

**Vehicle Research and Test Center
2010 Toyota Yaris into 2010 Toyota Yaris
7°, 70 mph, No Frame Rail Overlap
TRC Inc. Test Number: 101207**

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**Final Report
December 2010 – January 2011**

**Prepared For:
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TRC TEST NUMBER: 101207

Report Approved February 10, 2011 by:



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SECTION 1

PURPOSE AND TEST PROCEDURE

PURPOSE

This 112.6 km/h (70.0 mph), no frame rail overlap, 7°, vehicle-to-vehicle 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 test mode was defined with the bullet vehicle moving at 112.6 km/h to impact the left front corner of the target vehicle, with no frame rail overlap, at an impact angle of 7 degrees. The purpose of this test was to evaluate the aggressiveness of the bullet vehicle, a 2010 Toyota Yaris 4-door sedan, and the vehicle and occupant response of the target vehicle, a 2010 Toyota Yaris 4-door sedan, in this vehicle-to-vehicle angled impact mode.

TEST PROCEDURE

This test was conducted in accordance with VRTC instructions for a no frame rail overlap 7° oblique, vehicle-to-vehicle test. Data was obtained relative to FMVSS 208, "Occupant Crash Protection" (December 18, 2001).

SECTION 2

TEST SUMMARY

A model year 2010 Toyota Yaris 4-door sedan (target vehicle) was impacted on the left front corner by a 2010 Toyota Yaris 4-door sedan (bullet vehicle) which was moving at a velocity of 113.4 km/h. The target vehicle was stationary and positioned at an angle of 7° to the line of forward motion so that there was no frame rail overlap. The weight of the target vehicle as tested was 1345.6 kg and the test weight of the bullet vehicle was 1345.8 kg. The no frame rail overlap, vehicle-to-vehicle impact test was conducted by TRC Inc. on December 7, 2010.

One (1) real-time motion picture camera and nineteen (19) high-speed digital motion picture cameras were used to document the impact event. The pre-test and post-test conditions were recorded by the real-time motion picture camera. Camera locations and pertinent camera information are documented in this report. Pre- and post-test photographs of the test vehicles and anthropomorphic test devices (Dummies) are included in Appendix A.

The target test vehicle had one (1) restrained 50th percentile adult male THOR NT Dummy placed in the driver designated seating position. The THOR NT driver was positioned according to the instructions specified in the Laboratory Test Procedure for FMVSS 208, "Occupant Crash Protection", TP208-13, dated July 27, 2005. The driver dummy was instrumented with 107 data channels. The dummy channels were composed of accelerometers, load cells, rotational displacement potentiometers, and displacement transducers. The dummy transducers and locations are detailed in Appendix D.

The bullet test vehicle had one restrained Part 572E Hybrid III 50th percentile adult male ATD and two Part 572O Hybrid III 5th percentile adult female dummies. In addition the two dummies in the front outboard seating positions were equipped with THOR lower legs. The dummies were placed in the driver, right front, and left rear passenger seating positions, respectively. Dummy based seating methods were used to determine the placement for the driver 50th percentile male dummy. The Hybrid III 5th percentile right front seat occupant was positioned according to the placement procedures specified in Appendix F of Laboratory Procedure TP208-13, July 27, 2005. The Hybrid III 5th percentile left rear seat occupant was positioned according to instructions specified in the Laboratory Test Procedure for FMVSS 214, "Side Impact Protection", TP214D-08, dated December 15, 2006. The driver and passenger dummies were instrumented with sixty (60) data channels. The rear passenger dummy was instrumented with twenty-six (26) data channels. The dummy channels were composed of accelerometers, load cells, rotational displacement potentiometers, and displacement transducers. The dummy transducers and locations are detailed in Appendix D.

The test vehicles were each instrumented with eleven (11) structural accelerometers, shoulder and lap seat belt load cells, and two (2) airbag inductive pick-up transducers. All data channels were recorded with a fully self-contained onboard Kayser Threde data acquisition system. The data channels were digitally sampled and recorded at 12,500 samples per second and processed per Vehicle Research and Test Center (VRTC) specified procedures. The target vehicle sustained 200 mm of static crush during the impact. The bullet vehicle sustained 312 mm of static crush during the impact. General test and vehicle parameters are detailed in the data sheets in this report.

The vehicle information summary is presented in Section 3. The occupant, camera, and vehicle measurements are presented in Section 4. 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 miscellaneous test information. Appendix E contains Dummy FARO measurements.

VEHICLE DUMMY INJURY CRITERIA SUMMARY

		Units	Target Vehicle		Bullet Vehicle		
			Driver		Driver	Passenger	LR Pass
Maximum Head Acceleration ¹	X	g	-47.2		-80.6	-57.9	-106.0
	Y	g	128.4		19.8	29.1	19.4
	Z	g	36.6		25.8	-25.6	103.1
	R	g	136.2		82.5	62.4	119.8
Maximum Chest Acceleration ¹	X	g			-56.5	-38.2	-89.7
	Y	g			15.6	17.6	34.5
	Z	g			14.8	-10.7	-34.5
	R	g			58.4	42.9	92.3
Head Injury Criteria ²	HIC ₃₆		426		440	510	2447
	T1	ms	125.9		64.4	67.4	82.2
	T2	ms	129.7		98.7	95.8	106.2
	HIC ₁₅		426		272	384	1881
	T1	ms	125.9		78.1	74.2	85.8
	T2	ms	129.7		93.1	89.2	100.9
Chest Maximum Resultant Acceleration ³		g			56.0	40.9	80.7
	T1	ms			86.3	80.9	64.8
	T2	ms			89.3	83.9	67.8
Chest Deflection		mm			-32.4	-25.5	-33.0
Upper Neck Injury Calculations (NIJ) ²	NTF				0.32	0.11	1.42
	NTE				0.27	0.62	1.26
	NCF				0.08	0.10	0.00
	NCE				0.00	0.61	1.50
Upper Neck Axial Force	Tension	N	1962		2098	777	5105
	Compression	N	-331		-165	-357	-1494
Upper Tibia Index (SAE)	Left		0.55		0.86	0.28	
	Right		0.66		1.21	0.31	
Lower Tibia Index (SAE)	Left		0.48		0.92	0.23	
	Right		0.41		1.37	0.31	
Maximum Femur Force	Left	N	-4537		-4291	-3865	-877
	Right	N	-5032		-3191	-325	-408

¹ See Report Sign Convention in Appendix D.

² As defined in FMVSS No. 208.

³ Defined as equal to or exceeding 0.003 sec. duration.

Test Notes:

The Bullet Vehicle Driver 1st Stage Fire Time data channel, 10AIRBLEFR25VO0A, recorded anomalous data throughout the event.

The Bullet Vehicle Right Front Passenger 2nd Stage Fire Time data channel, 10AIRBRIFR26VO0A, recorded anomalous data throughout the event.

The Target Vehicle Driver Lower Neck Moment X-Axis load cell data channel, 21NECKLO00THMOXA, recorded questionable data after approximately 41 milliseconds.

The Target Vehicle Driver T6 Mid Spine Z acceleration data channel, 21SPINMI00THACZA, failed at 72.2 milliseconds and recorded no valid data thereafter.

The Target Vehicle Driver Left Upper Tibia Moment X-Axis load cell data channel, 21TIBILULXH3MOXA, recorded anomalous data from approximately 31.9 to 110 milliseconds and questionable data thereafter.

The Target Vehicle Toepan Behind Center of Accelerator Z-Axis acceleration data channel, 20TPANLE0000ACZA, recorded anomalous data after 38.7 milliseconds.

The Target Vehicle Driver Lap Belt force load cell data channel, 21SEBE000005FO0A, recorded anomalous data spikes at 137 and 148 milliseconds.

SECTION 3
VEHICLE INFORMATION SUMMARY

DATA SHEET NO. 1

TARGET VEHICLE GENERAL TEST AND VEHICLE PARAMETER DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

TARGET VEHICLE INFORMATION AND OPTIONS

Make	Toyota	Driver Front Airbag	Yes
Model Year	2010	Driver Side Airbag	Yes
VIN:	JTDBT4K38A4069334	Driver Head Airbag	No
Model:	Yaris	Driver Curtain Airbag	Yes
Body style:	4-door sedan	Driver Knee Airbag	No
Color:	Red	Pass. Front Airbag	Yes ¹
Engine Displacement	1.5 Liters	Pass. Side Airbag	Yes
Type /No. of Cylinders	Straight	Pass. Head Airbag	No
Engine Placement:	Transverse	Pass. Curtain Airbag	Yes
Transmission data:	Manual 5-speed	Pass. Knee Airbag	No
Final drive:	Front Wheel Drive	Load Limiters	Yes
Delivery Date	11/10/2010	Anti-lock Brakes	Yes
Odometer reading:	165	All-Wheel Drive	No
Dealer:	Unknown	Pretensioners	Yes
Power steering	Yes	Front Disc	Yes
Power brakes	Yes	Rear Disc	No
Power seats	No	Automatic speed control	Yes
Power windows	Yes	Tilting steering wheel	Yes
Power door locks	Yes	Telescoping steering wheel	No
Tinted glass	Yes	Air conditioning	Yes
AM/FM CD	Yes	Anti-skid brake	Yes
Roof Rack	No	Rear window defroster	Yes
Sunroof / T-Top	No	Automatic Door Locks	Yes
Traction Control	No	Other	No
Does owner's manual provide instructions to turn off automatic door locks?			N/A

DATA FROM CERTIFICATION LABEL

Manufactured by	Toyota Motor Corp.	GVWR (kg)	1497
Date of Manufacture	10/09	GAWR Front (kg)	835
		GAWR Rear (kg)	826

TARGET TEST VEHICLE SEAT TYPE AND CAPACITY

Measured Parameter	Front	Mid	Rear	Total
Type of Seats	Bucket	N/A	Bench	
Designated Seating Capacity (DSC)	2	0	3	5
Type of Seat Back	Manual Adjustable	N/A	Fixed	
(A) Capacity Wt. (VCW) (kg)				383
(B) DSC x 68.08 kg				340
(A-B) Cargo Wt. (RCLW) (kg)				43

¹ The passenger front airbag was disabled for this test.

DATA SHEET NO. 1 (CONTINUED)

TARGET VEHICLE GENERAL TEST AND VEHICLE PARAMETER DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

TARGET VEHICLE WEIGHTS

	Units	As Tested (ATW)		
		Front	Rear	Total
Left	kg	300.0	357.8	
Right	kg	312.2	375.6	
Ratio	%	45.5	54.5	
Totals	kg	612.2	733.4	1345.6

TARGET VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG(aft of front axle)
Delivered: ¹	mm					
Pre-test:	mm	638	630	619	612	1390
Post-test:	mm	615	596	590	638	

GENERAL TARGET VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheelbase	mm	2550
Total Vehicle Length at Left Side	mm	3705
Total Vehicle Length at Centerline	mm	3830
Total Vehicle Length at Right Side	mm	3705
Weight of Ballast in Cargo Area	kg	71.2
Weight of Vehicle Components Removed	kg	0
Amount of Stoddard Solvent in Fuel Tank	liters	45.4

Weight of ballast secured in vehicle: 71.2 kg

Components removed to meet target test weight: None

TARGET VEHICLE SILL HEIGHTS

	Units	LF	RF	LR	RR	
Pre-test:	mm	148	140	147	144	
Post-test:	mm	87	138	123	173	

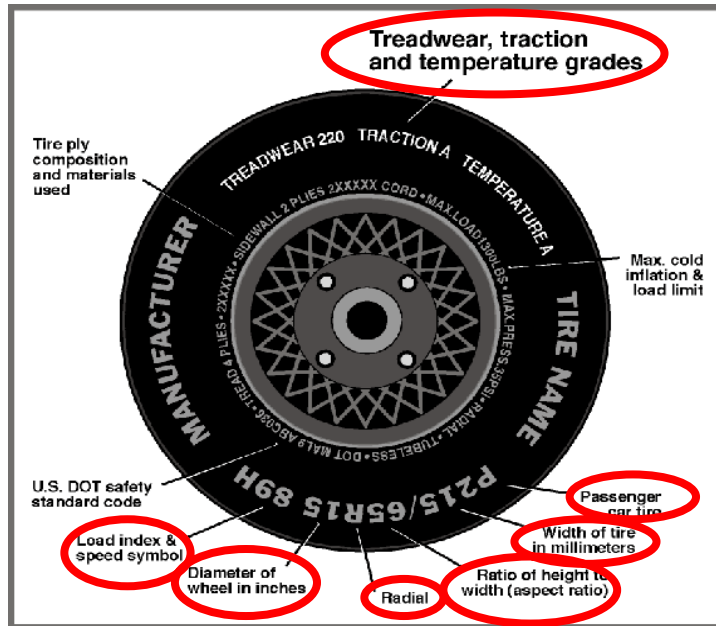
¹ Data was not recorded.

DATA SHEET NO. 1 (CONTINUED)

TARGET VEHICLE GENERAL TEST AND VEHICLE PARAMETER DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300 (44 psi)	300 (44 psi)
Cold / Test Pressure (kPa)	220 (32 psi)	220 (32 psi)
Recommended Tire Size	P185/60R15	P185/60R15
Tire Size on Vehicle	P185/60R15	P185/60R15
Tire Manufacturer	Goodyear	Goodyear
Tire Name	Eagle LS	Eagle LS
Load Index & Speed Symbol	84T	84T
Treadwear	360	360
Traction Grade	A	A
Temperature Grade	B	B

DATA SHEET NO. 2

TARGET VEHICLE SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

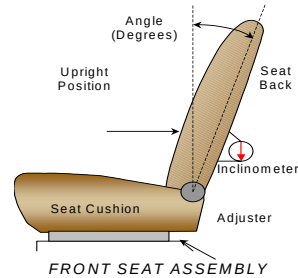
Test Date: 12/07/10

NORMAL DESIGN RIDING POSITION

The seat back angle was measured relative to the rocker sill. The test position was measured using a Faro Inc. C. Measurement Machine.

TARGET SEAT BACK ANGLE

	Degrees
Driver Seat ¹	3.4°

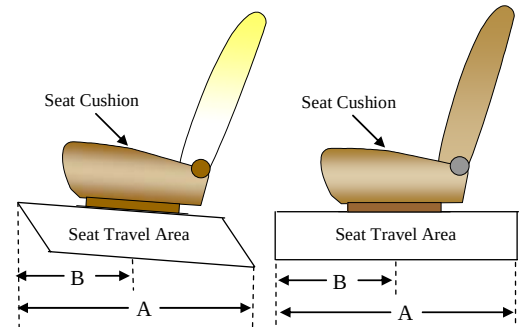


SEAT FORE/AFT POSITIONS

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

TARGET SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel	Placed in Position No.
Driver Seat	Mid	9 th of 17



TARGET SEAT BELT UPPER ANCHORAGE

	Total No. of Positions	Placed in Position No.
Driver Seat	4	1 (full up)

Position number one is the uppermost adjustment position.

¹ Measured at head rest post.

DATA SHEET NO. 2 (CONTINUED)

TARGET VEHICLE SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

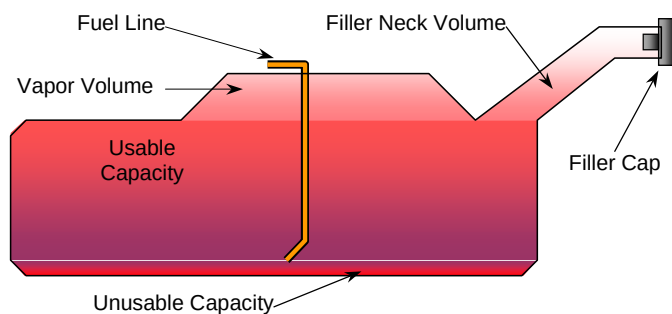
Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

FUEL TANK CAPACITY

	Liters
Usable Capacity of Tank	N/A
Usable Capacity used for FMVSS301	N/A
Actual Amount of Solvent used	45.4

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



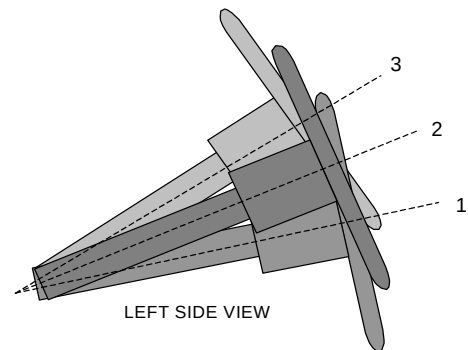
STEERING COLUMN ADJUSTMENT

VEHICLE FUEL TANK 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 moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed on the plate and the angle is measured.

STEERING COLUMN POSITIONS

	Degrees	Fore/Aft Position, mm
Lowermost Position	65.4	None
Geometric Center Position	64.0	None
Uppermost Position	62.5	None
Telescoping Steering Wheel Travel		None
Test Position	64.0	N/A



STEERING COLUMN ASSEMBLY

DATA SHEET NO. 3

BULLET VEHICLE GENERAL TEST AND VEHICLE PARAMETER DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

BULLET VEHICLE INFORMATION AND OPTIONS

Make	Toyota	Driver Front Airbag	Yes
Model Year	2010	Driver Side Airbag	Yes
VIN:	JTDBT4K31A4067490	Driver Head Airbag	No
Model:	Yaris	Driver Curtain Airbag	Yes
Body style:	4-door sedan	Driver Knee Airbag	No
Color:	White	Pass. Front Airbag	Yes
Engine Displacement	1.5 Liters	Pass. Side Airbag	Yes
Type /No. of Cylinders	Straight	Pass. Head Airbag	No
Engine Placement:	Transverse	Pass. Curtain Airbag	Yes
Transmission data:	Manual 5-speed	Pass. Knee Airbag	No
Final drive:	Front Wheel Drive	Load Limiters	Yes
Delivery Date	11/10/2010	Anti-lock Brakes	Yes
Odometer reading:	82	All-Wheel Drive	No
Dealer:	Unknown	Pretensioners	Yes
Power steering	Yes	Front Disc	Yes
Power brakes	Yes	Rear Disc	No
Power seats	No	Automatic speed control	Yes
Power windows	Yes	Tilting steering wheel	Yes
Power door locks	Yes	Telescoping steering wheel	No
Tinted glass	Yes	Air conditioning	Yes
AM/FM CD	Yes	Anti-skid brake	Yes
Roof Rack	No	Rear window defroster	Yes
Sunroof / T-Top	No	Automatic Door Locks	Yes
Traction Control	No	Other	None
Does owner's manual provide instructions to turn off automatic door locks?			N/A

DATA FROM CERTIFICATION LABEL

Manufactured by	Toyota Motor Corp.	GVWR (kg)	1497
Date of Manufacture	09/09	GAWR Front (kg)	835
		GAWR Rear (kg)	826

BULLET VEHICLE SEAT TYPE AND CAPACITY

Measured Parameter	Front	Mid	Rear	Total
Type of Seats	Bucket	N/A	Bench	
Designated Seating Capacity (DSC)	2	0	3	5
Type of Seat Back	Manual adjustable	N/A	Fixed	
(A) Capacity Wt. (VCW) (kg)				383
(B) DSC x 68.08 kg				340
(A-B) Cargo Wt. (RCLW) (kg)				43

DATA SHEET NO. 3 (CONTINUED)**BULLET VEHICLE GENERAL TEST AND VEHICLE PARAMETER DATA**Test Program: Vehicle to Vehicle Frontal Offset ImpactTest Date: 12/07/10**TEST VEHICLE WEIGHTS**

	Units	As Tested (ATW)		
		Front	Rear	Total
Left	kg	368.4	318.4	
Right	kg	354.2	304.8	
Ratio	%	53.7	46.3	
Totals	kg	722.6	623.2	1345.8

BULLET VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
Delivered: ¹	mm					
Pre-test:	mm	637	645	603	612	1181
Post-test	mm	650	607	557	685	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheelbase	mm	2550
Total Vehicle Length at Left Side	mm	3705
Total Vehicle Length at Centerline	mm	3830
Total Vehicle Length at Right Side	mm	3705
Weight of Ballast in Cargo Area	kg	0
Weight of Vehicle Components Removed	kg	Unknown
Amount of Stoddard Solvent in Fuel Tank	liters	0

Weight of ballast secured in vehicle: 0

Components removed to meet target test weight: muffler & exhaust system, rear fascia, tail lights, right rear door glass, deck lid, rear bumper beam, trunk seal

BULLET VEHICLE SILL HEIGHTS

	Units	LF	RF	LR	RR	
Pre-test:	mm	168	173	149	158	
Post-test	mm	0	172	109	210	

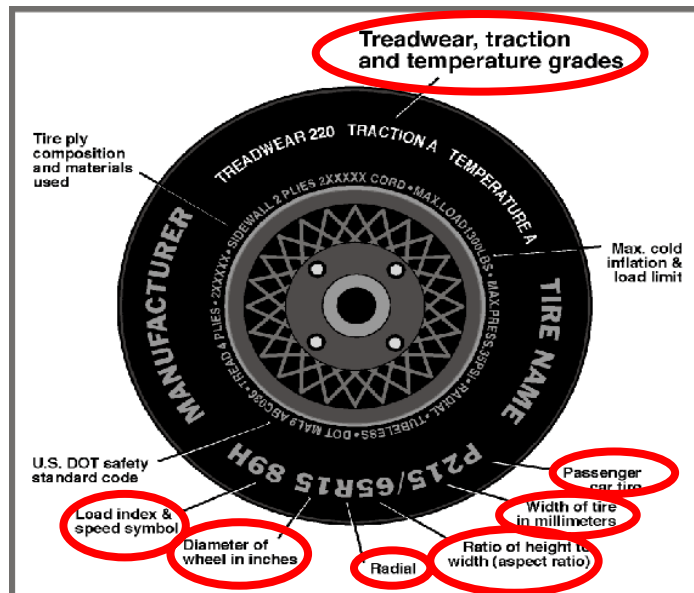
¹ Data was not recorded.

DATA SHEET NO. 3 (CONTINUED)

BULLET VEHICLE GENERAL TEST AND VEHICLE PARAMETER DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300 (44 psi)	300 (44 psi)
Cold / Test Pressure (kPa)	220 (32 psi)	220 (32 psi)
Recommended Tire Size	P185/60R15	P185/60R15
Tire Size on Vehicle	P185/60R15	P185/60R15
Tire Manufacturer	Bridgestone	Bridgestone
Tire Name	Potenza	Potenza
Load Index & Speed Symbol	84T	84T
Treadwear	160	160
Traction Grade	A	A
Temperature Grade	A	A

DATA SHEET NO. 4

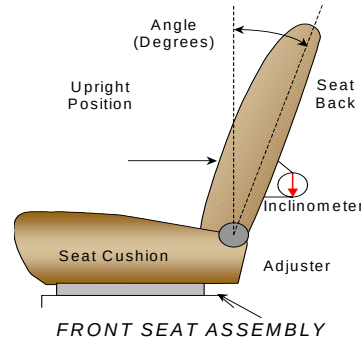
BULLET VEHICLE SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

NORMAL DESIGN RIDING POSITION

The seat back angle was measured relative to the rocker sill.
The test position was measured using a Faro Inc. Coordinate Measurement Machine.



BULLET SEAT BACK ANGLE

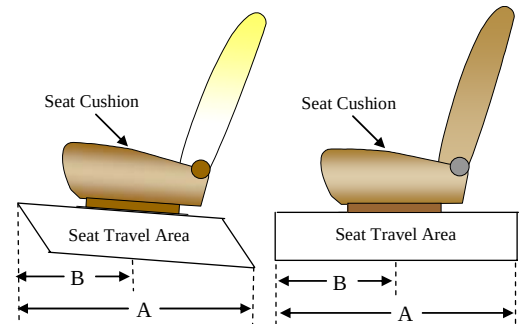
	Degrees
Driver Seat ¹	2.1
Front Passenger Seat ¹	6.2
Left Rear Passenger Seat	Fixed

SEAT FORE/AFT POSITIONS

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

BULLET SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel	Placed in Position No.
Driver Seat	17	12 th of 17
Front Passenger Seat	17	1 st of 17
Left Rear Seat	Fixed	NA



BULLET SEAT BELT UPPER ANCHORAGE

	Total No. of Positions	Placed in Position No.
Driver Seat	4	1 st of 4 (full up)
Front Passenger Seat	4	4 th of 4 (full down)
Left Rear Seat	1	1 (fixed)

Position number one is the uppermost adjustment position.

¹ Measured at headrest post.

DATA SHEET NO. 4 (CONTINUED)

BULLET VEHICLE SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

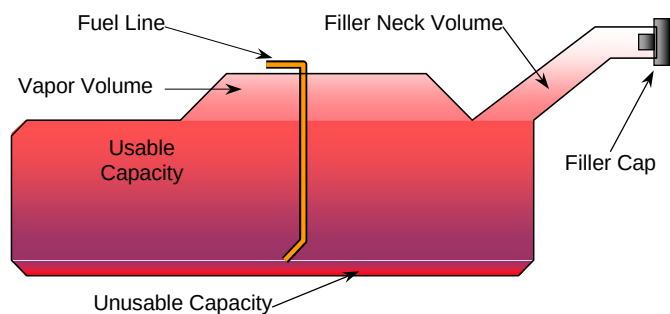
Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

FUEL TANK CAPACITY

	Liters
Usable Capacity of Tank	N/A
Usable Capacity used for FMVSS301	N/A
Actual Amount of Solvent used	0

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



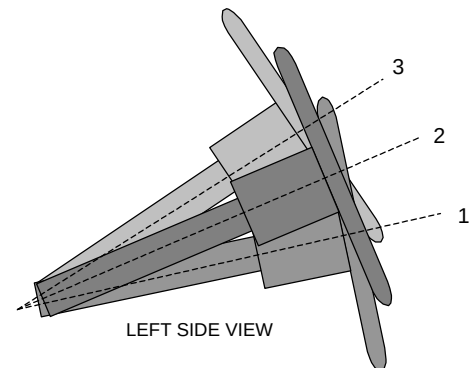
VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

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

STEERING COLUMN POSITIONS

	Degrees	Fore/Aft Position, mm
Lowermost Position No. 1	65.2	None
Geometric Center Position No. 2	64.0	None
Uppermost Position No. 3	62.5	None
Telescoping Steering Wheel Travel		None
Test Position	64.0	N/A



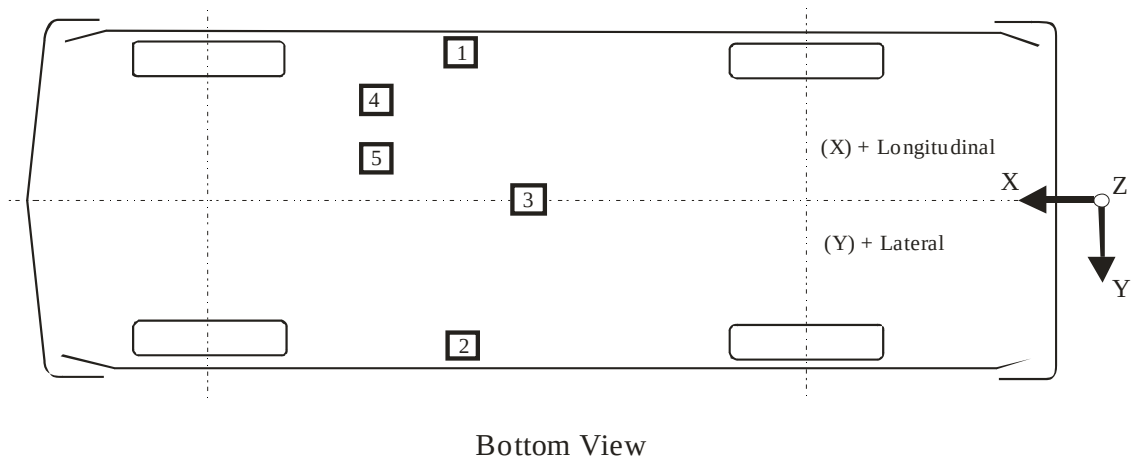
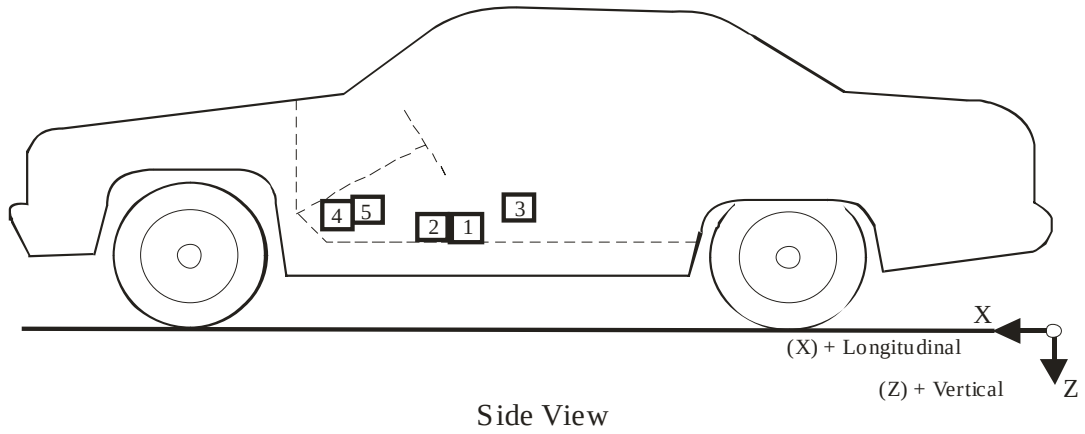
STEERING COLUMN ASSEMBLY

DATA SHEET NO. 5

VEHICLES' ACCELEROMETER PLACEMENT AND DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



DATA SHEET NO. 5 (CONTINUED)

VEHICLES' ACCELEROMETER PLACEMENT AND DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

TARGET VEHICLE INSTRUMENTATION DATA

Location		Positive Direction		Negative Direction	
		Max. (g)	Time (ms)	Max. (g)	Time (ms)
(1) Left Sill Acceleration	X	7.4	9.4	-35.8	61.1
	Y	3.1	118.0	-24.1	47.2
(2) Right Sill Acceleration	X	2.8	135.4	-37.2	48.2
	Y	19.4	47.2	-4.7	9.8
(3) Vehicle Center of Gravity Acceleration	X	4.3	9.8	-45.7	47.3
	Y	18.9	46.1	-3.9	119.3
	Z	23.6	50.4	-10.5	69.5
	R	49.8	47.4		
(4) Driver Foot Rest Acceleration	X	6.1	8.6	-47.2	47.6
	Z	9.4	22.6	-101.9	58.2
(5) Toe Pan Behind Center of Accelerator Acceleration	X	53.0	34.3	-10.7	8.2
	Z ¹	1191.1	102.5	-35.9	33.5

BULLET VEHICLE INSTRUMENTATION DATA

Location		Positive Direction		Negative Direction	
		Max. (g)	Time (ms)	Max. (g)	Time (ms)
(1) Left Sill Acceleration	X	4.6	165.1	-57.8	46.8
	Y	15.2	42.0	-6.7	32.5
(2) Right Sill Acceleration	X	2.4	138.6	-37.3	48.9
	Y	13.0	45.2	-6.6	30.7
(3) Vehicle Center of Gravity Acceleration	X	3.1	165.3	-42.6	46.9
	Y	11.6	43.2	-10.8	29.9
	Z	15.5	47.4	-19.8	71.9
	R	45.5	47.1		
(4) Driver Foot Rest Acceleration	X	41.3	37.1	-99.6	45.4
	Z	16.5	35.1	-25.2	45.4
(5) Toe Pan Behind Center of Accelerator Acceleration	X	10.7	69.3	-67.9	47.8
	Z	15.4	70.4	-36.5	49.6

¹ See Test Notes.

DATA SHEET NO. 6
GENERAL TEST DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

Test Time: 16:22

Ambient temperature at impact area: -5.9° C

SPEED TRAP DATA

Measured Parameter	Units	Requirements	Value
Trap No. 1 Velocity (Primary) ¹	km/h		N/A
Cable Speed	km/h		113.4

DATA CHANNELS

TARGET ATD Sensors	107
TARGET Vehicle Structure Accelerometers	11
TARGET Seatbelt Load Cells	2
Airbag Signal Transducers	2
BULLET ATD Sensors	144
BULLET Vehicle Structure Accelerometers	11
BULLET Seatbelt Load Cells	4
Airbag Signal Transducers	4
Total	285

CAMERA COVERAGE

Cameras	
High-Speed Vehicle Onboard - TARGET	3
High-Speed Vehicle Onboard - BULLET	4
High-Speed Offboard	12
Real-Time	1
Total	20

¹ The light trap failed to record data.

DATA SHEET NO. 7**TARGET VEHICLE POST-IMPACT DUMMY/VEHICLE DATA**Test Program: Vehicle to Vehicle Frontal Offset ImpactTest Date: 12/07/10**TEST DUMMY INFORMATION**

Description	Driver
Dummy Type/Serial No.	THOR / T016
Head Contact	Front airbag, upper door frame, side header
Upper Torso Contact	Front airbag
Lower Torso Contact	None
Left Knee Contact	Knee bolster
Right Knee Contact	Knee bolster

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Left
Locked / Unlocked Doors	Unlocked
Front Door Opening	Jammed and latched
Rear Door Opening	Closed and latched
Seat Track Shift (mm)	None
Seat Back Failure	None
Glazing Damage	Cracks

POST-TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Windshield Damage	Cracks throughout
Window Damage	None
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Driver	
	Installed	Operated
Frontal Airbag	Yes	Yes
Knee Airbag	No	N/A
Side Torso Airbag	Yes	No
Head/Torso Side Airbag	No	N/A
Curtain Airbag	Yes	No
Seat Belt Pretensioner	Yes	Unknown
Seat Belt Load Limiter	Yes	Unknown

DATA SHEET NO. 8**BULLET VEHICLE POST-IMPACT DUMMY/VEHICLE DATA**Test Program: Vehicle to Vehicle Frontal Offset ImpactTest Date: 12/07/10**TEST DUMMY INFORMATION**

Description	Driver	Passenger	Left Rear
Dummy Type/Serial No.	HIII 50 th / 168	HIII 5 th / 426	HIII 5 th / 329
Head Contact	Airbag and Side Header	Airbag & head restraint	Head Rest, Seat back, C-Pillar, door panel
Upper Torso Contact	None	Airbag	None
Lower Torso Contact	None	Airbag	None
Left Knee Contact	Knee bolster	Glove box	Back of front seat
Right Knee Contact	Knee bolster	Glove box	Back of front seat

DOOR OPENING AND SEAT TRACK INFORMATION

Description	Left	Right
Locked / Unlocked Doors	Unlocked	Unlocked
Front Door Opening	Jammed and latched	Closed and latched
Rear Door Opening	Closed and latched	Closed and latched
Seat Track Shift (mm)	None	None
Seat Back Failure	None	None
Glazing Damage	Cracks	Cracks

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Windshield Damage	Cracks throughout
Window Damage	N/A
Other Notable Effects	None

SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION

Restraint Type	Driver (Pos. 1)		Passenger (Pos. 3)		Left Rear (Pos. 4)	
	Installed	Operated	Installed	Operated	Installed	Operated
Frontal Airbag	Yes	Yes	Yes	Yes	No	N/A
Knee Airbag	No	N/A	No	N/A	No	N/A
Side Torso Airbag	Yes	No	Yes	No	No	N/A
Head/Torso Side Airbag	No	N/A	No	N/A	No	N/A
Curtain Airbag	Yes	No	Yes	No	Yes	No
Seat Belt Pretensioner	Yes	Unknown	Yes	Unknown	No	N/A
Seat Belt Load Limiter	Yes	Unknown	Yes	Unknown	No	N/A

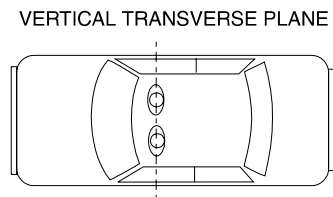
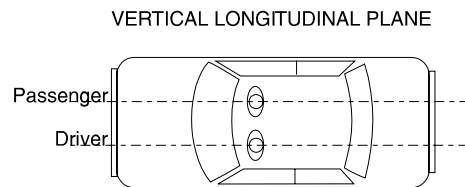
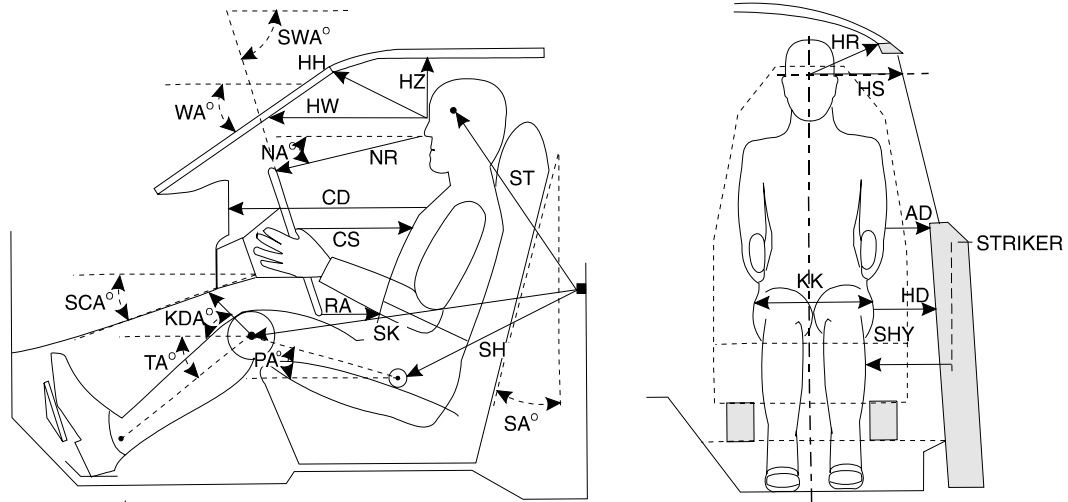
SECTION 4
OCCUPANT, VEHICLE, AND CAMERA MEASUREMENT SUMMARY

DATA SHEET NO. 9

TARGET VEHICLE DUMMY CLEARANCE DIMENSIONS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



DATA SHEET NO. 9 (CONTINUED)

TARGET VEHICLE DUMMY CLEARANCE DIMENSIONS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

Code	Measurement Description	Unit	Driver S/N T016
WA	Windshield angle	°	25.5
SWA	Steering wheel angle	°	64.0
SCA	Steering column angle	°	26.0
SA	Seat back angle	°	3.4
HZ	Head to roof	mm	
HH	Head to header	mm	
HW	Head to windshield	mm	
HR	Head to side header	mm	
NR	Nose to rim	mm	491
NA	Nose to rim angle	°	19.8
CD	Chest to dash	mm	
CS	Steering wheel to chest	mm	369
RA	Rim to abdomen	mm	
KDL	Left knee to dash	mm	
KDR	Right knee to dash	mm	
KDA	Outboard knee to dash angle	°	
PA ²	Pelvic angle	°	
TA	Tibia angle	°	51.0
KK	Knee to knee	mm	347
ST ¹	Striker to head	mm	515
	Striker to head angle	°	-80.2
SK ¹	Striker to knee	mm	665
	Striker to knee angle	°	2.5
SH ¹	Striker to H-point	mm	337
	Striker to H-point angle	°	35.3
SHY	Striker to H-point (Y dir.)	mm	
HS	Head to side window	mm	
HD	H-point to door	mm	
AD	Arm to door	mm	
	Final head angle (X)	°	0.8
	Final head angle (Y)	°	2.3
	Final neck angle (X)	°	-0.4
	Final neck angle (Y)	°	-0.1
	Final T angle (X)	°	-1.4
	Final T angle (Y)	°	20.1
	Final lumbar angle (X)	°	0.5
	Final lumbar angle (Y)	°	1.6
	Final pelvis angle (X)	°	0.6
	Final pelvis angle (Y)	°	1.7

The seat back angle (SA) is measured relative to vertical; all other angles are measured relative to horizontal.

¹ A negative angle indicates the measurement point was above the striker.

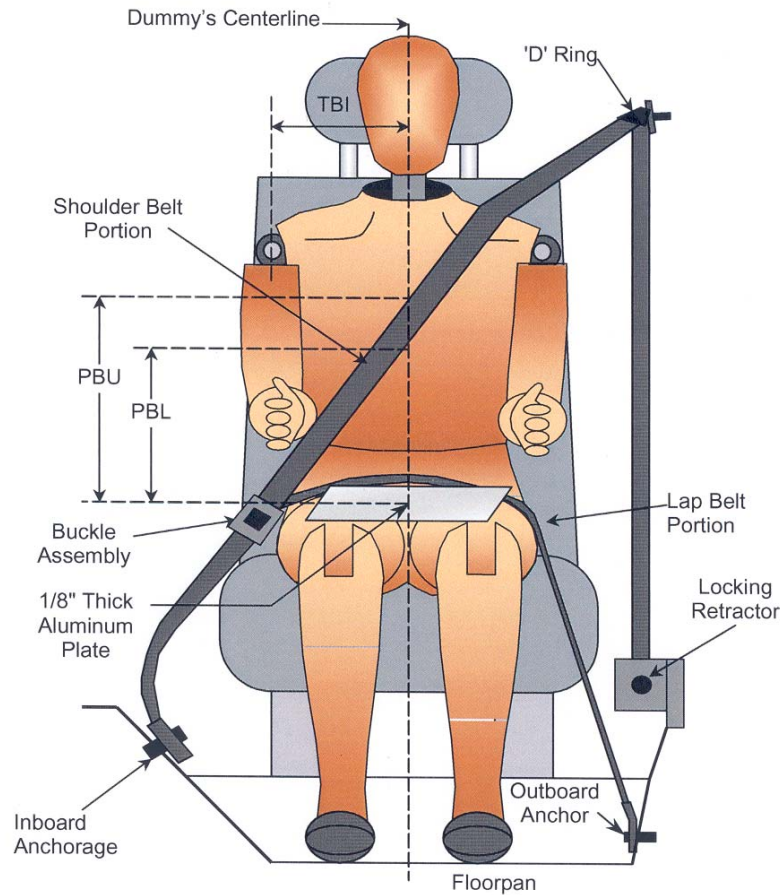
² Measurement not recorded

DATA SHEET NO. 10

TARGET VEHICLE SEAT BELT POSITIONING DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



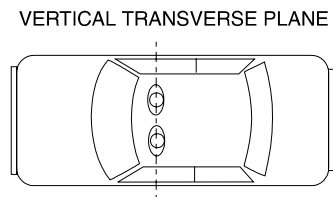
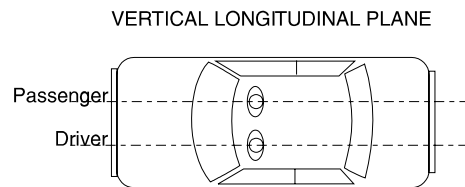
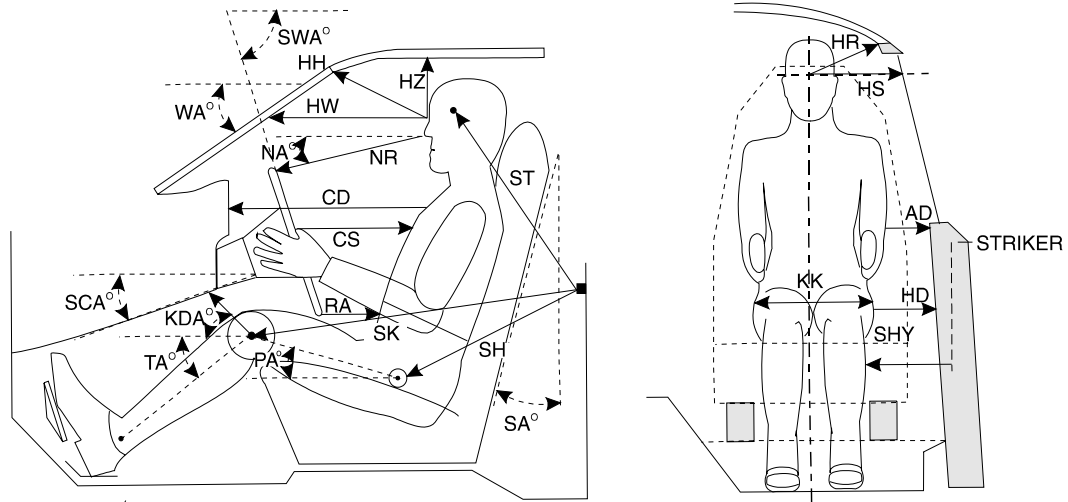
Measurement Parameter		Units	Driver S/N T016
PBU	Top surface of aluminum plate to belt upper edge	mm	330
PBL	Top surface of aluminum plate to belt lower edge	mm	250
TBI	Dummy centerline to intersection of upper torso belt and lap belt	mm	260

DATA SHEET NO. 11

BULLET VEHICLE DUMMY CLEARANCE DIMENSIONS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



DATA SHEET NO. 11 (CONTINUED)

BULLET VEHICLE DUMMY CLEARANCE DIMENSIONS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

Code	Measurement Description	Unit	Driver S/N 168	Front Passenger S/N 426	Left Rear Passenger S/N 329
WA	Windshield angle	°	25.6		
SWA	Steering wheel angle	°	64.5		
SCA	Steering column angle	°	26.0		
SA	Seat back angle	°	2.1	6.2	
HZ	Head to roof	mm	189	234	259
HH	Head to header	mm	391	295	
	Head to Seatback	mm			559
HW	Head to windshield	mm	715	718	
HR	Head to side header	mm	193	223	530
NR	Nose to rim	mm	466		
NA	Nose to rim angle	°	12.9		
CD	Chest to dash	mm	690	466	
CB	Chest to seatback	mm			502
CS	Steering wheel to chest	mm	339		
RA	Rim to abdomen	mm	248		
KDL	Left knee to dash / seatback	mm	174	110	253
KDR	Right knee to dash / seatback	mm	163	123	246
KDA	Outboard knee to dash / seatback angle	°	20.5		7.4
PA	Pelvic angle	°	26.2	19.8	20.0
TA	Tibia angle	°	46.8	52.2	68.5
KK	Knee to knee	mm	571	257	225
ST ¹	Striker to head	mm	495	466	346
	Striker to head angle	°	-82.5	-63.9	-69.2
SK ¹	Striker to knee	mm	563	686	651
	Striker to knee angle	°	1.8	6.0	17.1
SH ¹	Striker to H-point	mm	245	380	379
	Striker to H-point angle	°	39.9	23.4	39.5
SHY	Striker to H-point (Y dir.)	mm	216		142
HS	Head to side window	mm	307	326	341
HD	H-point to door	mm	117	63	44
AD	Arm to door	mm	103	145	119

The seat back angle (SA) is measured relative to vertical; all other angles are measured relative to horizontal.

¹ A negative angle indicates the measurement point was above the striker.

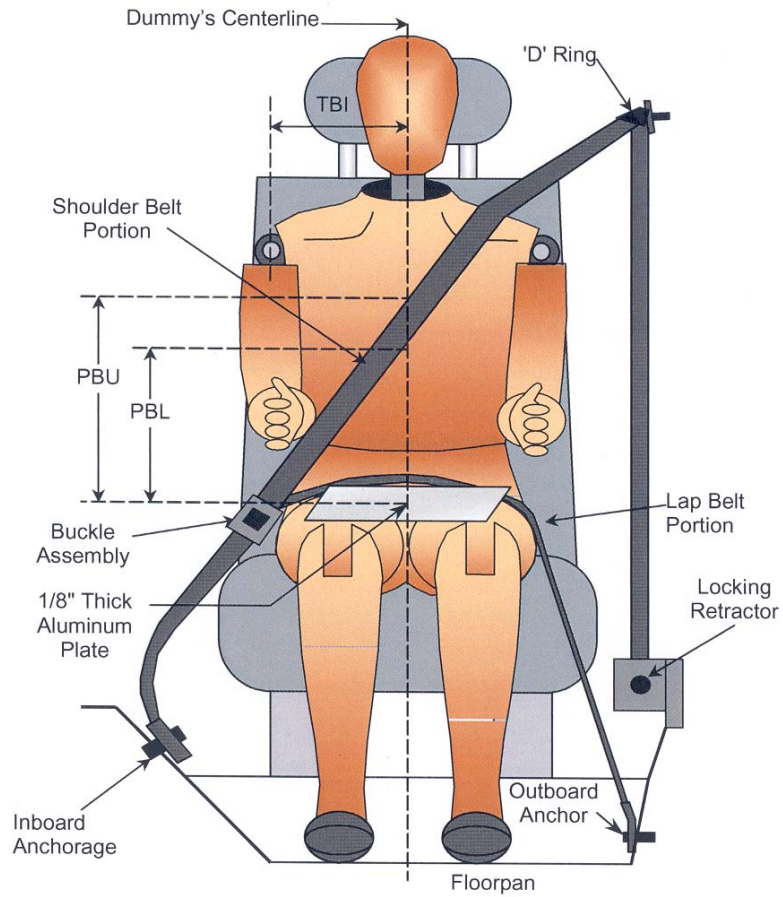
² Measurement not recorded.

DATA SHEET NO. 12

BULLET VEHICLE SEAT BELT POSITIONING DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



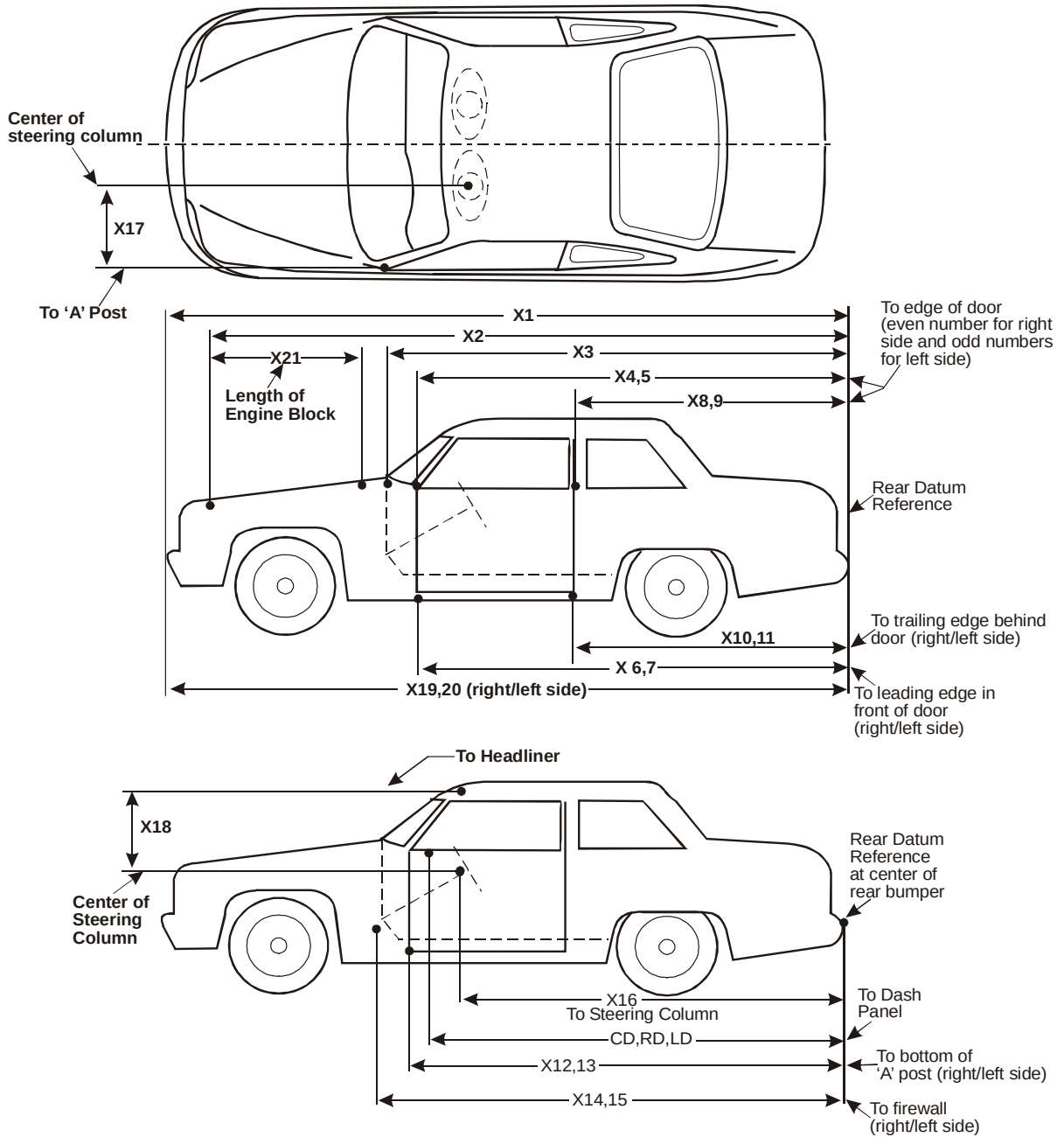
Measurement Parameter		Units	Driver S/N 168	Front Passenger S/N 426	Left Rear Passenger S/N 329
PBU	Top surface of aluminum plate to belt upper edge	mm	330	254	305
PBL	Top surface of aluminum plate to belt lower edge	mm	253	180	205
TBI	Belt and lap belt	mm	260	195	190

DATA SHEET NO. 13

TARGET VEHICLE PROFILE MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



DATA SHEET NO. 13 (CONTINUED)

TARGET VEHICLE PROFILE MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

No.	Type of measurement	Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4277	---- ¹	---- ¹
X2	RSOV to Front of Engine Block	3822	3662	160
X3	RSOV to Firewall	3427	3347	80
X4	RSOV to Upper Leading Edge of Right Door	3065	3054	11
X5	RSOV to Upper Leading Edge of Left Door	3062	2967	95
X6	RSOV to Lower Leading Edge of Right Door	2998	3002	-4
X7	RSOV to Lower Leading Edge of Left Door	2997	2932	65
X8	RSOV to Upper Trailing Edge of Right Door	2031	2022	9
X9	RSOV to Upper Trailing Edge of Left Door	2021	1933	88
X10	RSOV to Lower Trailing Edge of Right Door	2019	2014	5
X11	RSOV to Lower Trailing Edge of Left Door	2008	1947	61
X12	RSOV to Bottom of " A " Post on Right Side	3045	3047	-2
X13	RSOV to Bottom of " A " Post on Left Side	3045	2959	86
X14	RSOV to Firewall - Right Side	3522	3514	8
X15	RSOV to Firewall - Left Side	3517	3316	201
X16	RSOV to Steering Wheel Center	2622	2577	45
X17	Center of Steering Column to " A " Post	285	260	25
X18	Center of Steering Column to Headliner	426	400	26
X19	RSOV to Right Side of Front Bumper	4037	---- ¹	---- ¹
X20	RSOV to Left Side of Front Bumper	4037	---- ¹	---- ¹
X21	Length of Engine Block	440	440	0
RD	RSOV to Right Side of Dash Panel	2932	2927	5
CD	RSOV to Center of Dash Panel	2817	2737	80
LD	RSOV to Left Side of Dash Panel	2929	2812	117
	Maximum Width	1695	1695	0

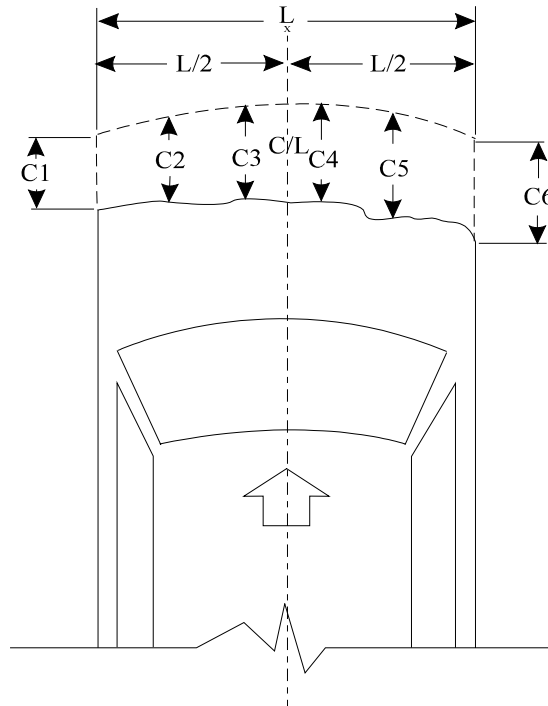
All distance measurements are in millimeters.

¹ Measurement not recorded as a result of vehicle deformation.

DATA SHEET NO. 14
TARGET VEHICLE CRUSH

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



Notes: L is pre-test length of contact surface.
 C1 through C6 are spaced equally apart.
 CL is vehicle centerline.

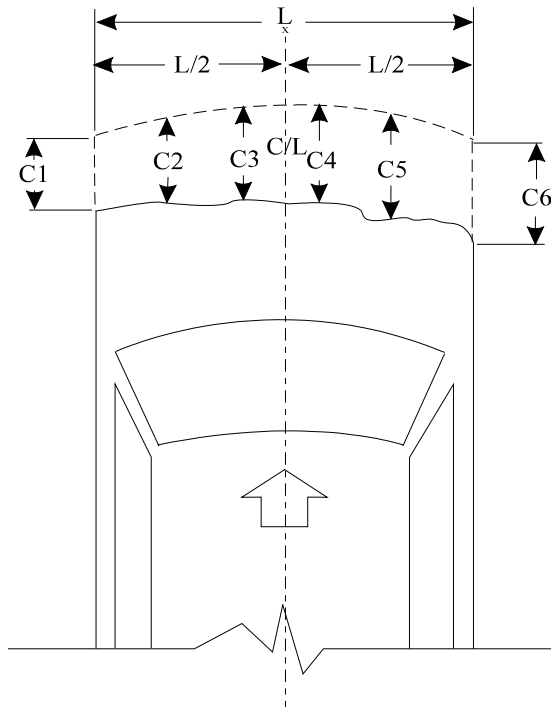
Vehicle: 2010 Toyota Yaris
 Tape measured with bumper fascia in place.

	Pre-Test	Post-Test	Difference	
L=	1240			mm
C1=	4077	3737	340	mm
C2=	4167	3747	420	mm
C3=	4199	4332	-133	mm
C4=	4200	3967	233	mm
C5=	4167	4087	80	mm
C6=	4077	4123	-46	mm
CL=	4202	3892	310	mm

¹ Measurement not recorded as a result of vehicle deformation.

TARGET VEHICLE CRUSH

Test Date: 12/07/10



Vehicle: 2010 Toyota Yaris

	Pre-Test	Post-Test	Difference	
L=	1193			mm
C1=	4093	3748	345	mm
C2=	4188	3797	391	mm
C3=	4218	3876	342	mm
C4=	4219	4018	201	mm
C5=	4189	4118	71	mm
C6=	4094	4148	-55	mm
CL=	4219	3949	269	mm

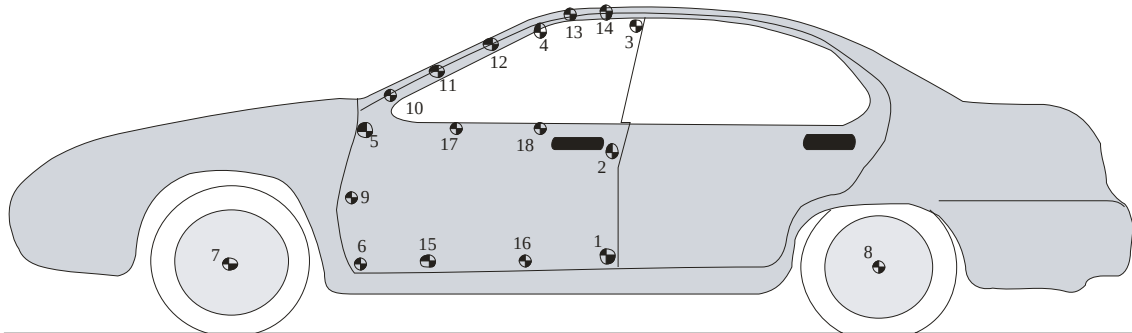
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DATA SHEET NO. 15

TARGET VEHICLE INTRUSION MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



LEFT SIDE VIEW

	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2015	-811	172	1977	-846	184	38	35	-12
2	2026	-771	-468	1949	-860	-443	77	89	-24
3	2013	-594	-857	1907	-742	-851	105	148	-6
4	2526	-593	-828	2418	-677	-849	108	85	21
5	3065	-786	-379	2980	-788	-413	85	2	34
6	3005	-806	176	2959	-805	130	46	-2	46
Front Axle 7	3489	-799	211	3362	-752	232	127	-48	-21
Rear Axle 8	935	-757	209	929	-759	243	5	2	-35
9	3070	-829	-101	2953	-776	-141	117	-53	40
10	3056	-700	-571	2964	-701	-606	91	1	35
11	2914	-666	-659	2817	-689	-691	97	23	32
12	2722	-625	-756	2619	-678	-783	103	53	27
13	2334	-576	-868	2224	-692	-882	109	116	14
14	2125	-573	-886	2016	-719	-891	109	146	5
15	2679	-809	168	2637	-826	152	42	17	16
16	2347	-814	161	2306	-850	164	41	36	-3
17	2721	-772	-428	2642	-808	-444	79	36	16
18	2369	-768	-458	2292	-856	-460	77	88	2
19	2021	-685	-687	1931	-792	-667	90	106	-20

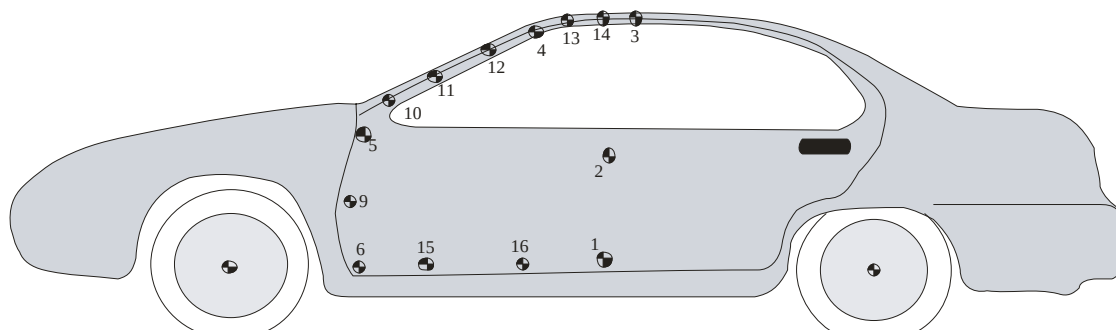
Units (mm)	(7-8) = Wheelbase Left
Pre-Test	2554
Post-Test	2433
Difference	121

DATA SHEET NO. 15, CONTINUED

TARGET VEHICLE INTRUSION MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



LEFT SIDE VIEW DOOR OPENING

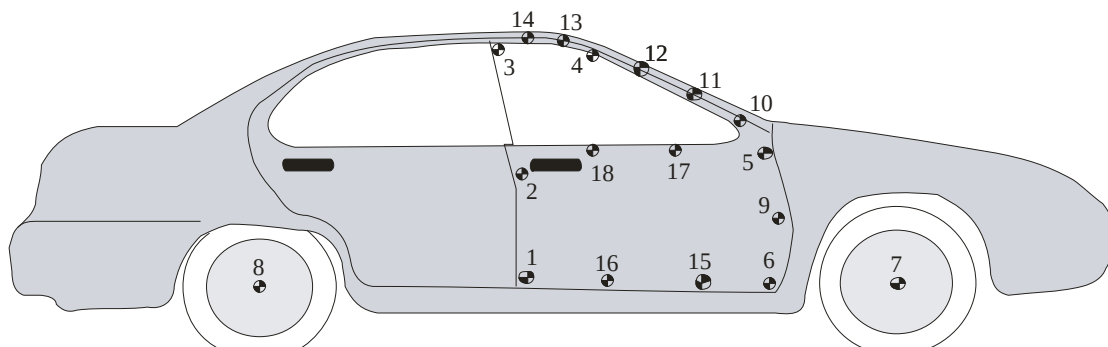
	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2018	-768	163	2015	-774	165	4	5	-2
2	2015	-738	-475	2012	-731	-474	3	-8	-1
3	2037	-560	-870	2042	-542	-864	-5	-18	-7
4	2534	-574	-853	2539	-553	-921	-5	-21	68
5	3051	-721	-380	2966	-716	-411	85	-6	31
6	2977	-749	114	2940	-739	96	37	-10	19
9	3038	-723	-151	2933	-718	-185	104	-5	34
10	3070	-701	-571	3018	-688	-595	52	-13	24
11	2930	-652	-682	2907	-638	-734	23	-14	52
12	2734	-607	-781	2743	-588	-878	-10	-19	97
13	2338	-555	-895	2339	-535	-930	-1	-20	36
14	2126	-547	-915	2126	-528	-917	0	-19	1
15	2674	-798	204	2669	-801	198	5	3	6
16	2340	-804	202	2335	-809	201	5	6	1
19	1994	-675	-681	1993	-660	-677	1	-16	-4

DATA SHEET NO. 15 (CONTINUED)

TARGET VEHICLE INTRUSION MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



RIGHT SIDE VIEW

	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2023	821	163	2024	823	162	-1	-2	2
2	2034	785	-453	2035	790	-454	-1	-5	1
3	2014	603	-853	2016	610	-855	-2	-7	2
4	2528	598	-828	2530	609	-829	-2	-12	2
5	3068	792	-376	3068	805	-378	-1	-12	2
6	3009	814	172	3011	824	170	-2	-11	2
Front Axle 7	3484	806	214	3526	818	223	-42	-12	-9
Rear Axle 8	934	766	207	935	770	243	-1	-3	-35
9	3073	836	-106	3073	847	-107	0	-12	1
10	3056	705	-574	3057	718	-576	-1	-14	2
11	2885	667	-673	2886	680	-675	-1	-13	2
12	2707	628	-762	2708	640	-765	-1	-12	2
13	2344	584	-865	2346	593	-867	-2	-10	2
14	2133	580	-885	2135	589	-886	-1	-9	2
15	2687	814	173	2688	821	170	-2	-7	3
16	2349	818	174	2351	822	173	-2	-4	1
17	2726	785	-426	2727	796	-427	-1	-11	1
18	2384	784	-458	2385	793	-458	-1	-9	0
19	2024	692	-689	2025	699	-690	-2	-7	2

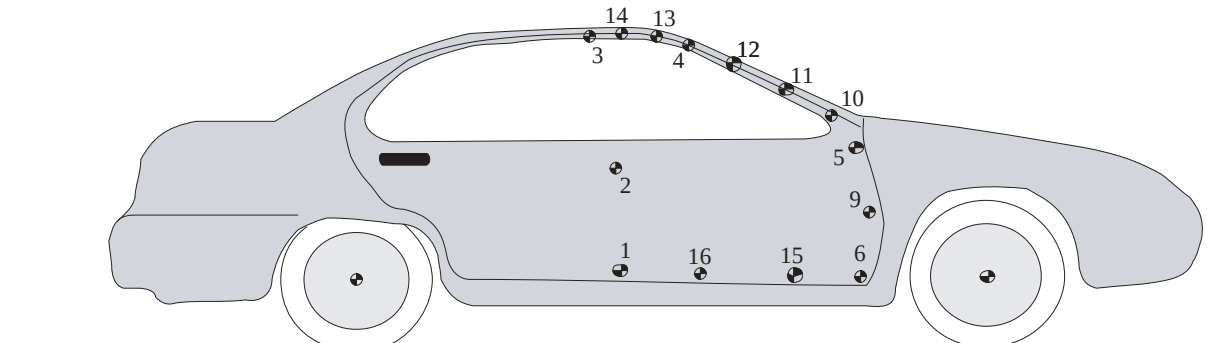
Units (mm)	(7-8) = Wheelbase Right
Pre-Test	2550
Post-Test	935
Difference	1616

DATA SHEET NO. 15, CONTINUED

TARGET VEHICLE INTRUSION MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



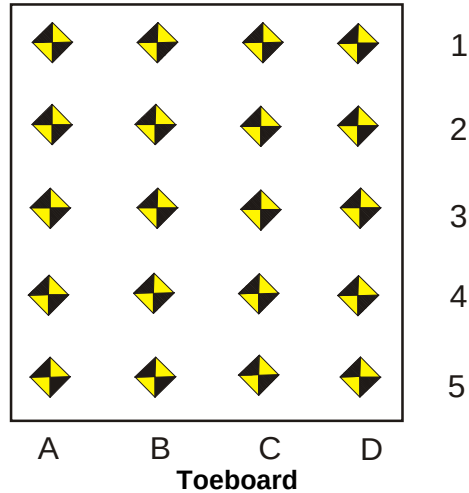
LEFT SIDE VIEW DOOR OPENING

	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2030	776	166	2032	780	165	-1	-3	1
2	2022	753	-439	2022	758	-439	0	-5	0
3	2032	571	-865	2031	578	-867	1	-8	1
4	2538	583	-848	2538	594	-850	0	-12	2
5	3049	729	-362	3048	739	-364	0	-11	2
6	2974	752	118	2972	760	116	1	-8	1
9	3034	729	-92	3034	739	-94	0	-10	2
10	3070	707	-570	3069	719	-571	1	-12	2
11	2902	650	-696	2902	663	-698	0	-12	2
12	2720	612	-784	2720	624	-786	0	-12	2
13	2349	562	-891	2349	573	-893	0	-11	2
14	2137	556	-912	2137	565	-913	0	-9	2
15	2688	805	205	2687	811	205	1	-7	1
16	2356	810	202	2355	815	202	1	-5	1
19	1995	682	-679	1995	688	-681	1	-6	1

DATA SHEET NO. 15 (CONTINUED)
TARGET VEHICLE INTRUSION MEASUREMENTS
DRIVER SIDE

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



DRIVER'S SIDE TOEBOARD MEASUREMENTS

Intrusion Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3125	-601	135	3069	-570	156	-56	31	20
B1	3180	-462	164	3161	-452	136	-19	9	-28
C1	3178	-307	170	3146	-297	145	-32	11	-25
D1	3183	-174	173	3155	-167	149	-27	6	-24
A2	3105	-610	217	3094	-601	198	-11	10	-19
B2	3101	-463	210	3087	-452	190	-14	10	-20
C2	3112	-352	210	3096	-341	189	-16	11	-21
D2	3111	-166	223	3096	-157	212	-15	9	-11
A3	3039	-610	258	3032	-600	243	-7	10	-15
B3	3034	-466	257	3024	-458	241	-10	8	-16
C3	3029	-300	263	3018	-290	251	-11	9	-12
D3	3026	-166	264	3018	-154	259	-9	11	-6
A4	2867	-614	264	2861	-610	257	-7	4	-7
B4	2864	-463	275	2855	-456	267	-10	7	-8
C4	2851	-283	274	2848	-284	278	-4	-1	4
D4	2852	-157	266	2847	-160	257	-5	-3	-9
A5	2742	-617	270	2736	-615	266	-7	2	-4
B5	2739	-464	247	2729	-460	243	-11	3	-4
C5	2721	-286	273	2717	-288	259	-5	-2	-14
D5	2725	-159	265	2721	-161	256	-4	-3	-9

All measurements are in millimeters.

DATA SHEET NO. 15 (CONTINUED)

TARGET VEHICLE INTRUSION MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

DRIVER'S SIDE

Intrusion Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
Front Outboard Seat Bolt	2546	-590	156	2541	-598	161	-5	-8	5
Steering Center	2615	-318	-395	2571	-283	-496	-44	35	-101
Left Knee Bolster	2841	-458	-210	2764	-417	-246	-77	41	-36
Right Knee Bolster	2842	-160	-204	2841	-146	-232	-1	14	-28
Accelerator Pedal	3124	-158	90	3078	-99	97	-45	59	7
Brake Pedal	3091	-291	67	2981	-307	44	-110	-16	-24

All measurements are in millimeters.

DATA SHEET NO. 15 (CONTINUED)

TARGET VEHICLE INTRUSION MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

PASSENGER'S SIDE TOEBOARD

Intrusion Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3181	179	170	3177	197	152	-3	18	-18
B1	3182	317	166	3183	331	160	1	13	-6
C1	3178	470	166	3179	481	161	1	12	-5
D1	3126	599	144	3125	611	141	-1	11	-3
A2	3116	172	215	3115	184	201	-1	12	-14
B2	3122	357	201	3123	367	197	1	10	-4
C2	3099	469	212	3100	479	209	2	10	-4
D2	3117	616	202	3117	625	200	0	10	-3
A3	3022	172	263	3023	181	254	1	10	-9
B3	3021	318	261	3024	327	255	3	9	-5
C3	3036	471	256	3038	479	253	2	9	-3
D3	3039	618	260	3040	627	257	1	9	-2
A4	2825	161	263	2827	168	260	3	7	-3
B4	2827	300	275	2840	312	254	13	12	-21
C4	2850	466	275	2852	474	274	2	8	-1
D4	2845	622	268	2848	630	256	3	8	-12
A5	2653	166	263	2655	174	262	3	8	-1
B5	2647	300	268	2648	307	266	1	6	-2
C5	2647	466	266	2649	472	265	2	6	-1
D5	2639	624	251	2640	631	250	1	6	-1

All measurements are in millimeters.

DATA SHEET NO. 15 (CONTINUED)

TARGET VEHICLE INTRUSION MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

BUMPER MEASUREMENTS

(without fascia)

Index	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	4093	-595	14	3748	-482	107	-345	114	-120
2	4142	-484	22	3788	-370	-94	-355	115	-116
3	4188	-376	22	3797	-253	115	-391	123	-137
4	4209	-255	26	3799	-178	130	-410	77	-155
5	4218	-134	21	3876	-87	105	-342	47	-127
6	4219	3	20	3949	26	-85	-269	23	-105
7	4219	135	23	4018	137	-60	-201	2	-83
8	4210	256	27	4073	243	-38	-137	-14	-65
9	4189	377	26	4118	355	-21	-71	-22	-47
10	4144	487	32	4136	469	2	-8	-18	-30
11	4094	598	24	4148	591	12	55	-7	-12

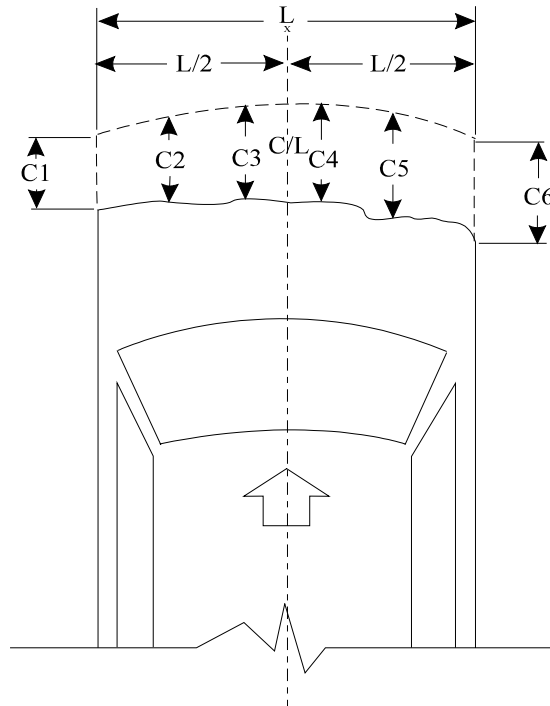
All measurements are in millimeters.

Point 1 is located on the passenger side of the bumper.

DATA SHEET NO. 16
BULLET VEHICLE CRUSH

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



Notes: L is pre-test length of contact surface.
 C1 through C6 are spaced equally apart.
 CL is vehicle centerline.

Vehicle: 2010 Toyota Yaris

Tape measured with bumper fascia in place.

	Pre-Test	Post-Test ¹	Difference	
L=	1530			mm
C1=	4462	--- ¹	--- ¹	mm
C2=	4630	--- ¹	--- ¹	mm
C3=	4685	--- ¹	--- ¹	mm
C4=	4685	--- ¹	--- ¹	mm
C5=	4630	--- ¹	--- ¹	mm
C6=	4460	--- ¹	--- ¹	mm
CL=	4700	--- ¹	--- ¹	mm

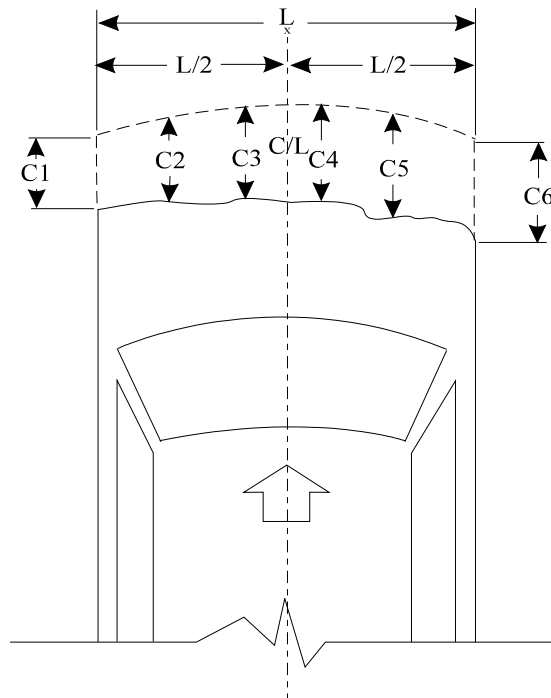
¹ Could not be measured post-test.

DATA SHEET NO. 16 CONTINUED

BULLET VEHICLE CRUSH

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



Notes: L is pre-test length of contact surface.
C1 through C6 are spaced equally apart.
CL is vehicle centerline.

Vehicle: 2010 Toyota Yaris
Faro measurement of bumper reinforcement.

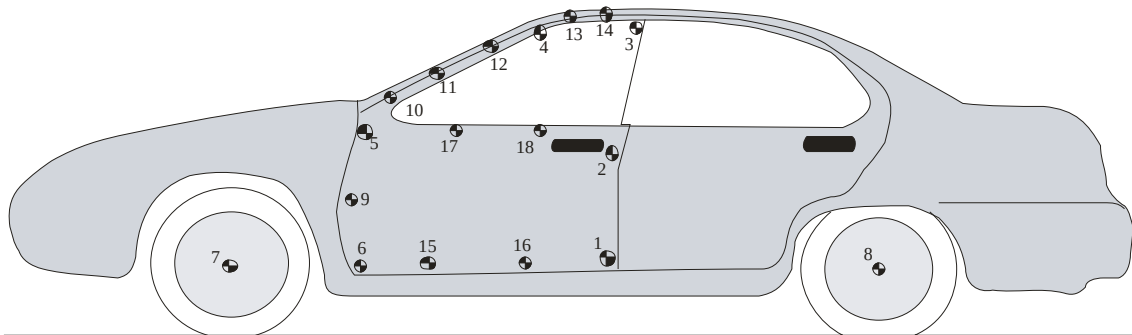
	Pre-Test	Post-Test	Difference	
L=	1194			mm
C1=	4097	3743	354	mm
C2=	4192	3857	335	mm
C3=	4220	3922	298	mm
C4=	4219	4034	185	mm
C5=	4190	4122	68	mm
C6=	4093	4138	-45	mm
CL=	4220	3978	242	mm

DATA SHEET NO. 17

BULLET VEHICLE INTRUSION MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



LEFT SIDE VIEW

	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2102	-811	194	1993	-832	183	109	21	11
2	2122	-774	-436	1980	-843	-431	142	68	-5
3	2111	-599	-827	1938	-760	-844	174	161	16
4	2624	-610	-799	2448	-695	-846	176	86	47
5	3156	-811	-353	3006	-784	-413	149	-27	60
6	3095	-829	206	2981	-758	143	115	-71	62
Front Axle 7	3580	-833	242	934	-756	278	2645	-78	-36
Rear Axle 8	1028	-728	239	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹	--- ¹
9	3163	-855	-79	3019	-823	-138	144	-31	59
10	3151	-730	-537	2996	-716	-603	155	-14	66
11	2996	-687	-638	2833	-701	-700	163	14	62
12	2812	-644	-731	2642	-693	-785	170	49	55
13	2436	-590	-838	2257	-709	-876	178	120	38
14	2224	-579	-861	2046	-733	-888	178	154	27
15	2757	-820	205	2647	-784	165	110	-37	40
16	2431	-818	196	2321	-810	171	110	-8	25
17	2810	-790	-400	2668	-799	-444	142	9	44
18	2466	-779	-429	2324	-824	-452	143	45	23
19	2120	-694	-648	1961	-805	-648	159	111	0

Units (mm)	(7-8) = Wheelbase Left
Pre-Test	2552
Post-Test	--- ¹
Difference	--- ¹

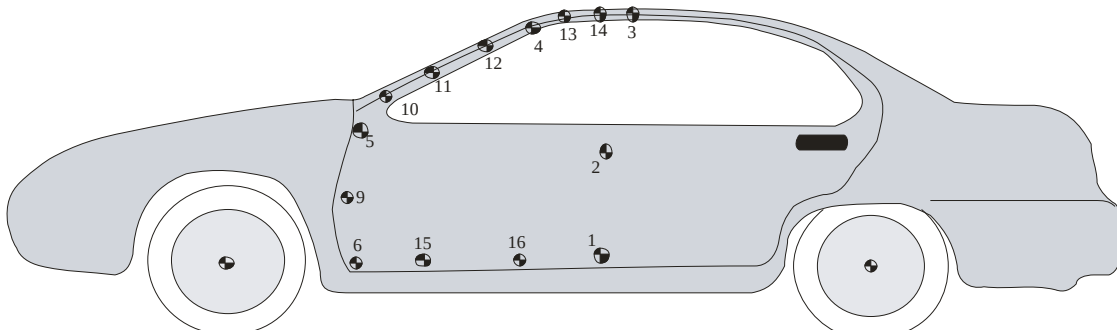
¹ Missing point, measurement could not be taken.

DATA SHEET NO. 17, CONTINUED

BULLET VEHICLE INTRUSION MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



LEFT SIDE VIEW DOOR OPENING

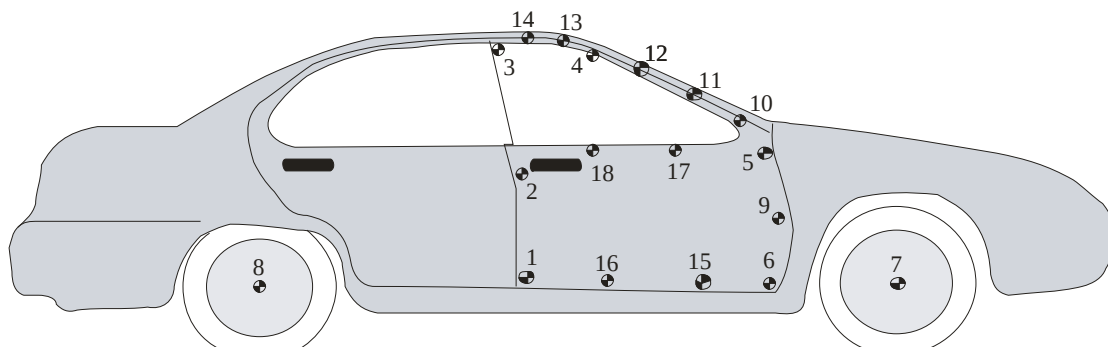
	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2112	-768	160	2018	-770	153	94	3	7
2	2107	-743	-436	2008	-737	-441	99	-6	5
3	2135	-566	-842	2038	-548	-844	96	-19	2
4	2631	-592	-825	2535	-550	-903	95	-42	78
5	3142	-744	-343	2994	-715	-412	148	-29	70
6	3089	-771	126	2963	-719	64	126	-53	62
9	3127	-760	-62	2981	-720	-130	146	-40	68
10	3166	-731	-537	3035	-703	-603	132	-29	66
11	3010	-672	-662	2898	-637	-749	112	-34	87
12	2821	-628	-756	2730	-579	-867	91	-49	112
13	2439	-568	-866	2340	-536	-912	100	-32	46
14	2226	-557	-886	2128	-529	-890	98	-28	3
15	2759	-812	234	2664	-788	206	95	-25	28
16	2427	-808	229	2333	-806	218	94	-2	12
19	2090	-680	-649	1992	-665	-654	98	-15	5

DATA SHEET NO. 17 (CONTINUED)

BULLET VEHICLE INTRUSION MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



RIGHT SIDE VIEW

	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2017	822	178	2016	814	183	1	8	-4
2	2028	776	-442	2023	789	-439	5	-13	-3
3	2017	594	-836	2011	620	-838	6	-26	2
4	2528	593	-809	2522	623	-815	5	-30	6
5	3069	789	-355	3065	811	-360	4	-22	4
6	3014	815	186	3013	819	183	1	-4	3
Front Axle 7	3486	805	244	3503	798	234	-17	7	10
Rear Axle 8	935	764	237	935	759	273	1	5	-36
9	3074	834	-86	3071	848	-88	3	-14	2
10	3059	702	-550	3054	731	-556	5	-29	7
11	2899	664	-648	2893	694	-654	5	-30	7
12	2715	625	-740	2710	655	-746	5	-31	6
13	2336	578	-846	2331	607	-852	5	-30	5
14	2129	572	-867	2123	599	-871	6	-28	4
15	2677	813	196	2676	812	196	0	1	0
16	2337	819	187	2335	815	190	1	4	-2
17	2736	776	-407	2732	796	-408	4	-20	2
18	2380	772	-439	2376	789	-439	4	-17	-1
19	2028	689	-664	2022	709	-664	5	-20	-1

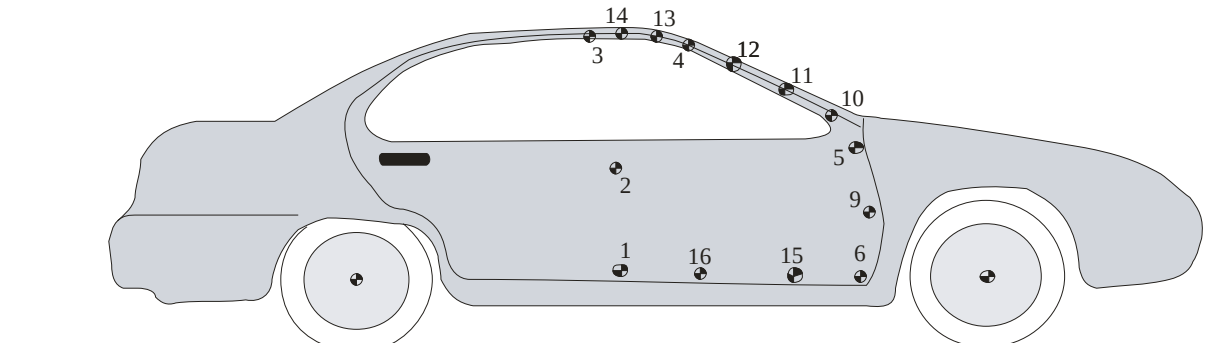
Units (mm)	(7-8) = Wheelbase Right
Pre-Test	2551
Post-Test	2568
Difference	-17

DATA SHEET NO. 17, CONTINUED

BULLET VEHICLE INTRUSION MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



LEFT SIDE VIEW DOOR OPENING

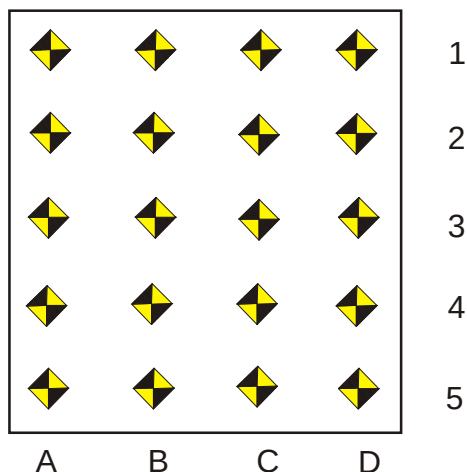
	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2017	777	157	2015	771	159	2	6	-2
2	2020	748	-426	2016	758	-424	5	-11	-2
3	2032	565	-842	2027	588	-846	5	-23	3
4	2534	576	-829	2530	606	-836	5	-30	7
5	3056	737	-339	3052	757	-345	5	-20	6
6	2972	758	141	2971	761	136	1	-3	5
9	3035	746	-67	3032	757	-73	3	-11	6
10	3072	706	-543	3067	734	-550	6	-28	7
11	2913	649	-668	2909	679	-675	5	-30	7
12	2729	609	-758	2724	639	-766	5	-30	8
13	2340	556	-871	2335	585	-877	5	-29	6
14	2131	550	-891	2126	575	-896	6	-26	5
15	2676	807	226	2675	805	225	1	2	1
16	2337	811	221	2335	806	222	2	5	-1
19	1998	677	-658	1993	694	-658	5	-17	0

DATA SHEET NO. 17 (CONTINUED)

BULLET VEHICLE INTRUSION MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



DRIVER'S SIDE TOEBOARD MEASUREMENTS

Intrusion Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3126	-598	152	3065	-551	76	-61	48	-76
B1	3168	-457	200	3129	-422	116	-40	35	-85
C1	3172	-283	201	3104	-253	114	-68	30	-88
D1	3181	-164	199	3138	-143	121	-43	21	-78
A2	3123	-606	211	3075	-563	132	-48	43	-79
B2	3099	-456	239	3070	-425	168	-29	31	-71
C2	3091	-282	256	3053	-249	187	-39	32	-69
D2	3118	-161	244	3090	-132	181	-28	29	-63
A3	3034	-605	288	3021	-576	223	-12	29	-65
B3	3028	-460	287	3006	-434	227	-22	26	-60
C3	3035	-281	287	3005	-252	229	-29	29	-58
D3	3030	-156	288	2997	-138	213	-34	18	-74
A4	2911	-617	291	2899	-595	240	-12	21	-51
B4	2910	-457	301	2889	-435	255	-20	22	-46
C4	2907	-276	293	2893	-269	264	-14	7	-29
D4	2918	-152	290	2911	-162	231	-7	-10	-59
A5	2799	-620	298	2790	-605	262	-10	15	-36
B5	2792	-462	300	2773	-448	267	-19	15	-33
C5	2805	-271	293	2795	-274	263	-10	-3	-30
D5	2811	-151	289	2806	-163	238	-6	-12	-52

All measurements are in millimeters

DATA SHEET NO. 17 (CONTINUED)**BULLET VEHICLE INTRUSION MEASUREMENTS**Test Program: Vehicle to Vehicle Frontal Offset ImpactTest Date: 12/07/10**DRIVER'S SIDE**

Intrusion Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
Front Outboard Seat Bolt	2548	-590	184	2546	-597	180	-3	-7	-4
Steering Center	2617	-320	-368	2616	-299	-470	-1	21	-102
Left Knee Bolster	2847	-461	-179	2811	-437	-255	-36	25	-76
Right Knee Bolster	2851	-165	-170	2836	-146	-240	-15	19	-70
Accelerator Pedal	3126	-157	115	3075	-96	50	51	-61	65
Brake Pedal	3089	-286	93	3046	-320	26	-44	-33	-66

All measurements are in millimeters.

DATA SHEET NO. 17 (CONTINUED)

BULLET VEHICLE INTRUSION MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

PASSENGER'S SIDE TOEBOARD MEASUREMENTS

Intrusion Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3182	190	194	3181	198	167	-1	8	-27
B1	3186	324	186	3187	330	166	1	6	-20
C1	3175	472	190	3174	477	174	-1	5	-16
D1	3133	589	146	3132	596	135	-1	7	-11
A2	3117	186	238	3118	191	213	0	5	-26
B2	3121	358	223	3122	362	205	1	4	-19
C2	3107	472	228	3107	476	213	0	4	-15
D2	3110	607	235	3109	611	226	-1	4	-9
A3	3033	184	283	3035	187	259	2	3	-23
B3	3033	319	280	3036	321	261	3	2	-19
C3	3029	472	281	3030	473	267	2	1	-14
D3	3032	614	282	3033	615	273	1	1	-9
A4	2833	167	286	2836	167	269	3	1	-17
B4	2829	303	297	2831	304	282	2	1	-16
C4	2831	474	295	2832	473	284	1	-2	-10
D4	2837	617	290	2837	616	285	0	-1	-5
A5	2645	171	285	2648	172	272	2	1	-14
B5	2640	307	290	2644	305	278	4	-2	-11
C5	2637	471	283	2638	470	276	1	-2	-7
D5	2642	614	272	2643	611	268	1	-3	-4

All measurements are in millimeters.

DATA SHEET NO. 17 (CONTINUED)**BULLET VEHICLE INTRUSION MEASUREMENTS**Test Program: Vehicle to Vehicle Frontal Offset ImpactTest Date: 12/07/10**BUMPER MEASUREMENTS****(without fascia)**

Index	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	4097	-591	46	3743	-459	132	-353	133	-178
2	4146	-479	55	3820	-368	107	-326	112	-161
3	4192	-364	52	3857	-250	-97	-335	114	-149
4	4212	-243	53	3855	-129	-87	-358	114	-140
5	4220	-117	53	3922	-41	-74	-298	76	-127
6	4220	7	53	3978	70	-62	-242	63	-116
7	4219	131	51	4034	180	-54	-185	49	-105
8	4211	258	48	4085	297	-47	-126	39	-95
9	4190	378	48	4122	412	-36	-68	34	-84
10	4144	492	48	4133	534	-26	-10	42	-74
11	4093	603	40	4138	657	-22	46	54	-63

All measurements are in millimeters.

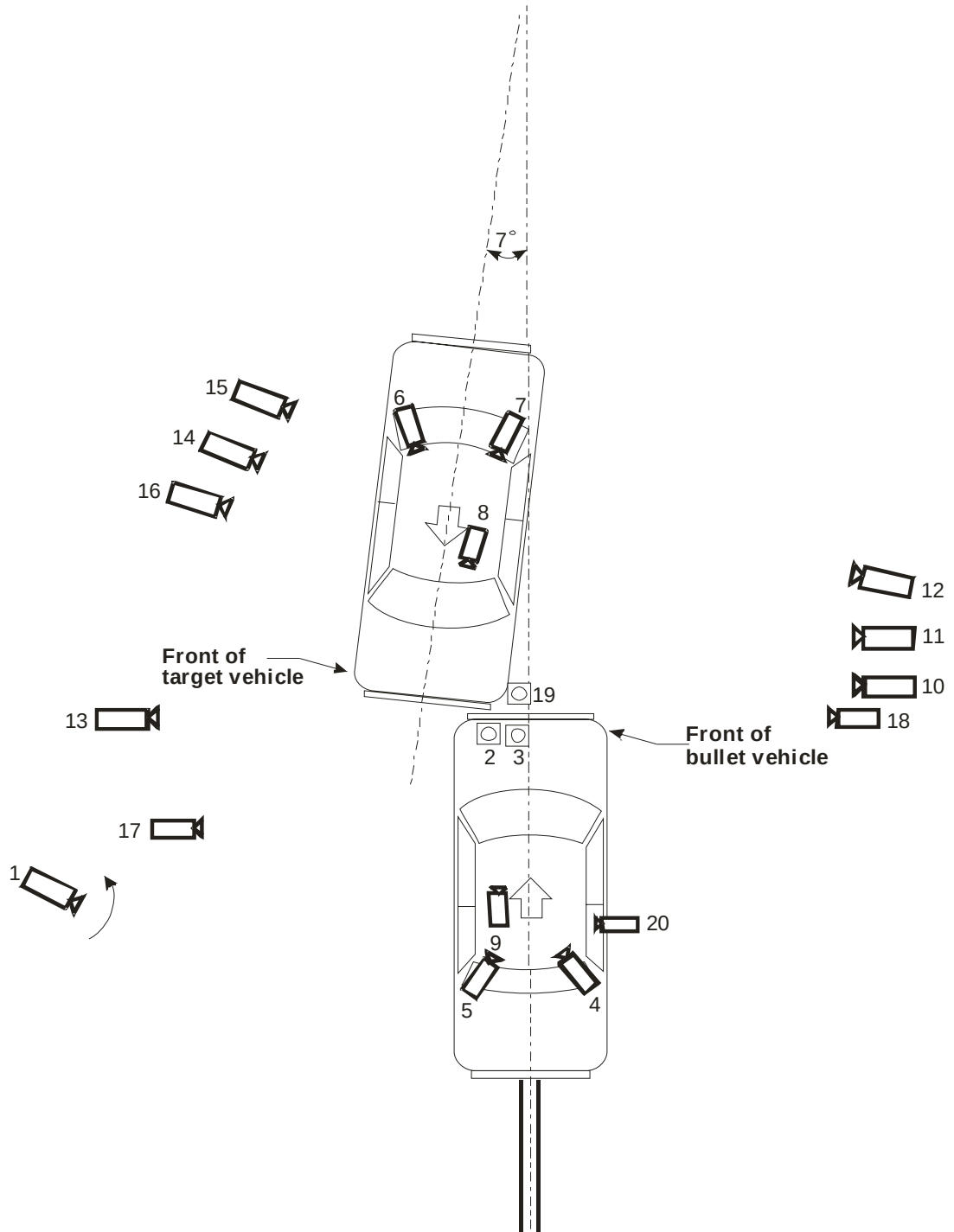
Point 1 is located on the passenger side of the bumper.

DATA SHEET NO. 18

CAMERA LOCATIONS AND DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10



DATA SHEET NO. 18 (CONTINUED)**CAMERA LOCATIONS AND DATA**Test Program: Vehicle to Vehicle Frontal Offset ImpactTest Date: 12/07/10

Ref.	Description / Location	Type	Lens (mm)	Speed (f/s)
1	Real Time Panning/Documentary	Canon	Zoom	30
2	Overhead Wide	Visario-G1	12.5	1000
3	Overhead Tight	Visario-G1	25	1000
4	Bullet Onboard Driver Overshoulder	Redlake-LE	8.5	1000
5	Bullet Onboard Passenger Overshoulder	Redlake-LE	8.5	1000
6	Target Onboard Driver Overshoulder	Redlake-LE	8.5	1000
7	Target Onboard Driver Lateral	Redlake-LE	8.5	1000
8	Target Onboard Driver Footwell	Redlake-LE	5.5	1000
9	Bullet Onboard Driver Footwell	VRTC1	4.8	1000
10	Left Wide Bullet Vehicle/Target Vehicle at T-0	Redlake-LE	8.5	1000
11	Left Side Tight Target Vehicle B-Pillar to Bullet Vehicle	Visario-G2	25	1000
12	Left Tight Target Driver to IP/Airbag Contact	Redlake-LE	25	1000
13	Right Wide Target Vehicle/Bullet Vehicle at T-0	Visario-G1	16	1000
14	Right Side Tight Target Vehicle B-Pillar to Bullet Tight	Visario-G2	25	1000
15	Right Tight Target Passenger to IP/Airbag Contact	Visario-G1	50	1000
16	Left Side Tight Bullet Vehicle B-Pillar to Target Vehicle	Visario-G2	25	1000
17	Left Tight Bullet Driver to IP/Airbag Contact	Visario-G1	50	1000
18	Right Side Tight Bullet Vehicle B-Pillar to Target Tight	Redlake-LE	25	1000
19	Pit Wide	Redlake-LE	12.5	1000
20	Bullet Passenger Lateral from Door	VRTC4	8.5	1000

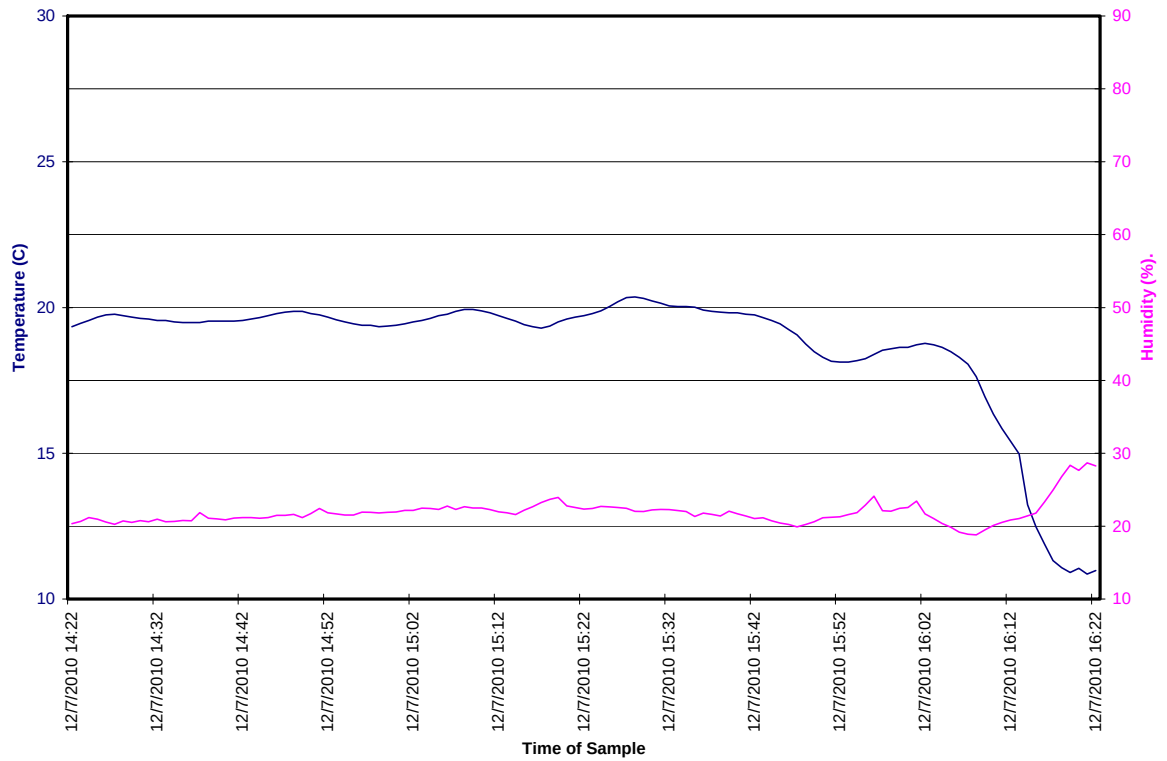
DATA SHEET NO. 19

TARGET DUMMY / VEHICLE TEMPERATURE STABILIZATION

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

Vehicle Into Vehicle at 7 Degrees 101207 (Target Vehicle); Test Time 16:22



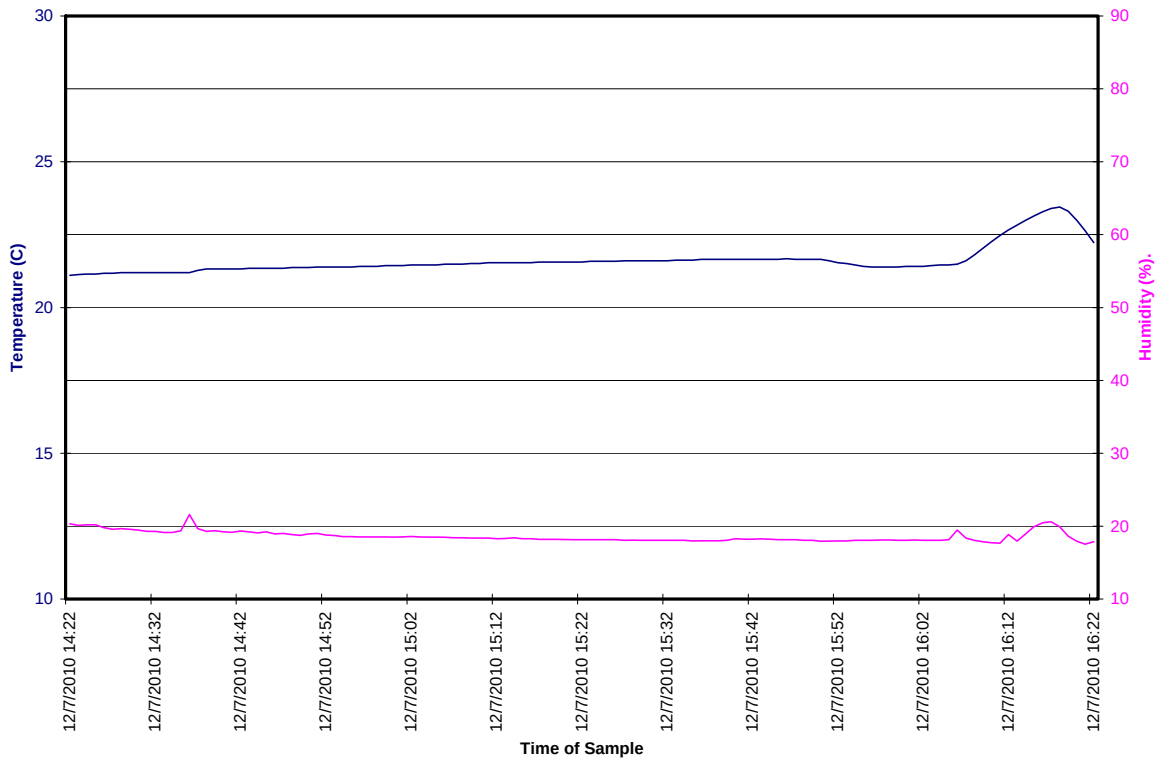
DATA SHEET NO. 20

BULLET DUMMY / VEHICLE TEMPERATURE STABILIZATION

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 12/07/10

Vehicle Into Vehicle at 7 Degrees 101207 (Bullet Vehicle); Test Time 16:22



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Figure A-2 Pre-Test Overall - View 2



Figure A-3 Pre-Test Overall - View 3



Figure A-4 Pre-Test Overall - View 4



Figure A-5 Pre-Test Overhead Wide View



Figure A-6 Pre-Test Overhead Medium View



Figure A-7 Pre-Test Overhead Tight View



Figure A-8 Pre-Test Overhead Impact Alignment View

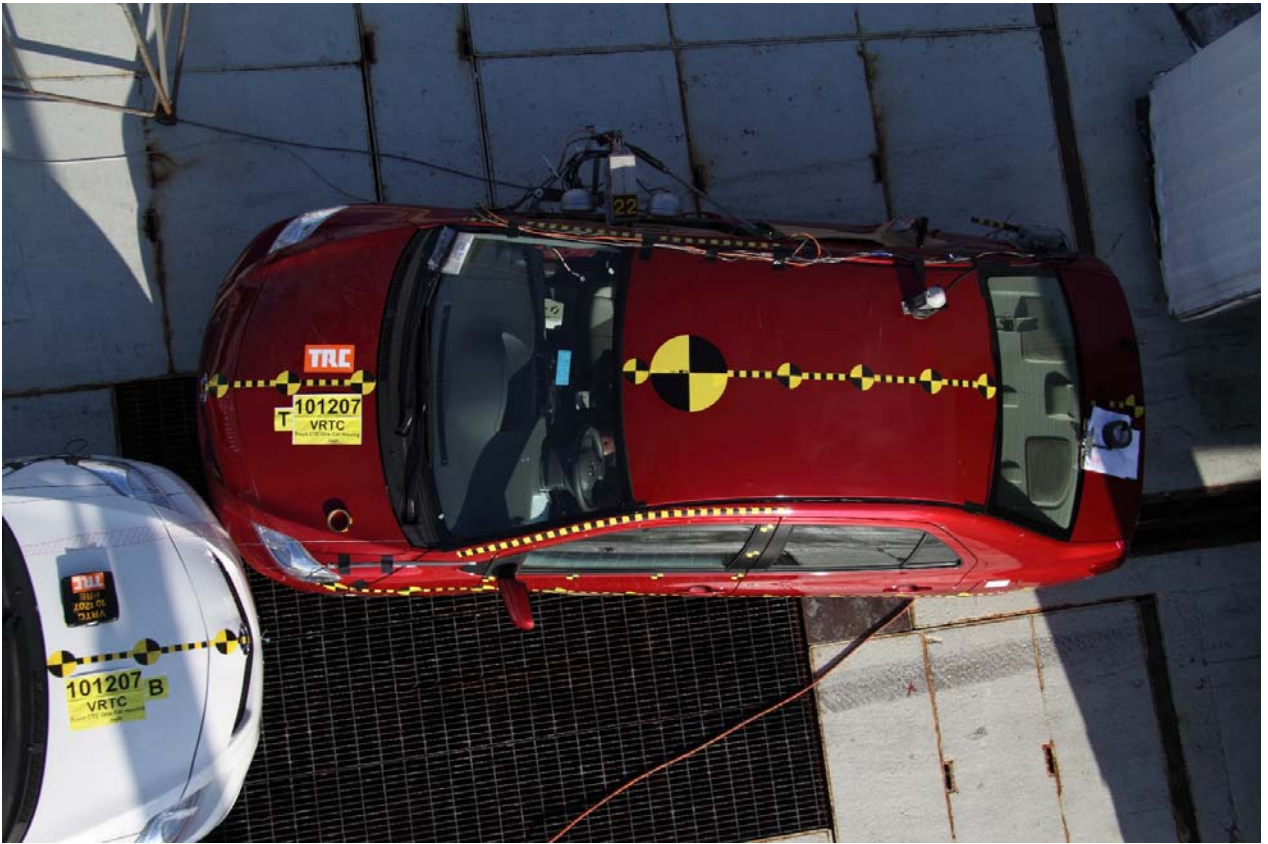


Figure A-9 Pre-Test Overhead Target Vehicle View



Figure A-10 Post-Test Overhead Target Vehicle View



Figure A-11 Pre-Test Overhead Bullet Vehicle View



Figure A-12 Post-Test Overhead Bullet Vehicle View



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Figure A-15 Pre-Test Impact Alignment – View 3



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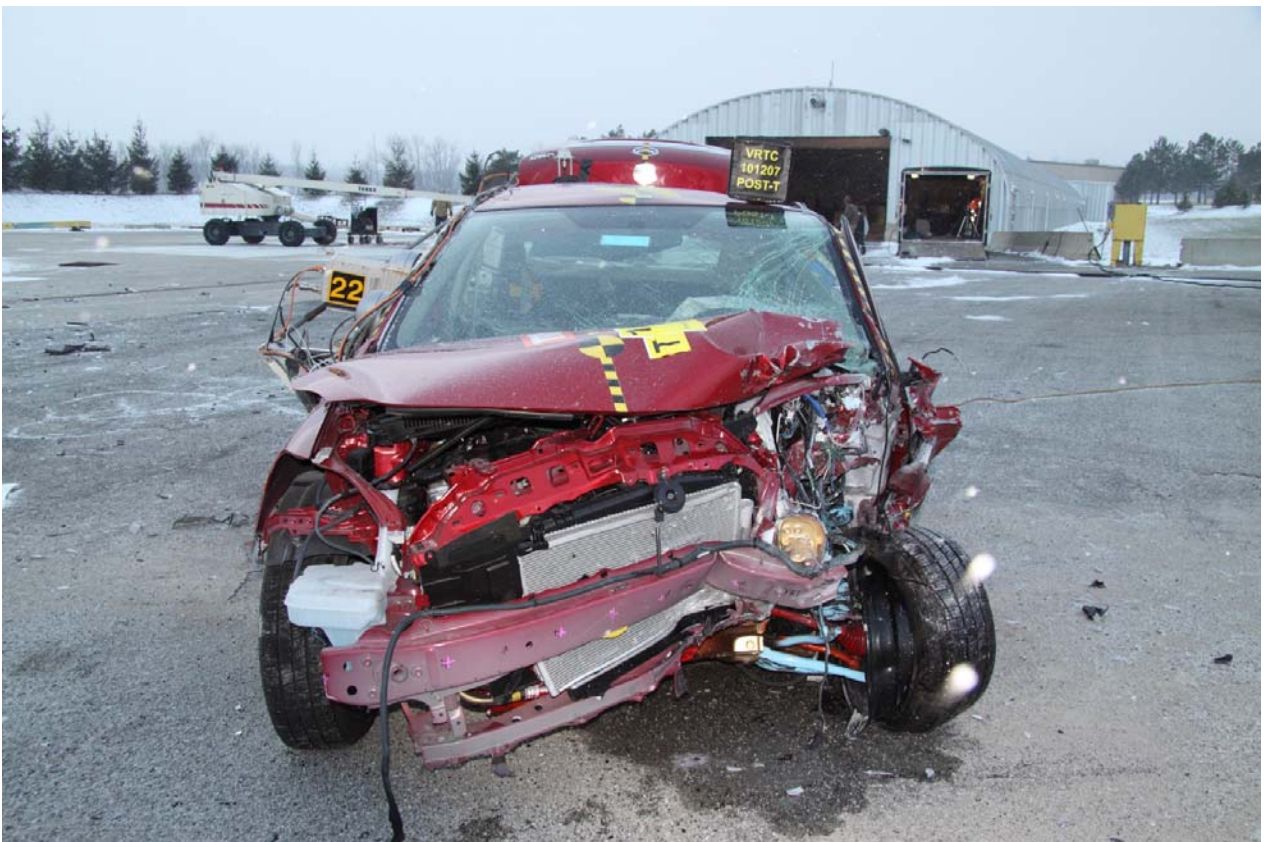


Figure A-18 Post-Test Target Vehicle Front View



Figure A-19 Pre-Test Target Vehicle Left Front View



Figure A-20 Post-Test Target Vehicle Left Front View



Figure A-21 Pre-Test Target Vehicle Left Side View



Figure A-22 Post-Test Target Vehicle Left Side View



Figure A-23 Pre-Test Target Vehicle Left Rear View



Figure A-24 Post-Test Target Vehicle Left Rear View



Figure A-25 Pre-Test Target Vehicle Rear View



Figure A-26 Post-Test Target Vehicle Rear View



Figure A-27 Pre-Test Target Vehicle Right Rear View



Figure A-28 Post-Test Target Vehicle Right Rear View

Photograph Not Available

Figure A-29 Pre-Test Target Vehicle Right Side View



Figure A-30 Post-Test Target Vehicle Right Side View



Figure A-31 Pre-Test Target Vehicle Right Front View



Figure A-32 Post-Test Target Vehicle Right Front View



Figure A-33 Pre-Test Target Vehicle Engine Compartment View

Photograph Not Available

Figure A-34 Post-Test Target Vehicle Engine Compartment View

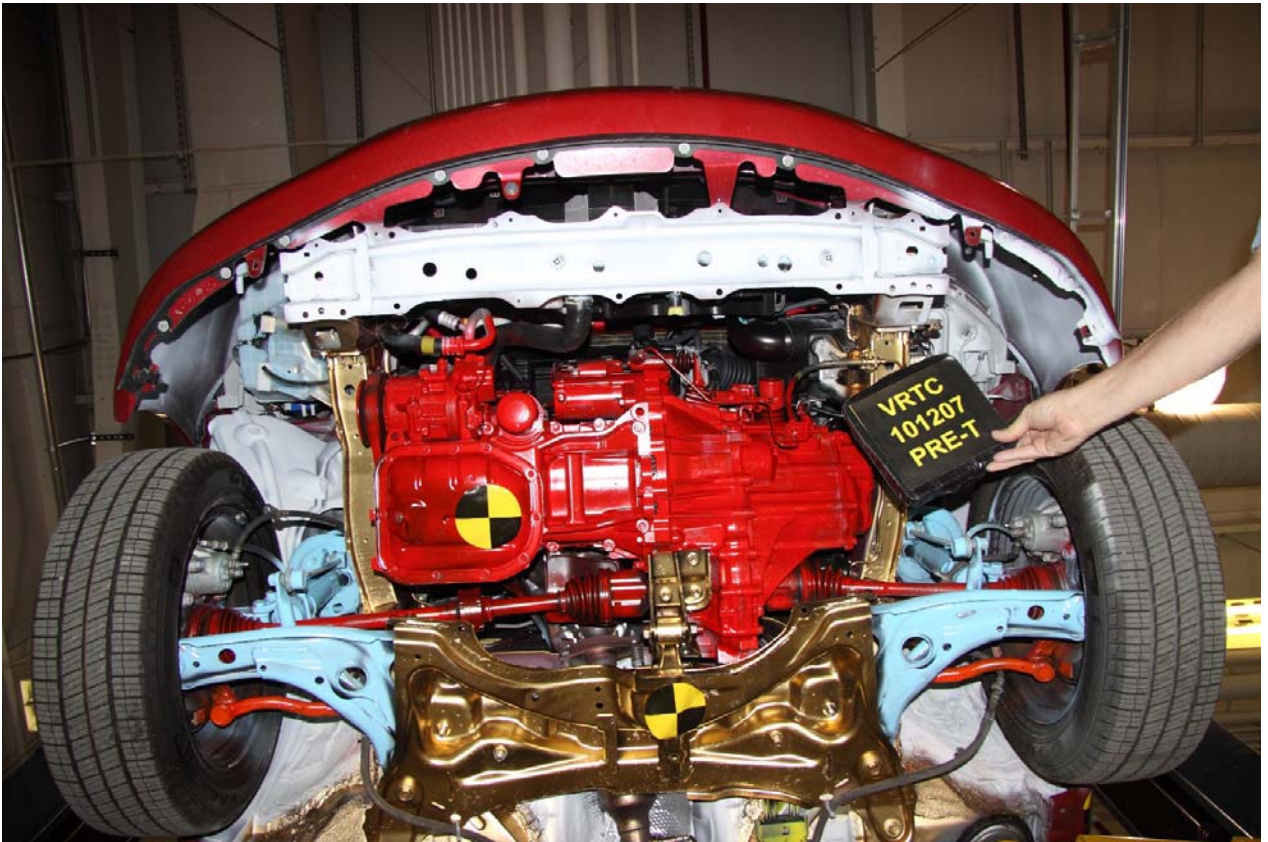


Figure A-35 Pre-Test Target Vehicle Front Underbody View

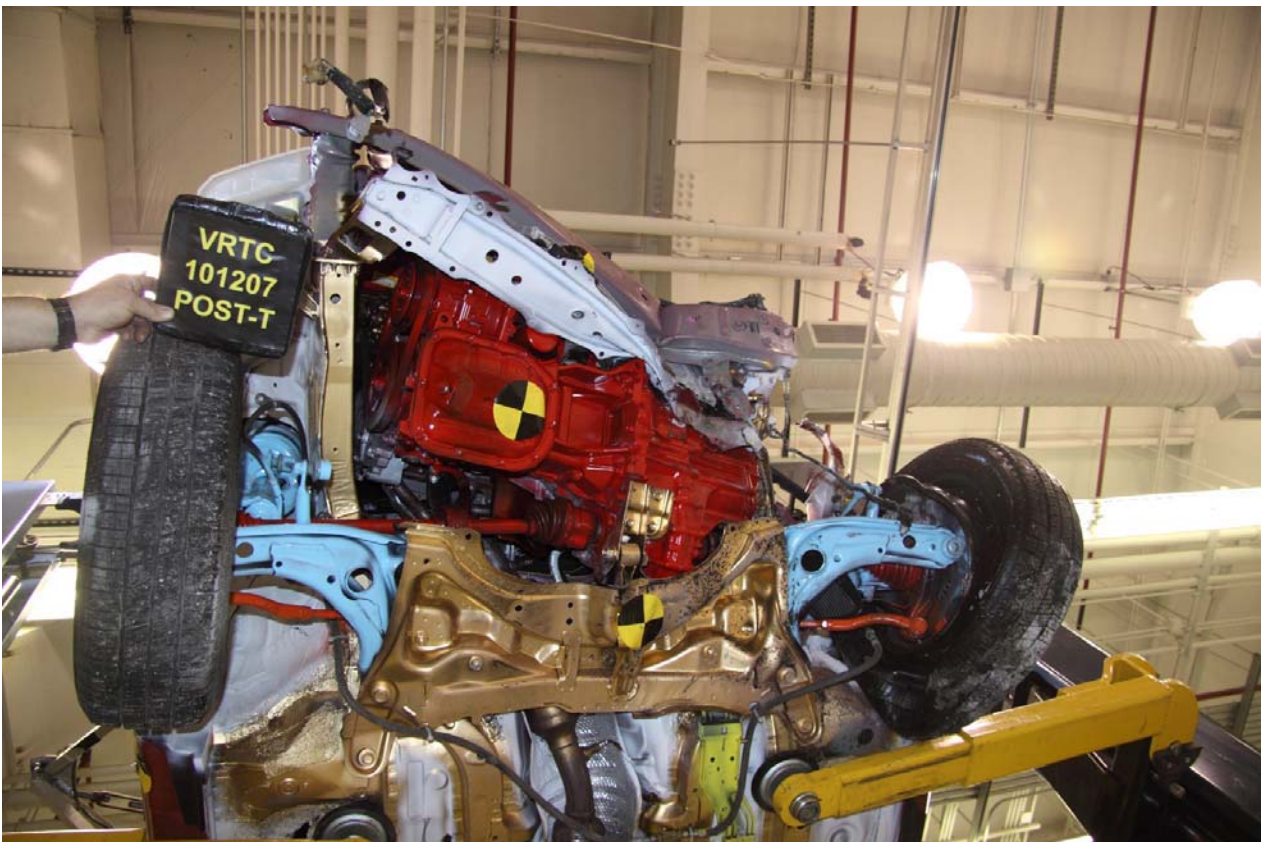


Figure A-36 Post-Test Target Vehicle Front Underbody View

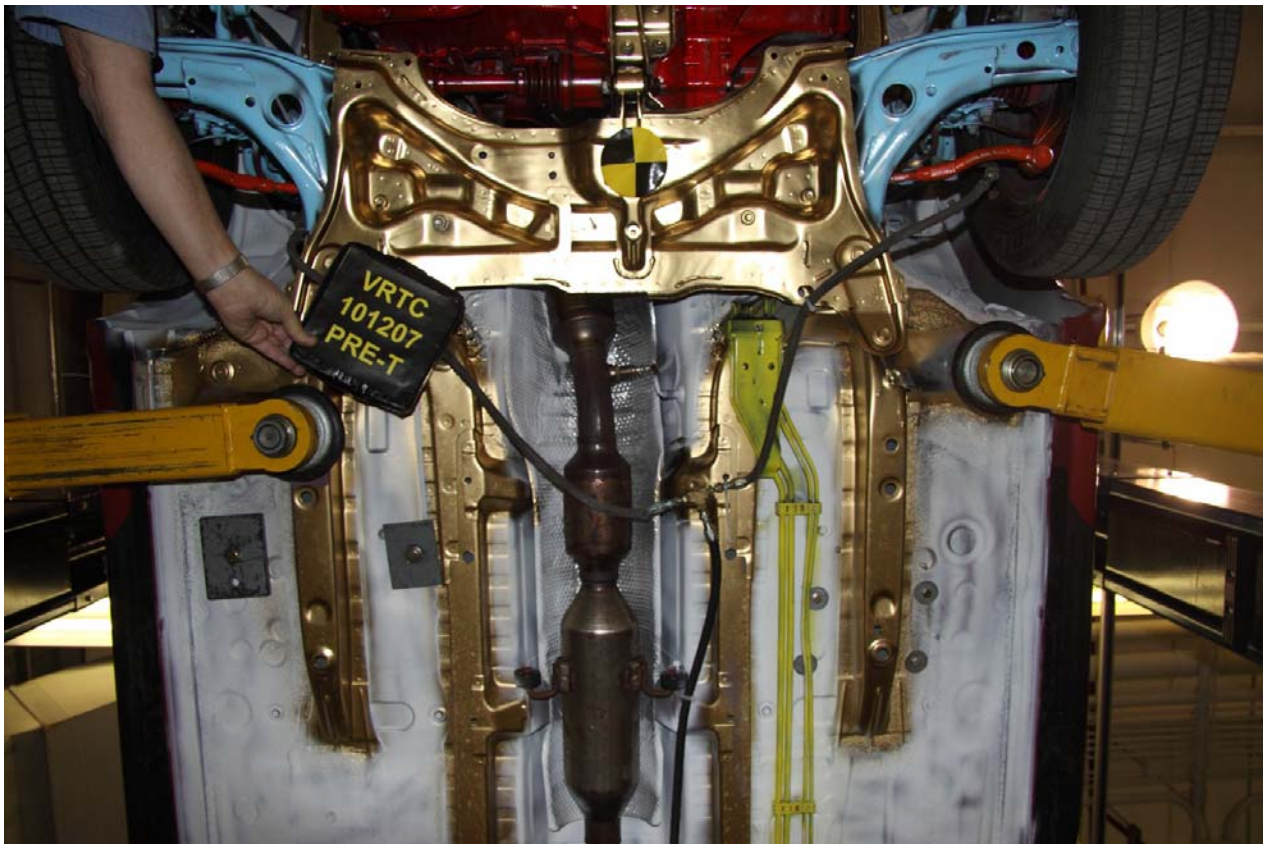


Figure A-37 Pre-Test Target Vehicle Mid Front Underbody View



Figure A-38 Post-Test Target Vehicle Mid Front Underbody View



Figure A-39 Pre-Test Target Vehicle Mid Underbody View

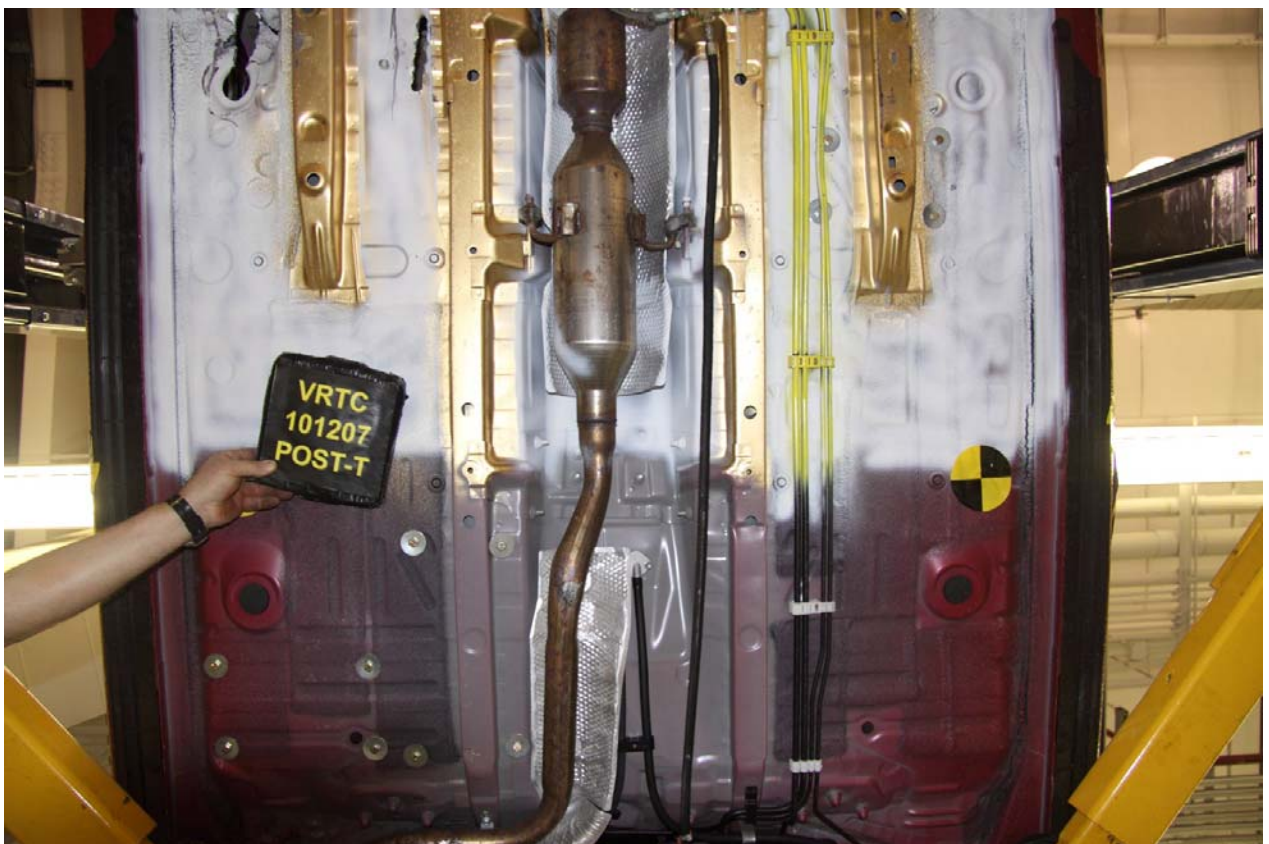


Figure A-40 Post-Test Target Vehicle Mid Underbody View

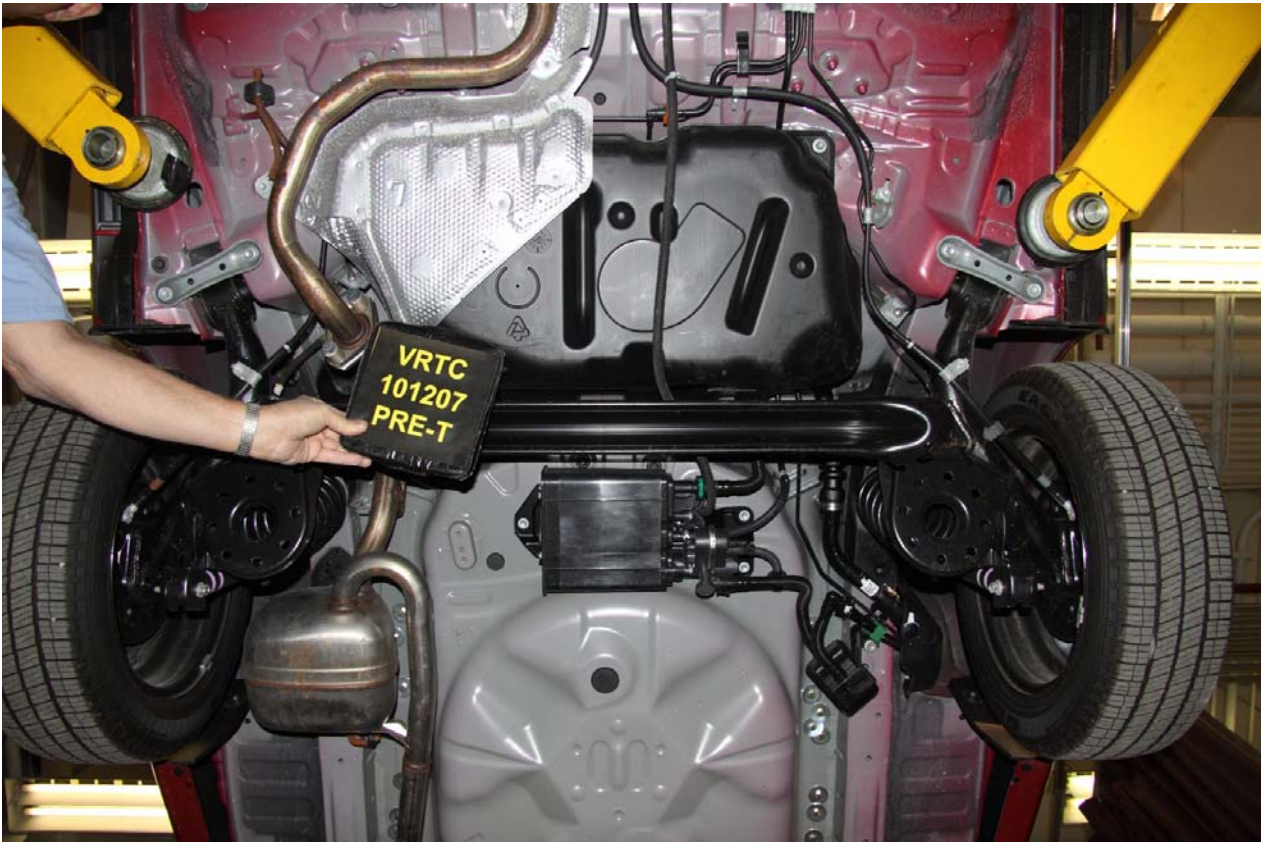


Figure A-41 Pre-Test Target Vehicle Mid Rear Underbody View

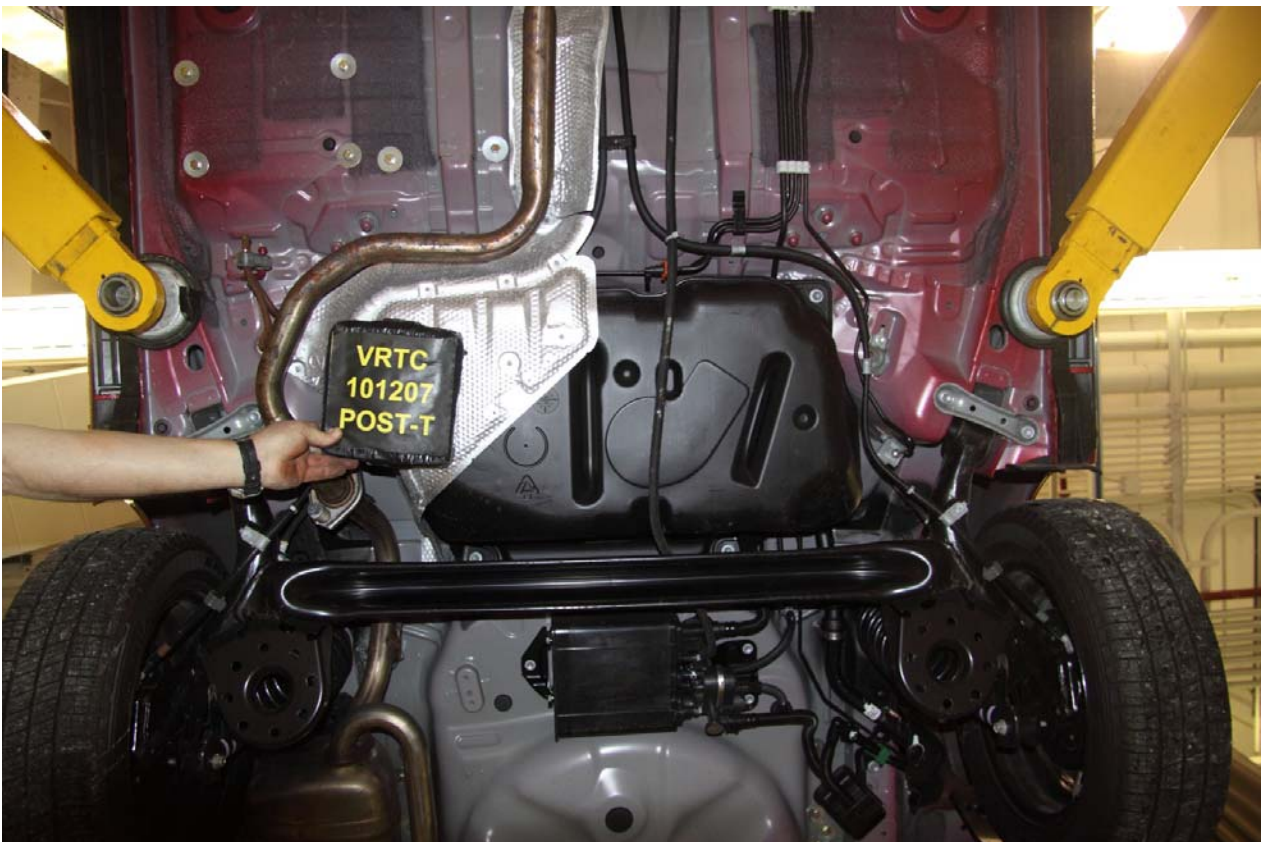


Figure A-42 Post-Test Target Vehicle Mid Rear Underbody View



Figure A-43 Pre-Test Target Vehicle Rear Underbody View



Figure A-44 Post-Test Target Vehicle Rear Underbody View



Figure A-45 Pre-Test Target Vehicle Front Underbody Close-up View 1

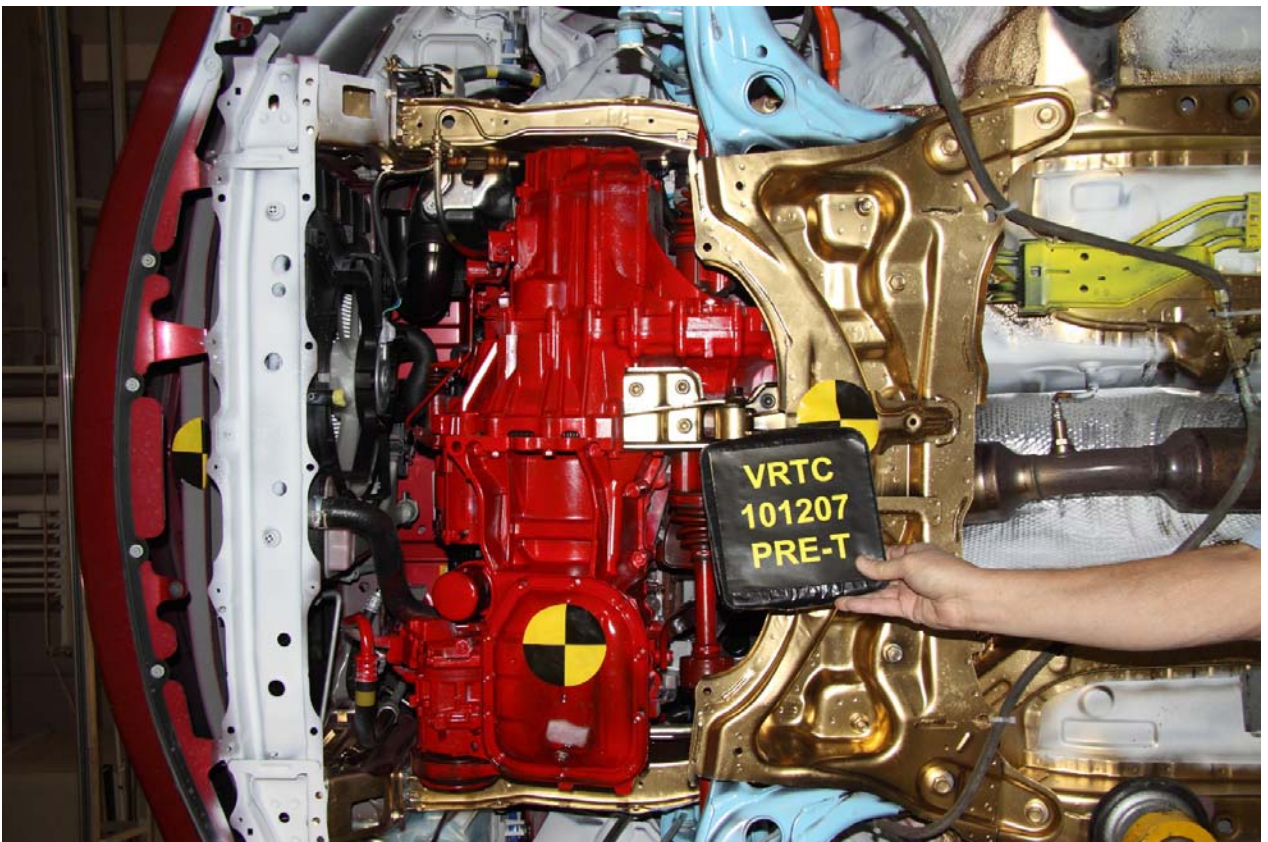


Figure A-46 Pre-Test Target Vehicle Front Underbody Close-up View 2

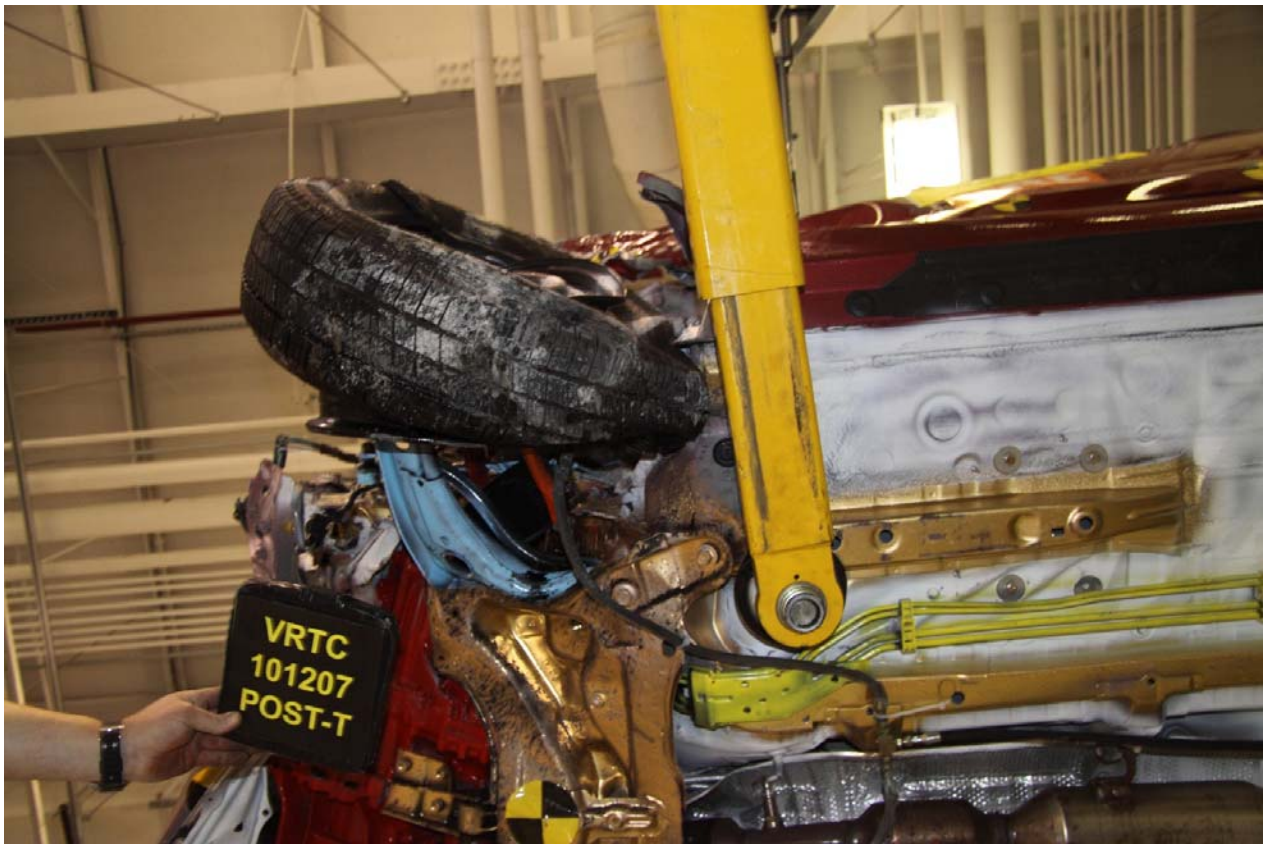


Figure A-47 Post-Test Target Vehicle Front Underbody Close-up View 1

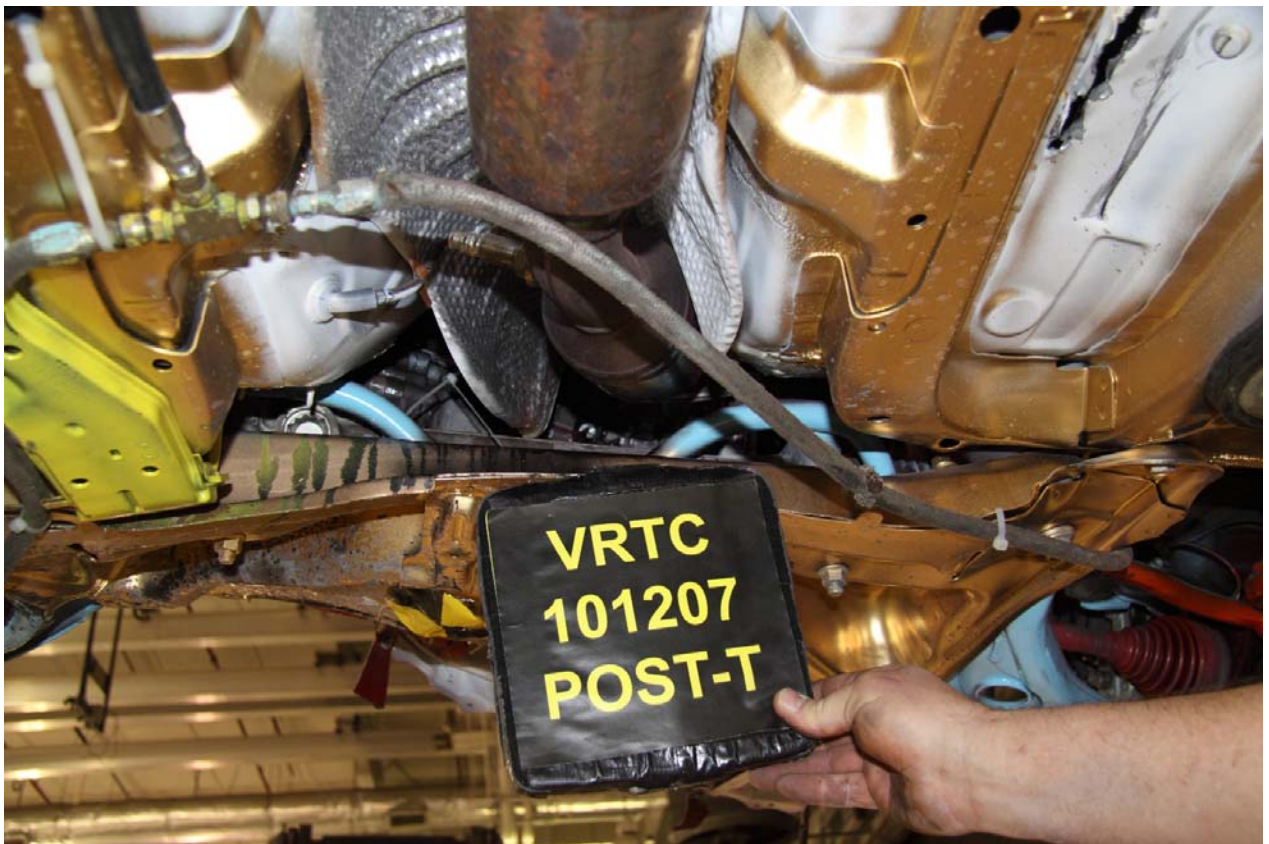


Figure A-48 Post-Test Target Vehicle Front Underbody Close-up View 2



Figure A-49 Post-Test Target Vehicle Front Underbody Close-up View 3



Figure A-50 Post-Test Target Vehicle Front Underbody Close-up View 4



Figure A-51 Post-Test Target Vehicle Front Underbody Close-up View 5



Figure A-52 Post-Test Target Vehicle Front Underbody Close-up View 6

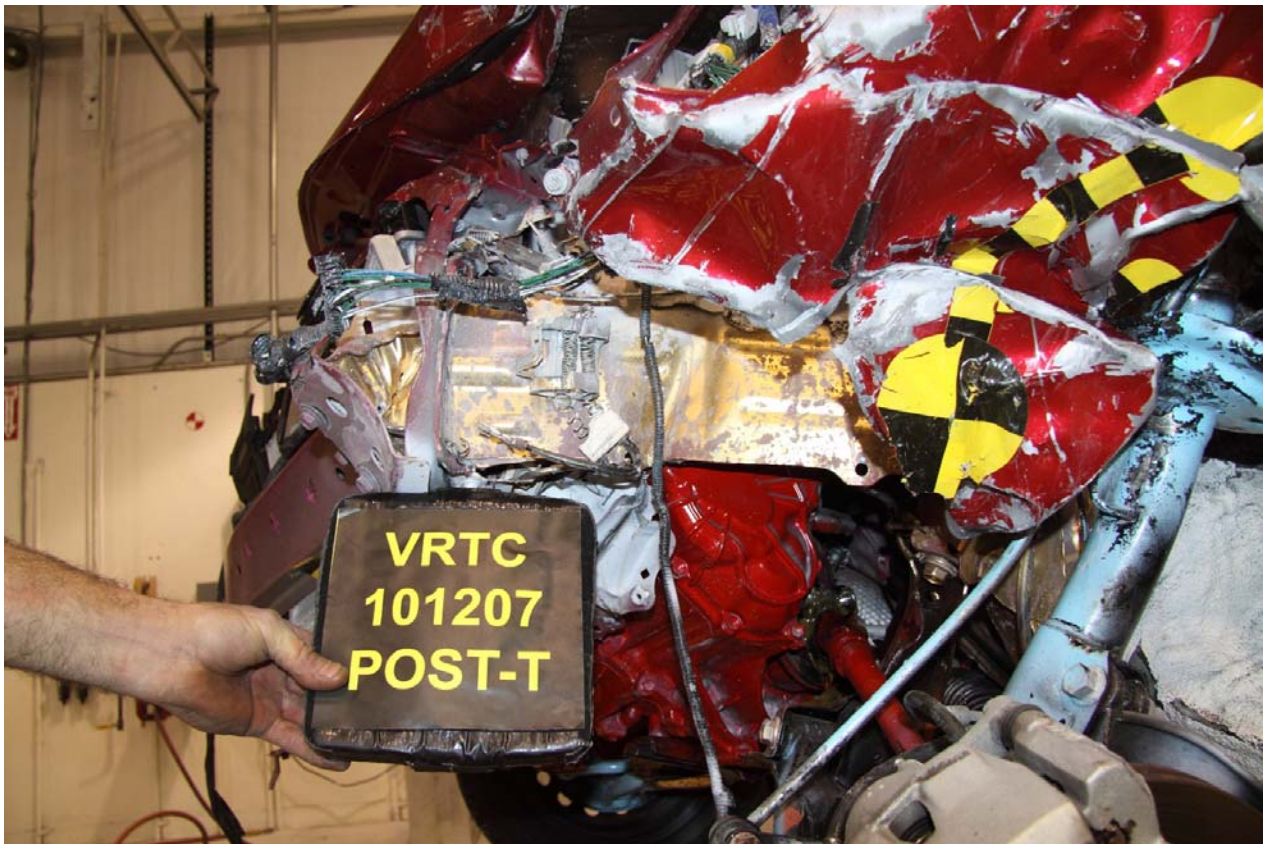


Figure A-53 Post-Test Target Vehicle Front Underbody Close-up View 7



Figure A-54 Post-Test Target Vehicle Front Underbody Close-up View 8



Figure A-55 Post-Test Target Vehicle Front Underbody Close-up View 9



Figure A-56 Post-Test Target Vehicle Front Underbody Close-up View 10



Figure A-57 Post-Test Target Vehicle Front Underbody Close-up View 11



Figure A-58 Post-Test Target Vehicle Front Underbody Close-up View 12



Figure A-59 Pre-Test Bullet Vehicle Front View

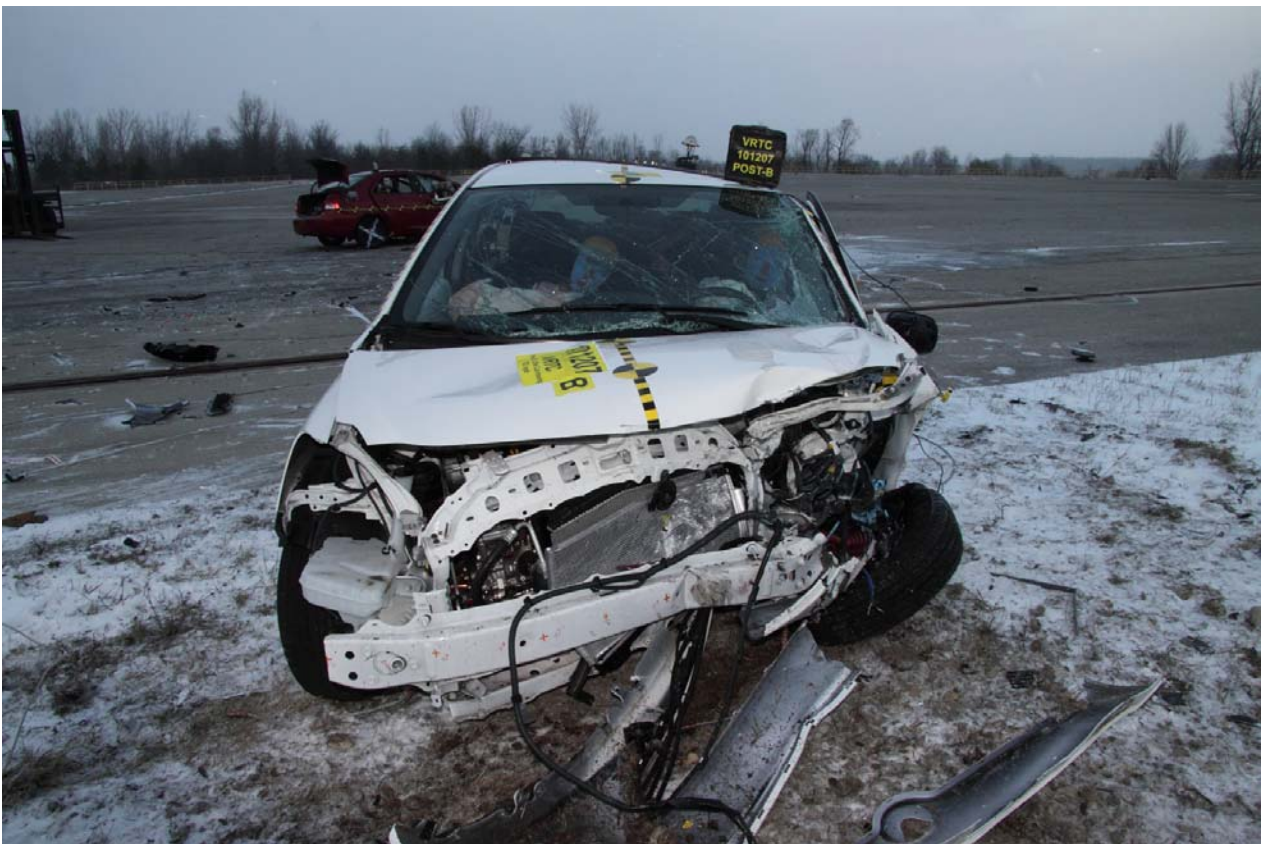


Figure A-60 Post-Test Bullet Vehicle Front View



Figure A-61 Pre-Test Bullet Vehicle Left Front View



Figure A-62 Post-Test Bullet Vehicle Left Front View



Figure A-63 Pre-Test Bullet Vehicle Left Side View



Figure A-64 Post-Test Bullet Vehicle Left Side View



Figure A-65 Pre-Test Bullet Vehicle Left Rear View



Figure A-66 Post-Test Bullet Vehicle Left Rear View



Figure A-67 Pre-Test Bullet Vehicle Rear View



Figure A-68 Post-Test Bullet Vehicle Rear View



Figure A-69 Pre-Test Bullet Vehicle Right Rear View



Figure A-70 Post-Test Bullet Vehicle Right Rear View



Figure A-71 Pre-Test Bullet Vehicle Right Side View



Figure A-72 Post-Test Bullet Vehicle Right Side View



Figure A-73 Pre-Test Bullet Vehicle Right Front View



Figure A-74 Post-Test Bullet Vehicle Right Front View



Figure A-75 Pre-Test Bullet Vehicle Engine Compartment View

Photograph Not Available

Figure A-76 Post-Test Bullet Vehicle Engine Compartment View

Photograph Not Available

Figure A-77 Pre-Test Bullet Vehicle Front Underbody View

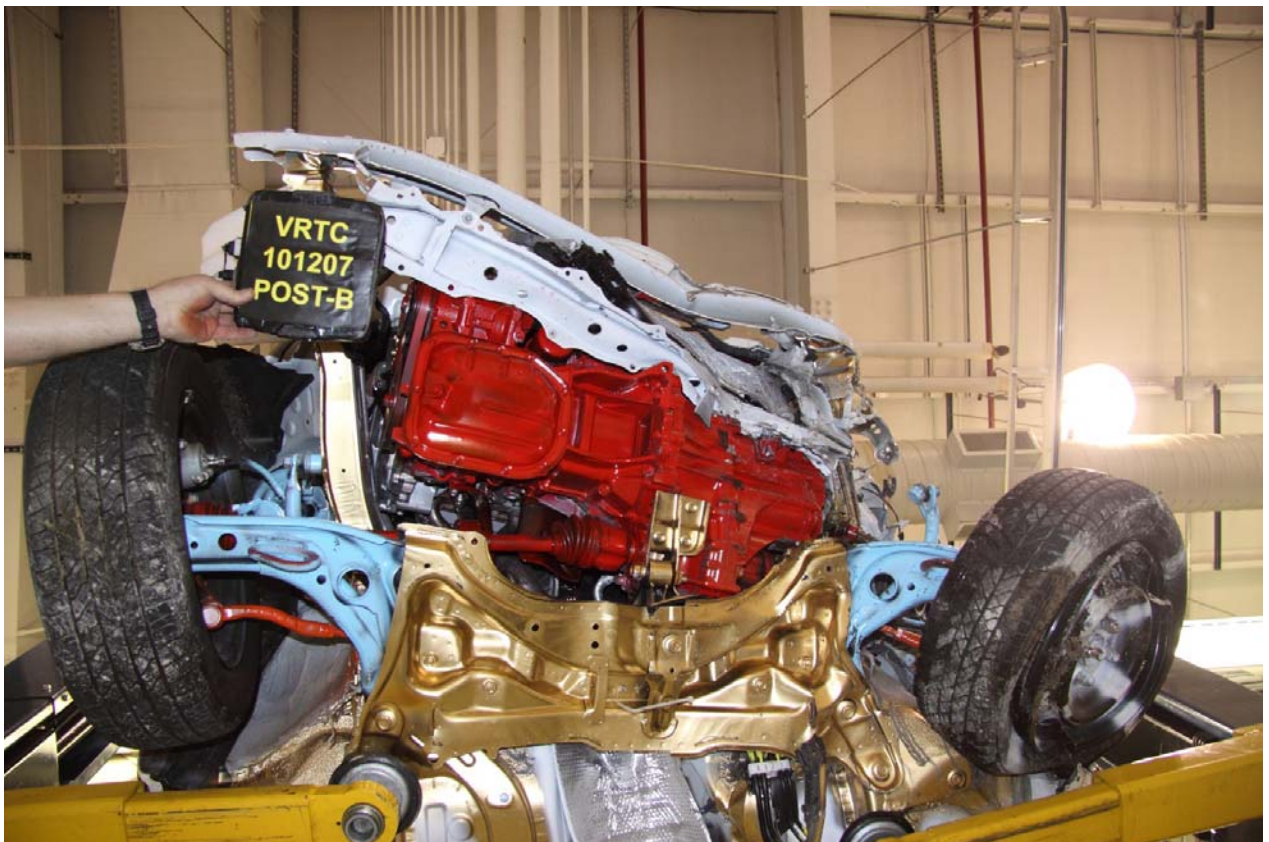


Figure A-78 Post-Test Bullet Vehicle Front Underbody View



Figure A-79 Pre-Test Bullet Vehicle Mid Front Underbody View

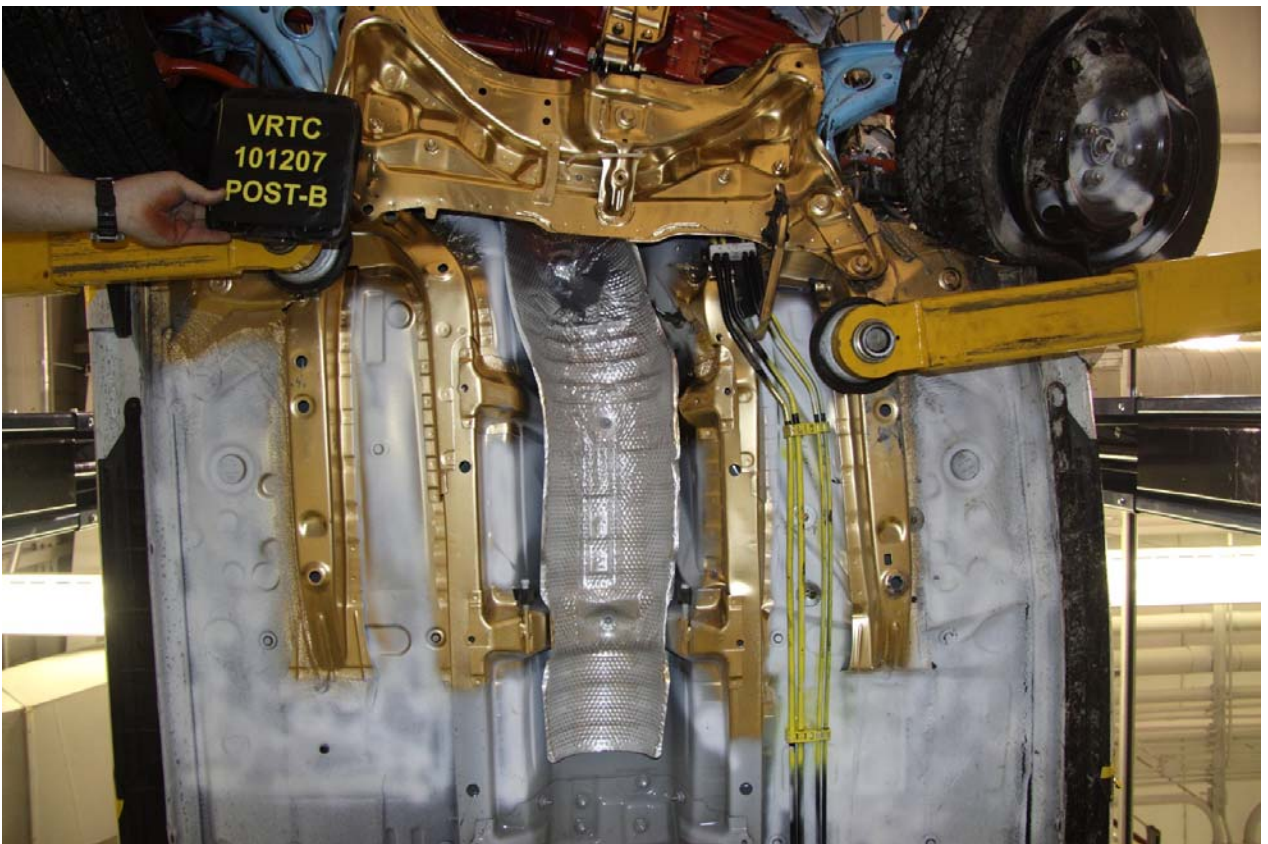


Figure A-80 Post-Test Bullet Vehicle Mid Front Underbody View

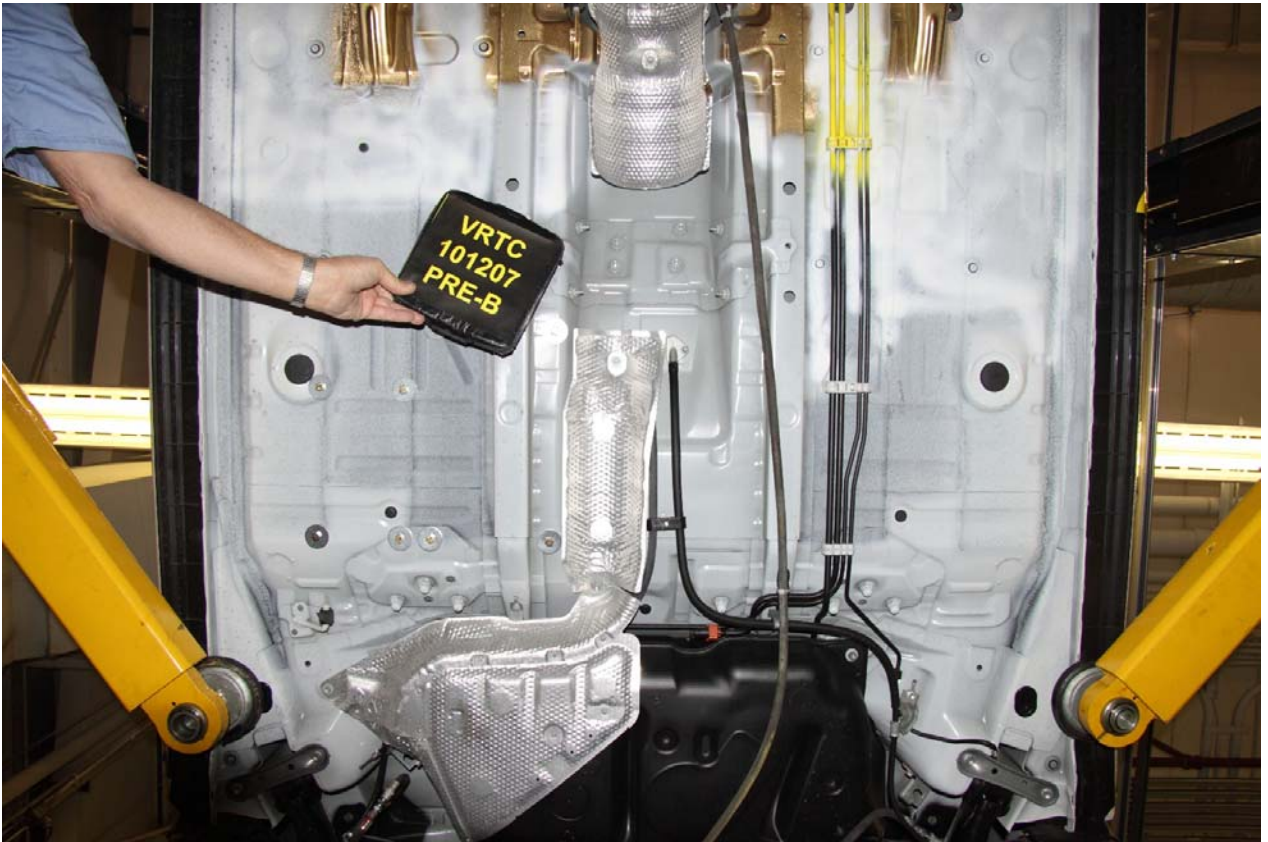


Figure A-81 Pre-Test Bullet Vehicle Mid Underbody View



Figure A-82 Post-Test Bullet Vehicle Mid Underbody View

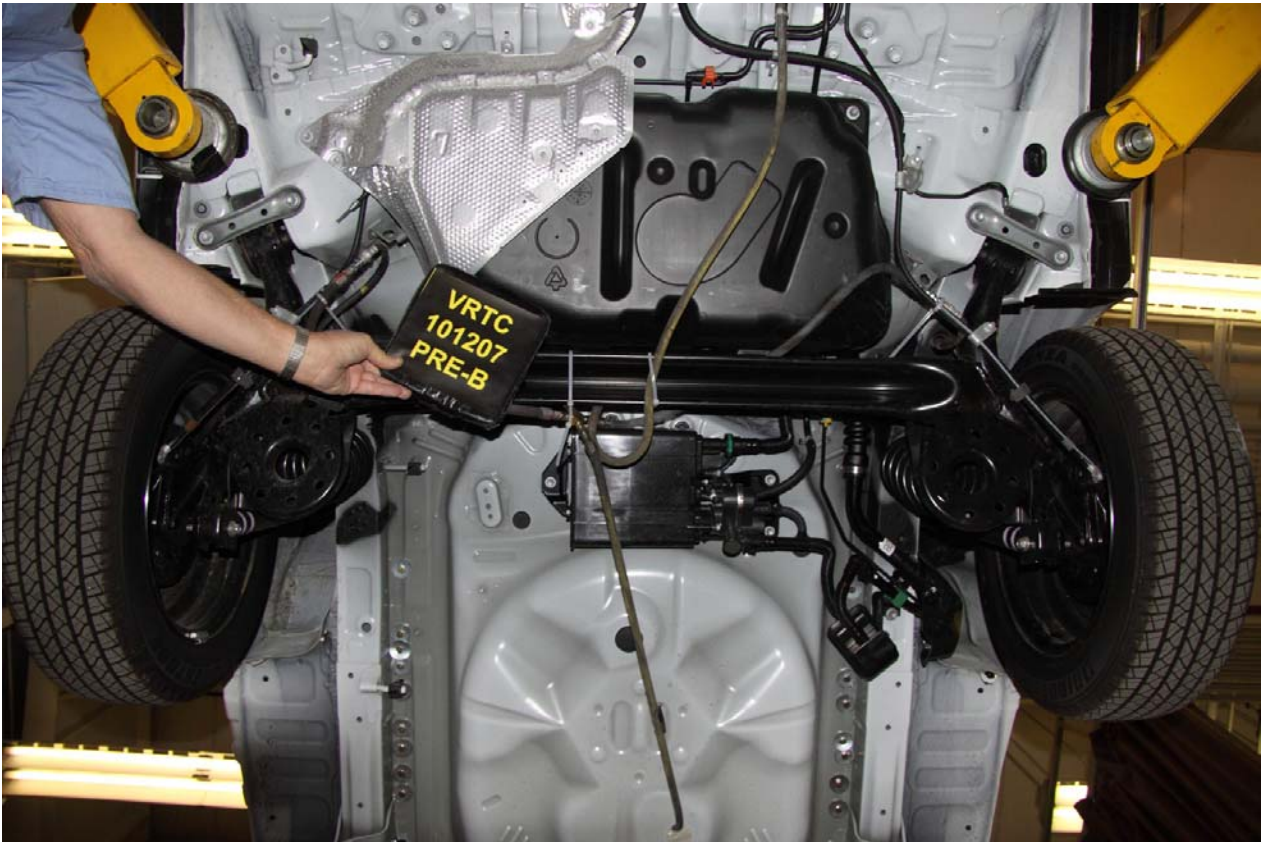


Figure A-83 Pre-Test Bullet Vehicle Mid Rear Underbody View

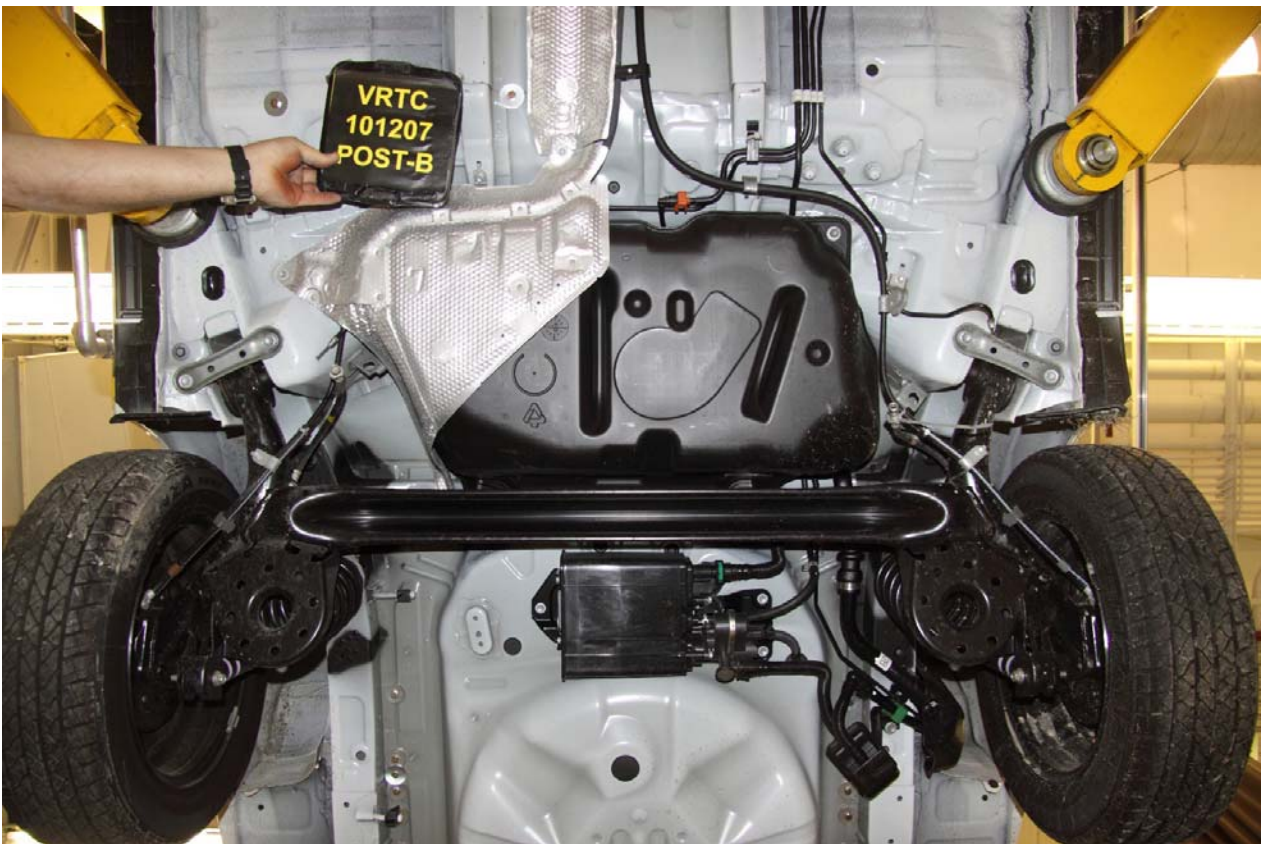


Figure A-84 Post-Test Bullet Vehicle Mid Rear Underbody View



Figure A-85 Pre-Test Bullet Vehicle Rear Underbody View



Figure A-86 Post-Test Bullet Vehicle Rear Underbody View

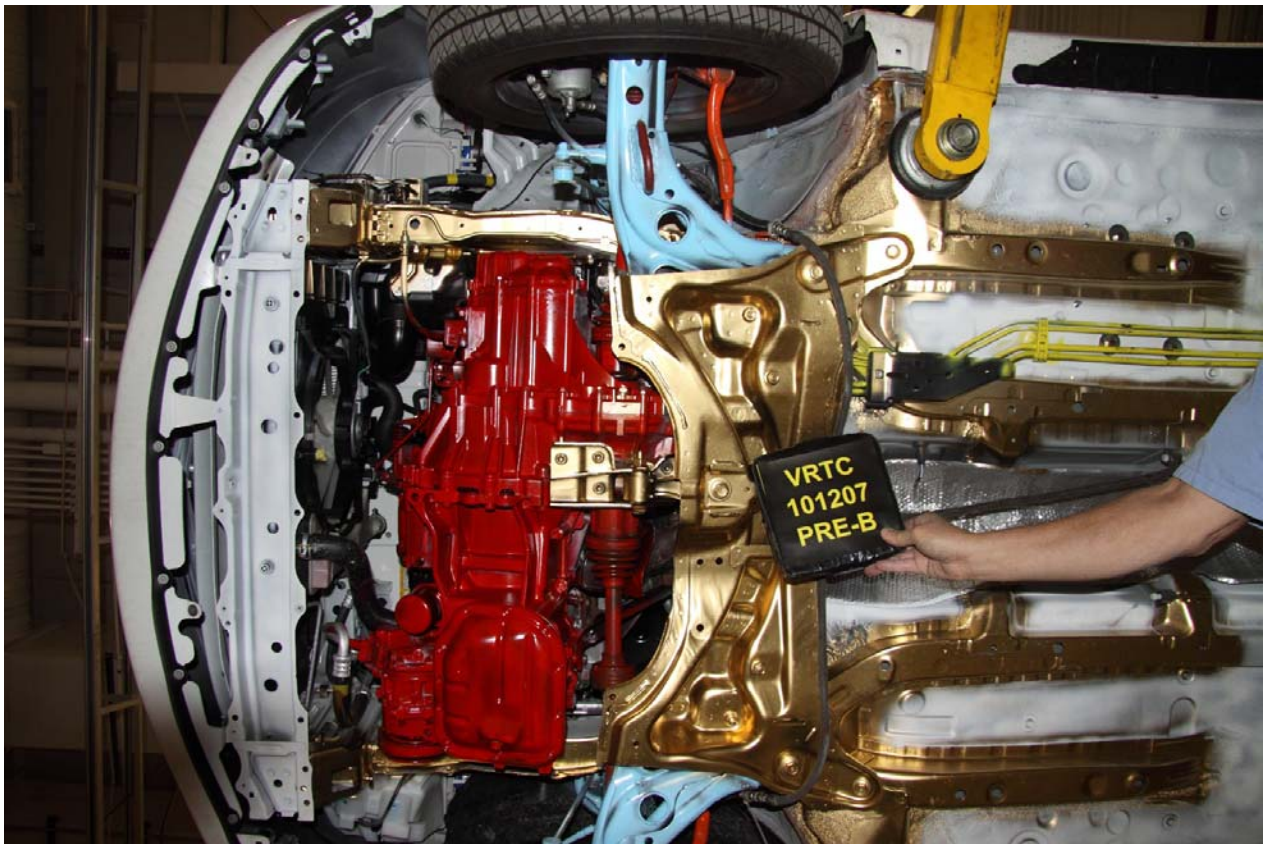


Figure A-87 Pre-Test Bullet Vehicle Front Underbody Close-up View

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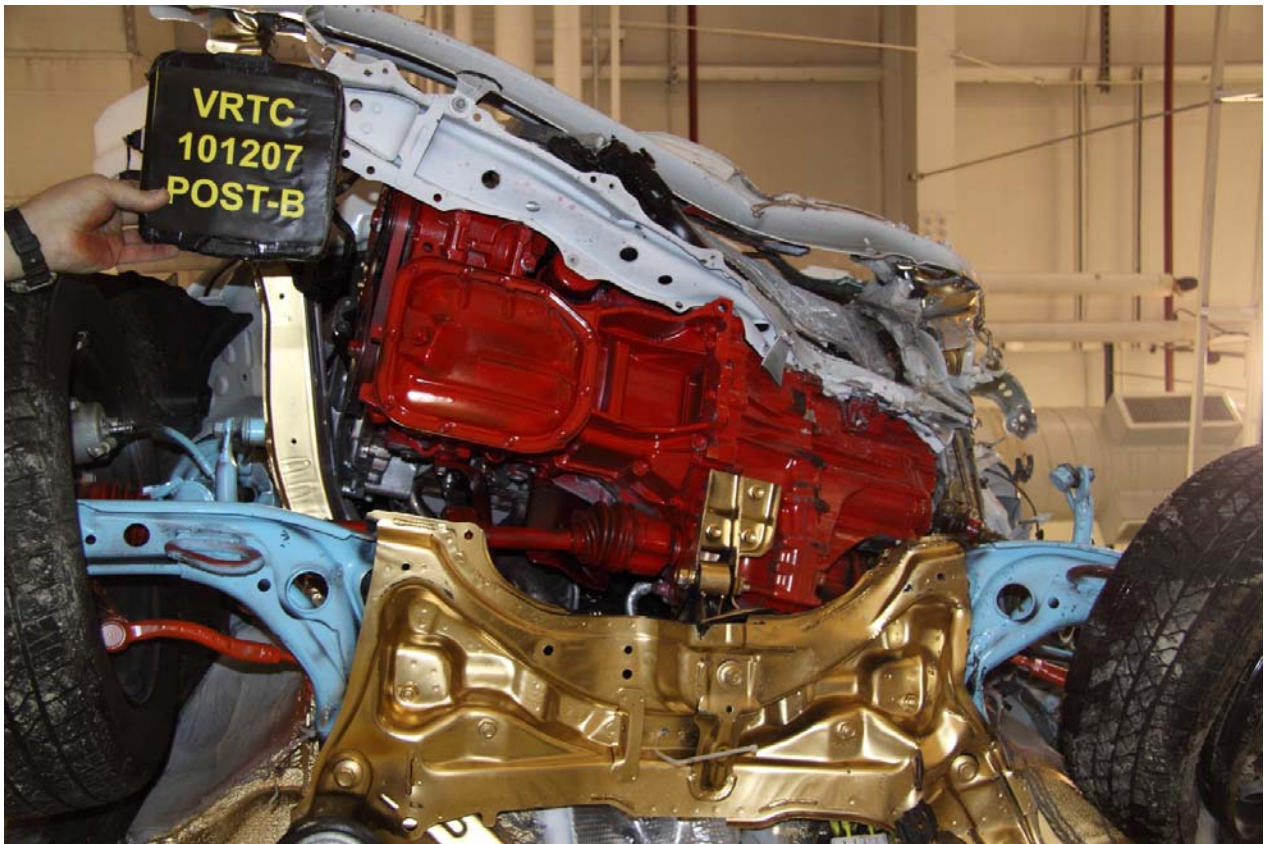


