

**Vehicle Research and Test Center
Oblique Side Pole Impact
SID-IIs - (Build Level D)
2006 Toyota Avalon XL
TRC Inc. Test Number: 070709**

**Prepared By:
Transportation Research Center Inc.
10820 State Route 347
P. O. Box B-67
East Liberty, OH 43319**

**Final Report
July - August 2007**

**Prepared For
Vehicle Research and Test Center
P. O. Box 37
East Liberty, OH 43319**

Notice

Transportation Research Center Inc. does not endorse or certify products of manufacturers. The manufacturer's name appears solely to identify the test article. Transportation Research Center Inc. assumes no liability for the report or use thereof. It is responsible for the facts and the accuracy of the data presented herein. This report does not constitute a standard, specification, or regulation.

This publication is distributed by the U. S. Department of Transportation, National Highway Traffic Safety Administration, in the interest of information exchange. The opinions, findings and conclusions expressed in this publication are those of the author(s) and not necessarily those of the Department of Transportation or the National Highway Traffic Safety Administration. The United States Government assumes no liability for its contents or use thereof. If trade or manufacturers' names or products are mentioned, it is only because they are considered essential to the object of the publication and should not be construed as an endorsement. The United State Government does not endorse products or manufacturers.

Table of Contents

<u>Section</u>	<u>Description</u>	<u>Page</u>
1	Purpose and Test Procedure	1-1
2	Side Impact Test Results	2-1
3	Summary of Test Results	3-1
4	Occupant and Vehicle Information	4-1
Appendix A	Photographs	A-1
Appendix B	Data Plots	B-1
Appendix C	SID-IIs Configuration and Performance Verification Data	C-1
Appendix D	Miscellaneous Test Information	D-1

List of Tables

<u>Number</u>	<u>Description</u>	<u>Page</u>
1	General Vehicle Test Parameter Data	3-2
2	Test Vehicle Tire Information	3-6
3	Post-Test Observations	3-7
4	SID-IIs Instrumentation Data	4-2
5	Vehicle Structural Measurements	4-7
6	Vehicle Exterior Crush Profiles - All Levels	4-9
7	Test Vehicle Accelerometer Locations and Data Summary	4-13

List of Figures

<u>Number</u>	<u>Description</u>	<u>Page</u>
1	SID-IIs Longitudinal Clearance Dimensions	4-4
2	SID-IIs Lateral Clearance Dimensions	4-5
3	Vehicle Pre-Test And Post-Test Measurements	4-6
4	Vehicle Side Measurements	4-8
5	Vehicle Damage Profile Distances	4-11
6	Test Vehicle Accelerometer Locations and Data Summary	4-12
7	High-Speed Camera Locations and Data	4-18

List of Photographs

<u>Description</u>	<u>Figure</u>
Pre-Test Front View	A-1
Post-Test Front View	A-2
Pre-Test Left Front View	A-3
Post-Test Left Front View	A-4
Pre-Test Left Side View	A-5
Post-Test Left Side View	A-6
Pre-Test Left Rear View	A-7
Post-Test Left Rear View	A-8
Pre-Test Rear View	A-9
Post-Test Rear View	A-10
Pre-Test Right Rear View	A-11
Post-Test Right Rear View	A-12
Pre-Test Right Side View	A-13
Post-Test Right Side View	A-14
Pre-Test Right Front View	A-15
Post-Test Right Front View	A-16
Pre-Test Overhead View	A-17
Post-Test Overhead View	A-18
Pre-Test Impact Point View	A-19
Post-Test Impact Point View	A-20
Post-Test Left Front Impact Point View	A-21
Post-Test Left Side Impact Point View	A-22
Pre-Test Fuel Filler Cap View	A-23
Post-Test Fuel Filler Cap View	A-24
Pre-Test Pole Barrier Front View	A-25
Post-Test Pole Barrier Front View	A-26
Pre-Test Driver Dummy Side View	A-27
Post-Test Driver Dummy Side View	A-28

List of Photographs, Continued

<u>Description</u>	<u>Figure</u>
Pre-Test Right Side Dummy Occupant Compartment View	A-29
Post-Test Right Side Dummy Occupant Compartment View	A-30
Pre-Test Driver Dummy and Door Clearance View	A-31
Post-Test Driver Dummy and Door Clearance View	A-32
Pre-Test Driver Dummy Showing Belts, Chalking, and Contact Switches	A-33
Pre-Test Driver Door Panel View	A-34
Post-Test Driver Door Panel View	A-35
Post-Test Driver Dummy Head Contact - View 1	A-36
Post-Test Driver Dummy Head Contact - View 2	A-37
Post-Test Driver Dummy Head Contact - View 3	A-38
Post-Test Driver Dummy Door Contact View	A-39
Certification Label View	A-40
Recommended Tire Pressure Label View	A-41
Pre-Test Ballast View	A-42
Post-Test Digital Light Trap Read-Out - View 1	A-43
Post-Test Digital Light Trap Read-Out - View 2	A-44

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 Avalon XL 4-door sedan 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

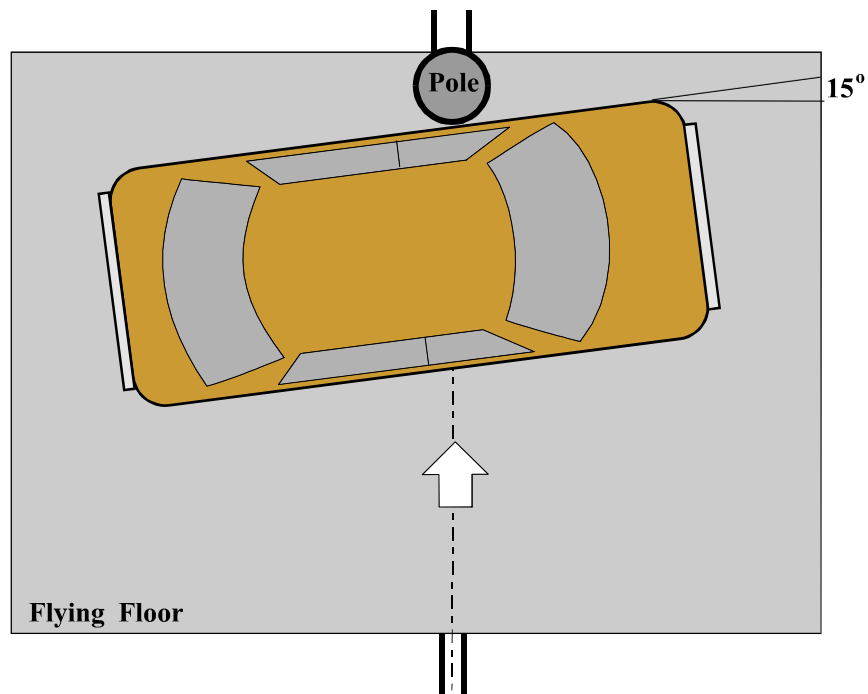
Summary of Side Impact Test

A 2006 Toyota Avalon XL 4-door sedan 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 July 9, 2007. Pre-test and post-test photographs of the test vehicle, the rigid pole barrier, and the side impact dummy (SID-IIs Build Level D) are included in Appendix A.

One restrained Side Impact Dummy (SID-IIs Build Level D) was placed in the driver (Pos. #1) designated seating position according to the instructions specified in the NHTSA Draft Side Impact Laboratory Test Procedure (TP-214P-00, dated May 2004). The side impact test was documented by one (1) real-time camera and nine (9) high-speed digital cameras. Camera locations and other pertinent camera information are included in this report.

The SID-IIs Build Level D was instrumented with triaxial head, shoulder, upper spine, lower spine and pelvis oriented to measure longitudinal, lateral, and vertical accelerations. The dummy was also instrumented with 6-axis channel upper neck moment and force load cells, shoulder, iliac, and acetabulum load cells, five rib lateral accelerometers, and rib and shoulder displacement potentiometers.

A summary of the side impact dummy (SID-IIs Build Level D) configuration and verification test data can be found in Appendix C. A total of 79 channels of data were recorded. Appendix B contains the vehicle, barrier, and dummy response data traces.



The following table summarizes the results of the test.

	Front SID-IIs (#056)
HIC36 (g) CFC 1000	642
Upper Rib Deflection (mm) CFC 180	
Rib 1	25 mm
Rib 2	21 mm
Rib 3	28 mm
Lower Rib Deflection (mm) CFC 180	
Rib 1	38 mm
Rib 2	36 mm
Lower Spine Resultant (g) CFC 180	62 g
Combined Iliac/Acetabulum Force (N) CFC 600	6672 N

	2006 Toyota Avalon XL
Vehicle Test Weight	1713.2 kg (3777 lbs)
Impact Point (Horizontal - from Front Axle)	1125 mm
Maximum Crush	461 mm Level 2
Impact Speed	20.02 mph

Data Acquisition Explanations

The vehicle's left mid B-post Y-axis acceleration data channel, 14BPILMI0000ACYA, did not return to zero after approximately 150 milliseconds.

The vehicle's front door mid-rear 430 above ground Y-axis acceleration data channel, 14DOOR000002ACYA, exceeded full-scale capacity at approximately 30 milliseconds and recorded no valid data thereafter.

The vehicle's front door upper centerline 685 above ground Y-axis acceleration data channel, 14DOOR000003ACYA, exceeded full-scale capacity at approximately 67 milliseconds and recorded no valid data thereafter.

Section 3

Summary of Test Results

Table 1 General Test Vehicle Parameter Data

Test Vehicle: 2006 Toyota Avalon XL

Test Date: 07/09/07

TEST VEHICLE INFORMATION

Make	Toyota
Model	Avalon XL
Body Style	4-door sedan
VIN	4T1BK36BX6U068008
Color	Tan
Odometer Reading	33,835 miles
Transmission	5-Speed Automatic
Final Drive	Front wheel drive
Number of Cylinders	6
Engine Displacement	3.5 L
Engine Placement	Longitudinal
Air Conditioning	Yes
Power Windows	Yes
Power Seats	Driver only
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	No
Bucket Seats	Yes
Rear Defroster	Yes
2-Door/4-Door	4
AM/FM Radio	Yes
CD Player	Yes
Sun Roof	No
Telescoping Steering Wheel/Column	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	Toyota Motor Mfg.
Date of Manufacture	08/05

GVWR (kg)	2071
GAWR Front (kg)	1209
GAWR Rear (kg)	1136

Measured Parameter	Front	Mid	Rear	Total
Type of Seats	Bucket	Split Bench	Split Bench	
Number Of Occupants	2	N/A	3	5
Capacity Wt. (VCW)				397
Cargo Wt. (RCLW) (kg)				57

Table 1 General Test Vehicle Parameter Data, Continued

Test Vehicle: 2006 Toyota Avalon XL

Test Date 07/09/07

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW) (Axle)			As Tested (ATW) (Axle)		
		Front	Rear	Total	Front	Rear	Total
Left	kg	482.4	318.8		483.2	347.4	
Right	kg	489.8	304.2		504.2	378.4	
Ratio	%	60.9	39.1		57.6	42.4	
Totals	kg	972.2	623.0	1595.2	987.4	725.8	1713.2

TARGET TEST WEIGHT CALCULATION

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1595.2
Weight of SIDIIs ATD	kg	61.0
Rated Cargo/Luggage Weight (RCLW)	kg	57.0
Calculated Vehicle Target Weight (TVTW)	kg	1713.2

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG(aft of front axle)
As Delivered	mm	685	686	692	697	1100
As Tested	mm	680	677	675	686	1193
Fully Loaded	mm	677	682	668	680	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheelbase	mm	2816
Total Vehicle Length at Left Side	mm	4755
Total Vehicle Length at Centerline	mm	4995
Total Vehicle Length at Right Side	mm	4755
Weight of Ballast Behind Passenger Seat	kg	20.9
Amount of Stoddard Solvent in Fuel Tank	liters	65.1

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Impact Reference Line From Front Axle	mm	1125
Impact Point	mm	1125
Impact Point Difference	mm	0 mm

Table 1 General Test Vehicle Parameter Data, Continued

Test Vehicle: 2006 Toyota Avalon XL

Test Date 07/09/07

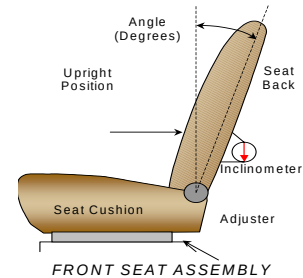
SID II's RIDING POSITION

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 5.5° measured at the head restraint.

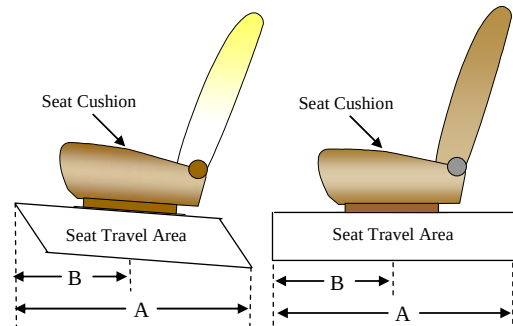


SEAT FORE/AFT POSITIONS

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	Full forward
Rear Seat	N/A	N/A



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

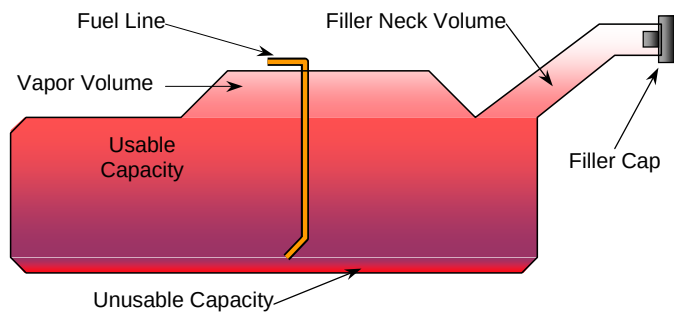
Test Vehicle: 2006 Toyota Avalon XL

Test Date 07/09/07

FUEL TANK CAPACITY

	Liters
Usable Capacity of "Standard Tank"	70.0
Usable Capacity used for FMVSS301	70.0
Actual Amount of Solvent used	65.1

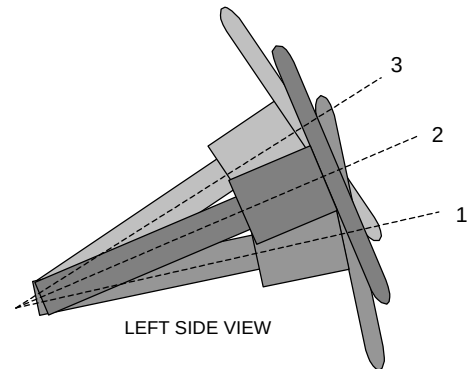
The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender. The standard fuel tank occupies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

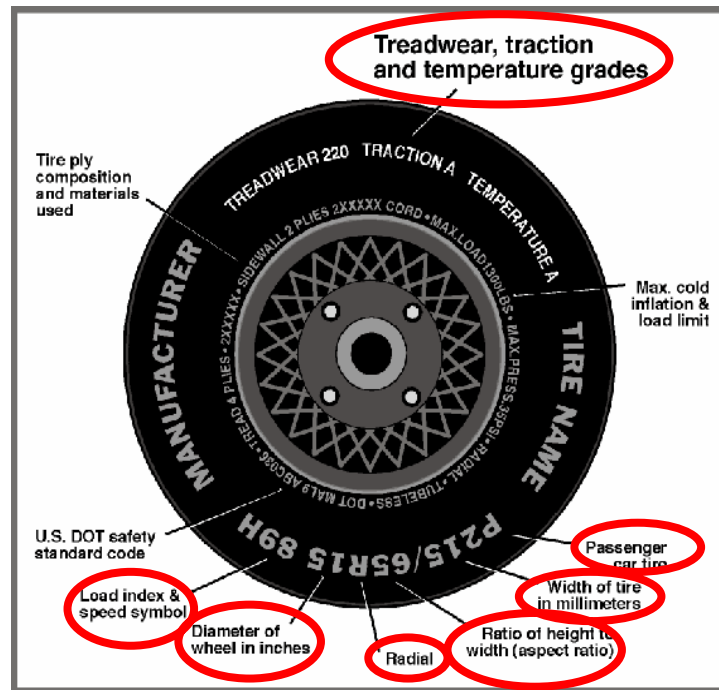
	Degrees	Fore/Aft Position, mm
Lowermost Position	N/A	N/A
Geometric Center Position	N/A	N/A
Uppermost Position	N/A	N/A

Table 2 Test Vehicle Tire Information

Test Vehicle: 2006 Toyota Avalon XL

Test Date

07/09/07



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	250	250
Cold / Test Pressure (kPa)	200	200
Recommended Tire Size	P215/60R16	P215/60R16
Tire Size on Vehicle	P215/60R16	P215/60R16
Tire Manufacturer	Prime Well	Prime Well
Tire Name	PS 830	PS 830
Radial	R	R
Wheel Diameter	16	16
Load Index & Speed Symbol	95H	95H
Treadwear	450	450
Traction Grade	A	A
Temperature Grade	A	A

Table 3 Post-Test Observations

Test Vehicle: 2006 Toyota Avalon XL

Test Date 07/09/07

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID IIs
Dummy Type / Serial No.	SID IIs / 056
Head Contact	Side curtain airbag, head restraint
Upper Torso Contact	Torso airbag
Lower Torso Contact	
Left Knee Contact	Door panel
Right Knee Contact	None

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Locked/Unlocked Doors	Unlocked	Unlocked
Left Side Door Opening	Jammed & Latched	Jammed & Latched
Right Side Door Opening	Close & 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	Left front window shattered
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 01	
	Installed	Operation
Front Airbag	Yes	No
Head/Torso Side Airbag	Yes	Yes
Head Airbag	No	N/A
Curtain Airbag	No	N/A

Section 4

Occupant and Vehicle Information

Table 4 SID-IIs Instrumentation Data

Vehicle: 2006 Toyota Avalon XL 4-door sedan

Test Number: 070709

Driver Dummy Serial Number: 056

		Positive Direction		Negative Direction	
		Max.	Time	Max.	Time
Location		(g)	(ms)	(g)	(ms)
Head Acceleration	X	79.3	62.6	4.0	211.0
	Y	187.4	62.6	7.3	192.3
	Z	20.9	64.1	29.4	56.6
	R	204.7	62.6		
Neck Force ¹	X	113.0	212.6	392.7	67.0
	Y	397.0	66.3	233.9	191.1
	Z	1015.4	56.6	926.6	63.0
Neck Moment	X	10.7	130.0	51.5	66.4
	Y	13.6	84.3	28.9	59.9
	Z	5.1	76.4	6.9	184.5
Shoulder Acceleration	X	57.0	48.6	70.1	27.5
	Y	171.2	46.7	108.3	52.7
	Z	84.4	79.5	45.6	49.2
	R	179.2	47.4		
Shoulder Force ¹	X	245.4	28.1	312.9	57.4
	Y	1478.6	47.9	175.1	77.0
	Z	469.4	63.9	109.1	80.2
Shoulder Displacement	Y	44.0	53.3	0.0	25.4
Upper Spine Acceleration	X	27.8	55.8	5.1	138.2
	Y	47.8	55.0	9.0	128.4
	Z	5.6	62.7	3.2	38.6
	R	54.4	55.4		
Left Thorax Rib 1 Displacement	Y	25.3	53.8	0.3	206.6
Left Thorax Rib 2 Displacement	Y	21.2	49.4	0.2	207.0
Left Thorax Rib 3 Displacement	Y	27.6	49.0	0.2	159.5
Left Abdomen Rib 1 Displacement	Y	38.1	51.1	0.7	173.5

¹ See Data Acquisition Explanations.

Table 4 SID-IIs Instrumentation Data, Continued

Vehicle: 2006 Toyota Avalon XL 4-door sedan

Test Number: 070709

Driver Dummy Serial Number: 056

		Positive Direction		Negative Direction	
		Max.	Time	Max.	Time
Location		(g)	(ms)	(g)	(ms)
Left Abdomen Rib 2 Displacement	Y	36.3	52.8	0.0	14.5
Left Thorax Rib 1 Acceleration	Y	127.8	61.7	70.7	37.0
Left Thorax Rib 2 Acceleration	Y	69.1	52.5	39.9	72.1
Left Thorax Rib 3 Acceleration	Y	371.5	28.9	79.8	31.8
Left Abdomen Rib 1 Acceleration	Y	486.4	29.4	186.8	31.0
Left Abdomen Rib 2 Acceleration	Y	386.2	29.8	101.6	35.4
Lower Spine Acceleration	X	4.5	29.5	8.3	86.0
	Y	60.7	50.1	10.1	102.4
	Z	23.6	63.0	18.2	47.4
	R	62.3	49.4		
Left Iliac Wing Force	Y	3679.7	48.2	88.5	142.6
Left Acetabulum Force	Y	3109.5	46.2	63.3	25.9
Pelvis Acceleration	X	9.8	57.2	6.5	44.2
	Y	67.6	46.4	16.2	91.1
	Z	7.3	91.9	10.9	32.3
	R	67.6	46.4		

Positive Direction

Longitudinal: Forward

Lateral: Rightward

Vertical: Downward

Negative Direction

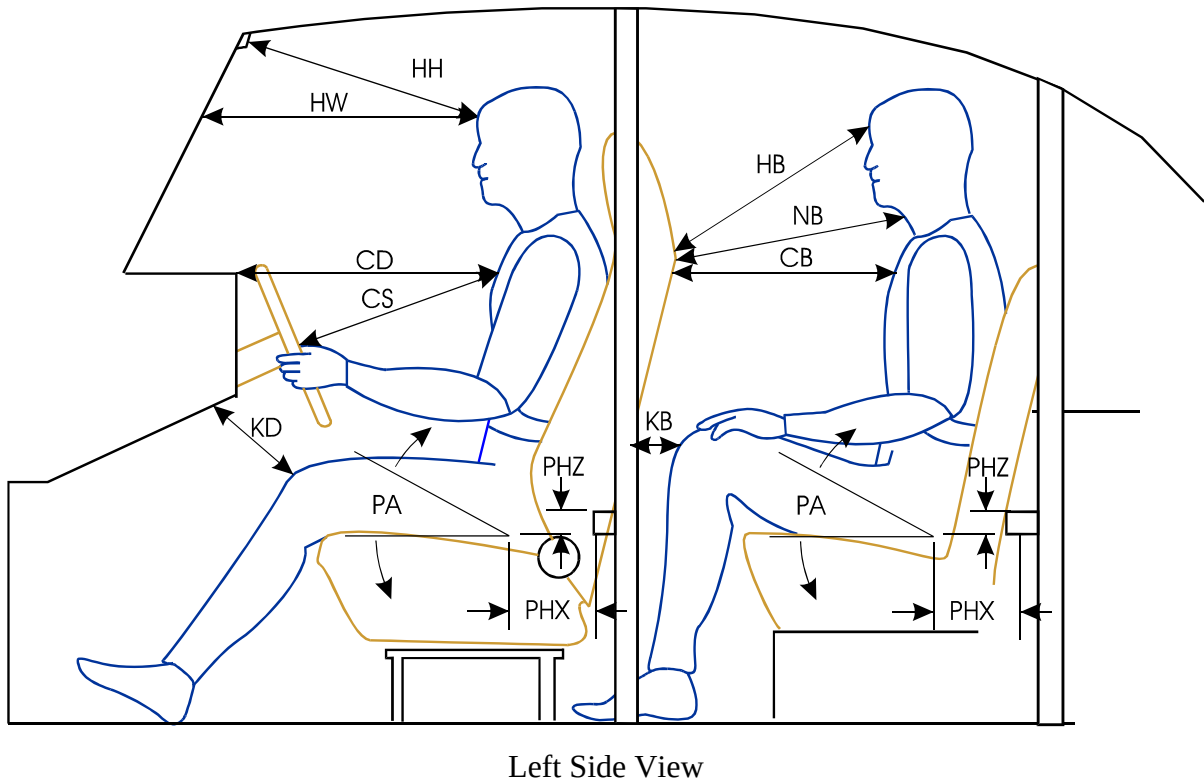
Longitudinal: Rearward

Lateral: Leftward

Vertical: Upward

Figure 1 SID-IIs Longitudinal Clearance Dimensions

Vehicle: 2006 Toyota Avalon XL 4-door sedan



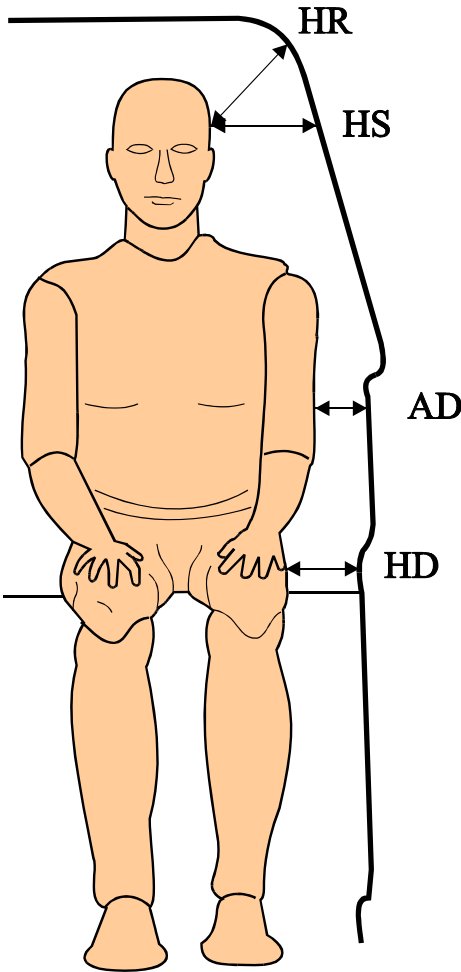
Note: All measurements are in millimeters with tolerance of ± 0.1 mm

Measurement	Driver SID-IIs # 056
HH	276
HW	637
HZ	199
NR	272
CD	446
CS	185
KDL(KDA°)	111/(25.1°)
KDR(KDA°)	105/(15.8°)
PA°	N/A
PHX	370
PHZ	199

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

Figure 2 SID-IIs Lateral Clearance Dimensions

Vehicle: 2006 Toyota Avalon XL 4-door sedan

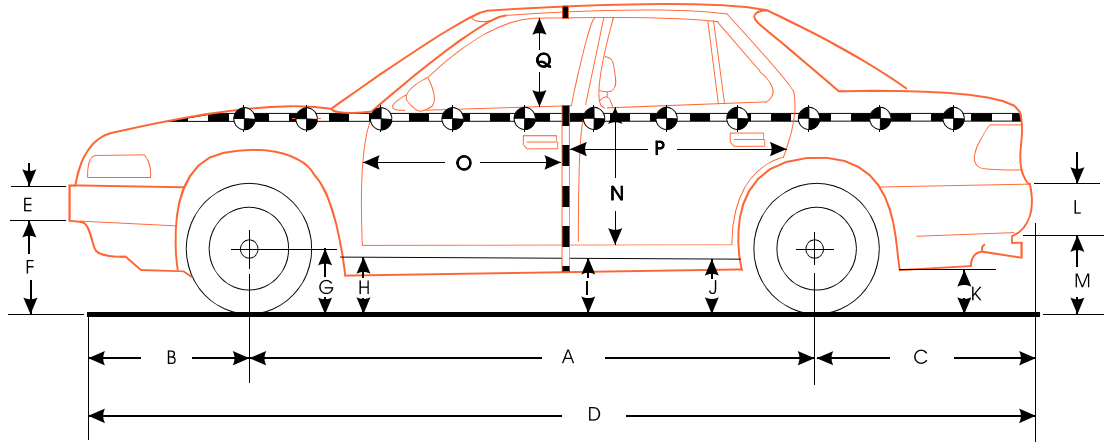


Note: All measurements are in millimeters with tolerance of ± 0.1 mm

Measurement	Driver SID-IIs # 056	
HR	259	
HS	377	
AD	Lower: 167	Upper: 164
HD	54	

Figure 3 Vehicle Pre-Test And Post-Test Measurements

Vehicle: 2006 Toyota Avalon XL 4-door sedan



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	2816	2816	2741	75
B	985	985	970	15
C	1490	1490	1495	-5
D	4995	4995	4925	70
E	171	171	171	0
F	405	410	438	-28
G	309	310	305	5
H	246	240	226	14
I	252	235	259	-24
J1	222	200	228	-28
J2	270	250	279	-29
K	250	226	244	-18
L	247	247	247	0
M	420	386	394	-8
N	755	755	746	9
O	733	733	563	170
P	1353	1353	1219	134
Q	369	369	319	50
R	4755	4755	4754	1
S	4755	4755	4710	45
T	1356	1356	1202	154

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	4995
2	Total Width	1857
3	Bumper Top Height	500
4	Bumper Bottom Height	395
5	Longitudinal Member Top Height	520
6	Longitudinal Member Bottom Height	400
7	Distance Between Longitudinal Members	1080
7'	Longitudinal Member Width	65
8	Engine Top Height	795
9	Engine Bottom Height	175
10	Engine and Gearbox Width	840
11	Front Bumper - Engine Distance	478
12	Front Shock Absorber Fixing Height	880
13	Bonnet Leading Edge Height	700
14	Front Shock Absorber Fixing Width	1198
15	Front Bumper - Front Axle Distance	985
16	Front Axle - A Pillar Distance	460
17	A Pillar - B Pillar Distance	1125
18	B Pillar - Rear Axle Distance	1205
19	B Pillar - C Pillar Distance	1055
20	Roof Sill Bottom Height	1312
21	Roof Sill Top Height	1362
22	Floor Sill Bottom Height	310
23	Floor Sill Top Height	330

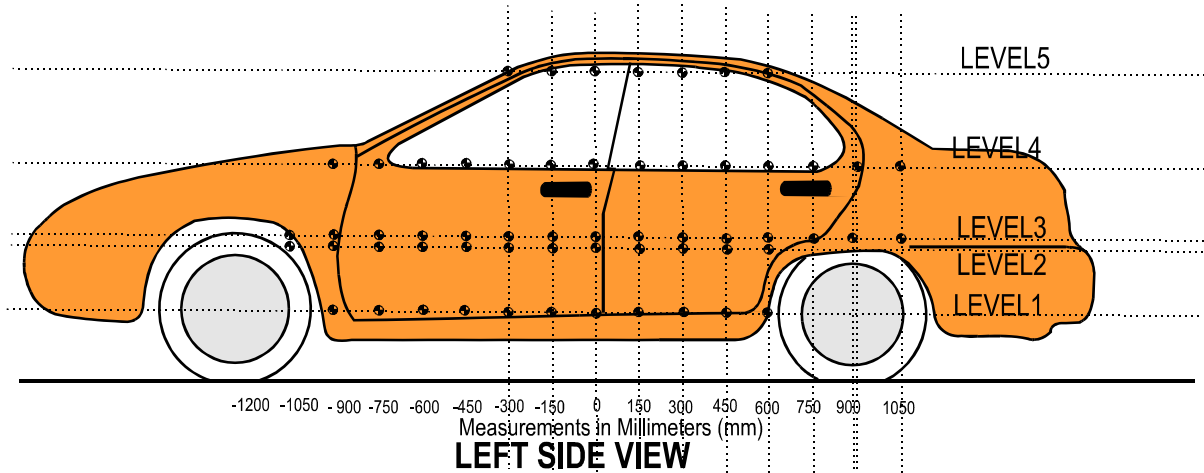
All distance measurements are in millimeters.

¹ Taken from INSIA report, “Structural Survey of Cars, Methodology of the Main Resistant Elements in the Car Body”, March 1999. This report is included in Appendix E.

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 Avalon XL 4-door sedan



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	1370
4	Window Sill	935
3	Mid Door	635
2	Occupant H-Point	570
1	Sill Top	230

Table 6 Vehicle Exterior Crush Profiles - All Levels

Vehicle: 2006 Toyota Avalon XL 4-door sedan

Location	Height		(mm) From Impact Point													
			-1170	-1020	-870	-720	-570	-420	-270	-120	30	180	330	480	630	780
Level 1 Side Sill	253	Pre					848	849	853	855	856	856	857	855	853	851
		Post					779	713	639	554	462	519	615	689	749	795
		Crush					69	136	214	301	394	337	242	166	104	56
Level 2 H-Point	520	Pre					913	916	918	920	921	921	921	919	918	916
		Post					850	756	663	549	460	507	625	758	789	815
		Crush					63	160	255	371	461	414	296	161	129	101
Level 3 Mid-Door	625	Pre				911	913	916	918	920	921	921	921	920	919	916
		Post				926	850	755	664	555	461	502	627	761	789	814
		Crush				-15	63	161	254	365	460	419	294	159	130	102
Level 4 Window Sill	920	Pre			818	836	843	851	855	857	860	861	862	862	862	861
		Post			858	859	817	744	652	557	463	491	611	709	740	762
		Crush			-40	-23	26	107	203	300	397	370	251	153	122	99
Level 5 Window Top	1330	Pre					778	734	702	669	643	628	619	618	616	616
		Post					757	664	587	509	430	431	478	520	558	583
		Crush					21	70	115	160	213	197	141	98	58	33

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

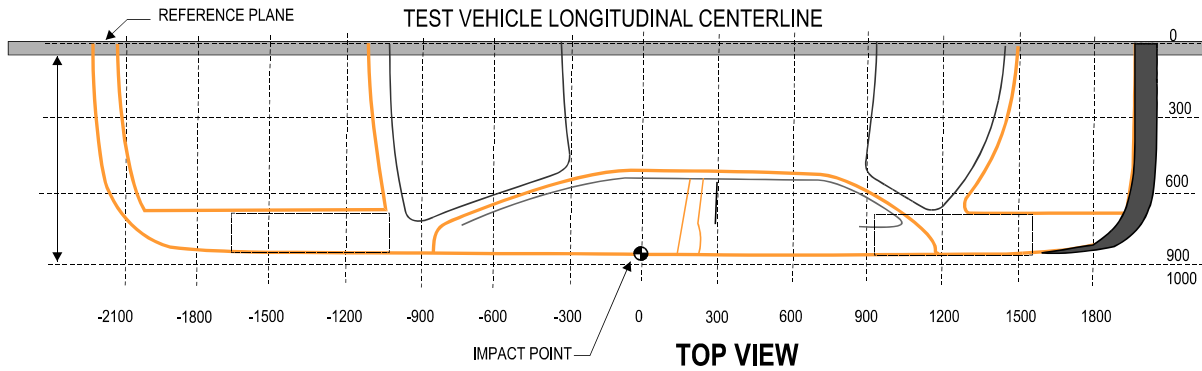
Vehicle: 2006 Toyota Avalon XL 4-door sedan

			(mm) From Impact Point												
Location	Height		930	1080	1230	1380	1530	1680	1830	1980	2130	2280	2430	2580	2730
Level 1 Side Sill	253	Pre	848	845	852										
		Post	823	838	860										
		Crush	25	7	-8										
Level 2 H-Point	520	Pre	913	909	906										
		Post	841	865	892										
		Crush	72	44	14										
Level 3 Mid-Door	625	Pre	914	910	908										
		Post	838	863	887										
		Crush	76	47	21										
Level 4 Window Sill	920	Pre	859	856	853										
		Post	783	803	824										
		Crush	76	53	29										
Level 5 Window Top	1330	Pre	620	626	636										
		Post	604	617	631										
		Crush	16	9	5										

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 Avalon XL Test Date: 07/09/07
 NOTE: All measurements were recorded using TRC Inc.'s FARO Arm with a tolerance of plus or minus 0.1 mm.



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

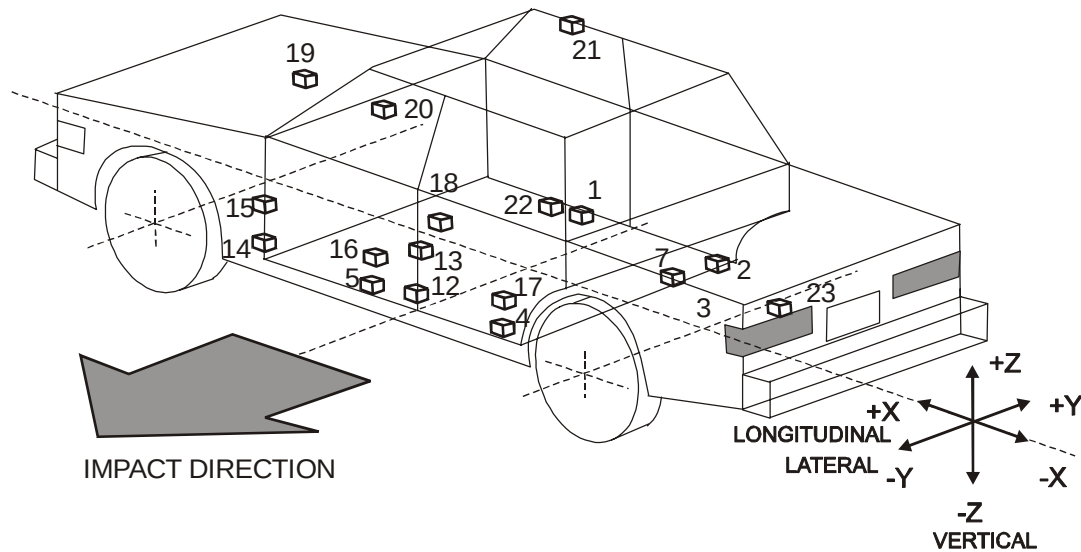
DPD	Distance from Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max. Static Crush (mm)
1	1200 mm	4	853	824	29
2	750 mm	3	916	814	102
3	480 mm	2	919	758	161
4	180 mm	3	921	502	419
5	-270 mm	2	918	663	255
6	-570 mm	1	848	779	69

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 Avalon XL 4-door sedan



- 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 Side Sill at Front Seat
- 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 In-Line with Impact Location
- 23-Rear Deck Behind Rear Axle

Table 7 Test Vehicle Accelerometer Locations and Data Summary

Vehicle: 2006 Toyota Avalon XL 4-door sedan

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	3490	685	295				
Longitudinal				3.0	15.6	2.0	41.8
Lateral				17.9	36.3	1.3	28.4
Vertical				4.8	22.6	1.8	166.3
Resultant				18.2	36.3		
2 Right Side Sill at Rear Seat	2313	675	295				
Longitudinal				2.3	49.6	3.1	41.5
Lateral				14.4	37.4	1.0	263.1
Vertical				5.2	17.9	1.8	112.8
Resultant				14.5	37.4		
3 Rear Floorpan Above Axle	1449	0	500				
Longitudinal				3.0	99.1	2.4	41.6
Lateral				11.1	39.1	1.1	228.9
Vertical				2.9	28.7	4.9	37.8
Resultant				12.0	38.1		
4 Left Side Sill at Rear Seat	2310	685	280				
Longitudinal							
Lateral				40.7	96.3	11.9	122.2
Vertical							
Resultant							
5 Left Side Sill at Front Seat	3465	690	275				
Longitudinal							
Lateral				32.9	19.3	1.6	283.8
Vertical							
Resultant							

Table 7 Test Vehicle Accelerometer Locations and Data Summary, Continued

Vehicle: 2006 Toyota Avalon XL 4-door sedan

Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
	X	Y	Z	Max. (g)	Time (ms)	Max. (g)	Time (ms)
6 Left Front Door on Centerline	3184	789	655				
Longitudinal							
Lateral				93.1	10.6	59.3	23.5
Vertical							
Resultant							
7 Right Rear Occupant Compartment	2085	598	395				
Longitudinal							
Lateral				13.5	36.9	0.9	262.7
Vertical							
Resultant							
8 Left Front Door Mid-Rear	2790	793	655				
Longitudinal							
Lateral ¹				156.7	26.4	1635.8	34.3
Vertical							
Resultant							
9 Left Front Door Upper Centerline	3184	785	885				
Longitudinal							
Lateral ¹				111.5	13.4	1556.5	71.8
Vertical							
Resultant							
10 Left Rear Door Mid Rear	1814	780	630				
Longitudinal							
Lateral				20.4	23.0	10.1	31.3
Vertical							
Resultant							

Table 7 Test Vehicle Accelerometer Locations and Data Summary, Continued

Vehicle: 2006 Toyota Avalon XL 4-door sedan

Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
	X	Y	Z	Max. (g)	Time (ms)	Max. (g)	Time (ms)
11 Left Rear Door Upper Centerline	2155	775	880				
Longitudinal							
Lateral				23.6	45.9	3.0	280.8
Vertical							
Resultant							
12 Left Lower B-Pillar	2585	836	475				
Longitudinal							
Lateral				38.5	15.4	6.8	10.1
Vertical							
Resultant							
13 Left Middle B-Pillar	2571	836	710				
Longitudinal							
Lateral ¹				35.1	16.2	5.4	275.9
Vertical							
Resultant							
14 Left Lower A-Pillar	3718	813	490				
Longitudinal							
Lateral				19.4	21.8	1.4	266.9
Vertical							
Resultant							
15 Left Middle A-Pillar	3740	810	750				
Longitudinal							
Lateral				19.3	36.9	2.5	5.9
Vertical							
Resultant							

Table 7 Test Vehicle Accelerometer Locations and Data Summary, Continued

Vehicle: 2006 Toyota Avalon XL 4-door sedan

Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
	X	Y	Z	Max. (g)	Time (ms)	Max. (g)	Time (ms)
16 Left Front Seat Track	2825	544	300				
Longitudinal Lateral Vertical Resultant							
				54.3	31.5	7.9	63.2
17 Left Rear Seat Track	1895	500	365				
Longitudinal Lateral Vertical Resultant							
				12.3	36.7	0.7	262.6
18 Vehicle CG	2995	0	565				
Longitudinal Lateral Vertical Resultant				70.2	36.6	34.8	43.2
				54.6	60.4	33.0	51.3
				48.2	47.4	84.1	36.6
				110.0	36.6		
19 Top of Engine	4592	5	815				
Longitudinal Lateral Vertical Resultant				12.0	45.8	4.5	157.4
				14.7	52.8	3.0	225.3
20 Firewall	4172	25	890				
Longitudinal Lateral Vertical Resultant				13.5	43.4	2.2	50.2
				13.5	37.4	5.6	45.7

Table 7 Test Vehicle Accelerometer Locations and Data Summary, Continued

Vehicle: 2006 Toyota Avalon XL 4-door sedan

Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
	X	Y	Z	Max. (g)	Time (ms)	Max. (g)	Time (ms)
21 Right Side Roof Rail	3075	607	1280				
Longitudinal				3.4	18.7	3.5	37.0
Lateral				15.2	31.9	1.7	304.2
Vertical							
Resultant							
22 Right Side Sill In-Line with Impact Location	2925	735	200				
Longitudinal							
Lateral				16.1	37.0	1.3	259.6
Vertical							
23 Rear Deck Behind Rear Axle	380	0	635				
Longitudinal				6.3	73.4	6.7	46.0
Lateral				13.7	45.6	2.6	241.9
Vertical				5.2	48.0	4.7	137.7
Resultant				15.9	46.0		

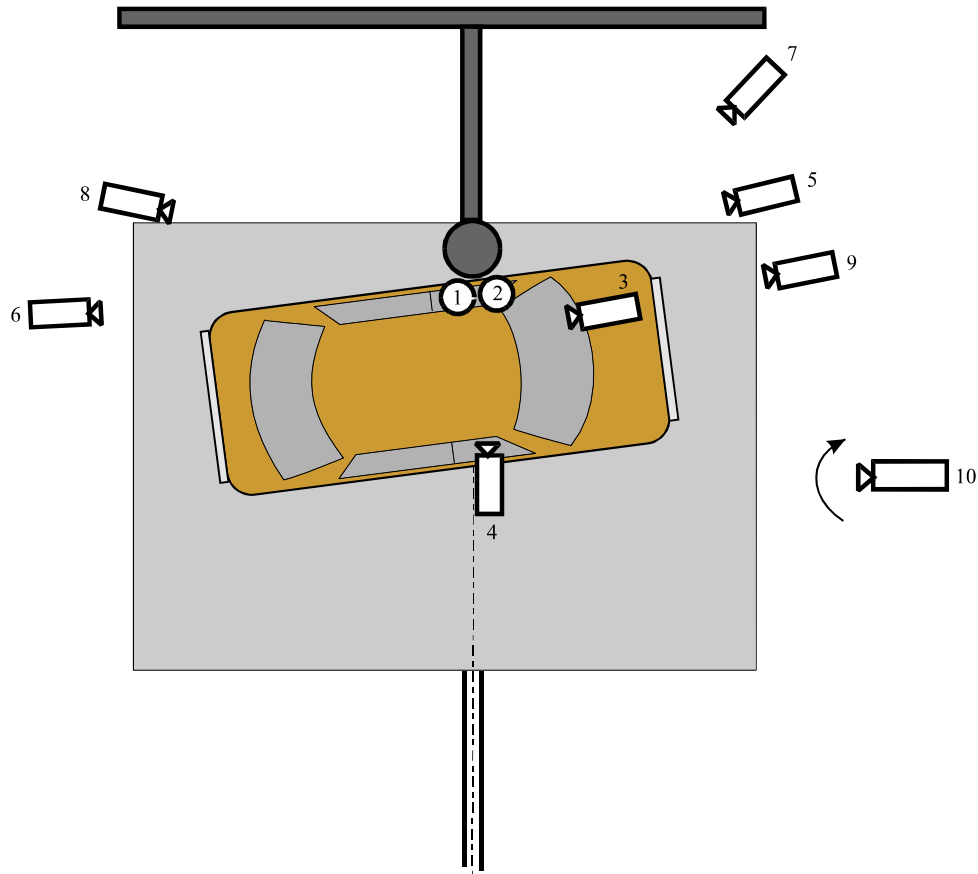
Reference: X: + Forward from rear bumper
 Y: + Rightward from vehicle centerline
 Z: + Downward from ground level

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

¹ See Data Acquisition Explanations

Figure 7 High-Speed Camera Locations and Data Summary

Vehicle: 2006 Toyota Avalon XL 4-door sedan



No.	Camera View	Location (mm)			Angle (deg.)	Lens (mm)	Speed (fps)
		X	Y	Z			
1	Overhead Wide		0		90.0	6.5	1000
2	Overhead Tight	0	0		90.0	25	1000
3	Onboard Front - Driver	520	1270	-1200	0.7	12.5	1000
4	Onboard Side Front	1750	0	-1130	3.4	6.5	1000
5	Front Vehicle to Pole	-650	4620	-1290	4.7	12.5	1000
6	Rear Vehicle to Pole	1320	7350	-1340	3.0	12.5	1000
7	Left Front Angled	-1450	5000	-1330	2.8	25	1000
8	Left Rear Angled	-940	5700	-1320	2.9	25	1000
9	Vehicle Front on Driver	290	4050	-2210	9.9	50	1000
10	Panning					Zoom	30

+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 Pre-Test Front View



Figure A-2 Post-Test Front View



Figure A-3 Pre-Test Left Front View



Figure A-4 Post-Test Left Front View



Figure A-5 Pre-Test Left Side View



Figure A-6 Post-Test Left Side View



Figure A-7 Pre-Test Left Rear View



Figure A-8 Post-Test Left Rear View



Figure A-9 Pre-Test Rear View



Figure A-10 Post-Test Rear View



Figure A-11 Pre-Test Right Rear View



Figure A-12 Post-Test Right Rear View

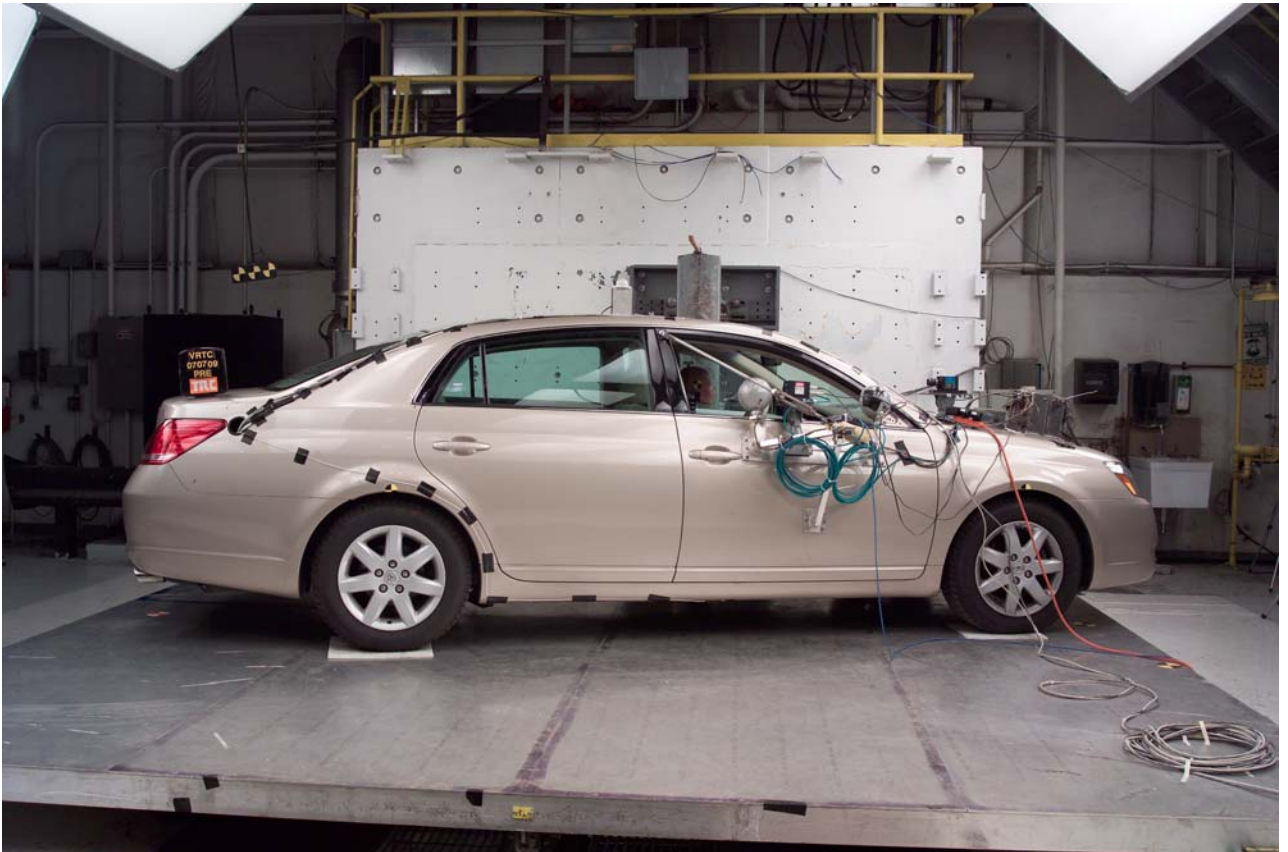


Figure A-13 Pre-Test Right Side View



Figure A-14 Post-Test Right Side View



Figure A-15 Pre-Test Right Front View



Figure A-16 Post-Test Right Front View

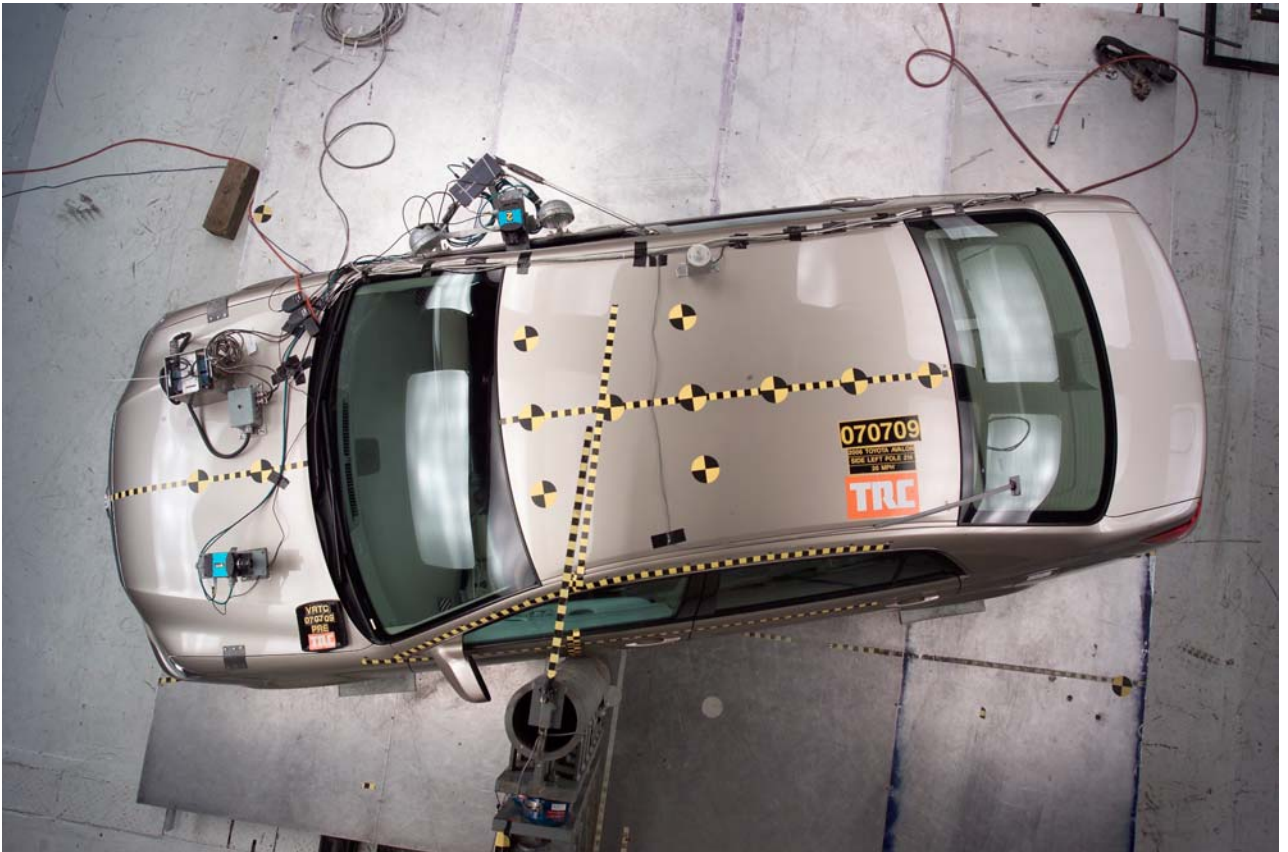


Figure A-17 Pre-Test Overhead View



Figure A-18 Post-Test Overhead View



Figure A-19 Pre-Test Impact Point View



Figure A-20 Post-Test Impact Point View



Figure A-21 Post-Test Left Front Impact Point View



Figure A-22 Post-Test Left Side Impact Point View



Figure A-23 Pre-Test Fuel Filler Cap View



Figure A-24 Post-Test Fuel Filler Cap View



Figure A-25 Pre-Test Pole Barrier Front View



Figure A-26 Post-Test Pole Barrier Front View



Figure A-27 Pre-Test Driver Dummy Side View



Figure A-28 Post-Test Driver Dummy Side View



Figure A-29 Pre-Test Right Side Dummy Occupant Compartment View



Figure A-30 Post-Test Right Side Dummy Occupant Compartment View



Figure A-31 Pre-Test Driver Dummy and Door Clearance View



Figure A-32 Post-Test Driver Dummy and Door Clearance View



Figure A-33 Pre-Test Driver Dummy Showing Belts, Chalking, and Contact Switches

Intentionally Left Blank



Figure A-34 Pre-Test Driver Door Panel View

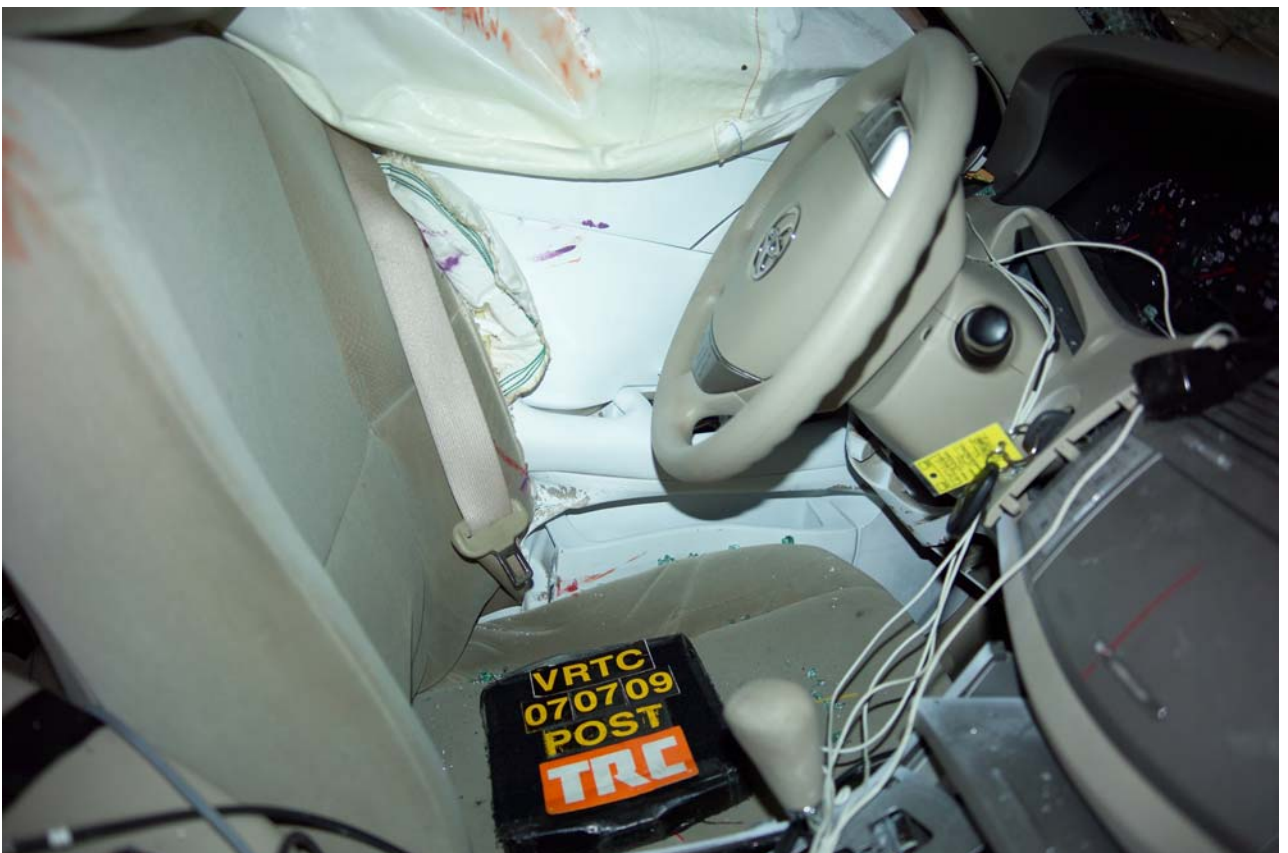


Figure A-35 Post-Test Driver Door Panel View



Figure A-36 Post-Test Driver Dummy Head Contact - View 1



Figure A-37 Post-Test Driver Dummy Head Contact - View 2



Figure A-38 Post-Test Driver Dummy Head Contact - View 3



Figure A-39 Post-Test Driver Dummy Door Contact View



Figure A-40 Certification Label View

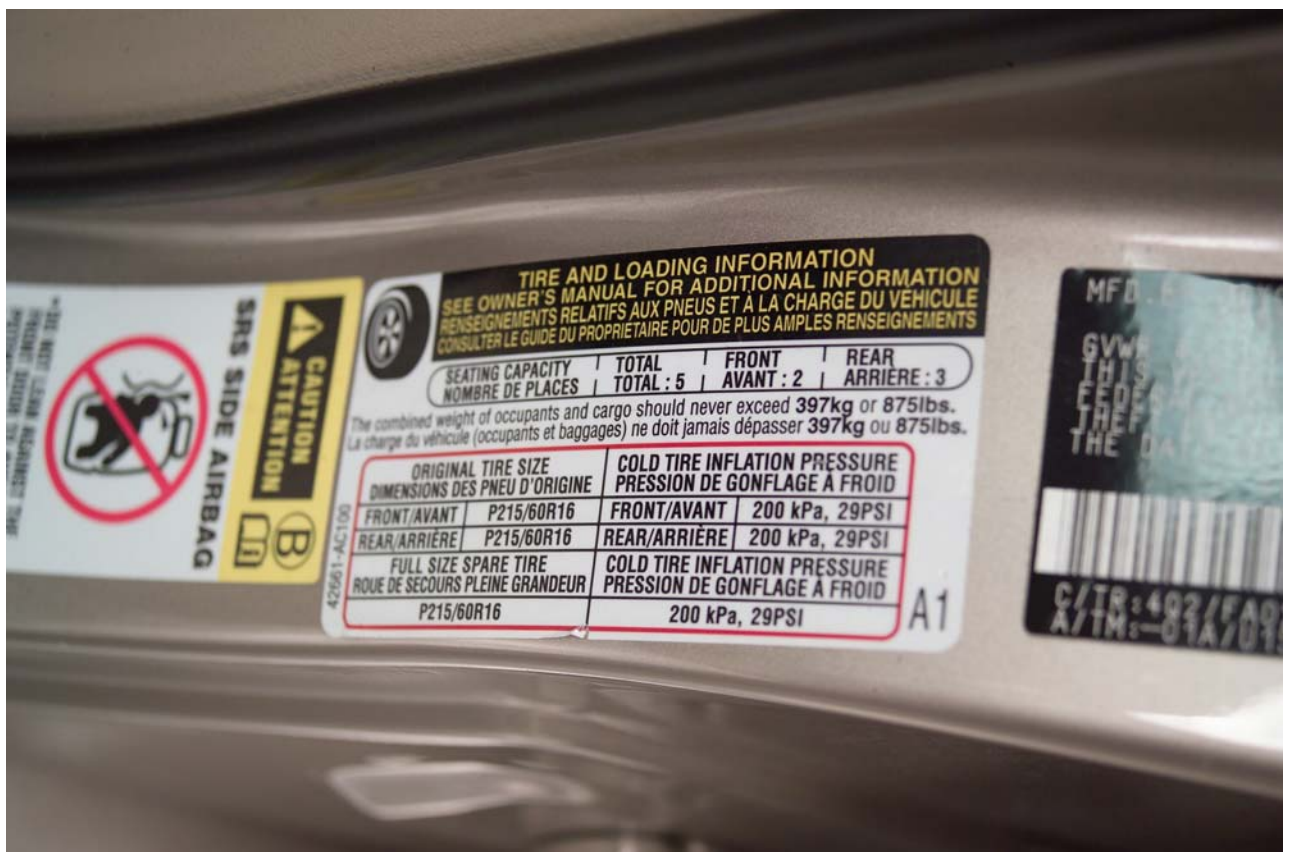


Figure A-41 Recommended Tire Pressure Label View



Figure A-42 Pre-Test Ballast View

Intentionally Left Blank

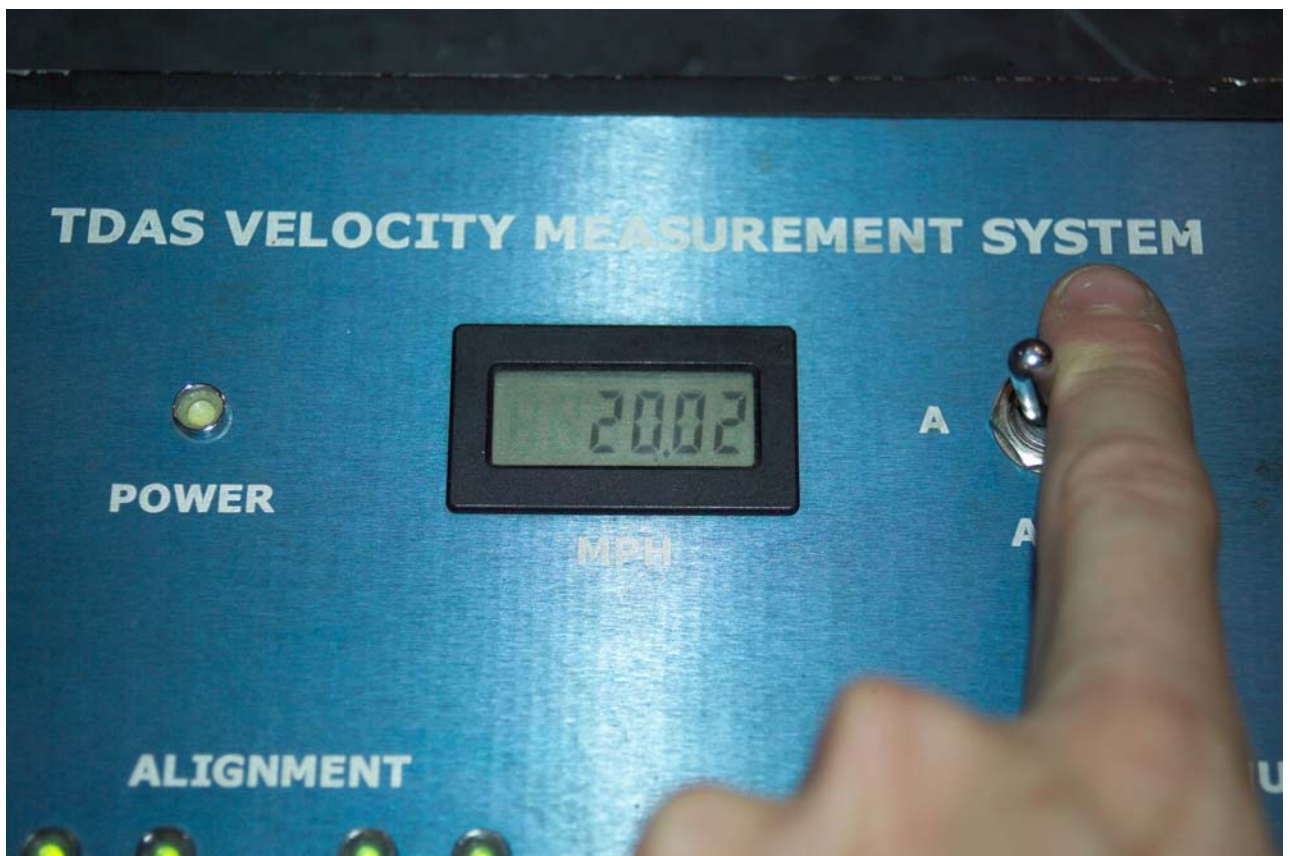


Figure A-43 Post-Test Digital Light Trap Read-Out - View 1



Figure A-44 Post-Test Digital Light Trap Read-Out - View 2

Appendix B

Data Plots



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

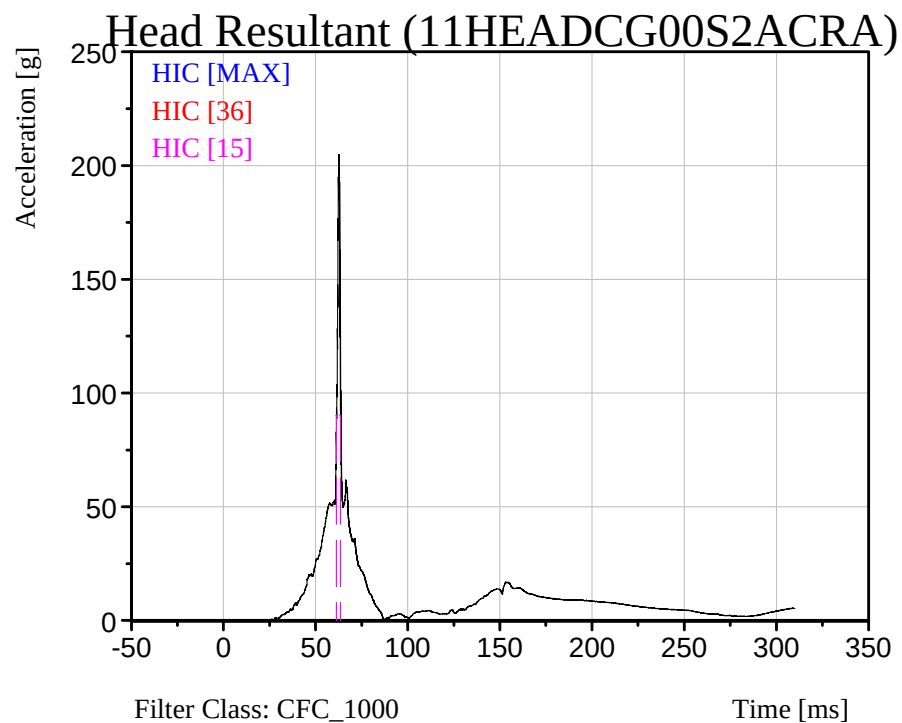
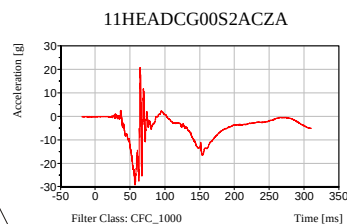
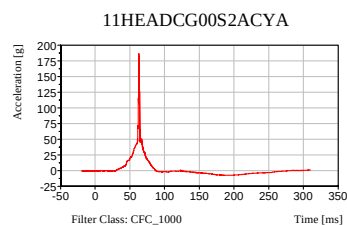
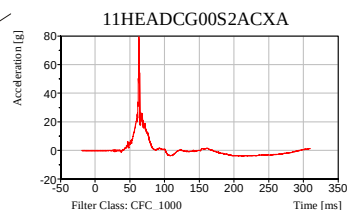
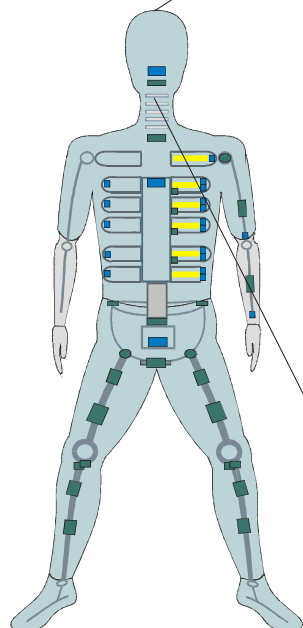
Date: 07/09/2007
Time: 13:52

Head Injury Criterion (HIC)

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 070709



	<u>T1</u> (Begin)	<u>T2</u> (End)	<u>Avg. g T1 to T2</u>
HIC [Max.] = 641.56	61.36 ms	63.52 ms	152.36 g
HIC [36] = 641.56	61.36 ms	63.52 ms	152.36 g
HIC [15] = 641.56	61.36 ms	63.52 ms	152.36 g

Dummy:SID IIs
Seating Position:
Driver

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

B-2

070709



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

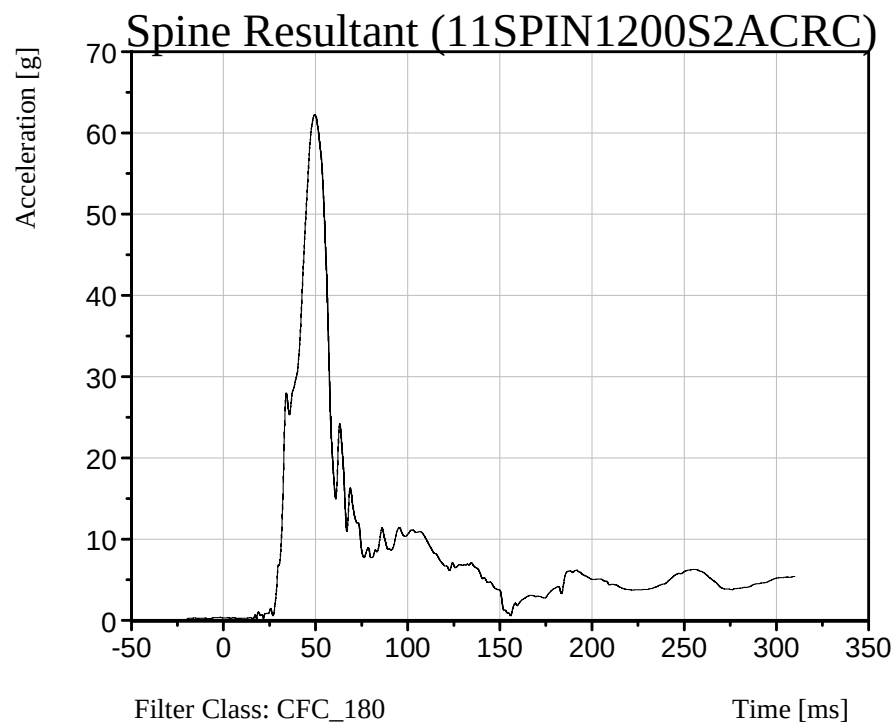
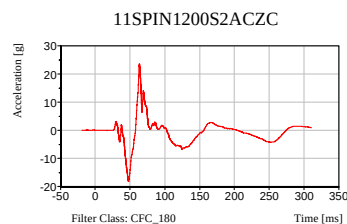
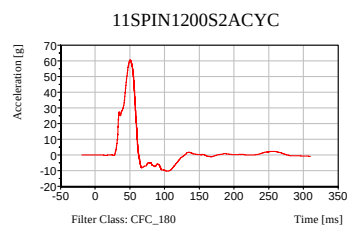
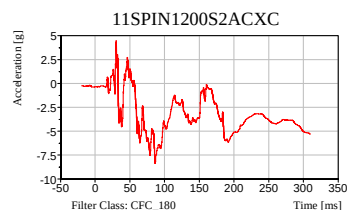
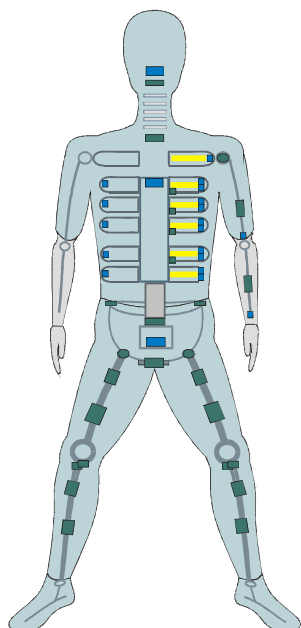
Date: 07/09/2007
Time: 13:52

Resultant (Spine)

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 070709



Dummy:SID IIs
Seating Position:
Driver

[Max.] 62.28 g at 49.36 ms

[Min.] 0.04 g at 16.00 ms

Resultant Source Code : $\text{Sqrt}(11\text{SPIN1200S2ACXC}^2 + 11\text{SPIN1200S2ACYC}^2 + 11\text{SPIN1200S2ACZC}^2)$

B-3

070709



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

Date: 07/09/2007
Time: 13:52

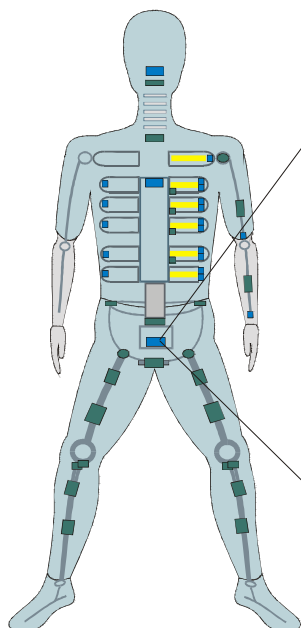
Pelvis(LE) Summation

Customer: VRTC

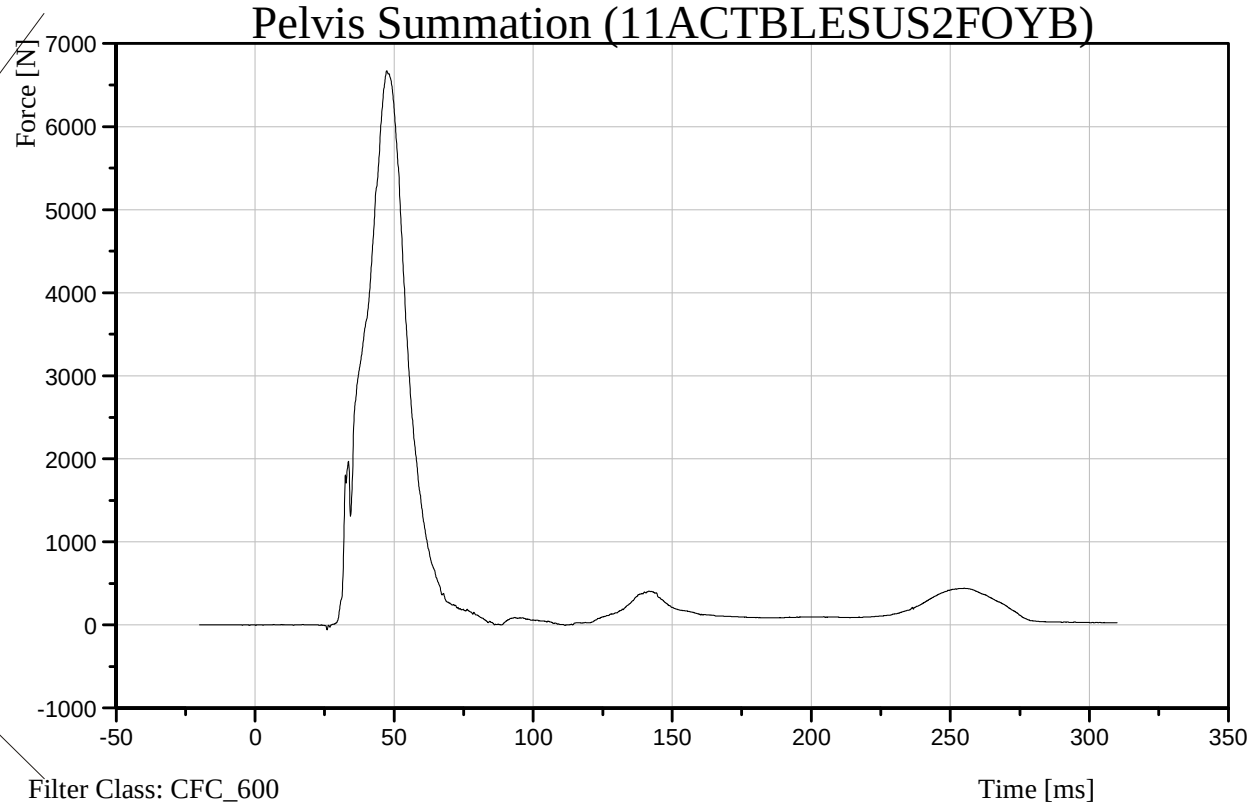
TRC Inc. Test Lab: CTF

Test Number: 070709

Test Orientation = Side



Pelvis Summation (11ACTBLESUS2FOYB)



