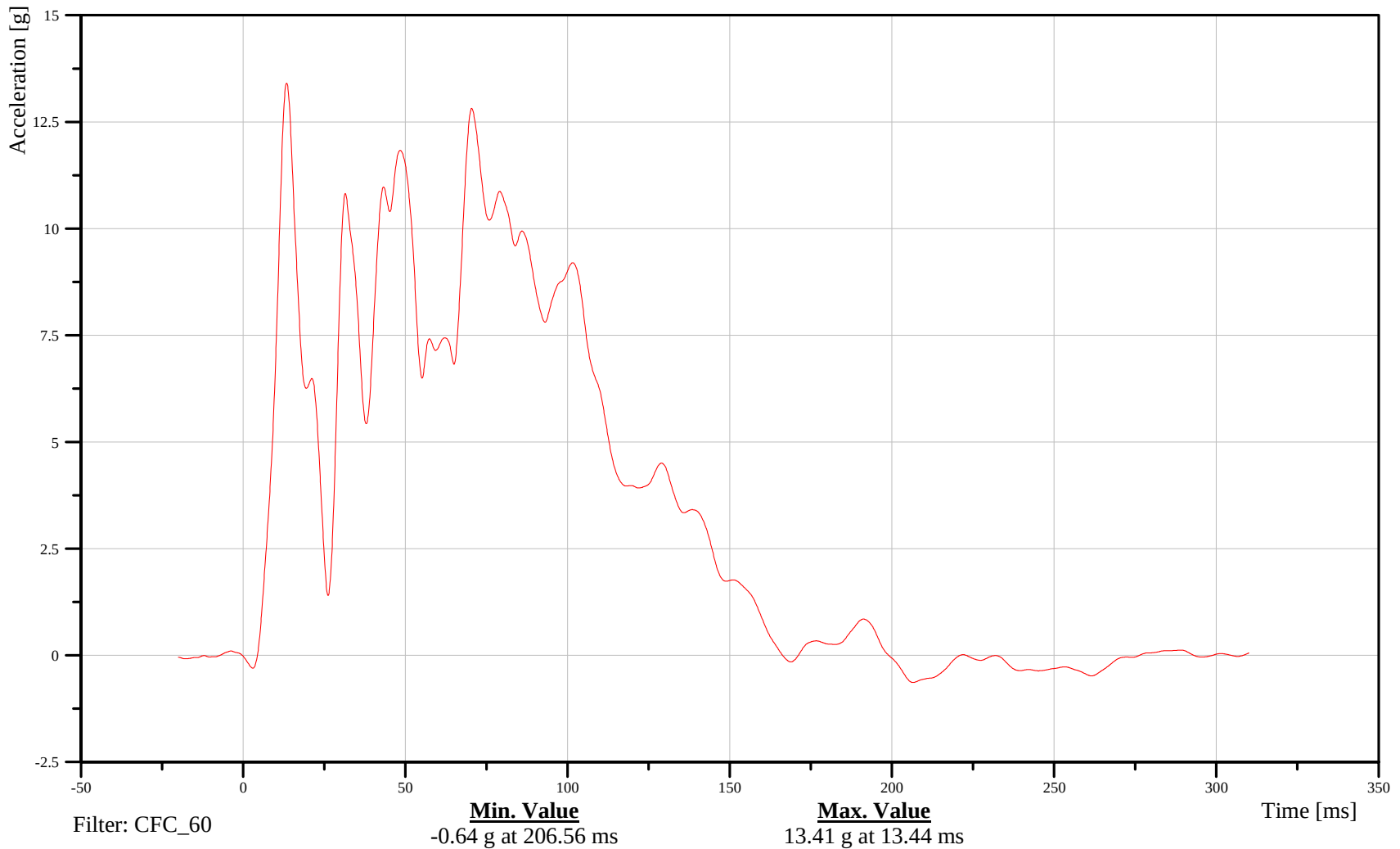
Right Side Sill at Front Seat Y-Axis Acceleration

Customer: VRTC

16SILBFR0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-110

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

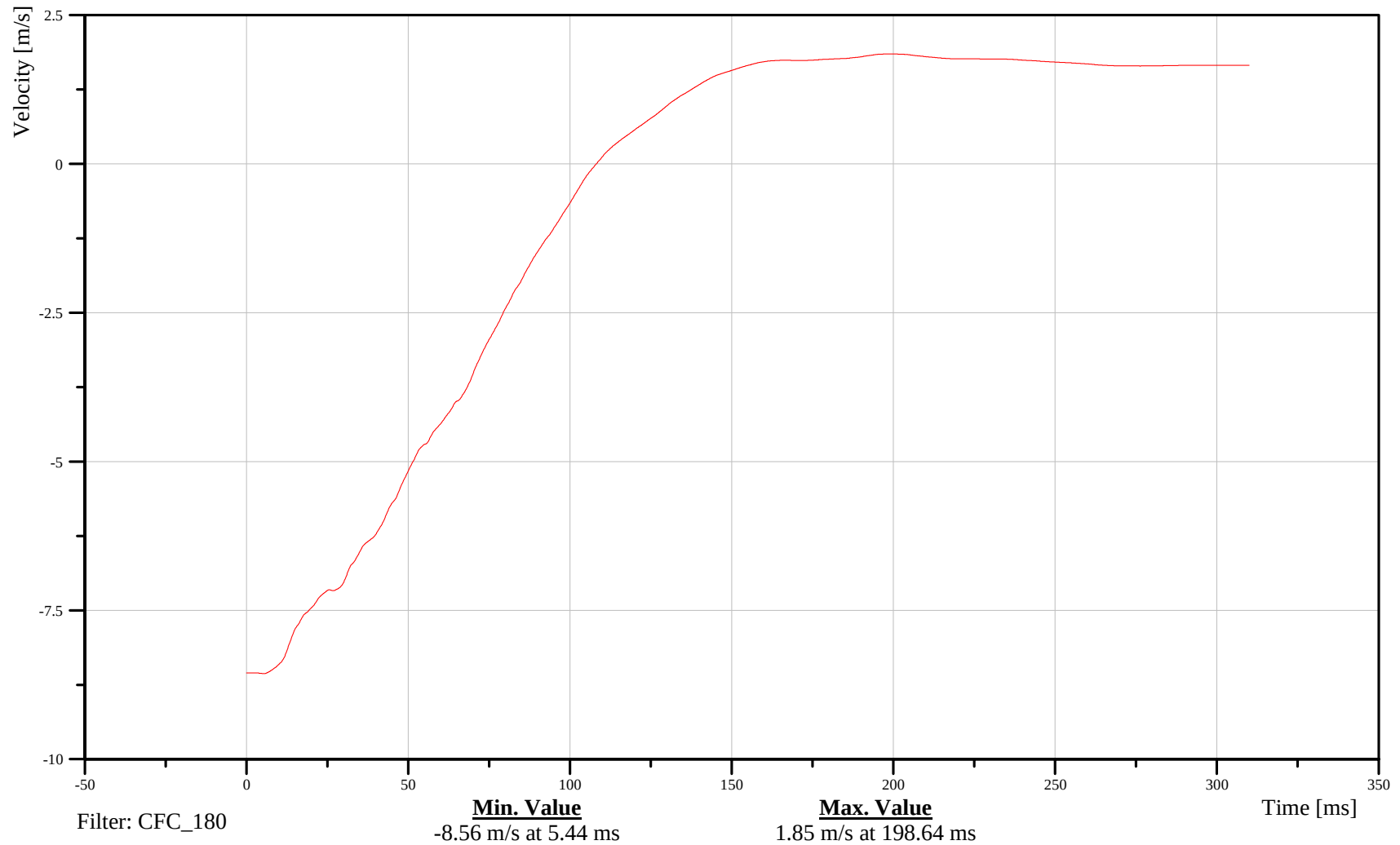
Right Side Sill at Front Seat Y-Axis Velocity

Customer: VRTC

16SILBFR0000VEYC

TRC Inc. Test Lab: CTF

Test Number: 080108



B-111

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

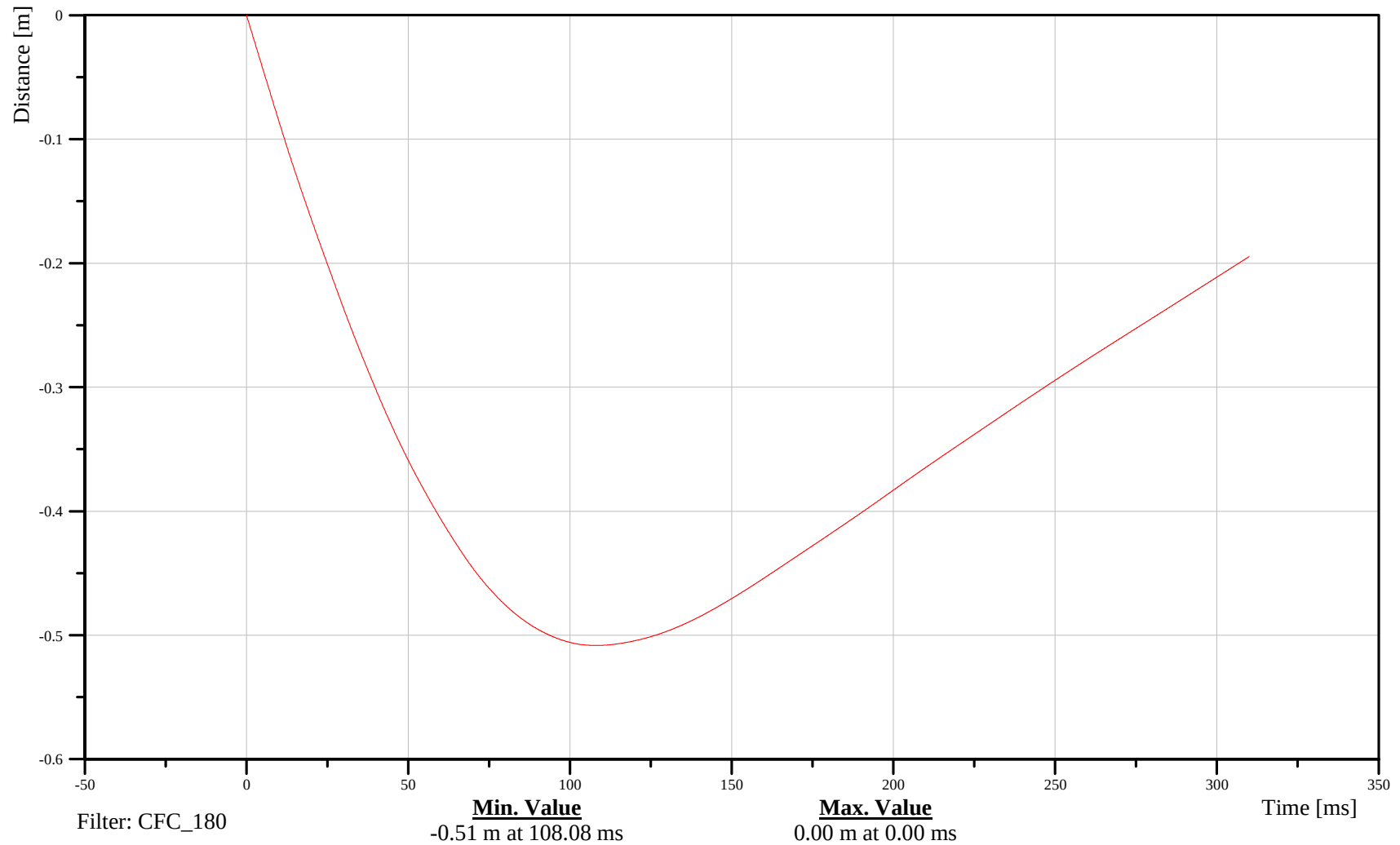
Right Side Sill at Front Seat Y-Axis Displacement

Customer: VRTC

16SILBFR0000DCYC

TRC Inc. Test Lab: CTF

Test Number: 080108



B-112

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

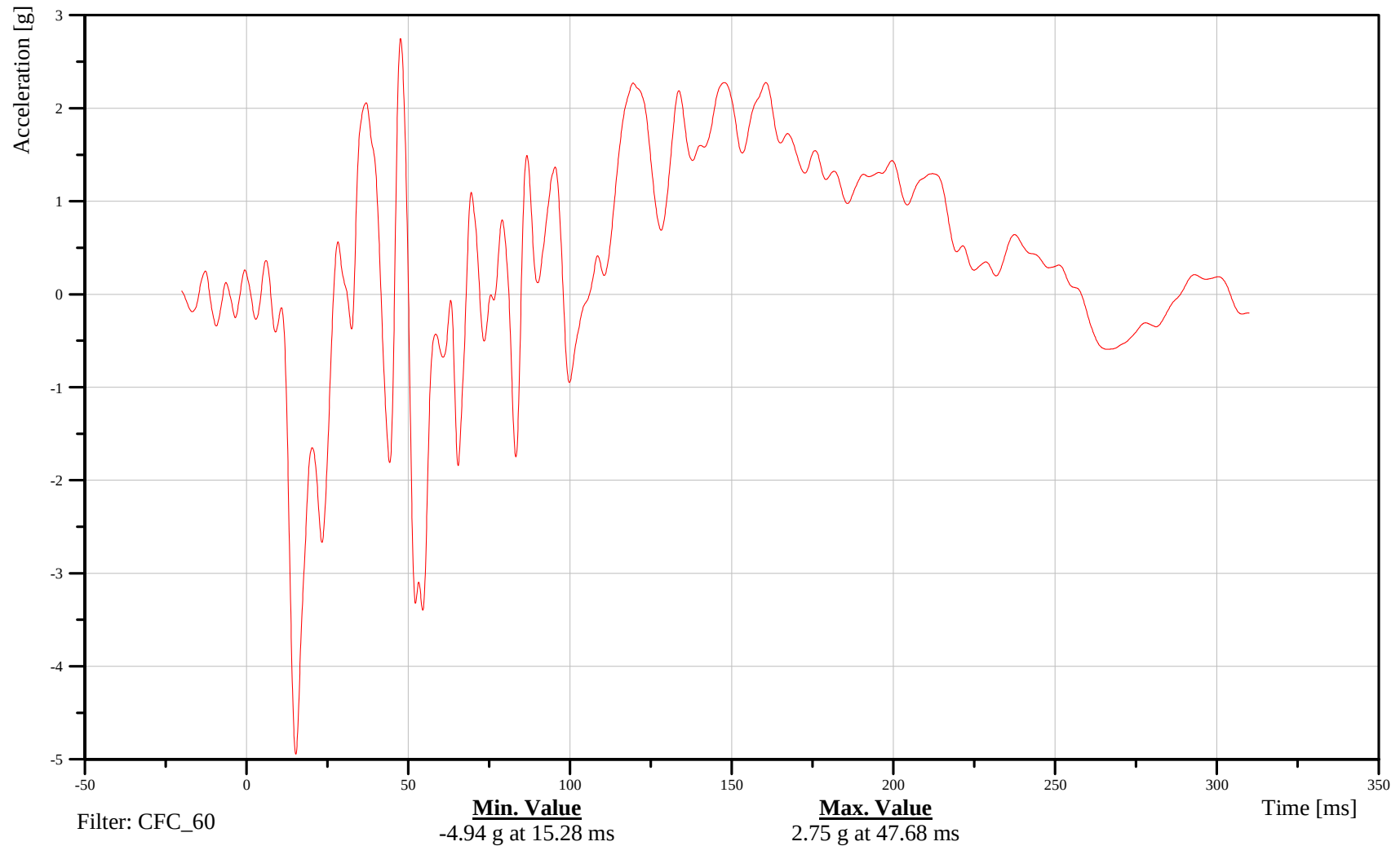
Right Side Sill at Front Seat Z-Axis Acceleration

Customer: VRTC

16SILBFR0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-113

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

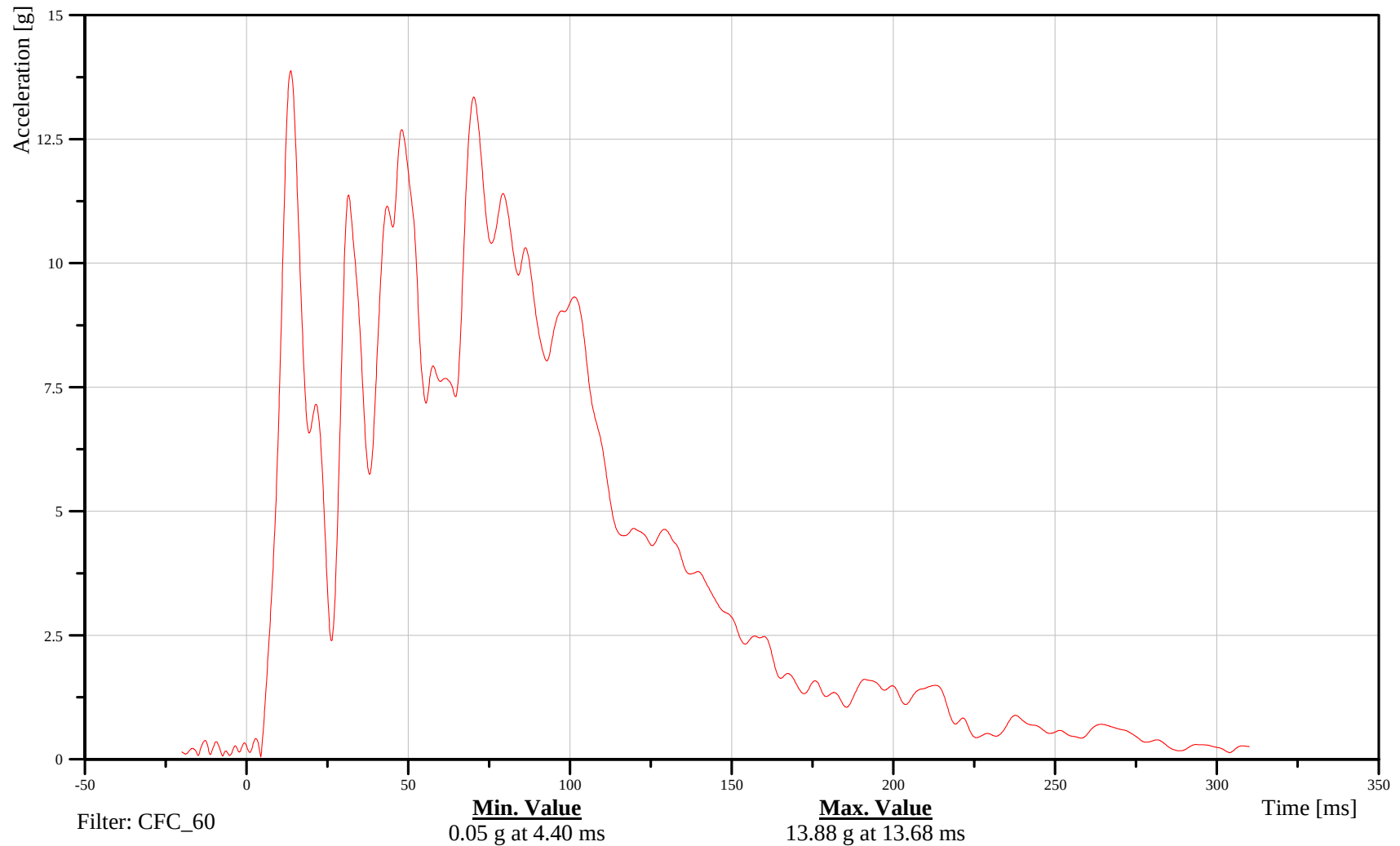
Right Side Sill at Front Seat Resultant Acceleration

Customer: VRTC

16SILBFR0000ACRD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-114

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

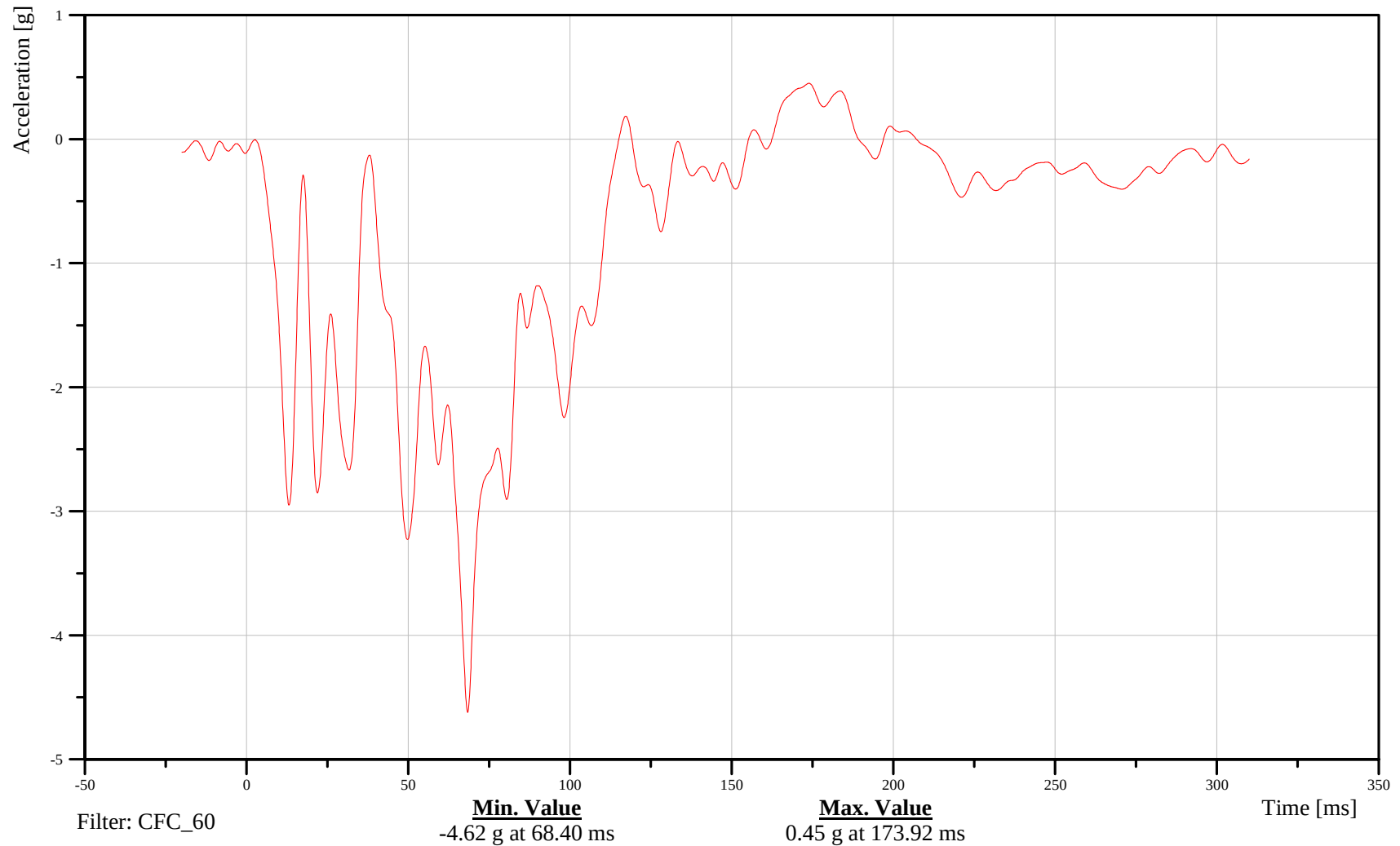
Right Side Sill at Rear Seat X-Axis Acceleration

Customer: VRTC

16SILBRE0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-115

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

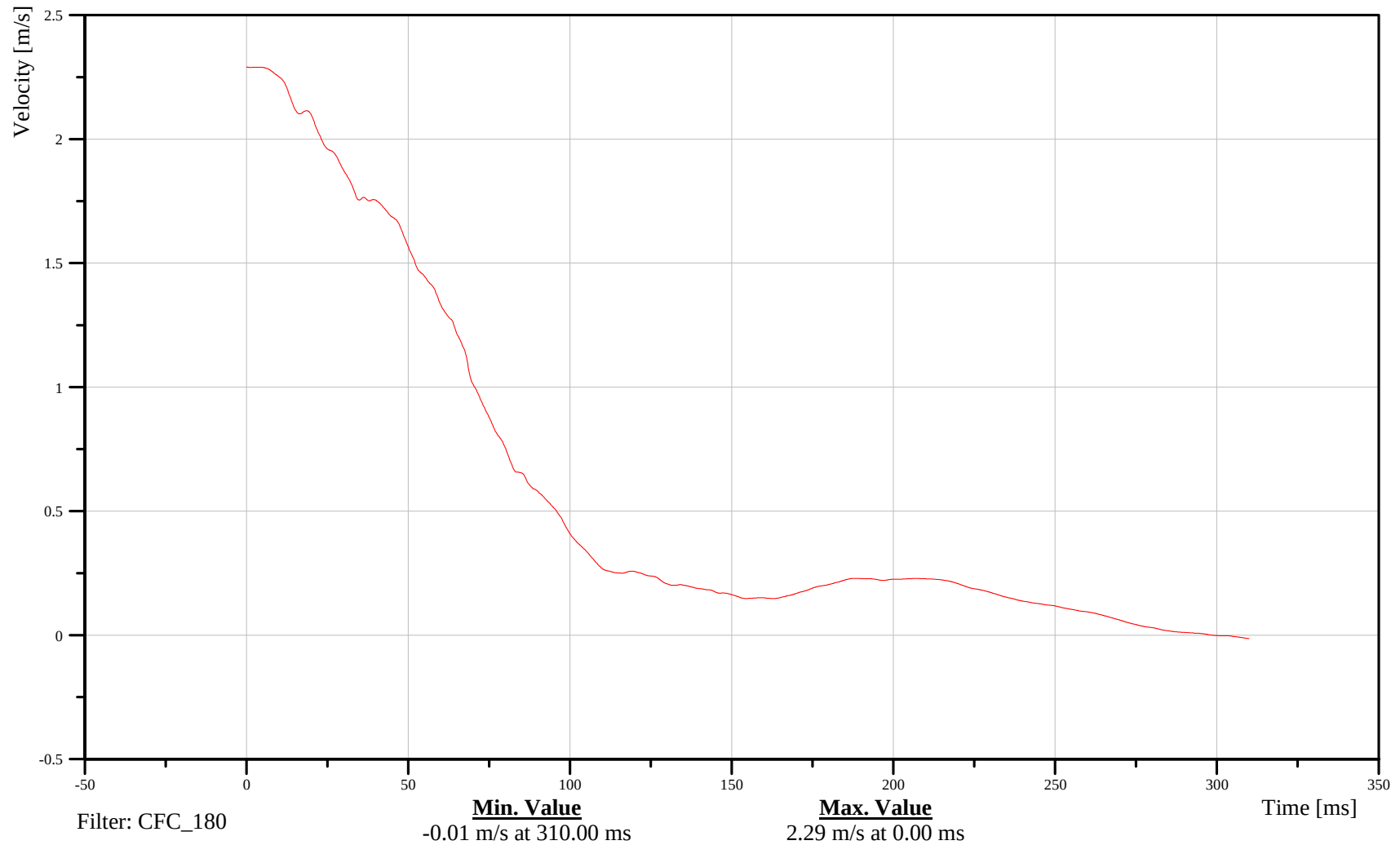
Right Side Sill at Rear Seat X-Axis Velocity

Customer: VRTC

16SILBRE0000VEXC

TRC Inc. Test Lab: CTF

Test Number: 080108



B-116

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

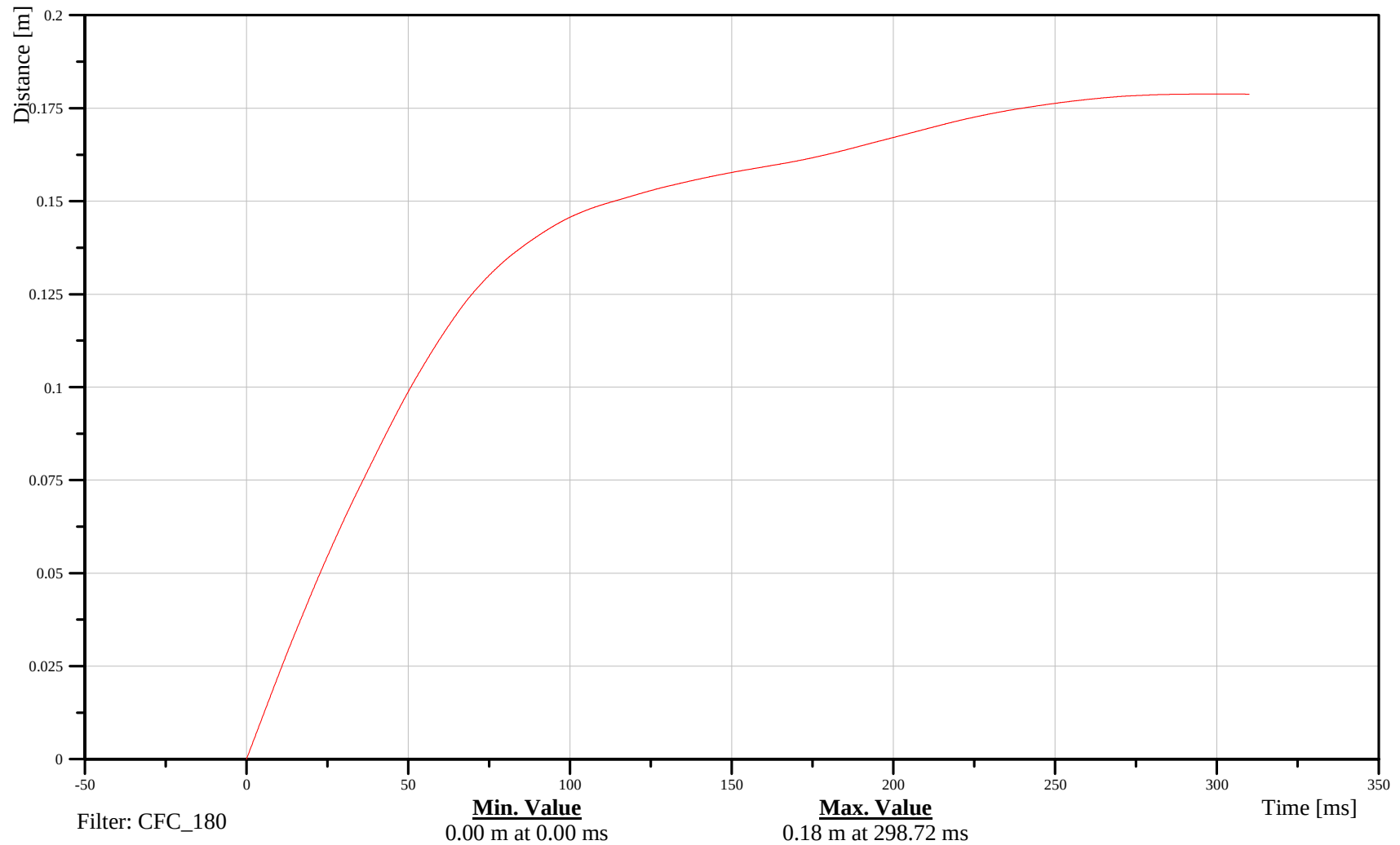
Right Side Sill at Rear Seat X-Axis Displacement

Customer: VRTC

16SILBRE0000DCXC

TRC Inc. Test Lab: CTF

Test Number: 080108



B-117

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

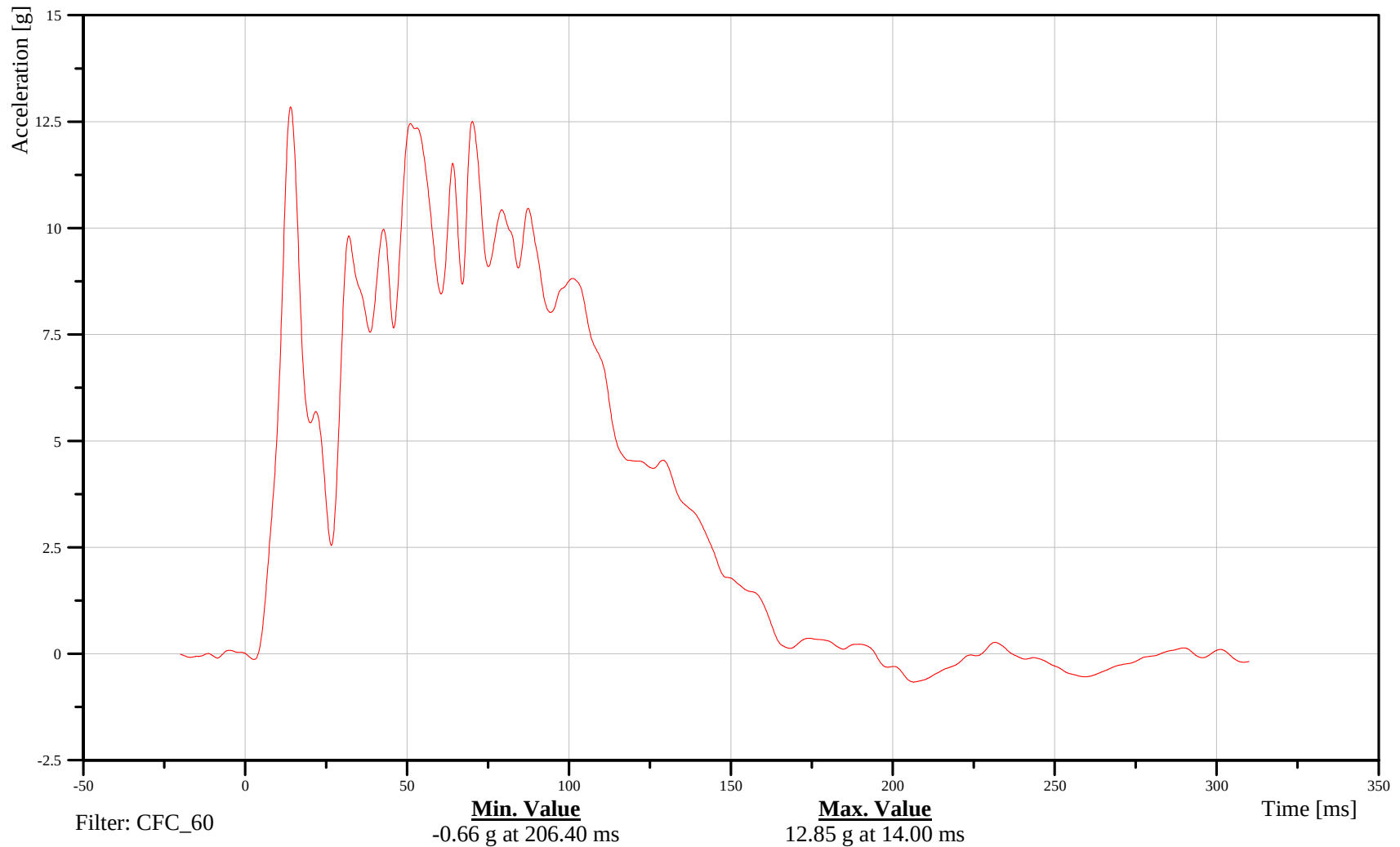
Right Side Sill at Rear Seat Y-Axis Acceleration

Customer: VRTC

16SILBRE0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-118

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

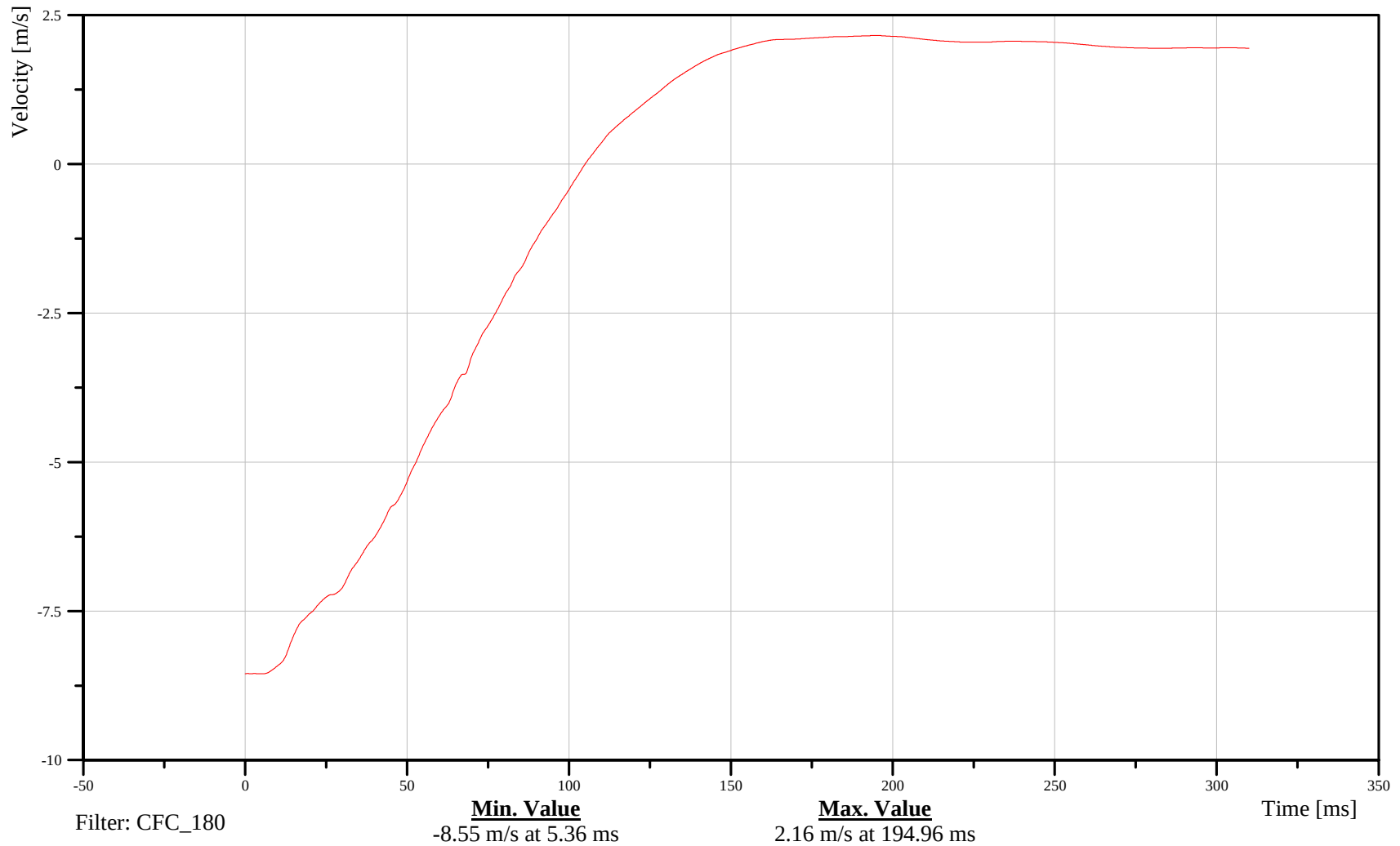
Right Side Sill at Rear Seat Y-Axis Velocity

Customer: VRTC

16SILBRE0000VEYC

TRC Inc. Test Lab: CTF

Test Number: 080108



B-119

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

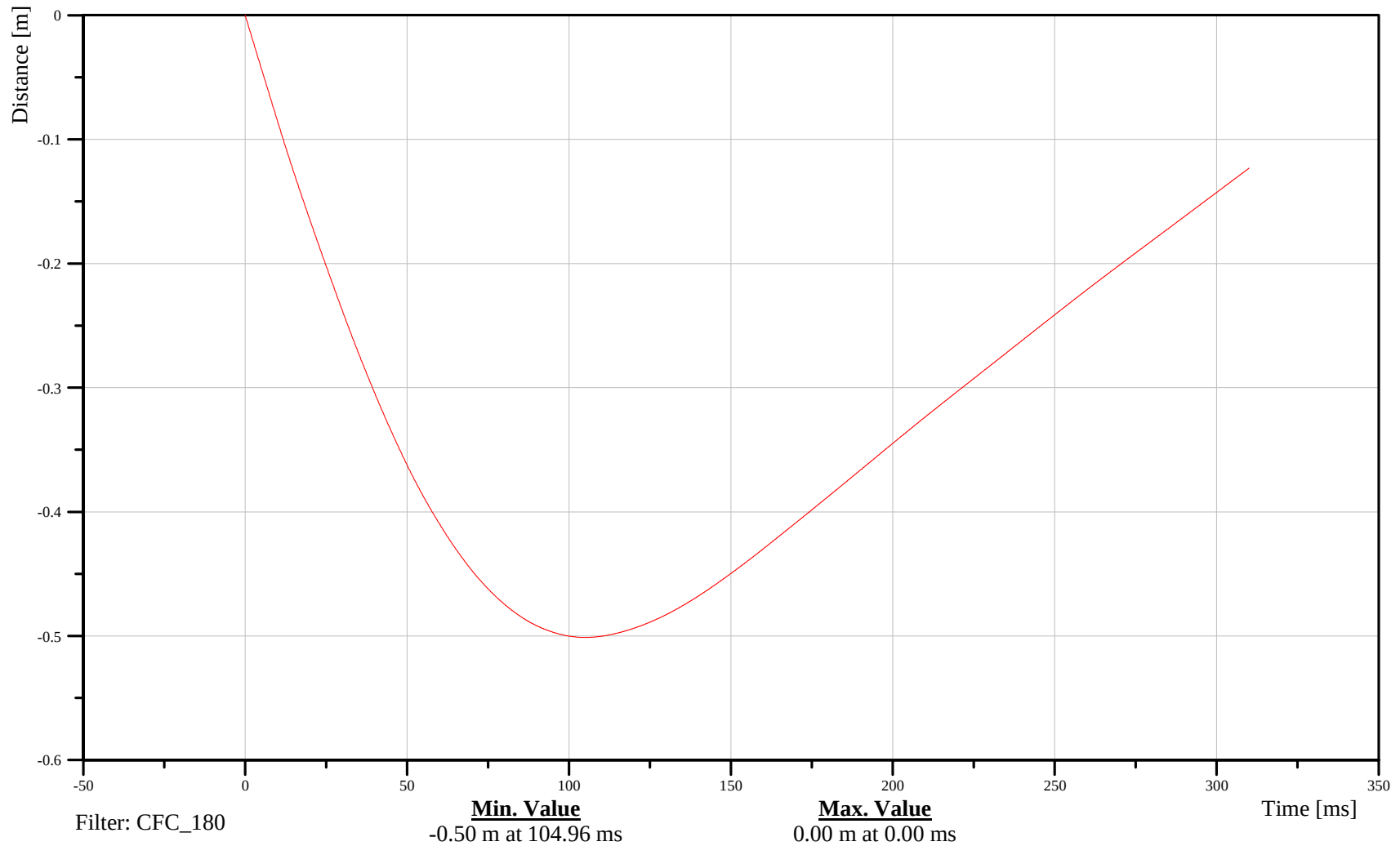
Right Side Sill at Rear Seat Y-Axis Displacement