Figure A-88 Post-Test Bullet Vehicle Front Underbody Close-up View 1



Figure A-89 Post-Test Bullet Vehicle Front Underbody Close-up View 2



Figure A-90 Post-Test Bullet Vehicle Front Underbody Close-up View 3



Figure A-91 Post-Test Bullet Vehicle Front Underbody Close-up View 4

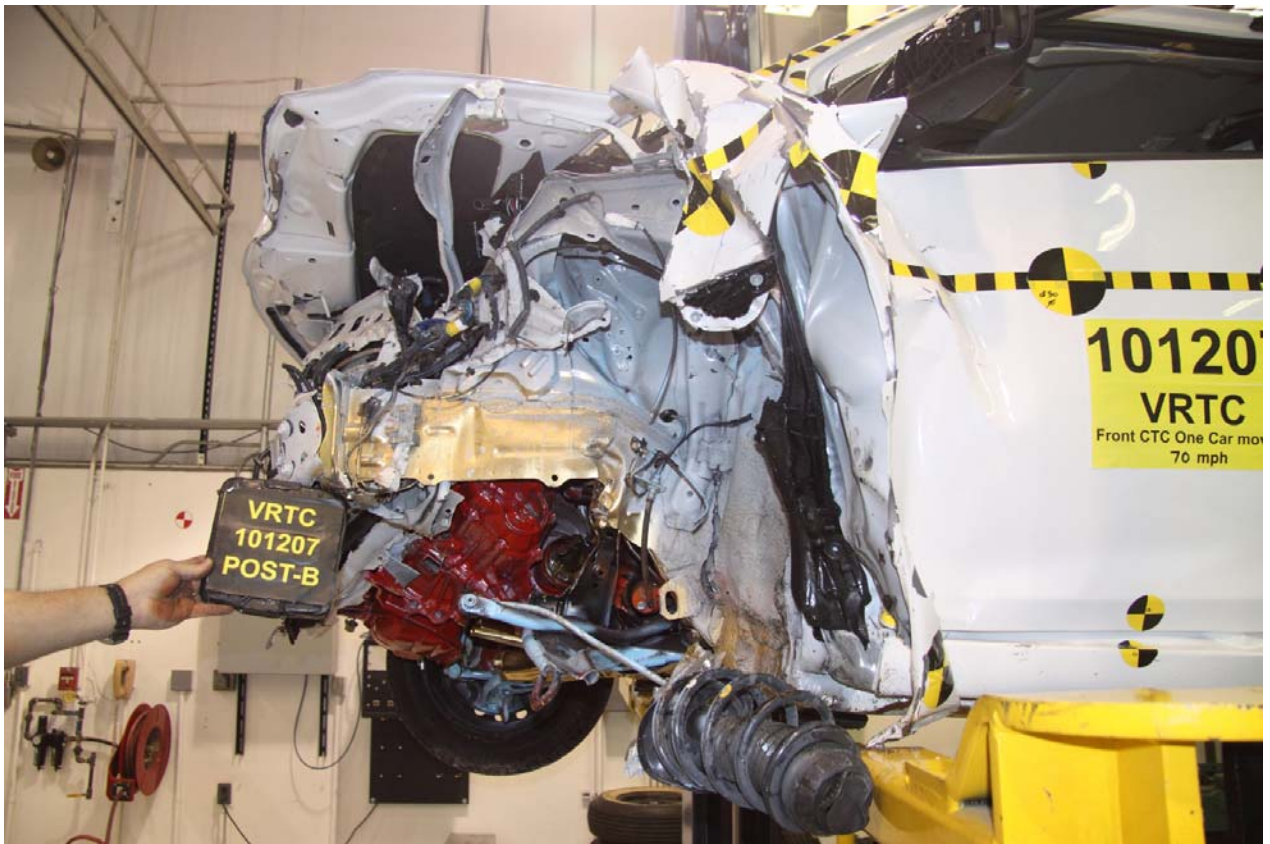


Figure A-92 Post-Test Bullet Vehicle Front Underbody Close-up View 5



Figure A-93 Post-Test Bullet Vehicle Front Underbody Close-up View 6



Figure A-94 Post-Test Bullet Vehicle Front Underbody Close-up View 7

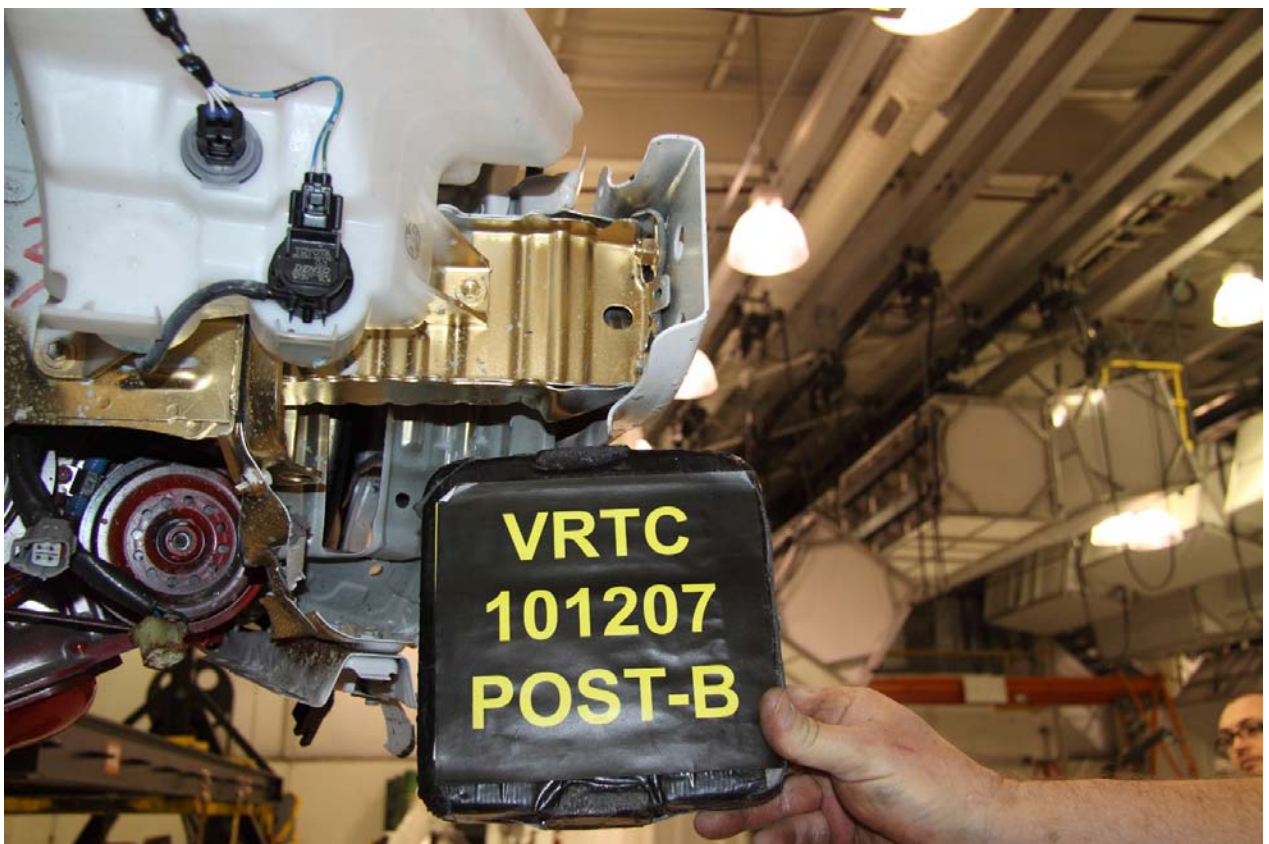


Figure A-95 Post-Test Bullet Vehicle Front Underbody Close-up View 8



Figure A-96 Post-Test Bullet Vehicle Front Underbody Close-up View 9

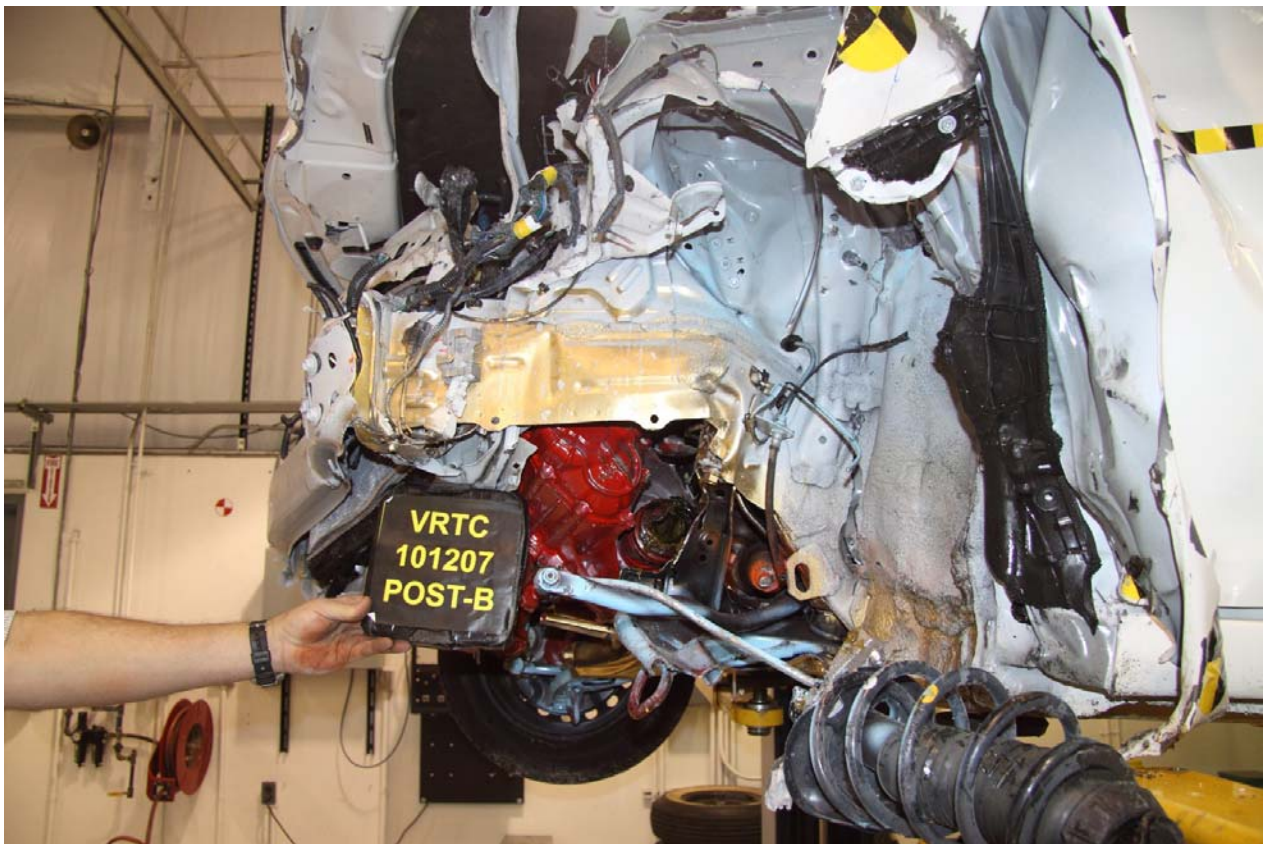


Figure A-97 Post-Test Bullet Vehicle Front Underbody Close-up View 10



Figure A-98 Post-Test Bullet Vehicle Front Underbody Close-up View 11



Figure A-99 Post-Test Bullet Vehicle Front Underbody Close-up View 12



Figure A-100 Post-Test Bullet Vehicle Front Underbody Close-up View 13



Figure A-101 Post-Test Bullet Vehicle Front Underbody Close-up View 14



Figure A-102 Pre-Test Target Vehicle Windshield View



Figure A-103 Post-Test Target Vehicle Windshield View



Figure A-104 Pre-Test Target Vehicle Driver Dummy through Windshield View



Figure A-105 Post-Test Target Vehicle Driver Dummy through Windshield View



Figure A-106 Pre-Test Target Vehicle Driver Dummy - View 1



Figure A-107 Post-Test Target Vehicle Driver Dummy - View 1



Figure A-108 Pre-Test Target Vehicle Driver Dummy - View 2



Figure A-109 Post-Test Target Vehicle Driver Dummy - View 2



Figure A-110 Post-Test Target Vehicle Driver Dummy - View 3



Figure A-111 Pre-Test Target Vehicle Driver Dummy Knee Bolster – View 1



Figure A-112 Pre-Test Target Vehicle Driver Dummy Knee Bolster – View 2



Figure A-113 Pre-Test Target Vehicle Driver Dummy Knee Bolster – View 3

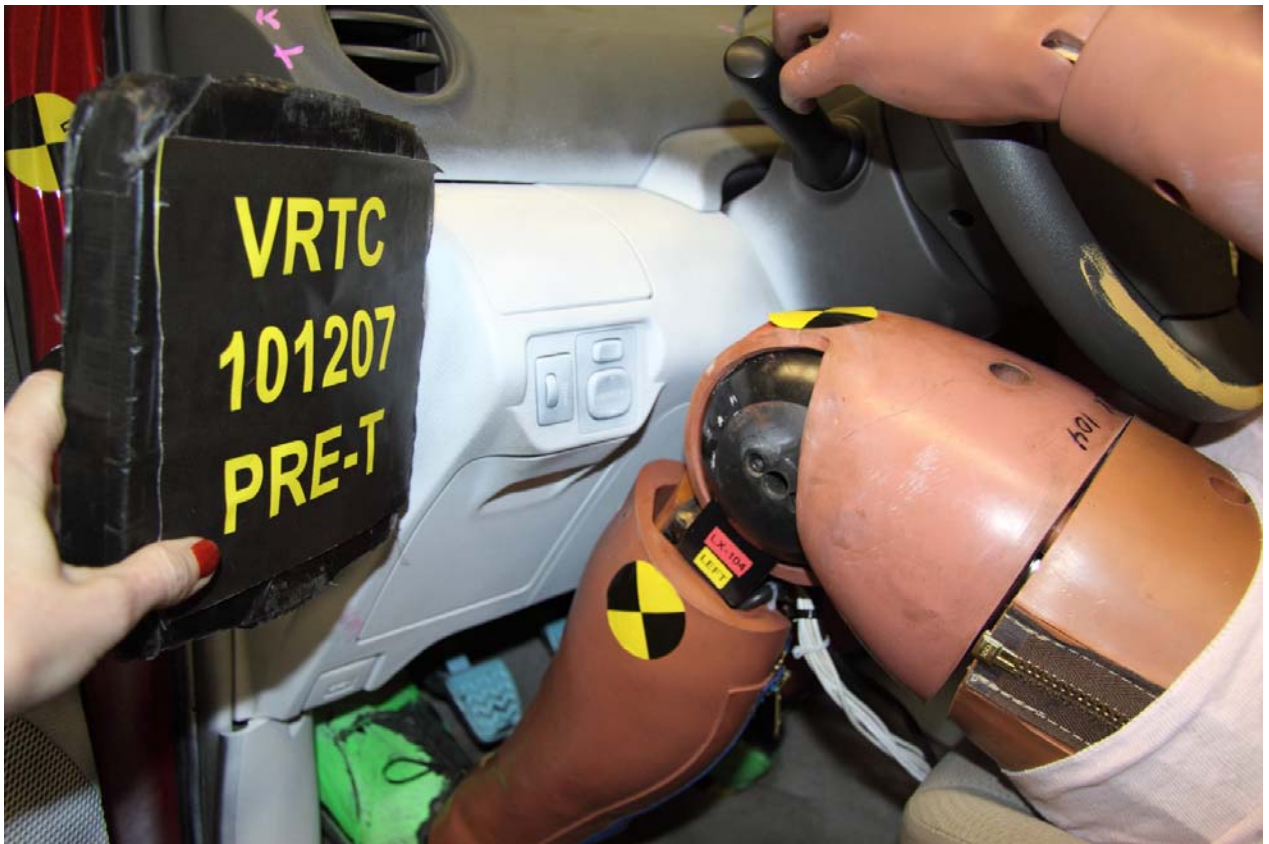


Figure A-114 Pre-Test Target Vehicle Driver Dummy Knee Bolster with ATD – View 1



Figure A-115 Pre-Test Target Vehicle Driver Dummy Knee Bolster with ATD – View 2



Figure A-116 Pre-Test Target Vehicle Driver Dummy Feet Tight - View 1



Figure A-117 Pre-Test Target Vehicle Driver Dummy Feet Tight - View 2



Figure A-118 Pre-Test Target Vehicle Driver Dummy Feet Wide - View 1



Figure A-119 Pre-Test Target Vehicle Driver Dummy Feet Wide - View 2



Figure A-120 Pre-Test Target Vehicle Driver Floorpan Wide - View 1



Figure A-121 Pre-Test Target Vehicle Driver Floorpan Wide – View 2



Figure A-122 Pre-Test Target Vehicle Driver Floorpan Tight - View 1



Figure A-123 Pre-Test Target Vehicle Driver Floorpan Tight – View 2



Figure A-124 Pre-Test Driver Seat Track Position View

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Figure A-125 Pre-Test Bullet Vehicle Windshield View



Figure A-126 Post-Test Bullet Vehicle Windshield View



Figure A-127 Pre-Test Bullet Vehicle Driver Dummy through Windshield View



Figure A-128 Post-Test Bullet Vehicle Driver Dummy through Windshield View



Figure A-129 Pre-Test Bullet Vehicle Driver Dummy - View 1



Figure A-130 Post-Test Bullet Vehicle Driver Dummy - View 1



Figure A-131 Pre-Test Bullet Vehicle Driver Dummy - View 2



Figure A-132 Post-Test Bullet Vehicle Driver Dummy - View 2



Figure A-133 Pre-Test Bullet Vehicle Driver Dummy - View 3



Figure A-134 Post-Test Bullet Vehicle Driver Dummy - View 3



Figure A-135 Pre-Test Bullet Vehicle Driver Dummy Knee Bolster - View 1



Figure A-136 Pre-Test Bullet Vehicle Driver Dummy Knee Bolster - View 2



Figure A-137 Pre-Test Bullet Vehicle Driver Dummy Knee Bolster with ATD - View 1



Figure A-138 Pre-Test Bullet Vehicle Driver Dummy Knee Bolster with ATD - View 2

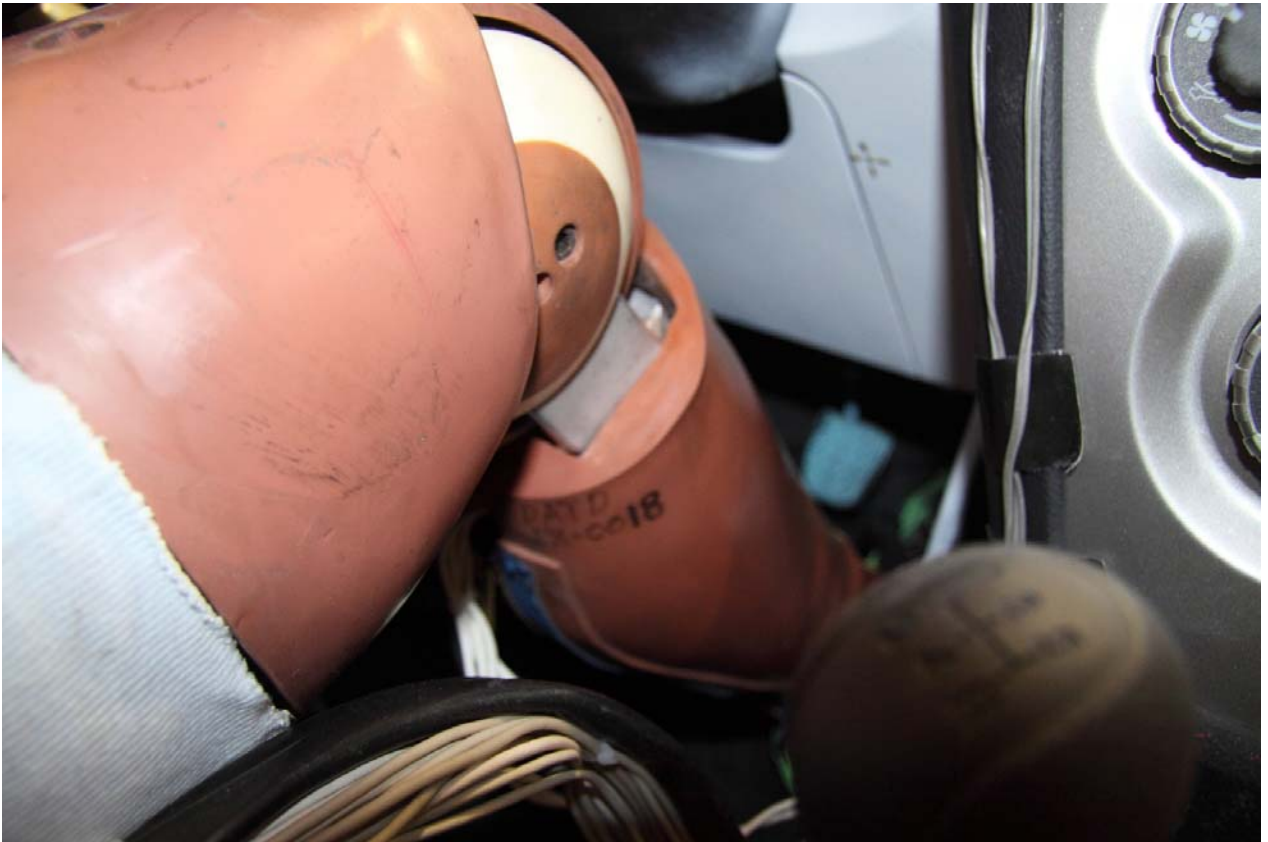


Figure A-139 Pre-Test Bullet Vehicle Driver Dummy Knee Bolster with ATD - View 3



Figure A-140 Pre-Test Bullet Vehicle Driver Dummy Foot Position Tight View



Figure A-141 Pre-Test Bullet Vehicle Driver Dummy Feet Position Wide – View 1



Figure A-142 Pre-Test Bullet Vehicle Driver Dummy Feet Position Wide – View 2



Figure A-143 Pre-Test Bullet Vehicle Driver Dummy Floorpan Wide – View 1



Figure A-144 Pre-Test Bullet Vehicle Driver Dummy Floorpan Wide – View 2



Figure A-145 Pre-Test Bullet Vehicle Driver Dummy Floorpan Tight – View 1



Figure A-146 Pre-Test Bullet Vehicle Driver Dummy Floorpan Tight – View 2



Figure A-147 Pre-Test Bullet Vehicle Driver Dummy Seat Track View

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Figure A-148 Pre-Test Bullet Vehicle Right Front Passenger Dummy thru Windshield View



Figure A-149 Post-Test Bullet Vehicle Right Front Passenger Dummy thru Windshield View



Figure A-150 Pre-Test Bullet Vehicle Right Front Passenger Dummy - View 1



Figure A-151 Post-Test Bullet Vehicle Right Front Passenger Dummy - View 1



Figure A-152 Pre-Test Bullet Vehicle Right Front Passenger Dummy - View 2



Figure A-153 Post-Test Bullet Vehicle Right Front Passenger Dummy - View 2



Figure A-154 Pre-Test Bullet Vehicle Right Front Passenger Dummy - View 3



Figure A-155 Post-Test Bullet Vehicle Right Front Passenger Dummy - View 3



Figure A-156 Pre-Test Bullet Vehicle Right Front Passenger Dummy Knee Bolster View 1



Figure A-157 Pre-Test Bullet Vehicle Right Front Passenger Dummy Knee Bolster View 2



Figure A-158 Pre-Test Bullet Vehicle Right Front Passenger Dummy Knee Bolster View 3



Figure A-159 Pre-Test Bullet Vehicle Right Front Passenger Dummy Knee Bolster with ATD View 1



Figure A-160 Pre-Test Bullet Vehicle Right Front Passenger Dummy Knee Bolster with ATD View 2



Figure A-161 Pre-Test Bullet Vehicle Right Front Passenger Feet Position Wide View



Figure A-162 Pre-Test Bullet Vehicle Right Front Passenger Feet Position Tight – View 1



Figure A-163 Pre-Test Bullet Vehicle Right Front Passenger Feet Position Tight – View 2



Figure A-164 Pre-Test Bullet Vehicle Right Front Passenger Floorpan Wide - View 1



Figure A-165 Pre-Test Bullet Vehicle Right Front Passenger Floorpan Wide - View 2



Figure A-166 Pre-Test Bullet Vehicle Right Front Passenger Floorpan Tight View



Figure A-167 Pre-Test Bullet Vehicle Right Front Passenger Dummy Seat Track View



Figure A-168 Pre-Test Bullet Vehicle Left Rear Passenger Dummy - View 1



Figure A-169 Post-Test Bullet Vehicle Left Rear Passenger Dummy - View 1



Figure A-170 Pre-Test Bullet Vehicle Left Rear Passenger Dummy - View 2

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Figure A-171 Pre-Test Bullet Vehicle Left Rear Passenger Dummy - View 3



Figure A-172 Post-Test Bullet Vehicle Left Rear Passenger Dummy - View 3



Figure A-173 Pre-Test Bullet Vehicle Left Rear Passenger Dummy - View 4



Figure A-174 Pre-Test Bullet Vehicle Left Rear Passenger Feet Wide View



Figure A-175 Pre-Test Bullet Vehicle Left Rear Passenger Feet Tight View



Figure A-176 Pre-Test Bullet Vehicle Left Rear Passenger Knee To Seat Back Position View



Figure A-177 Post-Test Target Vehicle Driver Dummy Overall Contact View



Figure A-178 Post-Test Target Vehicle Driver Dummy Head Contact View



Figure A-179 Post-Test Target Vehicle Driver Dummy Knee Contact - View 1



Figure A-180 Post-Test Target Vehicle Driver Dummy Knee Contact - View 2



Figure A-181 Post-Test Target Vehicle Driver Dummy Knee Contact - View 3



Figure A-182 Post-Test Target Vehicle Driver Dummy Floorpan - View 1



Figure A-183 Post-Test Target Vehicle Driver Dummy Floorpan - View 2



Figure A-184 Post-Test Target Vehicle Driver Dummy Floorpan - View 3



Figure A-185 Post-Test Bullet Vehicle Driver Dummy Overall Contact View



Figure A-186 Post-Test Bullet Vehicle Driver Dummy Head Contact - View 1



Figure A-187 Post-Test Bullet Vehicle Driver Dummy Knee Contact - View 1



Figure A-188 Post-Test Bullet Vehicle Driver Dummy Knee Contact - View 2



Figure A-189 Post-Test Bullet Vehicle Driver Dummy Knee Contact - View 3



Figure A-190 Post-Test Bullet Vehicle Driver Dummy Floorpan Feet Contacts – View 1



Figure A-191 Post-Test Bullet Vehicle Driver Dummy Floorpan Feet Contacts – View 2



Figure A-192 Post-Test Bullet Vehicle Driver Dummy Floorpan Feet Contacts – View 3

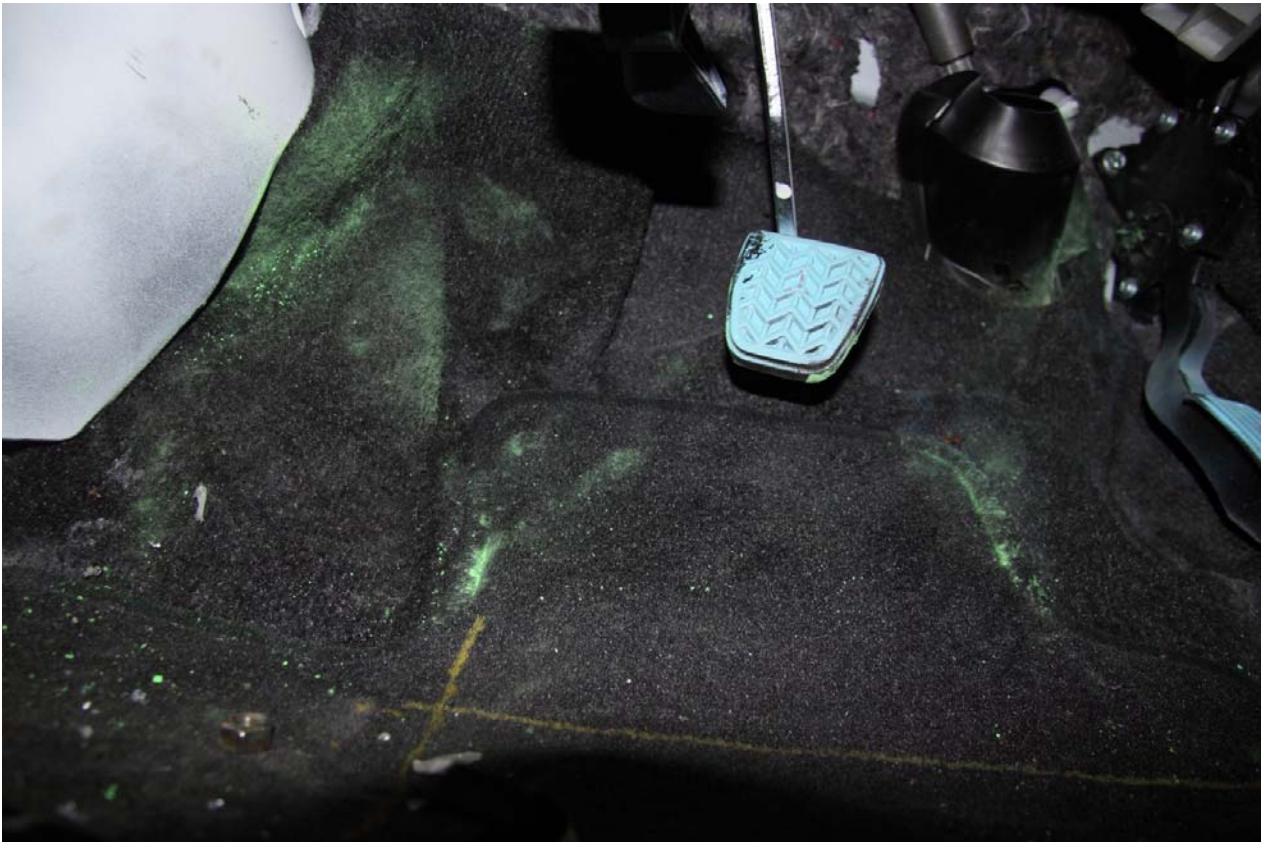


Figure A-193 Post-Test Bullet Vehicle Driver Dummy Floorpan Feet Contacts – View 4



Figure A-194 Post-Test Bullet Vehicle Right Front Passenger Dummy Overall Contact View



Figure A-195 Post-Test Bullet Vehicle Right Front Passenger Dummy Head Contact-View 1



Figure A-196 Post-Test Bullet Vehicle Right Front Passenger Dummy Head Contact-View 2



Figure A-197 Post-Test Bullet Vehicle Right Front Passenger Dummy Knee Contact-View 1



Figure A-198 Post-Test Bullet Vehicle Right Front Passenger Dummy Knee Contact-View 2



Figure A-199 Post-Test Bullet Vehicle Right Front Passenger Dummy Knee Contact-View 3



Figure A-200 Post-Test Bullet Vehicle Right Front Passenger Dummy Knee Contact-View 4



Figure A-201 Post-Test Bullet Vehicle Right Front Passenger Dummy Knee Contact-View 5



Figure A-202 Post-Test Bullet Vehicle Right Front Passenger Dummy Floorpan Contacts-View 1



Figure A-203 Post-Test Bullet Vehicle Right Front Passenger Dummy Floorpan Contacts-View 2



Figure A-204 Post-Test Bullet Vehicle Right Front Passenger Dummy Floorpan Contacts-View 3



Figure A-205 Post-Test Bullet Vehicle Left Rear Passenger Dummy Overall Contact View



Figure A-206 Post-Test Bullet Vehicle Left Rear Passenger Dummy Head Contact View



Figure A-207 Post-Test Bullet Vehicle Left Rear Passenger Dummy Knee Contact - View 1



Figure A-208 Post-Test Bullet Vehicle Left Rear Passenger Dummy Knee Contact - View 2



Figure A-209 Post-Test Bullet Vehicle Left Rear Passenger Dummy Knee Contact - View 3

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Figure A-210 Post-Test Bullet Vehicle Left Rear Passenger Dummy Feet Wide View

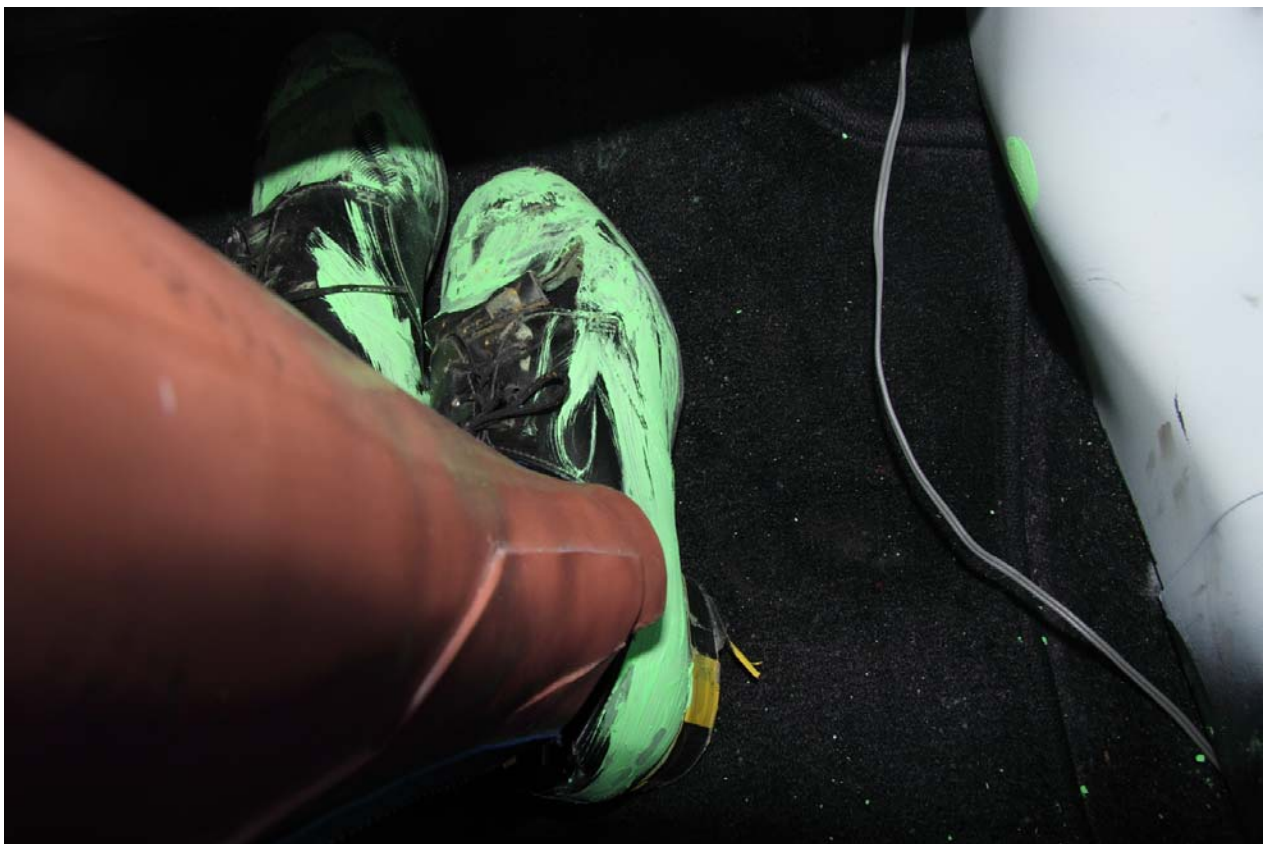


Figure A-211 Post-Test Bullet Vehicle Left Rear Passenger Dummy Feet Tight - View 1



Figure A-212 Post-Test Bullet Vehicle Left Rear Passenger Dummy Feet Tight - View 2



Figure A-213 Post-Test Bullet Vehicle Left Rear Passenger Dummy Floorpan - View 1



Figure A-214 Post-Test Bullet Vehicle Left Rear Passenger Dummy Floorpan - View 2



Figure A-215 Post-Test Bullet Vehicle Left Rear Passenger Dummy Floorpan - View 3



Figure A-216 Pre-Test Target Vehicle Instrumentation View



Figure A-217 Pre-Test Target Vehicle Ballast Position View



Figure A-218 Pre-Test Target Vehicle Certification Label View



Figure A-219 Pre-Test Target Vehicle Tire Load Label View



Figure A-220 Post-Test Target Vehicle Damage – View 1



Figure A-221 Post-Test Target Vehicle Damage – View 2



Figure A-222 Post-Test Target Vehicle Damage – View 3



Figure A-223 Pre-Test Target Vehicle Fuel Filler Cap View



Figure A-224 Pre-Test Bullet Vehicle Instrumentation – View 1

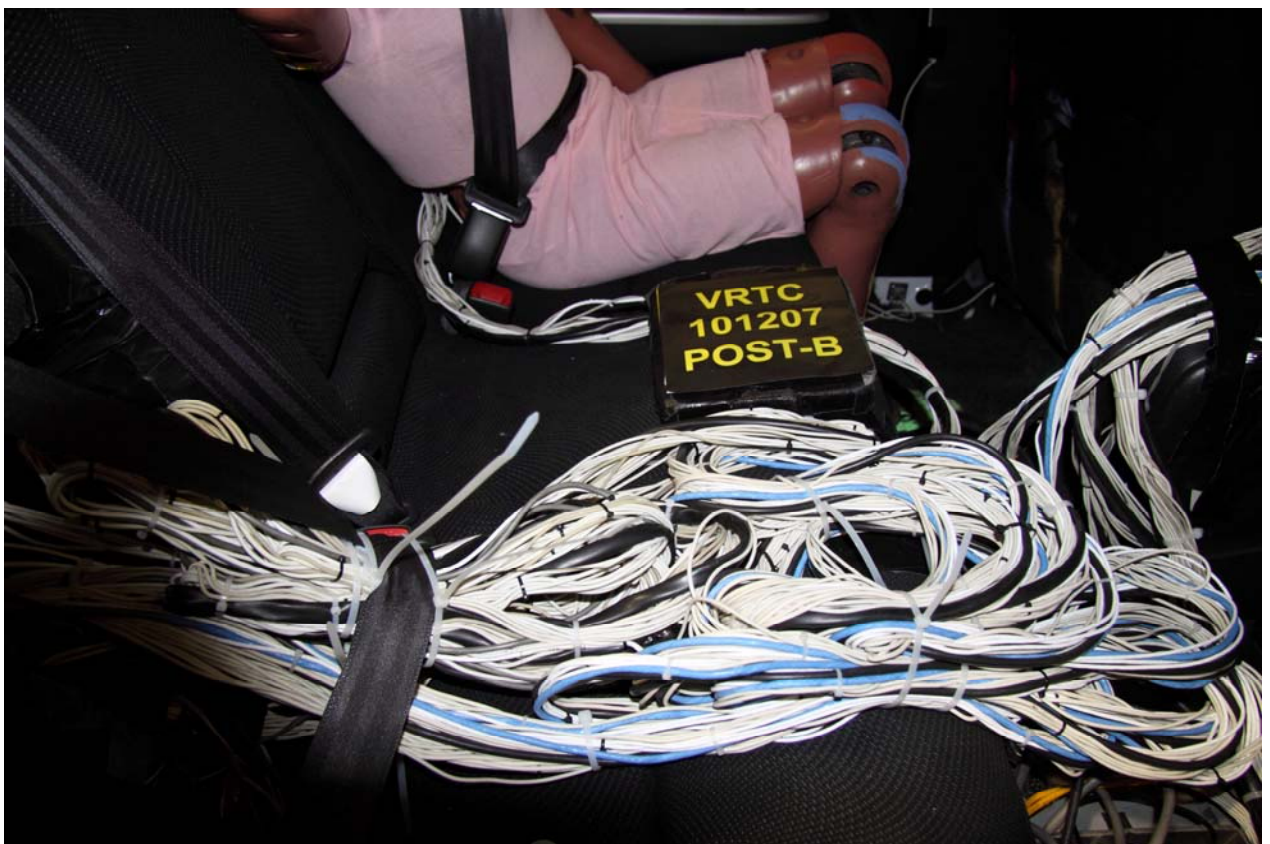


Figure A-225 Post-Test Bullet Vehicle Instrumentation – View 1

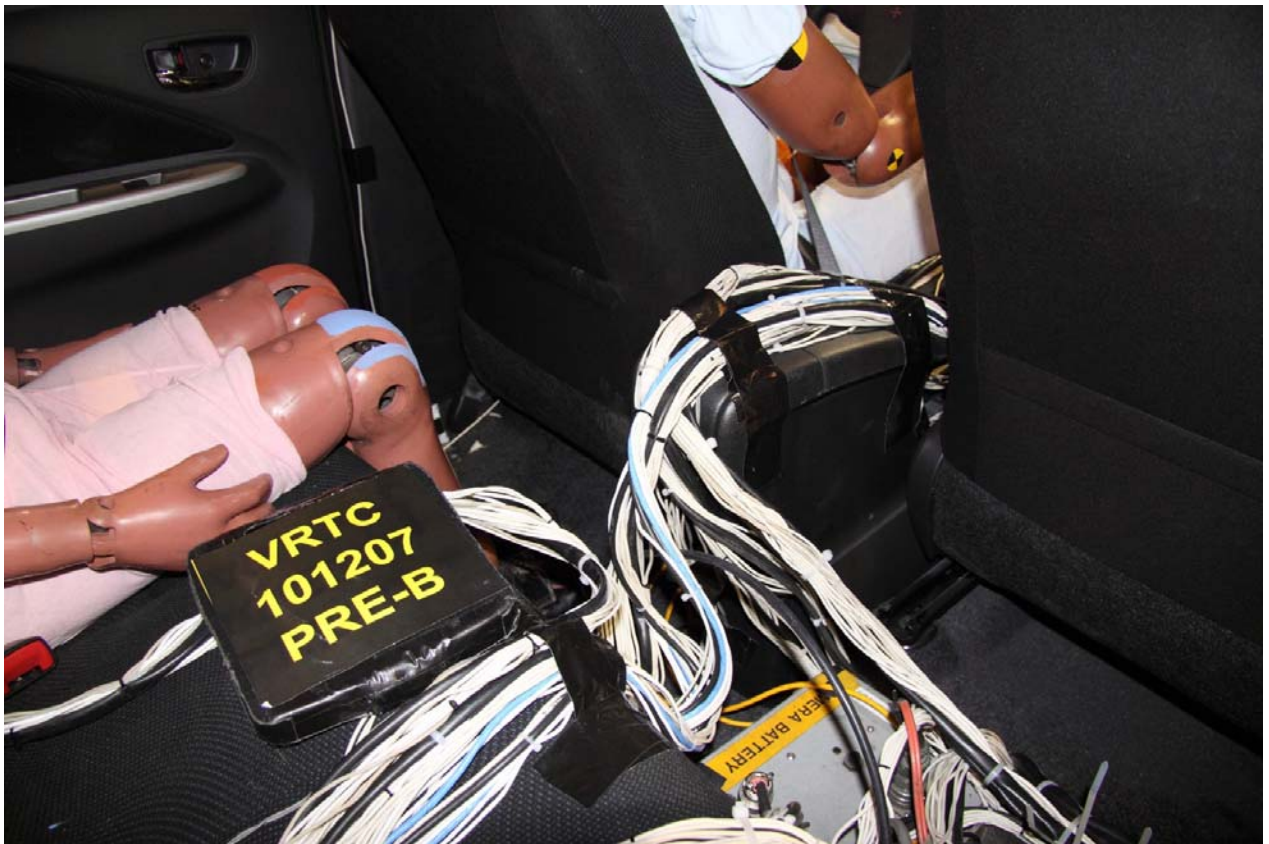


Figure A-226 Pre-Test Bullet Vehicle Instrumentation – View 2

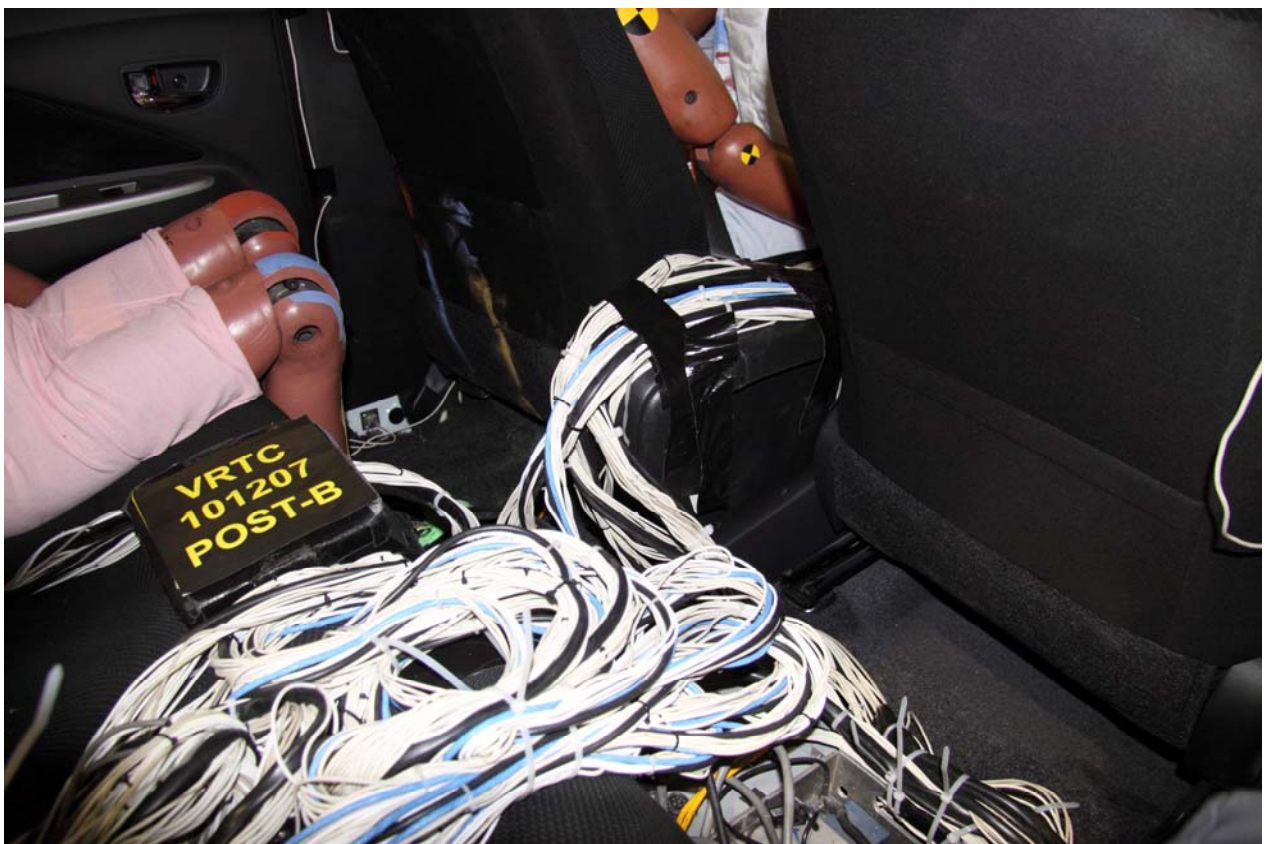


Figure A-227 Post-Test Bullet Vehicle Instrumentation – View 2



Figure A-228 Pre-Test Bullet Vehicle Instrumentation – View 3

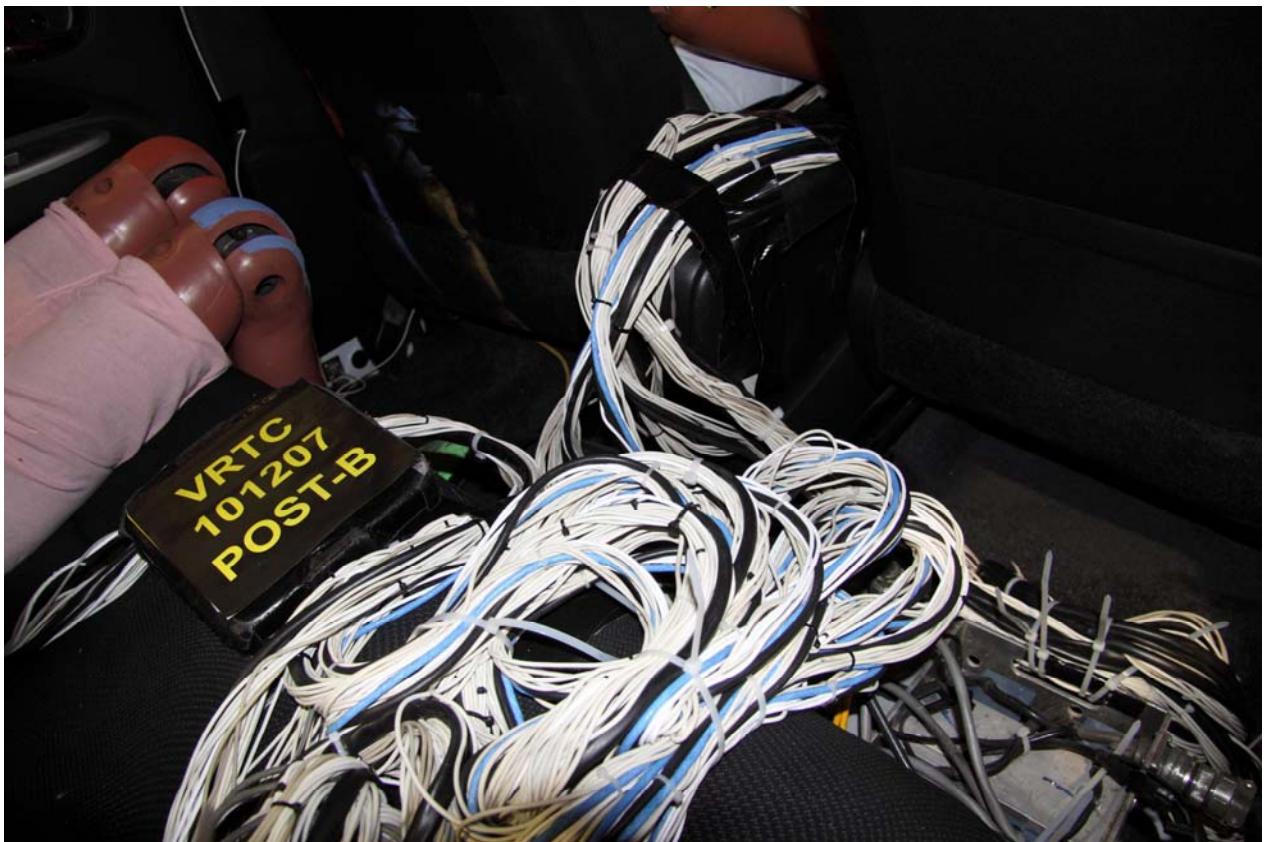


Figure A-229 Post-Test Bullet Vehicle Instrumentation – View 3



Figure A-230 Pre-Test Bullet Vehicle Certification Label View



Figure A-231 Pre-Test Bullet Vehicle Tire Load Label View



Figure A-232 Post-Test Bullet Vehicle Damage – View 1



Figure A-233 Post-Test Bullet Vehicle Damage – View 2



Figure A-234 Post-Test Bullet Vehicle Damage – View 3



Figure A-235 Post-Test Bullet Vehicle Damage – View 4



Figure A-236 Pre-Test Bullet Vehicle Fuel Filler Cap View



Figure A-237 Post-Test Target Vehicle 30 Left Level



Figure A-238 Post-Test Target Vehicle 30 Left Level without Bolster



Figure A-239 Post-Test Target Vehicle 30 Left Low



Figure A-240 Post-Test Target Vehicle 30 Left Low without Bolster

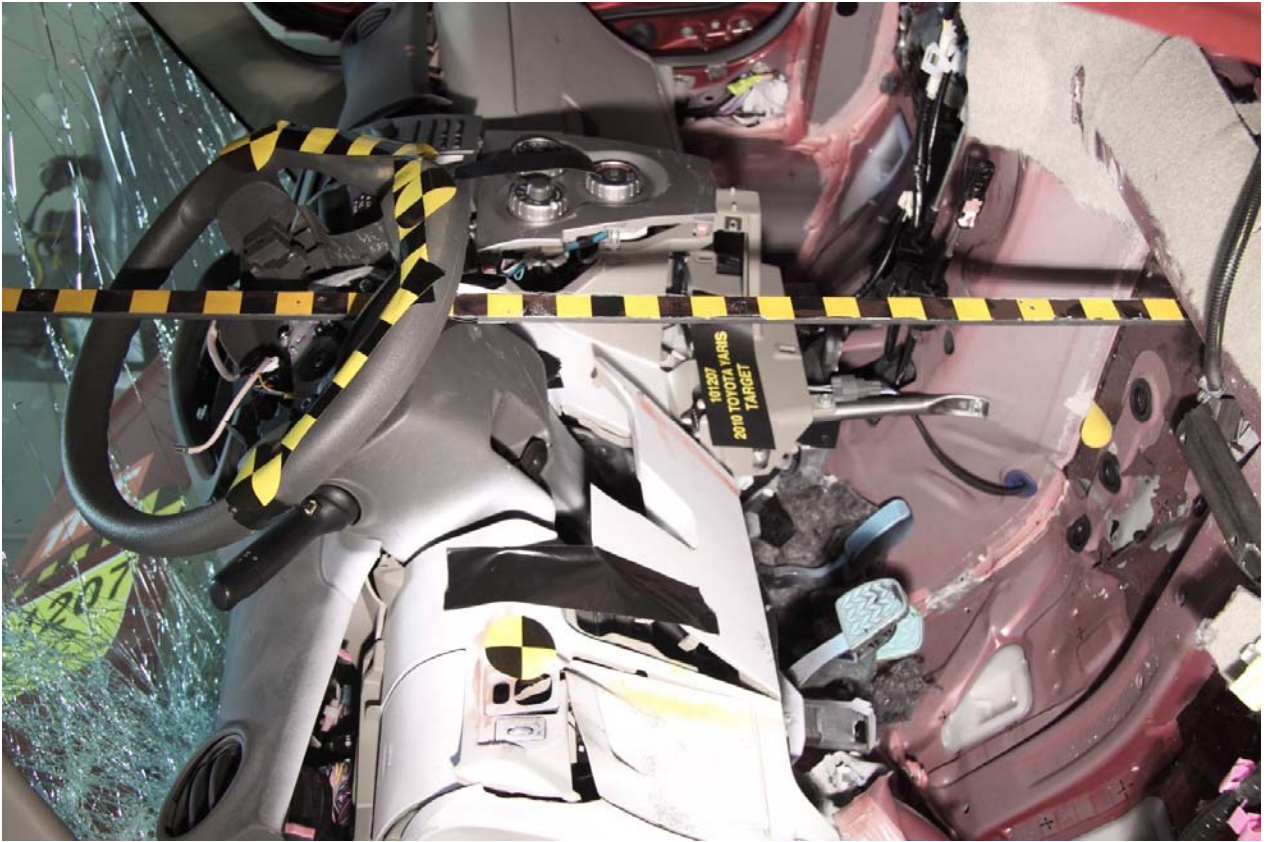


Figure A-241 Post-Test Target Vehicle 45 Left Level



Figure A-242 Post-Test Target Vehicle 45 Left Level without Bolster



Figure A-243 Post-Test Target Vehicle 45 Left Low



Figure A-244 Post-Test Target Vehicle 45 Left Low without Bolster



Figure A-245 Post-Test Target Vehicle 45 Right Level



Figure A-246 Post-Test Target Vehicle 45 Right Level without Bolster



Figure A-247 Post-Test Target Vehicle 45 Right Low



Figure A-248 Post-Test Target Vehicle 45 Right Low without Bolster

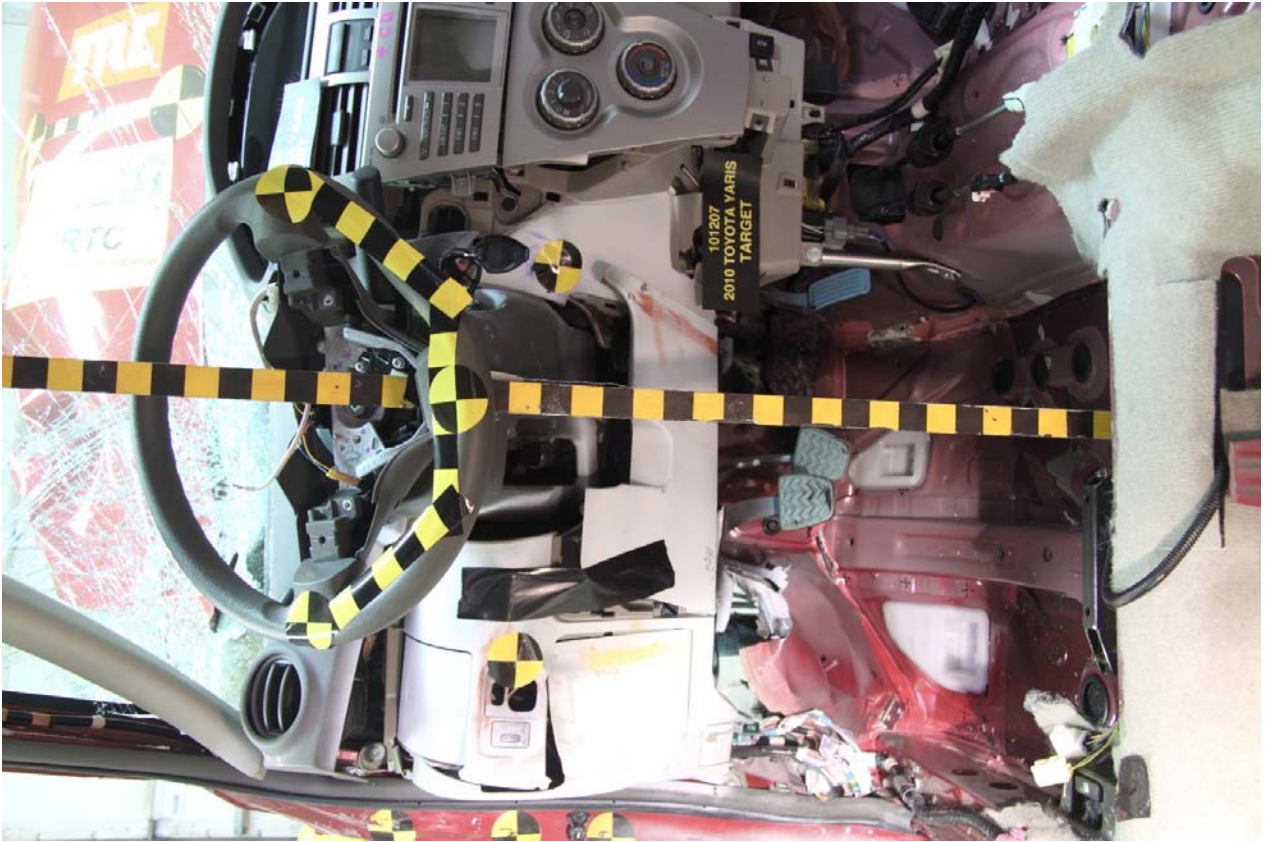


Figure A-249 Post-Test Target Vehicle 90 Level

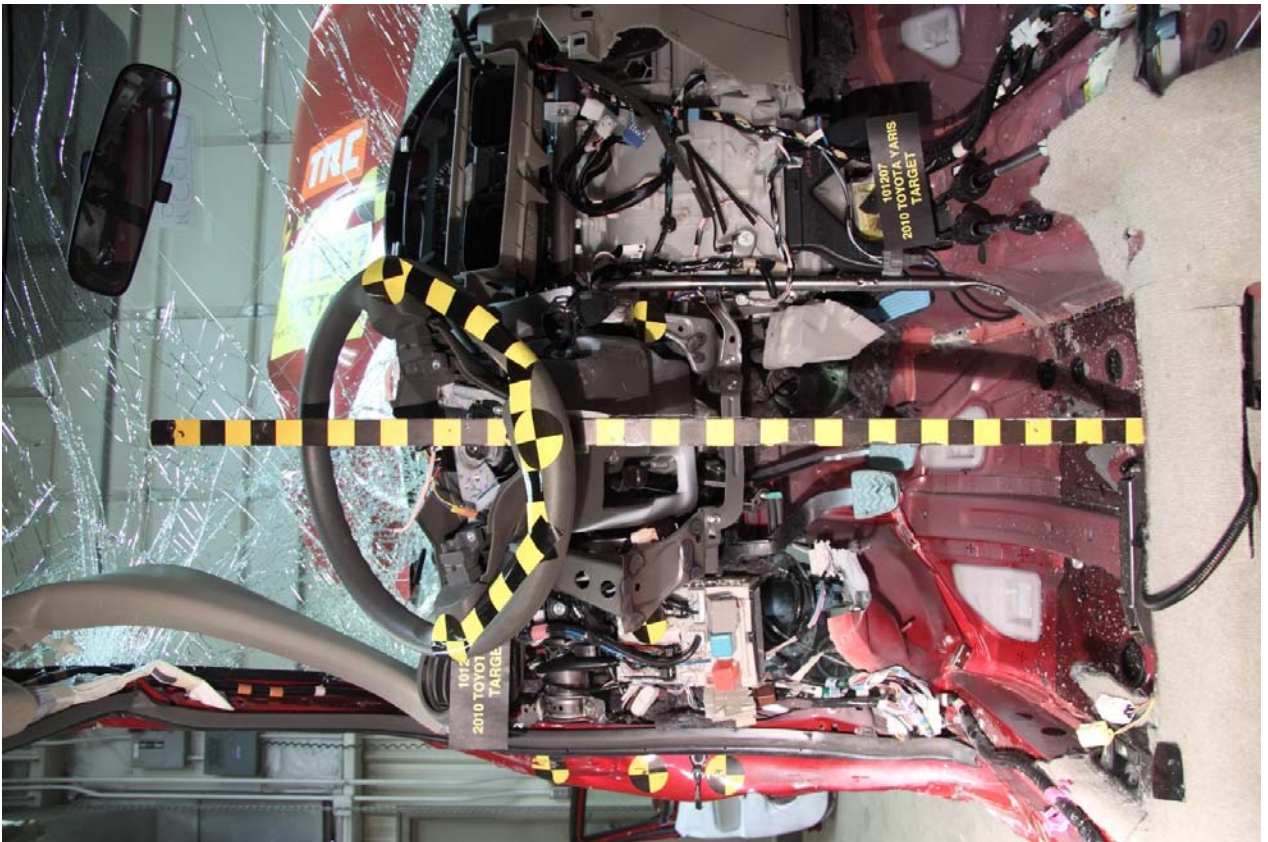


Figure A-250 Post-Test Target Vehicle 90 Level without Bolster

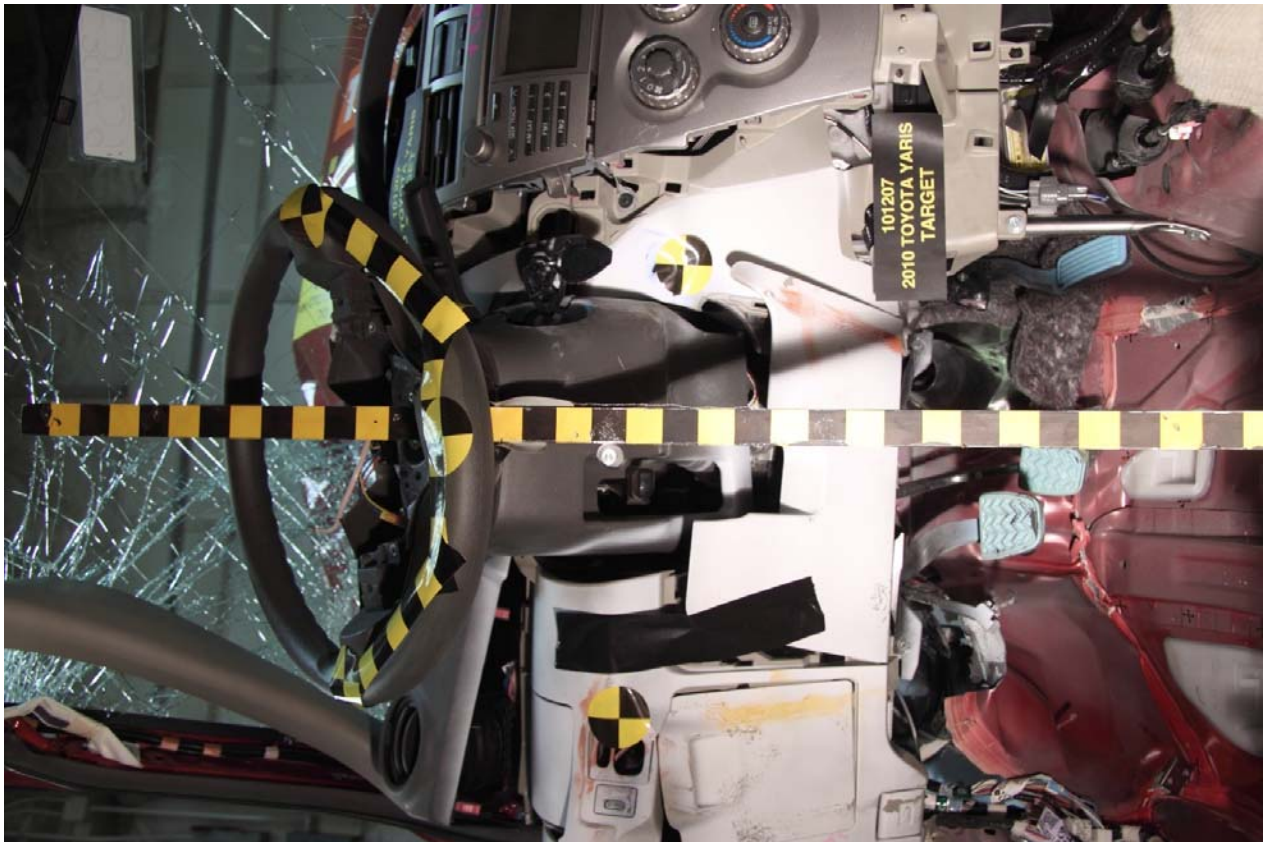


Figure A-251 Post-Test Target Vehicle 90 Low



Figure A-252 Post-Test Target Vehicle 90 Low without Bolster

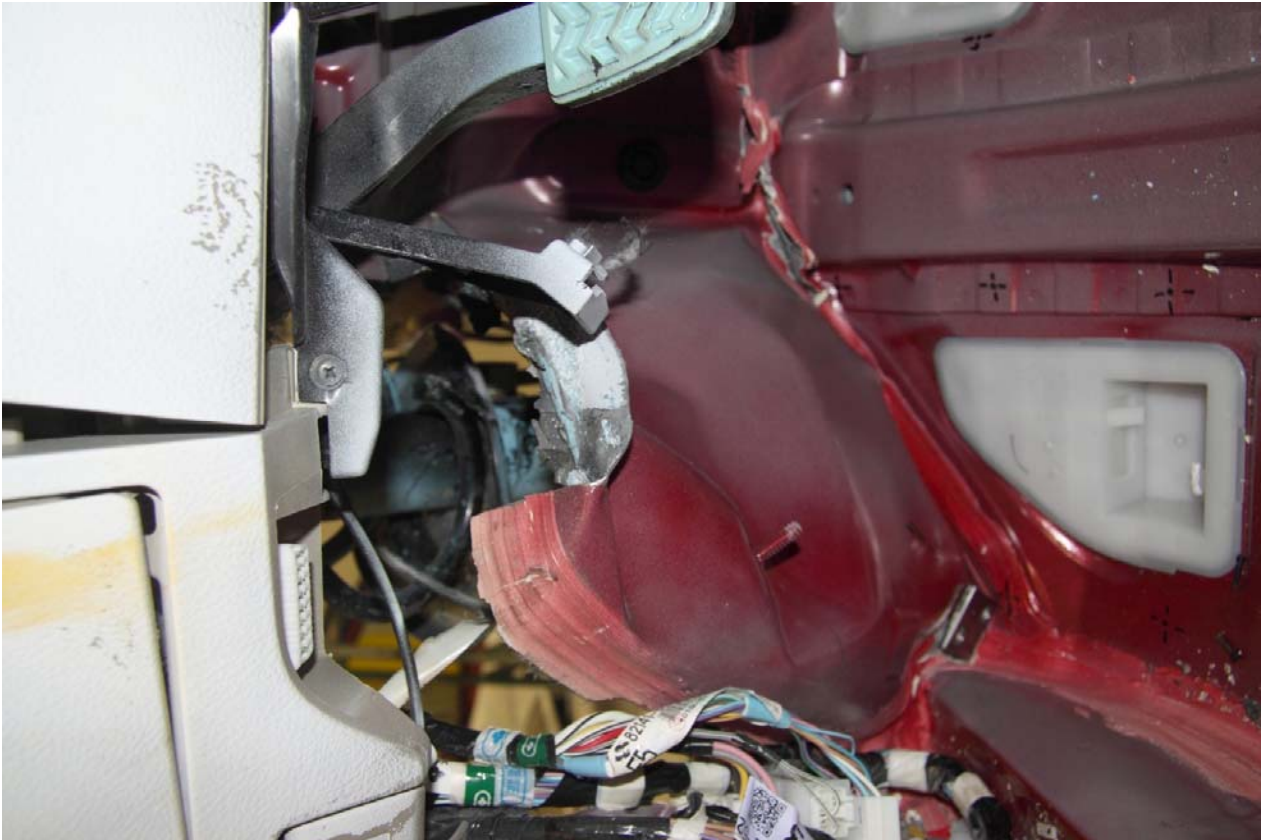


Figure A-253 Post-Test Target Vehicle Detail of Floorpan

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Figure A-254 Post-Test Bullet Vehicle 30 Left Level



Figure A-255 Post-Test Bullet Vehicle 30 Left Level without Bolster



Figure A-256 Post-Test Bullet Vehicle 30 Left Low



Figure A-257 Post-Test Bullet Vehicle 30 Left Low without Bolster



Figure A-258 Post-Test Bullet Vehicle 45 Left Level



Figure A-259 Post-Test Bullet Vehicle 45 Left Level without Bolster



Figure A-260 Post-Test Bullet Vehicle 45 Left Low



Figure A-261 Post-Test Bullet Vehicle 45 Left Low without Bolster

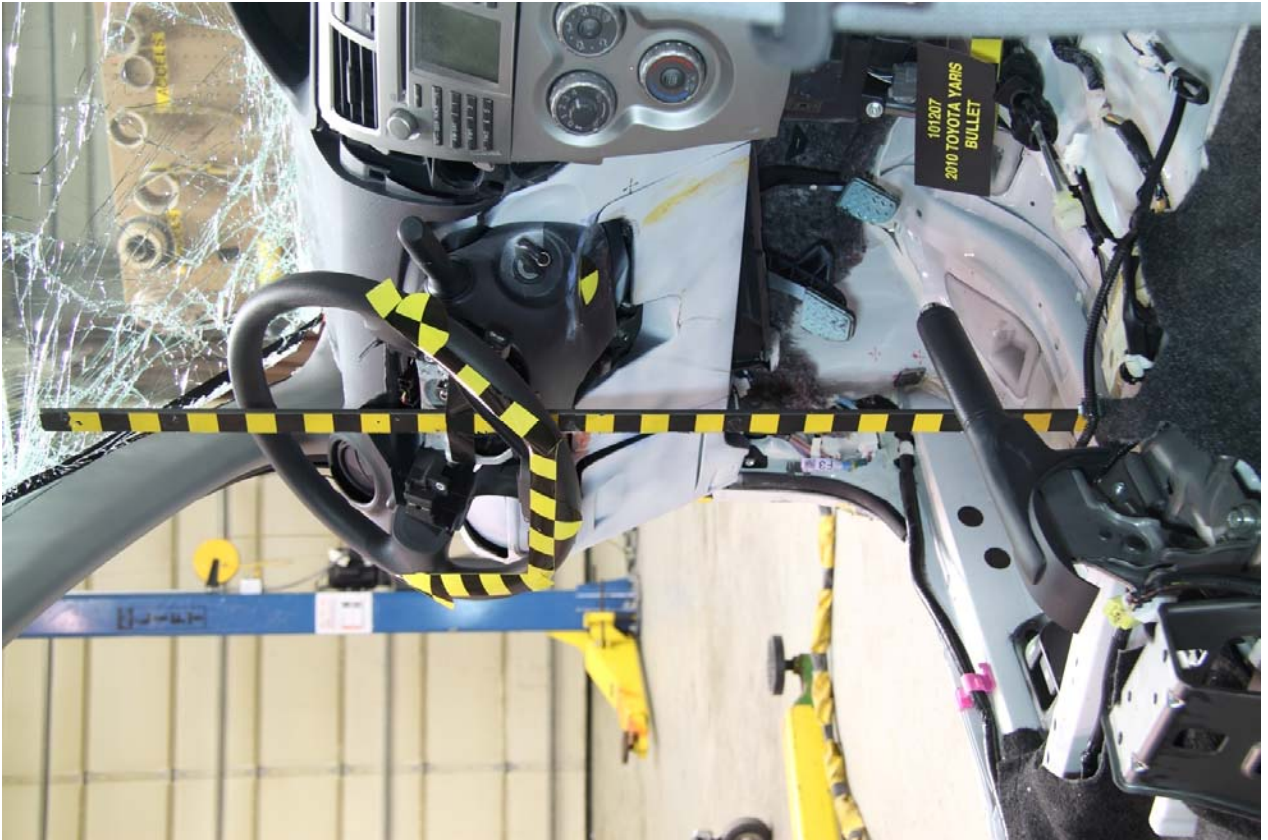


Figure A-262 Post-Test Bullet Vehicle 45 Right Level

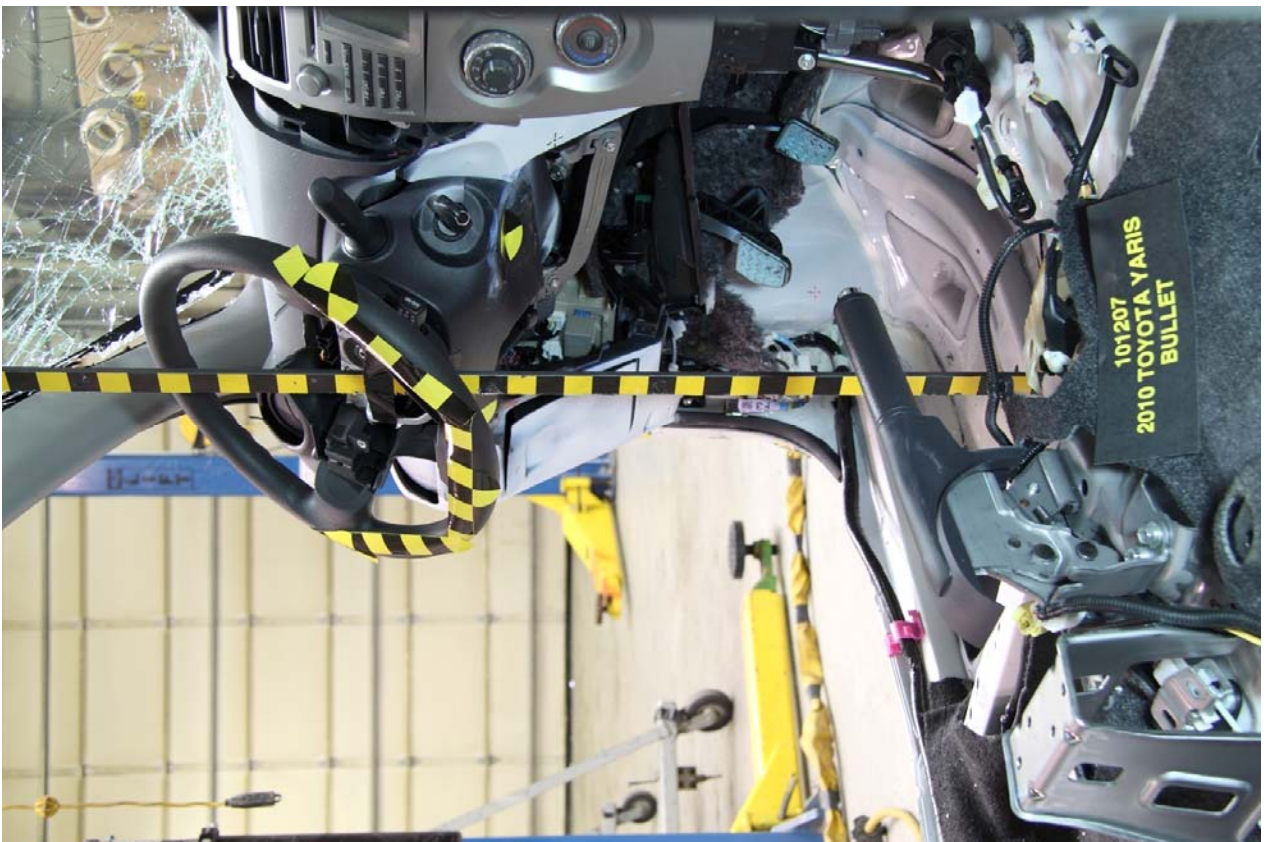


Figure A-263 Post-Test Bullet Vehicle 45 Right Level without Bolster



Figure A-264 Post-Test Bullet Vehicle 45 Right Low

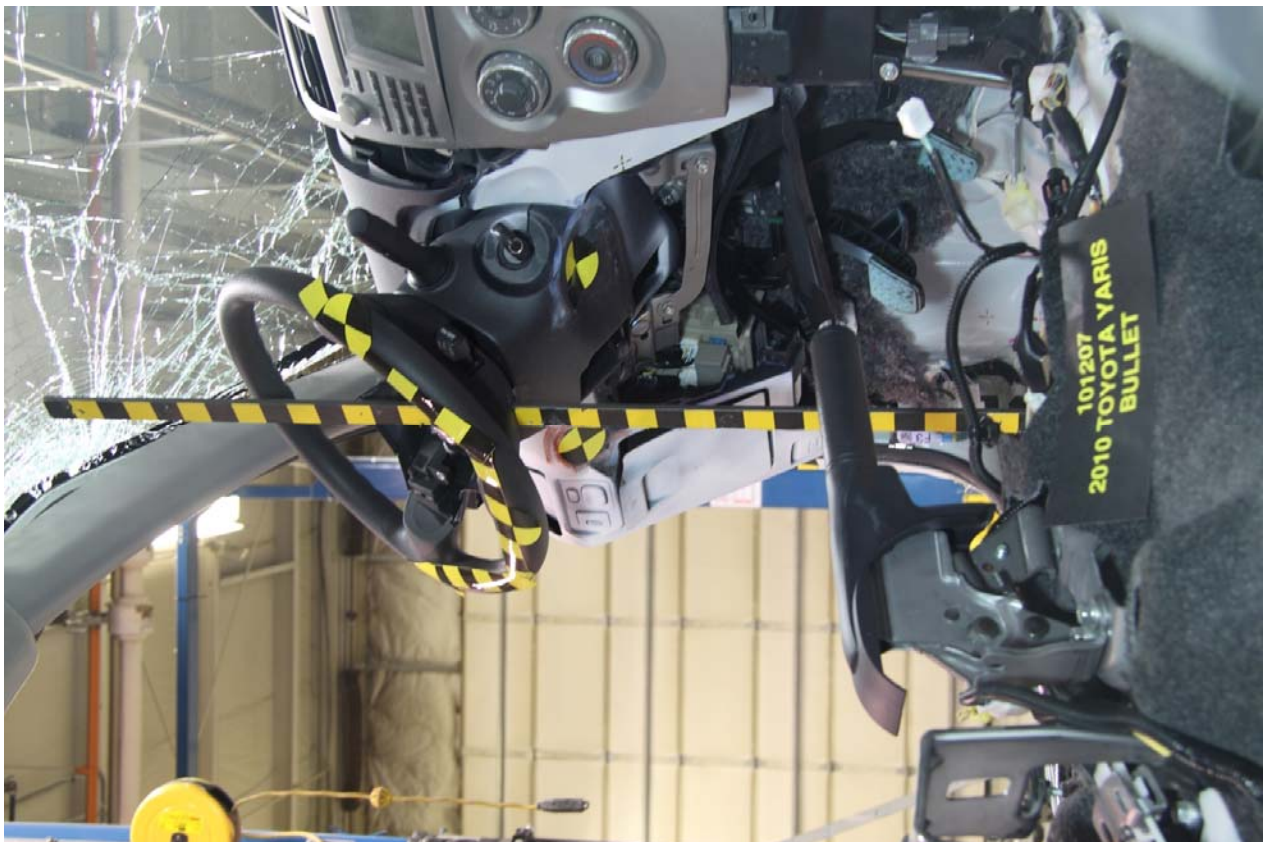


Figure A-265 Post-Test Bullet Vehicle 45 Right Low without Bolster



Figure A-266 Post-Test Bullet Vehicle 90 Level

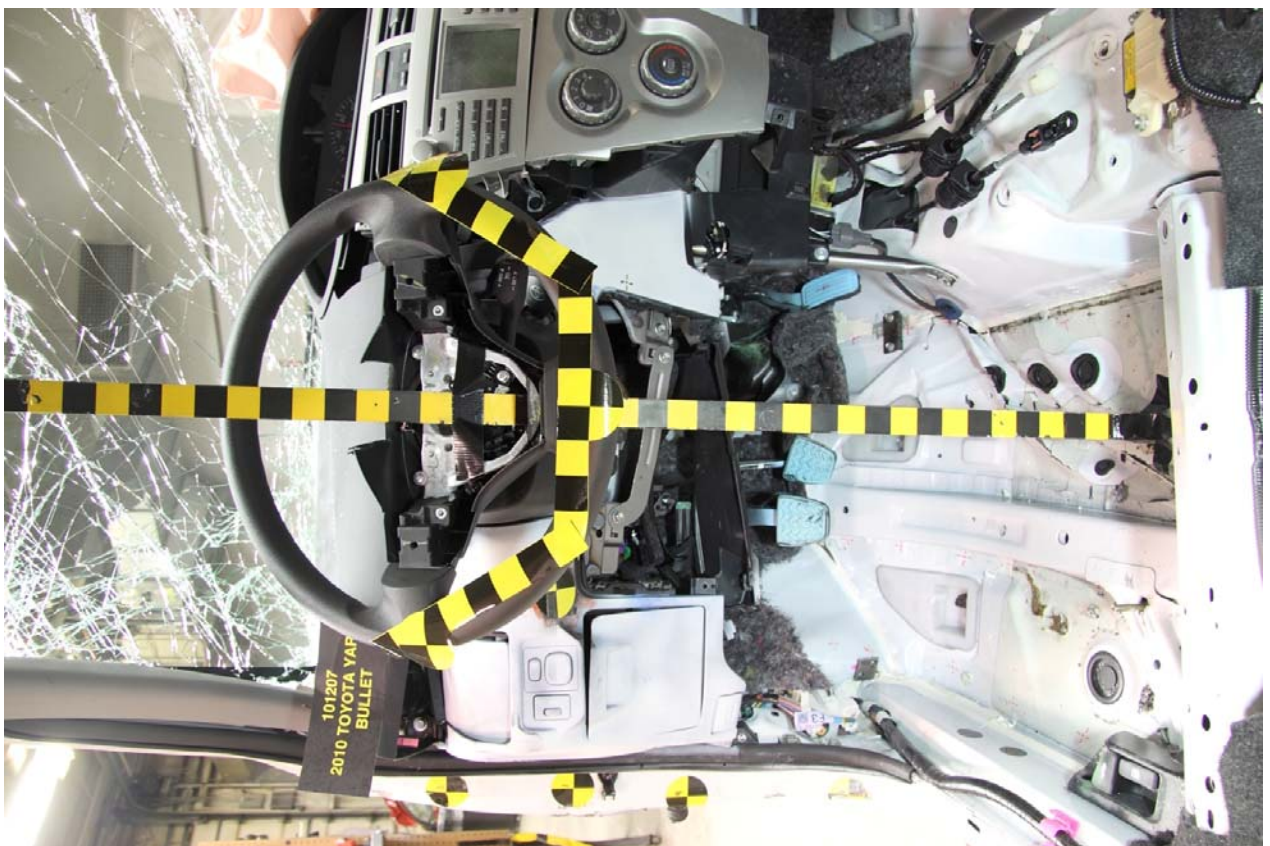


Figure A-267 Post-Test Bullet Vehicle 90 Level without Bolster

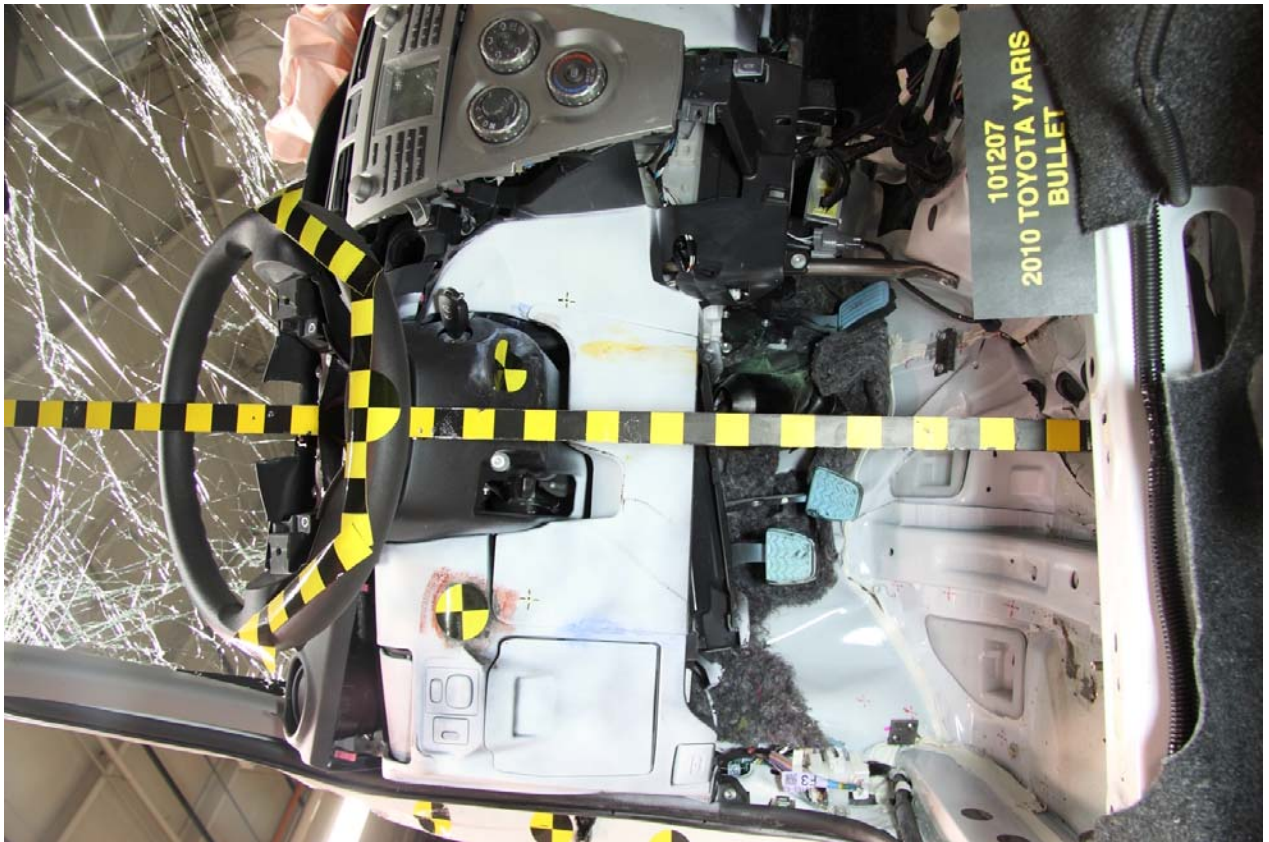


Figure A-268 Post-Test Bullet Vehicle 90 Low

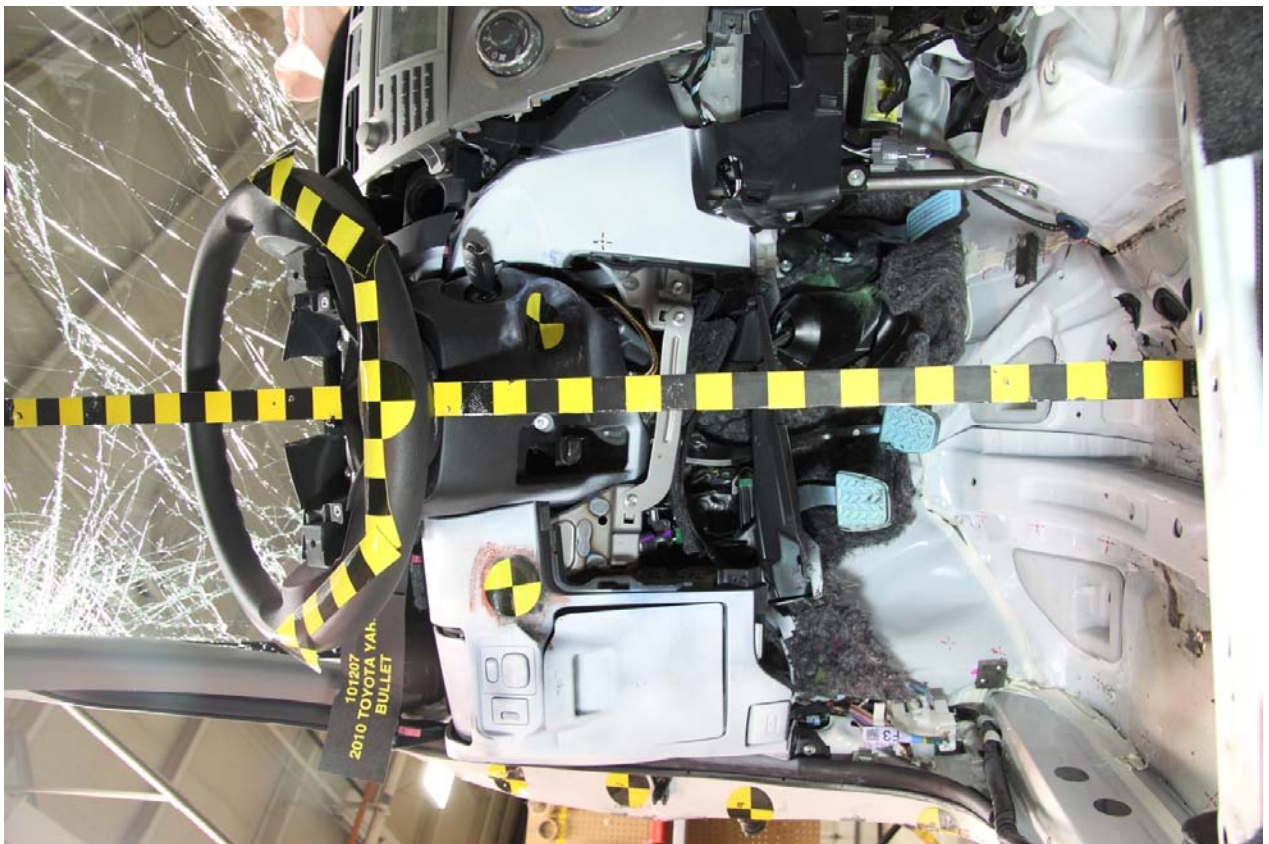


Figure A-269 Post-Test Bullet Vehicle 90 Low without Bolster

Appendix B

Data Plots



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Head X-Axis Acceleration

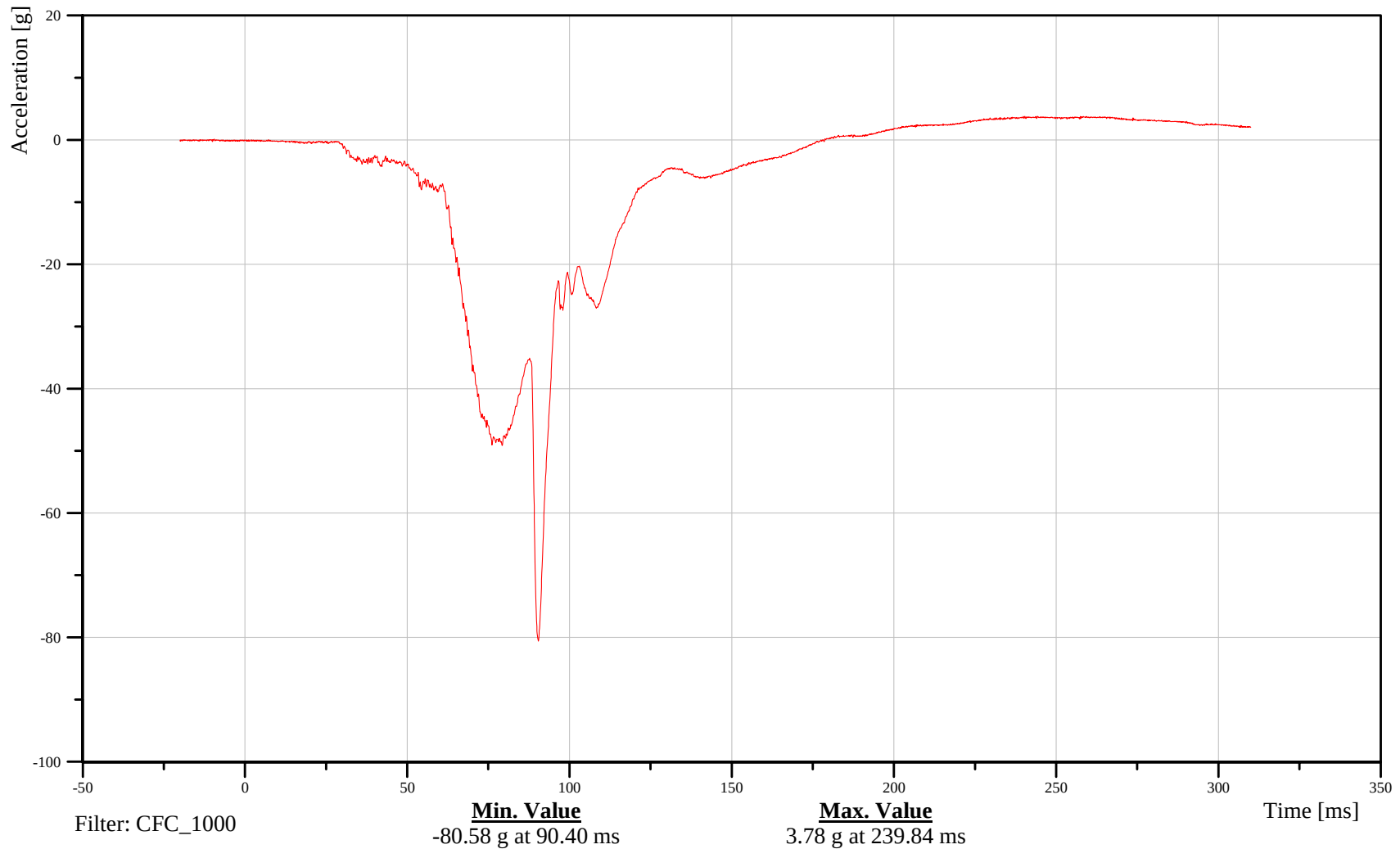
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Time: 16:40 PM

Customer: VRTC

11HEADCG00H3ACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-2

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Head Y-Axis Acceleration

Date: 12/07/2010

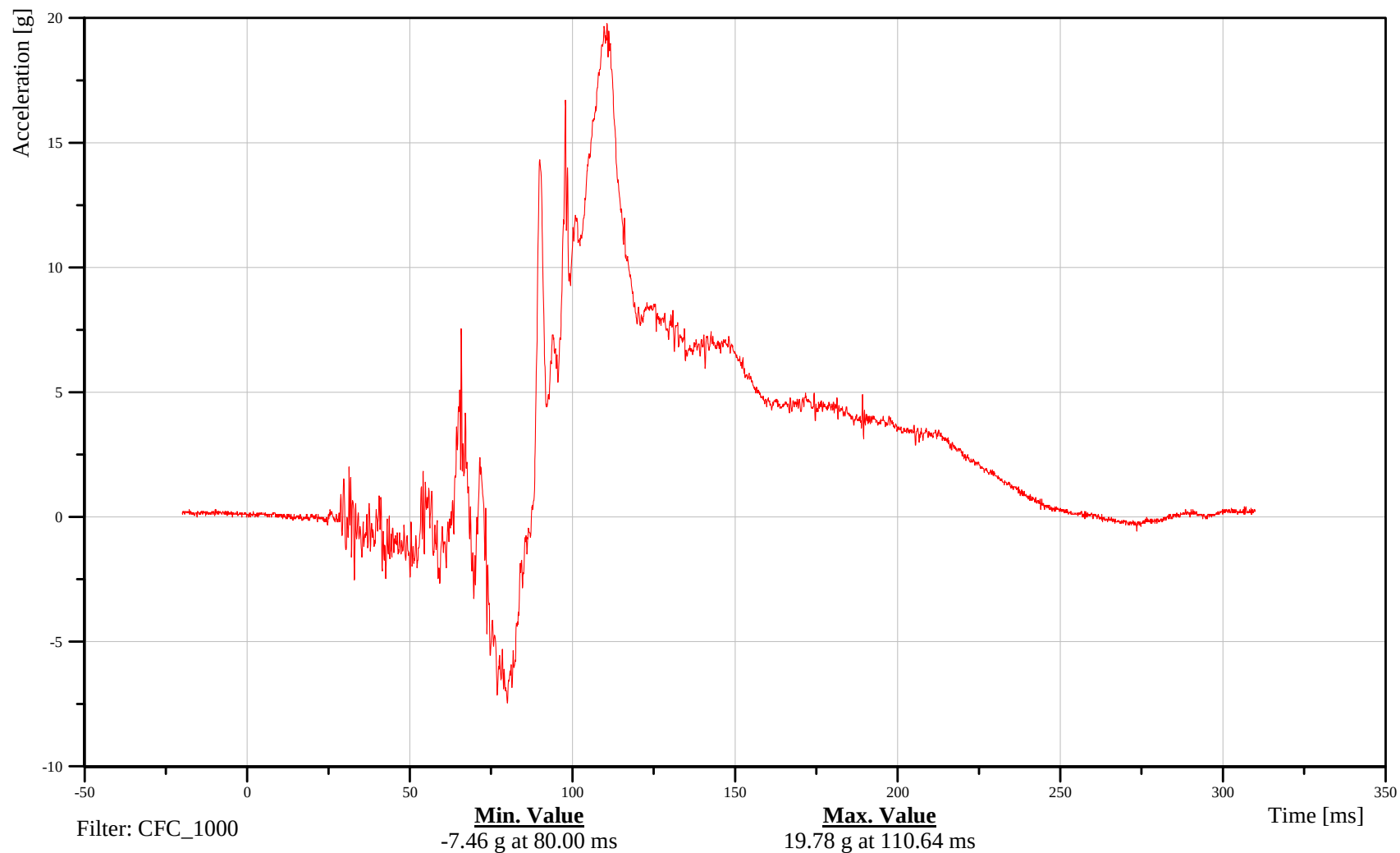
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TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Head Z-Axis Acceleration

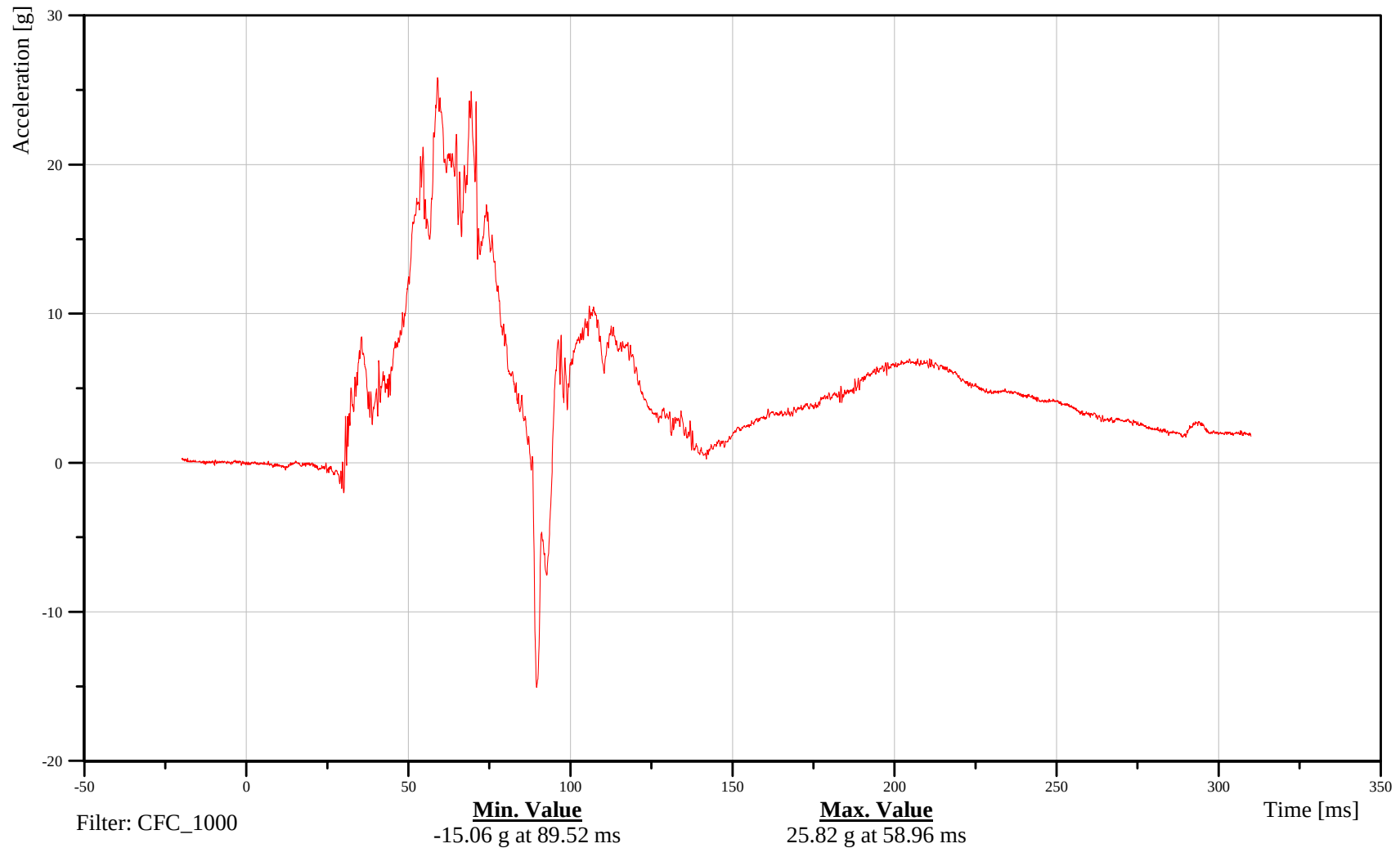
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TRC Inc. Test Lab: CTF

Test Number: 101207



B-4

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Head Resultant Acceleration

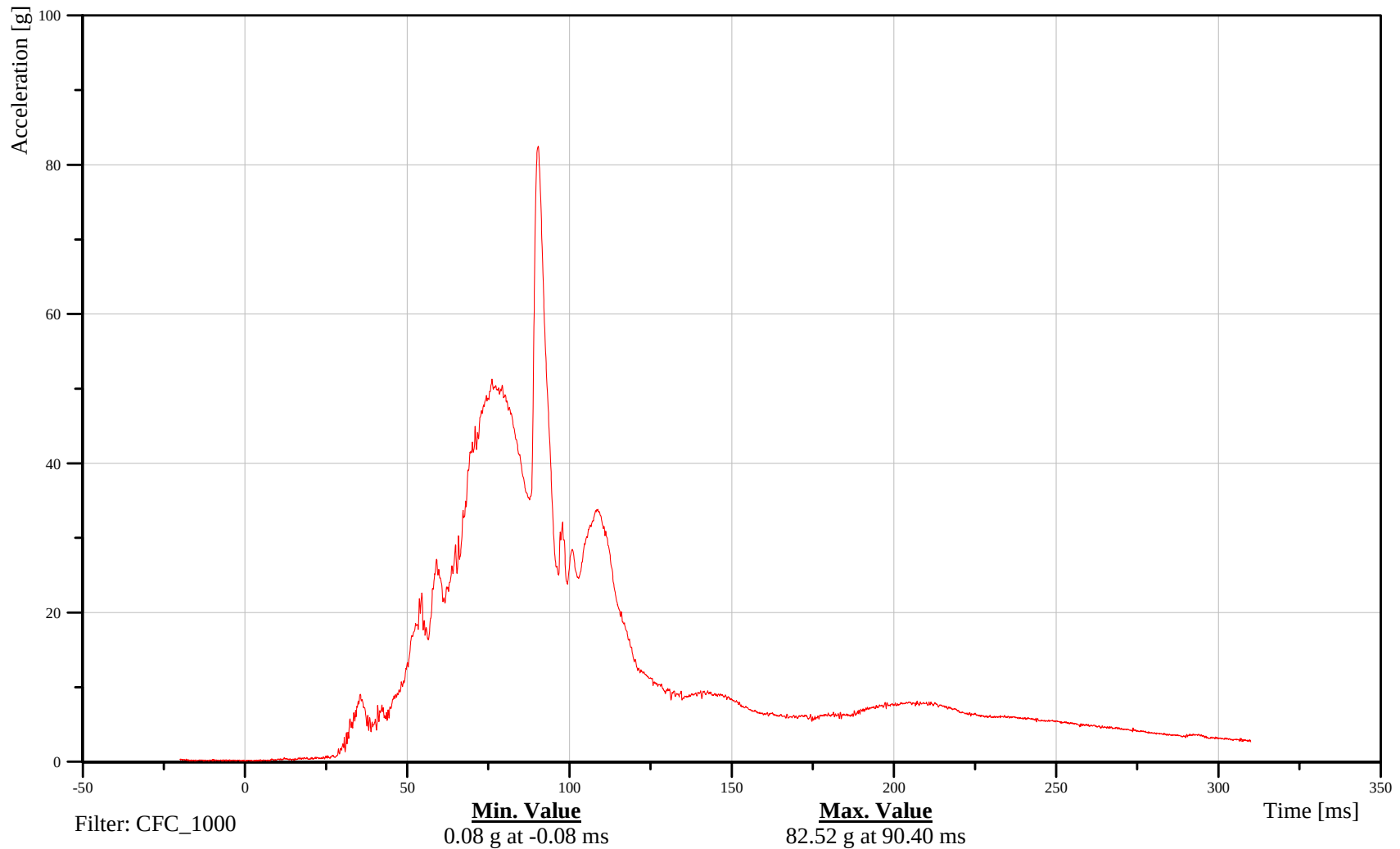
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Customer: VRTC

11HEADCG00H3ACRA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Head Redundant X-Axis Acceleration

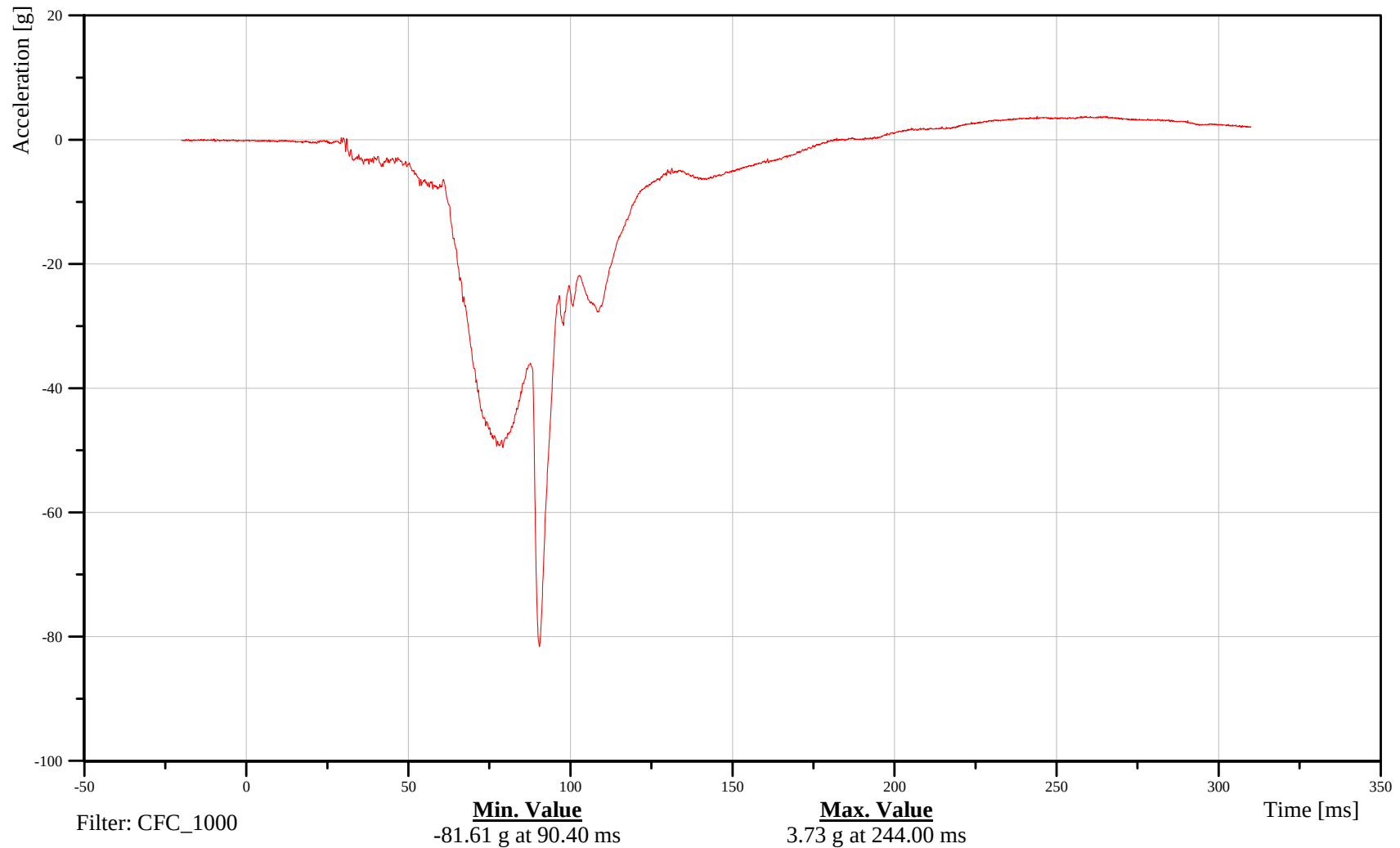
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TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Head Redundant Y-Axis Acceleration

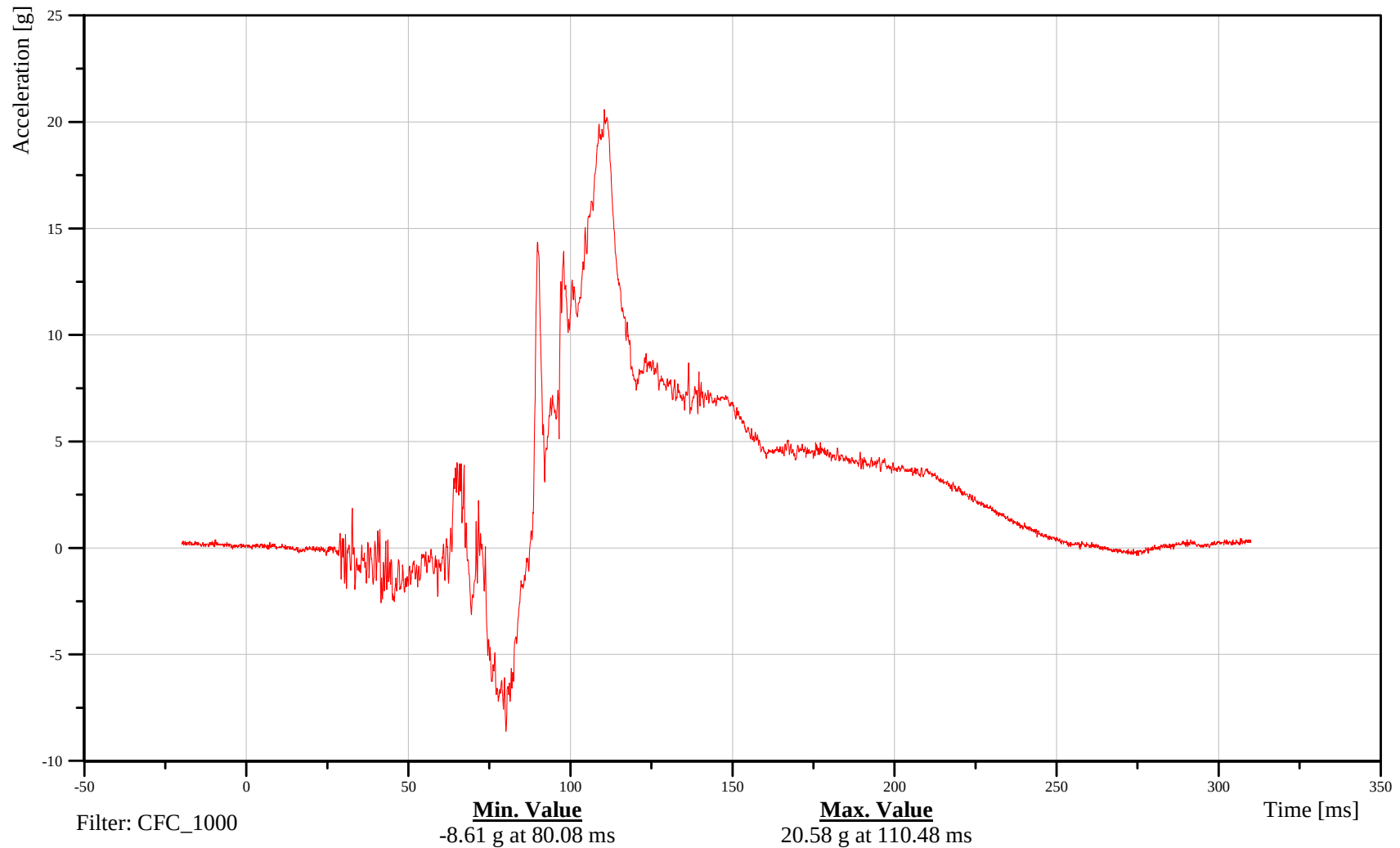
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TRC Inc. Test Lab: CTF

Test Number: 101207



B-7

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Head Redundant Z-Axis Acceleration

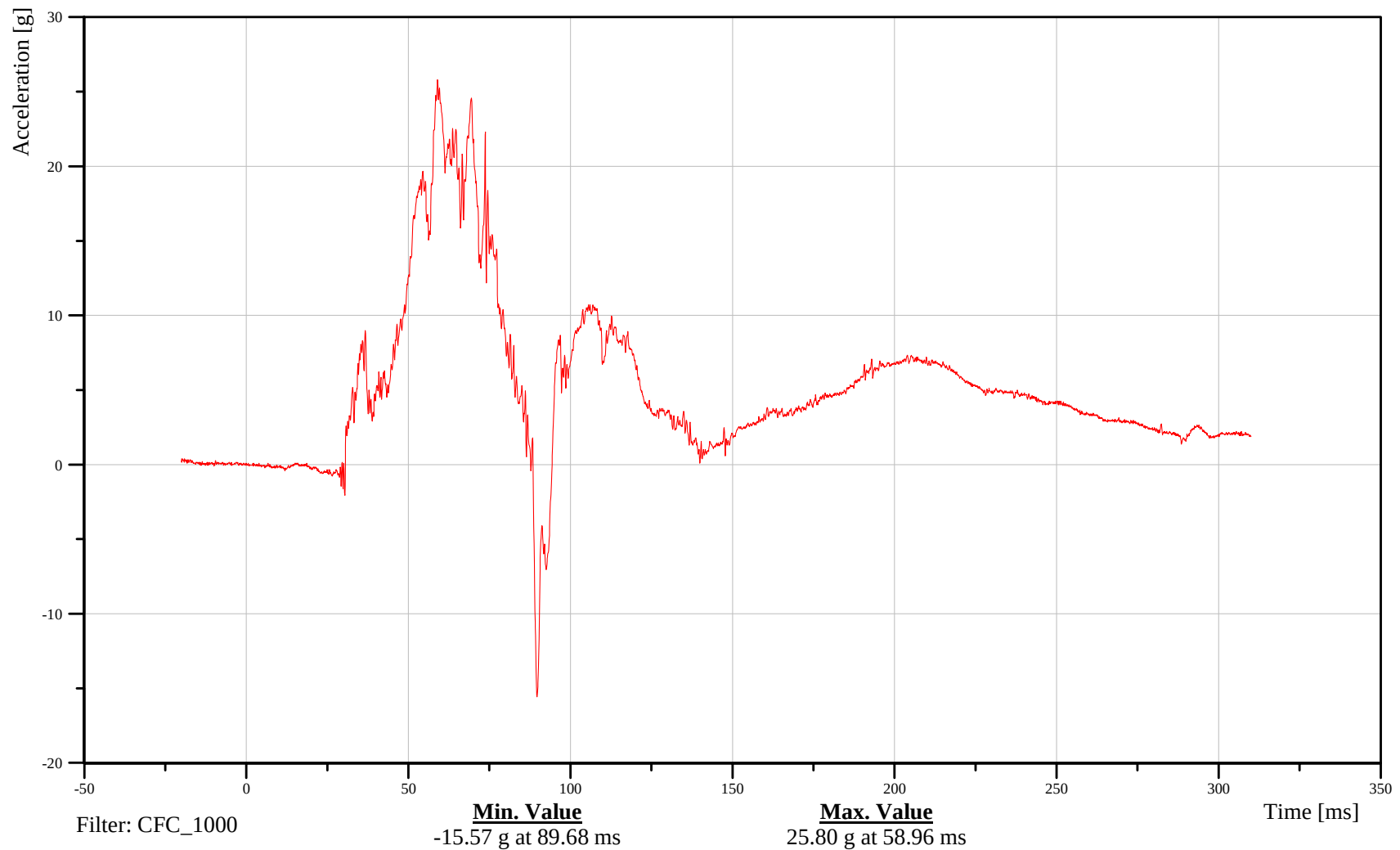
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TRC Inc. Test Lab: CTF

Test Number: 101207



B-8

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Head Redundant Resultant Acceleration

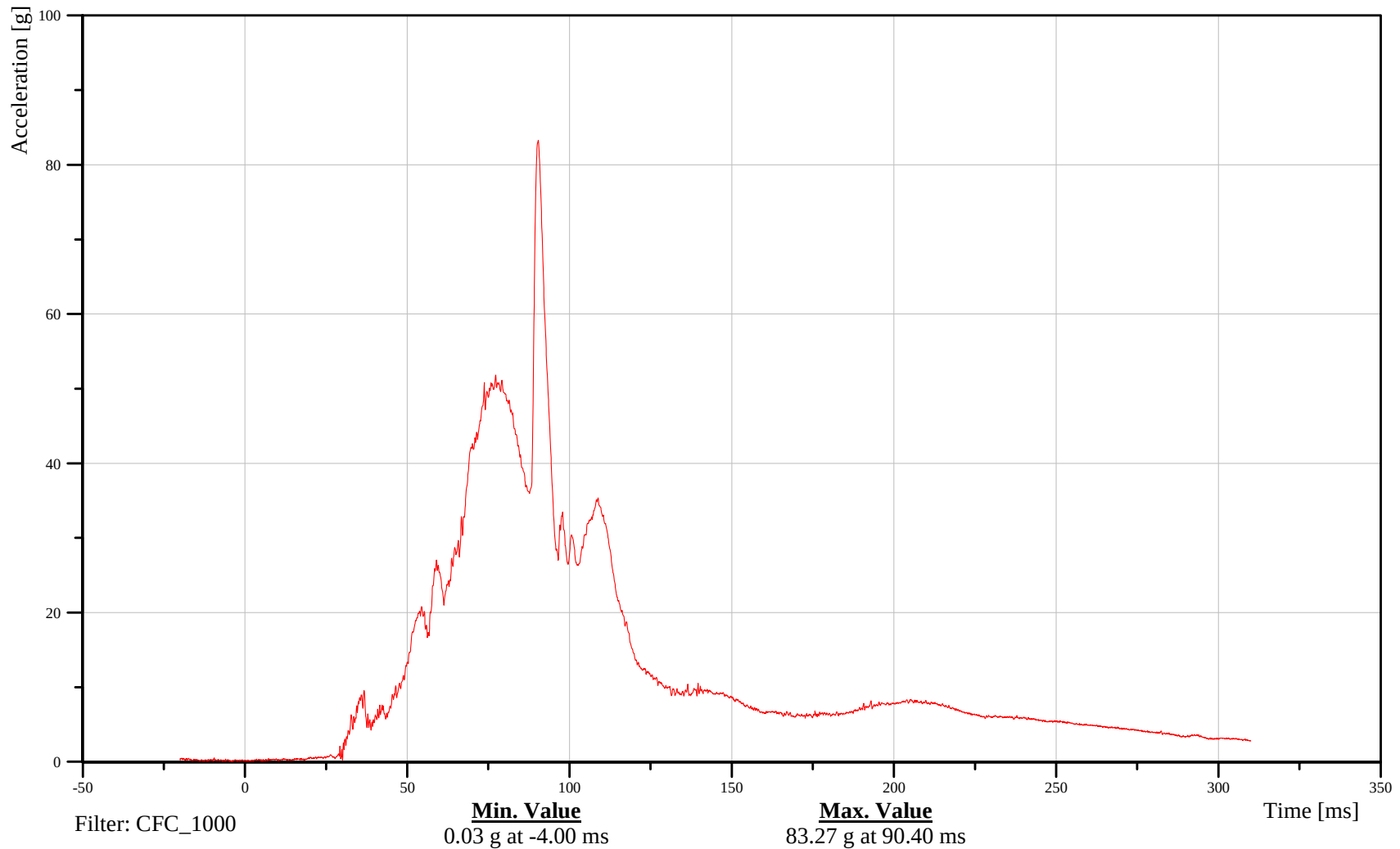
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TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

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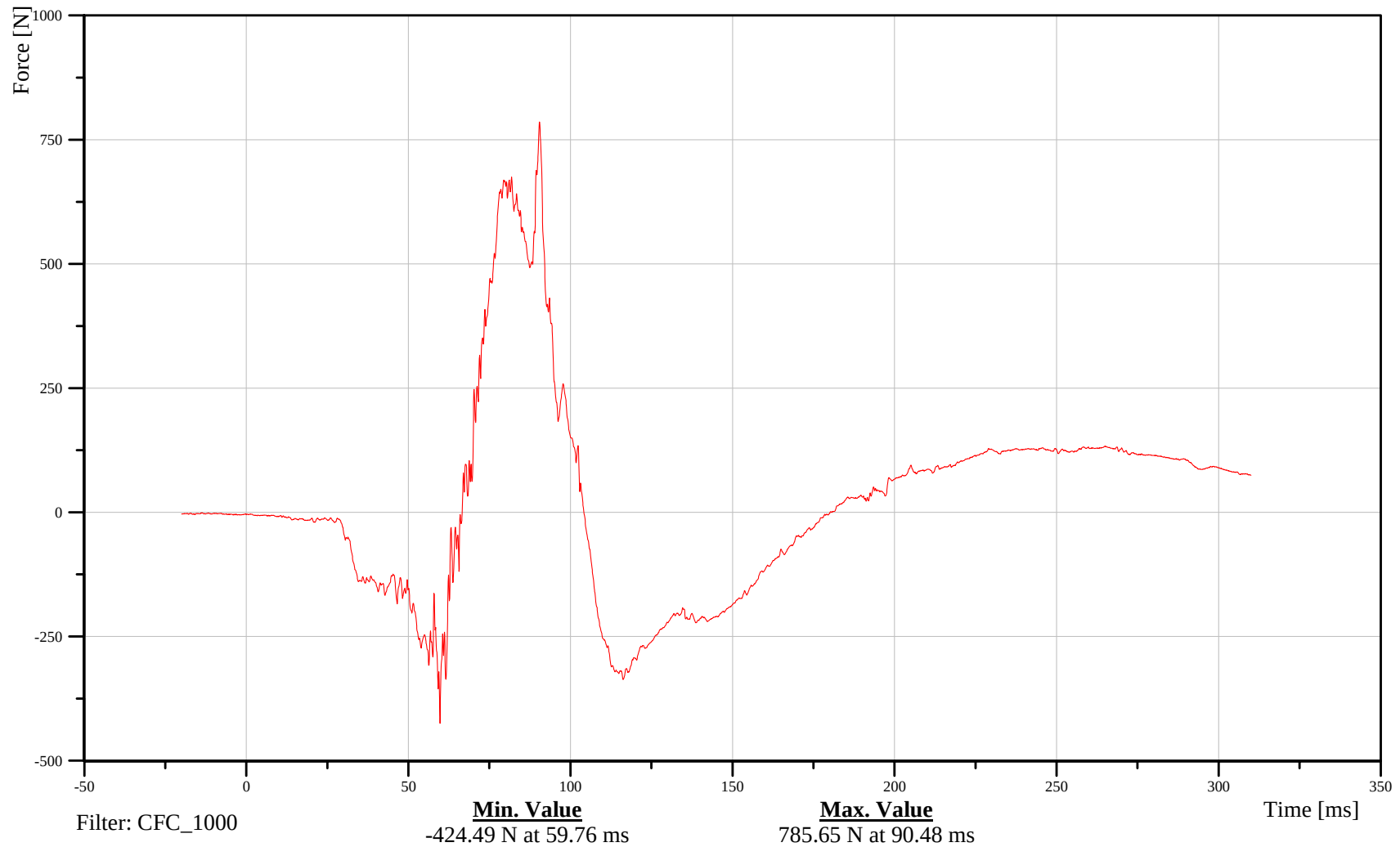
Bullet Vehicle Driver Upper Neck X-Axis Force

Customer: VRTC

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TRC Inc. Test Lab: CTF

Test Number: 101207



B-10

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

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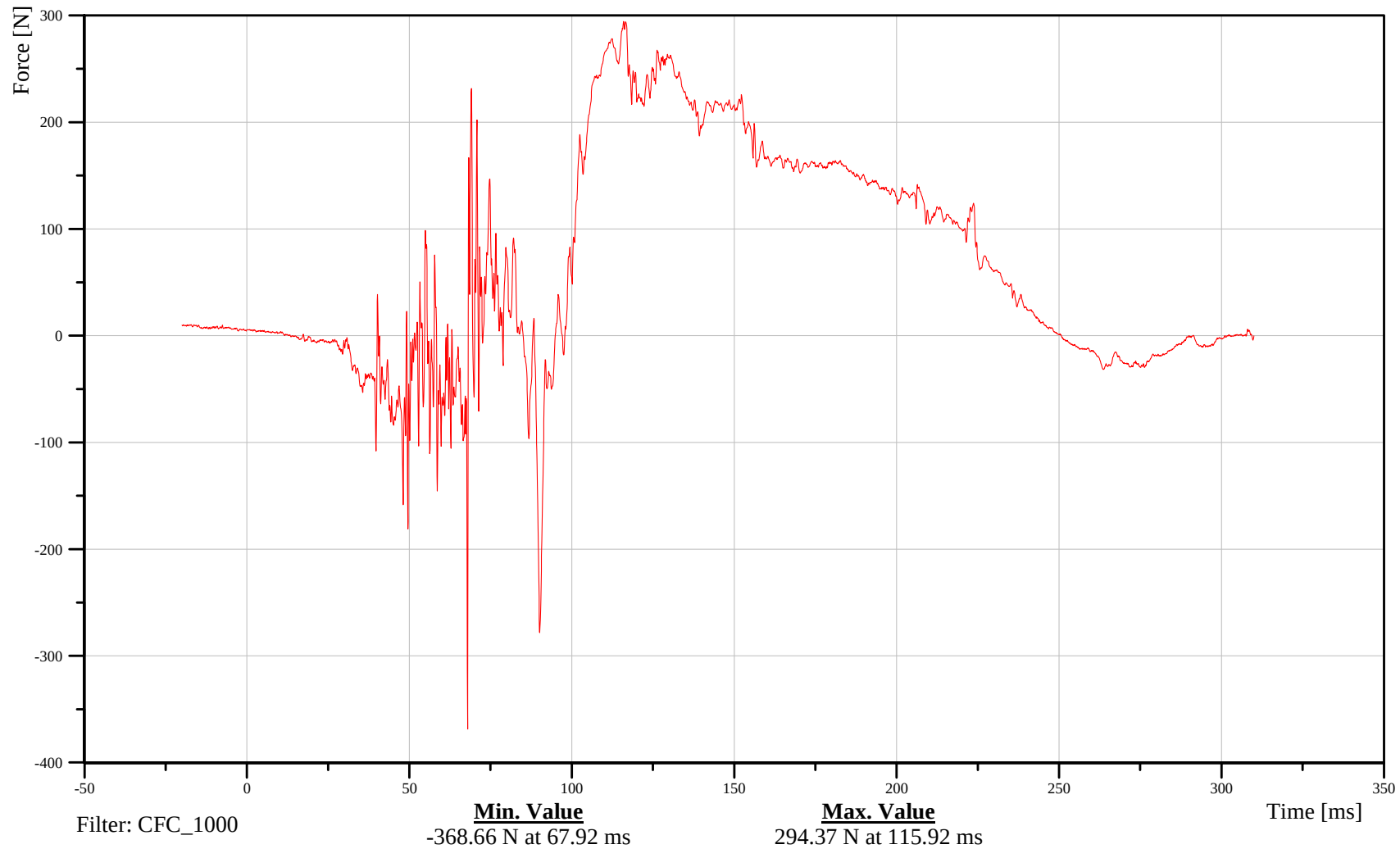
Bullet Vehicle Driver Upper Neck Y-Axis Force

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TRC Inc. Test Lab: CTF

Test Number: 101207



B-11

101207



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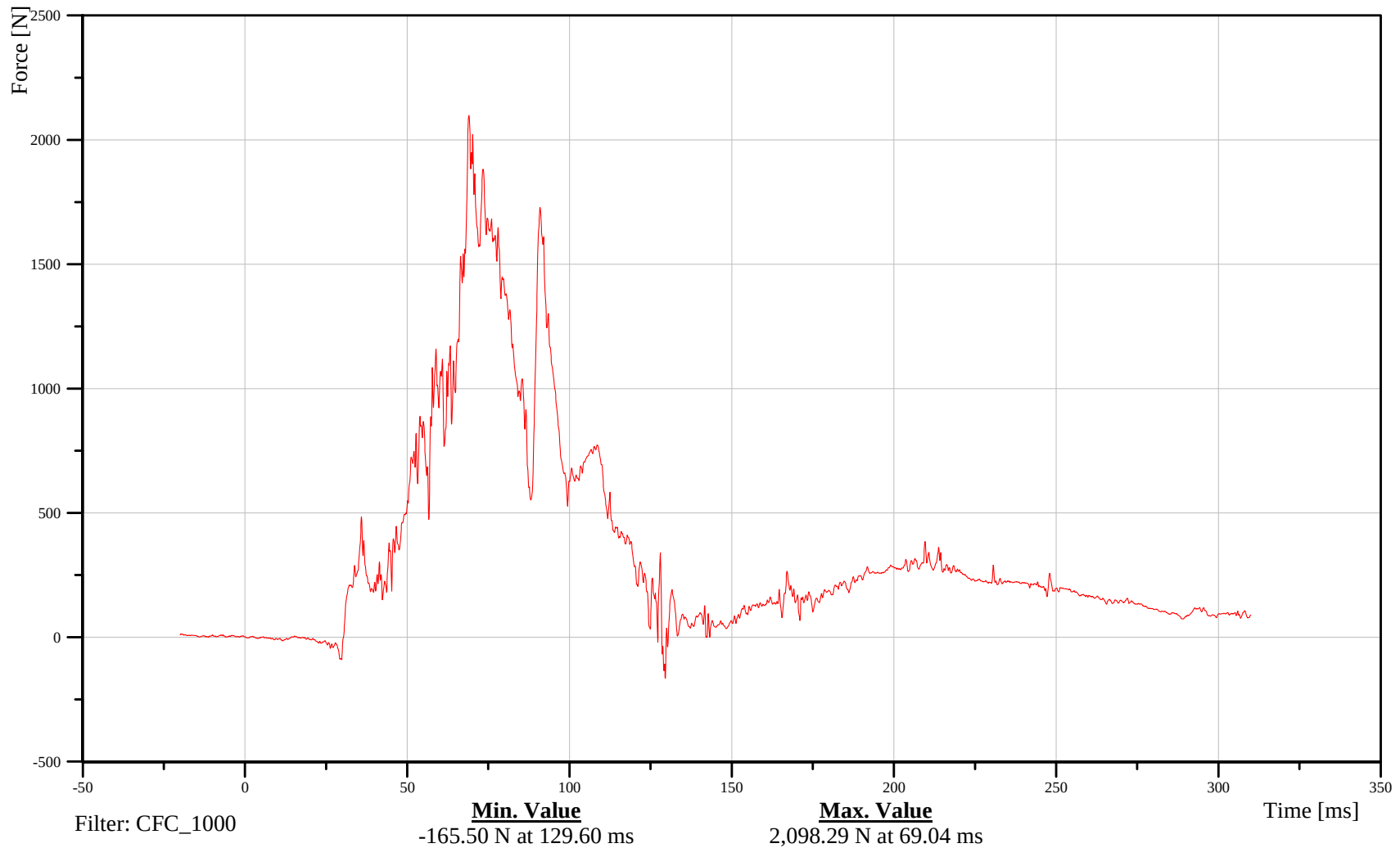
Bullet Vehicle Driver Upper Neck Z-Axis Force

Customer: VRTC

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TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

