

**Vehicle Research and Test Center
Moving Deformable Barrier into
2005 Volkswagen Jetta at 52.9 km/h
TRC Inc. Test Number: 050707**

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Section 1.0

Purpose and Test Procedure

Purpose

This 48/24 km/h (32.9 mph) 90° side impact test 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 in a moving deformable barrier impact test. The subject vehicle was a 2005 Volkswagen Jetta 4-door.

Test Procedure

This test was conducted in accordance with VRTC instructions for a moving deformable barrier into a vehicle side impact test. Data was obtained relative to FMVSS 214, "Side Impact Protection" performed using ES-2re with rib extenders anthropomorphic test devices (dummies).

A 2005 Volkswagen Jetta 4-door was impacted on the driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 52.9 km/h (32.9 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by Transportation Research Center Inc. in East Liberty, Ohio on July 7, 2005. Pre-test and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummies (ES-2re) are included in Appendix A.

The moving deformable barrier was equipped with a 214 style deformable barrier face and five (5) accelerometers to measure longitudinal, lateral, and vertical axis accelerations. The barrier's specified impact velocity range was 52.1 to 53.8 km/h.

Two restrained EuroSID 2 Dummies (ES-2re) were placed in the driver (Pos. #1) and left rear (Pos. #4) designated seating positions according to the instructions specified in the Federal Register Part 572-214 Section S8.3 and S12.2 (May 17, 2004). Both ES-2re were certified prior to this test and were restrained by 3-point seat belts and by side curtain airbags. The driver dummy was additionally restrained by a torso airbag.

Both dummies were instrumented with a 9-array head, upper spine, lower spine, and pelvis accelerometers to measure longitudinal, lateral, and vertical accelerations and upper, middle, and lower rib accelerometers to measure lateral accelerations. Both dummies were also instrumented with upper and lower neck, shoulder, torso, lower spine, lumbar, abdominal (front, mid, and rear), pubic symphysis, and femur load cells to measure forces and moments, and three (3) rib deflection potentiometers.

The 183 data channels were digitally sampled and recorded at 12,500 samples per second and processed per SAE J211 March 1995.

The crash event was recorded by one (1) real-time panning motion picture camera and ten (10) high-speed digital motion picture cameras. The pre- and post-test conditions were recorded by one (1) real-time motion picture camera.

The side impact test summary data are presented in Section 2.0. The summary of FMVSS 214 data are presented in Section 3.0. The occupant, camera, vehicle, and barrier measurements are presented in Section 4.0. Appendix A contains the still photographic prints. Appendix B contains the dummy and vehicle data plots. Appendix C contains the dummy verification data. Appendix D contains test equipment and instrumentation calibration information. Appendix E contains a copy of the INSIA Report on Structural Measurements.

Section 2.0

Moving Deformable Barrier Side Impact Test Summary

Test Results Summary

This moving deformable barrier side impact test was conducted by TRC Inc. on July 7, 2005.

The test vehicle, a 2005 Volkswagen Jetta 4-door, was equipped with a 2.5-liter transverse engine, automatic transmission, power brakes, dual stage front airbags, side curtain airbags, and side front torso airbags. The vehicle's test weight was 1709.8 kg. The moving deformable barrier's impact speed was 52.9 km/h. The moving deformable barrier impacted at the target point (347 mm rearward of front axle).

Injury Criteria Data Summary		
	Driver	Left Rear Passenger
HIC (15 ms)	75	131
HIC (36 ms)	101	211
Upper Rib Displacement (mm)	25	29
Middle Rib Displacement (mm)	20	23
Lower Rib Displacement (mm)	26	19
Lower Spine Acceleration (g)	28	53
Abdominal Force (N)	733	1,378
Pubic Force (N)	1,969	2,542

Data Acquisition Explanations

The vehicle's left lower B-post Y-axis acceleration data channel, 14BPILLO0000ACYA, recorded questionable data throughout the test.

The vehicle's left middle B-post Y-axis acceleration data channel, 14BPILMI0000ACYA, recorded questionable data throughout the test.

The vehicle's left lower A-post Y-axis acceleration data channel, 11APILLO0000ACYA, exceeded full-scale at approximately 16 milliseconds and recorded no useful data after that.

Table 1 Crash Test Summary

Test mode:	Moving deformable barrier side impact			
Test date:	07/07/05			
Test time:	11:21			
Ambient temperature:	21° C			
Vehicle year/make/ model/body style:	2005/Volkswagen/Jetta/4-door			
Vehicle test weight:	1709.8 kg			
Impact angle ¹ :	270°			
Impact velocity ² :	52.9 km/h			
Maximum vehicle static crush:	177 mm			
Maximum barrier static crush:	162 mm			
Number of data channels:	183			
Number of cameras:	High-speed	10	Real-time	1
<u>Dummies:</u>	<u>Driver #009</u>		<u>Passenger #010</u>	
Type:	ES-2re		ES-2re	
Location:	Left front		Left rear	
Restraint:	Side curtain airbag, 3-pt. seat belt, side torso airbag		Side curtain airbag, 3-pt. seat belt	
<u>Seat track position for test:</u>				
Driver:	Middle; 1st detent rear of 148 mm mid point			
Passenger:	Fixed			
<u>Seat back position for test:</u>				
Driver:	Set to a 21° torso angle with SAE J826			
Passenger:	Fixed			
<u>Head restraint position for test:</u>				
Driver:	Full up; detent 4 of 4			
Passenger:	Full up; detent 1 of 1			
<u>Steering column position:</u>	24.3°; middle of geometric range of travel			

¹ With respect to tow track centerline.

² Speed trap measurement (± .08 km/h accuracy)

Table 2 General Test and Vehicle Parameter Data

Vehicle year/make/ model/body style:	2005/Volkswagen/Jetta/4-door		
VIN:	3VWPF71K65M618687		
Model year:	2005		
Body style:	4-door		
Color:	Black		
Engine data:			
Cylinders:	5		
Displacement	2.5 liters		
Cylinder placement:	Straight		
Engine placement:	Transverse		
Transmission data:	<u>6</u> speed,	<u> </u> manual,	<u>X</u> automatic, <u> </u> overdrive
Final drive:	<u>X</u> FWD,	<u> </u> RWD,	<u> </u> 4WD
Date vehicle received:	6/28/2005		
Odometer reading:	69		
Dealer's name and address:	Vehicle supplied by VRTC		

Accessories:			
Power steering	No	Automatic transmission	Yes
Power brakes	Yes	Automatic speed control	Yes
Power seats	No	Tilting steering wheel	Yes
Power windows	Yes	Telescoping steering wheel	Yes
Tinted glass	Yes	Air conditioning	Yes
Radio	Yes	Anti-skid brake	Yes
Clock	Yes	Rear window defroster	Yes
Other	None	Power door locks	Yes

Certification data from vehicle's label:

Vehicle manufactured by:	Volkswagen De Mexico SA
Date of manufacture:	03/05
VIN:	3VWPF71K65M618687
GVWR:	4343 lbs.
GAWR: Front:	2337 lbs.
Rear:	2116 lbs.

Table 2 General Test and Vehicle Parameter Data, Continued

Tires on vehicle (mfr., line, size): Michelin, Energy MXV4, P195/65R15

Tire pressure with maximum capacity vehicle load:

Front:	51 psi	(350 kPa)
Rear:	51 psi	(350 kPa)

Spare tire (mfr., line, size): Michelin, Energy MXV4, P195/65R15

Type of seats:

Front	Bucket
Rear	Split bench

Maximum width: N/A¹

Wheelbase: 2575 mm

Location of “Recommended Tire Pressure” label:

The label was located on driver side B-pillar.

Data from vehicle’s “Recommended Tire Pressure” label”:

Recommended tire size: P195/65R15

Recommended cold tire pressure:

Front:	33 psi	(230 kPa)
Rear:	33 psi	(230 kPa)

Vehicle Capacity Data:

Number of Occupants (Designated seating capacity):

Front	2
Rear	3
Total	5

Vehicle capacity weight: 441 kg

Rated cargo/luggage weight² 101 kg

Test vehicle attitude:

Delivered attitude:	LF	676 mm;	RF	675 mm;	LR	702 mm;	RR	698 mm
Fully loaded attitude:	LF	668 mm;	RF	675 mm;	LR	649 mm;	RR	652 mm
Pre-test attitude:	LF	667 mm;	RF	665 mm;	LR	652 mm;	RR	652 mm
Post-test attitude:	LF	680 mm;	RF	670 mm;	LR	653 mm;	RR	632 mm

¹ Pre-test maximum width not recorded

² RCLW = VCW - (68 kg * designated seating capacity)

Table 2 General Test and Vehicle Parameter Data, Continued

Test vehicle attitude:

	Left Sill Pitch	Right Sill Pitch	Front Bumper L-R Roll	Rear Bumper L-R Roll
As Delivered:	-0.9°	-1.0°	0.0°	0.0°
As Tested:	-1.0°	-0.8°	N/A ¹	N/A ¹
Fully Loaded:	-0.2°	-0.1°	-0.1°	-0.4°

Negative Pitch Angle = Vehicle front down

Negative Roll Angle = Driver side down

Weight of test vehicle as received (with maximum fluids)=UDW:

Right front	435.0 kg	Right rear	294.5 kg
Left front	435.0 kg	Left rear	288.5 kg
Total front weight	870.0 kg	(59.9 % of total vehicle weight)	
Total rear weight	583.0 kg	(40.1 % of total vehicle weight)	
Total delivered weight	1453.0 kg		

Calculation of test vehicle's target test weight:

Total Delivered Weight (UDW) =	1453.0 kg
Rated Cargo/Luggage Weight (RCLW) =	101.0 kg
Weight of 2 ES-2re Dummies @ 77 kg each =	154.0 kg
Target test weight =	1708.0 kg

Weight of test vehicle with required dummies and equipment:

Right front	468.4 kg	Right rear	369.4 kg
Left front	486.0 kg	Left rear	386.0 kg
Total front weight	954.4 kg	(55.8% of total vehicle weight)	
Total rear weight	755.4 kg	(44.2% of total vehicle weight)	
Total test weight	1709.8 kg	(0.1% over target test weight)	

¹ Measurement not recorded.

Table 2 General Test and Vehicle Parameter Data, Continued

Weight of ballast secured in vehicle: None

Components removed to meet target test weight: Trunk lid, plastic engine cover, jack, passenger hub caps, 3 headrests, serpentine belt with idler pulley, trunk weather strip, 1 taillight, rear fascia with beam foam cover, trunk vent, passenger door weather strips, 2 taillight brackets, trunk liner, dip stick, reservoir caps, wiper blades.

Location of Vehicle's CG: 1138 mm rearward of front wheel centerline

Fuel System Data:

Usable fuel system capacity 54.9 liters (from owner's manual)

Actual test volume: 51.0 liters (93% of usable)

Table 3 Post-Impact Data

Test number: 050707
Test date: 07/07/05
Test time: 11:21
Test type: Moving deformable barrier left side impact
Impact angle: 270°
Ambient temperature
at impact area: 21° C
Required impact velocity range: 52.1 to 53.8 km/h

MDB impact velocity:

Primary: 52.9 km/h
Secondary: 52.9 km/h
Distance from vehicle to barrier:
Entering velocity trap: 661 mm
Exiting velocity trap: 51 mm

Location of Impact Point On Test Vehicle Side To Be Impacted:

Wheelbase = 2575 millimeters
Intended impact point is 347 millimeters rearward of front axle centerline
(which is 940 millimeters forward of the wheelbase midpoint)
Actual Impact Point is 347 millimeters rearward of front axle centerline

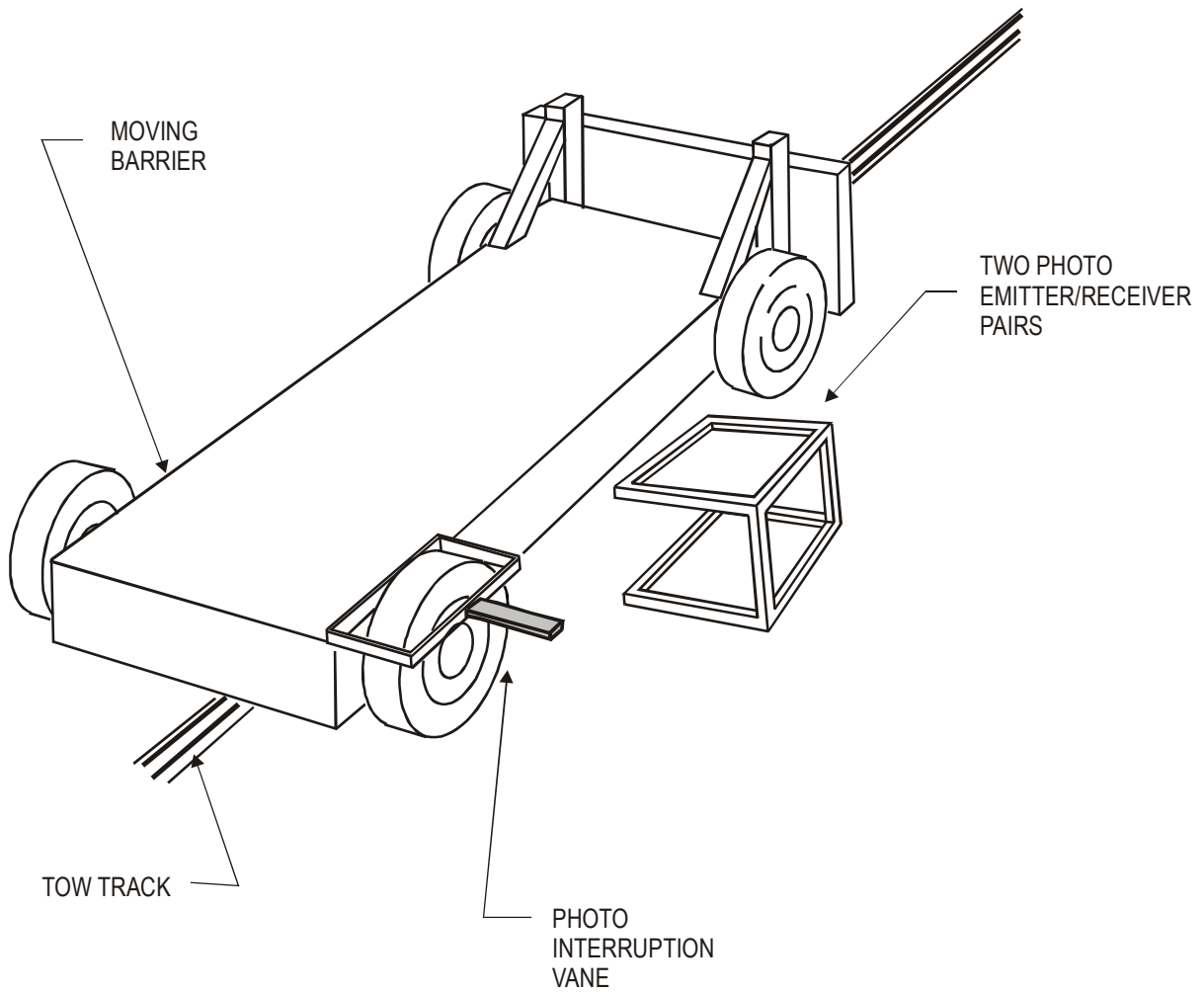
Impact Point:

Actual Impact Point is 0 mm right of nominal impact ref. line (Lateral)
Actual Impact Point is 0 mm up from nominal impact point (Vertical)

Maximum Exterior Static Crush:

1. Level 1 (260 mm above ground) = 83 mm
2. Level 2 (520 mm above ground) = 175 mm
3. Level 3 (630 mm above ground) = 177 mm
4. Level 4 (920 mm above ground) = 88 mm
5. Level 5 (1460 mm above ground) = 0 mm
Maximum Post-Test Intrusion = 177 mm

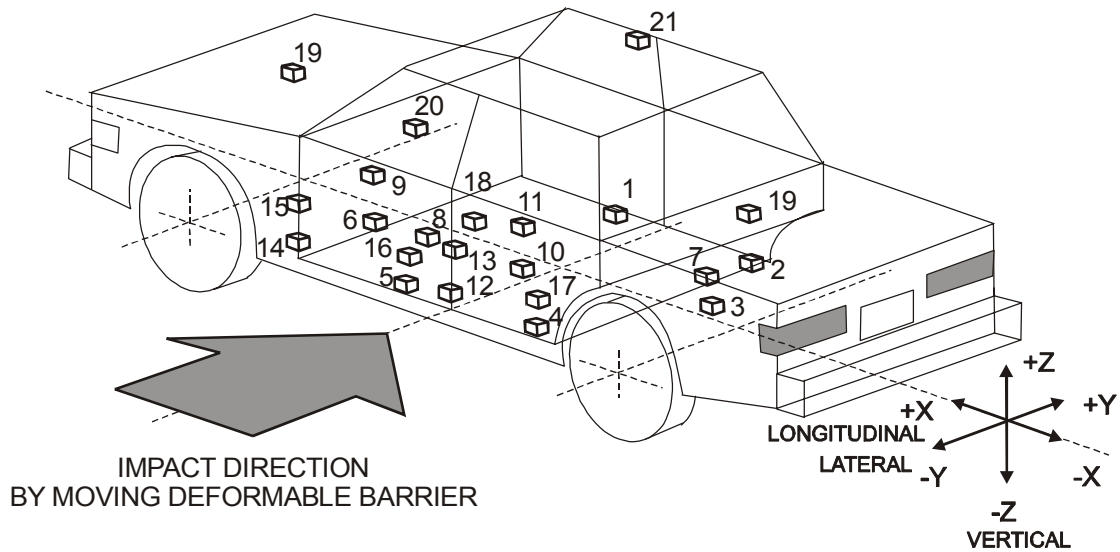
Figure 1 Impact Velocity Measurement System



The final vane clears the final emitter/receiver pair 51 millimeters before impact.

The vanes have 610-millimeter spacing.

Figure 2 Vehicle Accelerometer and String Potentiometer Placement



- | | |
|------------------------------------|--|
| 1-Right Front Side Sill | 12-Left Side Lower B-pillar |
| 2-Right Side Sill at Rear Seat | 13-Left Side Middle B-pillar |
| 3-Rear Floorpan above Axle | 14-Left Side Lower A-pillar |
| 4-Left Side Sill at Rear Seat | 15-Left Side Middle A-pillar |
| 5-Left Front Side Sill | 16-Left Side Front Seat Track at H-point |
| 6-Left Front Door Centerline | 17-Left Rear Seat Track at H-point |
| 7-Right Rear Occupant Compartment | 18-Vehicle Center of Gravity |
| 8-Left Front Door Mid-Rear | 19-Engine Top |
| 9-Left Front Door Upper Centerline | 20-Firewall |
| 10-Left Rear Door Mid-Rear | 21-Right Side Roof Rail |
| 11-Left Rear Door Upper Centerline | |

Table 4 Test Vehicle Accelerometer Locations and Data Summary

Accel. No.	Location		Positive Direction		Negative Direction	
			Max. (g)	Time (ms)	Max. (g)	Time (ms)
1	Right Side Sill at Front Seat	X	4.5	31.9	5.3	9.5
		Y	15.3	7.0	2.5	83.7
		Z	3.8	61.4	5.8	22.1
2	Right Side Sill At Rear Seat	X	4.2	31.2	4.9	9.0
		Y	21.0	41.8	3.0	83.8
		Z	2.8	81.0	7.3	21.4
3	Rear Floorpan Above Axle	X	2.4	57.2	6.6	21.4
		Y	22.0	24.0	3.5	75.5
		Z	5.4	22.4	7.5	14.2
4	Left Side Sill at Rear Seat	Y	60.6	4.3	17.7	24.0
5	Left Side Sill at Front Seat	Y	47.8	4.4	17.4	16.2
6	Left Front Door Centerline	Y	136.9	6.2	47.9	10.6
7	Right Rear Occupant Compartment	Y	23.4	41.4	3.0	85.6
8	Left Front Door Mid-Rear	Y	138.3	6.4	132.4	11.0
9	Left Front Door Upper Centerline	Y	105.8	12.1	58.4	8.6
10	Left Rear Door Mid-Rear	Y	215.7	6.6	104.1	27.1
11	Left Rear Door Upper Centerline	Y	78.8	11.4	45.6	16.2
12	Left Lower B-Pillar ¹	Y	116.8	3.3	25.0	23.1
13	Left Middle B-Pillar ¹	Y	39.1	2.2	22.5	25.1
14	Left Lower A-Pillar ¹	Y	----	----	----	----
15	Left Middle A-Pillar	Y	33.3	3.0	7.6	18.1
16	Left Front Seat Track	Y	40.7	13.6	11.2	24.2
17	Left Rear Seat Track	Y	22.7	20.6	7.1	81.1
18	Vehicle Center of Gravity	X	3.9	19.1	12.5	26.3
		Y	51.4	20.7	39.6	26.0
		Z	15.8	23.8	11.7	18.4
	Resultant		51.5	20.7		

¹ See Data Acquisition Explanations.

Table 4 Test Vehicle Accelerometer Locations and Data Summary, Cont'd.

Accel. No.	Location		Positive Direction		Negative Direction	
			Max. (g)	Time (ms)	Max. (g)	Time (ms)
19	Top of Engine	X	13.8	75.1	7.9	39.6
		Y	15.9	40.3	5.1	98.6
20	Firewall	X	3.1	28.1	9.8	24.2
		Y	14.2	13.3	2.4	121.8
21	Right Roof Rail	X	5.1	53.8	6.6	15.4
		Y	19.5	8.2	2.1	267.4

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.

Table 5 Moving Deformable Barrier (MDB) Summary

MDB Face Manufacturer And Serial Number:

Cellbond, EH341

Position Of Impactor (MDB) On Monorail:

Crabbed 27° to the left

MDB Specifications:

Overall Width of Framework Carriage = 1251 mm

Overall Length of MDB (Incl. honeycomb impact face) = 4014 mm

Wheelbase of Framework Carriage = 2591 mm

Track of Framework Carriage (Front & Rear) = 1881 mm

C.G. Location Rearward of Front Axle = 1127 mm

MDB Weight:

Left Front = 486.8 kg Left Rear = 190.6 kg

Right Front = 280.4 kg Right Rear = 399.8 kg

Total Front = 767.2 kg Total Rear = 590.4 kg

Total MDB Weight = 1357.6 kg

Impact Angle (MDB C/L to Target Vehicle C/L) = 90 degrees

Impact Speed = 52.9 km/h

Maximum Static Crush of Honeycomb Impact Face:

1. Row A at Center of Bumper Level = 162 millimeters

2. Row B at Top of Bumper Level = 87 millimeters

3. Row C at Mid Level = 95 millimeters

4. Row D at Top of Stack Level = 121 millimeters

Instrumentation:

Number of MDB Data Channels = 5

Section 3.0

Summary of FMVSS 214D Data

Table 6 Dummy Injury Criteria Data

Driver Dummy S/N 009

Location		Positive Direction		Negative Direction	
		Max.	Time (ms)	Max.	Time (ms)
Head Acceleration (g)					
Longitudinal	X	3.6	124.6	15.5	57.1
Lateral	Y	29.6	54.3	23.2	22.7
Vertical	Z	20.1	22.7	4.4	29.5
Resultant		33.1	54.3		
HIC (36 ms)		101			
Head Left Acceleration (g)					
Longitudinal	X	5.7	23.0	12.7	39.8
Vertical	Z	21.7	22.7	5.4	29.9
Head Front Acceleration (g)					
Lateral	Y	34.9	56.2	11.2	22.7
Vertical	Z	27.1	23.0	35.3	22.7
Head Top Acceleration (g)					
Longitudinal	X	5.1	124.2	13.6	65.6
Vertical	Y	36.2	49.9	13.0	22.7
Upper Neck Force (N)					
X-Axis Shear		70.4	43.4	136.7	59.4
Y-Axis Shear		73.8	23.0	208.6	72.1
Z-Axis Axial		469.8	43.4	416.2	22.7
Upper Neck Moment (N-m)					
About X-Axis		5.2	131.8	8.0	90.0
About Y-Axis		6.3	91.4	16.9	58.8
About Z-Axis		19.0	63.2	11.9	174.1
Lower Neck Force (N)					
X-Axis Shear		77.9	129.3	146.9	20.0
Y-Axis Shear		166.8	26.8	237.4	48.2
Z-Axis Axial		359.0	47.4	233.4	74.9

Table 6 Dummy Injury Criteria Data, Cont'd.

Driver Dummy S/N 009

Location	Positive Direction		Negative Direction	
	Max.	Time (ms)	Max.	Time (ms)
Lower Neck Moment (N-m)				
About X-Axis	8.4	36.2	26.1	75.8
About Y-Axis	28.6	71.6	7.3	133.6
About Z-Axis	21.3	59.5	11.9	175.0
Shoulder Force (N)				
X-Axis	157.1	143.1	274.9	31.4
Y-Axis	369.0	25.0	245.9	37.1
Z-Axis	522.0	27.5	71.8	67.1
Upper Spine Acceleration (g)				
Longitudinal X	2.4	21.8	8.5	19.0
Lateral Y	24.9	49.1	3.6	157.8
Vertical Z	1.8	18.9	1.4	68.0
Resultant	25.4	49.0		
Torso Back Plate Force (N)				
Longitudinal X	718.2	34.8	177.0	23.0
Lateral Y	62.1	12.9	337.6	44.8
Torso Back Plate Moment (N-m)				
Lateral Y	13.3	24.5	8.3	173.5
Vertical Z	25.1	40.7	5.3	21.2
Upper Rib Acceleration (g)				
Lateral Y	64.8	22.6	12.9	12.9
Mid Rib Acceleration (g)				
Lateral Y	46.7	22.2	10.6	92.4
Lower Rib Acceleration (g)				
Lateral Y	44.6	22.5	7.7	85.1
Upper Rib Displacement (mm)				
Lateral Y	24.6	37.4	4.7	70.1

Table 6 Dummy Injury Criteria Data, Cont'd.

Driver Dummy S/N 009

Location	Positive Direction Max. Time (ms)		Negative Direction Max. Time (ms)	
Mid Rib Displacement (mm)				
Lateral Y	20.1	37.7	5.6	70.2
Lower Rib Displacement (mm)				
Lateral Y	26.1	39.9	0.6	72.3
Lower Spine Acceleration (g)				
Longitudinal X	2.5	117.3	9.8	19.7
Lateral Y	27.6	34.5	5.1	69.8
Vertical Z	2.2	19.4	2.1	32.9
Resultant	27.8	34.6		
Lower Spine Force (N)				
Longitudinal X	514.0	50.6	149.1	132.6
Lateral Y	1036.3	43.0	183.7	13.6
Lower Spine Moment (N-m)				
Longitudinal X	54.5	72.6	94.0	25.8
Lateral Y	81.2	51.8	14.7	24.4
Lumbar Force (N)				
Y-Axis	1218.9	43.8	35.1	212.6
Z-Axis	1374.6	51.8	25.1	184.2
Lumbar Moment (N-m)				
About X-Axis	78.0	47.4	5.6	14.6
Front Abdominal Force (N)				
Lateral Y	167.1	25.9	66.1	68.2
Mid Abdominal Force (N)				
Lateral Y	243.3	30.2	24.8	115.9
Rear Abdominal Force (N)				
Lateral Y	399.9	32.4	24.9	105.0
Abdominal Total Force (N)	733			

Table 6 Dummy Injury Criteria Data, Cont'd.

Driver Dummy S/N 009

Location	Positive Direction		Negative Direction	
	Max.	Time (ms)	Max.	Time (ms)
Pubic Force (N)				
Lateral Y	169.9	148.6	1968.9	46.1
Pelvis Acceleration (g)				
Longitudinal X	5.7	148.5	10.3	20.3
Lateral Y	37.3	25.6	12.1	64.2
Vertical Z	9.1	19.1	9.8	21.2
Resultant	37.5	25.5		
Left Femur Force (N)				
X-Axis	102.6	22.6	212.0	47.1
Y-Axis	930.1	47.2	322.2	23.0
Z-Axis	919.0	42.9	160.2	62.2
Left Femur Moment (N-m)				
About Longitudinal	94.8	45.5	40.1	163.5
About Lateral	23.2	44.4	18.8	62.4
About Vertical	7.8	66.7	43.0	51.9
Right Femur Force (N)				
X-Axis	249.4	68.5	49.8	188.0
Y-Axis	437.6	43.4	149.9	21.7
Z-Axis	931.1	49.4	57.0	83.8
Right Femur Moment (N-m)				
About Longitudinal	88.4	55.4	26.4	42.2
About Lateral	41.6	43.8	2.4	17.9
About Vertical	9.9	264.5	16.5	58.6

Positive Direction:

Longitudinal: Forward

Lateral: Rightward

Vertical: Downward

Negative Direction:

Longitudinal: Rearward

Lateral: Leftward

Vertical: Upward

Table 6 Dummy Injury Criteria Data, Cont'd.

Left Rear Passenger Dummy S/N 010

Location	Positive Direction Max. Time (ms)		Negative Direction Max. Time (ms)	
Head Acceleration (g)				
Longitudinal X	14.8	97.0	18.7	39.4
Lateral Y	39.8	43.5	6.2	97.4
Vertical Z	17.7	68.2	26.0	56.7
Resultant	43.6	40.7		
HIC (36 ms)	211			
Head Left Acceleration (g)				
Longitudinal X	8.0	80.0	24.3	39.3
Vertical Z	22.7	68.2	30.5	40.5
Head Front Acceleration (g)				
Lateral Y	45.3	43.6	7.4	97.2
Vertical Z	23.1	56.9	17.0	68.2
Head Top Acceleration (g)				
Longitudinal X	6.1	94.5	26.5	39.5
Vertical Y	75.1	40.6	11.5	97.2
Upper Neck Force (N)				
X-Axis Shear	224.1	53.3	327.9	84.2
Y-Axis Shear	80.8	140.2	910.9	58.6
Z-Axis Axial	286.0	99.5	1789.4	56.9
Upper Neck Moment (N-m)				
About X-Axis	48.5	75.7	27.6	53.1
About Y-Axis	14.3	104.2	3.2	310.0
About Z-Axis	6.6	257.7	17.8	120.1
Lower Neck Force (N)				
X-Axis Shear	103.0	142.6	112.8	39.7
Y-Axis Shear	811.2	55.0	343.8	77.4
Z-Axis Axial	356.9	100.2	1934.2	58.0

Table 6 Dummy Injury Criteria Data, Cont'd.

Left Rear Passenger Dummy S/N 010

Location	Positive Direction		Negative Direction	
	Max.	Time (ms)	Max.	Time (ms)
Lower Neck Moment (N-m)				
About X-Axis	17.8	141.8	92.8	75.6
About Y-Axis	32.1	84.2	14.7	51.8
About Z-Axis	6.6	256.1	15.4	166.6
Shoulder Force (N)				
X-Axis	1246.8	53.0	110.4	28.4
Y-Axis	3041.9	52.8	210.0	95.8
Z-Axis	476.5	40.9	136.0	103.6
Upper Spine Acceleration (g)				
Longitudinal X	4.5	121.4	12.3	54.4
Lateral Y	43.3	53.5	5.3	150.4
Vertical Z	5.8	73.2	5.7	47.4
Resultant	44.9	53.6		
Torso Back Plate Force (N)				
Longitudinal X	345.9	143.0	85.1	259.4
Lateral Y	80.4	75.8	617.1	48.4
Torso Back Plate Moment (N-m)				
Lateral Y	5.6	40.1	8.4	118.6
Vertical Z	15.0	46.0	6.4	145.1
Upper Rib Acceleration (g)				
Lateral Y	68.3	39.9	8.2	118.2
Mid Rib Acceleration (g)				
Lateral Y	56.2	41.8	8.1	146.2
Lower Rib Acceleration (g)				
Lateral Y	49.9	41.8	10.3	96.1
Upper Rib Displacement (mm)				
Lateral Y	28.6	55.3	0.3	91.8

Table 6 Dummy Injury Criteria Data, Cont'd.

Left Rear Passenger Dummy S/N 010

Location	Positive Direction Max. Time (ms)		Negative Direction Max. Time (ms)	
Mid Rib Displacement (mm)				
Lateral Y	22.7	51.9	1.8	76.6
Lower Rib Displacement (mm)				
Lateral Y	18.6	52.6	3.9	76.0
Lower Spine Acceleration (g)				
Longitudinal X	3.3	136.4	8.6	51.1
Lateral Y	51.6	46.4	6.6	75.4
Vertical Z	5.9	73.6	8.4	47.0
Resultant	52.6	46.5		
Lower Spine Force (N)				
Longitudinal X	160.4	91.9	352.8	48.2
Lateral Y	2031.3	45.6	187.3	111.5
Lower Spine Moment (N-m)				
Longitudinal X	41.2	136.5	176.2	45.7
Lateral Y	9.1	149.3	63.2	51.4
Lumbar Force (N)				
Y-Axis	2216.0	47.4	130.1	135.3
Z-Axis	459.0	100.8	1535.8	50.3
Lumbar Moment (N-m)				
About X-Axis	112.5	45.8	10.6	288.7
Front Abdominal Force (N)				
Lateral Y	291.3	48.2	25.8	102.2
Mid Abdominal Force (N)				
Lateral Y	591.8	47.8	45.0	79.3
Rear Abdominal Force (N)				
Lateral Y	519.6	48.5	12.0	28.7
Abdominal Total Force (N)				

Table 6 Dummy Injury Criteria Data, Cont'd.

Left Rear Passenger Dummy S/N 010

Location	Positive Direction		Negative Direction	
	Max.	Time (ms)	Max.	Time (ms)
Pubic Force (N)				
Lateral Y	123.5	219.5	2542.4	42.6
Pelvis Acceleration (g)				
Longitudinal X	10.0	45.0	15.2	49.4
Lateral Y	53.7	38.8	12.4	59.3
Vertical Z	6.7	54.7	10.4	40.2
Resultant ¹	54.6	38.8		
Left Femur Force (N)				
X-Axis	77.7	70.6	218.2	28.3
Y-Axis	96.0	310.0	1108.3	50.3
Z-Axis	528.9	37.2	170.4	152.6
Left Femur Moment (N-m)				
About Longitudinal	58.8	37.2	65.1	58.2
About Lateral	10.9	30.1	38.6	28.5
About Vertical	19.9	37.7	11.1	48.6
Right Femur Force (N)				
X-Axis	240.0	43.1	231.4	65.1
Y-Axis	447.0	37.5	753.2	46.1
Z-Axis	1044.5	46.5	133.2	134.9
Right Femur Moment (N-m)				
About Longitudinal	55.5	52.9	66.9	38.2
About Lateral	50.6	46.8	22.6	67.8
About Vertical	21.9	53.0	4.5	310.0

Positive Direction:

Longitudinal: Forward

Lateral: Rightward

Vertical: Downward

Negative Direction:

Longitudinal: Rearward

Lateral: Leftward

Vertical: Upward

Table 7 Post-Impact Dummy/Vehicle Data

Visible Dummy Contact Points:

	<u>Driver</u>	<u>Passenger</u>
Head	Side curtain airbag	Side curtain airbag, head restraint, headliner
Shoulder	Door panel	Door panel
Abdomen	Side torso airbag	None
Left knee	Door panel	Door panel
Right knee	None	None

Door opening:

	<u>Left</u>	<u>Right</u>
Front	Jammed and latched	Easy
Rear	Jammed and latched	Easy

Seat movement:

	<u>Seat back failure</u>	<u>Seat shift</u>
Left Front	None	None
Left Rear	None	None

Glazing damage: Impacted side windows broken.

Other notable impact effects: None

Section 4.0

Occupant, Vehicle, Camera, and Barrier Information

Table 8 Vehicle Structural Measurements^{1,2}

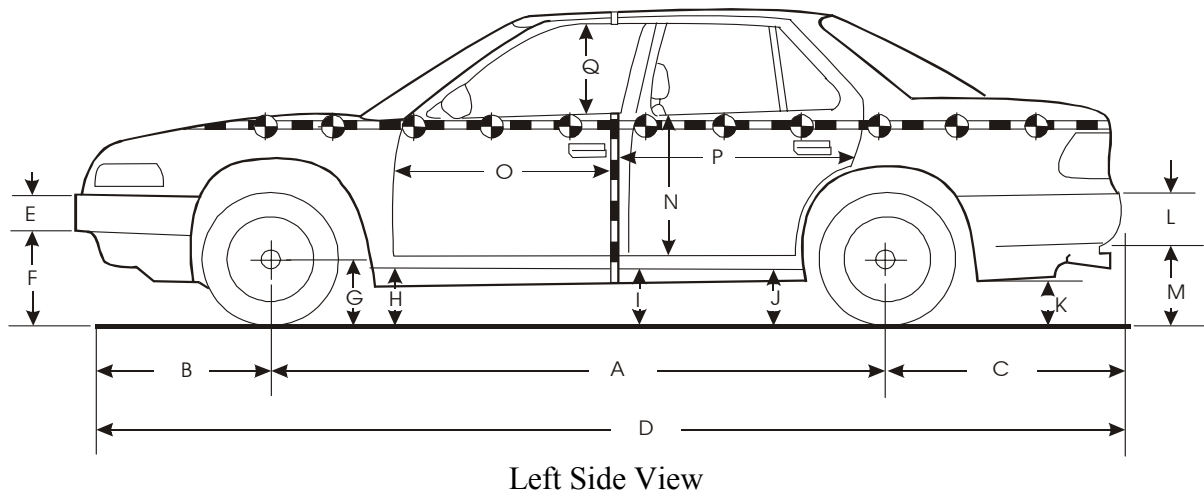
	Elements	Pre-Test
1	Total Length	4565
2	Total Width	1287
3	Bumper Top Height	523
4	Bumper Bottom Height	393
5	Longitudinal Member Top Height	543
6	Longitudinal Member Bottom Height	350
7	Distance Between Longitudinal Members	120
7'	Longitudinal Member Width	123
8	Engine Top Height	891
9	Engine Bottom Height	154
10	Engine and Gearbox Width	860
11	Front Bumper - Engine Distance	375
12	Front Shock Absorber Fixing Height	868
13	Bonnet Leading Edge Height	712
14	Front Shock Absorber Fixing Width	115
15	Front Bumper - Front Axle Distance	885
16	Front Axle - A Pillar Distance	460
17	A Pillar - B Pillar Distance	1045
18	B Pillar - Rear Axle Distance	1065
19	B Pillar - C Pillar Distance	940
20	Roof Sill Bottom Height	1297
21	Roof Sill Top Height	1338
22	Floor Sill Bottom Height	297
23	Floor Sill Top Height	337

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 3 Pre-Test And Post-Test Measurement Points



Note: All dimensions are in millimeters with tolerance of ± 3 mm

Code	Measurement Description	Pre-Test	Post-Test	Change
A	Wheelbase	2575	2575	0
B	Front Axle to Front Surface of Vehicle	885	873	12
C	Rear Axle to Rear Surface of Vehicle	1080	1075	5
D	Total Length at Centerline	4565	4550	15
E	Front Bumper Thickness	137	137	0
F	Front Bumper Bottom to Ground	440	468	-28
G	Sill Height at Front Wheel Well	295	295	0
H	Sill Height at Front Door Leading Edge	205	245	-40
I	Sill Height at "B" Pillar	215	247	-32
J1	Sill Height at Rear Wheel Well	175	187	-12
J2	Pinch Weld Height at Rear Wheel Well	230	238	-8
K	Sill Height Aft of Rear Wheel Well	390	345	45
L	Rear Bumper Thickness	180	180	0
M	Rear Bumper Bottom to Ground	480	430	50
N	Sill Height to Window Bottom Sill	695	650	45
O	Front Door Leading Edge to Impact CL	837	751	86
P	Rear Door Trailing Edge to Impact CL	1190	1123	67
Q	Front Window Opening	390	387	3
R	Right Side Length	4300	4300	0
S	Left Side Length	4300	4293	7
T	Vehicle Width at "B" Post	1262	1202	60

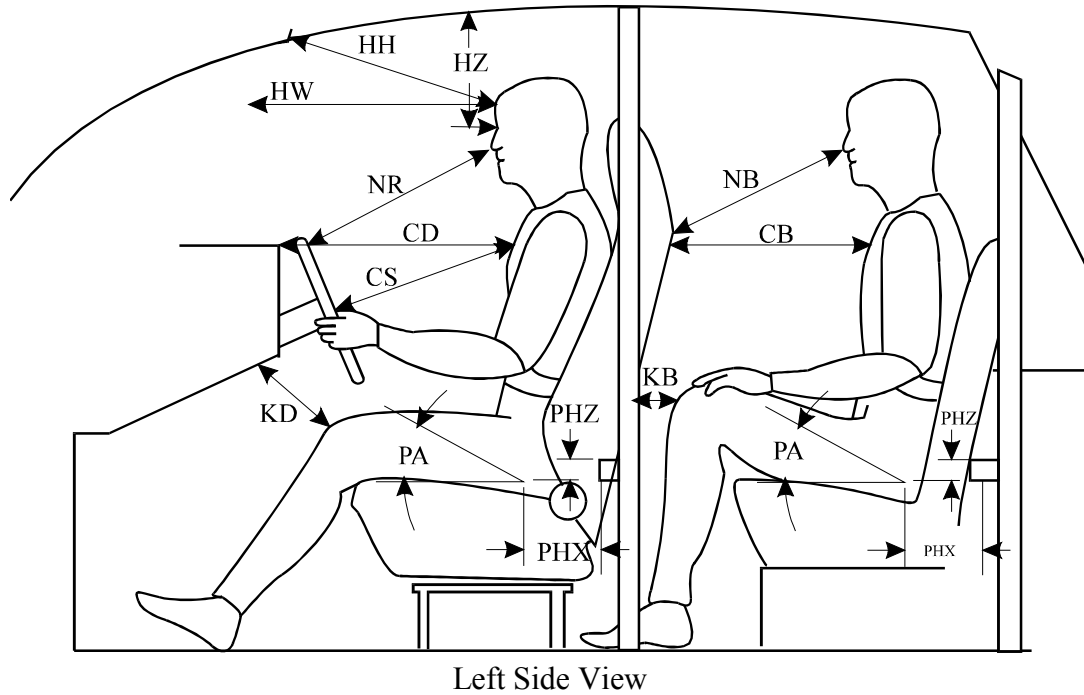
D = Length at centerline
T = Width at B-pillar

E&L = Bumper Thickness
J1 = To Pinch Weld

R = Right Side Length
J2 = To Sill

S = Left Side Length

Figure 4 ES-2re Longitudinal Clearance Dimensions

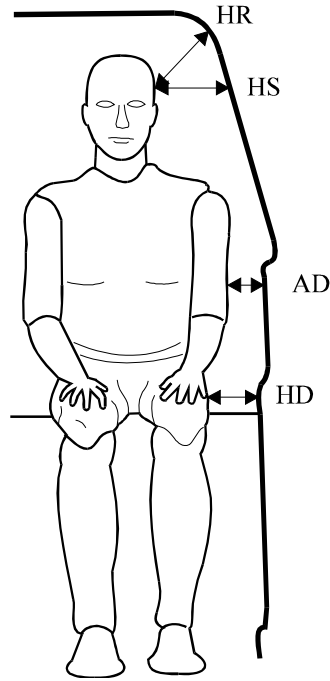


Note: All measurements are in millimeters with tolerance of ± 3 mm

Measurement	Driver ES-2re # 009	Left Rear Pass. ES-2re # 010
HH	444	N/A
HW	717	N/A
HZ	184	N/A
NR/NB	487	603
CD/CB	582	587
CS	340	N/A
KDL(KDA°)/KBL(KBA°)	104/(23.2°)	124/(7.2°)
KDR(KDA°)/KBR(KBA°)	110/(16.6°)	112/(9.2°)
PA°	N/A	N/A
PHX	203	190
PHZ	211	208

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 5 ES-2re Lateral Clearance Dimensions



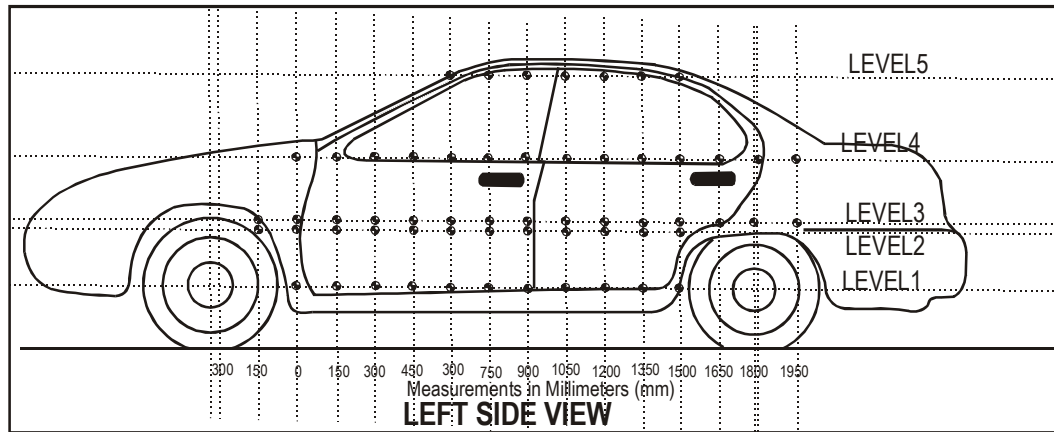
Note: All measurements are in millimeters with tolerance of ± 3 mm

Measurement	Driver ES-2re # 009	Left Rear Pass. ES-2re # 010
HR	214	191
HS	335	303
AD*	118	84
HD	166	163

* Lower measurement is taken laterally at center of the lower rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

Upper measurement is taken laterally at center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

Figure 6 Vehicle Side Measurements



Level 5 - Window Top

Level 4 - Window Sill

Level 3 - Mid-Door

Level 2 - Occupant H-Point

Level 1 - Axle Centerline Height or Sill Top Height

Measurements Are Taken When The Vehicle Is In The “As Tested” Configuration.

Measurements along the vertical 750 mm line shown above:

Level 5 @ Window Top	=	<u>1460</u>	mm
Level 4 @ Window Sill	=	<u>920</u>	mm
Level 3 @ Mid Door	=	<u>630</u>	mm
Level 2 @ Occupant H-Point	=	<u>520</u>	mm
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>260</u>	mm

Table 9 Vehicle Exterior Crush Profiles - All Levels

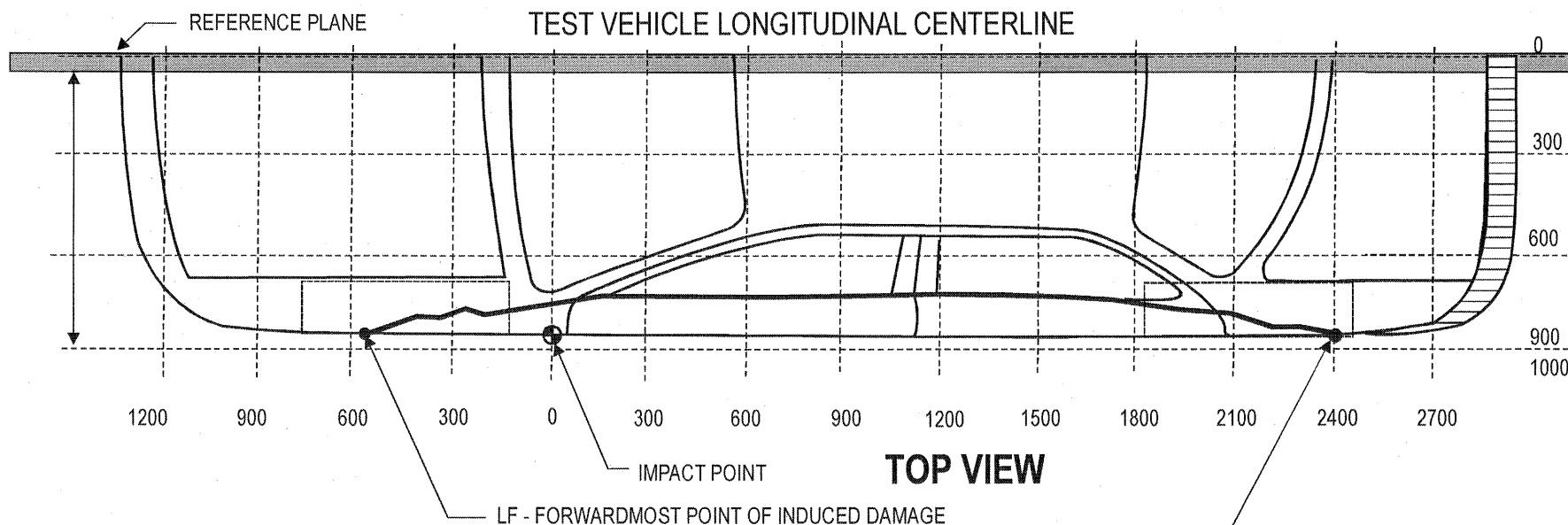
Location	Height		(mm) From Impact Point													
			-1200	-1050	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750
Level 1 Side Sill	260	Pre	---	---	---	---	---	---	---	---	---	853	854	854	853	856
		Post	---	---	---	---	---	---	---	---	---	829	815	802	776	774
		Crush	---	---	---	---	---	---	---	---	---	24	39	52	77	82
Level 2 H-Point	520	Pre	---	---	---	832	---	---	---	---	878	871	872	872	872	872
		Post	---	---	---	835	---	---	---	---	859	769	714	707	705	716
		Crush	---	---	---	-3	---	---	---	---	19	102	158	165	167	156
Level 3 Mid-Door	630	Pre	---	---	---	804	863	---	---	882	873	872	874	876	877	878
		Post	---	---	---	809	866	---	---	881	846	765	748	747	741	724
		Crush	---	---	---	-5	-3	---	---	1	27	107	126	129	136	154
Level 4 Window Sill	920	Pre	---	---	---	685	719	748	771	791	804	805	813	819	824	827
		Post	---	---	---	690	723	752	773	792	805	791	786	777	766	754
		Crush	---	---	---	-5	-4	-4	-2	-1	-1	14	27	42	58	73
Level 5 Window Top	1460	Pre	---	---	---	---	---	---	---	---	---	---	---	---	---	590
		Post	---	---	---	---	---	---	---	---	---	---	---	---	---	591
		Crush	---	---	---	---	---	---	---	---	---	---	---	---	---	-1

Table 9 Vehicle Exterior Crush Profiles - All Levels, Cont'd.

Location	Height		(mm) From Impact Point												
			900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700
Level 1 Side Sill	260	Pre	847	845	842	837	835	833	830	---	---	---	---	---	---
		Post	773	762	772	782	791	792	810	---	---	---	---	---	---
		Crush	74	83	70	55	44	41	20	---	---	---	---	---	---
Level 2 H-Point	520	Pre	872	870	868	866	863	859	862	---	---	---	---	---	---
		Post	712	696	725	701	689	684	762	---	---	---	---	---	---
		Crush	160	174	143	165	174	175	100	---	---	---	---	---	---
Level 3 Mid-Door	630	Pre	878	877	875	872	869	866	864	870	---	---	---	---	---
		Post	721	730	731	723	708	689	759	810	---	---	---	---	---
		Crush	157	147	144	149	161	177	105	60	---	---	---	---	---
Level 4 Window Sill	920	Pre	830	832	831	831	830	827	824	820	815	809	800	790	774
		Post	765	770	759	755	750	743	736	788	818	805	811	811	804
		Crush	65	62	72	76	80	84	88	32	-3	4	-11	-21	-30
Level 5 Window Top	1460	Pre	599	601	596	596	591	587	581	571	---	---	---	---	---
		Post	600	602	598	597	594	592	587	579	---	---	---	---	---
		Crush	-1	-1	-2	-1	-3	-5	-6	-8	---	---	---	---	---

Figure 7 Vehicle Damage Profile Distances

NOTE: All measurements are in millimeters (mm) and should be accurate to plus or minus 3mm.



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 (+)

DPD Measurements	Pre-Test (mm)	Post-Test (mm)	Static Crush (mm)
6: LF = 0 mm (Level 3)	873	846	27
5: 450 mm (Level 2)	872	707	165
4: 750 mm (Level 2)	872	716	156
3: 1050 mm (Level 2)	870	696	174
2: 1500 mm (Level 2)	863	689	174
1: LR = 1950 mm (Level 3)	870	810	60

Full length of induced damage was 1950 mm.

Figure 8 Exterior Static Crush For Impactor Face

(Grid as looking at MDB from front)

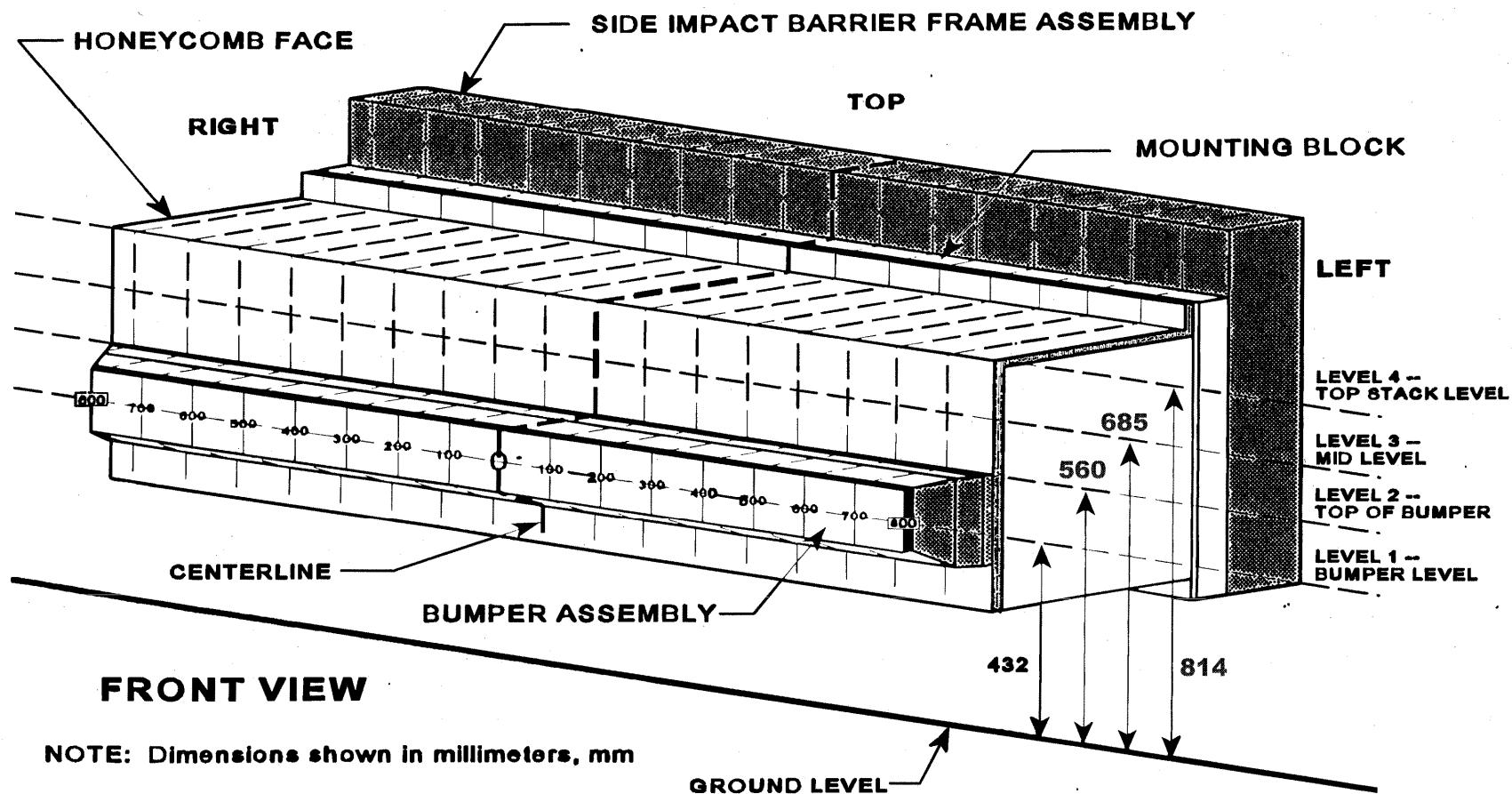


Table 10 Exterior Static Crush For Impactor Face

		Distance Right of Center (mm)									Distance Left of Center (mm)							
Location	Height At CL	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
Top Stack Level - Level D	814	-34	-24	-23	-24	-36	-71	-74	-69	-43	-24	-31	-34	-41	-50	-61	-78	-121
Mid Level Level C	685	-31	-18	-16	-16	-20	-33	-47	-34	-22	-12	-12	-15	-22	-30	-41	-58	-95
Top Bumper Level-Level B	560	-87	-82	-81	-79	-77	-74	-71	-70	-69	-67	-66	-66	-66	-65	-67	-83	-87
Mid Bumper Level - Level A	432	-129	-117	-114	-113	-112	-115	-111	-108	-104	-103	-101	-101	-100	-100	-110	-134	-162

All measurements are in millimeters and have a tolerance of $\pm 3\text{mm}$.

Table 11 Deformable Barrier Face Profiles

Deformable Barrier Face Profile

Level D - Top Stack

Pre-Test

Index	Xmm	Ymm	Zmm
1	-385	800	-47
2	-385	700	-47
3	-385	600	-46
4	-385	501	-47
5	-385	400	-47
6	-385	300	-47
7	-385	201	-47
8	-385	101	-47
9	-385	1	-47
10	-385	-100	-47
11	-385	-199	-46
12	-385	-300	-47
13	-385	-399	-47
14	-385	-500	-47
15	-385	-600	-47
16	-385	-699	-47
17	-385	-799	-47

Post-Test

Index	Xmm	Ymm	Zmm
1	-351	762	-90
2	-361	663	-90
3	-363	563	-89
4	-362	464	-90
5	-349	364	-92
6	-315	271	-94
7	-312	170	-90
8	-316	68	-93
9	-343	-30	-83
10	-361	-127	-79
11	-355	-226	-83
12	-351	-325	-75
13	-344	-424	-69
14	-335	-524	-63
15	-324	-624	-57
16	-307	-722	-54
17	-264	-811	-55

Difference

Index	Xmm	Ymm	Zmm
1	-34	38	44
2	-24	37	43
3	-23	37	43
4	-24	36	43
5	-36	36	44
6	-71	30	47
7	-74	31	43
8	-69	33	46
9	-43	30	37
10	-24	27	32
11	-31	27	36
12	-34	25	28
13	-41	25	22
14	-50	25	15
15	-61	24	10
16	-78	23	7
17	-121	13	8

Table 11 Deformable Barrier Face Profiles, Cont'd.

Deformable Barrier Face Profile Cont'd.

Level C - Mid Level

Pre-Test

Index	Xmm	Ymm	Zmm
18	-385	801	-175
19	-385	701	-176
20	-385	601	-175
21	-385	501	-175
22	-385	402	-176
23	-385	301	-176
24	-385	200	-175
25	-385	101	-175
26	-385	1	-176
27	-385	-100	-175
28	-385	-199	-175
29	-385	-299	-176
30	-385	-399	-176
31	-385	-499	-176
32	-385	-599	-175
33	-384	-699	-175
34	-385	-798	-176

Post-Test

Index	Xmm	Ymm	Zmm
18	-355	763	-216
19	-368	664	-218
20	-370	564	-218
21	-369	464	-217
22	-365	364	-217
23	-353	264	-215
24	-338	165	-213
25	-351	68	-211
26	-363	-31	-207
27	-373	-132	-204
28	-373	-231	-200
29	-371	-332	-196
30	-363	-431	-192
31	-355	-532	-187
32	-343	-631	-182
33	-327	-730	-178
34	-289	-820	-177

Difference

Index	Xmm	Ymm	Zmm
18	-31	38	41
19	-18	37	42
20	-16	37	42
21	-16	37	42
22	-20	37	41
23	-33	37	40
24	-47	35	38
25	-34	33	35
26	-22	32	32
27	-12	32	29
28	-12	33	24
29	-15	33	21
30	-22	33	16
31	-30	33	11
32	-41	32	7
33	-58	31	3
34	-95	21	2

Table 11 Deformable Barrier Face Profiles, Cont'd.

Deformable Barrier Face Profile Cont'd.

Level B - Top of Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
35	-385	802	-302
36	-385	703	-302
37	-385	602	-301
38	-385	501	-301
39	-385	402	-302
40	-385	302	-301
41	-385	202	-303
42	-385	103	-301
43	-385	2	-301
44	-385	-98	-302
45	-385	-198	-301
46	-385	-298	-302
47	-385	-398	-302
48	-385	-498	-302
49	-384	-598	-301
50	-384	-698	-301
51	-384	-798	-302

Post-Test

Index	Xmm	Ymm	Zmm
35	-299	764	-321
36	-303	664	-323
37	-304	564	-321
38	-306	464	-320
39	-308	365	-321
40	-312	265	-323
41	-314	164	-325
42	-316	65	-320
43	-316	-36	-317
44	-319	-136	-311
45	-320	-235	-307
46	-320	-335	-304
47	-320	-435	-302
48	-320	-536	-301
49	-317	-636	-298
50	-302	-735	-289
51	-297	-835	-289

Difference

Index	Xmm	Ymm	Zmm
35	-87	39	19
36	-82	38	21
37	-81	38	20
38	-79	38	19
39	-77	38	19
40	-74	38	22
41	-71	38	22
42	-70	38	18
43	-69	38	15
44	-67	38	10
45	-66	37	6
46	-66	38	3
47	-66	37	-1
48	-65	38	-1
49	-67	38	-3
50	-83	37	-12
51	-87	37	-13

Table 11 Deformable Barrier Face Profiles, Cont'd.

Deformable Barrier Face Profile Cont'd.

Level A - Mid Bumper

Pre-Test

Index	Xmm	Ymm	Zmm
52	-471	802	-428
53	-487	706	-428
54	-488	606	-429
55	-488	506	-429
56	-488	406	-429
57	-488	306	-429
58	-488	206	-430
59	-488	106	-430
60	-488	6	-430
61	-488	-94	-430
62	-488	-194	-430
63	-488	-294	-431
64	-488	-394	-431
65	-487	-494	-431
66	-487	-594	-431
67	-487	-694	-432
68	-477	-792	-432

Post-Test

Index	Xmm	Ymm	Zmm
52	-342	758	-444
53	-370	666	-445
54	-373	566	-443
55	-374	465	-442
56	-375	365	-440
57	-373	266	-438
58	-376	166	-437
59	-379	66	-435
60	-384	-34	-432
61	-385	-134	-431
62	-386	-233	-429
63	-387	-334	-427
64	-388	-433	-425
65	-388	-534	-423
66	-377	-633	-420
67	-353	-730	-417
68	-315	-821	-413

Difference

Index	Xmm	Ymm	Zmm
52	-129	43	16
53	-117	40	17
54	-114	40	14
55	-113	41	13
56	-112	40	11
57	-115	40	9
58	-111	40	7
59	-108	40	5
60	-104	40	2
61	-103	40	1
62	-101	40	-1
63	-101	40	-3
64	-100	39	-5
65	-100	39	-7
66	-110	39	-11
67	-134	36	-15
68	-162	29	-19

Figure 9 Deformable Barrier Face Profiles

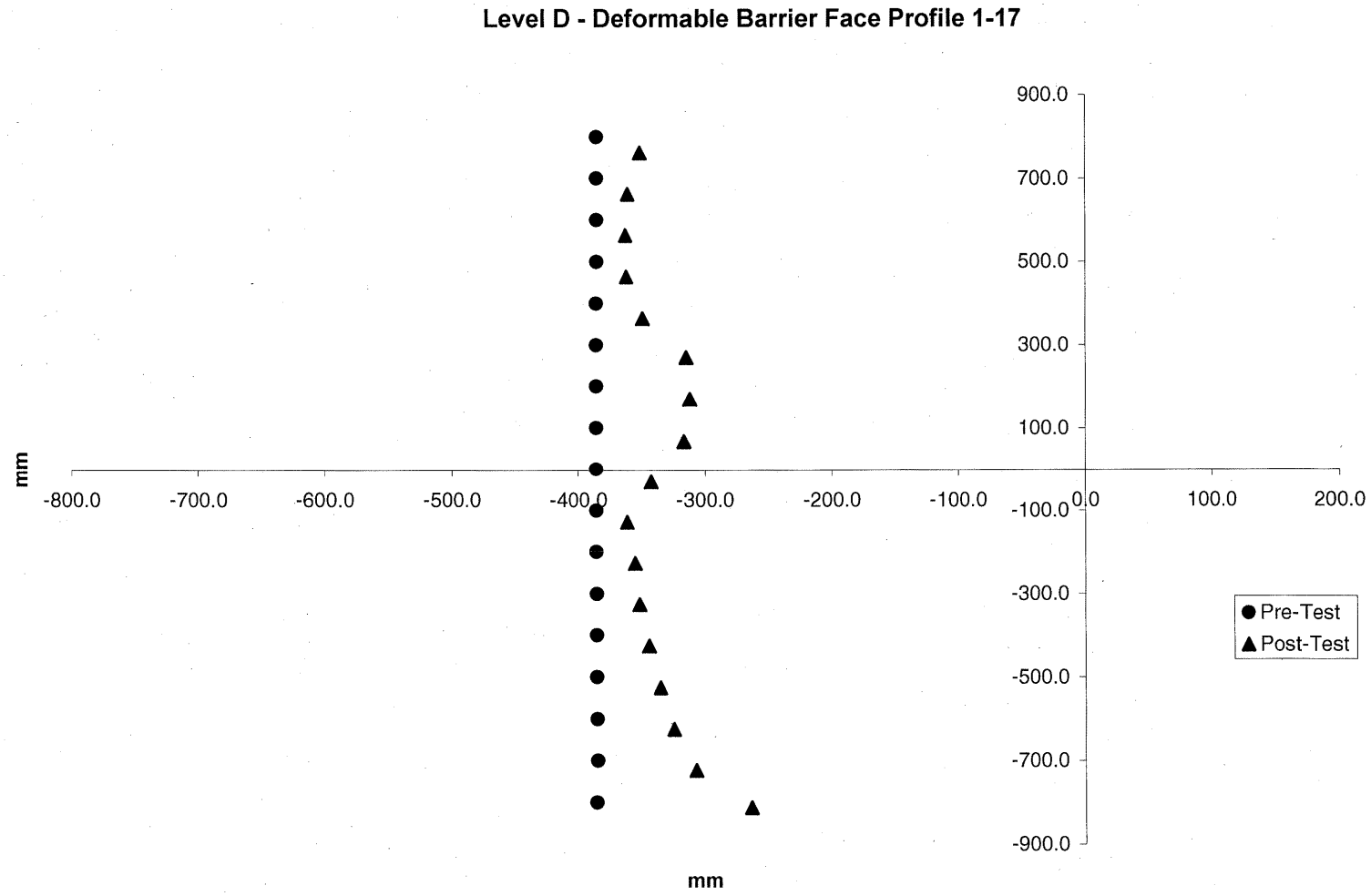


Figure 9 Deformable Barrier Face Profiles, Cont'd.

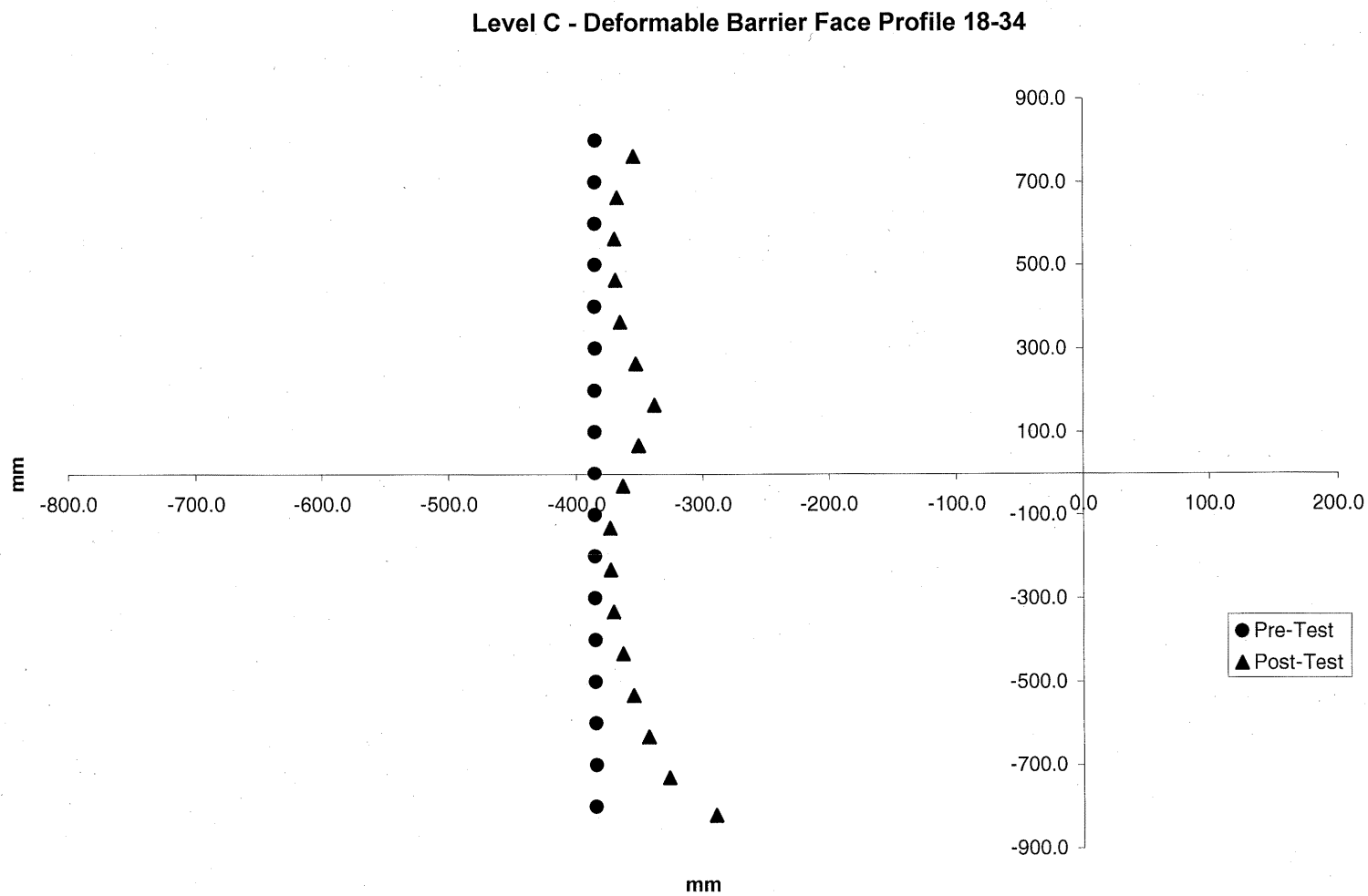


Figure 9 Deformable Barrier Face Profiles, Cont'd.

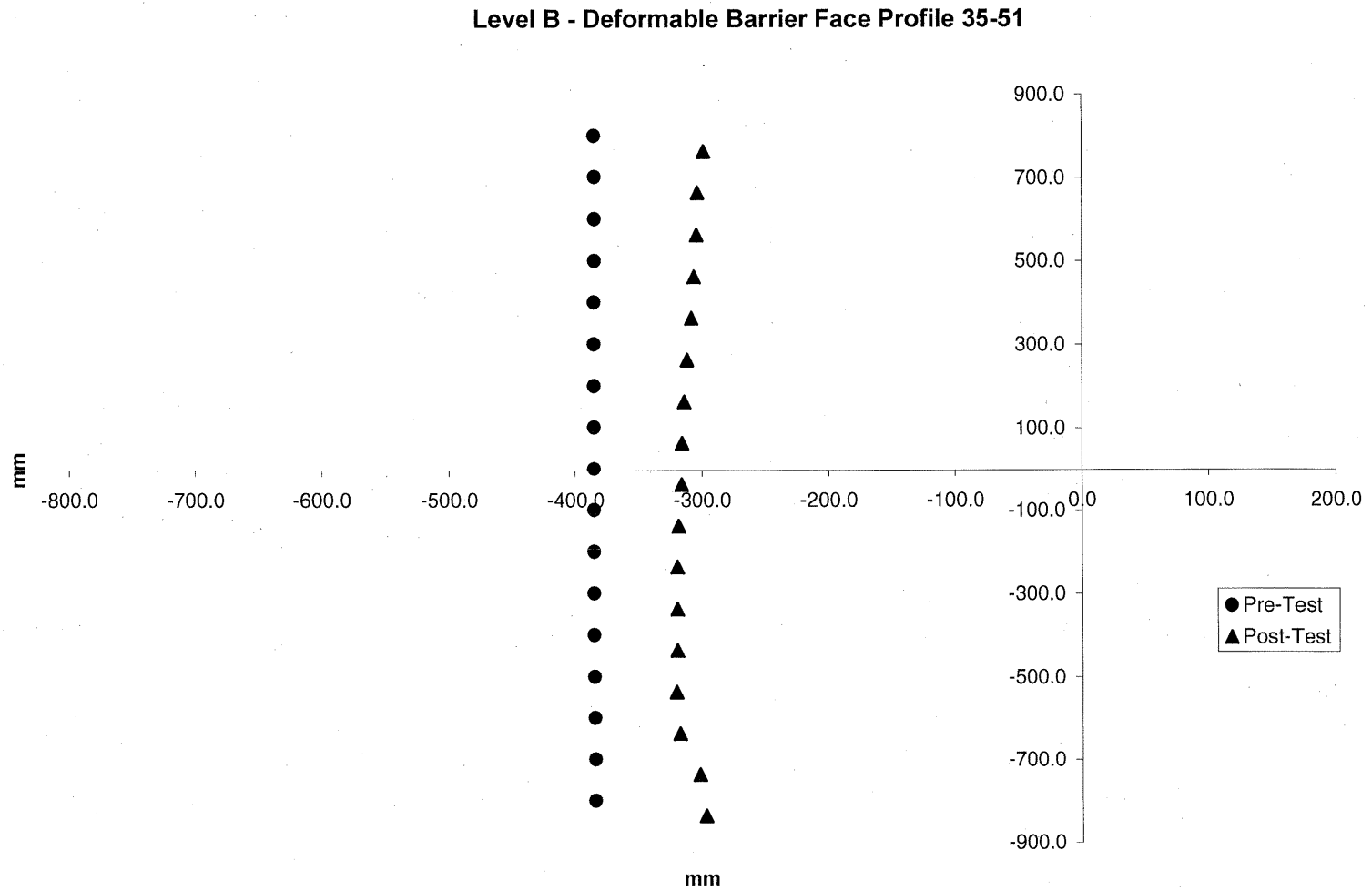


Figure 9 Deformable Barrier Face Profiles, Cont'd.

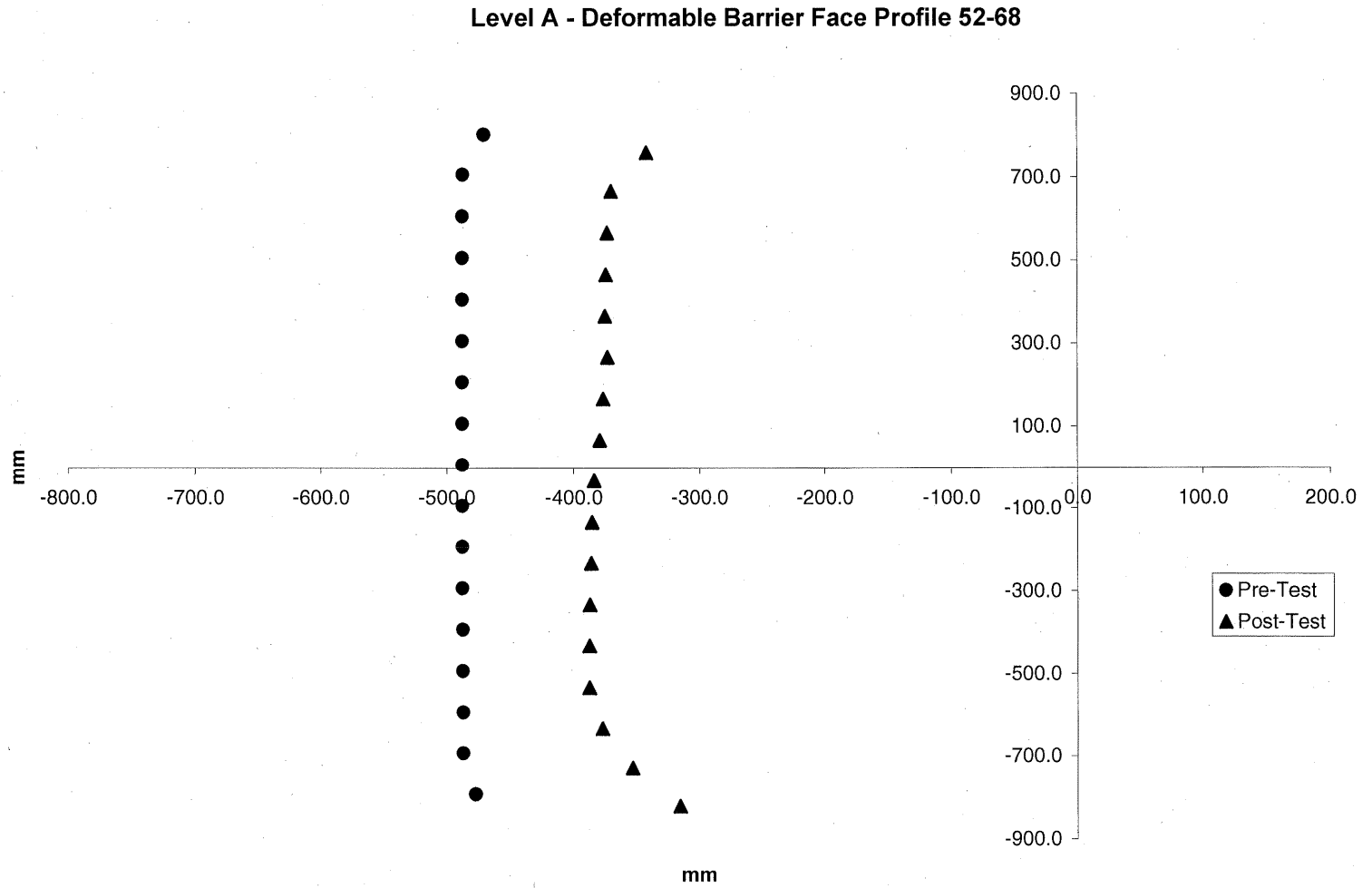
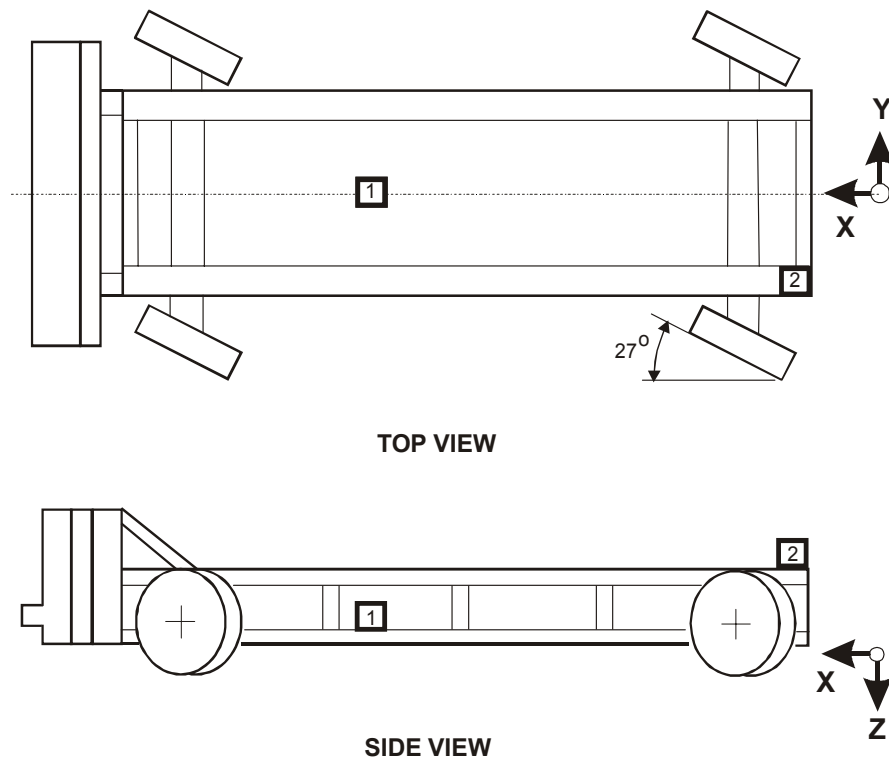


Figure 10 MDB Accelerometer Locations and Data Summary



Accel. No.	Location	Coordinates (millimeters)			Positive Direction		Negative Direction	
		X*	Y*	Z*	Max. (g)	Time (ms)	Max. (g)	Time (ms)
1	MDB Center of Gravity	1853	0	-519				
	Longitudinal X				3.1	121.1	22.7	41.2
	Lateral Y				1.4	54.4	7.4	28.8
	Vertical Z				7.9	13.0	7.0	22.8
	Resultant R				23.0	41.2		
2	Rear Frame Member	411	-738	-628				
	Longitudinal X				1.6	132.0	22.5	30.9
	Lateral Y				3.4	23.4	2.6	52.7

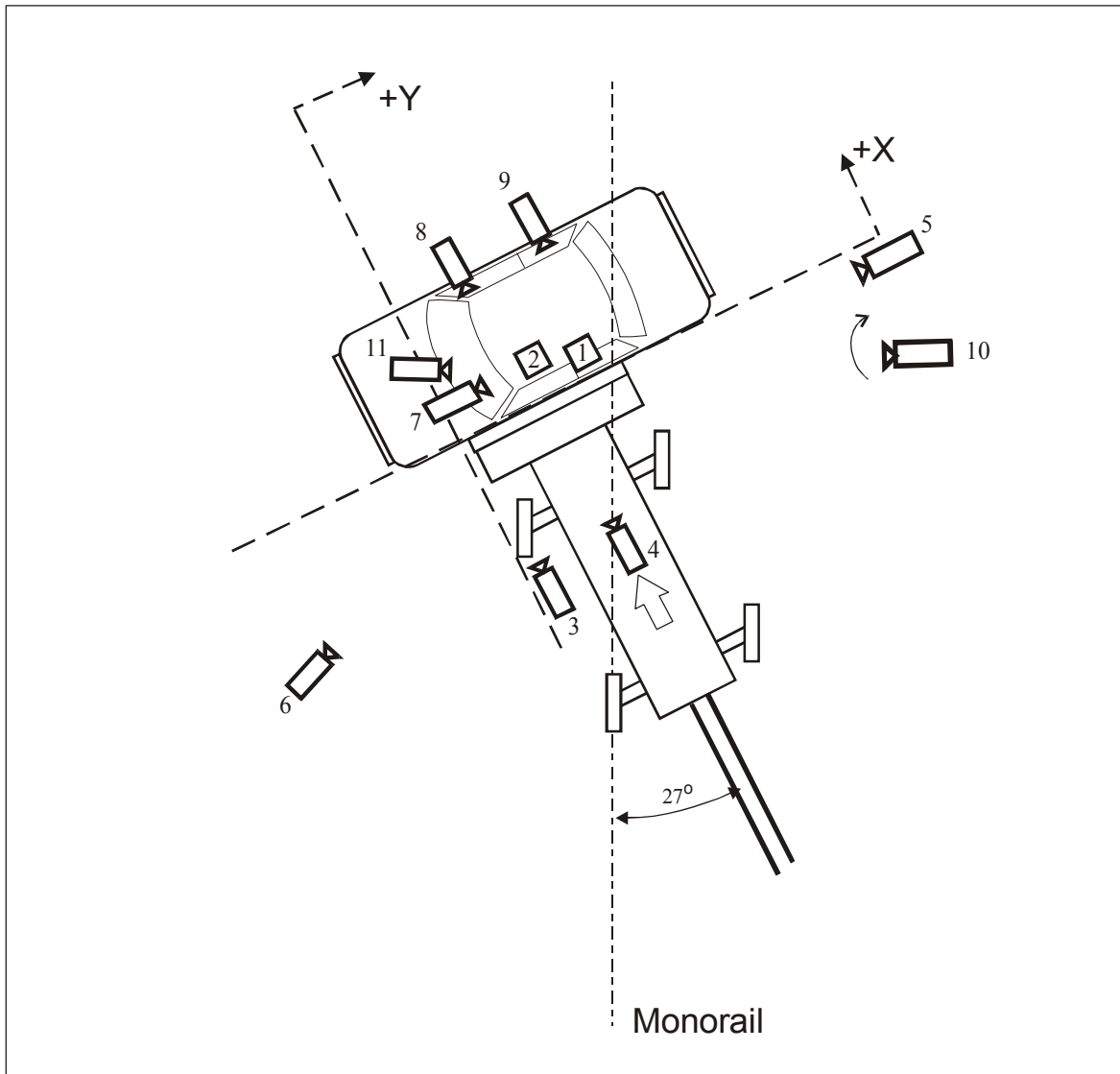
*Reference: X = Rear Bumper (+ Forward)

Y = Vehicle Centerline (+ To Right)

Z = Ground Level (+ Down)

All measurements accurate to within ± 3 mm.

Figure 11 Camera Positions



Impact
Area

Table 12 Camera Information

Camera Number	Location	Location, mm			Angle (deg.)	Lens (mm)	Speed (fps)
		X	Y	Z			
1	Overhead wide	250	2150	-5750	-77.5	10	1000
2	Overhead tight	370	1800	-5750	-85.5	Zoom	1000
3	Onboard MDB left side	-1750	-40	-720	-0.5	13	1000
4	Onboard MDB center	-2480	830	-1353	-5.2	17	1000
5	Right wide	230	7821	-962	2.3	12.5	1000
6	Left quarter wide	-2904	-5610	-945	-2.1	25	1000
7	Onboard vehicle front	529	1364	-1220	-0.3	25	1000
8	Onboard side front door	1562	185	-1101	-4.2	12.5	1000
9	Onboard side rear door	1490	759	-1138	-8.3	12.5	1000
10	Real-time Panning-Video	N/A	N/A	N/A	N/A		24
11	Onboard vehicle driver hip	766	1121	-1495	-25.6	50	1000

+X: Forward (referenced to MDB) from impact point

+Y: Rightward (referenced to MDB) from impact point

+Z: Downward from ground level

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

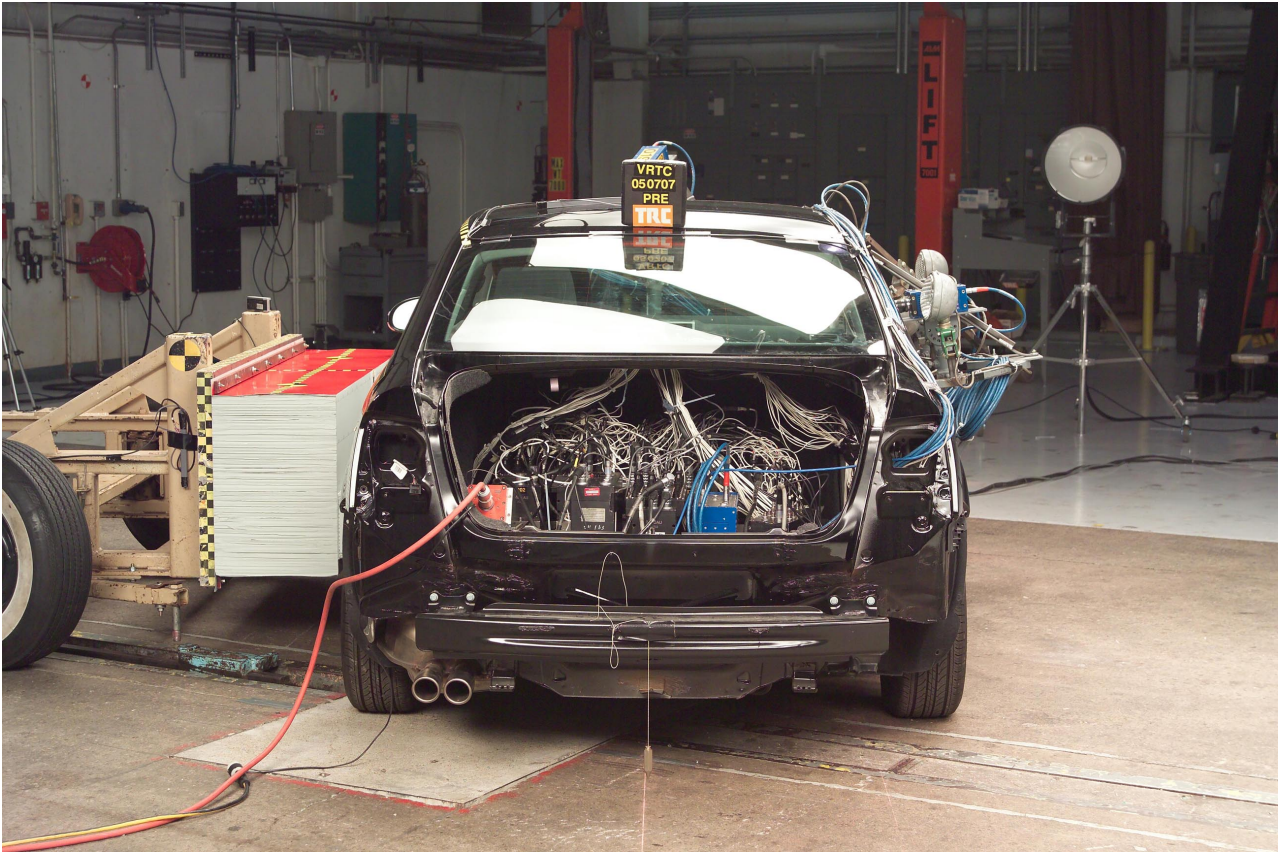


Figure A-9 Pre-Test Rear View

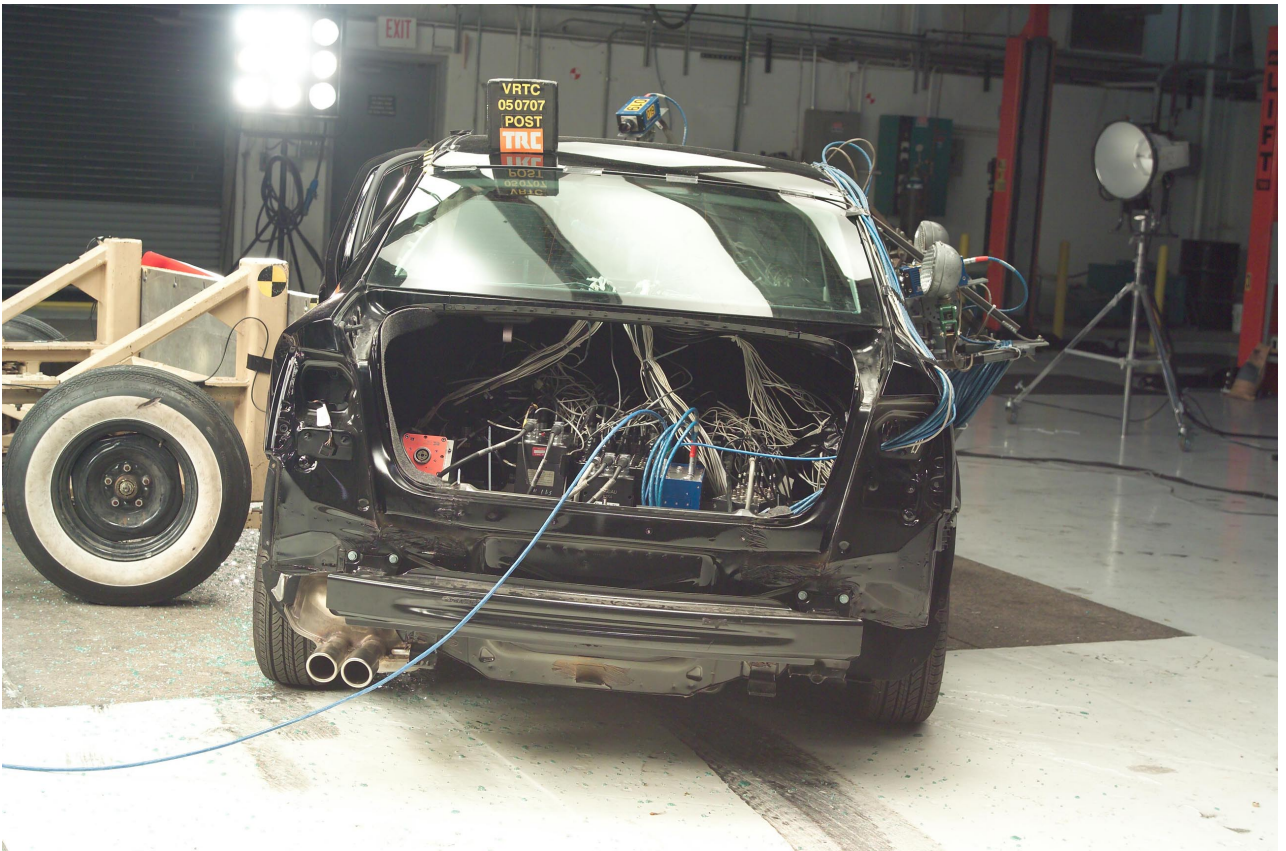


Figure A-10 Post-Test Rear View

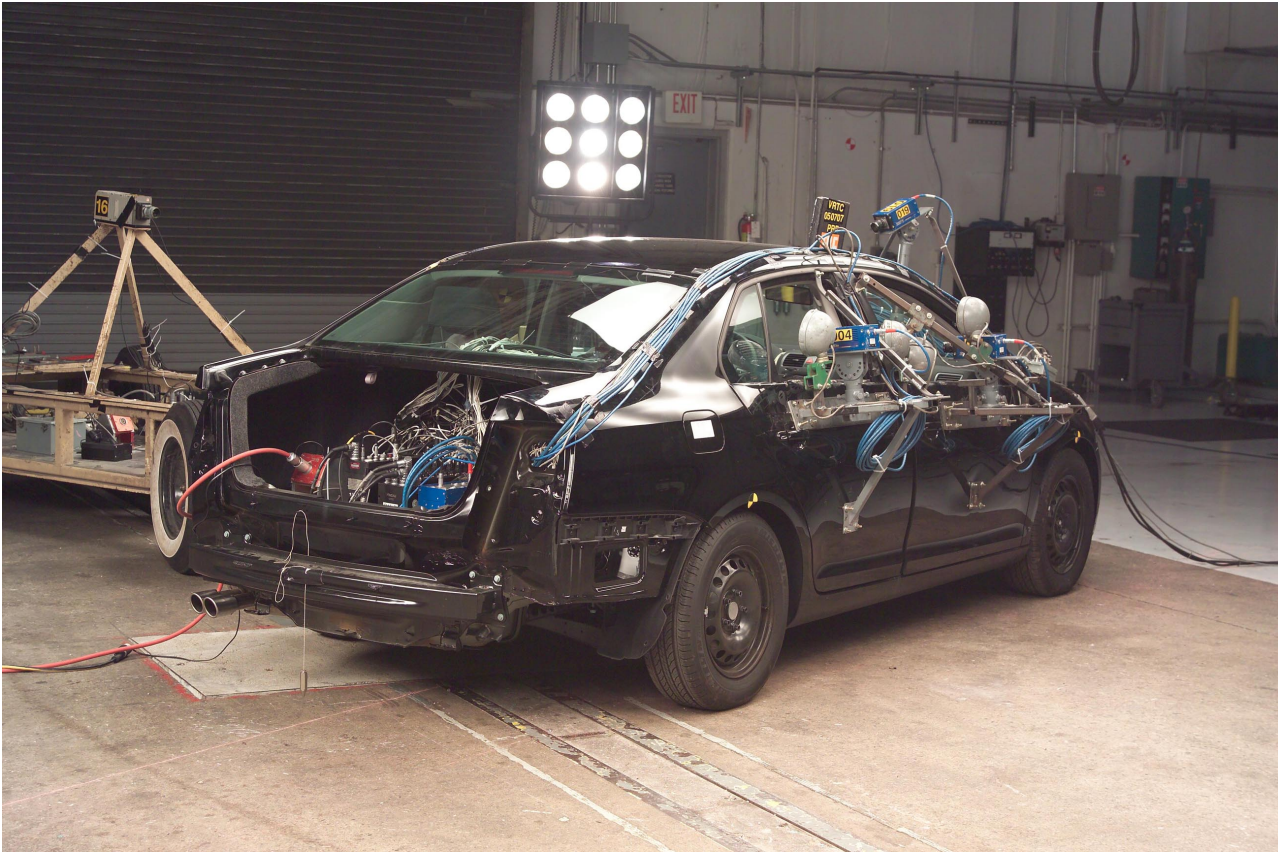


Figure A-11 Pre-Test Right Rear View



Figure A-12 Post-Test Right Rear View



Figure A-13 Pre-Test Right Side View



Figure A-14 Post-Test Right Side View

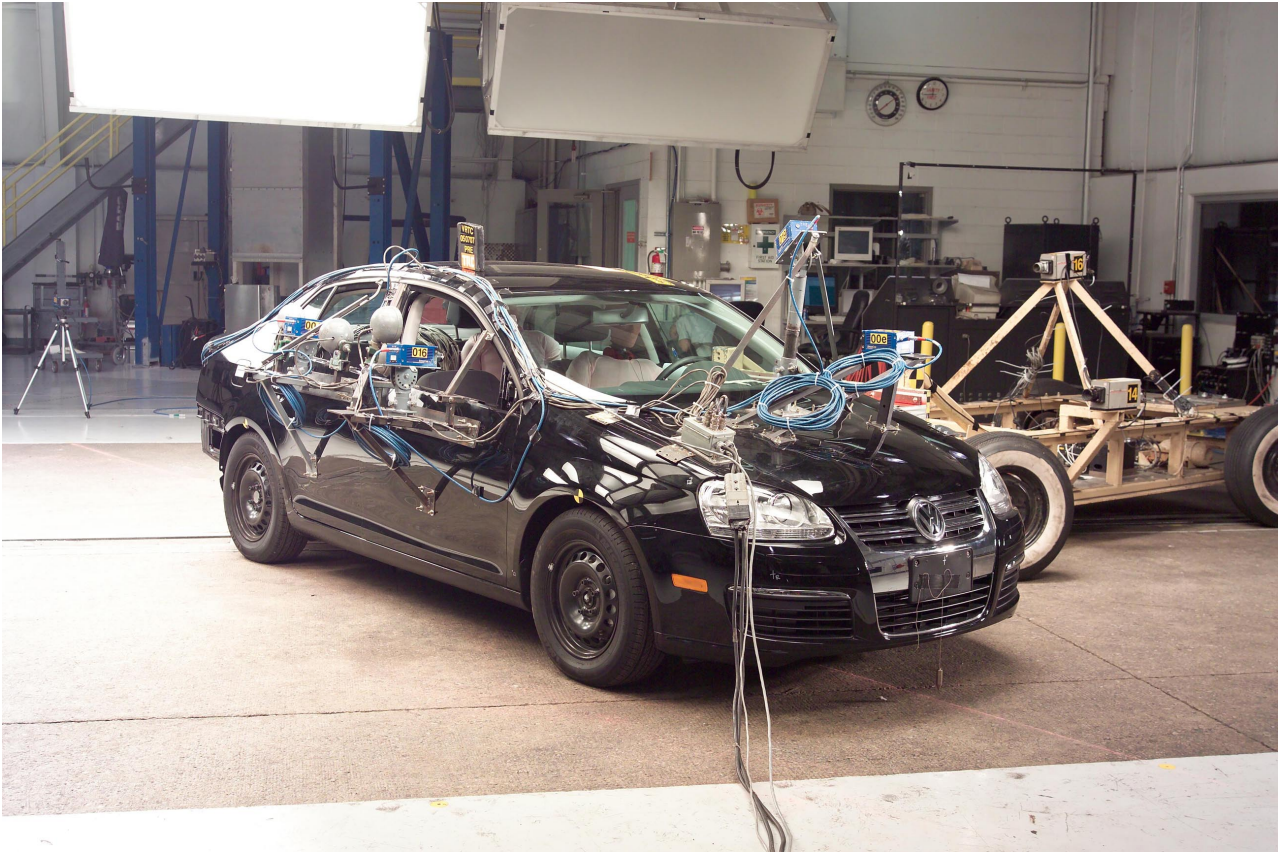


Figure A-15 Pre-Test Right Front View



Figure A-16 Post-Test Right Front View



Figure A-17 Pre-Test Front View with MDB in Position

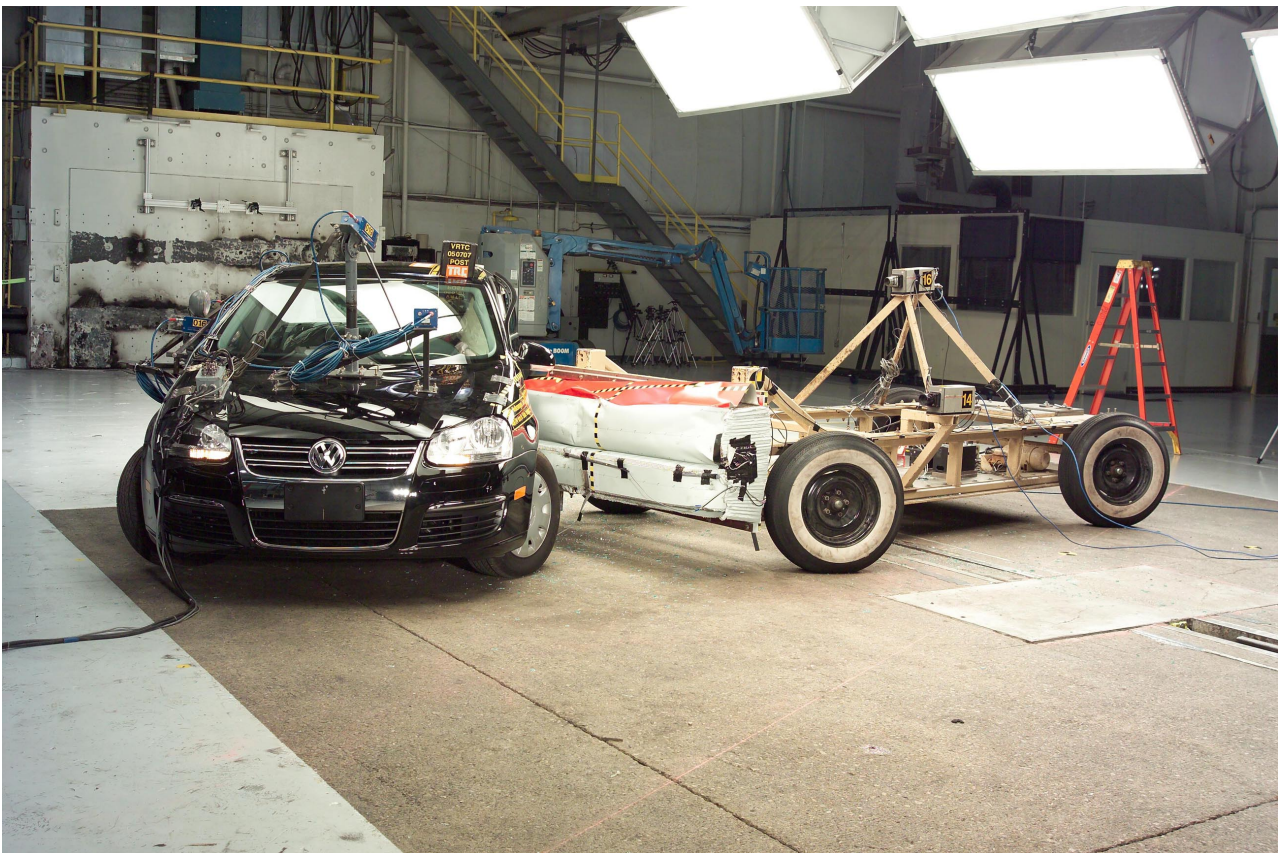


Figure A-18 Post-Test Front View with MDB in Position

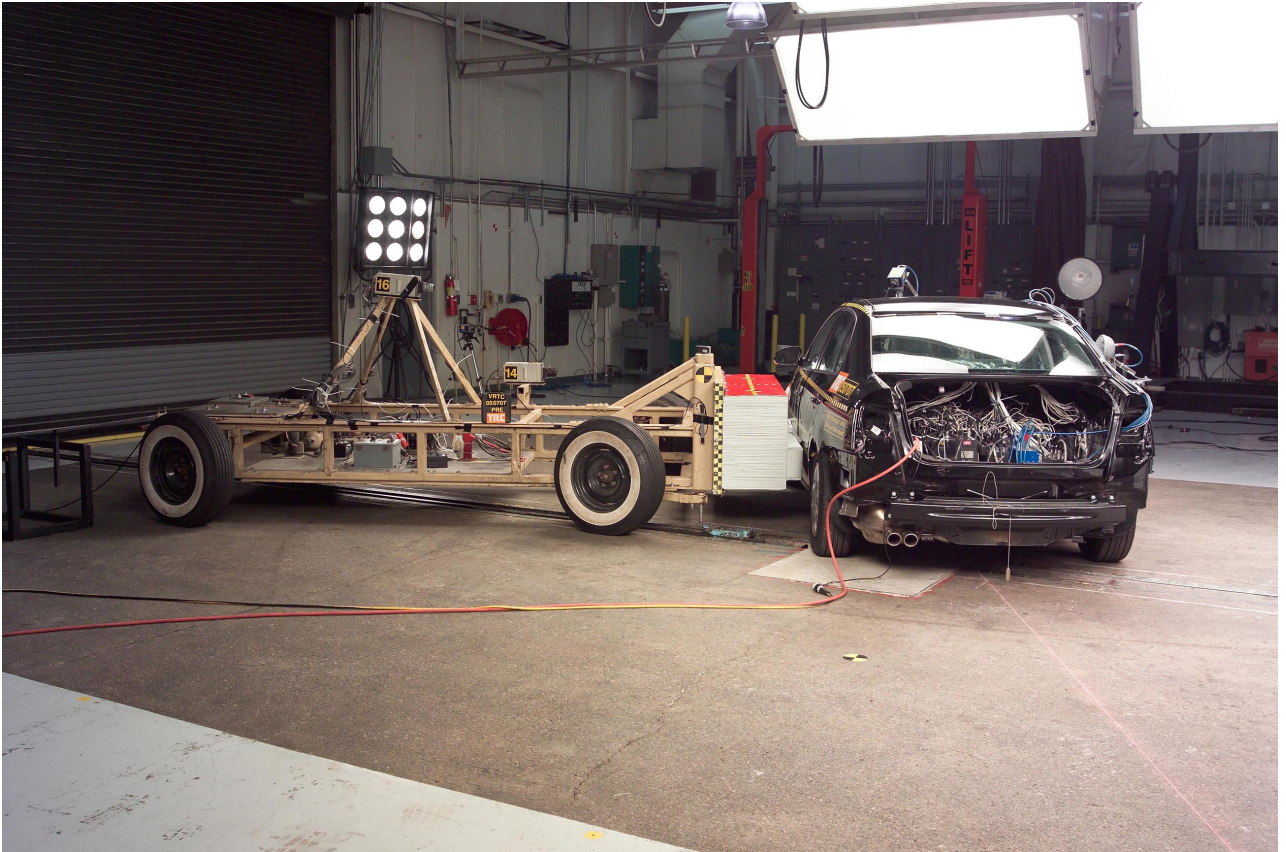


Figure A-19 Pre-Test Rear View with MDB in Position

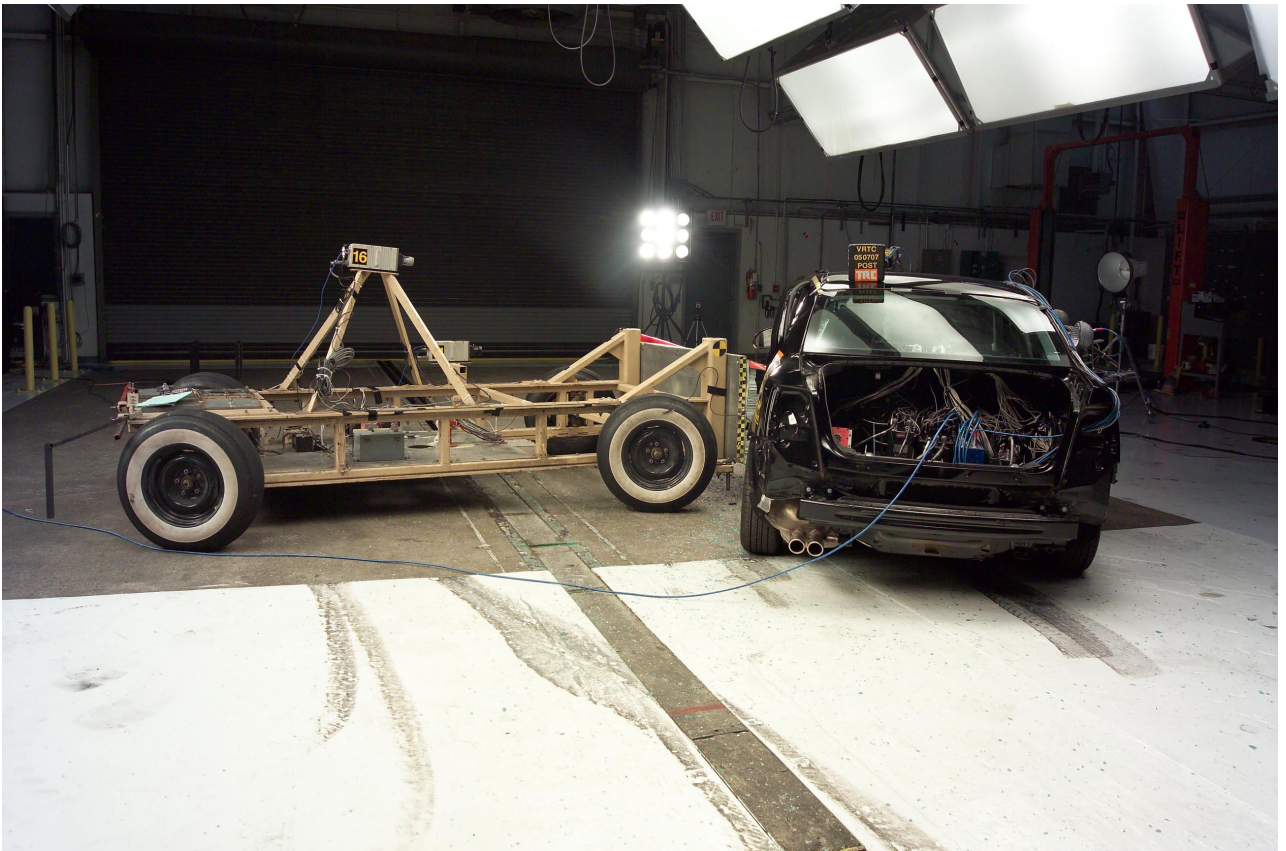


Figure A-20 Post-Test Rear View with MDB in Position



Figure A-21 Pre-Test Left Front View of MDB with Impactor Face in Position



Figure A-22 Post-Test Left Front View of MDB with Impactor Face in Position

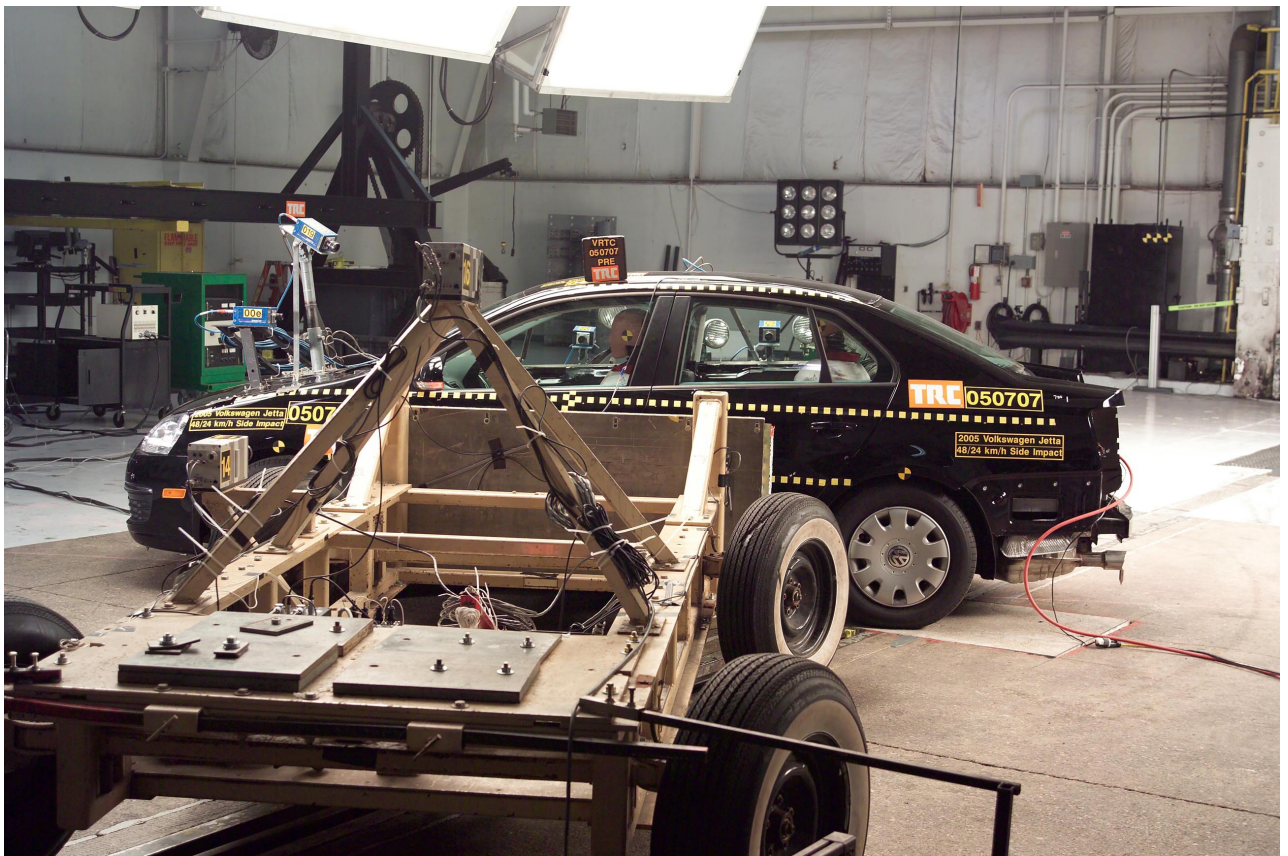


Figure A-23 Pre-Test Left Side View of MDB with Impactor Face in Position

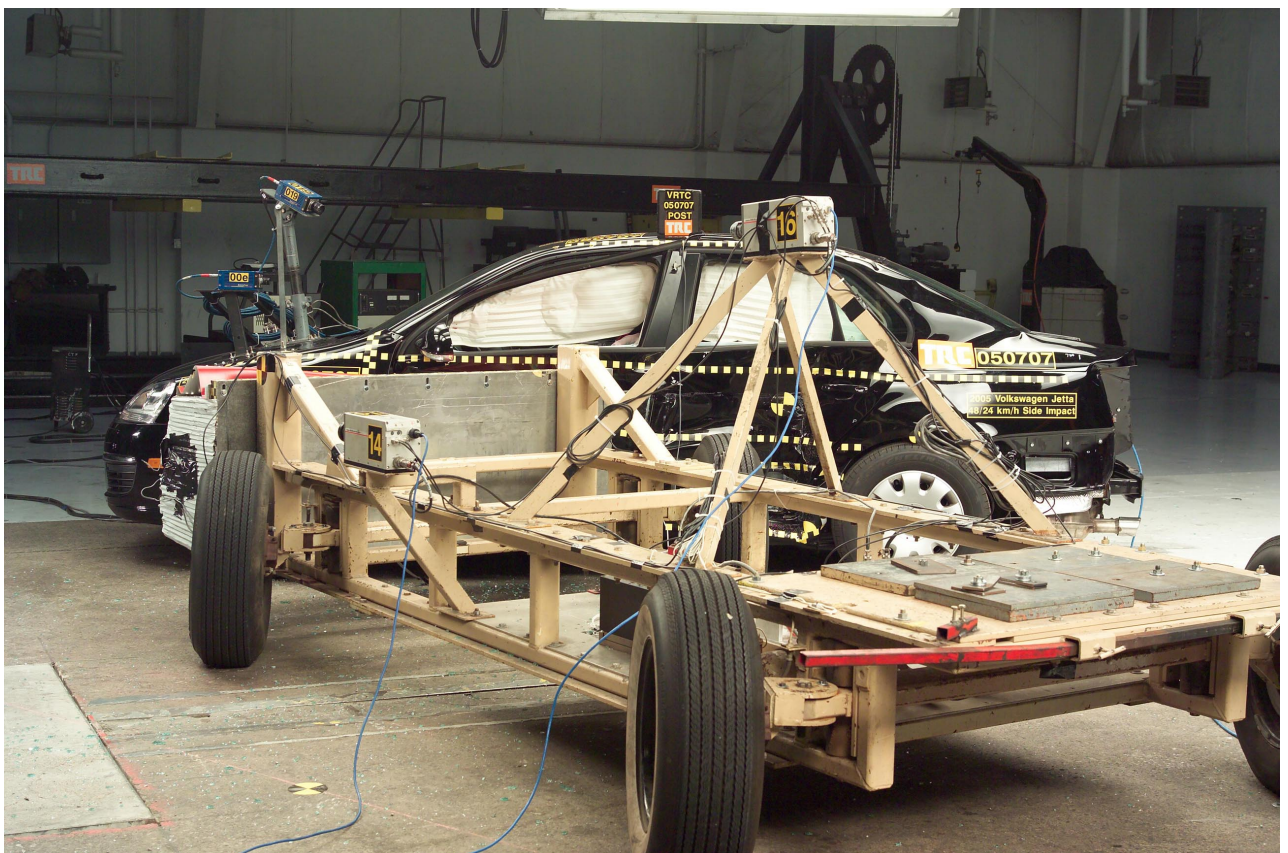


Figure A-24 Post-Test Left Side View of MDB with Impactor Face in Position



Figure A-25 Pre-Test Left Rear View of MDB with Impactor Face in Position

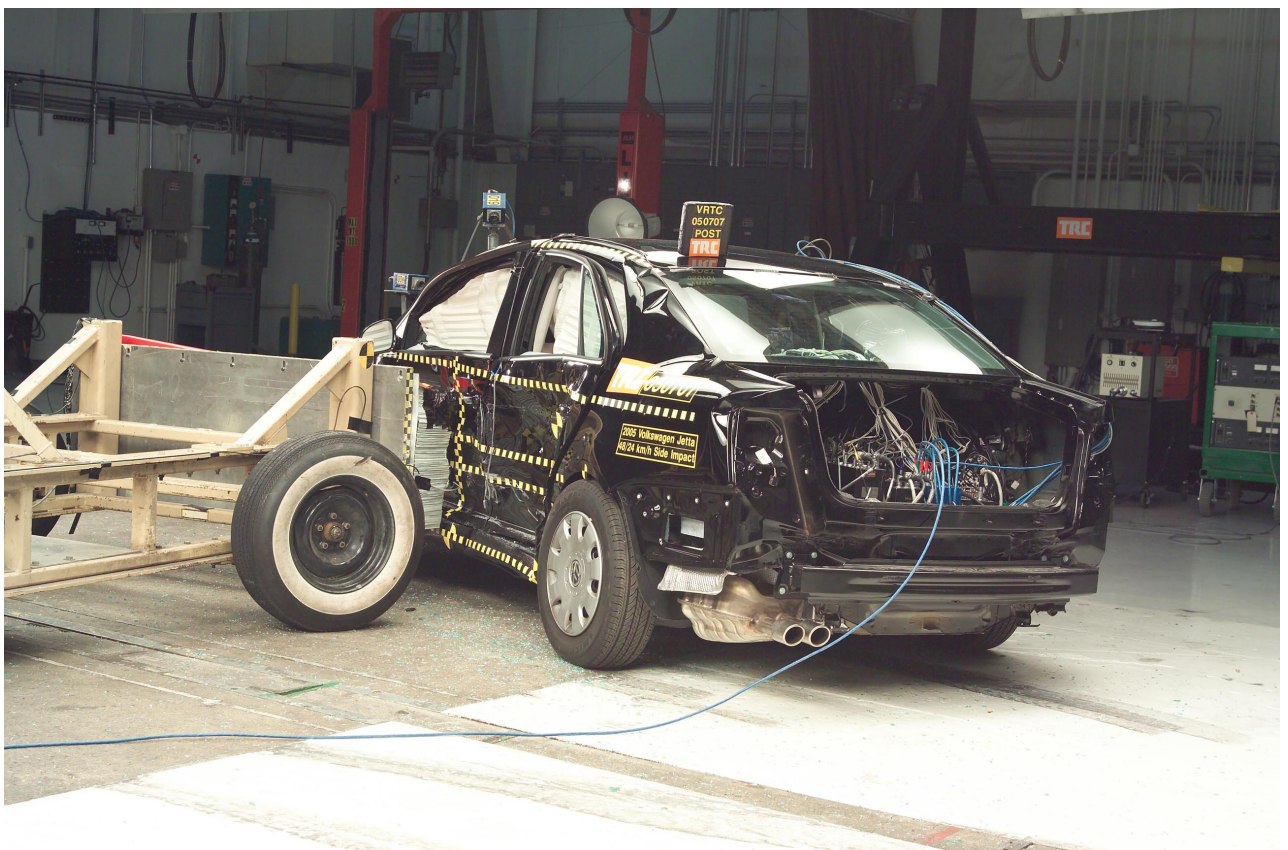


Figure A-26 Post-Test Left Rear View of MDB with Impactor Face in Position



Figure A-27 Pre-Test Overhead View of MDB Aligned with Vehicle



Figure A-28 Post-Test Overhead View of MDB Aligned with Vehicle

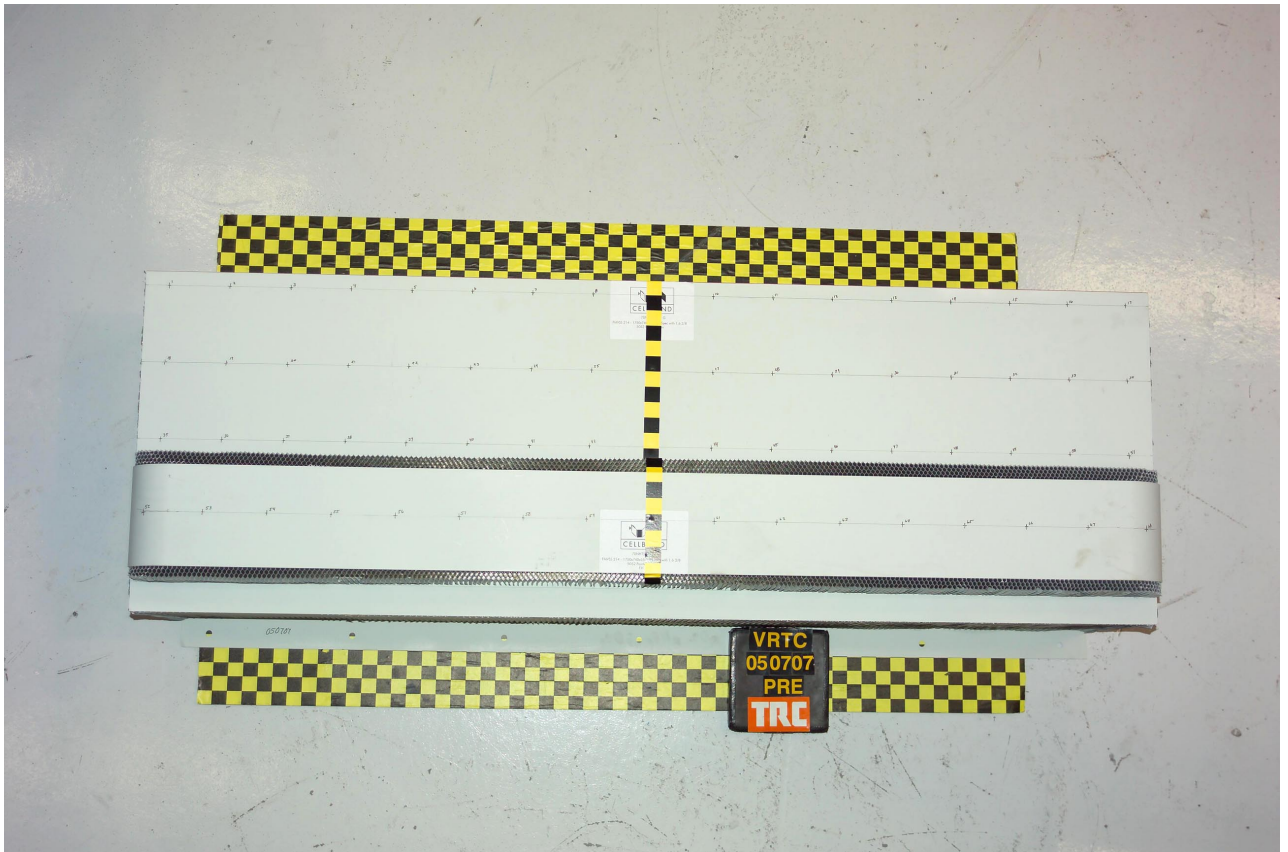


Figure A-29 Pre-Test Frontal View of Impactor Face

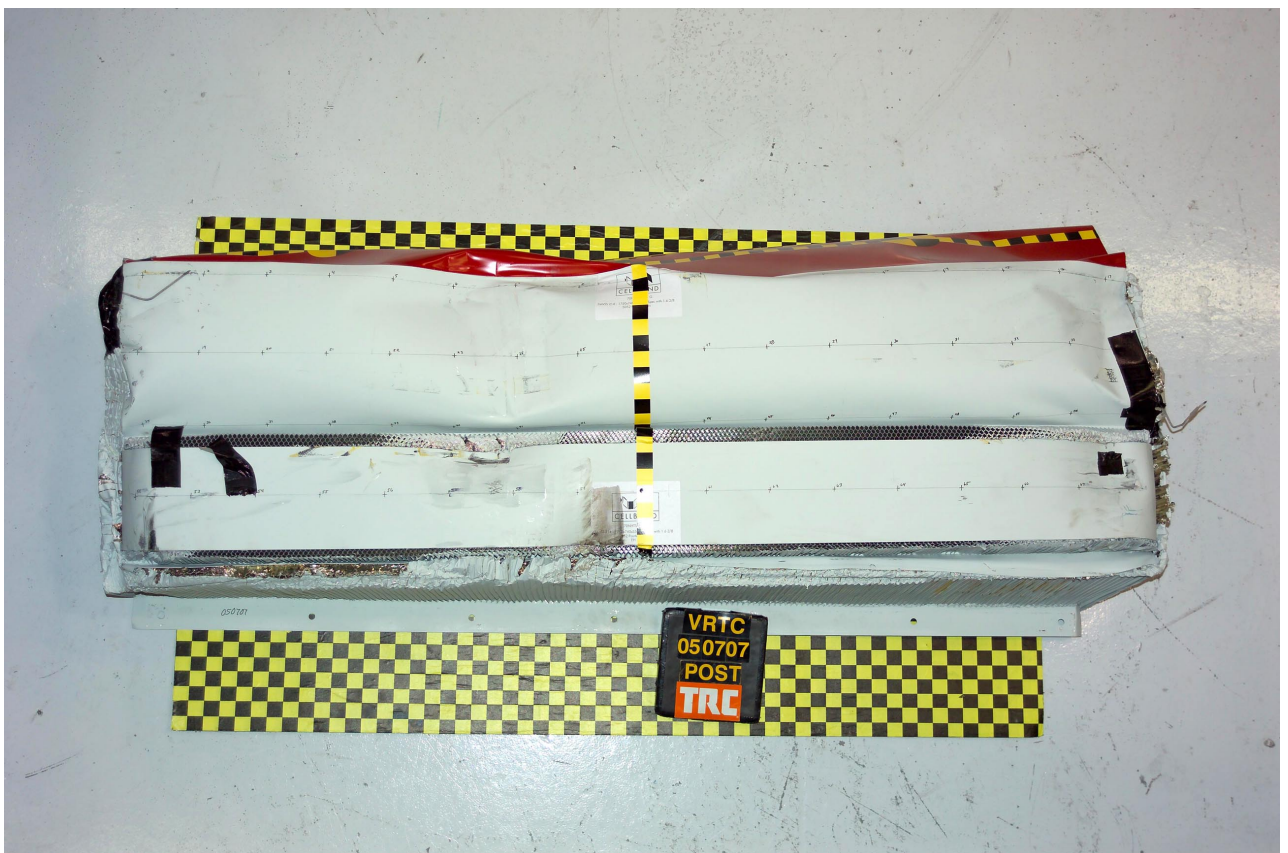


Figure A-30 Post-Test Frontal View of Impactor Face

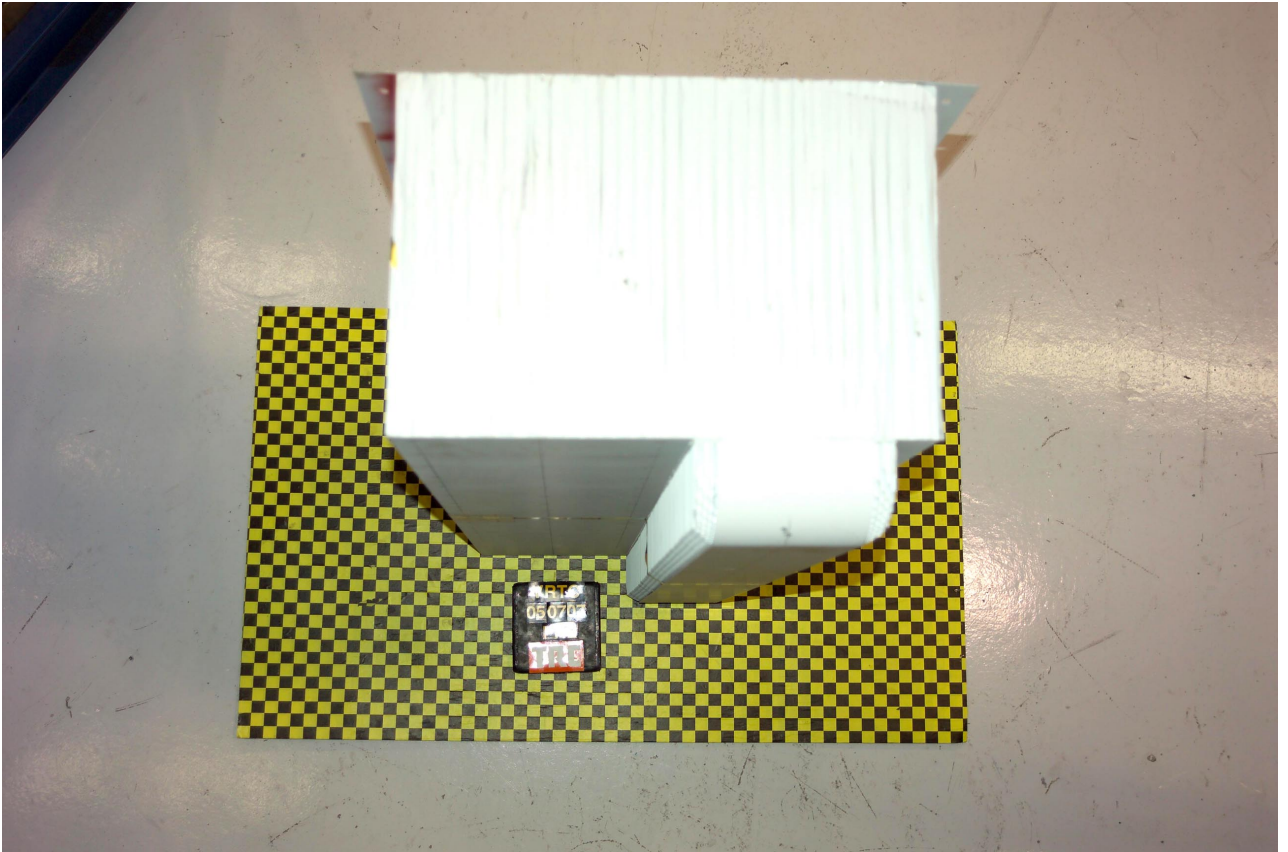


Figure A-31 Pre-Test Left Side View of Impactor Face

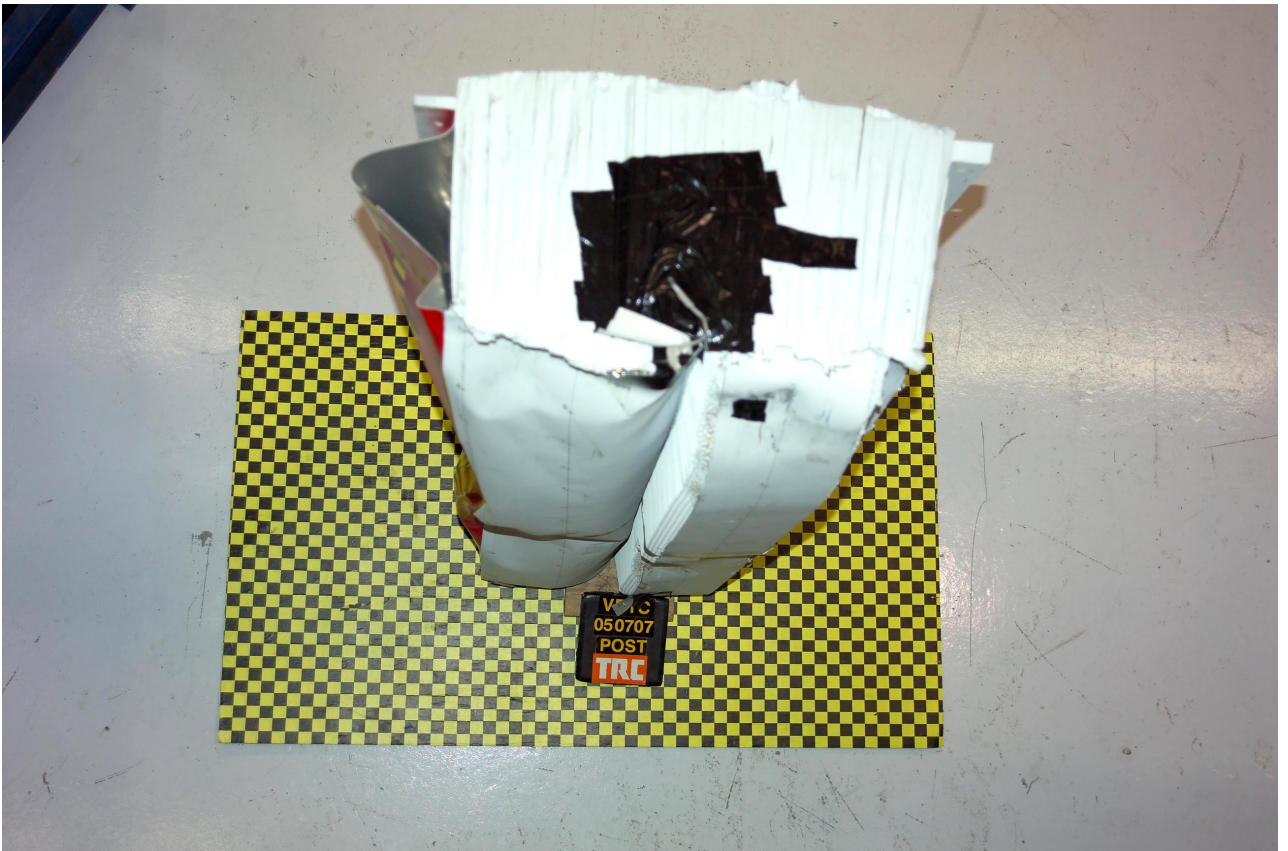


Figure A-32 Post-Test Left Side View of Impactor Face

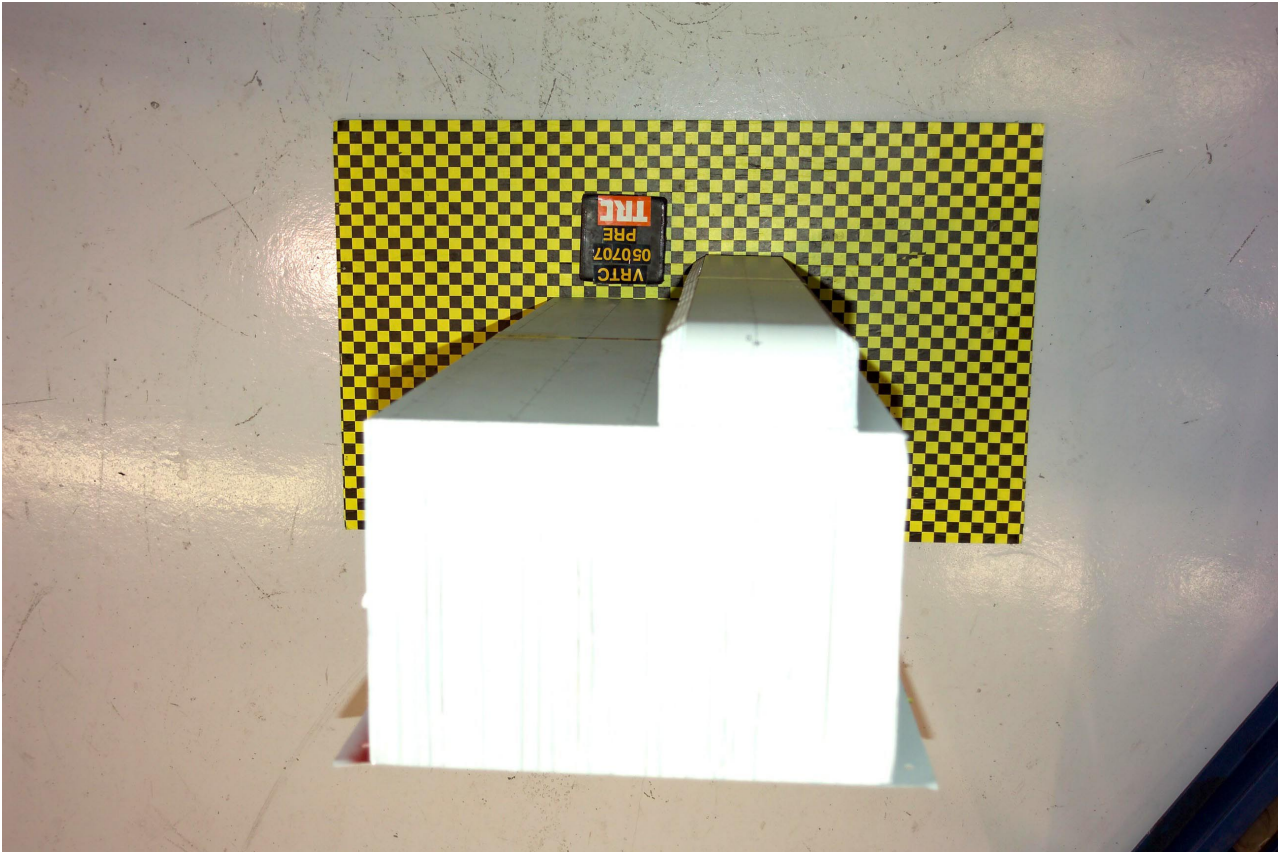


Figure A-33 Pre-Test Right Side View of Impactor Face

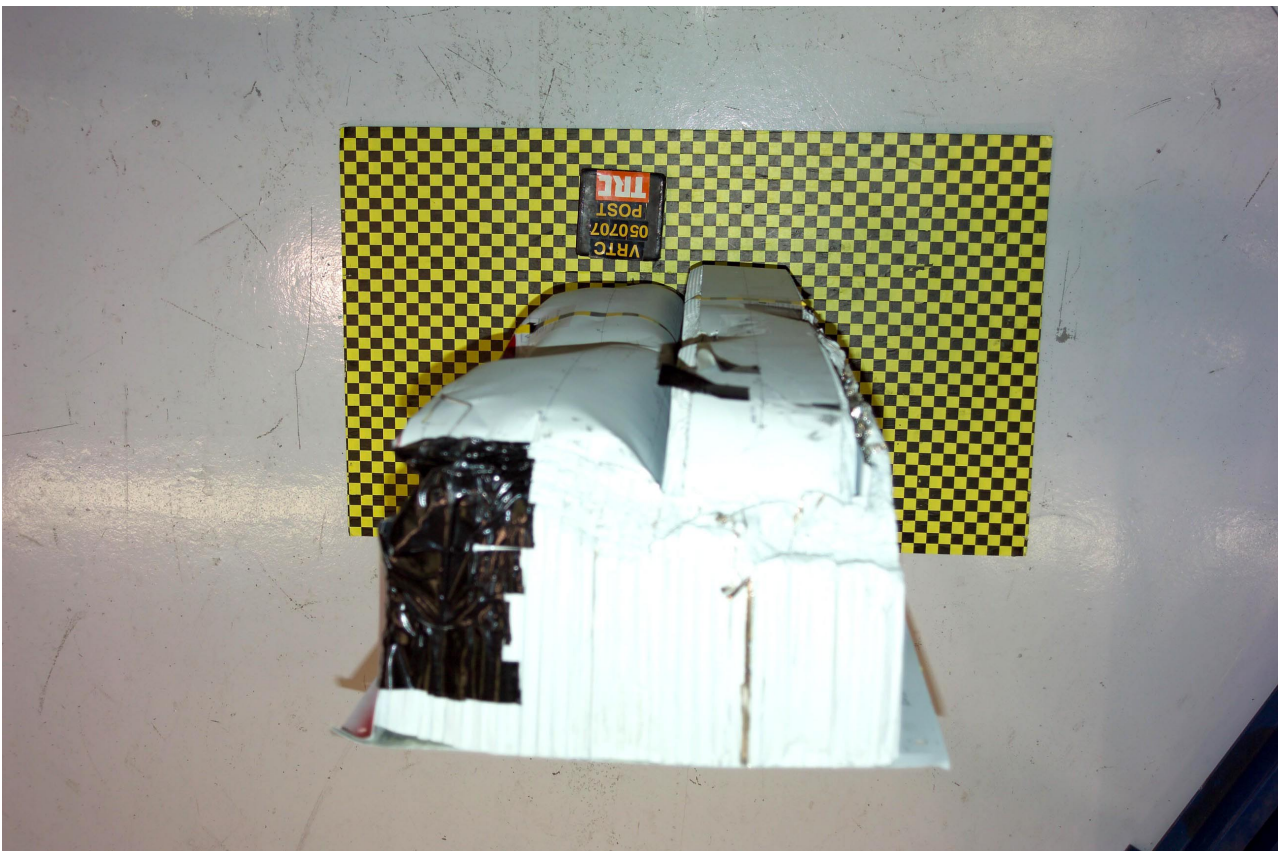


Figure A-34 Post-Test Right Side View of Impactor Face

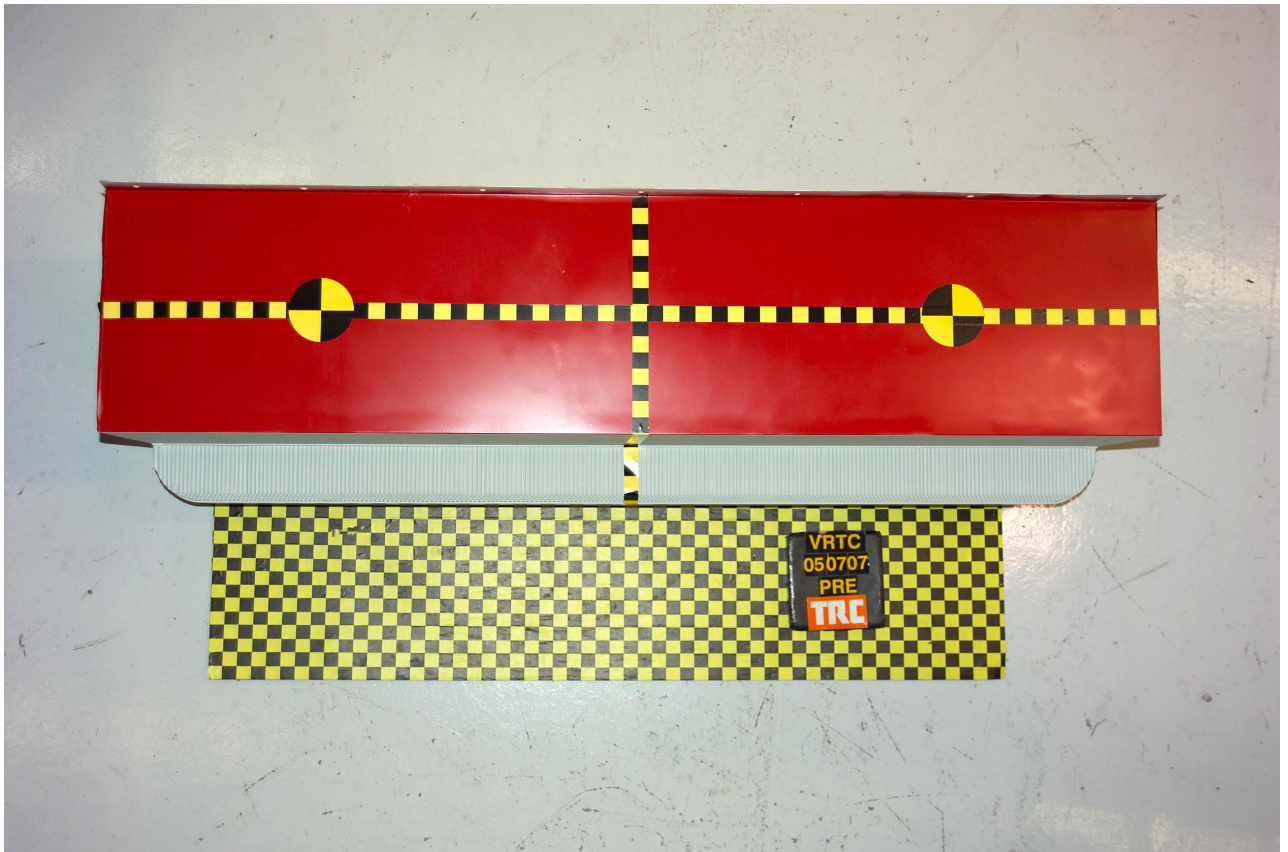


Figure A-35 Pre-Test Top View of Impactor Face

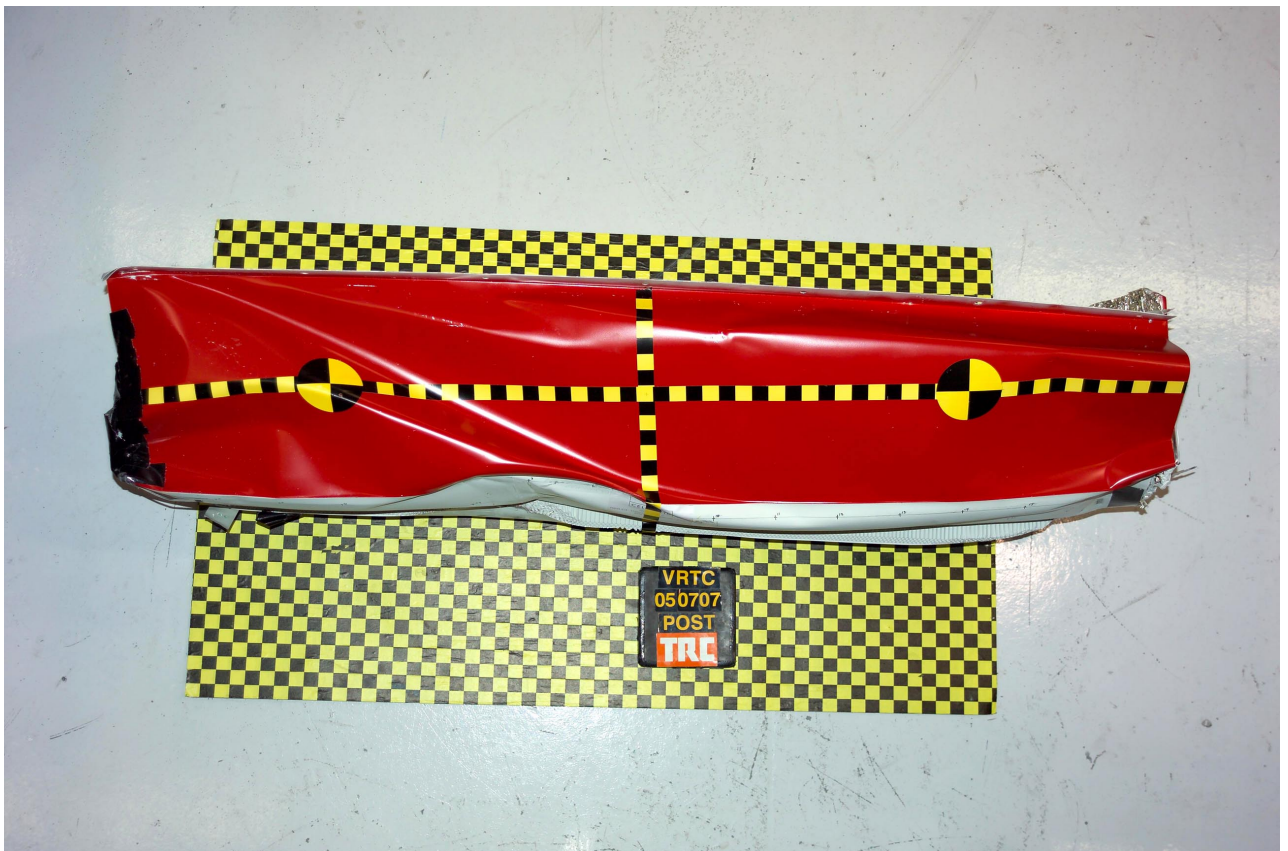


Figure A-36 Post-Test Top View of Impactor Face

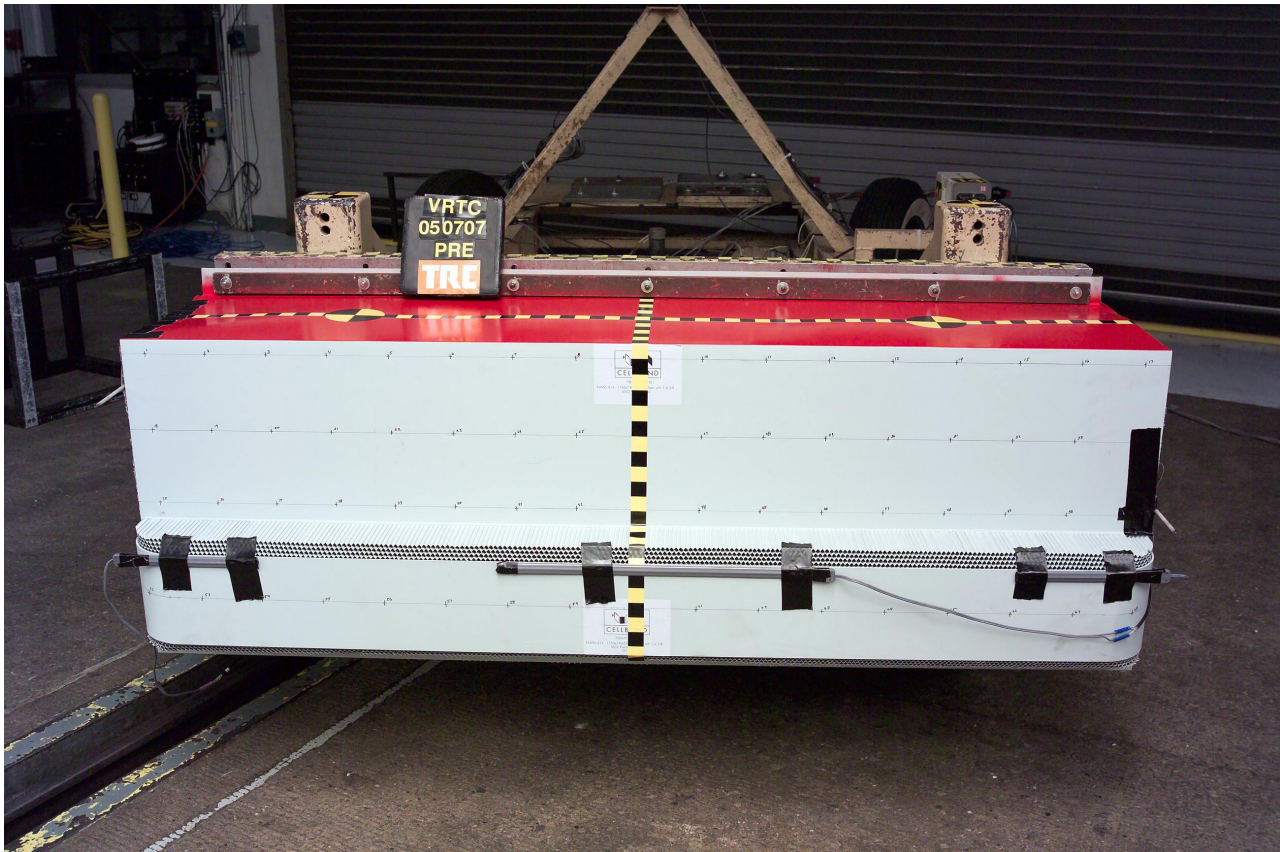


Figure A-37 Pre-Test View of MDB Showing Contact Switches in Place



Figure A-38 Post-Test View of MDB Showing Contact Switches in Place



Figure A-39 Pre-Test Primary Impact Point View



Figure A-40 Post-Test Primary Impact Point View



Figure A-41 Pre-Test Secondary Impact Point View



Figure A-42 Post-Test Secondary Impact Point View



Figure A-43 Post-Test Fuel Filler Cap View

Intentionally Left Blank



Figure A-44 Pre-Test Right Occupant Compartment View of Front ES-2re



Figure A-45 Post-Test Right Occupant Compartment View of Front ES-2re



Figure A-46 Pre-Test Right Occupant Compartment View of Rear ES-2re



Figure A-47 Post-Test Right Occupant Compartment View of Rear ES-2re



Figure A-48 Pre-Test Left View of Front ES-2re - View 1



Figure A-49 Post-Test Left View of Front ES-2re View



Figure A-50 Pre-Test Left View of Front ES-2re - View 2

Intentionally Left Blank



Figure A-51 Pre-Test Left View of Front ES-2re and Door Clearance



Figure A-52 Post-Test Left View of Front ES-2re and Door Clearance



Figure A-53 Pre-Test Left View of Rear ES-2re - View 1



Figure A-54 Post-Test Left View of Rear ES-2re View



Figure A-55 Pre-Test Left View of Rear ES-2re - View 2

Intentionally Left Blank



Figure A-56 Pre-Test Left View of Rear ES-2re and Door Clearance



Figure A-57 Post-Test Left View of Rear ES-2re and Door Clearance



Figure A-58 Pre-Test Interior of Front Door



Figure A-59 Post-Test Interior of Front Door Showing ES-2re Impact Locations



Figure A-60 Post-Test Front ES-2re Contact - View 1



Figure A-61 Post-Test Front ES-2re Contact - View 2



Figure A-62 Post-Test Front ES-2re Contact - View 3

Intentionally Left Blank



Figure A-63 Pre-Test Interior of Rear Door



Figure A-64 Post-Test Interior of Rear Door Showing ES-2re Impact Locations



Figure A-65 Post-Test Rear ES-2re Contact - View 1



Figure A-66 Post-Test Rear ES-2re Contact - View 2



Figure A-67 Post-Test Rear ES-2re Contact - View 3

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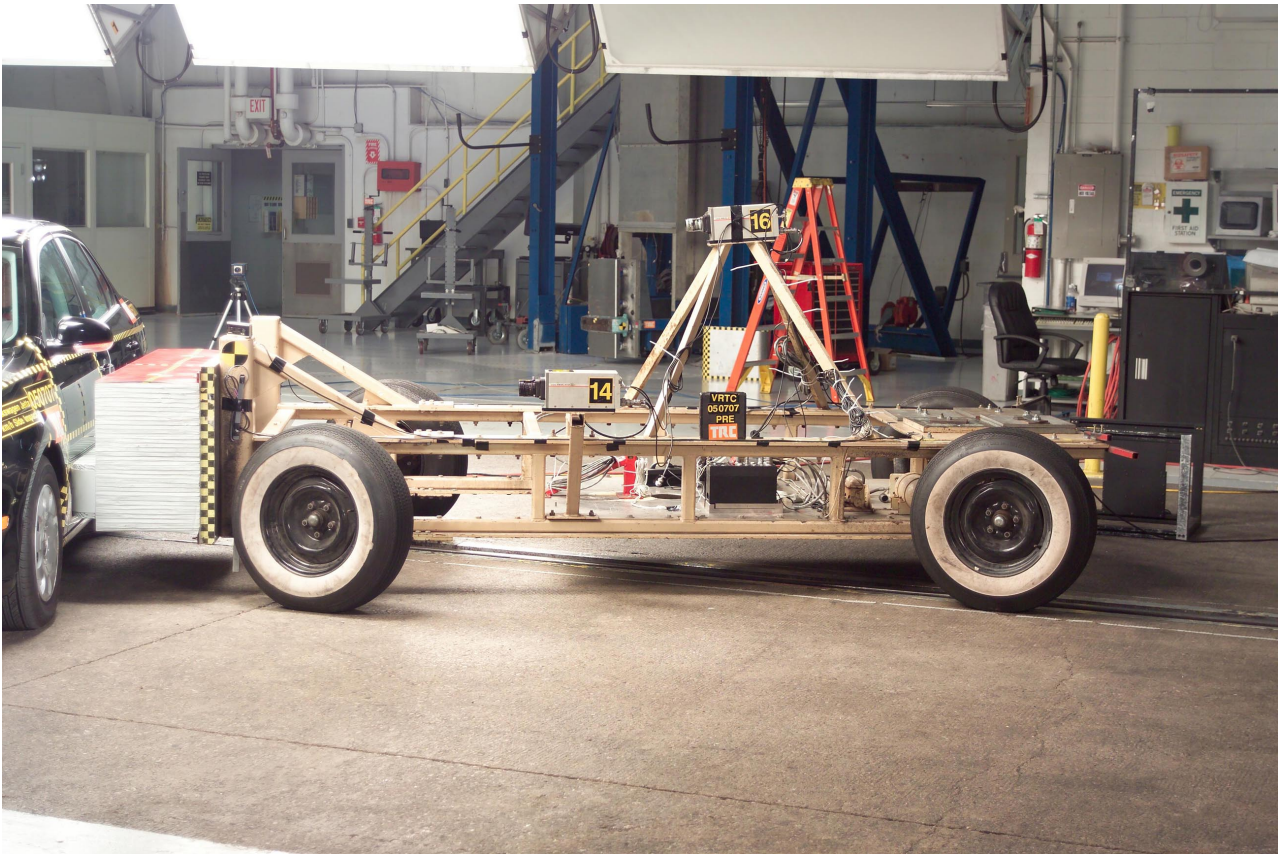


Figure A-68 Pre-Test Left Side Overall View of MDB

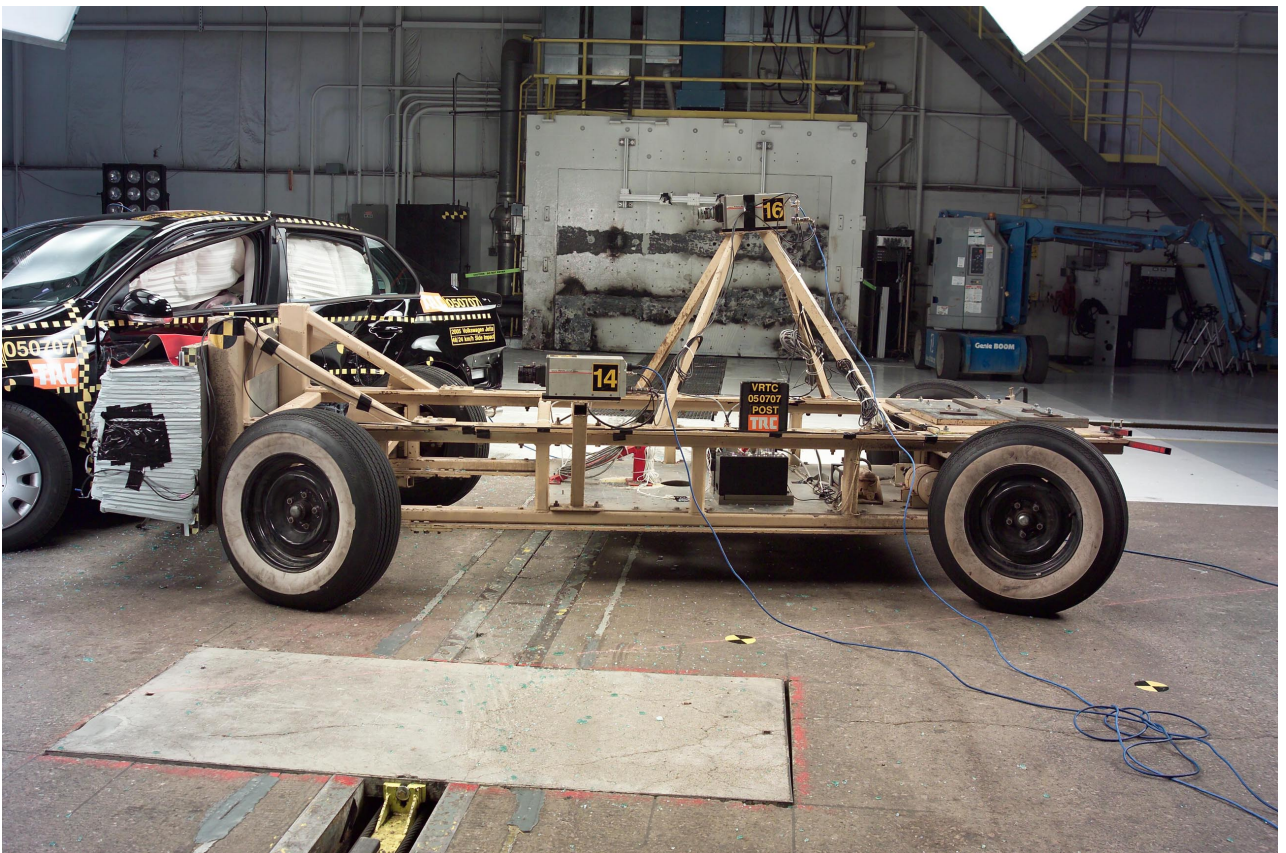


Figure A-69 Post-Test Left Side Overall View of MDB

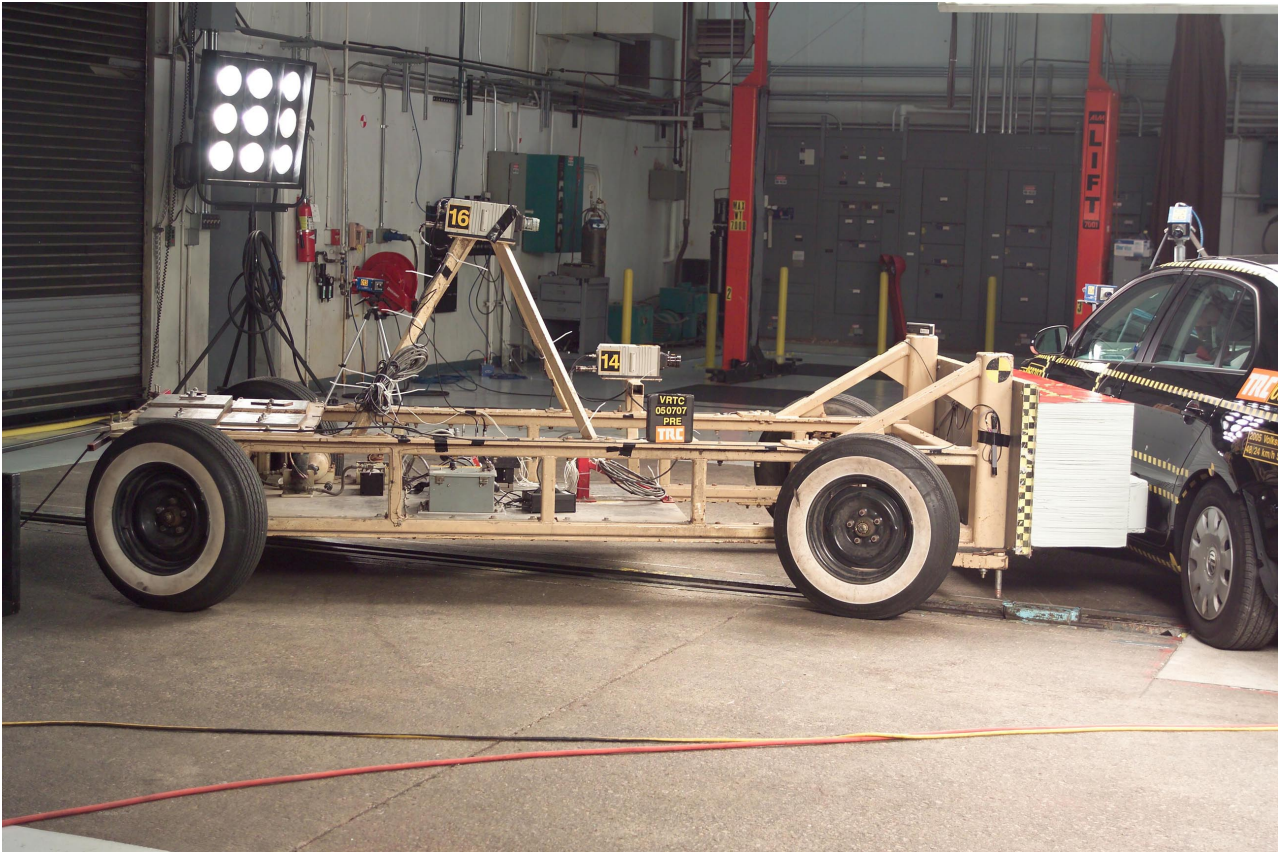


Figure A-70 Pre-Test Right Side Overall View of MDB

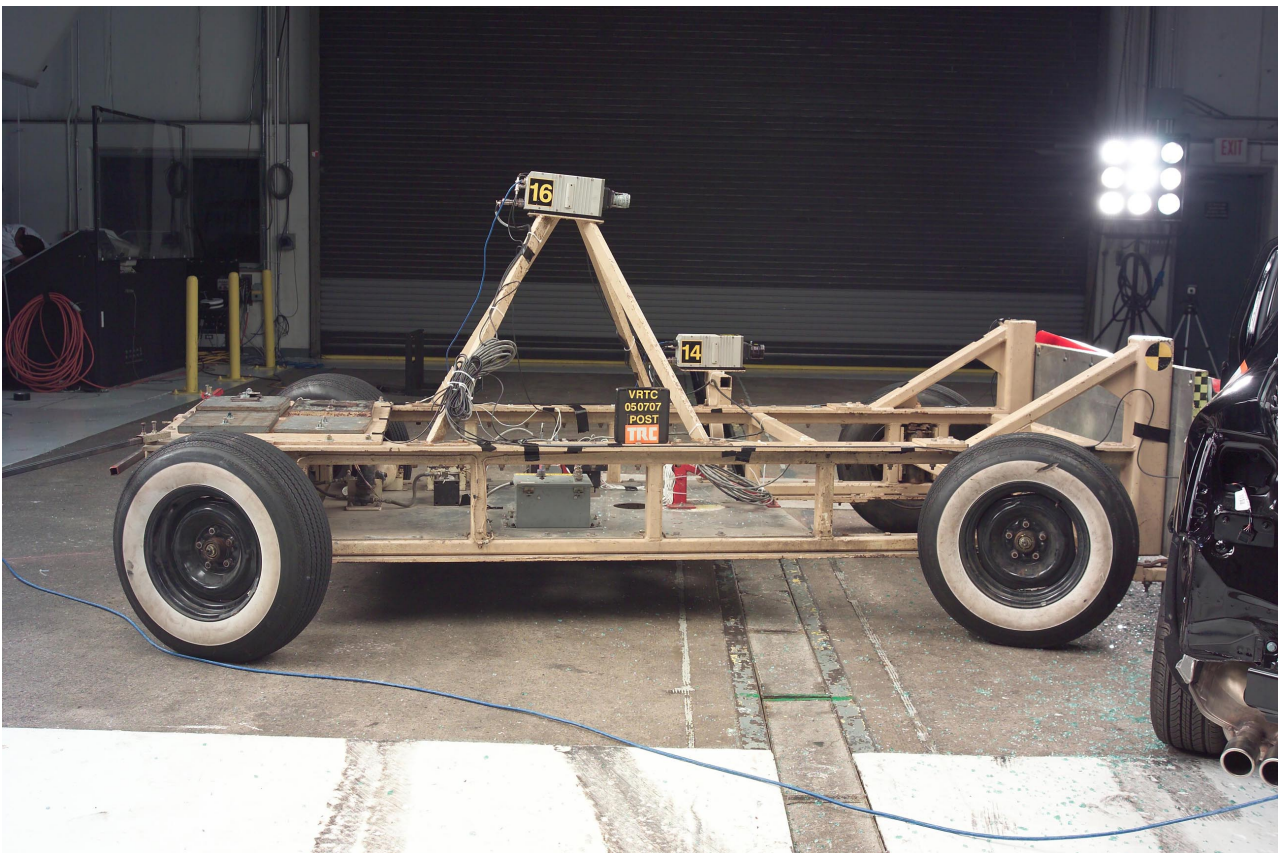


Figure A-71 Post-Test Right Side Overall View of MDB

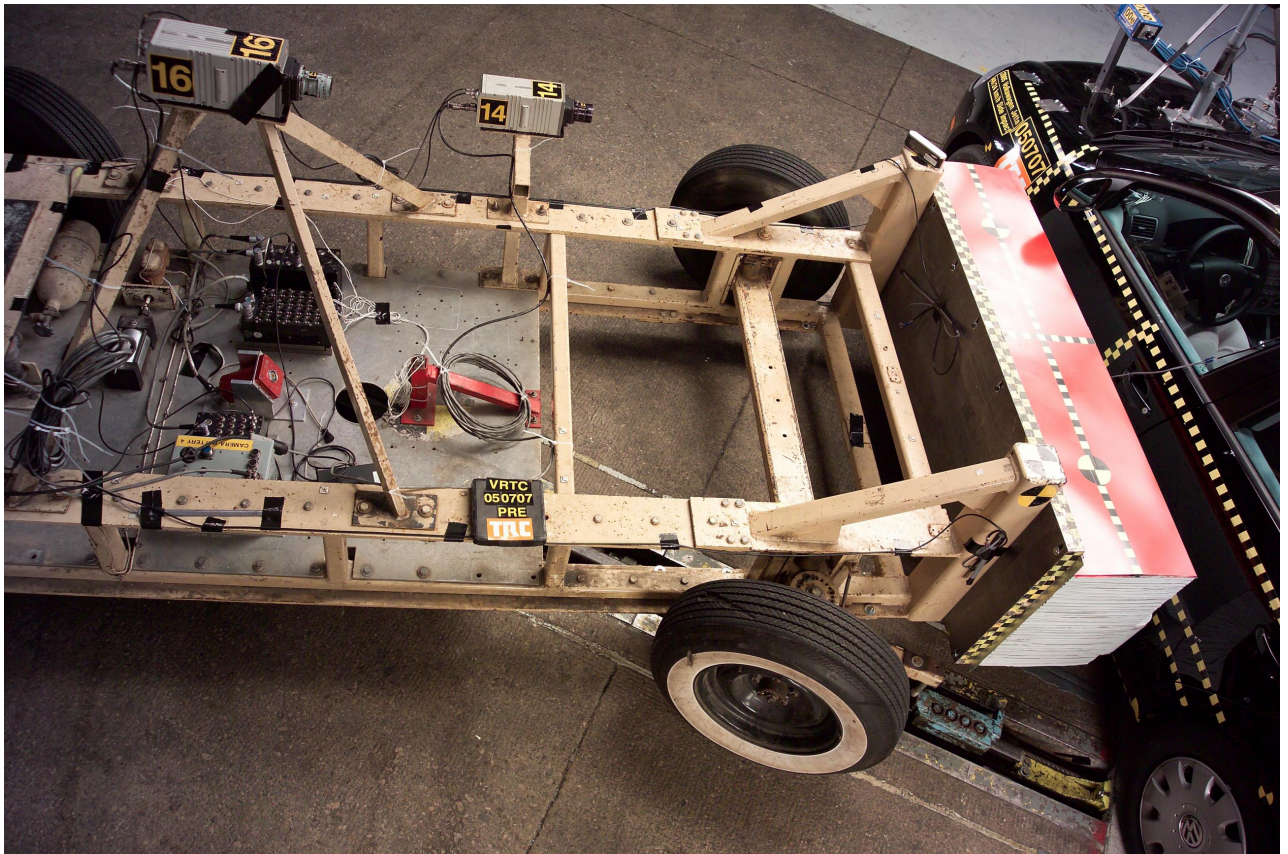


Figure A-72 Pre-Test Right Front Overall View of MDB

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Figure A-73 Pre-Test Barrier Face Front View