Dummy:SID IIs
Seating Position:
Driver

[Max.] 6,672.12 N at 47.28 ms

[Min.] -59.13 N at 25.92 ms

Pelvis Summation Source Code : Summation of Channels 11ILACLE00S2FOYB,11ACTBLE00S2FOYB

B-4

070709



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

Date: 07/09/2007
Time: 13:52

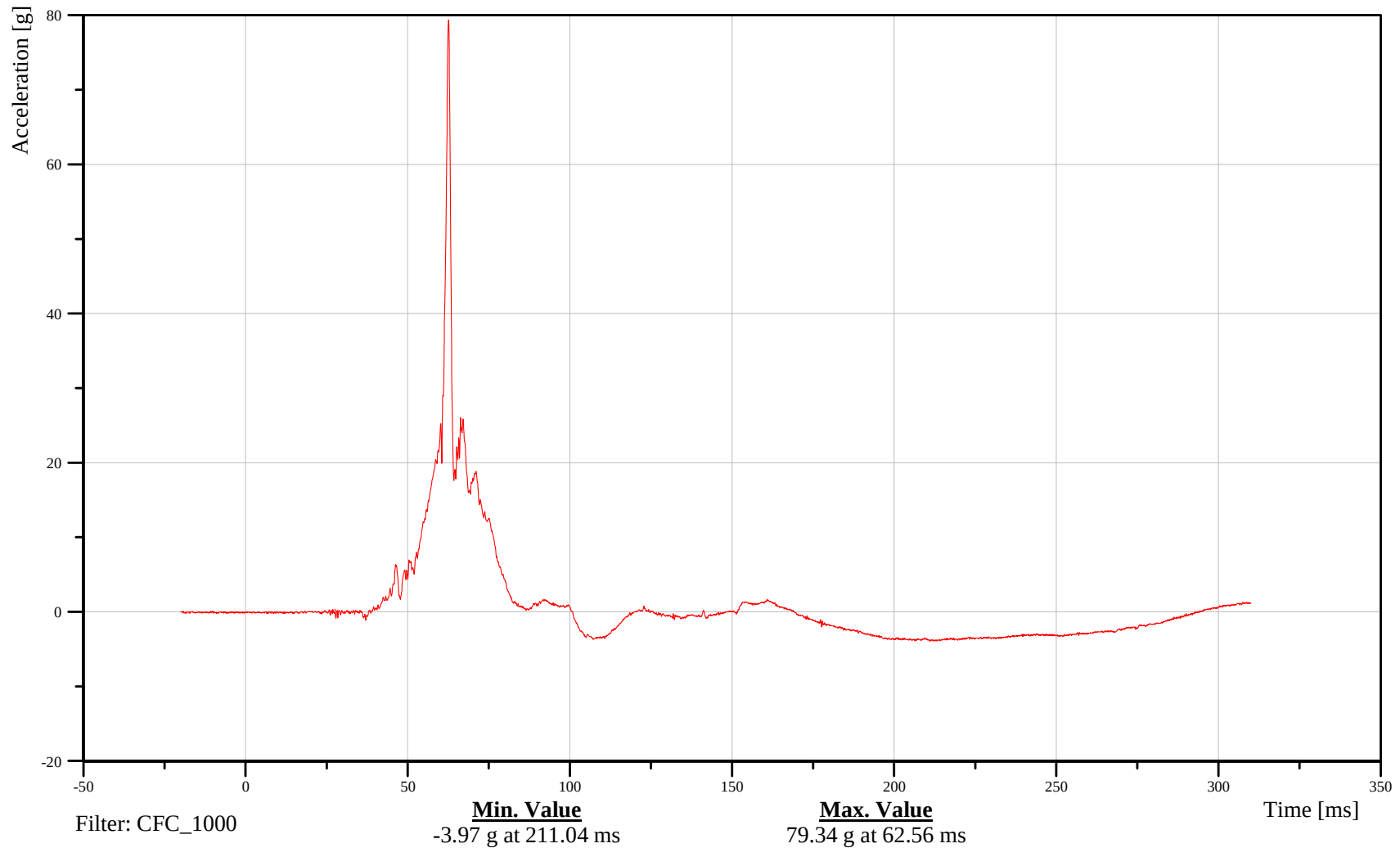
Head X-Axis Acceleration

Customer: VRTC

11HEADCG00S2ACXA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-5

070709



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

Date: 07/09/2007
Time: 13:52

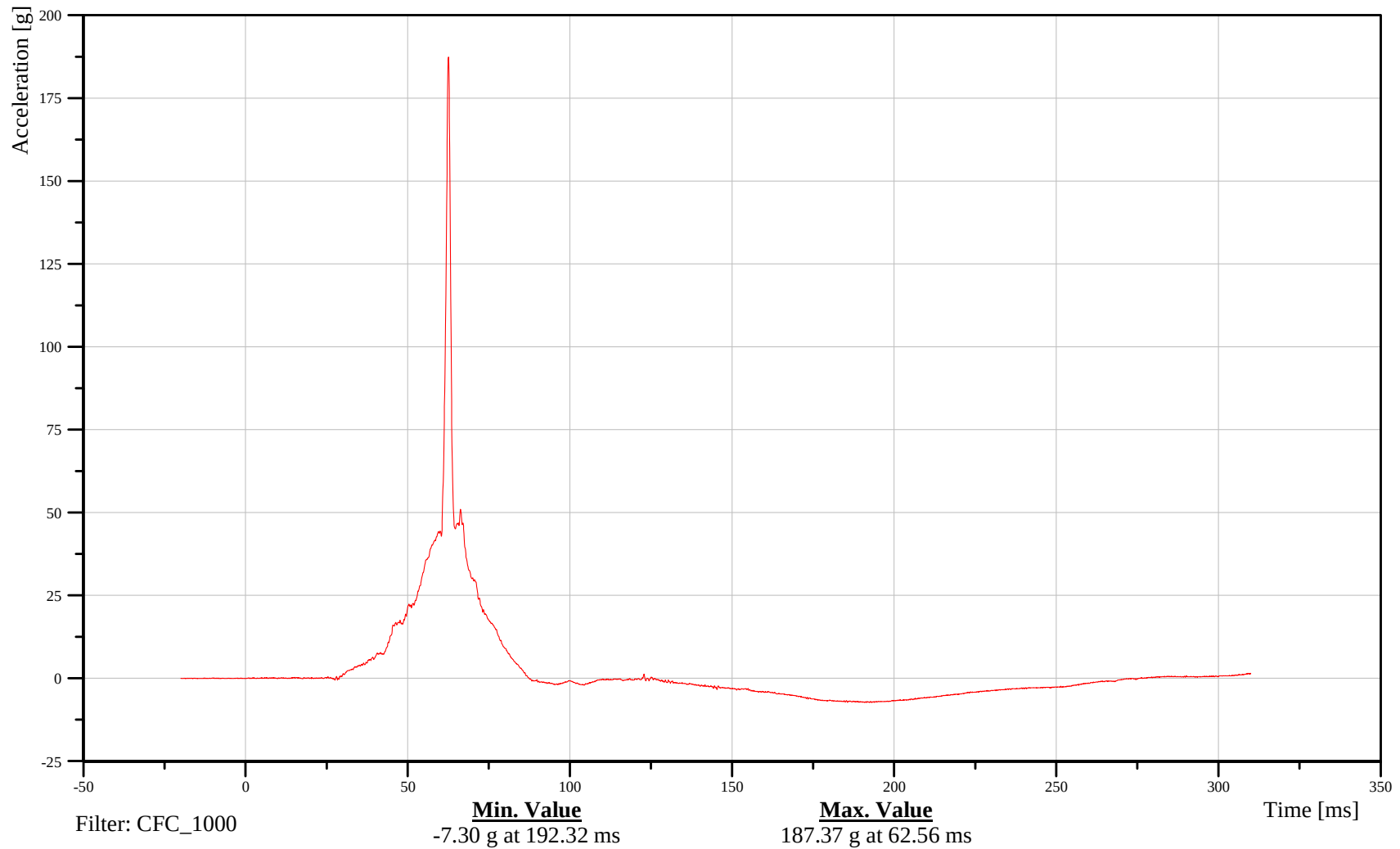
Head Y-Axis Acceleration

Customer: VRTC

11HEADCG00S2ACYA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-6

070709



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

Date: 07/09/2007
Time: 13:52

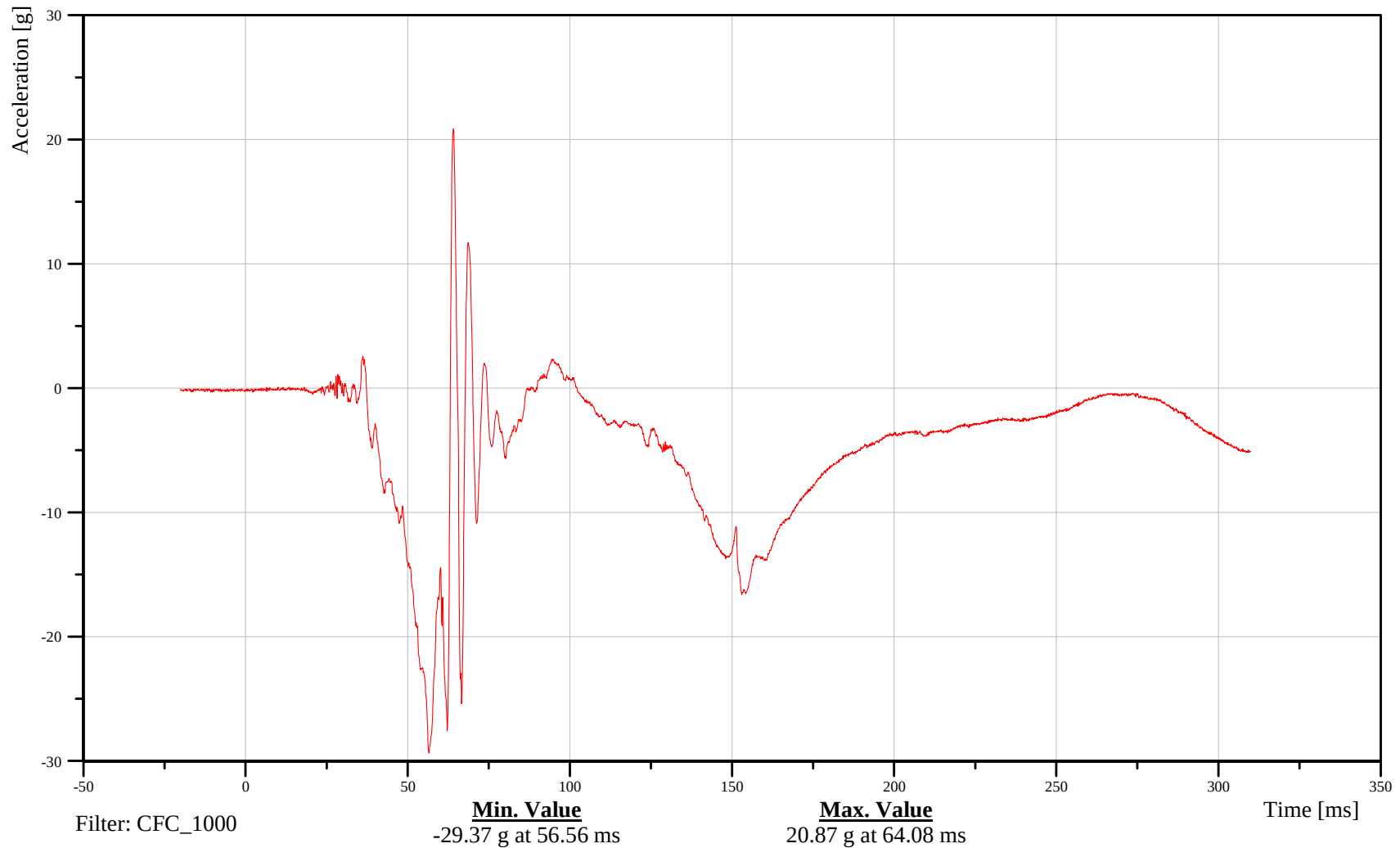
Head Z-Axis Acceleration

Customer: VRTC

11HEADCG00S2ACZA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-7

070709



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

Date: 07/09/2007
Time: 13:52

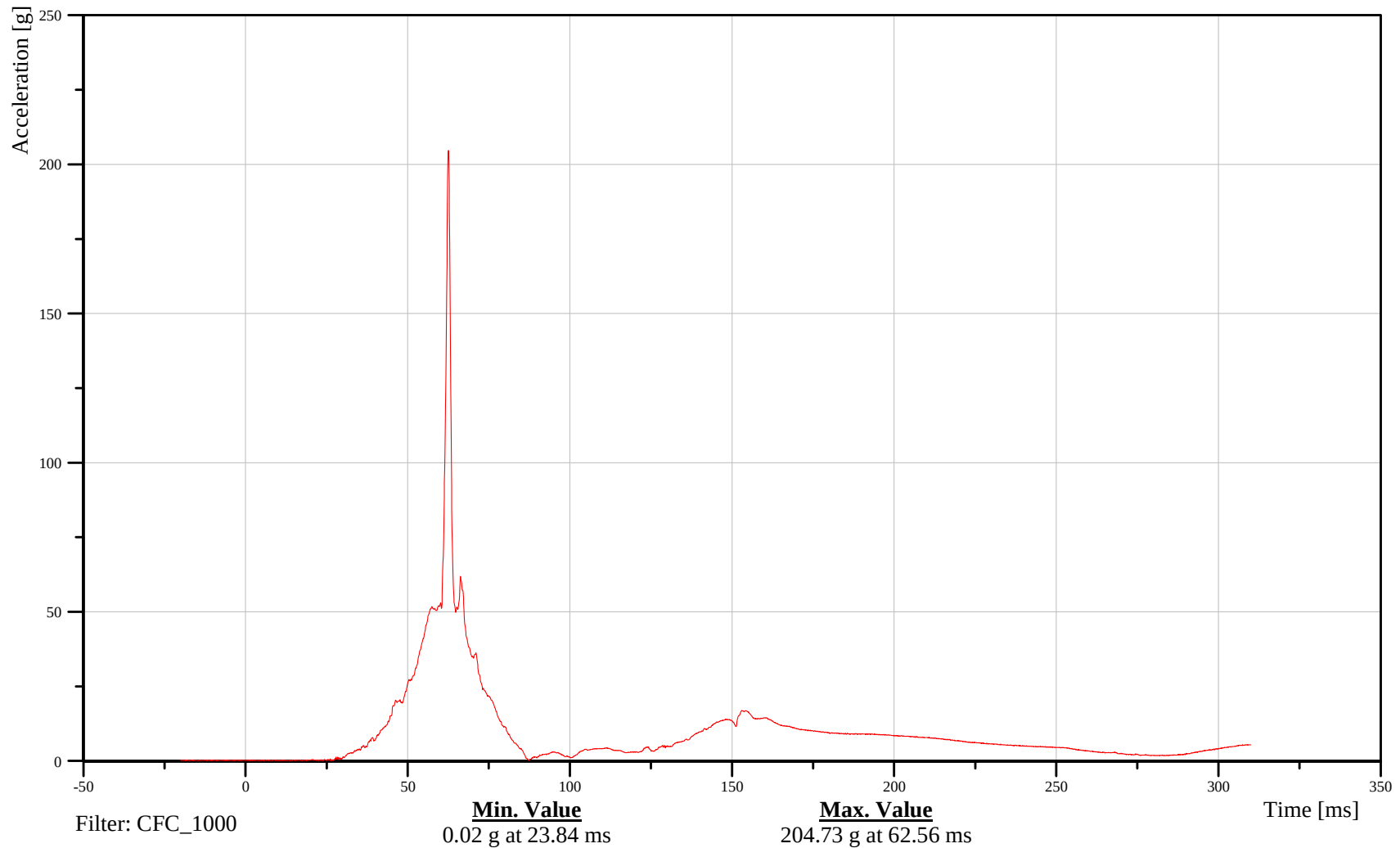
Head Resultant Acceleration

Customer: VRTC

11HEADCG00S2ACRA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-8

070709



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

Date: 07/09/2007
Time: 13:52

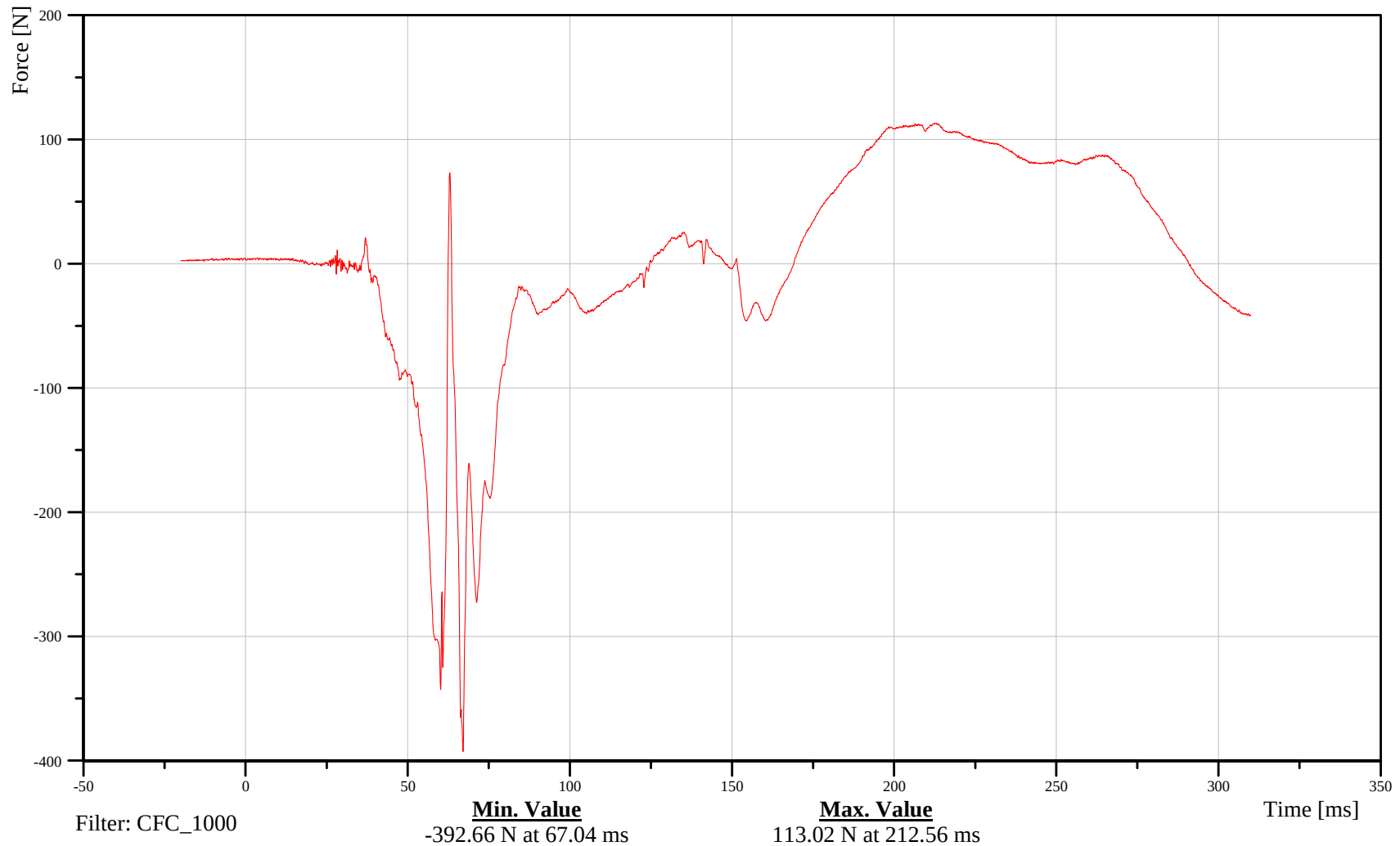
Upper Neck X-Axis Force

Customer: VRTC

11NECKUP00S2FOXA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-9

070709



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

Date: 07/09/2007
Time: 13:52

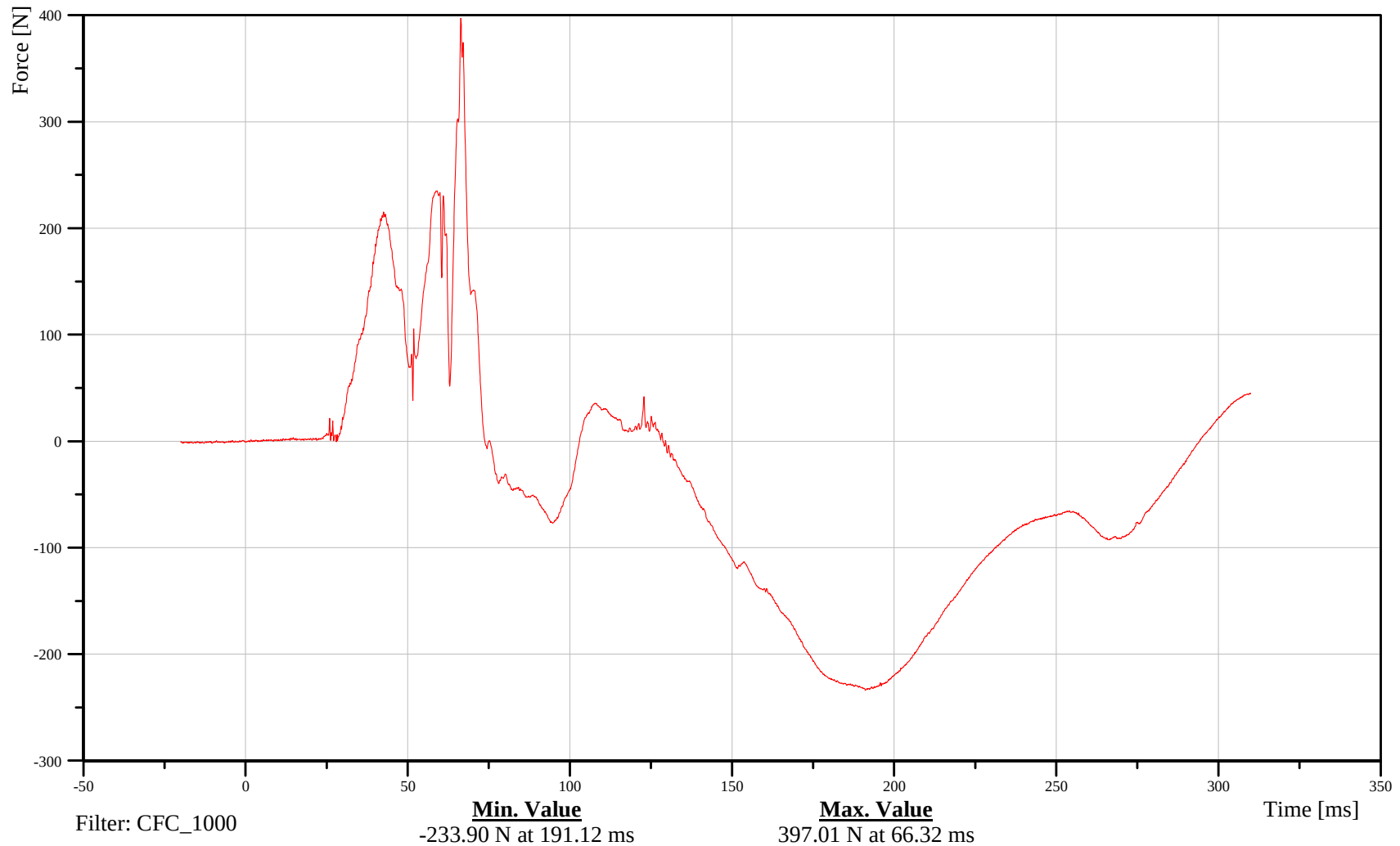
Upper Neck Y-Axis Force

Customer: VRTC

11NECKUP00S2FOYA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-10

070709



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

Date: 07/09/2007
Time: 13:52

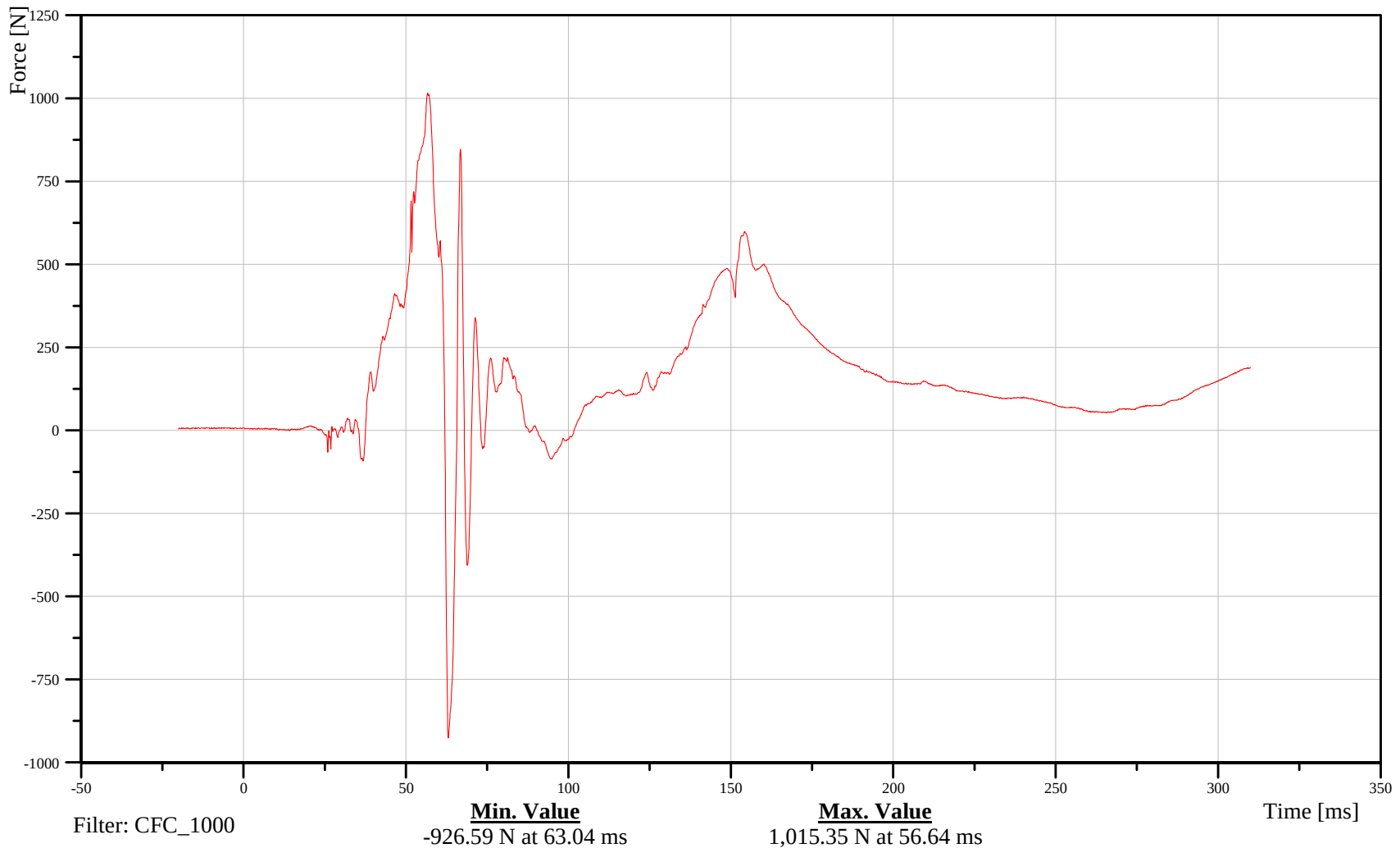
Upper Neck Z-Axis Force

Customer: VRTC

11NECKUP00S2FOZA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-11

070709



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

Date: 07/09/2007
Time: 13:52

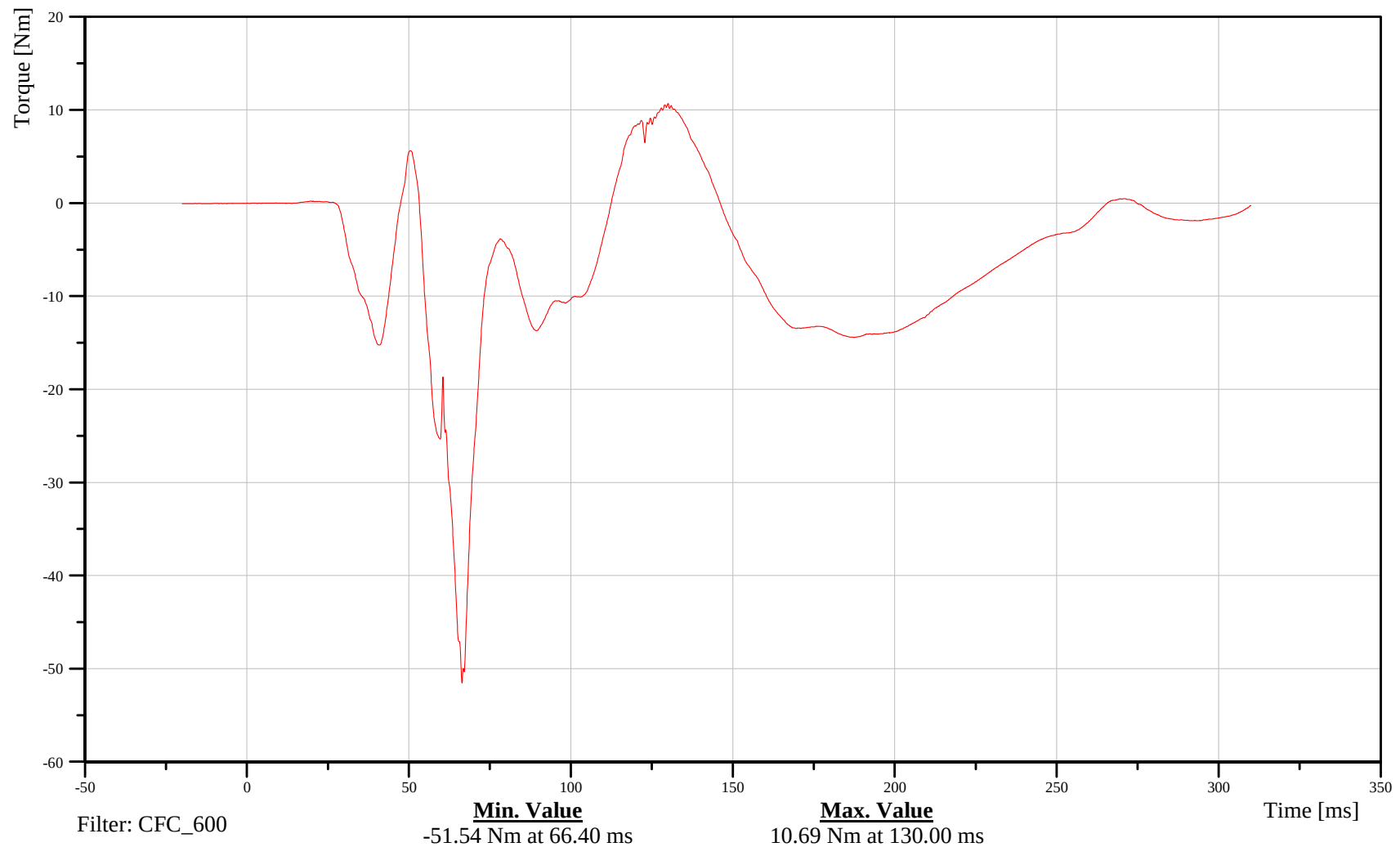
Upper Neck Moment About X Axis

Customer: VRTC

11NECKUP00S2MOXB

TRC Inc. Test Lab: CTF

Test Number: 070709



B-12

070709



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

Date: 07/09/2007
Time: 13:52

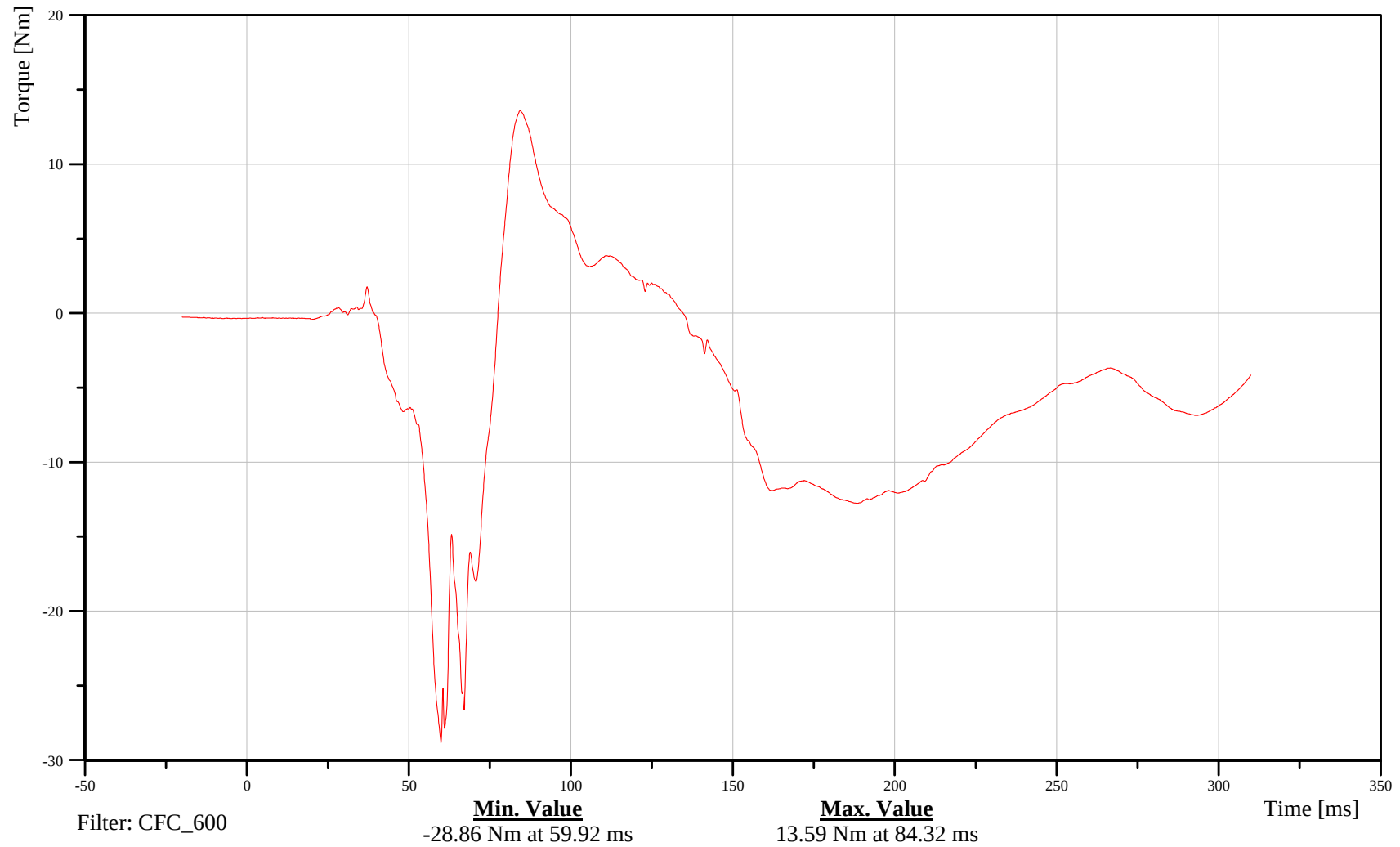
Upper Neck Moment About Y Axis

Customer: VRTC

11NECKUP00S2MOYB

TRC Inc. Test Lab: CTF

Test Number: 070709



B-13

070709



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

Date: 07/09/2007
Time: 13:52

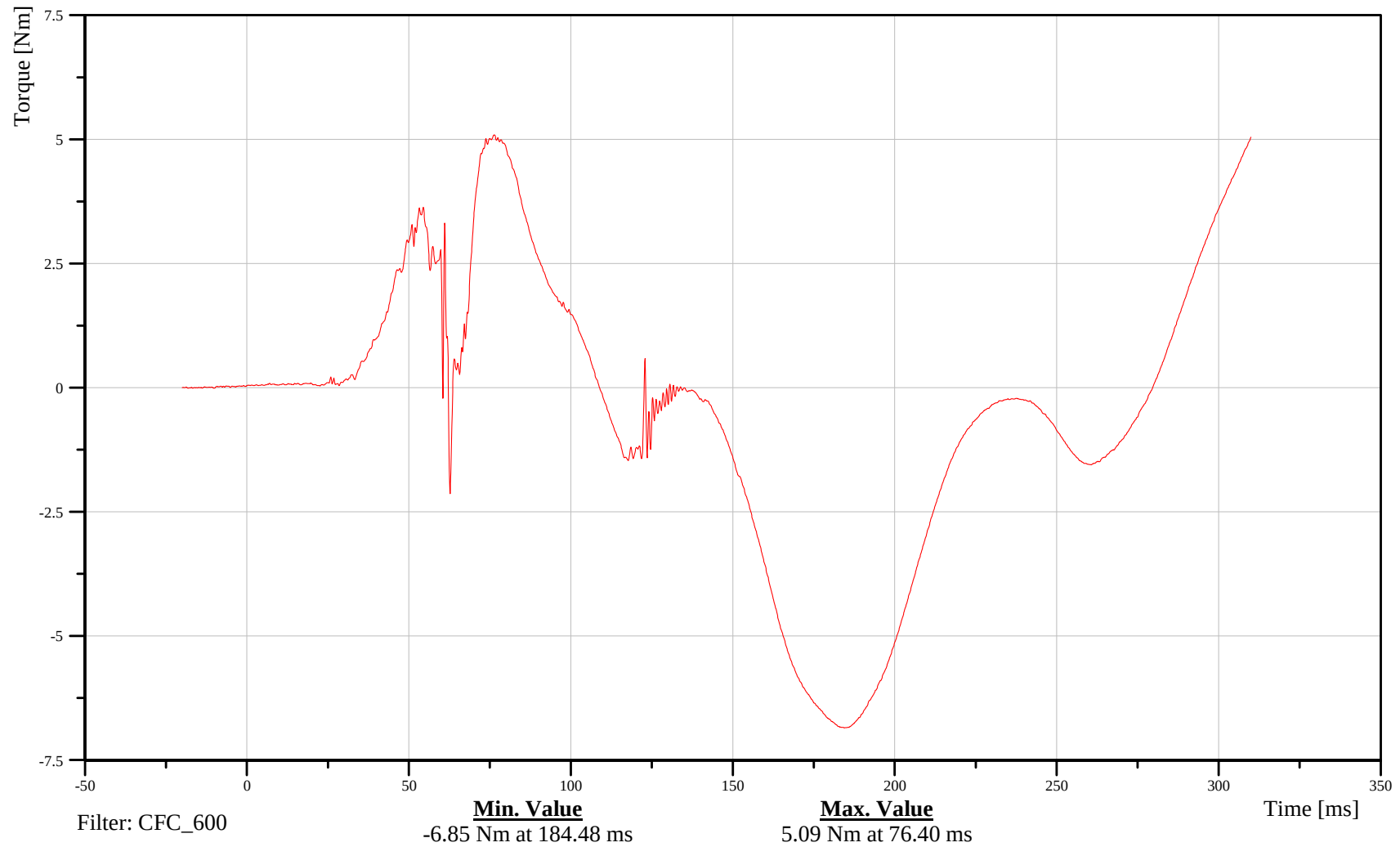
Upper Neck Moment About Z Axis

Customer: VRTC

11NECKUP00S2MOZB

TRC Inc. Test Lab: CTF

Test Number: 070709



B-14

070709



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

Date: 07/09/2007
Time: 13:52

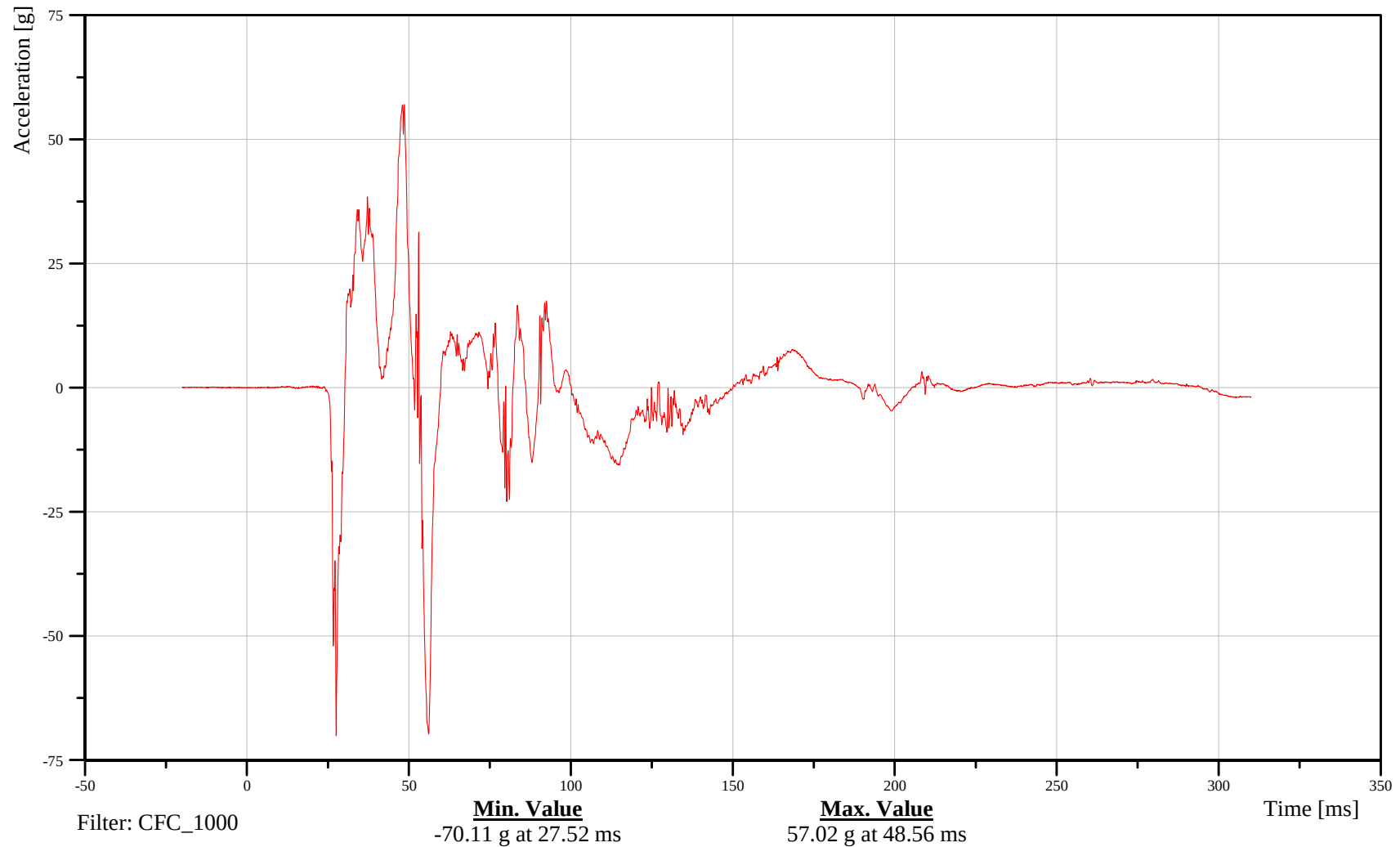
Shoulder X-Axis Acceleration

Customer: VRTC

11SHLDLE00S2ACXA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-15

070709



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

Date: 07/09/2007
Time: 13:52

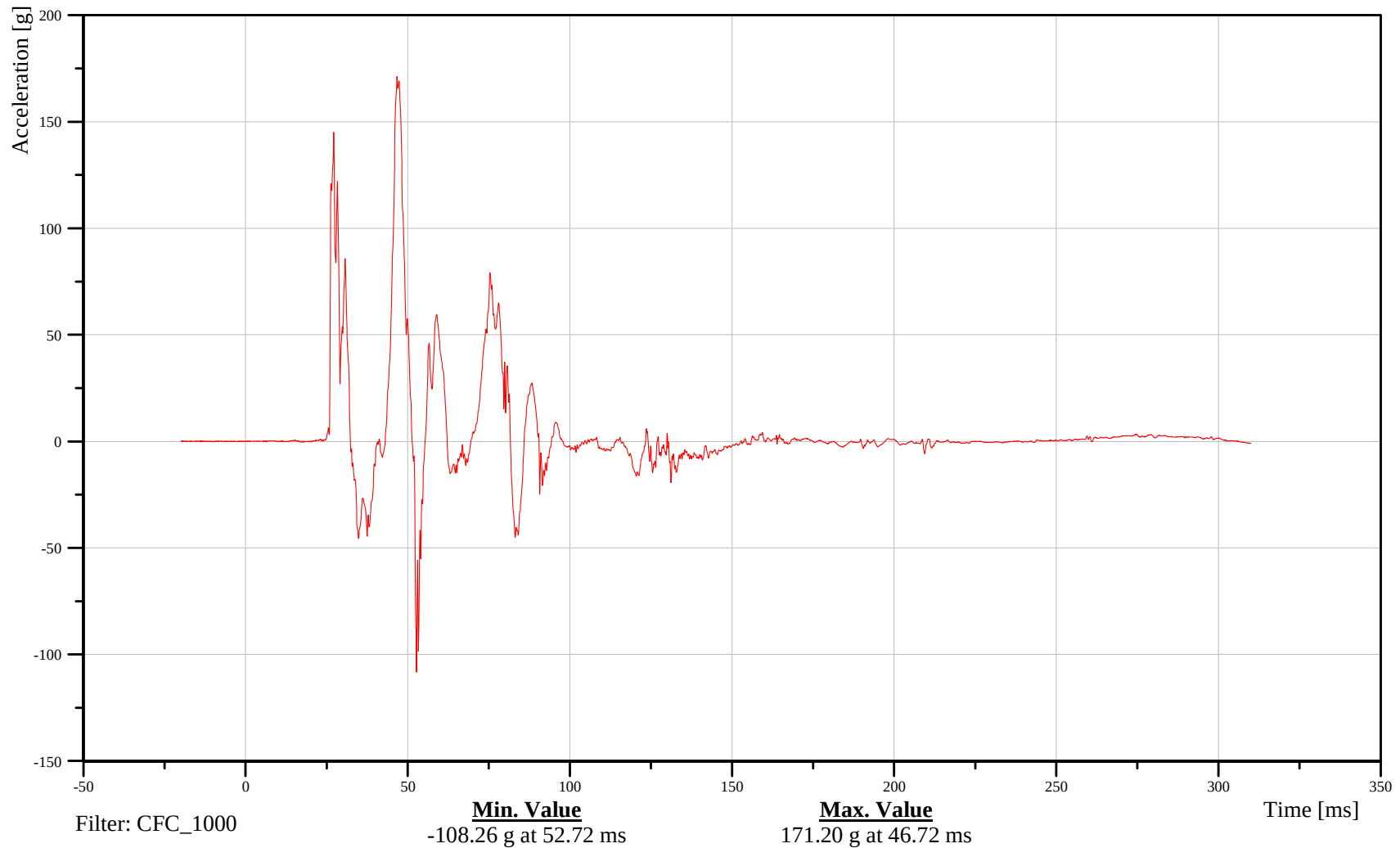
Shoulder Y-Axis Acceleration

Customer: VRTC

11SHLDLE00S2ACYA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-16

070709



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

Date: 07/09/2007
Time: 13:52

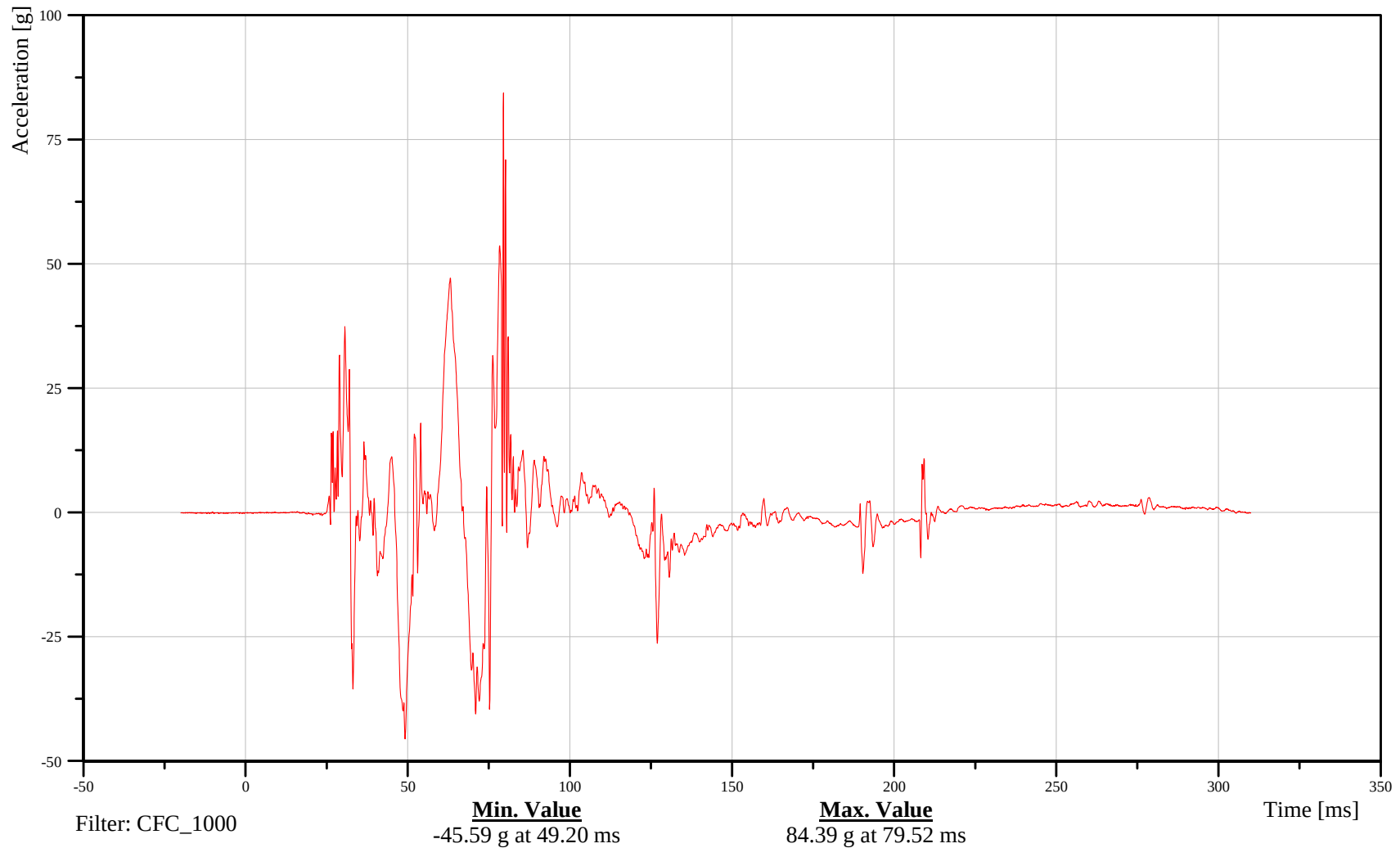
Shoulder Z-Axis Acceleration

Customer: VRTC

11SHLDLE00S2ACZA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-17

070709



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

Date: 07/09/2007
Time: 13:52

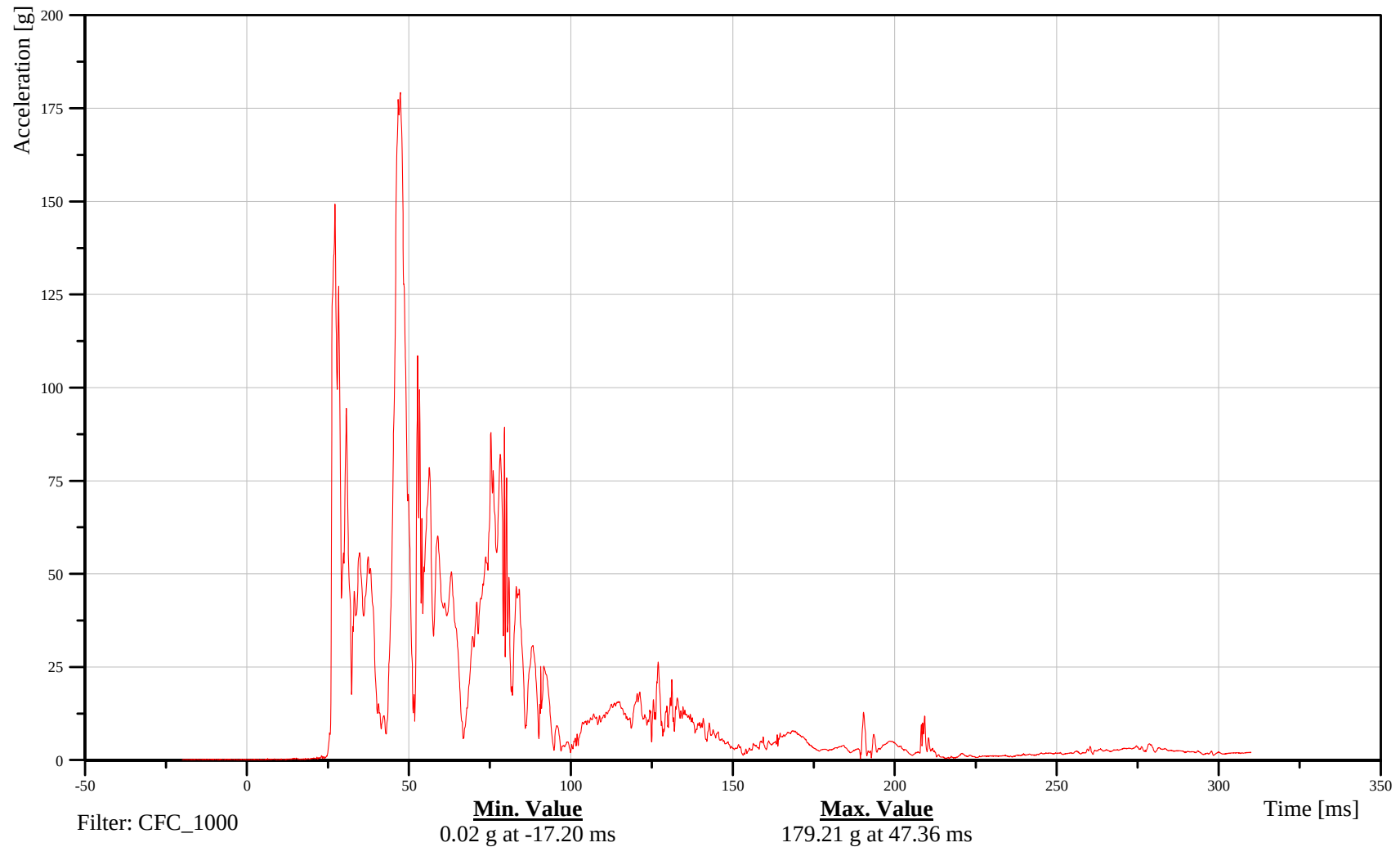
Shoulder Resultant Acceleration

Customer: VRTC

11SHLDLE00S2ACRA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-18

070709



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

Date: 07/09/2007
Time: 13:52

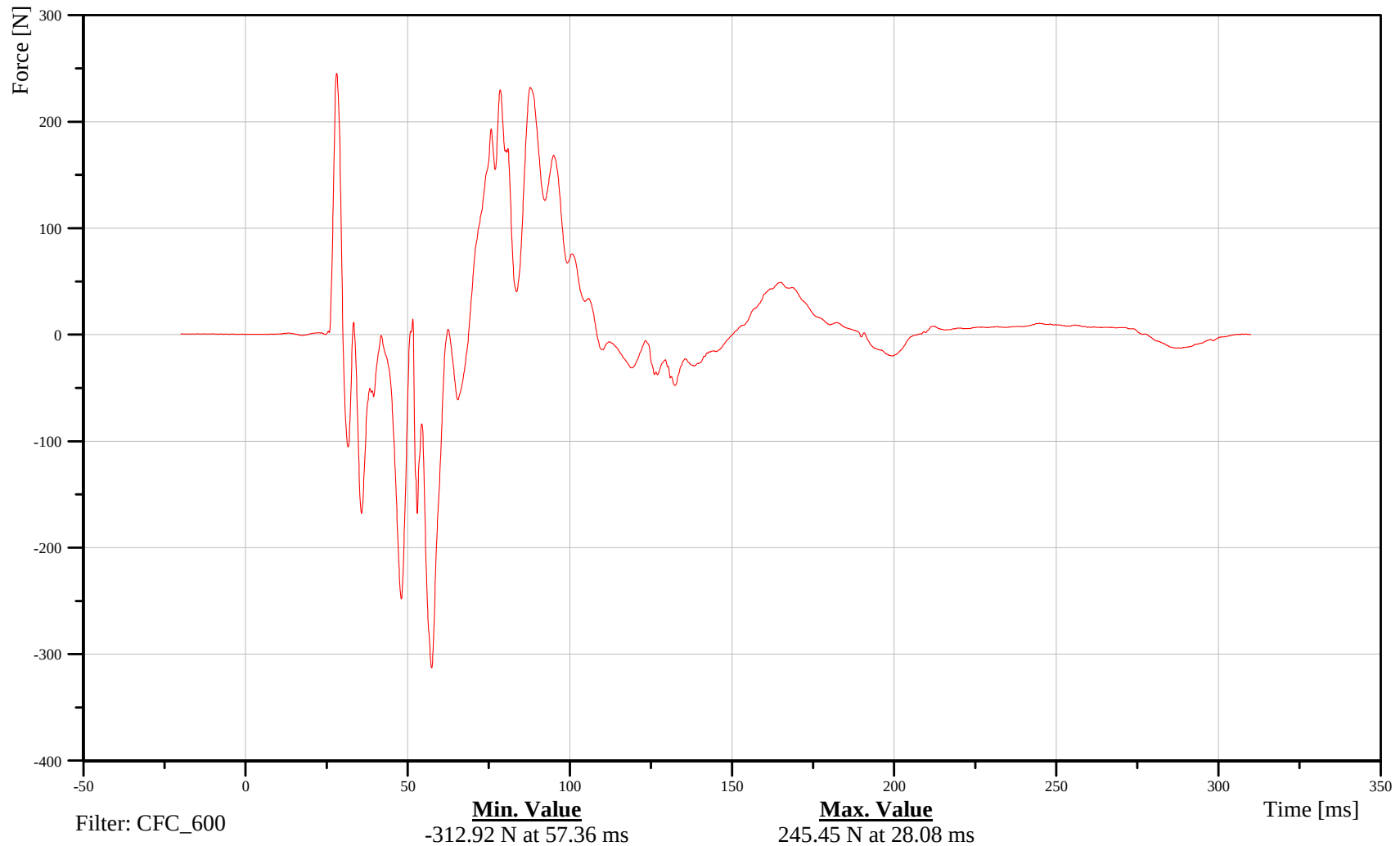
Shoulder X-Axis Force

Customer: VRTC

11SHLDLE00S2FOXB

TRC Inc. Test Lab: CTF

Test Number: 070709



B-19

070709



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

Date: 07/09/2007
Time: 13:52

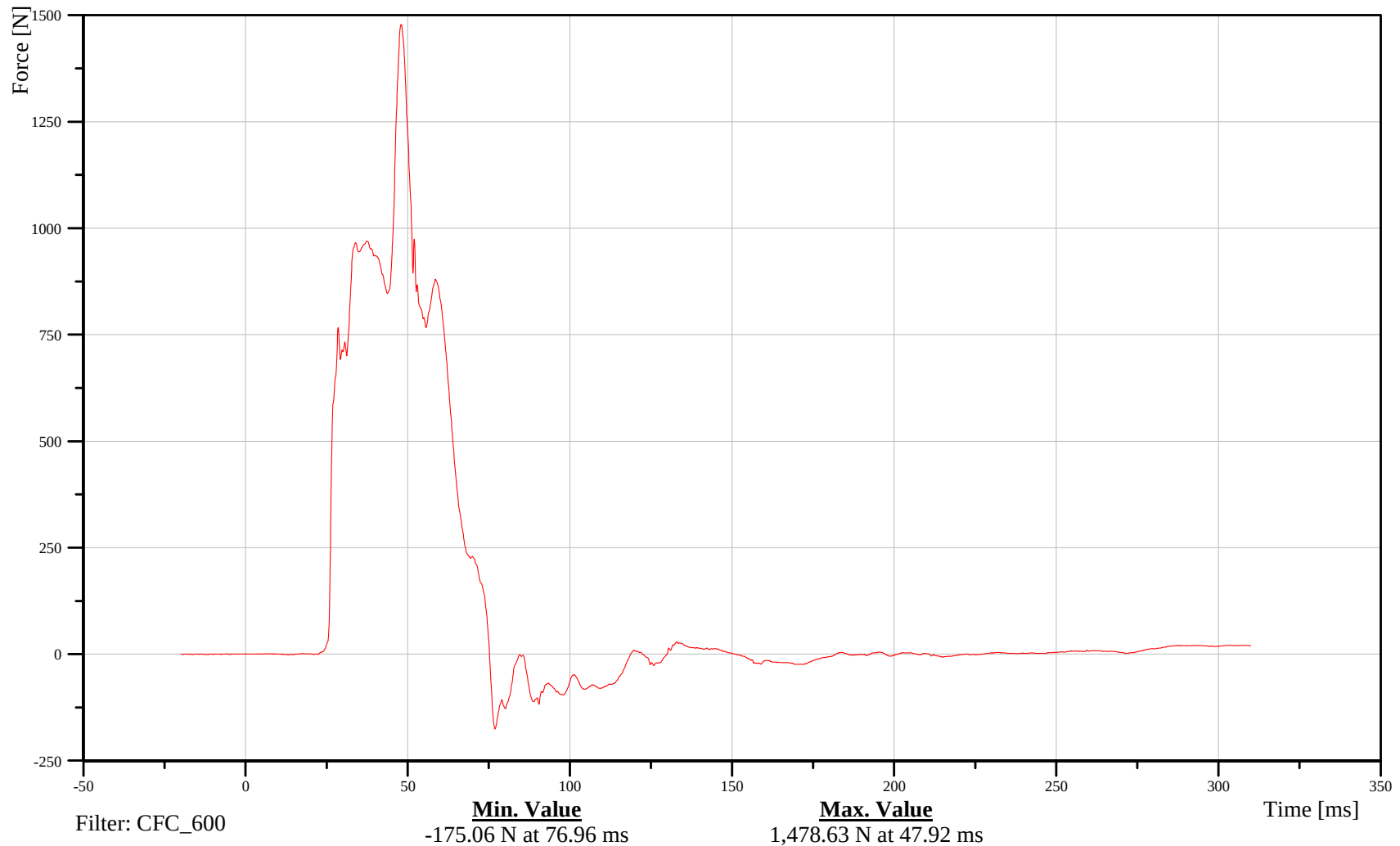
Shoulder Y-Axis Force

Customer: VRTC

11SHLDLE00S2FOYB

TRC Inc. Test Lab: CTF

Test Number: 070709



B-20

070709



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

Date: 07/09/2007
Time: 13:52

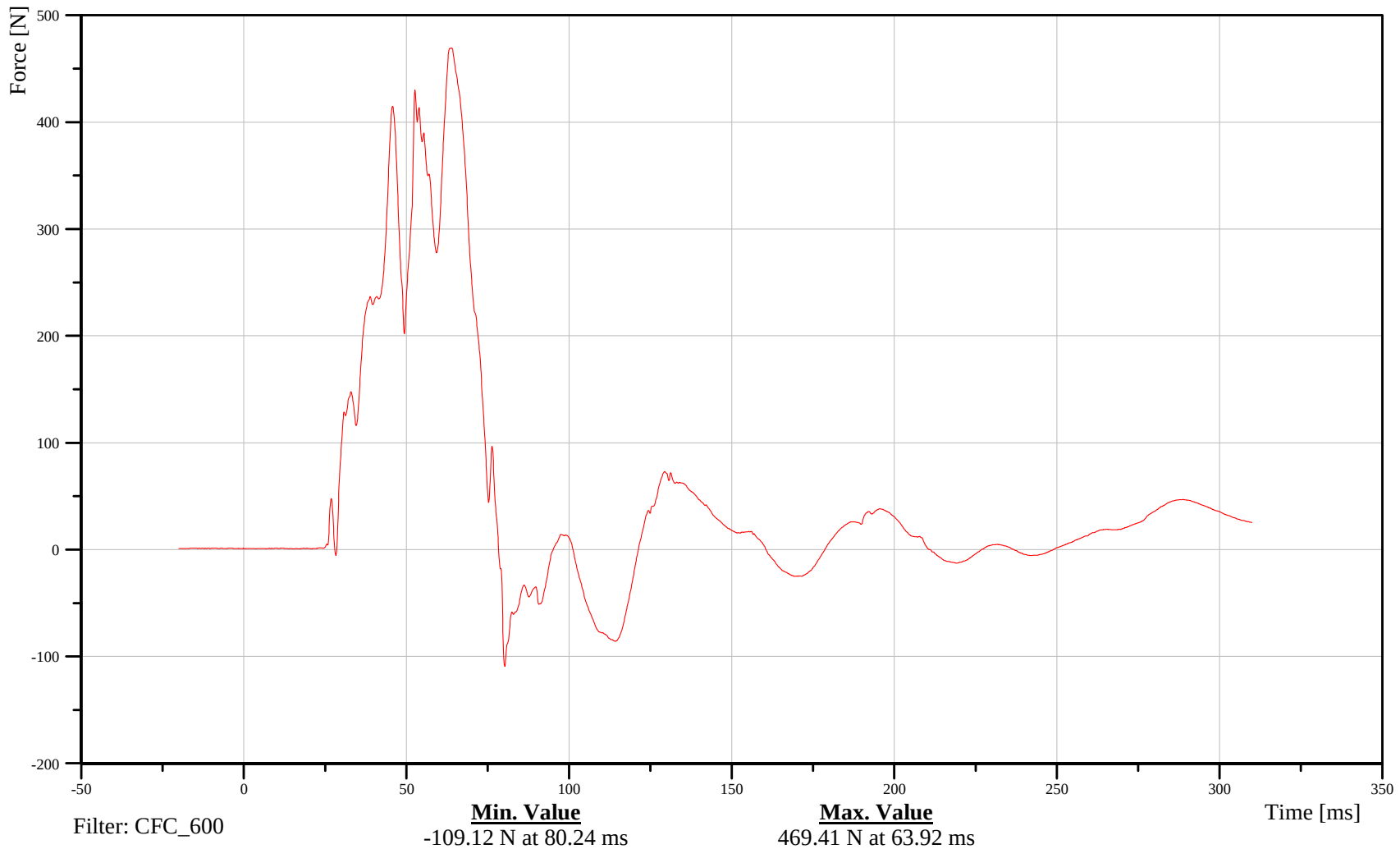
Shoulder Z-Axis Force

Customer: VRTC

11SHLDLE00S2FOZB

TRC Inc. Test Lab: CTF

Test Number: 070709



B-21

070709



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

Date: 07/09/2007
Time: 13:52

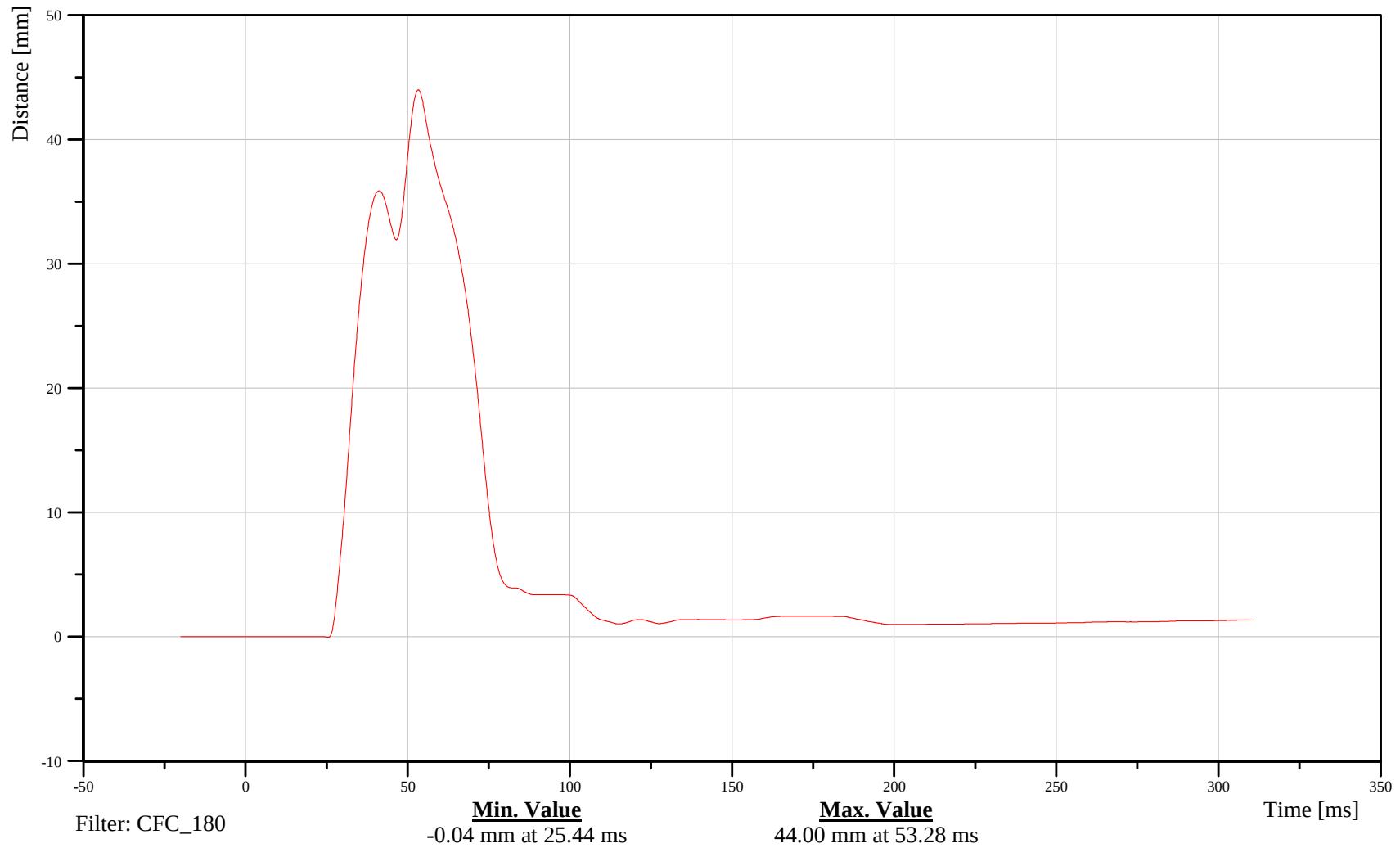
Shoulder Y-Axis Displacement

Customer: VRTC

11SHRILE00S2DSYC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-22

070709



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

Date: 07/09/2007
Time: 13:52

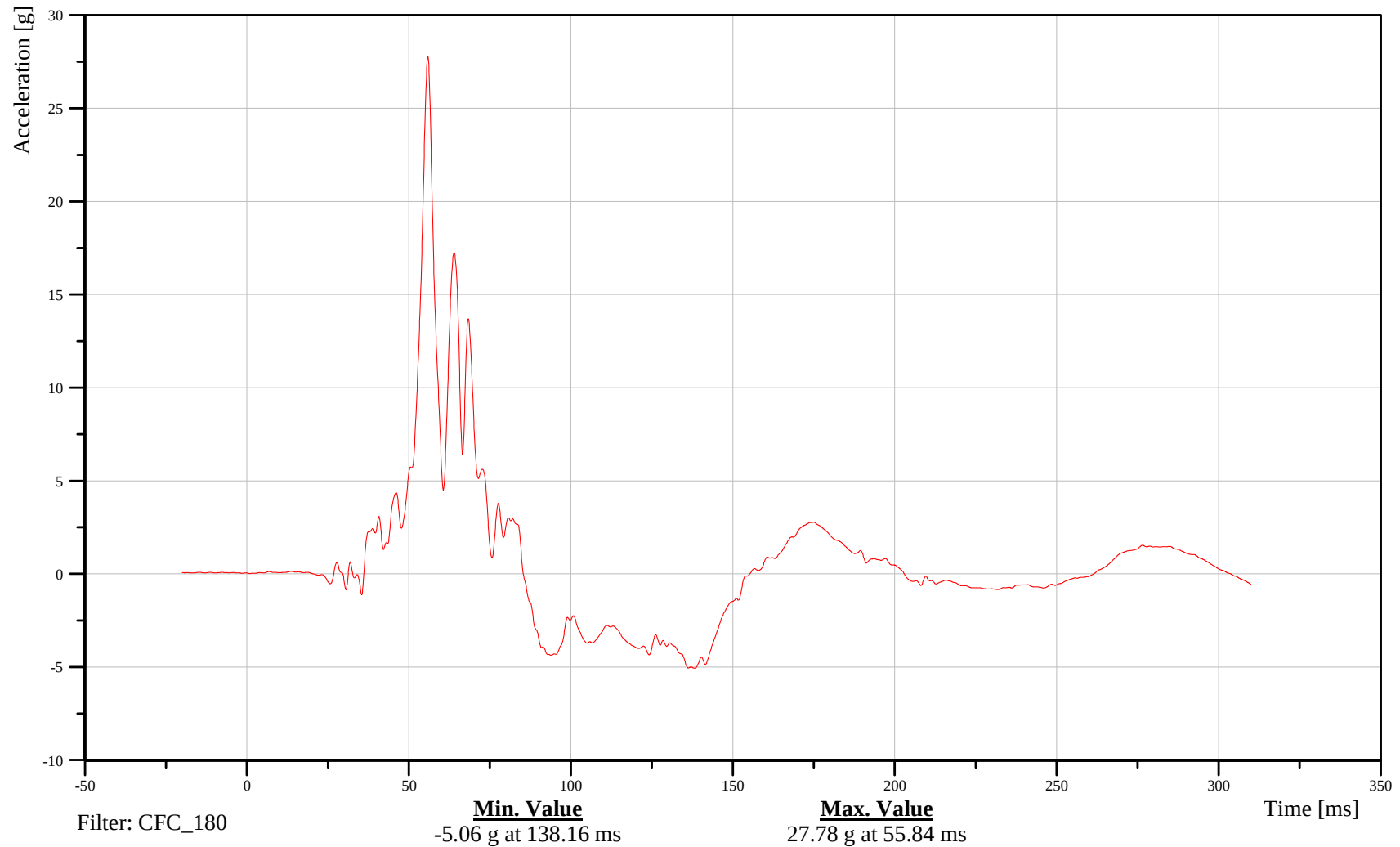
Upper Spine X-Axis Acceleration

Customer: VRTC

11SPIN0100S2ACXC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-23

070709



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

Date: 07/09/2007
Time: 13:52

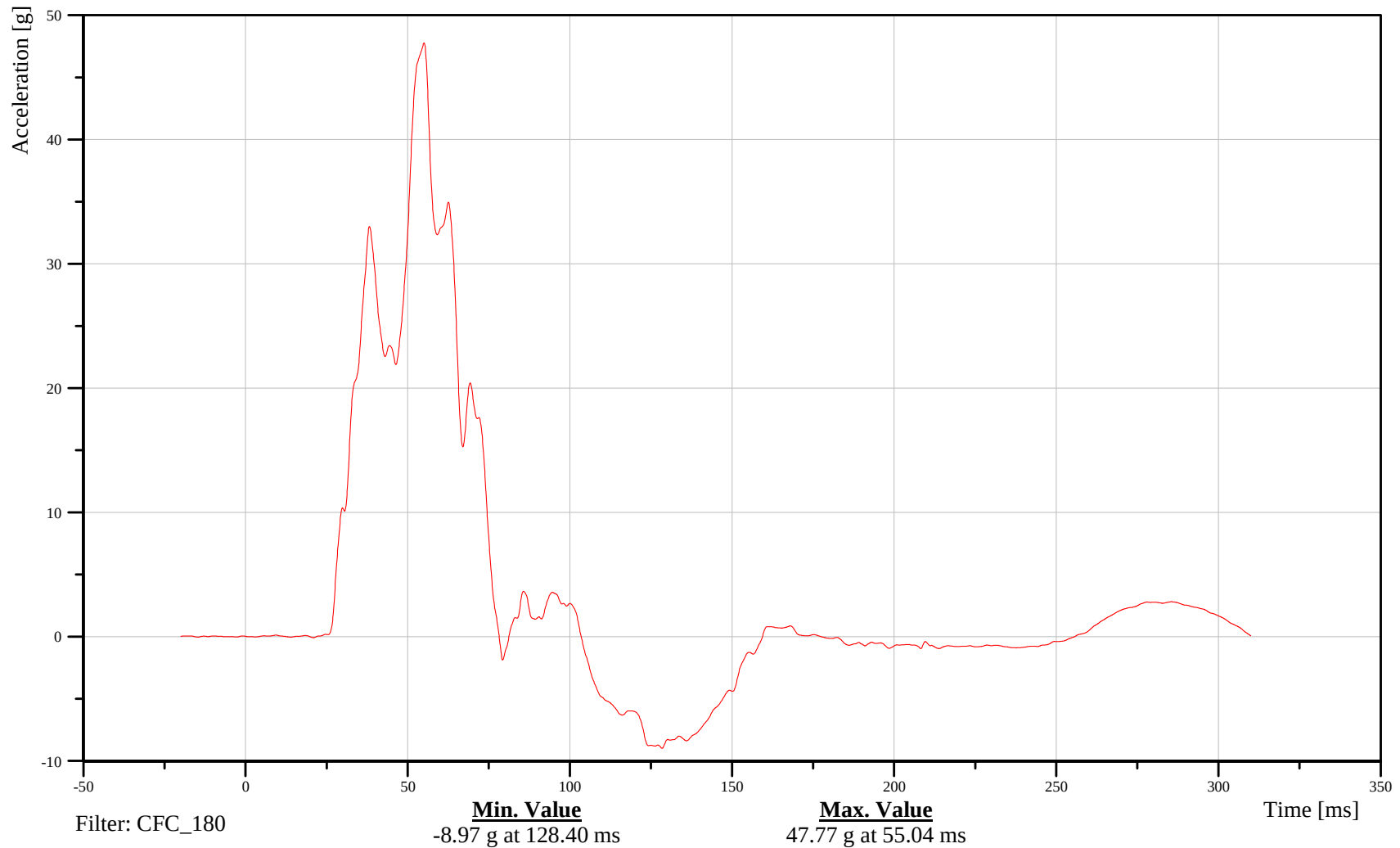
Upper Spine Y-Axis Acceleration

Customer: VRTC