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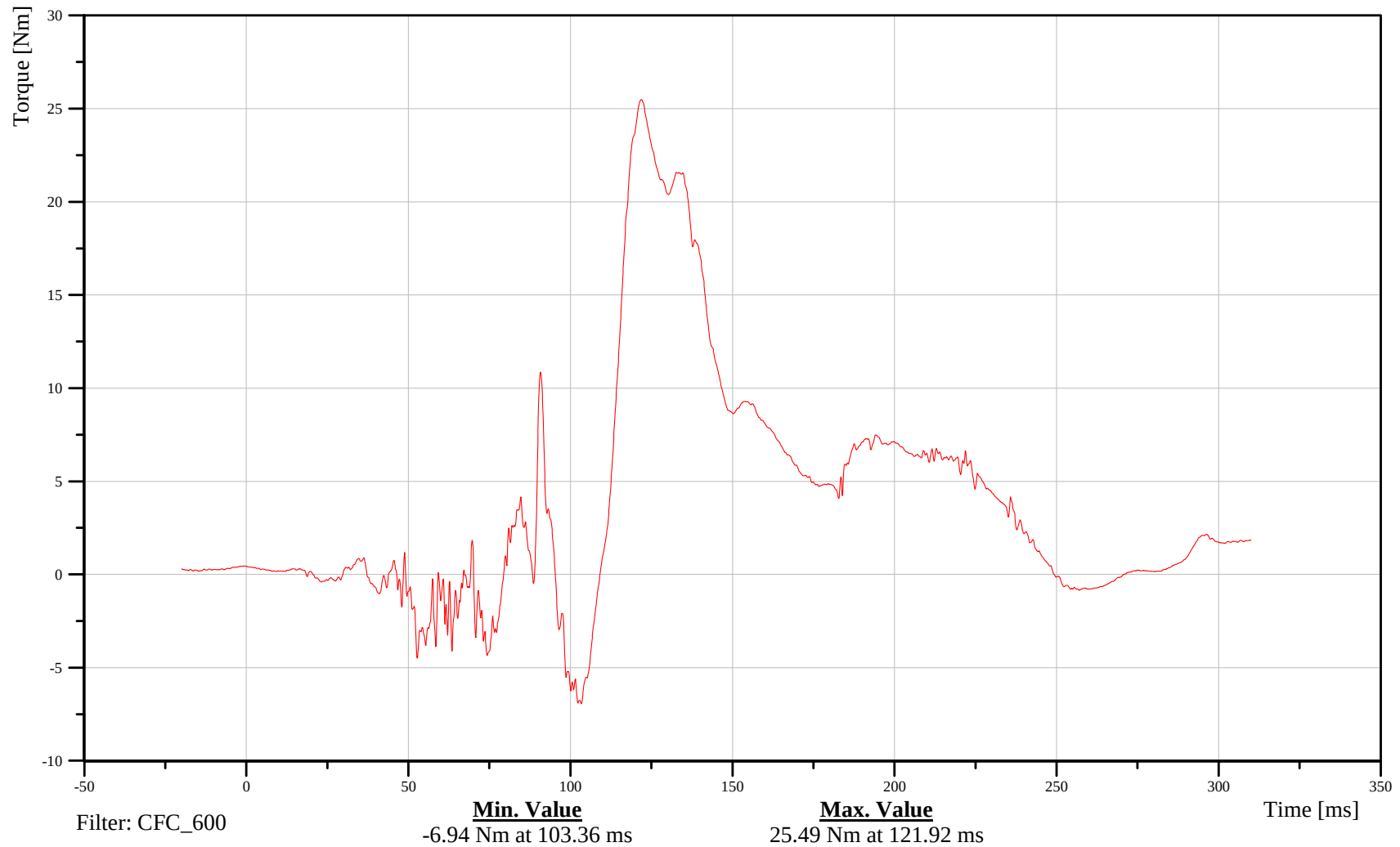
Bullet Vehicle Driver Upper Neck Moment About X Axis

Customer: VRTC

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TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

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Time: 16:40 PM

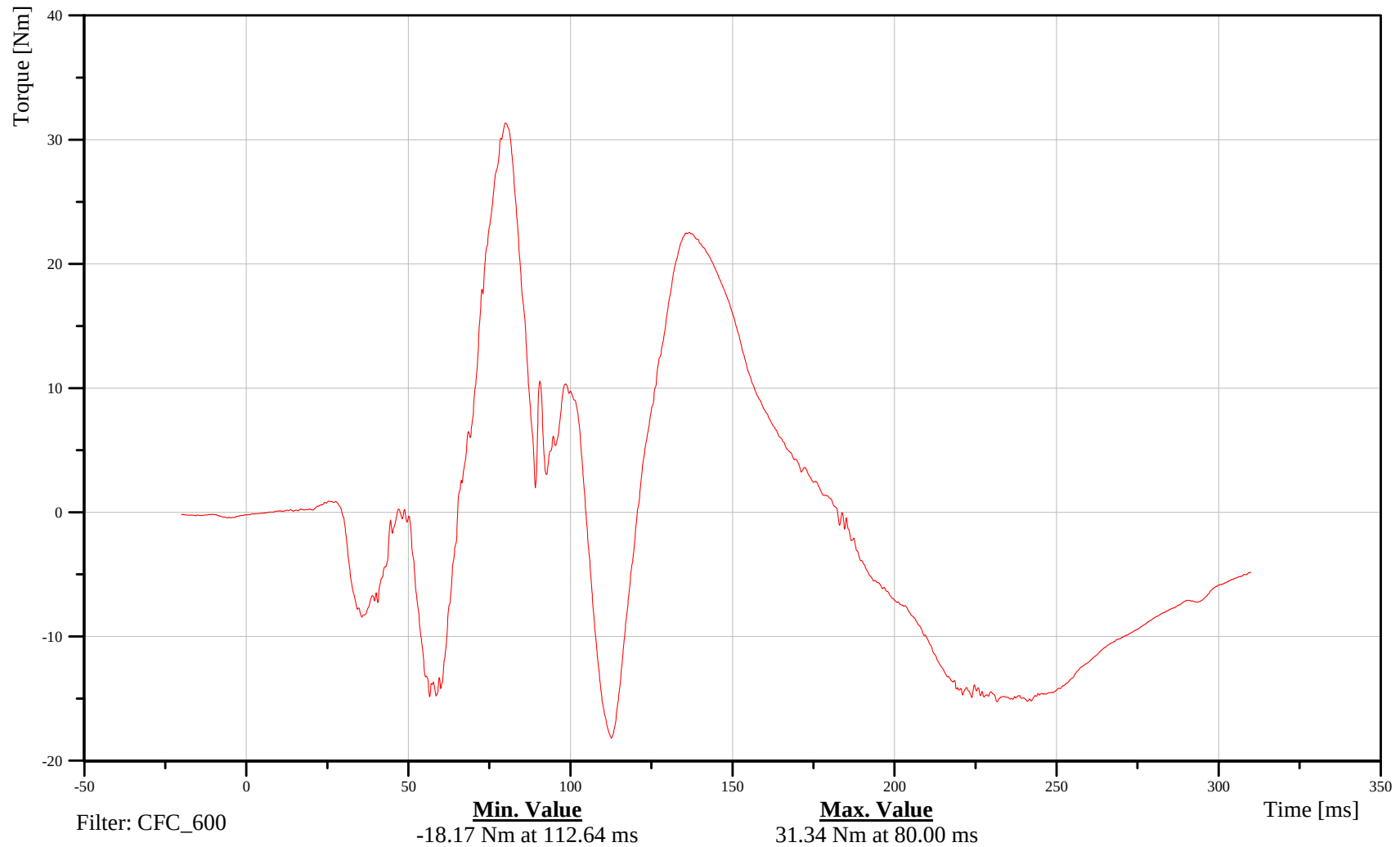
Bullet Vehicle Driver Upper Neck Moment About Y Axis

Customer: VRTC

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TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

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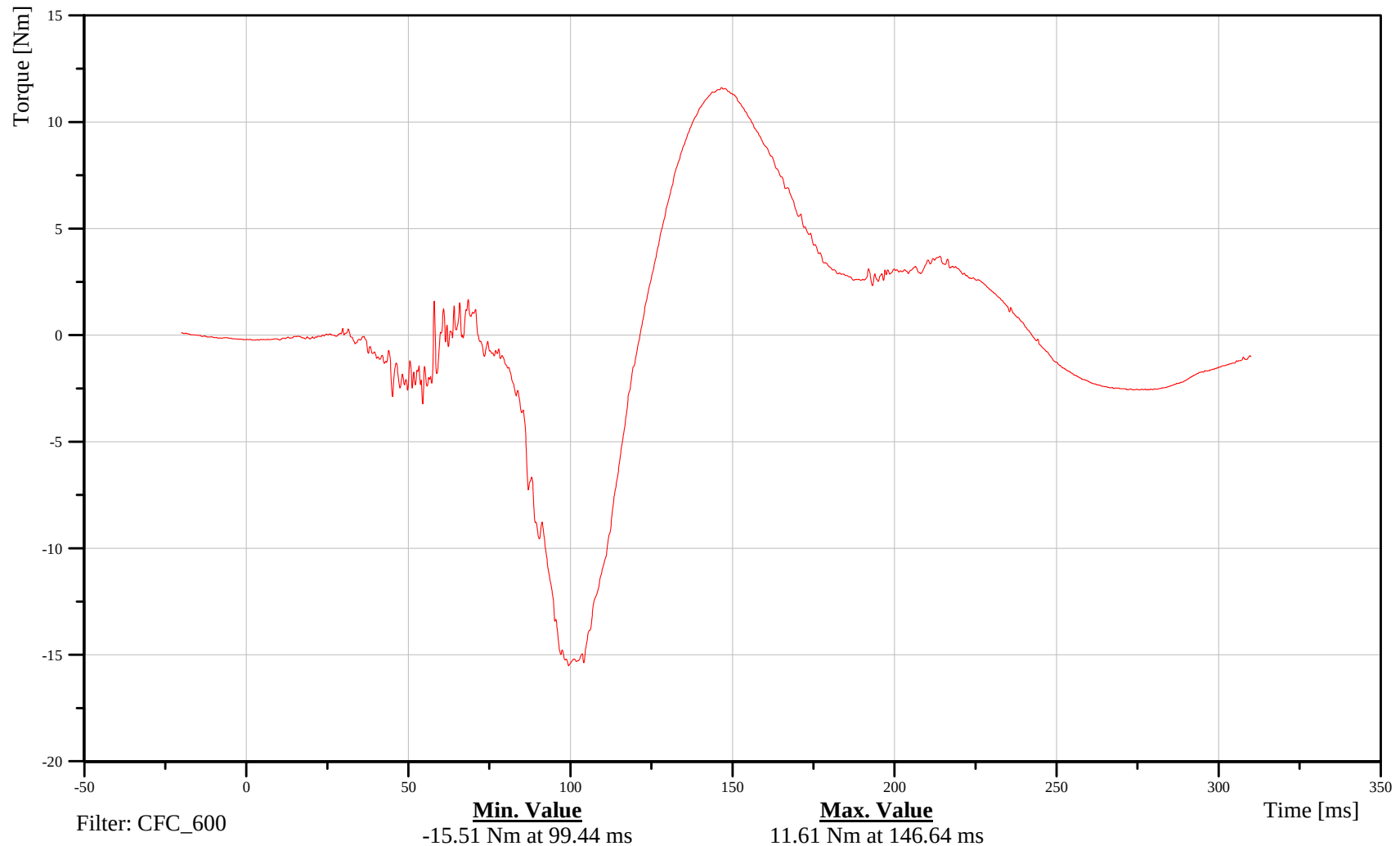
Bullet Vehicle Driver Upper Neck Moment About Z Axis

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TRC Inc. Test Lab: CTF

Test Number: 101207



B-15

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Chest X-Axis Acceleration

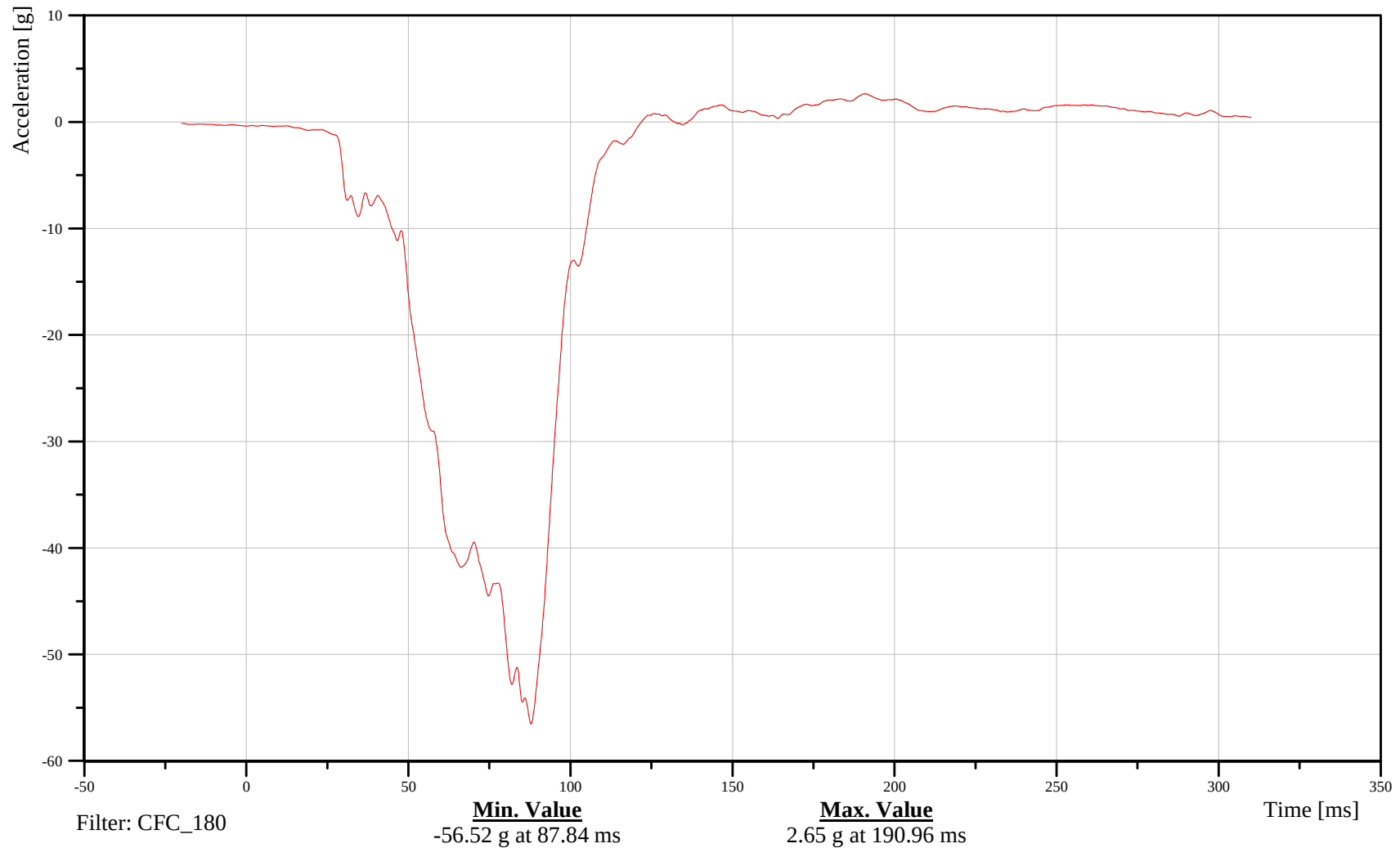
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11CHSTCG00H3ACXC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Chest Y-Axis Acceleration

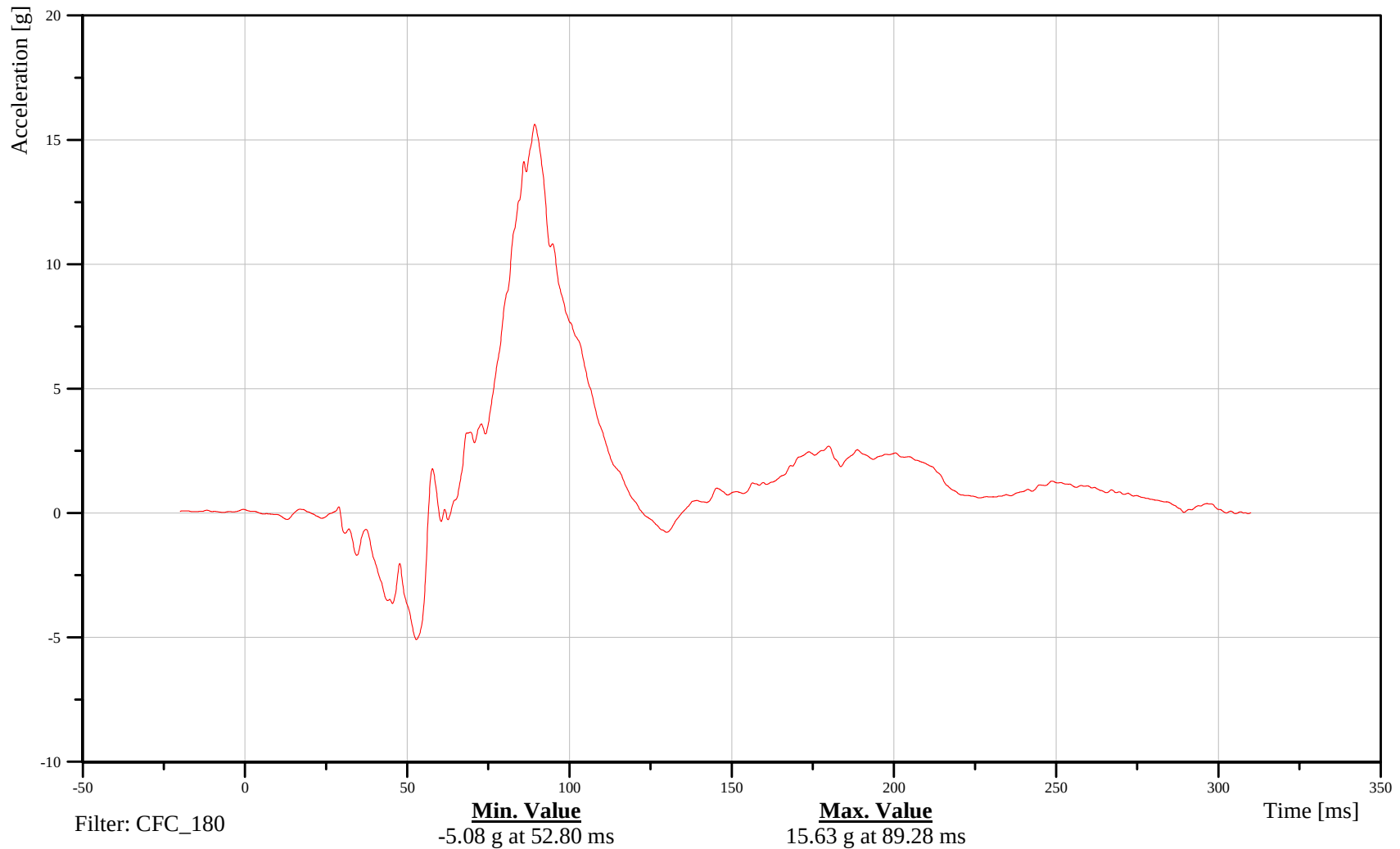
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11CHSTCG00H3ACYC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Chest Z-Axis Acceleration

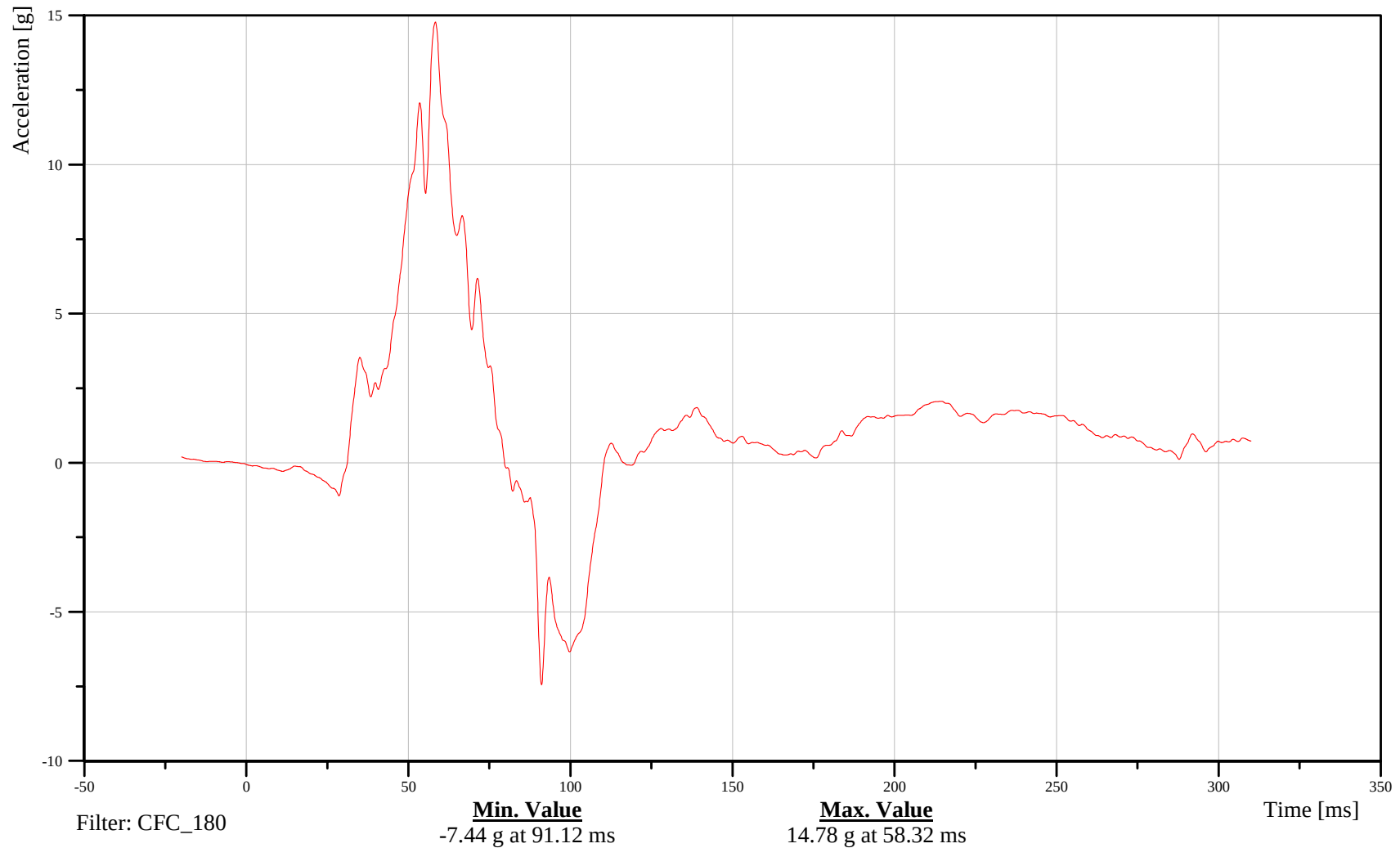
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11CHSTCG00H3ACZC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

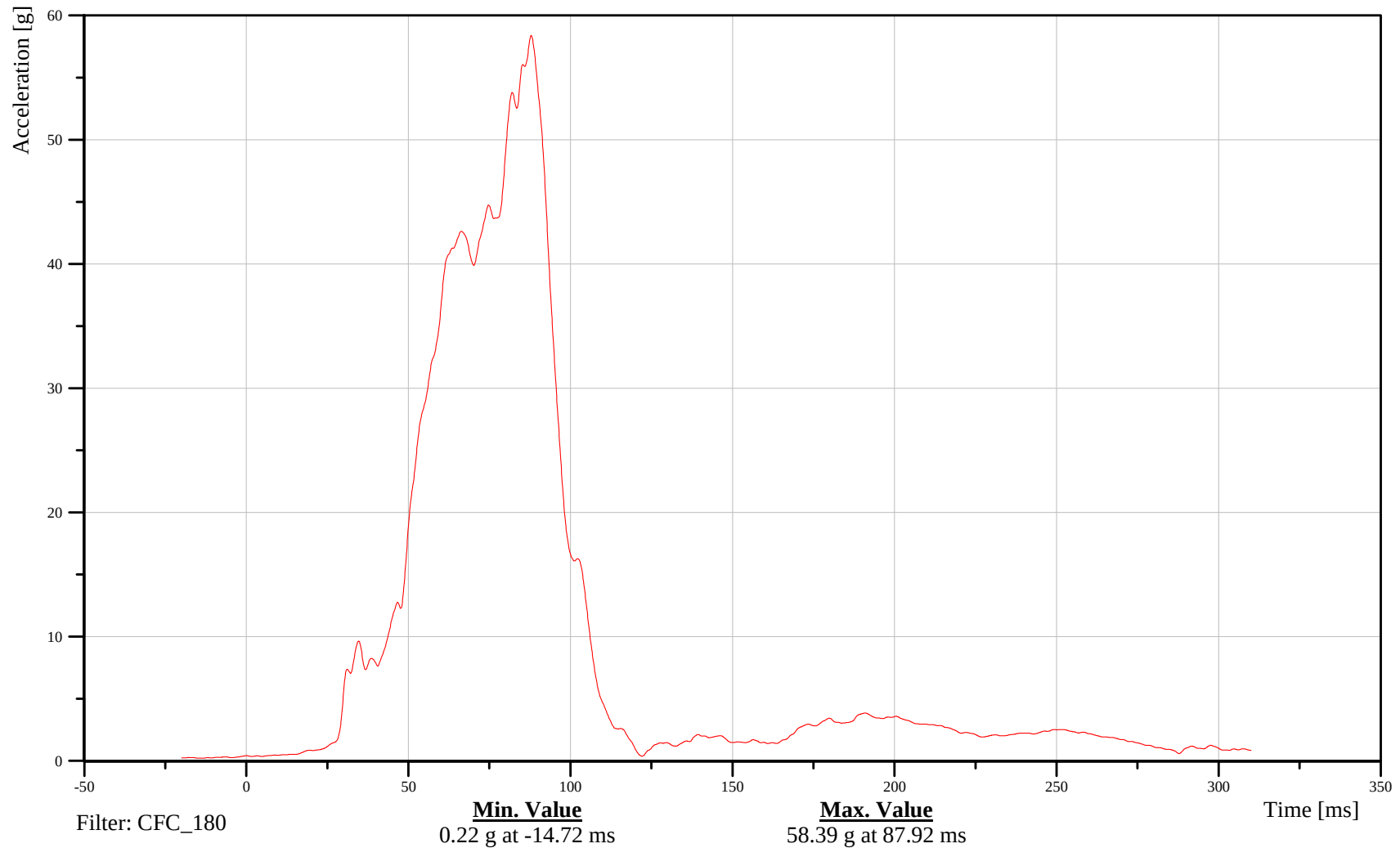
Bullet Vehicle Driver Chest Resultant Acceleration

Customer: VRTC

11CHSTCG00H3ACRC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Chest Redundant X-Axis Acceleration

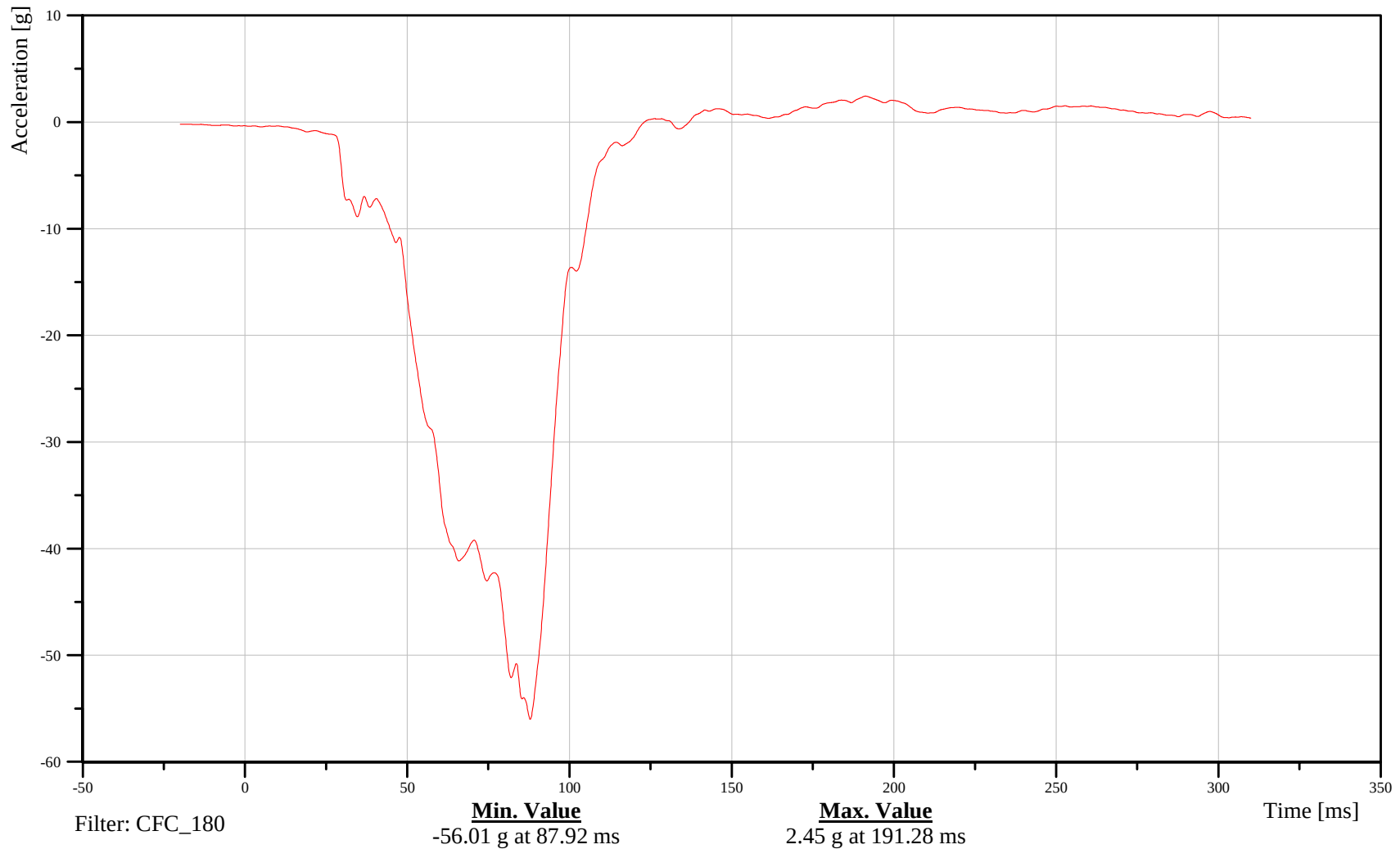
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11CHSTCGRDH3ACXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-20

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Chest Redundant Y-Axis Acceleration

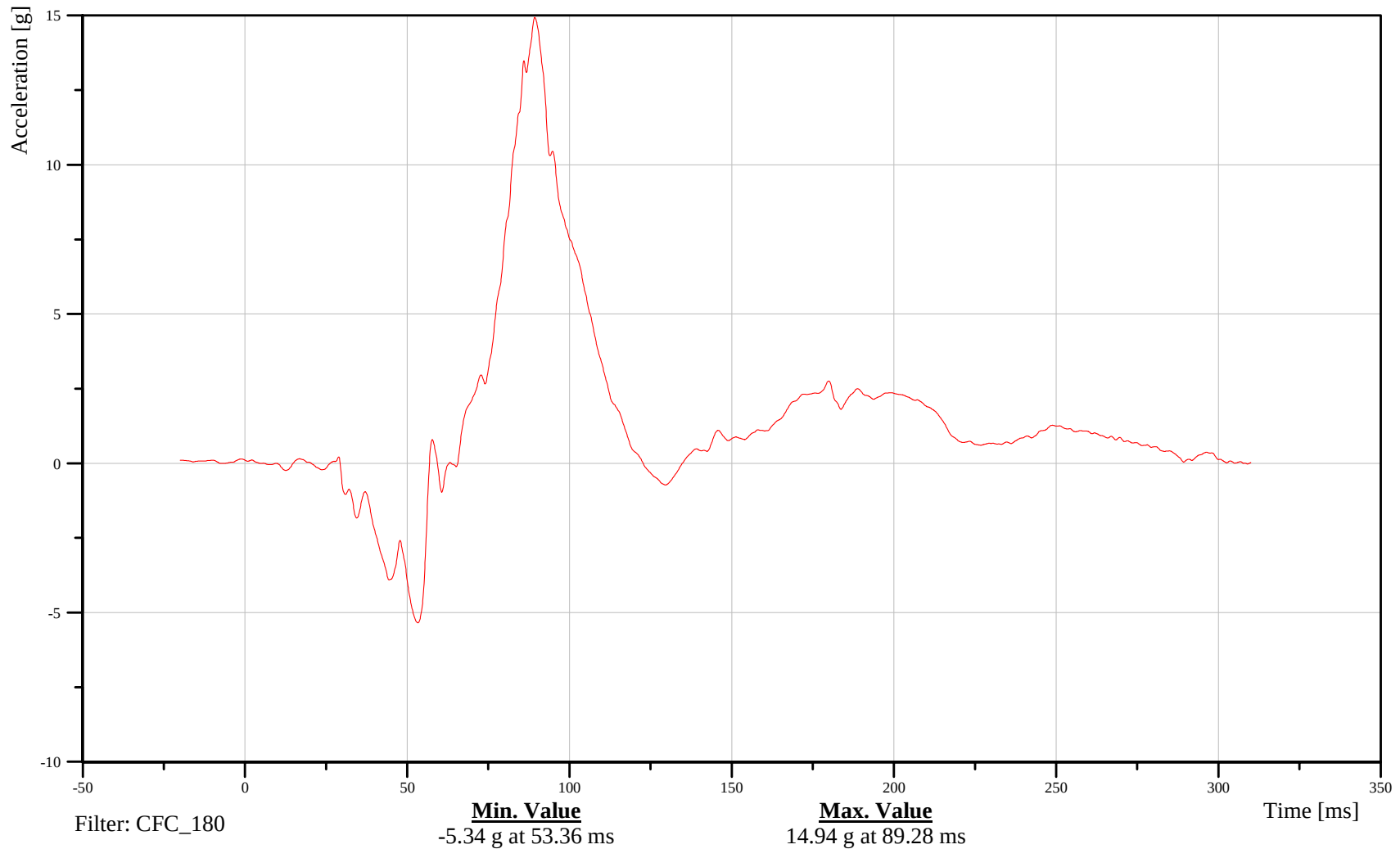
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11CHSTCGRDH3ACYC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Chest Redundant Z-Axis Acceleration

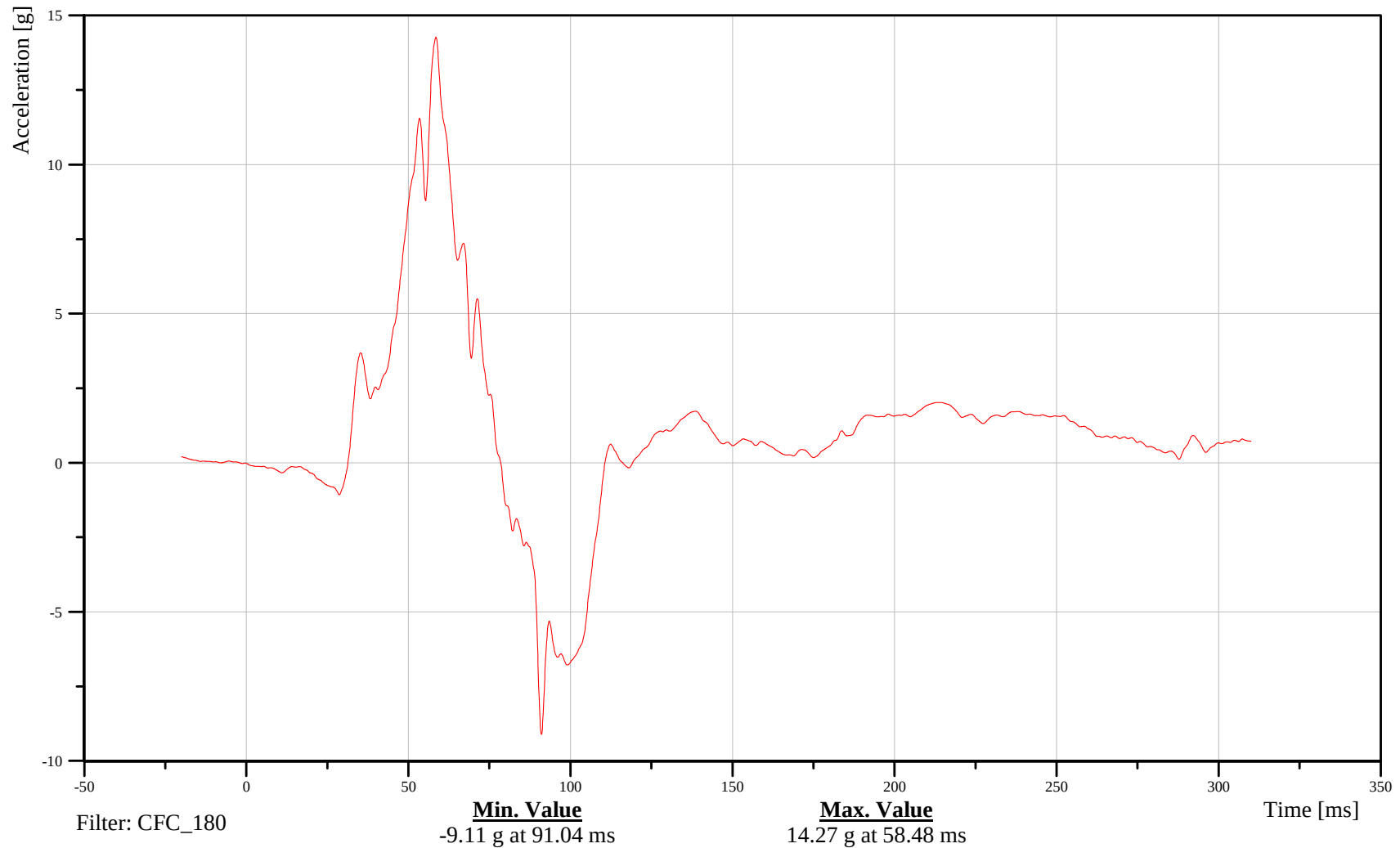
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11CHSTCGRDH3ACZC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Chest Redundant Resultant Acceleration

Date: 12/07/2010

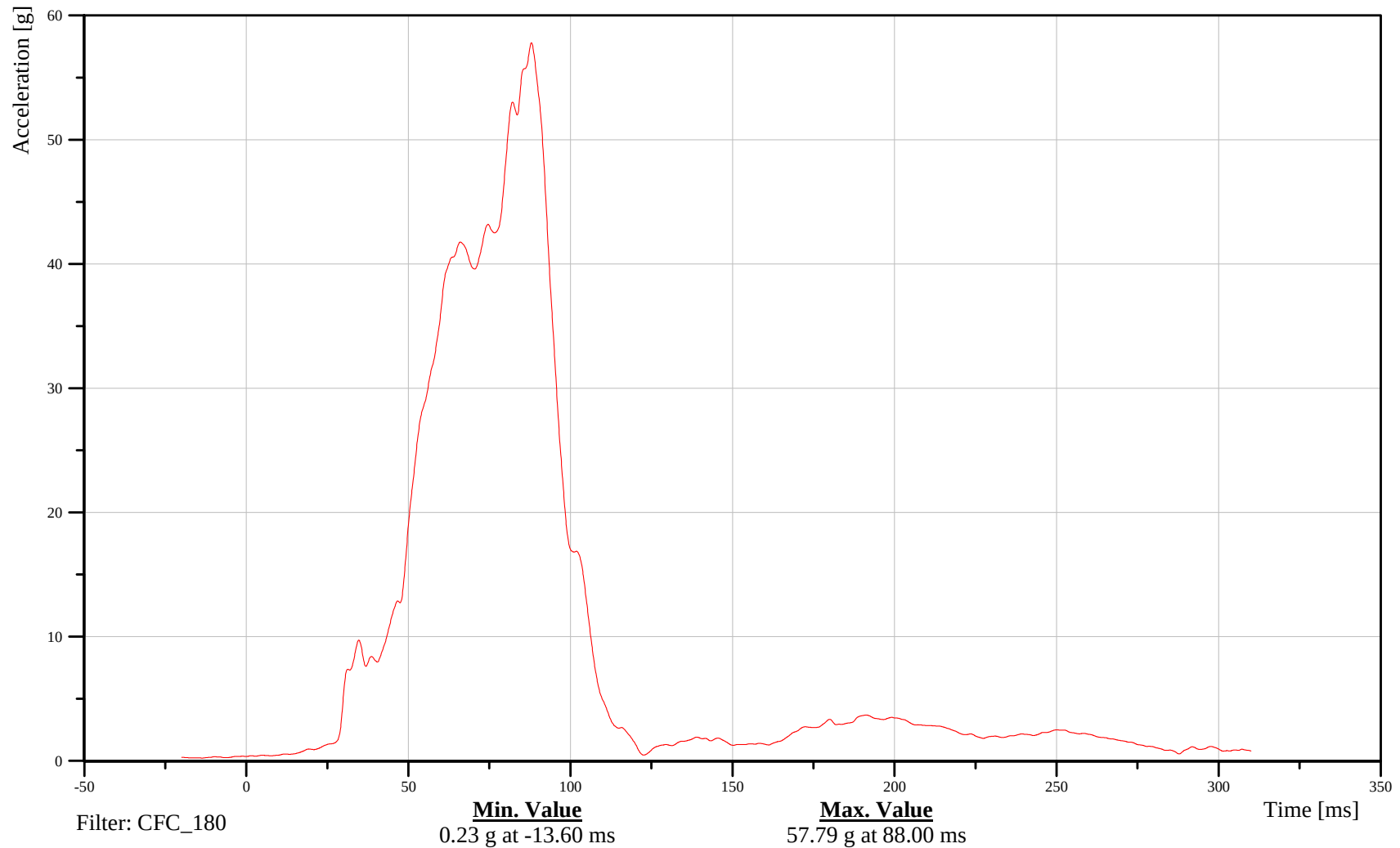
Time: 16:40 PM

Customer: VRTC

11CHSTCGRDH3ACRC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

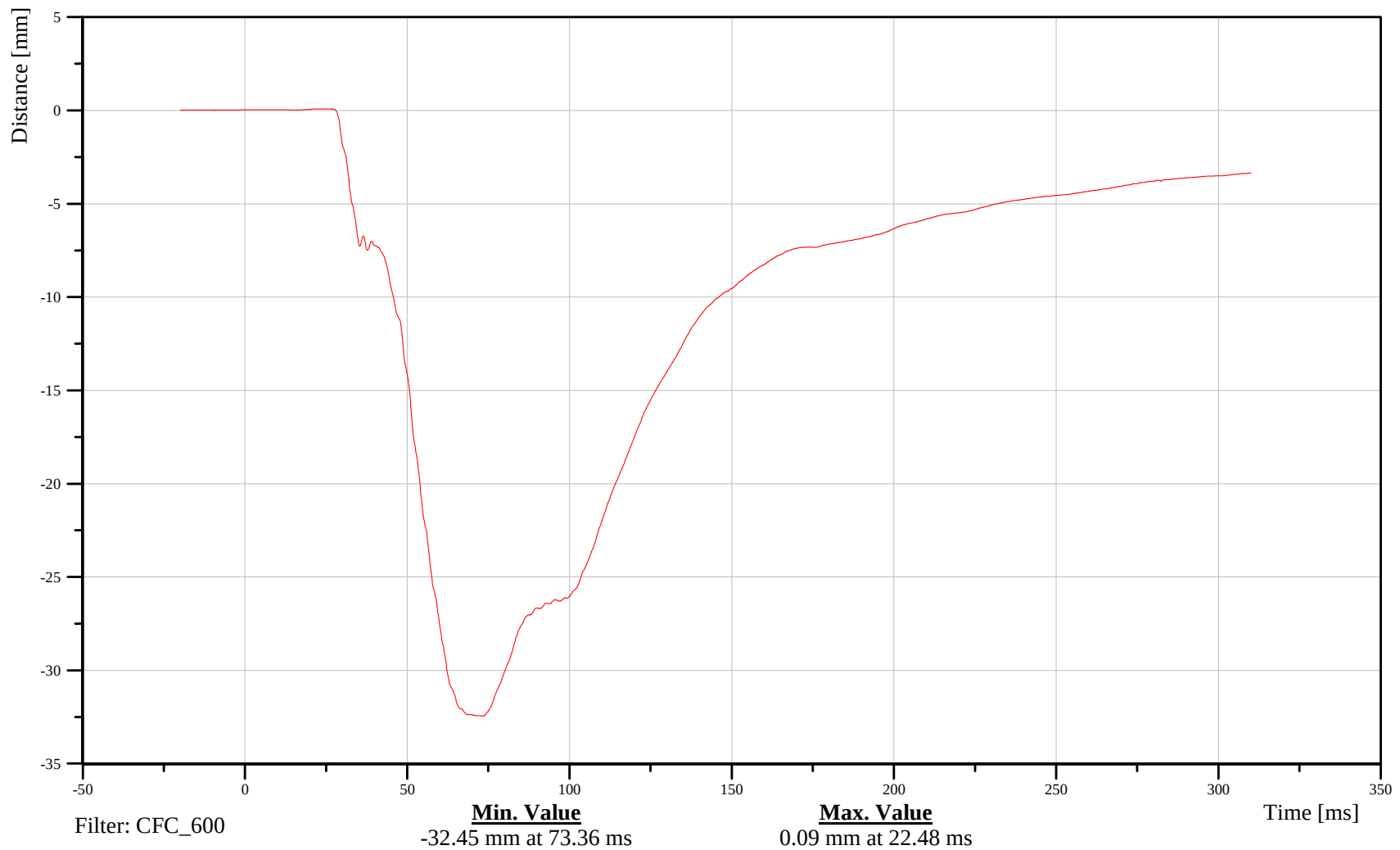
Bullet Vehicle Driver Chest X-Axis Displacement

Customer: VRTC

11CHST0000H3DSXB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

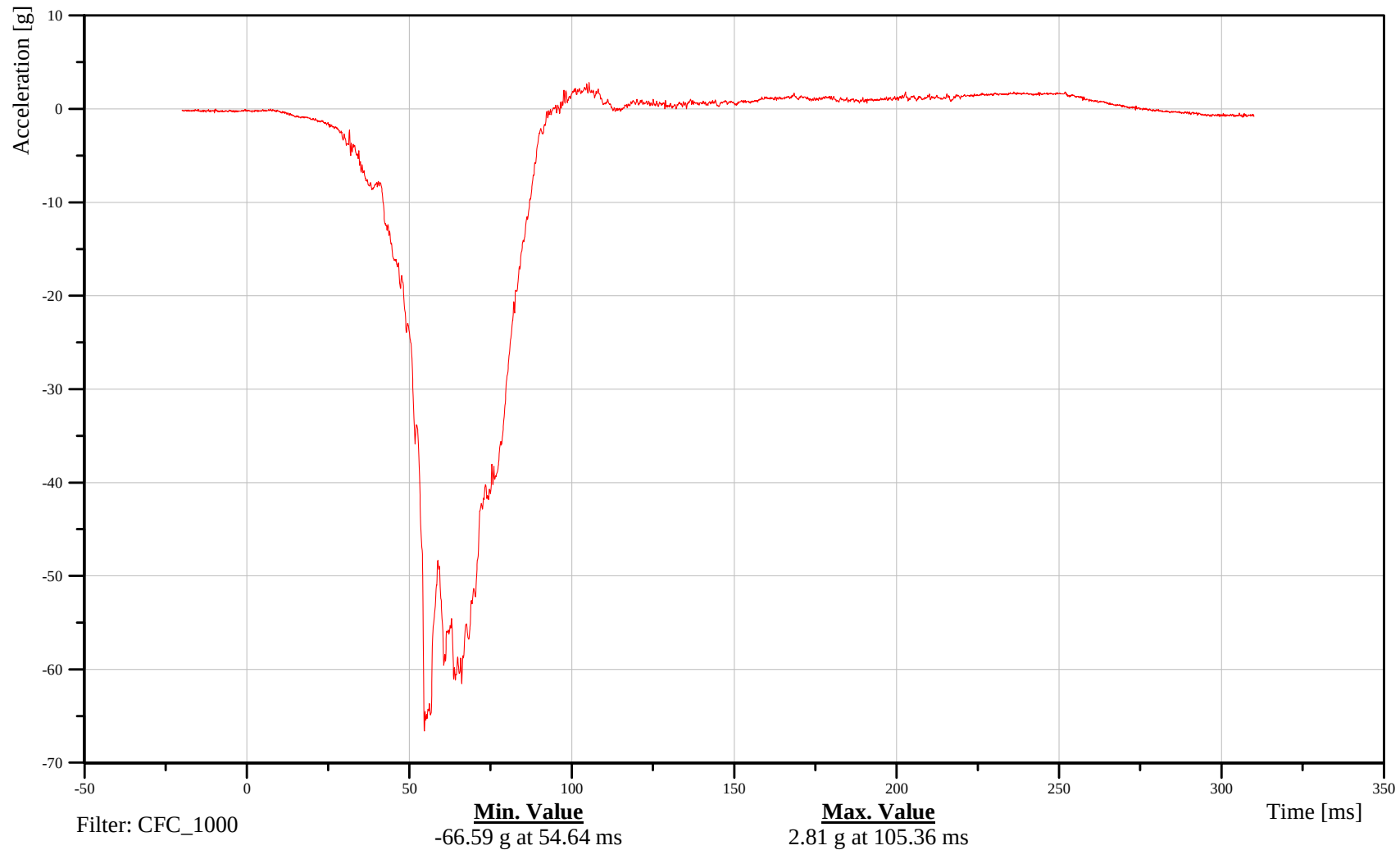
Bullet Vehicle Driver Pelvis X-Axis Acceleration

Customer: VRTC

11PELVCG00H3ACXA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

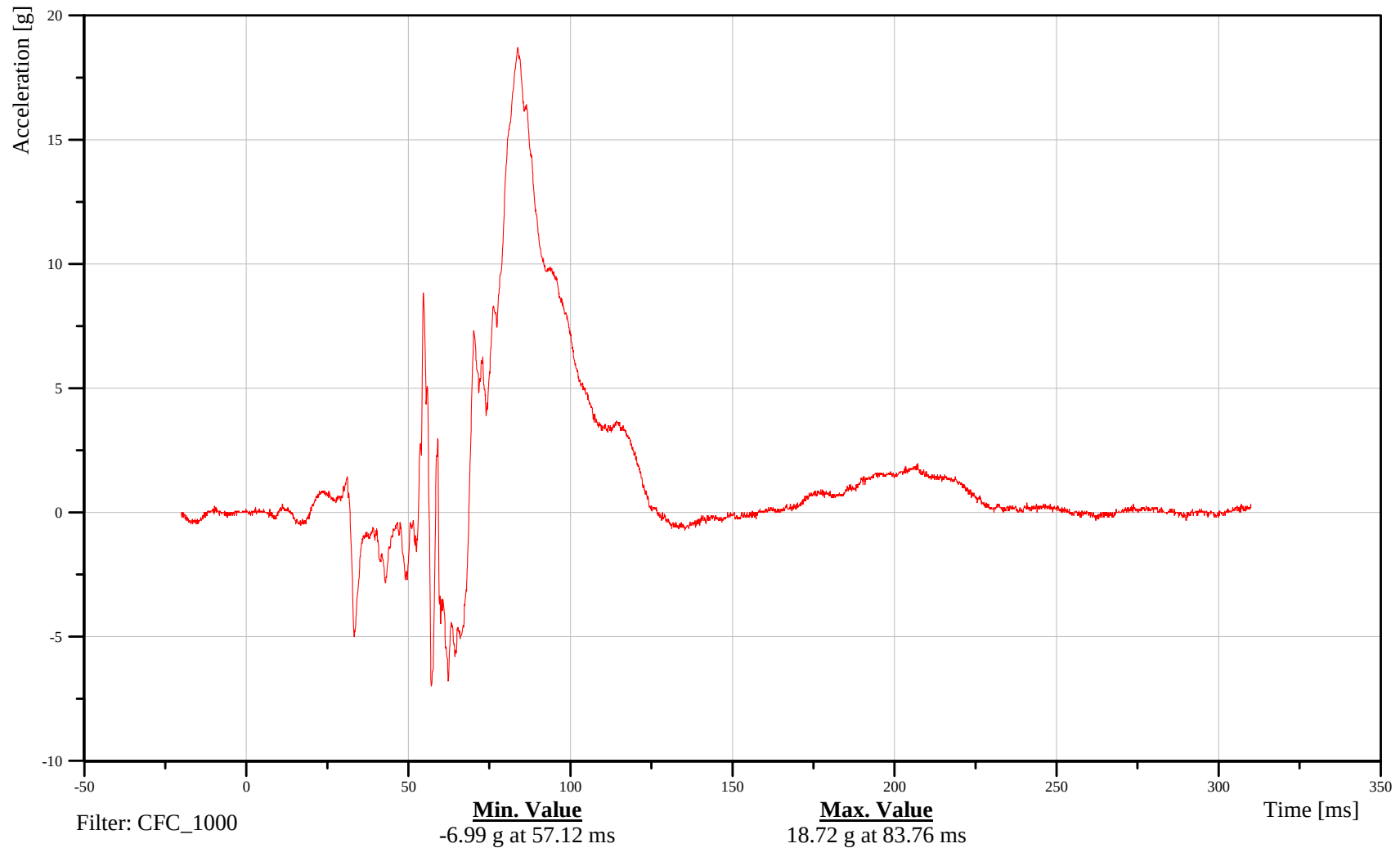
Bullet Vehicle Driver Pelvis Y-Axis Acceleration

Customer: VRTC

11PELVCG00H3ACYA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

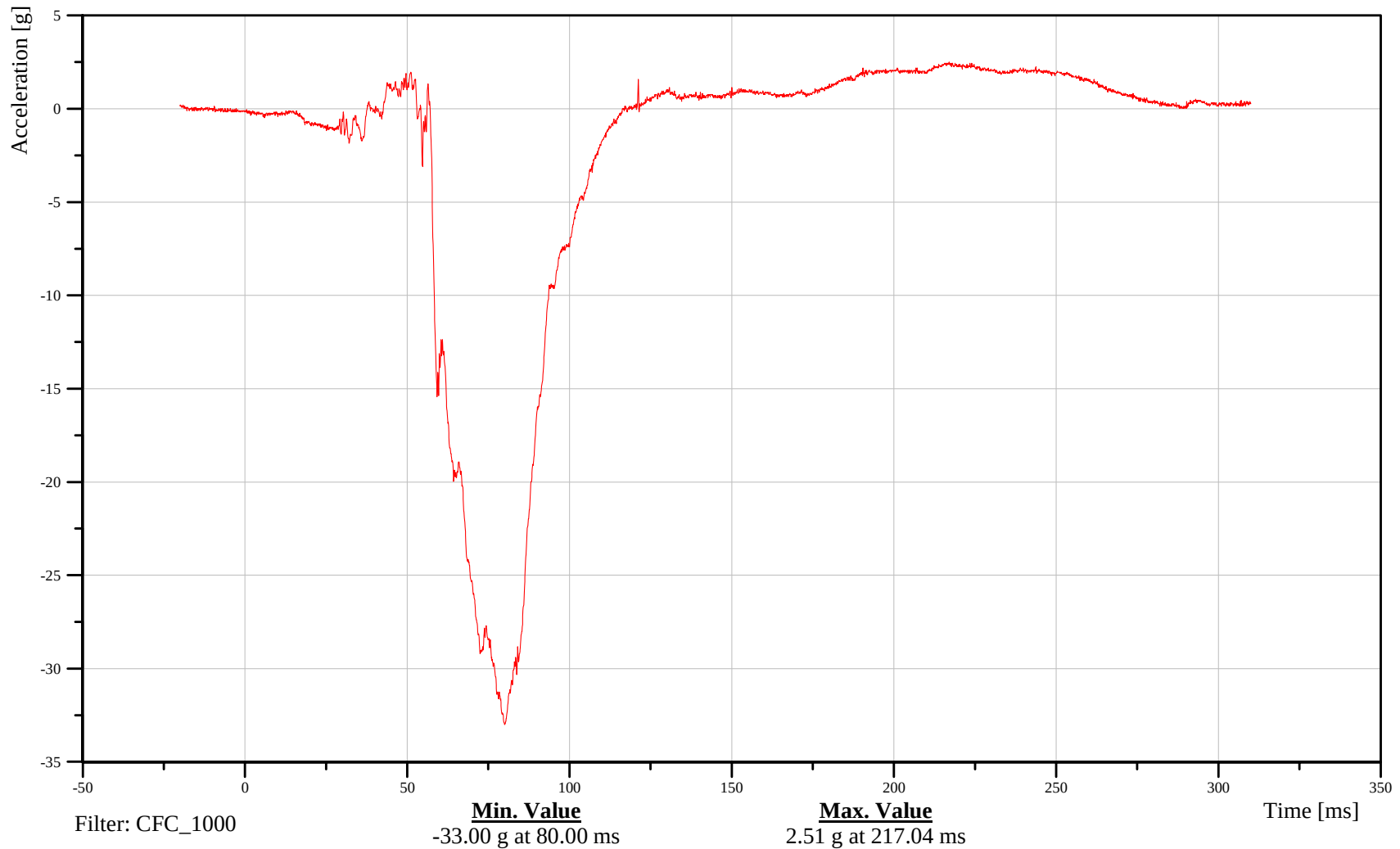
Bullet Vehicle Driver Pelvis Z-Axis Acceleration

Customer: VRTC

11PELVCG00H3ACZA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

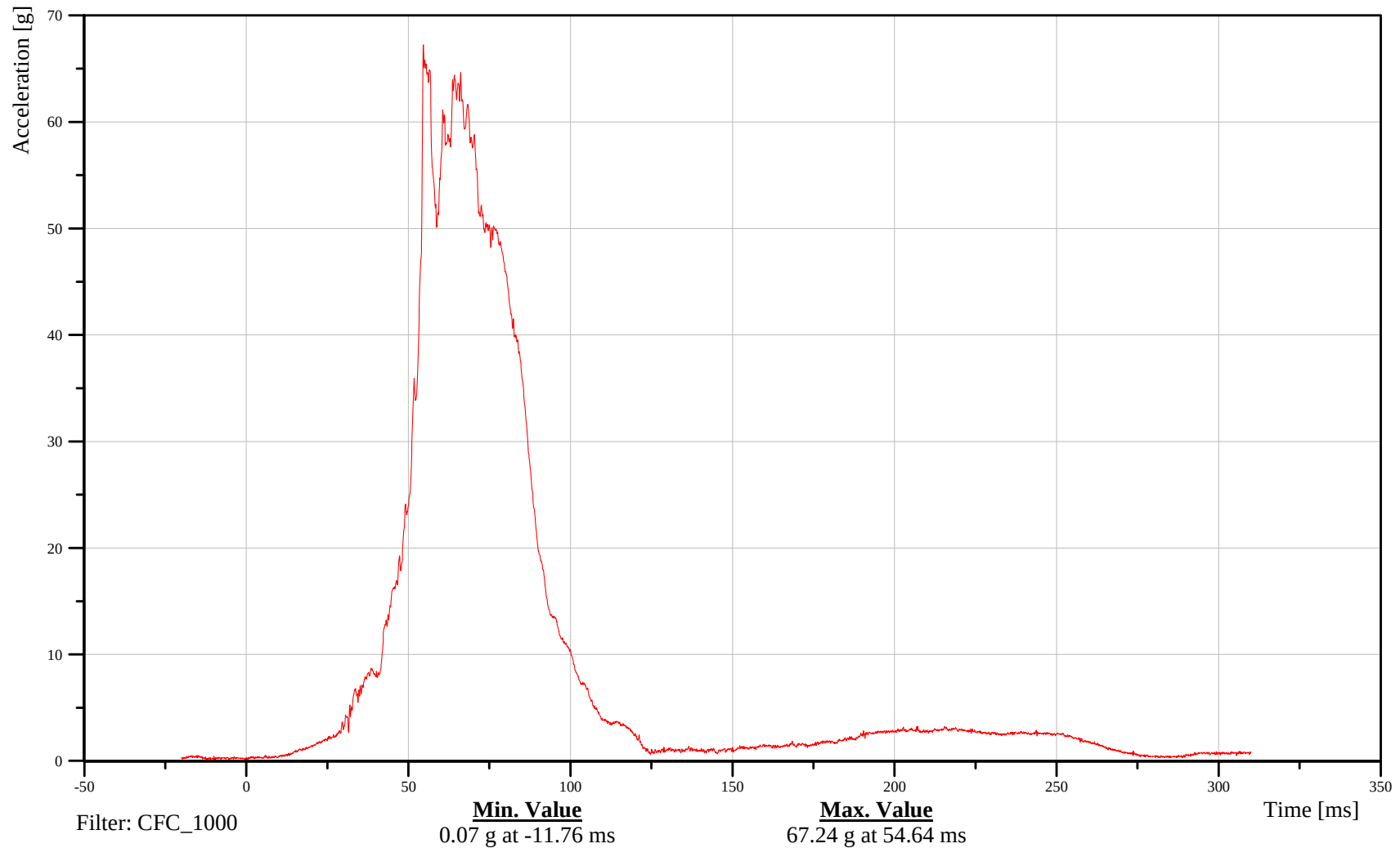
Bullet Vehicle Driver Pelvis Resultant Acceleration

Customer: VRTC

11PELVCG00H3ACRA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Left Femur Z-Axis Force

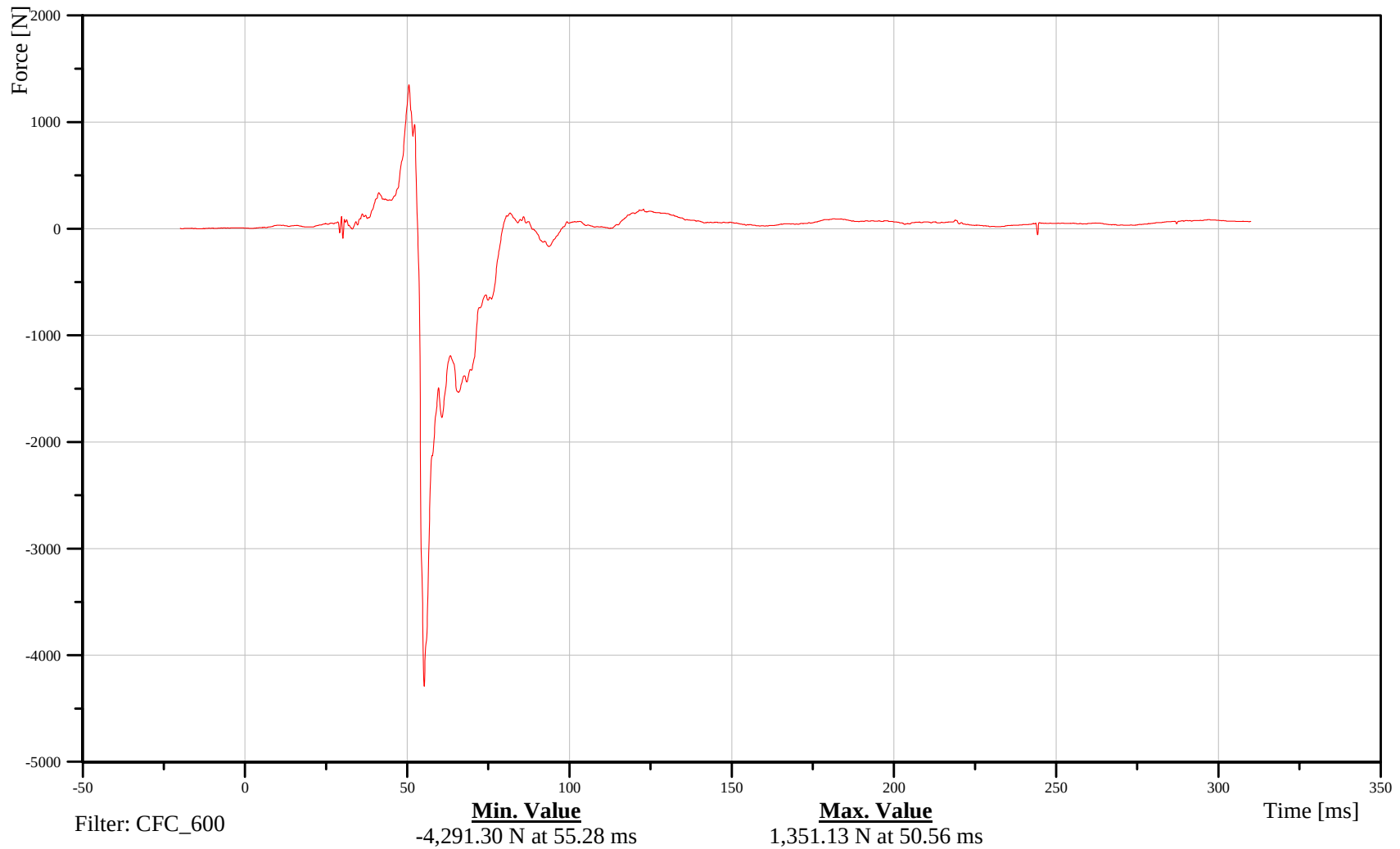
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11FEMRLL00H3FOZB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

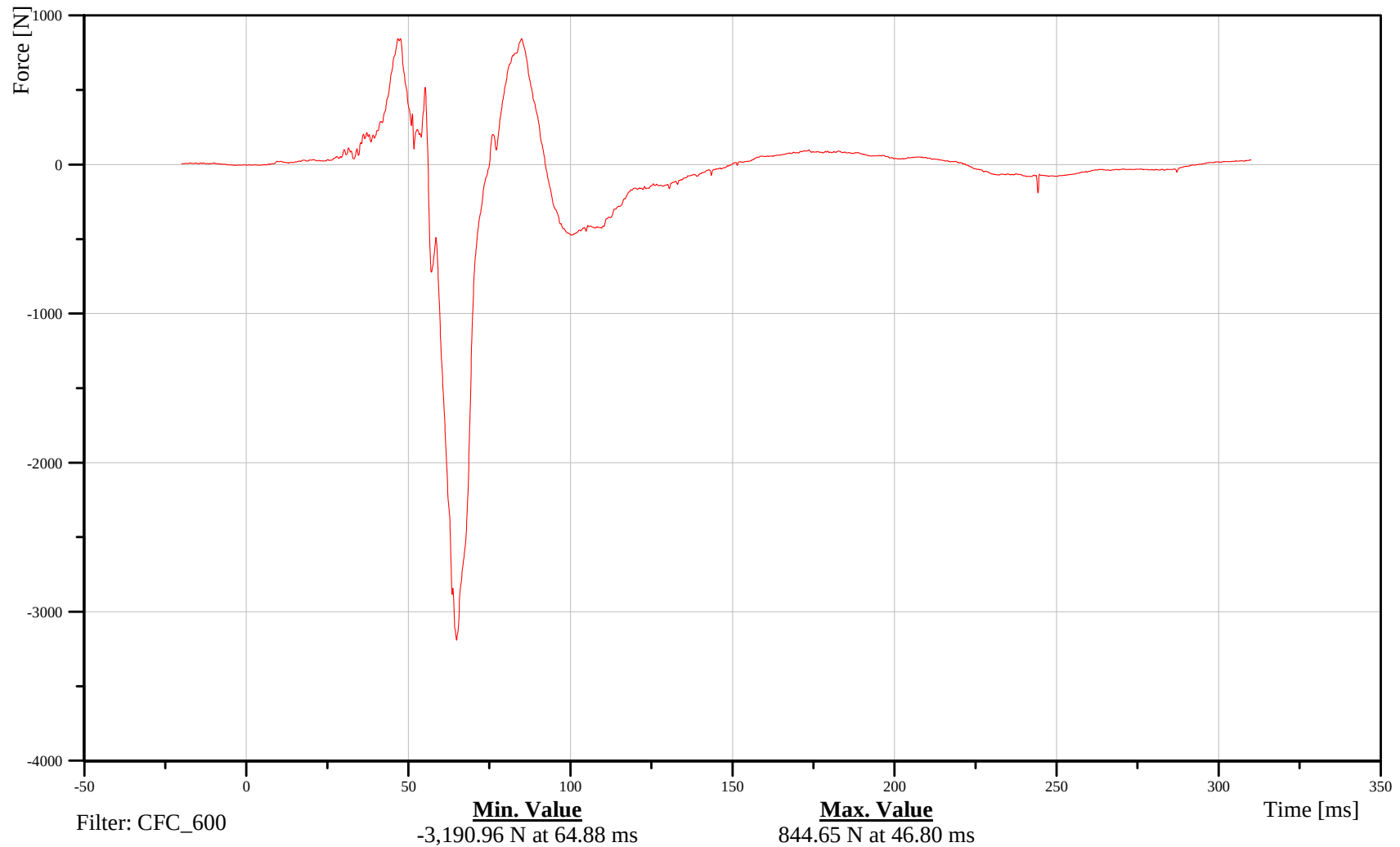
Bullet Vehicle Driver Right Femur Z-Axis Force

Customer: VRTC

11FEMRRL00H3FOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-30

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Left Knee X-Axis Displacement

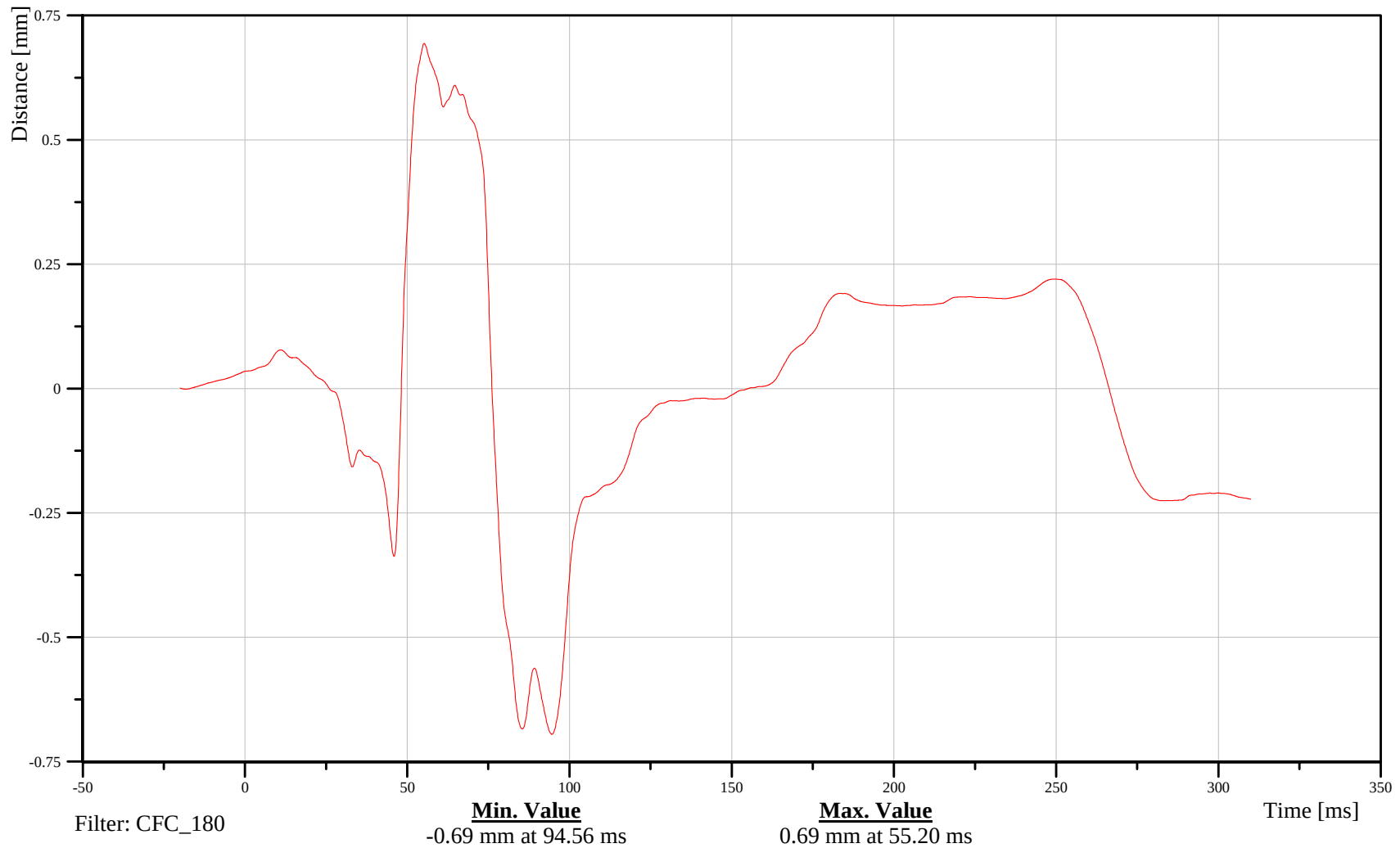
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11KNSLLE00H3DSXC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

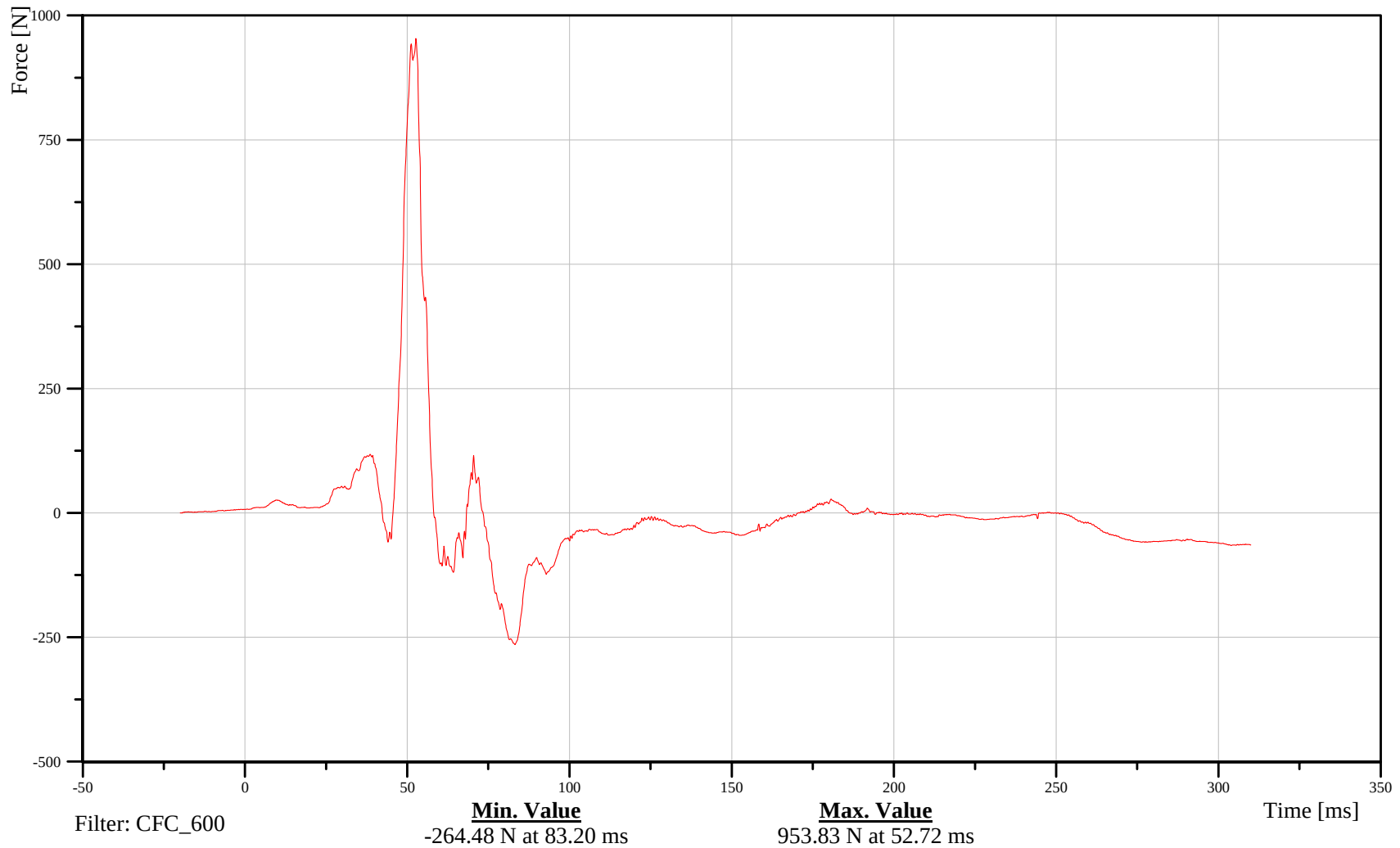
Bullet Vehicle Driver Left Upper Tibia X-Axis Force

Customer: VRTC

11TIBILULXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

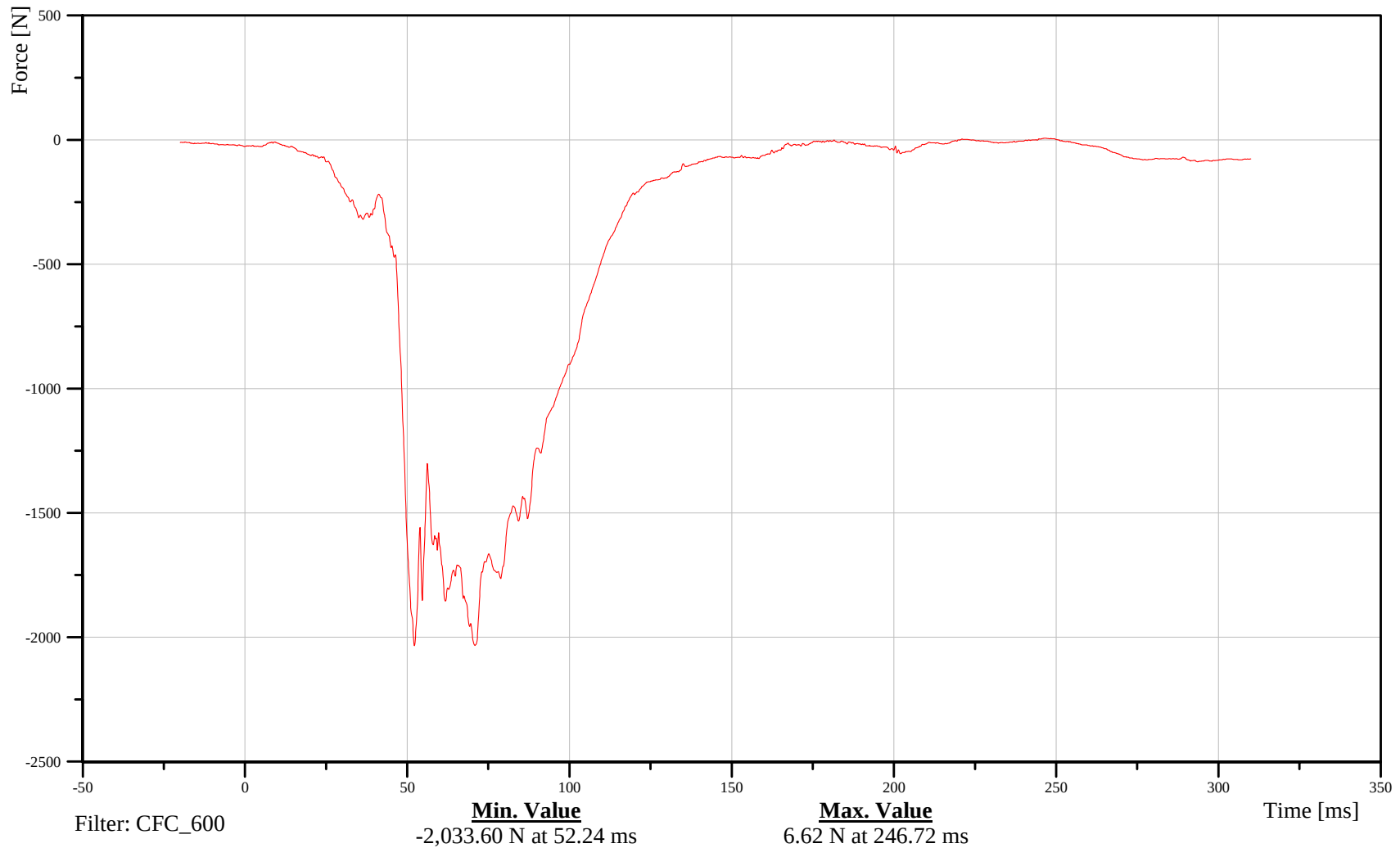
Bullet Vehicle Driver Left Upper Tibia Z-Axis Force

Customer: VRTC

11TIBILULXH3FOZB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

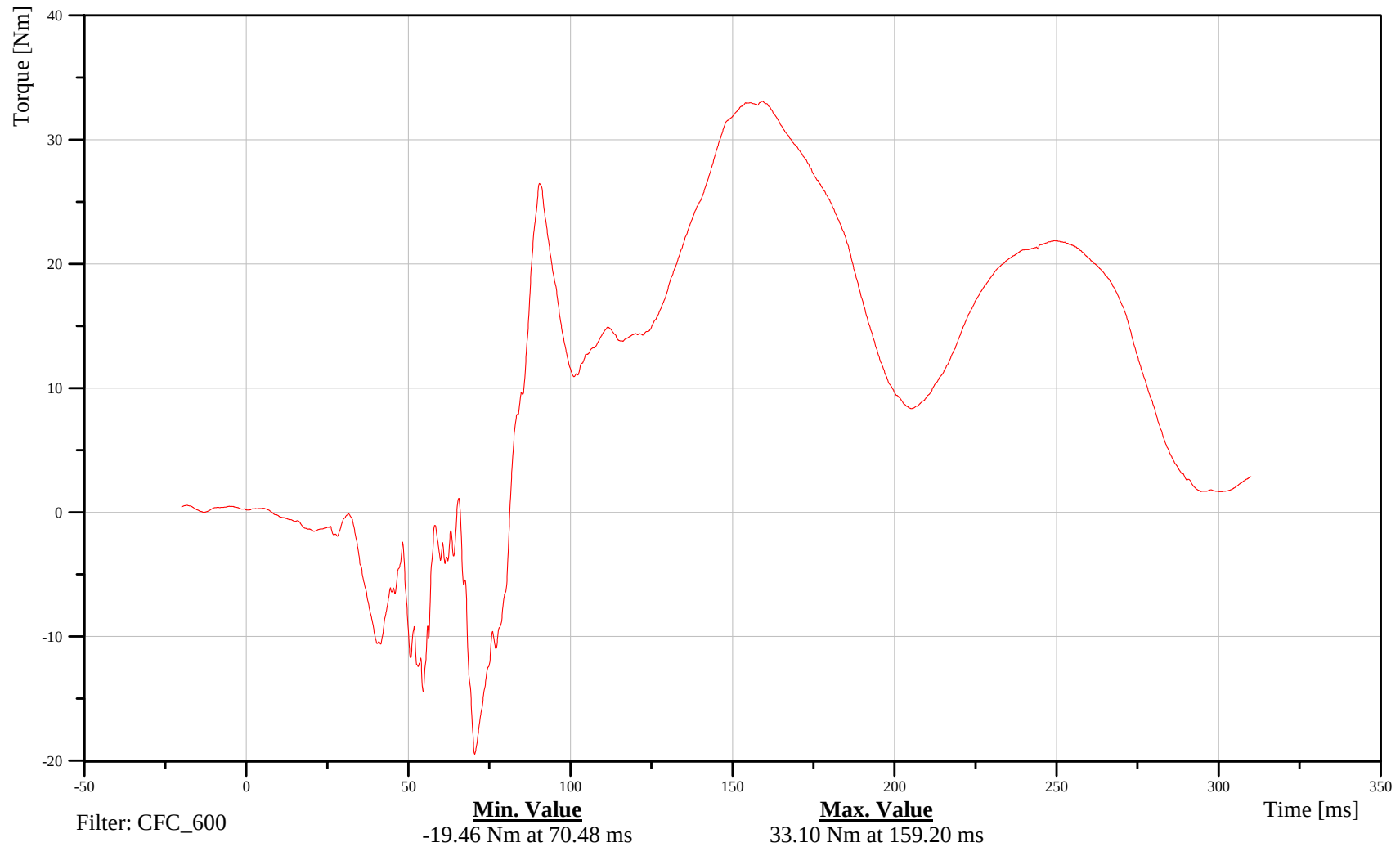
Bullet Vehicle Driver Left Upper Tibia Moment About X Axis

Customer: VRTC

11TIBILULXH3MOXB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Left Upper Tibia Moment About Y Axis

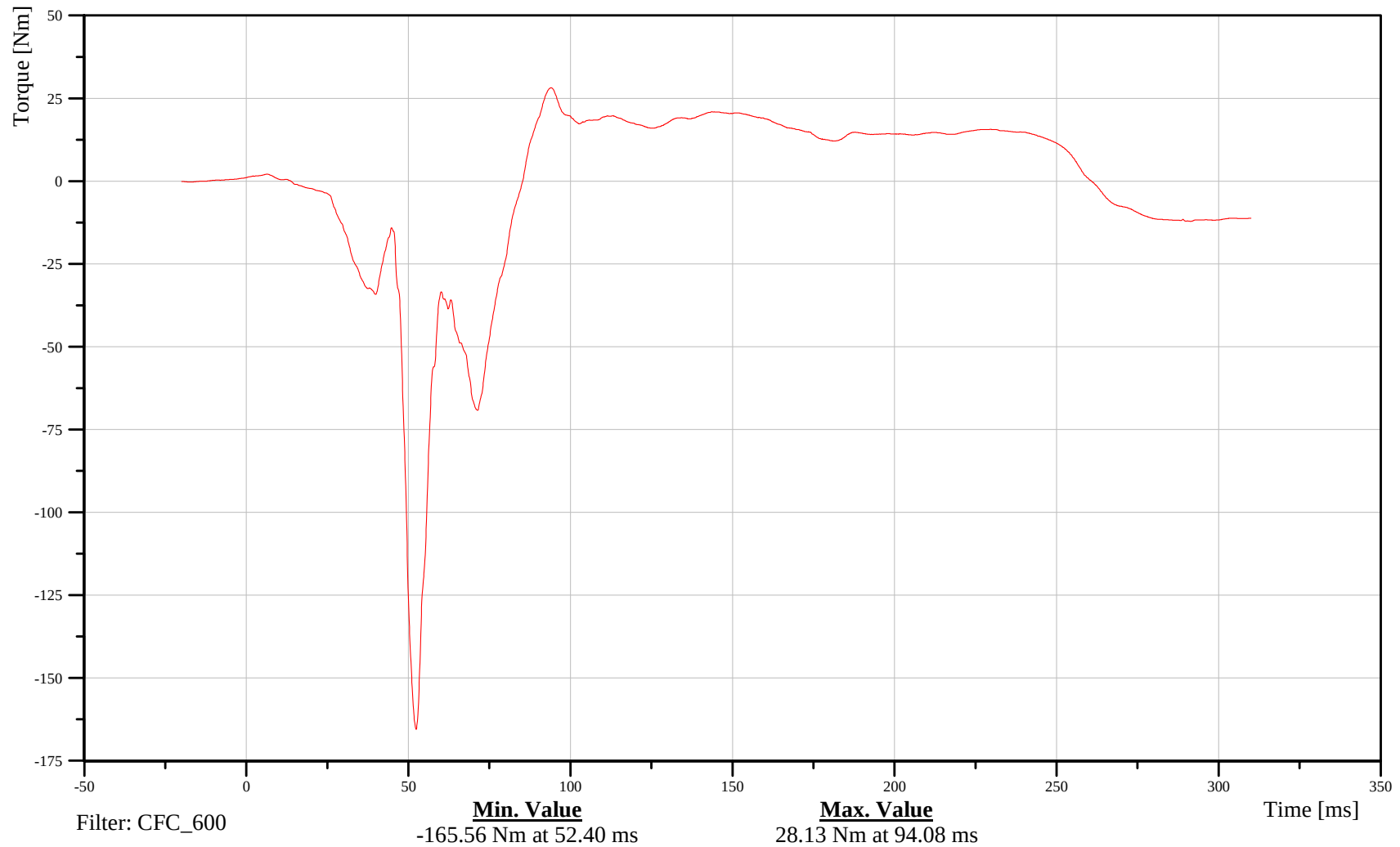
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11TIBILULXH3MOYB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

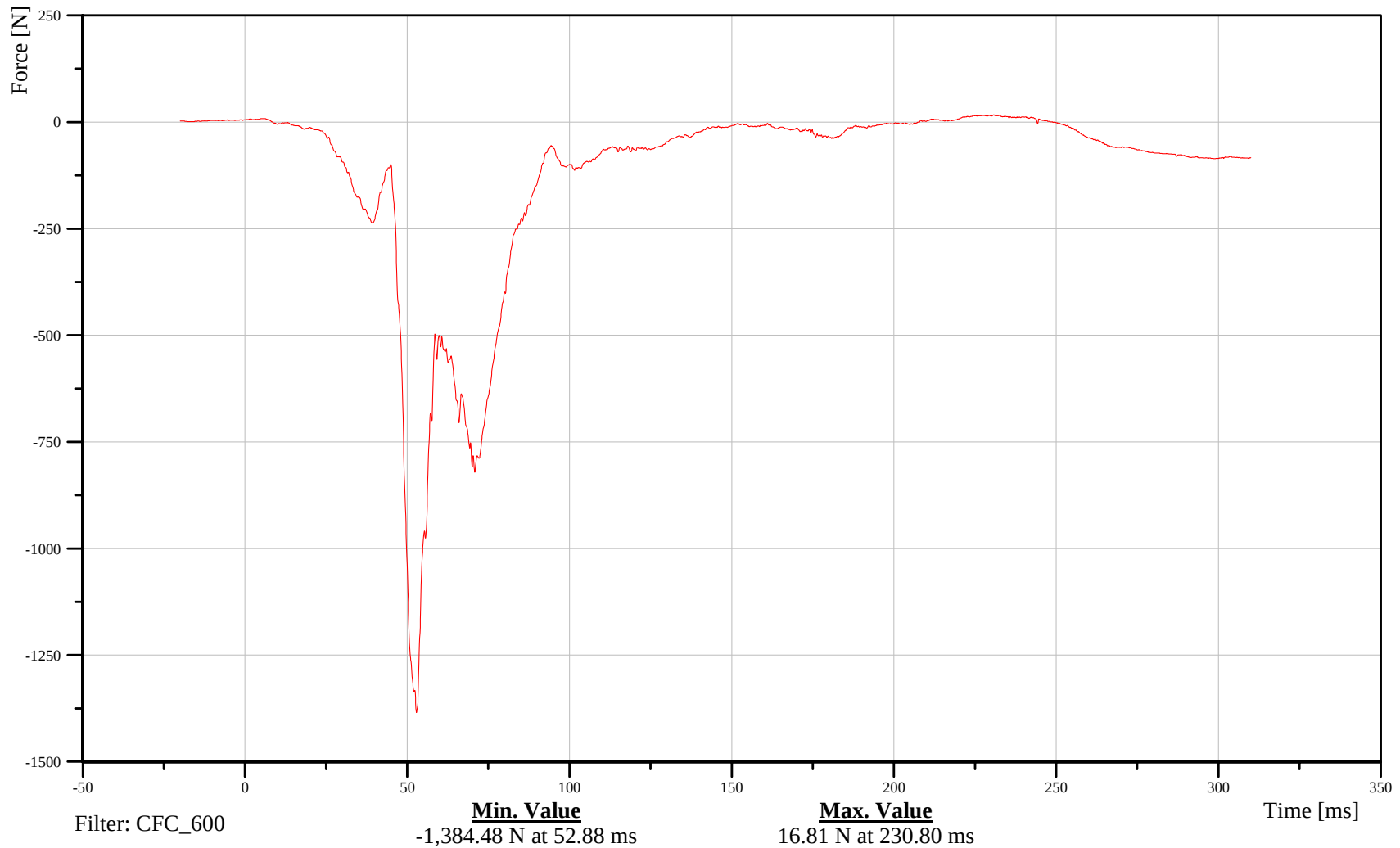
Bullet Vehicle Driver Left Lower Tibia X-Axis Force

Customer: VRTC

11TIBILLXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Left Lower Tibia Y-Axis Force

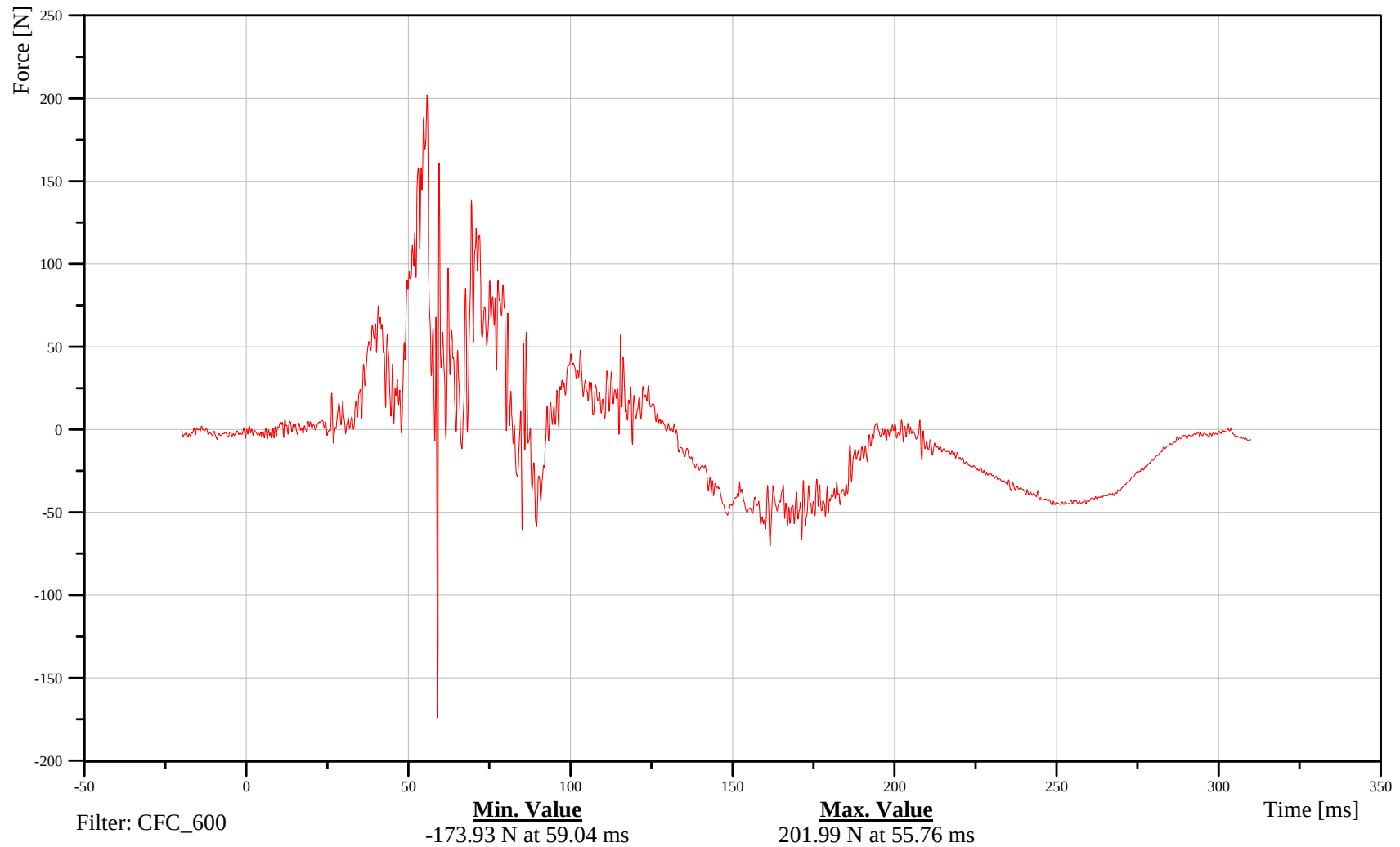
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11TIBILLXH3FOYB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

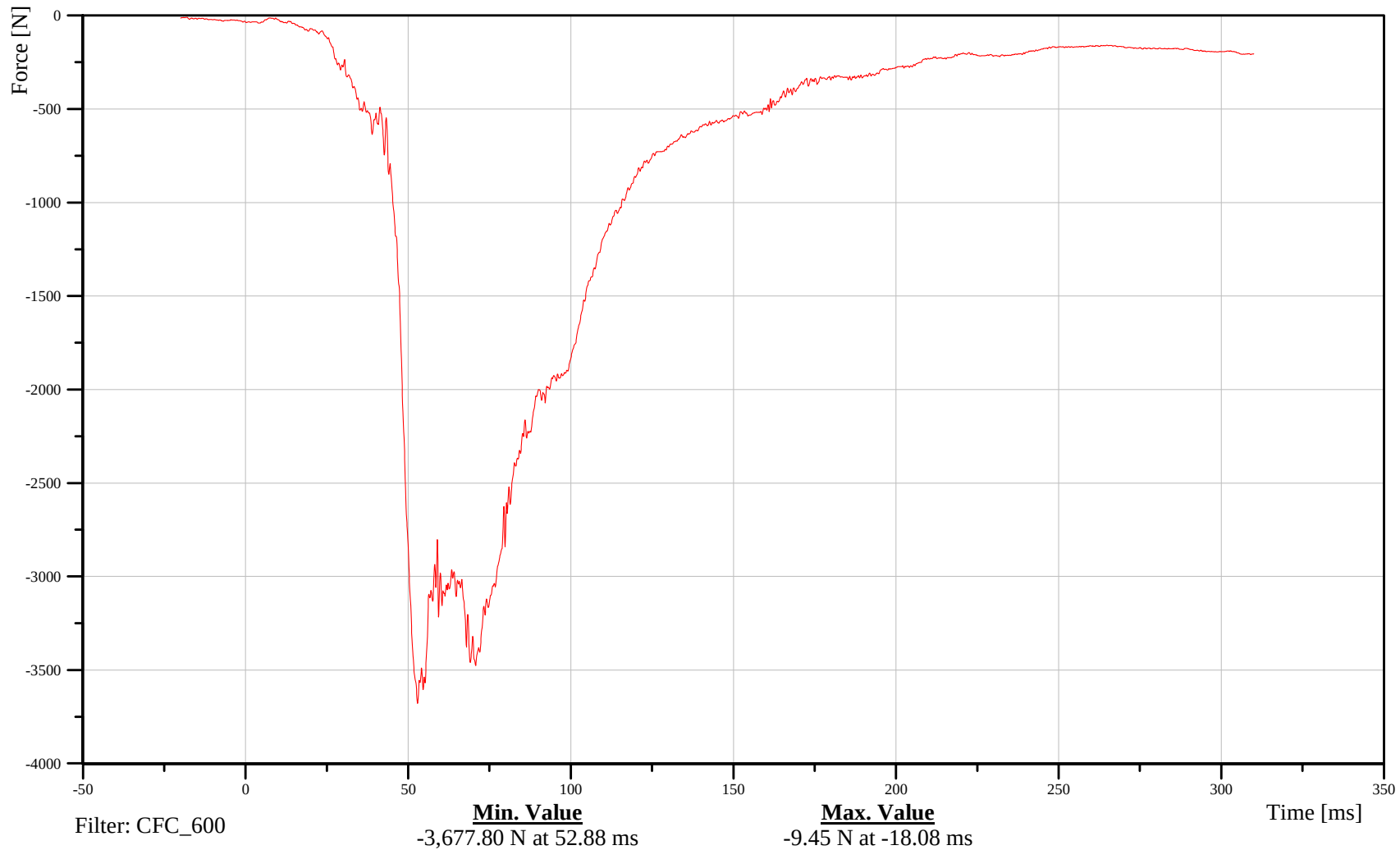
Bullet Vehicle Driver Left Lower Tibia Z-Axis Force

Customer: VRTC

11TIBILLXH3FOZB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Left Lower Tibia Moment About X Axis

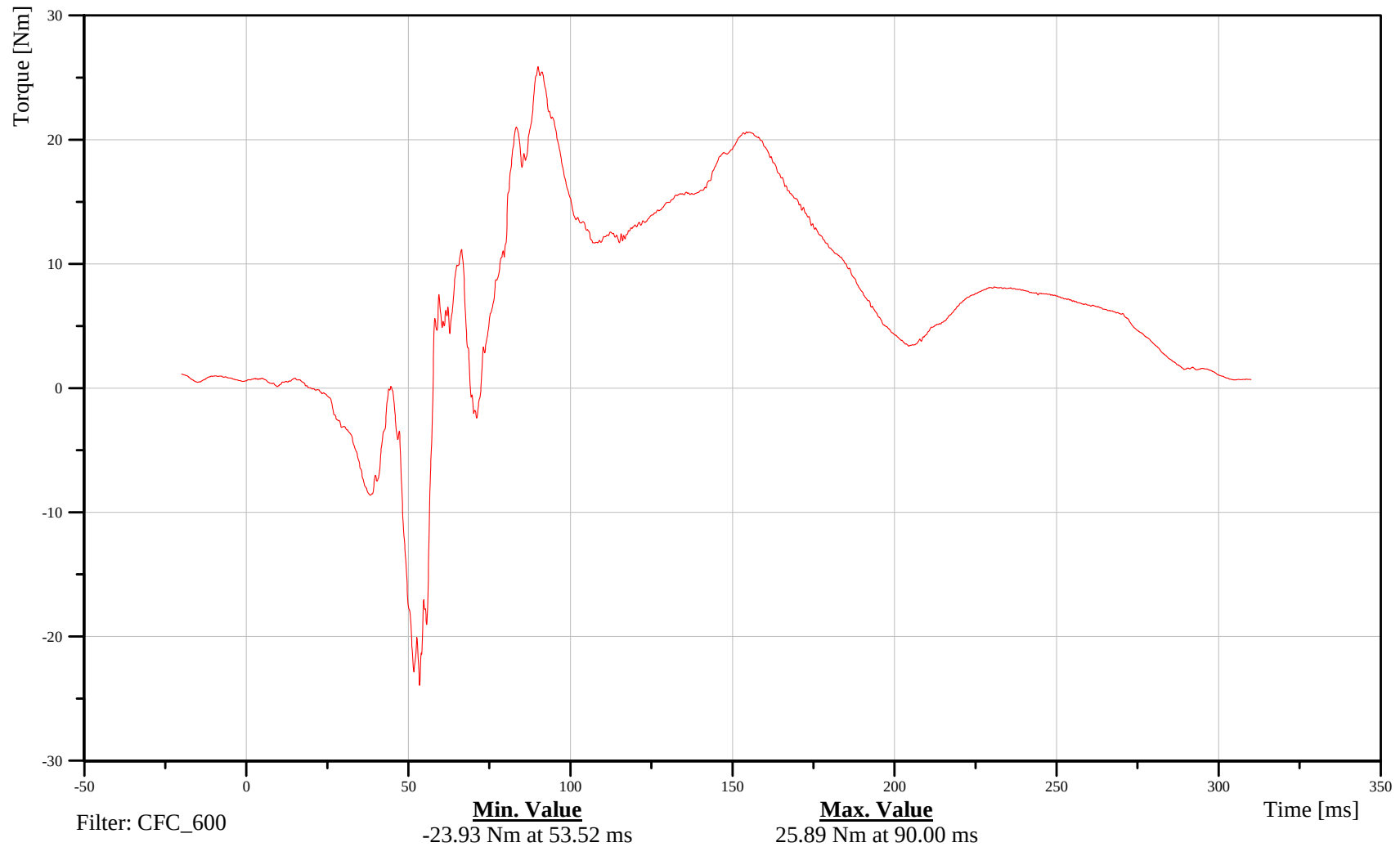
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11TIBILLXH3MOXB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

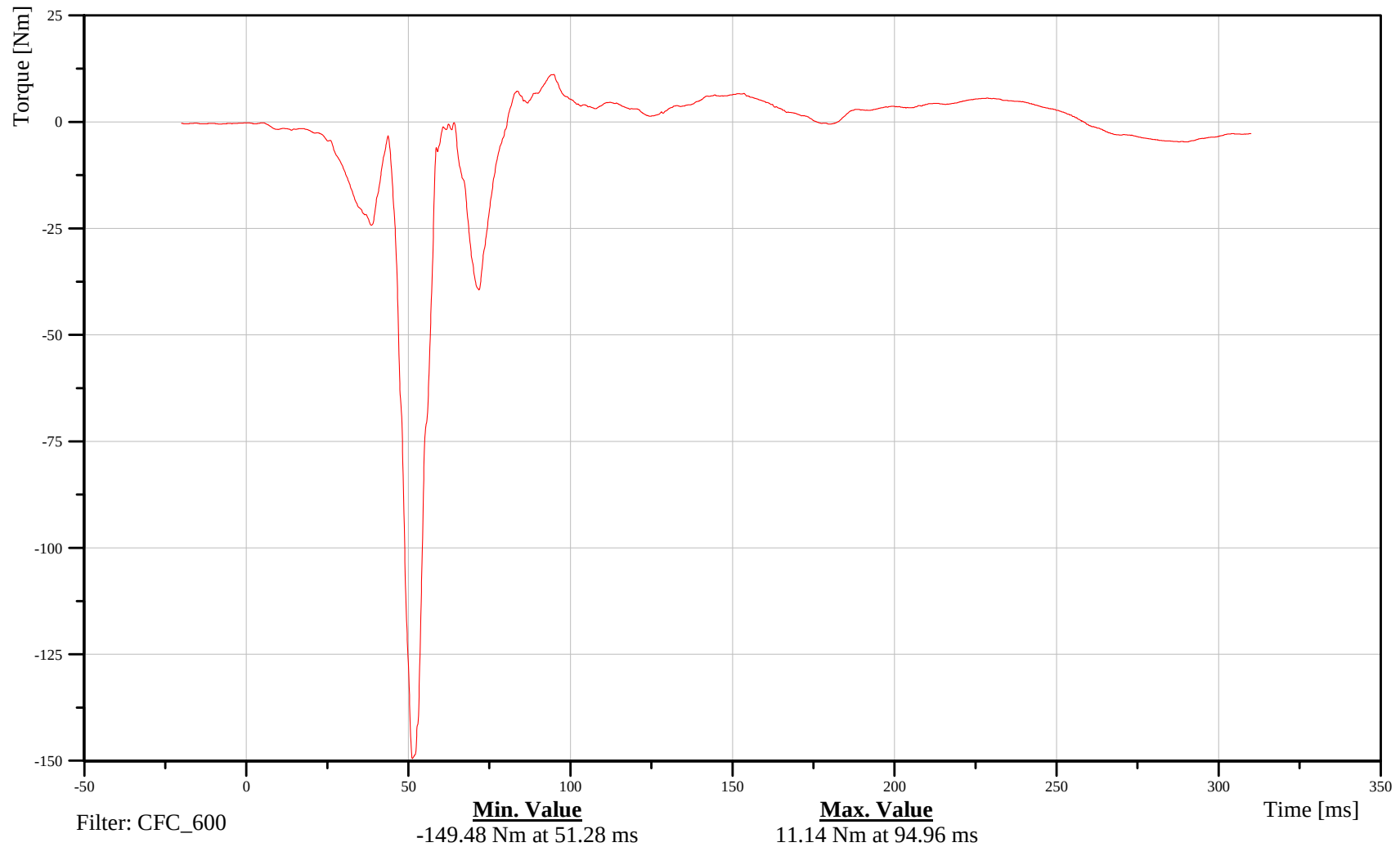
Bullet Vehicle Driver Left Lower Tibia Moment About Y Axis

Customer: VRTC

11TIBILLXH3MOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-40

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

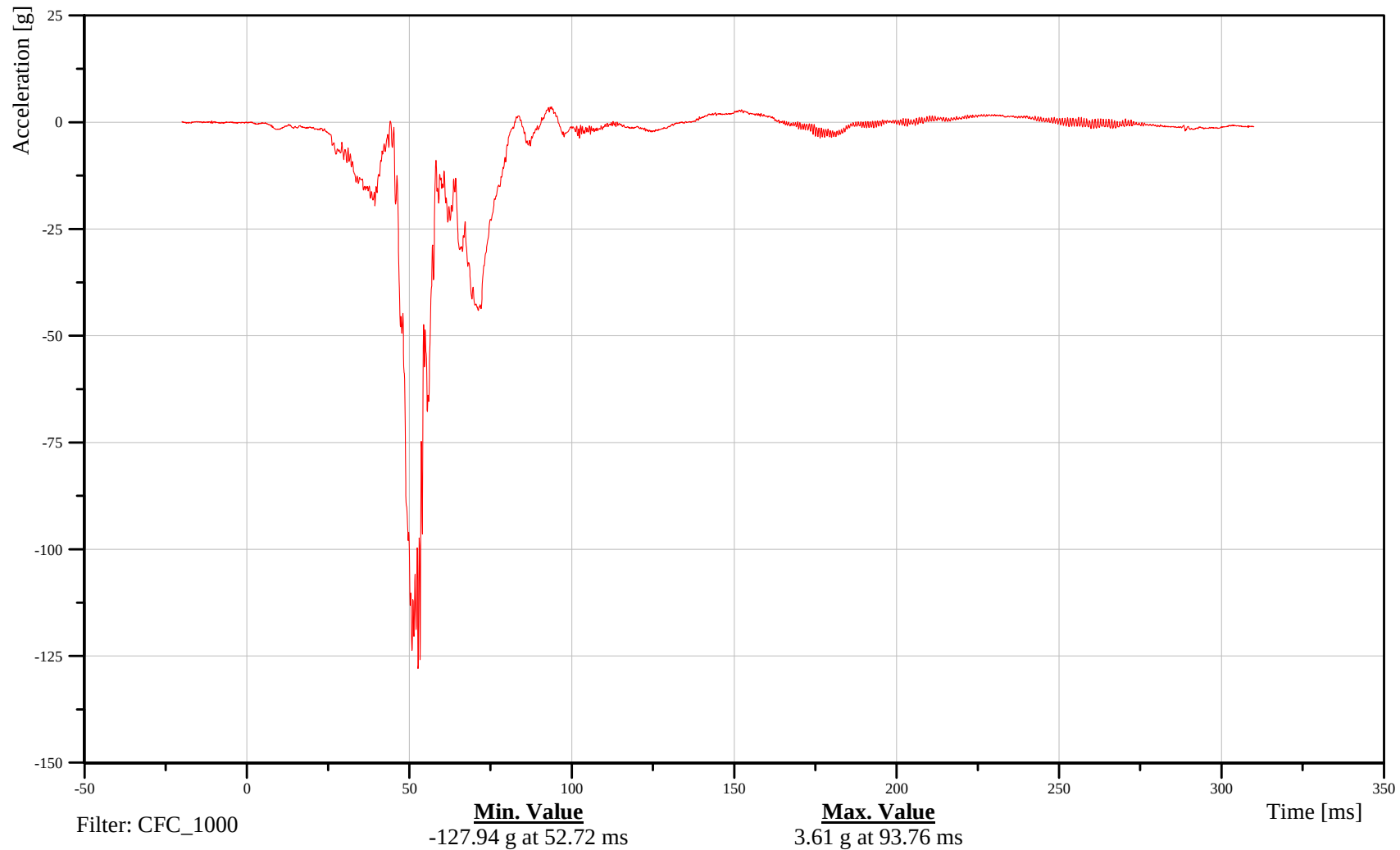
Bullet Vehicle Driver Left Tibia X-Axis Acceleration

Customer: VRTC

11TIBILELXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-41

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Left Tibia Y-Axis Acceleration

Date: 12/07/2010

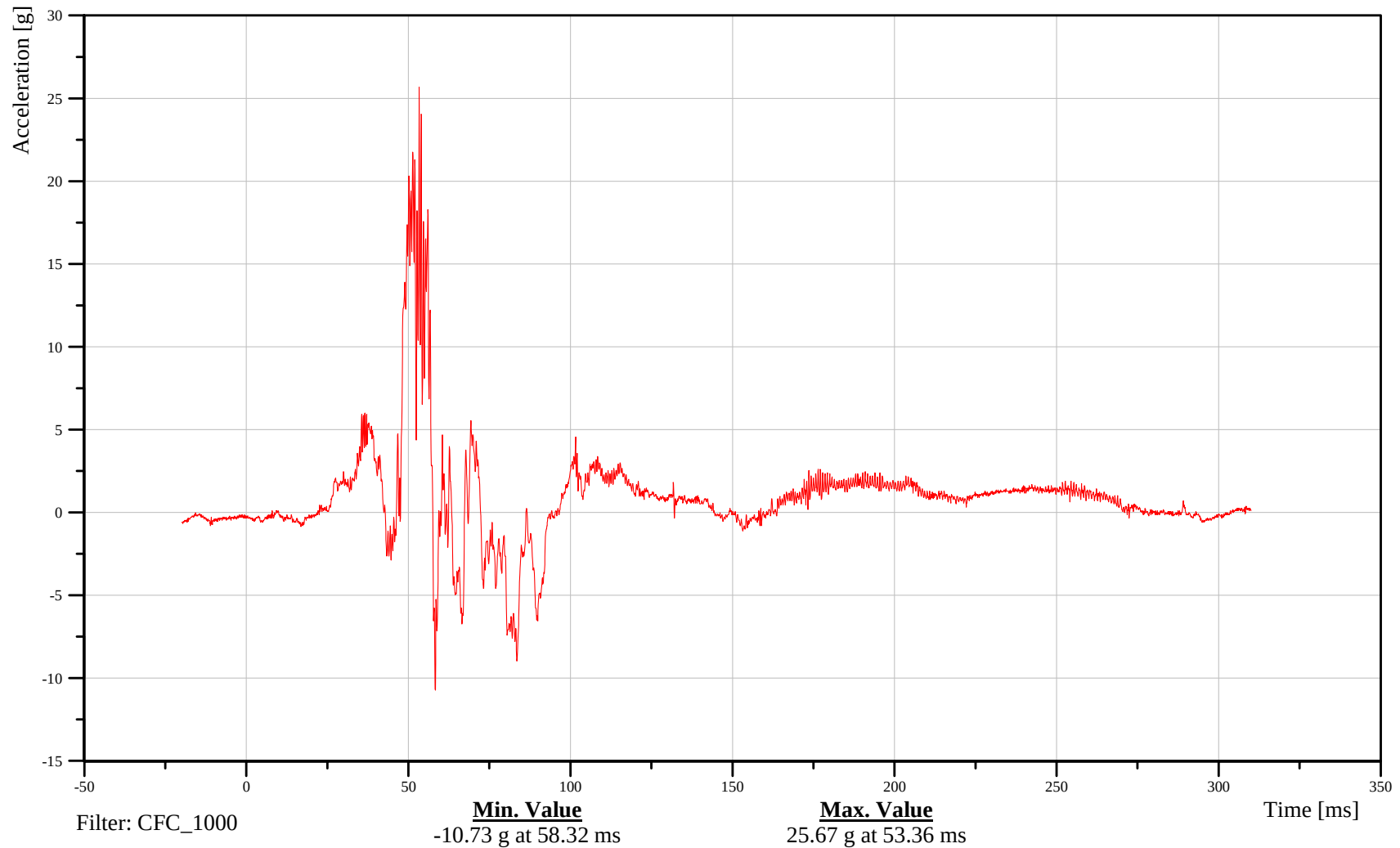
Time: 16:40 PM

Customer: VRTC

11TIBILELXH3ACYA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

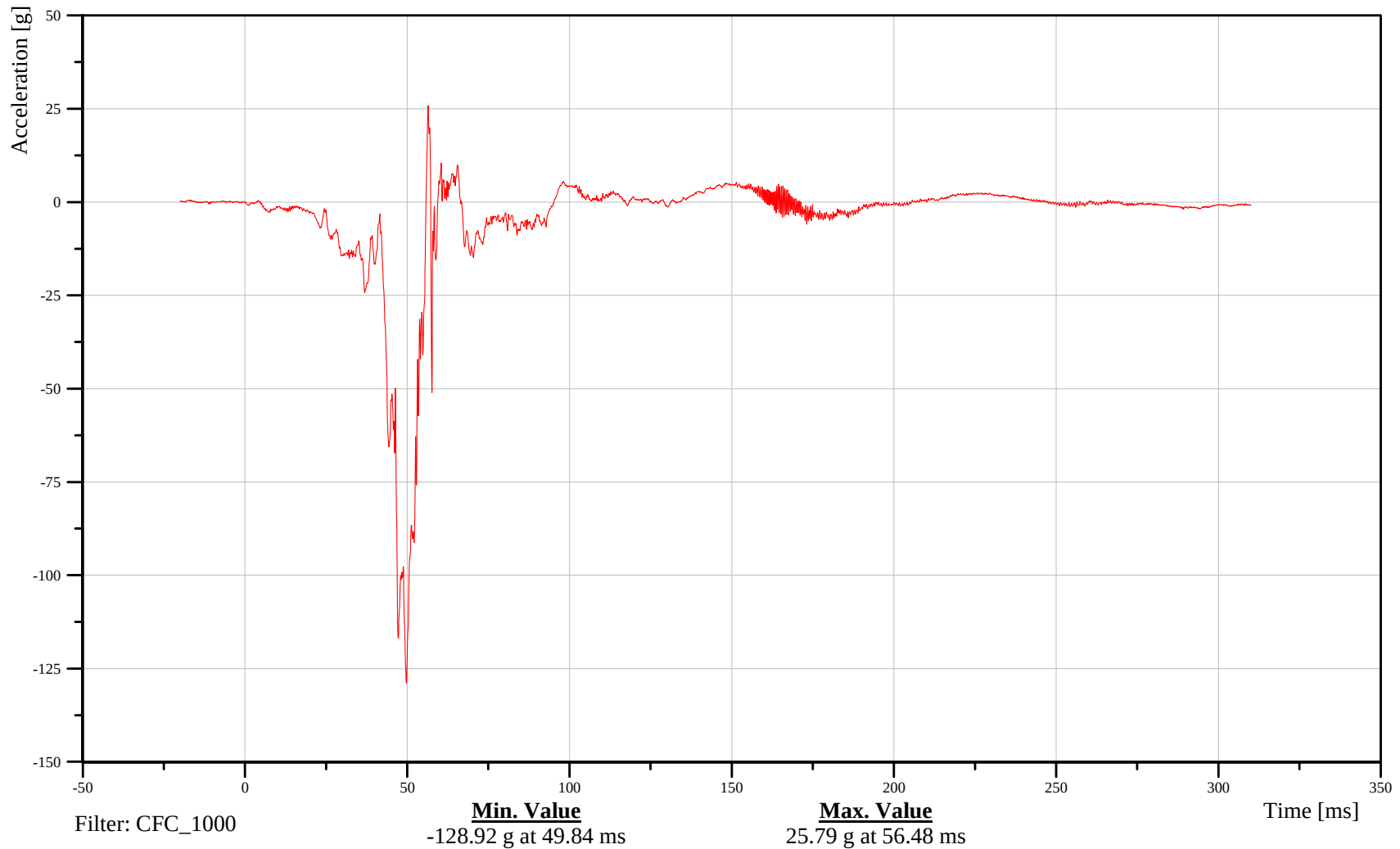
Bullet Vehicle Driver Left Foot X-Axis Acceleration

Customer: VRTC

11FOOTLELXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-43

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Left Foot Y-Axis Acceleration

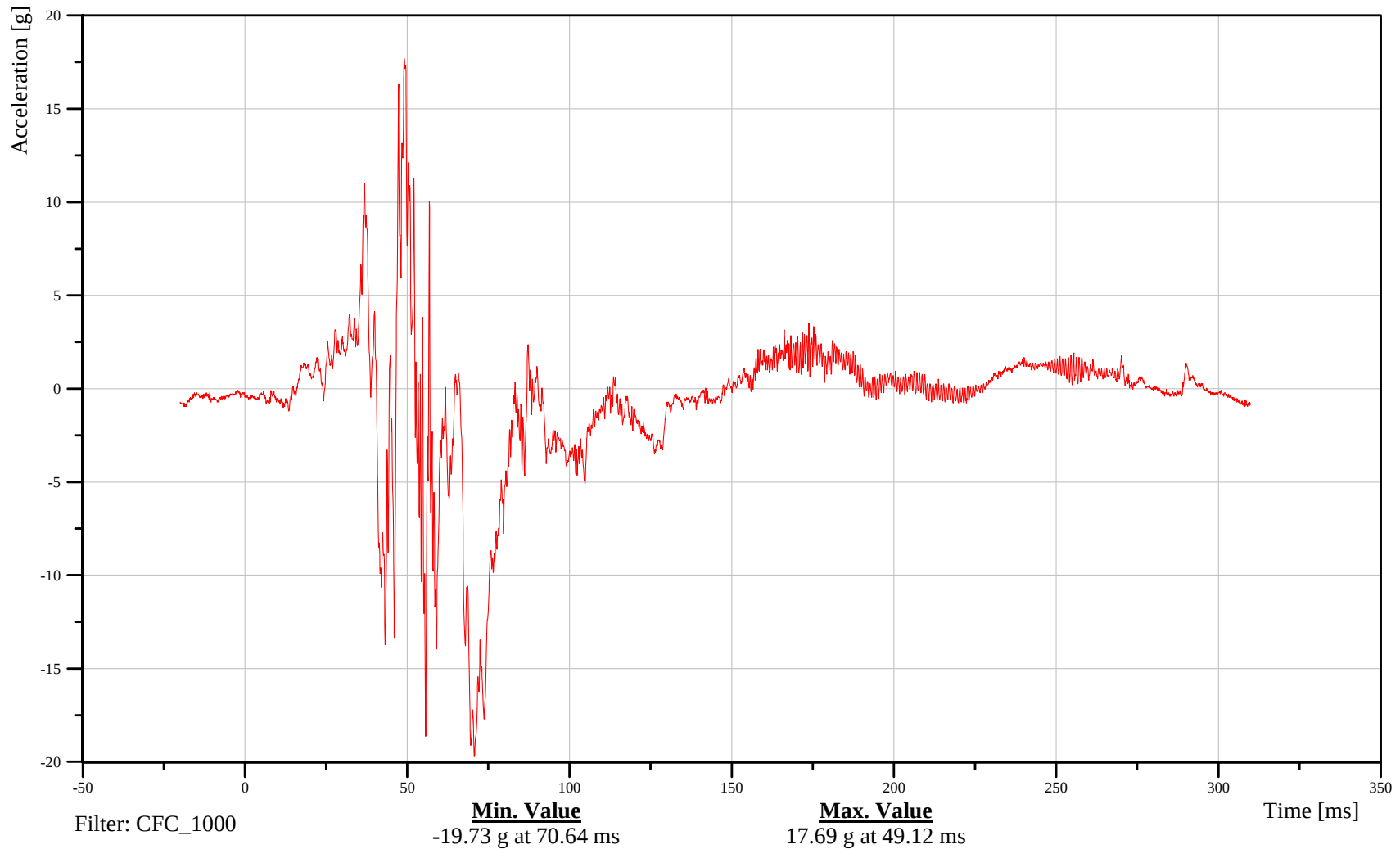
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11FOOTLELXH3ACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-44

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

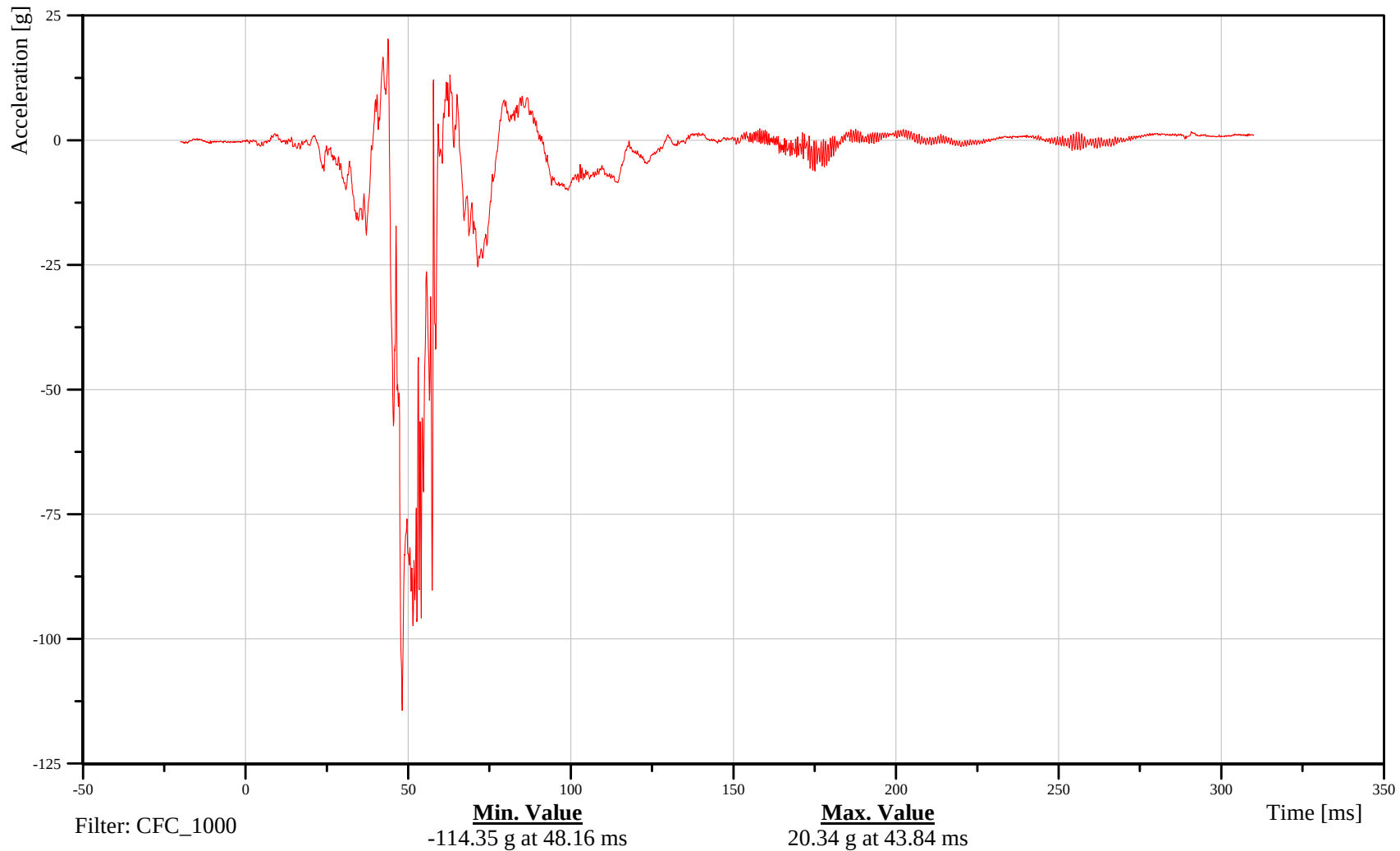
Bullet Vehicle Driver Left Foot Z-Axis Acceleration

Customer: VRTC

11FOOTLELXH3ACZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-45

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

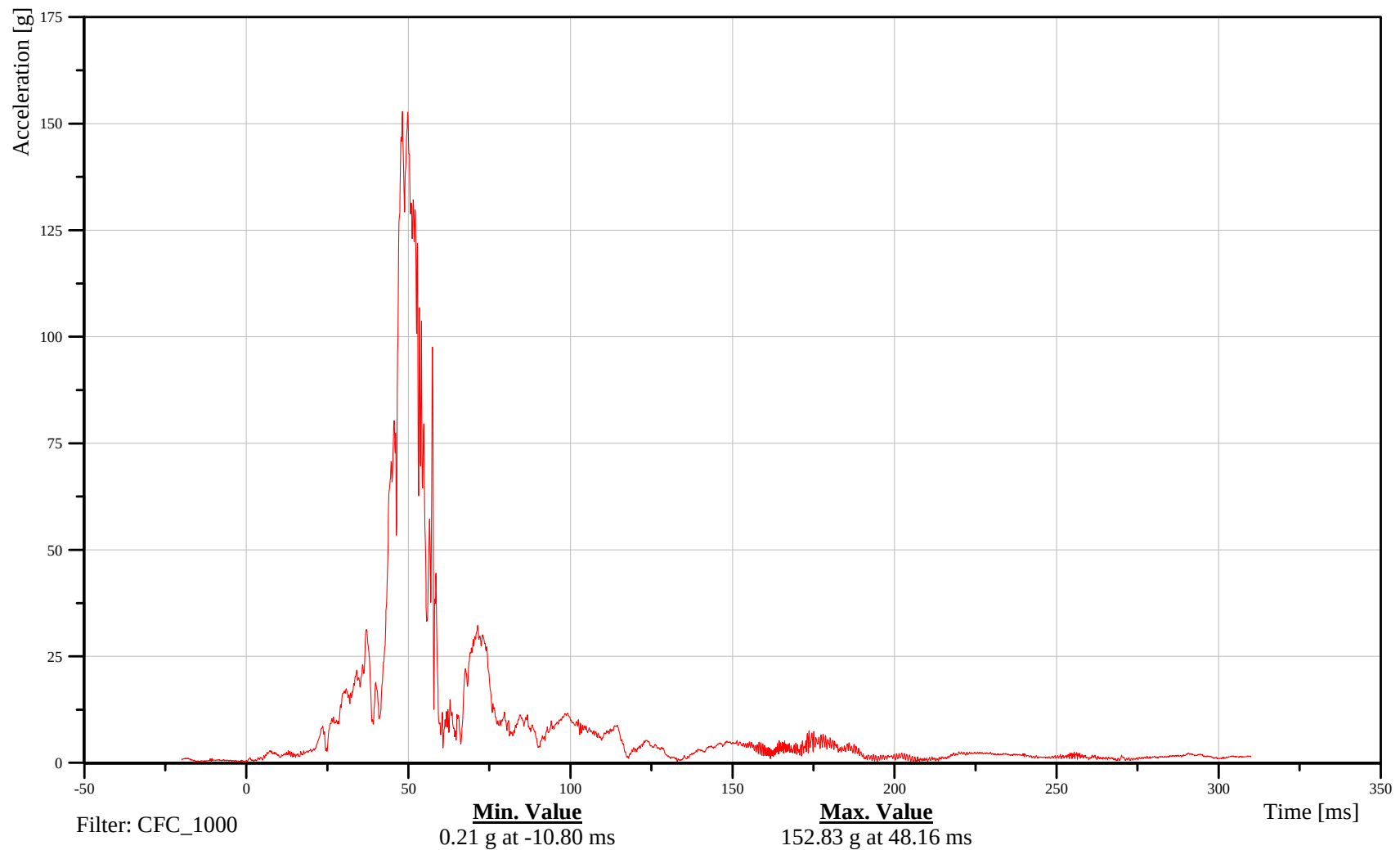
Bullet Vehicle Driver Left Foot Resultant Acceleration

Customer: VRTC

11FOOTLELXH3ACRA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Left Foot X-Axis Angular Displacement

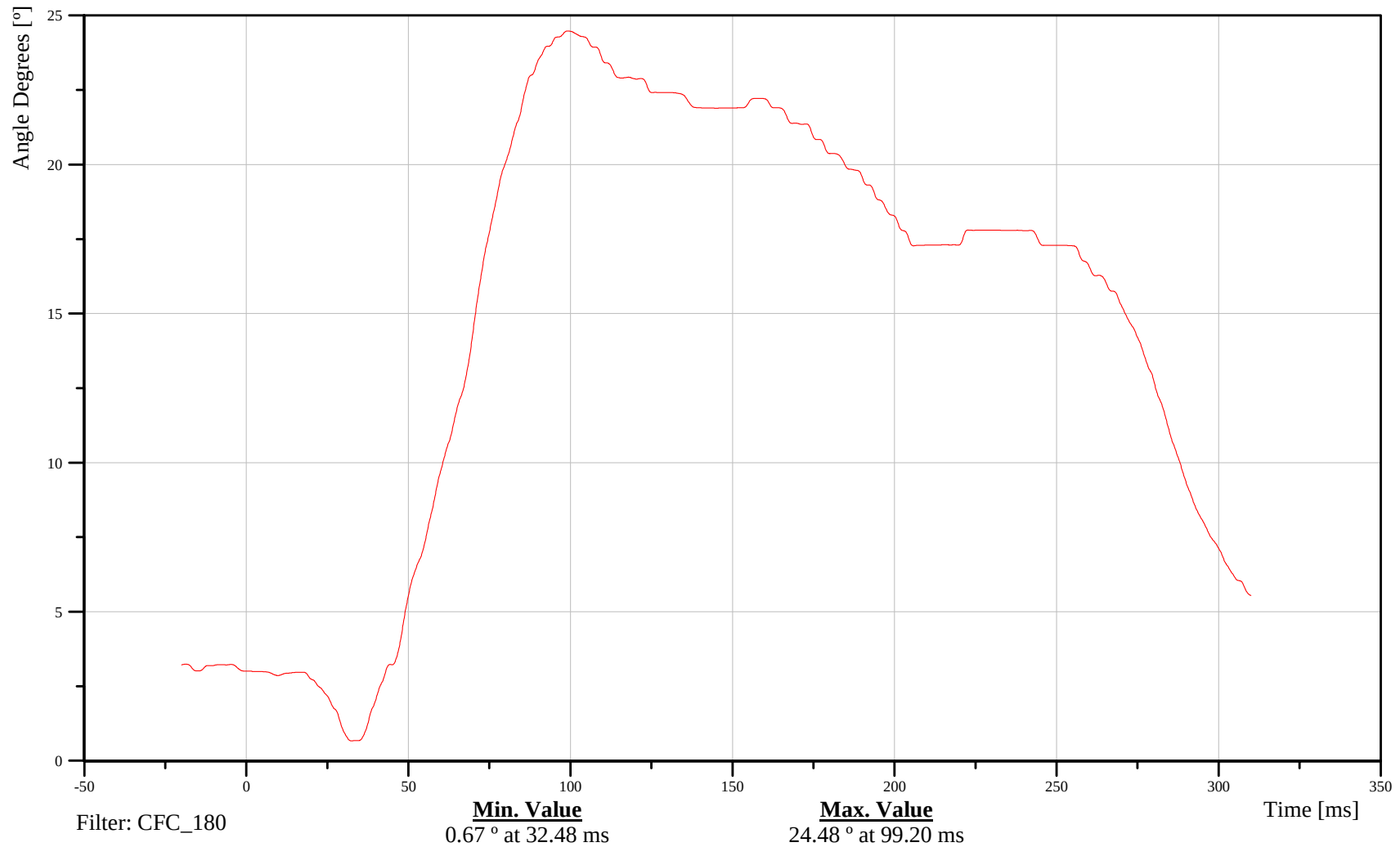
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11FOOTLELXH3ANXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-47

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

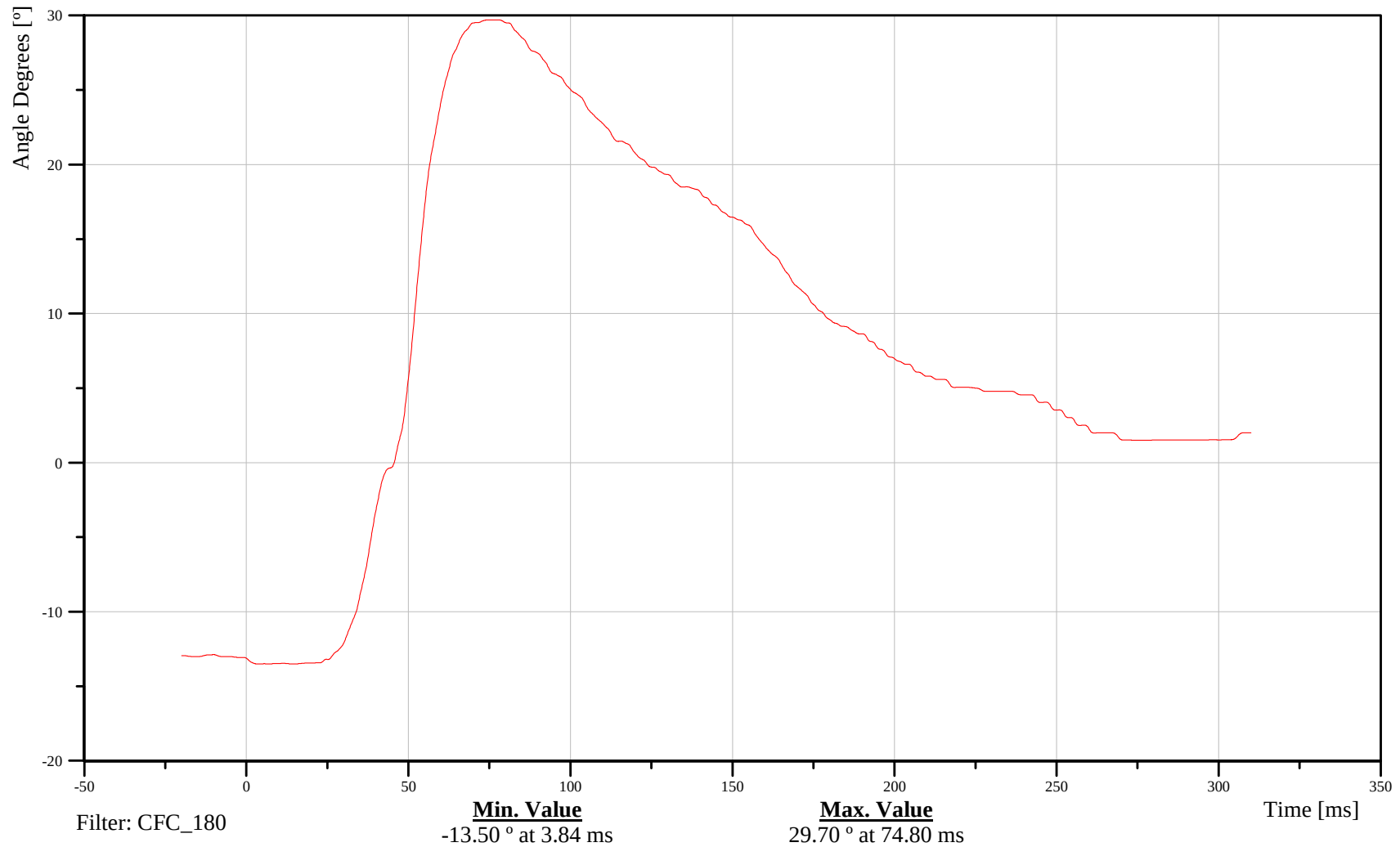
Bullet Vehicle Driver Left Foot Y-Axis Angular Displacement

Customer: VRTC

11FOOTLELXH3ANYC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Left Foot Z-Axis Angular Displacement

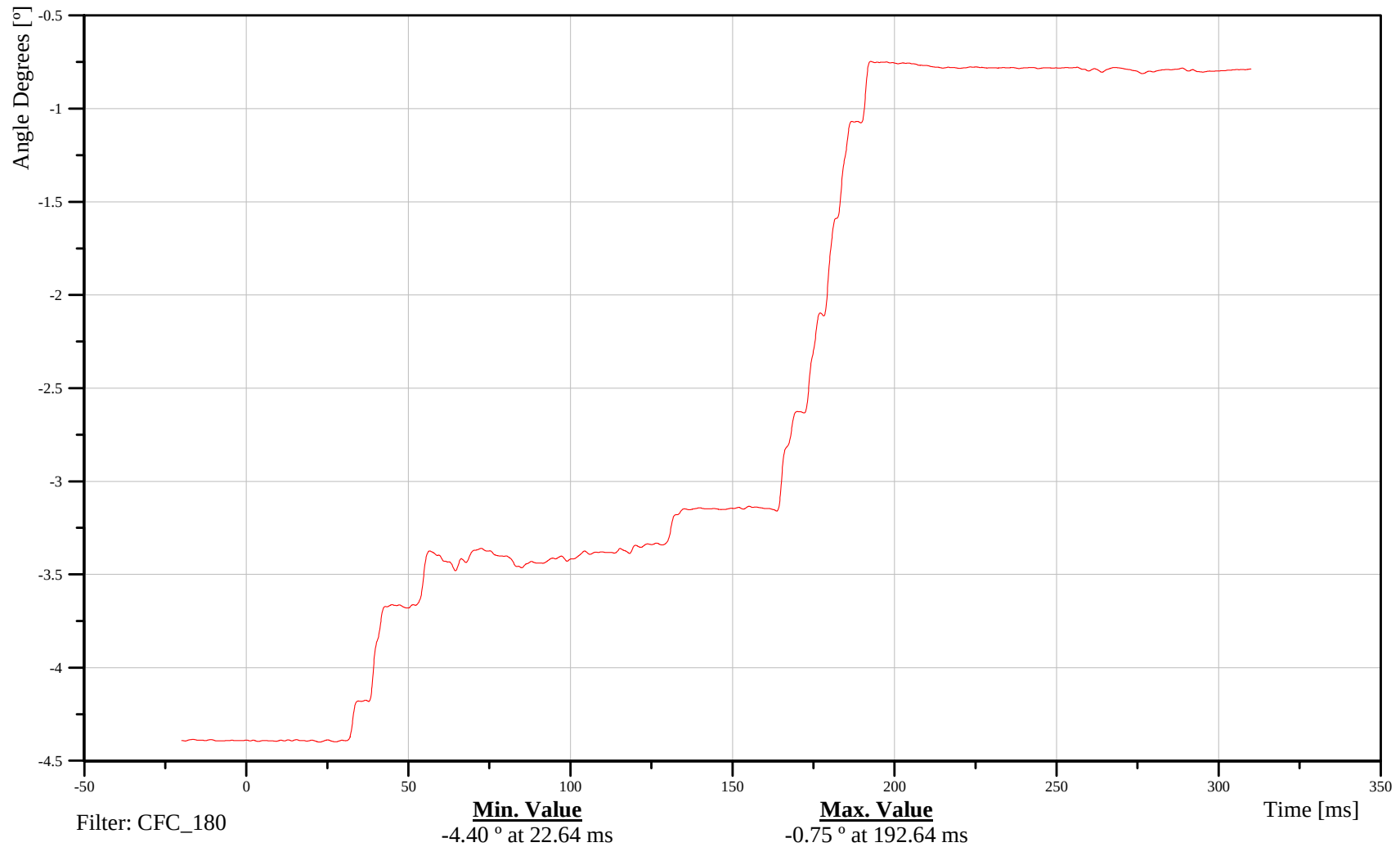
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11FOOTLELXH3ANZC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

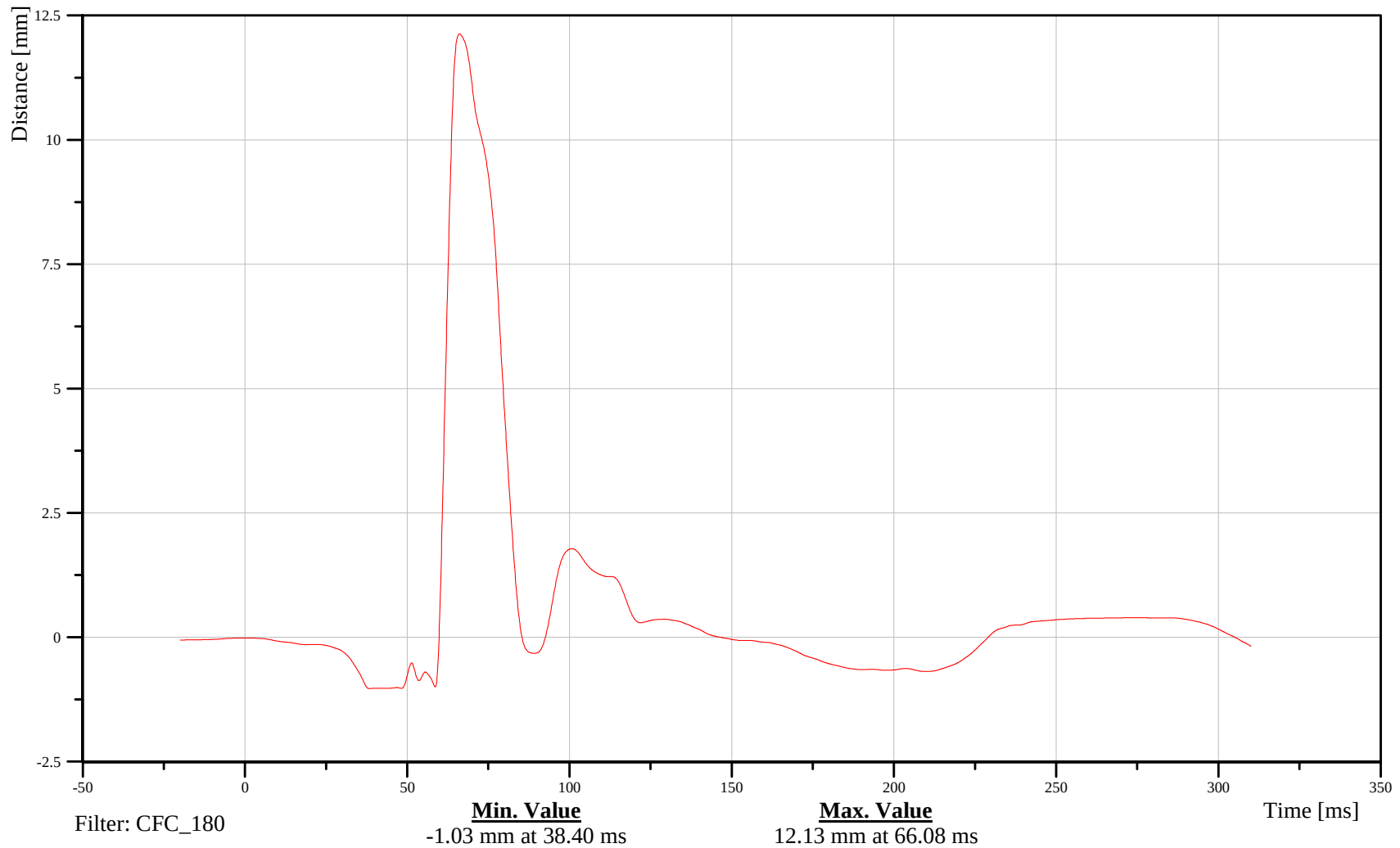
Bullet Vehicle Driver Right Knee X-Axis Displacement

Customer: VRTC

11KNSLRI00H3DSXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-50

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

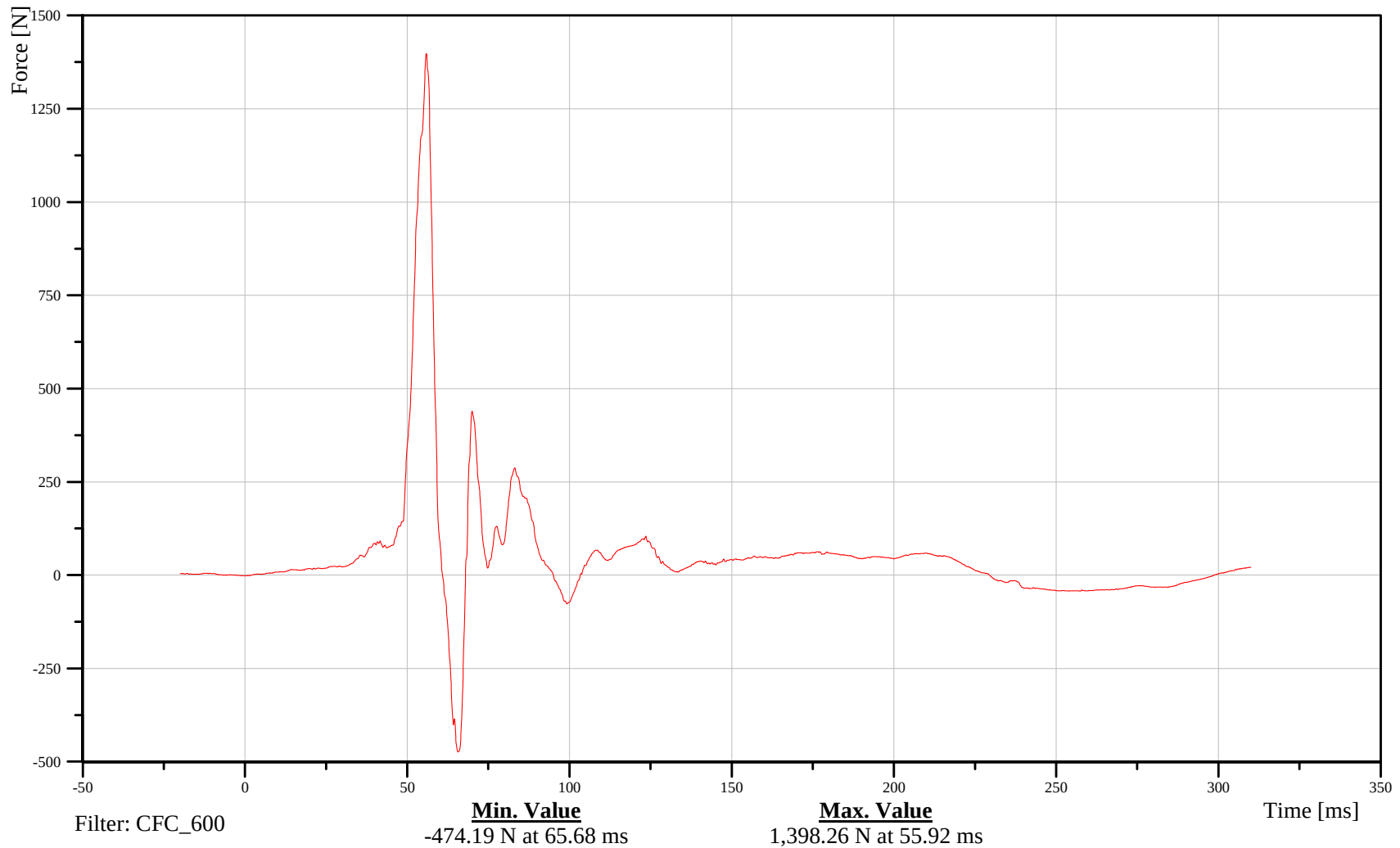
Bullet Vehicle Driver Right Upper Tibia X-Axis Force

Customer: VRTC

11TIBIRULXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-51

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Right Upper Tibia Z-Axis Force

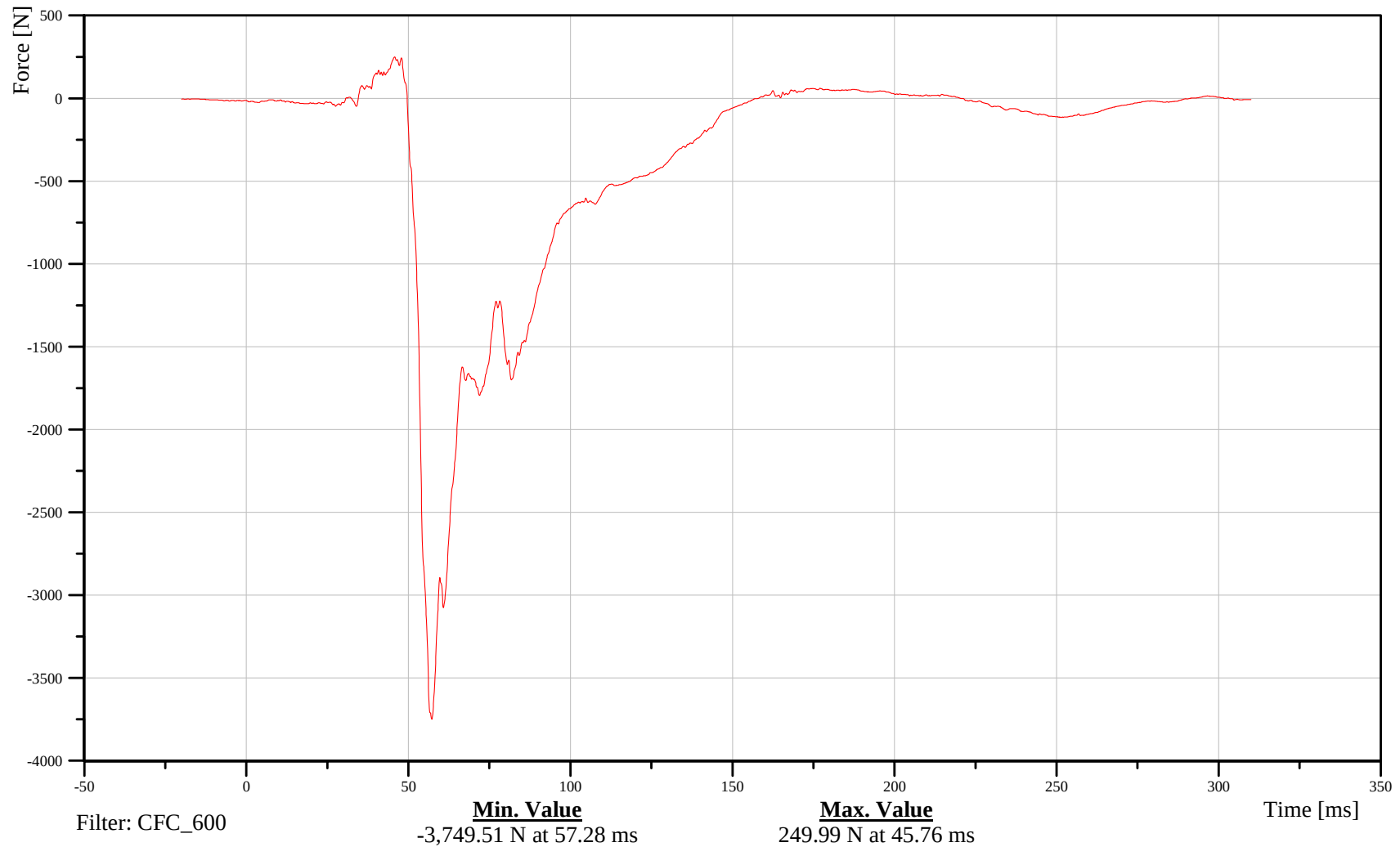
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11TIBIRULXH3FOZB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

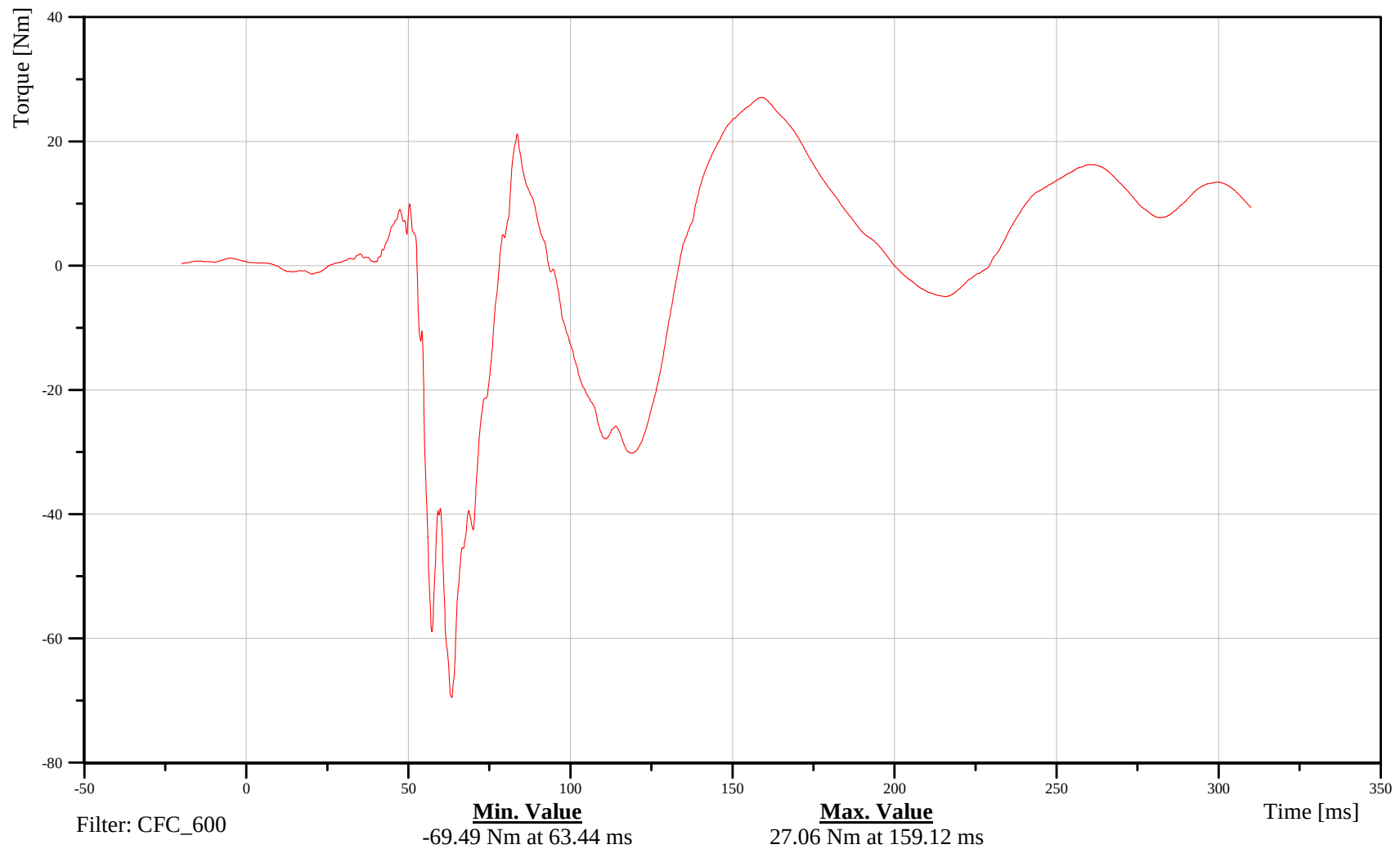
Bullet Vehicle Driver Right Upper Tibia Moment About X Axis