Intentionally Left Blank



Figure A-74 Pre-Test Barrier Face Left Side View



Figure A-75 Post-Test Barrier Face Left Side View



Figure A-76 Pre-Test Barrier Face Right Side View



Figure A-77 Post-Test Barrier Face Right Side View

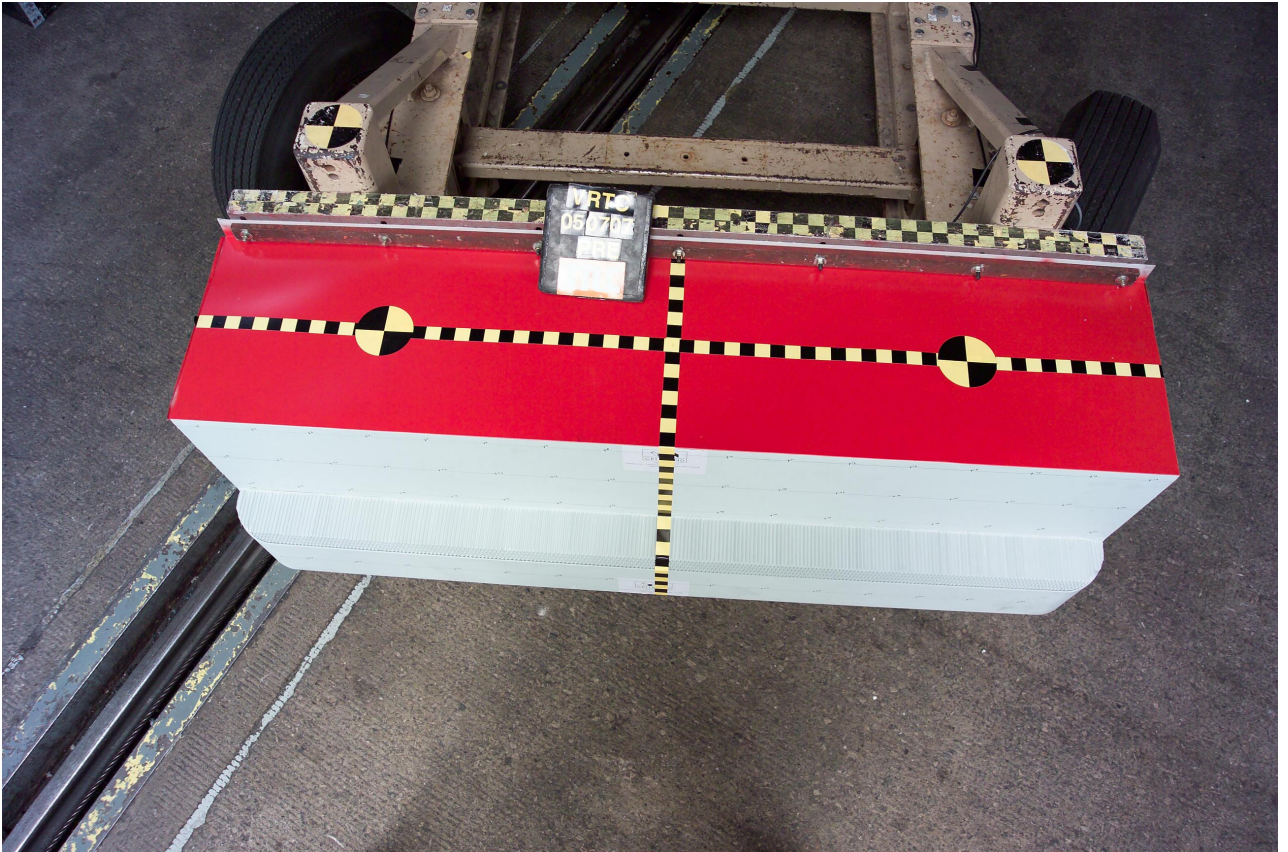


Figure A-78 Pre-Test Barrier Face Overhead View



Figure A-79 Post-Test Barrier Face Overhead View



Figure A-80 Vehicle Certification Label View



Figure A-81 Vehicle Tire Load Label View

Appendix B

Data Plots



MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head Accel X

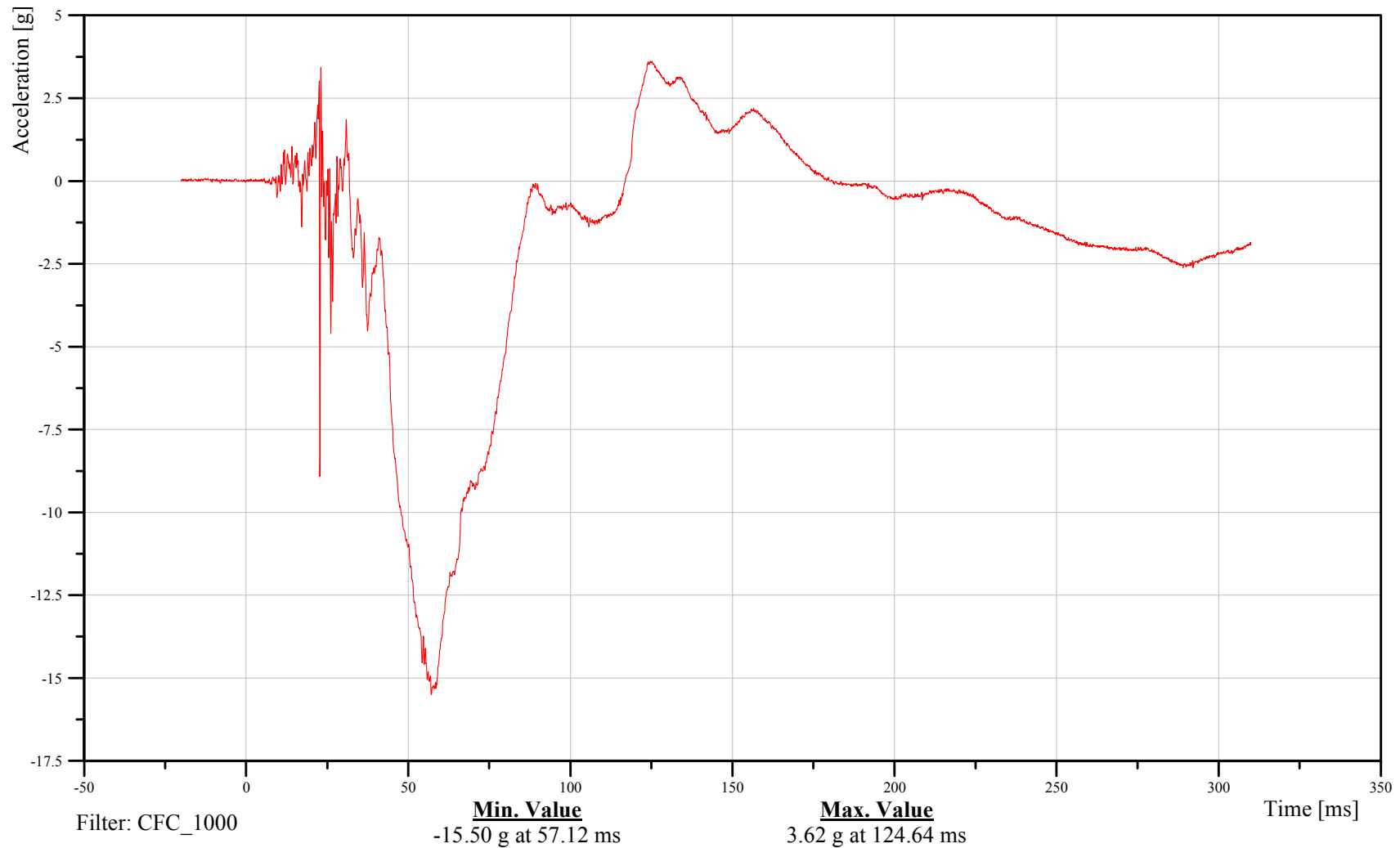
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11HEADCG00E2ACXA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head Accel Y

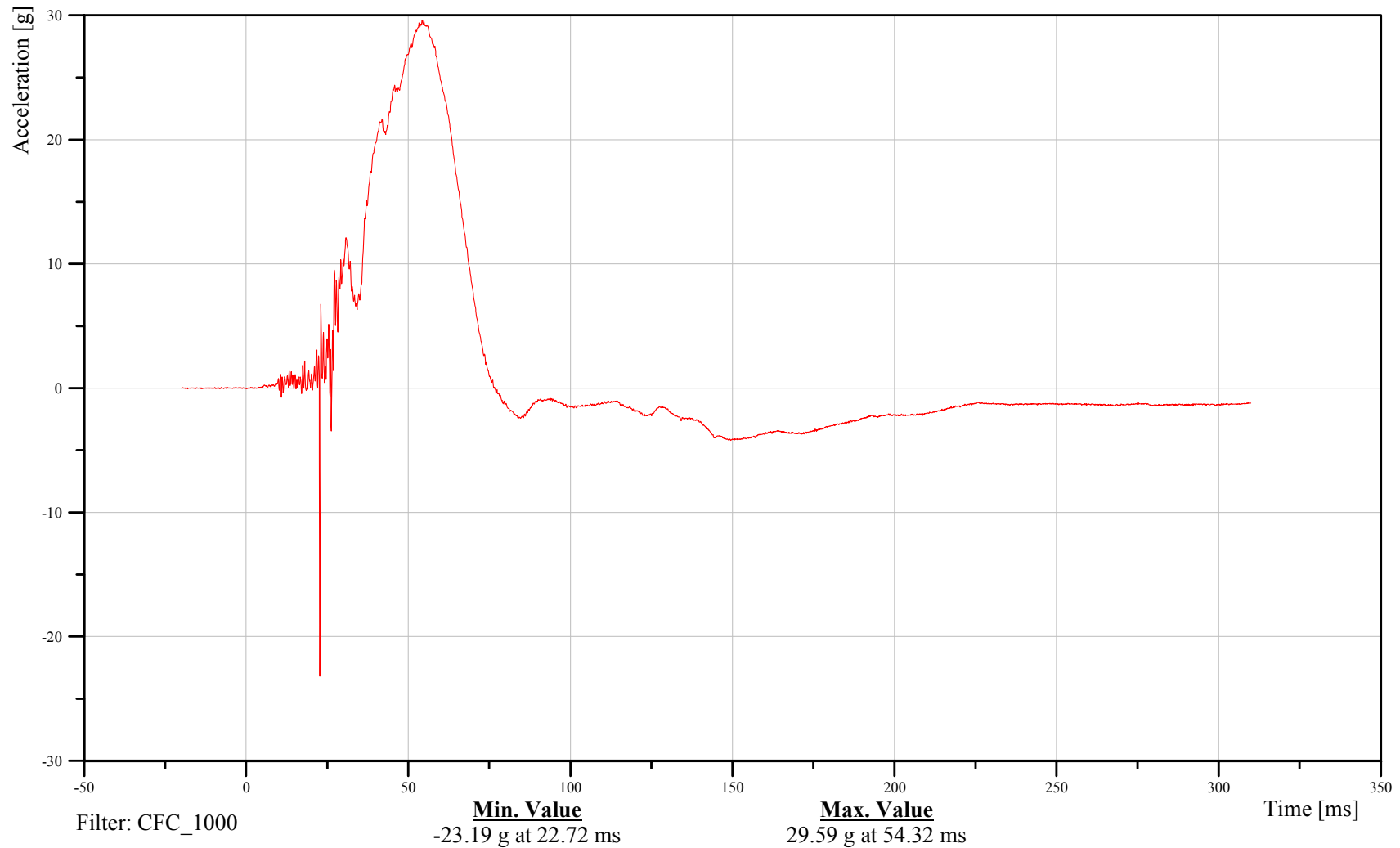
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11HEADCG00E2ACYA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head Accel Z

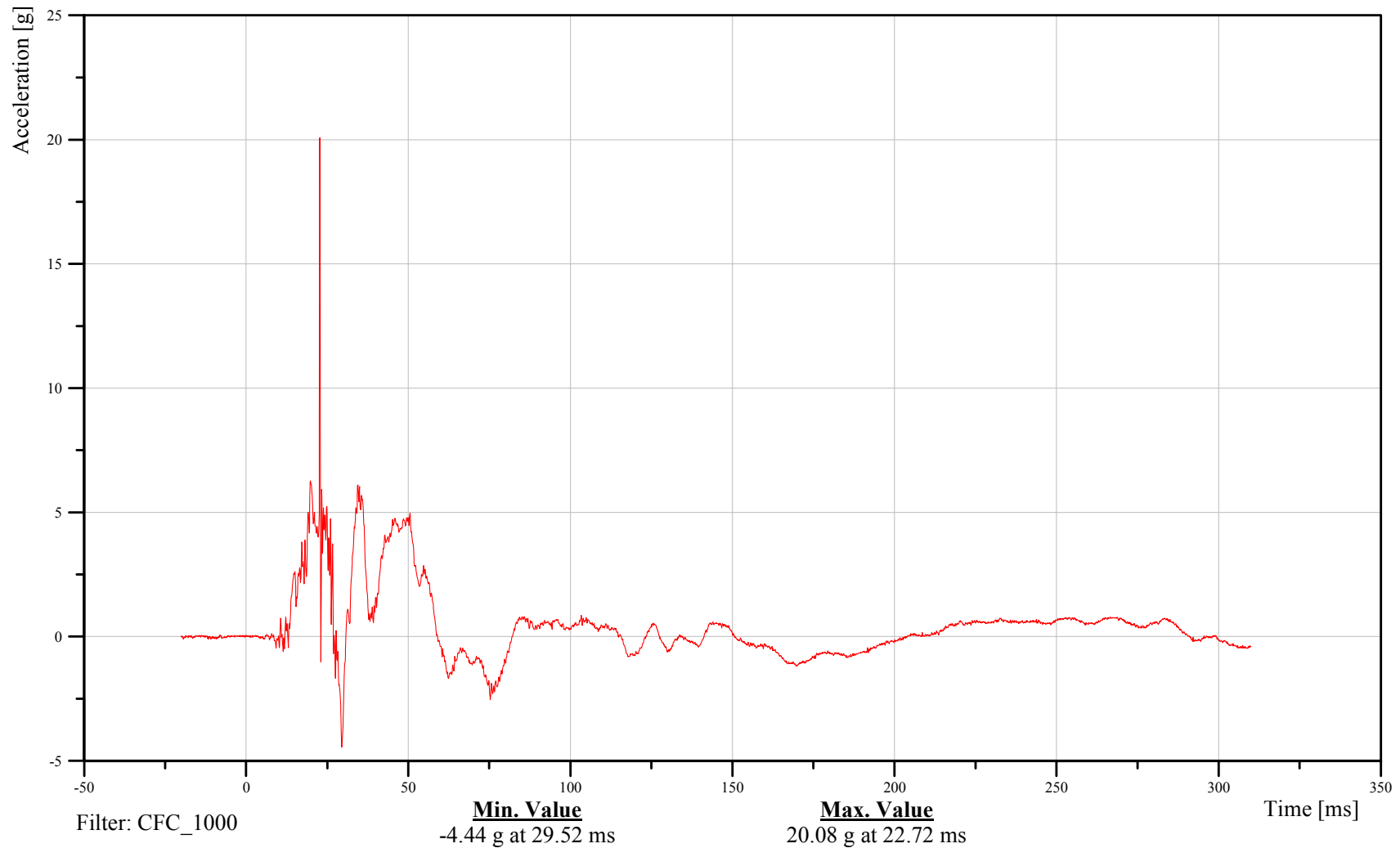
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11HEADCG00E2ACZA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

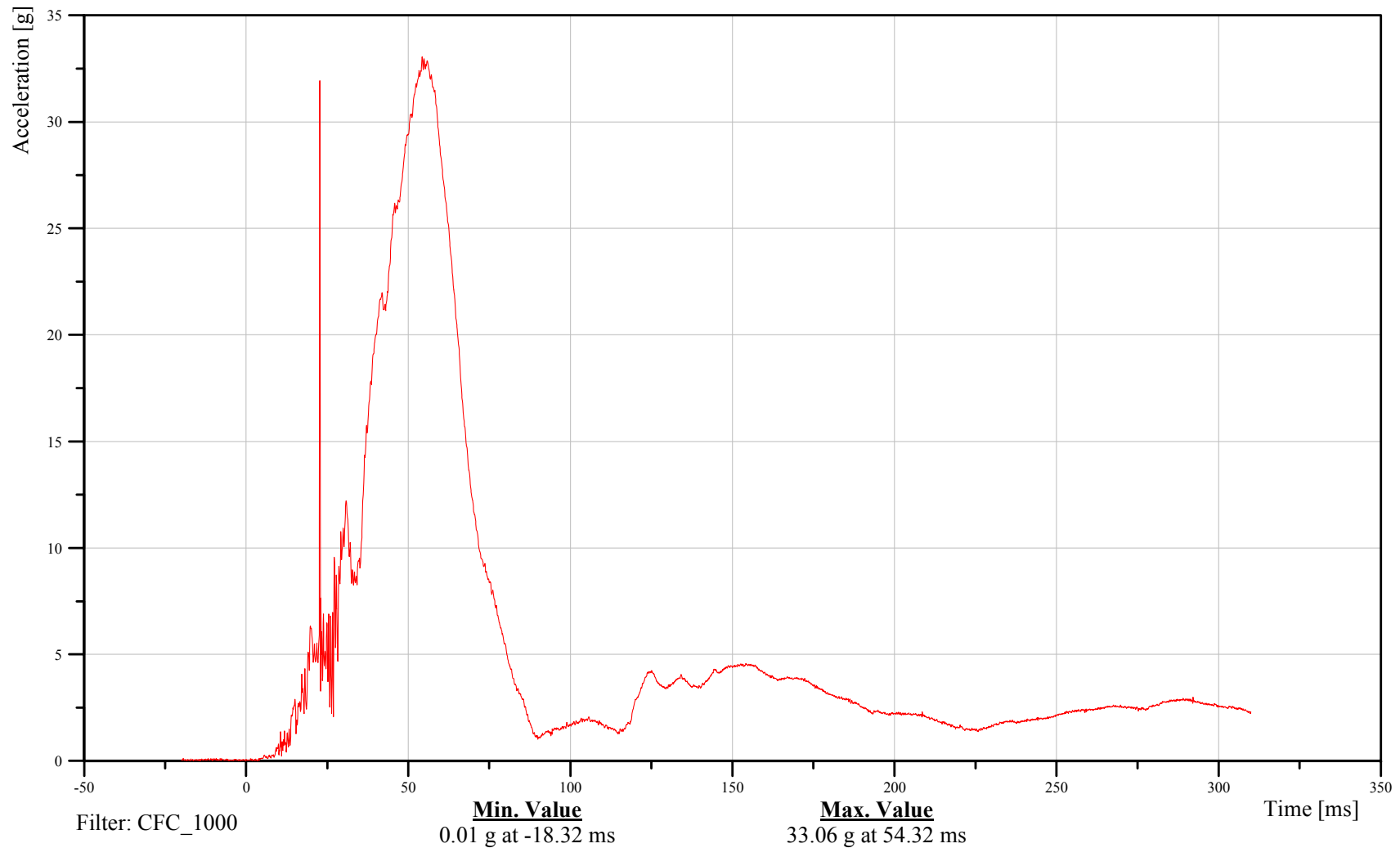
Head Accel Resultant

Customer: VRTC

11HEADCG00E2ACRA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head (LT) Accel X

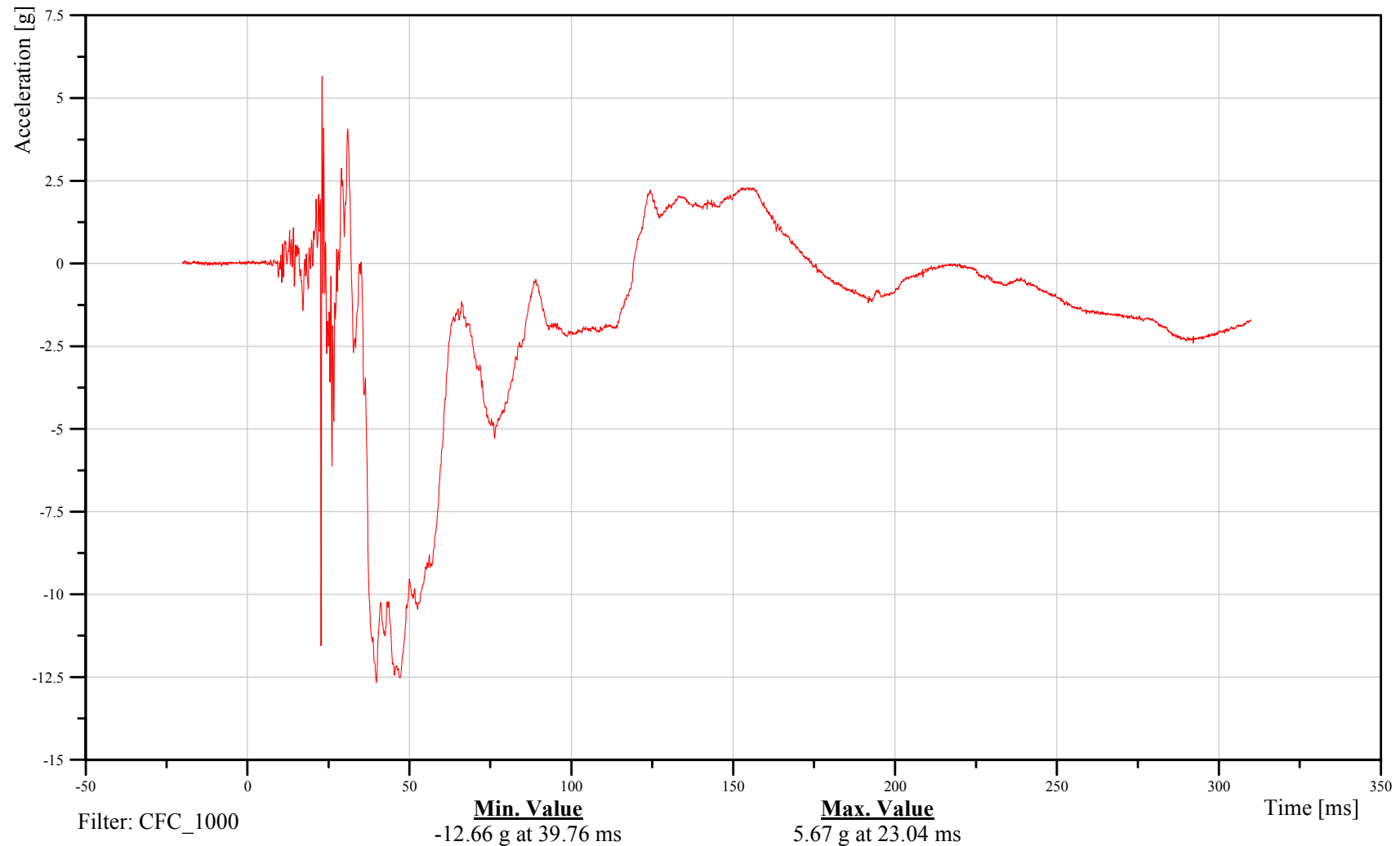
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11HEADLE00E2ACXA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head (LT) Accel Z

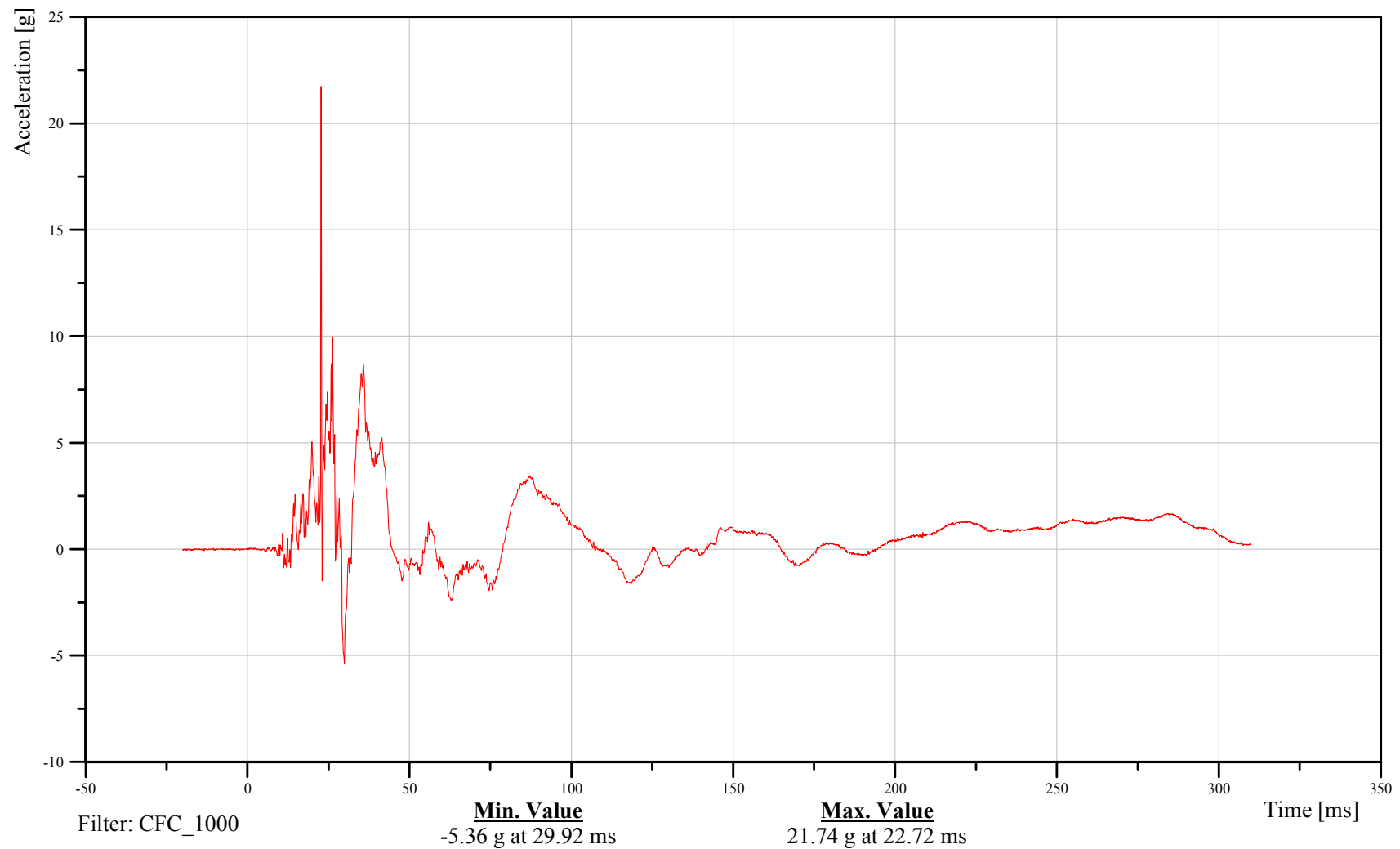
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11HEADLE00E2ACZA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head (FT) Accel Y

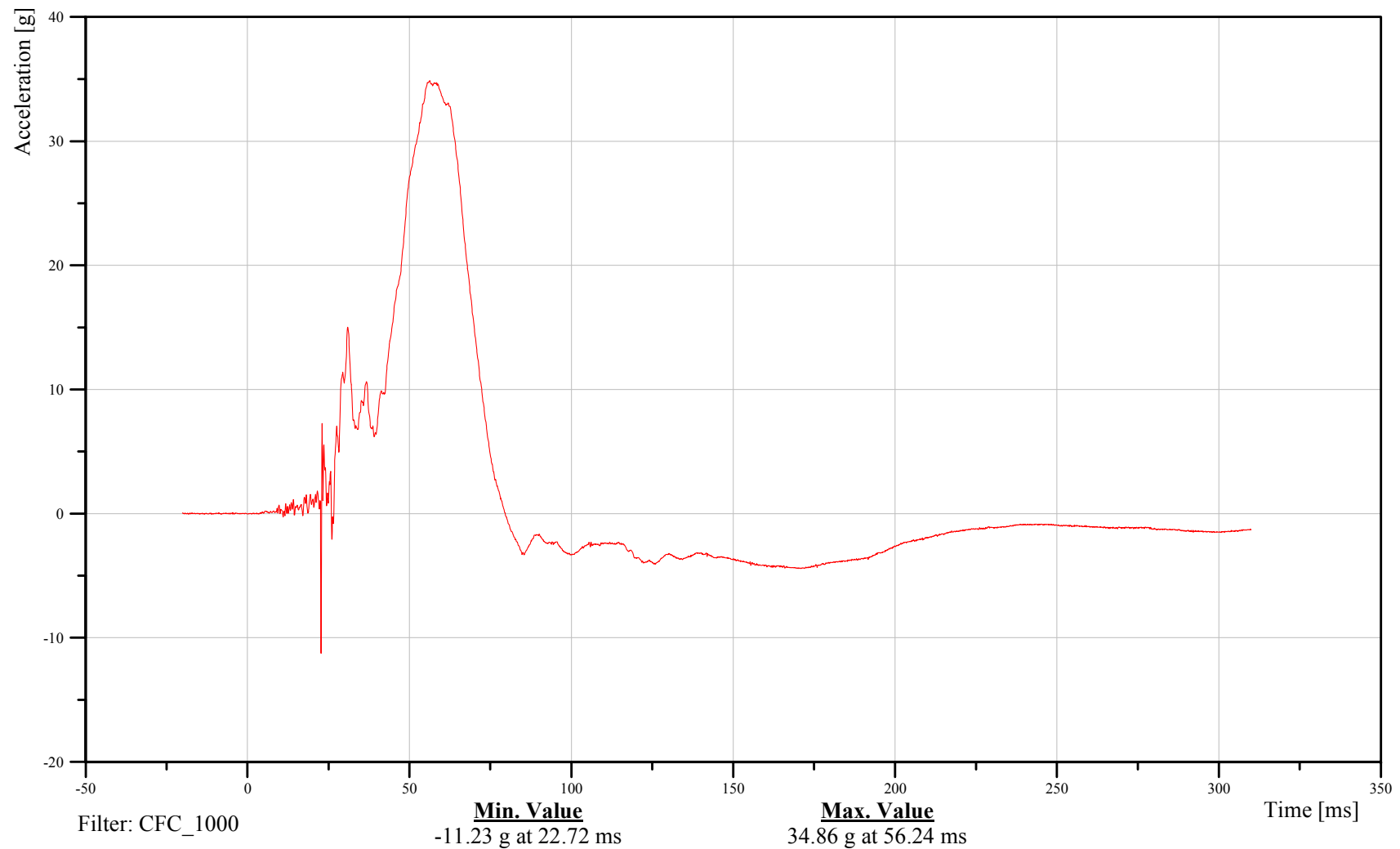
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11HEADFR00E2ACYA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head (FT) Accel Z

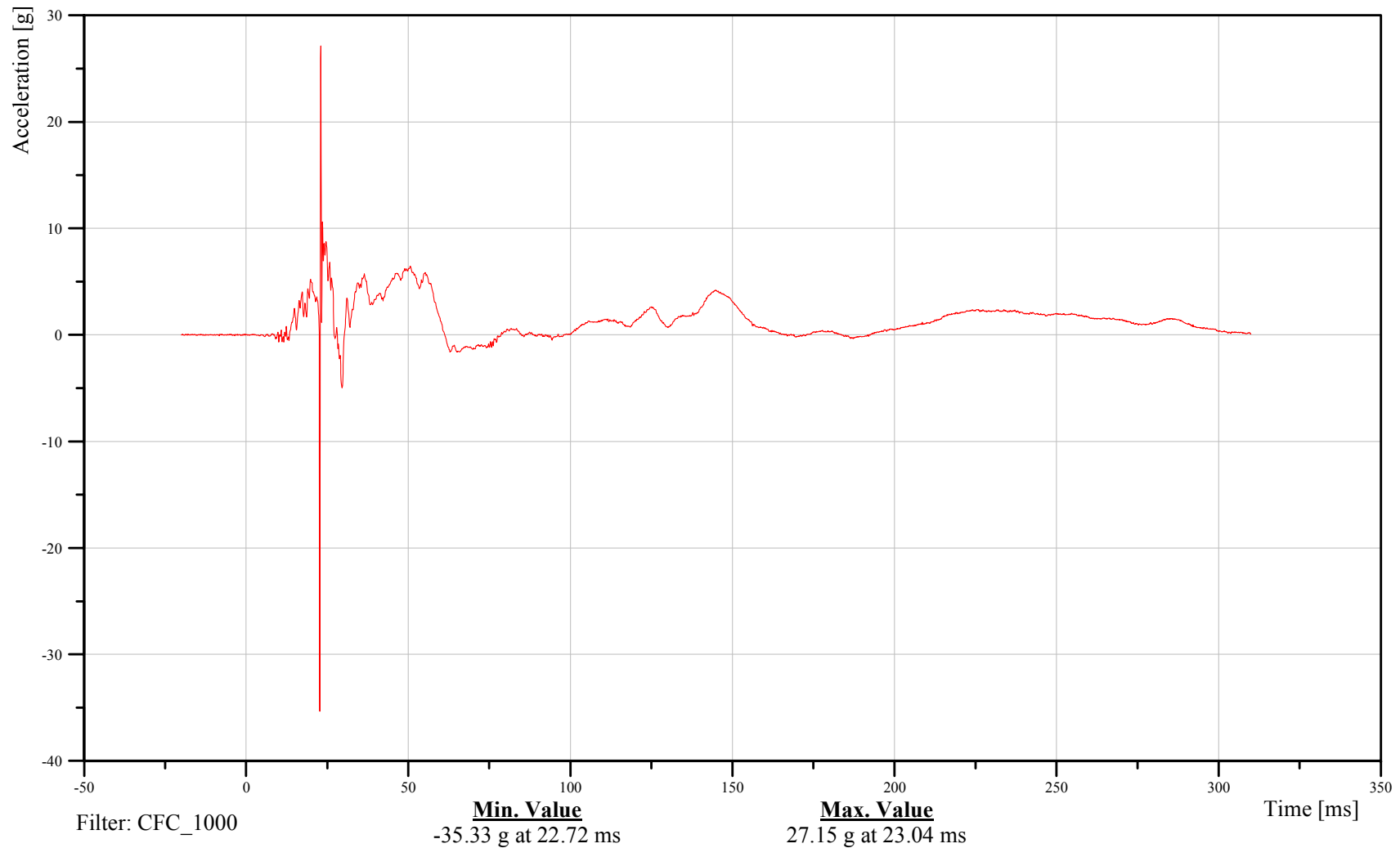
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11HEADFR00E2ACZA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head (TP) Accel X

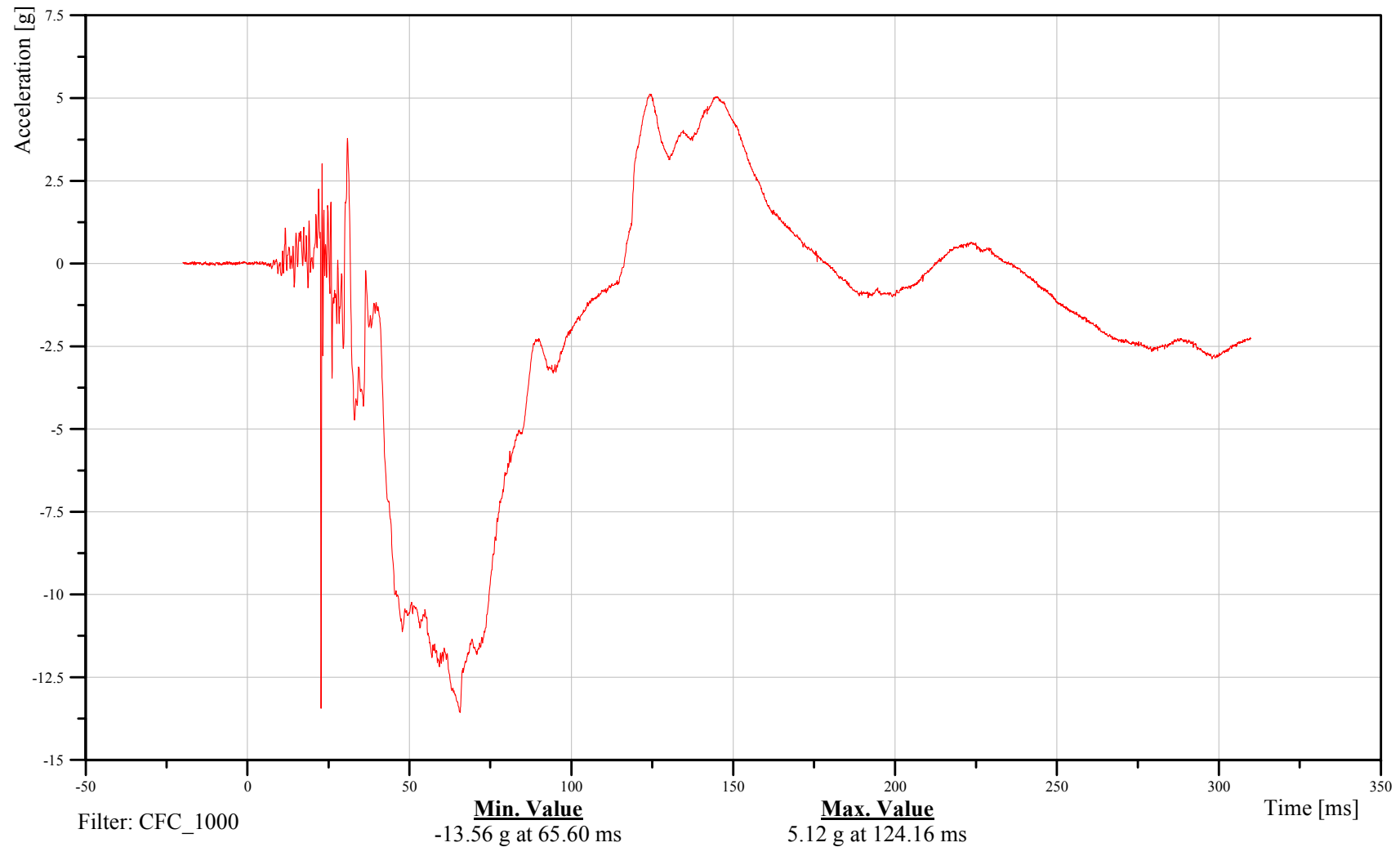
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11HEADUP00E2ACXA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head (TP) Accel Y

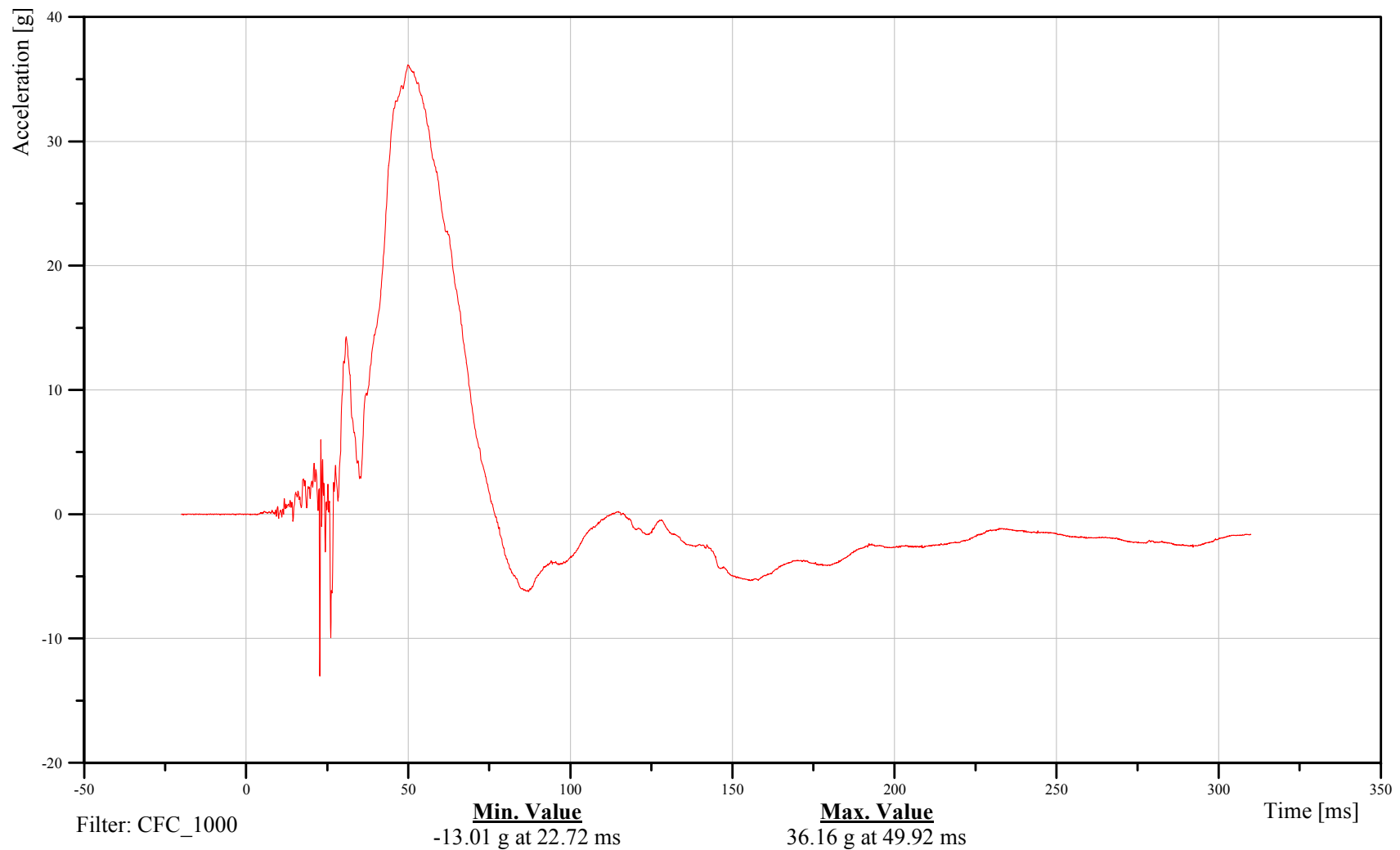
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11HEADUP00E2ACYA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

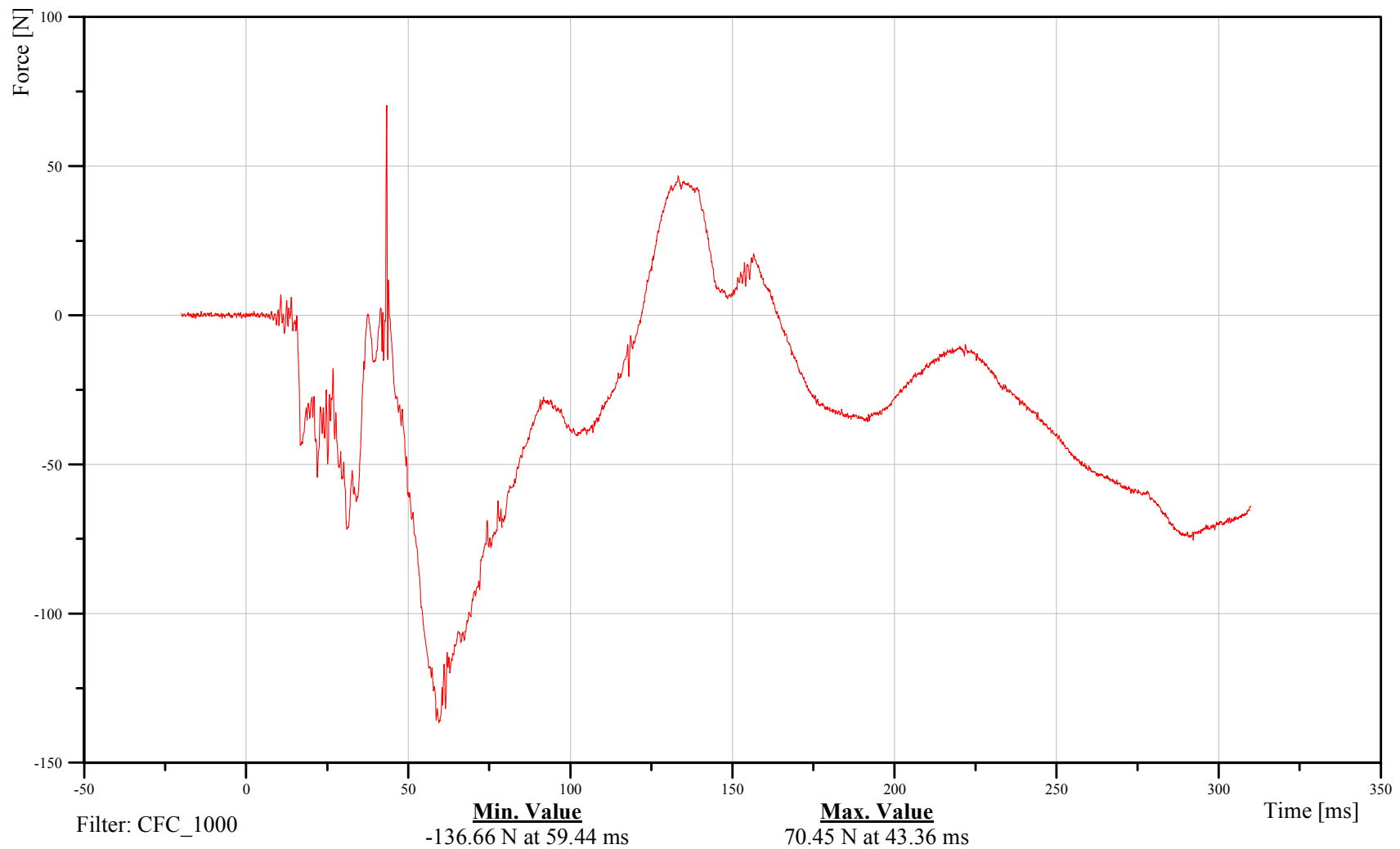
Neck Force X

Customer: VRTC

11NECKUP00E2FOXA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Neck Force Y

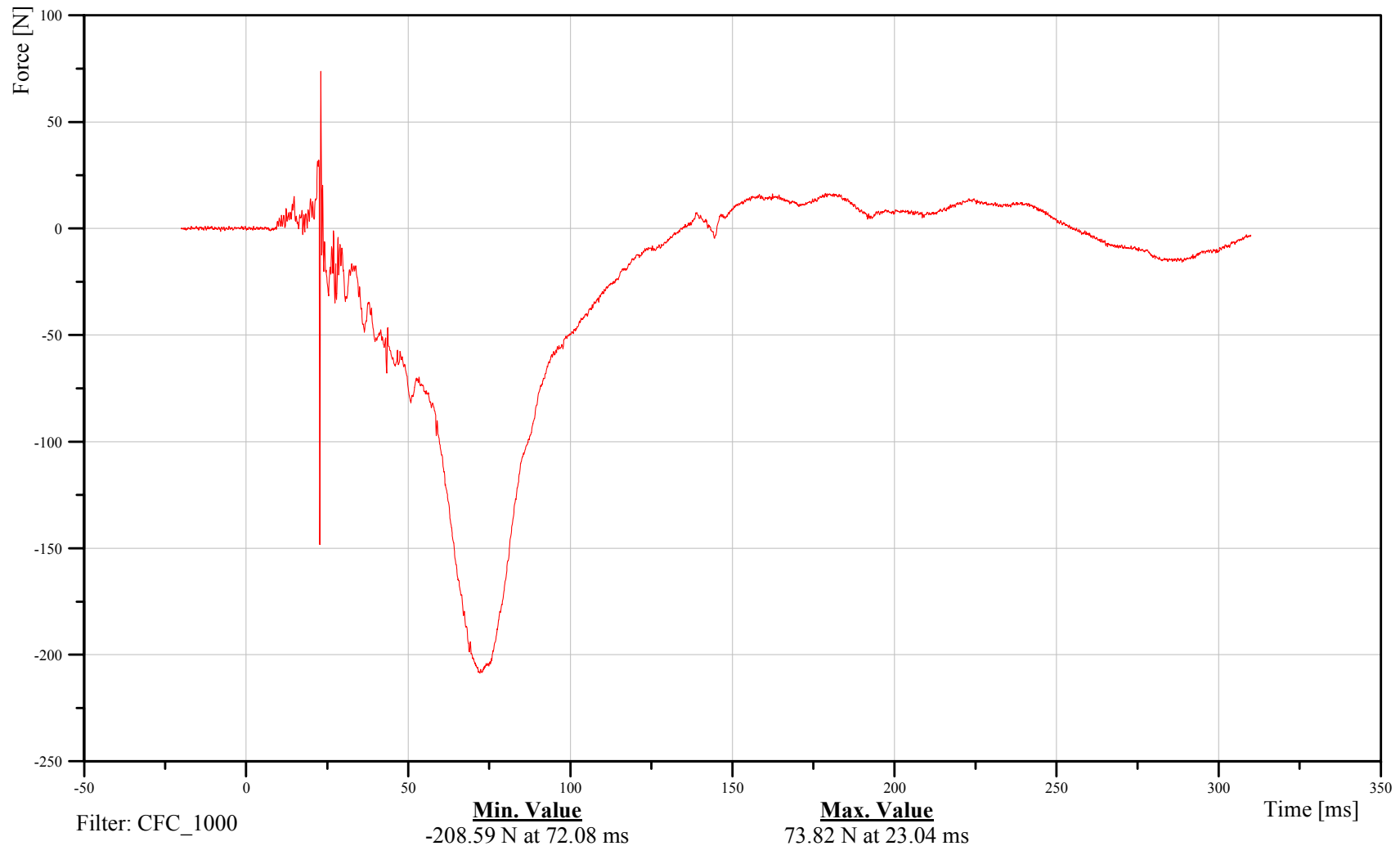
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11NECKUP00E2FOYA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

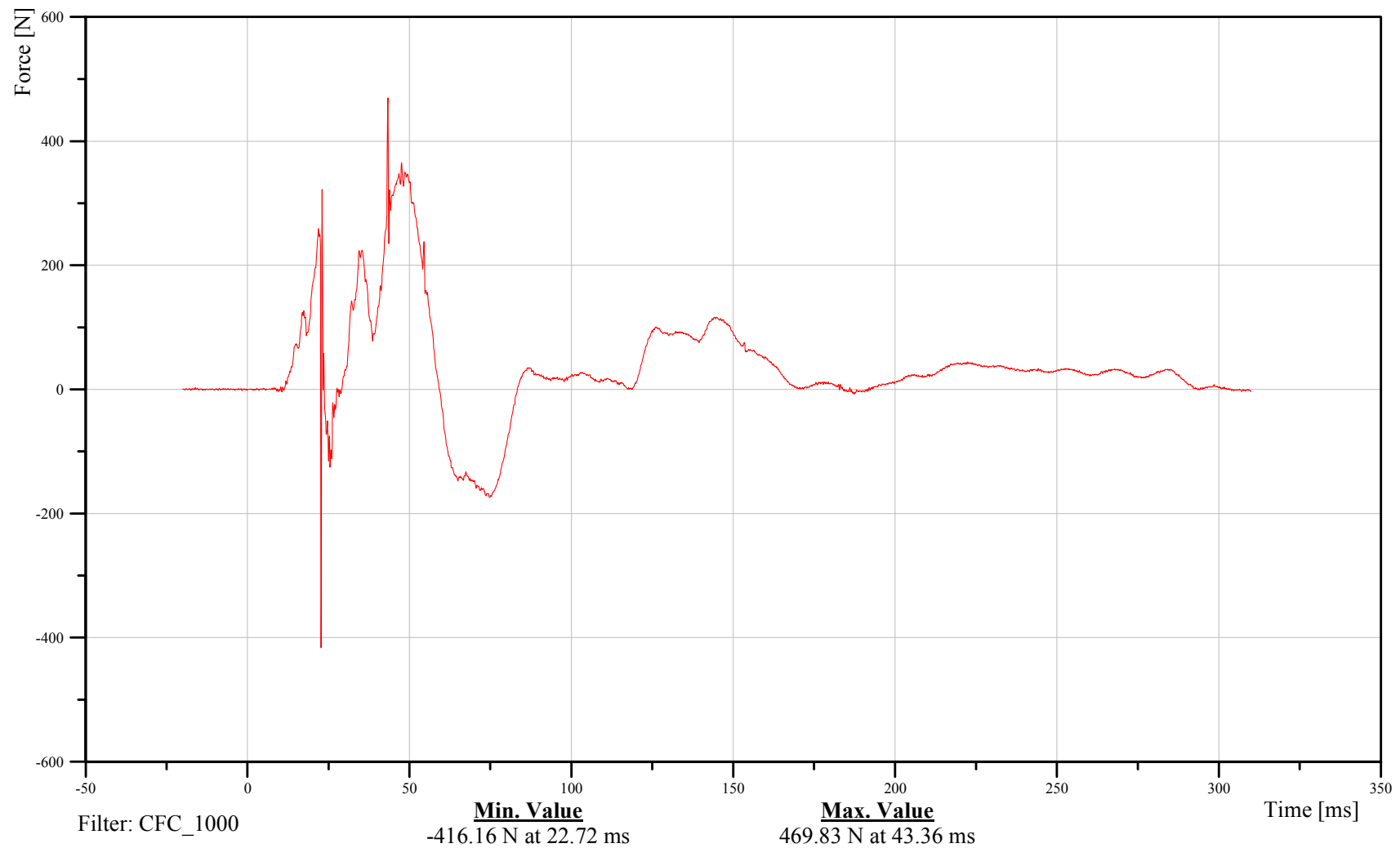
Neck Force Z

Customer: VRTC

11NECKUP00E2FOZA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

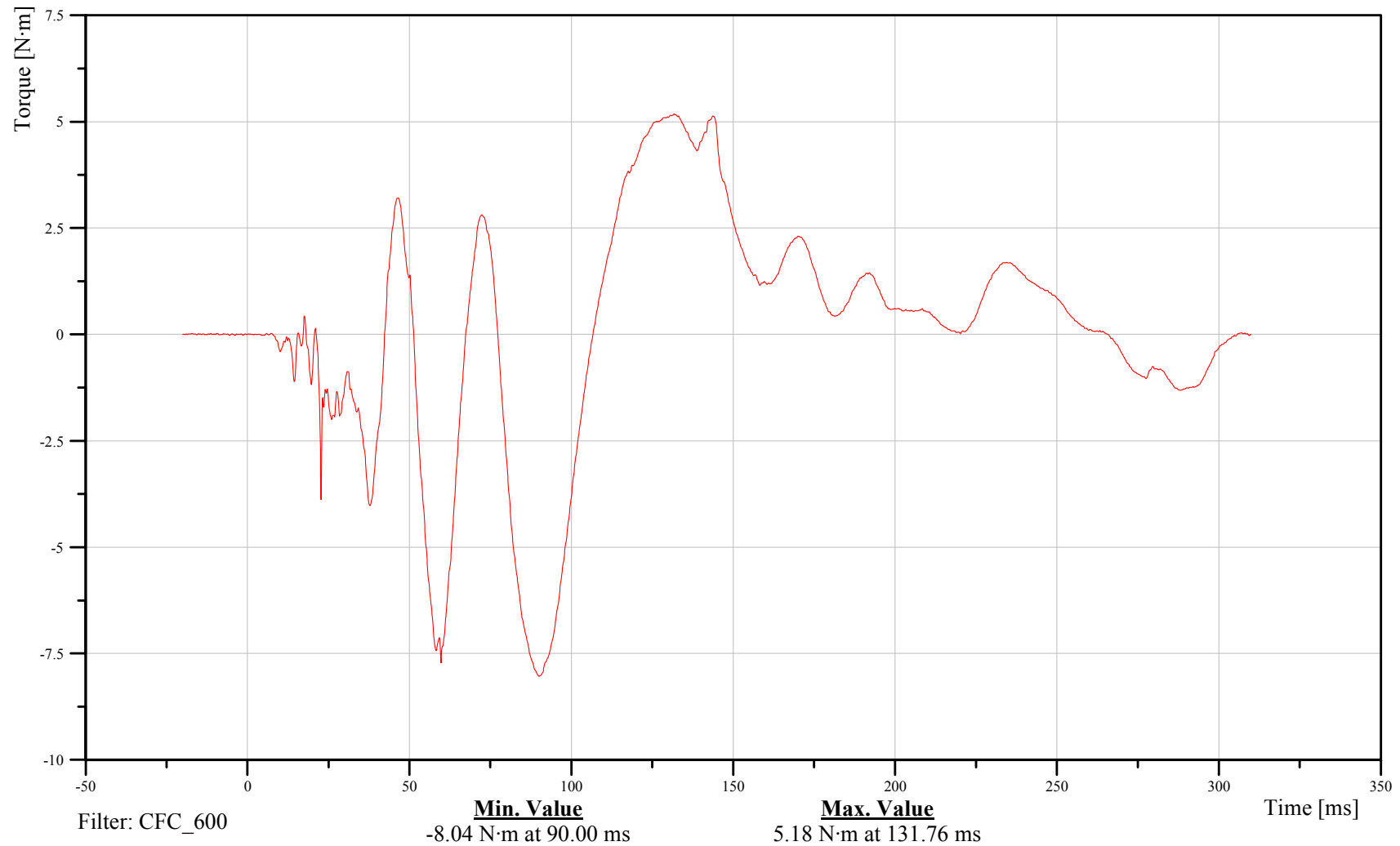
Neck Moment X

Customer: VRTC

11NECKUP00E2MOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

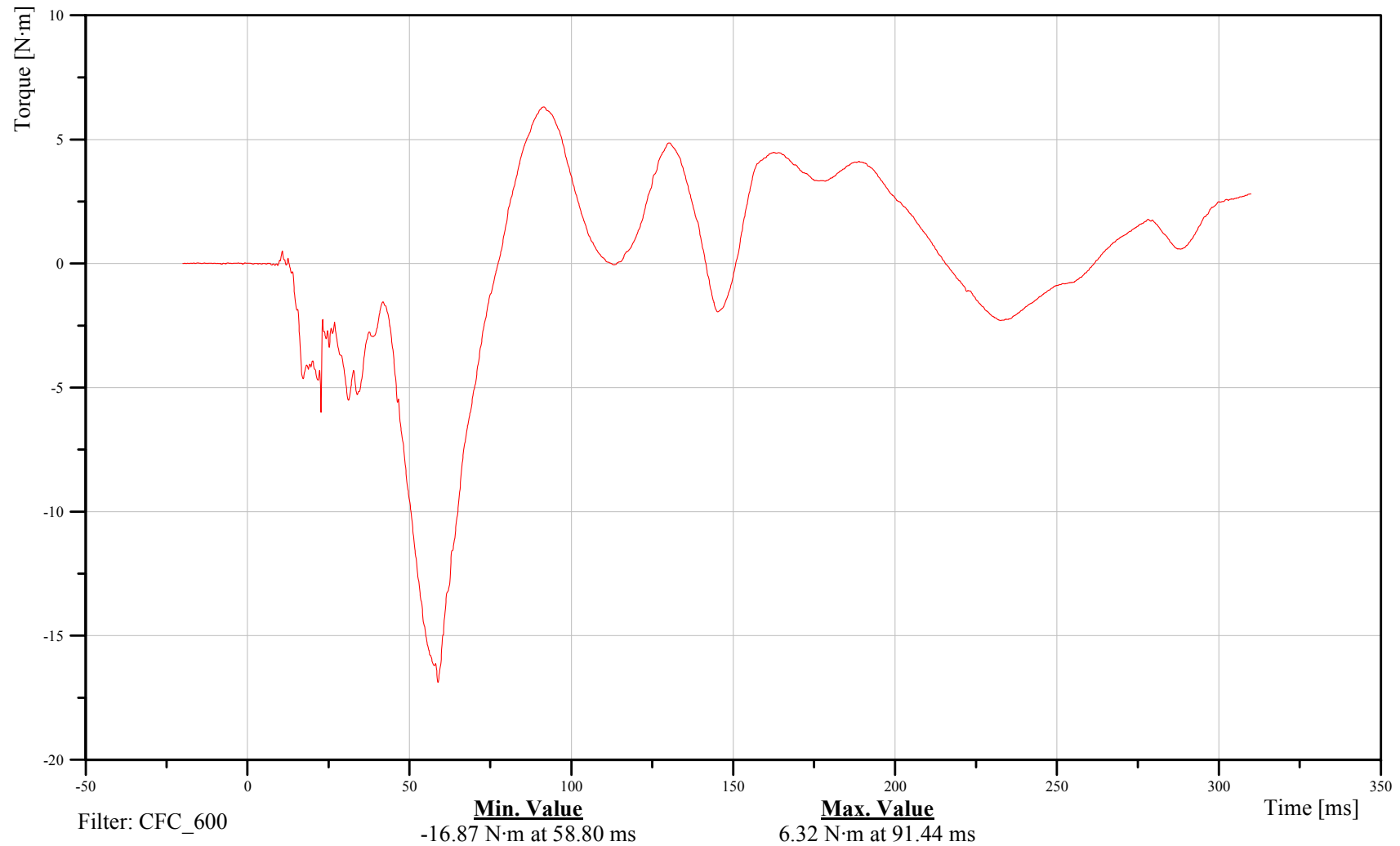
Neck Moment Y

Customer: VRTC

11NECKUP00E2MOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

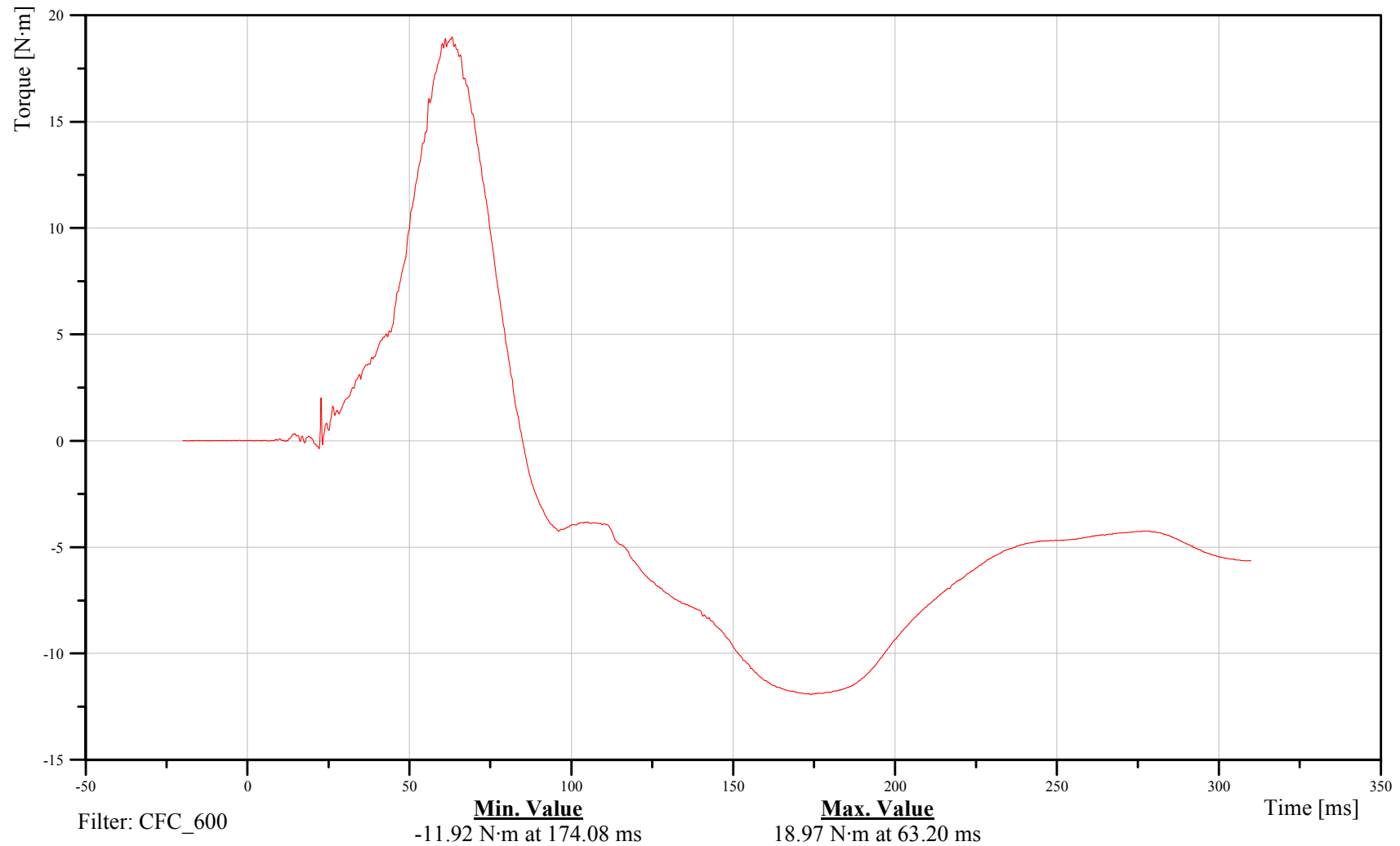
Neck Moment Z

Customer: VRTC

11NECKUP00E2MOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

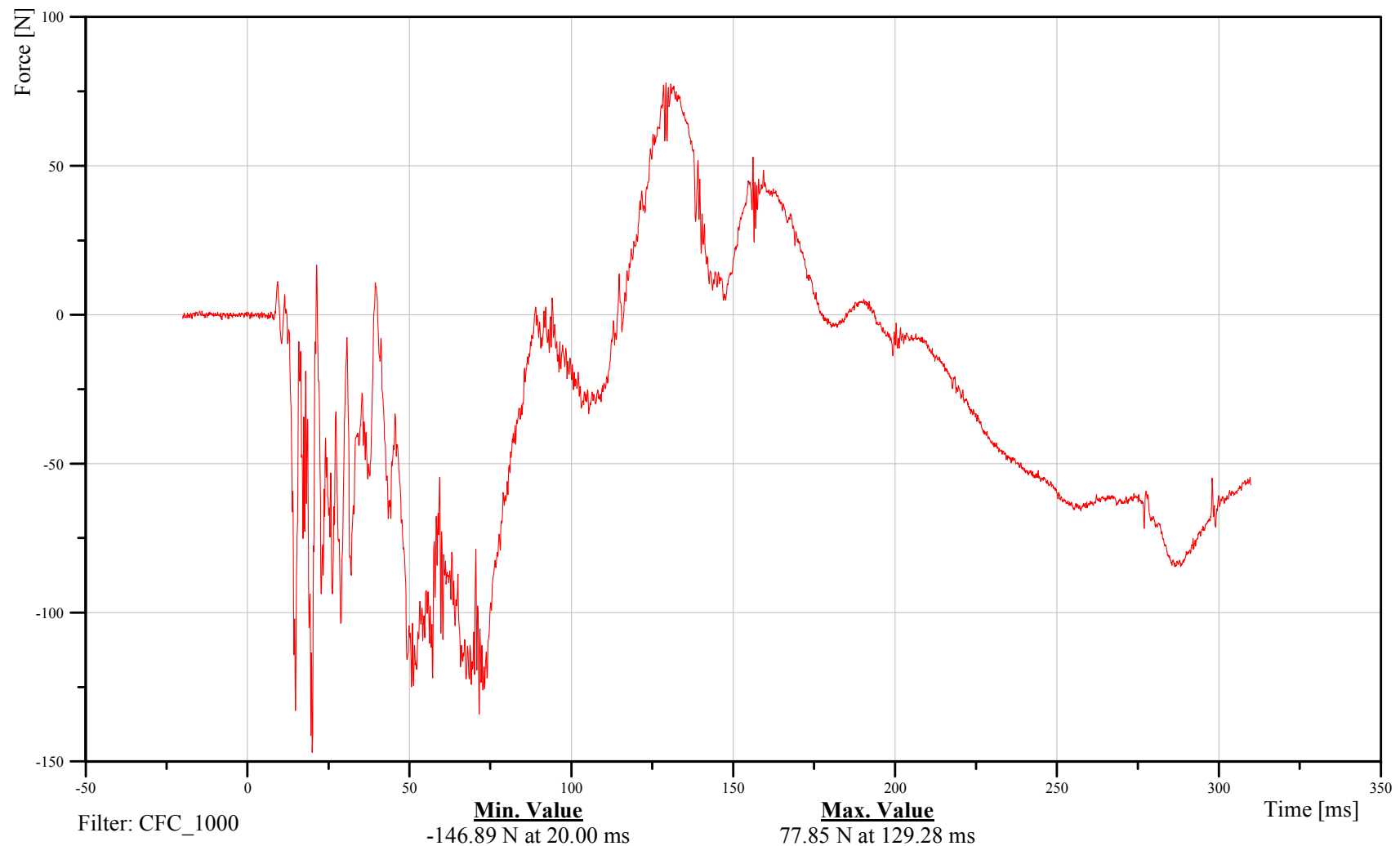
Neck Lower Force X

Customer: VRTC

11NECKLO00E2FOXA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Neck Lower Force Y

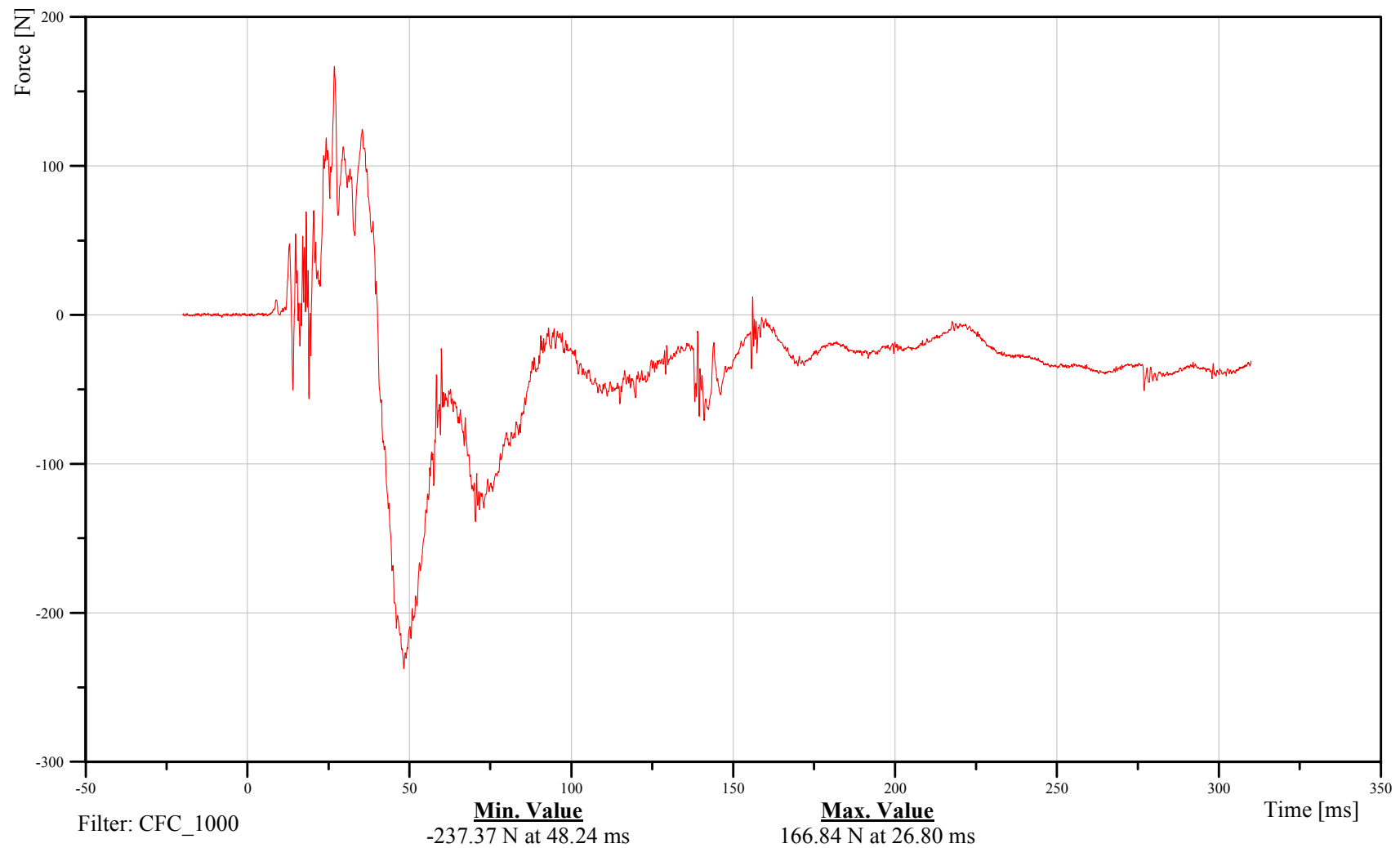
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11NECKLO00E2FOYA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Neck Lower Force Z

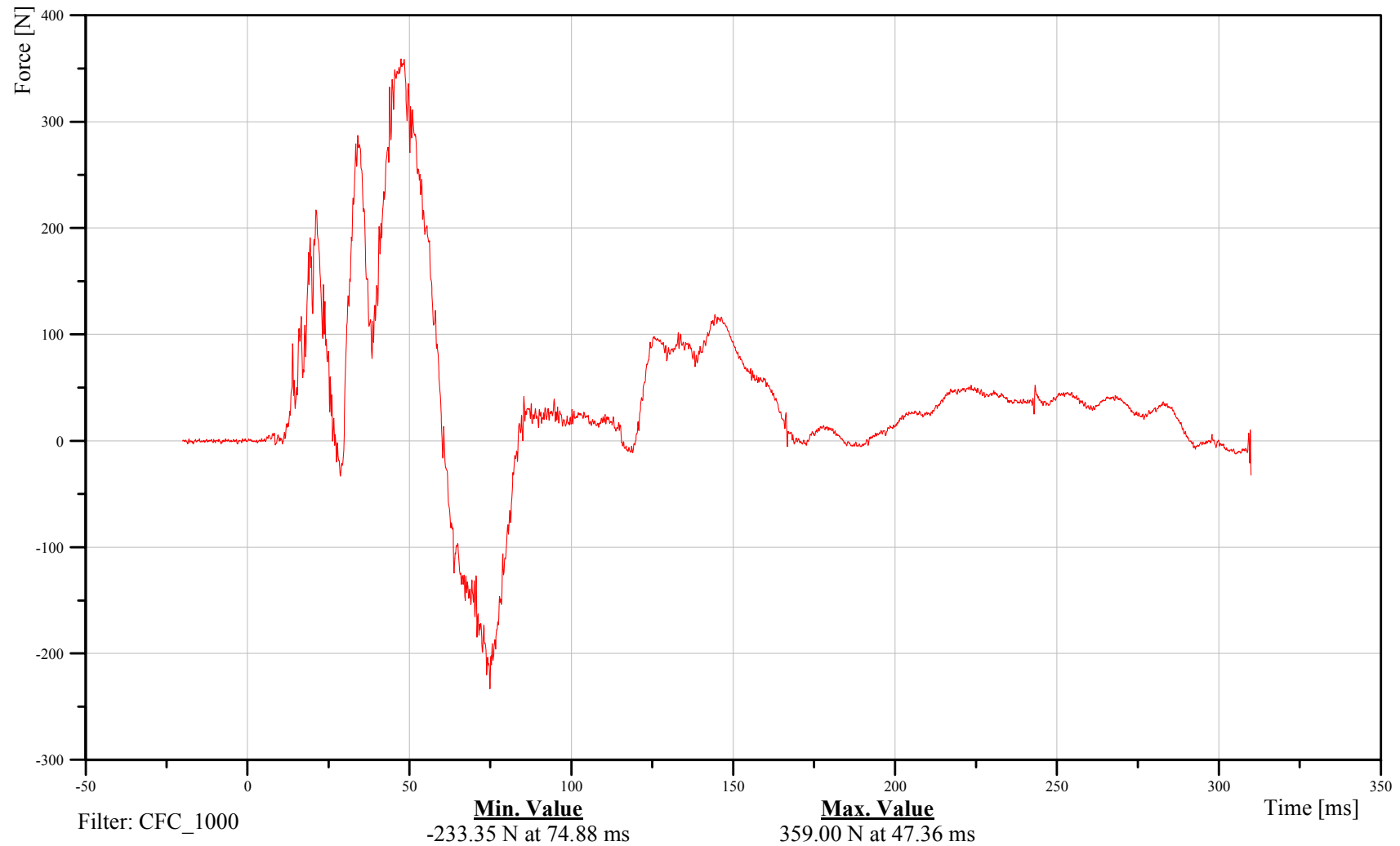
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11NECKLO00E2FOZA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

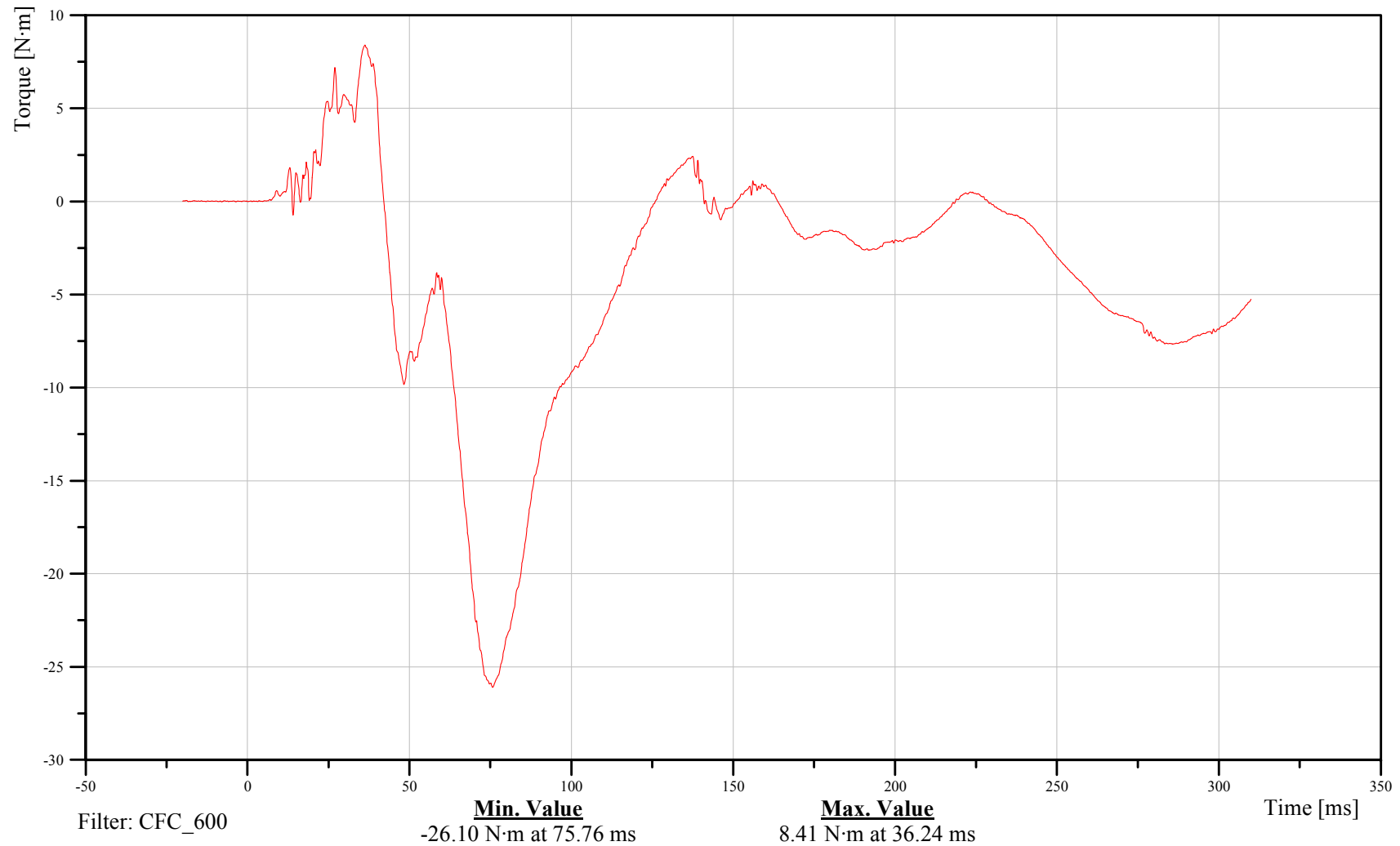
Neck Lower Moment X

Customer: VRTC

11NECKLO00E2MOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

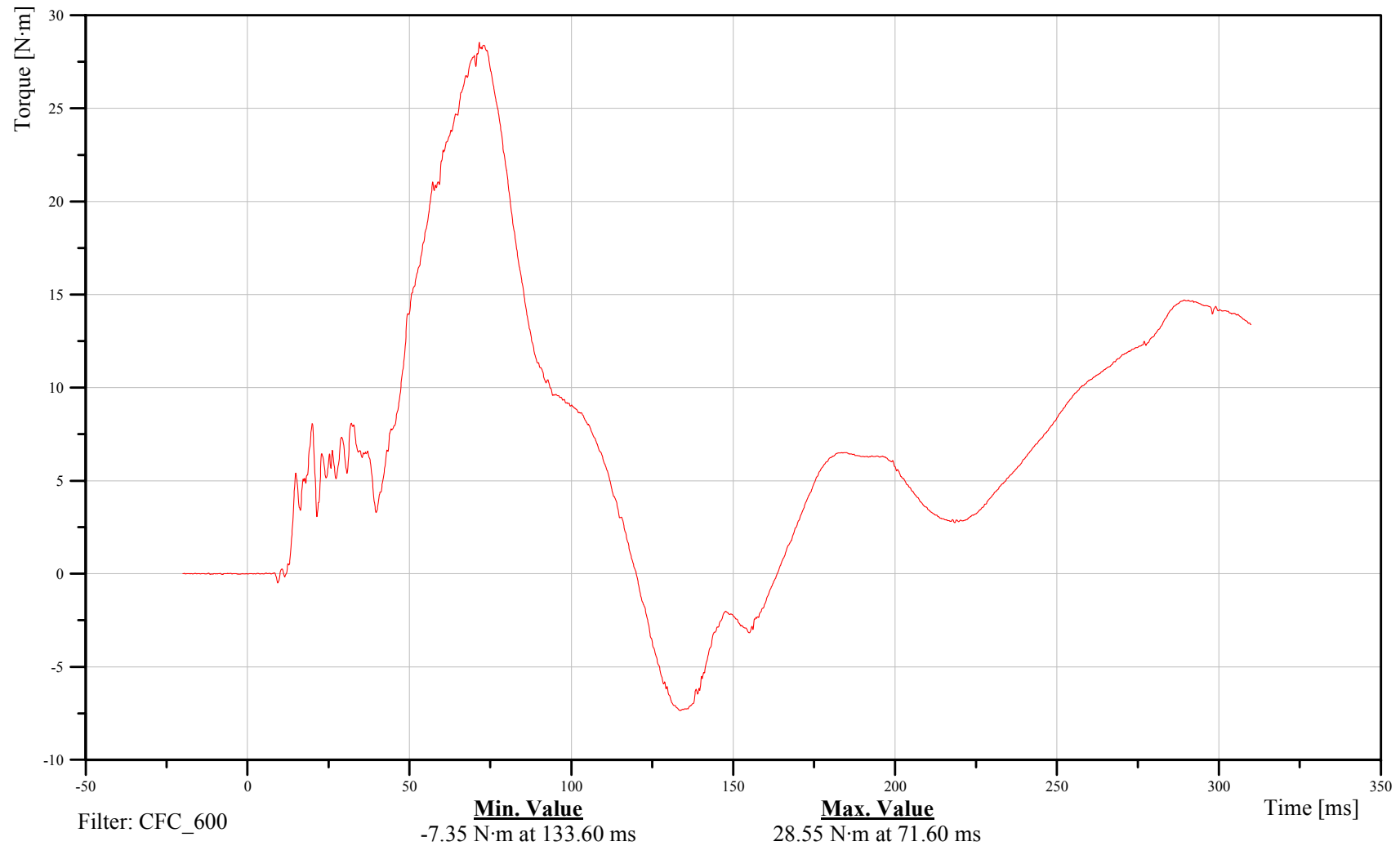
Neck Lower Moment Y

Customer: VRTC

11NECKLO00E2MOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

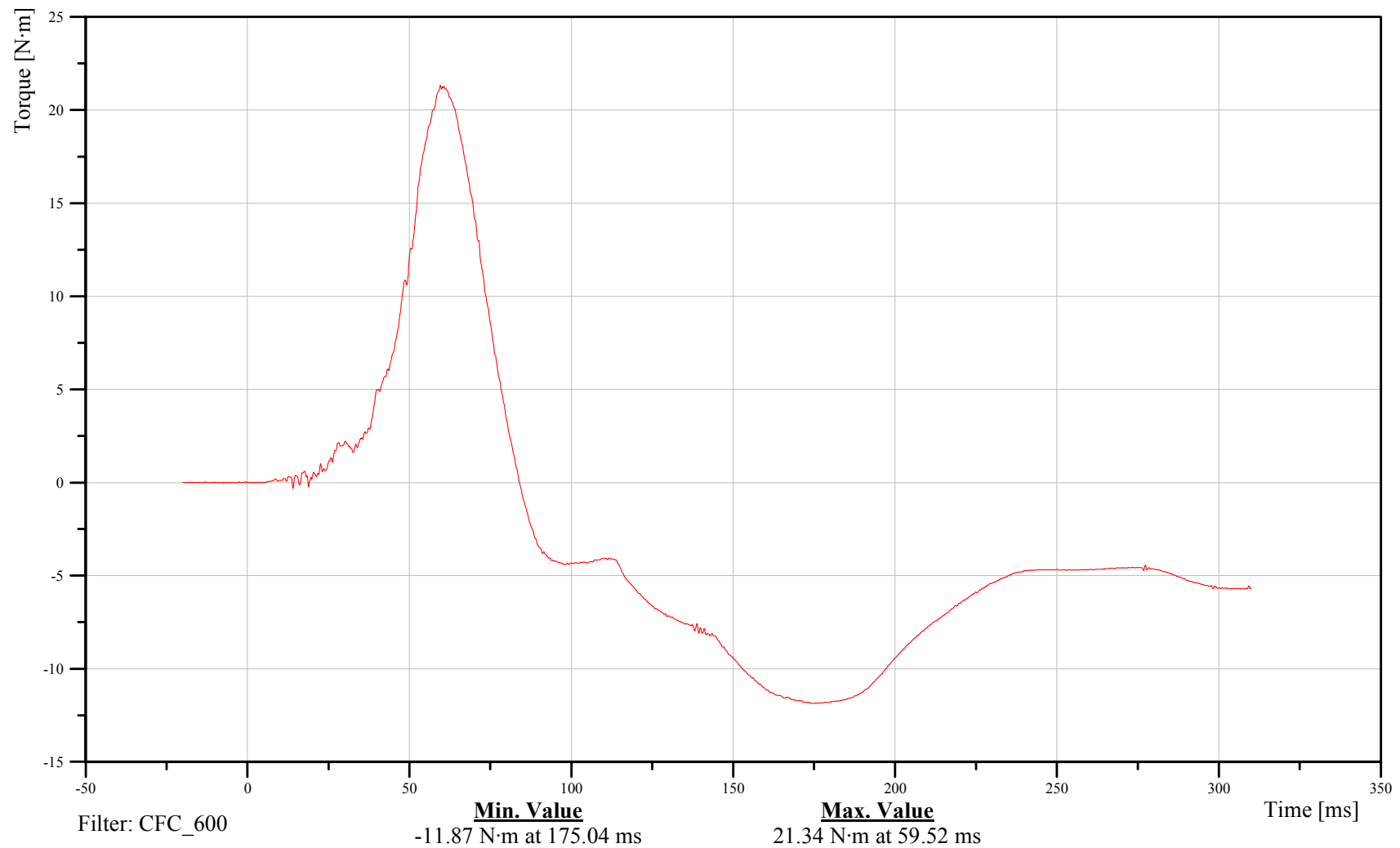
Neck Lower Moment Z

Customer: VRTC

11NECKLO00E2MOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

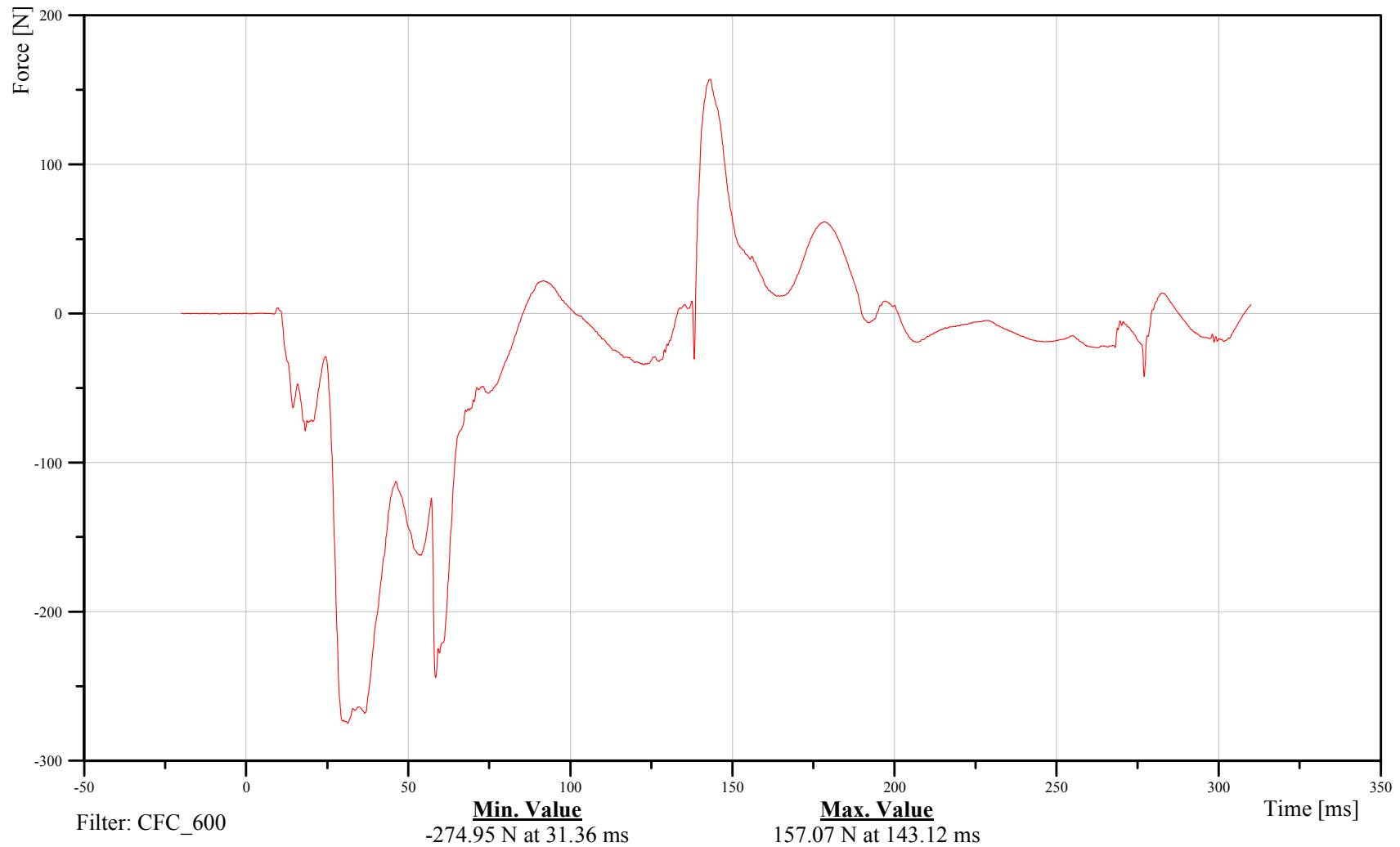
Shoulder Left Force X

Customer: VRTC

11SHLDLE00E2FOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Shoulder Left Force Y

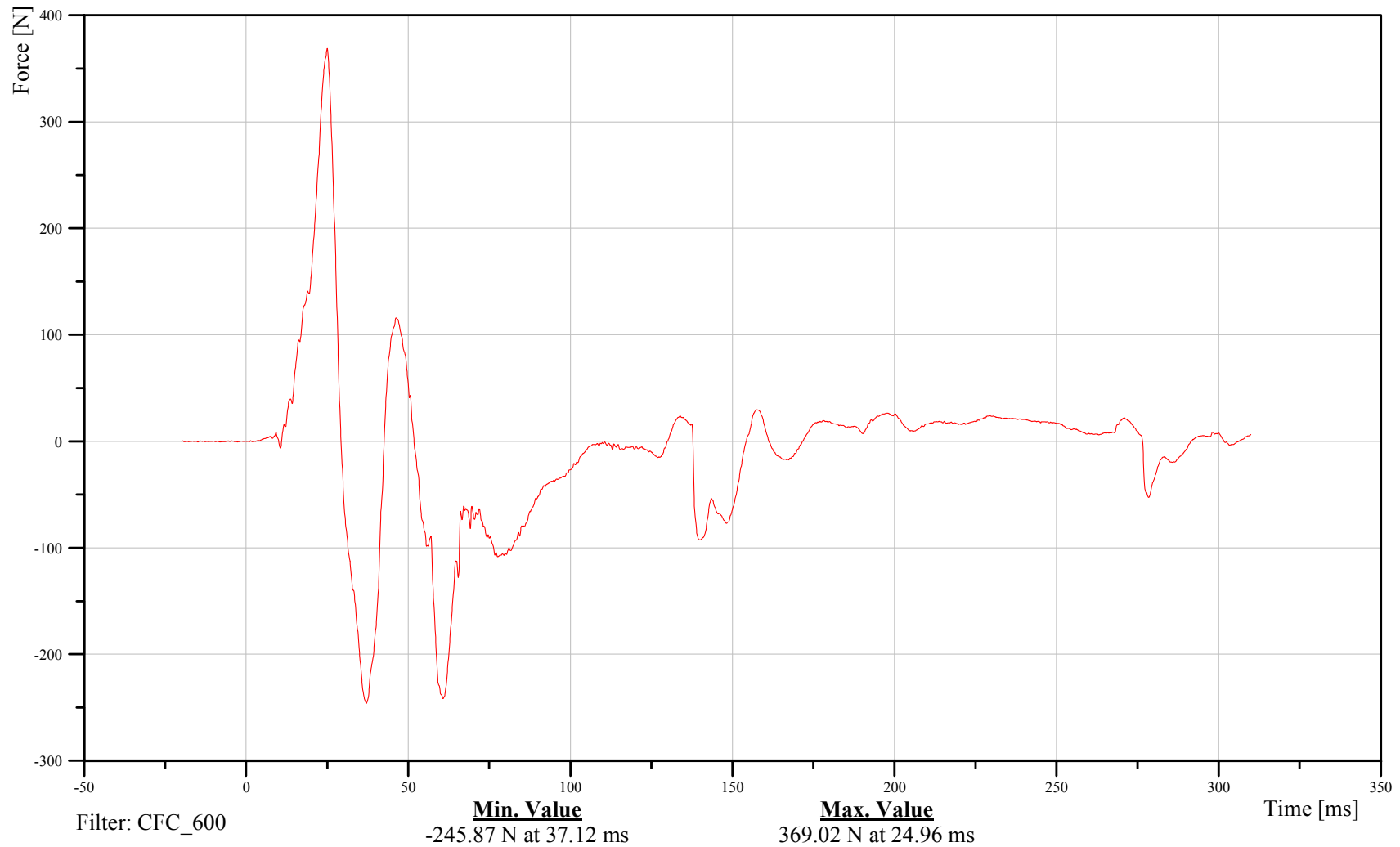
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11SHLDLE00E2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Shoulder Left Force Z

Date: 07/07/2005

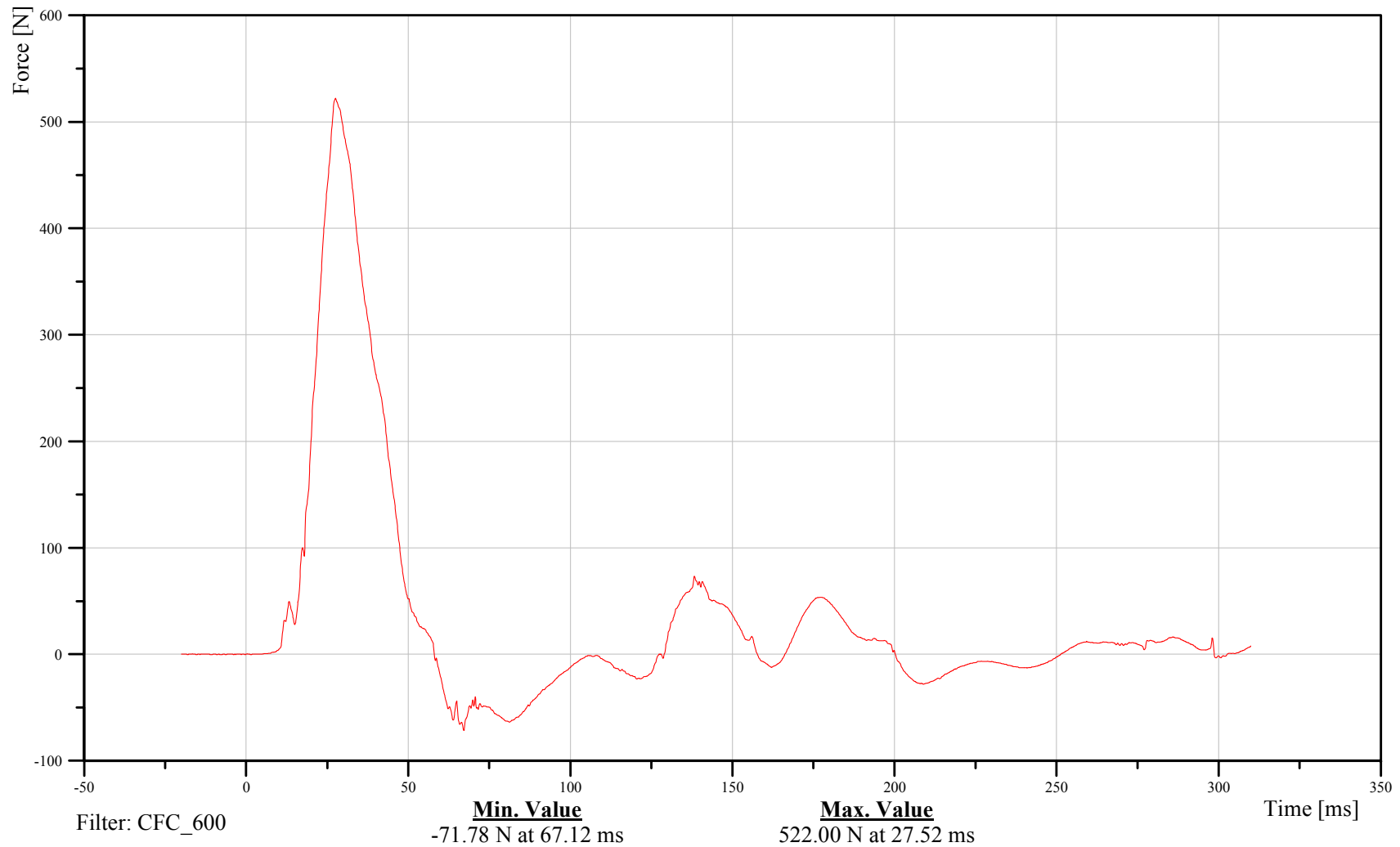
Time: 11:26

Customer: VRTC

11SHLDLE00E2FOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

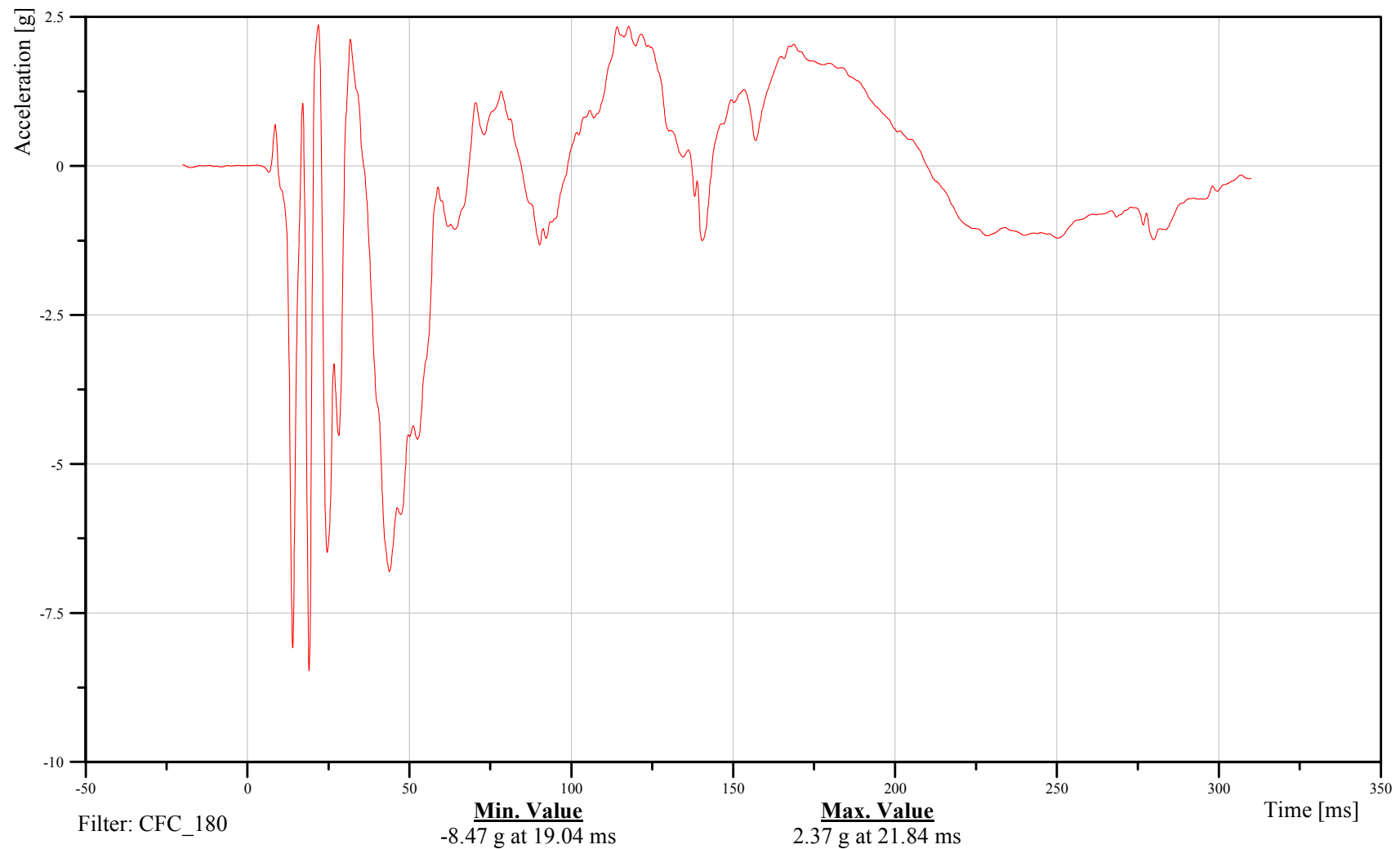
Upper Spine X

Customer: VRTC

11SPIN0100E2ACXC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Upper Spine Y

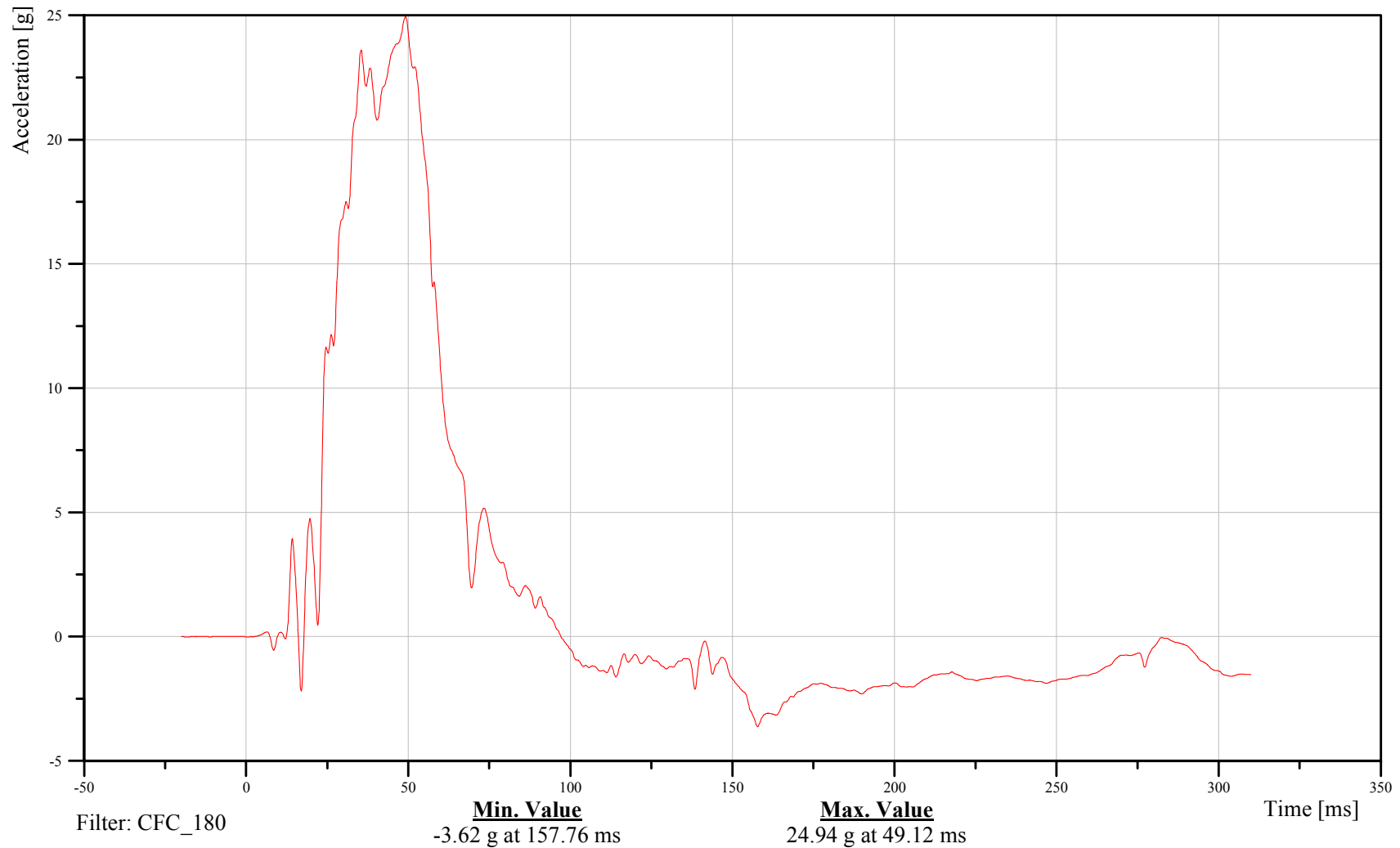
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11SPIN0100E2ACYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

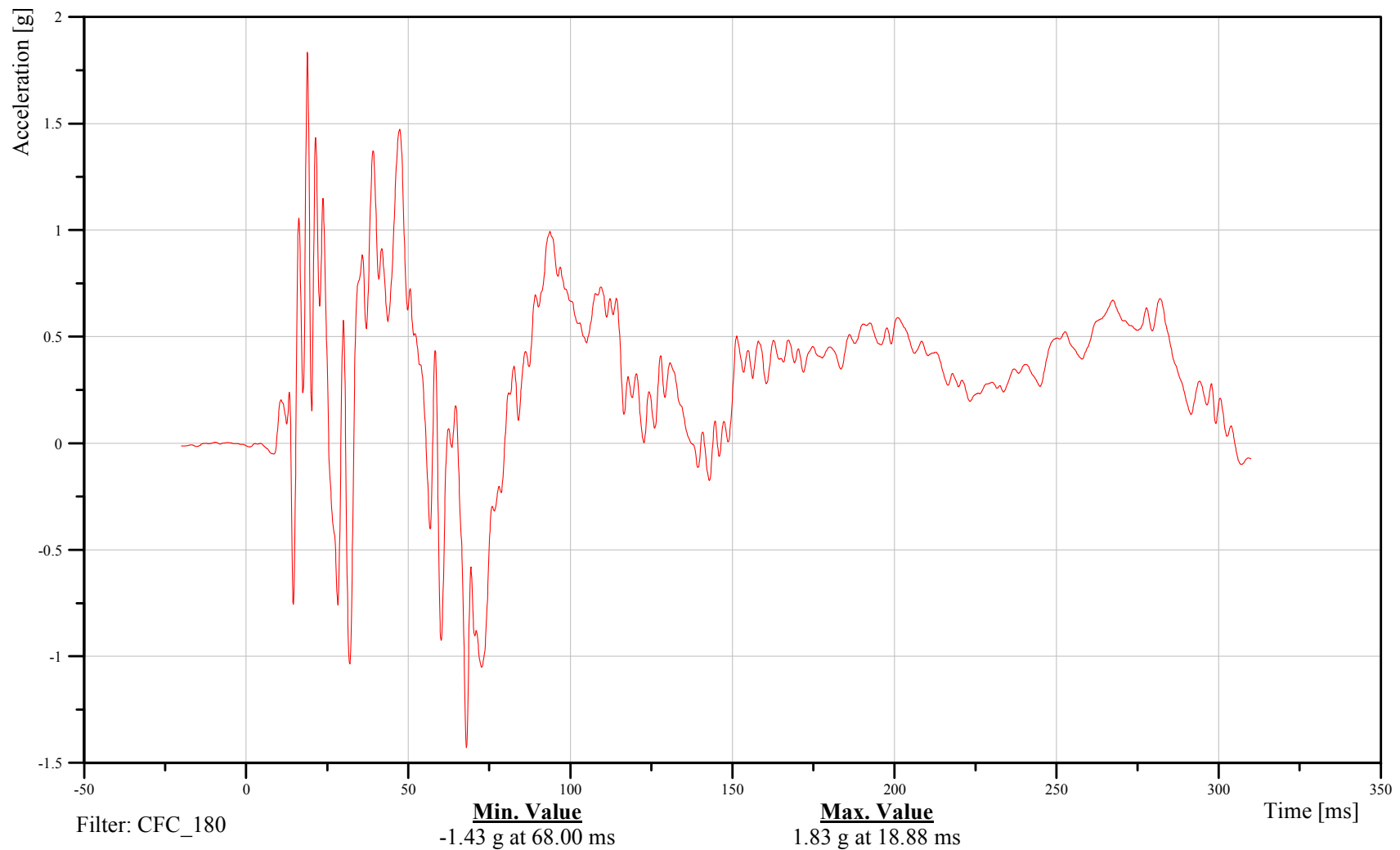
Upper Spine Z

Customer: VRTC

11SPIN0100E2ACZC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

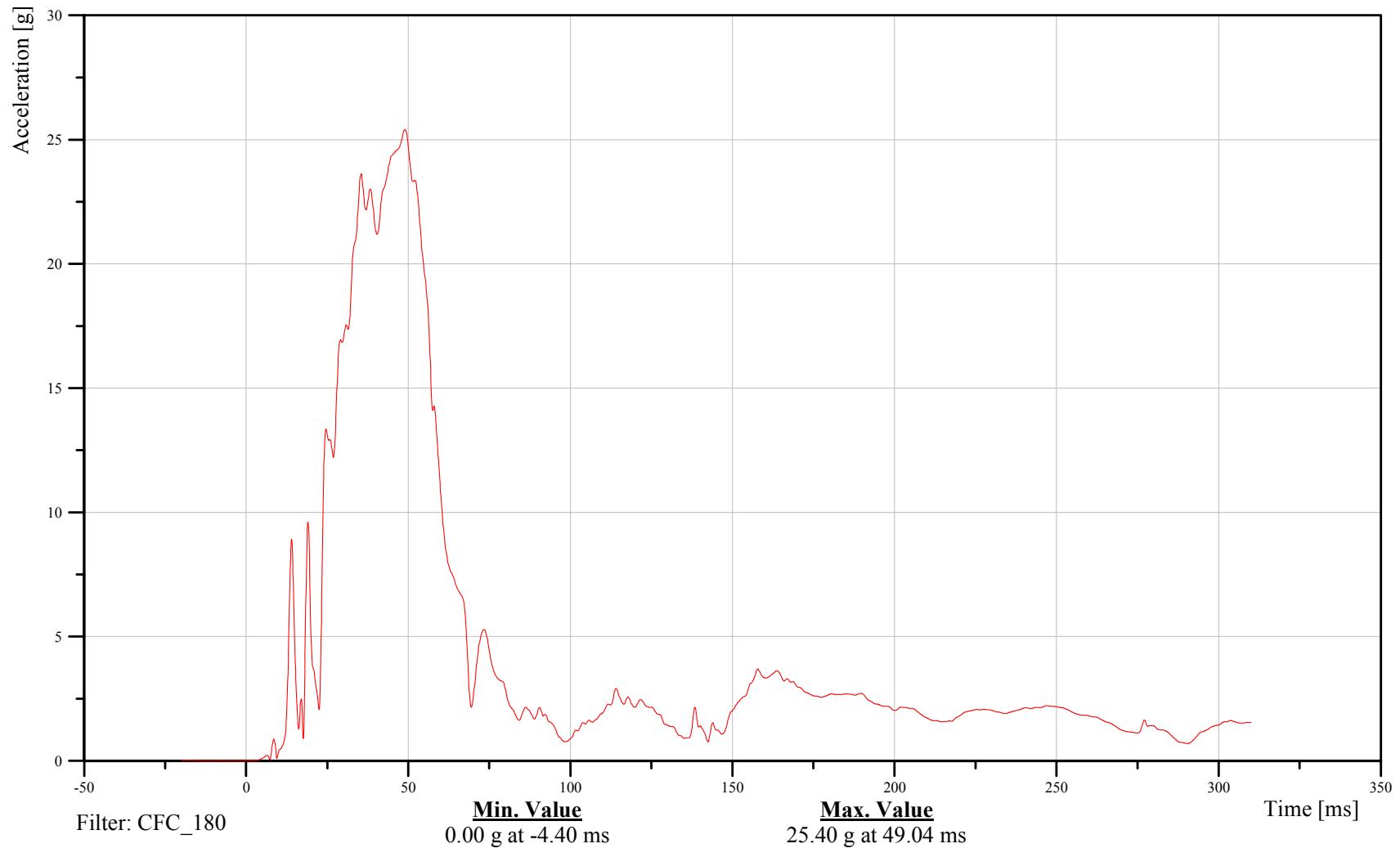
Upper Spine Resultant

Customer: VRTC

11SPIN0100E2ACRC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Torso Back Plate Force X

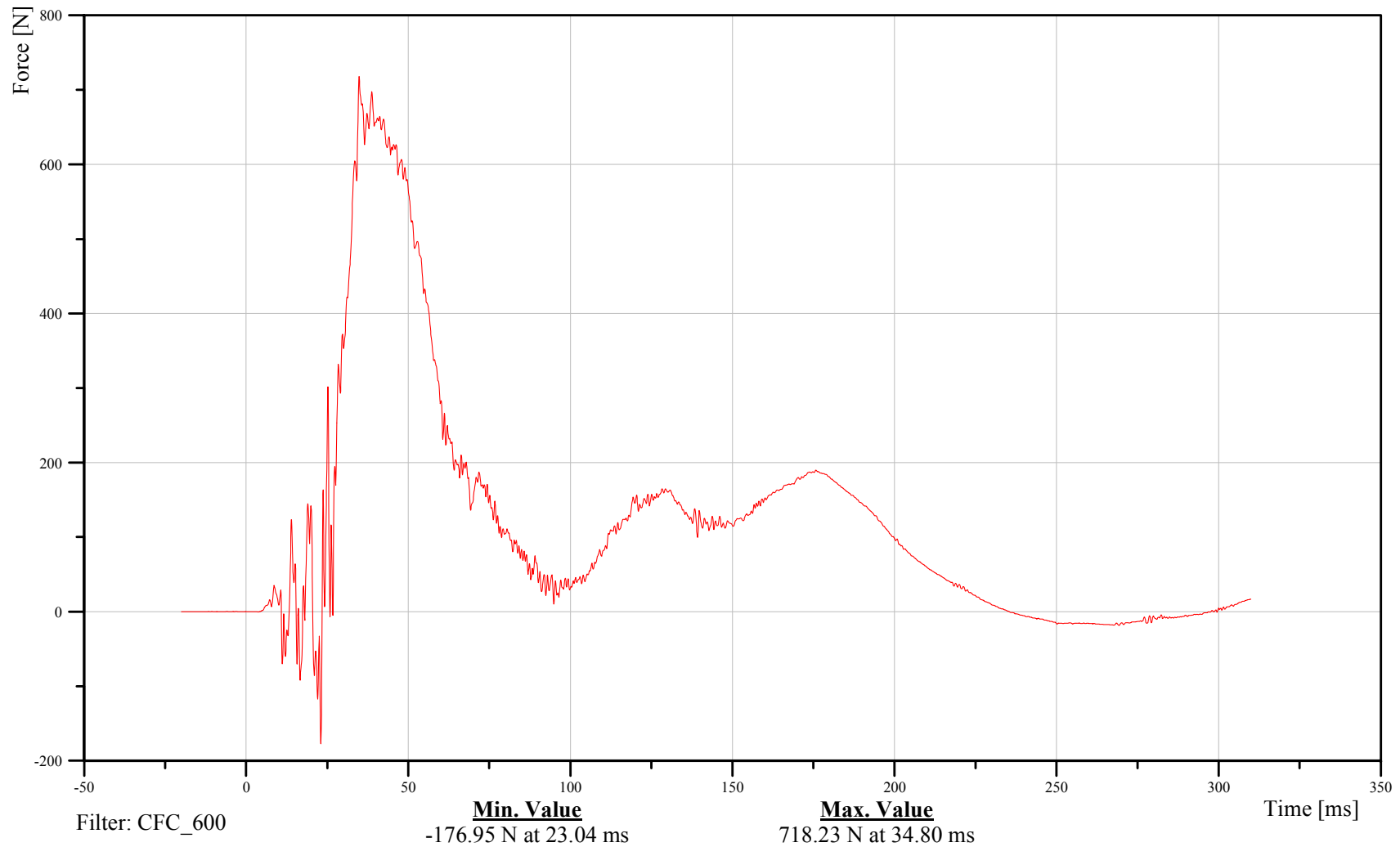
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11BAPL0000E2FOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Torso Back Plate Force Y

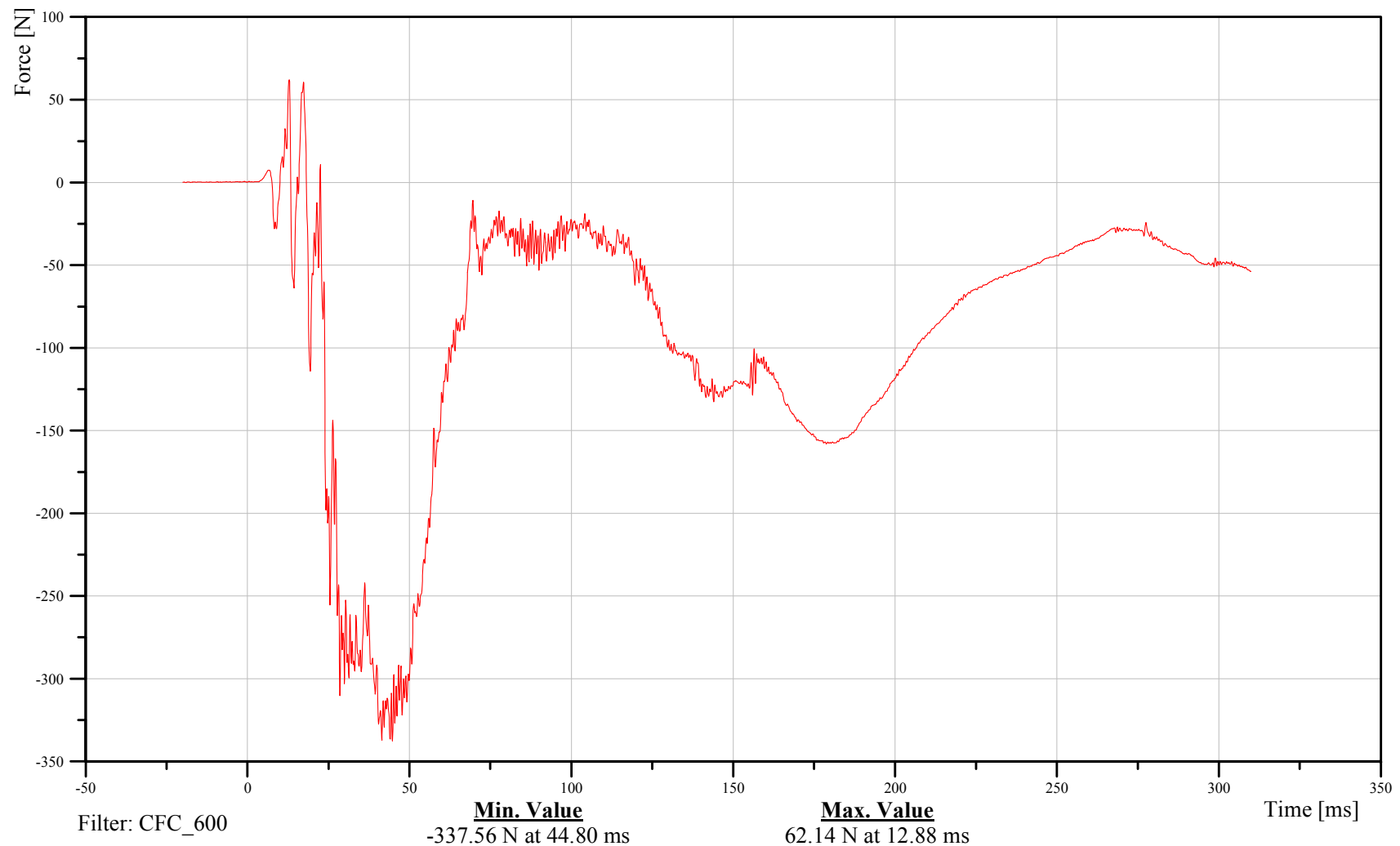
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11BAPL0000E2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

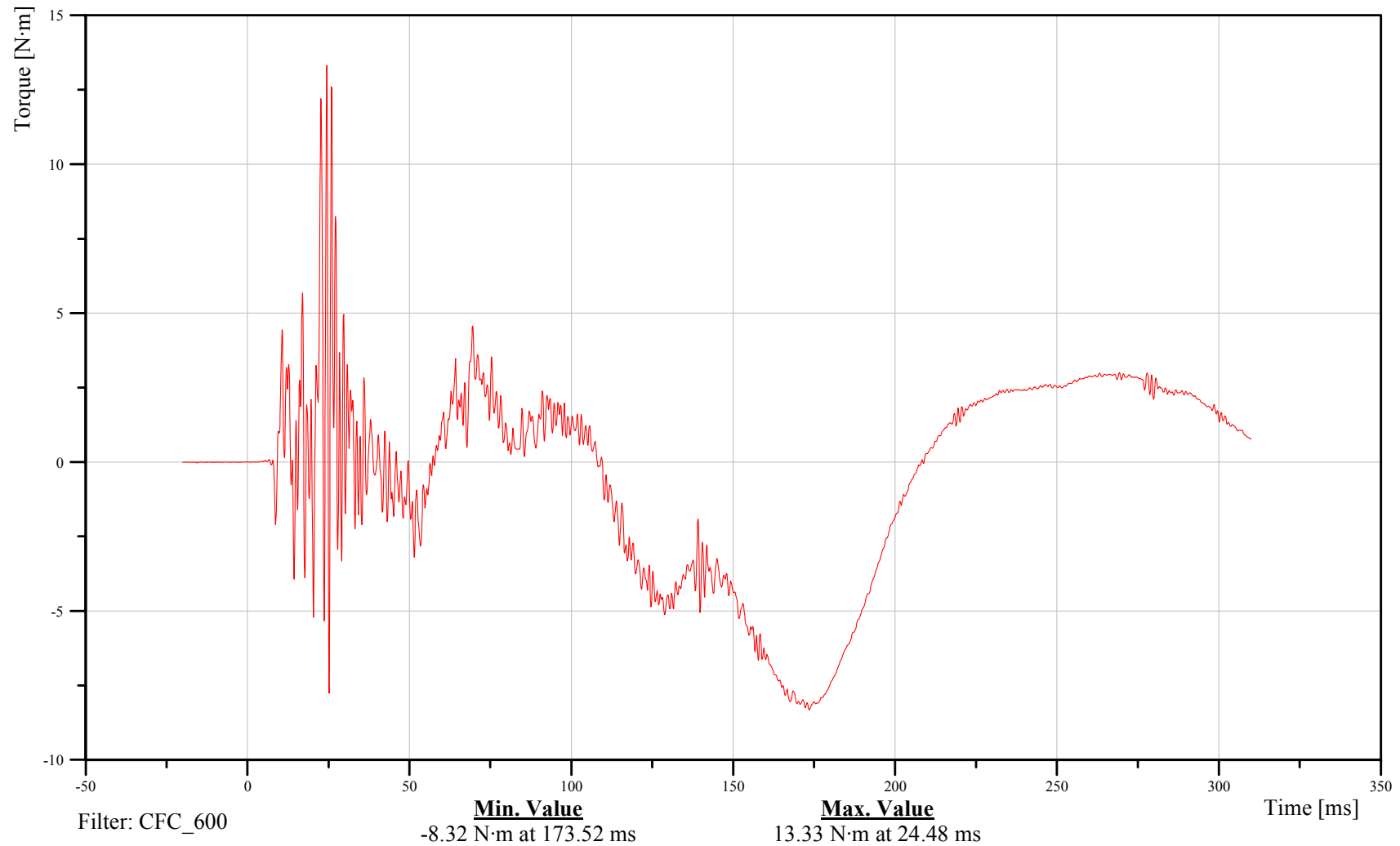
Torso Back Plate Moment Y

Customer: VRTC

11BAPL0000E2MOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Torso Back Plate Moment Z

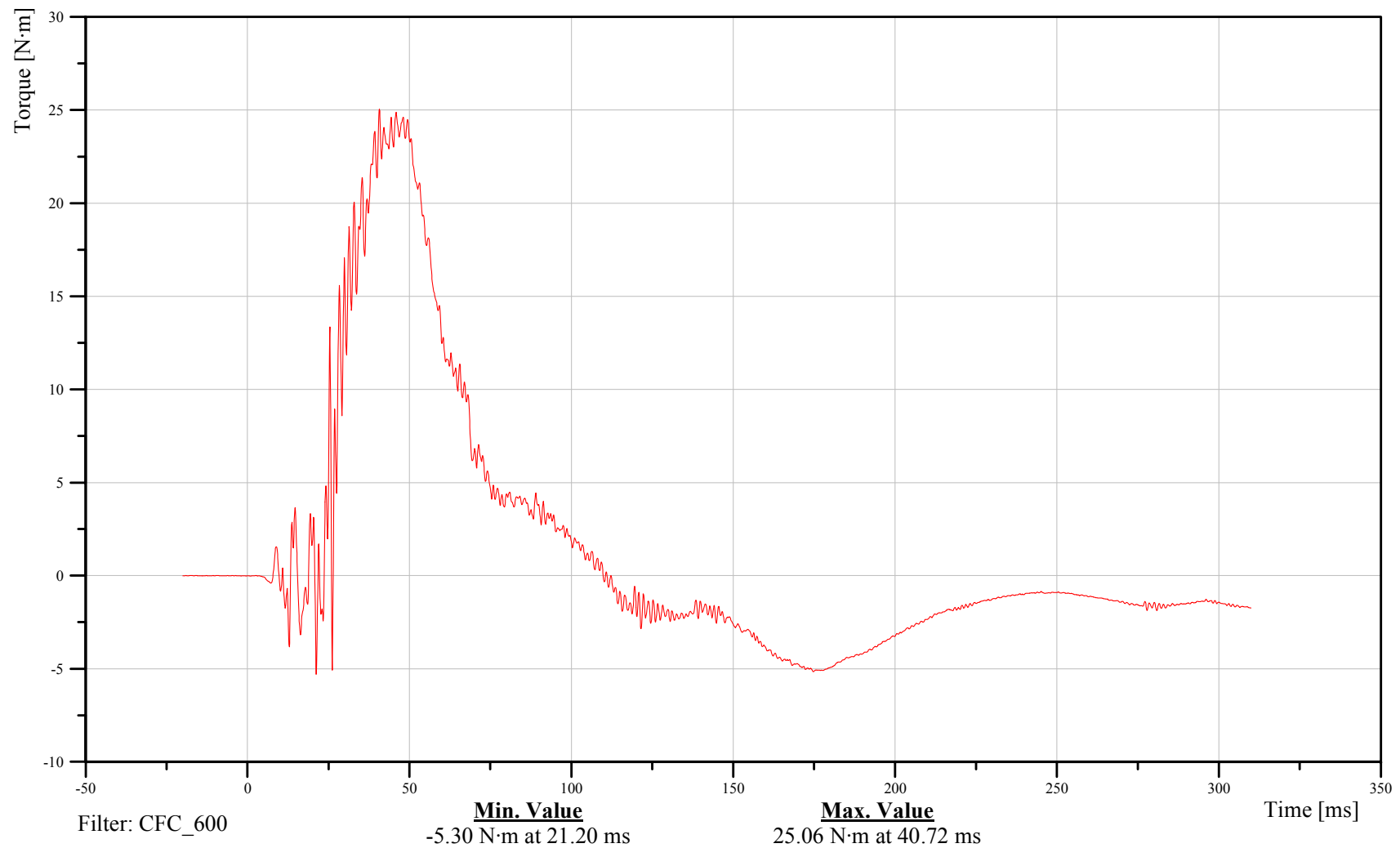
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11BAPL0000E2MOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Upper Rib Accel Y

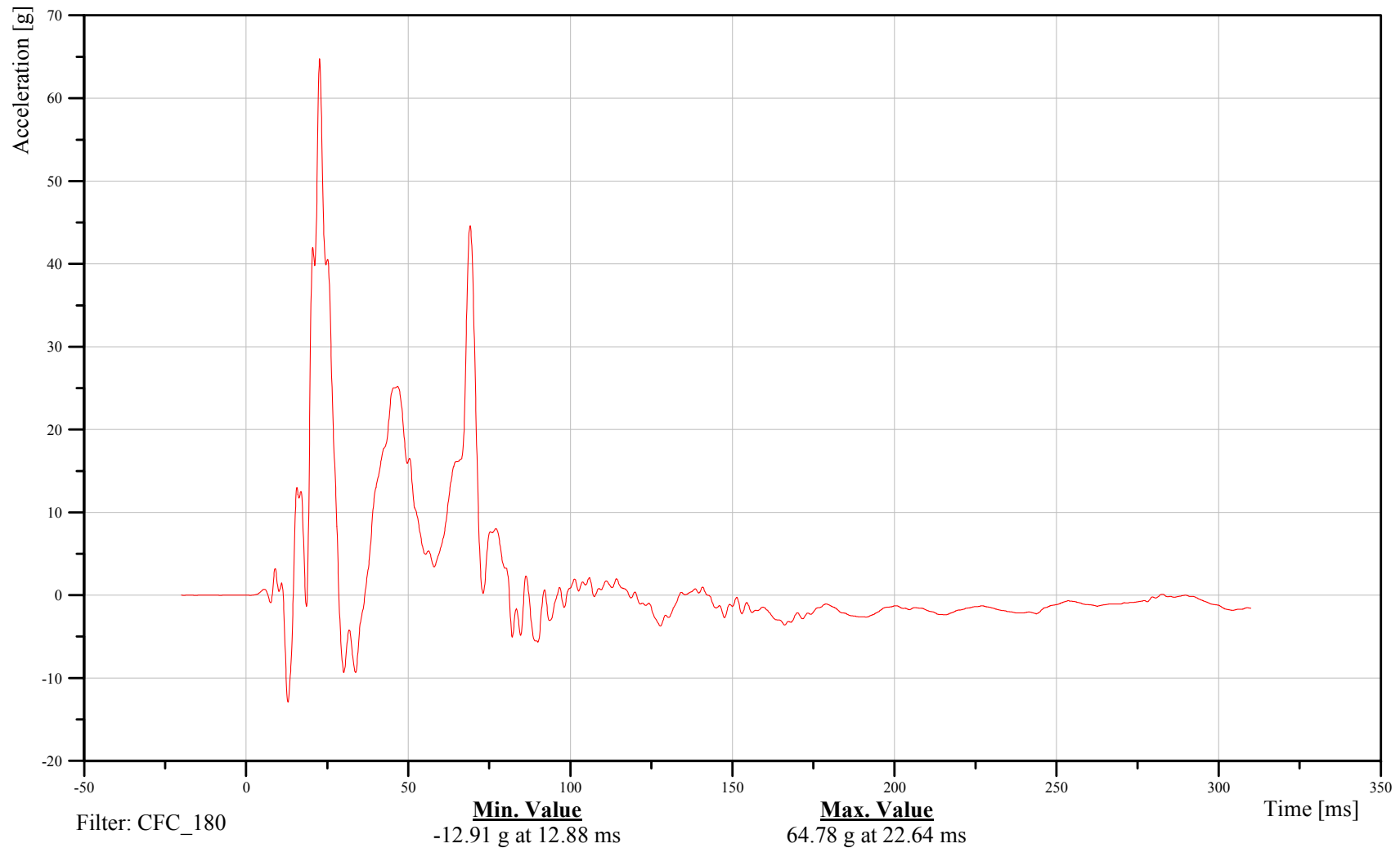
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11RIBSLU00E2ACYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Mid Rib Accel Y

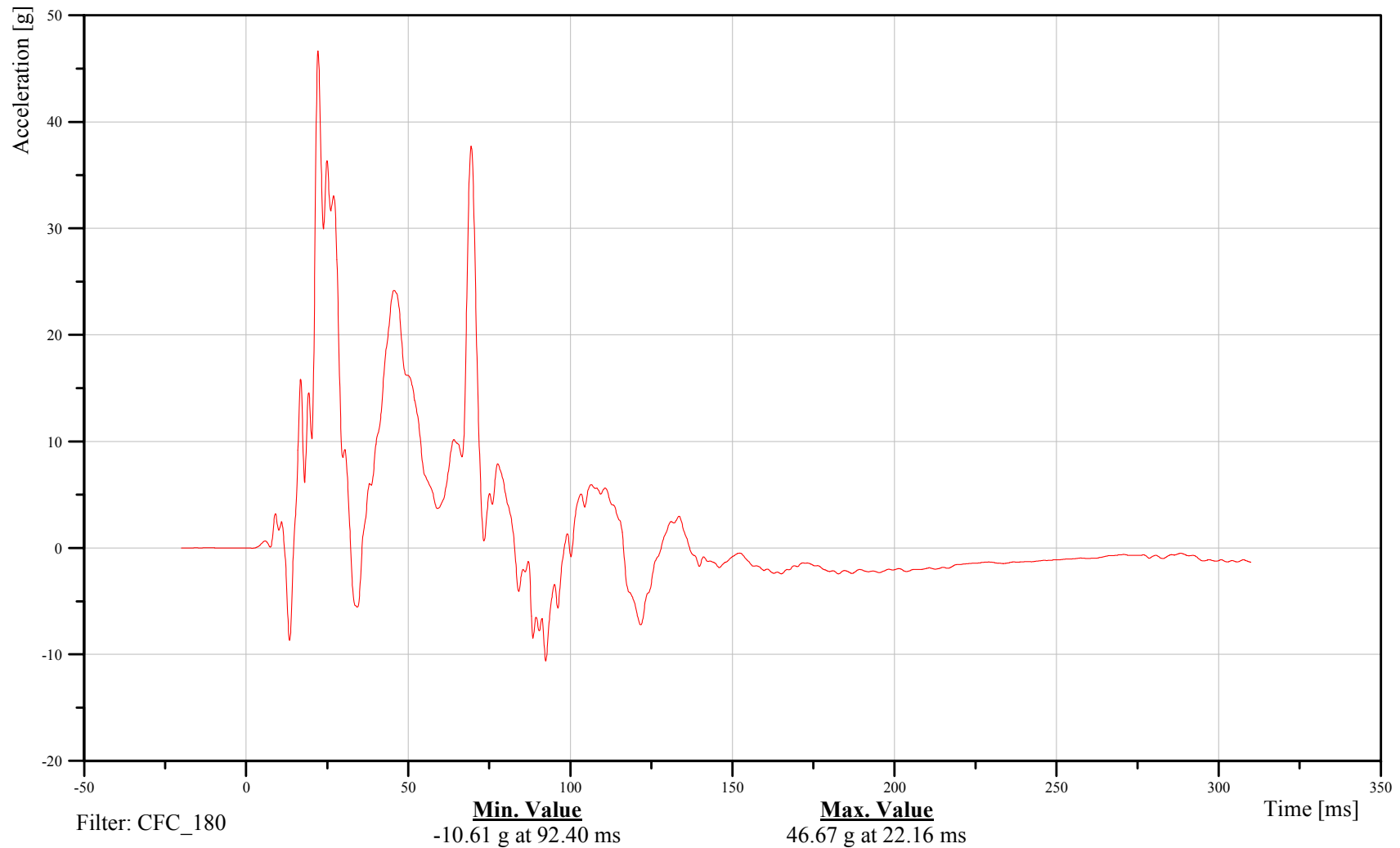
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11RIBSLM00E2ACYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Lower Rib Accel Y

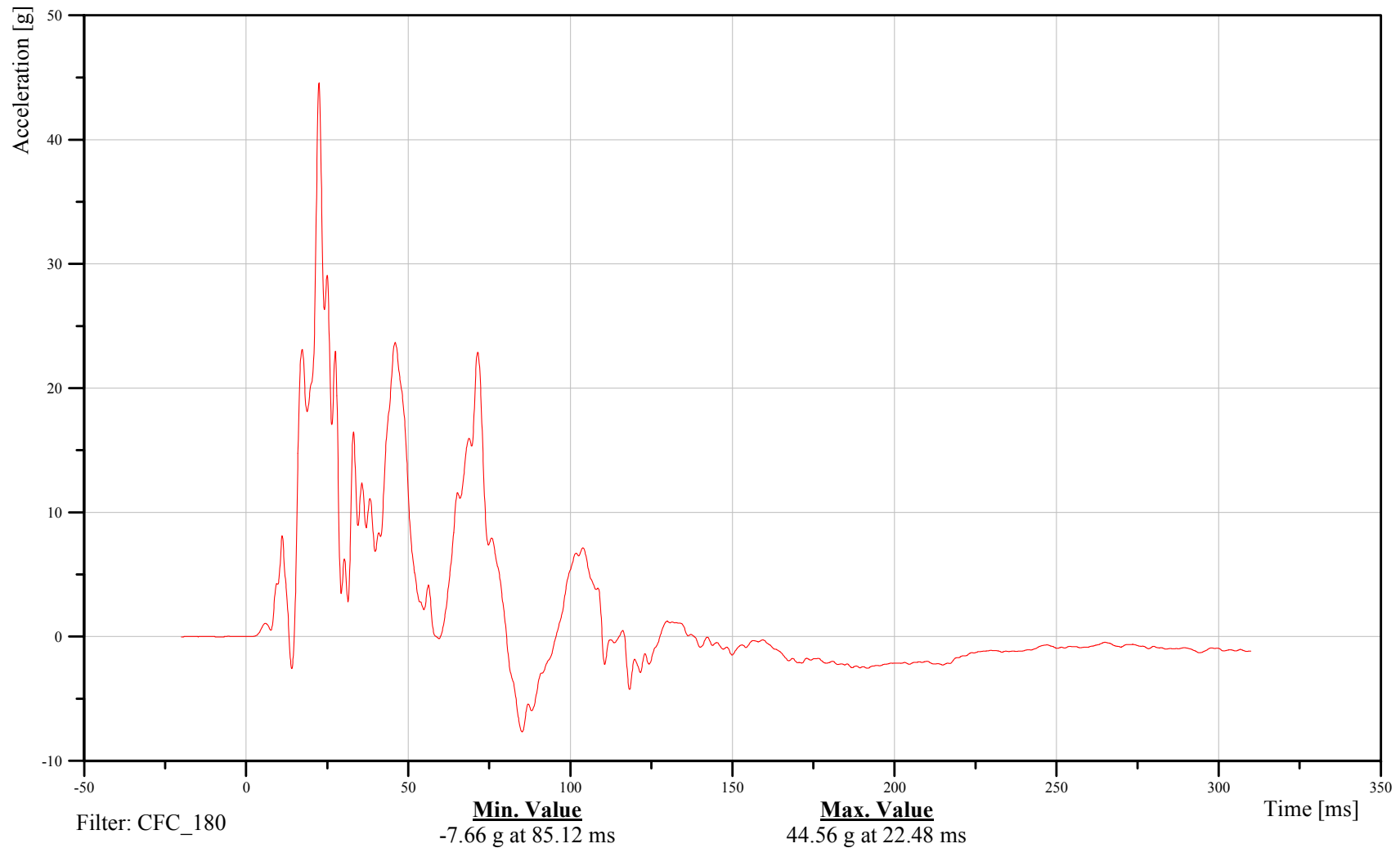
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11RIBSLL00E2ACYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

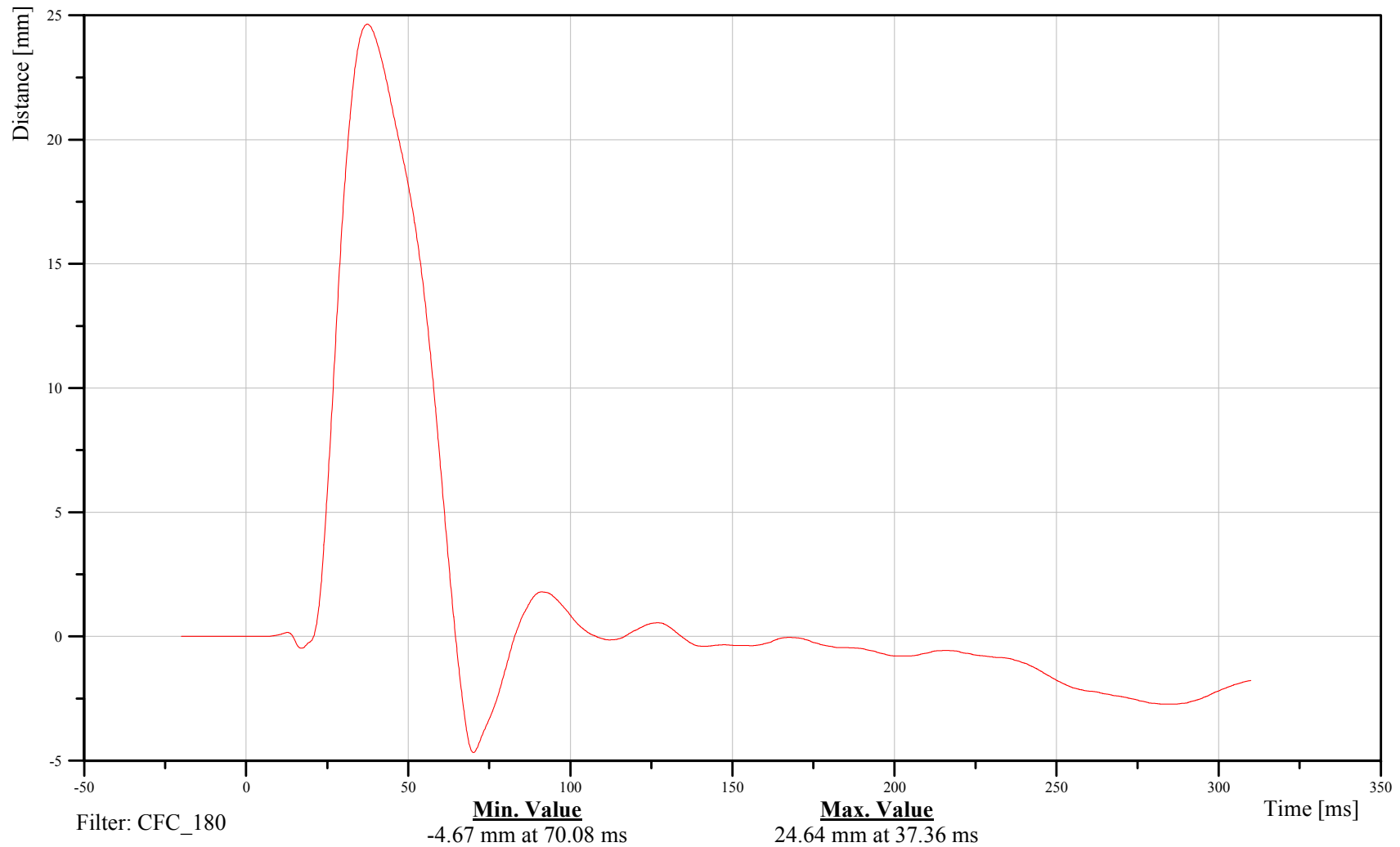
Upper Rib Disp. Y

Customer: VRTC

11RIBSLU00E2DSYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

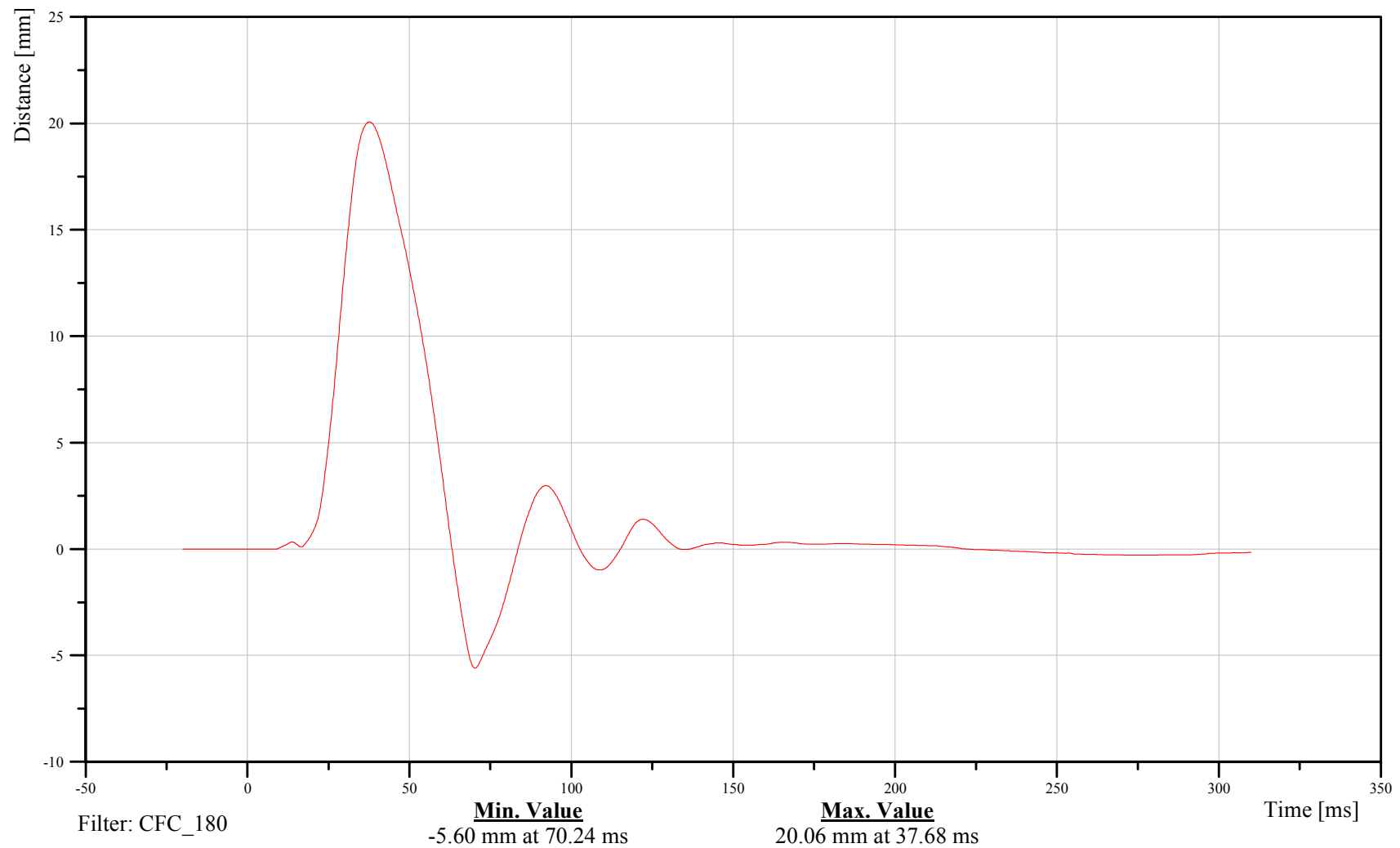
Mid Rib Disp. Y

Customer: VRTC

11RIBSLM00E2DSYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

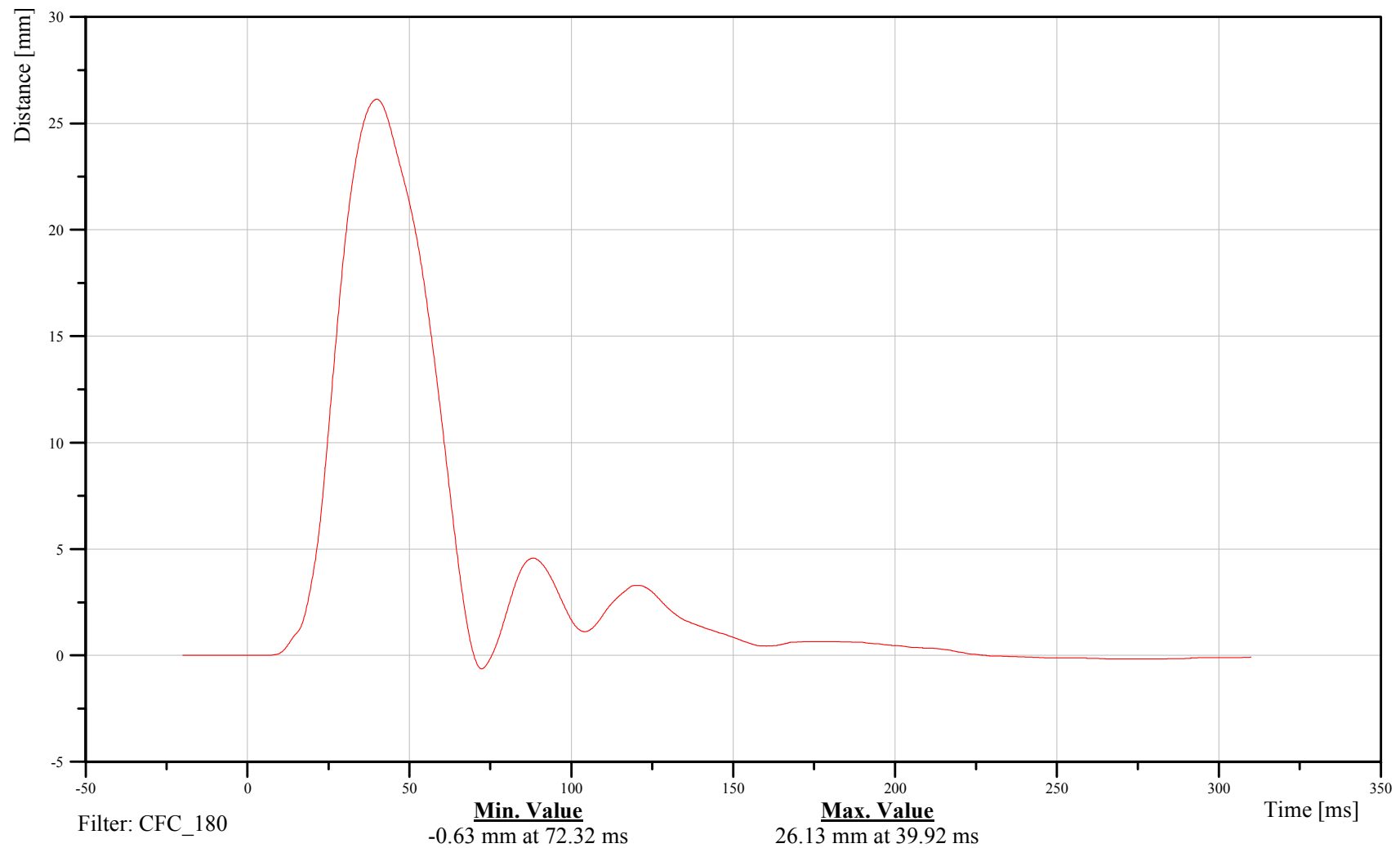
Lower Rib Disp. Y

Customer: VRTC

11RIBSLL00E2DSYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Lower Spine X

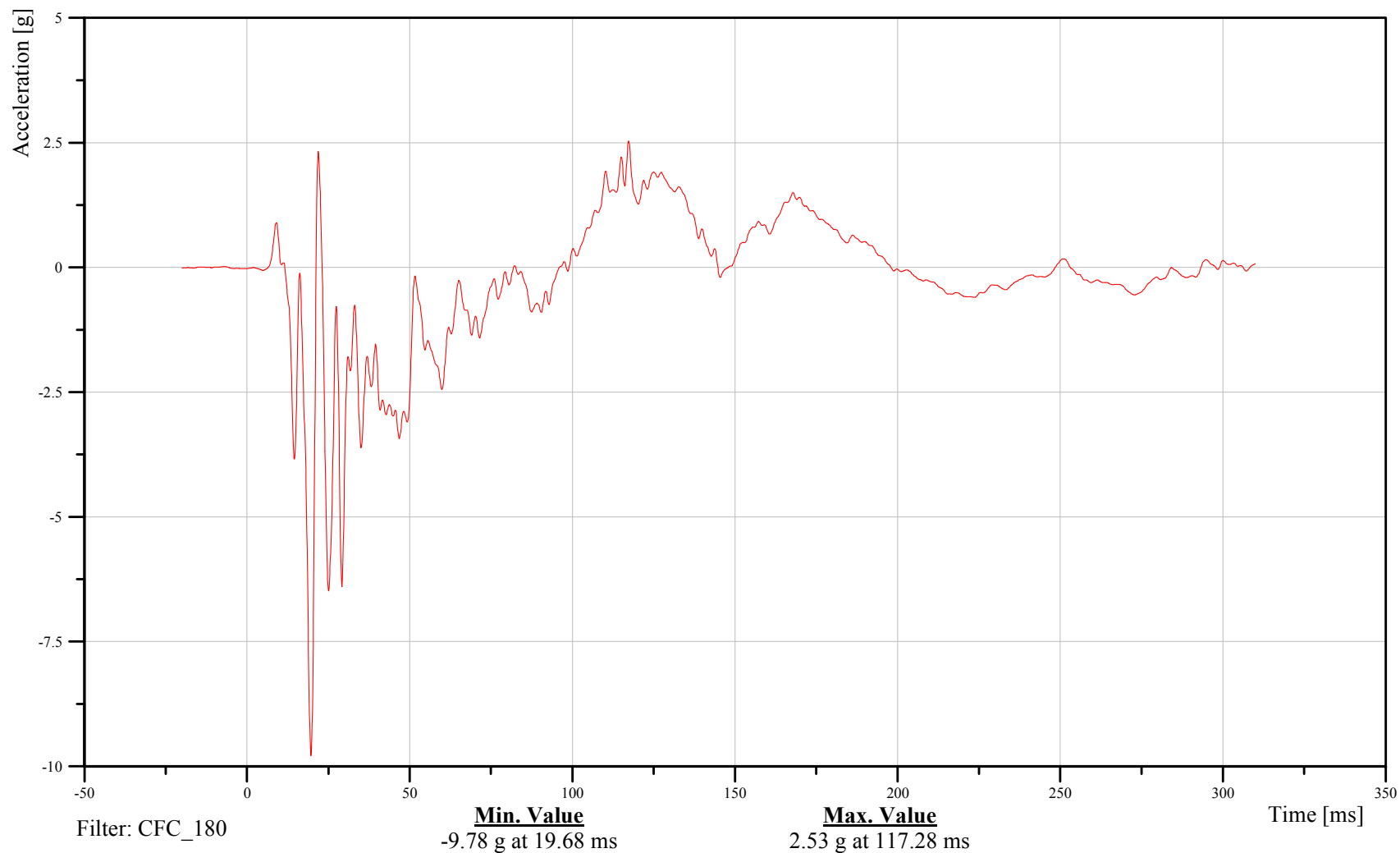
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11SPIN1200E2ACXC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Lower Spine Y

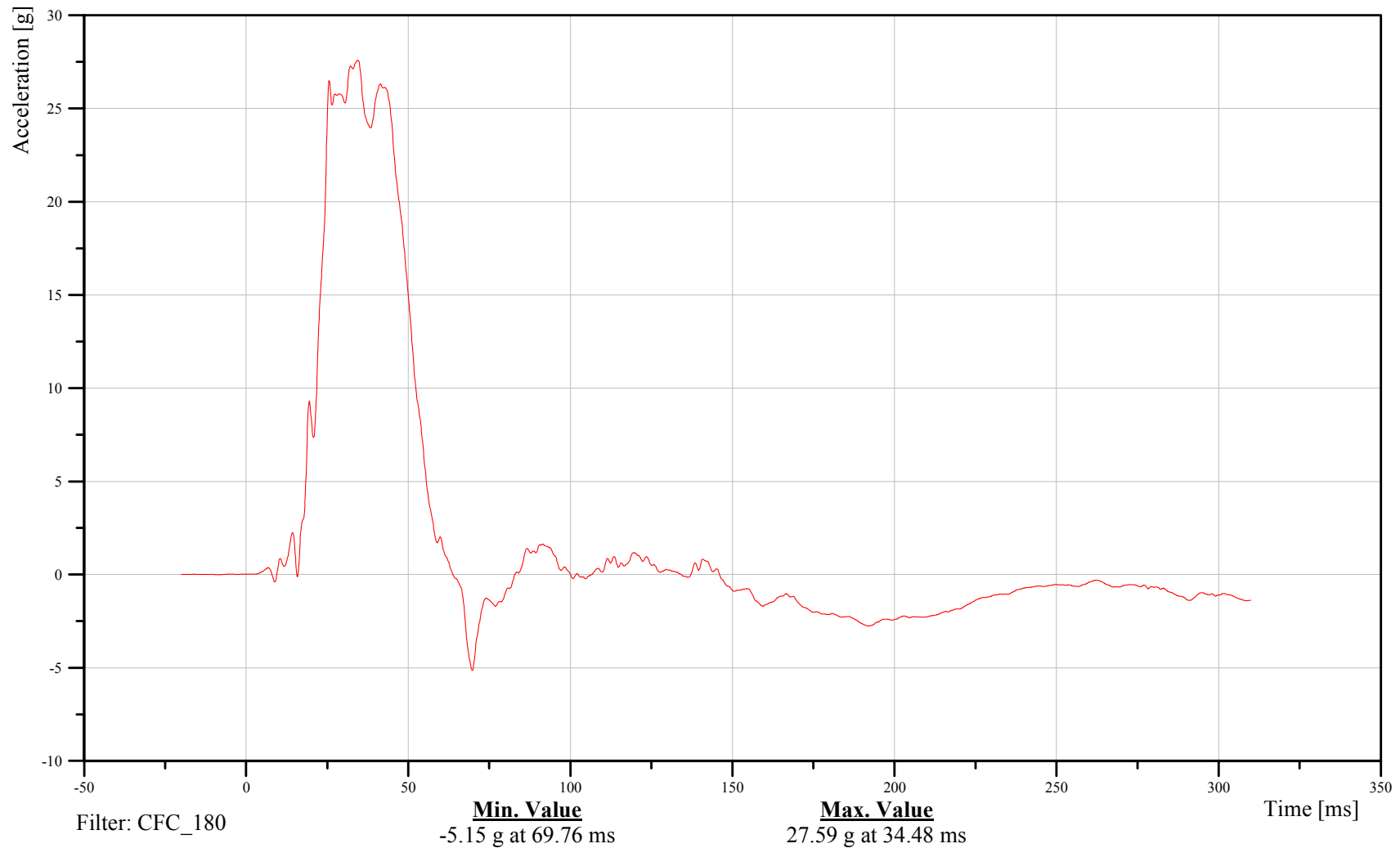
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11SPIN1200E2ACYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Lower Spine Z