11SPIN0100S2ACYC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-24

070709



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

Date: 07/09/2007
Time: 13:52

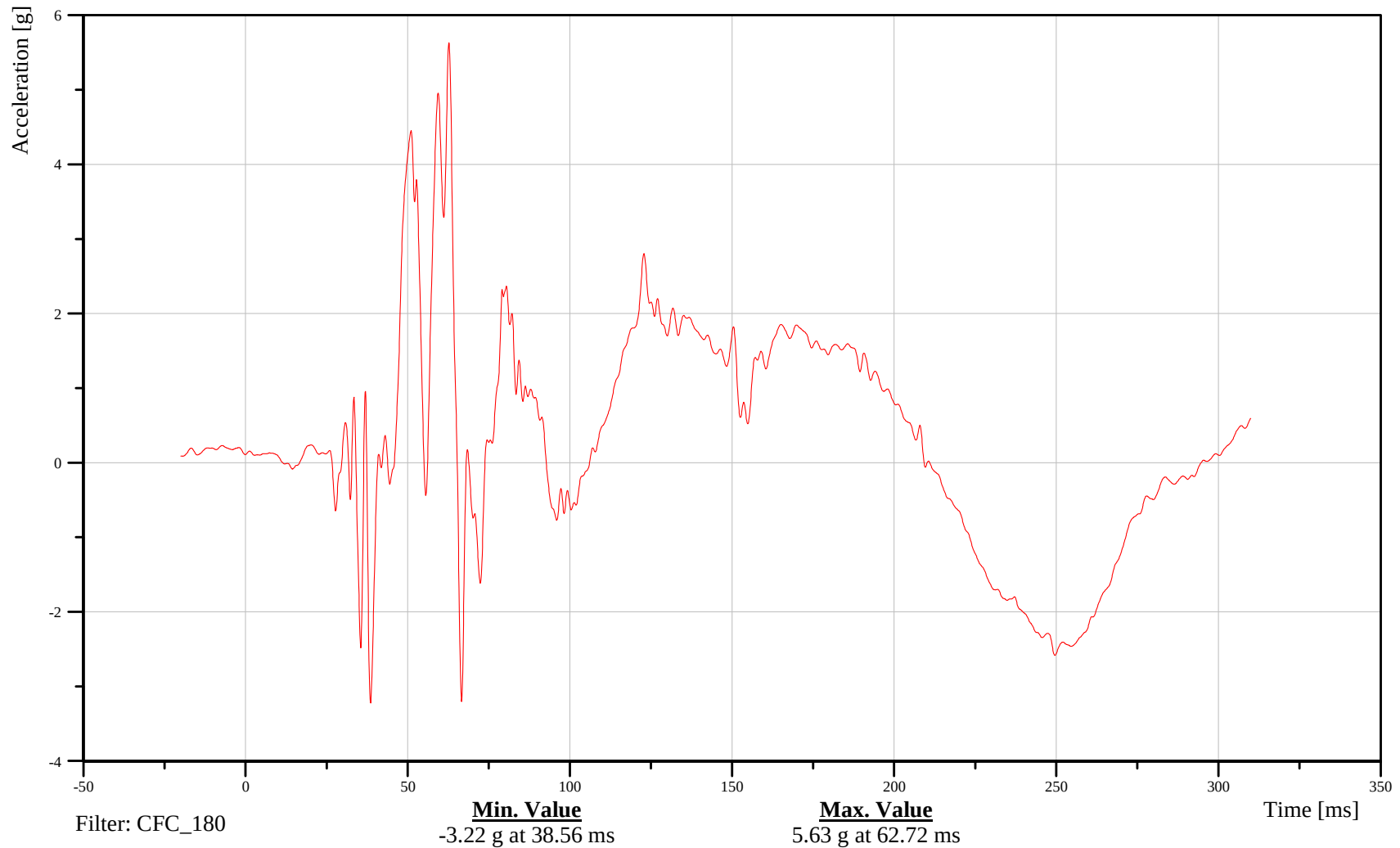
Upper Spine Z-Axis Acceleration

Customer: VRTC

11SPIN0100S2ACZC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-25

070709



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

Date: 07/09/2007
Time: 13:52

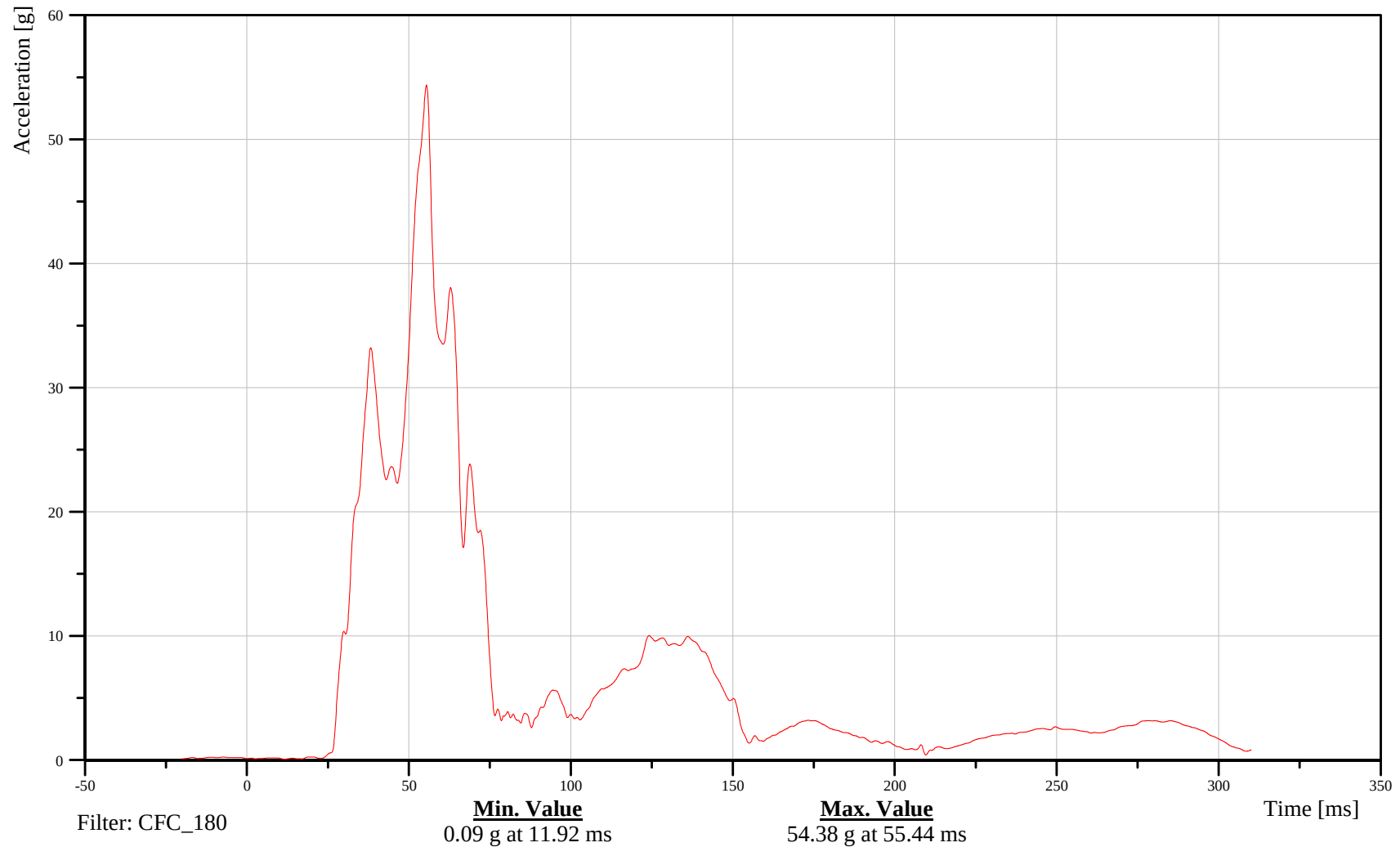
Upper Spine Resultant Acceleration

Customer: VRTC

11SPIN0100S2ACRC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-26

070709



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

Date: 07/09/2007
Time: 13:52

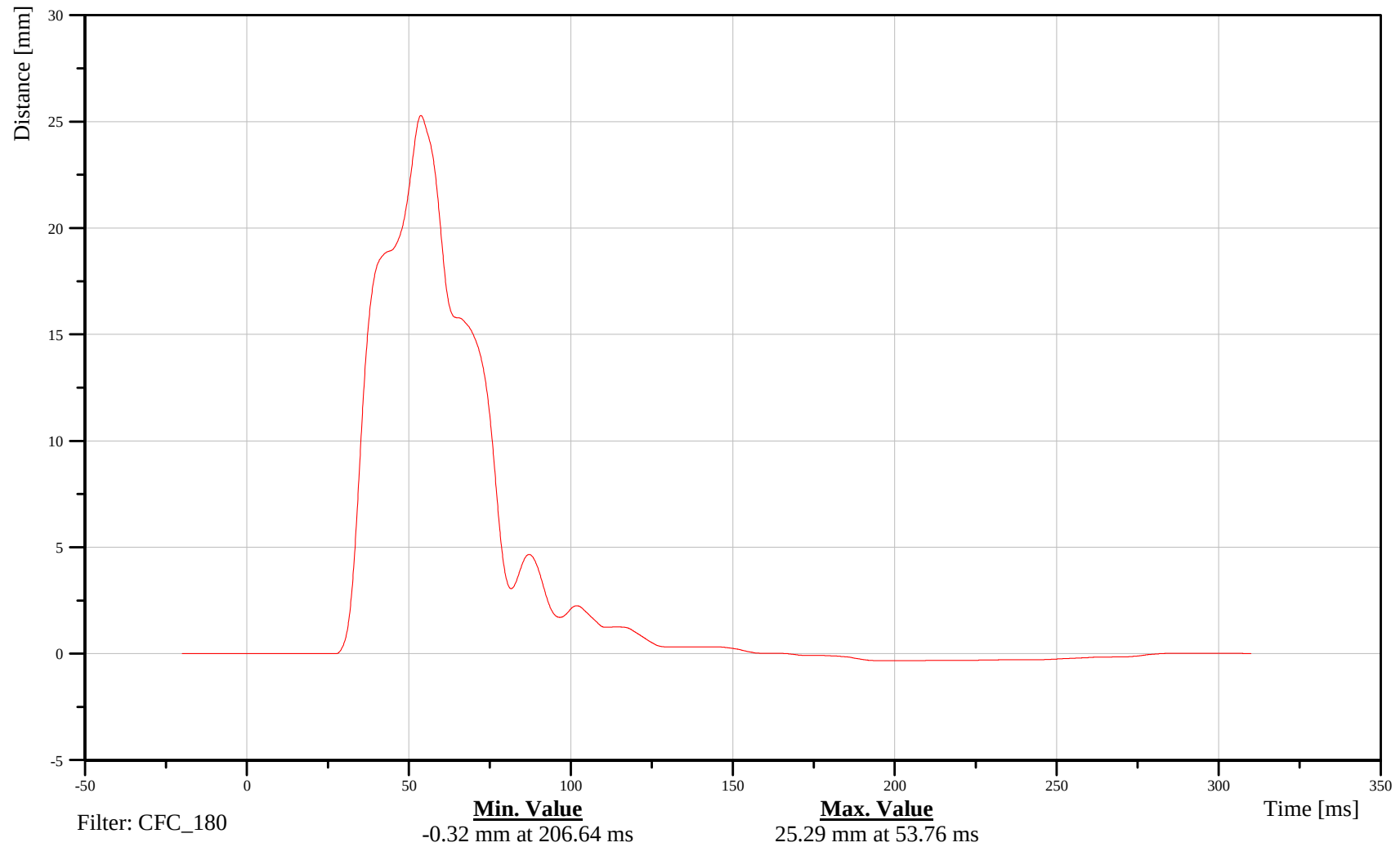
Left Thorax Rib 1 Y-Axis Displacement

Customer: VRTC

11TRRI01LES2DSYC

TRC Inc. Test Lab: CTF

Test Number: 070709





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

Date: 07/09/2007
Time: 13:52

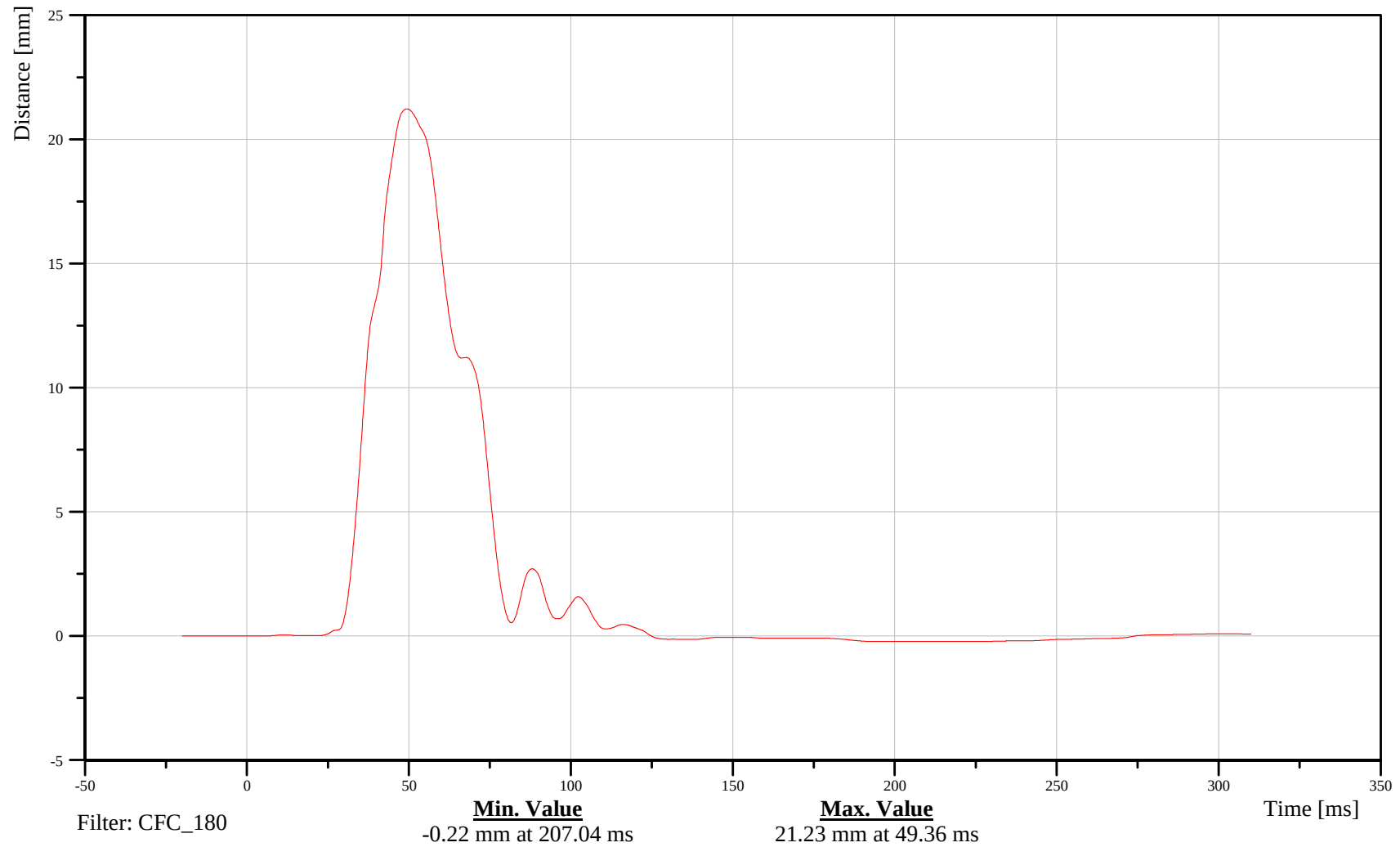
Left Thorax Rib 2 Y-Axis Displacement

Customer: VRTC

11TRRI02LES2DSYC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-28

070709



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

Date: 07/09/2007
Time: 13:52

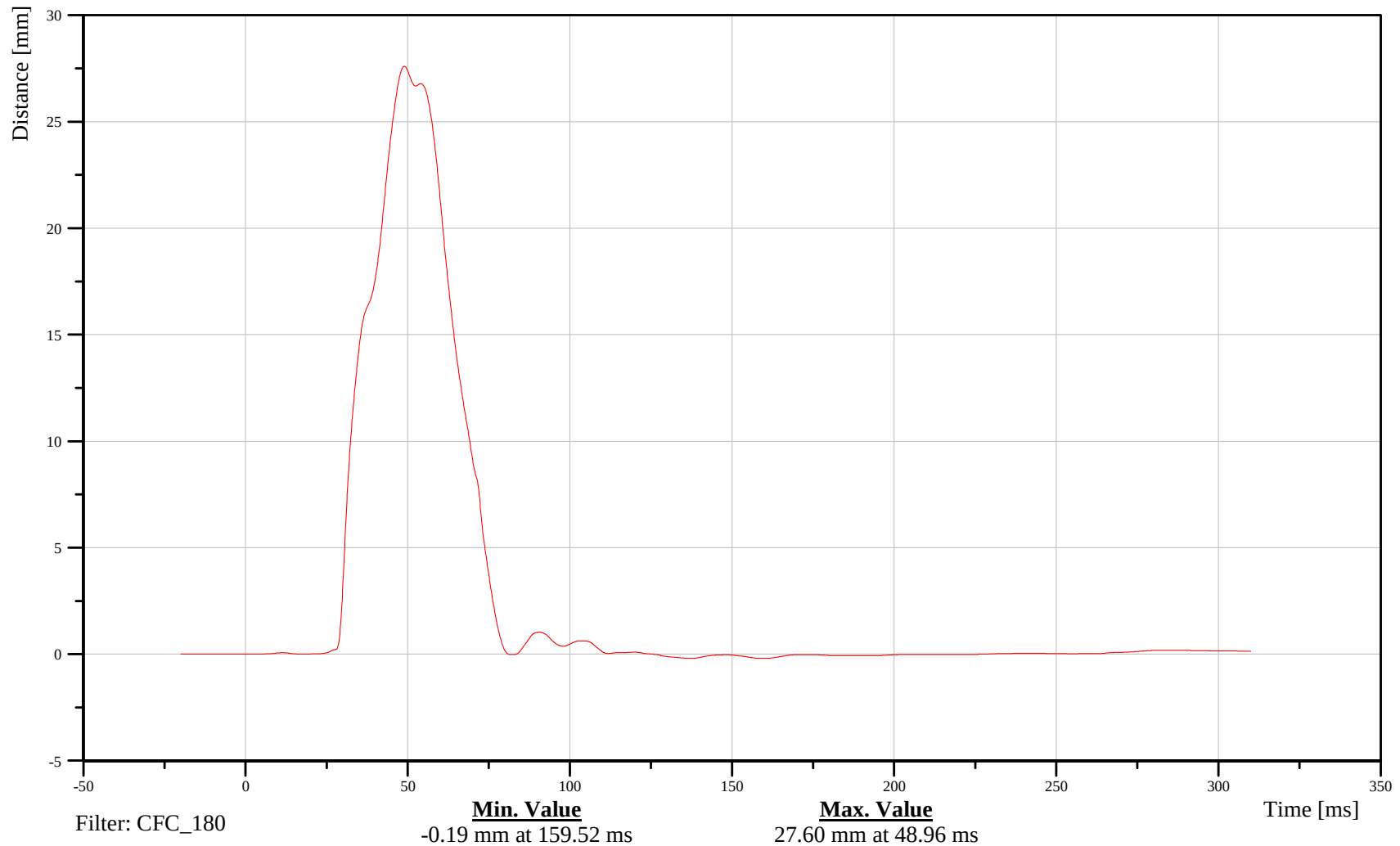
Left Thorax Rib 3 Y-Axis Displacement

Customer: VRTC

11TRRI03LES2DSYC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-29

070709



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

Date: 07/09/2007
Time: 13:52

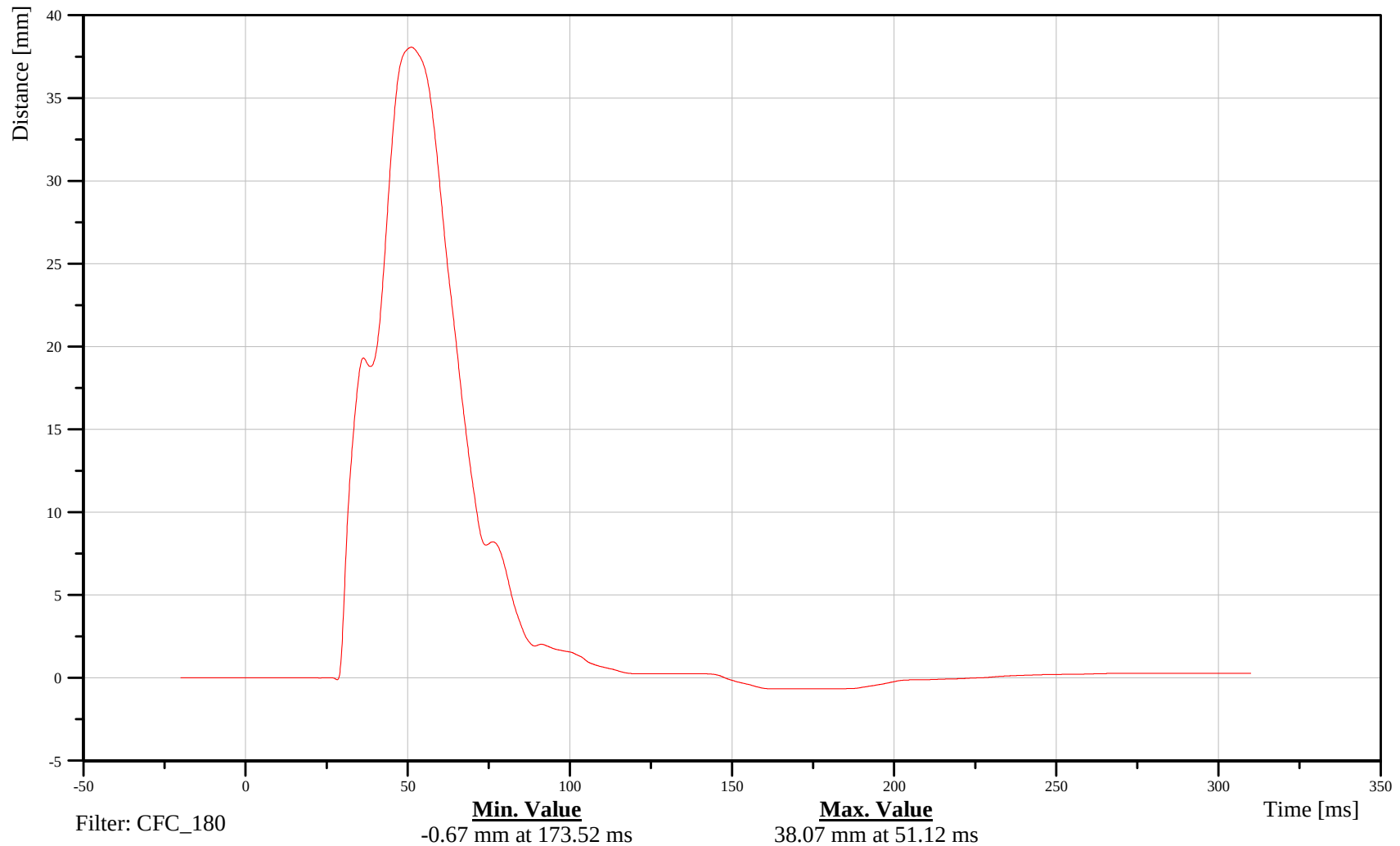
Left Abdomen Rib 1 Y-Axis Displacement

Customer: VRTC

11ABRI01LES2DSYC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-30

070709



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

Date: 07/09/2007
Time: 13:52

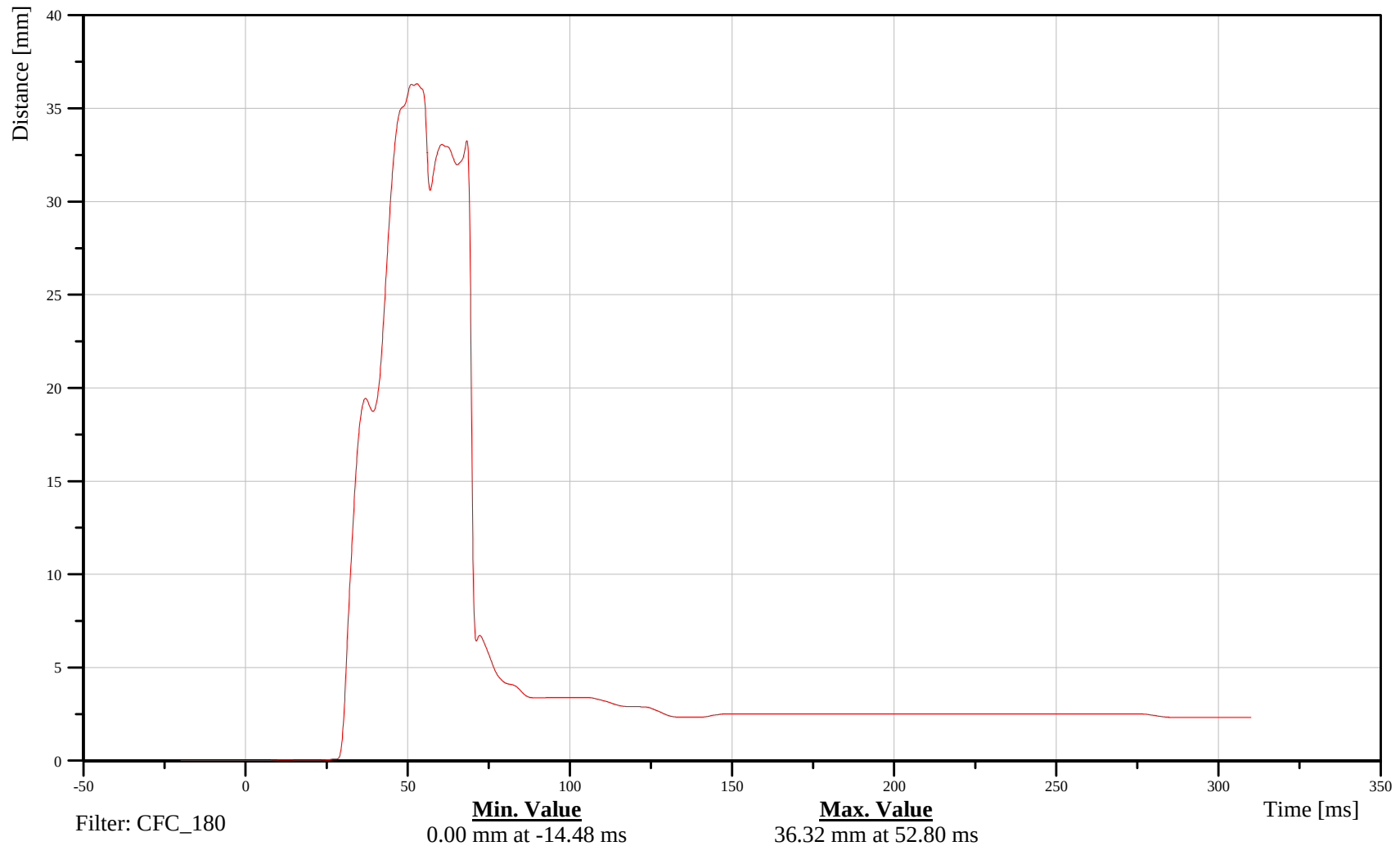
Left Abdomen Rib 2 Y-Axis Displacement

Customer: VRTC

11ABRI02LES2DSYC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-31

070709



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

Date: 07/09/2007
Time: 13:52

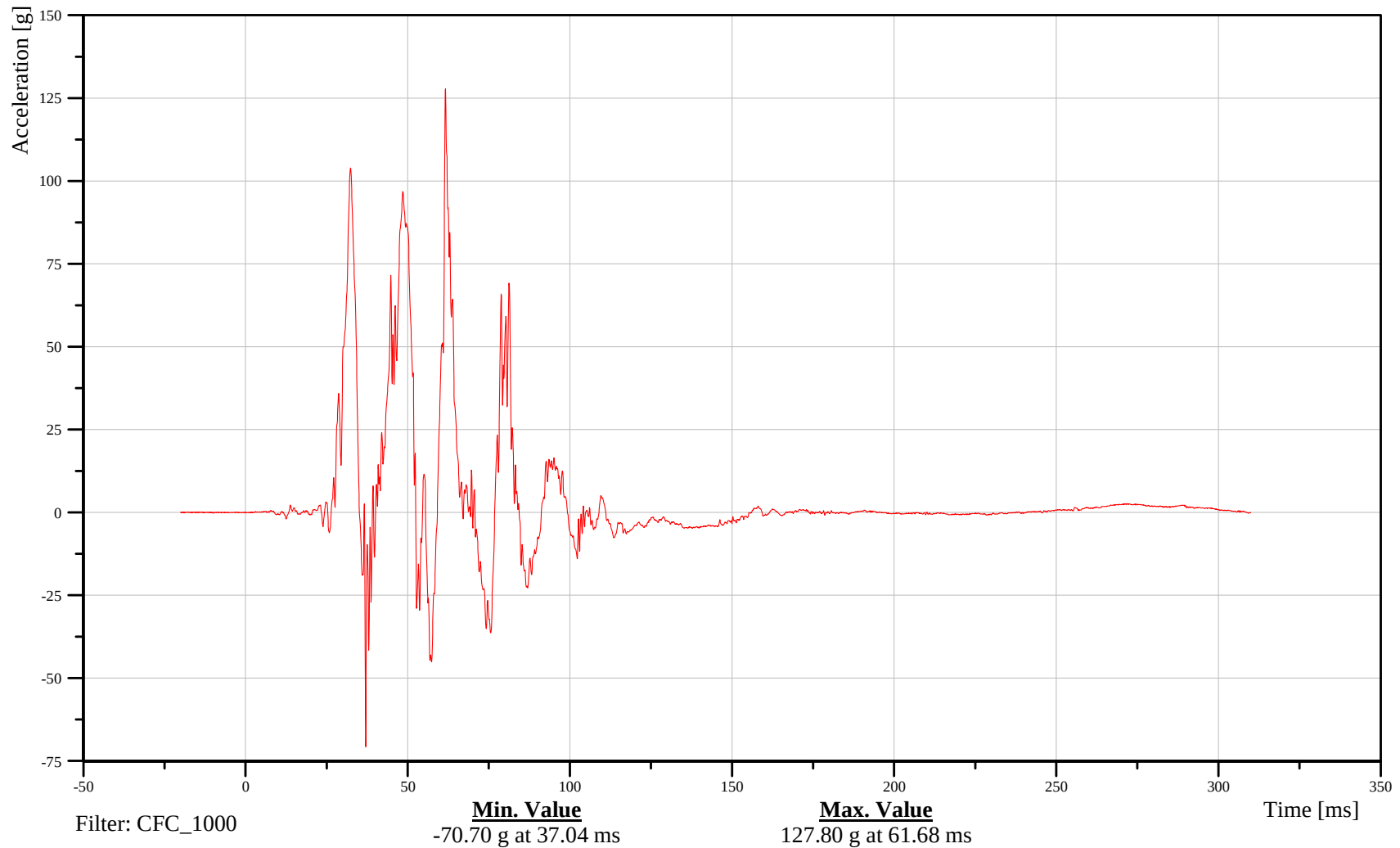
Left Thorax Rib 1 Y-Axis Acceleration

Customer: VRTC

11TRRI01LES2ACYA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-32

070709



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

Date: 07/09/2007
Time: 13:52

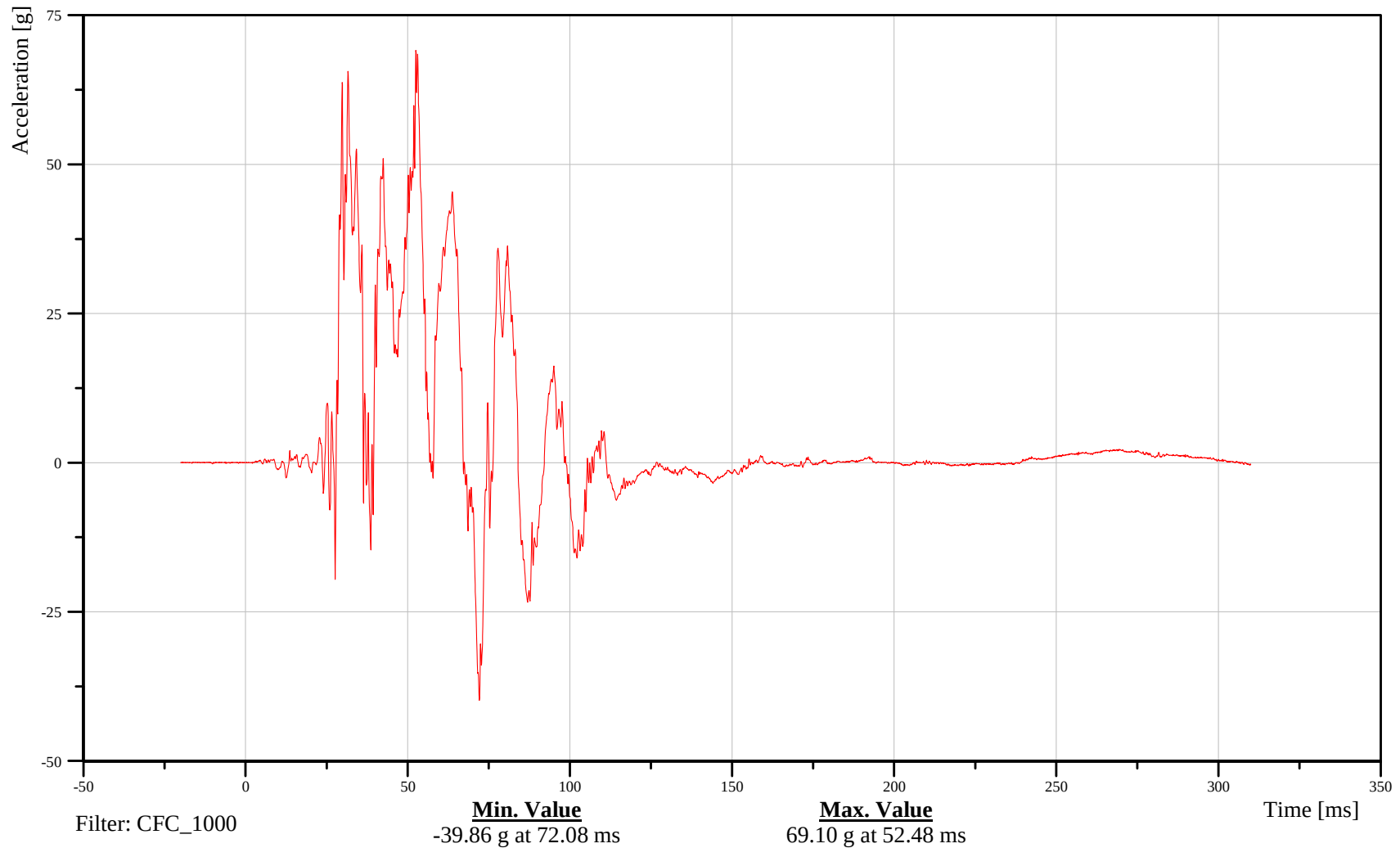
Left Thorax Rib 2 Y-Axis Acceleration

Customer: VRTC

11TRRI02LES2ACYA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-33

070709



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

Date: 07/09/2007
Time: 13:52

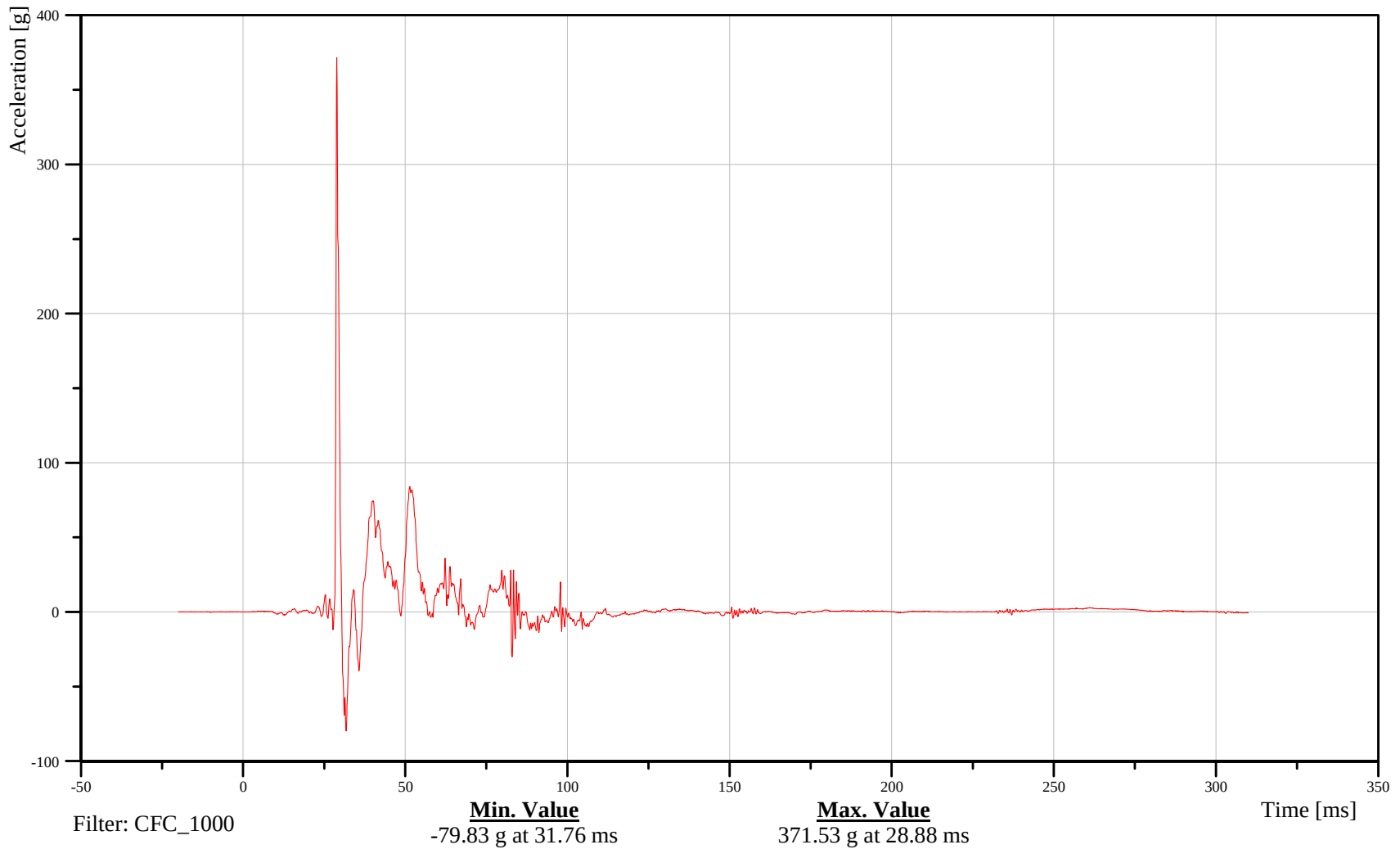
Left Thorax Rib 3 Y-Axis Acceleration

Customer: VRTC

11TRRI03LES2ACYA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-34

070709



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

Date: 07/09/2007
Time: 13:52

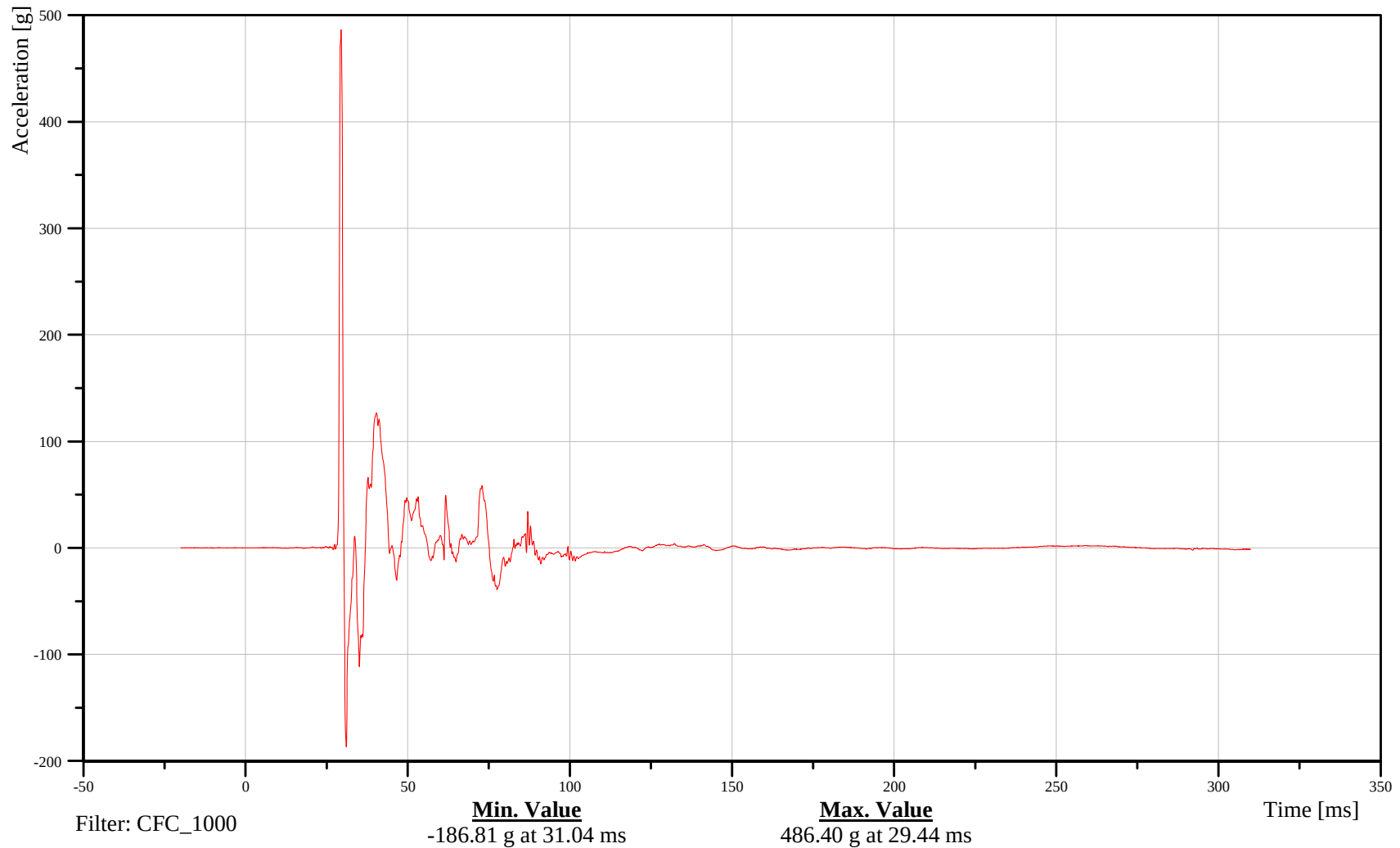
Left Abdomen Rib 1 Y-Axis Acceleration

Customer: VRTC

11ABRI01LES2ACYA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-35

070709



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

Date: 07/09/2007
Time: 13:52

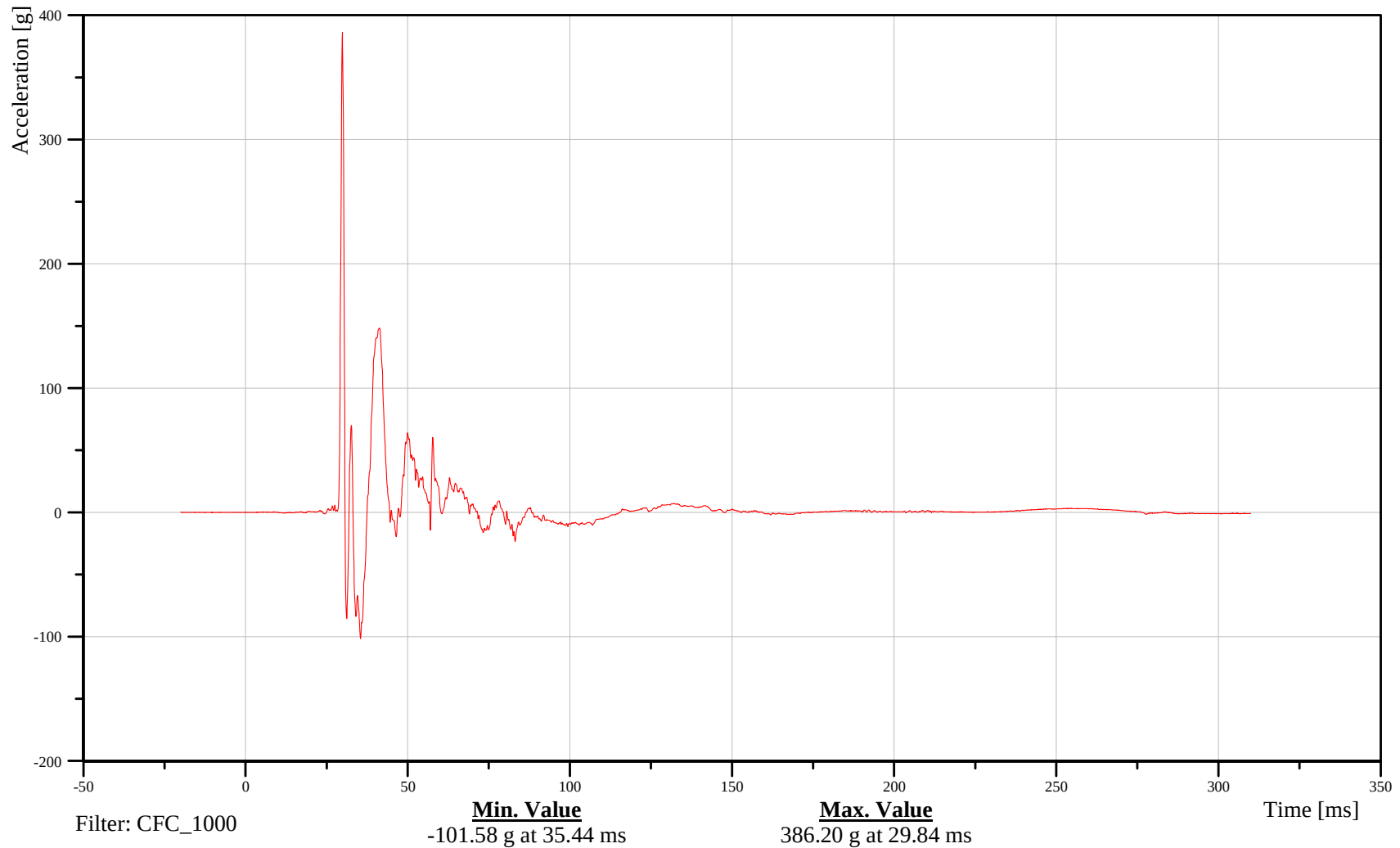
Left Abdomen Rib 2 Y-Axis Acceleration

Customer: VRTC

11ABRI02LES2ACYA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-36

070709



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

Date: 07/09/2007
Time: 13:52

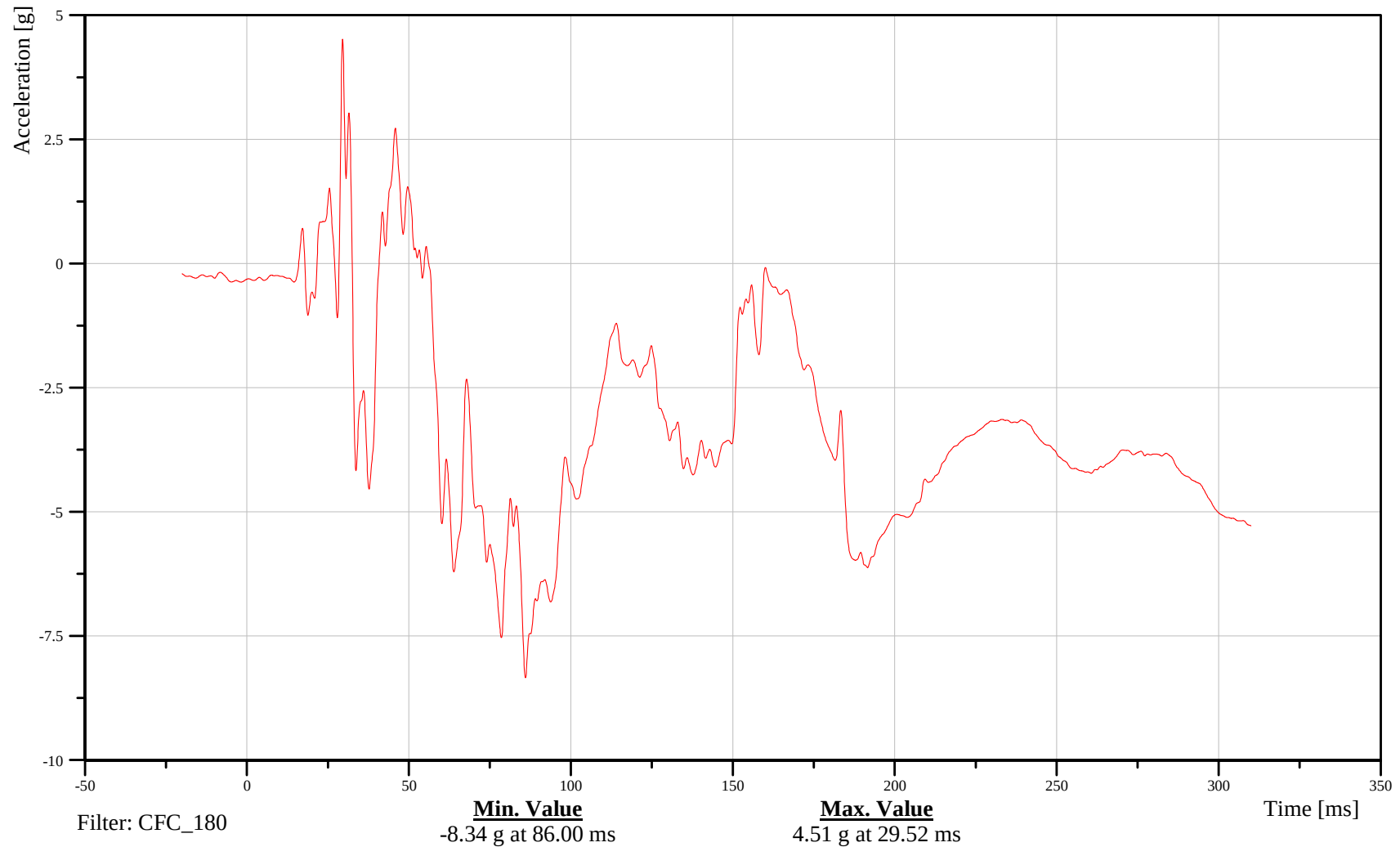
Lower Spine X-Axis Acceleration

Customer: VRTC

11SPIN1200S2ACXC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-37

070709



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

Date: 07/09/2007
Time: 13:52

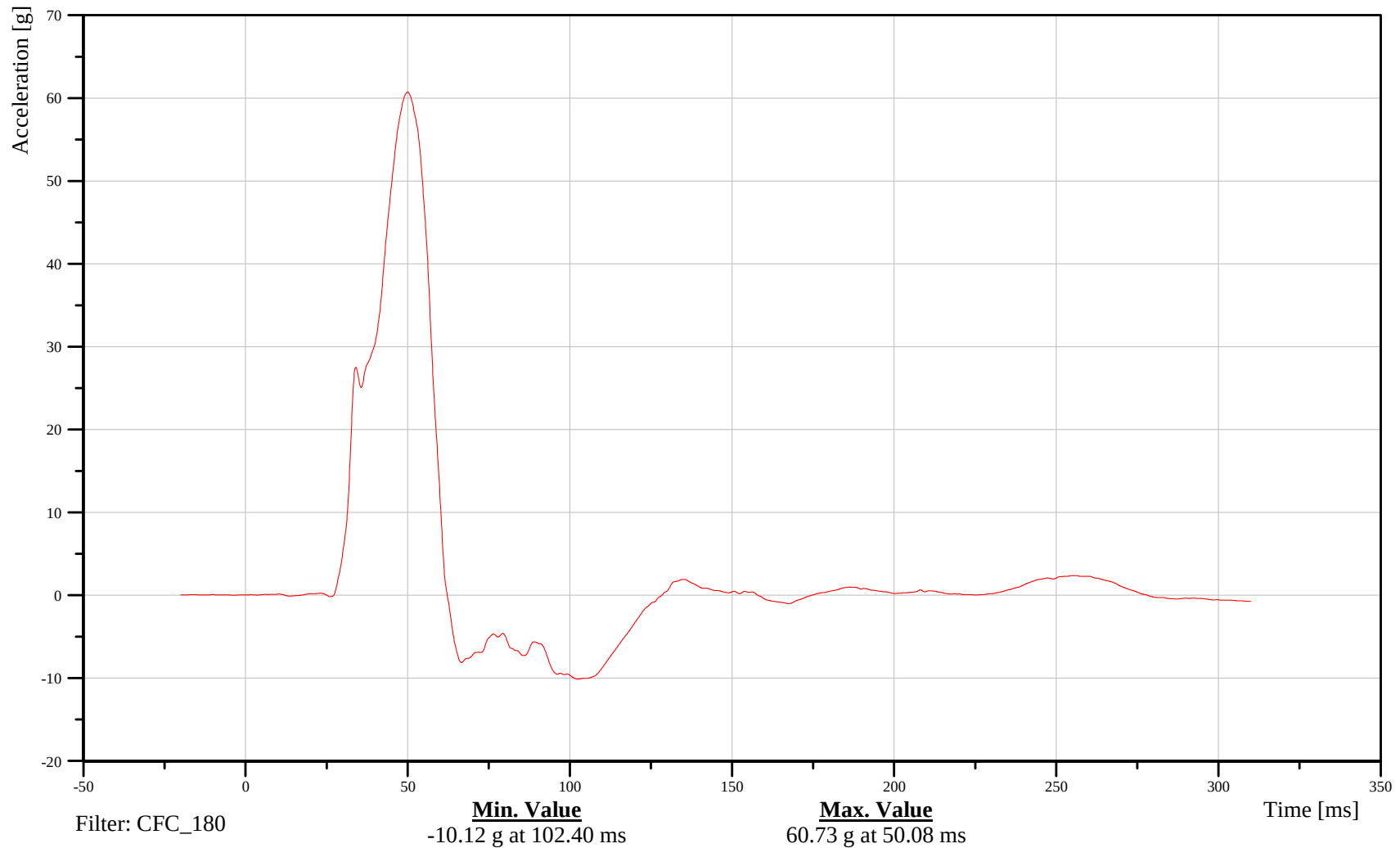
Lower Spine Y-Axis Acceleration

Customer: VRTC

11SPIN1200S2ACYC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-38

070709



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

Date: 07/09/2007
Time: 13:52

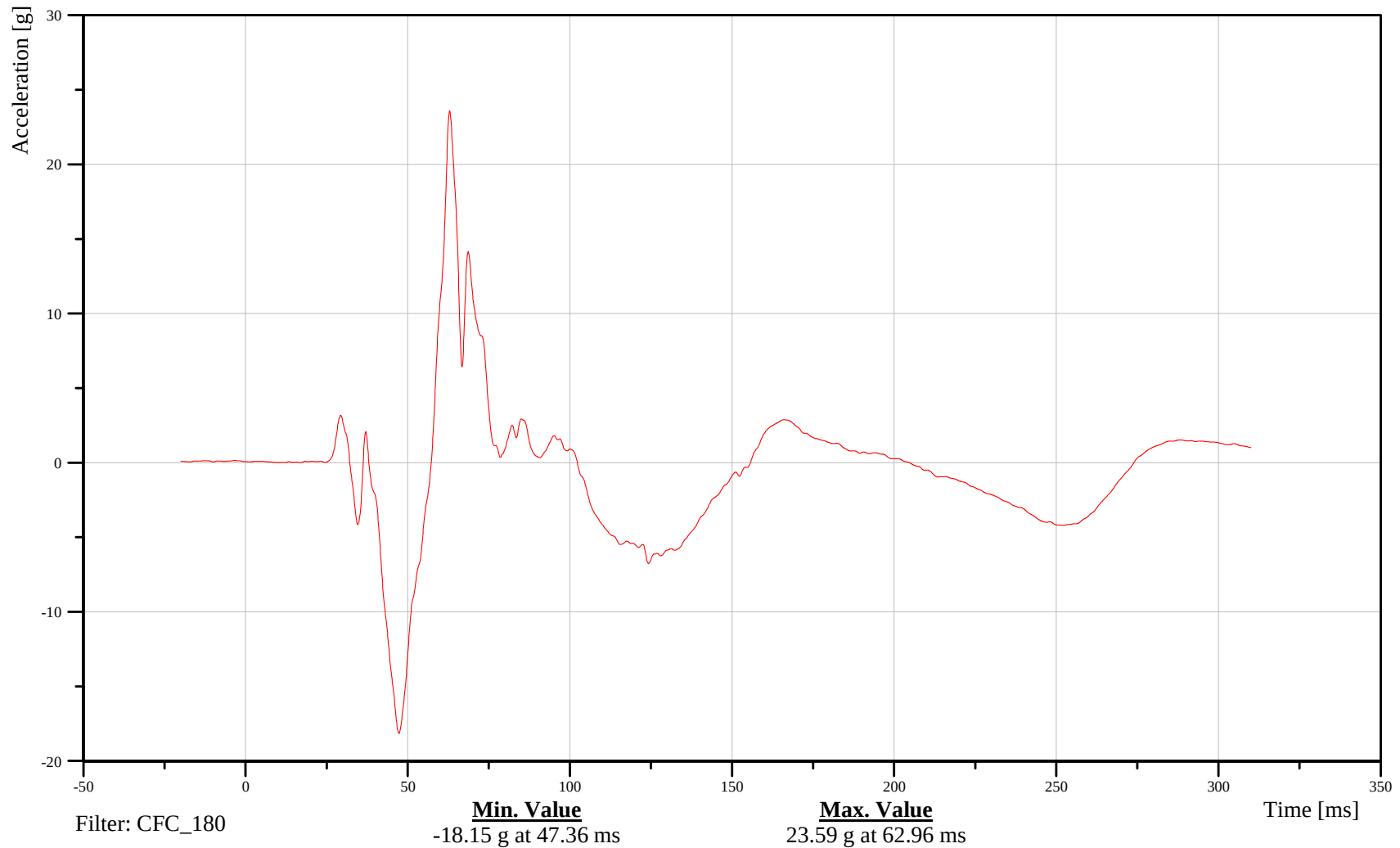
Lower Spine Z-Axis Acceleration

Customer: VRTC

11SPIN1200S2ACZC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-39

070709



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

Date: 07/09/2007
Time: 13:52

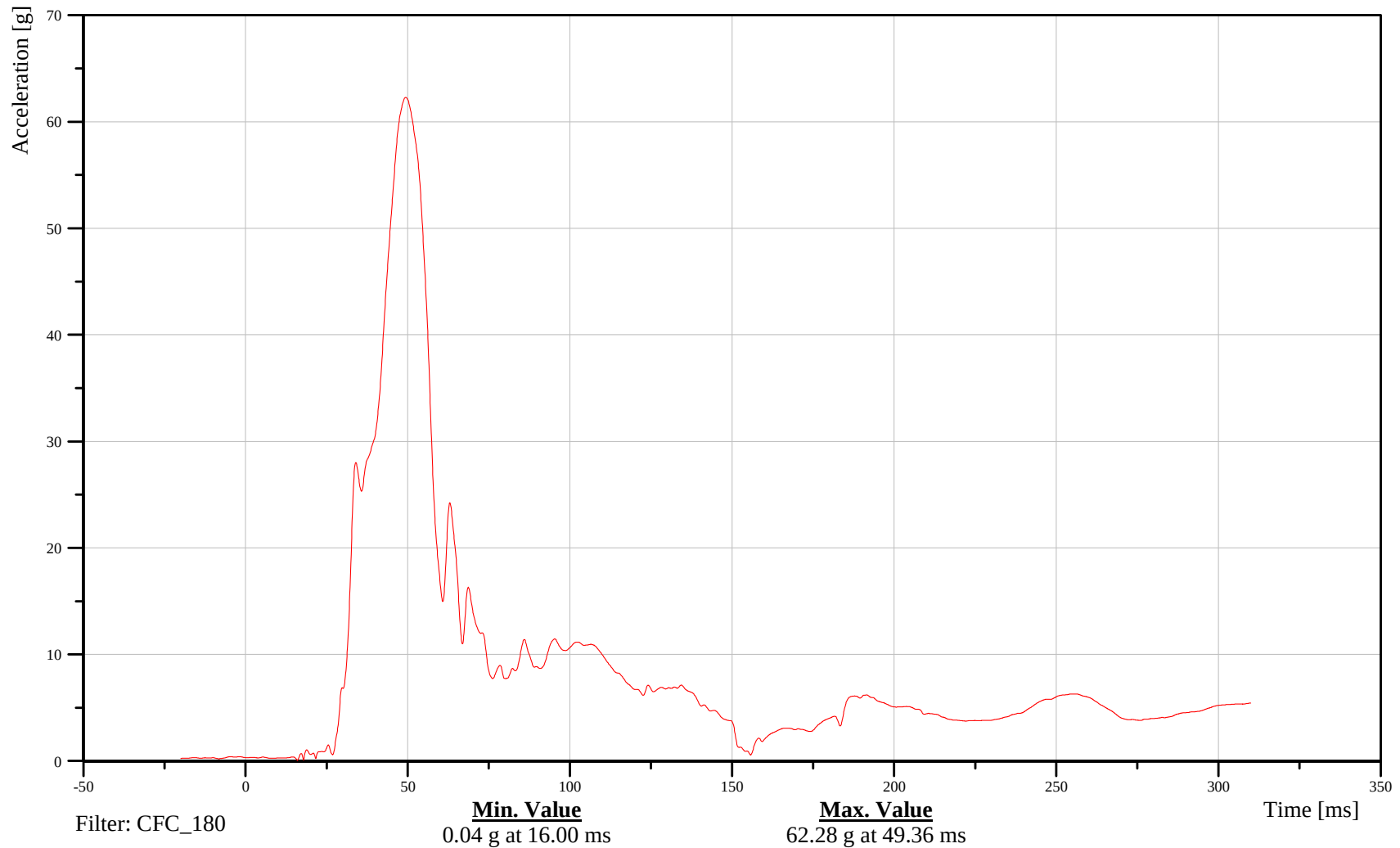
Lower Spine Resultant Acceleration

Customer: VRTC

11SPIN1200S2ACRC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-40

070709



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

Date: 07/09/2007
Time: 13:52

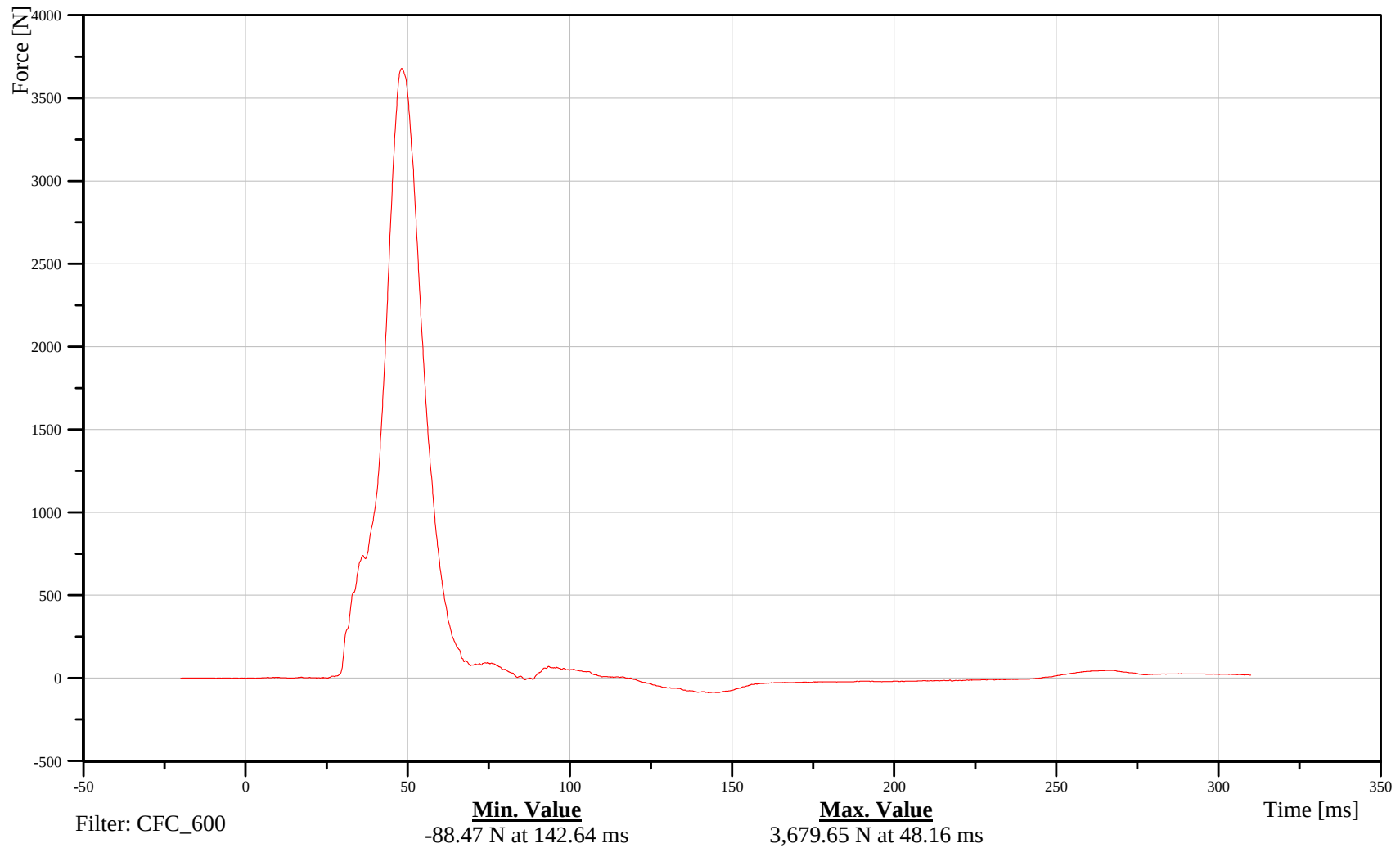
Left Iliac Wing Y-Axis Force

Customer: VRTC

11ILACLE00S2FOYB

TRC Inc. Test Lab: CTF

Test Number: 070709



B-41

070709



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

Date: 07/09/2007
Time: 13:52

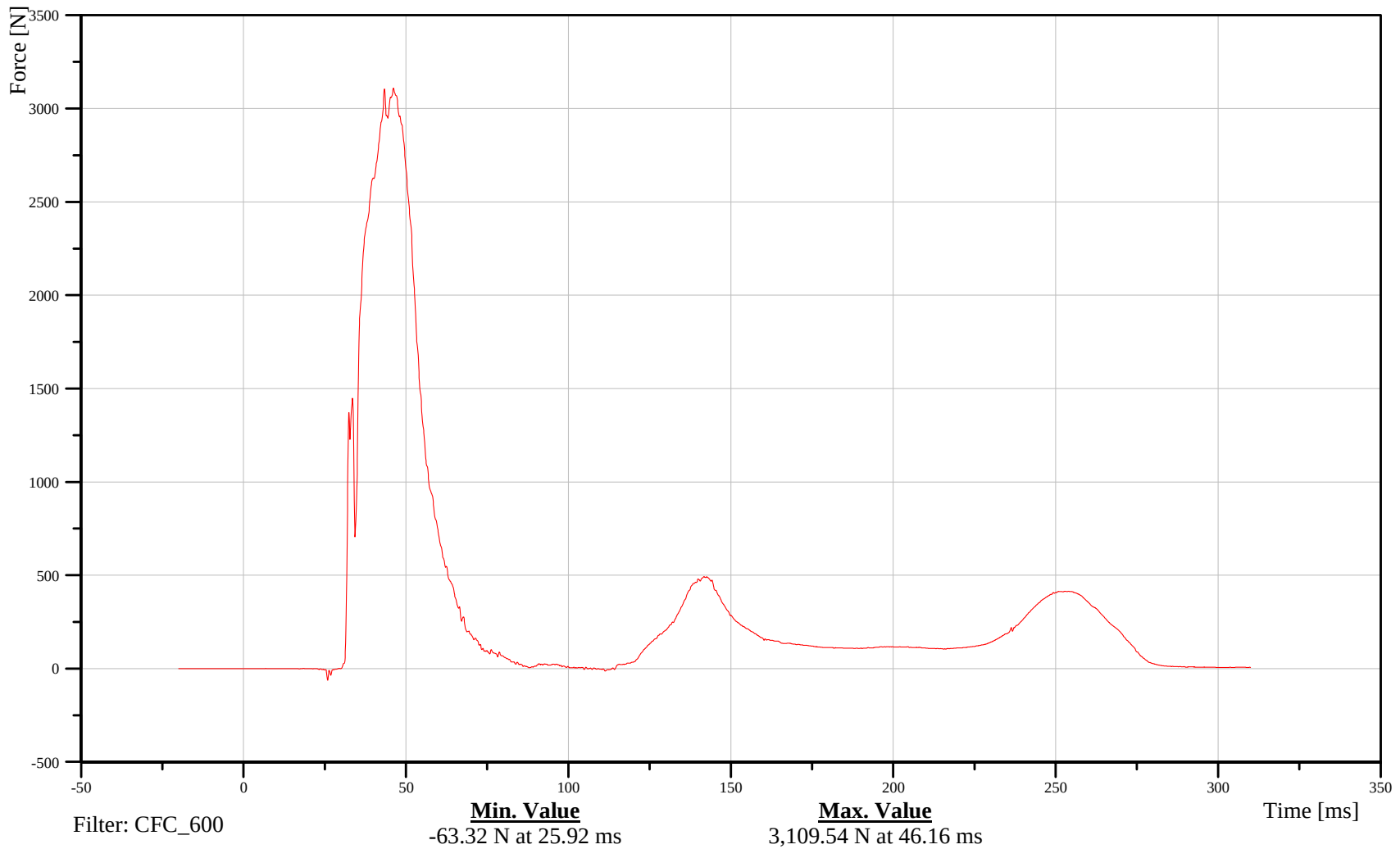
Left Acetabulum Y-Axis Force

Customer: VRTC

11ACTBLE00S2FOYB

TRC Inc. Test Lab: CTF

Test Number: 070709



B-42

070709



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

Date: 07/09/2007
Time: 13:52

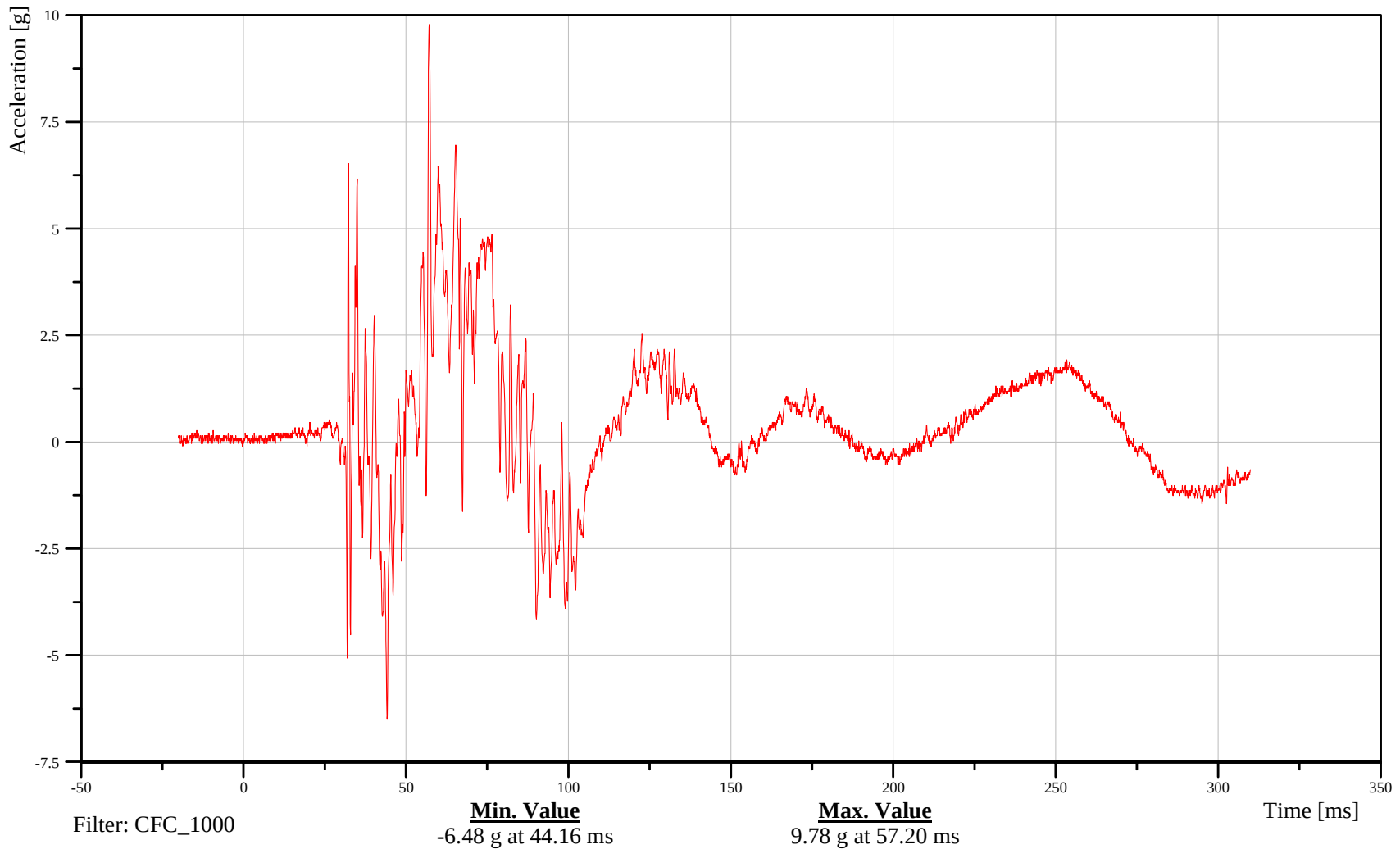
Pelvis X-Axis Acceleration

Customer: VRTC

11PELVCG00S2ACXA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-43

070709



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

Date: 07/09/2007
Time: 13:52

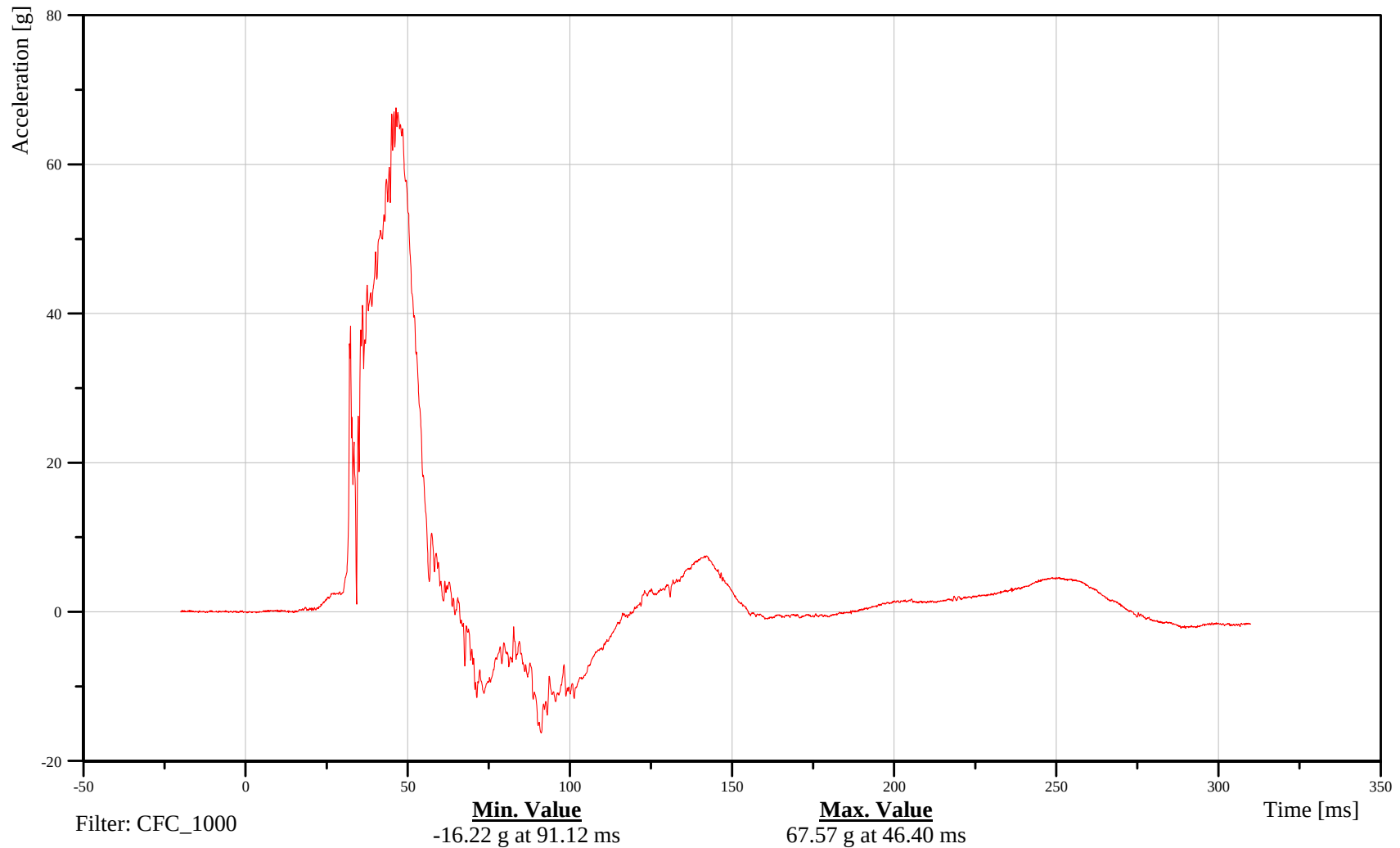