Customer: VRTC

16SILBRE0000DCYC

TRC Inc. Test Lab: CTF

Test Number: 080108



B-120

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

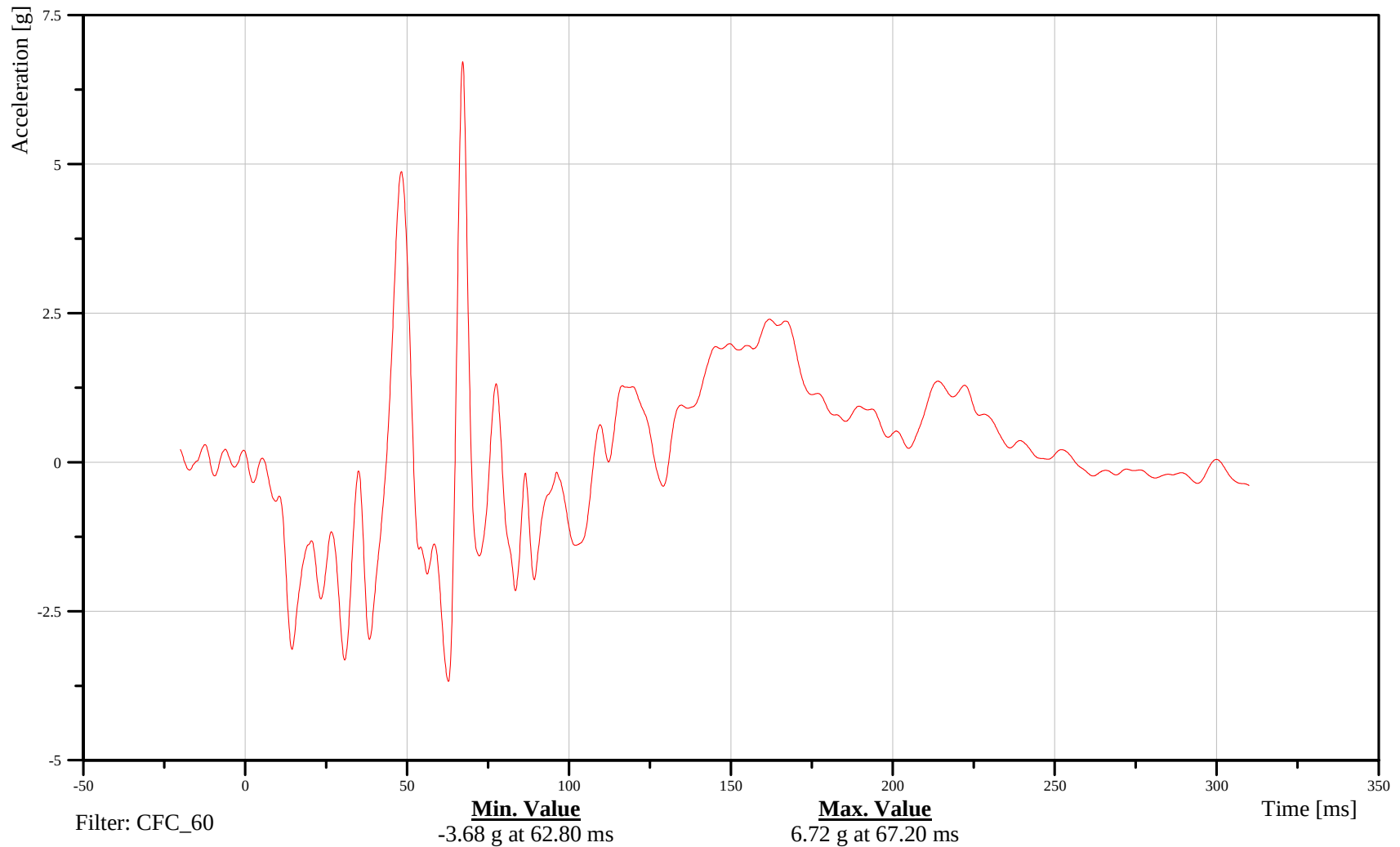
Right Side Sill at Rear Seat Z-Axis Acceleration

Customer: VRTC

16SILBRE0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-121

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

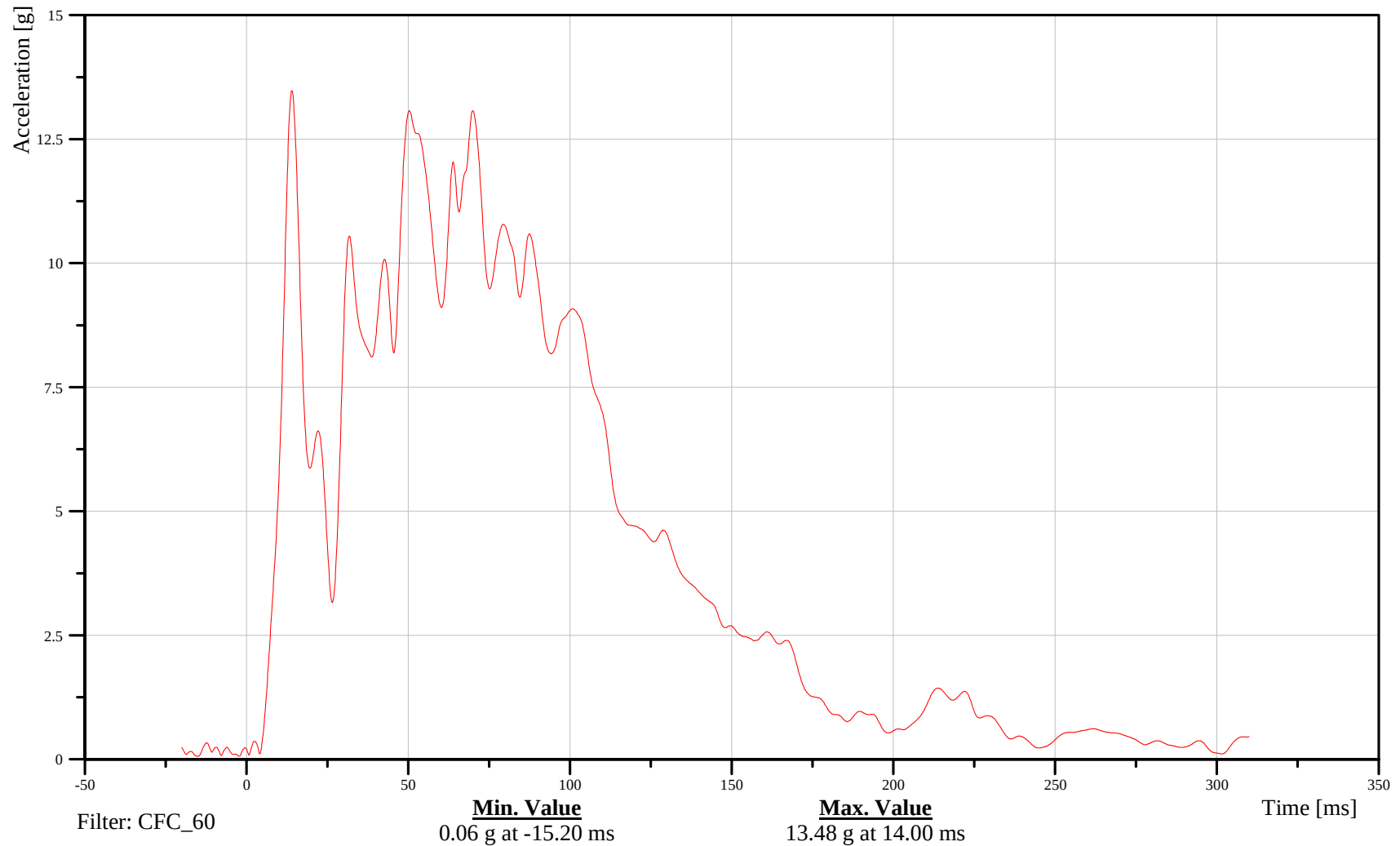
Right Side Sill at Rear Seat Resultant Acceleration

Customer: VRTC

16SILBRE0000ACRD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-122

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

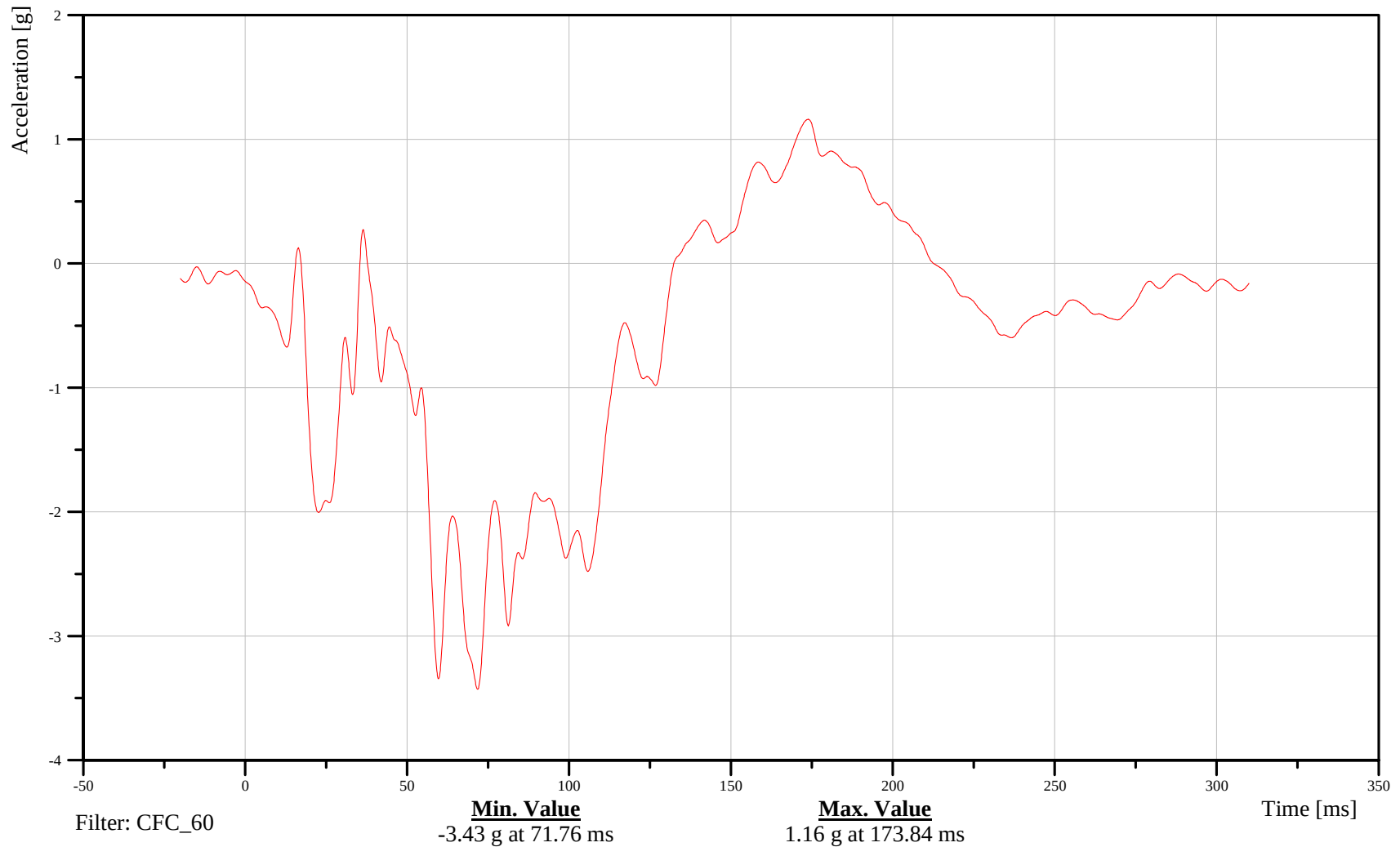
Rear Floorpan Above Axle X-Axis Acceleration

Customer: VRTC

18FORA000000ACXD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-123

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

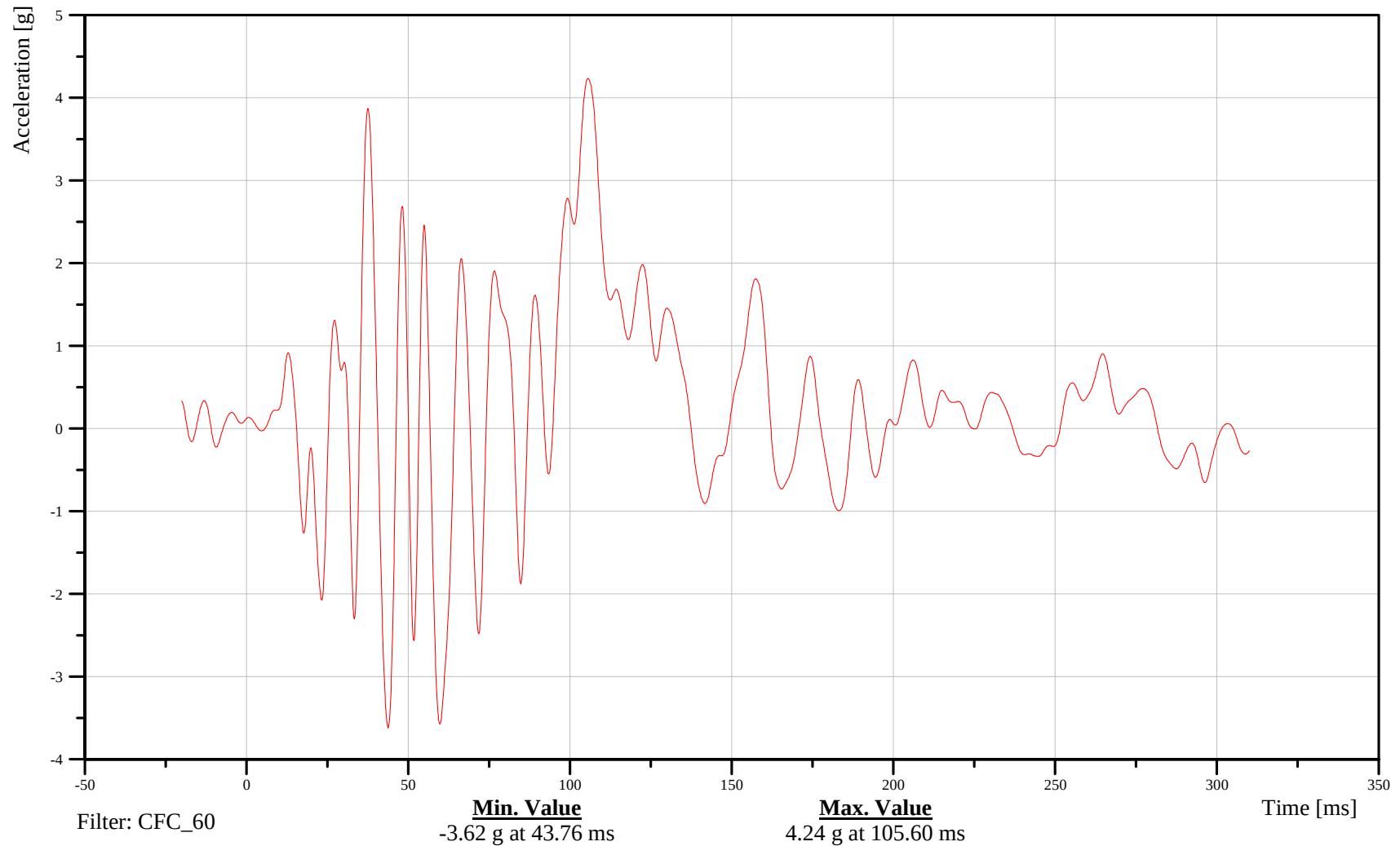
Rear Floorpan Above Axle Y-Axis Acceleration

Customer: VRTC

18FORA000000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-124

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

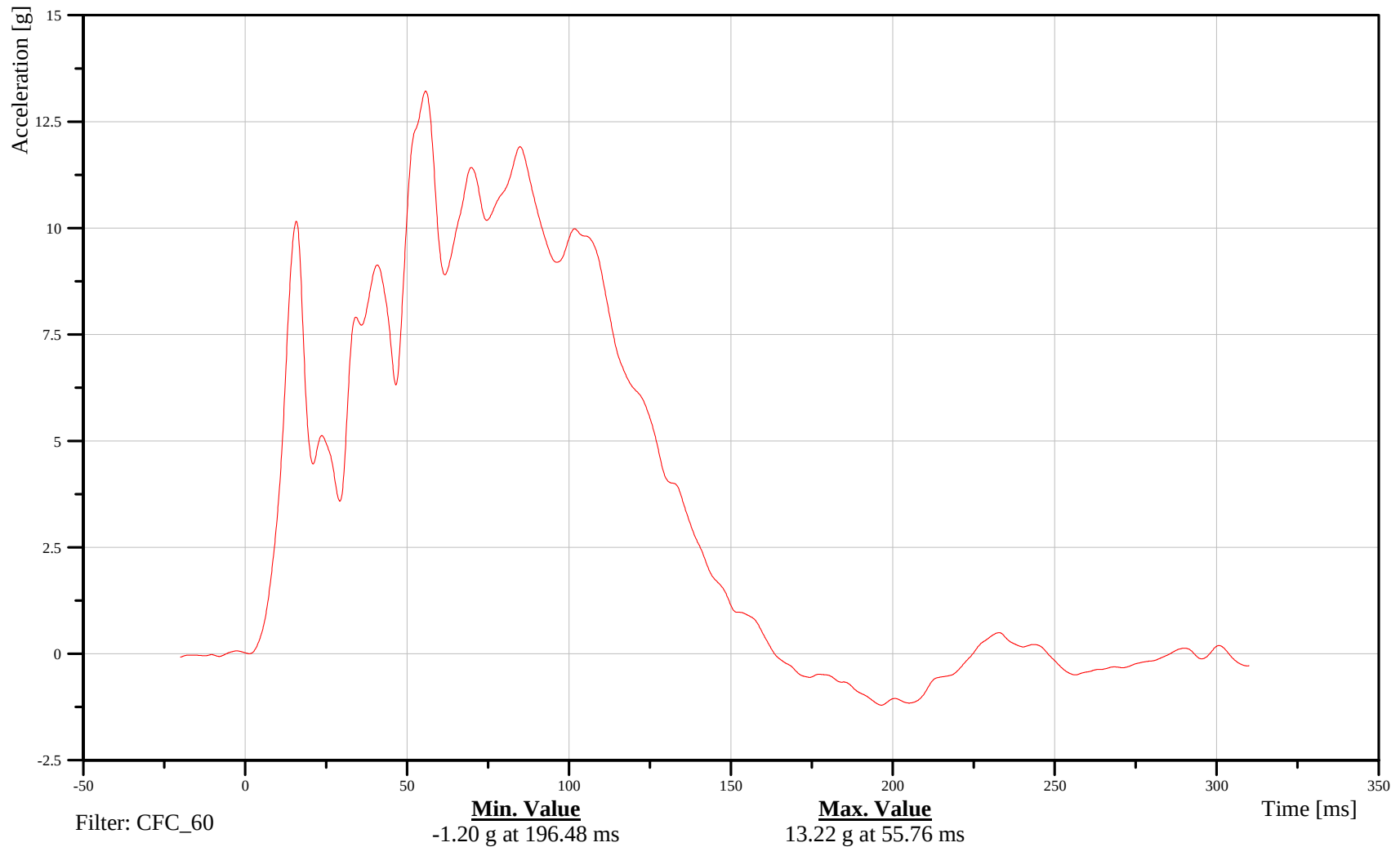
Rear Floorpan Above Axle Z-Axis Acceleration

Customer: VRTC

18FORA000000ACZD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-125

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

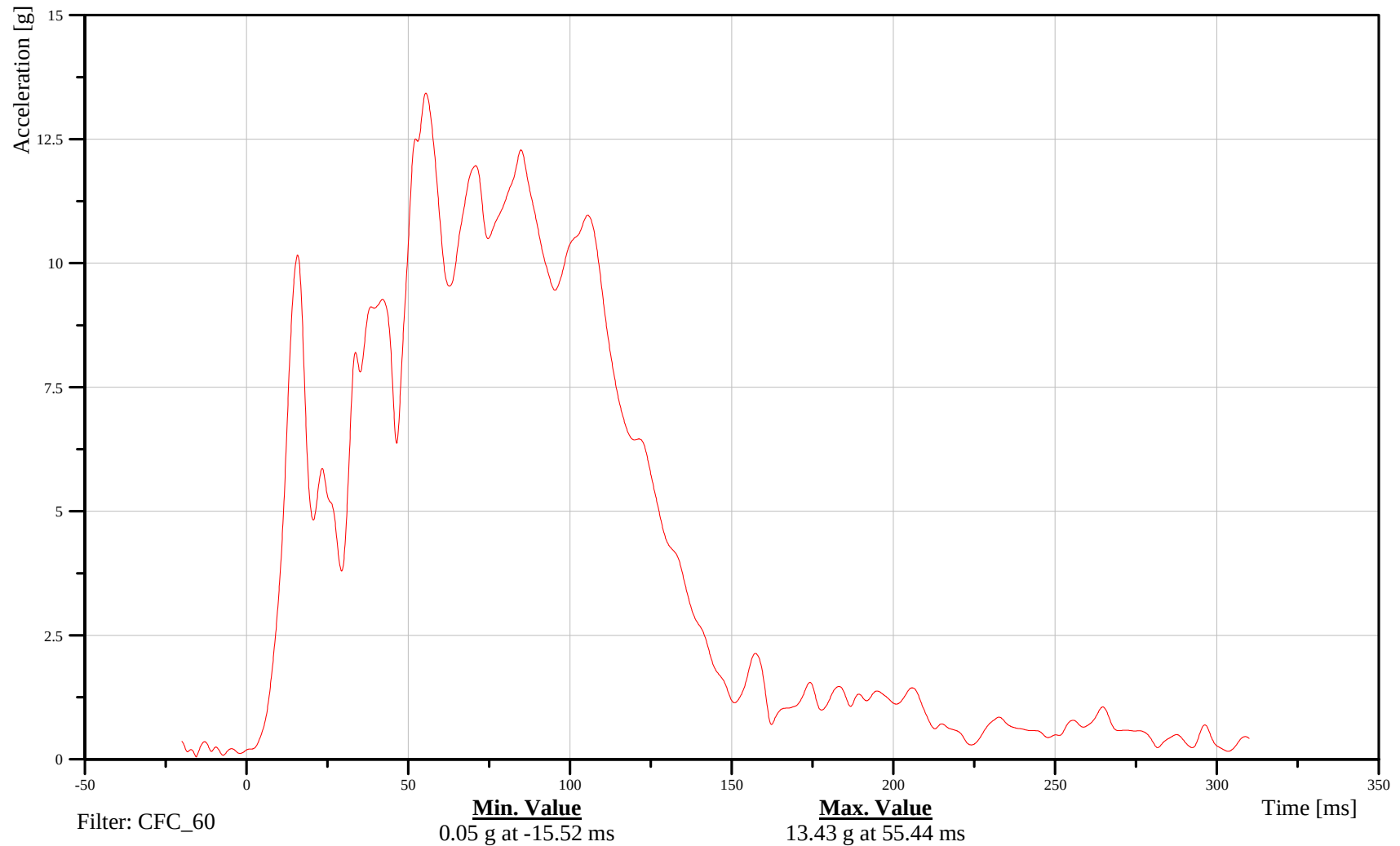
Rear Floorpan Above Axle Resultant Acceleration

Customer: VRTC

18FORA000000ACRD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-126

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

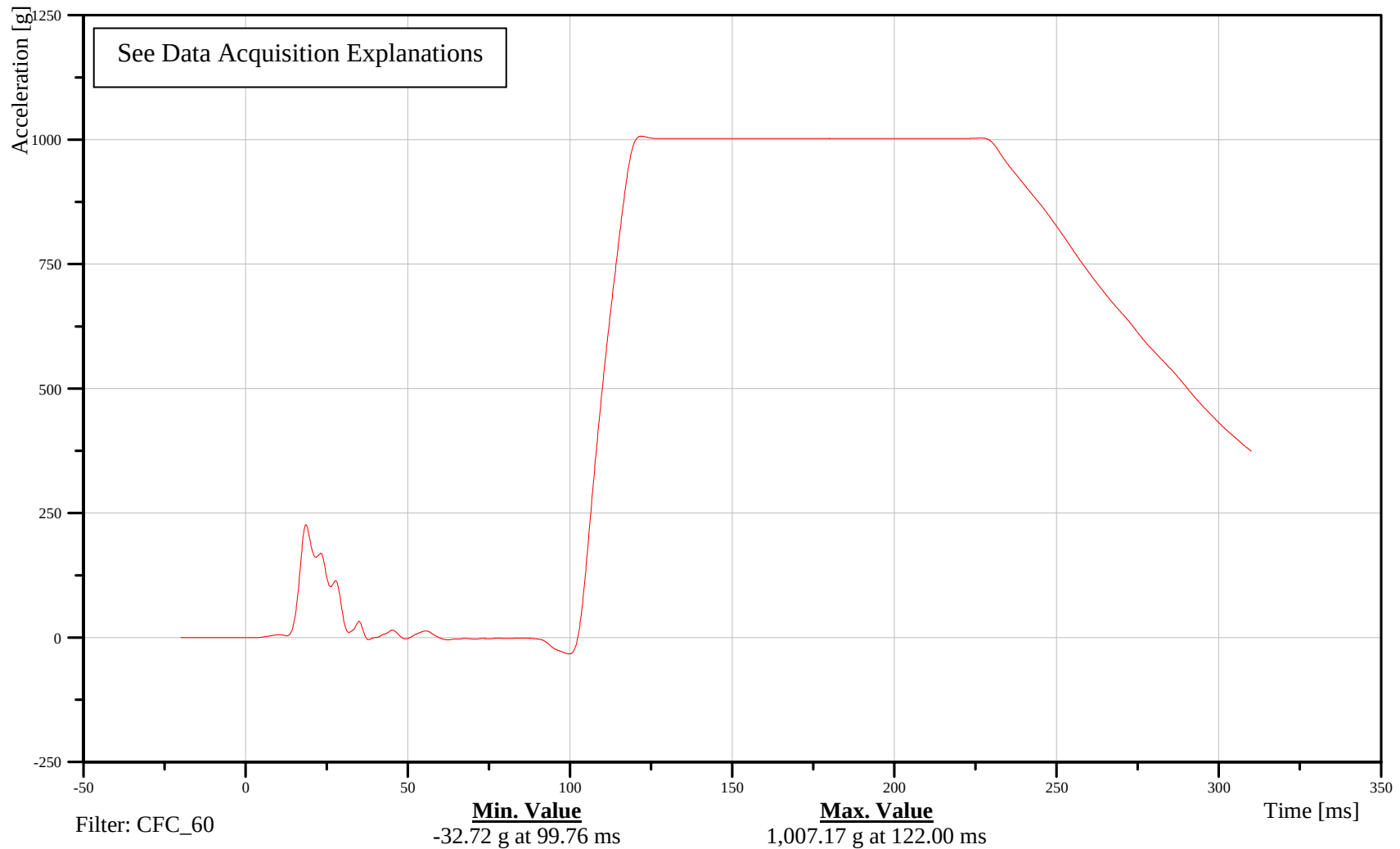
Left Side Sill at Front Seat Y-Axis Acceleration

Customer: VRTC

14SILBFR0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-127

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

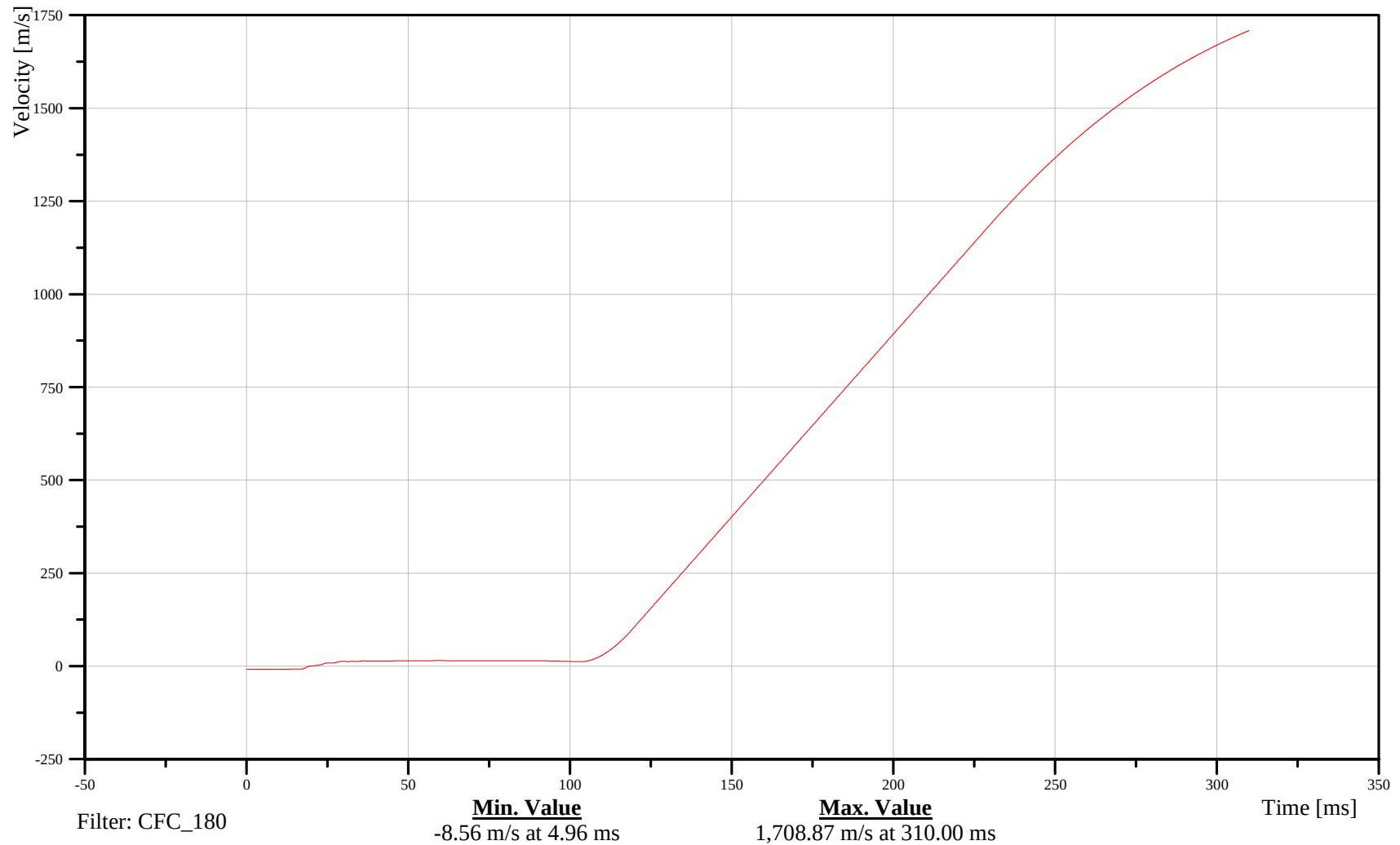
Left Side Sill at Front Seat Y-Axis Velocity

Customer: VRTC

14SILBFR0000VEYC

TRC Inc. Test Lab: CTF

Test Number: 080108



B-128

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

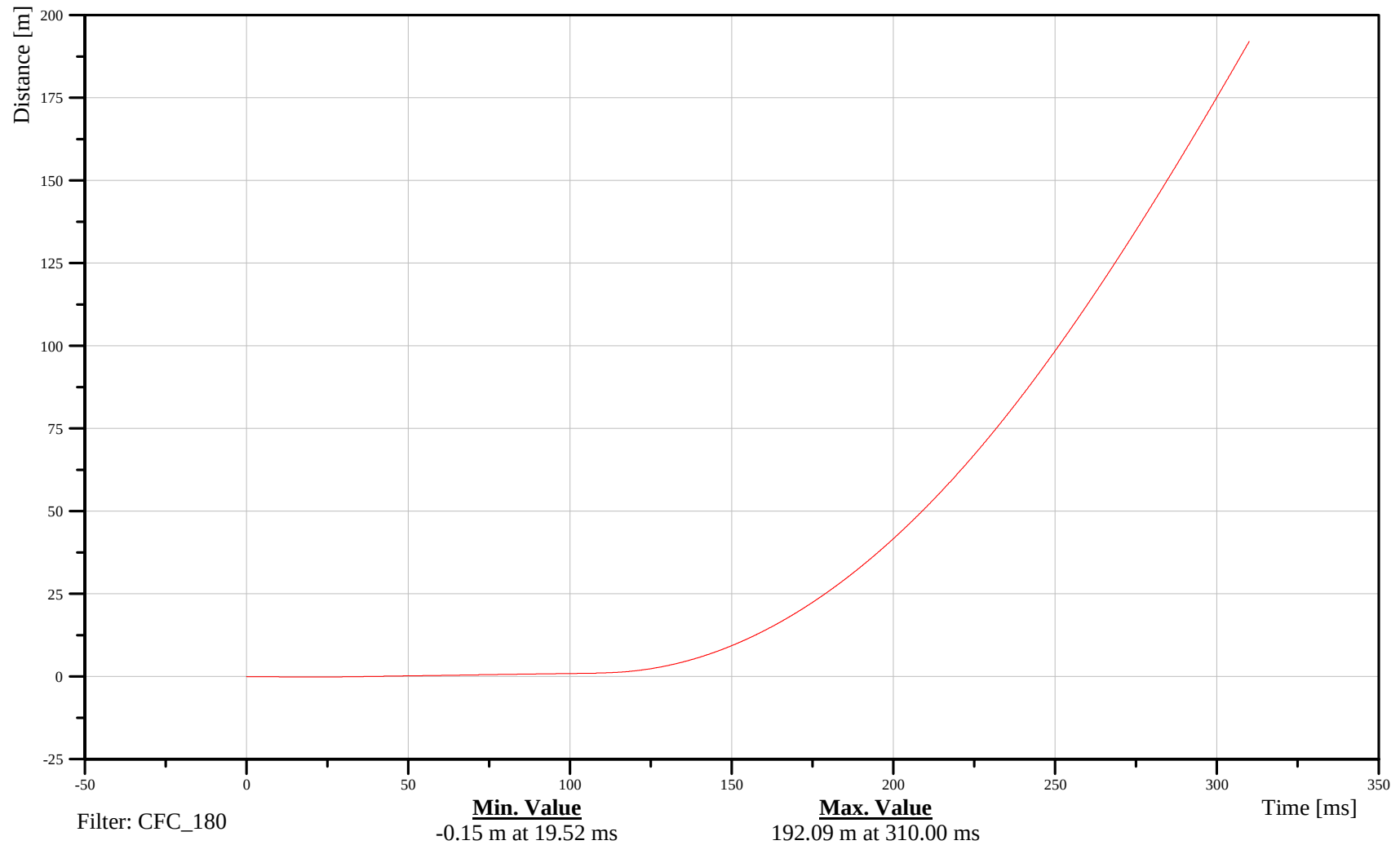
Left Side Sill at Front Seat Y-Axis Displacement

Customer: VRTC

14SILBFR0000DCYC

TRC Inc. Test Lab: CTF

Test Number: 080108



B-129

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

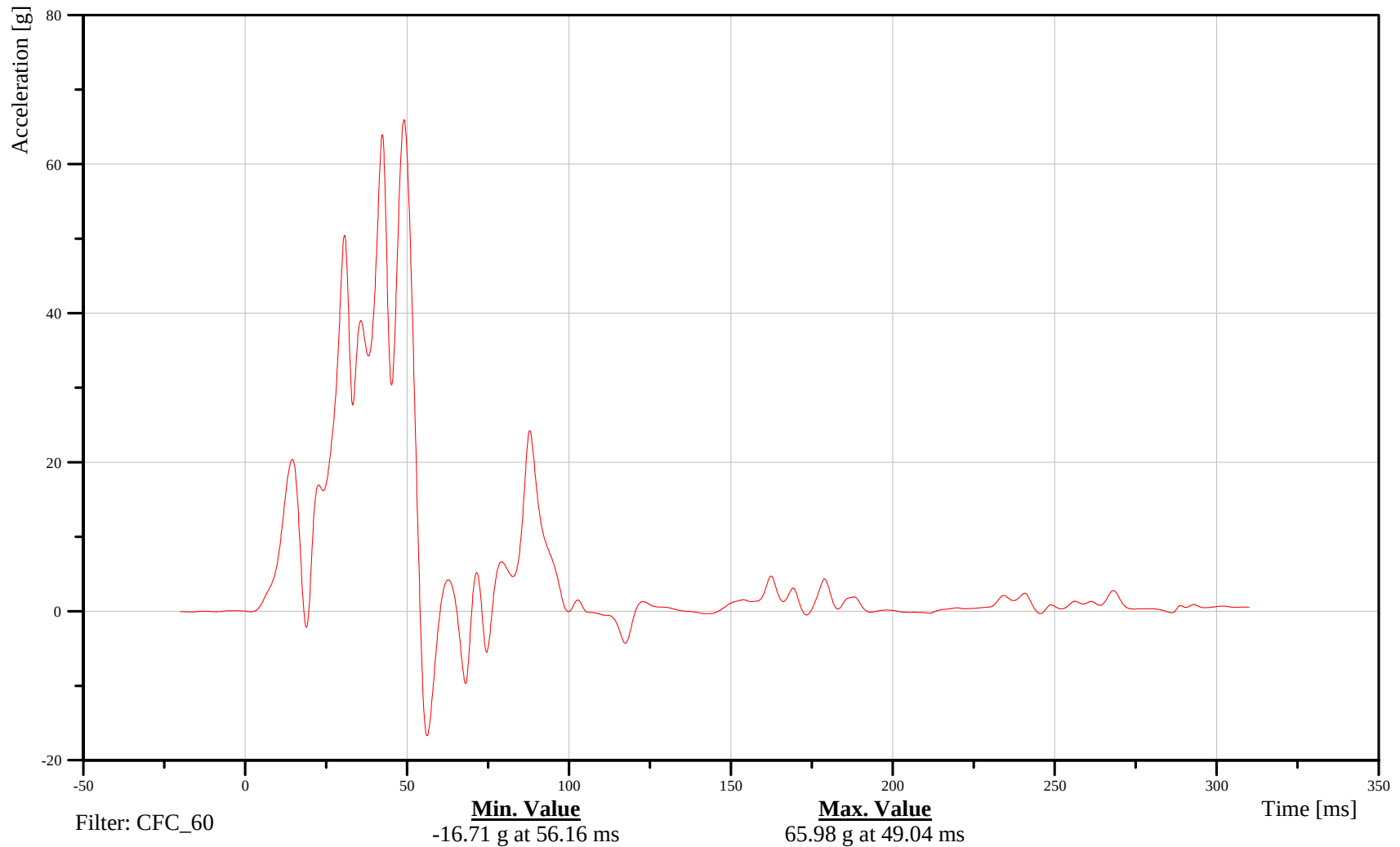
Left Side Sill at Rear Seat Y-Axis Acceleration

Customer: VRTC

14SILBRE0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-130

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

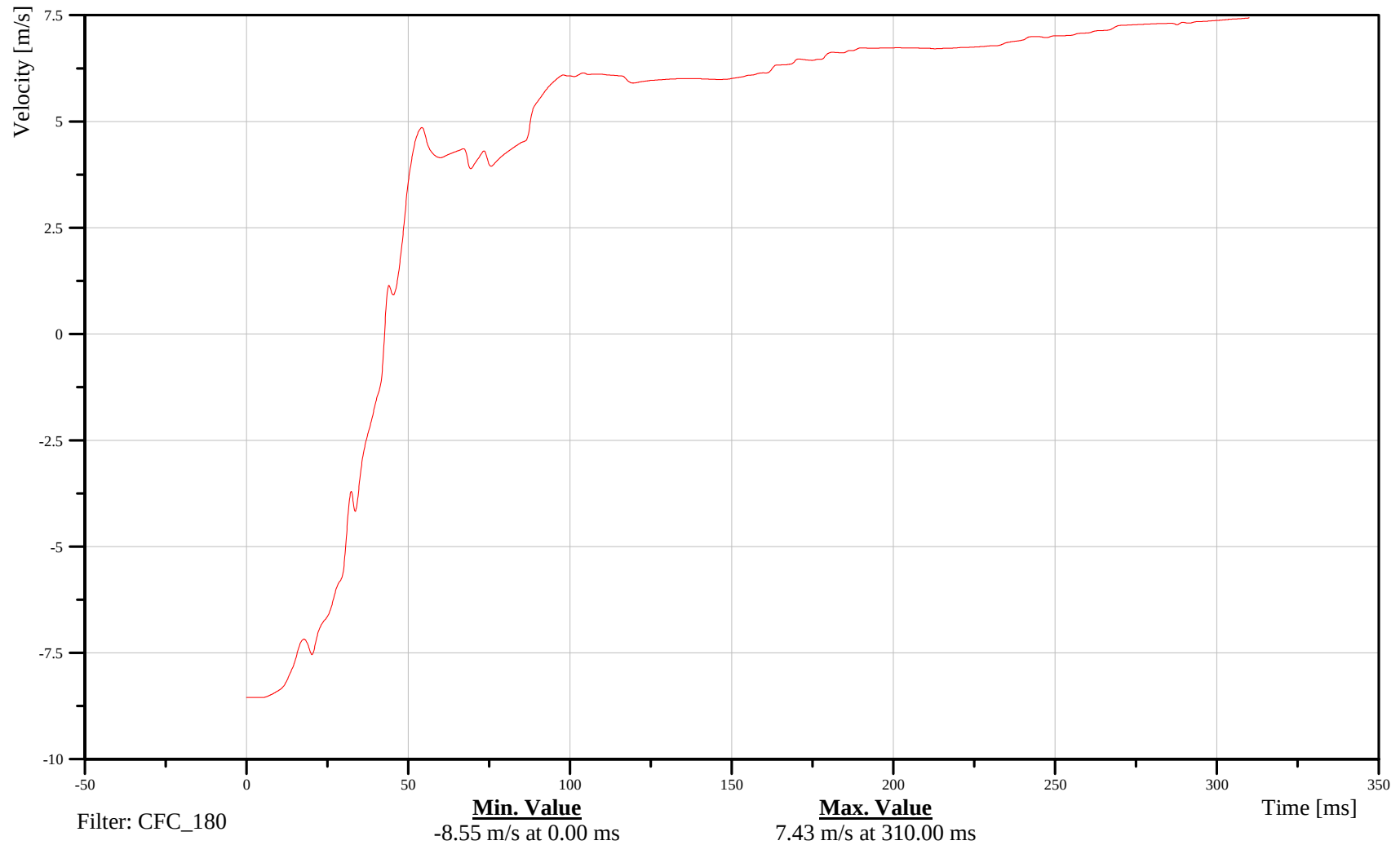
Left Side Sill at Rear Seat Y-Axis Velocity

Customer: VRTC

14SILBRE0000VEYC

TRC Inc. Test Lab: CTF

Test Number: 080108



B-131

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

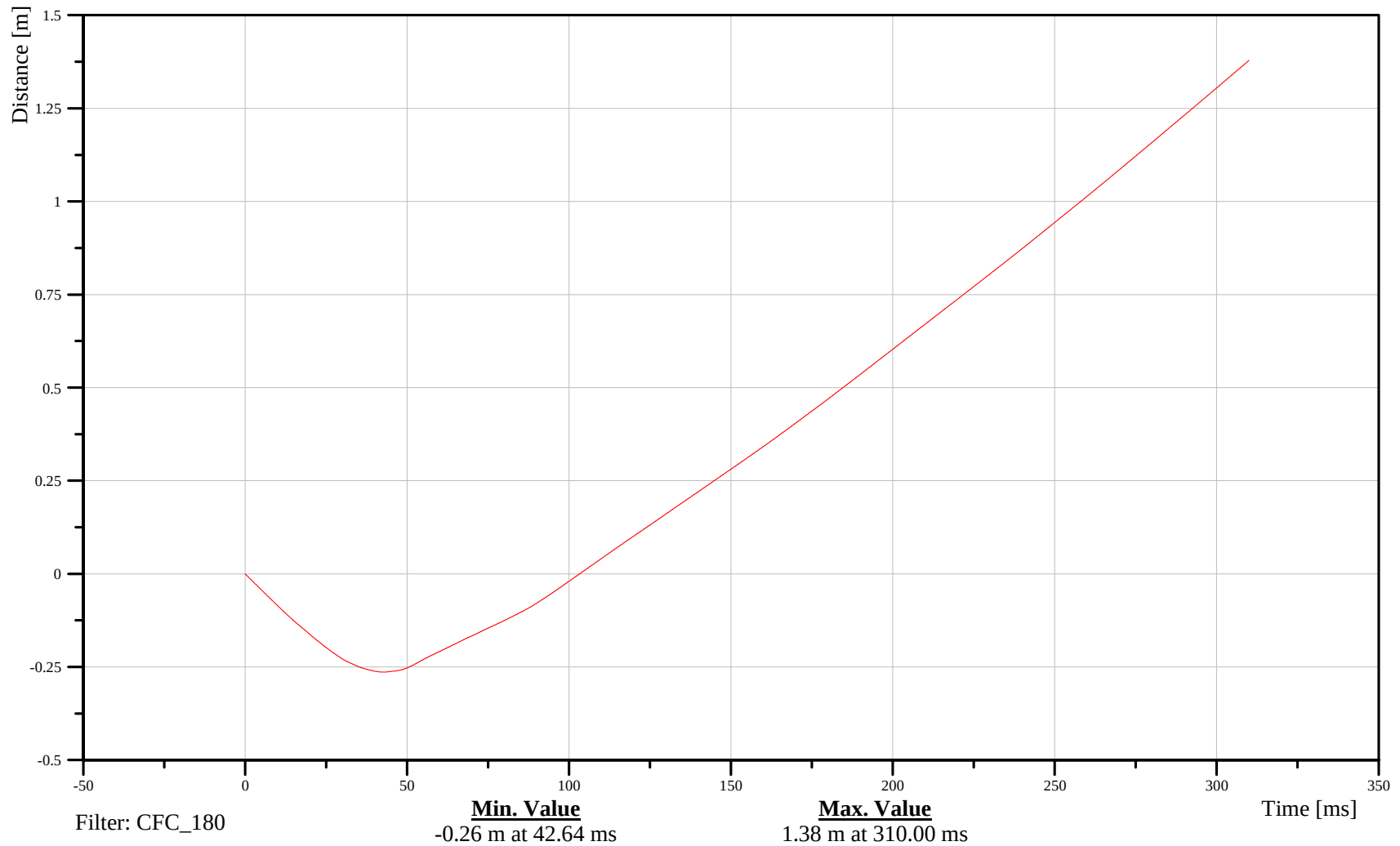
Left Side Sill at Rear Seat Y-Axis Displacement