Customer: VRTC

11TIBIRULXH3MOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-53

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Right Upper Tibia Moment About Y Axis

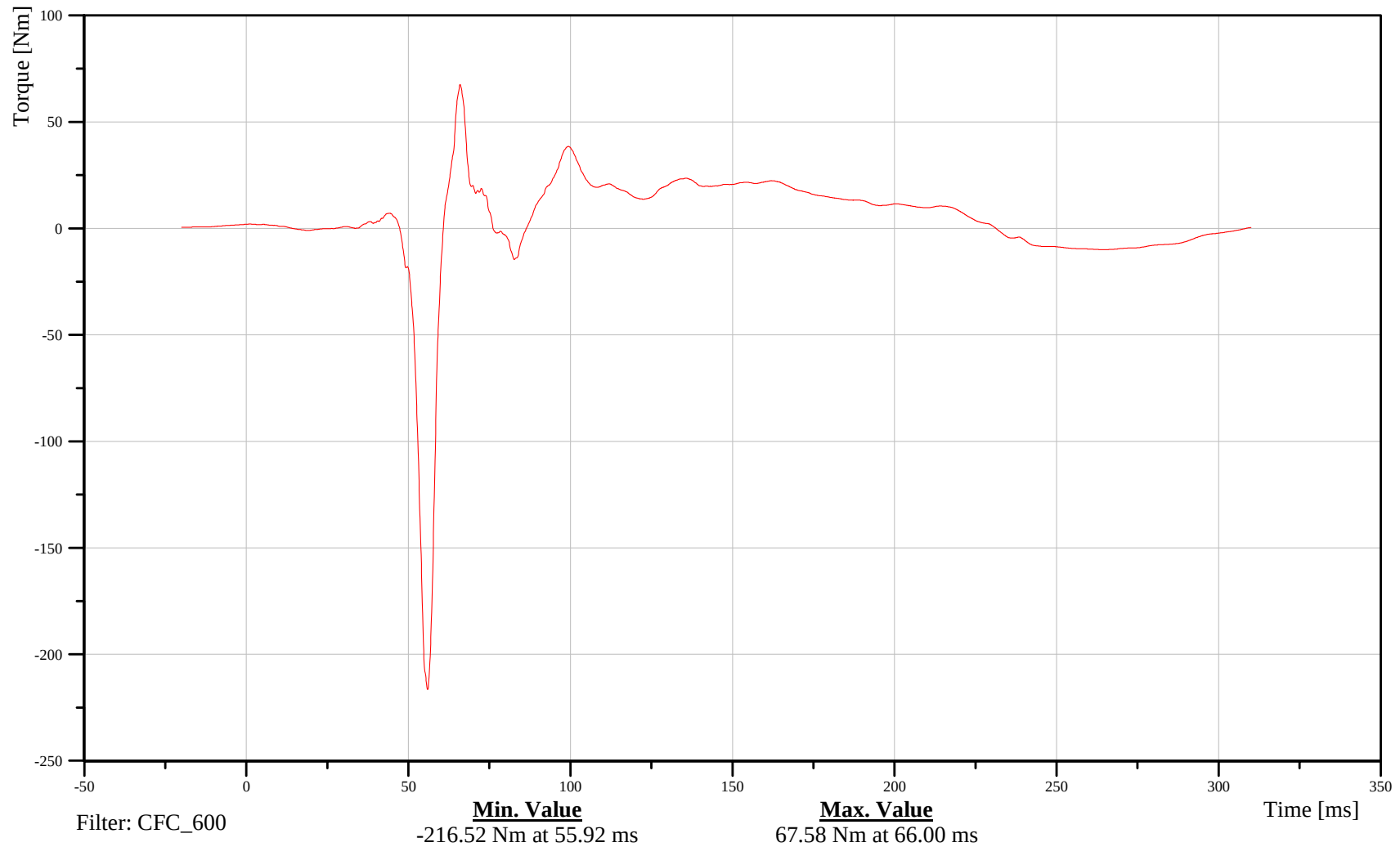
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11TIBIRULXH3MOYB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

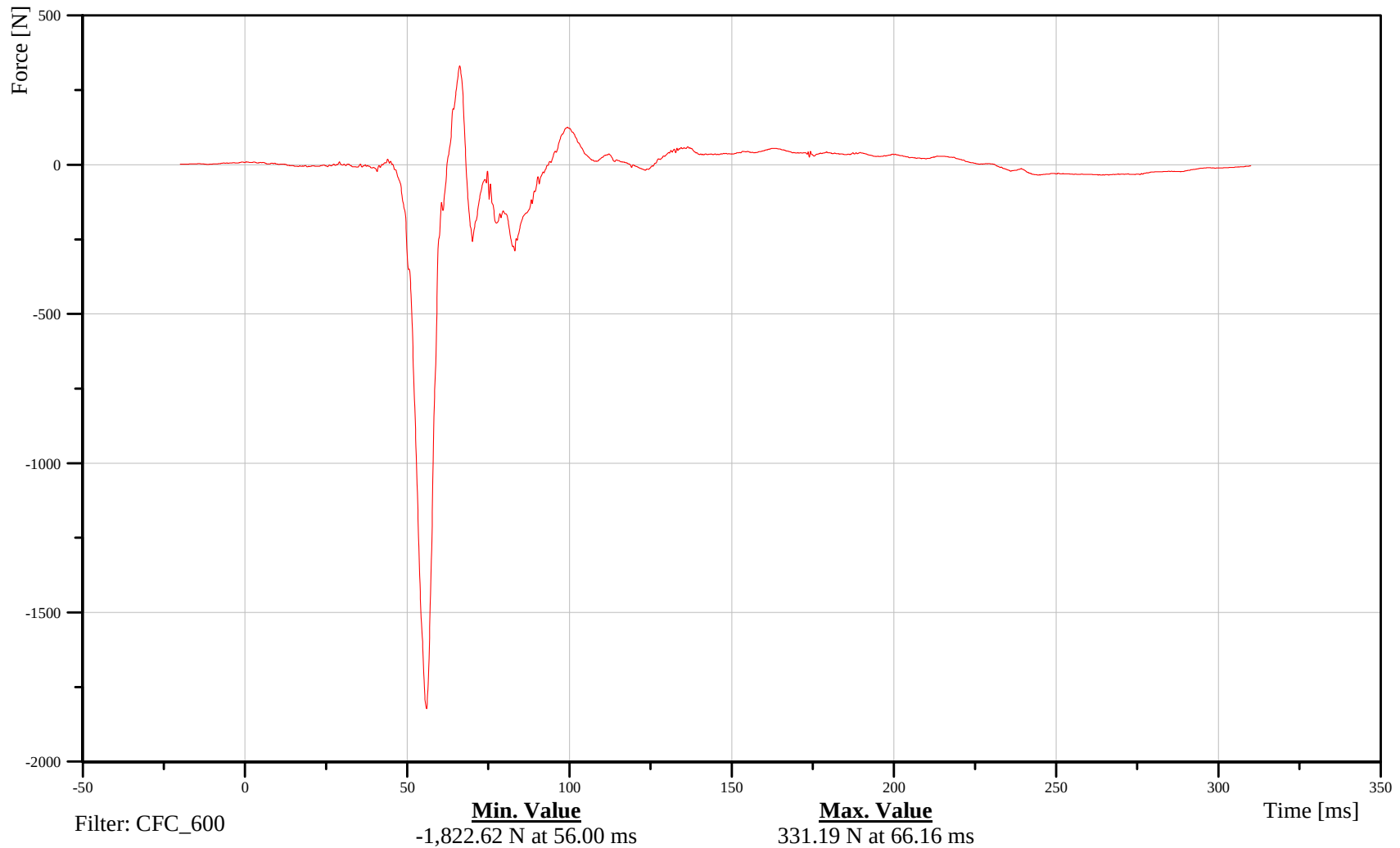
Bullet Vehicle Driver Right Lower Tibia X-Axis Force

Customer: VRTC

11TIBIRLLXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-55

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Right Lower Tibia Y-Axis Force

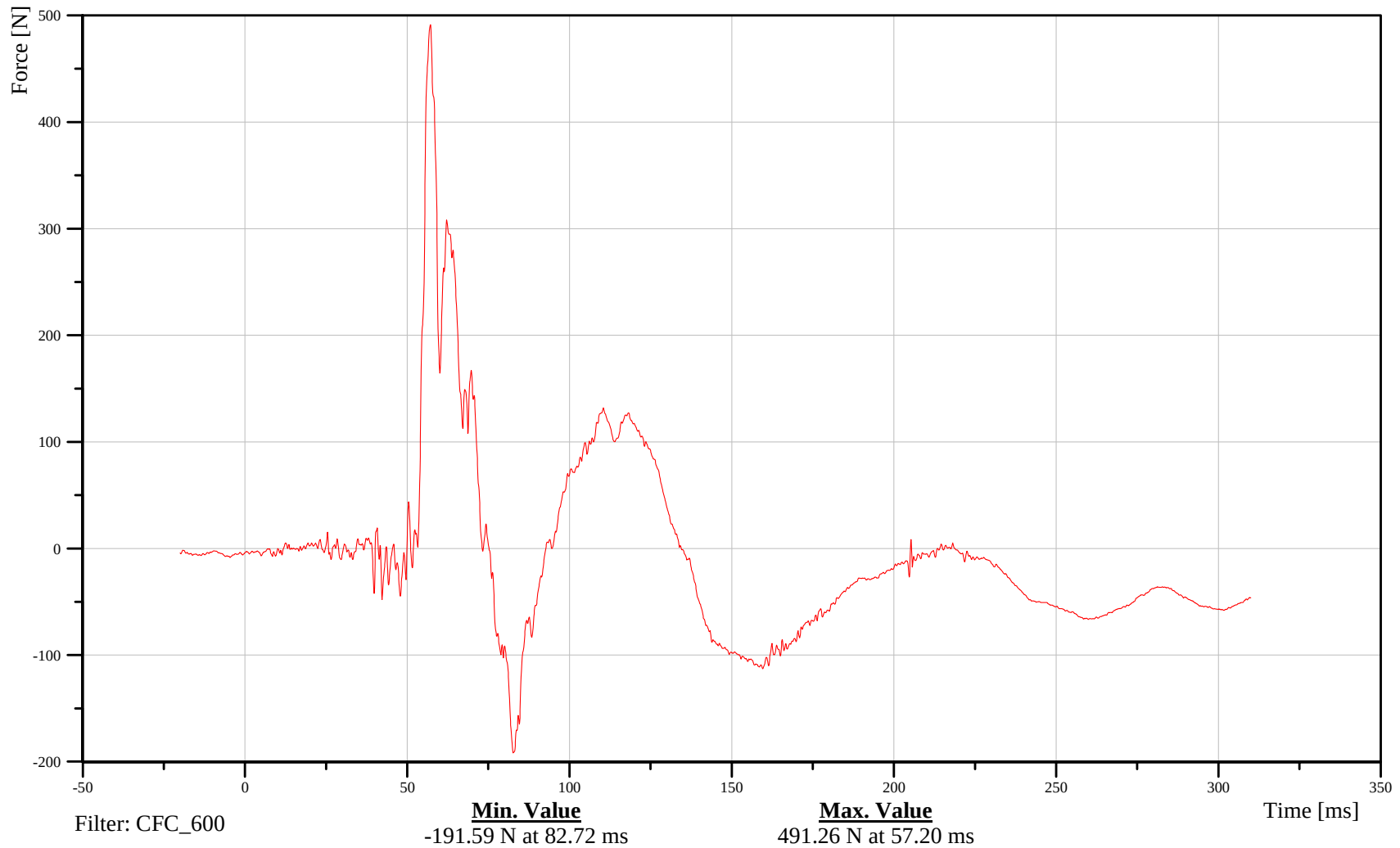
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11TIBIRLLXH3FOYB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Right Lower Tibia Z-Axis Force

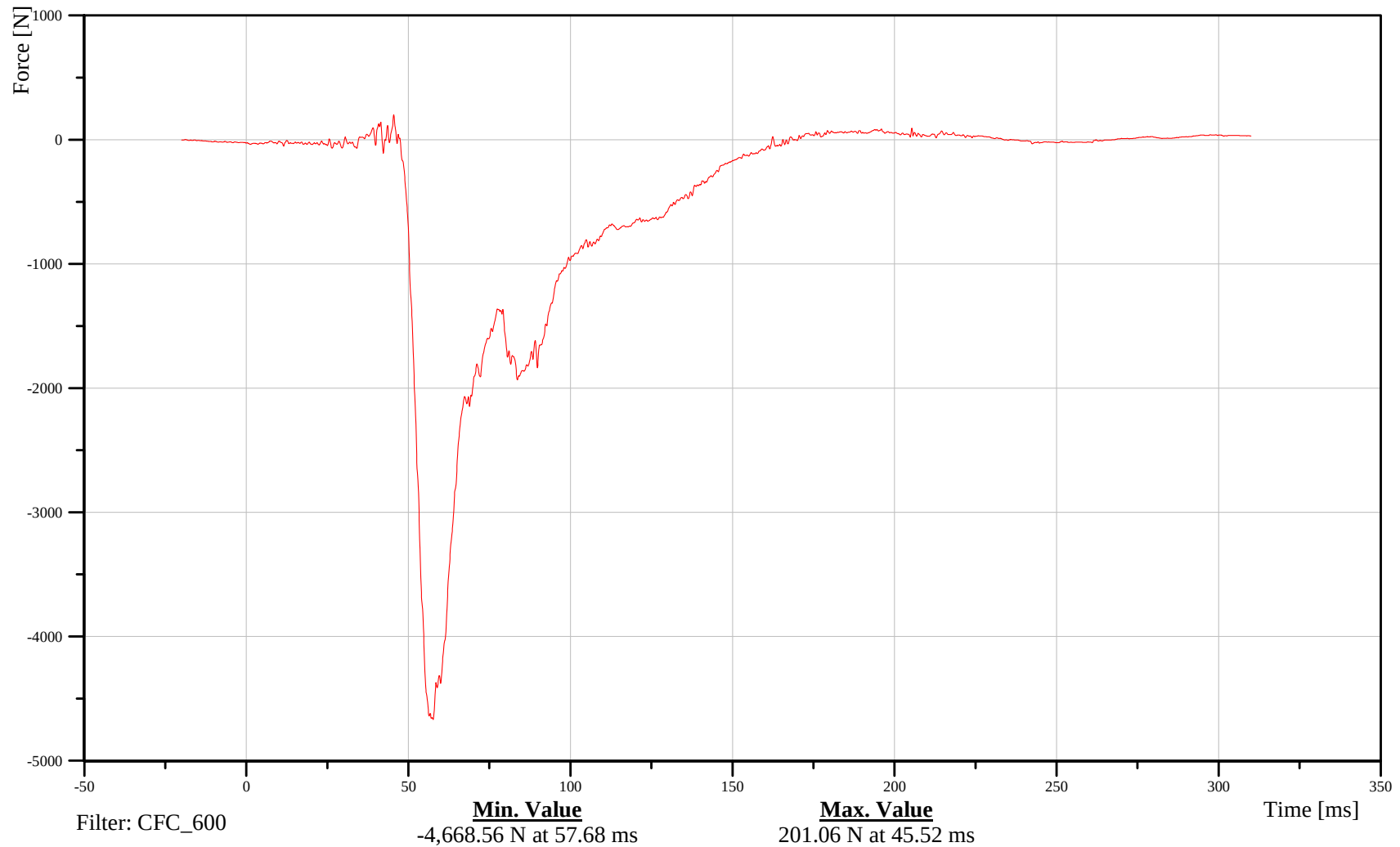
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11TIBIRLLXH3FOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-57

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

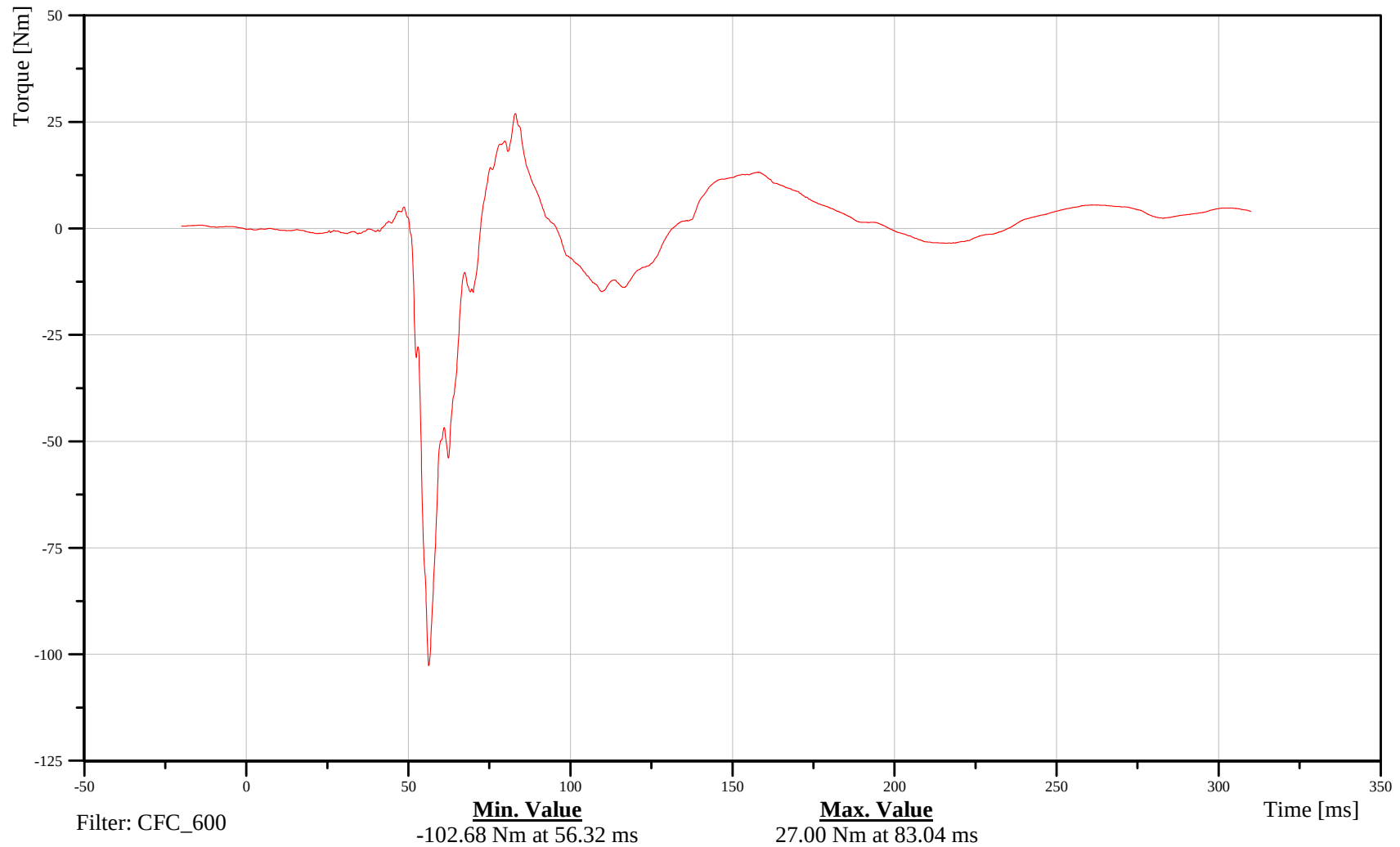
Bullet Vehicle Driver Right Lower Tibia Moment About X Axis

Customer: VRTC

11TIBIRLLXH3MOXB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

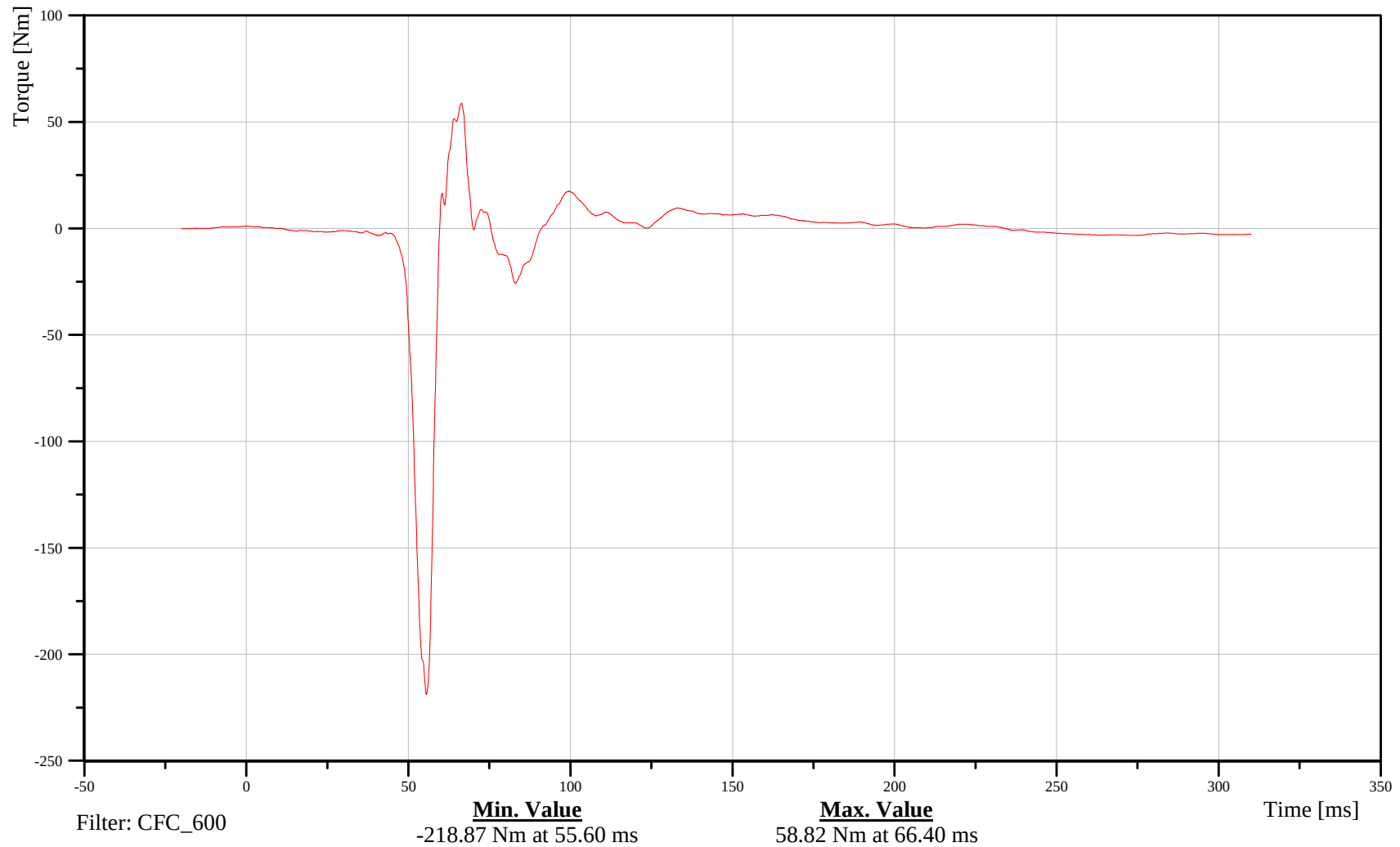
Bullet Vehicle Driver Right Lower Tibia Moment About Y Axis

Customer: VRTC

11TIBIRLLXH3MOYB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Right Tibia X-Axis Acceleration

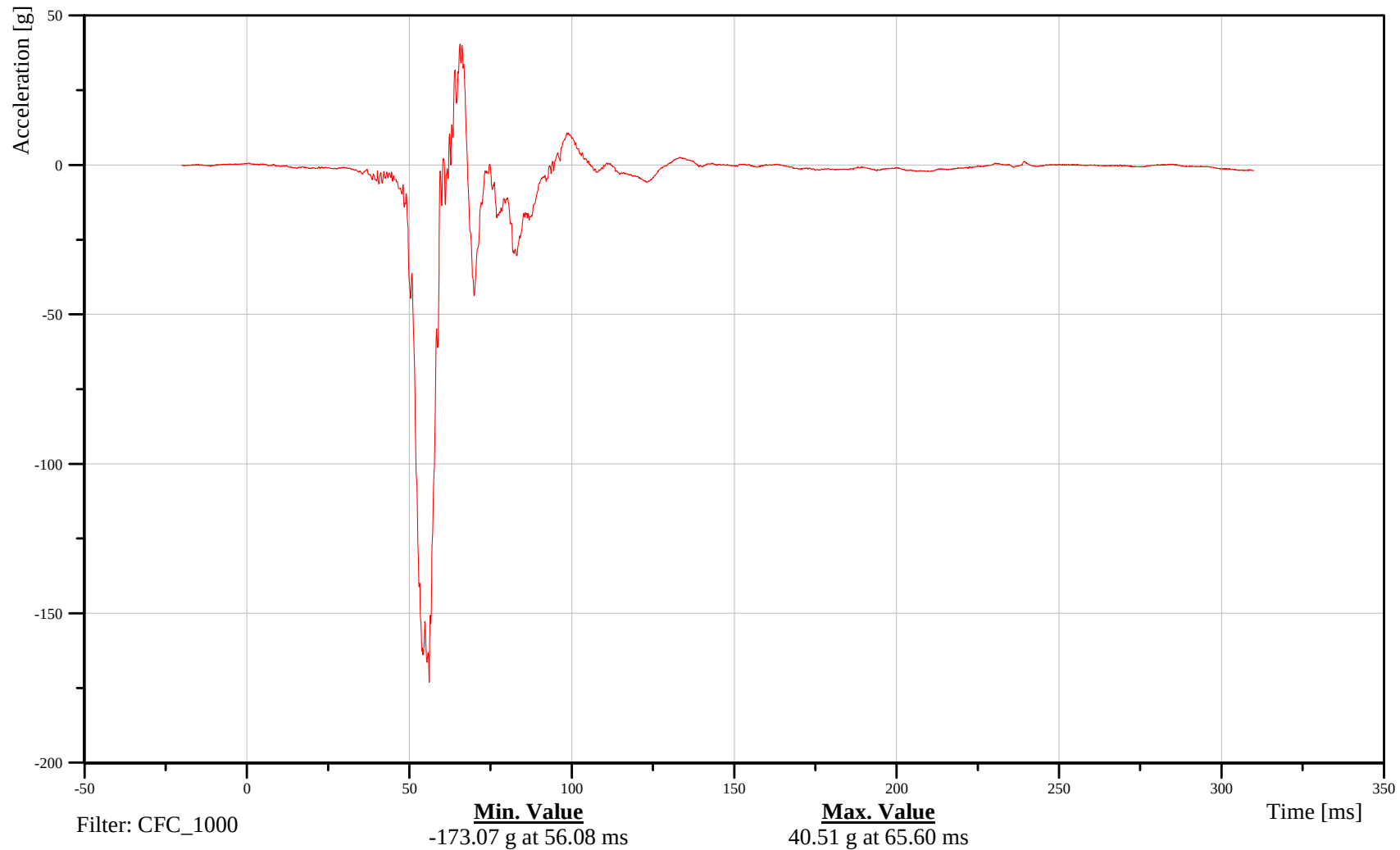
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11TIBIRILXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-60

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Right Tibia Y-Axis Acceleration

Date: 12/07/2010

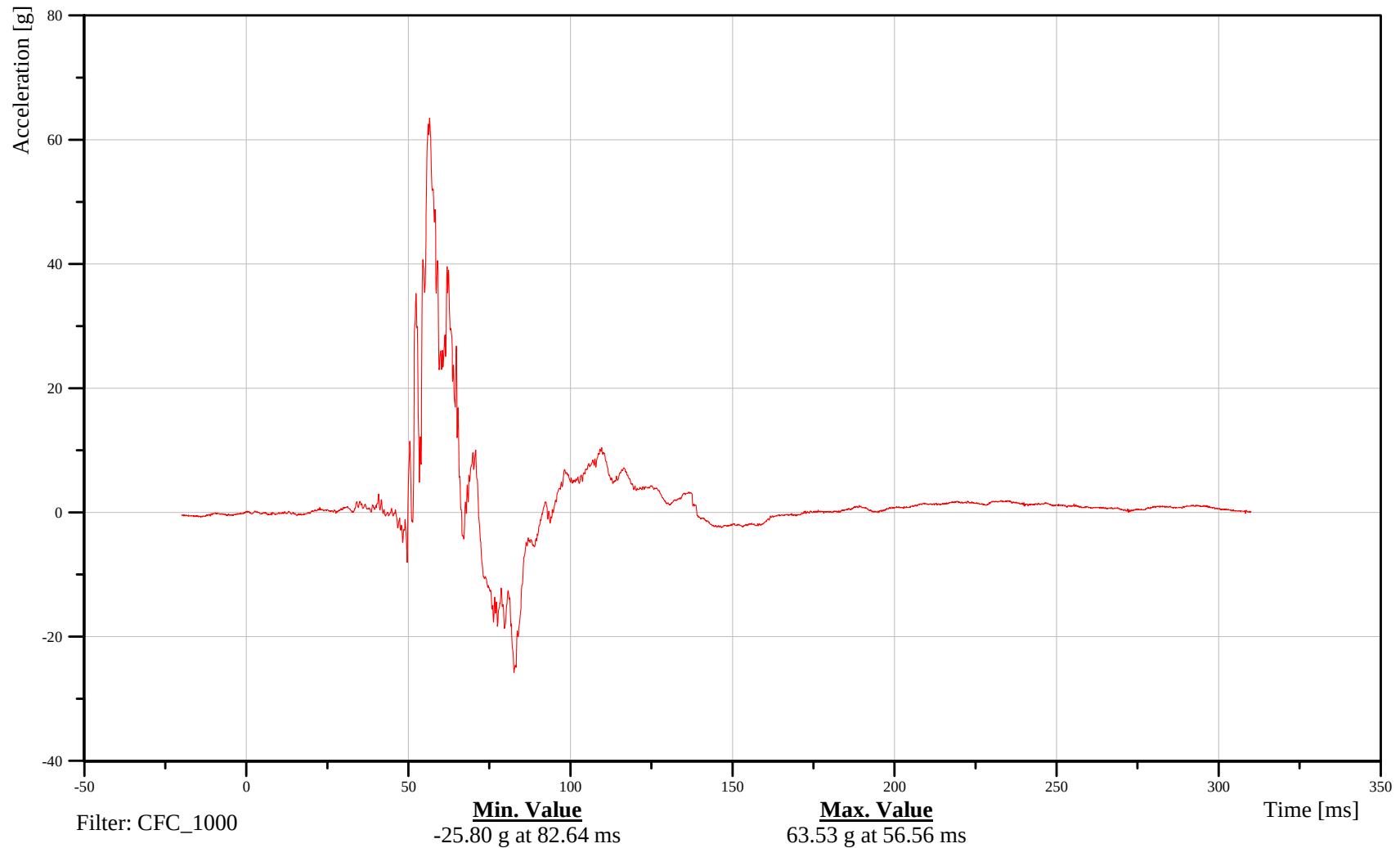
Time: 16:40 PM

Customer: VRTC

11TIBIRILXH3ACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-61

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

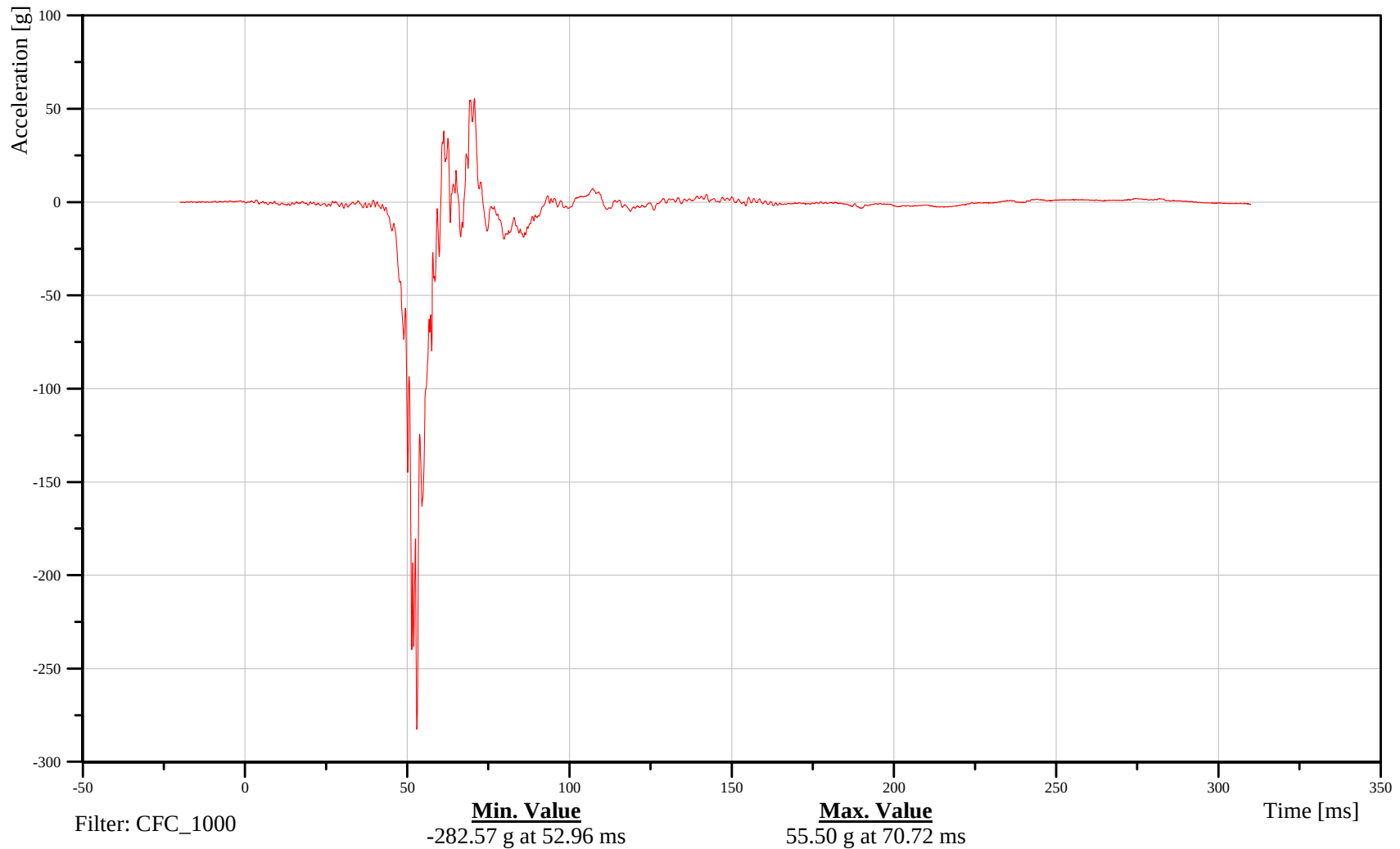
Bullet Vehicle Driver Right Foot X-Axis Acceleration

Customer: VRTC

11FOOTRILXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-62

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Right Foot Y-Axis Acceleration

Date: 12/07/2010

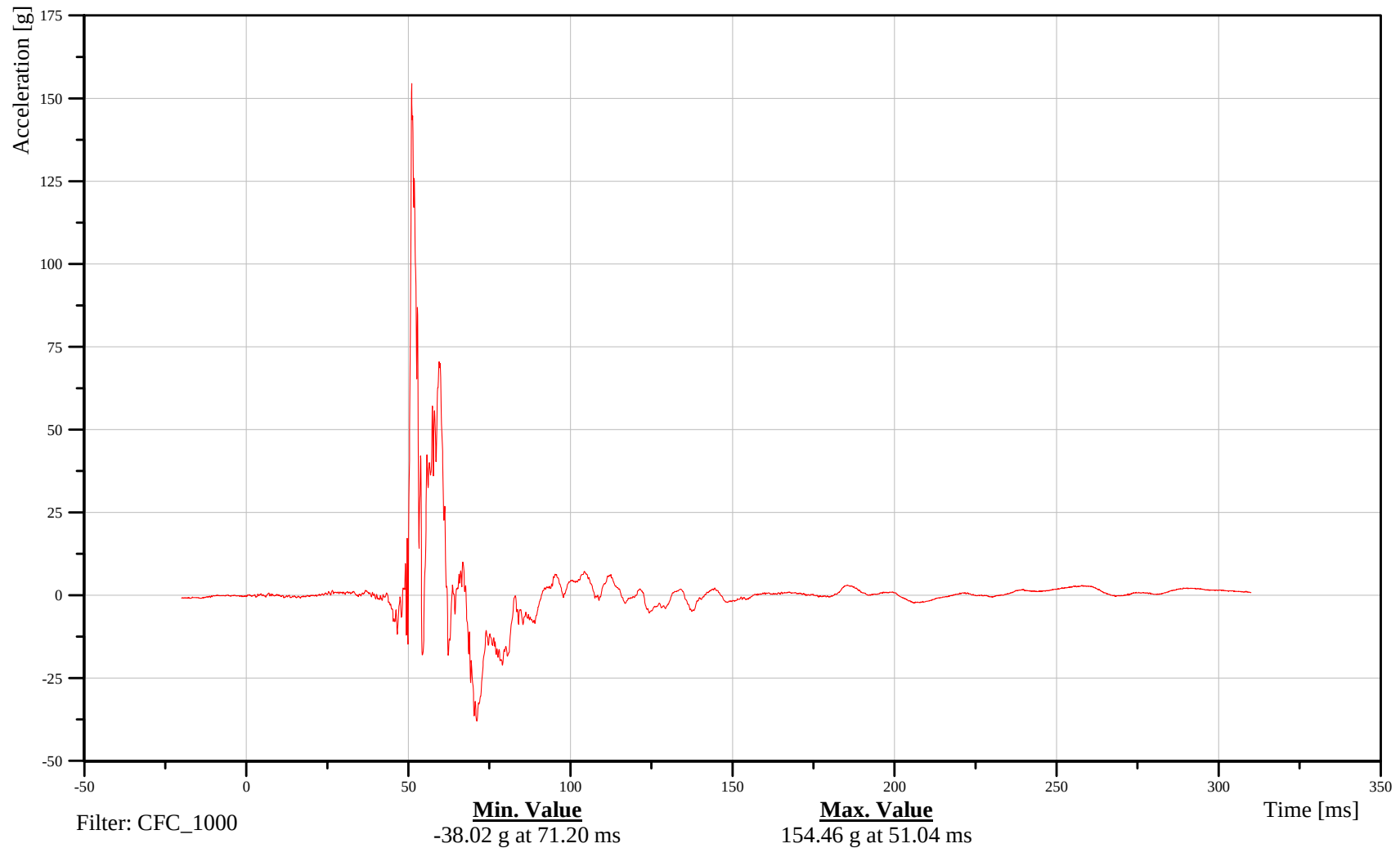
Time: 16:40 PM

Customer: VRTC

11FOOTRILXH3ACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-63

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

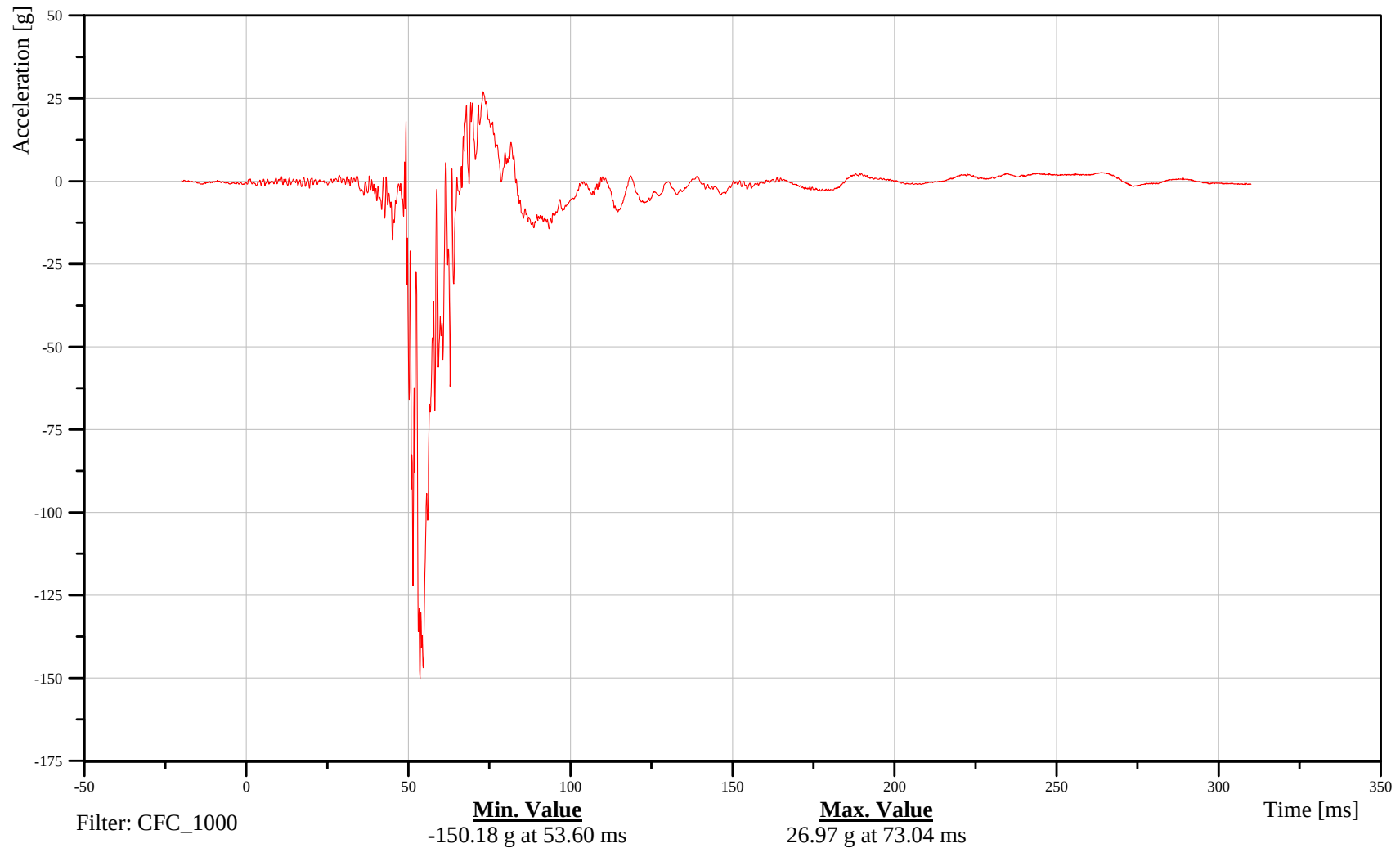
Bullet Vehicle Driver Right Foot Z-Axis Acceleration

Customer: VRTC

11FOOTRILXH3ACZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-64

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

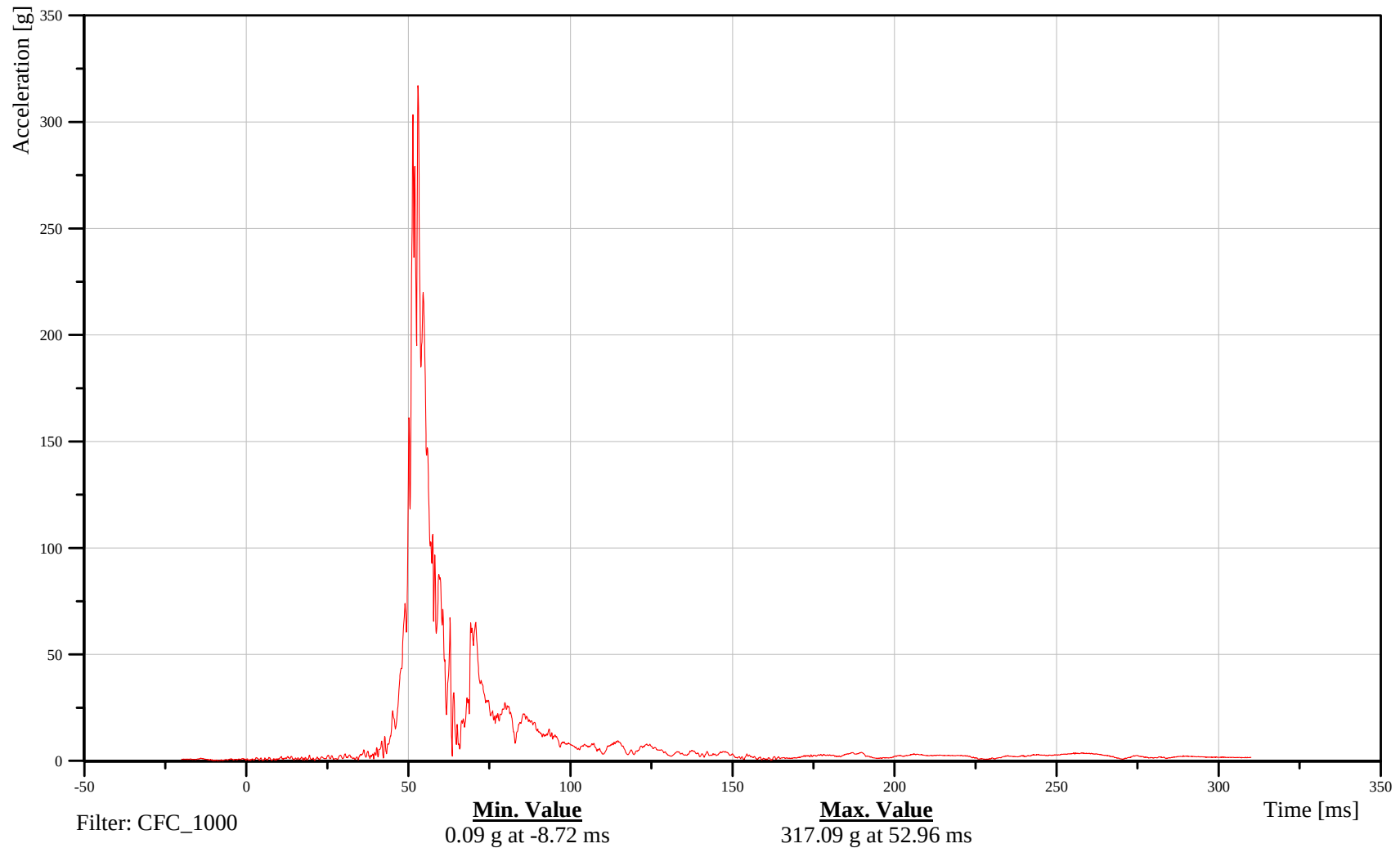
Bullet Vehicle Driver Right Foot Resultant Acceleration

Customer: VRTC

11FOOTRILXH3ACRA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-65

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Right Foot X-Axis Angular Displacement

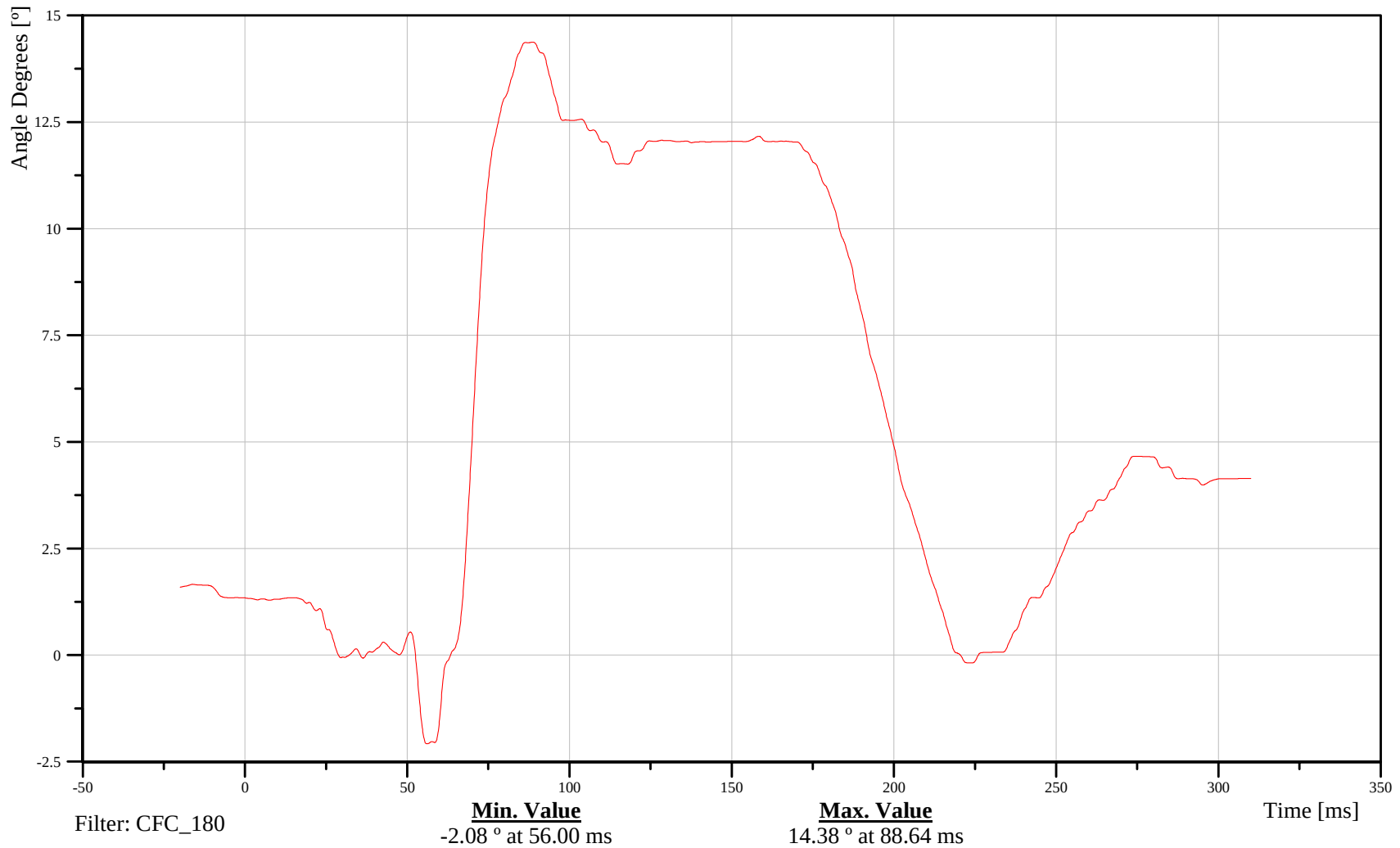
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11FOOTRILXH3ANXC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Right Foot Y-Axis Angular Displacement

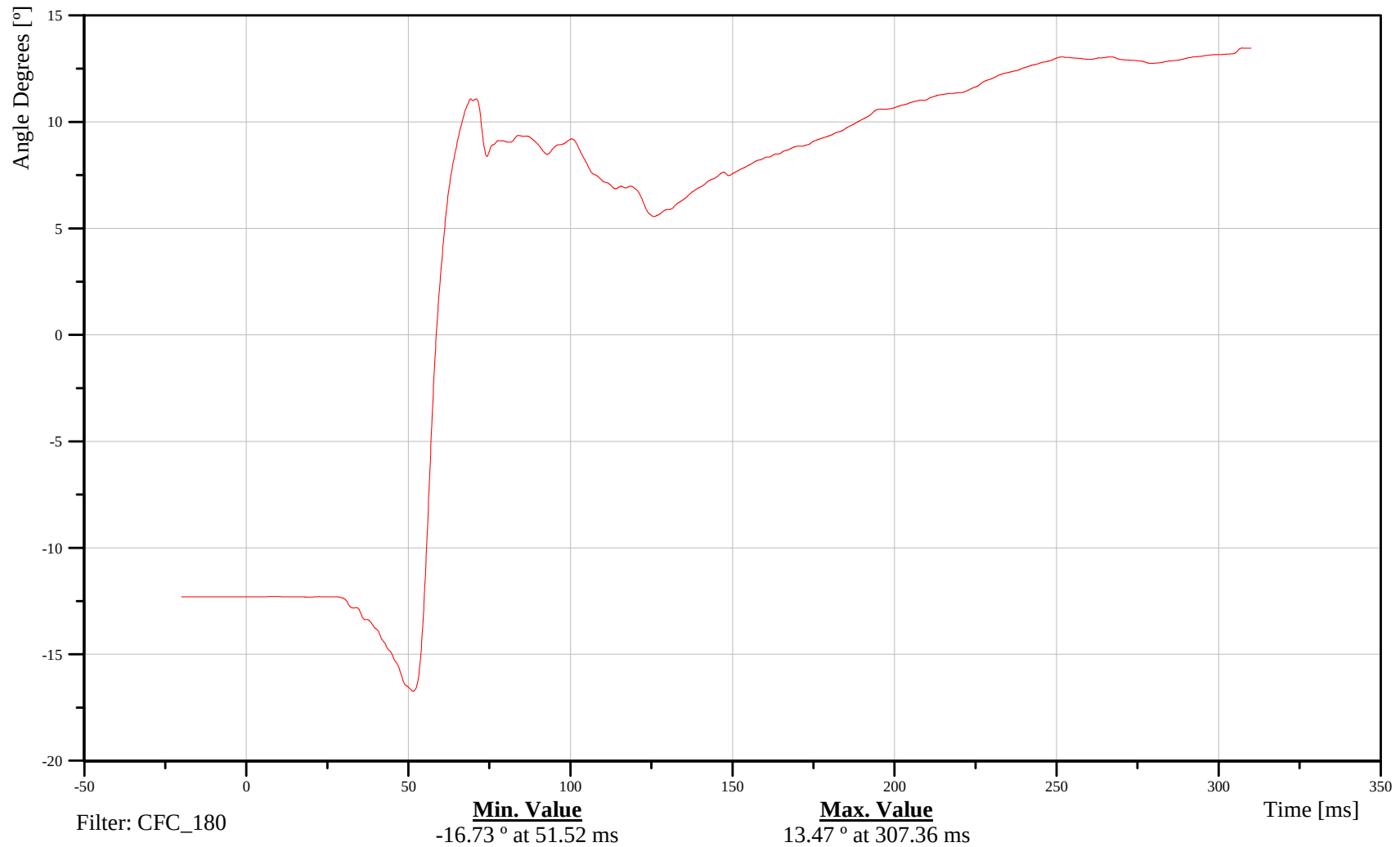
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11FOOTRILXH3ANYC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-67

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Right Foot Z-Axis Angular Displacement

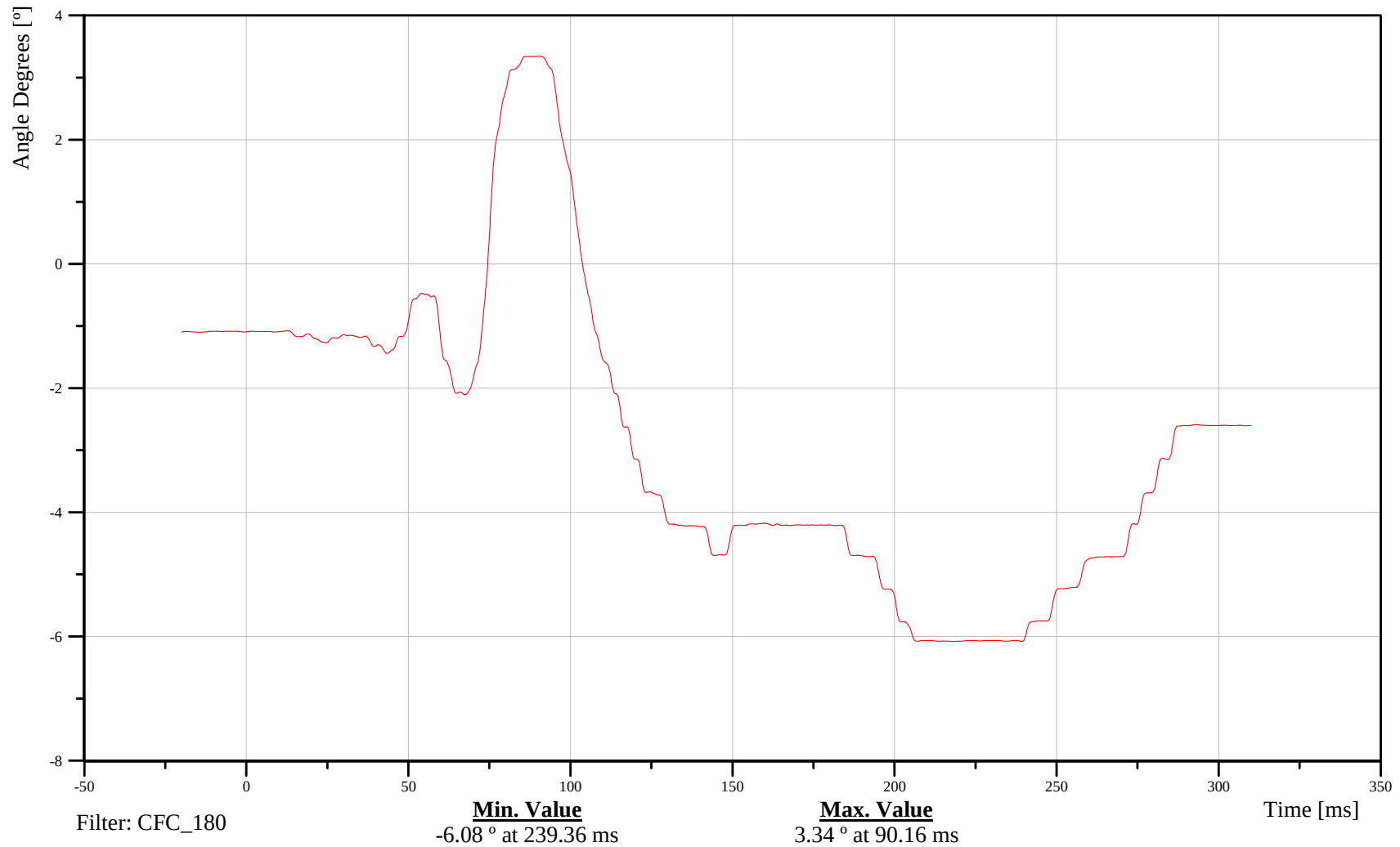
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11FOOTRILXH3ANZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-68

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

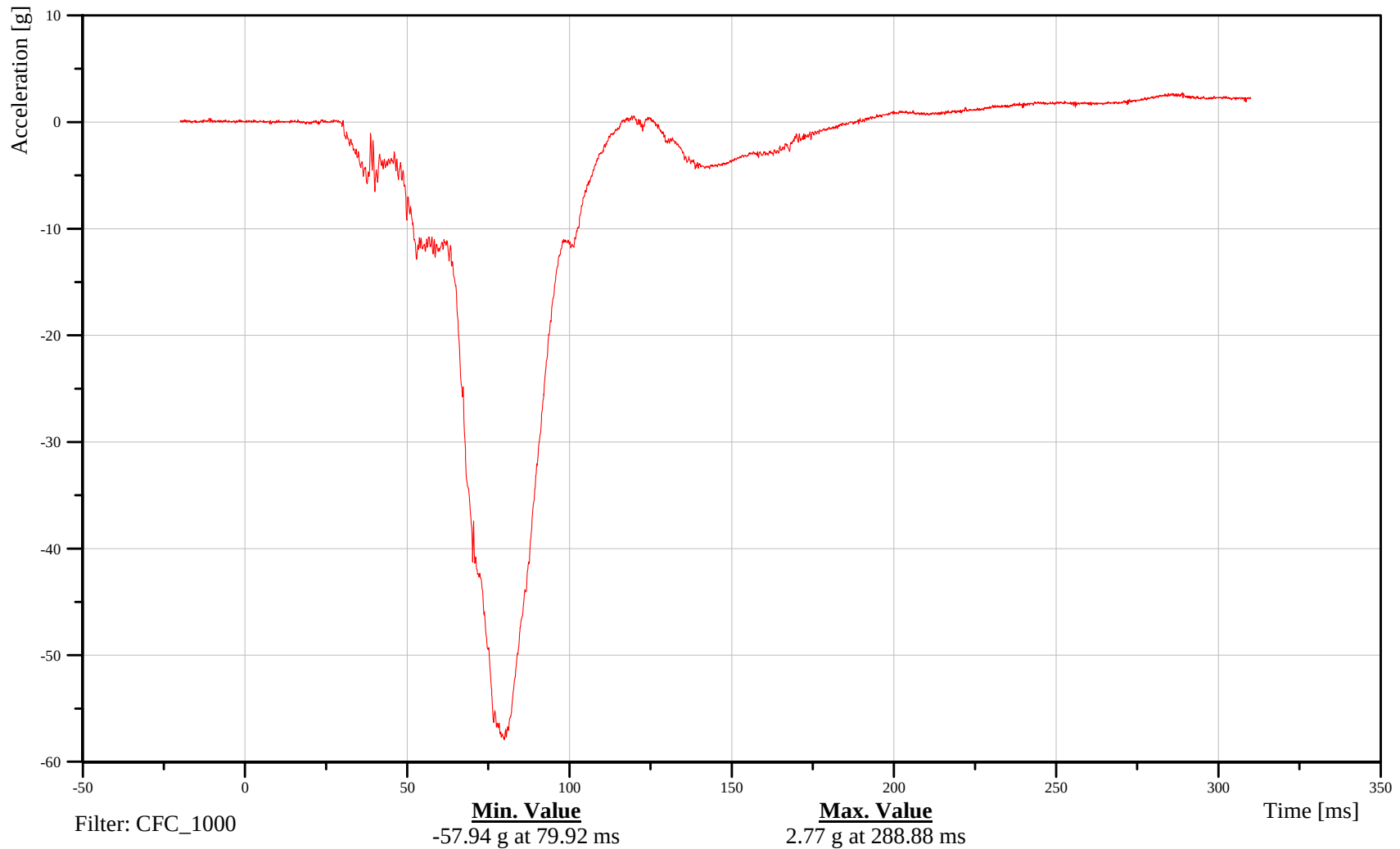
Bullet Vehicle Right Front Passenger Head X-Axis Acceleration

Customer: VRTC

13HEADCG00HFACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-69

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Right Front Passenger Head Y-Axis Acceleration

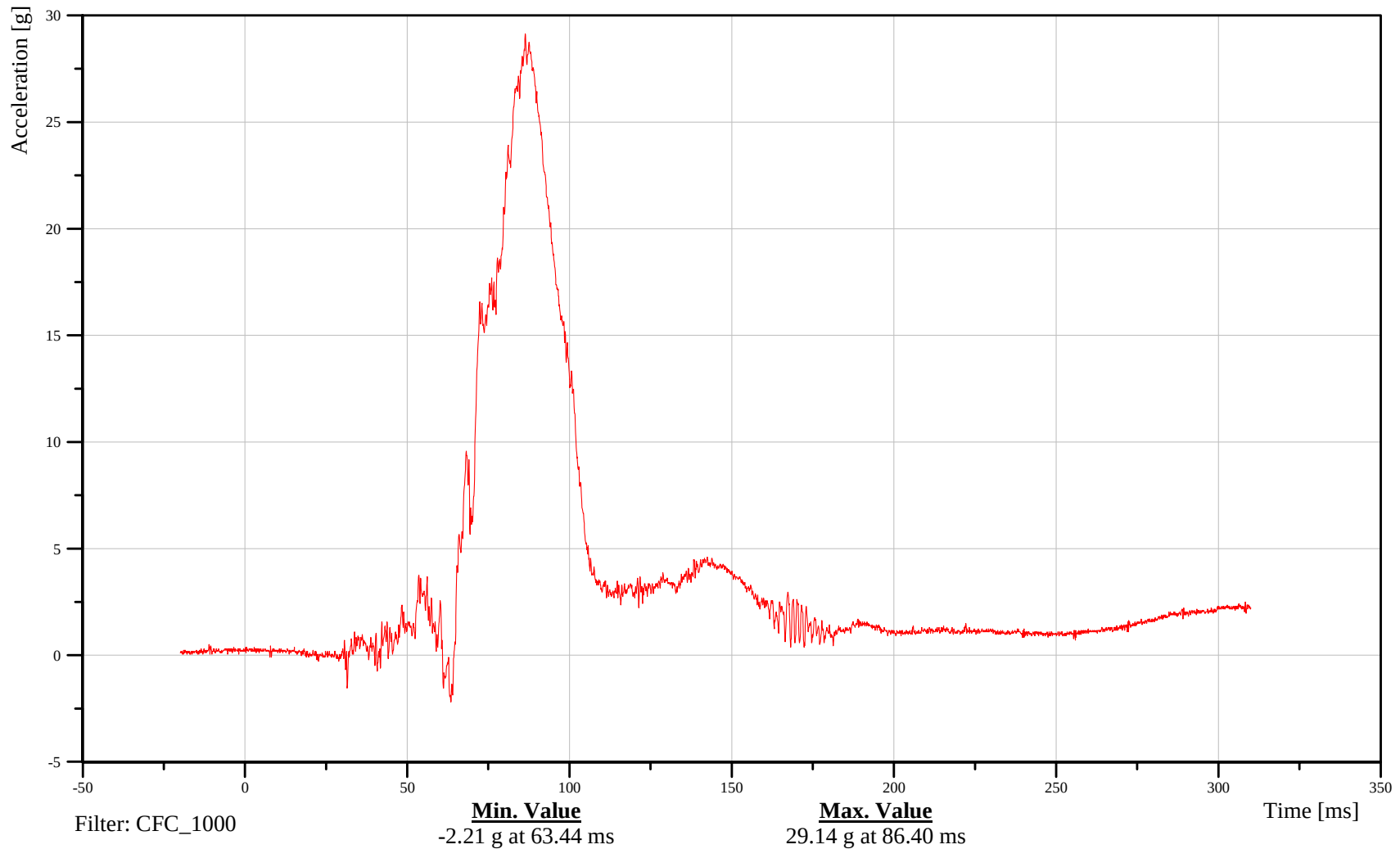
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

13HEADCG00HFACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-70

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

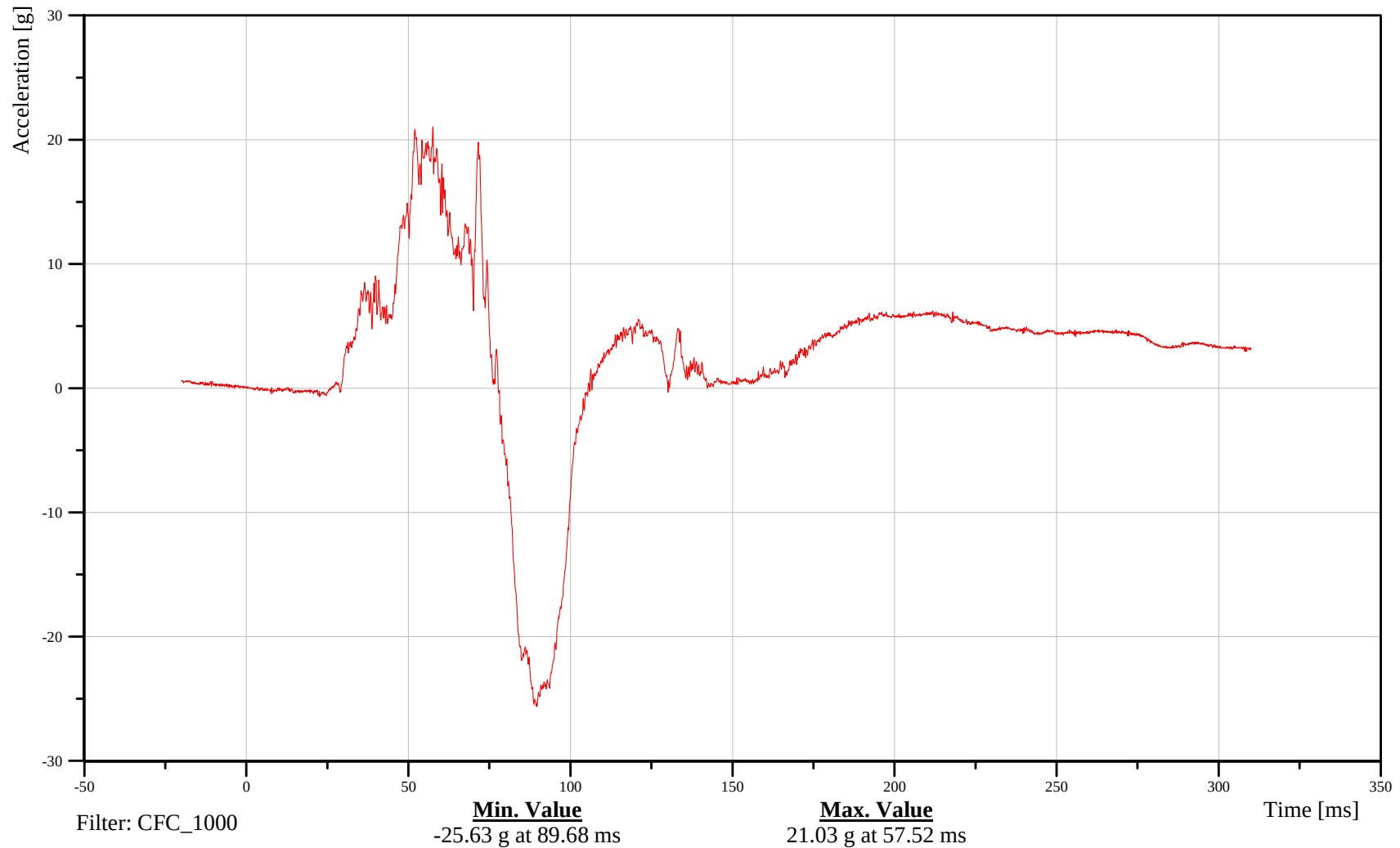
Bullet Vehicle Right Front Passenger Head Z-Axis Acceleration

Customer: VRTC

13HEADCG00HFACZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-71

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

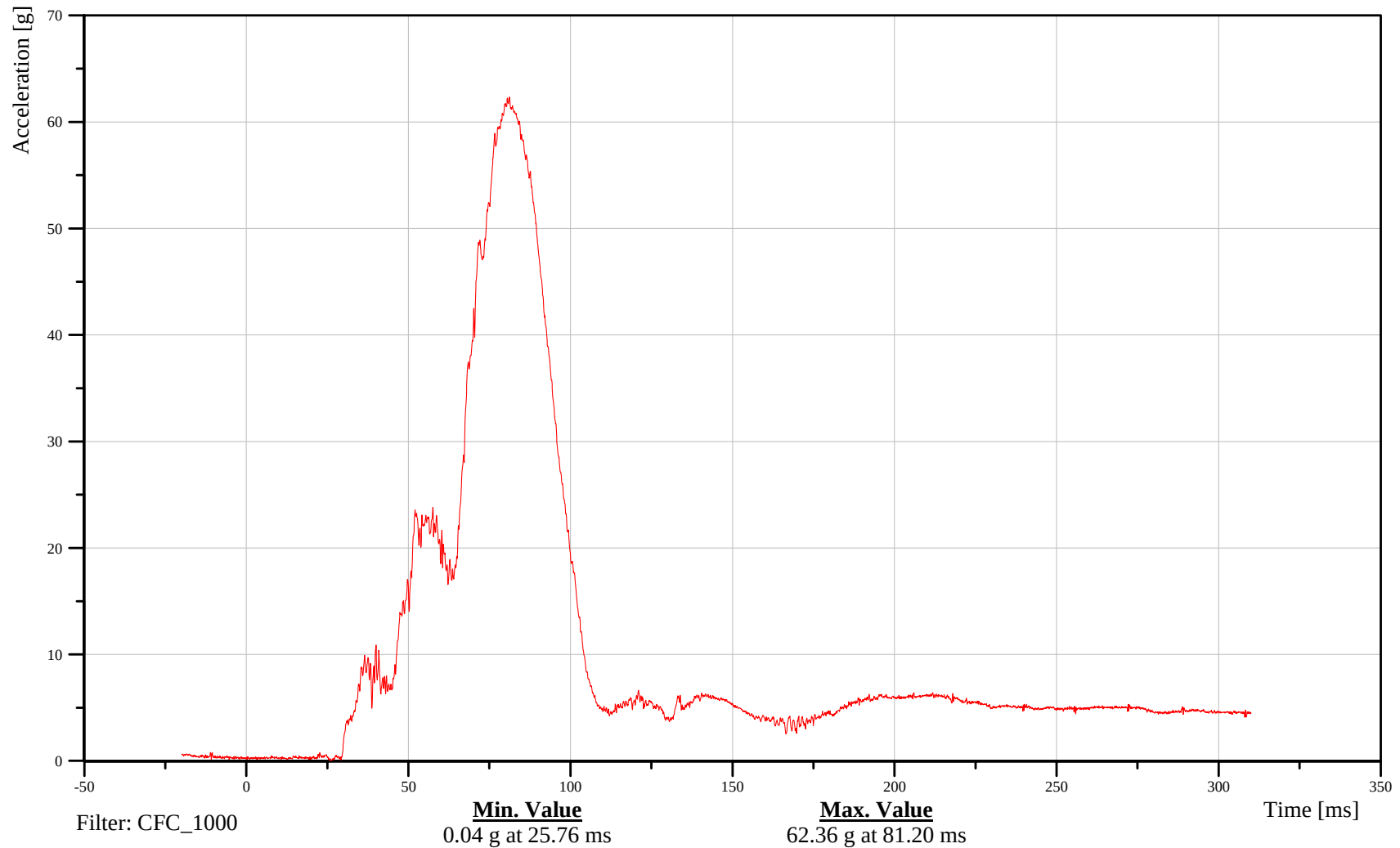
Bullet Vehicle Right Front Passenger Head Resultant Acceleration

Customer: VRTC

13HEADCG00HFACRA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

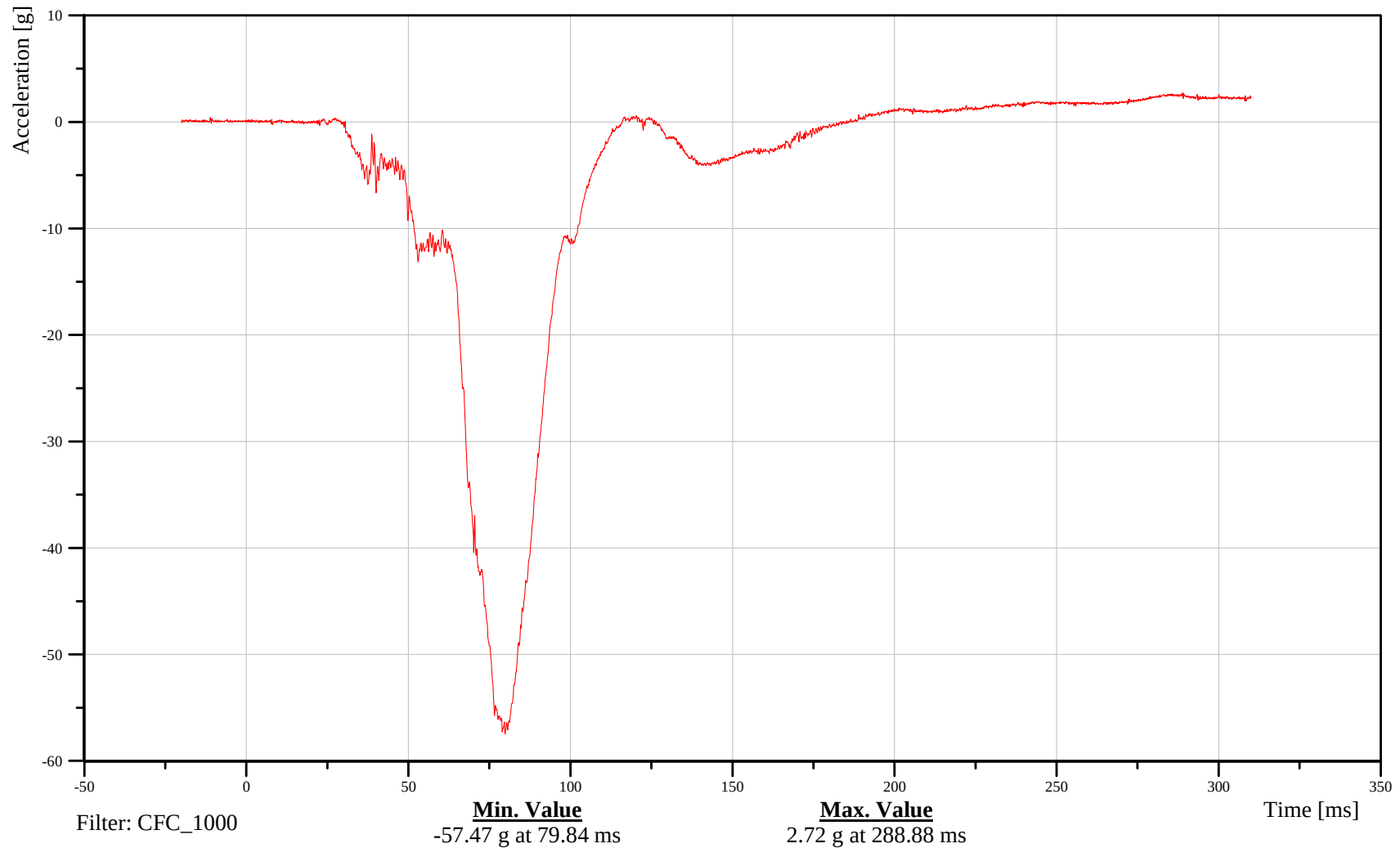
Bullet Vehicle Right Front Passenger Head Redundant X-Axis Acceleration

Customer: VRTC

13HEADCGRDHFACXA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

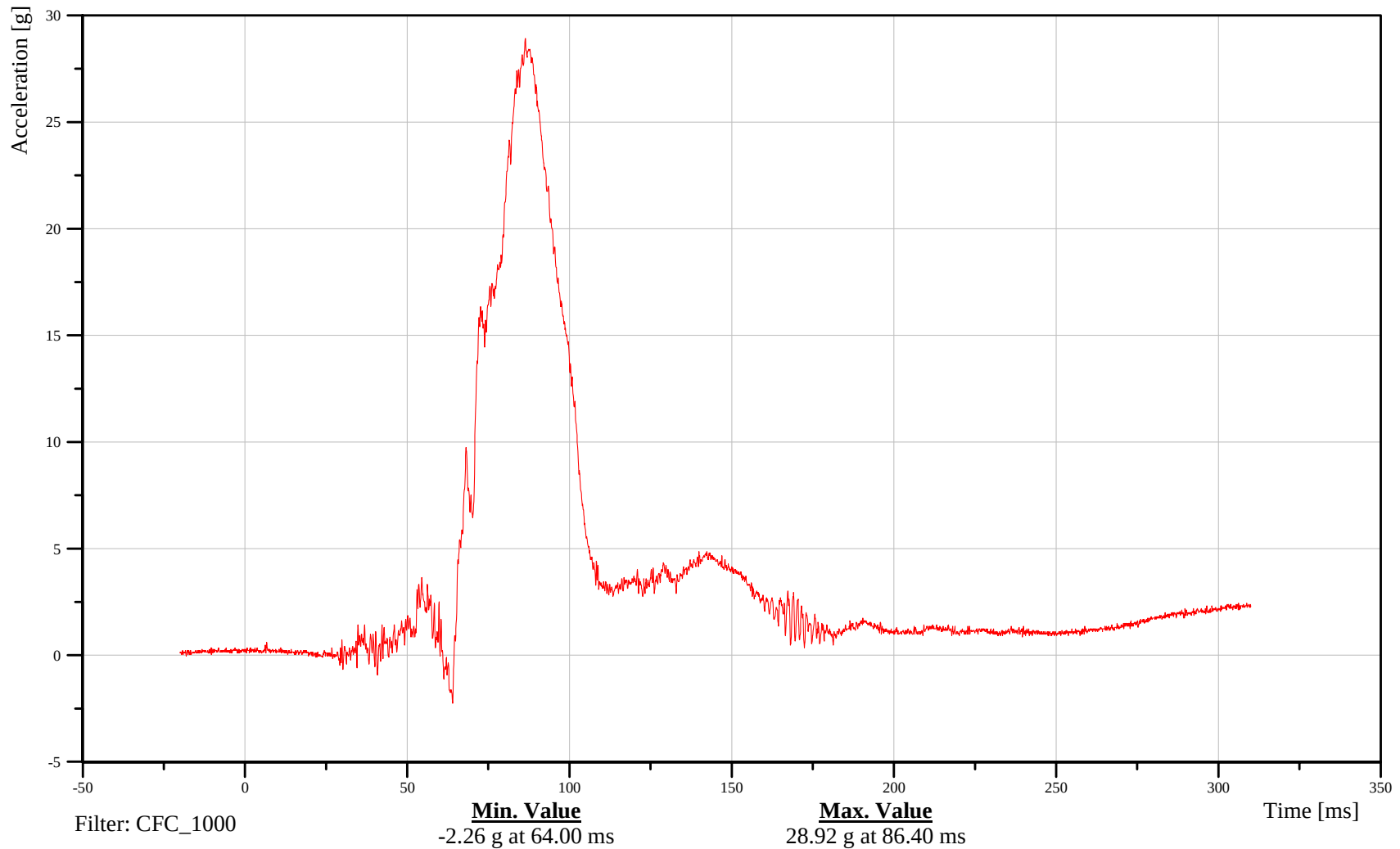
Bullet Vehicle Right Front Passenger Head Redundant Y-Axis Acceleration

Customer: VRTC

13HEADCGRDHFACYA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

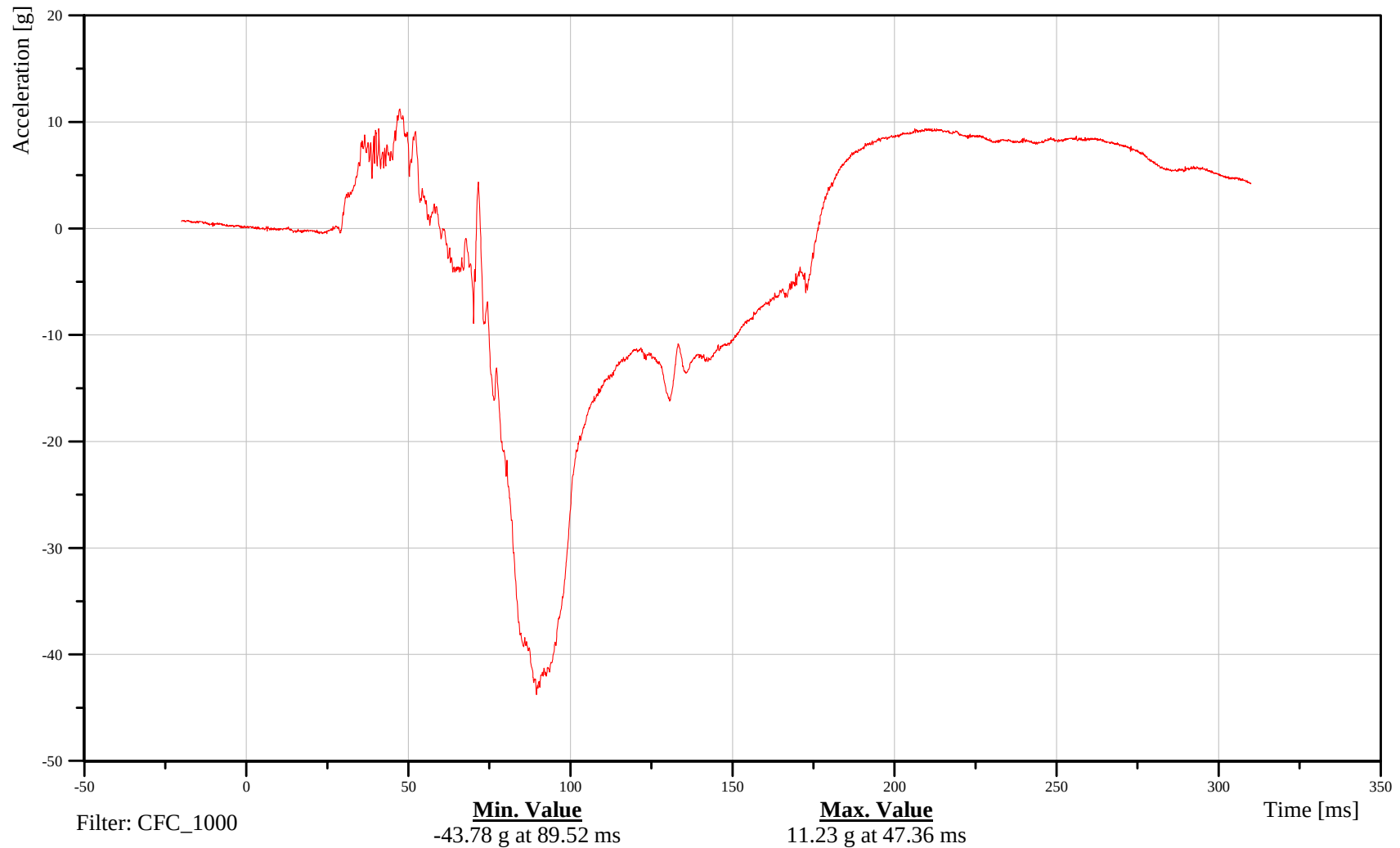
Bullet Vehicle Right Front Passenger Head Redundant Z-Axis Acceleration

Customer: VRTC

13HEADCGRDHFACZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-75

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

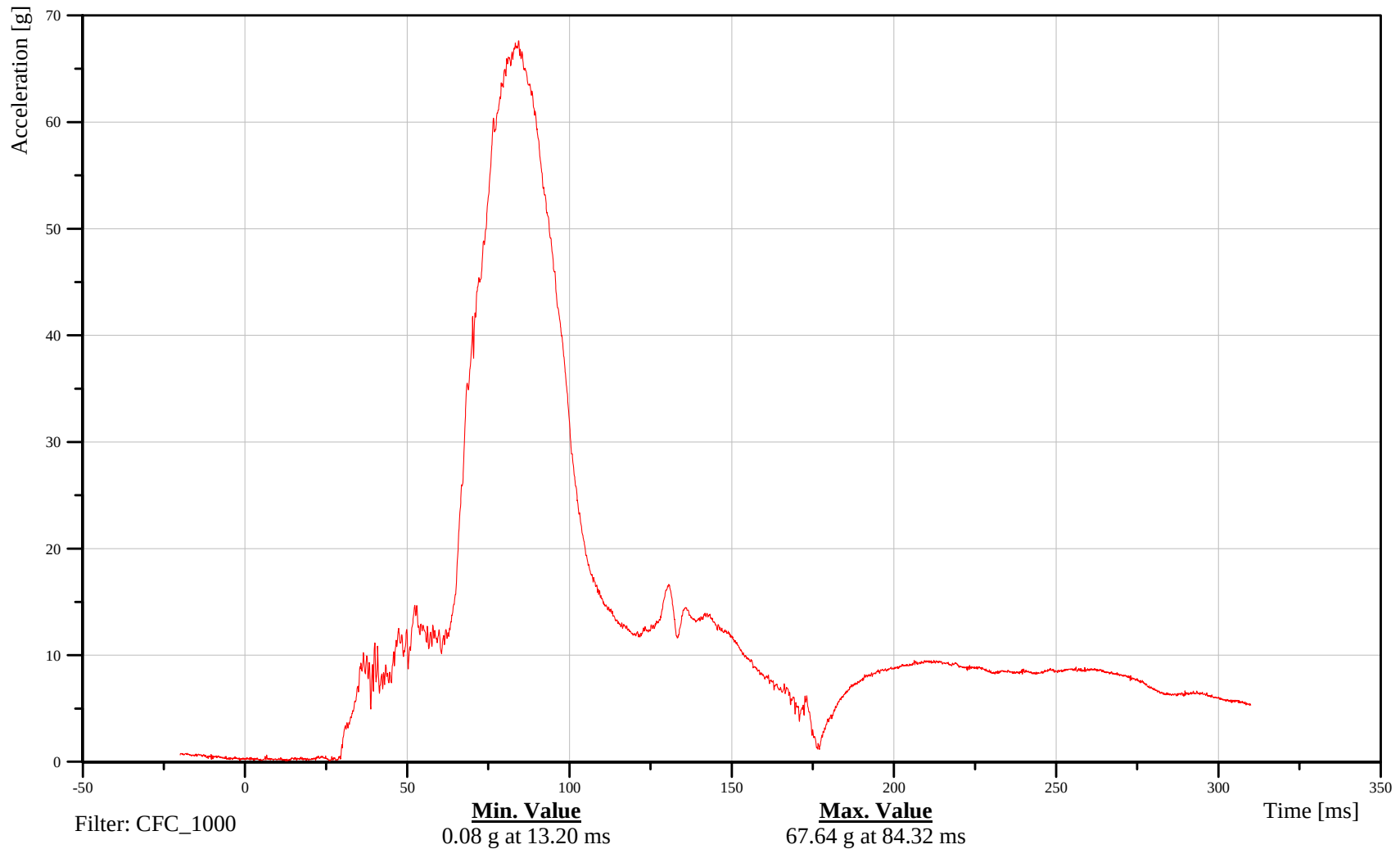
Bullet Vehicle Right Front Passenger Head Redundant Resultant Acceleration

Customer: VRTC

13HEADCGRDHFACRA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

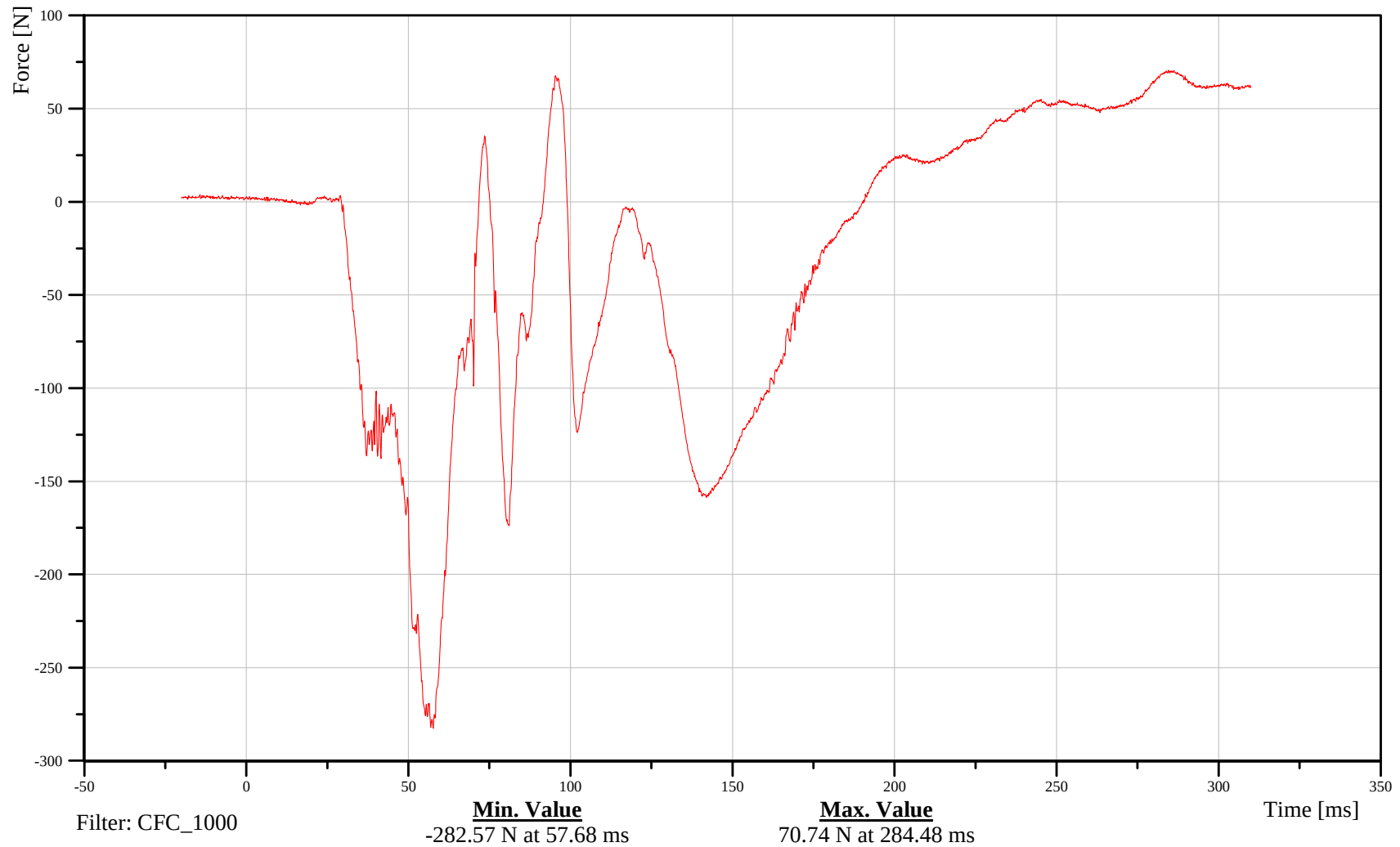
Bullet Vehicle Right Front Passenger Upper Neck X-Axis Force

Customer: VRTC

13NECKUP00HFFOXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-77

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

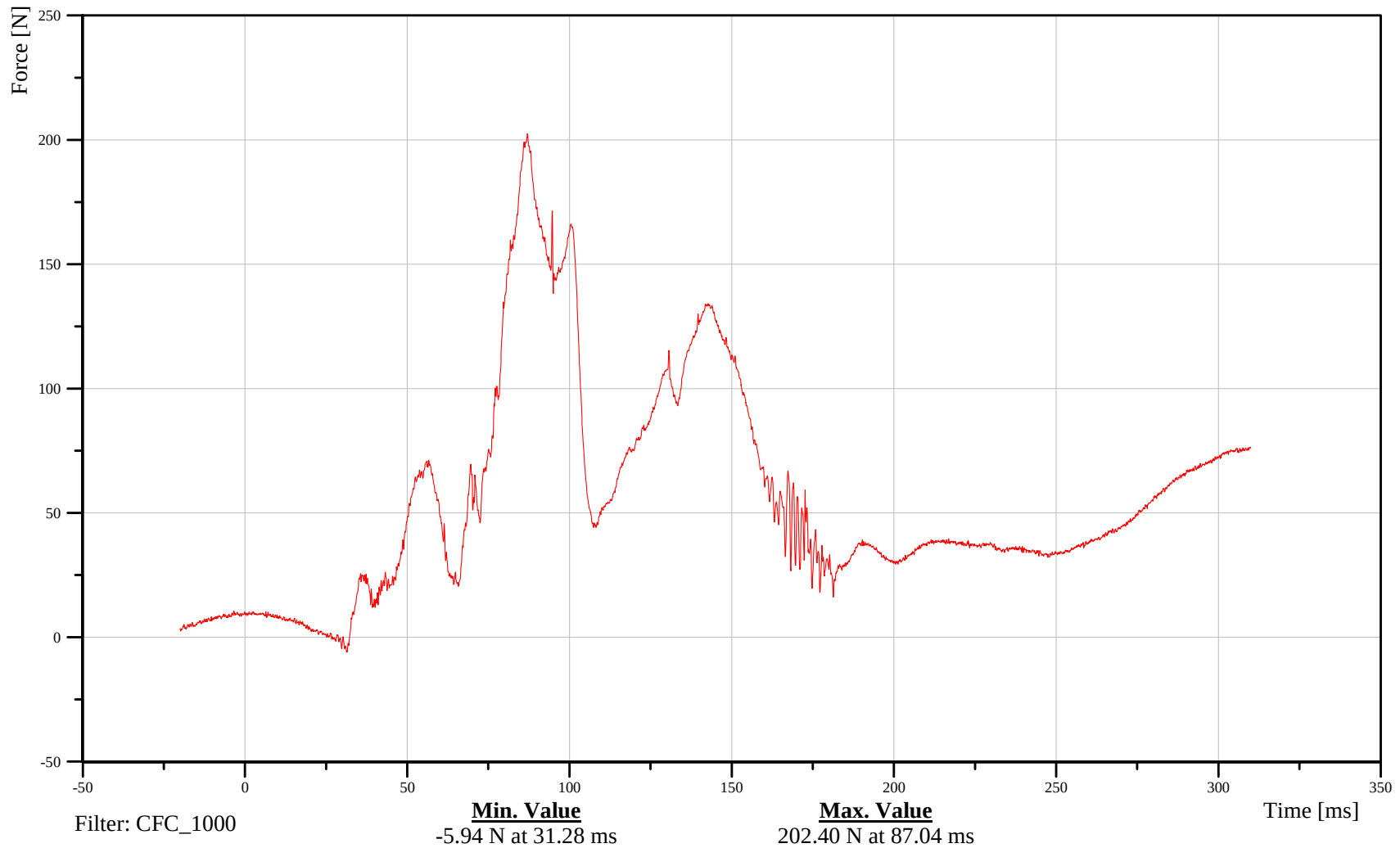
Bullet Vehicle Right Front Passenger Upper Neck Y-Axis Force

Customer: VRTC

13NECKUP00HFFOYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-78

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

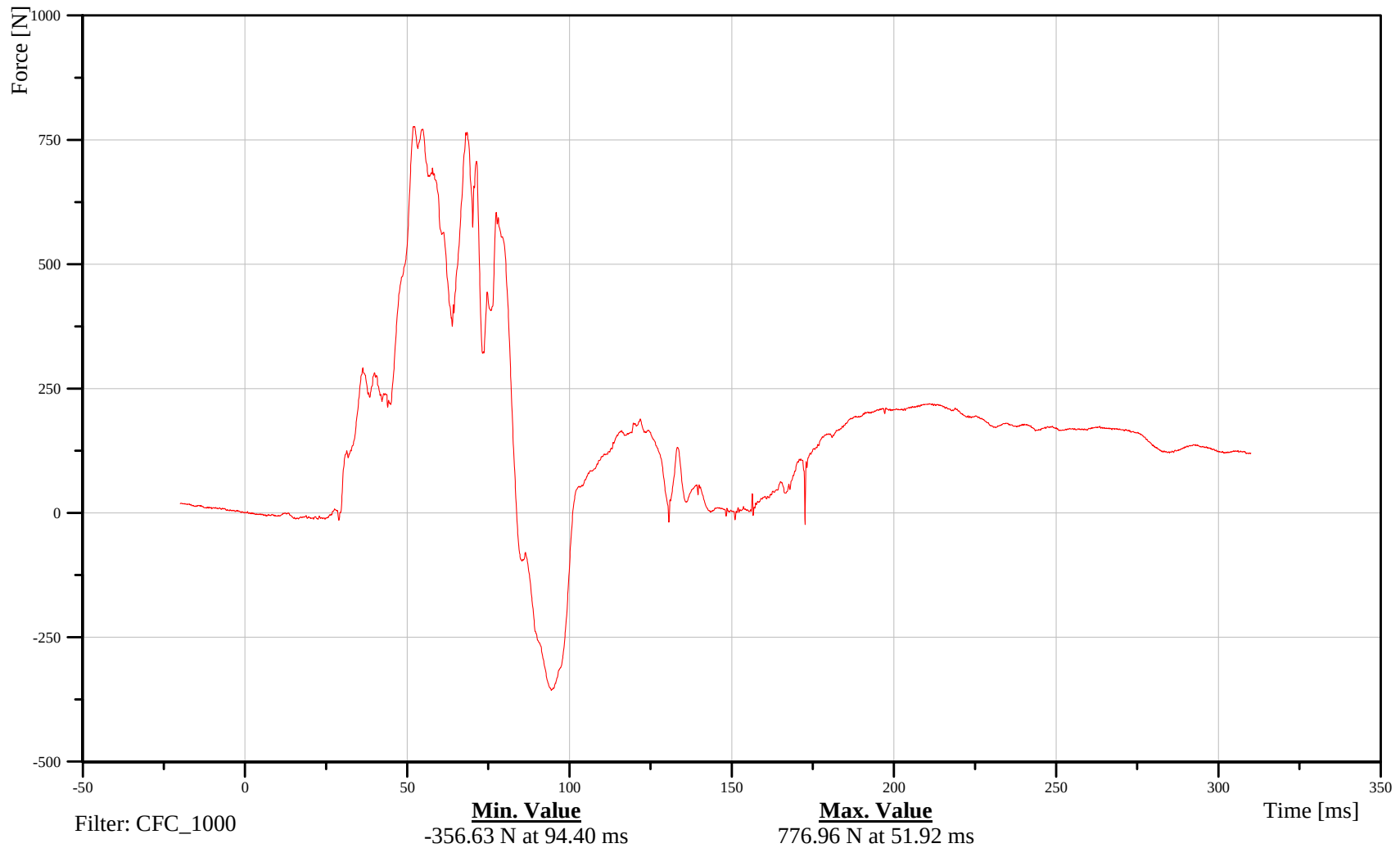
Bullet Vehicle Right Front Passenger Upper Neck Z-Axis Force

Customer: VRTC

13NECKUP00HFFOZA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

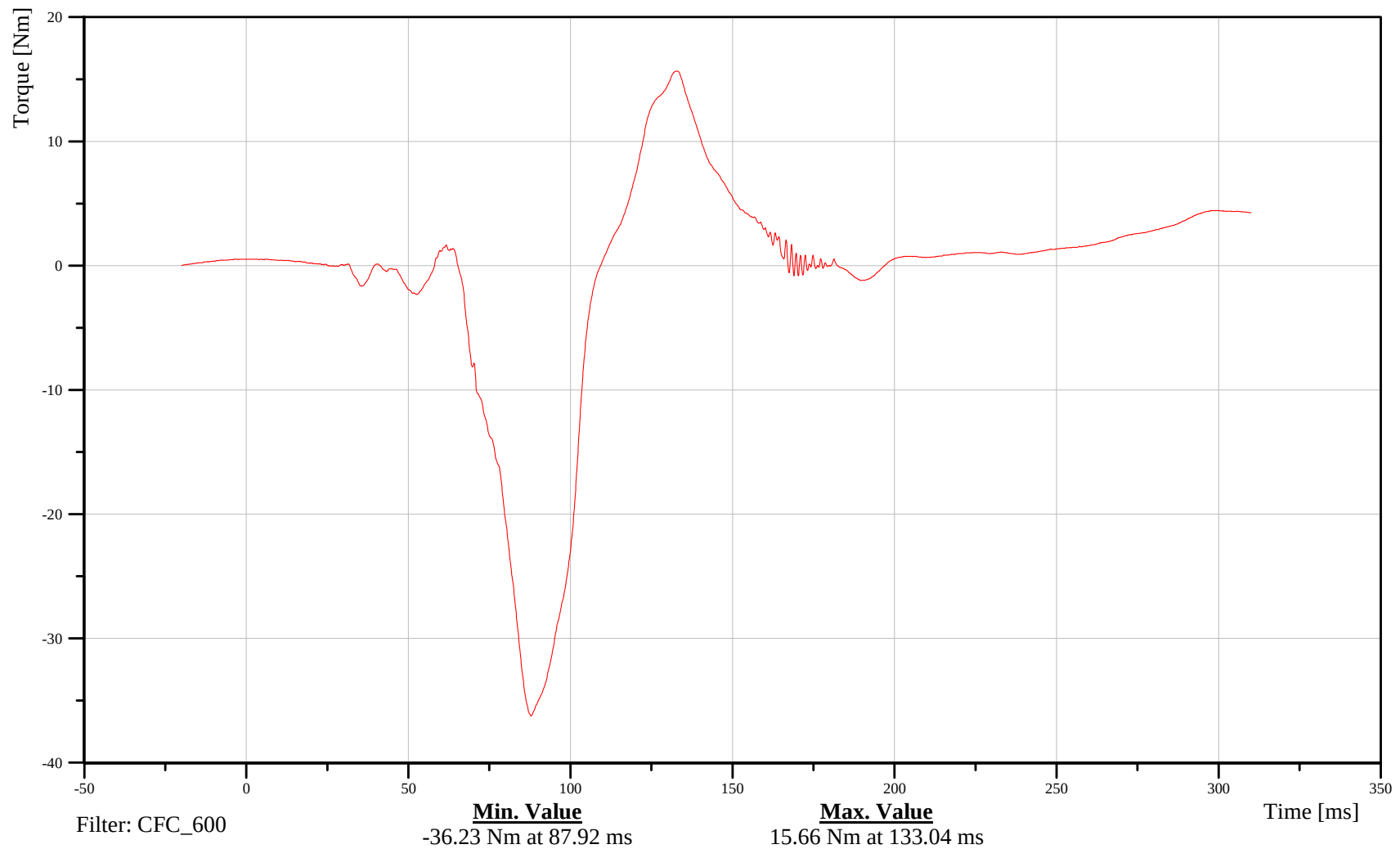
Bullet Vehicle Right Front Passenger Upper Neck Moment About X Axis

Customer: VRTC

13NECKUP00HFMOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-80

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

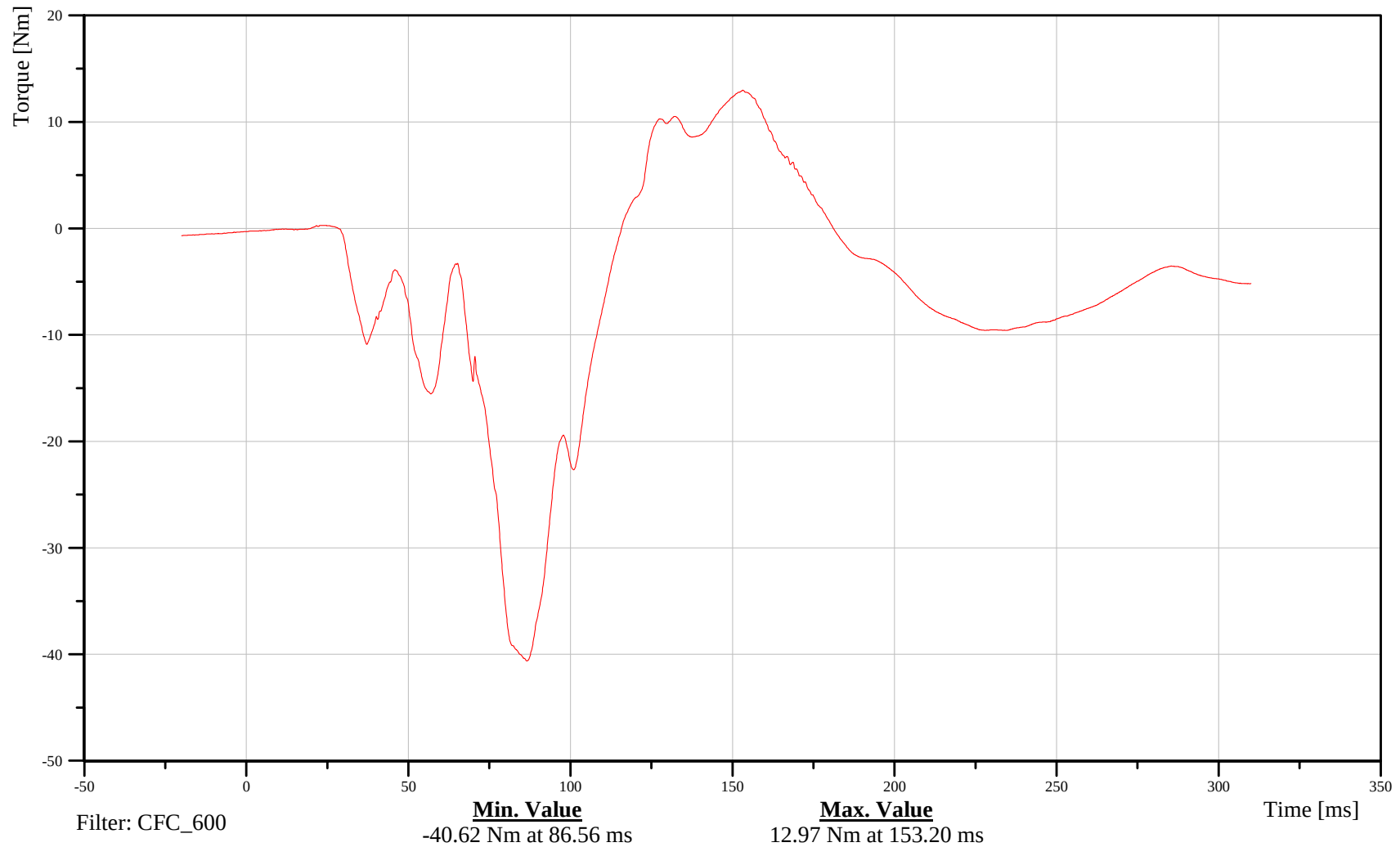
Bullet Vehicle Right Front Passenger Upper Neck Moment About Y Axis

Customer: VRTC

13NECKUP00HFMOYB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

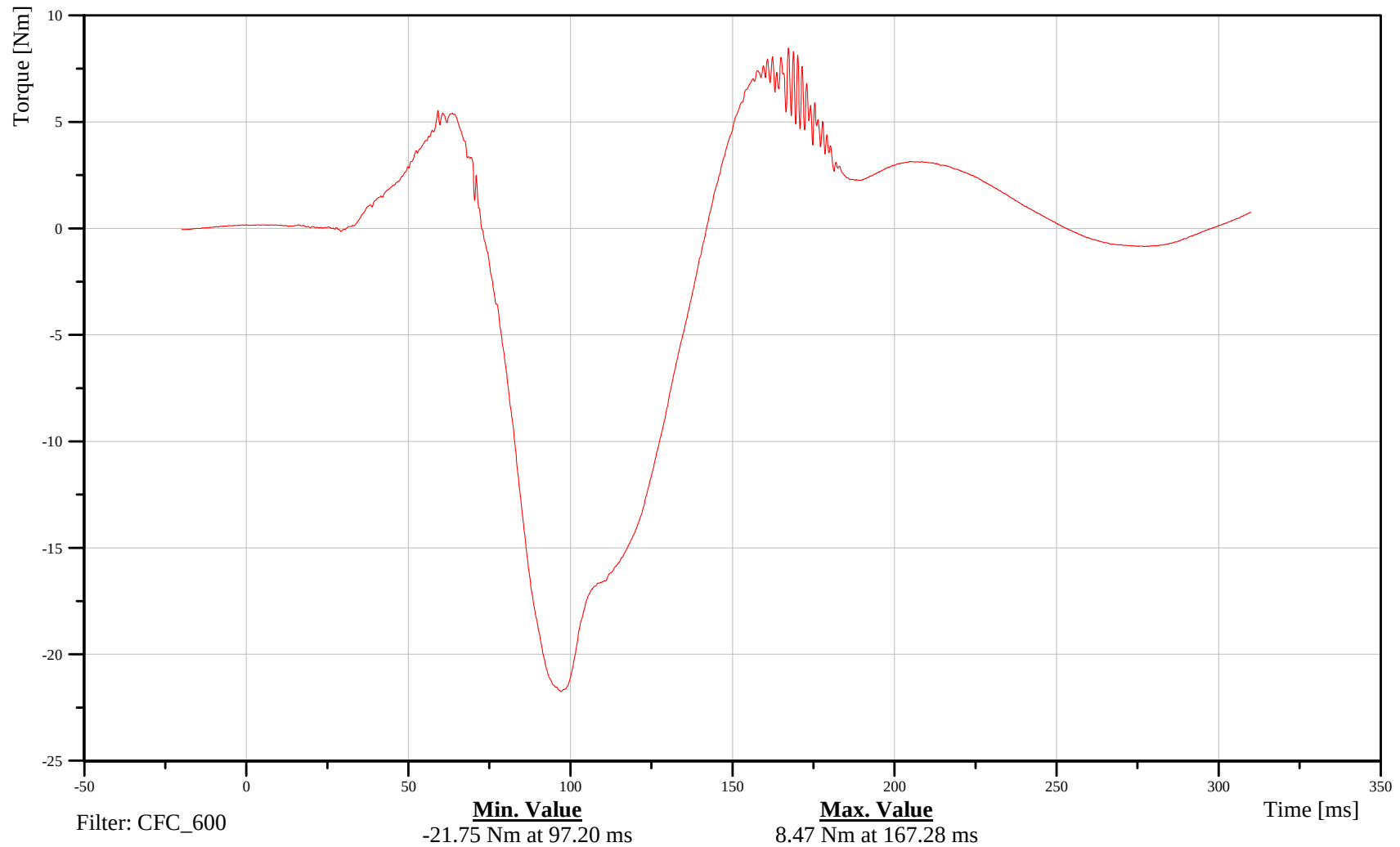
Bullet Vehicle Right Front Passenger Upper Neck Moment About Z Axis

Customer: VRTC

13NECKUP00HFMOZB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Right Front Passenger Chest X-Axis Acceleration

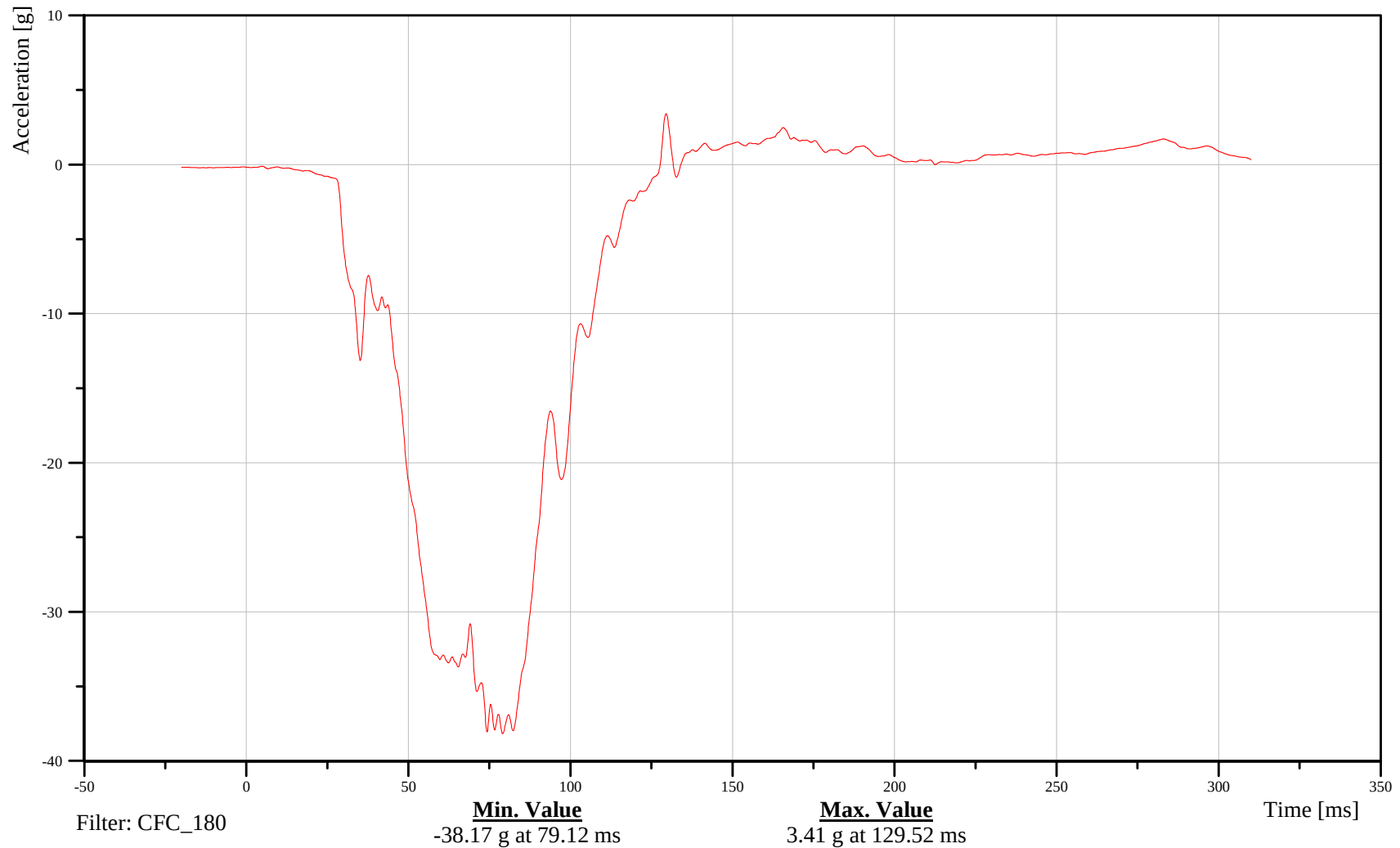
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

13CHSTCG00HFACXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-83

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

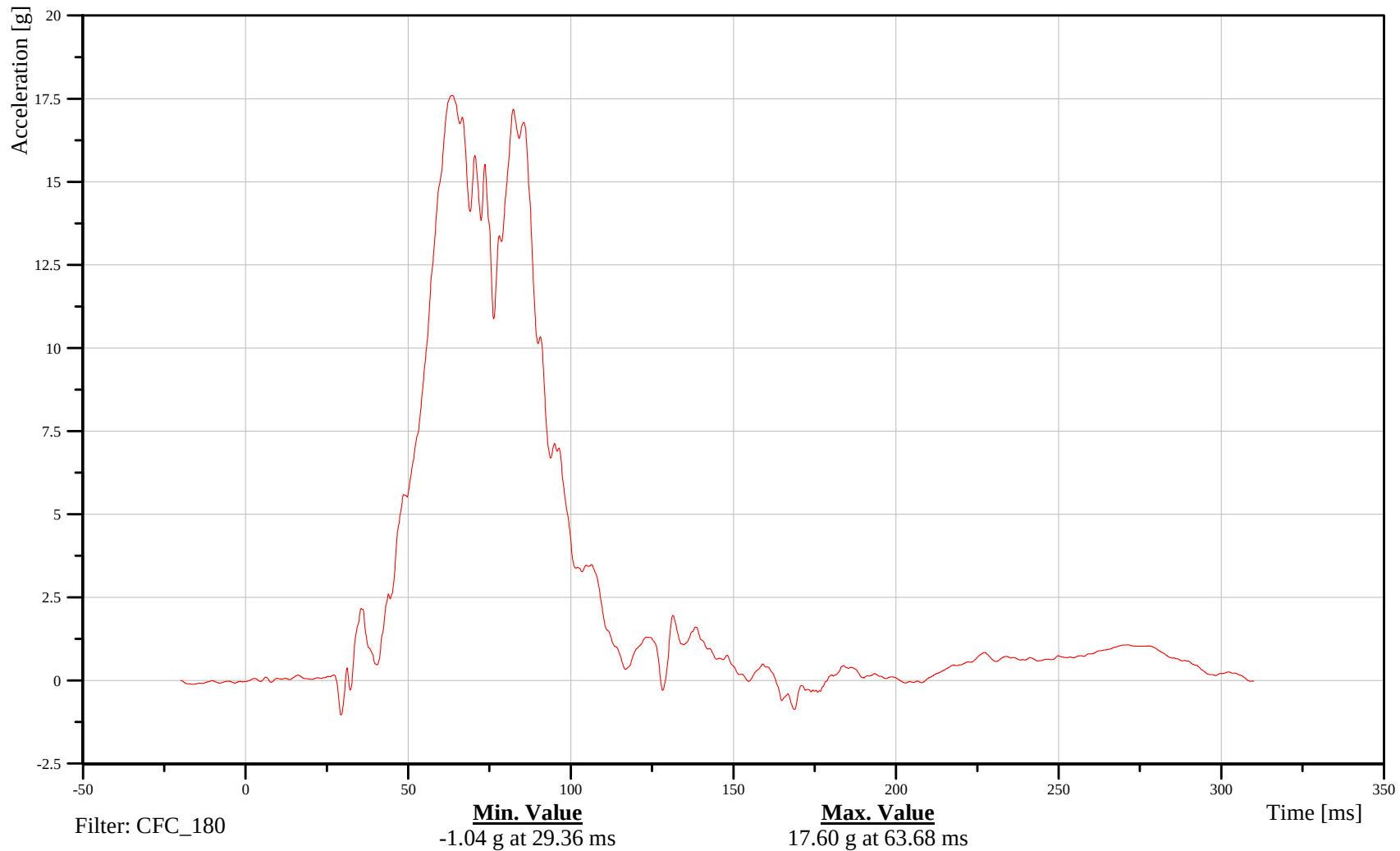
Bullet Vehicle Right Front Passenger Chest Y-Axis Acceleration

Customer: VRTC

13CHSTCG00HFACYC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Right Front Passenger Chest Z-Axis Acceleration

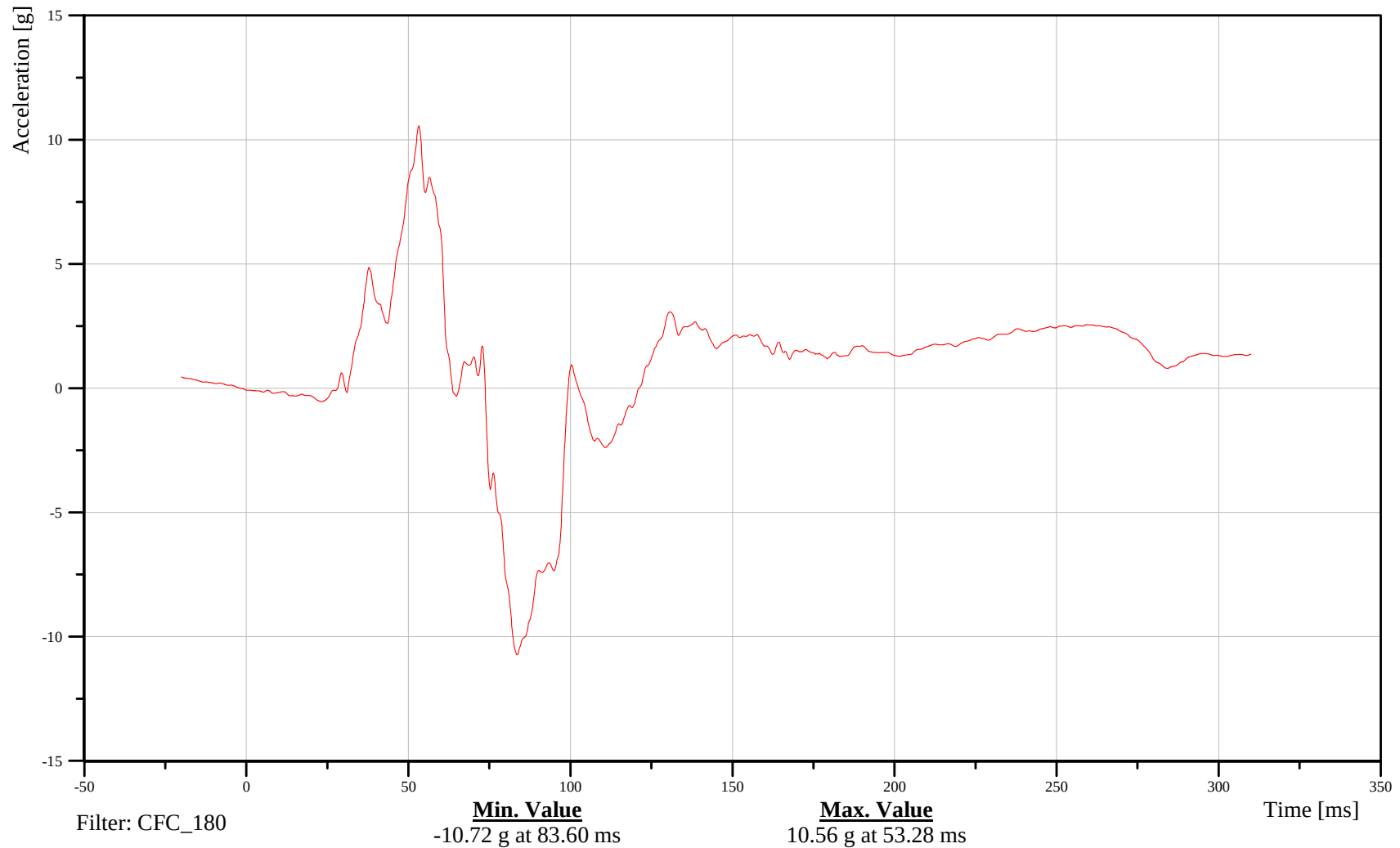
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

13CHSTCG00HFACZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-85

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

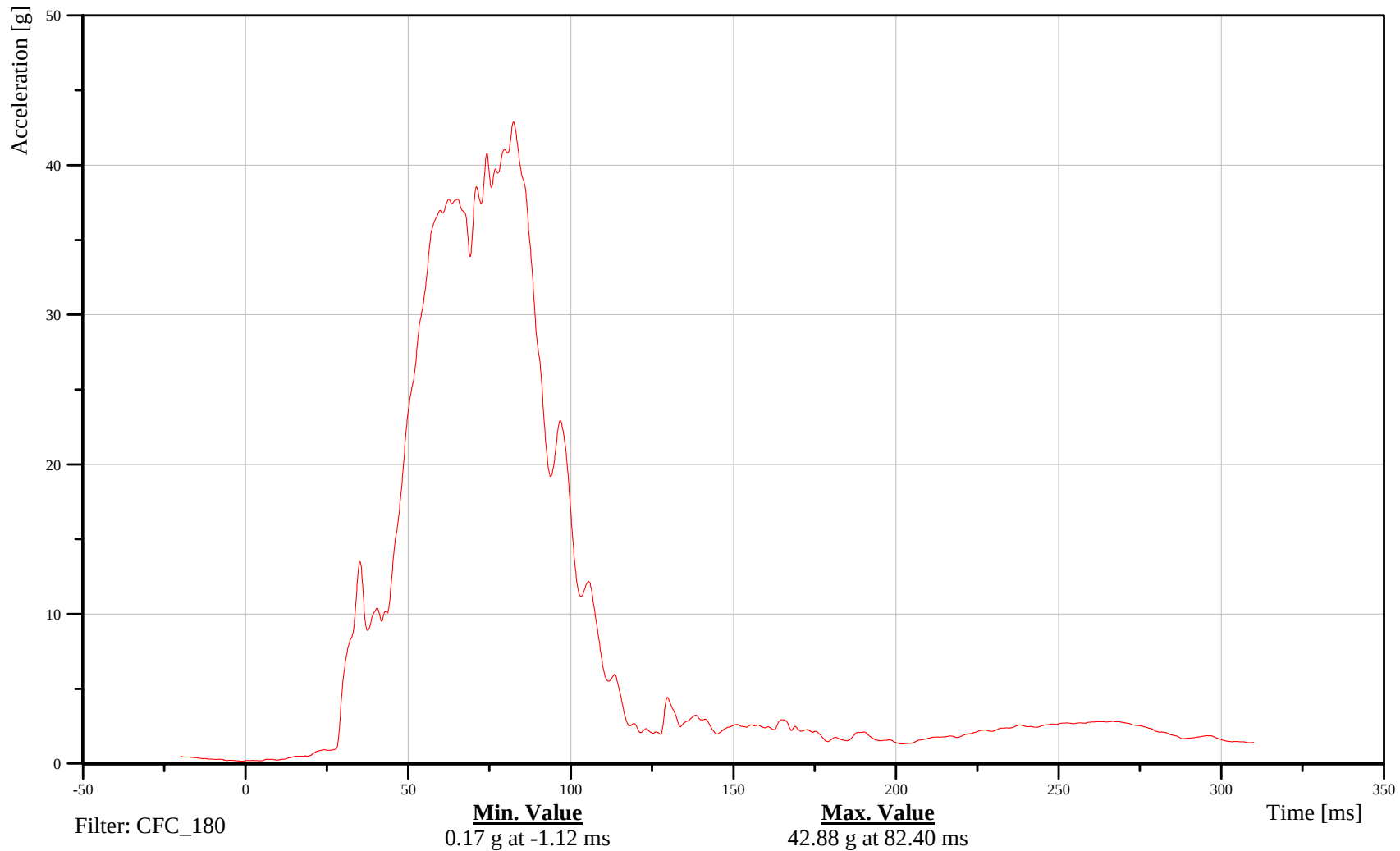
Bullet Vehicle Right Front Passenger Chest Resultant Acceleration

Customer: VRTC

13CHSTCG00HFACRC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

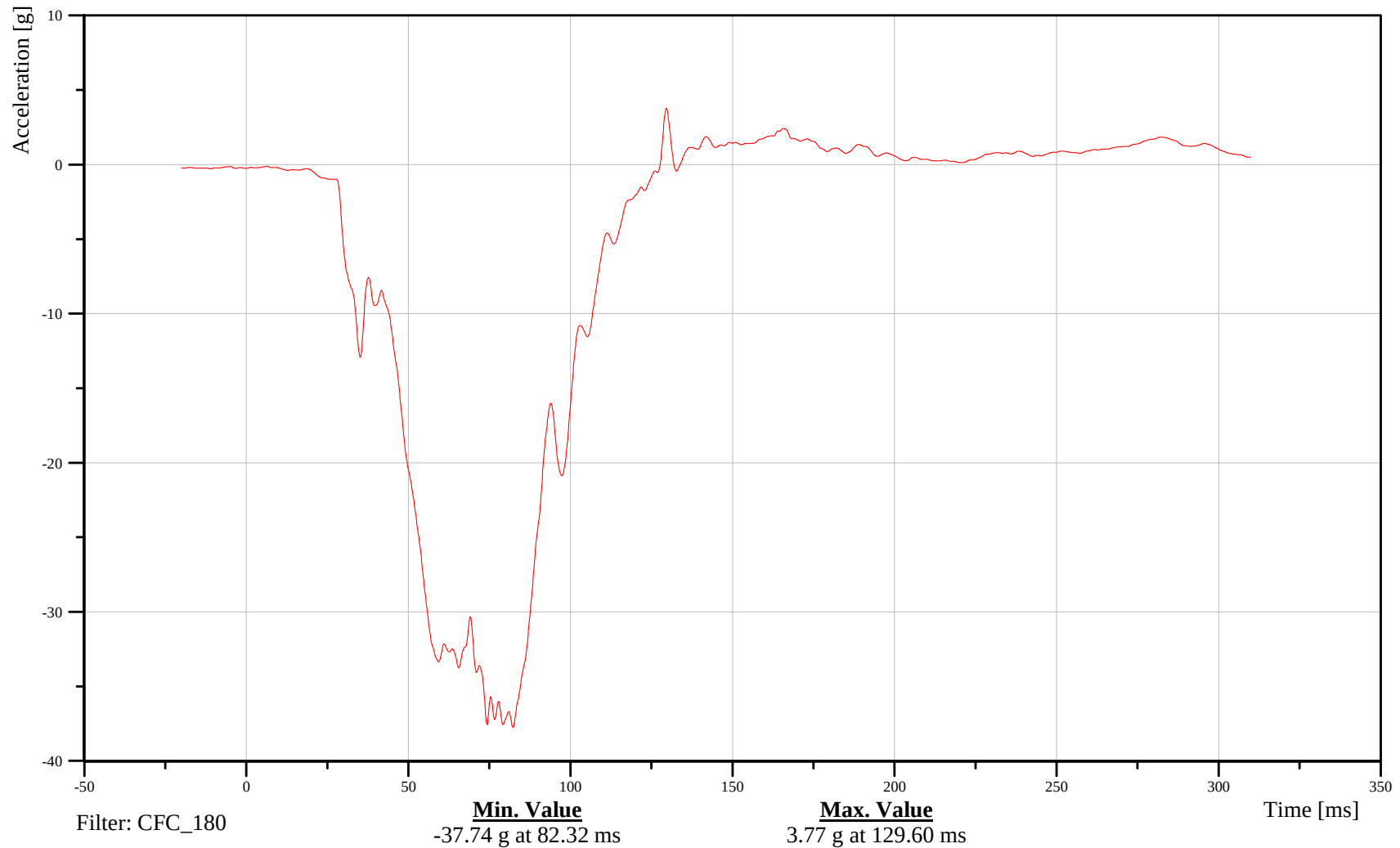
Bullet Vehicle Right Front Passenger Chest Redundant X-Axis Acceleration

Customer: VRTC

13CHSTCGRDHFACXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-87

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

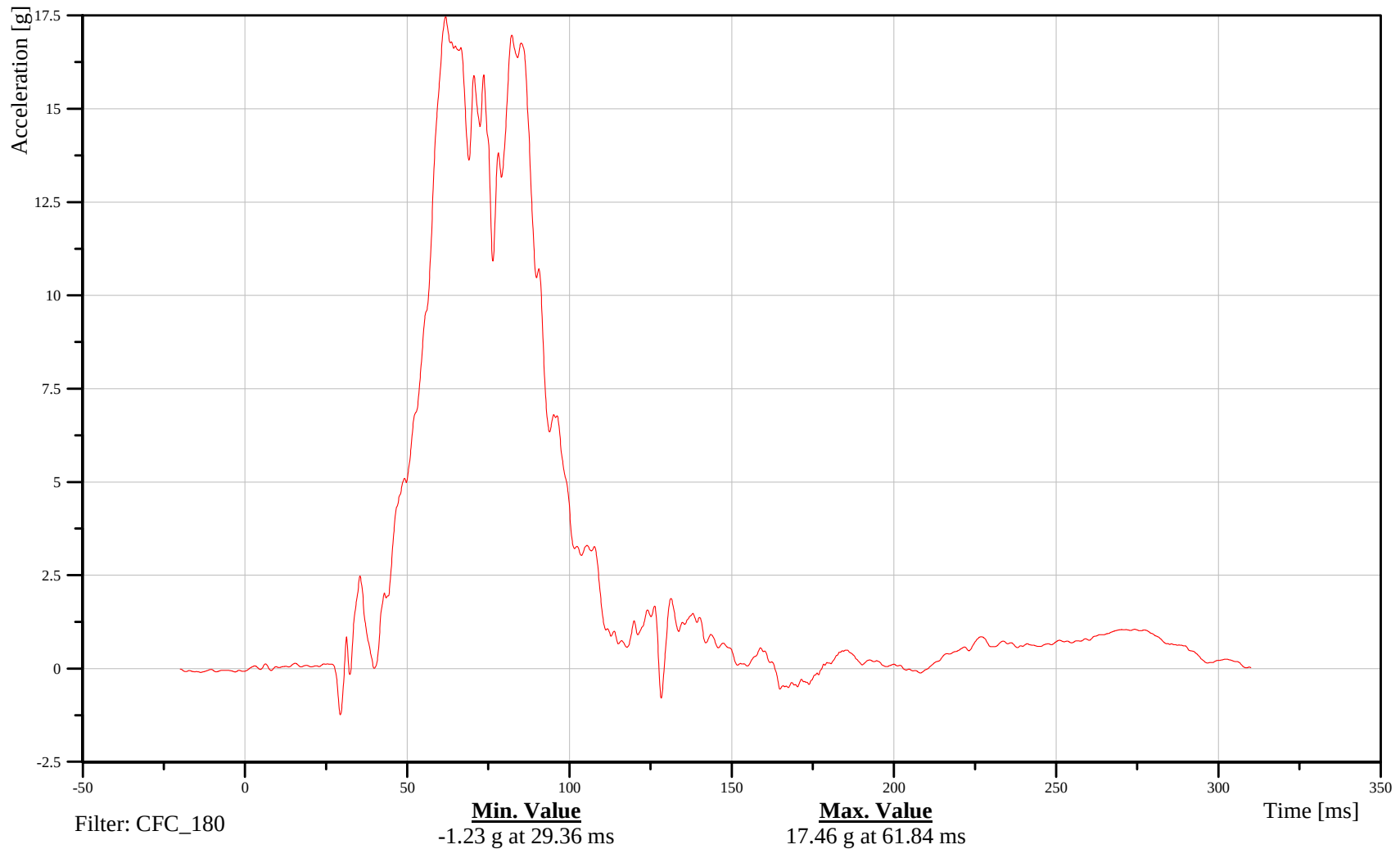
Bullet Vehicle Right Front Passenger Chest Redundant Y-Axis Acceleration

Customer: VRTC

13CHSTCGRDHFACYC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

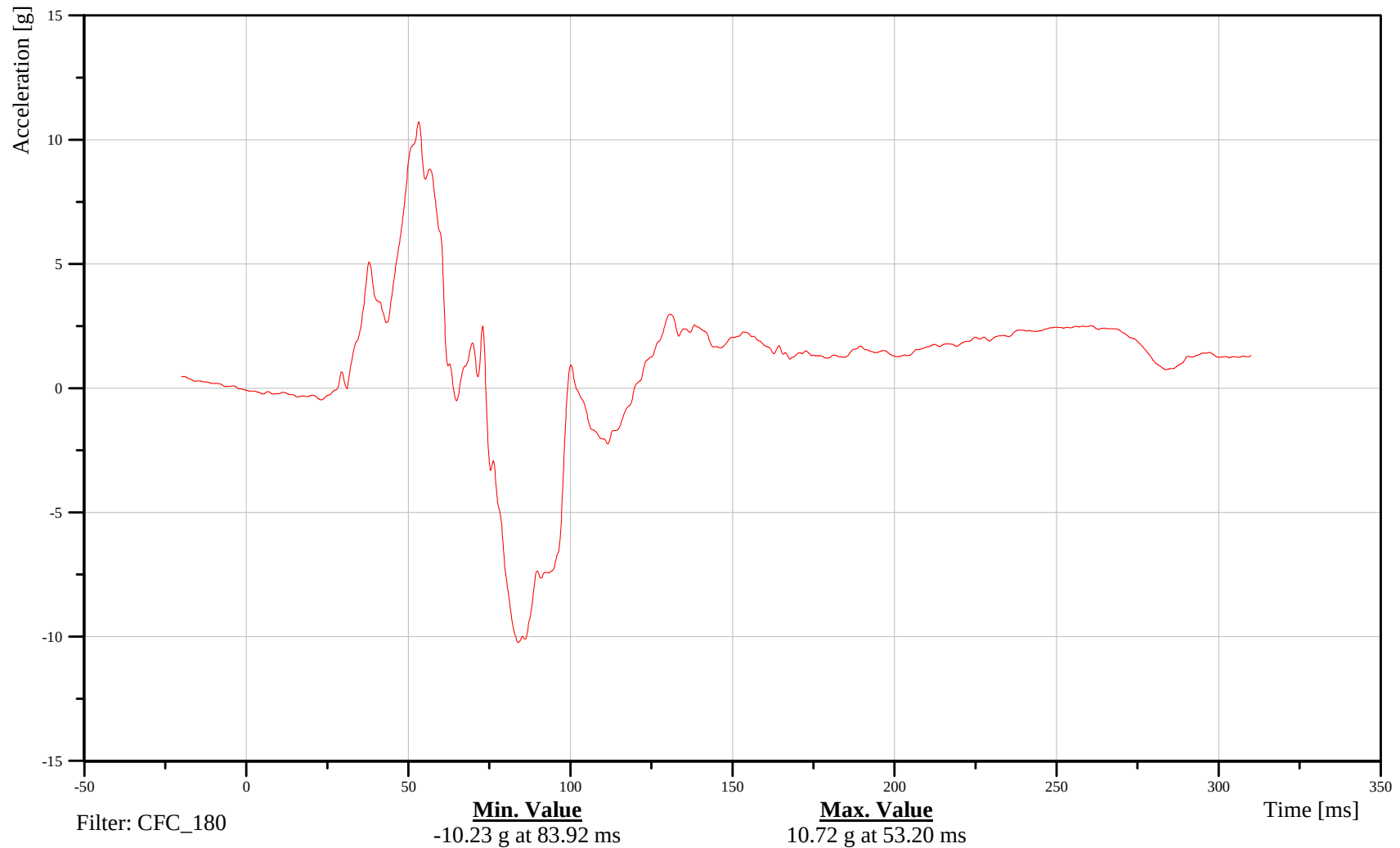
Bullet Vehicle Right Front Passenger Chest Redundant Z-Axis Acceleration

Customer: VRTC

13CHSTCGRDHFACZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-89

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

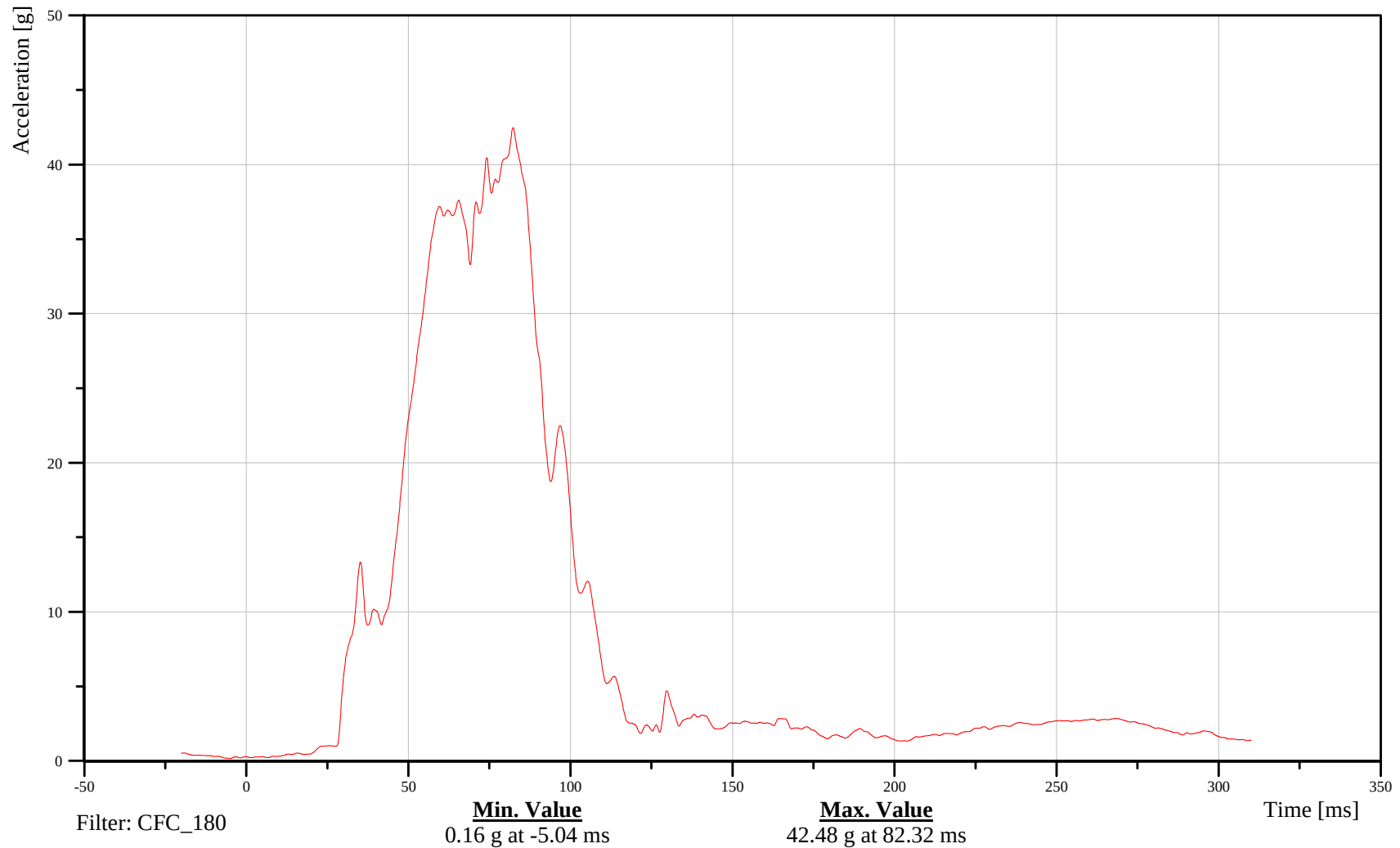
Bullet Vehicle Right Front Passenger Chest Redundant Resultant Acceleration

Customer: VRTC

13CHSTCGRDHFACRC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-90

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

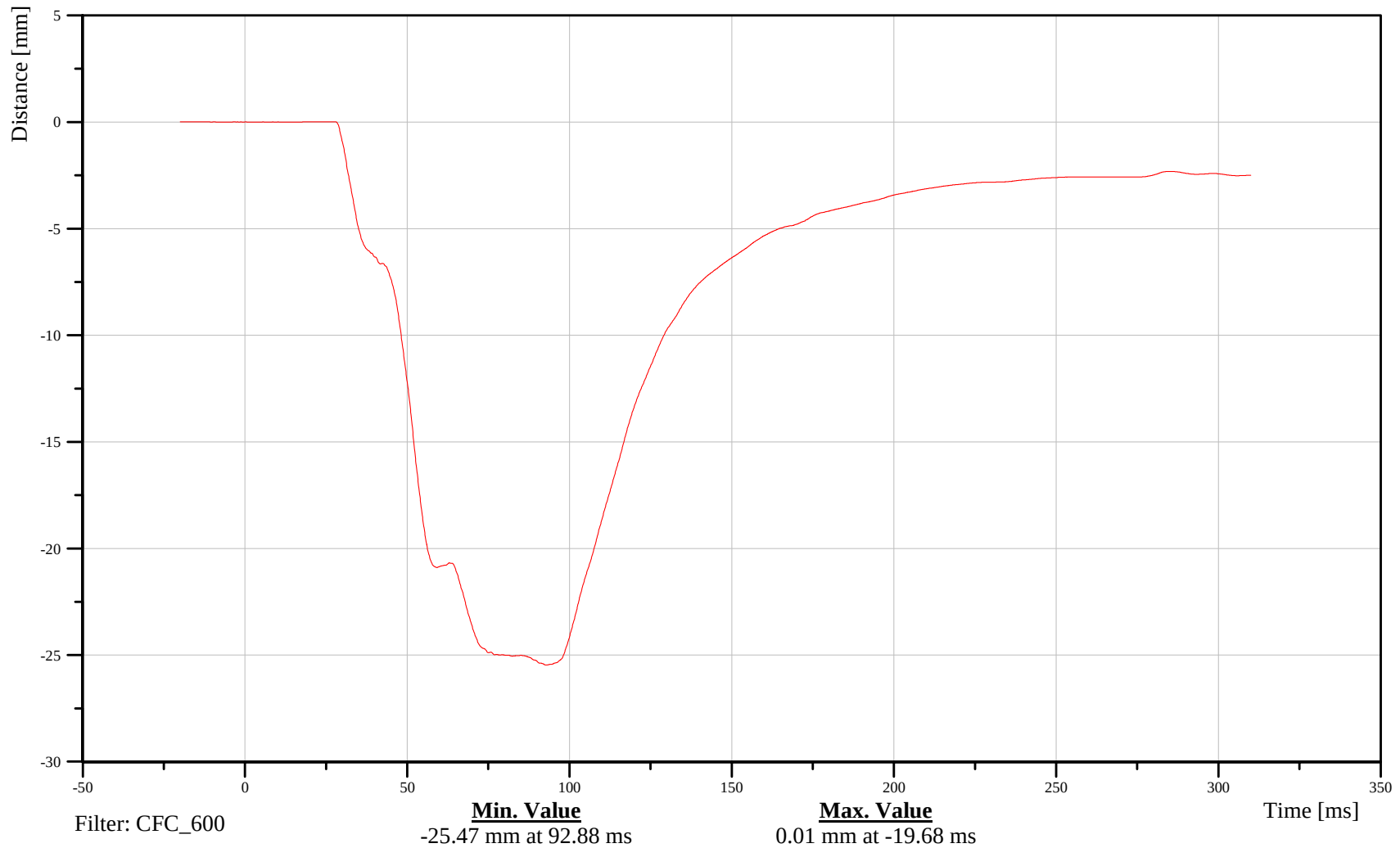
Bullet Vehicle Right Front Passenger Chest X-Axis Displacement

Customer: VRTC

13CHST0000HFDSXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-91

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

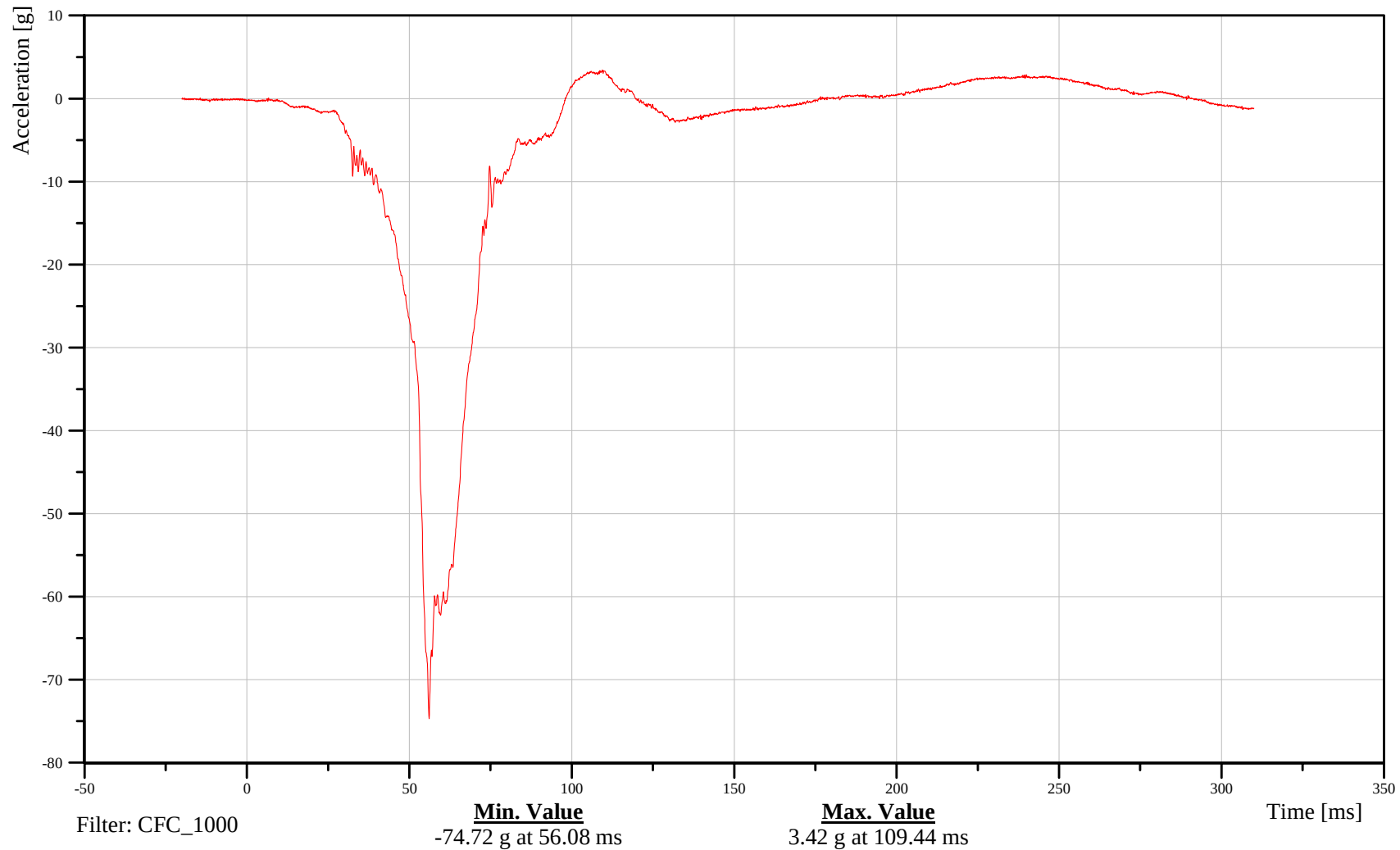
Bullet Vehicle Right Front Passenger Pelvis X-Axis Acceleration

Customer: VRTC

13PELVCG00HFACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-92

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

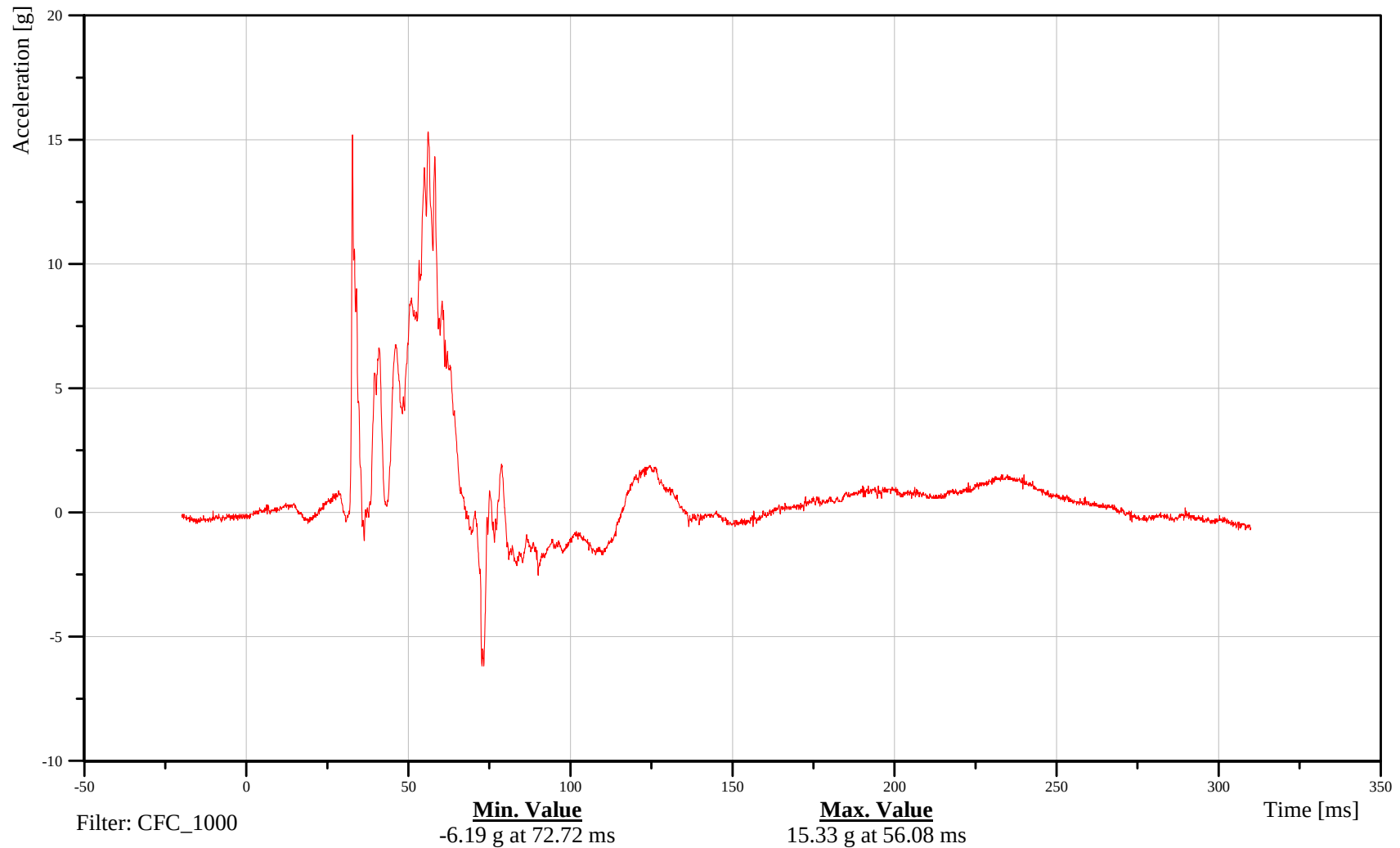
Bullet Vehicle Right Front Passenger Pelvis Y-Axis Acceleration