Pelvis Y-Axis Acceleration

Customer: VRTC

11PELVCG00S2ACYA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-44

070709



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

Date: 07/09/2007
Time: 13:52

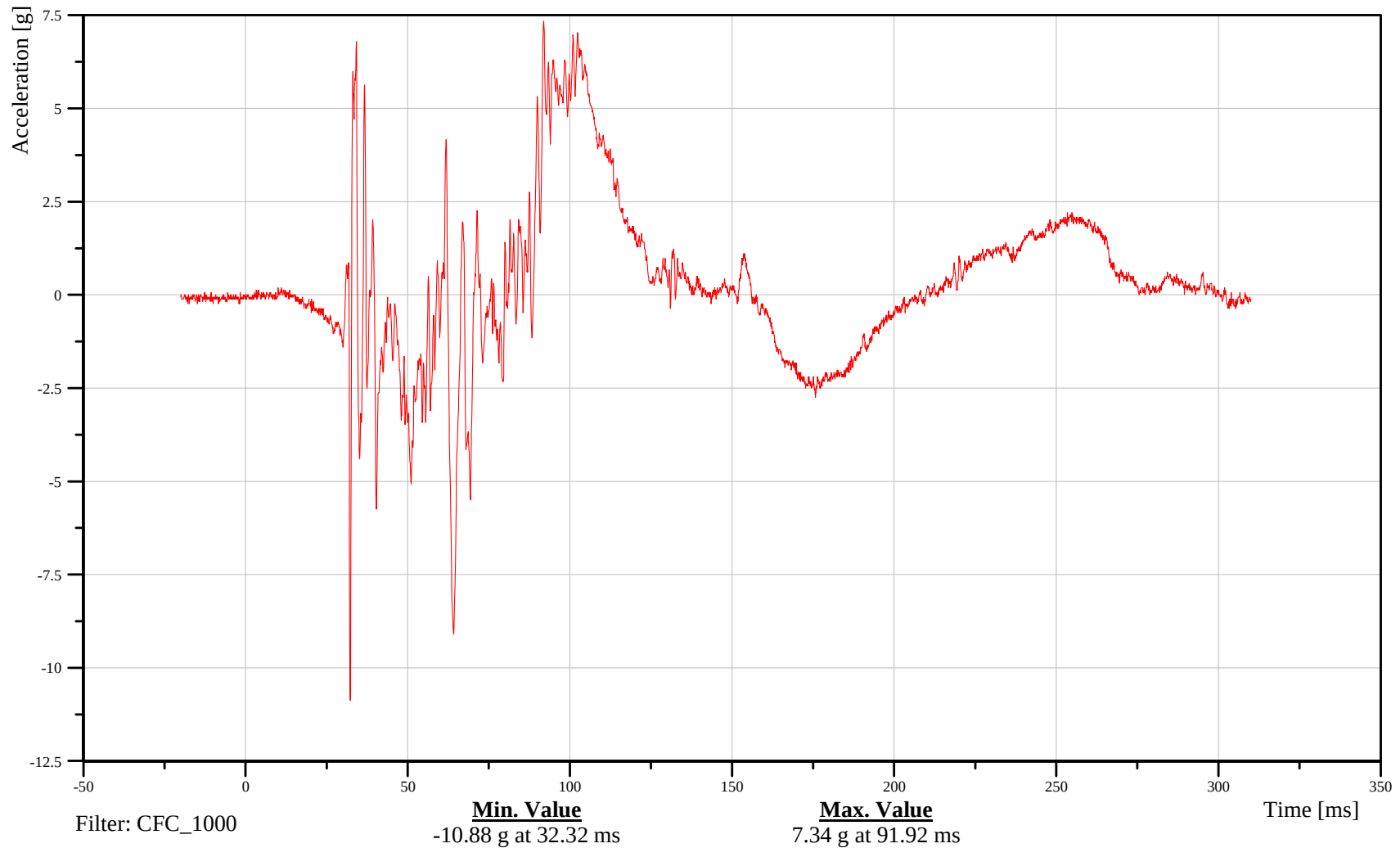
Pelvis Z-Axis Acceleration

Customer: VRTC

11PELVCG00S2ACZA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-45

070709



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

Date: 07/09/2007
Time: 13:52

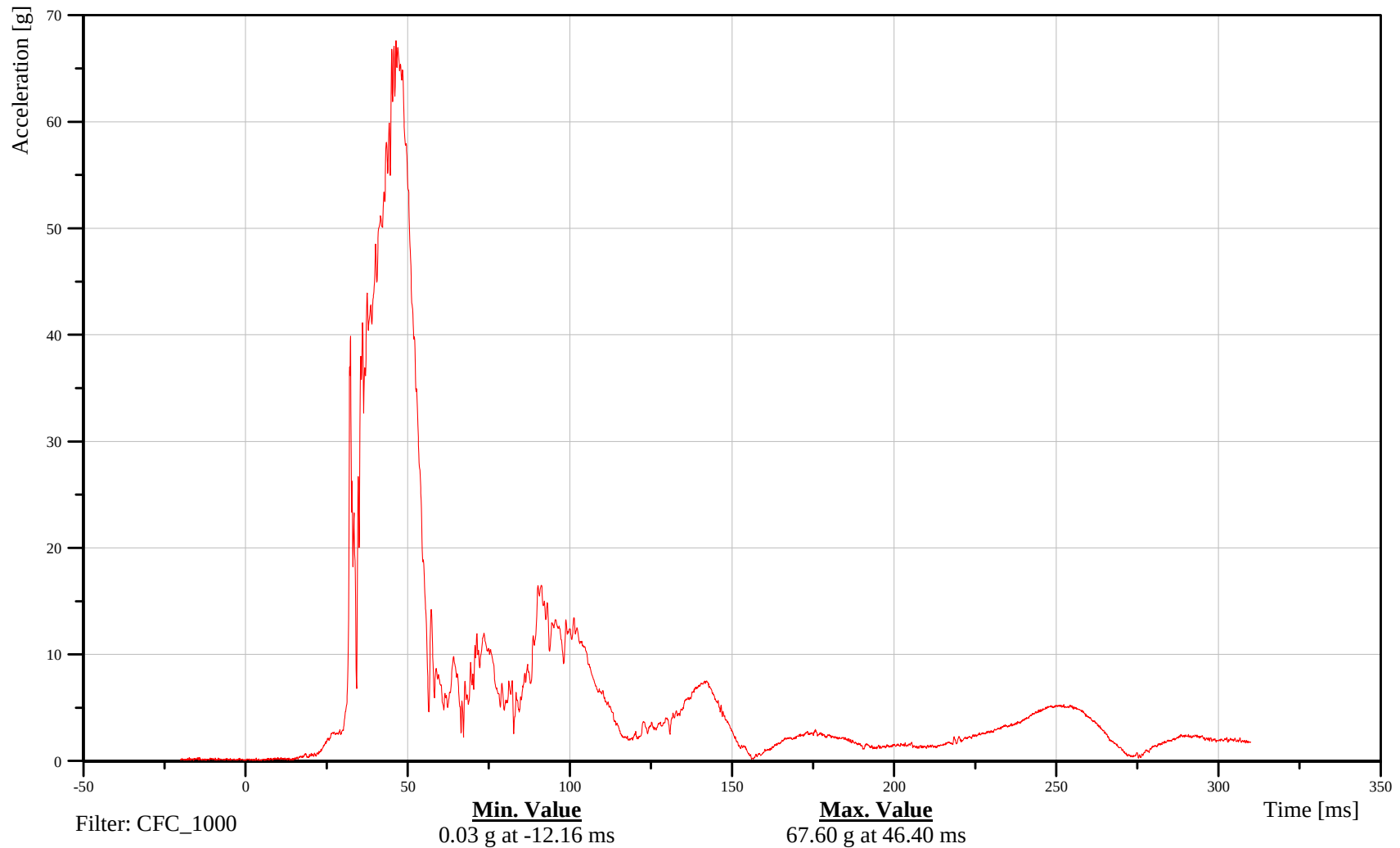
Pelvis Resultant Acceleration

Customer: VRTC

11PELVCG00S2ACRA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-46

070709



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

Date: 07/09/2007
Time: 13:52

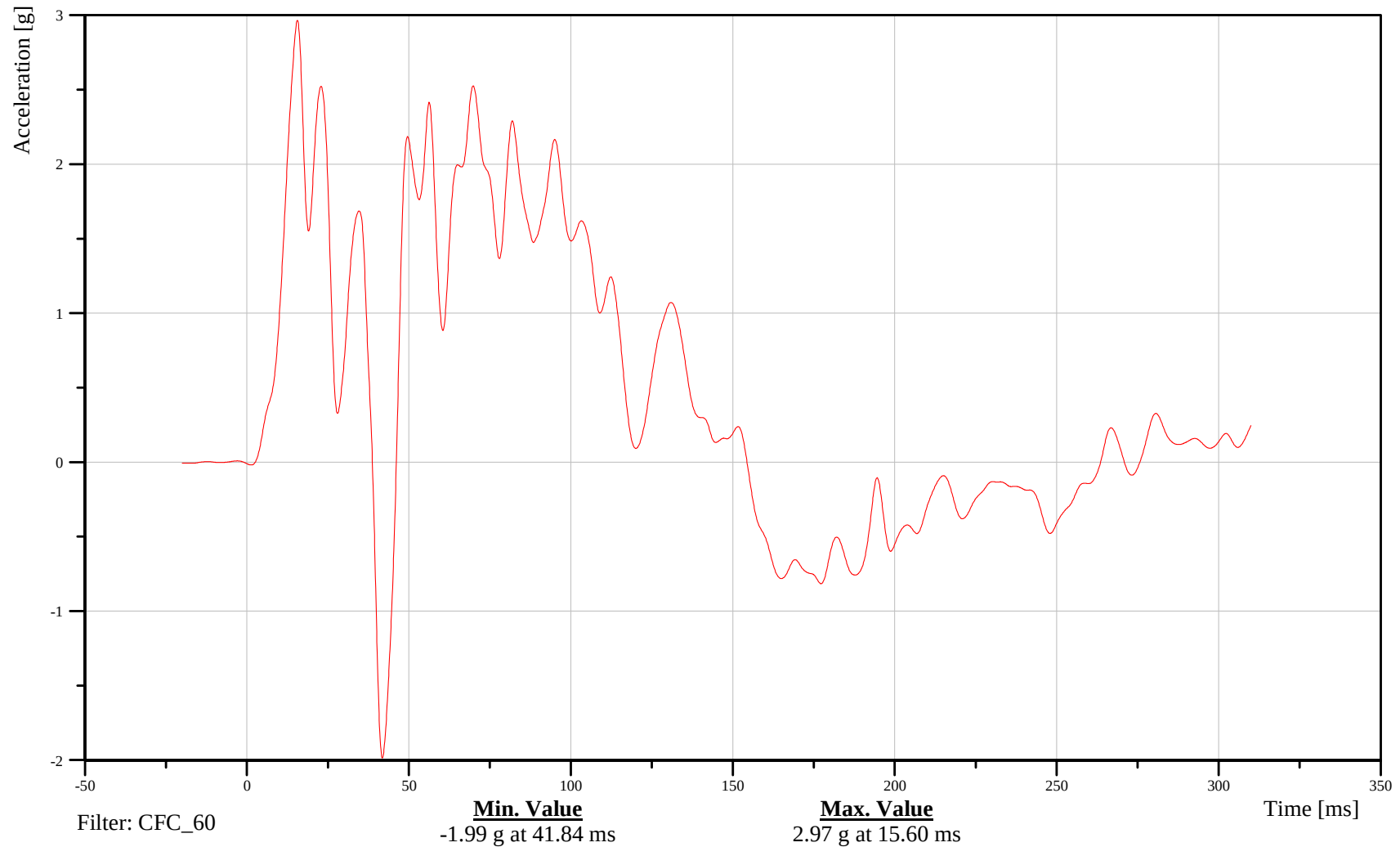
Right Side Sill at Front Seat X-Axis Acceleration

Customer: VRTC

16SILBFR0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-47

070709



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

Date: 07/09/2007
Time: 13:52

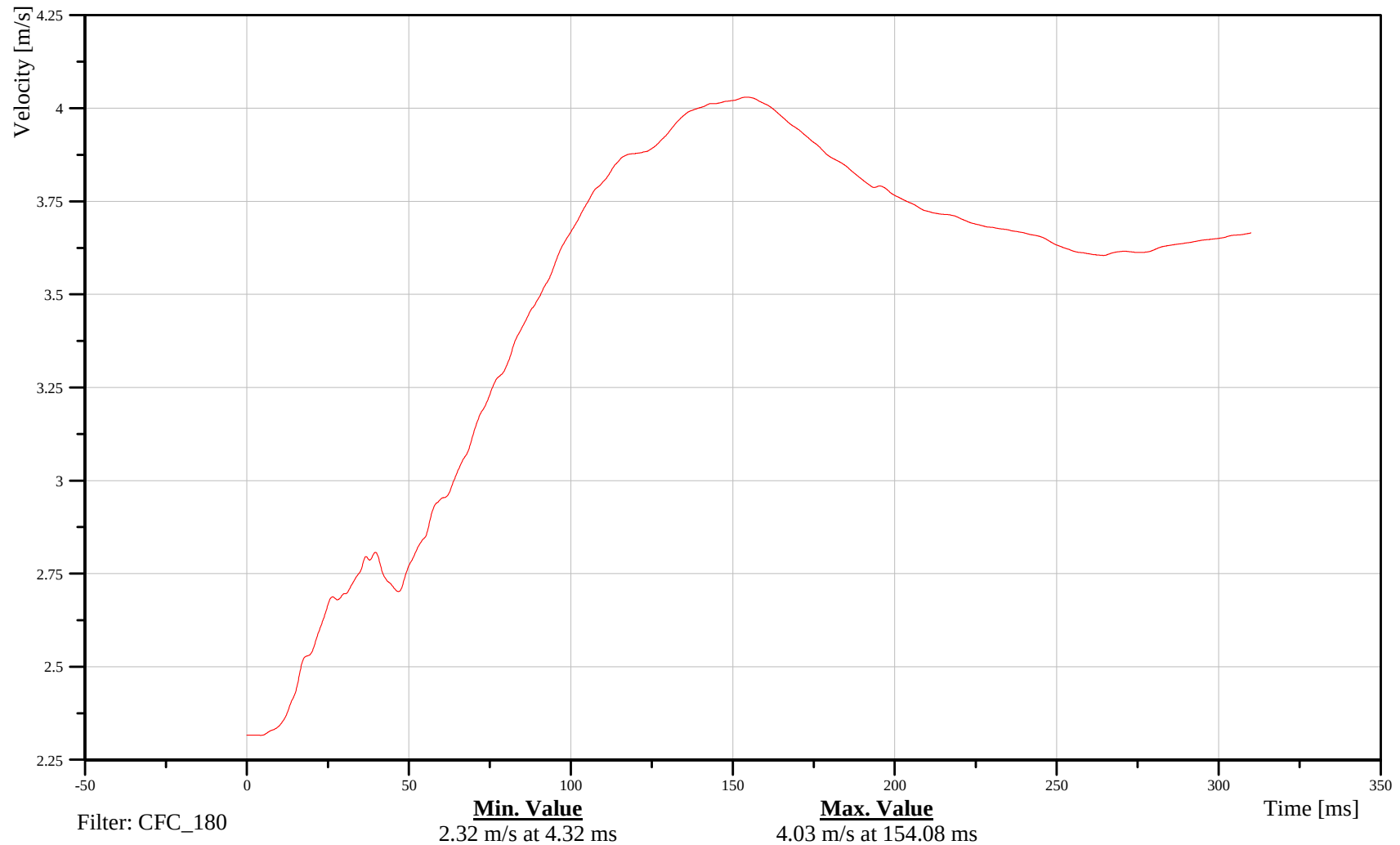
Right Side Sill at Front Seat X-Axis Velocity

Customer: VRTC

16SILBFR0000VEXC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-48

070709



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

Date: 07/09/2007
Time: 13:52

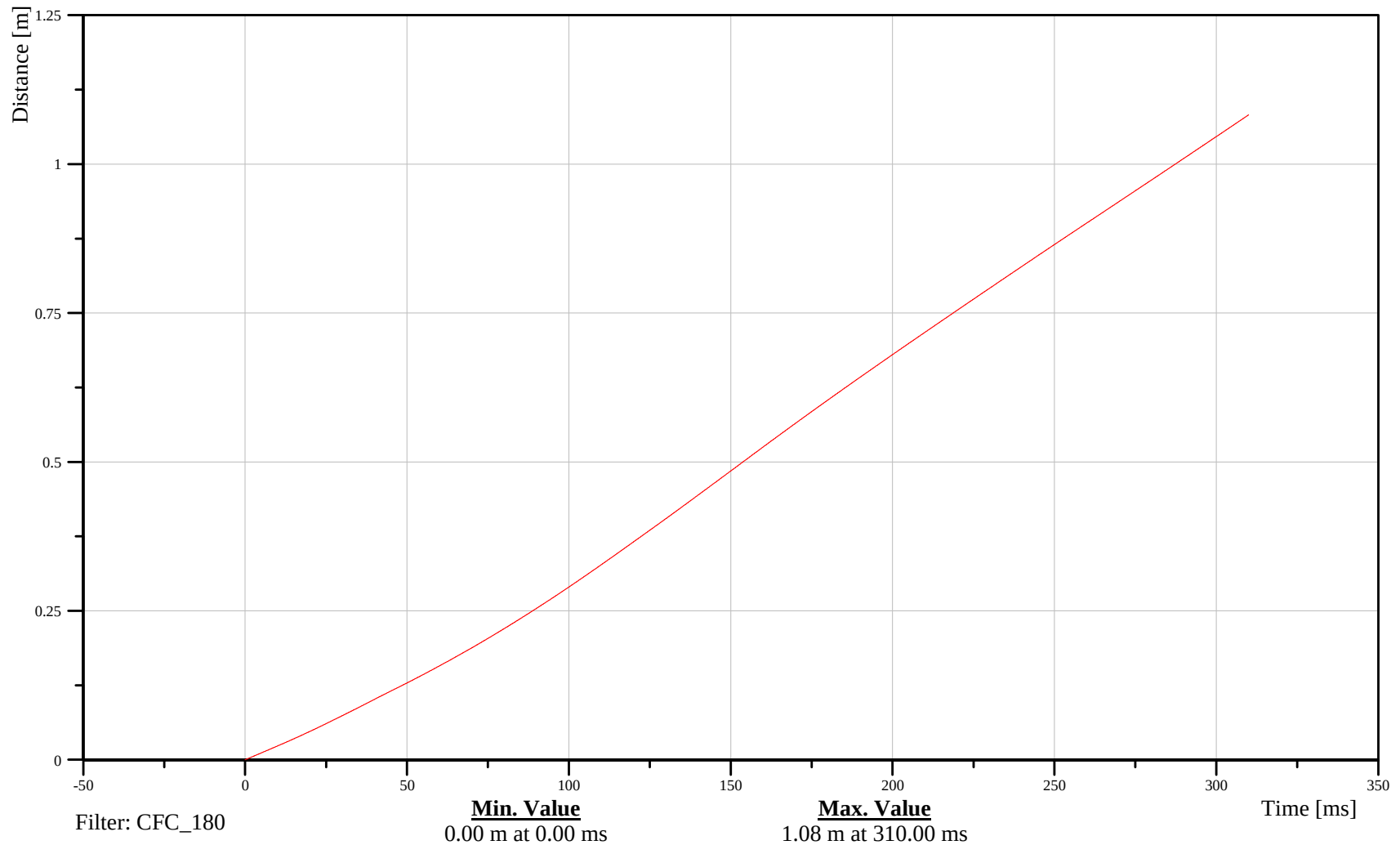
Right Side Sill at Front Seat X-Axis Displacement

Customer: VRTC

16SILBFR0000DCXC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-49

070709



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

Date: 07/09/2007
Time: 13:52

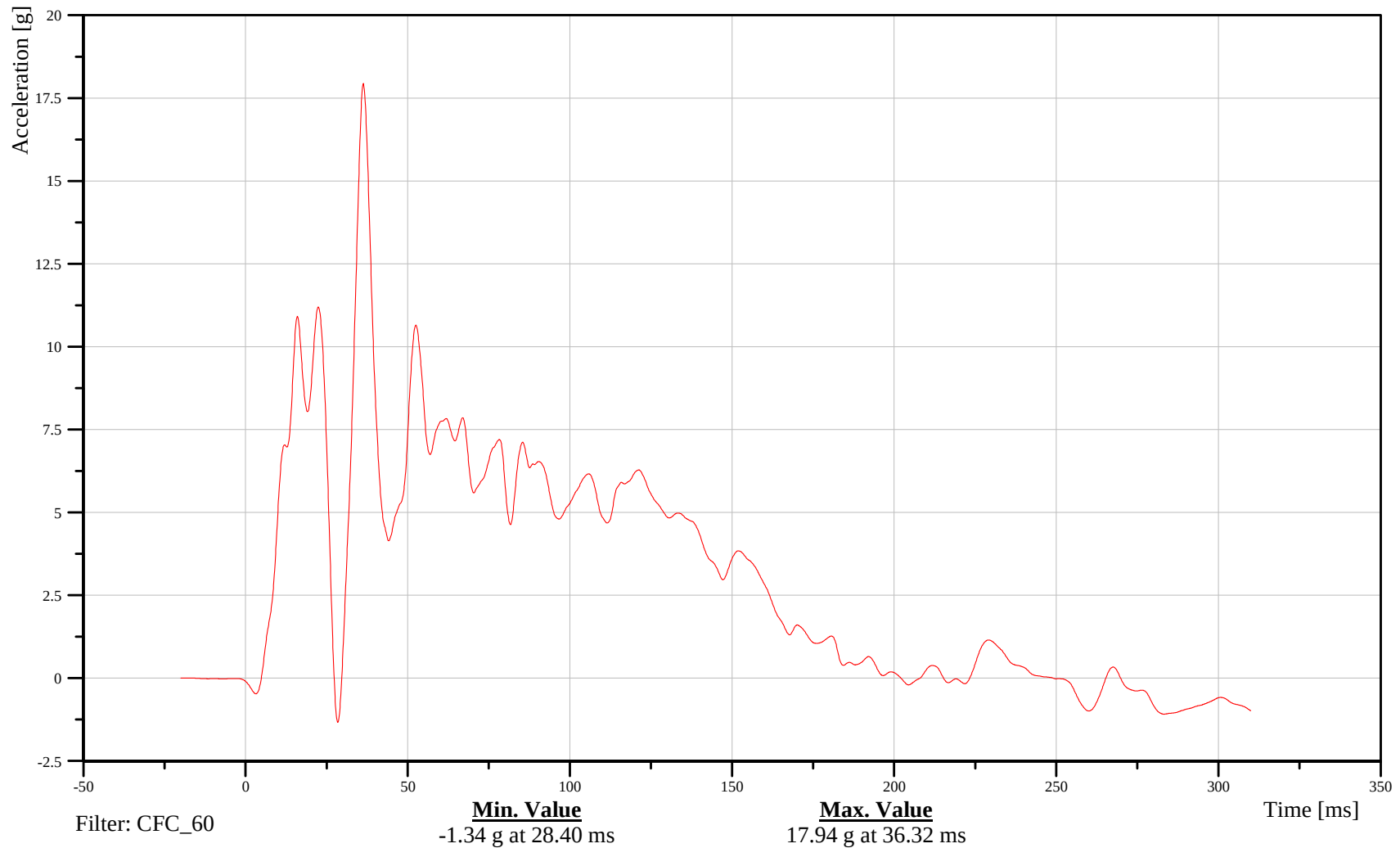
Right Side Sill at Front Seat Y-Axis Acceleration

Customer: VRTC

16SILBFR0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-50

070709



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

Date: 07/09/2007
Time: 13:52

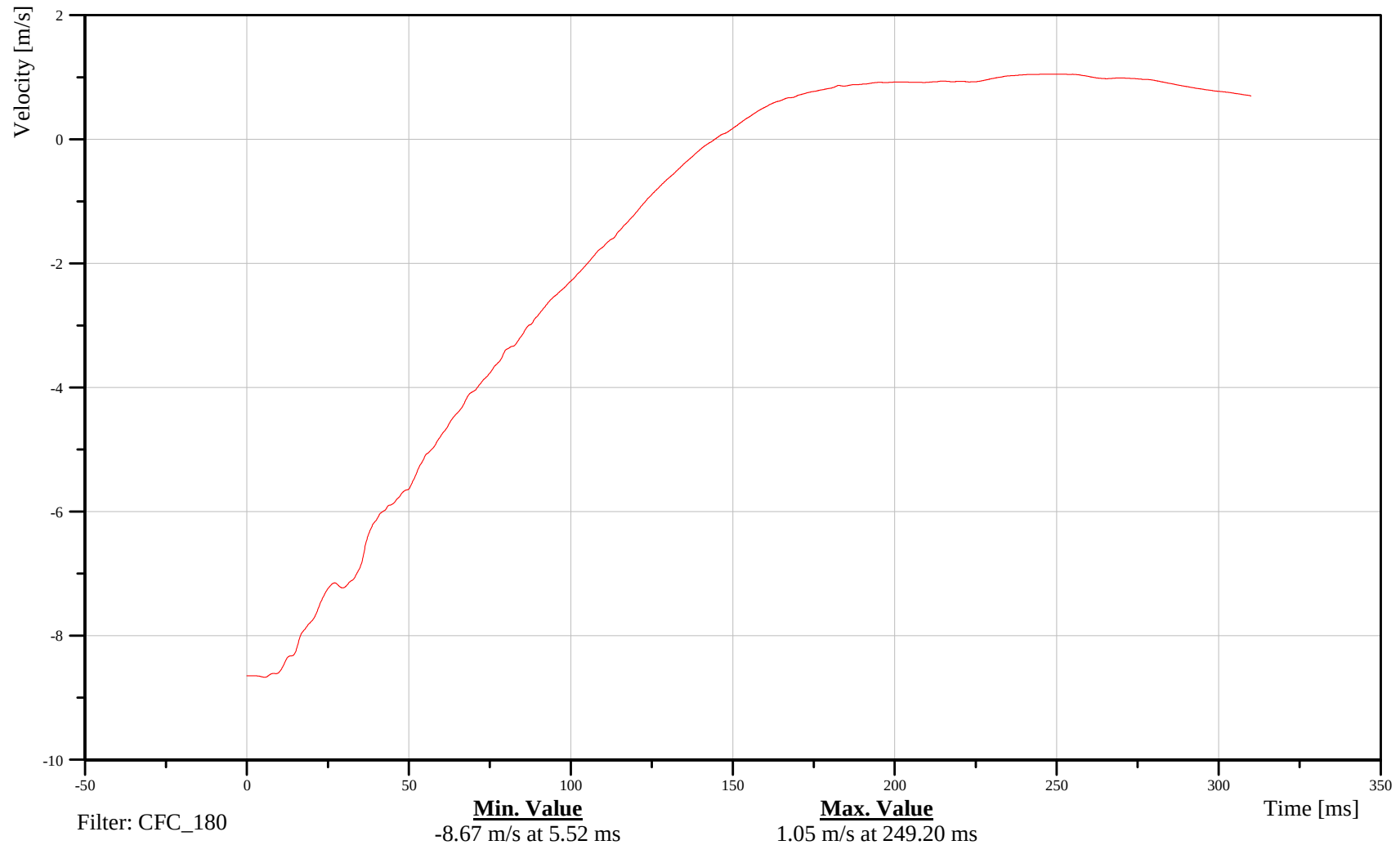
Right Side Sill at Front Seat Y-Axis Velocity

Customer: VRTC

16SILBFR0000VEYC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-51

070709



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

Date: 07/09/2007

Time: 13:52

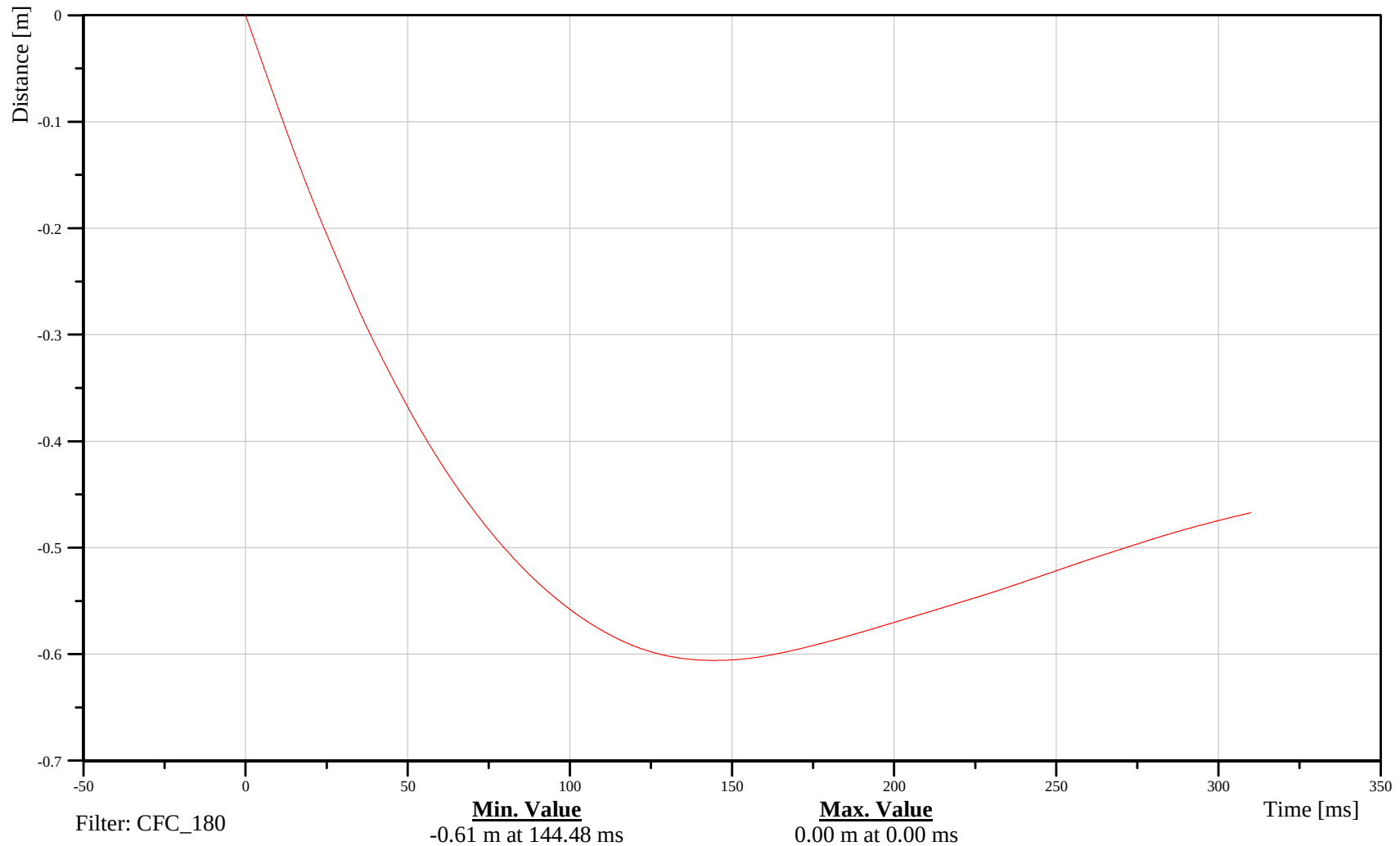
Right Side Sill at Front Seat Y-Axis Displacement

Customer: VRTC

16SILBFR0000DCYC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-52

070709



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

Date: 07/09/2007

Time: 13:52

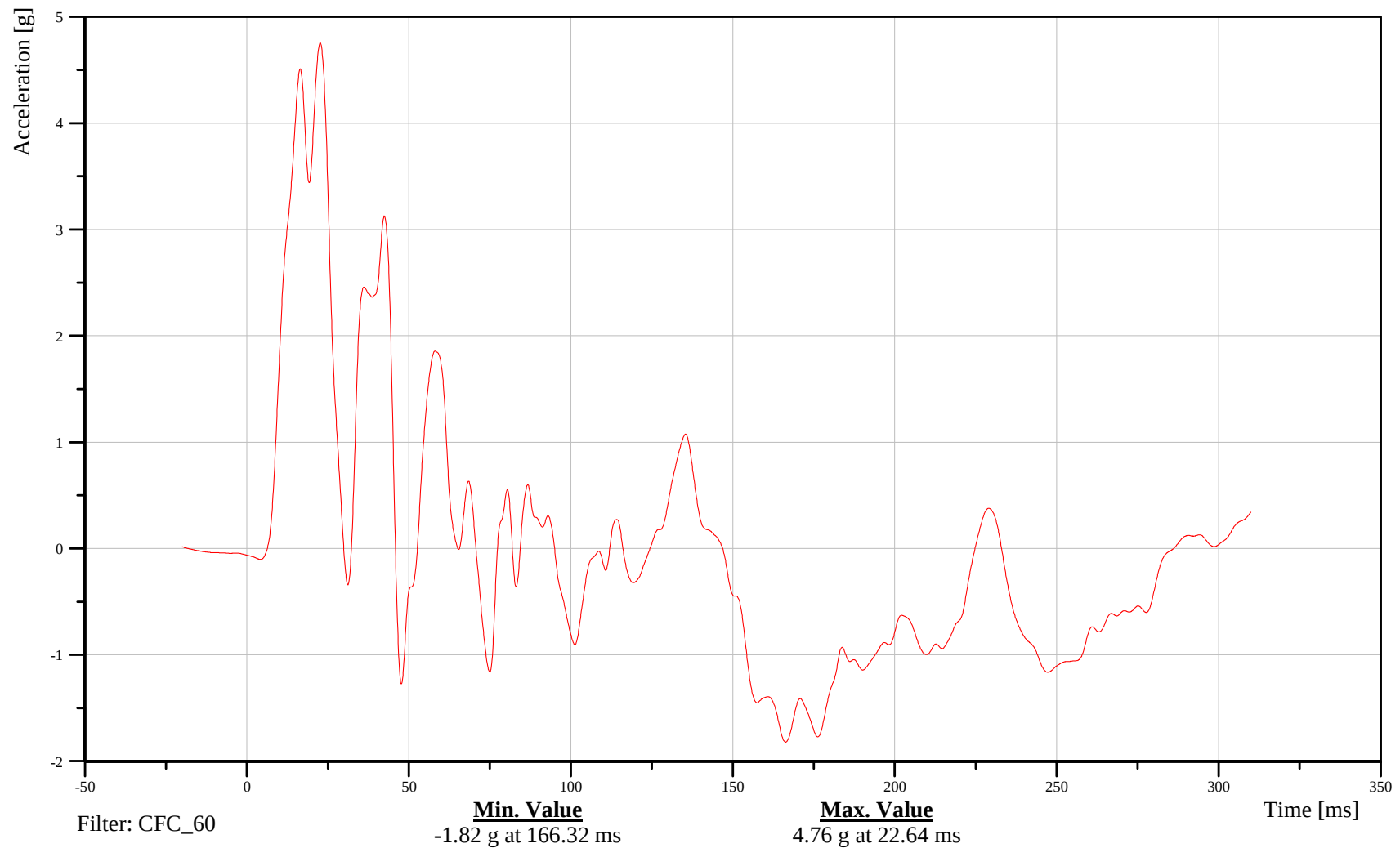
Right Side Sill at Front Seat Z-Axis Acceleration

Customer: VRTC

16SILBFR0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-53

070709



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

Date: 07/09/2007
Time: 13:52

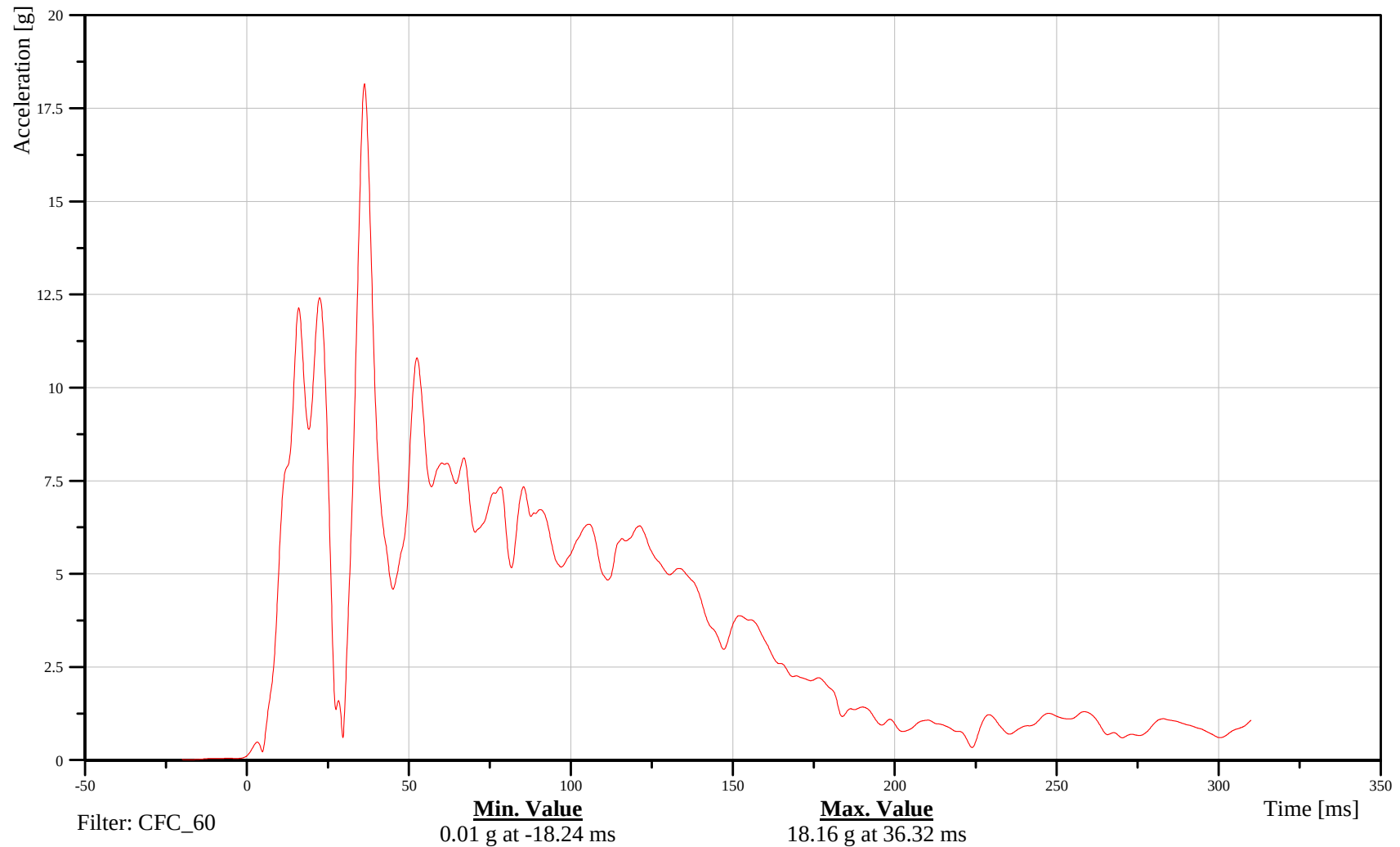
Right Side Sill at Front Seat Resultant Acceleration

Customer: VRTC

16SILBFR0000ACRD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-54

070709



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

Date: 07/09/2007

Right Side Sill at Rear Seat X-Axis Acceleration

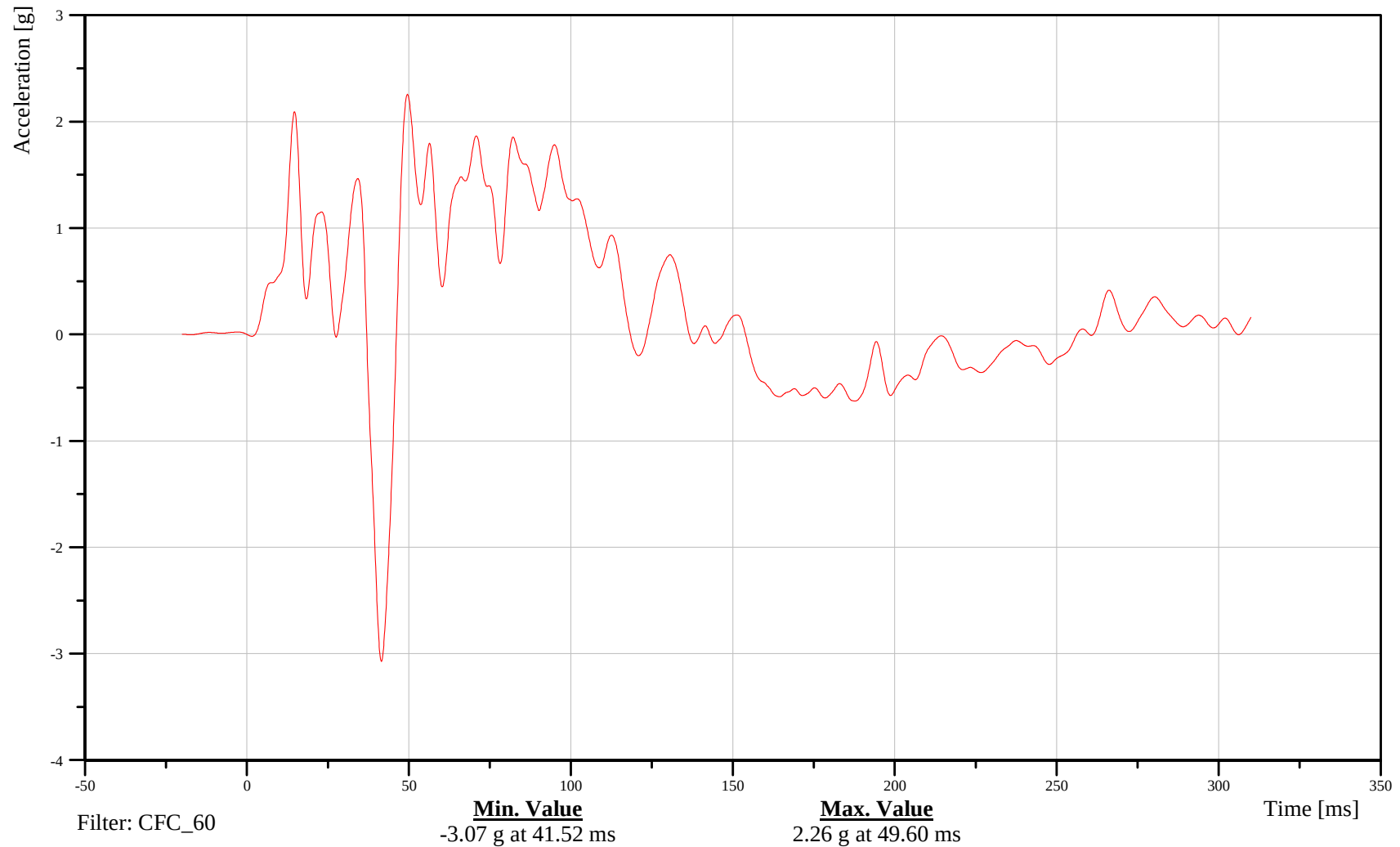
Time: 13:52

Customer: VRTC

16SILBRE0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-55

070709



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

Date: 07/09/2007
Time: 13:52

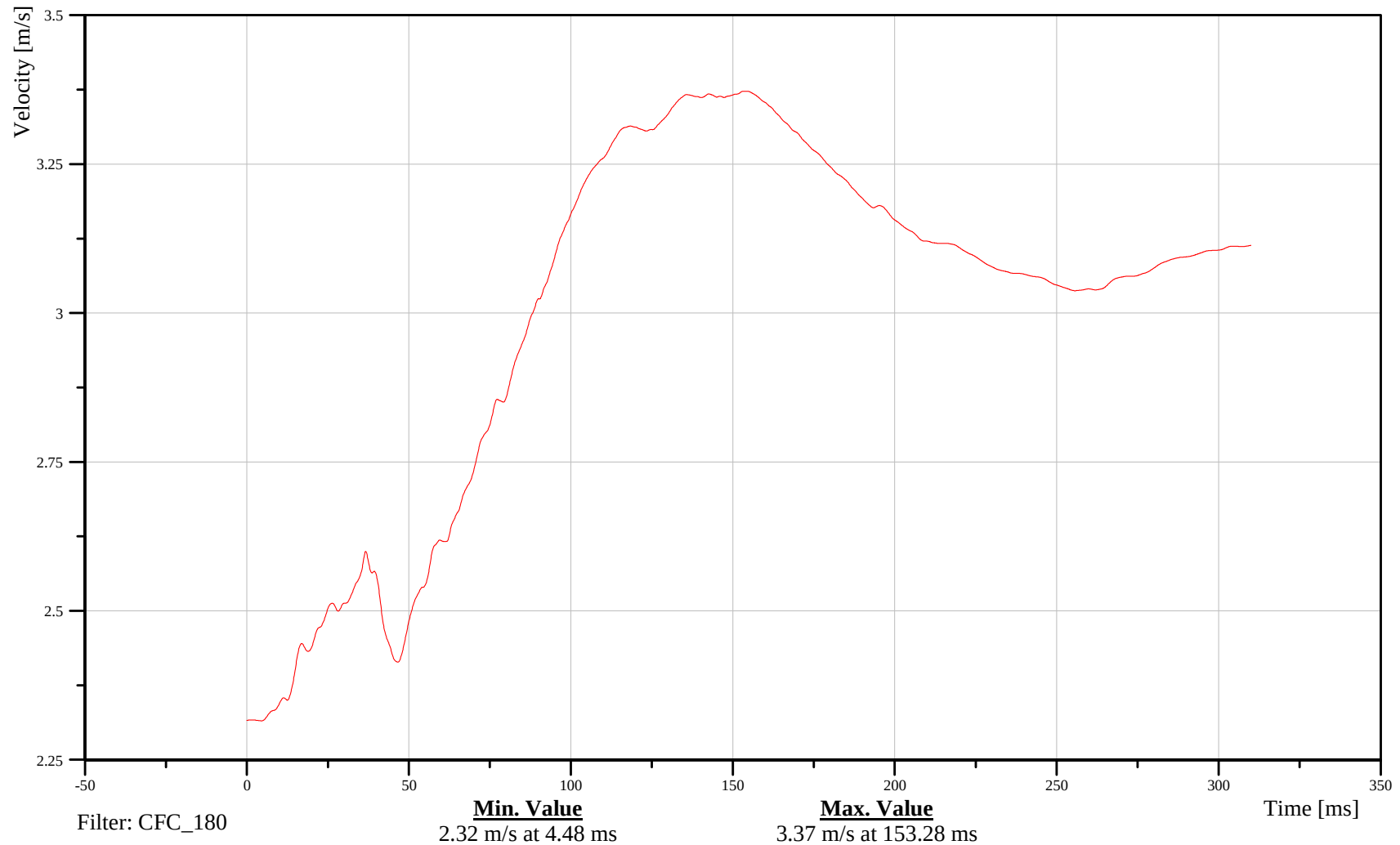
Right Side Sill at Rear Seat X-Axis Velocity

Customer: VRTC

16SILBRE0000VEXC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-56

070709



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

Date: 07/09/2007

Right Side Sill at Rear Seat X-Axis Displacement

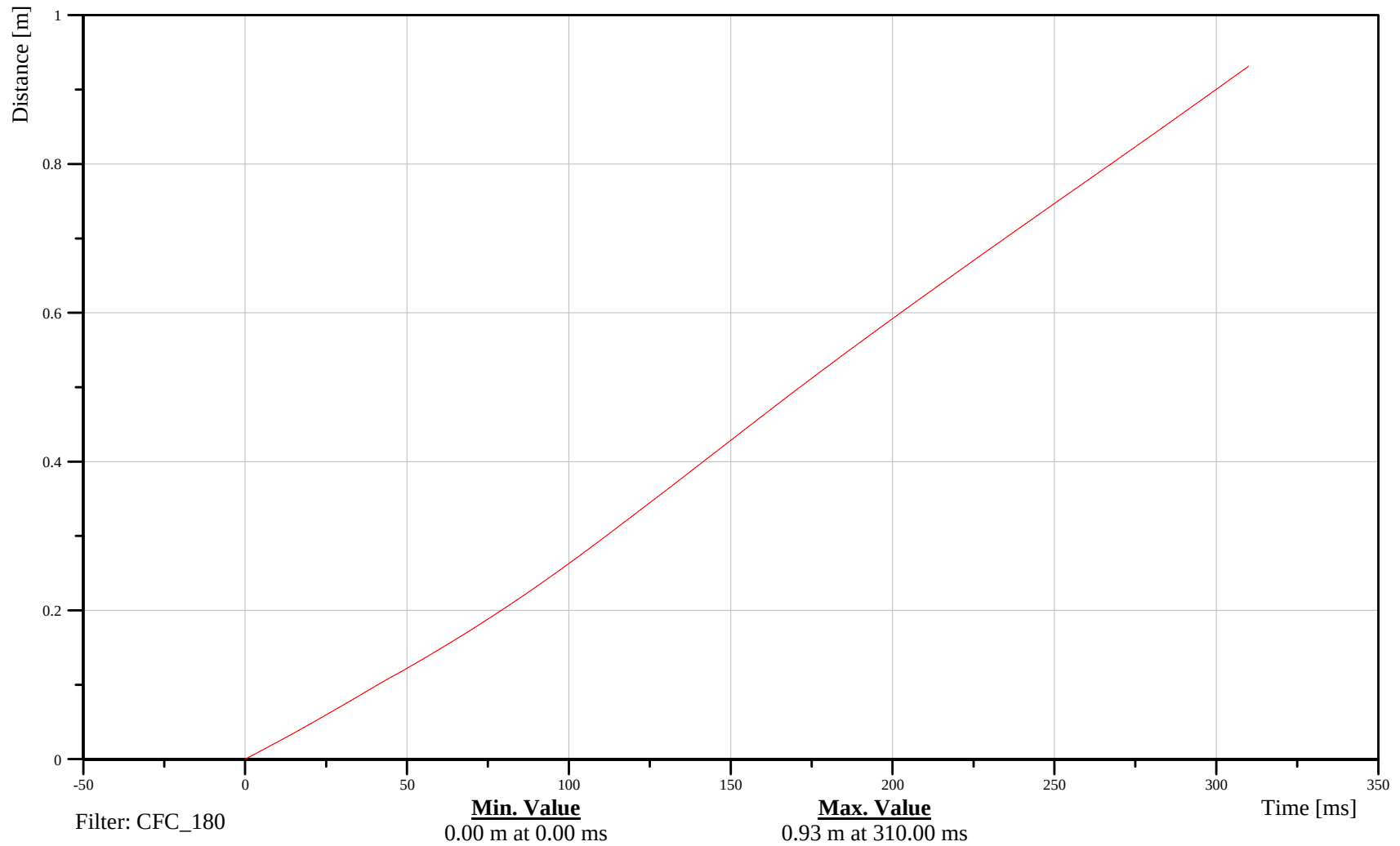
Time: 13:52

Customer: VRTC

16SILBRE0000DCXC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-57

070709



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

Date: 07/09/2007
Time: 13:52

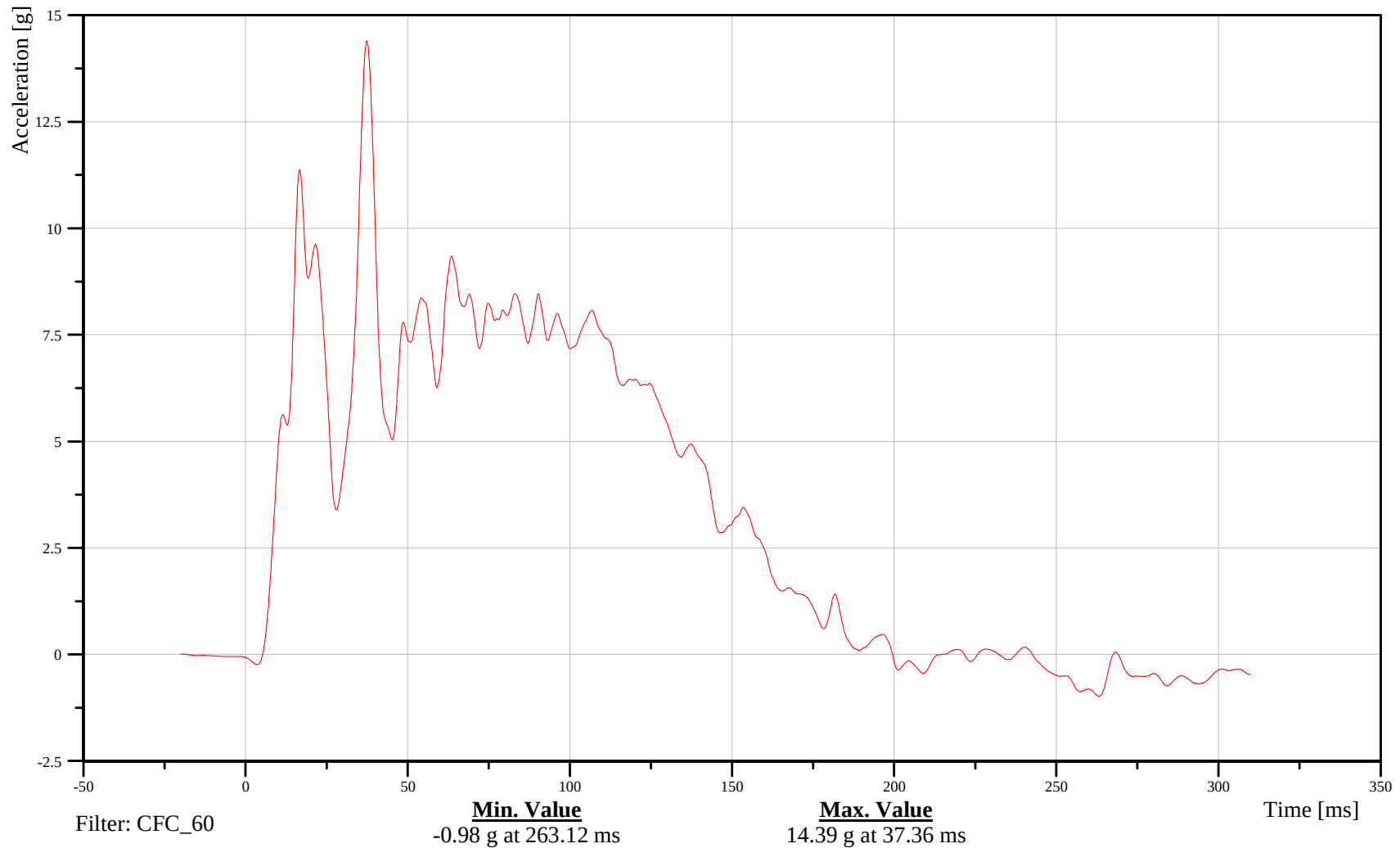
Right Side Sill at Rear Seat Y-Axis Acceleration

Customer: VRTC

16SILBRE0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-58

070709



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

Date: 07/09/2007
Time: 13:52

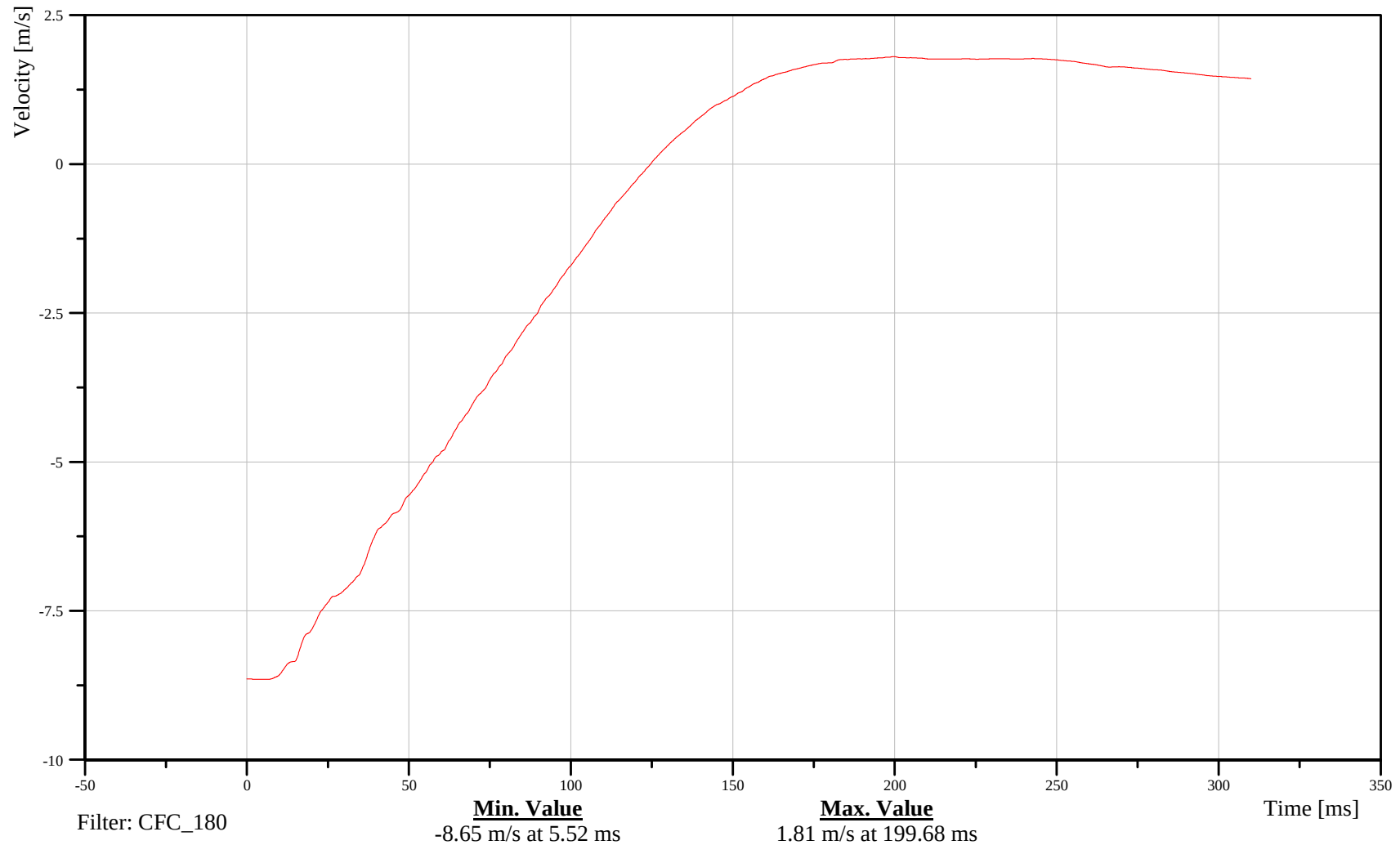
Right Side Sill at Rear Seat Y-Axis Velocity

Customer: VRTC

16SILBRE0000VEYC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-59

070709



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

Date: 07/09/2007
Time: 13:52

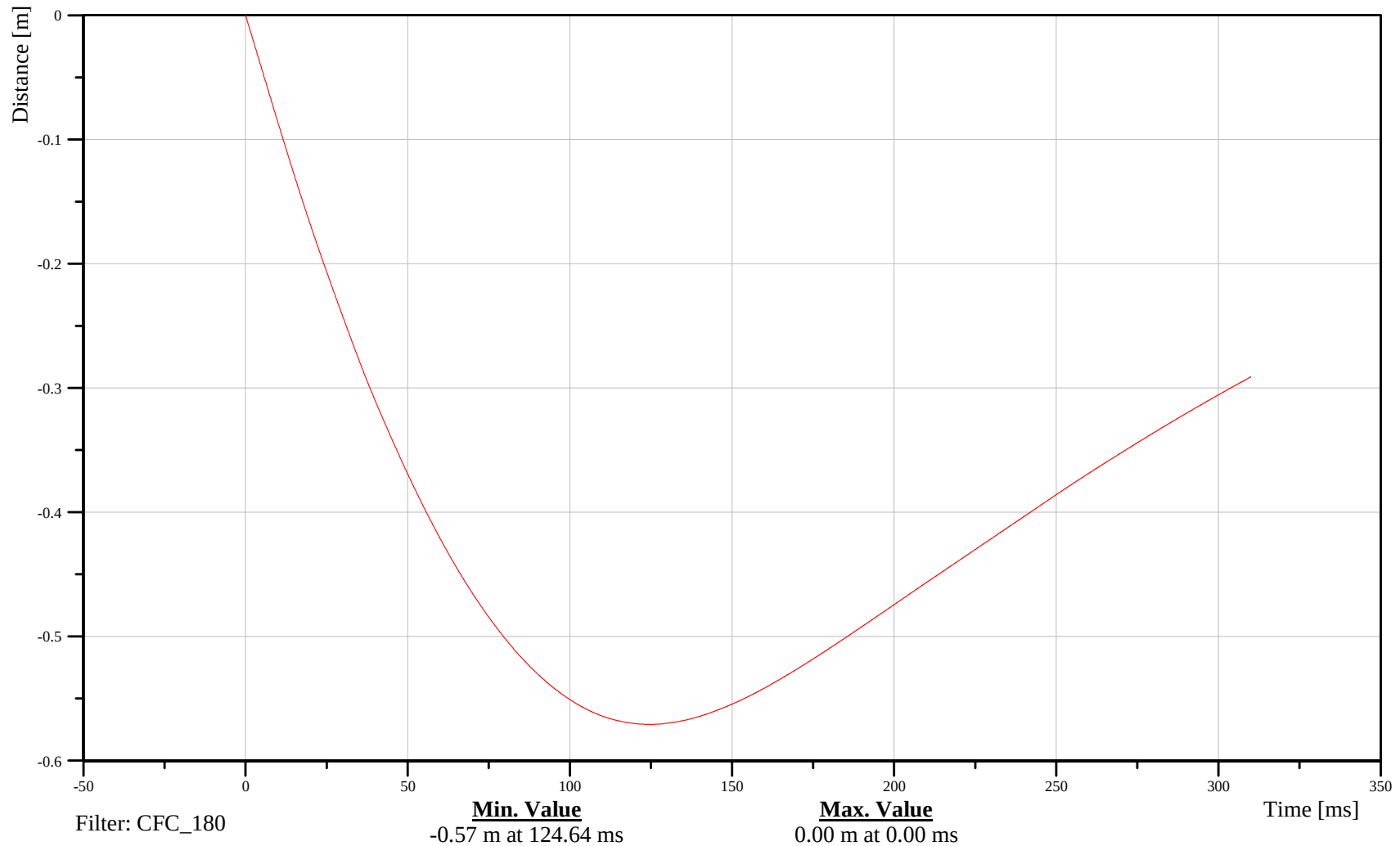
Right Side Sill at Rear Seat Y-Axis Displacement

Customer: VRTC

16SILBRE0000DCYC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-60

070709



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

Date: 07/09/2007
Time: 13:52

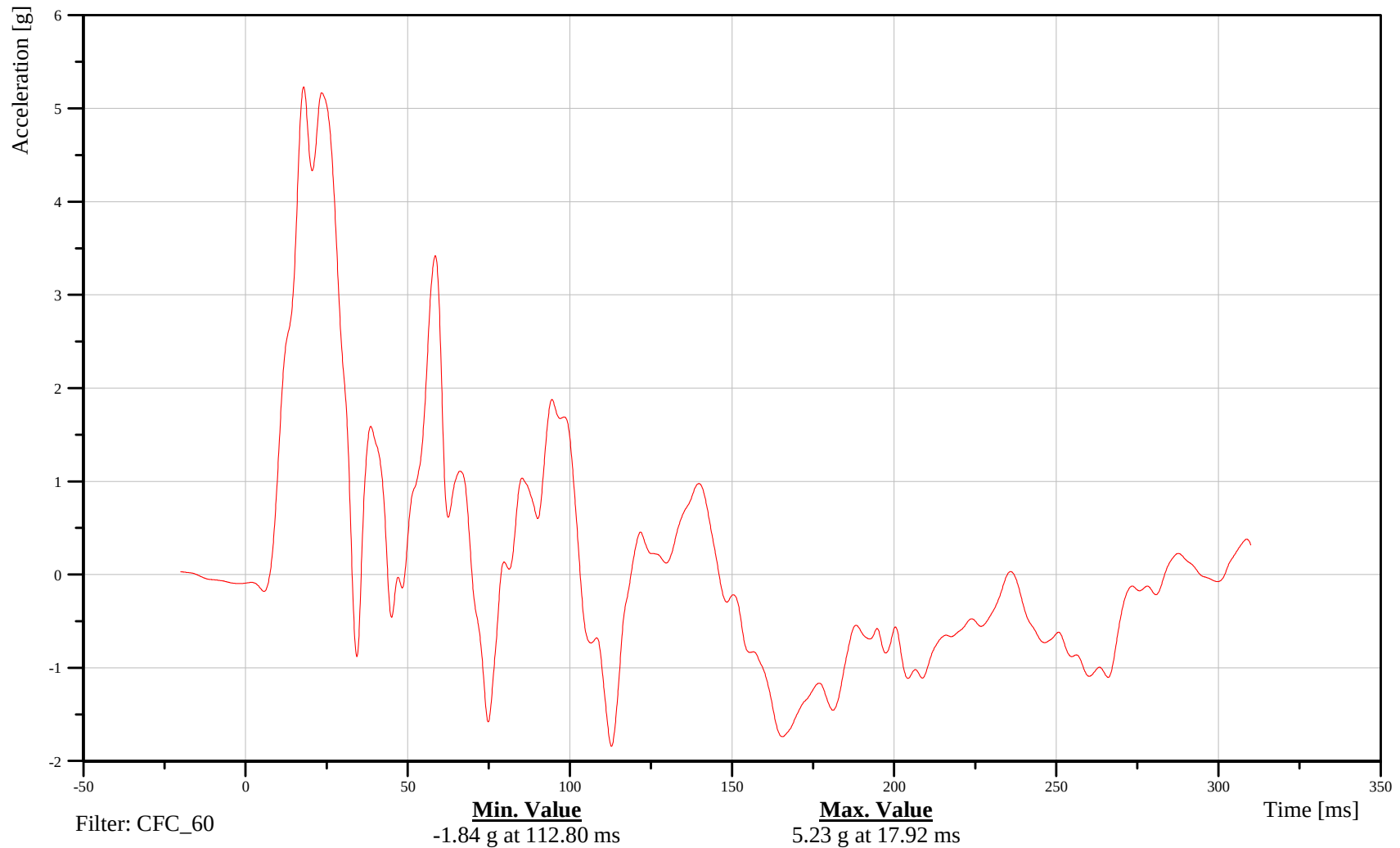
Right Side Sill at Rear Seat Z-Axis Acceleration

Customer: VRTC

16SILBRE0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-61

070709



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

Date: 07/09/2007
Time: 13:52

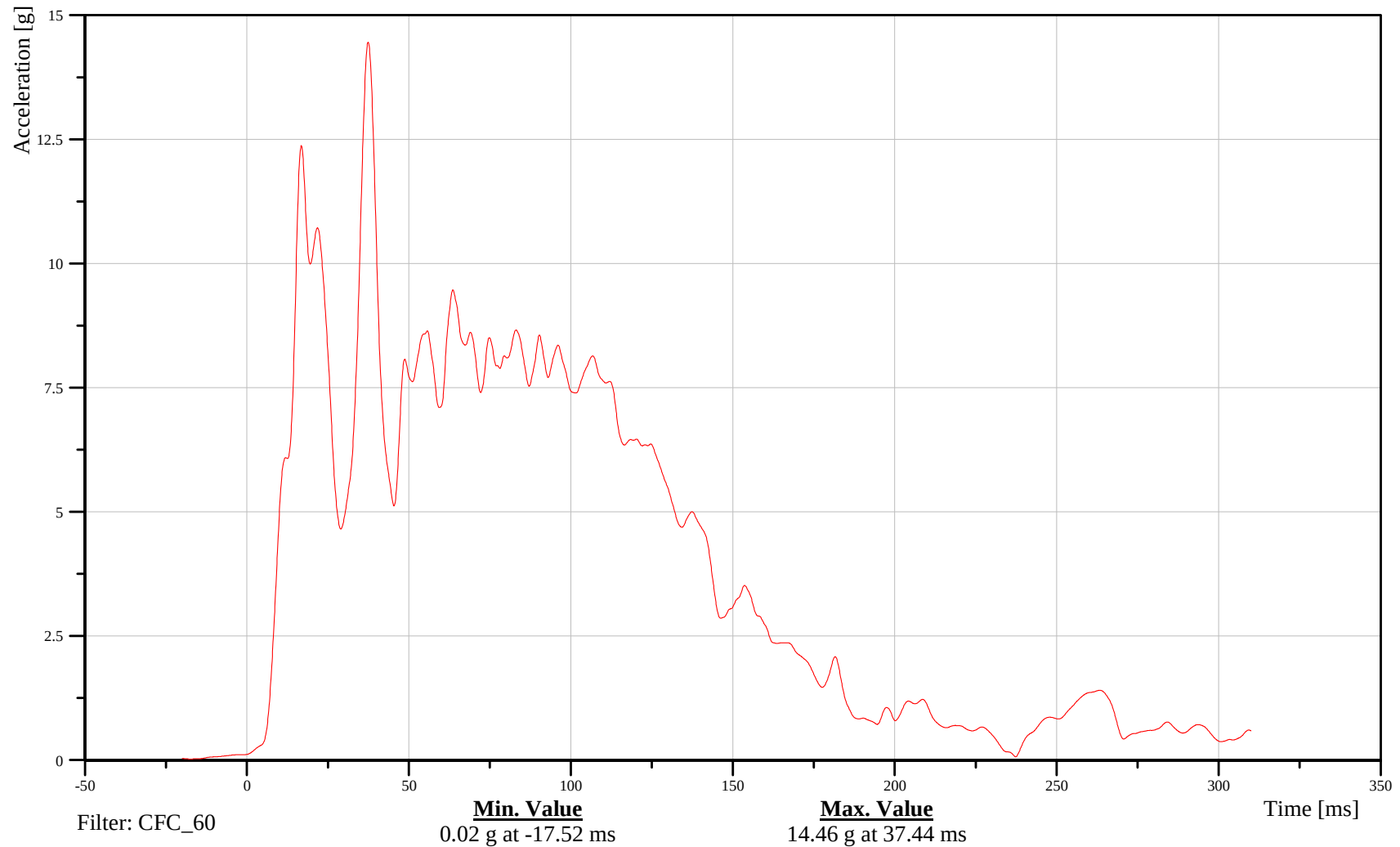
Right Side Sill at Rear Seat Resultant Acceleration

Customer: VRTC

16SILBRE0000ACRD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-62

070709



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

Date: 07/09/2007

Time: 13:52

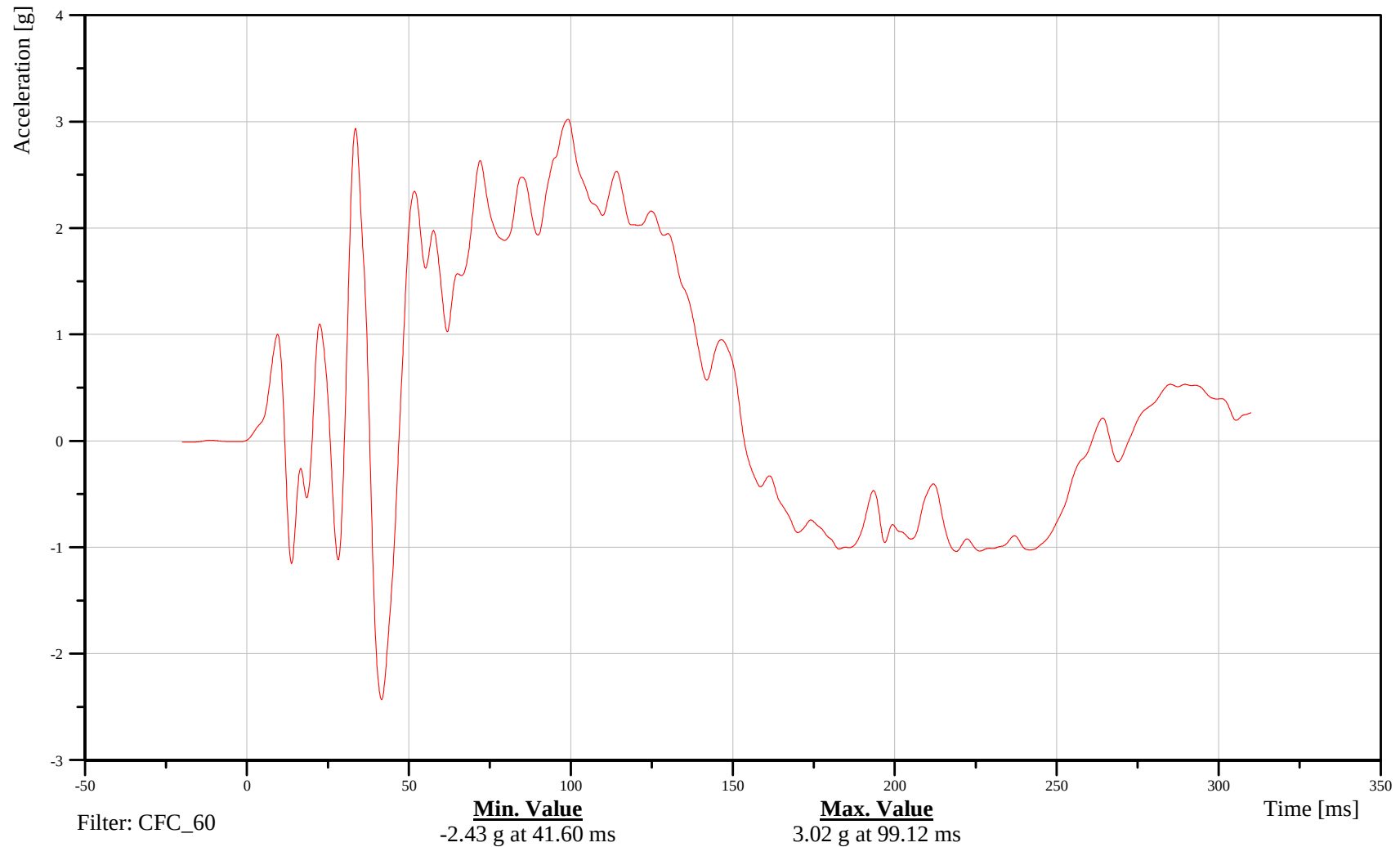
Rear Floorpan Above Axle X-Axis Acceleration