Customer: VRTC

14SILBRE0000DCYC

TRC Inc. Test Lab: CTF

Test Number: 080108



B-132

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

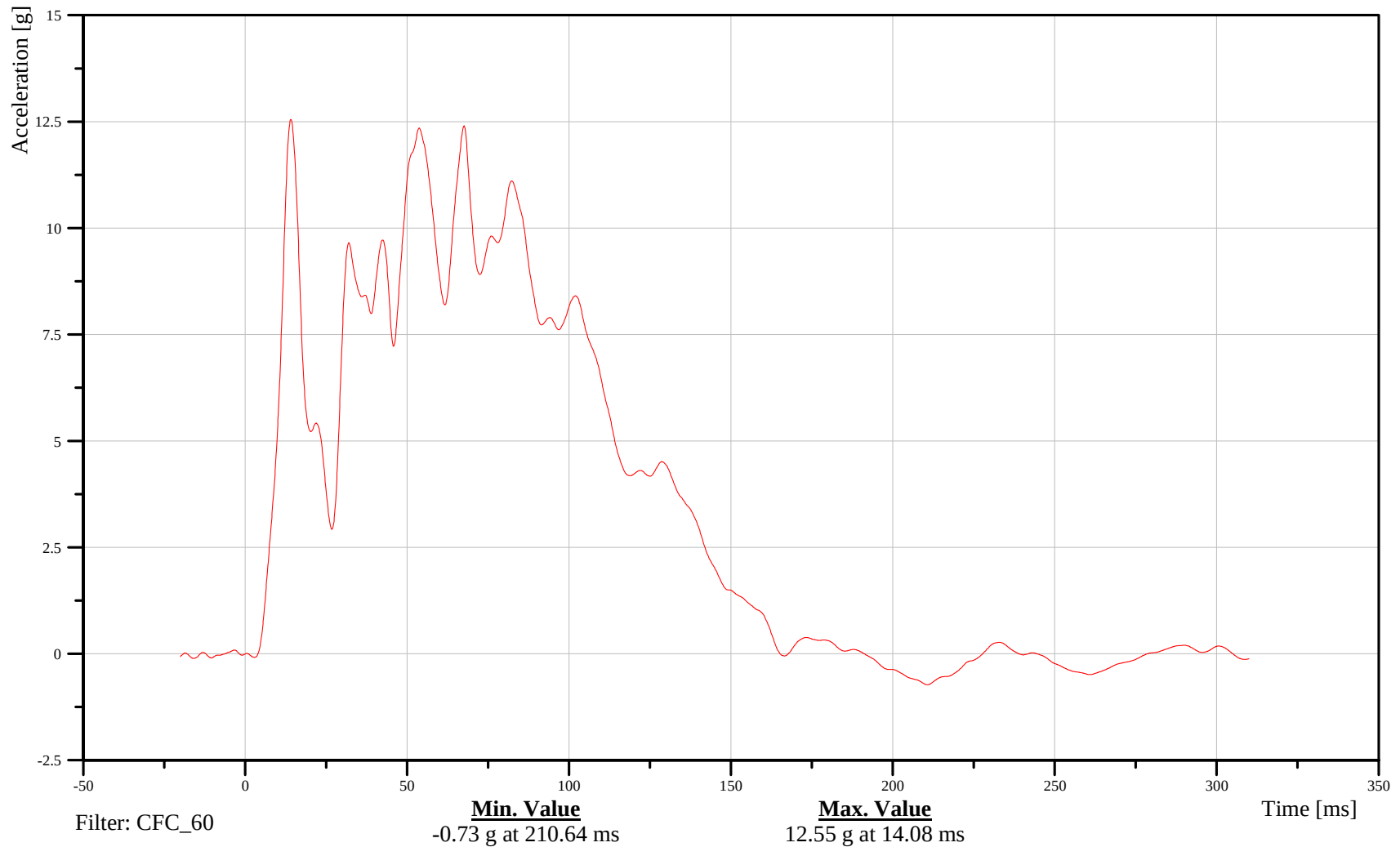
Right Rear Occupant Compartment Y-Axis Acceleration

Customer: VRTC

16VEHCRE0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-133

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

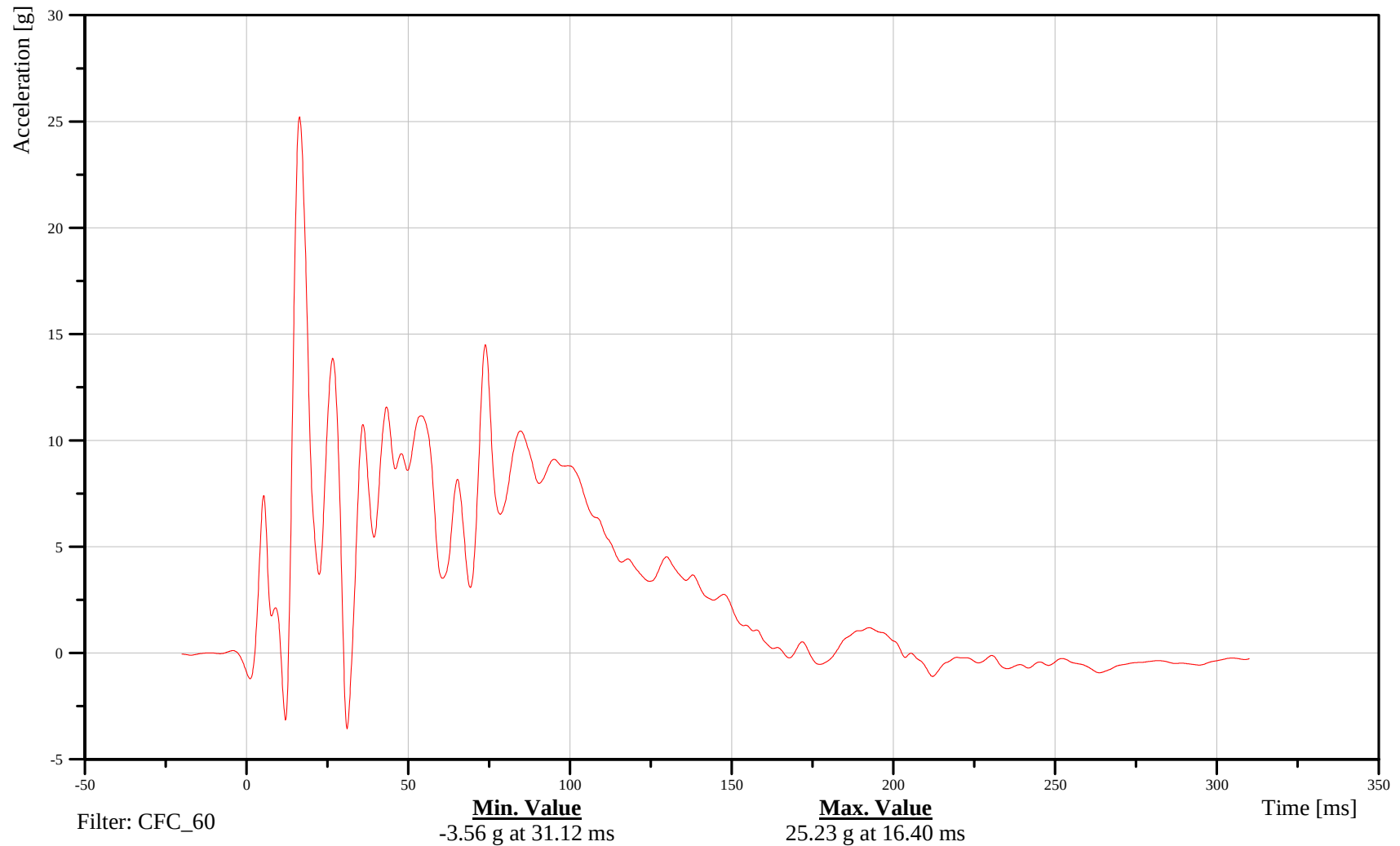
Left Lower A-Post Y-Axis Acceleration

Customer: VRTC

11APILLO0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-134

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

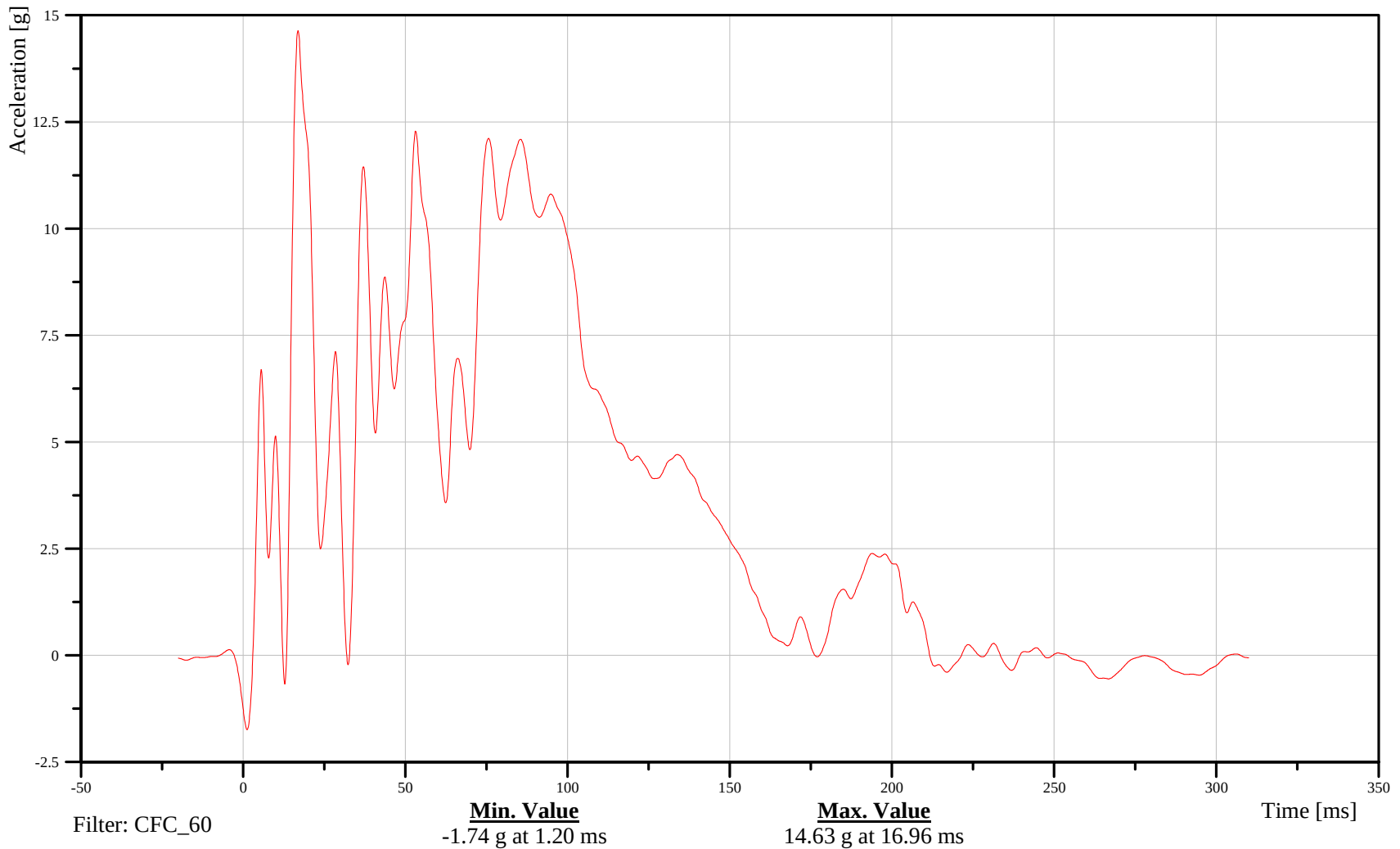
Left Mid A-Post Y-Axis Acceleration

Customer: VRTC

11APILMI0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-135

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

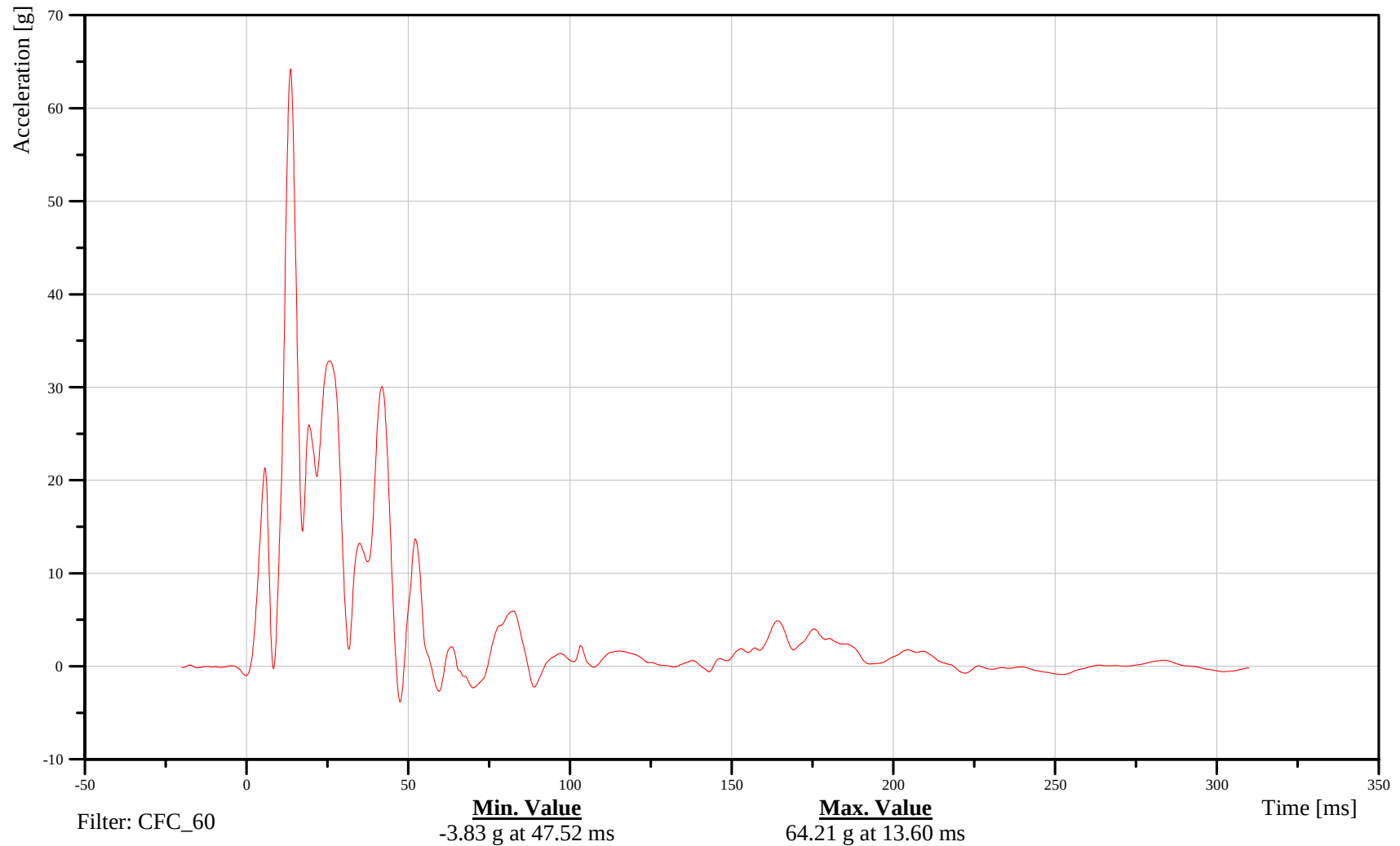
Left Lower B-Post Y-Axis Acceleration

Customer: VRTC

14BPILLO0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-136

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

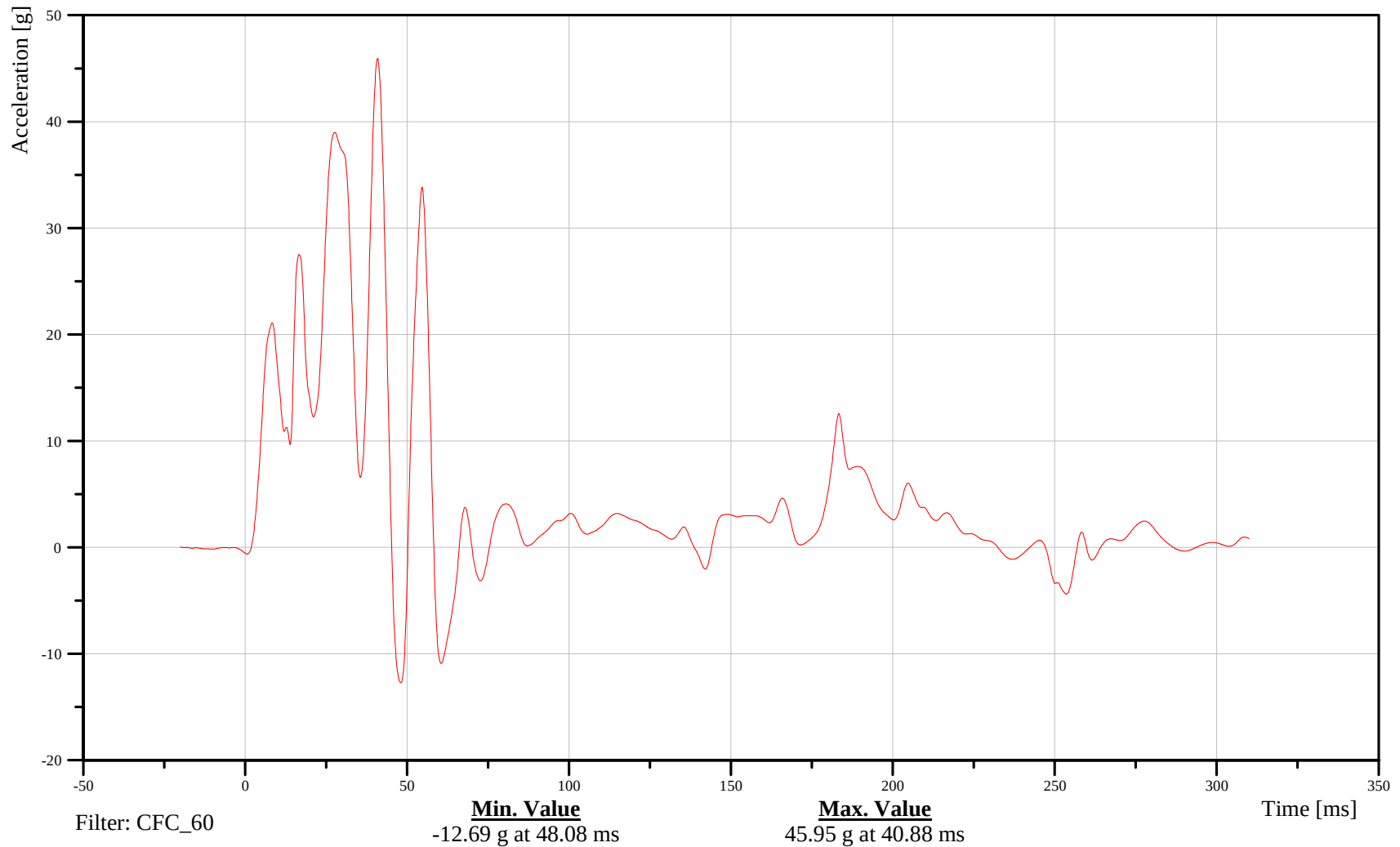
Left Mid B-Post Y-Axis Acceleration

Customer: VRTC

14BPILMI0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-137

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

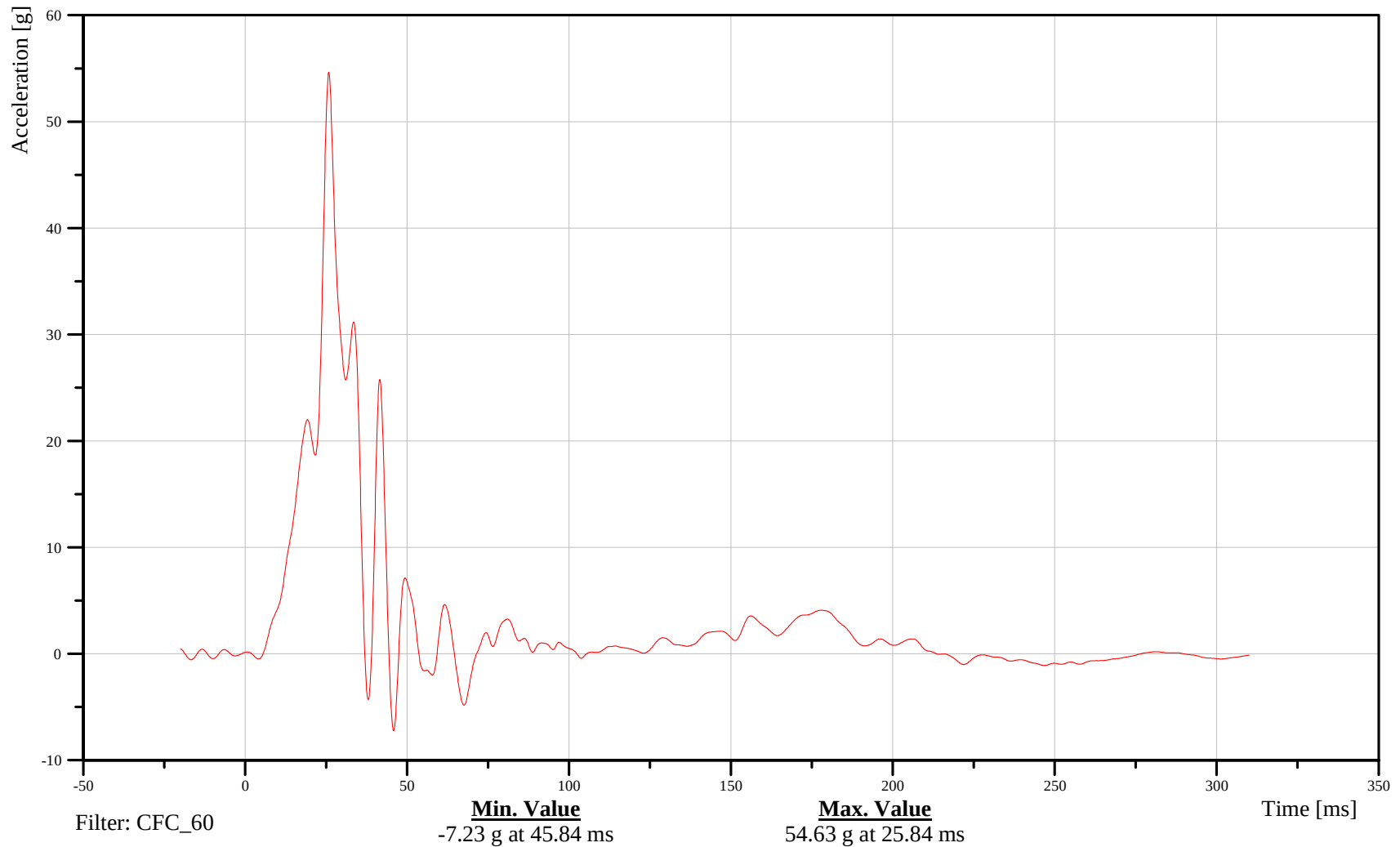
Left Front Seat Track Y-Axis Acceleration

Customer: VRTC

11SETRFR0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-138

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

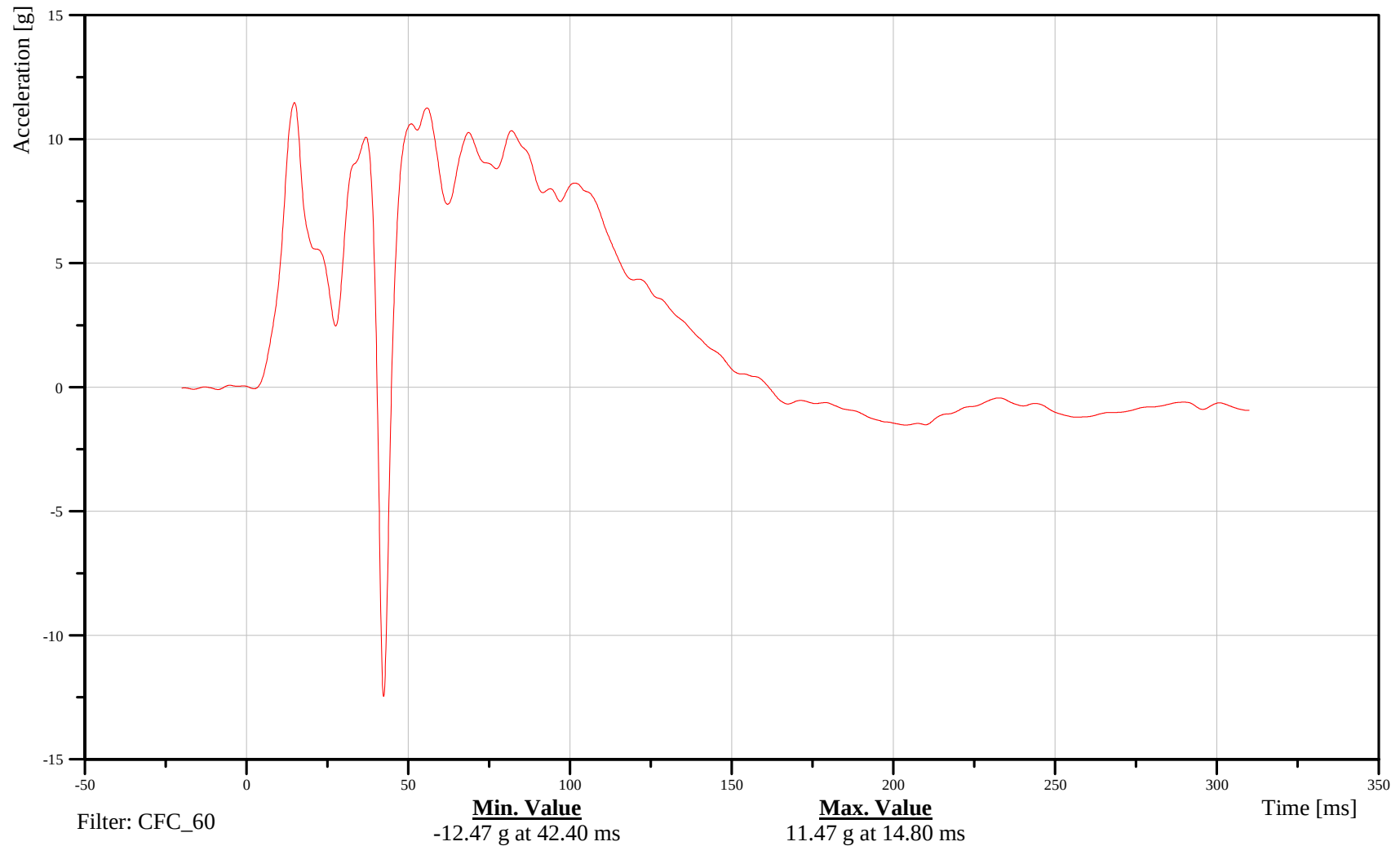
Left Rear Seat Track Y-Axis Acceleration

Customer: VRTC

14SETRLERE00ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-139

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

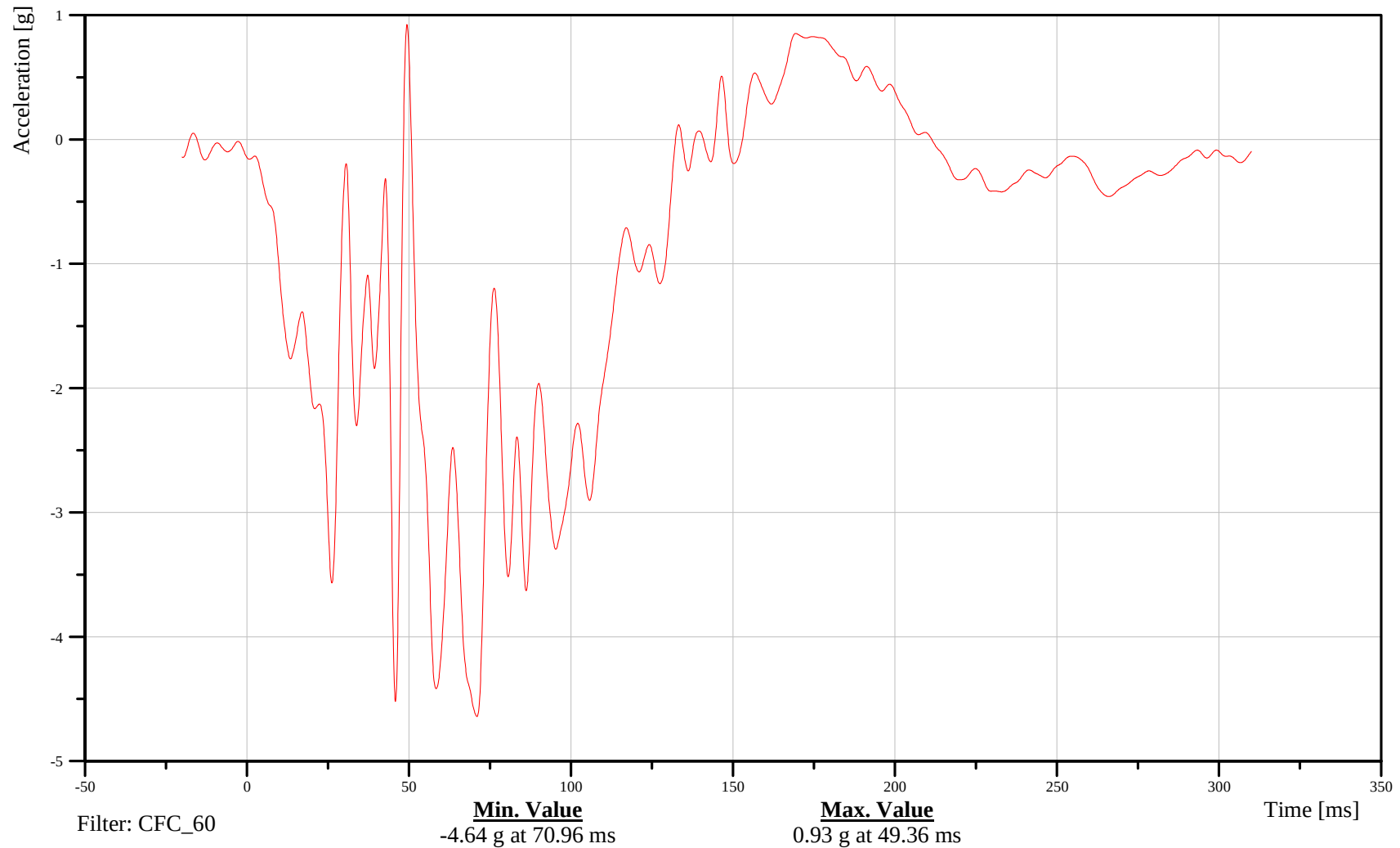
Vehicle Center of Gravity X-Axis Acceleration

Customer: VRTC

10VEHCCG0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-140

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

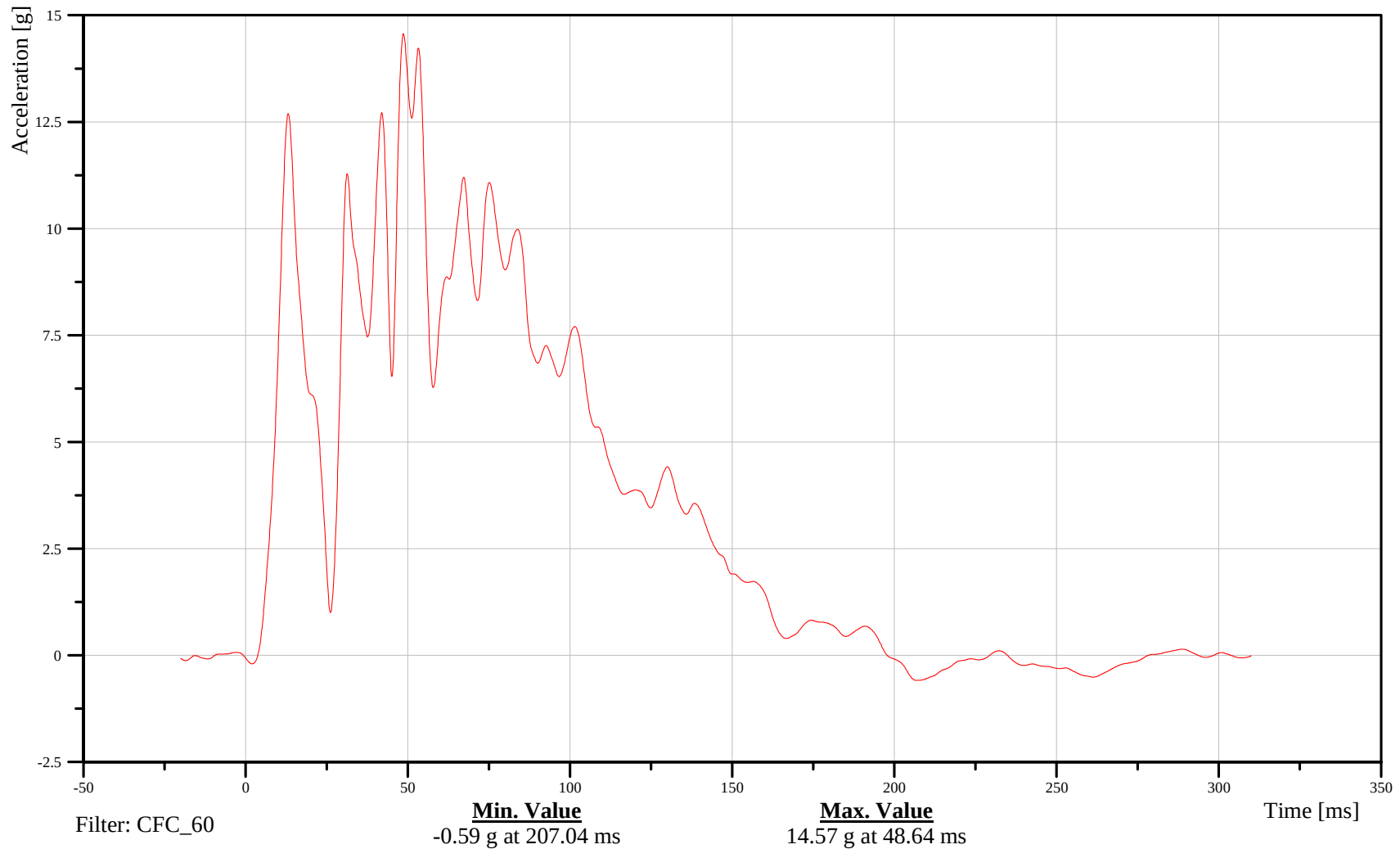
Vehicle Center of Gravity Y-Axis Acceleration

Customer: VRTC

10VEHCCG0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-141

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

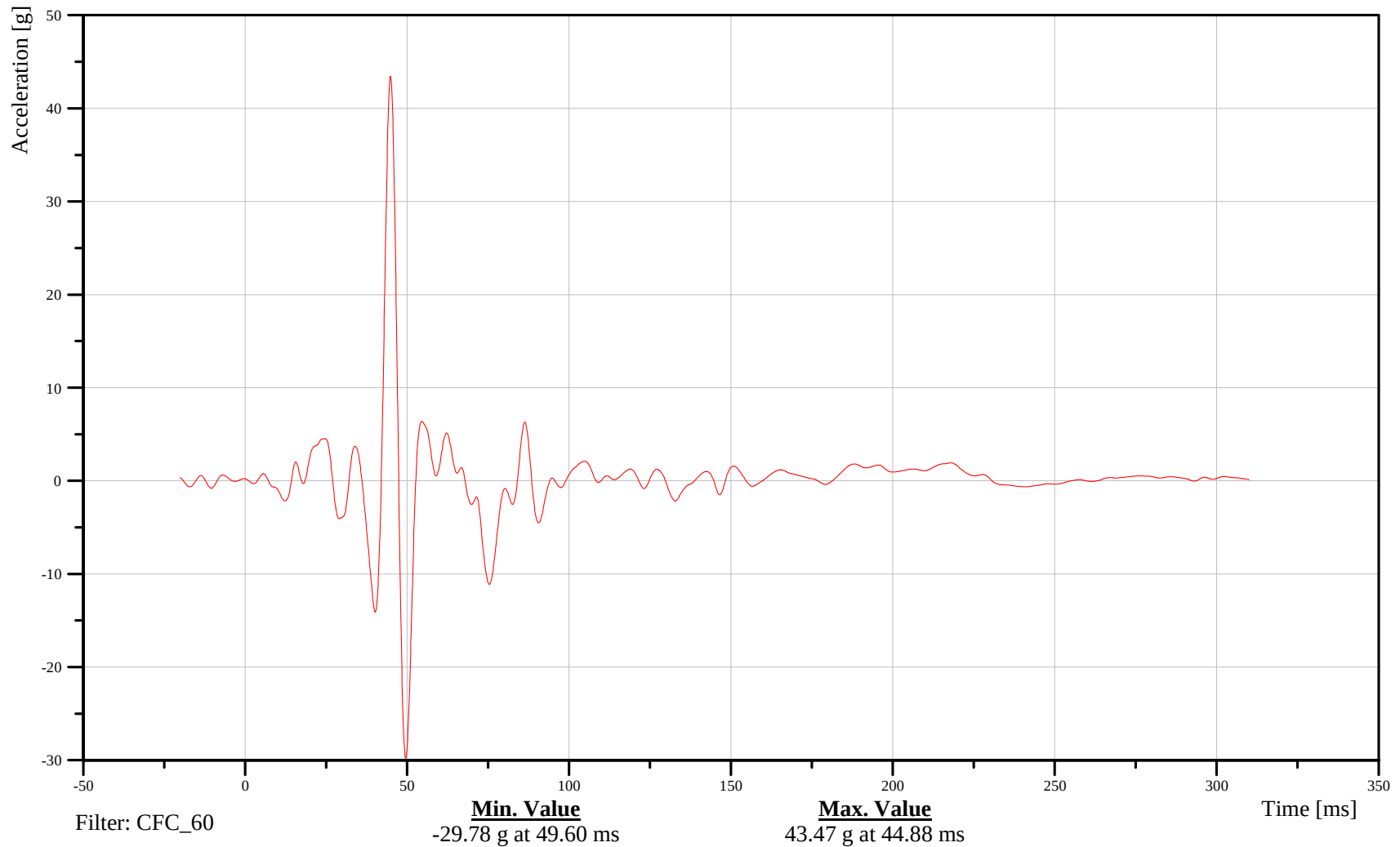
Vehicle Center of Gravity Z-Axis Acceleration

Customer: VRTC

10VEHCCG0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-142

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

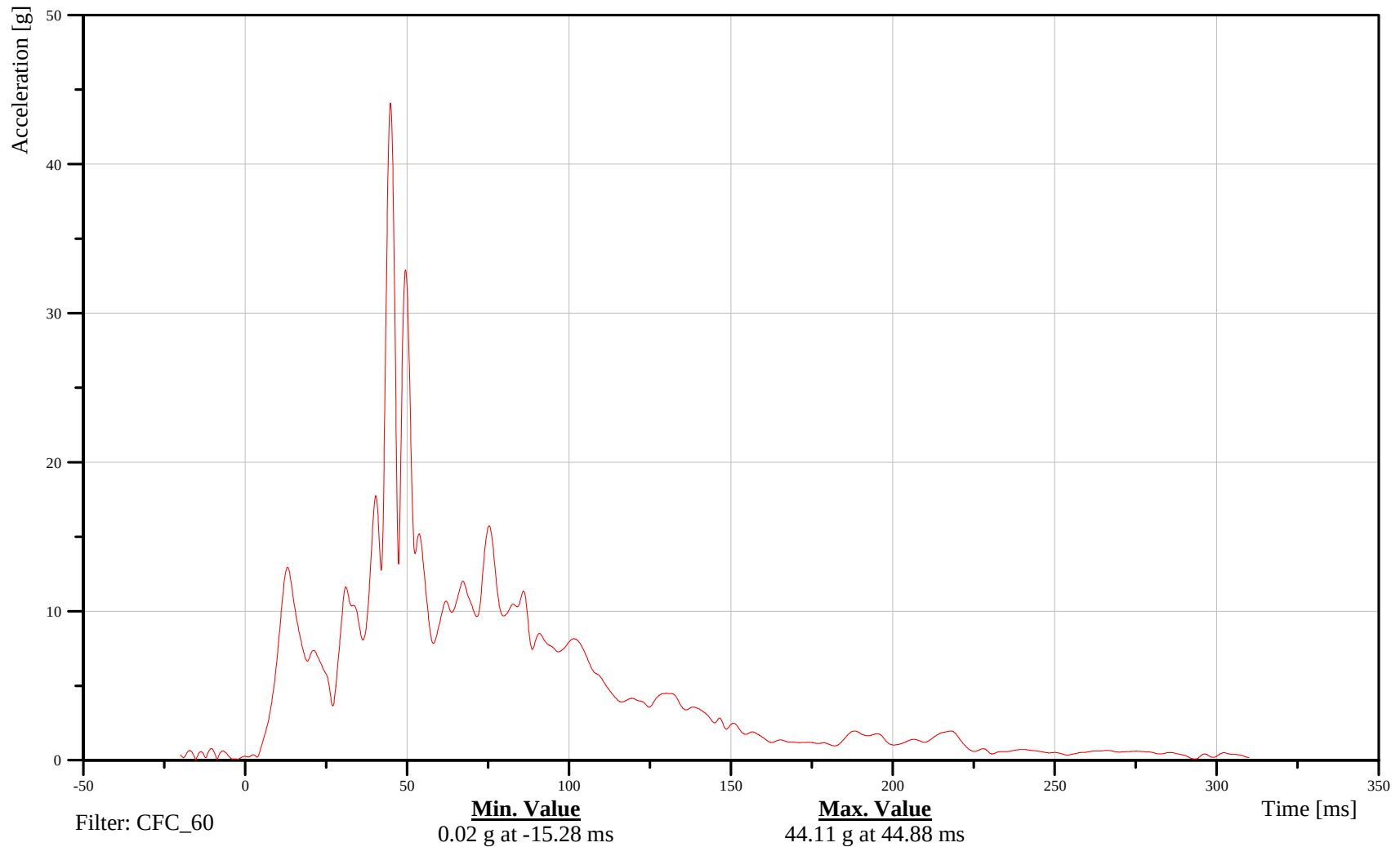
Vehicle Center of Gravity Resultant Acceleration