Customer: VRTC

13PELVCG00HFACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-93

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

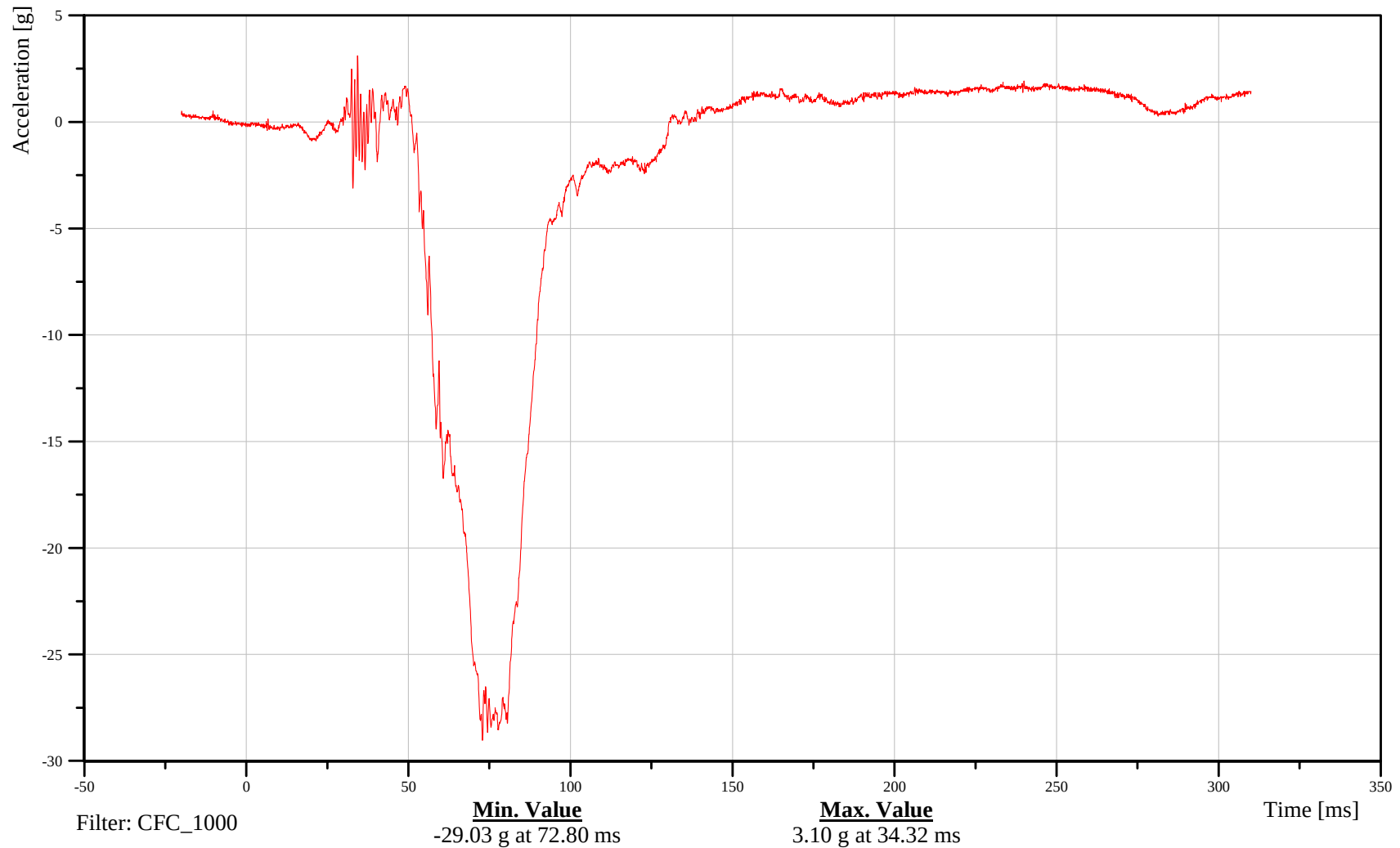
Bullet Vehicle Right Front Passenger Pelvis Z-Axis Acceleration

Customer: VRTC

13PELVCG00HFACZA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

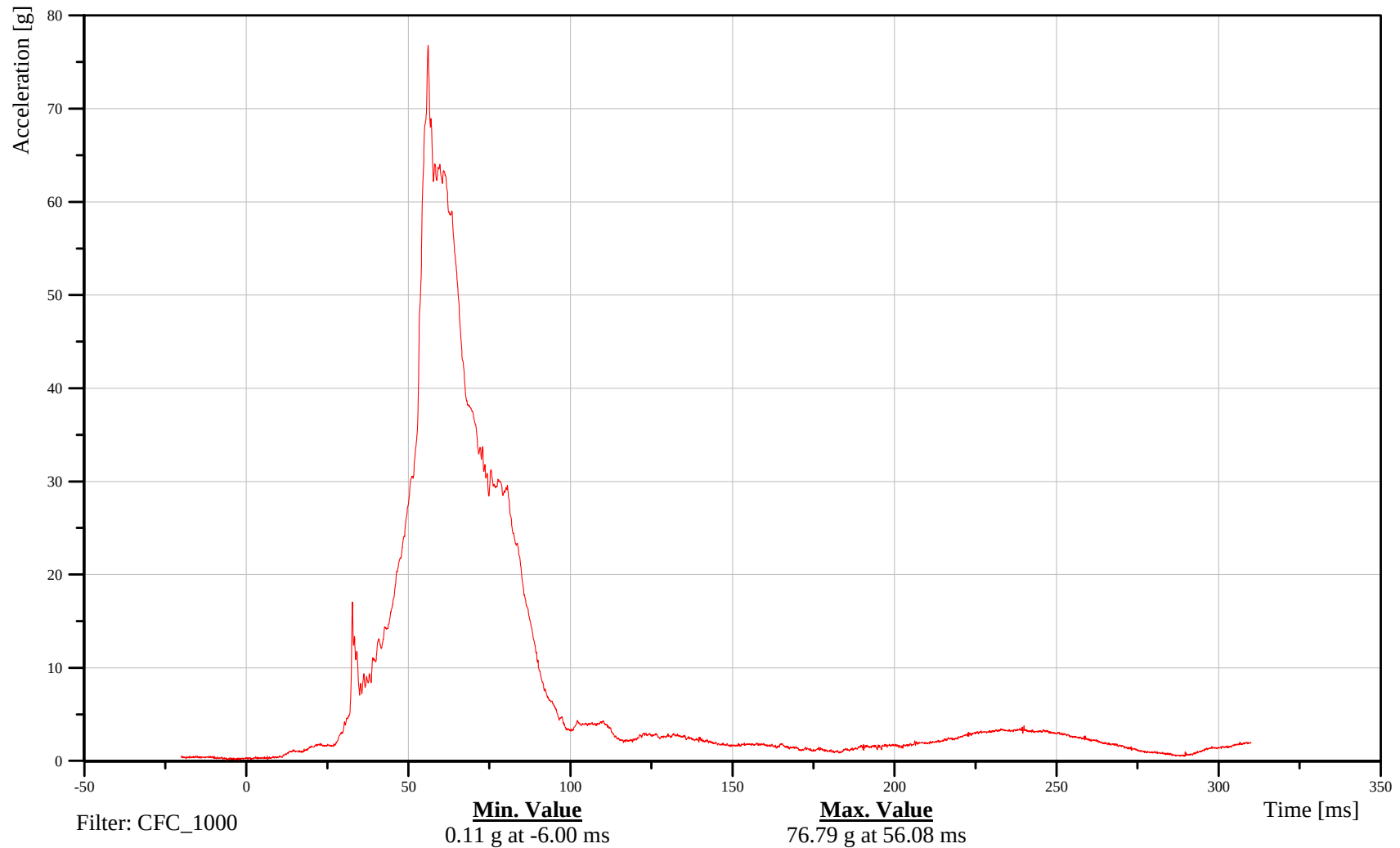
Bullet Vehicle Right Front Passenger Pelvis Resultant Acceleration

Customer: VRTC

13PELVCG00HFACRA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

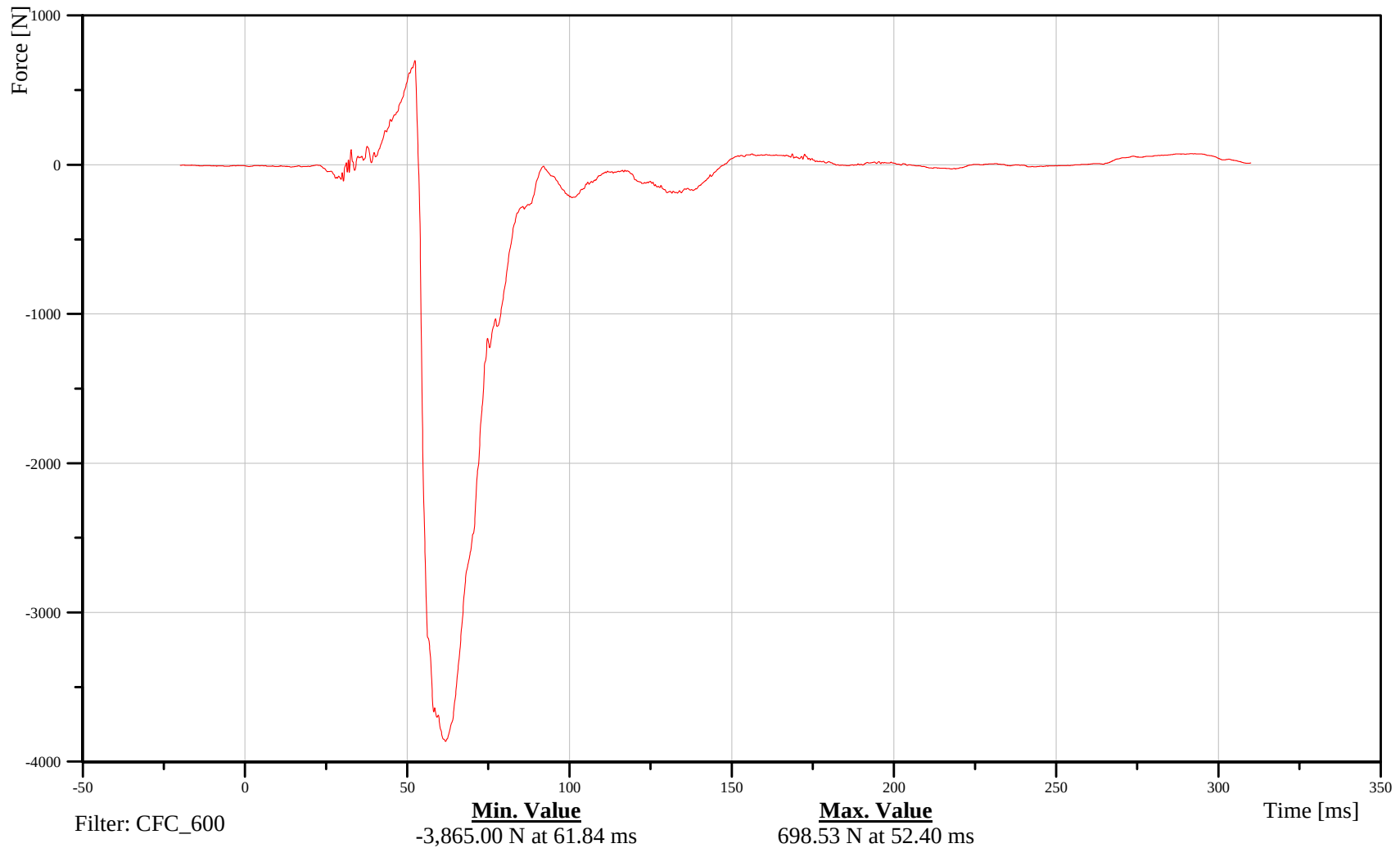
Bullet Vehicle Right Front Passenger Left Femur Z-Axis Force

Customer: VRTC

13FEMRLL00HFFOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-96

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Right Front Passenger Right Femur Z-Axis Force

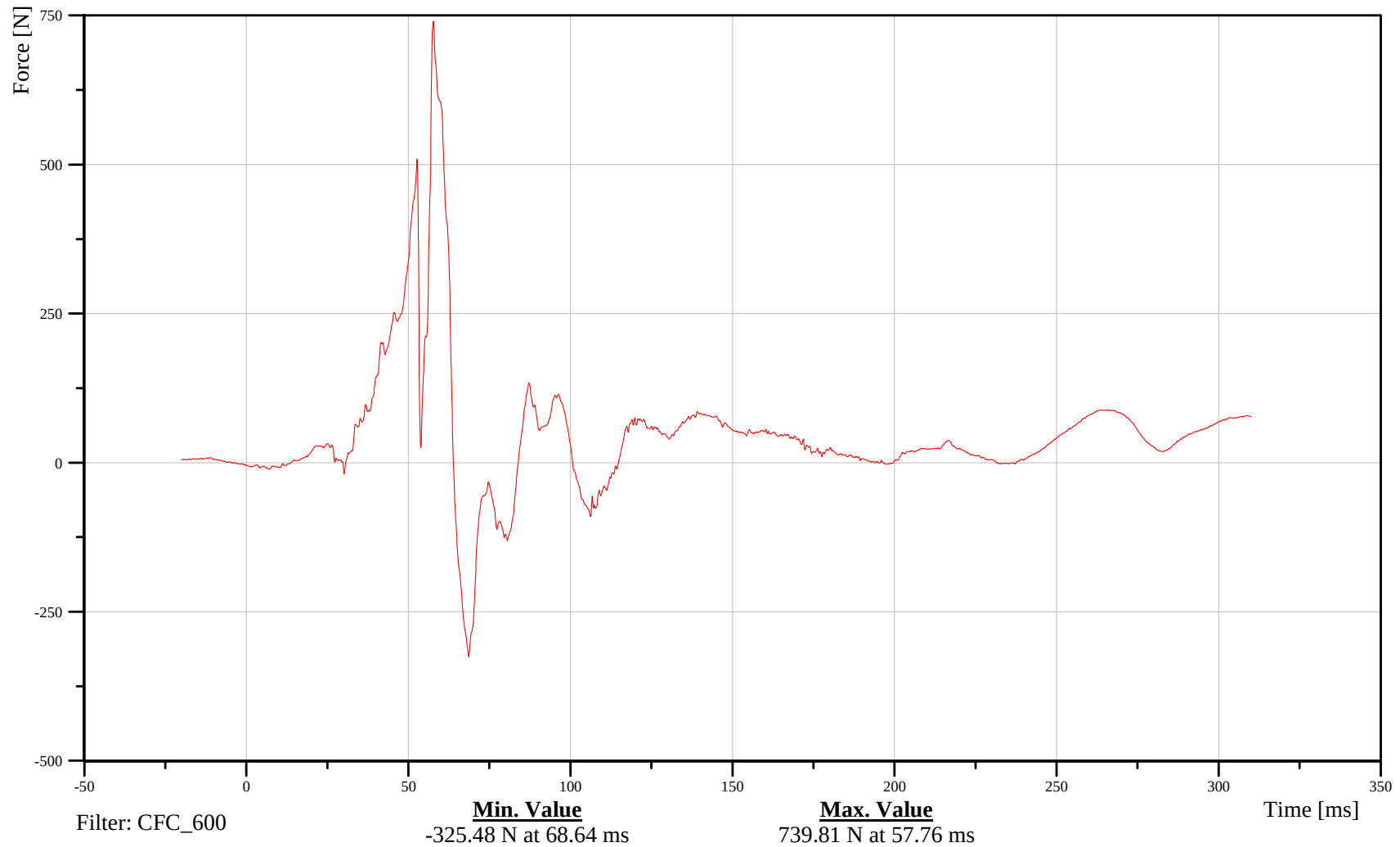
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

13FEMRRL00HFFOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-97

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

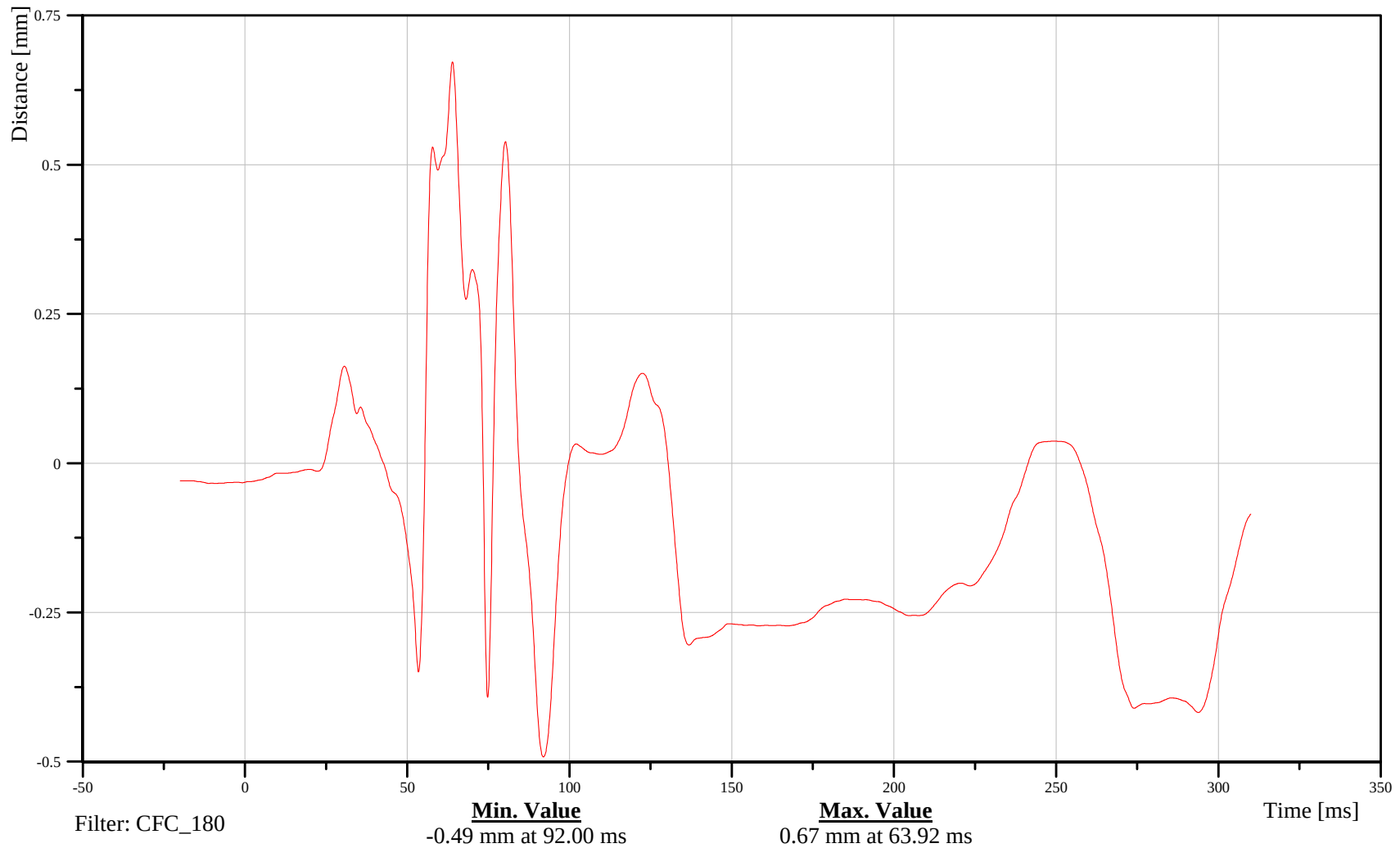
Bullet Vehicle Right Front Passenger Left Knee X-Axis Displacement

Customer: VRTC

13KNSLLE00HFDSXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-98

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

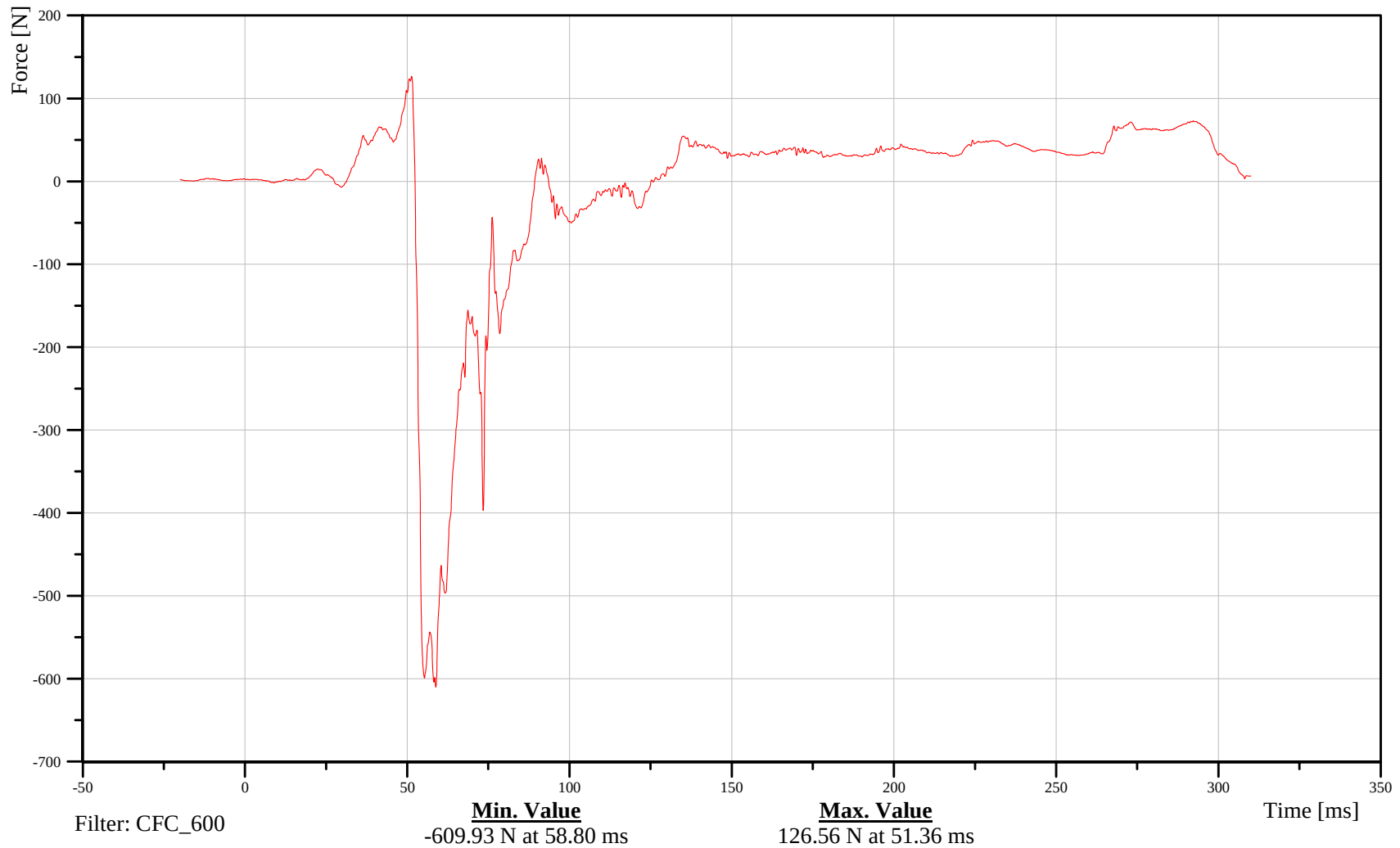
Bullet Vehicle Right Front Passenger Left Upper Tibia X-Axis Force

Customer: VRTC

13TIBILULXHFFOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-99

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

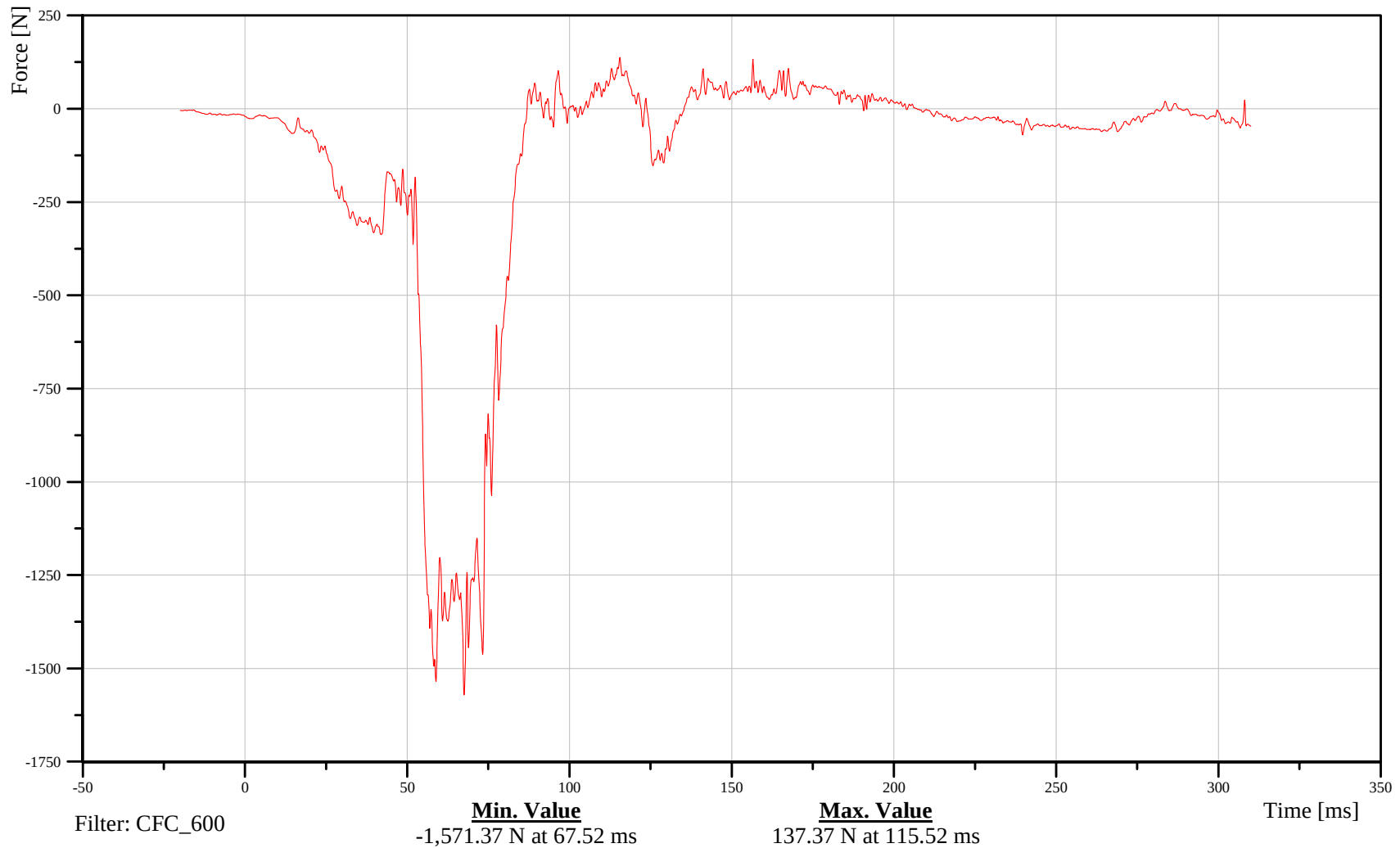
Bullet Vehicle Right Front Passenger Left Upper Tibia Z-Axis Force

Customer: VRTC

13TIBILULXHFFOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-100

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

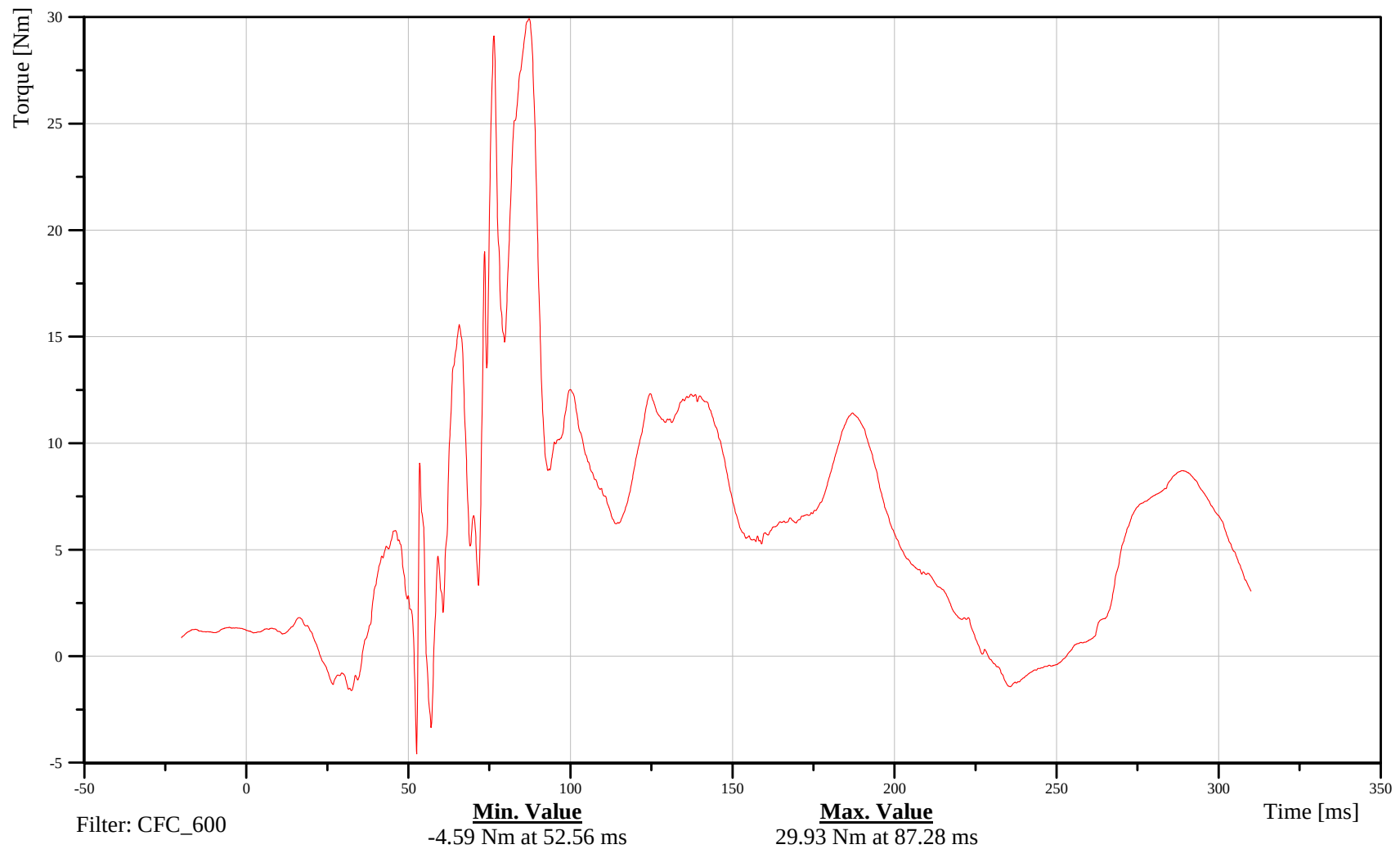
Bullet Vehicle Right Front Passenger Left Upper Tibia Moment About X Axis

Customer: VRTC

13TIBILULXHFM0XB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-101

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

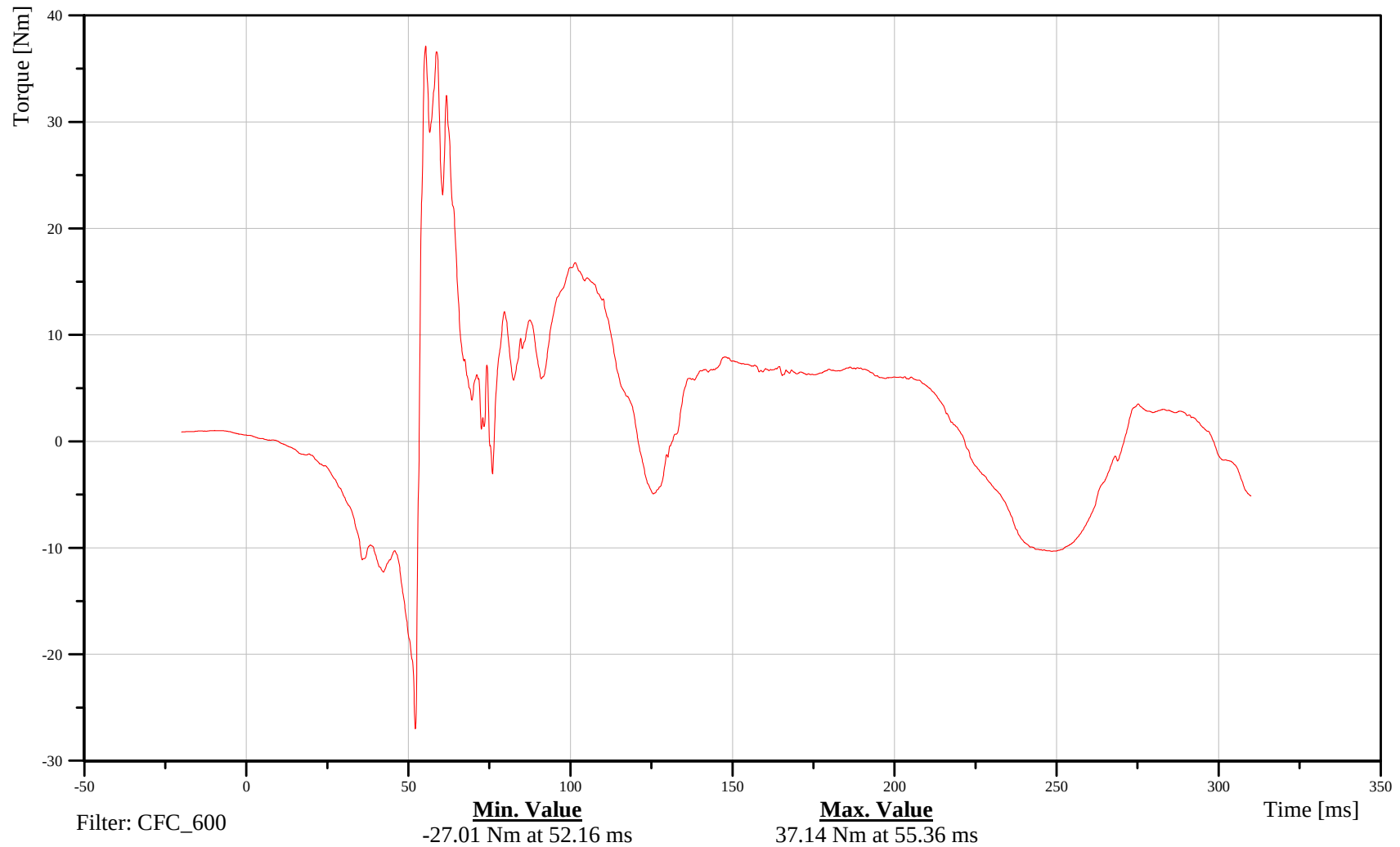
Bullet Vehicle Right Front Passenger Left Upper Tibia Moment About Y Axis

Customer: VRTC

13TIBILULXHFM0YB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-102

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

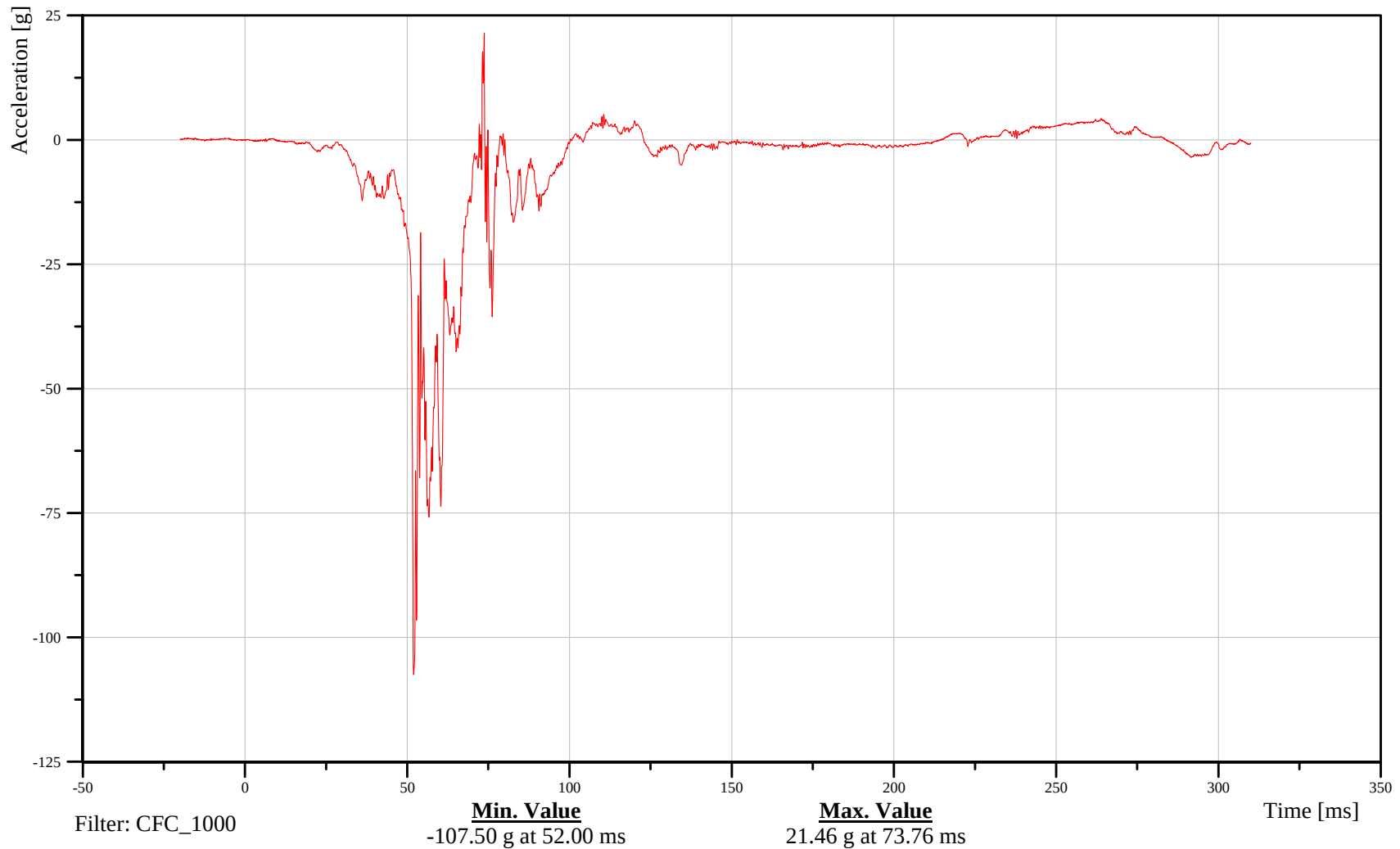
Bullet Vehicle Right Front Passenger Left Tibia X-Axis Acceleration

Customer: VRTC

13TIBILELXHFACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-103

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

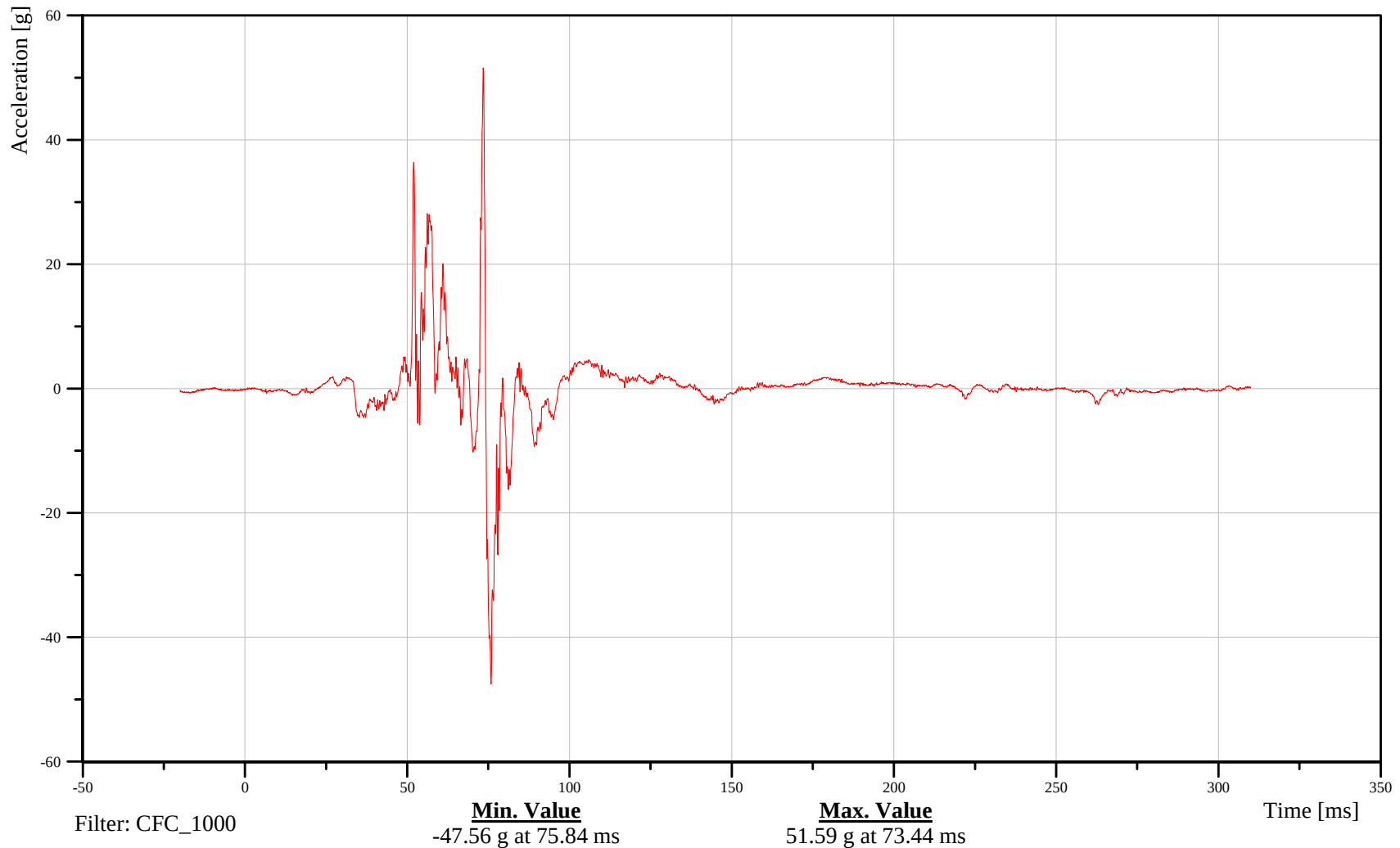
Bullet Vehicle Right Front Passenger Left Tibia Y-Axis Acceleration

Customer: VRTC

13TIBILELXHFACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-104

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

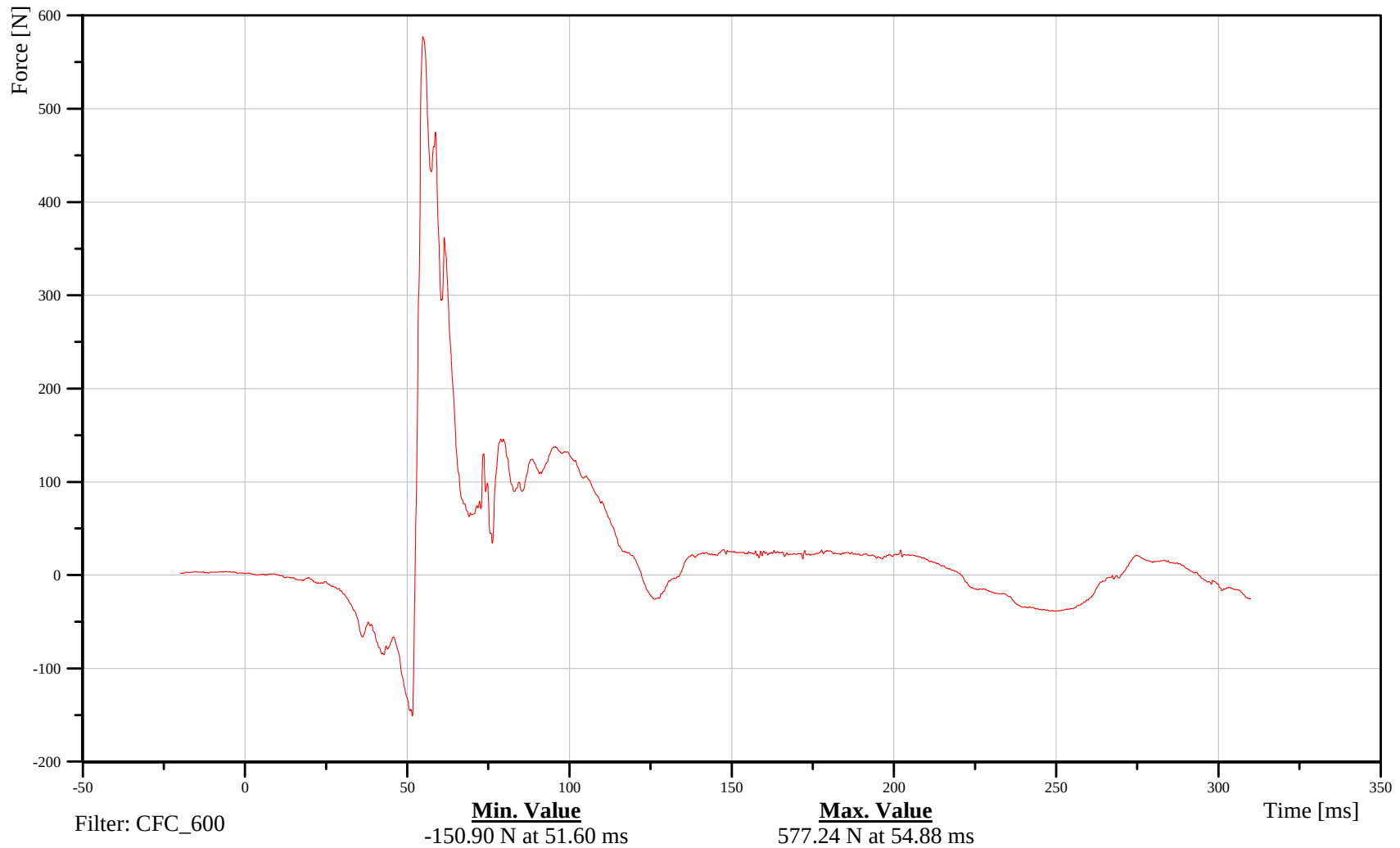
Bullet Vehicle Right Front Passenger Left Lower Tibia X-Axis Force

Customer: VRTC

13TIBILLXHFFOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-105

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

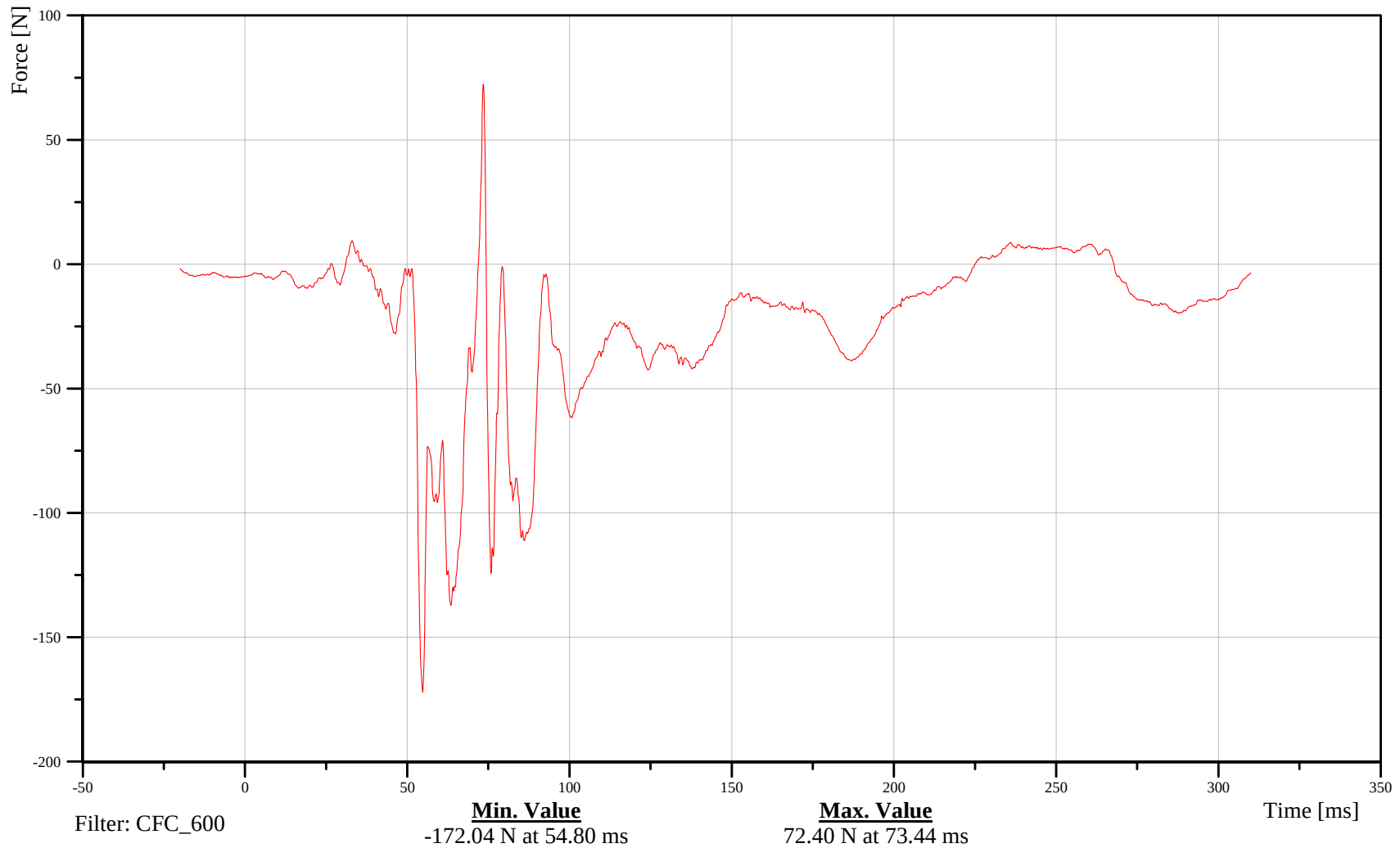
Bullet Vehicle Right Front Passenger Left Lower Tibia Y-Axis Force

Customer: VRTC

13TIBILLXHFFOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-106

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

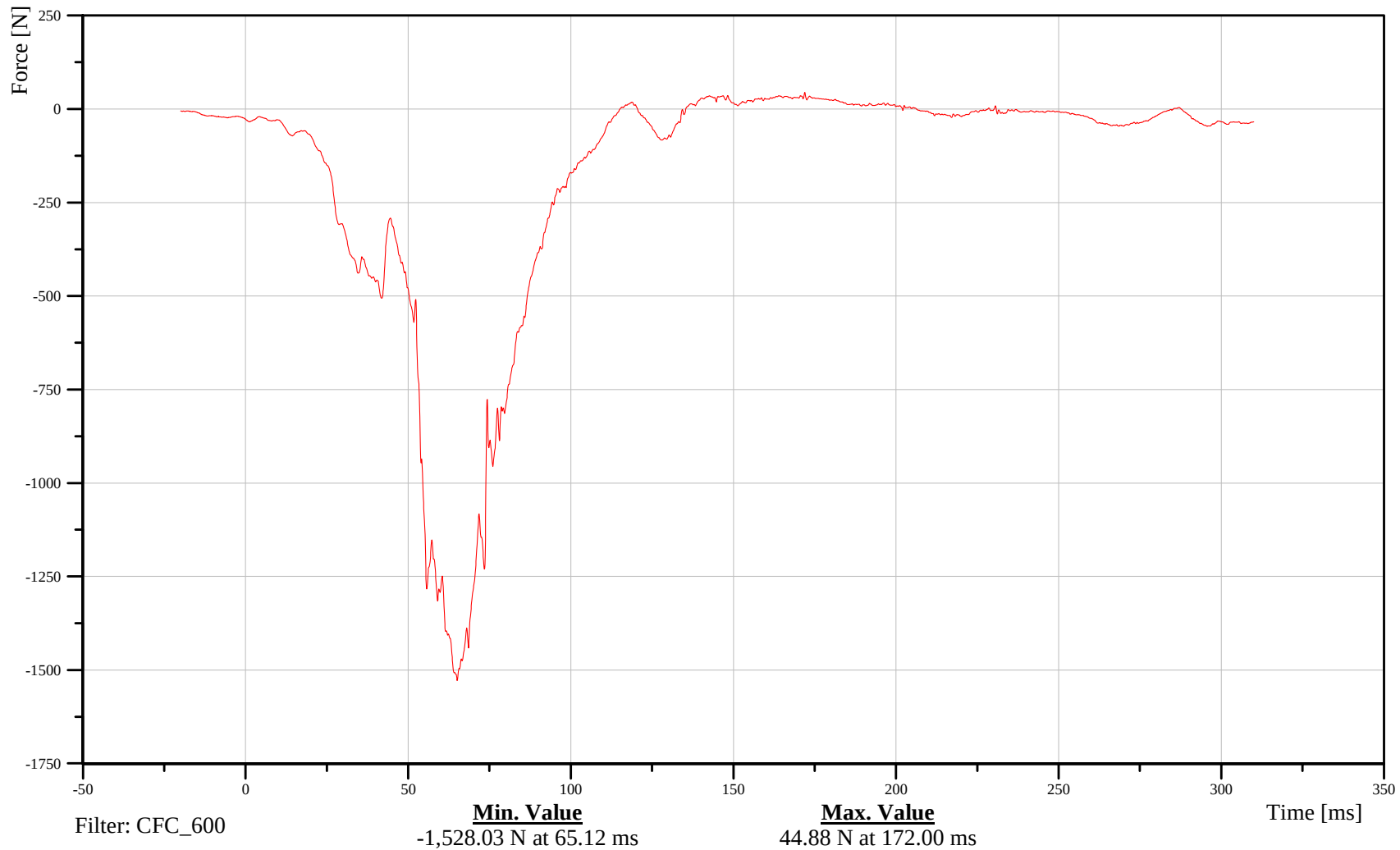
Bullet Vehicle Right Front Passenger Left Lower Tibia Z-Axis Force

Customer: VRTC

13TIBILLXHFFOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-107

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

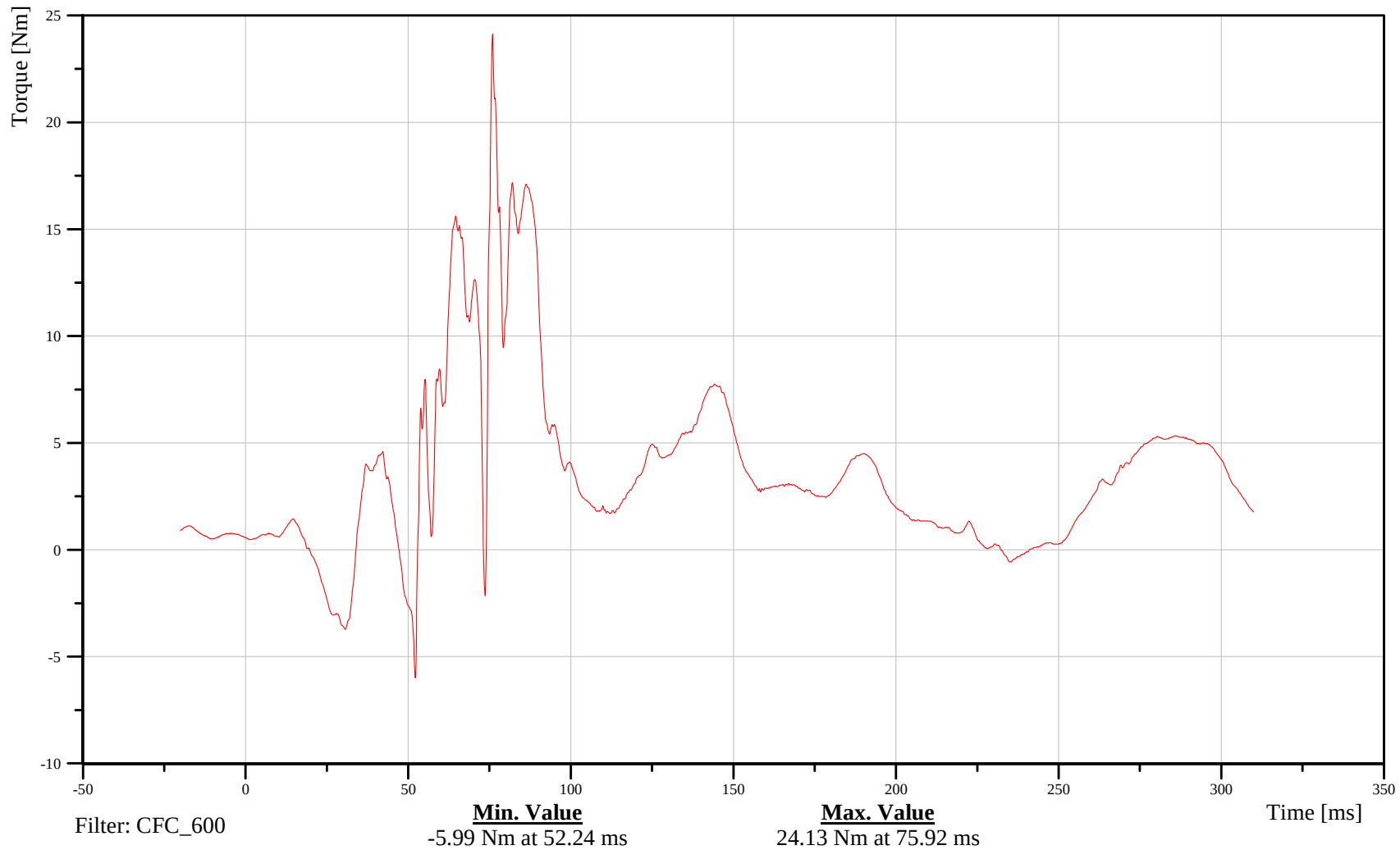
Bullet Vehicle Right Front Passenger Left Lower Tibia Moment About X Axis

Customer: VRTC

13TIBILLXHFM0XB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-108

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

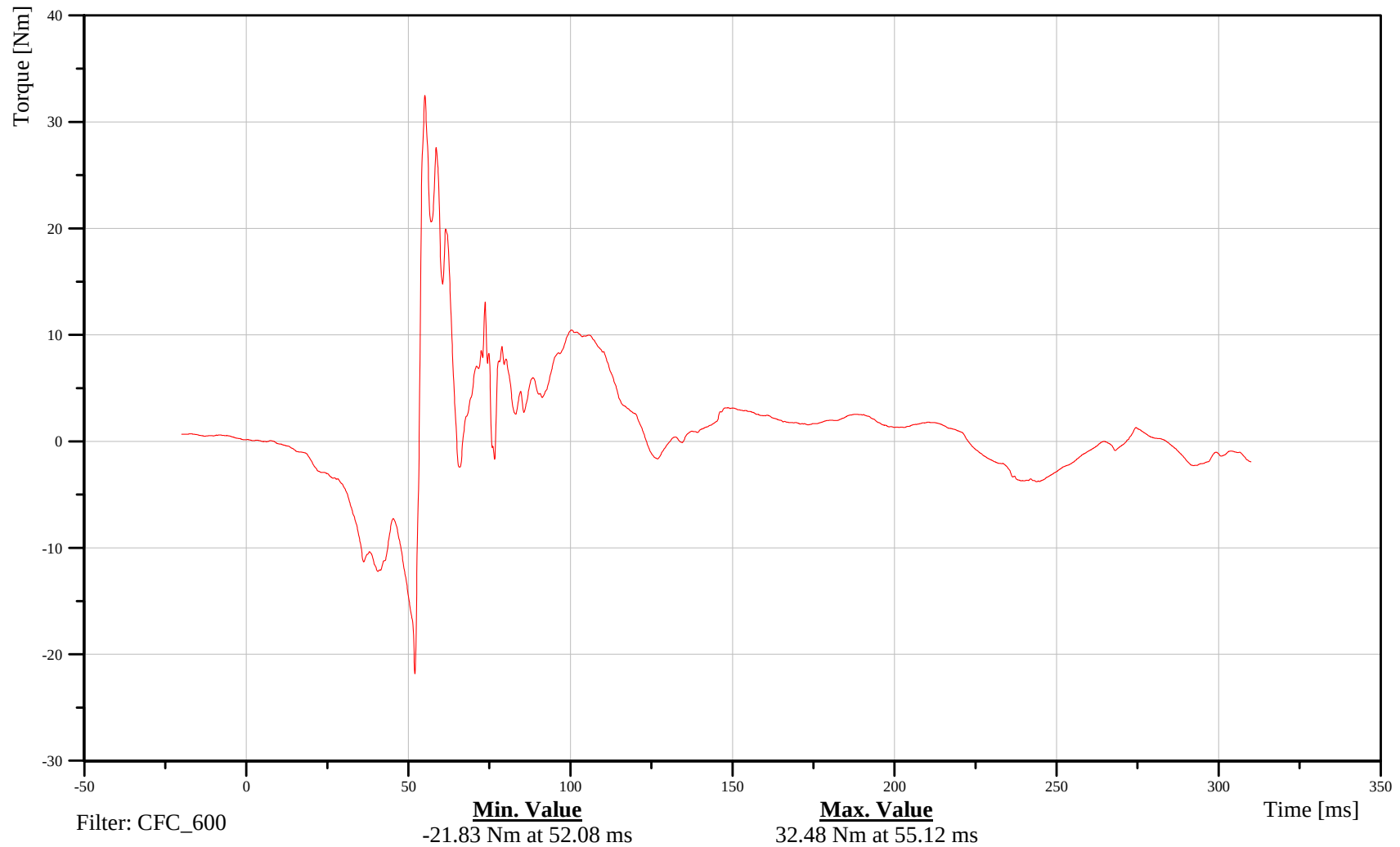
Bullet Vehicle Right Front Passenger Left Lower Tibia Moment About Y Axis

Customer: VRTC

13TIBILLXHFM0YB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-109

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Right Front Passenger Left Foot X-Axis Angular Displacement

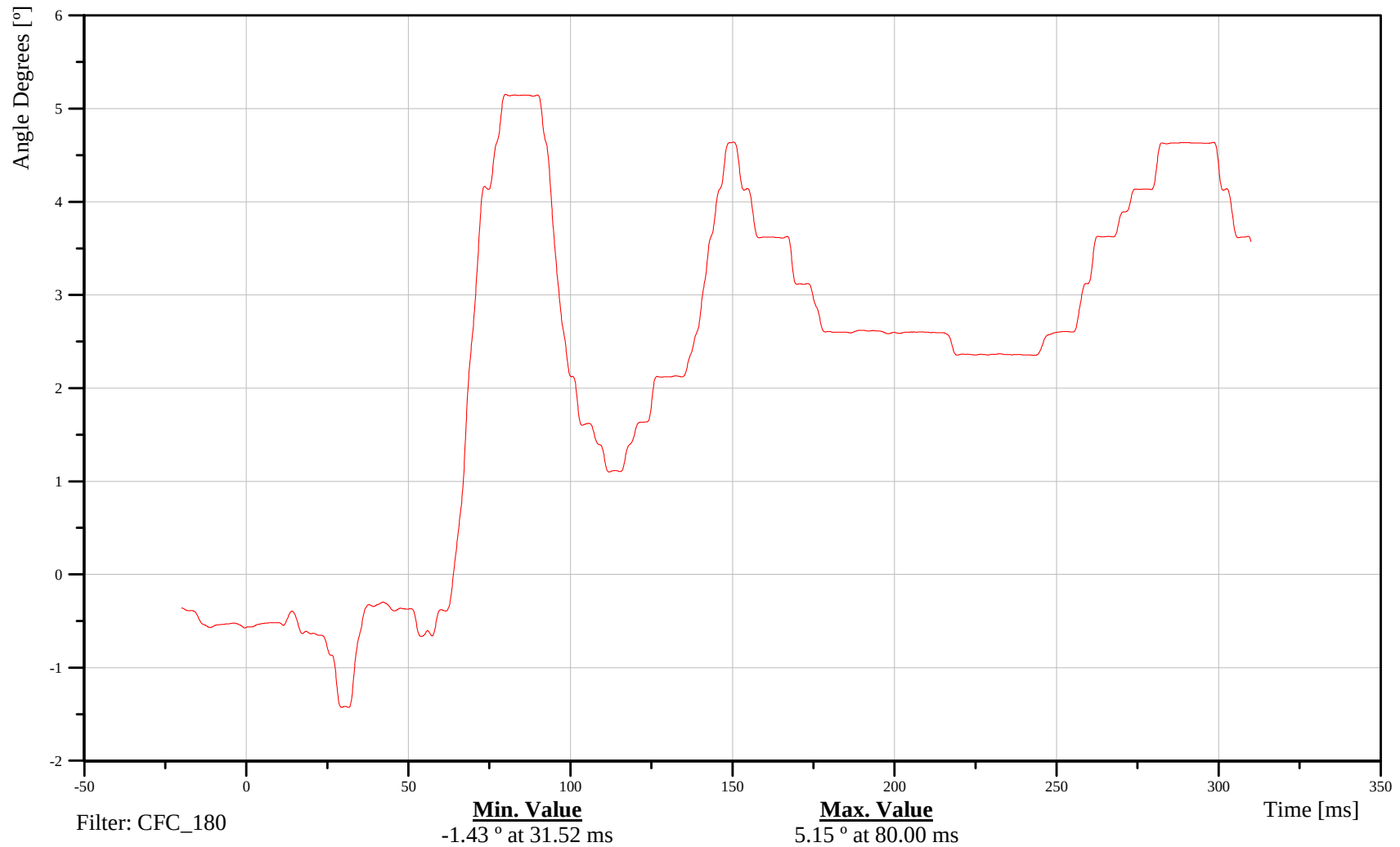
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

13FOOTLELXHFXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-110

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

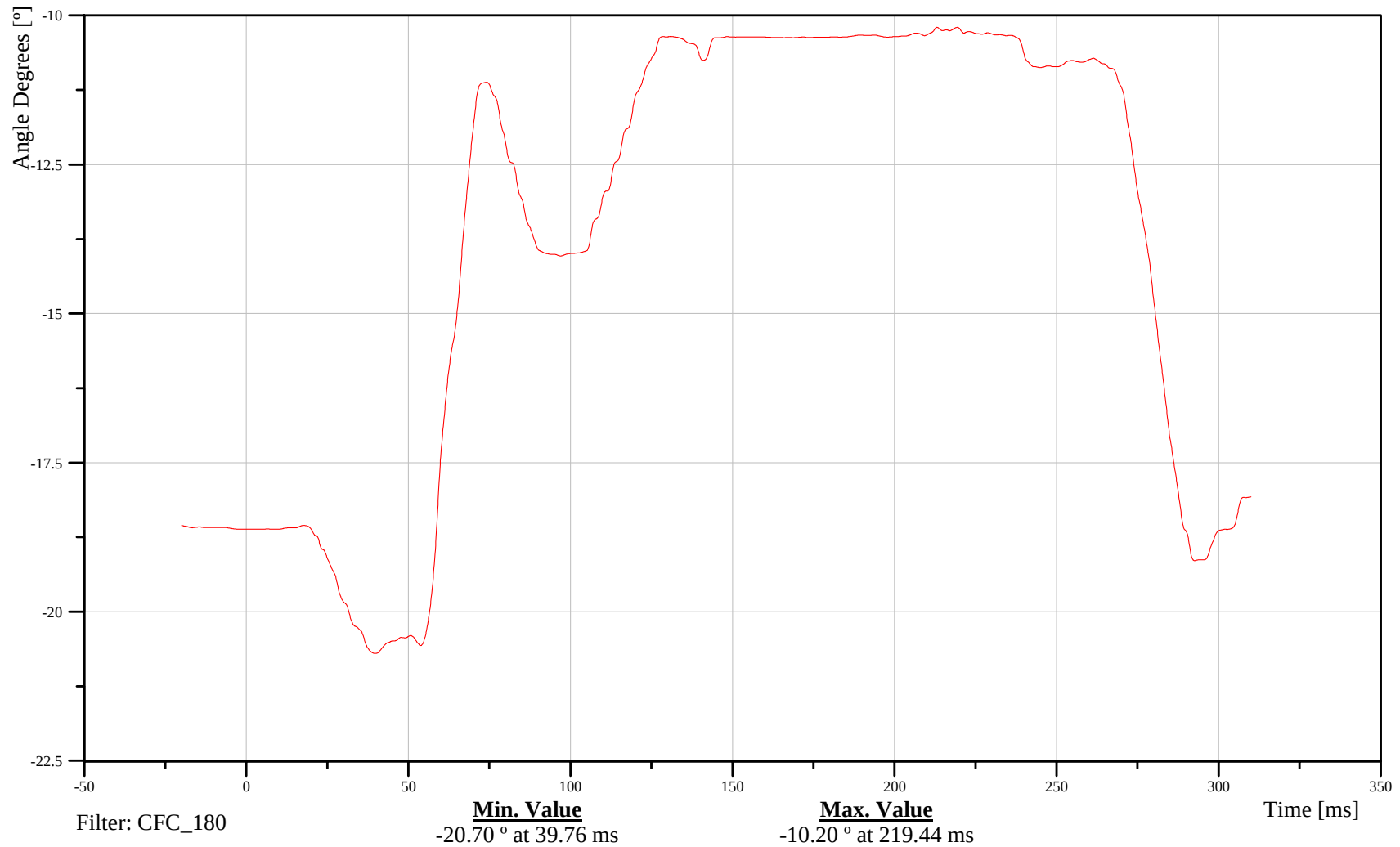
Bullet Vehicle Right Front Passenger Left Foot Y-Axis Angular Displacement

Customer: VRTC

13FOOTLELXHFANYC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-111

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Right Front Passenger Left Foot Z-Axis Angular Displacement

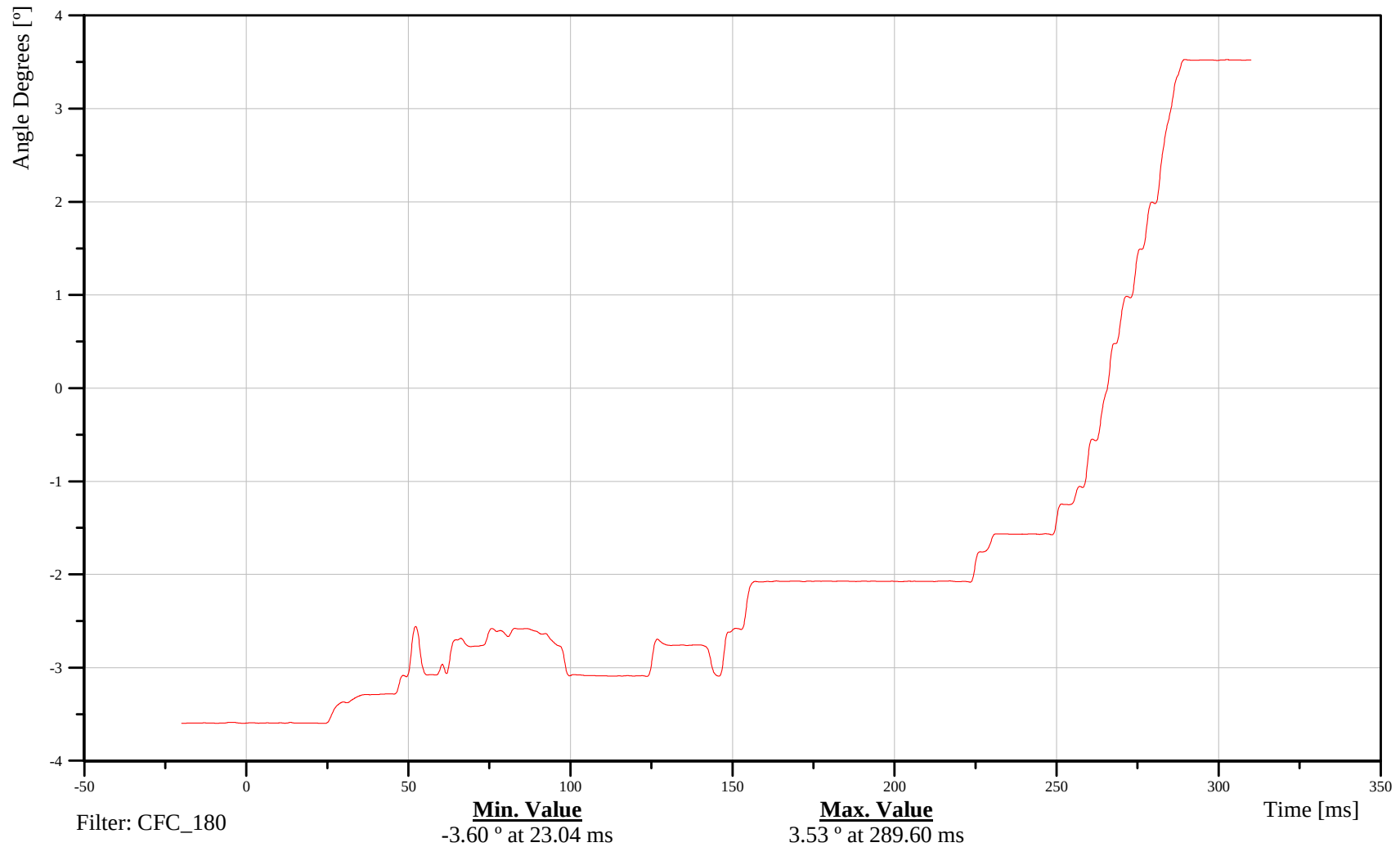
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

13FOOTLELXHFANZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-112

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

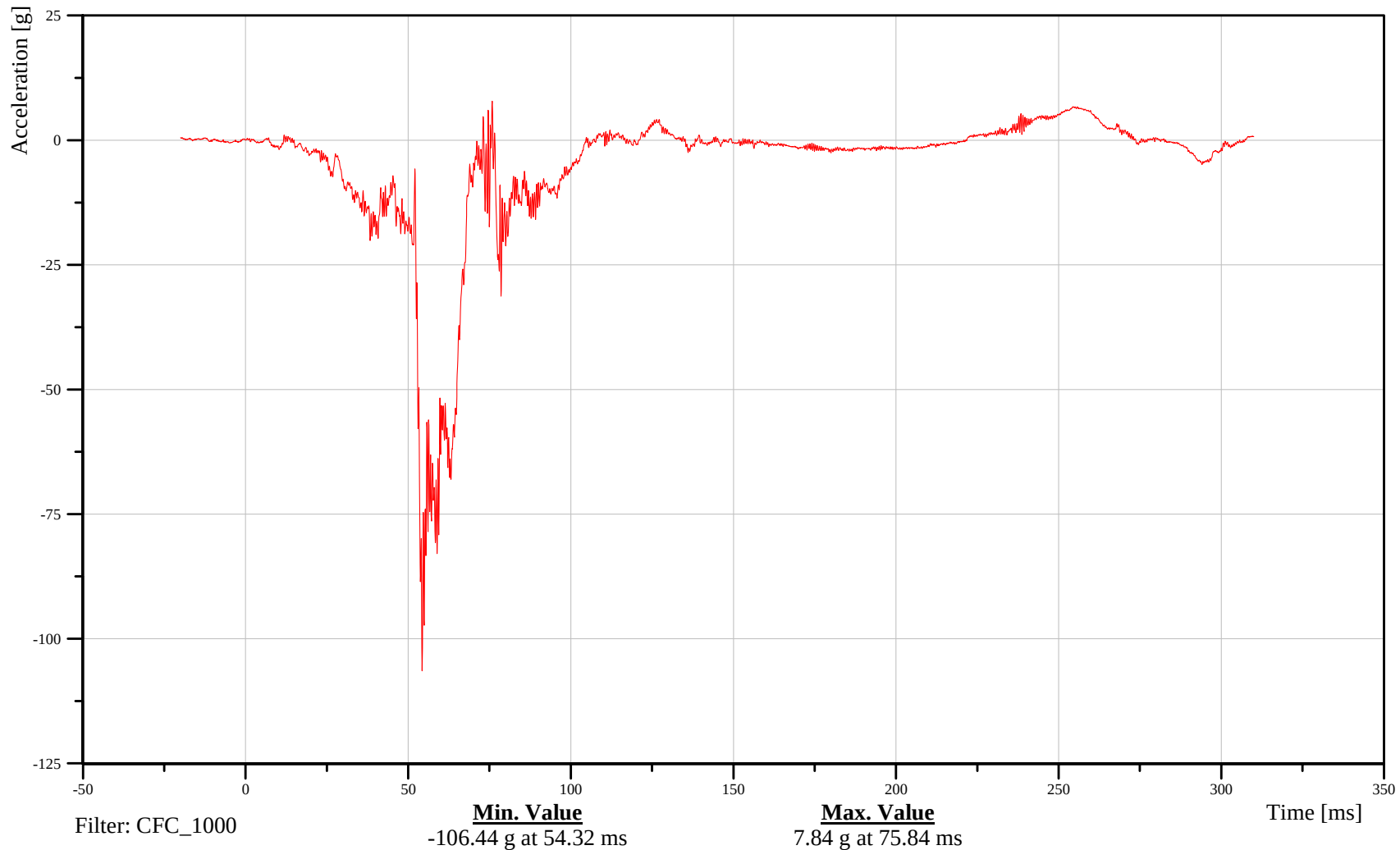
Bullet Vehicle Right Front Passenger Left Foot X-Axis Acceleration

Customer: VRTC

13FOOTLELXHFACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-113

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

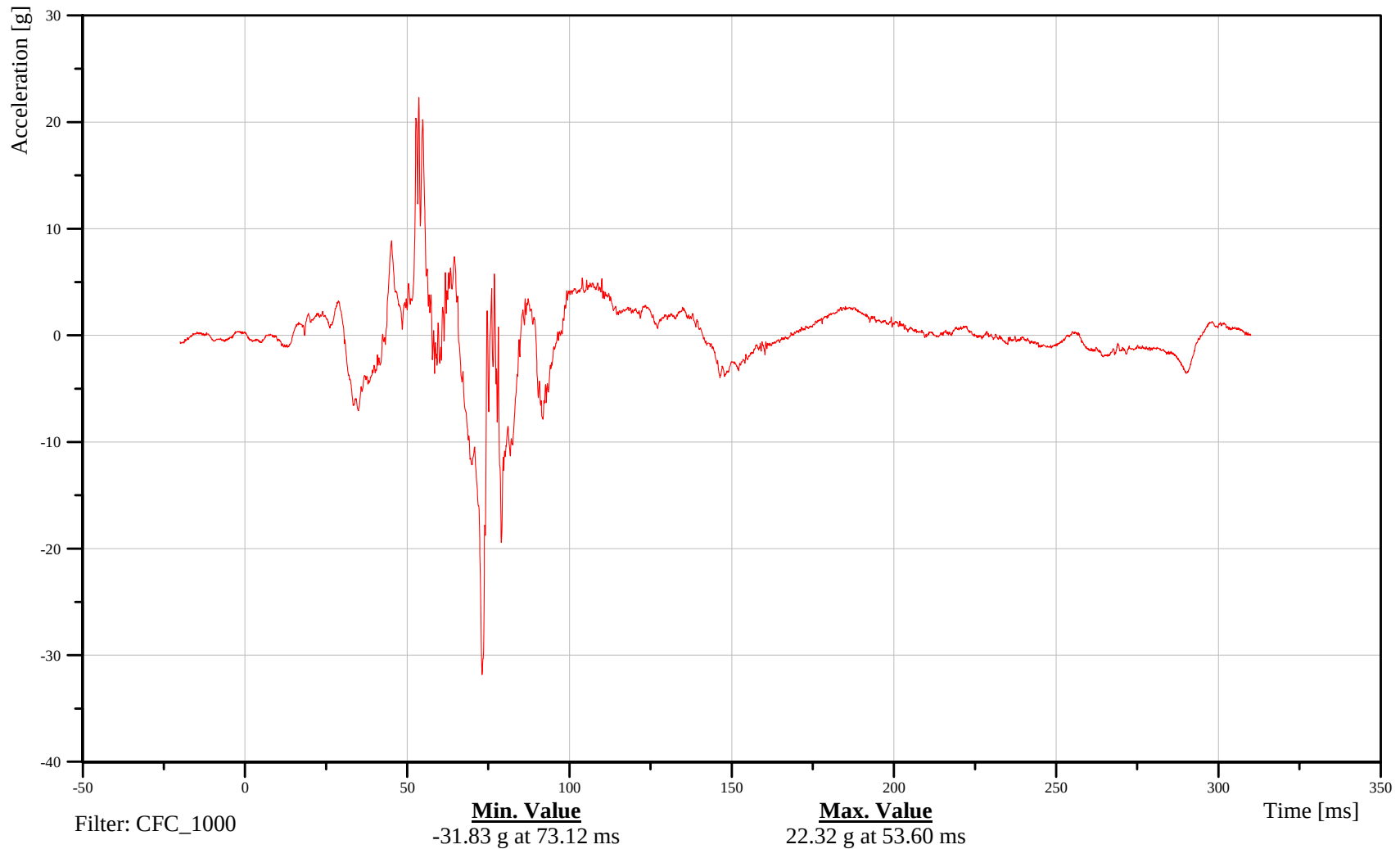
Bullet Vehicle Right Front Passenger Left Foot Y-Axis Acceleration

Customer: VRTC

13FOOTLELXHFACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-114

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

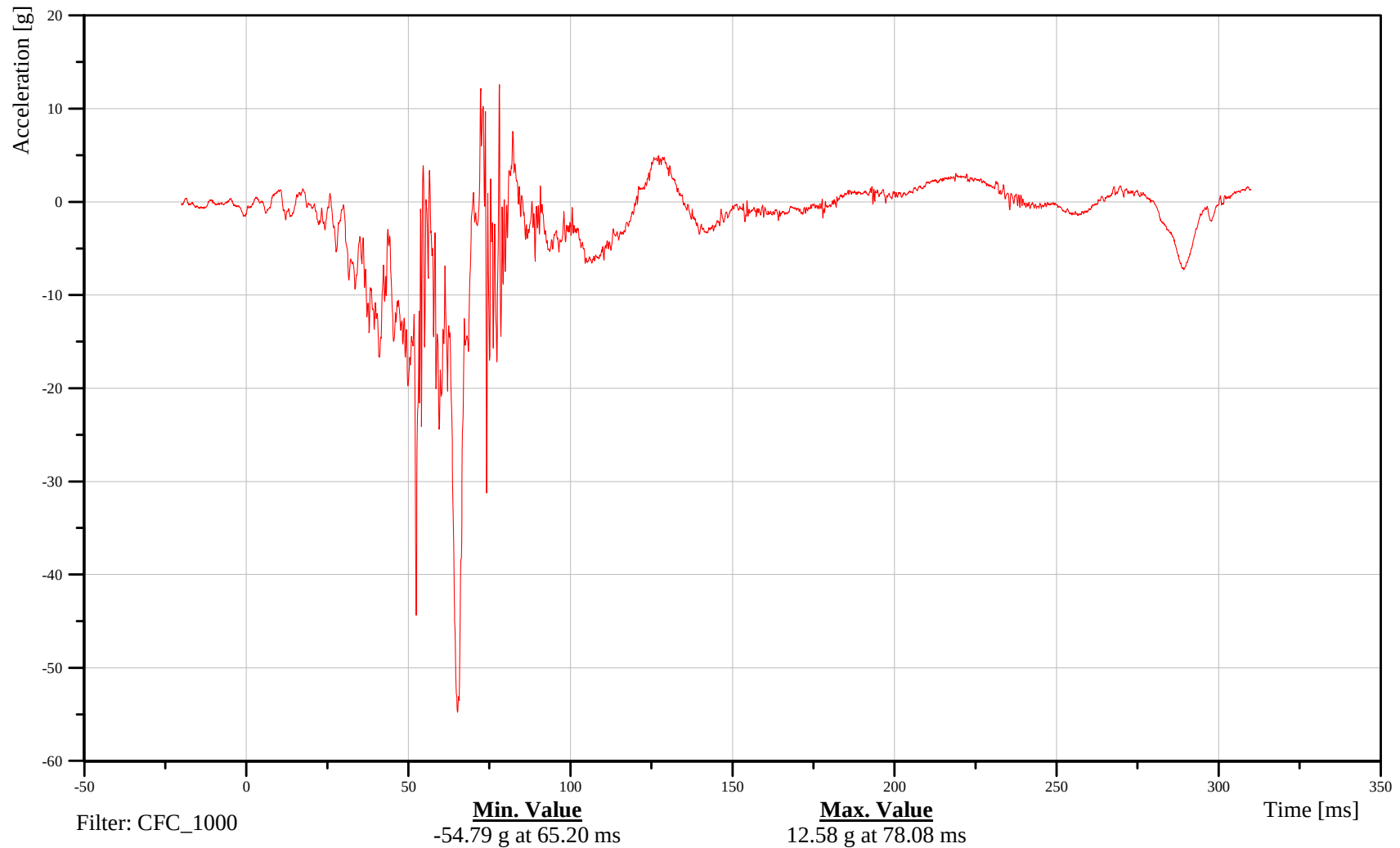
Bullet Vehicle Right Front Passenger Left Foot Z-Axis Acceleration

Customer: VRTC

13FOOTLELXHFACZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-115

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

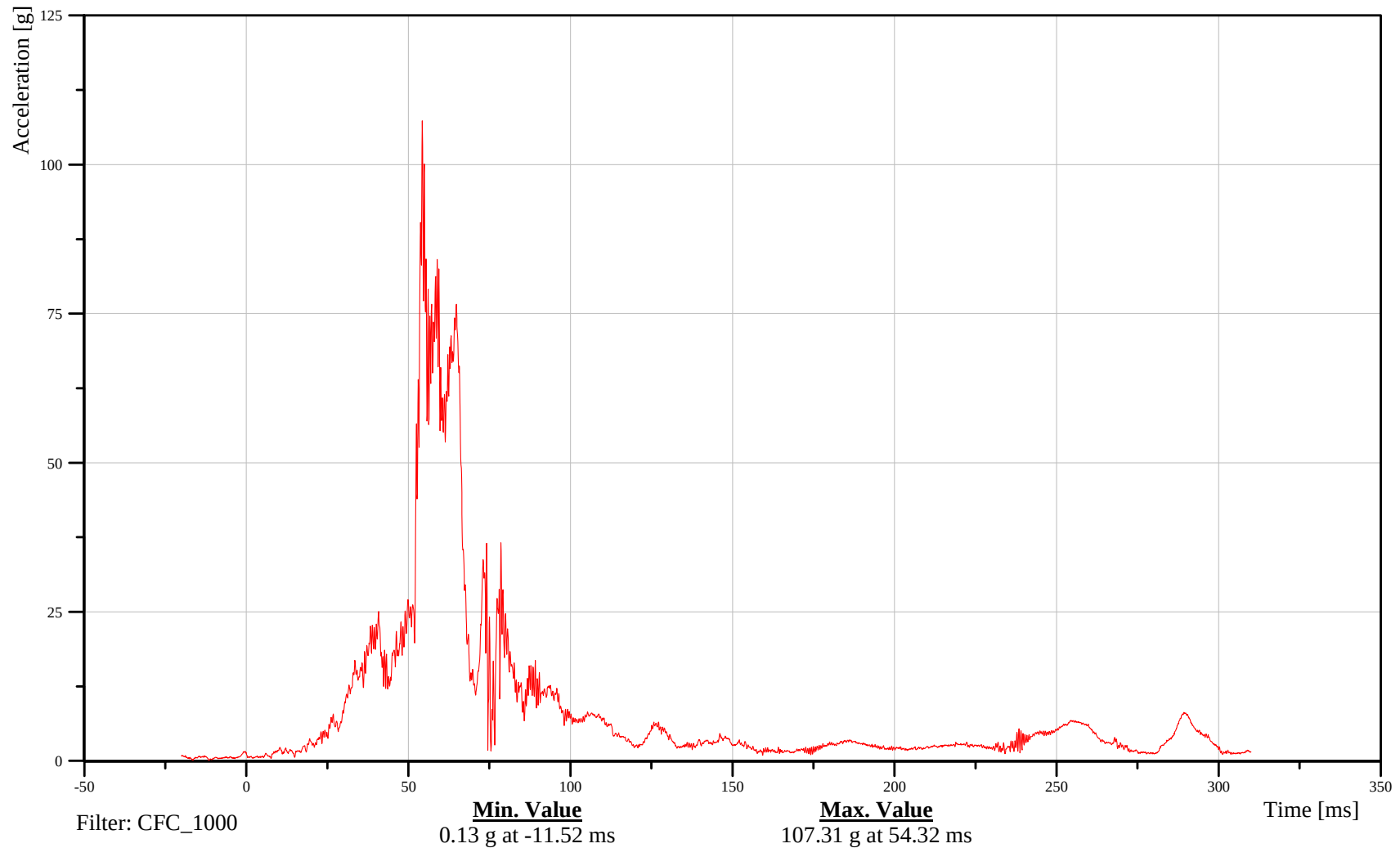
Bullet Vehicle Right Front Passenger Left Foot Resultant Acceleration

Customer: VRTC

13FOOTLELXHACRA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-116

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

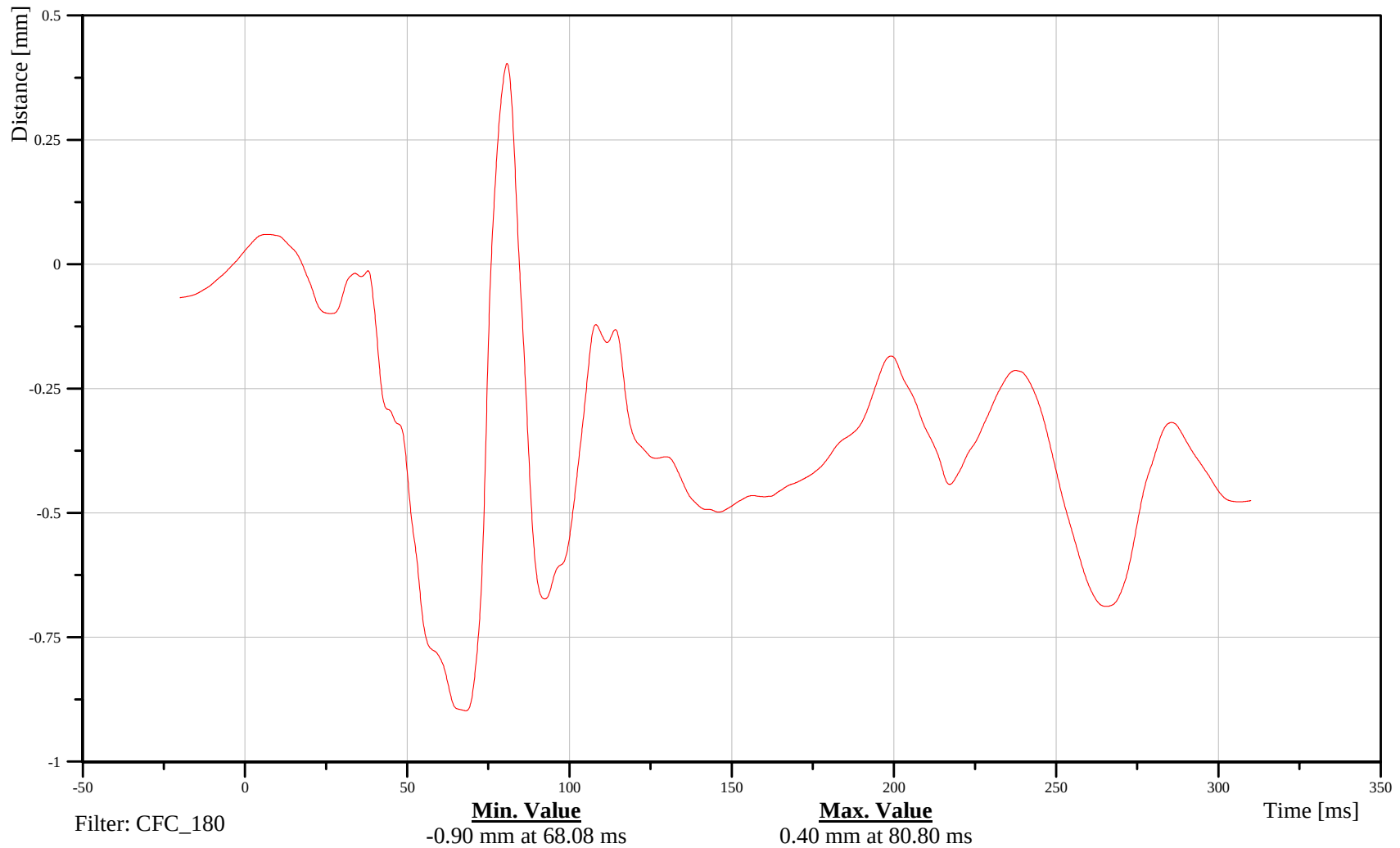
Bullet Vehicle Right Front Passenger Right Knee X-Axis Displacement

Customer: VRTC

13KNSLRI00HFDSXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-117

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

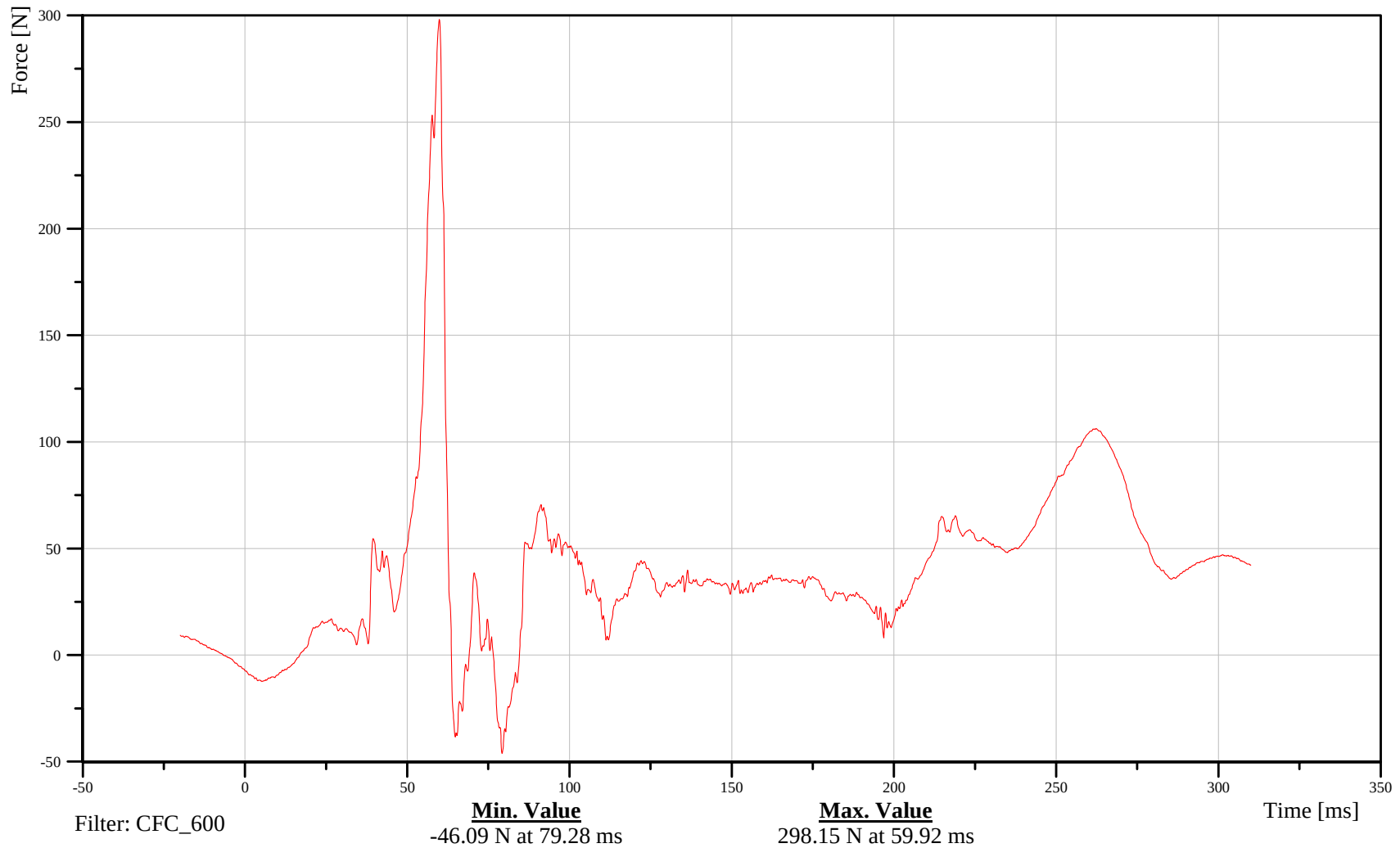
Bullet Vehicle Right Front Passenger Right Upper Tibia X-Axis Force

Customer: VRTC

13TIBIRULXHFFOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-118

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

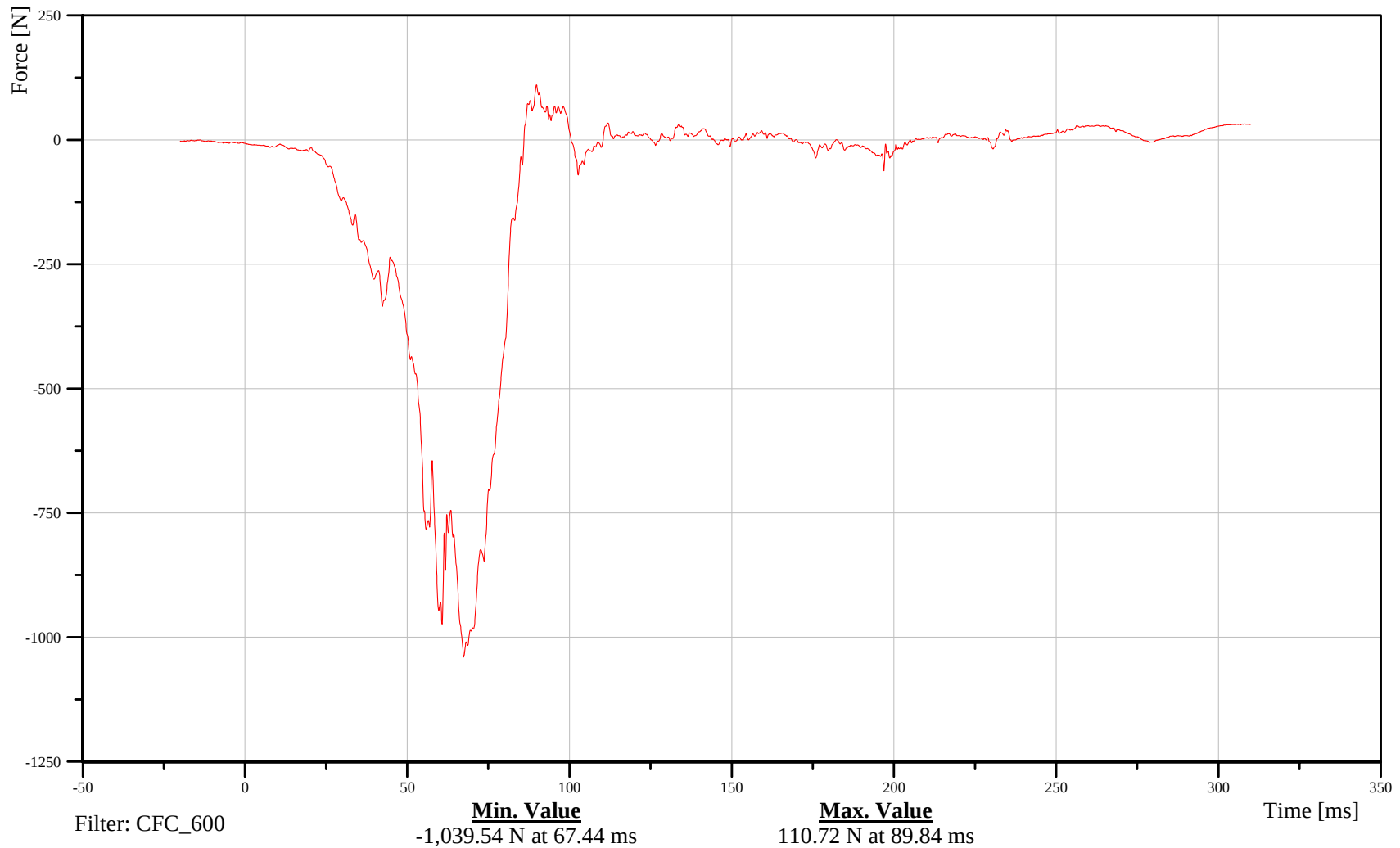
Bullet Vehicle Right Front Passenger Right Upper Tibia Z-Axis Force

Customer: VRTC

13TIBIRULXHFFOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-119

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap
Bullet Vehicle Right Front Passenger Right Upper Tibia Moment About X Axis

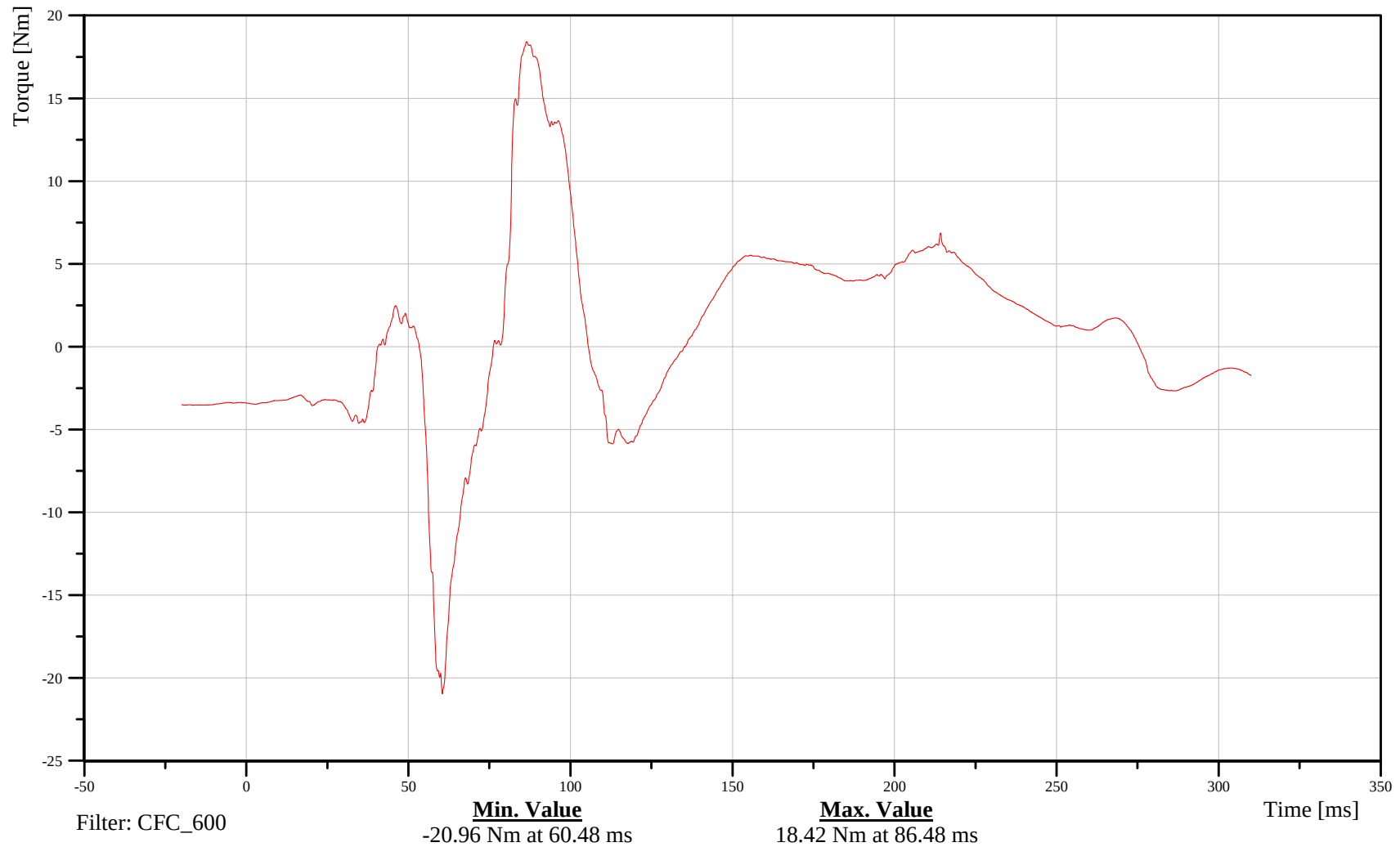
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

13TIBIRULXHFM0XB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-120

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap
Bullet Vehicle Right Front Passenger Right Upper Tibia Moment About Y Axis

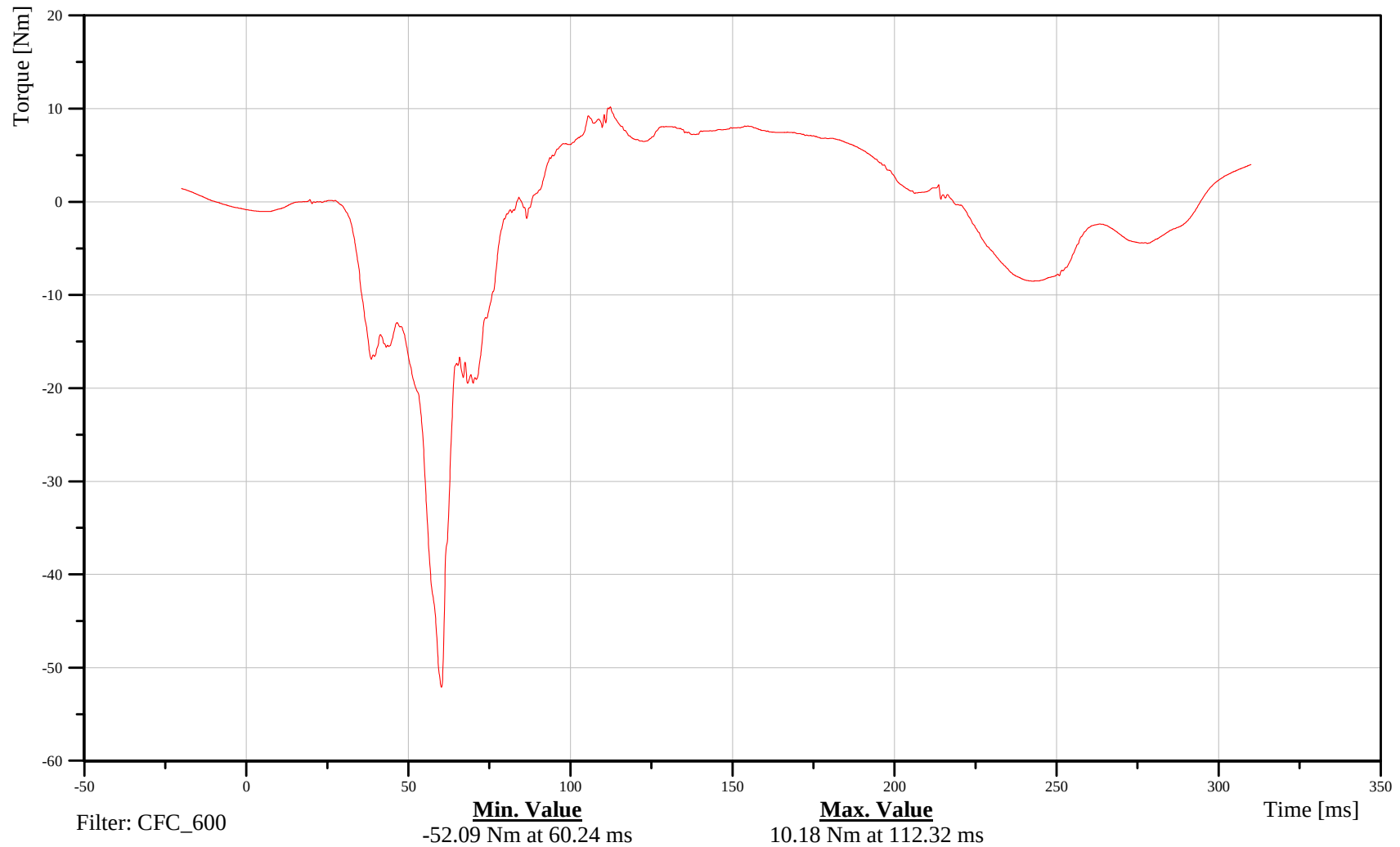
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

13TIBIRULXHFM0YB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-121

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

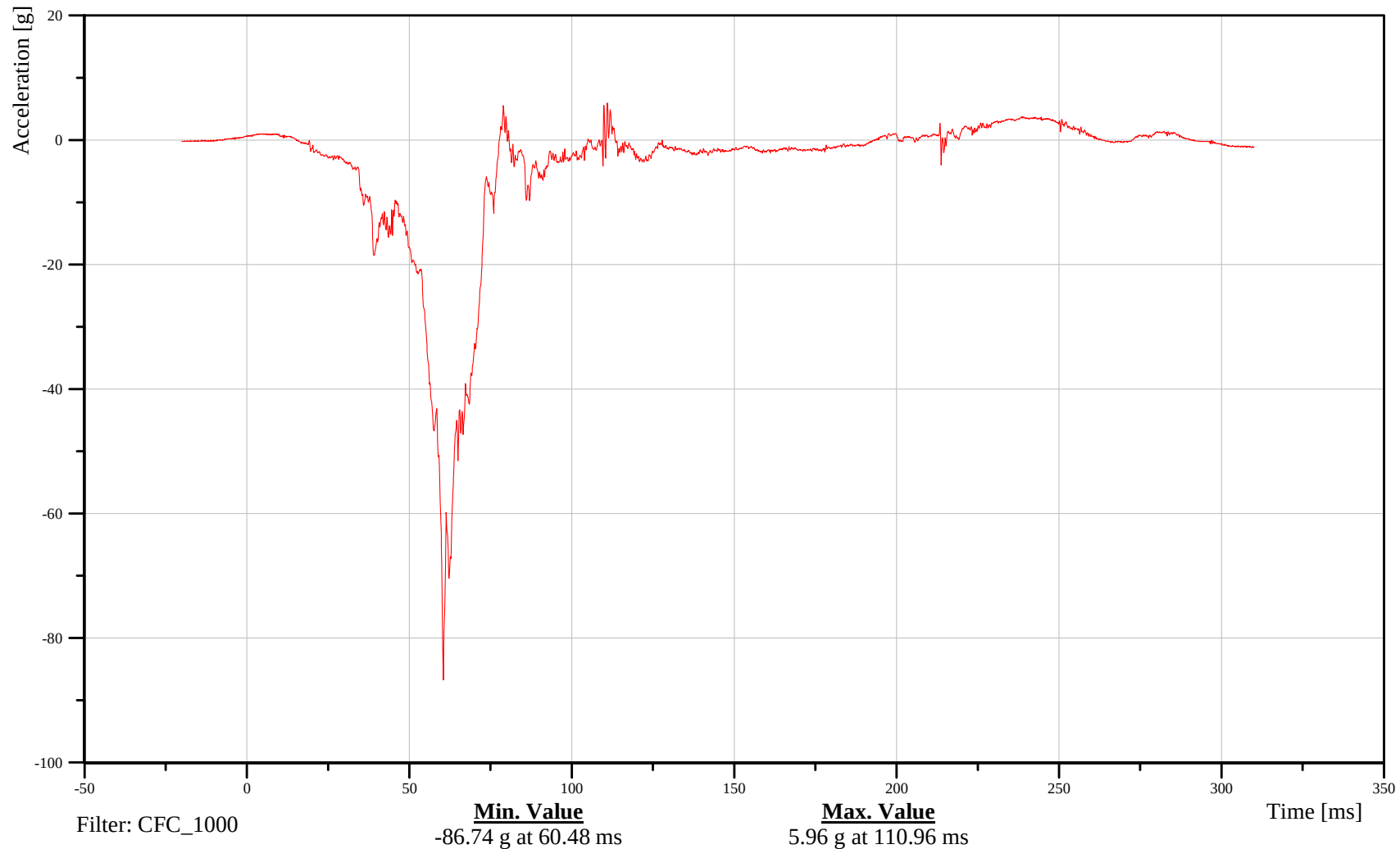
Bullet Vehicle Right Front Passenger Right Tibia X-Axis Acceleration

Customer: VRTC

13TIBIRILXHFACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-122

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

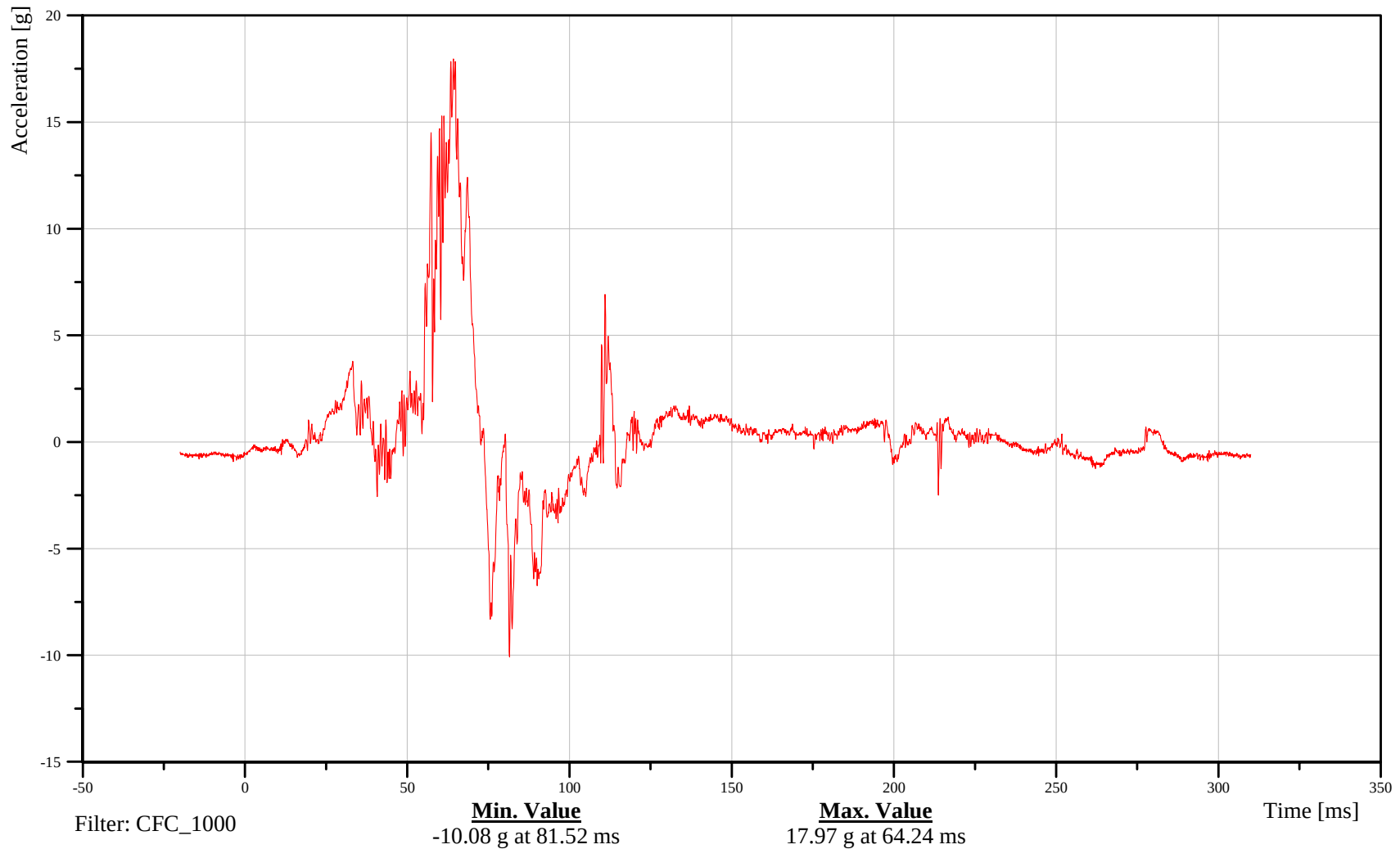
Bullet Vehicle Right Front Passenger Right Tibia Y-Axis Acceleration

Customer: VRTC

13TIBIRILXHFACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-123

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

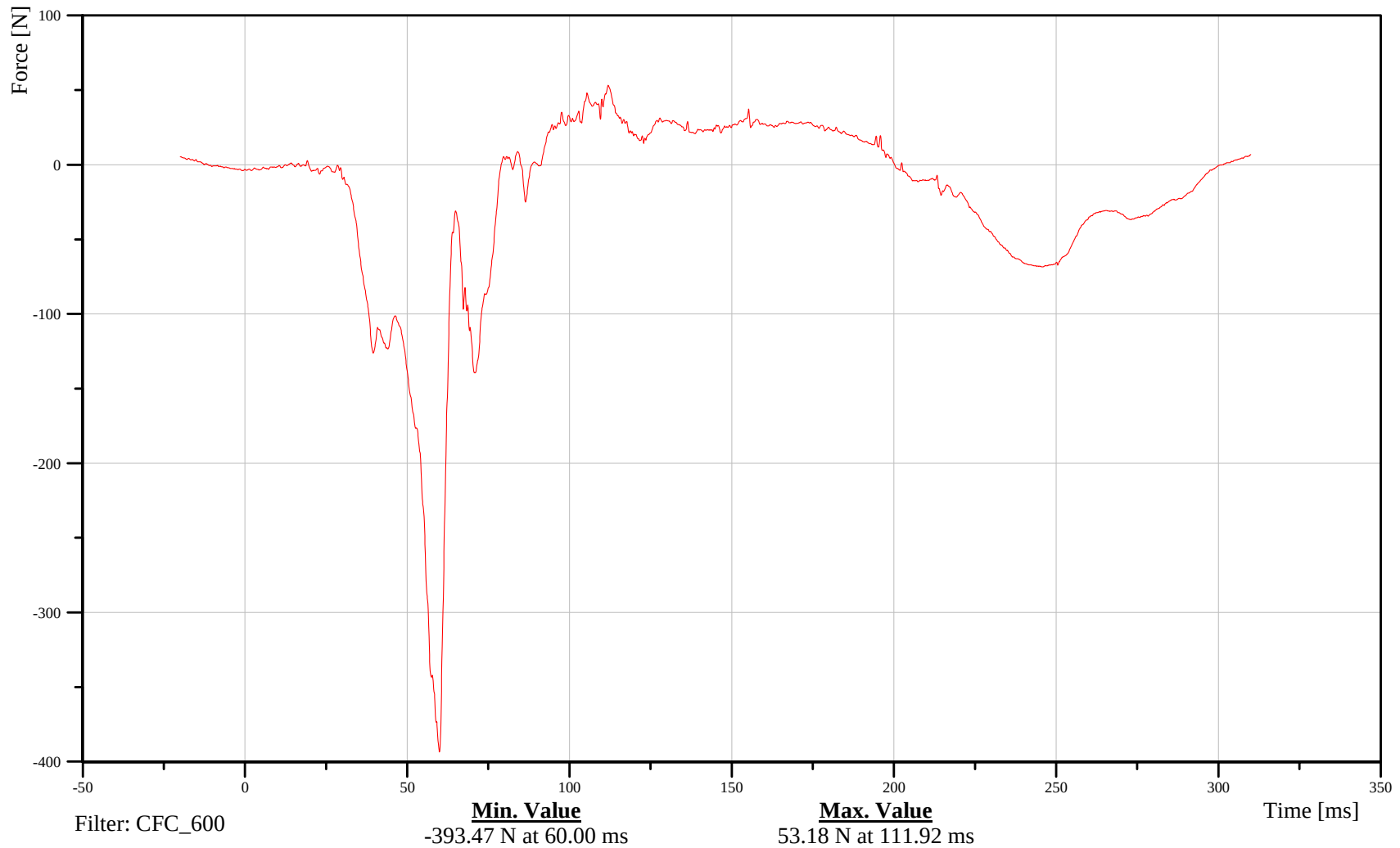
Bullet Vehicle Right Front Passenger Right Lower Tibia X-Axis Force

Customer: VRTC

13TIBIRLLXHFFOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-124

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

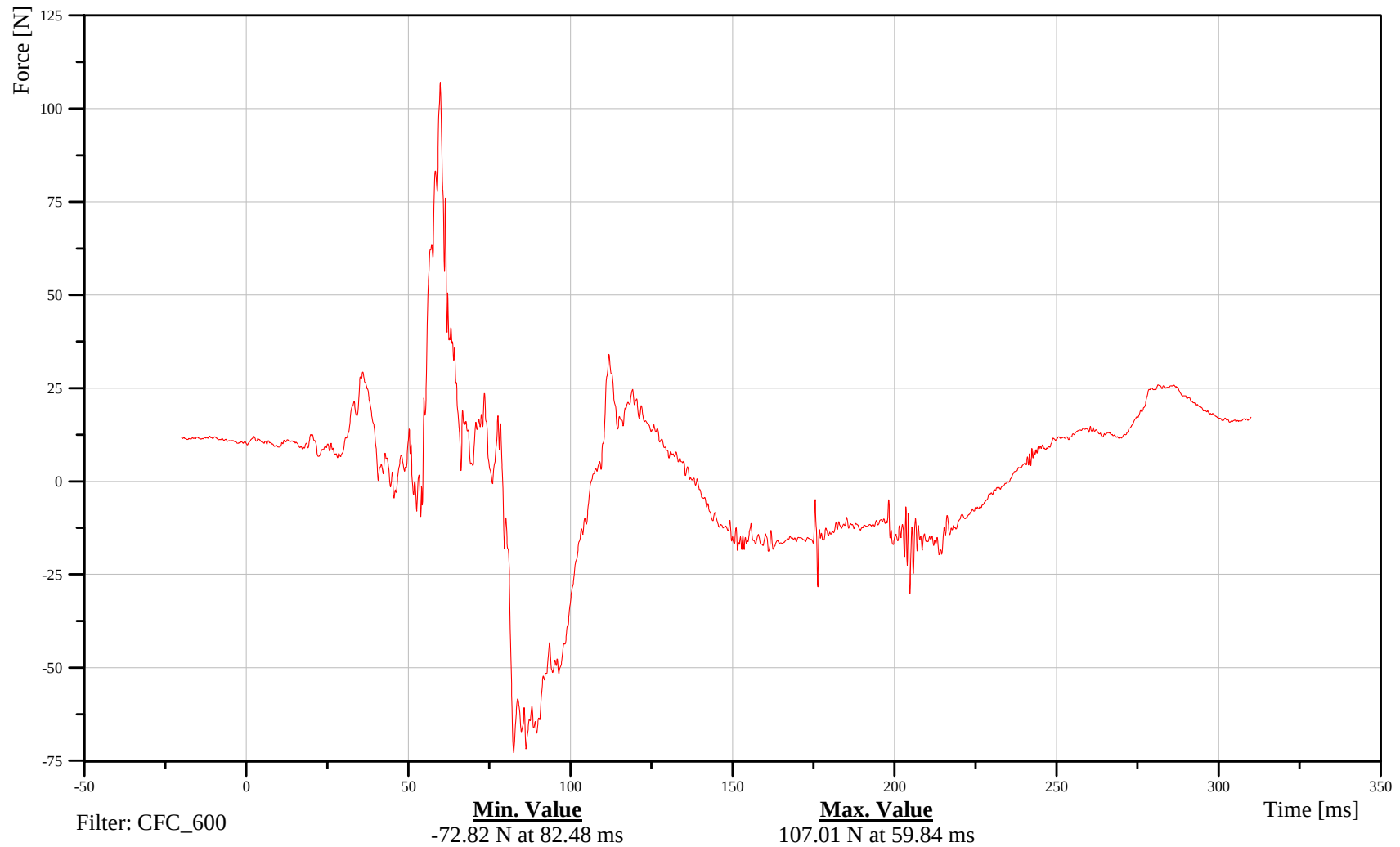
Bullet Vehicle Right Front Passenger Right Lower Tibia Y-Axis Force

Customer: VRTC

13TIBIRLLXHFFOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-125

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

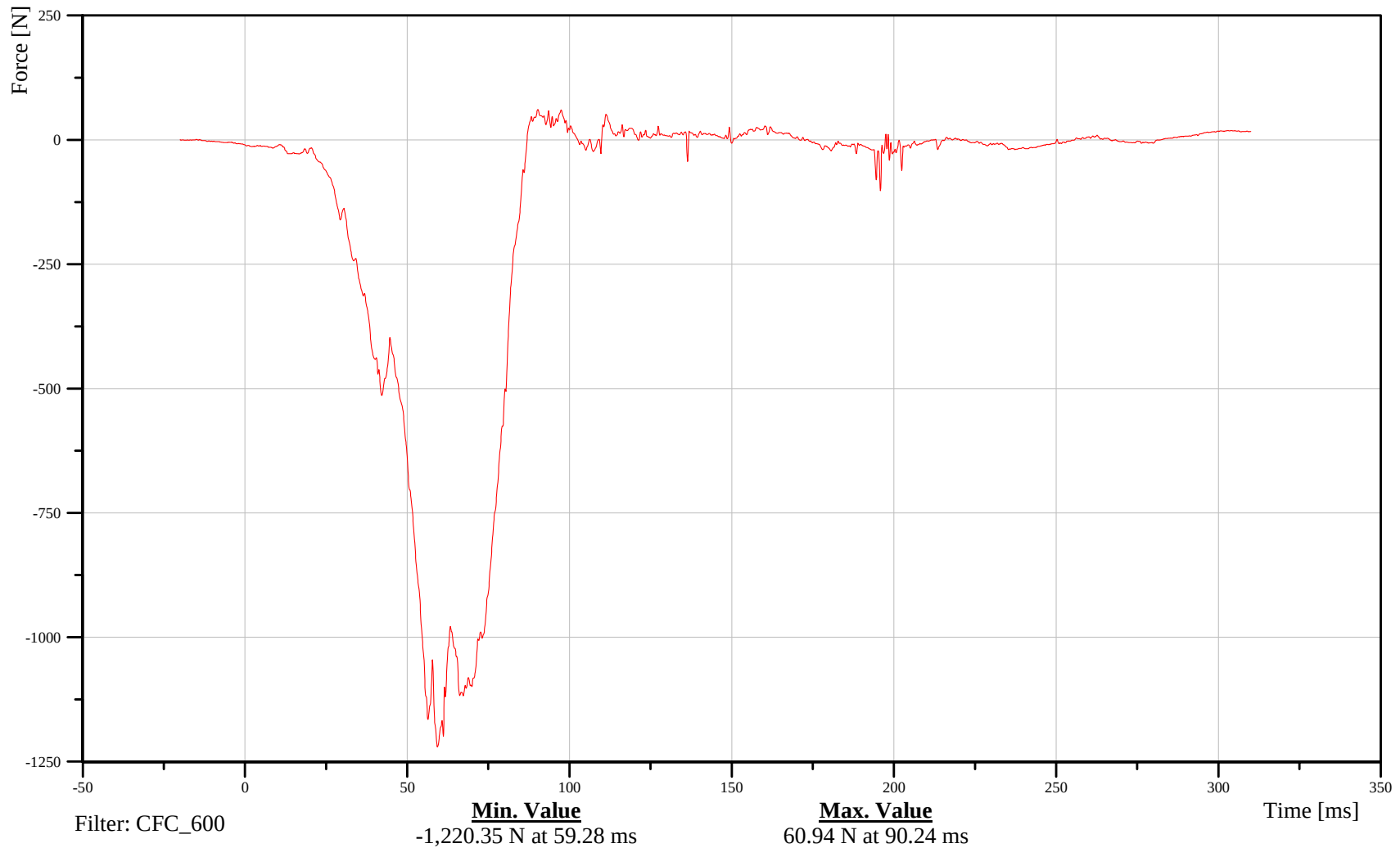
Bullet Vehicle Right Front Passenger Right Lower Tibia Z-Axis Force

Customer: VRTC

13TIBIRLLXHFFOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-126

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap
Bullet Vehicle Right Front Passenger Right Lower Tibia Moment About X Axis

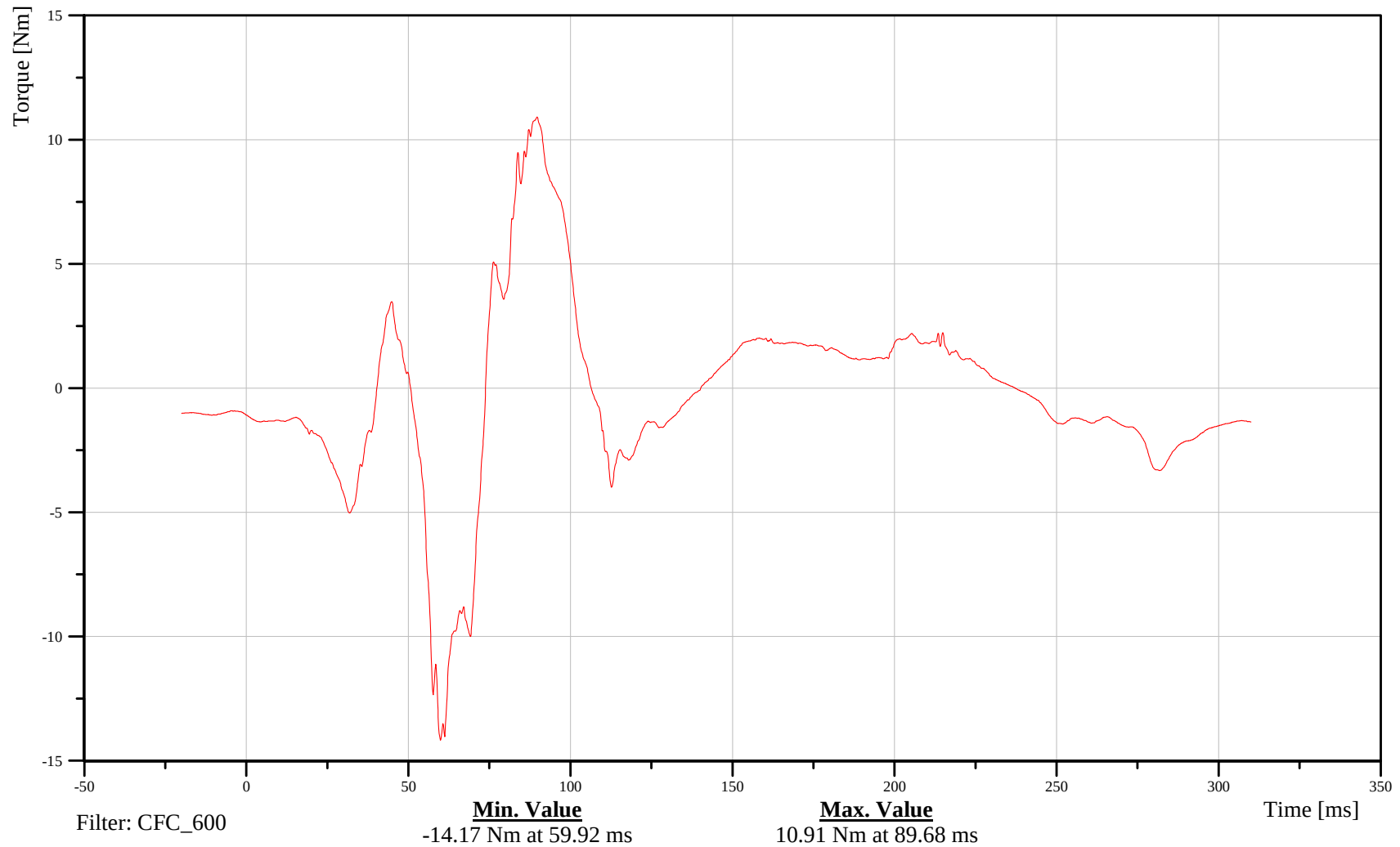
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

13TIBIRLLXHFM0XB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-127

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

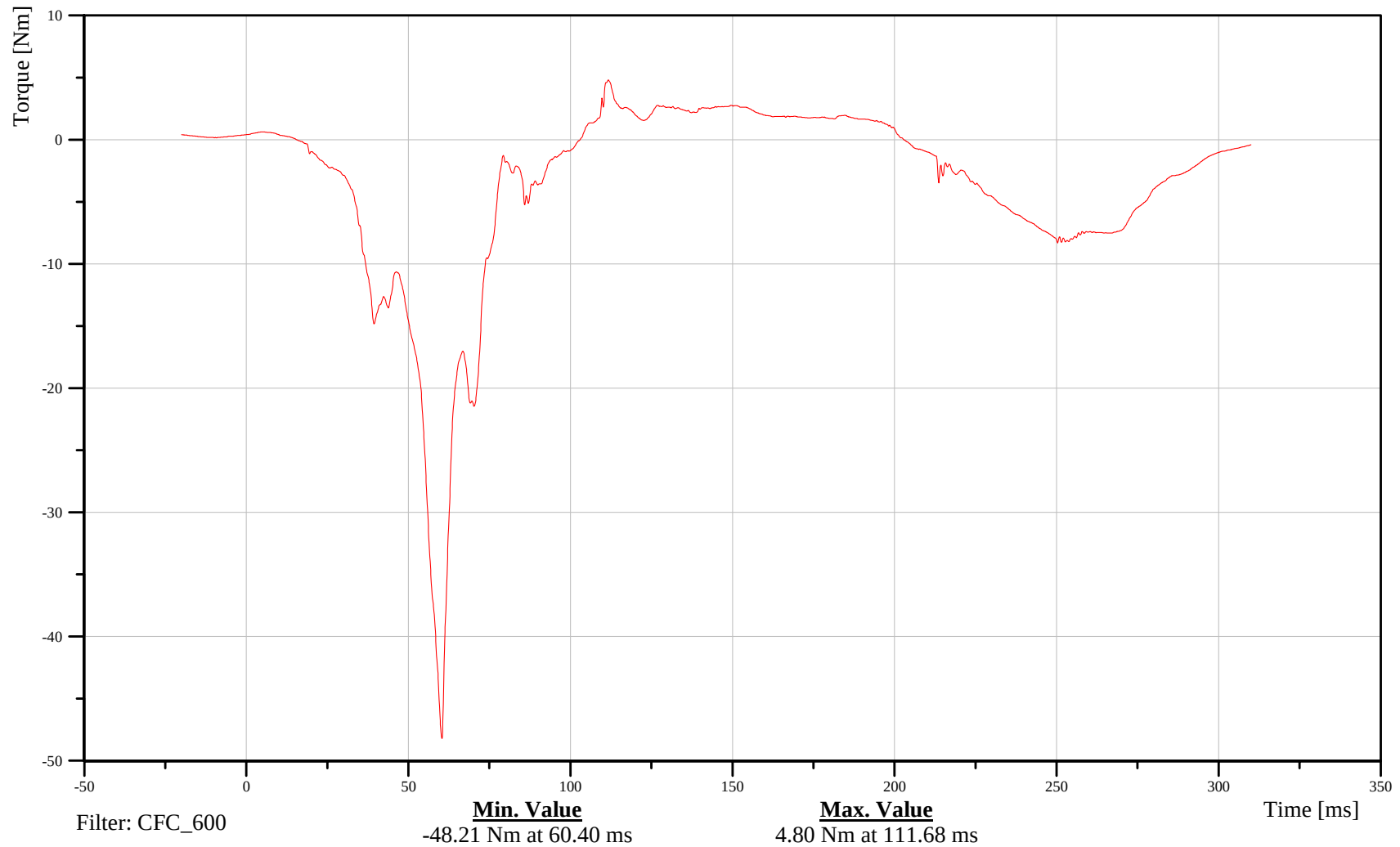
Bullet Vehicle Right Front Passenger Right Lower Tibia Moment About Y Axis

Customer: VRTC

13TIBIRLLXHFM0YB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-128

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap
Bullet Vehicle Right Front Passenger Right Foot X-Axis Angular Displacement

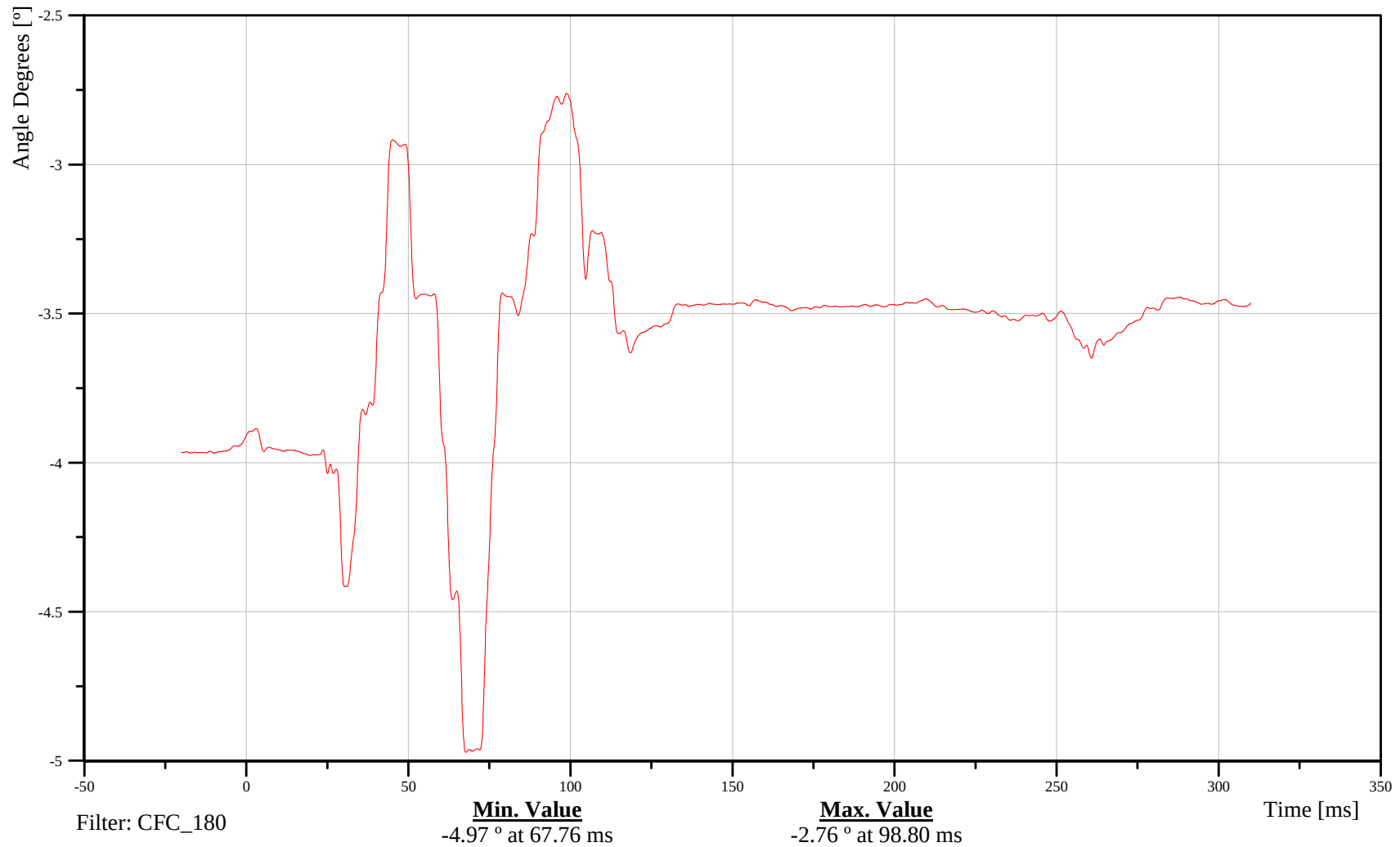
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

13FOOTRILXHFANXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-129

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap
Bullet Vehicle Right Front Passenger Right Foot Y-Axis Angular Displacement

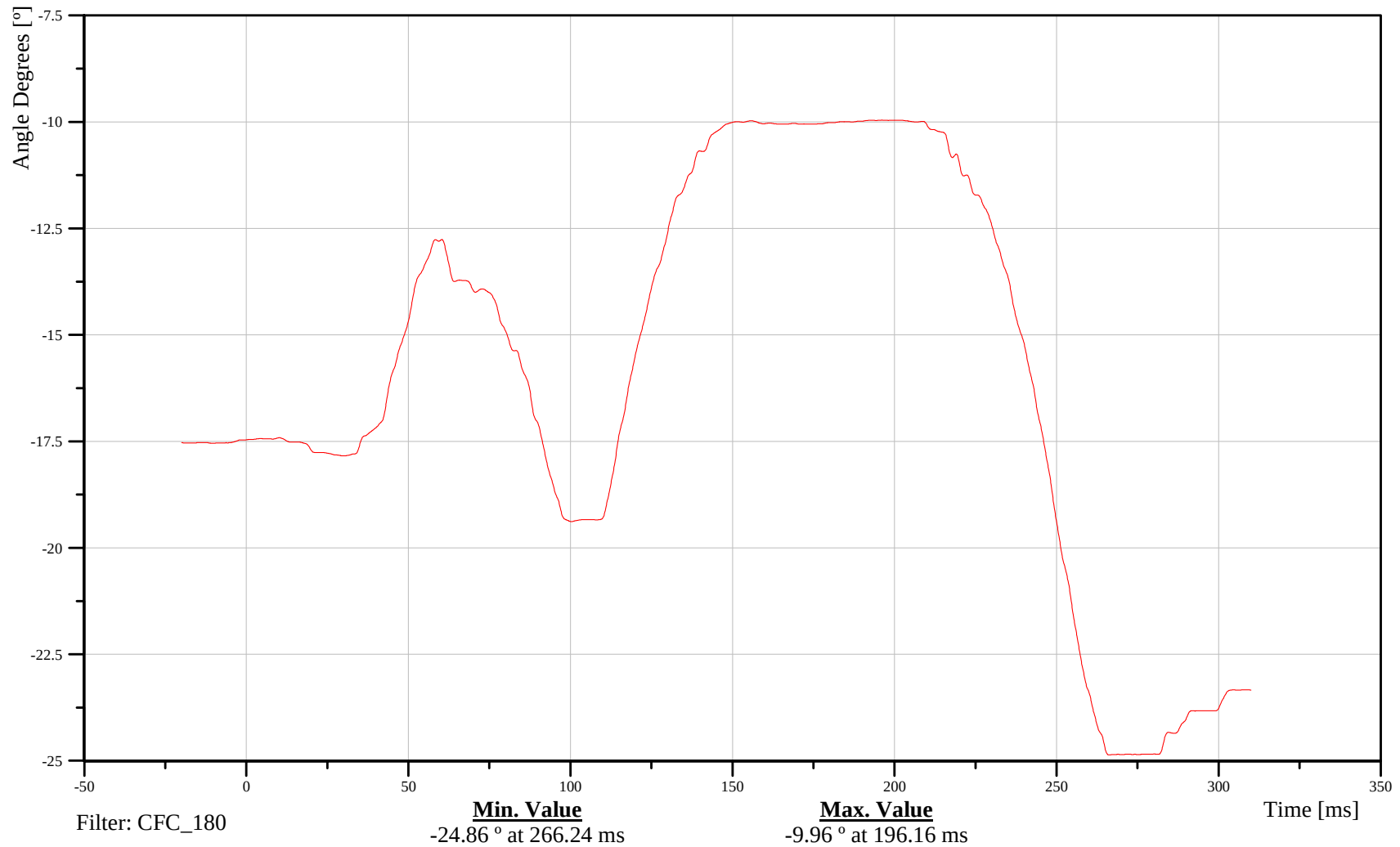
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

13FOOTRILXHFANYC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-130

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap
Bullet Vehicle Right Front Passenger Right Foot Z-Axis Angular Displacement

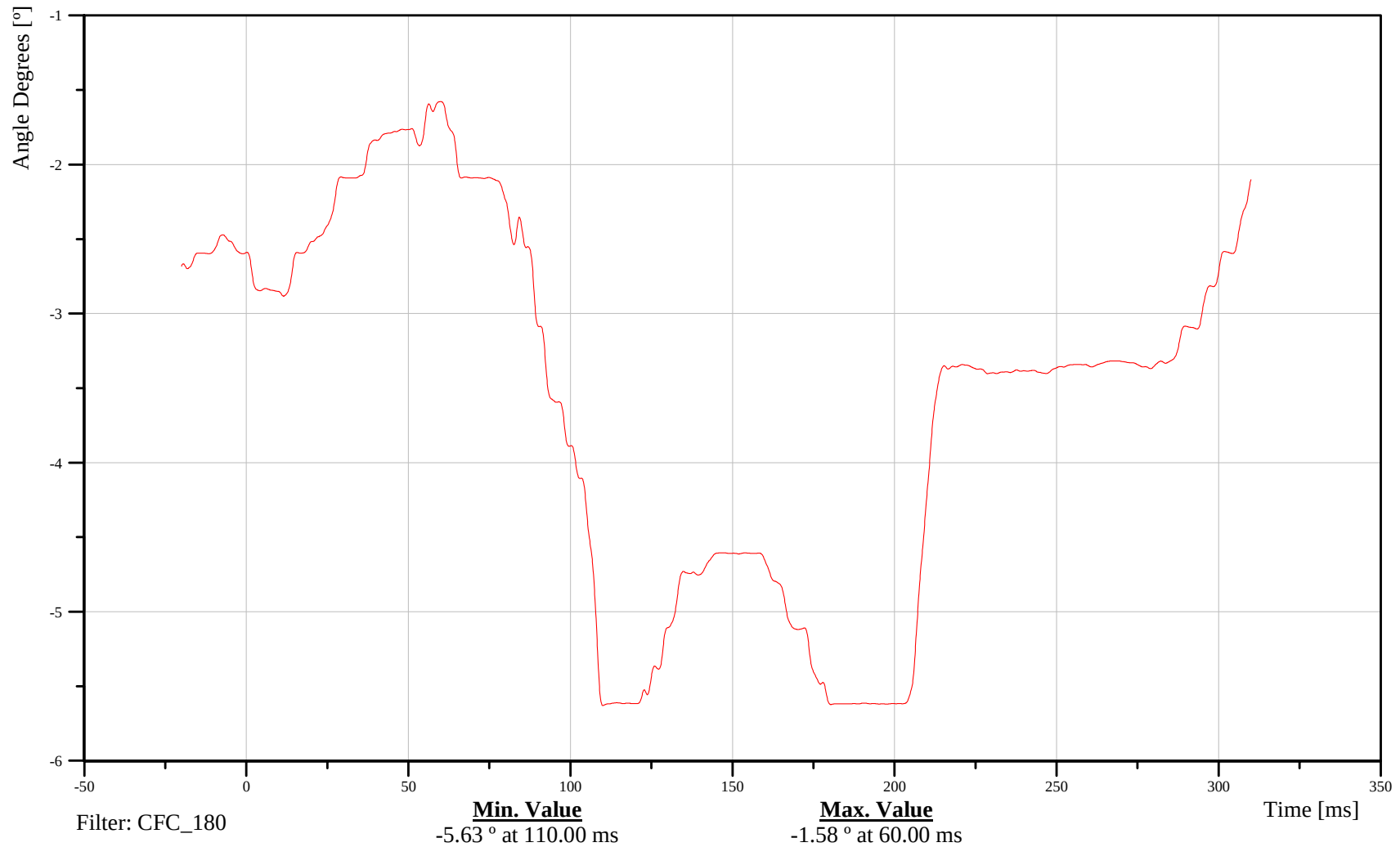
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

13FOOTRILXHFANZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-131

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

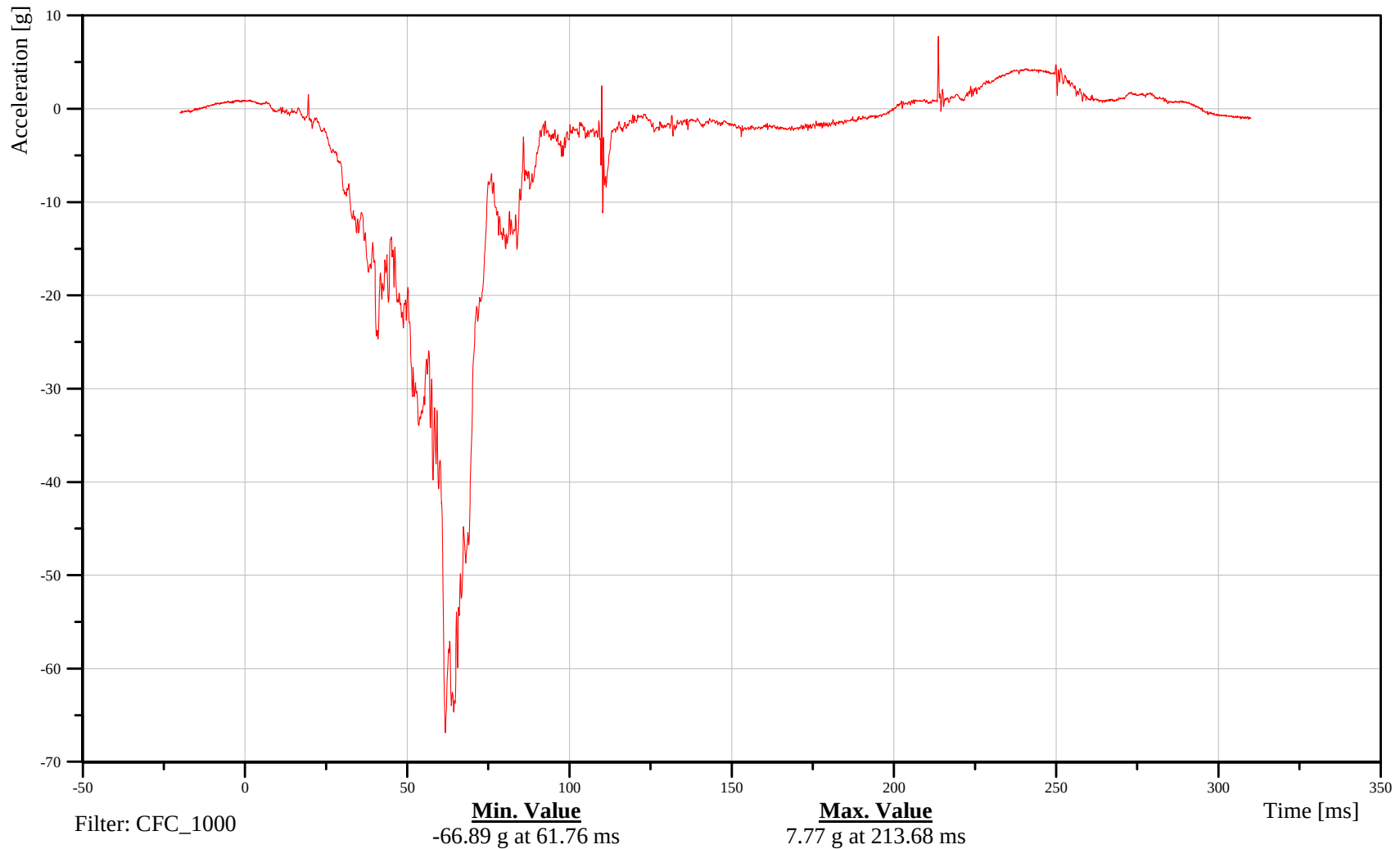
Bullet Vehicle Right Front Passenger Right Foot X-Axis Acceleration

Customer: VRTC

13FOOTRILXHFACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-132

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

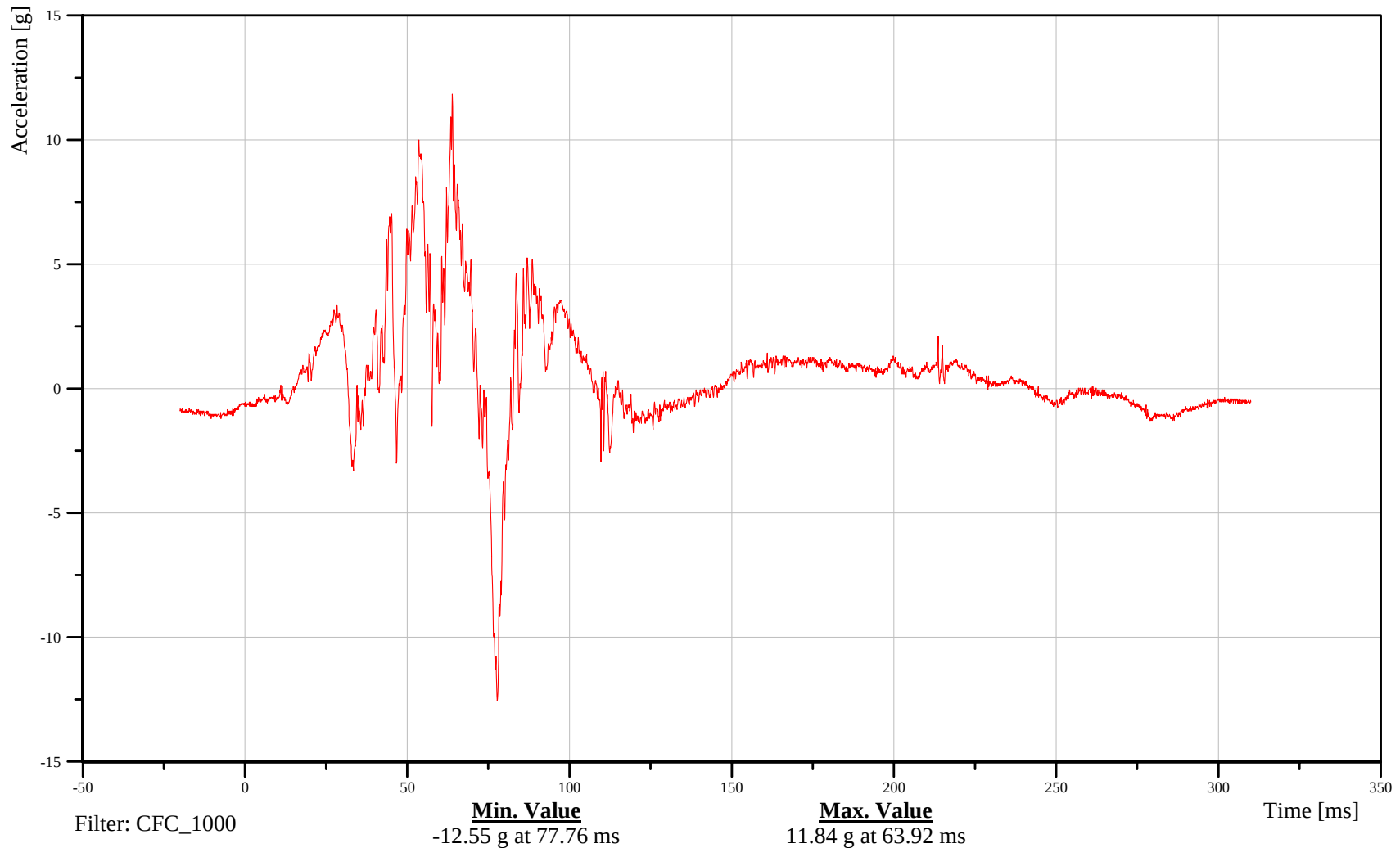
Bullet Vehicle Right Front Passenger Right Foot Y-Axis Acceleration

Customer: VRTC

13FOOTRILXHFACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-133

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

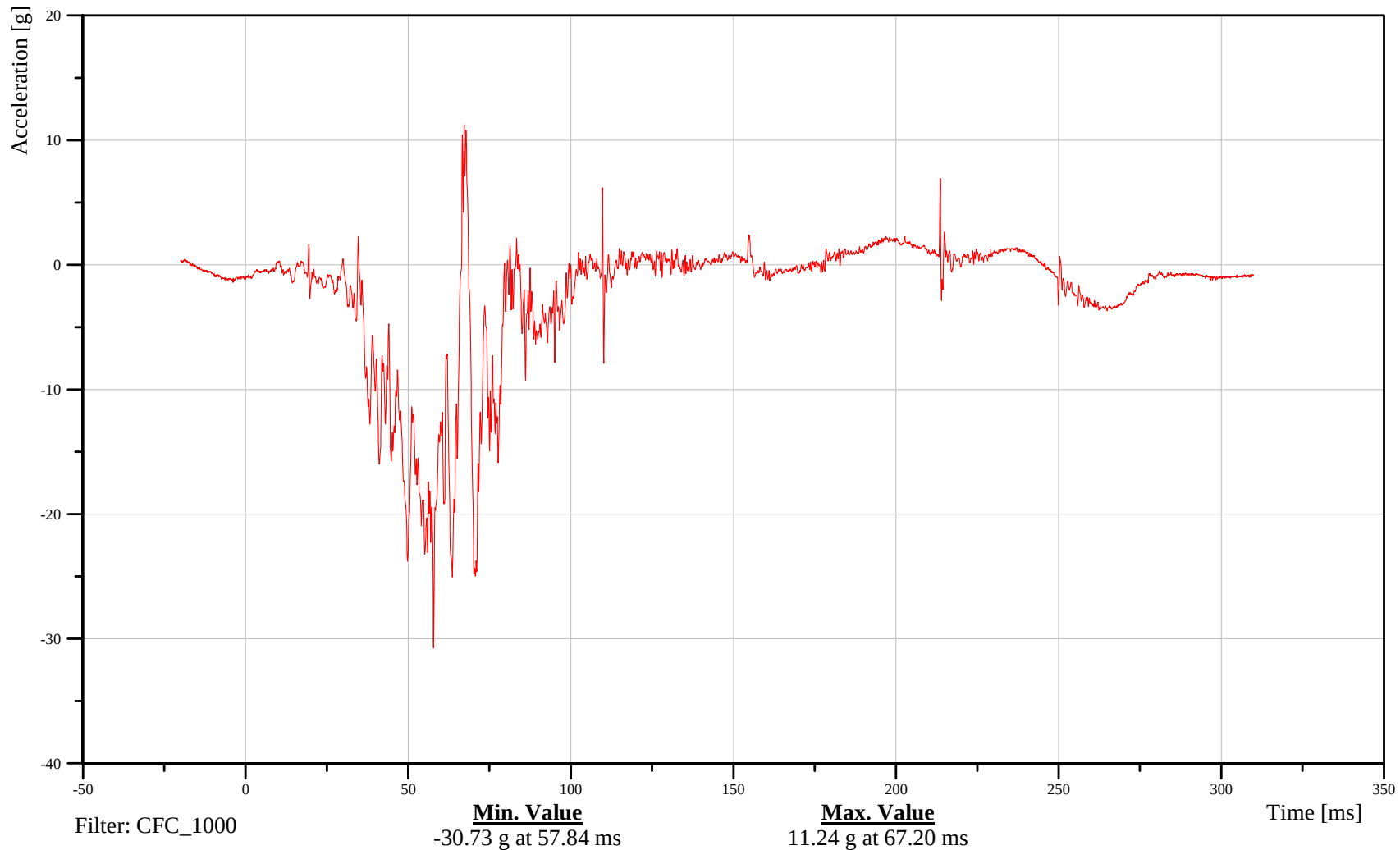
Bullet Vehicle Right Front Passenger Right Foot Z-Axis Acceleration