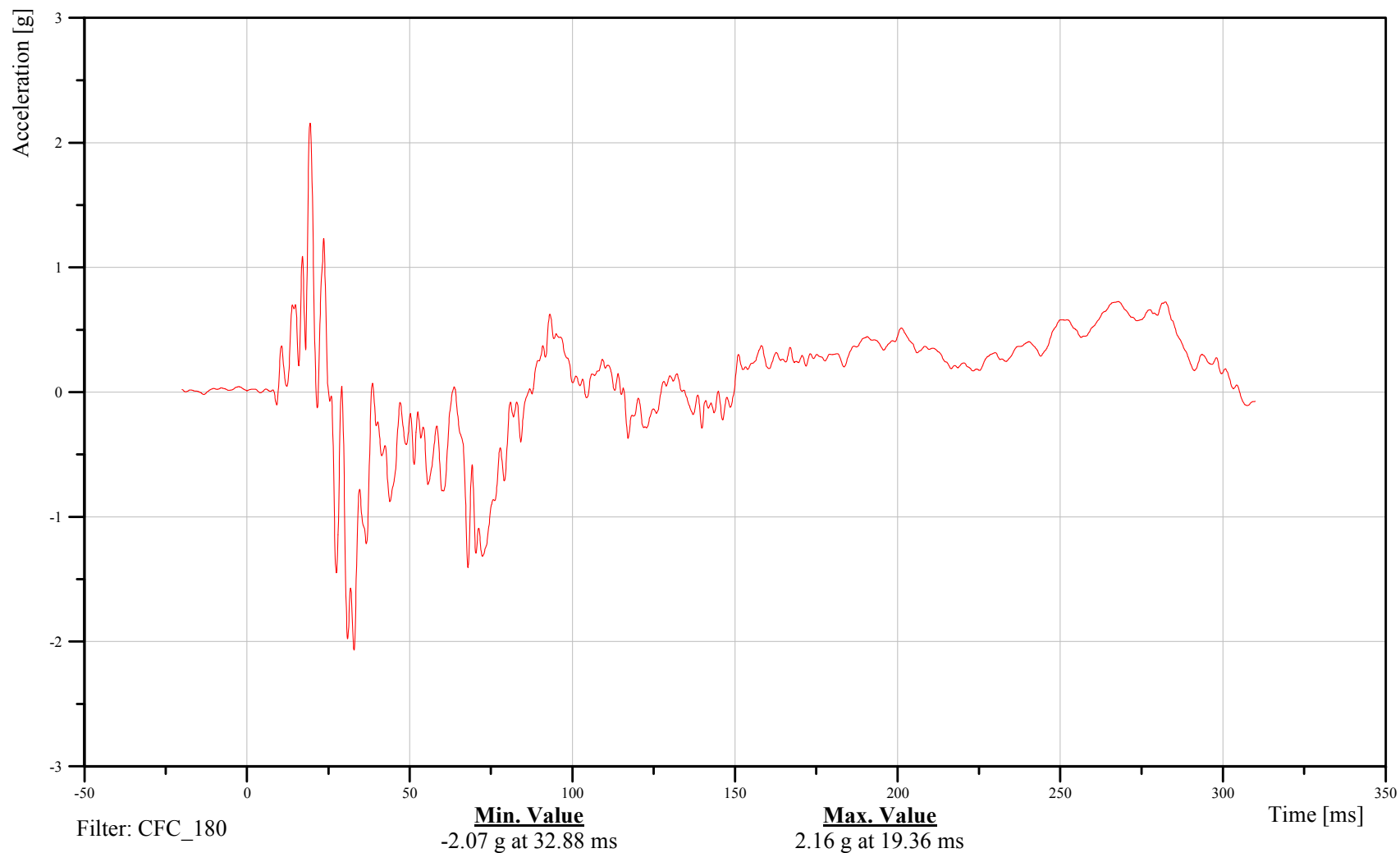
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11SPIN1200E2ACZC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

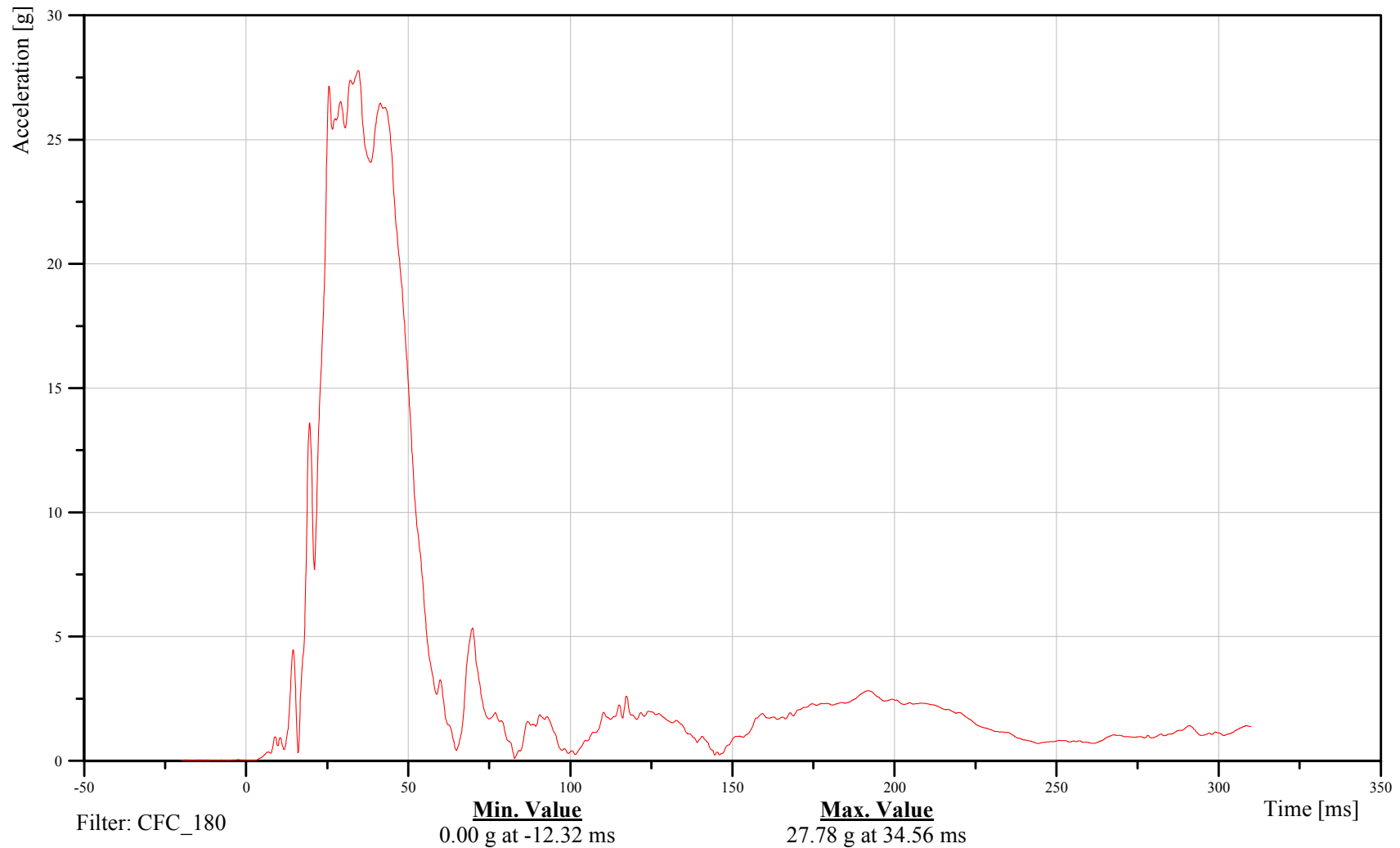
Lower Spine Resultant

Customer: VRTC

11SPIN1200E2ACRC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

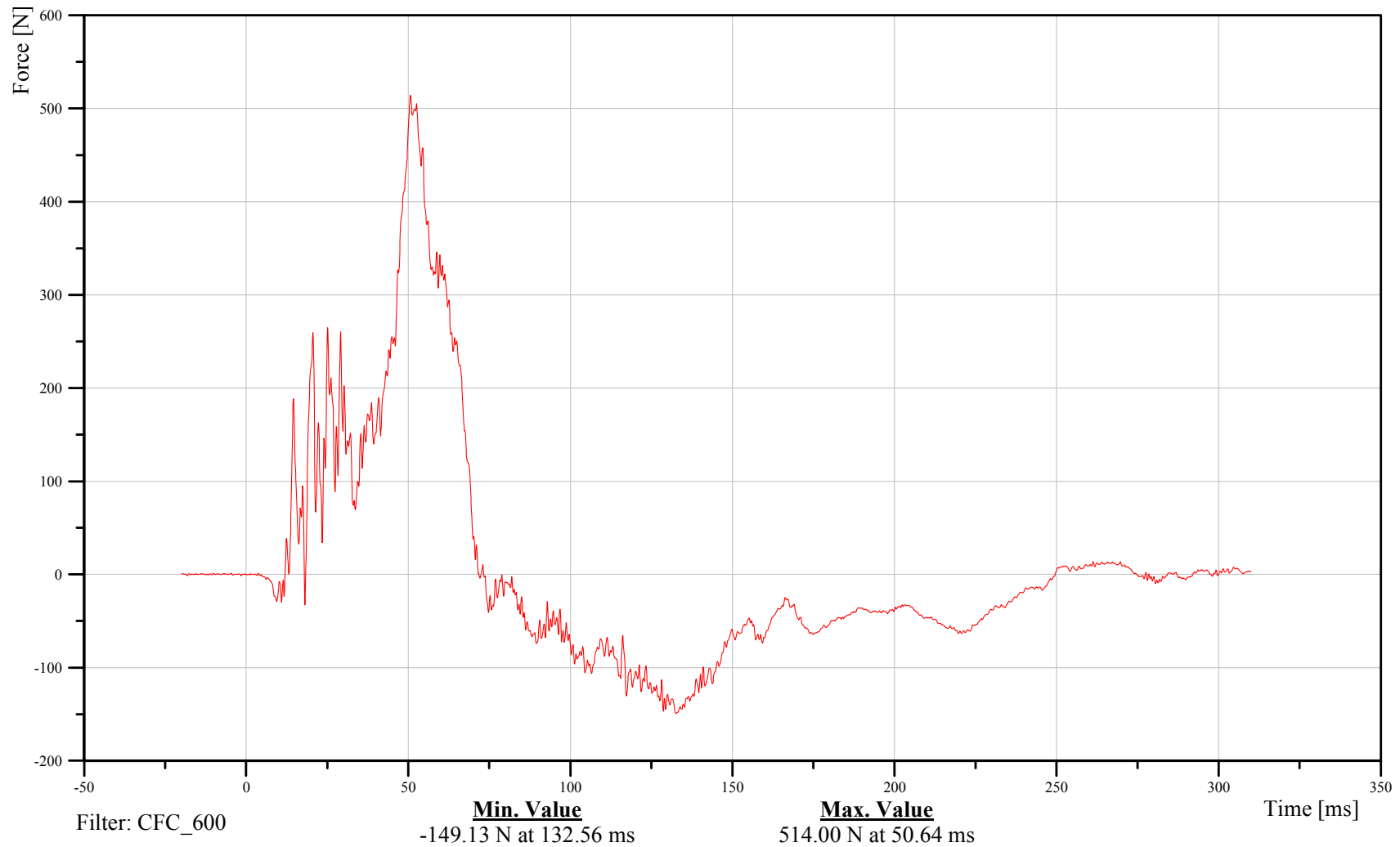
Lower Spine Force X

Customer: VRTC

11SPIN1200E2FOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

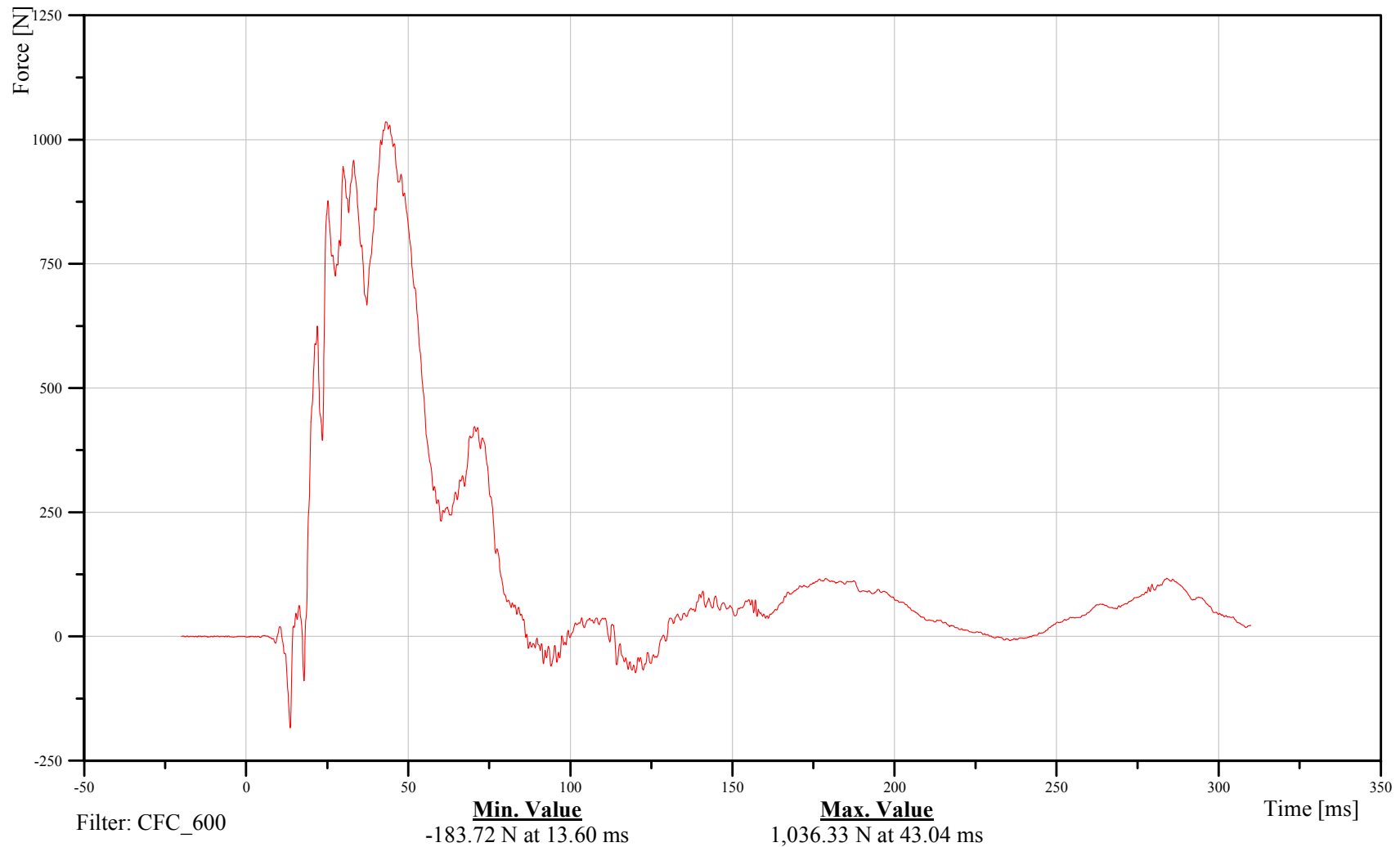
Lower Spine Force Y

Customer: VRTC

11SPIN1200E2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

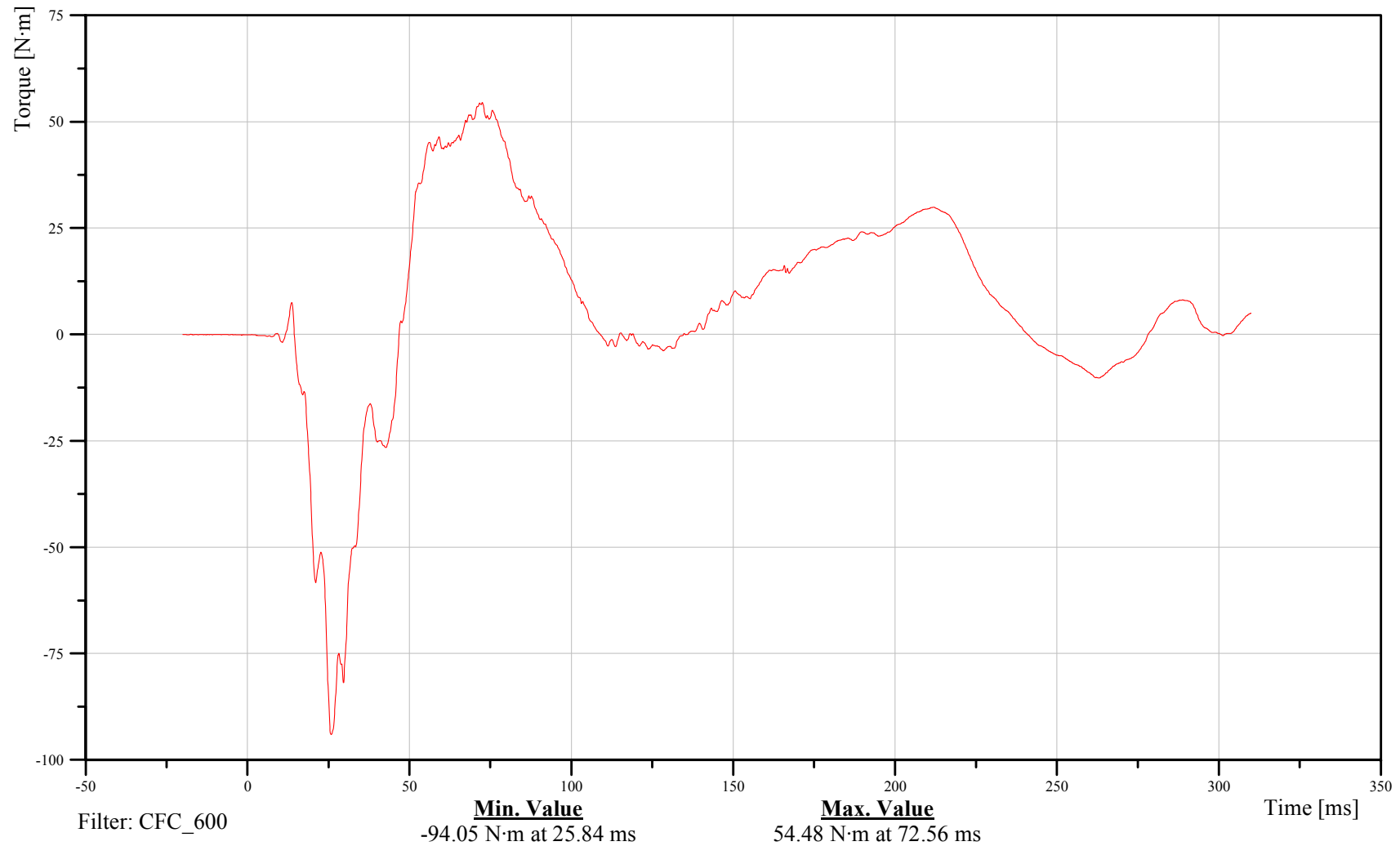
Lower Spine Moment X

Customer: VRTC

11SPIN1200E2MOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

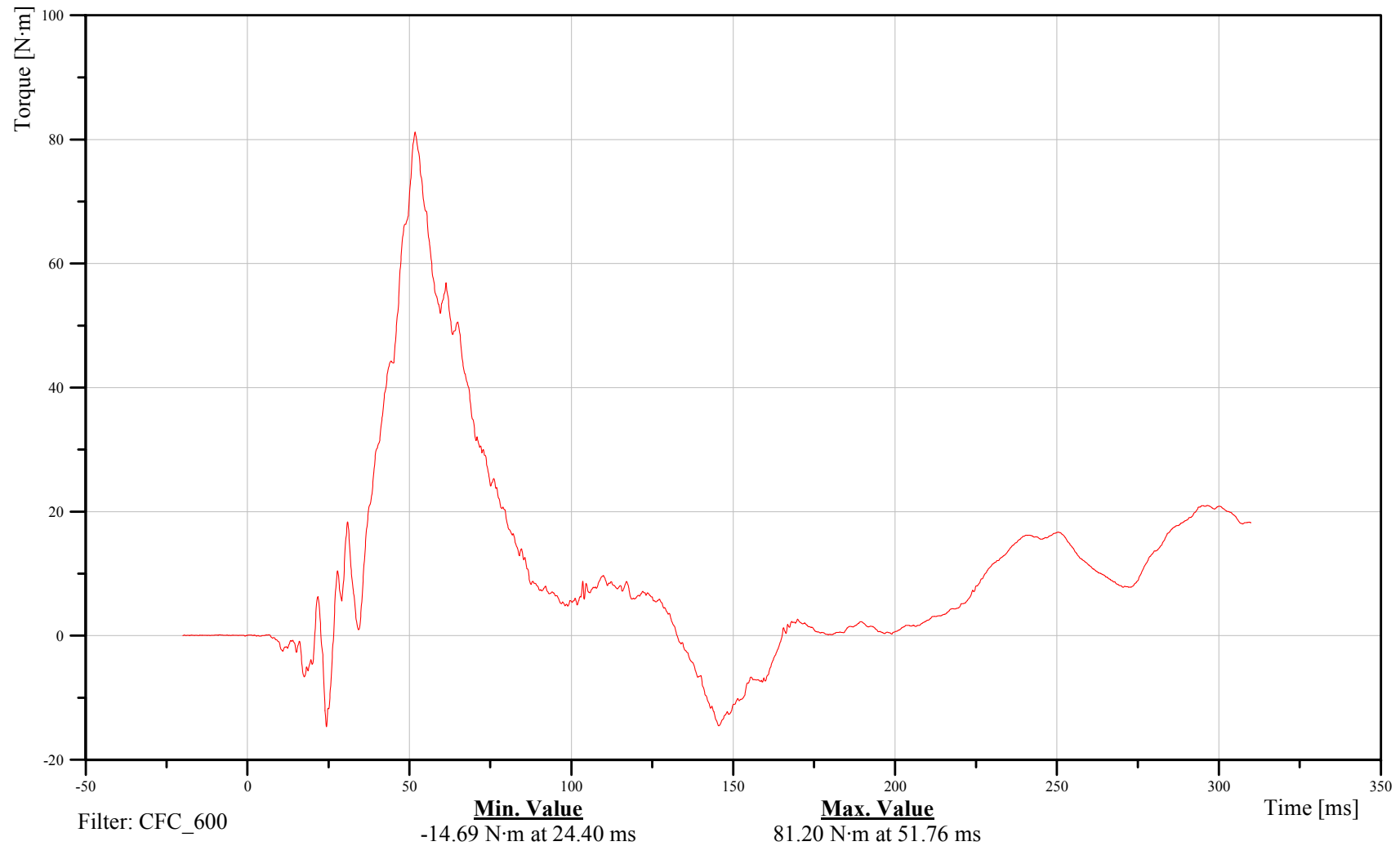
Lower Spine Moment Y

Customer: VRTC

11SPIN1200E2MOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Lumbar Force Y

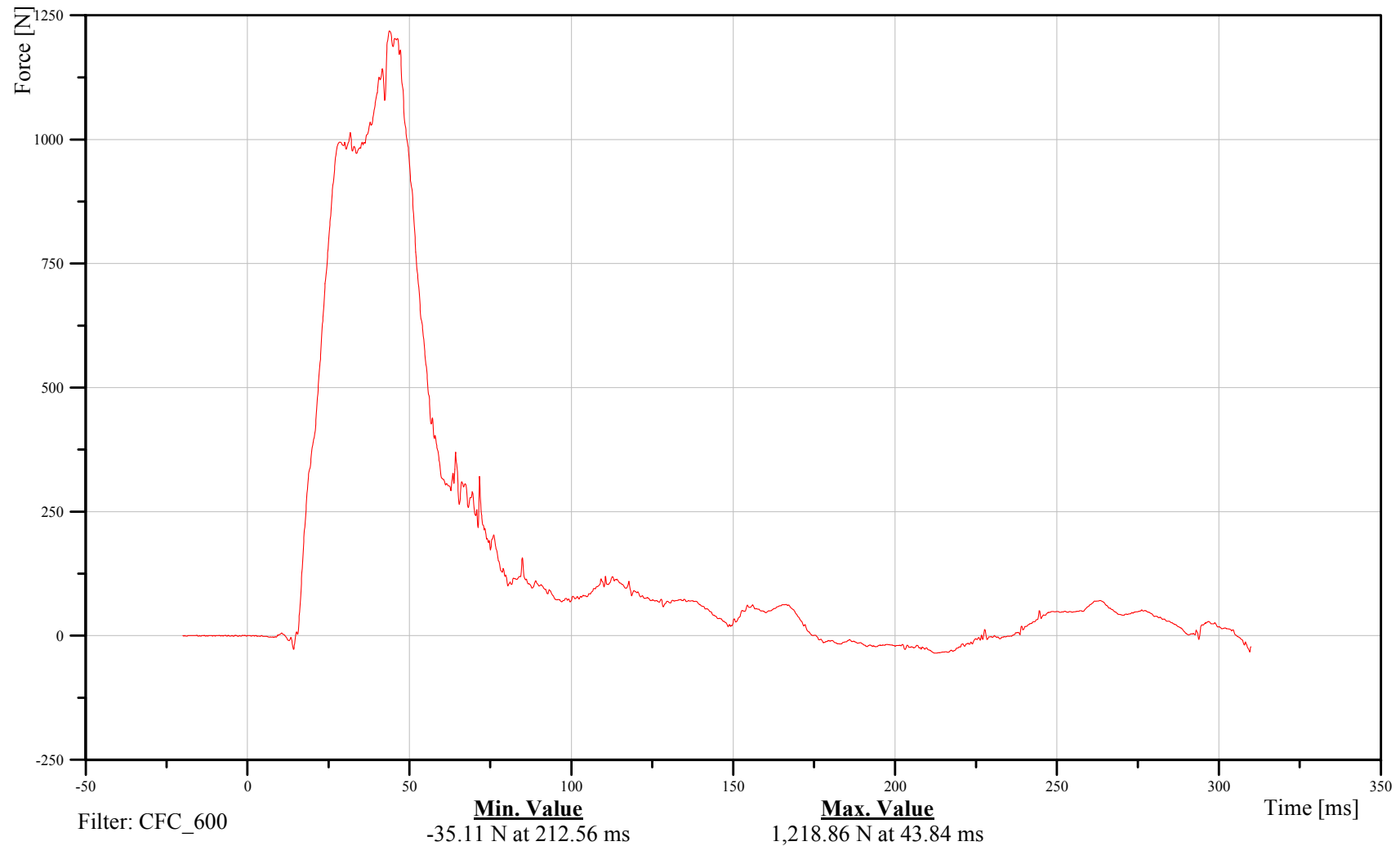
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11LUSP0000E2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

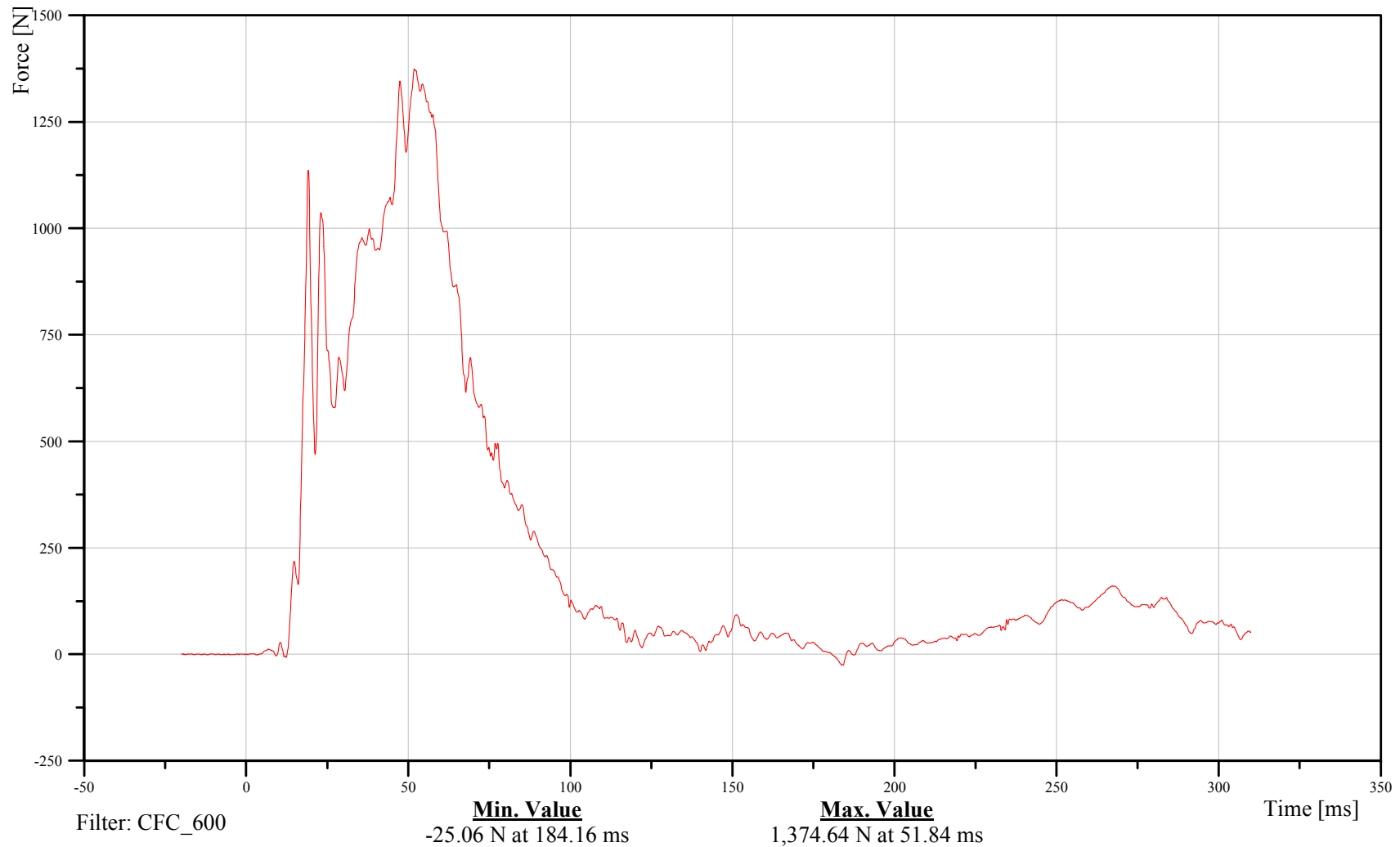
Lumbar Force Z

Customer: VRTC

11LUSP0000E2FOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

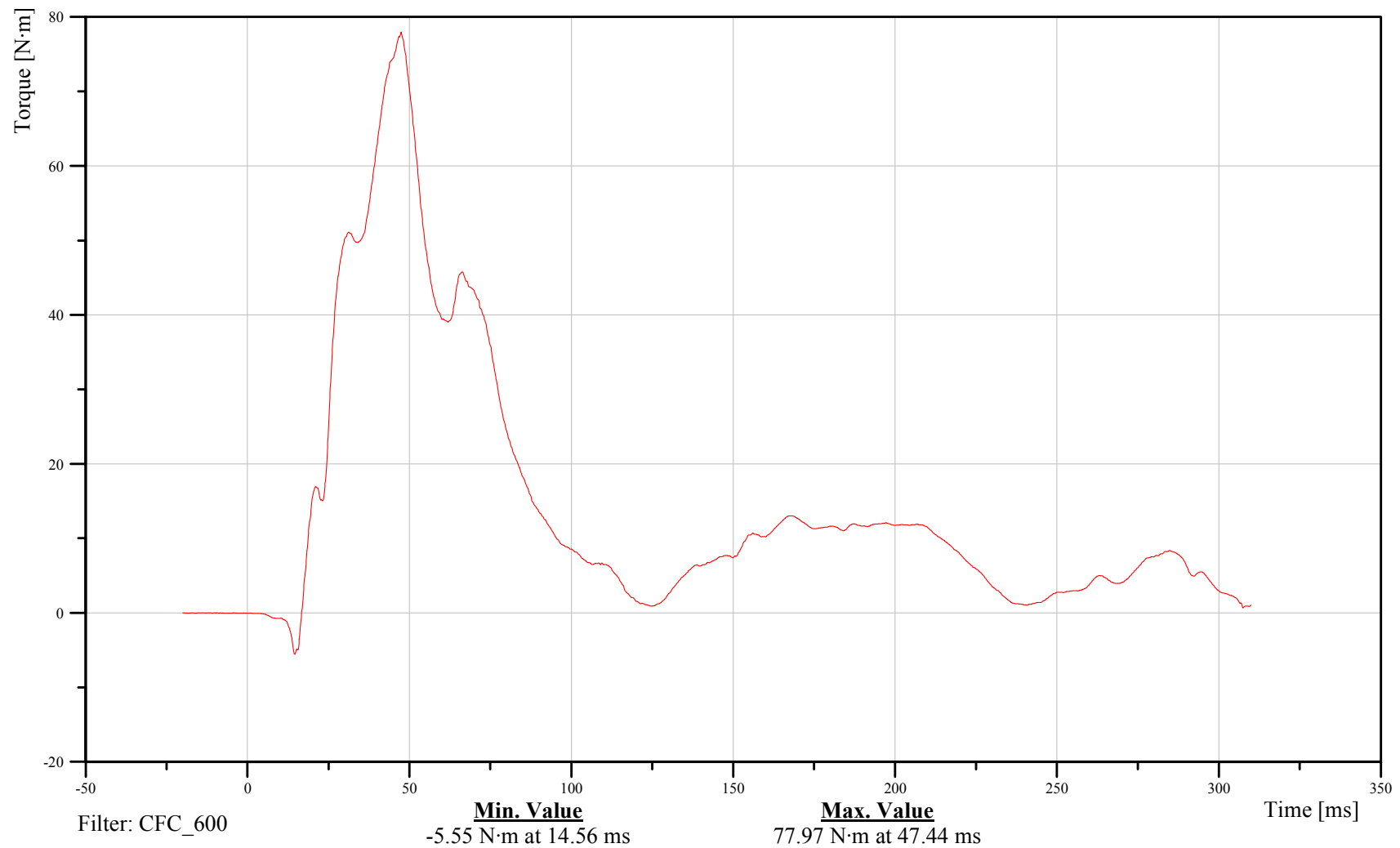
Lumbar Moment X

Customer: VRTC

11LUSP0000E2MOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Front Abdominal Force Y

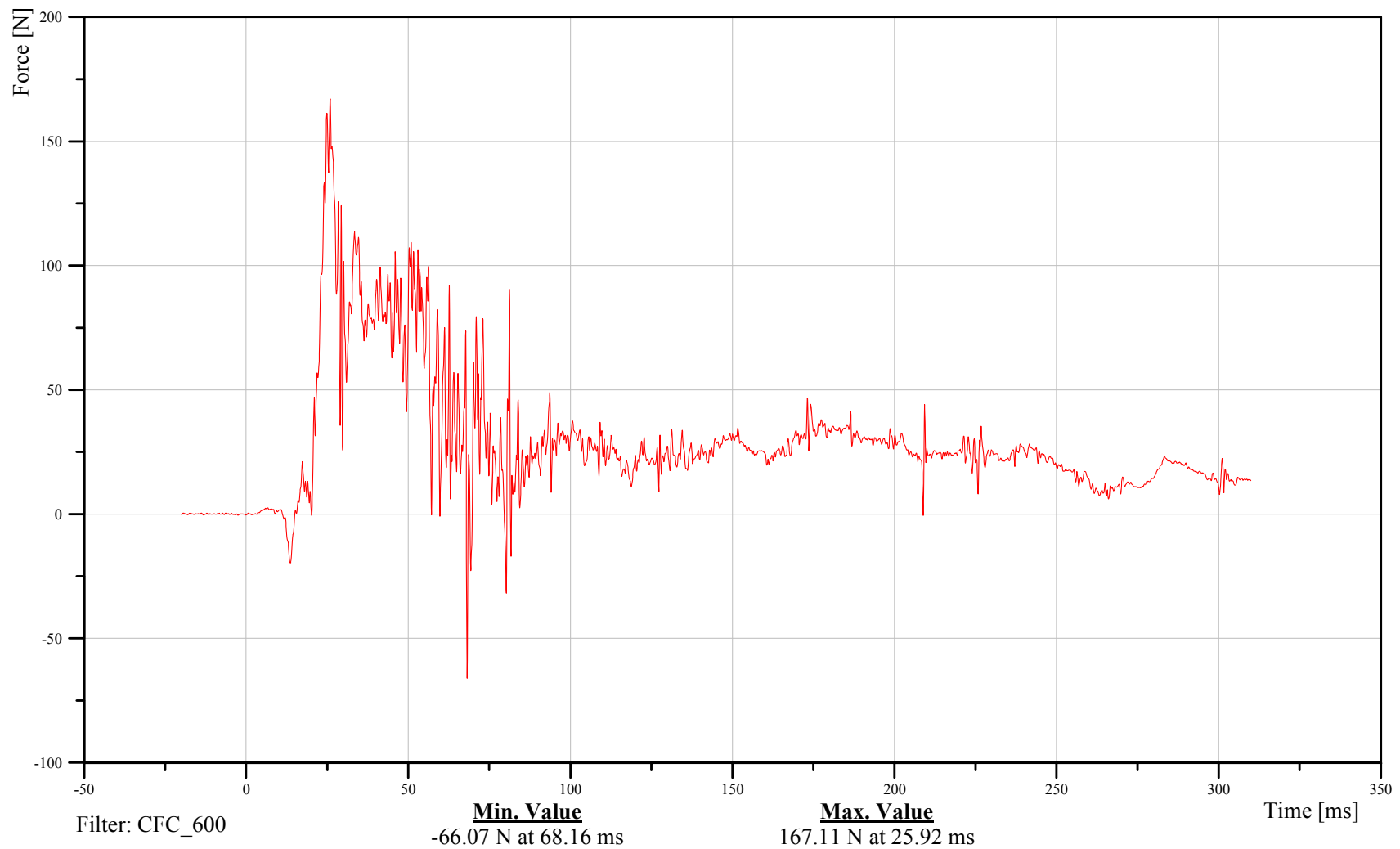
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11ABDOLEFRE2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Mid Abdominal Force Y

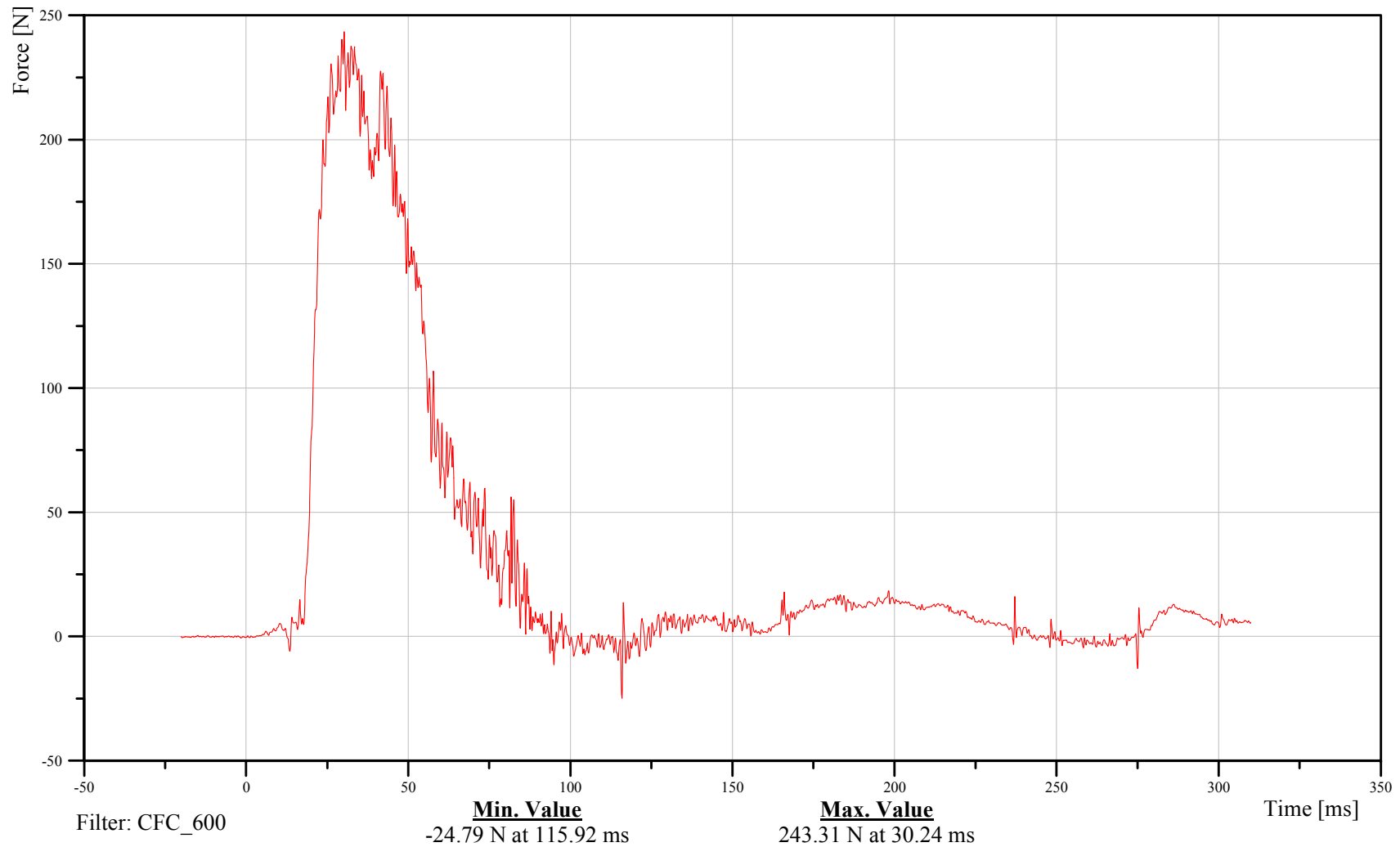
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11ABDOLEMIE2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Rear Abdominal Force Y

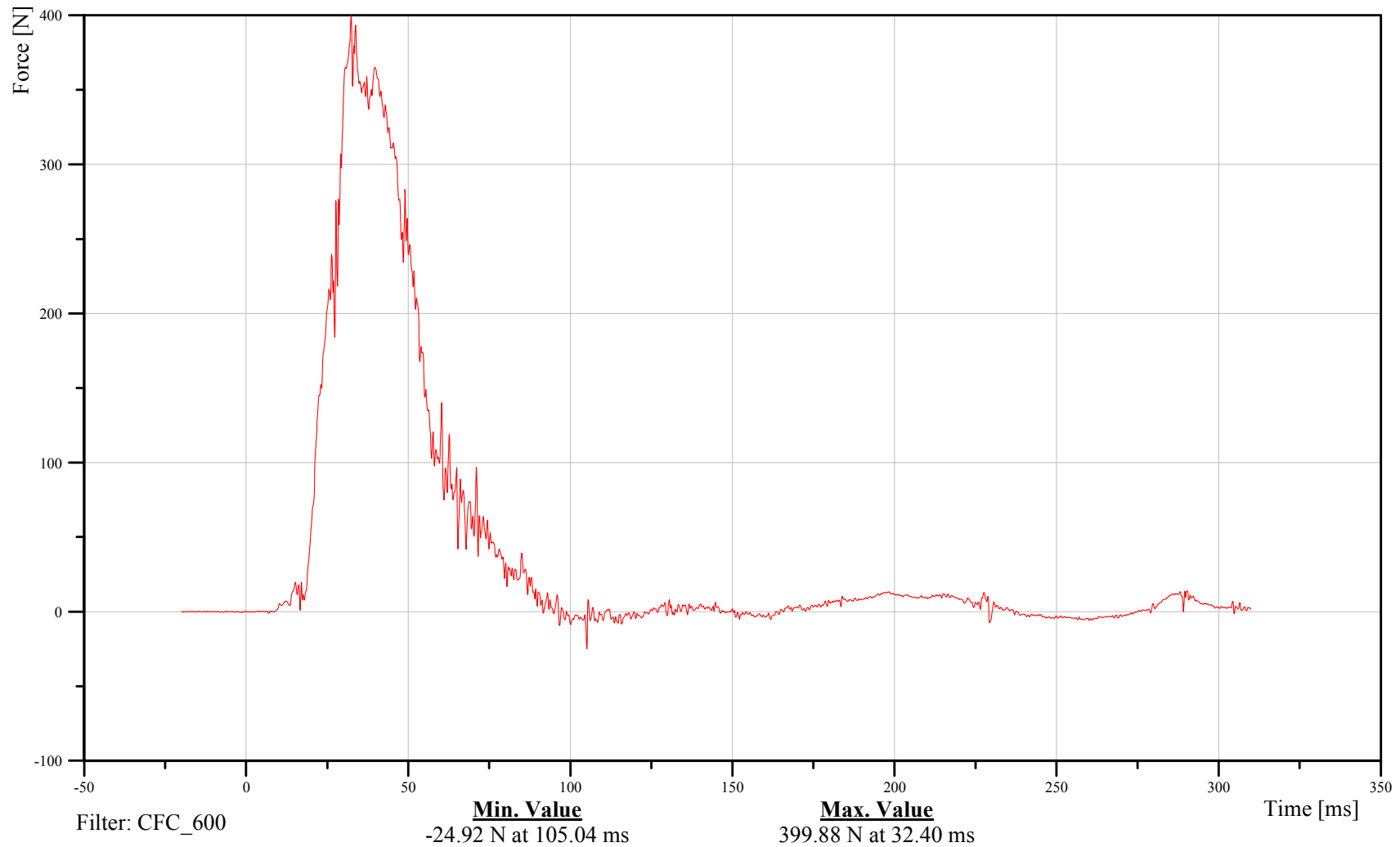
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11ABDOLEREE2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pubic Force Y

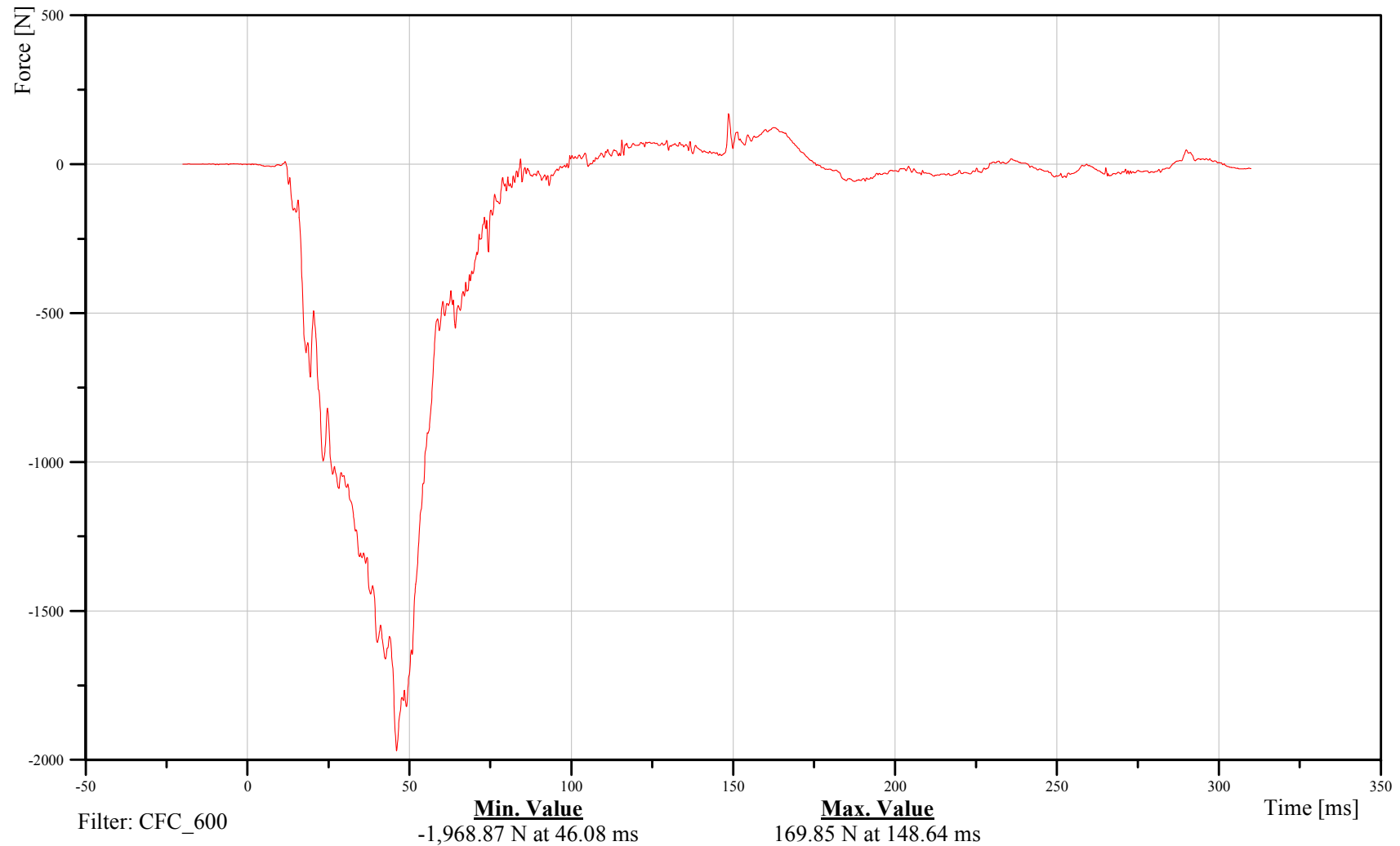
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11PUBC0000E2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pelvis Accel X

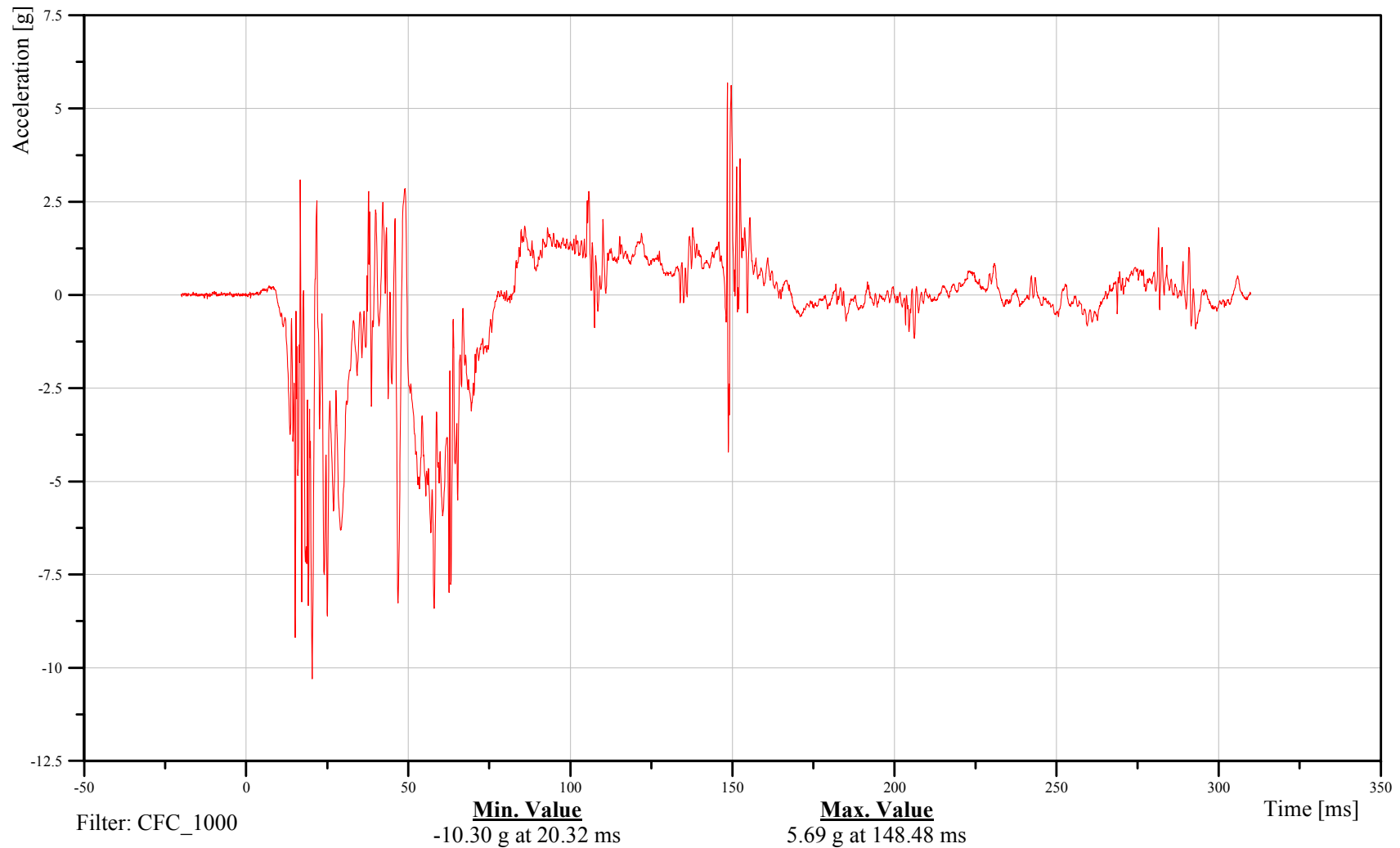
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11PELVCG00E2ACXA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pelvis Accel Y

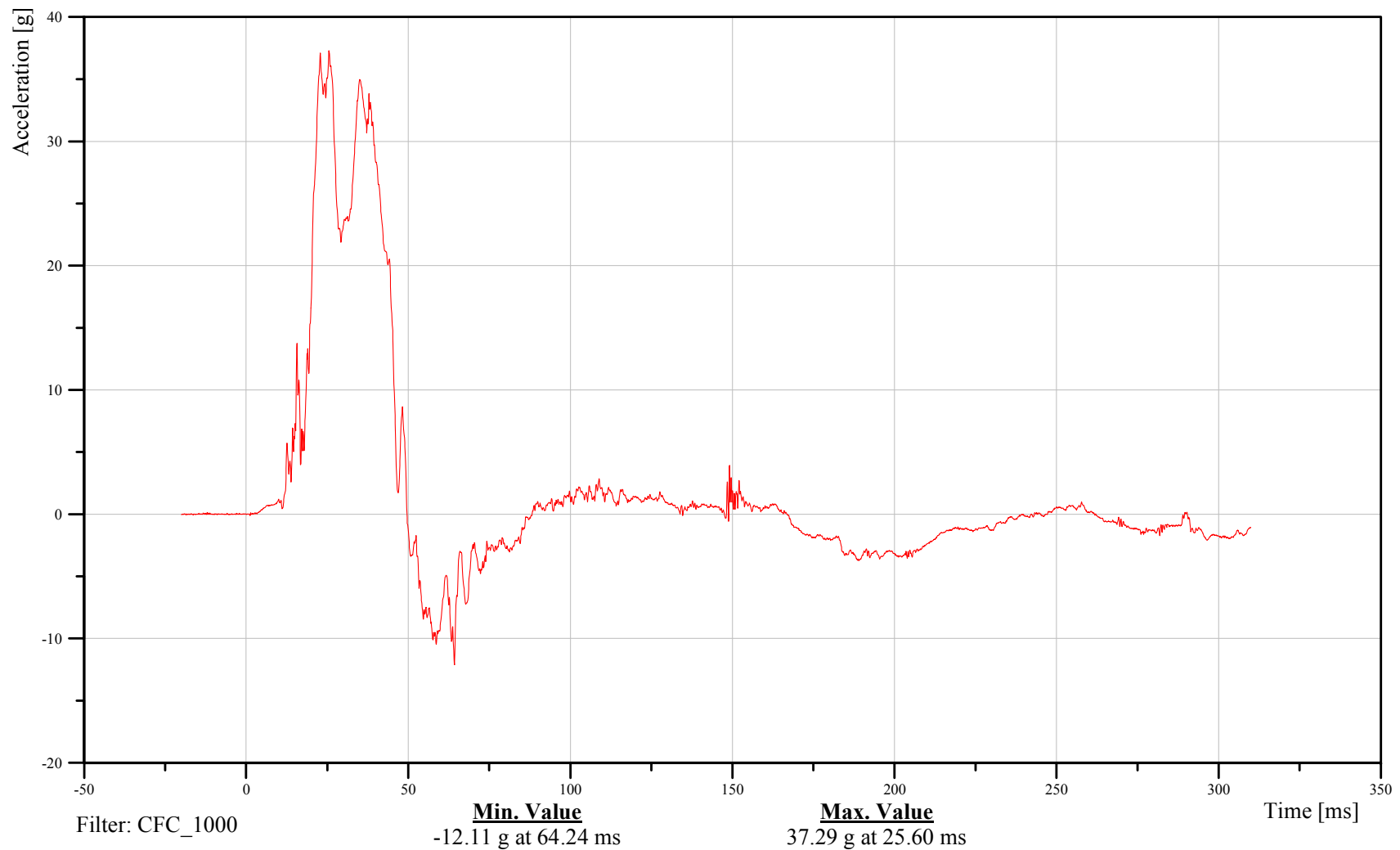
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11PELVCG00E2ACYA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pelvis Accel Z

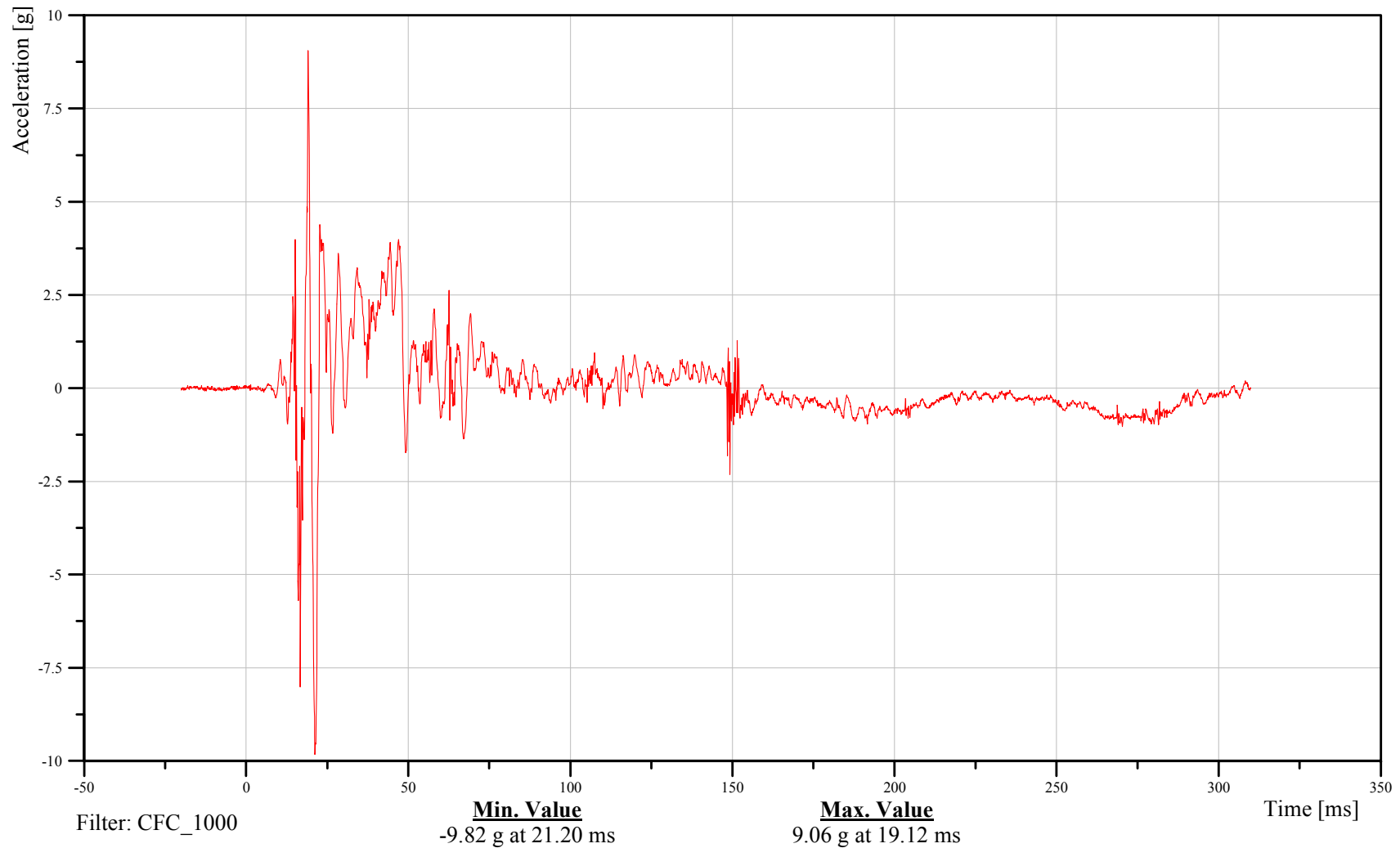
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11PELVCG00E2ACZA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pelvis Accel Resultant

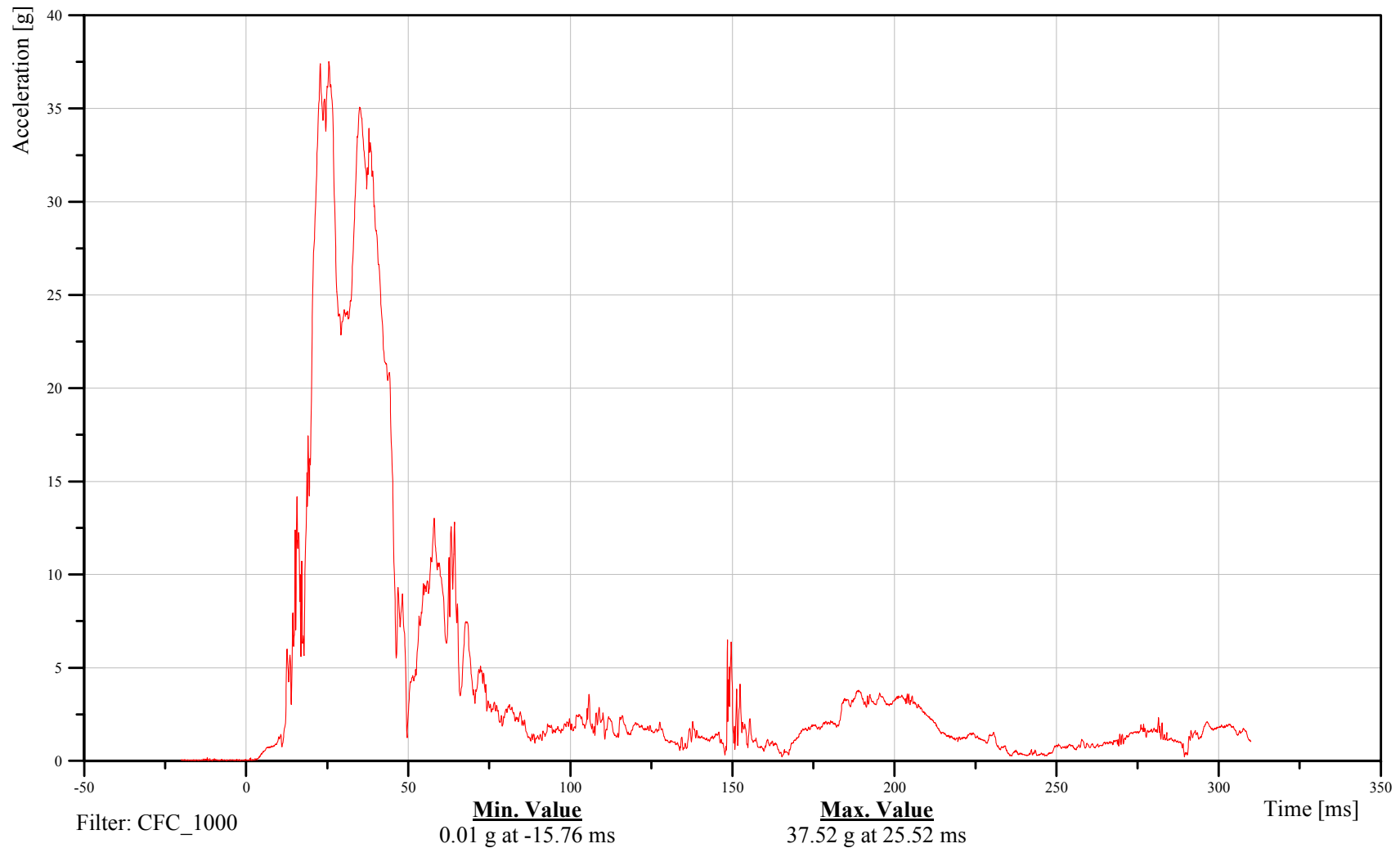
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11PELVCG00E2ACRA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Left Femur Force X

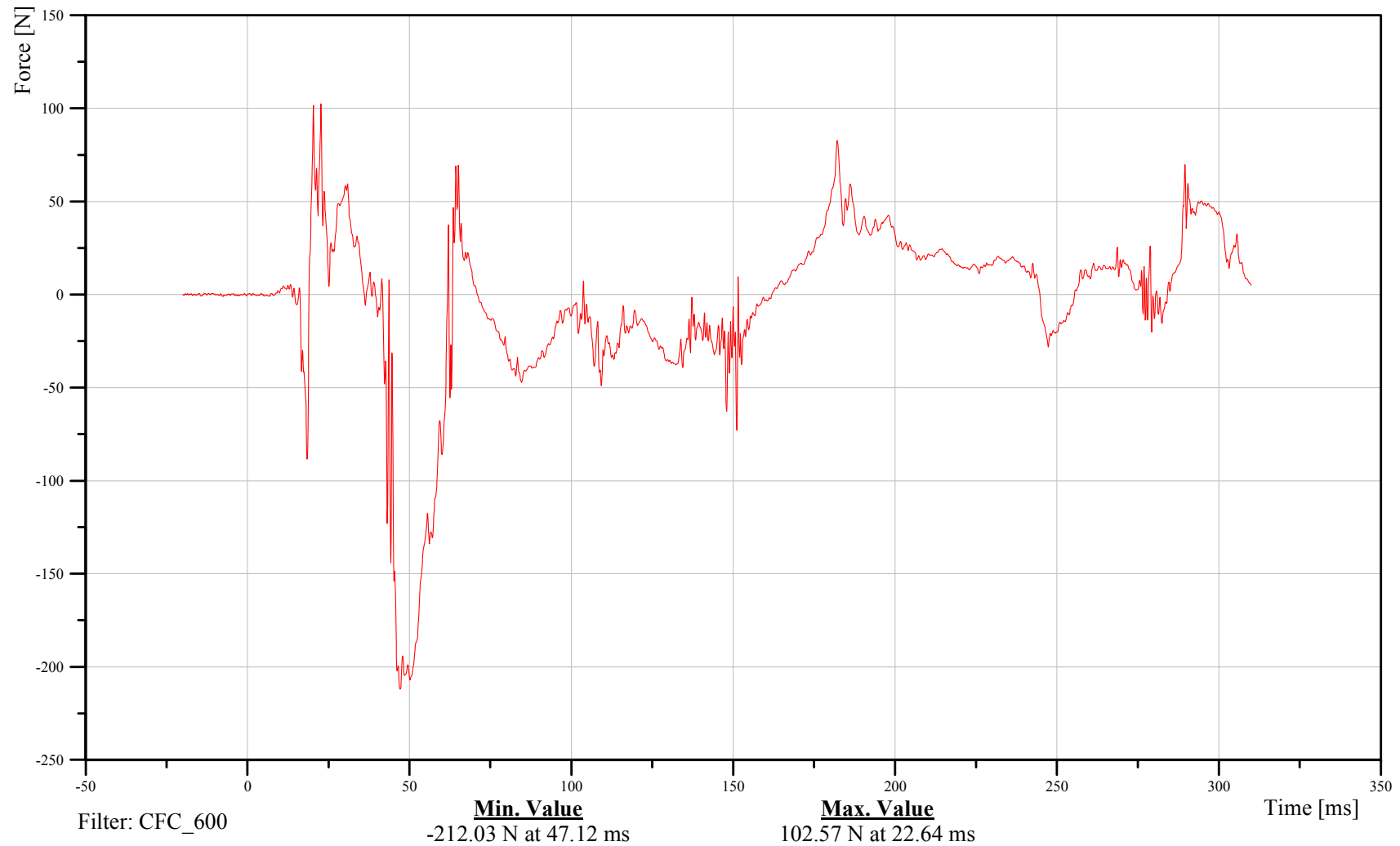
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11FEMRLE00E2FOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Left Femur Force Y

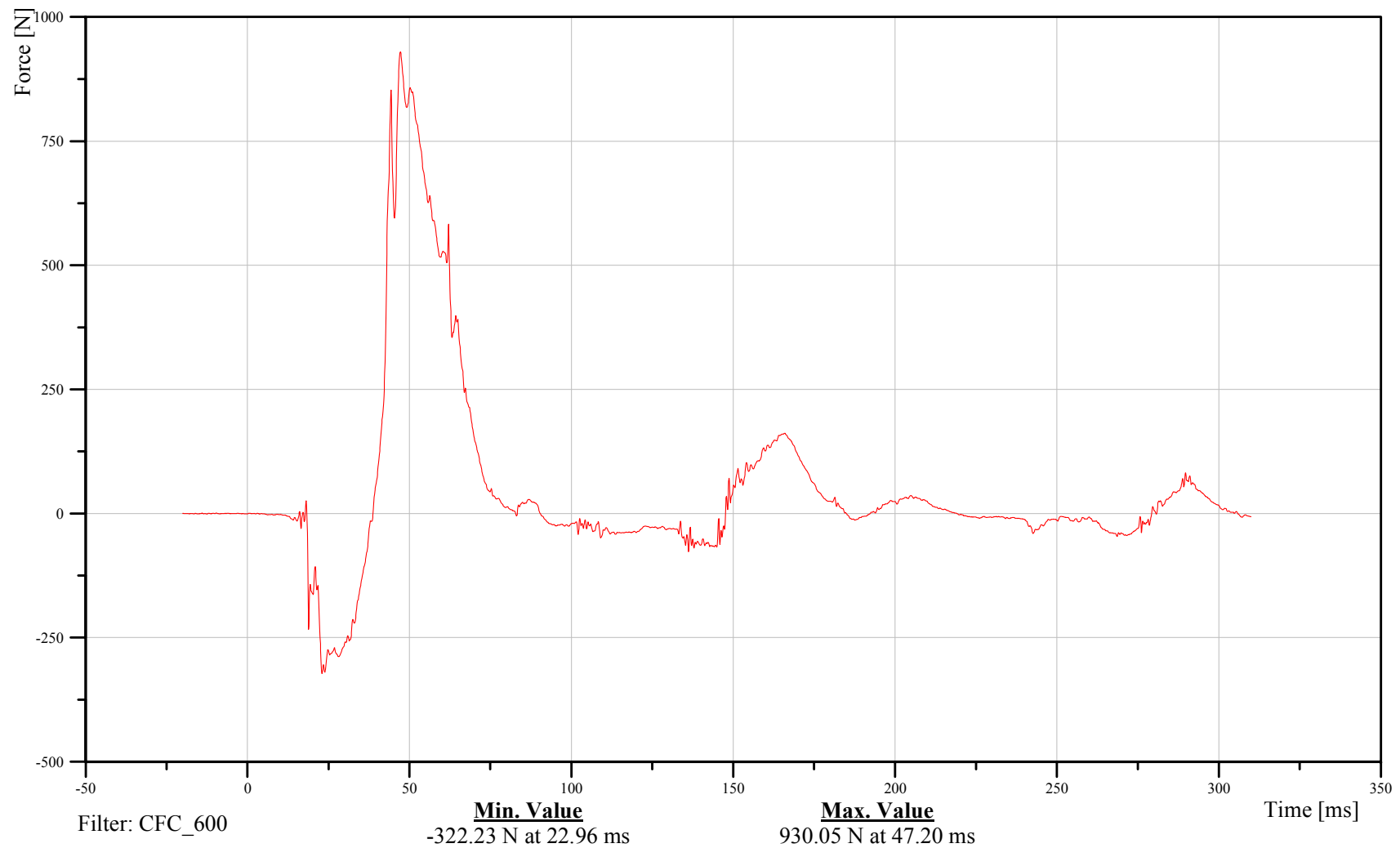
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11FEMRLE00E2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

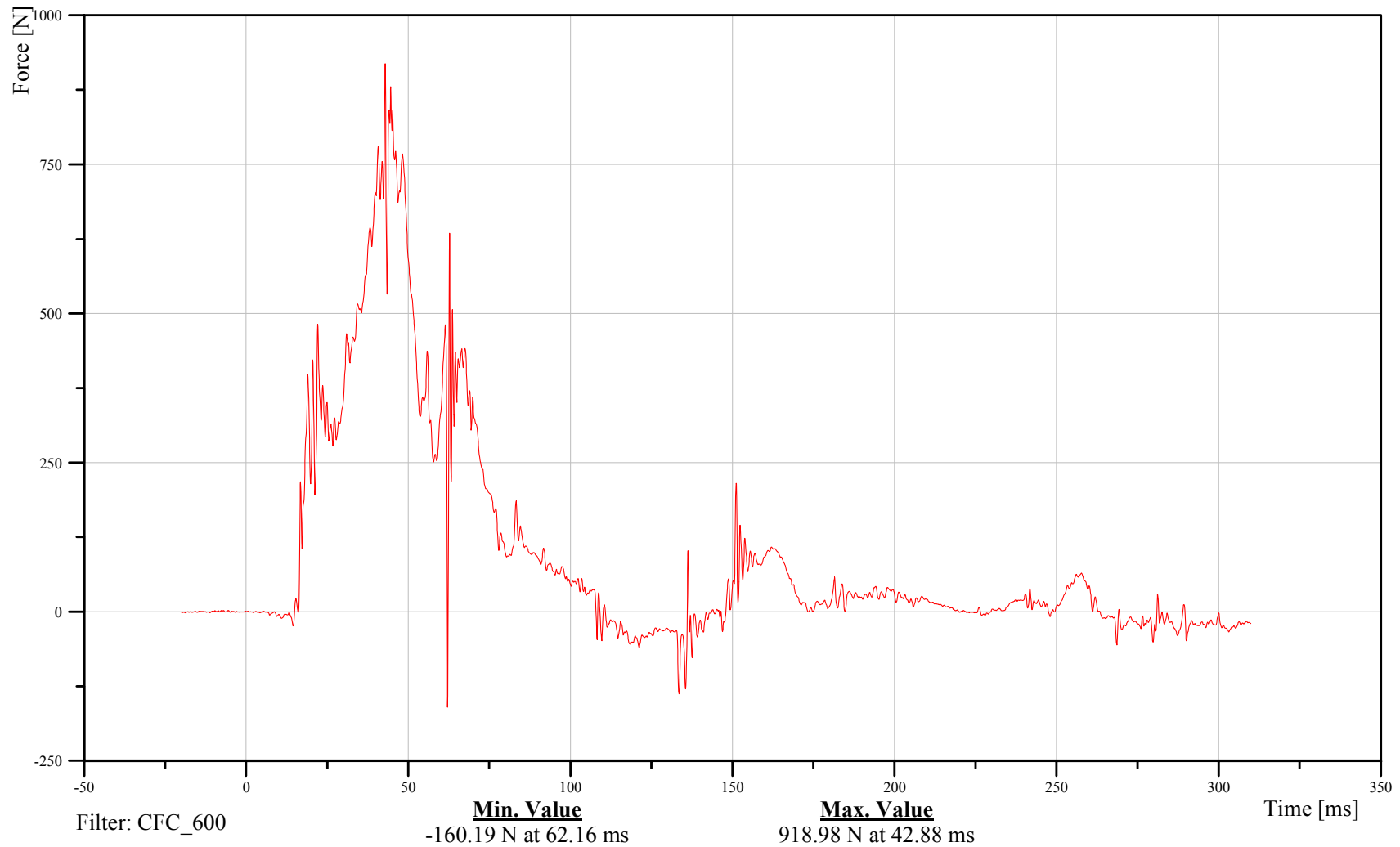
Left Femur Force Z

Customer: VRTC

11FEMRLE00E2FOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Left Femur Moment X

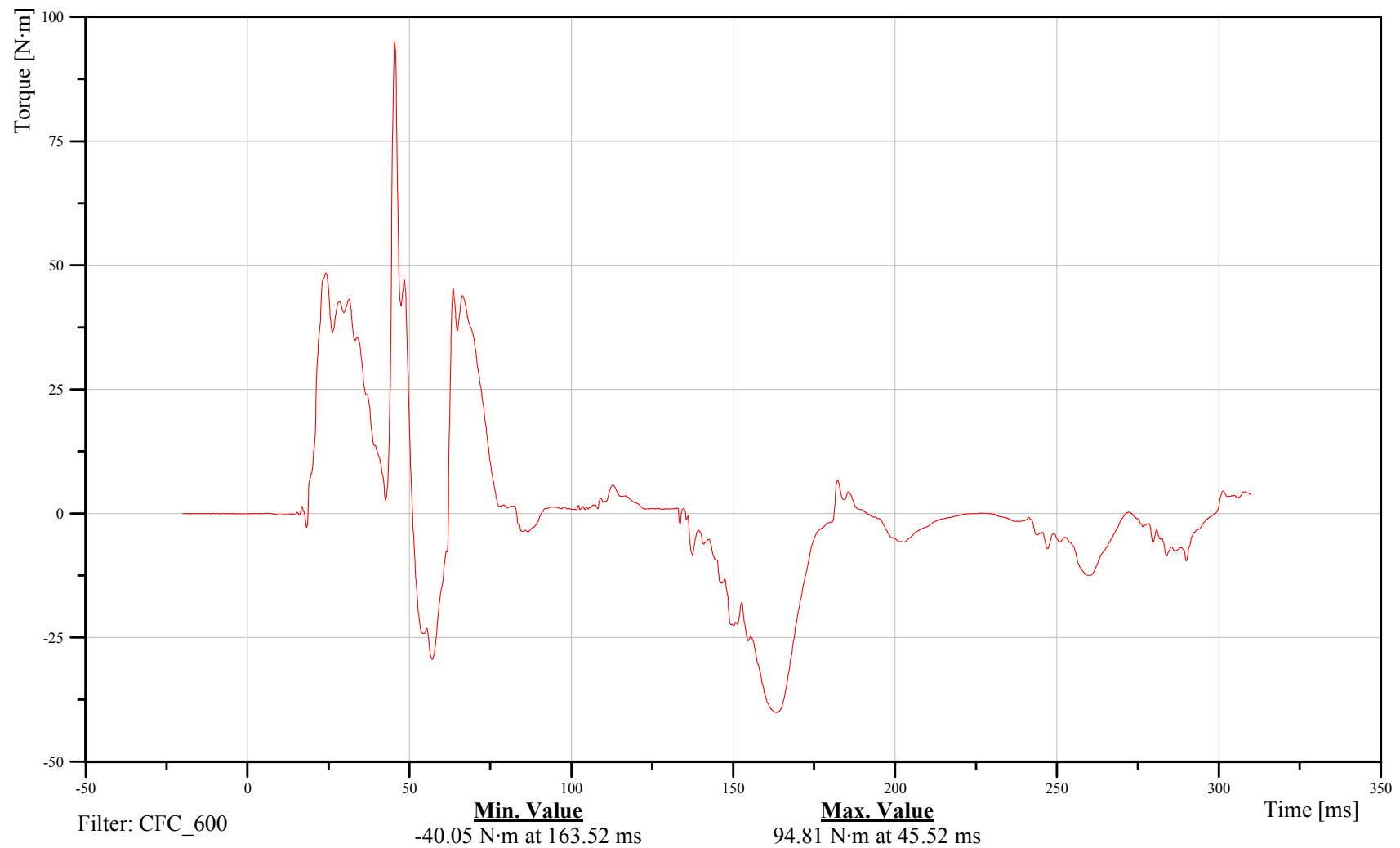
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11FEMRLE00E2MOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

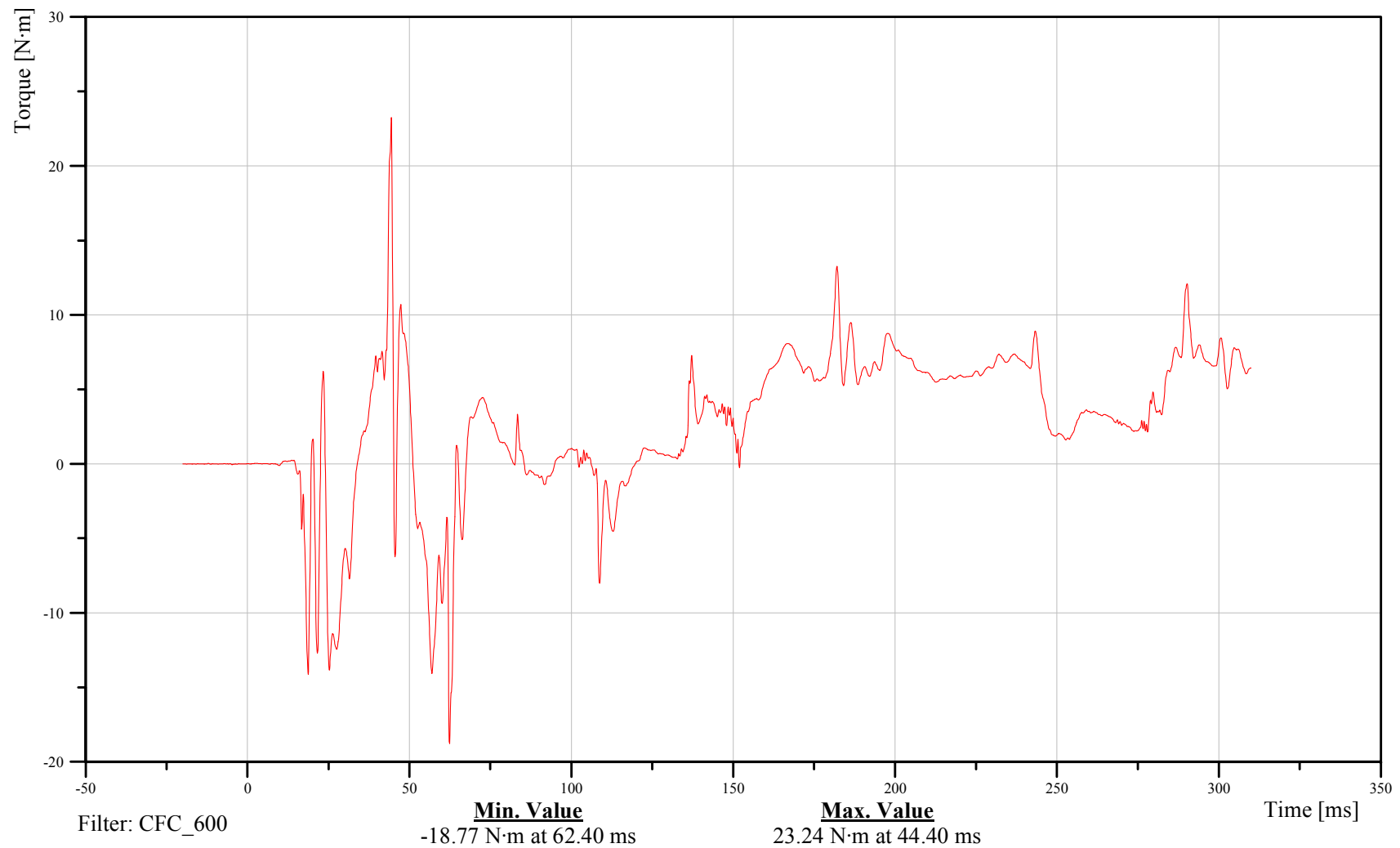
Left Femur Moment Y

Customer: VRTC

11FEMRLE00E2MOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Left Femur Moment Z

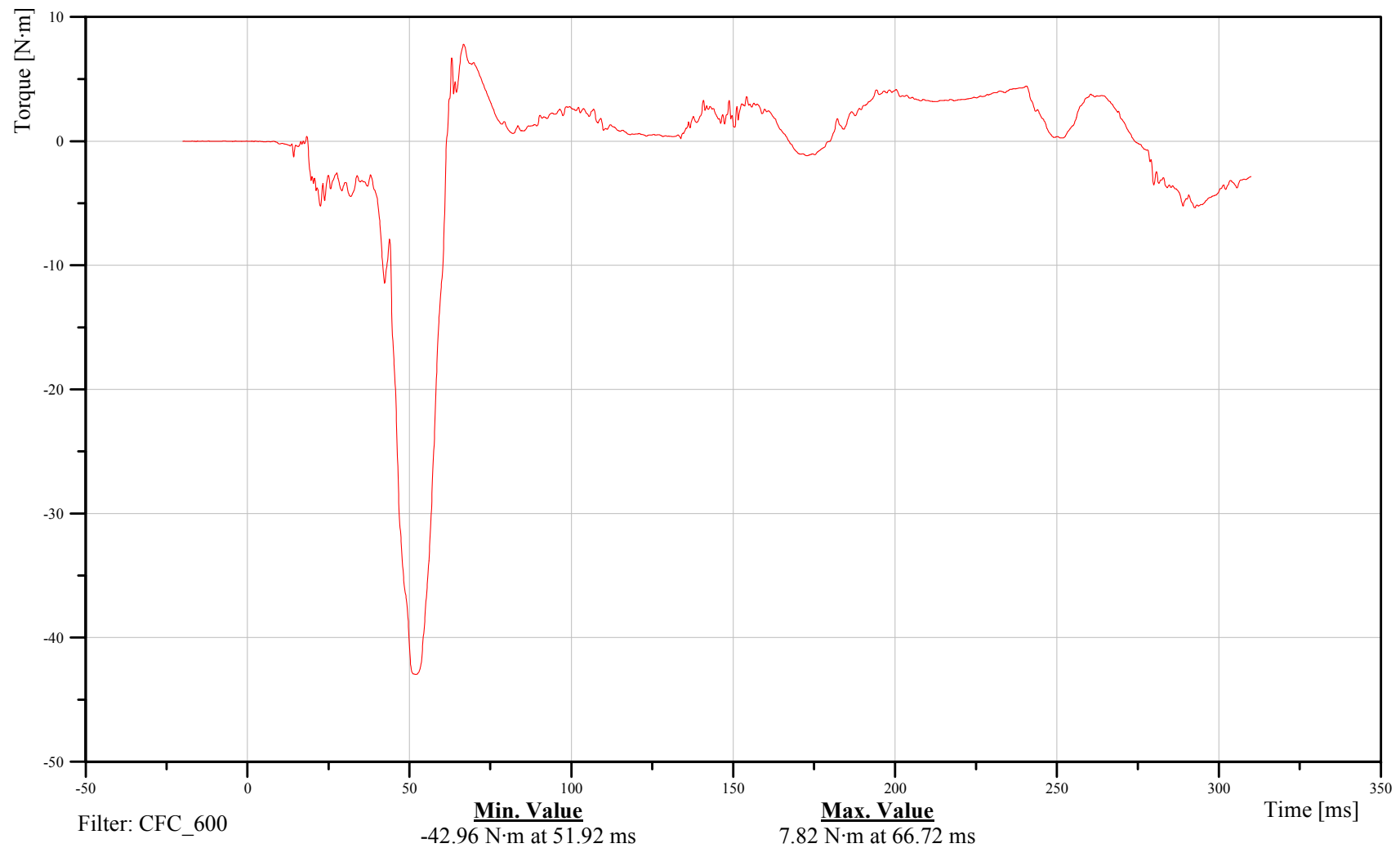
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11FEMRLE00E2MOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

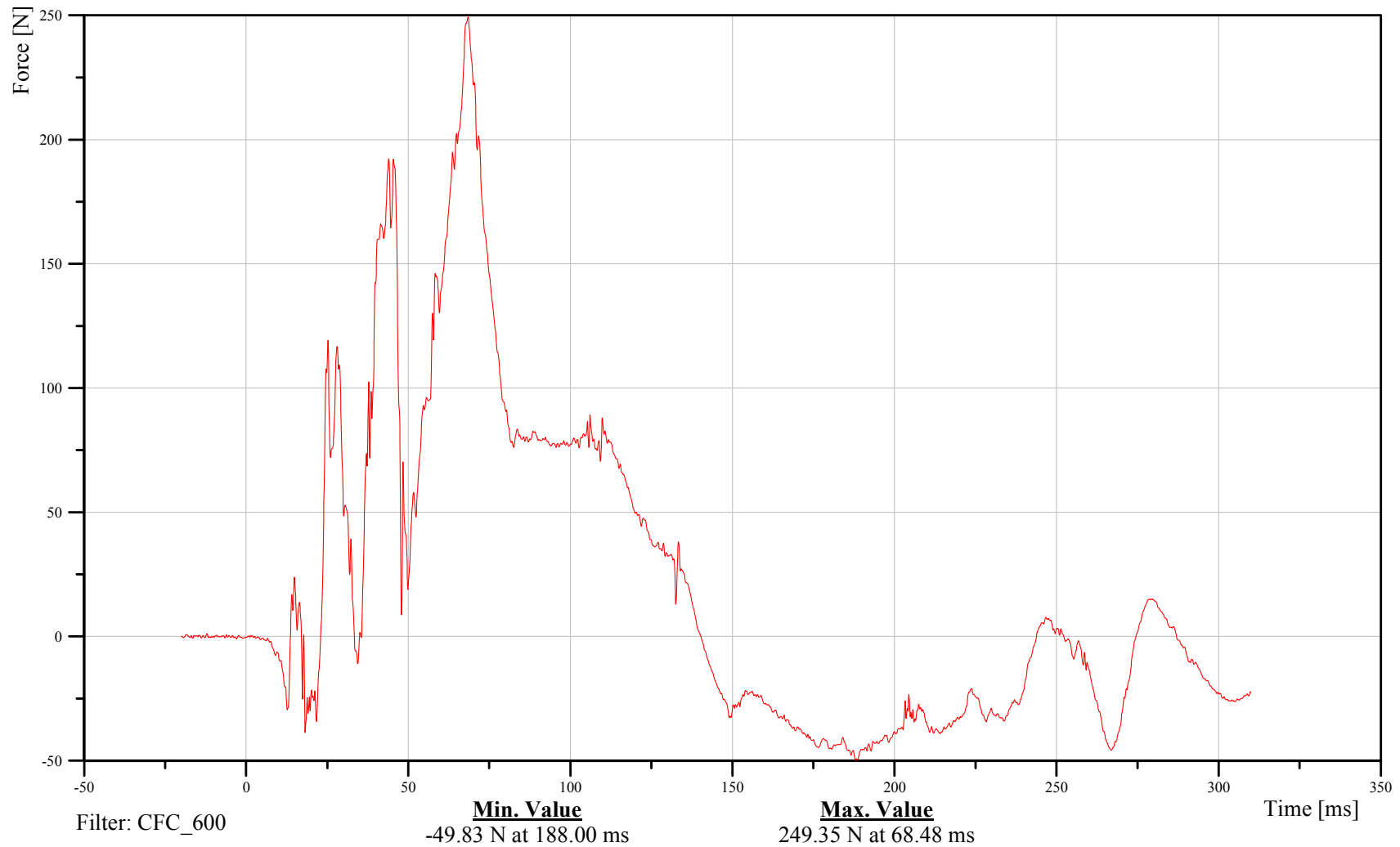
Right Femur Force X

Customer: VRTC

11FEMRRI00E2FOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

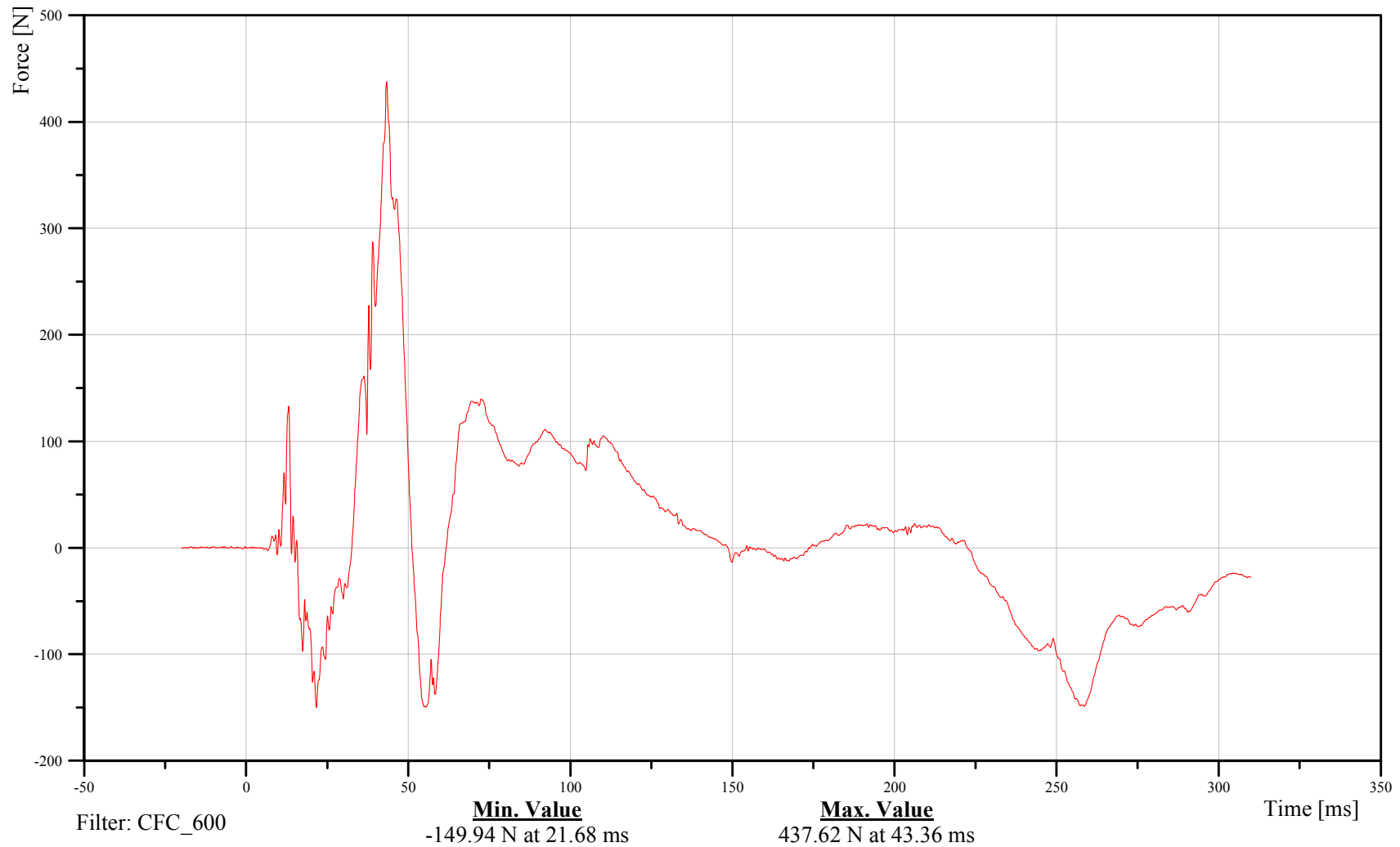
Right Femur Force Y

Customer: VRTC

11FEMRRI00E2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

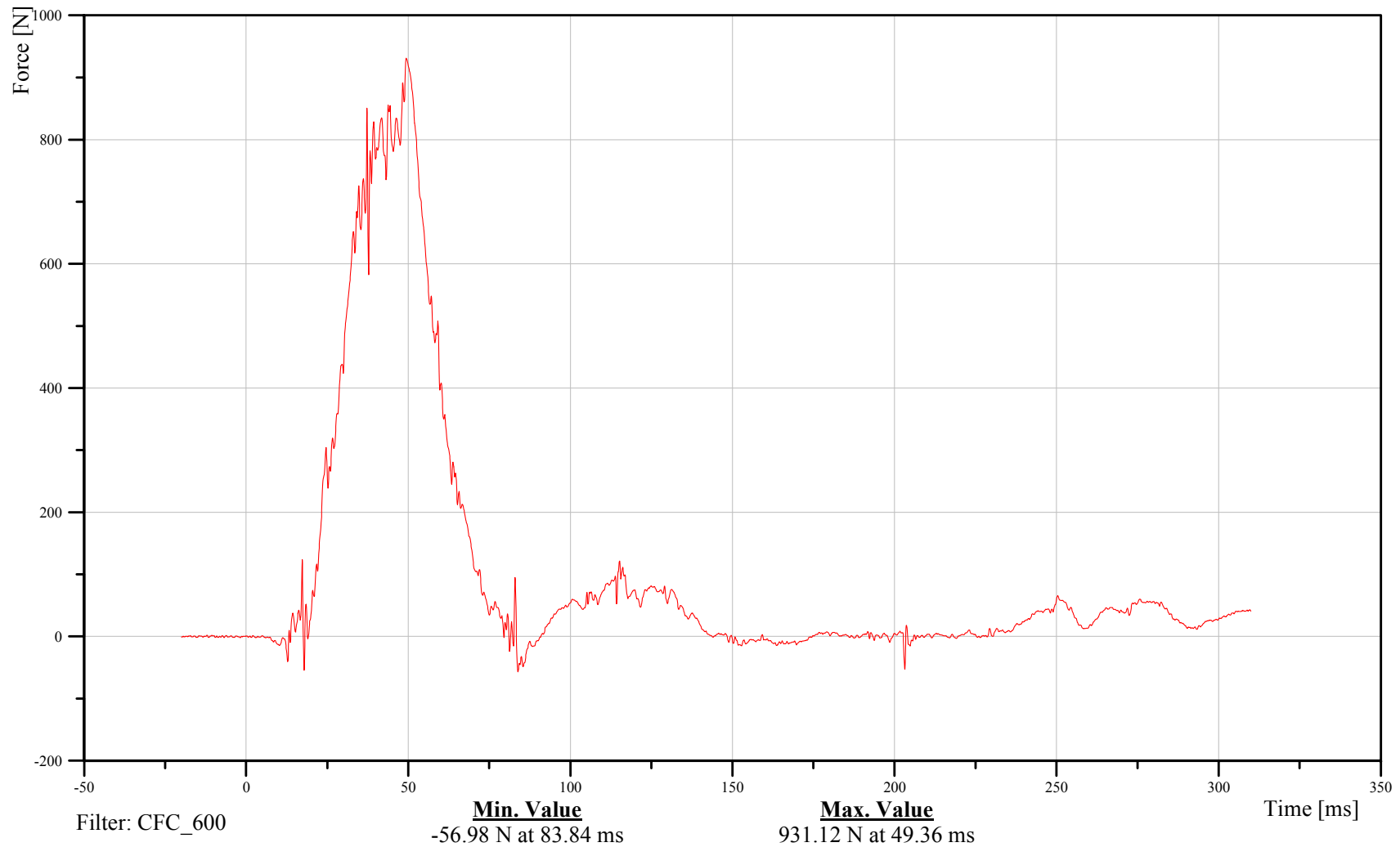
Right Femur Force Z

Customer: VRTC

11FEMRRI00E2FOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

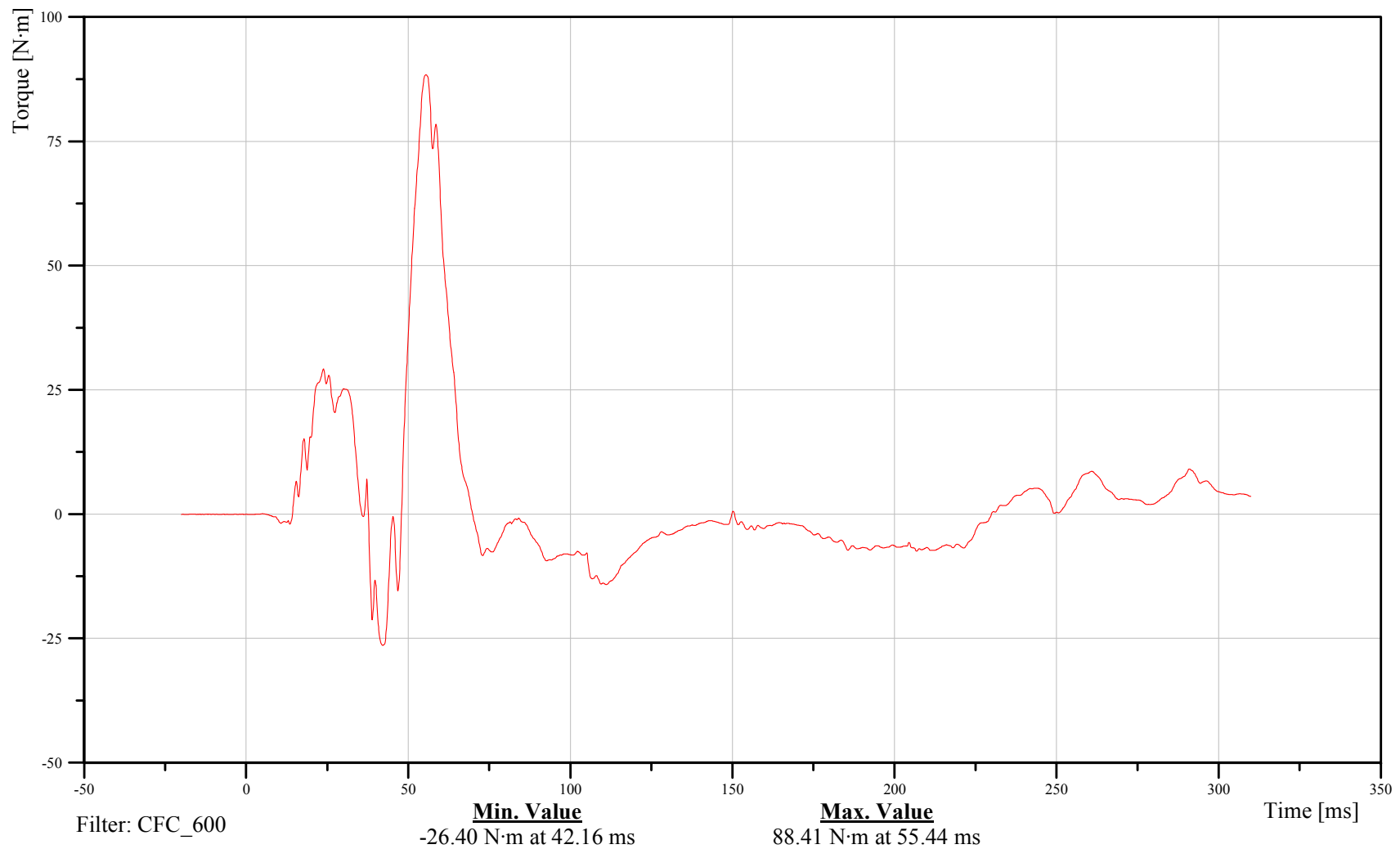
Right Femur Moment X

Customer: VRTC

11FEMRRI00E2MOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

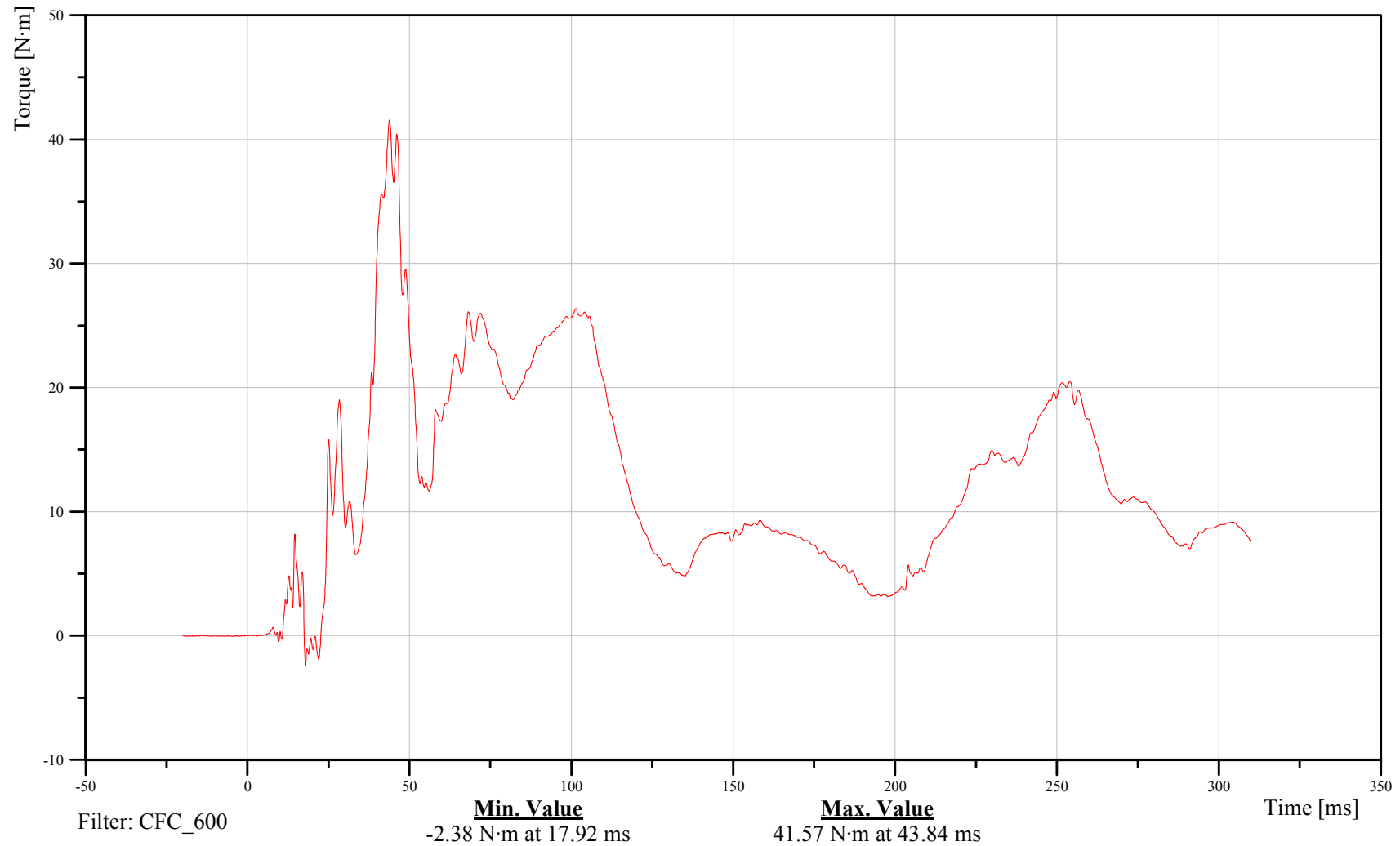
Right Femur Moment Y

Customer: VRTC

11FEMRRI00E2MOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

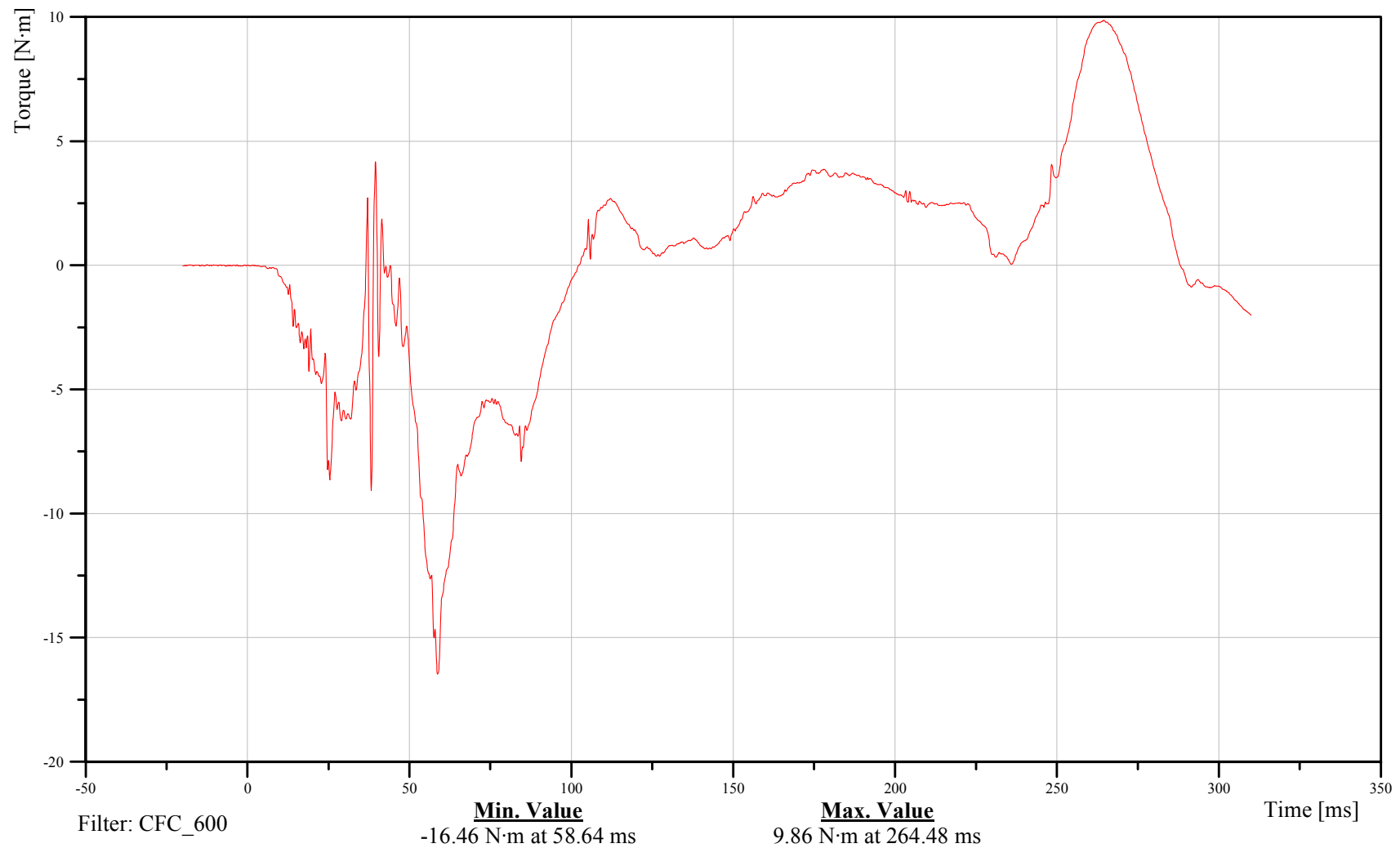
Right Femur Moment Z

Customer: VRTC

11FEMRRI00E2MOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head Accel X

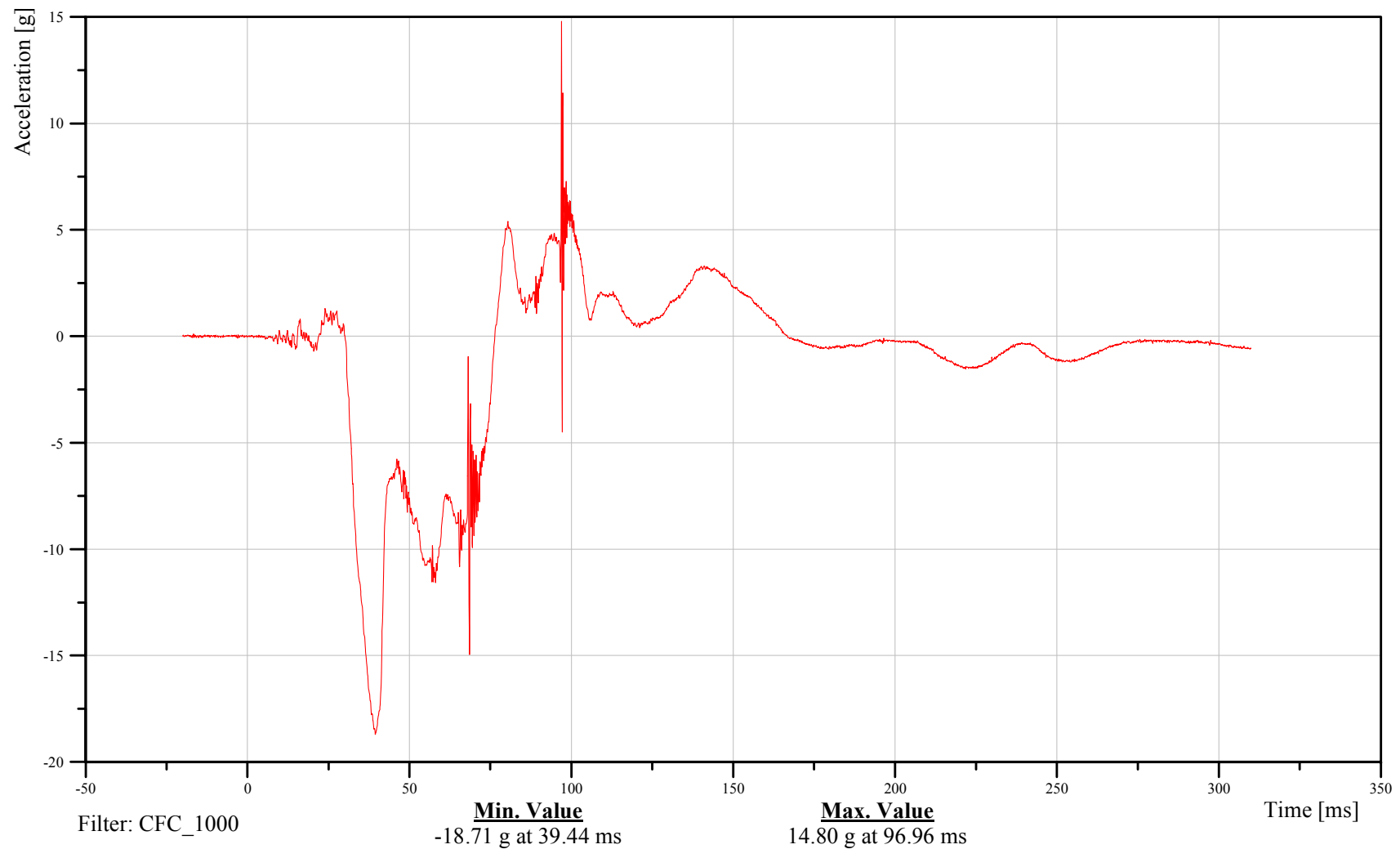
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14HEADCG00E2ACXA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head Accel Y

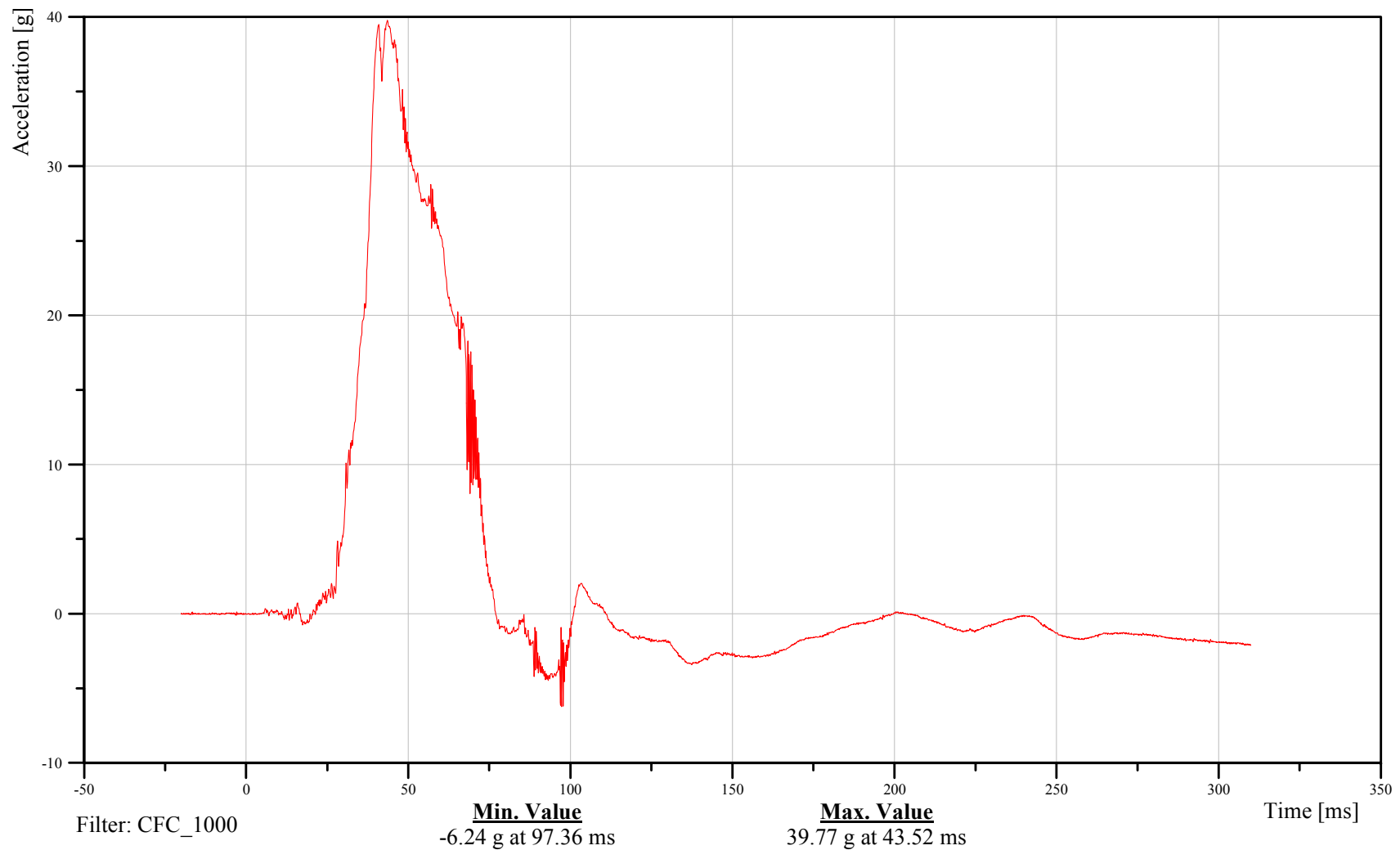
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14HEADCG00E2ACYA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

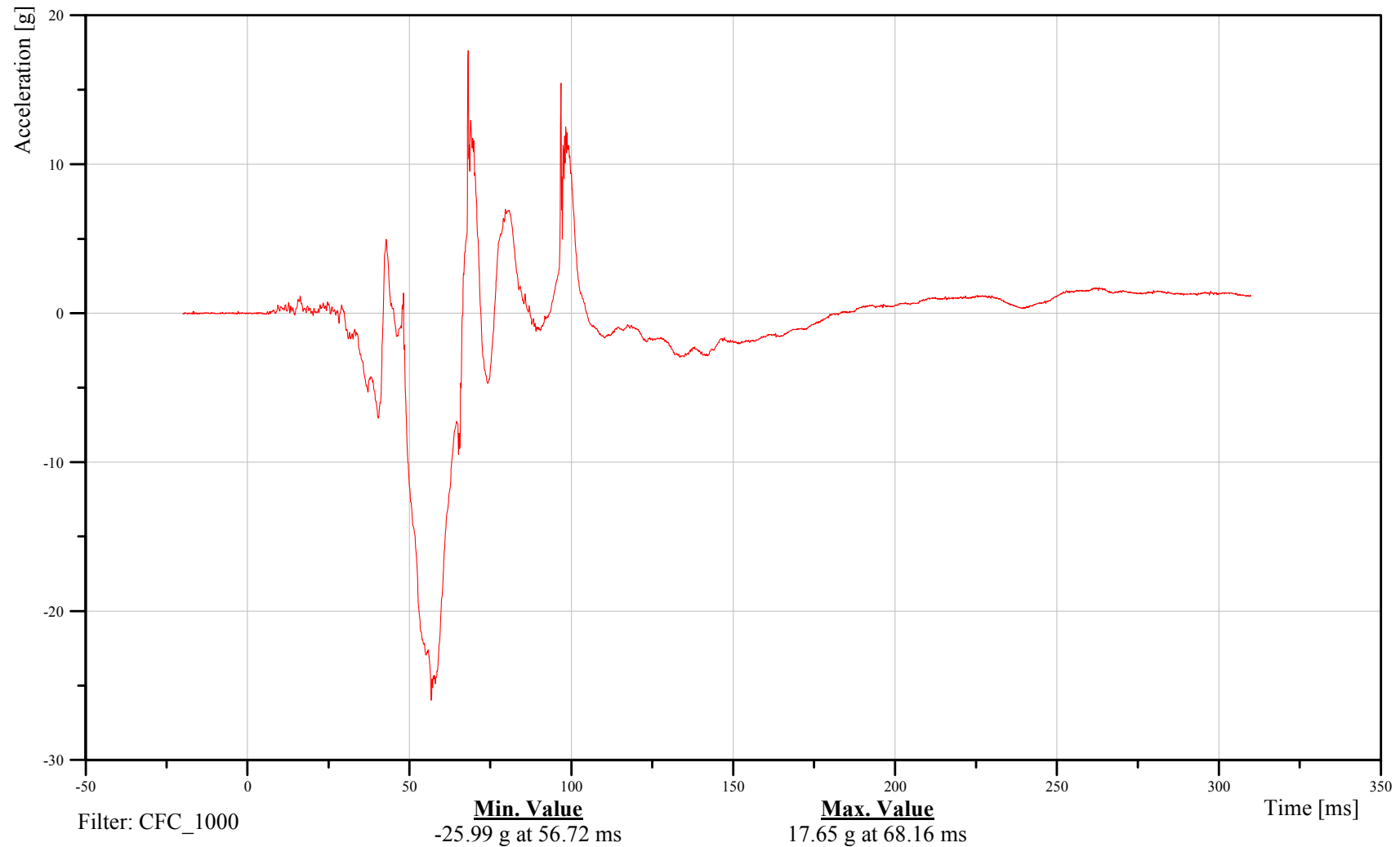
Head Accel Z

Customer: VRTC

14HEADCG00E2ACZA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

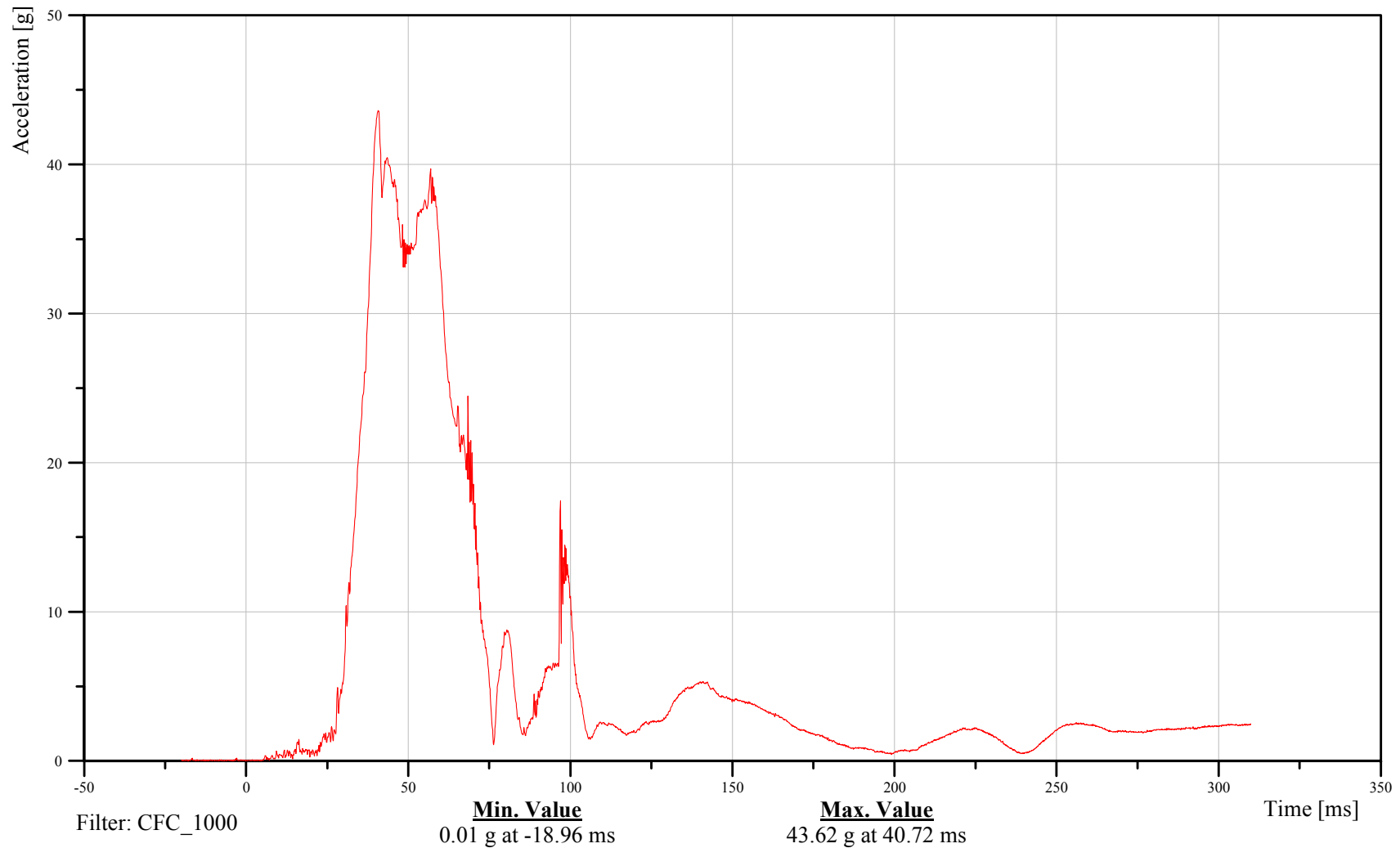
Head Accel Resultant

Customer: VRTC

14HEADCG00E2ACRA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head (LT) Accel X

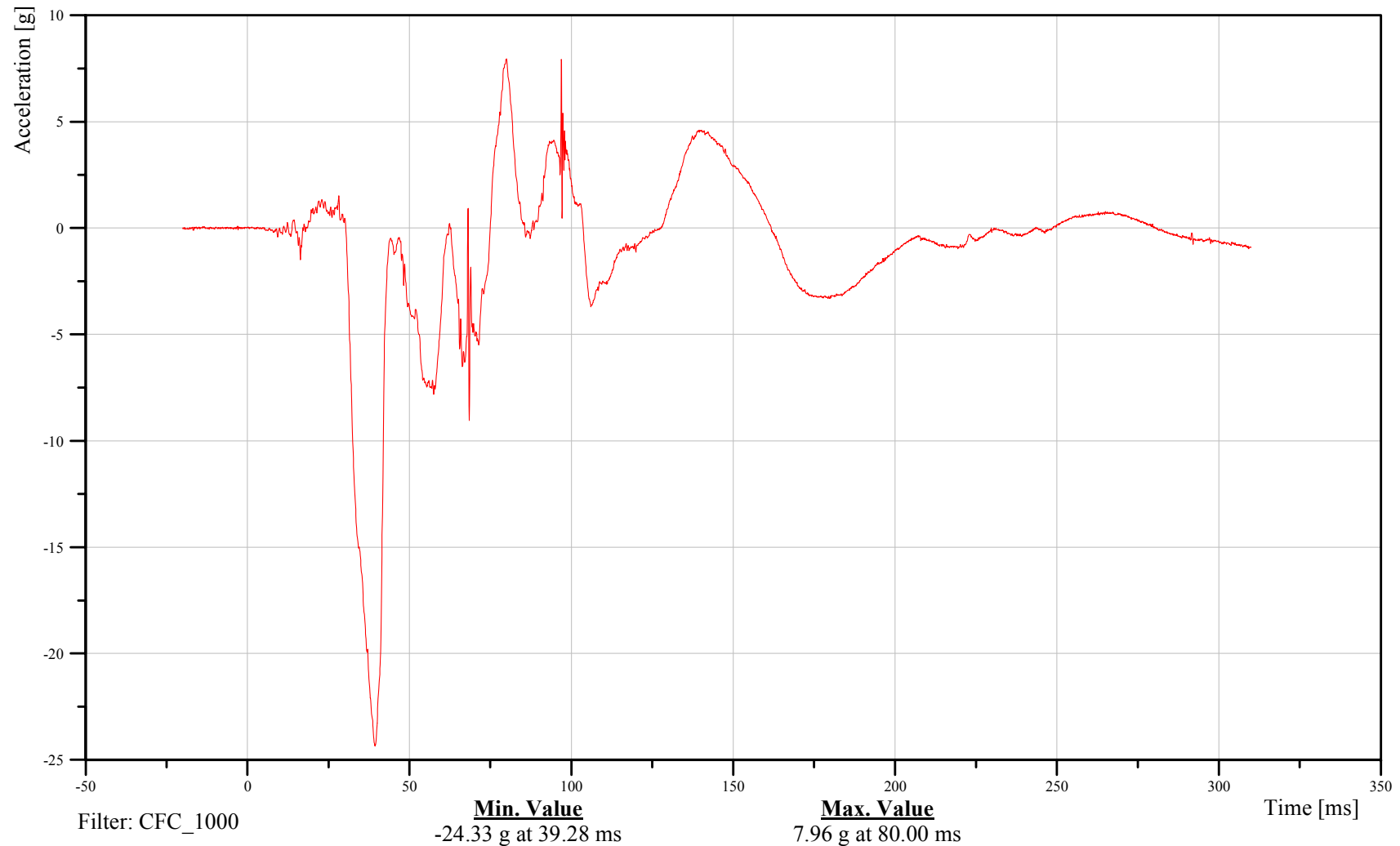
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14HEADLE00E2ACXA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head (LT) Accel Z

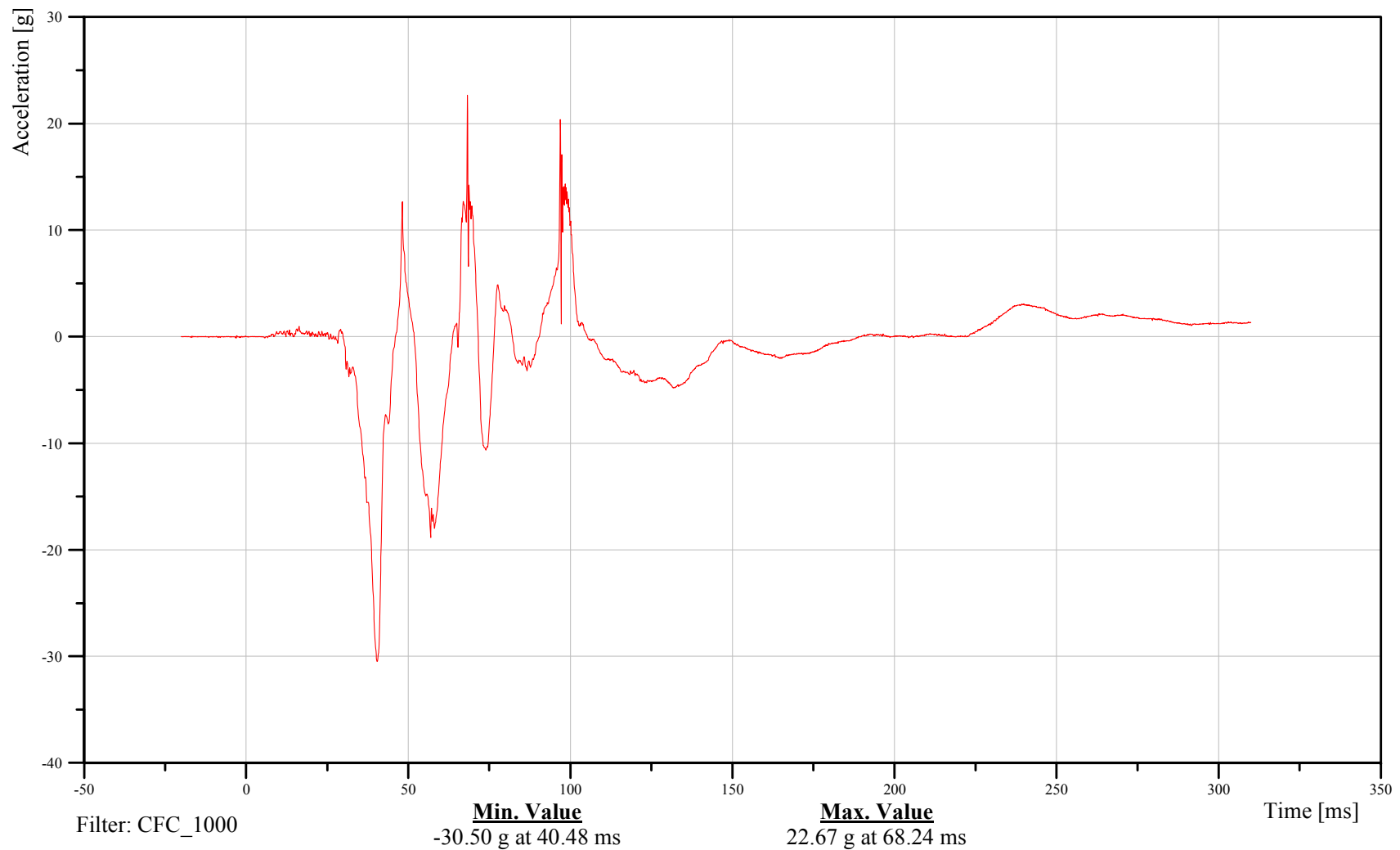
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14HEADLE00E2ACZA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head (FT) Accel Y

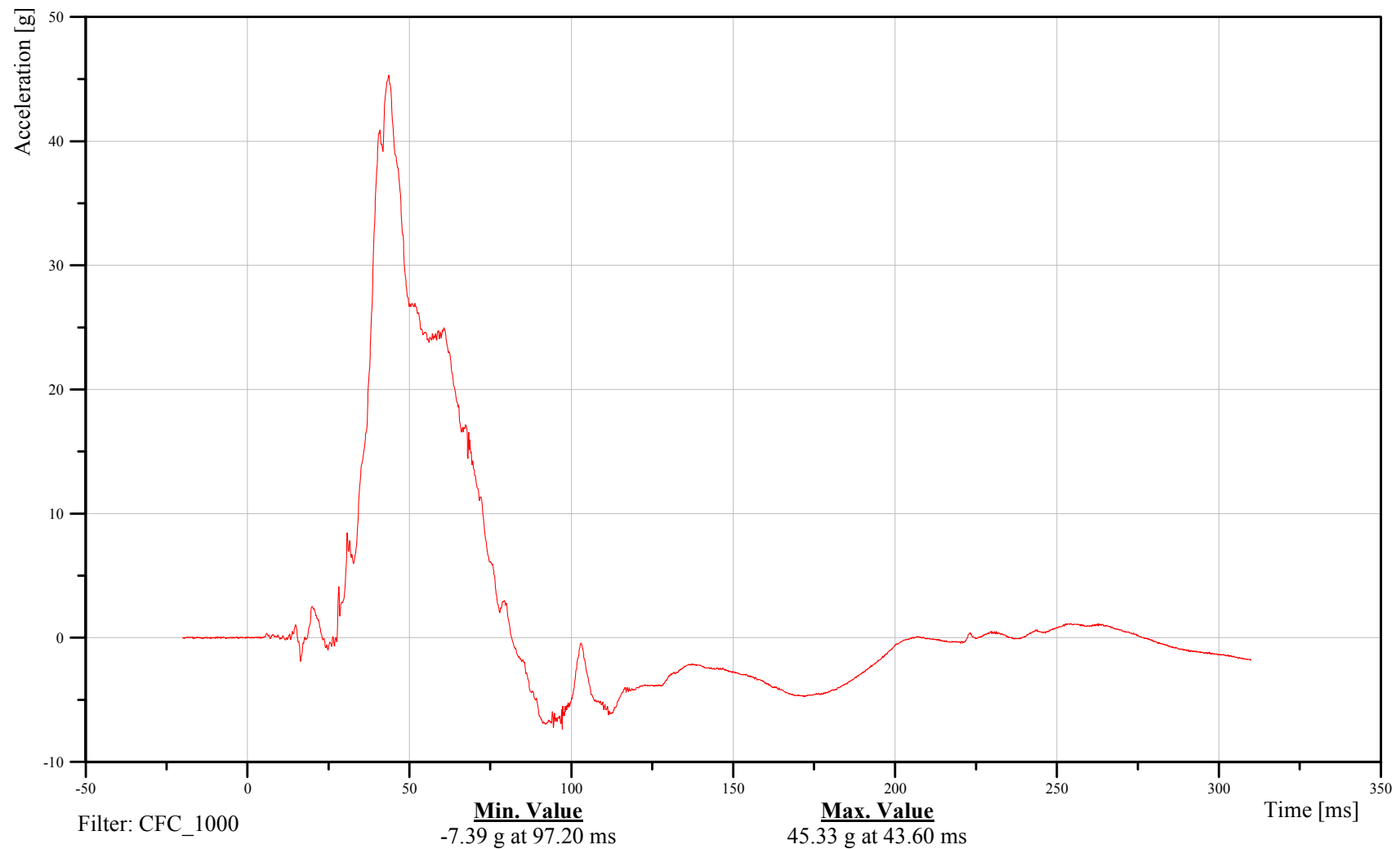
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14HEADFR00E2ACYA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head (FT) Accel Z

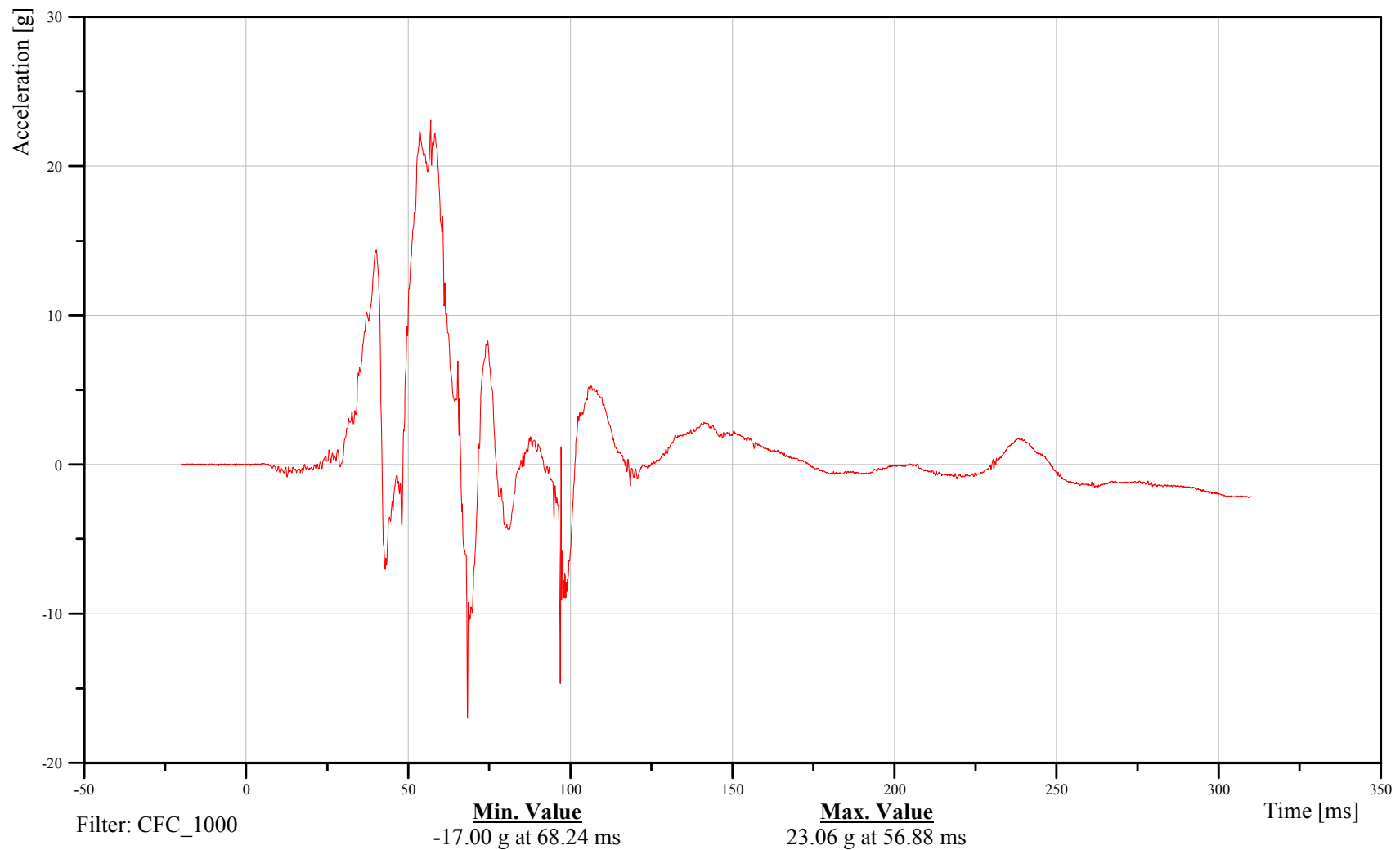
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14HEADFR00E2ACZA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head (TP) Accel X

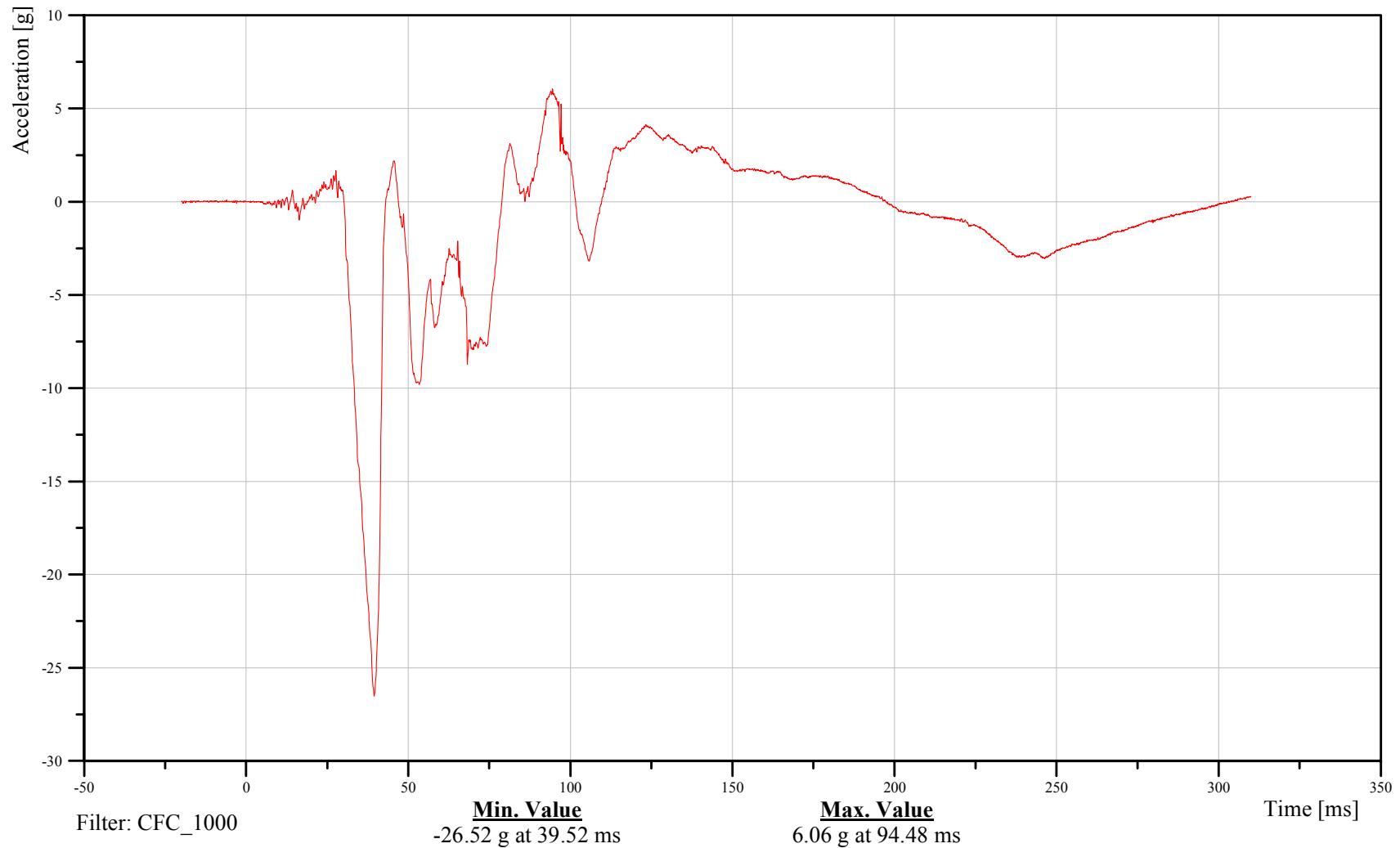
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14HEADUP00E2ACXA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

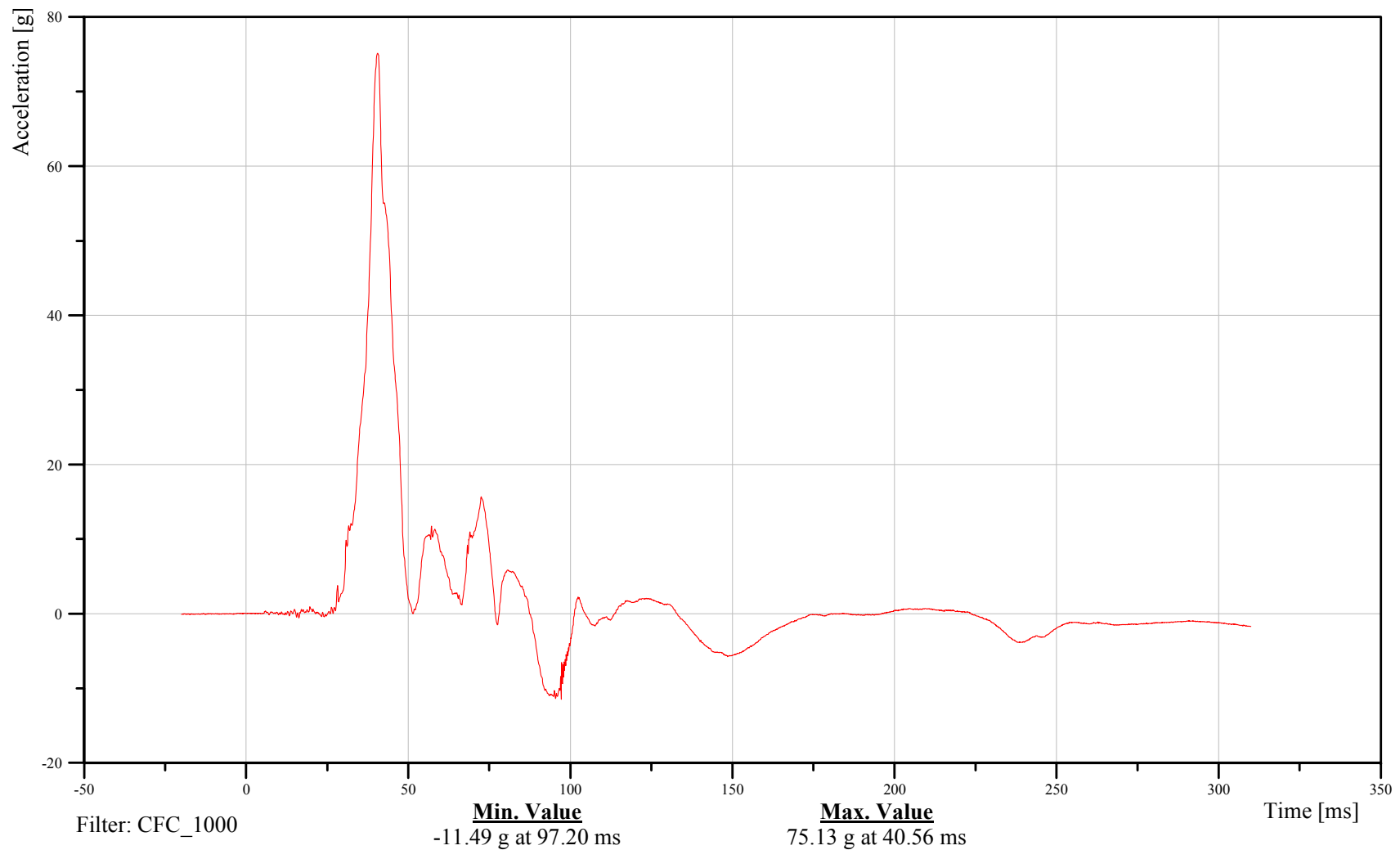
Head (TP) Accel Y

Customer: VRTC

14HEADUP00E2ACYA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

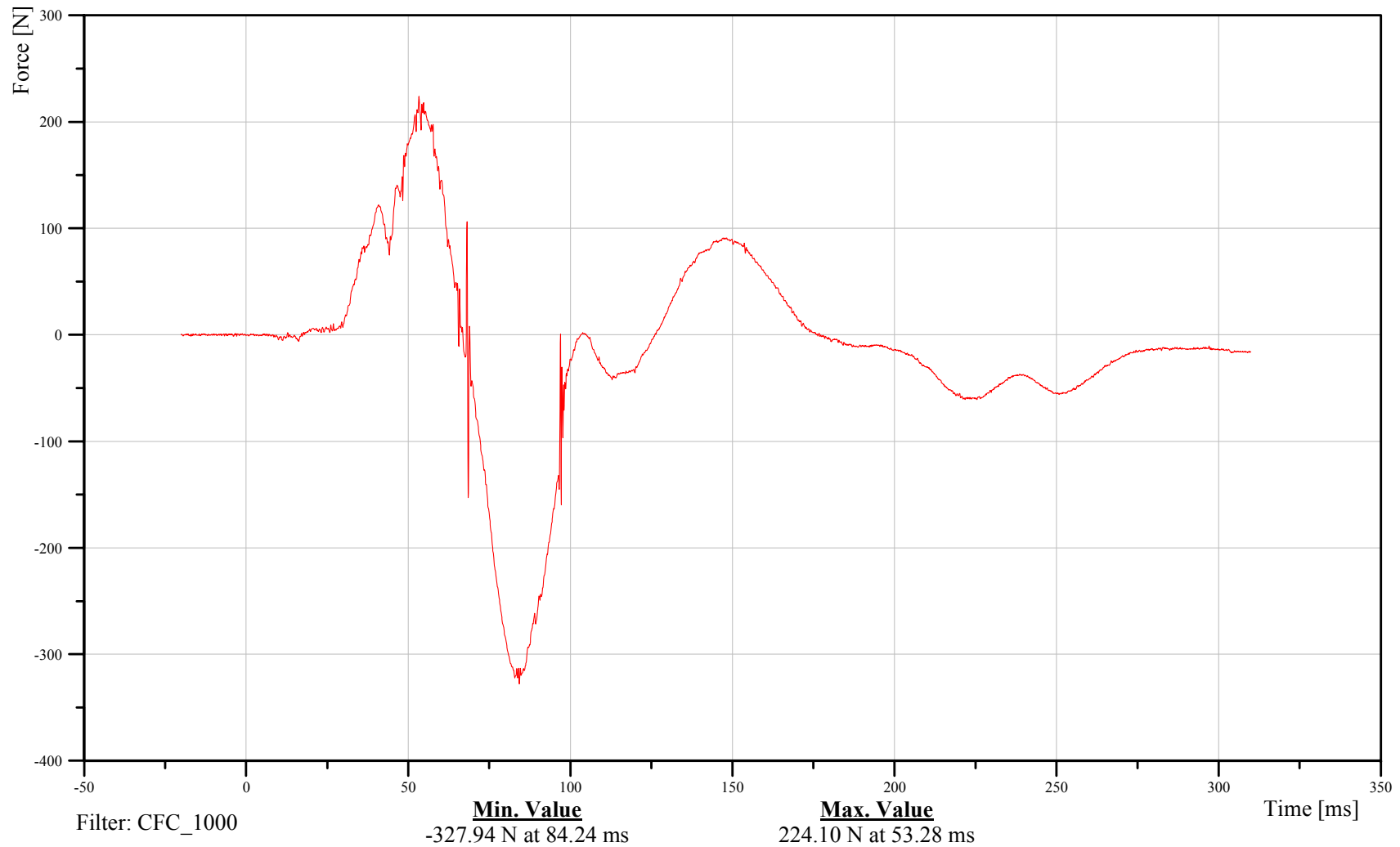
Neck Force X

Customer: VRTC

14NECKUP00E2FOXA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Neck Force Y

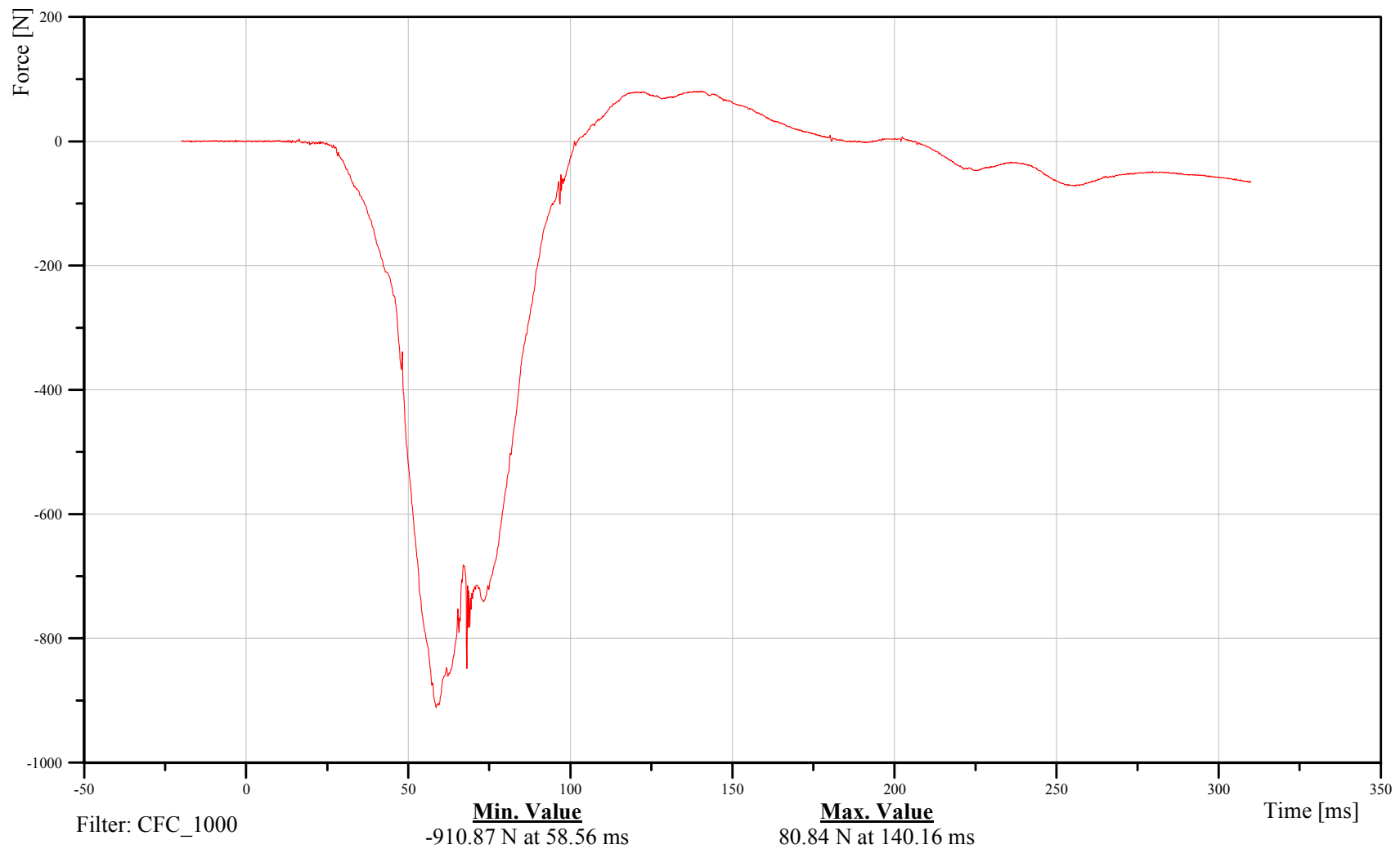
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14NECKUP00E2FOYA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