Customer: VRTC

10VEHCCG0000ACRD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-143

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

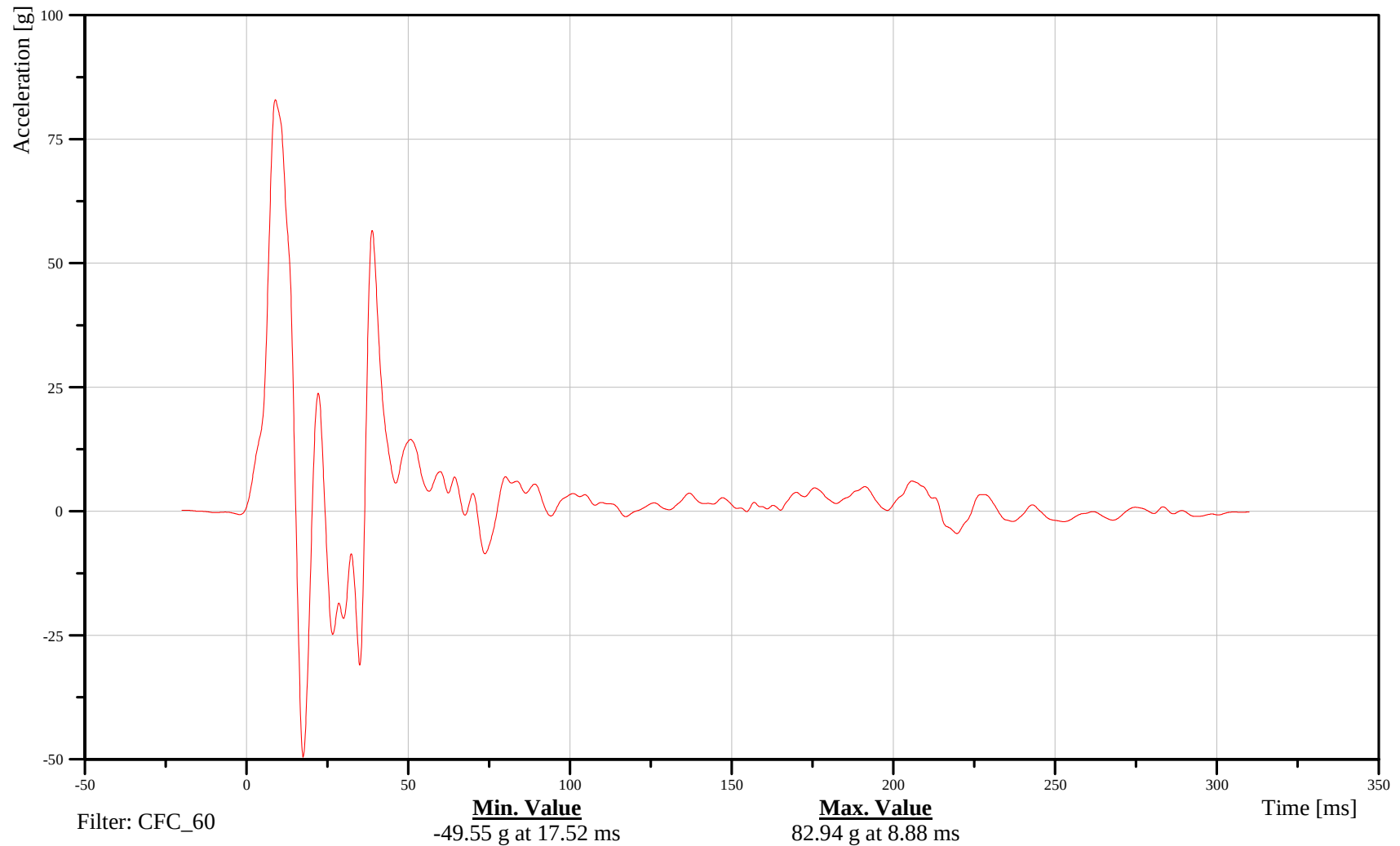
Vehicle Front Door Centerline 430 mm Above Ground Y-Axis Acceleration

Customer: VRTC

14DOOR000001ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-144

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

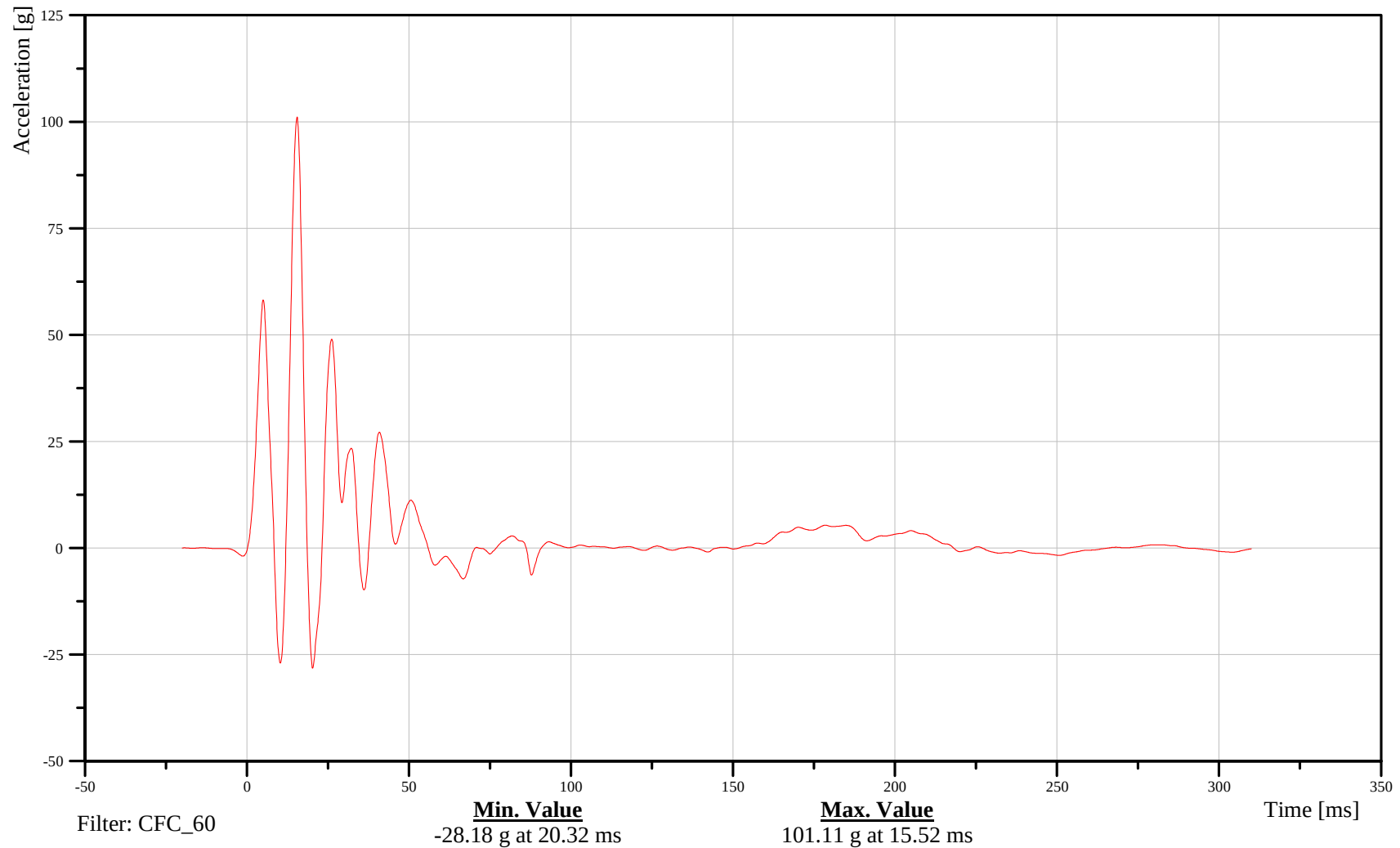
Vehicle Front Door Mid-Rear 430 mm Above Ground Y-Axis Acceleration

Customer: VRTC

14DOOR000002ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-145

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

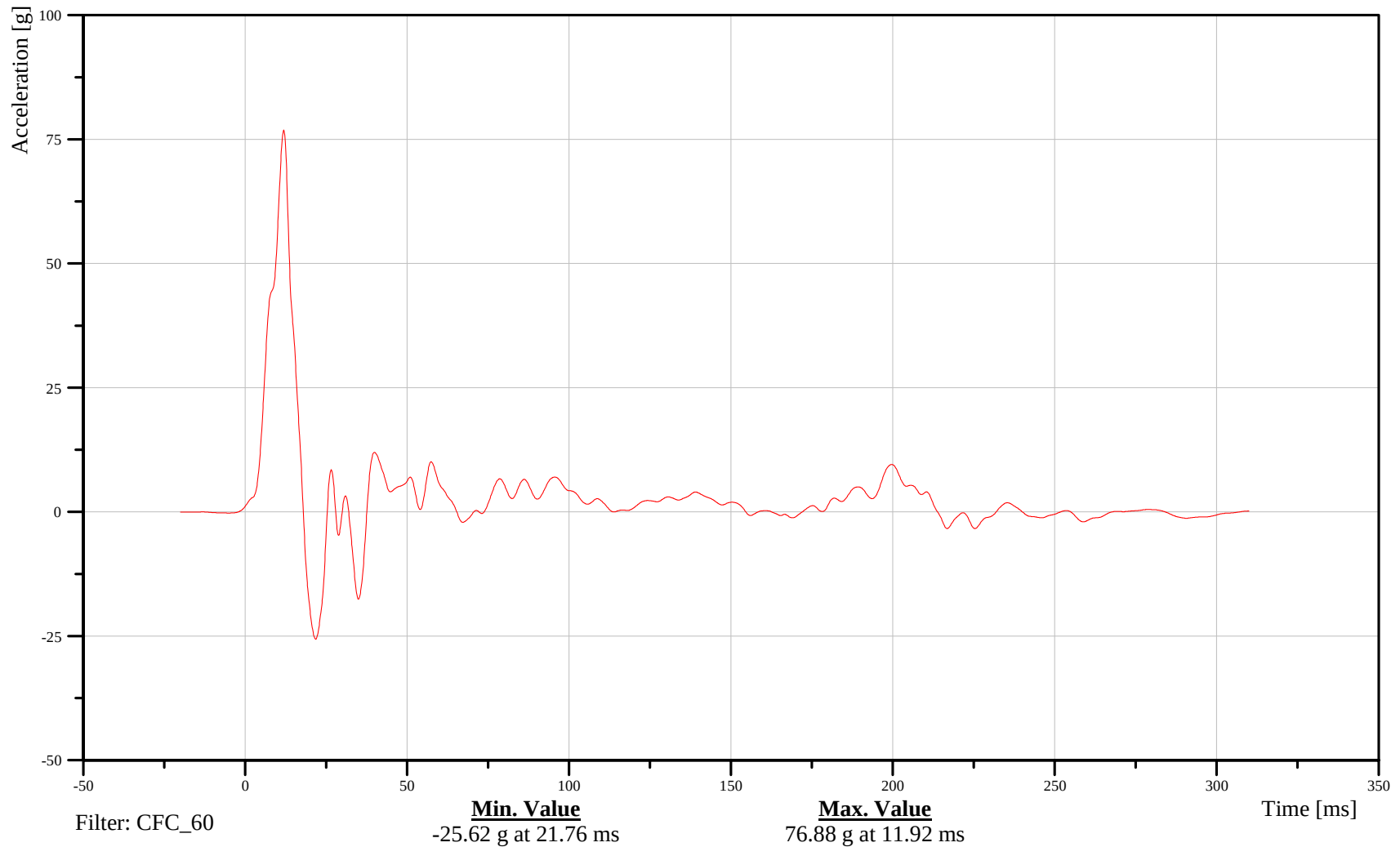
Vehicle Front Door Upper Centerline 685 mm Above Ground Y-Axis Acceleration

Customer: VRTC

14DOOR000003ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-146

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

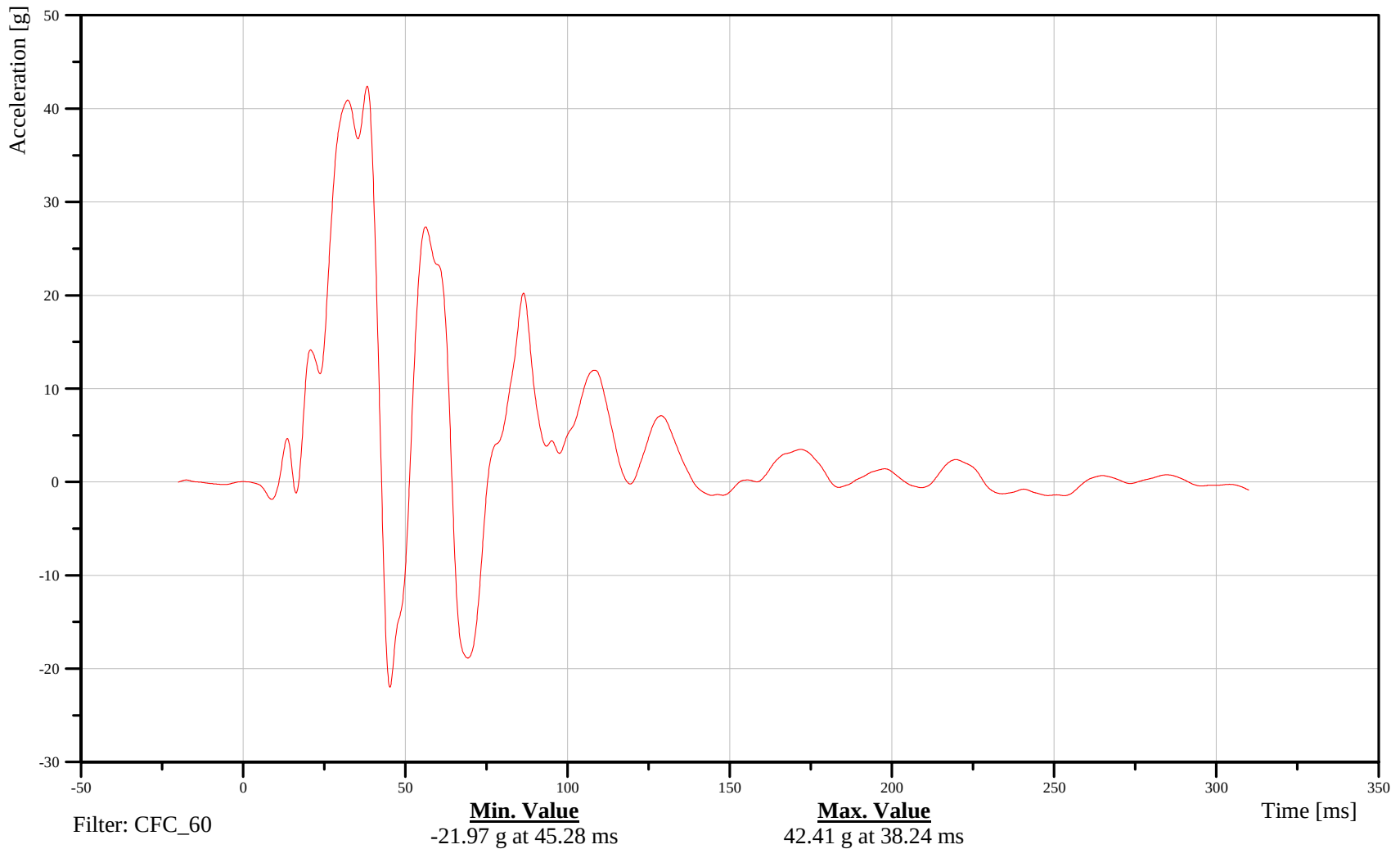
Vehicle Rear Door Mid-Rear 430 mm Above Ground Y-Axis Acceleration

Customer: VRTC

16DOOR000002ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-147

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

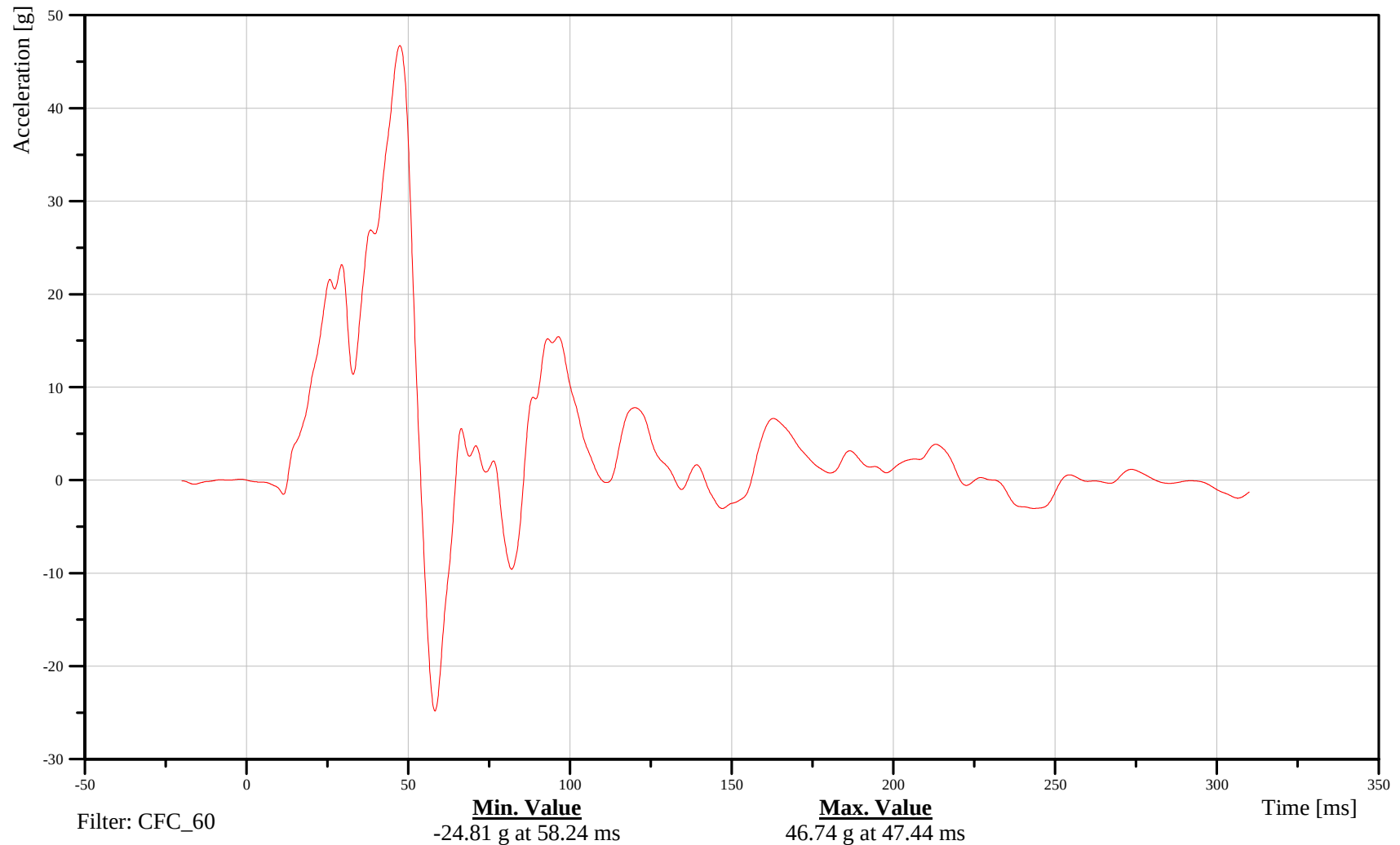
Vehicle Rear Door Upper Centerline 685 mm Above Ground Y-Axis Acceleration

Customer: VRTC

16DOOR000003ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-148

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

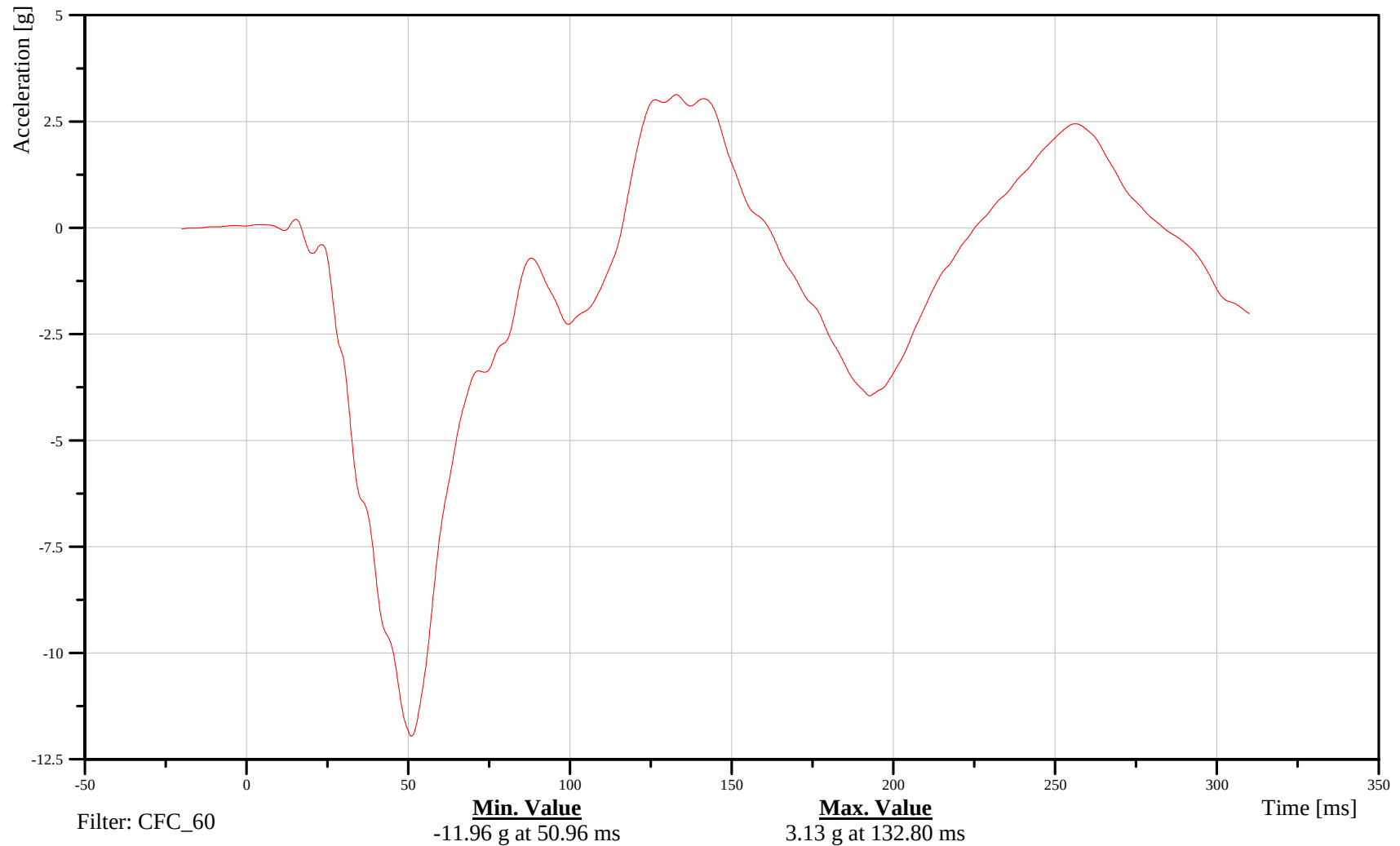
Top of Engine X-Axis Acceleration

Customer: VRTC

12ENGNTTP0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-149

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

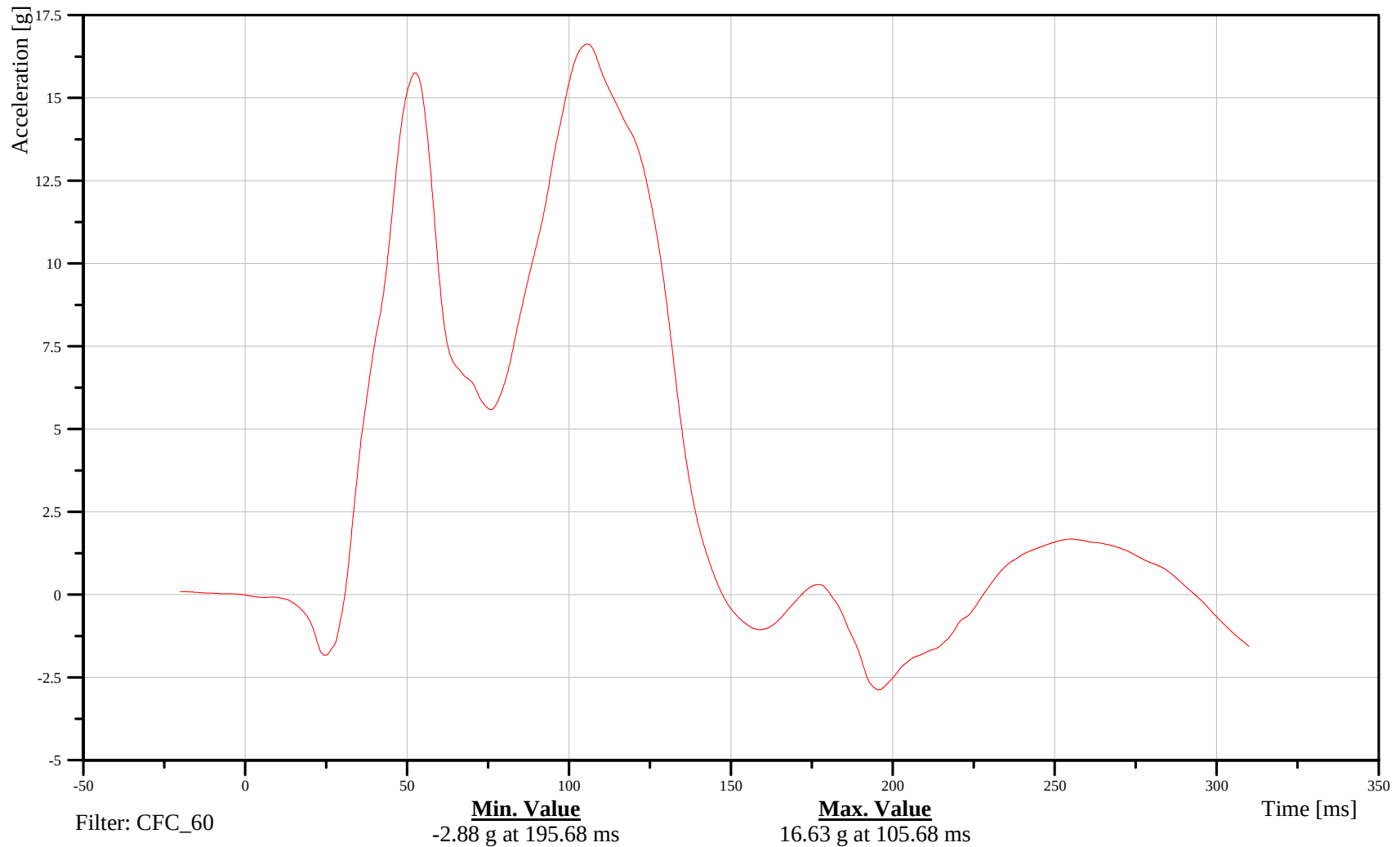
Top of Engine Y-Axis Acceleration

Customer: VRTC

12ENGNTTP0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-150

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

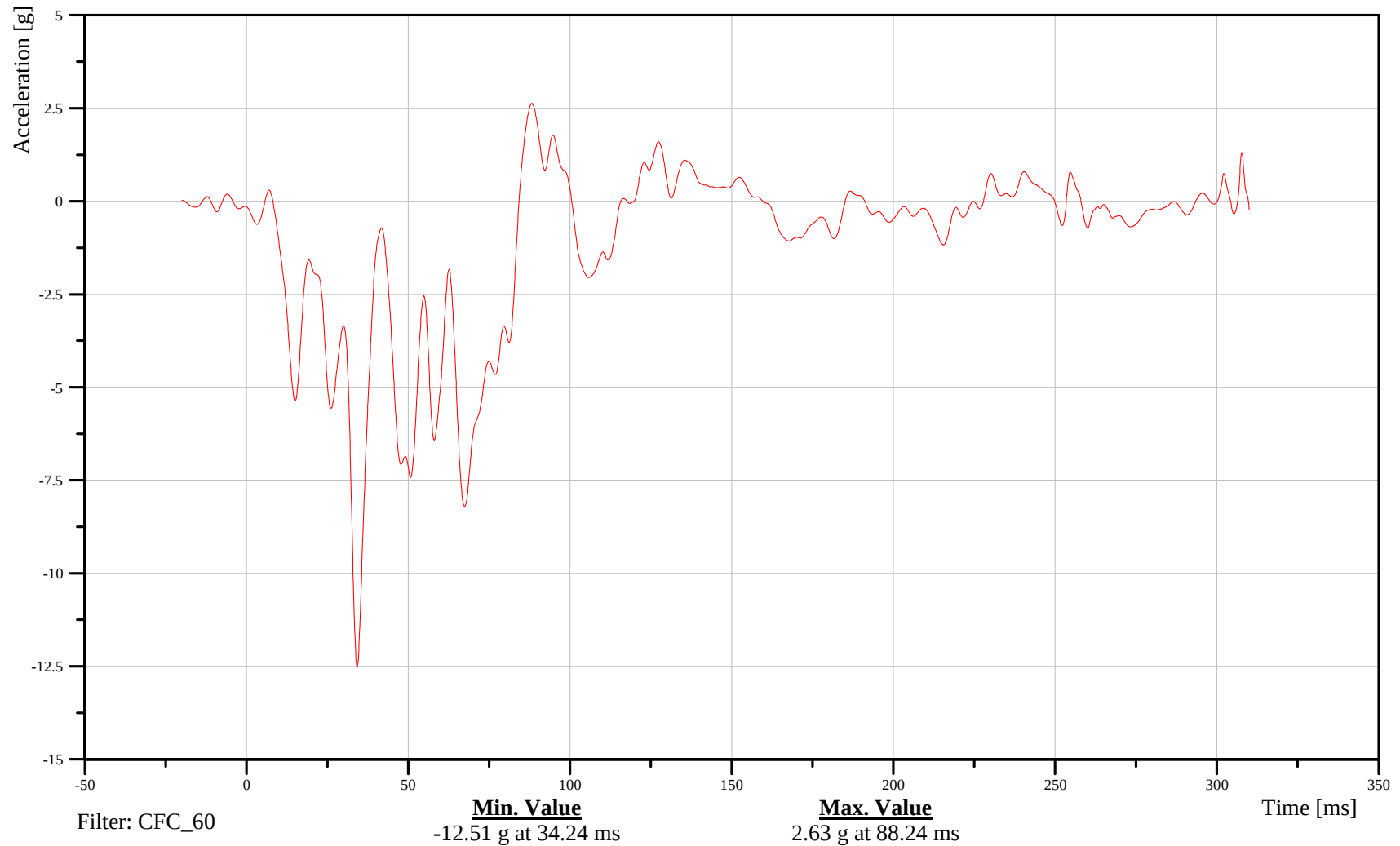
Firewall X-Axis Acceleration

Customer: VRTC

12VEHC000000ACXD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-151

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

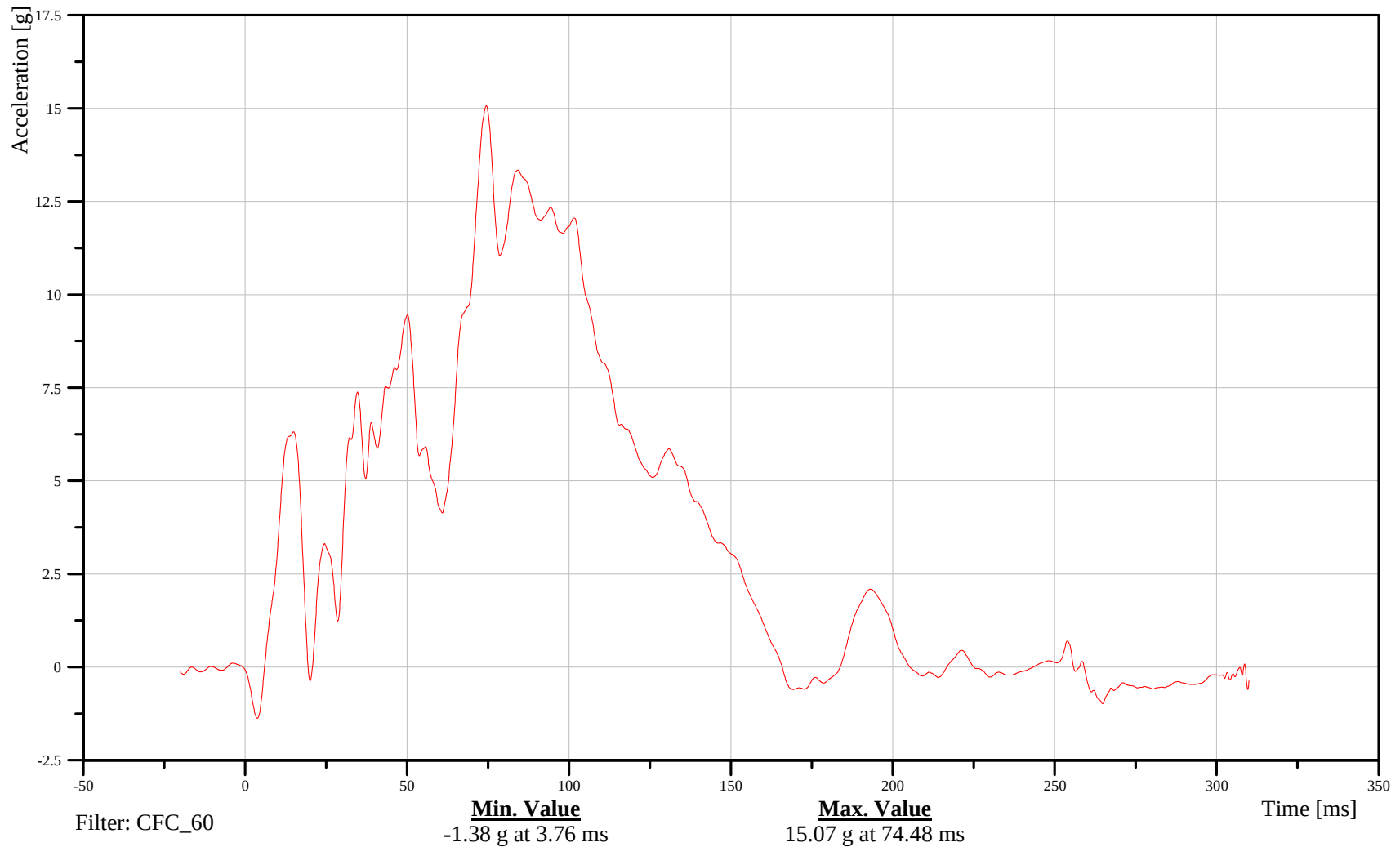
Firewall Y-Axis Acceleration

Customer: VRTC

12VEHC000000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-152

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

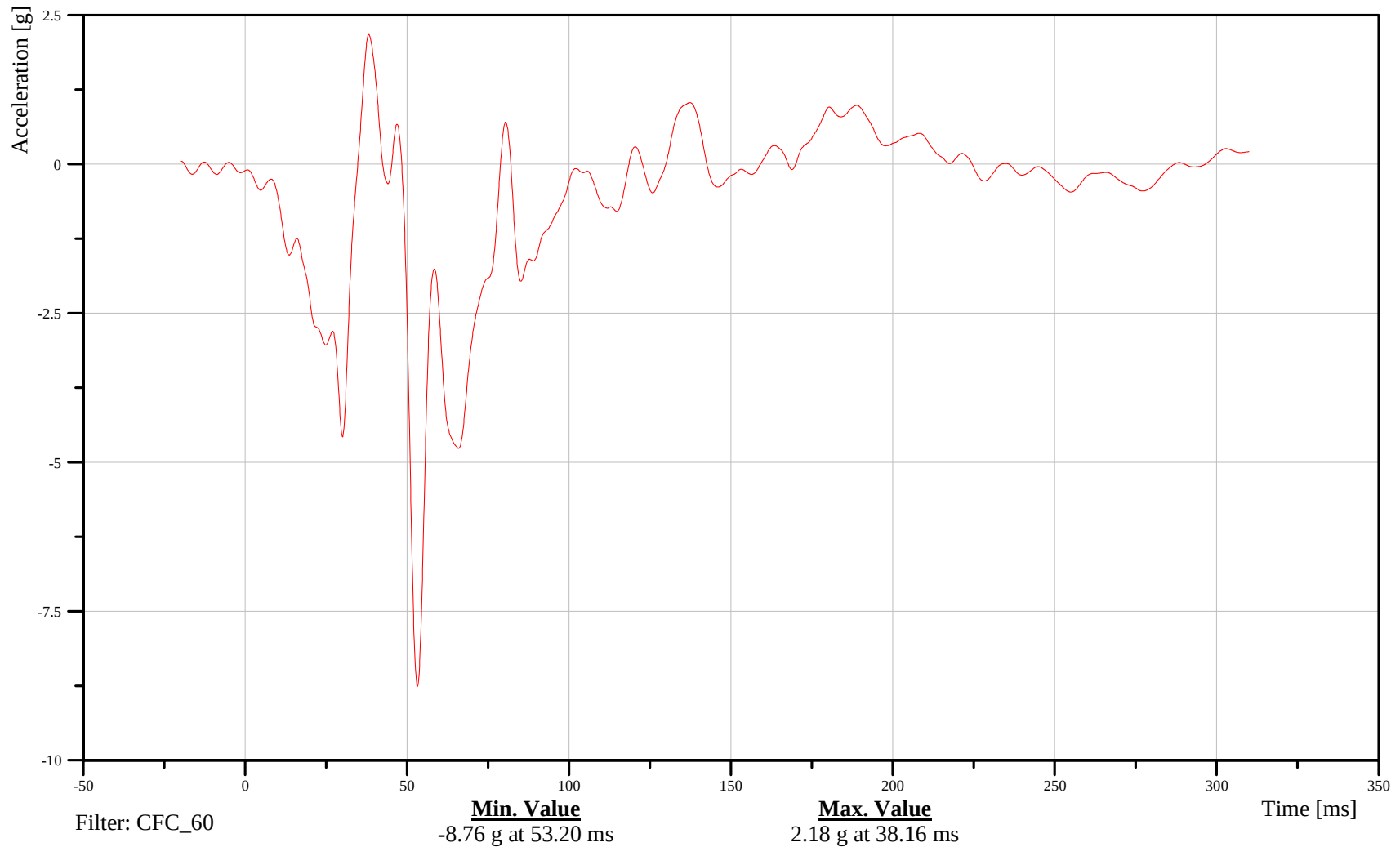
Right Side Roof Rail (in line with impact point) X-Axis Acceleration

Customer: VRTC

13ROOF000000ACXD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-153

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

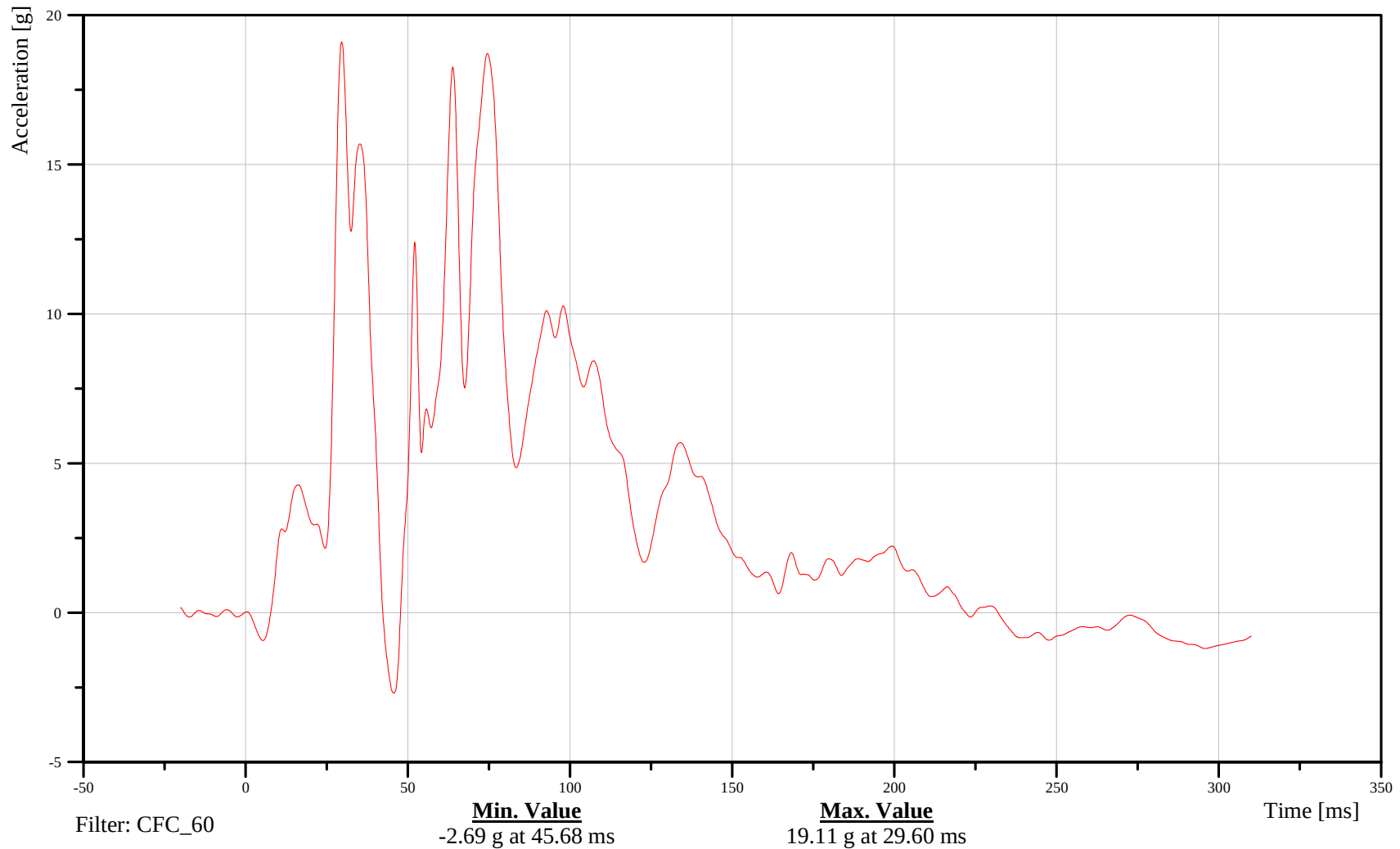
Right Side Roof Rail (in line with impact point) Y-Axis Acceleration