Customer: VRTC

13FOOTRILXHFACZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-134

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

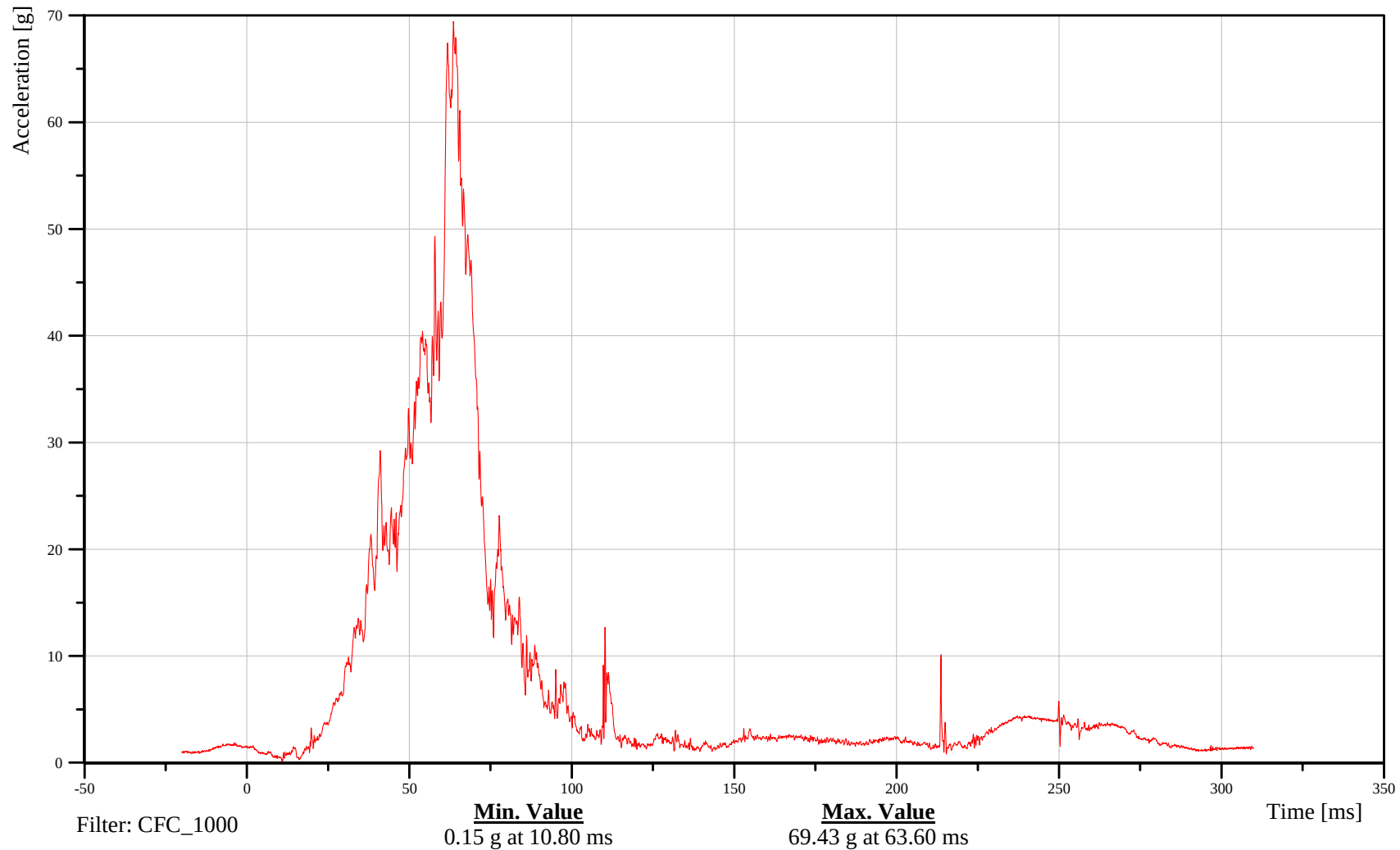
Bullet Vehicle Right Front Passenger Right Foot Resultant Acceleration

Customer: VRTC

13FOOTRILXHFACRA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Left Rear Passenger Head X-Axis Acceleration

Date: 12/07/2010

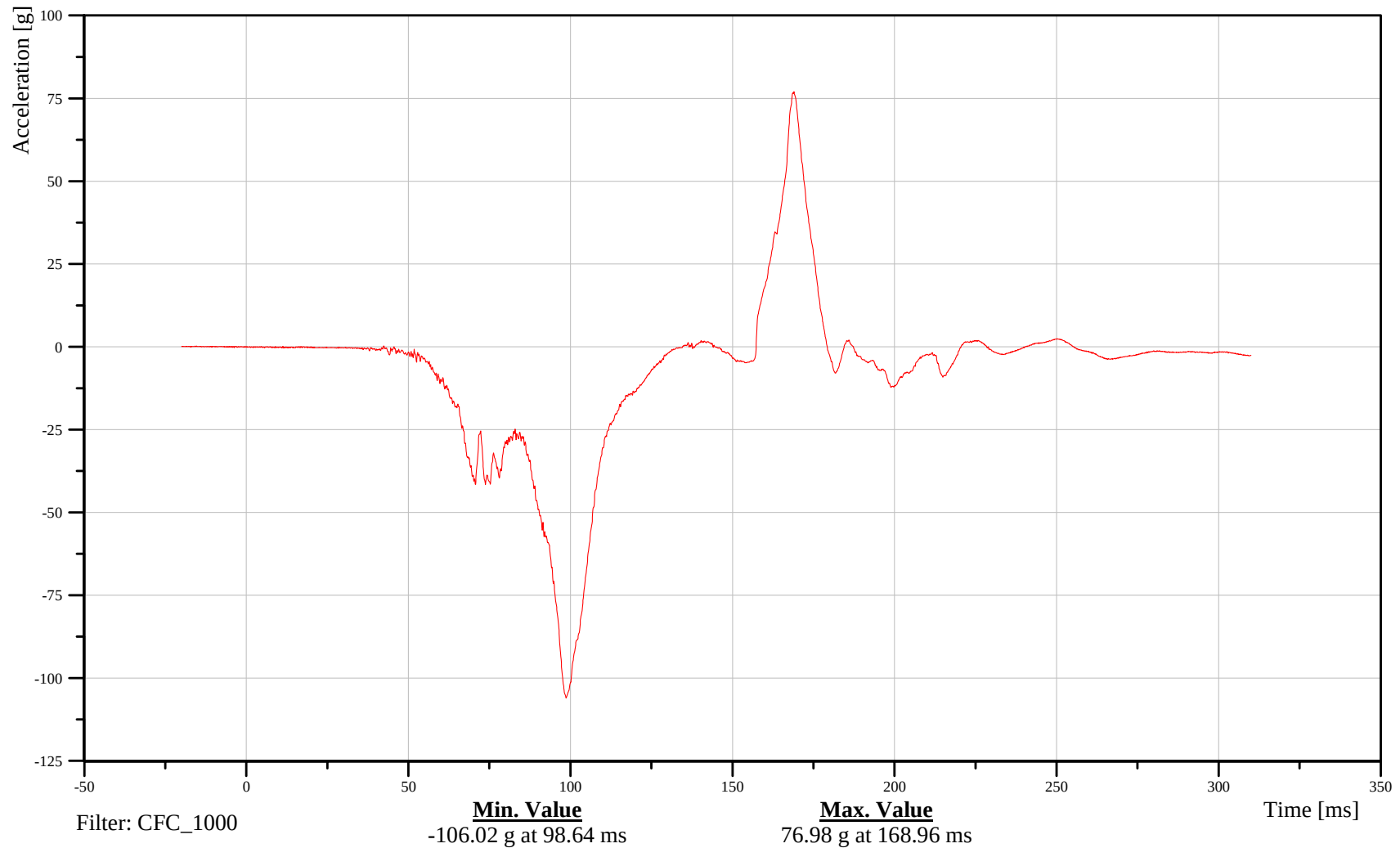
Time: 16:40 PM

Customer: VRTC

14HEADCG00HFACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-136

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Left Rear Passenger Head Y-Axis Acceleration

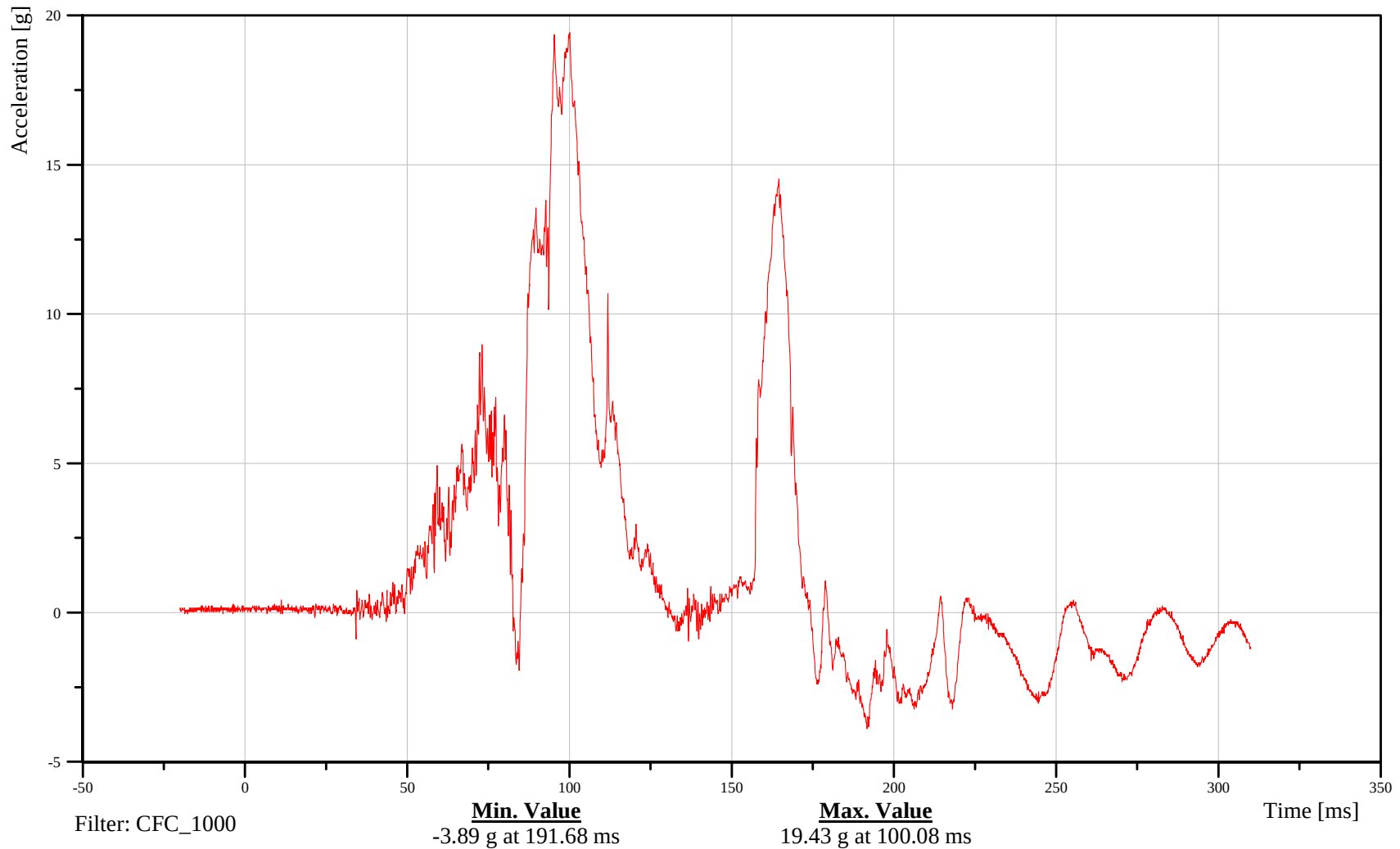
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

14HEADCG00HFACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-137

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Left Rear Passenger Head Z-Axis Acceleration

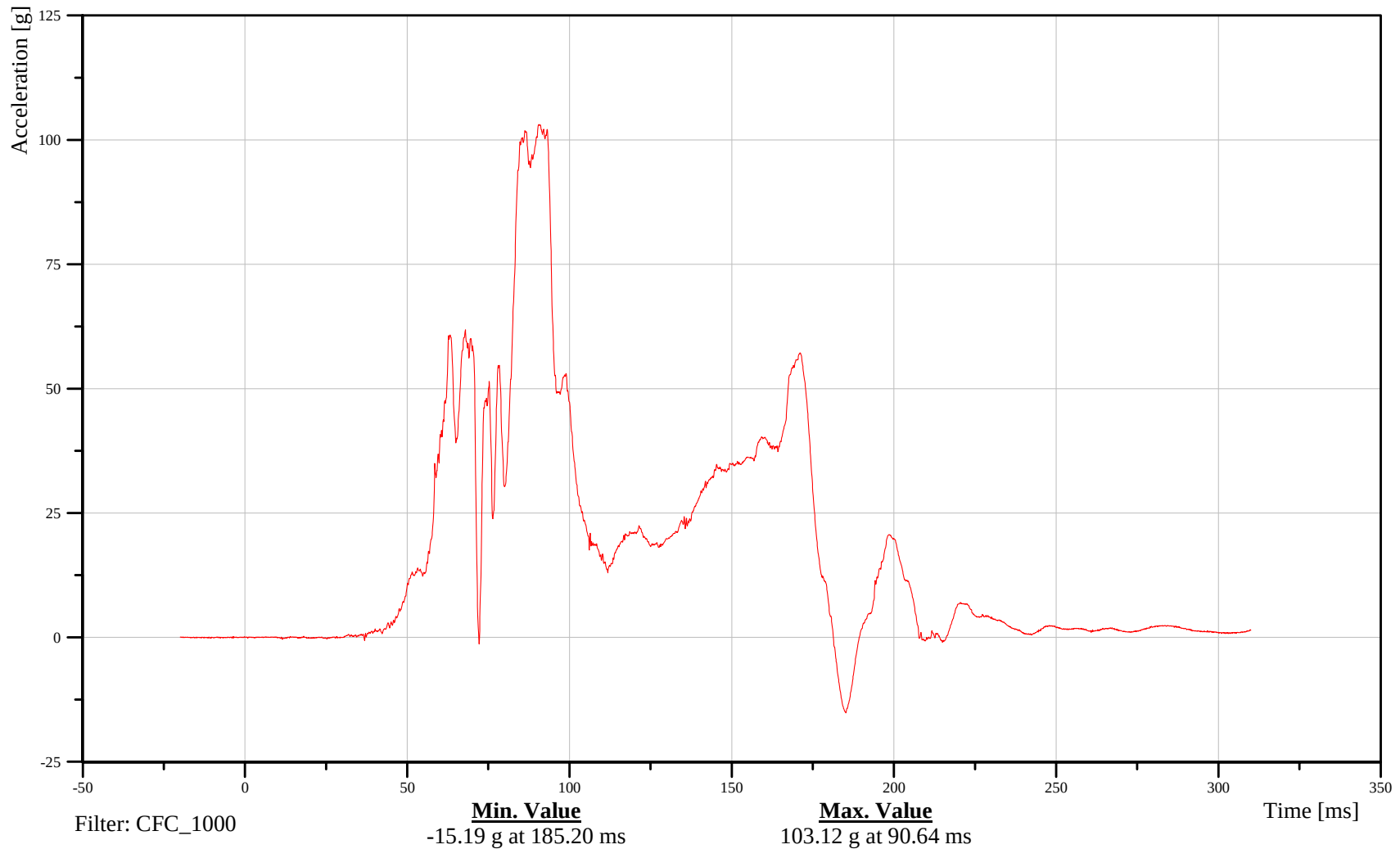
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

14HEADCG00HFACZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-138

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

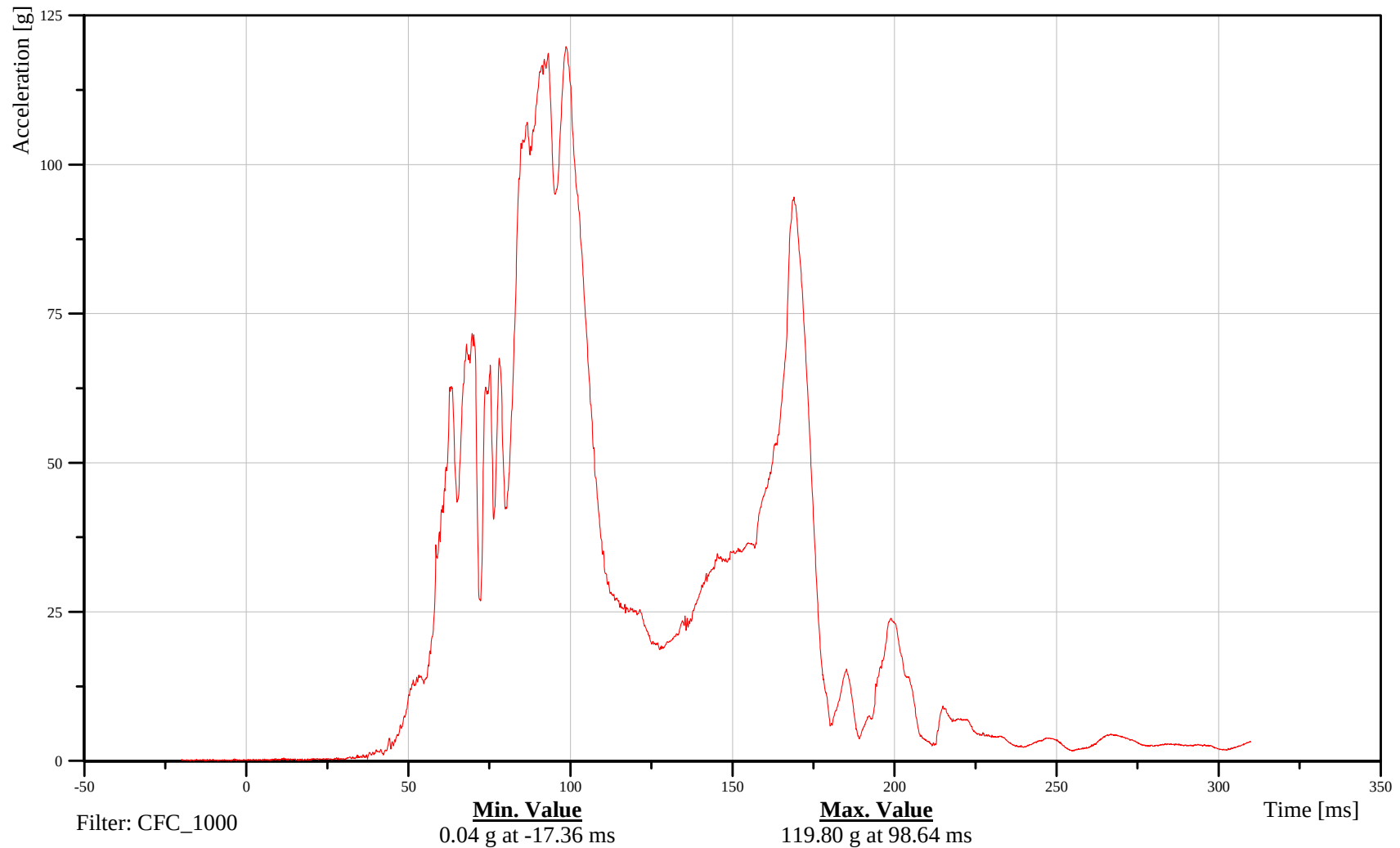
Bullet Vehicle Left Rear Passenger Head Resultant Acceleration

Customer: VRTC

14HEADCG00HFACRA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-139

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

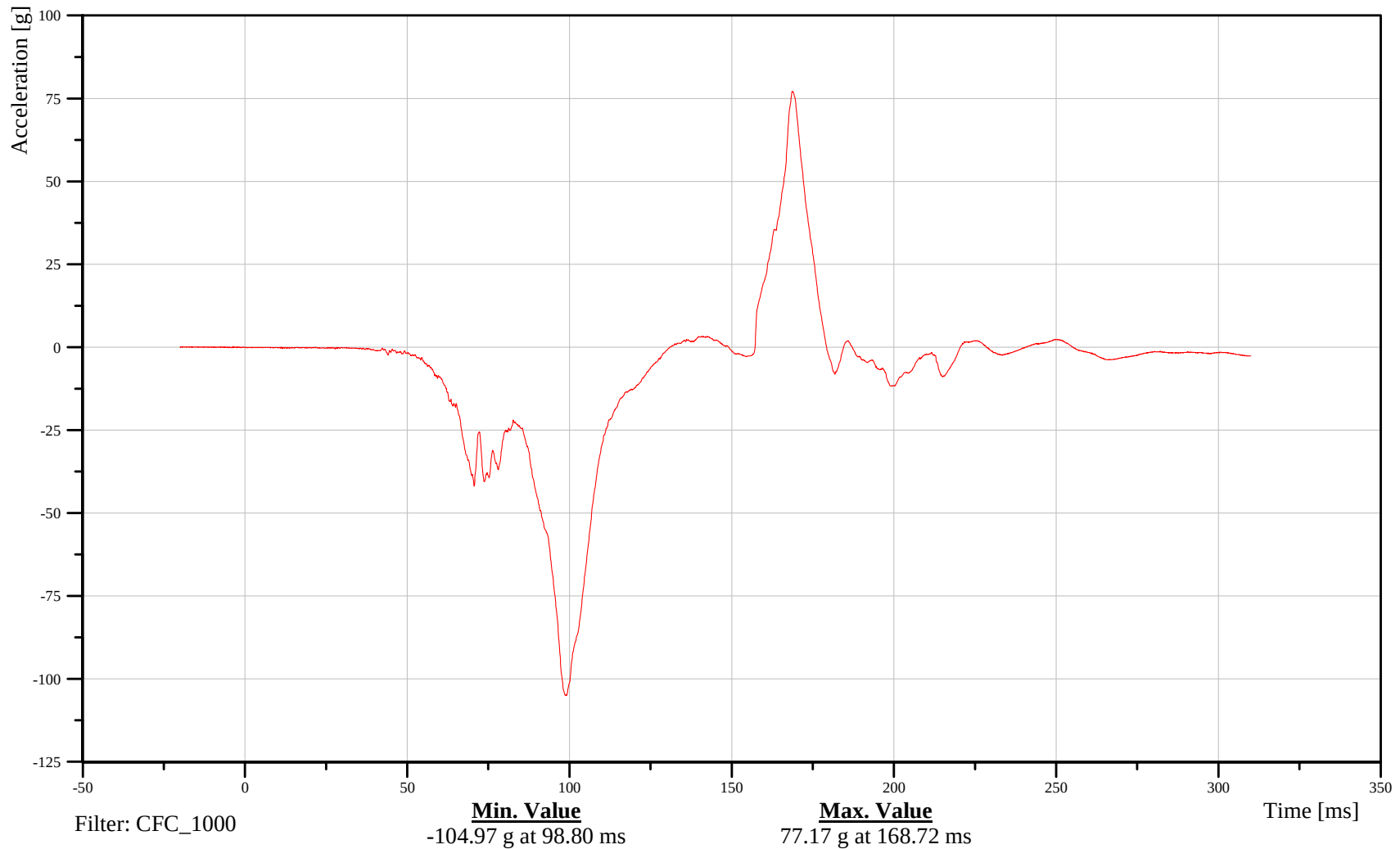
Bullet Vehicle Left Rear Passenger Head Redundant X-Axis Acceleration

Customer: VRTC

14HEADCGRDHFACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-140

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

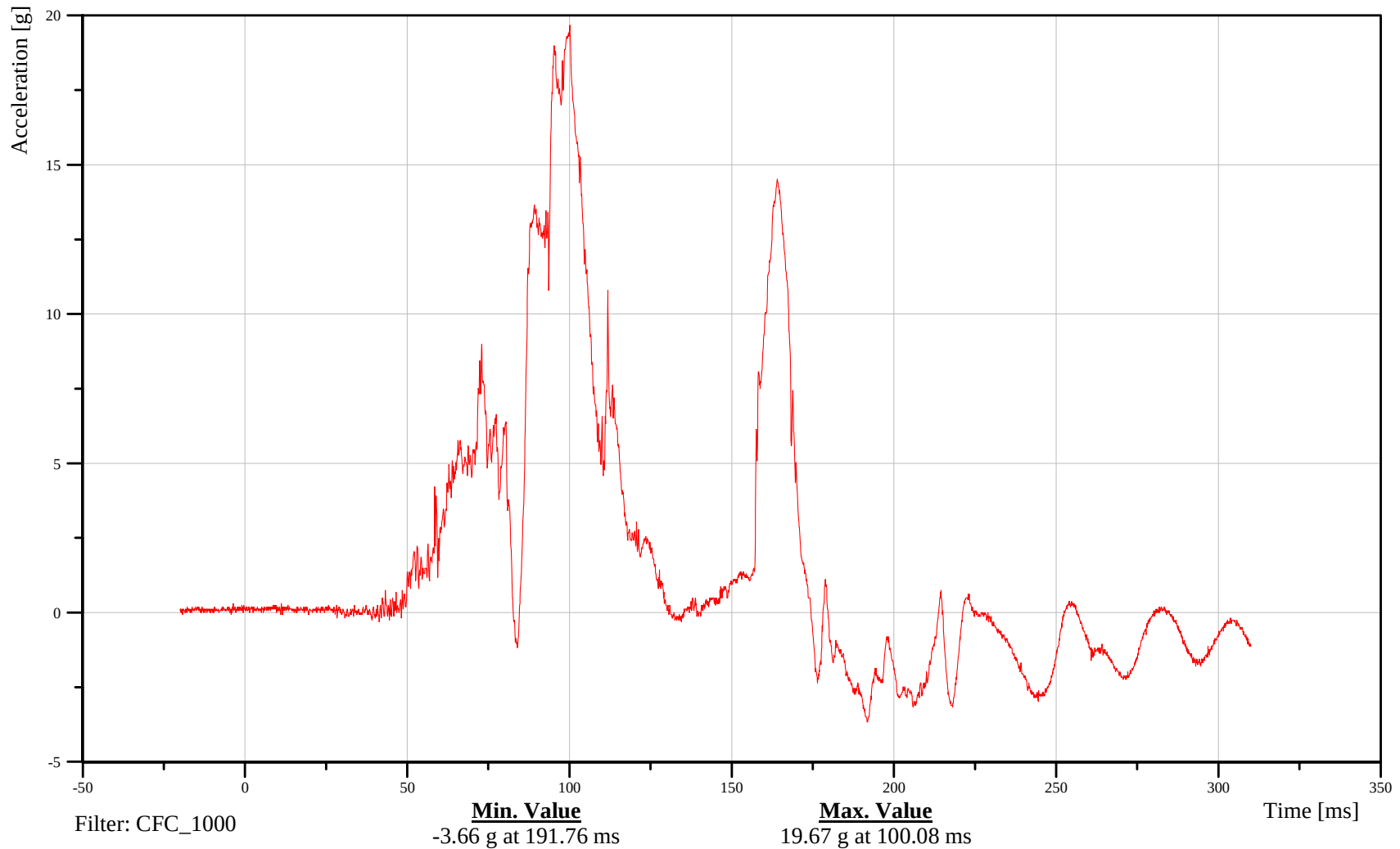
Bullet Vehicle Left Rear Passenger Head Redundant Y-Axis Acceleration

Customer: VRTC

14HEADCGRDHFACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-141

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

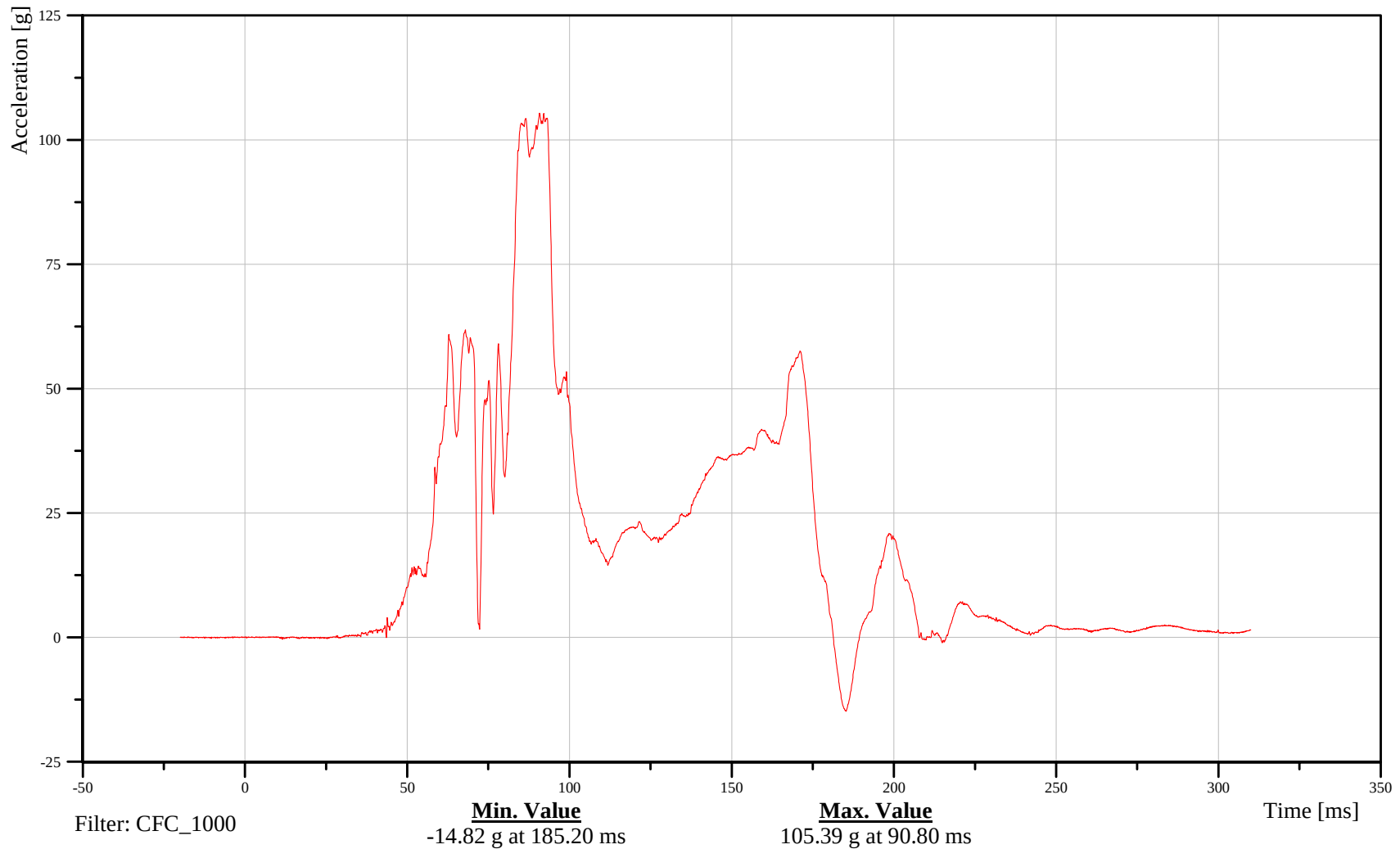
Bullet Vehicle Left Rear Passenger Head Redundant Z-Axis Acceleration

Customer: VRTC

14HEADCGRDHFACZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-142

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

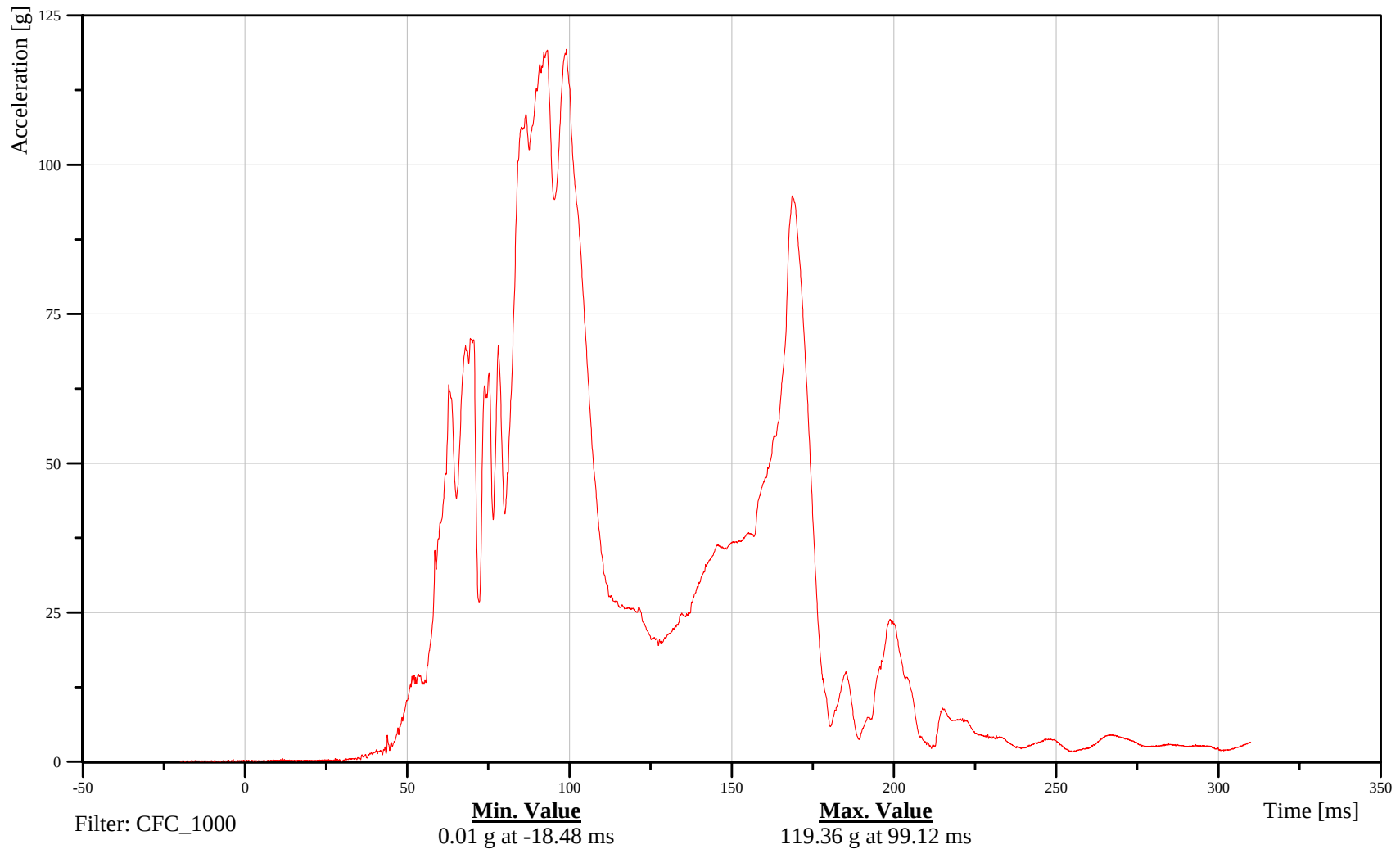
Bullet Vehicle Left Rear Passenger Head Redundant Resultant Acceleration

Customer: VRTC

14HEADCGRDHFACRA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-143

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

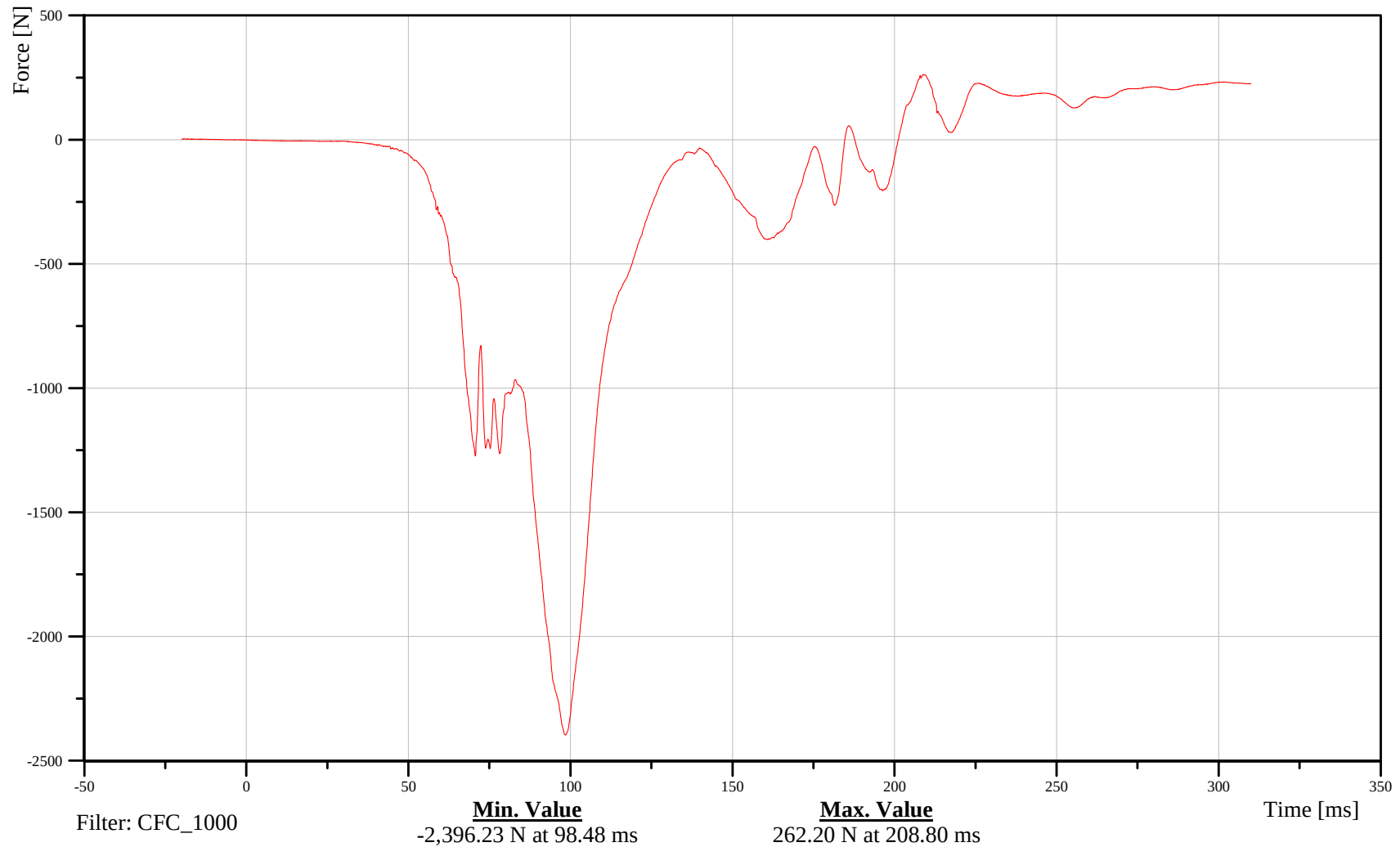
Bullet Vehicle Left Rear Passenger Upper Neck X-Axis Force

Customer: VRTC

14NECKUP00HFFOXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-144

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

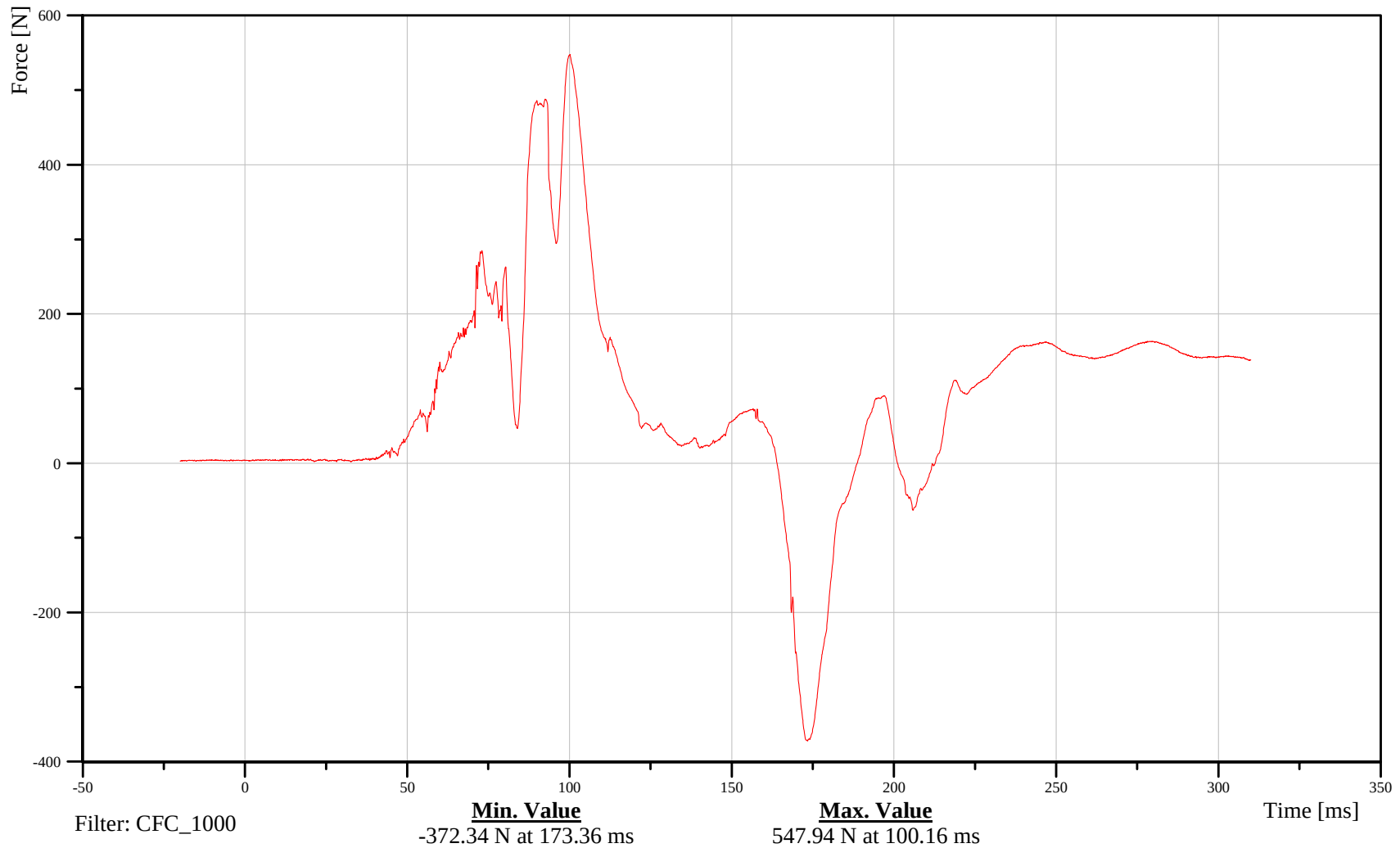
Bullet Vehicle Left Rear Passenger Upper Neck Y-Axis Force

Customer: VRTC

14NECKUP00HFFOYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-145

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Left Rear Passenger Upper Neck Z-Axis Force

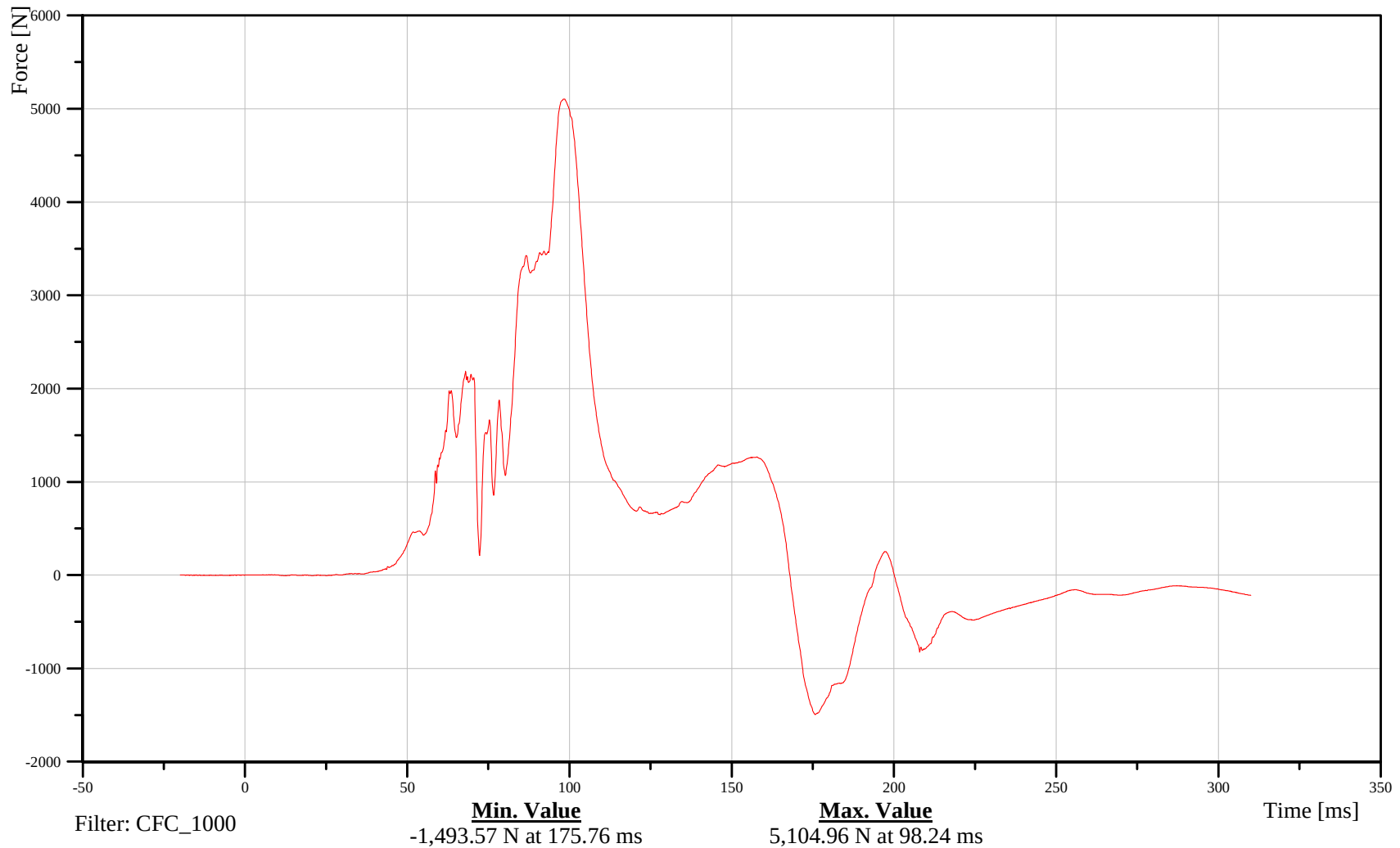
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

14NECKUP00HFFOZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-146

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

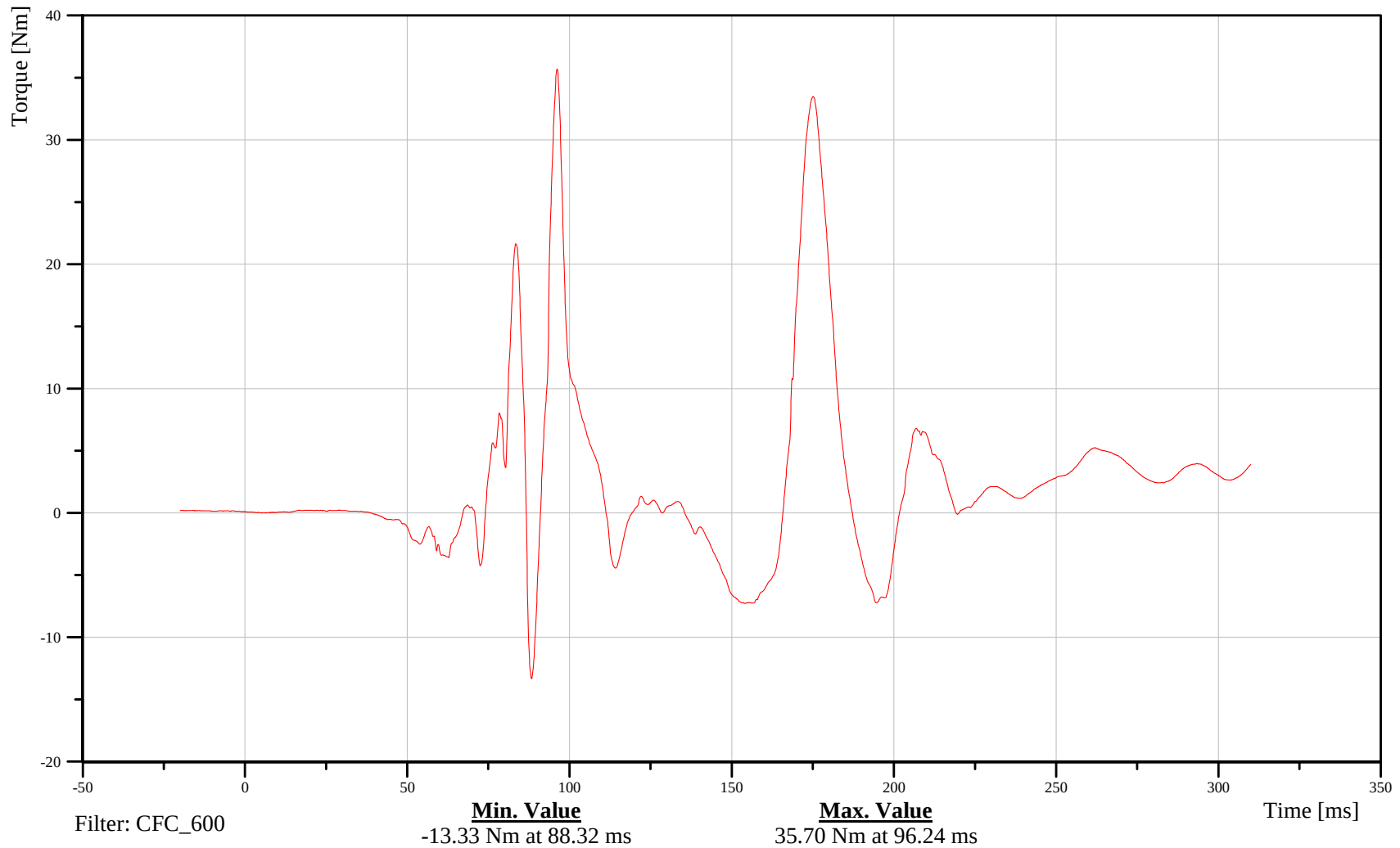
Bullet Vehicle Left Rear Passenger Upper Neck Moment About X Axis

Customer: VRTC

14NECKUP00HFMOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-147

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

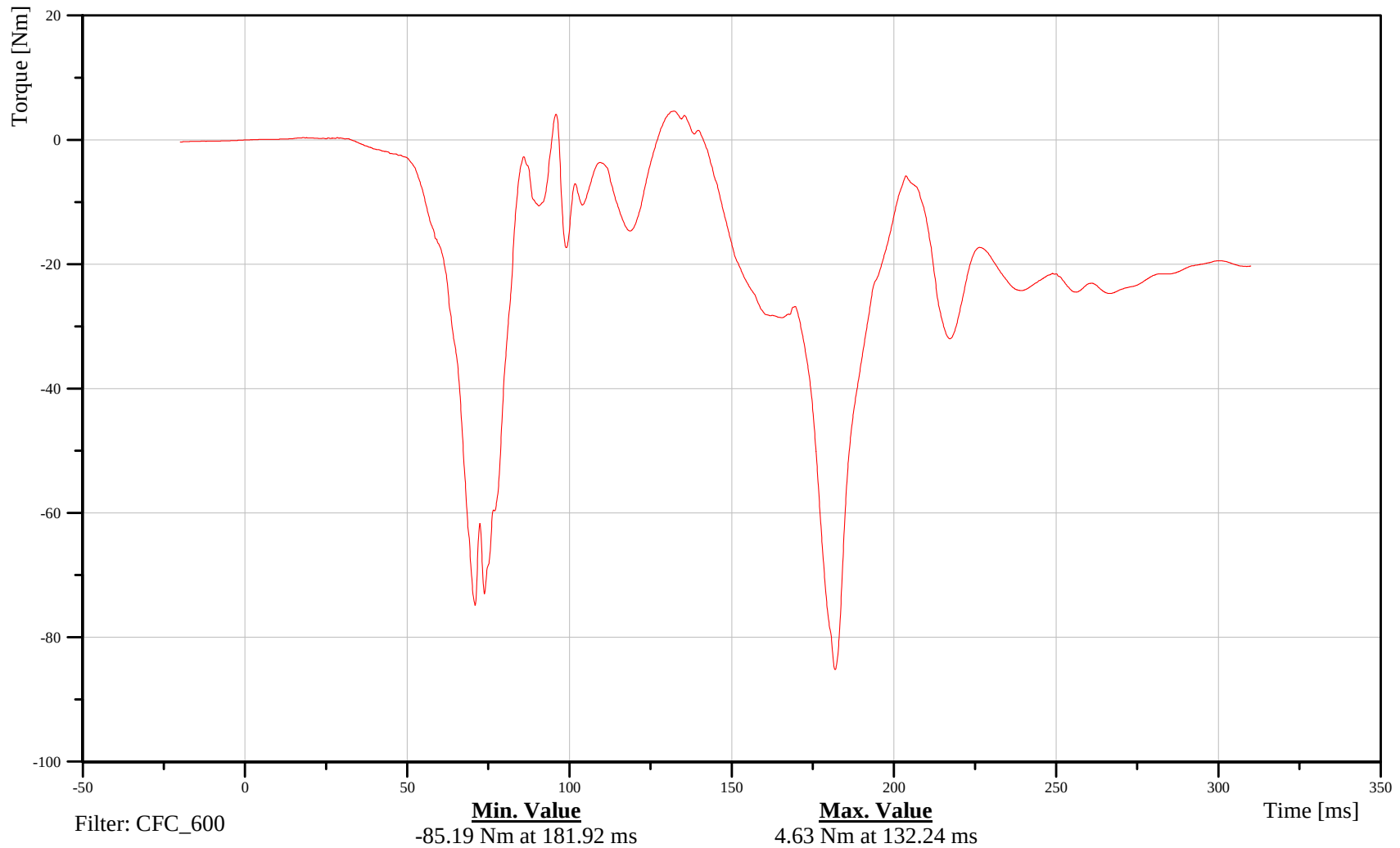
Bullet Vehicle Left Rear Passenger Upper Neck Moment About Y Axis

Customer: VRTC

14NECKUP00HFMOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-148

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

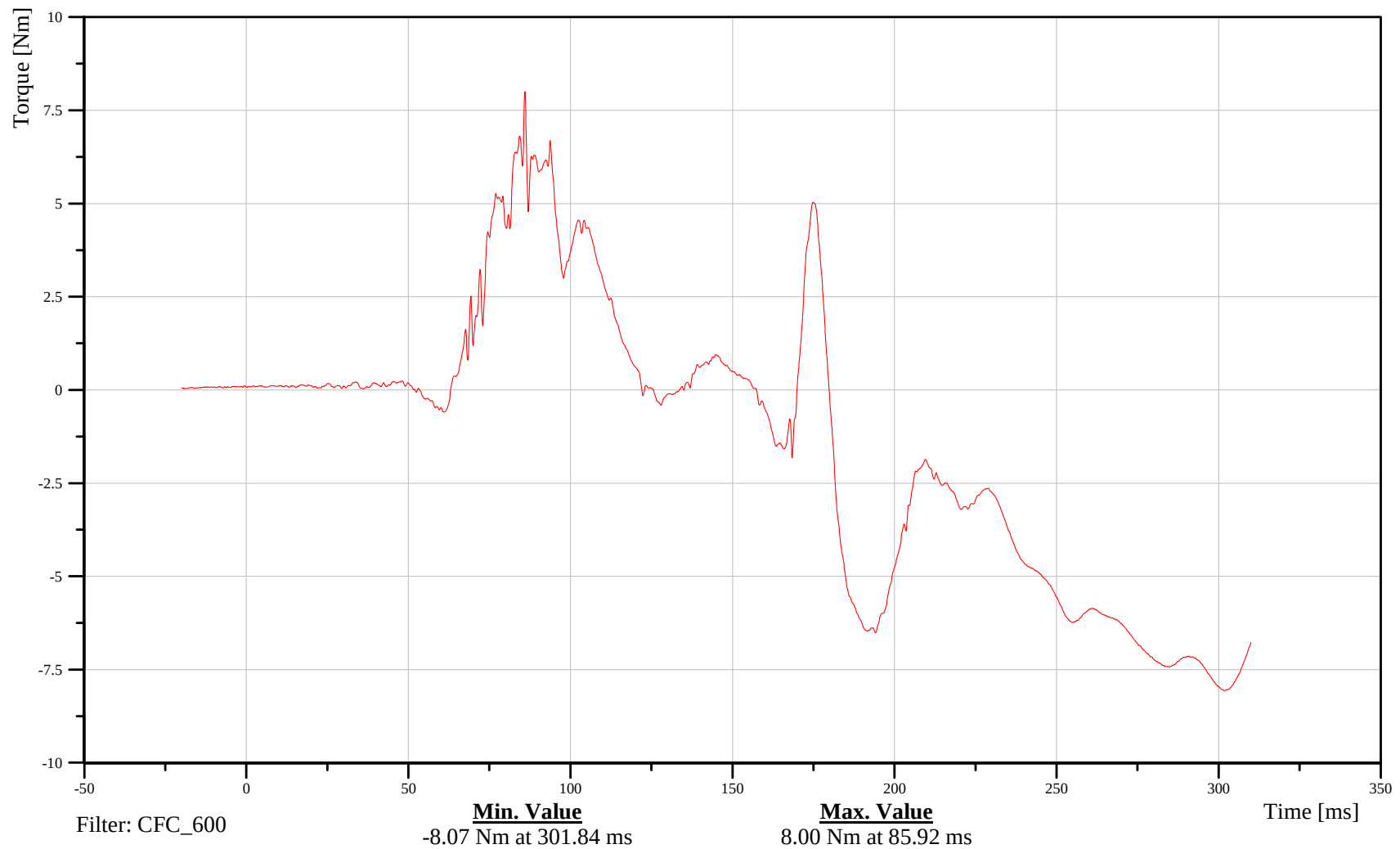
Bullet Vehicle Left Rear Passenger Upper Neck Moment About Z Axis

Customer: VRTC

14NECKUP00HFMOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-149

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Left Rear Passenger Chest X-Axis Acceleration

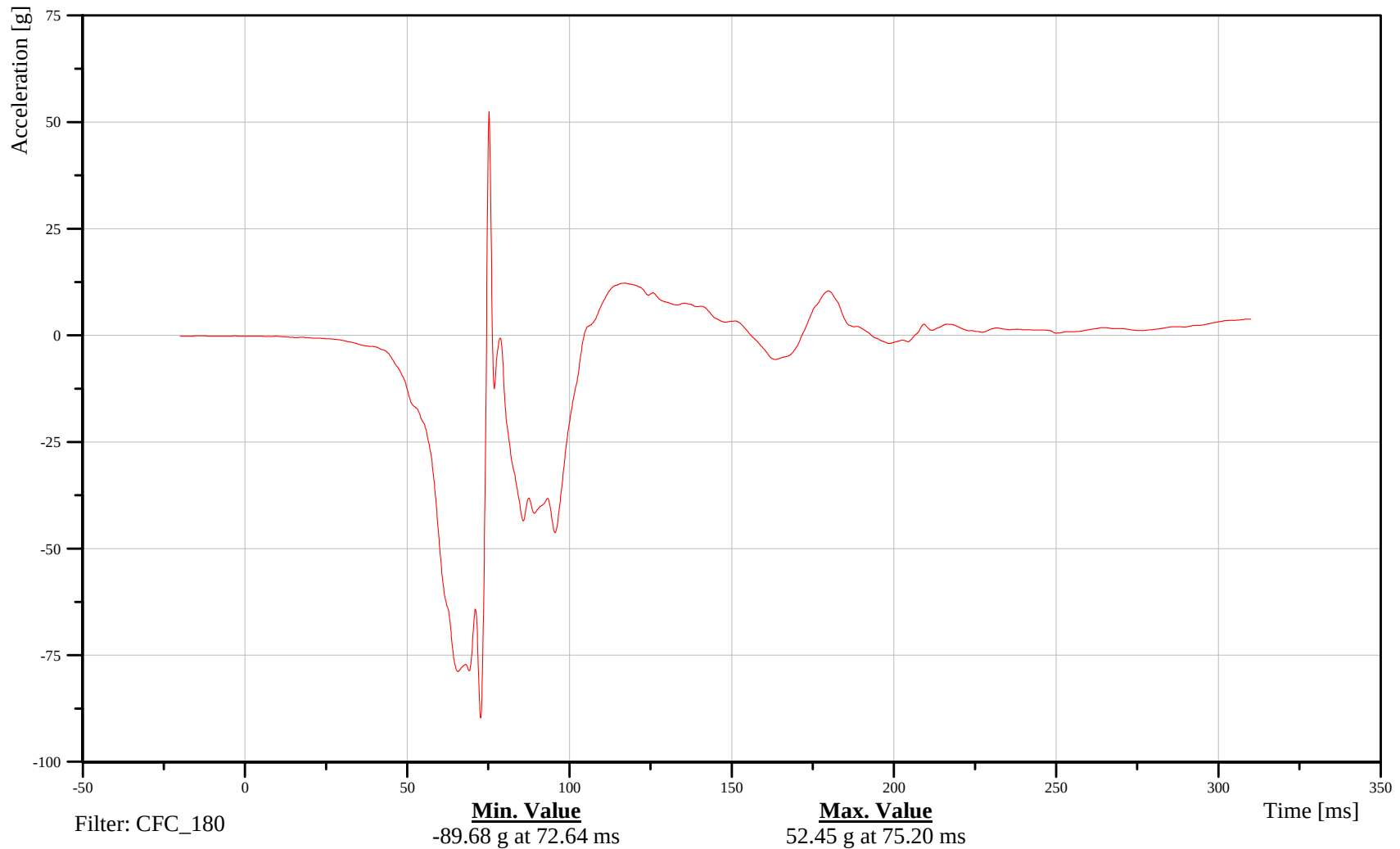
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

14CHSTCG00HFACXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-150

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Left Rear Passenger Chest Y-Axis Acceleration

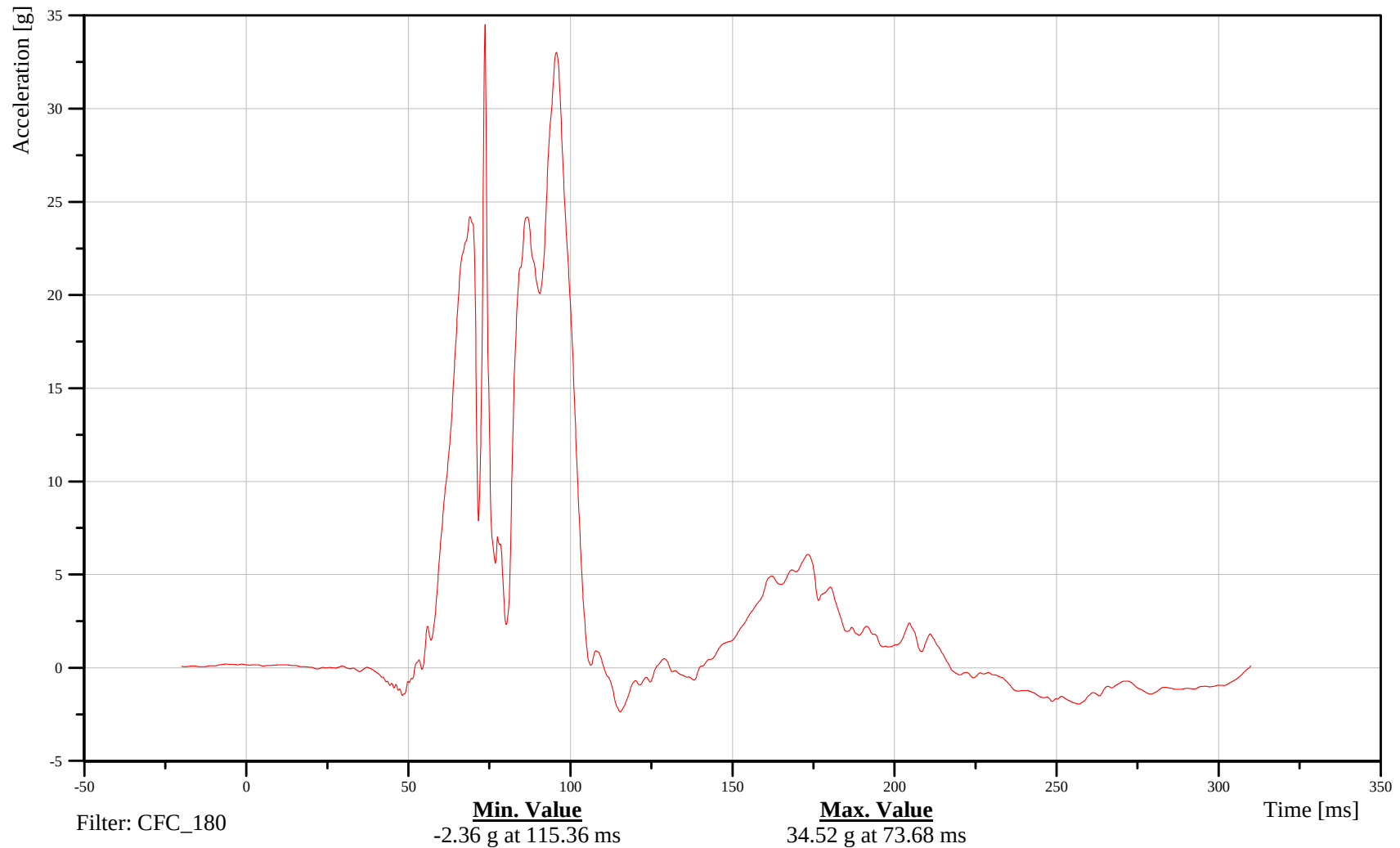
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

14CHSTCG00HFACYC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Left Rear Passenger Chest Z-Axis Acceleration

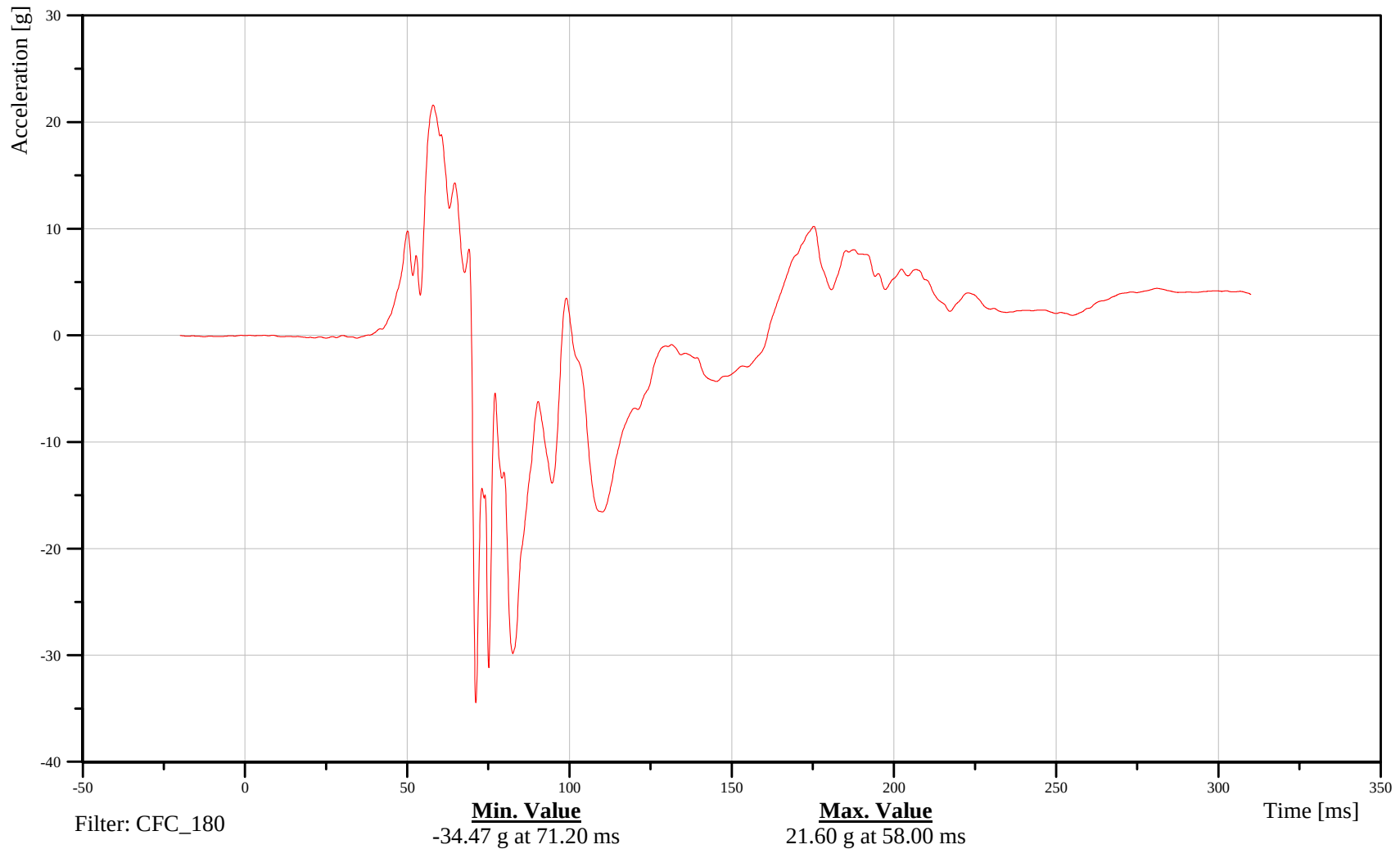
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

14CHSTCG00HFACZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-152

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

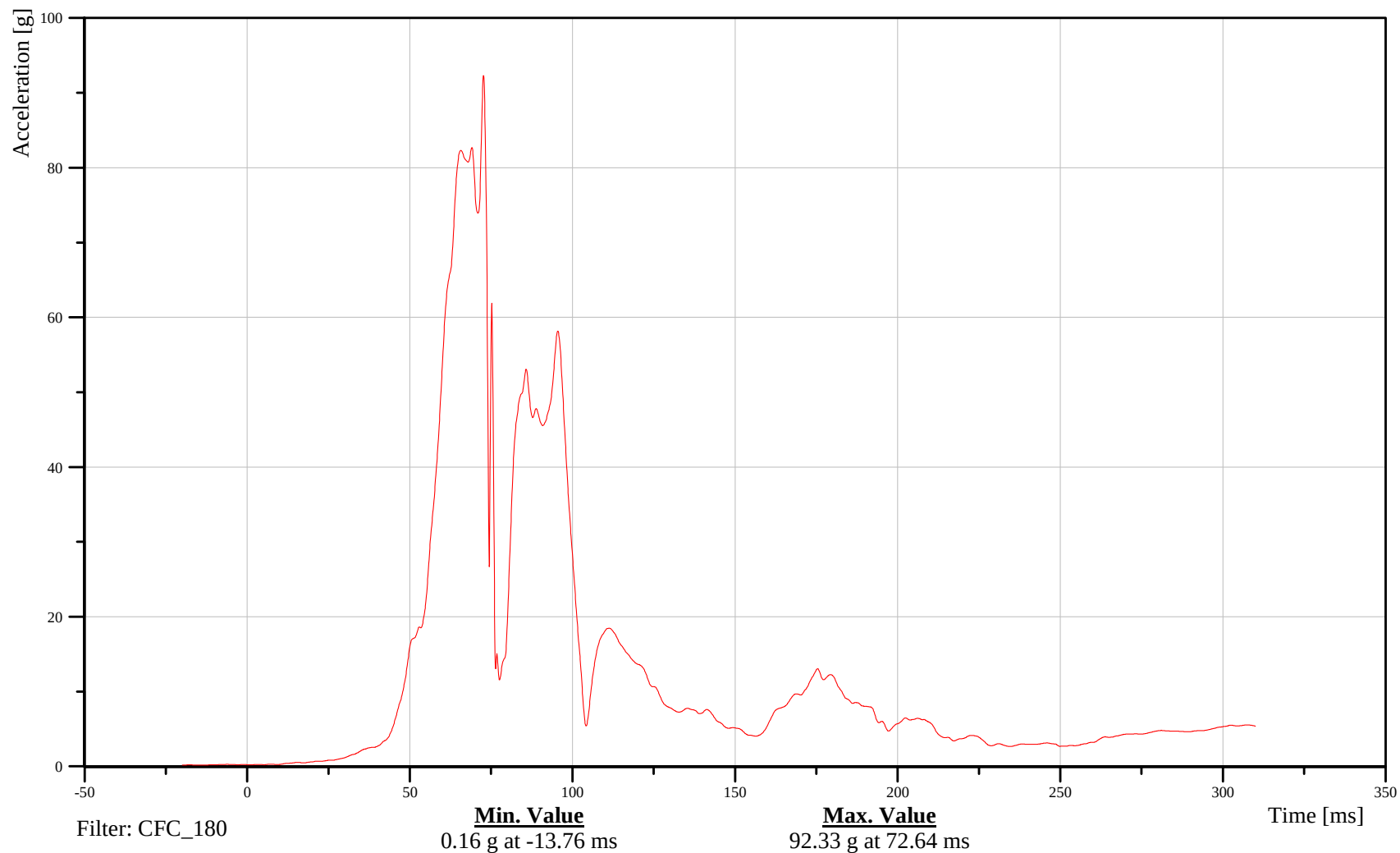
Bullet Vehicle Left Rear Passenger Chest Resultant Acceleration

Customer: VRTC

14CHSTCG00HFACRC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-153

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

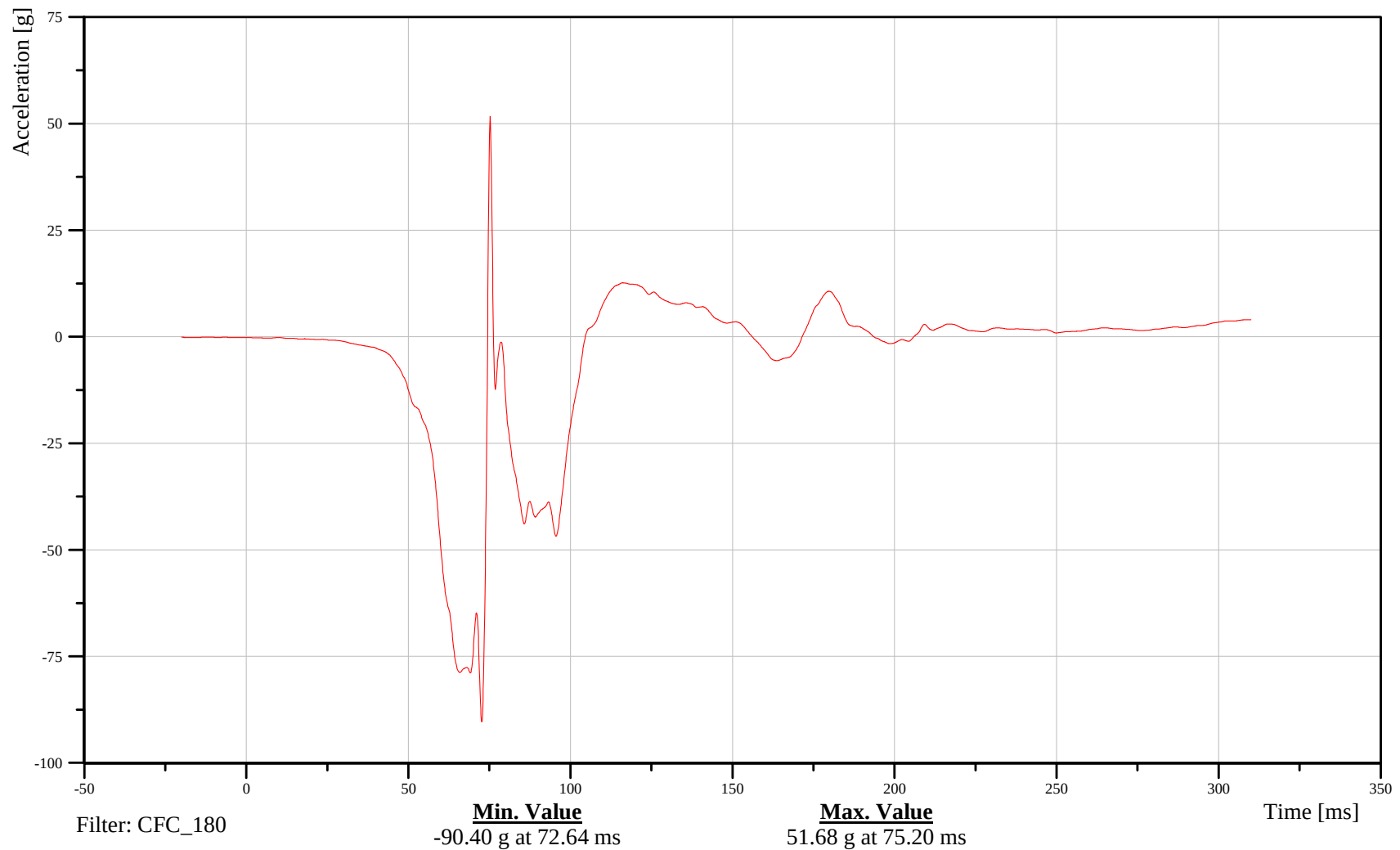
Bullet Vehicle Left Rear Passenger Chest Redundant X-Axis Acceleration

Customer: VRTC

14CHSTCGRDHFACXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-154

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

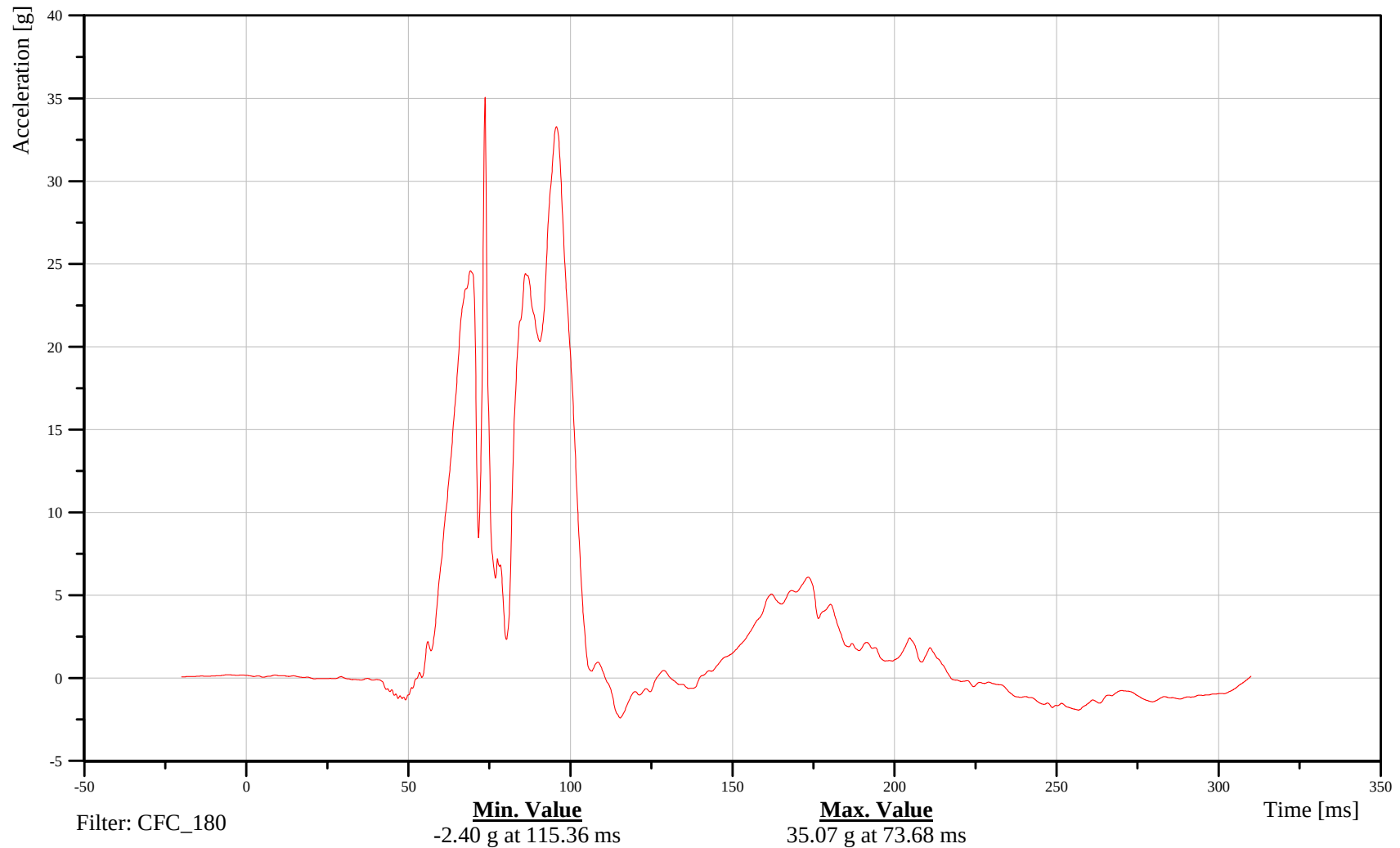
Bullet Vehicle Left Rear Passenger Chest Redundant Y-Axis Acceleration

Customer: VRTC

14CHSTCGRDHFACYC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

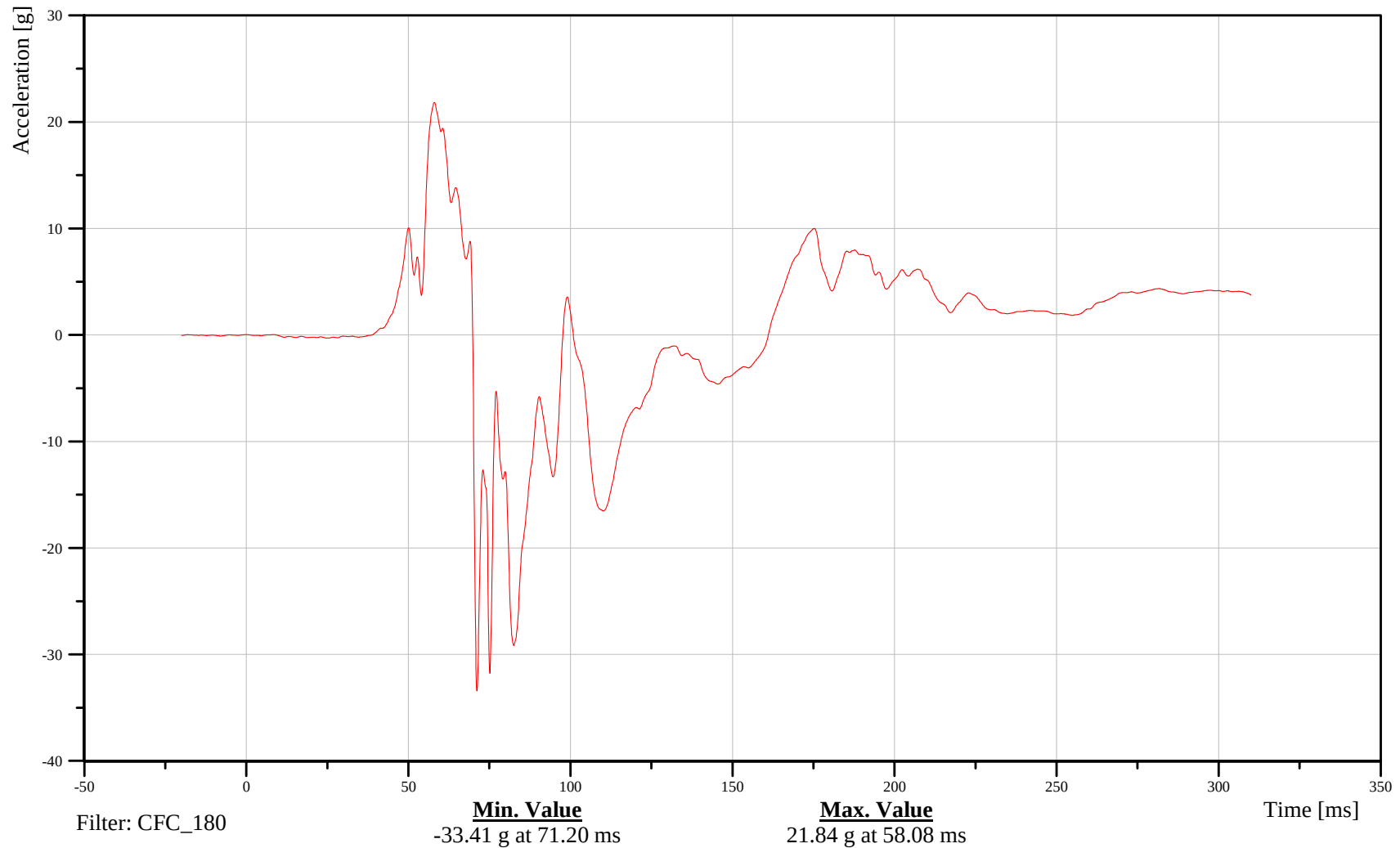
Bullet Vehicle Left Rear Passenger Chest Redundant Z-Axis Acceleration

Customer: VRTC

14CHSTCGRDHFACZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-156

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

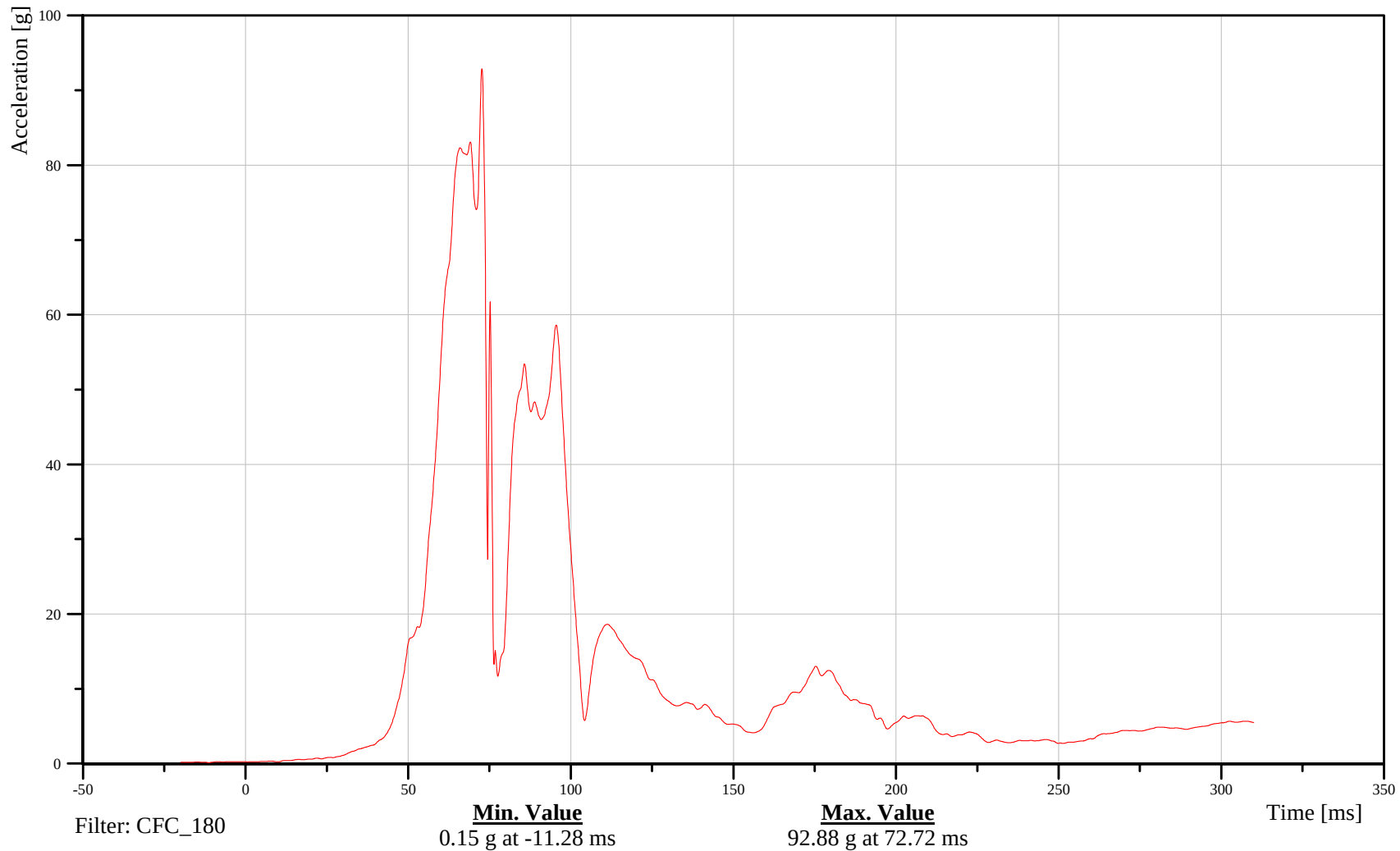
Bullet Vehicle Left Rear Passenger Chest Redundant Resultant Acceleration

Customer: VRTC

14CHSTCGRDHFACRC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-157

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

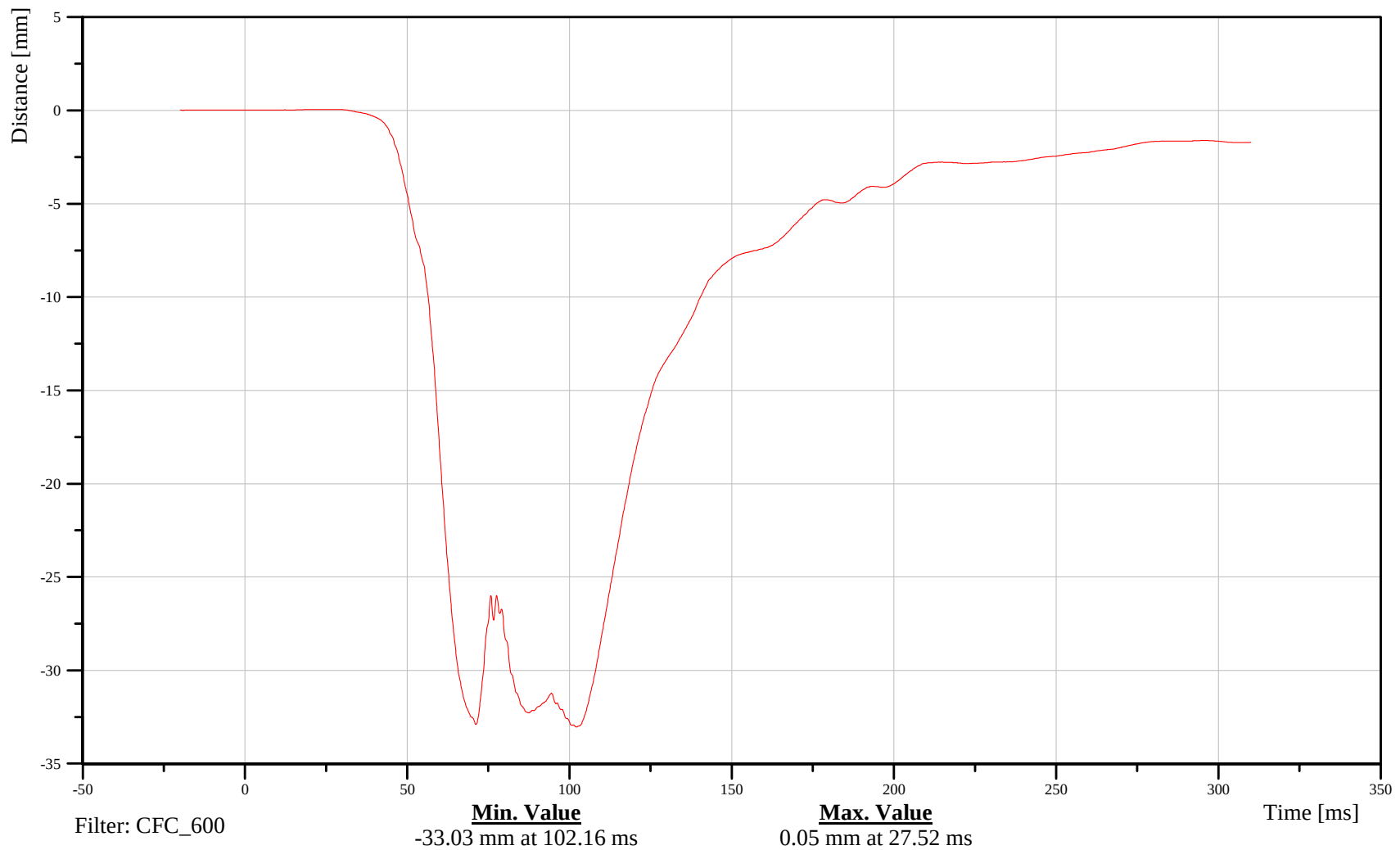
Bullet Vehicle Left Rear Passenger Chest X-Axis Displacement

Customer: VRTC

14CHST0000HFDSXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-158

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

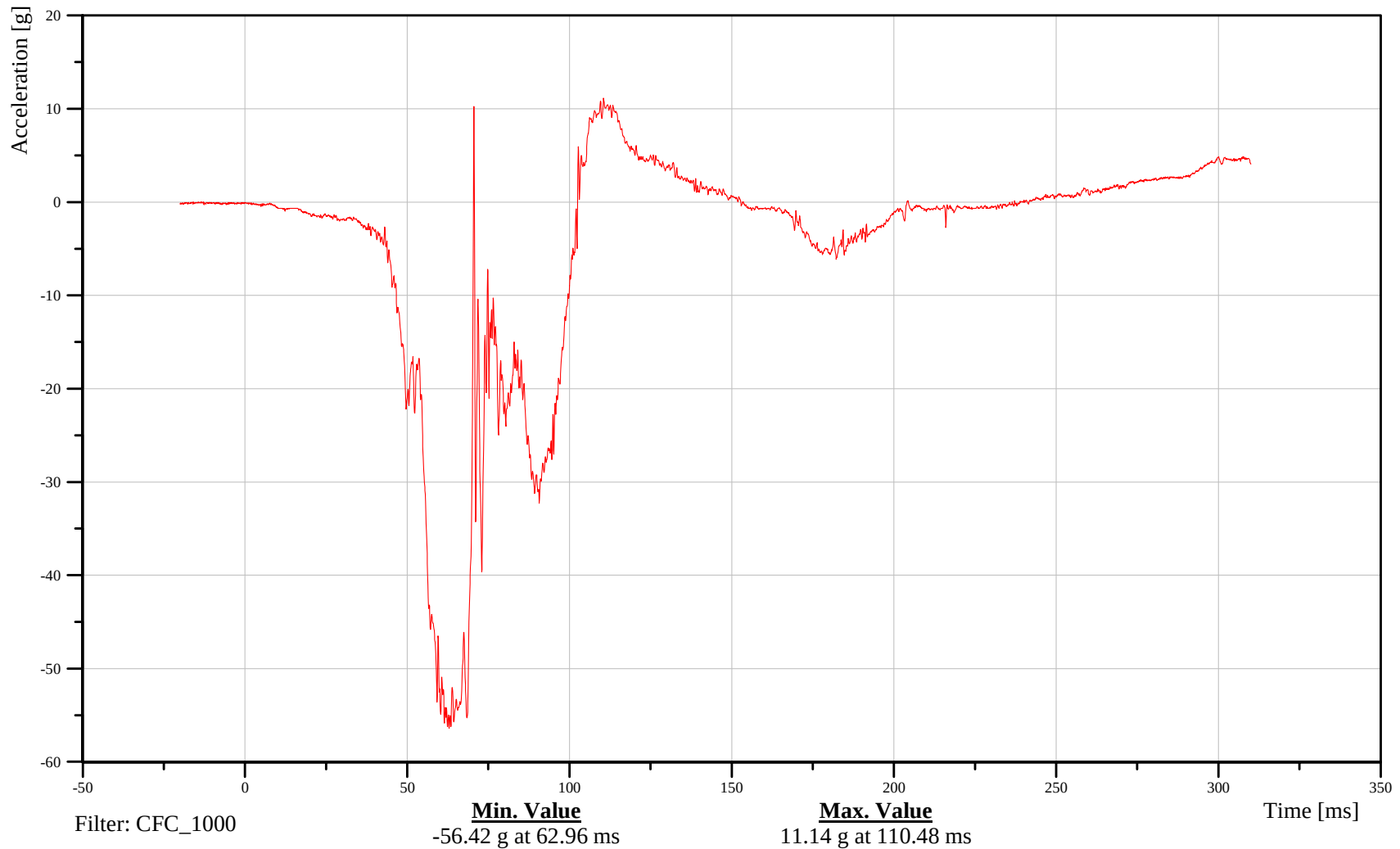
Bullet Vehicle Left Rear Passenger Pelvis X-Axis Acceleration

Customer: VRTC

14PELVCG00HFACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-159

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

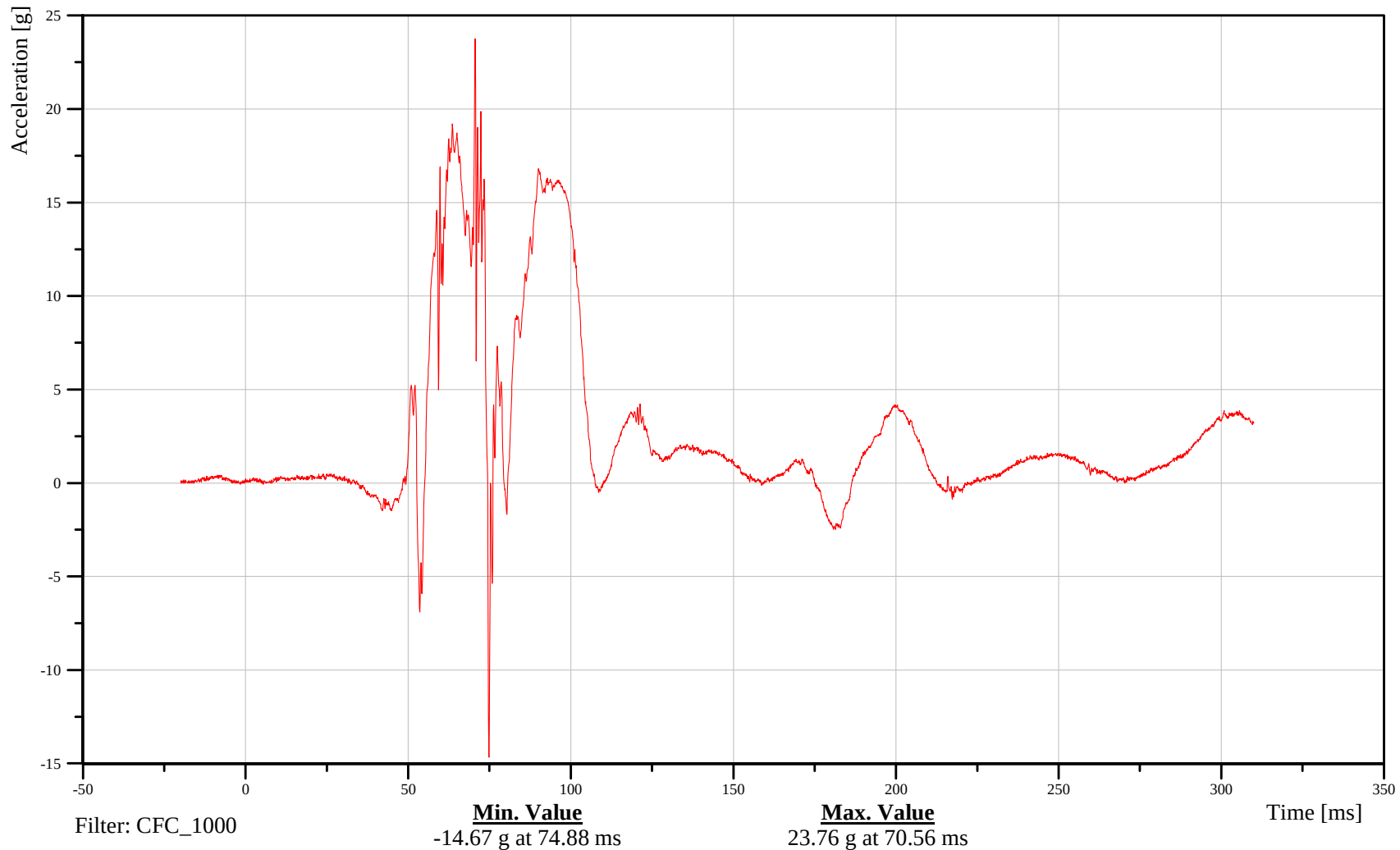
Bullet Vehicle Left Rear Passenger Pelvis Y-Axis Acceleration

Customer: VRTC

14PELVCG00HFACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-160

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

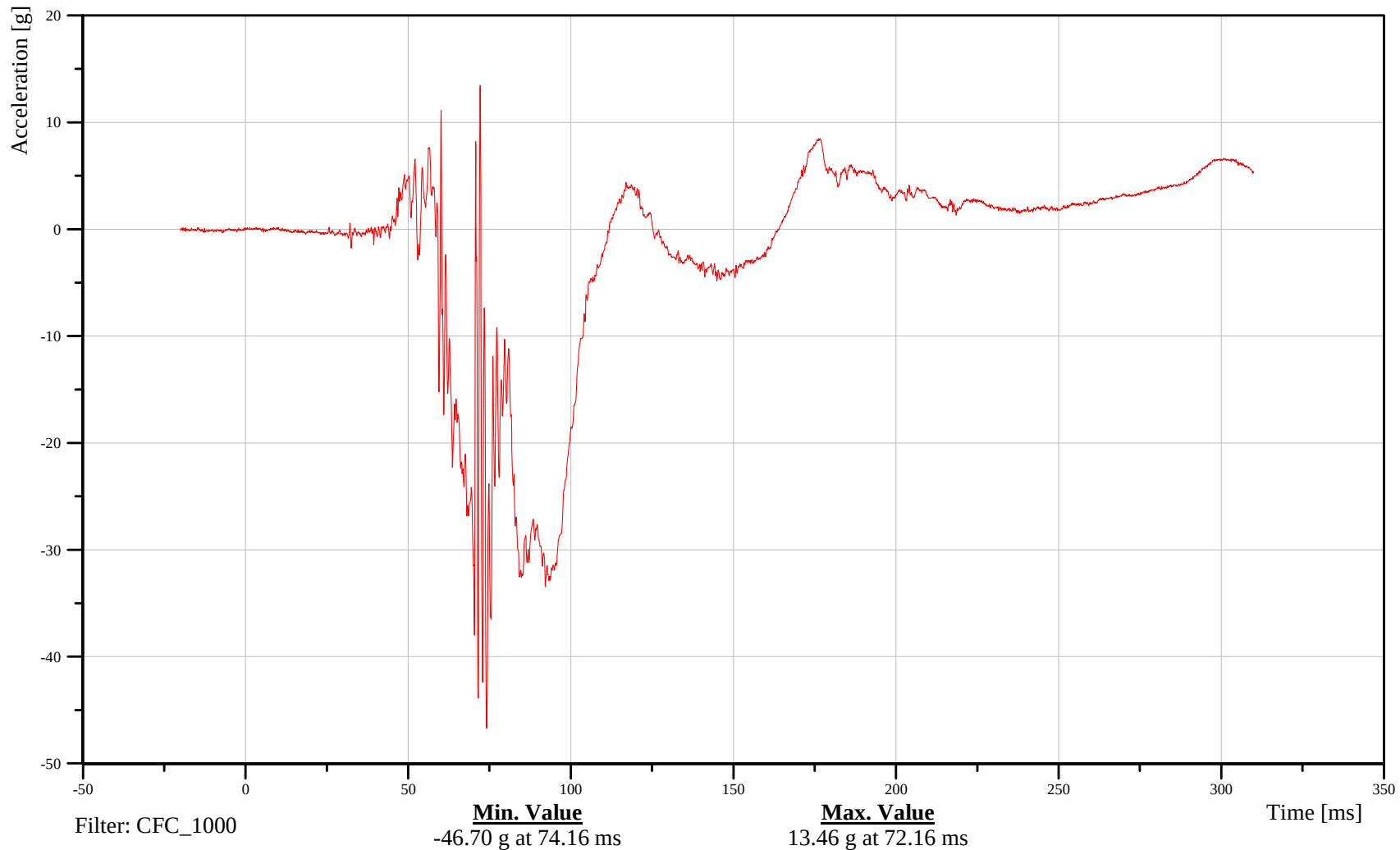
Bullet Vehicle Left Rear Passenger Pelvis Z-Axis Acceleration

Customer: VRTC

14PELVCG00HFACZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-161

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

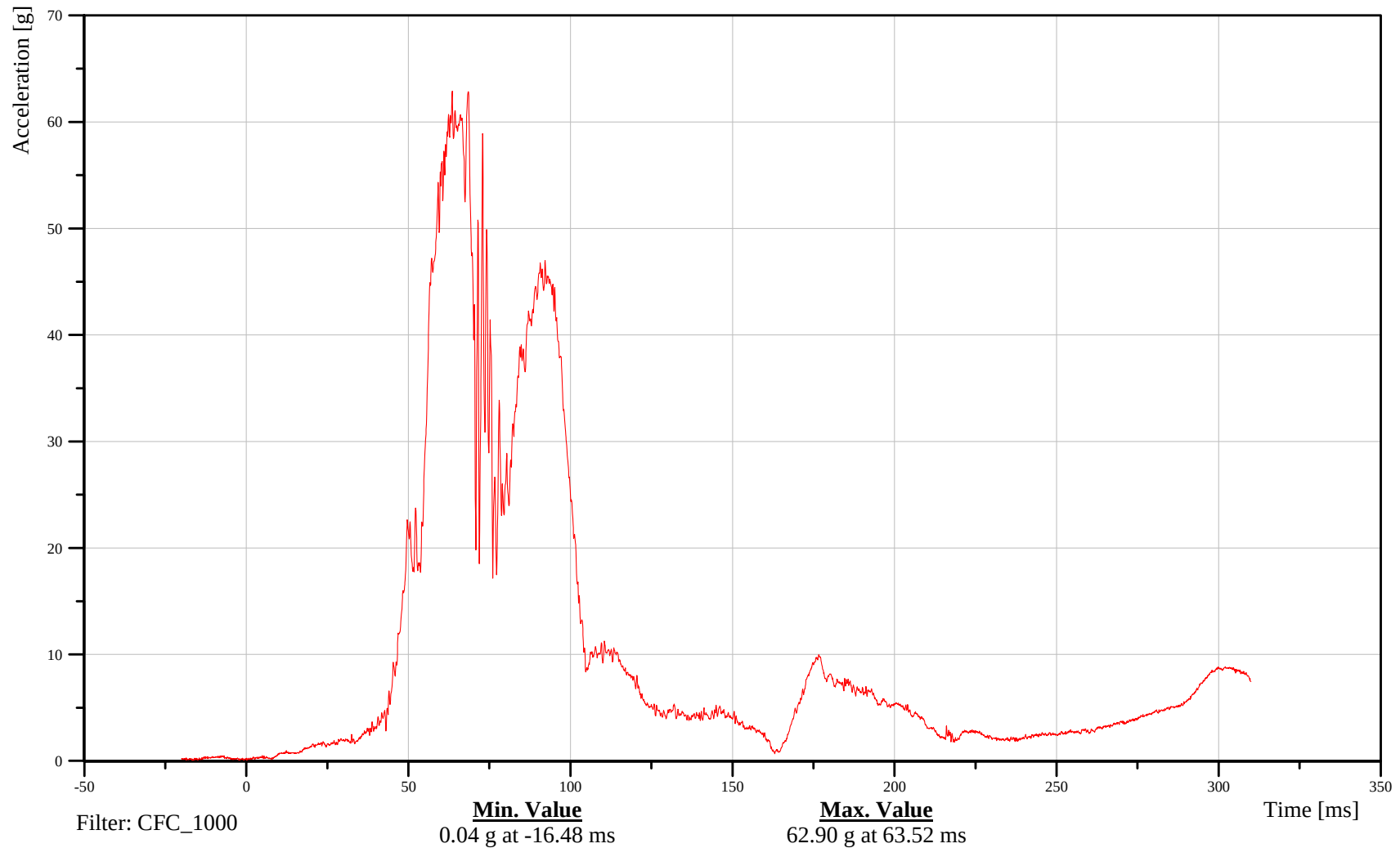
Bullet Vehicle Left Rear Passenger Pelvis Resultant Acceleration

Customer: VRTC

14PELVCG00HFACRA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Left Rear Passenger Left Femur Z-Axis Force

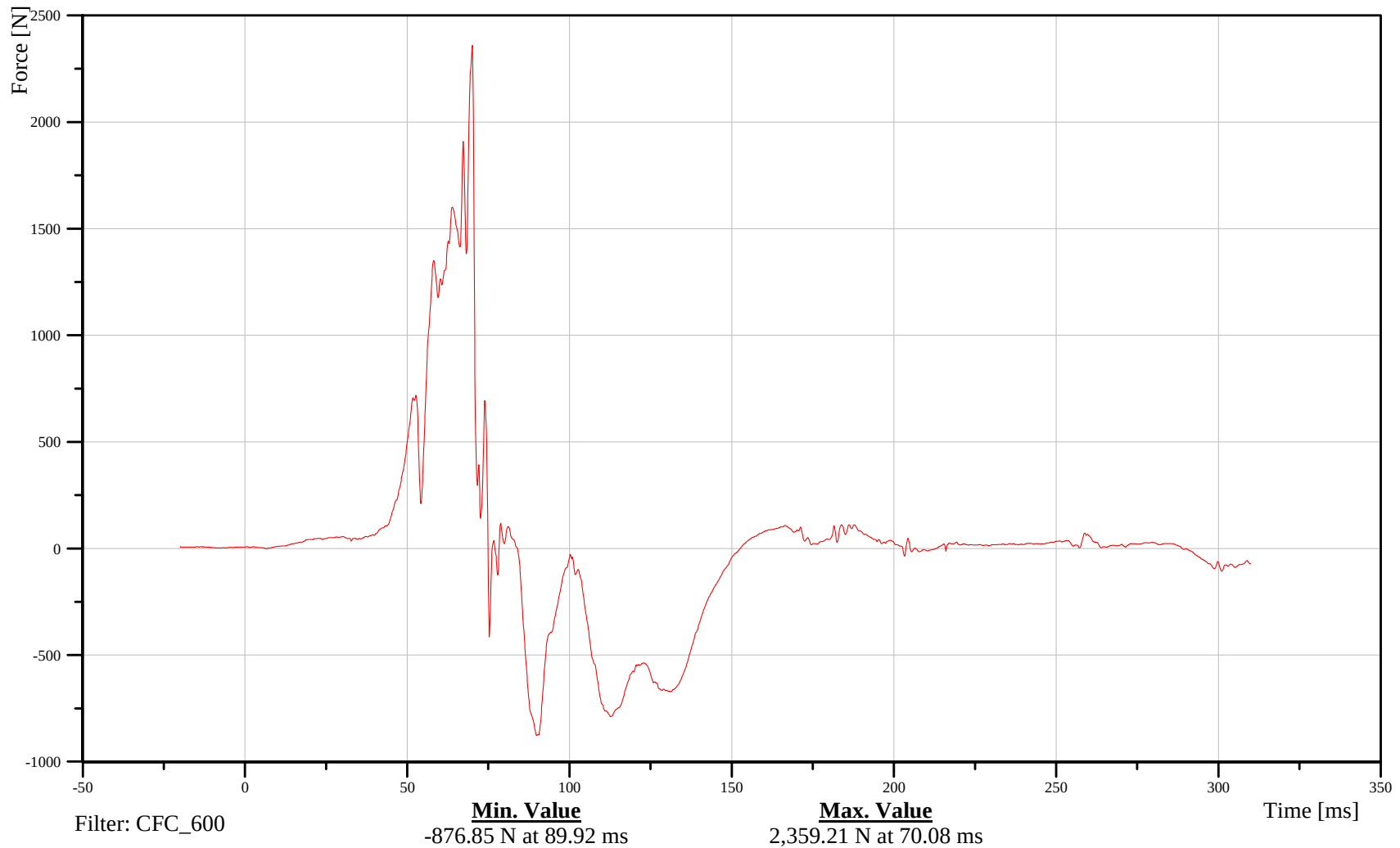
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

14FEMRLU00HFFOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-163

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Left Rear Passenger Right Femur Z-Axis Force

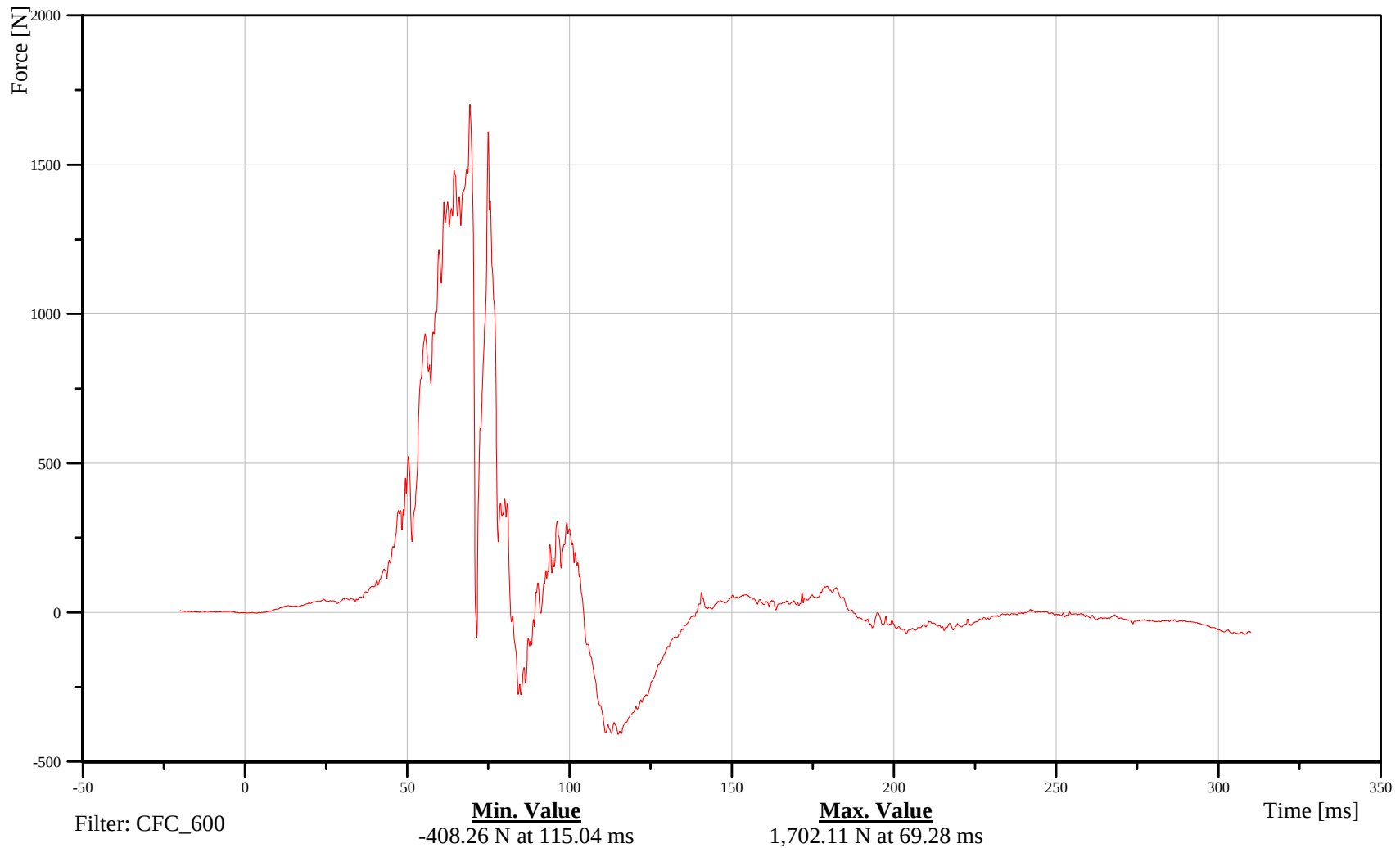
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

14FEMRRU00HFFOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-164

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Left Sill X-Axis Acceleration

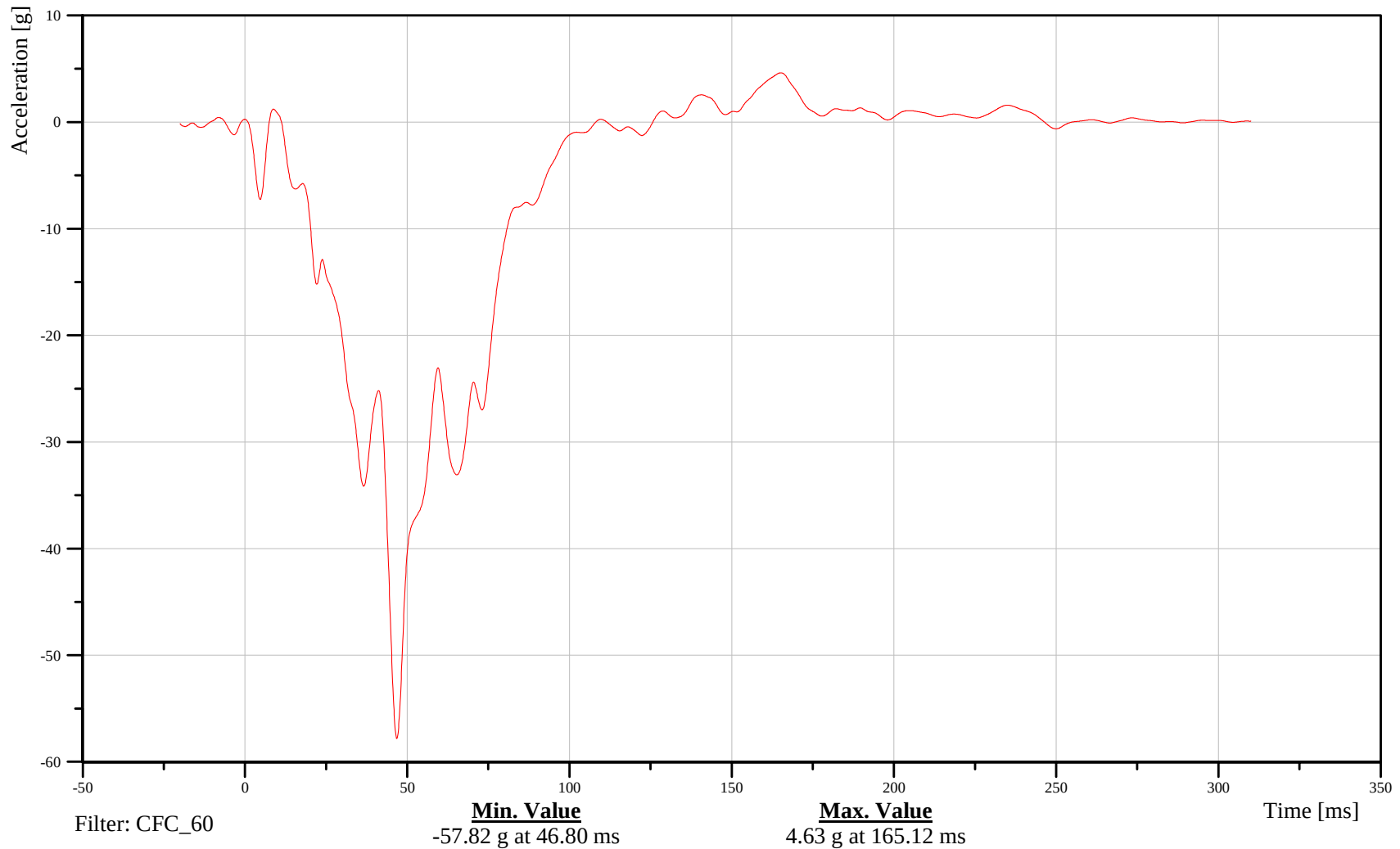
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

10SILLE0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-165

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Left Sill Y-Axis Acceleration

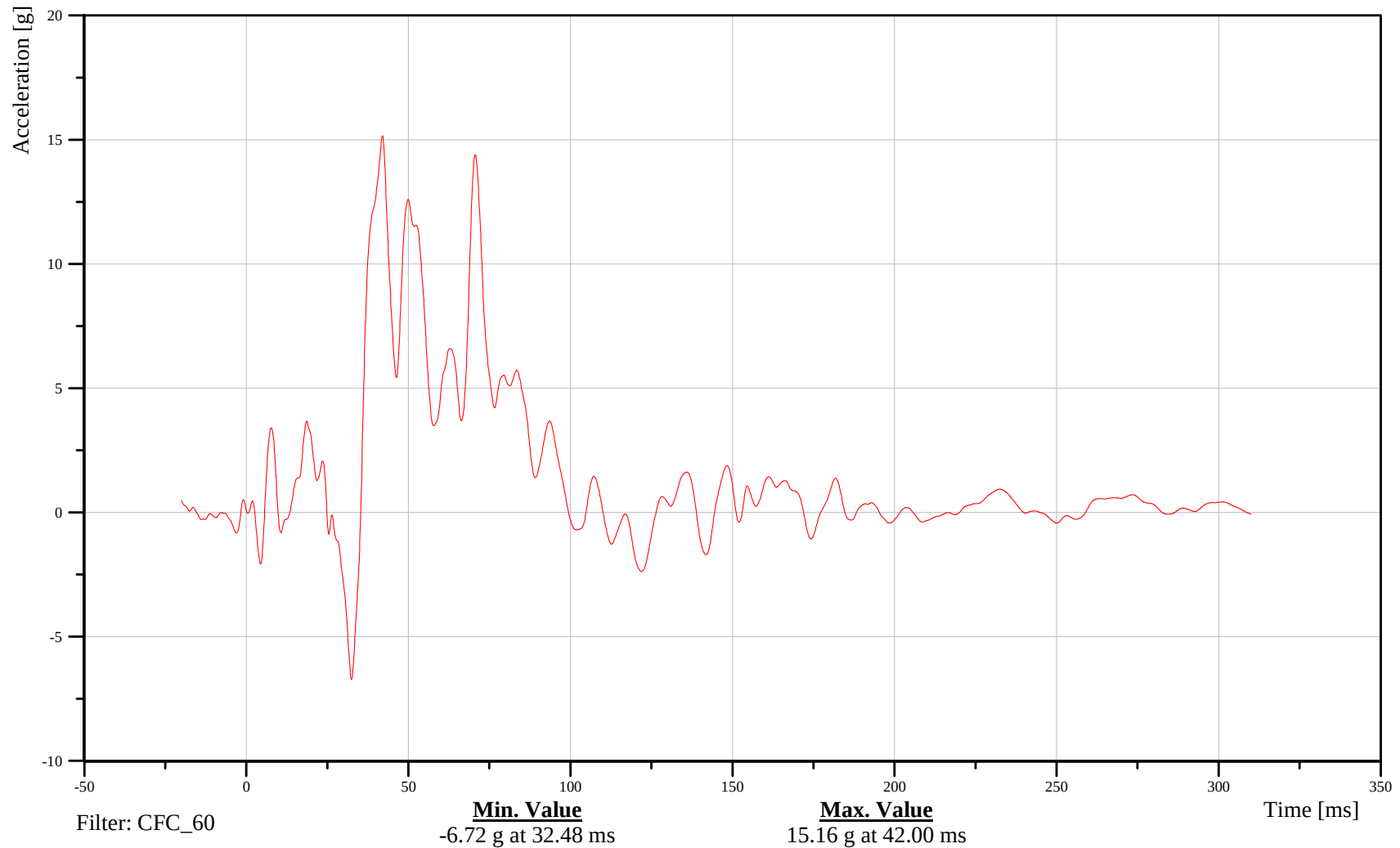
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

10SILLE0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-166

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

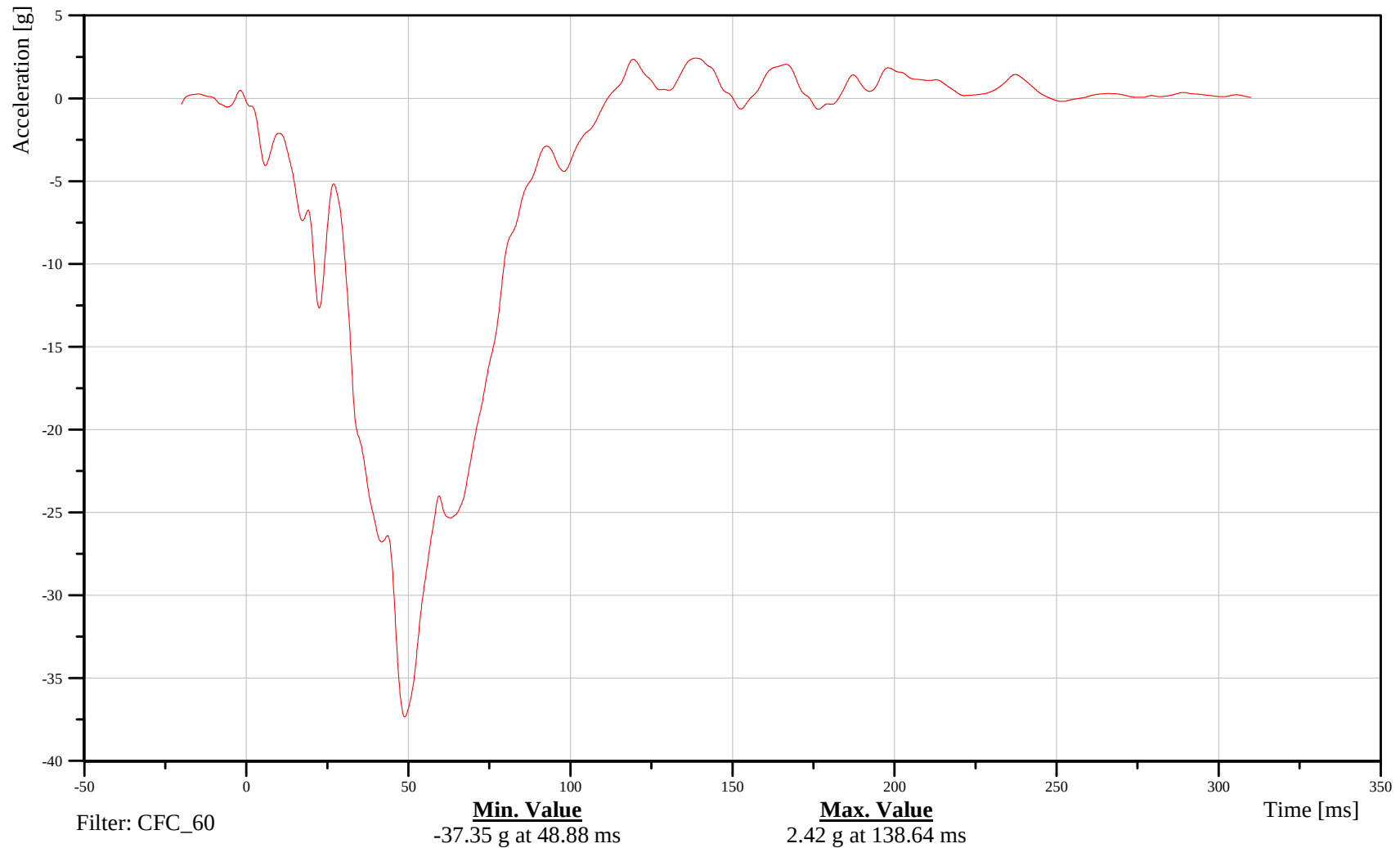
Bullet Vehicle Right Sill X-Axis Acceleration

Customer: VRTC

10SILLRI0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-167

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

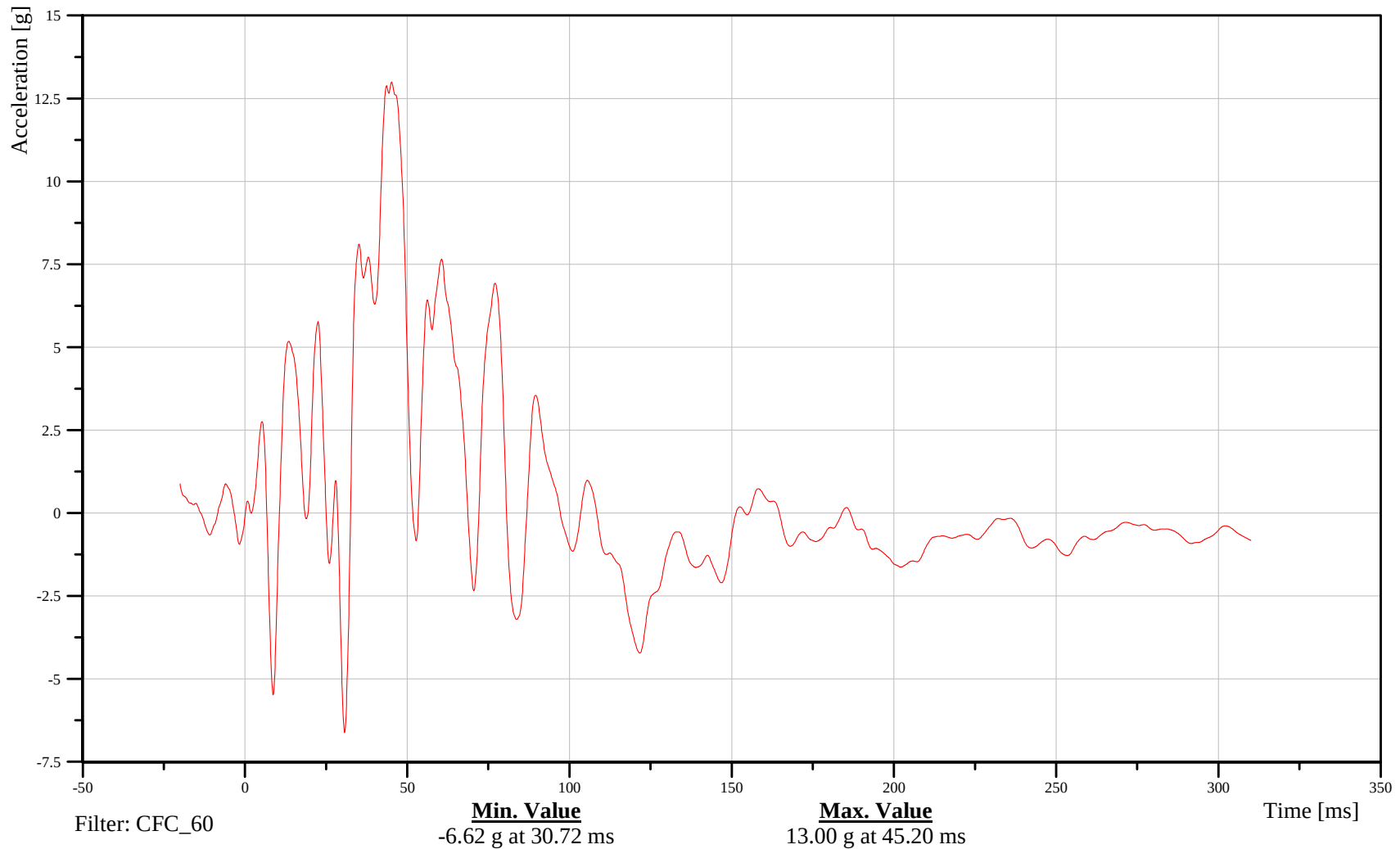
Bullet Vehicle Right Sill Y-Axis Acceleration

Customer: VRTC

10SILLRI0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-168

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

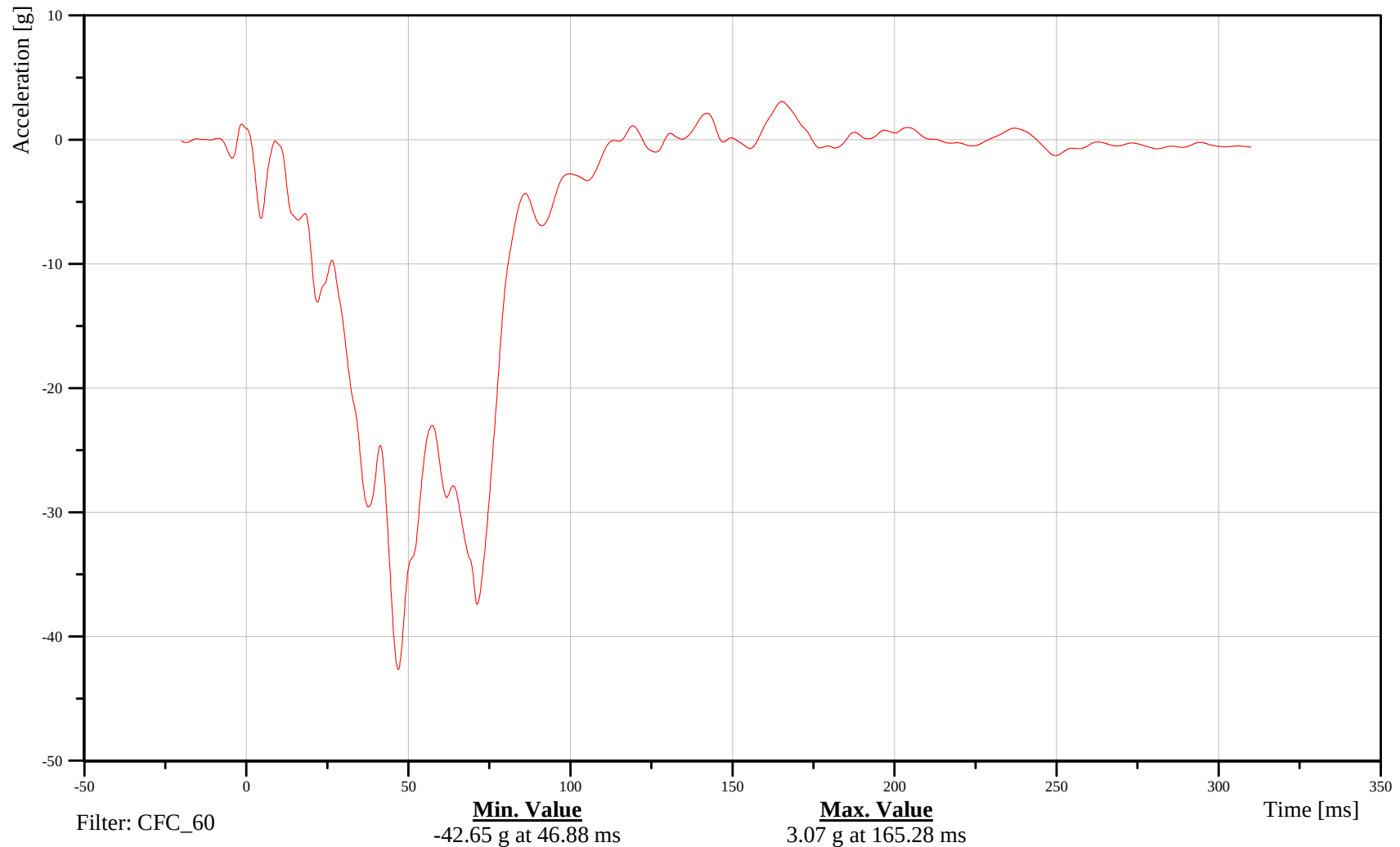
Bullet Vehicle Vehicle Center of Gravity X-Axis Acceleration

Customer: VRTC

10VEHCCG0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-169

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Vehicle Center of Gravity Y-Axis Acceleration

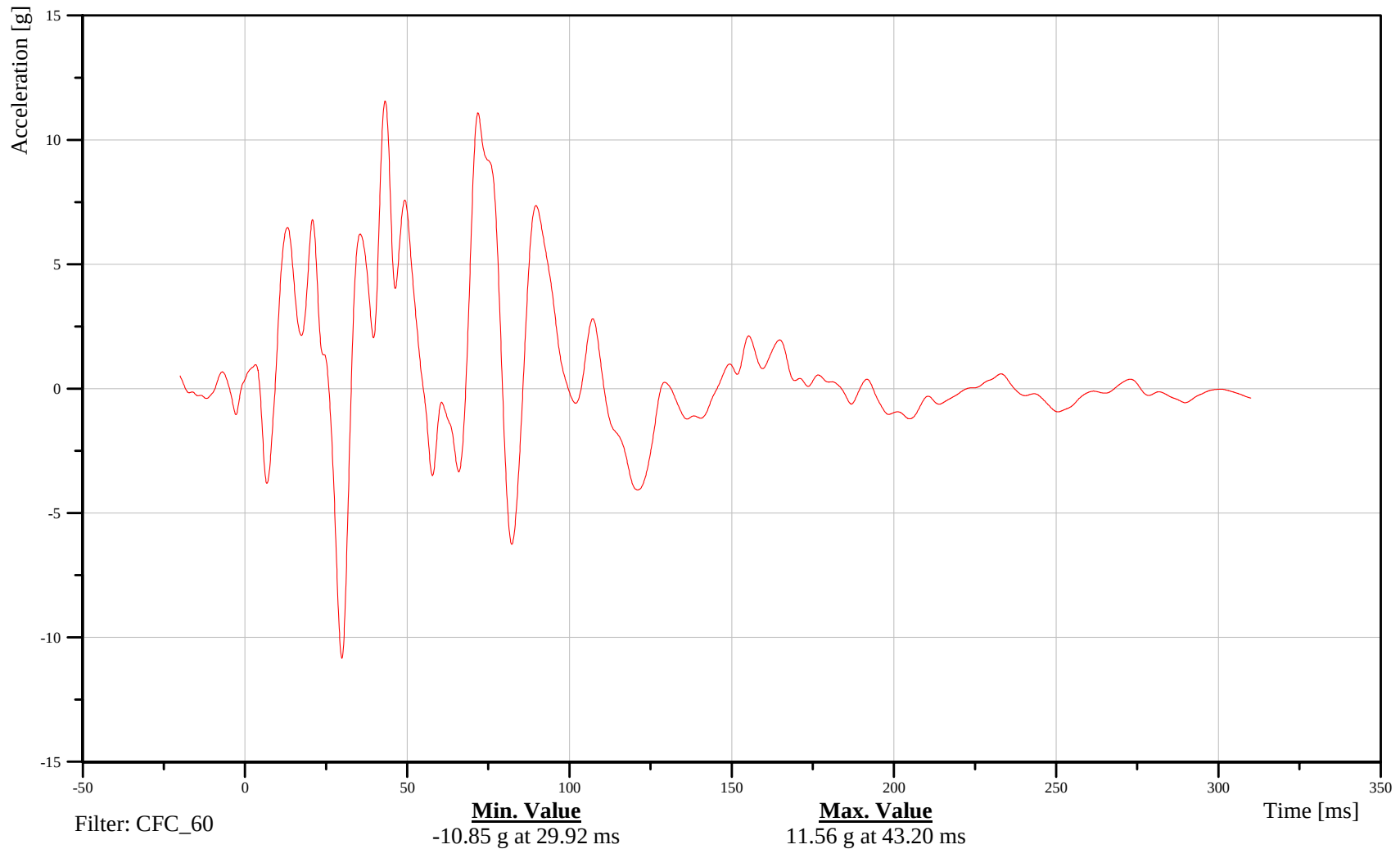
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

10VEHCCG0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-170

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Vehicle Center of Gravity Z-Axis Acceleration

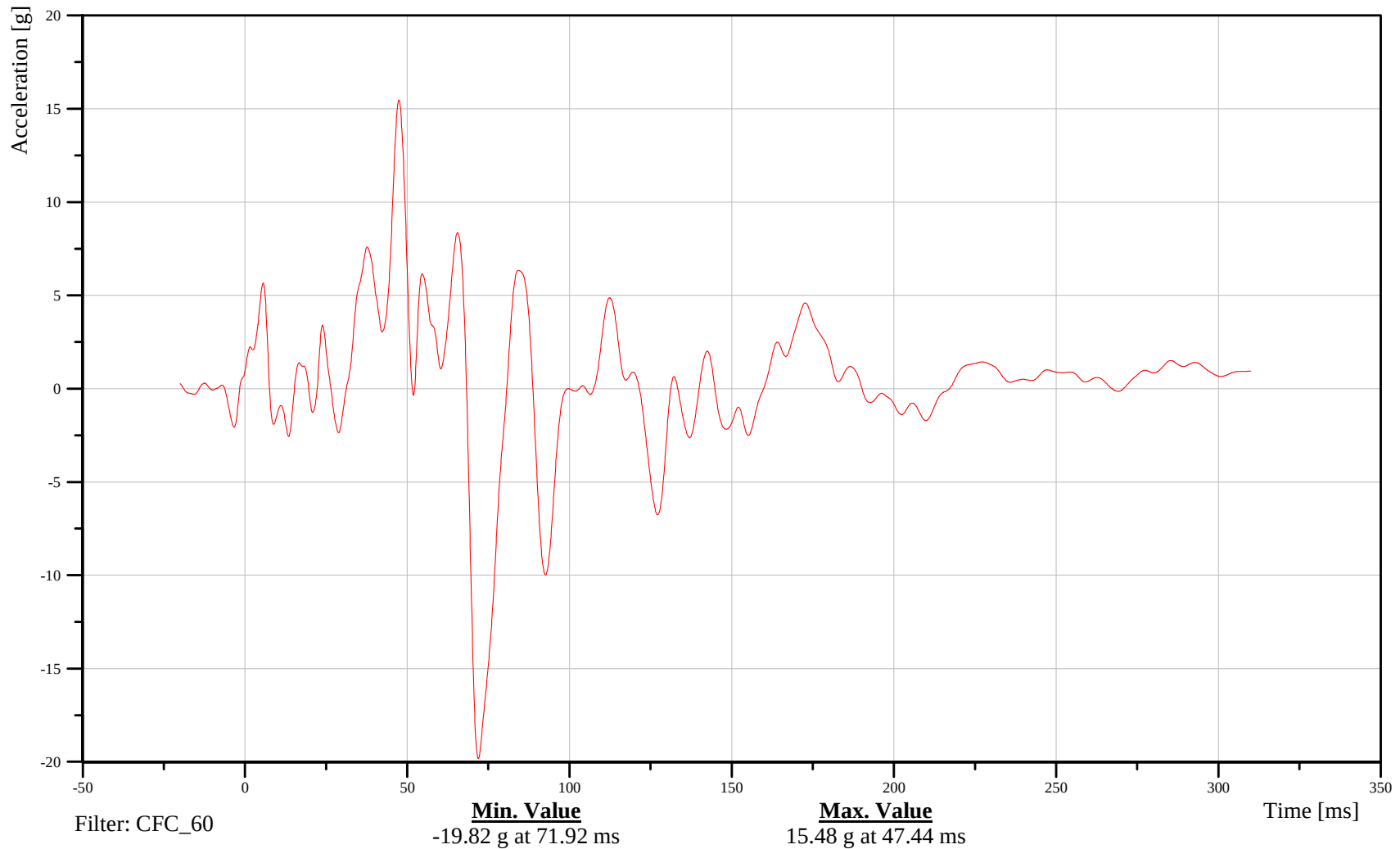
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

10VEHCCG0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-171

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Vehicle Center of Gravity Resultant Acceleration

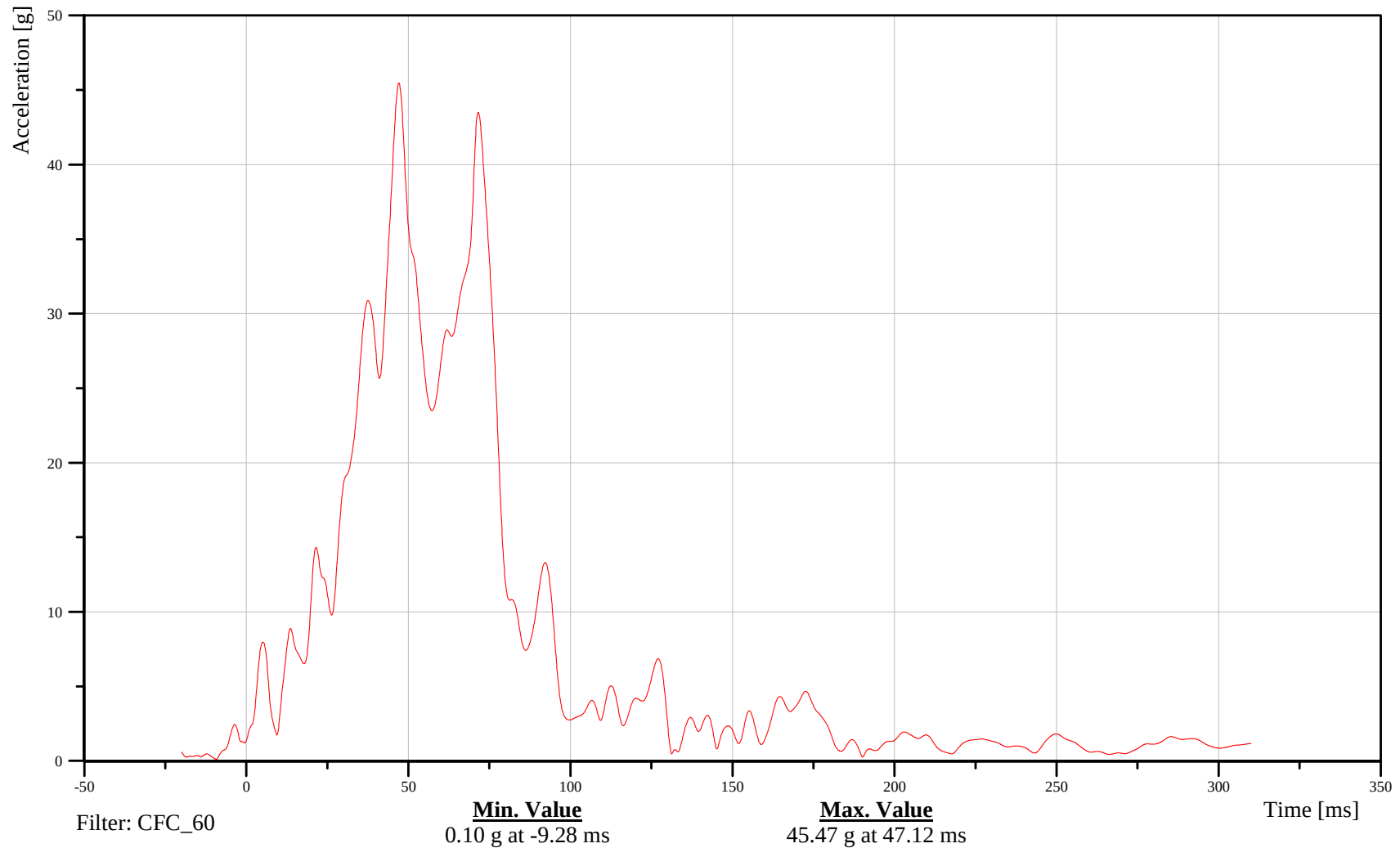
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

10VEHCCG0000ACRD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-172

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

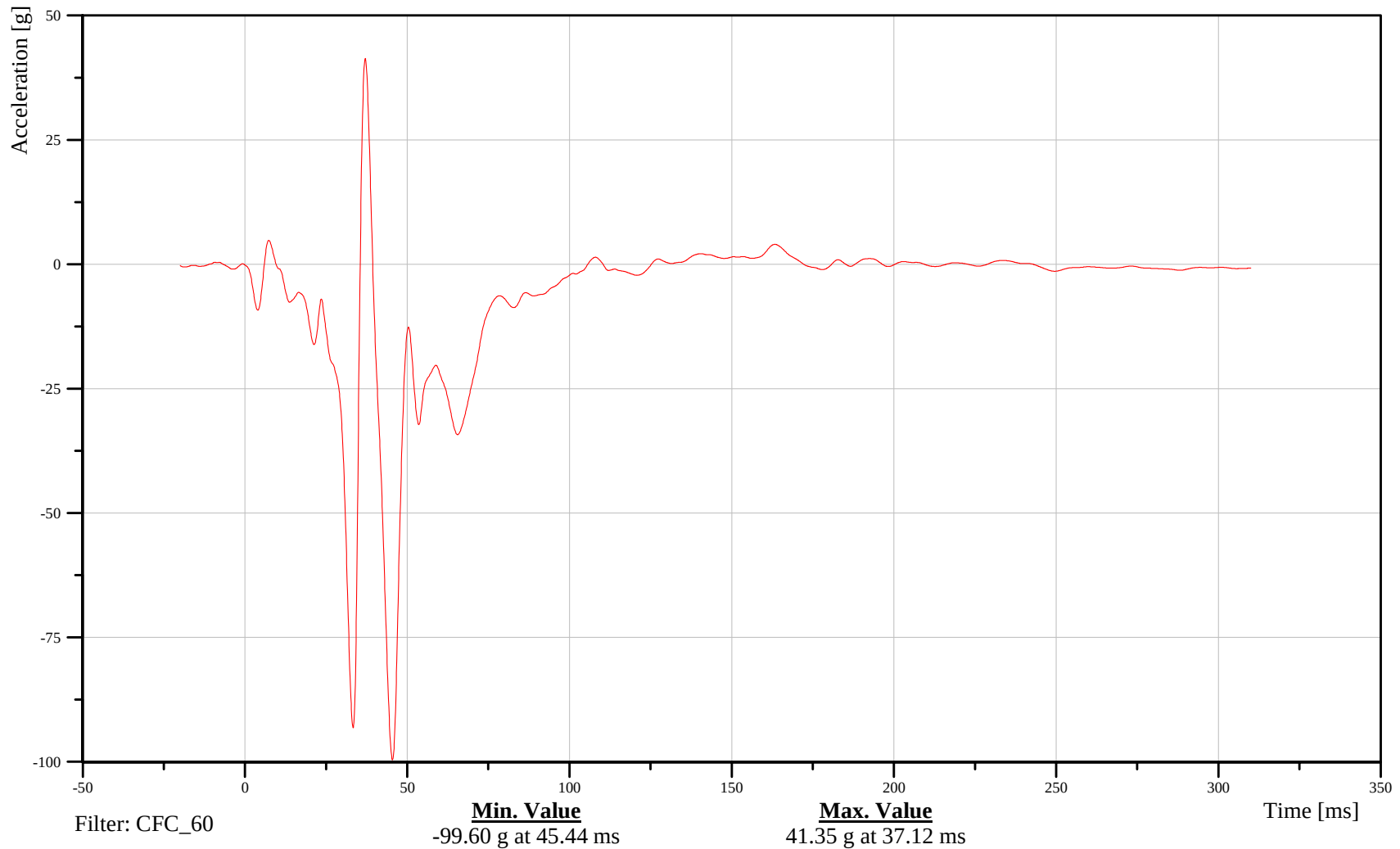
Bullet Vehicle Driver Footrest X-Axis Acceleration

Customer: VRTC

10FOOTLE0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-173

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

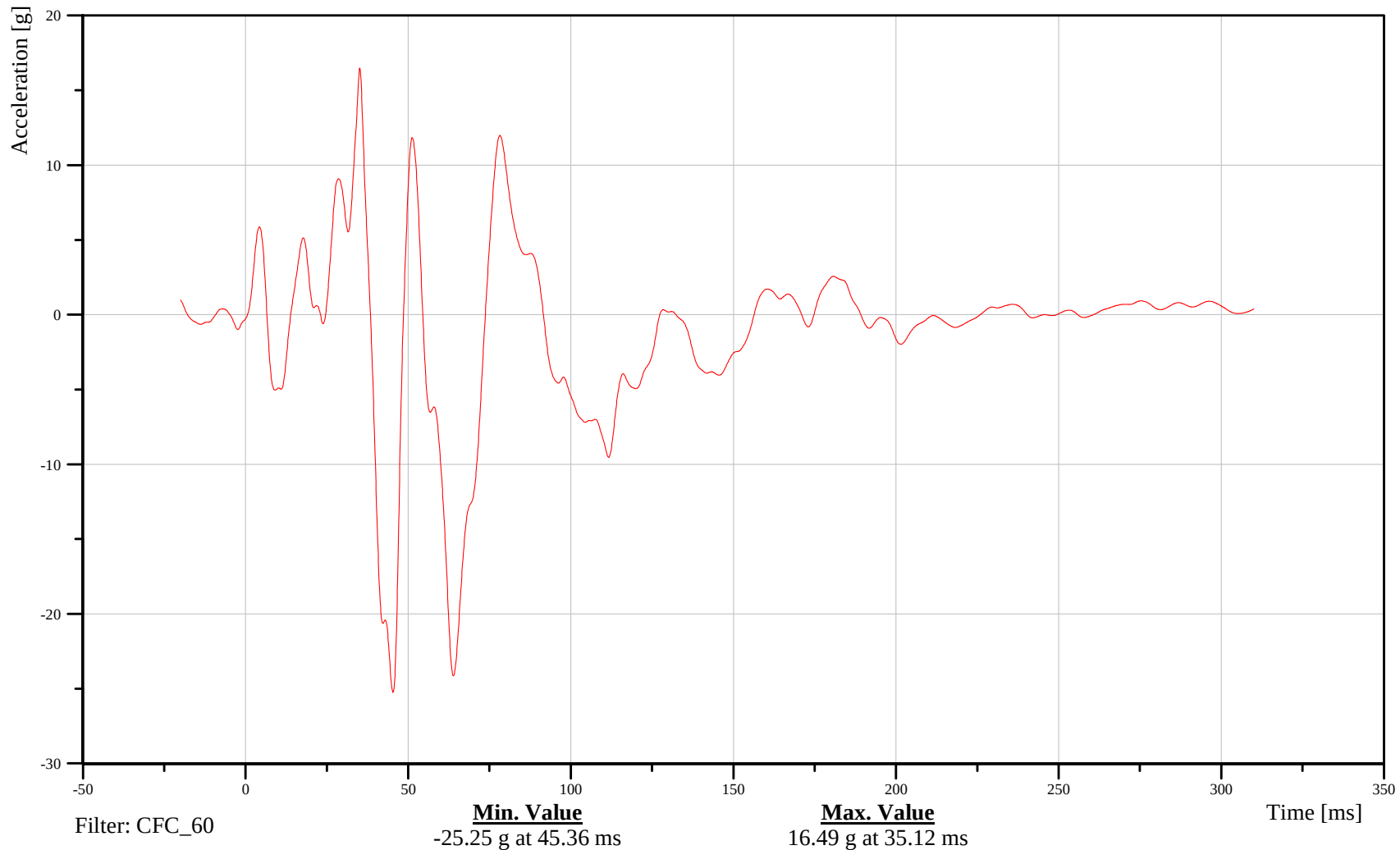
Bullet Vehicle Driver Footrest Z-Axis Acceleration