Customer: VRTC

18FORA000000ACXD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-63

070709



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

Date: 07/09/2007

Time: 13:52

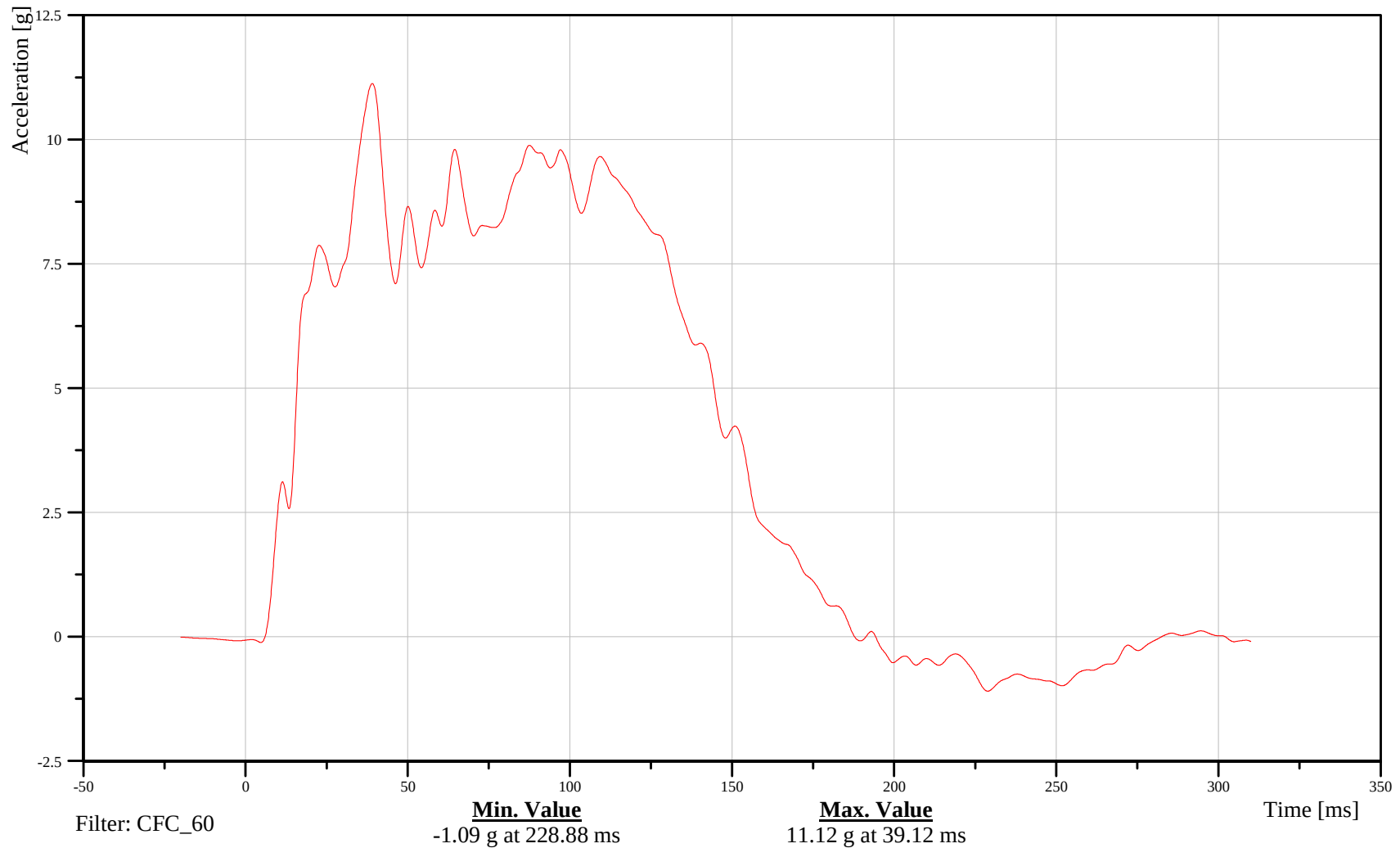
Rear Floorpan Above Axle Y-Axis Acceleration

Customer: VRTC

18FORA000000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-64

070709



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

Date: 07/09/2007
Time: 13:52

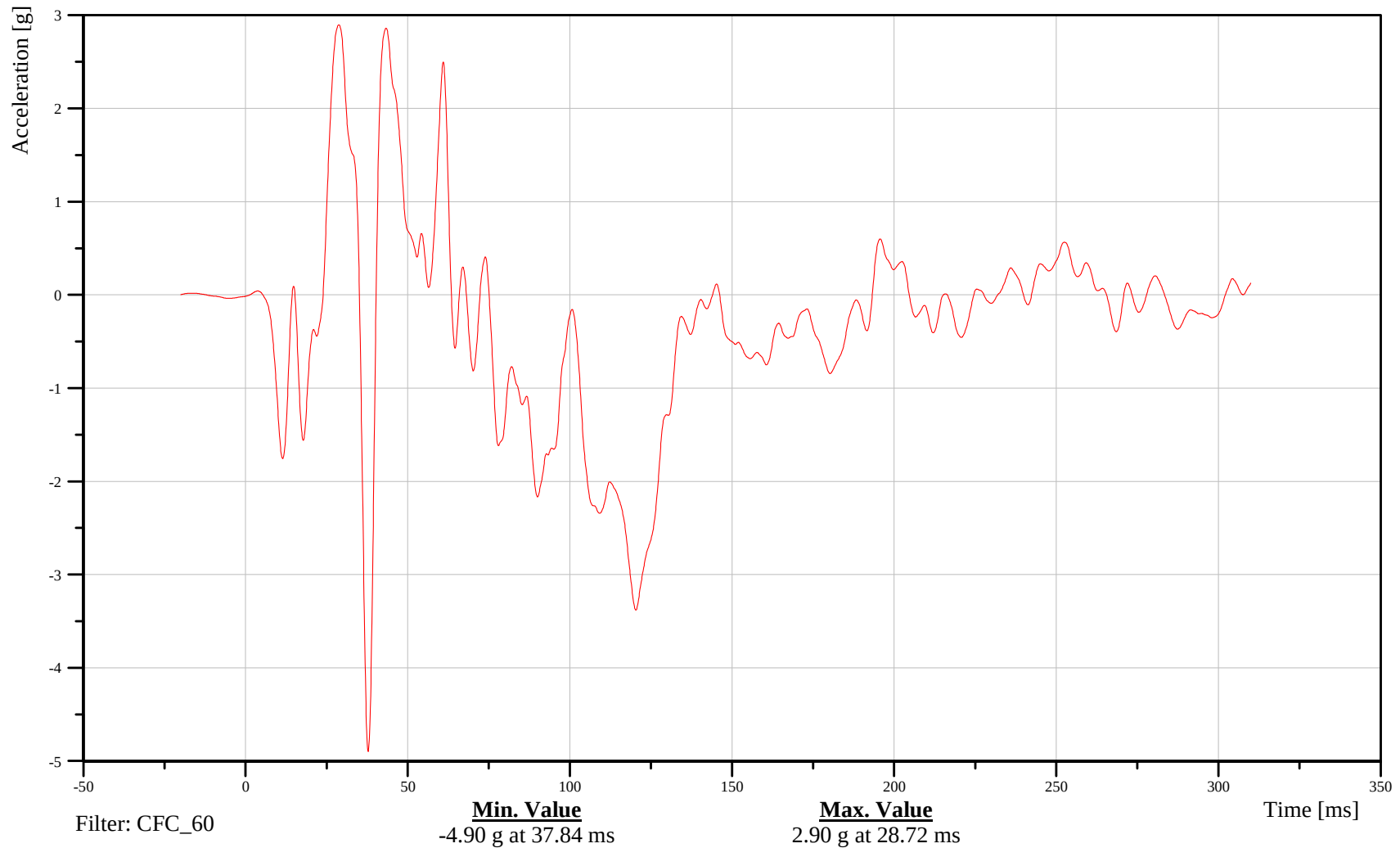
Rear Floorpan Above Axle Z-Axis Acceleration

Customer: VRTC

18FORA000000ACZD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-65

070709



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

Date: 07/09/2007
Time: 13:52

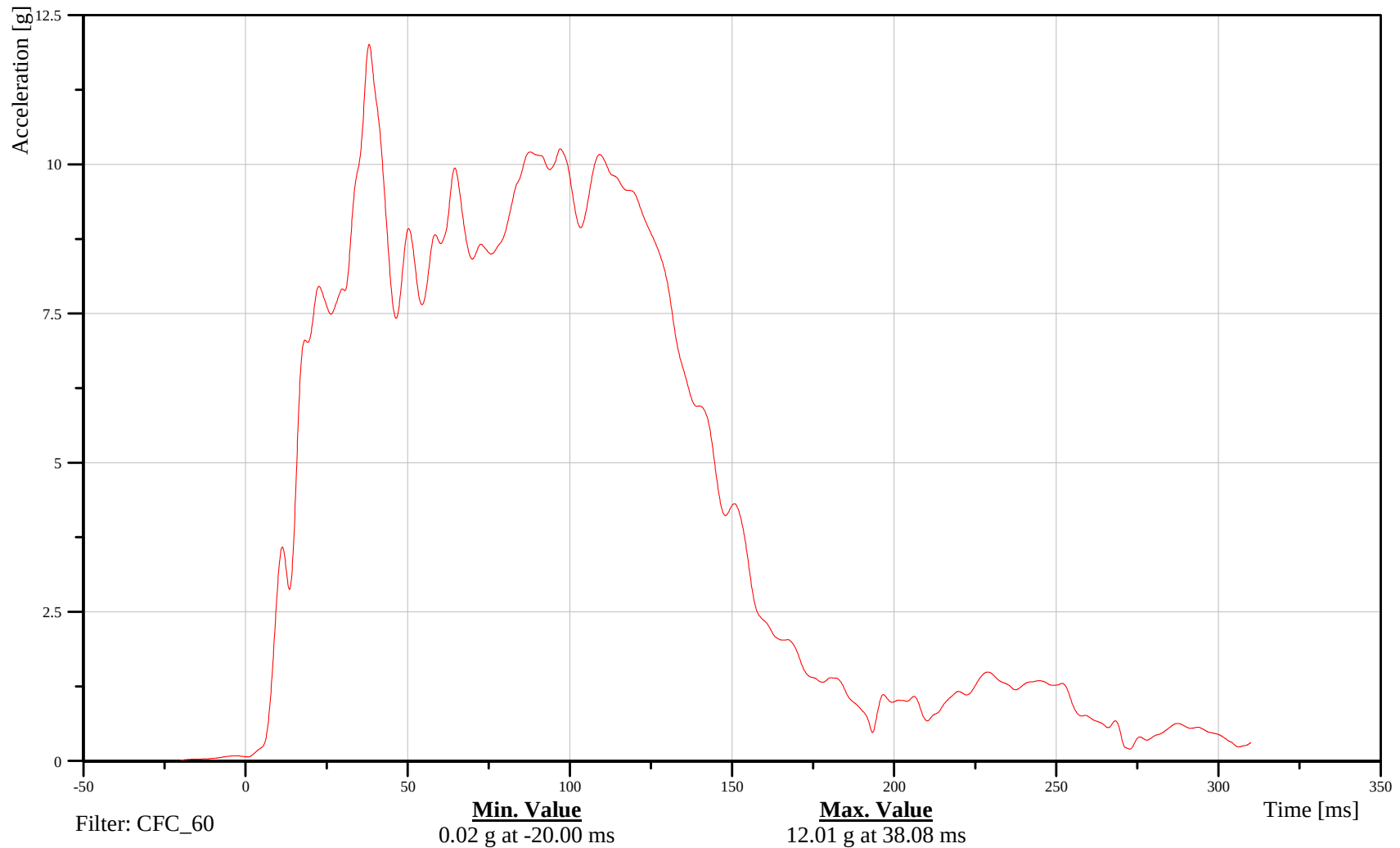
Rear Floorpan Above Axle Resultant Acceleration

Customer: VRTC

18FORA000000ACRD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-66

070709



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

Date: 07/09/2007
Time: 13:52

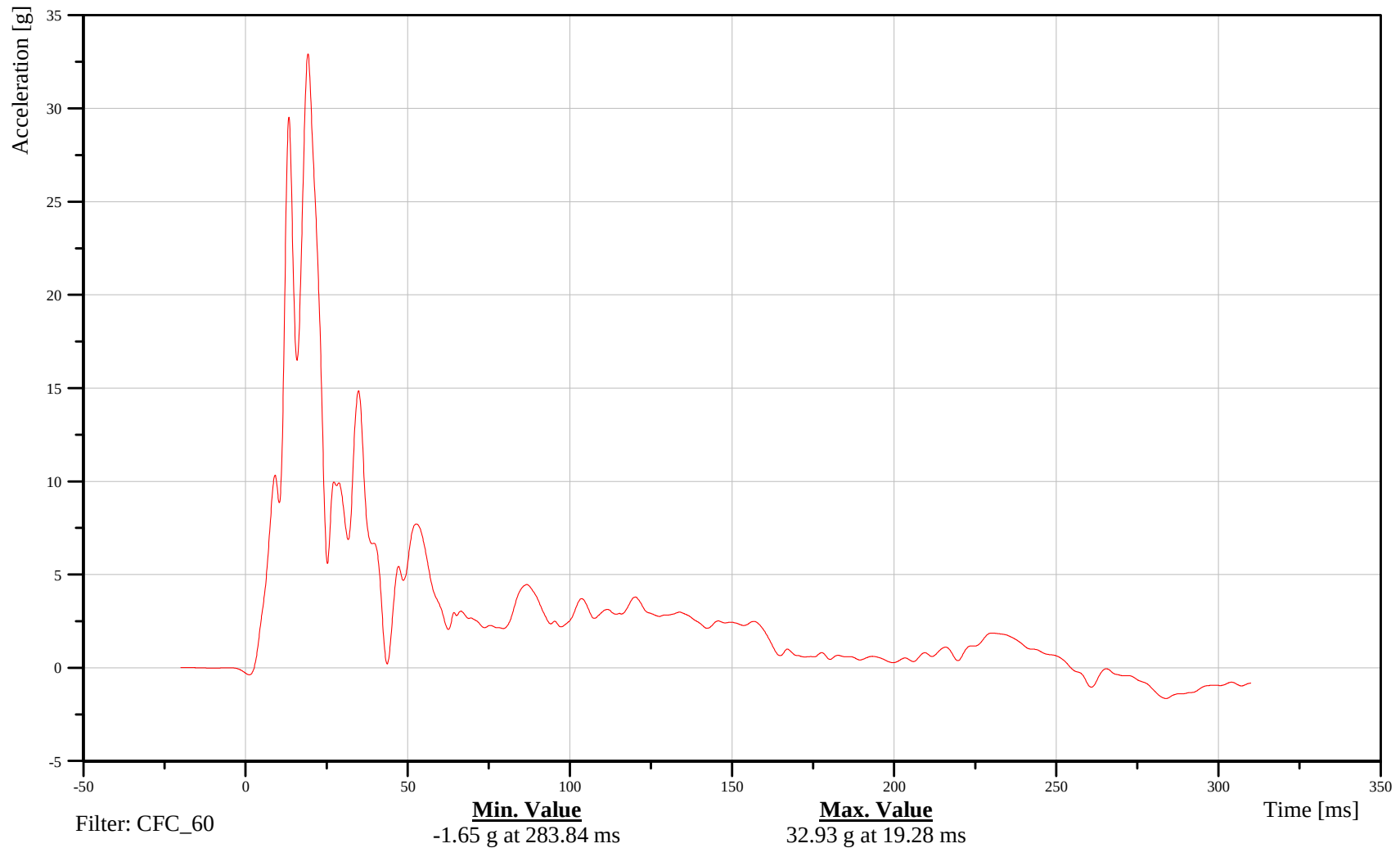
Left Side Sill at Front Seat Y-Axis Acceleration

Customer: VRTC

14SILBFR0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-67

070709



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

Date: 07/09/2007
Time: 13:52

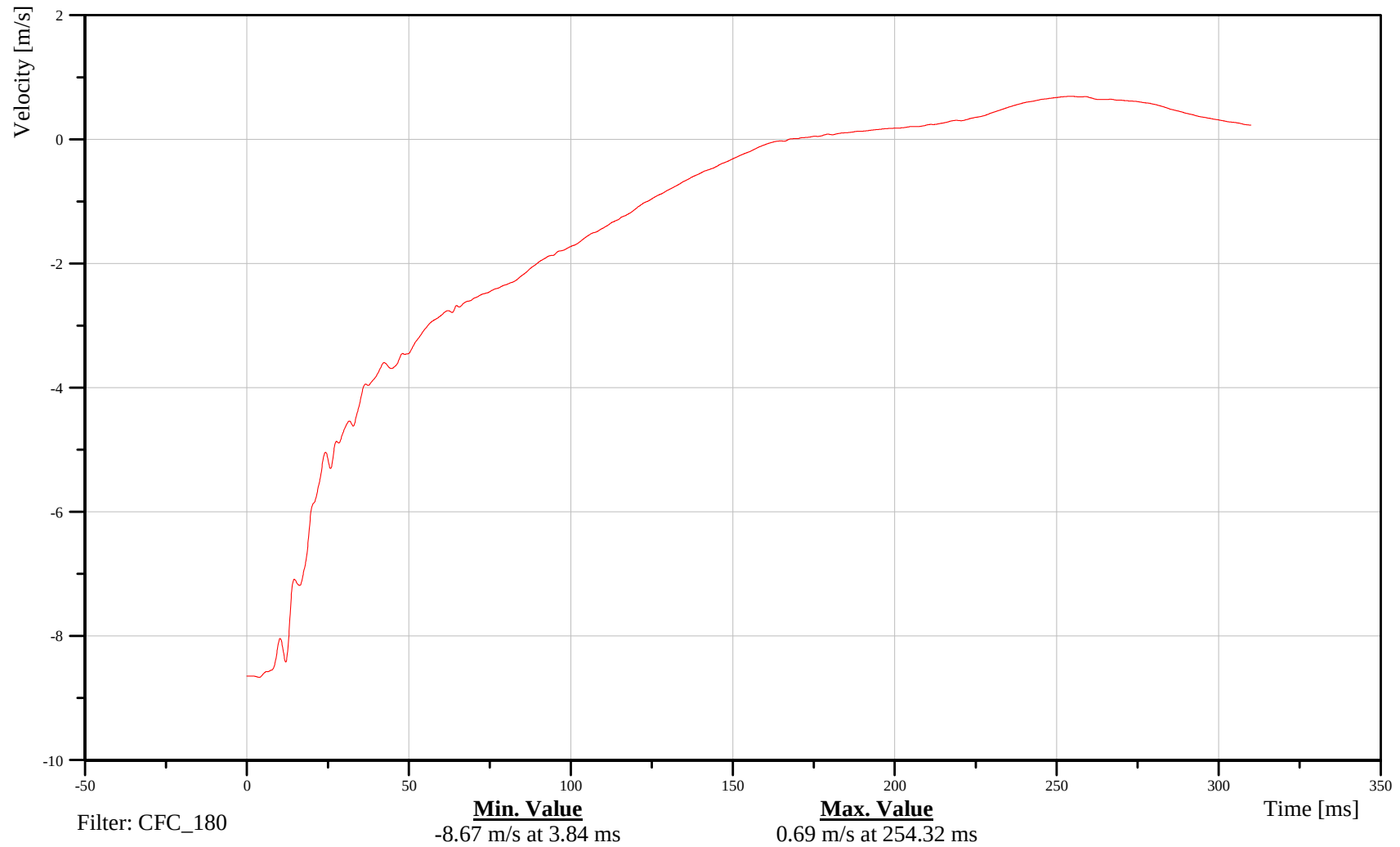
Left Side Sill at Front Seat Y-Axis Velocity

Customer: VRTC

14SILBFR0000VEYC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-68

070709



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

Date: 07/09/2007
Time: 13:52

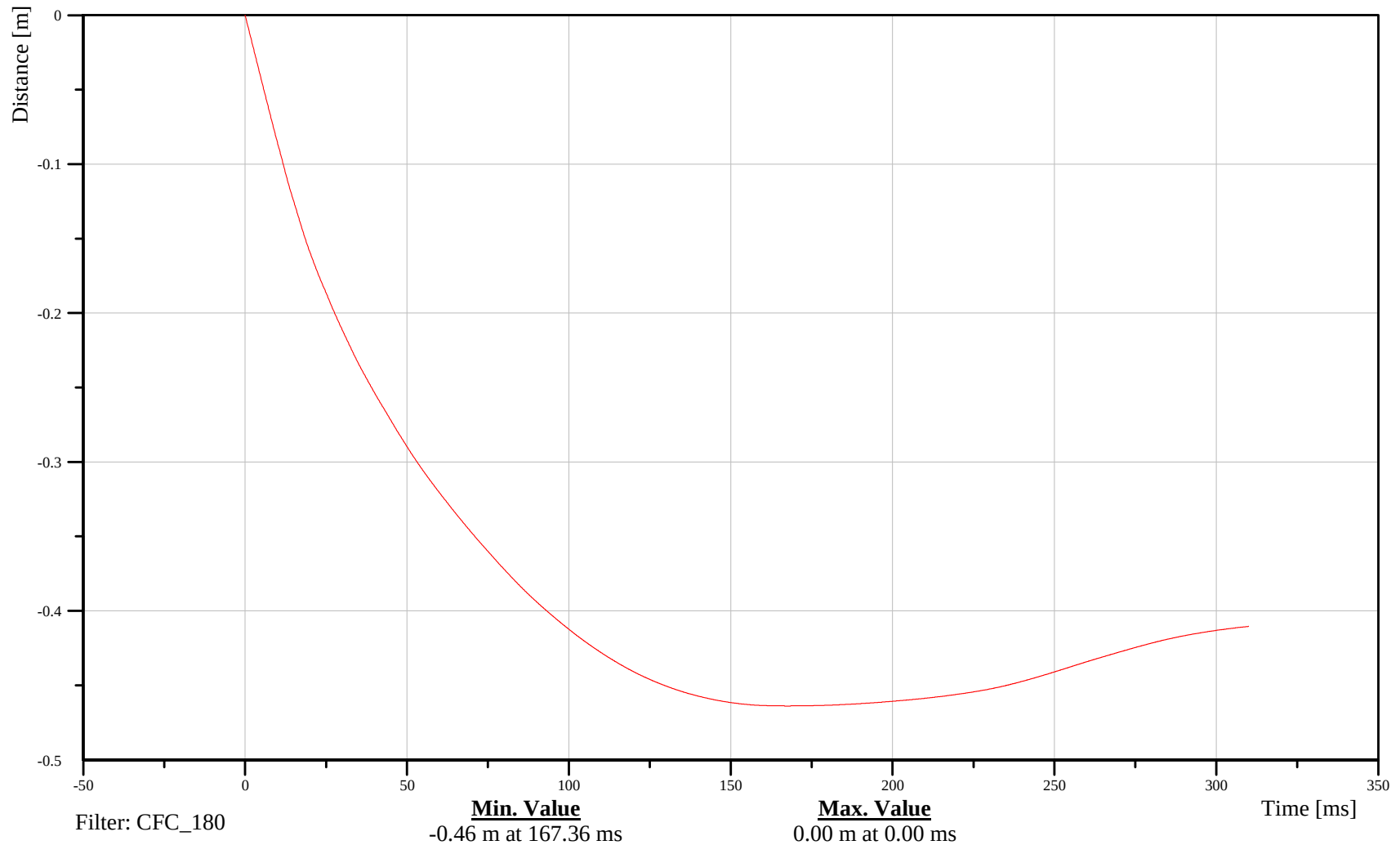
Left Side Sill at Front Seat Y-Axis Displacement

Customer: VRTC

14SILBFR0000DCYC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-69

070709



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

Date: 07/09/2007

Time: 13:52

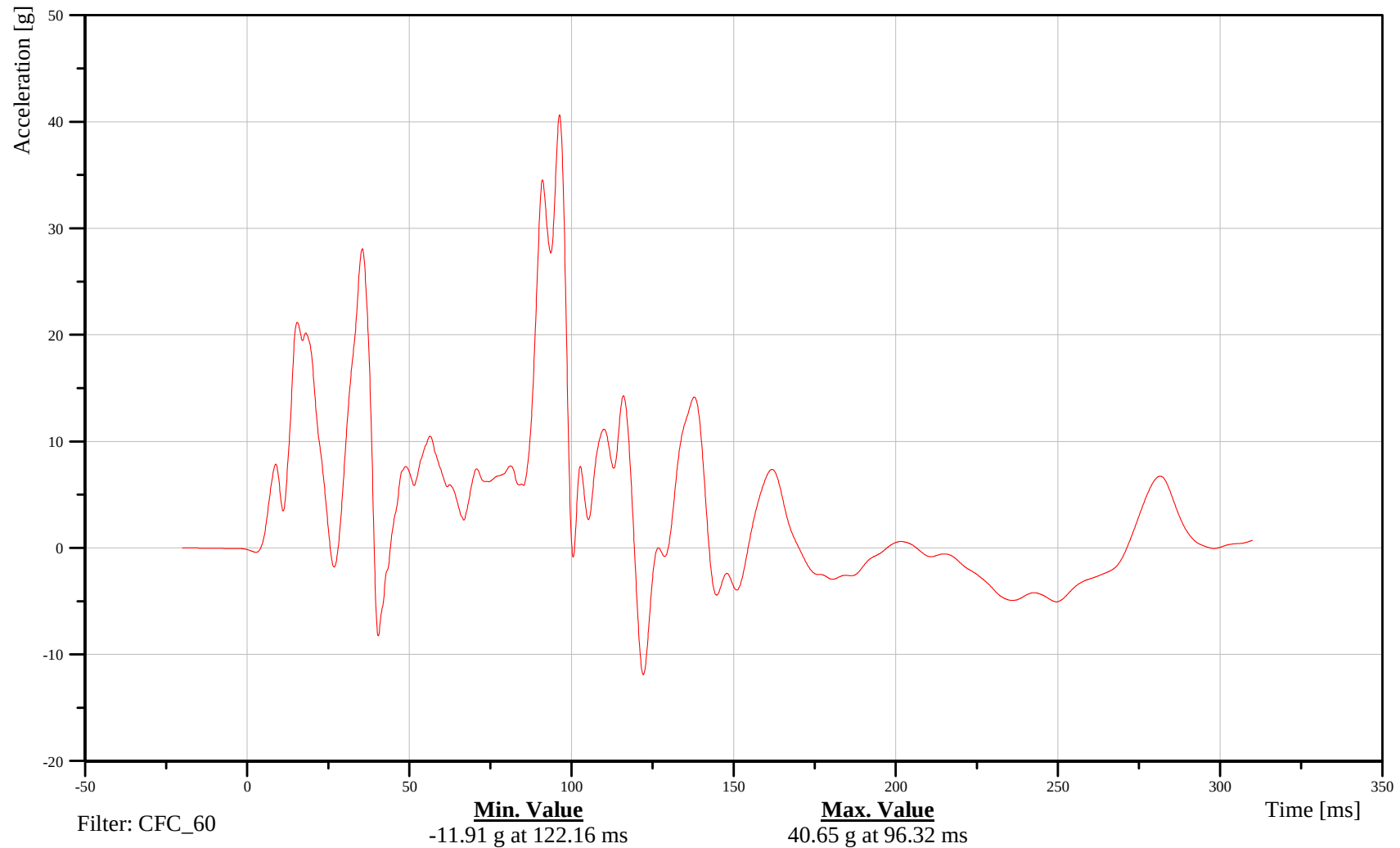
Left Side Sill at Rear Seat Y-Axis Acceleration

Customer: VRTC

14SILBRE0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-70

070709



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

Date: 07/09/2007
Time: 13:52

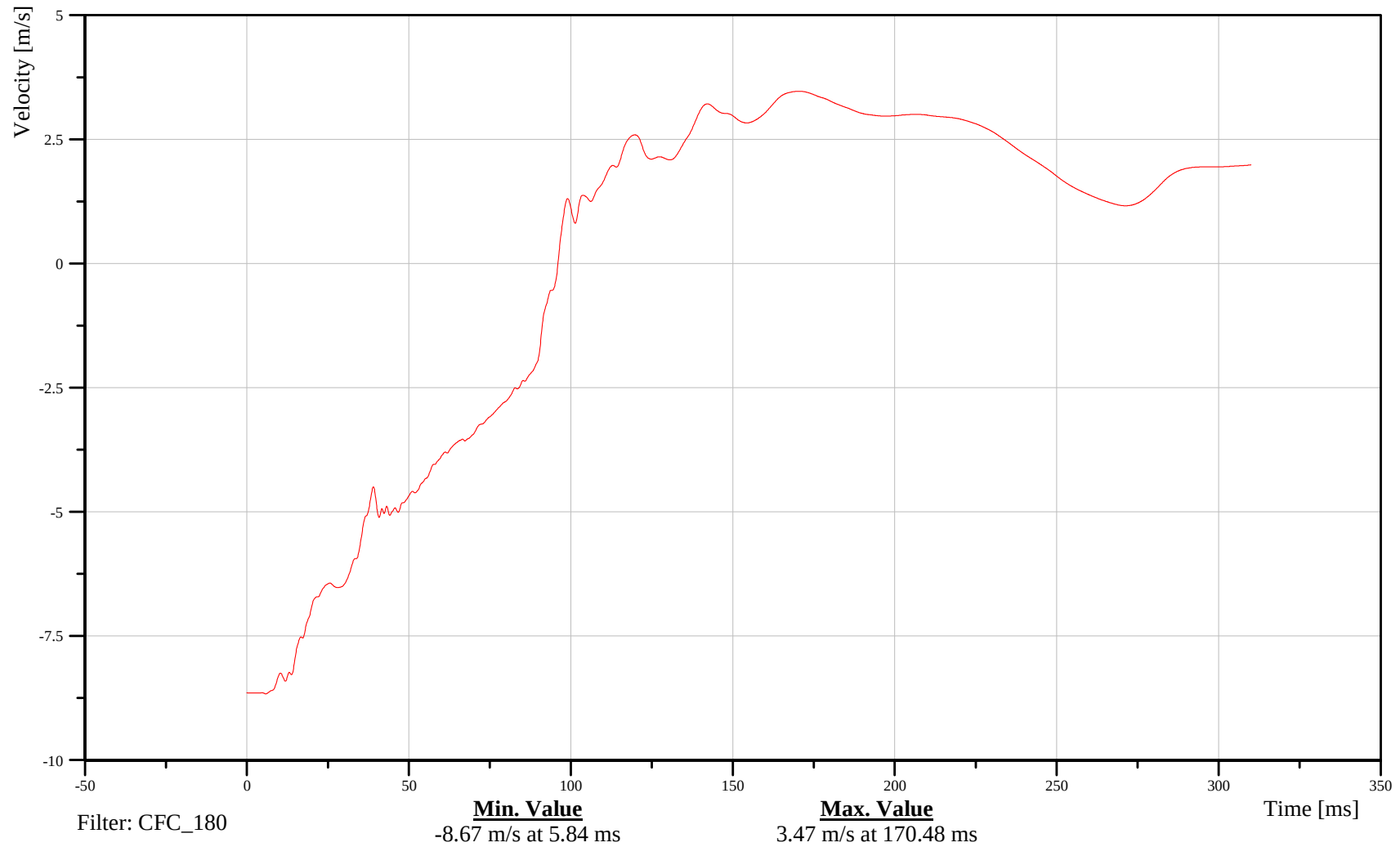
Left Side Sill at Rear Seat Y-Axis Velocity

Customer: VRTC

14SILBRE0000VEYC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-71

070709



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

Date: 07/09/2007
Time: 13:52

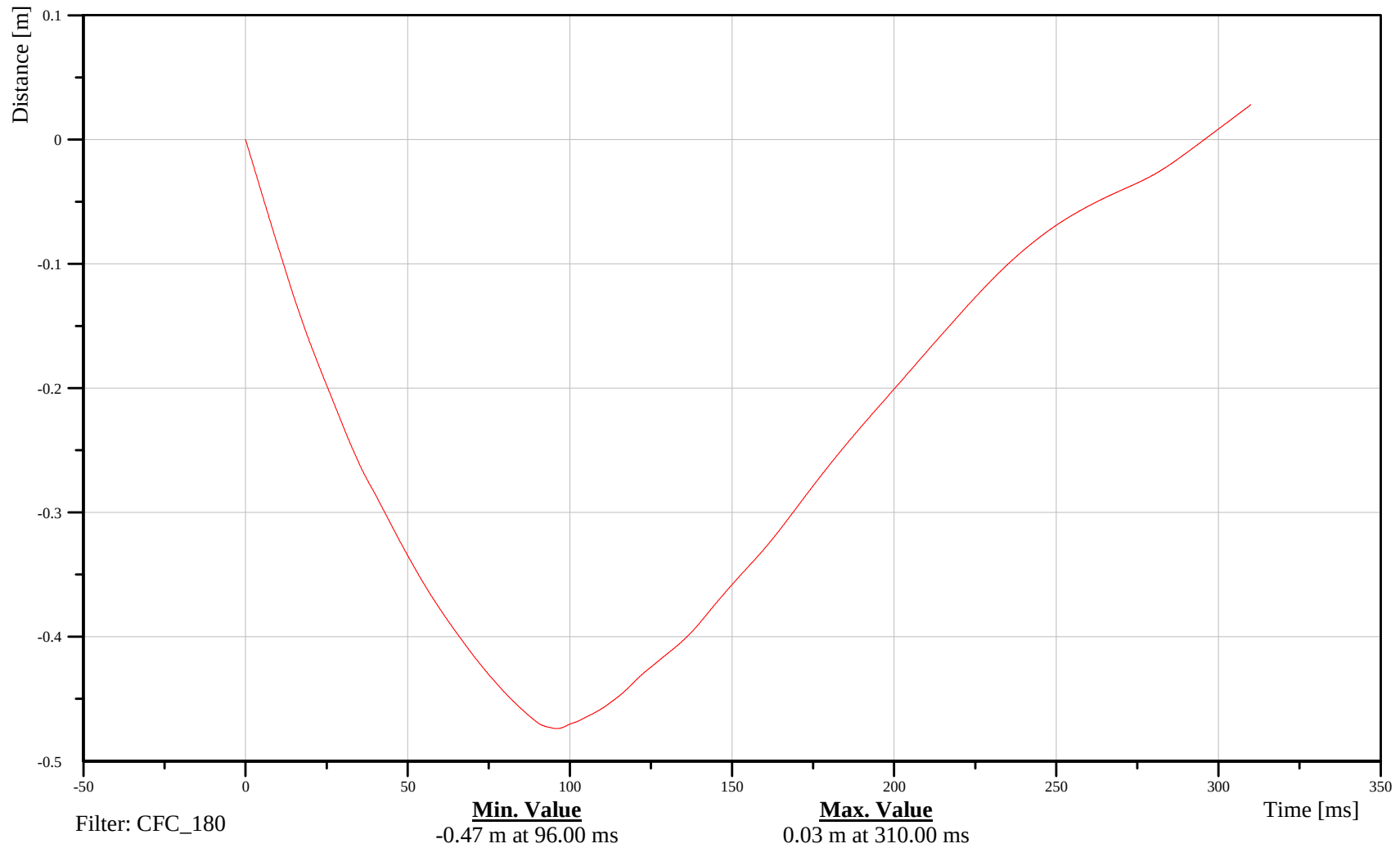
Left Side Sill at Rear Seat Y-Axis Displacement

Customer: VRTC

14SILBRE0000DCYC

TRC Inc. Test Lab: CTF

Test Number: 070709



B-72

070709



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

Date: 07/09/2007

Right Rear Occupant Compartment Y-Axis Acceleration

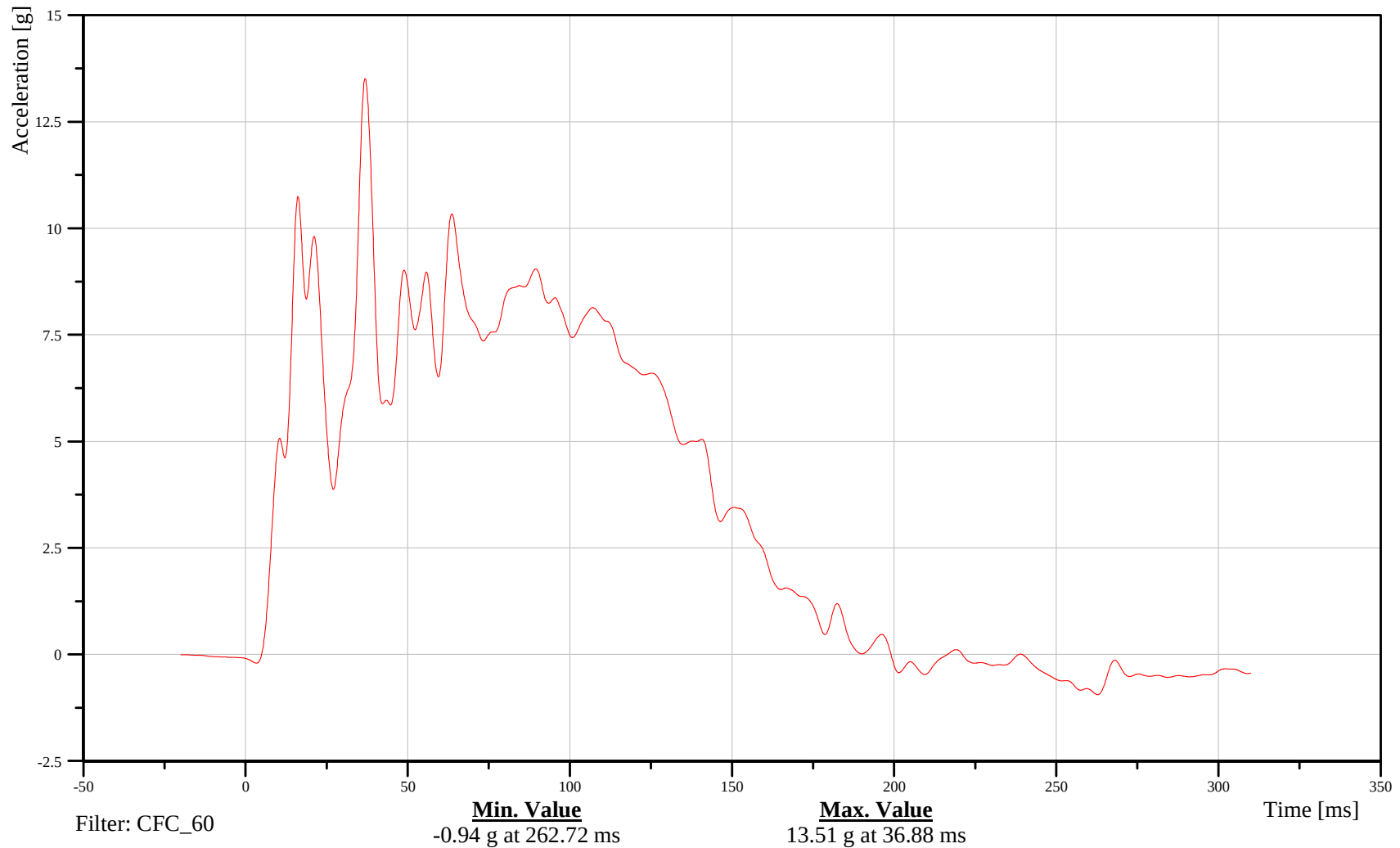
Time: 13:52

Customer: VRTC

16VEHCRE0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-73

070709



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

Date: 07/09/2007
Time: 13:52

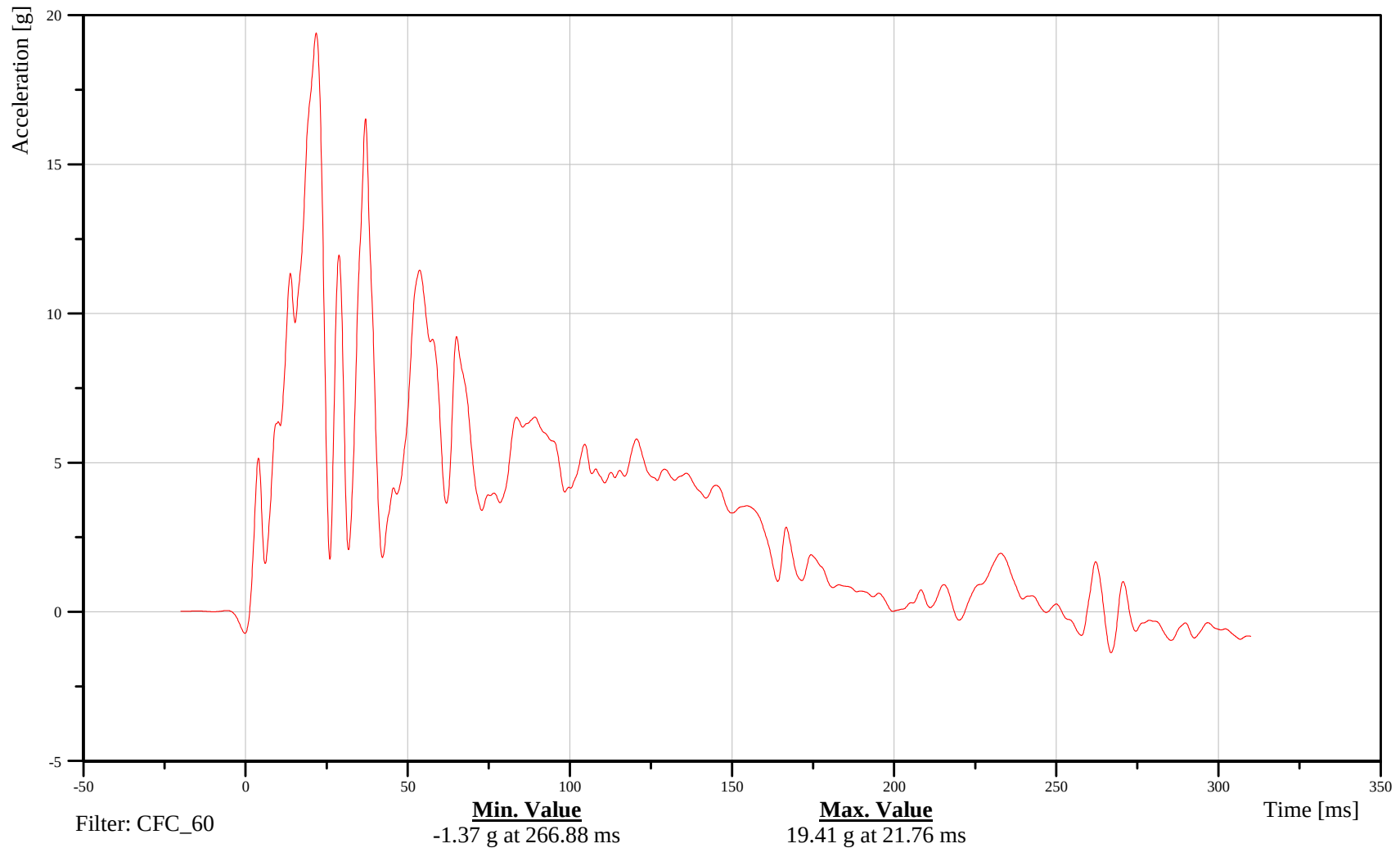
Left Lower A-Pillar Y-Axis Acceleration

Customer: VRTC

11APILO0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-74

070709



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

Date: 07/09/2007
Time: 13:52

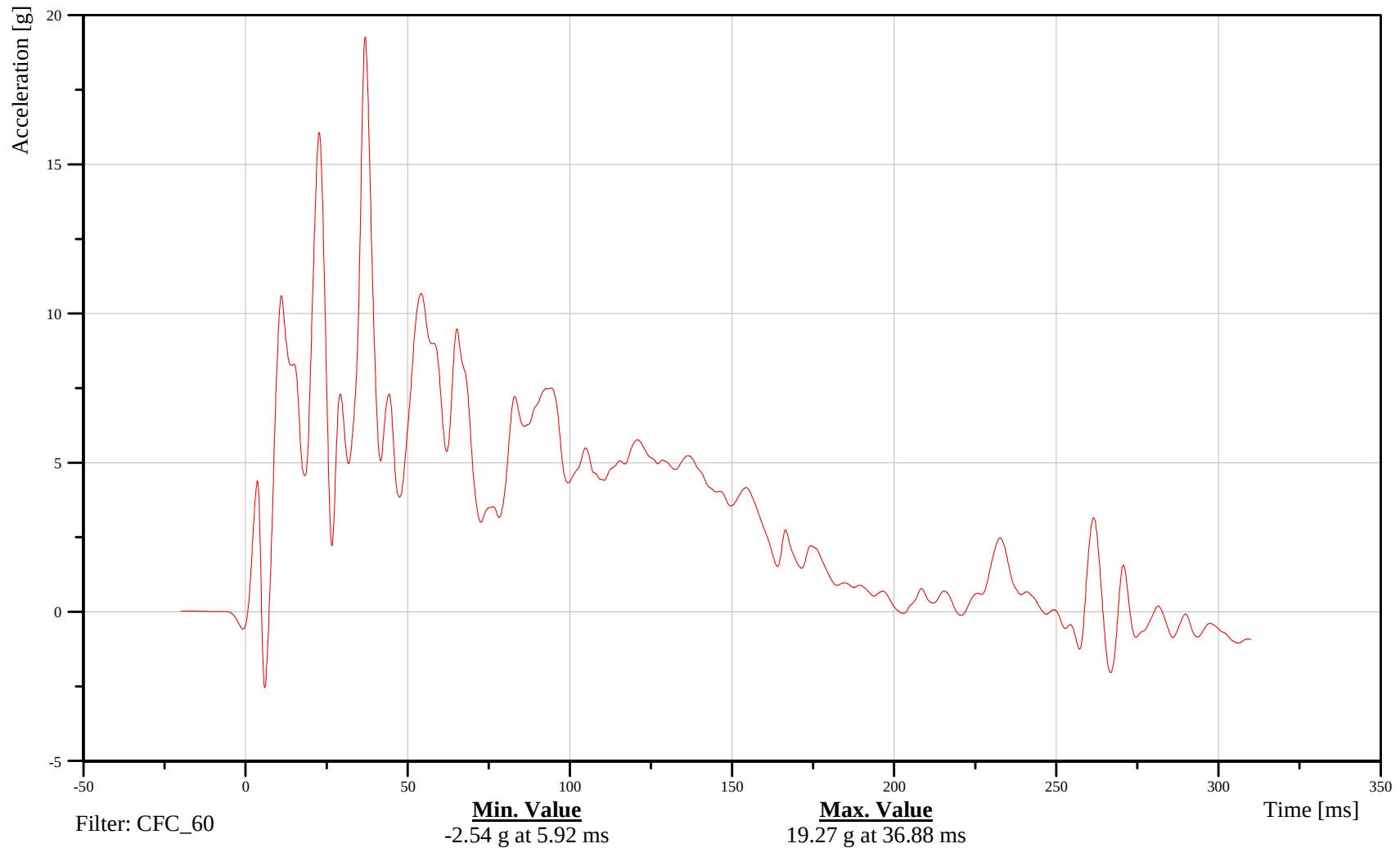
Left Mid A-Pillar Y-Axis Acceleration

Customer: VRTC

11APILMI0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-75

070709



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

Date: 07/09/2007

Time: 13:52

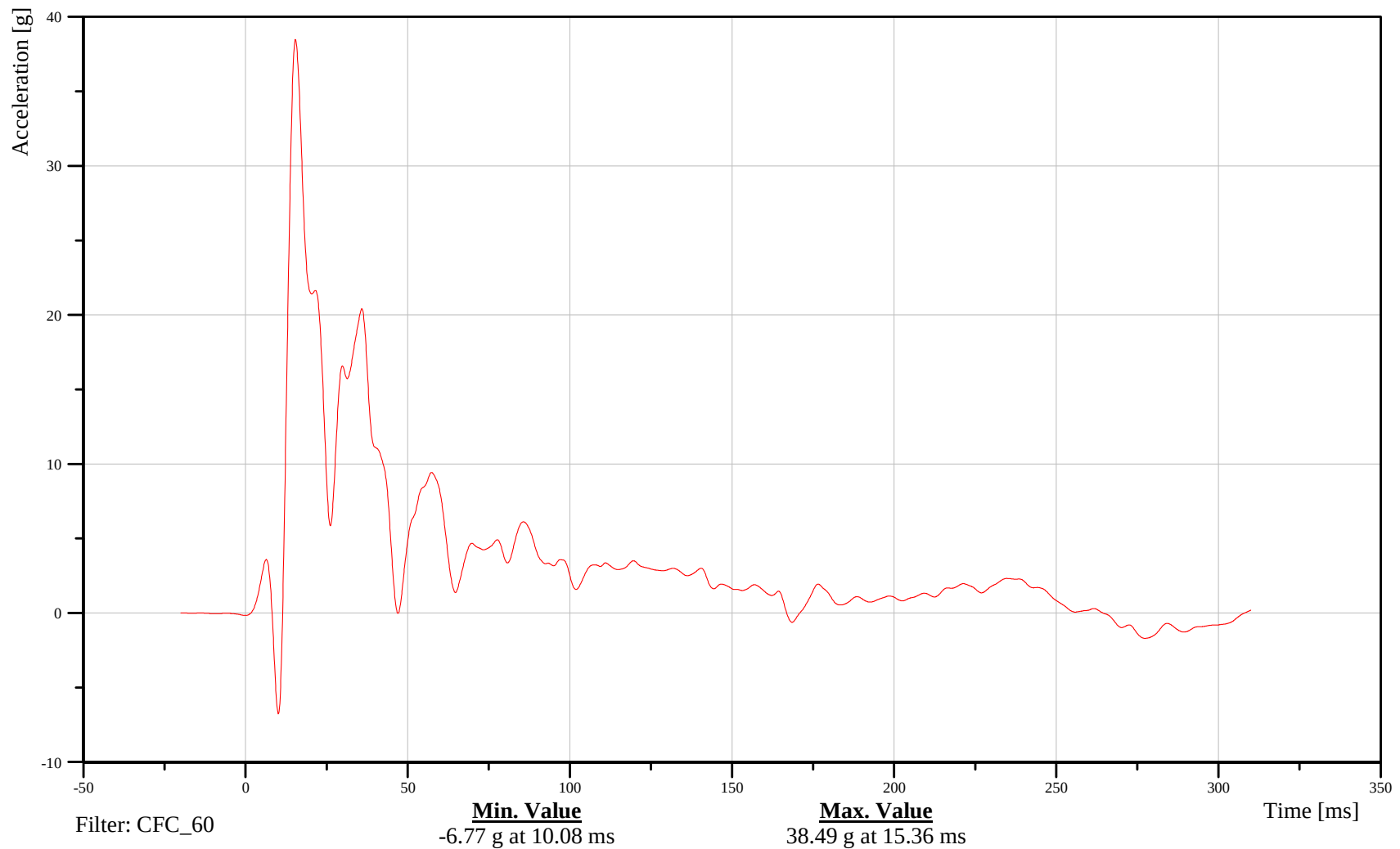
Left Lower B-Pillar Y-Axis Acceleration

Customer: VRTC

14BPILLO0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-76

070709



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

Date: 07/09/2007
Time: 13:52

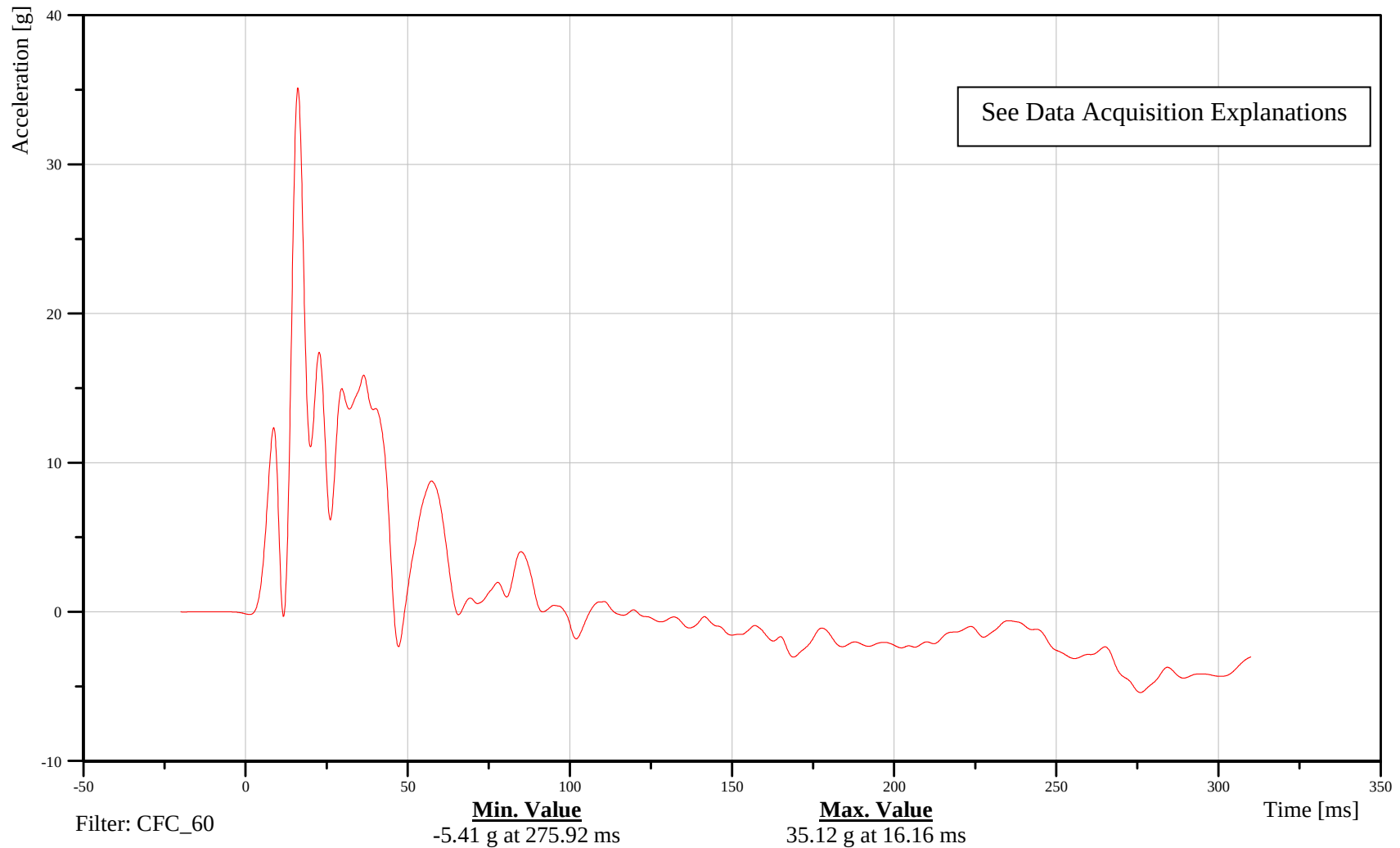
Left Mid B-Pillar Y-Axis Acceleration

Customer: VRTC

14BPILMI0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-77

070709



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

Date: 07/09/2007
Time: 13:52

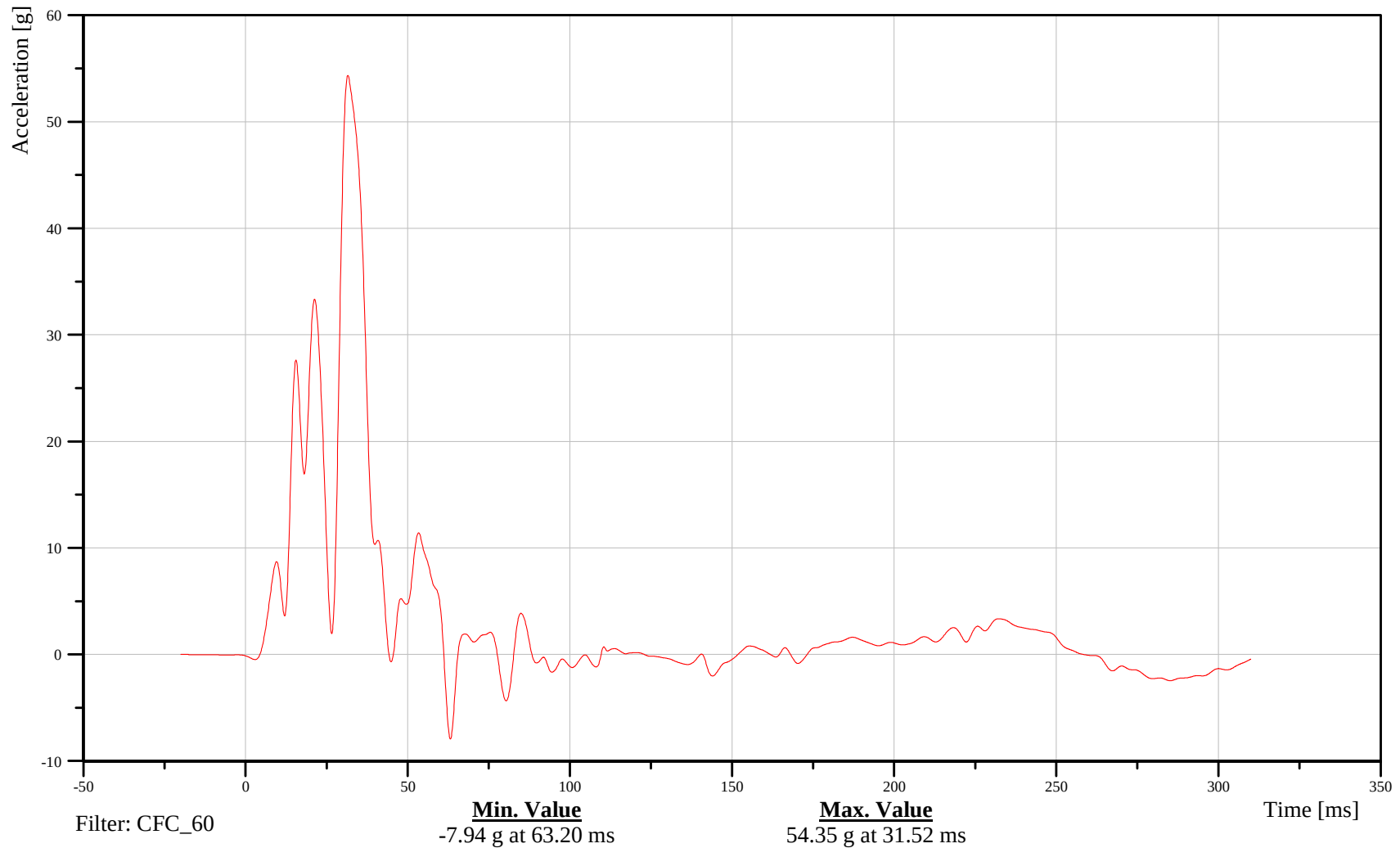
Left Front Seat Track Y-Axis Acceleration

Customer: VRTC

11SETRFR0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-78

070709



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

Date: 07/09/2007
Time: 13:52

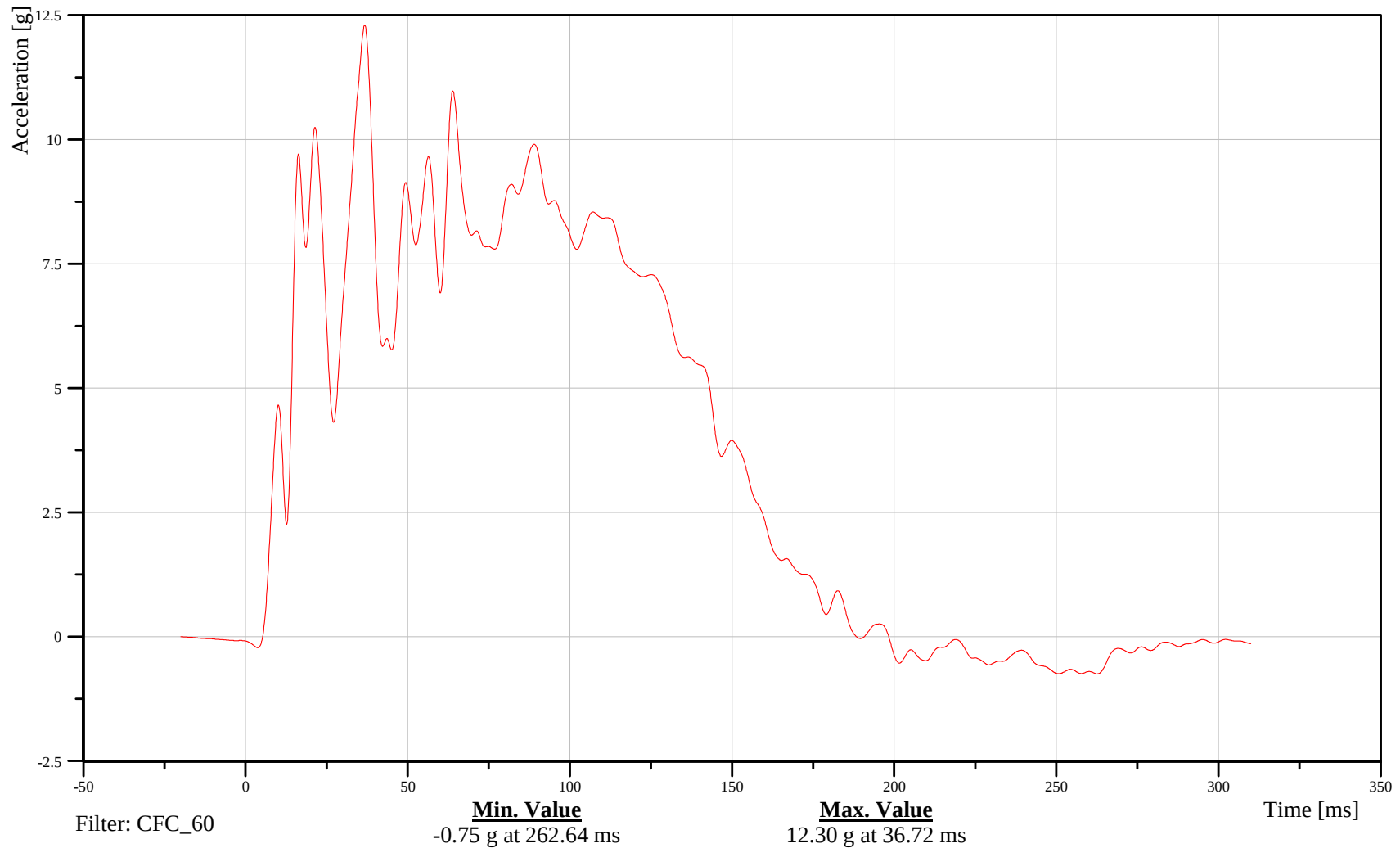
Left Rear Seat Track Y-Axis Acceleration

Customer: VRTC

14SETRLERE00ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-79

070709



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

Date: 07/09/2007
Time: 13:52

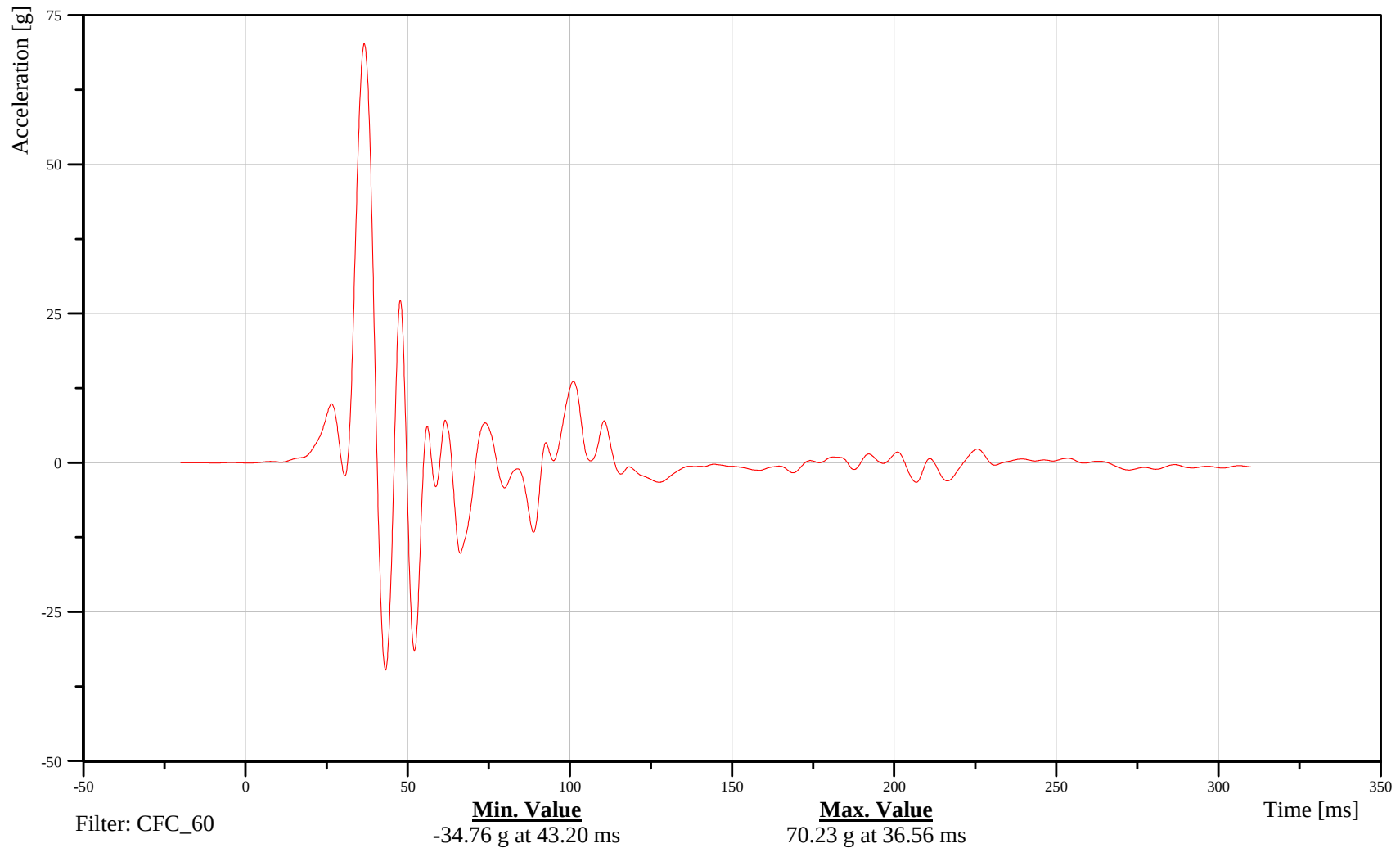
Vehicle Center of Gravity X-Axis Acceleration

Customer: VRTC

10VEHCCG0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-80

070709



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

Date: 07/09/2007
Time: 13:52

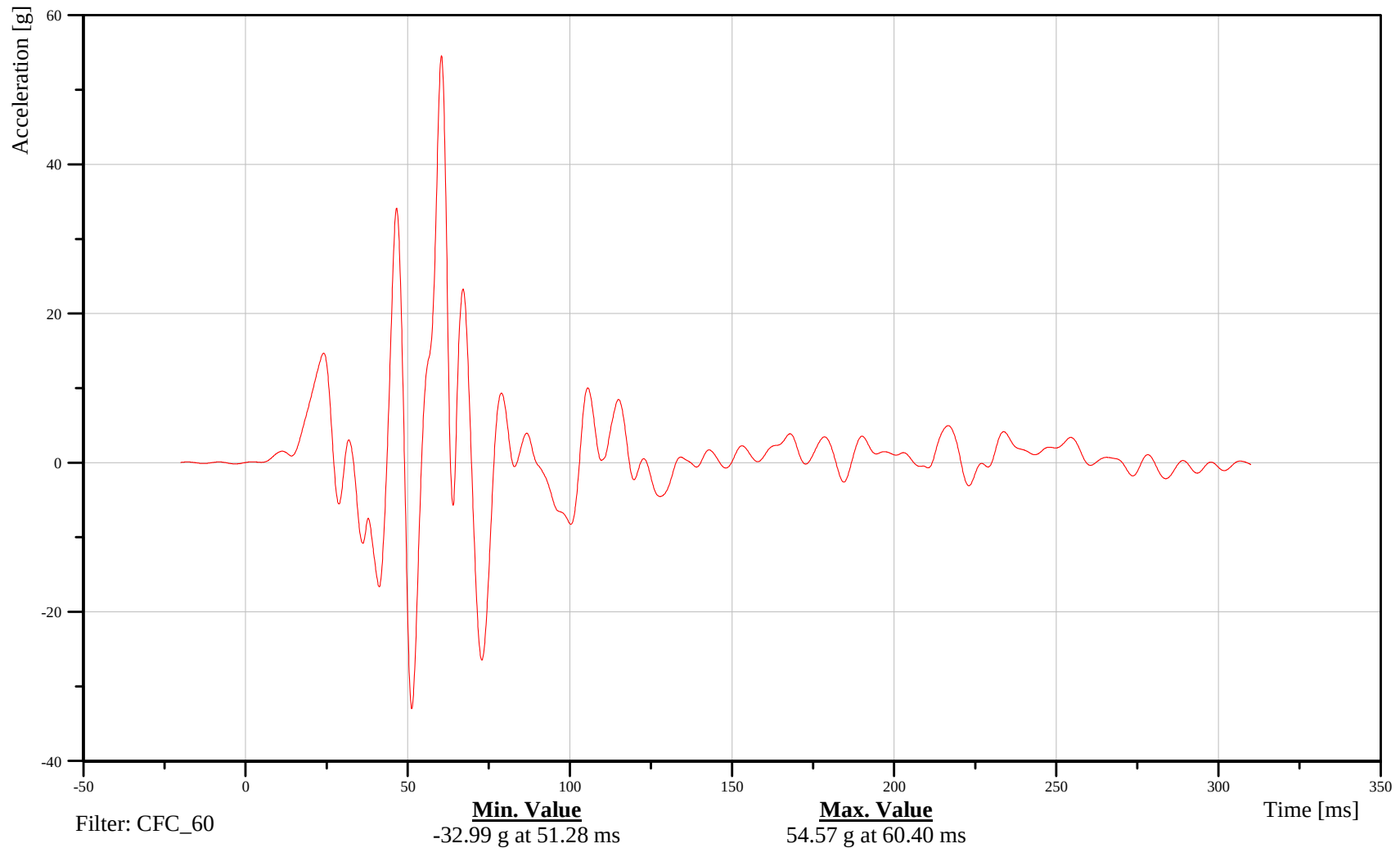
Vehicle Center of Gravity Y-Axis Acceleration

Customer: VRTC

10VEHCCG0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-81

070709



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

Date: 07/09/2007
Time: 13:52

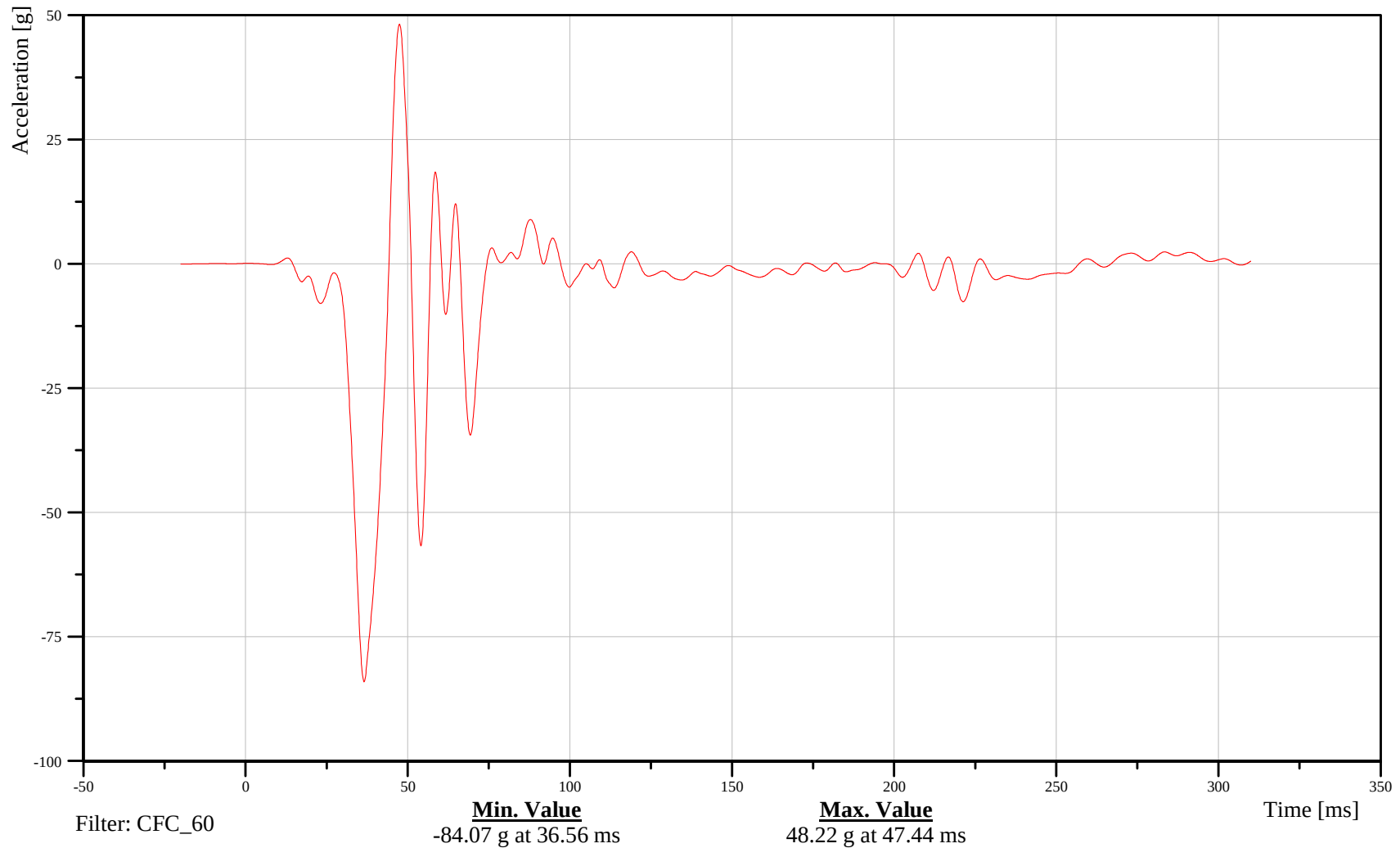
Vehicle Center of Gravity Z-Axis Acceleration

Customer: VRTC

10VEHCCG0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-82

070709



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

Date: 07/09/2007
Time: 13:52

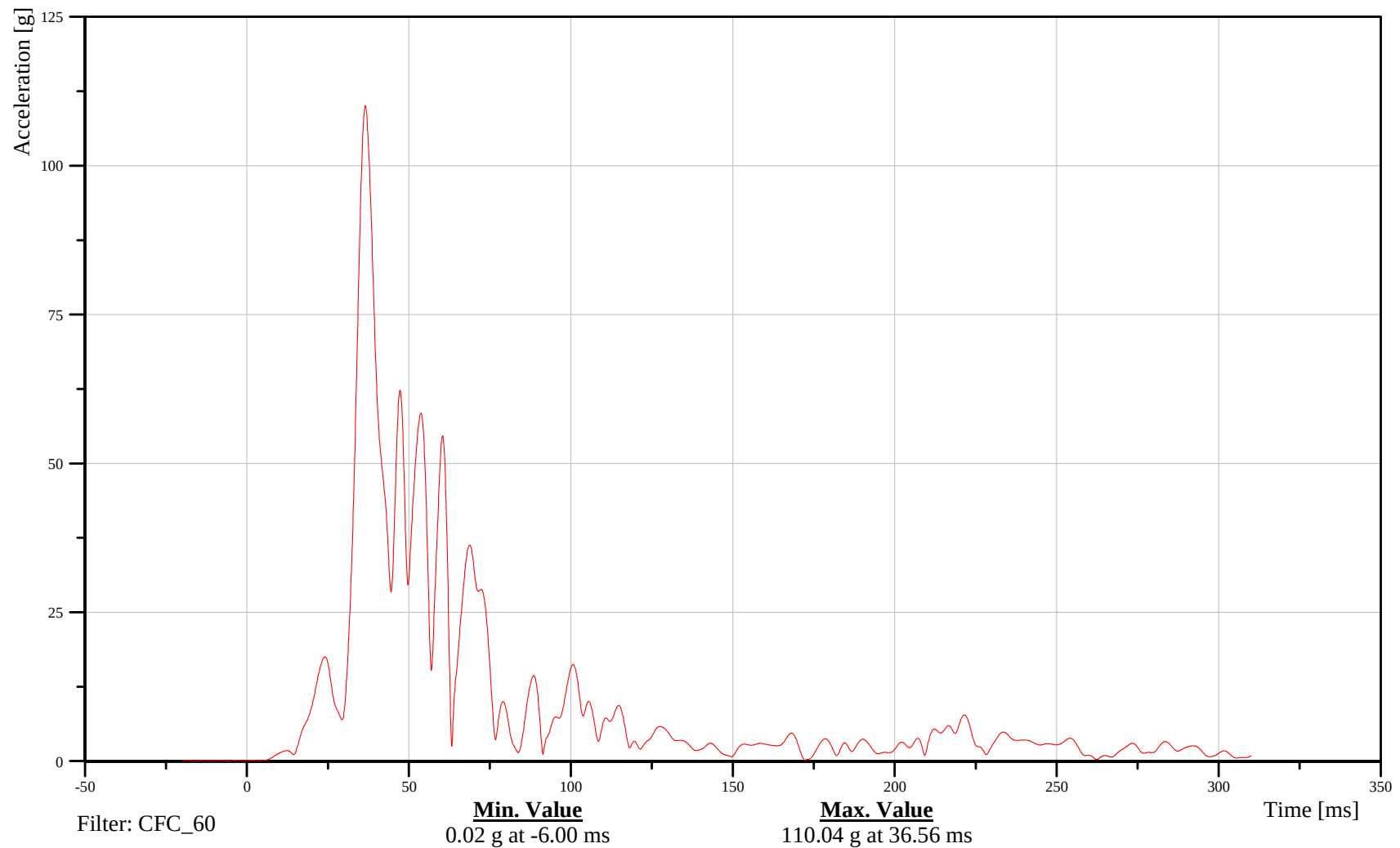
Vehicle Center of Gravity Resultant Acceleration