Customer: VRTC

13ROOF000000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-154

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

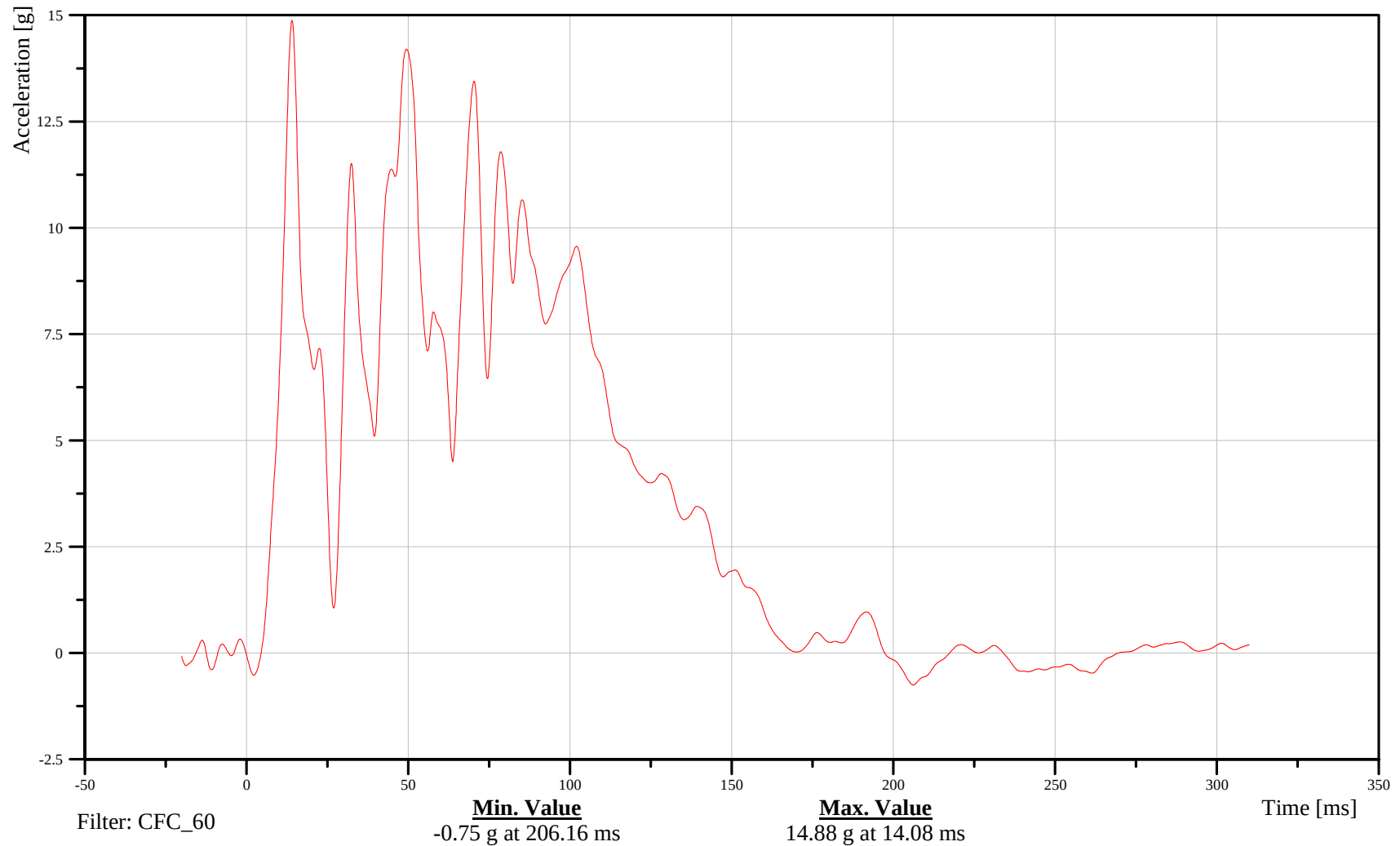
Right Side Sill (in-line with impact location) Y-Axis Acceleration

Customer: VRTC

13SILBFR0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-155

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

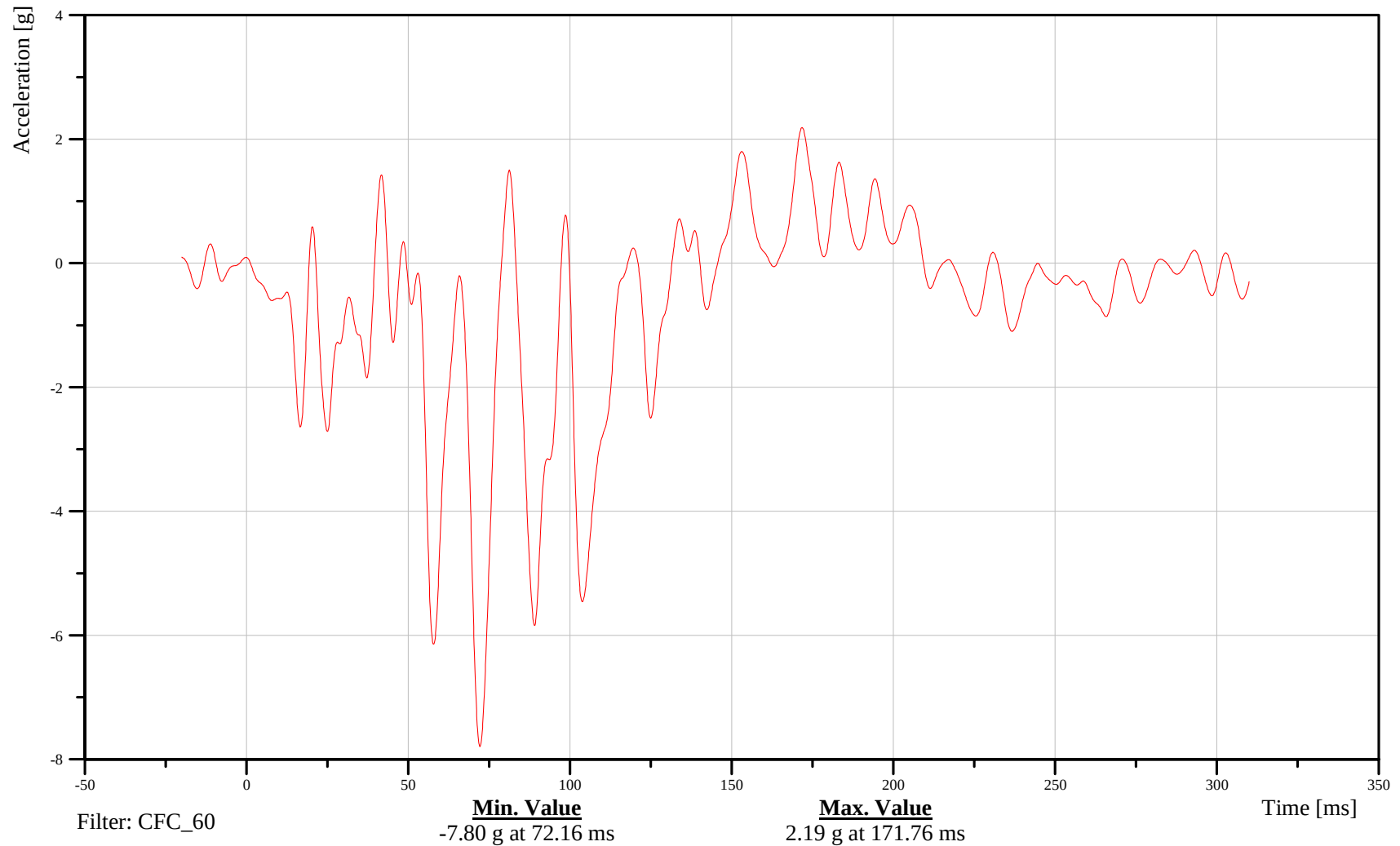
Rear Deck Behind Rear Axle X-Axis Acceleration

Customer: VRTC

18DECK000000ACXA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-156

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

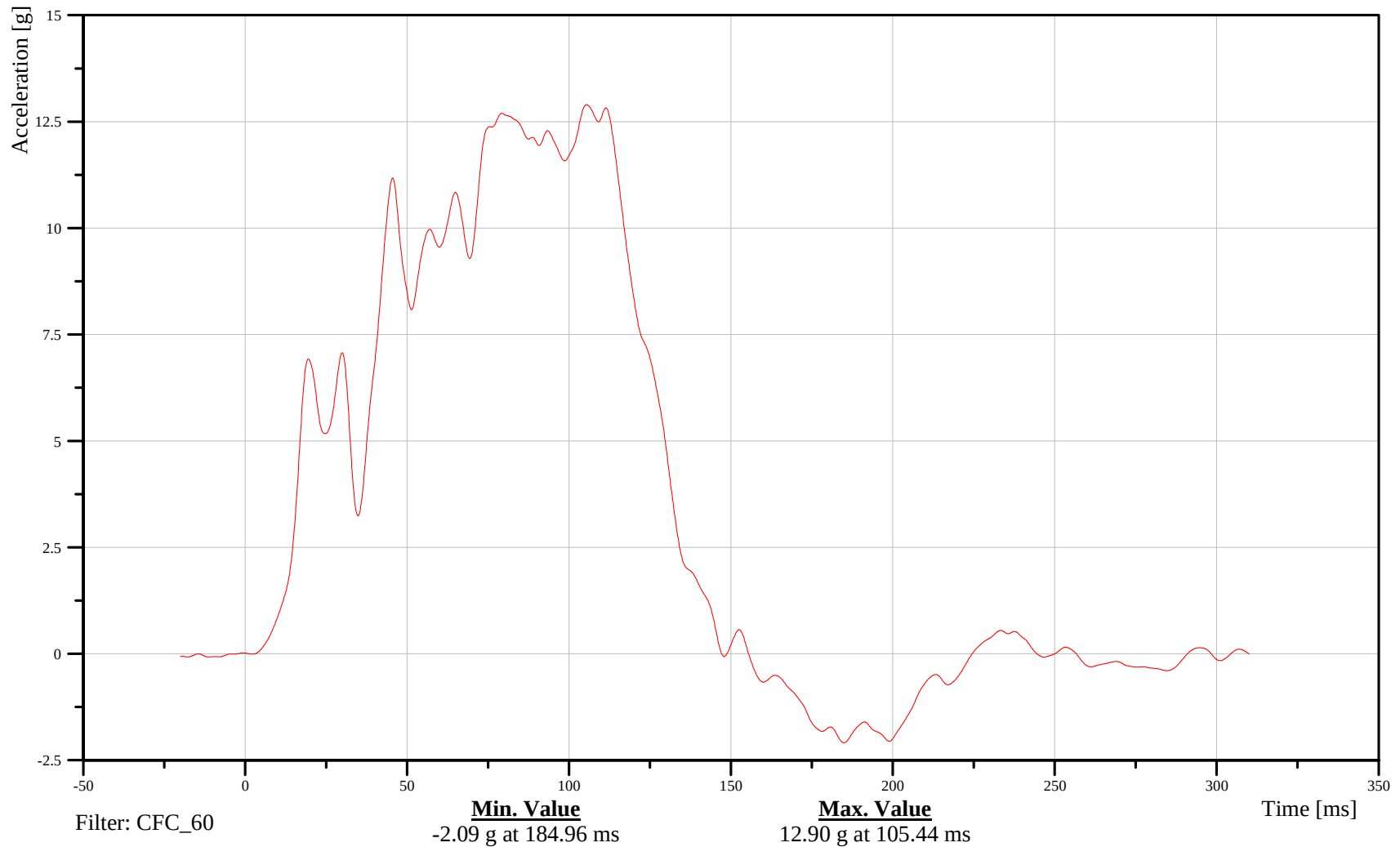
Rear Deck Behind Rear Axle Y-Axis Acceleration

Customer: VRTC

18DECK000000ACYA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-157

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

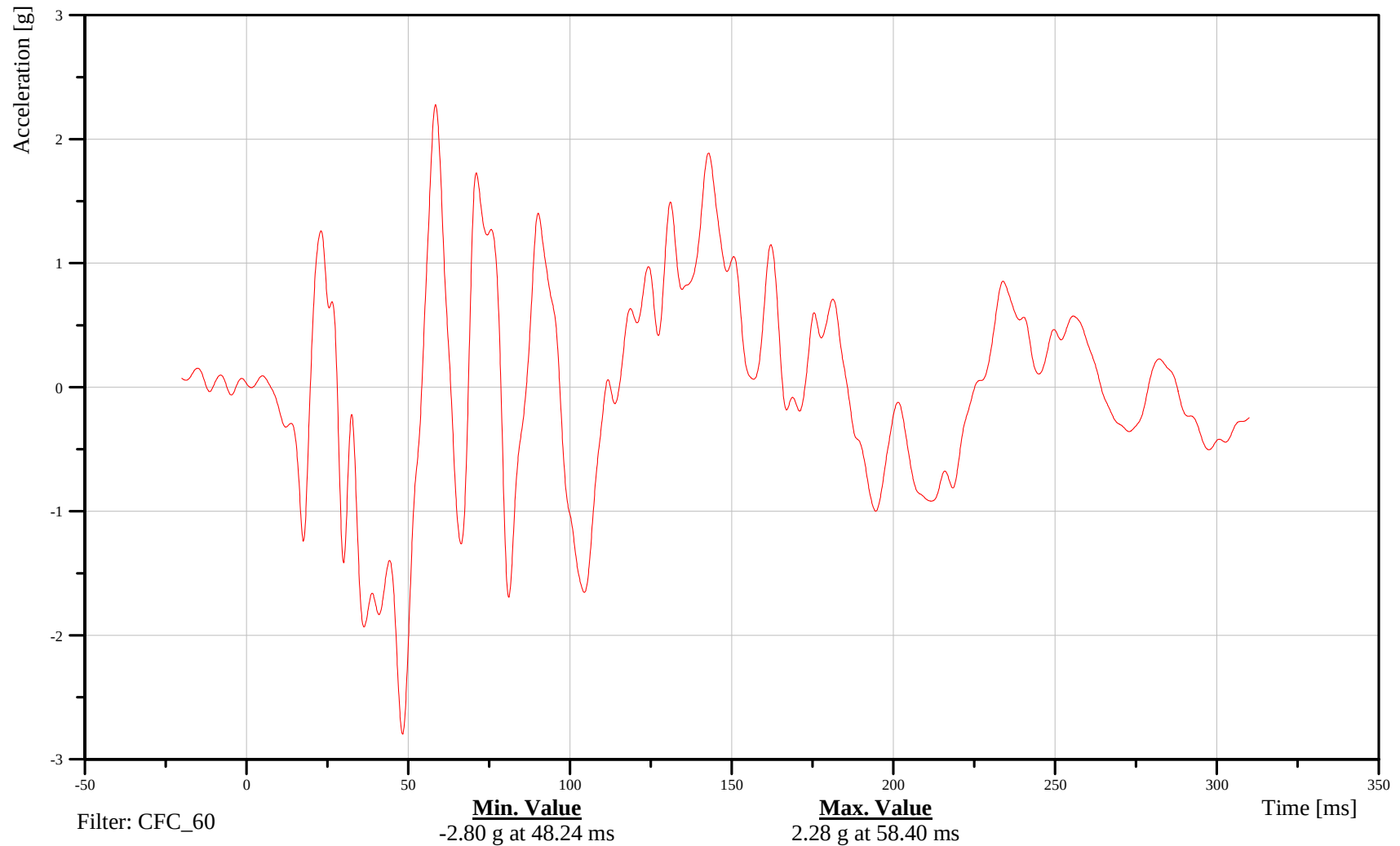
Rear Deck Behind Rear Axle Z-Axis Acceleration

Customer: VRTC

18DECK000000ACZA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-158

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

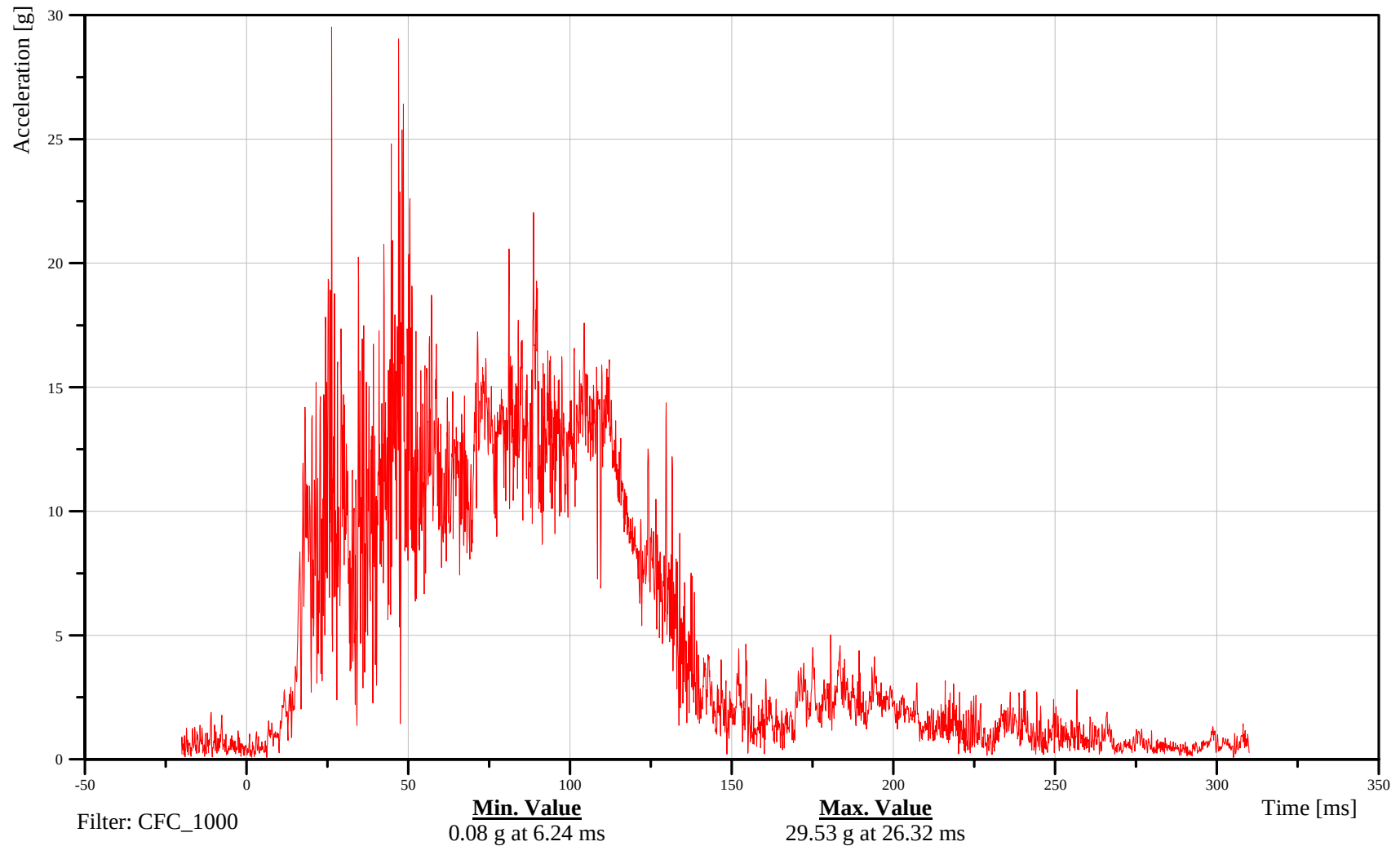
Rear Deck Behind Rear Axle Resultant Acceleration