Customer: VRTC

10FOOTLE0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-174

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

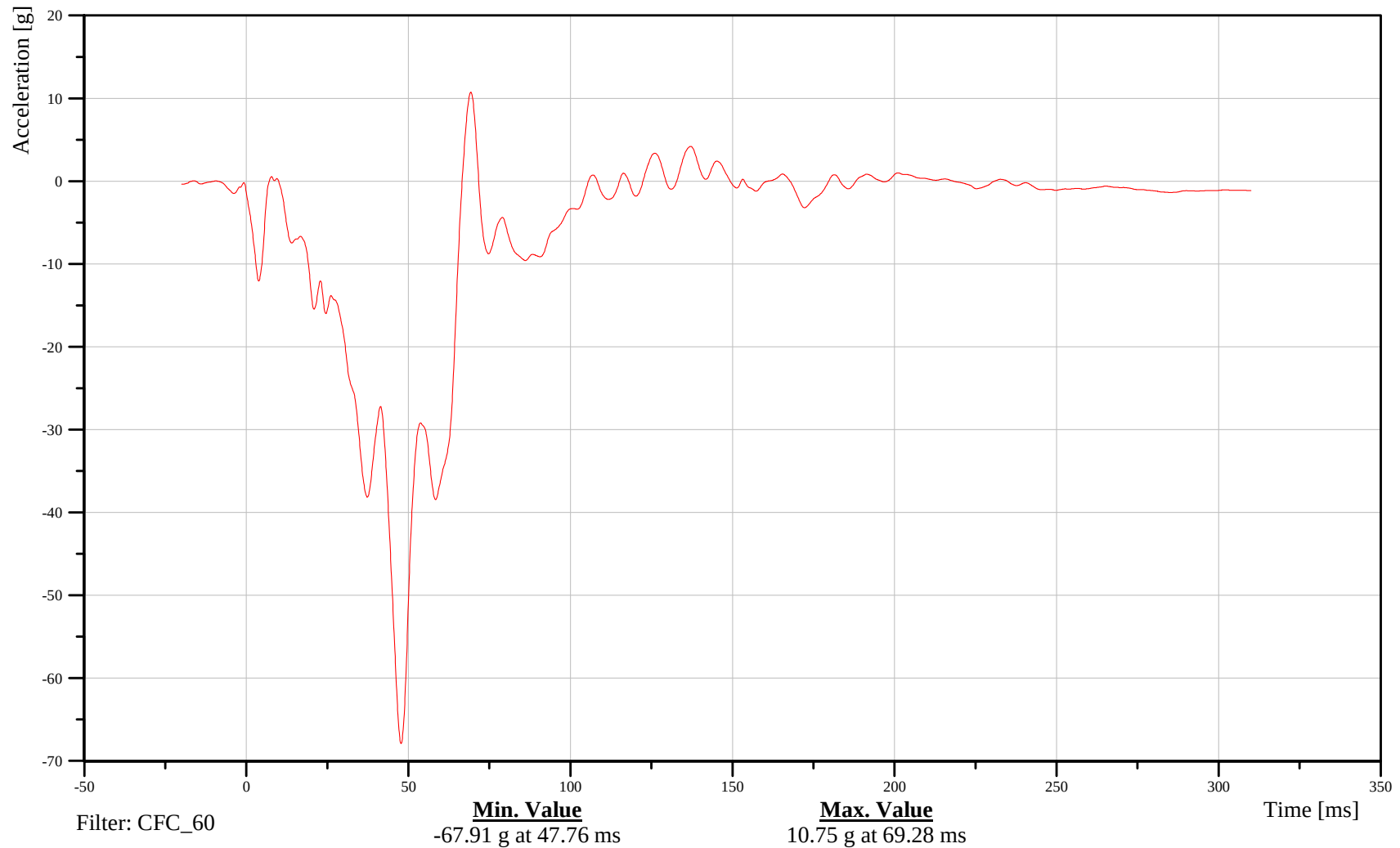
Bullet Vehicle Toepan Behind Center of Accelerator X-Axis Acceleration

Customer: VRTC

10TPANLE0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-175

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

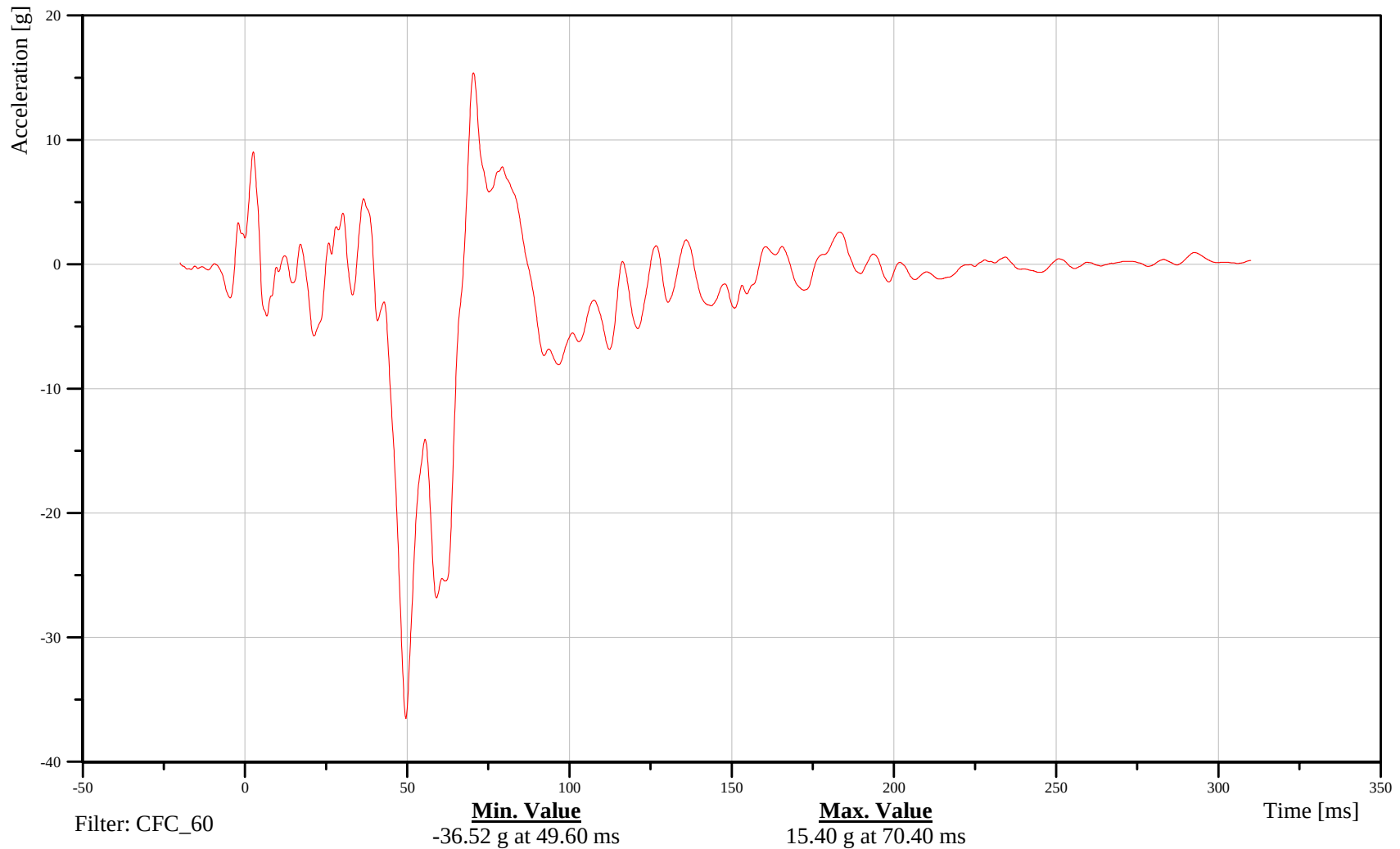
Bullet Vehicle Toepan Behind Center of Accelerator Z-Axis Acceleration

Customer: VRTC

10TPANLE0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-176

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Lap Belt Force

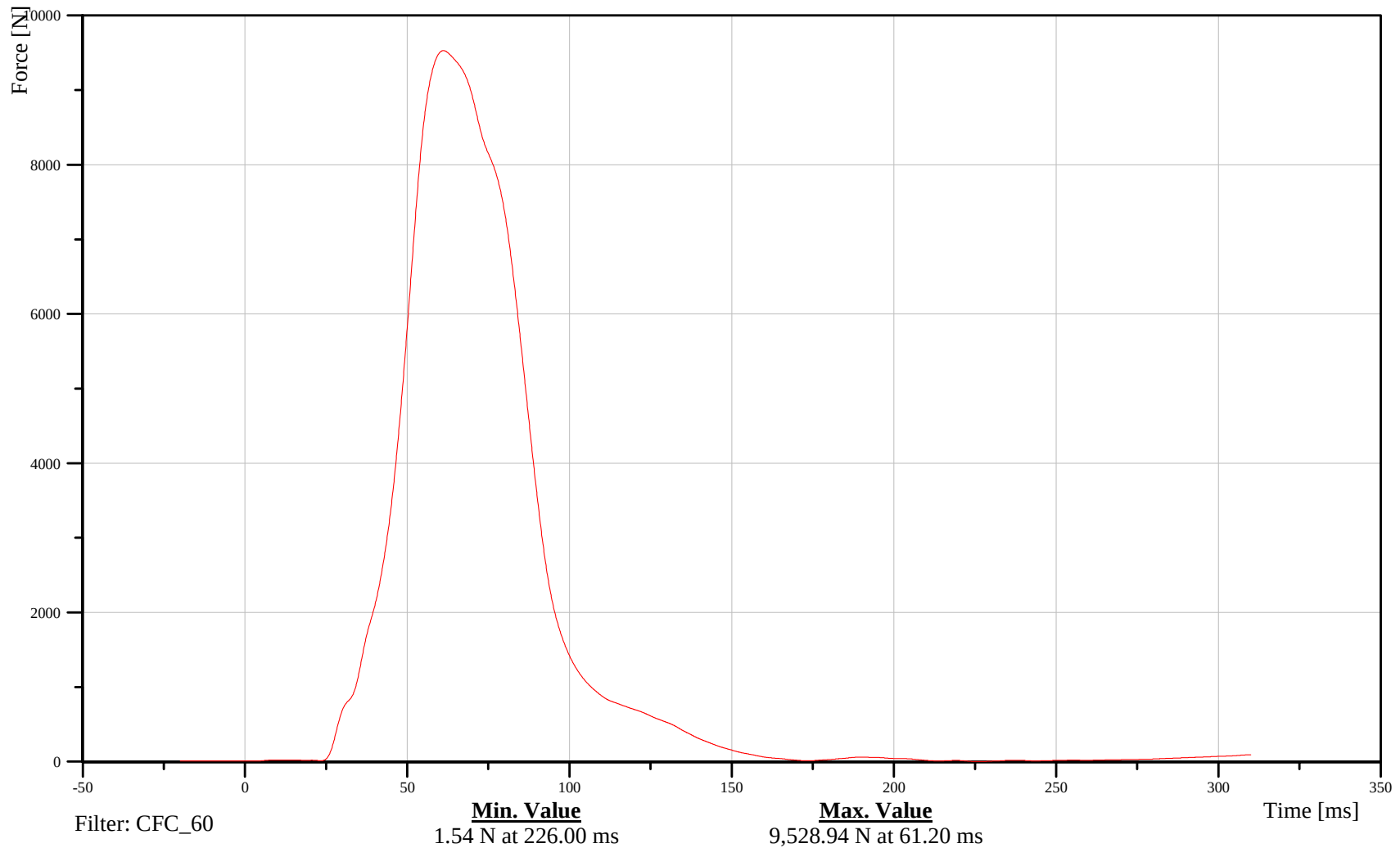
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

11SEBE0000B5FO0D

TRC Inc. Test Lab: CTF

Test Number: 101207



B-177

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

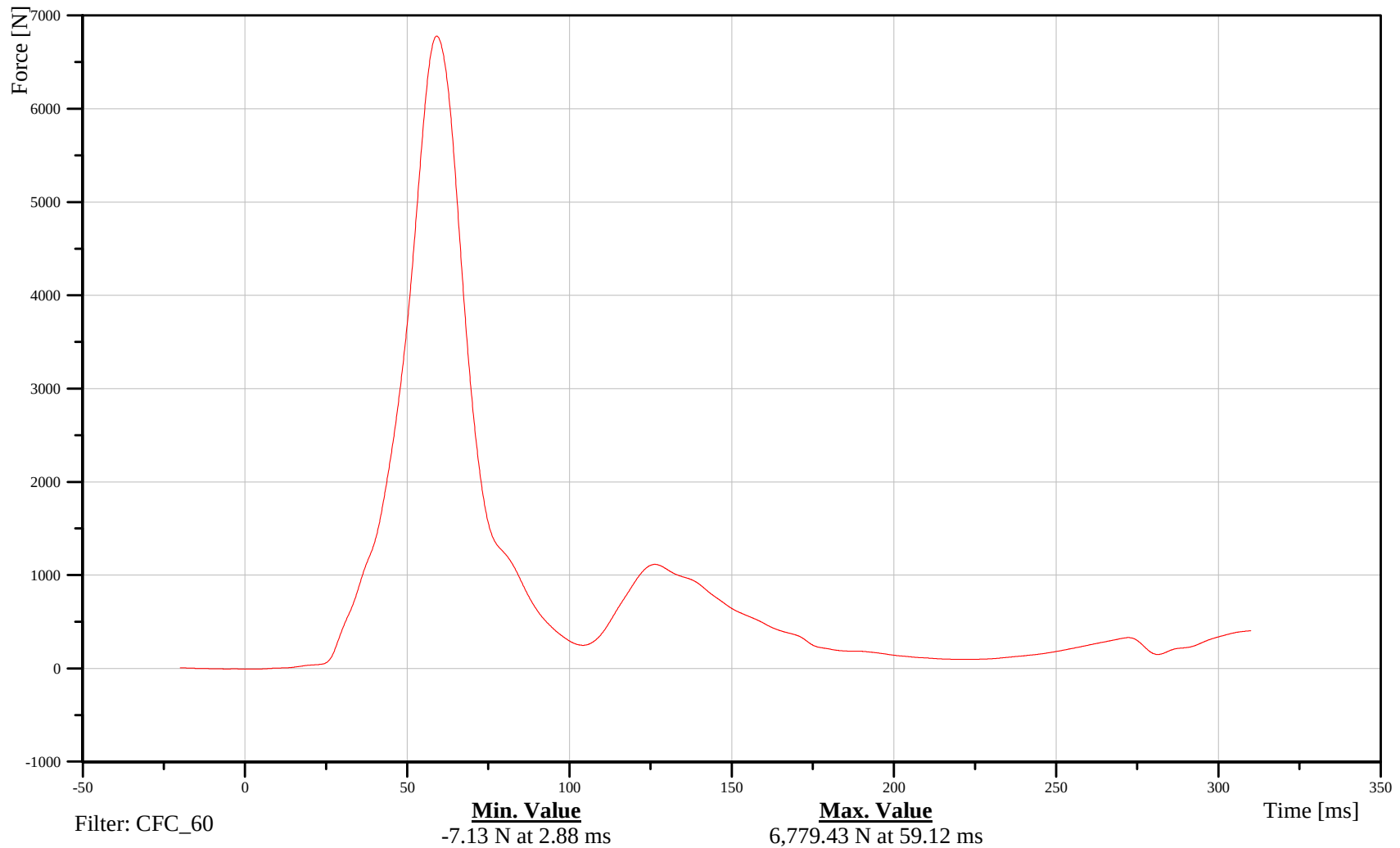
Bullet Vehicle Right Front Passenger Lap Belt Force

Customer: VRTC

13SEBE0000B5FO0D

TRC Inc. Test Lab: CTF

Test Number: 101207



B-178

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

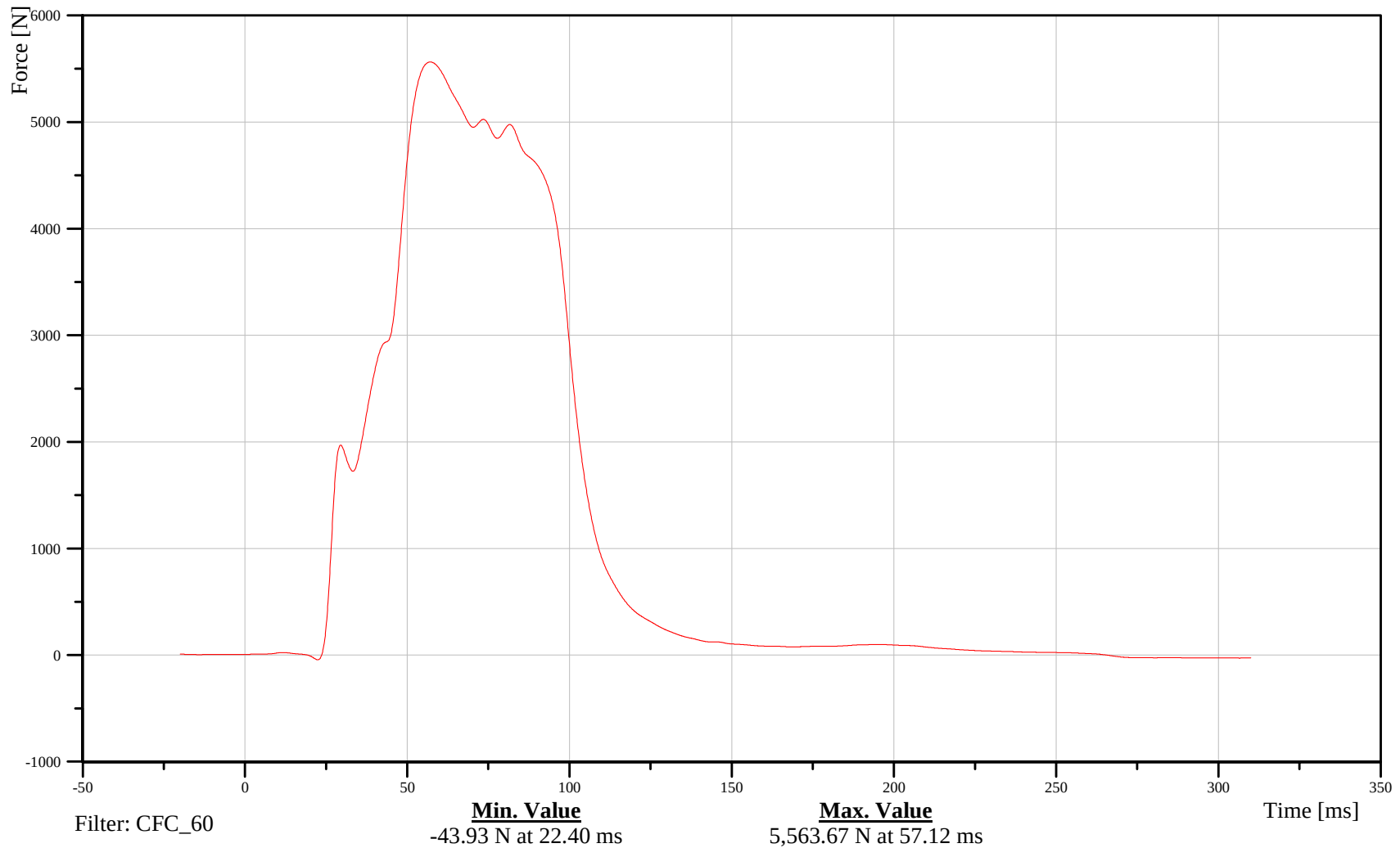
Bullet Vehicle Driver Shoulder Belt Force

Customer: VRTC

11SEBE0000B3FO0D

TRC Inc. Test Lab: CTF

Test Number: 101207



B-179

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

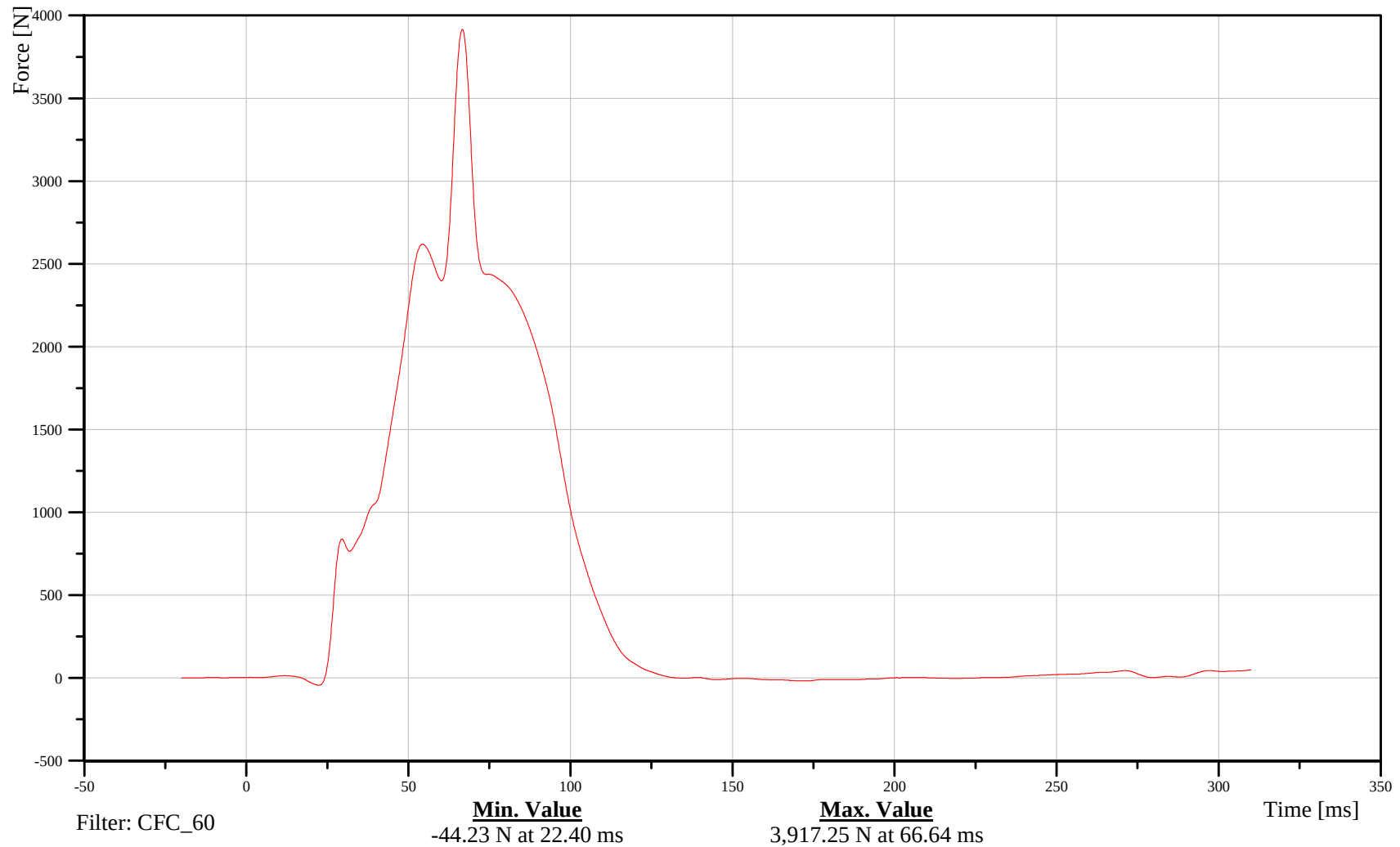
Bullet Vehicle Right Front Passenger Shoulder Belt Force

Customer: VRTC

13SEBE0000B3FO0D

TRC Inc. Test Lab: CTF

Test Number: 101207



B-180

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Airbag 1st Stage Fire Time

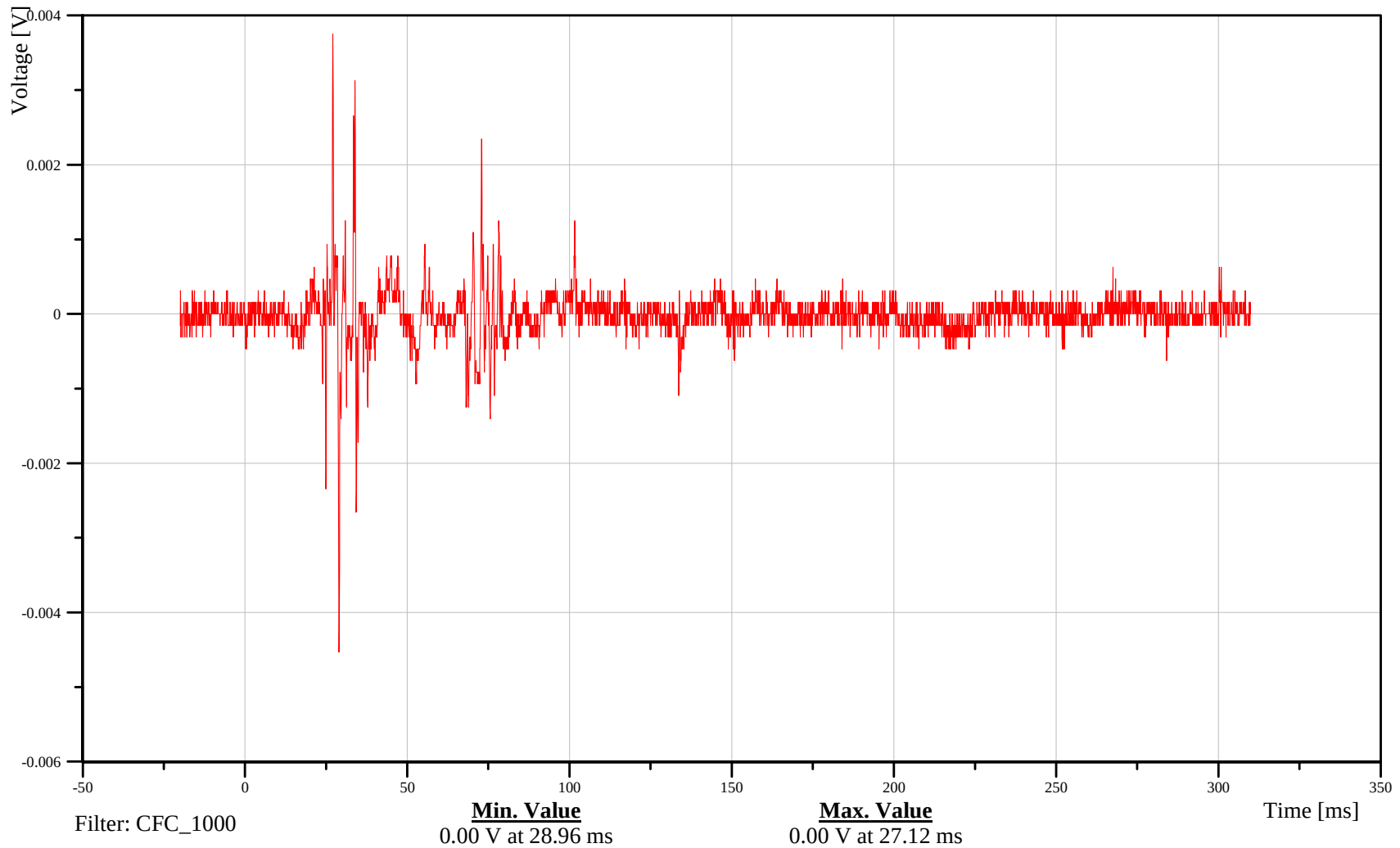
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

10AIRBLEFR25VO0A

TRC Inc. Test Lab: CTF

Test Number: 101207



B-181

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Driver Airbag 2nd Stage Fire Time

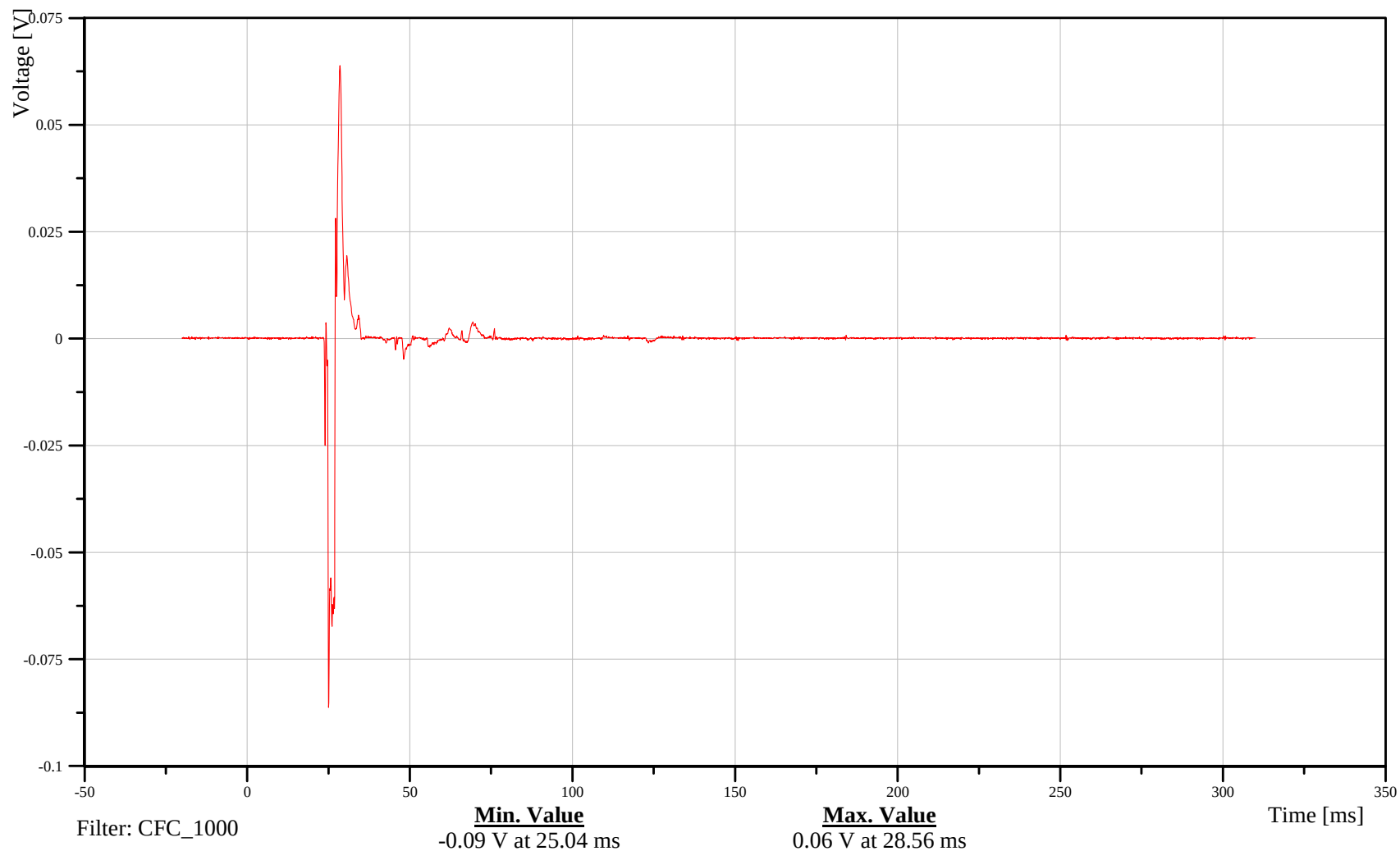
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

10AIRBLEFR26VO0A

TRC Inc. Test Lab: CTF

Test Number: 101207



B-182

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Right Front Passenger Airbag 1st Stage Fire Time

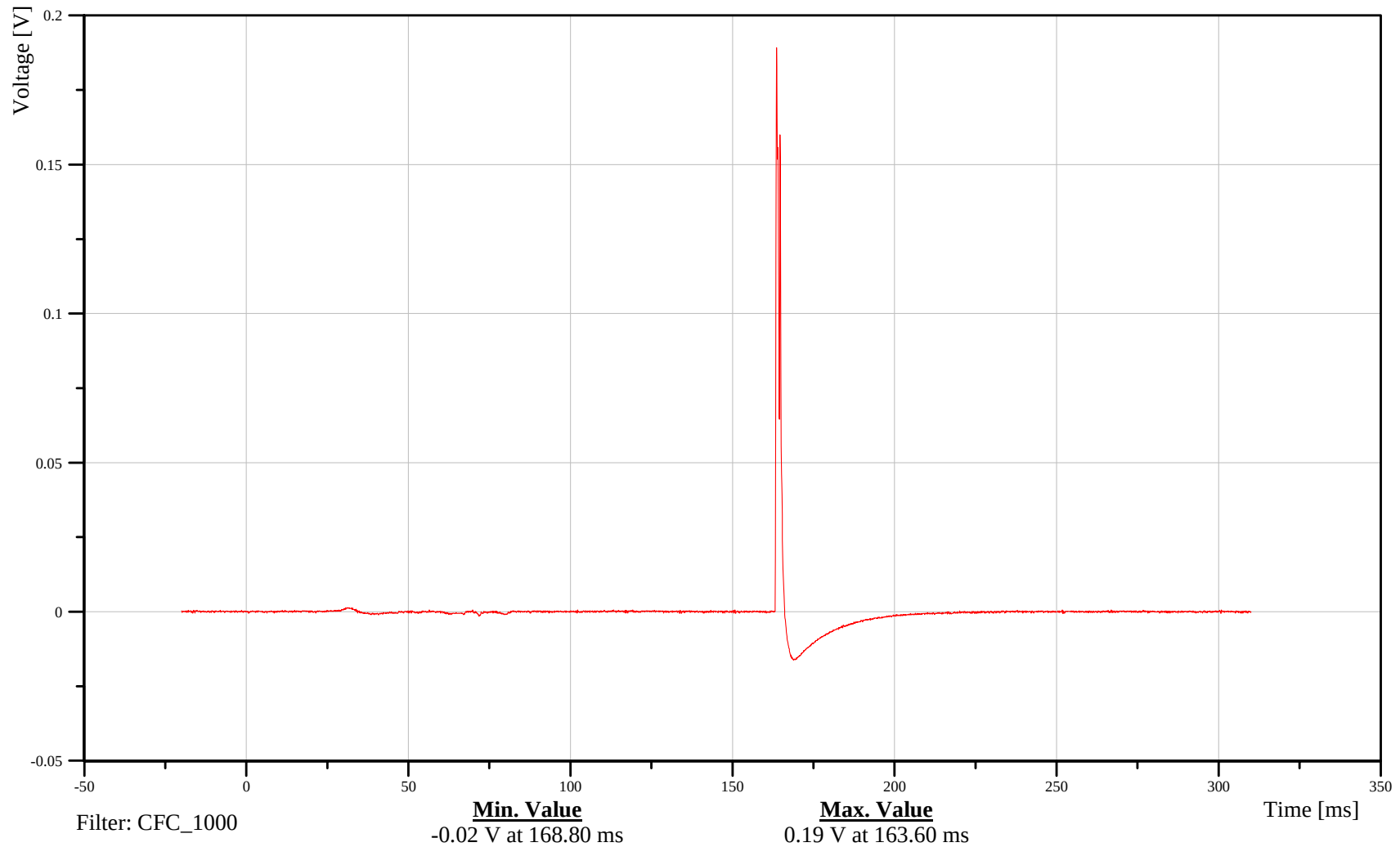
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

10AIRBRIFR25VO0A

TRC Inc. Test Lab: CTF

Test Number: 101207



B-183

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Bullet Vehicle Right Front Passenger Airbag 2nd Stage Fire Time

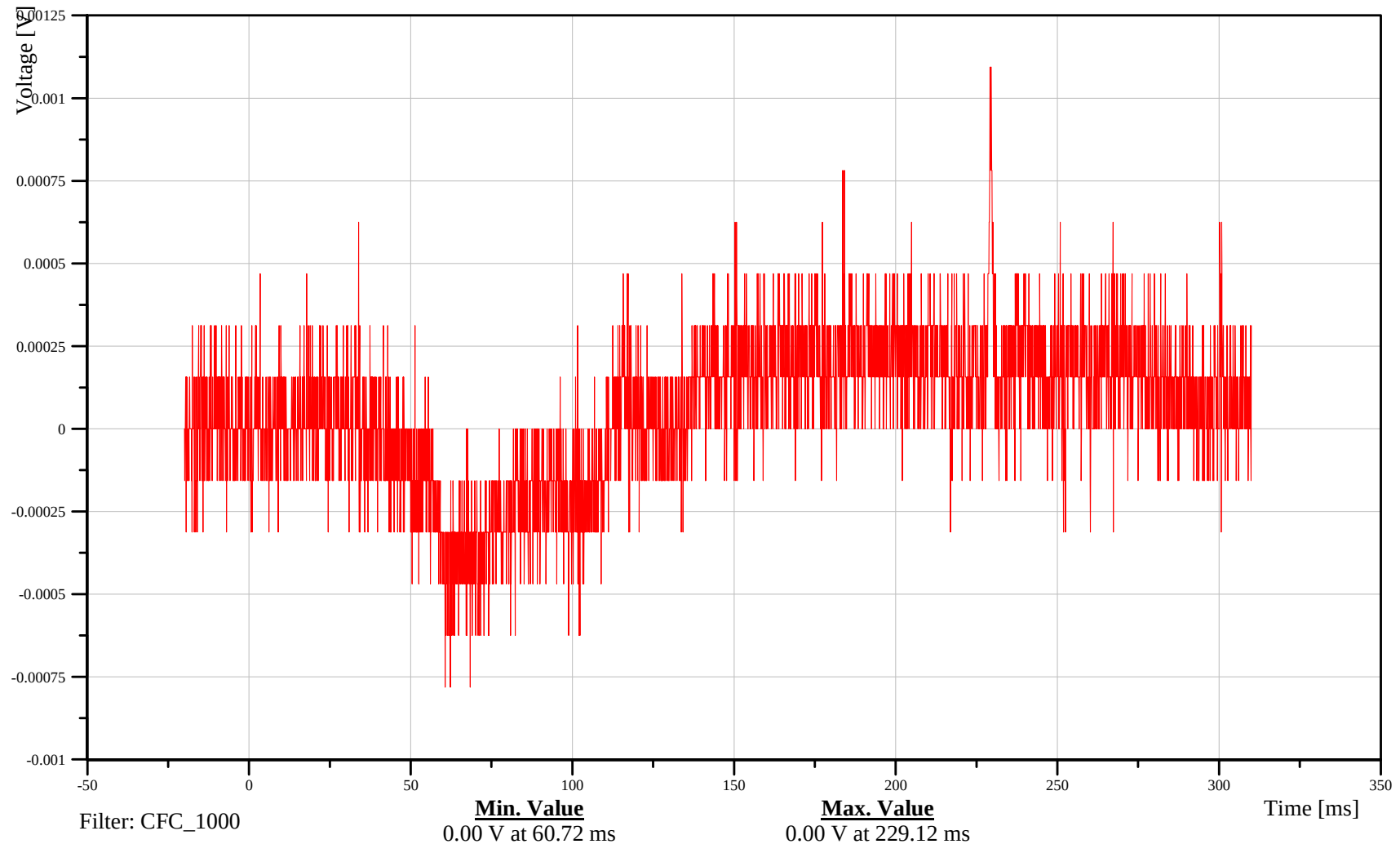
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

10AIRBRIFR26VO0A

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

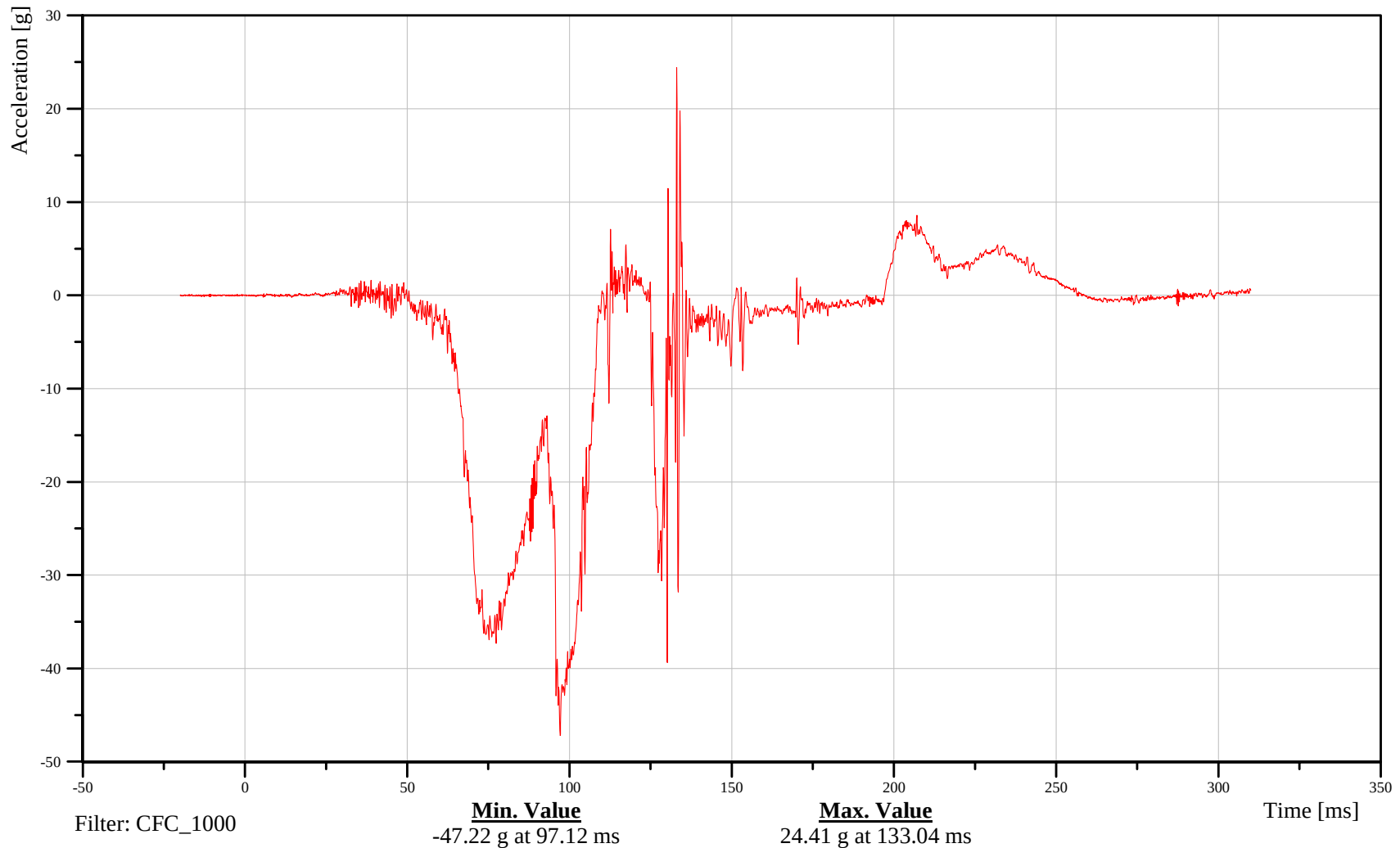
Target Vehicle Driver Head X-Axis Acceleration

Customer: VRTC

21HEADCG00THACXA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

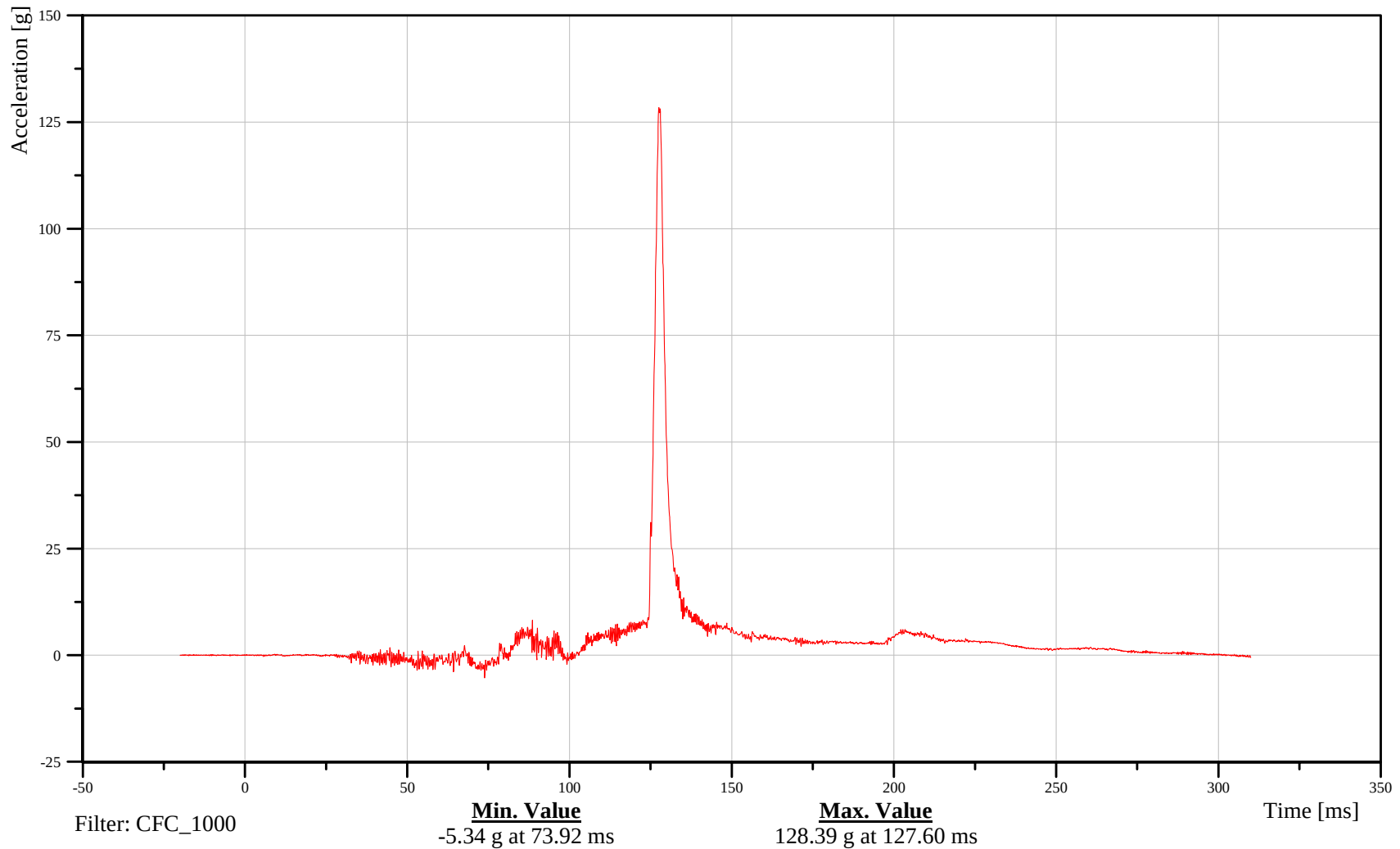
Target Vehicle Driver Head Y-Axis Acceleration

Customer: VRTC

21HEADCG00THACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-186

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

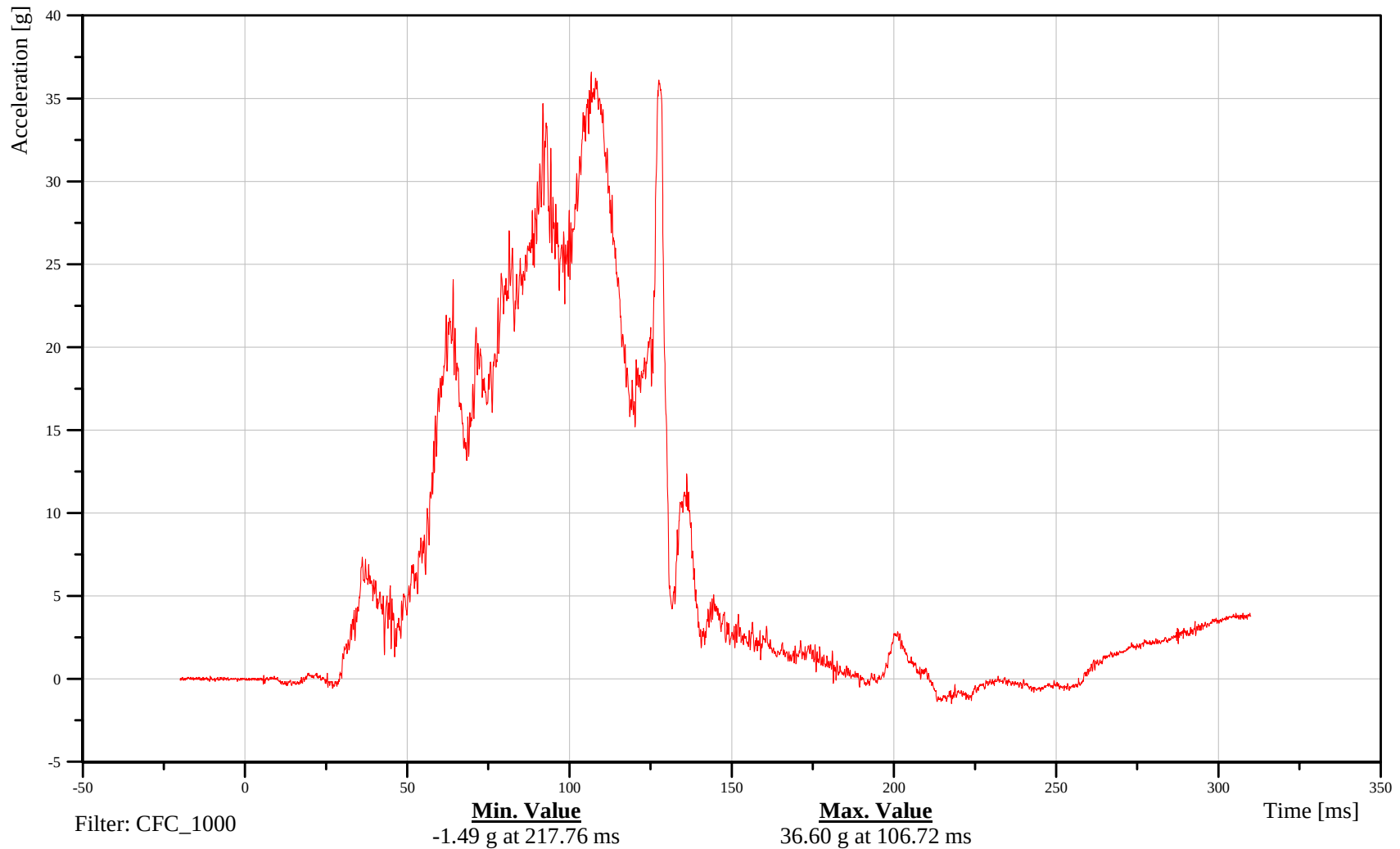
Target Vehicle Driver Head Z-Axis Acceleration

Customer: VRTC

21HEADCG00THACZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-187

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

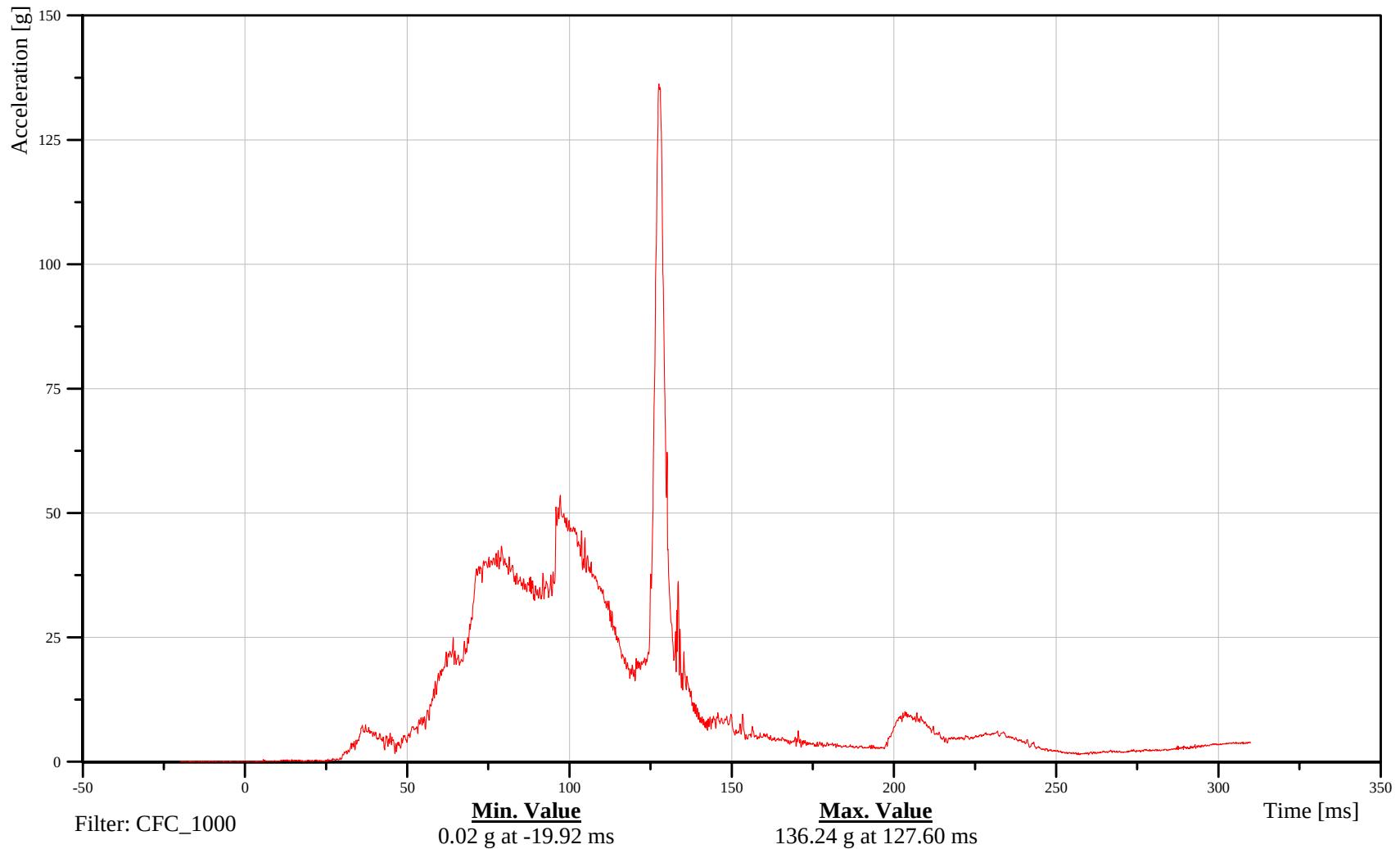
Target Vehicle Driver Head Resultant Acceleration

Customer: VRTC

21HEADCG00THACRA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

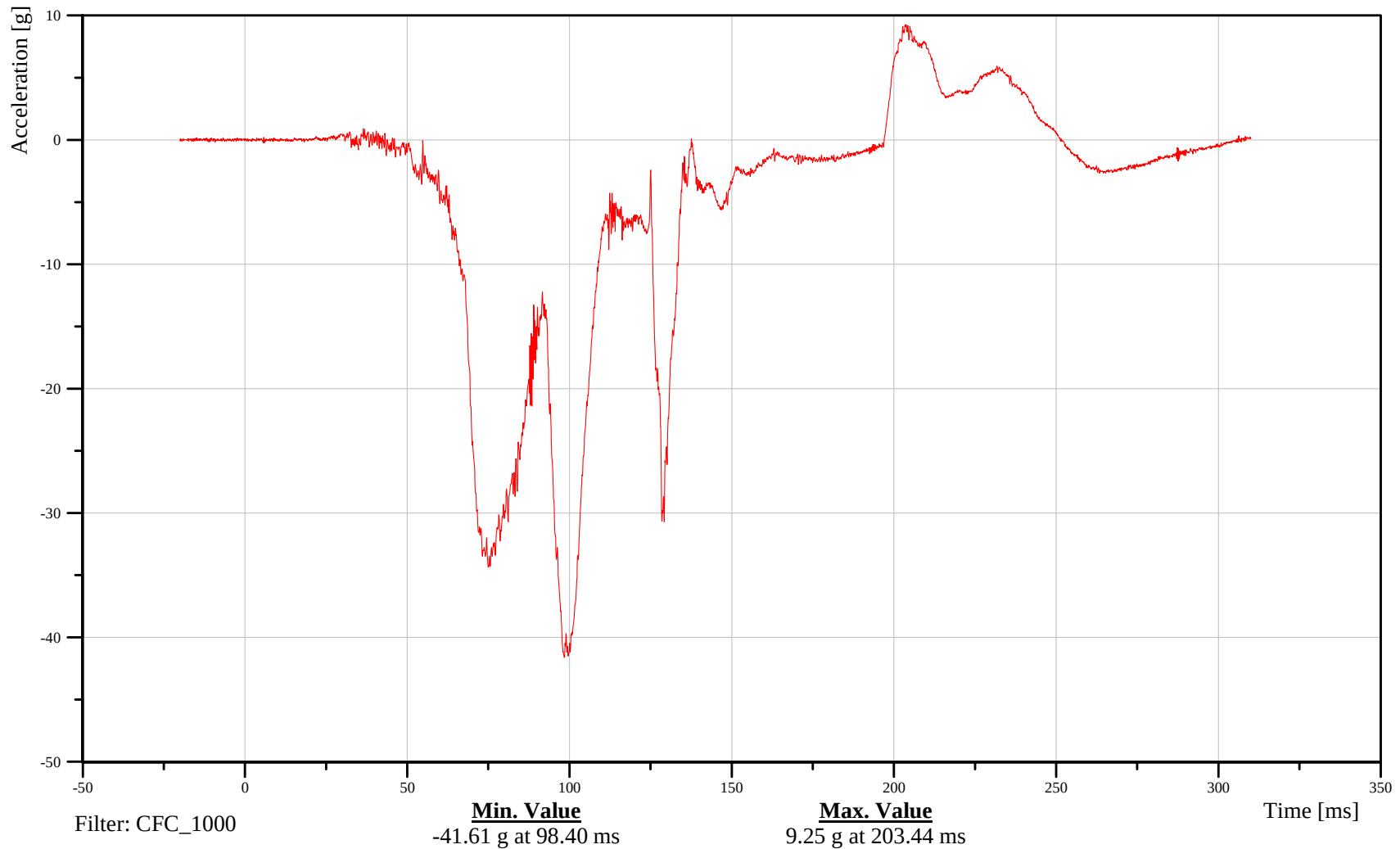
Target Vehicle Driver Head Left X-Axis Acceleration

Customer: VRTC

21HEADLE00THACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-189

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

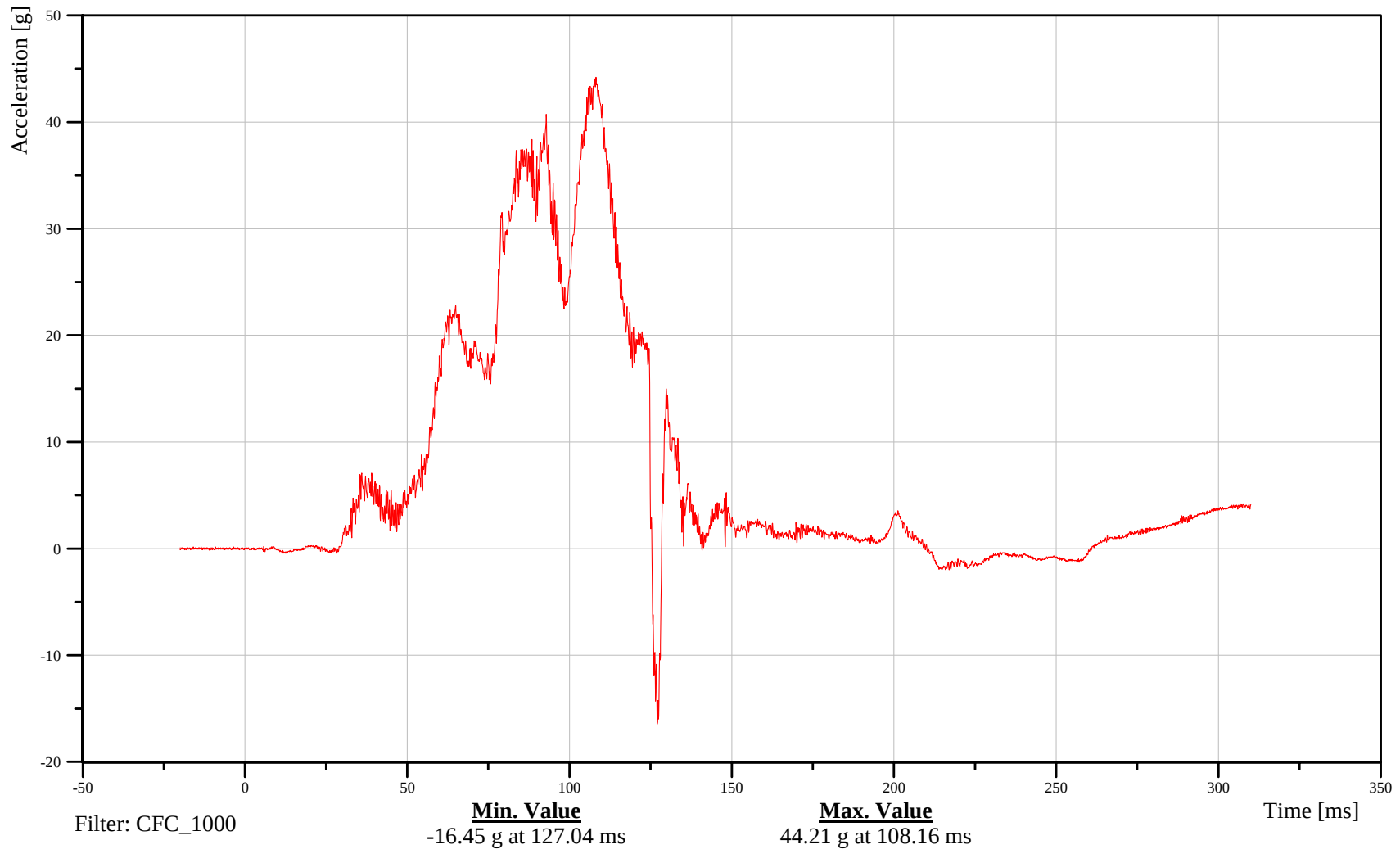
Target Vehicle Driver Head Left Z-Axis Acceleration

Customer: VRTC

21HEADLE00THACZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-190

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

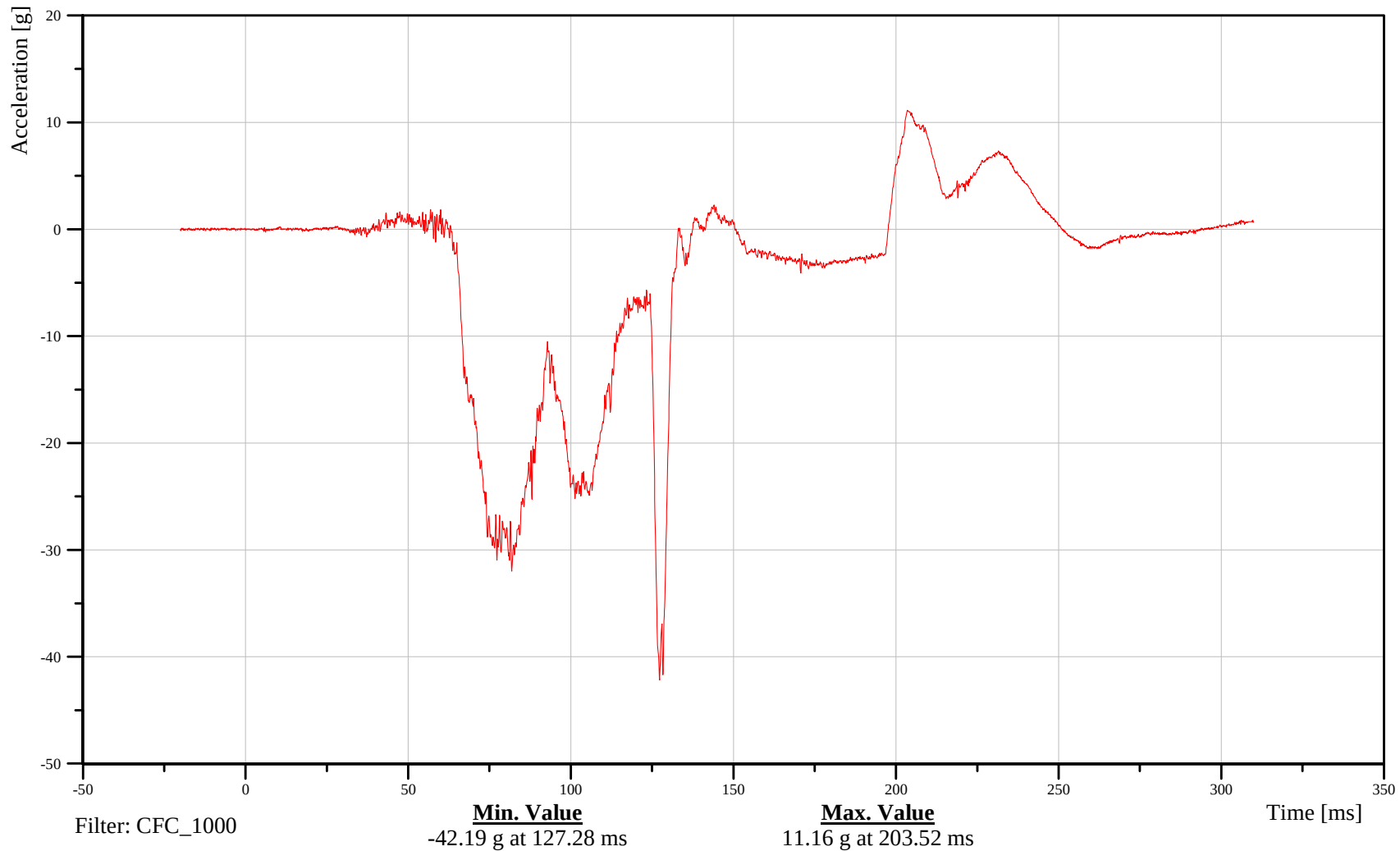
Target Vehicle Driver Head Top X-Axis Acceleration

Customer: VRTC

21HEADUP00THACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-191

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

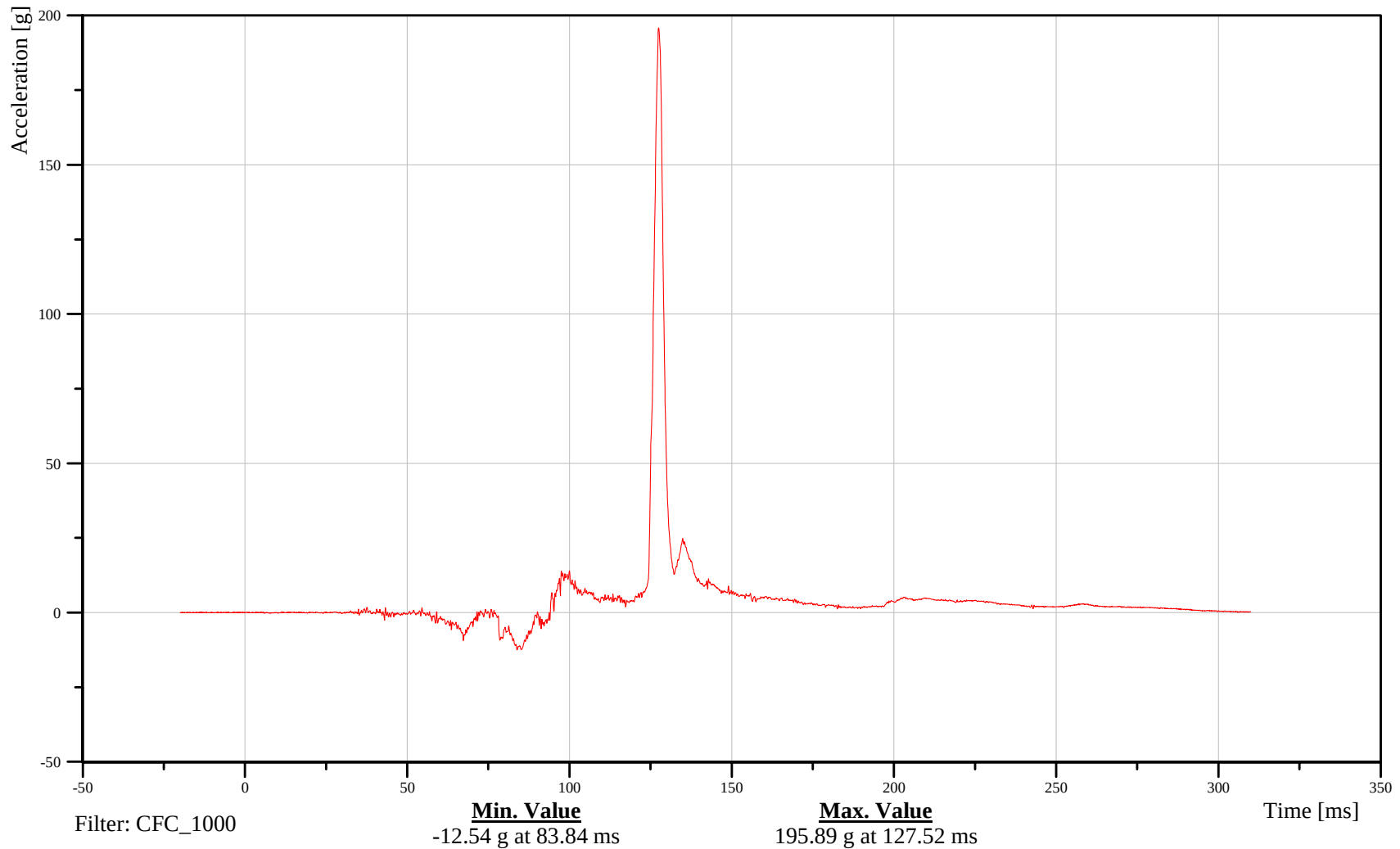
Target Vehicle Driver Head Top Y-Axis Acceleration

Customer: VRTC

21HEADUP00THACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-192

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

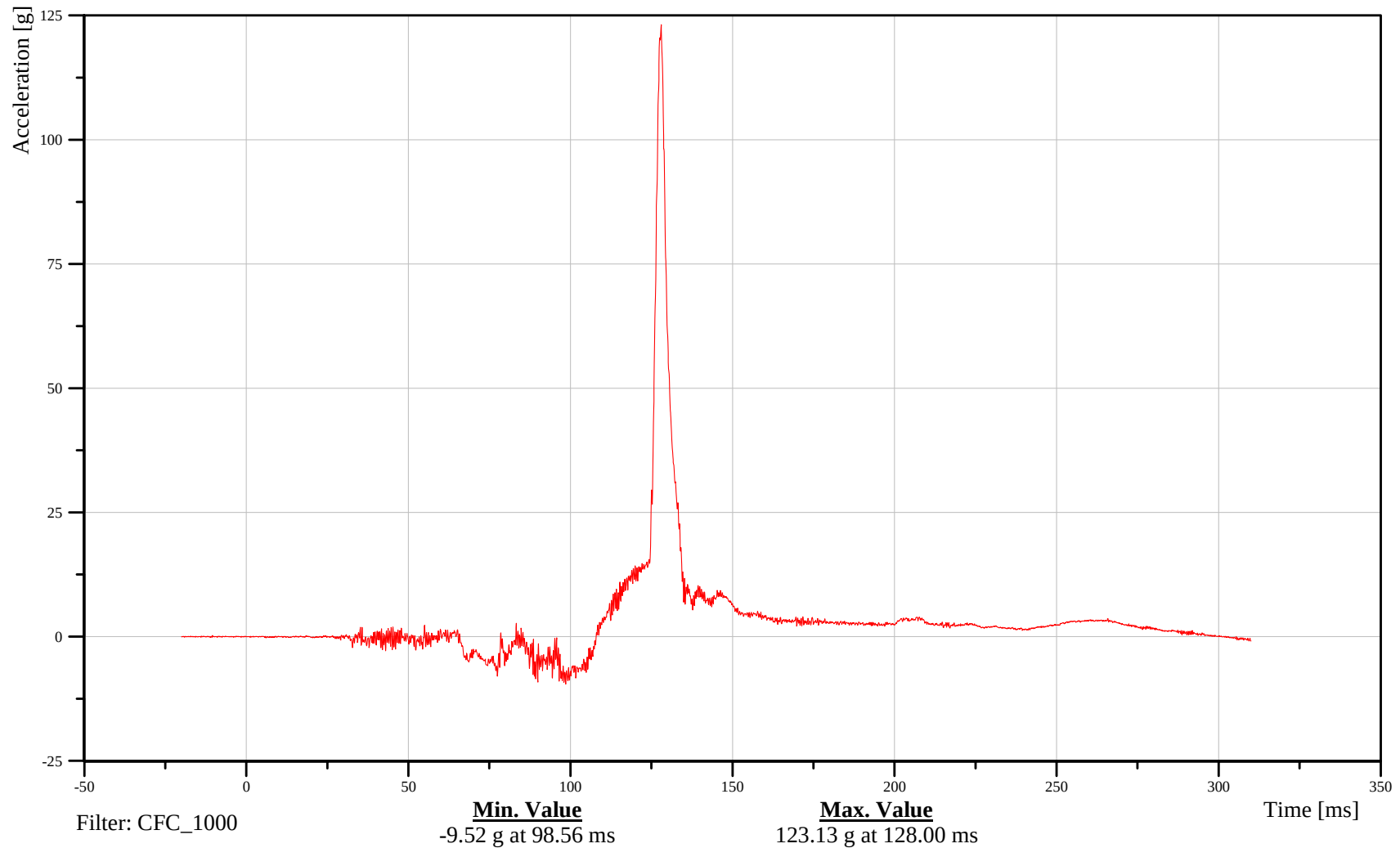
Target Vehicle Driver Head Rear Y-Axis Acceleration

Customer: VRTC

21HEADRE00THACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-193

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

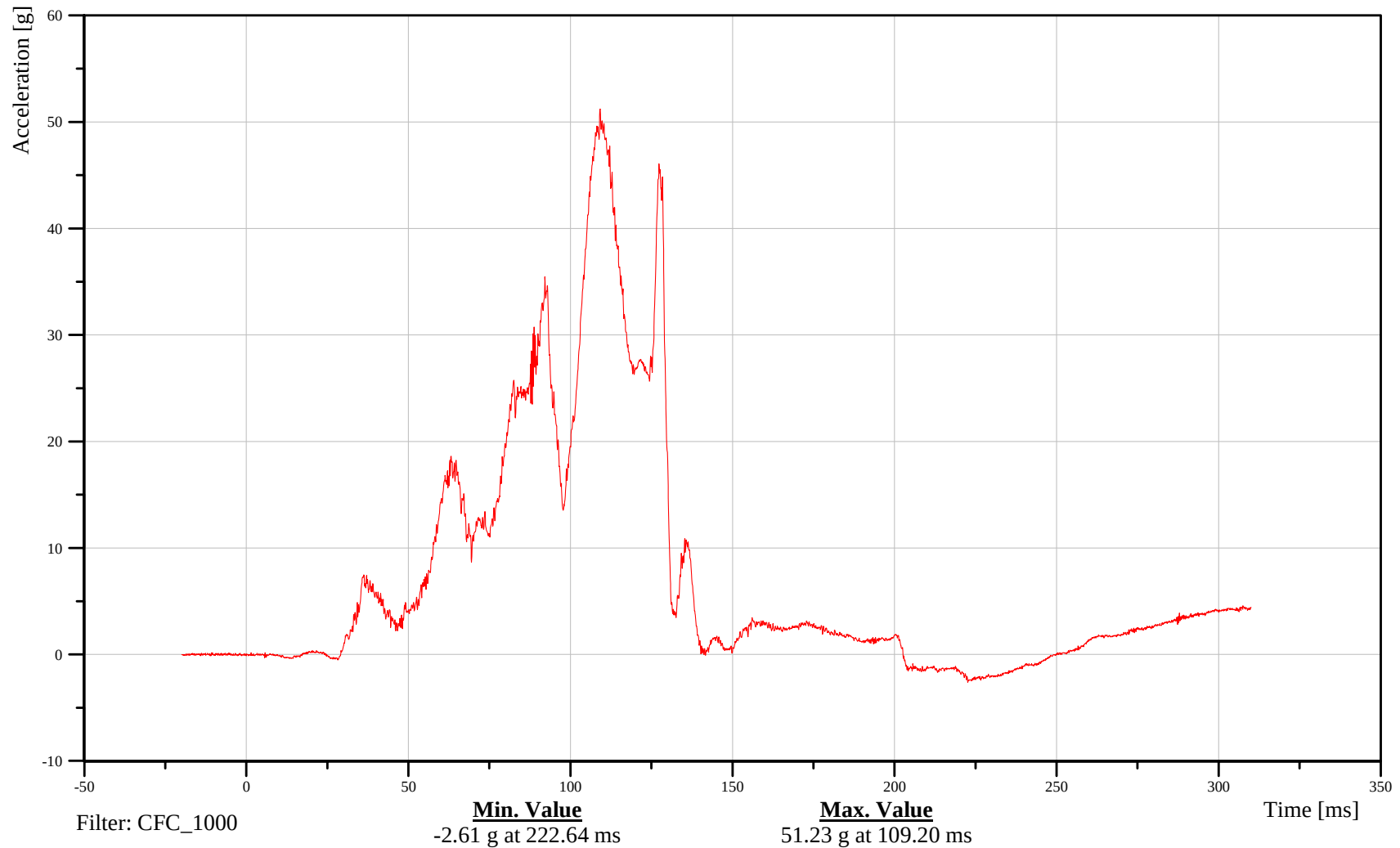
Target Vehicle Driver Head Rear Z-Axis Acceleration

Customer: VRTC

21HEADRE00THACZA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

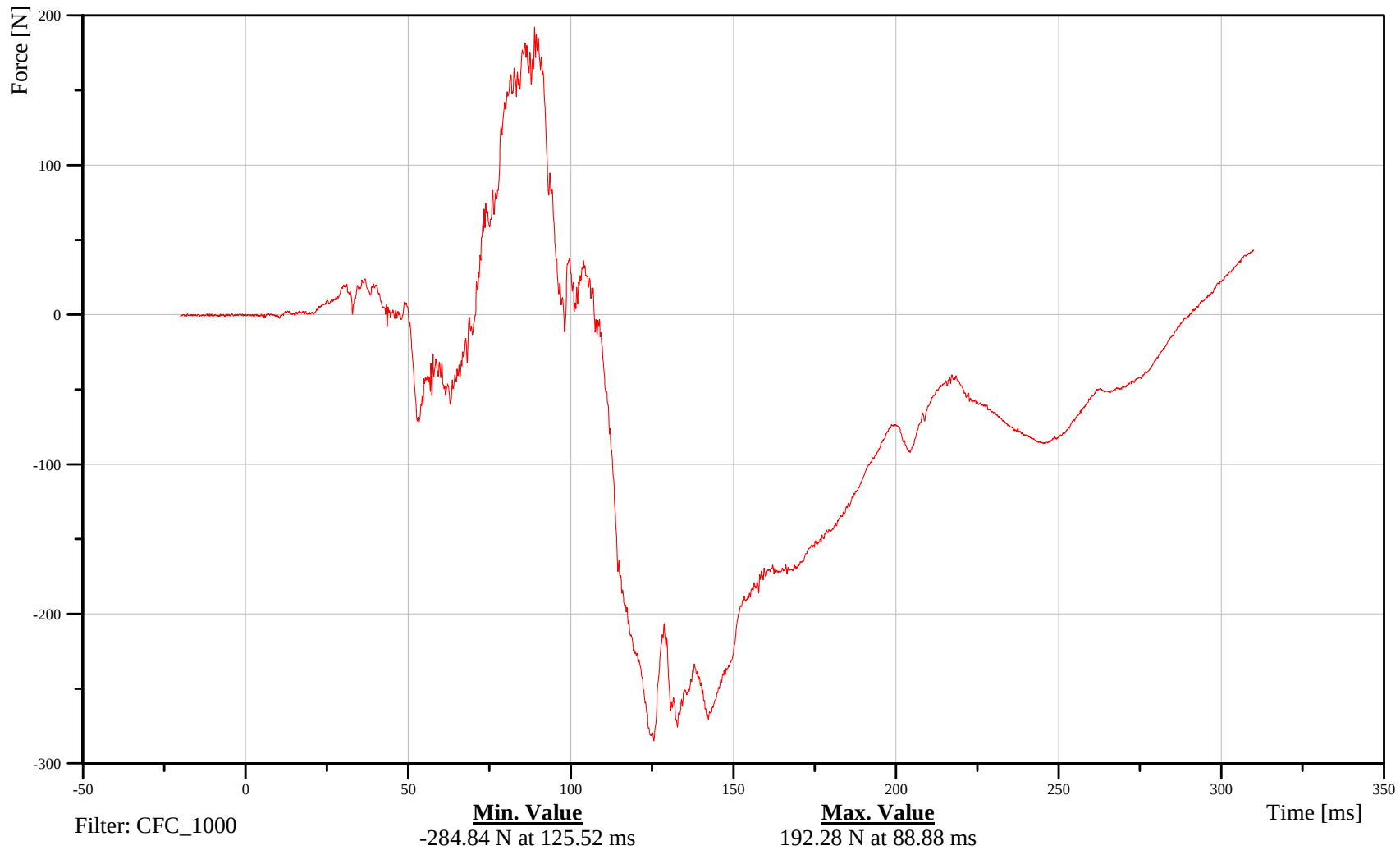
Target Vehicle Driver Upper Neck X-Axis Force

Customer: VRTC

21NECKUP00THFOXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-195

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

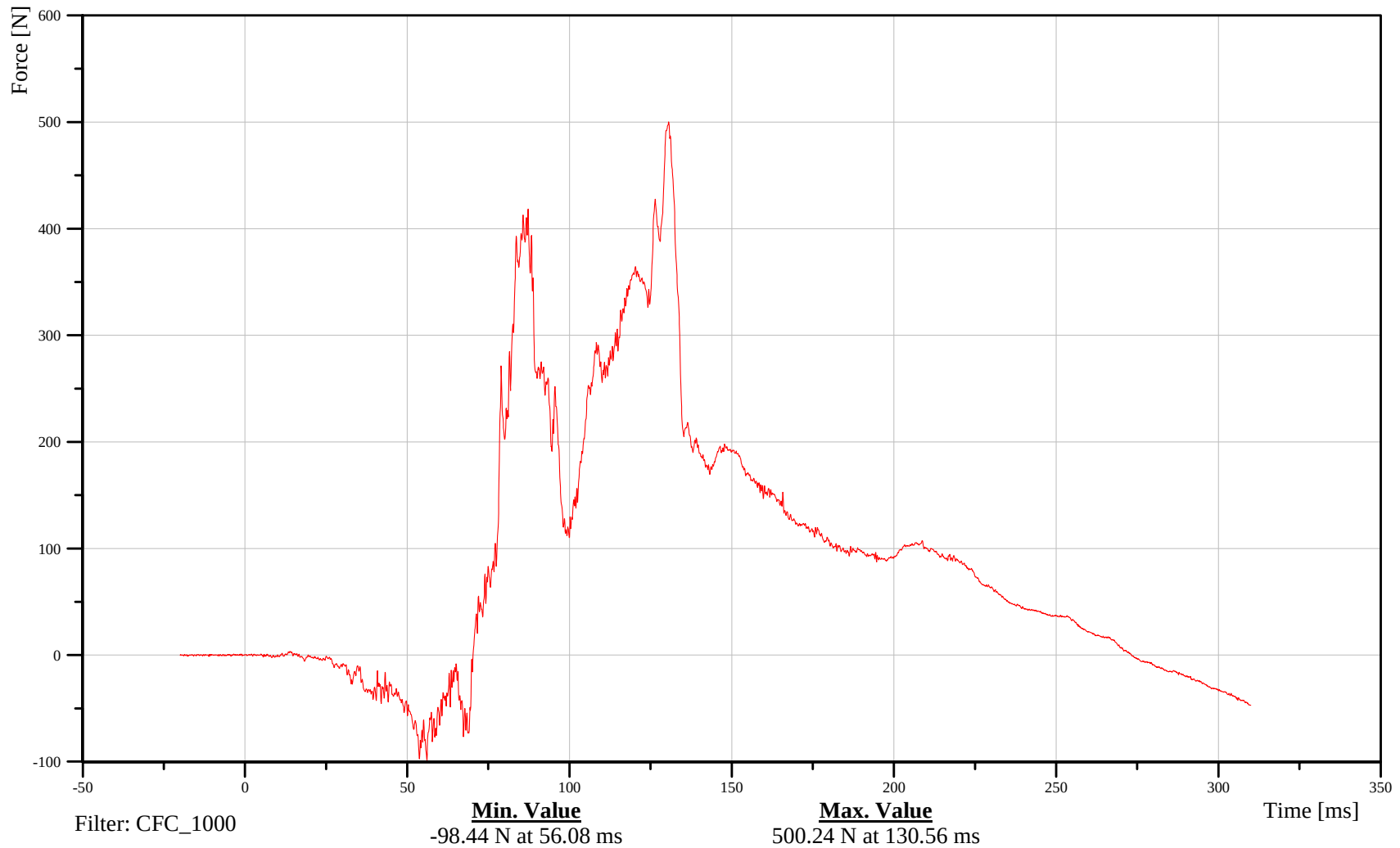
Target Vehicle Driver Upper Neck Y-Axis Force

Customer: VRTC

21NECKUP00THFOYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-196

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

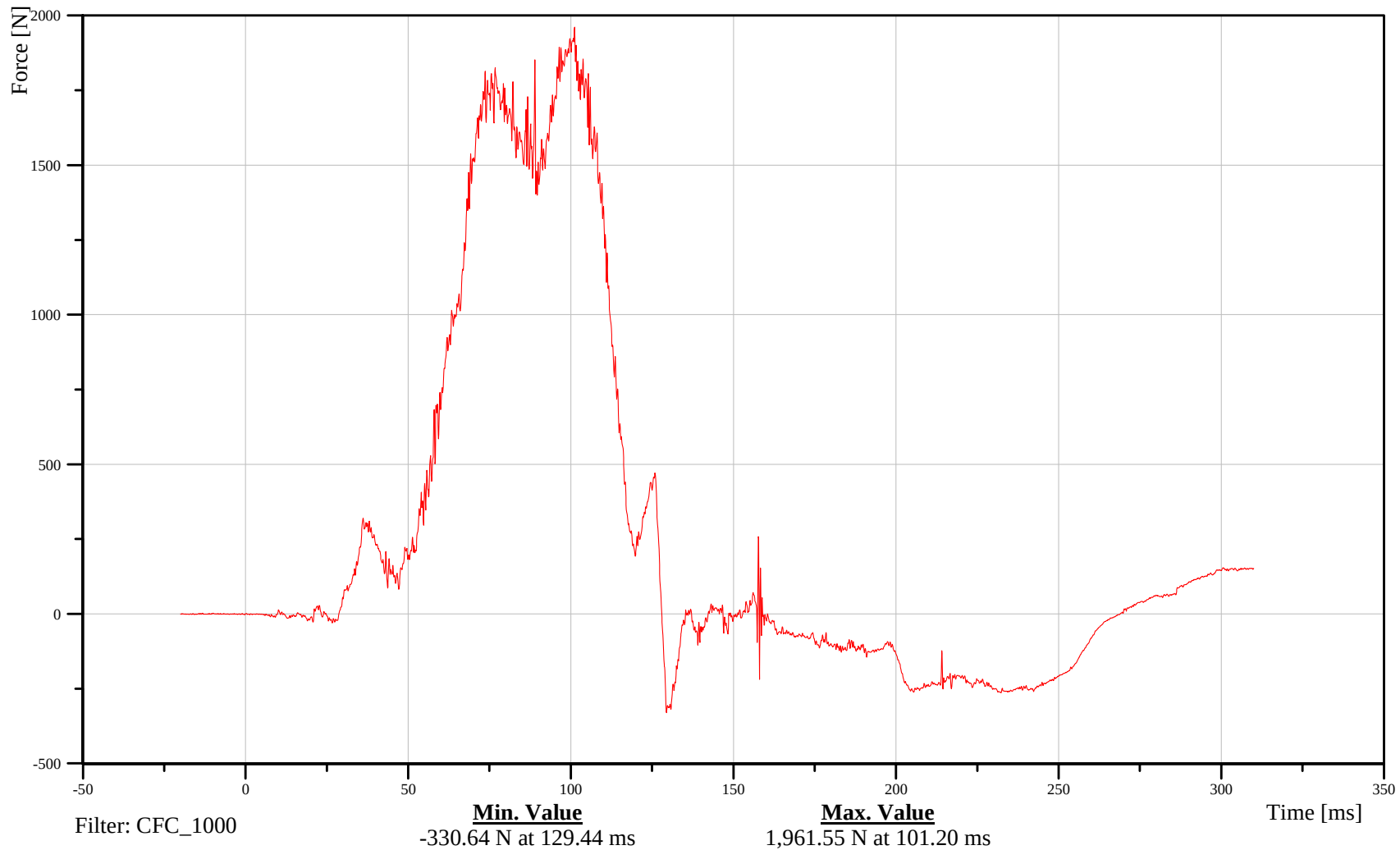
Target Vehicle Driver Upper Neck Z-Axis Force

Customer: VRTC

21NECKUP00THFOZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-197

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

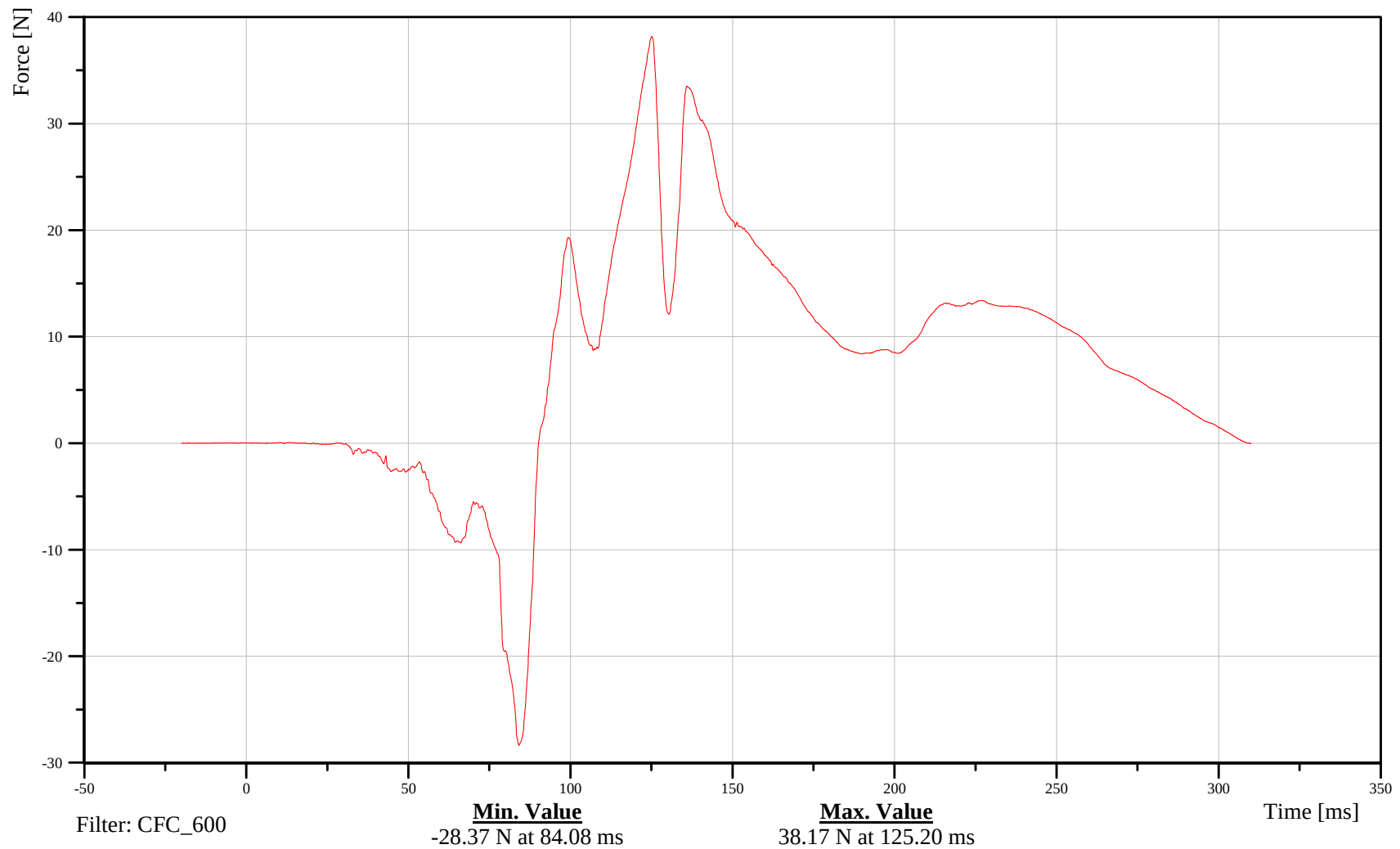
Target Vehicle Driver Upper Neck Moment About X Axis

Customer: VRTC

21NECKUP00THMOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-198

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

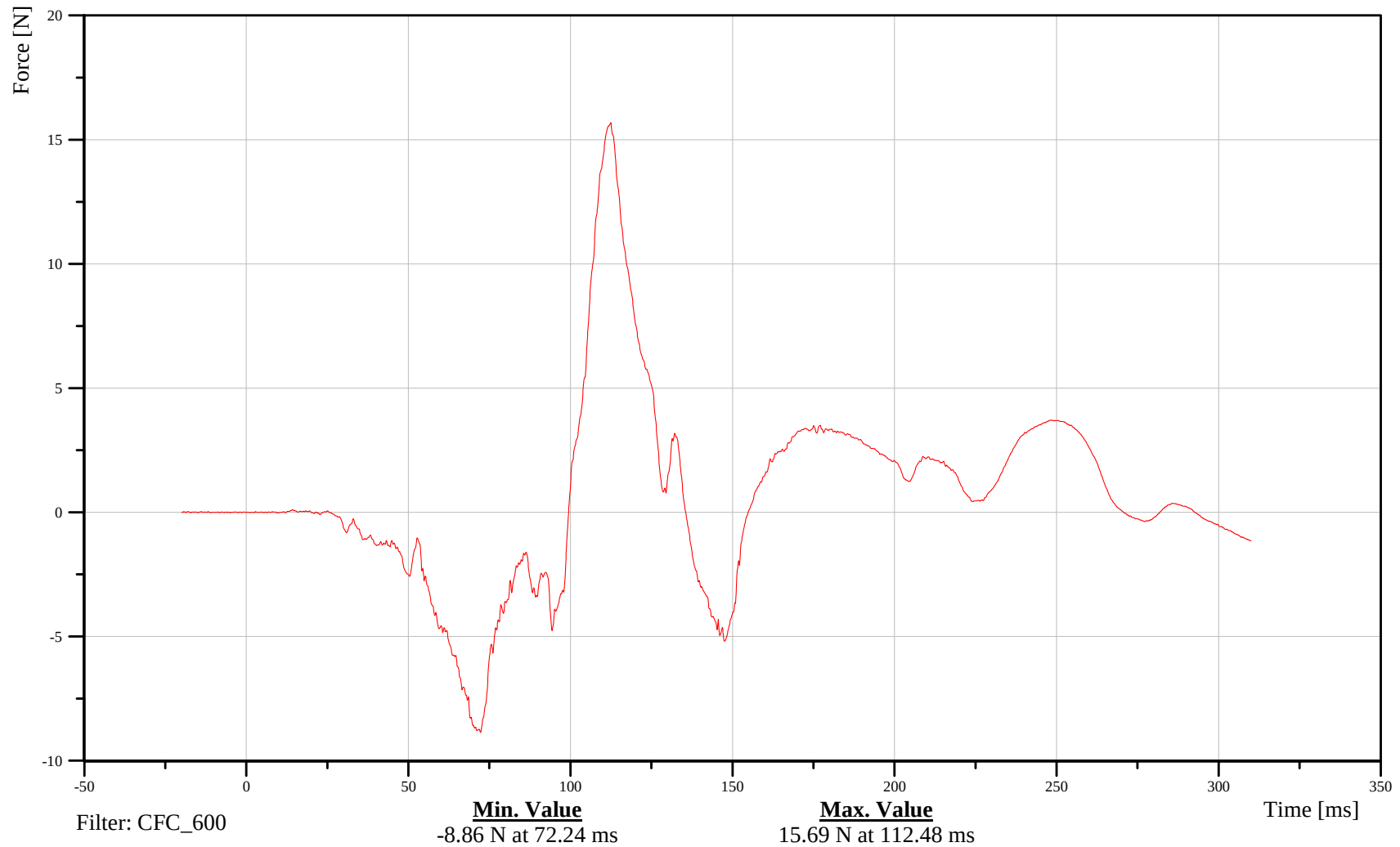
Target Vehicle Driver Upper Neck Moment About Y Axis

Customer: VRTC

21NECKUP00THMOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-199

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

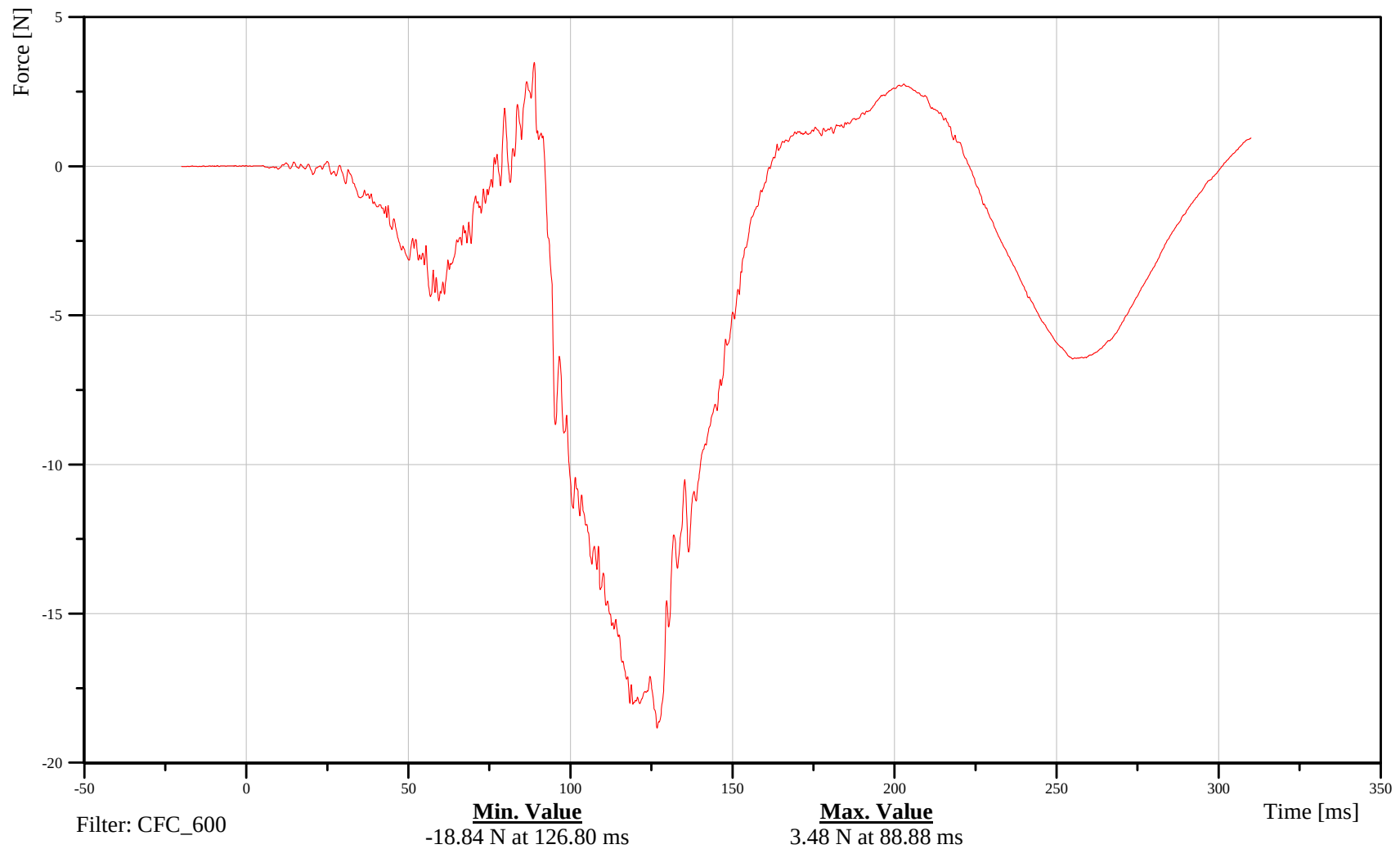
Target Vehicle Driver Upper Neck Moment About Z Axis

Customer: VRTC

21NECKUP00THMOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-200

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

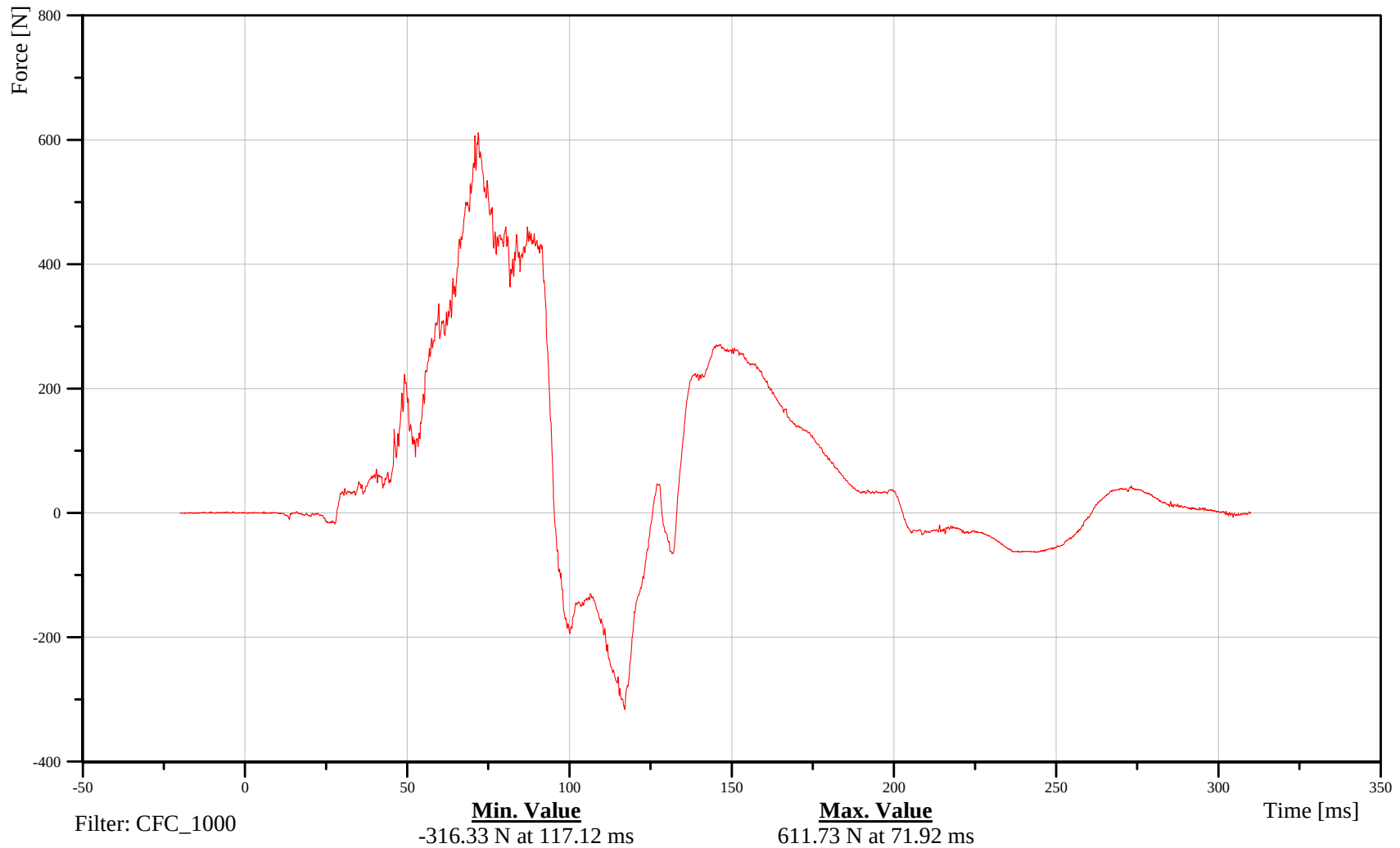
Target Vehicle Driver Lower Neck X-Axis Force

Customer: VRTC

21NECKLO00THFOXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-201

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

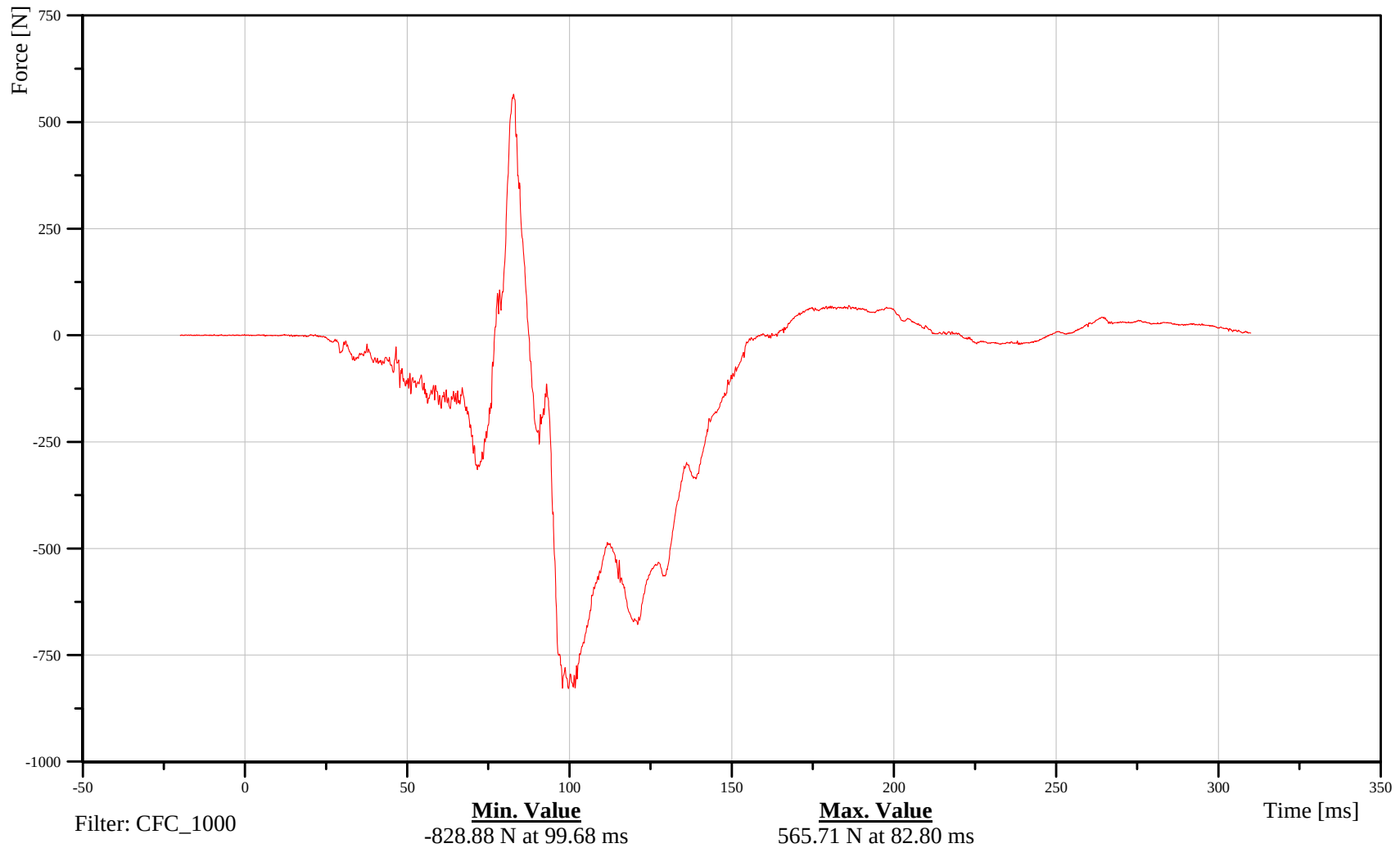
Target Vehicle Driver Lower Neck Y-Axis Force

Customer: VRTC

21NECKLO00THFOYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-202

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

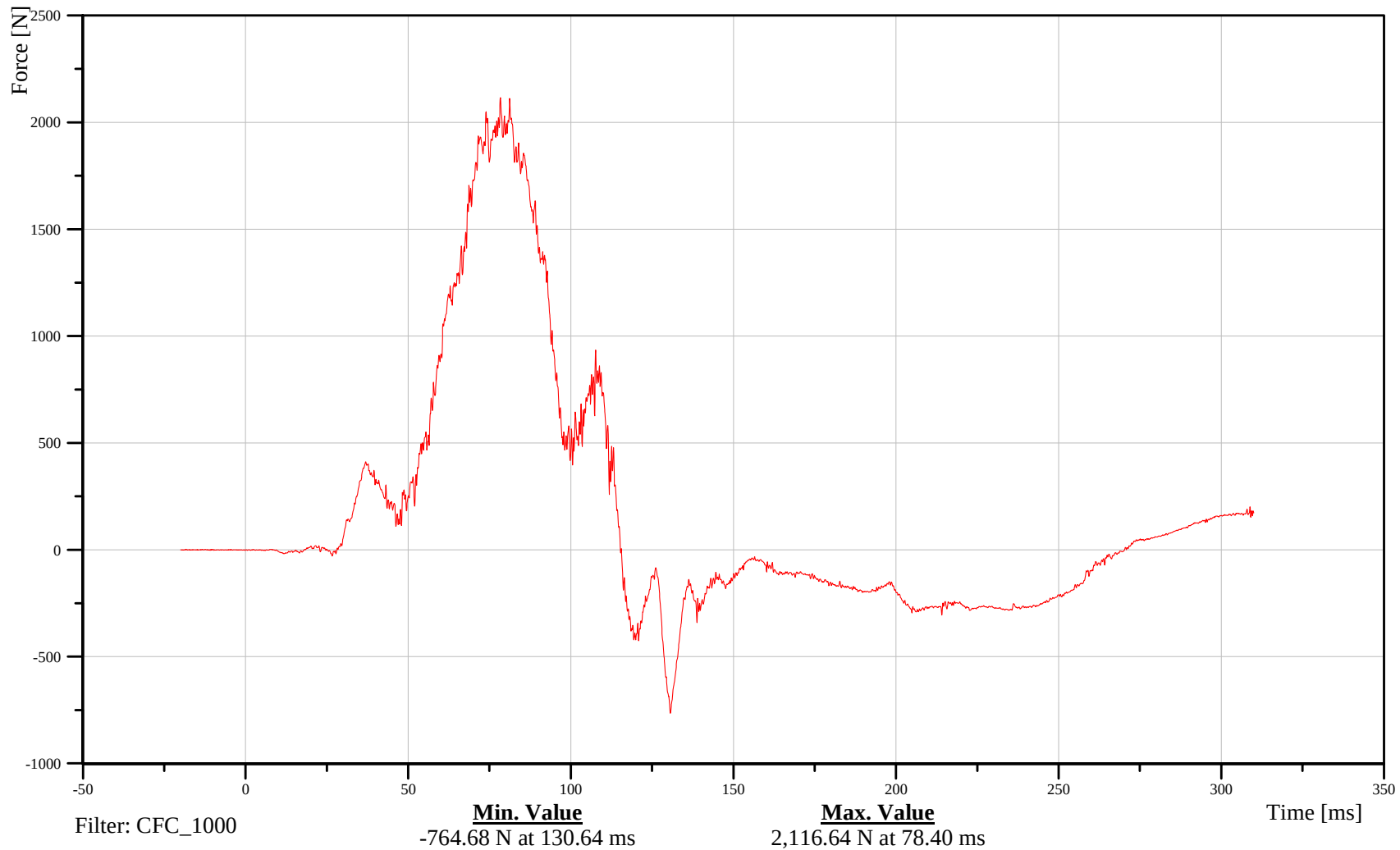
Target Vehicle Driver Lower Neck Z-Axis Force

Customer: VRTC

21NECKLO00THFOZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-203

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

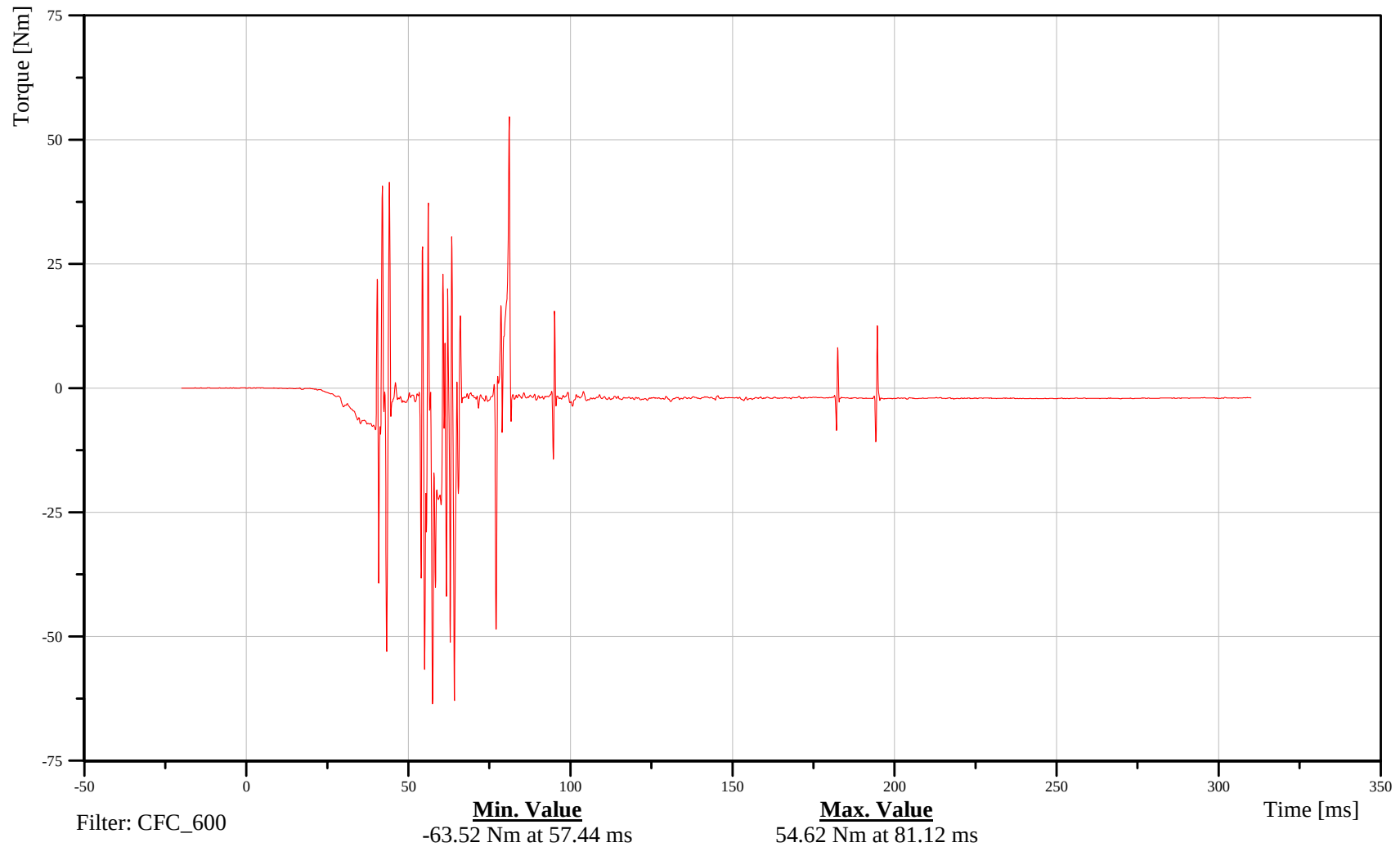
Target Vehicle Driver Lower Neck Moment About X Axis

Customer: VRTC

21NECKLO00THMOXB

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

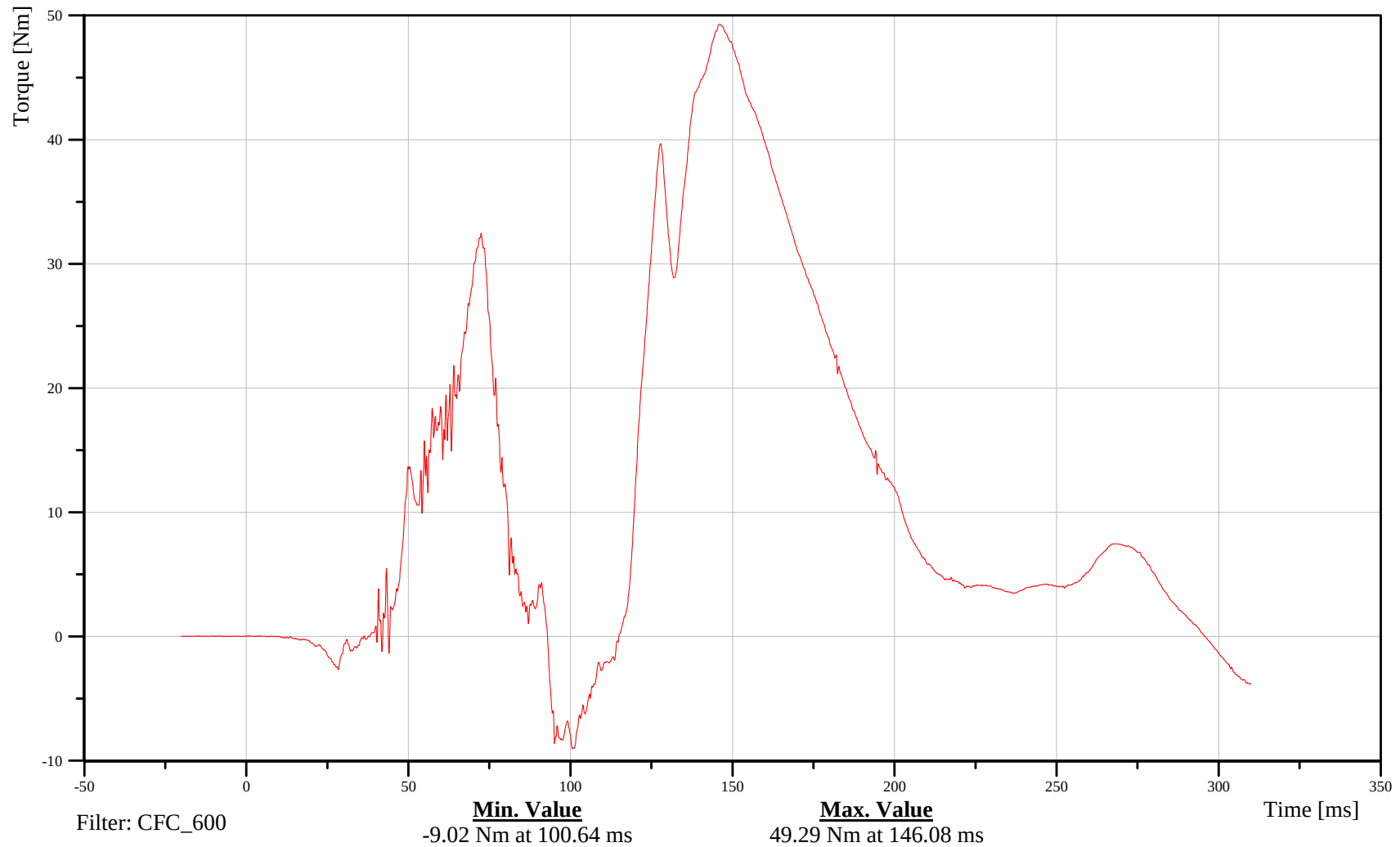
Target Vehicle Driver Lower Neck Moment About Y Axis

Customer: VRTC

21NECKLO00THMOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-205

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

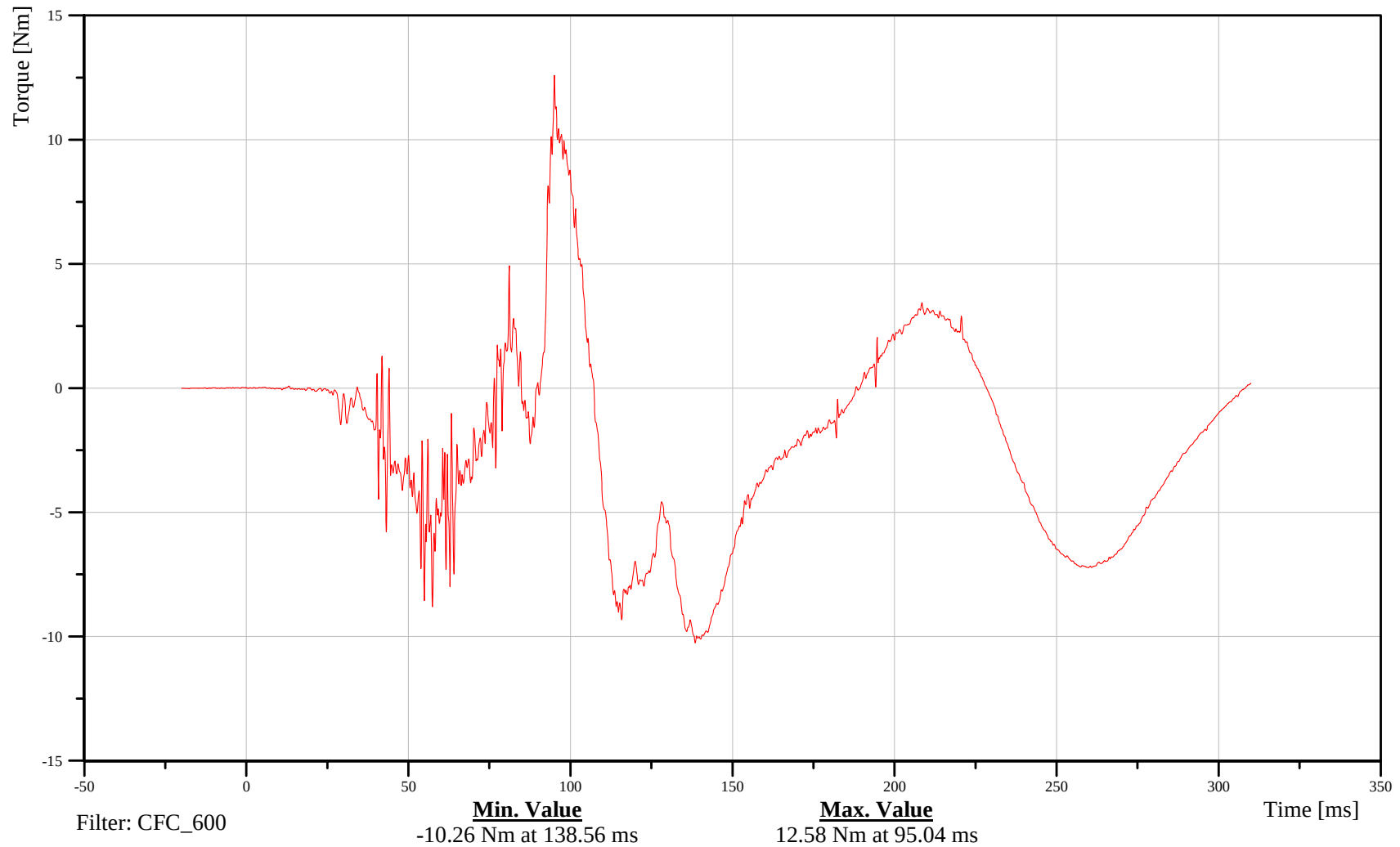
Target Vehicle Driver Lower Neck Moment About Z Axis

Customer: VRTC

21NECKLO00THMOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-206

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

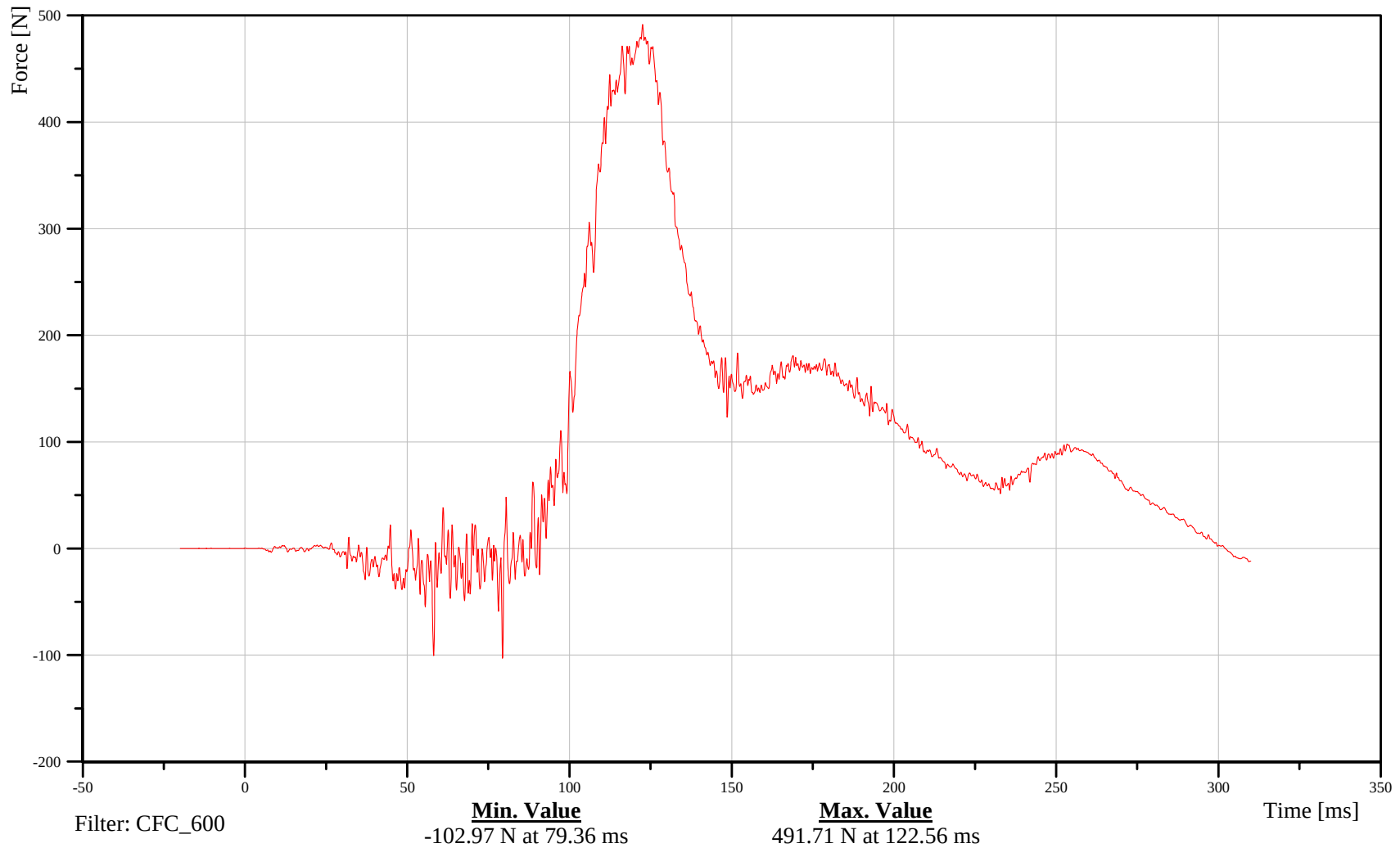
Target Vehicle Driver Rear Skull Spring Z-Axis Force

Customer: VRTC

21NECKRE00THFO0B

TRC Inc. Test Lab: CTF

Test Number: 101207



B-207

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

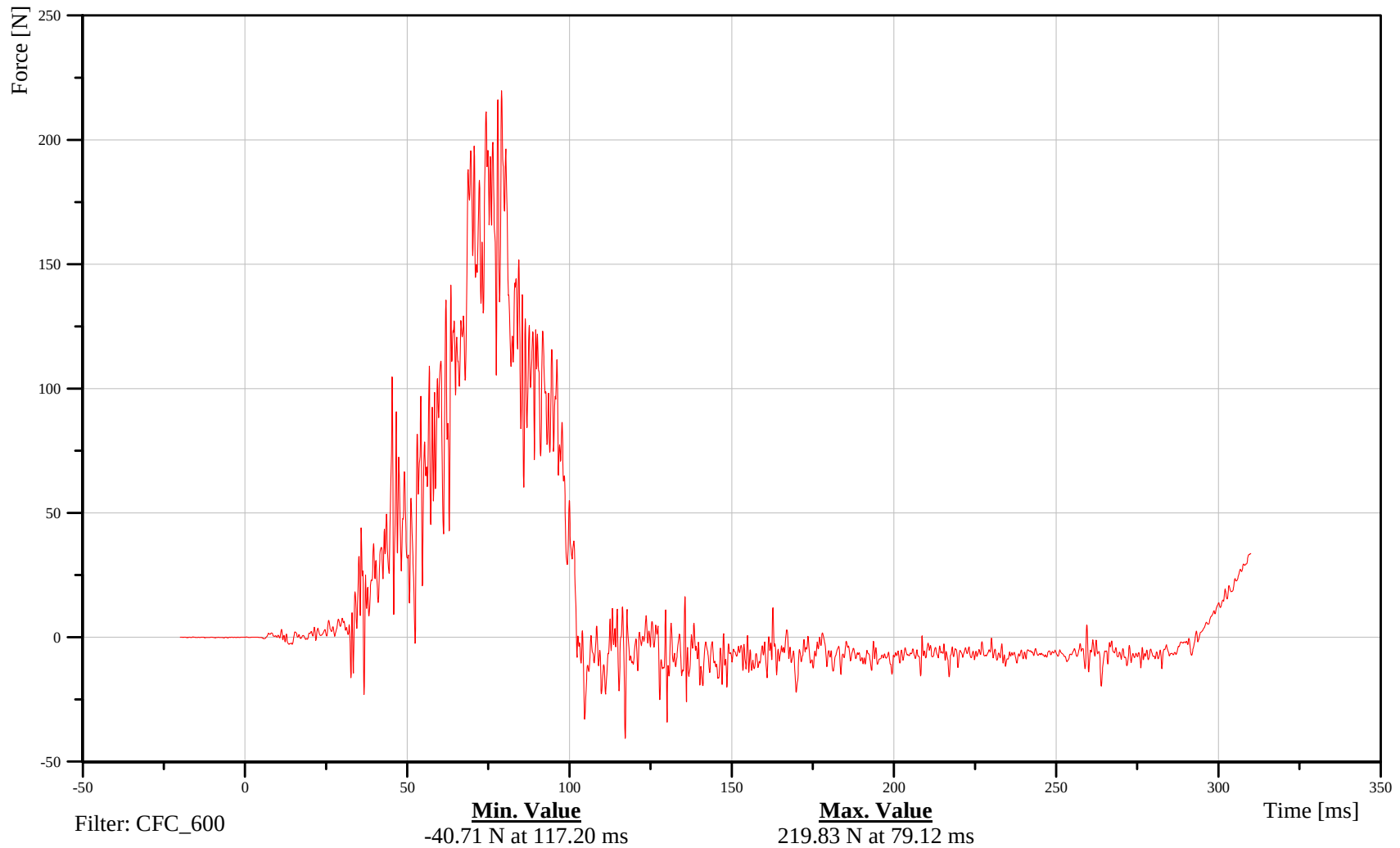
Target Vehicle Driver Front Skull Spring Z-Axis Force

Customer: VRTC

21NECKFR00THFO0B

TRC Inc. Test Lab: CTF

Test Number: 101207



B-208

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

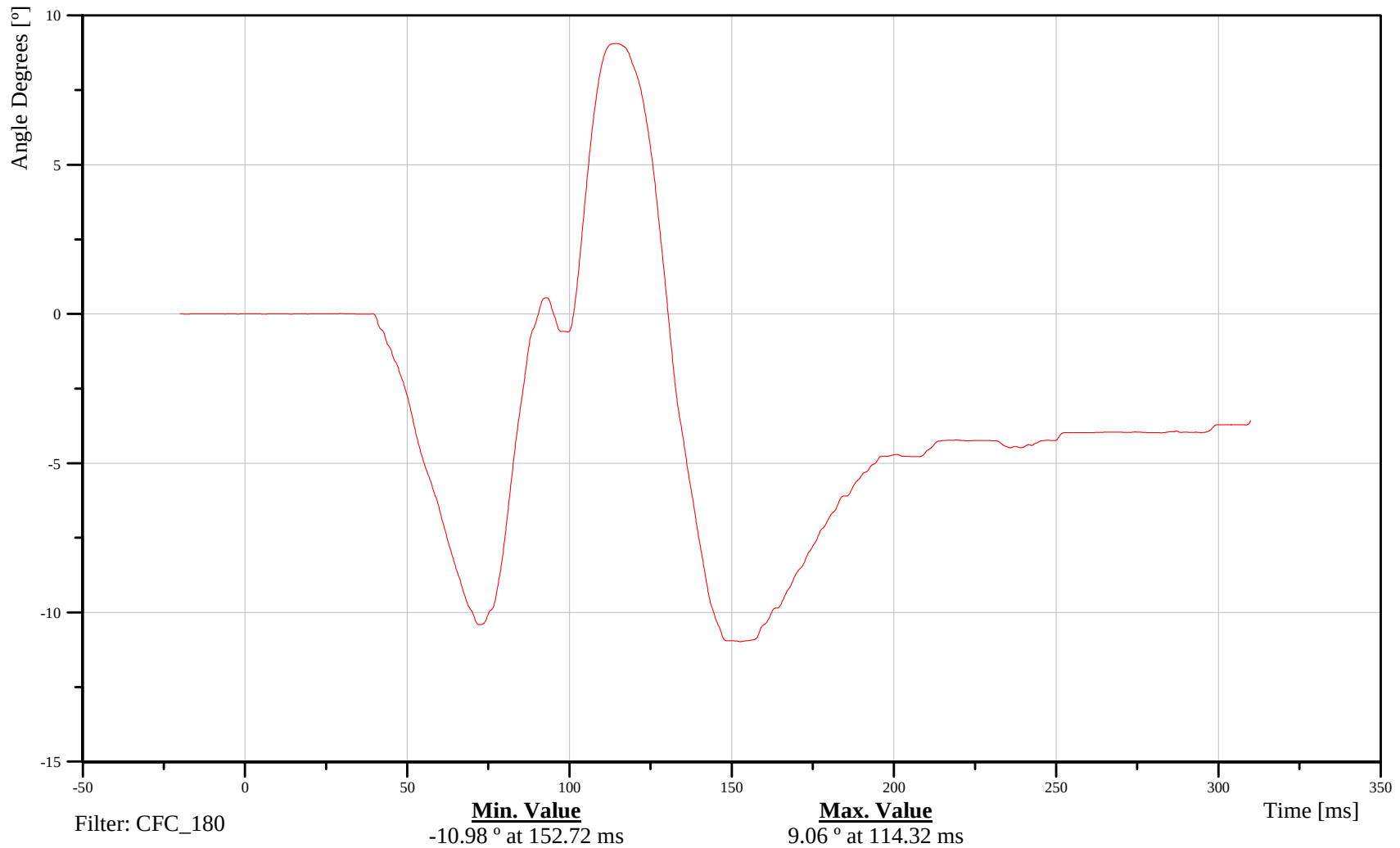
Target Vehicle Driver Occipital Condyle Rotary Pot

Customer: VRTC

21NECKUP00THANYC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-209

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

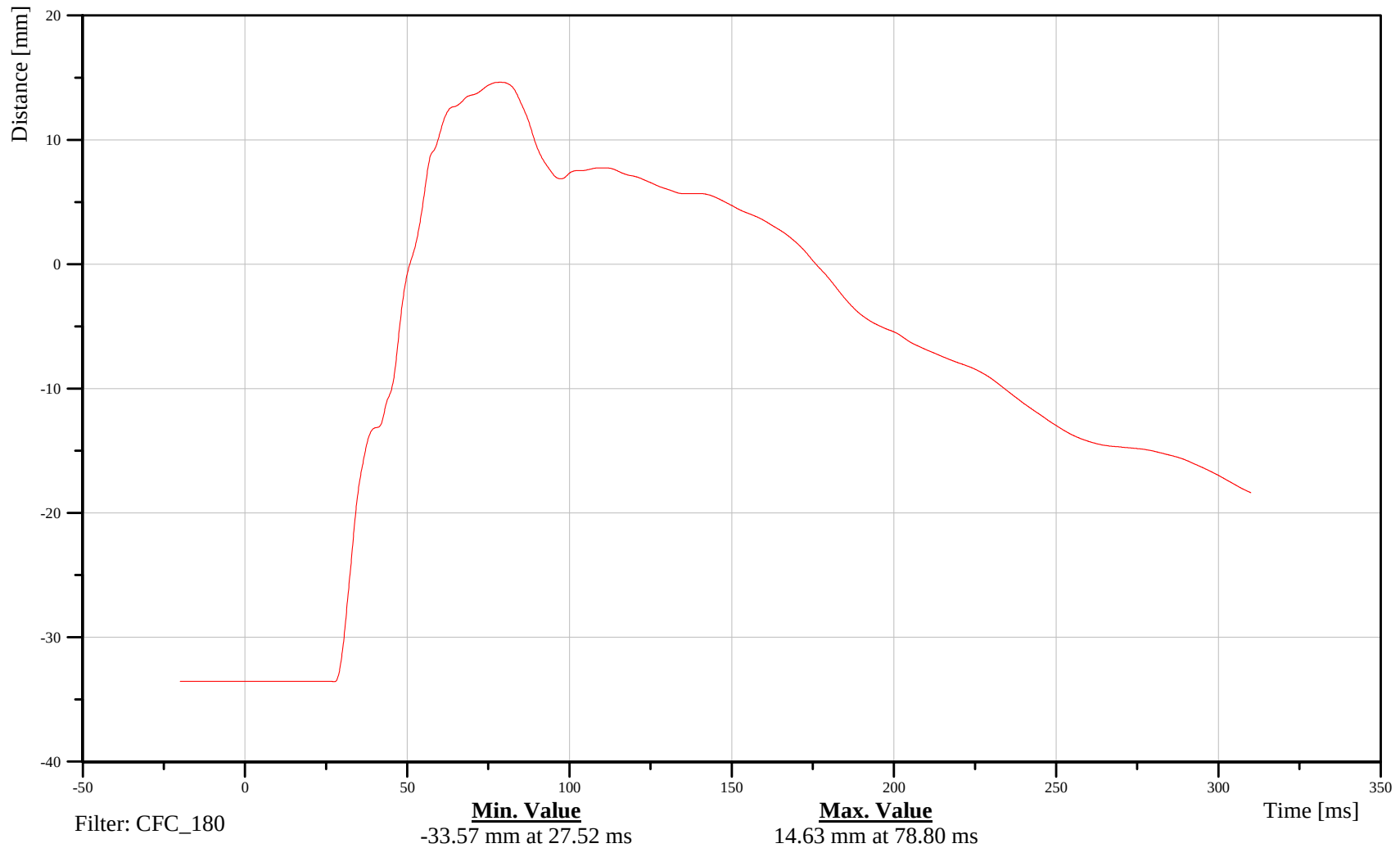
Target Vehicle Driver Lower Abdomen DGSP Right Displacement

Customer: VRTC

21ABDORL00THDS0C

TRC Inc. Test Lab: CTF

Test Number: 101207



B-210

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver Lower Abdomen DGSP Right Pitch

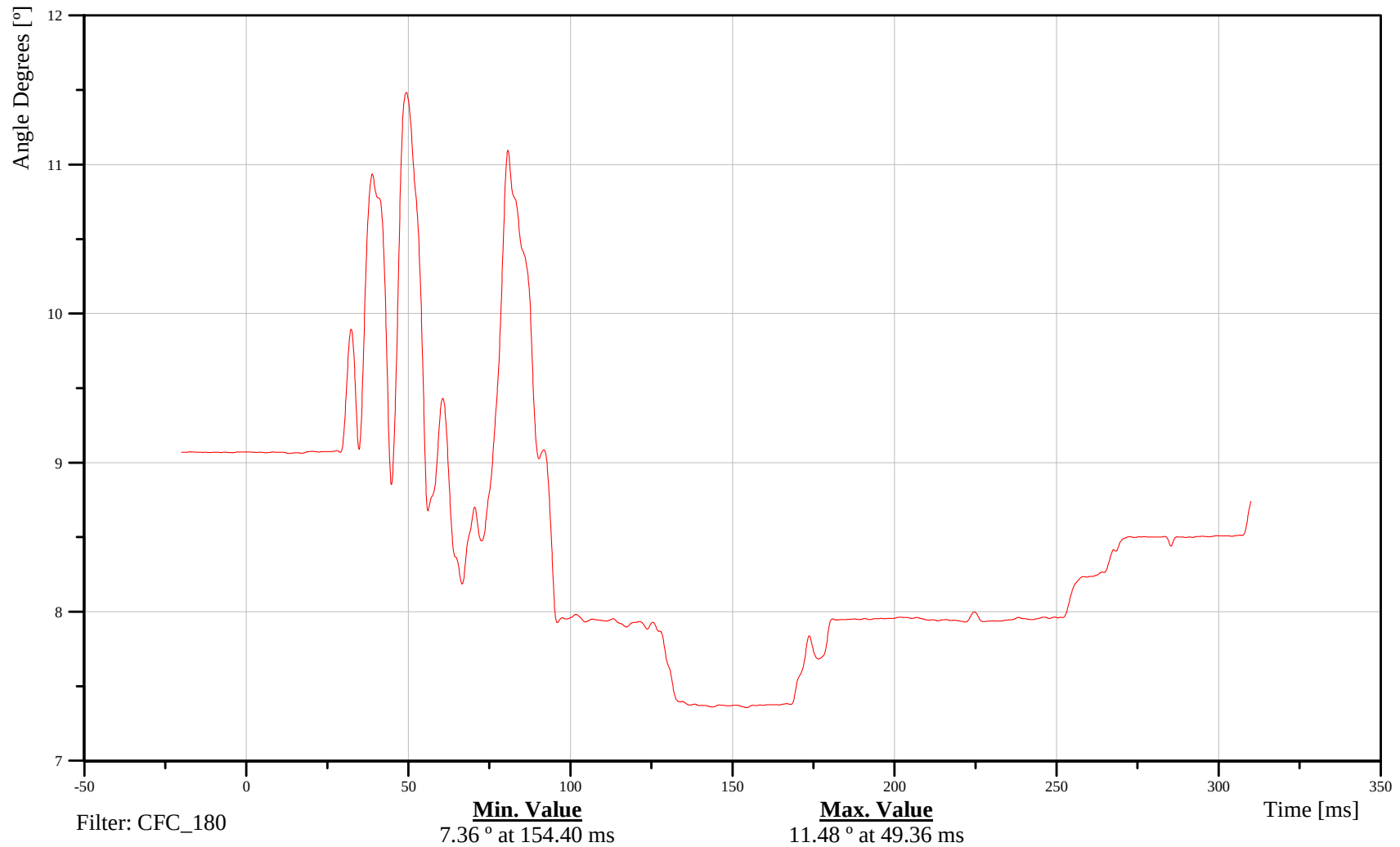
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21ABDORL00THANYC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-211

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver Lower Abdomen DGSP Right Yaw

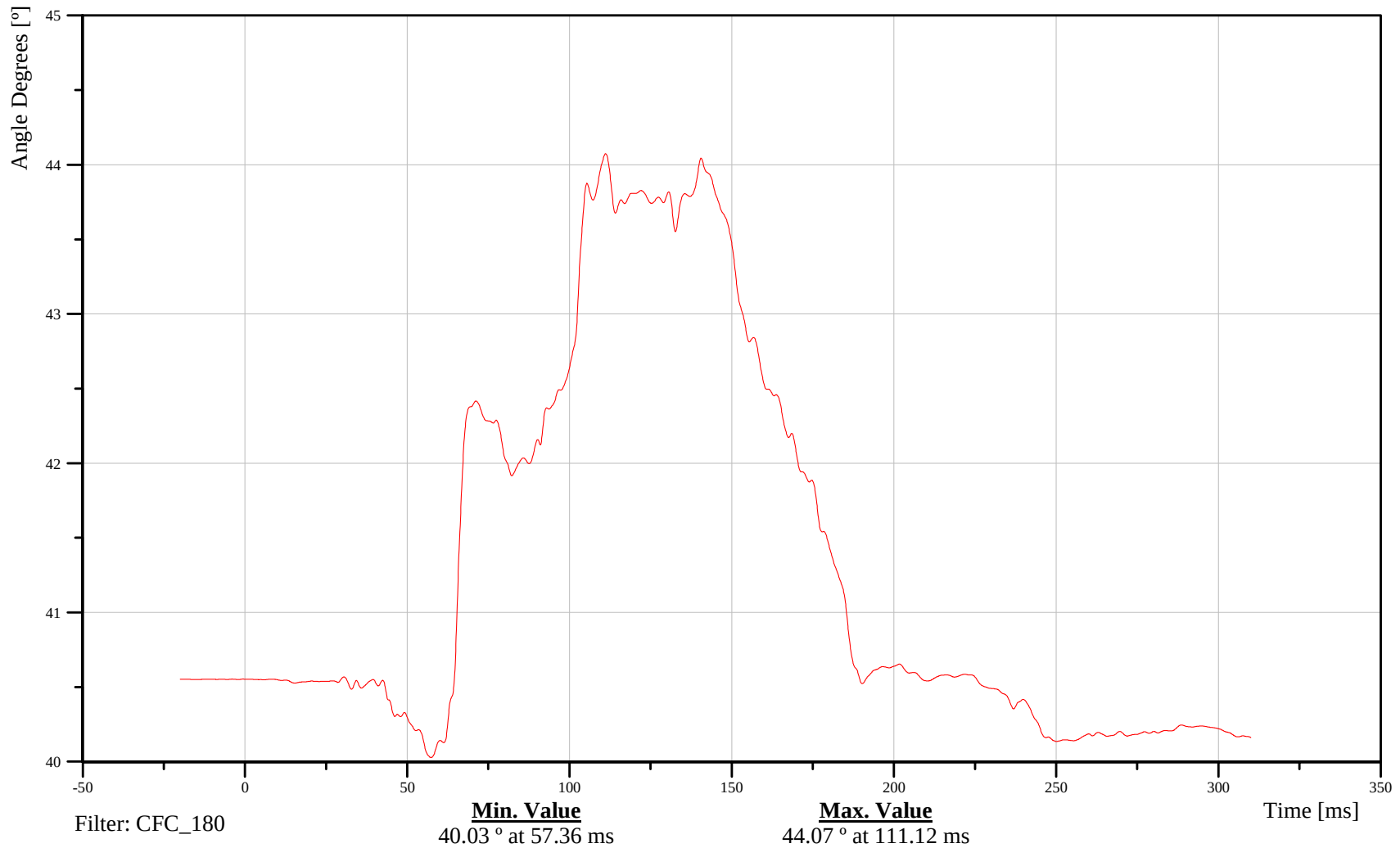
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21ABDORL00THANZC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

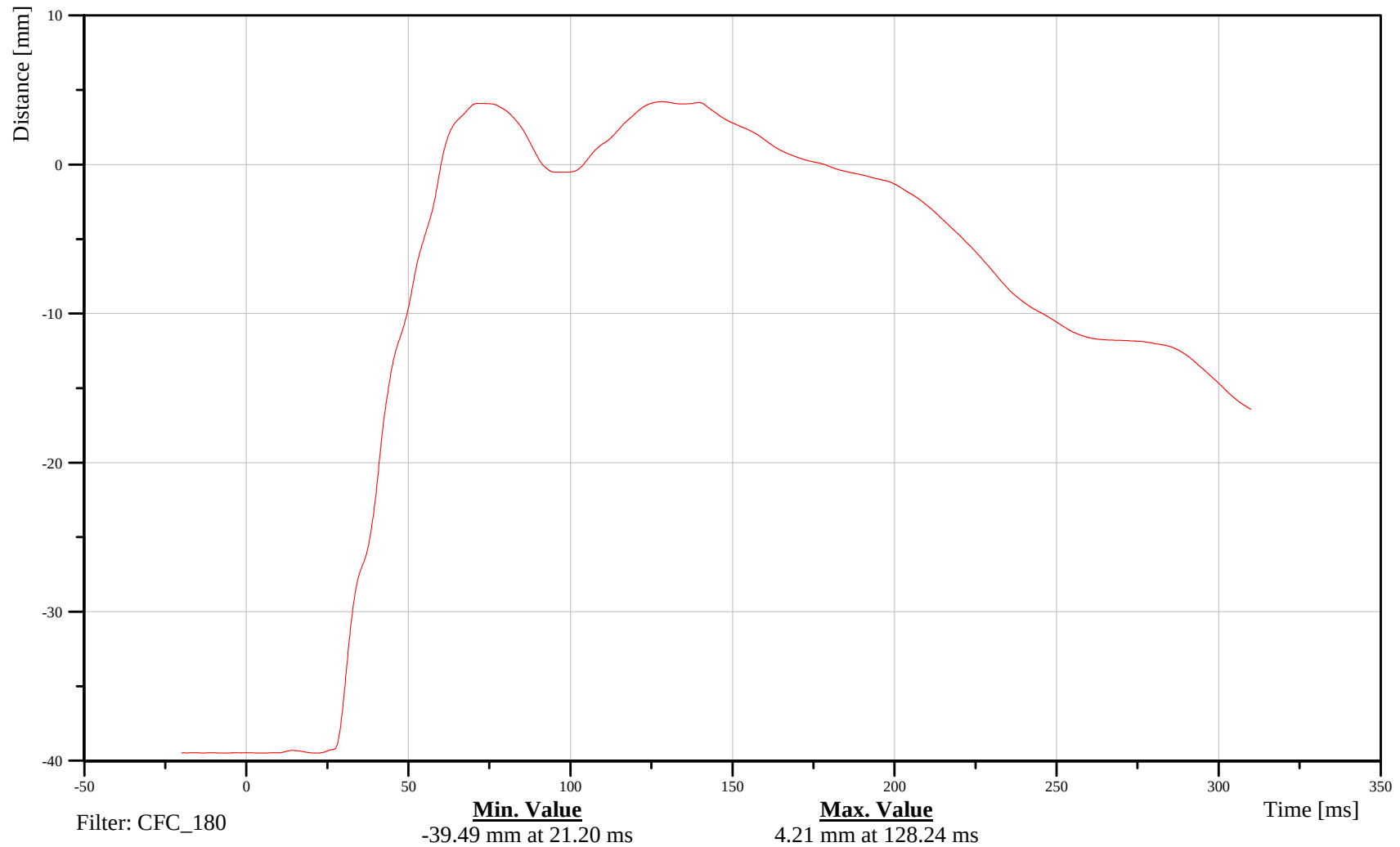
Target Vehicle Driver Lower Abdomen DGSP Left Displacement

Customer: VRTC

21ABDOLL00THDS0C

TRC Inc. Test Lab: CTF

Test Number: 101207



B-213

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

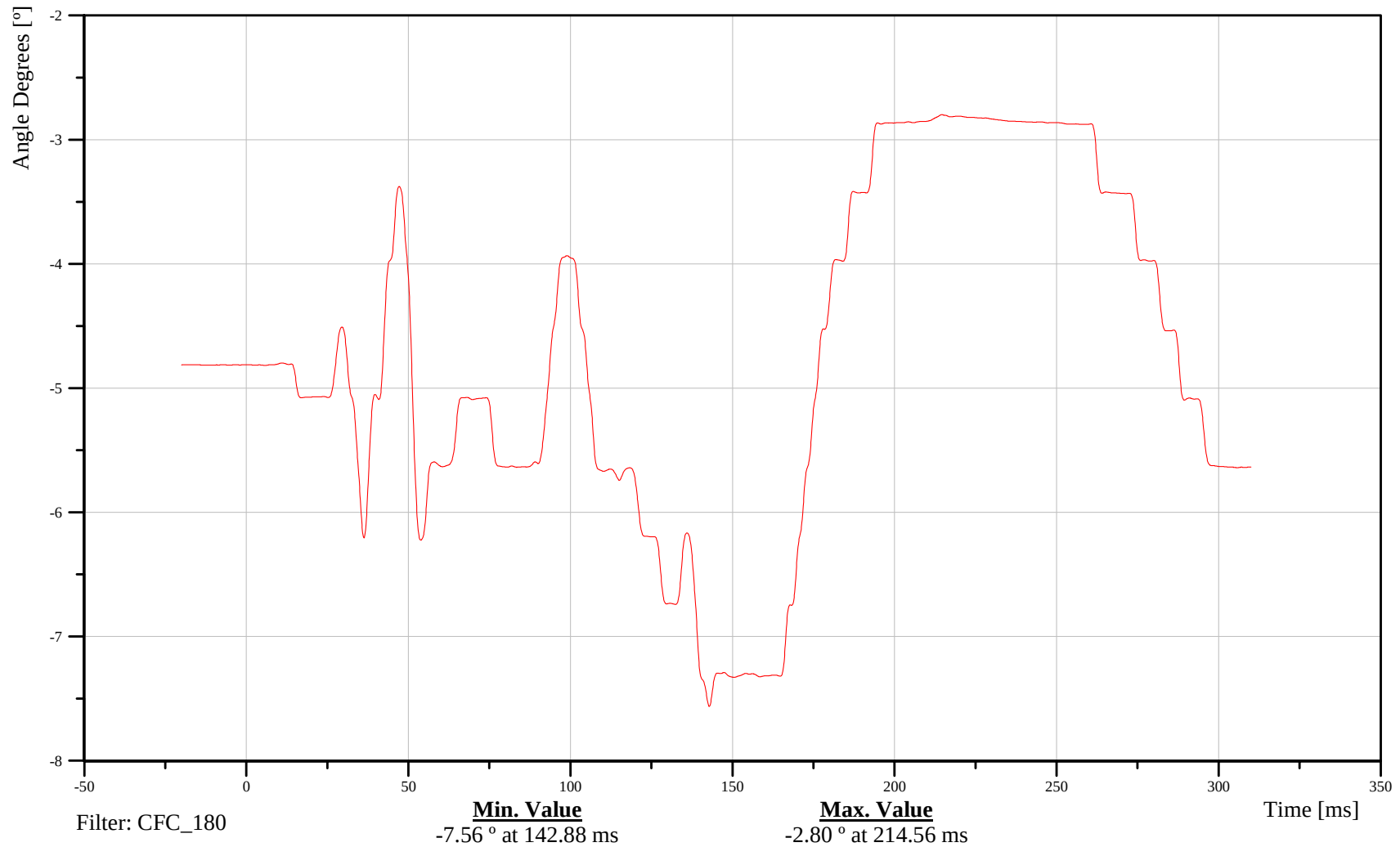
Target Vehicle Driver Lower Abdomen DGSP Left Pitch

Customer: VRTC

21ABDOLL00THANYC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-214

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

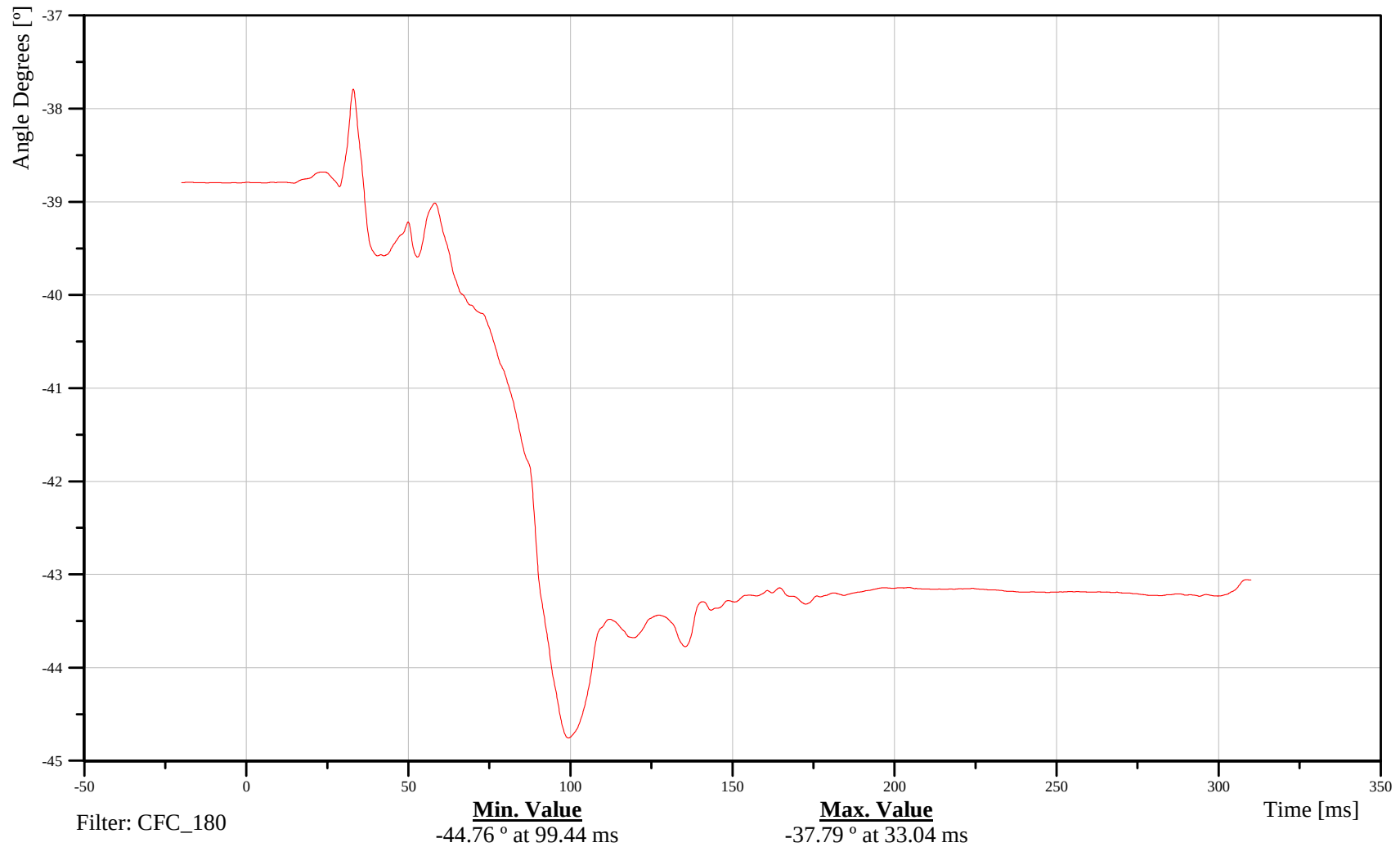
Target Vehicle Driver Lower Abdomen DGSP Left Yaw