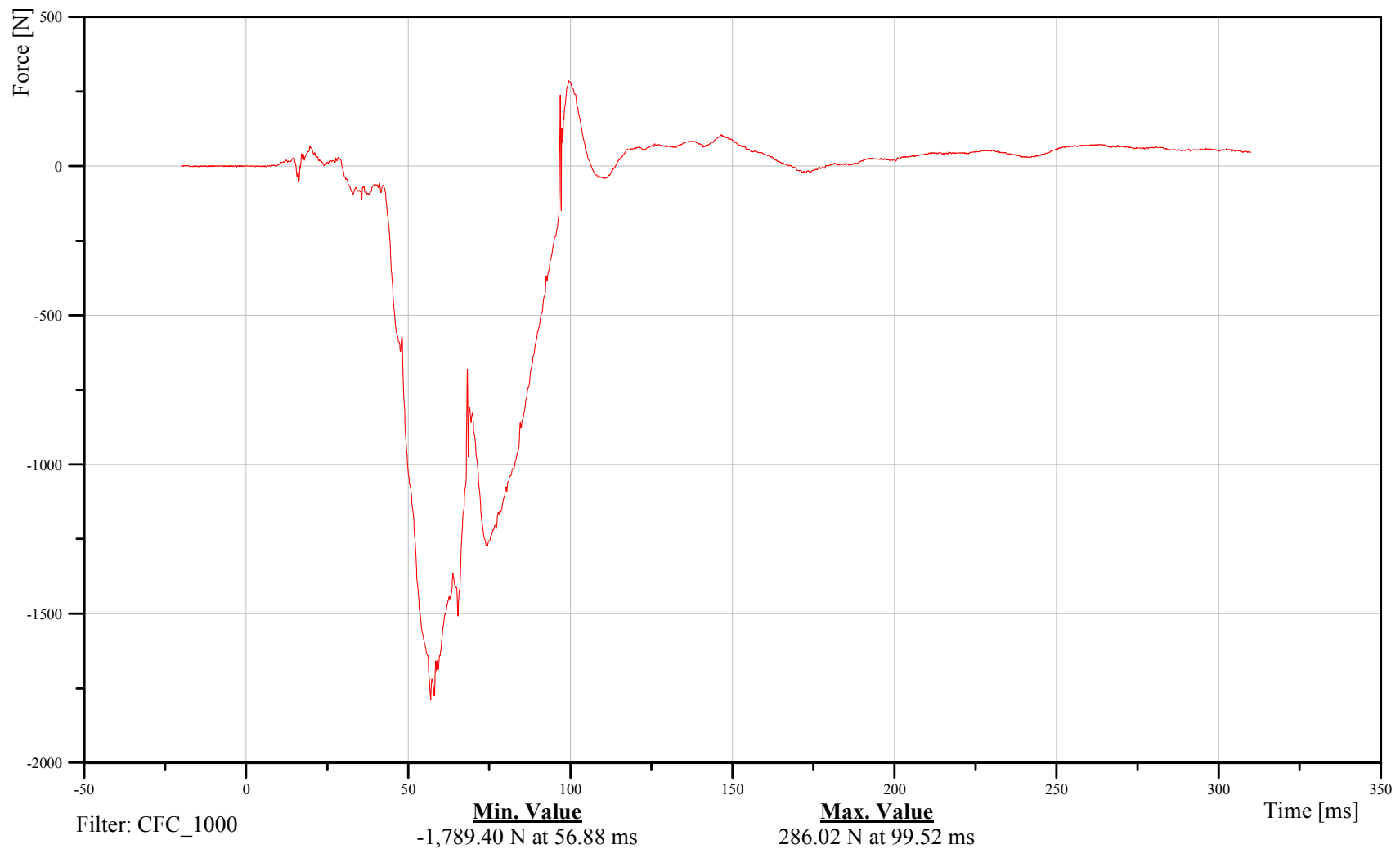
Neck Force Z

Customer: VRTC

14NECKUP00E2FOZA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

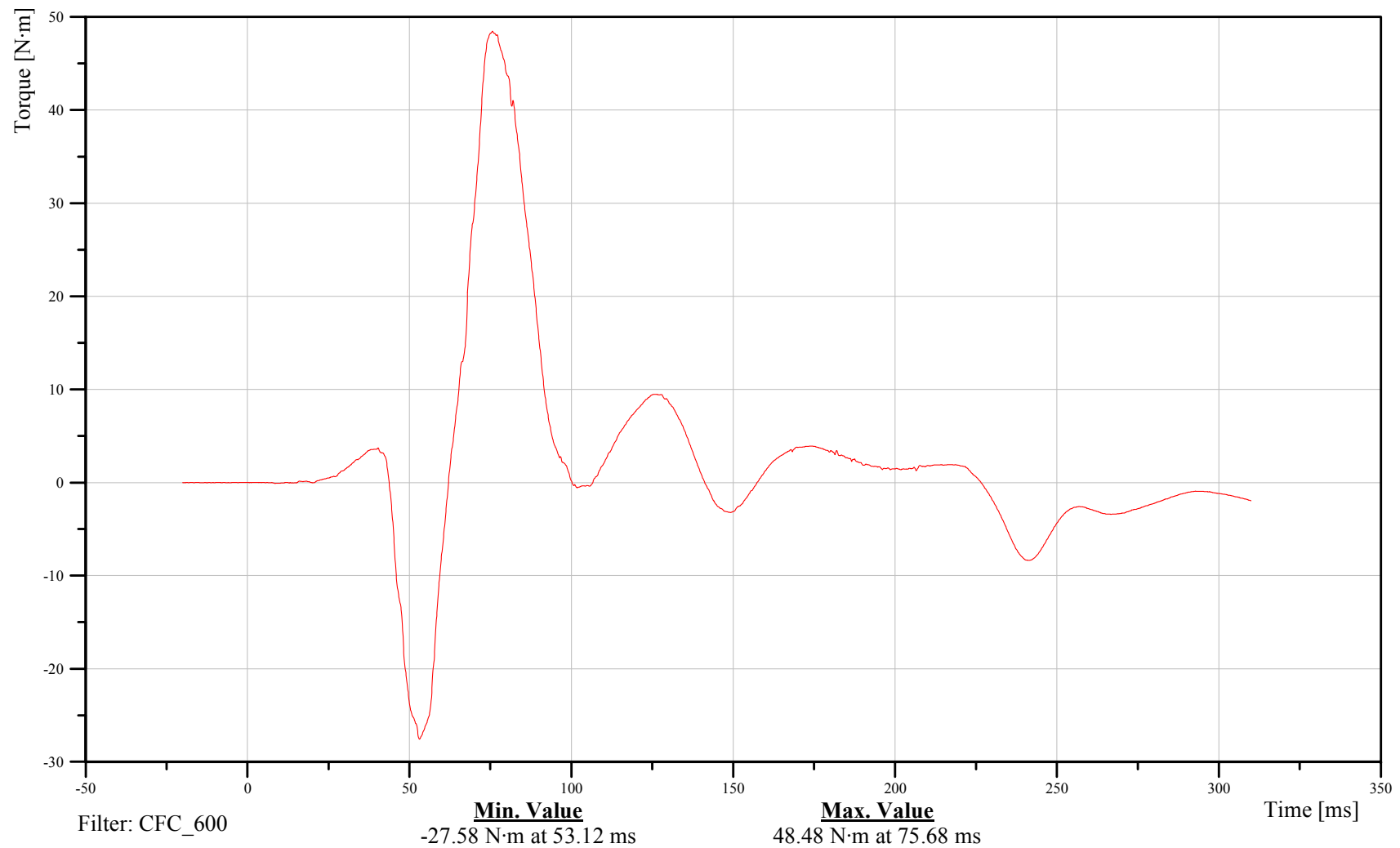
Neck Moment X

Customer: VRTC

14NECKUP00E2MOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

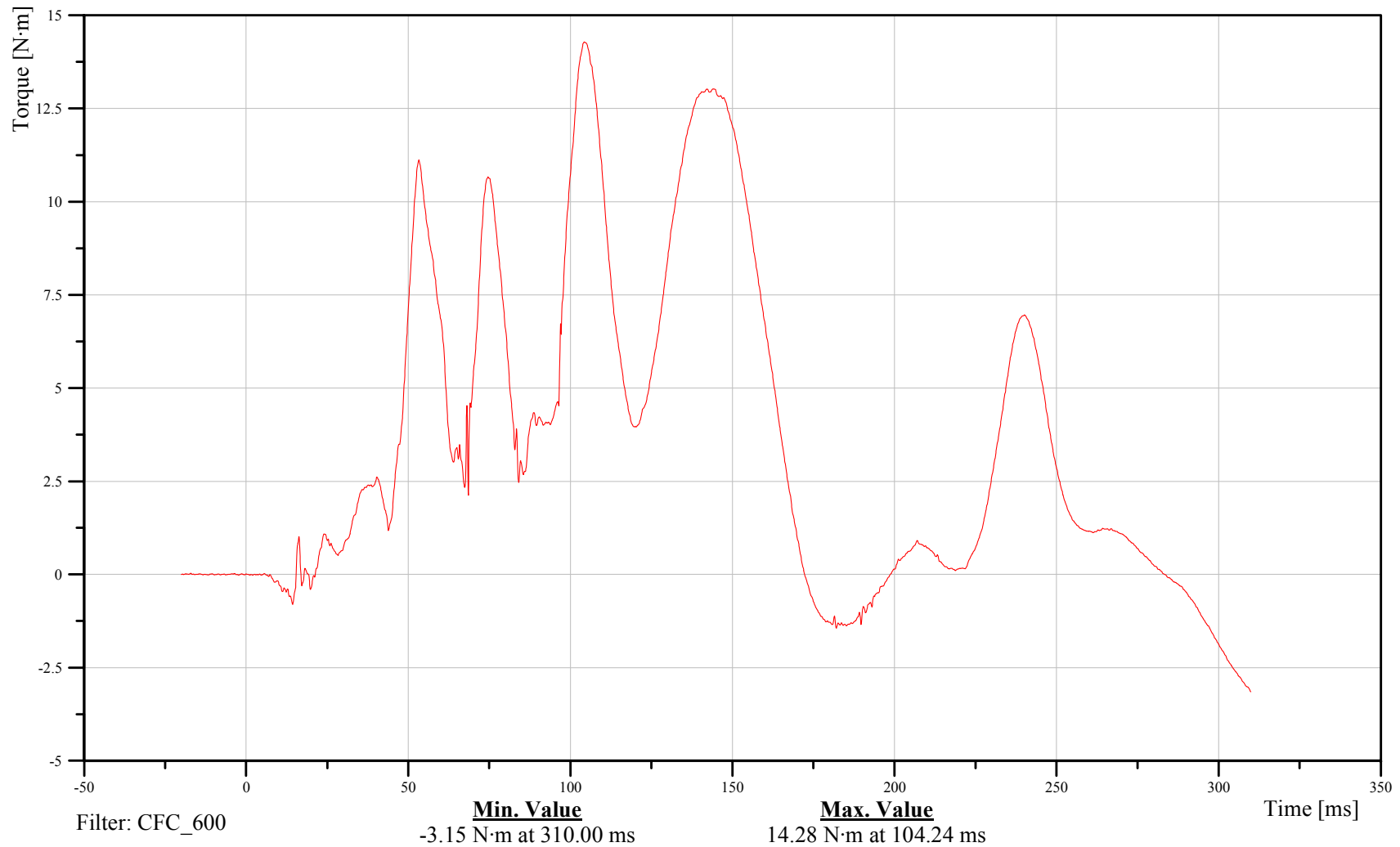
Neck Moment Y

Customer: VRTC

14NECKUP00E2MOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

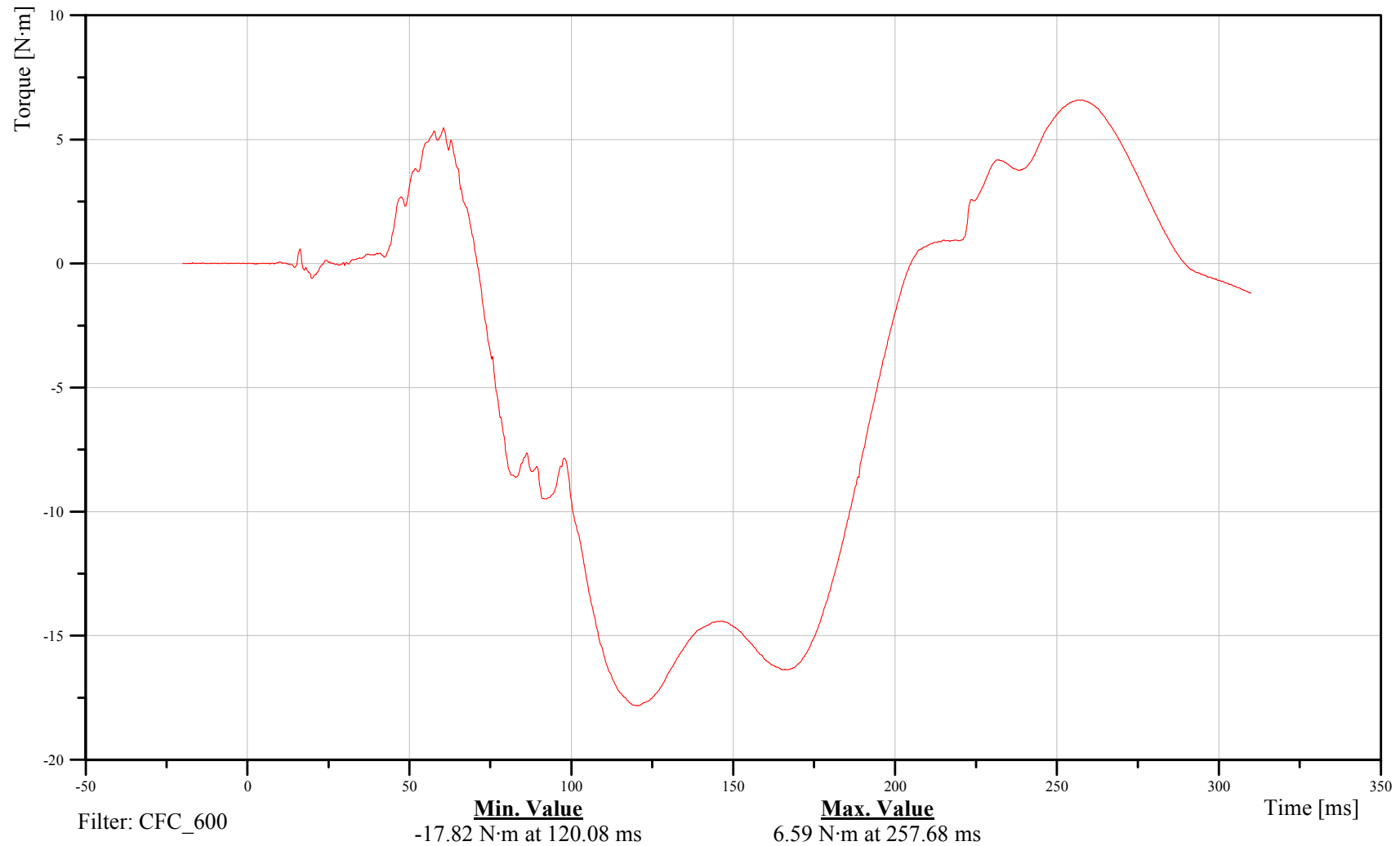
Neck Moment Z

Customer: VRTC

14NECKUP00E2MOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

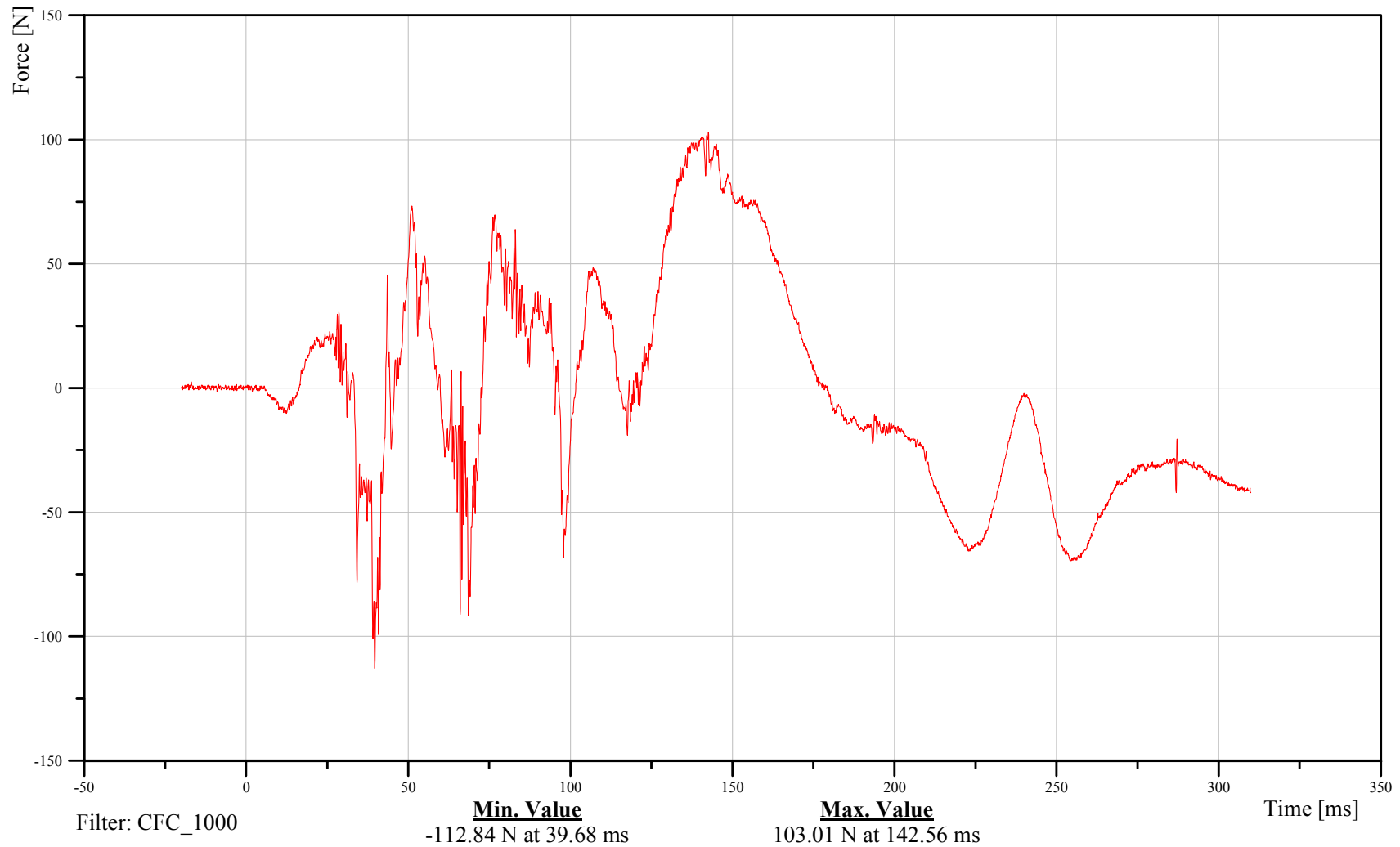
Neck Lower Force X

Customer: VRTC

14NECKLO00E2FOXA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Neck Lower Force Y

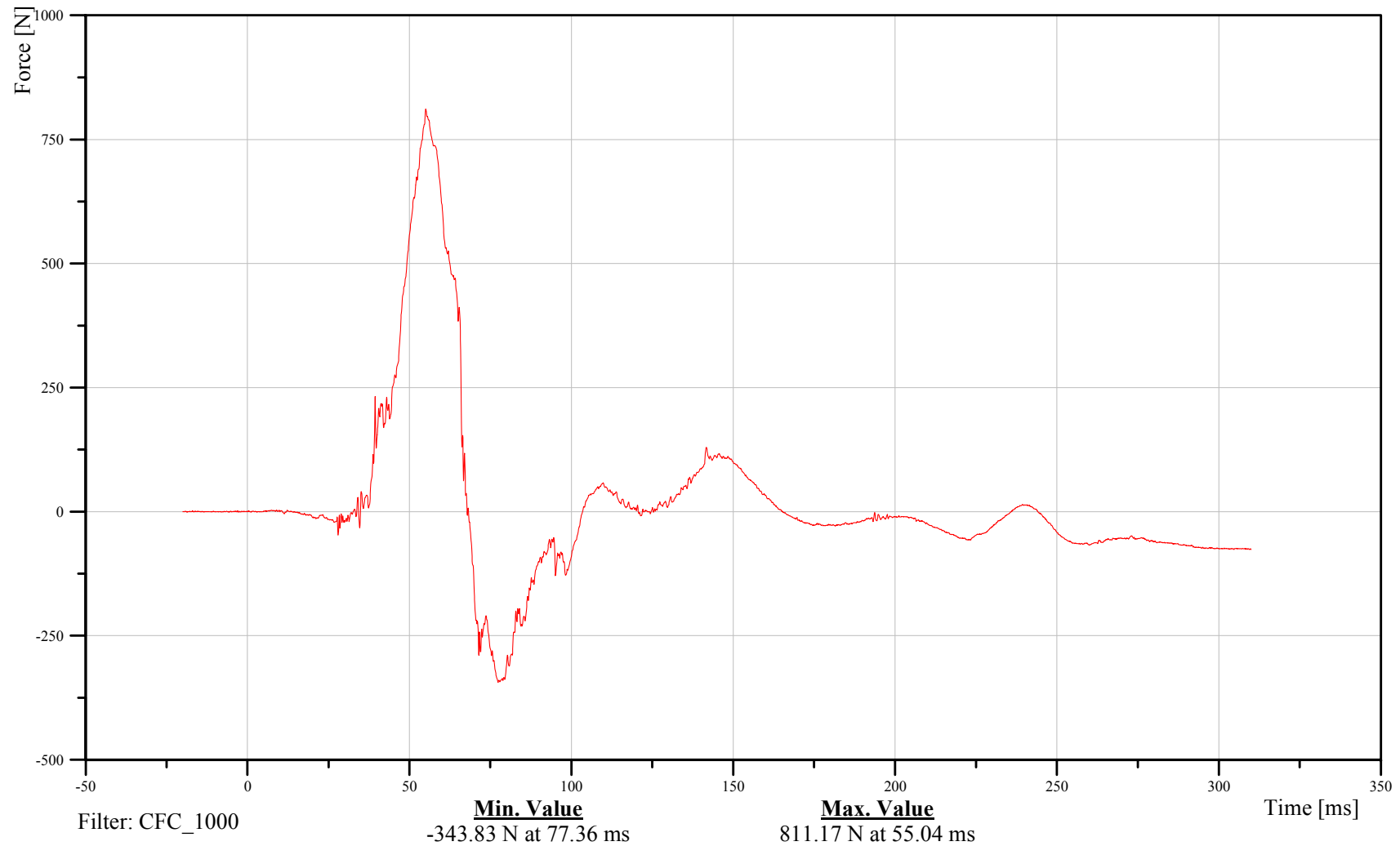
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14NECKLO00E2FOYA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

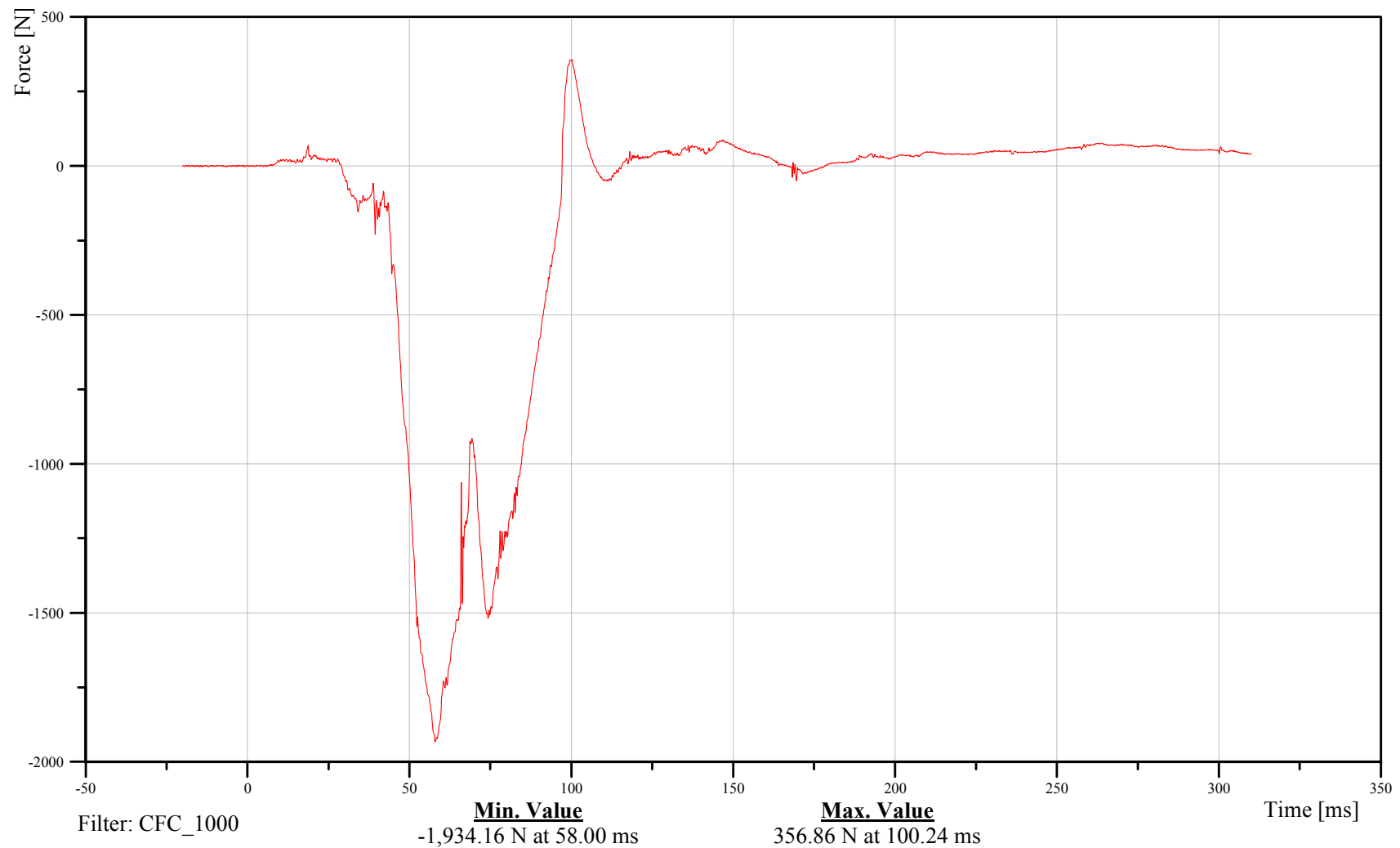
Neck Lower Force Z

Customer: VRTC

14NECKLO00E2FOZA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

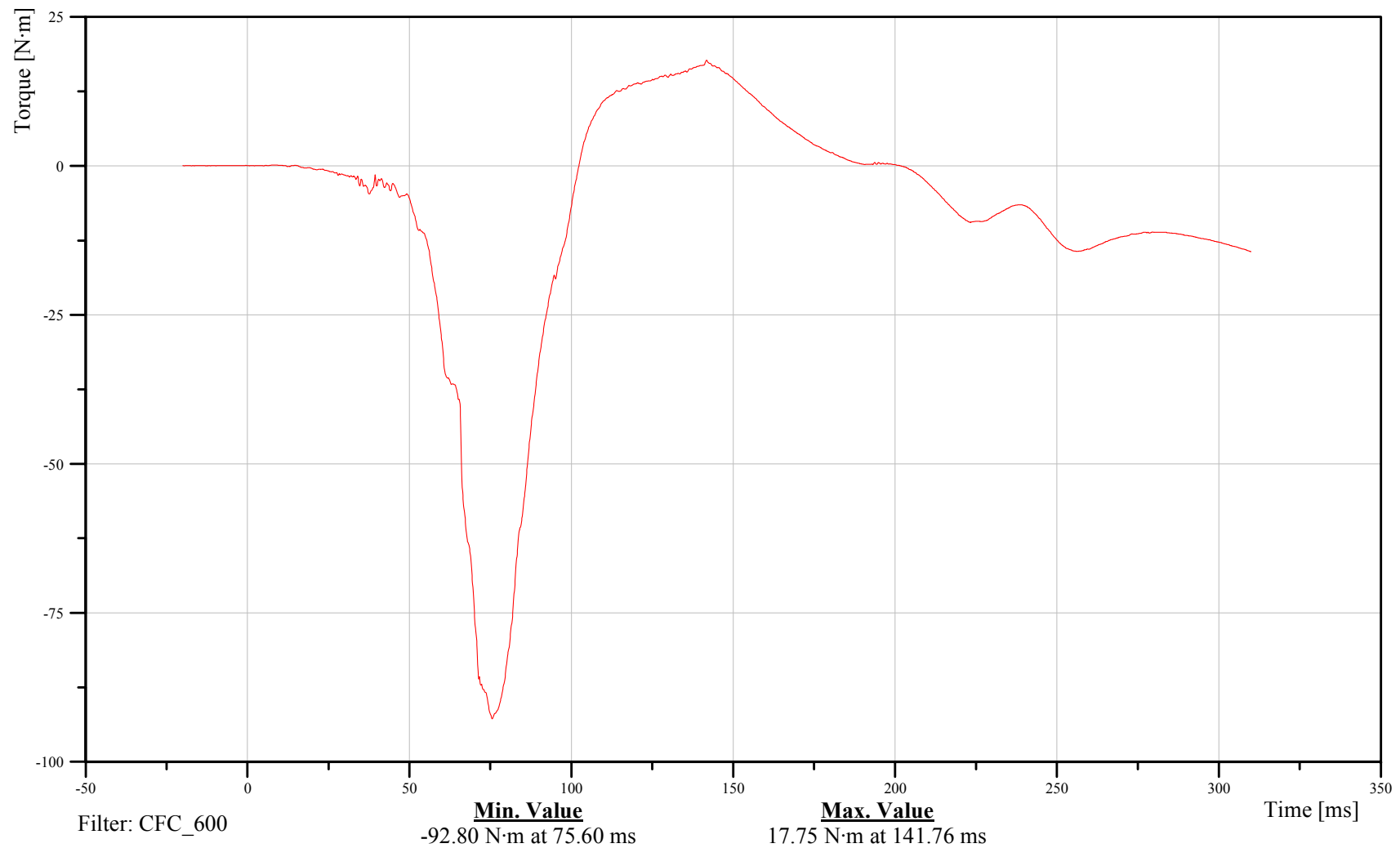
Neck Lower Moment X

Customer: VRTC

14NECKLO00E2MOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

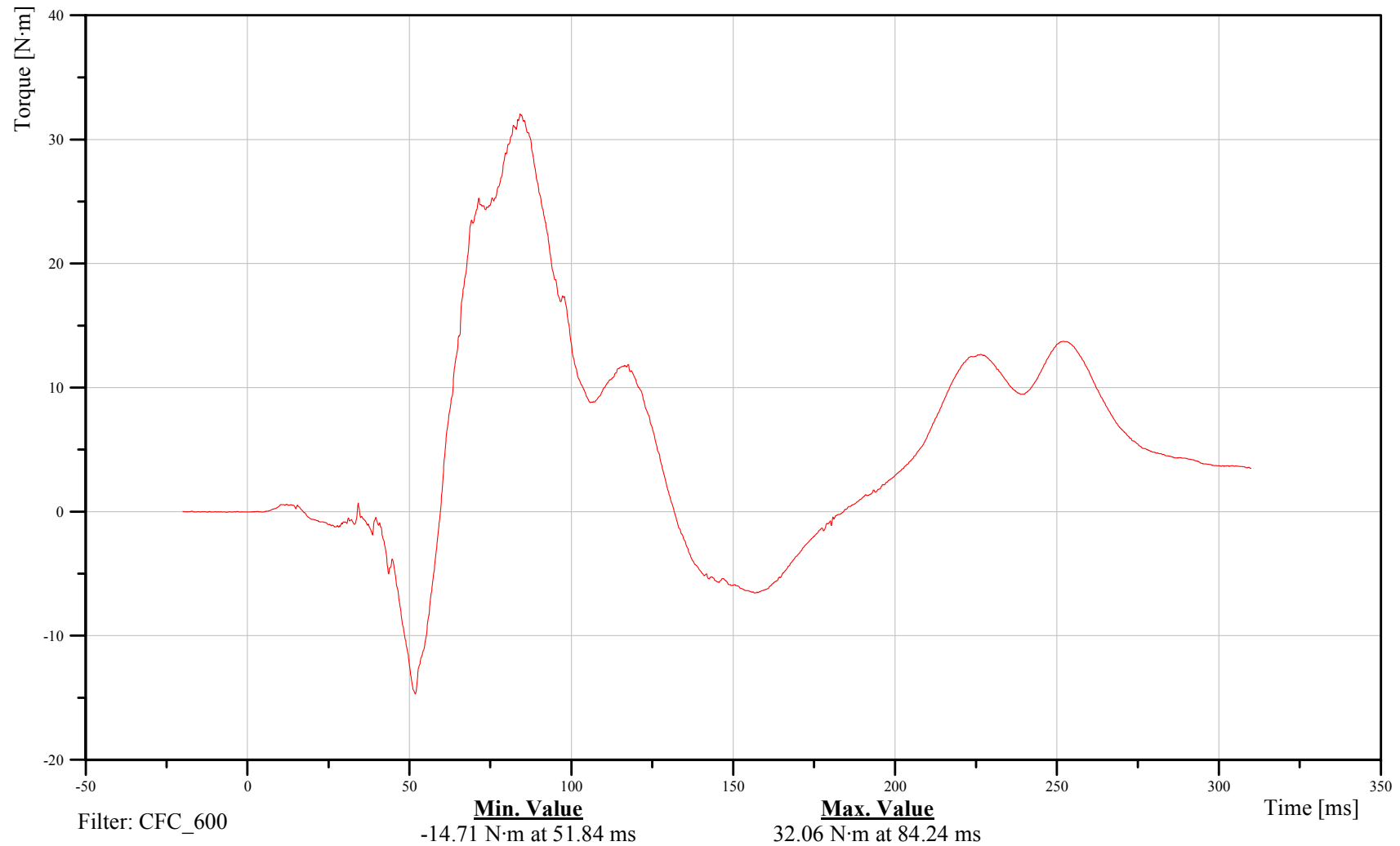
Neck Lower Moment Y

Customer: VRTC

14NECKLO00E2MOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

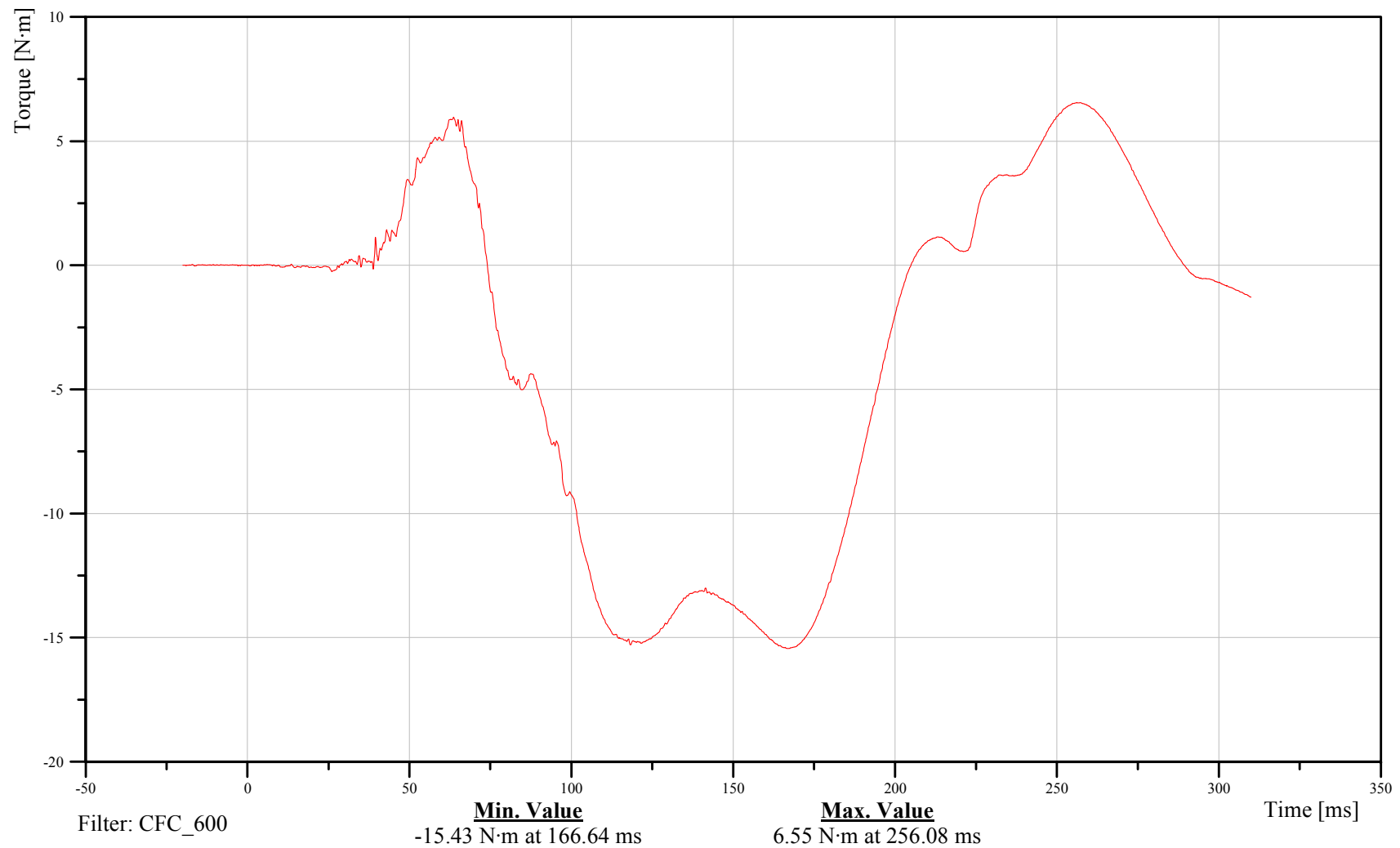
Neck Lower Moment Z

Customer: VRTC

14NECKLO00E2MOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

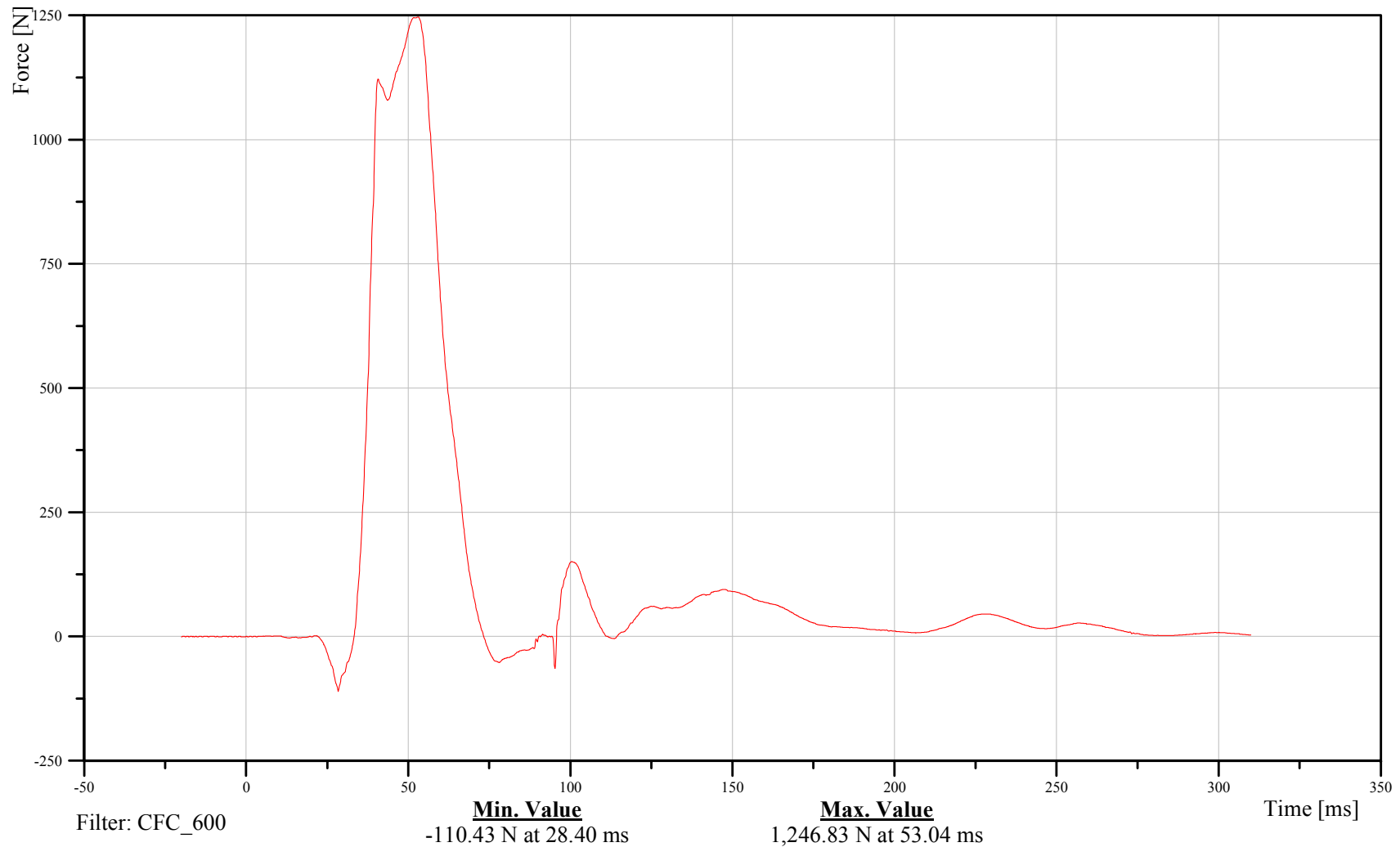
Shoulder Left Force X

Customer: VRTC

14SHLDLE00E2FOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

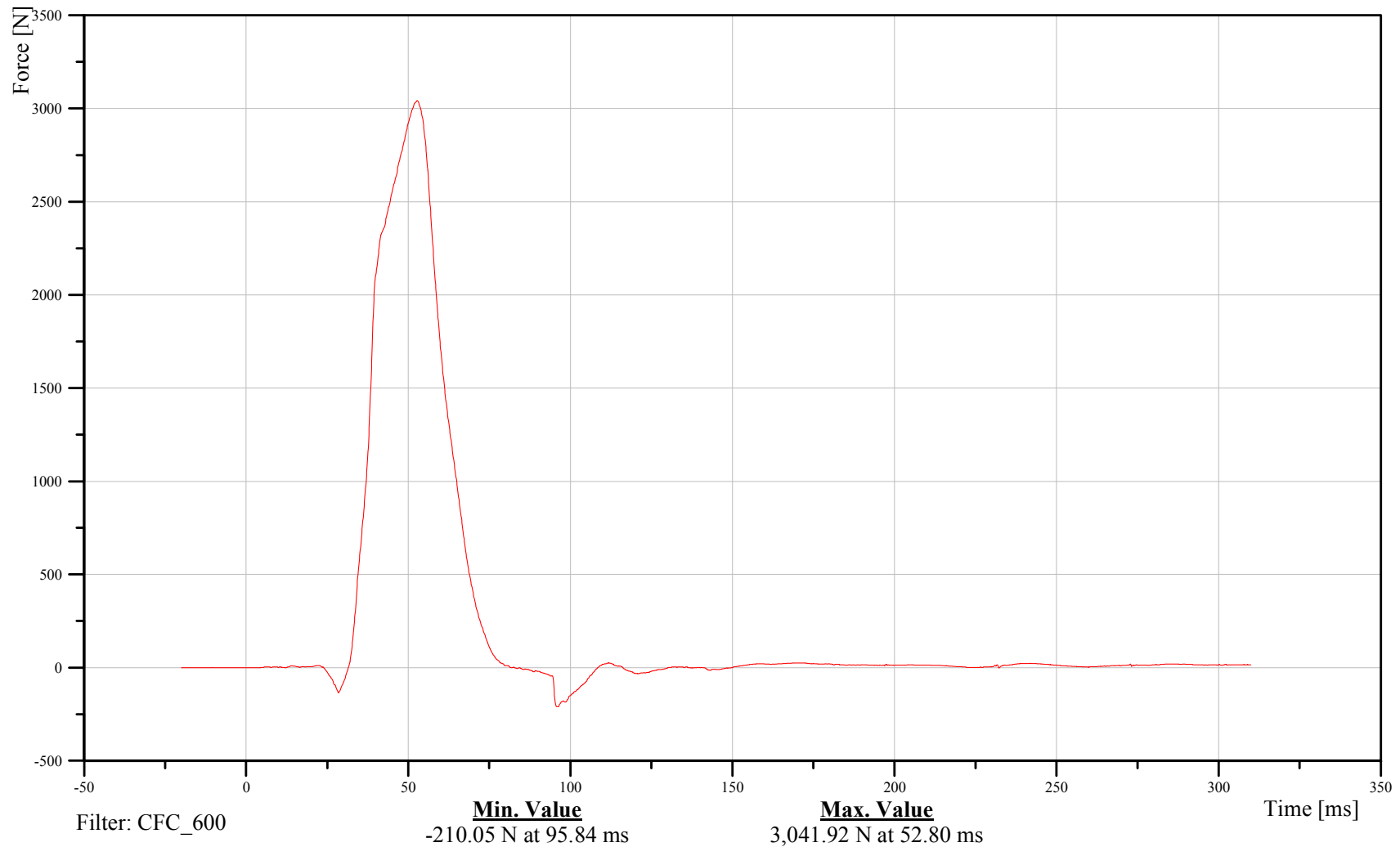
Shoulder Left Force Y

Customer: VRTC

14SHLDLE00E2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

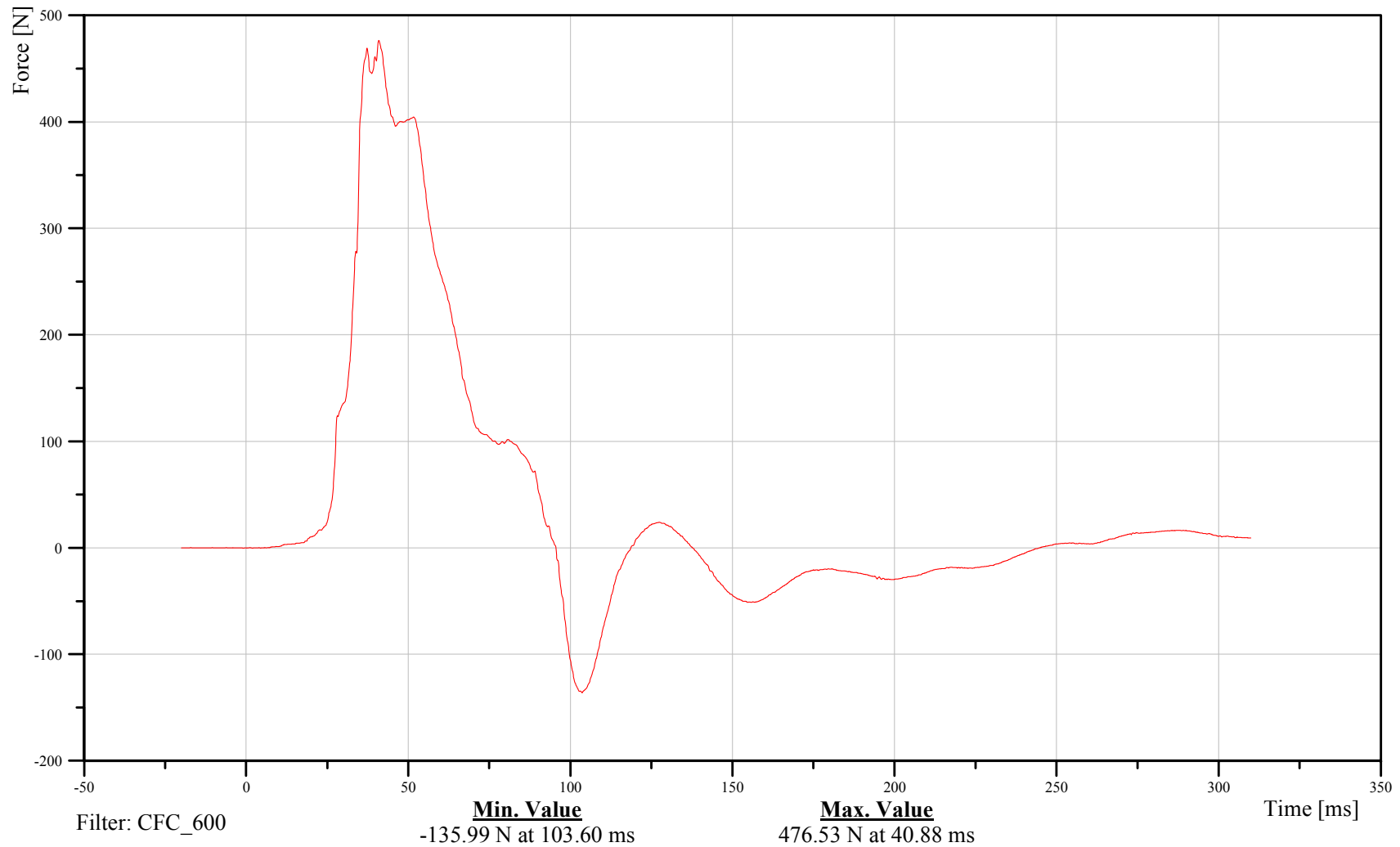
Shoulder Left Force Z

Customer: VRTC

14SHLDLE00E2FOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

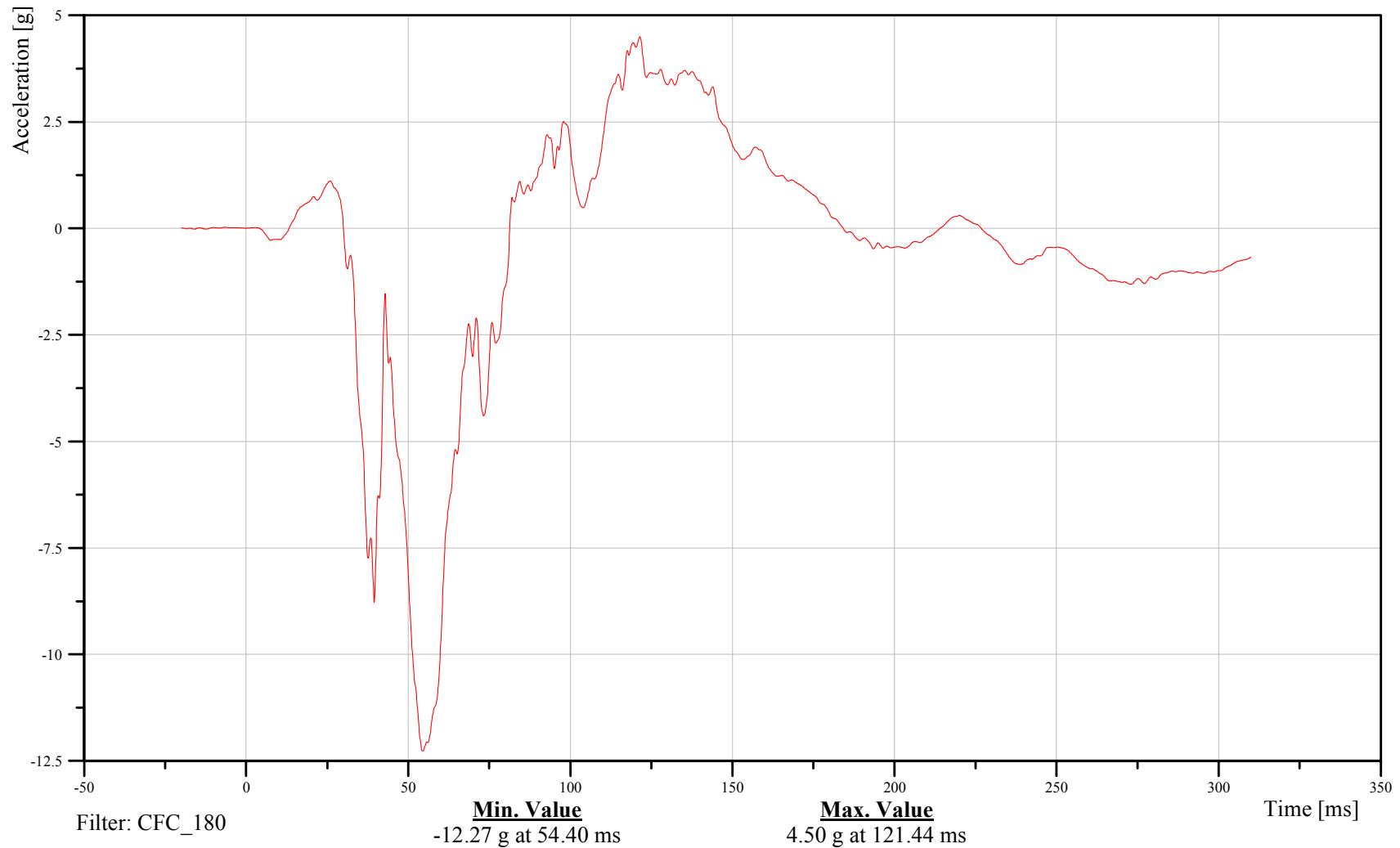
Upper Spine X

Customer: VRTC

14SPIN0100E2ACXC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Upper Spine Y

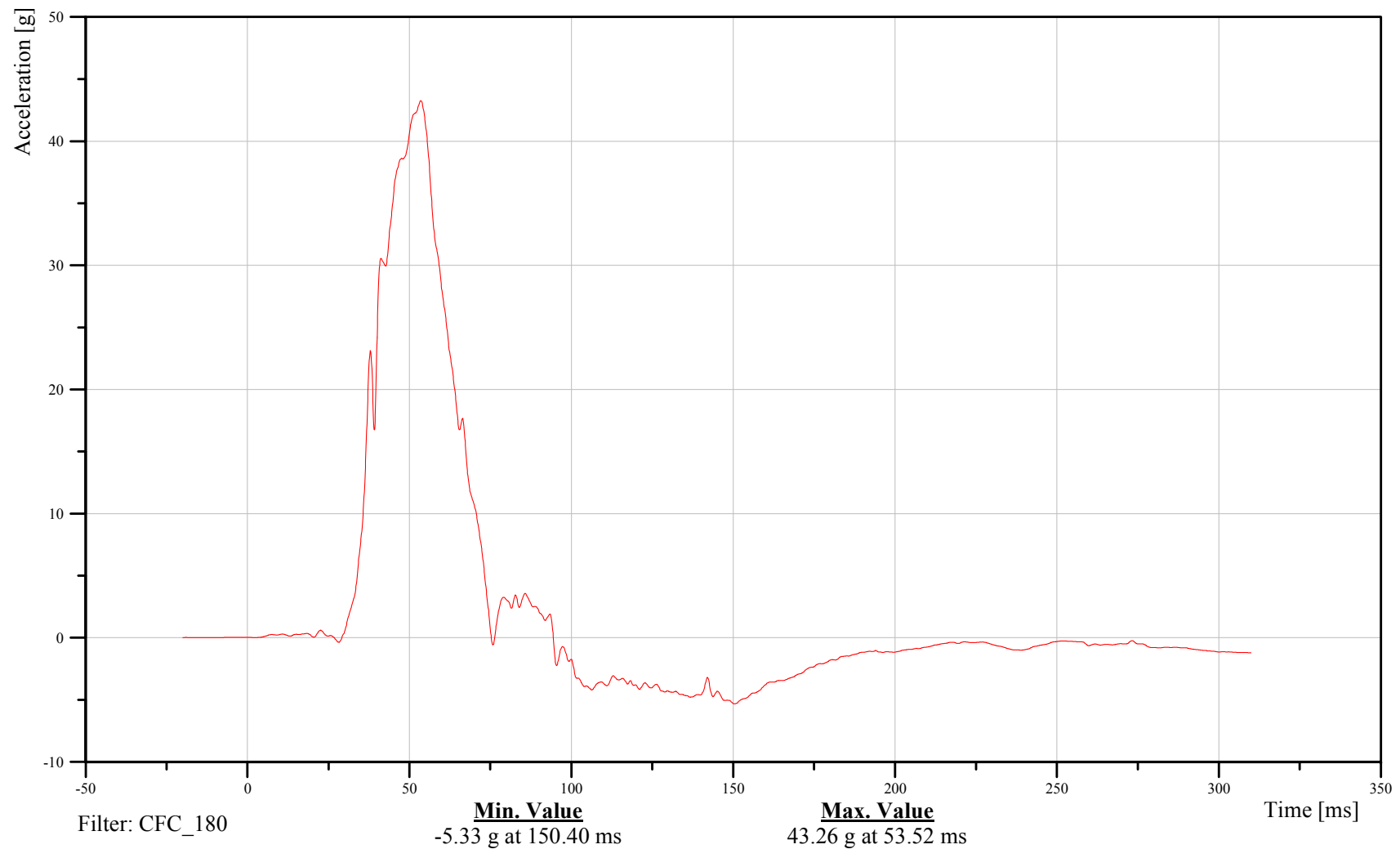
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14SPIN0100E2ACYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Upper Spine Z

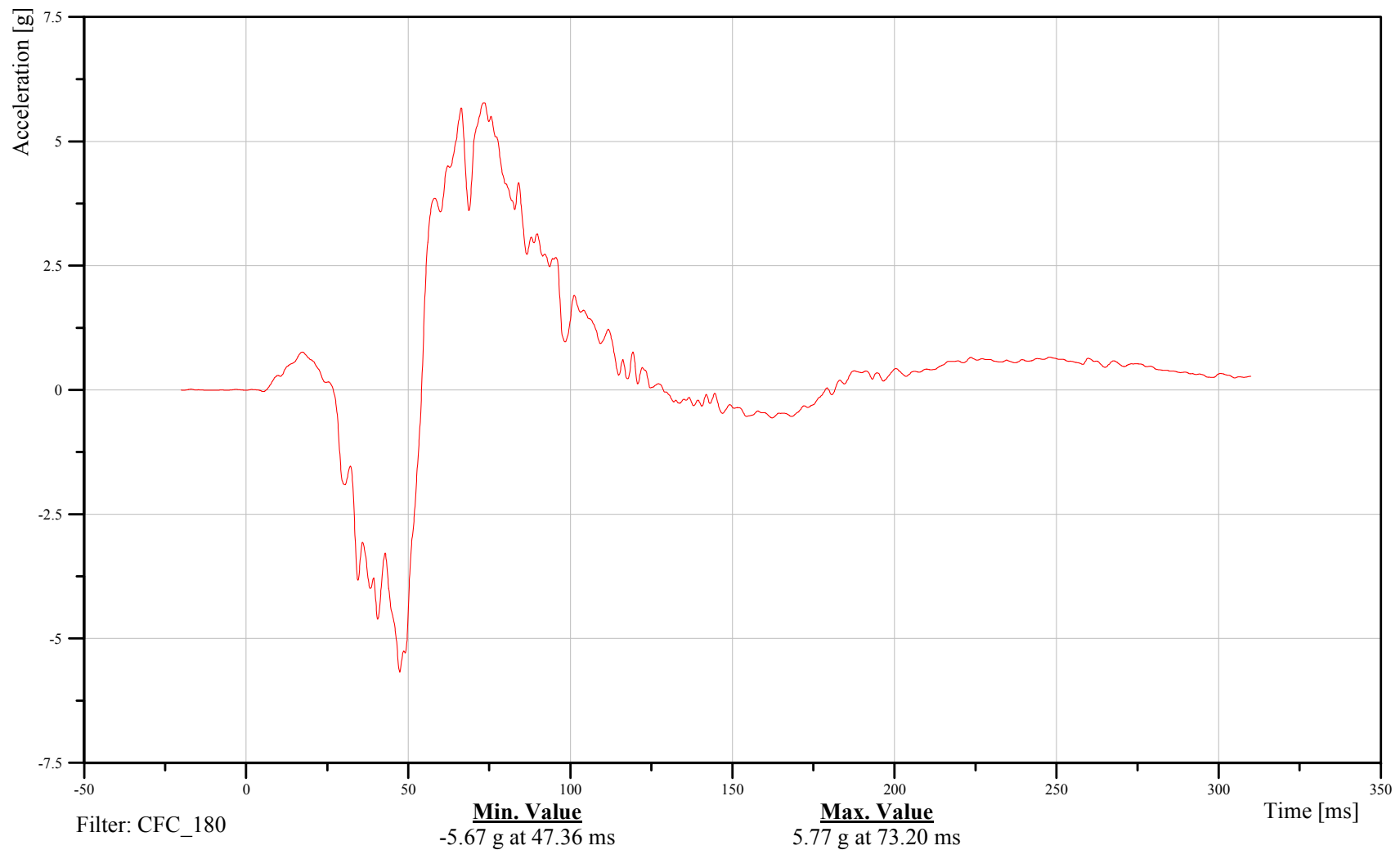
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14SPIN0100E2ACZC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Time: 11:26

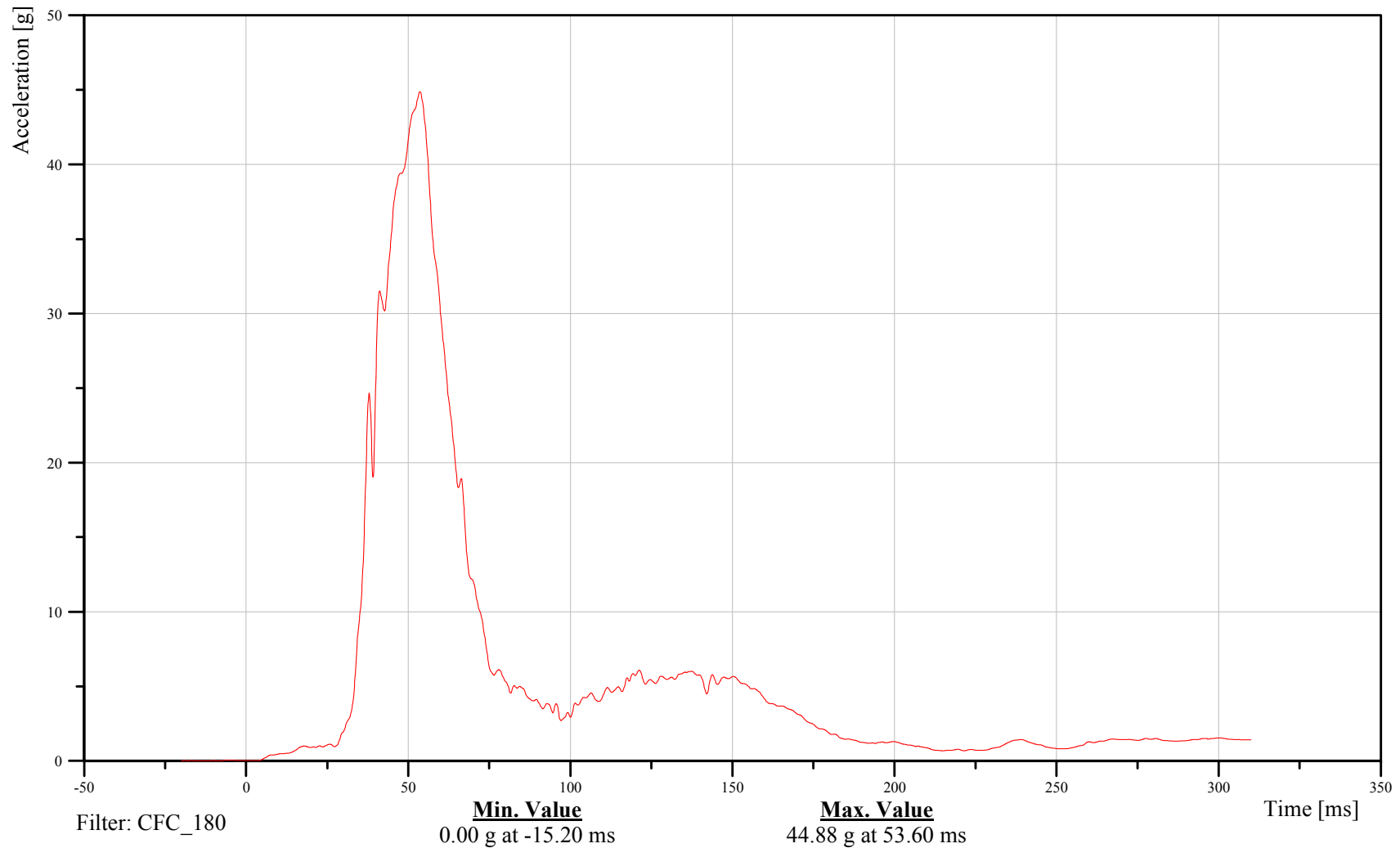
Upper Spine Resultant

Customer: VRTC

14SPIN0100E2ACRC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Torso Back Plate Force X

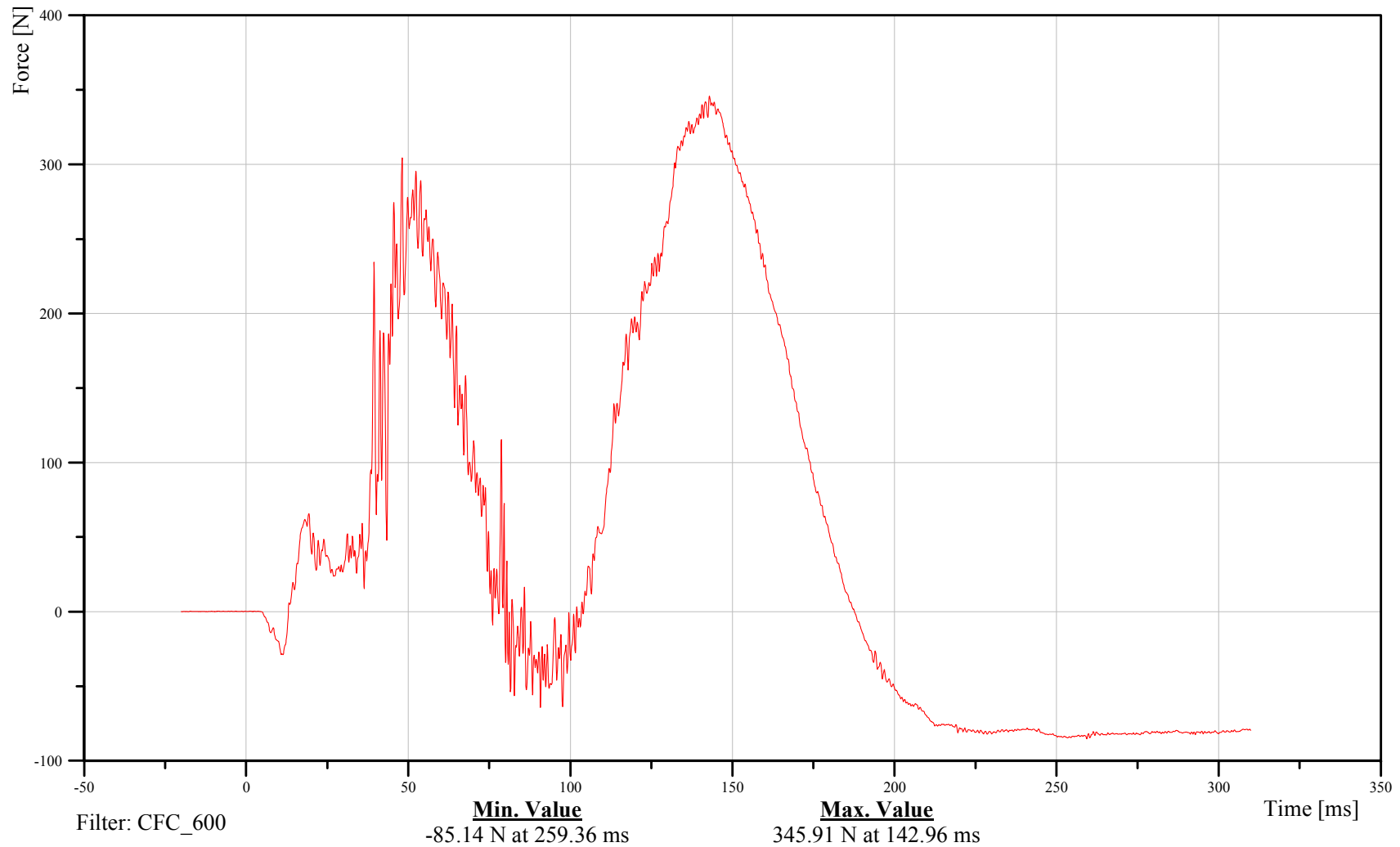
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14BAPL0000E2FOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Torso Back Plate Force Y

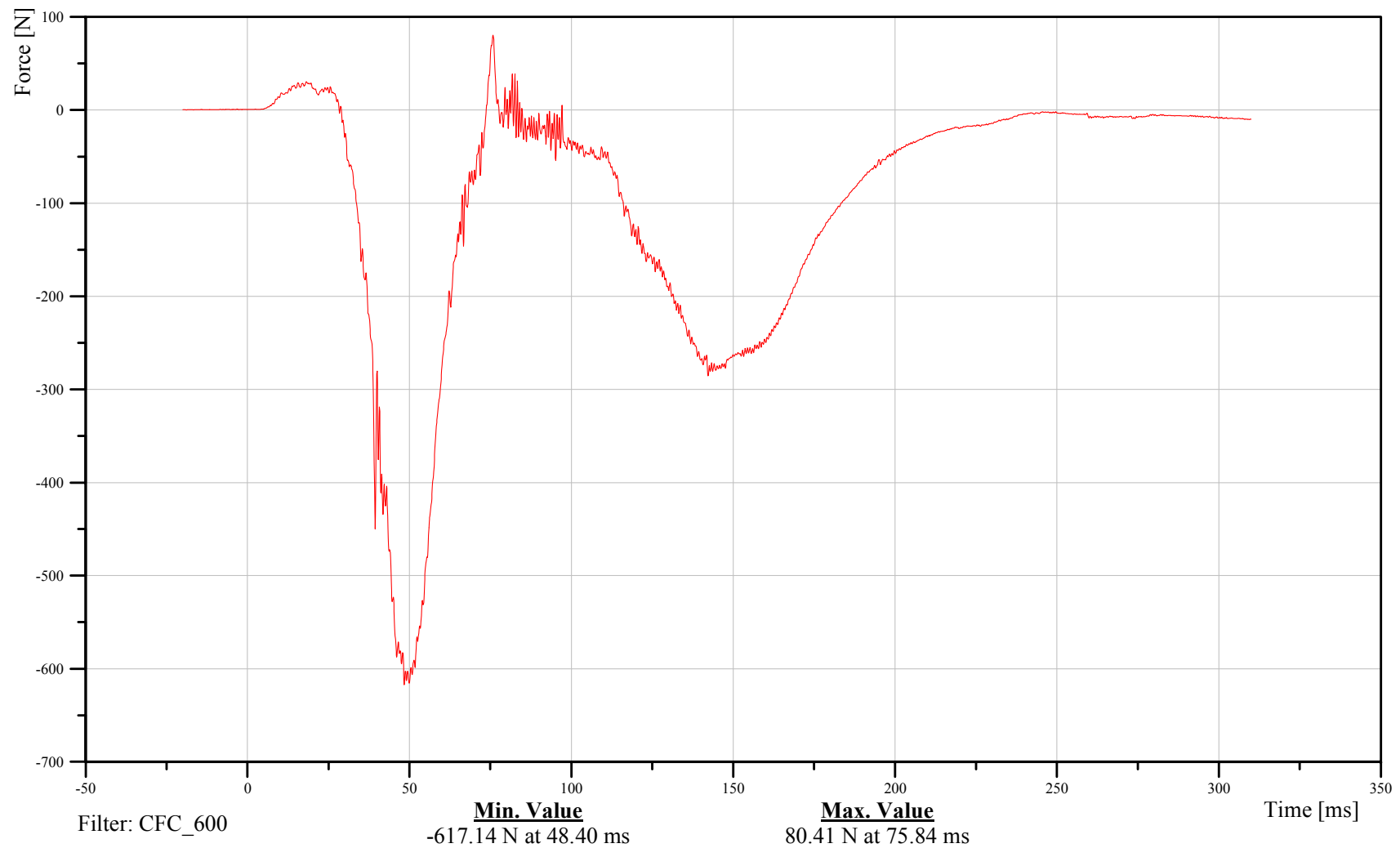
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14BAPL0000E2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

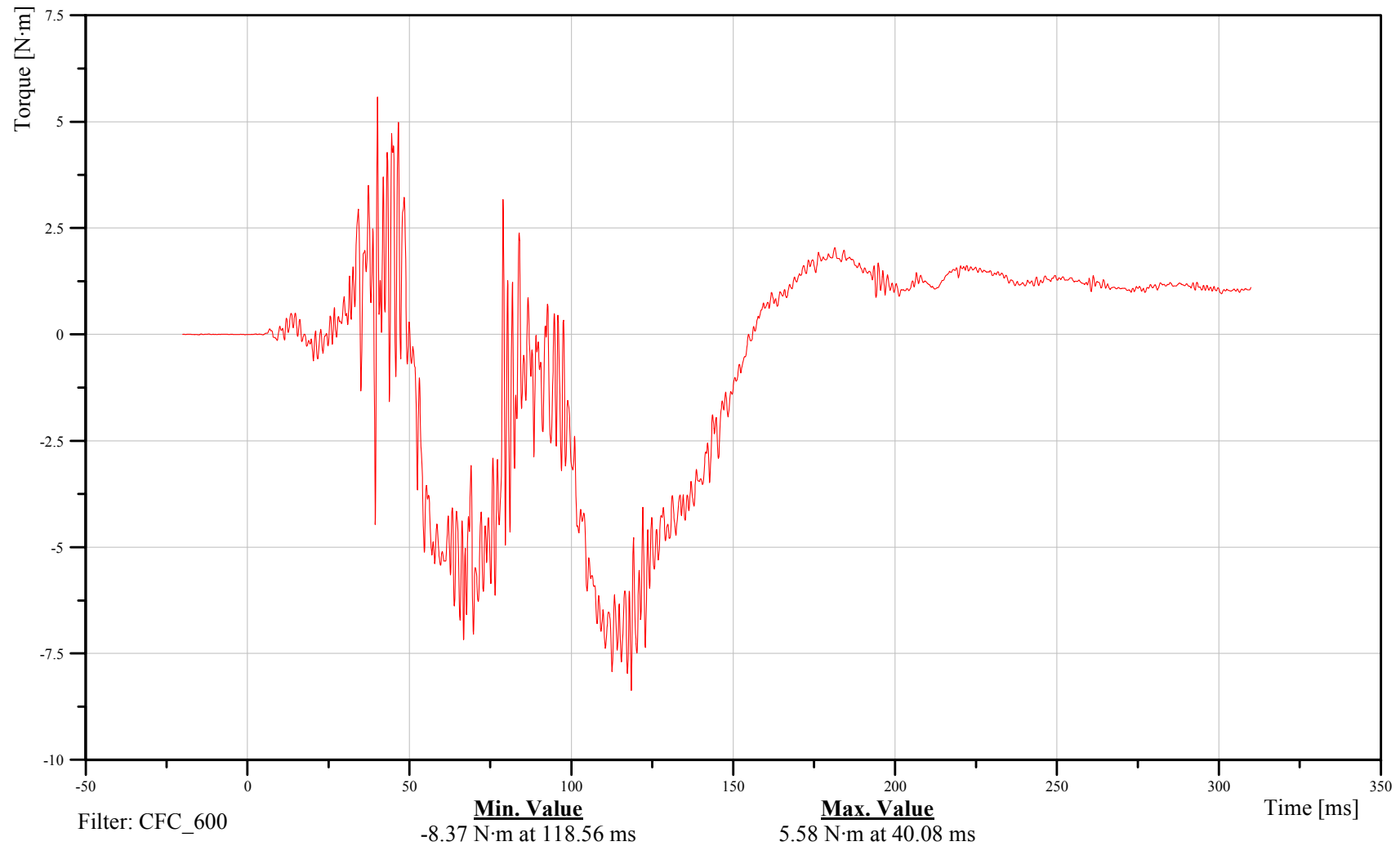
Torso Back Plate Moment Y

Customer: VRTC

14BAPL0000E2MOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Torso Back Plate Moment Z

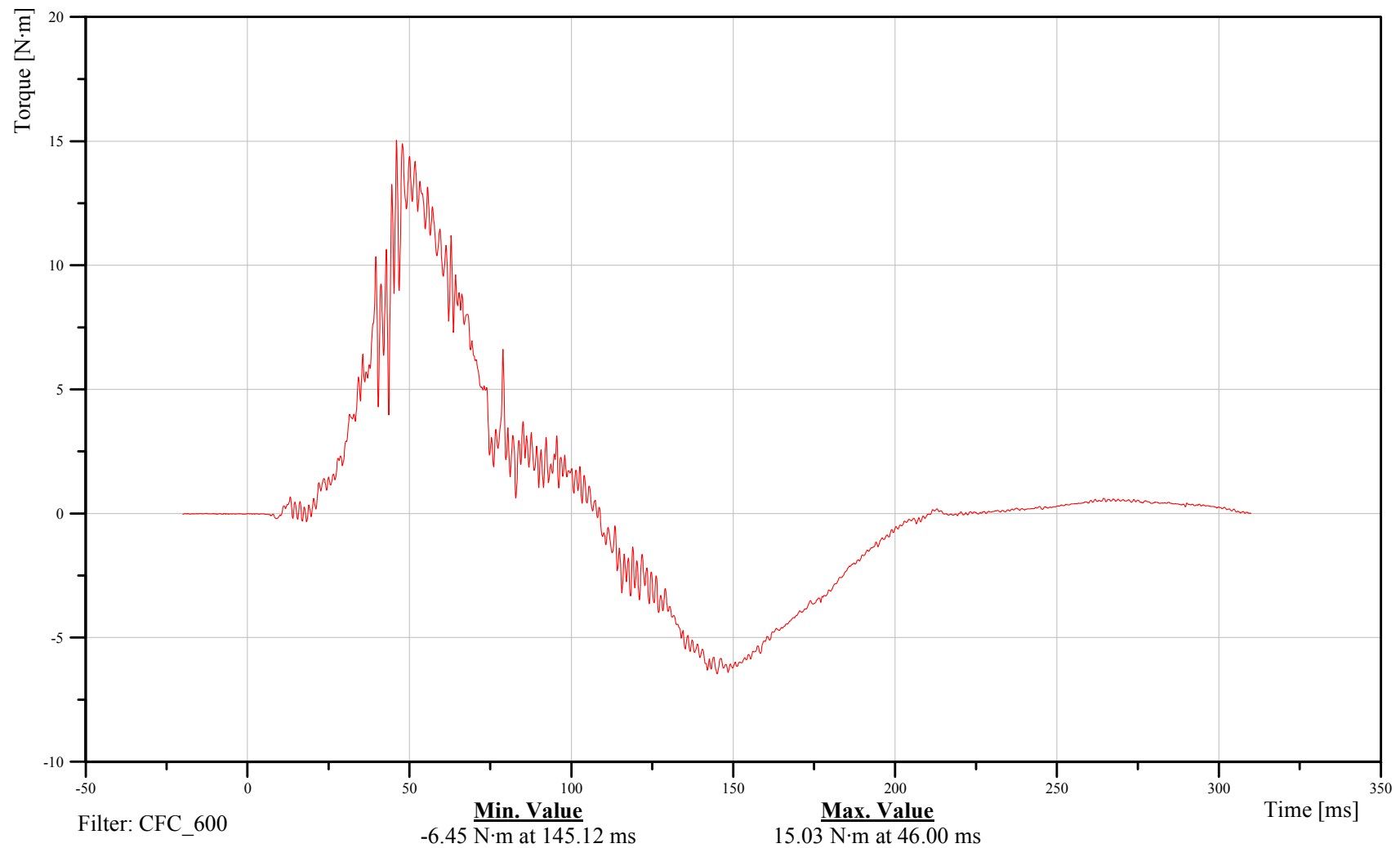
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14BAPL0000E2MOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Upper Rib Accel Y

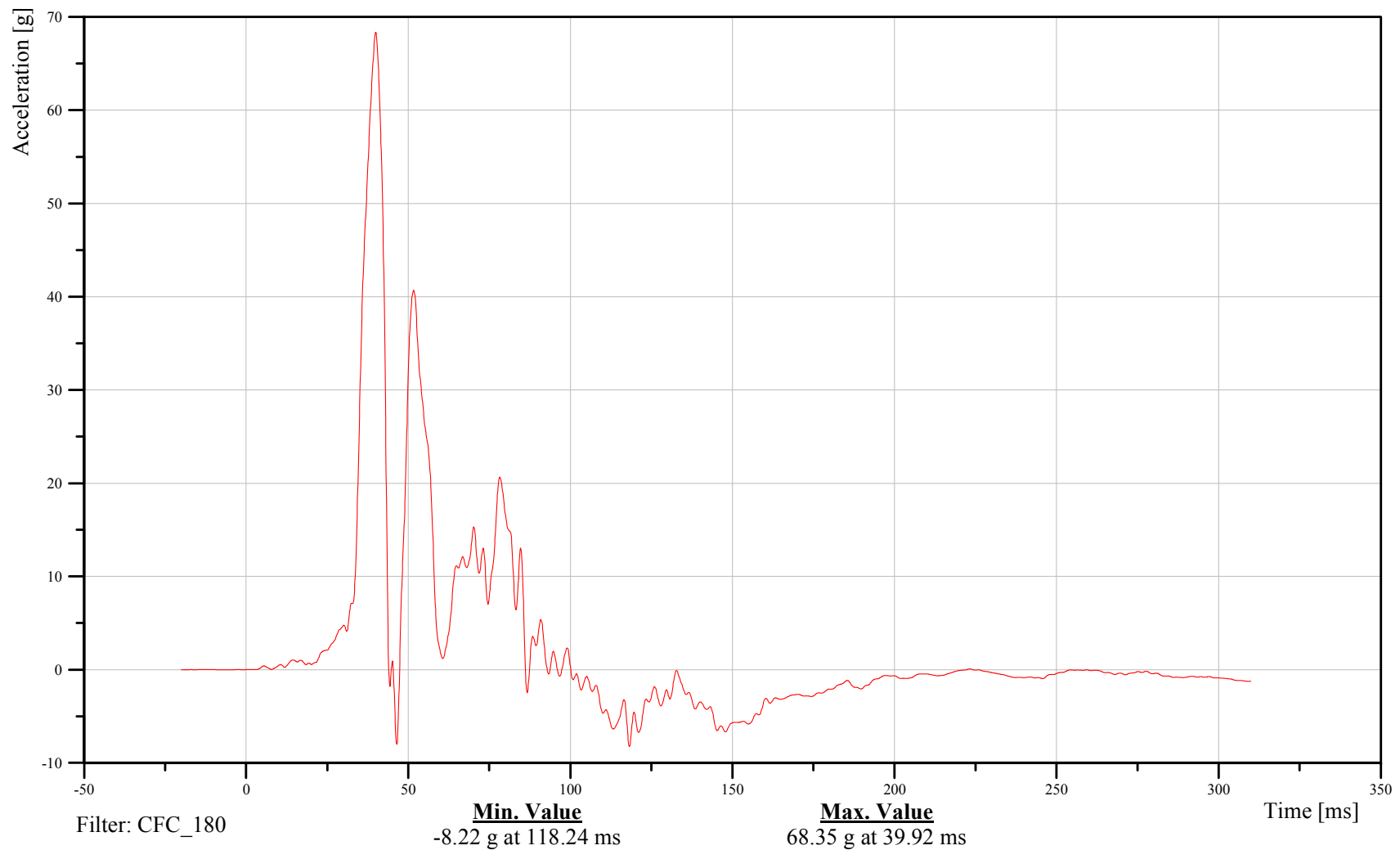
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14RIBSLU00E2ACYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Mid Rib Accel Y

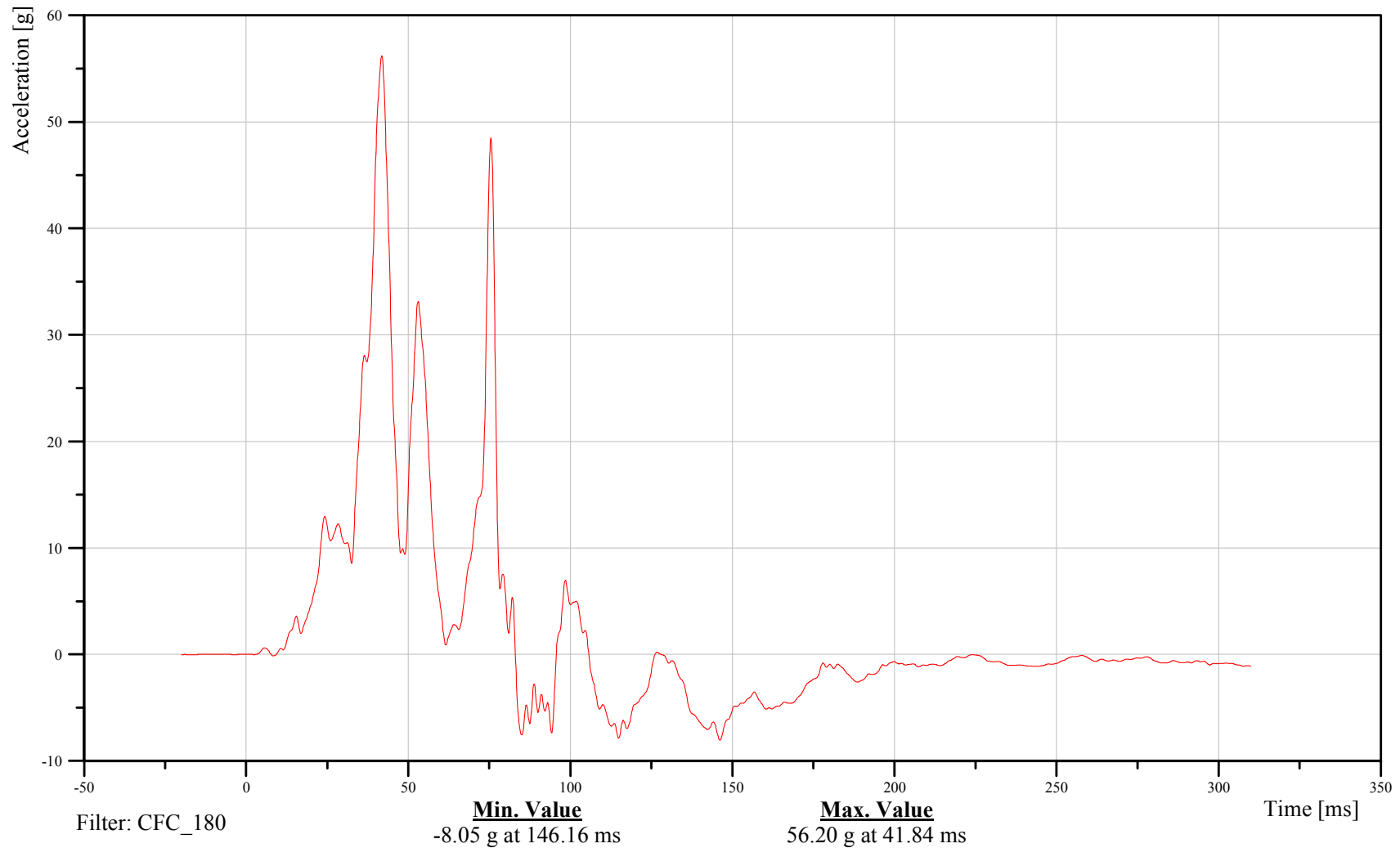
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14RIBSLM00E2ACYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Lower Rib Accel Y

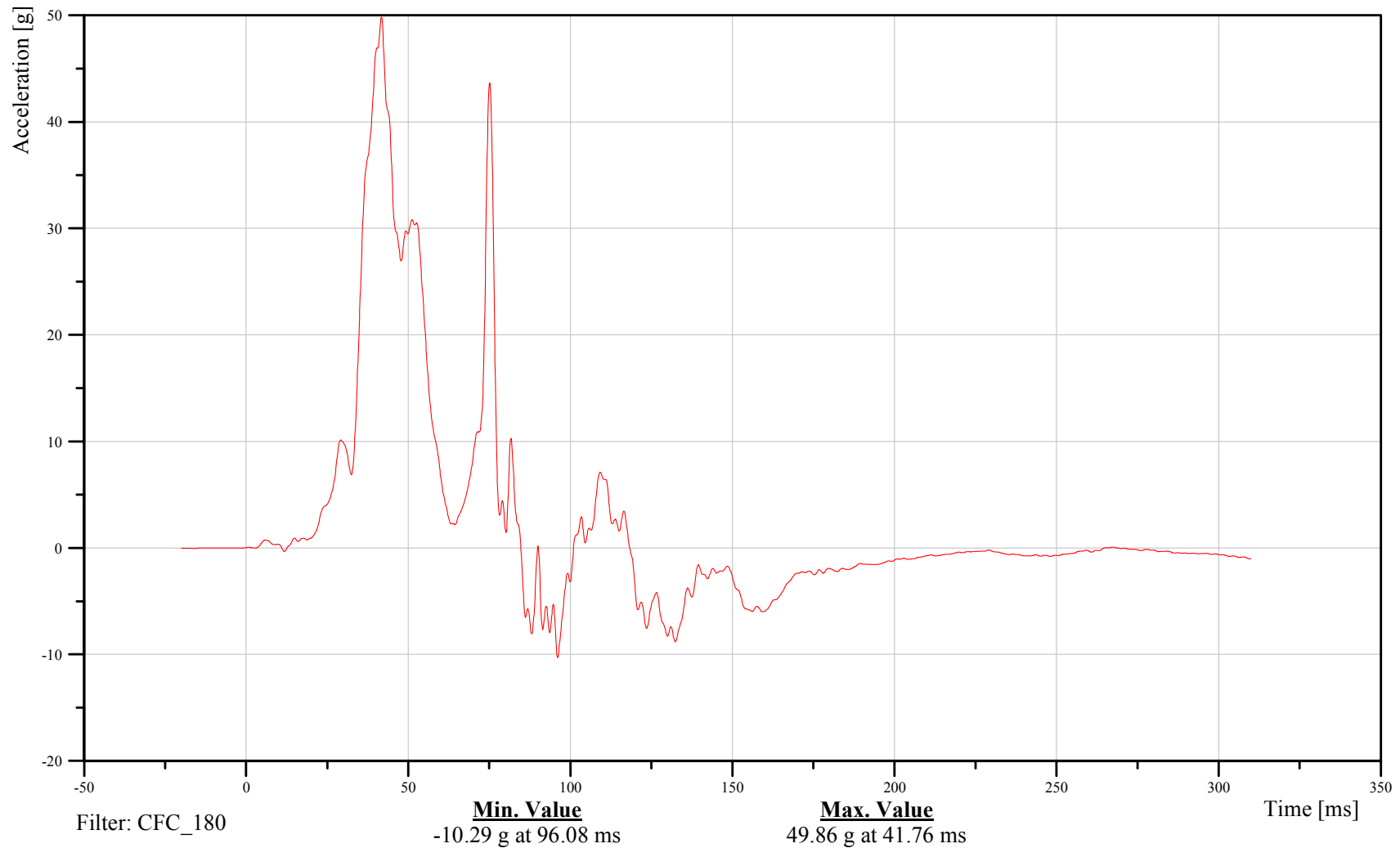
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14RIBSLL00E2ACYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

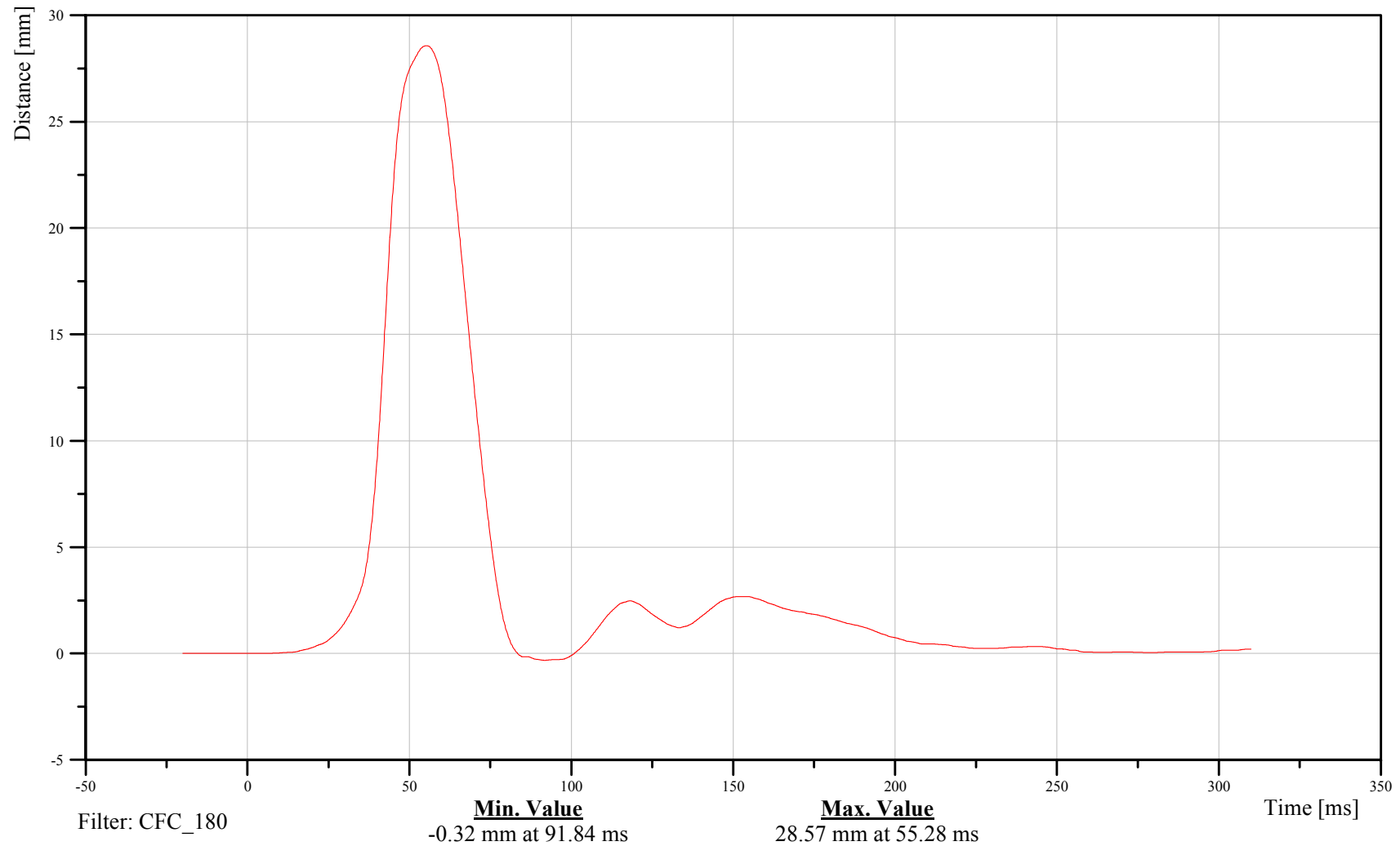
Upper Rib Disp. Y

Customer: VRTC

14RIBSLU00E2DSYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Mid Rib Disp. Y

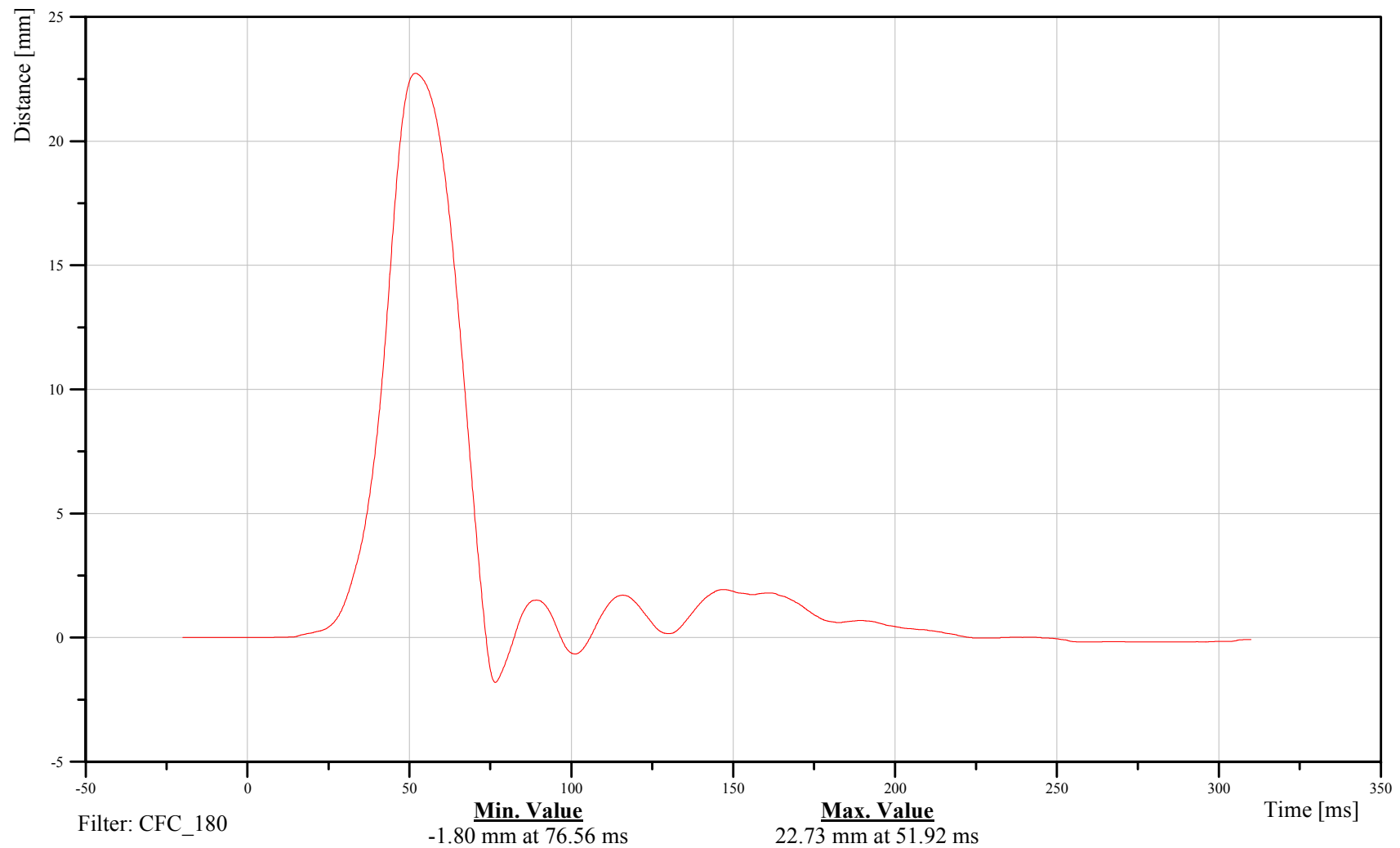
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14RIBSLM00E2DSYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Lower Rib Disp. Y

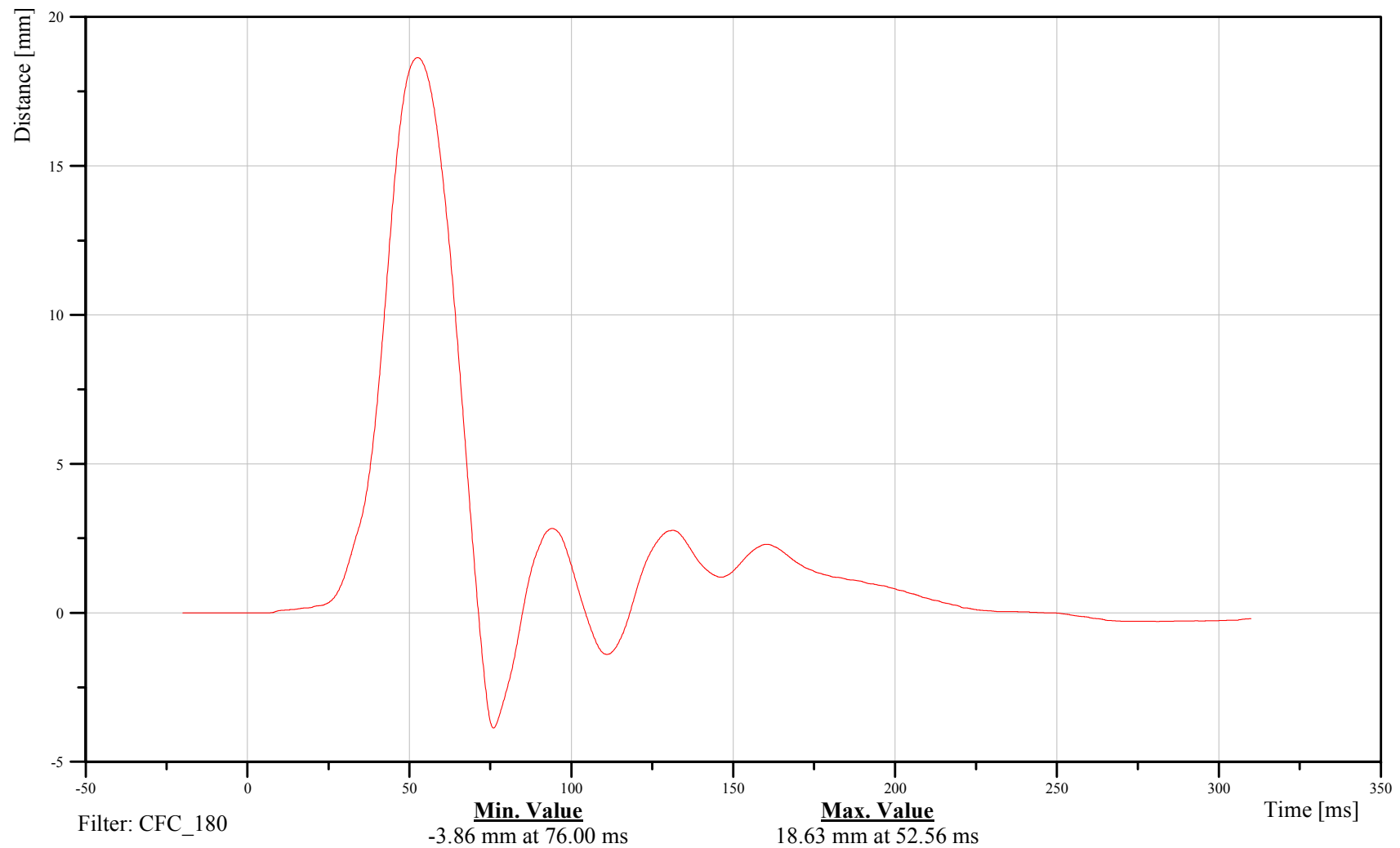
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14RIBSLL00E2DSYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Lower Spine X

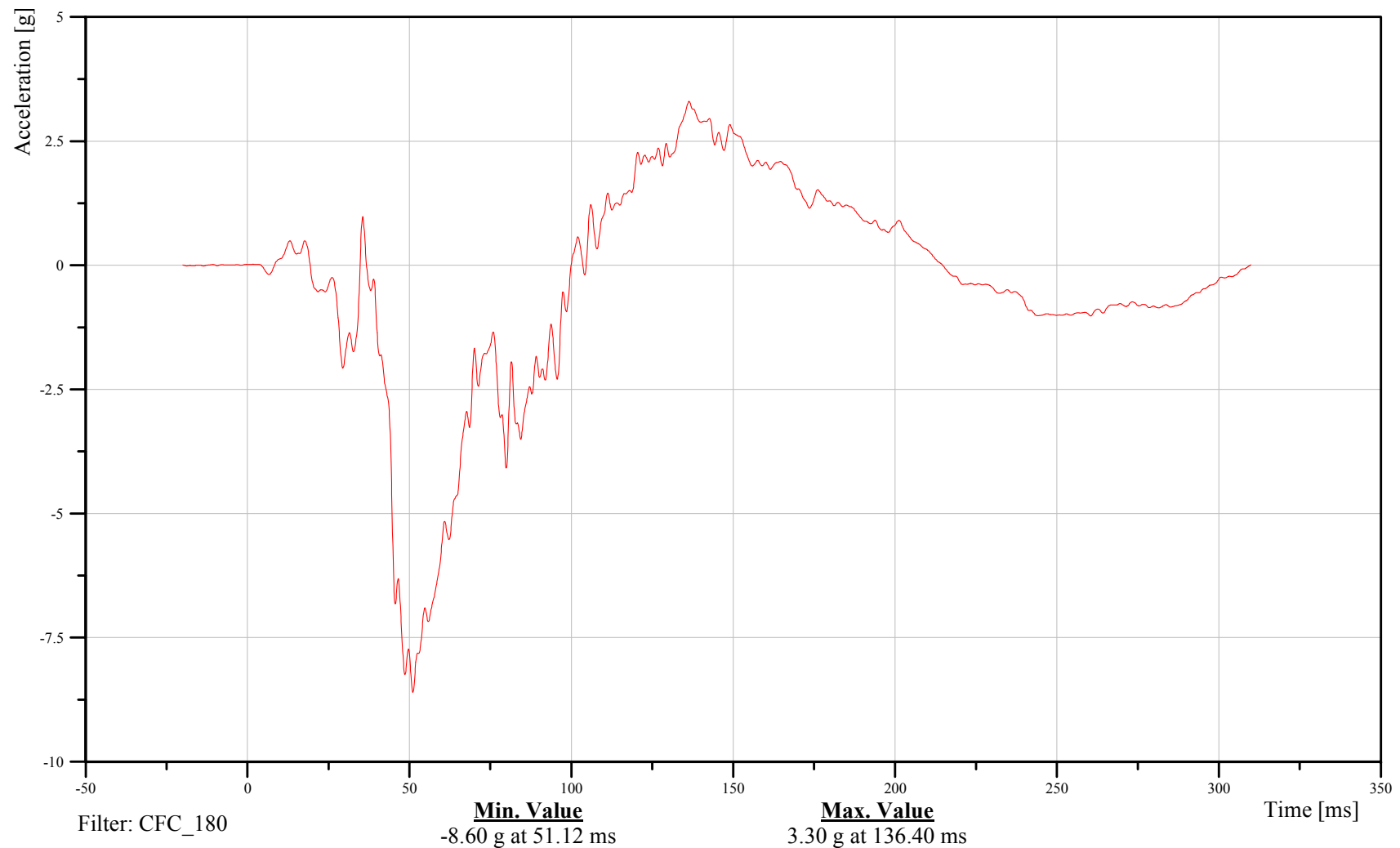
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14SPIN1200E2ACXC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Lower Spine Y

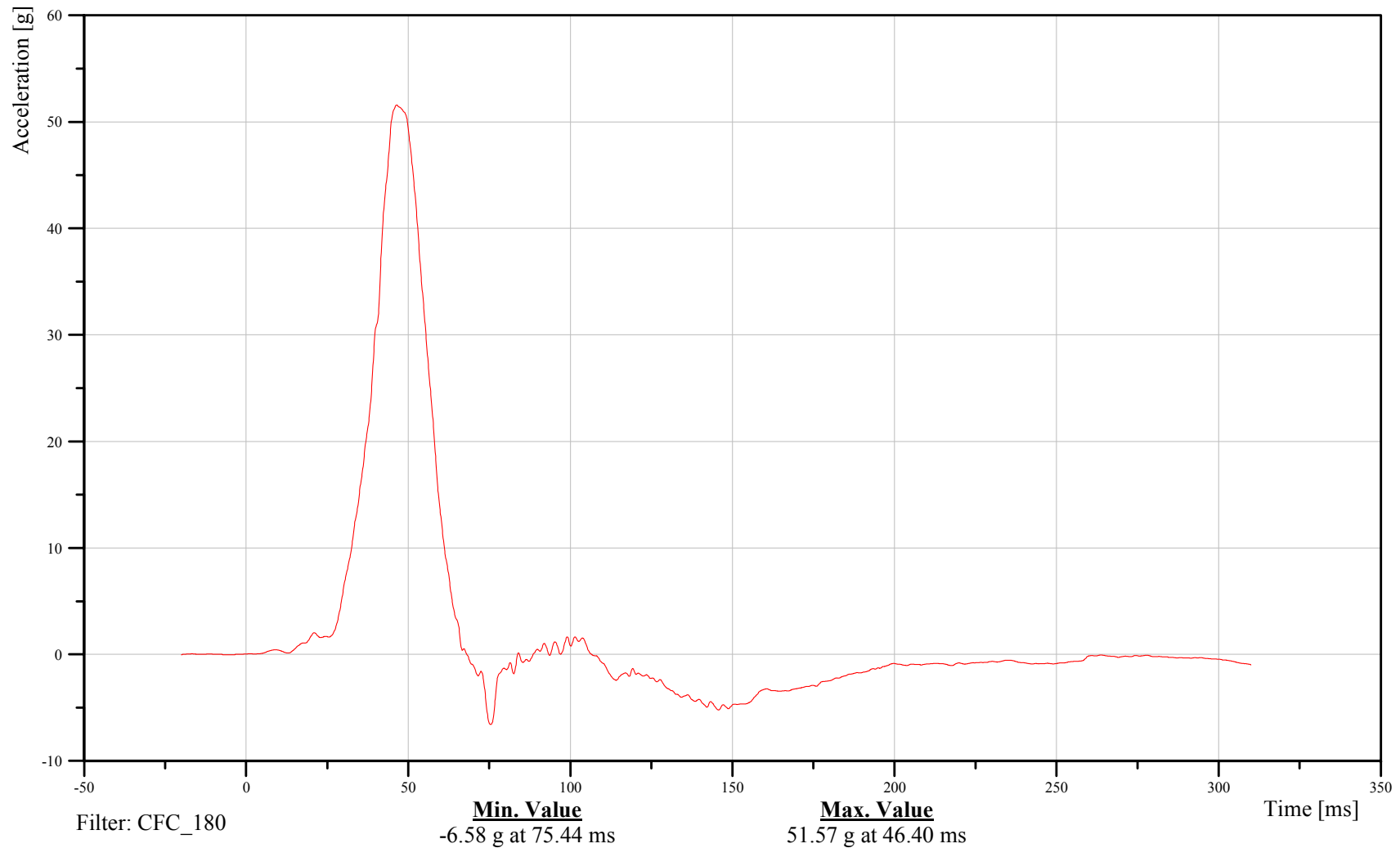
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14SPIN1200E2ACYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Lower Spine Z

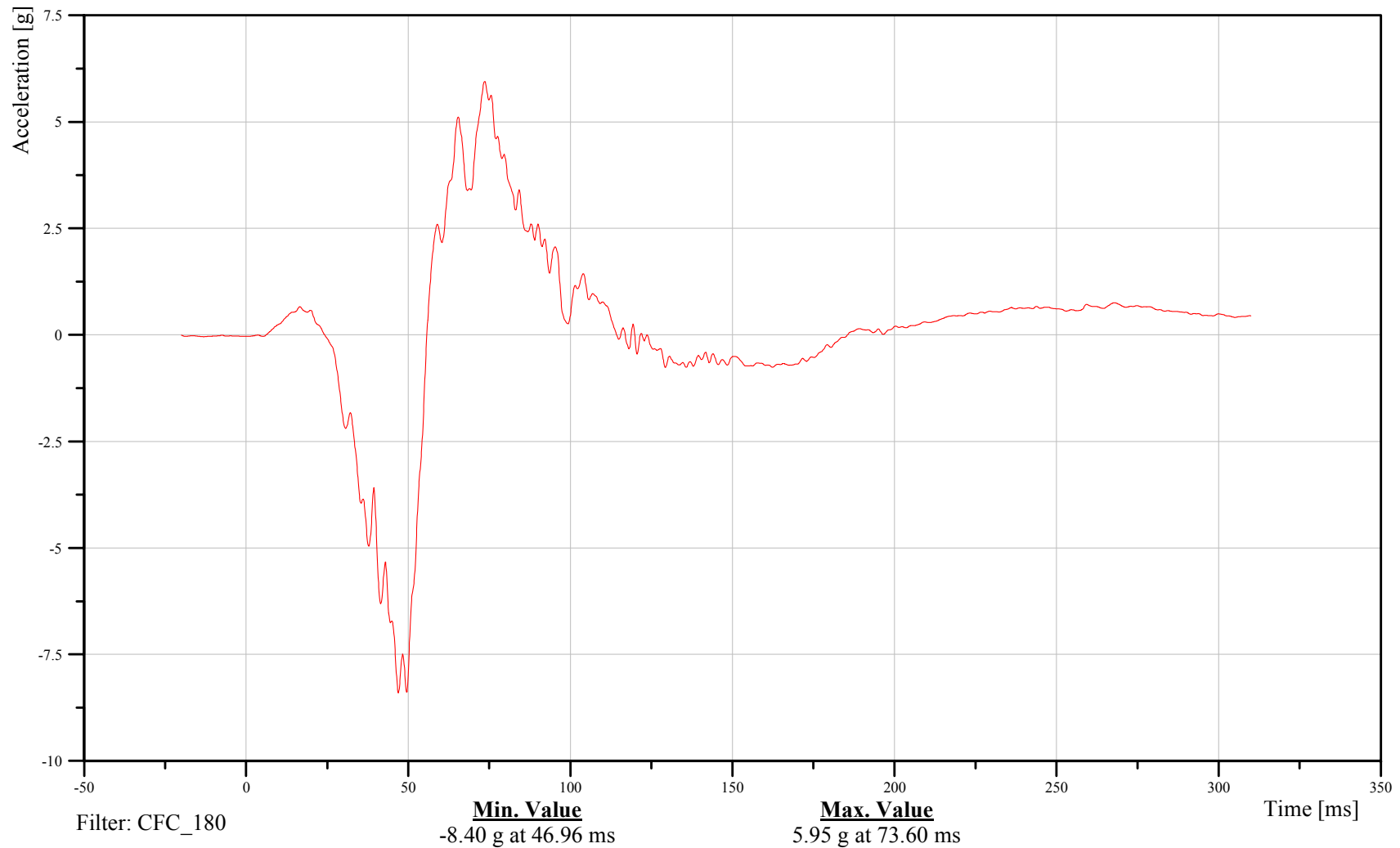
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14SPIN1200E2ACZC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

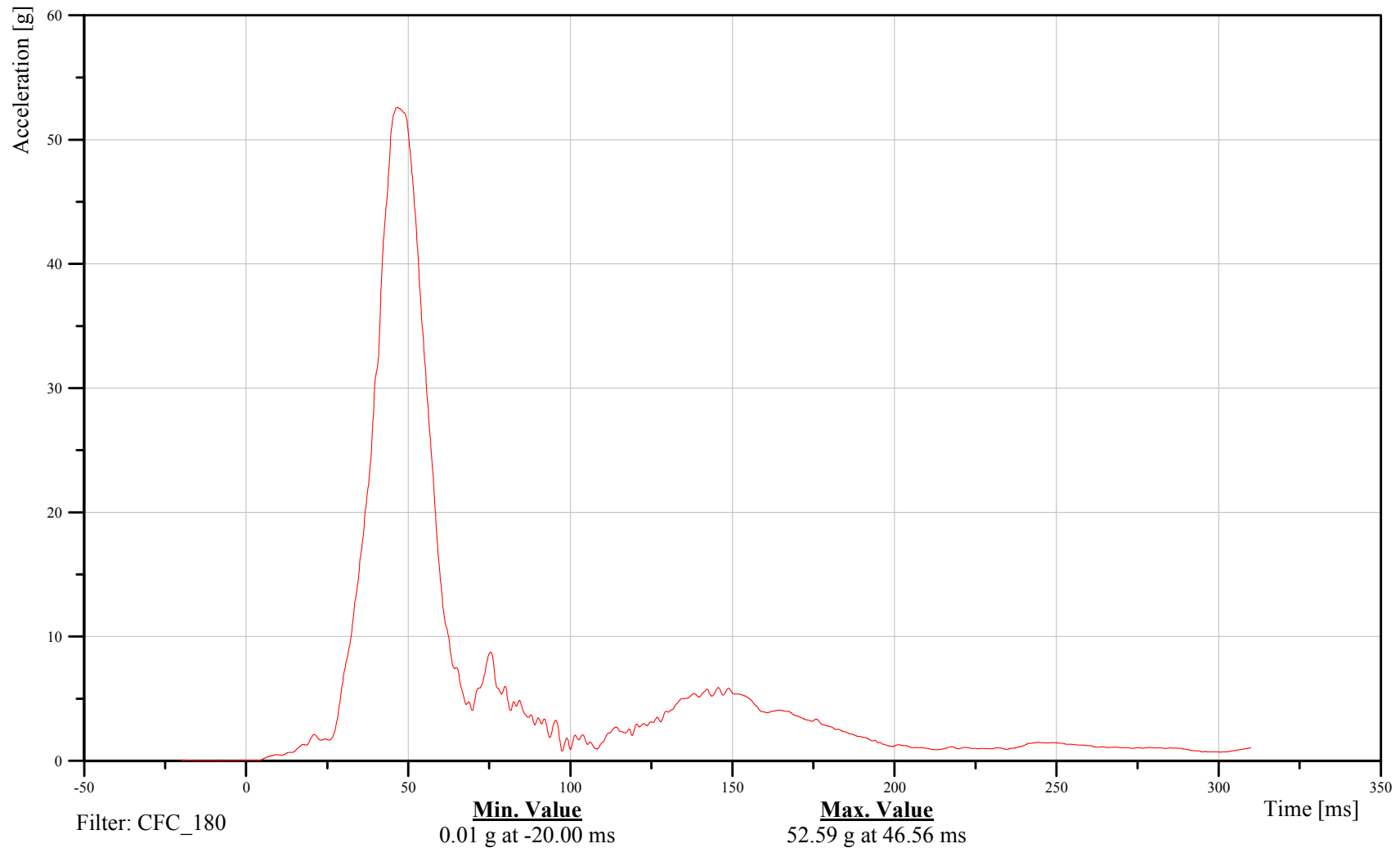
Lower Spine Resultant

Customer: VRTC

14SPIN1200E2ACRC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

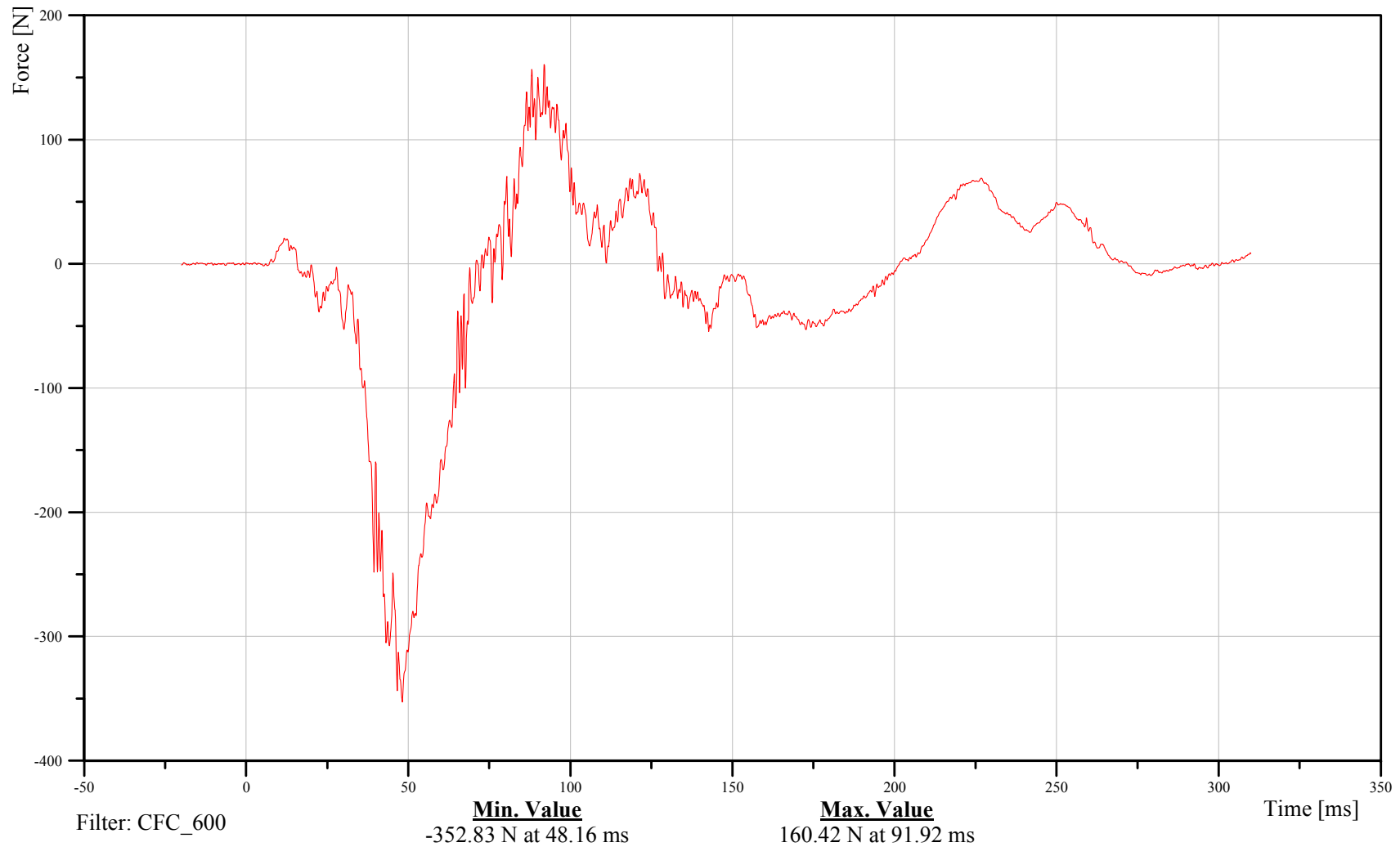
Lower Spine Force X

Customer: VRTC

14SPIN1200E2FOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

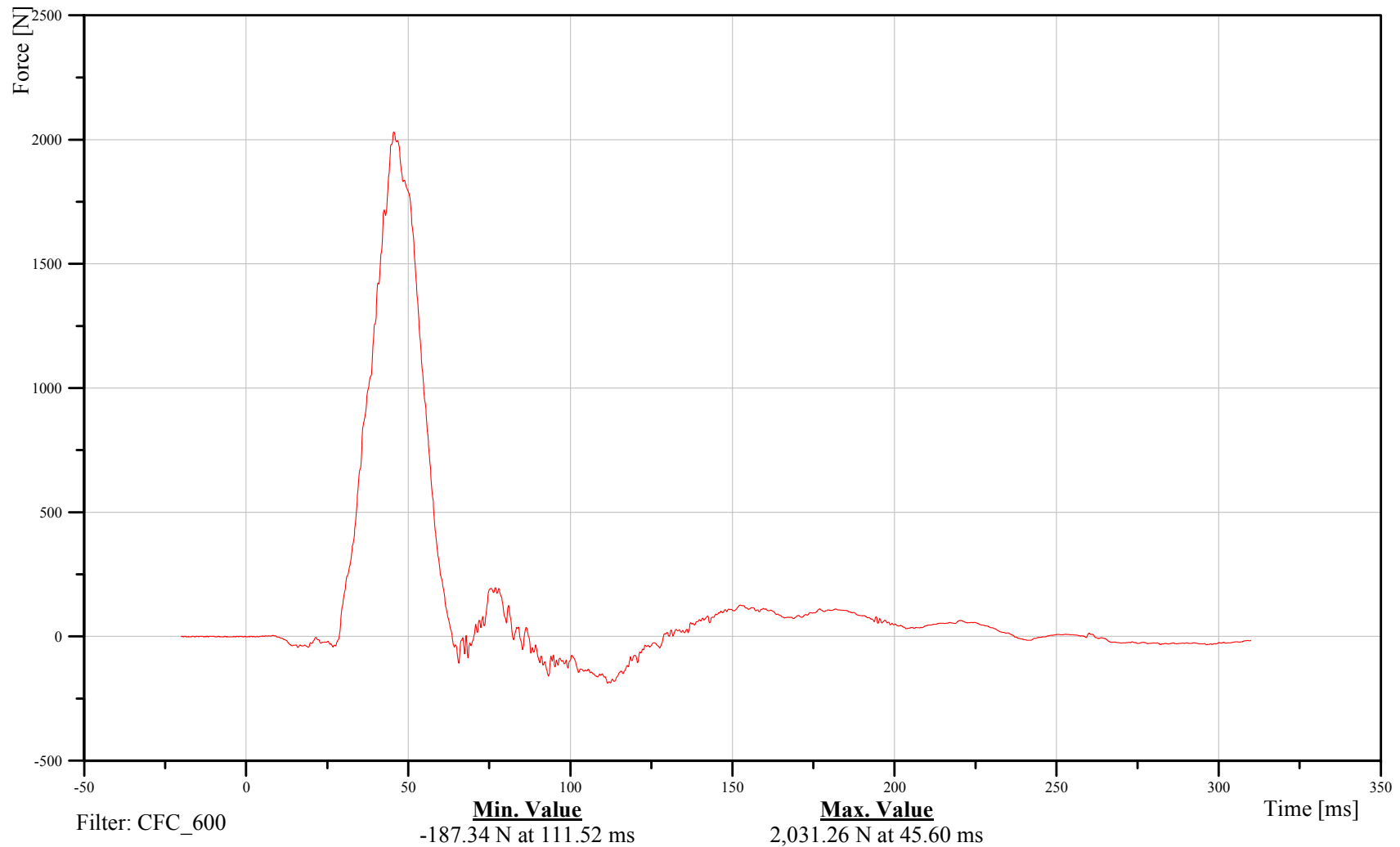
Lower Spine Force Y

Customer: VRTC

14SPIN1200E2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

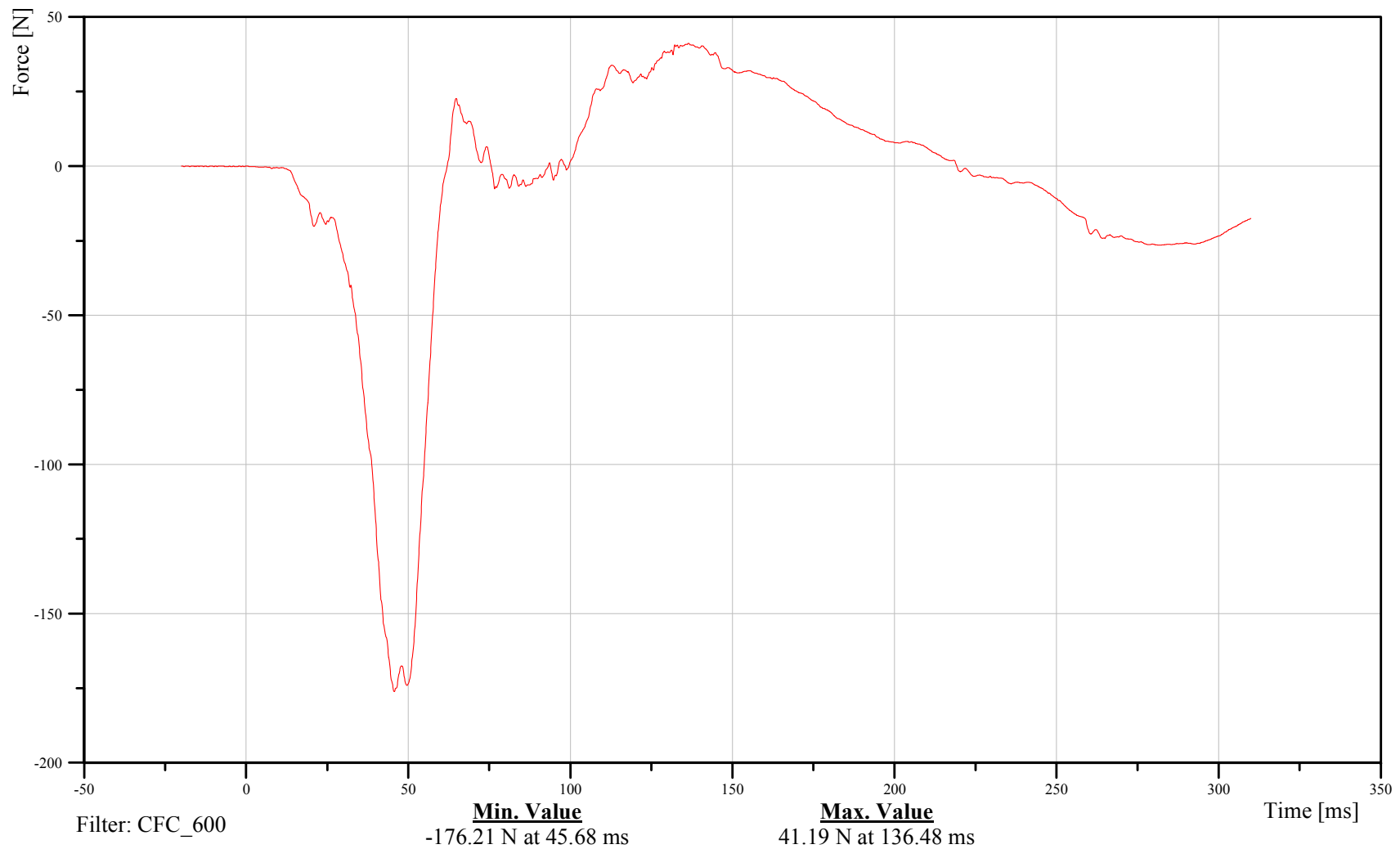
Lower Spine Moment X

Customer: VRTC

14SPIN1200E2MOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

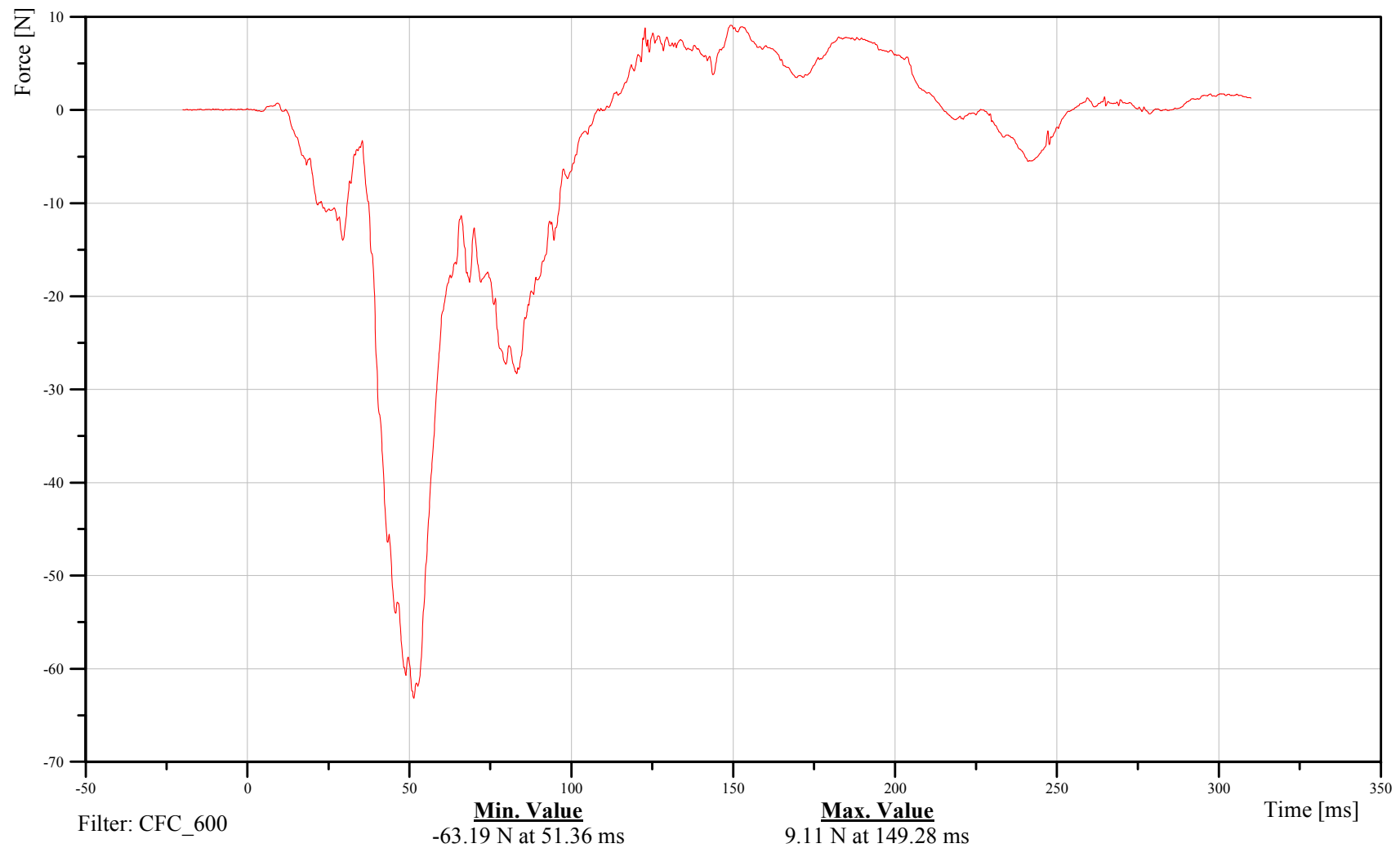
Lower Spine Moment Y

Customer: VRTC

14SPIN1200E2MOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

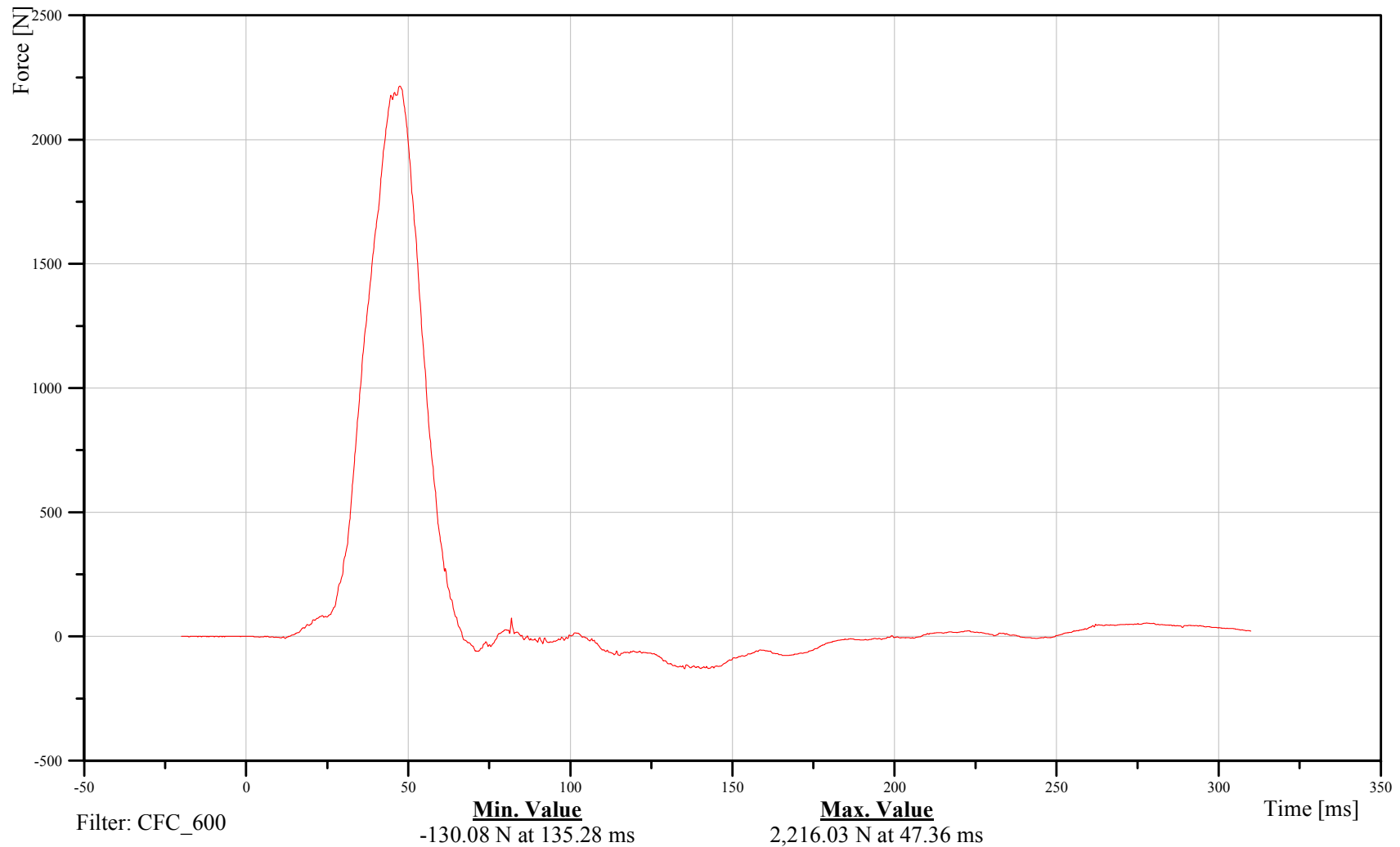
Lumbar Force Y

Customer: VRTC

14LUSP0000E2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Lumbar Force Z

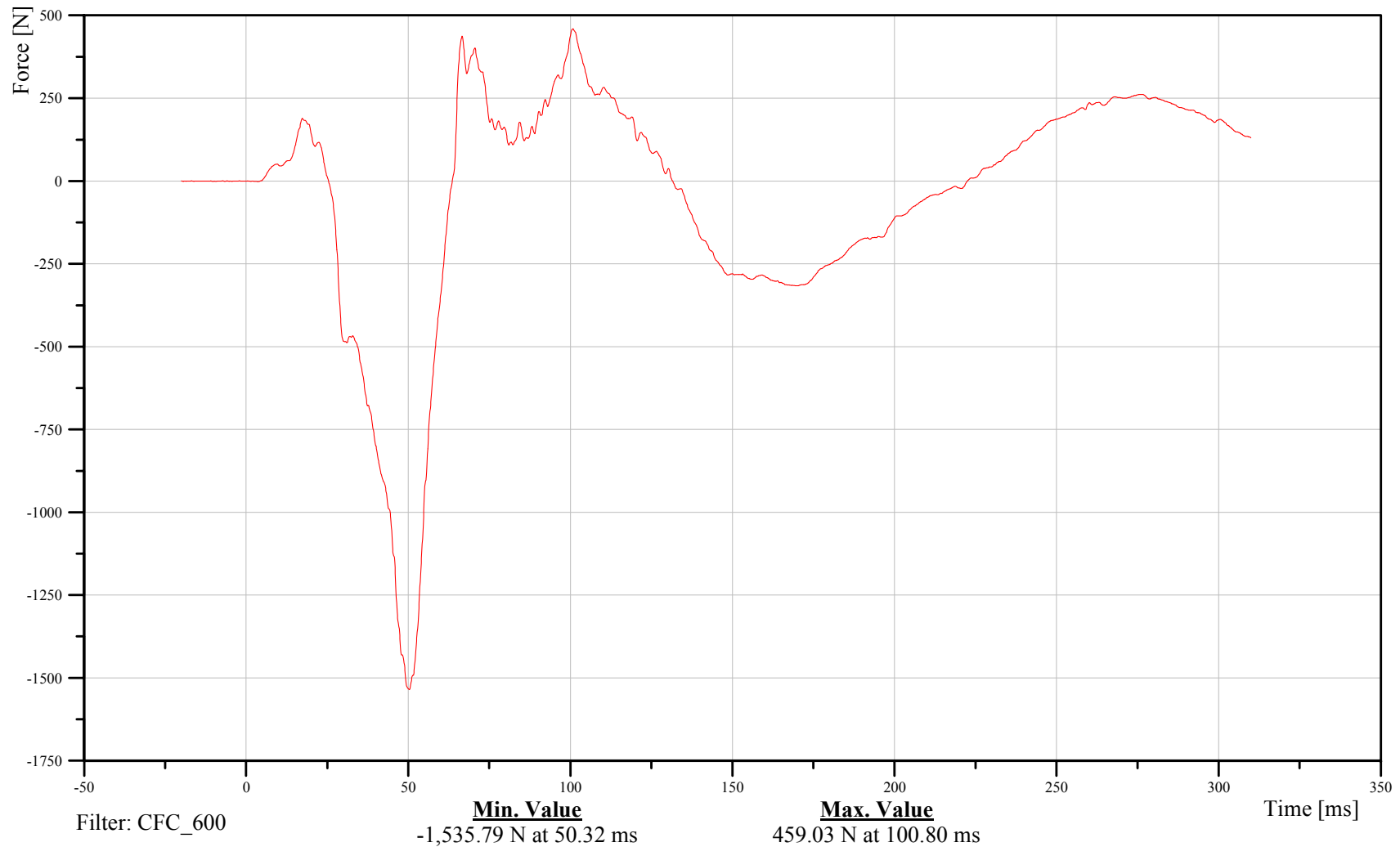
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14LUSP0000E2FOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Lumbar Moment X

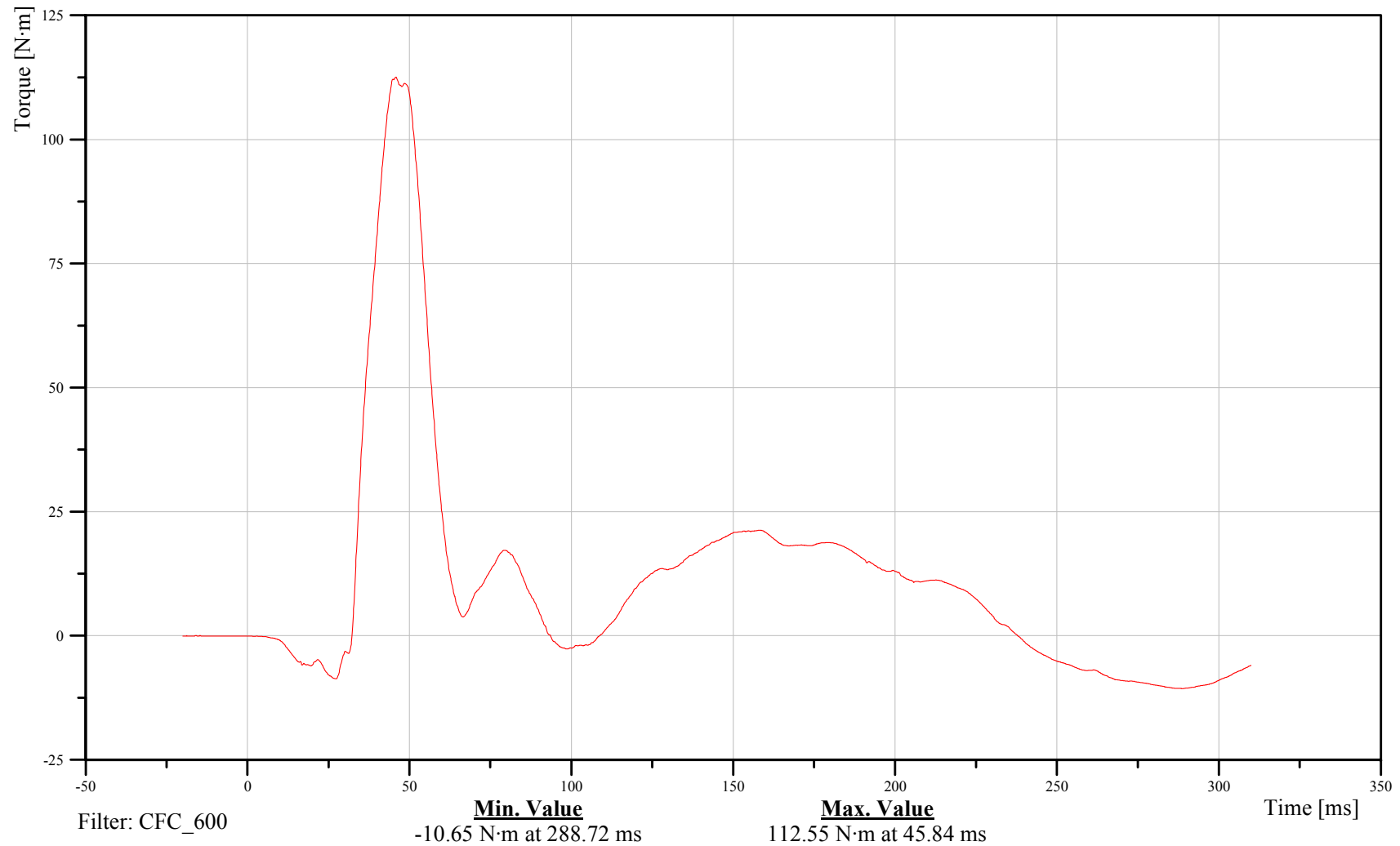
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14LUSP0000E2MOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Front Abdominal Force Y

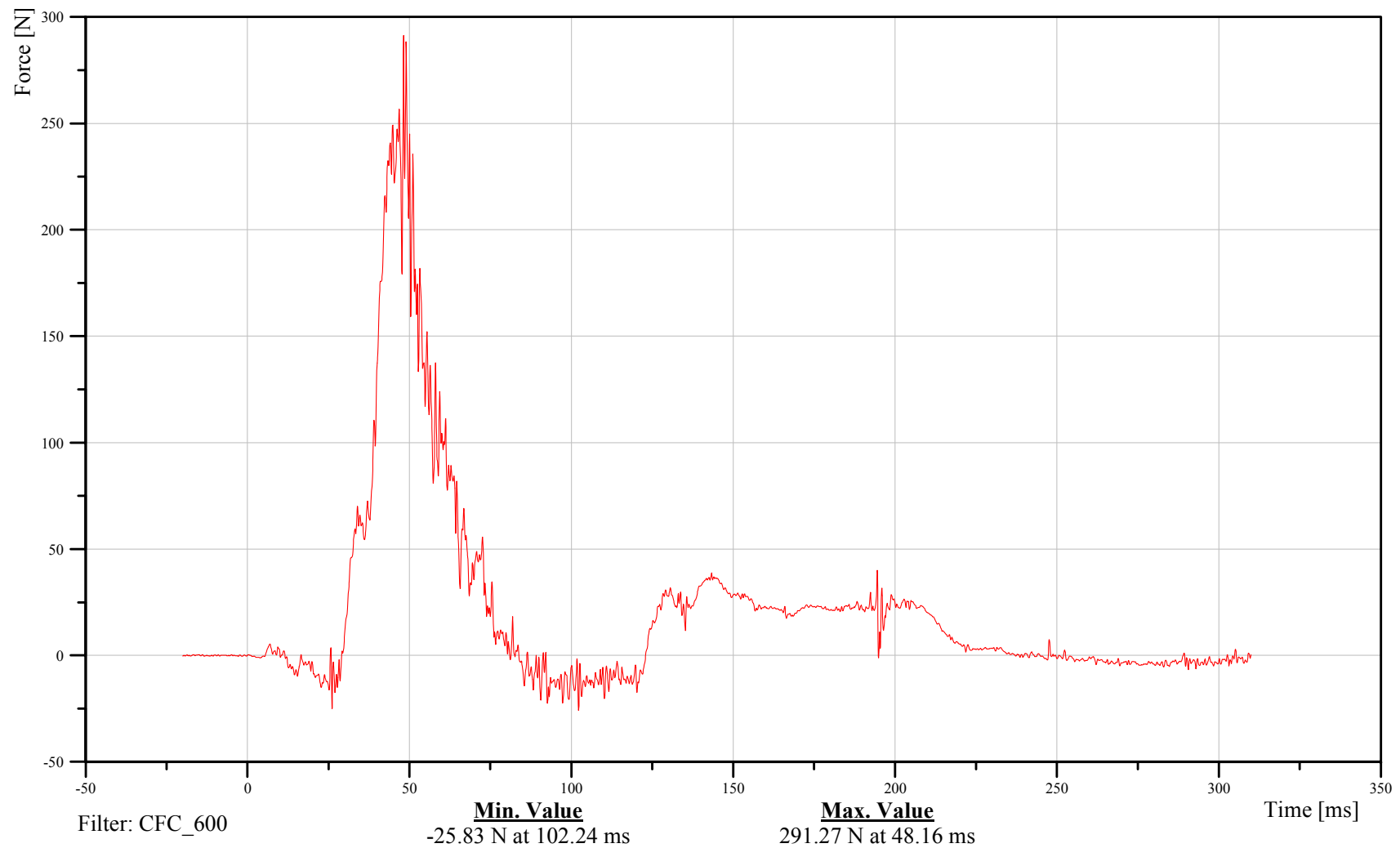
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14ABDOLEFRE2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Mid Abdominal Force Y

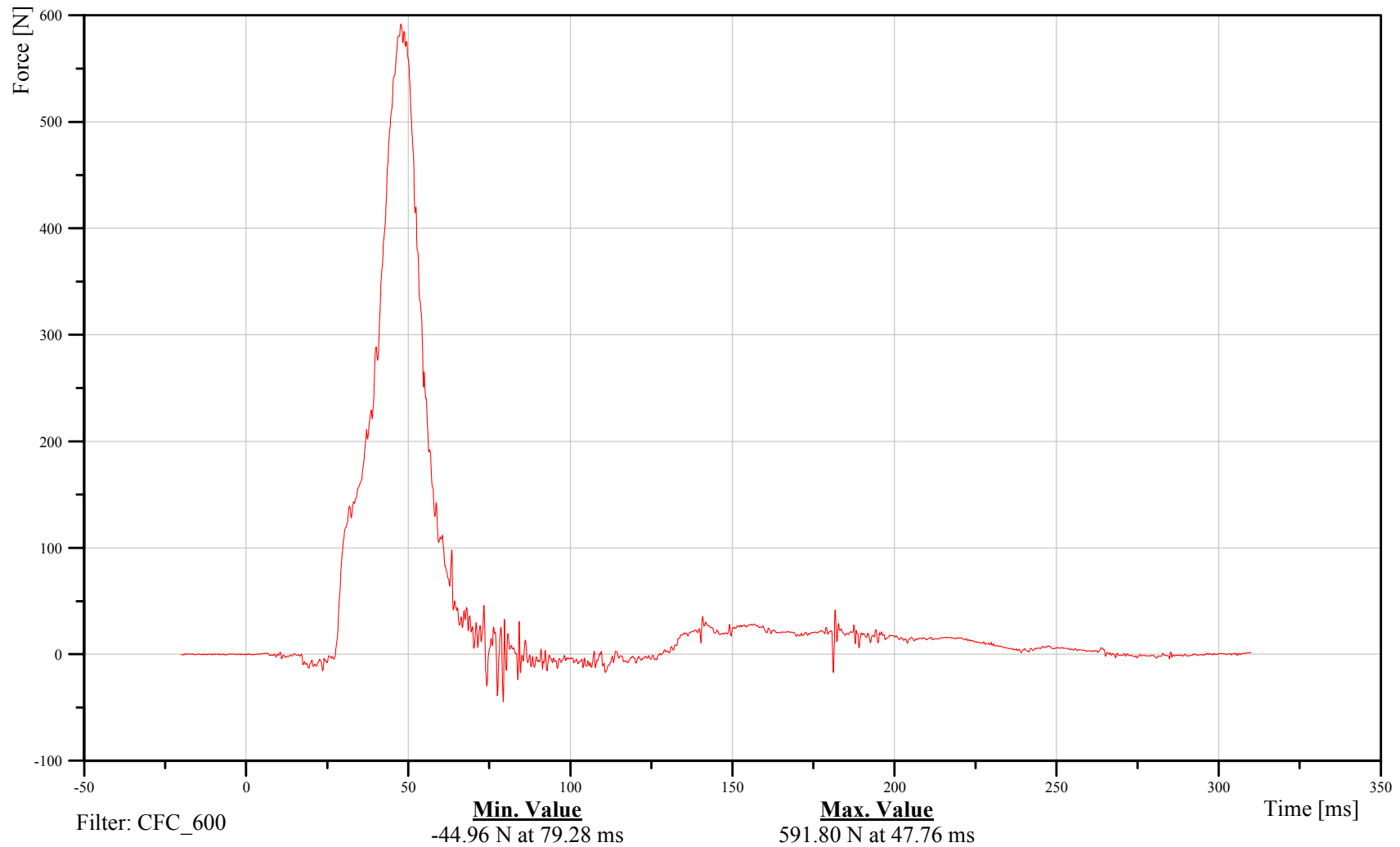
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14ABDOLEMIE2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Rear Abdominal Force Y

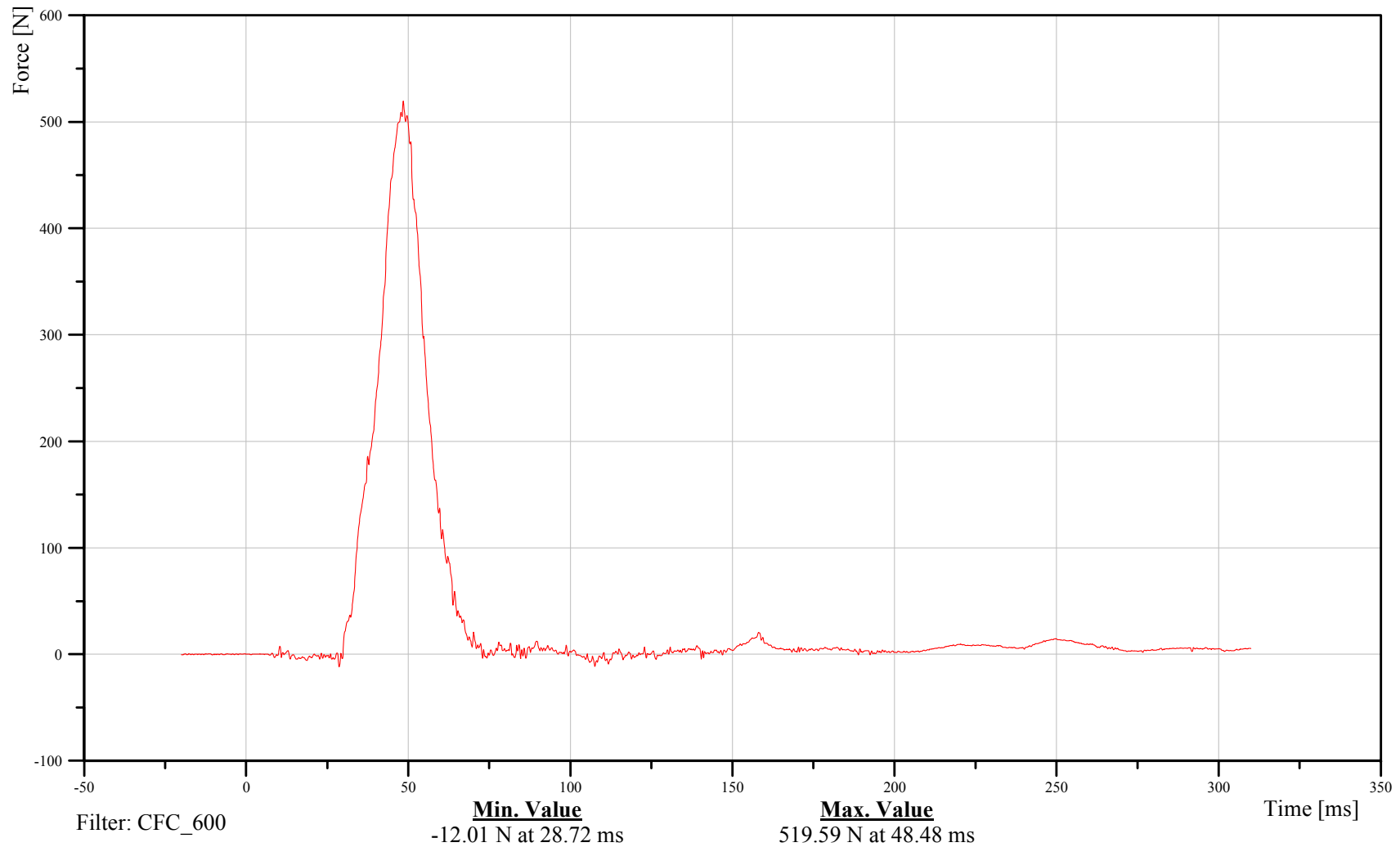
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14ABDOLEREE2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

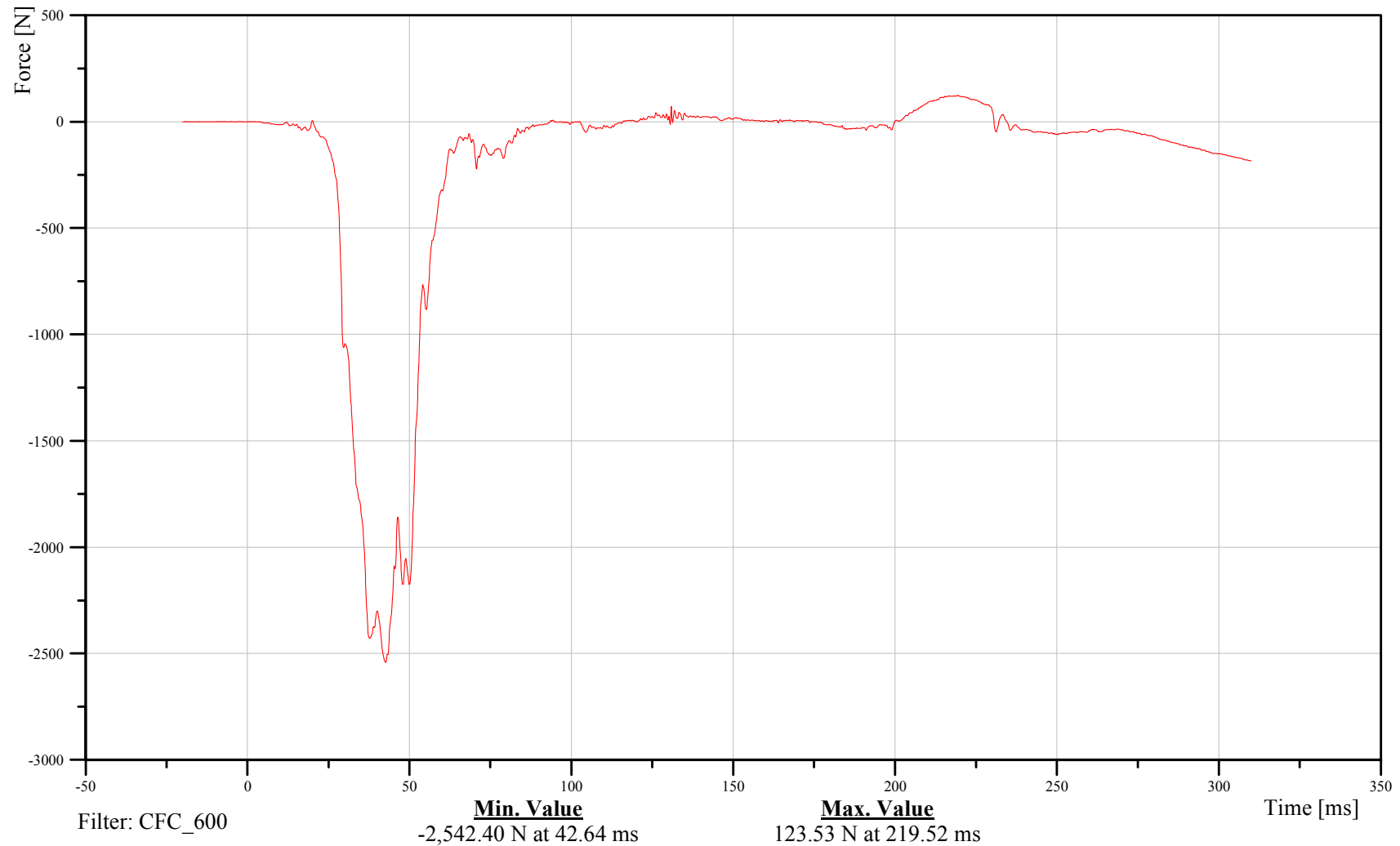
Pubic Force Y

Customer: VRTC

14PUBC0000E2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pelvis Accel X

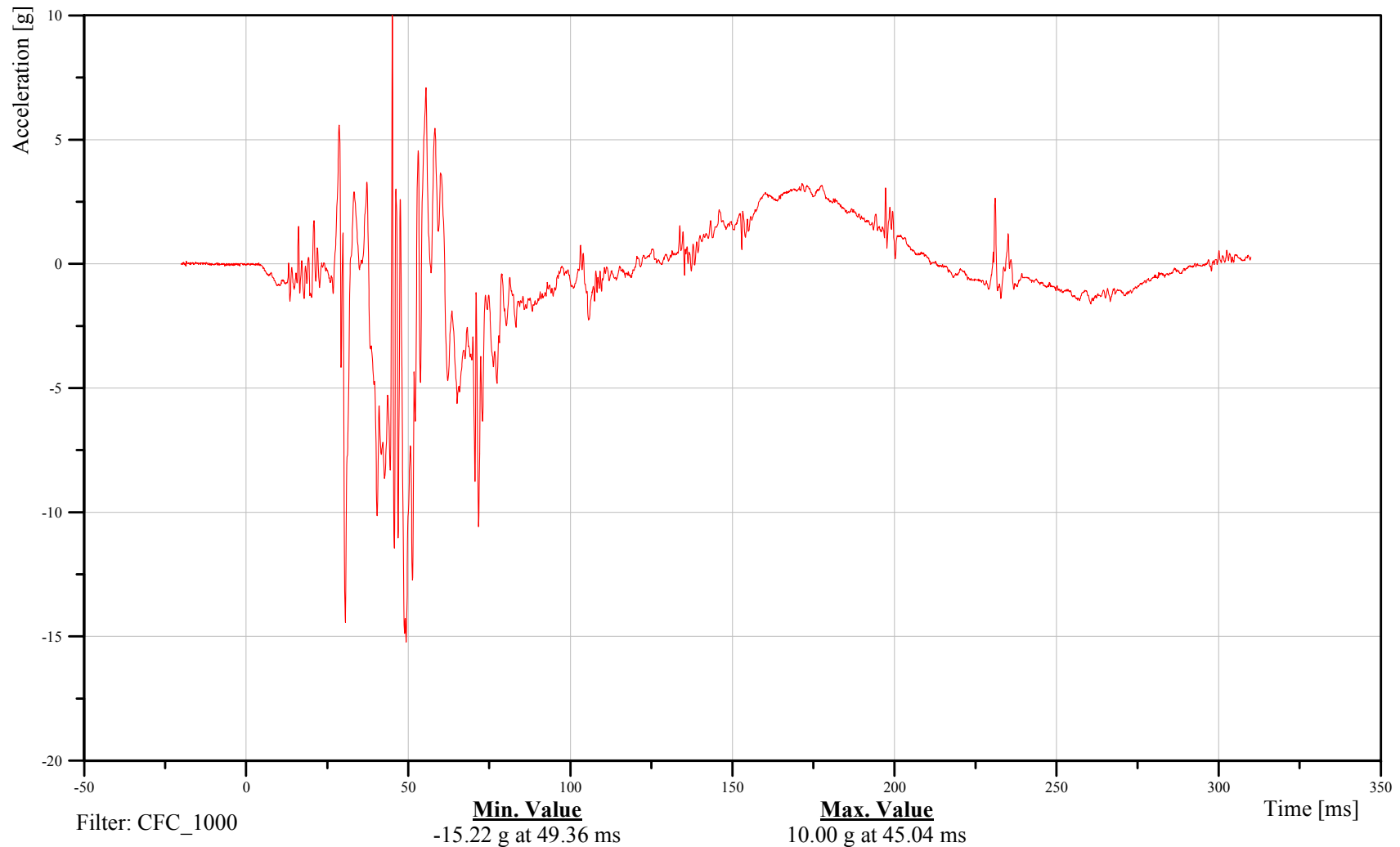
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14PELVCG00E2ACXA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pelvis Accel Y

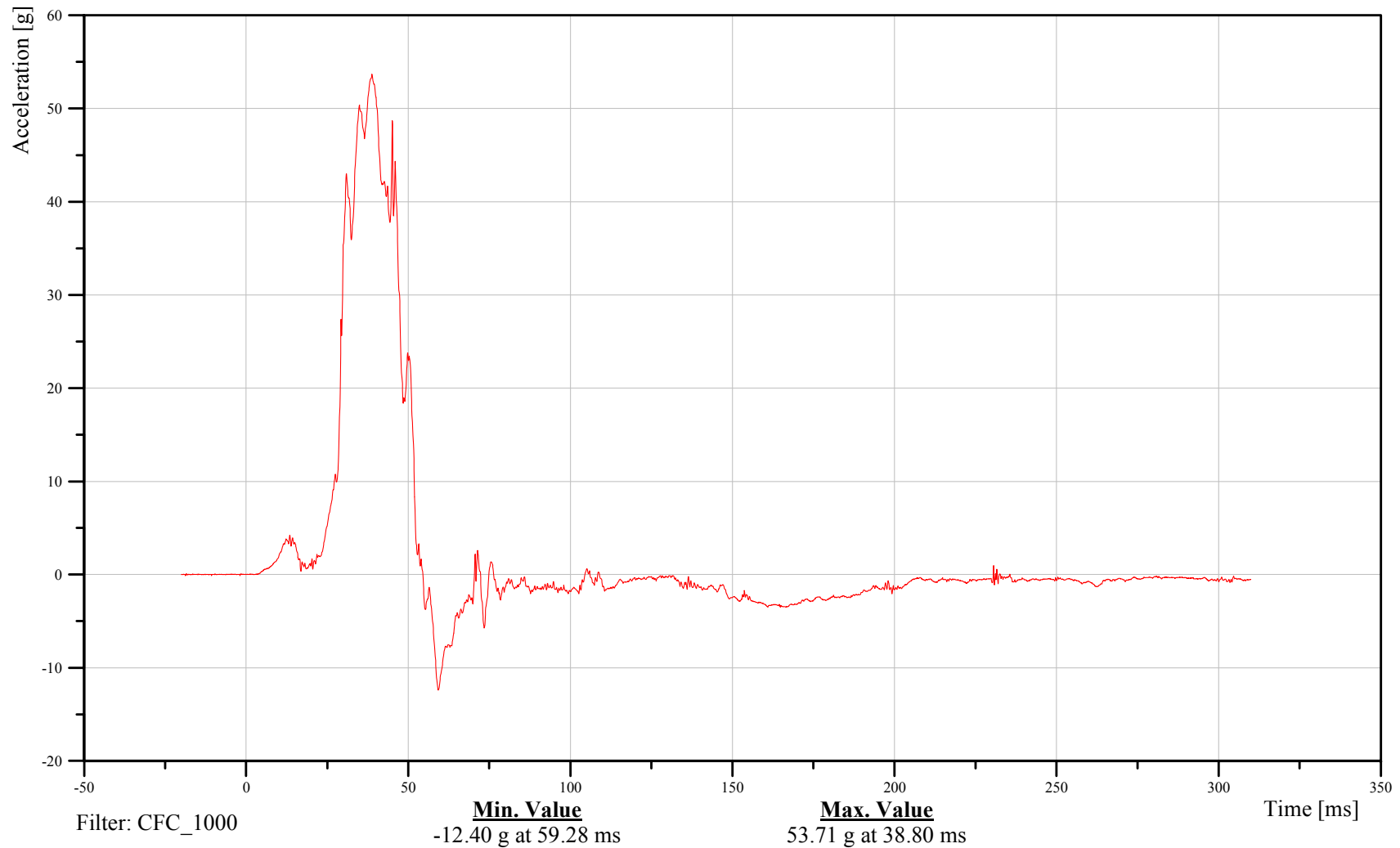
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14PELVCG00E2ACYA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pelvis Accel Z

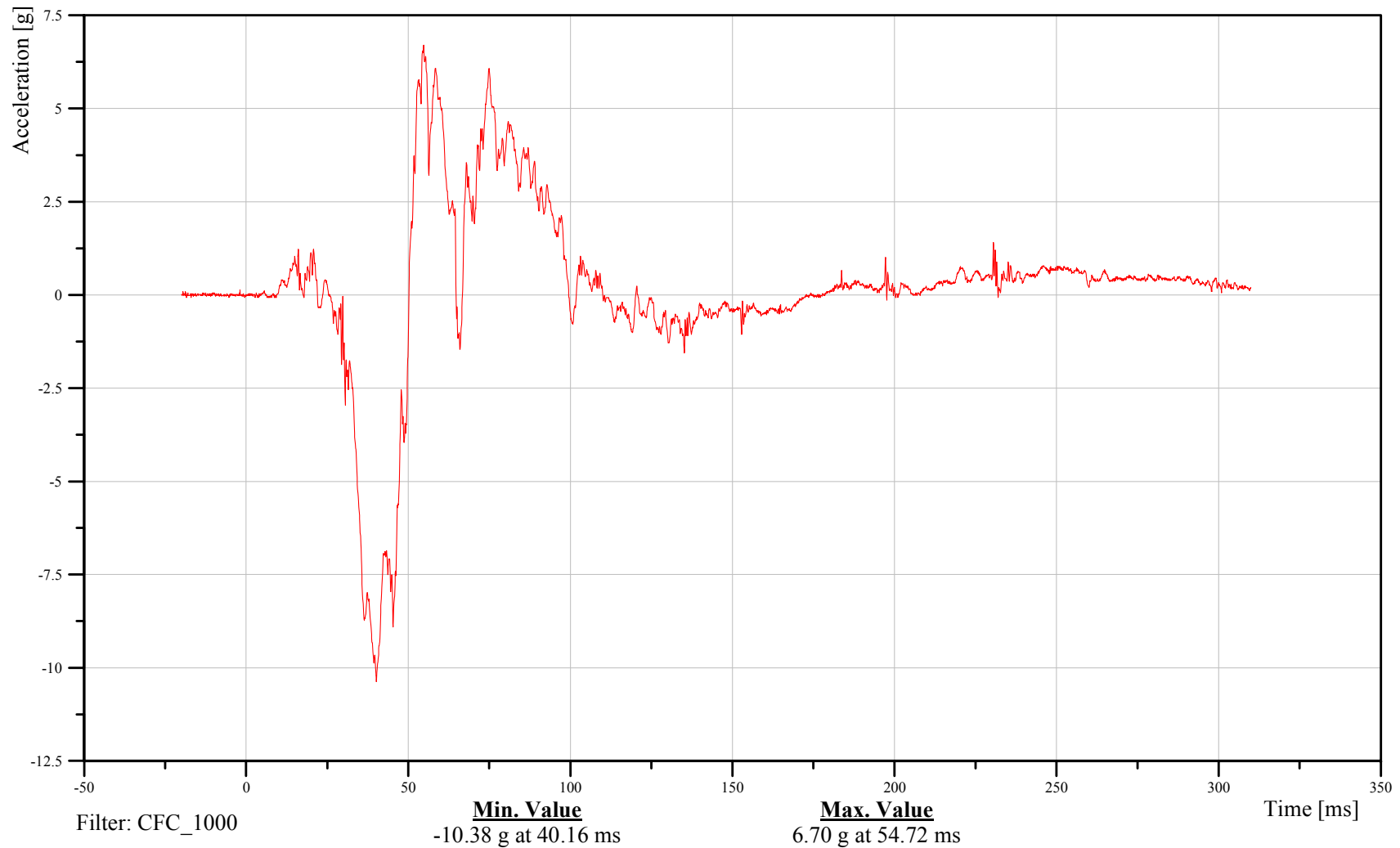
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14PELVCG00E2ACZA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pelvis Accel Resultant

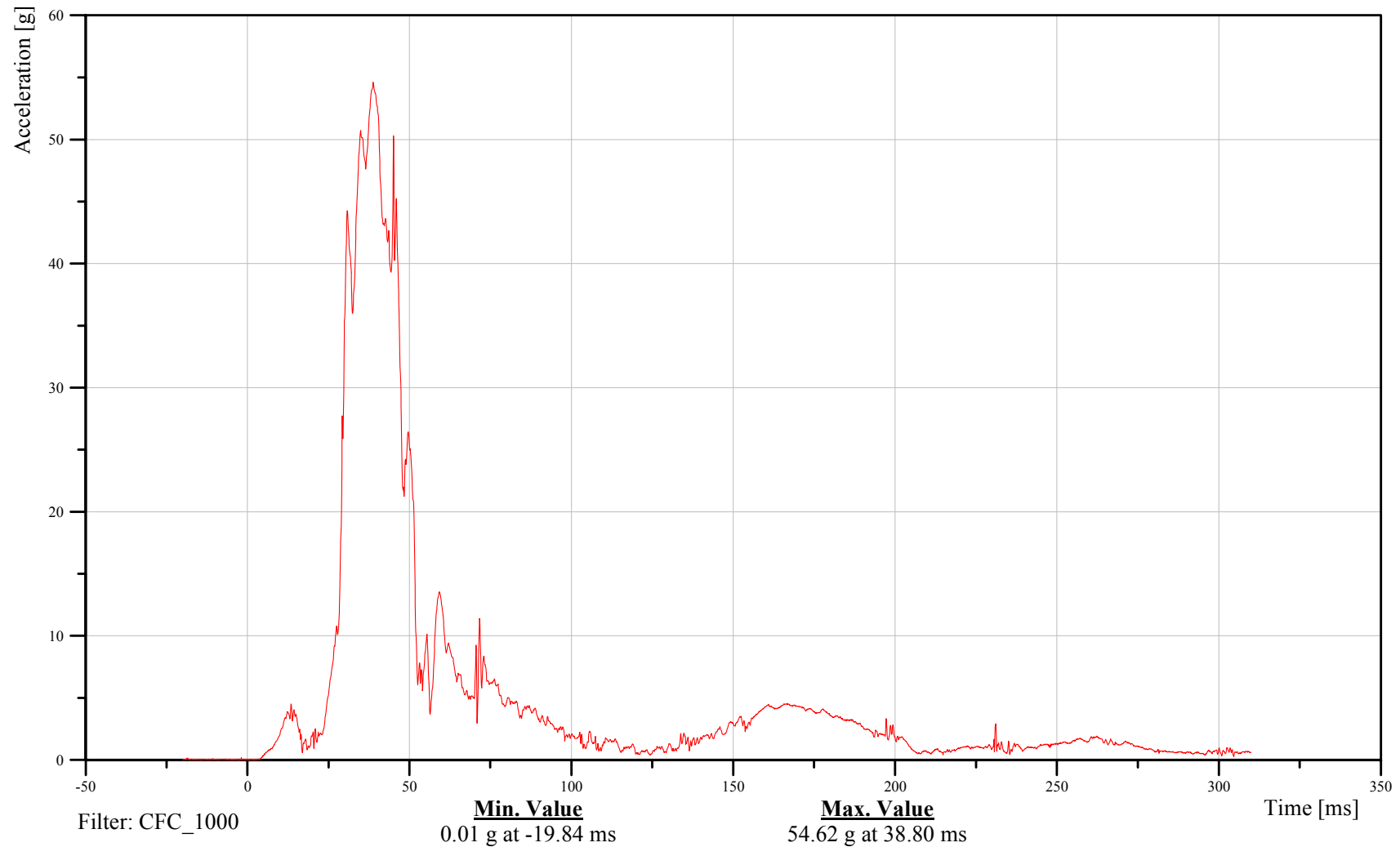
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14PELVCG00E2ACRA