Customer: VRTC

18DECK000000ACRA

TRC Inc. Test Lab: CTF

Test Number: 080108



B-159

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

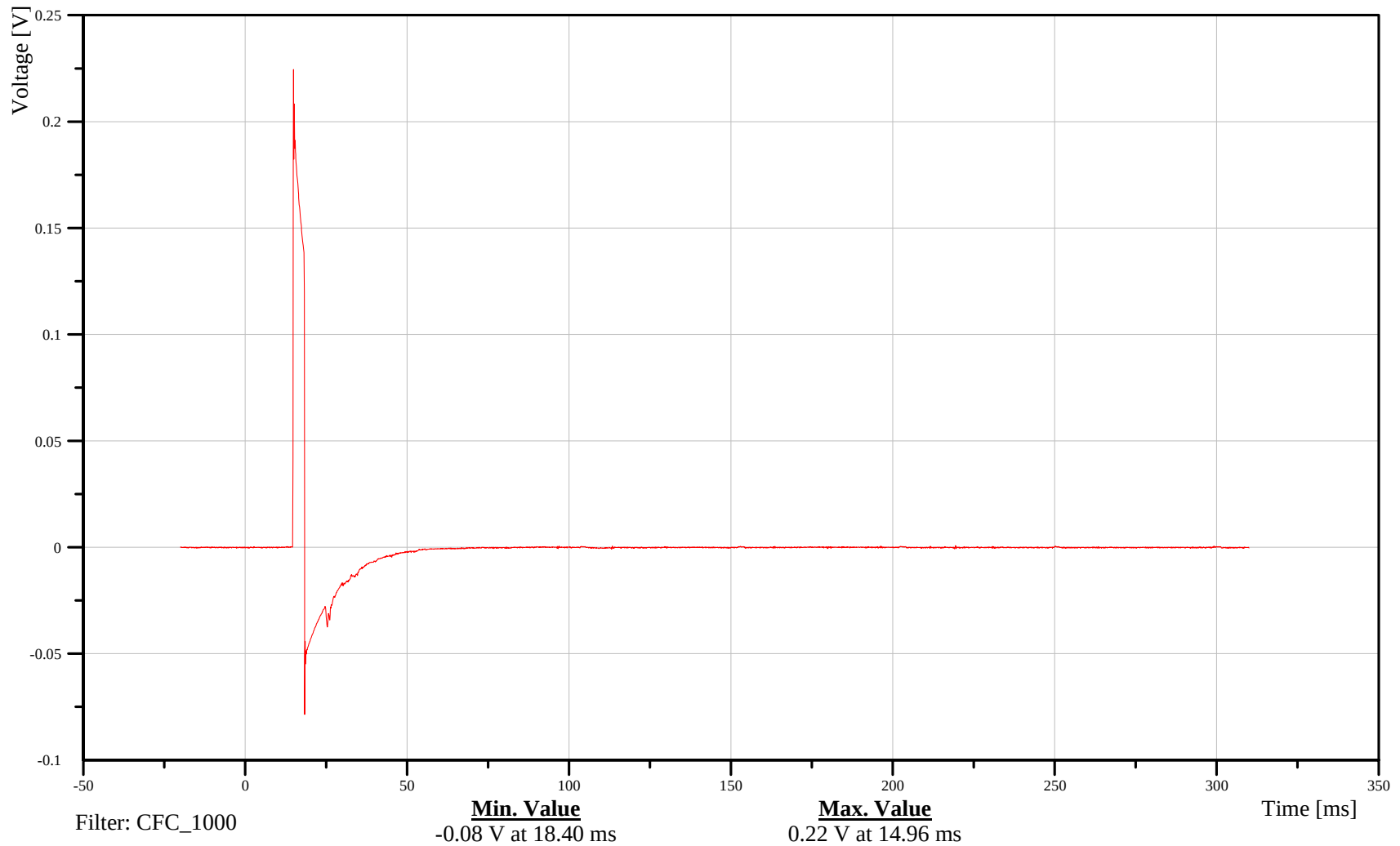
Driver Side Airbag Inductor

Customer: VRTC

11AIRBMILE00EV0A

TRC Inc. Test Lab: CTF

Test Number: 080108



B-160

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

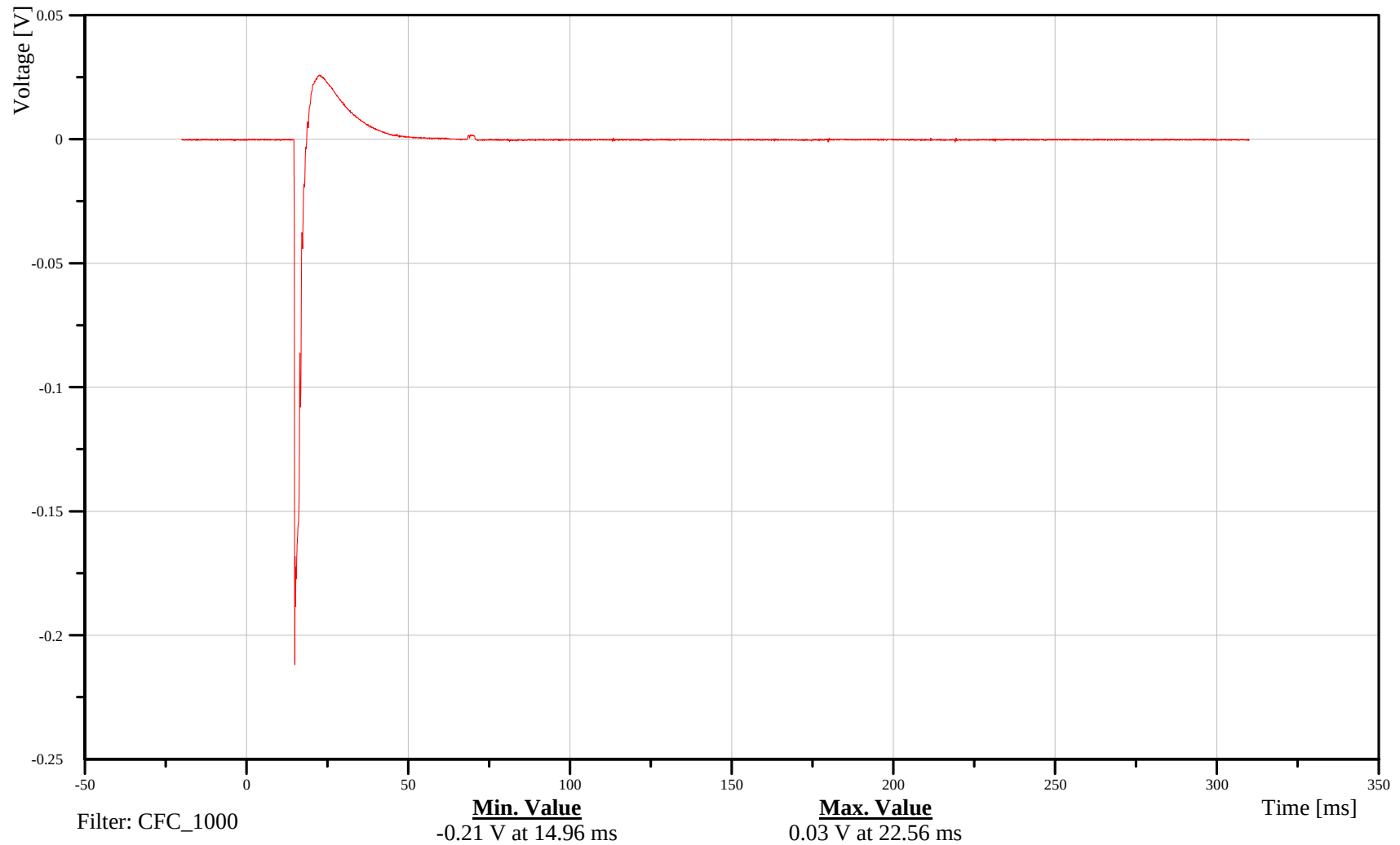
Driver Side Curtain Inductor

Customer: VRTC

11AIRBTPL00EV0A

TRC Inc. Test Lab: CTF

Test Number: 080108



B-161

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

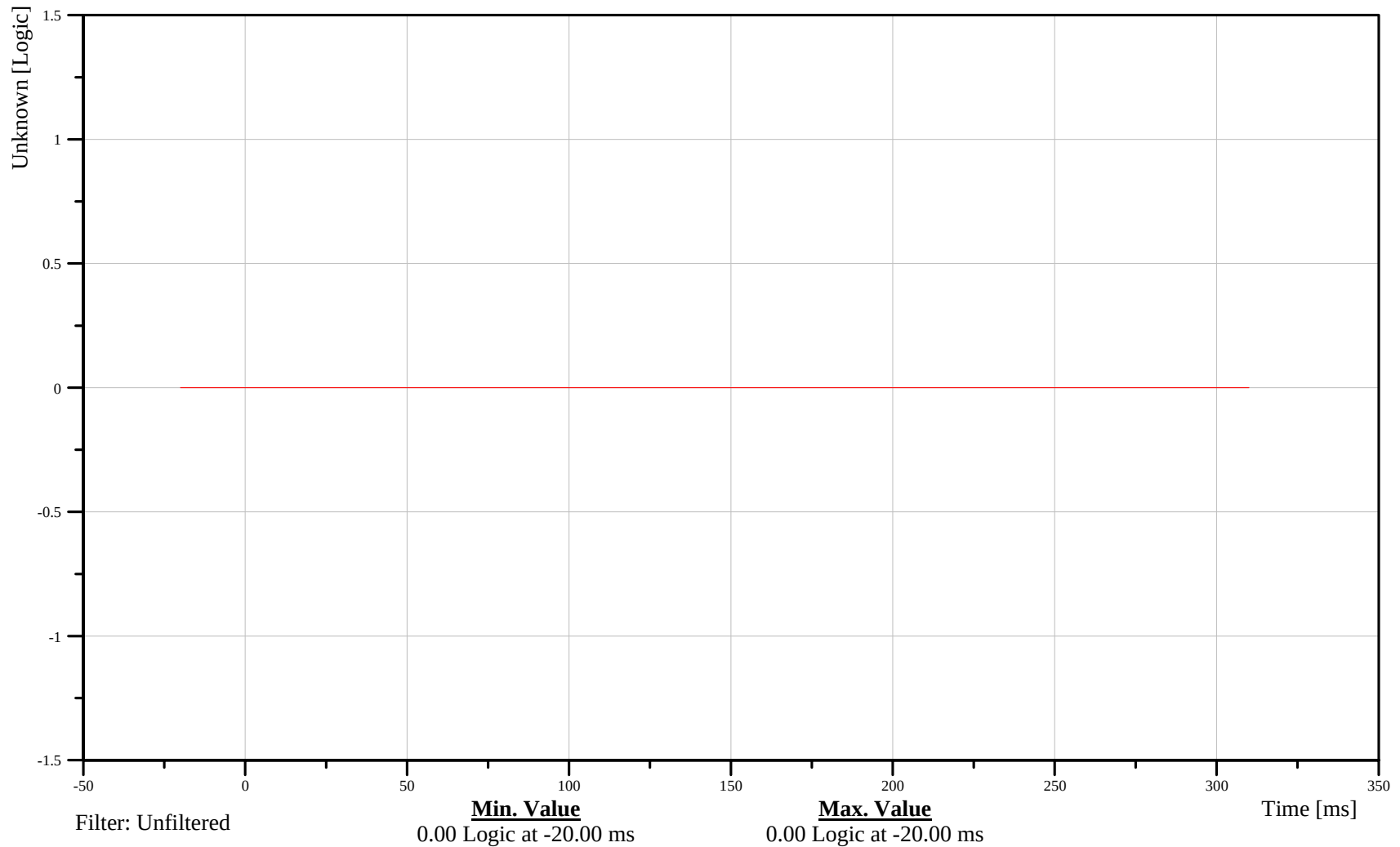
Head Contact Switch

Customer: VRTC

11CONT000001VO00

TRC Inc. Test Lab: CTF

Test Number: 080108



B-162

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

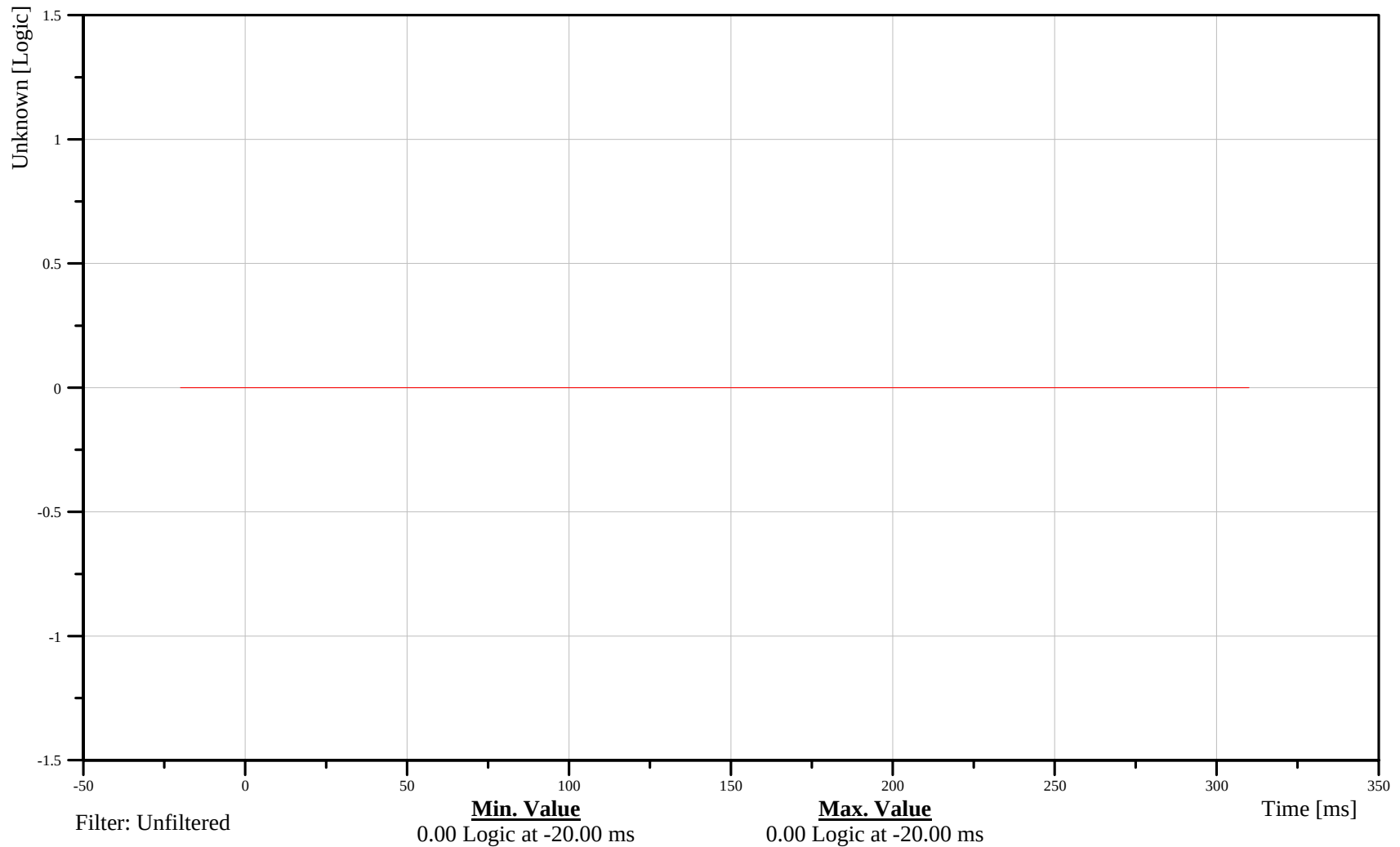
Shoulder Contact Switch

Customer: VRTC

11CONT000002VO00

TRC Inc. Test Lab: CTF

Test Number: 080108



B-163

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

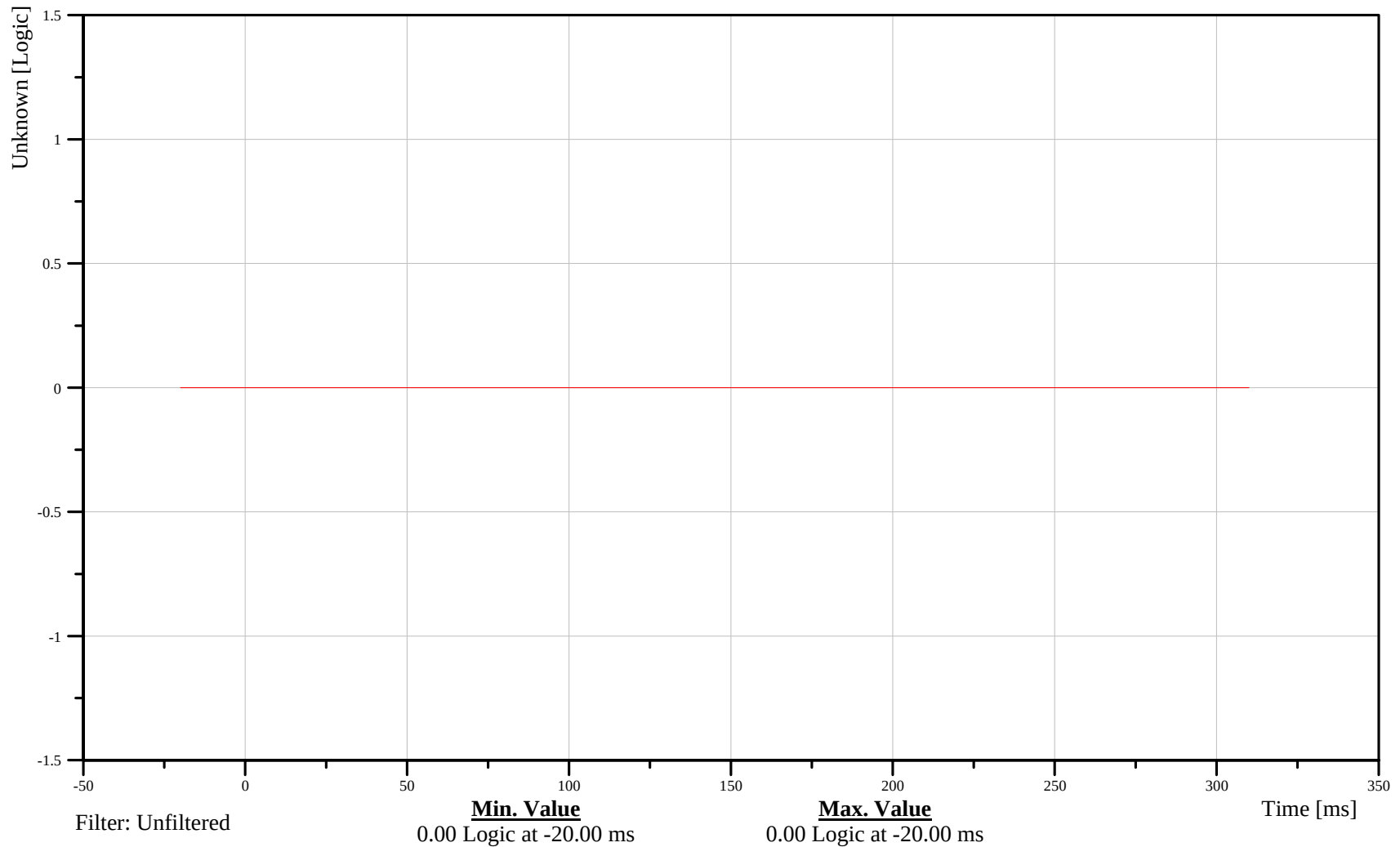
Torso Contact Switch

Customer: VRTC

11CONT000003VO00

TRC Inc. Test Lab: CTF

Test Number: 080108



B-164

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

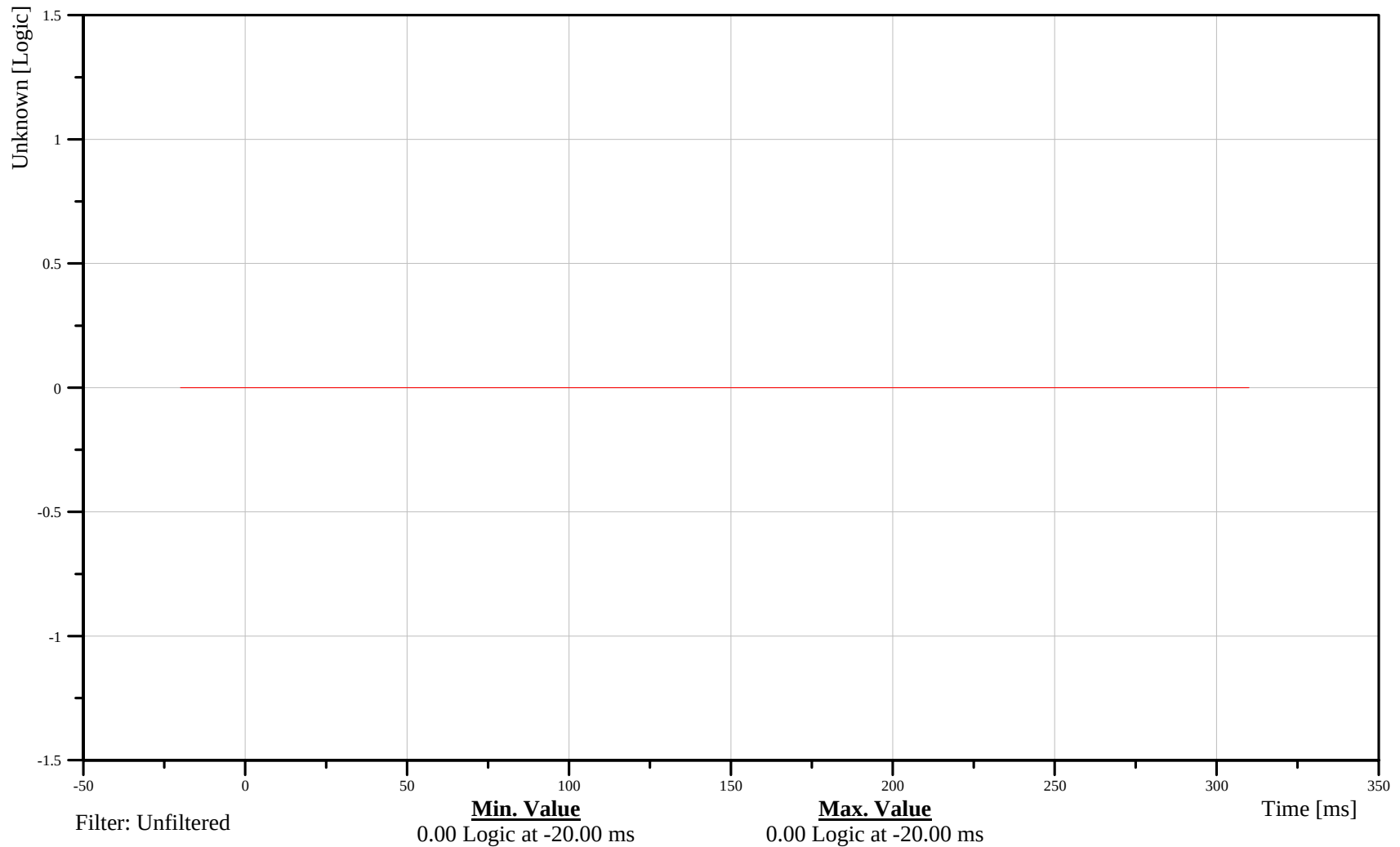
Left Contact Switch

Customer: VRTC

11CONT000004VO00

TRC Inc. Test Lab: CTF

Test Number: 080108



B-165

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

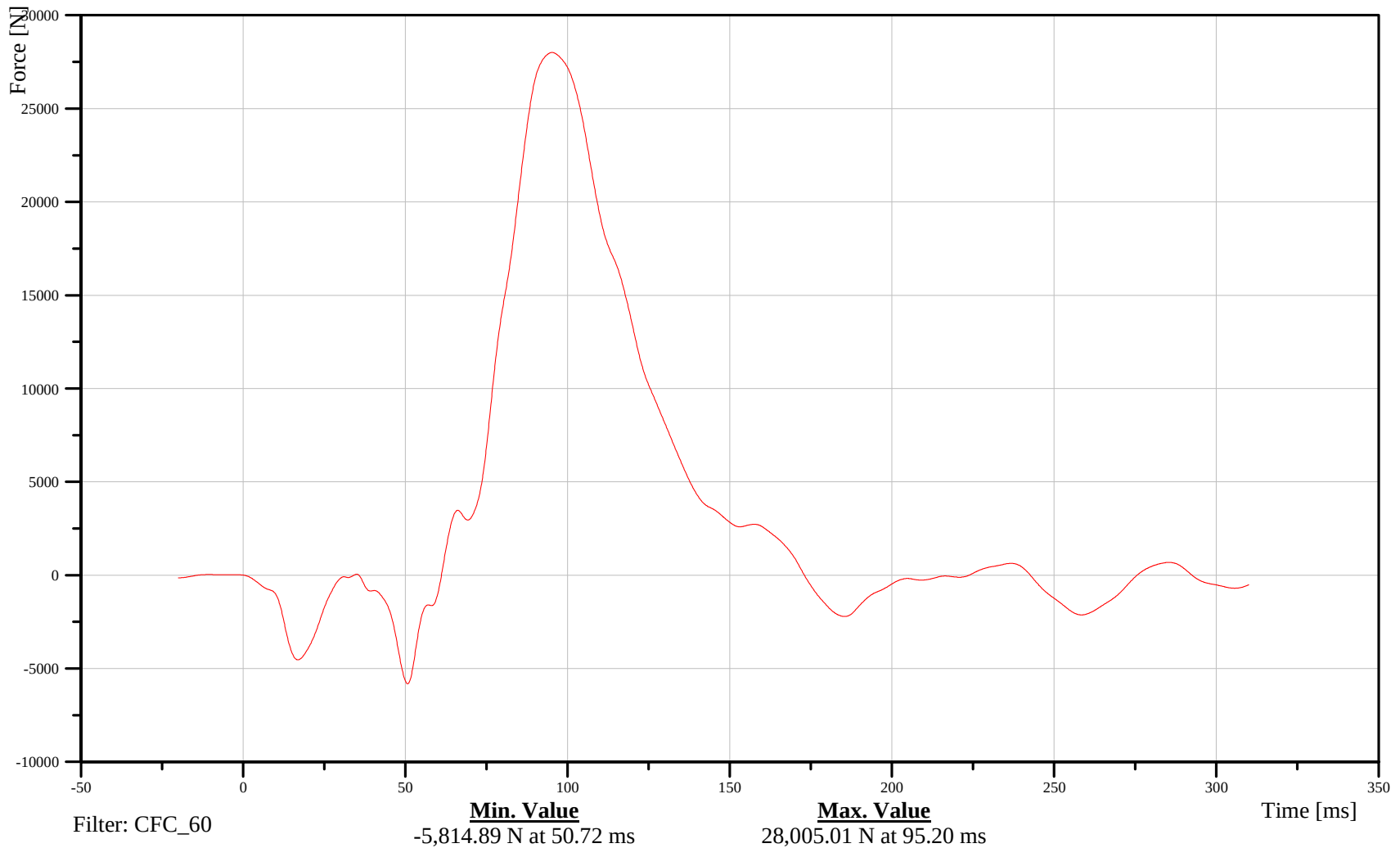
Pole Load Cell 1

Customer: VRTC

K0FBAR010000FOXD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-166

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

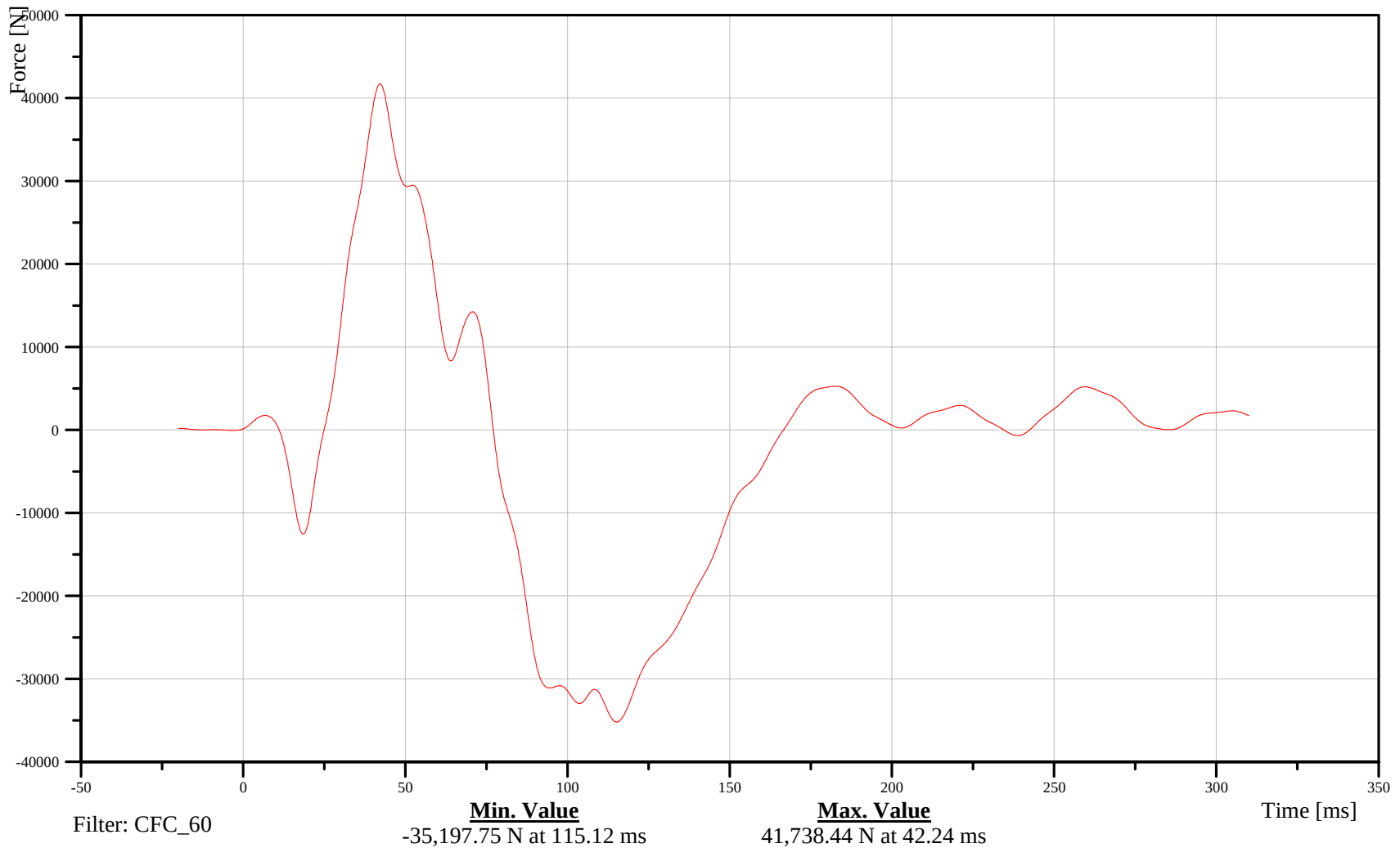
Pole Load Cell 2

Customer: VRTC

K0FBAR020000FOXD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-167

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

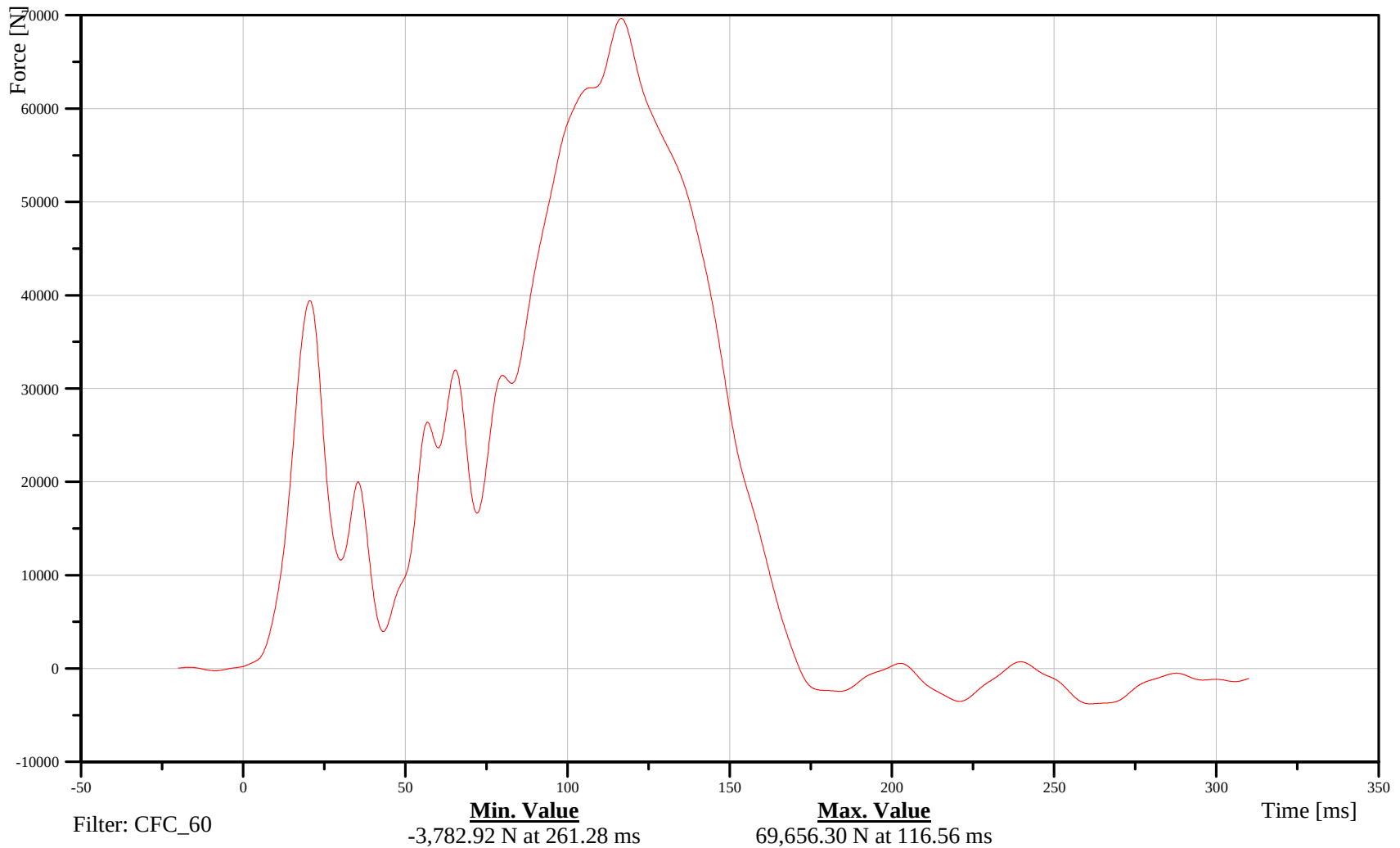
Pole Load Cell 3

Customer: VRTC

K0FBAR030000FOXD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-168

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

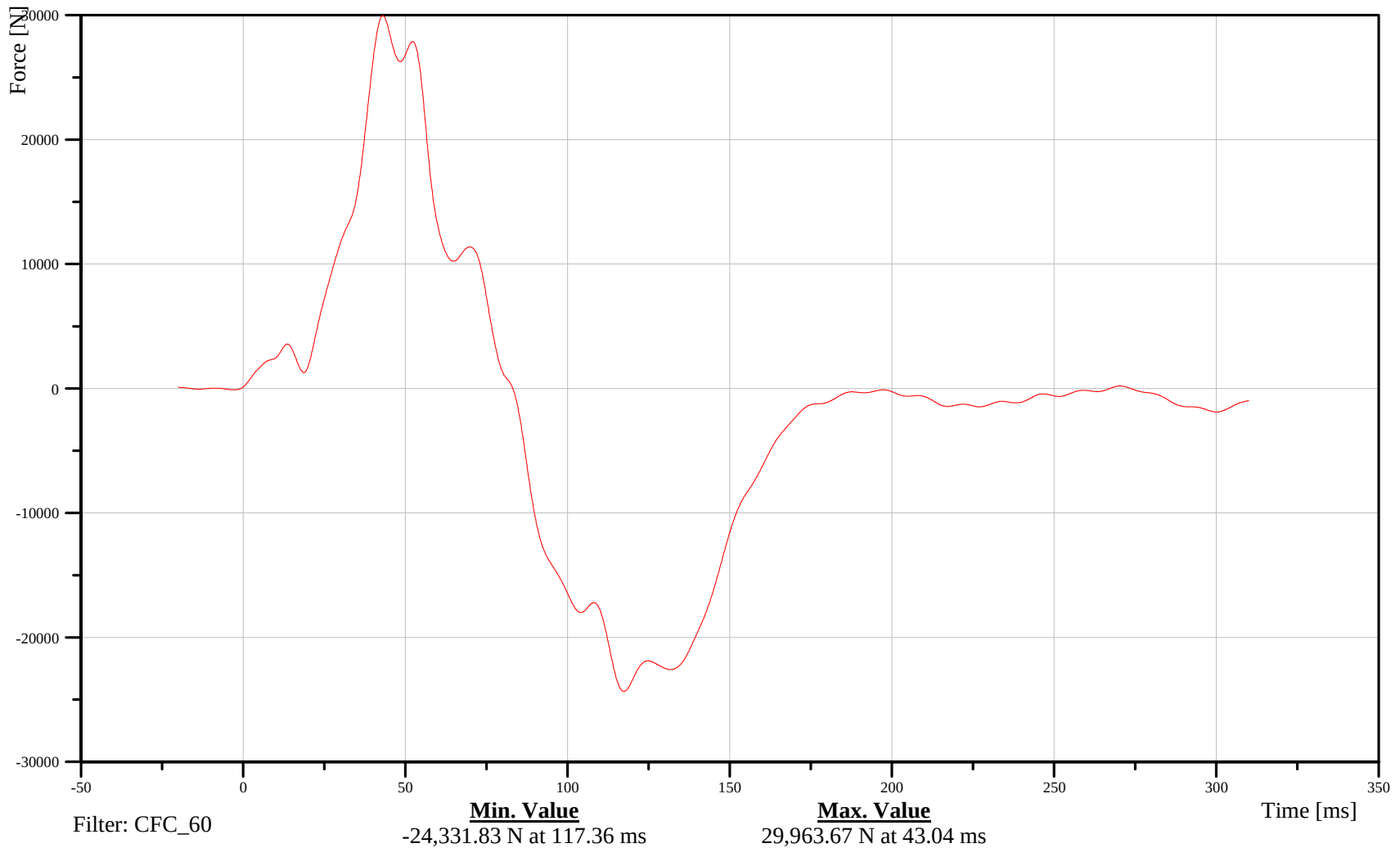
Pole Load Cell 4

Customer: VRTC

K0FBAR040000FOXD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-169

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

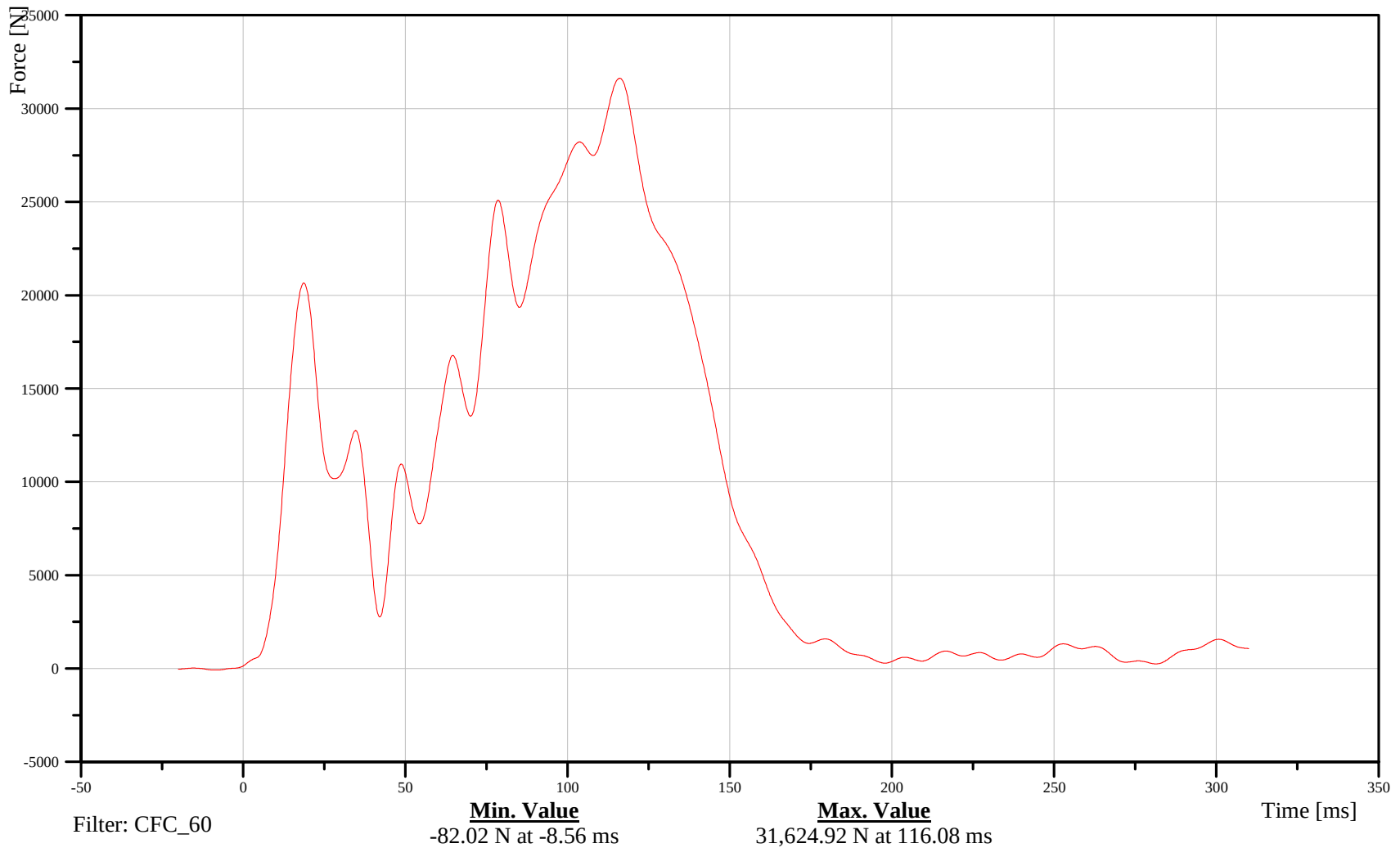
Pole Load Cell 5

Customer: VRTC

K0FBAR050000FOXD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-170

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

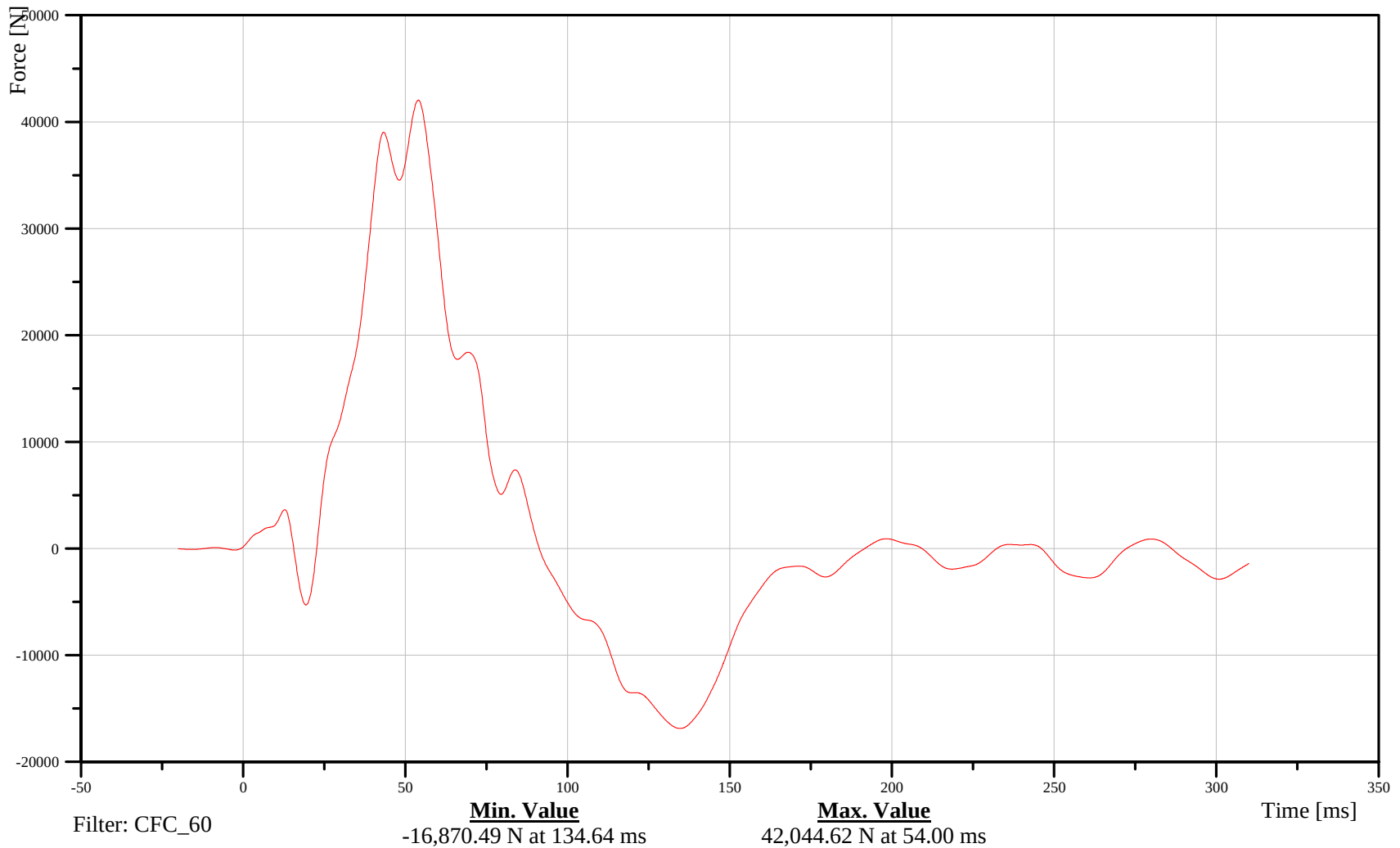
Pole Load Cell 6

Customer: VRTC

K0FBAR060000FOX D

TRC Inc. Test Lab: CTF

Test Number: 080108



B-171

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

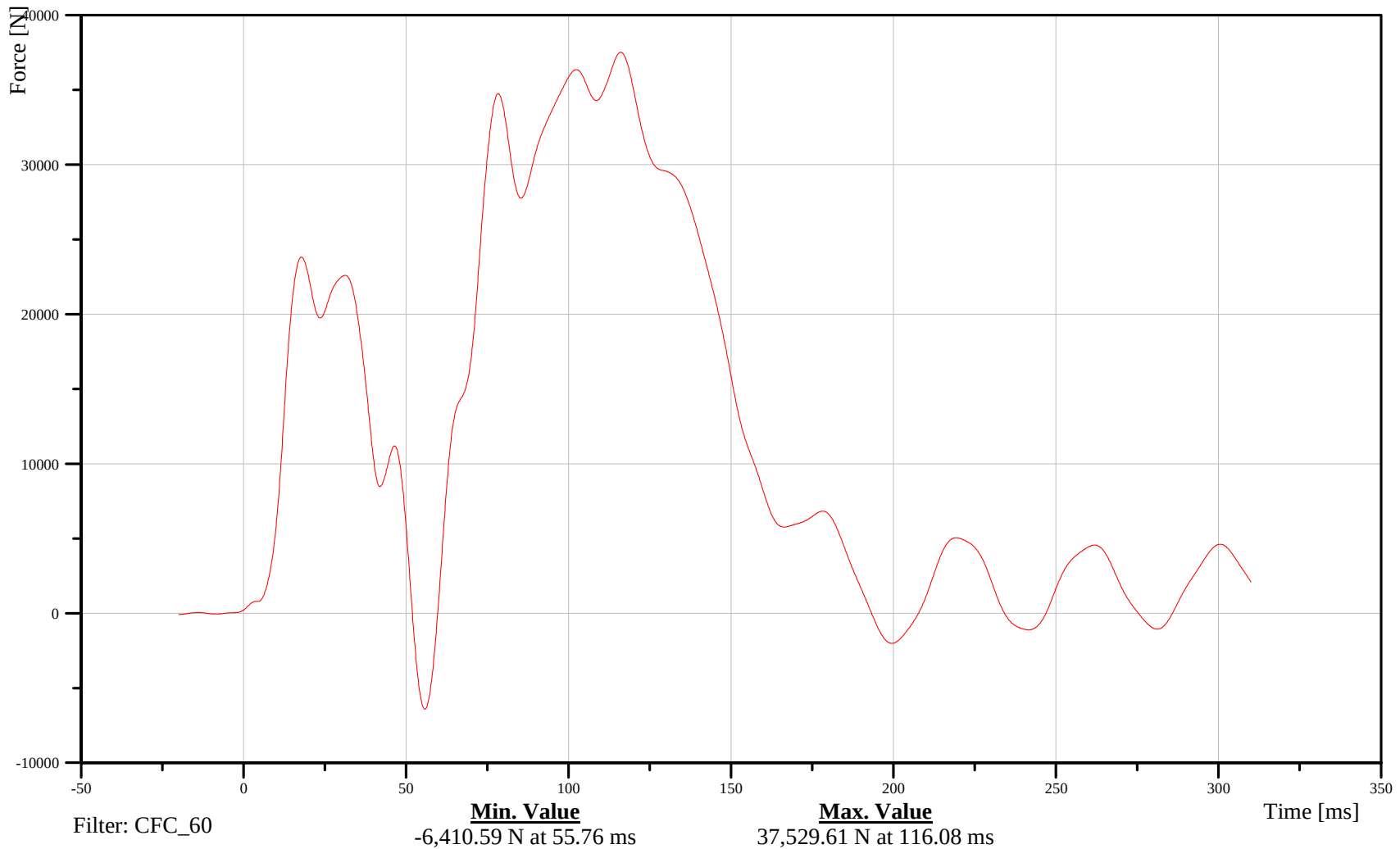
Pole Load Cell 7

Customer: VRTC

K0FBAR070000FOXD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-172

080108



2006 Toyota Sienna Left Side FMVSS 214 Pole Impact at 32 kph

Date: 1/8/2008
Time: 15:51

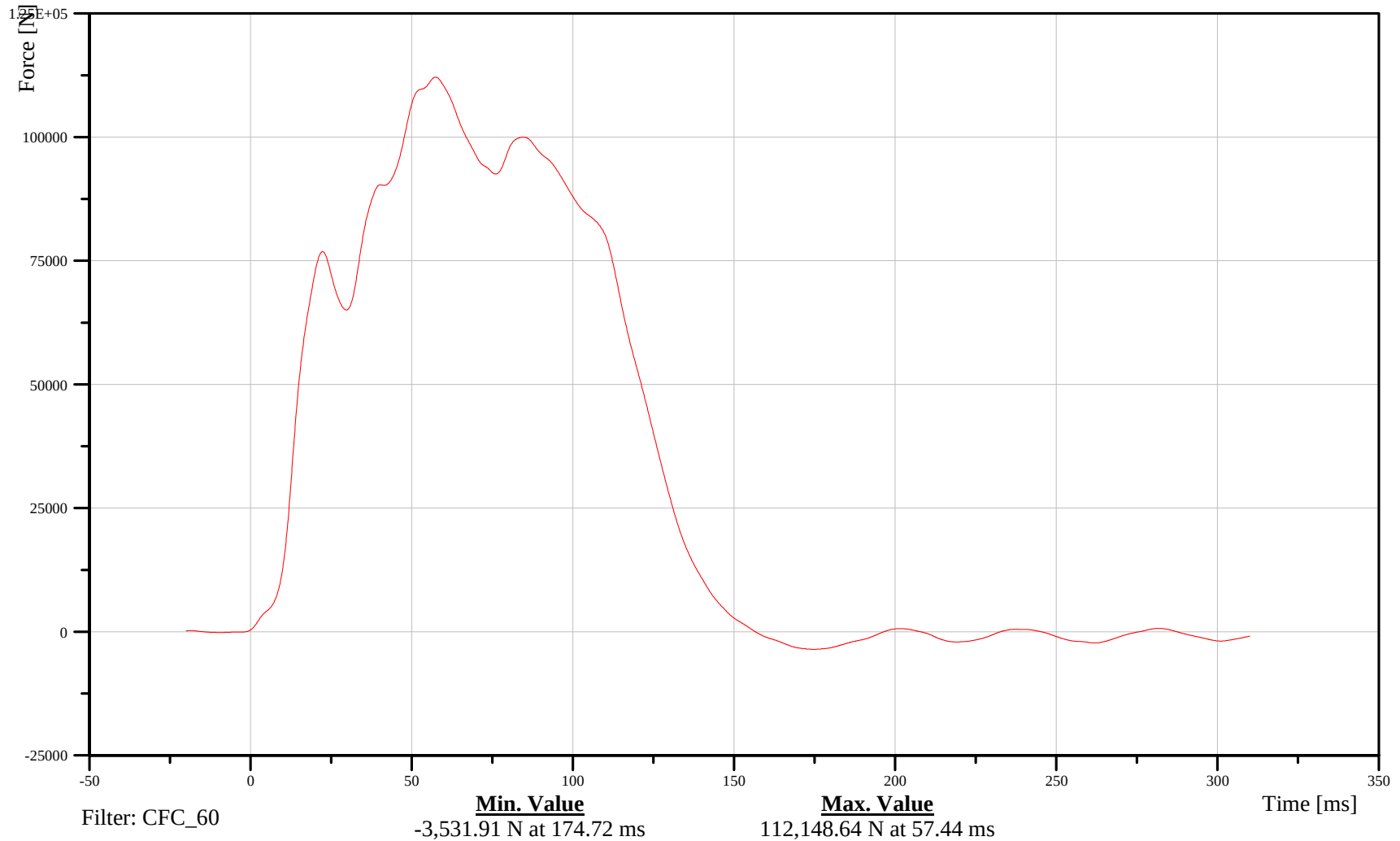
Pole Load Cell 8

Customer: VRTC

K0FBAR080000FOXD

TRC Inc. Test Lab: CTF

Test Number: 080108



B-173

080108

Appendix C

World SID Configuration and Performance Verification Data

Calibration Test Results

Pre-Test

World SID: 016

Configured for Left Side Impact

Transportation Research Center Inc.

Front Head Drop

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-1

Test Date: 8/14/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Peak Head Resultant Acceleration	225 - 275 g	230.9 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	12.1 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician

Raul Beranda

Approved

Ron Stoner

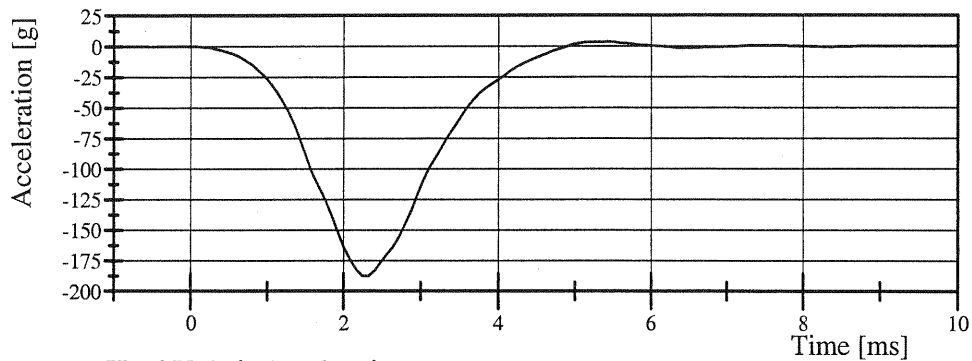
Transportation Research Center Inc.

Front Head Drop

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-1

Test Date: 8/14/2007

Head X-Axis Acceleration

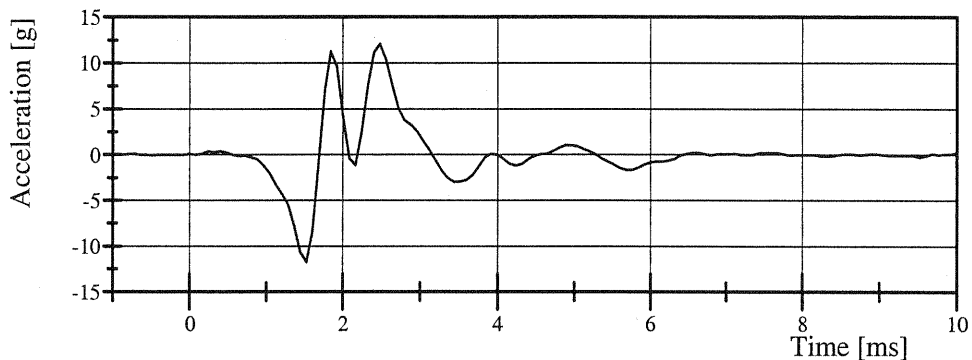


Filter Class: CFC_1000

Max: 3.5 g at 5.4 ms

Min: -187.6 g at 2.3 ms

Head Y-Axis Acceleration

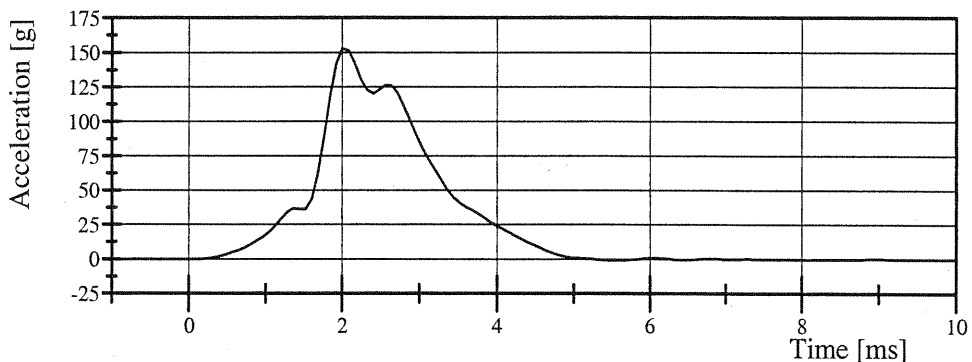


Filter Class: CFC_1000

Max: 12.1 g at 2.5 ms

Min: -11.8 g at 1.5 ms

Head Z-Axis Acceleration

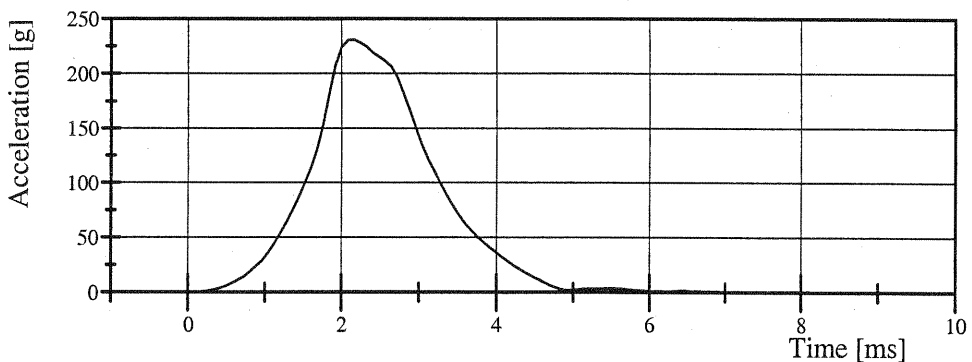


Filter Class: CFC_1000

Max: 153.0 g at 2.0 ms

Min: -1.0 g at 5.5 ms

Head Resultant Acceleration



Filter Class: CFC_1000

Max: 230.9 g at 2.2 ms

Min: 0.0 g at -0.6 ms

Transportation Research Center Inc.

Left Lateral Head Drop

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-1

Test Date: 8/14/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Peak Head Resultant Acceleration	99 - 121 g	116.5 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	-9.0 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician

Rant Brand

Approved

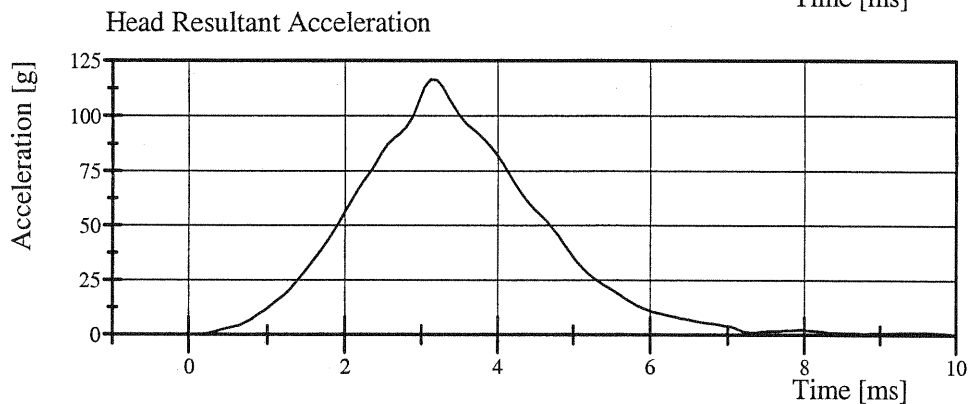
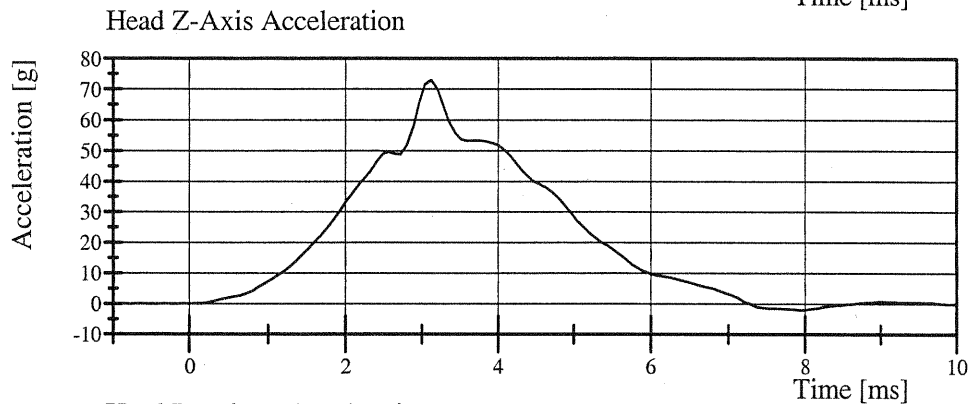
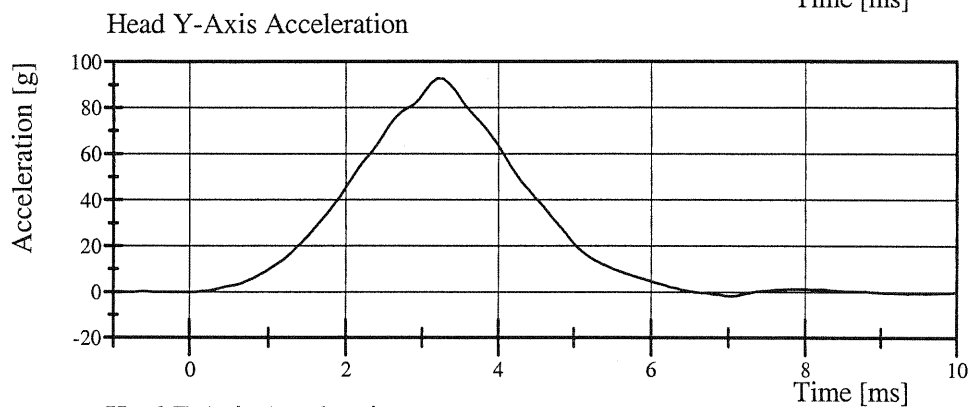
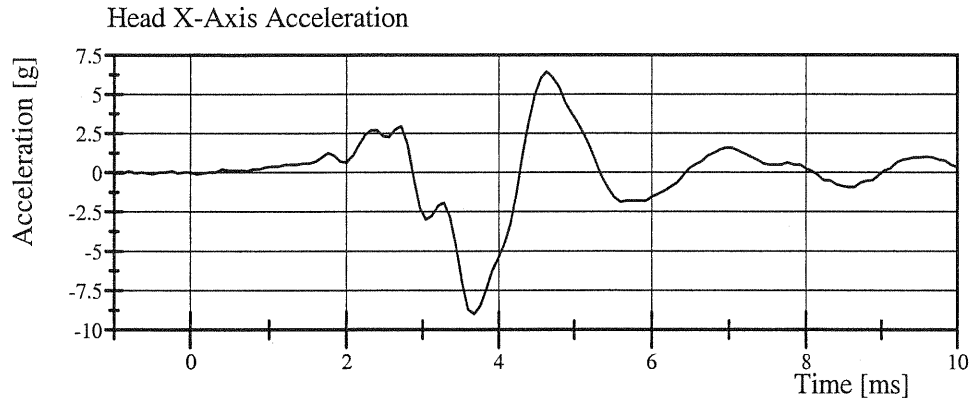
Ron Storer

Transportation Research Center Inc.

Left Lateral Head Drop

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-1

Test Date: 8/14/2007



Transportation Research Center Inc.

Right Lateral Head Drop

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-1

Test Date: 8/14/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Peak Head Resultant Acceleration	99 - 121 g	110.9 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	5.5 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician

Dart Bland

Approved

Ron Stoner

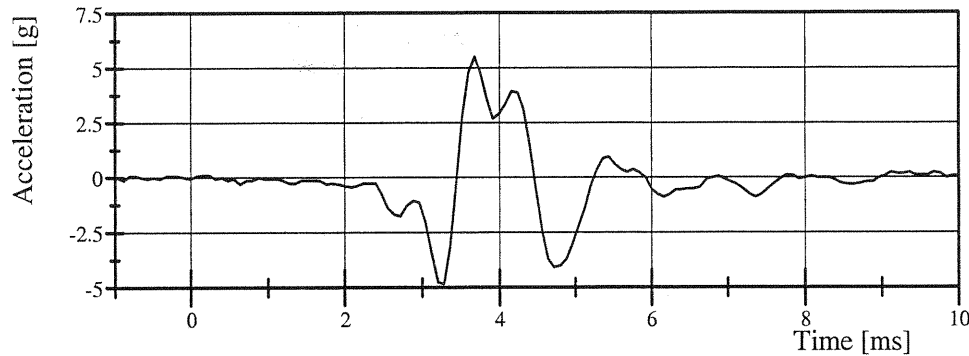
Transportation Research Center Inc.

Right Lateral Head Drop

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-1

Test Date: 8/14/2007

Head X-Axis Acceleration

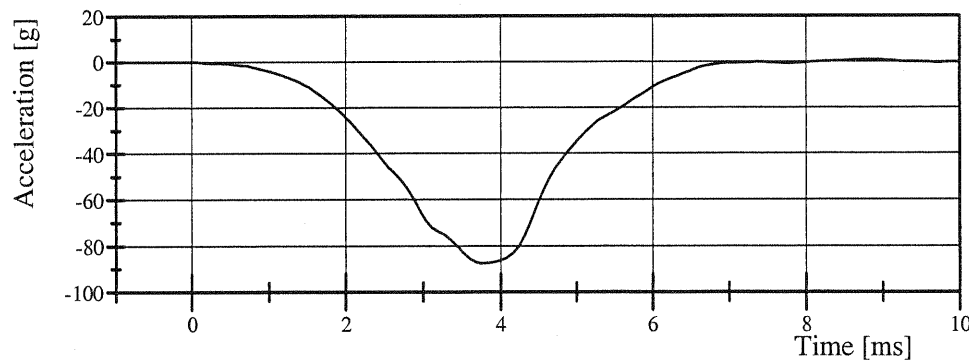


Filter Class: CFC_1000

Max: 5.5 g at 3.7 ms

Min: -4.8 g at 3.3 ms

Head Y-Axis Acceleration

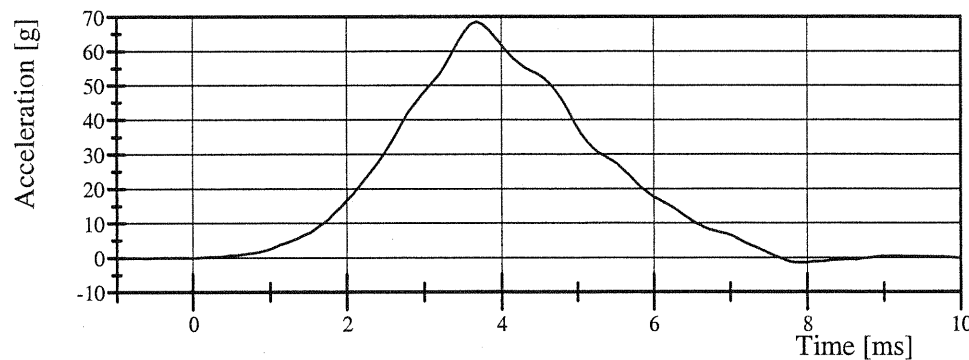


Filter Class: CFC_1000

Max: 0.8 g at 8.7 ms

Min: -87.7 g at 3.8 ms

Head Z-Axis Acceleration

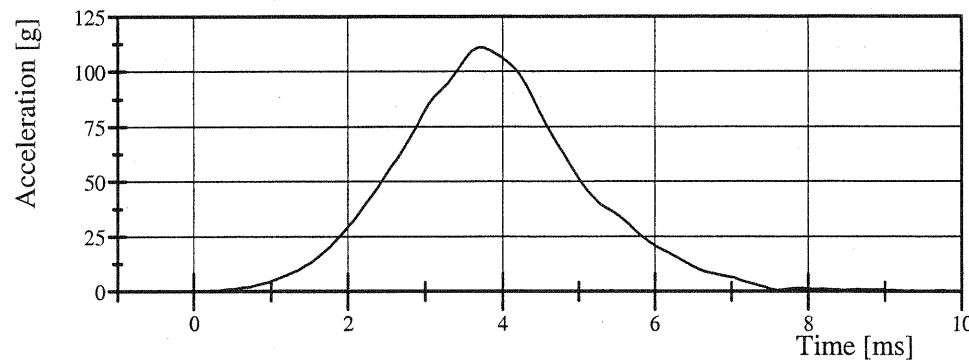


Filter Class: CFC_1000

Max: 68.5 g at 3.7 ms

Min: -1.4 g at 7.9 ms

Head Resultant Acceleration



Filter Class: CFC_1000

Max: 110.9 g at 3.8 ms

Min: 0.0 g at -1.0 ms

Transportation Research Center Inc.