Customer: VRTC

10VEHCCG0000ACRD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-83

070709



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

Date: 07/09/2007
Time: 13:52

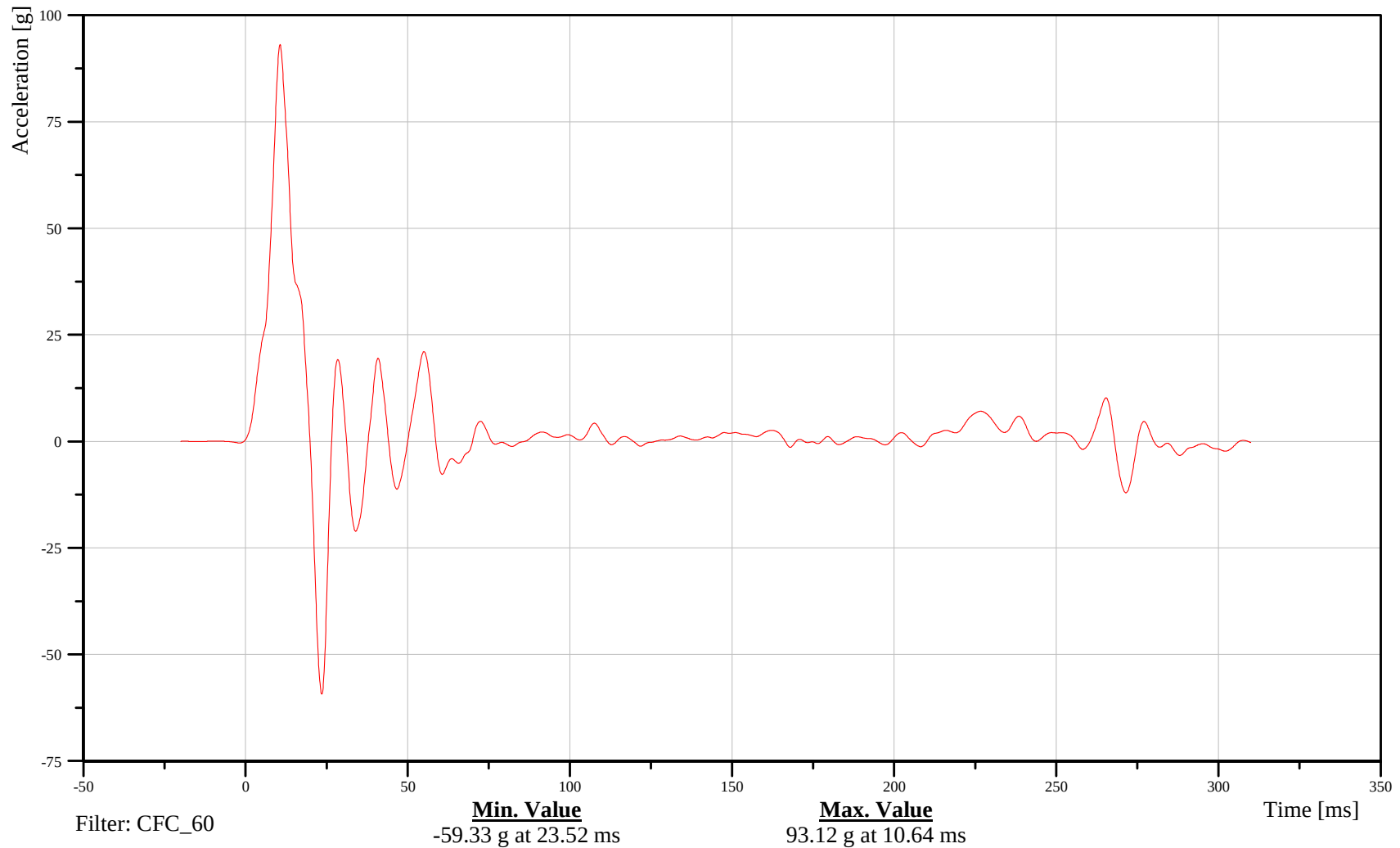
Vehicle Front Door Centerline Y-Axis Acceleration

Customer: VRTC

14DOOR000001ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-84

070709



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

Date: 07/09/2007
Time: 13:52

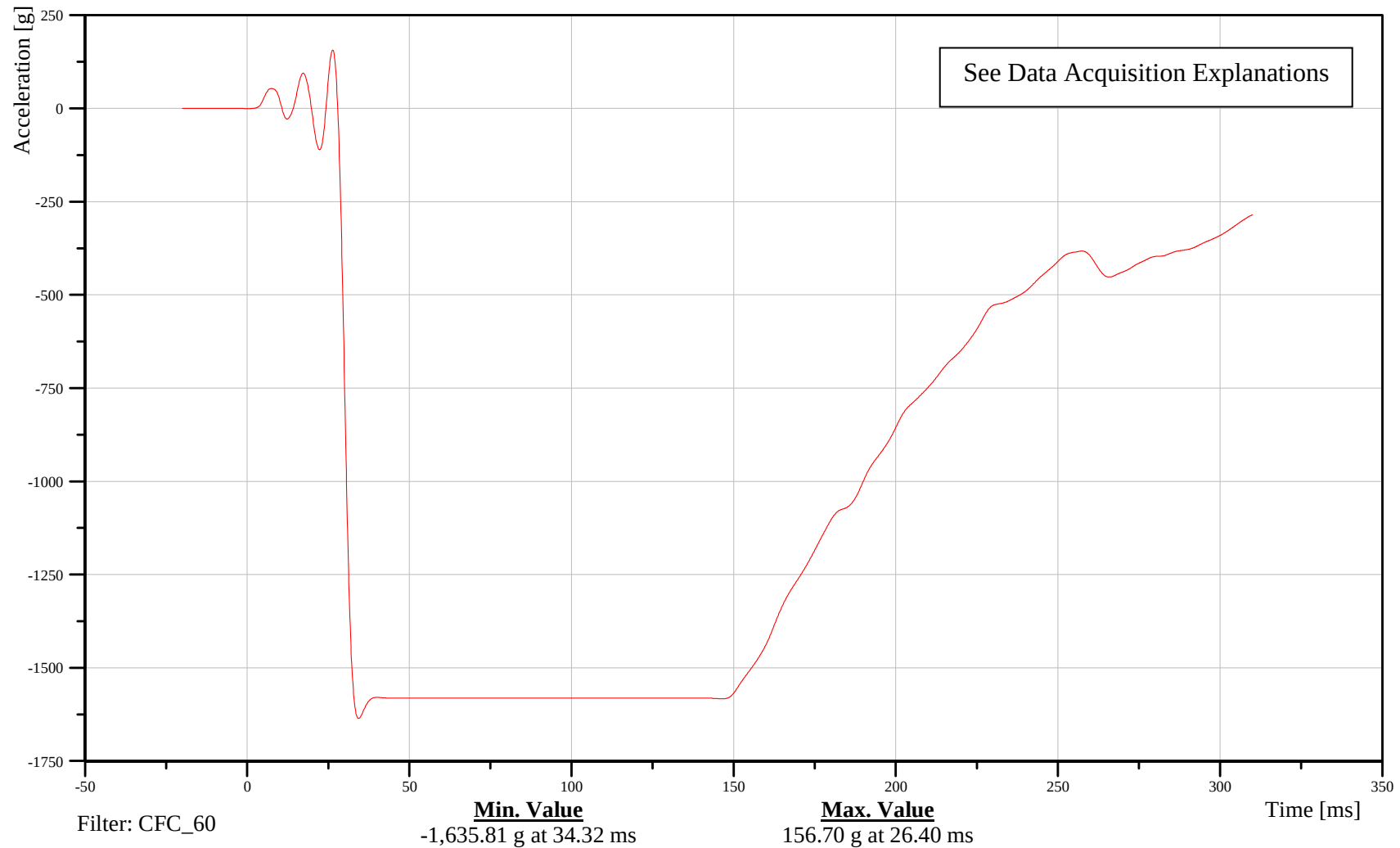
Vehicle Front Door Mid-Rear Y-Axis Acceleration

Customer: VRTC

14DOOR000002ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-85

070709



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

Date: 07/09/2007
Time: 13:52

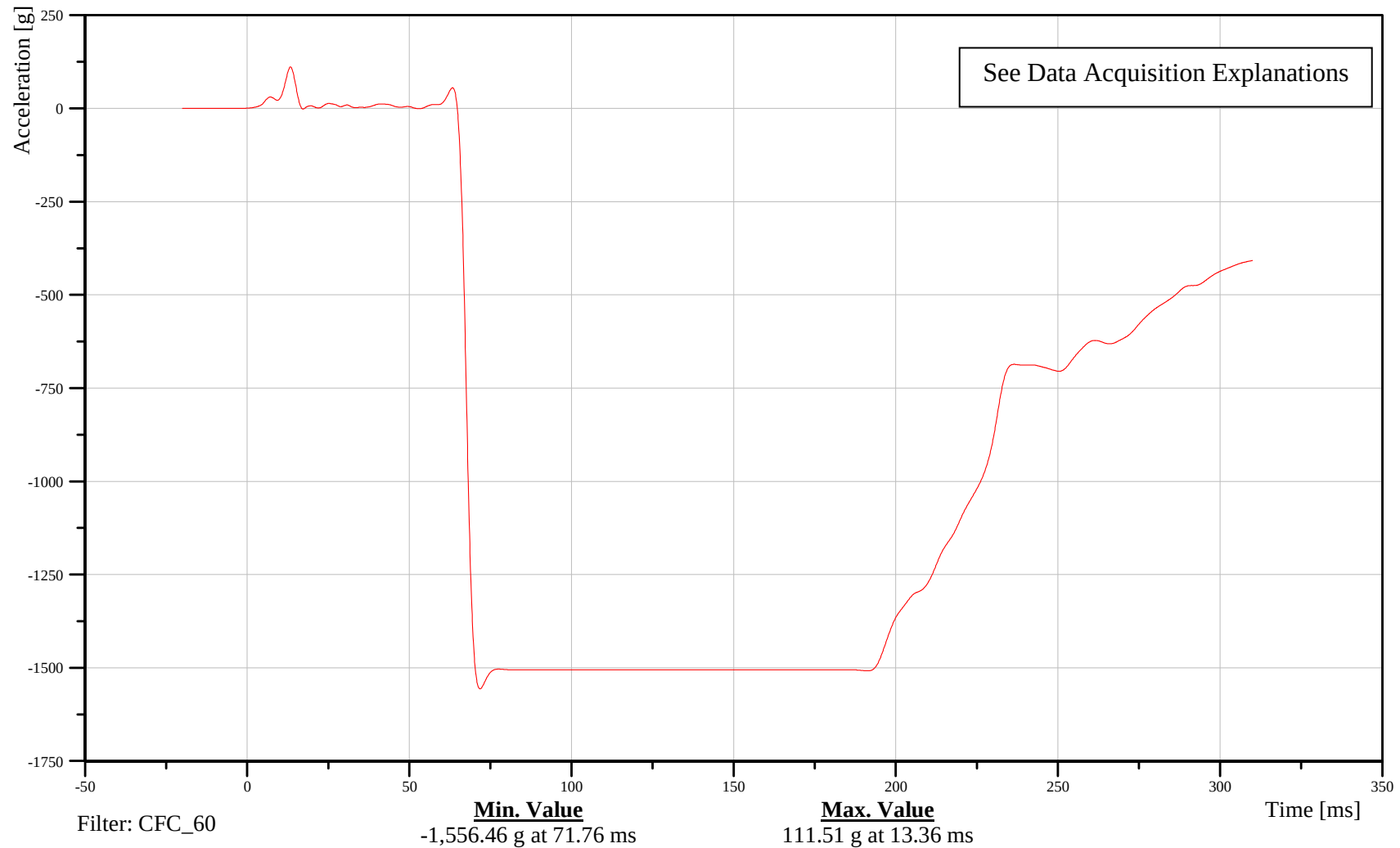
Vehicle Front Door Upper Centerline Y-Axis Acceleration

Customer: VRTC

14DOOR000003ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-86

070709



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

Date: 07/09/2007

Time: 13:52

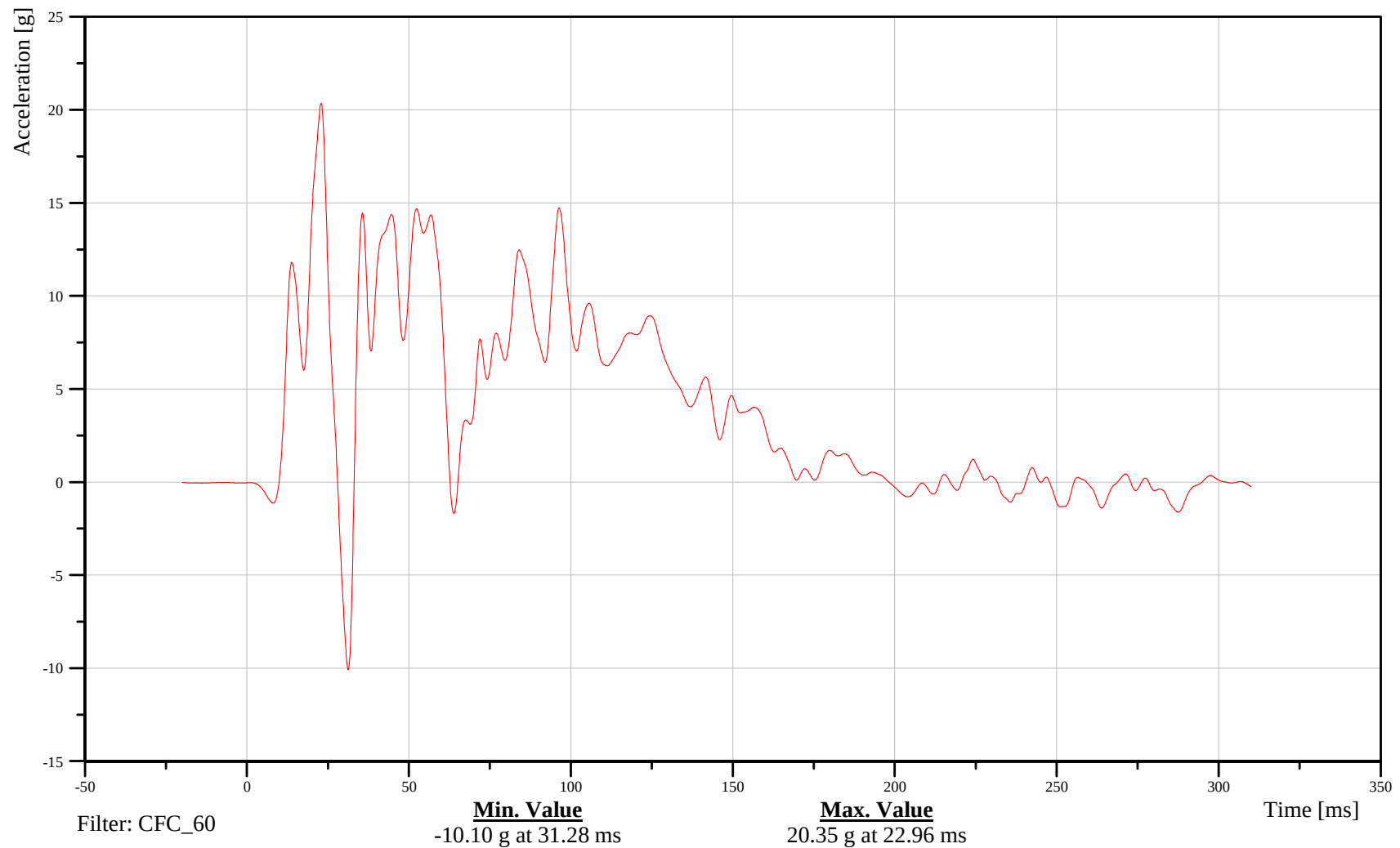
Vehicle Rear Door Mid-Rear Y-Axis Acceleration

Customer: VRTC

16DOOR000002ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-87

070709



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

Date: 07/09/2007

Time: 13:52

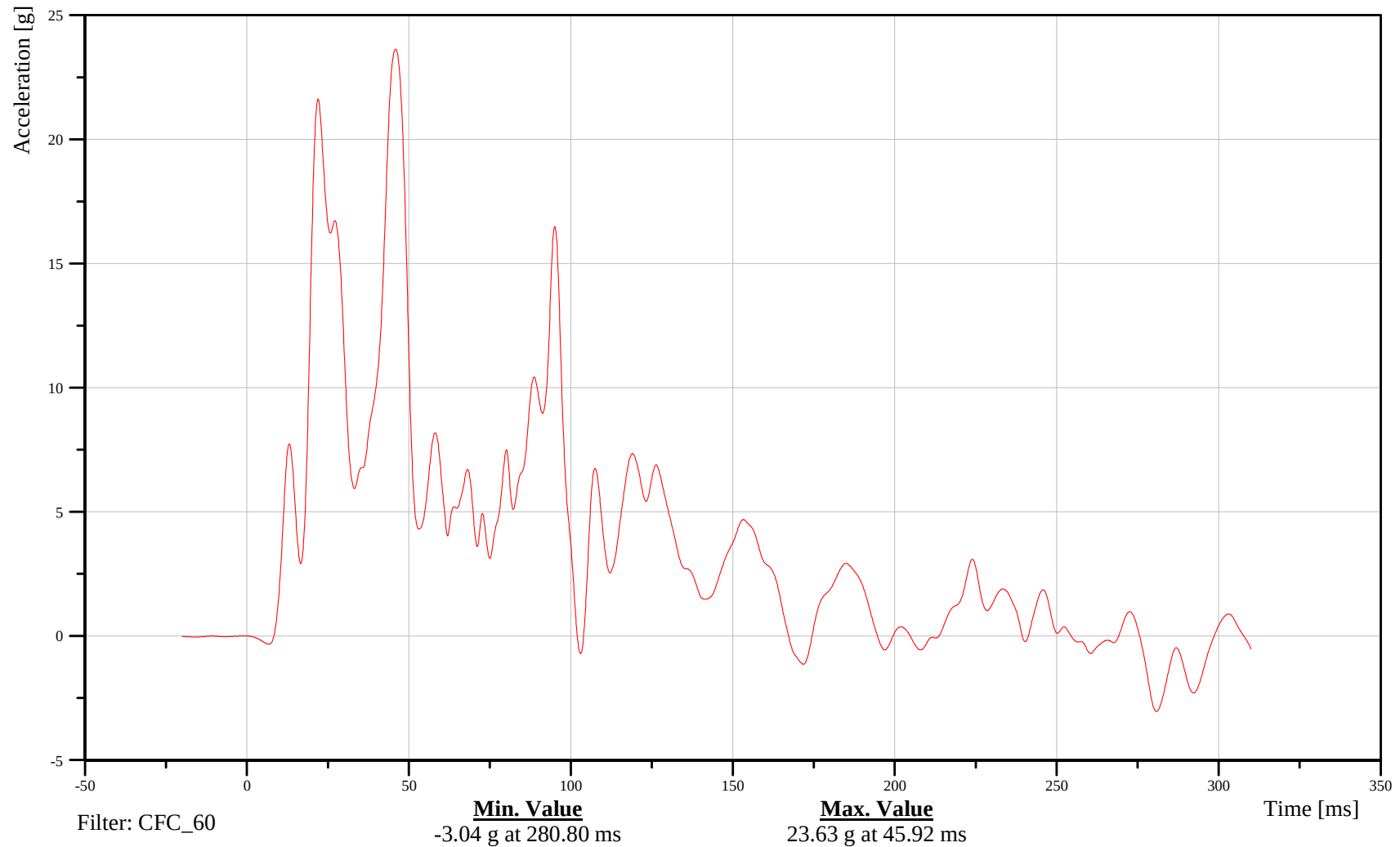
Vehicle Rear Door Upper Centerline Y-Axis Acceleration

Customer: VRTC

16DOOR000003ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-88

070709



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

Date: 07/09/2007
Time: 13:52

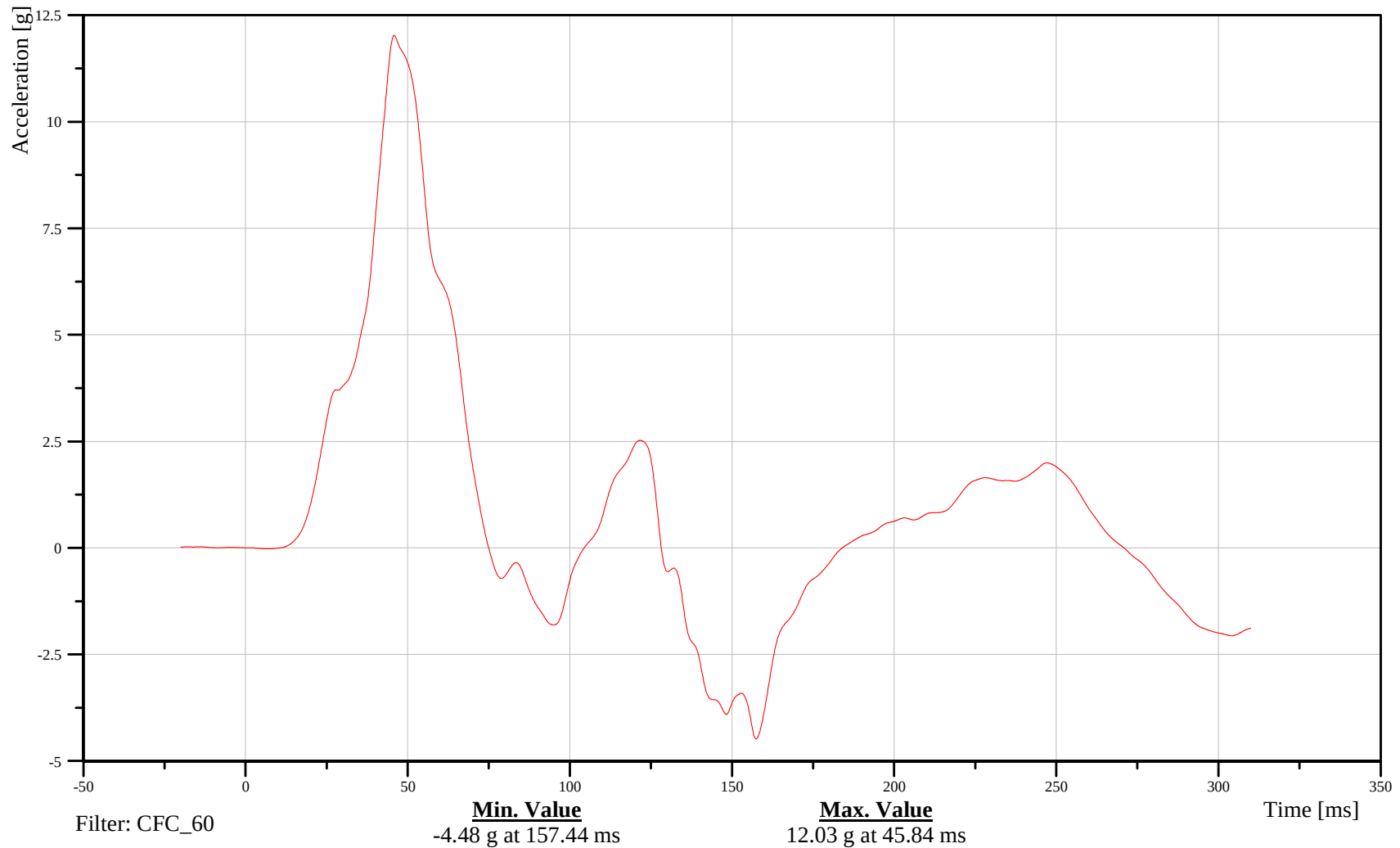
Top of Engine X-Axis Acceleration

Customer: VRTC

12ENGNTTP0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-89

070709



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

Date: 07/09/2007
Time: 13:52

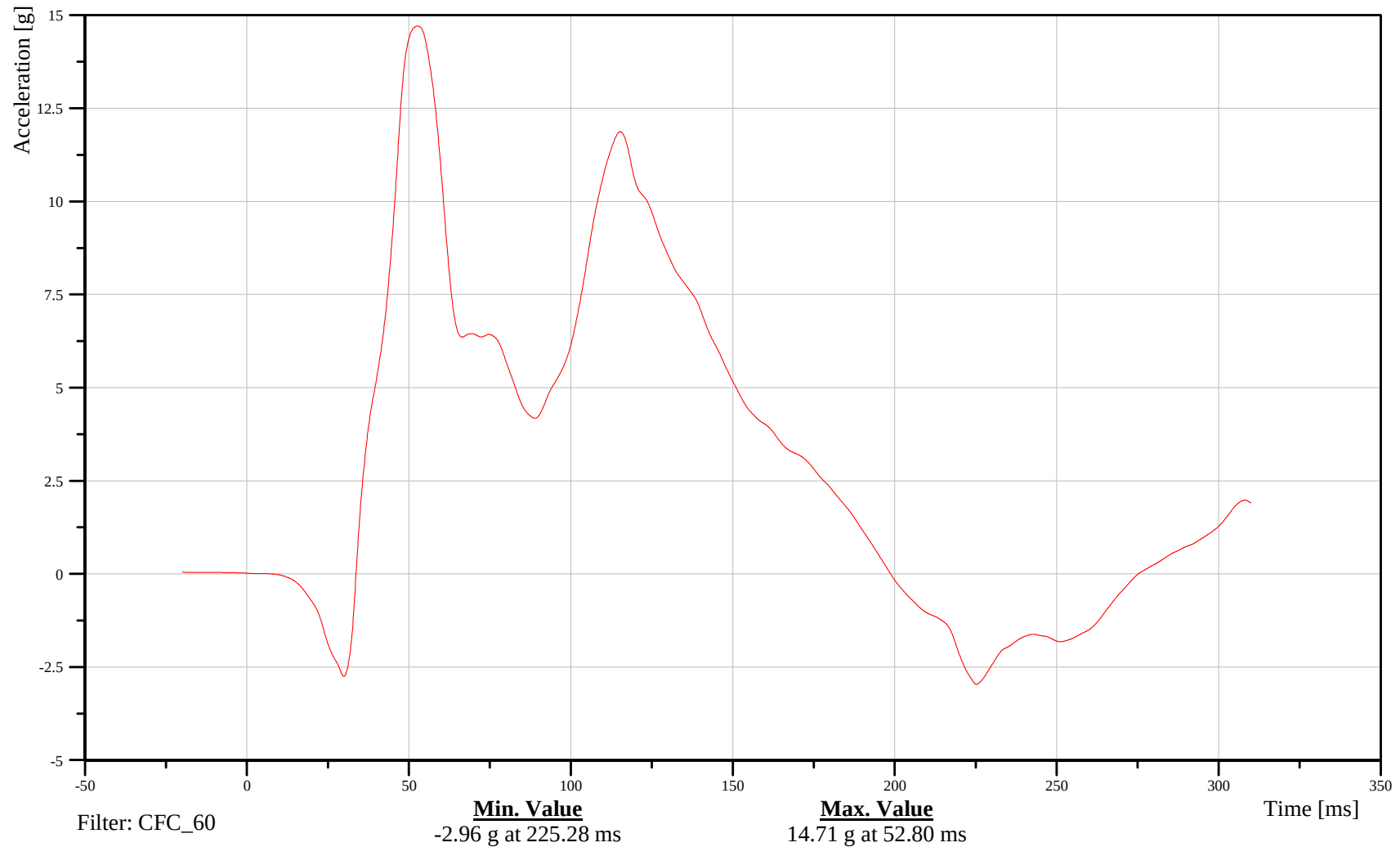
Top of Engine Y-Axis Acceleration

Customer: VRTC

12ENGNTTP0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-90

070709



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

Date: 07/09/2007
Time: 13:52

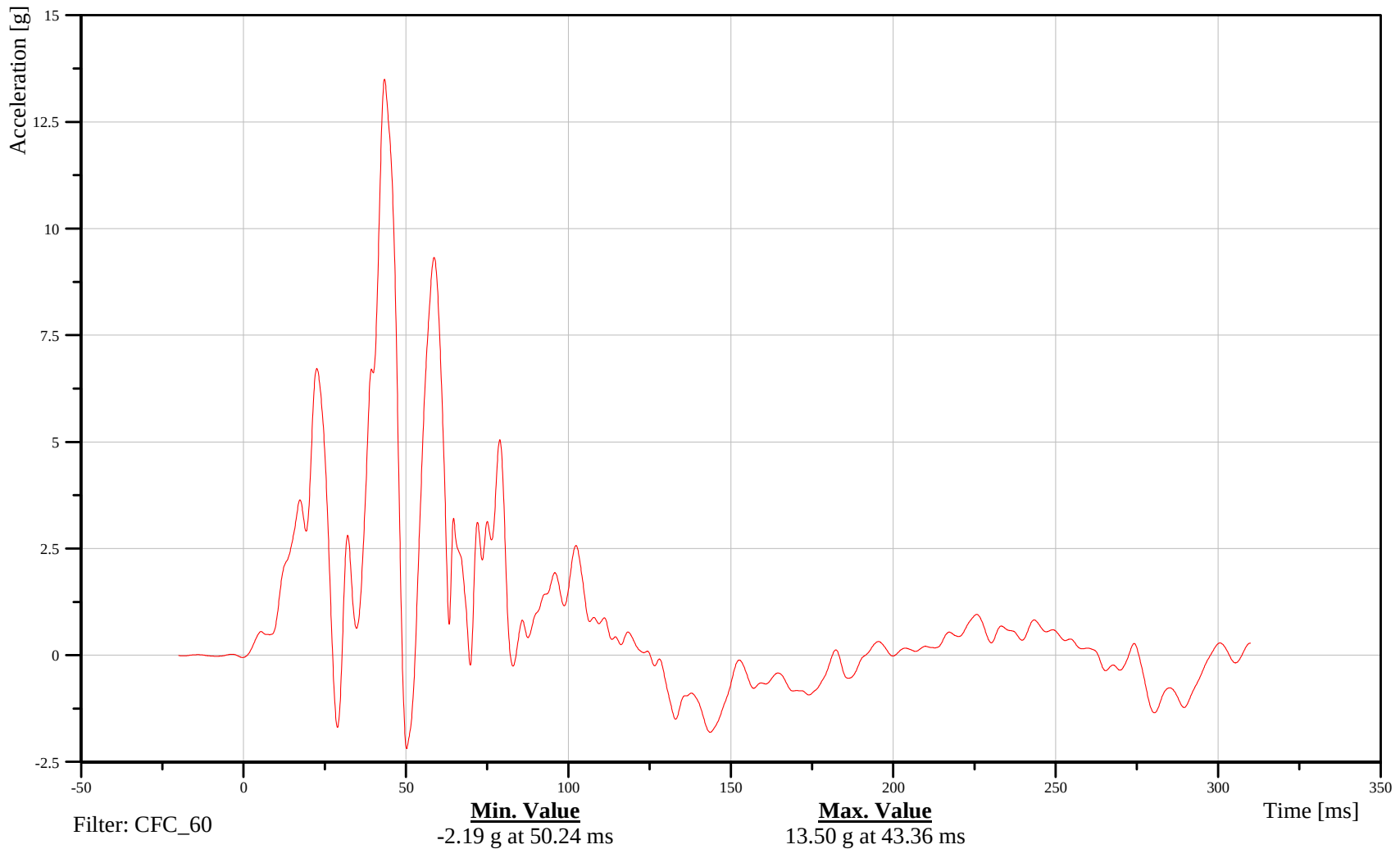
Firewall X-Axis Acceleration

Customer: VRTC

12VEHC000000ACXD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-91

070709



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

Date: 07/09/2007
Time: 13:52

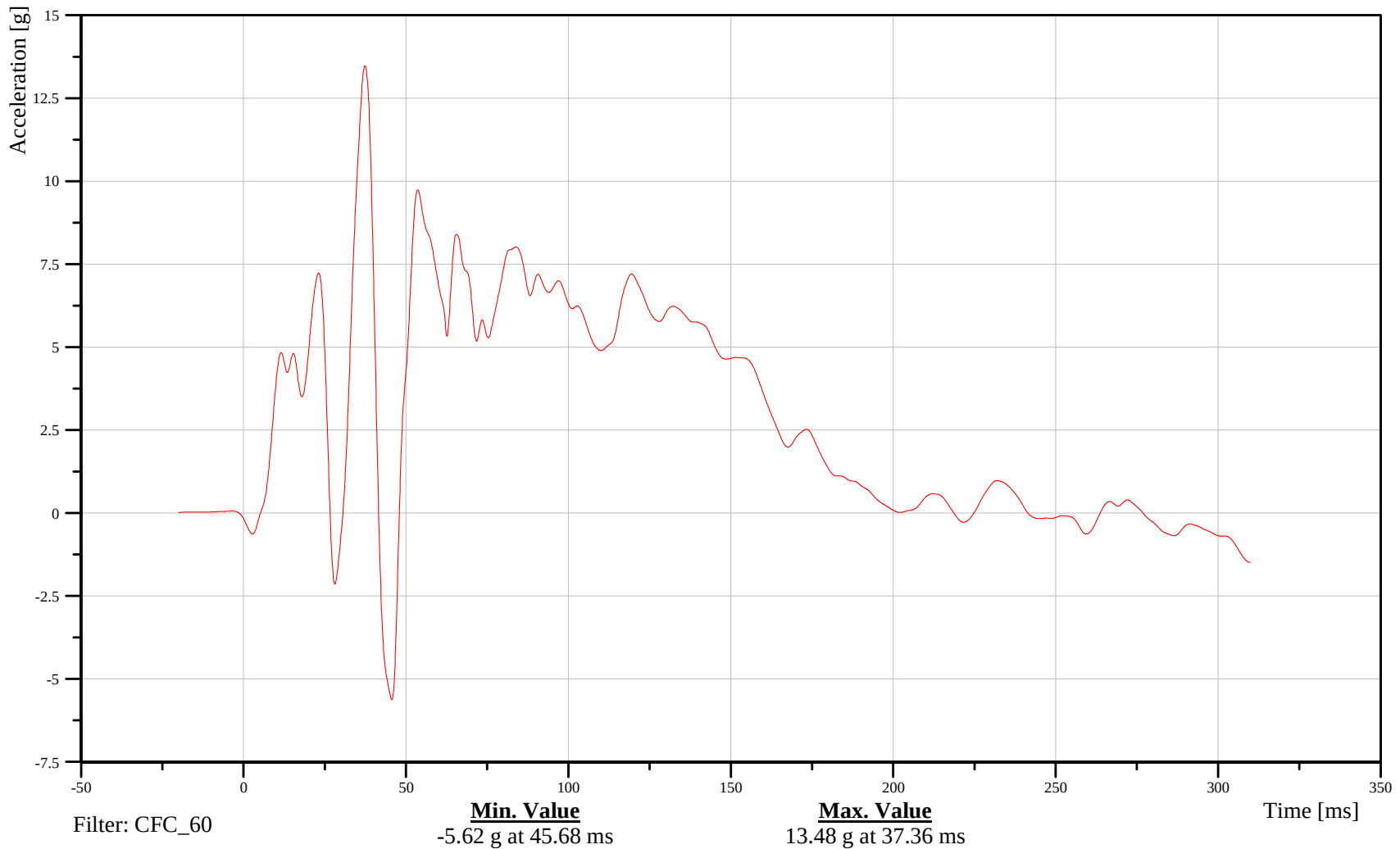
Firewall Y-Axis Acceleration

Customer: VRTC

12VEHC000000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-92

070709



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

Date: 07/09/2007

Time: 13:52

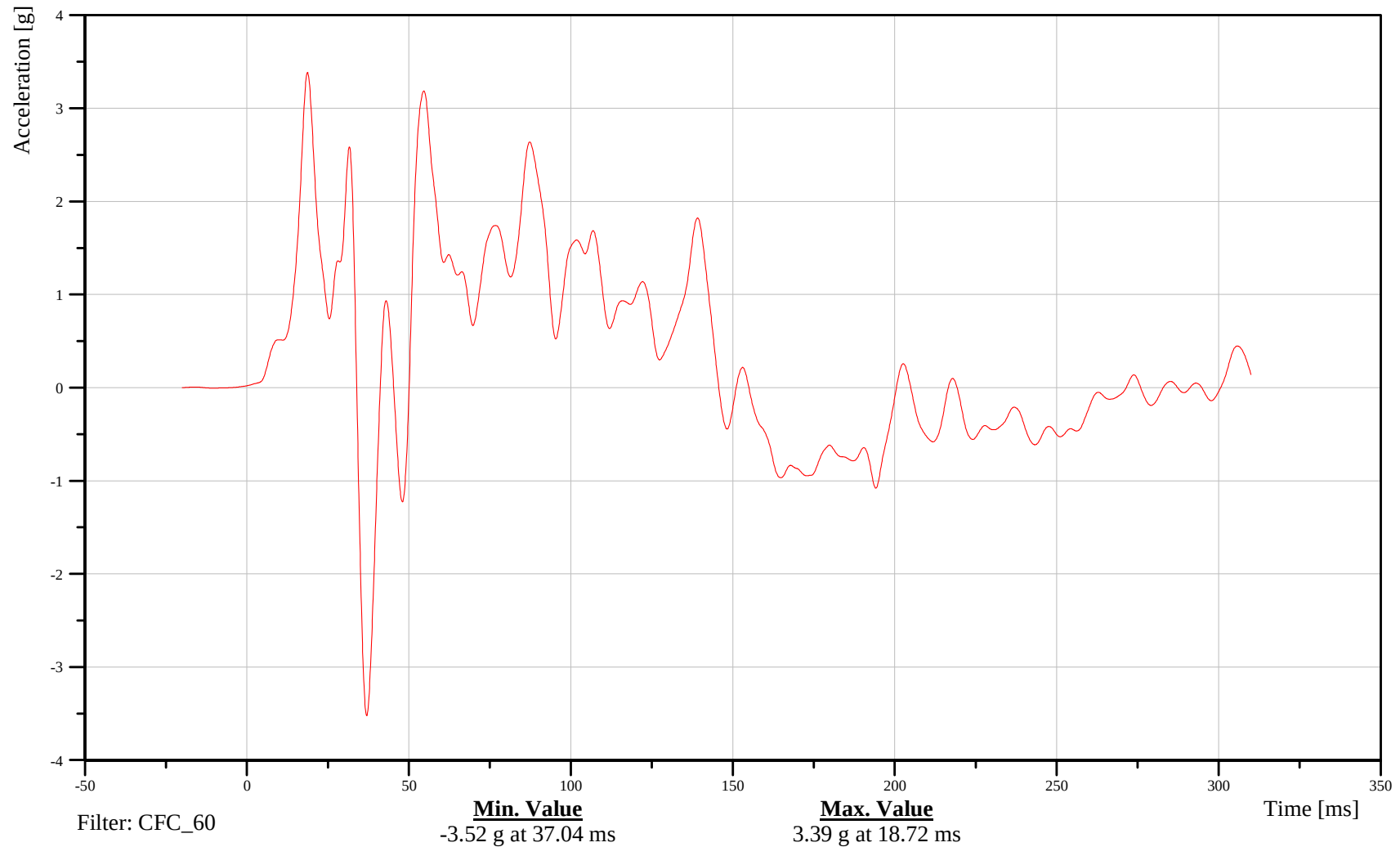
Right Side Roof Rail X-Axis Acceleration

Customer: VRTC

13ROOF000000ACXD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-93

070709



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

Date: 07/09/2007
Time: 13:52

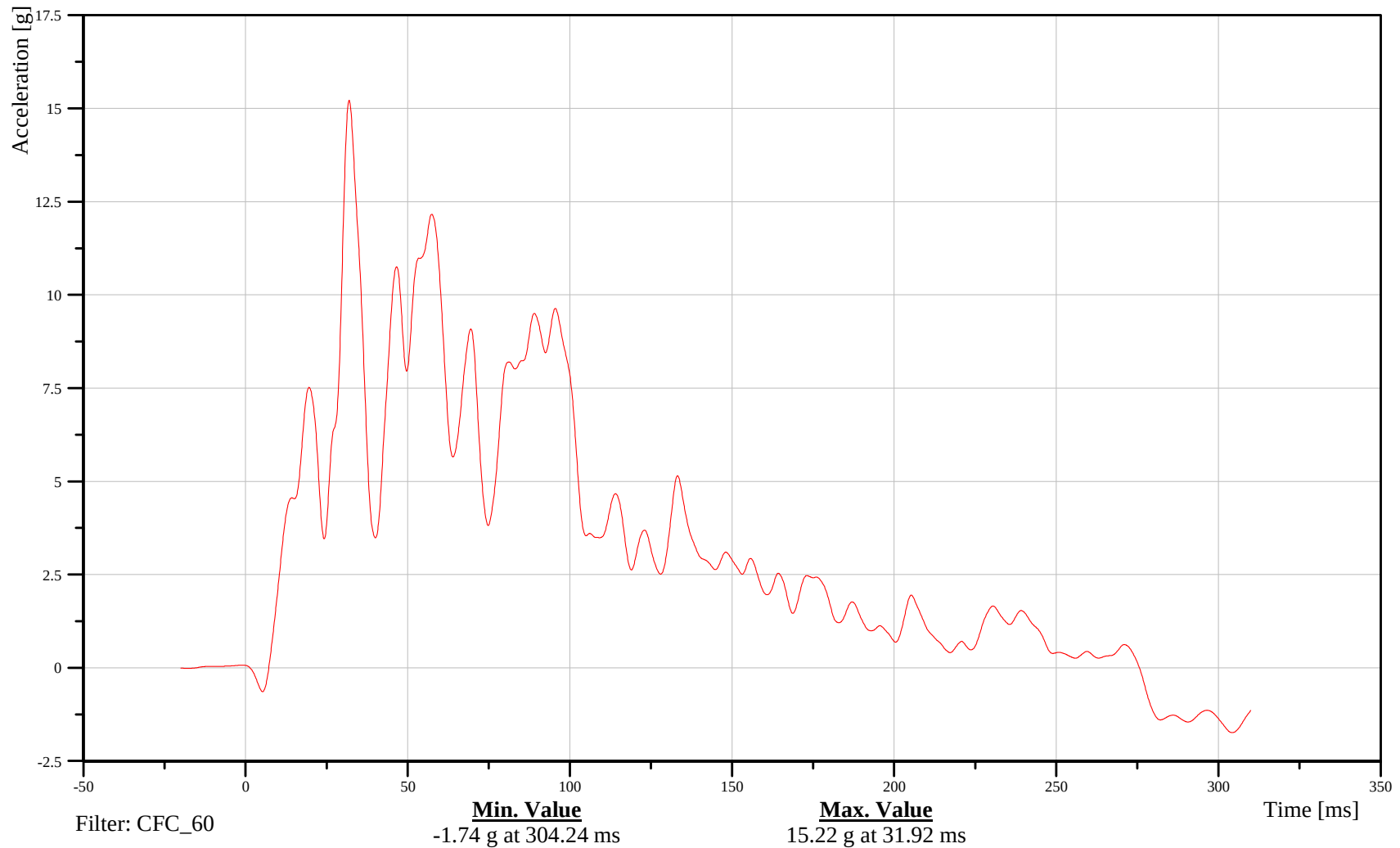
Right Side Roof Rail Y-Axis Acceleration

Customer: VRTC

13ROOF000000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-94

070709



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

Date: 07/09/2007
Time: 13:52

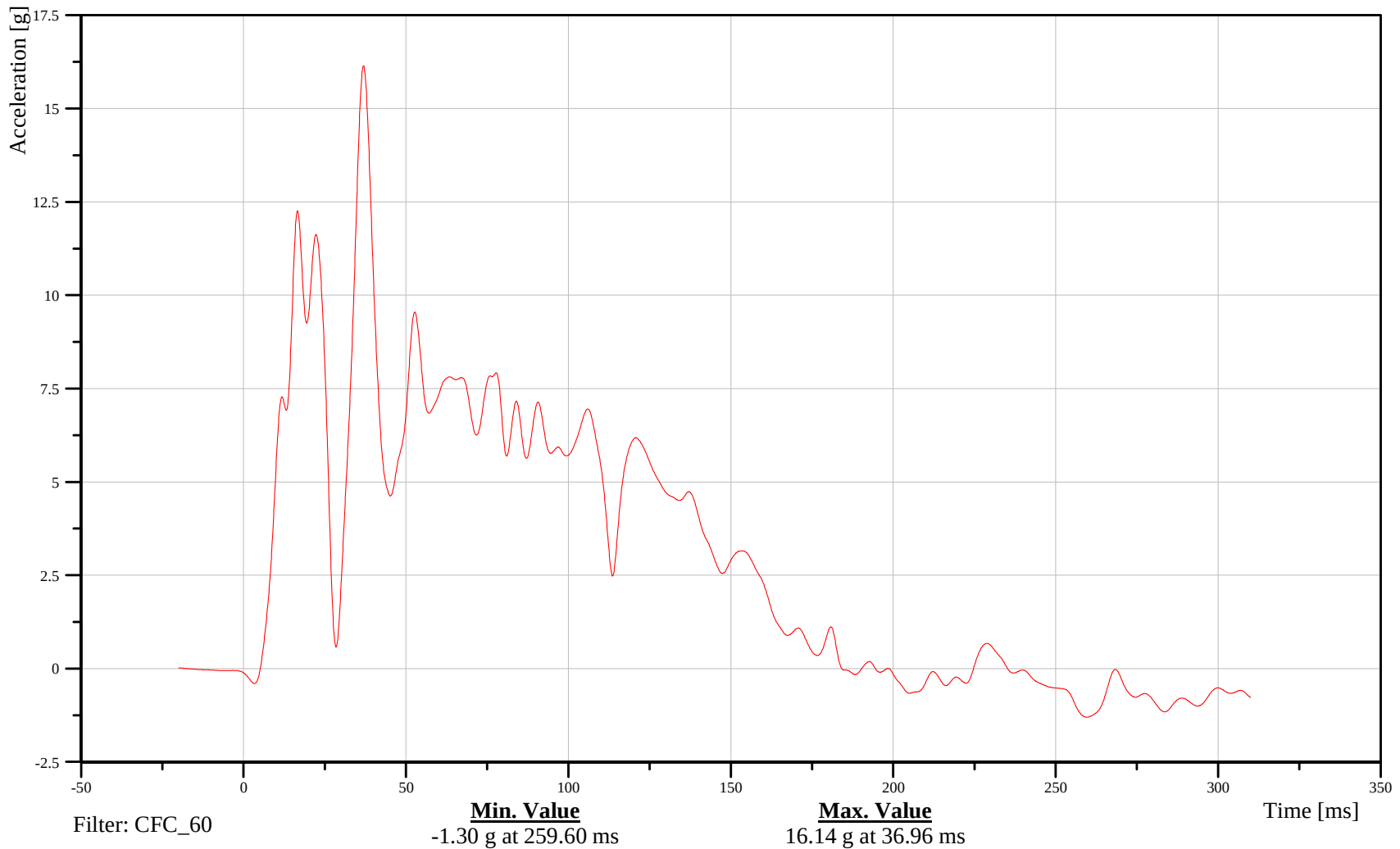
Right Side Sill In-Line With Impact Location Y-Axis Acceleration

Customer: VRTC

13SILBFR0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 070709



B-95

070709



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

Date: 07/09/2007

Rear Deck Behind Rear Axle X-Axis Acceleration

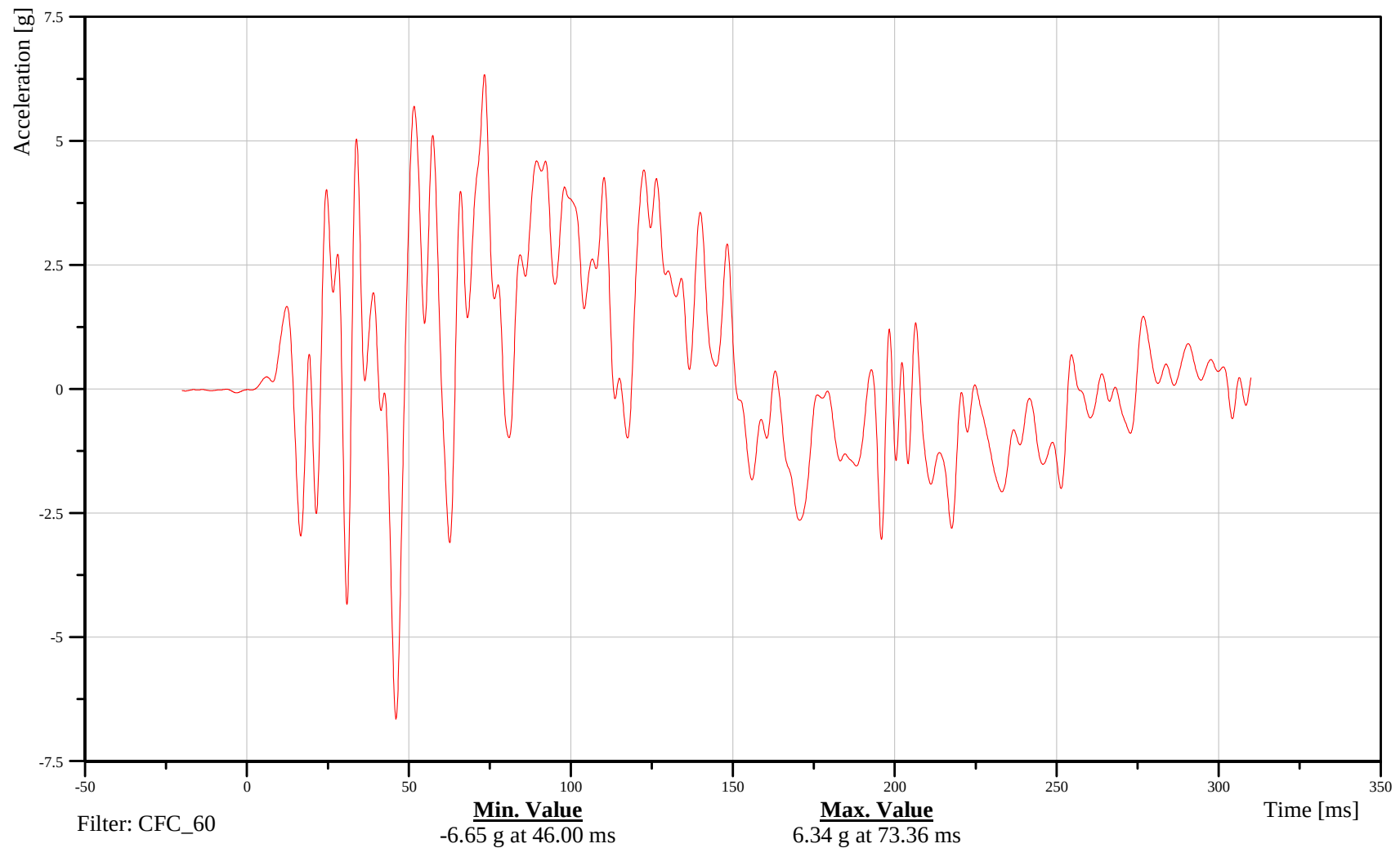
Time: 13:52

Customer: VRTC

18DECK000000ACXA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-96

070709



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

Date: 07/09/2007
Time: 13:52

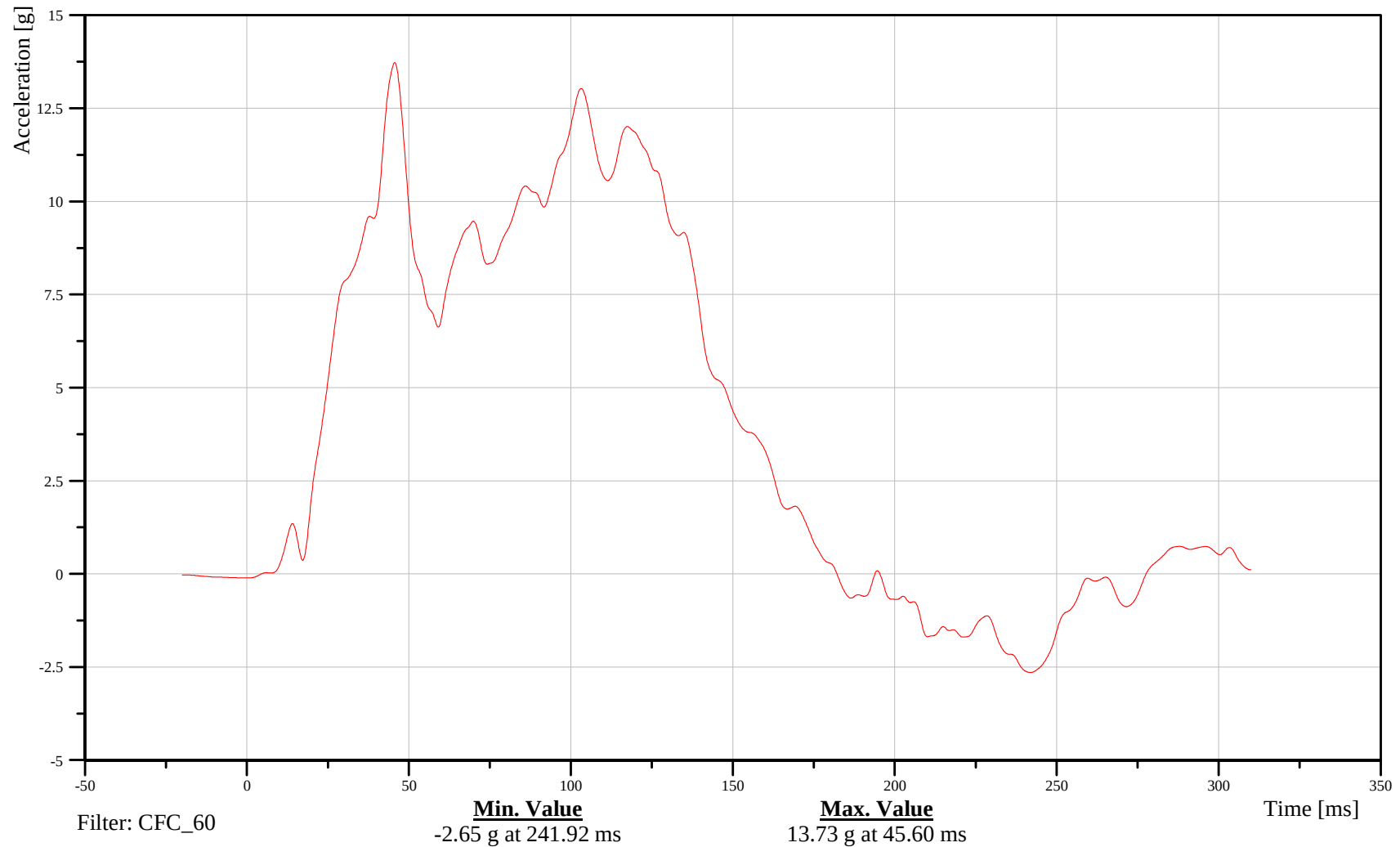
Rear Deck Behind Rear Axle Y-Axis Acceleration

Customer: VRTC

18DECK000000ACYA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-97

070709



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

Date: 07/09/2007
Time: 13:52

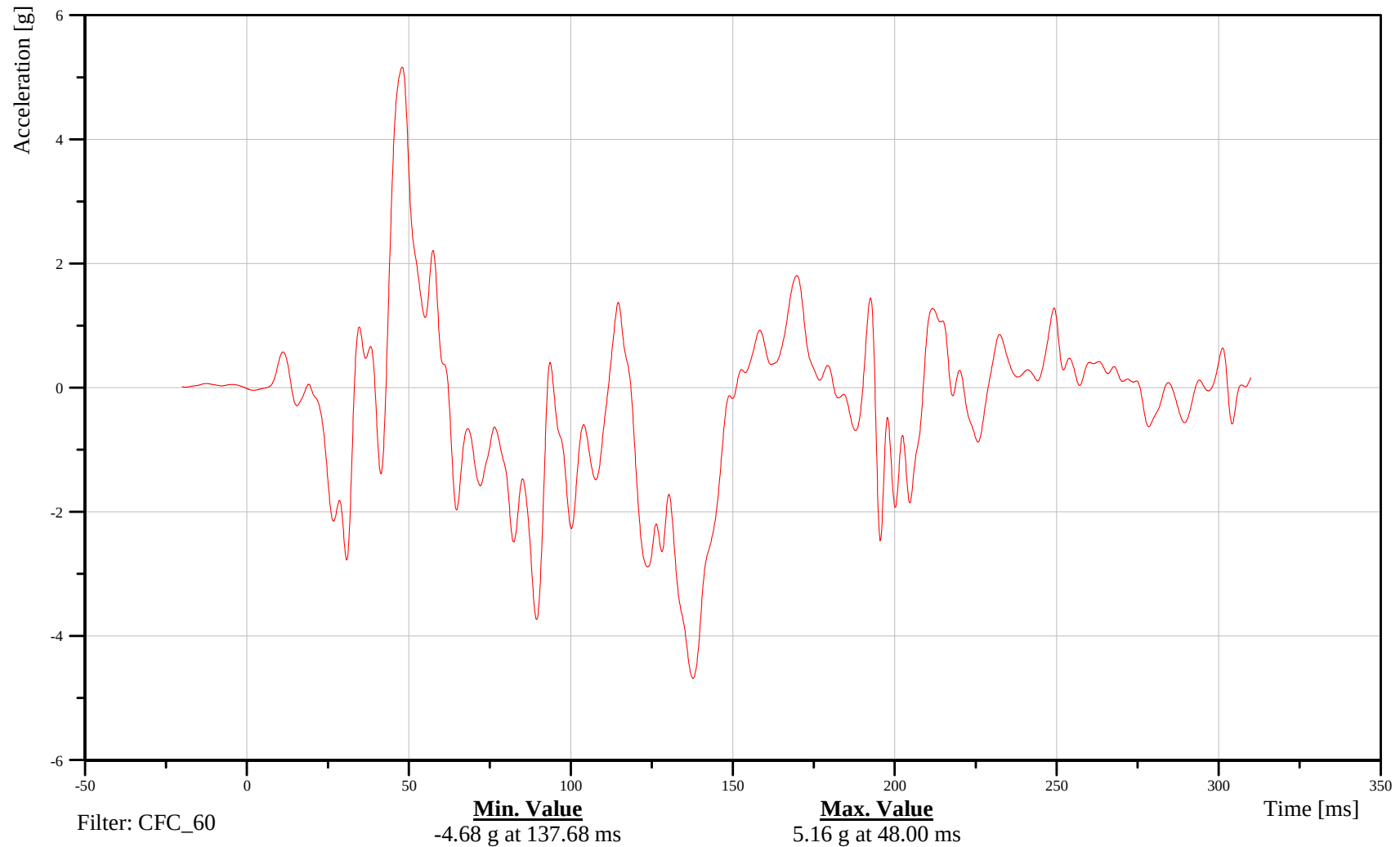
Rear Deck Behind Rear Axle Z-Axis Acceleration

Customer: VRTC

18DECK000000ACZA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-98

070709



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

Date: 07/09/2007

Time: 13:52

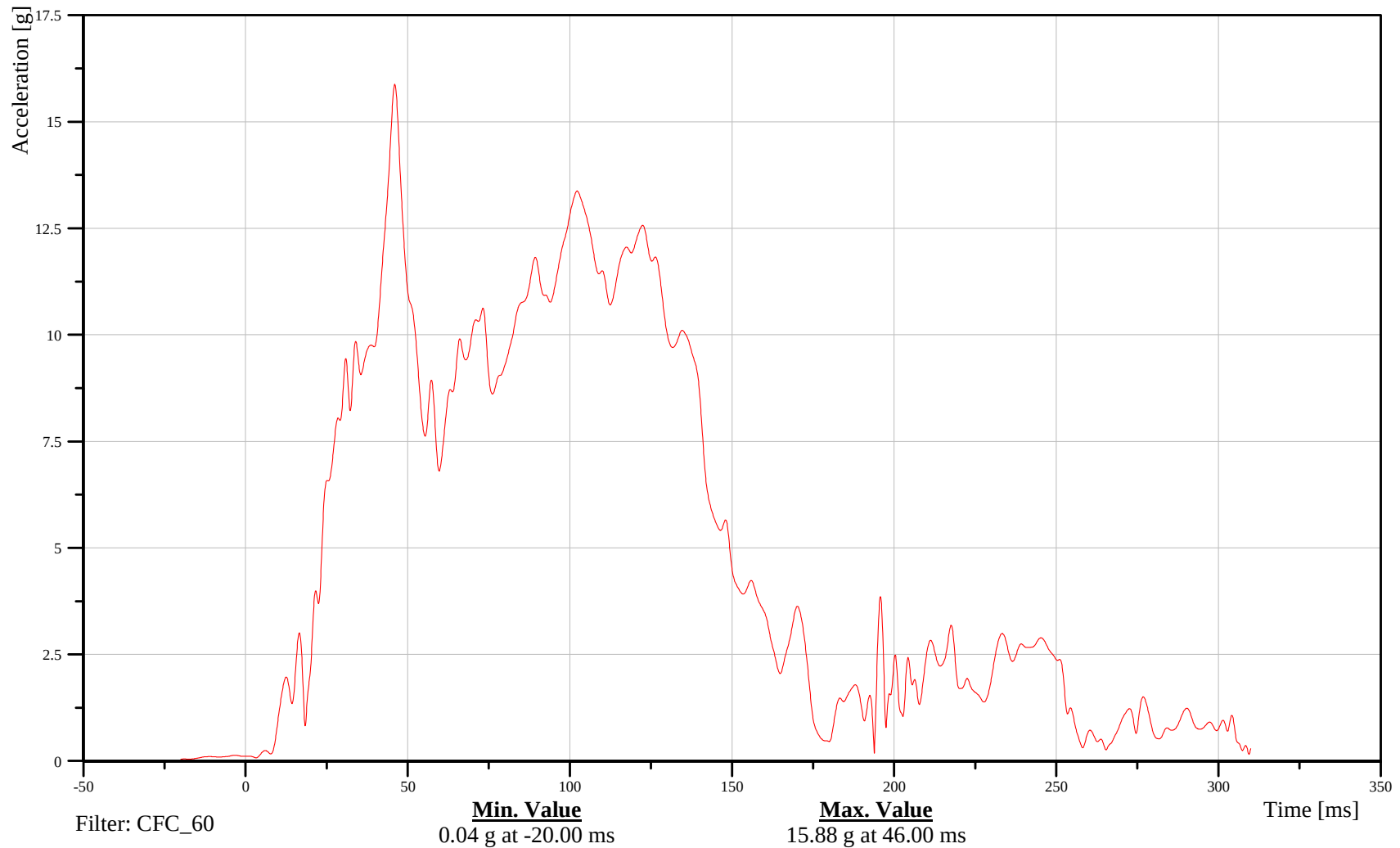
Rear Deck Behind Rear Axle Resultant Acceleration

Customer: VRTC

18DECK000000ACRA

TRC Inc. Test Lab: CTF

Test Number: 070709



B-99

070709



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

Date: 07/09/2007
Time: 13:52

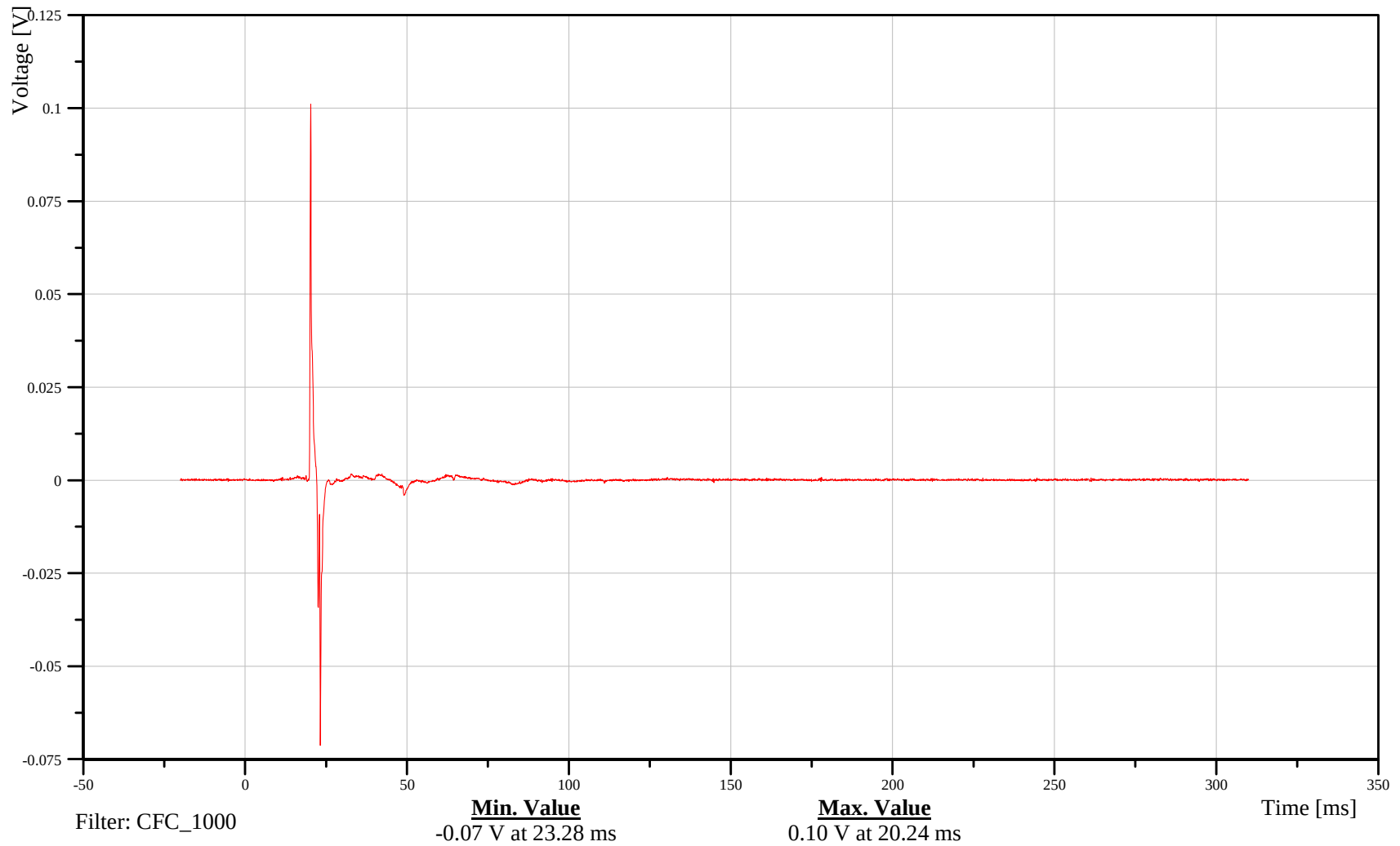
Driver Side Airbag Inductive

Customer: VRTC

11AIRBMILE00EV0A

TRC Inc. Test Lab: CTF

Test Number: 070709



B-100

070709



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

Date: 07/09/2007
Time: 13:52

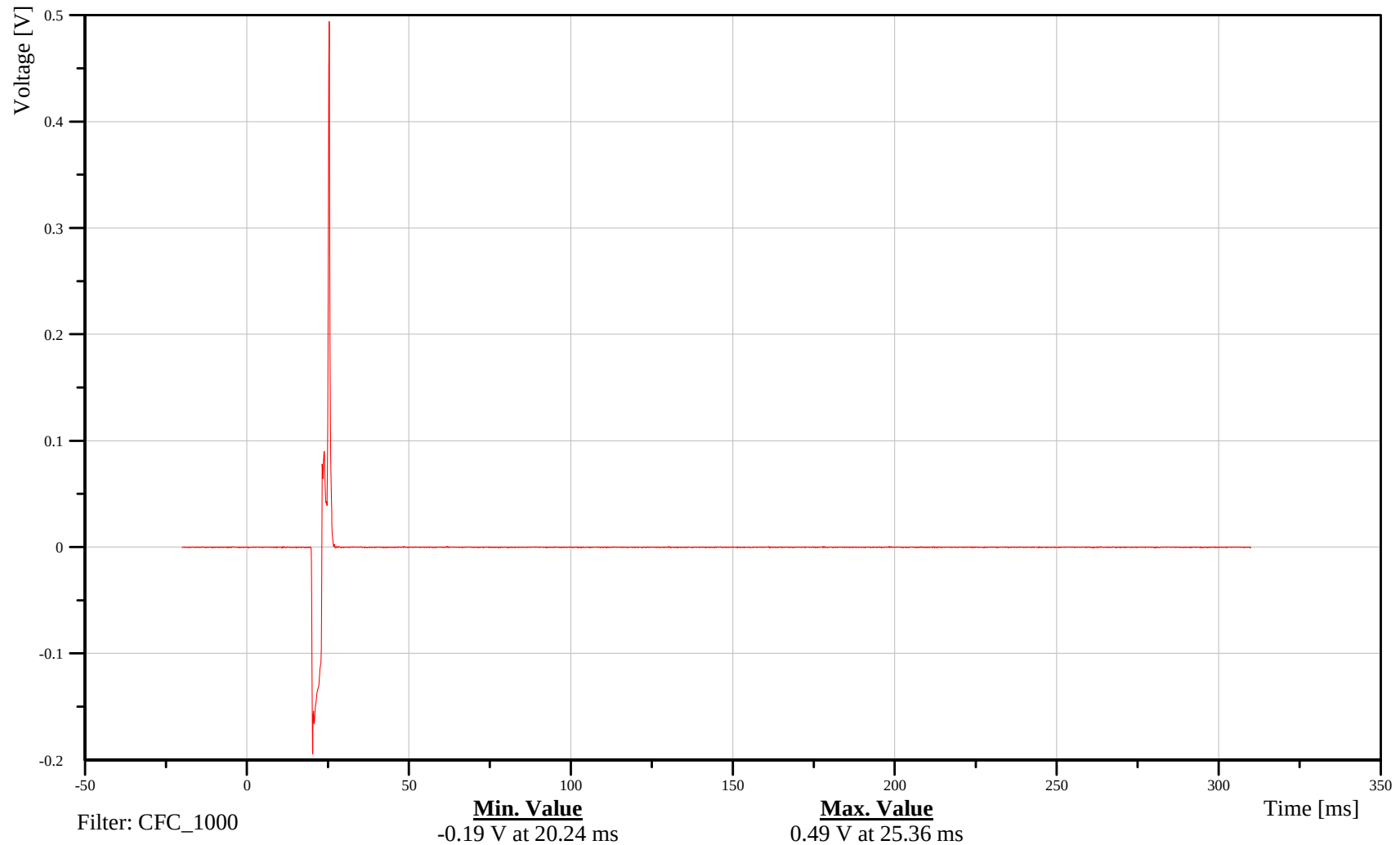
Driver Side Curtain Inductive

Customer: VRTC

11AIRBTPL E00EV0A

TRC Inc. Test Lab: CTF

Test Number: 070709



B-101

070709



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

Date: 07/09/2007
Time: 13:52

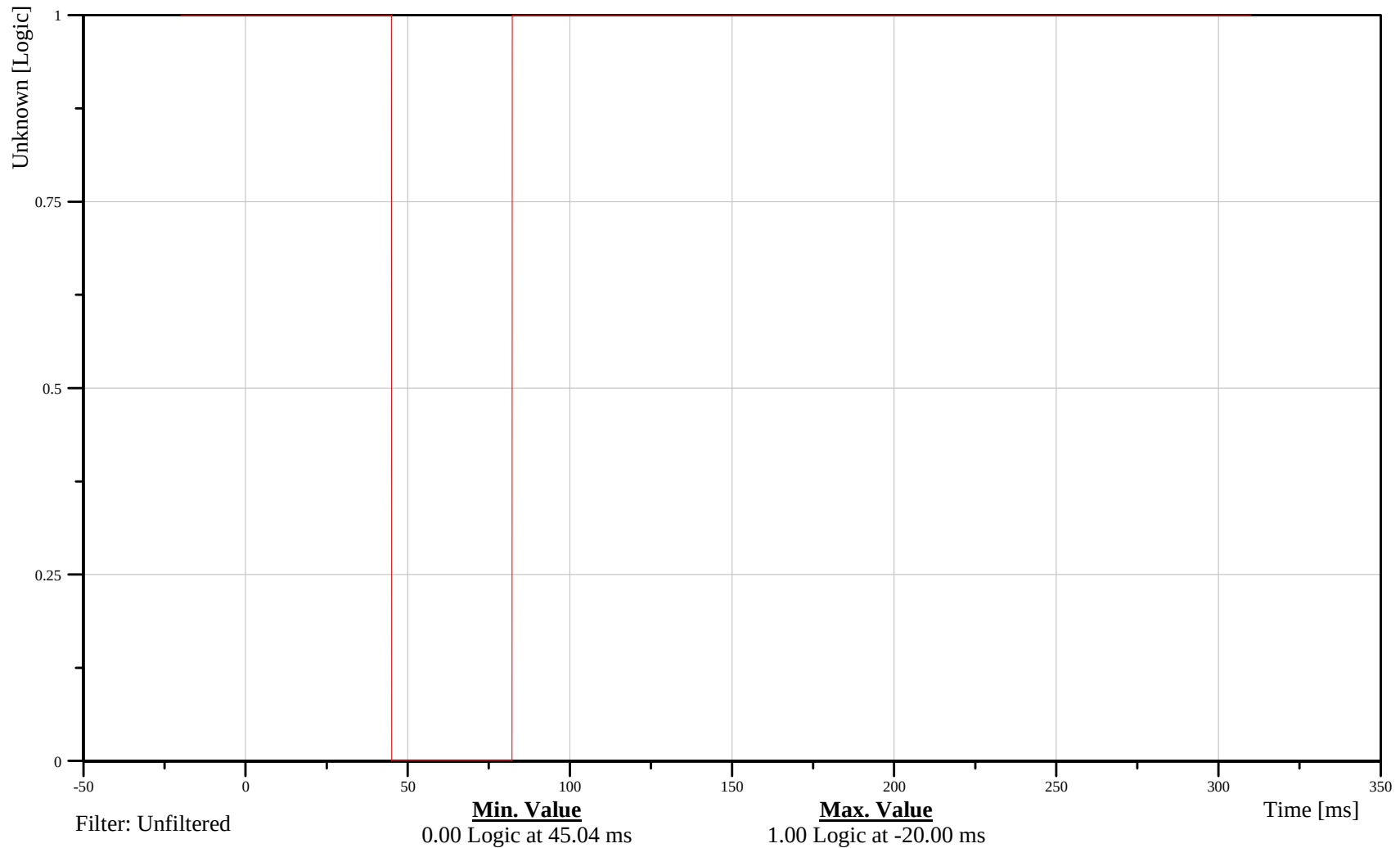
Head contact switch

Customer: VRTC

11CONT000001VO00

TRC Inc. Test Lab: CTF

Test Number: 070709



B-102

070709



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

Date: 07/09/2007
Time: 13:52

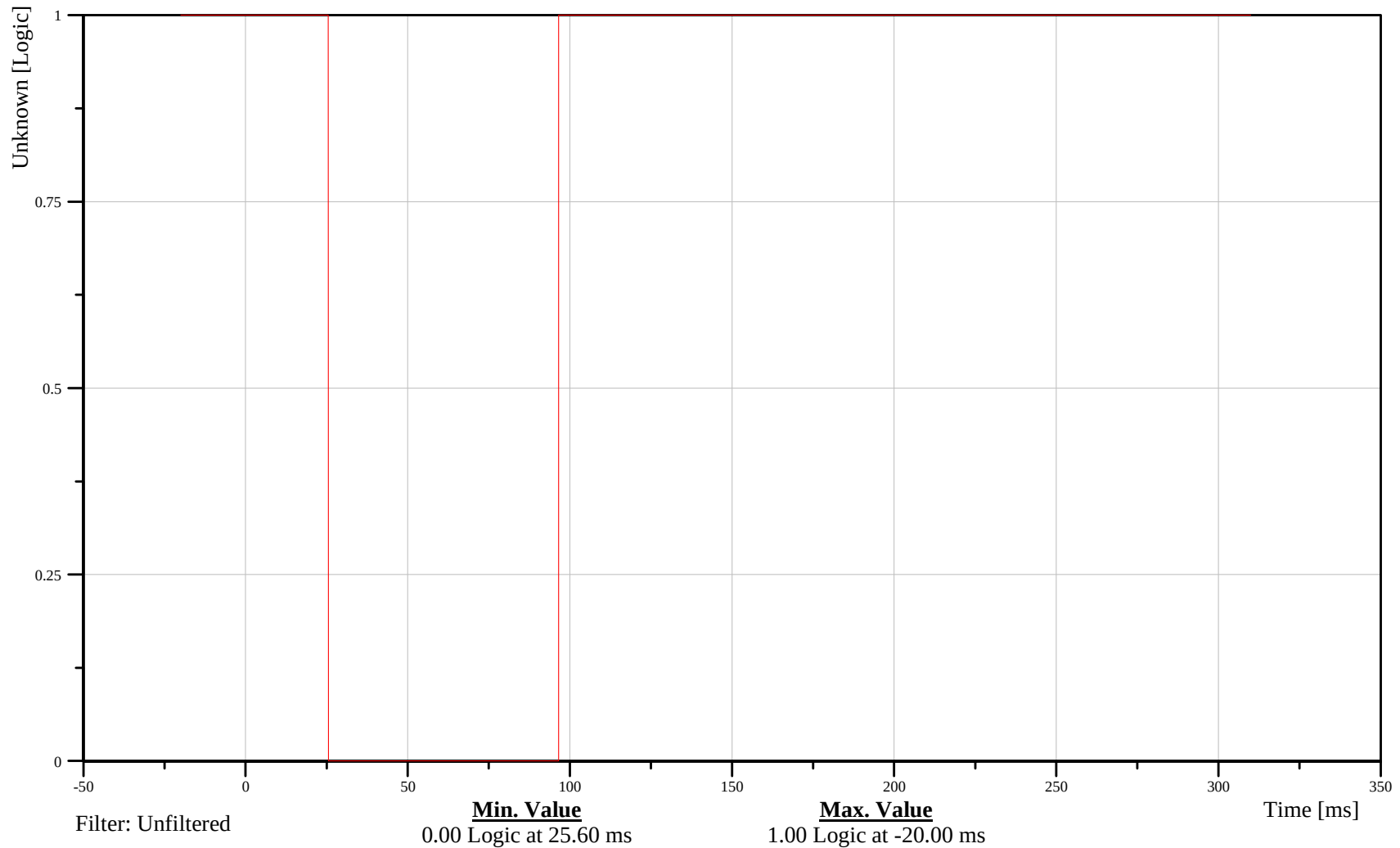
Shoulder Contact Switch

Customer: VRTC

11CONT000002VO00

TRC Inc. Test Lab: CTF

Test Number: 070709



B-103

070709



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

Date: 07/09/2007
Time: 13:52

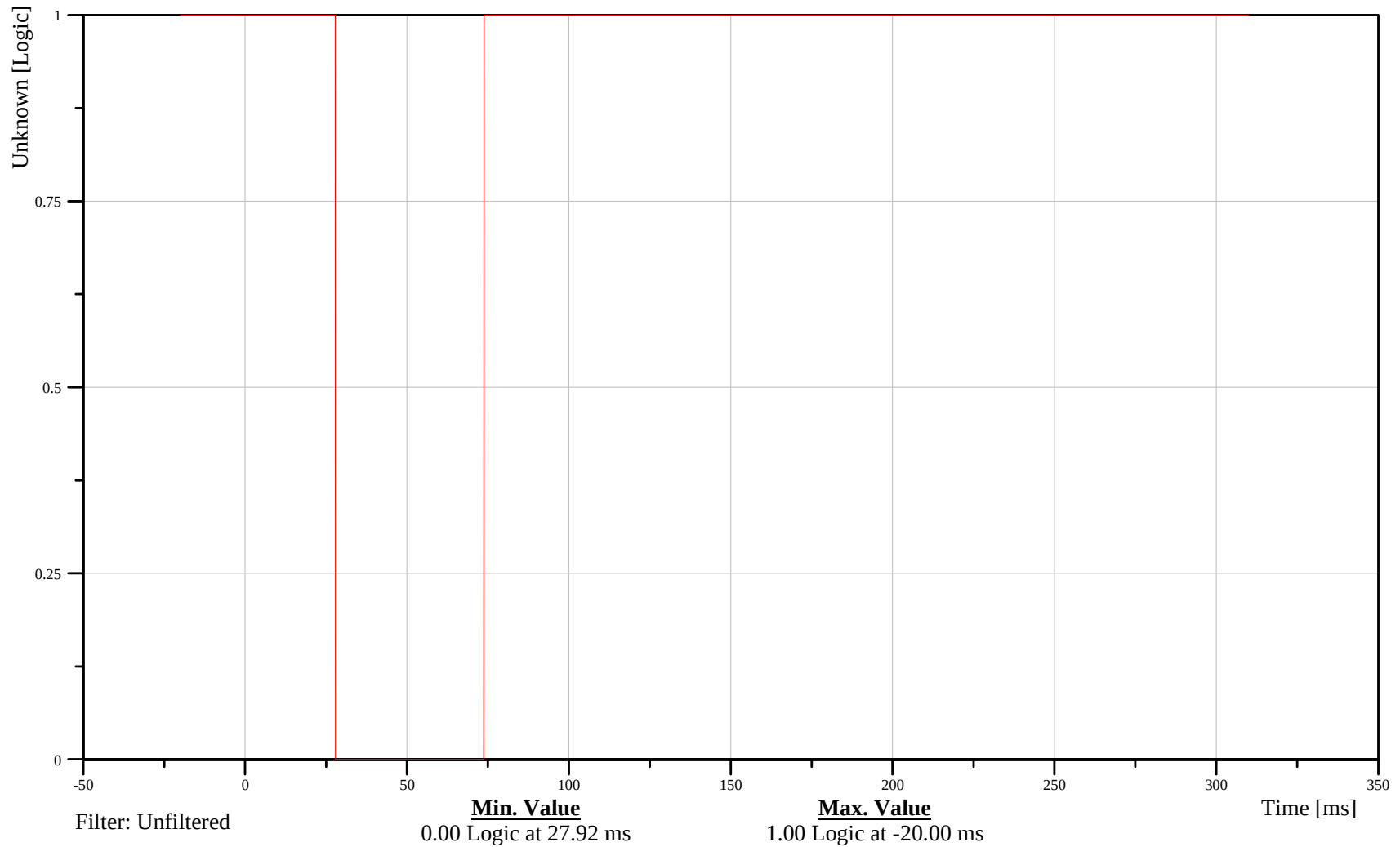
Torso Contact Switch

Customer: VRTC

11CONT000003VO00

TRC Inc. Test Lab: CTF

Test Number: 070709



B-104

070709



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

Date: 07/09/2007
Time: 13:52

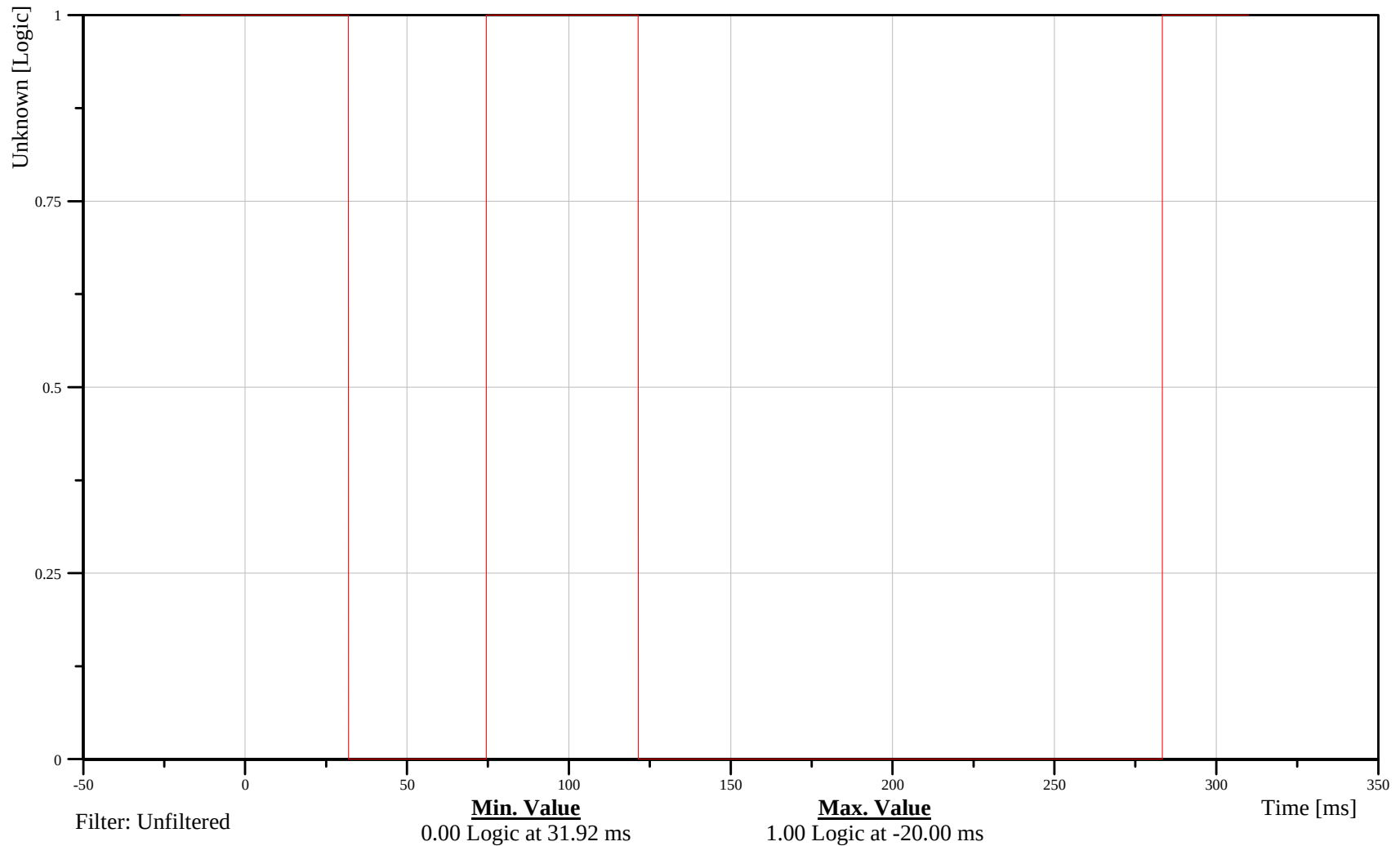
Leg Contact Switch

Customer: VRTC

11CONT000004VO00

TRC Inc. Test Lab: CTF

Test Number: 070709



B-105

070709

Appendix C

SID-IIs Configuration and Performance Verification Data

Calibration Test Results

Pre-Test

SID-IIs: 056

Configured for Left Side Impact

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 056 Calibration N0._05_
Date: _06/14/07__

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	783	Yes
B	Shoulder Pivot Height	437.0 - 453.0	444	Yes
C	H-Point Height	79.0 - 89.0	88	Yes
D	H-Point from Backline	141.0 - 151.0	143	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	105	Yes
F	Thigh Clearance	119.0 - 135.0	125	Yes
G	Head Breadth	140.0 - 148.0	142	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	183	Yes
J	Head Circumference	541.0 - 551.0	542	Yes
K	Buttock to Knee Length	514.0 - 540.0	532	Yes
L	Popliteal Height	343.0 - 369.0	348	Yes
M	Knee to Floor Height	393.0 - 409.0	397	Yes
N	Buttock Popliteal Length	416.0 - 442.0	430	Yes
O	Chest Depth without Jacket	195.0 - 211.0	204	Yes
P	Foot Length	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	318	Yes
R	Arm Length	249.0 - 259.0	250	Yes
S	Knee Joint to Seat Back	478.0 - 493.0	487	Yes
V	Shoulder Width	341.0 - 357.0	350	Yes
W	Foot Width	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	872	Yes
Z	Waist Circumference	761.0 - 791.0	769	Yes

Dummy meets all specifications.