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Left Femur Force X

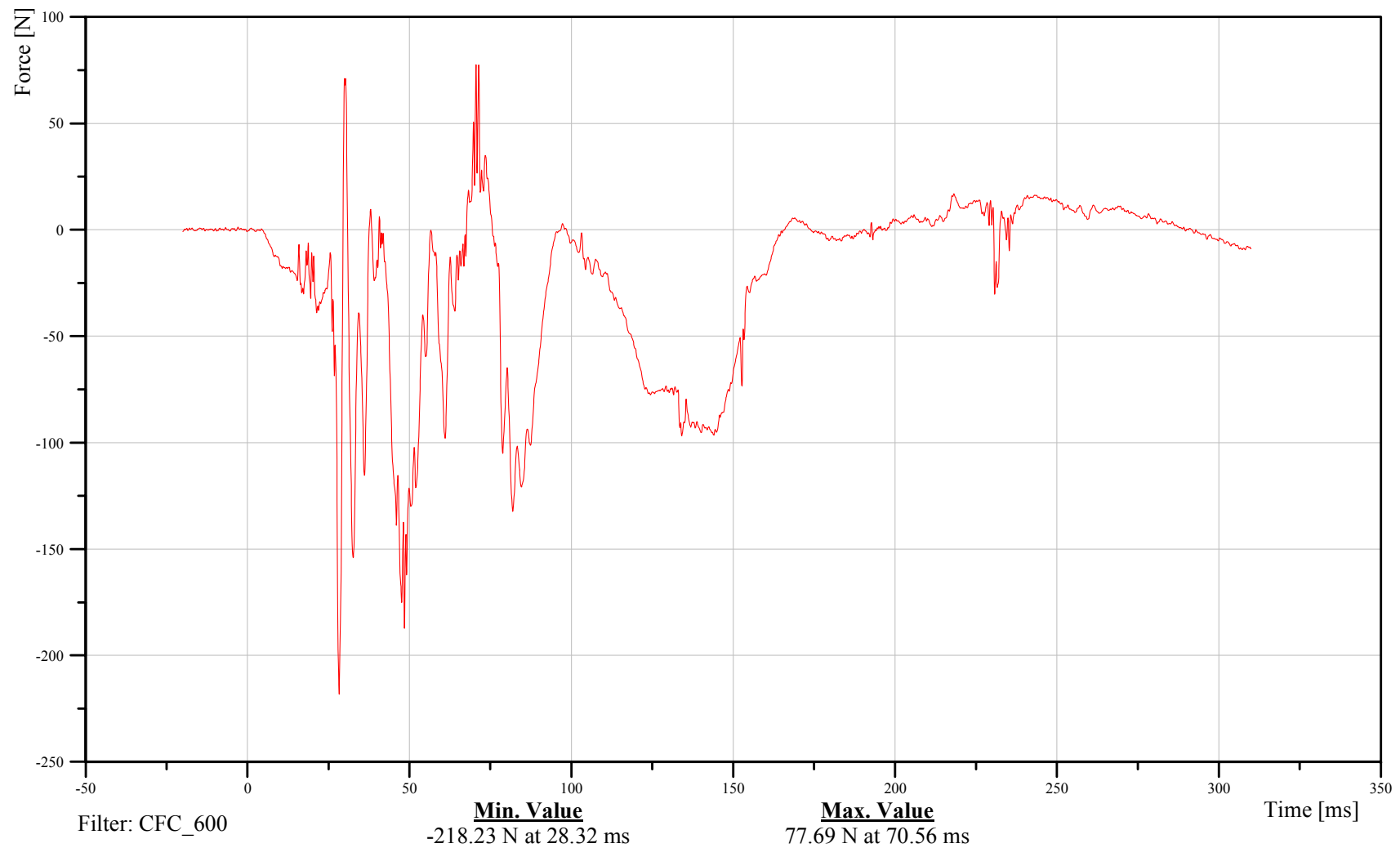
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14FEMRLE00E2FOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Left Femur Force Y

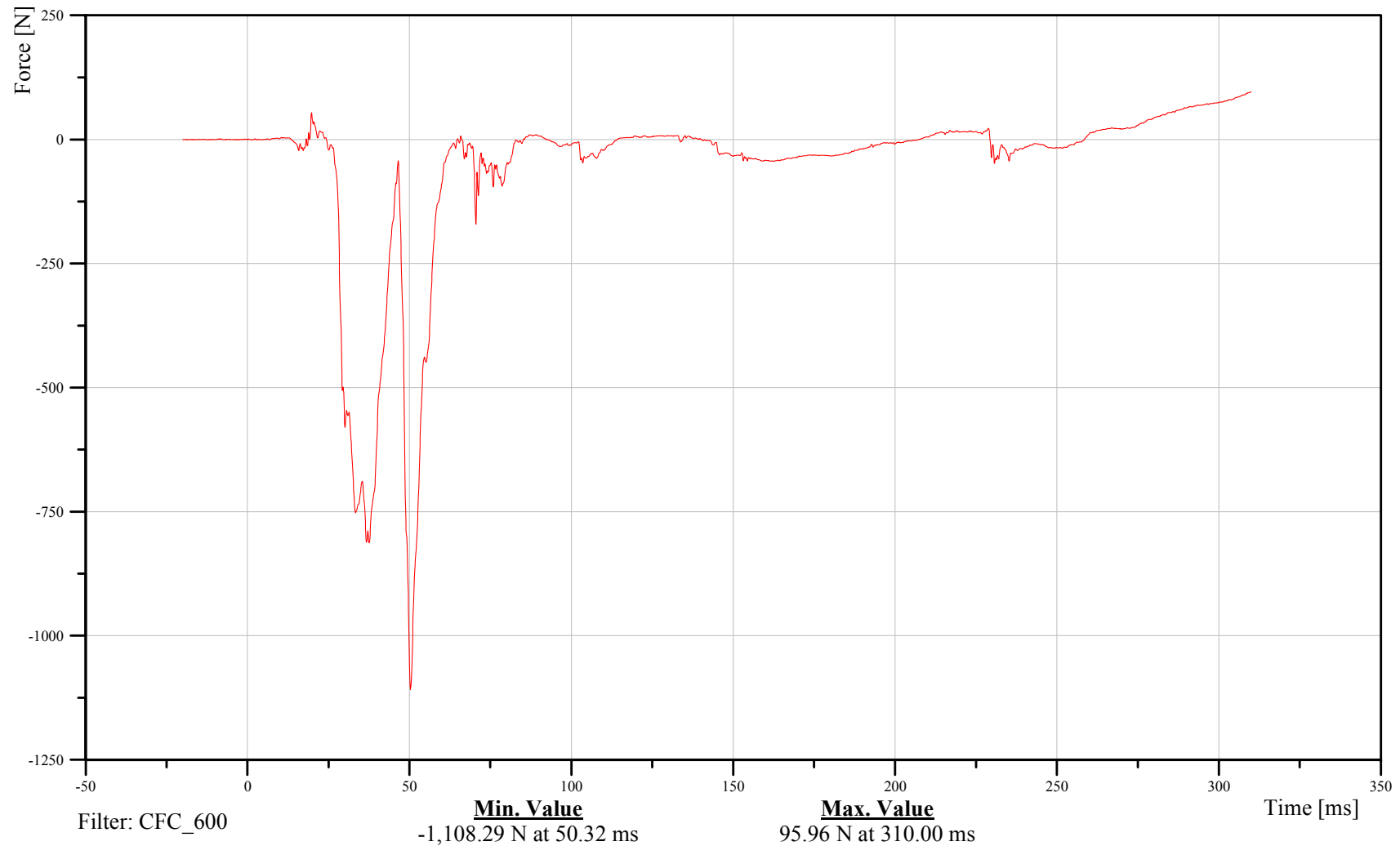
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14FEMRLE00E2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Left Femur Force Z

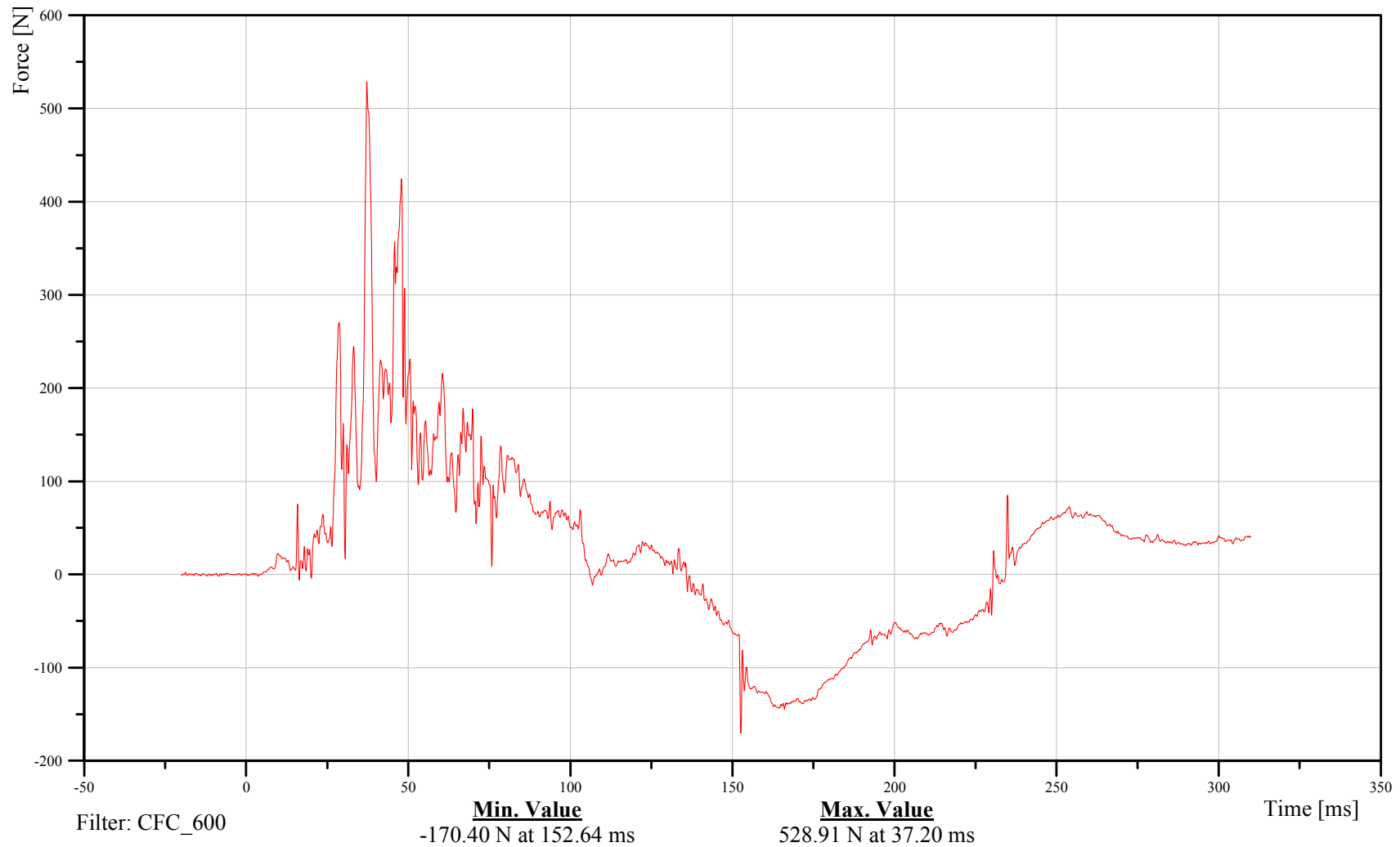
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14FEMRLE00E2FOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

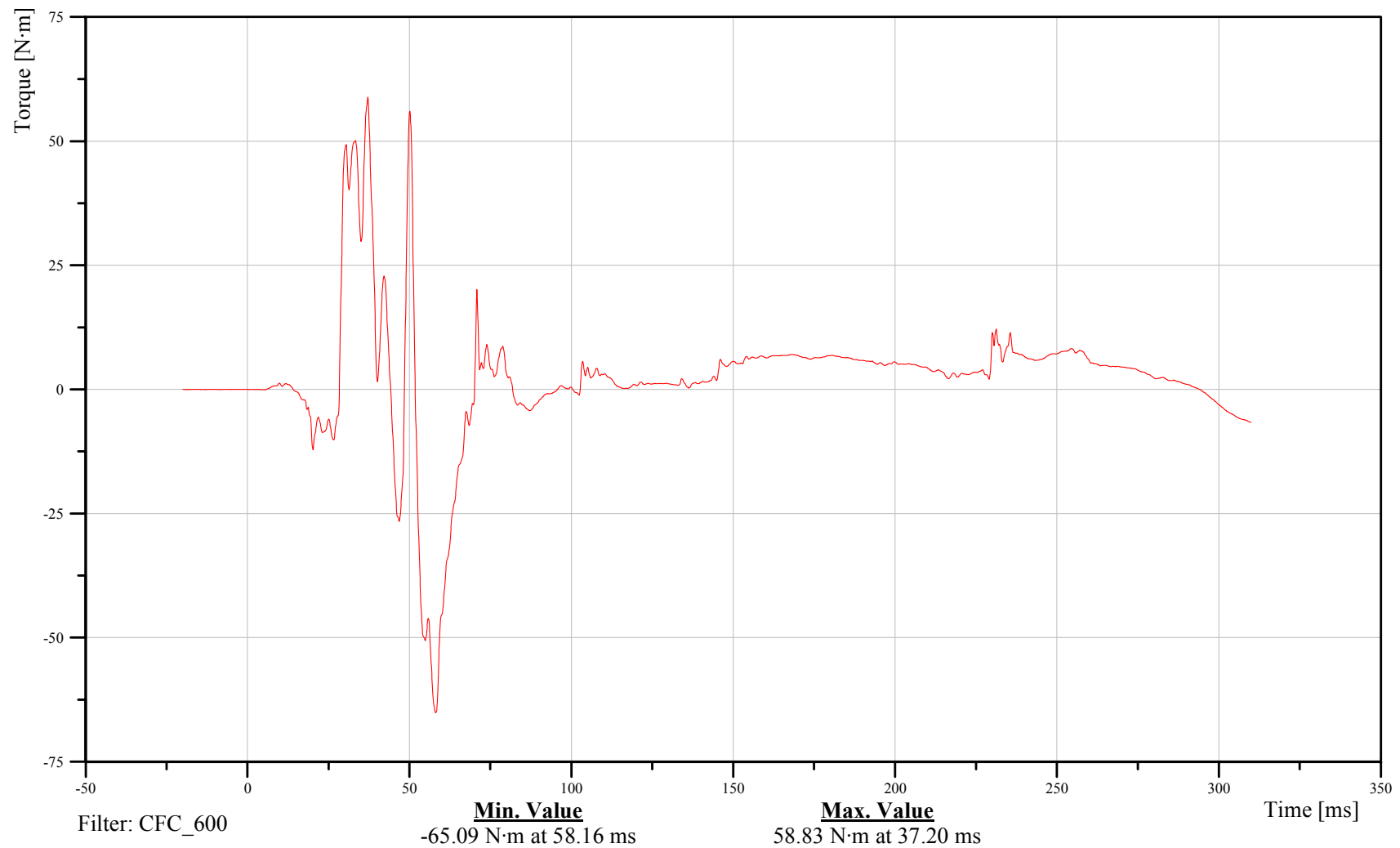
Left Femur Moment X

Customer: VRTC

14FEMRLE00E2MOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

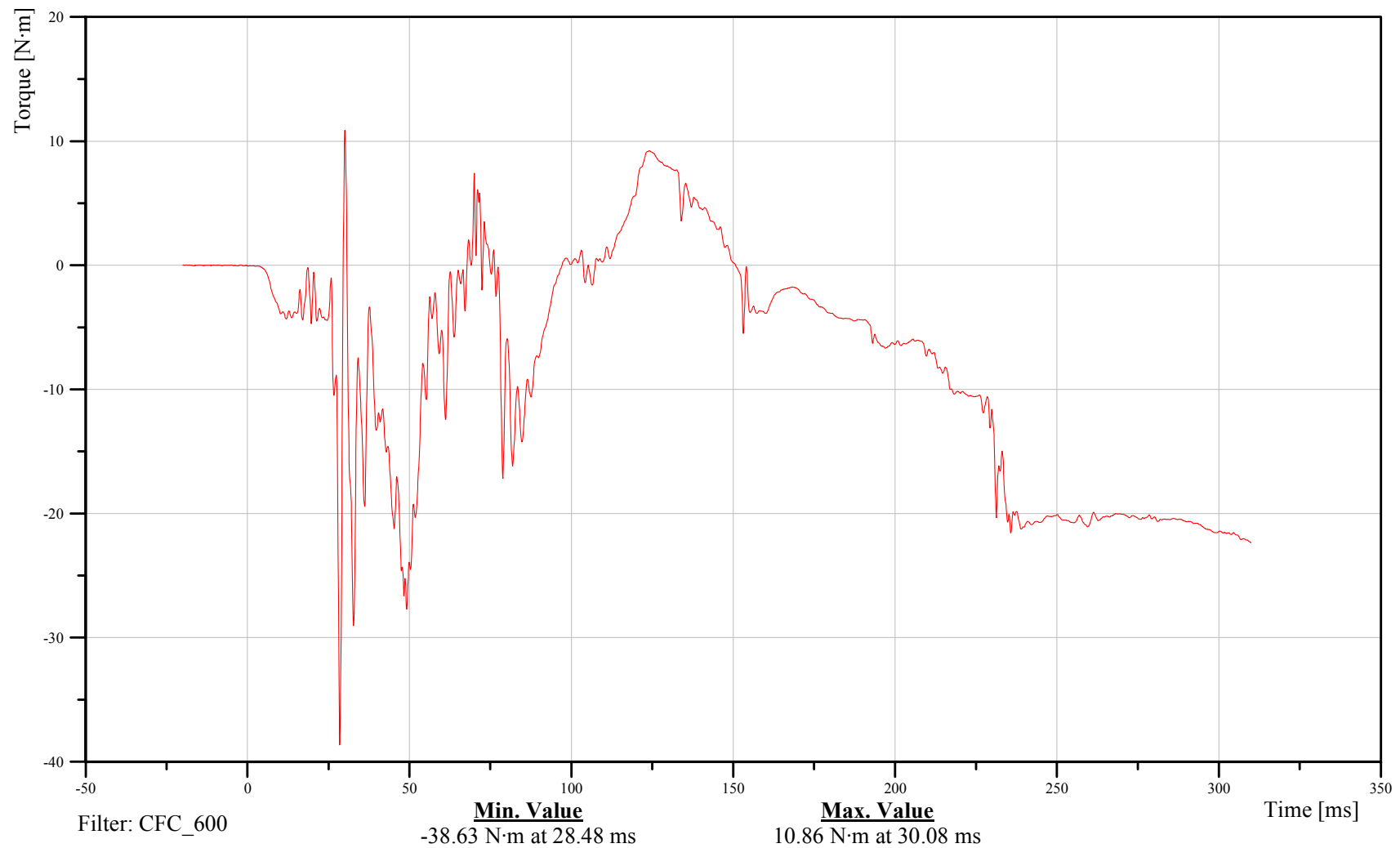
Left Femur Moment Y

Customer: VRTC

14FEMRLE00E2MOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Left Femur Moment Z

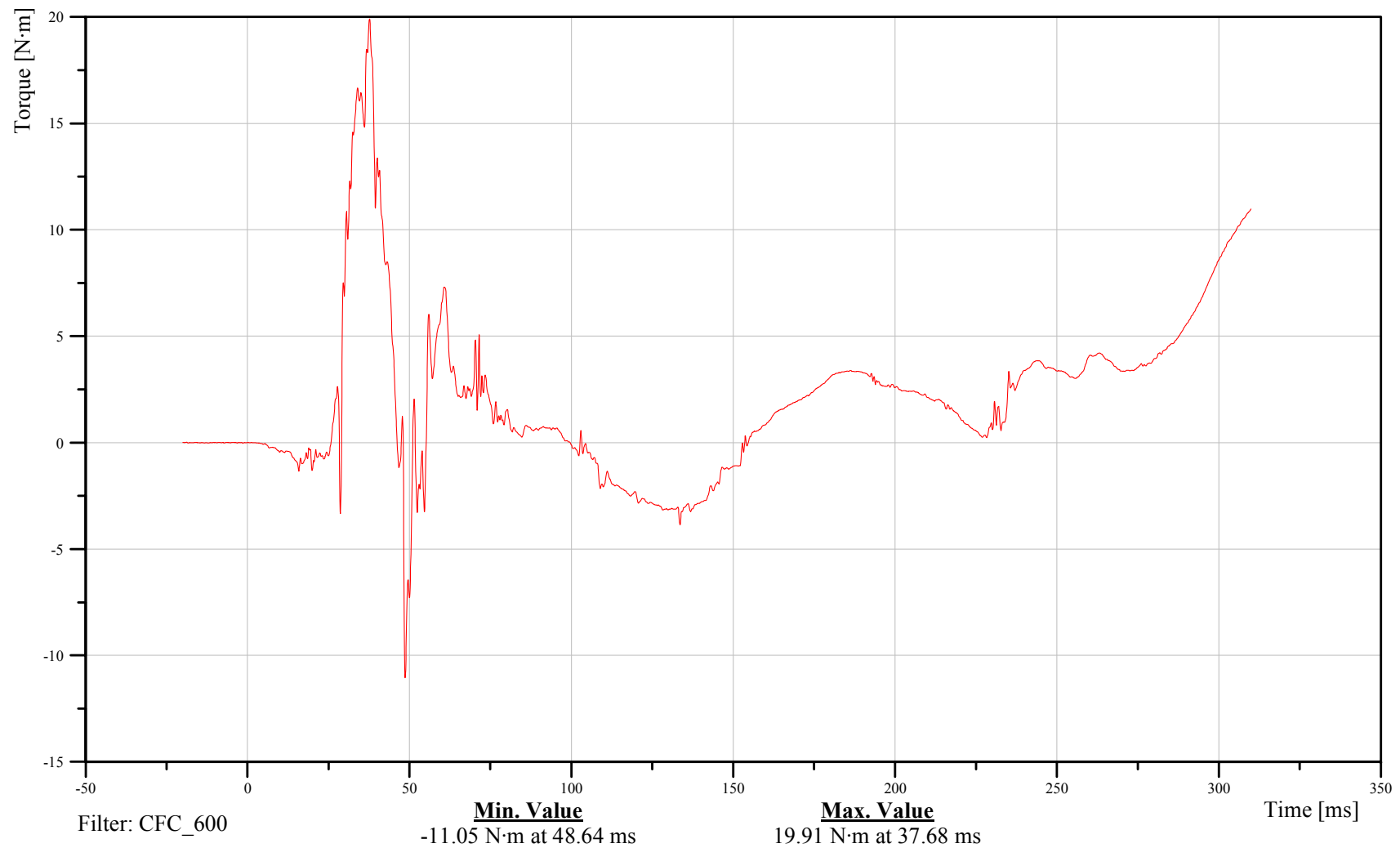
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14FEMRLE00E2MOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

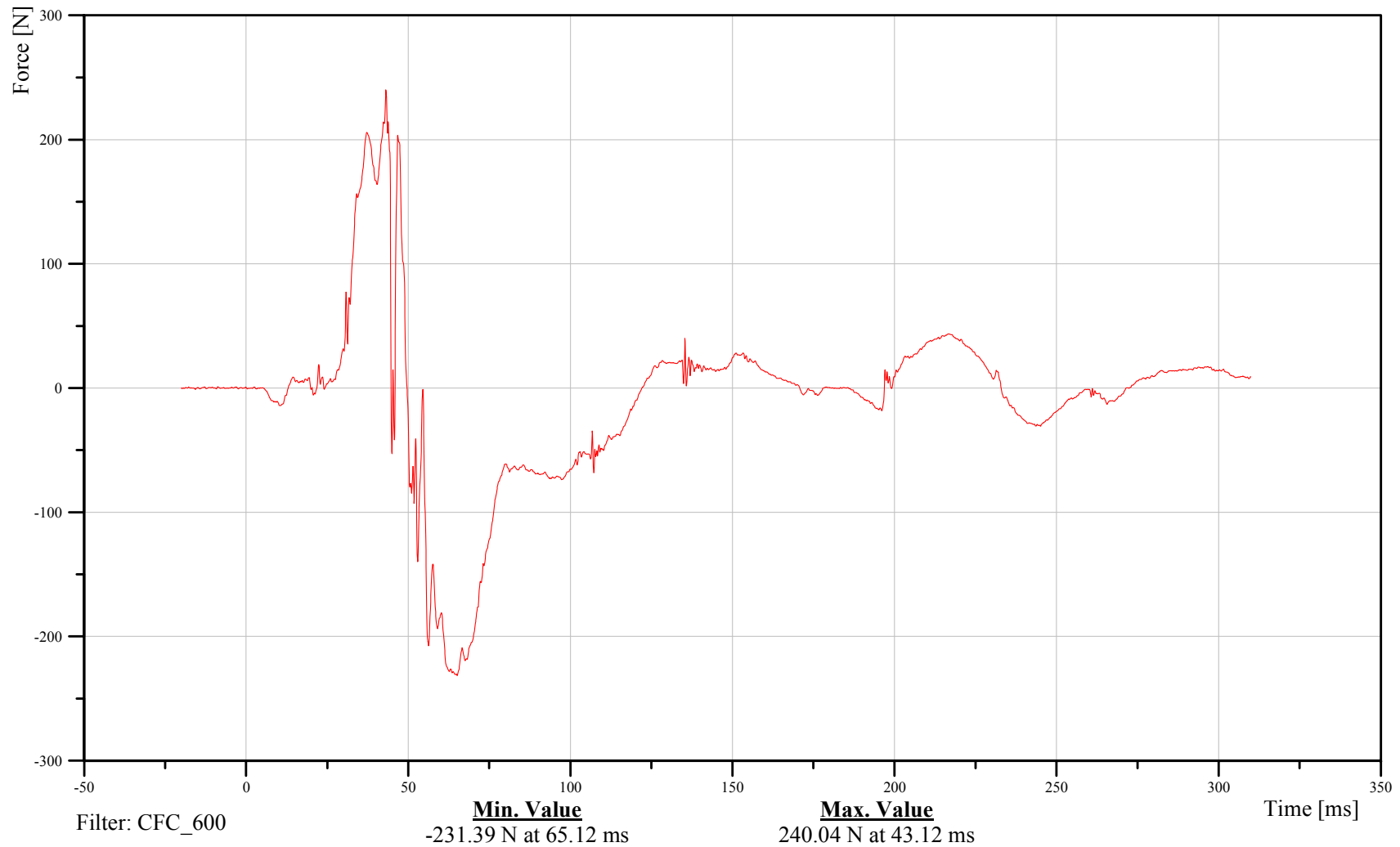
Right Femur Force X

Customer: VRTC

14FEMRRI00E2FOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

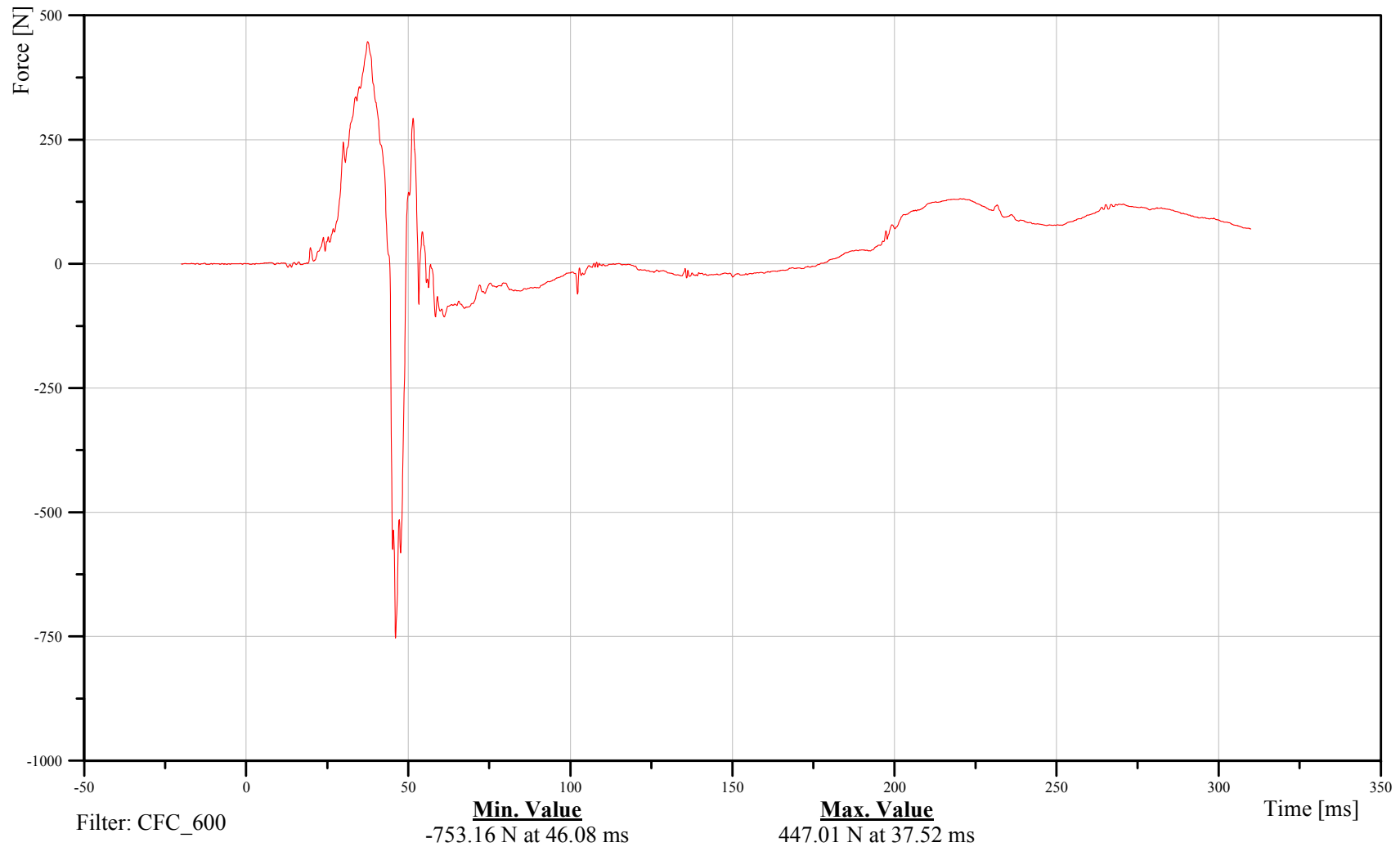
Right Femur Force Y

Customer: VRTC

14FEMRRI00E2FOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

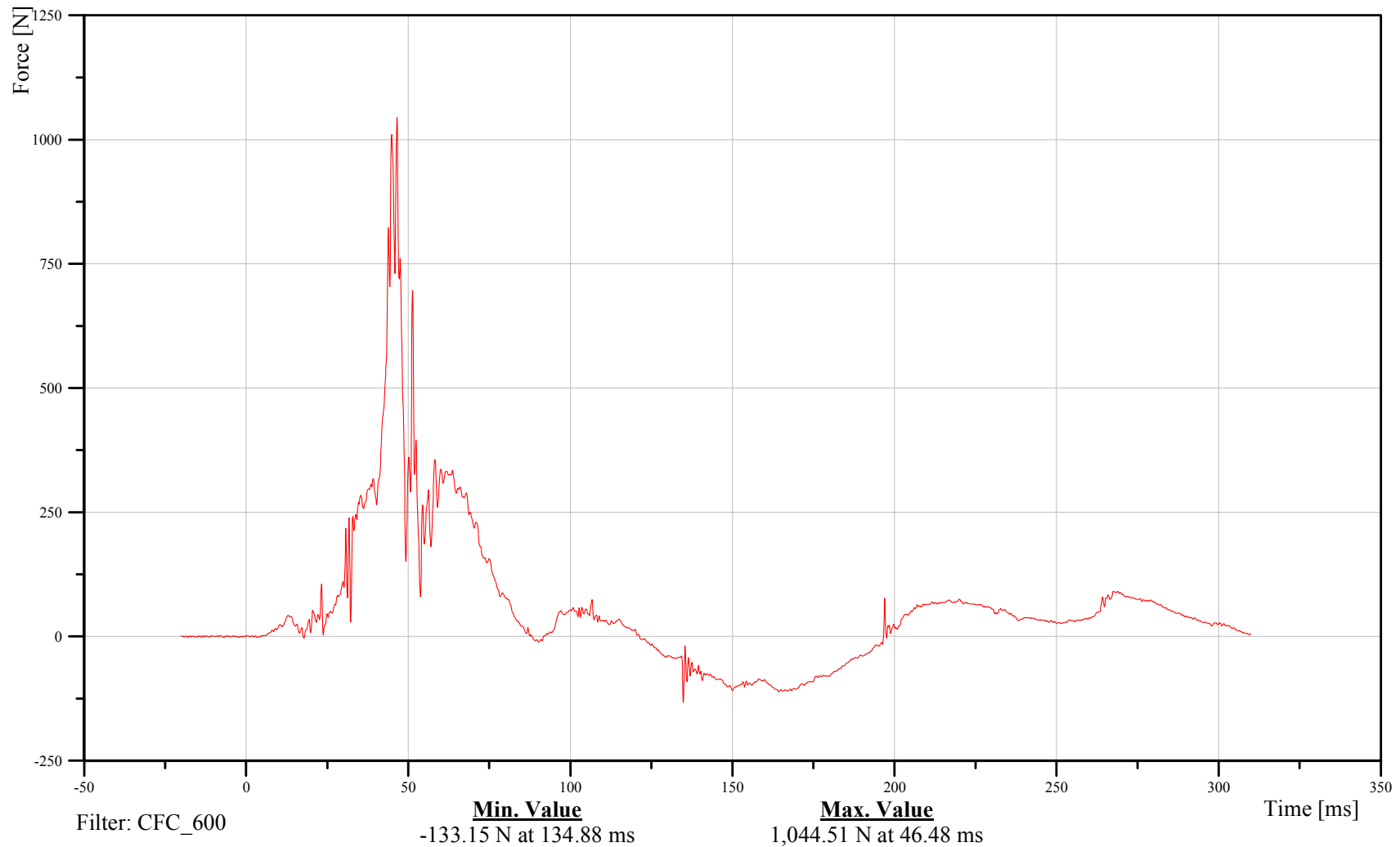
Right Femur Force Z

Customer: VRTC

14FEMRRI00E2FOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

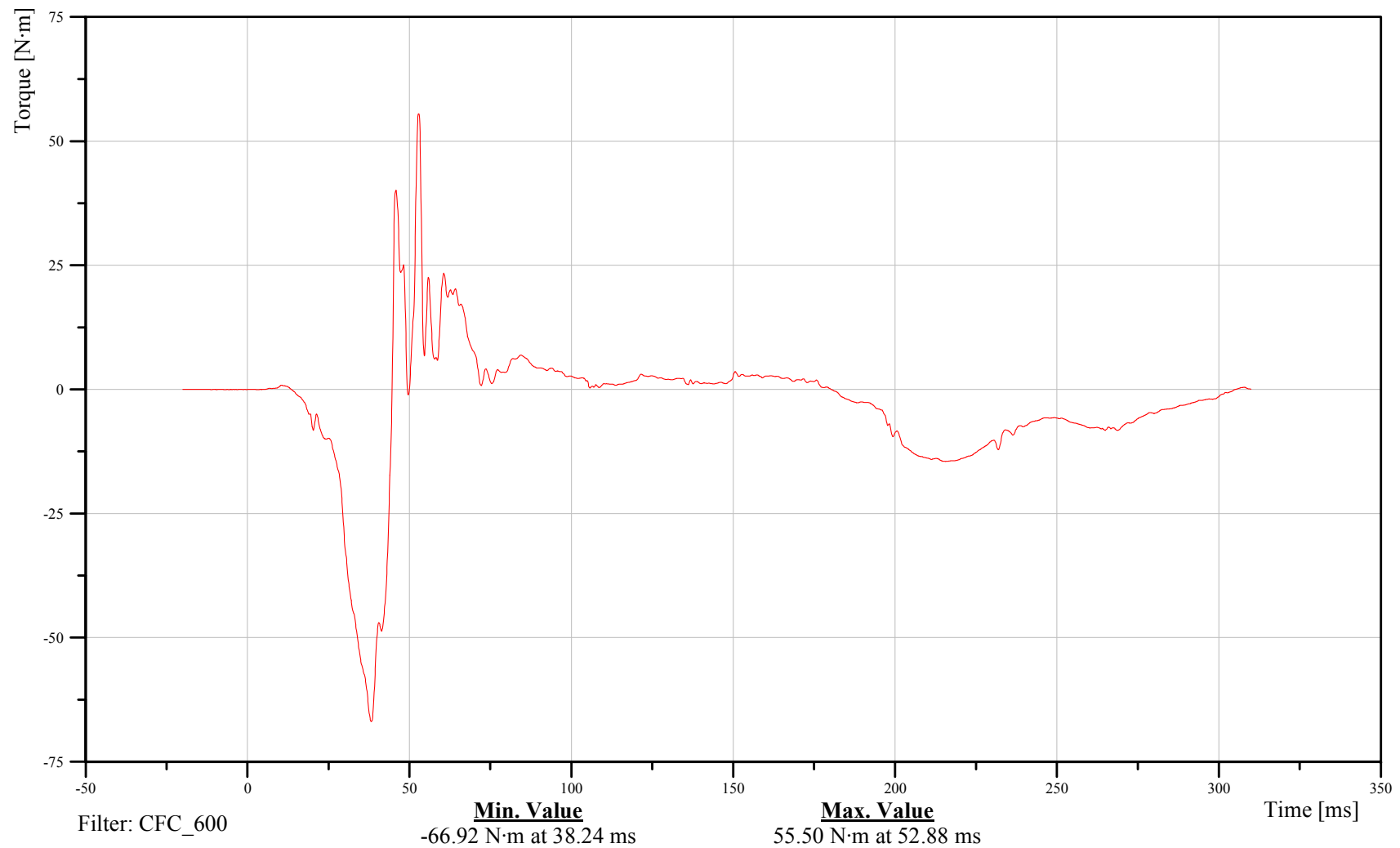
Right Femur Moment X

Customer: VRTC

14FEMRRI00E2MOXB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

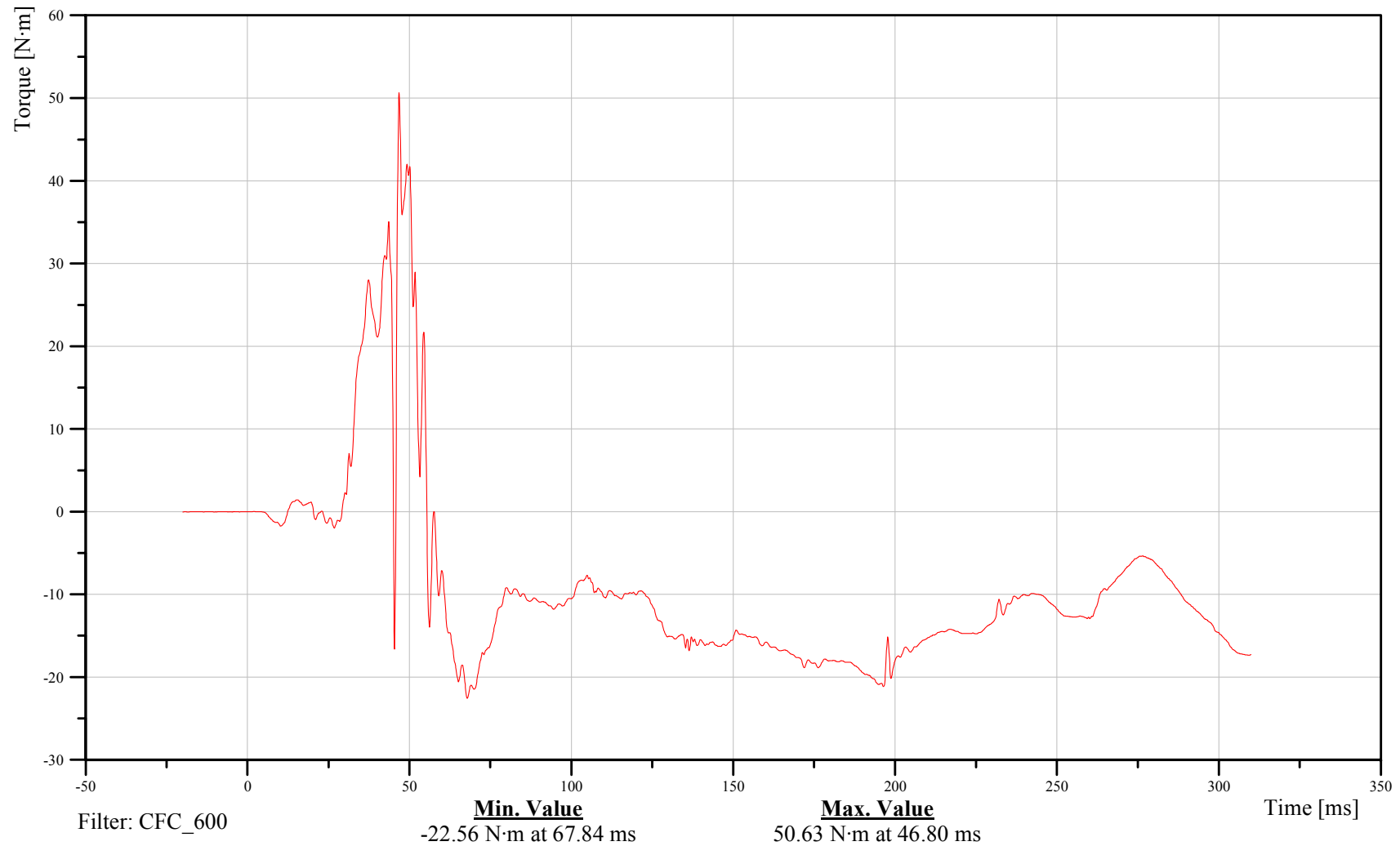
Right Femur Moment Y

Customer: VRTC

14FEMRRI00E2MOYB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

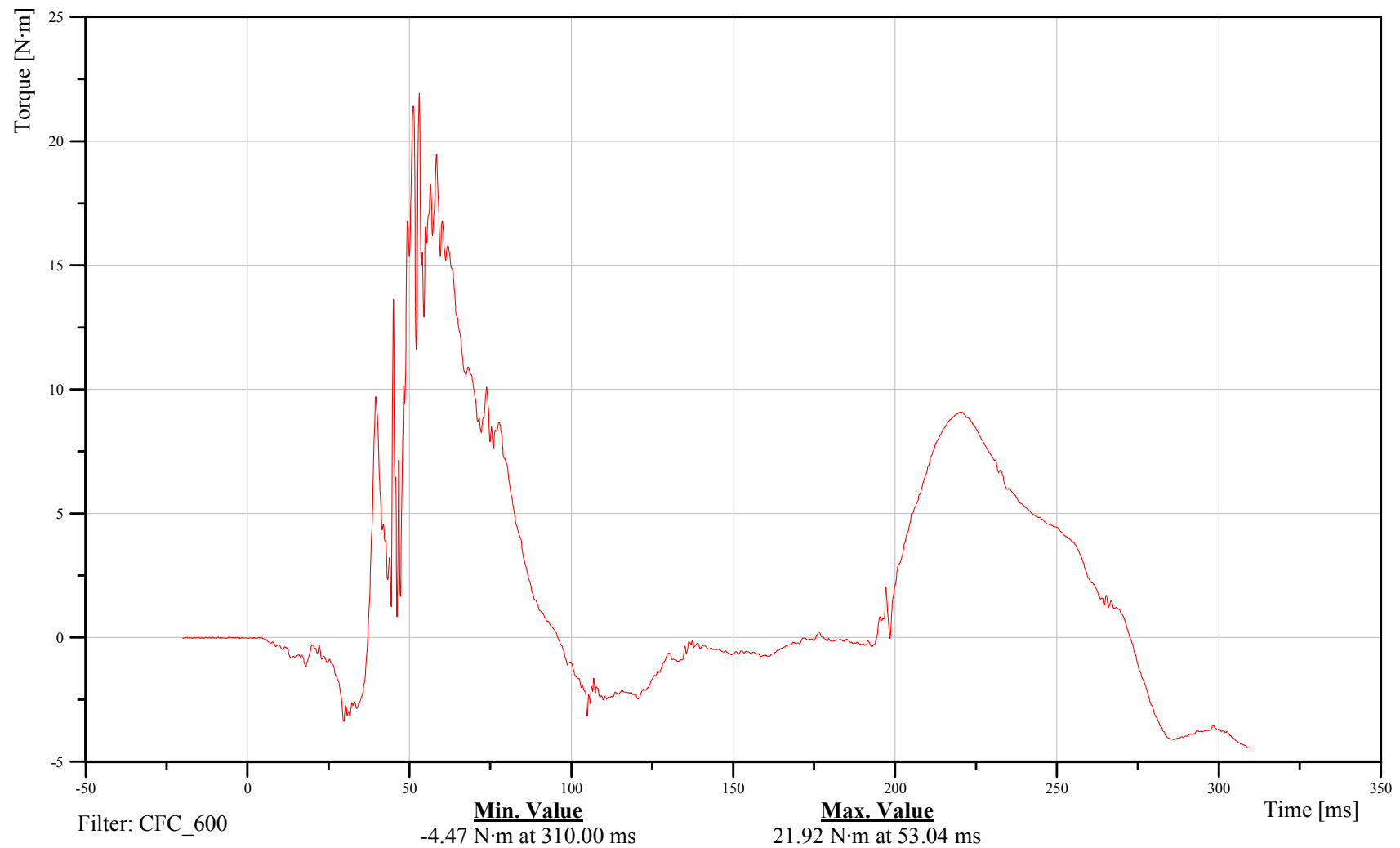
Right Femur Moment Z

Customer: VRTC

14FEMRRI00E2MOZB

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Right Side Sill at Front Seat X-axis Acceleration

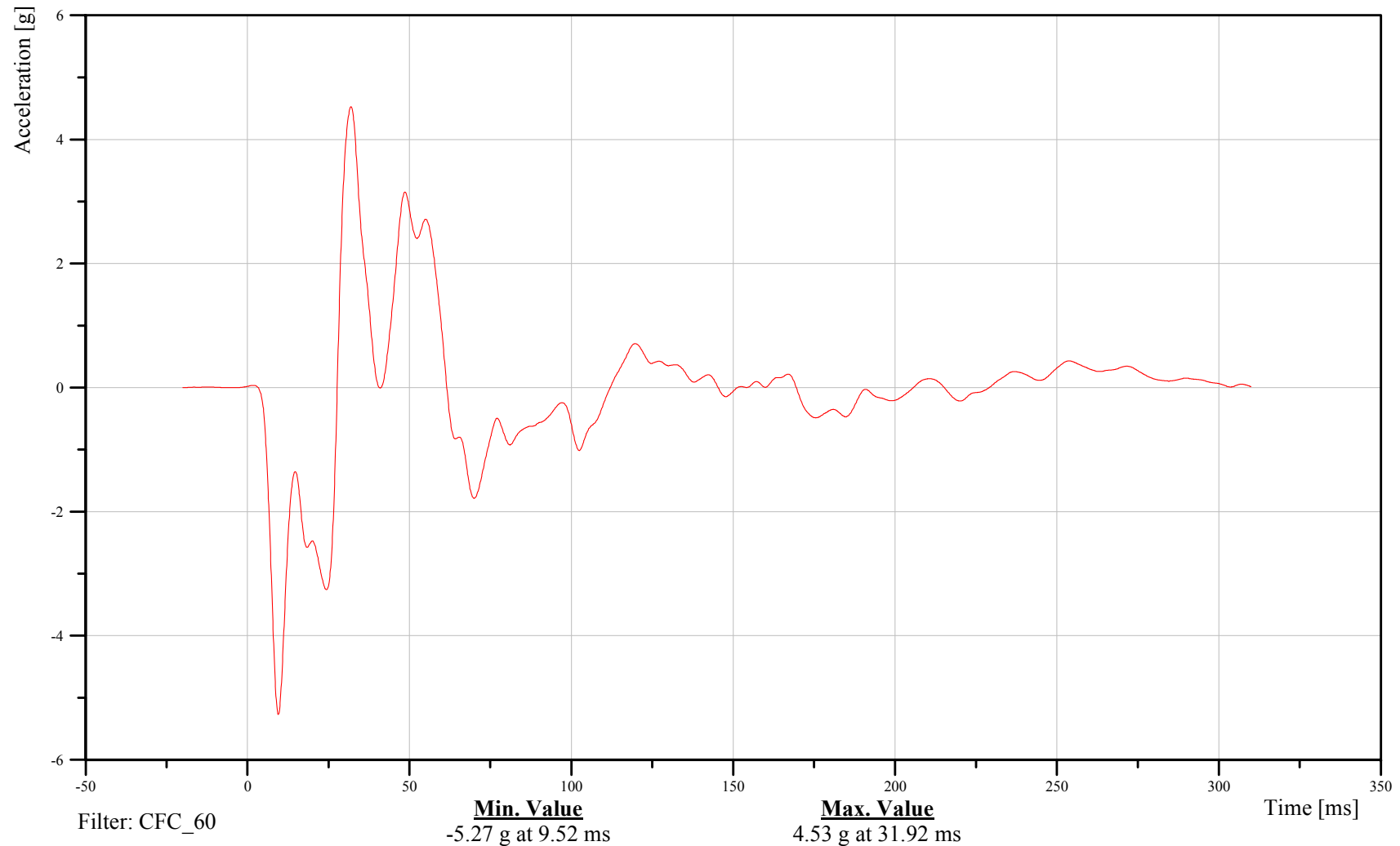
Date: 07/07/2005
Time: 11:26

Customer: VRTC

16SILBFR0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Right Side Sill at Front Seat Y-axis Acceleration

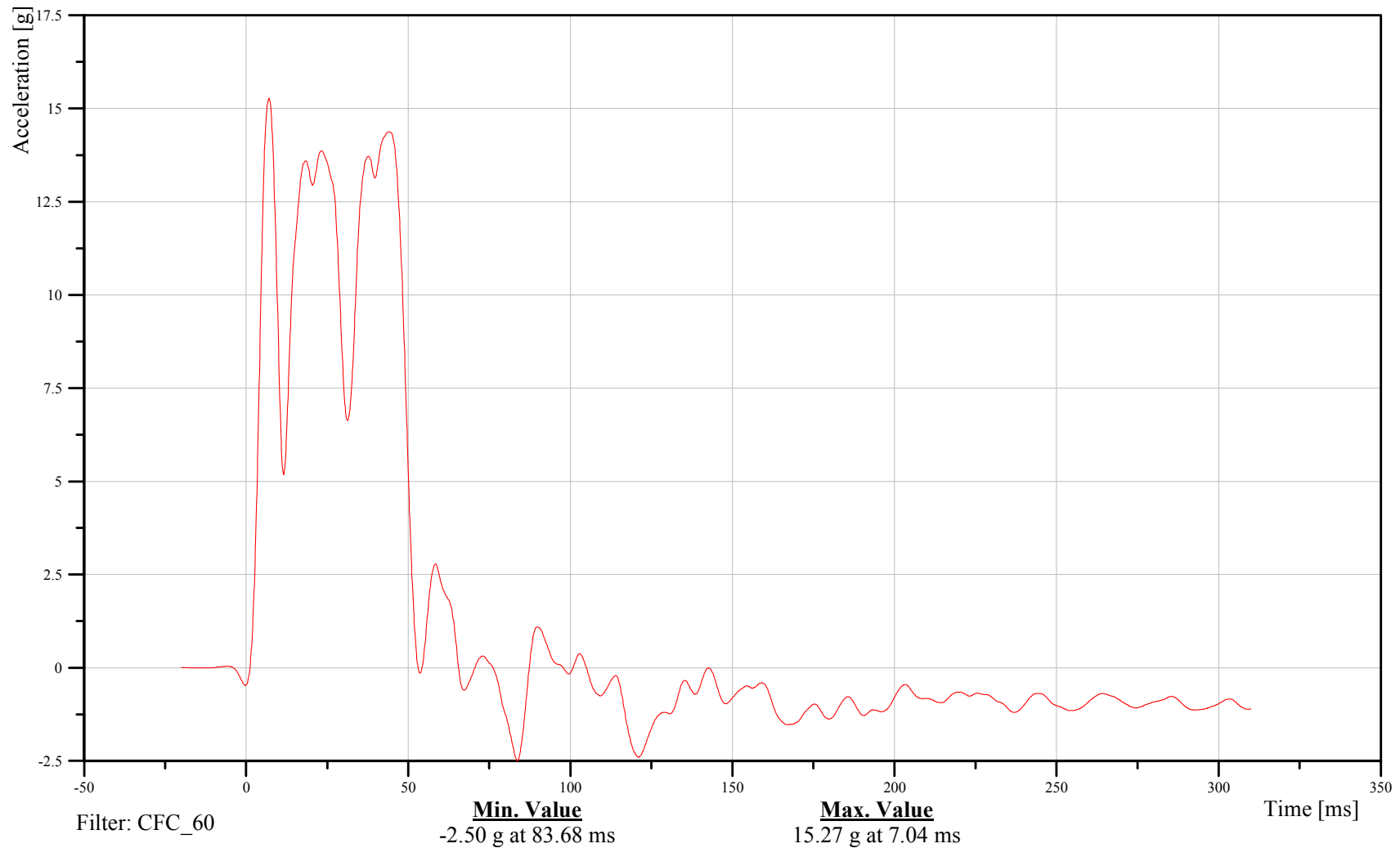
Date: 07/07/2005
Time: 11:26

Customer: VRTC

16SILBFR0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Time: 11:26

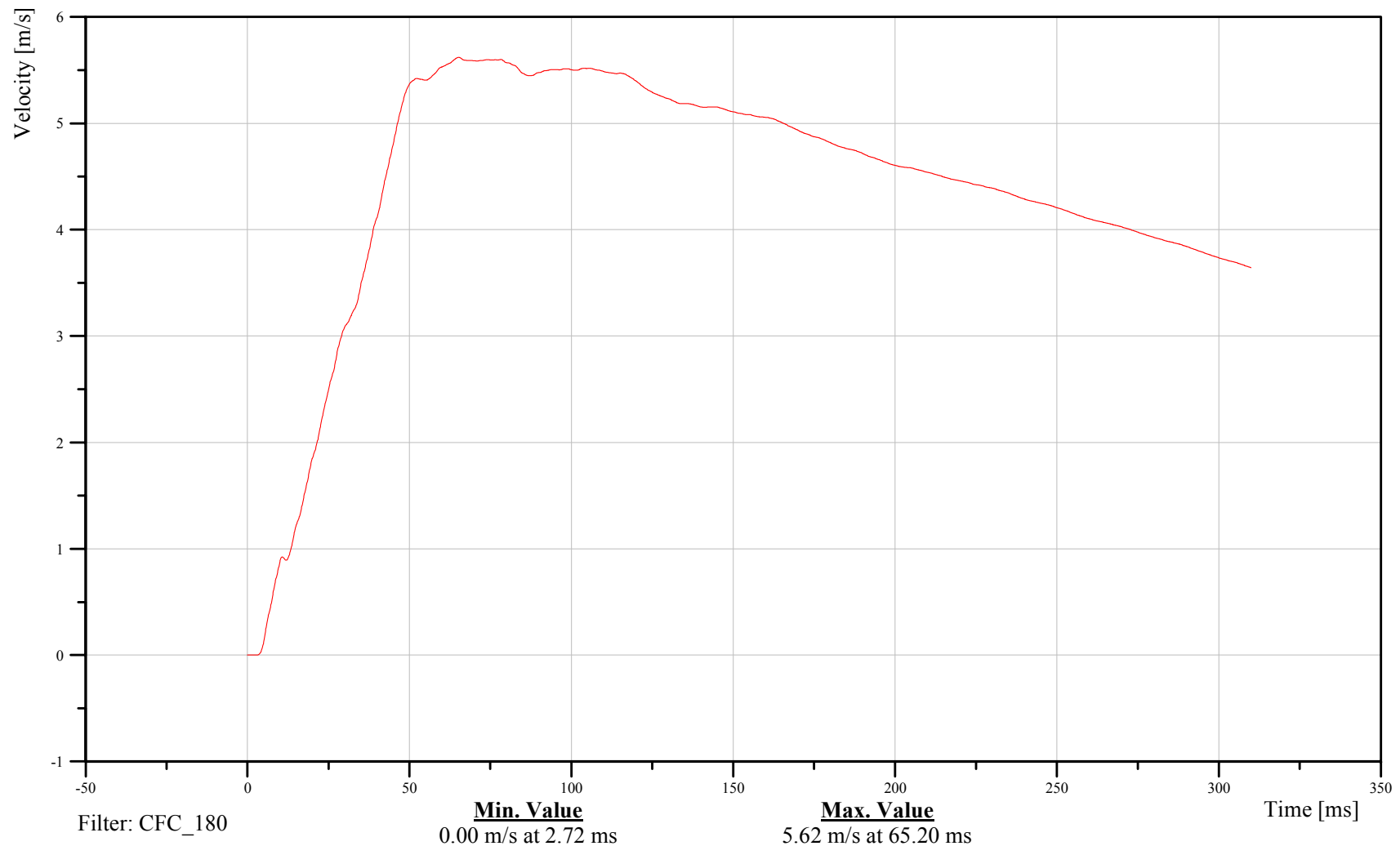
Right Side Sill at Front Seat Y-axis Velocity

Customer: VRTC

16SILBFR0000VEYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Time: 11:26

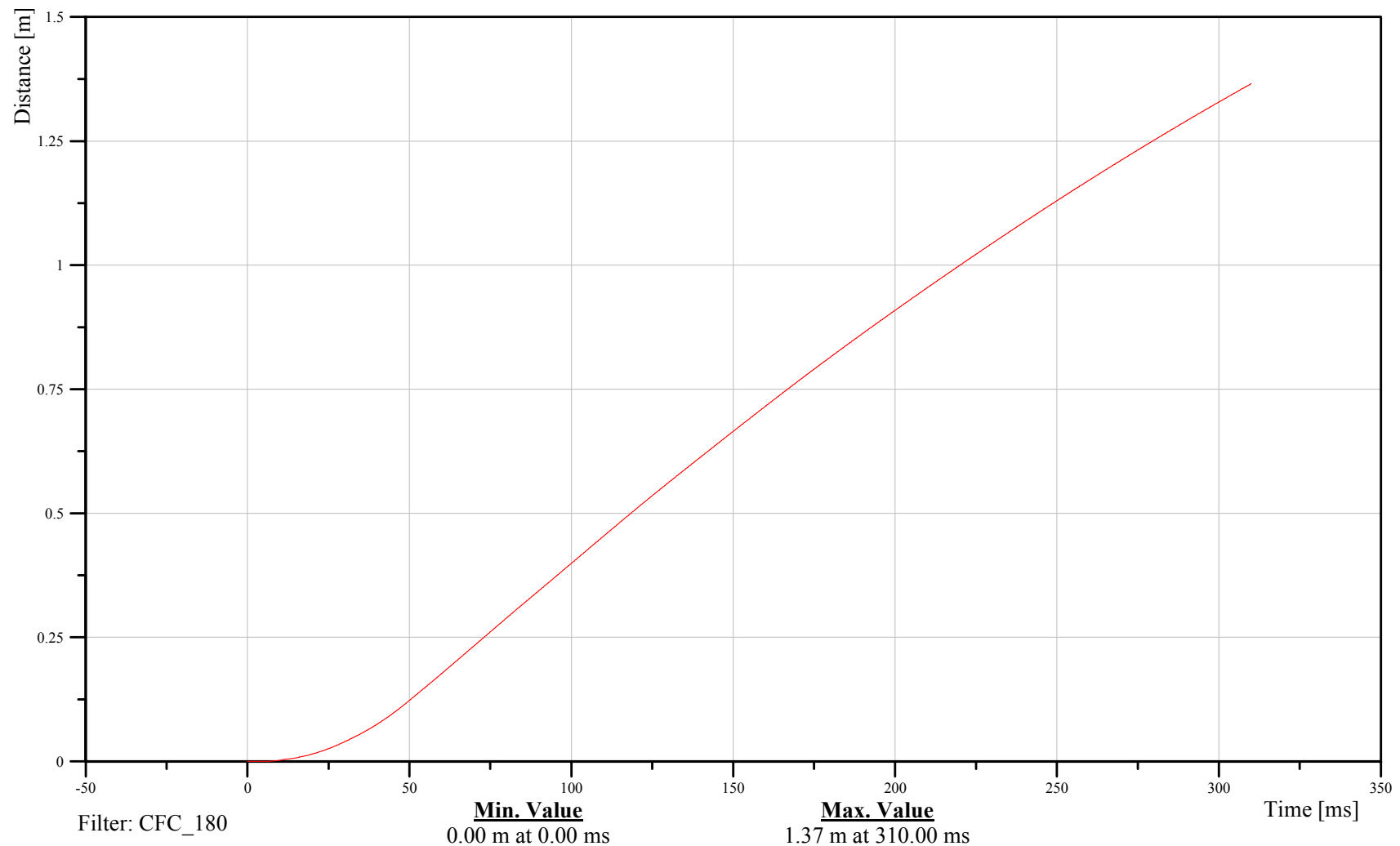
Right Side Sill at Front Seat Y-axis Displacement

Customer: VRTC

16SILBFR0000DCYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Right Side Sill at Front Seat Z-axis Acceleration

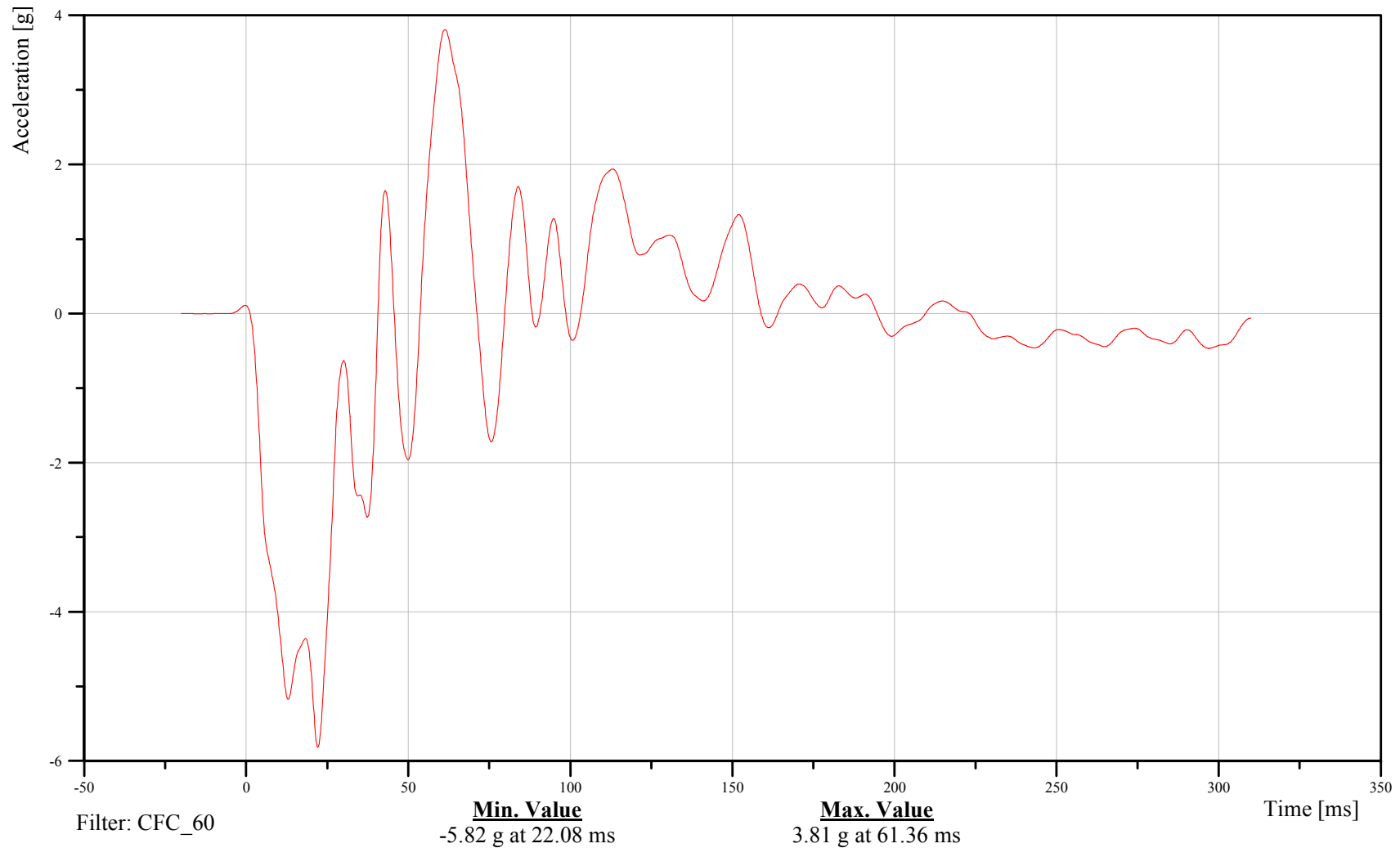
Time: 11:26

Customer: VRTC

16SILBFR0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Time: 11:26

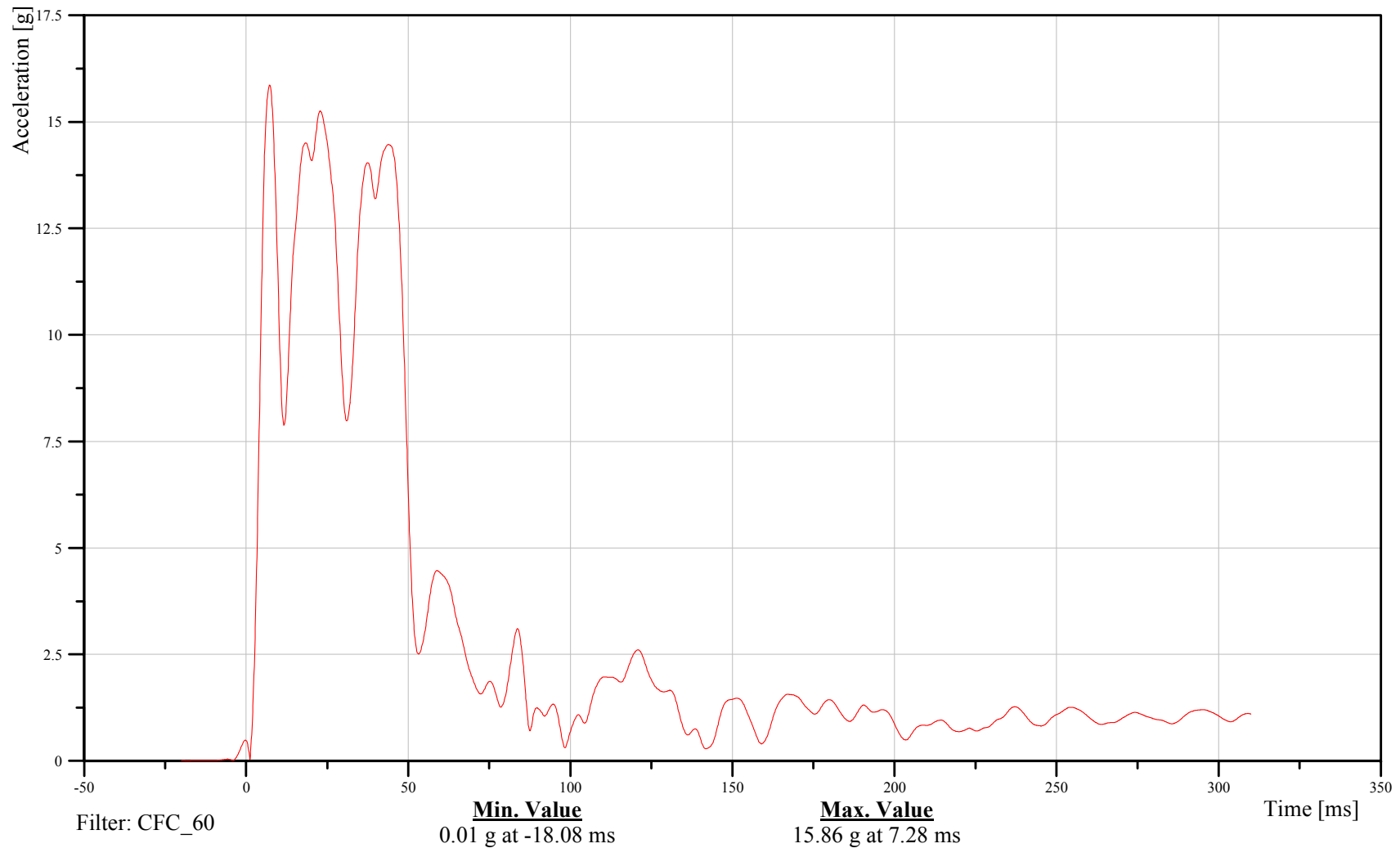
Right Side Sill at Front Seat Resultant Acceleration

Customer: VRTC

16SILBFR0000ACRD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Right Side Sill at Rear Seat X-axis Acceleration

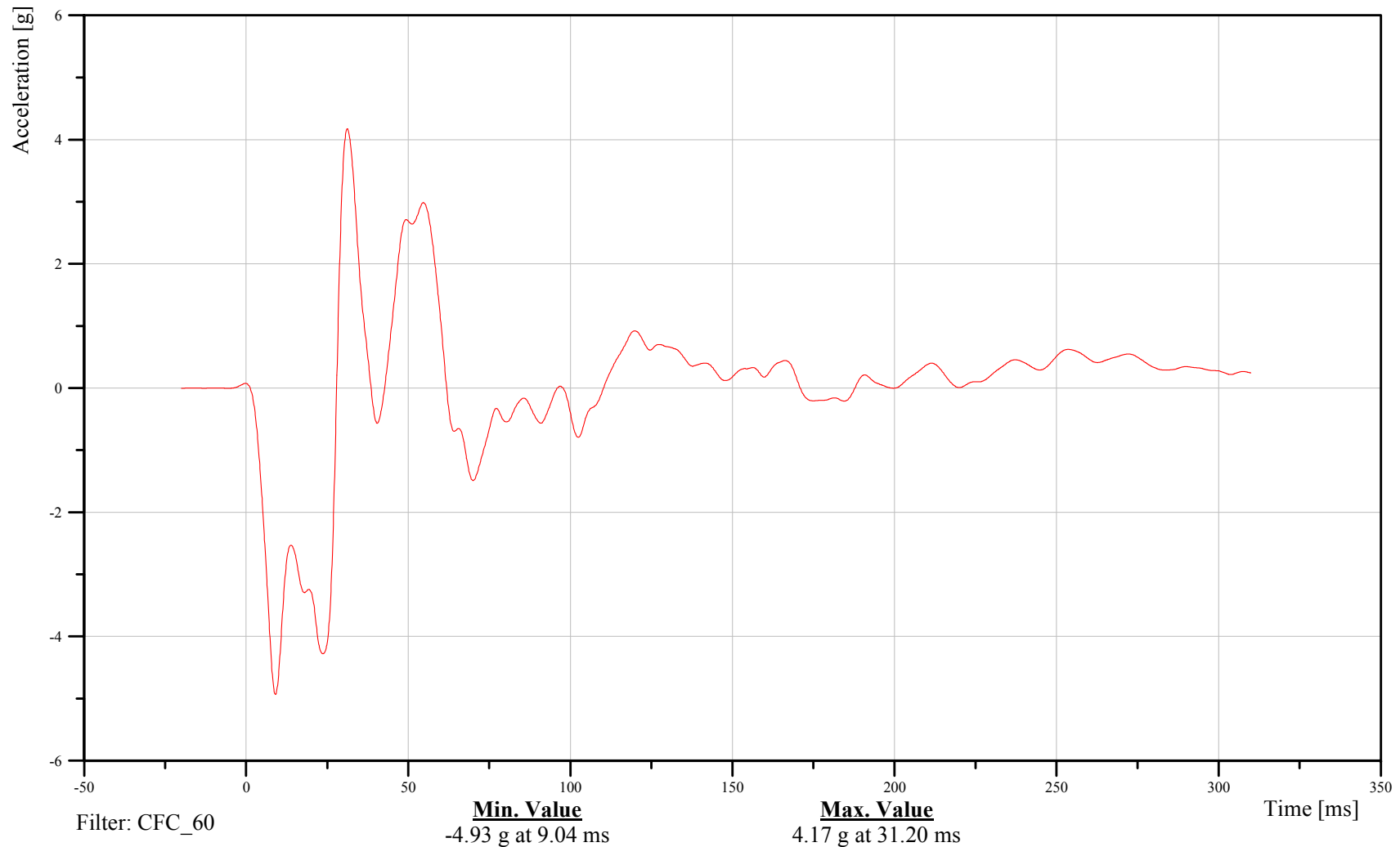
Date: 07/07/2005
Time: 11:26

Customer: VRTC

16SILBRE0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Right Side Sill at Rear Seat Y-axis Acceleration

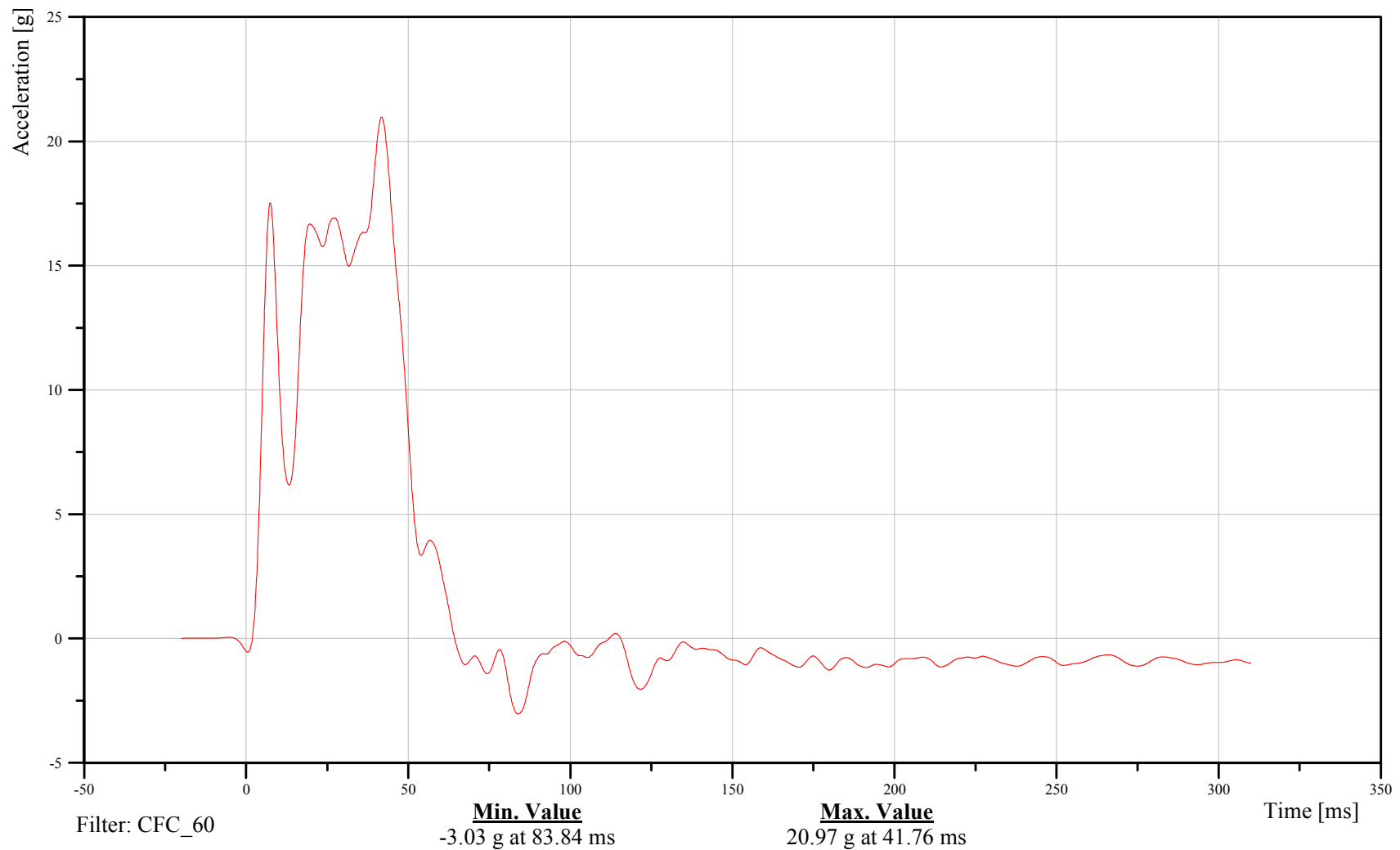
Date: 07/07/2005
Time: 11:26

Customer: VRTC

16SILBRE0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Right Side Sill at Rear Seat Y-axis Velocity

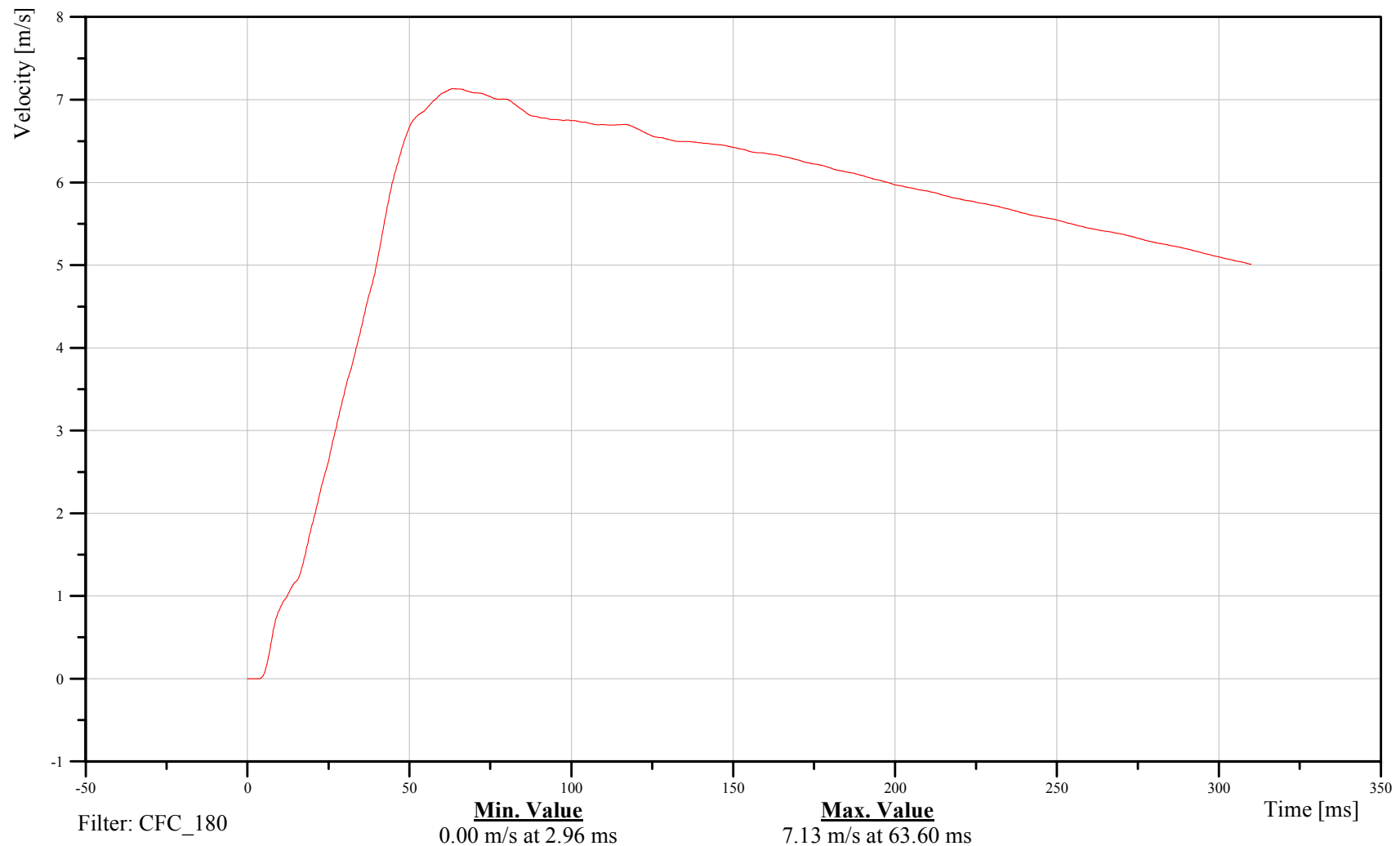
Date: 07/07/2005
Time: 11:26

Customer: VRTC

16SILBRE0000VEYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Right Side Sill at Rear Seat Y-axis Displacement

Date: 07/07/2005

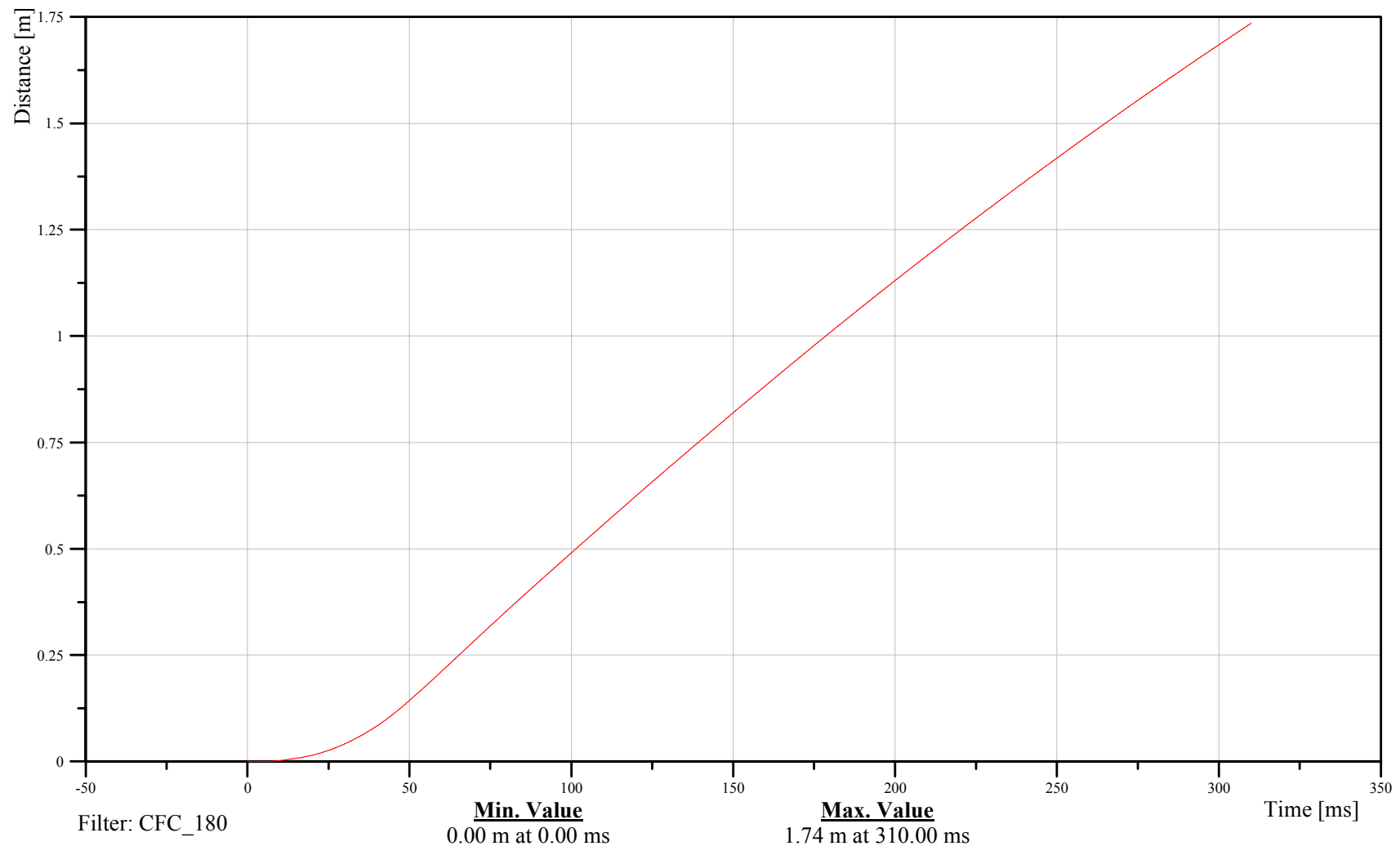
Time: 11:26

Customer: VRTC

16SILBRE0000DCYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Right Side Sill at Rear Seat Z-axis Acceleration

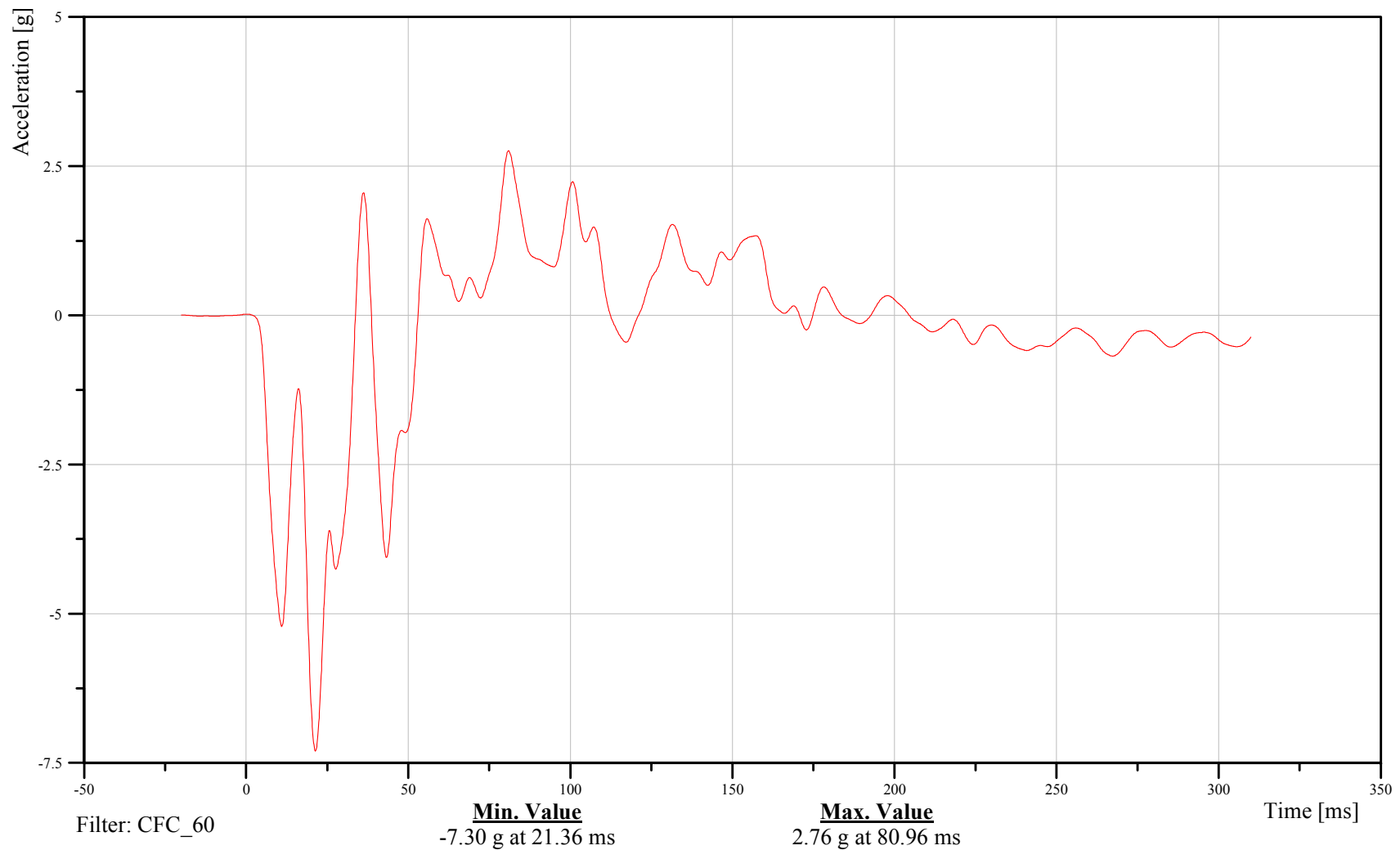
Date: 07/07/2005
Time: 11:26

Customer: VRTC

16SILBRE0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Time: 11:26

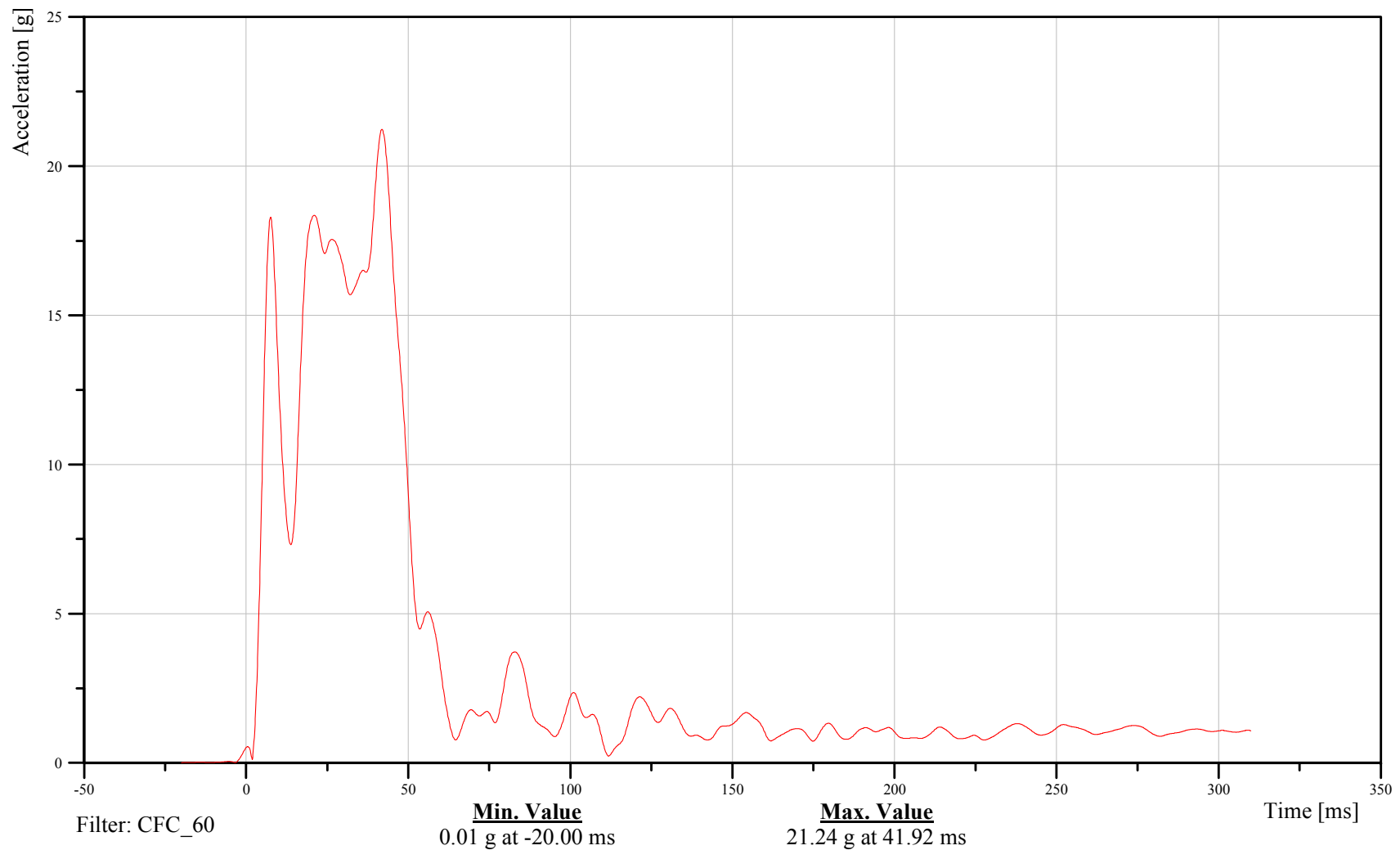
Right Side Sill at Rear Seat Resultant Acceleration

Customer: VRTC

16SILBRE0000ACRD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

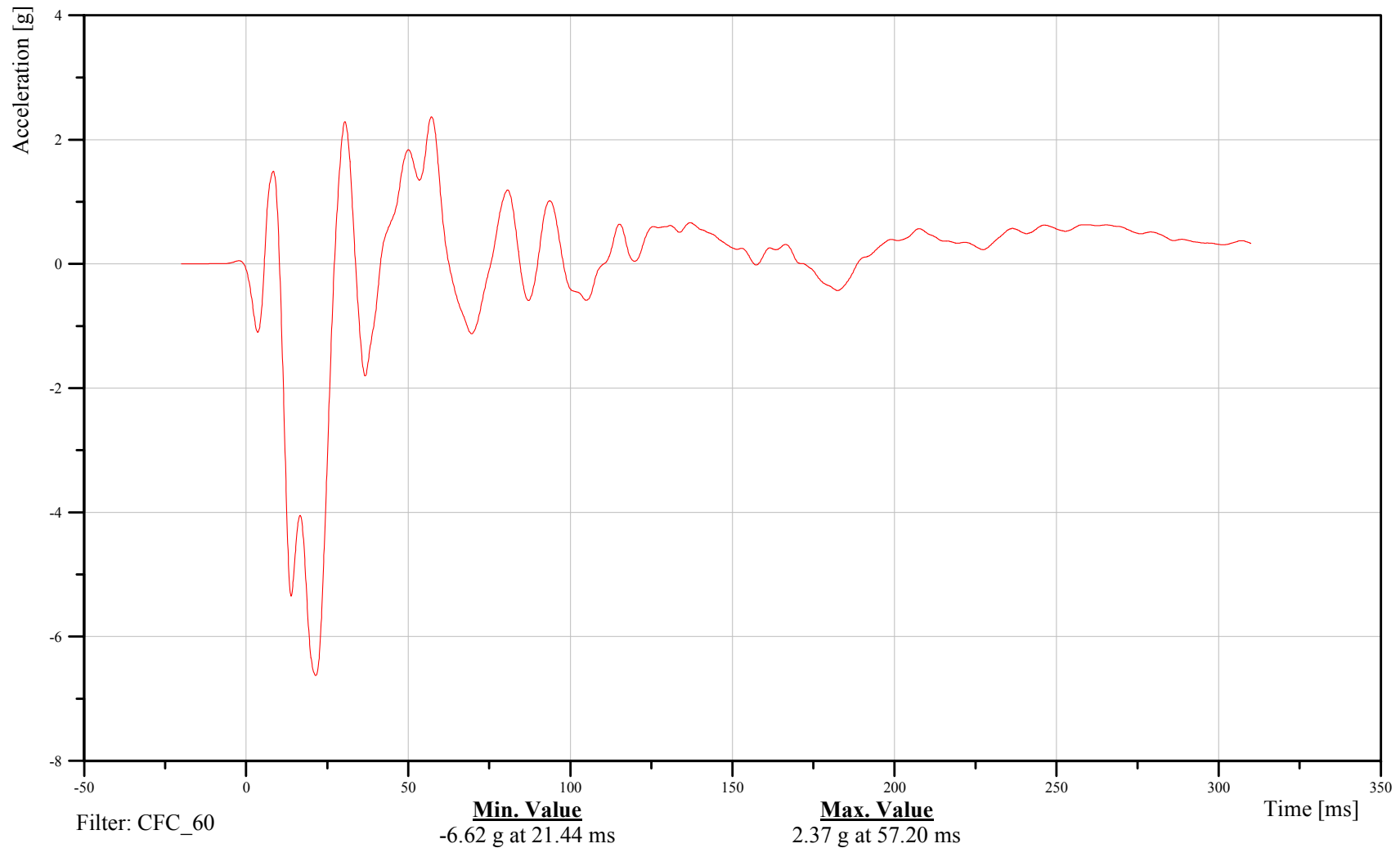
Rear Floorpan Above Axle X-axis Acceleration

Customer: VRTC

18FORA000000ACXD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Rear Floorpan Above Axle Y-axis Acceleration

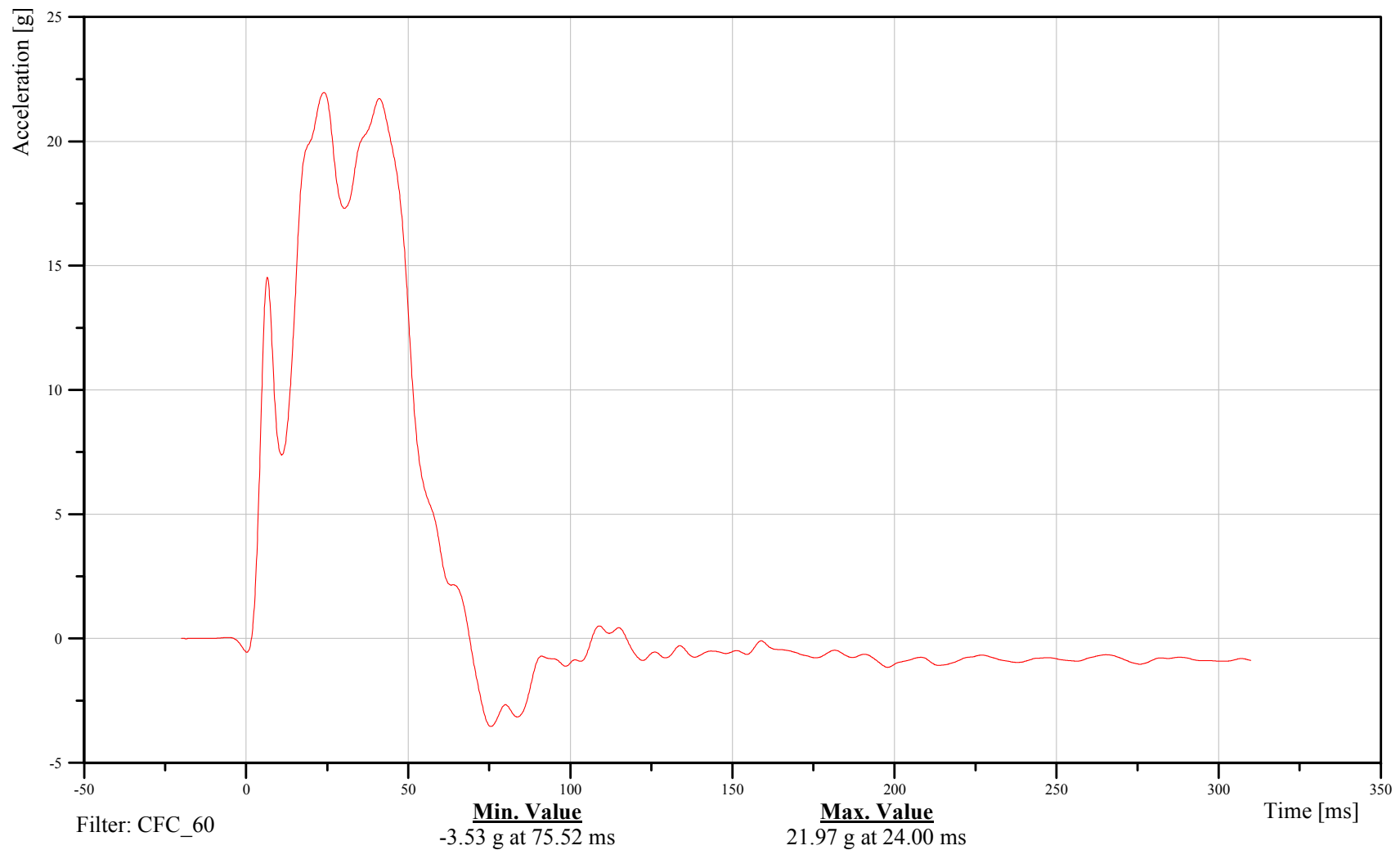
Date: 07/07/2005
Time: 11:26

Customer: VRTC

18FORA000000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

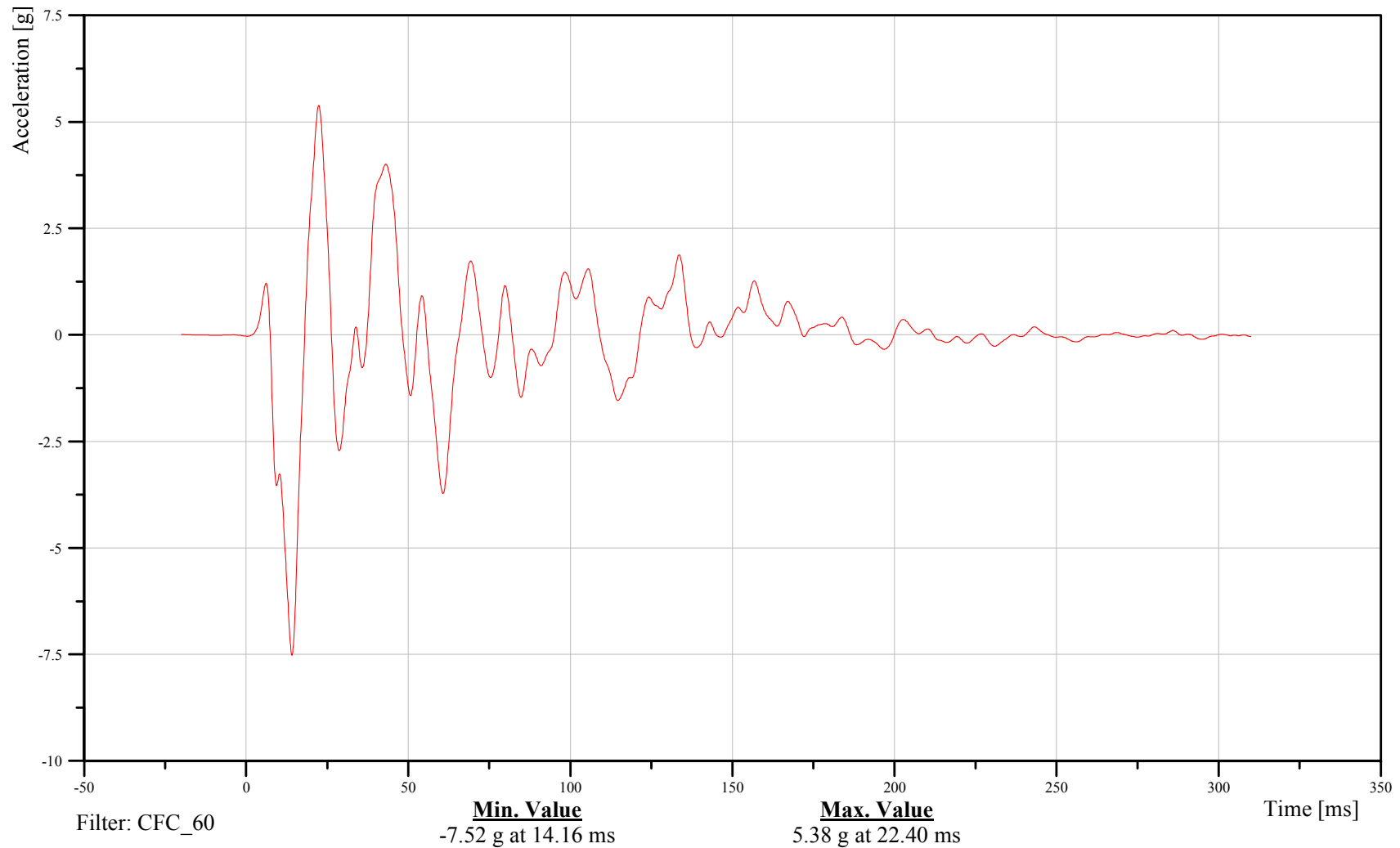
Rear Floorpan Above Axle Z-axis Acceleration

Customer: VRTC

18FORA000000ACZD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Time: 11:26

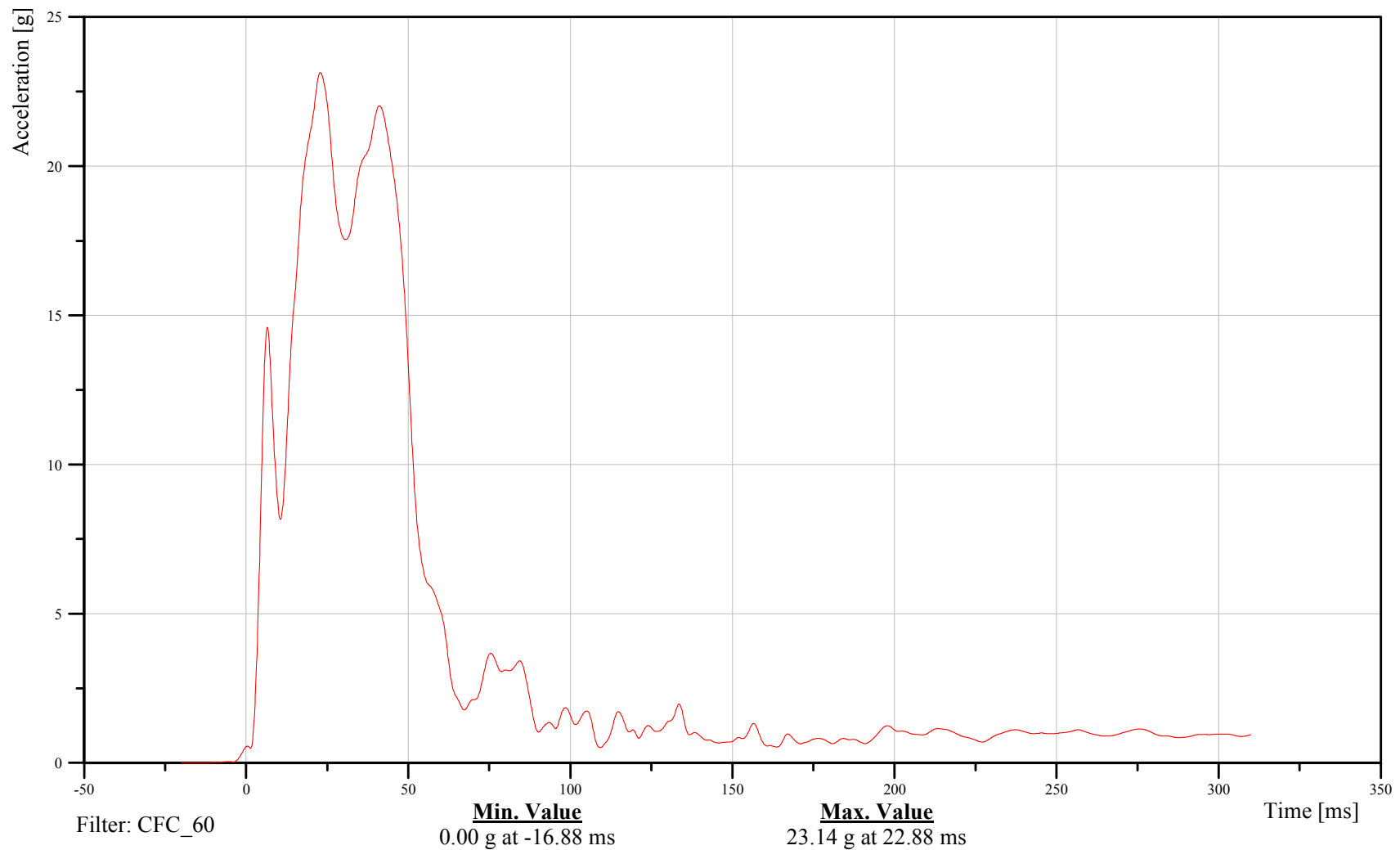
Rear Floorpan Above Axle Resultant Acceleration

Customer: VRTC

18FORA000000ACRD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Left Side Sill at Rear Seat Y-axis Acceleration

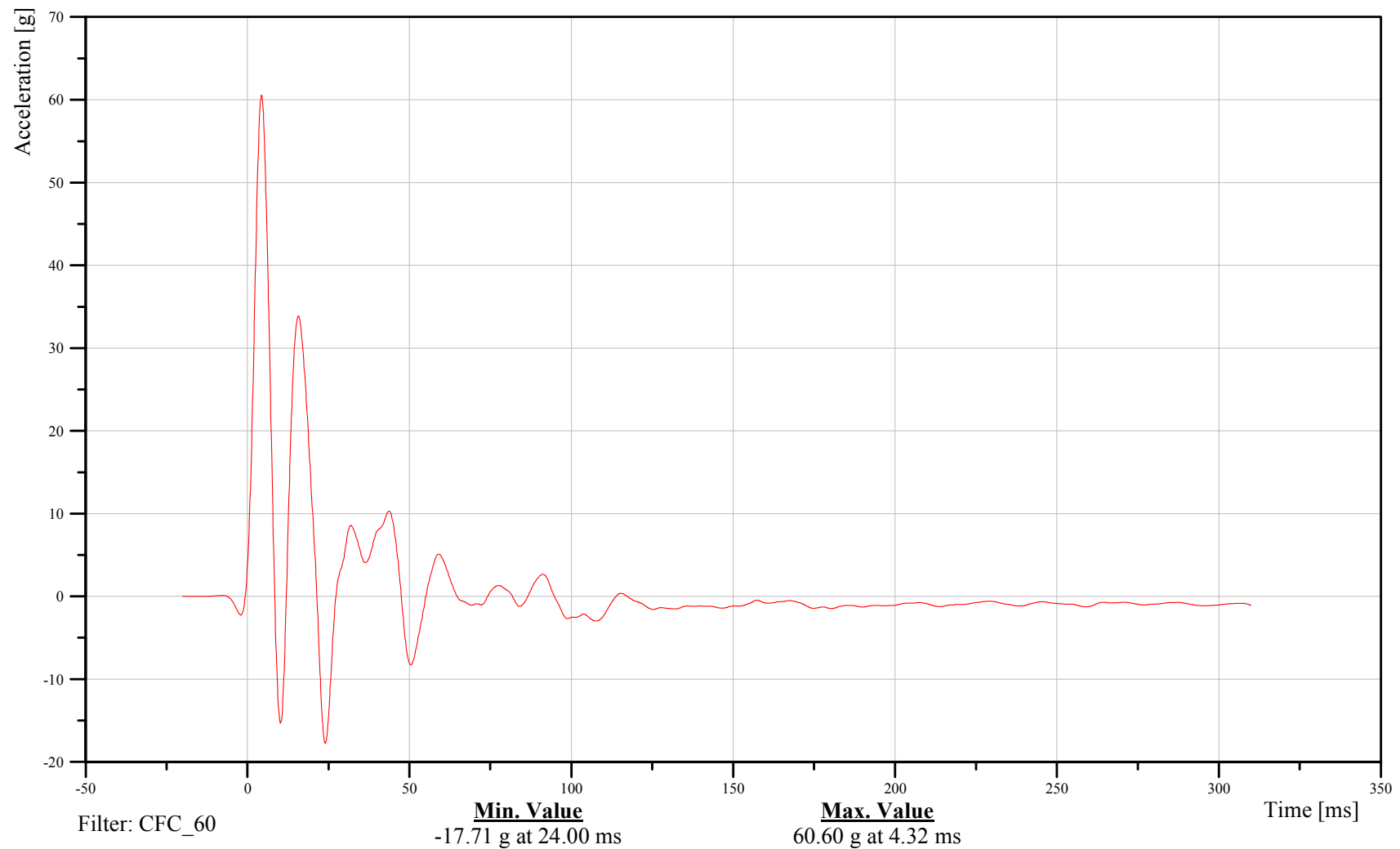
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14SILBRE0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Time: 11:26

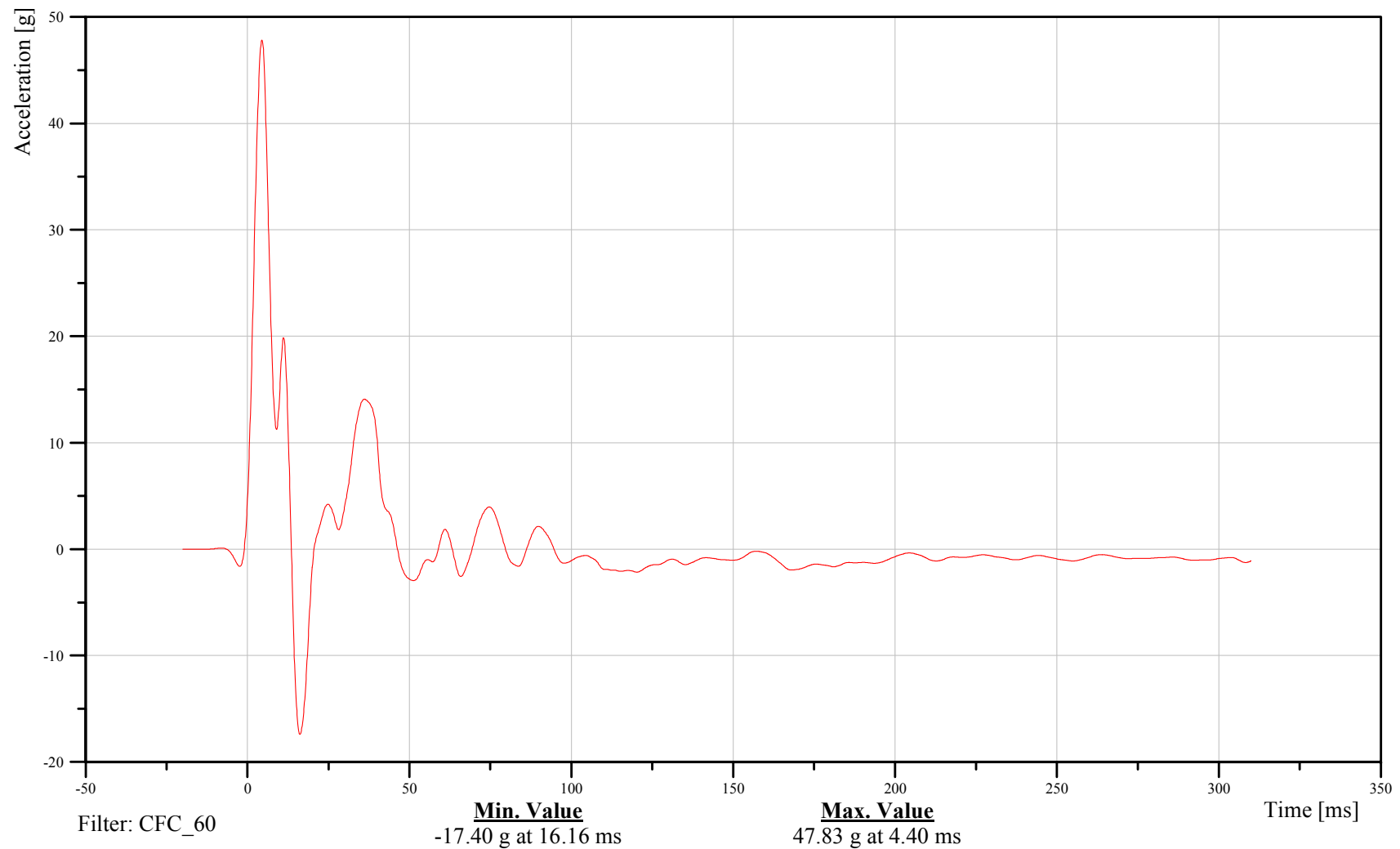
Left Side Sill at Front Seat Y-axis Acceleration

Customer: VRTC

14SILBFR0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

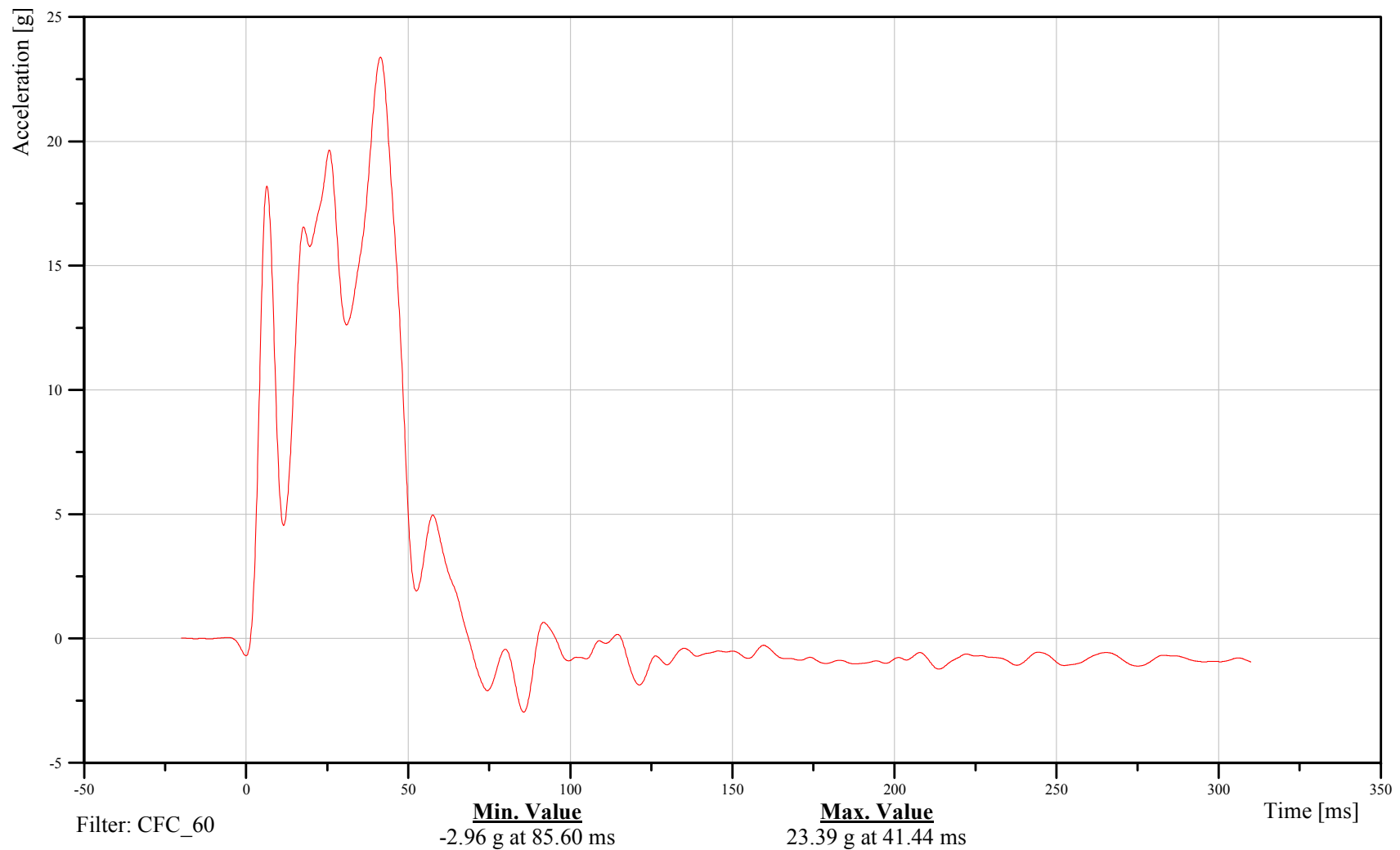
Right Rear Occupant Compartment Y-axis Accel

Customer: VRTC

16VEHCRE0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Left Lower B-Post Y-axis Accel

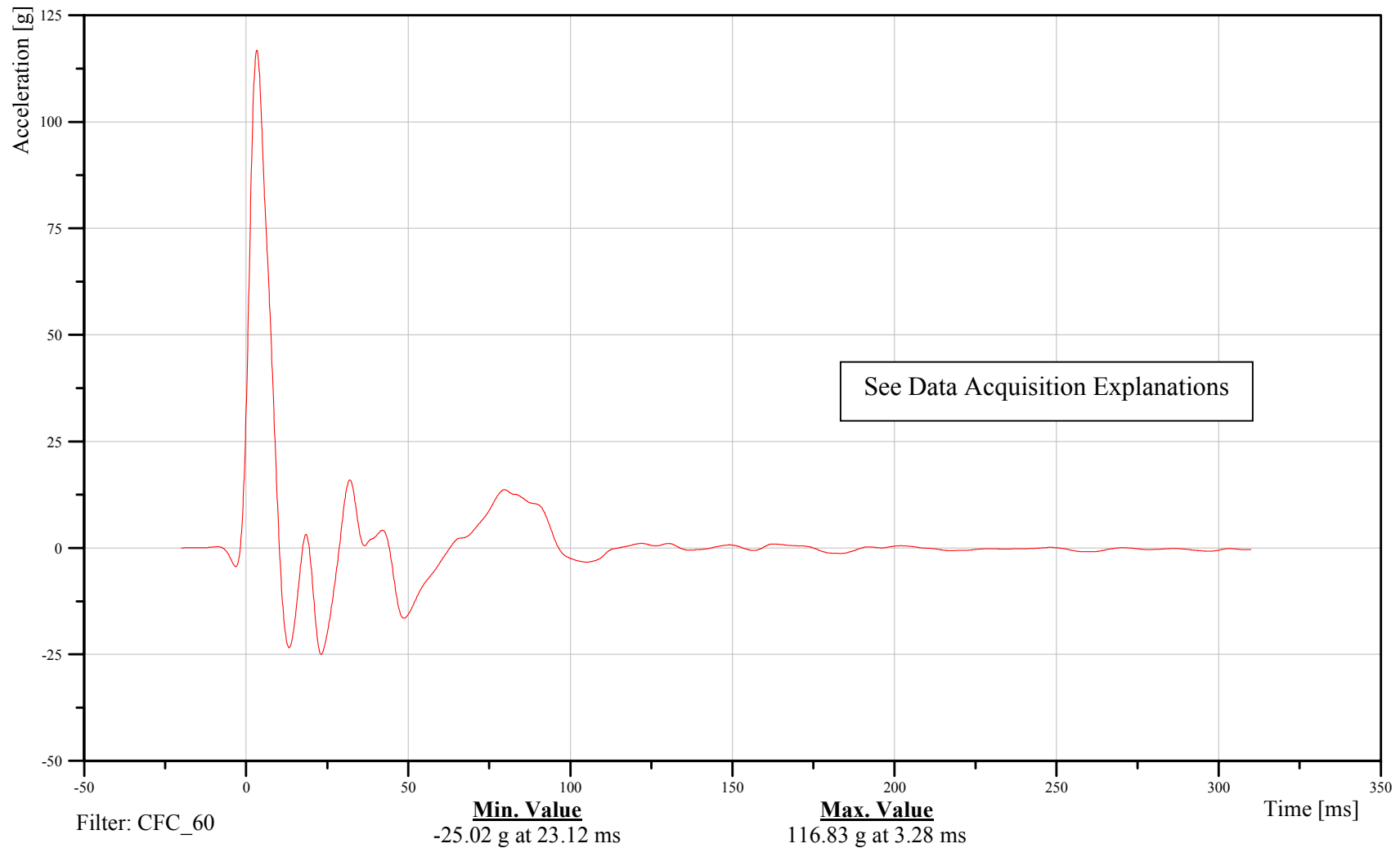
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14BPILLO0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Left Middle B-Post Y-axis Accel

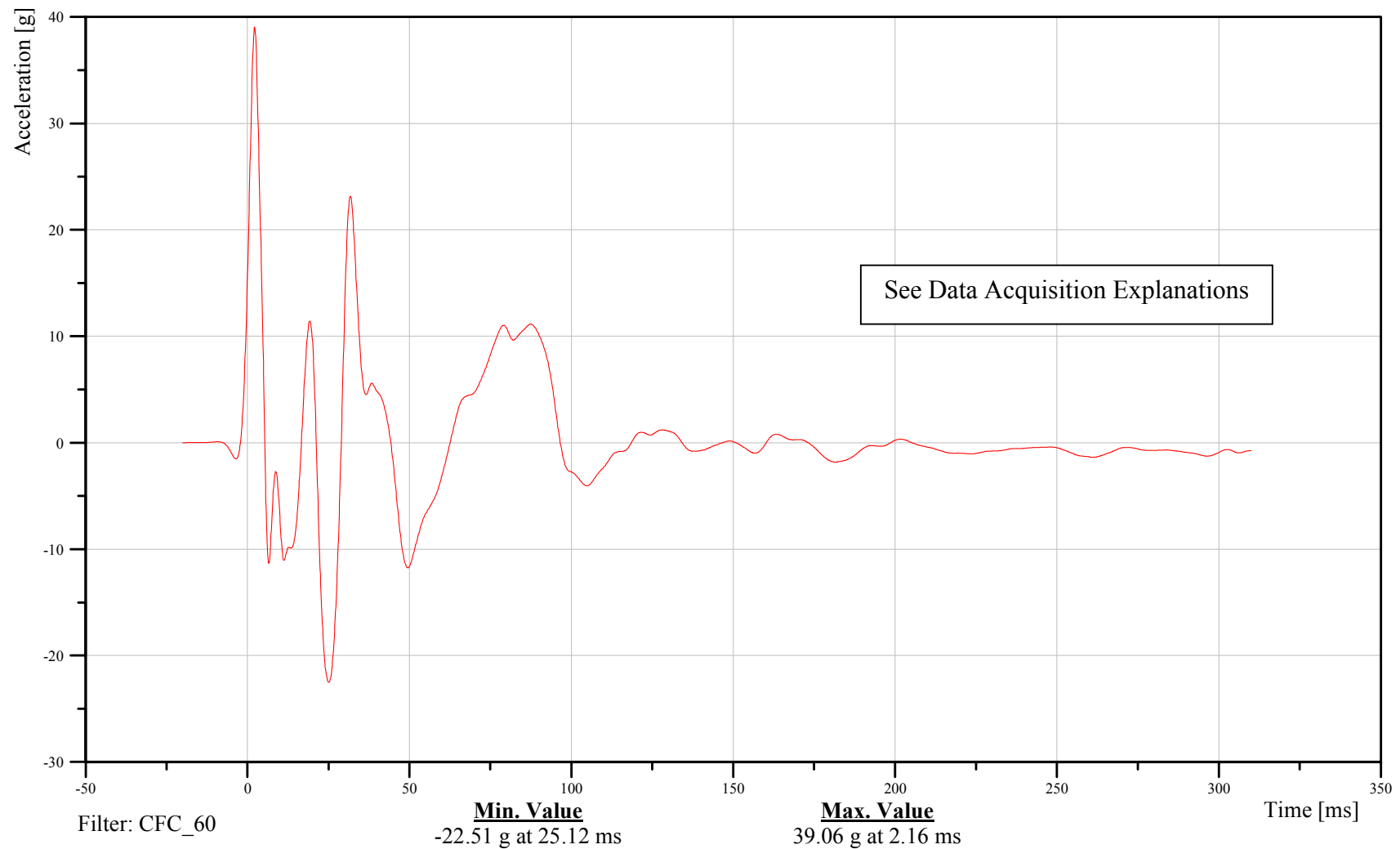
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14BPILMI0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Left Lower A-Post Y-axis Accel

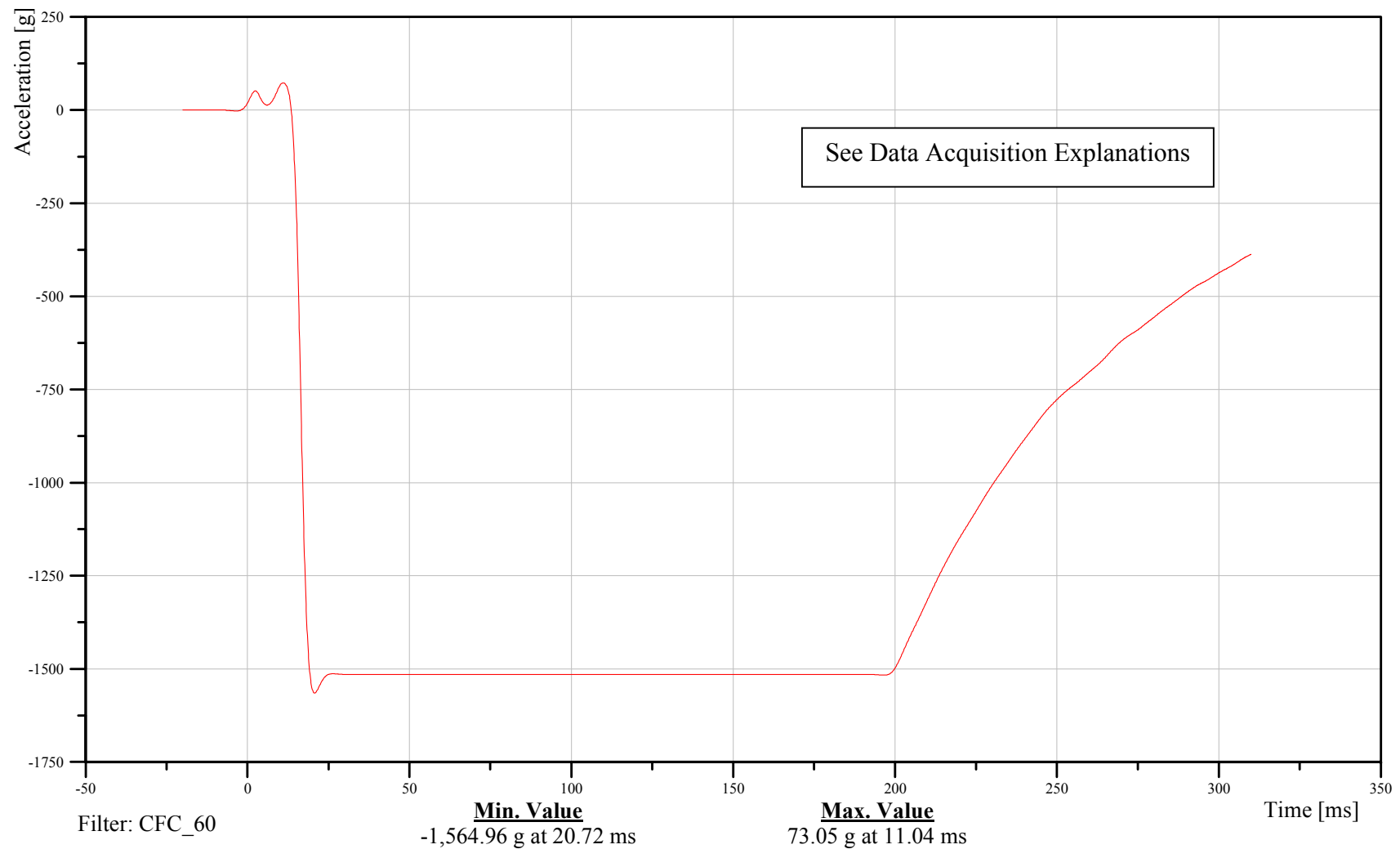
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11APILO0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Left Middle A-Post Y-axis Accel

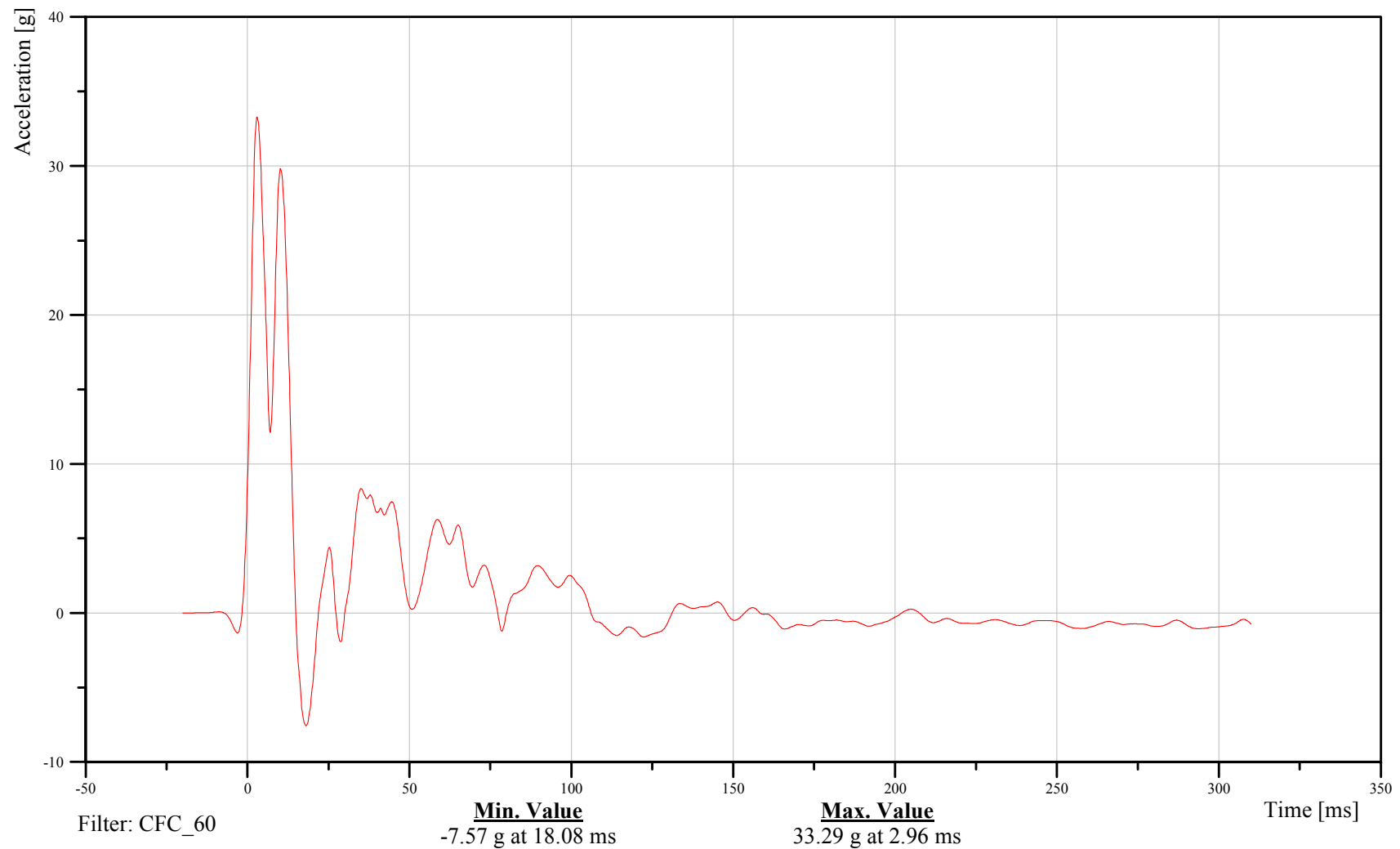
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11APILMI0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

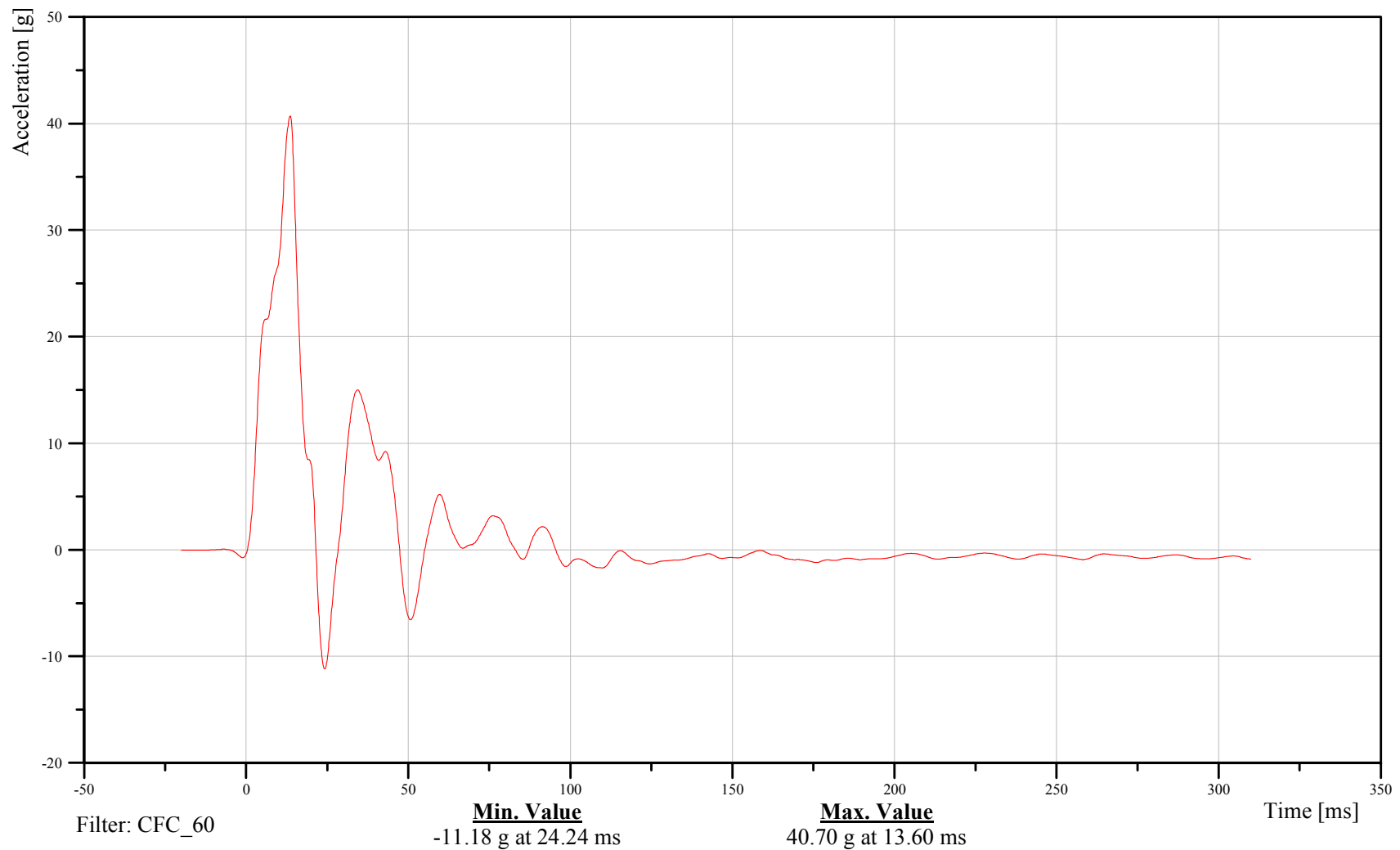
Left Front Seat Track Y-axis Acceleration

Customer: VRTC

11SETRFR0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

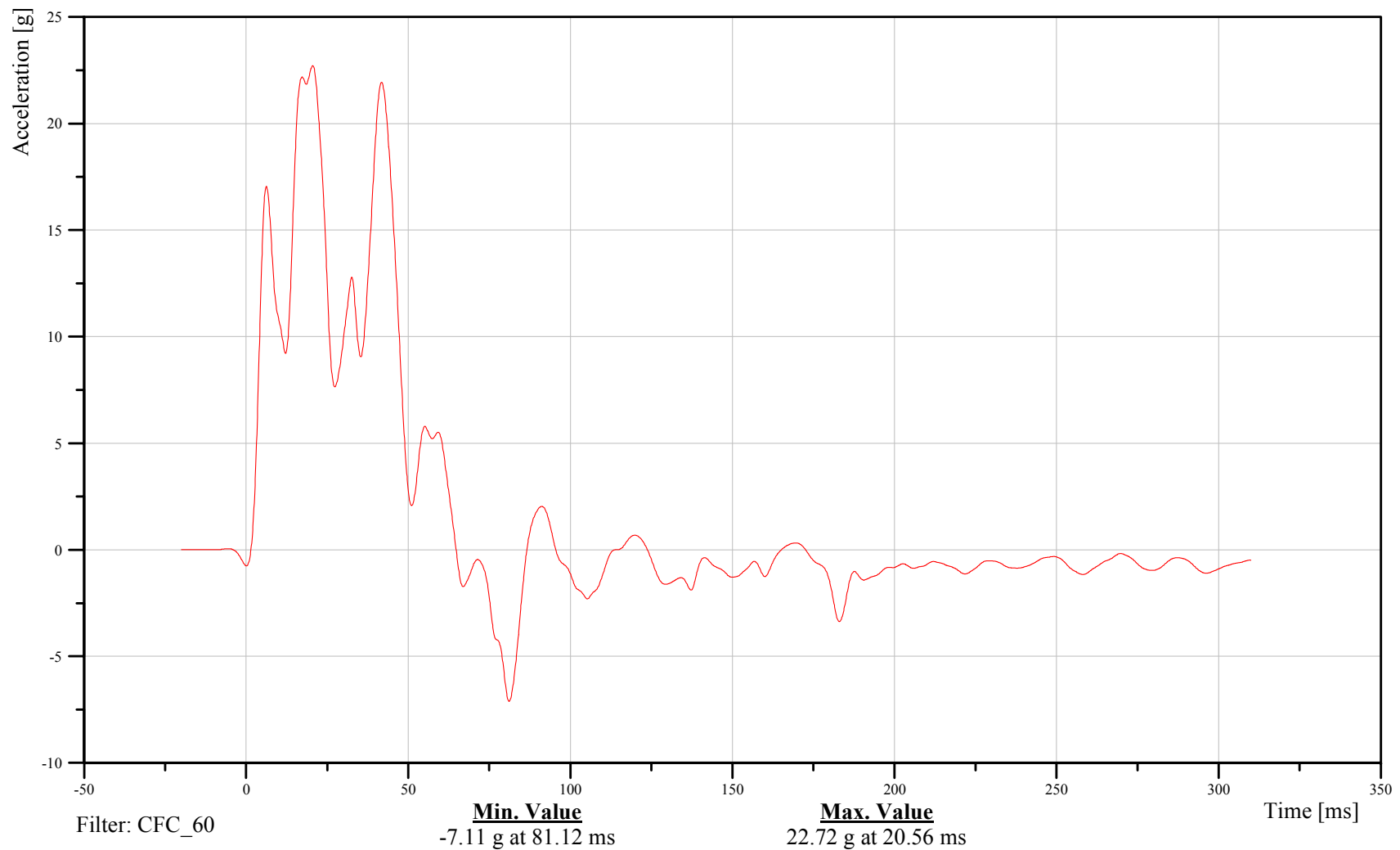
Left Rear Seat Track Y-axis Acceleration

Customer: VRTC

14SETRLERE00ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Vehicle Center of Gravity X-axis Acceleration

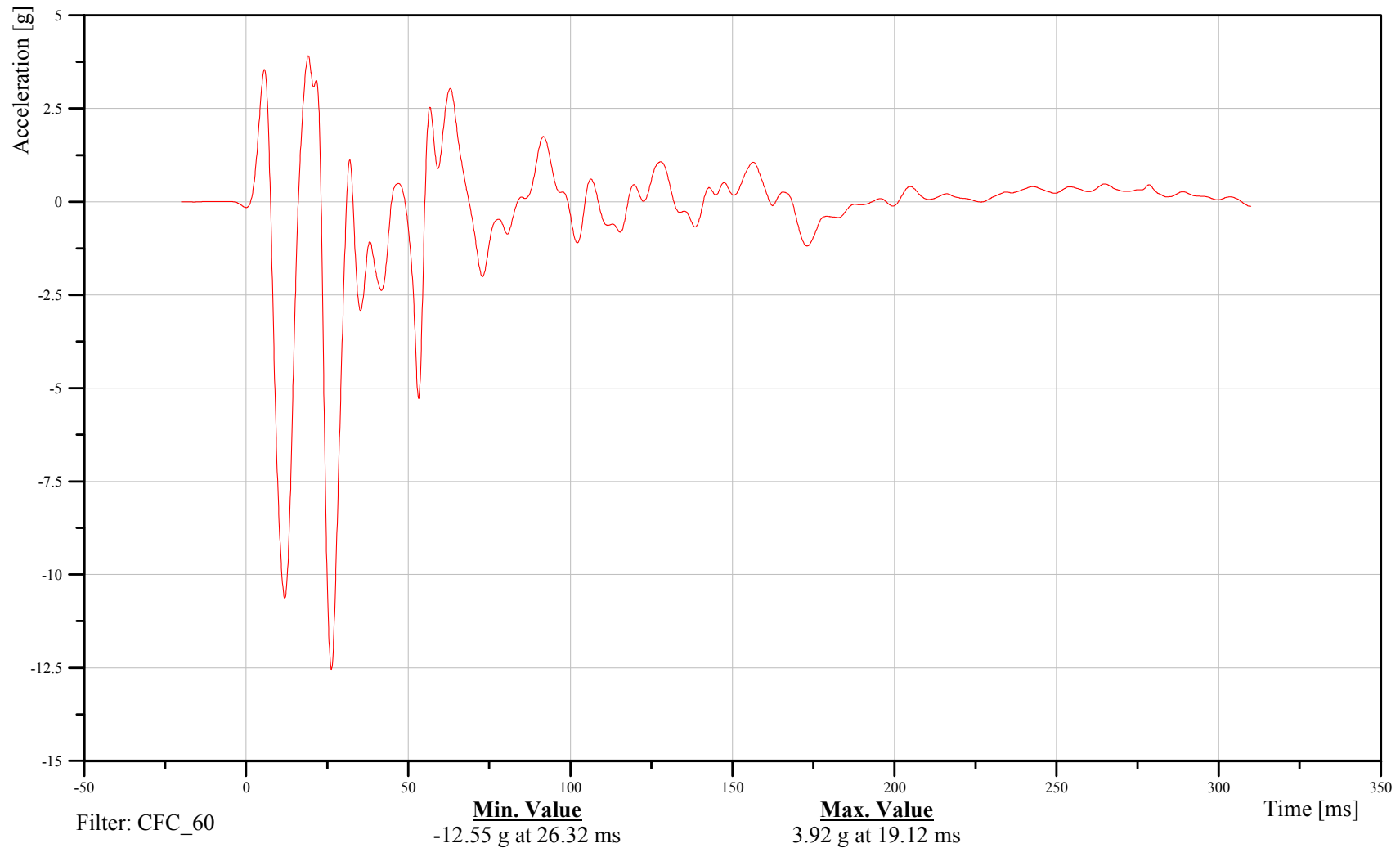
Date: 07/07/2005
Time: 11:26

Customer: VRTC

10VEHCCG0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Vehicle Center of Gravity Y-axis Acceleration

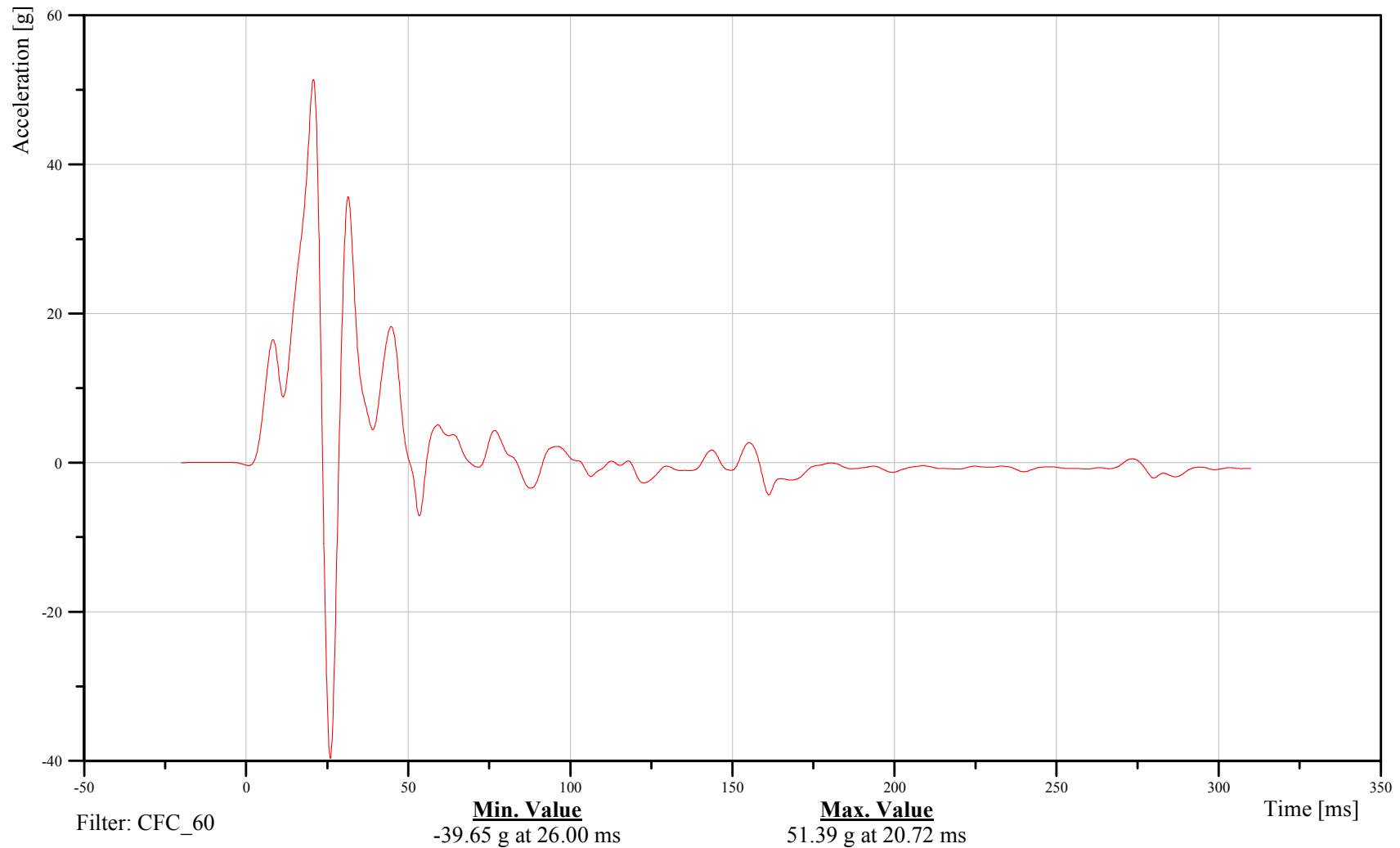
Date: 07/07/2005
Time: 11:26

Customer: VRTC

10VEHCCG0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Vehicle Center of Gravity Z-axis Acceleration

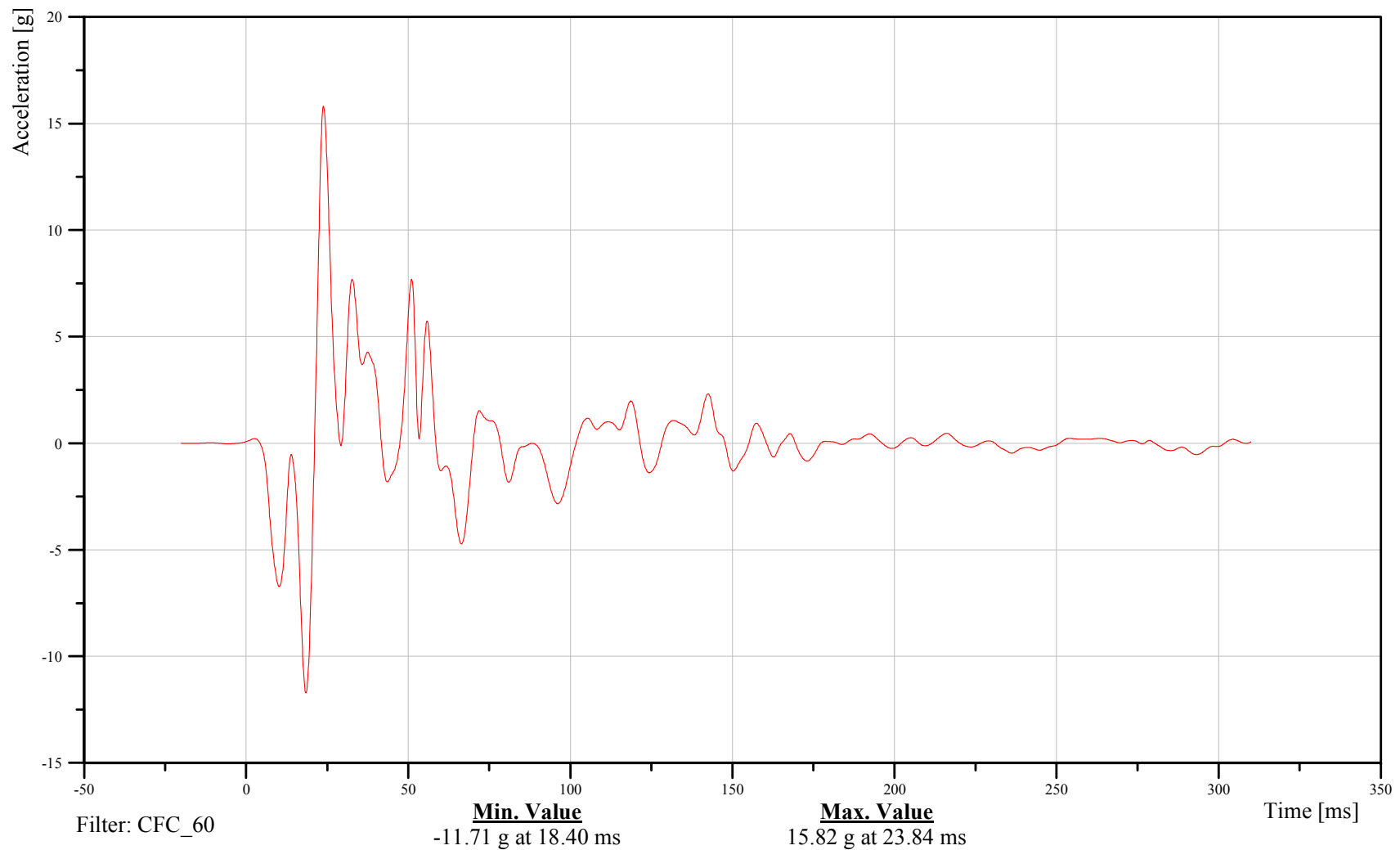
Date: 07/07/2005
Time: 11:26

Customer: VRTC

10VEHCCG0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Vehicle Center of Gravity Resultant Acceleration

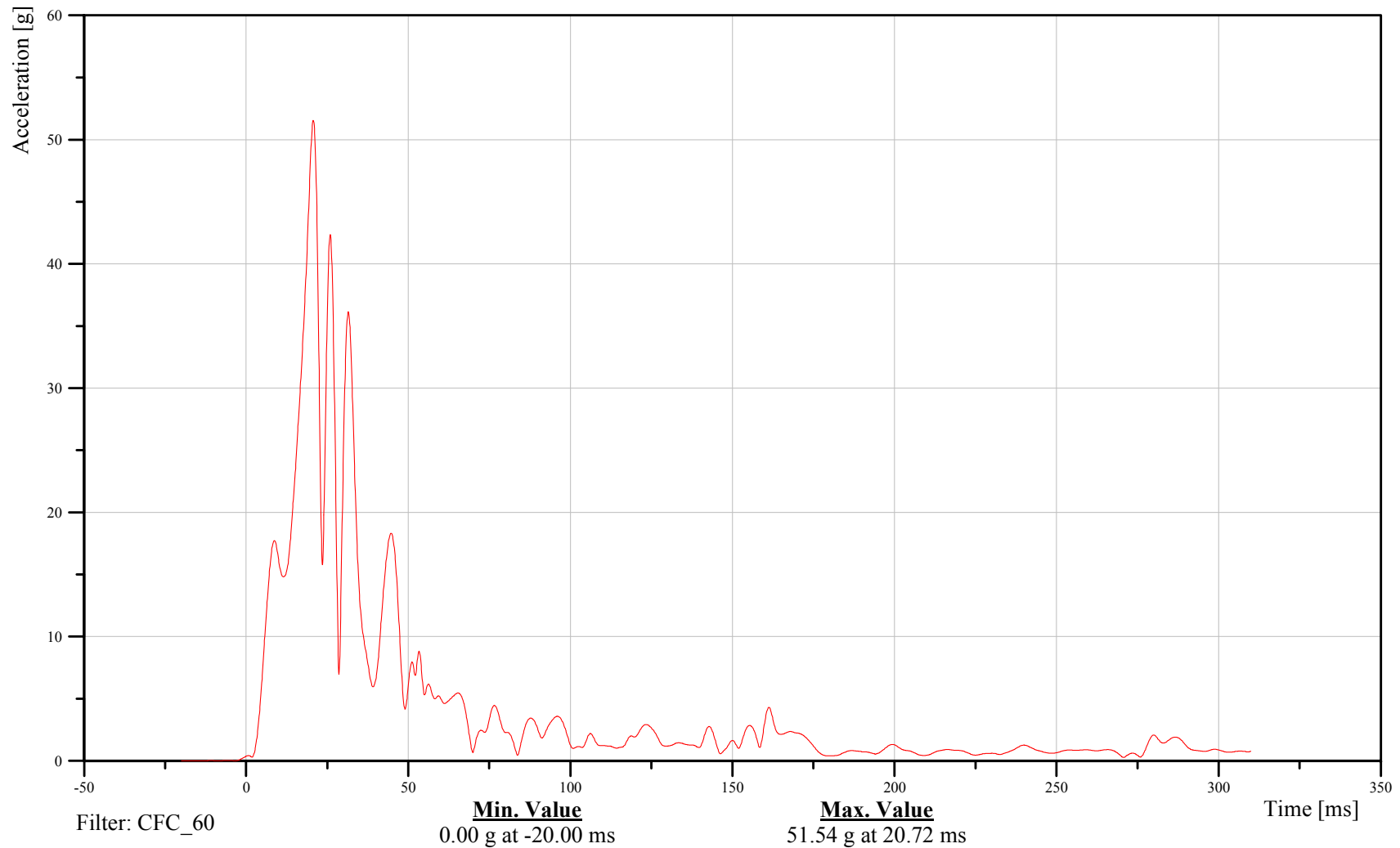
Date: 07/07/2005
Time: 11:26

Customer: VRTC

10VEHCCG0000ACRD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

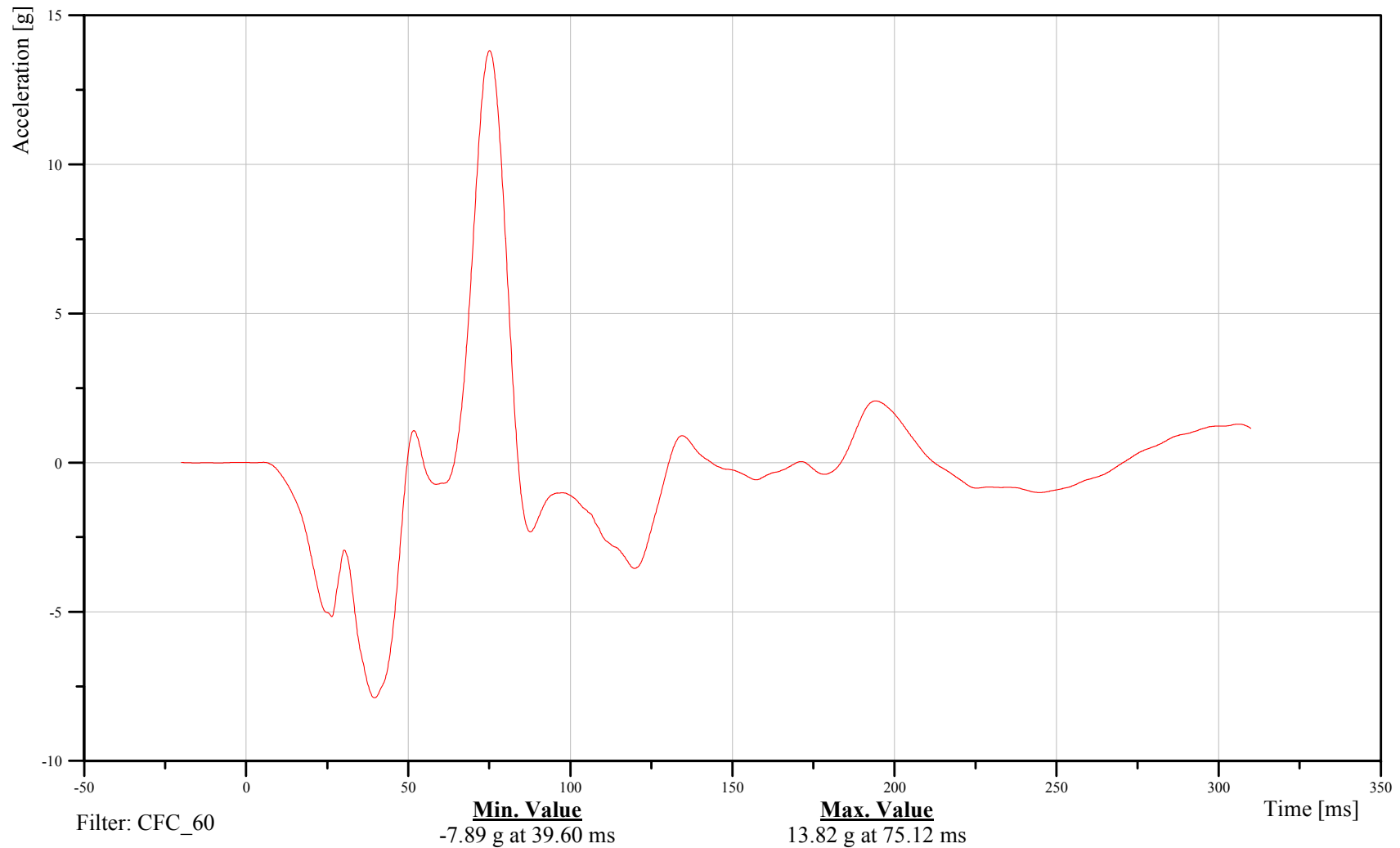
Top of Engine X-axis Acceleration

Customer: VRTC

12ENG000000ACXD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

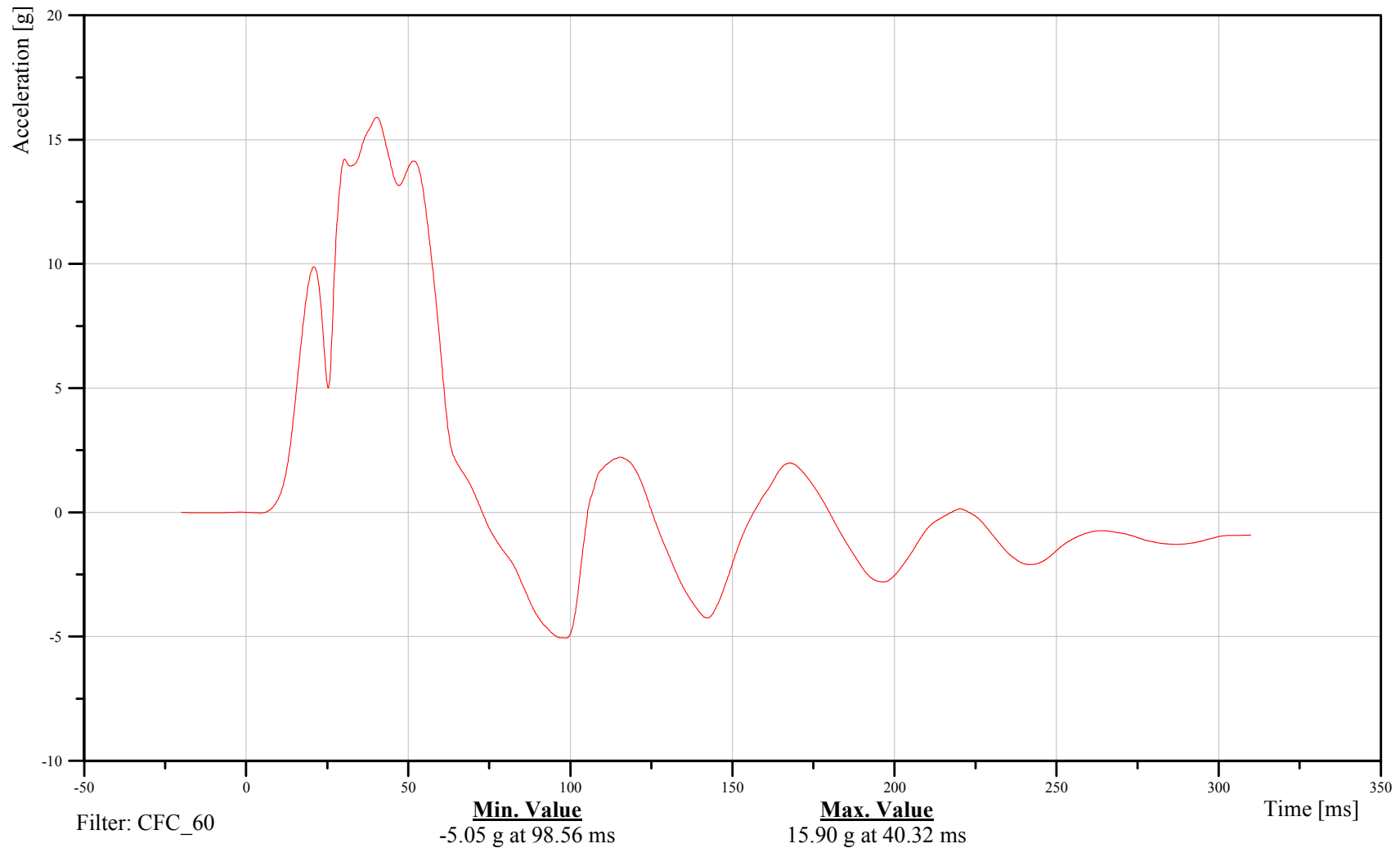
Top of Engine Y-axis Acceleration

Customer: VRTC

12ENG000000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

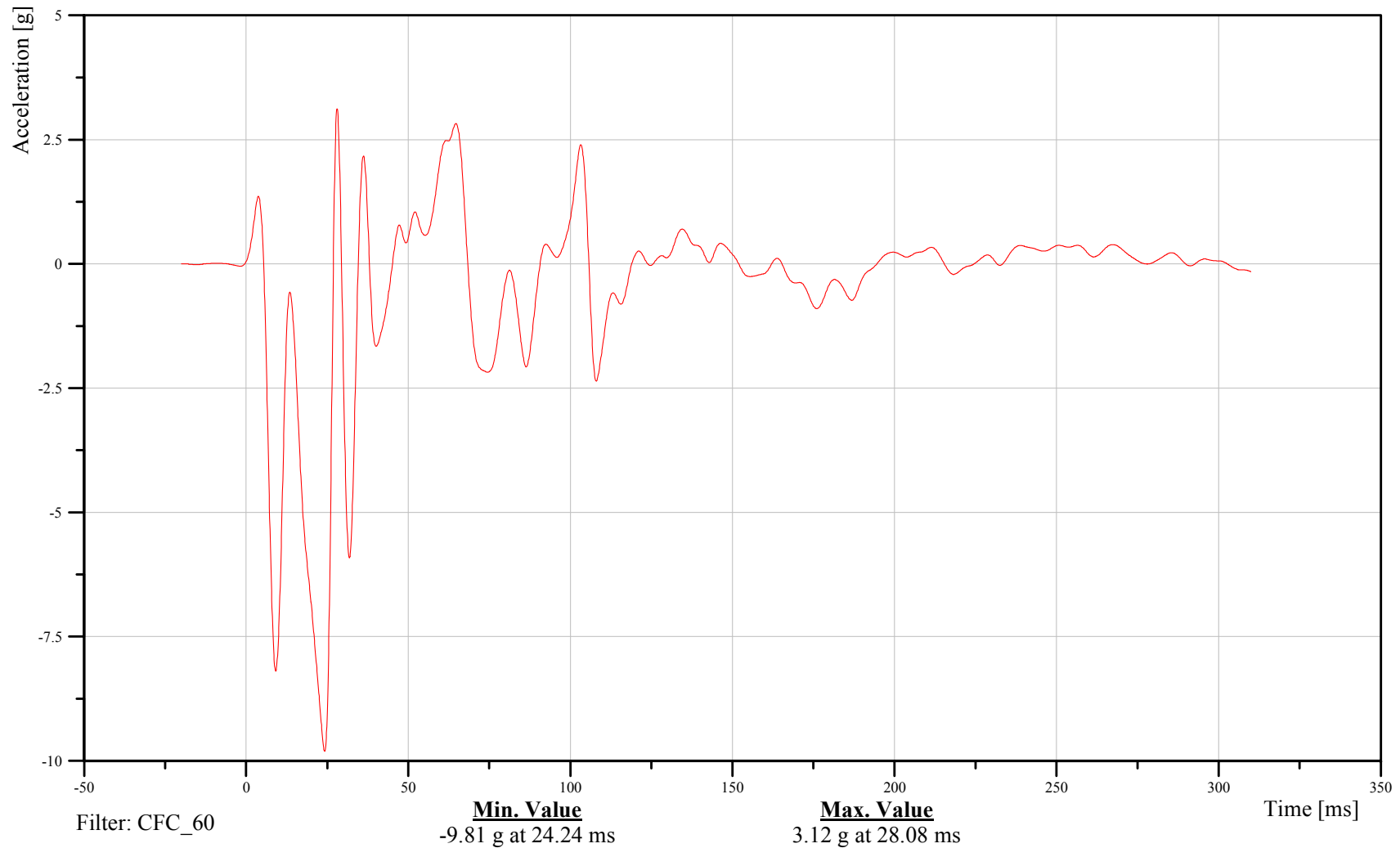
Firewall X-axis Acceleration

Customer: VRTC

12VEHC000000ACXD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Firewall Y-axis Acceleration