Left Lateral Neck

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-3

Test Date: 8/15/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	59 %	Yes
Pendulum Velocity	(-3.3) - (-3.5) m/s	-3.34 m/s	Yes
Pendulum Integrated Velocity			
Change at 4 ms	0.77 - 1.04 m/s	0.833 m/s	Yes
Change at 8 ms	1.6 - 2.16 m/s	1.656 m/s	Yes
Change at 12 ms	2.43 - 3.29 m/s	2.572 m/s	Yes
Maximum Headform Flexion	(-50) - (-61) deg	-54.8 deg	Yes
Headform Flexion Decay			
- from Peak to Zero Degrees	58 - 72 ms	65.4 ms	Yes
Total Neck Occipital Condyles Moment	55 - 68 N·m	57.7 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) °	-35.4 °	Yes
Time of Peak	56 - 68 ms	59.0 ms	Yes
Maximum Rear Pot Rotation			
Peak	(-30) - (-37) °	-32.1 °	Yes
Time of Peak	56 - 68 ms	64.7 ms	Yes

Test meets specifications.

Comments:

Technician

Rout Barab

Approved

Ken Starn

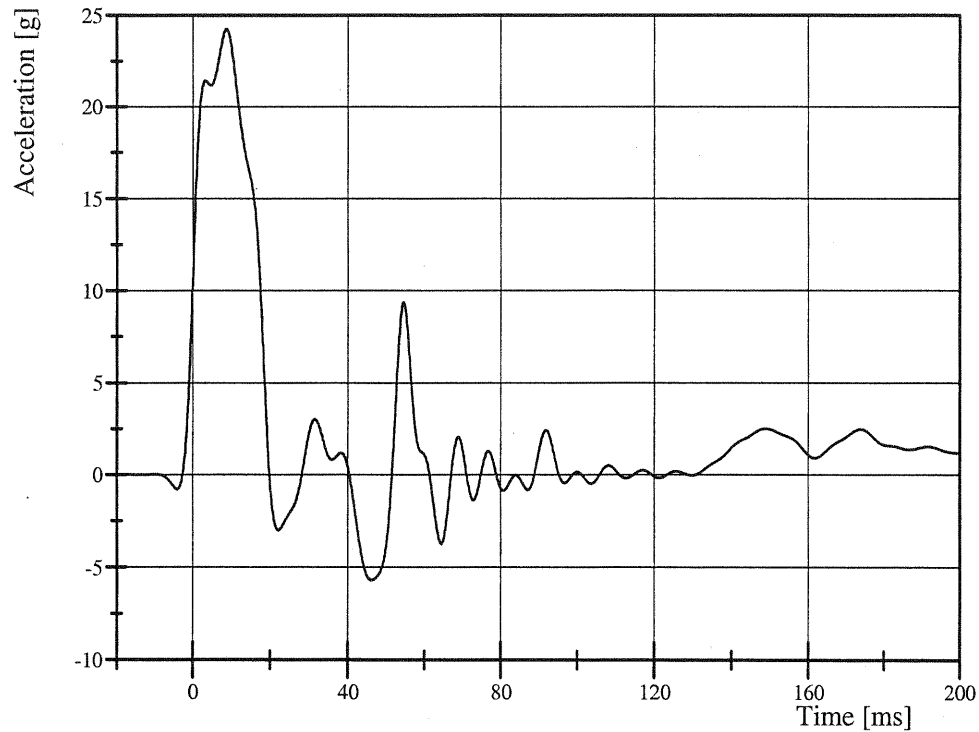
Transportation Research Center Inc.

Left Lateral Neck

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-3

Test Date: 8/15/2007

Pendulum Acceleration

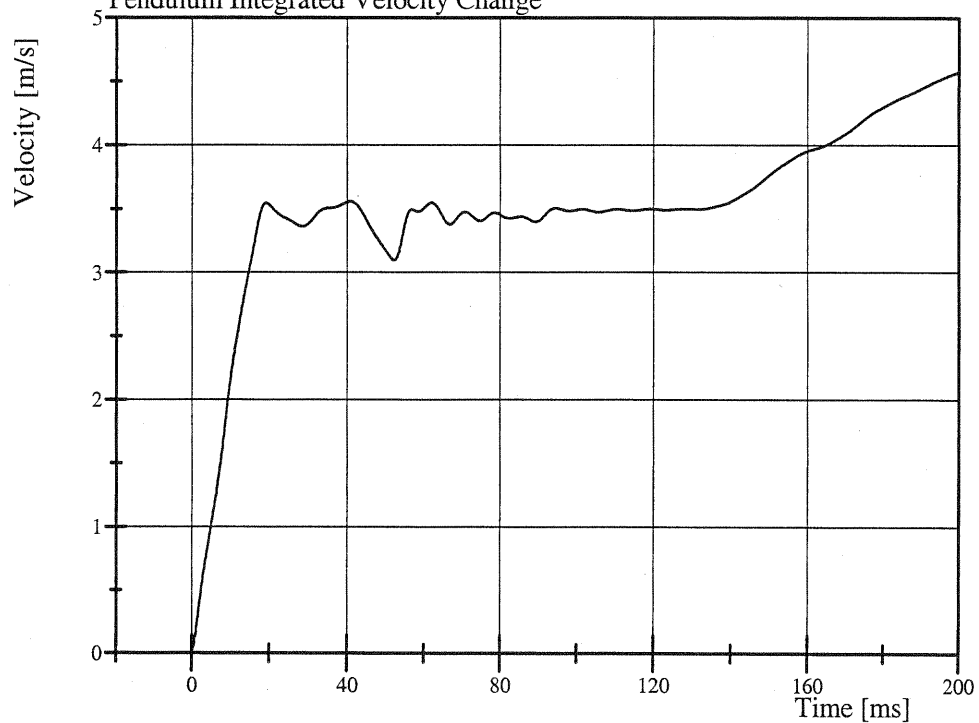


Filter Class: CFC_60

Max: 24.3 g at 8.7 ms

Min: -5.7 g at 46.2 ms

Pendulum Integrated Velocity Change



Filter Class: CFC_180

Max: 4.6 m/s at 200.0 ms

Min: 0.0 m/s at 0.0 ms

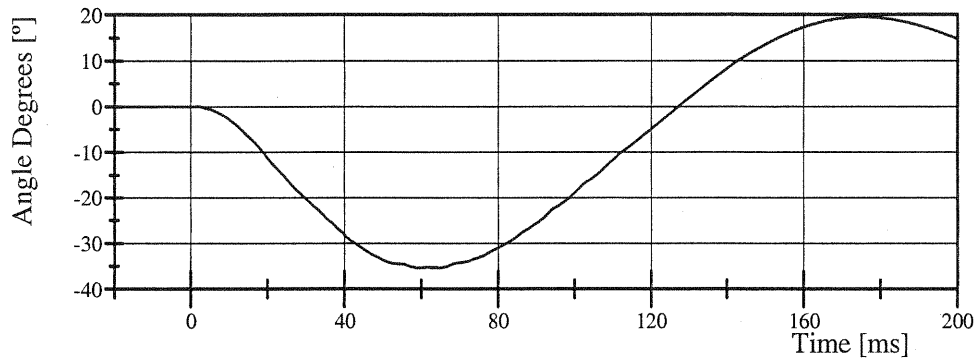
Transportation Research Center Inc.

Left Lateral Neck

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-3

Test Date: 8/15/2007

Forward Pot Rotation at Base of Pendulum

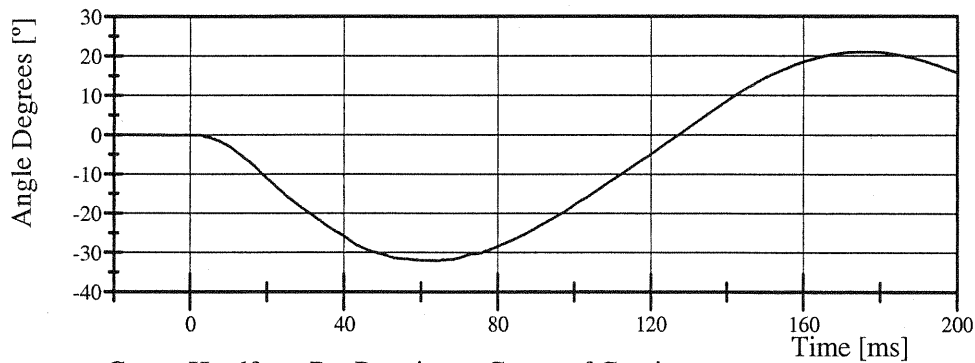


Filter Class: CFC_1000

Max: 19.5 ° at 174.2 ms

Min: -35.4 ° at 59.0 ms

Rear Pot Rotation at Base of Pendulum

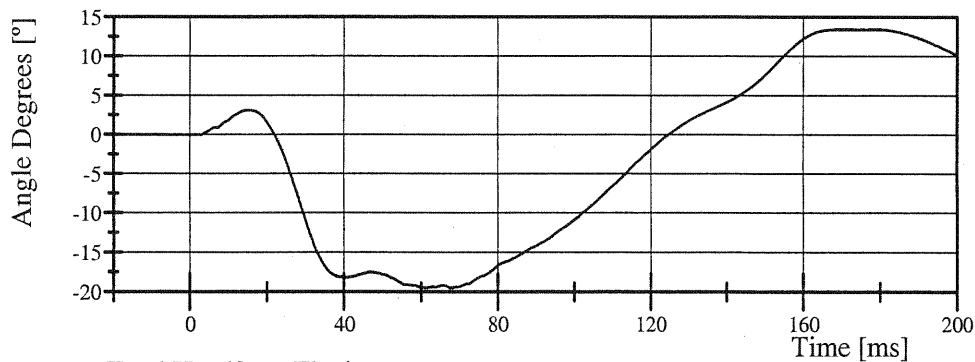


Filter Class: CFC_1000

Max: 21.1 ° at 174.8 ms

Min: -32.1 ° at 64.7 ms

Center Headform Pot Rotation at Center of Gravity

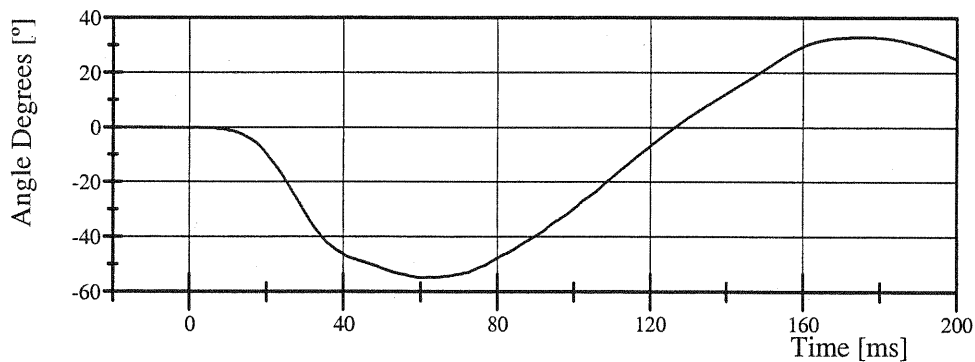


Filter Class: CFC_1000

Max: 13.5 ° at 170.4 ms

Min: -19.5 ° at 61.3 ms

Total Headform Flexion



Filter Class: CFC_1000

Max: 33.0 ° at 175.4 ms

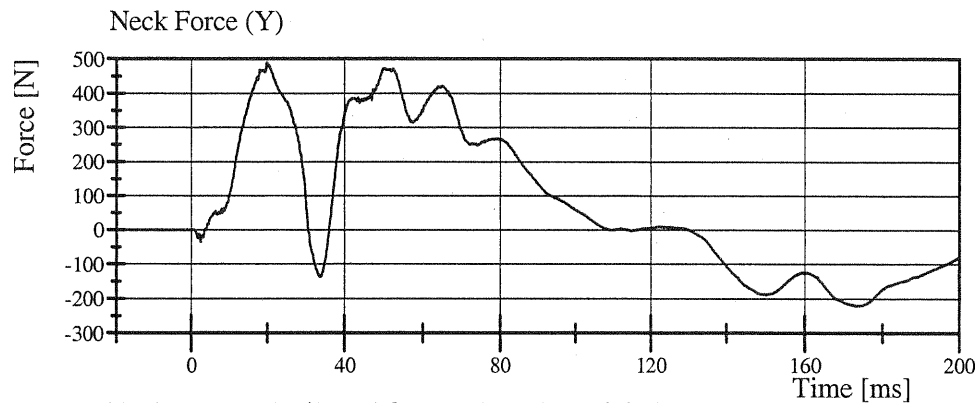
Min: -54.8 ° at 60.9 ms

Transportation Research Center Inc.

Left Lateral Neck

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-3

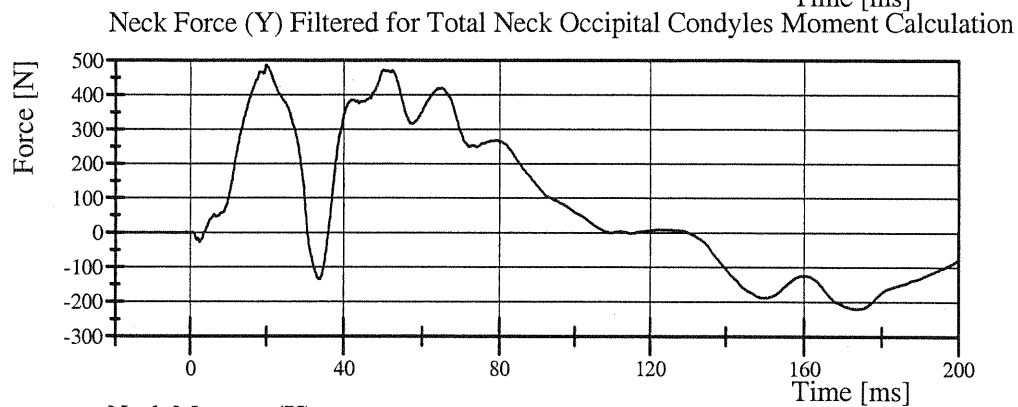
Test Date: 8/15/2007



Filter Class: CFC_1000

Max: 490.0 N at 19.8 ms

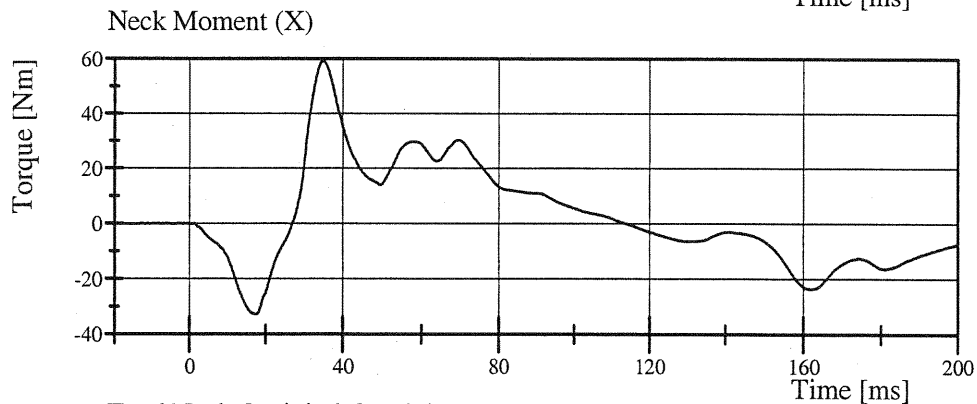
Min: -220.8 N at 173.4 ms



Filter Class: CFC_600

Max: 487.1 N at 19.9 ms

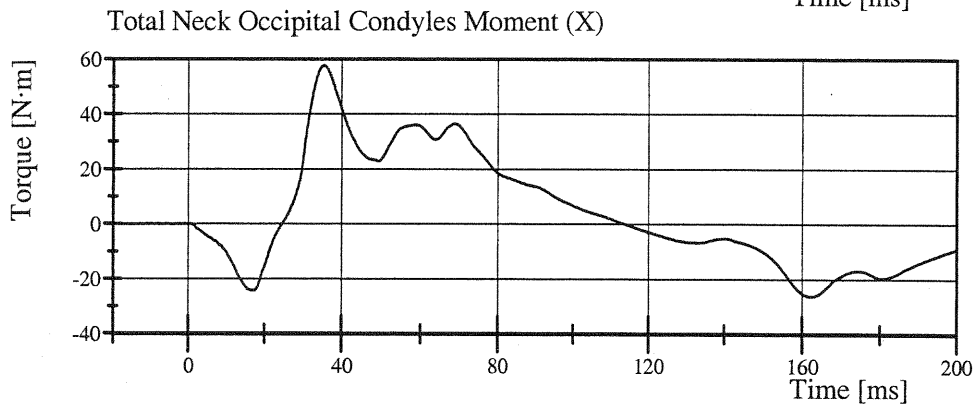
Min: -220.4 N at 173.4 ms



Filter Class: CFC_600

Max: 59.3 Nm at 34.9 ms

Min: -32.8 Nm at 17.3 ms



Filter Class: CFC_600

Max: 57.7 N·m at 35.4 ms

Min: -26.1 N·m at 162.2 ms

Transportation Research Center Inc.

Left Lateral Shoulder

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-1

Test Date: 8/14/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.29 m/s	Yes
Impactor Force	(-2,600) - (-3,300) N	-2,754.8 N	Yes
Shoulder Displacement	35 - 44 mm	37.9 mm	Yes

Test meets specifications.

Comments:

Technician

Ronald Beranek

Approved

Ron Stoner

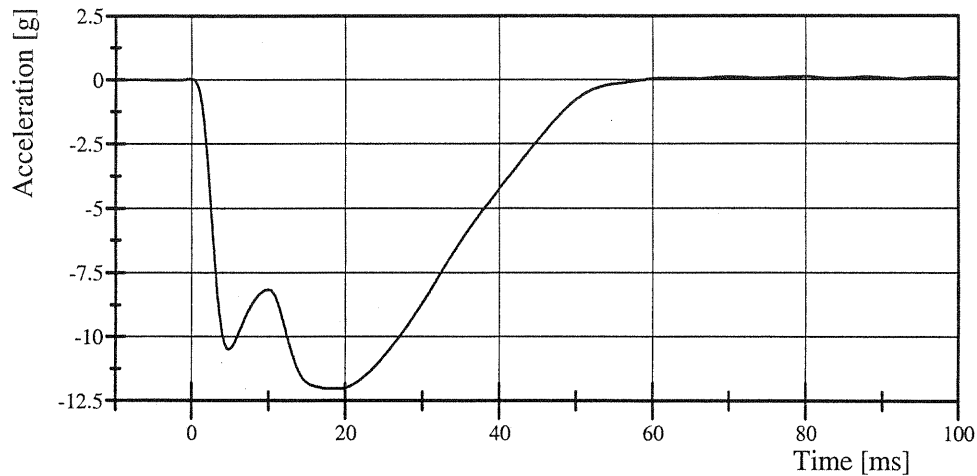
Transportation Research Center Inc.

Left Lateral Shoulder

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-1

Test Date: 8/14/2007

Impactor Acceleration

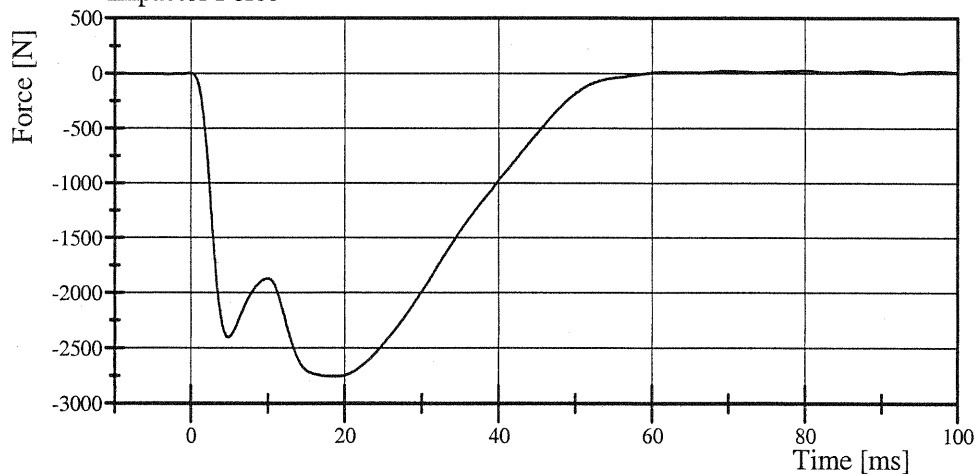


Filter Class: CFC_180

Max: 0.1 g at 80.1 ms

Min: -12.0 g at 19.0 ms

Impactor Force

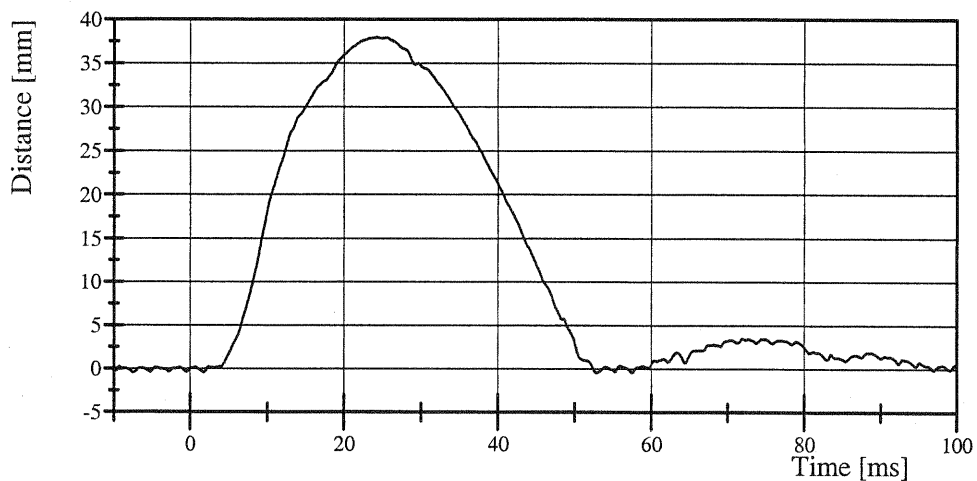


Filter Class: CFC_180

Max: 27.6 N at 80.1 ms

Min: -2,754.8 N at 19.0 ms

Shoulder Displacement



Filter Class: CFC_600

Max: 37.9 mm at 24.2 ms

Min: -0.5 mm at 52.8 ms

Transportation Research Center Inc.

Left Lateral Abdomen

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-2

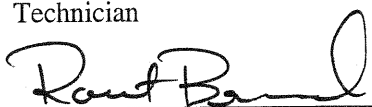
Test Date: 8/14/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Impactor Velocity	4.2 - 4.4 m/s	4.28 m/s	Yes
Impactor Force	(-2,600) - (-3,300) N	-2,846.4 N	Yes
Upper Abdominal Rib Displacement	33 - 41 mm	37.8 mm	Yes
Lower Abdominal Rib Displacement	31 - 39 mm	32.1 mm	Yes
Lower Spine Lateral Acceleration	15 - 20 g	16.6 g	Yes

Test meets specifications.

Comments:

Technician



Approved

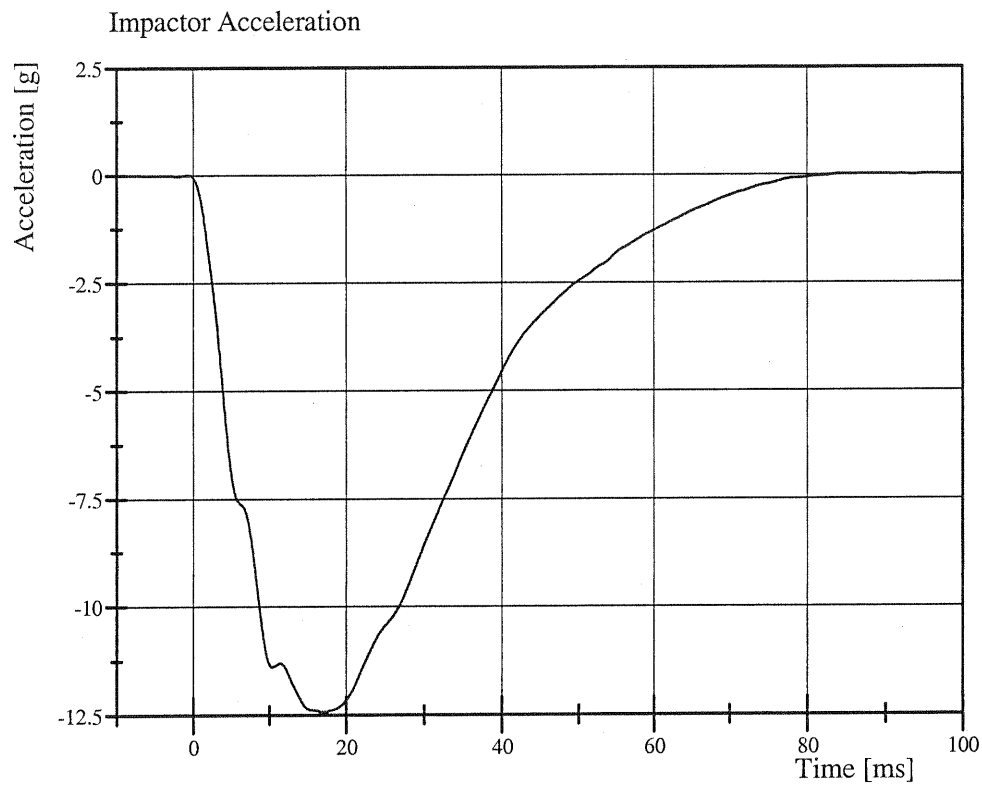


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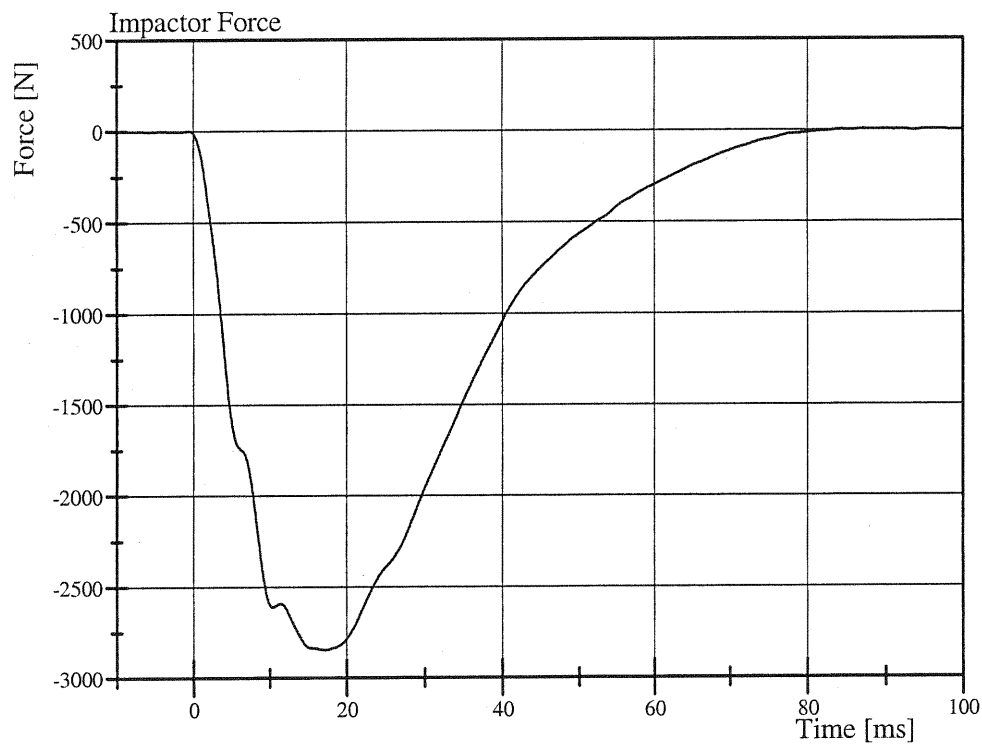
Left Lateral Abdomen

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-2

Test Date: 8/14/2007



Filter Class: CFC_180
Max: 0.0 g at 87.2 ms
Min: -12.4 g at 17.1 ms

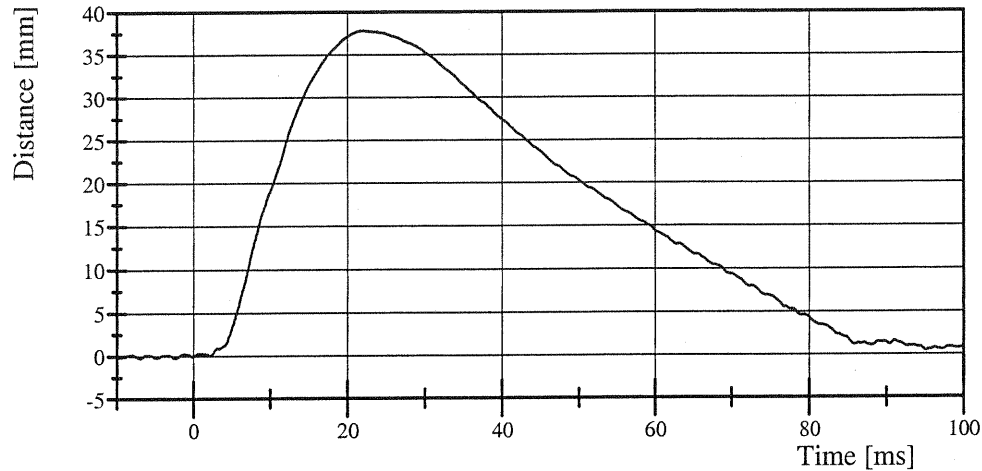


Filter Class: CFC_180
Max: 4.4 N at 87.2 ms
Min: -2,846.4 N at 17.1 ms

Transportation Research Center Inc.

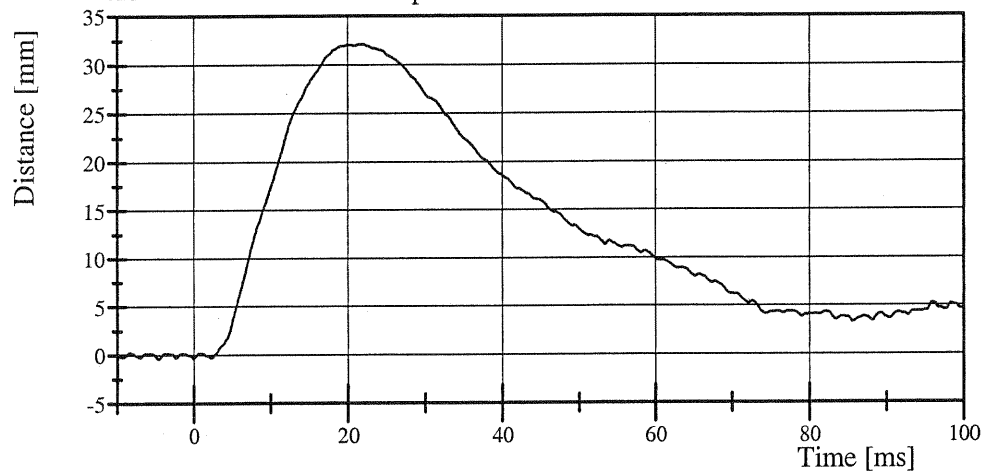
Left Lateral Abdomen
WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-2
Test Date: 8/14/2007

Upper Abdominal Rib Displacement



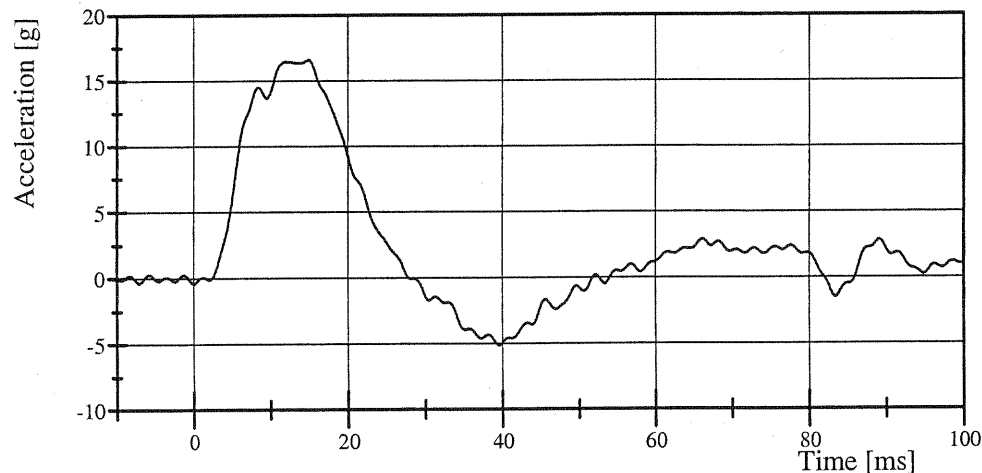
Filter Class: CFC_600
Max: 37.8 mm at 22.1 ms
Min: -0.2 mm at -2.3 ms

Lower Abdominal Rib Displacement



Filter Class: CFC_600
Max: 32.1 mm at 21.7 ms
Min: -0.4 mm at -4.6 ms

Lower Spine Acceleration (Y)



Filter Class: CFC_180
Max: 16.6 g at 15.0 ms
Min: -5.1 g at 39.6 ms

Transportation Research Center Inc.

Left Lateral Pelvis

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-2

Test Date: 8/14/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Impactor Velocity	6.6 - 6.8 m/s	6.70 m/s	Yes
Impactor Force	(-6,300) - (-7,800) N	-7,011.4 N	Yes
Pelvis Lateral Acceleration	41 - 51 g	41.8 g	Yes
Lower Spine Lateral Acceleration	10 - 14 g	15.1 g	No

Test does not meet specifications.

Comments:

Technician

Rout Beaulieu

Approved

Ron Storer

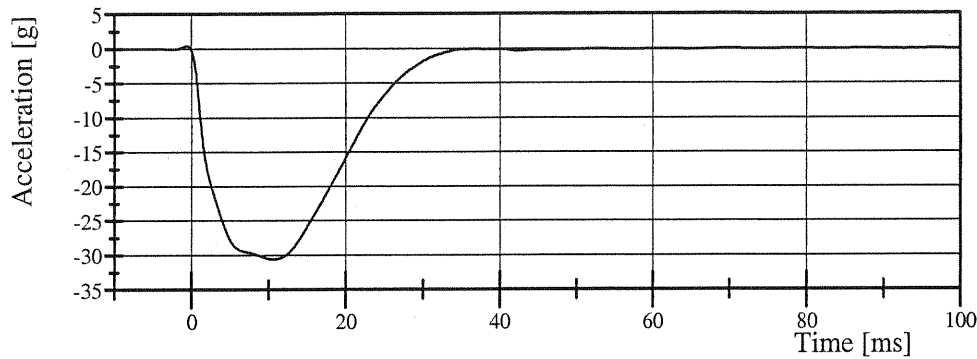
Transportation Research Center Inc.

Left Lateral Pelvis

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-2

Test Date: 8/14/2007

Impactor Acceleration

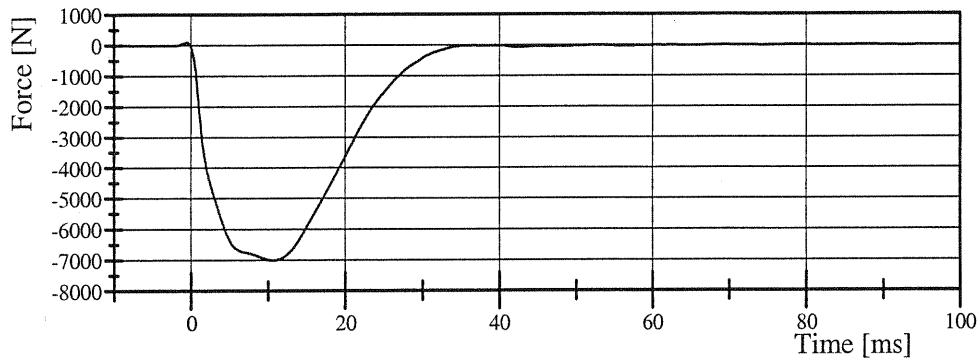


Filter Class: CFC_180

Max: 0.4 g at -0.6 ms

Min: -30.6 g at 10.6 ms

Impactor Force

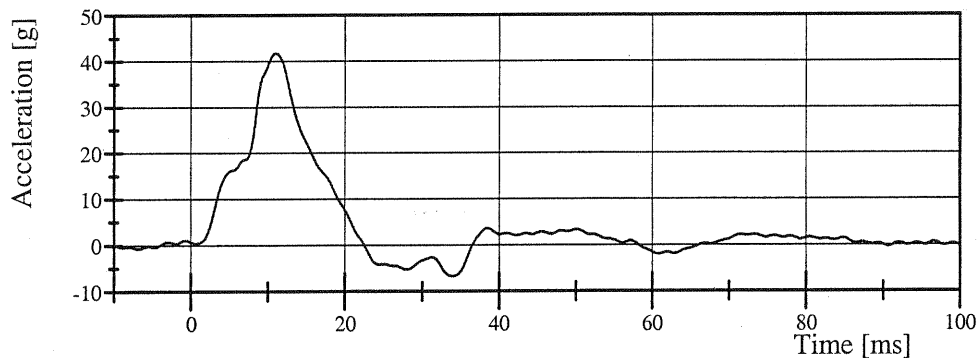


Filter Class: CFC_180

Max: 99.3 N at -0.6 ms

Min: -7,011.4 N at 10.6 ms

Pelvis Y-Axis Acceleration

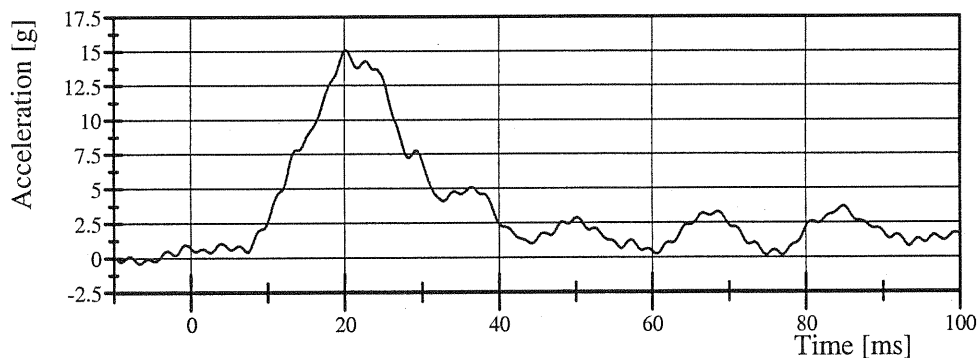


Filter Class: CFC_180

Max: 41.8 g at 11.0 ms

Min: -6.7 g at 34.0 ms

Lower Spine Acceleration (Y)



Filter Class: CFC_180

Max: 15.1 g at 20.1 ms

Min: -0.4 g at -6.6 ms

Transportation Research Center Inc.

Left Lateral Thorax with Arm

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-2

Test Date: 8/14/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Impactor Velocity	6.6 - 6.8 m/s	6.69 m/s	Yes
Impactor Force	(-4,700) - (-6,400) N	-5,760.6 N	Yes
Upper Thorax Rib Displacement	35 - 47 mm	34.4 mm	No
Center Thorax Rib Displacement	42 - 57 mm	42.7 mm	Yes
Lower Thorax Rib Displacement	40 - 54 mm	38.0 mm	No
Upper Spine Lateral Acceleration	24 - 33 g	29.8 g	Yes
Lower Spine Lateral Acceleration	20 - 28 g	23.9 g	Yes

Test does not meet specifications.

Comments:

Technician

Ron Beaulieu

Approved

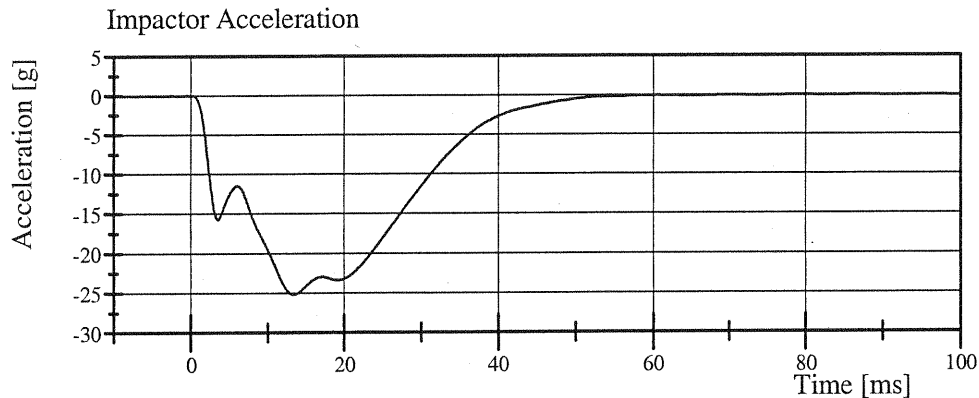
Ron Storm

Transportation Research Center Inc.