Technician

Charles W. Bell

Approved

Ron Stokes



Revised 9/29/2005

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs SBLD Serial No. 056 Certification No. 5-1

Test Date: 6/12/2007

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	51 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	123.1 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	2.5 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician

Charles W. Bell

Approved

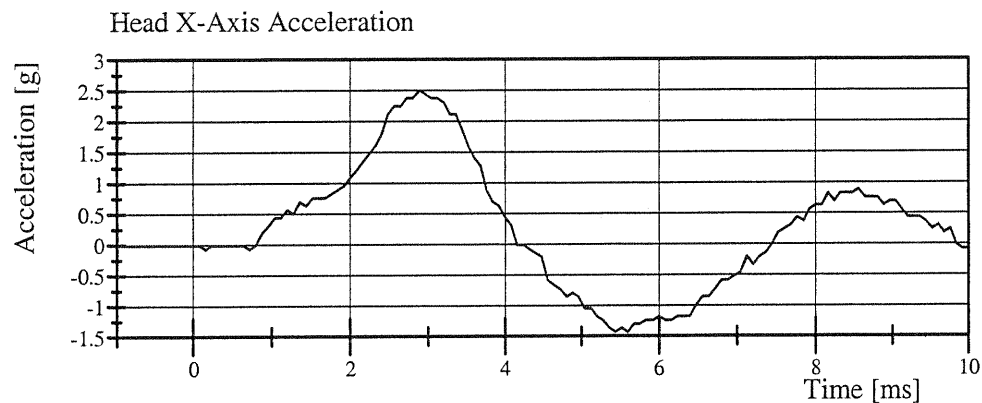
Ron Stoner

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs SBLD Serial No. 056 Certification No. 5-1

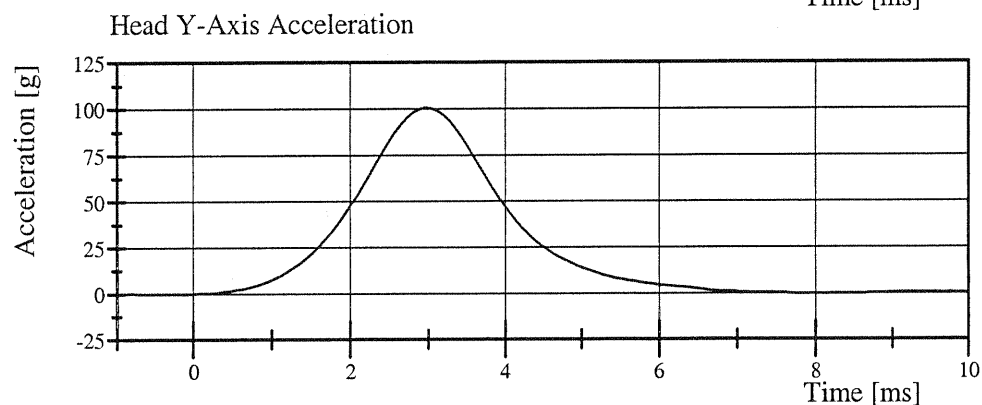
Test Date: 6/12/2007



Filter Class: CFC_1000

Max: 2.5 g at 2.9 ms

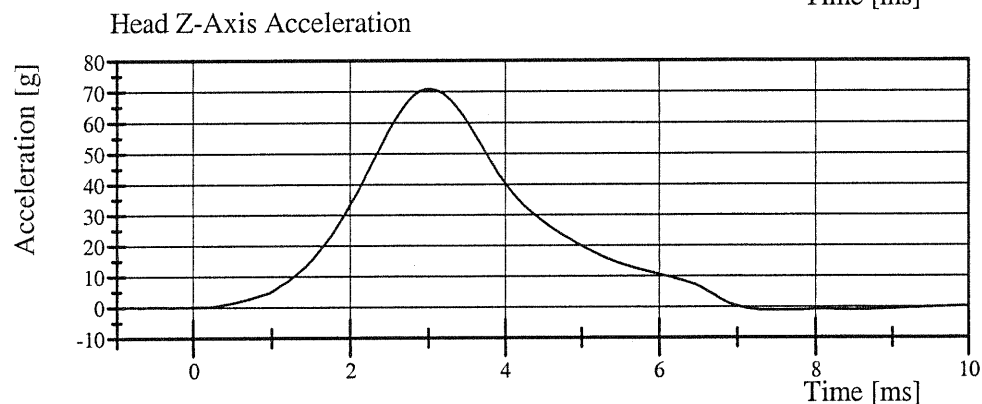
Min: -1.4 g at 5.4 ms



Filter Class: CFC_1000

Max: 100.6 g at 3.0 ms

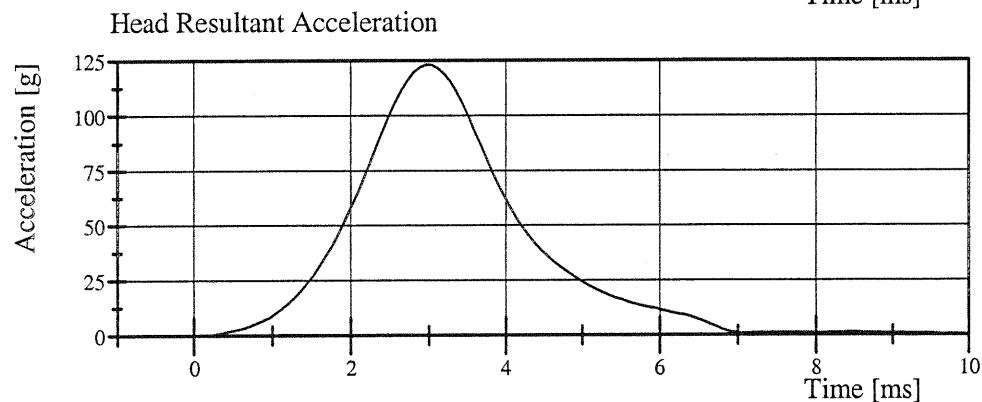
Min: -0.3 g at 8.2 ms



Filter Class: CFC_1000

Max: 70.9 g at 3.0 ms

Min: -1.1 g at 7.5 ms



Filter Class: CFC_1000

Max: 123.1 g at 3.0 ms

Min: 0.0 g at -0.9 ms

Transportation Research Center Inc.

Left Lateral Neck

SID IIs SBLD Serial No. 056 Certification No. 5-1

Test Date: 6/13/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.592 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.739 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.886 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	5.193 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.946 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.948 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-74.3 deg	Yes
Time of Peak	50 - 70 ms	57.6 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	42.6 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	102 - 126 ms	103.6 ms	Yes

Test meets specifications.

Comments:

Technician

Charles W. Hall

Approved

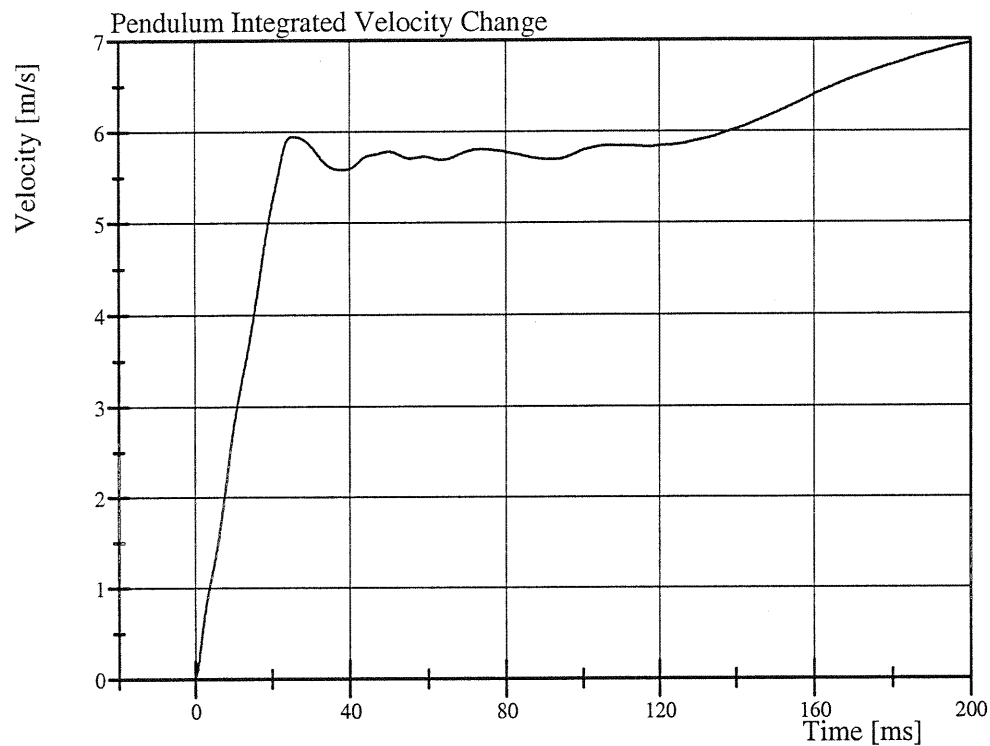
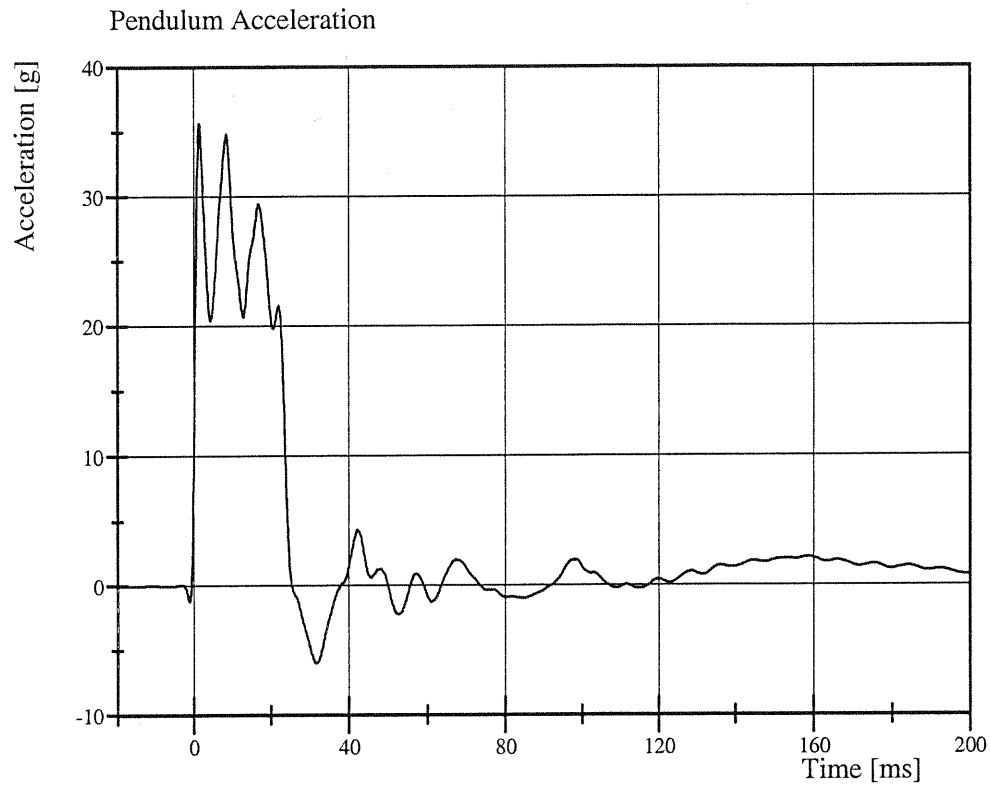
Ron Storer

Transportation Research Center Inc.

Left Lateral Neck

SID IIs SBLD Serial No. 056 Certification No. 5-1

Test Date: 6/13/2007



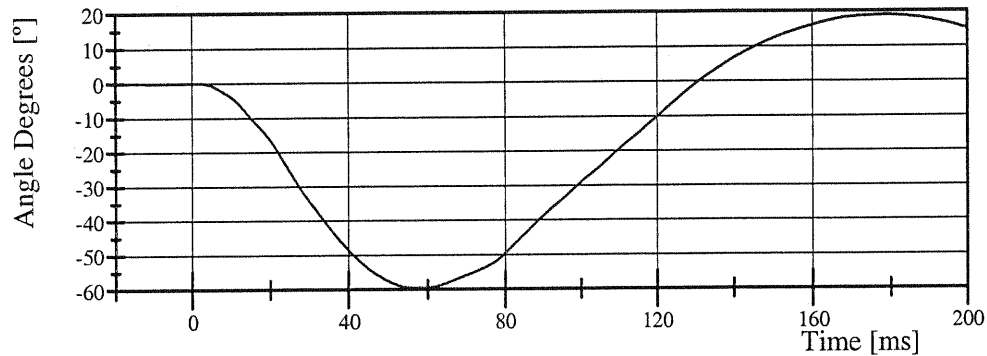
Transportation Research Center Inc.

Left Lateral Neck

SID IIs SBLD Serial No. 056 Certification No. 5-1

Test Date: 6/13/2007

Forward Pot Rotation at Base of Pendulum

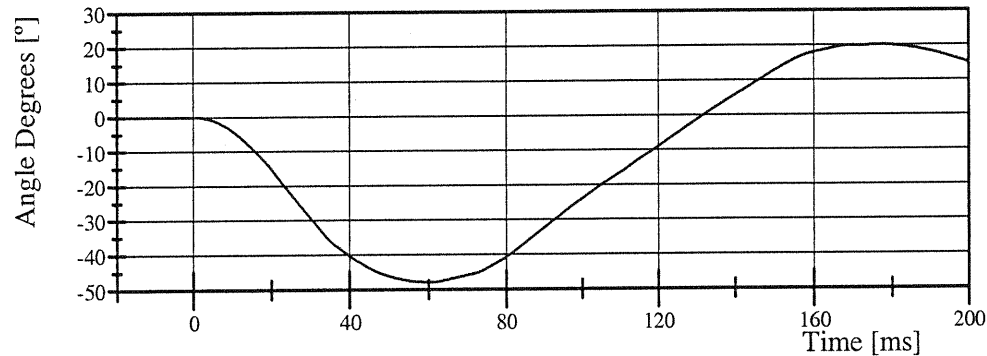


Filter Class: CFC_60

Max: 18.9 ° at 179.0 ms

Min: -59.7 ° at 57.8 ms

Rear Pot Rotation at Base of Pendulum

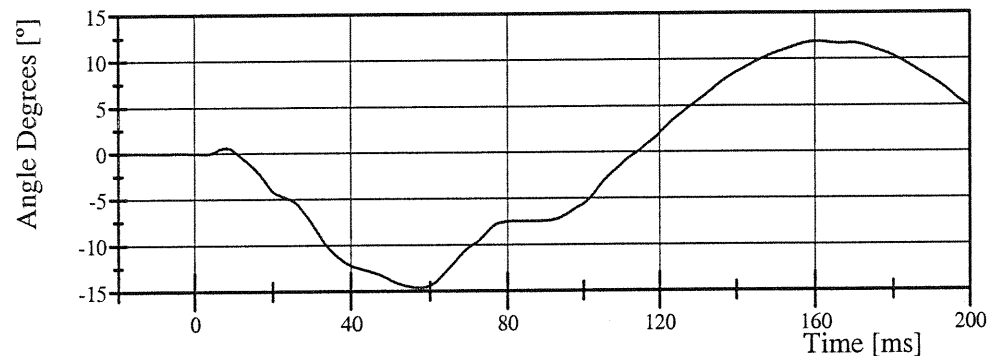


Filter Class: CFC_60

Max: 20.1 ° at 177.7 ms

Min: -47.9 ° at 60.6 ms

Center Headform Pot Rotation at Center of Gravity

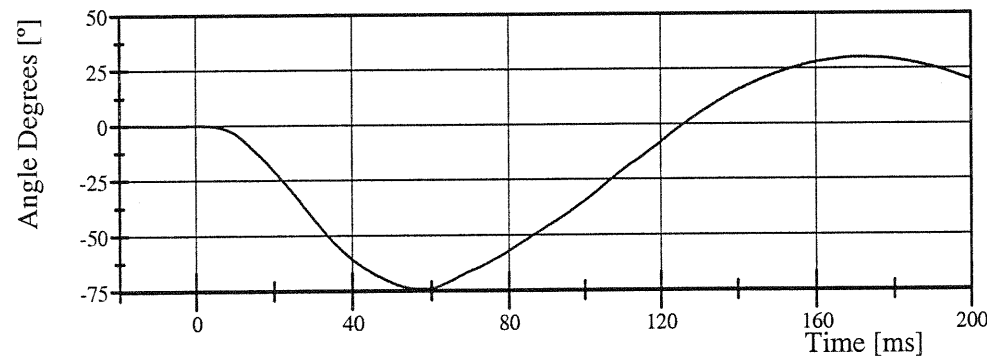


Filter Class: CFC_60

Max: 11.9 ° at 160.6 ms

Min: -14.6 ° at 57.4 ms

Total Headform Flexion



Filter Class: CFC_60

Max: 30.2 ° at 170.9 ms

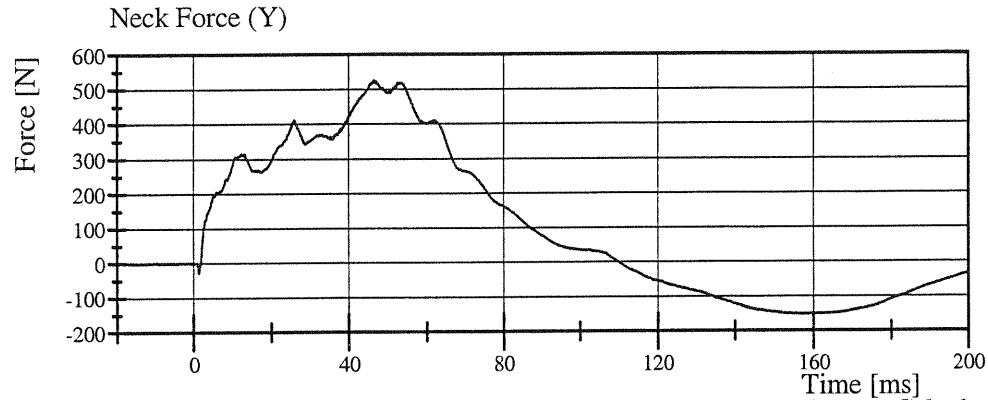
Min: -74.3 ° at 57.6 ms

Transportation Research Center Inc.

Left Lateral Neck

SID IIs SBLD Serial No. 056 Certification No. 5-1

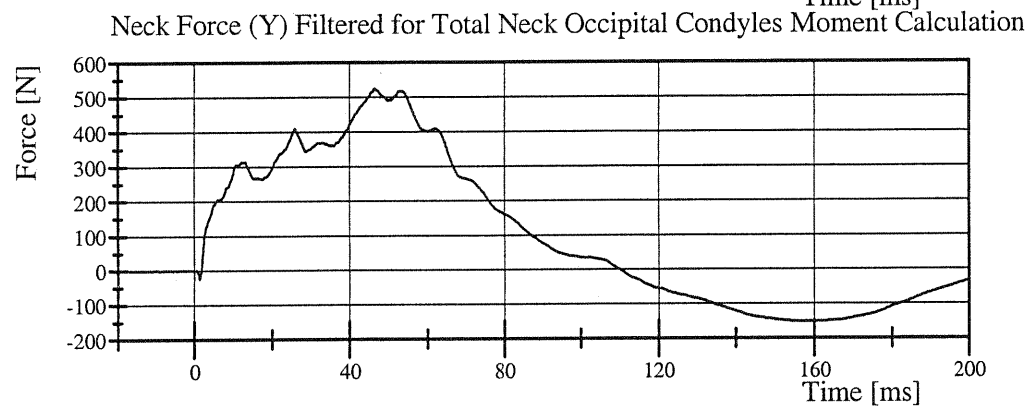
Test Date: 6/13/2007



Filter Class: CFC_1000

Max: 524.5 N at 46.3 ms

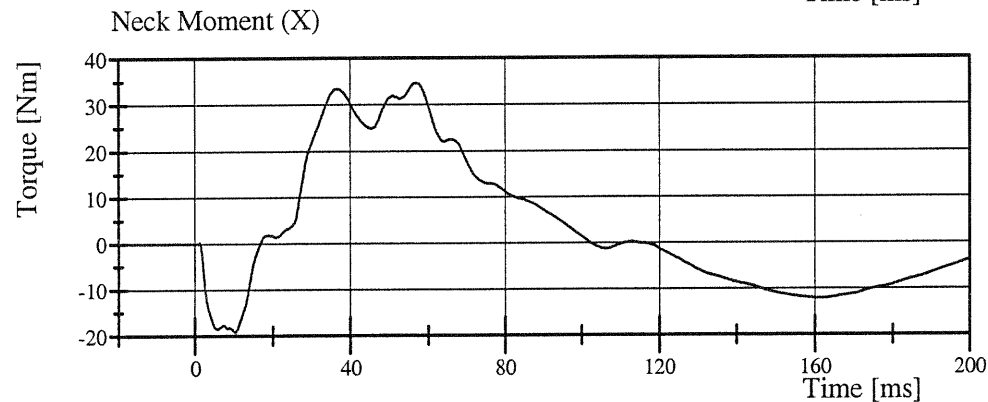
Min: -152.0 N at 157.0 ms



Filter Class: CFC_600

Max: 523.9 N at 46.4 ms

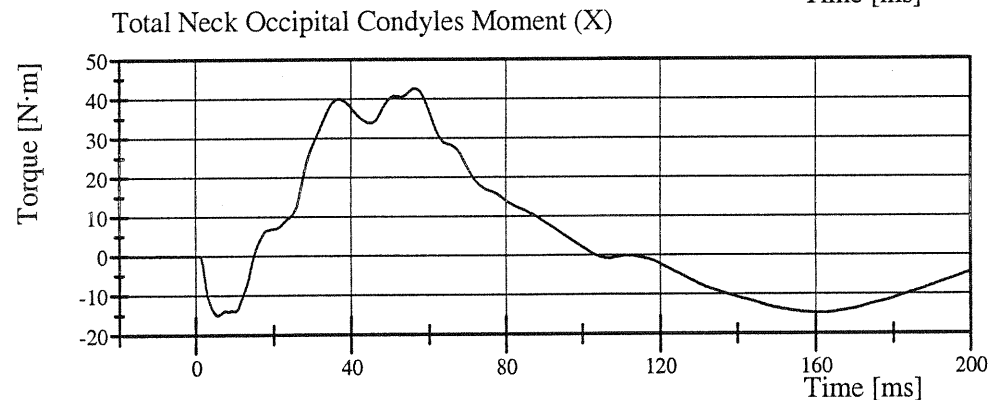
Min: -151.6 N at 158.6 ms



Filter Class: CFC_600

Max: 34.7 Nm at 57.0 ms

Min: -19.2 Nm at 10.5 ms



Filter Class: CFC_600

Max: 42.6 N·m at 56.2 ms

Min: -14.9 N·m at 5.7 ms

Transportation Research Center Inc.

Left Lateral Thorax with Arm

SID IIs SBLD Serial No. 056 Certification No. 5-1

Test Date: 6/12/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.623 m/s	Yes
Impactor Acceleration	(-31) - (-36) g	-31.2 g	Yes
Shoulder Displacement	31 - 40 mm	36.5 mm	Yes
Upper Thorax Rib Displacement	26 - 32 mm	29.4 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	34.2 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	36.6 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	34.4 g	Yes
Lower Spine Lateral Acceleration	28 - 35 g	32.7 g	Yes

Test meets specifications.

Comments:

Technician

Charles W. Bell

Approved

Ron Stone

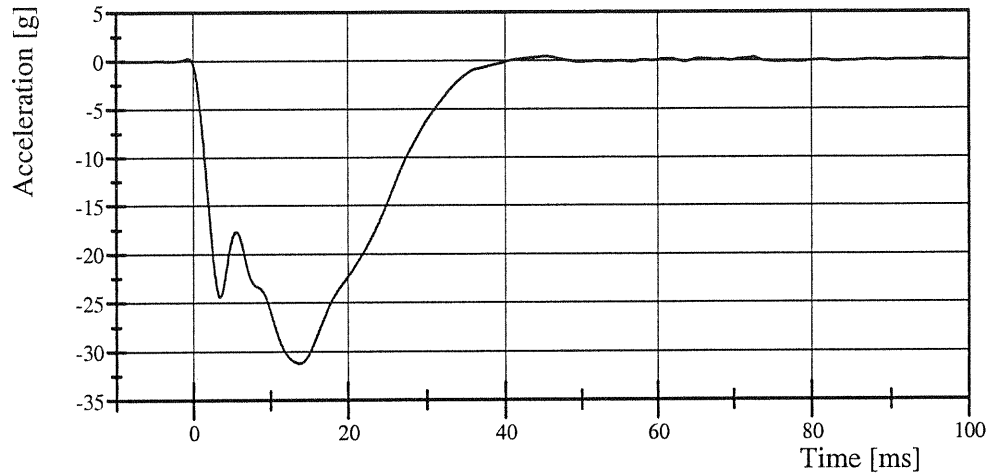
Transportation Research Center Inc.

Left Lateral Thorax with Arm

SID IIs SBLD Serial No. 056 Certification No. 5-1

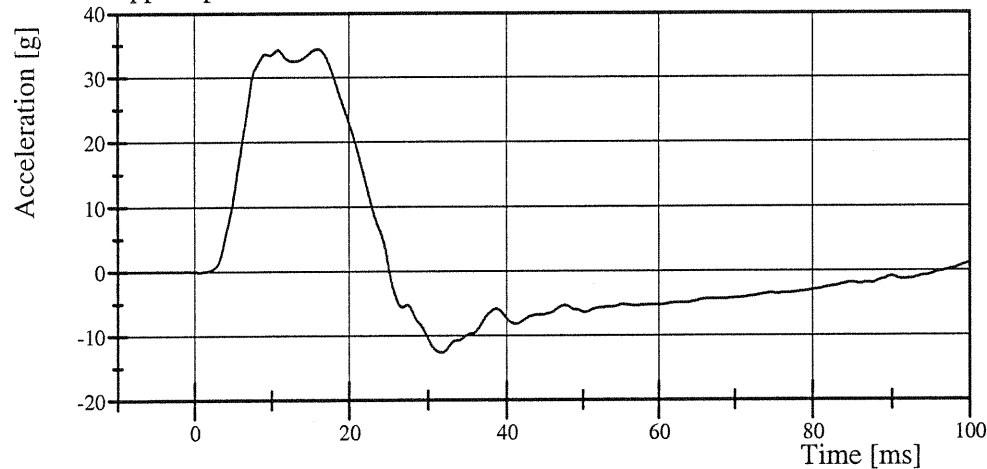
Test Date: 6/12/2007

Probe Acceleration



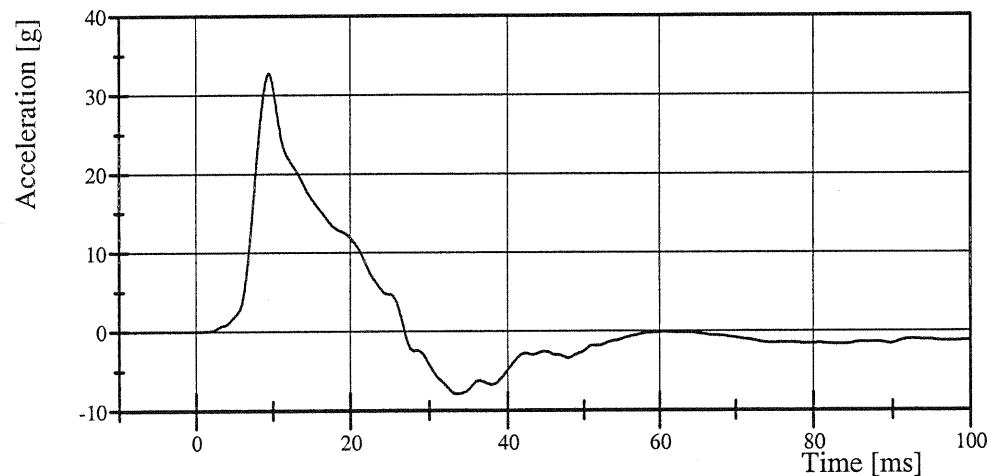
Filter Class: CFC_180
Max: 0.5 g at 45.4 ms
Min: -31.2 g at 13.8 ms

Upper Spine Acceleration



Filter Class: CFC_180
Max: 34.4 g at 15.9 ms
Min: -12.6 g at 31.7 ms

Lower Spine Acceleration



Filter Class: CFC_180
Max: 32.7 g at 9.5 ms
Min: -7.9 g at 33.5 ms

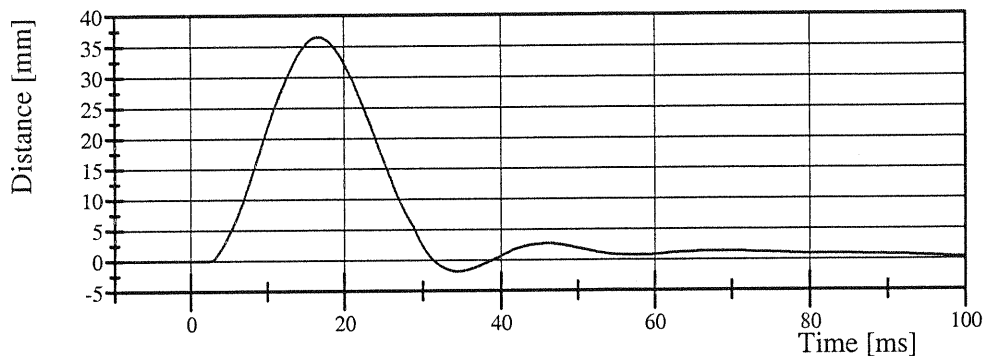
Transportation Research Center Inc.

Left Lateral Thorax with Arm

SID II's SBLD Serial No. 056 Certification No. 5-1

Test Date: 6/12/2007

Shoulder Rib Displacement

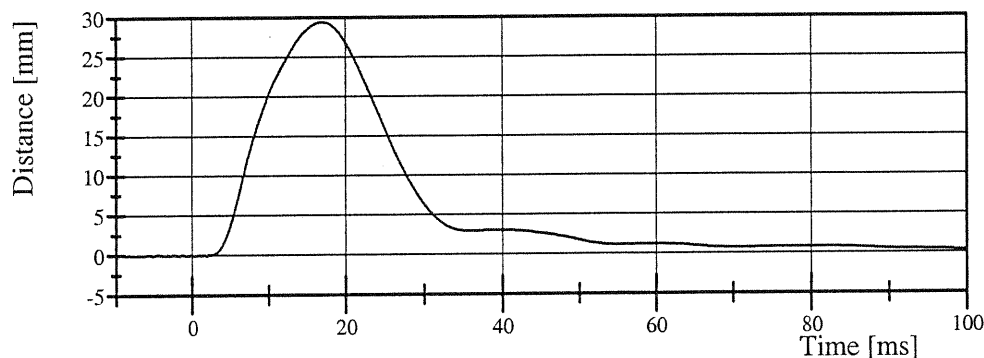


Filter Class: CFC_600

Max: 36.5 mm at 16.7 ms

Min: -1.9 mm at 34.4 ms

Upper Thorax Rib Displacement

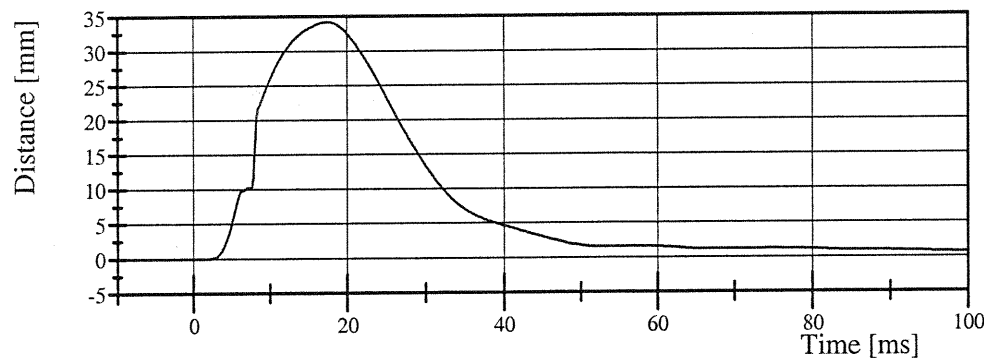


Filter Class: CFC_600

Max: 29.4 mm at 17.0 ms

Min: -0.0 mm at -6.4 ms

Center Thorax Rib Displacement

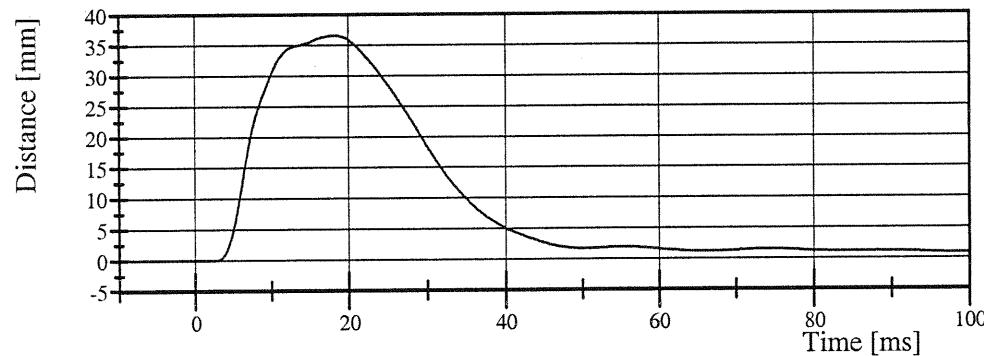


Filter Class: CFC_600

Max: 34.2 mm at 17.5 ms

Min: -0.0 mm at -8.9 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600

Max: 36.6 mm at 18.2 ms

Min: -0.0 mm at 2.6 ms

Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs SBLD Serial No. 056 Certification No. 5-1

Test Date: 6/12/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Impactor Velocity	4.30 - 4.50 m/s	4.482 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.5 g	Yes
Upper Abdominal Rib Displacement	39 - 47 mm	44.2 mm	Yes
Lower Abdominal Rib Displacement	37 - 46 mm	43.2 mm	Yes
Lower Spine Lateral Acceleration	11.0 - 14.0 g	11.60 g	Yes

Test meets specifications.

Comments:

Technician

Charles W. Bell

Approved

Ron Starnes

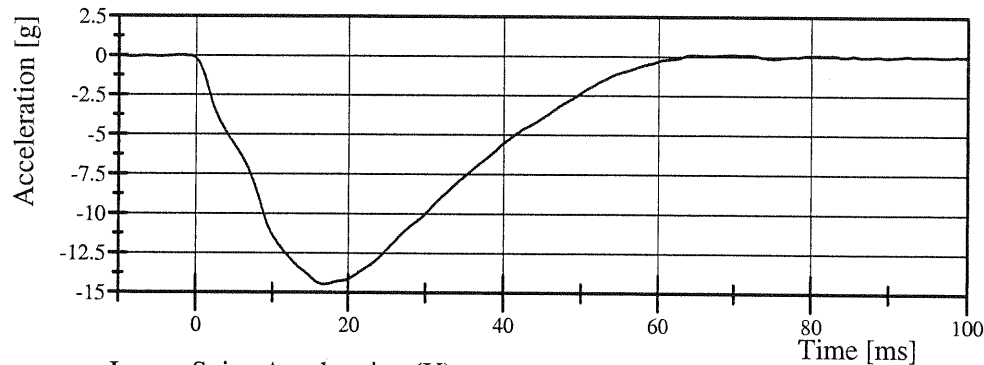
Transportation Research Center Inc.

Left Lateral Abdomen

SID II SBLD Serial No. 056 Certification No. 5-1

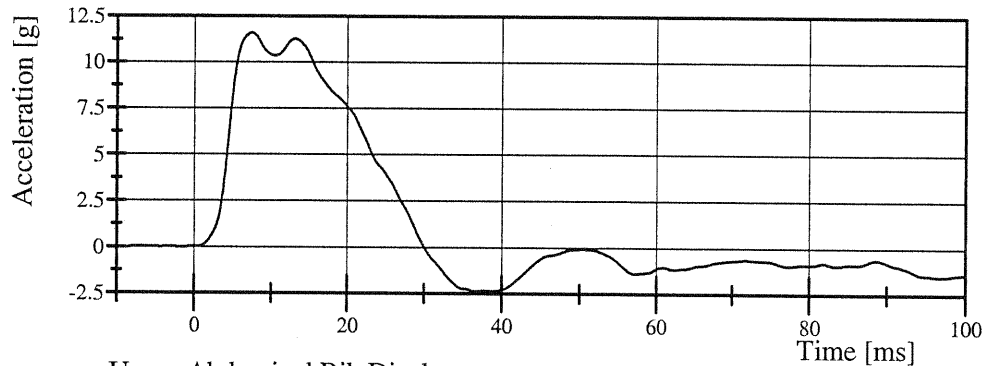
Test Date: 6/12/2007

Probe Acceleration



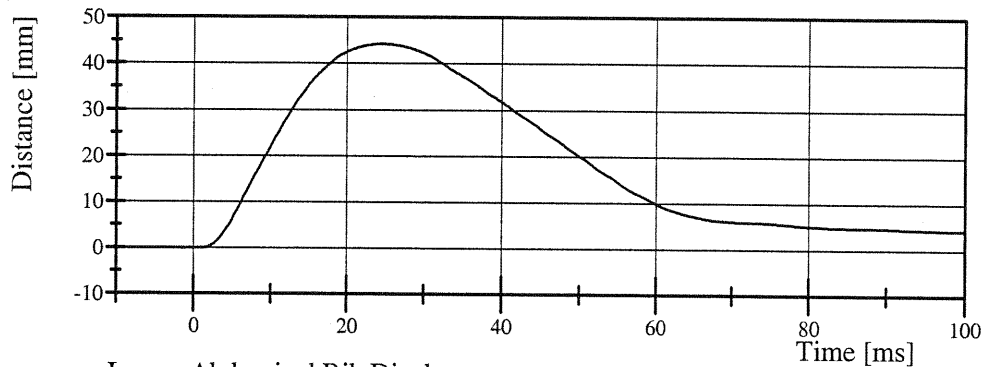
Filter Class: CFC_180
Max: 0.1 g at 70.1 ms
Min: -14.5 g at 16.9 ms

Lower Spine Acceleration (Y)



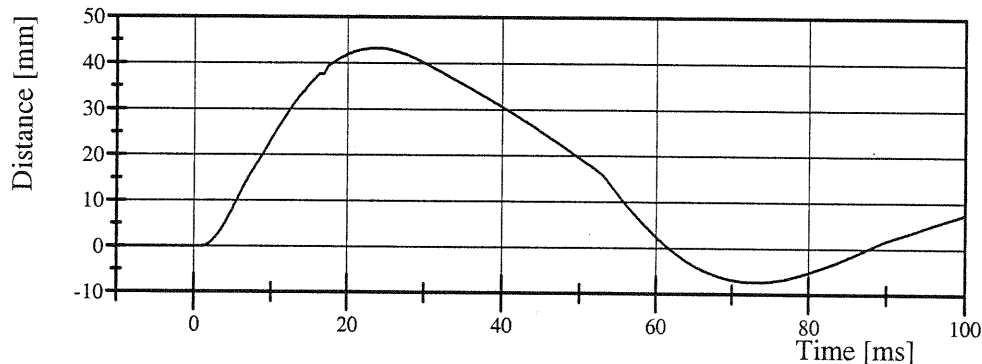
Filter Class: CFC_180
Max: 11.6 g at 7.4 ms
Min: -2.4 g at 36.6 ms

Upper Abdominal Rib Displacement



Filter Class: CFC_600
Max: 44.2 mm at 24.4 ms
Min: -0.0 mm at 1.2 ms

Lower Abdominal Rib Displacement



Filter Class: CFC_600
Max: 43.2 mm at 23.6 ms
Min: -7.3 mm at 73.3 ms

Transportation Research Center Inc.

Left Lateral Iliac

SID IIs SBLD Serial No. 056 Certification No. 5-1

Test Date: 6/11/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	49 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.344 m/s	Yes
Impactor Acceleration	(-34.0) - (-40.0) g	-39.10 g	Yes
Peak Pelvis Lateral Acceleration	27.0 - 33.0 g	30.37 g	Yes
Iliac Force	3,700 - 4,500 N	4,351.3 N	Yes

Test meets specifications.

Comments:

Technician

Charles W. Bell

Approved

Ron Stoner

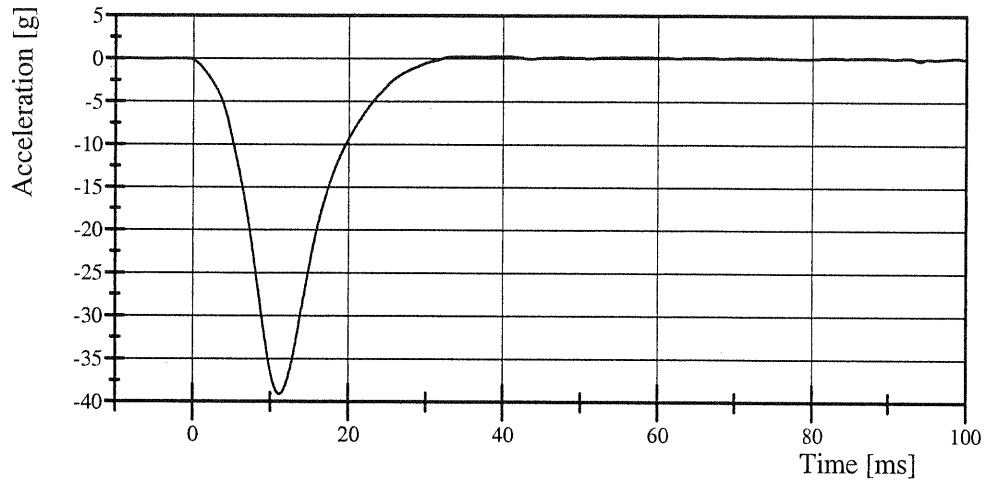
Transportation Research Center Inc.

Left Lateral Iliac

SID IIs SBLD Serial No. 056 Certification No. 5-1

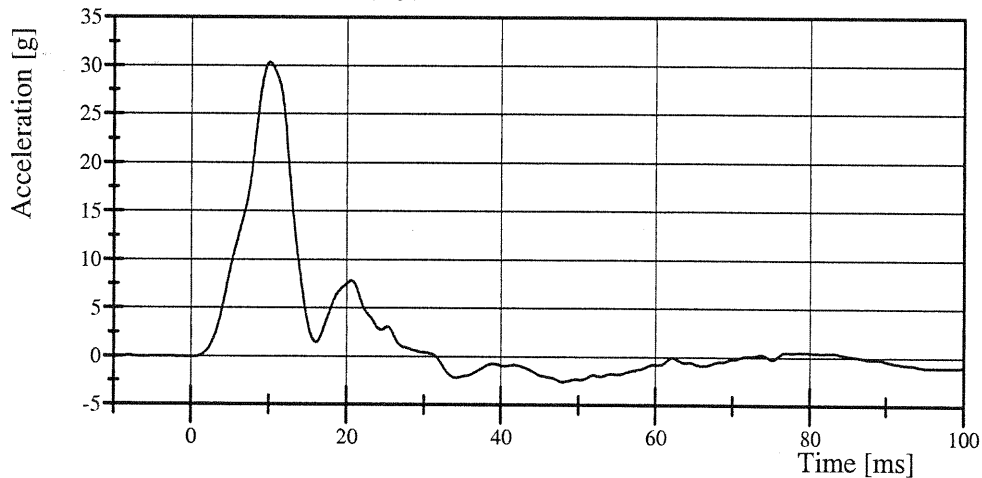
Test Date: 6/11/2007

Probe Acceleration



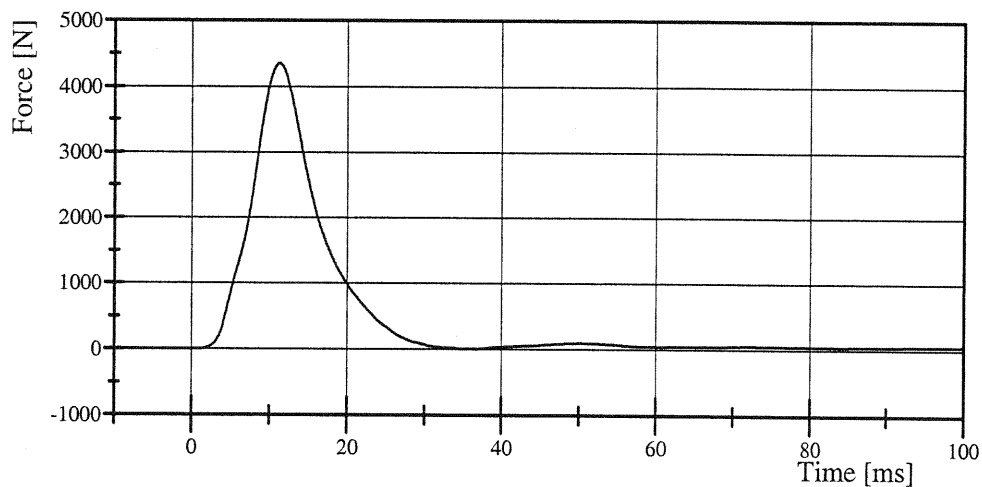
Filter Class: CFC_180
Max: 0.3 g at 39.0 ms
Min: -39.1 g at 11.2 ms

Pelvis Y-Axis Acceleration



Filter Class: CFC_180
Max: 30.4 g at 10.1 ms
Min: -2.6 g at 48.0 ms

Iliac Y-Axis Force



Filter Class: CFC_600
Max: 4,351.3 N at 11.3 ms
Min: -1.0 N at -6.1 ms

Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs SBLD Serial No. 056 Certification No. 5-1

Test Date: 6/12/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.646 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-43.18 g	Yes
Peak Pelvis Lateral Acceleration	41.0 - 50.0 g	41.07 g	Yes
Acetabulum Force	3,800 - 4,600 N	3,952.0 N	Yes

Test meets specifications.

Comments:

Technician

Charles W. Ball

Approved

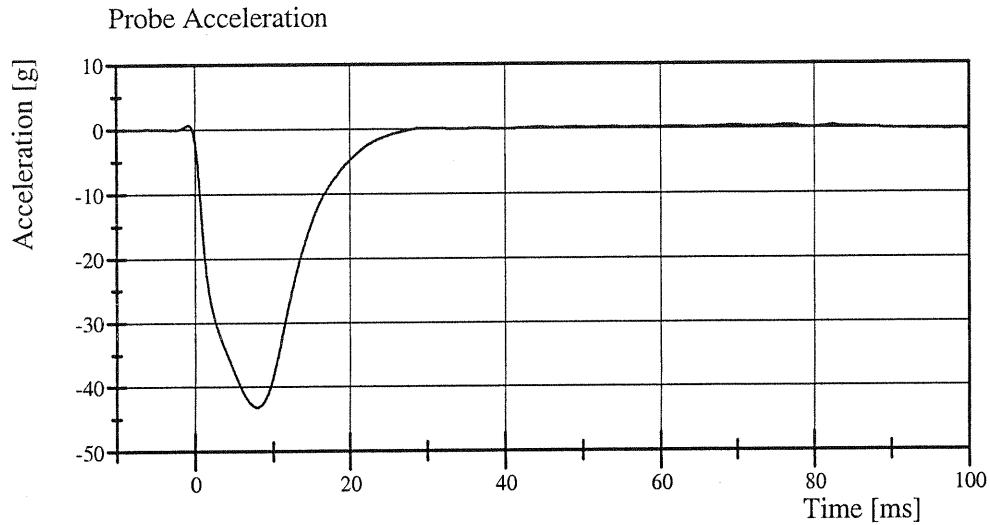
Ron Stover

Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs SBLD Serial No. 056 Certification No. 5-1

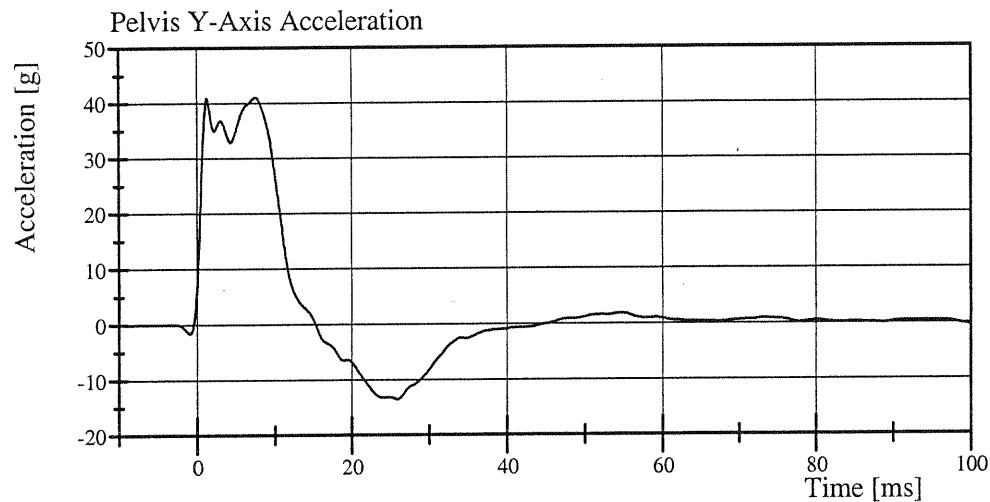
Test Date: 6/12/2007



Filter Class: CFC_180

Max: 0.6 g at -0.8 ms

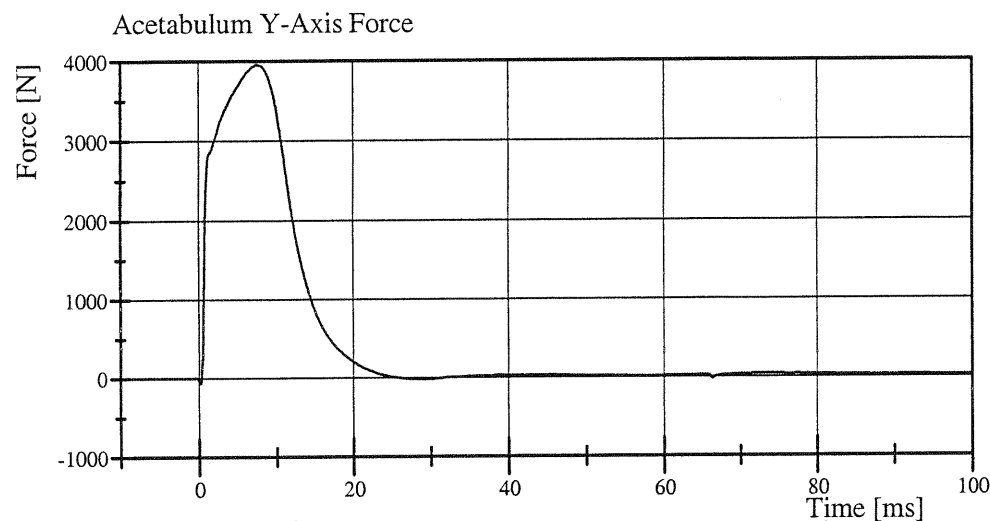
Min: -43.2 g at 7.9 ms



Filter Class: CFC_180

Max: 41.1 g at 7.5 ms

Min: -13.5 g at 25.9 ms



Filter Class: CFC_600

Max: 3,952.0 N at 7.4 ms

Min: -66.7 N at 0.2 ms

Calibration Test Results

Post-Test

SID-IIs: 056

Configured for Left Side Impact

Transportation Research Center Inc.
SIDIIs Dummy - Level D
External Dimensions
Serial No. 056 Calibration N0._06_
Date: _07/24/07_

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Sitting Height	772.0 - 788.0	773	Yes
B	Shoulder Pivot Height	437.0 - 453.0	438	Yes
C	H-Point Height	79.0 - 89.0	82	Yes
D	H-Point from Backline	141.0 - 151.0	142	Yes
E	Shoulder Pivot from Backline	97.0 - 107.0	97	Yes
F	Thigh Clearance	119.0 - 135.0	124	Yes
G	Head Breadth	140.0 - 148.0	145	Yes
H	Head Back from Backline	40.0 - 46.0	45	Yes
I	Head Depth	178.0 - 188.0	185	Yes
J	Head Circumference	541.0 - 551.0	545	Yes
K	Buttock to Knee Length	514.0 - 540.0	525	Yes
L	Popliteal Height	343.0 - 369.0	360	Yes
M	Knee to Floor Height	393.0 - 409.0	407	Yes
N	Buttock Popliteal Length	416.0 - 442.0	440	Yes
O	Chest Depth without Jacket	195.0 - 211.0	205	Yes
P	Foot Length	216.0 - 232.0	220	Yes
Q	Hip Breadth	313.0 - 323.0	314	Yes
R	Arm Length	249.0 - 259.0	250	Yes
S	Knee Joint to Seat Back	478.0 - 493.0	479	Yes
V	Shoulder Width	341.0 - 357.0	350	Yes
W	Foot Width	78.0 - 94.0	85	Yes
Y	Chest Circumference with Jacket	851.0 - 881.0	861	Yes
Z	Waist Circumference	761.0 - 791.0	781	Yes

Dummy meets all specifications.

Technician

Alley Heffer

Approved

Ron Storer



Revised 9/29/2005

Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs SBLD Serial No. 056 Certification No. 6-1

Test Date: 7/23/2007

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Peak Head Resultant Acceleration	115 - 137 g	123.2 g	Yes
Peak Head Longitudinal Acceleration	(-15) - 15 g	2.9 g	Yes
Is Head Resultant Acceleration Curve Unimodal within 15% of Peak?	Yes	Yes	Yes

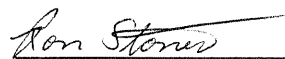
Test meets specifications.

Comments:

Technician



Approved

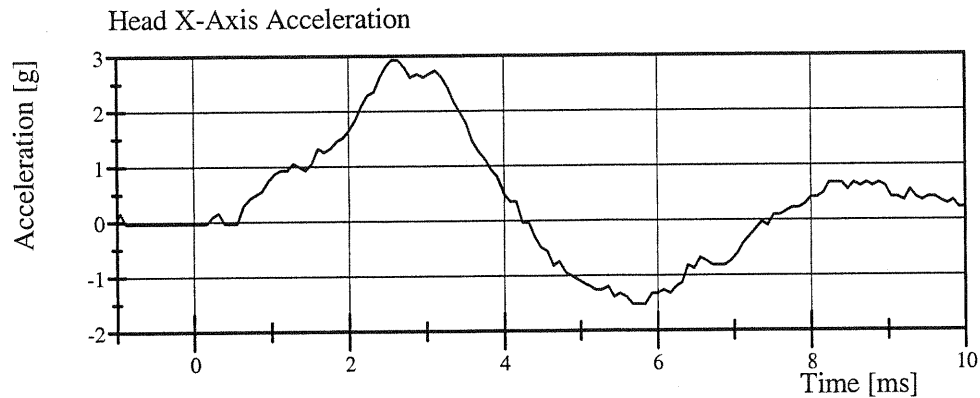


Transportation Research Center Inc.

Left Lateral Head Drop

SID IIs SBLD Serial No. 056 Certification No. 6-1

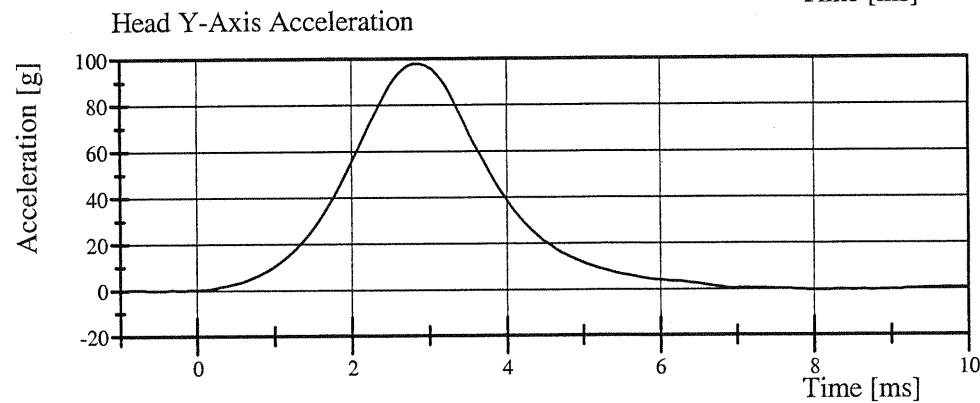
Test Date: 7/23/2007



Filter Class: CFC_1000

Max: 2.9 g at 2.6 ms

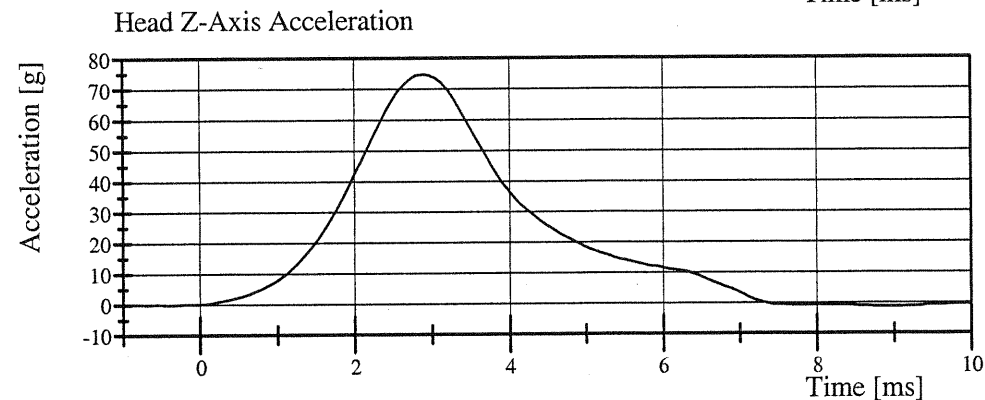
Min: -1.5 g at 5.7 ms



Filter Class: CFC_1000

Max: 97.9 g at 2.8 ms

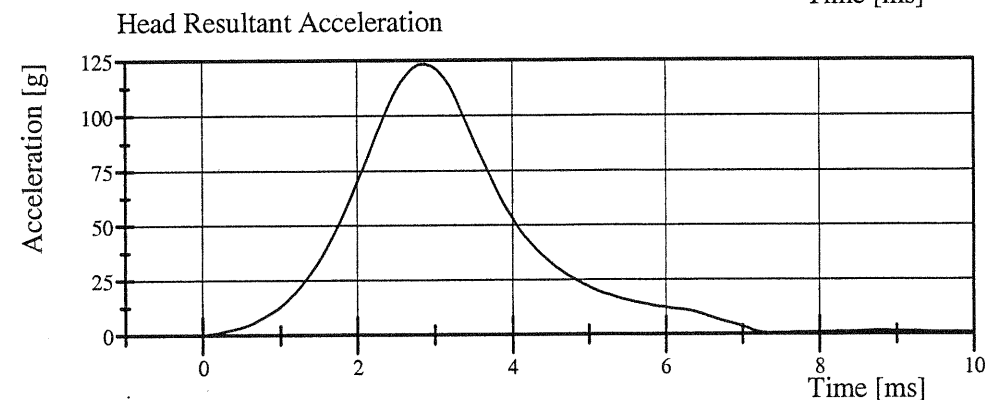
Min: -0.4 g at 8.0 ms



Filter Class: CFC_1000

Max: 74.8 g at 2.9 ms

Min: -1.3 g at 8.9 ms



Filter Class: CFC_1000

Max: 123.2 g at 2.9 ms

Min: 0.0 g at -0.6 ms

Transportation Research Center Inc.

Left Lateral Neck

SID IIs SBLD Serial No. 056 Certification No. 6-1

Test Date: 7/24/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Pendulum Velocity	(-5.51) - (-5.63) m/s	-5.585 m/s	Yes
Pendulum Integrated Velocity			
Change at 10 ms	2.20 - 2.80 m/s	2.522 m/s	Yes
Change at 15 ms	3.30 - 4.10 m/s	3.617 m/s	Yes
Change at 20 ms	4.40 - 5.40 m/s	4.849 m/s	Yes
Change at 25 ms	5.40 - 6.10 m/s	5.795 m/s	Yes
Change at 25 to 100 ms	5.50 - 6.20 m/s	5.895 m/s	Yes
Maximum Headform Flexion occurring between 50ms and 70ms.			
Peak	(-71) - (-81) deg	-73.0 deg	Yes
Time of Peak	50 - 70 ms	58.1 ms	Yes
Total Neck Occipital Condyles Moment	36 - 44 N·m	40.3 N·m	Yes
Total Neck Occipital Condyles Moment Decay Time to 0 N·m	102 - 126 ms	112.6 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



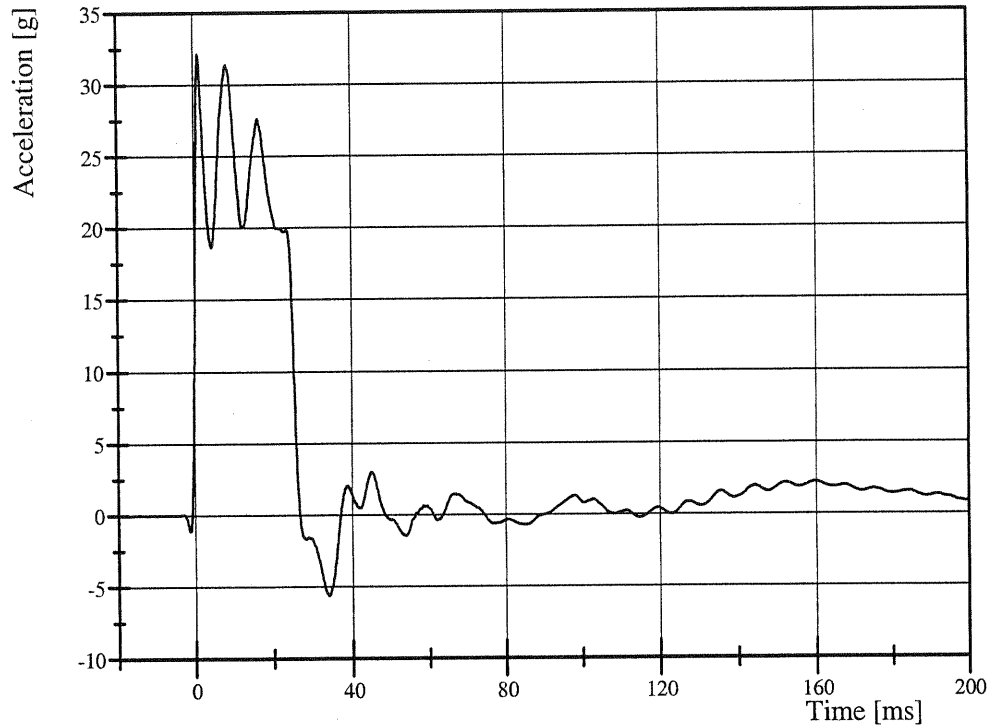
Transportation Research Center Inc.

Left Lateral Neck

SID IIs SBLD Serial No. 056 Certification No. 6-1

Test Date: 7/24/2007

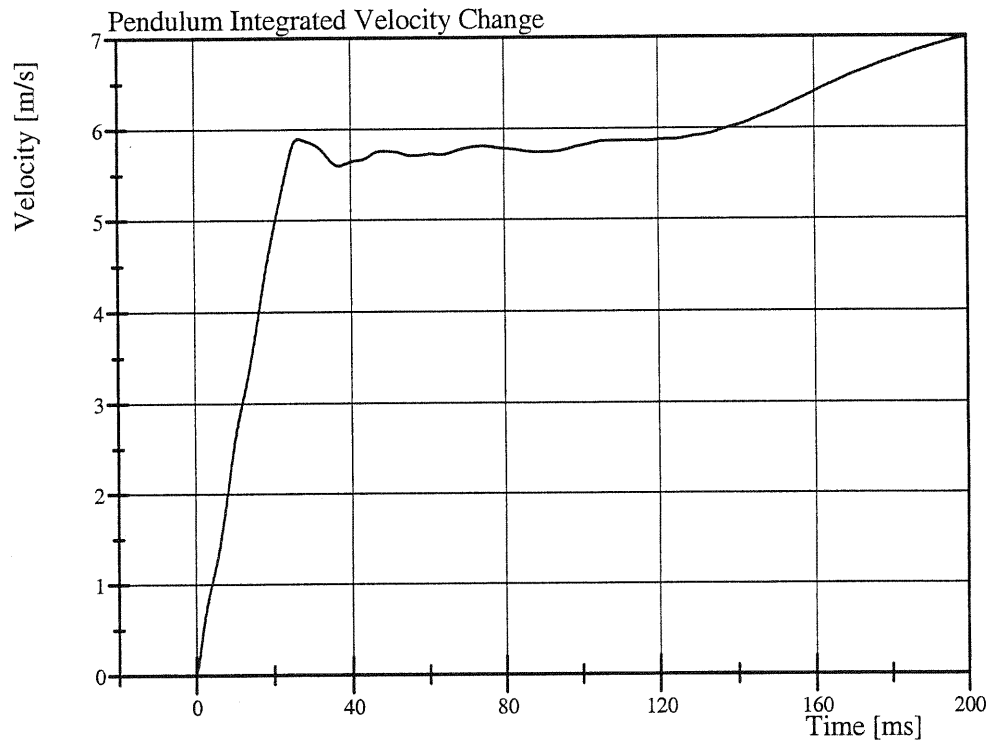
Pendulum Acceleration



Filter Class: CFC_180

Max: 32.1 g at 1.2 ms

Min: -5.6 g at 34.0 ms



Filter Class: CFC_180

Max: 7.0 m/s at 200.0 ms

Min: 0.0 m/s at 0.0 ms

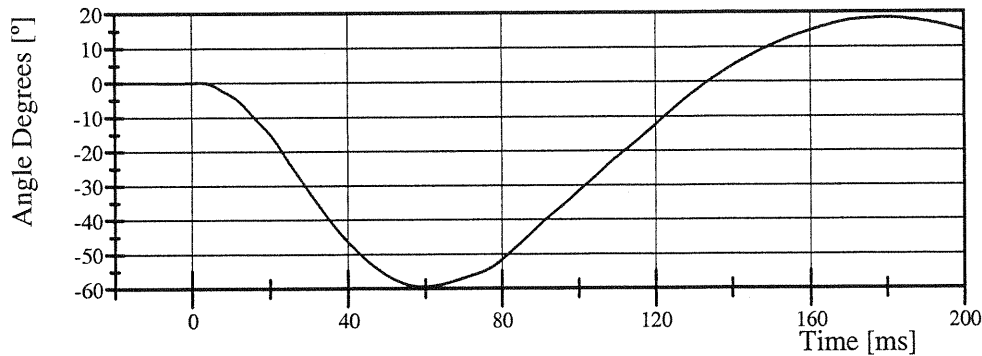
Transportation Research Center Inc.