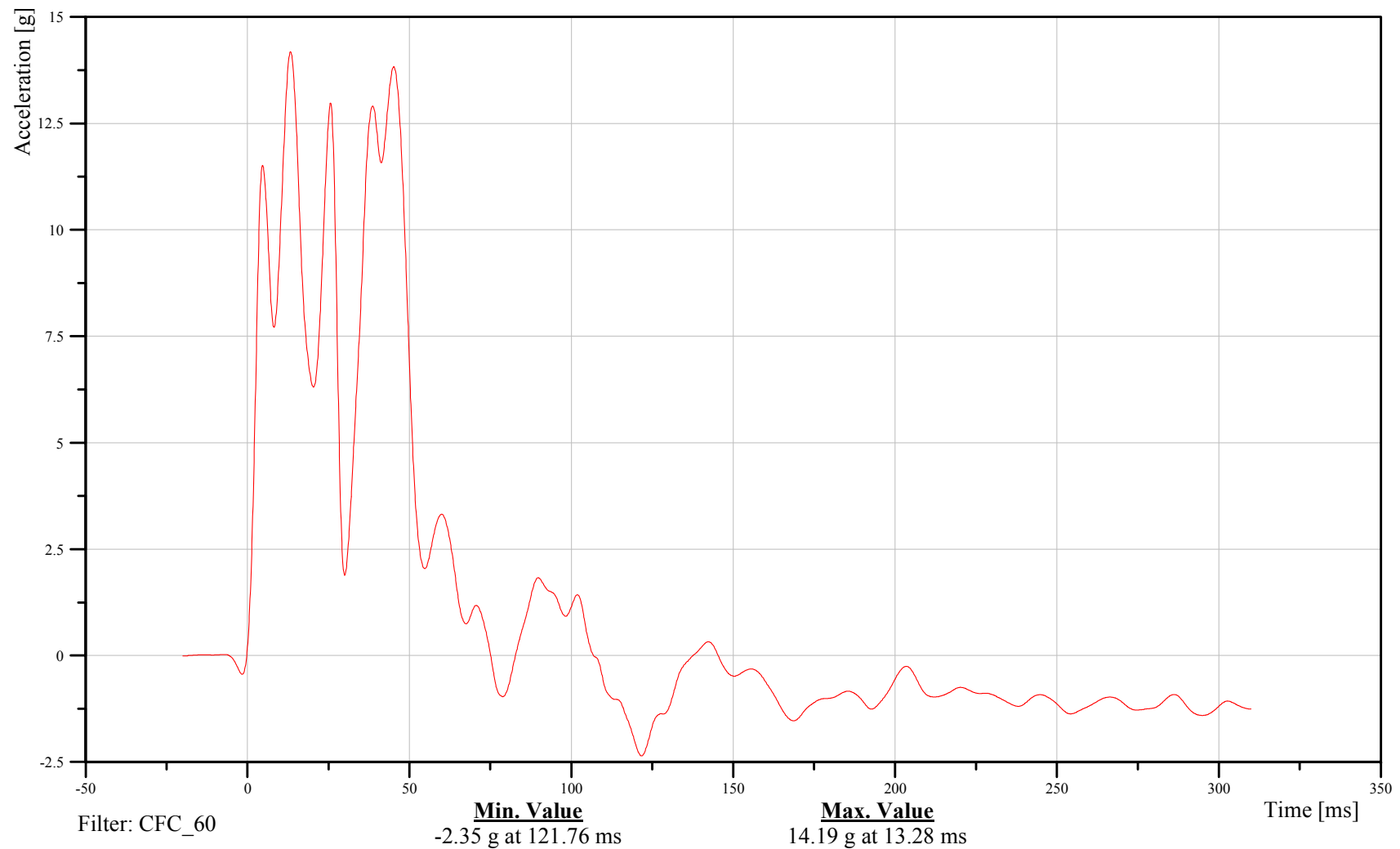
Date: 07/07/2005
Time: 11:26

Customer: VRTC

12VEHC000000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

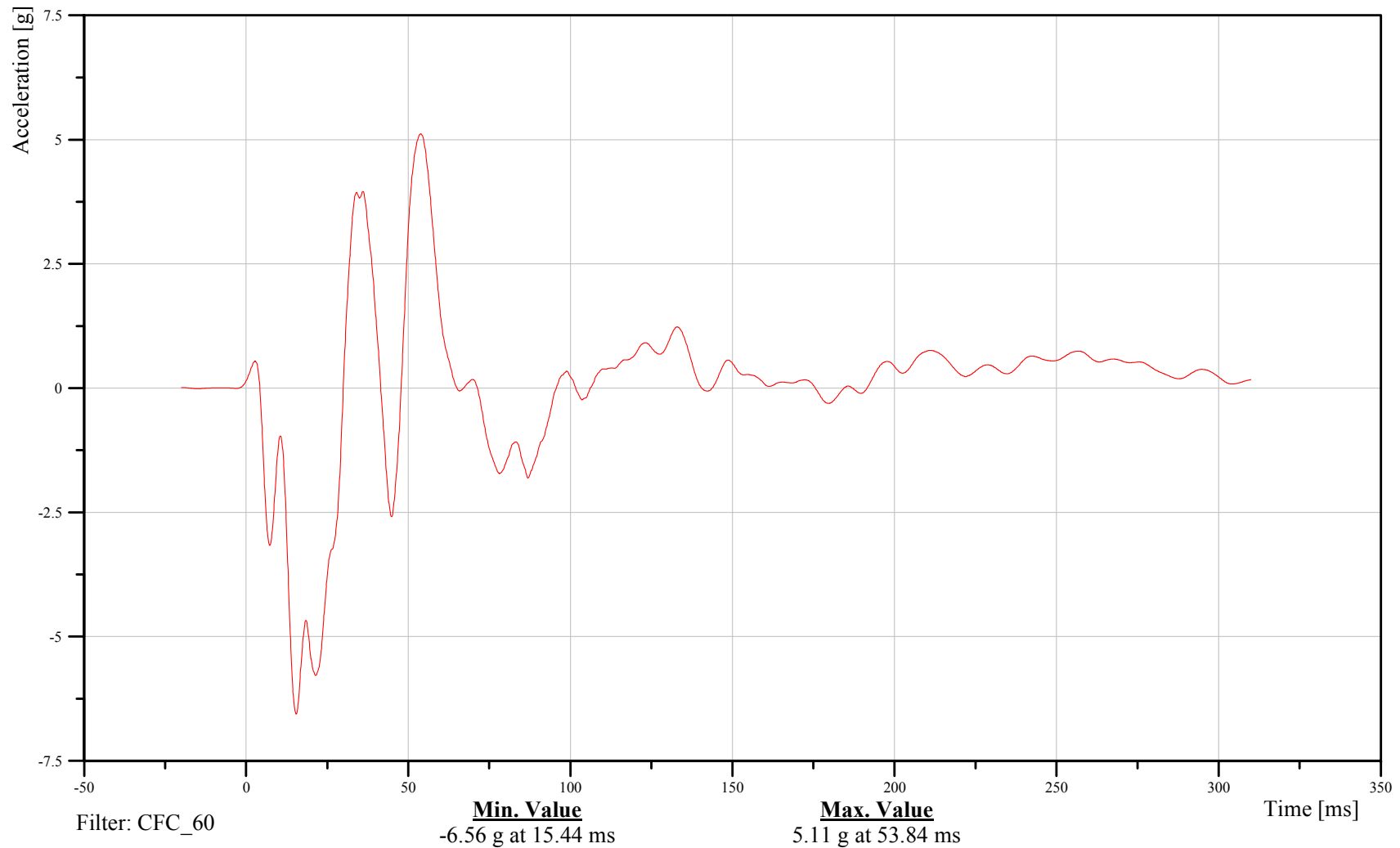
Right Roof Rail X-axis Acceleration

Customer: VRTC

13ROFR000000ACXD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Time: 11:26

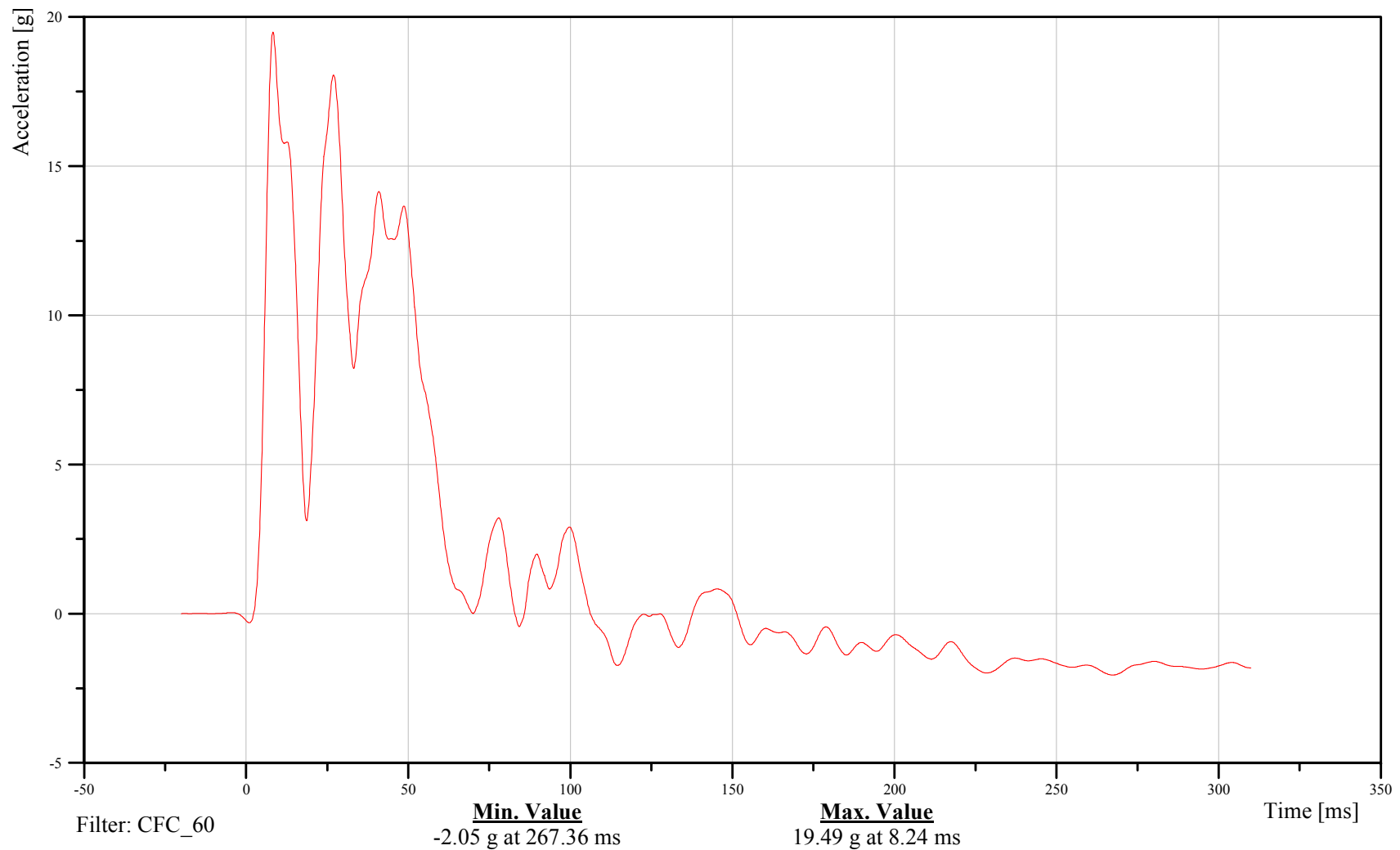
Right Roof Rail Y-axis Acceleration

Customer: VRTC

13ROFR000000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Left Front Door centerline Y-axis Acceleration

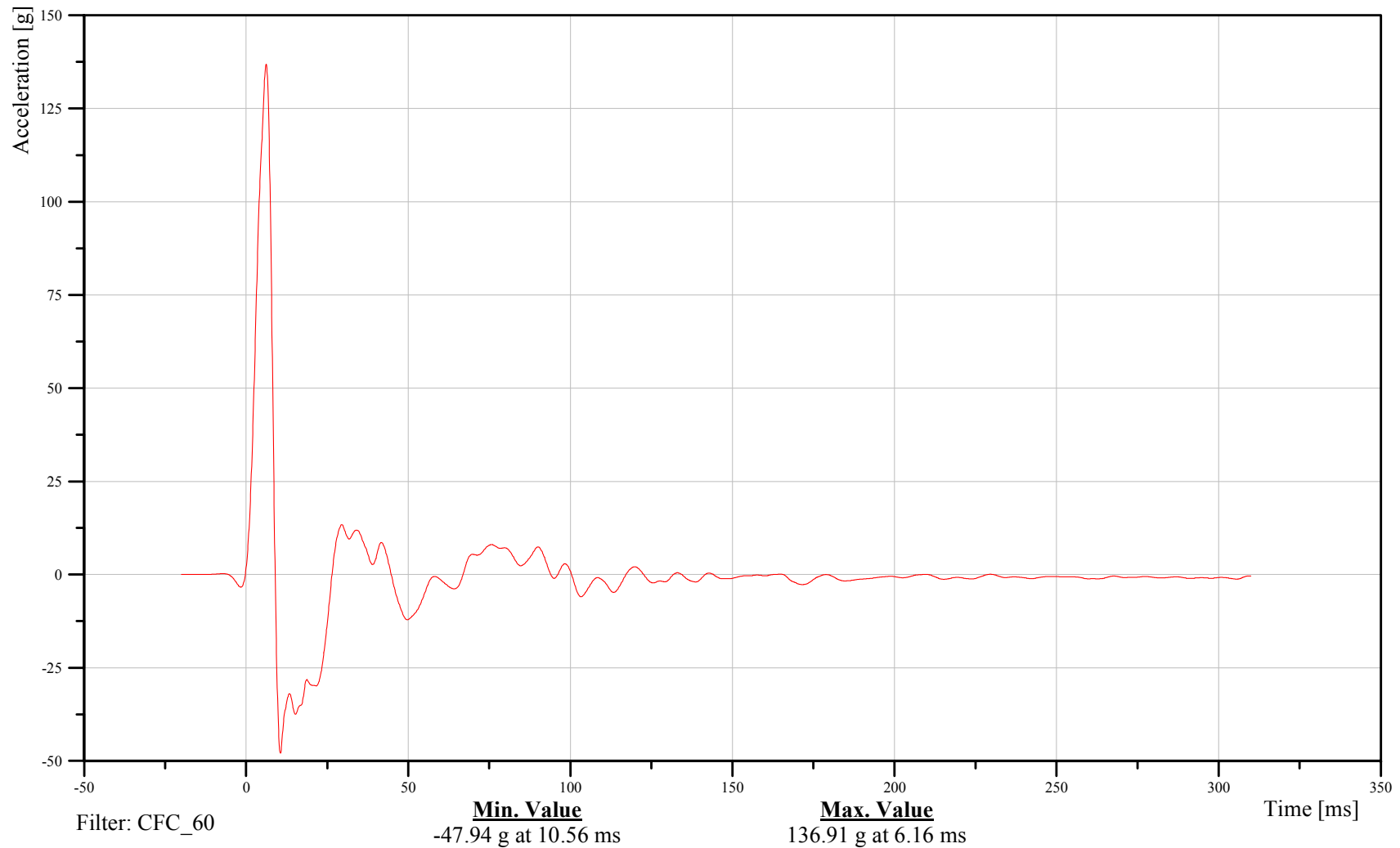
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11DOOR000001ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

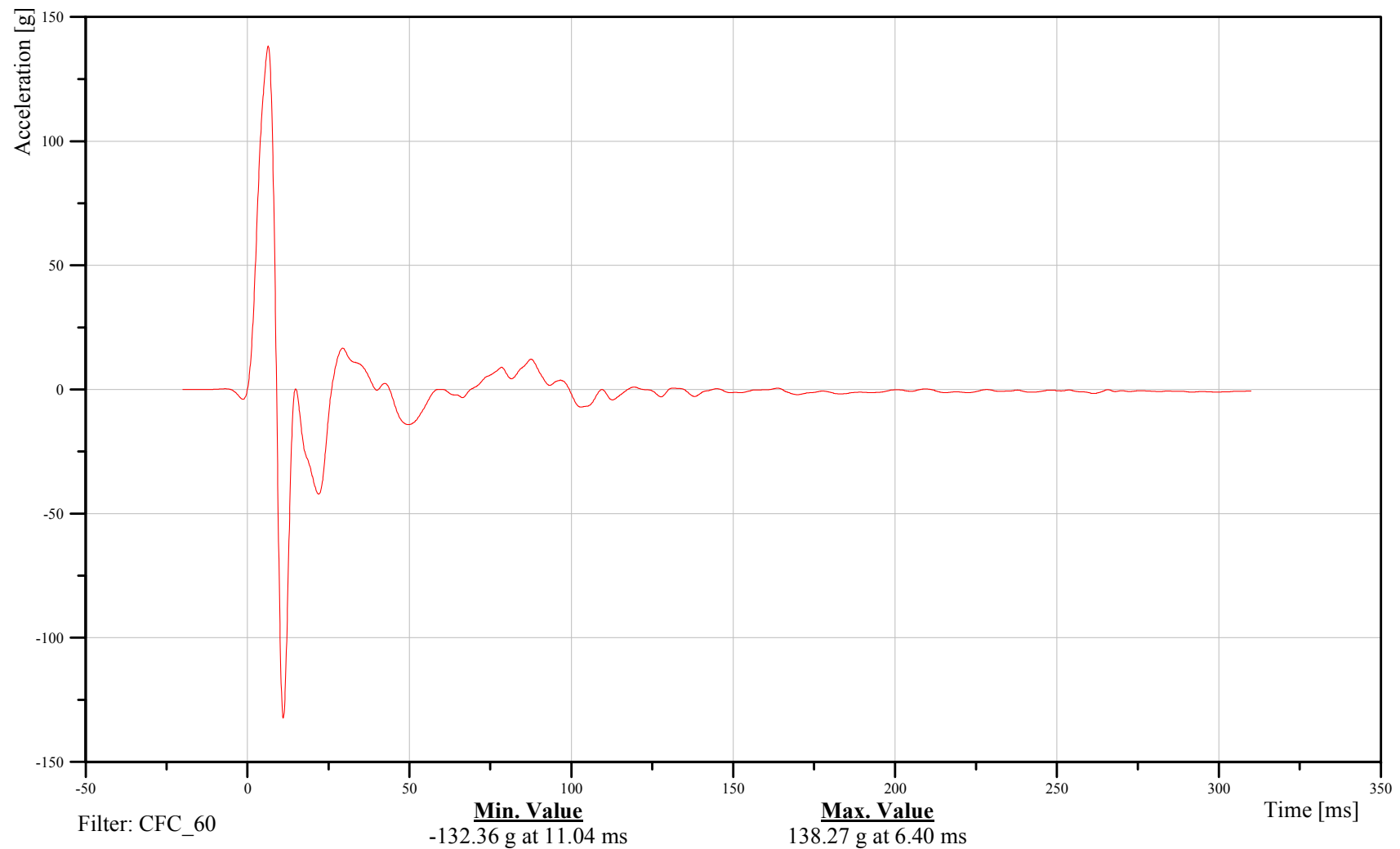
Left Front Door mid-rear Y-axis Acceleration

Customer: VRTC

11DOOR000002ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

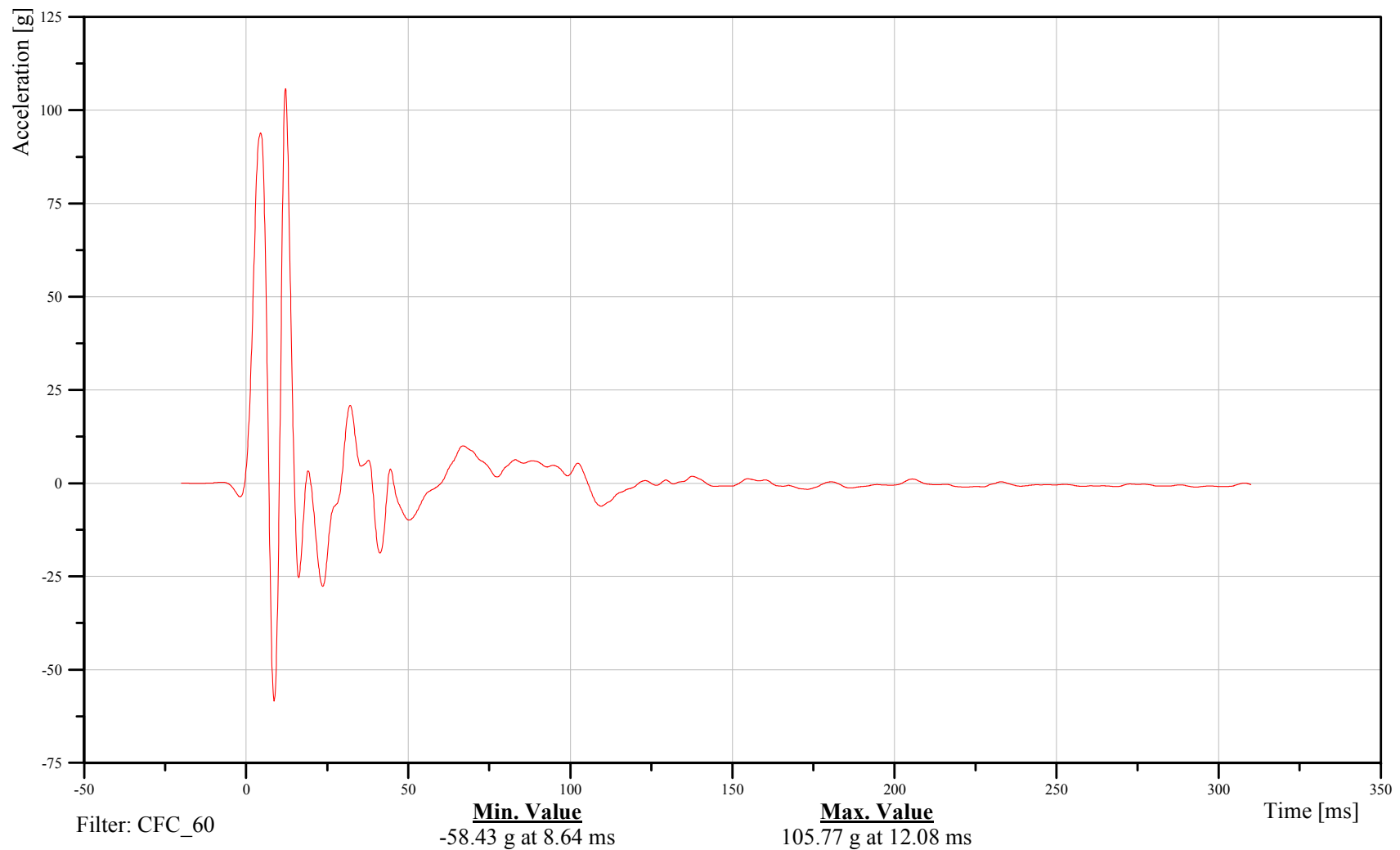
Left Front Door upper centerline Y-axis Acceleration

Customer: VRTC

11DOOR000003ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

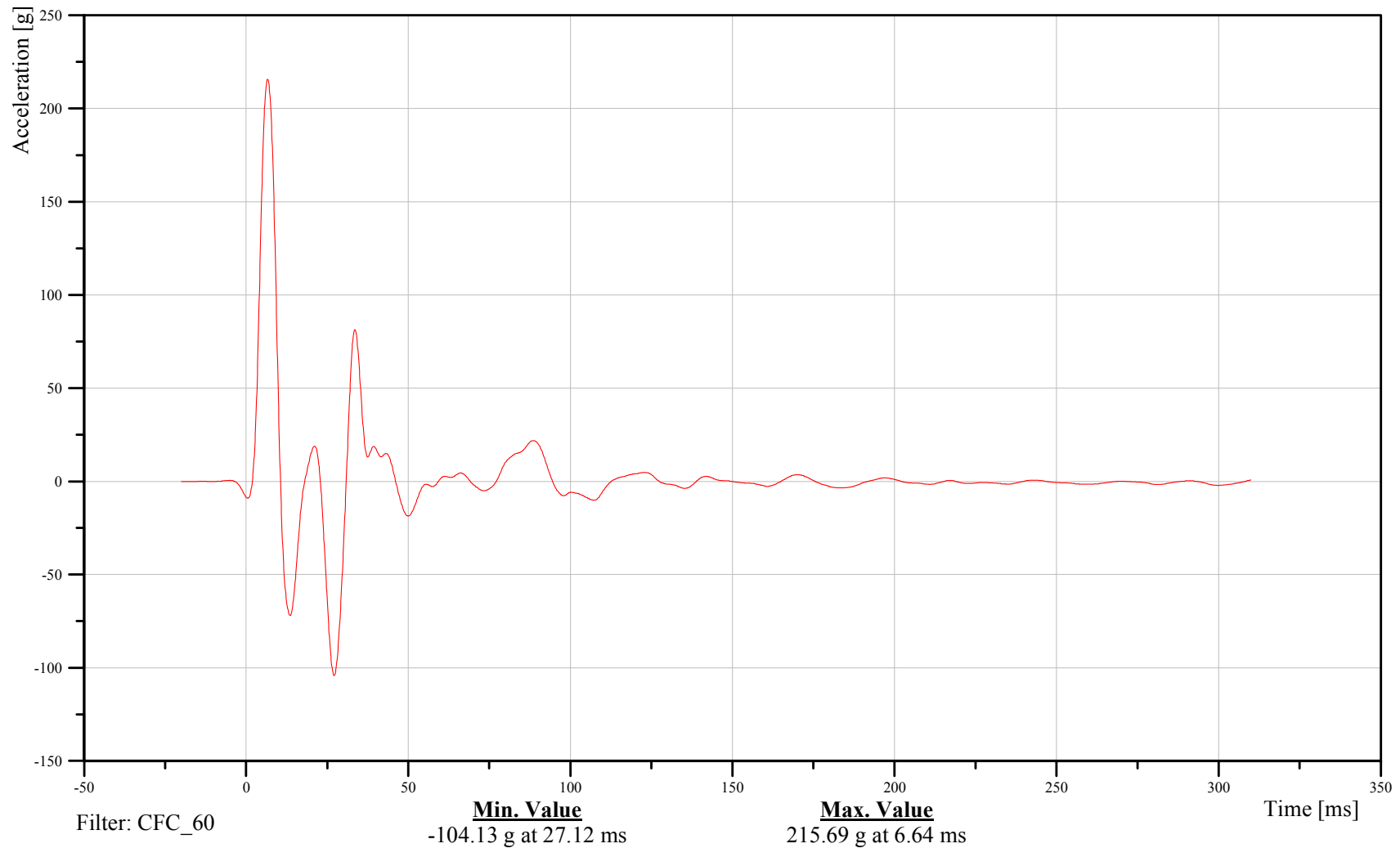
Left Rear Door mid-rear Y-axis Acceleration

Customer: VRTC

14DOOR000001ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Time: 11:26

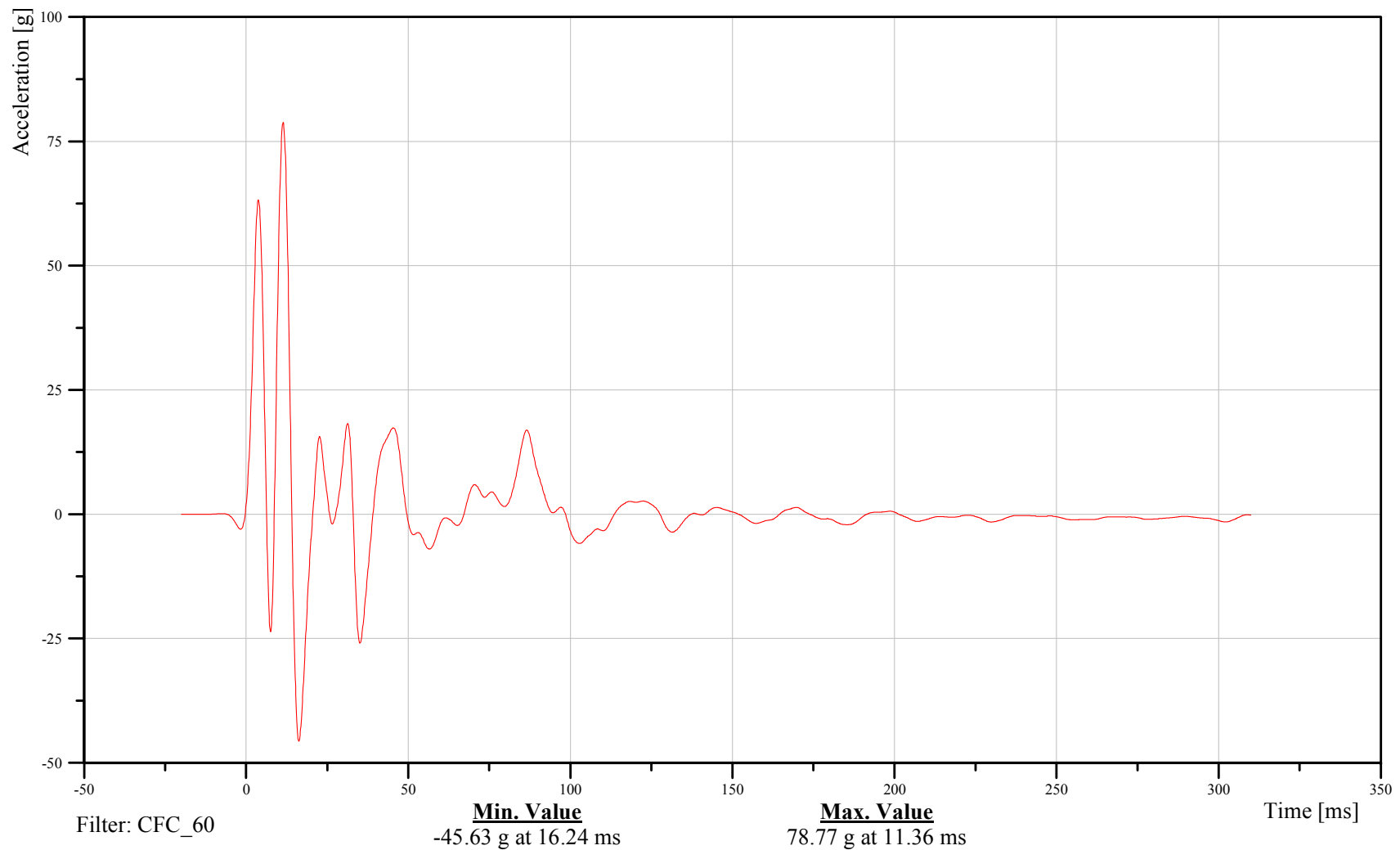
Left Rear Door upper centerline Y-axis Acceleration

Customer: VRTC

14DOOR000002ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Side torso airbag fire

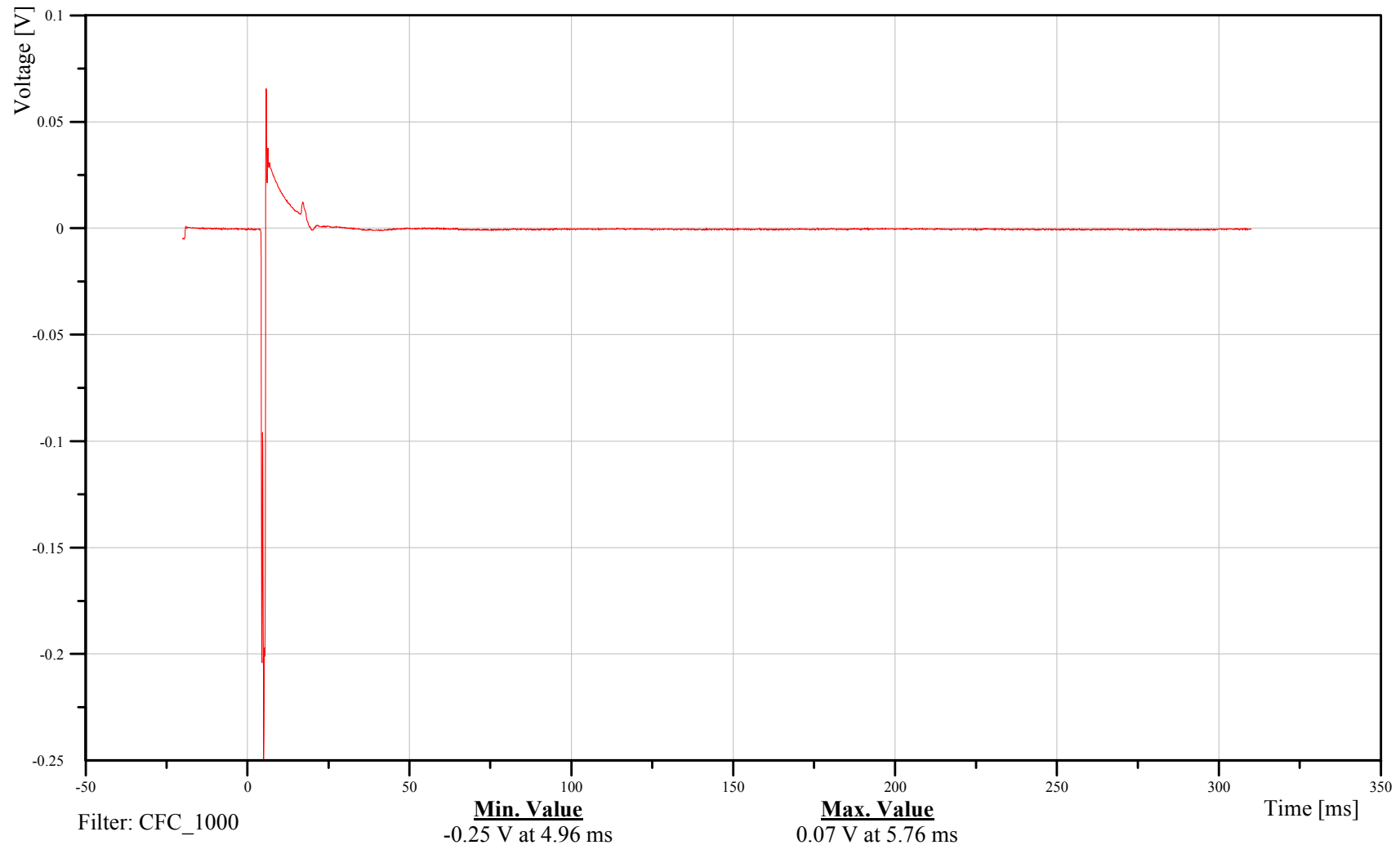
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11SENS000001VO0A

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

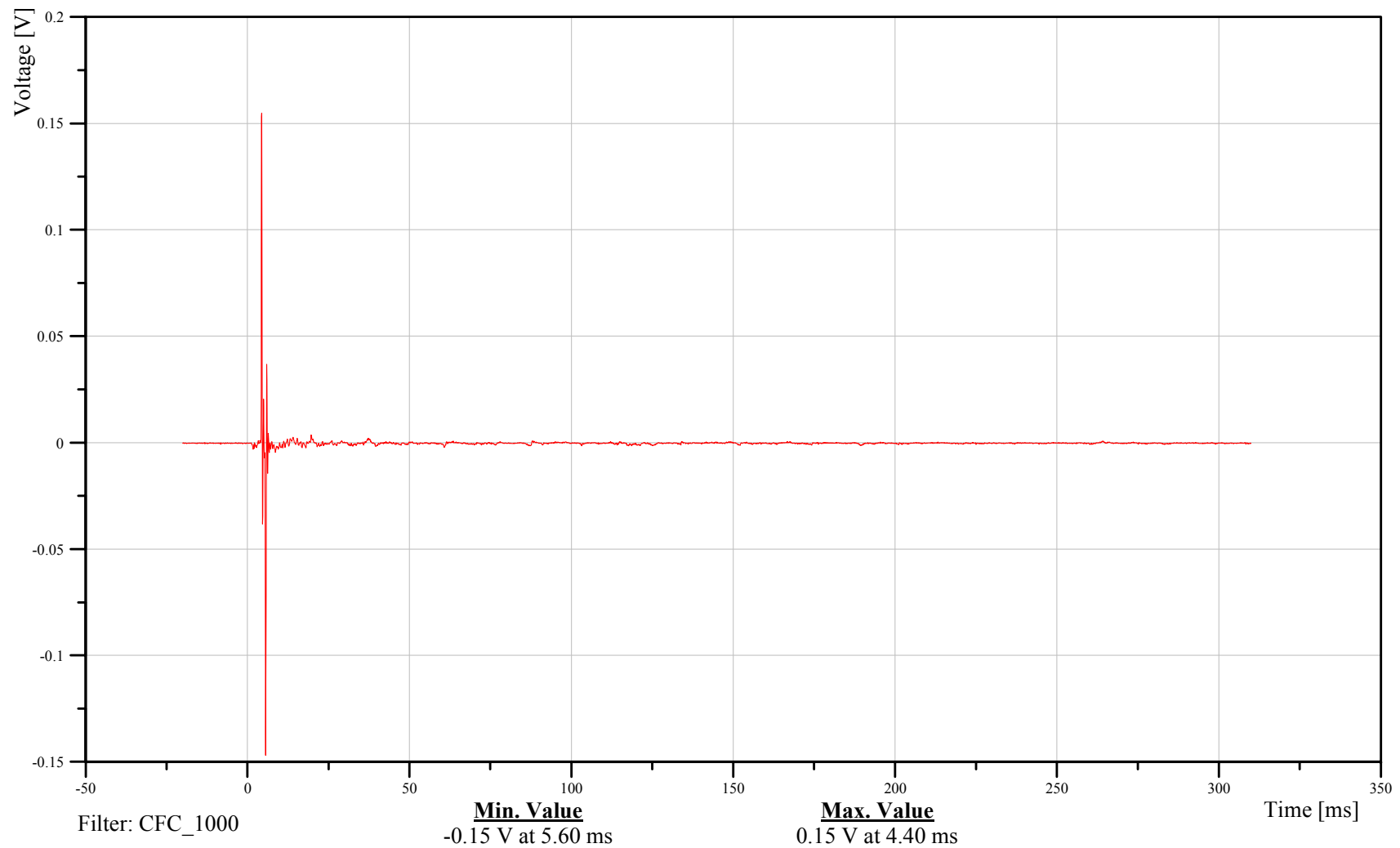
Side curtain airbag fire

Customer: VRTC

11SENS000002VO0A

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Time: 11:26

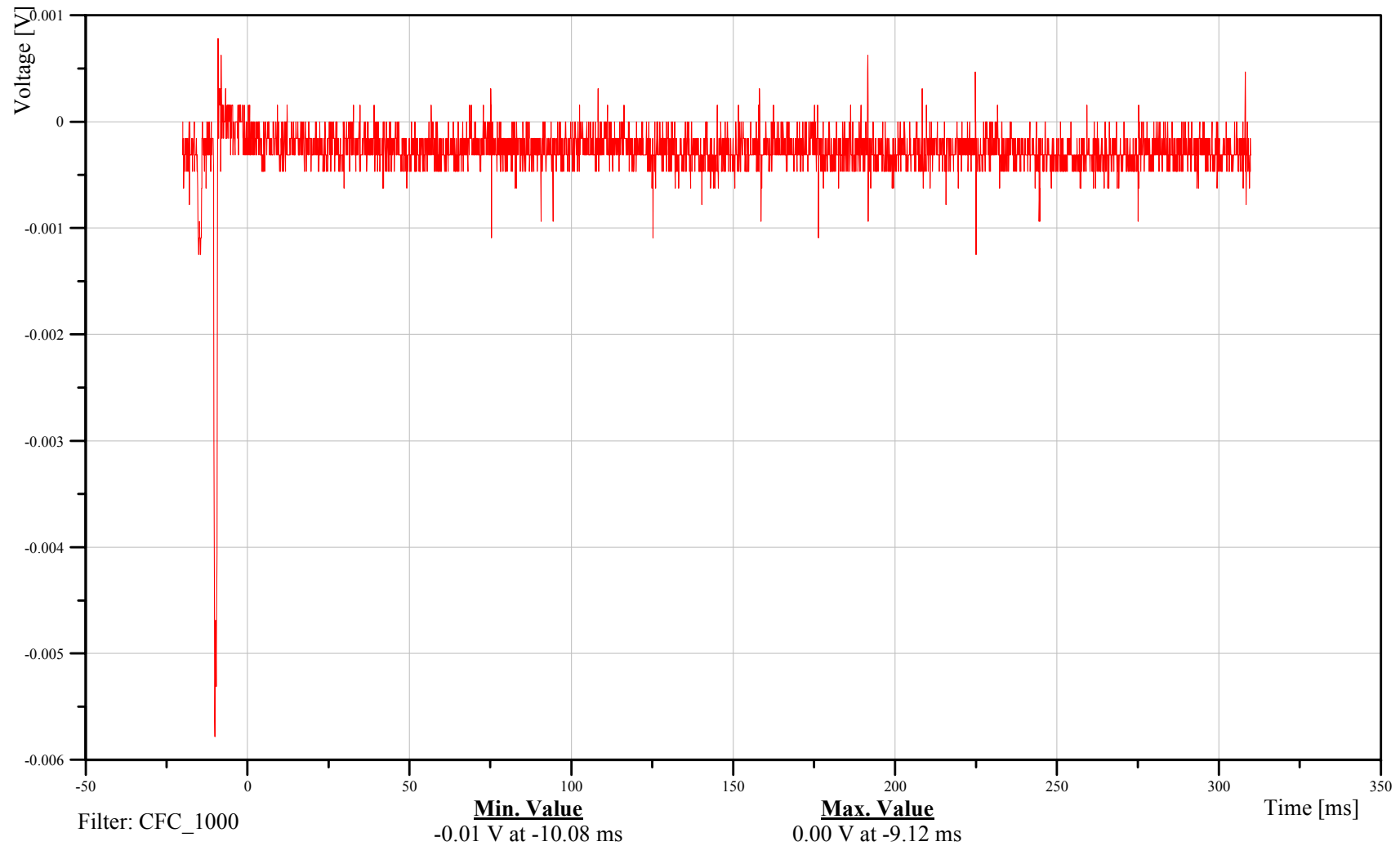
Non-struck Side torso Airbag fire (disable bag)

Customer: VRTC

13SENS000001VO0A

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Non-struck Side curtain airbag fire (disable bag)

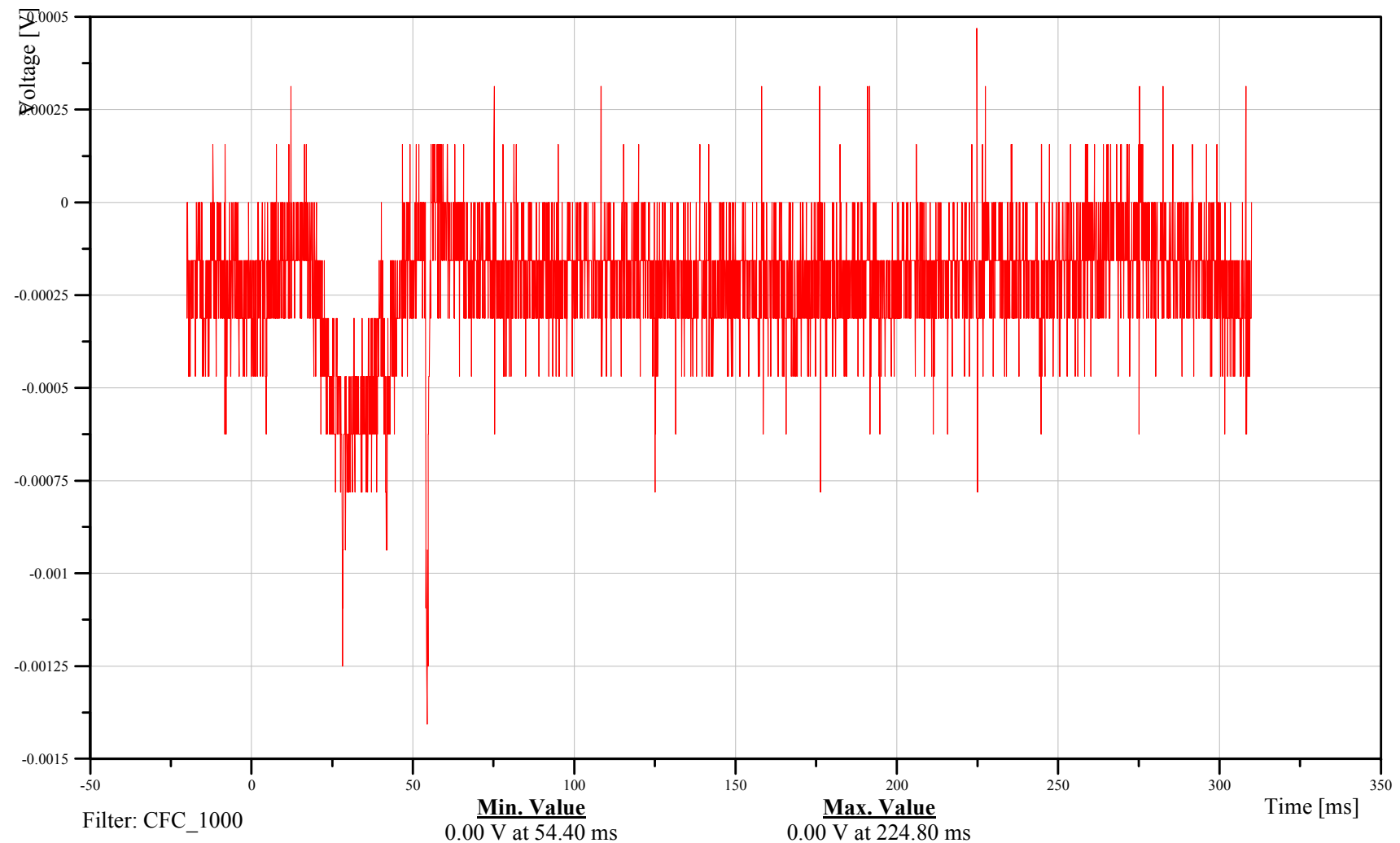
Date: 07/07/2005
Time: 11:26

Customer: VRTC

13SENS000002VO0A

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Dummy head contact

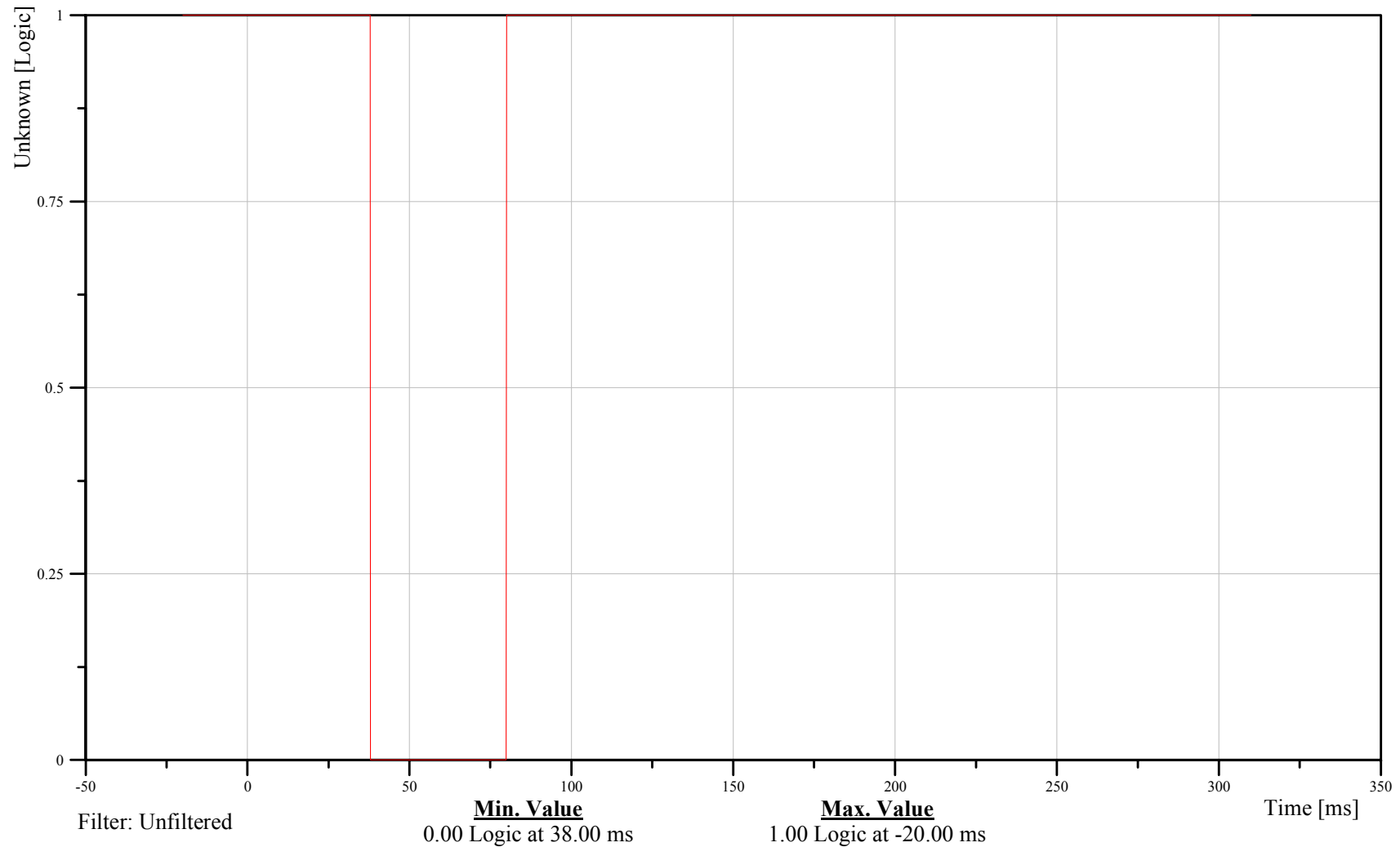
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11CONT000001EV00

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

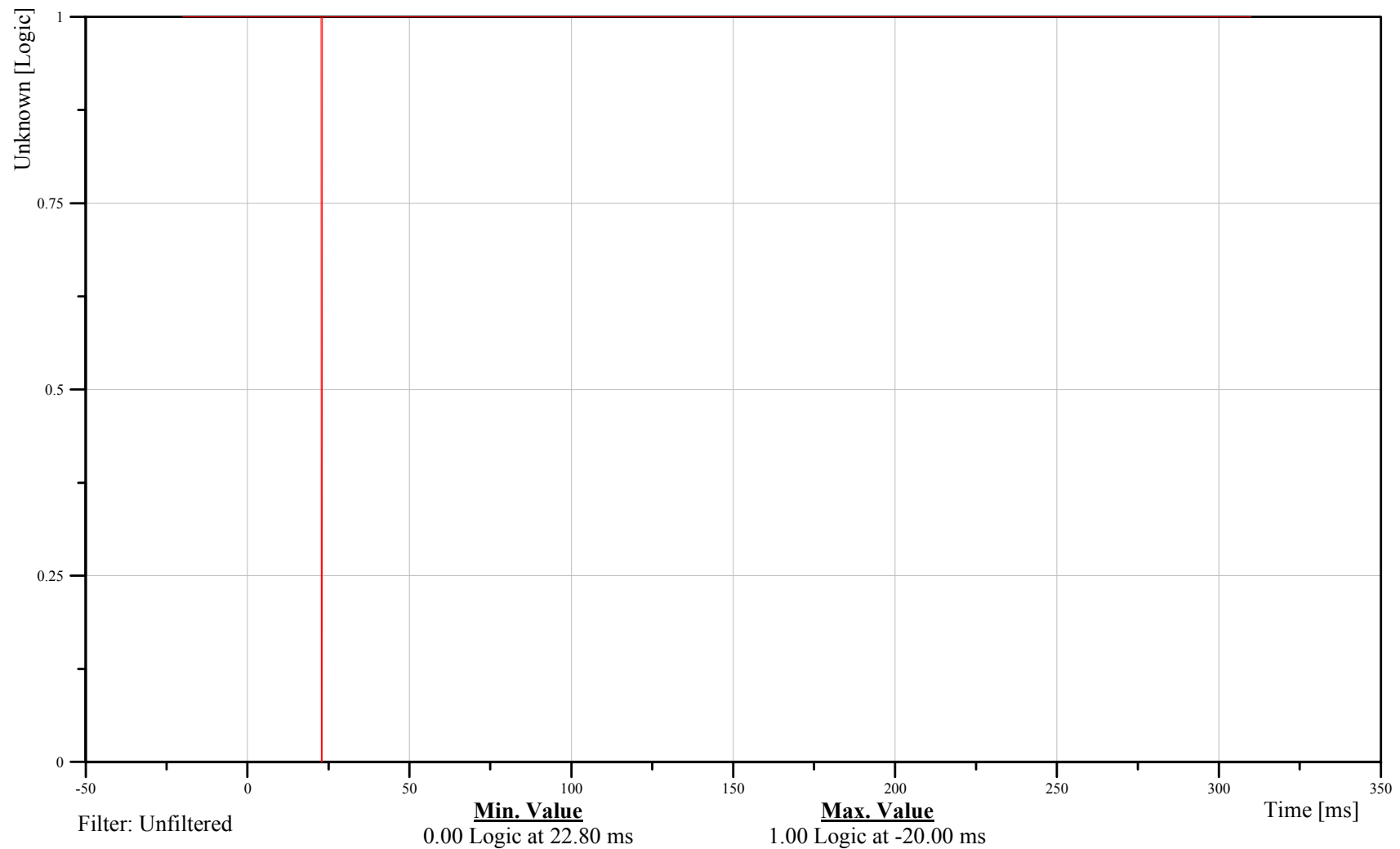
Dummy shoulder contact

Customer: VRTC

11CONT000002EV00

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

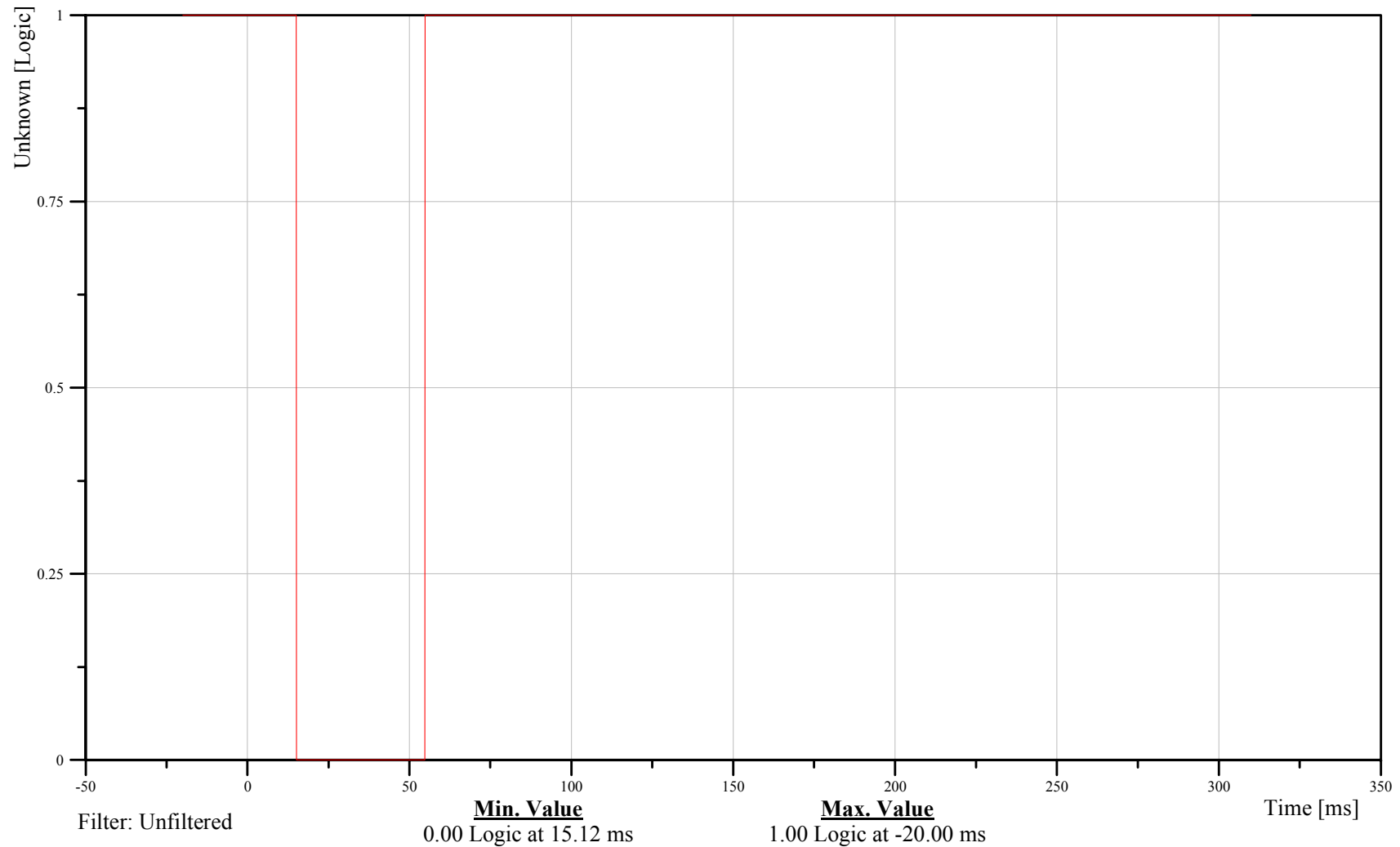
Dummy torso contact

Customer: VRTC

11CONT000003EV00

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

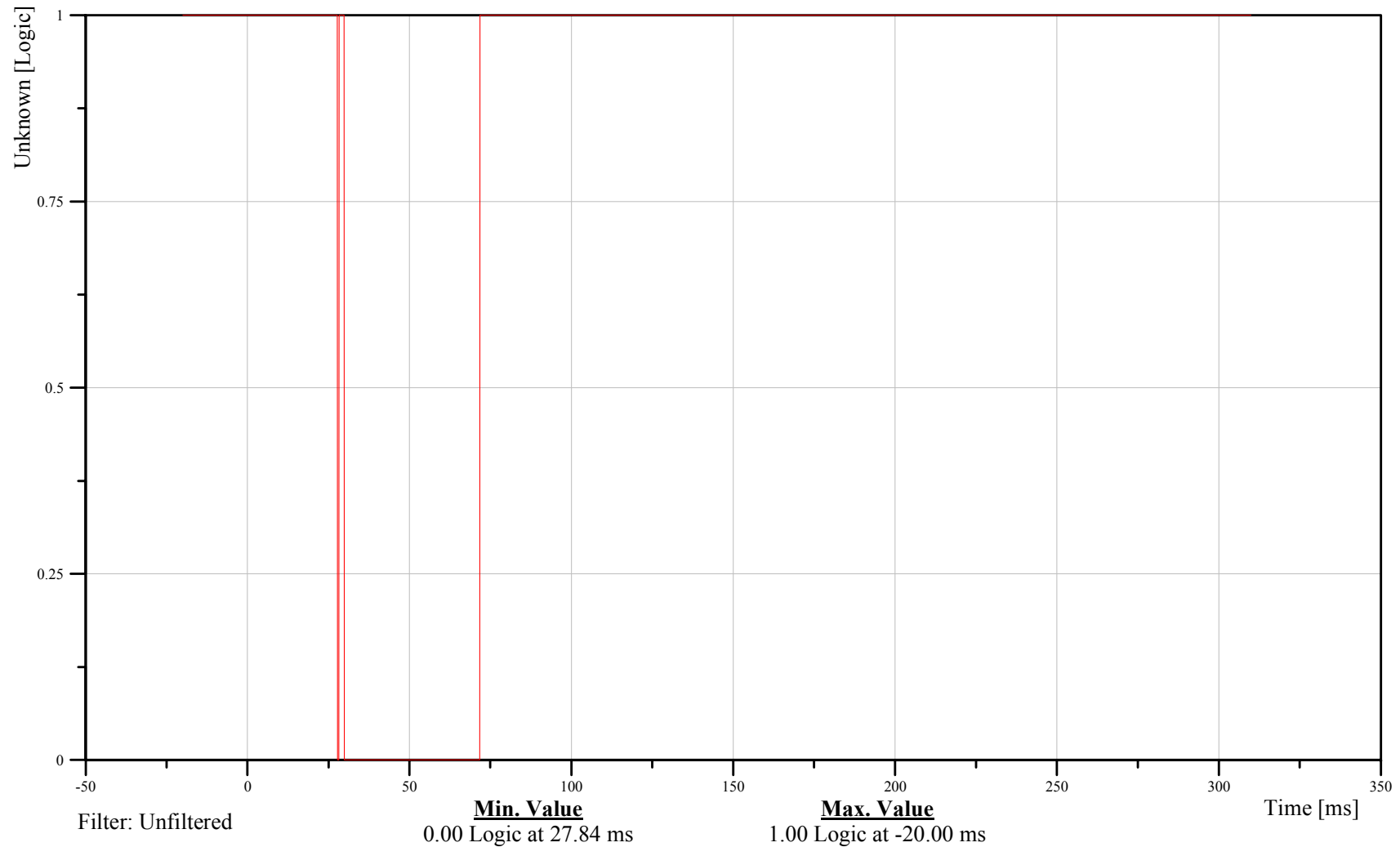
Dummy leg contact

Customer: VRTC

11CONT000004EV00

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

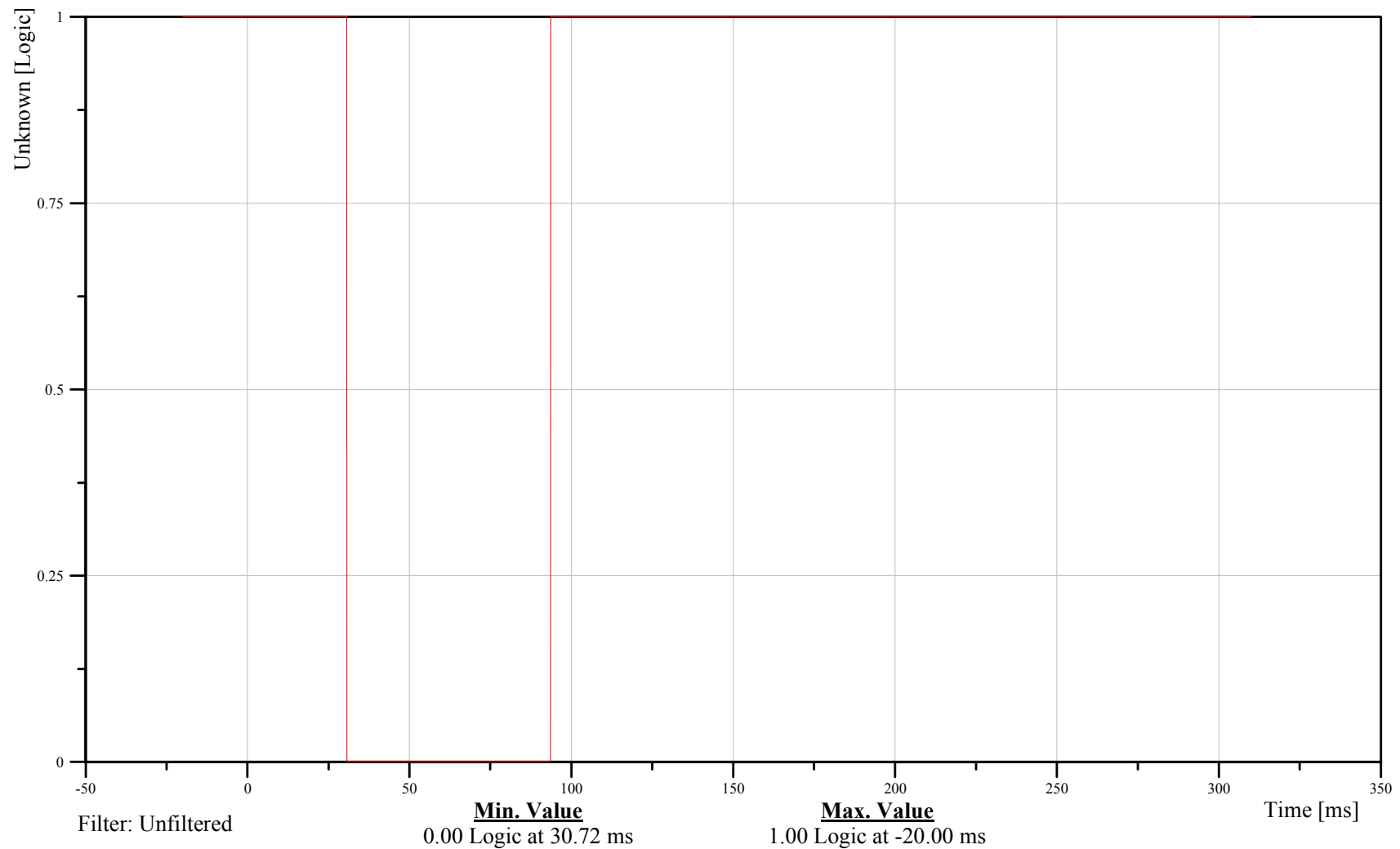
Dummy head contact

Customer: VRTC

14CONT000001EV00

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

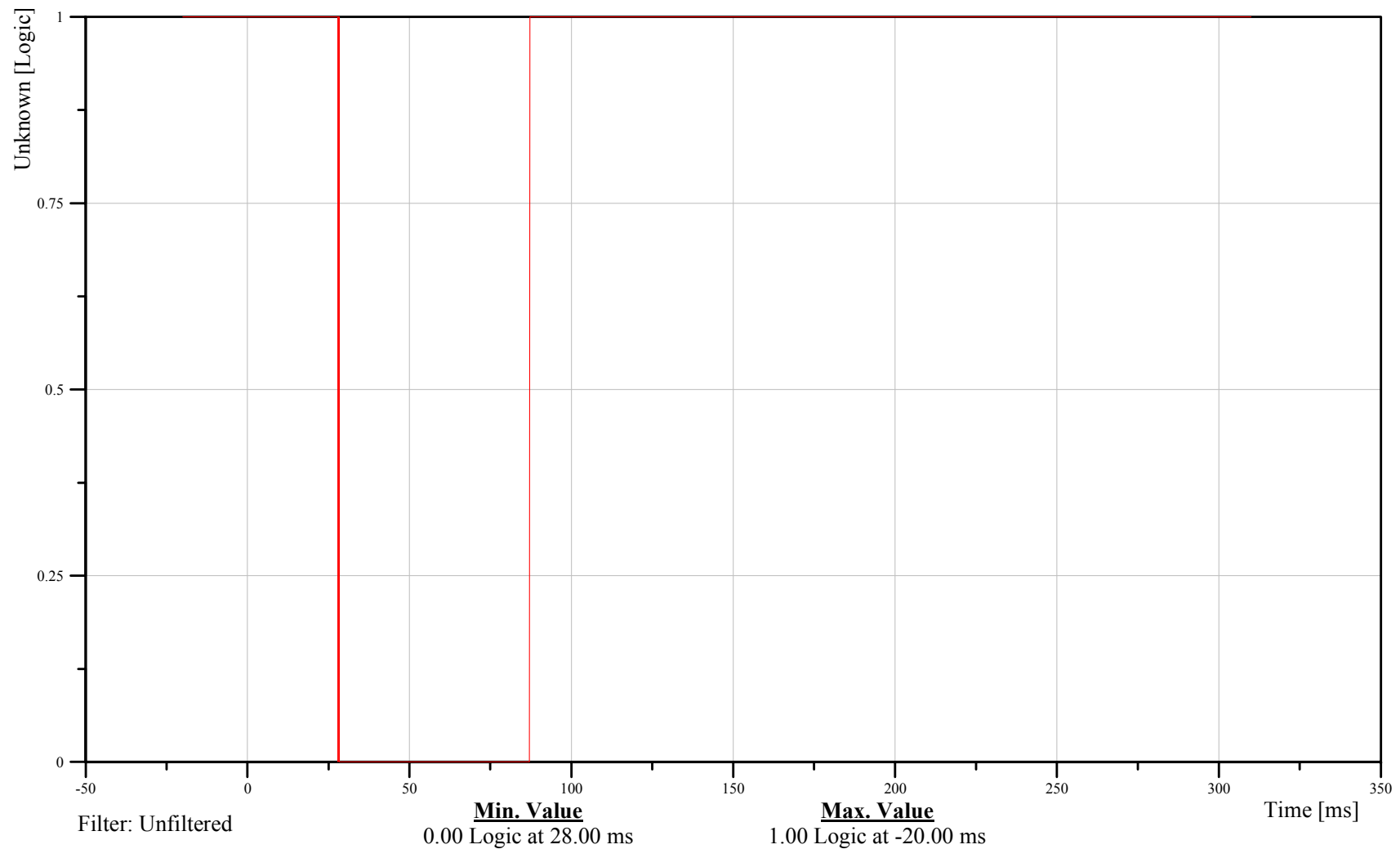
Dummy shoulder contact

Customer: VRTC

14CONT000002EV00

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

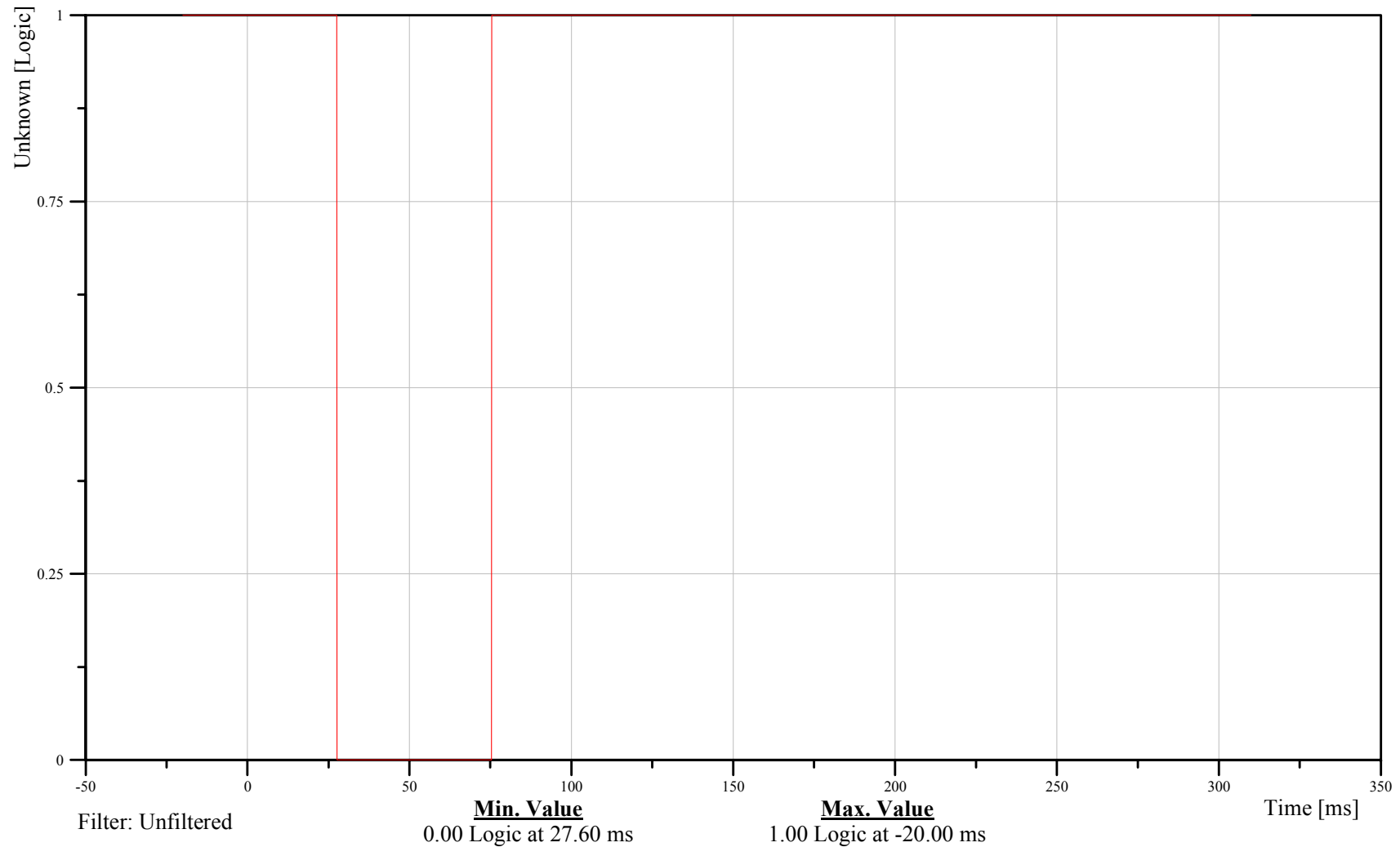
Dummy torso contact

Customer: VRTC

14CONT000003EV00

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

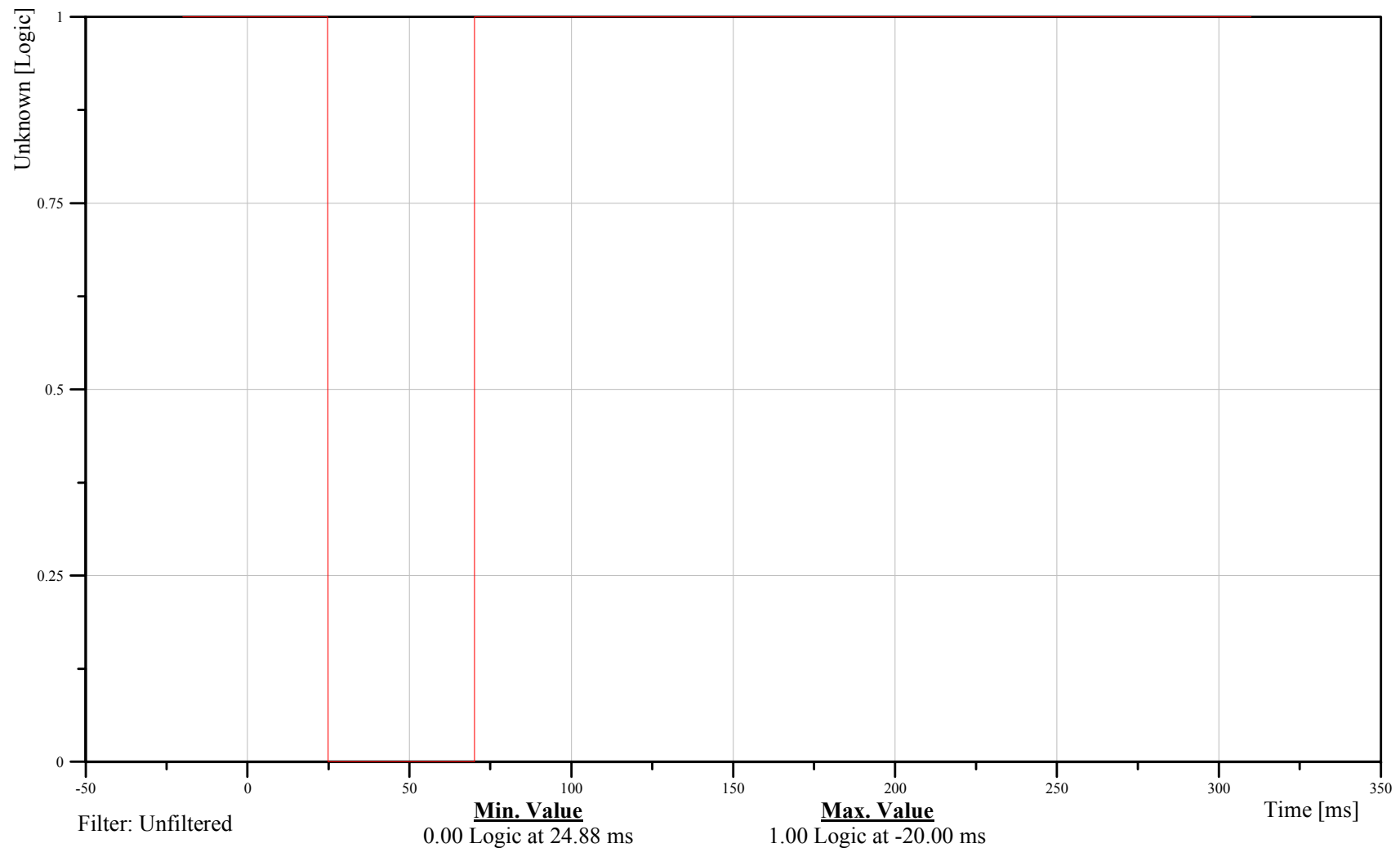
Dummy leg contact

Customer: VRTC

14CONT000004EV00

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

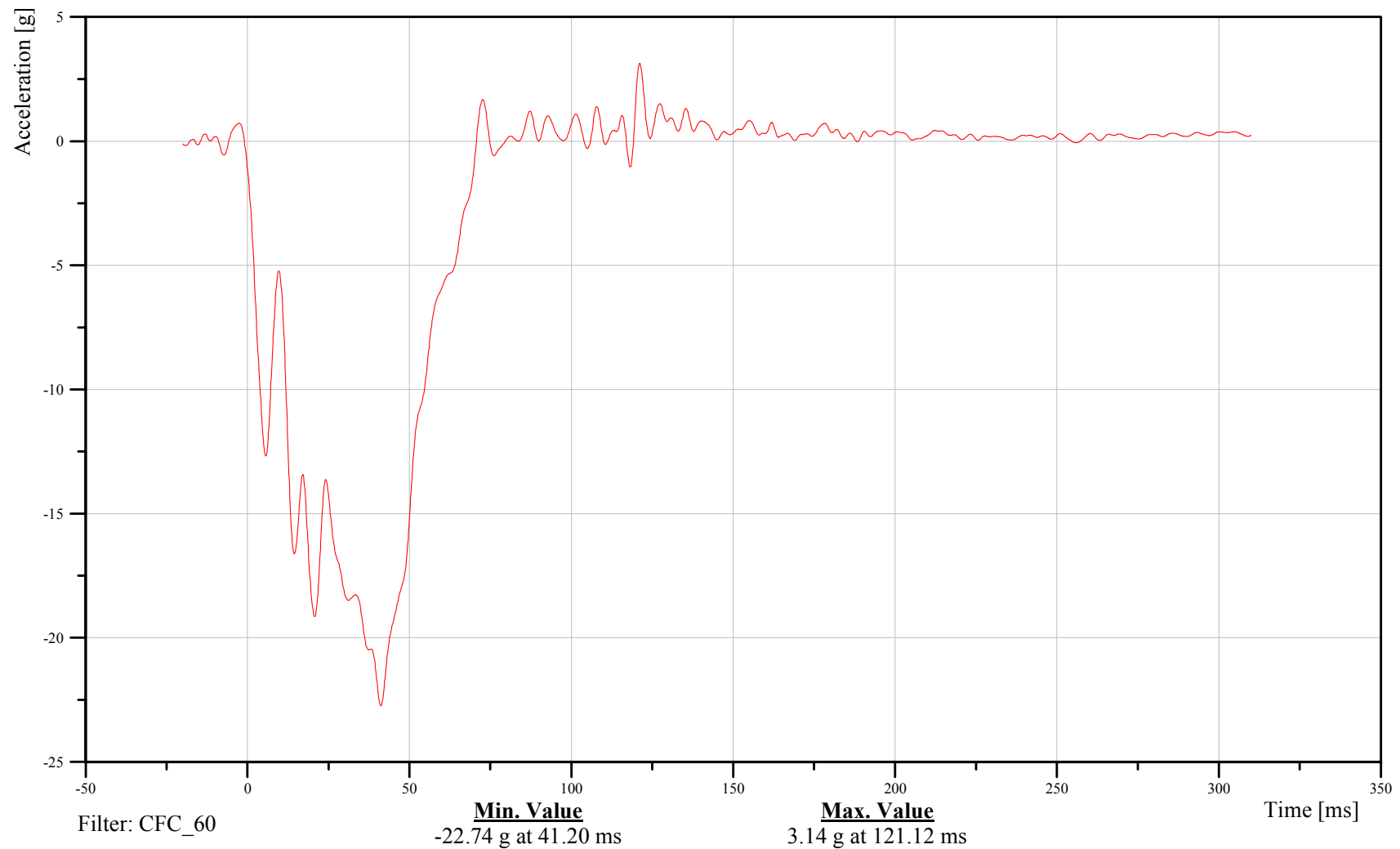
MDB Center of Gravity X-axis Acceleration

Customer: VRTC

M0VEHCCG0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

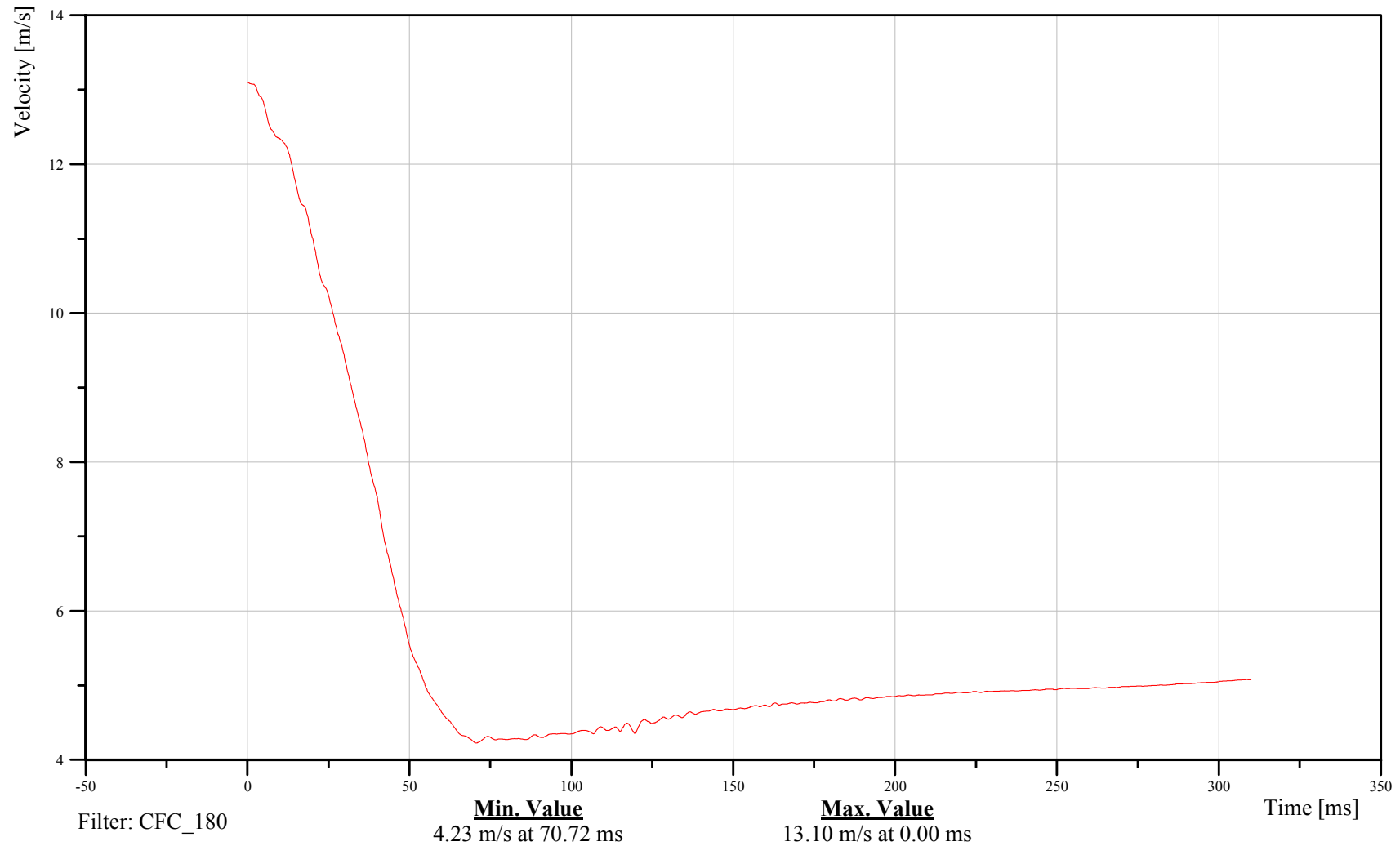
MDB Center of Gravity X-axis Velocity

Customer: VRTC

M0VEHCCG0000VEXC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

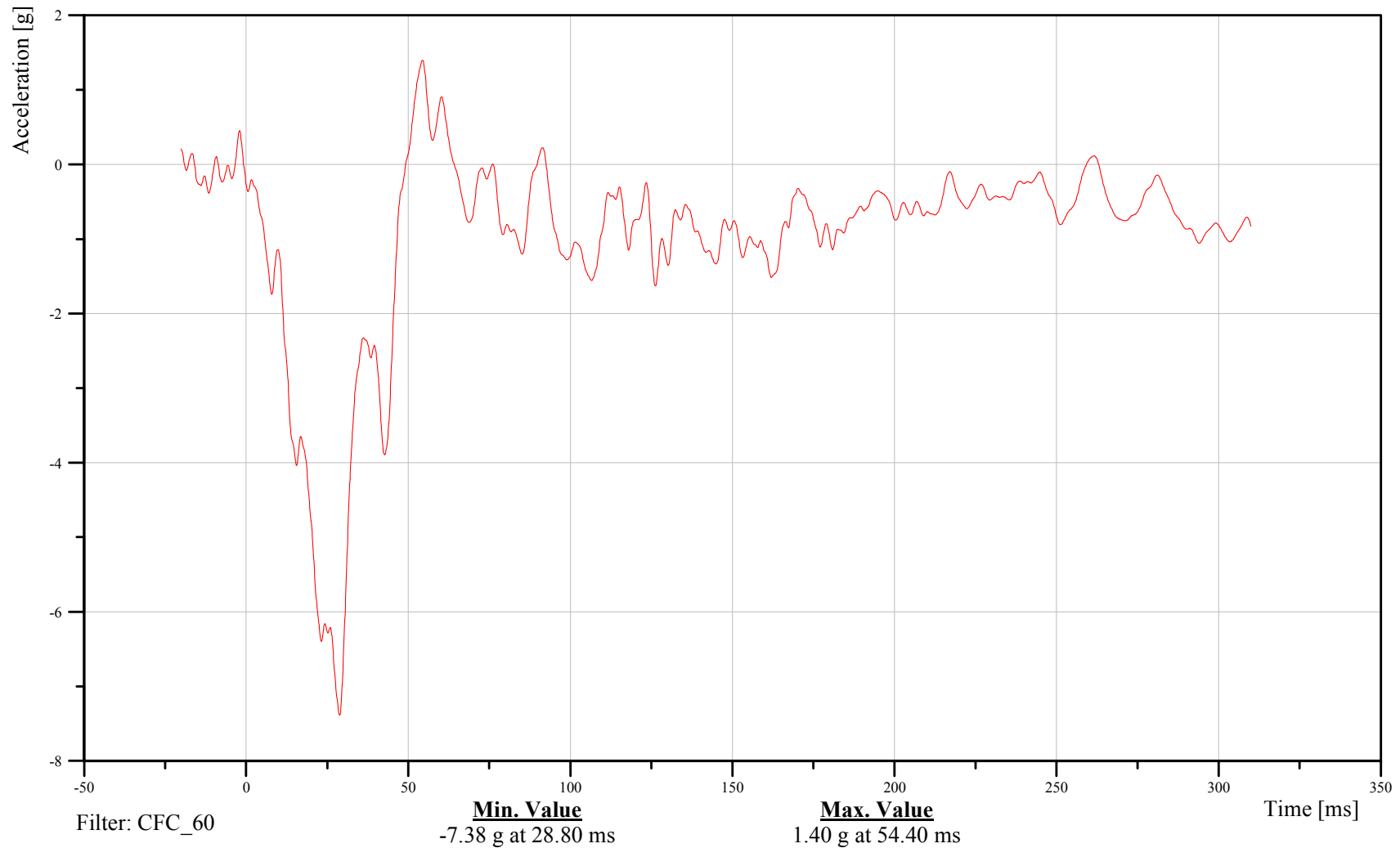
MDB Center of Gravity Y-axis Acceleration

Customer: VRTC

M0VEHCCG0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

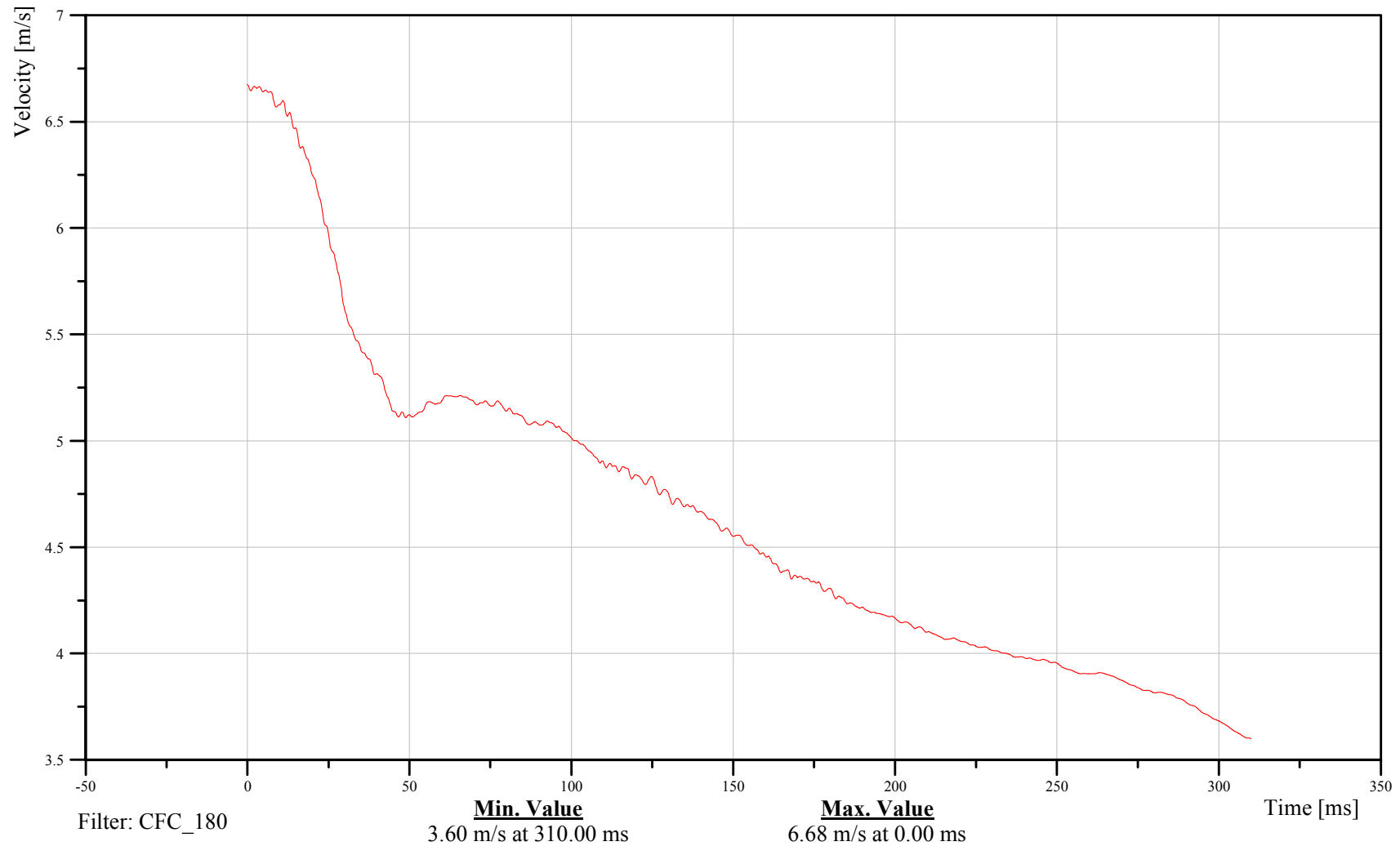
MDB Center of Gravity Y-axis Velocity

Customer: VRTC

M0VEHCCG0000VEYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

MDB Center of Gravity Z-axis Acceleration

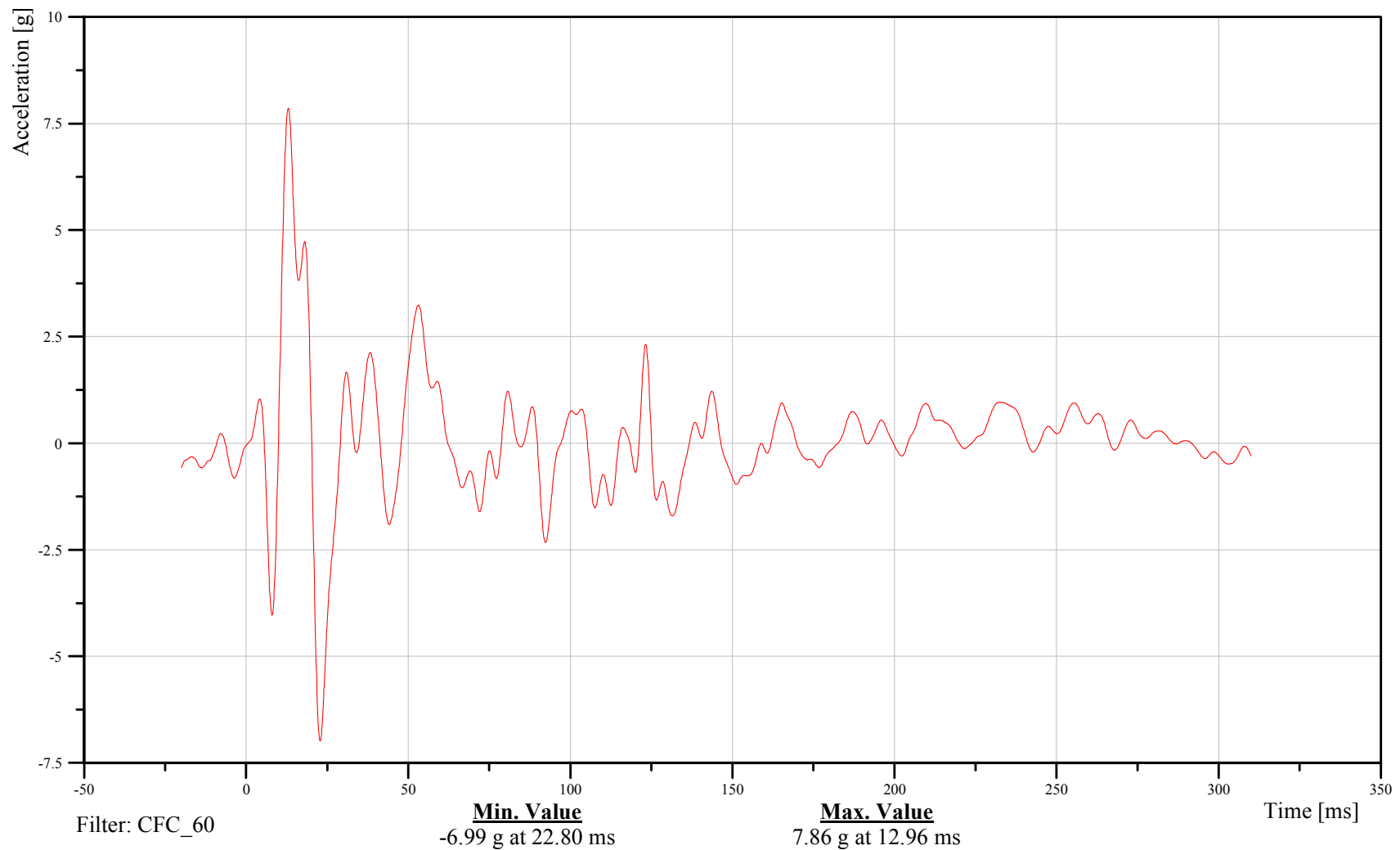
Date: 07/07/2005
Time: 11:26

Customer: VRTC

M0VEHCCG0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Time: 11:26

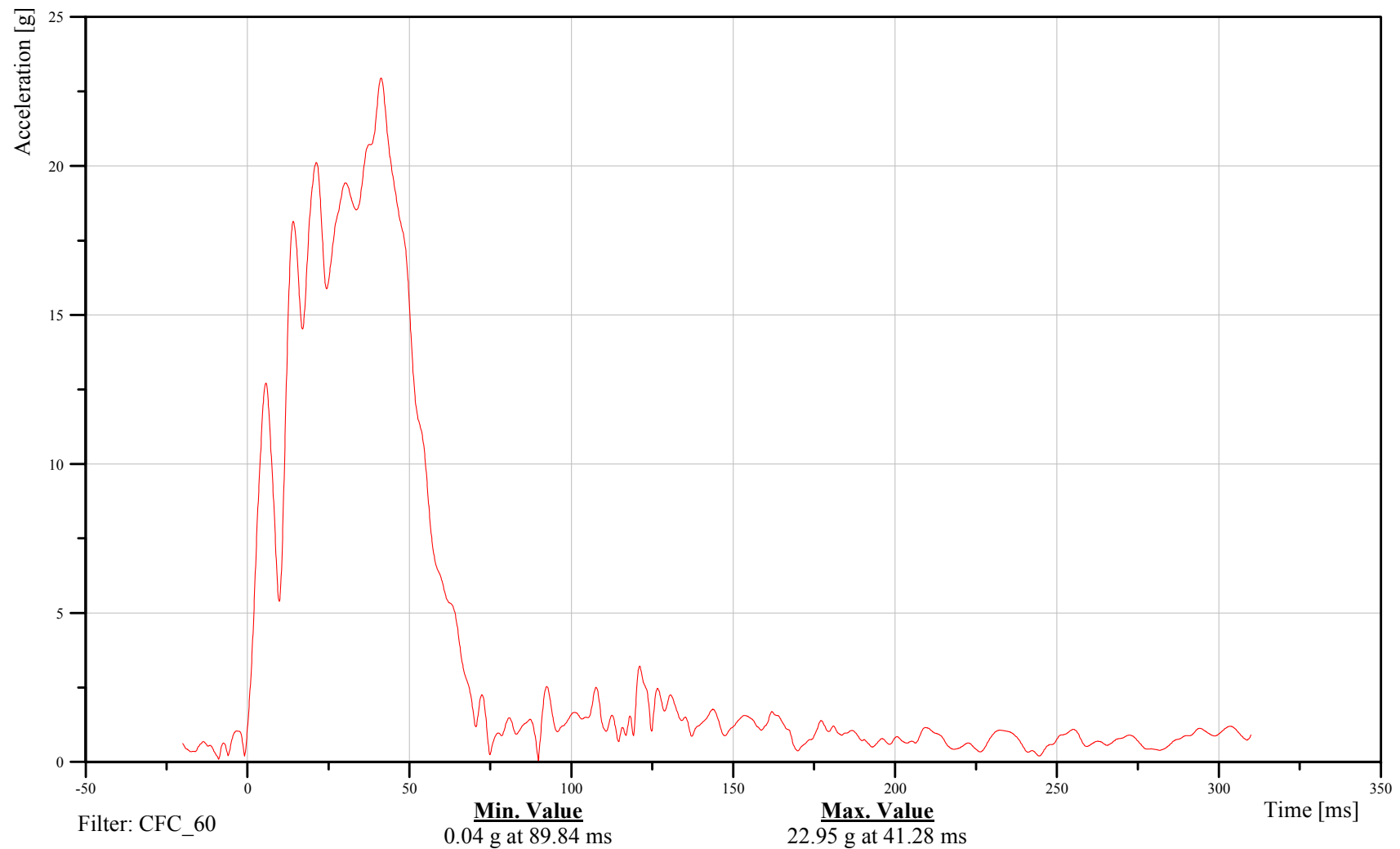
MDB Center of Gravity Resultant Acceleration

Customer: VRTC

M0VEHCCG0000ACRD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

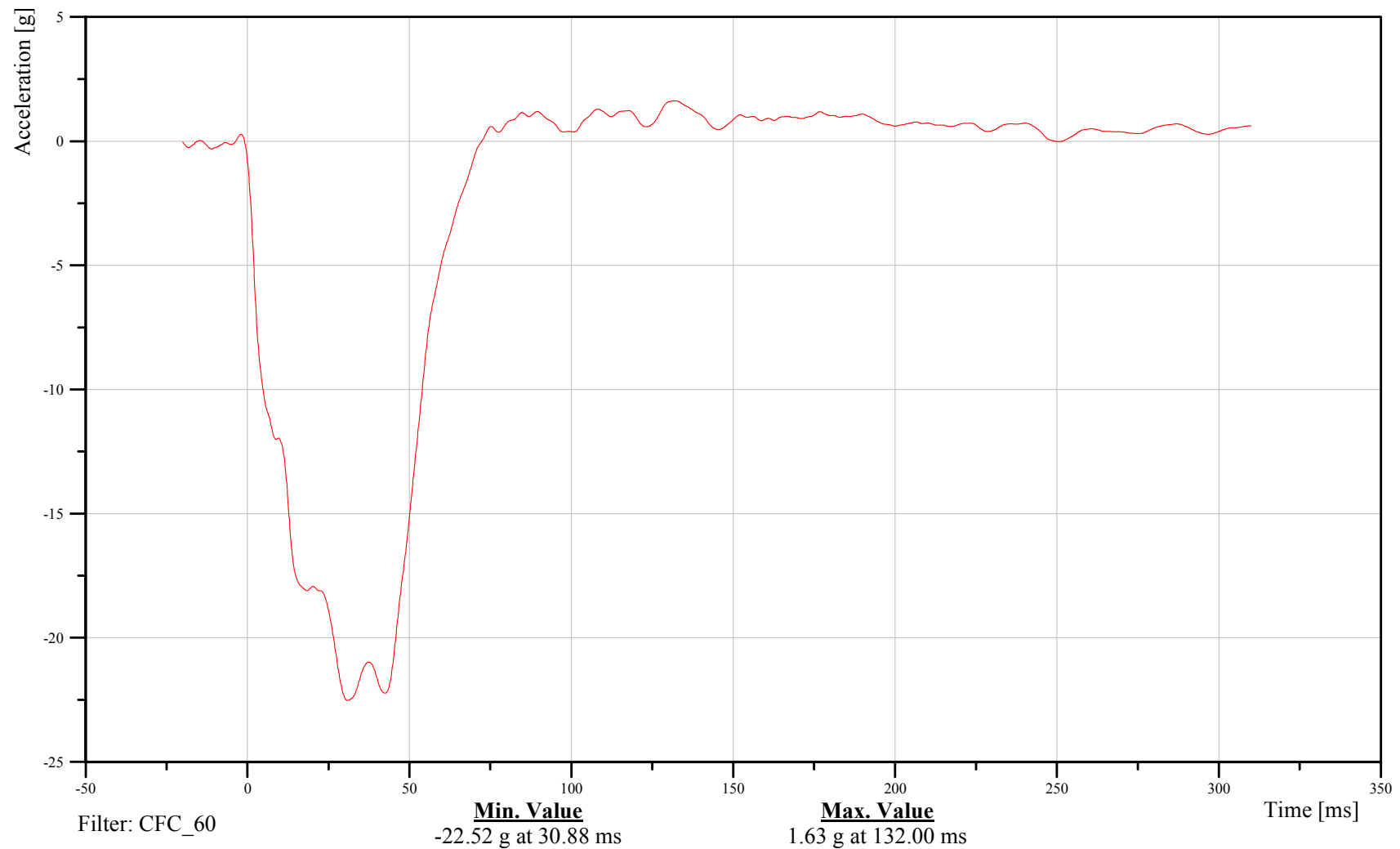
MDB Left Rear X-axis Acceleration

Customer: VRTC

M7FRAM000000ACXD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

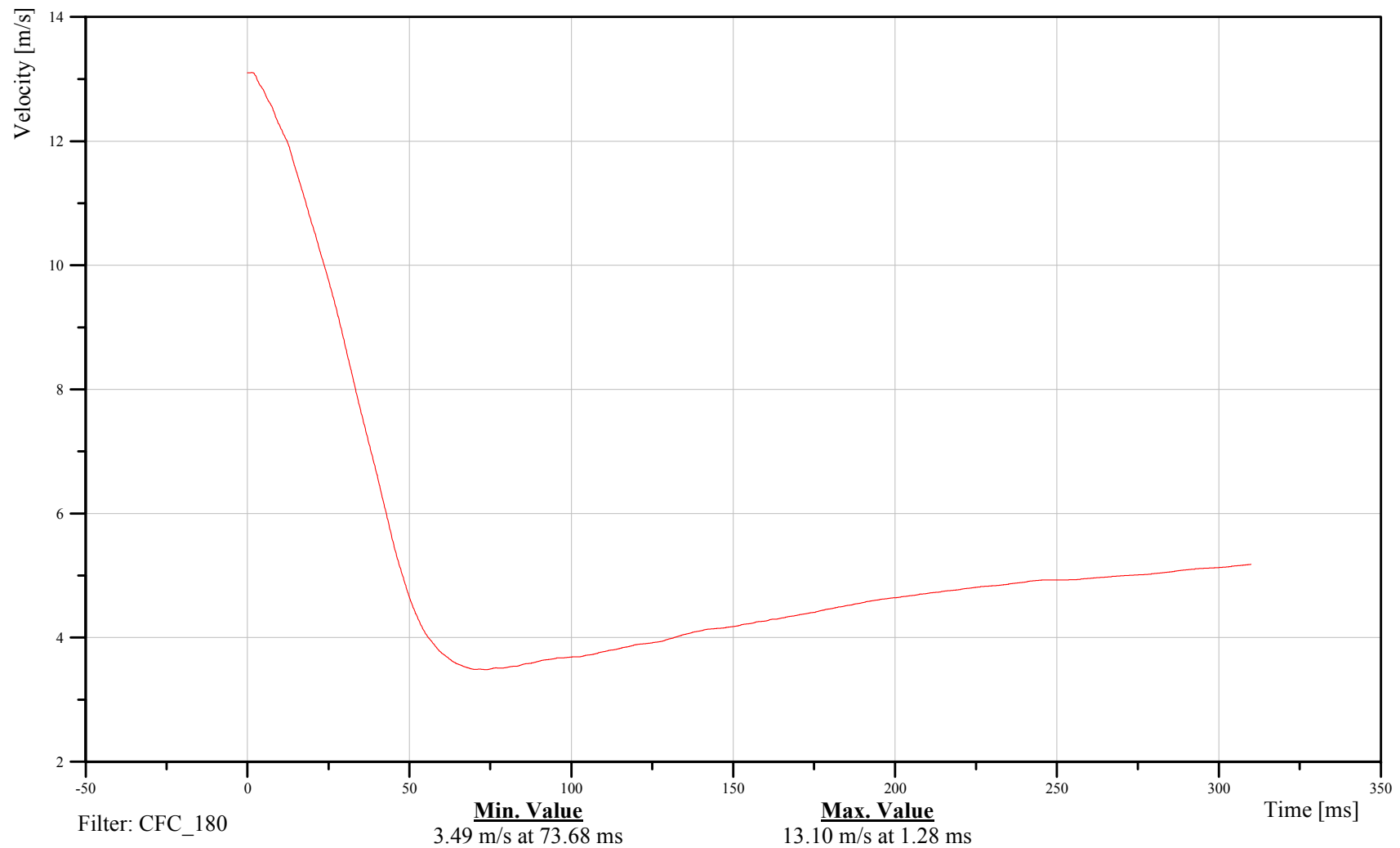
MDB Left Rear X-axis Velocity

Customer: VRTC

M7FRAM000000VEXC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

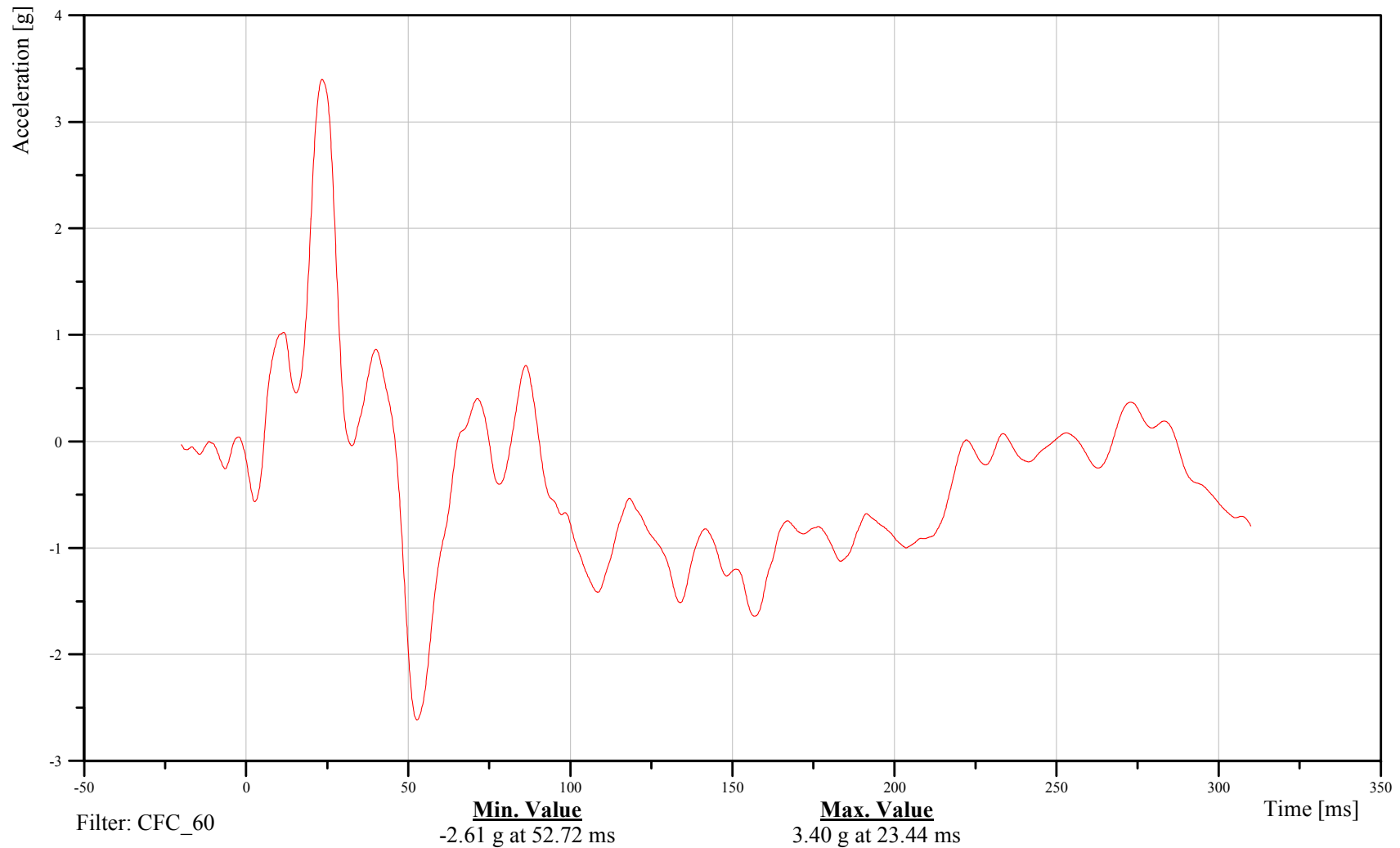
MDB Left Rear Y-axis Acceleration

Customer: VRTC

M7FRAM000000ACYD

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

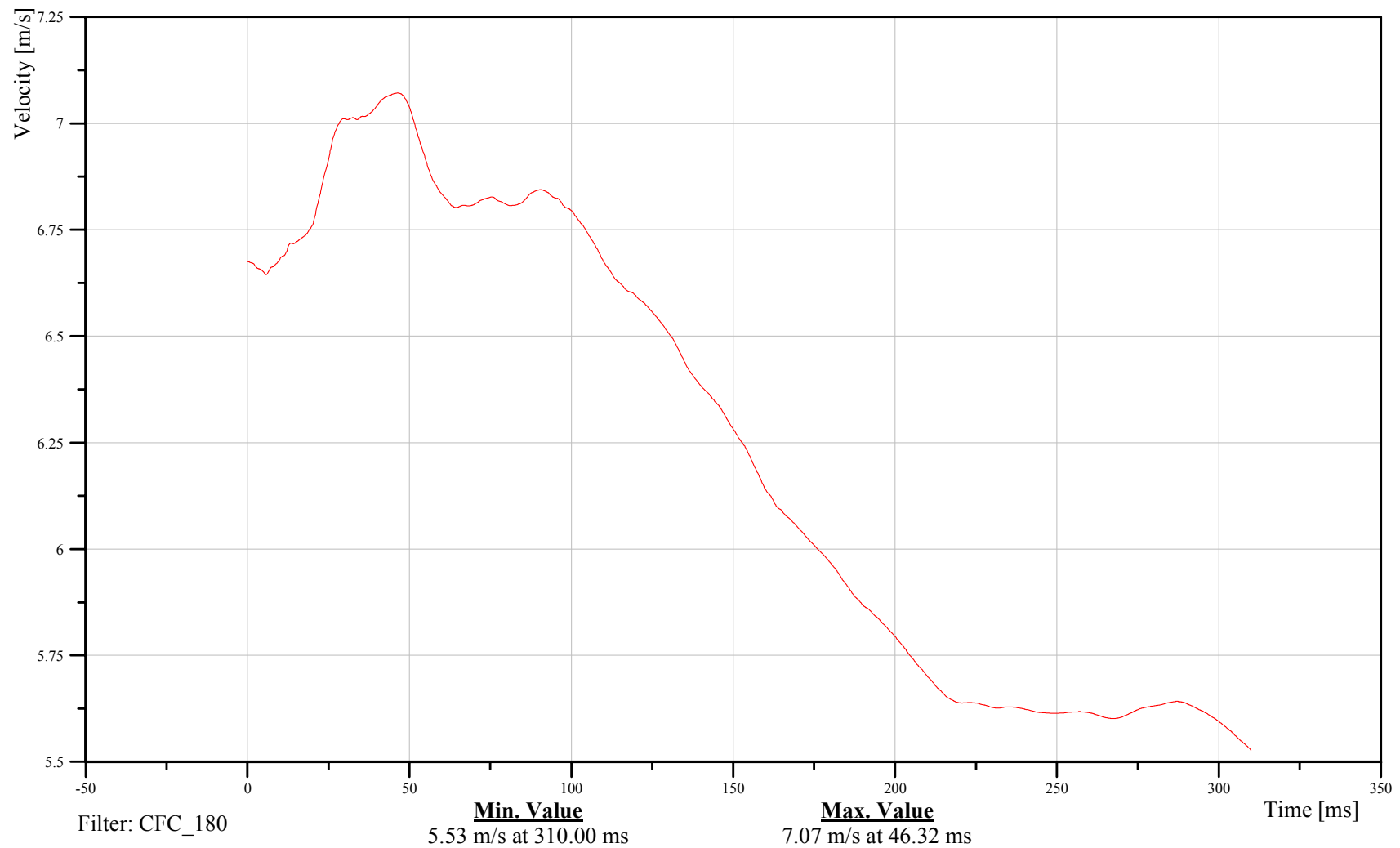
MDB Left Rear Y-axis Velocity

Customer: VRTC

M7FRAM000000VEYC

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

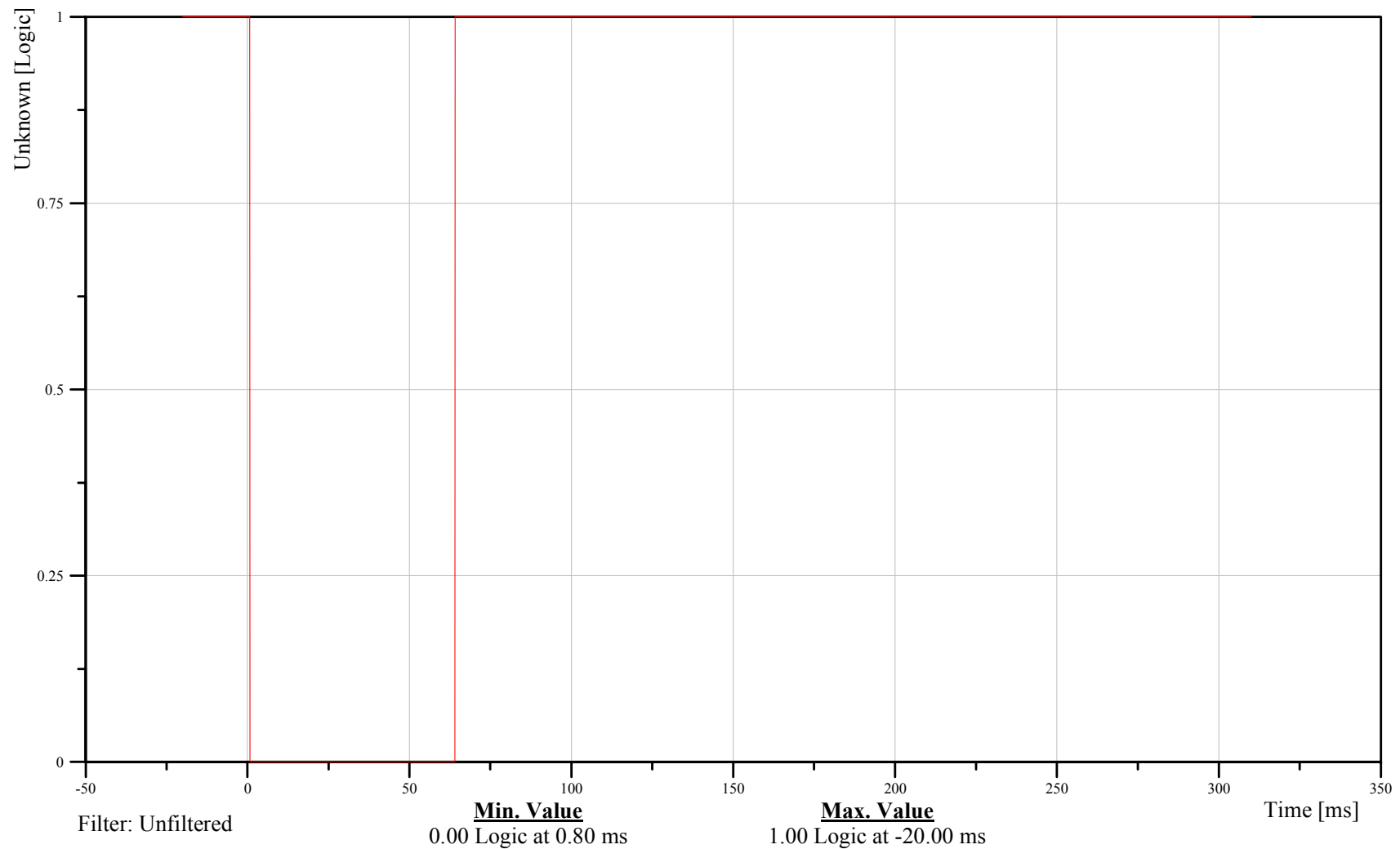
MDB Right Side Contact Switch

Customer: VRTC

M3CONT000000EV00

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

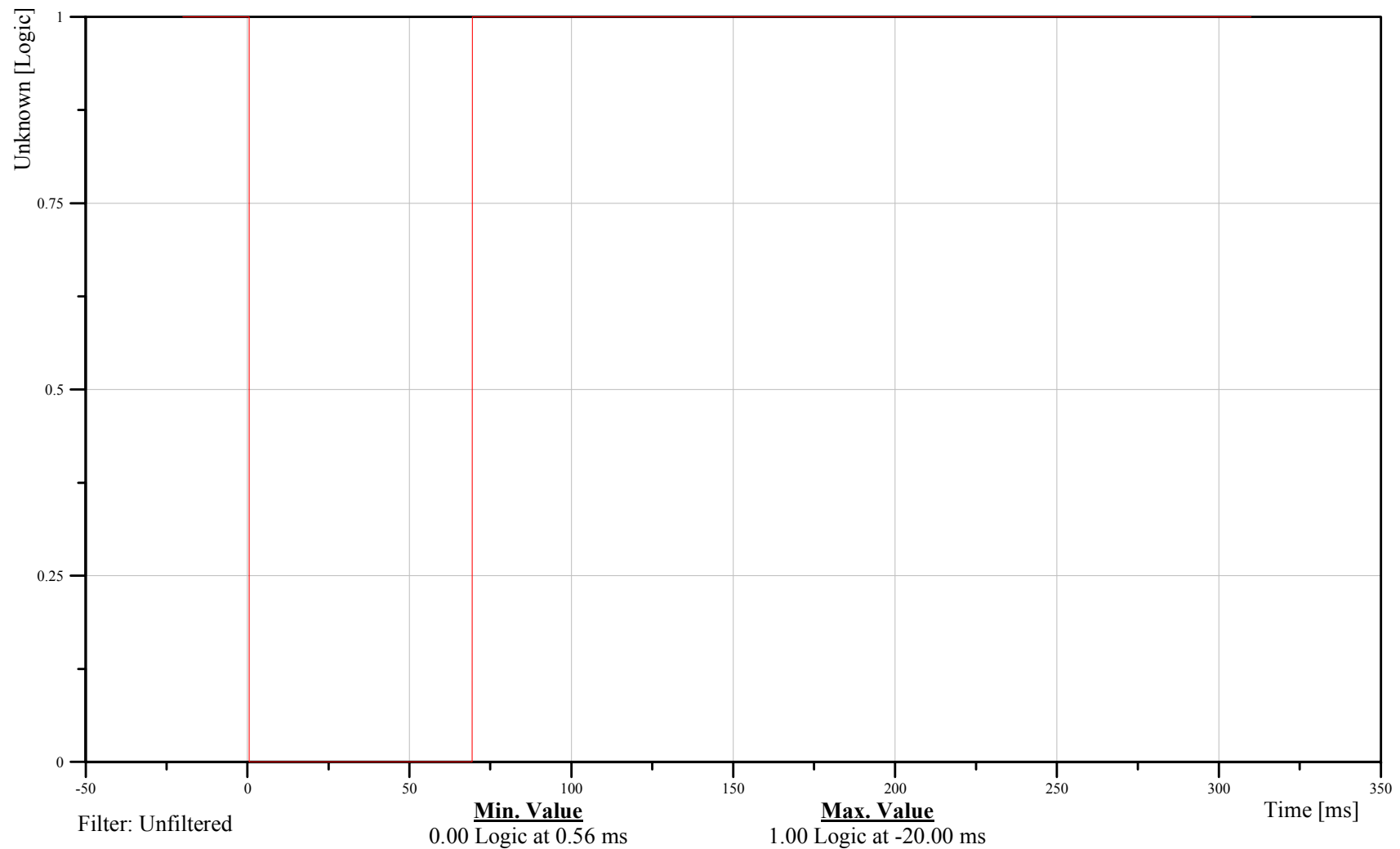
MDB Left Side Contact Switch

Customer: VRTC

M1CONT000000EV00

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

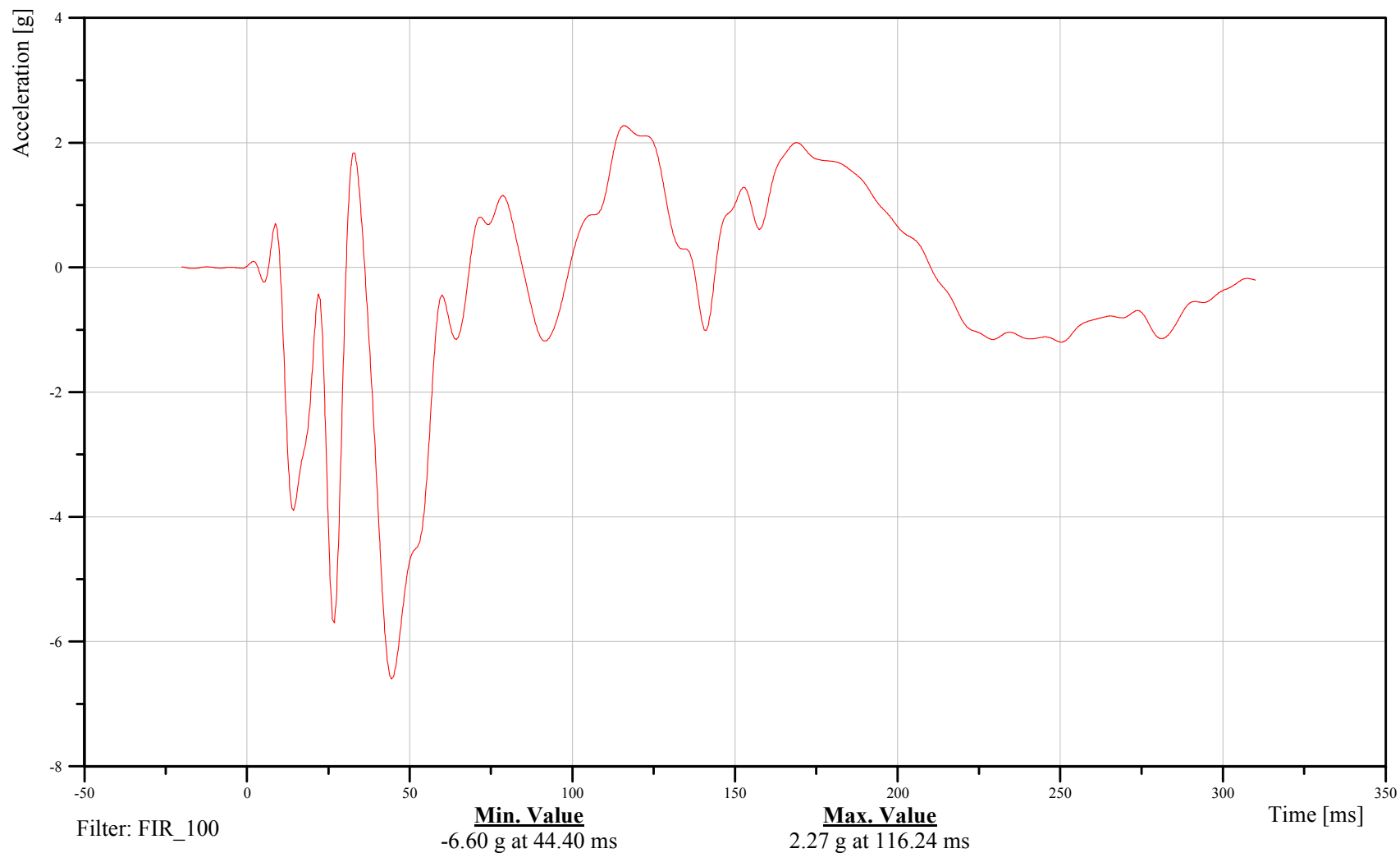
Upper Spine X

Customer: VRTC

11SPIN0100E2ACX1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Upper Spine Y

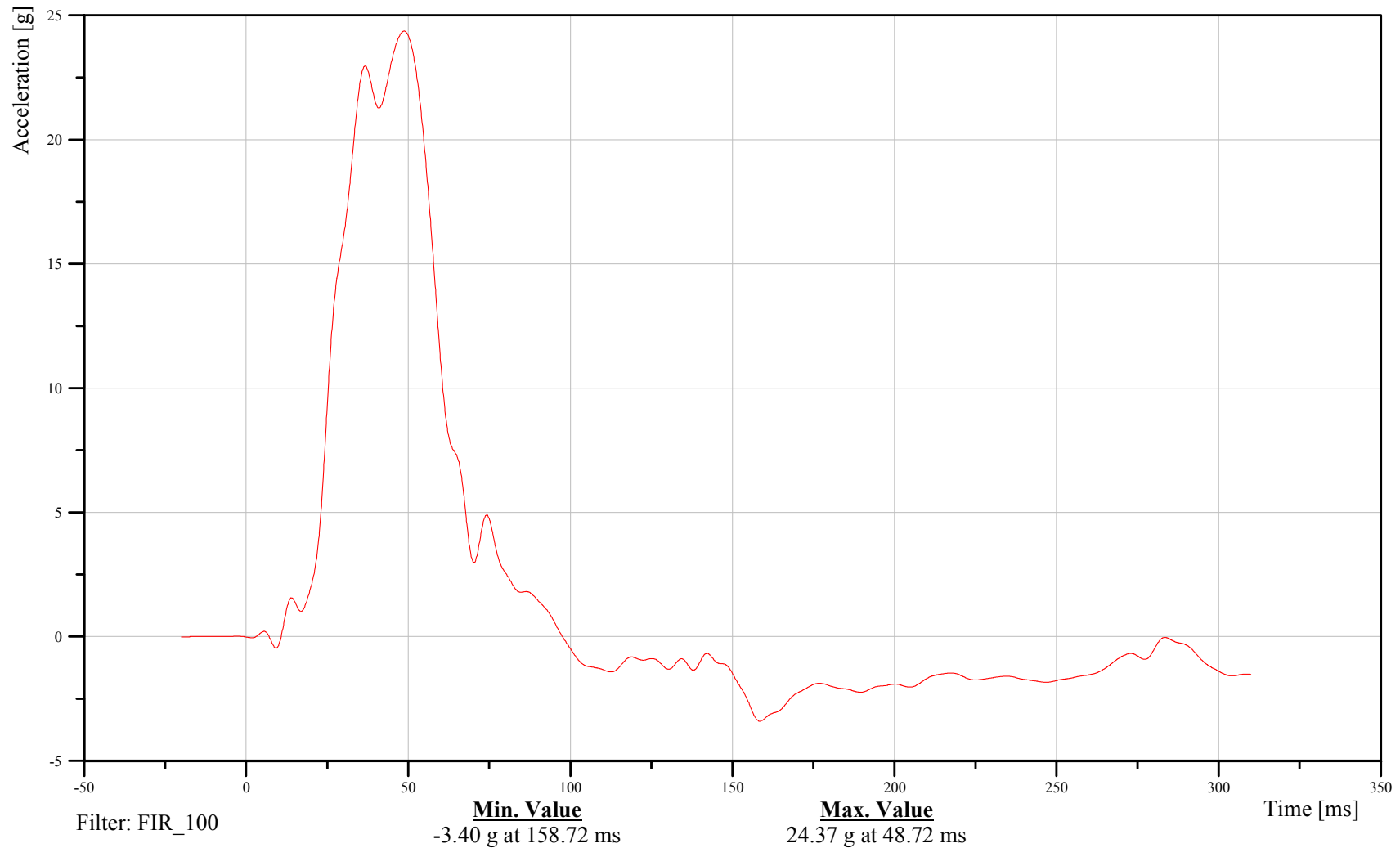
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11SPIN0100E2ACY1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

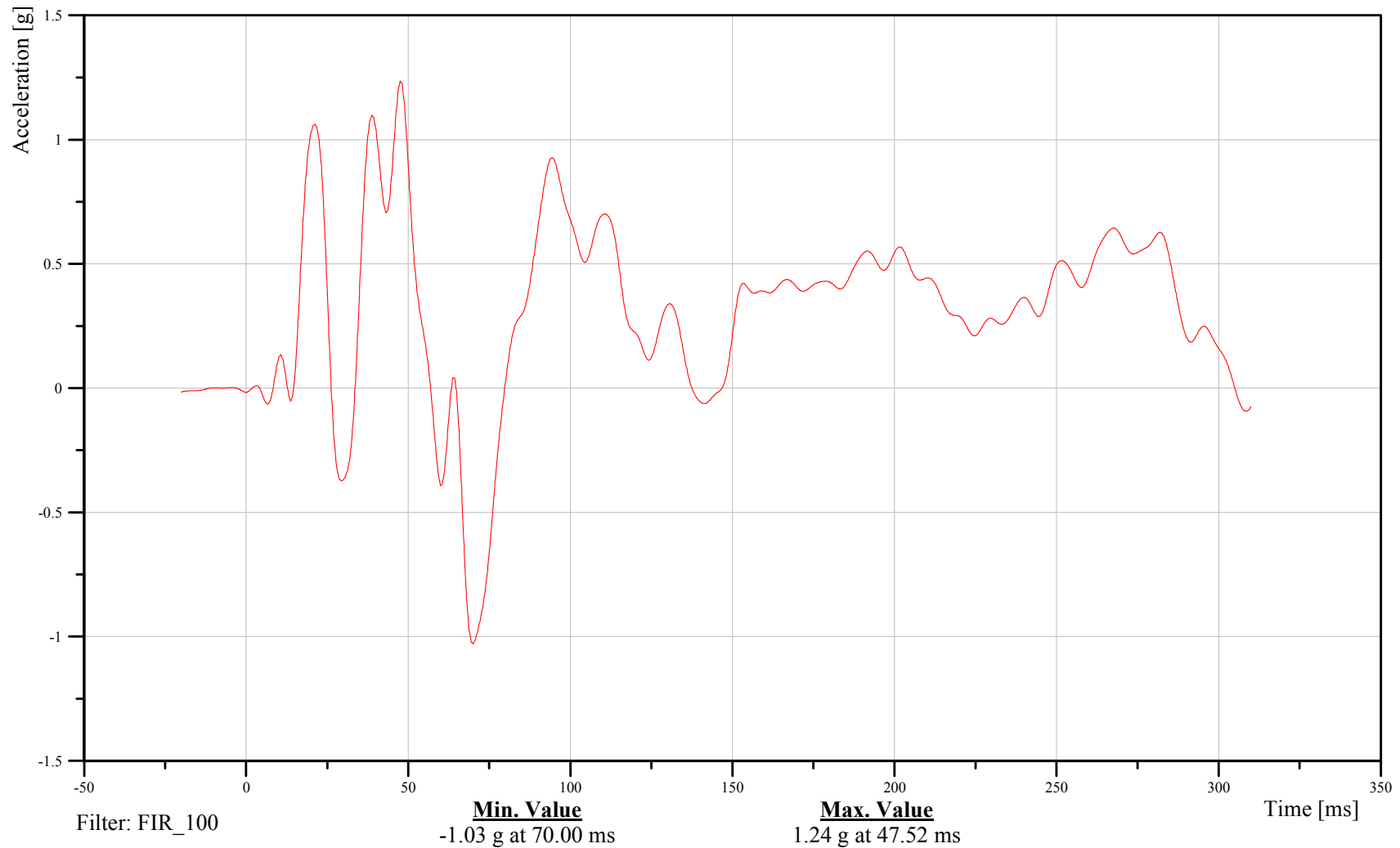
Upper Spine Z

Customer: VRTC

11SPIN0100E2ACZ1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Time: 11:26

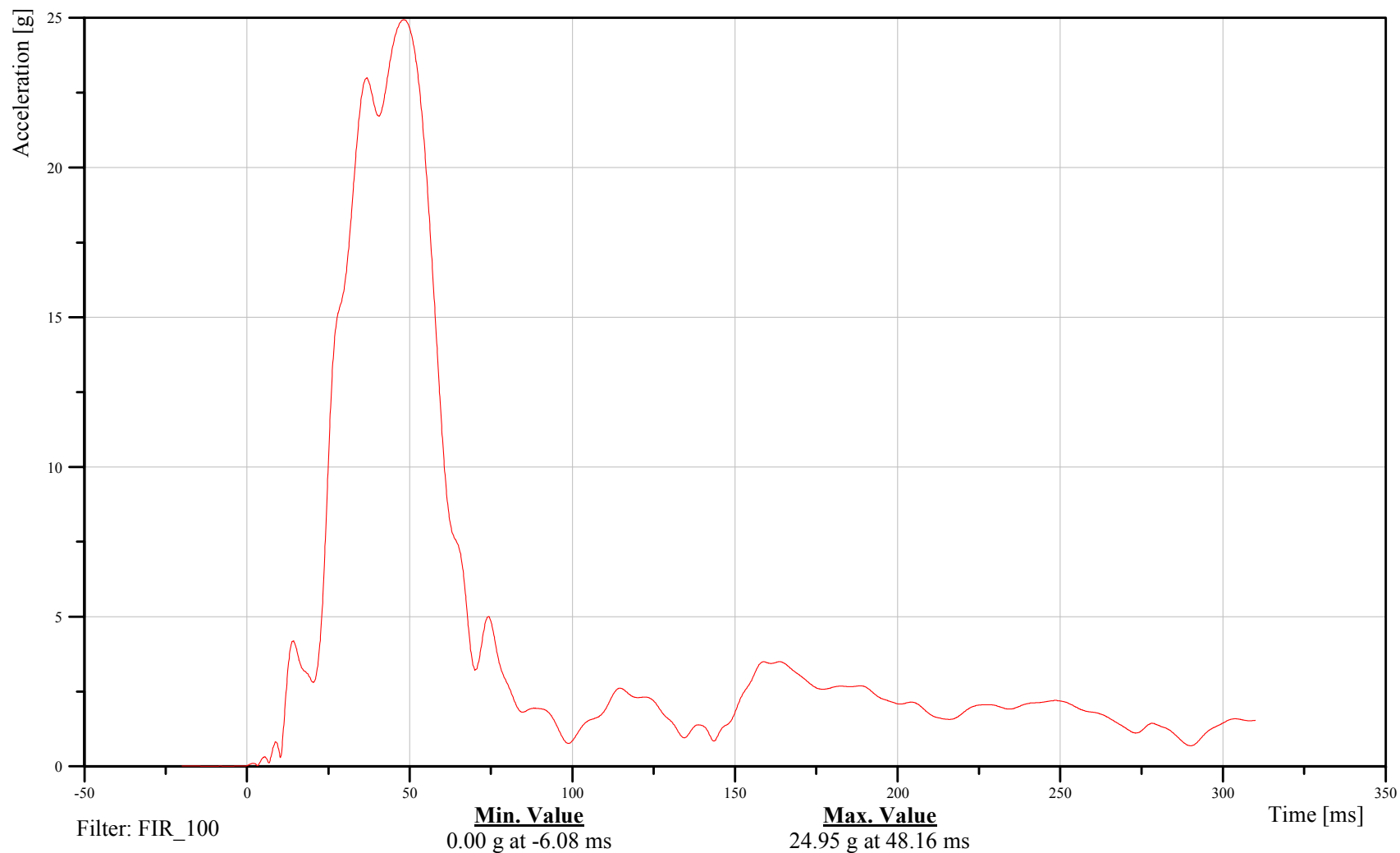
Upper Spine Resultant

Customer: VRTC

11SPIN0100E2ACR1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Upper Rib Accel Y

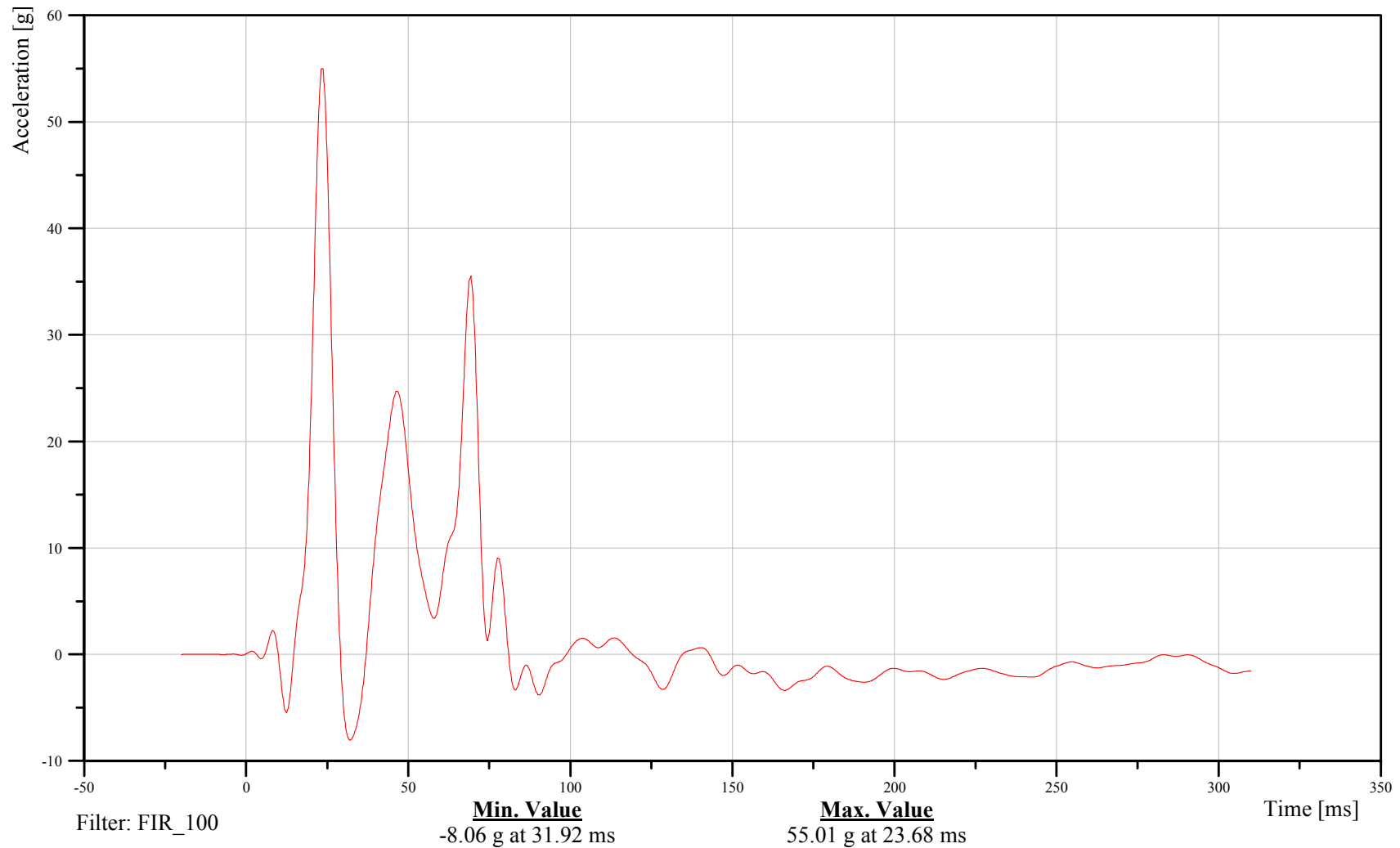
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11RIBSLU00E2ACY1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Mid Rib Accel Y

Date: 07/07/2005

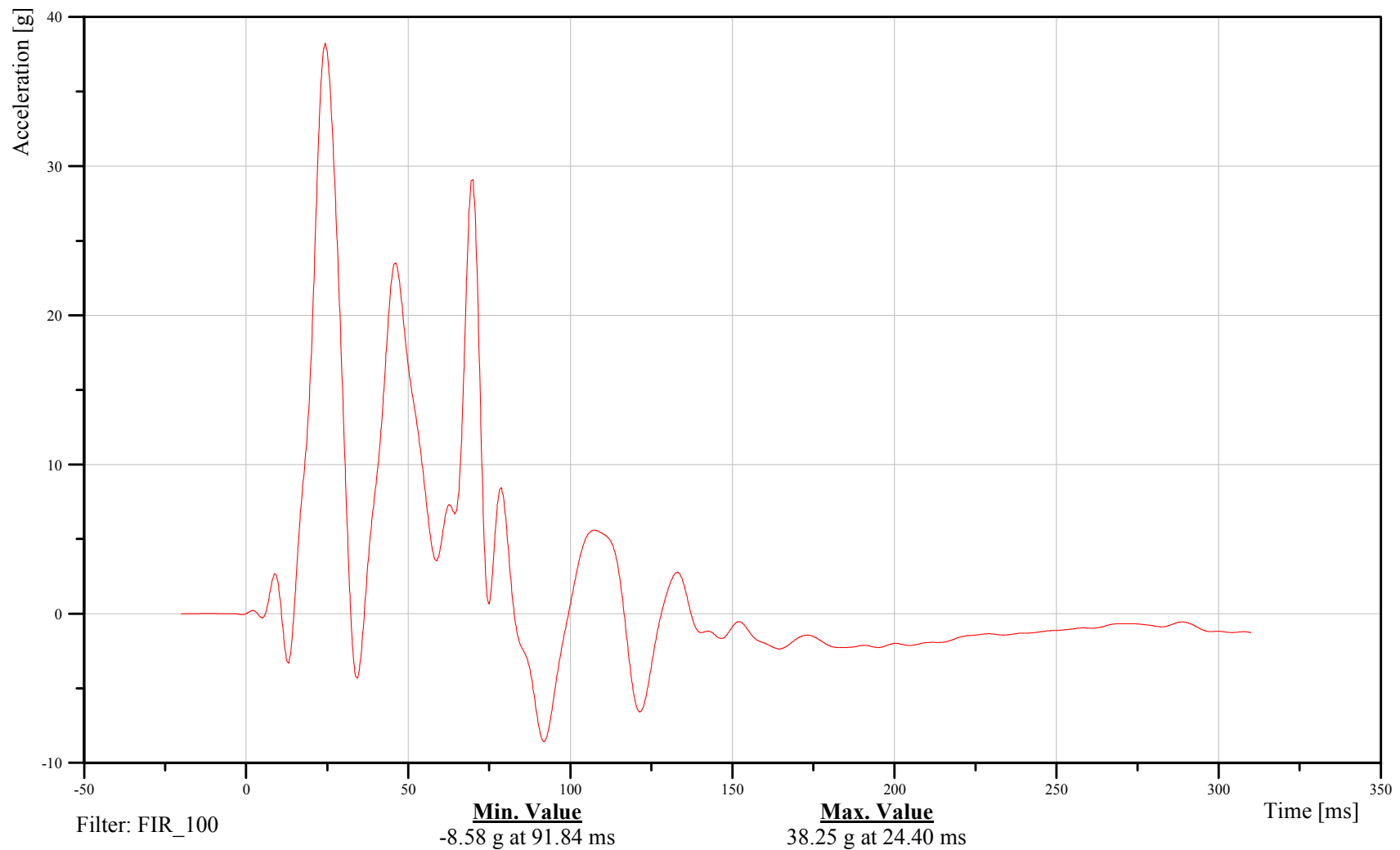
Time: 11:26

Customer: VRTC

11RIBSLM00E2ACY1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

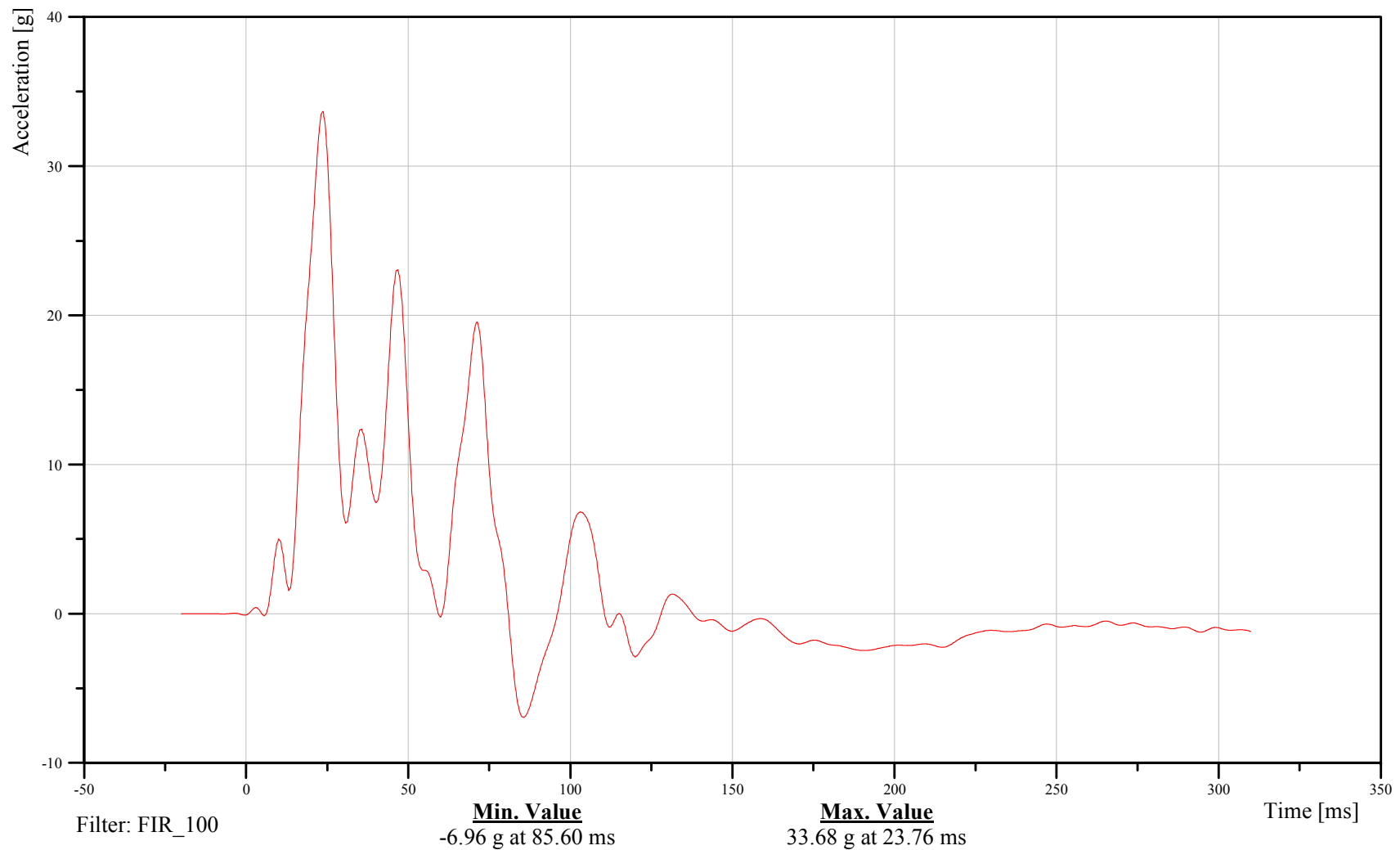
Lower Rib Accel Y

Customer: VRTC

11RIBSLL00E2ACY1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

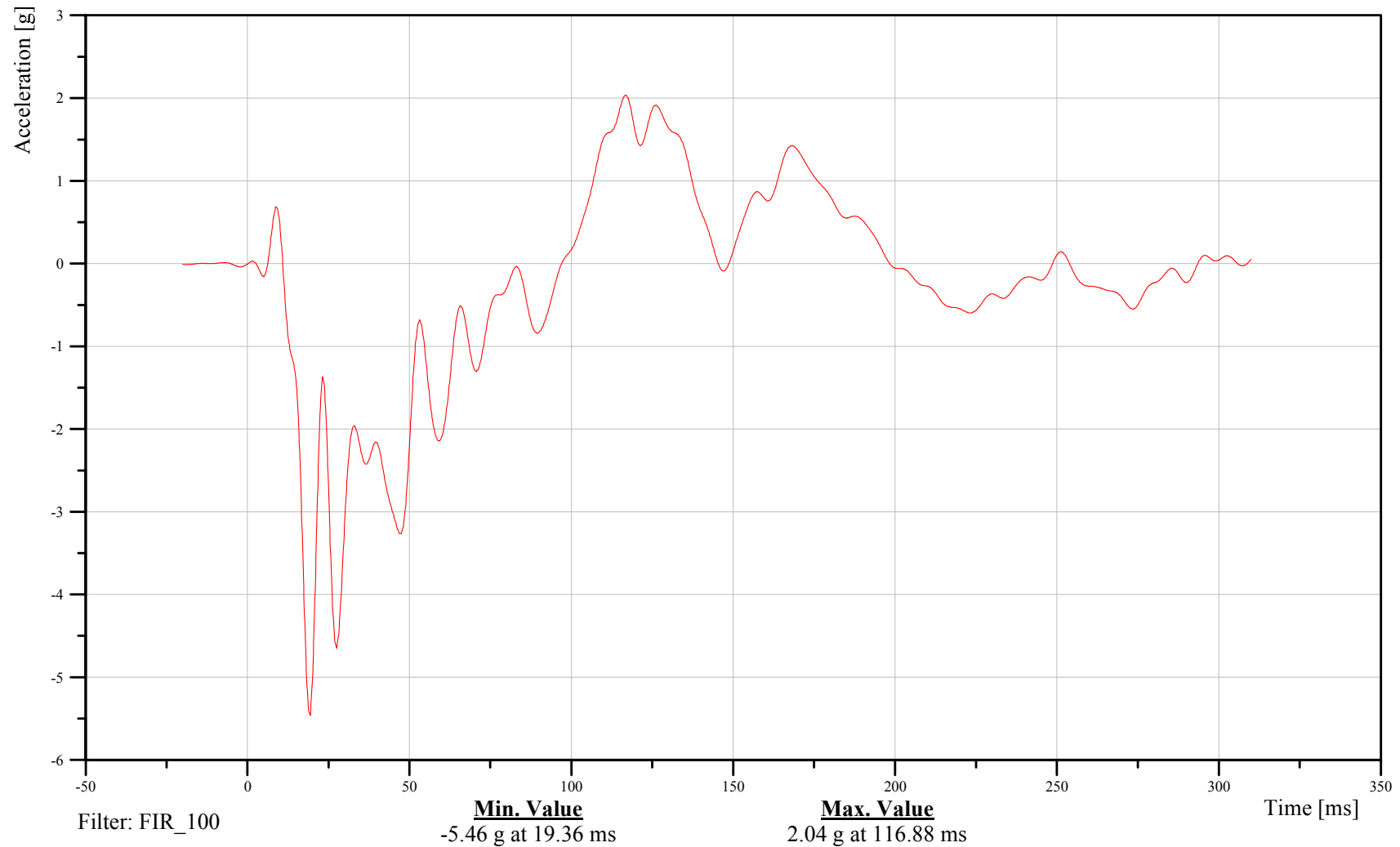
Lower Spine X

Customer: VRTC

11SPIN1200E2ACX1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

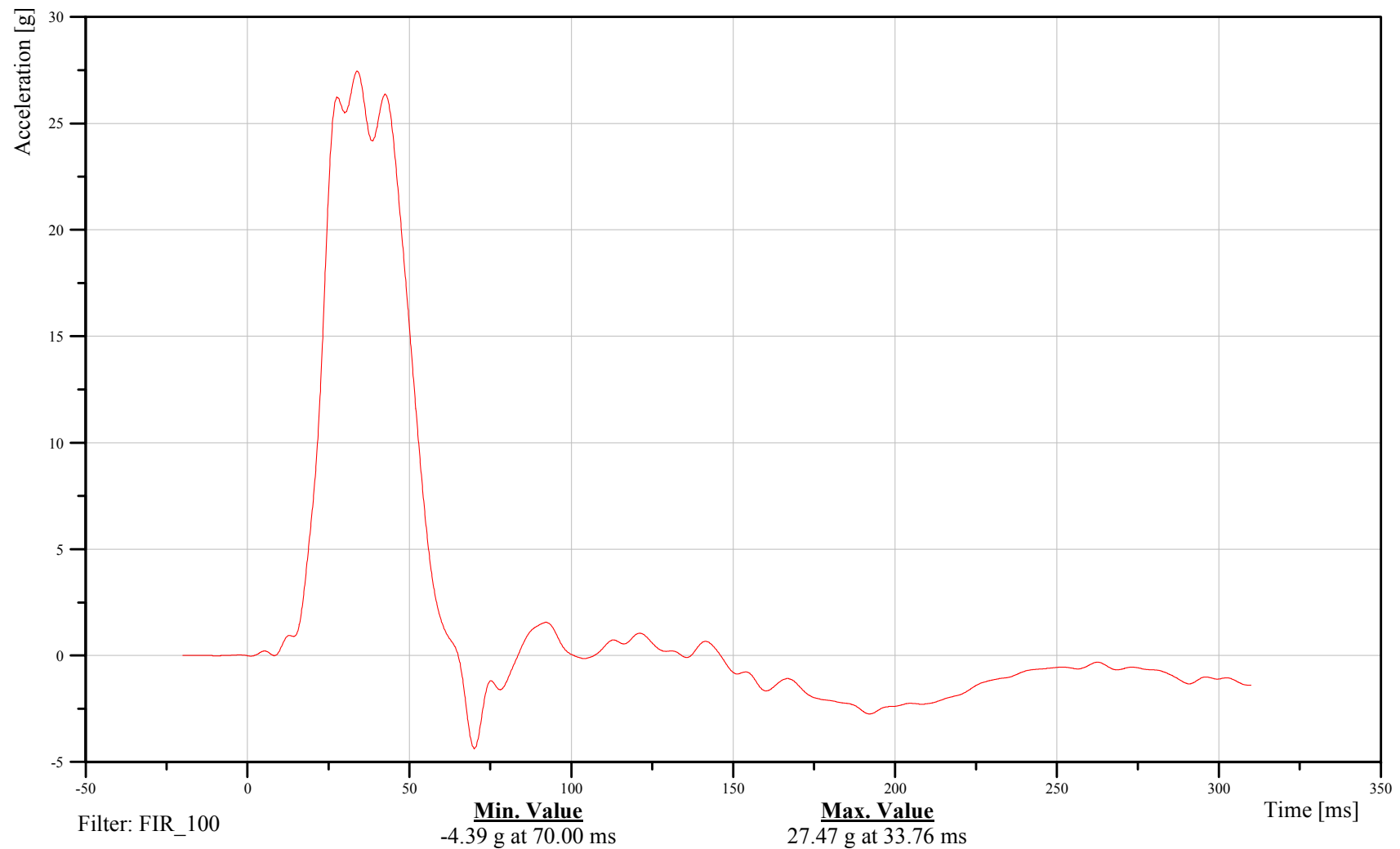
Lower Spine Y

Customer: VRTC

11SPIN1200E2ACY1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

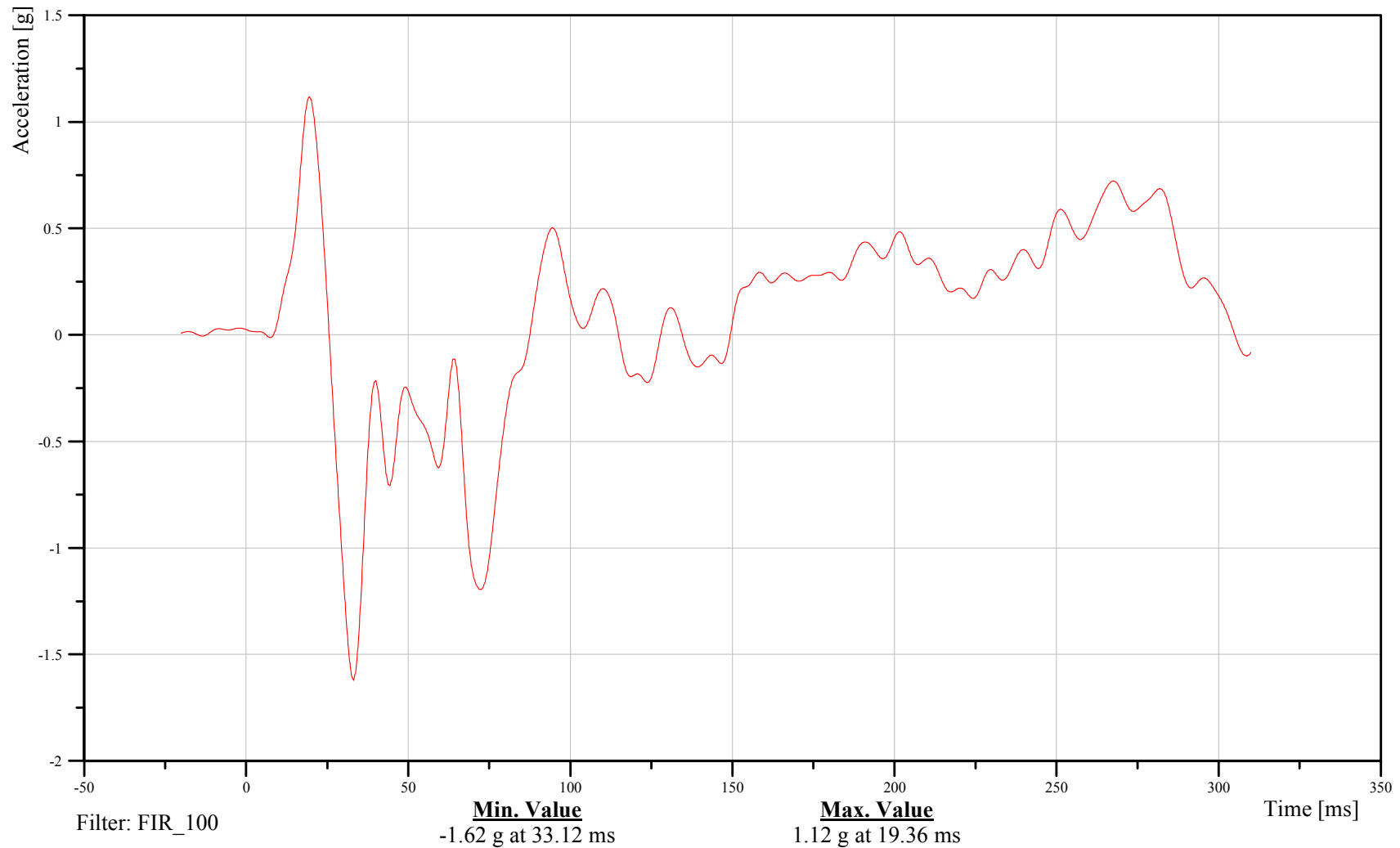
Lower Spine Z

Customer: VRTC

11SPIN1200E2ACZ1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

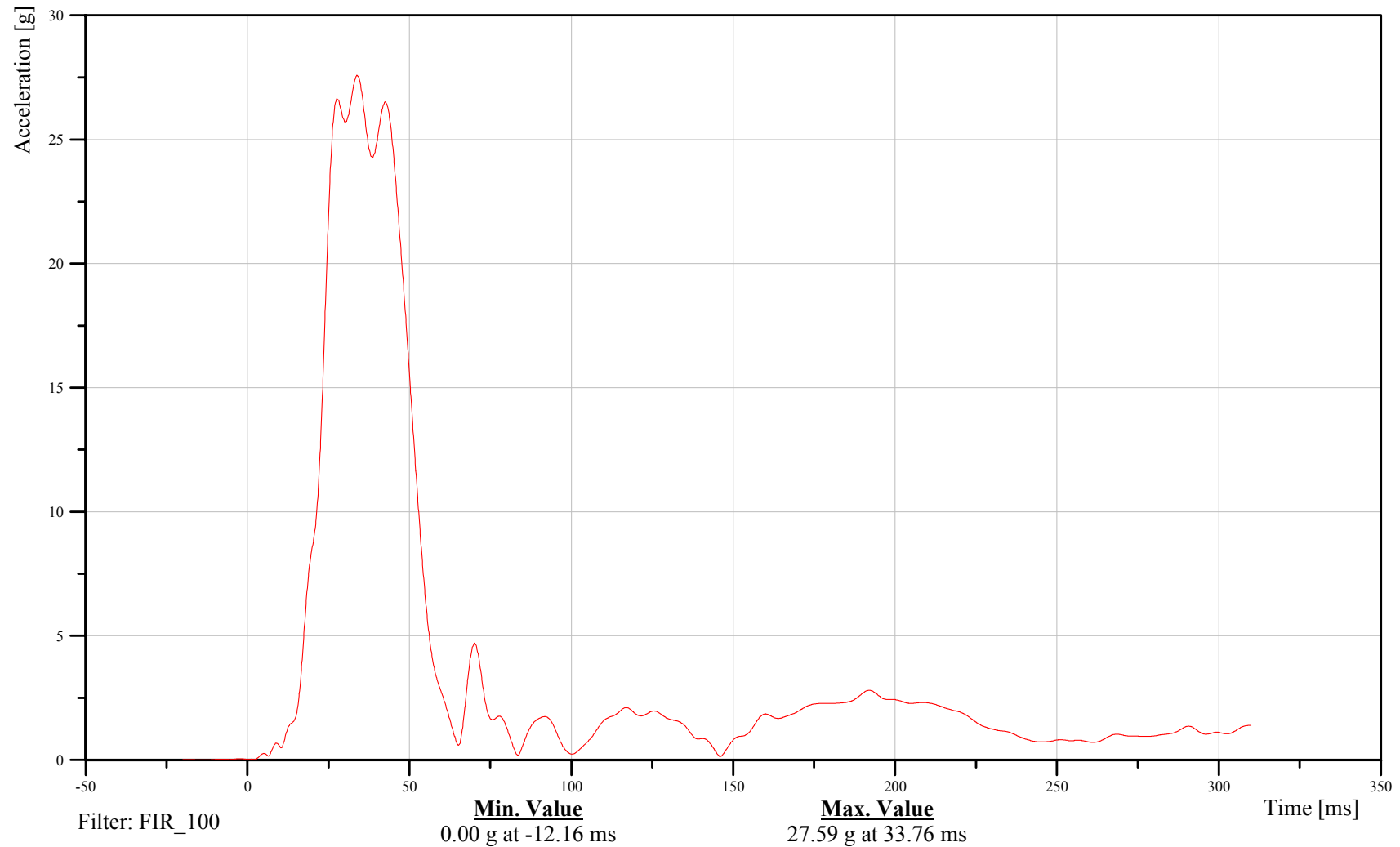
Lower Spine Resultant

Customer: VRTC

11SPIN1200E2ACR1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pelvis Accel X