Left Lateral Thorax with Arm

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-2

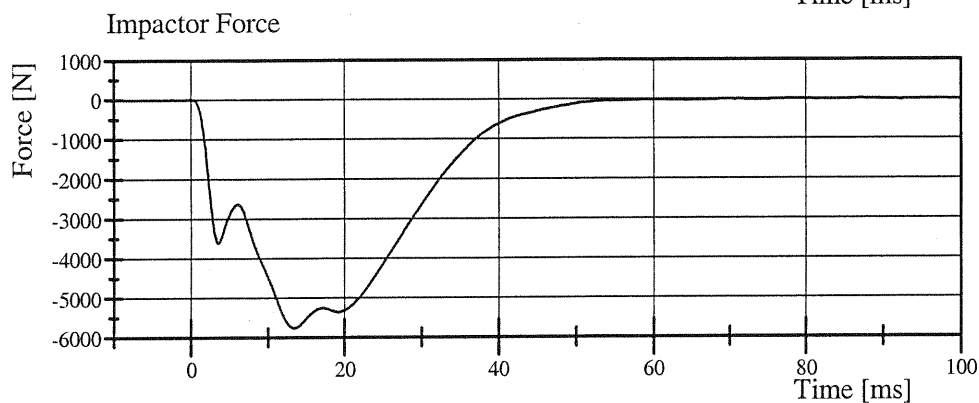
Test Date: 8/14/2007



Filter Class: CFC_180

Max: 0.1 g at 0.0 ms

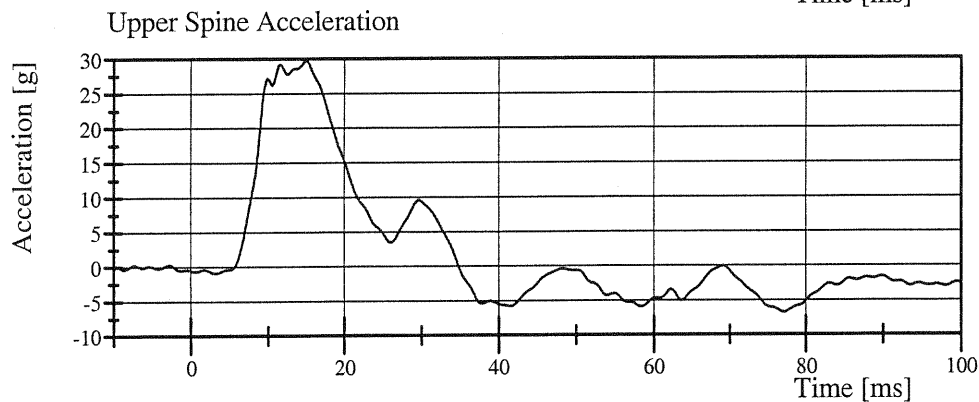
Min: -25.1 g at 13.4 ms



Filter Class: CFC_180

Max: 11.8 N at 0.0 ms

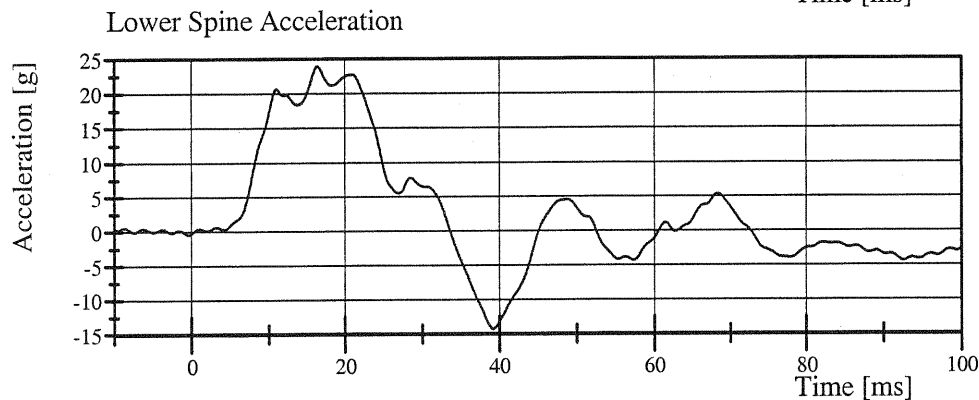
Min: -5,760.6 N at 13.4 ms



Filter Class: CFC_180

Max: 29.8 g at 15.0 ms

Min: -6.8 g at 77.2 ms



Filter Class: CFC_180

Max: 23.9 g at 16.3 ms

Min: -14.3 g at 39.2 ms

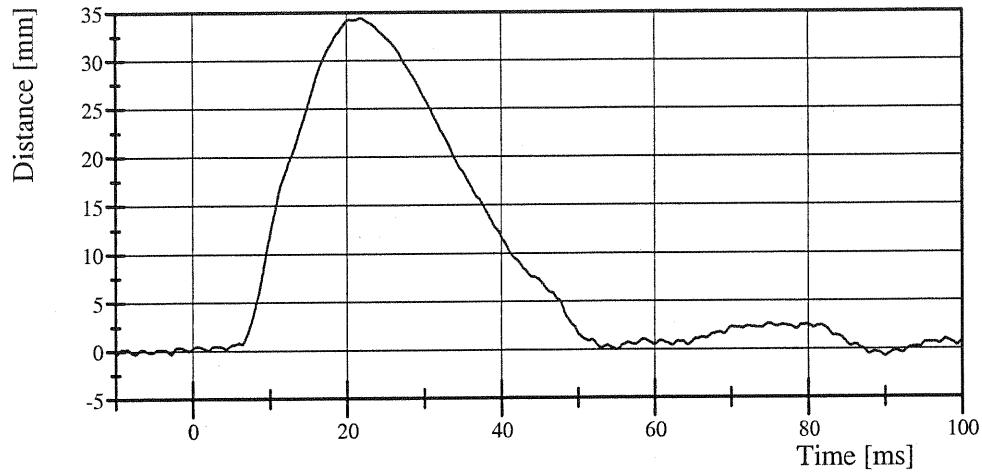
Transportation Research Center Inc.

Left Lateral Thorax with Arm

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-2

Test Date: 8/14/2007

Upper Thorax Rib Displacement

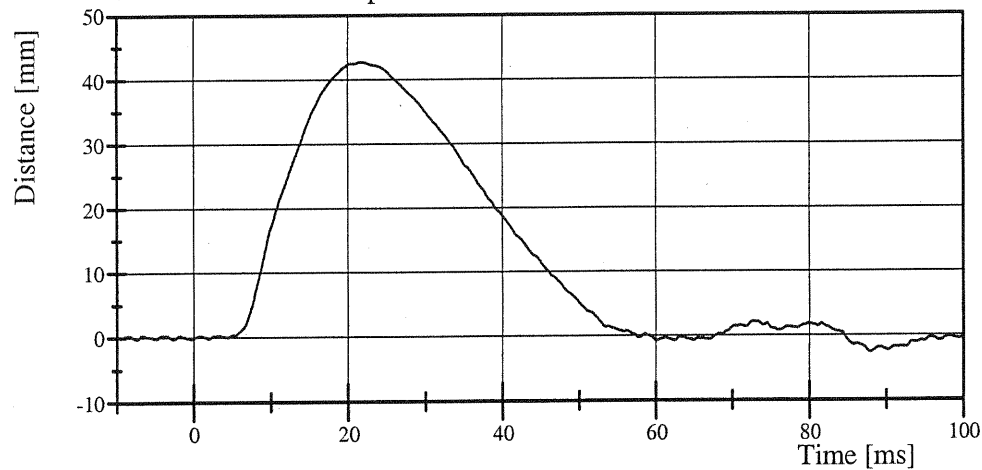


Filter Class: CFC_600

Max: 34.4 mm at 21.8 ms

Min: -0.8 mm at 90.0 ms

Center Thorax Rib Displacement

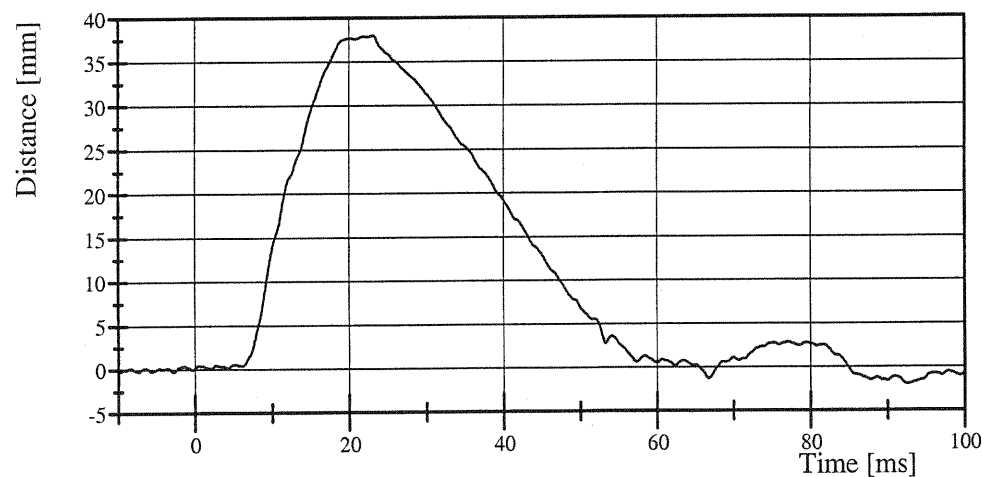


Filter Class: CFC_600

Max: 42.7 mm at 21.7 ms

Min: -2.6 mm at 88.0 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600

Max: 38.0 mm at 23.0 ms

Min: -2.0 mm at 92.6 ms

Transportation Research Center Inc.

Left Lateral Thorax without Arm

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-2

Test Date: 8/14/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.290 m/s	Yes
Impactor Force	(-3,200) - (-3,900) N	-3,825.1 N	Yes
Upper Thorax Rib Displacement	34 - 43 mm	32.7 mm	No
Center Thorax Rib Displacement	34 - 43 mm	36.1 mm	Yes
Lower Thorax Rib Displacement	34 - 43 mm	35.9 mm	Yes
Upper Spine Lateral Acceleration	12 - 17 g	14.5 g	Yes
Lower Spine Lateral Acceleration	15 - 21 g	16.4 g	Yes

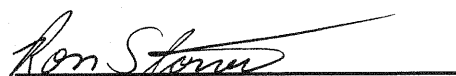
Test does not meet specifications.

Comments:

Technician



Approved

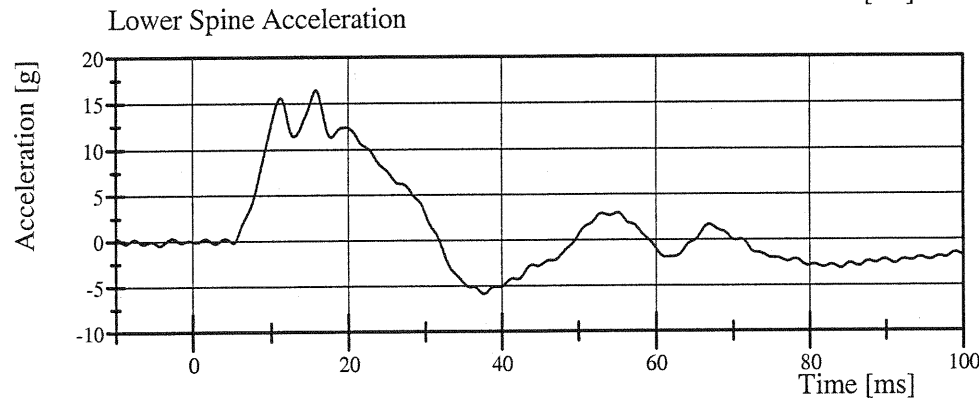
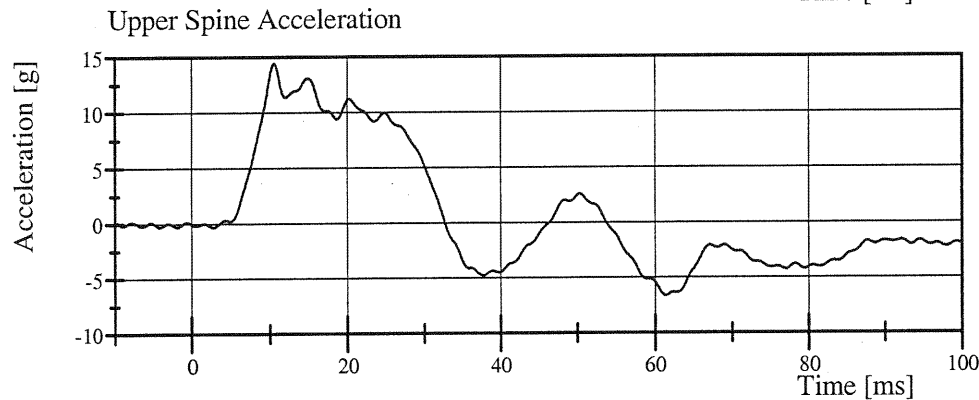
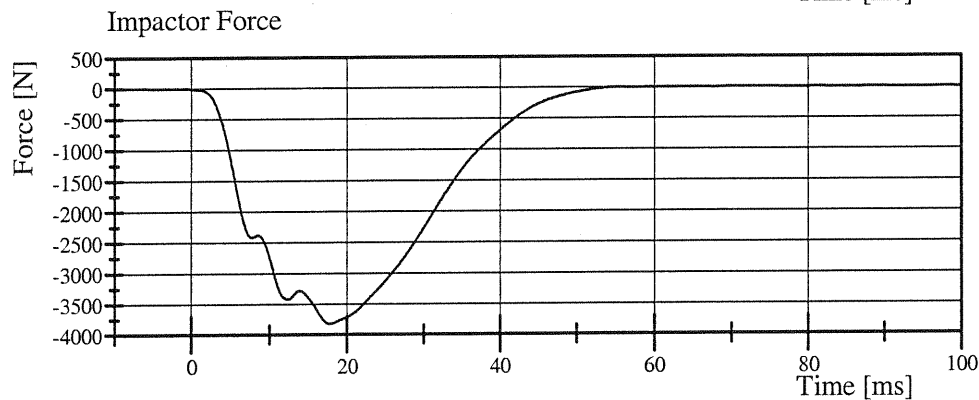
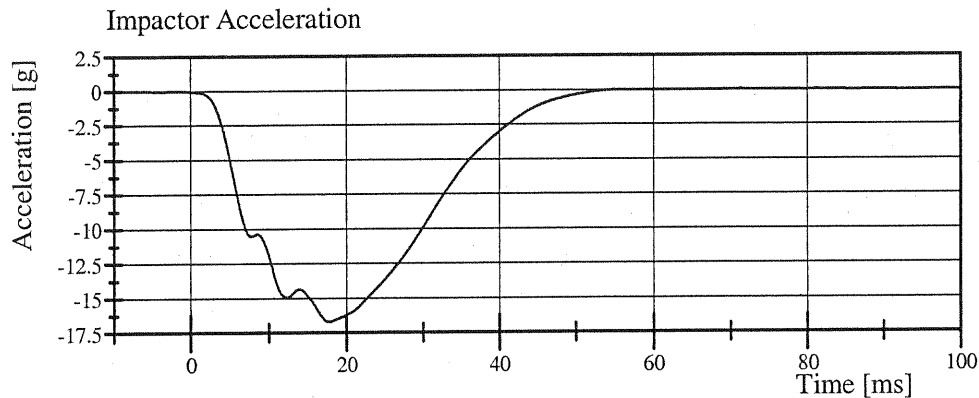


Transportation Research Center Inc.

Left Lateral Thorax without Arm

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-2

Test Date: 8/14/2007



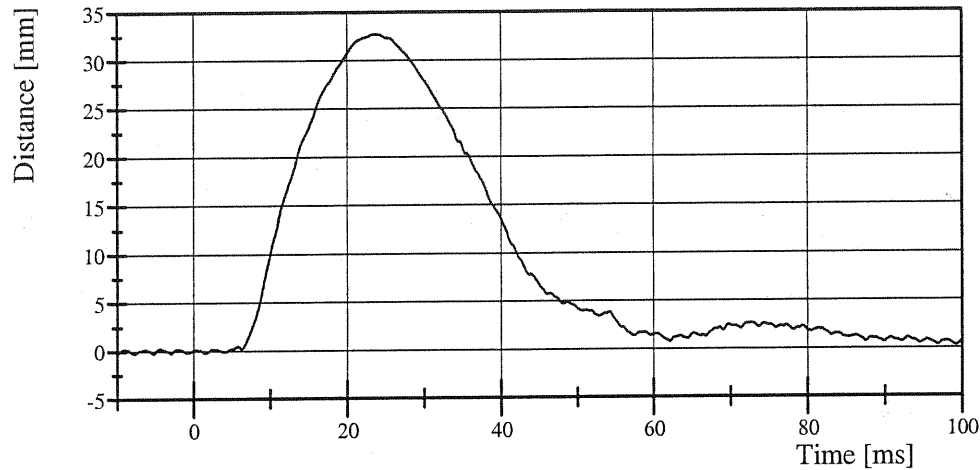
Transportation Research Center Inc.

Left Lateral Thorax without Arm

WorldSID ISO 15830-2 Serial No. 016 Certification No. 3-2

Test Date: 8/14/2007

Upper Thorax Rib Displacement

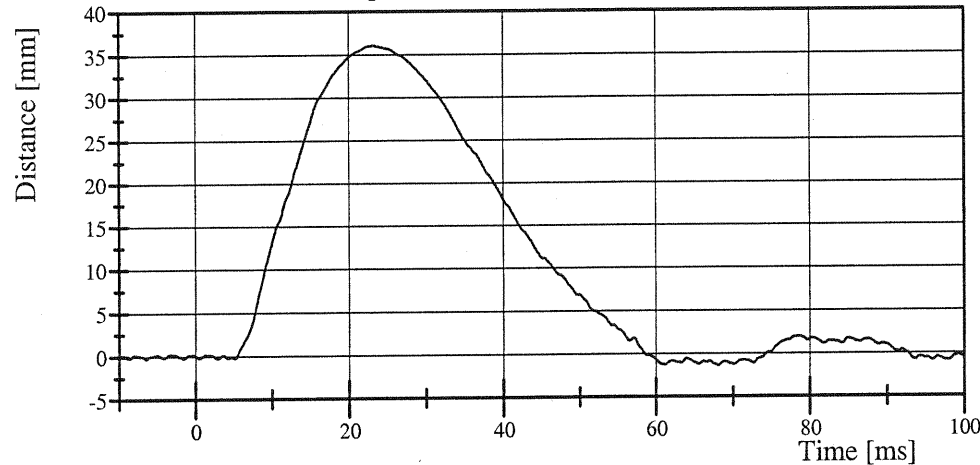


Filter Class: CFC_600

Max: 32.7 mm at 23.8 ms

Min: -0.2 mm at -5.1 ms

Center Thorax Rib Displacement

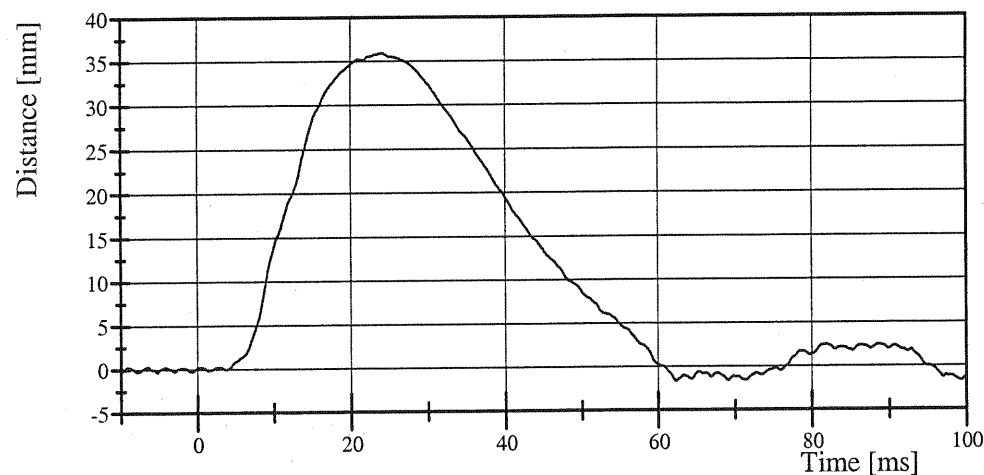


Filter Class: CFC_600

Max: 36.1 mm at 23.2 ms

Min: -1.4 mm at 68.1 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600

Max: 35.9 mm at 24.2 ms

Min: -1.7 mm at 99.4 ms

Appendix D

Test Equipment List and Calibration Information

Sign Convention
SAE J211 MAR95

Accelerometers:

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

Potentiometers:

+Chest longitudinal deflection: Outward
+Chest lateral deflection: Rightward
+Seat belt displacement: Outward
+Seat belt extension: Elongation
+Knee slider displacement: Distance between femur and tibia increased (in relation to a seated dummy)

Rotation potentiometers:

+About the X-axis: Left foot-eversion
Right foot-inversion
+About the Y-axis: Left/right foot-dorsiflexion
+About the Z-axis: Left foot-internal
Right foot-external

Load cells:

+Femur force: Tension
+Seat belt force: Tension
+Barrier force: Tension

Neck load cells:

+X force: Head pushed rearward
+Y force: Head pushed leftward
+Z force: Head pulled upward (tension on neck)
+X moment: Left ear rotating toward left shoulder
+Y moment: Chin rotating toward chest
+Z moment: Chin rotating toward left shoulder

Tibia load cells:

+X force: Ankle forward, knee rearward
+Y force: Ankle rightward, knee leftward
+Z force: Tension
+X moment: Bottom of tibia moving leftward
+Y moment: Bottom of tibia moving rearward

Sign Convention (Continued)
SAE J211 MAR95

<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 080108

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
1	Trig D1	10ZERO000000VO0A	EVENT		1 Logic	Bipolar	
2	p57796	16SILBFR0000ACXA	RIGHT SIDE SILL AT FRONT SEAT (X) ACCELERATION VS TIME (#1)	400	g	Bipolar	
3	p57817	16SILBFR0000ACYA	RIGHT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME (#1)	1000	g	-Bipolar	
4	p57805	16SILBFR0000ACZA	RIGHT SIDE SILL AT FRONT SEAT (Z) ACCELERATION VS TIME (#1)	400	g	-Bipolar	
5	P57189	16SILBRE0000ACXA	RIGHT SIDE SILL AT REAR SEAT (X) ACCELERATION VS TIME (#2)	400	g	Bipolar	
6	P56928	16SILBRE0000ACYA	RIGHT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME (#2)	1000	g	-Bipolar	
7	P48122	16SILBRE0000ACZA	RIGHT SIDE SILL AT REAR SEAT (Z) ACCELERATION VS TIME (#2)	400	g	-Bipolar	
8	P47547	18FORA000000ACXA	REAR FLOOR PAN ABOVE AXLE (X) ACCELERATION VS TIME (#3)	1000	g	Bipolar	
9	P56948	18FORA000000ACYA	REAR FLOOR PAN ABOVE AXLE (Y) ACCELERATION VS TIME (#3)	1000	g	-Bipolar	
10	P50640	18FORA000000ACZA	REAR FLOOR PAN ABOVE AXLE (Z) ACCELERATION VS TIME (#3)	1000	g	-Bipolar	
11	p57809	14SILBFR0000ACYA	LEFT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME (#5)	1000	g	-Bipolar	
12	P54519	14SILBRE0000ACYA	LEFT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME (#4)	1000	g	-Bipolar	
13	p57812	16VEHCRE0000ACYA	RIGHT REAR OCCUPANT COMPARTMENT (Y) ACCELERATION VS TIME (#7)	1500	g	Bipolar	
14	p57799	11APILLO0000ACYA	LEFT LOWER A-POST (Y) ACCELERATION VS TIME (#14)	1500	g	-Bipolar	
15	P57949	11APILMI0000ACYA	LEFT MID A-POST (Y) ACCELERATION VS TIME (#15)	1500	g	-Bipolar	
16	P57916	14BPILLO0000ACYA	LEFT LOWER B-POST (Y) ACCELERATION VS TIME (#12)	1500	g	-Bipolar	
17	P57203	14BPILMI0000ACYA	LEFT MID B-POST (Y) ACCELERATION VS TIME (#13)	1500	g	-Bipolar	
18	P54547	11SETRFR0000ACYA	LEFT FRONT SEAT TRACK (Y) ACCELERATION VS TIME (#16) - align with h-point	1500	g	Bipolar	
19	P48056	14SETRLERE00ACYA	LEFT REAR SEAT TRACK (Y) ACCELERATION VS TIME (#17)	1500	g	Bipolar	
20	P57821	10VEHCCG0000ACXA	VEHICLE CENTER OF GRAVITY (X) ACCELERATION VS TIME (#18)	1000	g	Bipolar	
21	P57832	10VEHCCG0000ACYA	VEHICLE CENTER OF GRAVITY (Y) ACCELERATION VS TIME (#18)	1000	g	-Bipolar	
22	P57841	10VEHCCG0000ACZA	VEHICLE CENTER OF GRAVITY (Z) ACCELERATION VS TIME (#18)	1000	g	-Bipolar	
23	P57398	14DOOR000001ACYA	Vehicle Front Door centerline 430 mm above ground Y acceleration	1500	g	Bipolar	
24	P57395	14DOOR000002ACYA	Vehicle Front Door mid-rear 430 mm above ground Y acceleration	1500	g	Bipolar	
25	P57414	14DOOR000003ACYA	Vehicle Front Door upper centerline 685 mm above ground Y acceleration	1500	g	Bipolar	
26	P57021	16DOOR000002ACYA	Vehicle Rear Door mid-rear 430 mm above ground Y acceleration	1500	g	Bipolar	
27	P57012	16DOOR000003ACYA	Vehicle Rear Door upper centerline 685 mm above ground Y acceleration	1500	g	Bipolar	
28	P57013	12ENGNTPO000ACXA	Top of Engine X acceleration	1000	g	Bipolar	
29	P57007	12ENGNTPO000ACYA	Top of Engine Y acceleration	1000	g	-Bipolar	
30	P57157	12VEHC000000ACXA	Firewall X acceleration	1000	g	Bipolar	
31	P57133	12VEHC000000ACYA	Firewall Y acceleration	1000	g	-Bipolar	
32	P56901	13ROOF000000ACXA	Right side Roof Rail (in line with impact point) X acceleration	1000	g	Bipolar	
33	P30335	13ROOF000000ACYA	Right side Roof Rail (in line with impact point) Y acceleration	1000	g	-Bipolar	
34	P57914	13SILBFR0000ACYA	Right side sill in-line with impact location y-axis acceleration	1000	g	Bipolar	
35	P45665	18DECK000000ACXA	Rear deck behind rear axel x-axis Accel	1000	g	Bipolar	
36	P49018	18DECK000000ACYA	Rear deck behind rear axel y-axis Accel	1000	g	-Bipolar	
37	P56988	18DECK000000ACZA	Rear deck behind rear axel z-axis Accel	1000	g	-Bipolar	
38	ABFire1	11AIRBMILE00EVOA	DRIV. SIDE AIRBAG IND (IP15)	5	V	Bipolar	
39	ABFire2	11AIRBTPLE00EVOA	DRIV. SIDE CURTAIN IND (IP2)	5	V	Bipolar	
40	Bit.00	11CONT000001VO00	Head contact switch		1 Logic	Bipolar	
41	Bit.11	11CONT000002VO00	shoulder contact switch		1 Logic	Bipolar	
42	Bit.06	11CONT000003VO00	torso contact switch		1 Logic	Bipolar	
43	Bit.08	11CONT000004VO00	leg contact switch		1 Logic	Bipolar	
44	68069	K0FBAR010000FOXA	POLE LOAD CELL 1	222400	N	-Bipolar	0-Barrier 201 Pole.001
45	68054	K0FBAR020000FOXA	POLE LOAD CELL 2	222400	N	-Bipolar	0-Barrier 201 Pole.002

Channel Report Test Number 080108

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
46	1220BZY-50K-122067A	K0FBAR030000FOXA	POLE LOAD CELL 3	222400	N	-Bipolar	0-Barrier 201 Pole.003
47	1220BZY-50K-122027A	K0FBAR040000FOXA	POLE LOAD CELL 4	222400	N	-Bipolar	0-Barrier 201 Pole.004
48	1220BZY-50K-122061A	K0FBAR050000FOXA	POLE LOAD CELL 5	222400	N	-Bipolar	0-Barrier 201 Pole.005
49	1220BZY-50K-114016A	K0FBAR060000FOXA	POLE LOAD CELL 6	222400	N	-Bipolar	0-Barrier 201 Pole.006
50	1220TX-50K-68056A	K0FBAR070000FOXA	POLE LOAD CELL 7	222400	N	-Bipolar	0-Barrier 201 Pole.007
51	1220TX-50K-68022A	K0FBAR080000FOXA	POLE LOAD CELL 8	222400	N	-Bipolar	0-Barrier 201 Pole.008

Command File Test Number 080108

Channel	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
1	11HEADCG00WSACXP	Head X-Axis Acceleration	1000	+	yes	2000
2	11HEADCG00WSACYP	Head Y-Axis Acceleration	1000	+	yes	2000
3	11HEADCG00WSACZP	Head Z-Axis Acceleration	1000	+	yes	2000
3A	11HEADCG00WSACRA	Head Resultant Acceleration	1000			
4	11HEADCG00WSANXP	Head X-Axis Angular Displacement	1000	+	yes	50000
5	11HEADCG00WSANYP	Head Y-Axis Angular Displacement	1000	+	yes	50000
6	11HEADCG00WSANZP	Head Z-Axis Angular Displacement	1000	+	yes	50000
7	11NECKUP00WSFOXP	Upper Neck X-Axis Force	1000	+	yes	10000
8	11NECKUP00WSFOYP	Upper Neck Y-Axis Force	1000	+	yes	10000
9	11NECKUP00WSFOZP	Upper Neck Z-Axis Force	1000	+	yes	12000
10	11NECKUP00WSMOXP	Upper Neck Moment About X Axis	600	+	yes	300
11	11NECKUP00WSMOYP	Upper Neck Moment About Y Axis	600	+	yes	300
12	11NECKUP00WSMOZP	Upper Neck Moment About Z Axis	600	+	yes	200
13	11NECKLO00WSFOXP	Lower Neck X-Axis Force	1000	+	yes	10000
14	11NECKLO00WSFOYP	Lower Neck Y-Axis Force	1000	+	yes	10000
15	11NECKLO00WSFOZP	Lower Neck Z-Axis Force	1000	+	yes	12000
16	11NECKLO00WSMOXP	Lower Neck Moment About X Axis	600	+	yes	300
17	11NECKLO00WSMOYP	Lower Neck Moment About Y Axis	600	+	yes	300
18	11NECKLO00WSMOZP	Lower Neck Moment About Z Axis	600	+	yes	200
19	11SHLDLE00WSFOXP	Shoulder X-Axis Force	600	+	yes	5000
20	11SHLDLE00WSFOYP	Shoulder Y-Axis Force	600	+	yes	10000
21	11SHLDLE00WSFOZP	Shoulder Z-Axis Force	600	+	yes	5000
22	11SHLDLE00WSDSYP	Shoulder Y-Axis Displacement	600	+	yes	90
23	11SHLDLE00WSACXP	Shoulder X-Axis Acceleration	1000	+	yes	2000
24	11SHLDLE00WSACYP	Shoulder Y-Axis Acceleration	1000	+	yes	2000
25	11SHLDLE00WSACZP	Shoulder Z-Axis Acceleration	1000	+	yes	2000
25A	11SHLDLE00WSACRA	Shoulder Resultant Acceleration	1000			
26	11THSP0100WSACXP	T1 X-Axis Acceleration	180	+	yes	2000
27	11THSP0100WSACYP	T1 Y-Axis Acceleration	180	+	yes	2000
28	11THSP0100WSACZP	T1 Z-Axis Acceleration	180	+	yes	2000
28A	11THSP0100WSACRA	T1 Resultant Acceleration	180			
29	11THSP0400WSACXP	T4 X-Axis Acceleration	180	+	yes	2000
30	11THSP0400WSACYP	T4 Y-Axis Acceleration	180	+	yes	2000
31	11THSP0400WSACZP	T4 Z-Axis Acceleration	180	+	yes	2000
31A	11THSP0400WSACRA	T4 Resultant Acceleration	180			
32	11THSP1200WSACXP	T12 X-Axis Acceleration	180	+	yes	2000
33	11THSP1200WSACYP	T12 Y-Axis Acceleration	180	+	yes	2000

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Channel	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
34	11THSP1200WSACZP	T12 Z-Axis Acceleration	180	+	yes	2000
34A	11THSP1200WSACRA	T12 Resultant Acceleration	180			
35	11TRRILE01WSDSYP	Thorax Rib 1 Y-Axis Displacement	600	+	yes	90
36	11TRRILE01WSACXP	Thorax Rib 1 X-Axis Acceleration	1000	+	yes	2000
37	11TRRILE01WSACYP	Thorax Rib 1 Y-Axis Acceleration	1000	+	yes	2000
38	11TRRILE01WSACZP	Thorax Rib 1 Z-Axis Acceleration	1000	+	yes	2000
38A	11TRRILE01WSACRA	Thorax Rib 1 Resultant Acceleration	1000			
39	11TRRILE02WSDSYP	Thorax Rib 2 Y-Axis Displacement	600	+	yes	90
40	11TRRILE02WSACXP	Thorax Rib 2 X-Axis Acceleration	1000	+	yes	2000
41	11TRRILE02WSACYP	Thorax Rib 2 Y-Axis Acceleration	1000	+	yes	2000
42	11TRRILE02WSACZP	Thorax Rib 2 Z-Axis Acceleration	1000	+	yes	2000
42A	11TRRILE02WSACRA	Thorax Rib 2 Resultant Acceleration	1000			
43	11TRRILE03WSDSYP	Thorax Rib 3 Y-Axis Displacement	600	+	yes	90
44	11TRRILE03WSACXP	Thorax Rib 3 X-Axis Acceleration	1000	+	yes	2000
45	11TRRILE03WSACYP	Thorax Rib 3 Y-Axis Acceleration	1000	+	yes	2000
46	11TRRILE03WSACZP	Thorax Rib 3 Z-Axis Acceleration	1000	+	yes	2000
46A	11TRRILE03WSACRA	Thorax Rib 3 Resultant Acceleration	1000			
47	11ABRILE01WSDSYP	Abdominal Rib 1 Y-Axis Displacement	600	+	yes	90
48	11ABRILE01WSACXP	Abdominal Rib 1 X-Axis Acceleration	1000	+	yes	2000
49	11ABRILE01WSACYP	Abdominal Rib 1 Y-Axis Acceleration	1000	+	yes	2000
50	11ABRILE01WSACZP	Abdominal Rib 1 Z-Axis Acceleration	1000	+	yes	2000
50A	11ABRILE01WSACRA	Abdominal Rib 1 Resultant Acceleration	1000			
51	11ABRILE02WSDSYP	Abdominal Rib 2 Y-Axis Displacement	600	+	yes	90
52	11ABRILE02WSACXP	Abdominal Rib 2 X-Axis Acceleration	1000	+	yes	2000
53	11ABRILE02WSACYP	Abdominal Rib 2 Y-Axis Acceleration	1000	+	yes	2000
54	11ABRILE02WSACZP	Abdominal Rib 2 Z-Axis Acceleration	1000	+	yes	2000
54A	11ABRILE02WSACRA	Abdominal Rib 2 Resultant Acceleration	1000			
55	11LUSP0000WSFOXP	Lumbar X-Axis Force	600	+	yes	10000
56	11LUSP0000WSFOYP	Lumbar Y-Axis Force	600	+	yes	10000
57	11LUSP0000WSFOZP	Lumbar Z-Axis Force	600	+	yes	12000
58	11LUSP0000WSMOXP	Lumbar Moment About X Axis	600	+	yes	300
59	11LUSP0000WSMOYP	Lumbar Moment About Y Axis	600	+	yes	300
60	11LUSP0000WSMOZP	Lumbar Moment About Z Axis	600	+	yes	200
61	11PELVCG00WSACXP	Pelvis X-Axis Acceleration	1000	+	yes	2000
62	11PELVCG00WSACYP	Pelvis Y-Axis Acceleration	1000	+	yes	2000
63	11PELVCG00WSACZP	Pelvis Z-Axis Acceleration	1000	+	yes	2000
63A	11PELVCG00WSACRA	Pelvis Resultant Acceleration	1000			

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Channel	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
64	11SACRLE00WSFOXP	Sacro-Iliac Left X-Axis Force	600	+	yes	6000
65	11SACRLE00WSFOYP	Sacro-Iliac Left Y-Axis Force	600	+	yes	12000
66	11SACRLE00WSFOZP	Sacro-Iliac Left Z-Axis Force	600	+	yes	6000
67	11SACRLE00WSMOXP	Sacro-Iliac Left Moment About X Axis	600	+	yes	1000
68	11SACRLE00WSMOYP	Sacro-Iliac Left Moment About Y Axis	600	+	yes	400
69	11SACRLE00WSMOZP	Sacro-Iliac Left Moment About Z Axis	600	+	yes	400
70	11SACRRI00WSFOXP	Sacro-Iliac Right X-Axis Force	600	+	yes	6000
71	11SACRRI00WSFOYP	Sacro-Iliac Right Y-Axis Force	600	+	yes	12000
72	11SACRRI00WSFOZP	Sacro-Iliac Right Z-Axis Force	600	+	yes	6000
73	11SACRRI00WSMOXP	Sacro-Iliac Right Moment About X Axis	600	+	yes	1000
74	11SACRRI00WSMOYP	Sacro-Iliac Right Moment About Y Axis	600	+	yes	400
75	11SACRRI00WSMOZP	Sacro-Iliac Right Moment About Z Axis	600	+	yes	400
76	11PUBC0000WSFOYP	Pubic Y-Axis Force	600	+	yes	12000
77	11FEMRLL00WSFOXP	Left Femur X-Axis Force	600	+	yes	10000
78	11FEMRLL00WSFOYP	Left Femur Y-Axis Force	600	+	yes	25000
79	11FEMRLL00WSFOZP	Left Femur Z-Axis Force	600	+	yes	10000
80	11FEMRLEMIWSFOXP	Left Mid Femur X-Axis Force	600	+	yes	15000
81	11FEMRLEMIWSFOYP	Left Mid Femur Y-Axis Force	600	+	yes	15000
82	11FEMRLEMIWSFOZP	Left Mid Femur Z-Axis Force	600	+	yes	15000
83	11FEMRLEMIWSMOXP	Left Mid Femur Moment About X Axis	600	+	yes	350
84	11FEMRLEMIWSMOYP	Left Mid Femur Moment About Y Axis	600	+	yes	350
85	11FEMRLEMIWSMOZP	Left Mid Femur Moment About Z Axis	600	+	yes	300
86	11KNEELEINWSFOYP	Left Knee Inboard Y-Axis Force	600	+	yes	20000
87	11KNEELEOUWSFOYP	Left Knee Outboard Y-Axis Force	600	+	yes	20000
88	11FEMRRIMIWSFOXP	Right Mid Femur X-Axis Force	600	+	yes	15000
89	11FEMRRIMIWSFOYP	Right Mid Femur Y-Axis Force	600	+	yes	15000
90	11FEMRRIMIWSFOZP	Right Mid Femur Z-Axis Force	600	+	yes	15000
91	11FEMRRIMIWSMOXP	Right Mid Femur Moment About X Axis	600	+	yes	350
92	11FEMRRIMIWSMOYP	Right Mid Femur Moment About Y Axis	600	+	yes	350
93	11FEMRRIMIWSMOZP	Right Mid Femur Moment About Z Axis	600	+	yes	300
94	16SILBFR0000ACXA	Right Side Sill at Front Seat X-Axis Acceleration	60	+	yes	400
94A	16SILBFR0000VEXC	Right Side Sill at Front Seat X-Axis Velocity	180			
94B	16SILBFR0000DCXC	Right Side Sill at Front Seat X-Axis Displacement	180			
95	16SILBFR0000ACYA	Right Side Sill at Front Seat Y-Axis Acceleration	60	+	yes	1000
95A	16SILBFR0000VEYC	Right Side Sill at Front Seat Y-Axis Velocity	180			
95B	16SILBFR0000DCYC	Right Side Sill at Front Seat Y-Axis Displacement	180			
96	16SILBFR0000ACZA	Right Side Sill at Front Seat Z-Axis Acceleration	60	+	yes	400

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Channel	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
96A	16SILBFR0000ACRA	Right Side Sill at Front Seat Resultant Acceleration	60			
97	16SILBRE0000ACXA	Right Side Sill at Rear Seat X-Axis Acceleration	60 +	yes		400
97A	16SILBRE0000VEXC	Right Side Sill at Rear Seat X-Axis Velocity	180			
97B	16SILBRE0000DCXC	Right Side Sill at Rear Seat X-Axis Displacement	180			
98	16SILBRE0000ACYA	Right Side Sill at Rear Seat Y-Axis Acceleration	60 +	yes		1000
98A	16SILBRE0000VEYC	Right Side Sill at Rear Seat Y-Axis Velocity	180			
98B	16SILBRE0000DCYC	Right Side Sill at Rear Seat Y-Axis Displacement	180			
99	16SILBRE0000ACZA	Right Side Sill at Rear Seat Z-Axis Acceleration	60 +	yes		400
99A	16SILBRE0000ACRA	Right Side Sill at Rear Seat Resultant Acceleration	60			
100	18FORA000000ACXA	Rear Floorpan Above Axle X-Axis Acceleration	60 +	yes		1000
101	18FORA000000ACYA	Rear Floorpan Above Axle Y-Axis Acceleration	60 +	yes		1000
102	18FORA000000ACZA	Rear Floorpan Above Axle Z-Axis Acceleration	60 +	yes		1000
102A	18FORA000000ACRA	Rear Floorpan Above Axle Resultant Acceleration	60			
103	14SILBFR0000ACYA	Left Side Sill at Front Seat Y-Axis Acceleration	60 +	yes		1000
103A	14SILBFR0000VEYC	Left Side Sill at Front Seat Y-Axis Velocity	180			
103B	14SILBFR0000DCYC	Left Side Sill at Front Seat Y-Axis Displacement	180			
104	14SILBRE0000ACYA	Left Side Sill at Rear Seat Y-Axis Acceleration	60 +	yes		1000
104A	14SILBRE0000VEYC	Left Side Sill at Rear Seat Y-Axis Velocity	180			
104B	14SILBRE0000DCYC	Left Side Sill at Rear Seat Y-Axis Displacement	180			
105	16VEHCRE0000ACYA	Right Rear Occupant Compartment Y-Axis Acceleration	60 +	yes		1500
106	11APILLO0000ACYA	Left Lower A-Post Y-Axis Acceleration	60 +	yes		1500
107	11APILMI0000ACYA	Left Mid A-Post Y-Axis Acceleration	60 +	yes		1500
108	14BPILLO0000ACYA	Left Lower B-Post Y-Axis Acceleration	60 +	yes		1500
109	14BPILMI0000ACYA	Left Mid B-Post Y-Axis Acceleration	60 +	yes		1500
110	11SETRFR0000ACYA	Left Front Seat Track Y-Axis Acceleration	60 +	yes		1500
111	14SETRLERE00ACYA	Left Rear Seat Track Y-Axis Acceleration	60 +	yes		1500
112	10VEHCCG0000ACXA	Vehicle Center of Gravity X-Axis Acceleration	60 +	yes		1000
113	10VEHCCG0000ACYA	Vehicle Center of Gravity Y-Axis Acceleration	60 +	yes		1000
114	10VEHCCG0000ACZA	Vehicle Center of Gravity Z-Axis Acceleration	60 +	yes		1000
114A	10VEHCCG0000ACRA	Vehicle Center of Gravity Resultant Acceleration	60			
115	14DOOR000001ACYA	Vehicle Front Door Centerline 430 mm Above Ground Y-Axis Acceleration	60 +	yes		1500
116	14DOOR000002ACYA	Vehicle Front Door Mid-Rear 430 mm Above Ground Y-Axis Acceleration	60 +	yes		1500
117	14DOOR000003ACYA	Vehicle Front Door Upper Centerline 685 mm Above Ground Y-Axis Acceleration	60 +	yes		1500
118	16DOOR000002ACYA	Vehicle Rear Door Mid-Rear 430 mm Above Ground Y-Axis Acceleration	60 +	yes		1500
119	16DOOR000003ACYA	Vehicle Rear Door Upper Centerline 685 mm Above Ground Y-Axis Acceleration	60 +	yes		1500
120	12ENGNTTP0000ACXA	Top of Engine X-Axis Acceleration	60 +	yes		1000
121	12ENGNTTP0000ACYA	Top of Engine Y-Axis Acceleration	60 +	yes		1000

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Channel	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
122	12VEHC000000ACXA	Firewall X-Axis Acceleration	60	+	yes	1000
123	12VEHC000000ACYA	Firewall Y-Axis Acceleration	60	+	yes	1000
124	13ROOF000000ACXA	Right Side Roof Rail (in line with impact point) X-Axis Acceleration	60	+	yes	1000
125	13ROOF000000ACYA	Right Side Roof Rail (in line with impact point) Y-Axis Acceleration	60	+	yes	1000
126	13SILBFR000000ACYA	Right Side Sill (in-line with impact location) Y-Axis Acceleration	60	+	yes	1000
127	18DECK000000ACXA	Rear Deck Behind Rear Axle X-Axis Acceleration	60	+	yes	1000
128	18DECK000000ACYA	Rear Deck Behind Rear Axle Y-Axis Acceleration	60	+	yes	1000
129	18DECK000000ACZA	Rear Deck Behind Rear Axle Z-Axis Acceleration	60	+	yes	1000
129A	18DECK000000ACRA	Rear Deck Behind Rear Axle Resultant Acceleration	60			
130	11AIRBMILE00EV0A	Driver Side Airbag Inductor	1000	+	no	5
131	11AIRBTPLE00EV0A	Driver Side Curtain Inductor	1000	+	no	5
132	11CONT000001VO00	Head Contact Switch	0	+	no	1
133	11CONT000002VO00	Shoulder Contact Switch	0	+	no	1
134	11CONT000003VO00	Torso Contact Switch	0	+	no	1
135	11CONT000004VO00	Left Contact Switch	0	+	no	1
136	K0FBAR010000FOXA	Pole Load Cell 1	60	+	yes	222400
137	K0FBAR020000FOXA	Pole Load Cell 2	60	+	yes	222400
138	K0FBAR030000FOXA	Pole Load Cell 3	60	+	yes	222400
139	K0FBAR040000FOXA	Pole Load Cell 4	60	+	yes	222400
140	K0FBAR050000FOXA	Pole Load Cell 5	60	+	yes	222400
141	K0FBAR060000FOXA	Pole Load Cell 6	60	+	yes	222400
142	K0FBAR070000FOXA	Pole Load Cell 7	60	+	yes	222400
143	K0FBAR080000FOXA	Pole Load Cell 8	60	+	yes	222400

2006 TOYOTA SIENNA LEFT SIDE FMVSS 214 POLE IMPACT AT 32 KPH