Left Lateral Neck

SID IIs SBLD Serial No. 056 Certification No. 6-1

Test Date: 7/24/2007

Forward Pot Rotation at Base of Pendulum

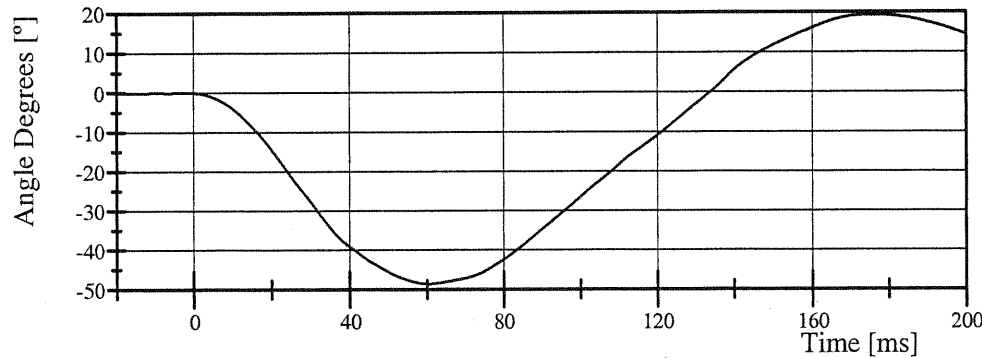


Filter Class: CFC_60

Max: 18.5 ° at 180.4 ms

Min: -59.4 ° at 59.4 ms

Rear Pot Rotation at Base of Pendulum

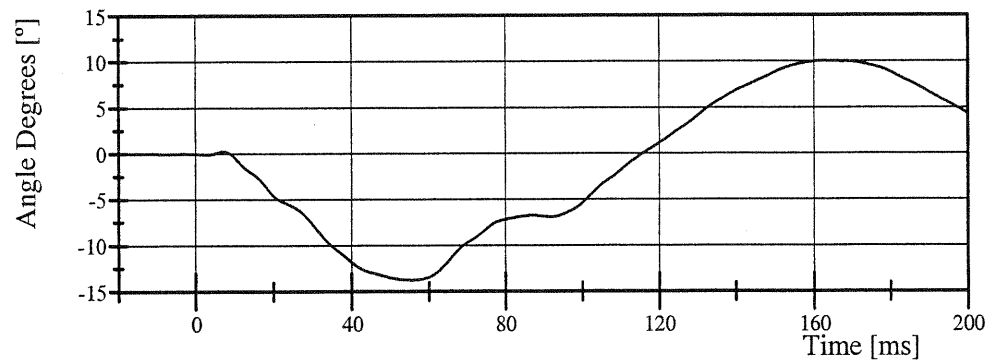


Filter Class: CFC_60

Max: 19.3 ° at 176.1 ms

Min: -48.6 ° at 60.4 ms

Center Headform Pot Rotation at Center of Gravity

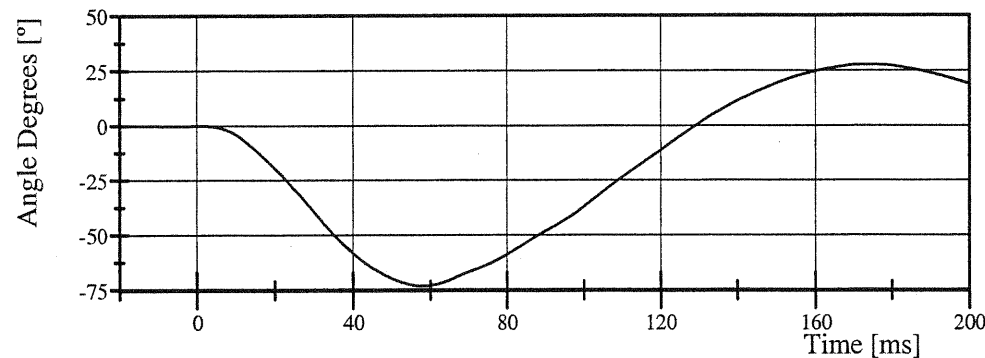


Filter Class: CFC_60

Max: 10.0 ° at 162.8 ms

Min: -13.8 ° at 55.5 ms

Total Headform Flexion



Filter Class: CFC_60

Max: 27.8 ° at 172.6 ms

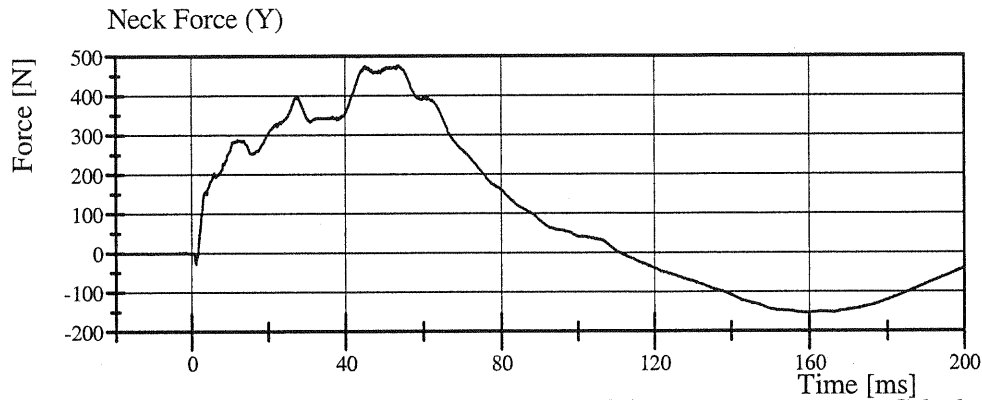
Min: -73.0 ° at 58.1 ms

Transportation Research Center Inc.

Left Lateral Neck

SID IIs SBLD Serial No. 056 Certification No. 6-1

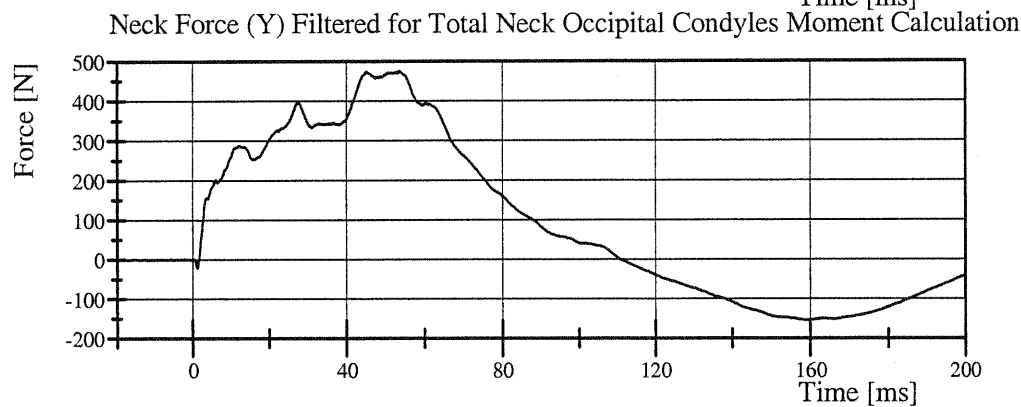
Test Date: 7/24/2007



Filter Class: CFC_1000

Max: 477.0 N at 53.8 ms

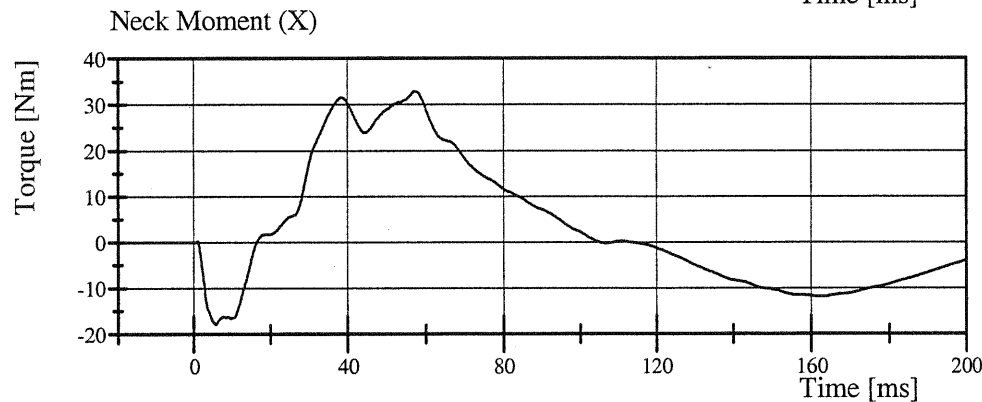
Min: -154.2 N at 160.1 ms



Filter Class: CFC_600

Max: 475.9 N at 53.7 ms

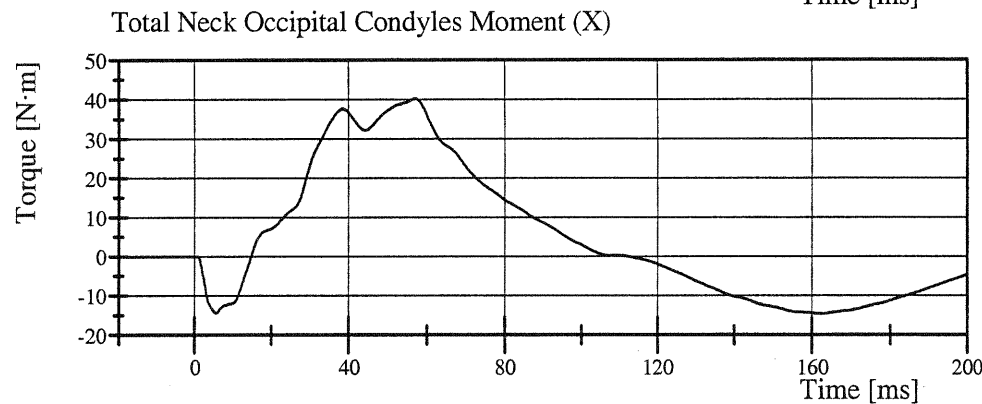
Min: -153.5 N at 160.0 ms



Filter Class: CFC_600

Max: 32.9 Nm at 57.2 ms

Min: -17.9 Nm at 5.7 ms



Filter Class: CFC_600

Max: 40.3 N·m at 57.0 ms

Min: -14.5 N·m at 163.0 ms

Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs SBLD Serial No. 056 Certification No. 6-1

Test Date: 7/23/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Impactor Velocity	4.30 - 4.50 m/s	4.367 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.8 g	Yes
Shoulder Displacement	30 - 37 mm	36.5 mm	Yes
Upper Spine Lateral Acceleration	17.0 - 19.0 g	18.77 g	Yes

Test meets specifications.

Comments:

Technician

Raul Bernal

Approved

Ron Stover

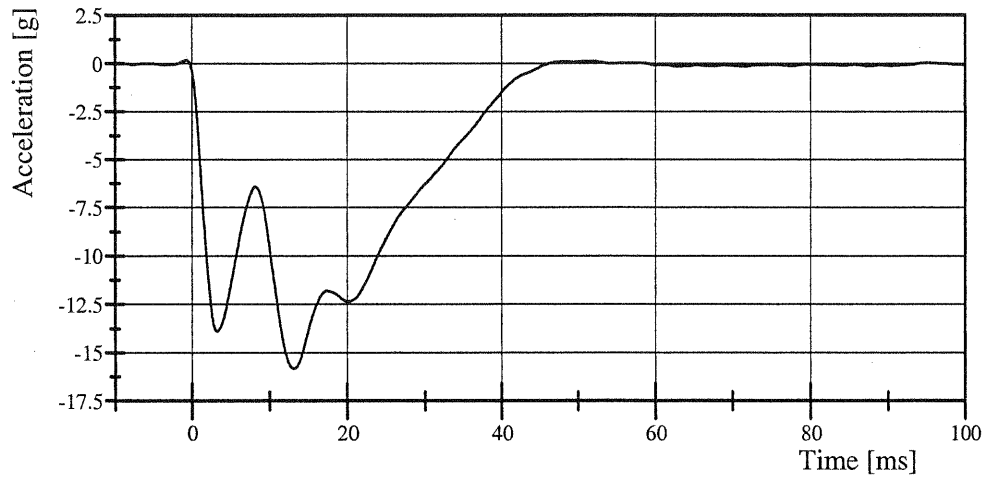
Transportation Research Center Inc.

Left Lateral Shoulder

SID IIs SBLD Serial No. 056 Certification No. 6-1

Test Date: 7/23/2007

Probe Acceleration

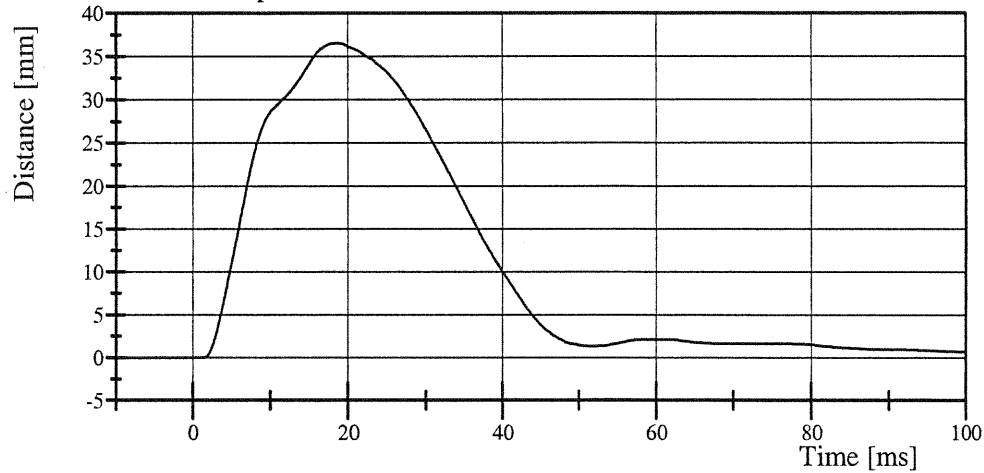


Filter Class: CFC_180

Max: 0.2 g at -0.6 ms

Min: -15.8 g at 13.1 ms

Shoulder Displacement

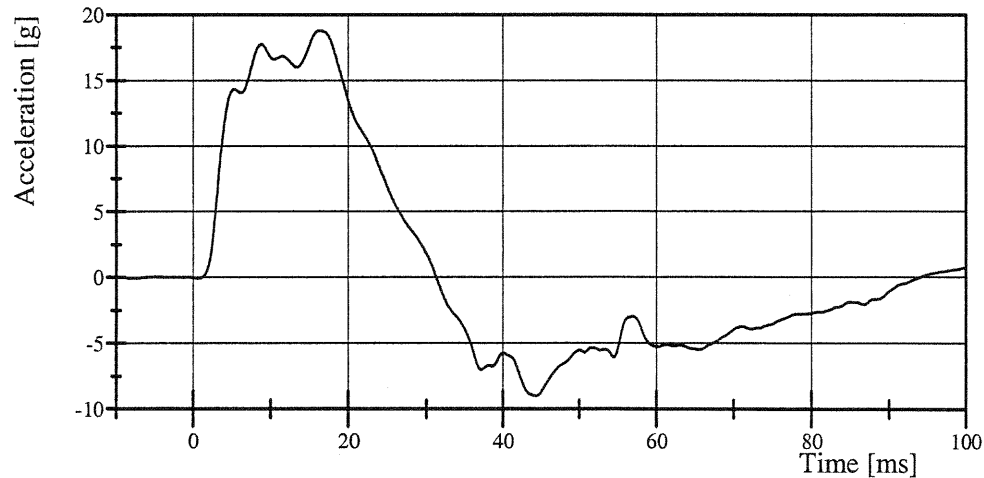


Filter Class: CFC_600

Max: 36.5 mm at 18.9 ms

Min: -0.0 mm at 1.4 ms

Upper Spine Acceleration (Y)



Filter Class: CFC_180

Max: 18.8 g at 16.3 ms

Min: -9.0 g at 44.3 ms

Transportation Research Center Inc.

Left Lateral Thorax with Arm

SID IIs SBLD Serial No. 056 Certification No. 6-2

Test Date: 7/23/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	20.9 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.629 m/s	Yes
Impactor Acceleration	(-31) - (-36) g	-31.7 g	Yes
Shoulder Displacement	31 - 40 mm	38.8 mm	Yes
Upper Thorax Rib Displacement	26 - 32 mm	31.0 mm	Yes
Center Thorax Rib Displacement	30 - 36 mm	34.7 mm	Yes
Lower Thorax Rib Displacement	32 - 38 mm	35.6 mm	Yes
Upper Spine Lateral Acceleration	34 - 43 g	34.7 g	Yes
Lower Spine Lateral Acceleration	28 - 35 g	33.2 g	Yes

Test meets specifications.

Comments:

Technician

Charles W. Bell

Approved

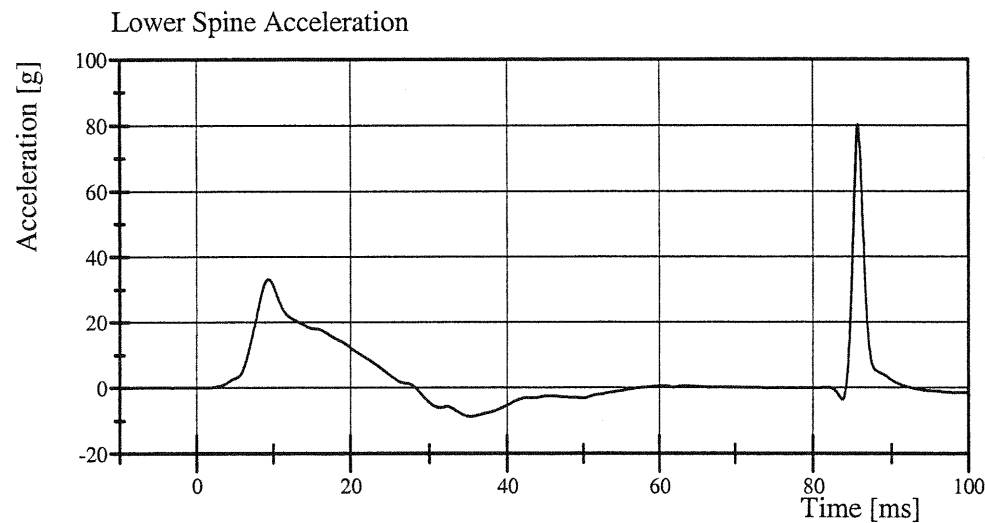
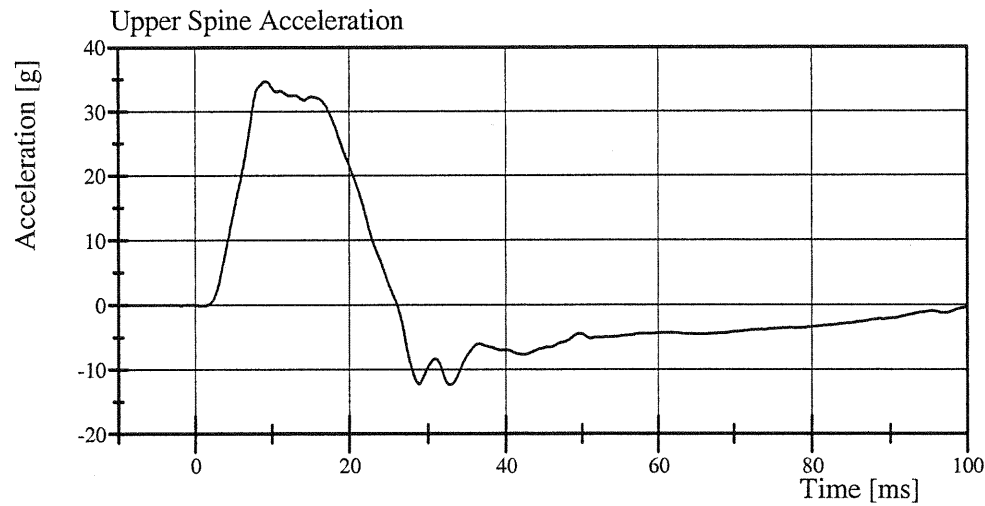
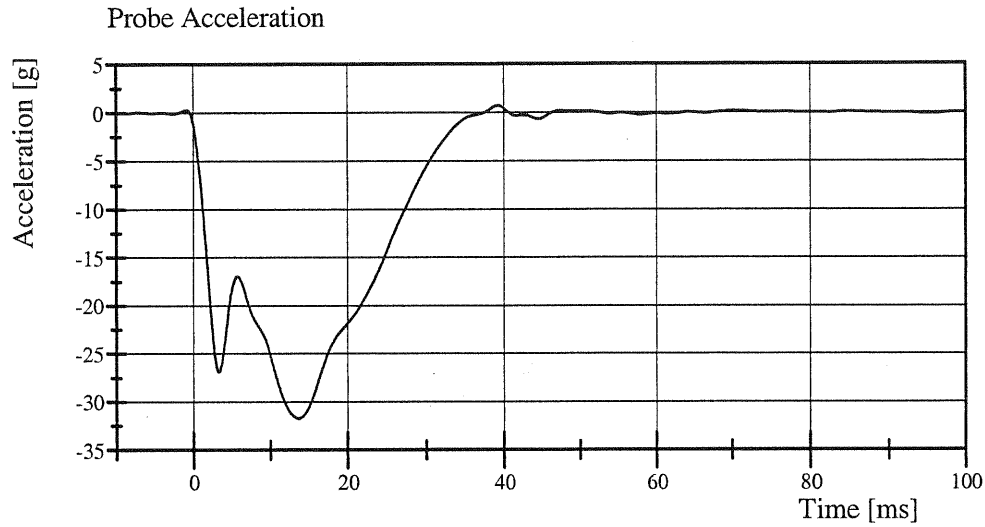
Ron Stover

Transportation Research Center Inc.

Left Lateral Thorax with Arm

SID IIs SBLD Serial No. 056 Certification No. 6-2

Test Date: 7/23/2007



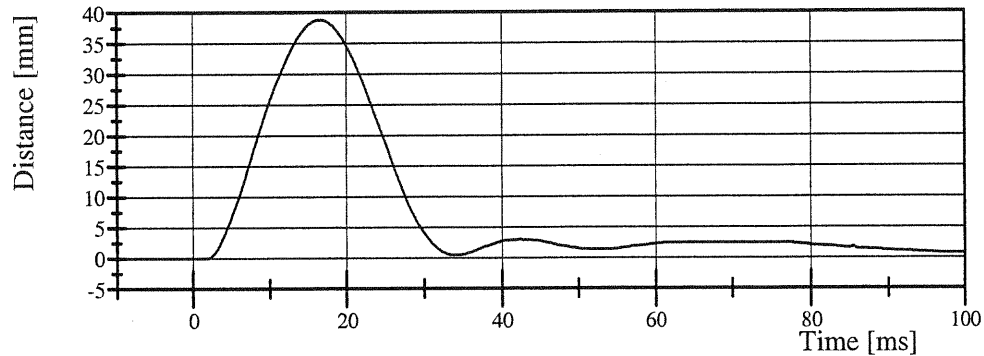
Transportation Research Center Inc.

Left Lateral Thorax with Arm

SID IIs SBLD Serial No. 056 Certification No. 6-2

Test Date: 7/23/2007

Shoulder Rib Displacement

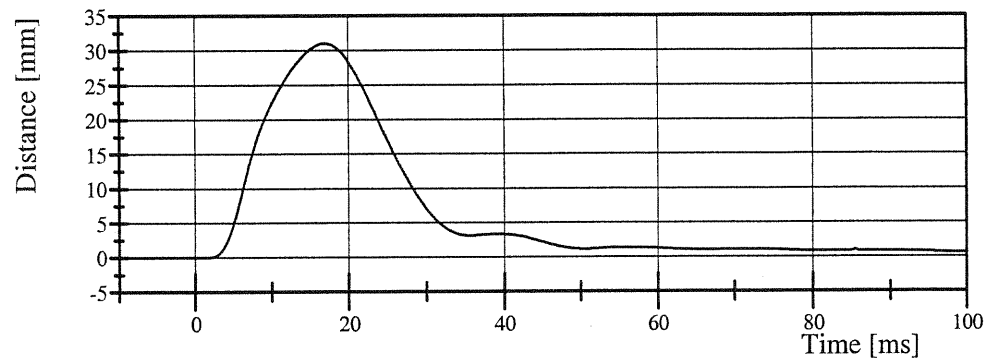


Filter Class: CFC_600

Max: 38.8 mm at 16.6 ms

Min: -0.0 mm at 1.8 ms

Upper Thorax Rib Displacement

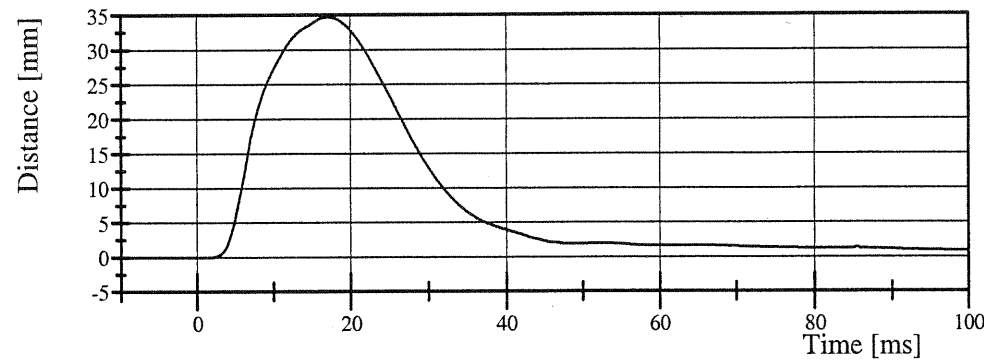


Filter Class: CFC_600

Max: 31.0 mm at 17.0 ms

Min: -0.0 mm at 1.0 ms

Center Thorax Rib Displacement

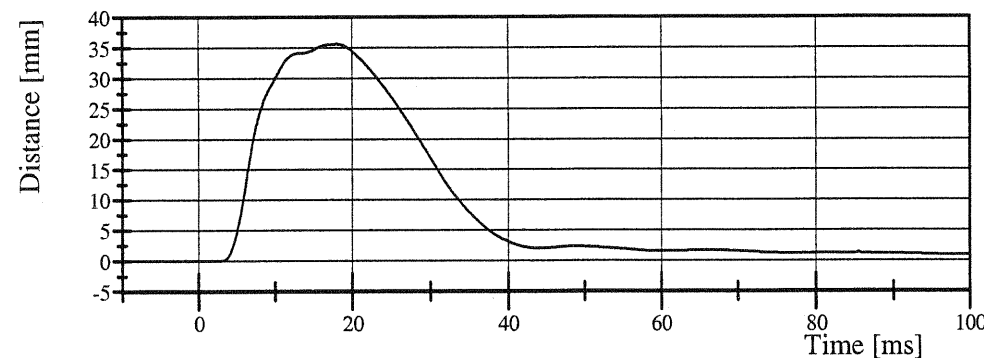


Filter Class: CFC_600

Max: 34.7 mm at 17.0 ms

Min: -0.0 mm at 1.1 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600

Max: 35.6 mm at 18.0 ms

Min: -0.0 mm at -4.2 ms

Transportation Research Center Inc.

Left Lateral Thorax without Arm

SID IIs SBLD Serial No. 056 Certification No. 6-2

Test Date: 7/23/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.226 m/s	Yes
Impactor Acceleration	(-14) - (-18) g	-15.4 g	Yes
Upper Thorax Rib Displacement	33 - 40 mm	36.9 mm	Yes
Center Thorax Rib Displacement	39 - 45 mm	41.7 mm	Yes
Lower Thorax Rib Displacement	36 - 43 mm	37.5 mm	Yes
Upper Spine Lateral Acceleration	14 - 17 g	14.9 g	Yes
Lower Spine Lateral Acceleration	7 - 10 g	9.3 g	Yes

Test meets specifications.

Comments:

Technician



Approved



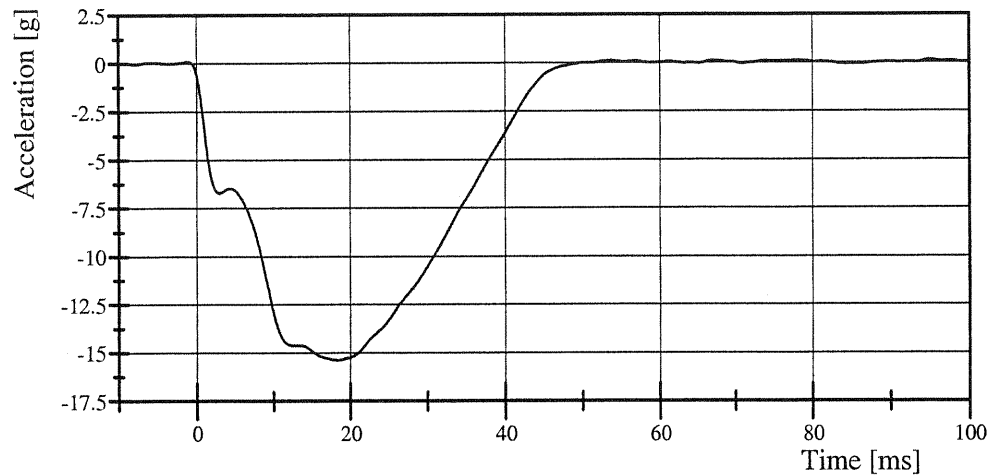
Transportation Research Center Inc.

Left Lateral Thorax without Arm

SID IIs SBLD Serial No. 056 Certification No. 6-2

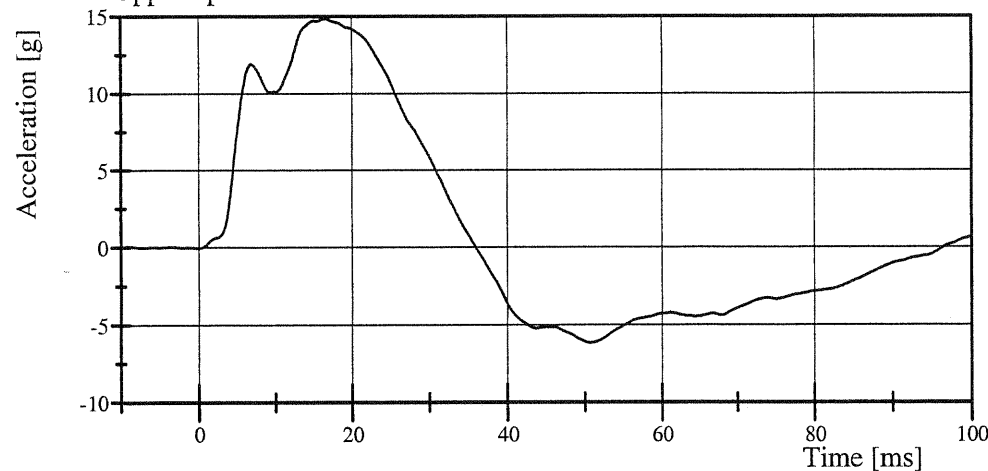
Test Date: 7/23/2007

Probe Acceleration



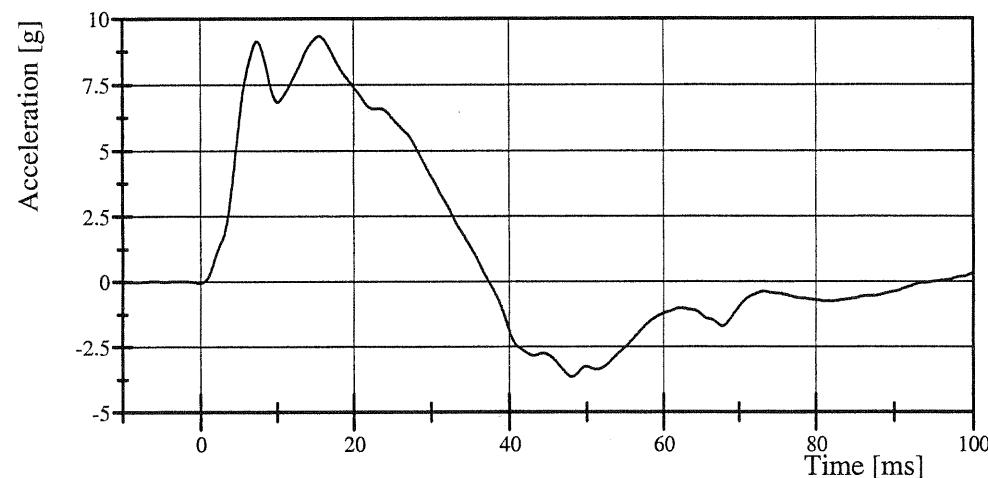
Filter Class: CFC_180
Max: 0.1 g at 95.0 ms
Min: -15.4 g at 18.3 ms

Upper Spine Acceleration



Filter Class: CFC_180
Max: 14.9 g at 16.5 ms
Min: -6.2 g at 50.7 ms

Lower Spine Acceleration



Filter Class: CFC_180
Max: 9.3 g at 15.5 ms
Min: -3.6 g at 48.0 ms

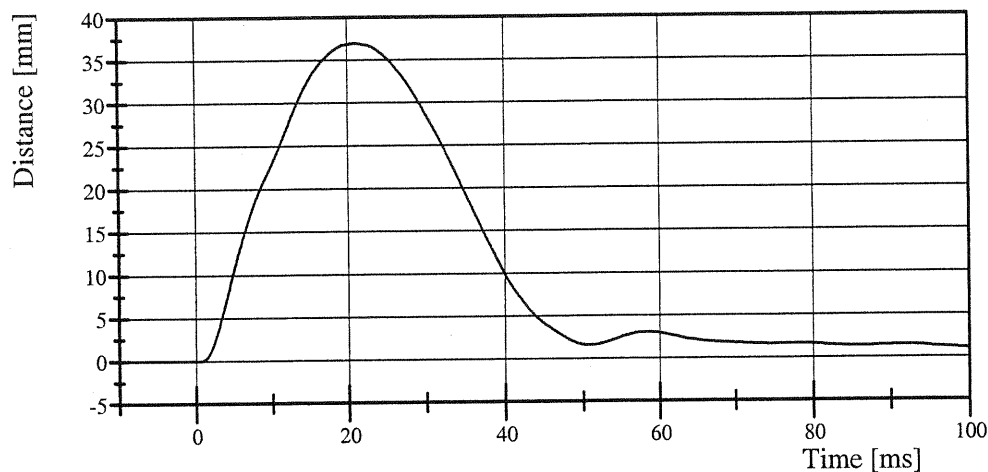
Transportation Research Center Inc.

Left Lateral Thorax without Arm

SID II SBLD Serial No. 056 Certification No. 6-2

Test Date: 7/23/2007

Upper Thorax Rib Displacement

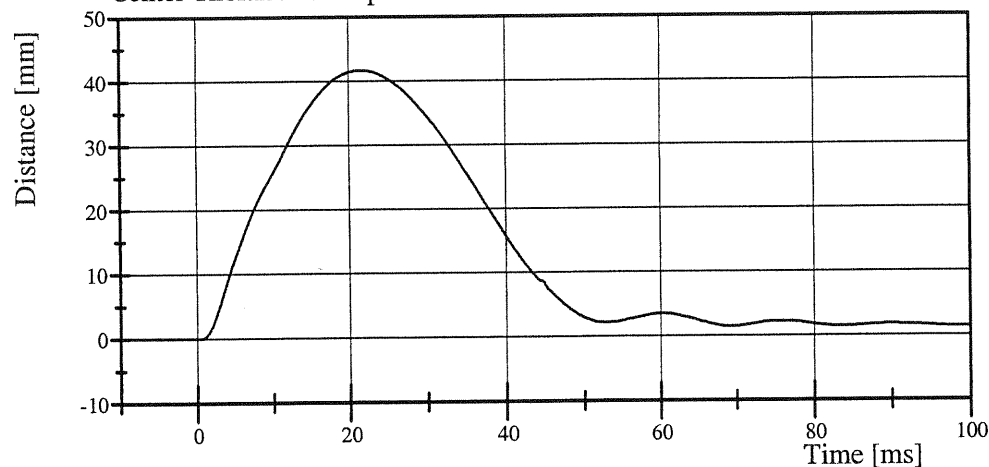


Filter Class: CFC_600

Max: 36.9 mm at 21.0 ms

Min: -0.0 mm at 0.6 ms

Center Thorax Rib Displacement

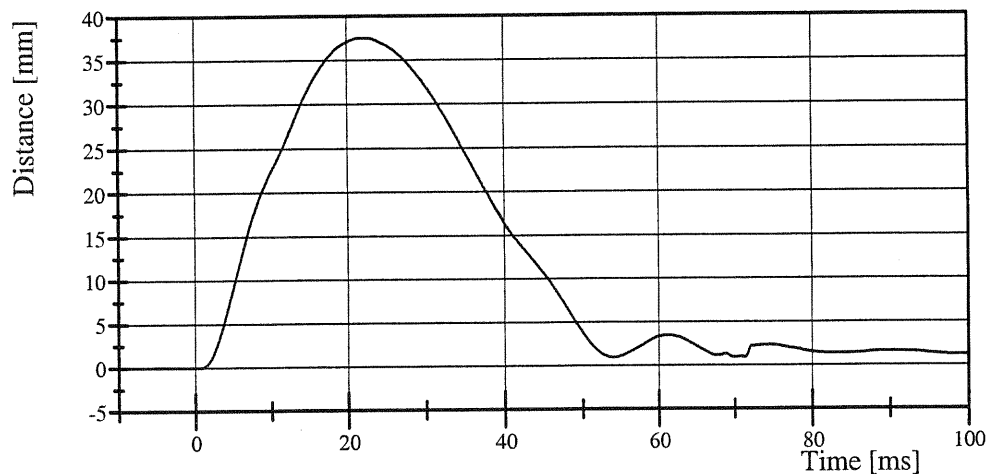


Filter Class: CFC_600

Max: 41.7 mm at 21.7 ms

Min: -0.0 mm at 0.4 ms

Lower Thorax Rib Displacement



Filter Class: CFC_600

Max: 37.5 mm at 22.5 ms

Min: -0.0 mm at -8.6 ms

Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs SBLD Serial No. 056 Certification No. 6-1

Test Date: 7/23/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.1 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Impactor Velocity	4.30 - 4.50 m/s	4.480 m/s	Yes
Impactor Acceleration	(-12) - (-16) g	-14.3 g	Yes
Upper Abdominal Rib Displacement	39 - 47 mm	45.8 mm	Yes
Lower Abdominal Rib Displacement	37 - 46 mm	41.7 mm	Yes
Lower Spine Lateral Acceleration	11.0 - 14.0 g	11.85 g	Yes

Test meets specifications.

Comments:

Technician



Approved



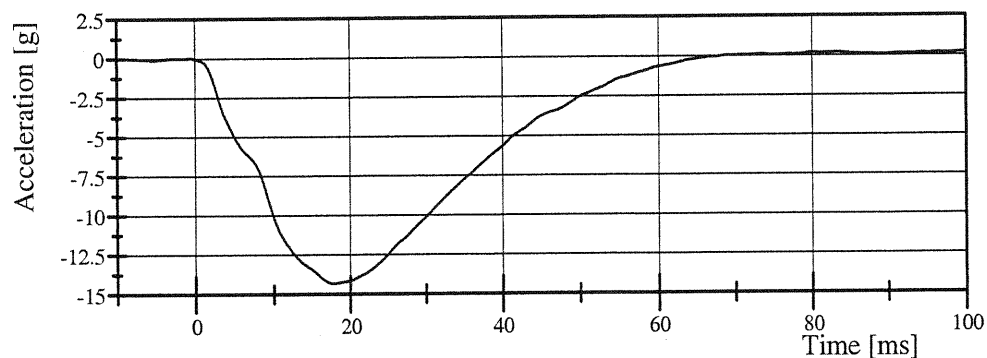
Transportation Research Center Inc.

Left Lateral Abdomen

SID IIs SBLD Serial No. 056 Certification No. 6-1

Test Date: 7/23/2007

Probe Acceleration

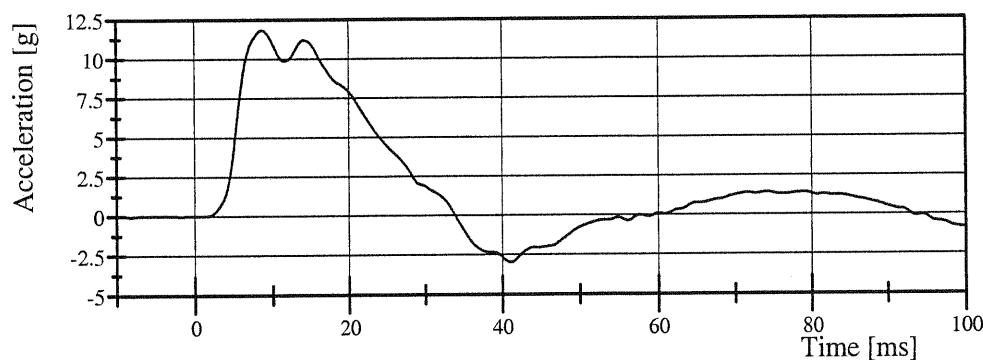


Filter Class: CFC_180

Max: 0.2 g at 99.8 ms

Min: -14.3 g at 17.8 ms

Lower Spine Acceleration (Y)

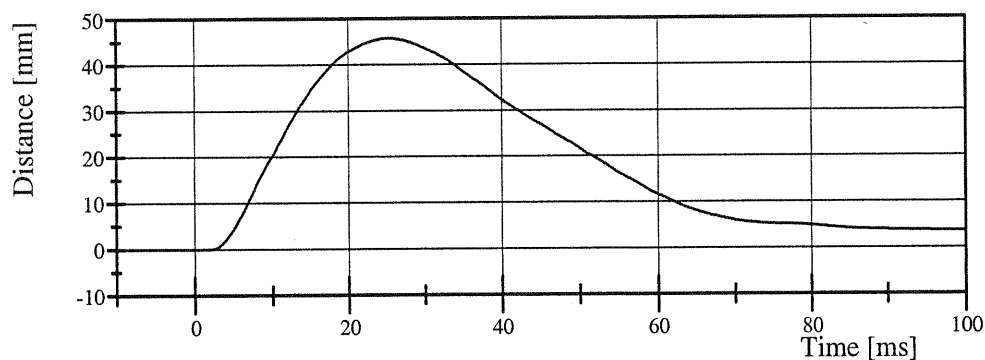


Filter Class: CFC_180

Max: 11.8 g at 8.7 ms

Min: -3.0 g at 41.1 ms

Upper Abdominal Rib Displacement

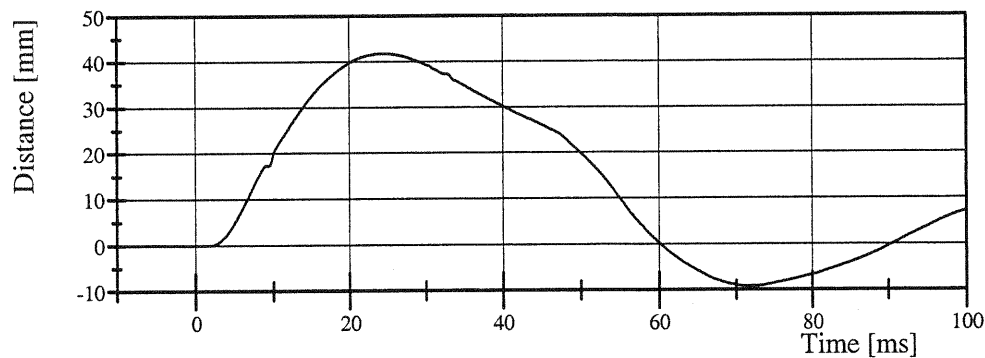


Filter Class: CFC_600

Max: 45.8 mm at 25.1 ms

Min: -0.0 mm at 0.2 ms

Lower Abdominal Rib Displacement



Filter Class: CFC_600

Max: 41.7 mm at 24.5 ms

Min: -9.2 mm at 71.6 ms

Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs SBLD Serial No. 056 Certification No. 6-2

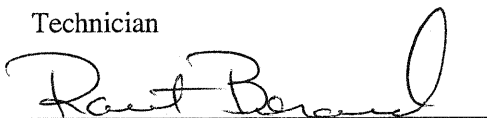
Test Date: 7/23/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Impactor Velocity	6.60 - 6.80 m/s	6.653 m/s	Yes
Impactor Acceleration	(-38.0) - (-47.0) g	-43.15 g	Yes
Peak Pelvis Lateral Acceleration	41.0 - 50.0 g	47.87 g	Yes
Acetabulum Force	3,800 - 4,600 N	4,063.9 N	Yes

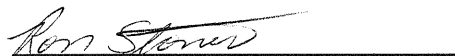
Test meets specifications.

Comments:

Technician



Approved

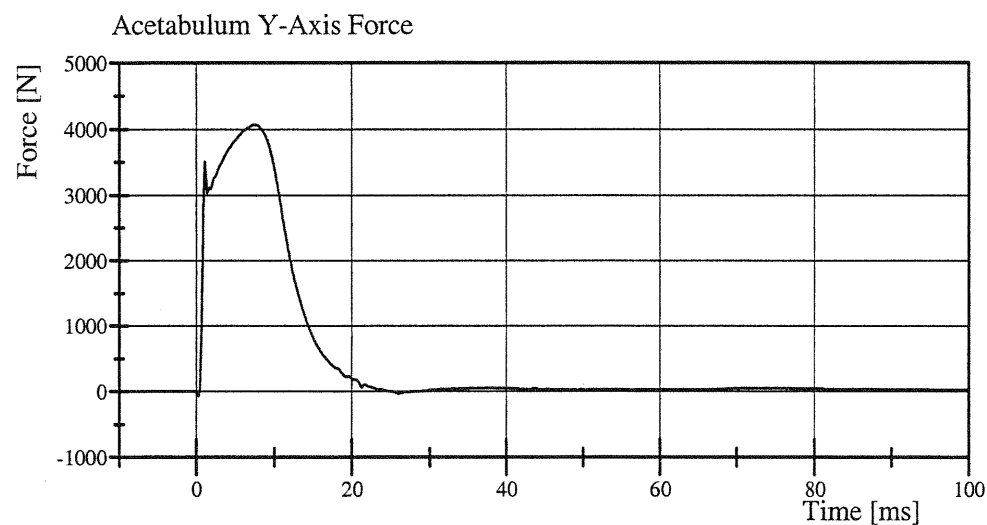
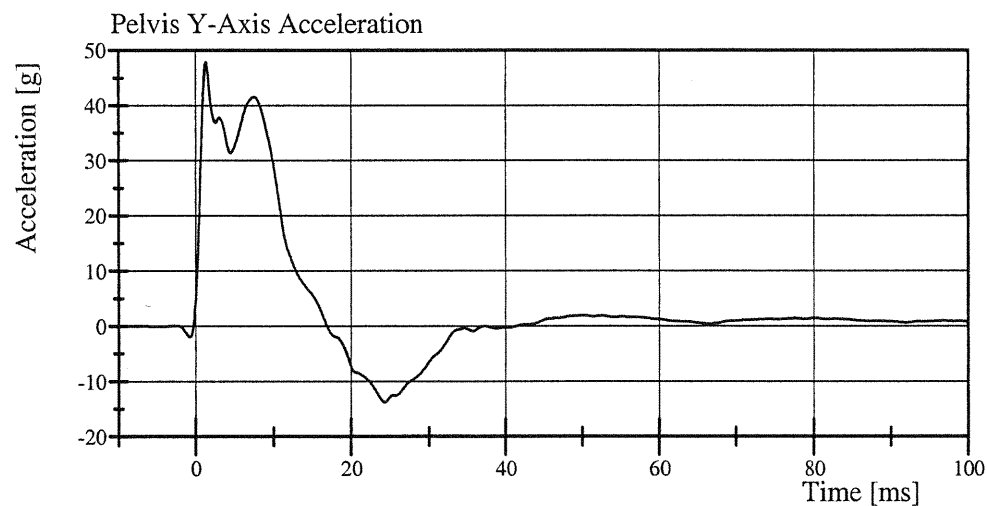
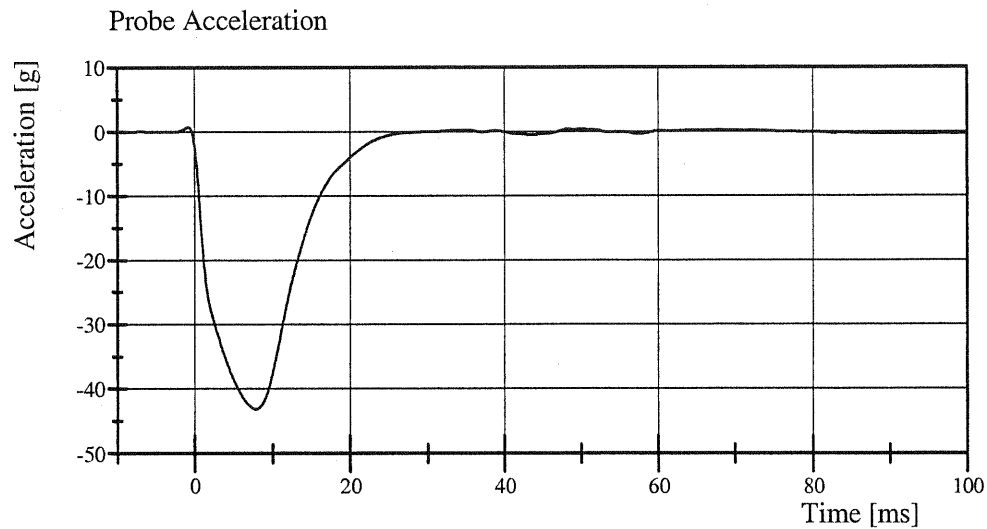


Transportation Research Center Inc.

Left Lateral Pelvis

SID IIs SBLD Serial No. 056 Certification No. 6-2

Test Date: 7/23/2007



Transportation Research Center Inc.

Left Lateral Iliac

SID IIs SBLD Serial No. 056 Certification No. 6-1

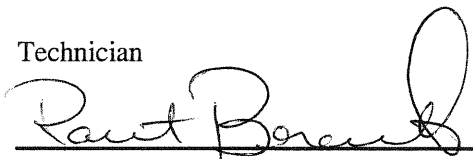
Test Date: 7/23/2007

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Impactor Velocity	4.20 - 4.40 m/s	4.345 m/s	Yes
Impactor Acceleration	(-34.0) - (-40.0) g	-38.31 g	Yes
Peak Pelvis Lateral Acceleration	27.0 - 33.0 g	30.03 g	Yes
Iliac Force	3,700 - 4,500 N	4,319.3 N	Yes

Test meets specifications.

Comments:

Technician



Approved

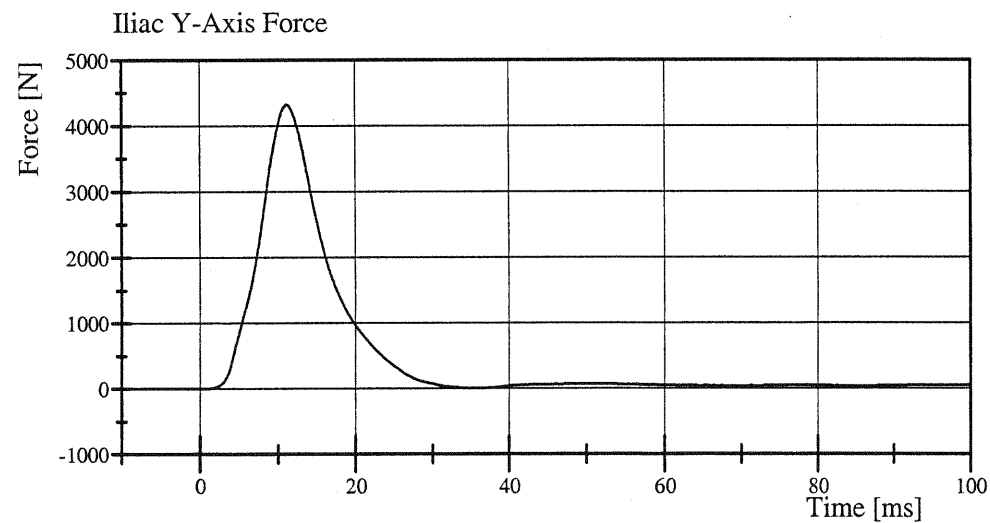
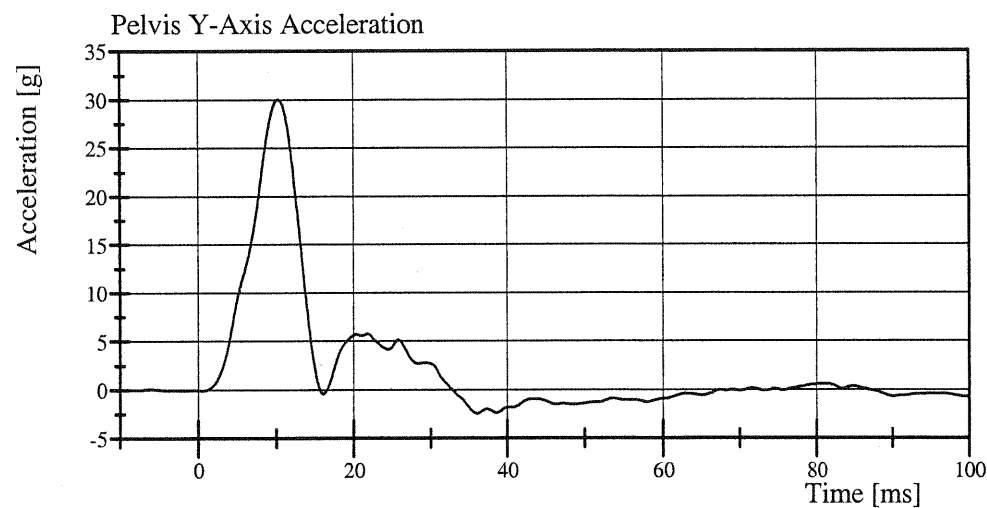
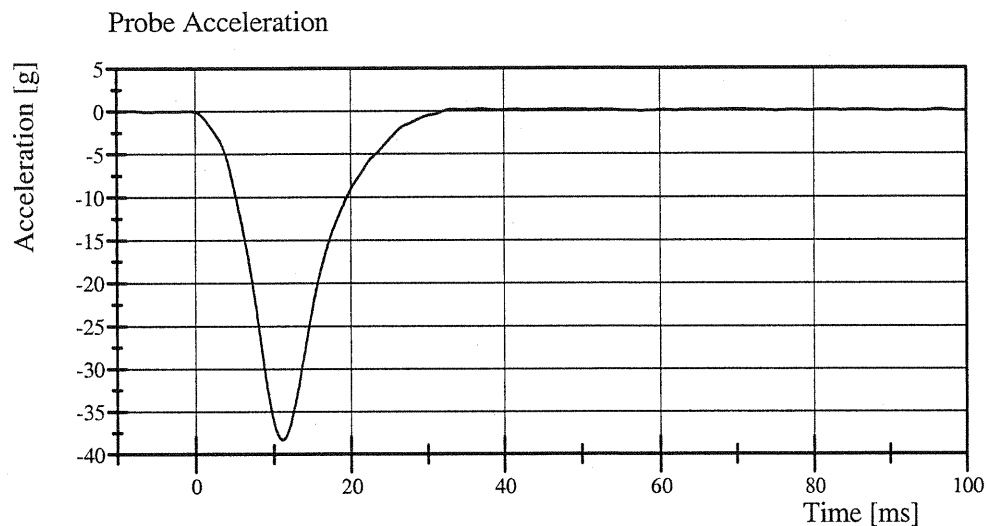


Transportation Research Center Inc.

Left Lateral Iliac

SID IIs SBLD Serial No. 056 Certification No. 6-1

Test Date: 7/23/2007



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 070709

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	DAS Flip	Positive Polarity	Assembly
1	Trig D1	10ZERO00000VO0A	EVENT		1 Logic	+	Bipolar	
2	P54771	11HEADCG00S2ACXA	Head Accel X	2000	g	+	Forward	1-VRTC SID IIs 056 5/03/07.001
3	P49172	11HEADCG00S2ACYA	Head Accel Y	2000	g	-	Leftward	1-VRTC SID IIs 056 5/03/07.002
4	P51299	11HEADCG00S2ACZA	Head Accel Z	2000	g	-	Upward	1-VRTC SID IIs 056 5/03/07.003
5	1716A-1746-FX	11NECKUP00S2FOXA	Upper Neck Force X	8896	N	-	Head forward, chest rearward	1-VRTC SID IIs 056 5/03/07.004
6	1716A-1746-FY	11NECKUP00S2FOYA	Upper Neck Force Y	8896	N	+	Head leftward, chest rightward	1-VRTC SID IIs 056 5/03/07.005
7	1716A-1746-FZ	11NECKUP00S2FOZA	Upper Neck Force Z	13344	N	+	Head upward, chest downward	1-VRTC SID IIs 056 5/03/07.006
8	1716A-1746-MX	11NECKUP00S2MOXA	Upper Neck Moment X	282.5	Nm	-	Right ear toward right shoulder	1-VRTC SID IIs 056 5/03/07.007
9	1716A-1746-MY	11NECKUP00S2MOYA	Upper Neck Moment Y	282.5	Nm	+	Chin toward sternum	1-VRTC SID IIs 056 5/03/07.008
10	1716A-1746-MZ	11NECKUP00S2MOZA	Upper Neck Moment Z	282.5	Nm	+	Chin toward left shoulder	1-VRTC SID IIs 056 5/03/07.009
11	03E03E21-M01	11SHLDLE00S2ACXA	Shoulder Accel X	2000	g	+	Forward	1-VRTC SID IIs 056 5/03/07.010
12	03E03E20-N08	11SHLDLE00S2ACYA	Shoulder Accel Y	2000	g	+	Rightward	1-VRTC SID IIs 056 5/03/07.011
13	02I02I05-F15	11SHLDLE00S2ACZA	Shoulder Accel Z	2000	g	+	Downward	1-VRTC SID IIs 056 5/03/07.012
14	IF-344-107-FX	11SHLDLE00S2FOXA	Shoulder Force X	2000	N	-	Left shoulder rearward, chest forward	1-VRTC SID IIs 056 5/03/07.013
15	IF-344-107-FY	11SHLDLE00S2FOYA	Shoulder Force Y	2000	N	+	Left shoulder rightward, chest leftward	1-VRTC SID IIs 056 5/03/07.014
16	IF-344-107-FZ	11SHLDLE00S2FOZA	Shoulder Force Z	2000	N	+	Left shoulder downward, chest upward	1-VRTC SID IIs 056 5/03/07.015
17	180-3881-907	11SHRILE00S2DSYA	Shoulder Disp. Y	75	mm	-	Leftward	1-VRTC SID IIs 056 5/03/07.016
18	J28686	11SPIN0100S2ACXA	Upper Spine Accel X (Rib1)	2000	g	-	Rearward	1-VRTC SID IIs 056 5/03/07.017
19	J36038	11SPIN0100S2ACYA	Upper Spine Accel Y (Rib1)	2000	g	-	Leftward	1-VRTC SID IIs 056 5/03/07.018
20	ADATO	11SPIN0100S2ACZA	Upper Spine Accel Z (Rib1)	2000	g	+	Downward	1-VRTC SID IIs 056 5/03/07.019
21	180-3862-056RB1	11TRRI01LES2DSYA	Left Thorax Rib 1 Disp. Y (Rib 1)	75	mm	-	Leftward	1-VRTC SID IIs 056 5/03/07.020
22	180-3863-056RB2	11TRRI02LES2DSYA	Left Thorax Rib 2 Disp. Y (Rib 2)	75	mm	-	Leftward	1-VRTC SID IIs 056 5/03/07.021
23	180-3864-056RB3	11TRRI03LES2DSYA	Left Thorax Rib 3 Disp. Y (Rib 3)	75	mm	-	Leftward	1-VRTC SID IIs 056 5/03/07.022
24	180-3865-056RB4	11ABRI01LES2DSYA	Left Abdomin Rib 1 Disp. Y (Rib 4)	75	mm	-	Leftward	1-VRTC SID IIs 056 5/03/07.023
25	180-3866-056RB5	11ABRI02LES2DSYA	Left Abdomin Rib 2 Disp. Y (Rib 5)	75	mm	-	Leftward	1-VRTC SID IIs 056 5/03/07.024
26	J28708	11TRRI01LES2ACYA	Left Thorax Rib 1 Accel Y (Rib 1)	2000	g	+	Rightward	1-VRTC SID IIs 056 5/03/07.025
27	03E03E21-M18	11TRRI02LES2ACYA	Left Thorax Rib 2 Accel Y (Rib 2)	2000	g	+	Rightward	1-VRTC SID IIs 056 5/03/07.026
28	03D03D16-F12	11TRRI03LES2ACYA	Left Thorax Rib 3 Accel Y (Rib 3)	2000	g	+	Rightward	1-VRTC SID IIs 056 5/03/07.027
29	ACCY3	11ABRI01LES2ACYA	Left Abdomin Rib 1 Accel Y (Rib 4)	750	g	+	Rightward	1-VRTC SID IIs 056 5/03/07.028
30	EH75J	11ABRI02LES2ACYA	Left Abdomin Rib 2 Accel Y (Rib 5)	2000	g	+	Rightward	1-VRTC SID IIs 056 5/03/07.029
31	03E03E18-F18	11SPIN1200S2ACXA	Lower Spine Accel X (Rib 4)	2000	g	-	Rearward	1-VRTC SID IIs 056 5/03/07.030
32	01G25-N02	11SPIN1200S2ACYA	Lower Spine Accel Y (Rib 4)	2000	g	-	Leftward	1-VRTC SID IIs 056 5/03/07.031
33	J35921	11SPIN1200S2ACZA	Lower Spine Accel Z (Rib 4)	2000	g	-	Upward	1-VRTC SID IIs 056 5/03/07.032
34	IF-507-112-FY	11ILACLE00S2FOYA	Left Iliac Wing Force Y	13344	N	+	Left iliac rightward, chest leftward	1-VRTC SID IIs 056 5/03/07.033

D-6

070709

Channel Report Test Number 070709

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	DAS Flip	Positive Polarity	Assembly
35	3249J-260-FY	11ACTBLE00S2FOYA	Left Acetabulum Force Y	8896	N	+	Left acetabulum rightward, chest leftward	1-VRTC SID IIs 056 5/03/07.034
36	P16493	11PELVCG00S2ACXA	Pelvis Accel X	2000	g	+	Forward	1-VRTC SID IIs 056 5/03/07.035
37	AF973	11PELVCG00S2ACYA	Pelvis Accel Y	2000	g	+	Rightward	1-VRTC SID IIs 056 5/03/07.036
38	J18736	11PELVCG00S2ACZA	Pelvis Accel Z	2000	g	+	Downward	1-VRTC SID IIs 056 5/03/07.037
39	P50918	16SILBFR0000ACXA	RIGHT SIDE SILL AT FRONT SEAT (X) ACCELERATION VS TIME (#1)	400	g	+	Forward	
40	P50843	16SILBFR0000ACYA	RIGHT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME (#1)	1000	g	-	Leftward	
41	p50889	16SILBFR0000ACZA	RIGHT SIDE SILL AT FRONT SEAT (Z) ACCELERATION VS TIME (#1)	400	g	-	Upward	
42	P54153	16SILBRE0000ACXA	RIGHT SIDE SILL AT REAR SEAT (X) ACCELERATION VS TIME (#2)	400	g	+	Forward	
43	P54443	16SILBRE0000ACYA	RIGHT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME (#2)	1000	g	-	Leftward	
44	P54117	16SILBRE0000ACZA	RIGHT SIDE SILL AT REAR SEAT (Z) ACCELERATION VS TIME (#2)	400	g	-	Upward	
45	P54769	18FORA000000ACXA	REAR FLOOR PAN ABOVE AXLE (X) ACCELERATION VS TIME (#3)	1000	g	+	Forward	
46	P54523	18FORA000000ACYA	REAR FLOOR PAN ABOVE AXLE (Y) ACCELERATION VS TIME (#3)	1000	g	-	Leftward	
47	P54537	18FORA000000ACZA	REAR FLOOR PAN ABOVE AXLE (Z) ACCELERATION VS TIME (#3)	1000	g	-	Upward	
48	P54814	14SILBFR0000ACYA	LEFT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME (#5)	1000	g	+	Rightward	
49	P50470	14SILBRE0000ACYA	LEFT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME (#4)	1000	g	+	Rightward	
50	P49899	16VEHCRE0000ACYA	RIGHT REAR OCCUPANT COMPARTMENT (Y) ACCELERATION VS TIME (#7)	1500	g	+	Rightward	
51	p54490	11APILLO0000ACYA	LEFT LOWER A-POST (Y) ACCELERATION VS TIME (#14)	1500	g	-	Leftward	
52	P54831	11APILMI0000ACYA	LEFT MID A-POST (Y) ACCELERATION VS TIME (#15)	1500	g	-	Leftward	
53	P48538	14BPILLO0000ACYA	LEFT LOWER B-POST (Y) ACCELERATION VS TIME (#12)	1500	g	-	Leftward	
54	p54427	14BPILMI0000ACYA	LEFT MID B-POST (Y) ACCELERATION VS TIME (#13)	1500	g	-	Leftward	
55	P47548	11SETRFR0000ACYA	LEFT FRONT SEAT TRACK (Y) ACCELERATION VS TIME (#16) - align with h-point	2000	g	+	Rightward	
56	P48066	14SETRLERE00ACYA	LEFT REAR SEAT TRACK (Y) ACCELERATION VS TIME (#17)	1500	g	+	Rightward	
57	P49561	10VEHCCG0000ACXA	VEHICLE CENTER OF GRAVITY (X) ACCELERATION VS TIME (#18)	2000	g	+	Forward	
58	P54766	10VEHCCG0000ACYA	VEHICLE CENTER OF GRAVITY (Y) ACCELERATION VS TIME (#18)	2000	g	-	Leftward	
59	P46607	10VEHCCG0000ACZA	VEHICLE CENTER OF GRAVITY (Z) ACCELERATION VS TIME (#18)	2000	g	-	Upward	
60	P54517	14DOOR000001ACYA	Vehicle Front Door centerline 430 mm above ground Y acceleration	1500	g	+	Rightward	
61	P54770	14DOOR000002ACYA	Vehicle Front Door mid-rear 430 mm above ground Y acceleration	1500	g	+	Rightward	
62	P54555	14DOOR000003ACYA	Vehicle Front Door upper centerline 685 mm above ground Y acceleration	1500	g	+	Rightward	
63	P54441	16DOOR000002ACYA	Vehicle Rear Door mid-rear 430 mm above ground Y acceleration	1500	g	+	Rightward	
64	P54871	16DOOR000003ACYA	Vehicle Rear Door upper centerline 685 mm above ground Y acceleration	1500	g	+	Rightward	
65	P54868	12ENGNTPO000ACXA	Top of Engine X acceleration	1000	g	+	Forward	
66	P47546	12ENGNTPO000ACYA	Top of Engine Y acceleration	1000	g	-	Leftward	
67	P54829	12VEHC000000ACXA	Firewall X acceleration	1000	g	+	Forward	
68	P54863	12VEHC000000ACYA	Firewall Y acceleration	1000	g	+	Rightward	
69	P47543	13ROOF000000ACXA	Right side Roof Rail (in line with impact point) X acceleration	1000	g	+	Forward	
70	P54859	13ROOF000000ACYA	Right side Roof Rail (in line with impact point) Y acceleration	1000	g	-	Leftward	
71	p50910	13SILBFR0000ACYA	Right side sill in-line with impact location Y-axis acceleration	1000	g	+	Rightward	
72	P54765	18DECK000000ACXA	Rear deck behind rear axel X-axis Accel	1000	g	+	Forward	
73	P54541	18DECK000000ACYA	Rear deck behind rear axel Y-axis Accel	1000	g	-	Leftward	
74	P48041	18DECK000000ACZA	Rear deck behind rear axel Z-axis Accel	1000	g	-	Upward	
75	ABFire1	11AIRBMILE00EV0A	DRIV. SIDE AIRBAG IND (IP 56)	5	V	+	Bipolar	
76	ABFire2	11AIRBTPL00EV0A	DRIV. SIDE CURTAIN IND (IP 50)	5	V	+	Bipolar	
77	Bit.00	11CONT000001VO00	Head contact switch (0)	1	Logic	+	Bipolar	
78	Bit.01	11CONT000002VO00	Shoulder contact switch (1)	1	Logic	+	Bipolar	
79	Bit.02	11CONT000003VO00	Torso contact switch (5)	1	Logic	+	Bipolar	
80	Bit.03	11CONT000004VO00	Leg contact switch (6)	1	Logic	+	Bipolar	

Command File Test Number 070709

Channel	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
1	11HEADCG00S2ACXA	Head X-Axis Acceleration	1000	-	yes	2000
2	11HEADCG00S2ACYA	Head Y-Axis Acceleration	1000	+	yes	2000
3	11HEADCG00S2ACZA	Head Z-Axis Acceleration	1000	-	yes	2000
3A	11HEADCG00S2ACRA	Head Resultant Acceleration	1000			
4	11NECKUP00S2FOXA	Upper Neck X-Axis Force	1000	+	yes	8896
5	11NECKUP00S2FOYA	Upper Neck Y-Axis Force	1000	+	yes	8896
6	11NECKUP00S2FOZA	Upper Neck Z-Axis Force	1000	+	yes	13344
7	11NECKUP00S2MOXA	Upper Neck Moment About X Axis	600	+	yes	282.5
8	11NECKUP00S2MOYA	Upper Neck Moment About Y Axis	600	+	yes	282.5
9	11NECKUP00S2MOZA	Upper Neck Moment About Z Axis	600	+	yes	282.5
10	11SHLDLE00S2ACXA	Shoulder X-Axis Acceleration	1000	-	yes	2000
11	11SHLDLE00S2ACYA	Shoulder Y-Axis Acceleration	1000	+	yes	2000
12	11SHLDLE00S2ACZA	Shoulder Z-Axis Acceleration	1000	-	yes	2000
12A	11SHLDLE00S2ACRA	Shoulder Resultant Acceleration	1000			
13	11SHLDLE00S2FOXA	Shoulder X-Axis Force	600	+	yes	2000
14	11SHLDLE00S2FOYA	Shoulder Y-Axis Force	600	+	yes	2000
15	11SHLDLE00S2FOZA	Shoulder Z-Axis Force	600	+	yes	2000
16	11SHRILE00S2DSYA	Shoulder Y-Axis Displacement	180	+	yes	75
17	11SPIN0100S2ACXA	Upper Spine X-Axis Acceleration	180	-	yes	2000
18	11SPIN0100S2ACYA	Upper Spine Y-Axis Acceleration	180	+	yes	2000
19	11SPIN0100S2ACZA	Upper Spine Z-Axis Acceleration	180	-	yes	2000
19A	11SPIN0100S2ACRA	Upper Spine Resultant Acceleration	180			
20	11TRRI01LES2DSYA	Left Thorax Rib 1 Y-Axis Displacement	180	+	yes	75
21	11TRRI02LES2DSYA	Left Thorax Rib 2 Y-Axis Displacement	180	+	yes	75
22	11TRRI03LES2DSYA	Left Thorax Rib 3 Y-Axis Displacement	180	+	yes	75
23	11ABRI01LES2DSYA	Left Abdomen Rib 1 Y-Axis Displacement	180	+	yes	75
24	11ABRI02LES2DSYA	Left Abdomen Rib 2 Y-Axis Displacement	180	+	yes	75
25	11TRRI01LES2ACYA	Left Thorax Rib 1 Y-Axis Acceleration	1000	+	yes	2000
26	11TRRI02LES2ACYA	Left Thorax Rib 2 Y-Axis Acceleration	1000	+	yes	2000
27	11TRRI03LES2ACYA	Left Thorax Rib 3 Y-Axis Acceleration	1000	+	yes	2000
28	11ABRI01LES2ACYA	Left Abdomen Rib 1 Y-Axis Acceleration	1000	+	yes	750
29	11ABRI02LES2ACYA	Left Abdomen Rib 2 Y-Axis Acceleration	1000	+	yes	2000
30	11SPIN1200S2ACXA	Lower Spine X-Axis Acceleration	180	-	yes	2000
31	11SPIN1200S2ACYA	Lower Spine Y-Axis Acceleration	180	+	yes	2000
32	11SPIN1200S2ACZA	Lower Spine Z-Axis Acceleration	180	-	yes	2000
32A	11SPIN1200S2ACRA	Lower Spine Resultant Acceleration	180			
33	11ILACLE00S2FOYA	Left Iliac Wing Y-Axis Force	600	+	yes	13344

Command File Test Number 070709

Channel	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
34	11ACTBLE00S2FOYA	Left Acetabulum Y-Axis Force	600	+	yes	8896
35	11PELVCG00S2ACXA	Pelvis X-Axis Acceleration	1000	-	yes	2000
36	11PELVCG00S2ACYA	Pelvis Y-Axis Acceleration	1000	+	yes	2000
37	11PELVCG00S2ACZA	Pelvis Z-Axis Acceleration	1000	-	yes	2000
37A	11PELVCG00S2ACRA	Pelvis Resultant Acceleration	1000			
38	16SILBFR0000ACXA	Right Side Sill at Front Seat X-Axis Acceleration	60	-	yes	400
38A	16SILBFR0000VEXC	Right Side Sill at Front Seat X-Axis Velocity	180			
38B	16SILBFR0000DCXC	Right Side Sill at Front Seat X-Axis Displacement	180			
39	16SILBFR0000ACYA	Right Side Sill at Front Seat Y-Axis Acceleration	60	+	yes	1000
39A	16SILBFR0000VEYC	Right Side Sill at Front Seat Y-Axis Velocity	180			
39B	16SILBFR0000DCYC	Right Side Sill at Front Seat Y-Axis Displacement	180			
40	16SILBFR0000ACZA	Right Side Sill at Front Seat Z-Axis Acceleration	60	-	yes	400
40A	16SILBFR0000ACRA	Right Side Sill at Front Seat Resultant Acceleration	60			
41	16SILBRE0000ACXA	Right Side Sill at Rear Seat X-Axis Acceleration	60	-	yes	400
41A	16SILBRE0000VEXC	Right Side Sill at Rear Seat X-Axis Velocity	180			
41B	16SILBRE0000DCXC	Right Side Sill at Rear Seat X-Axis Displacement	180			
42	16SILBRE0000ACYA	Right Side Sill at Rear Seat Y-Axis Acceleration	60	+	yes	1000
42A	16SILBRE0000VEYC	Right Side Sill at Rear Seat Y-Axis Velocity	180			
42B	16SILBRE0000DCYC	Right Side Sill at Rear Seat Y-Axis Displacement	180			
43	16SILBRE0000ACZA	Right Side Sill at Rear Seat Z-Axis Acceleration	60	-	yes	400
43A	16SILBRE0000ACRA	Right Side Sill at Rear Seat Resultant Acceleration	60			
44	18FORA000000ACXA	Rear Floorpan Above Axle X-Axis Acceleration	60	-	yes	1000
45	18FORA000000ACYA	Rear Floorpan Above Axle Y-Axis Acceleration	60	+	yes	1000
46	18FORA000000ACZA	Rear Floorpan Above Axle Z-Axis Acceleration	60	-	yes	1000
46A	18FORA000000ACRA	Rear Floorpan Above Axle Resultant Acceleration	60			
47	14SILBFR0000ACYA	Left Side Sill at Front Seat Y-Axis Acceleration	60	+	yes	1000
47A	14SILBFR0000VEYC	Left Side Sill at Front Seat Y-Axis Velocity	180			
47B	14SILBFR0000DCYC	Left Side Sill at Front Seat Y-Axis Displacement	180			
48	14SILBRE0000ACYA	Left Side Sill at Rear Seat Y-Axis Acceleration	60	+	yes	1000
48A	14SILBRE0000VEYC	Left Side Sill at Rear Seat Y-Axis Velocity	180			
48B	14SILBRE0000DCYC	Left Side Sill at Rear Seat Y-Axis Displacement	180			
49	16VEHCRE0000ACYA	Right Rear Occupant Compartment Y-Axis Acceleration	60	+	yes	1500
50	11APILLO0000ACYA	Left Lower A-Pillar Y-Axis Acceleration	60	+	yes	1500
51	11APILMI0000ACYA	Left Mid A-Pillar Y-Axis Acceleration	60	+	yes	1500
52	14BPILLO0000ACYA	Left Lower B-Pillar Y-Axis Acceleration	60	+	yes	1500
53	14BPILMI0000ACYA	Left Mid B-Pillar Y-Axis Acceleration	60	+	yes	1500
54	11SETRFR0000ACYA	Left Front Seat Track Y-Axis Acceleration	60	+	yes	2000

Command File Test Number 070709

Channel	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale
55	14SETRLERE00ACYA	Left Rear Seat Track Y-Axis Acceleration	60	+	yes	1500
56	10VEHCCG0000ACXA	Vehicle Center of Gravity X-Axis Acceleration	60	-	yes	2000
57	10VEHCCG0000ACYA	Vehicle Center of Gravity Y-Axis Acceleration	60	+	yes	2000
58	10VEHCCG0000ACZA	Vehicle Center of Gravity Z-Axis Acceleration	60	-	yes	2000
58A	10VEHCCG0000ACRA	Vehicle Center of Gravity Resultant Acceleration	60			
59	14DOOR000001ACYA	Vehicle Front Door Centerline Y-Axis Acceleration	60	+	yes	1500
60	14DOOR000002ACYA	Vehicle Front Door Mid-Rear Y-Axis Acceleration	60	+	yes	1500
61	14DOOR000003ACYA	Vehicle Front Door Upper Centerline Y-Axis Acceleration	60	+	yes	1500
62	16DOOR000002ACYA	Vehicle Rear Door Mid-Rear Y-Axis Acceleration	60	+	yes	1500
63	16DOOR000003ACYA	Vehicle Rear Door Upper Centerline Y-Axis Acceleration	60	+	yes	1500
64	12ENGNT00000ACXA	Top of Engine X-Axis Acceleration	60	-	yes	1000
65	12ENGNT00000ACYA	Top of Engine Y-Axis Acceleration	60	+	yes	1000
66	12VEHC000000ACXA	Firewall X-Axis Acceleration	60	-	yes	1000
67	12VEHC000000ACYA	Firewall Y-Axis Acceleration	60	+	yes	1000
68	13ROOF000000ACXA	Right Side Roof Rail X-Axis Acceleration	60	-	yes	1000
69	13ROOF000000ACYA	Right Side Roof Rail Y-Axis Acceleration	60	+	yes	1000
70	13SILBFR00000ACYA	Right Side Sill In-Line With Impact Location Y-Axis Acceleration	60	+	yes	1000
71	18DECK000000ACXA	Rear Deck Behind Rear Axle X-Axis Acceleration	60	-	yes	1000
72	18DECK000000ACYA	Rear Deck Behind Rear Axle Y-Axis Acceleration	60	+	yes	1000
73	18DECK000000ACZA	Rear Deck Behind Rear Axle Z-Axis Acceleration	60	-	yes	1000
73A	18DECK000000ACRA	Rear Deck Behind Rear Axle Resultant Acceleration	60			
74	11AIRBMILE00EV0A	Driver Side Airbag Inductive	1000	+	no	5
75	11AIRBTPLE00EV0A	Driver Side Curtain Inductive	1000	+	no	5
76	11CONT000001VO00	Head contact switch	0	+	no	1
77	11CONT000002VO00	Shoulder Contact Switch	0	+	no	1
78	11CONT000003VO00	Torso Contact Switch	0	+	no	1
79	11CONT000004VO00	Leg Contact Switch	0	+	no	1

D-10

070709

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

D-11

6070709