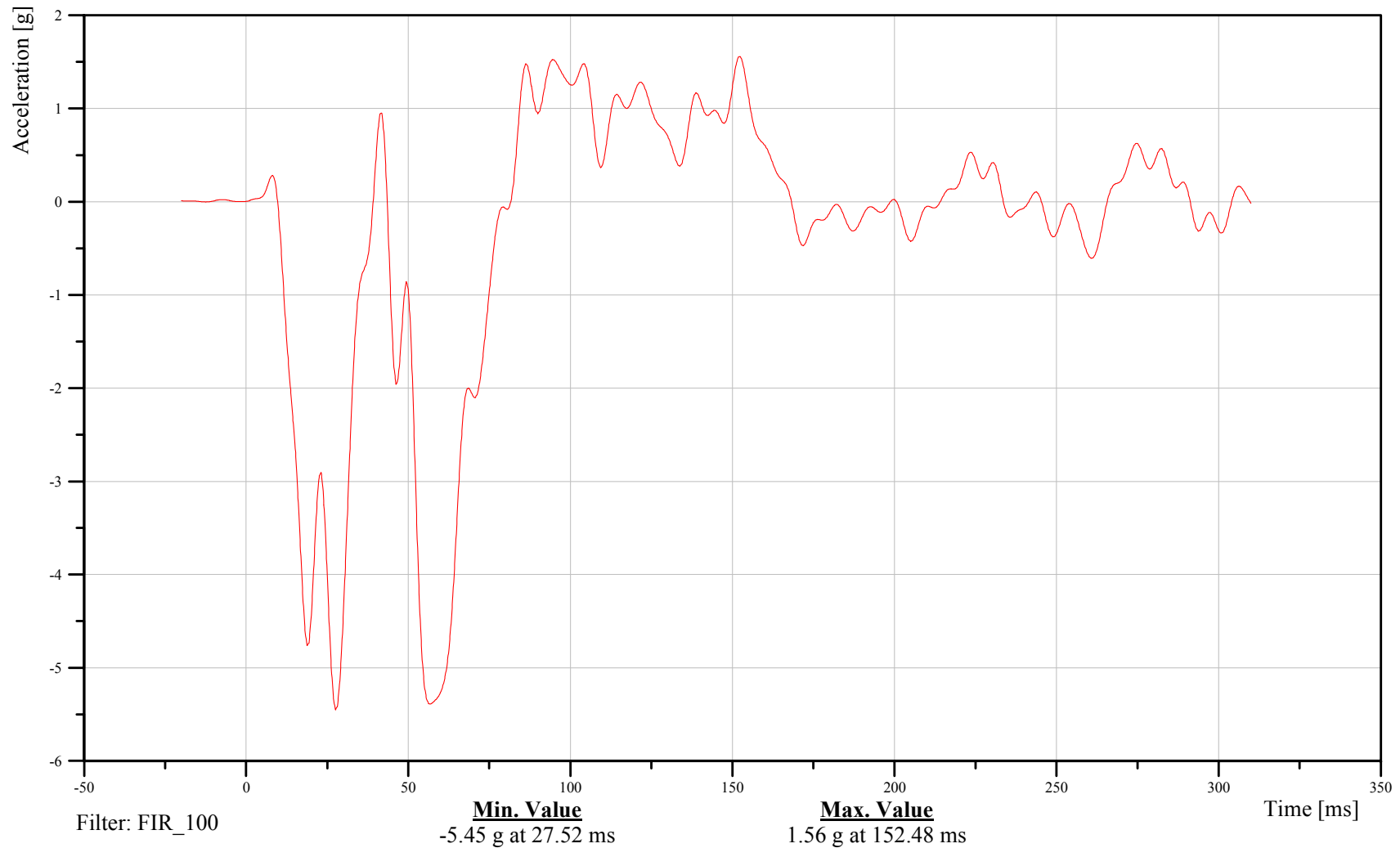
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11PELVCG00E2ACX1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pelvis Accel Y

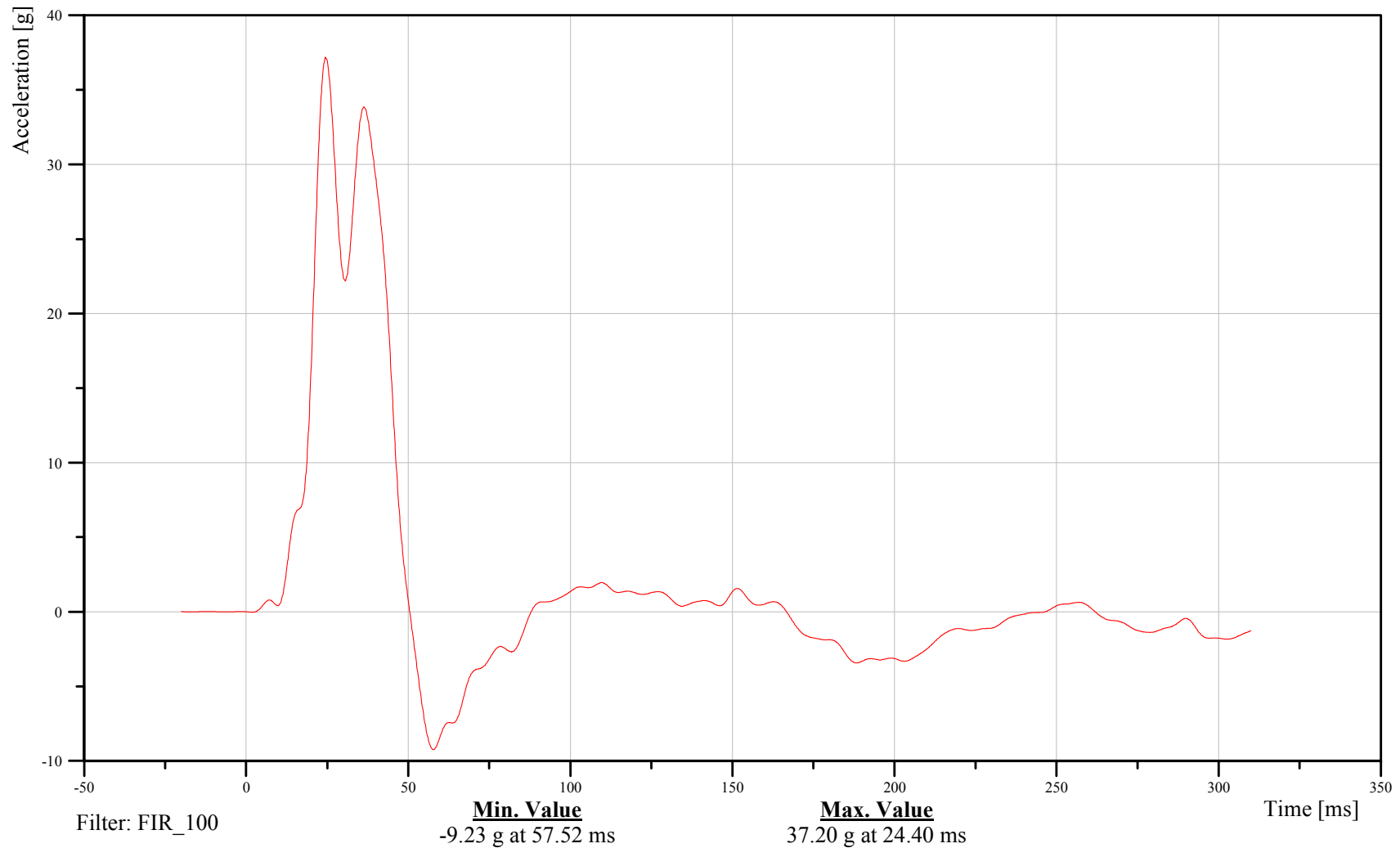
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11PELVCG00E2ACY1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pelvis Accel Z

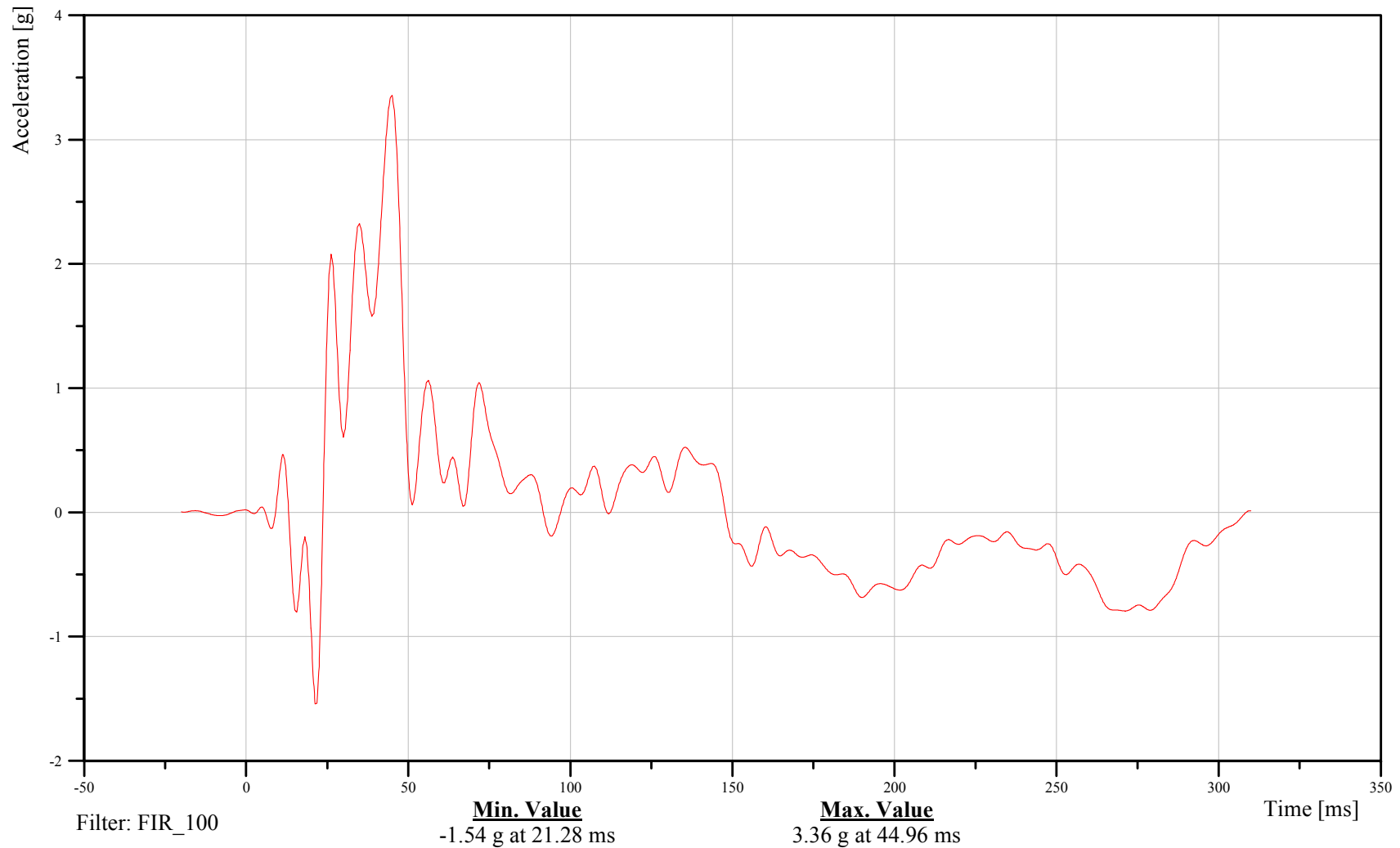
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11PELVCG00E2ACZ1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pelvis Accel Resultant

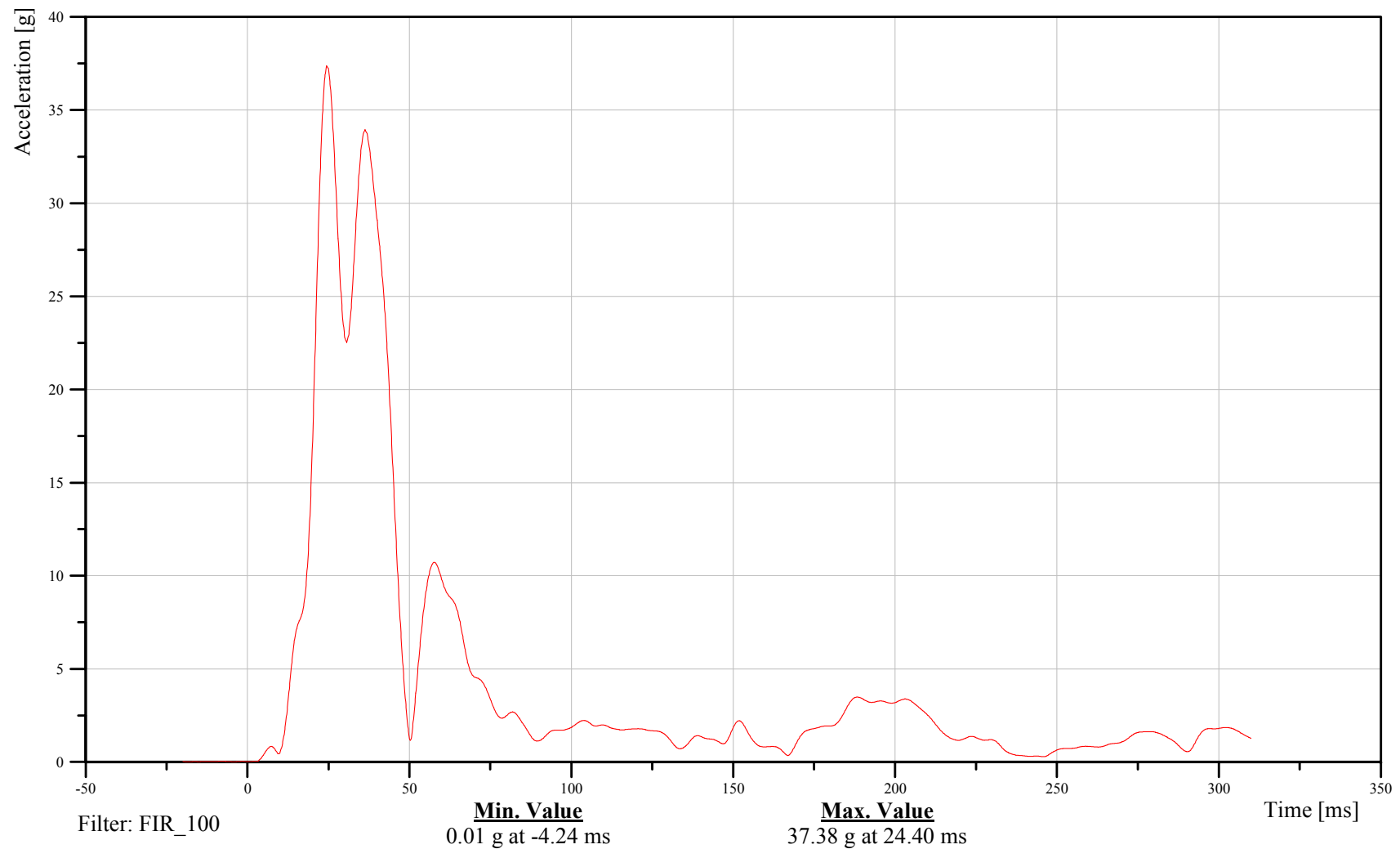
Date: 07/07/2005
Time: 11:26

Customer: VRTC

11PELVCG00E2ACR1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Upper Spine X

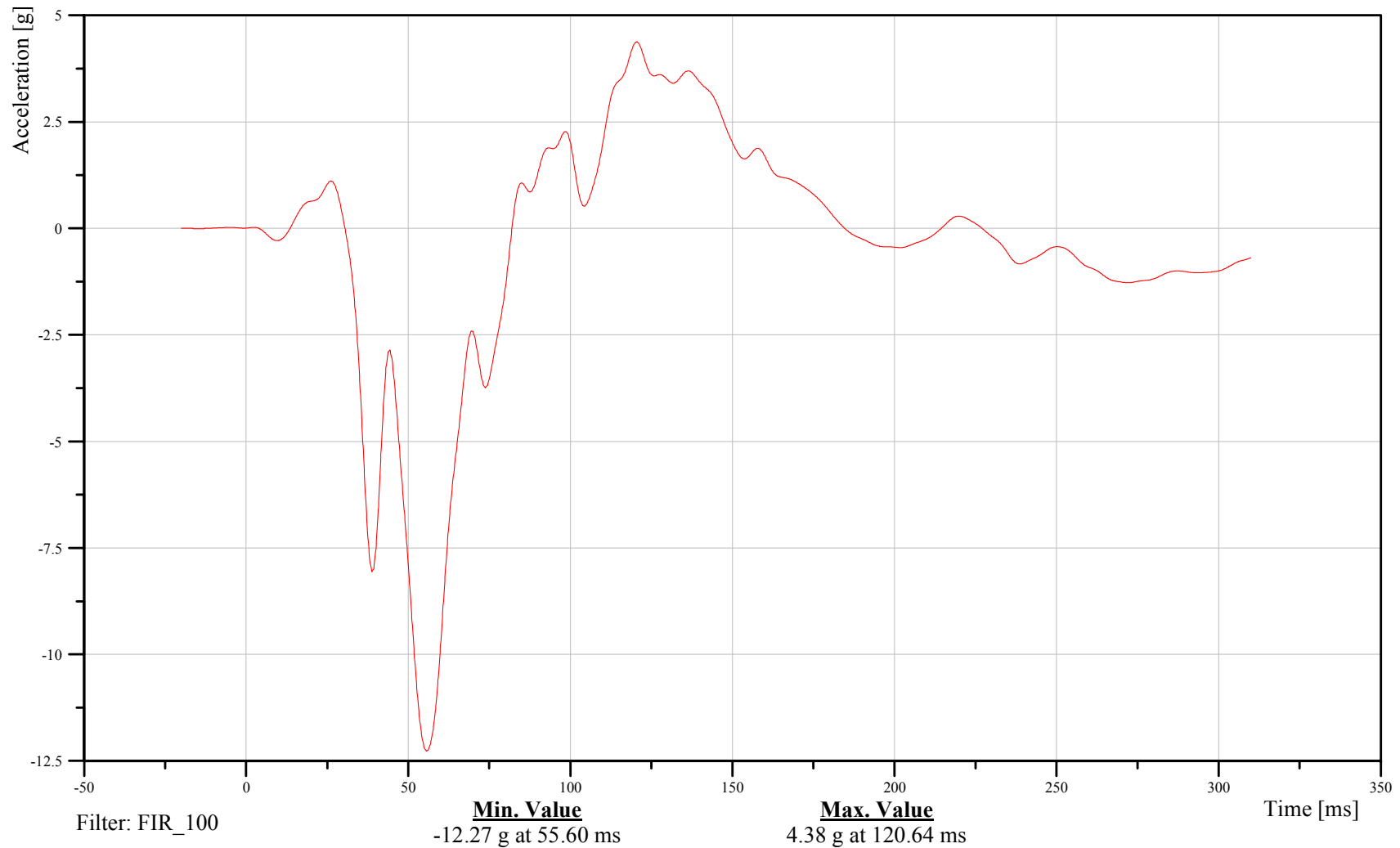
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14SPIN0100E2ACX1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Upper Spine Y

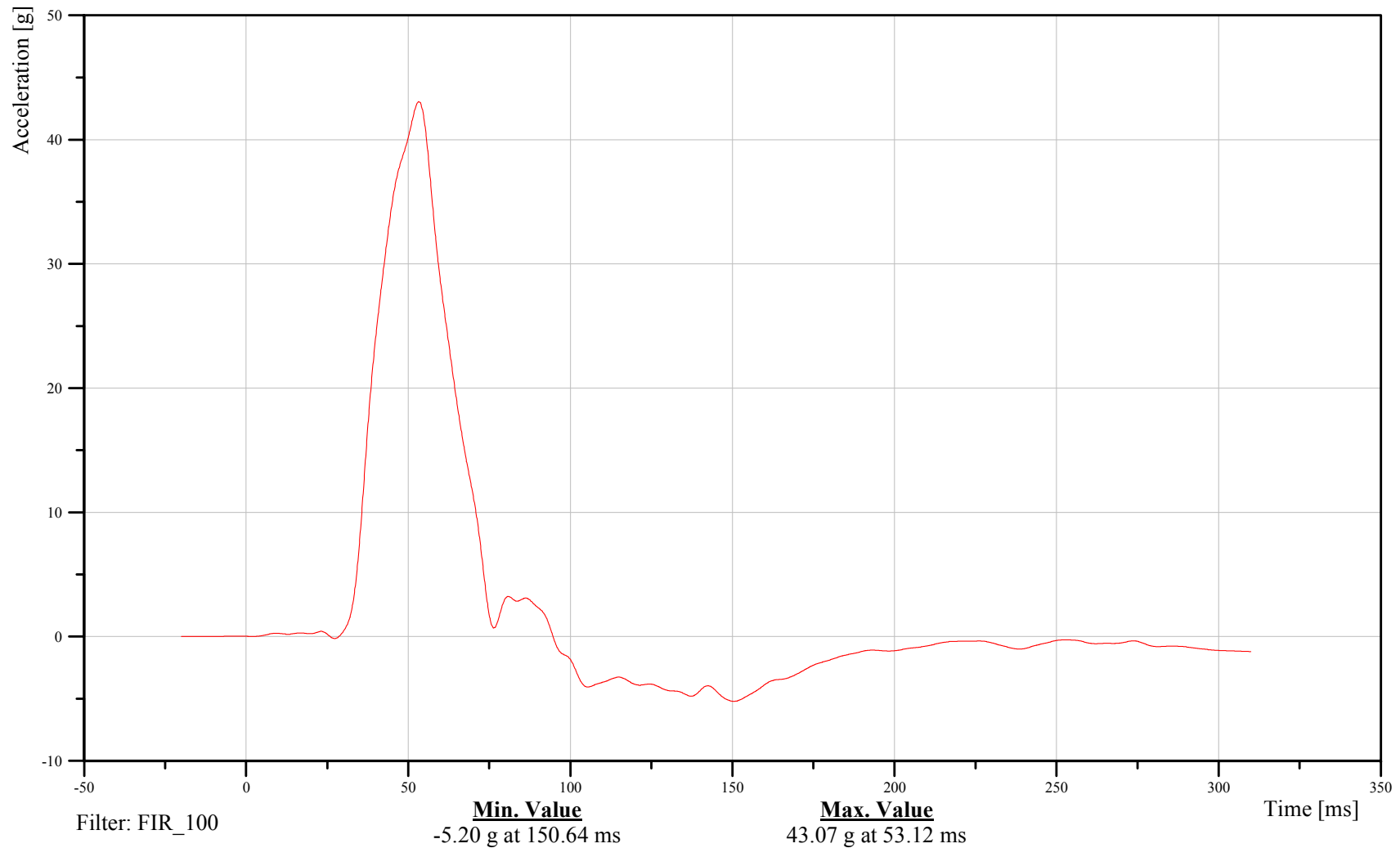
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14SPIN0100E2ACY1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Upper Spine Z

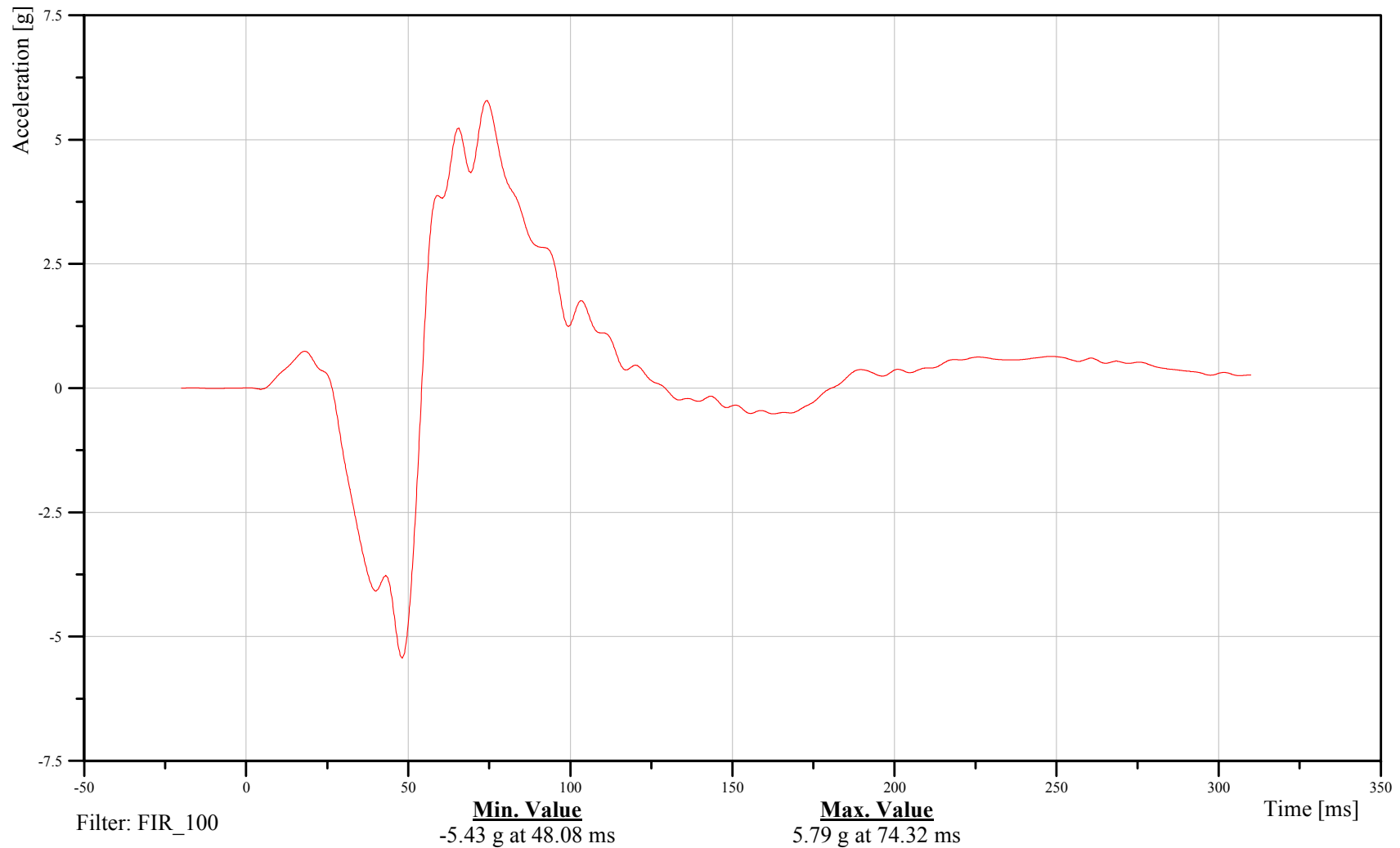
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14SPIN0100E2ACZ1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Time: 11:26

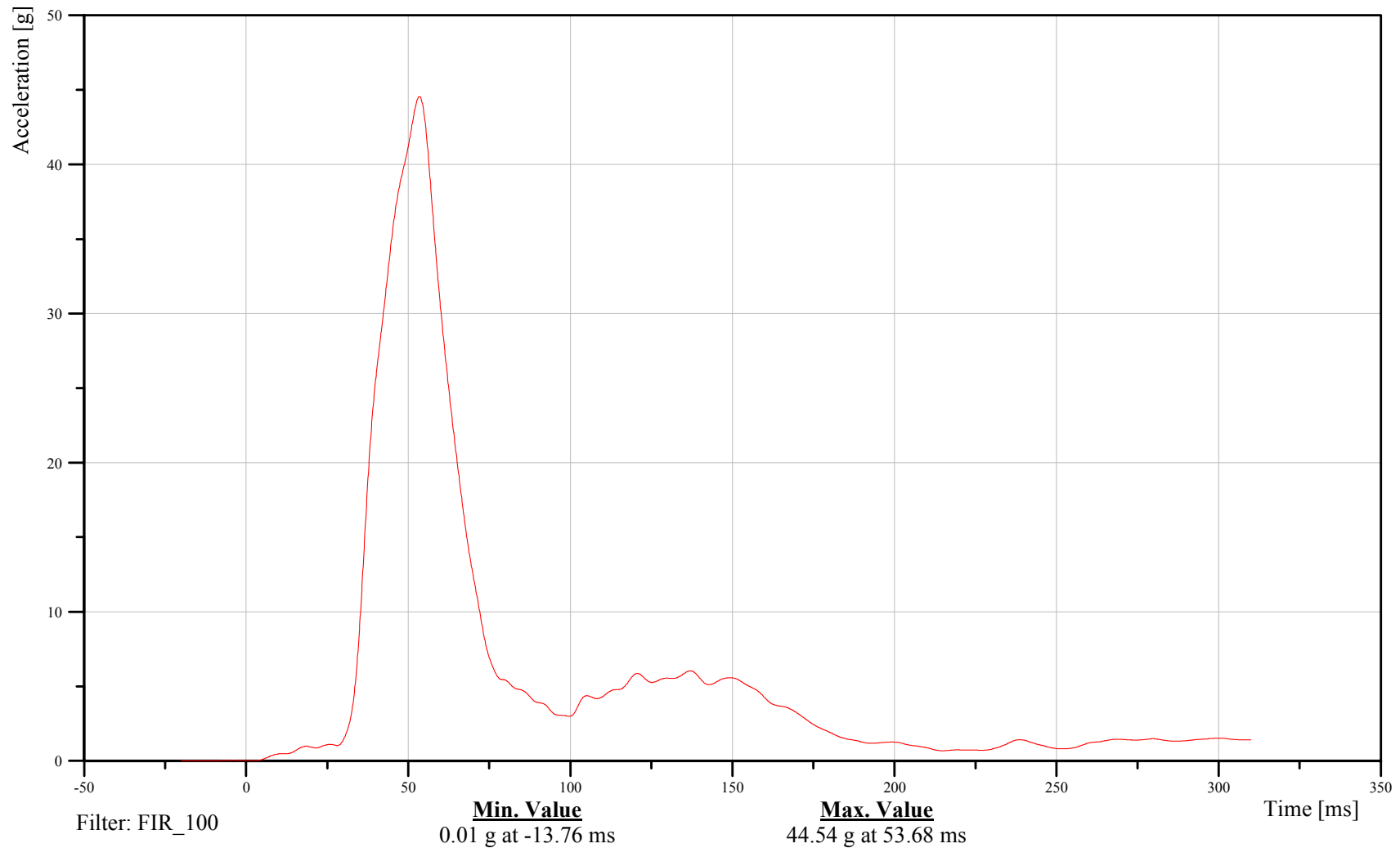
Upper Spine Resultant

Customer: VRTC

14SPIN0100E2ACR1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Upper Rib Accel Y

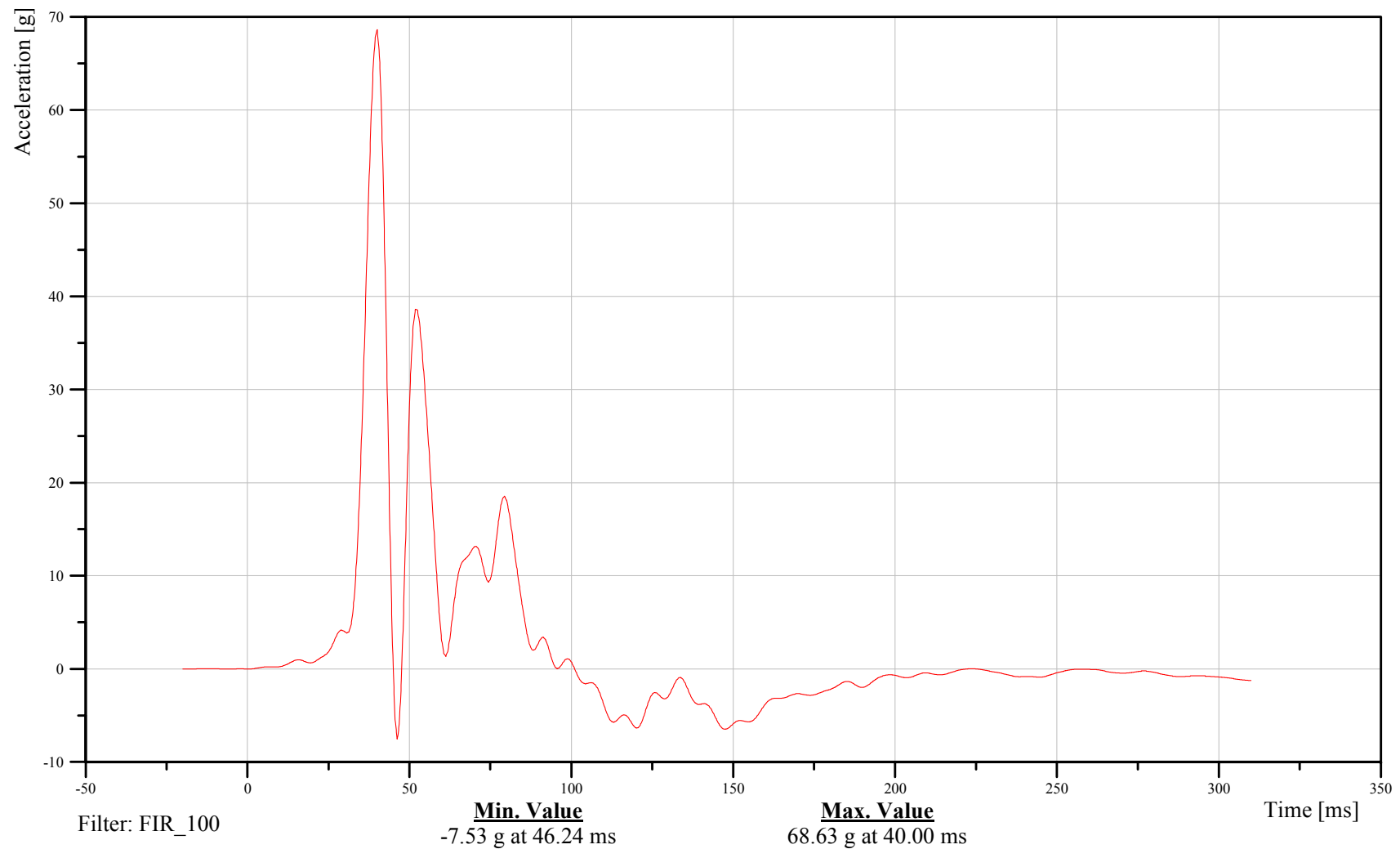
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14RIBSLU00E2ACY1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

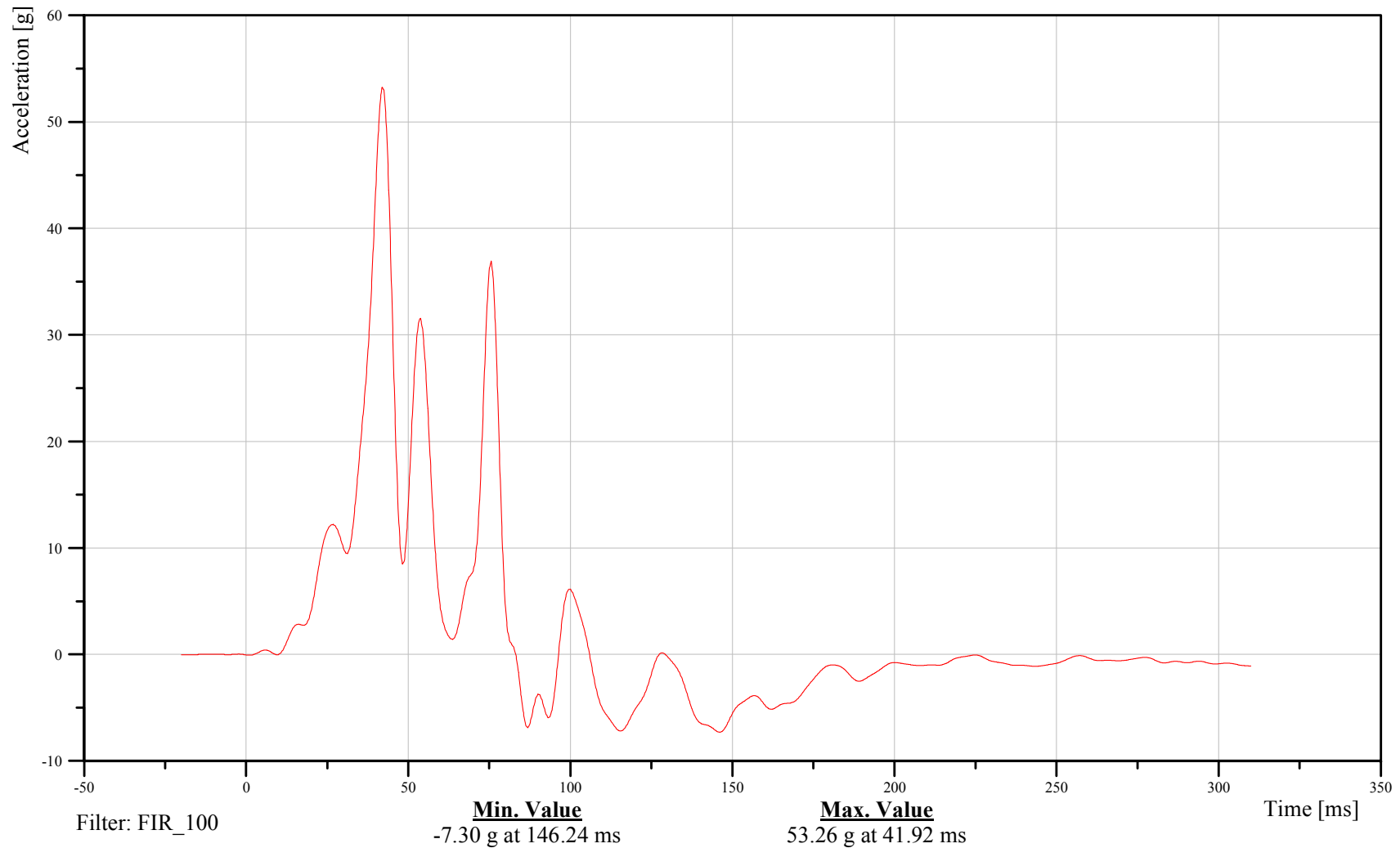
Mid Rib Accel Y

Customer: VRTC

14RIBSLM00E2ACY1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Lower Rib Accel Y

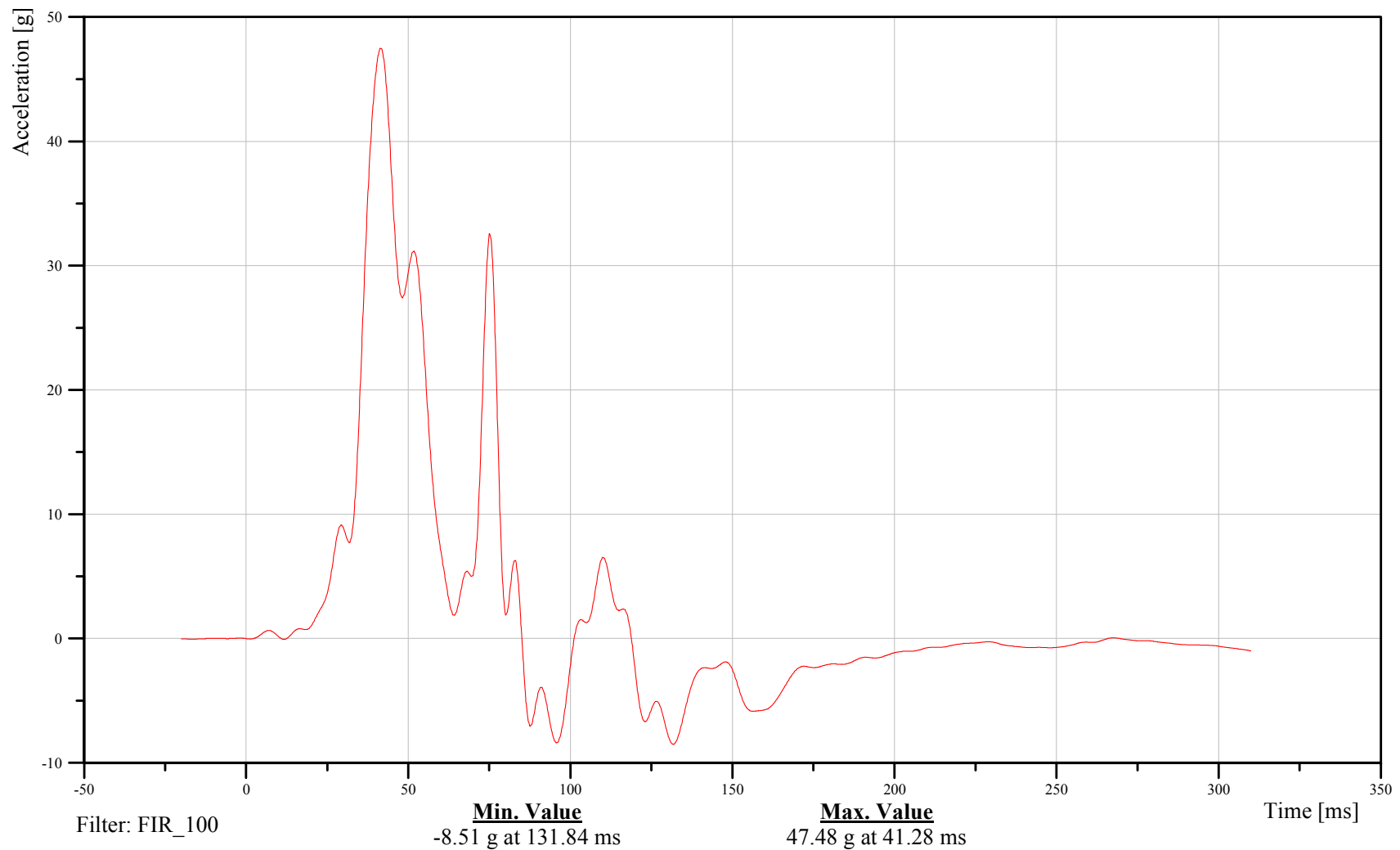
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14RIBSLL00E2ACY1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Lower Spine X

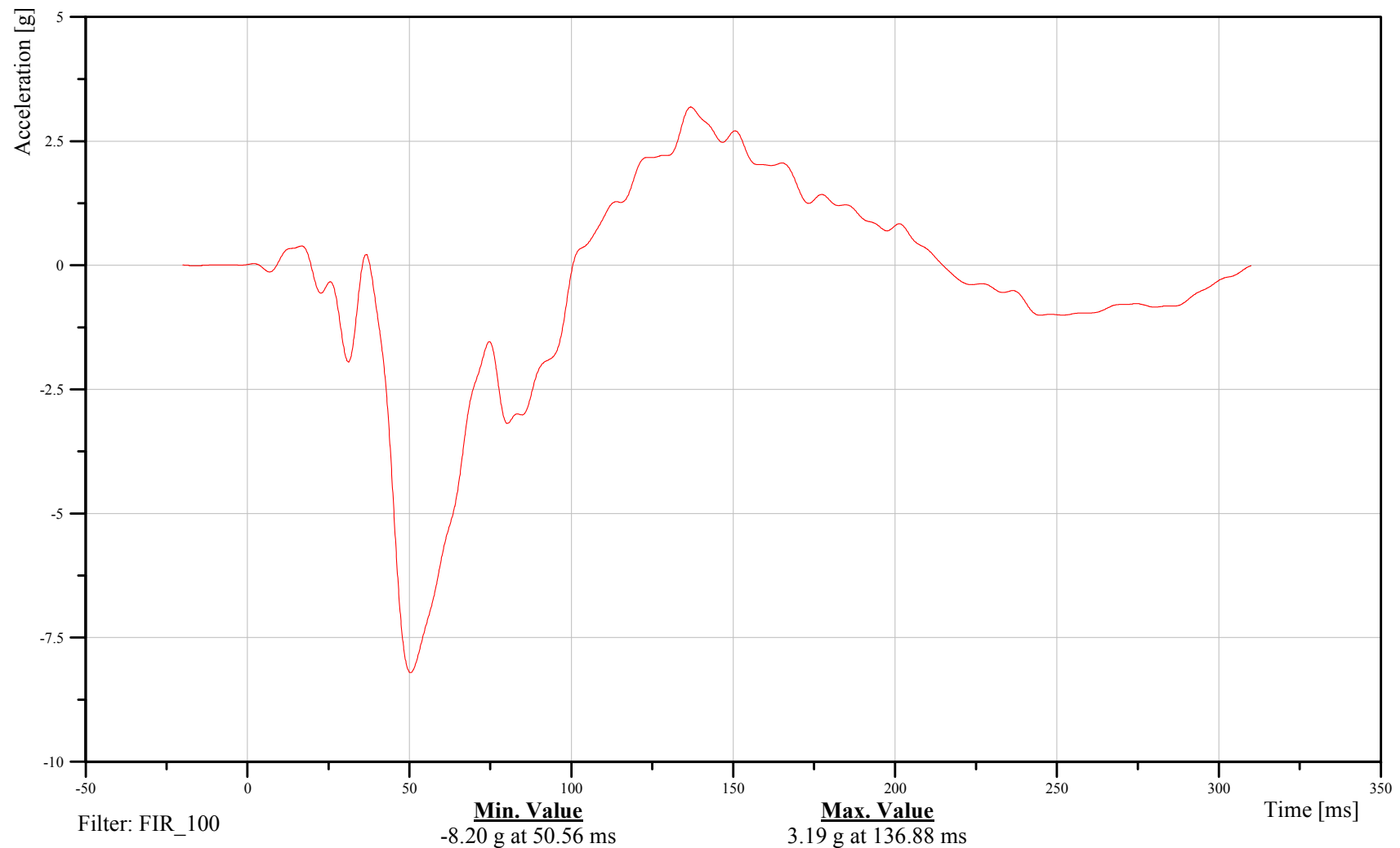
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14SPIN1200E2ACX1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

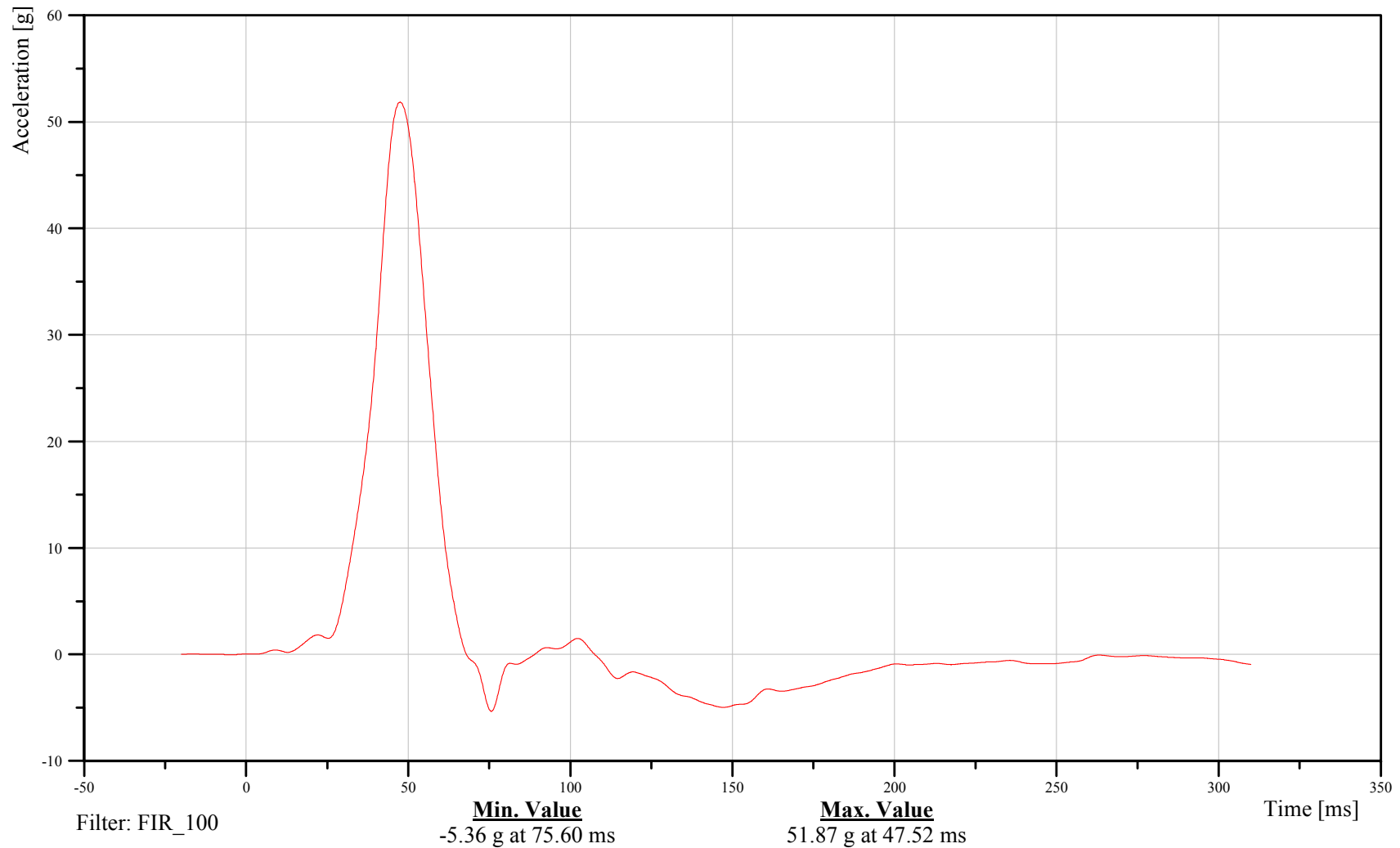
Lower Spine Y

Customer: VRTC

14SPIN1200E2ACY1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

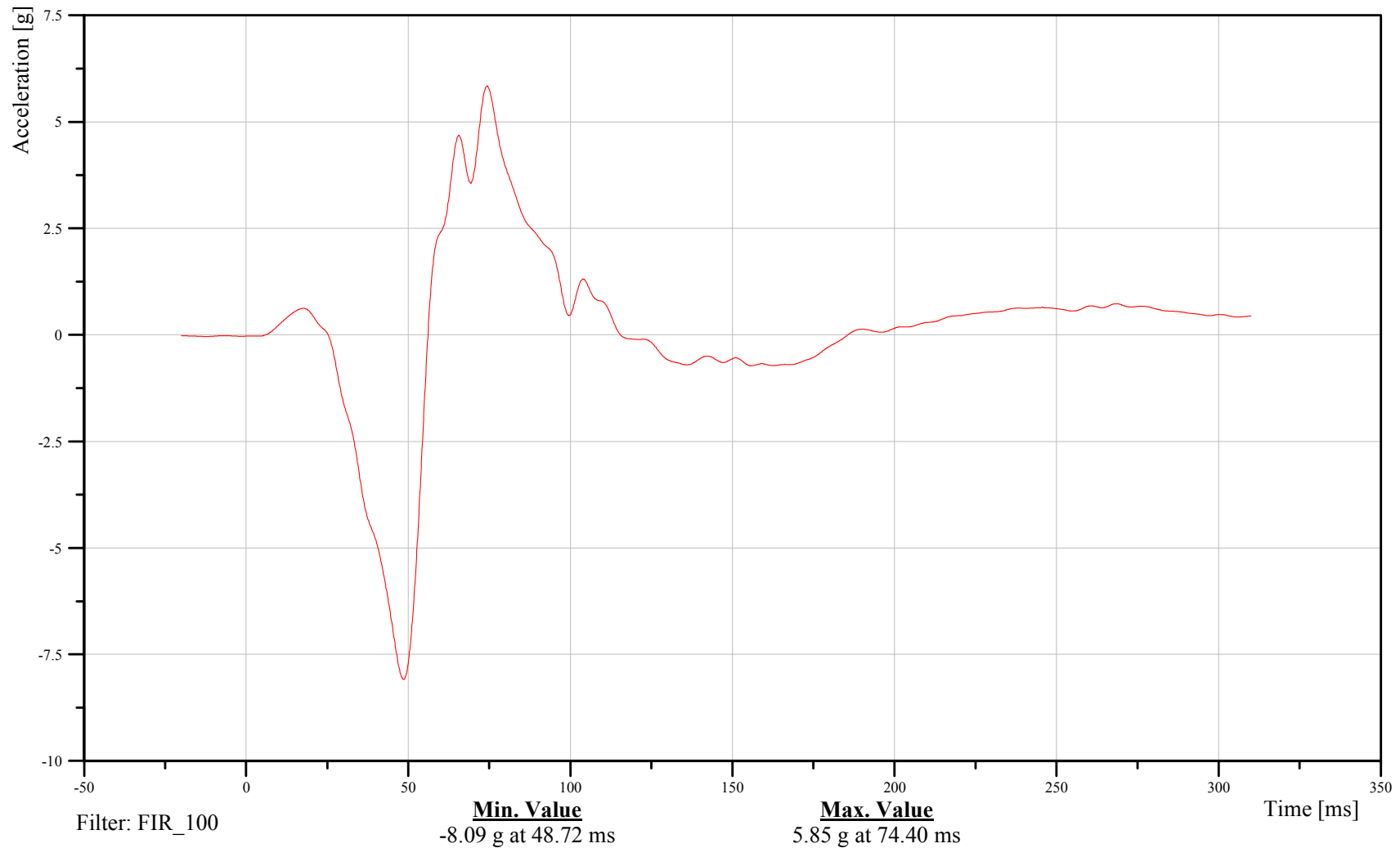
Lower Spine Z

Customer: VRTC

14SPIN1200E2ACZ1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

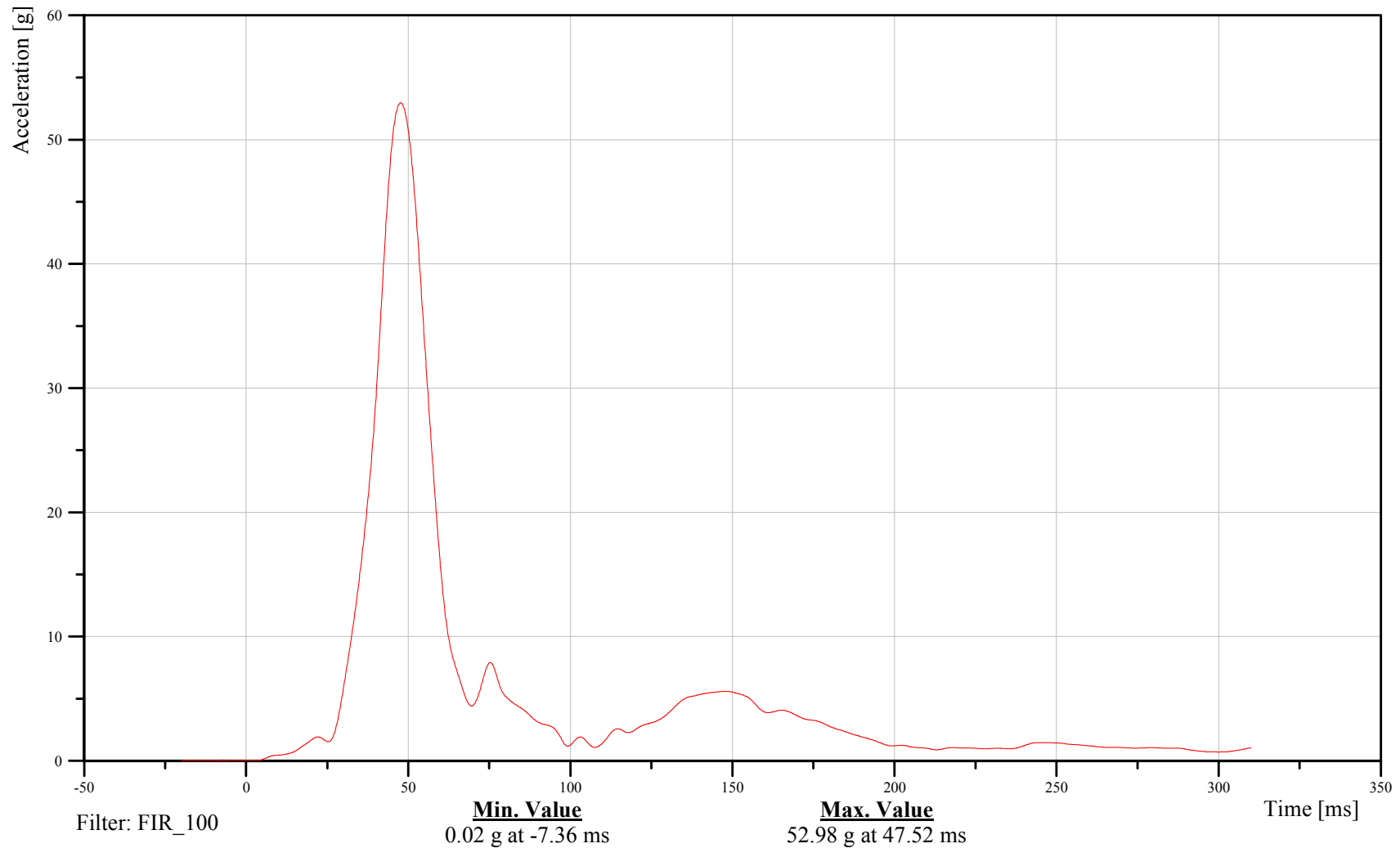
Lower Spine Resultant

Customer: VRTC

14SPIN1200E2ACR1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pelvis Accel X

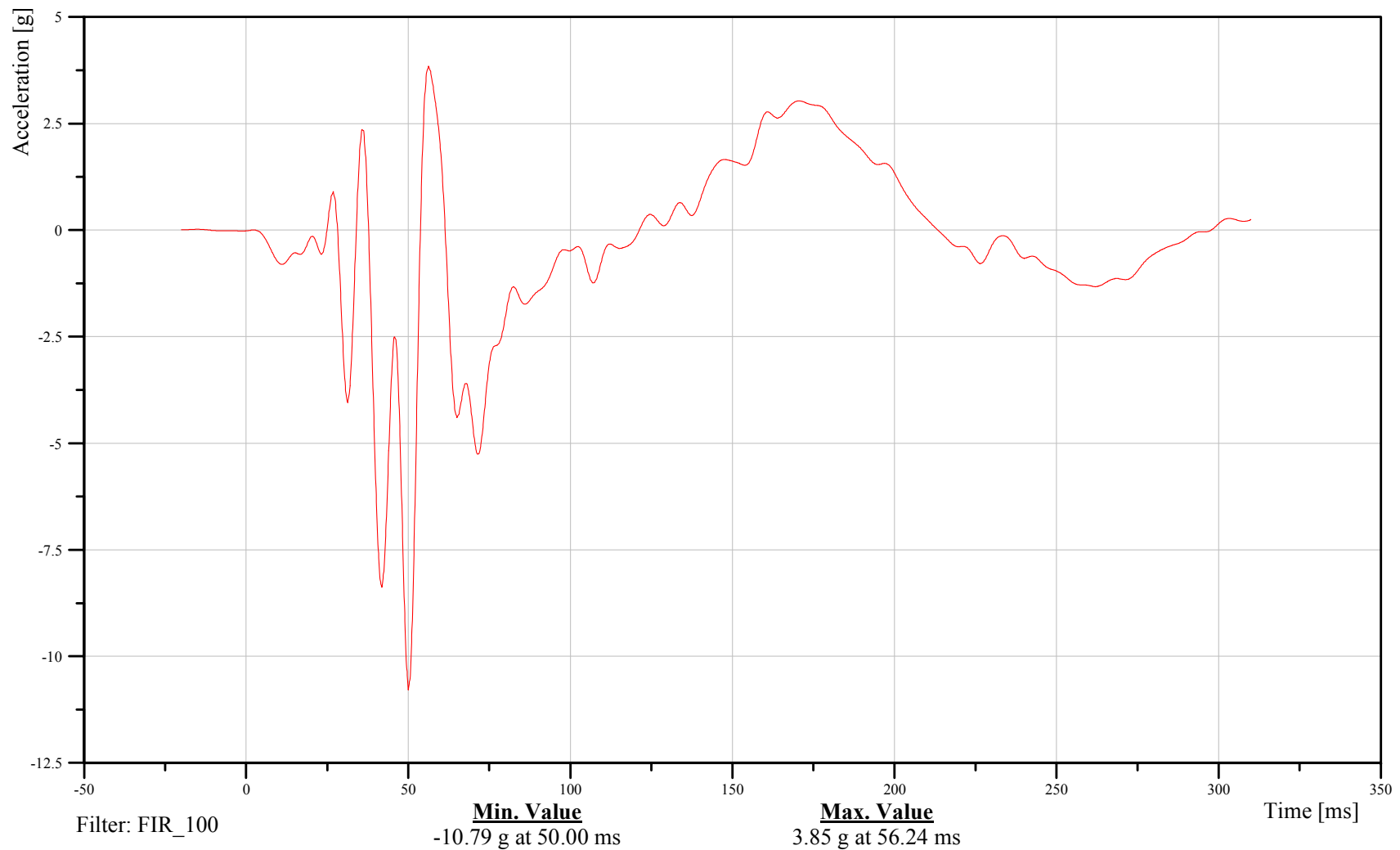
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14PELVCG00E2ACX1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pelvis Accel Y

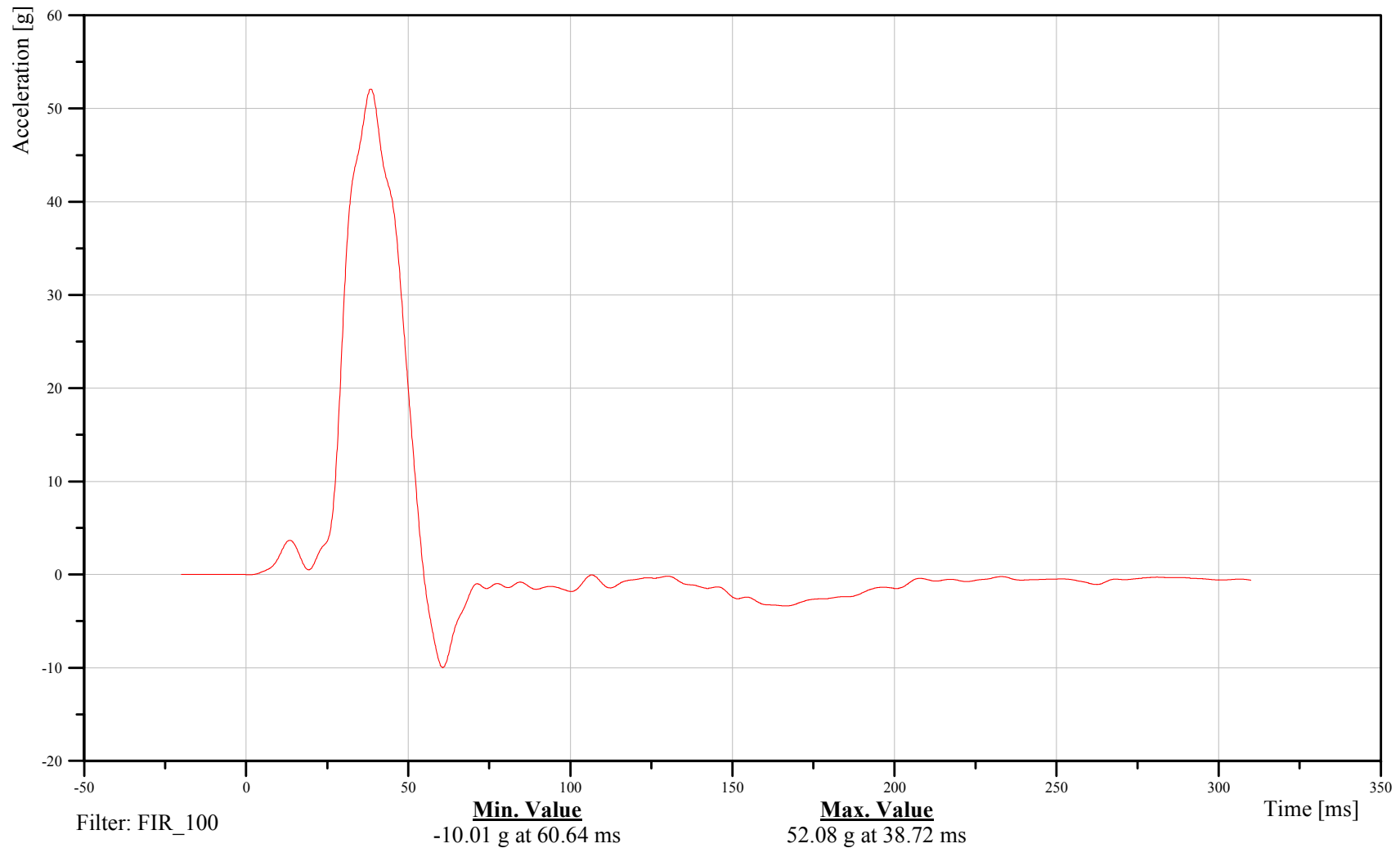
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14PELVCG00E2ACY1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Pelvis Accel Z

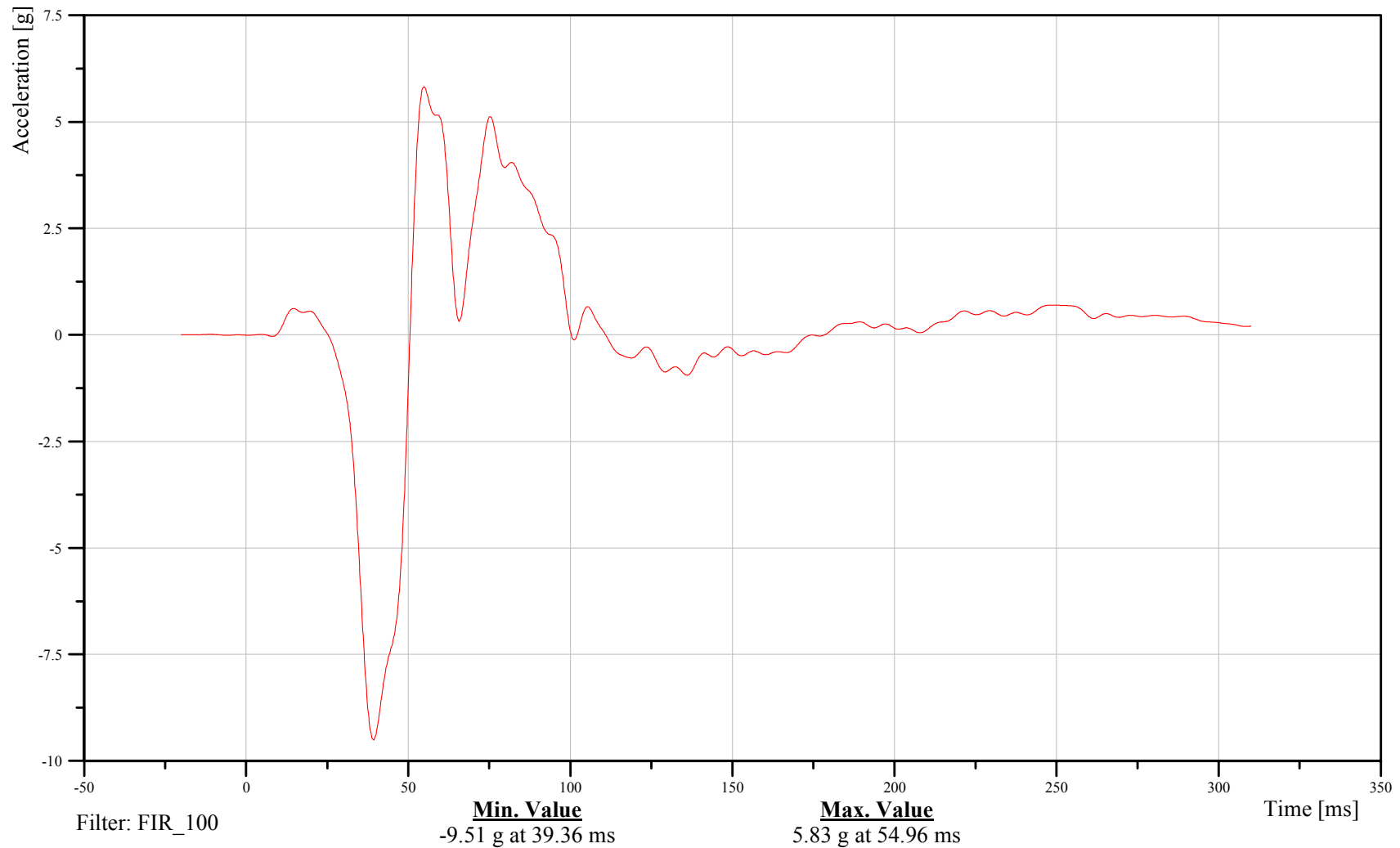
Date: 07/07/2005
Time: 11:26

Customer: VRTC

14PELVCG00E2ACZ1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005
Time: 11:26

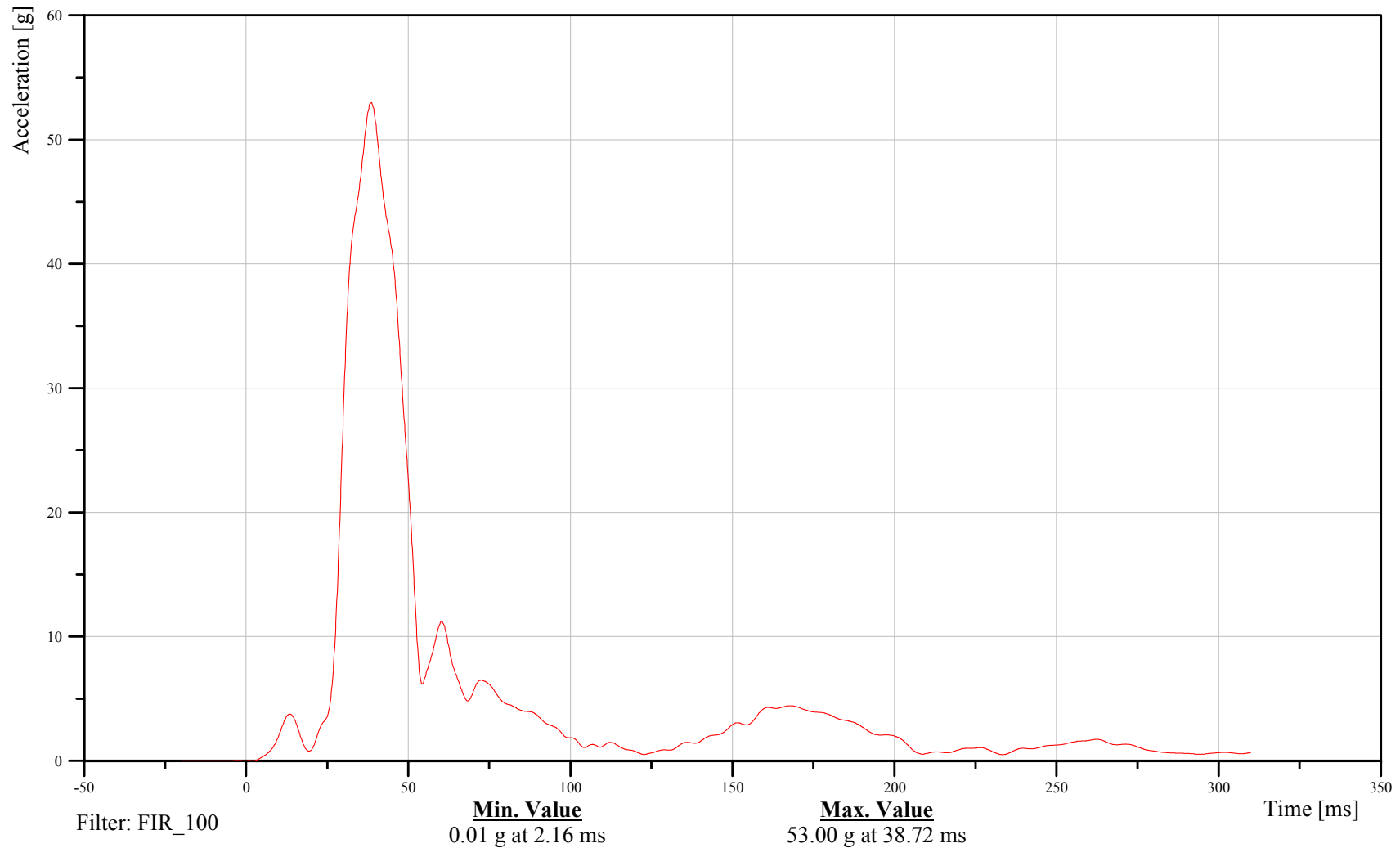
Pelvis Accel Resultant

Customer: VRTC

14PELVCG00E2ACR1

TRC Inc. Test Lab: CTF

Test Number: 050707





MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head Injury Criterion (HIC)

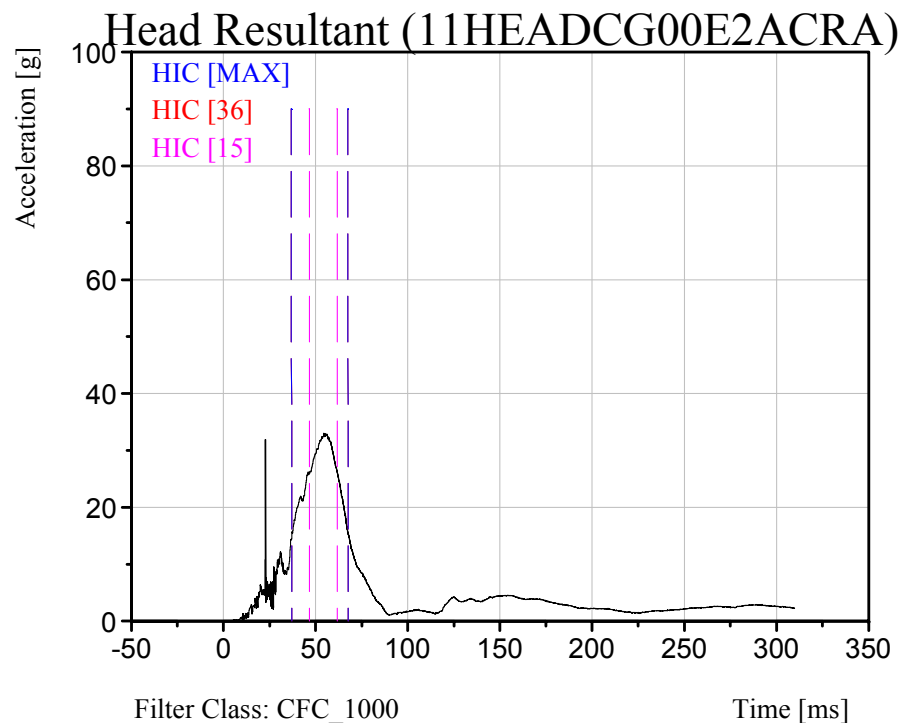
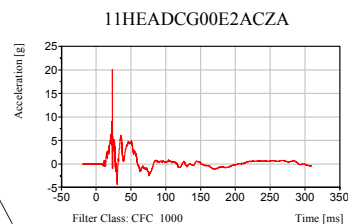
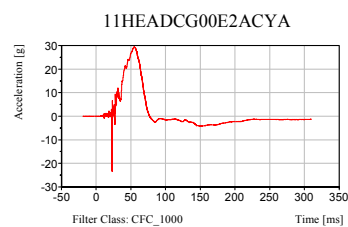
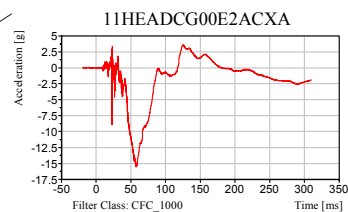
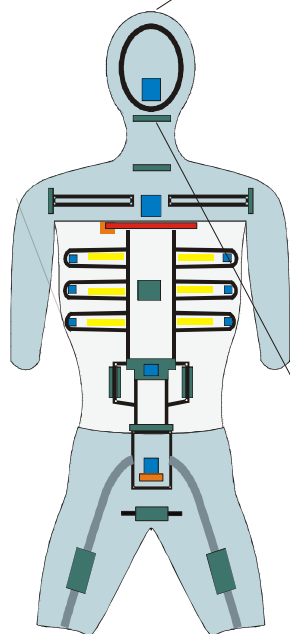
Date: 07/07/2005

Time: 11:26

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 050707



Dummy: Euro SID II
Seating Position:
Driver

	<u>T1</u> (Begin)	<u>T2</u> (End)	<u>Avg. g T1 to T2</u>
HIC [Max.] = 101.09	36.96 ms	67.68 ms	25.50 g
HIC [36] = 101.09	36.96 ms	67.68 ms	25.50 g
HIC [15] = 75.09	46.72 ms	61.76 ms	30.13 g

HIC Source Code: SAE J2052 ISO/TC22/SC12/WG3 N 282 (Issued 1990-03-16) 0



MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Time: 11:26

Abdominal(LE) Summation

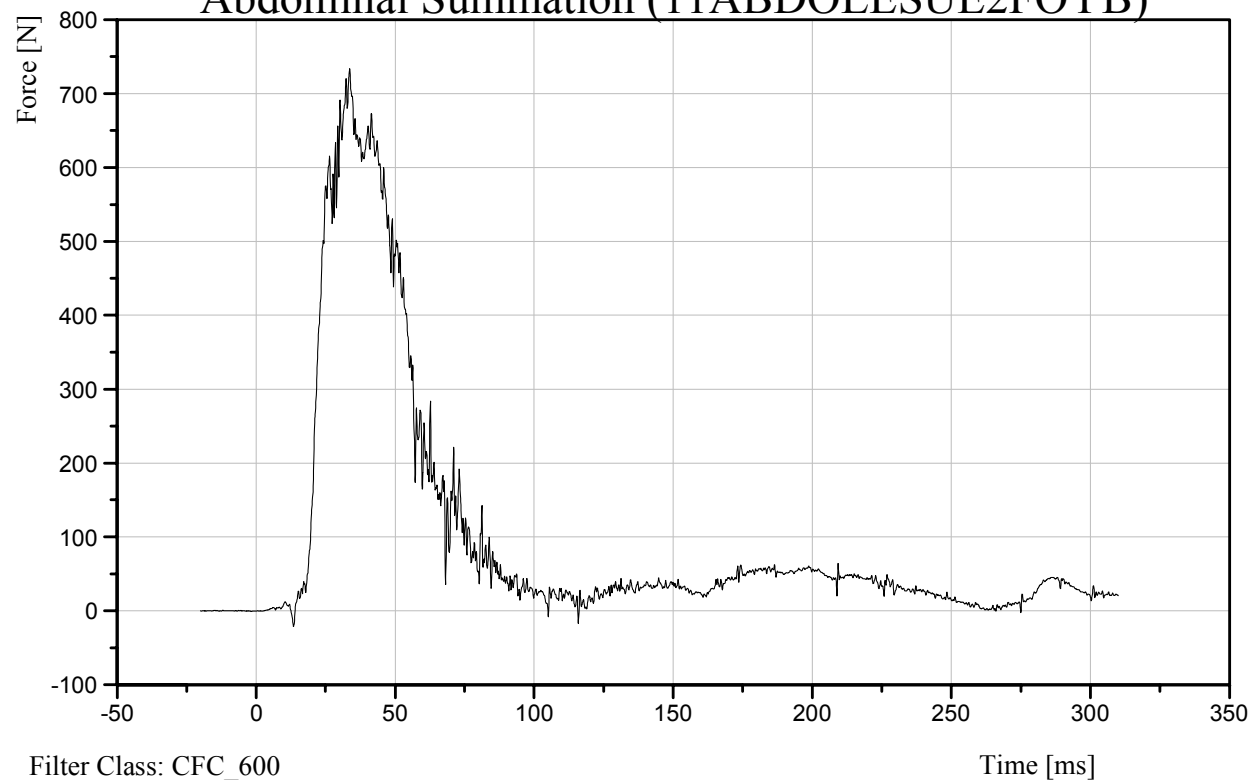
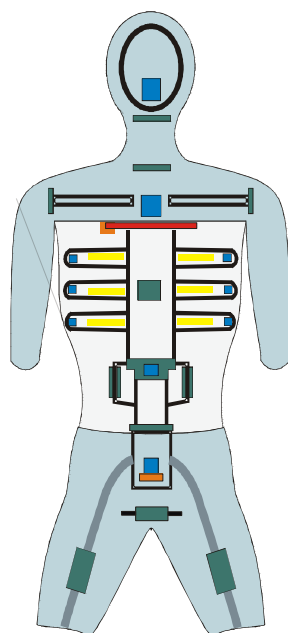
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 050707

Test Orientation = Side

Abdominal Summation (11ABDOLESUE2FOYB)



Dummy: Euro SID II
Seating Position:
Driver

[Max.] 733.46 N at 33.68 ms

[Min.] -21.33 N at 13.52 ms

Abdominal Summation Source Code : Summation of Channels 11ABDOLERE2FOYB,11ABDOLEMIE2FOYB,11ABDOLEFRE2FOYB



MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Head Injury Criterion (HIC)

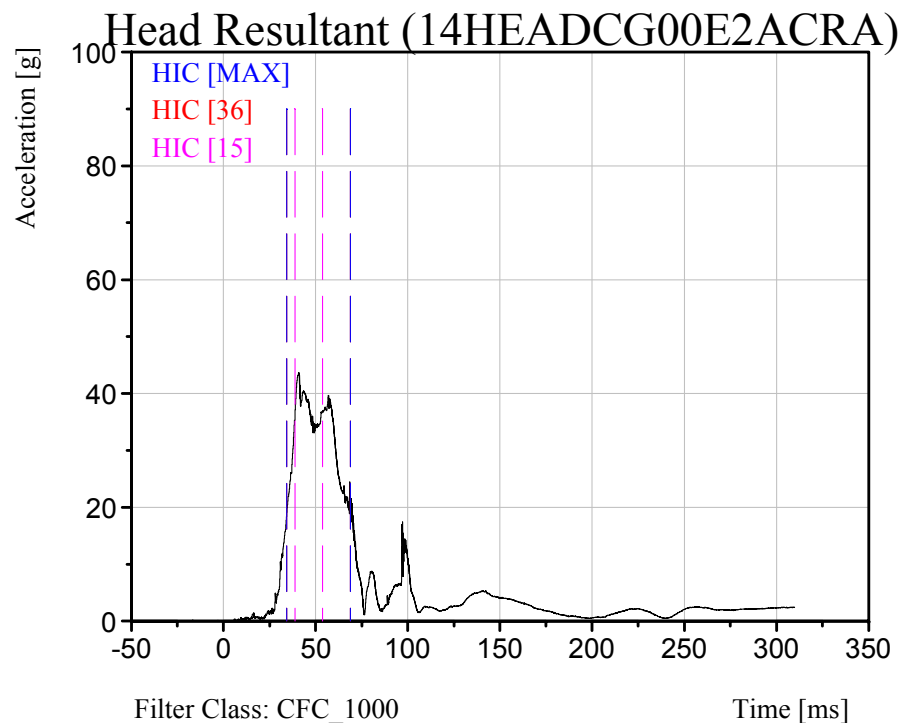
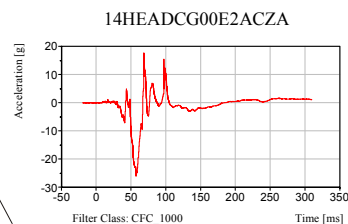
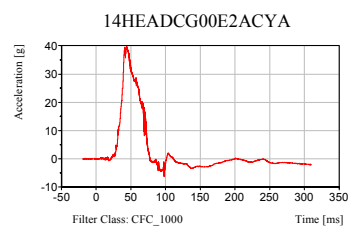
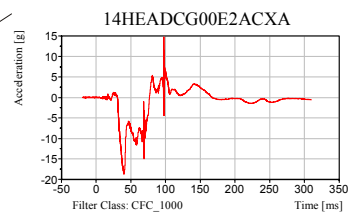
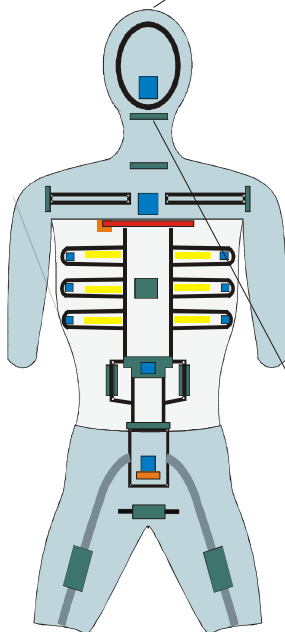
Date: 07/07/2005

Time: 11:26

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 050707



Dummy: Euro SID II
Seating Position:
Left Rear Passenger

	<u>T1</u> (Begin)	<u>T2</u> (End)	<u>Avg. g T1 to T2</u>
HIC [Max.] = 210.70	34.40 ms	68.96 ms	32.63 g
HIC [36] = 210.70	34.40 ms	68.96 ms	32.63 g
HIC [15] = 130.71	38.80 ms	53.84 ms	37.63 g

HIC Source Code: SAE J2052 ISO/TC22/SC12/WG3 N 282 (Issued 1990-03-16) 102



MDB into Left Side of 2005 Volkswagen Jetta at 52.9 kph

Date: 07/07/2005

Time: 11:26

Abdominal(LE) Summation

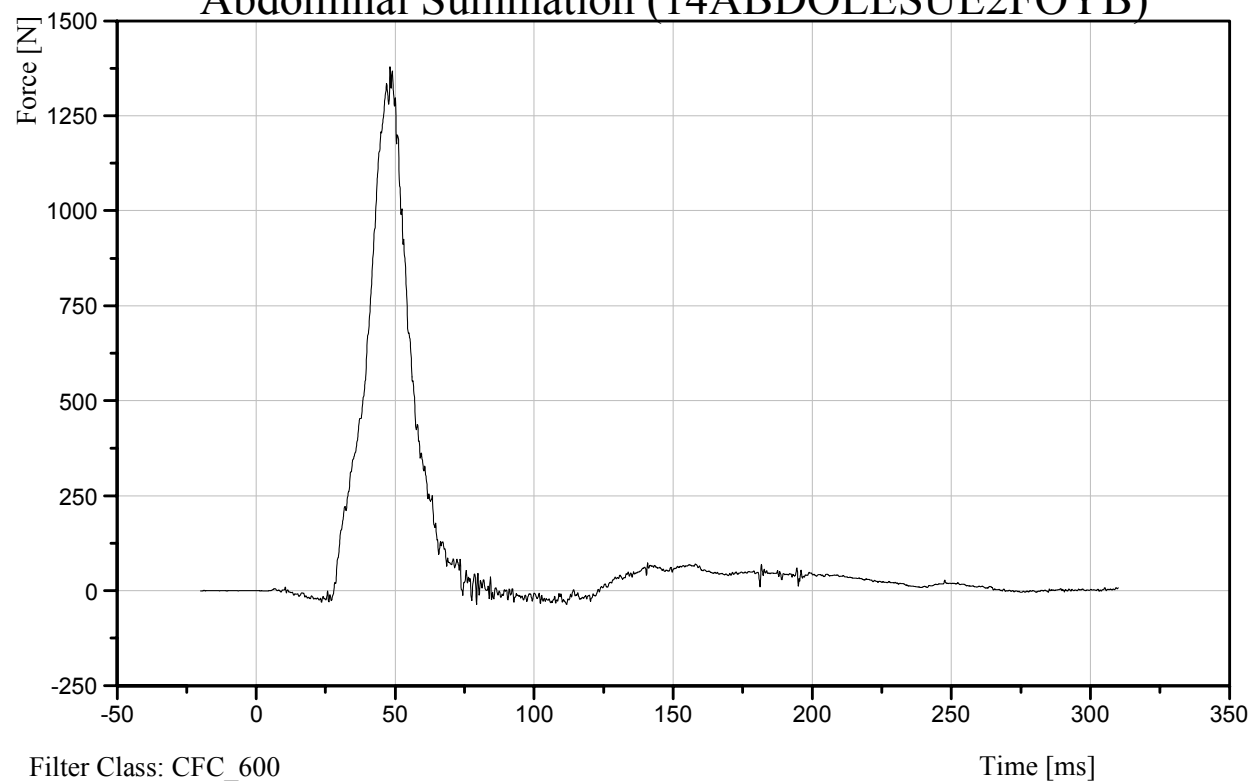
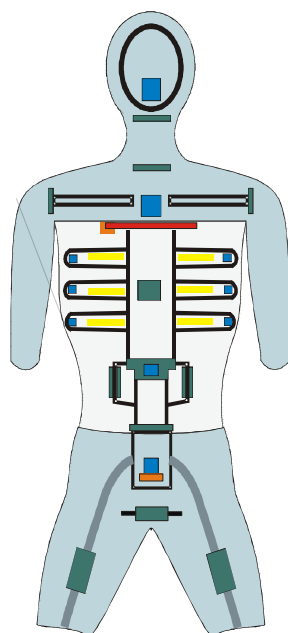
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 050707

Test Orientation = Side

Abdominal Summation (14ABDOLESUE2FOYB)



Dummy: Euro SID II
Seating Position:
Left Rear Passenger

[Max.] 1,378.43 N at 48.16 ms

[Min.] -35.54 N at 79.28 ms

Abdominal Summation Source Code : Summation of Channels 14ABDOLEREE2FOYB,14ABDOLEMIE2FOYB,14ABDOLEFRE2FOYB

Appendix C

Dummy Configuration and Performance Verification Data

Pre-Test Dummy Configuration and Performance Verification Data

Driver Dummy S/N: 009

Transportation Research Center Inc.

Left Lateral Head Drop

ES-2re Serial No. 009 Certification No. 6-1

Test Date: 07/05/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Peak Resultant Acceleration	125 - 155 g	145.1 g	Yes
Peak Longitudinal Acceleration	(-15) - 15 g	4.8 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician

Vincent Dini

Approved

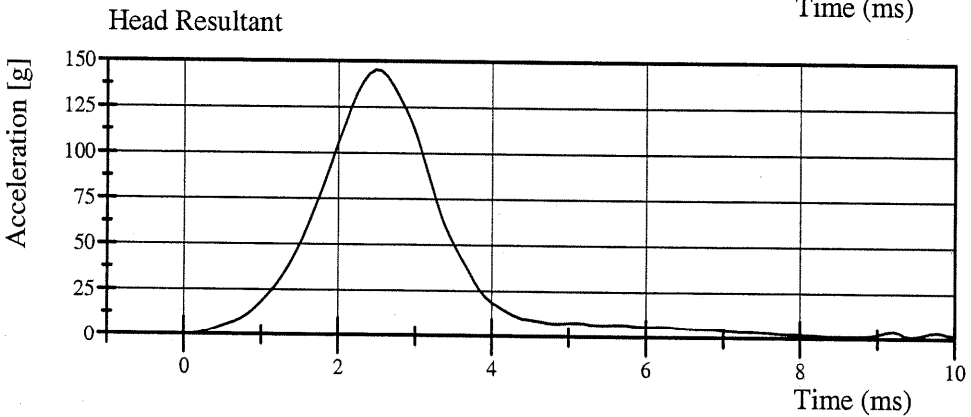
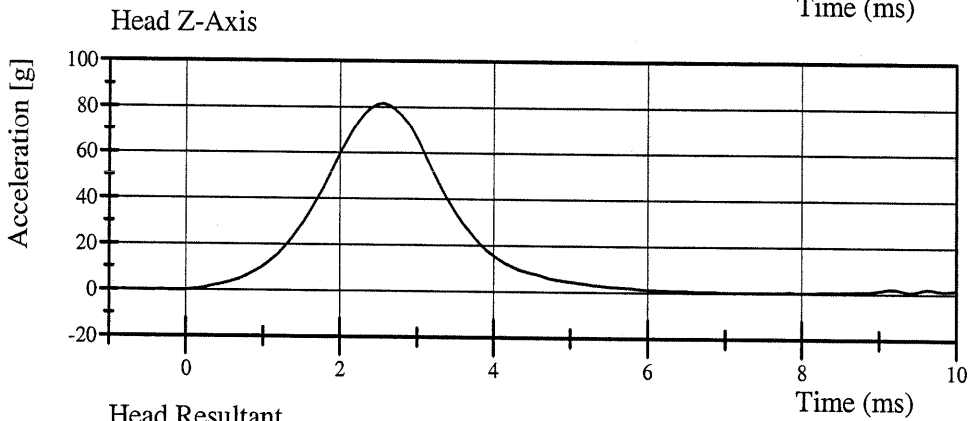
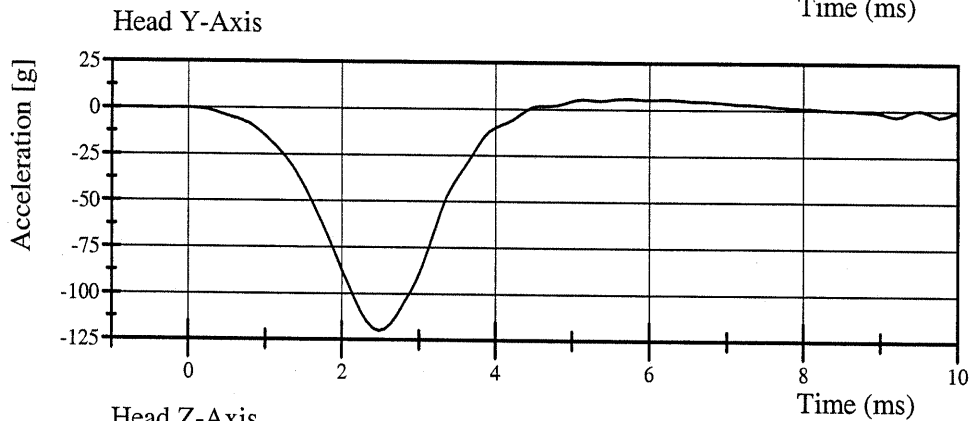
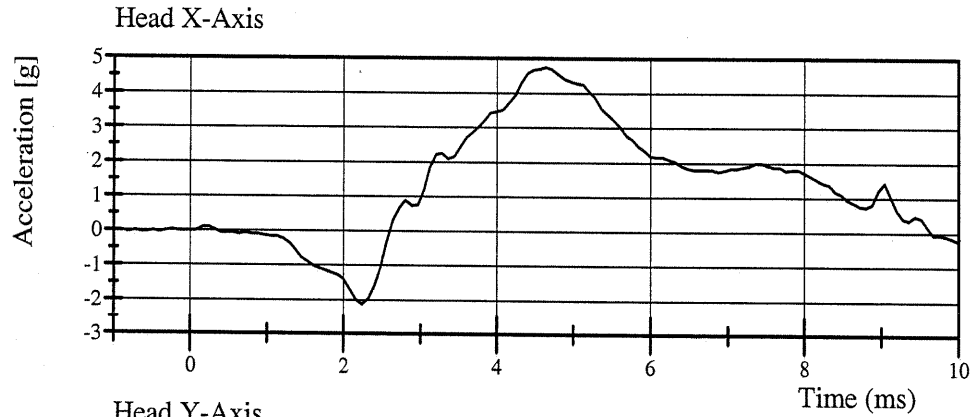
V.T. Walke

Transportation Research Center Inc.

Left Lateral Head Drop

ES-2re Serial No. 009 Certification No. 6-1

Test Date: 07/05/2005



Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. 009 Certification No. 6-2

Test Date: 7/6/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	57 %	Yes
Pendulum Acceleration within Corridor	Yes	Yes	Yes
Pendulum Velocity	3.3 - 3.5 m/s	3.49 m/s	Yes
Maximum Headform Flexion			
Peak	52 - 57 deg	52.2 deg	Yes
Time of Peak	54 - 64 ms	56.7 ms	Yes
Headform Flexion Decay			
- Peak to Zero	55 - 75 ms	60.0 ms	Yes

Test meets specifications.

Comments:

Technician

Vincent Oliveri

Approved

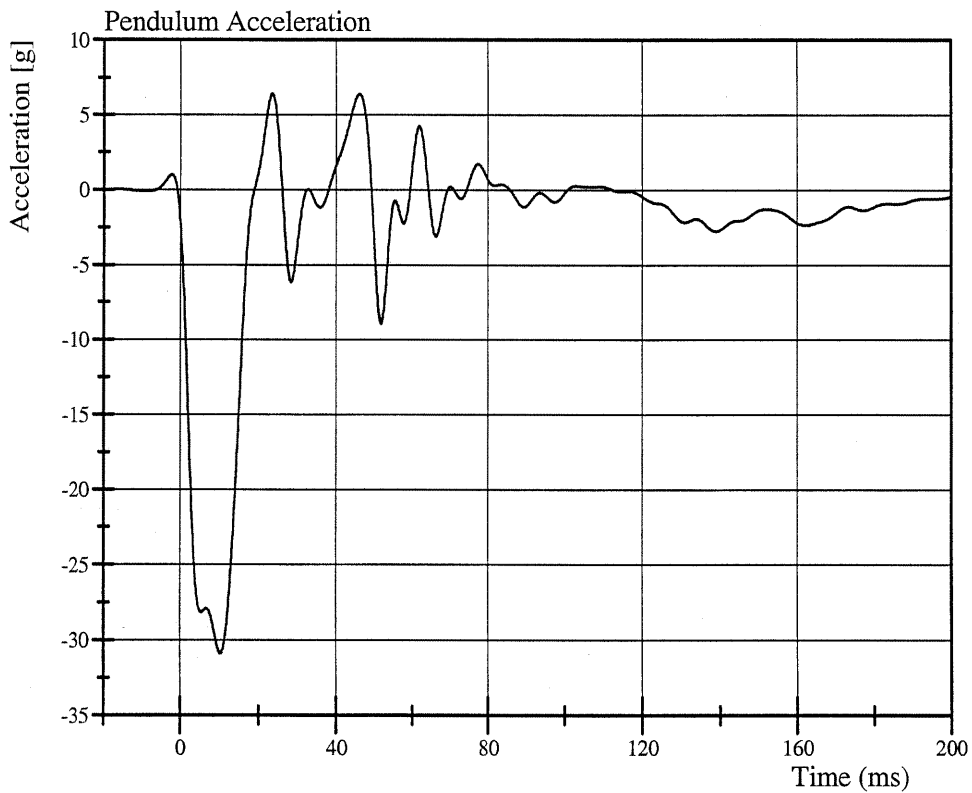
V.H. Walte

Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. 009 Certification No. 6-2

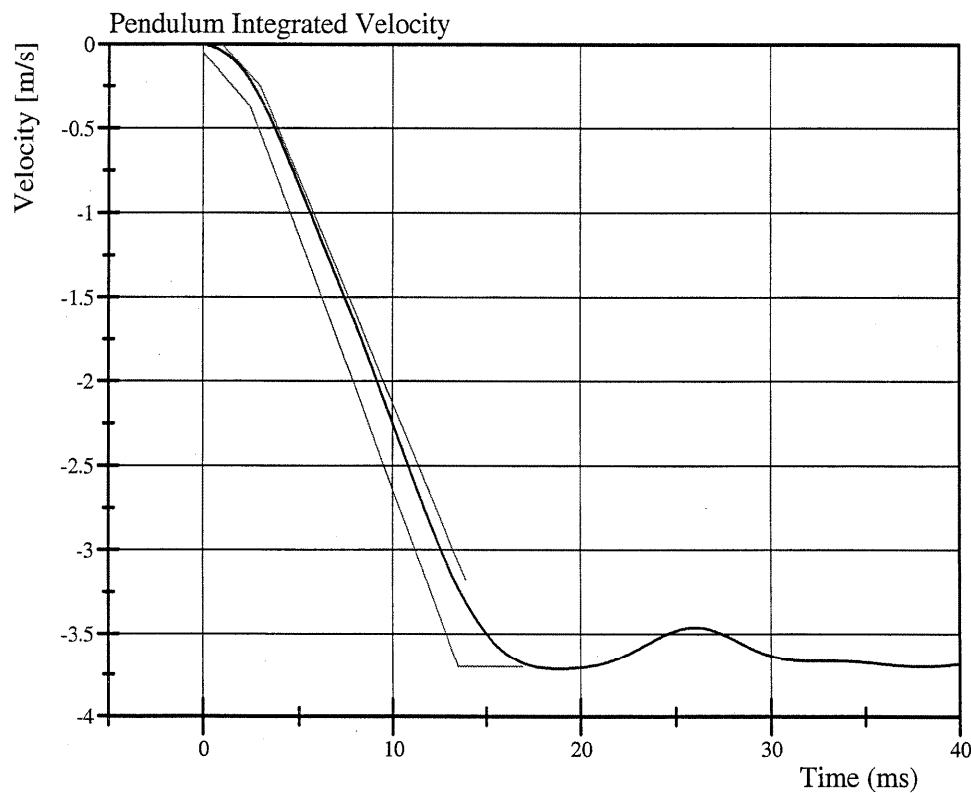
Test Date: 7/6/2005



Filter Class: CFC_60

Max: 6.4 g at 23.5 ms

Min: -30.9 g at 10.2 ms



Filter Class: CFC_60

Max: 0.0 m/s at 0.0 ms

Min: -3.7 m/s at 18.9 ms



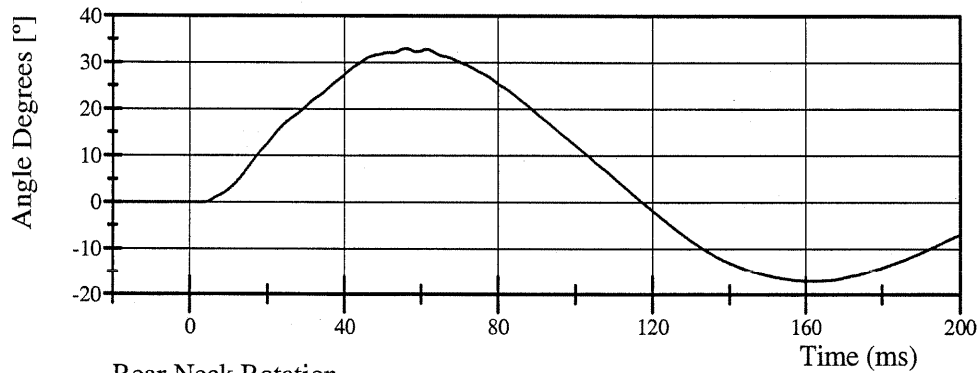
Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. 009 Certification No. 6-2

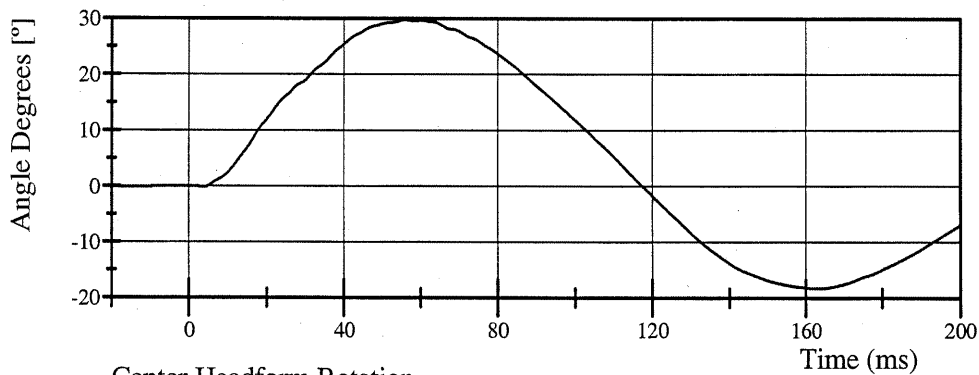
Test Date: 7/6/2005

Forward Neck Rotation



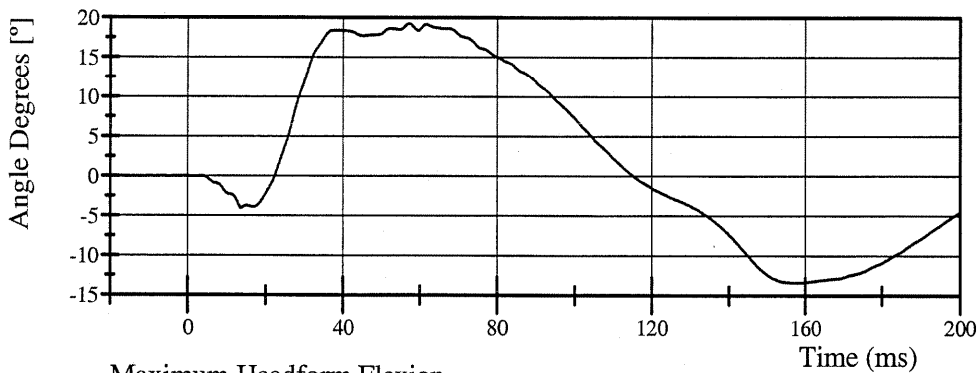
Filter Class: CFC_180
Max: 33.1 ° at 55.9 ms
Min: -17.1 ° at 162.6 ms

Rear Neck Rotation



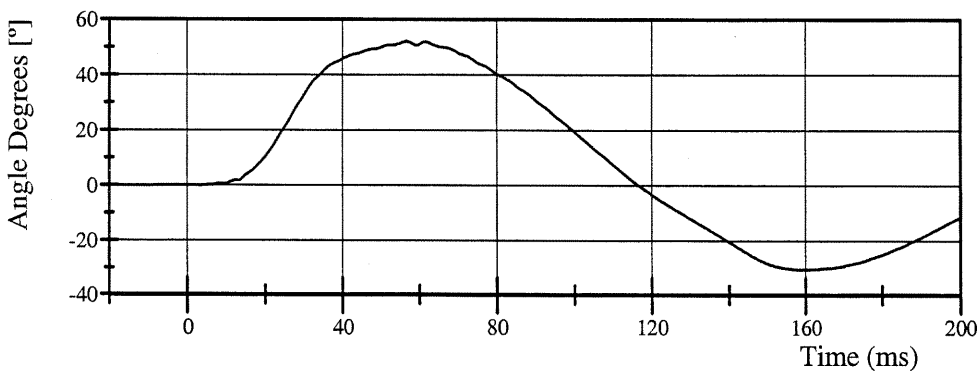
Filter Class: CFC_180
Max: 29.8 ° at 55.9 ms
Min: -18.3 ° at 163.0 ms

Center Headform Rotation



Filter Class: CFC_180
Max: 19.3 ° at 57.1 ms
Min: -13.4 ° at 158.0 ms

Maximum Headform Flexion



Filter Class: CFC_180
Max: 52.2 ° at 56.7 ms
Min: -30.4 ° at 159.2 ms

Transportation Research Center Inc.

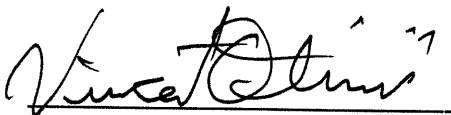
3.0 m/s Upper Full Rib Module
ES-2re Serial No. 009 Certification No. 6-1
Test Date: 07/05/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
3.0 m/s Test Test Probe Velocity	2.9 - 3.1 m/s	2.97 m/s	Yes
3.0 m/s Test Rib Displacement	36 - 40 mm	37.3 mm	Yes

Test meets specifications.

Comments:

Technician

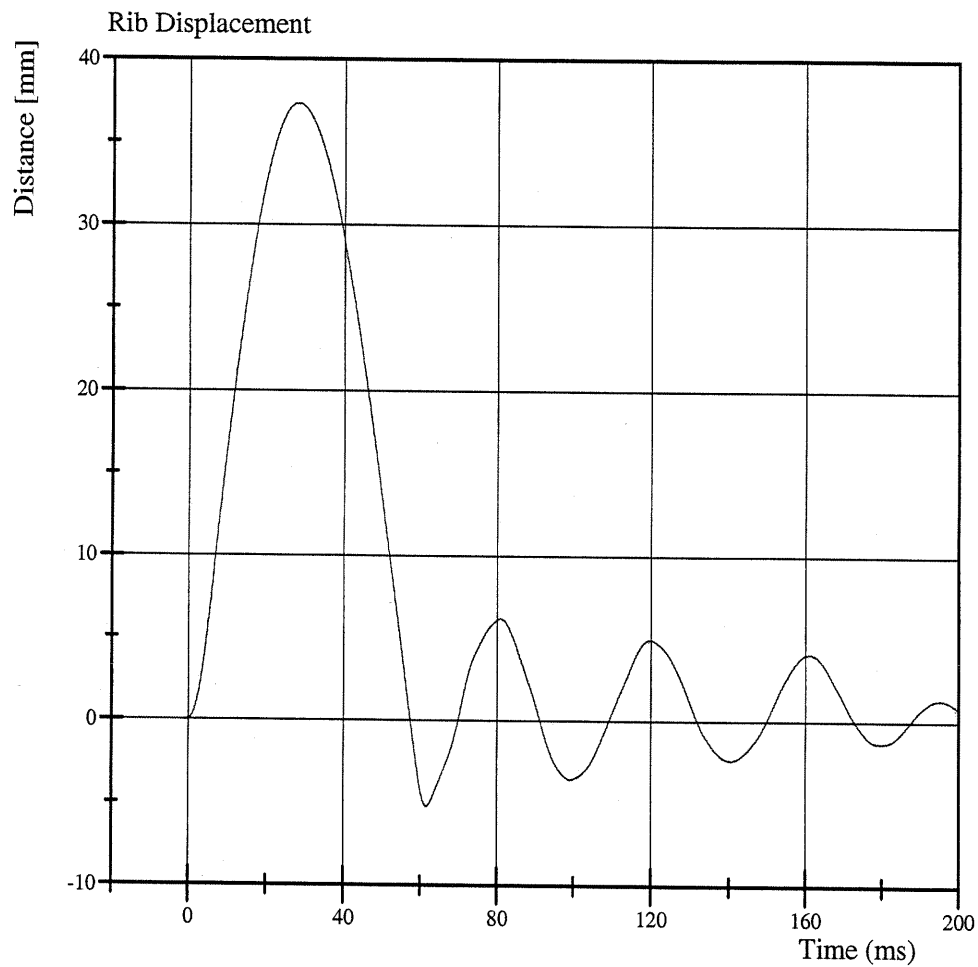


Approved



Transportation Research Center Inc.

3.0 m/s Upper Full Rib Module
ES-2re Serial No. 009 Certification No. 6-1
Test Date: 07/05/2005



Filter Class: CFC_180
Max: 37.3 mm at 27.9 ms
Min: -5.2 mm at 61.6 ms

Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module

ES-2re Serial No. 009 Certification No. 6-1

Test Date: 07/06/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
4.0 m/s Test Test Probe Velocity	3.9 - 4.1 m/s	3.99 m/s	Yes
4.0 m/s Test Rib Displacement	46 - 51 mm	48.1 mm	Yes

Test meets specifications.

Comments:

Technician

Vincent Oliveri

Approved

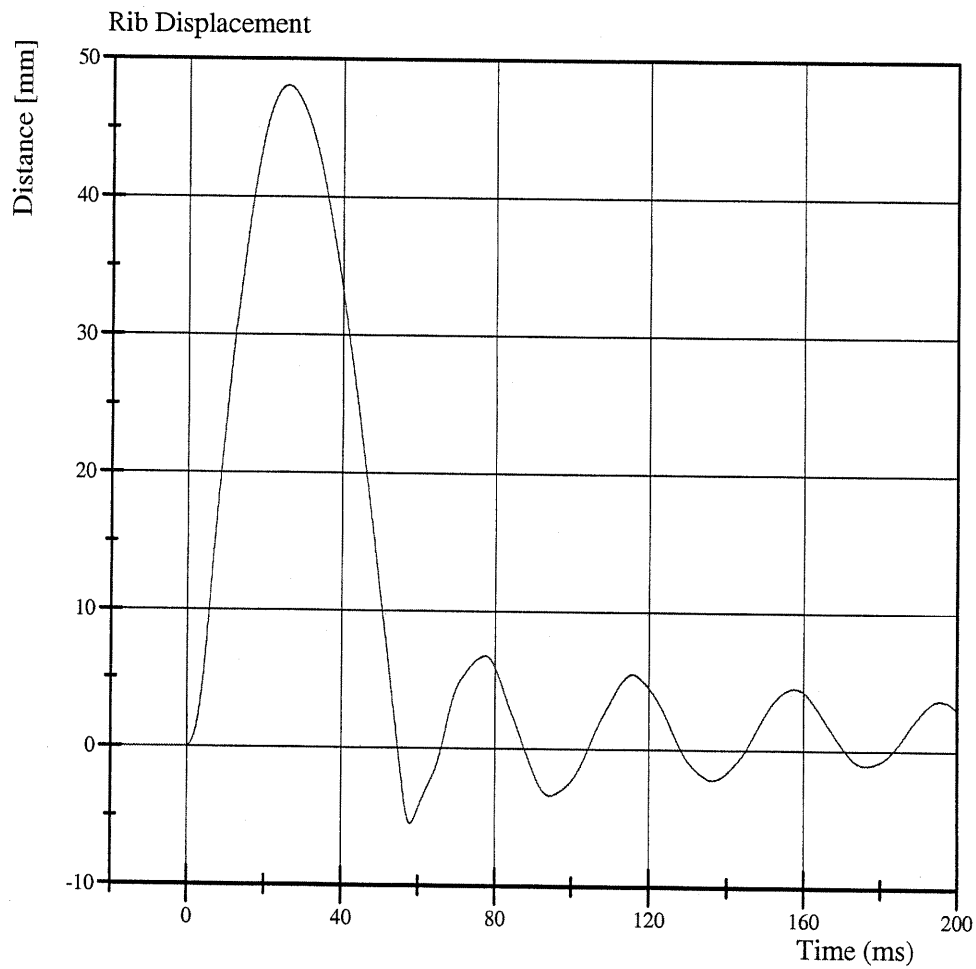
V.F. Watts

Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module

ES-2re Serial No. 009 Certification No. 6-1

Test Date: 07/06/2005



Filter Class: CFC_180
Max: 48.1 mm at 25.5 ms
Min: -5.5 mm at 58.0 ms

Transportation Research Center Inc.

3.0 m/s Center Full Rib Module

ES-2re Serial No. 009 Certification No. 6-1

Test Date: 07/05/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
3.0 m/s Test Test Probe Velocity	2.9 - 3.1 m/s	2.98 m/s	Yes
3.0 m/s Test Rib Displacement	36 - 40 mm	37.3 mm	Yes

Test meets specifications.

Comments:

Technician

Vincent Blum

Approved

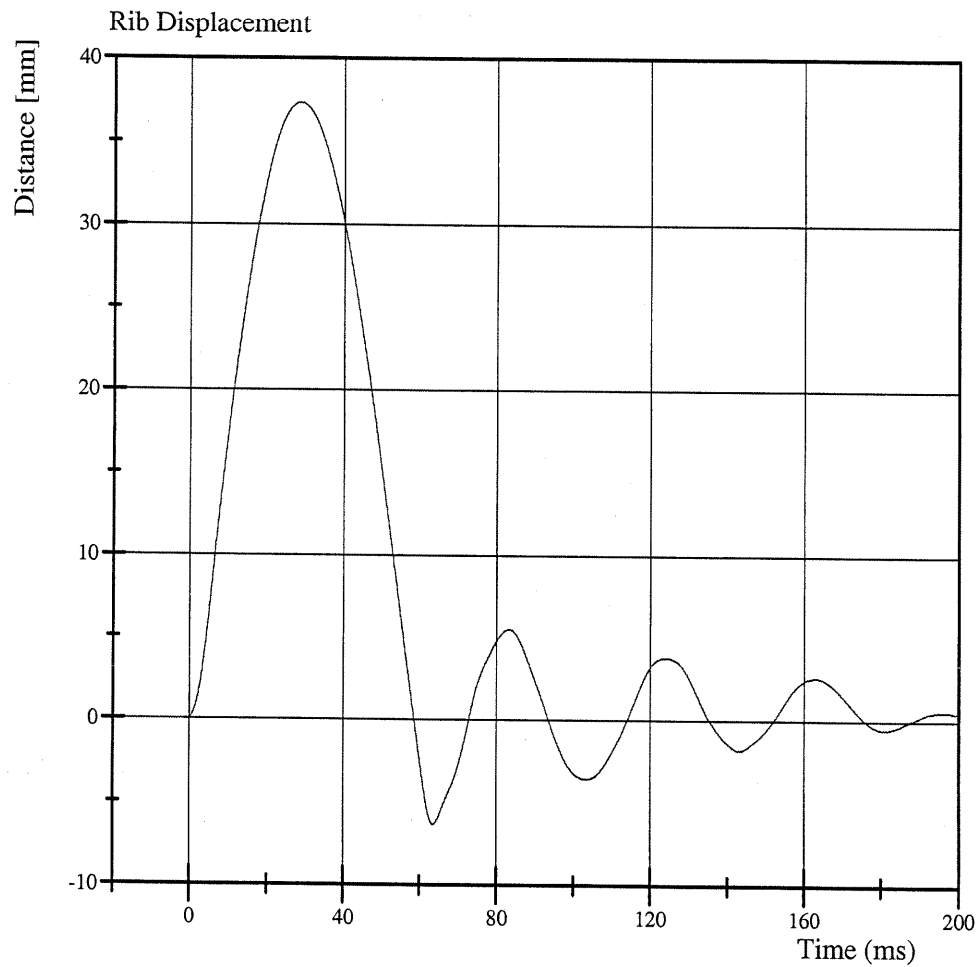
V. J. Watts

Transportation Research Center Inc.

3.0 m/s Center Full Rib Module

ES-2re Serial No. 009 Certification No. 6-1

Test Date: 07/05/2005



Filter Class: CFC_180
Max: 37.3 mm at 28.5 ms
Min: -6.3 mm at 63.5 ms

Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. 009 Certification No. 6-1
Test Date: 07/06/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
4.0 m/s Test Test Probe Velocity	3.9 - 4.1 m/s	3.99 m/s	Yes
4.0 m/s Test Rib Displacement	46 - 51 mm	49.4 mm	Yes

Test meets specifications.

Comments:

Technician

Vincent D'Amico

Approved

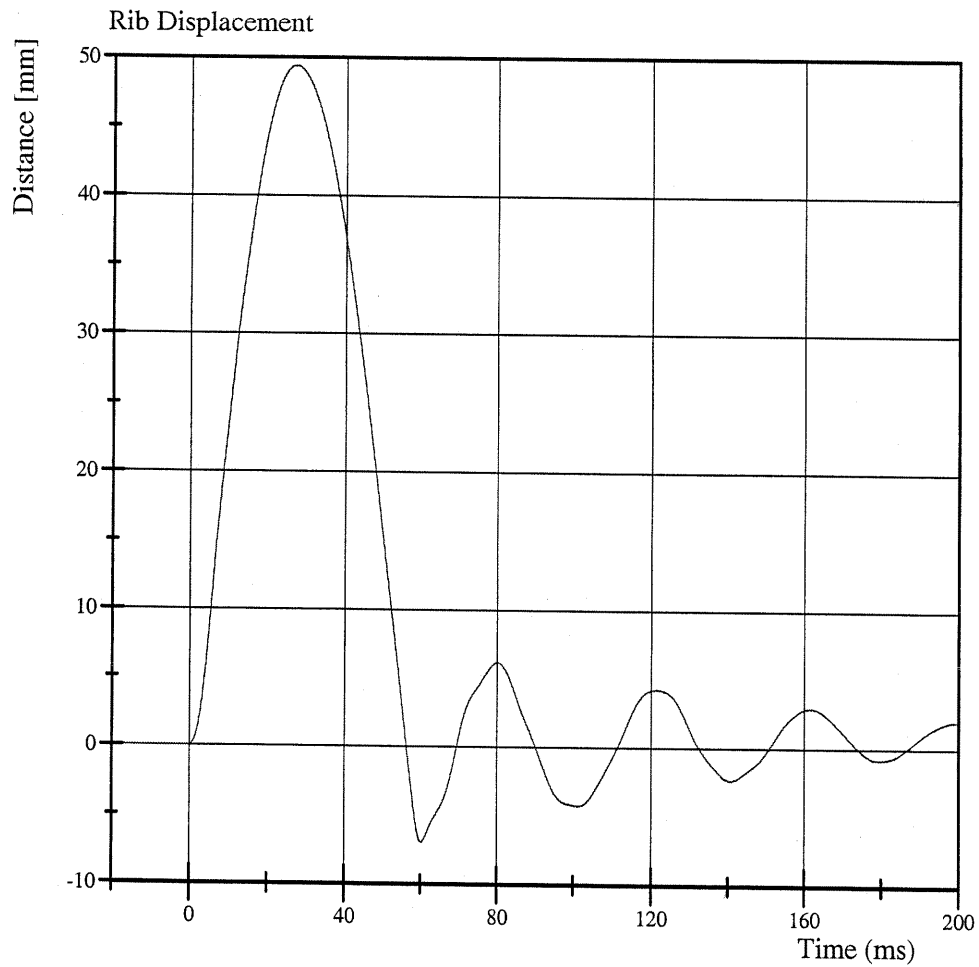
V.J. Walter

Transportation Research Center Inc.

4.0 m/s Center Full Rib Module

ES-2re Serial No. 009 Certification No. 6-1

Test Date: 07/06/2005



Filter Class: CFC_180
Max: 49.4 mm at 26.7 ms
Min: -6.9 mm at 60.2 ms

Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module

ES-2re Serial No. 009 Certification No. 6-1

Test Date: 07/05/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	51 %	Yes
3.0 m/s Test Test Probe Velocity	2.9 - 3.1 m/s	2.96 m/s	Yes
3.0 m/s Test Rib Displacement	36 - 40 mm	38.2 mm	Yes

Test meets specifications.

Comments:

Technician

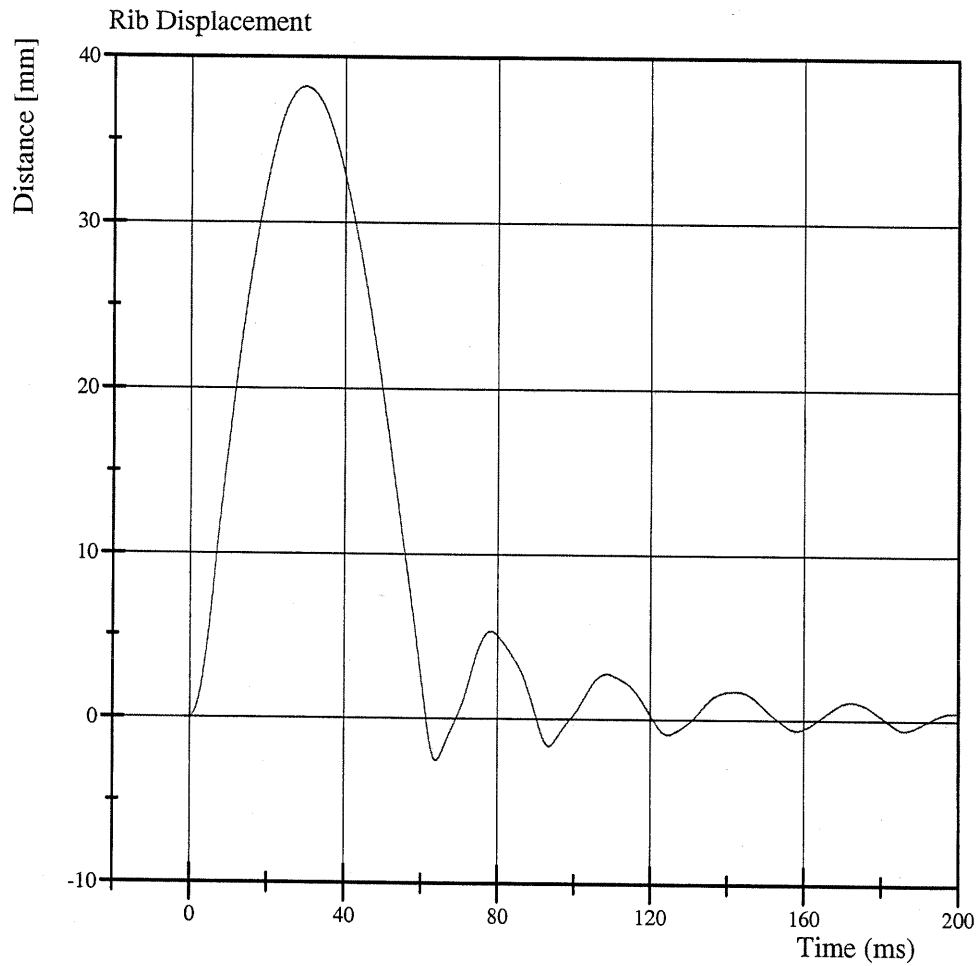
Vincent D. Davis

Approved

V. F. Watter

Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. 009 Certification No. 6-1
Test Date: 07/05/2005



Filter Class: CFC_180
Max: 38.2 mm at 29.8 ms
Min: -2.5 mm at 63.9 ms

Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module

ES-2re Serial No. 009 Certification No. 6-1

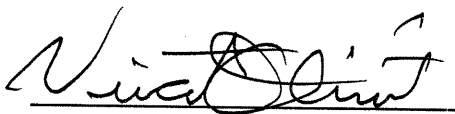
Test Date: 07/06/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	56 %	Yes
4.0 m/s Test Test Probe Velocity	3.9 - 4.1 m/s	3.99 m/s	Yes
4.0 m/s Test Rib Displacement	46 - 51 mm	50.7 mm	Yes

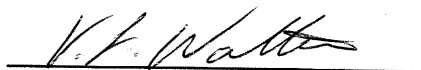
Test meets specifications.

Comments:

Technician



Approved

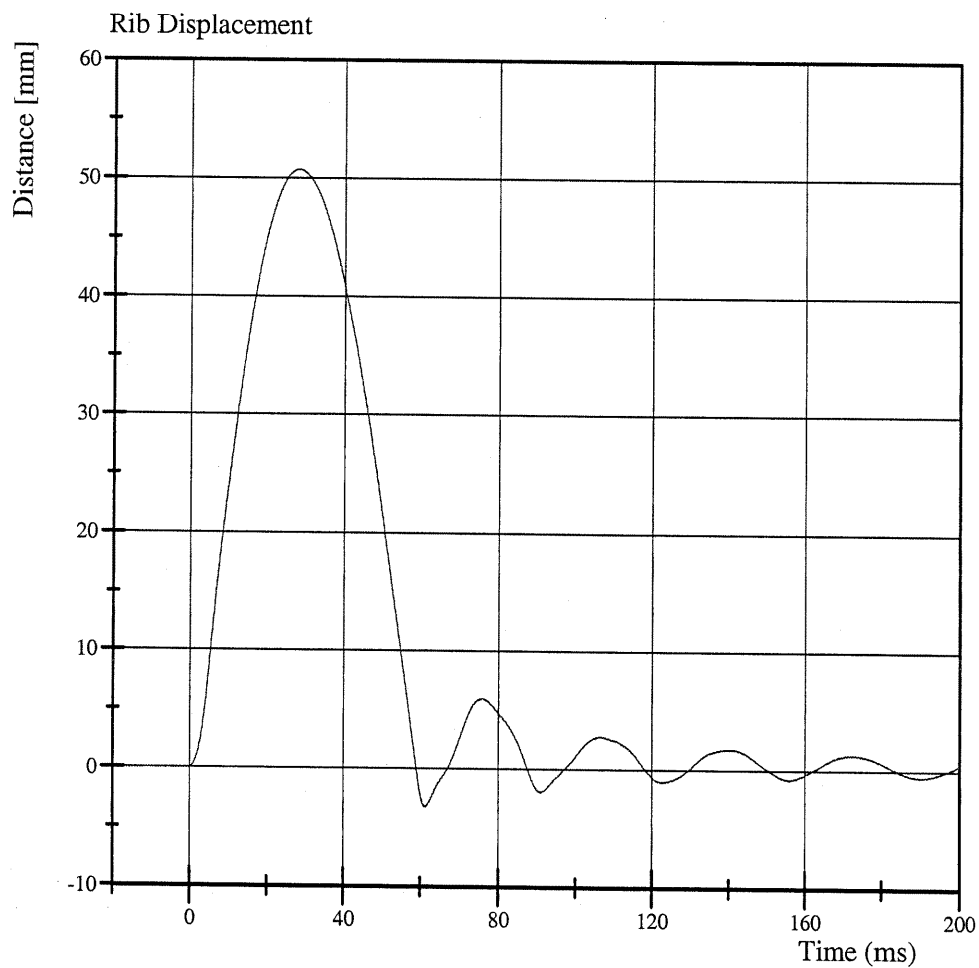


Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module

ES-2re Serial No. 009 Certification No. 6-1

Test Date: 07/06/2005



Filter Class: CFC_180

Max: 50.7 mm at 27.9 ms

Min: -3.2 mm at 61.2 ms

Transportation Research Center Inc.

Left Lateral Lumbar

ES-2re Serial No. 009 Certification No. 6-3

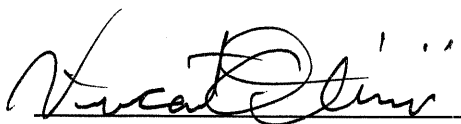
Test Date: 7/6/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Pendulum Acceleration within Corridor	Yes	Yes	Yes
Pendulum Velocity	5.95 - 6.15 m/s	6.123 m/s	Yes
Maximum Headform Flexion			
Peak	45 - 55 deg	45.6 deg	Yes
Time of Peak	39 - 53 ms	44.4 ms	Yes
Headform Flexion Decay			
- Peak to Zero	40 - 65 ms	42.7 ms	Yes

Test meets specifications.

Comments:

Technician



Approved

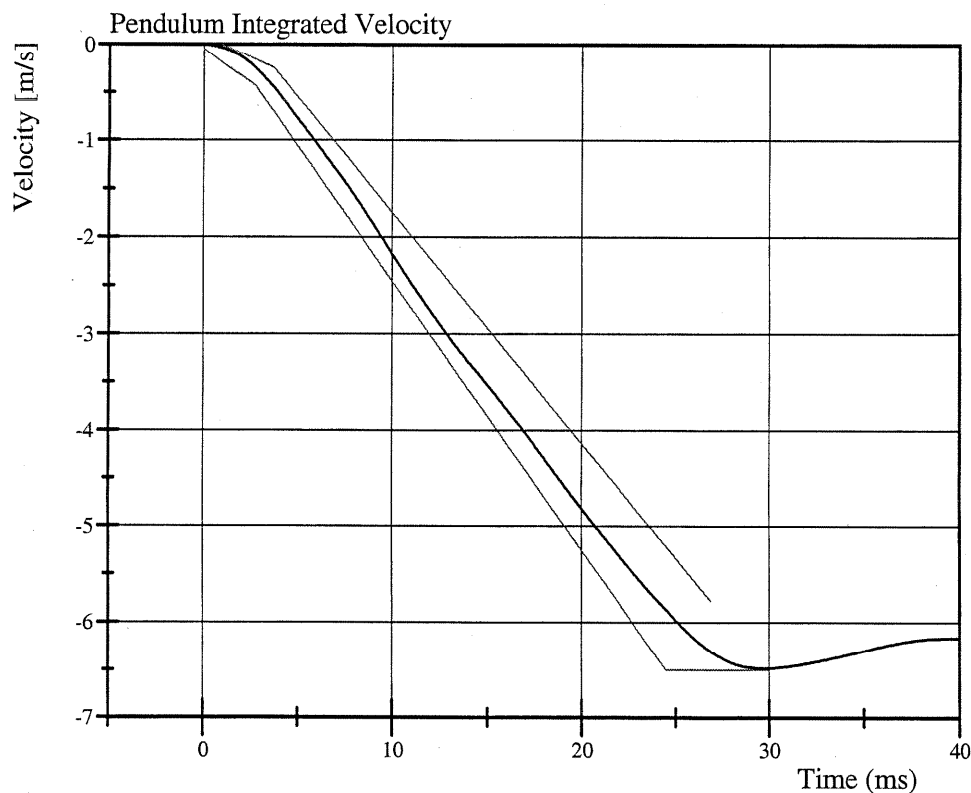
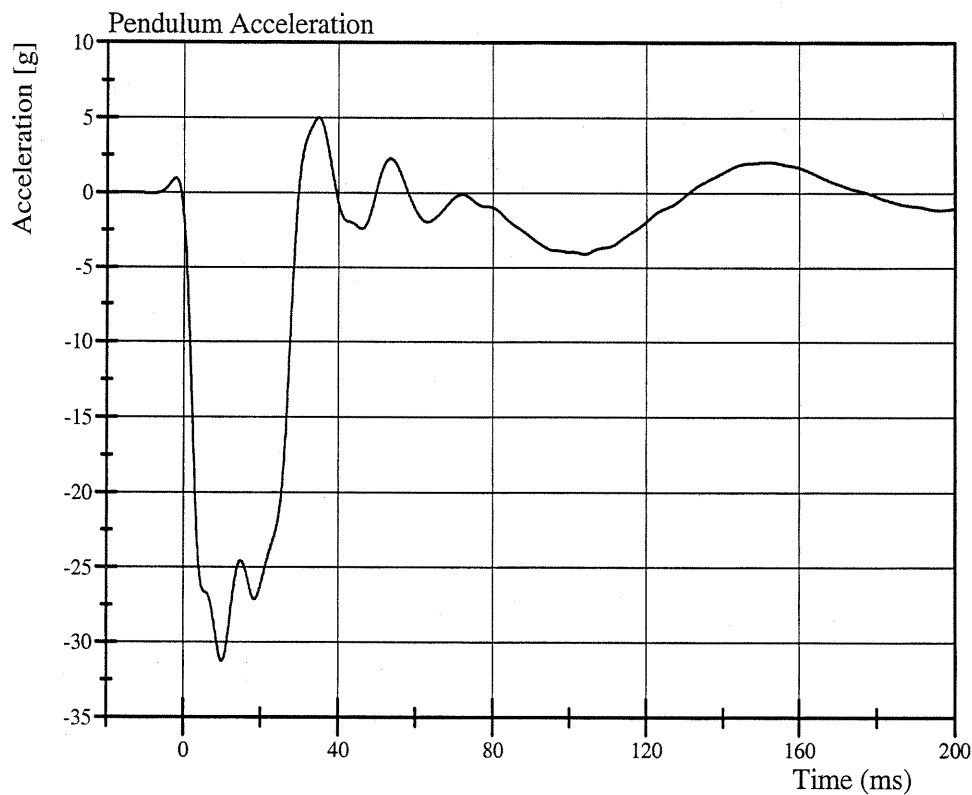


Transportation Research Center Inc.

Left Lateral Lumbar

ES-2re Serial No. 009 Certification No. 6-3

Test Date: 7/6/2005



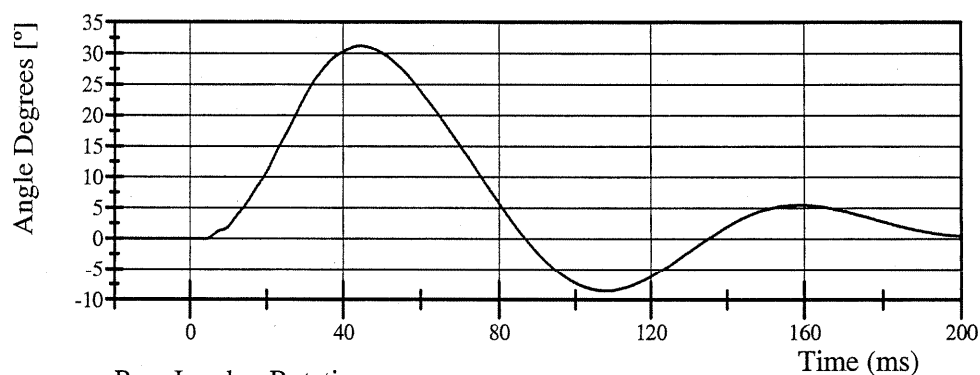
Transportation Research Center Inc.

Left Lateral Lumbar

ES-2re Serial No. 009 Certification No. 6-3

Test Date: 7/6/2005

Forward Lumbar Rotation

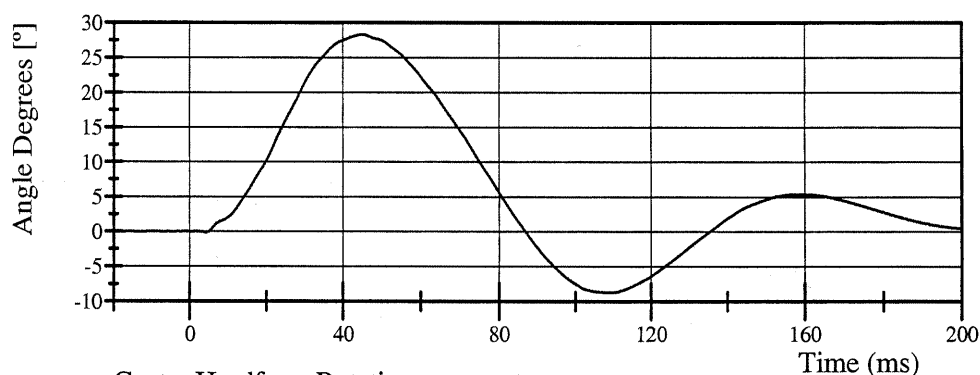


Filter Class: CFC_180

Max: 31.2 ° at 44.5 ms

Min: -8.5 ° at 108.8 ms

Rear Lumbar Rotation

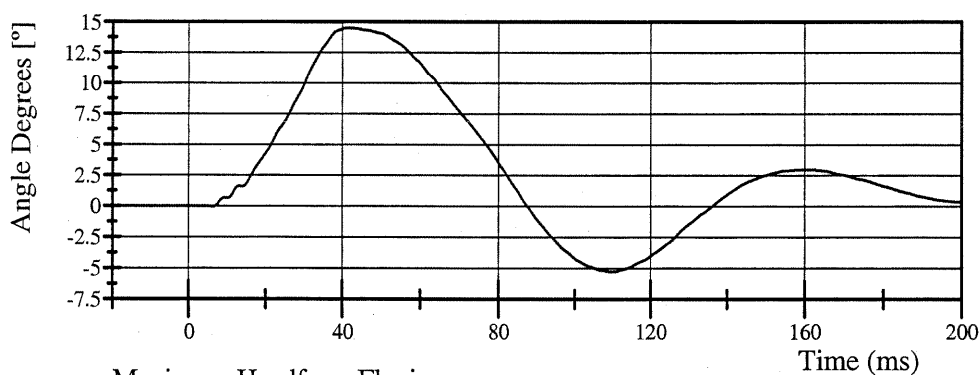


Filter Class: CFC_180

Max: 28.3 ° at 45.0 ms

Min: -8.7 ° at 109.0 ms

Center Headform Rotation

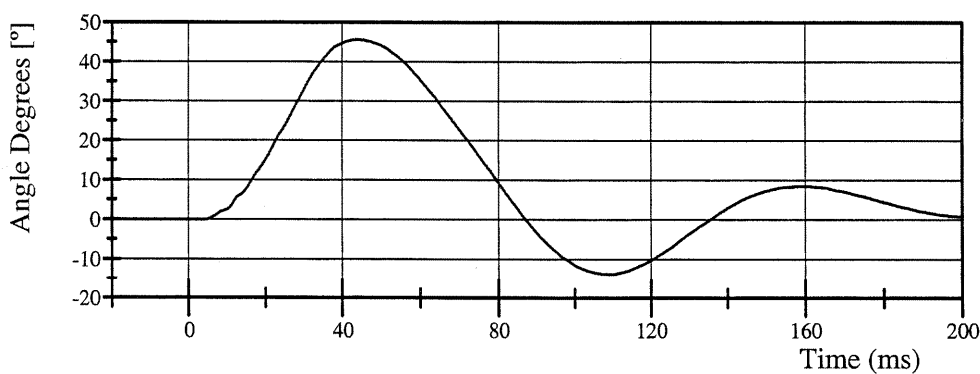


Filter Class: CFC_180

Max: 14.5 ° at 41.5 ms

Min: -5.3 ° at 109.9 ms

Maximum Headform Flexion



Filter Class: CFC_180

Max: 45.6 ° at 44.4 ms

Min: -13.8 ° at 109.3 ms

Transportation Research Center Inc.

Left Lateral Shoulder

ES-2re Serial No. 009 Certification No. 6-1

Test Date: 07/06/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.23 m/s	Yes
Test Probe Acceleration	(-7.5) - (-10.5) g	-10.47 g	Yes

Test meets specifications.

Comments:

Technician

Vincenzo D'Amico

Approved

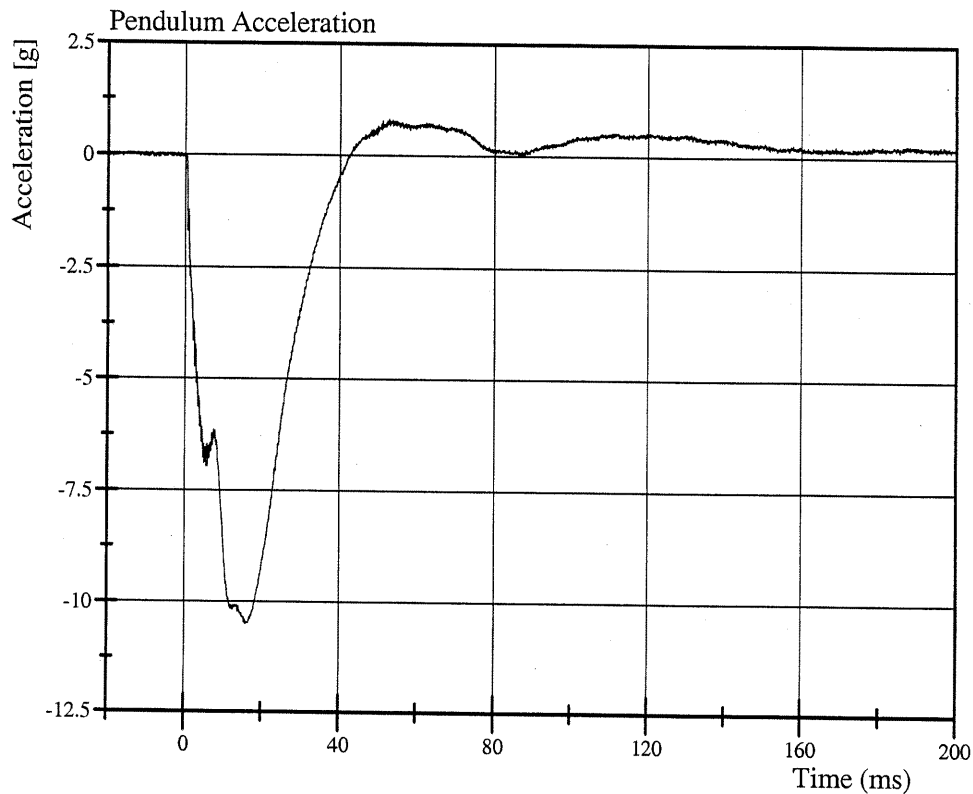
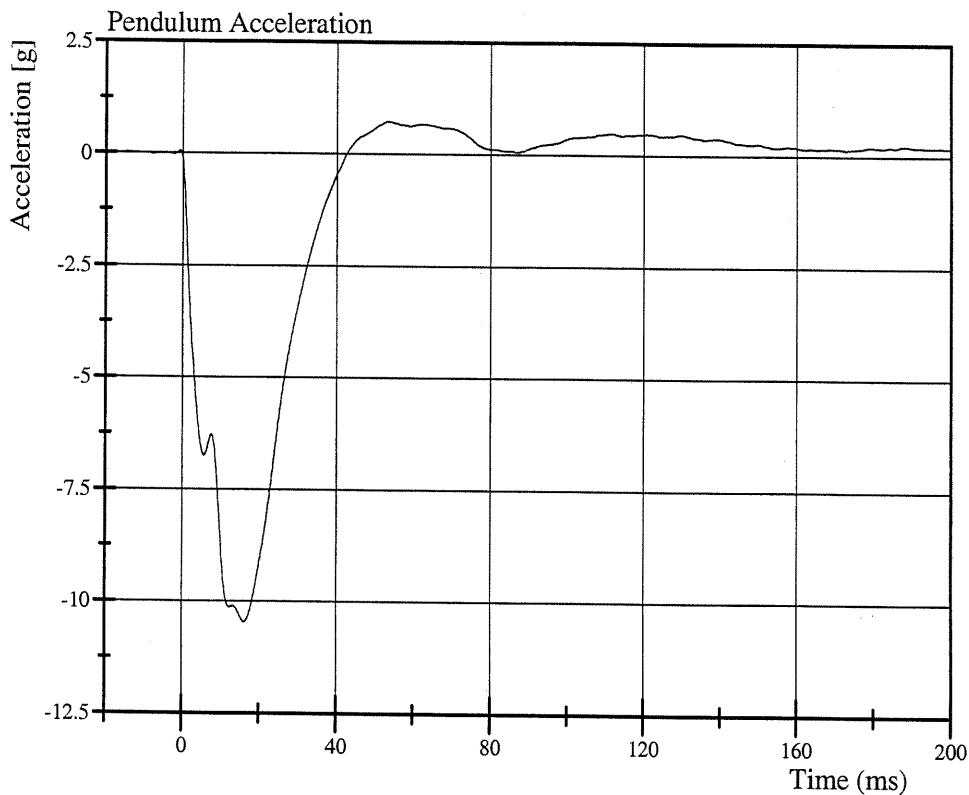
V. J. Walther

Transportation Research Center Inc.

Left Lateral Shoulder

ES-2re Serial No. 009 Certification No. 6-1

Test Date: 07/06/2005



Transportation Research Center Inc.

Left Lateral Abdomen Compression

ES-2re Serial No. 009 Certification No. 6-2

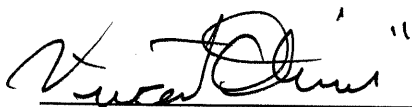
Test Date: 07/06/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Test Probe Velocity	3.9 - 4.1 m/s	3.94 m/s	Yes
Test Probe Force			
Peak	(-4000) - (-4800) N	-4,689.1 N	Yes
Time of Peak	10.6 - 13.0 ms	11.52 ms	Yes
Total Abdominal Force			
Peak	2200 - 2700 N	2,358.2 N	Yes
Time of Peak	10.0 - 12.3 ms	11.36 ms	Yes

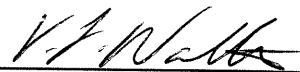
Test meets specifications.

Comments:

Technician

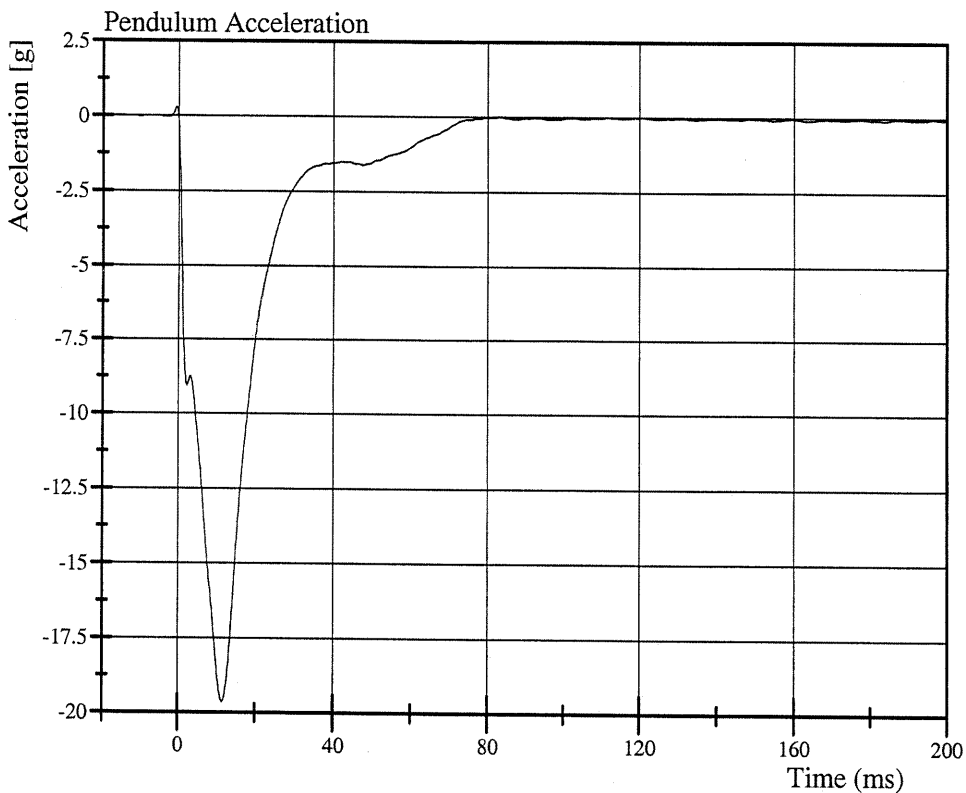


Approved



Transportation Research Center Inc.

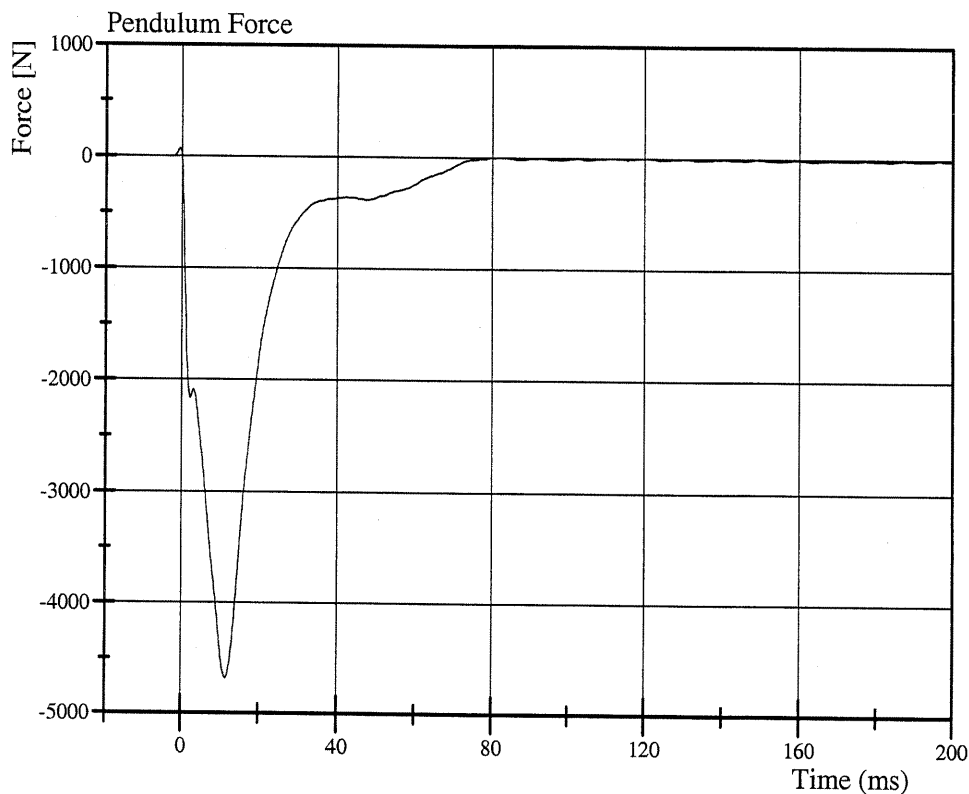
Left Lateral Abdomen Compression
ES-2re Serial No. 009 Certification No. 6-2
Test Date: 07/06/2005



Filter Class: CFC_180

Max: 0.3 g at -0.6 ms

Min: -19.6 g at 11.5 ms



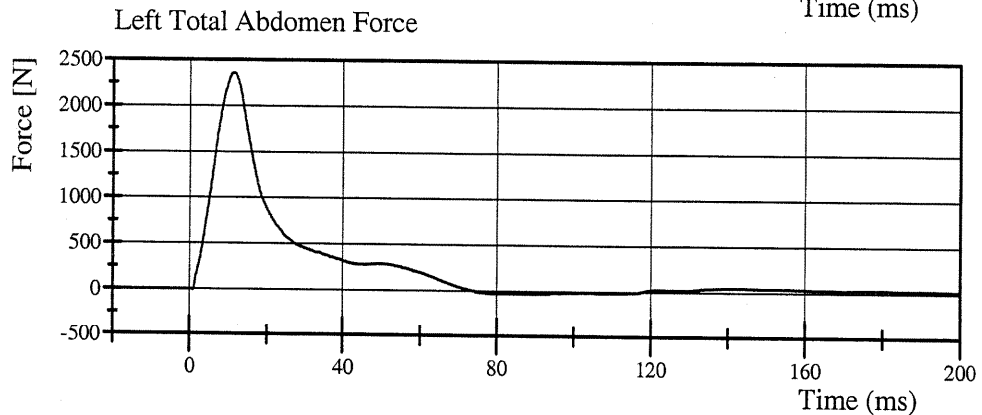
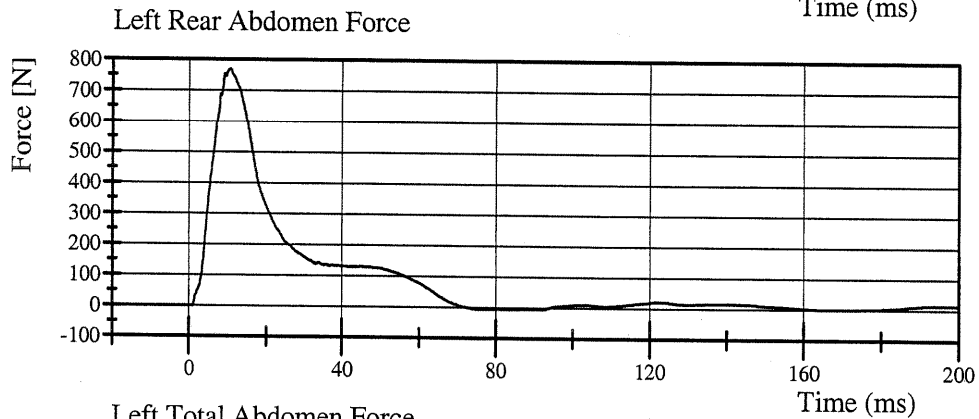
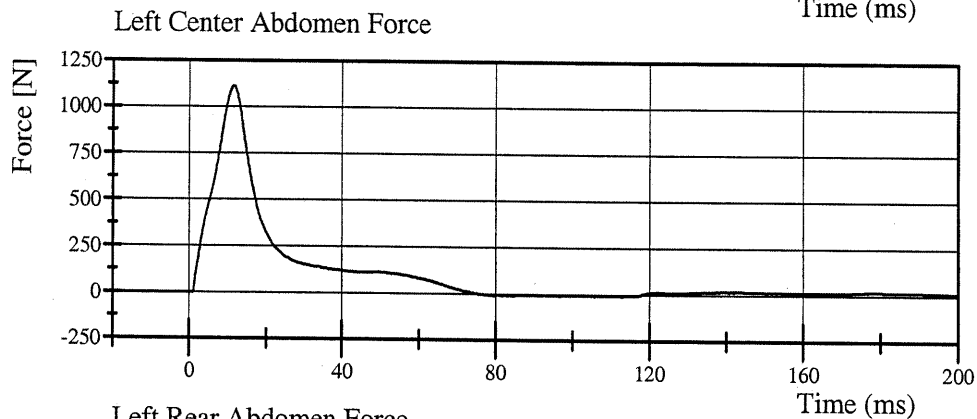
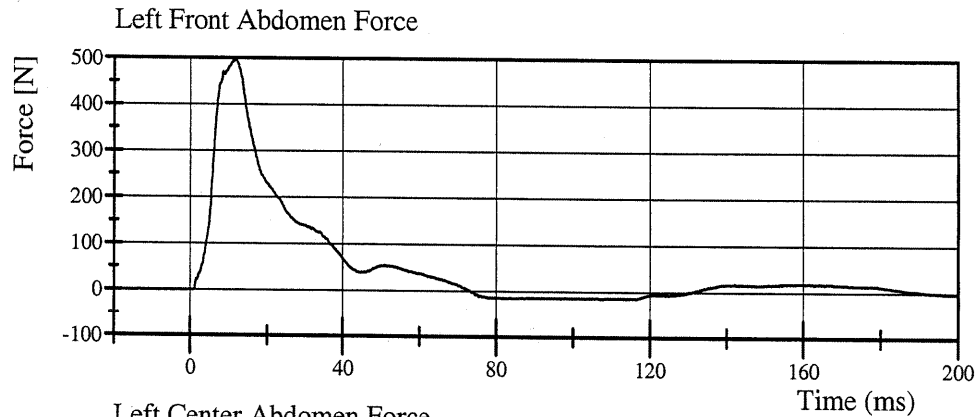
Filter Class: CFC_180

Max: 67.9 N at -0.6 ms

Min: -4,689.1 N at 11.5 ms

Transportation Research Center Inc.

Left Lateral Abdomen Compression
ES-2re Serial No. 009 Certification No. 6-2
Test Date: 07/06/2005



Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. 009 Certification No. 6-1

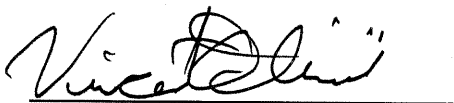
Test Date: 07/06/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.26 m/s	Yes
Test Probe Force			
Peak	(-4800) - (-5500) N	-4,941.0 N	Yes
Time of Peak	10.3 - 15.5 ms	14.56 ms	Yes
Pubic Symphysis Force			
Peak	(-1310) - (-1490) N	-1,423.2 N	Yes
Time of Peak	9.9 - 15.9 ms	15.84 ms	Yes

Test meets specifications.

Comments:

Technician



Approved

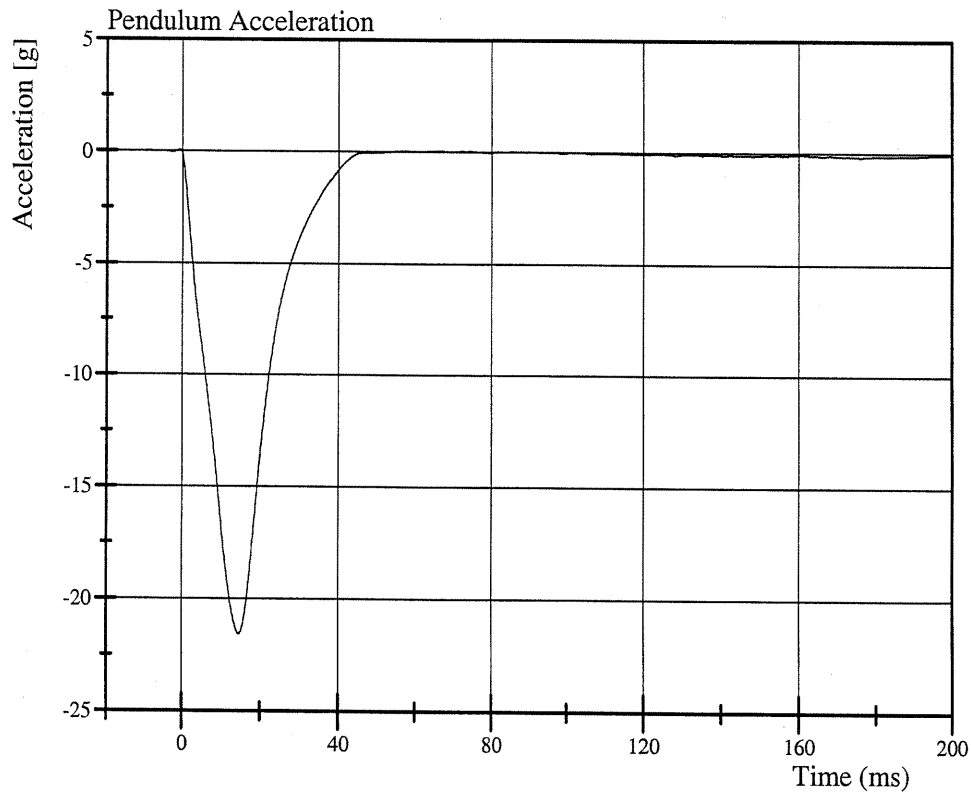


Transportation Research Center Inc.

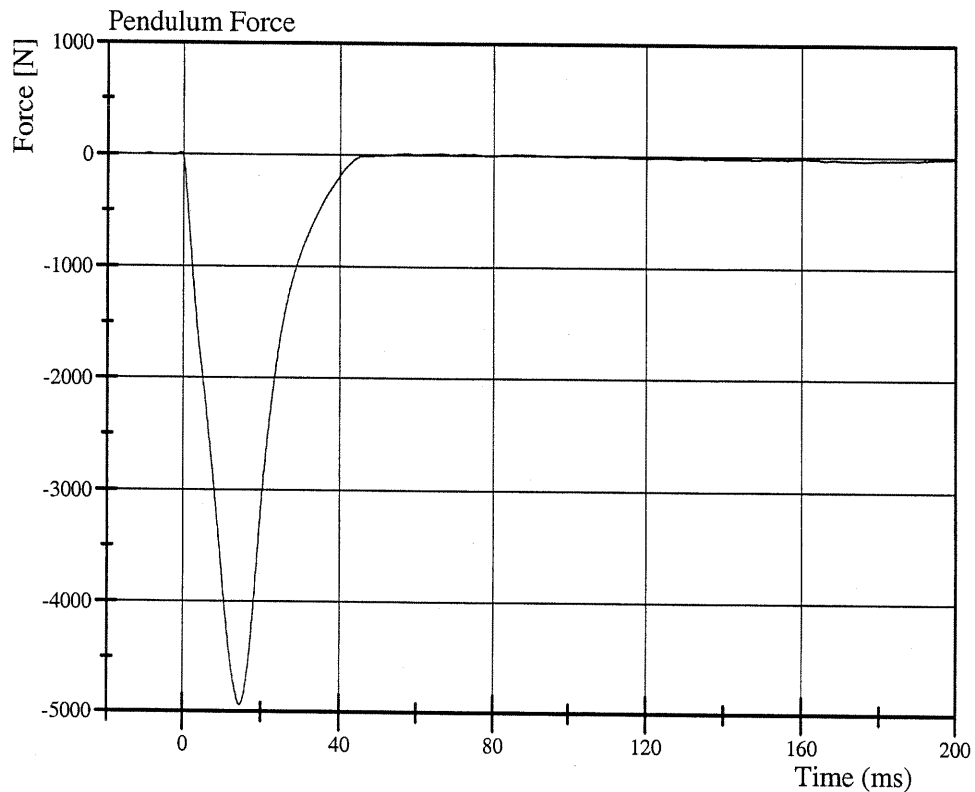
Left Lateral Pelvis

ES-2re Serial No. 009 Certification No. 6-1

Test Date: 07/06/2005



Filter Class: CFC_180
Max: 0.1 g at 66.3 ms
Min: -21.6 g at 14.6 ms



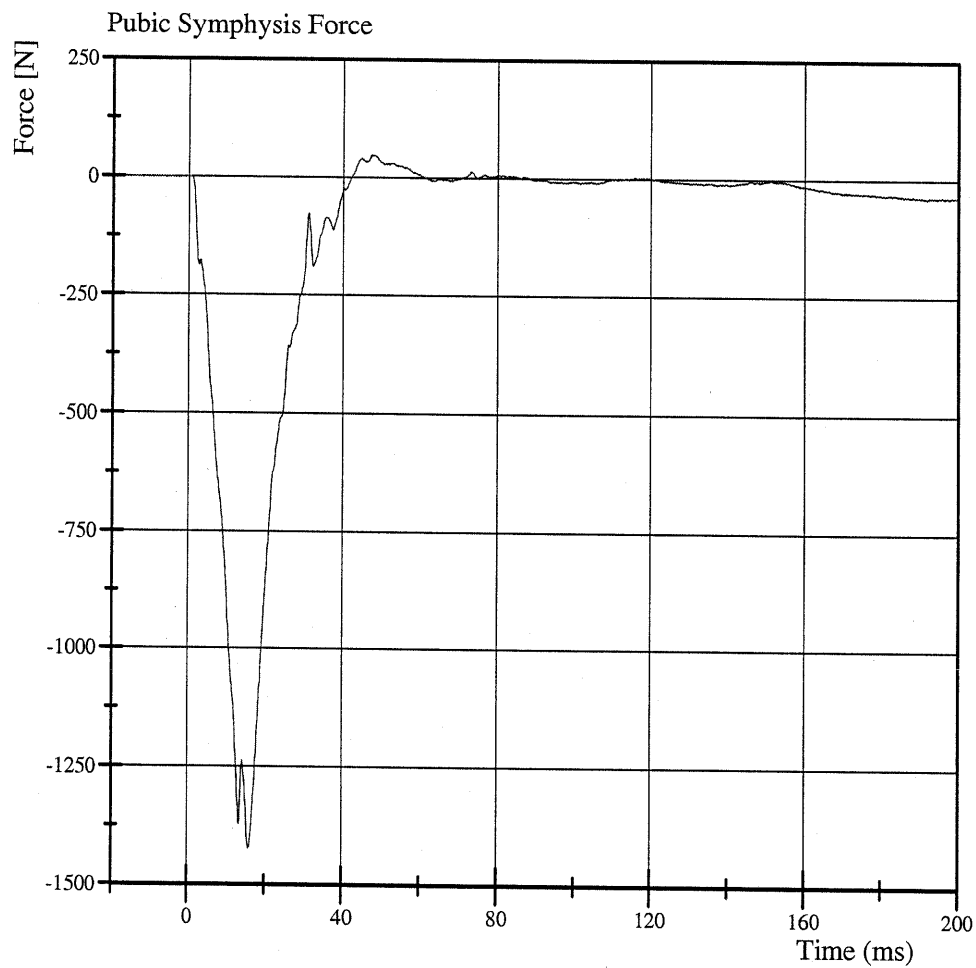
Filter Class: CFC_180
Max: 15.2 N at 66.3 ms
Min: -4,941.0 N at 14.6 ms

Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. 009 Certification No. 6-1

Test Date: 07/06/2005



Filter Class: CFC_600
Max: 47.4 N at 47.6 ms
Min: -1,423.2 N at 15.8 ms

Pre-Test Dummy Configuration and Performance Verification Data

Passenger Dummy S/N: 010

Transportation Research Center Inc.

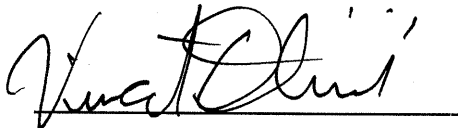
Left Lateral Head Drop
ES-2re Serial No. 010 Certification No. 5-1
Test Date: 07/05/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Peak Resultant Acceleration	125 - 155 g	150.1 g	Yes
Peak Longitudinal Acceleration	(-15) - 15 g	-11.3 g	Yes
Is Acceleration Curve Unimodal?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician

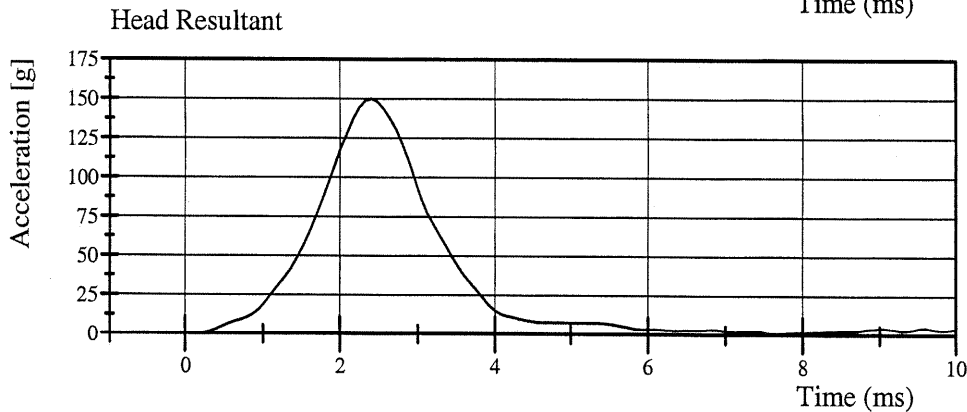
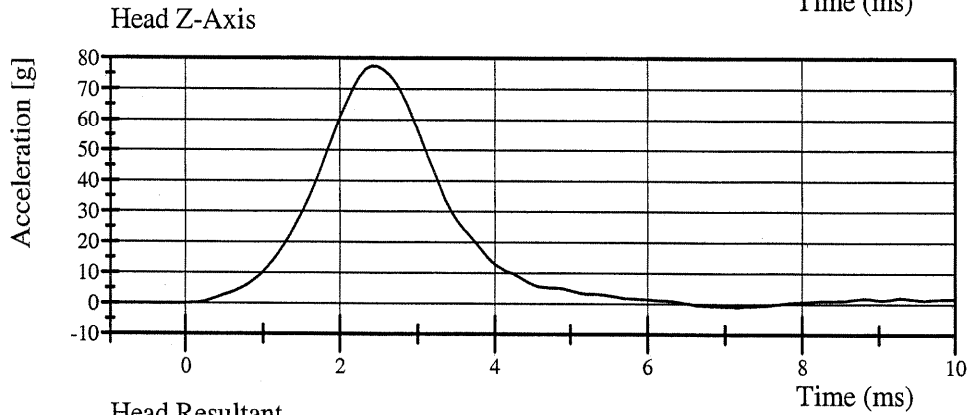
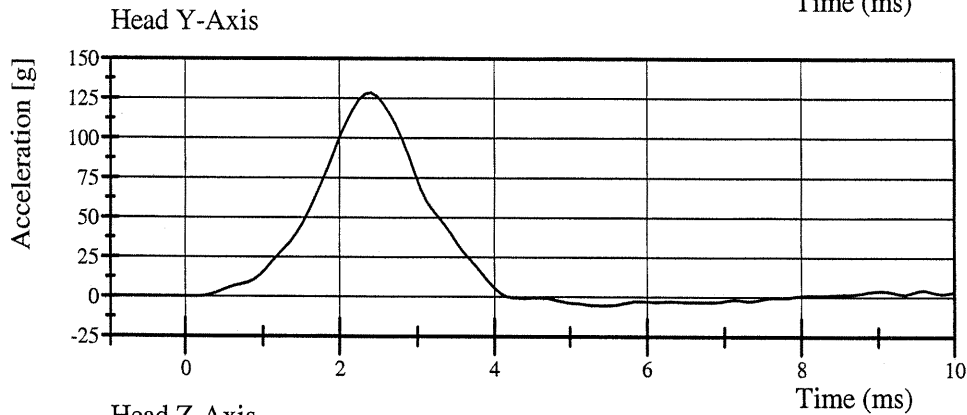
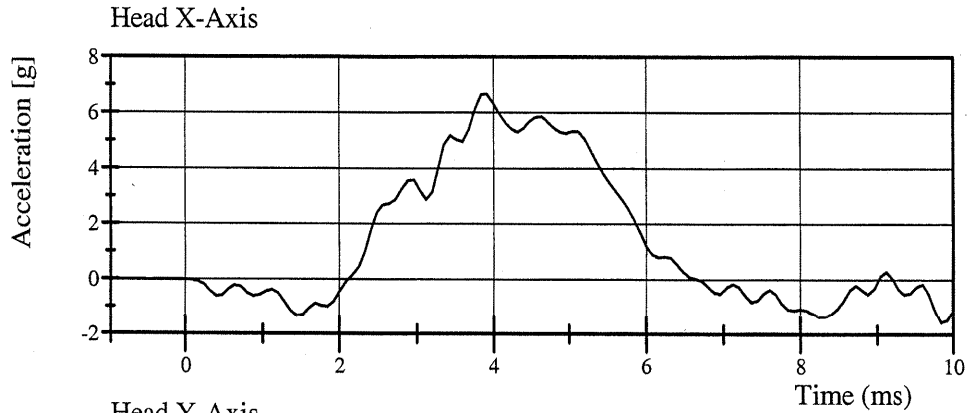


Approved



Transportation Research Center Inc.

Left Lateral Head Drop
ES-2re Serial No. 010 Certification No. 5-1
Test Date: 07/05/2005



Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. 010 Certification No. 5-1

Test Date: 7/5/2005

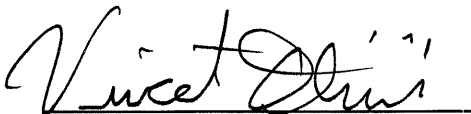
Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Pendulum Acceleration within Corridor	Yes	Yes	Yes
Pendulum Velocity	3.3 - 3.5 m/s	3.46 m/s	Yes
Maximum Headform Flexion			
Peak	52 - 57 deg	55.2 deg	Yes
Time of Peak	54 - 64 ms	60.4 ms	Yes
Headform Flexion Decay			
- Peak to Zero	55 - 75 ms	59.6 ms	Yes

Test meets specifications.

Comments:

POST-TEST calibration with original red buffers.

Technician



Approved

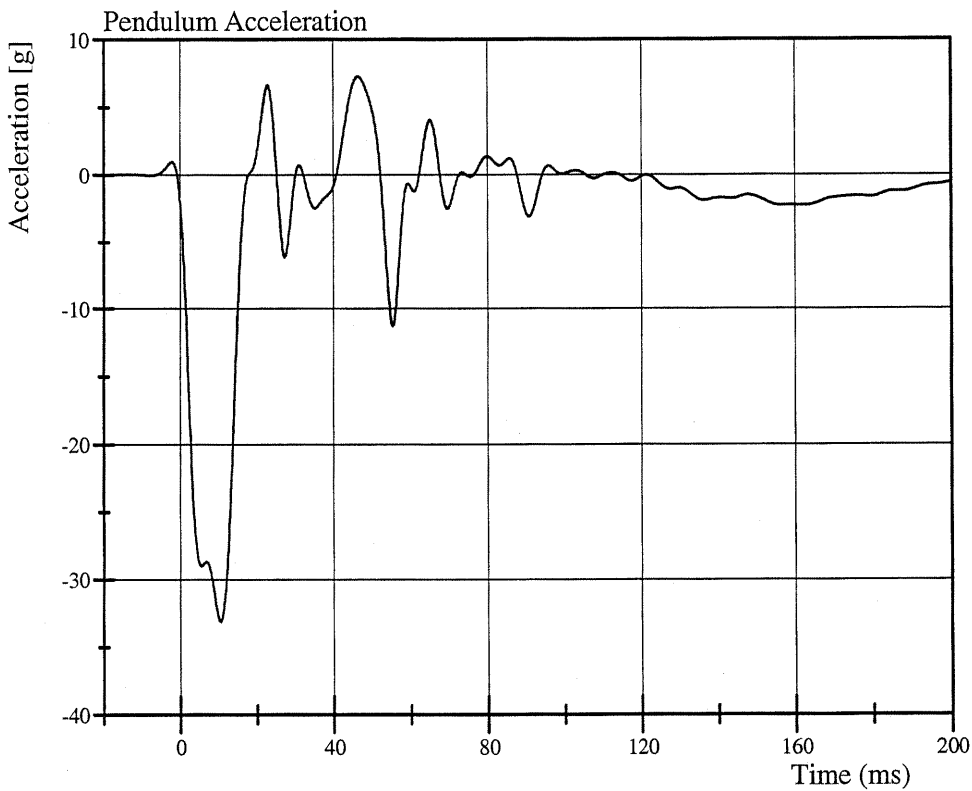


Transportation Research Center Inc.

Left Lateral Neck

ES-2re Serial No. 010 Certification No. 5-1

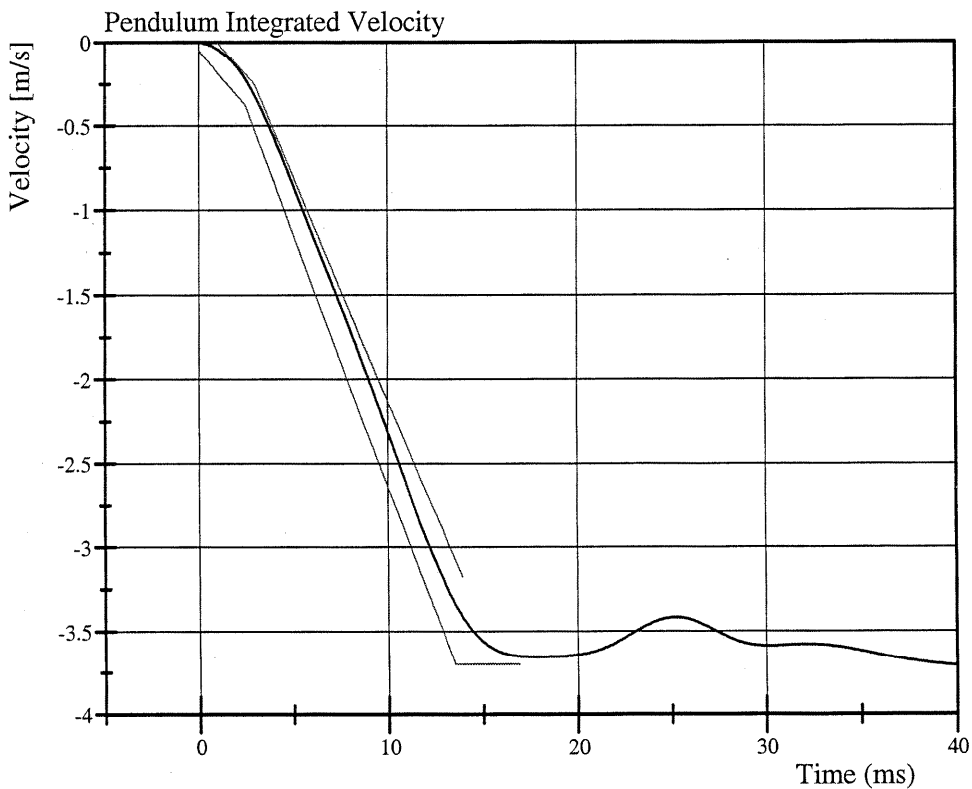
Test Date: 7/5/2005



Filter Class: CFC_60

Max: 7.3 g at 46.6 ms

Min: -33.1 g at 10.5 ms



Filter Class: CFC_60

Max: 0.0 m/s at 0.0 ms

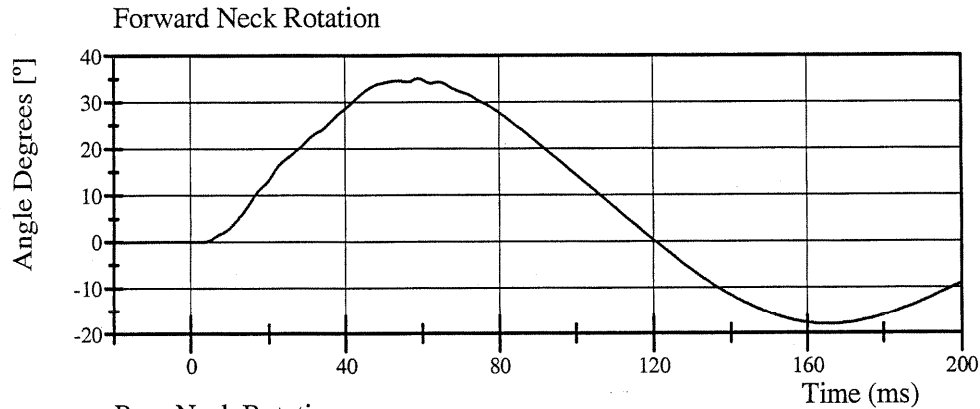
Min: -3.7 m/s at 40.0 ms

Transportation Research Center Inc.

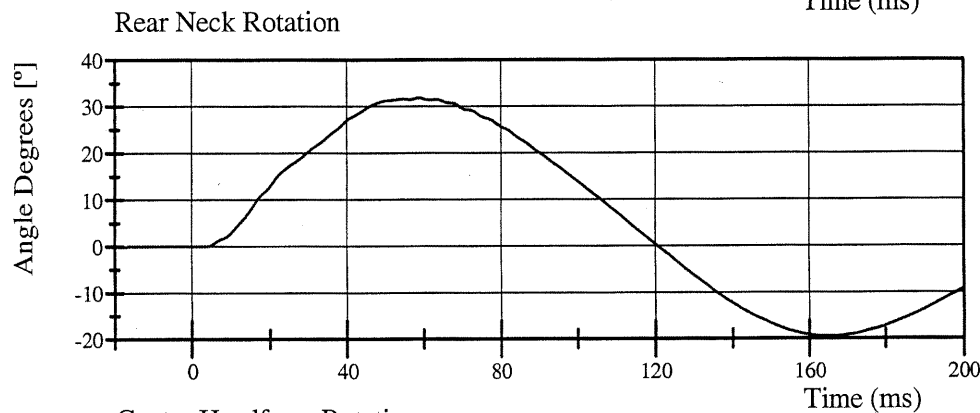
Left Lateral Neck

ES-2re Serial No. 010 Certification No. 5-1

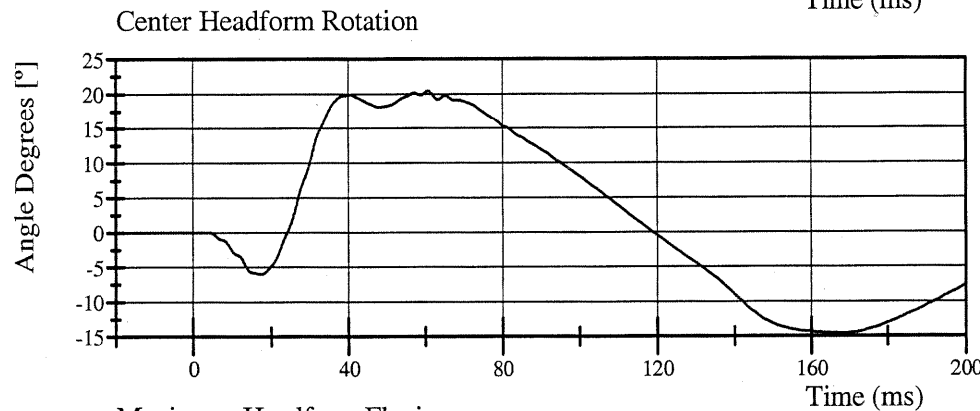
Test Date: 7/5/2005



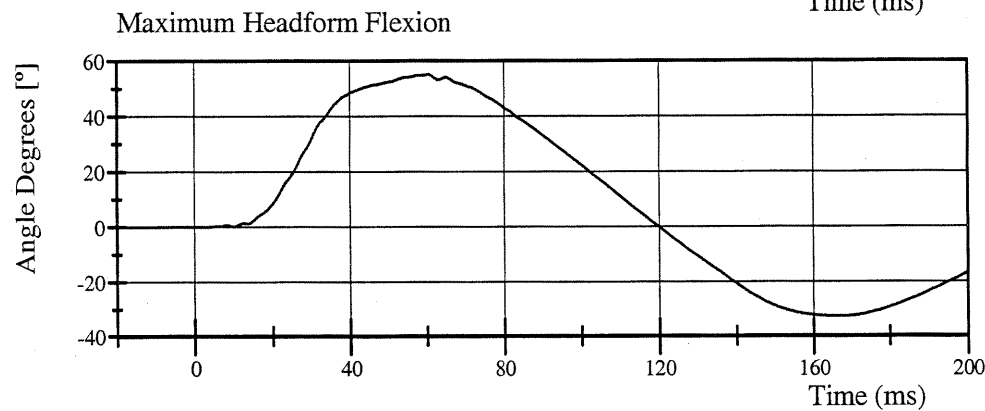
Filter Class: CFC_180
Max: 35.1 ° at 59.0 ms
Min: -18.0 ° at 165.0 ms



Filter Class: CFC_180
Max: 31.8 ° at 58.8 ms
Min: -19.5 ° at 164.7 ms



Filter Class: CFC_180
Max: 20.5 ° at 60.7 ms
Min: -14.6 ° at 168.6 ms



Filter Class: CFC_180
Max: 55.2 ° at 60.4 ms
Min: -32.6 ° at 166.7 ms

Transportation Research Center Inc.

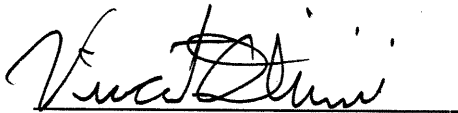
3.0 m/s Upper Full Rib Module
ES-2re Serial No. 010 Certification No. 5-1
Test Date: 07/05/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
3.0 m/s Test Test Probe Velocity	2.9 - 3.1 m/s	2.98 m/s	Yes
3.0 m/s Test Rib Displacement	36 - 40 mm	38.7 mm	Yes

Test meets specifications.

Comments:

Technician

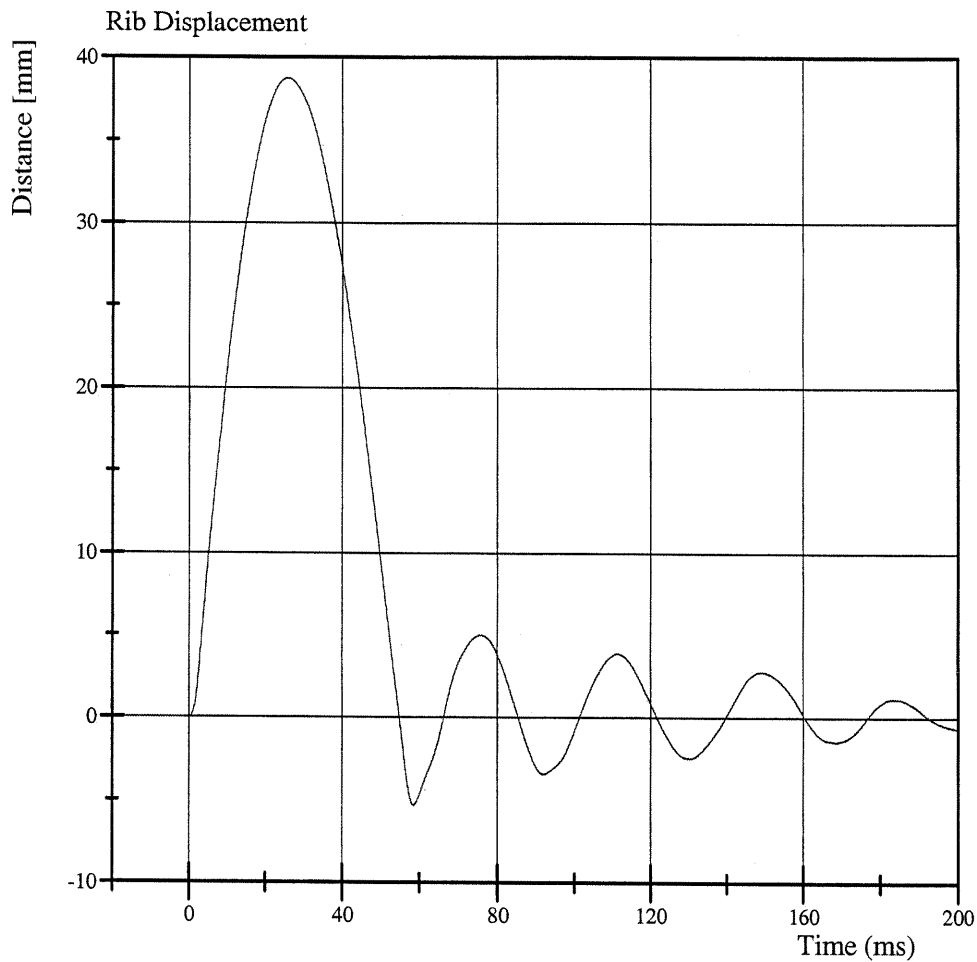


Approved



Transportation Research Center Inc.

3.0 m/s Upper Full Rib Module
ES-2re Serial No. 010 Certification No. 5-1
Test Date: 07/05/2005



Filter Class: CFC_180
Max: 38.7 mm at 25.8 ms
Min: -5.3 mm at 58.5 ms

Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module
ES-2re Serial No. 010 Certification No. 5-1
Test Date: 07/05/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.2 °C	Yes
Relative Humidity	10 - 70 %	51 %	Yes
4.0 m/s Test Test Probe Velocity	3.9 - 4.1 m/s	3.99 m/s	Yes
4.0 m/s Test Rib Displacement	46 - 51 mm	49.3 mm	Yes

Test meets specifications.

Comments:

Technician

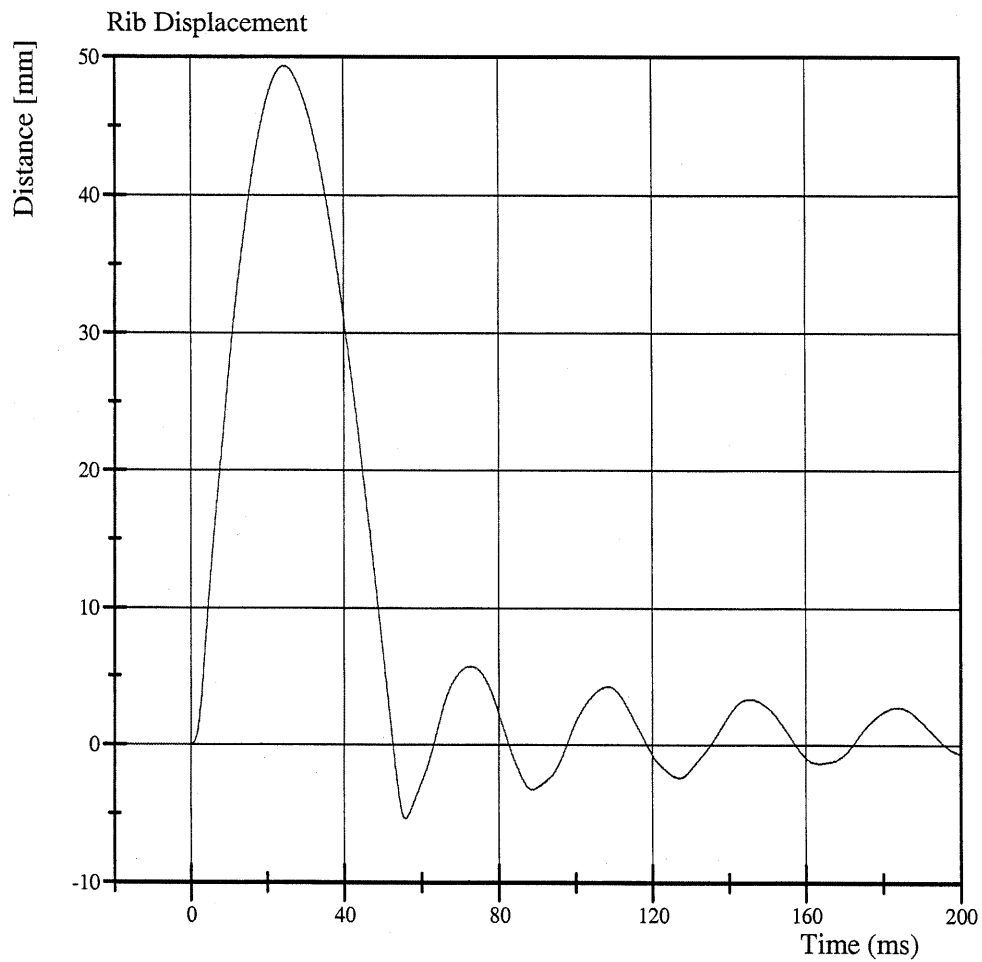
Vincent Olmi

Approved

V. J. Wath

Transportation Research Center Inc.

4.0 m/s Upper Full Rib Module
ES-2re Serial No. 010 Certification No. 5-1
Test Date: 07/05/2005



Filter Class: CFC_180
Max: 49.3 mm at 24.6 ms
Min: -5.4 mm at 55.8 ms

Transportation Research Center Inc.

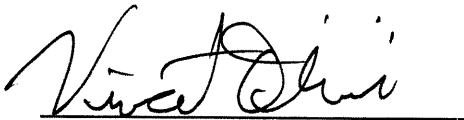
3.0 m/s Center Full Rib Module
ES-2re Serial No. 010 Certification No. 5-1
Test Date: 07/05/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	55 %	Yes
3.0 m/s Test Test Probe Velocity	2.9 - 3.1 m/s	2.99 m/s	Yes
3.0 m/s Test Rib Displacement	36 - 40 mm	39.0 mm	Yes

Test meets specifications.

Comments:

Technician

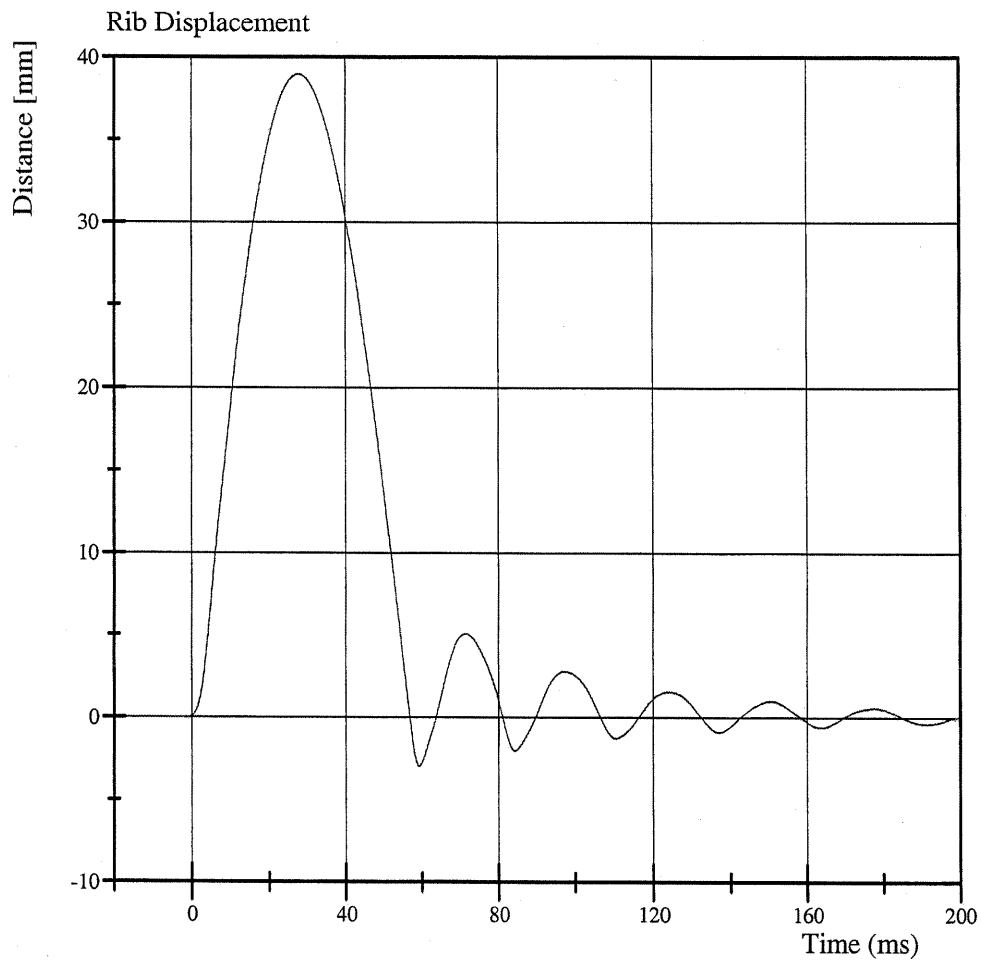


Approved



Transportation Research Center Inc.

3.0 m/s Center Full Rib Module
ES-2re Serial No. 010 Certification No. 5-1
Test Date: 07/05/2005



Filter Class: CFC_180
Max: 39.0 mm at 27.8 ms
Min: -3.0 mm at 59.3 ms

Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. 010 Certification No. 5-1
Test Date: 07/05/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
4.0 m/s Test Test Probe Velocity	3.9 - 4.1 m/s	3.99 m/s	Yes
4.0 m/s Test Rib Displacement	46 - 51 mm	48.9 mm	Yes

Test meets specifications.

Comments:

Technician

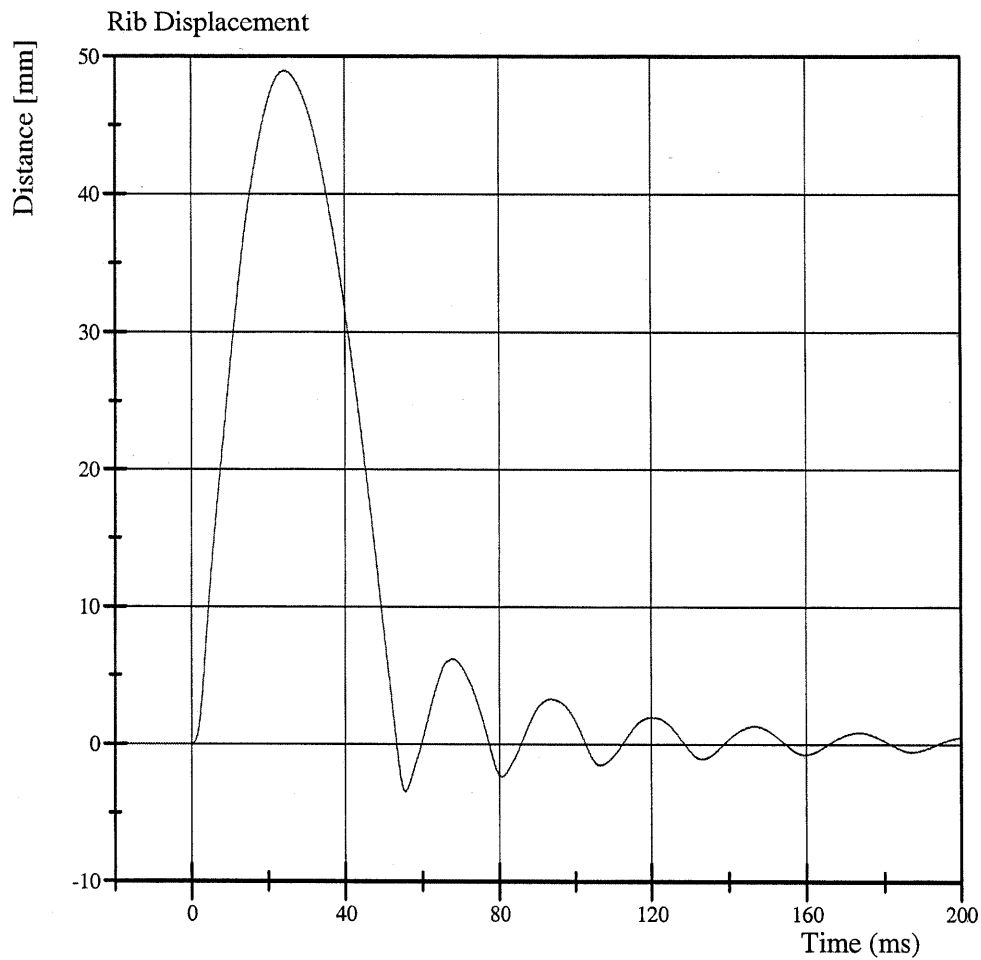
Vincent D'Amico

Approved

V. F. Watter

Transportation Research Center Inc.

4.0 m/s Center Full Rib Module
ES-2re Serial No. 010 Certification No. 5-1
Test Date: 07/05/2005



Filter Class: CFC_180
Max: 48.9 mm at 24.4 ms
Min: -3.4 mm at 55.4 ms

Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. 010 Certification No. 5-1
Test Date: 07/05/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
3.0 m/s Test Test Probe Velocity	2.9 - 3.1 m/s	2.99 m/s	Yes
3.0 m/s Test Rib Displacement	36 - 40 mm	39.1 mm	Yes

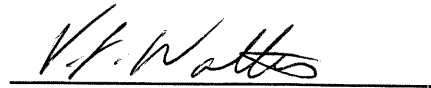
Test meets specifications.

Comments:

Technician

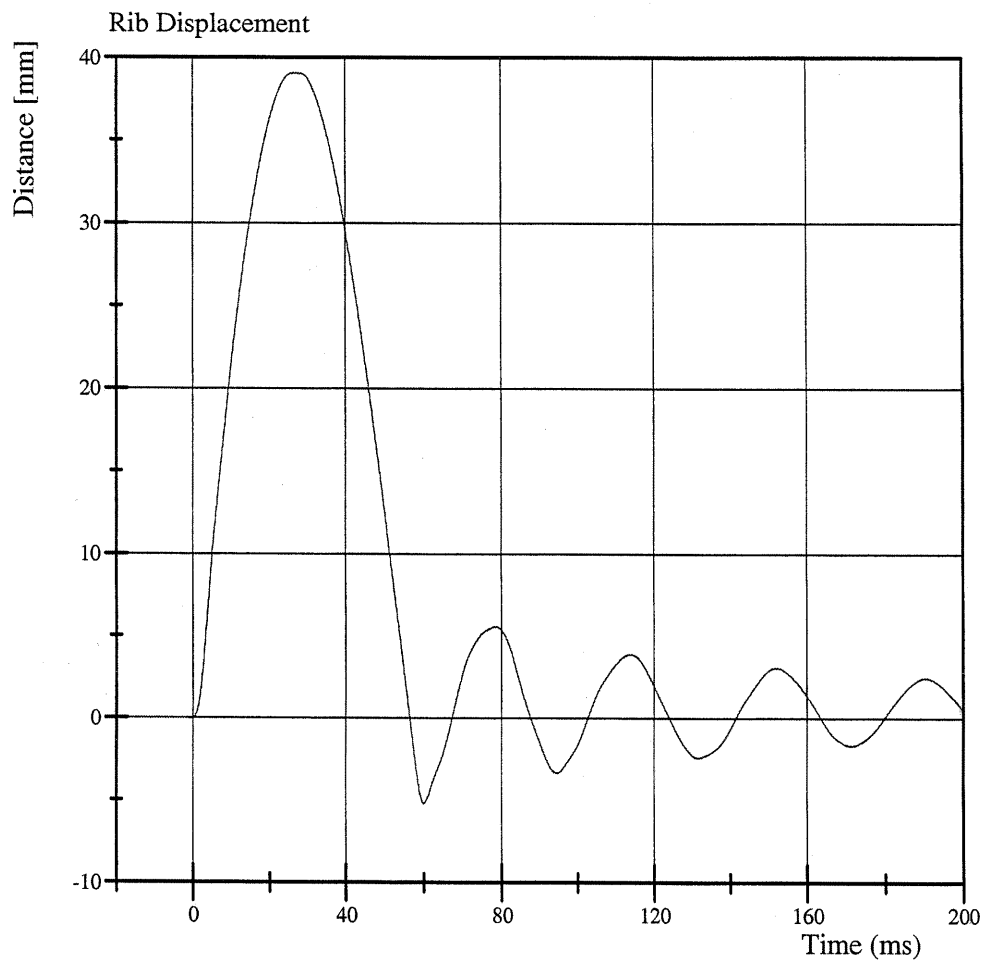


Approved



Transportation Research Center Inc.

3.0 m/s Lower Full Rib Module
ES-2re Serial No. 010 Certification No. 5-1
Test Date: 07/05/2005



Filter Class: CFC_180
Max: 39.1 mm at 26.9 ms
Min: -5.2 mm at 59.9 ms

Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module

ES-2re Serial No. 010 Certification No. 5-1

Test Date: 07/05/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
4.0 m/s Test Test Probe Velocity	3.9 - 4.1 m/s	3.97 m/s	Yes
4.0 m/s Test Rib Displacement	46 - 51 mm	48.2 mm	Yes

Test meets specifications.

Comments:

Technician

Vincent DiMuro

Approved

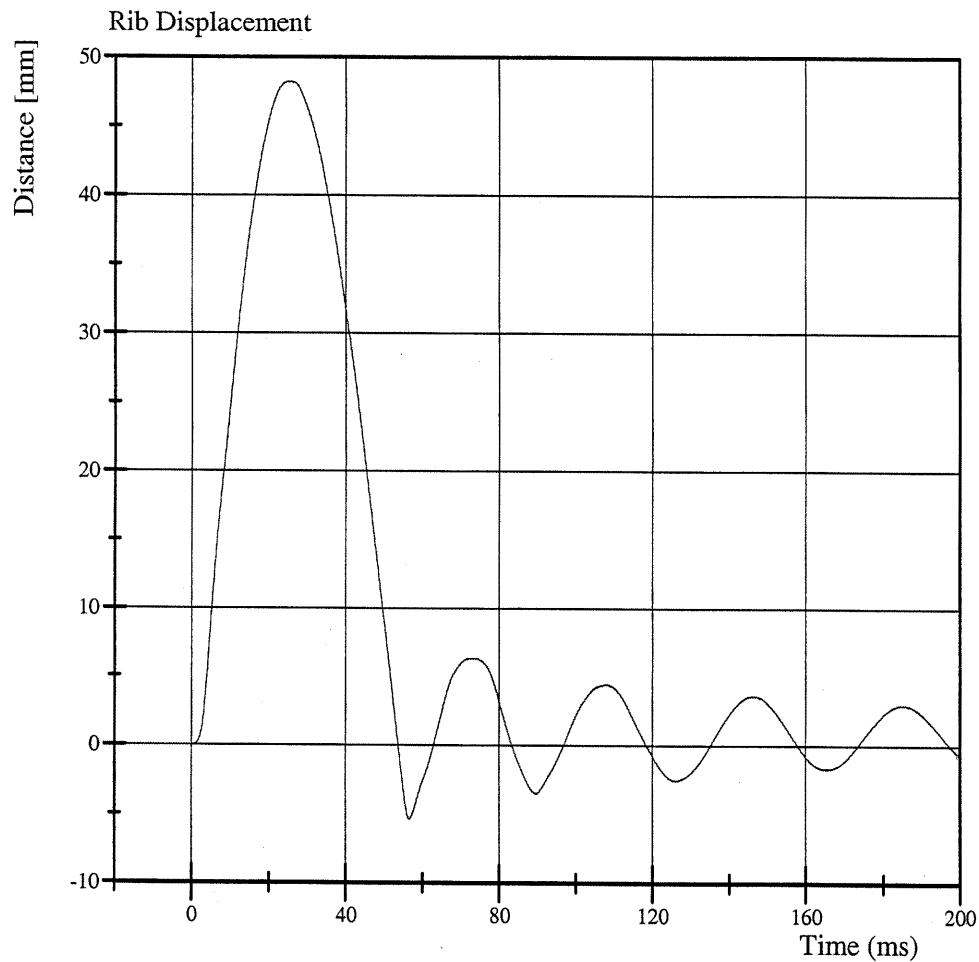
K. Watter

Transportation Research Center Inc.

4.0 m/s Lower Full Rib Module

ES-2re Serial No. 010 Certification No. 5-1

Test Date: 07/05/2005



Filter Class: CFC_180
Max: 48.2 mm at 25.2 ms
Min: -5.4 mm at 56.5 ms

Transportation Research Center Inc.

Left Lateral Lumbar

ES-2re Serial No. 010 Certification No. 5-1

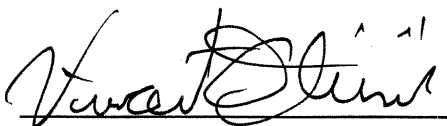
Test Date: 7/6/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Pendulum Acceleration within Corridor	Yes	Yes	Yes
Pendulum Velocity	5.95 - 6.15 m/s	6.118 m/s	Yes
Maximum Headform Flexion			
Peak	45 - 55 deg	48.3 deg	Yes
Time of Peak	39 - 53 ms	47.6 ms	Yes
Headform Flexion Decay			
- Peak to Zero	40 - 65 ms	43.3 ms	Yes

Test meets specifications.

Comments:

Technician



Approved

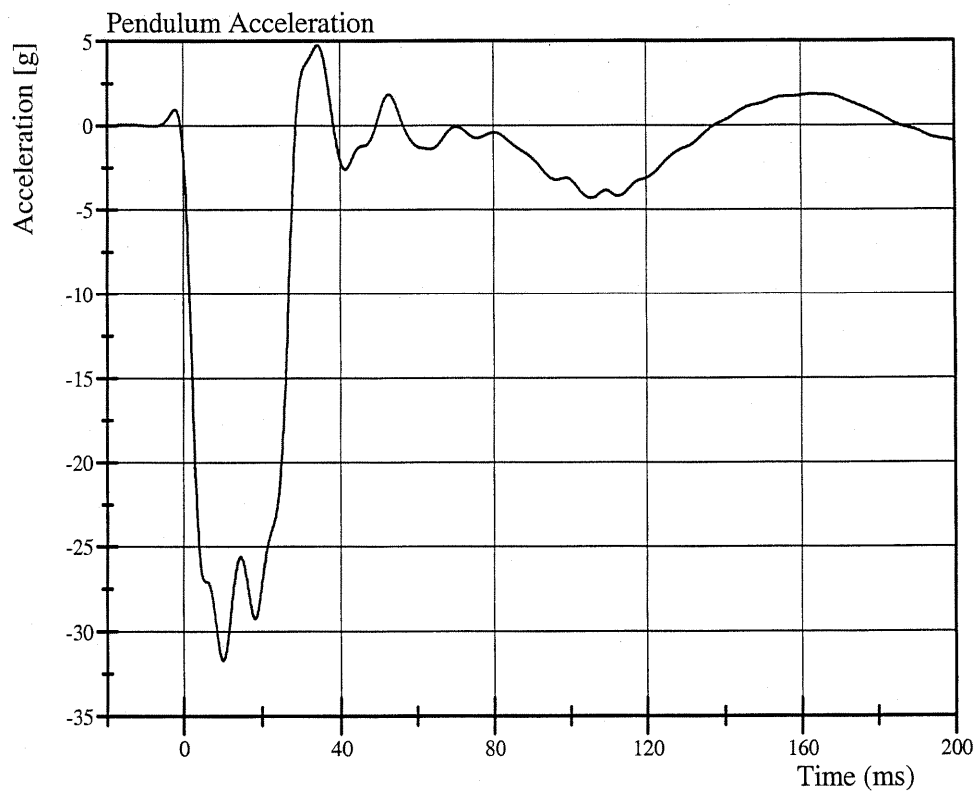


Transportation Research Center Inc.

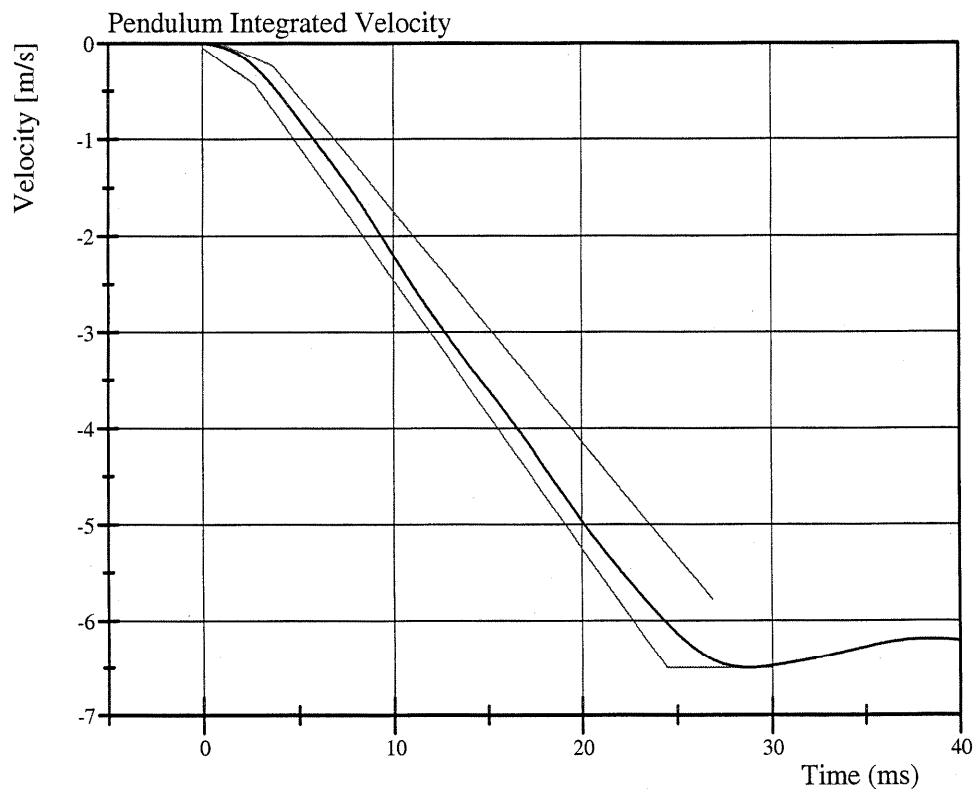
Left Lateral Lumbar

ES-2re Serial No. 010 Certification No. 5-1

Test Date: 7/6/2005



Filter Class: CFC_60
Max: 4.8 g at 34.4 ms
Min: -31.7 g at 10.1 ms



Filter Class: CFC_60
Max: 0.0 m/s at 0.0 ms
Min: -6.5 m/s at 28.8 ms



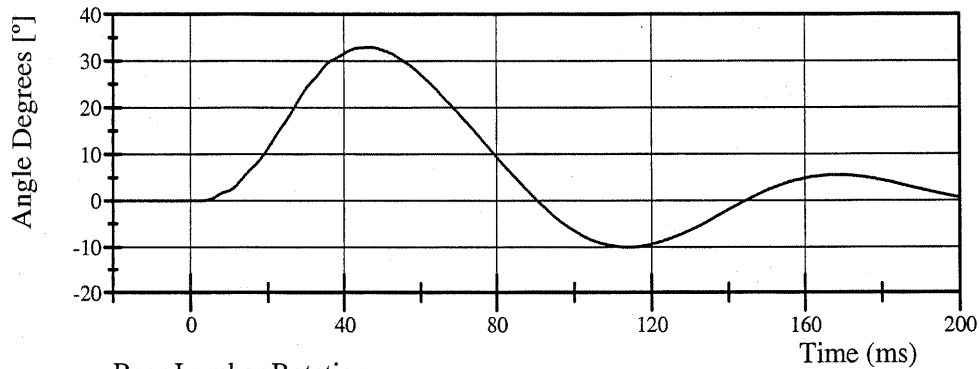
Transportation Research Center Inc.

Left Lateral Lumbar

ES-2re Serial No. 010 Certification No. 5-1

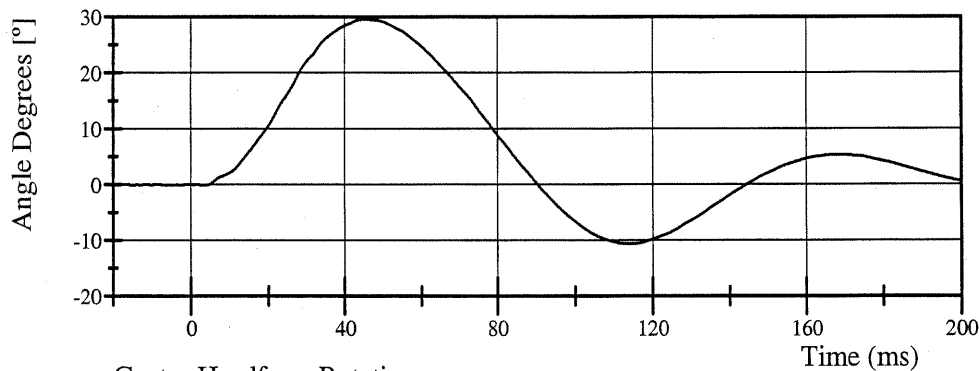
Test Date: 7/6/2005

Forward Lumbar Rotation



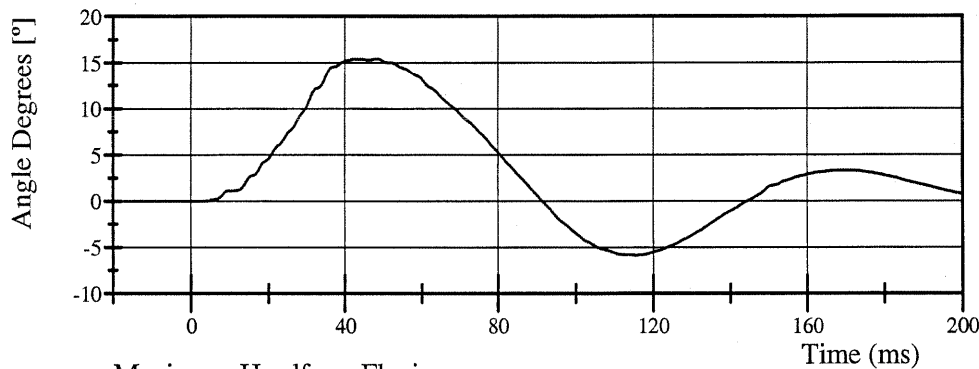
Filter Class: CFC_180
Max: 33.0 ° at 46.9 ms
Min: -10.1 ° at 114.4 ms

Rear Lumbar Rotation



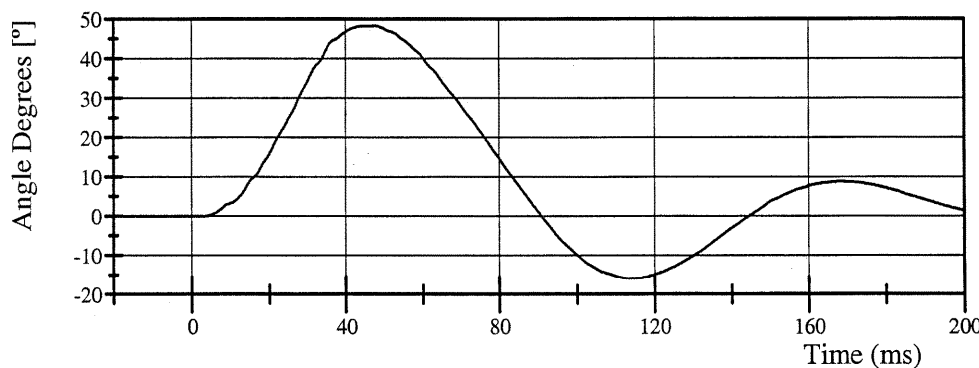
Filter Class: CFC_180
Max: 29.5 ° at 45.2 ms
Min: -10.6 ° at 114.2 ms

Center Headform Rotation



Filter Class: CFC_180
Max: 15.4 ° at 48.3 ms
Min: -5.8 ° at 115.7 ms

Maximum Headform Flexion



Filter Class: CFC_180
Max: 48.3 ° at 47.6 ms
Min: -15.9 ° at 114.6 ms

Transportation Research Center Inc.

Left Lateral Shoulder

ES-2re Serial No. 010 Certification No. 5-1

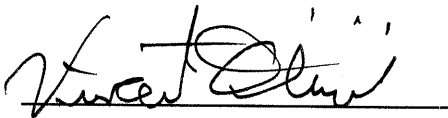
Test Date: 07/06/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	51 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.25 m/s	Yes
Test Probe Acceleration	(-7.5) - (-10.5) g	-9.74 g	Yes

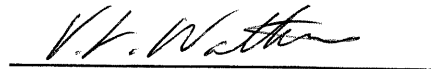
Test meets specifications.

Comments:

Technician



Approved

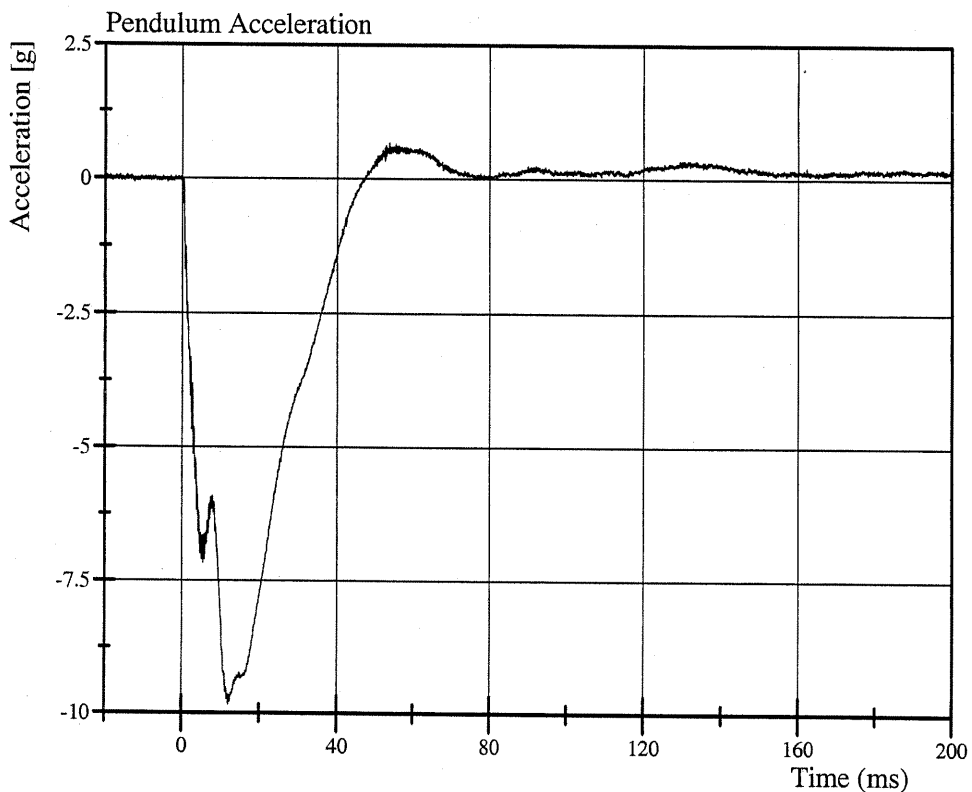
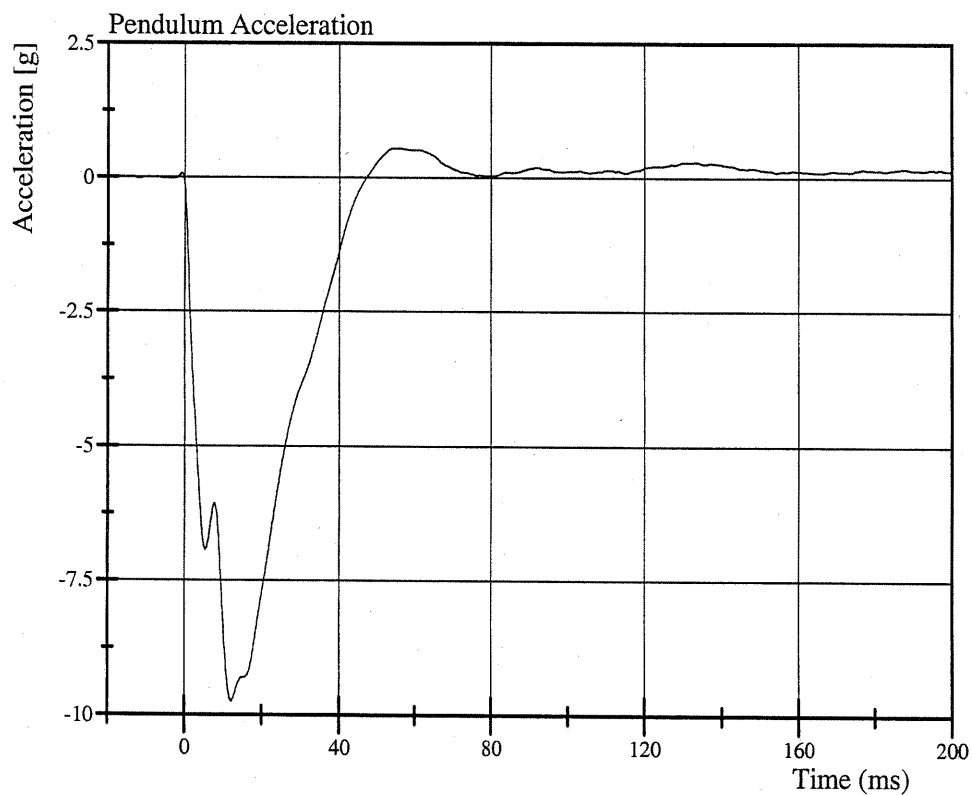


Transportation Research Center Inc.

Left Lateral Shoulder

ES-2re Serial No. 010 Certification No. 5-1

Test Date: 07/06/2005



Transportation Research Center Inc.

Left Lateral Abdomen Compression
ES-2re Serial No. 010 Certification No. 5-1
Test Date: 07/06/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Test Probe Velocity	3.9 - 4.1 m/s	3.93 m/s	Yes
Test Probe Force			
Peak	(-4000) - (-4800) N	-4,705.5 N	Yes
Time of Peak	10.6 - 13.0 ms	12.32 ms	Yes
Total Abdominal Force			
Peak	2200 - 2700 N	2,579.6 N	Yes
Time of Peak	10.0 - 12.3 ms	12.16 ms	Yes

Test meets specifications.

Comments:

Technician

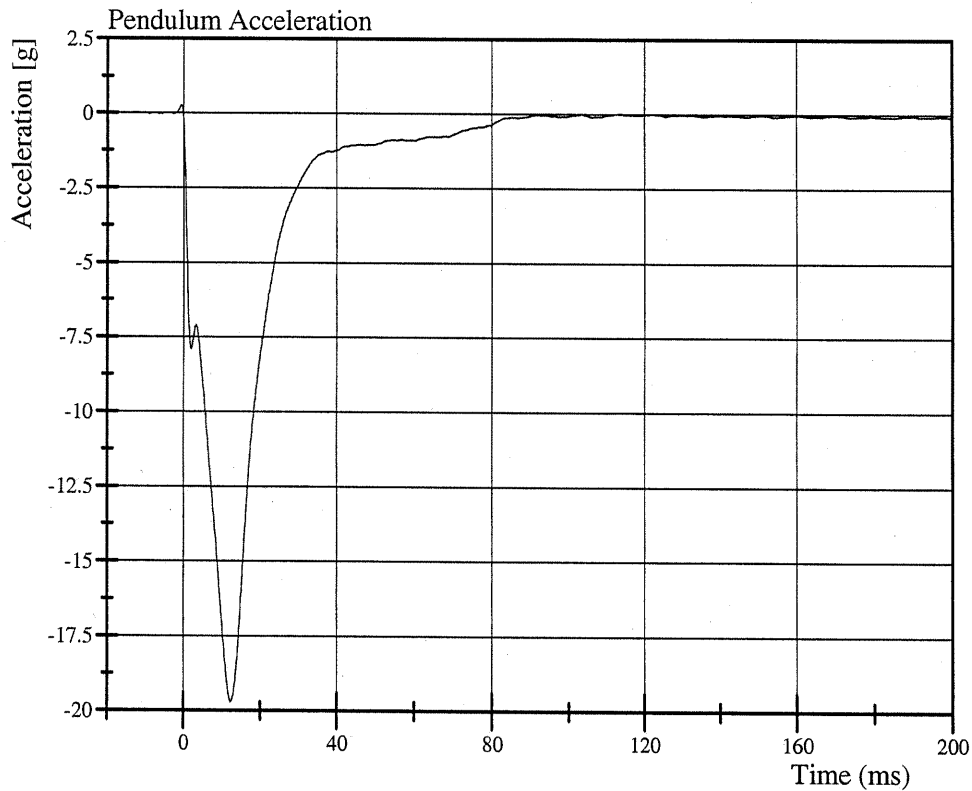
Vincent Duran

Approved

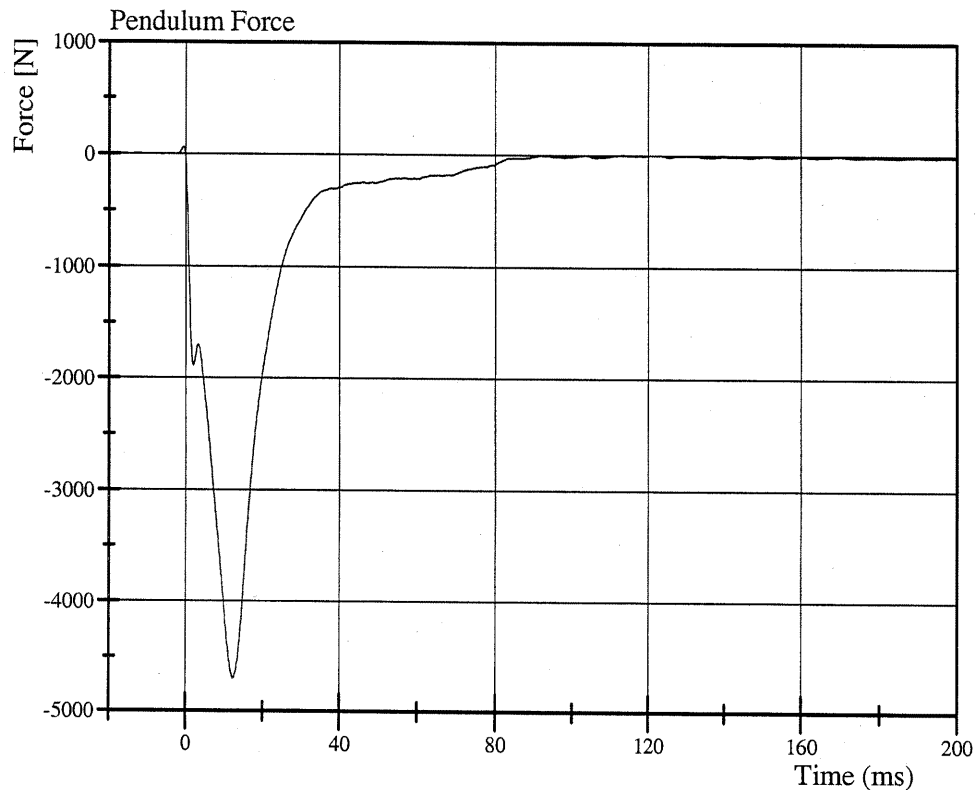
V. F. Walter

Transportation Research Center Inc.

Left Lateral Abdomen Compression
ES-2re Serial No. 010 Certification No. 5-1
Test Date: 07/06/2005



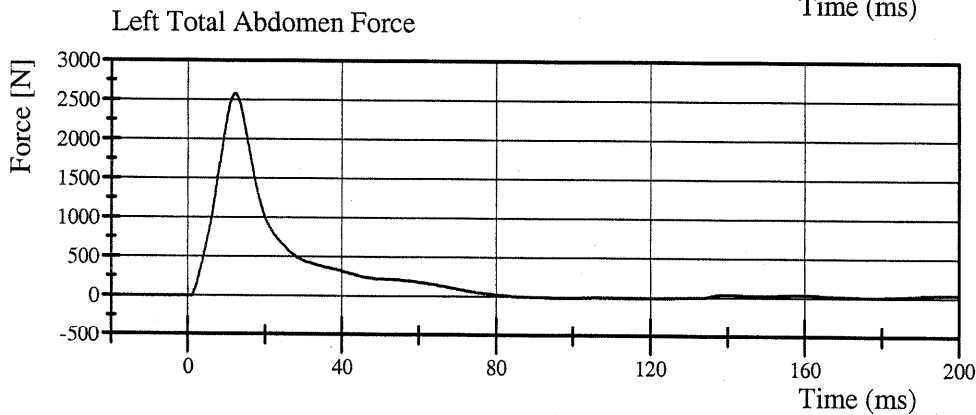
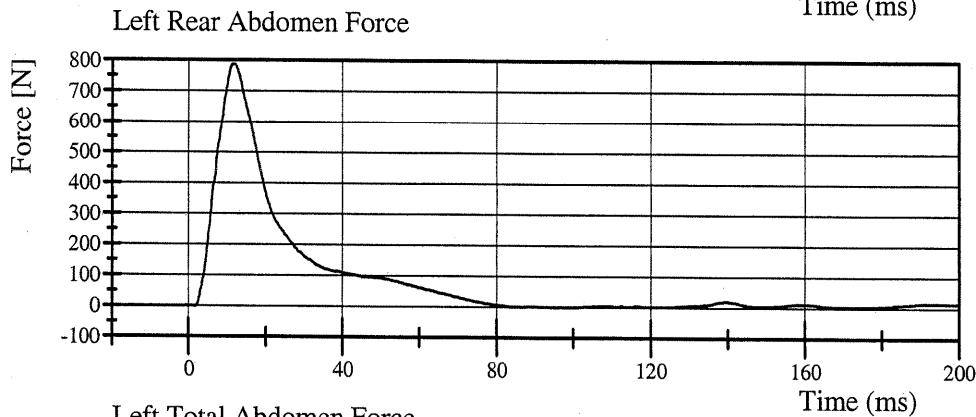
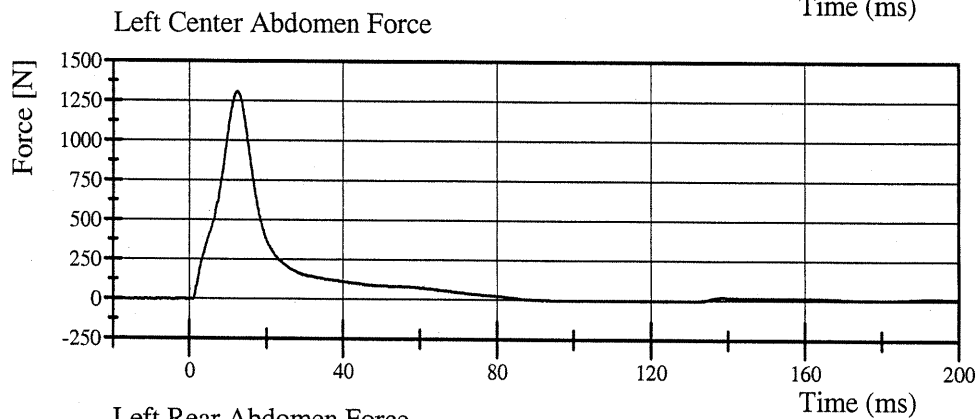
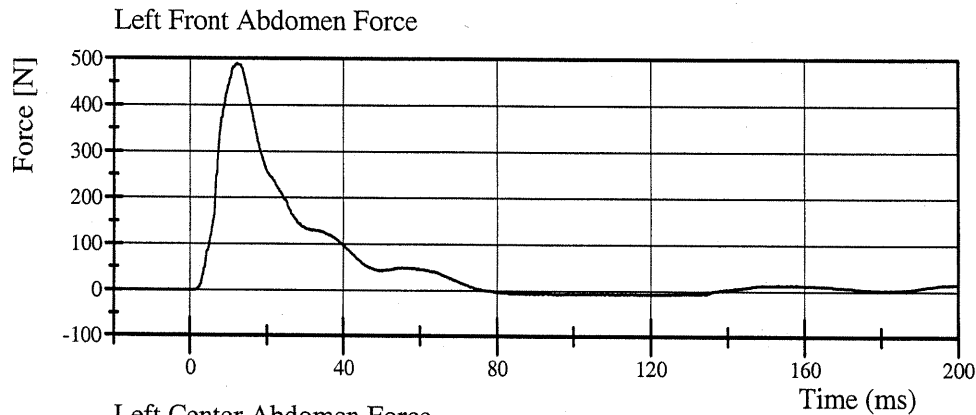
Filter Class: CFC_180
Max: 0.3 g at -0.6 ms
Min: -19.7 g at 12.3 ms



Filter Class: CFC_180
Max: 60.3 N at -0.6 ms
Min: -4,705.5 N at 12.3 ms

Transportation Research Center Inc.

Left Lateral Abdomen Compression
ES-2re Serial No. 010 Certification No. 5-1
Test Date: 07/06/2005



Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. 010 Certification No. 5-1

Test Date: 07/06/2005

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.3 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
Test Probe Velocity	4.2 - 4.4 m/s	4.32 m/s	Yes
Test Probe Force			
Peak	(-4800) - (-5500) N	-4,960.4 N	Yes
Time of Peak	10.3 - 15.5 ms	15.04 ms	Yes
Pubic Symphysis Force			
Peak	(-1310) - (-1490) N	-1,412.0 N	Yes
Time of Peak	9.9 - 15.9 ms	15.68 ms	Yes

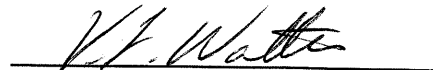
Test meets specifications.

Comments:

Technician



Approved

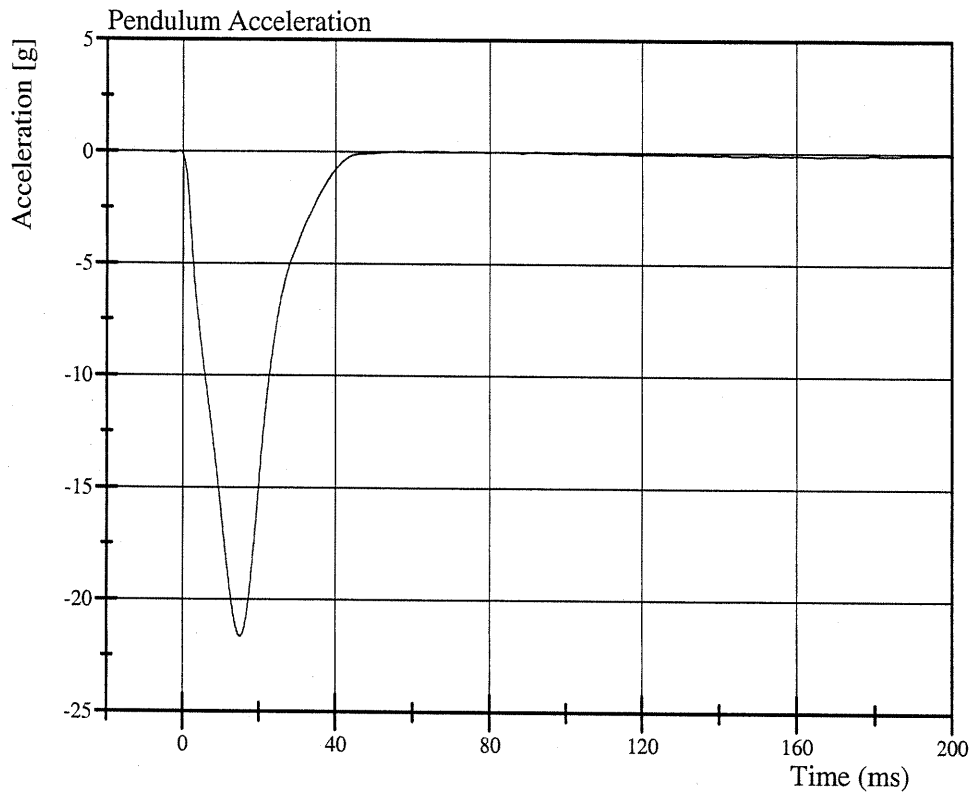


Transportation Research Center Inc.

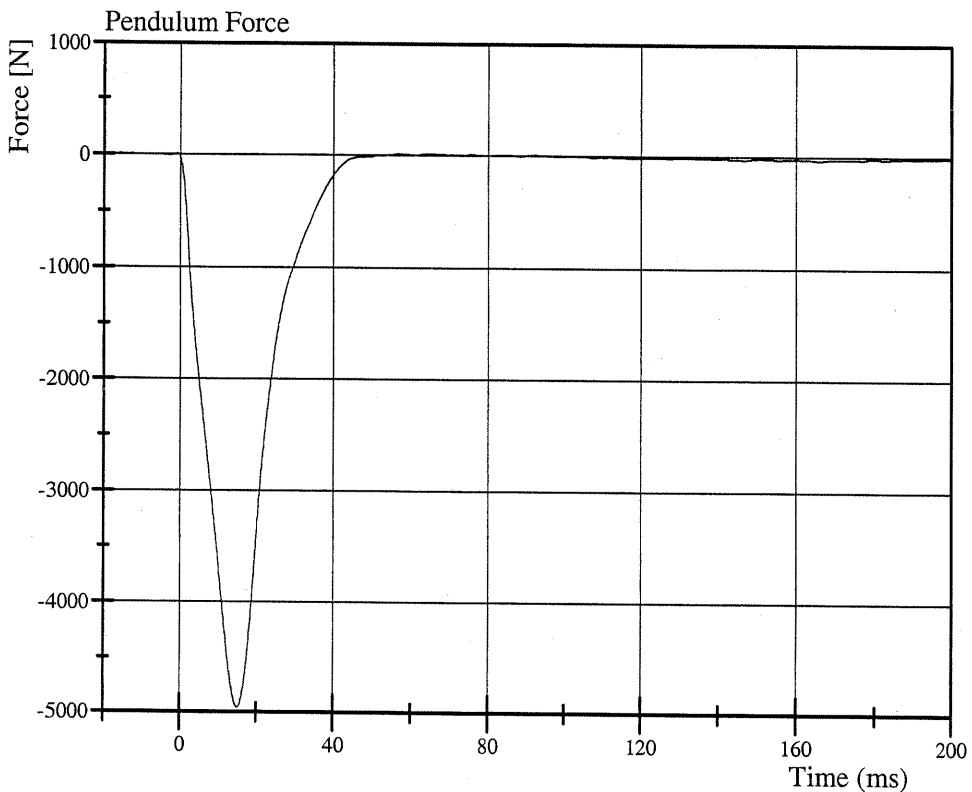
Left Lateral Pelvis

ES-2re Serial No. 010 Certification No. 5-1

Test Date: 07/06/2005



Filter Class: CFC_180
Max: 0.0 g at 65.3 ms
Min: -21.7 g at 15.0 ms



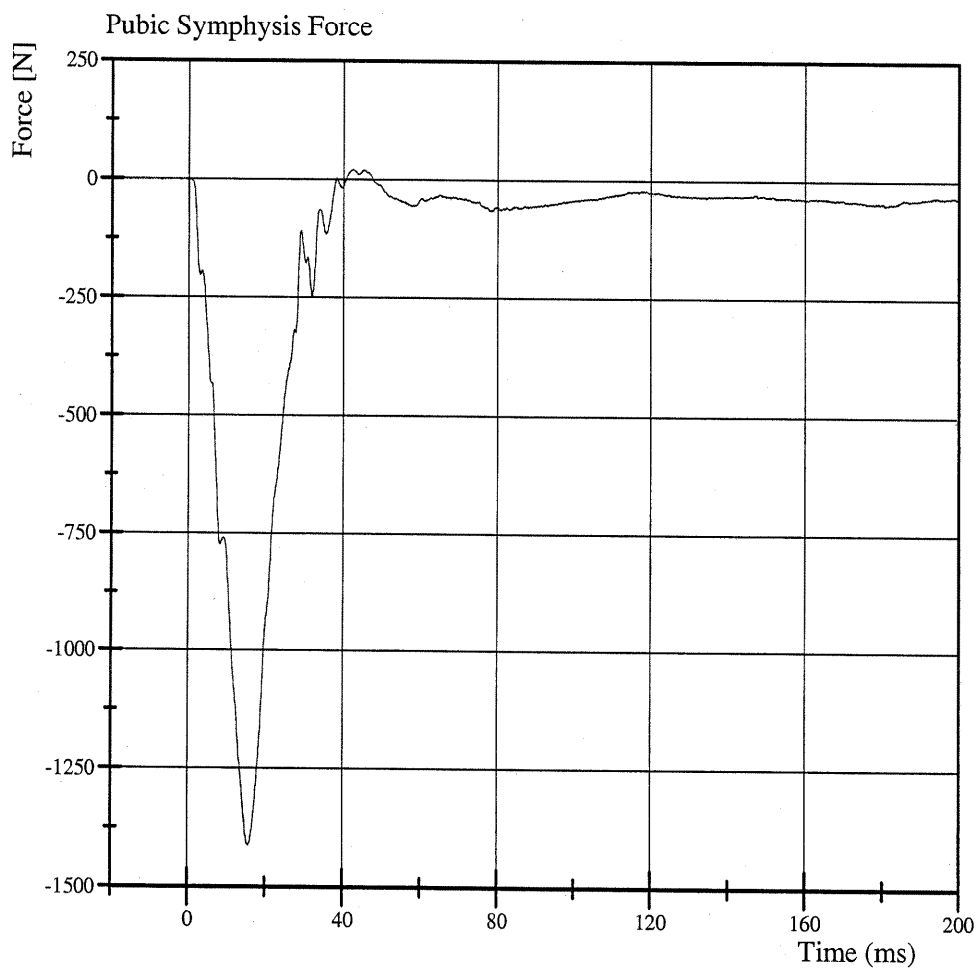
Filter Class: CFC_180
Max: 11.3 N at 65.3 ms
Min: -4,960.4 N at 15.0 ms

Transportation Research Center Inc.

Left Lateral Pelvis

ES-2re Serial No. 010 Certification No. 5-1

Test Date: 07/06/2005



Filter Class: CFC_600

Max: 20.9 N at 42.4 ms

Min: -1,412.0 N at 15.7 ms

Appendix D

Miscellaneous Test 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
Used for 050707 Test

<u>Typical Test Measurements</u>	<u>Channel Class</u>
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Integration for velocity or displacement	180
Anthropomorphic Test Device	
Head accelerations	1000
Upper neck force	1000
Upper neck moment	600
Lower neck force	1000
Lower neck moment	600
Shoulder force	600
Upper spine acceleration	180
Upper rib Y-axis acceleration	180
Mid rib Y-axis acceleration	180
Lower rib Y-axis acceleration	180
Upper rib deflection	180
Middle rib deflection	180
Lower rib deflection	180
Lower spine acceleration	180
Torso force	600
Torso moment	600
T12 force	600
T12 moment	600
Abdomen front force	600
Abdomen mid force	600
Abdomen rear force	600
Pubic symphysis force	600
Right femur force	600
Right femur moment	600
Left femur force	600
Left femur moment	600
Pelvis acceleration	1000

Frequency Response Classes, Cont'd.
Used for 050707 Test

<u>Typical Test Measurements</u>	<u>Channel Class</u>
Anthropomorphic Test Device	
Upper spine acceleration	FIR
Lower spine acceleration	FIR
Upper rib acceleration	FIR
Mid rib acceleration	FIR
Lower rib acceleration	FIR
Pelvis acceleration	FIR
TTI acceleration	FIR

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 050707

Ref	Channel Name	Transducer ID	ISO Signal Identifier	Description	Polarity	FScale	Units
1	DAU3184.01	P45717	M0VEHCCG0000ACXA	MDB Center of Gravity X-axis Acceleration	Bipolar	600	g
2	DAU3184.03	P45731	M0VEHCCG0000ACYA	MDB Center of Gravity Y-axis Acceleration	-Bipolar	600	g
3	DAU3184.04	P45728	M0VEHCCG0000ACZA	MDB Center of Gravity Z-axis Acceleration	-Bipolar	600	g
4	DAU3184.05	P40056	M7FRAM000000ACXA	MDB Left Rear X-axis Acceleration (on left frame over axle)	Bipolar	600	g
5	DAU3184.06	P42135	M7FRAM000000ACYA	MDB Left Rear Y-axis Acceleration (on left frame over axle)	Bipolar	600	g
6	DAU3184.Digital	Bit.00	M3CONT000000EV00	MDB Right Side Contact Switch	Bipolar	1	Logic
7	DAU3184.Digital	Bit.01	M1CONT000000EV00	MDB Left Side Contact Switch	Bipolar	1	Logic

Channel Report Test Number 050707

Ref	Channel Name	Transducer ID	ISO Signal Identifier	Description	Polarity	FScale	Units	Assembly
1	DAU202.Trigger	Trig D1	10ZERO000000EV00	EVENT	Bipolar		1 Logic	
2	DAU202.01	01G18-F01	11HEADCG00E2ACXA	Head Accel X	Bipolar	800 g		1-009 ES-2re FTSS.001
3	DAU202.02	03F03E29-N02	11HEADCG00E2ACYA	Head Accel Y	Bipolar	800 g		1-009 ES-2re FTSS.002
4	DAU202.03	01G18-F12	11HEADCG00E2ACZA	Head Accel Z	-Bipolar	800 g		1-009 ES-2re FTSS.003
5	DAU202.04	B02A25-N05	11HEADLE00E2ACXA	Head (LT) Accel X	Bipolar	800 g		1-009 ES-2re FTSS.004
6	DAU202.05	03F03F09-N04	11HEADLE00E2ACZA	Head (LT) Accel Z	-Bipolar	800 g		1-009 ES-2re FTSS.005
7	DAU202.06	03E03E21-M17	11HEADFR00E2ACYA	Head (FT) Accel Y	Bipolar	800 g		1-009 ES-2re FTSS.006
8	DAU202.07	02A18-N01	11HEADFR00E2ACZA	Head (FT) Accel Z	-Bipolar	800 g		1-009 ES-2re FTSS.007
9	DAU202.08	03D03D16-F12	11HEADUP00E2ACXA	Head (TP) Accel X	Bipolar	800 g		1-009 ES-2re FTSS.008
10	DAU202.09	03D03D16-F07	11HEADUP00E2ACYA	Head (TP) Accel Y	Bipolar	800 g		1-009 ES-2re FTSS.009
11	DAU202.10	IF-240-105-FX	11NECKUP00E2FOXA	Neck Force X	Bipolar	9786 N		1-009 ES-2re FTSS.010
12	DAU202.11	IF-240-105-FY	11NECKUP00E2FOYA	Neck Force Y	Bipolar	9786 N		1-009 ES-2re FTSS.011
13	DAU202.12	IF-240-105-FZ	11NECKUP00E2FOZA	Neck Force Z	Bipolar	15124 N		1-009 ES-2re FTSS.012
14	DAU202.13	IF-240-105-MX	11NECKUP00E2MOXA	Neck Moment X	Bipolar	296.6 N-m		1-009 ES-2re FTSS.013
15	DAU202.14	IF-240-105-MY	11NECKUP00E2MOYA	Neck Moment Y	Bipolar	296.6 N-m		1-009 ES-2re FTSS.014
16	DAU202.15	IF-240-105-MZ	11NECKUP00E2MOZA	Neck Moment Z	Bipolar	296.6 N-m		1-009 ES-2re FTSS.015
17	DAU202.16	IF-221-110-FX	11NECKLO00E2FOXA	Neck Lower Force X	Bipolar	12000 N		1-009 ES-2re FTSS.016
18	DAU202.17	IF-221-110-FY	11NECKLO00E2FOYA	Neck Lower Force Y	Bipolar	12000 N		1-009 ES-2re FTSS.017
19	DAU202.18	IF-221-110-FZ	11NECKLO00E2FOZA	Neck Lower Force Z	Bipolar	14000 N		1-009 ES-2re FTSS.018
20	DAU202.19	IF-221-110-MX	11NECKLO00E2MOXA	Neck Lower Moment X	Bipolar	450 N-m		1-009 ES-2re FTSS.019
21	DAU202.20	IF-221-110-MY	11NECKLO00E2MOYA	Neck Lower Moment Y	Bipolar	450 N-m		1-009 ES-2re FTSS.020
22	DAU202.21	IF-221-110-MZ	11NECKLO00E2MOZA	Neck Lower Moment Z	Bipolar	300 N-m		1-009 ES-2re FTSS.021
23	DAU202.22	IF-317-119-FX	11SHLDLE00E2FOXA	Shoulder Left Force X	Bipolar	4000 N		1-009 ES-2re FTSS.022
24	DAU202.23	IF-317-119-FY	11SHLDLE00E2FOYA	Shoulder Left Force Y	Bipolar	8000 N		1-009 ES-2re FTSS.023
25	DAU202.24	IF-317-119-FZ	11SHLDLE00E2FOZA	Shoulder Left Force Z	Bipolar	4000 N		1-009 ES-2re FTSS.024
26	DAU202.25	00L13-F10	11SPIN0100E2ACXA	Upper Spine X	Bipolar	400 g		1-009 ES-2re FTSS.025
27	DAU202.26	01G25-N13	11SPIN0100E2ACYA	Upper Spine Y	Bipolar	400 g		1-009 ES-2re FTSS.026
28	DAU202.27	01H02-N05	11SPIN0100E2ACZA	Upper Spine Z	Bipolar	400 g		1-009 ES-2re FTSS.027
29	DAU202.28	IF-441-102-FX	11BAPL0000E2FOXA	Torso Back Plate Force X	Bipolar	2980 N		1-009 ES-2re FTSS.028
30	DAU202.29	IF-441-102-FY	11BAPL0000E2FOYA	Torso Back Plate Force Y	Bipolar	2980 N		1-009 ES-2re FTSS.029
31	DAU202.30	IF-441-102-MY	11BAPL0000E2MOYA	Torso Back Plate Moment Y	Bipolar	160 N-m		1-009 ES-2re FTSS.030
32	DAU202.31	IF-441-102-MZ	11BAPL0000E2MOZA	Torso Back Plate Moment Z	Bipolar	160 N-m		1-009 ES-2re FTSS.031
33	DAU202.32	03F03F09-N06	11RIBSLU00E2ACYA	Upper Rib Accel Y	Bipolar	800 g		1-009 ES-2re FTSS.032
34	DAU712.01	01G25-N03	11RIBSLM00E2ACYA	Mid Rib Accel Y	Bipolar	800 g		1-009 ES-2re FTSS.033
35	DAU712.02	01G18-F02	11RIBSLL00E2ACYA	Lower Rib Accel Y	Bipolar	800 g		1-009 ES-2re FTSS.034

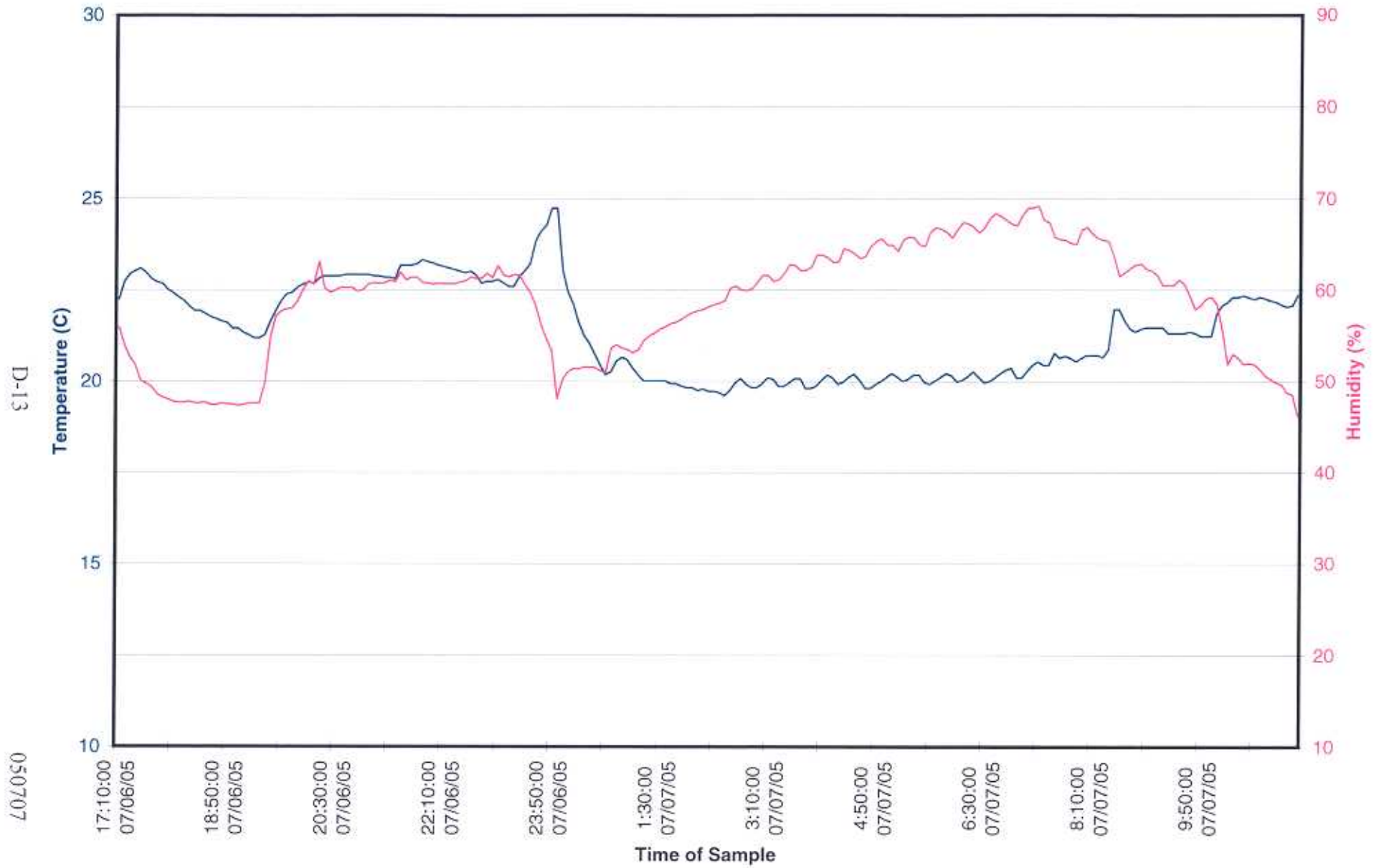
36	DAU712.03	CST-009URD	11RIBSLU00E2DSYA	Upper Rib Disp. Y	-Bipolar	75 mm	1-009 ES-2re FTSS.035
37	DAU712.04	CST-009MRD	11RIBSLM00E2DSYA	Mid Rib Disp. Y	-Bipolar	75 mm	1-009 ES-2re FTSS.036
38	DAU712.05	CST-009LRD	11RIBSLL00E2DSYA	Lower Rib Disp. Y	-Bipolar	75 mm	1-009 ES-2re FTSS.037
39	DAU712.06	03E03E21-M18	11SPIN1200E2ACXA	Lower Spine X	Bipolar	400 g	1-009 ES-2re FTSS.038
40	DAU712.07	03E03E21-M02	11SPIN1200E2ACYA	Lower Spine Y	-Bipolar	400 g	1-009 ES-2re FTSS.039
41	DAU712.08	98H10-F17	11SPIN1200E2ACZA	Lower Spine Z	-Bipolar	400 g	1-009 ES-2re FTSS.040
42	DAU712.09	IF-420-103-FX	11SPIN1200E2FOXA	Lower Spine Force X	Bipolar	13789.5 N	1-009 ES-2re FTSS.041
43	DAU712.10	IF-420-103-FY	11SPIN1200E2FOYA	Lower Spine Force Y	Bipolar	13789.5 N	1-009 ES-2re FTSS.042
44	DAU712.11	IF-420-103-MX	11SPIN1200E2MOXA	Lower Spine Moment X	Bipolar	994 N-m	1-009 ES-2re FTSS.043
45	DAU712.12	IF-420-103-MY	11SPIN1200E2MOYA	Lower Spine Moment Y	Bipolar	994 N-m	1-009 ES-2re FTSS.044
46	DAU712.13	IF-413-104-FY	11LUSP0000E2FOYA	Lumbar Force Y	Bipolar	5000 N	1-009 ES-2re FTSS.045
47	DAU712.14	IF-413-104-FZ	11LUSP0000E2FOZA	Lumbar Force Z	Bipolar	7000 N	1-009 ES-2re FTSS.046
48	DAU712.15	IF-413-104-MX	11LUSP0000E2MOXA	Lumbar Moment X	Bipolar	225 N-m	1-009 ES-2re FTSS.047
49	DAU712.16	IF-600-122-FY	11ABDOLEFRE2FOYA	Front Abdominal Force Y	Bipolar	4893 N	1-009 ES-2re FTSS.048
50	DAU712.17	IF-600-123-FY	11ABDOLEMIE2FOYA	Mid Abdominal Force Y	Bipolar	4893 N	1-009 ES-2re FTSS.049
51	DAU712.18	IF-600-124-FY	11ABDOLEREE2FOYA	Rear Abdominal Force Y	Bipolar	4893 N	1-009 ES-2re FTSS.050
52	DAU712.19	IF-556-115-FY	11PUBC0000E2FOYA	Pubic Force Y	Bipolar	20000 N	1-009 ES-2re FTSS.051
53	DAU712.20	03E03E18-F06	11PELVCG00E2ACXA	Pelvis Accel X	-Bipolar	800 g	1-009 ES-2re FTSS.052
54	DAU712.21	01G25-N04	11PELVCG00E2ACYA	Pelvis Accel Y	-Bipolar	800 g	1-009 ES-2re FTSS.053
55	DAU712.22	03D03D16-F16	11PELVCG00E2ACZA	Pelvis Accel Z	Bipolar	800 g	1-009 ES-2re FTSS.054
56	DAU712.24	IF-625-135-FX	11FEMRLE00E2FOXA	Left Femur Force X	Bipolar	13344.7 N	1-009 ES-2re FTSS.055
57	DAU712.25	IF-625-135-FY	11FEMRLE00E2FOYA	Left Femur Force Y	Bipolar	13344.7 N	1-009 ES-2re FTSS.056
58	DAU712.26	IF-625-135-FZ	11FEMRLE00E2FOZA	Left Femur Force Z	Bipolar	22241 N	1-009 ES-2re FTSS.057
59	DAU712.27	IF-625-135-MX	11FEMRLE00E2MOXA	Left Femur Moment X	Bipolar	339 N-m	1-009 ES-2re FTSS.058
60	DAU712.28	IF-625-135-MY	11FEMRLE00E2MOYA	Left Femur Moment Y	Bipolar	339 N-m	1-009 ES-2re FTSS.059
61	DAU712.29	IF-625-135-MZ	11FEMRLE00E2MOZA	Left Femur Moment Z	Bipolar	339 N-m	1-009 ES-2re FTSS.060
62	DAU712.30	IF-625-136-FX	11FEMRRI00E2FOXA	Right Femur Force X	Bipolar	13344.7 N	1-009 ES-2re FTSS.061
63	DAU712.31	IF-625-136-FY	11FEMRRI00E2FOYA	Right Femur Force Y	Bipolar	13344.7 N	1-009 ES-2re FTSS.062
64	DAU712.32	IF-625-136-FZ	11FEMRRI00E2FOZA	Right Femur Force Z	Bipolar	22241 N	1-009 ES-2re FTSS.063
65	DAU732.01	IF-625-136-MX	11FEMRRI00E2MOXA	Right Femur Moment X	Bipolar	339 N-m	1-009 ES-2re FTSS.064
66	DAU732.02	IF-625-136-MY	11FEMRRI00E2MOYA	Right Femur Moment Y	Bipolar	339 N-m	1-009 ES-2re FTSS.065
67	DAU732.03	IF-625-136-MZ	11FEMRRI00E2MOZA	Right Femur Moment Z	Bipolar	339 N-m	1-009 ES-2re FTSS.066
68	DAU732.04	04J04J07-M08	14HEADCG00E2ACXA	Head Accel X	-Bipolar	800 g	4-010 ES-2re FTSS.001
69	DAU732.05	03D03D16-F02	14HEADCG00E2ACYA	Head Accel Y	-Bipolar	800 g	4-010 ES-2re FTSS.002
70	DAU732.06	03F03E30-M02	14HEADCG00E2ACZA	Head Accel Z	-Bipolar	800 g	4-010 ES-2re FTSS.003
71	DAU732.07	02I02I05-F13	14HEADLE00E2ACXA	Head (LT) Accel X	Bipolar	800 g	4-010 ES-2re FTSS.004
72	DAU732.08	01G25-N07	14HEADLE00E2ACZA	Head (LT) Accel Z	-Bipolar	800 g	4-010 ES-2re FTSS.005

73	DAU732.09	02I02I05-F17	14HEADFR00E2ACYA	Head (FT) Accel Y	Bipolar	800 g	4-010 ES-2re FTSS.006
74	DAU732.10	99H12-F03	14HEADFR00E2ACZA	Head (FT) Accel Z	-Bipolar	800 g	4-010 ES-2re FTSS.007
75	DAU732.11	B02A18-N21	14HEADUP00E2ACXA	Head (TP) Accel X	Bipolar	800 g	4-010 ES-2re FTSS.008
76	DAU732.12	03D03D09-N01	14HEADUP00E2ACYA	Head (TP) Accel Y	Bipolar	800 g	4-010 ES-2re FTSS.009
77	DAU732.13	IF-240-106-FX	14NECKUP00E2FOXA	Neck Force X	Bipolar	9786 N	4-010 ES-2re FTSS.010
78	DAU732.14	IF-240-106-FY	14NECKUP00E2FOYA	Neck Force Y	Bipolar	9786 N	4-010 ES-2re FTSS.011
79	DAU732.15	IF-240-106-FZ	14NECKUP00E2FOZA	Neck Force Z	Bipolar	15124 N	4-010 ES-2re FTSS.012
80	DAU732.16	IF-240-106-MX	14NECKUP00E2MOXA	Neck Moment X	Bipolar	296.6 N-m	4-010 ES-2re FTSS.013
81	DAU732.17	IF-240-106-MY	14NECKUP00E2MOYA	Neck Moment Y	Bipolar	296.6 N-m	4-010 ES-2re FTSS.014
82	DAU732.18	IF-240-106-MZ	14NECKUP00E2MOZA	Neck Moment Z	Bipolar	296.6 N-m	4-010 ES-2re FTSS.015
83	DAU732.19	IF-221-111-FX	14NECKLO00E2FOXA	Neck Lower Force X	Bipolar	12000 N	4-010 ES-2re FTSS.016
84	DAU732.20	IF-221-111-FY	14NECKLO00E2FOYA	Neck Lower Force Y	Bipolar	12000 N	4-010 ES-2re FTSS.017
85	DAU732.21	IF-221-111-FZ	14NECKLO00E2FOZA	Neck Lower Force Z	Bipolar	14000 N	4-010 ES-2re FTSS.018
86	DAU732.22	IF-221-111-MX	14NECKLO00E2MOXA	Neck Lower Moment X	Bipolar	450 N-m	4-010 ES-2re FTSS.019
87	DAU732.23	IF-221-111-MY	14NECKLO00E2MOYA	Neck Lower Moment Y	Bipolar	450 N-m	4-010 ES-2re FTSS.020
88	DAU732.24	IF-221-111-MZ	14NECKLO00E2MOZA	Neck Lower Moment Z	Bipolar	300 N-m	4-010 ES-2re FTSS.021
89	DAU732.25	IF-317-120-FX	14SHLDLE00E2FOXA	Shoulder Left Force X	Bipolar	4000 N	4-010 ES-2re FTSS.022
90	DAU732.26	IF-317-120-FY	14SHLDLE00E2FOYA	Shoulder Left Force Y	Bipolar	8000 N	4-010 ES-2re FTSS.023
91	DAU732.27	IF-317-120-FZ	14SHLDLE00E2FOZA	Shoulder Left Force Z	Bipolar	4000 N	4-010 ES-2re FTSS.024
92	DAU732.28	02I02I16-A15	14SPIN0100E2ACXA	Upper Spine X	Bipolar	400 g	4-010 ES-2re FTSS.025
93	DAU732.29	01G25-N02	14SPIN0100E2ACYA	Upper Spine Y	Bipolar	400 g	4-010 ES-2re FTSS.026
94	DAU732.30	03E03E21-M06	14SPIN0100E2ACZA	Upper Spine Z	Bipolar	400 g	4-010 ES-2re FTSS.027
95	DAU732.31	IF-441-104-FX	14BAPL0000E2FOXA	Torso Back Plate Force X	Bipolar	2980 N	4-010 ES-2re FTSS.028
96	DAU732.32	IF-441-104-FY	14BAPL0000E2FOYA	Torso Back Plate Force Y	Bipolar	2980 N	4-010 ES-2re FTSS.029
97	DAU3173.01	IF-441-104-MY	14BAPL0000E2MOYA	Torso Back Plate Moment Y	Bipolar	160 N-m	4-010 ES-2re FTSS.030
98	DAU3173.02	IF-441-104-MZ	14BAPL0000E2MOZA	Torso Back Plate Moment Z	Bipolar	160 N-m	4-010 ES-2re FTSS.031
99	DAU3173.03	03D03C27-N04	14RIBSLU00E2ACYA	Upper Rib Accel Y	Bipolar	800 g	4-010 ES-2re FTSS.032
100	DAU3173.04	03E03D30-N01	14RIBSLM00E2ACYA	Mid Rib Accel Y	Bipolar	800 g	4-010 ES-2re FTSS.033
101	DAU3173.05	03F03F09-N12	14RIBSLL00E2ACYA	Lower Rib Accel Y	Bipolar	800 g	4-010 ES-2re FTSS.034
102	DAU3173.06	CST-010U	14RIBSLU00E2DSYA	Upper Rib Disp. Y	-Bipolar	75 mm	4-010 ES-2re FTSS.035
103	DAU3173.07	CST-010M	14RIBSLM00E2DSYA	Mid Rib Disp. Y	-Bipolar	75 mm	4-010 ES-2re FTSS.036
104	DAU3173.09	CST-010L	14RIBSLL00E2DSYA	Lower Rib Disp. Y	-Bipolar	75 mm	4-010 ES-2re FTSS.037
105	DAU3173.10	00L13-F39	14SPIN1200E2ACXA	Lower Spine X	Bipolar	400 g	4-010 ES-2re FTSS.038
106	DAU3173.11	02A16-A12	14SPIN1200E2ACYA	Lower Spine Y	-Bipolar	400 g	4-010 ES-2re FTSS.039
107	DAU3173.12	01G25-N15	14SPIN1200E2ACZA	Lower Spine Z	-Bipolar	400 g	4-010 ES-2re FTSS.040
108	DAU3173.13	IF-420-102-FX	14SPIN1200E2FOXA	Lower Spine Force X	Bipolar	13789.5 N	4-010 ES-2re FTSS.041
109	DAU3173.14	IF-420-102-FY	14SPIN1200E2FOYA	Lower Spine Force Y	Bipolar	13789.5 N	4-010 ES-2re FTSS.042

110	DAU3173.15	IF-420-102-MX	14SPIN1200E2MOXA	Lower Spine Moment X	Bipolar	994 N	4-010 ES-2re FTSS.043
111	DAU3173.16	IF-420-102-MY	14SPIN1200E2MOYA	Lower Spine Moment Y	Bipolar	994 N	4-010 ES-2re FTSS.044
112	DAU3173.17	IF-413-105-FY	14LUSP0000E2FOYA	Lumbar Force Y	Bipolar	5000 N	4-010 ES-2re FTSS.045
113	DAU3173.18	IF-413-105-FZ	14LUSP0000E2FOZA	Lumbar Force Z	Bipolar	7000 N	4-010 ES-2re FTSS.046
114	DAU3173.19	IF-413-105-MX	14LUSP0000E2MOXA	Lumbar Moment X	Bipolar	225 N-m	4-010 ES-2re FTSS.047
115	DAU3173.20	IF-600-119-FY	14ABDOLEFRE2FOYA	Front Abdominal Force Y	Bipolar	4893 N	4-010 ES-2re FTSS.048
116	DAU3173.21	IF-600-120-FY	14ABDOLEMIE2FOYA	Mid Abdominal Force Y	Bipolar	4893 N	4-010 ES-2re FTSS.049
117	DAU3173.22	IF-600-121-FY	14ABDOLEREE2FOYA	Rear Abdominal Force Y	Bipolar	4893 N	4-010 ES-2re FTSS.050
118	DAU3173.23	IF-556-113-FY	14PUBC0000E2FOYA	Pubic Force Y	Bipolar	20000 N	4-010 ES-2re FTSS.051
119	DAU3173.24	03E03E21-M08	14PELVCG00E2ACXA	Pelvis Accel X	-Bipolar	800 g	4-010 ES-2re FTSS.052
120	DAU3173.25	02I02I10-N16	14PELVCG00E2ACYA	Pelvis Accel Y	-Bipolar	800 g	4-010 ES-2re FTSS.053
121	DAU3173.26	02A16-A08	14PELVCG00E2ACZA	Pelvis Accel Z	Bipolar	800 g	4-010 ES-2re FTSS.054
122	DAU3173.27	IF-625-109-FX	14FEMRLE00E2FOXA	Left Femur Force X	Bipolar	13344.6 N	4-010 ES-2re FTSS.055
123	DAU3173.28	IF-625-109-FY	14FEMRLE00E2FOYA	Left Femur Force Y	Bipolar	13344.6 N	4-010 ES-2re FTSS.056
124	DAU3173.29	IF-625-109-FZ	14FEMRLE00E2FOZA	Left Femur Force Z	Bipolar	22241 N	4-010 ES-2re FTSS.057
125	DAU3173.30	IF-625-109-MX	14FEMRLE00E2MOXA	Left Femur Moment X	Bipolar	339 N-m	4-010 ES-2re FTSS.058
126	DAU3173.31	IF-625-109-MY	14FEMRLE00E2MOYA	Left Femur Moment Y	Bipolar	339 N-m	4-010 ES-2re FTSS.059
127	DAU3173.32	IF-625-109-MZ	14FEMRLE00E2MOZA	Left Femur Moment Z	Bipolar	339 N-m	4-010 ES-2re FTSS.060
128	DAU3174.01	IF-625-137-FX	14FEMRRI00E2FOXA	Right Femur Force X	Bipolar	13344.7 N	4-010 ES-2re FTSS.061
129	DAU3174.02	IF-625-137-FY	14FEMRRI00E2FOYA	Right Femur Force Y	Bipolar	13344.7 N	4-010 ES-2re FTSS.062
130	DAU3174.03	IF-625-137-FZ	14FEMRRI00E2FOZA	Right Femur Force Z	Bipolar	22241 N	4-010 ES-2re FTSS.063
131	DAU3174.04	IF-625-137-MX	14FEMRRI00E2MOXA	Right Femur Moment X	Bipolar	339 N-m	4-010 ES-2re FTSS.064
132	DAU3174.05	IF-625-137-MY	14FEMRRI00E2MOYA	Right Femur Moment Y	Bipolar	339 N-m	4-010 ES-2re FTSS.065
133	DAU3174.06	IF-625-137-MZ	14FEMRRI00E2MOZA	Right Femur Moment Z	Bipolar	339 N-m	4-010 ES-2re FTSS.066
134	DAU3174.07	P45702	16SILBFR0000ACXA	Right Side Sill at Front Seat X-axis Acceleration	Bipolar	400 g	
135	DAU3174.08	P46001	16SILBFR0000ACYA	Right Side Sill at Front Seat Y-axis Acceleration	-Bipolar	1000 g	
136	DAU3174.09	P45689	16SILBFR0000ACZA	Right Side Sill at Front Seat Z-axis Acceleration	-Bipolar	400 g	
137	DAU3174.10	P41703	16SILBRE0000ACXA	Right Side Sill at Rear Seat X-axis Acceleration	Bipolar	400 g	
138	DAU3174.11	P39852	16SILBRE0000ACYA	Right Side Sill at Rear Seat Y-axis Acceleration	-Bipolar	1000 g	
139	DAU3174.12	P33531	16SILBRE0000ACZA	Right Side Sill at Rear Seat Z-axis Acceleration	-Bipolar	400 g	
140	DAU3174.13	P25874	18FORA000000ACXA	Rear Floorpan Above Axle X-axis Acceleration	Bipolar	1000 g	
141	DAU3174.14	P39863	18FORA000000ACYA	Rear Floorpan Above Axle Y-axis Acceleration	-Bipolar	1000 g	
142	DAU3174.15	P33806	18FORA000000ACZA	Rear Floorpan Above Axle Z-axis Acceleration	-Bipolar	1000 g	
143	DAU3174.16	P34297	14SILBRE0000ACYA	Left Side Sill at Rear Seat Y-axis Acceleration	Bipolar	1000 g	
144	DAU3174.17	P42215	14SILBFR0000ACYA	Left Side Sill at Front Seat Y-axis Acceleration	Bipolar	1000 g	
145	DAU3174.18	P39329	16VEHCRE0000ACYA	Right Rear Occupant Compartment Y-axis Accel	Bipolar	1500 g	
146	DAU3174.19	P38651	14BPILLO0000ACYA	Left Lower B-Post Y-axis Accel	-Bipolar	1500 g	

147	DAU3174.20	P30339	14BPILMI0000ACYA	Left Middle B-Post Y-axis Accel	-Bipolar	1500 g
148	DAU3174.21	P27408	11APILLO0000ACYA	Left Lower A-Post Y-axis Accel	-Bipolar	1500 g
149	DAU3174.22	P33565	11APILMI0000ACYA	Left Middle A-Post Y-axis Accel	-Bipolar	1500 g
150	DAU3174.23	P42222	11SETRFR0000ACYA	Left Front Seat Track Y-axis Acceleration	Bipolar	1500 g
151	DAU3174.24	P33575	14SETRLERE00ACYA	Left Rear Seat Track Y-axis Acceleration	-Bipolar	1500 g
152	DAU3174.25	P46031	10VEHCCG0000ACXA	Vehicle Center of Gravity X-axis Acceleration	Bipolar	1000 g
153	DAU3174.26	P46047	10VEHCCG0000ACYA	Vehicle Center of Gravity Y-axis Acceleration	-Bipolar	1000 g
154	DAU3174.27	P46045	10VEHCCG0000ACZA	Vehicle Center of Gravity Z-axis Acceleration	-Bipolar	1000 g
155	DAU3174.28	P39982	12ENGN000000ACXA	Top of Engine X-axis Acceleration	Bipolar	1000 g
156	DAU3174.29	P39845	12ENGN000000ACYA	Top of Engine Y-axis Acceleration	Bipolar	1000 g
157	DAU3174.30	P41746	12VEHC000000ACXA	Firewall X-axis Acceleration	Bipolar	1000 g
158	DAU3174.31	P41189	12VEHC000000ACYA	Firewall Y-axis Acceleration	-Bipolar	1000 g
159	DAU3174.32	P34978	13ROFR000000ACXA	Right Roof Rail X-axis Acceleration	Bipolar	1000 g
160	DAU3189.01	P39855	13ROFR000000ACYA	Right Roof Rail Y-axis Acceleration	-Bipolar	1000 g
161	DAU3189.02	P34005	11DOOR000001ACYA	Left Front Door centerline 430 mm above ground Y-axis accel (NHTSA #6)	Bipolar	1000 g
162	DAU3189.03	P44289	11DOOR000002ACYA	Left Front Door mid-rear 430 mm above ground Y-axis accel (NHTSA #8)	Bipolar	1000 g
163	DAU3189.04	P33556	11DOOR000003ACYA	Left Front Door upper centerline 685 mm above ground Y-axis accel (NHTSA #9)	Bipolar	1000 g
164	DAU3189.05	P46013	14DOOR000001ACYA	Left Rear Door mid-rear 685 mm above ground Y-axis accel (NHTSA #10)	Bipolar	1000 g
165	DAU3189.06	P45763	14DOOR000002ACYA	Left Rear Door upper centerline 685 mm above ground Y-axis accel (NHTSA #11)	Bipolar	1000 g
166	DAU3189.07	ABFire1	11SENS000001VO0A	Side torso Airbag fire	Bipolar	5 V
167	DAU3189.08	ABFire2	11SENS000002VO0A	Side curtain airbag fire	Bipolar	5 V
168	DAU3189.09	ABFire3	13SENS000001VO0A	Non-struck Side torso Airbag fire (disable bag)	Bipolar	5 V
169	DAU3189.10	ABFire4	13SENS000002VO0A	Non-struck Side curtain airbag fire (disable bag)	Bipolar	5 V
170	DAU3189.Digital	Bit.00	11CONT000001EV00	Dummy head contact	Bipolar	1 Logic
171	DAU3189.Digital	Bit.01	11CONT000002EV00	Dummy shoulder contact	Bipolar	1 Logic
172	DAU3189.Digital	Bit.03	11CONT000003EV00	Dummy torso contact	Bipolar	1 Logic
173	DAU3189.Digital	Bit.04	11CONT000004EV00	Dummy leg contact	Bipolar	1 Logic
174	DAU3189.Digital	Bit.05	14CONT000001EV00	Dummy head contact	Bipolar	1 Logic
175	DAU3189.Digital	Bit.06	14CONT000002EV00	Dummy shoulder contact	Bipolar	1 Logic
176	DAU3189.Digital	Bit.07	14CONT000003EV00	Dummy torso contact	Bipolar	1 Logic
177	DAU3189.Digital	Bit.08	14CONT000004EV00	Dummy leg contact	Bipolar	1 Logic

FMVSS 214 LEFT SIDE IMPACT 2005 VW JETTA / 050707





CERTIFICATE OF CONFORMITY

Certificate No. 19996
Serial No. EH 341

Cellbond Composites Ltd
5 Stukeley Business Centre
Blackstone Road
Huntingdon
Cambridgeshire
PE29 6EF
United Kingdom

Product Description	FMVSS 214 - 1750x740x550mm Spec with 1.6 3/8 5052 Painted Grey
Cellbond Part No.	70NHTSASIUS G

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	Test Results	GR No.	Blk No.
1	27020-27	P140923-B00	N/A
2	27557-64	P142611-B01	N/A

Declaration.

The above moving deformable barrier has been manufactured in accordance with the provisions of FMVSS 214.

Additional Information...

company registration
England 1944904

registered office
5 Stukeley Business Centre
Blackstone Road
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Cambridgeshire
PE29 6EF

Cellbond Offices
United Kingdom
Germany
United States of America



0507069000
ISO9001:2000



NHTSA DEFORMABLE SIDE IMPACT BARRIER
ALUMINIUM HONEYCOMB CERTIFICATION
STATIC TEST RESULTS

MAIN BLOCK
Core: 1.6 3/8 5052

Required Crush Strength
42.5 PSI to 47.5 PSI

Test No: 27020-27

GR No: P140923-B00
Block No: N/A

	Crush Strength (PSI)			RESULT
	0.25 to 0.38 inch	0.38 to 0.52 inch	0.52 to 0.65 inch	
Sample* 1	42.858	44.056	43.101	PASS
Sample 2	44.691	45.770	45.345	PASS
Sample 3	43.714	44.150	43.778	PASS
Sample 4	44.240	44.602	45.382	PASS
Sample 5	43.495	43.963	44.195	PASS
Sample 6	43.285	42.874	44.258	PASS
Sample 7	43.464	44.911	44.664	PASS
Sample 8	45.012	45.278	45.481	PASS

Seven out of the eight samples must fulfil the crush strength
requirement in order to pass the block certification

*Sample size and location as per R94.

RESULT: PASSED

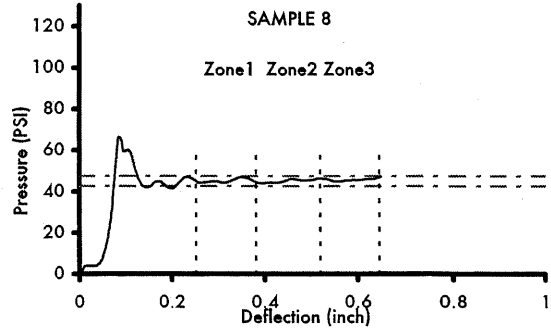
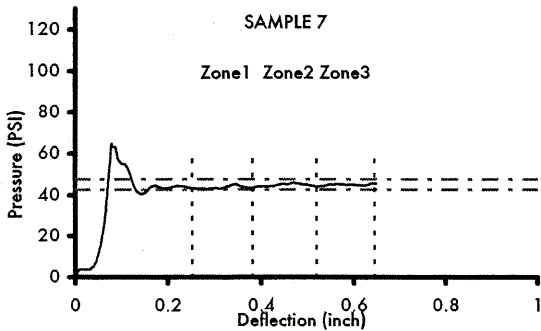
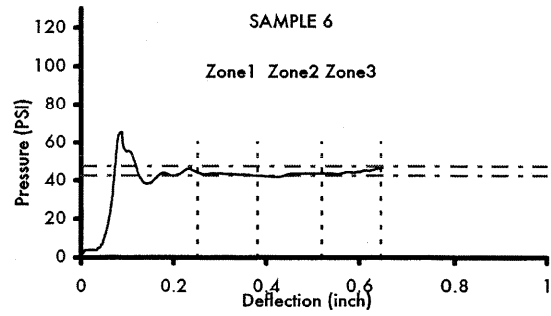
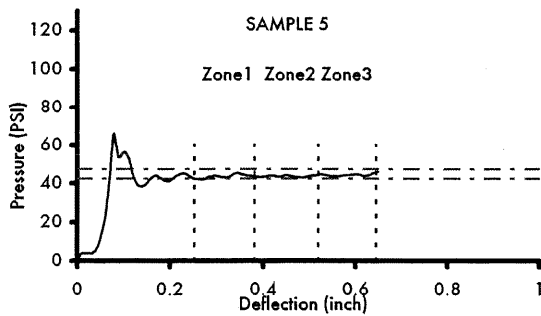
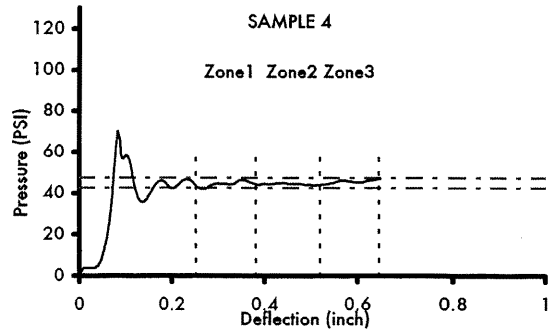
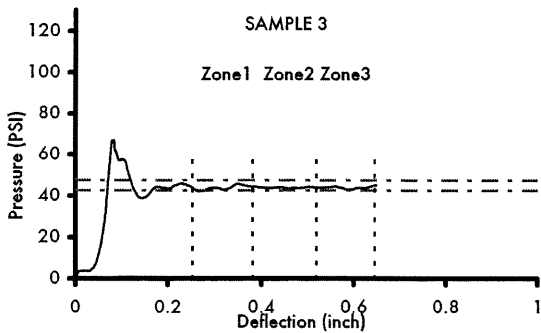
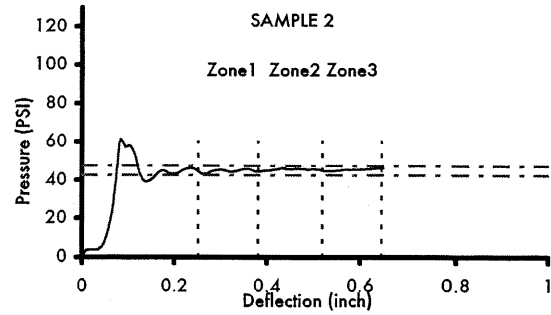
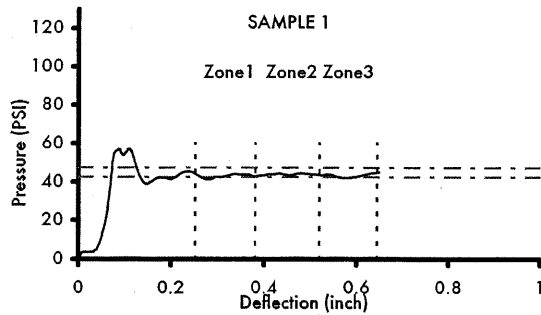
NHTSA DEFORMABLE SIDE IMPACT BARRIER
MAIN BLOCK

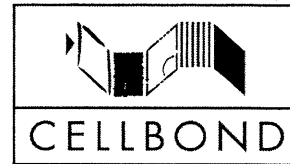
Honeycomb Type: 1.6 3/8 5052
Higher Acceptable Crush Strength Limit: 47.5 PSI
Lower Acceptable Crush Strength Limit: 42.5 PSI

Section 1: 0.25 - 0.38 inch
Section 2: 0.38 - 0.52 inch
Section 3: 0.52 - 0.65 inch
Speed: 0.25 inch/min
Block No: N/A

Test No: 27020-27

GR No: P140923-B00





NHTSA DEFORMABLE SIDE IMPACT BARRIER
ALUMINIUM HONEYCOMB CERTIFICATION
STATIC TEST RESULTS

BUMPER

Core: 5.2 1/4 3003

Required Crush Strength
230 PSI to 260 PSI

Test No: 27557-64

GR No: P142611-B01

Block No: N/A

	Crush Strength (PSI)			RESULT
	0.25 to 0.38	0.38 to 0.52	0.52 to 0.65	
Sample* 1	251.93	249.17	247.96	PASS
Sample 2	256.67	257.42	257.66	PASS
Sample 3	253.33	252.23	252.03	PASS
Sample 4	255.75	254.79	253.81	PASS
Sample 5	258.12	258.58	257.48	PASS
Sample 6	251.35	248.38	246.05	PASS
Sample 7	253.79	252.83	253.92	PASS
Sample 8	243.90	242.13	237.15	PASS

Seven out of the eight samples must fulfil the crush strength
requirement in order to pass the block certification

*Sample size and location as per R94.

RESULT: PASSED

NHTSA DEFORMABLE SIDE IMPACT BARRIER BUMPER

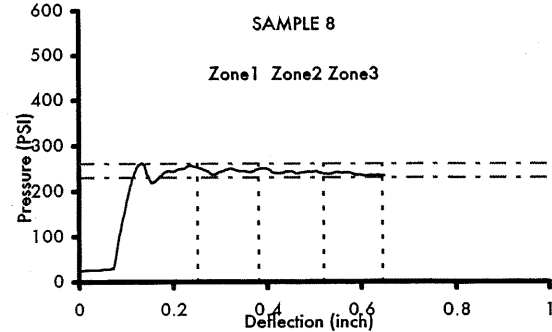
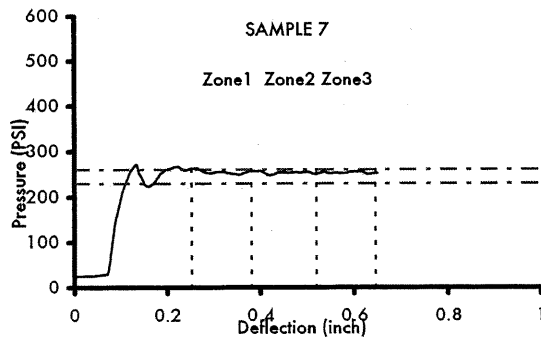
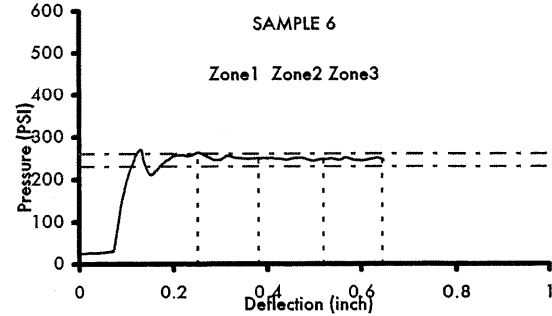
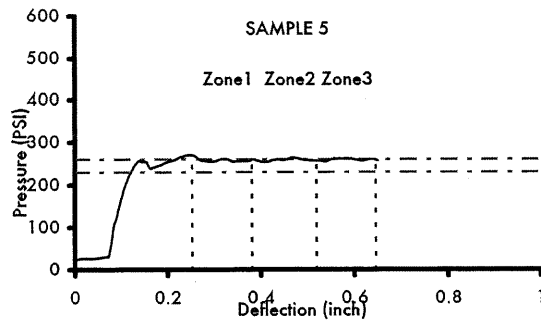
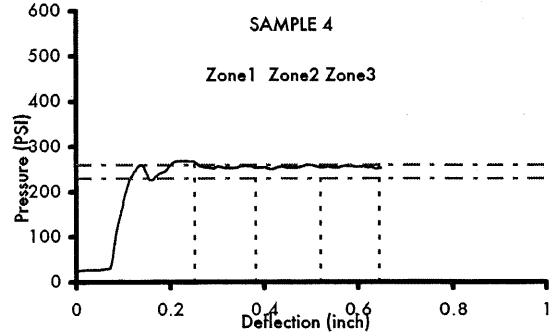
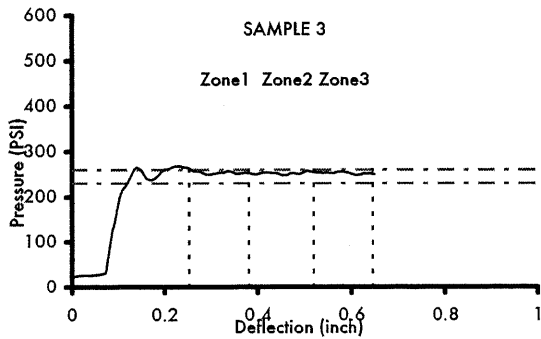
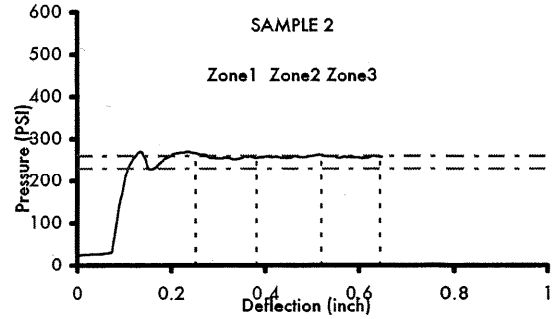
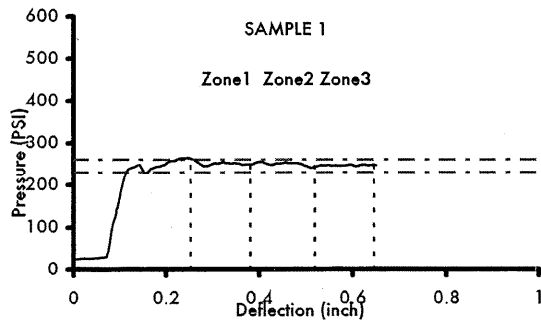
Honeycomb Type: 5.2 1/4 3003
Higher Acceptable Crush Strength Limit: 260 PSI
Lower Acceptable Crush Strength Limit: 230 PSI

Section 1: 0.25 - 0.38 inch
Section 2: 0.38 - 0.52 inch
Section 3: 0.52 - 0.65 inch
Speed: 0.25 inch/min

Test No: 27557-64

GR No: P142611-B01

Block No: N/A



TEST VEHICLE INFORMATION (FORM 1)

Vehicle Model Year and Make: 2006 Volkswagen
 Vehicle Model and Body Style: Jetta sedan

1. NOMINAL DESIGN RIDING POSITION –
 For adjustable driver, front passenger, and 2nd row seat backs, describe how to position the inclinometer to measure the seat back angle.

1.1 Seat back angle for driver's seat:

- A. Seat back angle at forward-most locking position or forward stop (measured from upright position) = _____ degrees
 Seat back angle at test position (measured from upright position) = _____ degrees

- B. If detents are also available, please provide the following:

Total number of detents: _____

Test detent (with the forward-most detent defined as 0): _____

Seat back angle = 21° measured at dummy torso with 3D H-Point machine

1.2 Seat back angle for front passenger's seat:

- A. Seat back angle at forward-most locking position or forward stop (measured from upright position) = _____ degrees
 Seat back angle at test position (measured from upright position) = _____ degrees

- B. If detents are also available, please provide the following:

Total number of detents: _____

Test detent (with the forward-most detent defined as 0): _____

Seat back angle = 21° measured at dummy torso with 3D H-Point machine

1.3 Seat back angle for 2nd row seat (if applicable):

- A. Seat back angle at forward-most locking position or forward stop (measured from upright position) = _____ degrees
 Seat back angle at test position (measured from upright position) = _____ degrees

- B. If detents are also available, please provide the following:

Total number of detents: _____

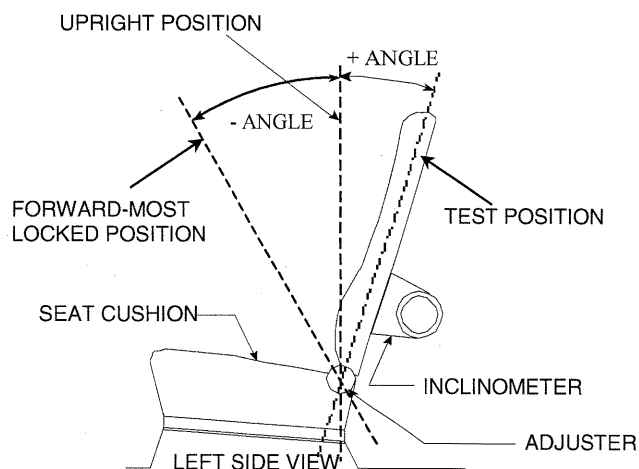
Test detent (with the forward-most detent defined as 0): _____

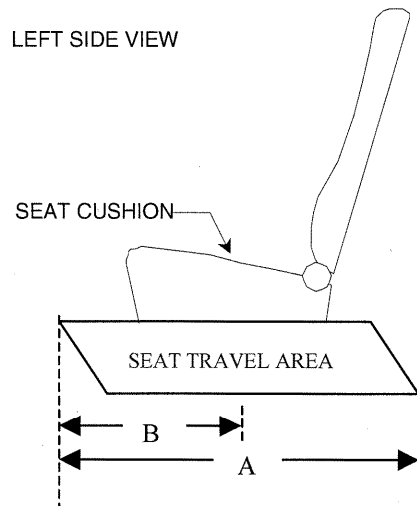
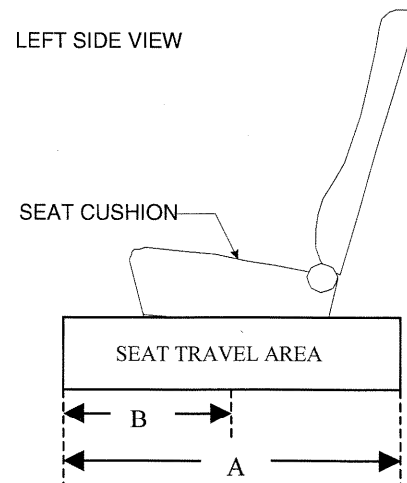
The rear seats are not adjustable

2. SEAT FORE AND AFT POSITIONS –

Provide instructions for positioning the driver and front outboard passenger seat(s) in the center of fore and aft travel. Forward-most measurements and rearward-most measurements should be taken from the bottom of the seat cushion (including the plastic base if applicable). (For vehicle seats equipped with a height adjuster, see diagrams on page 2 to assist in attaining proper measurements specific to seat travel area type.

NOTE: A = Complete range of travel and B = A/2)



SEAT TRAVEL AREA TYPE 1SEAT TRAVEL AREA TYPE 2

2.1. Position of the driver's seat:

A. Complete range of travel (A): Type1 290 millimeters
 Distance from the forward-most position to the test position (B): 145 millimeters

B. If detents are also available, please provide the following:

Total number of detents: _____

Test detent (with the forward-most detent defined as 0): _____

2.2. Position of the front passenger's seat:

A. Complete range of travel (A): Type1 290 millimeters
 Distance from the forward-most position to the test position (B): 245 millimeters

B. If detents are also available, please provide the following:

Total number of detents: _____

Test detent (with the forward-most detent defined as 0): _____

2.3. Position of the rear passengers' seats (if applicable):

A. Complete range of travel (A): _____ millimeters
 Distance from the forward-most position to the test position (B): _____ millimeters

B. If detents are also available, please provide the following:

Total number of detents: _____

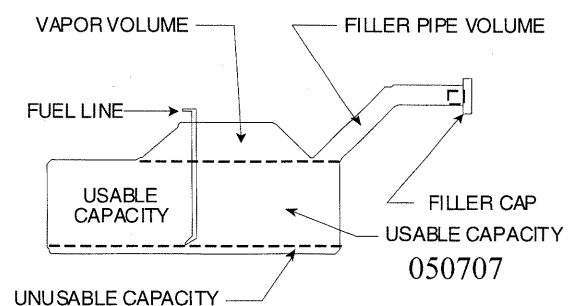
Test detent: _____

3. FUEL TANK CAPACITY DATA –

- 3.1 A. "Usable Capacity" of standard equipment fuel tank = 14,53 gallons.
 B. "Usable Capacity" of optional equipment fuel tank = --- gallons.
~~C. Capacity used when certification testing to requirements of FMVSS 301 = 13.05 gallons.~~

D-20

VEHICLE FUEL TANK ASSEMBLY



050707

Operational instructions:

Suggested methods for draining:

 open a fuel line quick-connector (black fuel-line right underside)
 give 12V Voltage to the fuelpump, to find under the right rear seat
 (red=+ black=-)

3.2 Amount of Stoddard solvent added to vehicle for certification test = 13,05 (95%) gallons.

3.3 Is vehicle equipped with electric fuel pump? X YES NO

If YES, does pump normally operate when vehicle's electrical system is activated?

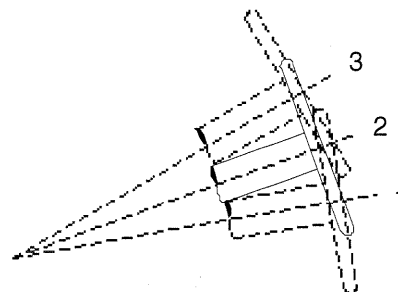
 X YES NO

If YES, explain the vehicle operating conditions under which the fuel pump will pump fuel:

4. STEERING COLUMN ADJUSTMENTS –

STEERING COLUMN ASSEMBLY

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions.



Does this vehicle have a telescoping steering column? X YES NO

LEFT SIDE VIEW

Please provide the following:

A. Angle at upper-most locking position = degrees

Angle at test position = degrees

Please adjust at the geometrical center, the column can be fixed in any position within full range

B. If detents are also available, please provide the following:

Total number of detents: -

Test detent (with the upper-most detent defined as 0): -

5. SEATING REFERENCE POINT (SRP) – (Polar Coordinate Measures from Actual Tests (**Inches**))

	Door Striker To H-point	Door Striker to OB Knee	Nose to RIM	Knee Spread
Driver (Manual Seat)				
Driver (Power Seat) 1st contact with rim & outside to outside for knee			17.1	12.6
Passenger (Manual Seat)				
Passenger (Power Seat) Outside to outside for knee				10.2
Second Row Occupant (Side impacts only)				

6. FUEL TANK LOCATION –

Provide drawing (or description) that shows the undercarriage view and/or location.

The fuel tank is at the rear right side

7. ADJUSTABLE D RING POSITION –

Does the tested vehicle have such adjustments? X YES NO

If YES, please provide the following:

Range of travel: 95 millimeters

Distance from the upper-most position to the test position: 0 millimeters

If detents are also available, please provide the following:

Total number of detents: %

Test detent (with the upper-most detent defined as 0): 0

8. SPECIAL INSTRUCTIONS –

Please make note of any special instructions that you would like NHTSA to consider or be made aware of for the tested vehicle:

Frontal NCAP test:

Side NCAP test:

rev. 08/09/04

Appendix E

INSIA Report on Structural Measurements



UPM



Compatibility Project
EEVC - WG15

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

**APARICIO IZQUIERDO, FRANCISCO
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28031 – MADRID – (SPAIN)**

March, 1999

REPORT DOCUMENTATION PAGE**Title:**

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

Author(s):

Aparicio Izquierdo, Francisco
Páez Ayuso, Francisco Javier

Performing Organisation name and address:

INSIA – University Institute for Automobile Research
Carretera de Valencia, Km. 7 – Campus Sur de la Universidad Politécnica de Madrid
28031 – Madrid – Spain

Supplementary notes:

Under contract to:

THE EUROPEAN COMMUNITY

Project: “Improvement of Crash Compatibility between Cars”

Contract N°: RO – 97 – SC.1064

Abstract:

The main aim of this working package -*Structural Survey of Cars*- is the reduction of incompatibilities, both structural and geometric, between passenger vehicles and their potential collision partners. The understanding of these incompatibilities needs a previous step for the knowledge of the existing car fleet.

Firstly, it is necessary to select the main resistant elements in the car body. These elements have to be chosen from the point of view of the sort of collision that we want to study, that is to say, frontal and side impacts.

Detailed measurements have been taken from exterior and interior elements, spread to a total number of 74 models selected from the main vehicle manufacturers at Spain. All of them are being sold this year. Using the information available from the previous measurements in vehicles, the geometric characteristics of the main resistant elements involved in the geometric compatibility between cars will be defined.

This report shows the methodology followed to get these measurements.

Subject terms:

Crash compatibility, geometric compatibility, resistant elements, measure methodology

Date:

March, 1999

1.- METHODOLOGY.

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

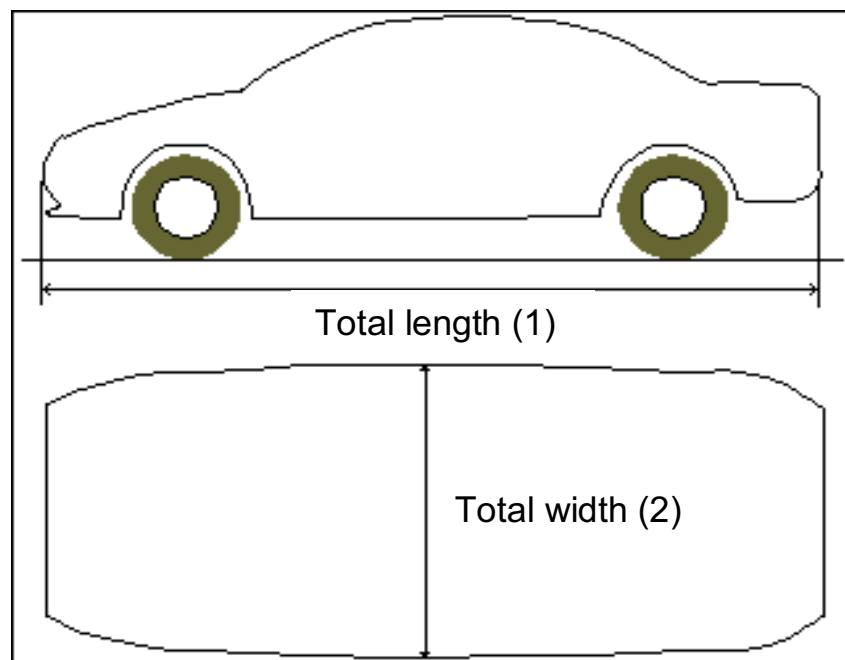


Figure 1.- Definition of the main resistant elements. General dimensions.

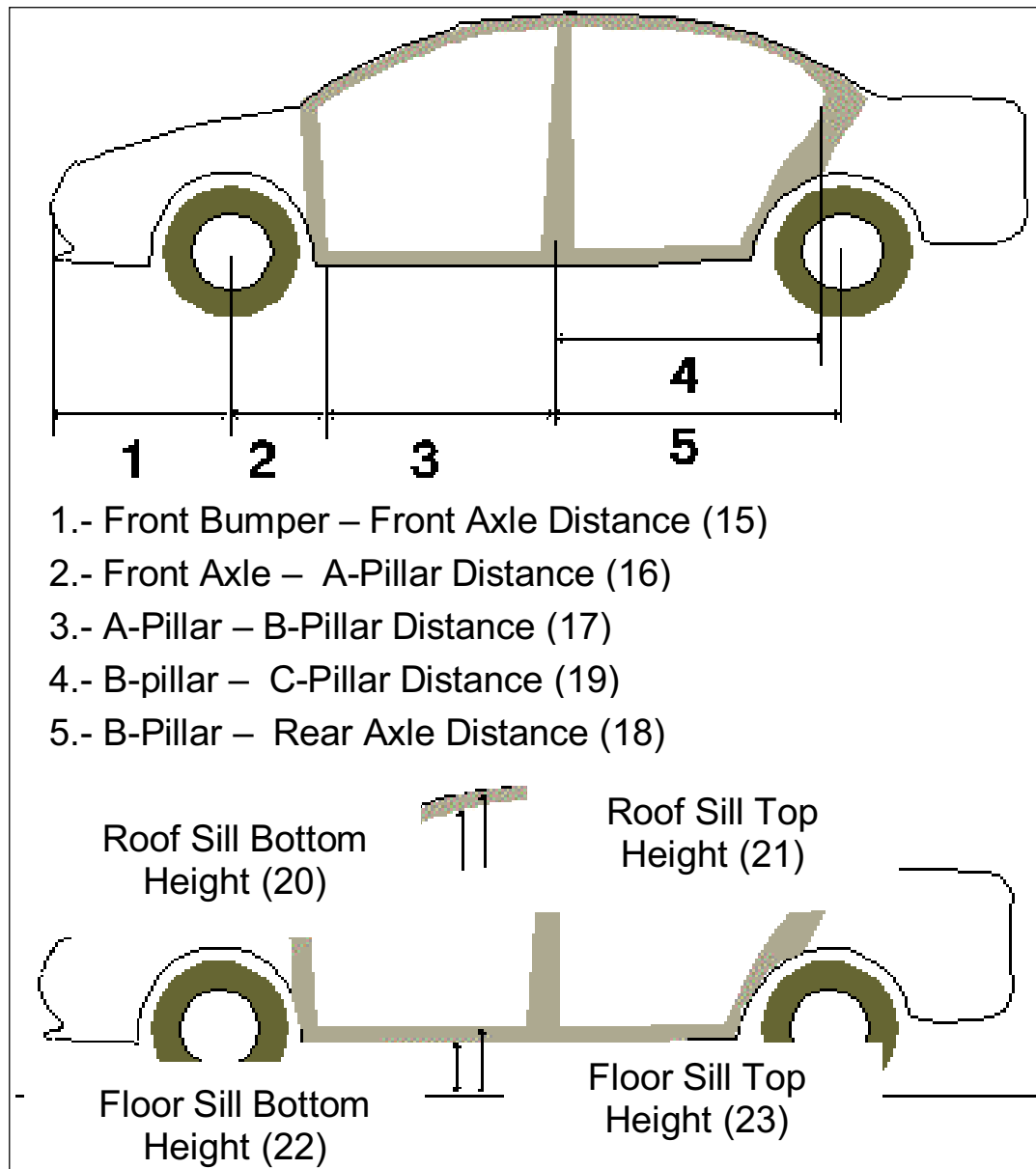


Figure 2.- Definition of the main resistant elements. Side elements.

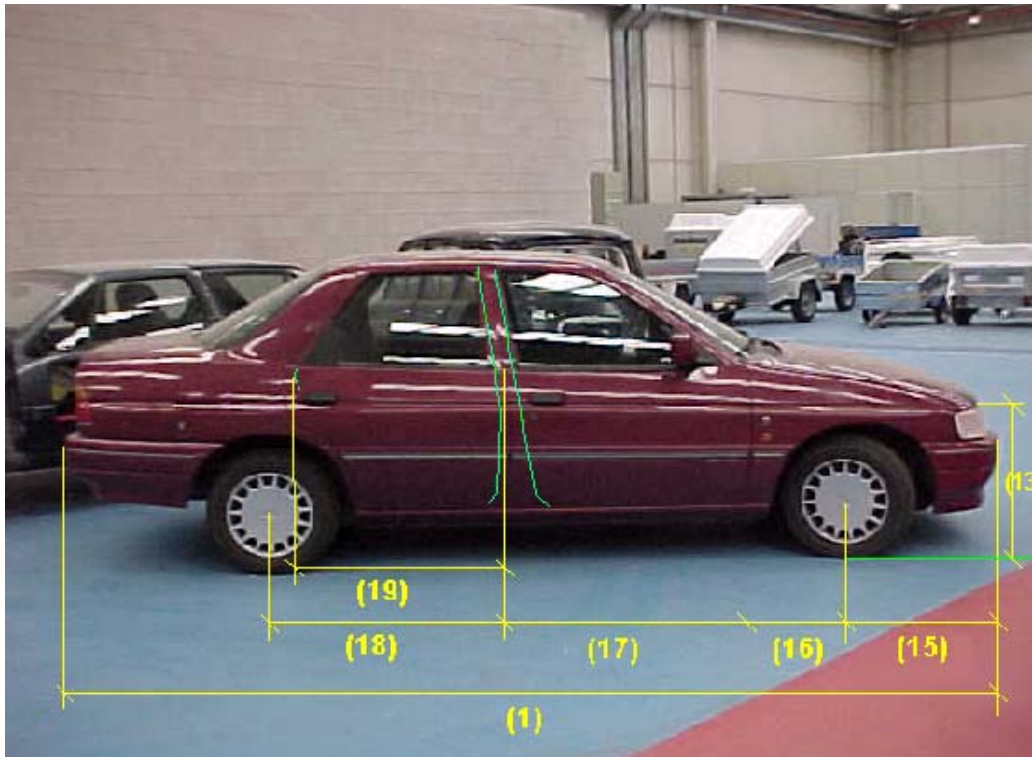


Figure 3.-
Measurements of
the side resistant
elements (outer).

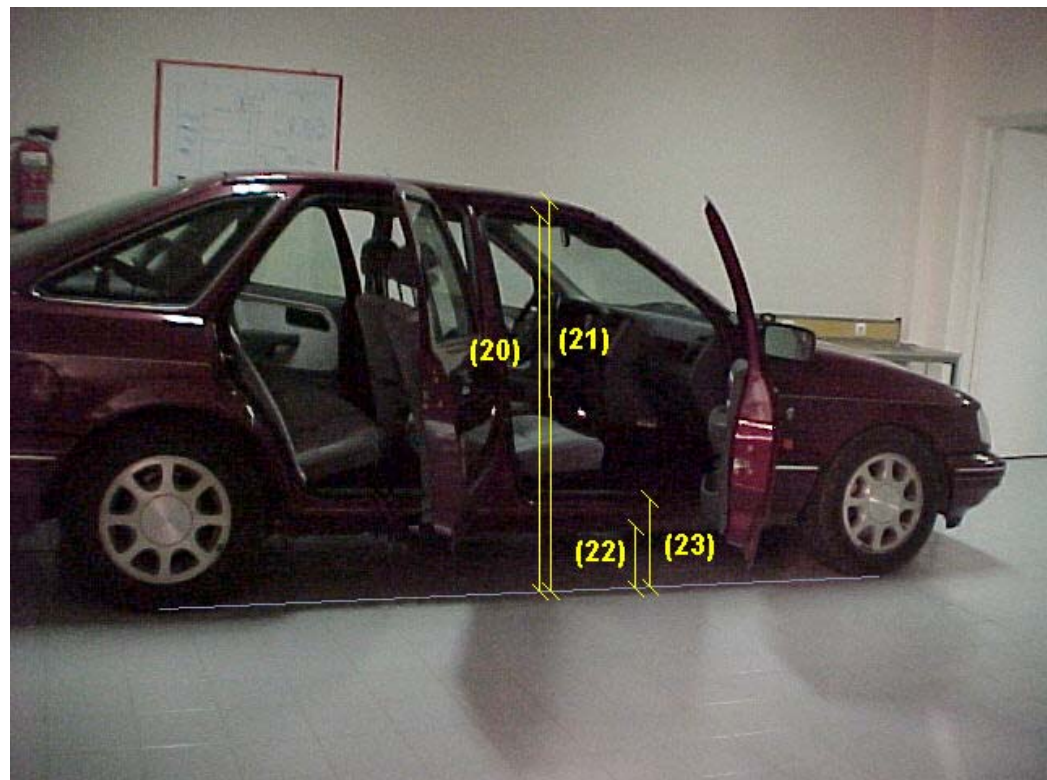


Figure 4.- Measurements
of the side resistant
elements (inner).

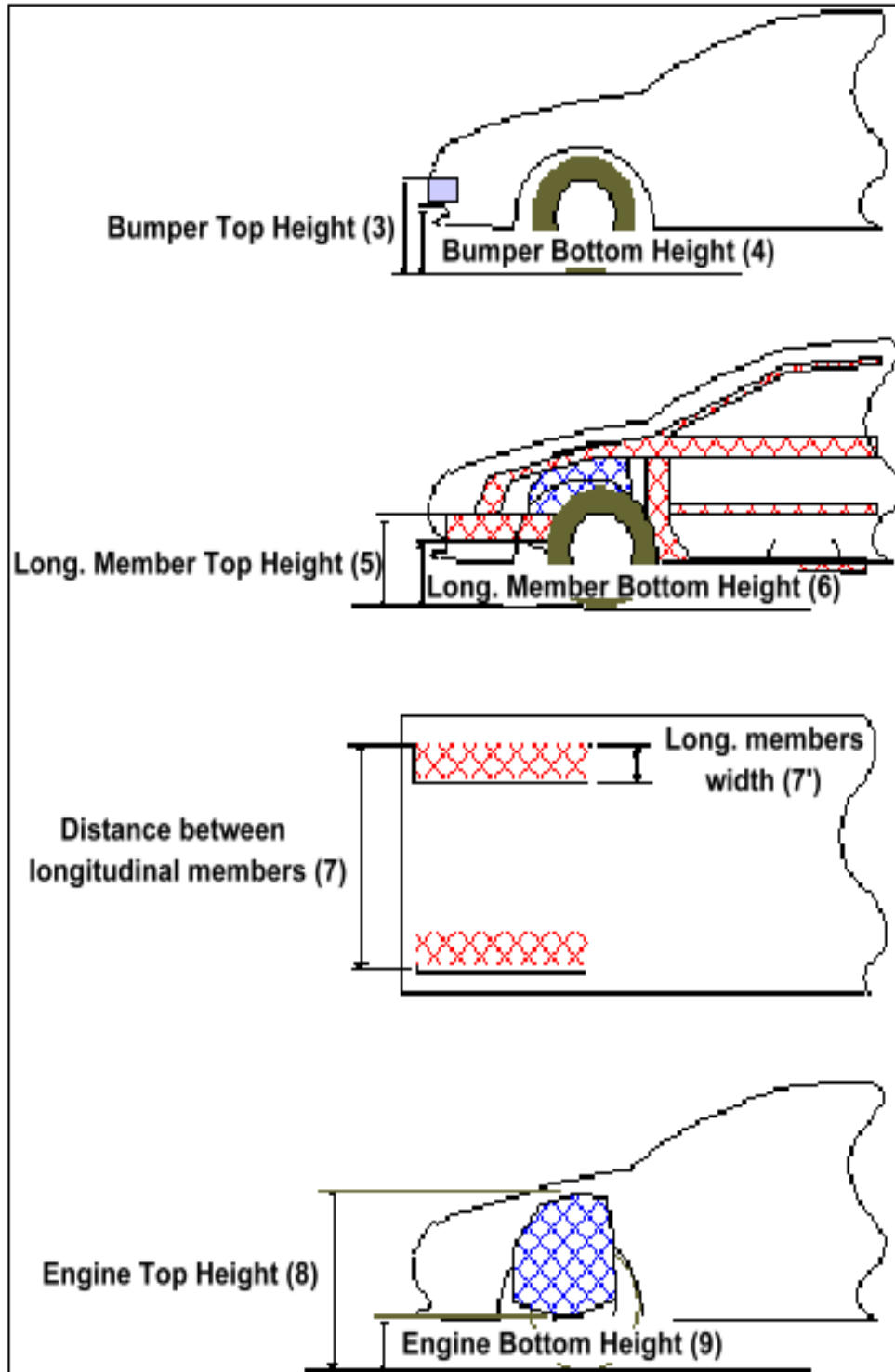


Figure 5.- Definition of the main resistant elements. Front elements.

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

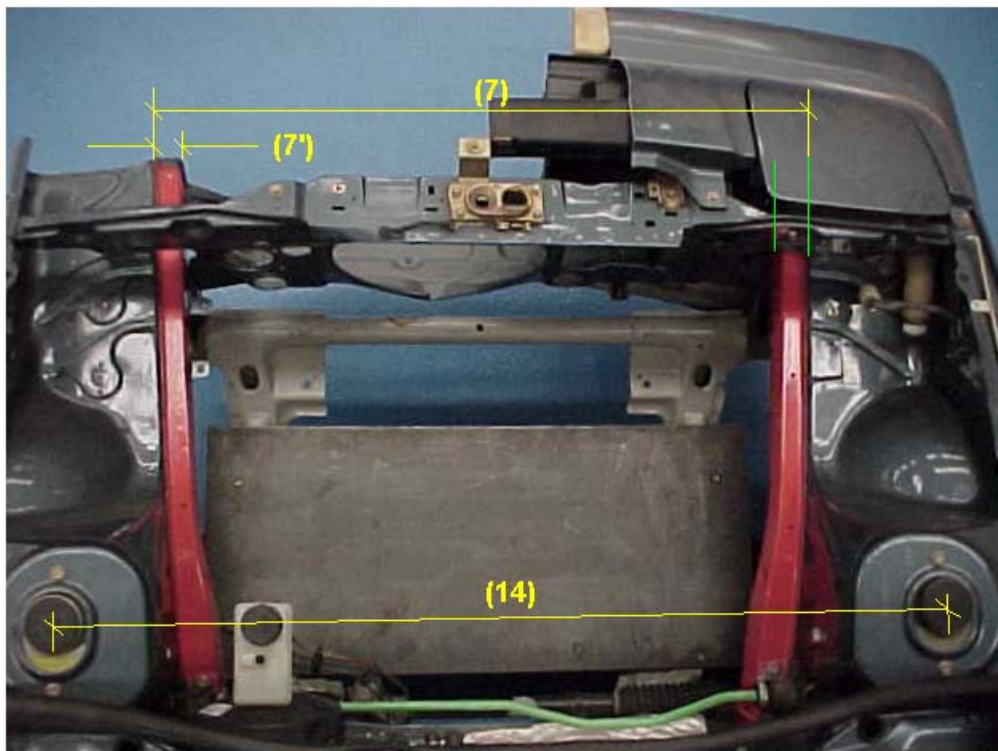
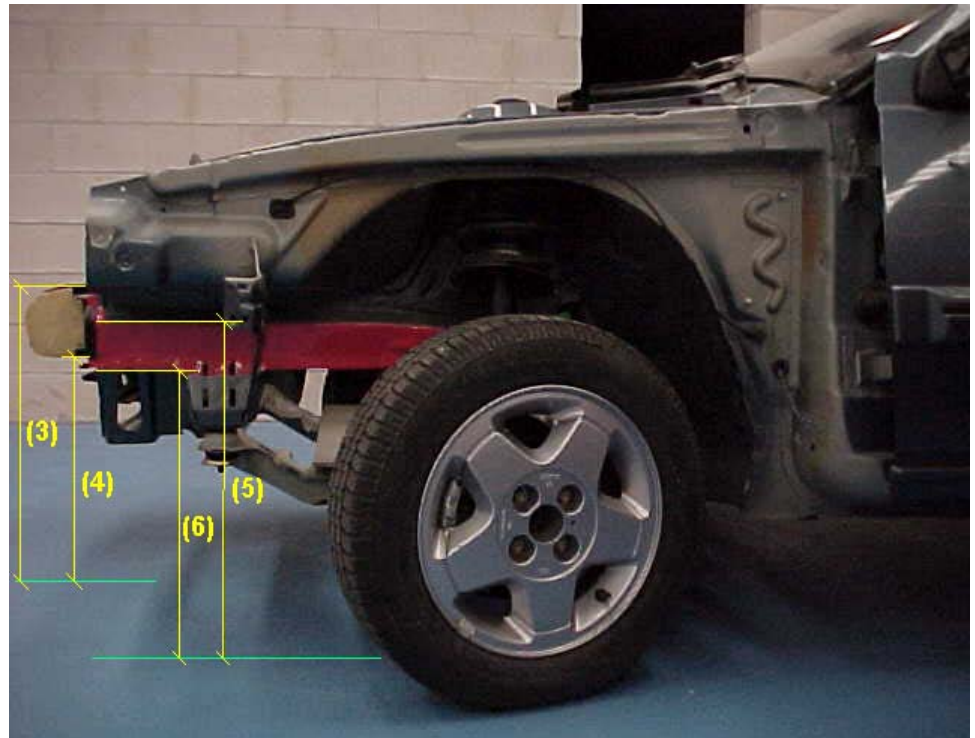


Figure 7.-
Measurements
of the main
resistant
elements. Front
elements 2.

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

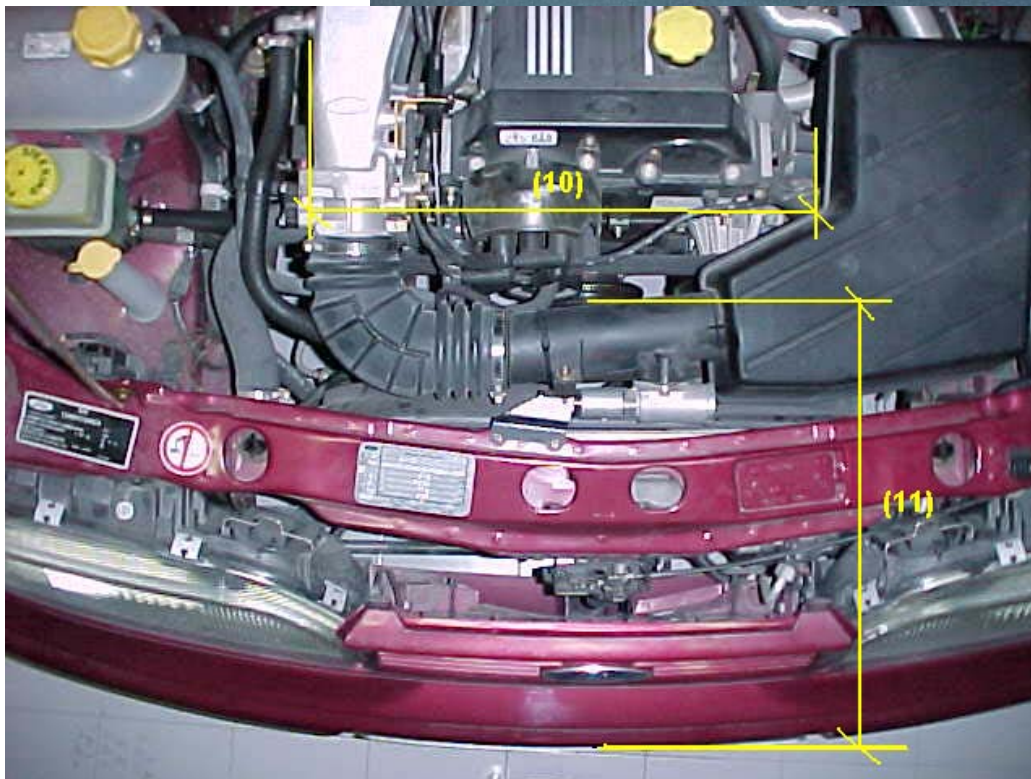
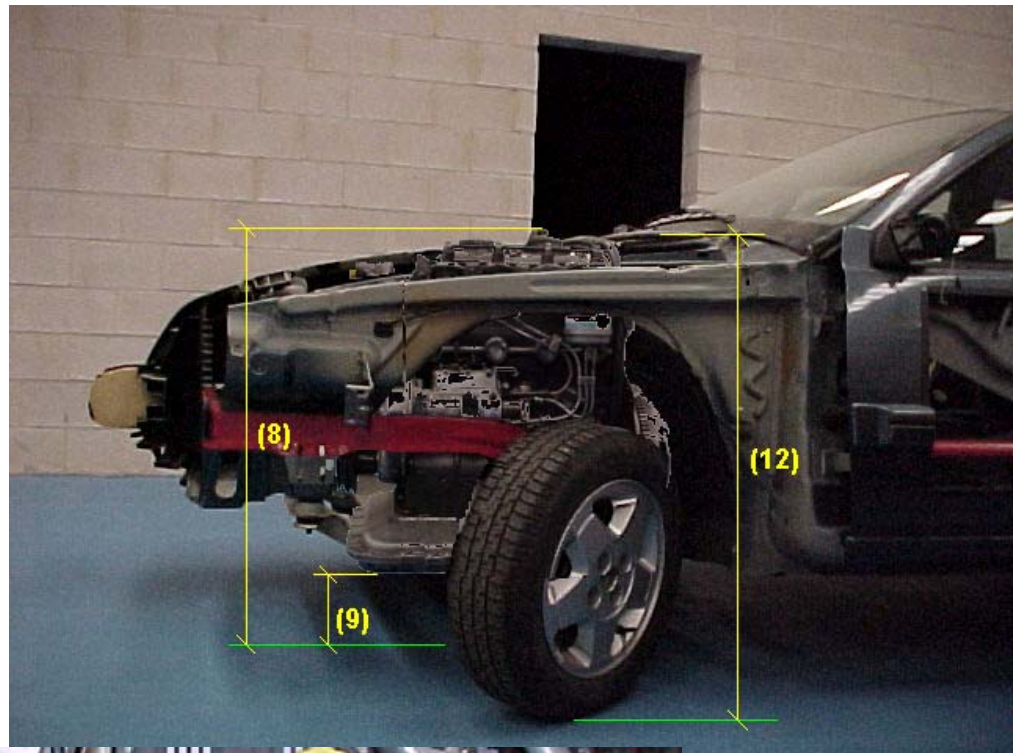


Figure 9.-
Definition of
the main
resistant
elements. Front
elements
(Longitudinal
engine).



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

FRONT ELEMENTS

- **Total Length –(1)- (Side & Front Sheets - C column):** distance between the point in the front bumper further on and the point in the rear bumper further back.
- **Weight (Side & Front Sheets - D column):** mass, including an average driver weight (70 kg), and the fuel tank mass (at half-capacity).
- **Total Width –(2)- (Side & Front Sheets - E column):** distance between the outer side points in a transverse plane of the vehicle (middle plane between the front and rear axles).
- **Bumper bottom height –(4)- (Front Sheet G column):** distance between the ground and the lowest point on the front bumper, being a resistant member (aerodynamic elements under the front bumper are not considered).
- **Bumper top height –(3)- (Front Sheet H column):** distance between the ground and the highest point on the front bumper, being a resistant member (aerodynamic elements are not considered).
- **Longitudinal member top height –(5)- (Front Sheet I column):** distance between the ground and the highest point on the longitudinal members, measured approximately in the front bumper-longitudinal member joint (when accessible).
- **Longitudinal member bottom height –(6)- (Front Sheet J column):** distance between the ground and the lowest point on the longitudinal members, measured approximately in the front bumper-longitudinal member joint.
- **Distance between longitudinal members (Front Sheet K column):** transverse distance between extreme points in longitudinal members, measured approximately in the front bumper-longitudinal member joint.

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

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

- **Engine top height (8) (Front Sheet N column):** distance between the ground and the highest point on the engine that can be a resistant member in case of accident (usually, the highest point on the head, or the highest point of the inlet or exhaust manifolds).
- **Engine bottom height (9) (Front Sheet M column):** distance between the ground and the lowest point on the engine (usually, the lowest point on the crankcase).
- **Engine and Gearbox width (10) (Front Sheet O & P columns):**
 - *Transverse configuration engine:* distance between extreme points in the gearbox-cylinder block unit or others resistant members attached to the cylinder block unit, i.e. fan belts (from a front point of view).
 - *Longitudinal configuration engine:* distance between extreme points in the cylinder block unit (from a front point of view).
- **Front bumper - Engine distance (11) (Front Sheet Q column):** distance between the point in the front bumper further on and the point in the engine further on that is a resistant element, i.e. the further on point of the exhaust manifold placed in the front of the engine.
- **Front shock absorber fixing width (14) (Front Sheet R column):** transverse distance between the front shock absorber - body car joints.
- **Front shock absorber fixing height (12) (Front Sheet S column):** distance between the ground and the front shock absorber-body car joint.
- **Bonnet leading edge height (Front Sheet T column):** distance between the ground and the bonnet edge further on.

SIDE ELEMENTS

- **Front bumper - Front axle distance (15) (Side Sheet G column):** distance between the point in the front bumper further on and the middle point in the front tyre-road contact patch.
- **Front axle - A Pillar distance (16) (Side Sheet H column):** distance between the middle point in the front tyre-road contact patch and the point in the A-pillar further back.
- **A Pillar - B Pillar distance (17) (Side Sheet I column):** distance between the point in the A-pillar further back and the middle point in the B-pillar.
- **B Pillar - C Pillar distance (19) (Side Sheet J column):** distance between the middle point in the B-pillar and the point in the C-pillar further back (only 4/5-door vehicles).
- **B Pillar - Rear axle distance (18) (Side Sheet K column):** distance between the middle point in the B-pillar and the middle point in the rear tyre-road contact patch.
- **Roof sill bottom height (20) (Side Sheet L column):** distance between the ground and the lowest point on the roof sill, measured in the front door middle point.
- **Roof sill top height (21) (Side Sheet M column):** distance between the ground and the highest point on the roof sill (usually located in the sill-roof joint), measured in the front door middle point.
- **Floor sill bottom height (22) (Side Sheet N column):** distance between the ground and the lowest point on the floor sill, measured in the front door middle point.
- **Floor sill top height (23) (Side Sheet O column):** distance between the ground and the highest point on the floor sill, measured in the front door middle point.

NOTE

- N/A: dimension not available.