Customer: VRTC

21ABDOLL00THANZC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

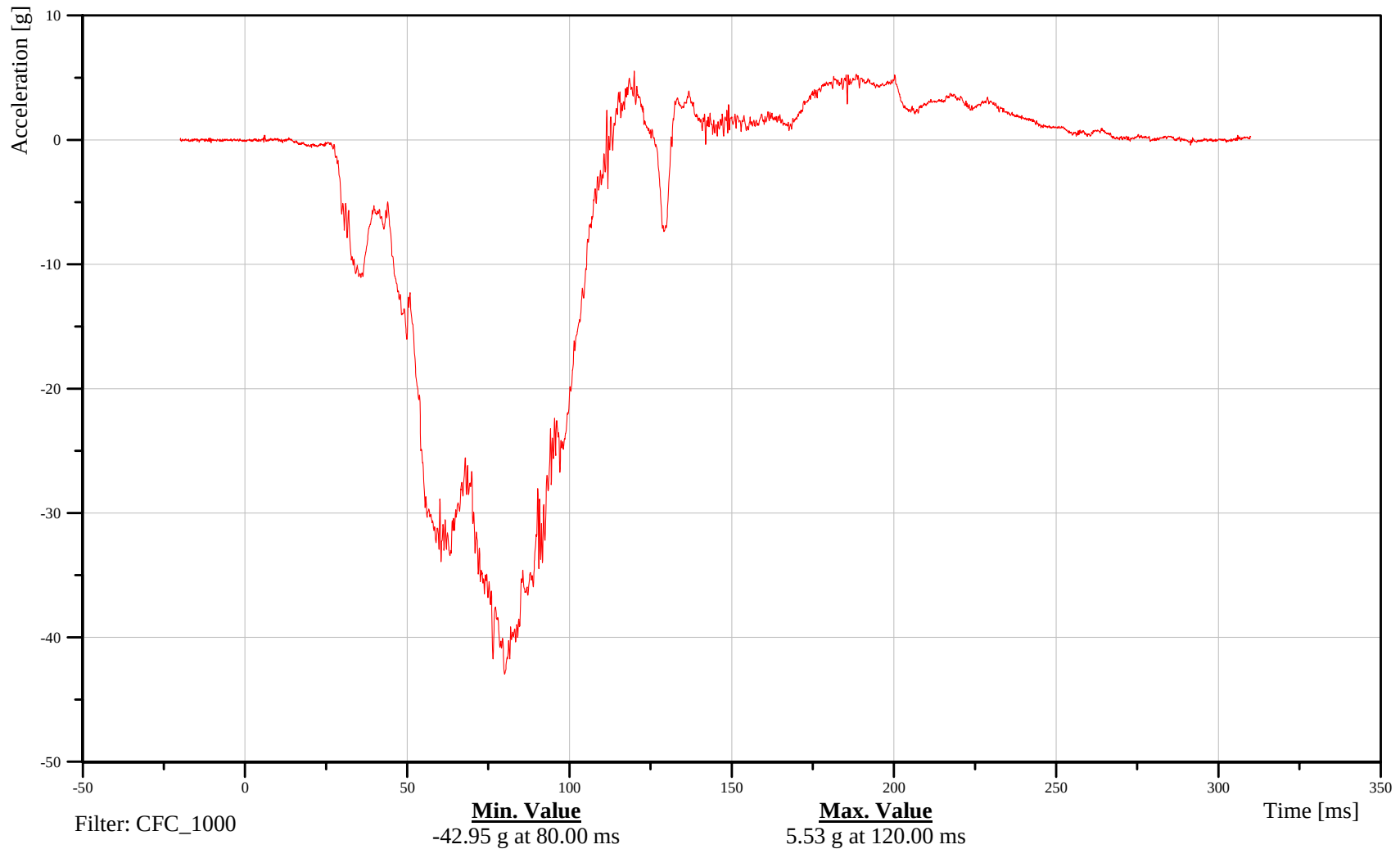
Target Vehicle Driver T6 Mid Spine X-Axis Acceleration

Customer: VRTC

21SPINMI00THACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-216

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver T6 Mid Spine Y-Axis Acceleration

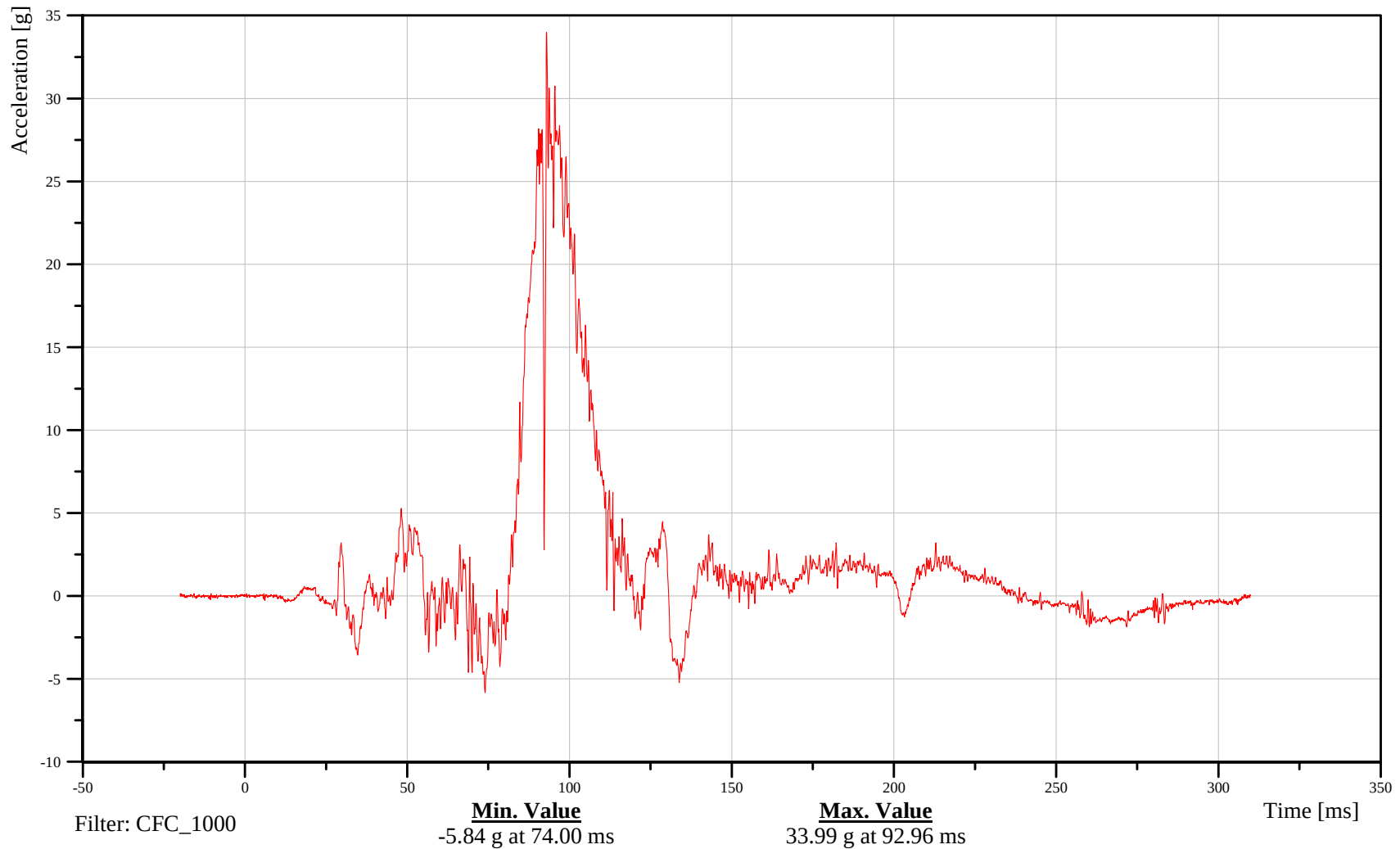
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21SPINMI00THACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-217

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

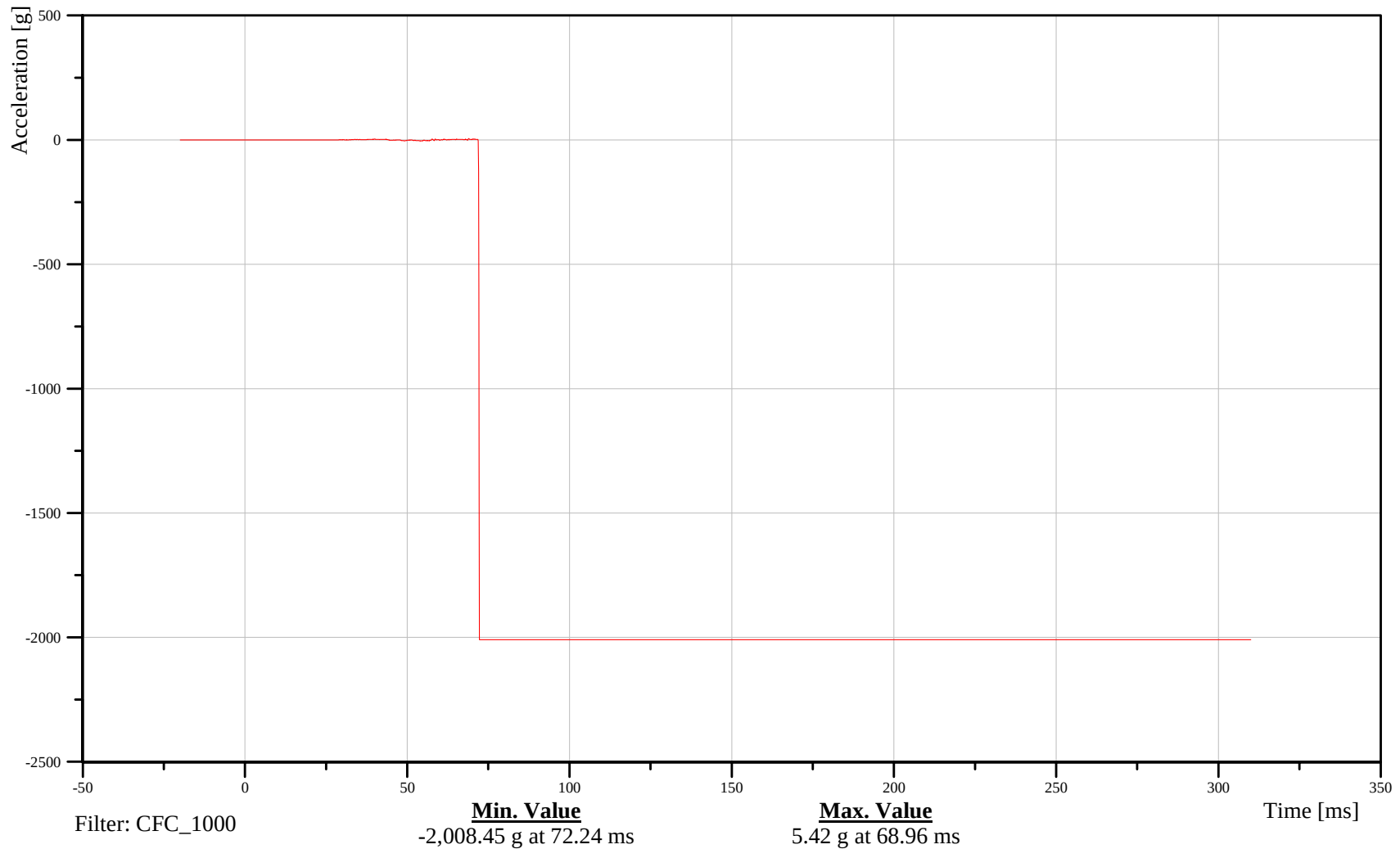
Target Vehicle Driver T6 Mid Spine Z-Axis Acceleration

Customer: VRTC

21SPINMI00THACZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-218

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

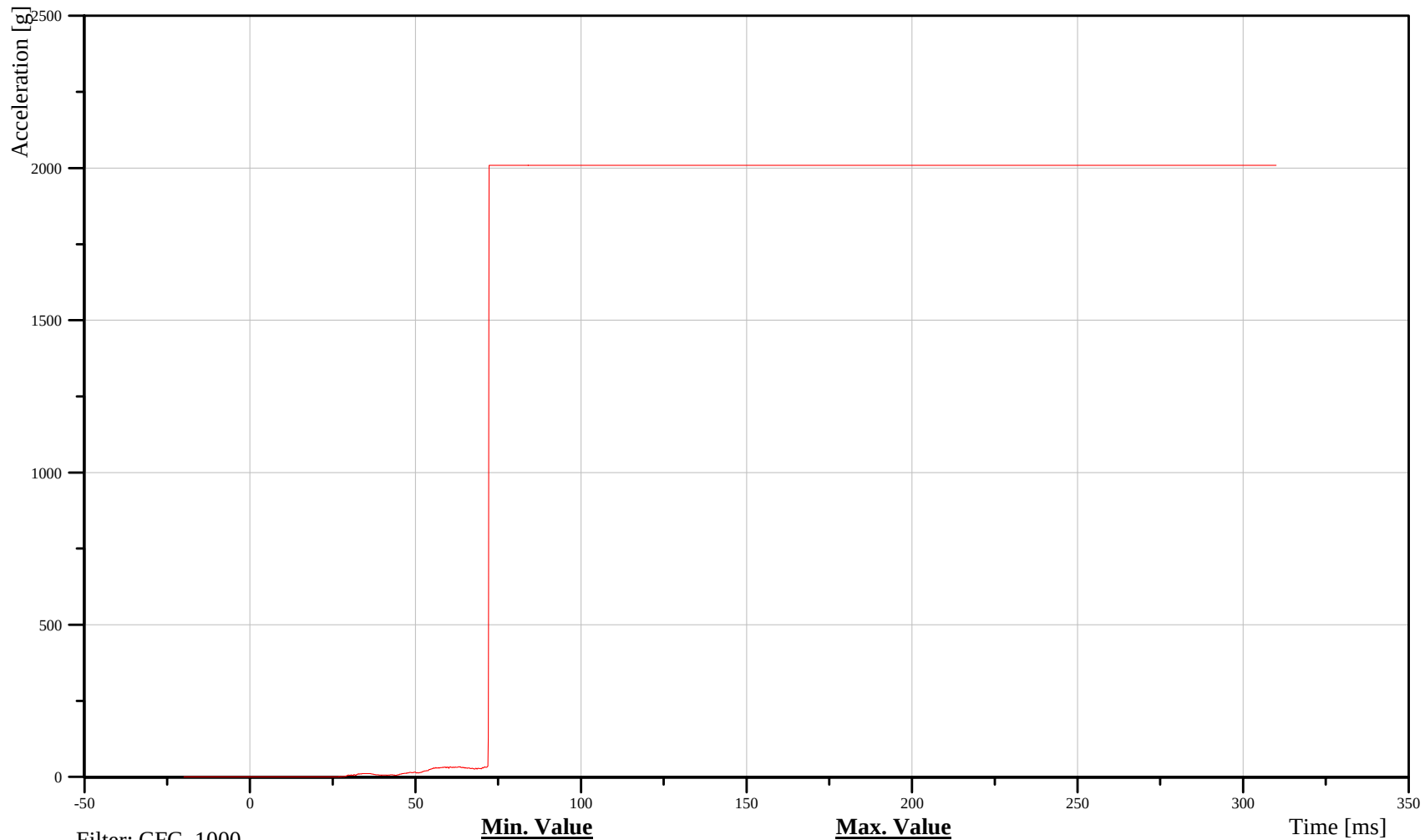
Target Vehicle Driver T6 Mid Spine Resultant Acceleration

Customer: VRTC

21SPINMI00THACRA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-219

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver CRUX T016 Base Upper Left Thorax Pot

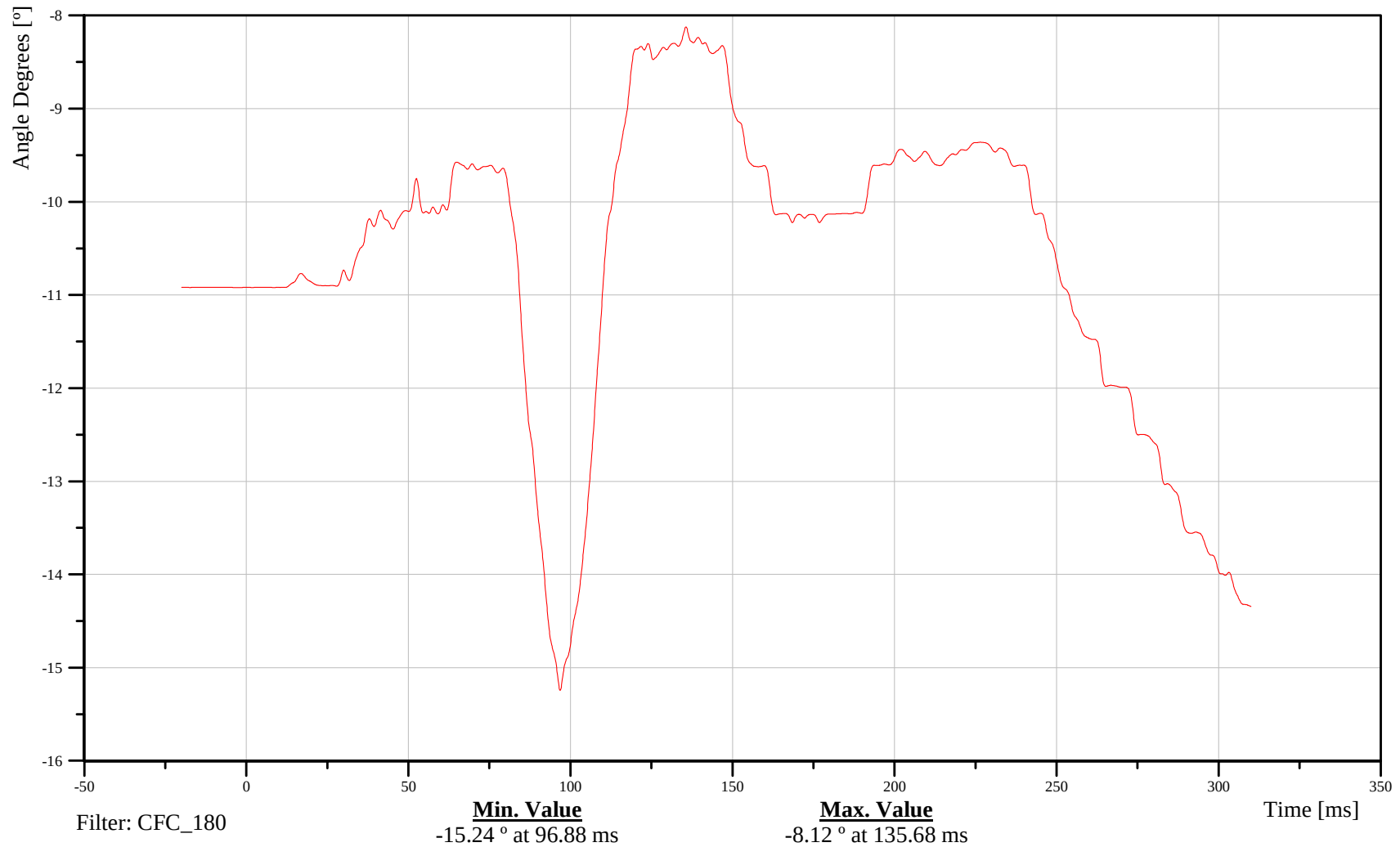
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21CHRILU01THAN0C

TRC Inc. Test Lab: CTF

Test Number: 101207



B-220

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver CRUX T016 Mid Upper Left Thorax Pot

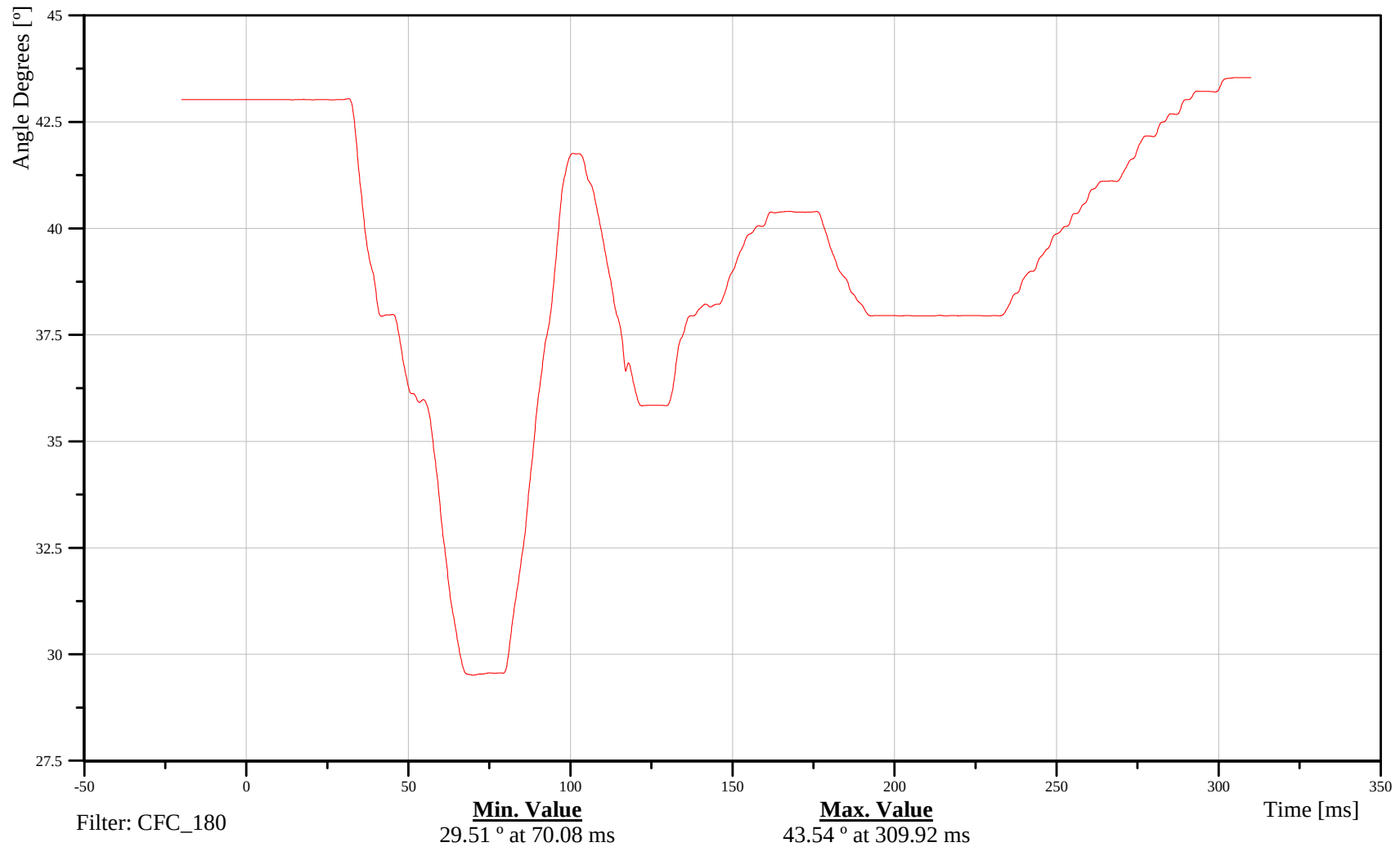
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21CHRILU02THAN0C

TRC Inc. Test Lab: CTF

Test Number: 101207



B-221

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver CRUX T016 Elbow Upper Left Thorax Pot

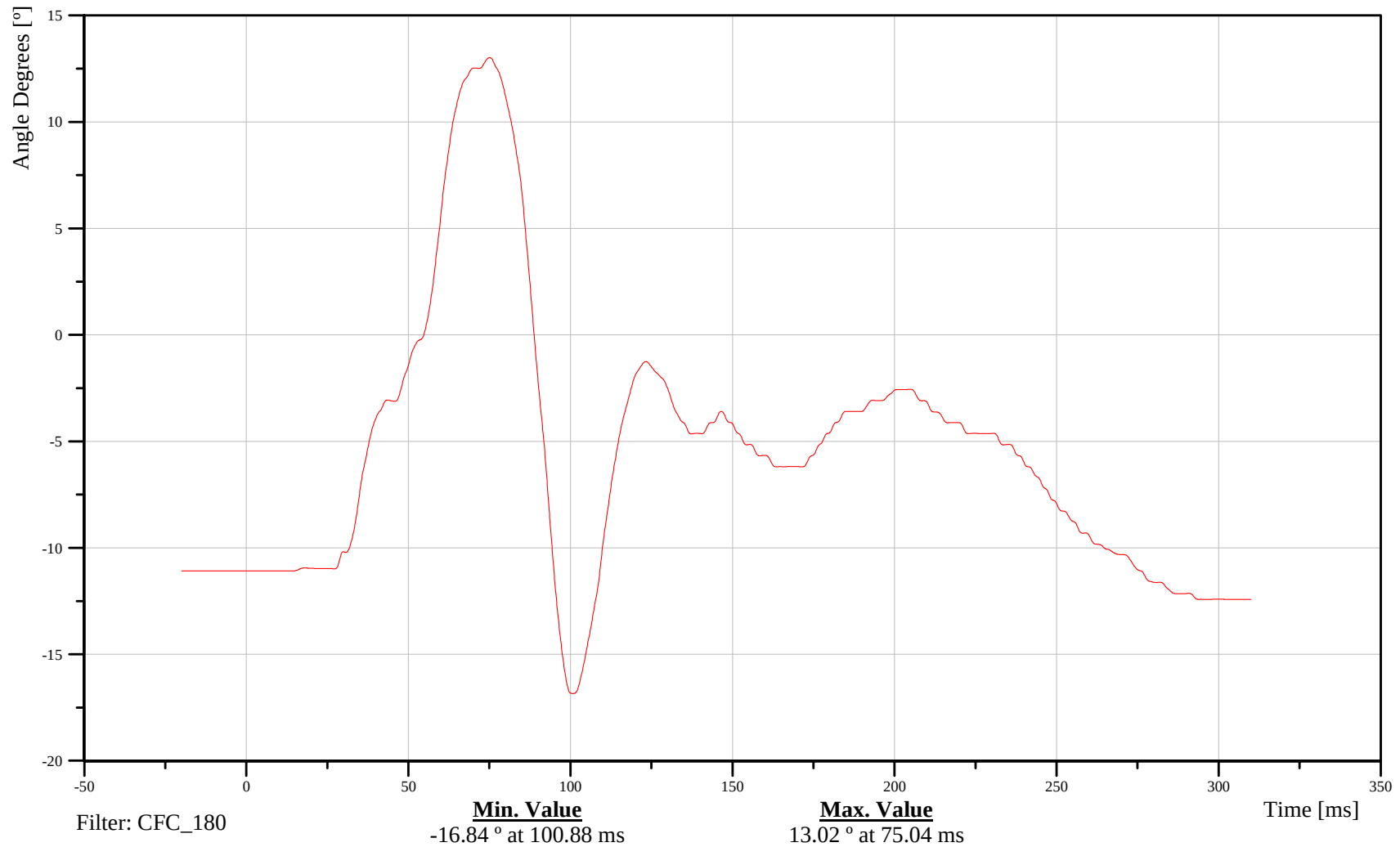
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21CHRILU03THAN0C

TRC Inc. Test Lab: CTF

Test Number: 101207



B-222

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver CRUX T016 Base Upper Right Thorax Pot

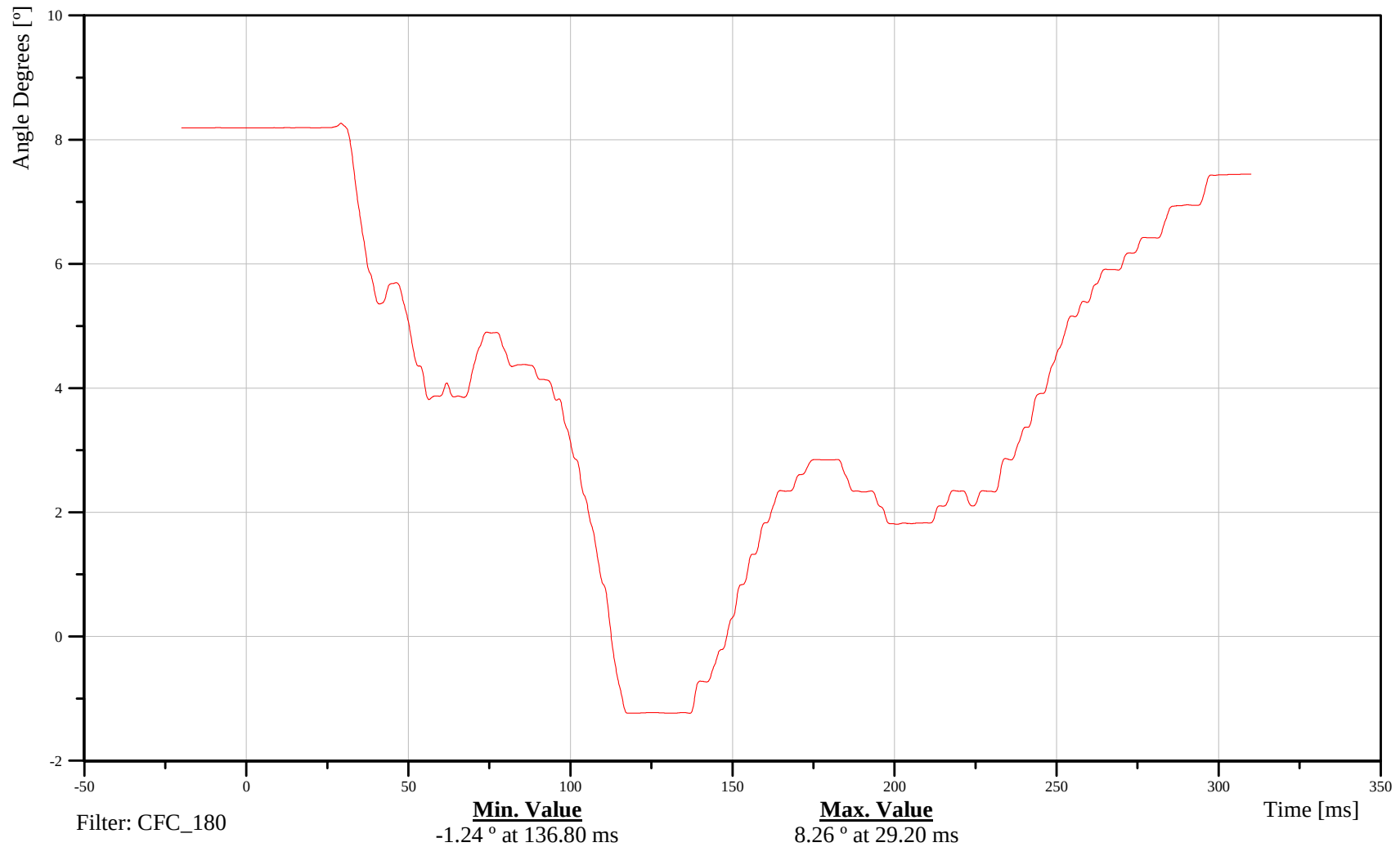
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21CHRIRU01THAN0C

TRC Inc. Test Lab: CTF

Test Number: 101207



B-223

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver CRUX T016 Mid Upper Right Thorax Pot

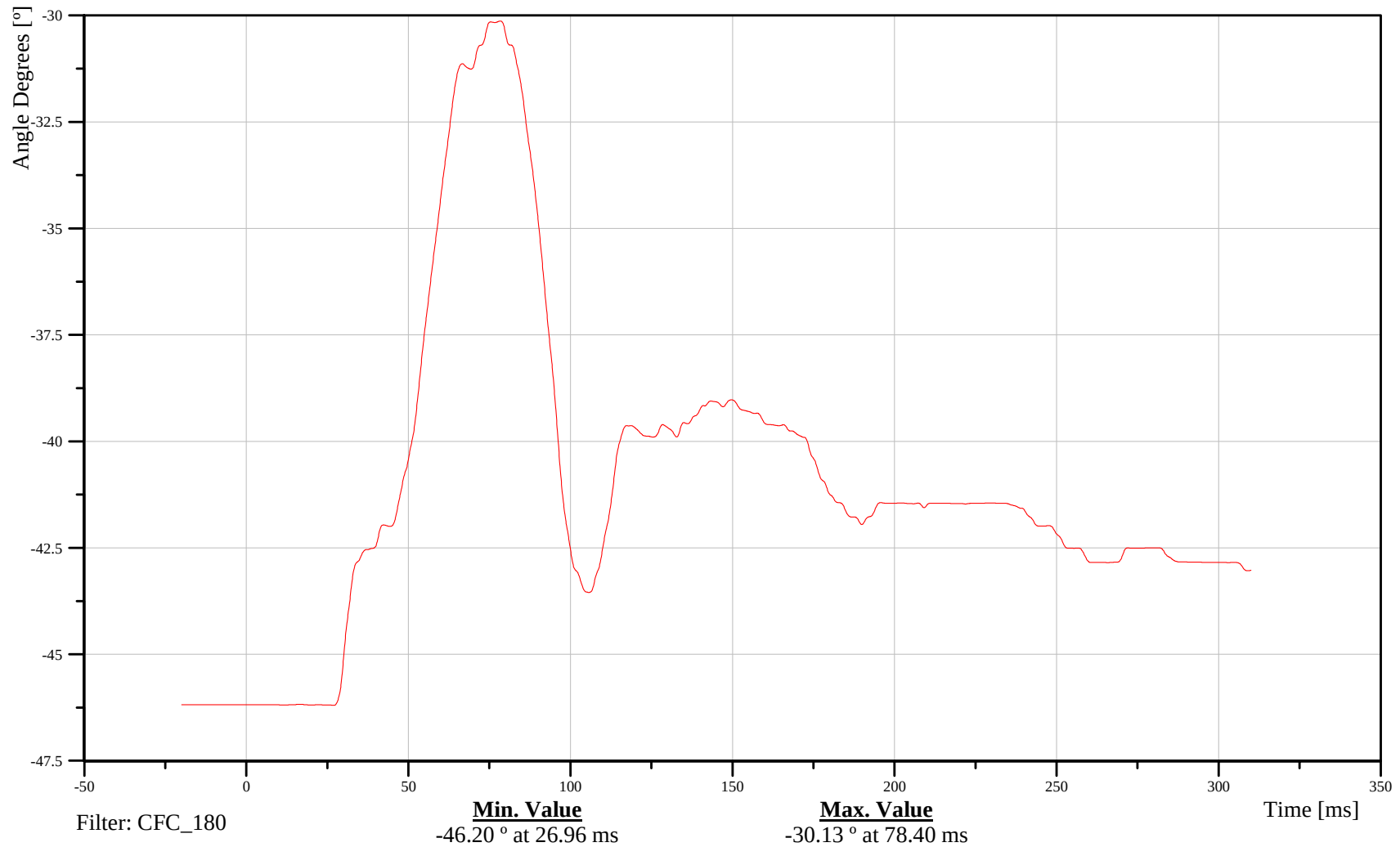
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21CHRIRU02THAN0C

TRC Inc. Test Lab: CTF

Test Number: 101207



B-224

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

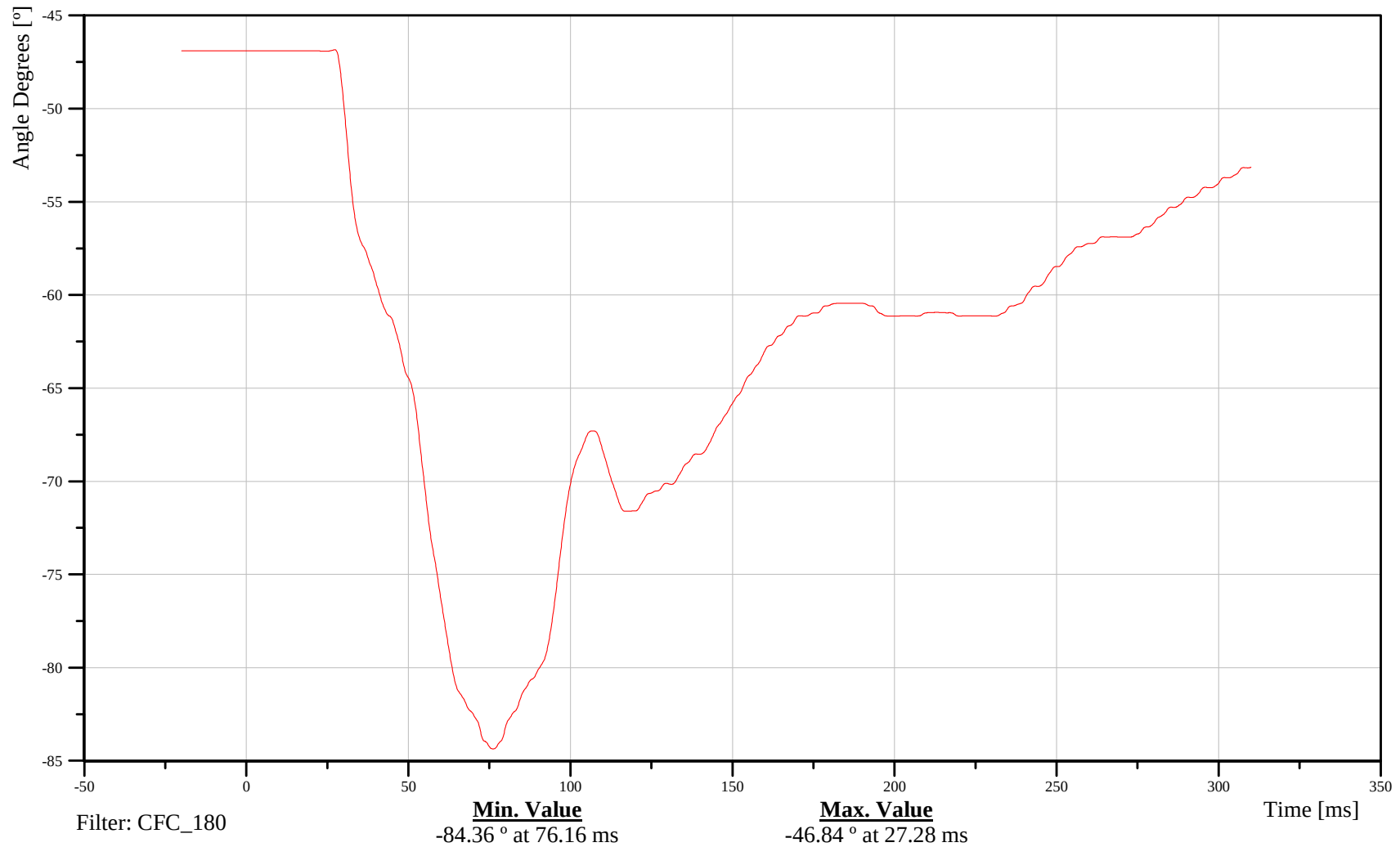
Target Vehicle Driver CRUX T016 Elbow Upper Right Thorax Pot

Customer: VRTC

21CHRIRU03THAN0C

TRC Inc. Test Lab: CTF

Test Number: 101207



B-225

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver CRUX T016 Base Lower Left Thorax Pot

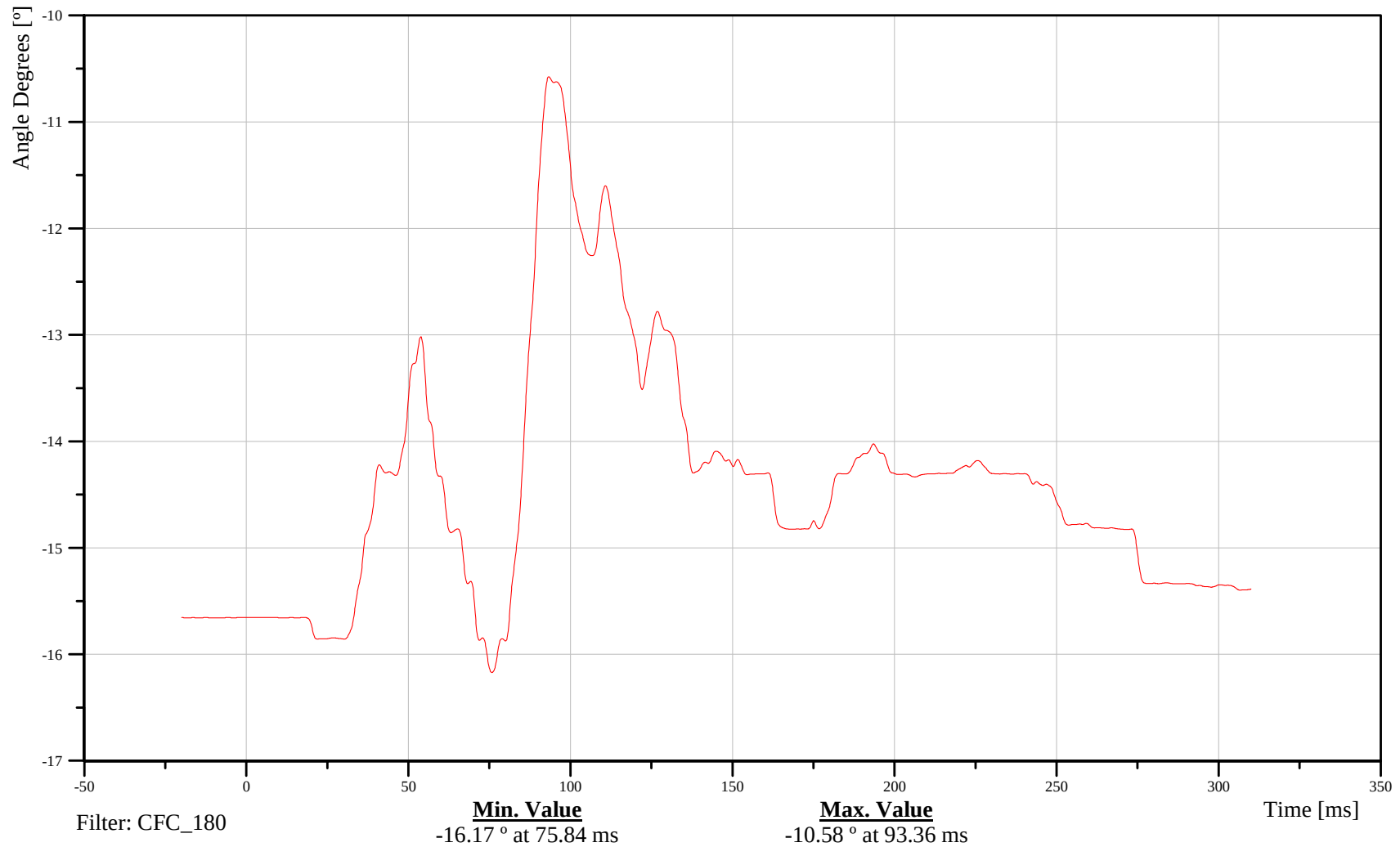
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21CHRILL01THAN0C

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver CRUX T016 Mid Lower Left Thorax Pot

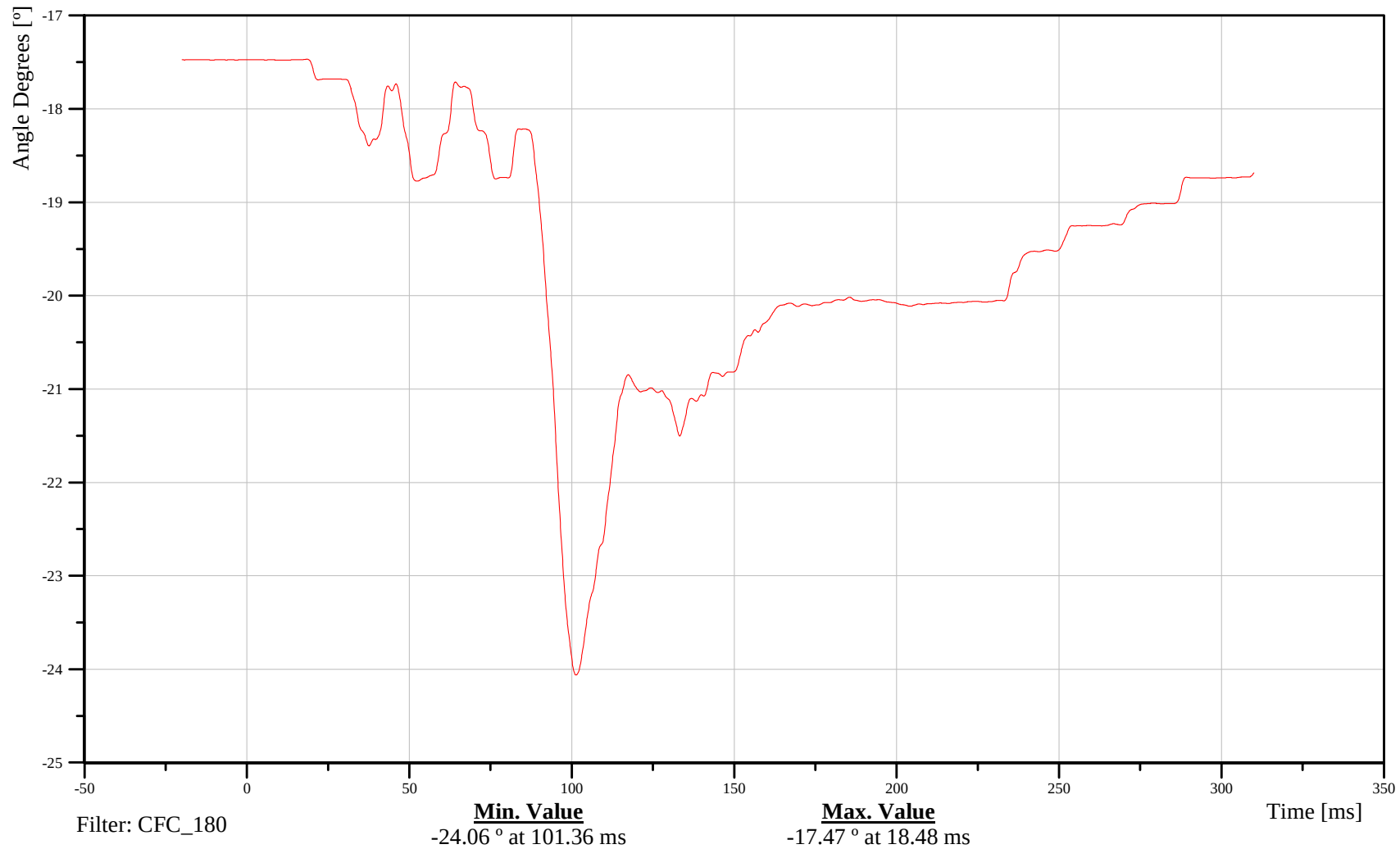
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21CHRILL02THAN0C

TRC Inc. Test Lab: CTF

Test Number: 101207



B-227

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver CRUX T016 Elbow Lower Left Thorax Pot

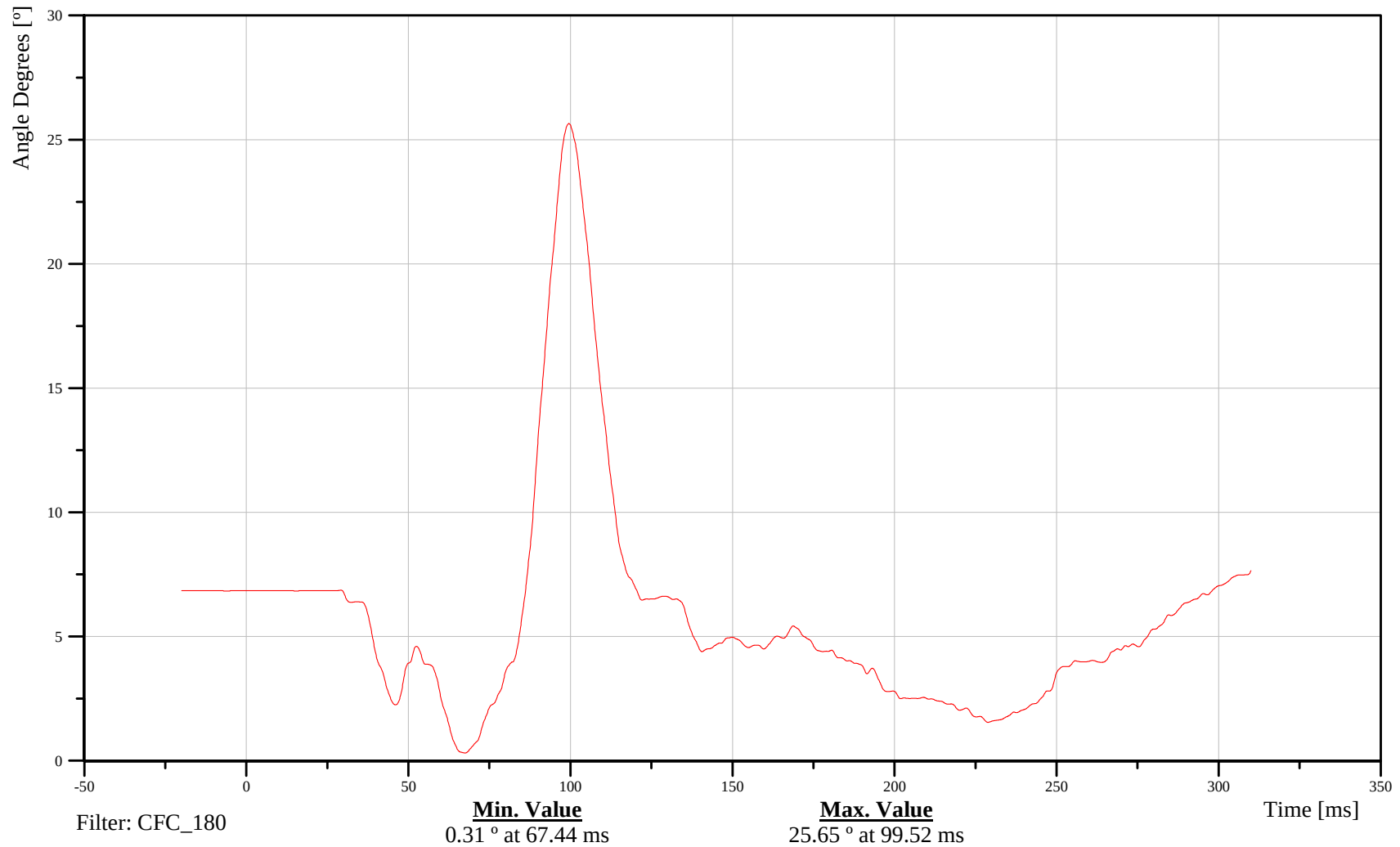
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21CHRILL03THAN0C

TRC Inc. Test Lab: CTF

Test Number: 101207



B-228

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver CRUX T016 Base Lower Right Thorax Pot

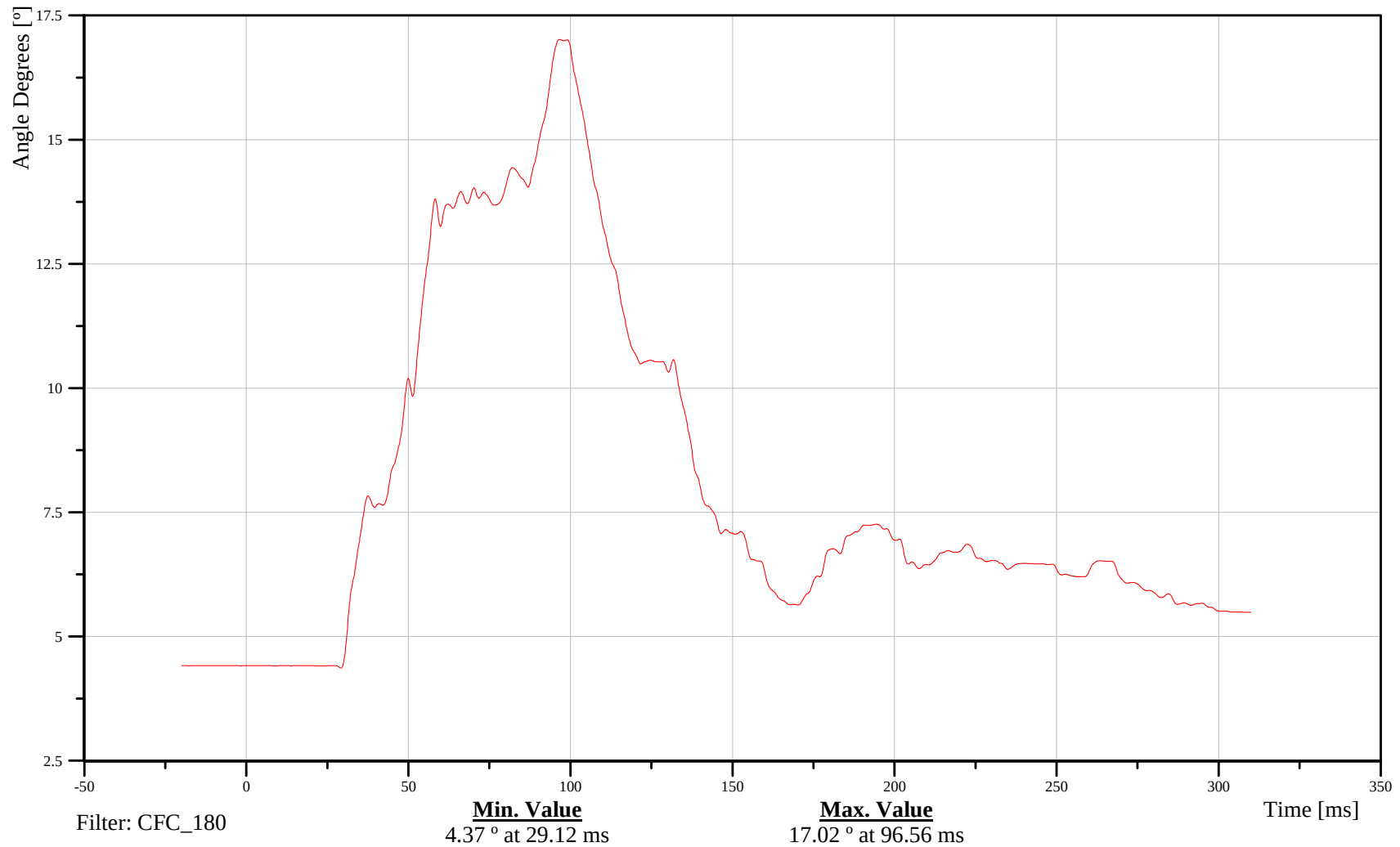
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21CHRIRL01THAN0C

TRC Inc. Test Lab: CTF

Test Number: 101207



B-229

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver CRUX T016 Mid Lower Right Thorax Pot

Date: 12/07/2010

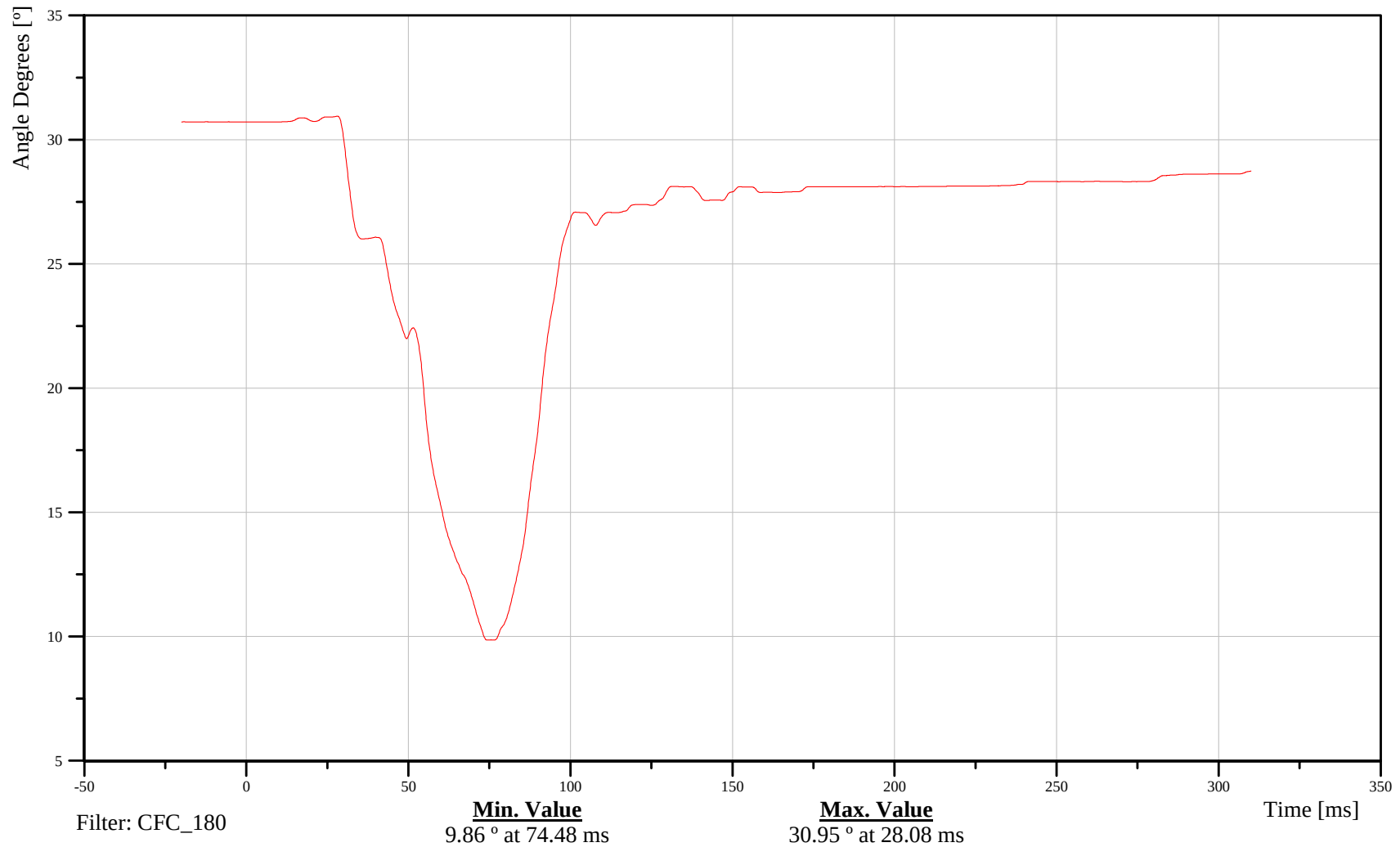
Time: 16:40 PM

Customer: VRTC

21CHRIRL02THAN0C

TRC Inc. Test Lab: CTF

Test Number: 101207



B-230

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

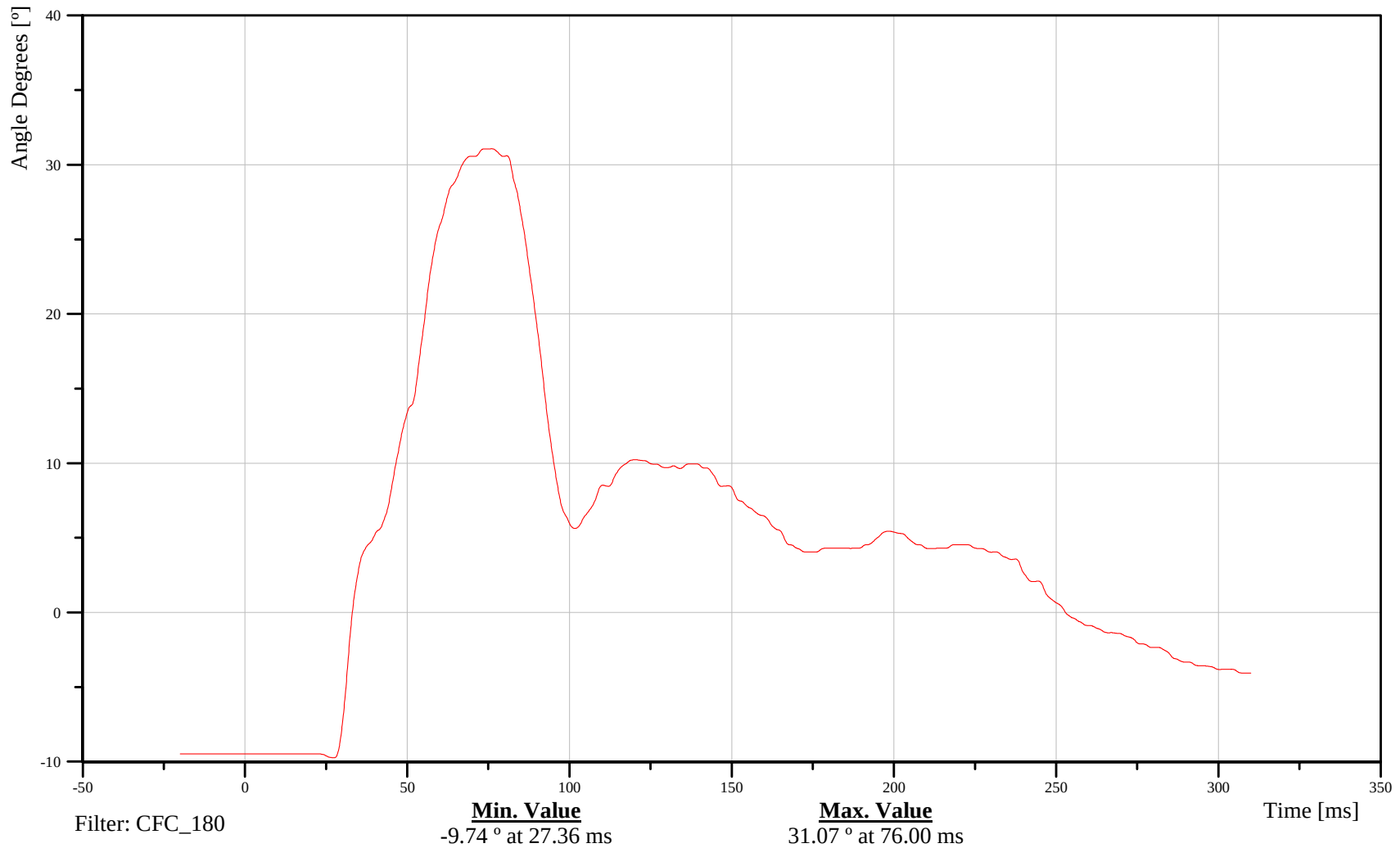
Target Vehicle Driver CRUX T016 Elbow Lower Right Thorax Pot

Customer: VRTC

21CHRIRL03THAN0C

TRC Inc. Test Lab: CTF

Test Number: 101207



B-231

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

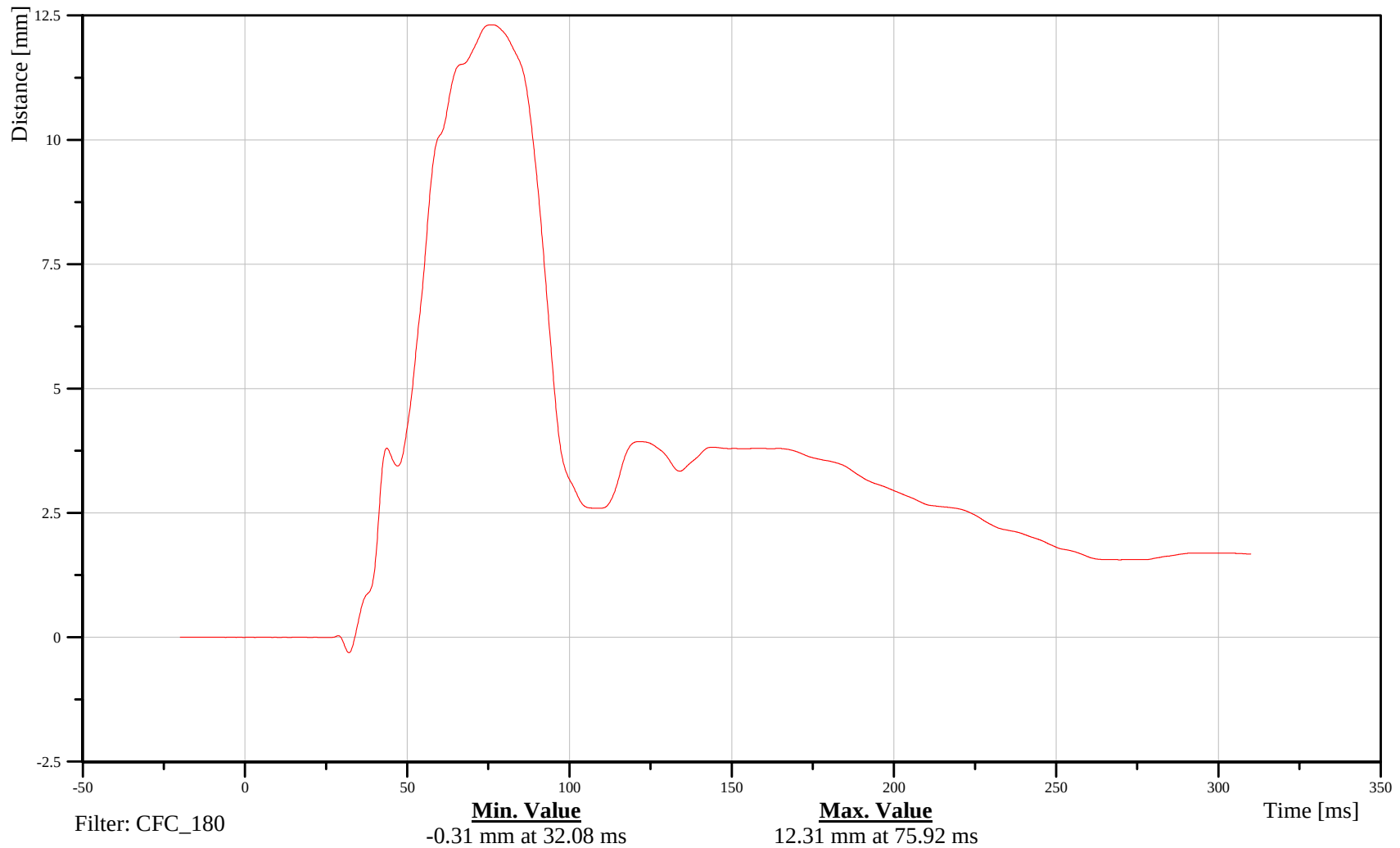
Target Vehicle Driver Upper Abdomen String Pot

Customer: VRTC

21ABDOUP00THDS0C

TRC Inc. Test Lab: CTF

Test Number: 101207



B-232

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

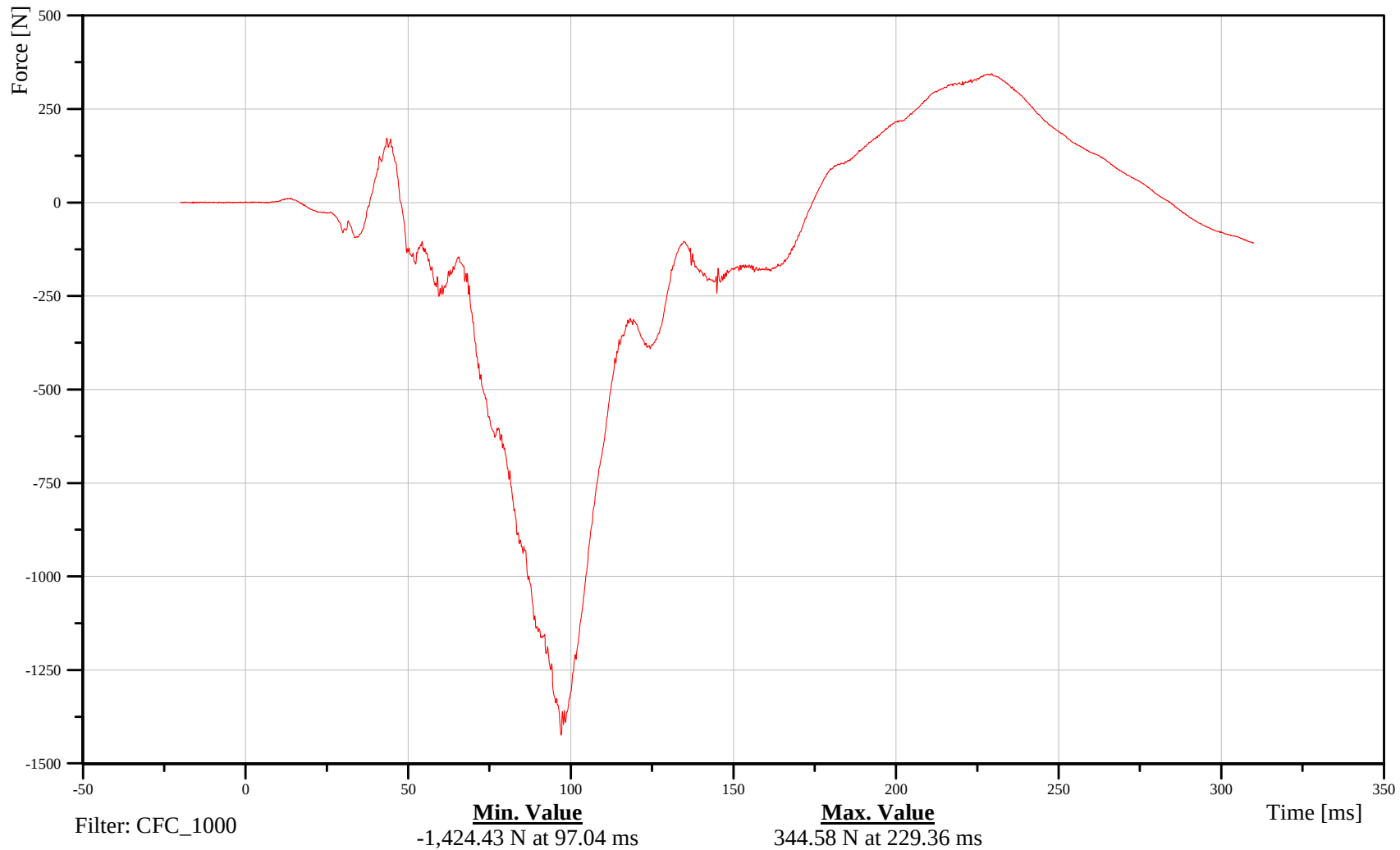
Target Vehicle Driver T12 Thoracic Spine X-Axis Force

Customer: VRTC

21THSP1200THFOXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-233

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

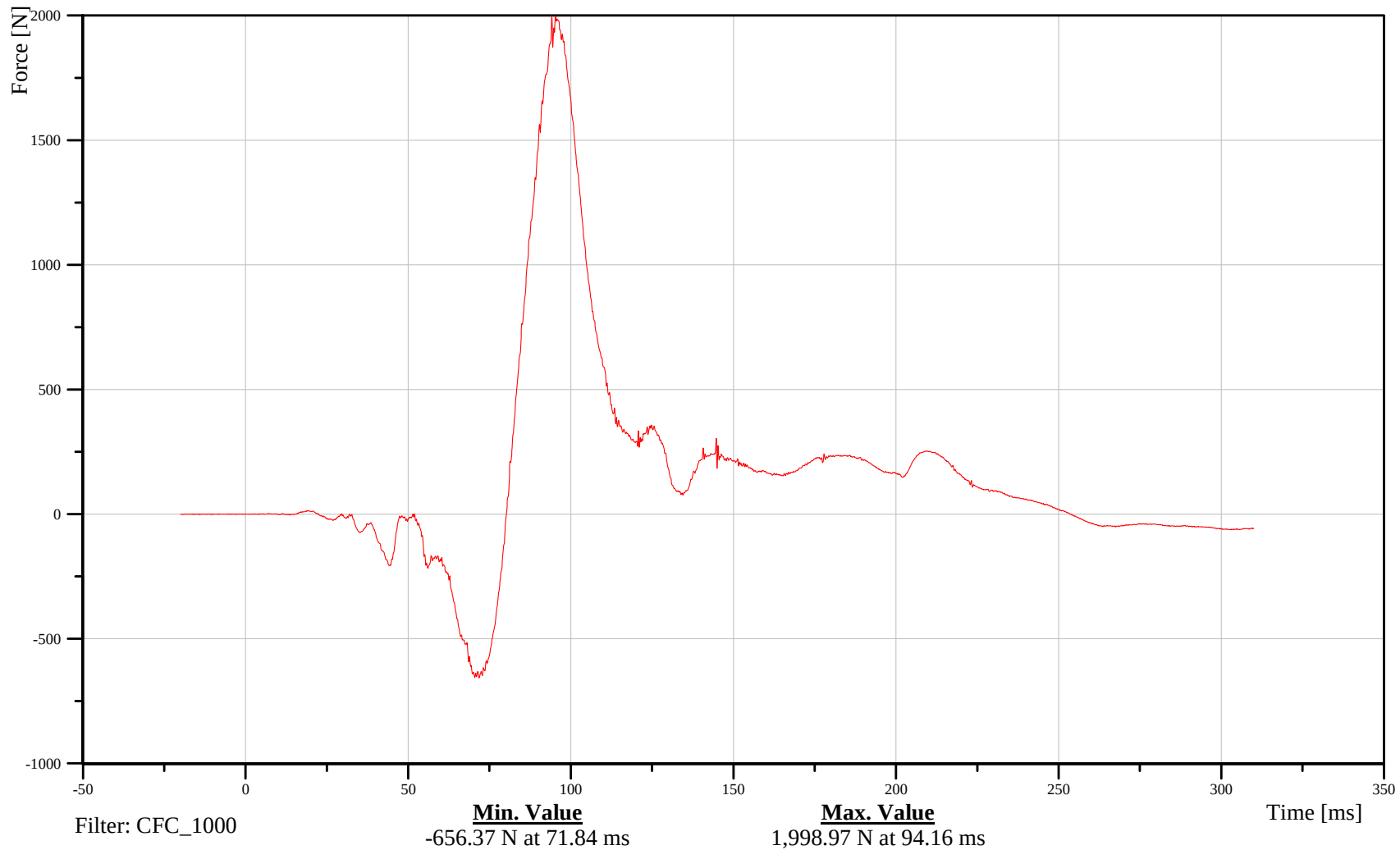
Target Vehicle Driver T12 Thoracic Spine Y-Axis Force

Customer: VRTC

21THSP1200THFOYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-234

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

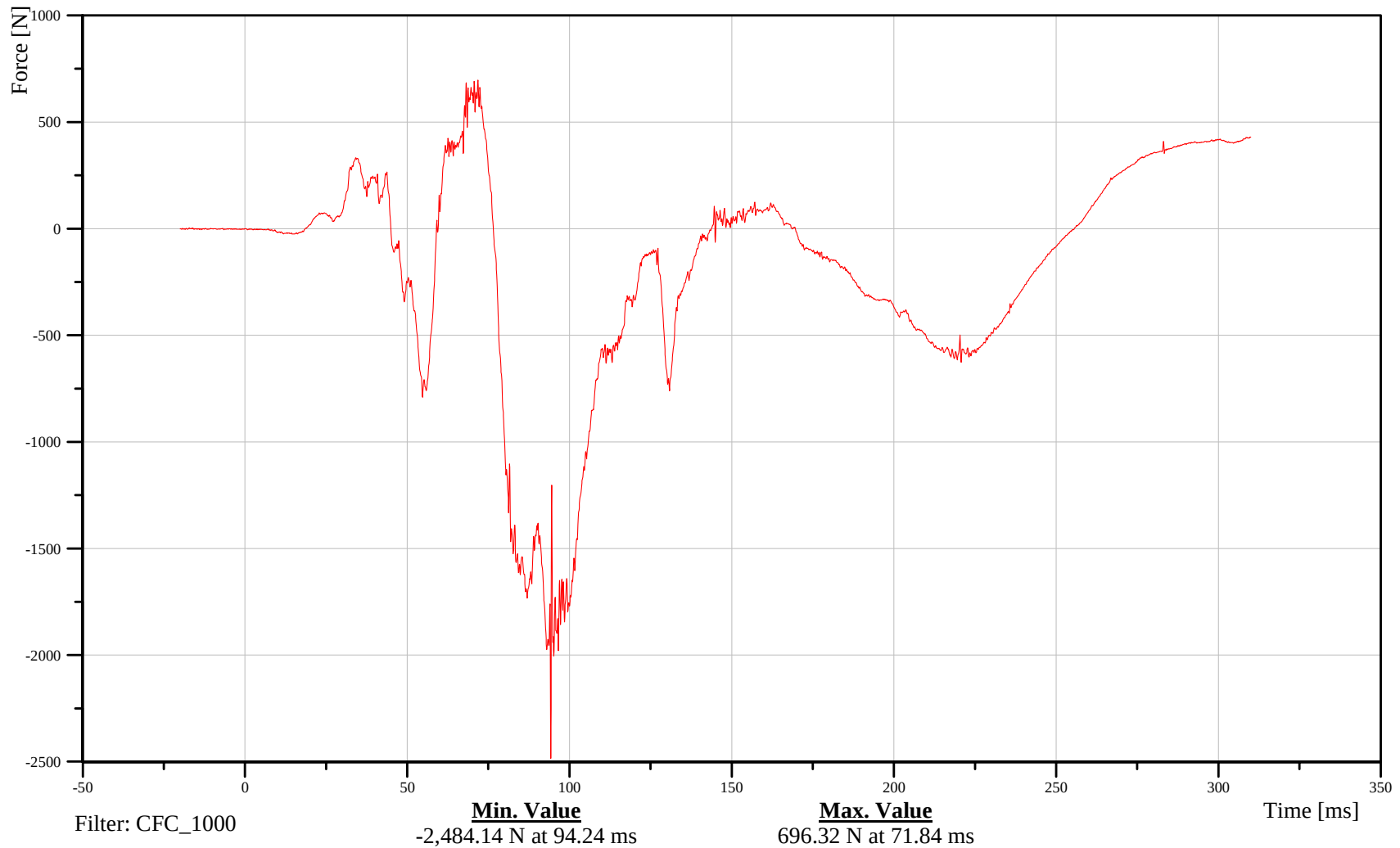
Target Vehicle Driver T12 Thoracic Spine Z-Axis Force

Customer: VRTC

21THSP1200THFOZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-235

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

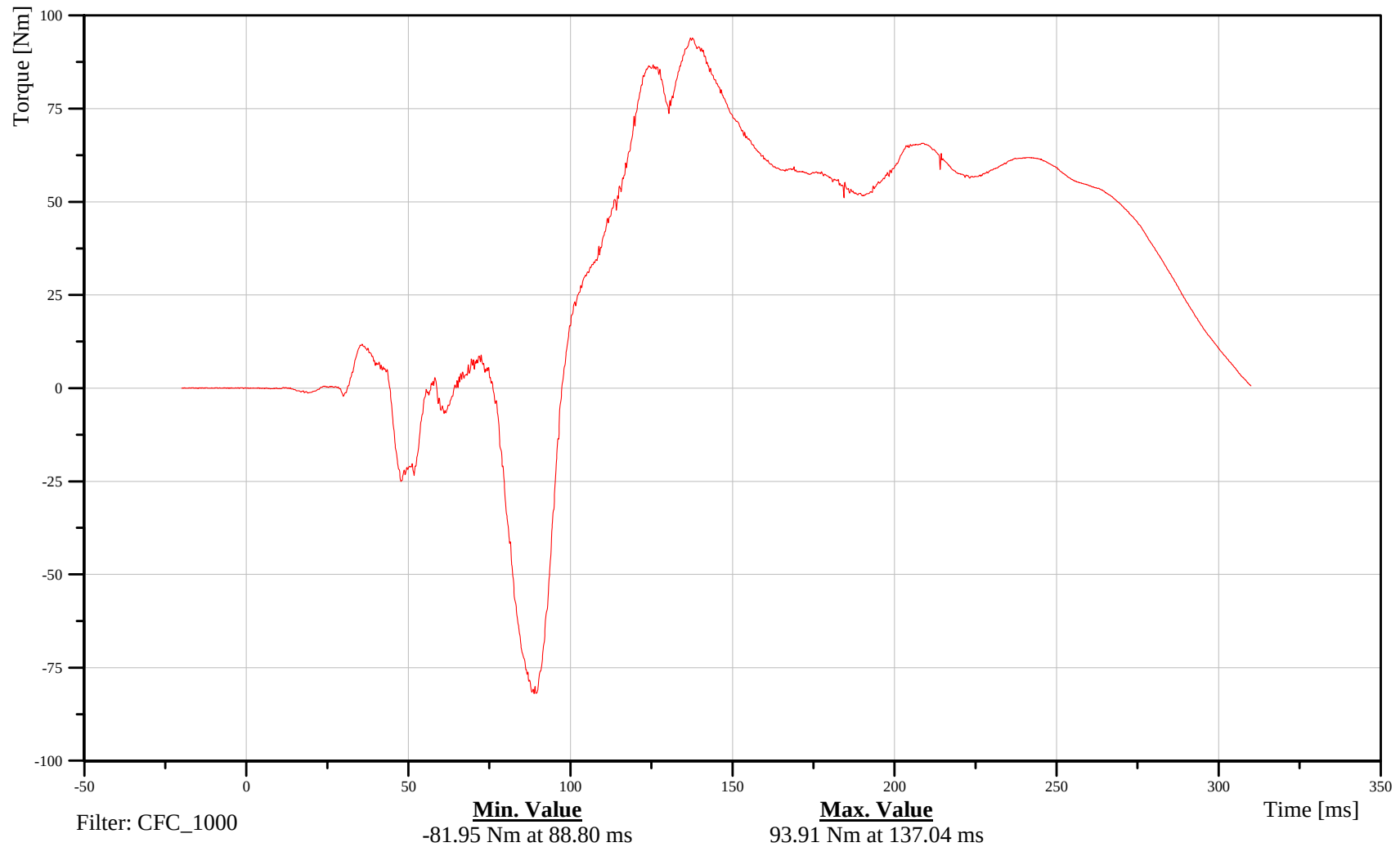
Target Vehicle Driver T12 Thoracic Moment About X Axis

Customer: VRTC

21THSP12000HMOXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-236

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

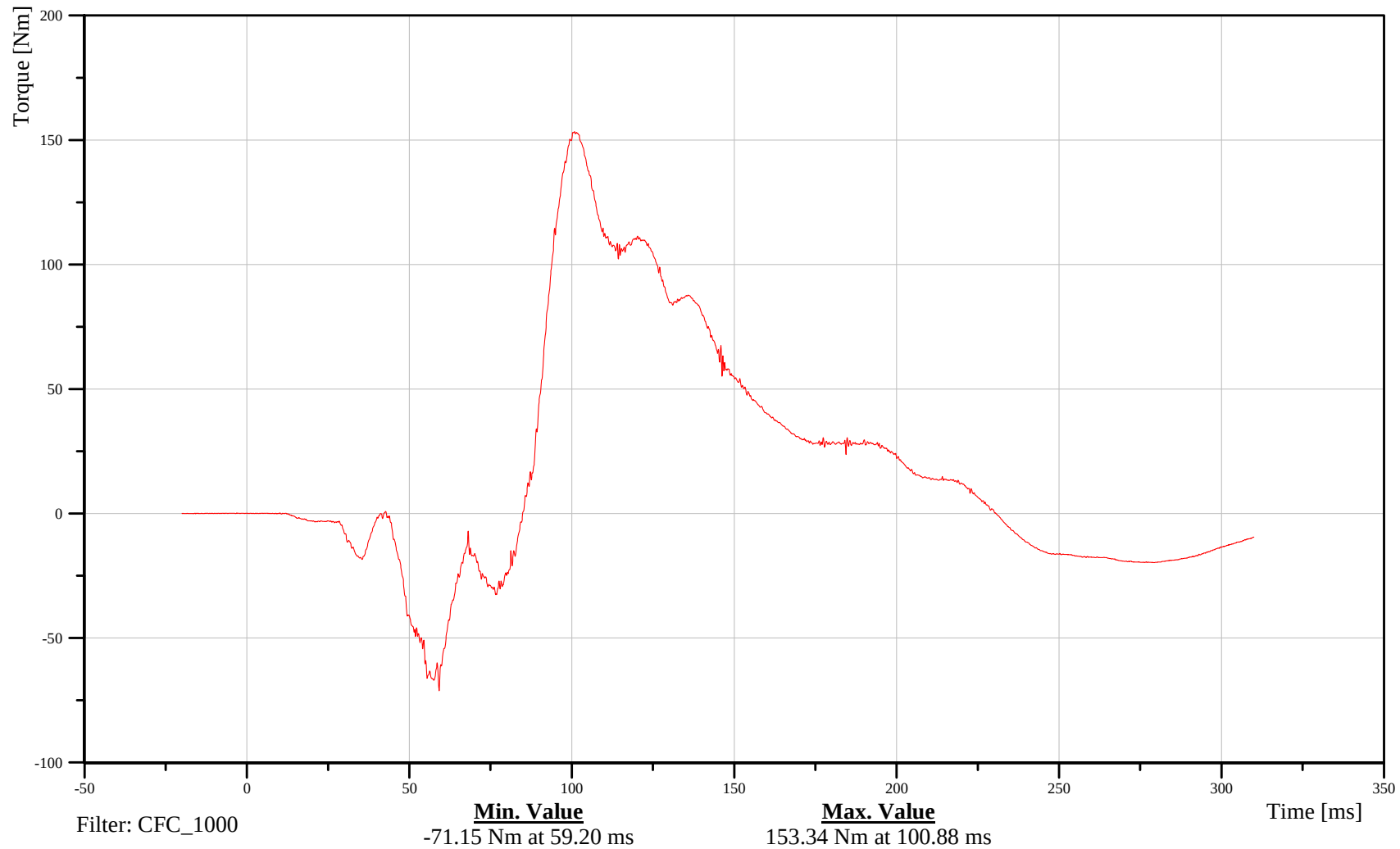
Target Vehicle Driver T12 Thoracic Moment About Y Axis

Customer: VRTC

21THSP12000HMOYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-237

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver T1 Upper Spine X-Axis Acceleration

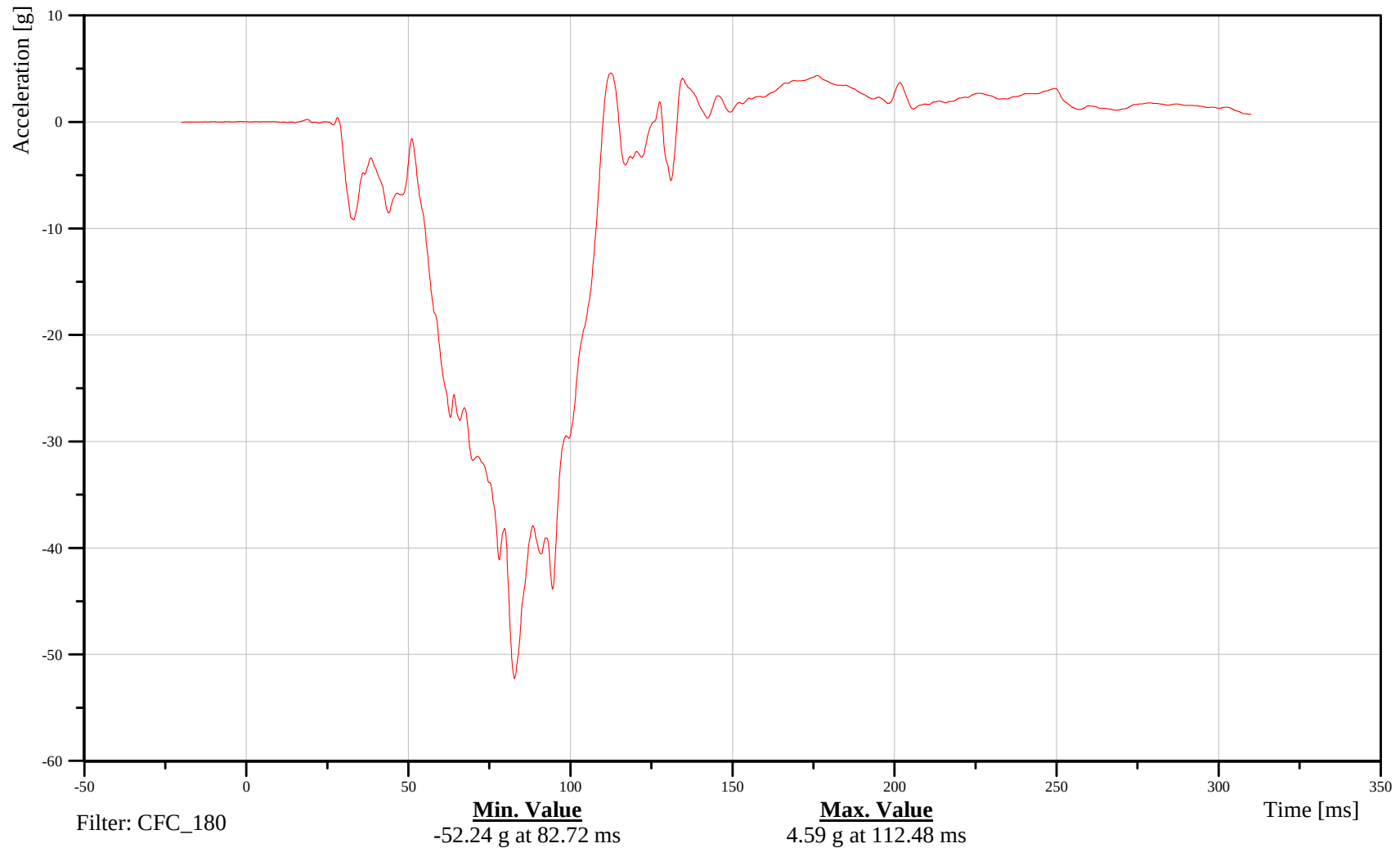
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21SPINUP00THACXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-238

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

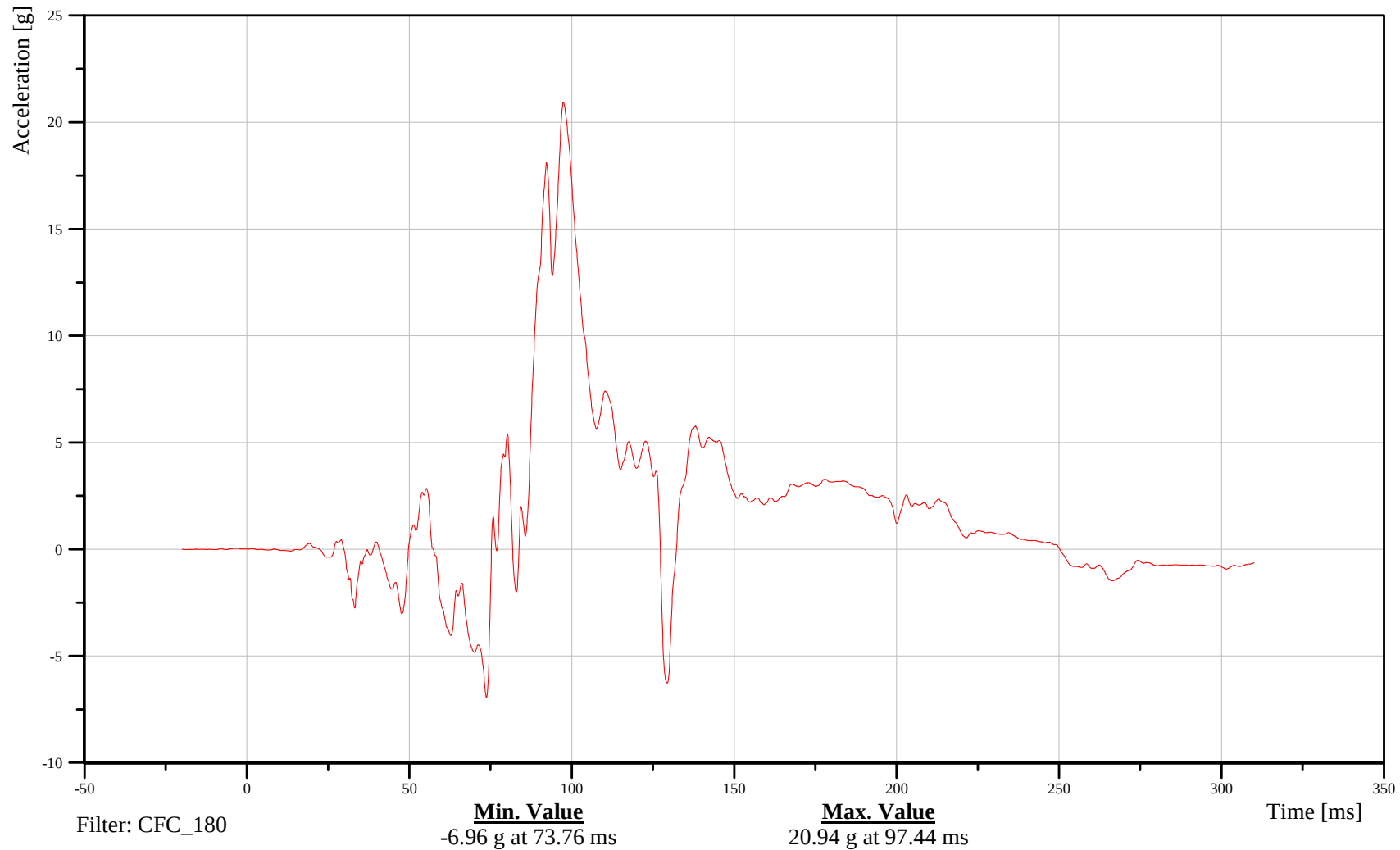
Target Vehicle Driver T1 Upper Spine Y-Axis Acceleration

Customer: VRTC

21SPINUP00THACYC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-239

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

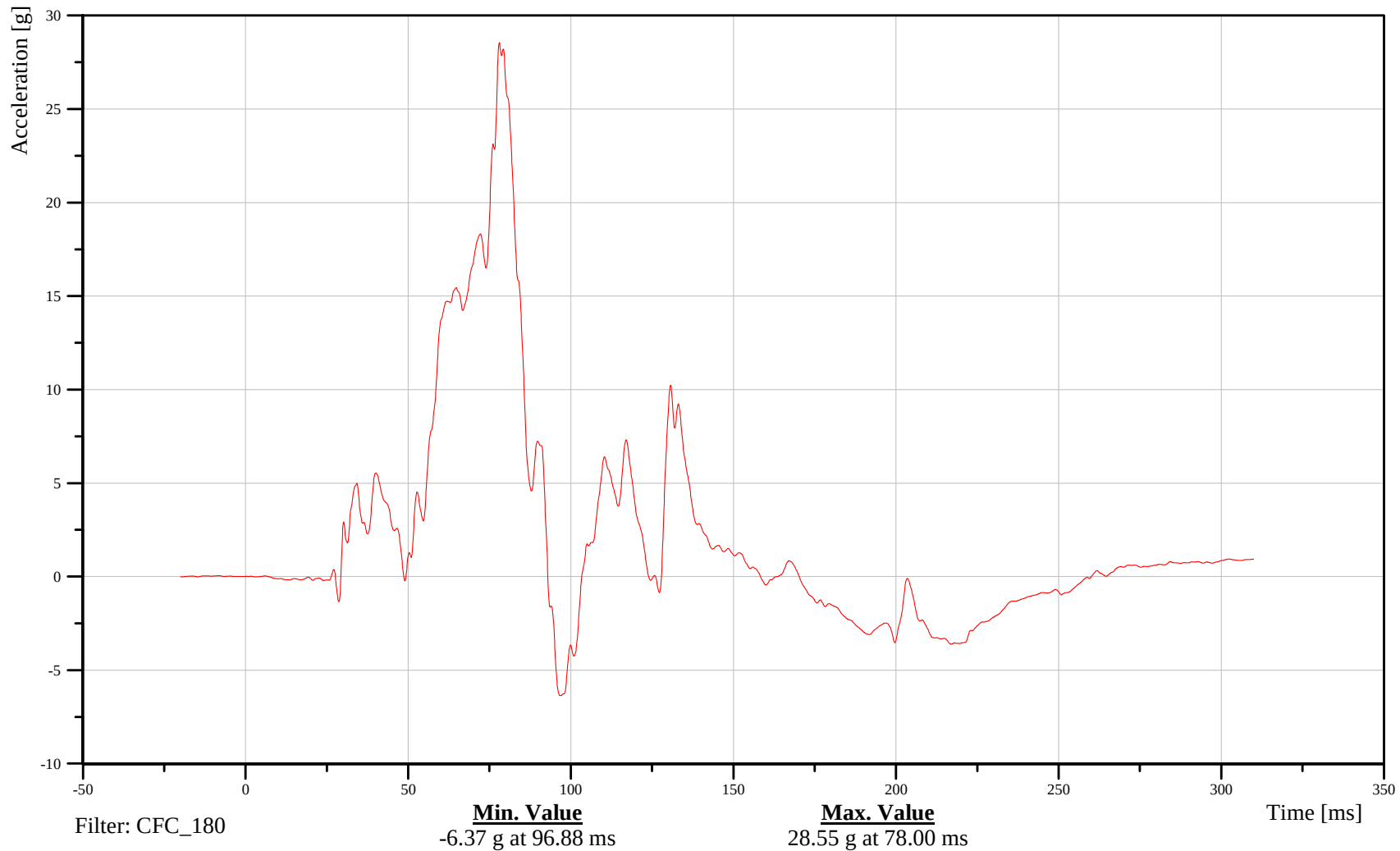
Target Vehicle Driver T1 Upper Spine Z-Axis Acceleration

Customer: VRTC

21SPINUP00THACZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-240

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver T1 Upper Spine Resultant Acceleration

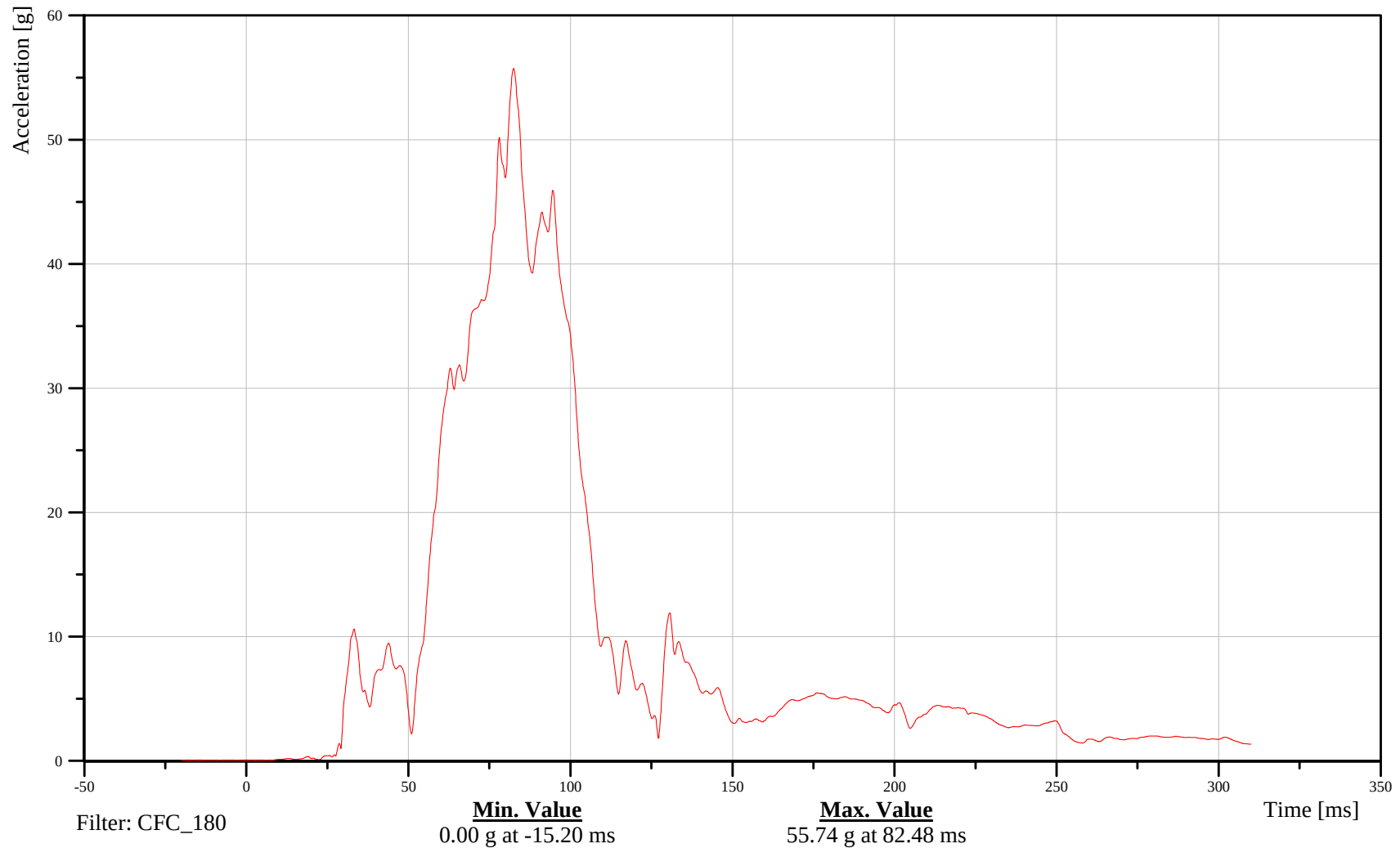
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21SPINUP00THACRC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-241

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

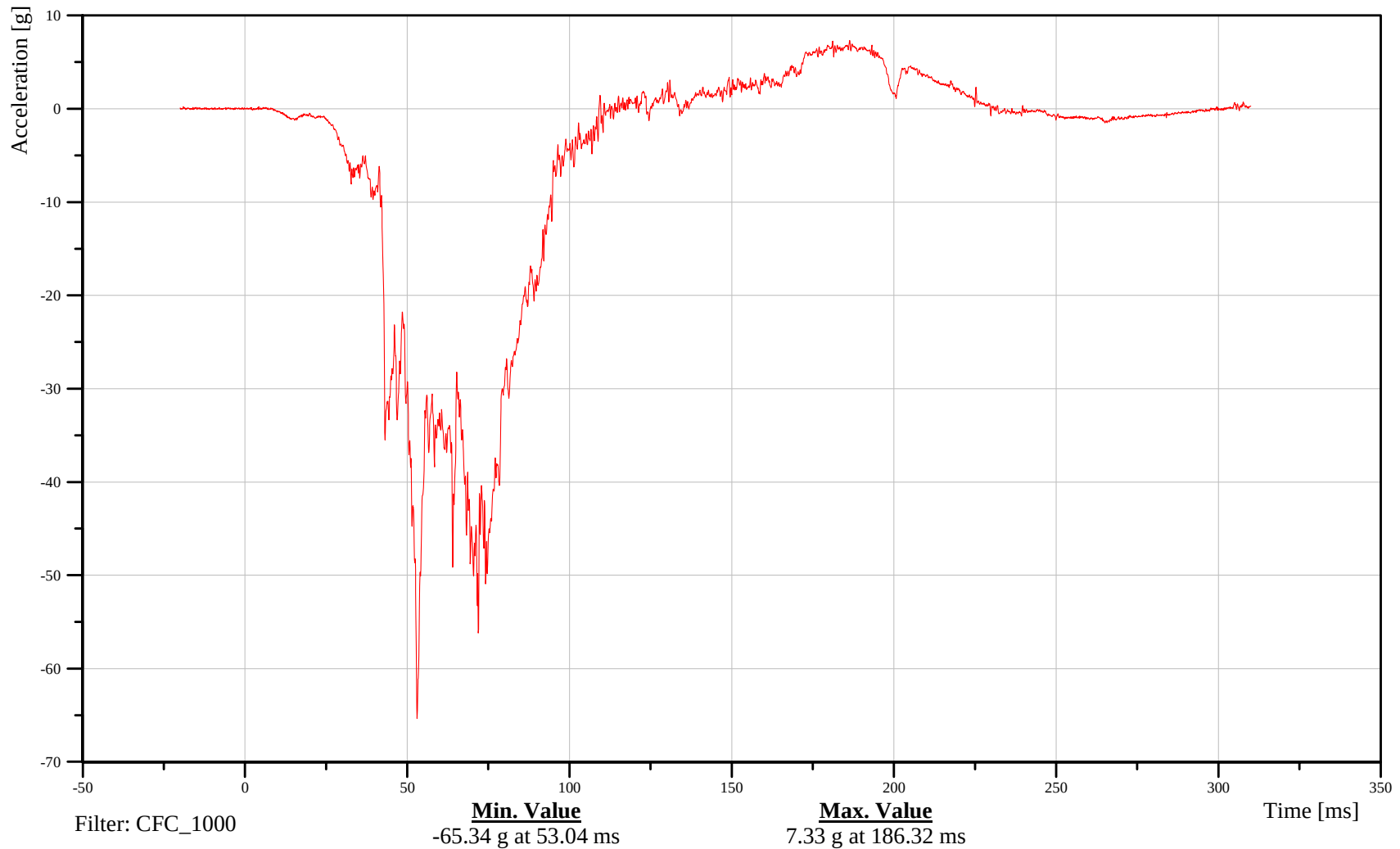
Target Vehicle Driver Pelvis X-Axis Acceleration

Customer: VRTC

21PELV0000THACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-242

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

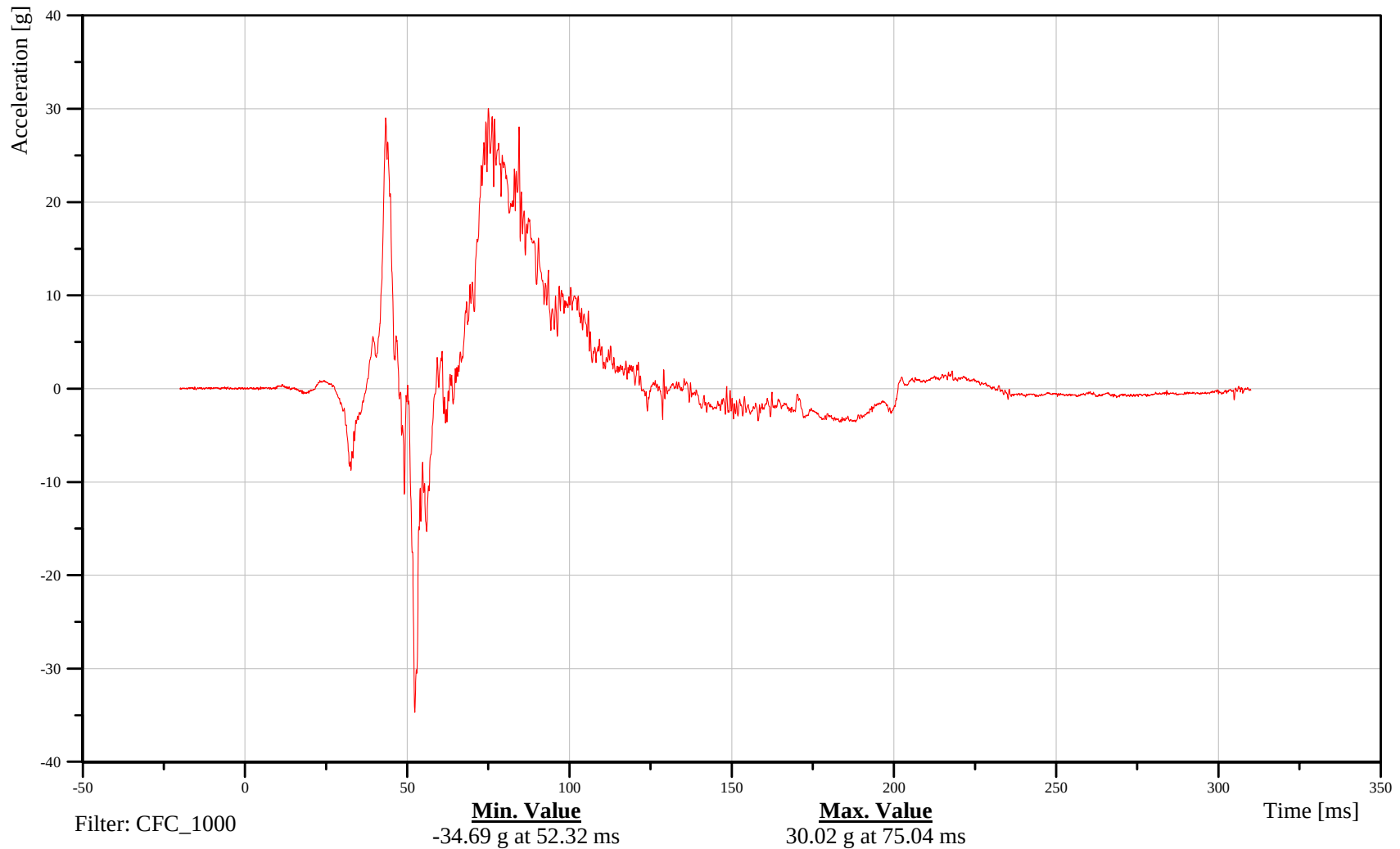
Target Vehicle Driver Pelvis Y-Axis Acceleration

Customer: VRTC

21PELV0000THACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-243

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

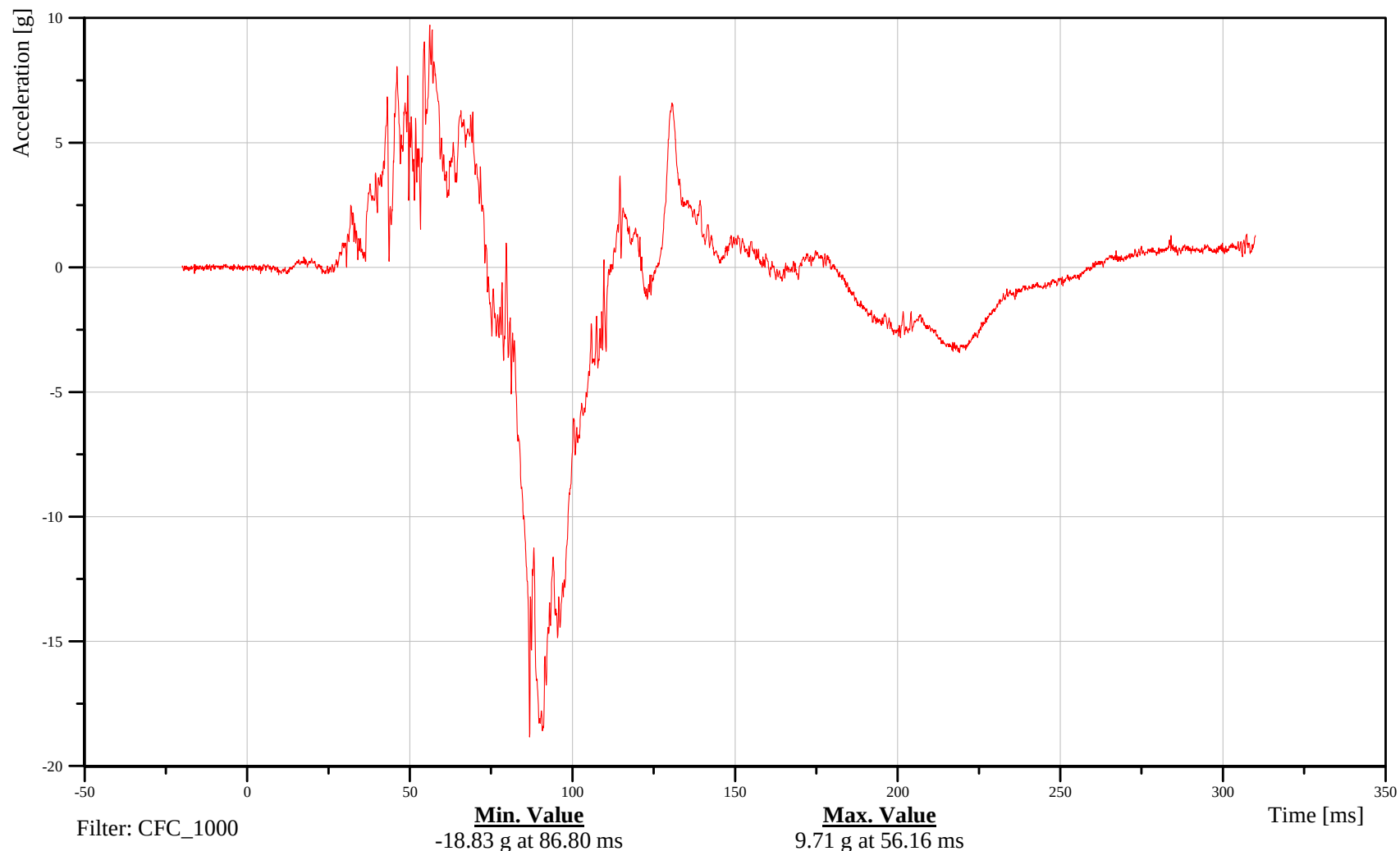
Target Vehicle Driver Pelvis Z-Axis Acceleration

Customer: VRTC

21PELV0000THACZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-244

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

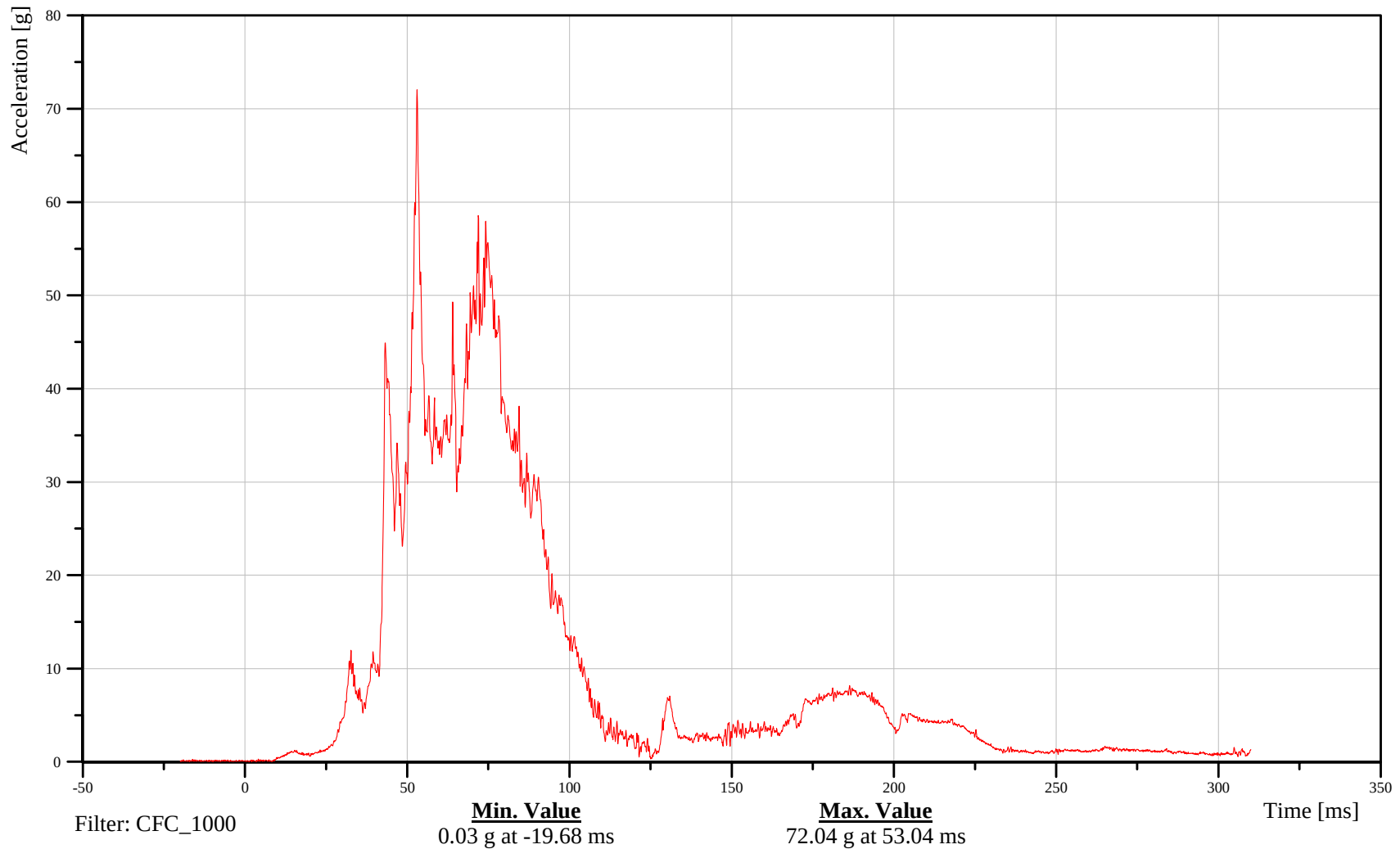
Target Vehicle Driver Pelvis Resultant Acceleration

Customer: VRTC

21PELV0000THACRA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-245

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver Pelvis/Acetabulum Left X-Axis Force

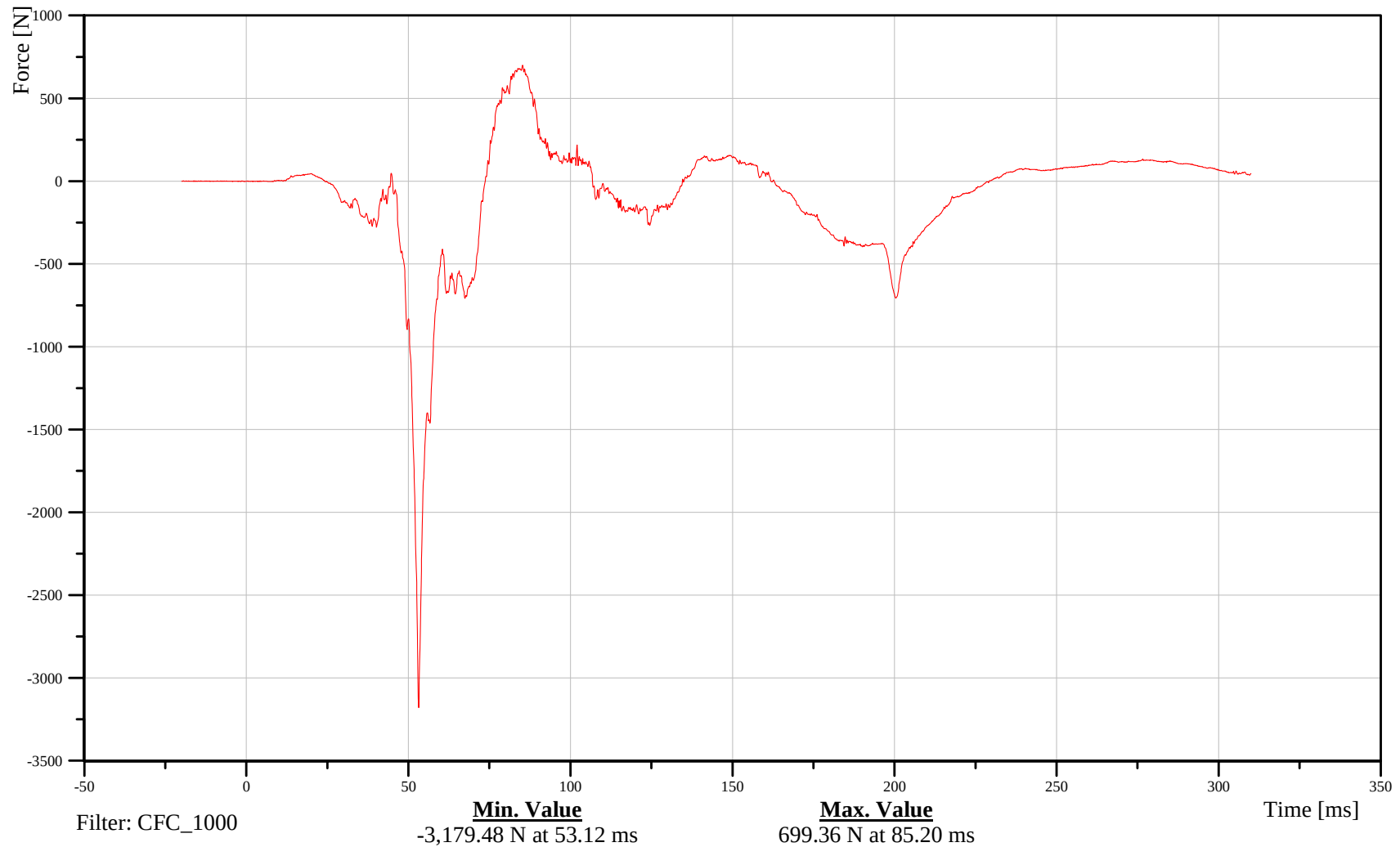
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21ACTBLE00THFOXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-246

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver Pelvis/Acetabulum Left Y-Axis Force

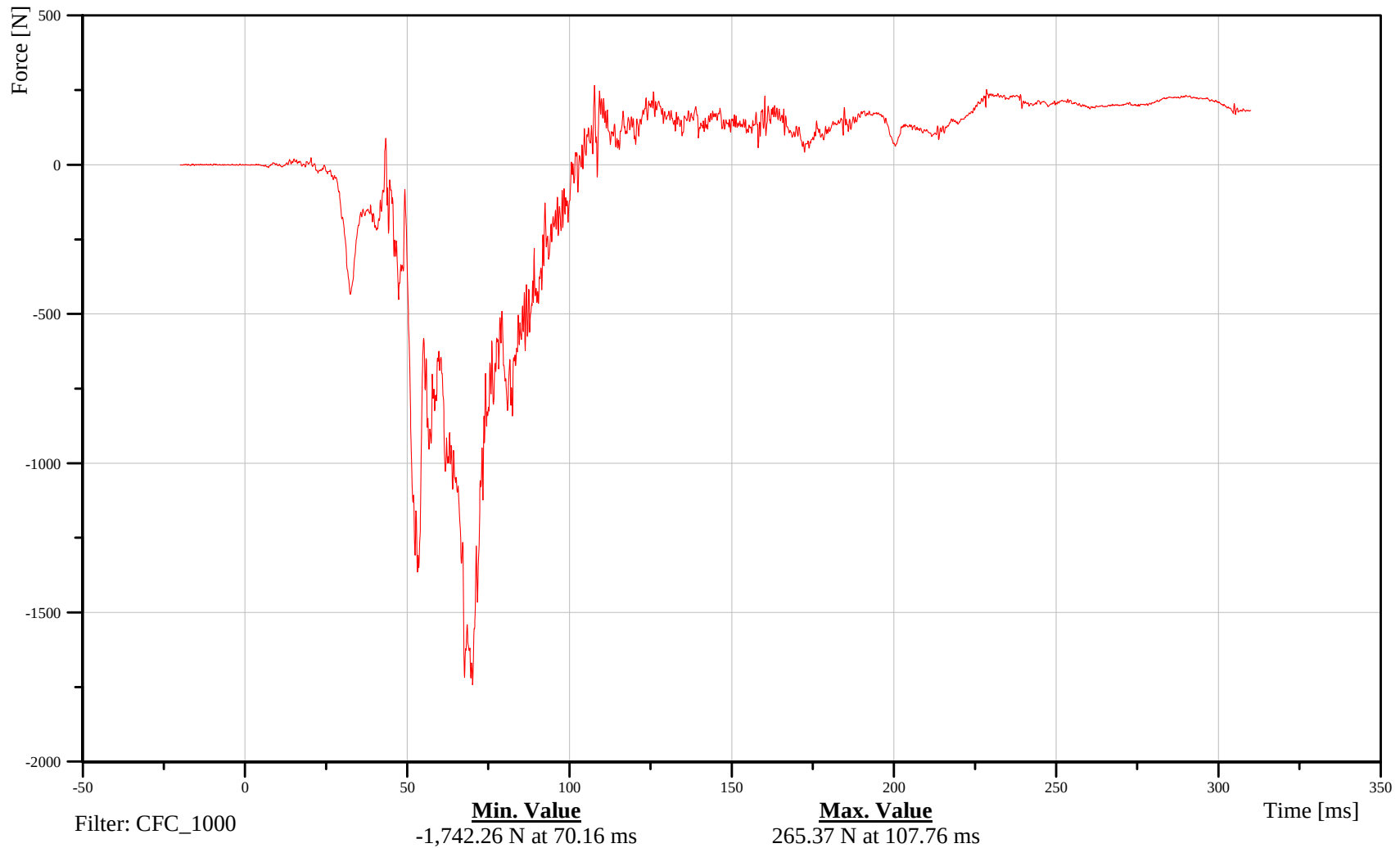
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21ACTBLE00THFOYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-247

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

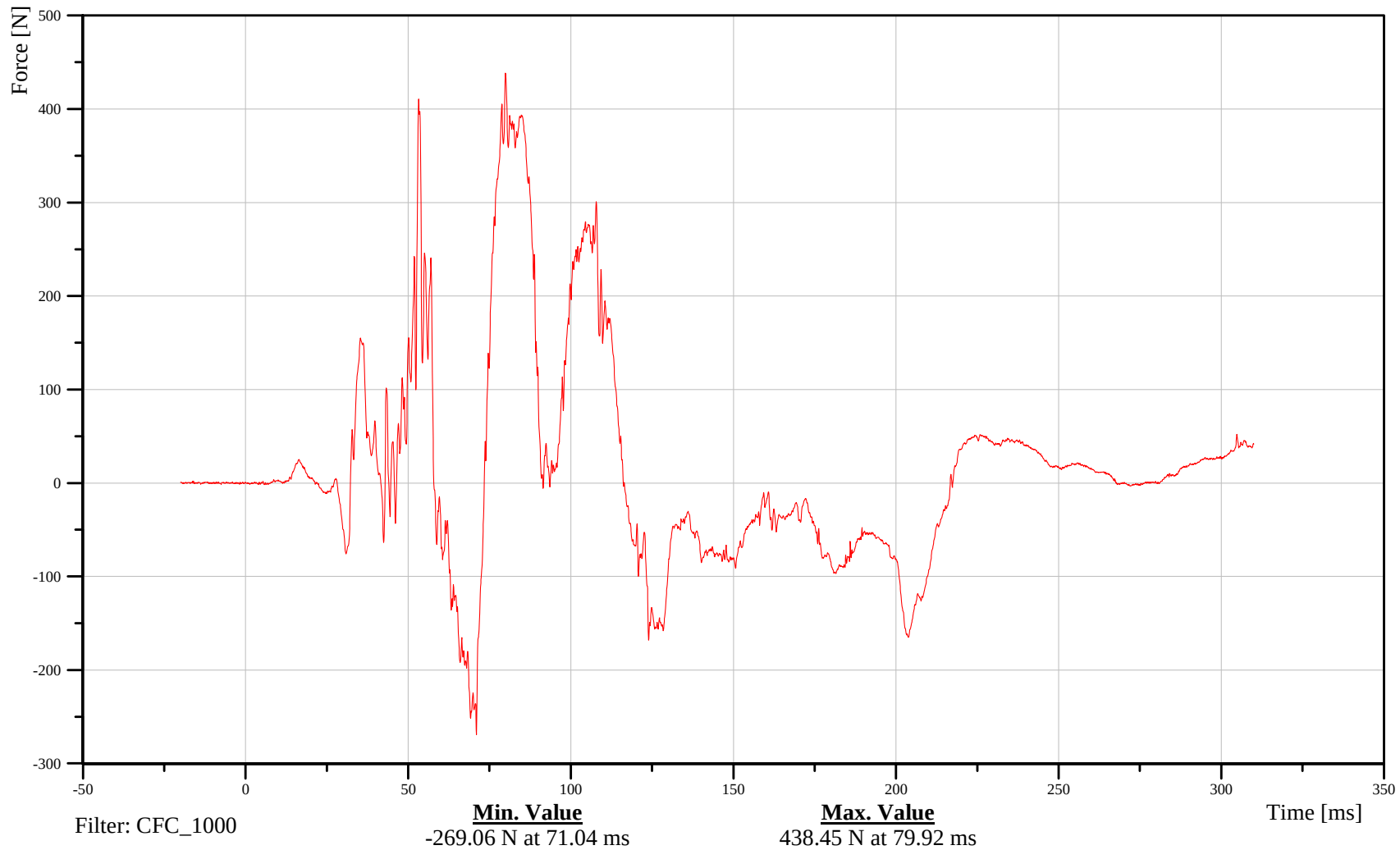
Target Vehicle Driver Pelvis/Acetabulum Left Z-Axis Force

Customer: VRTC

21ACTBLE00THFOZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-248

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

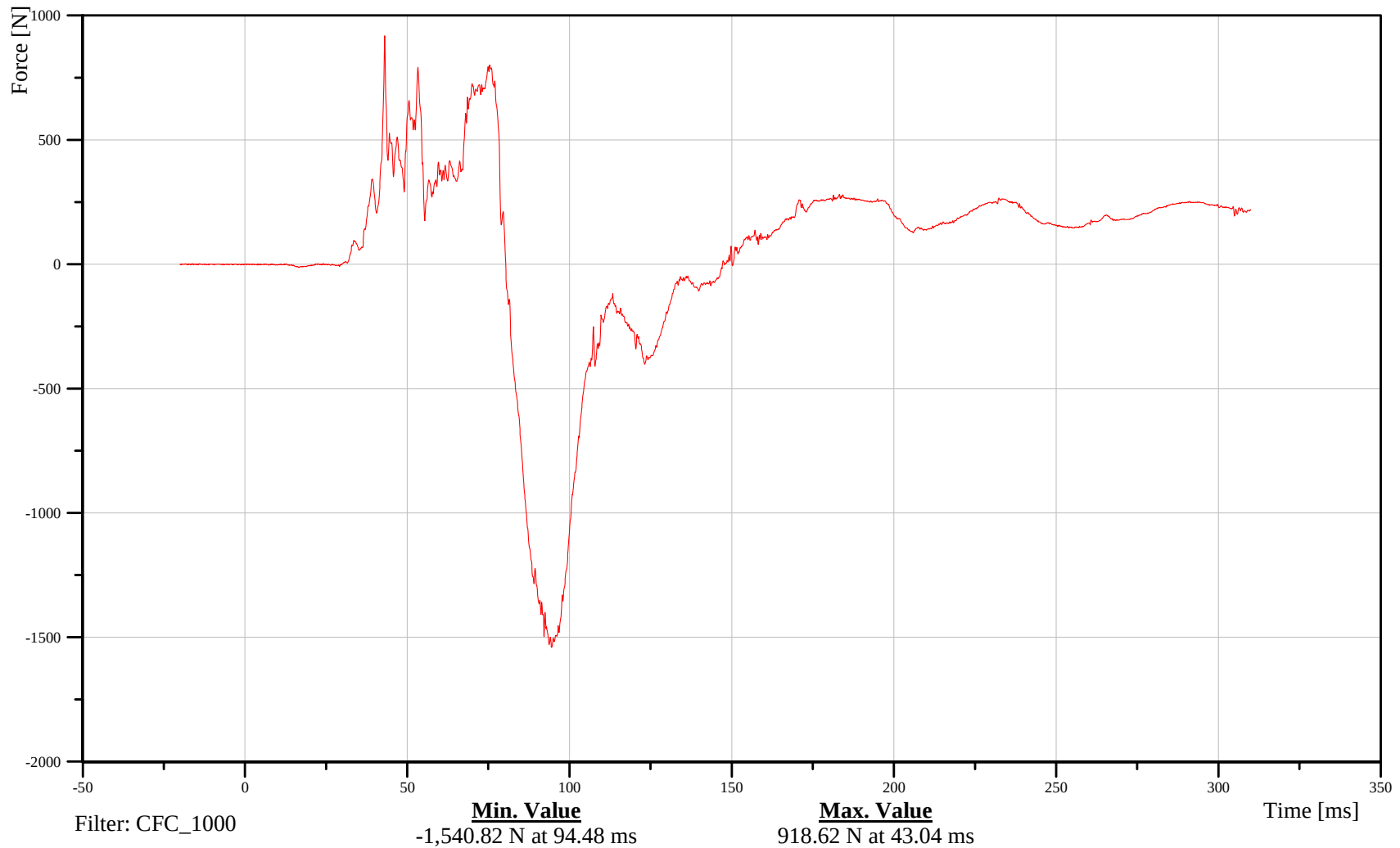
Target Vehicle Driver Pelvis/Acetabulum Right X-Axis Force

Customer: VRTC

21ACTBRI00THFOXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-249

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver Pelvis/Acetabulum Right Y-Axis Force

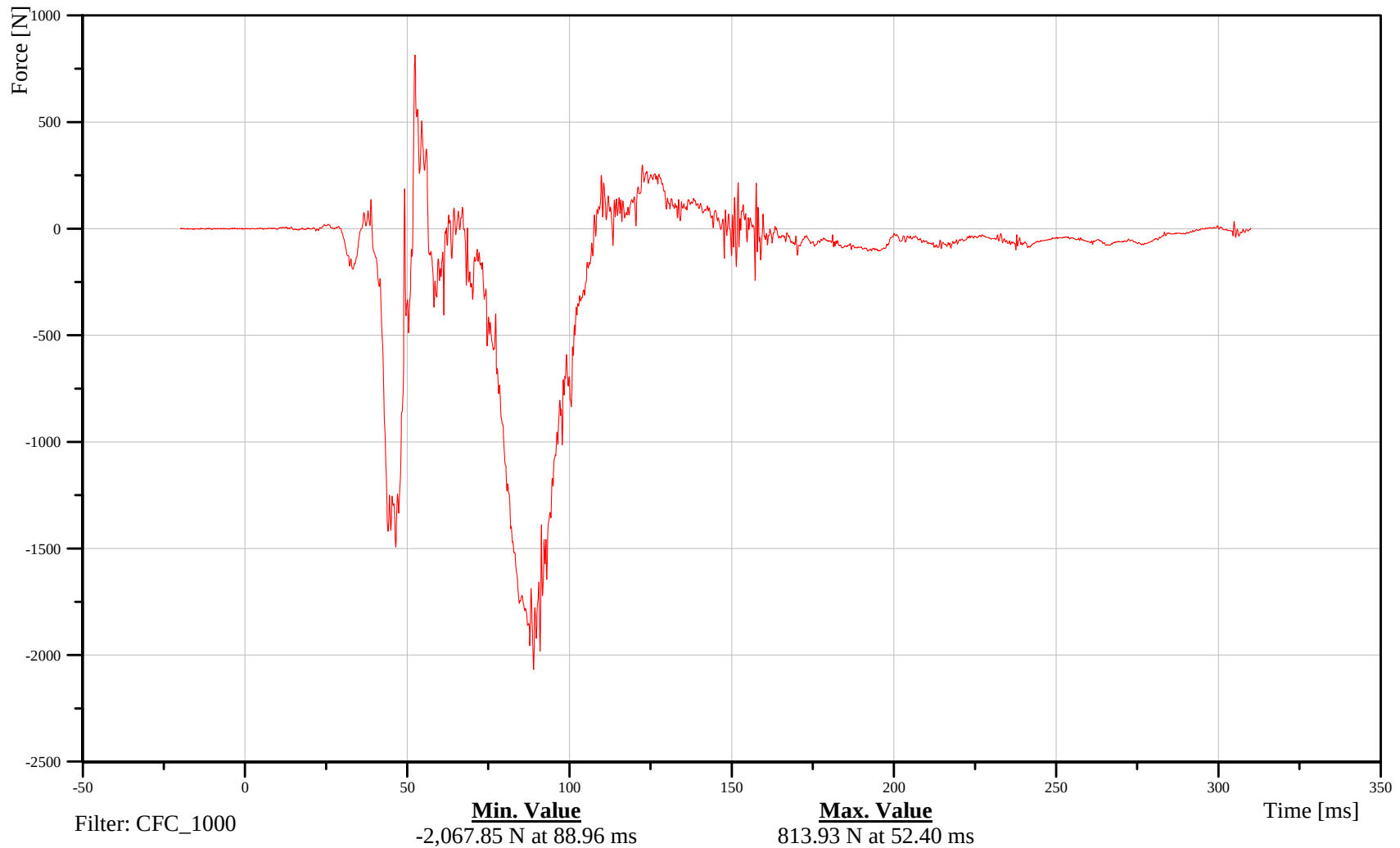
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21ACTBRI00THFOYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-250

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

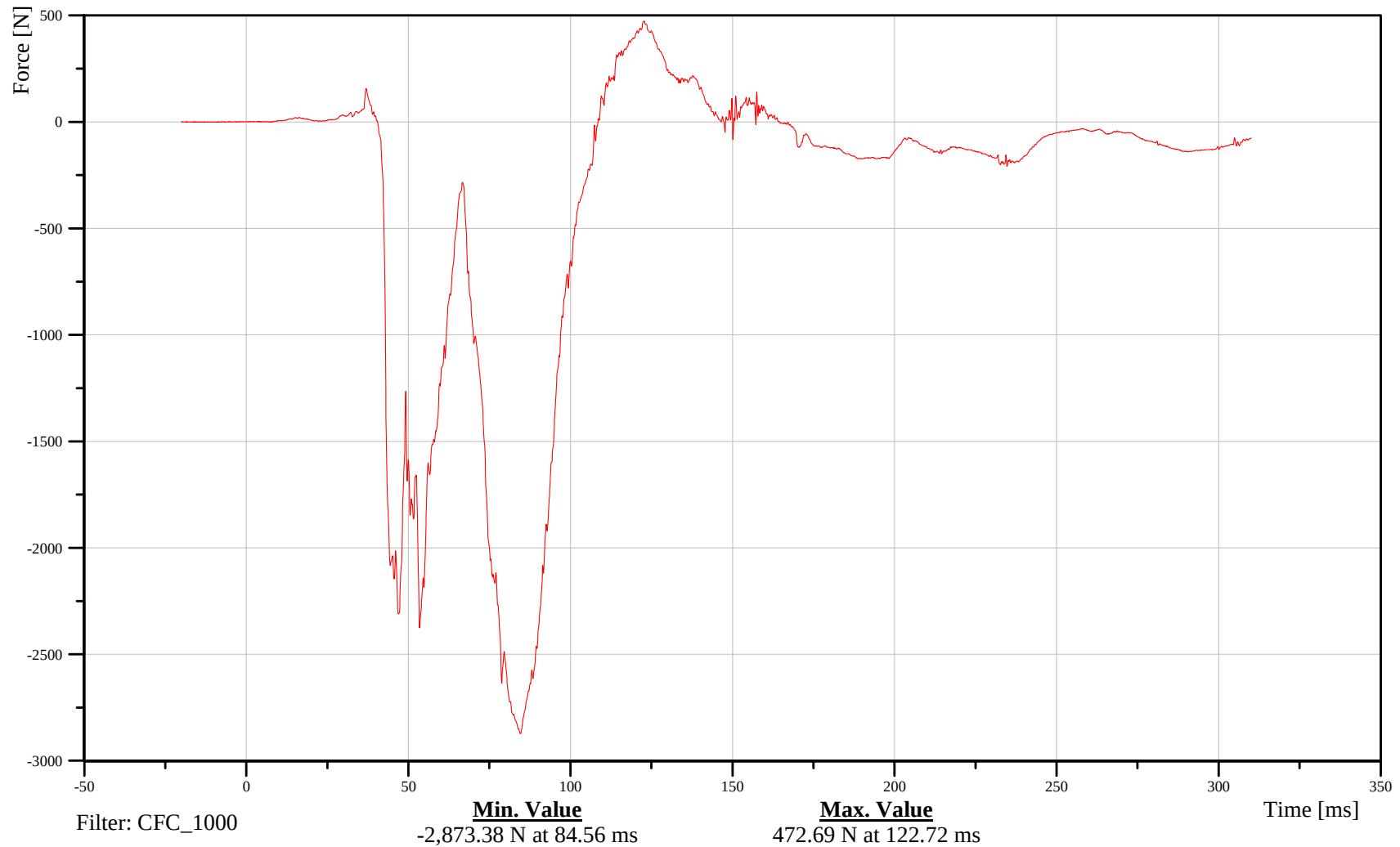
Target Vehicle Driver Pelvis/Acetabulum Right Z-Axis Force

Customer: VRTC

21ACTBRI00THFOZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-251

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

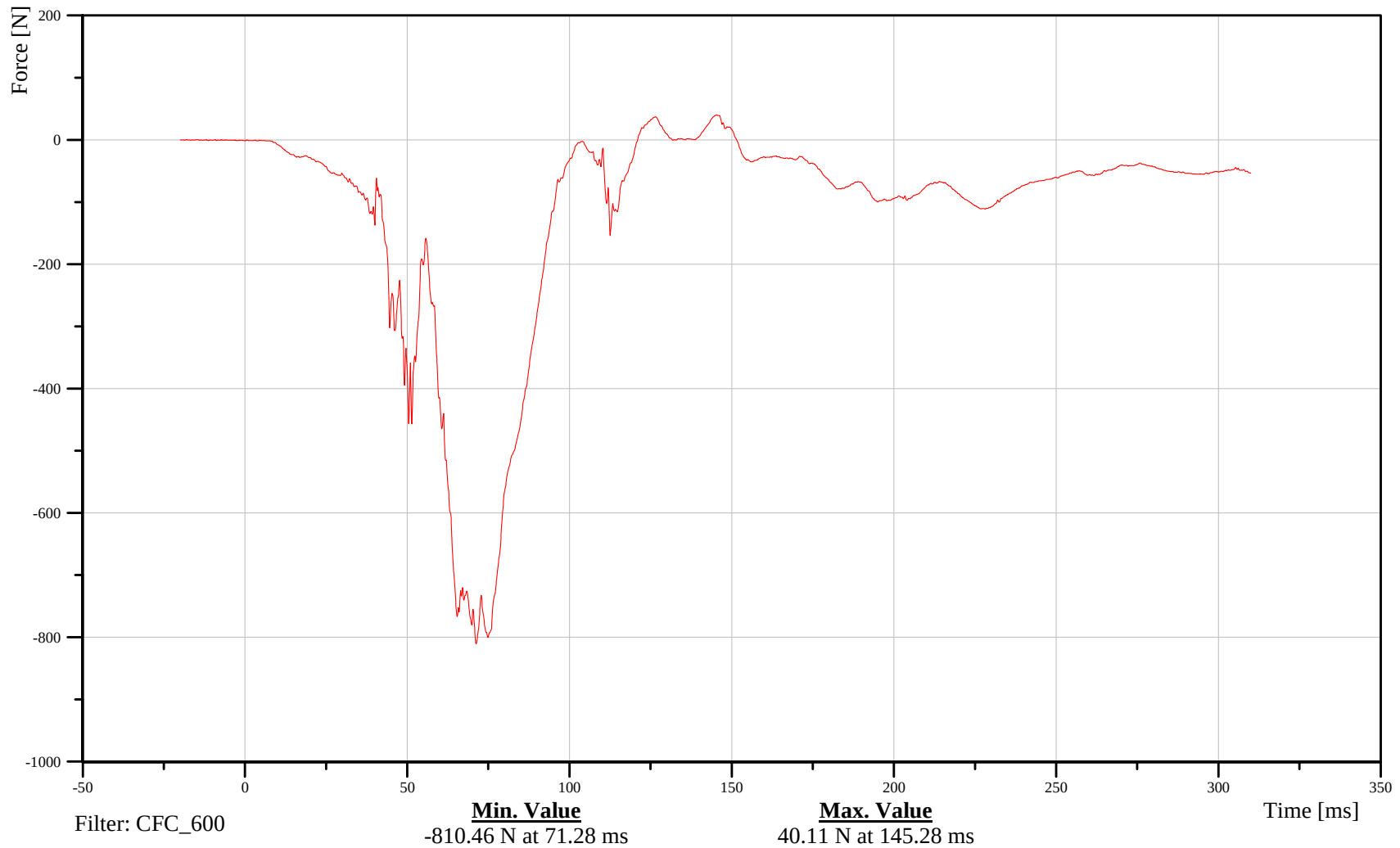
Target Vehicle Driver Left Femur X-Axis Force

Customer: VRTC

21FEMRLL00THFOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-252

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

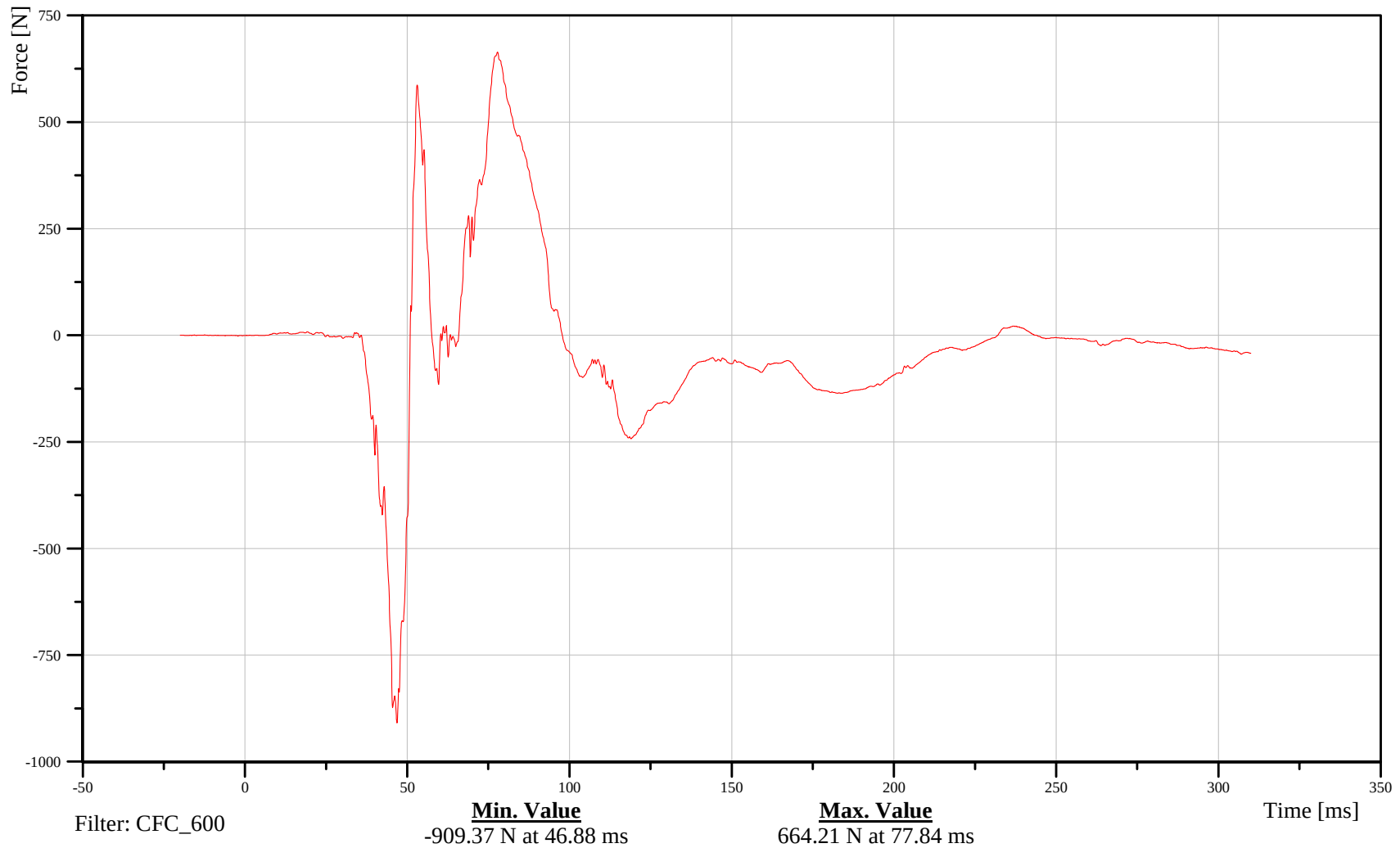
Target Vehicle Driver Left Femur Y-Axis Force

Customer: VRTC

21FEMRLL00THFOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-253

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

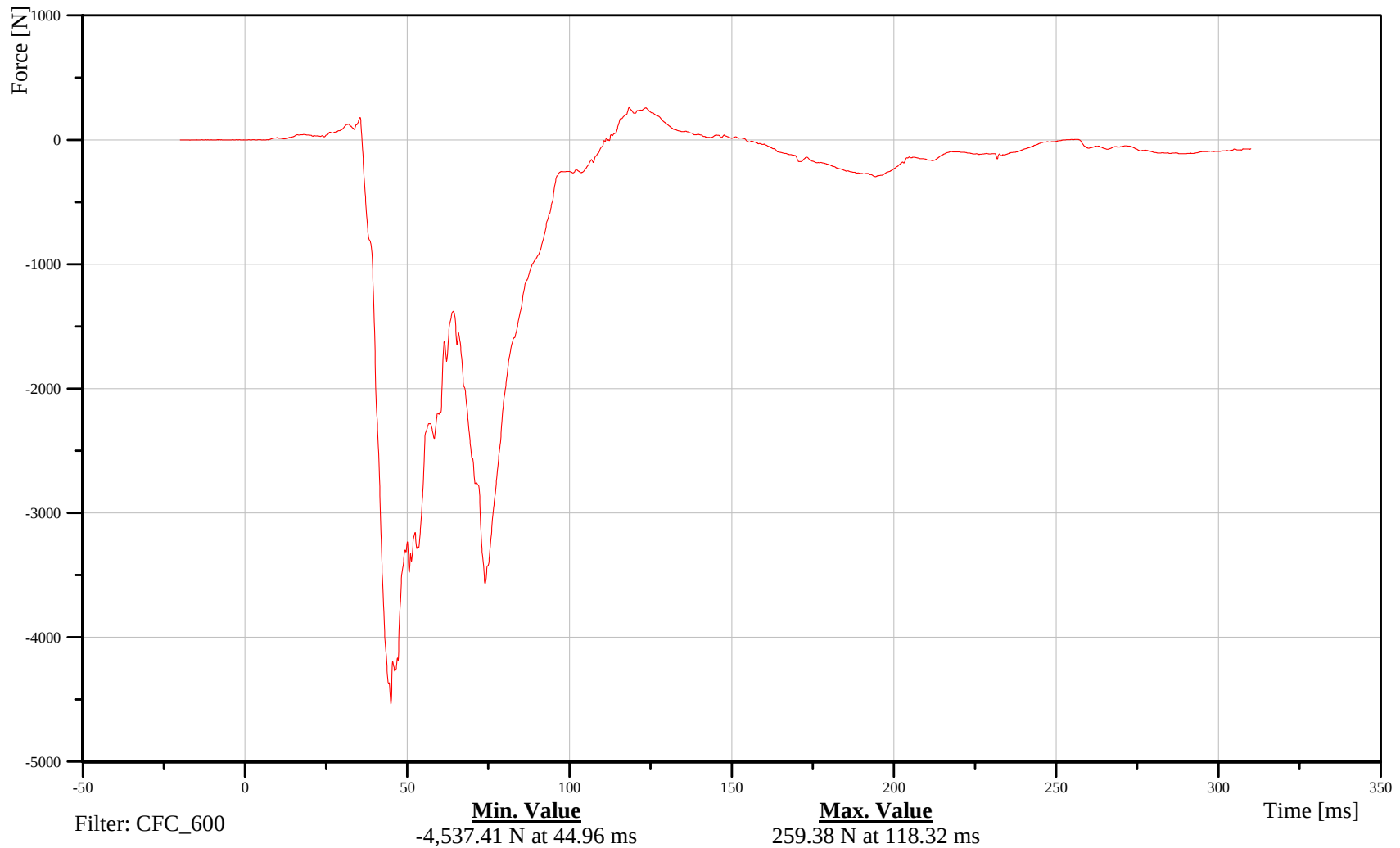
Target Vehicle Driver Left Femur Z-Axis Force

Customer: VRTC

21FEMRLL00THFOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-254

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

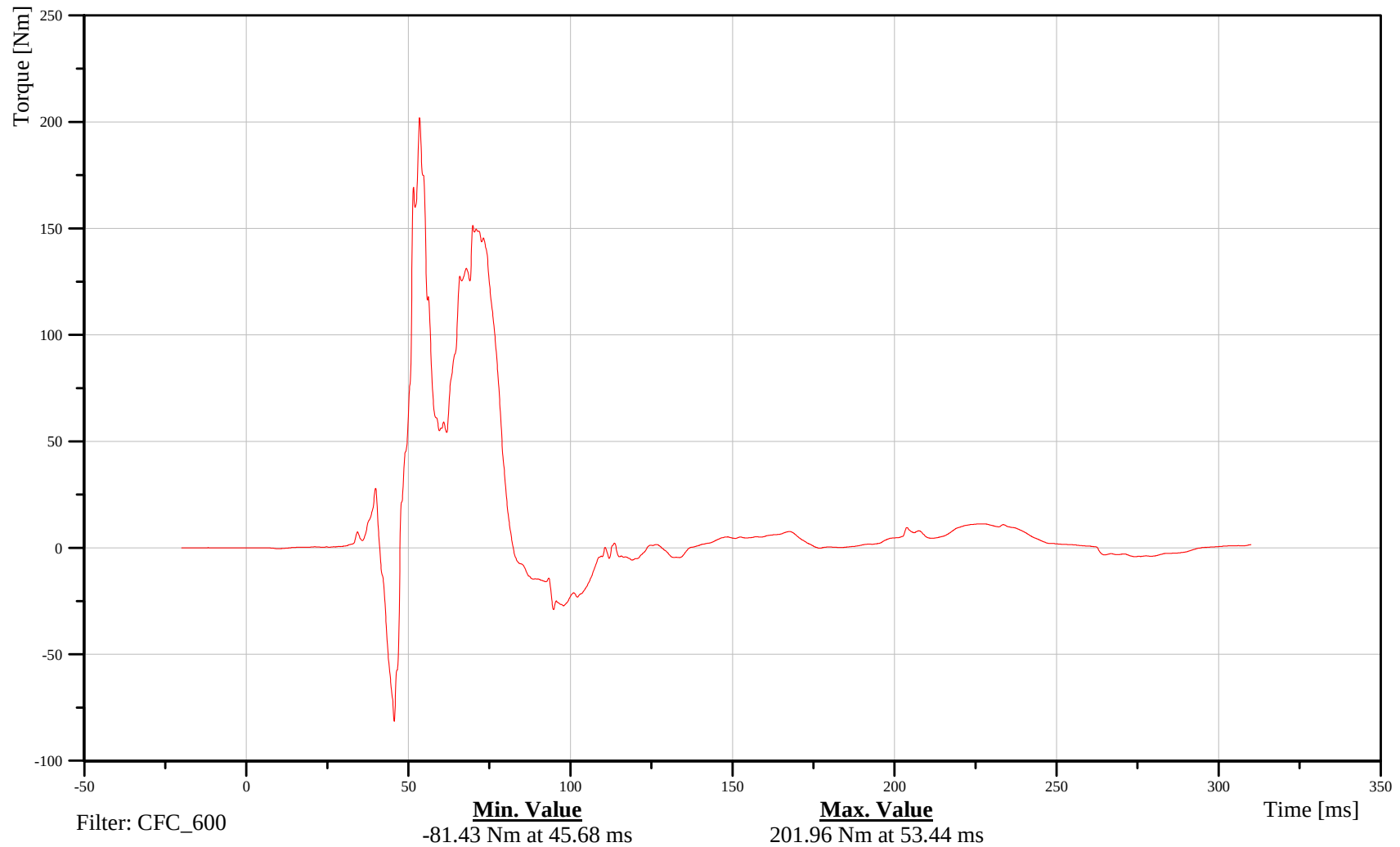
Target Vehicle Driver Left Femur Moment About X-Axis

Customer: VRTC

21FEMRLL00THMOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-255

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

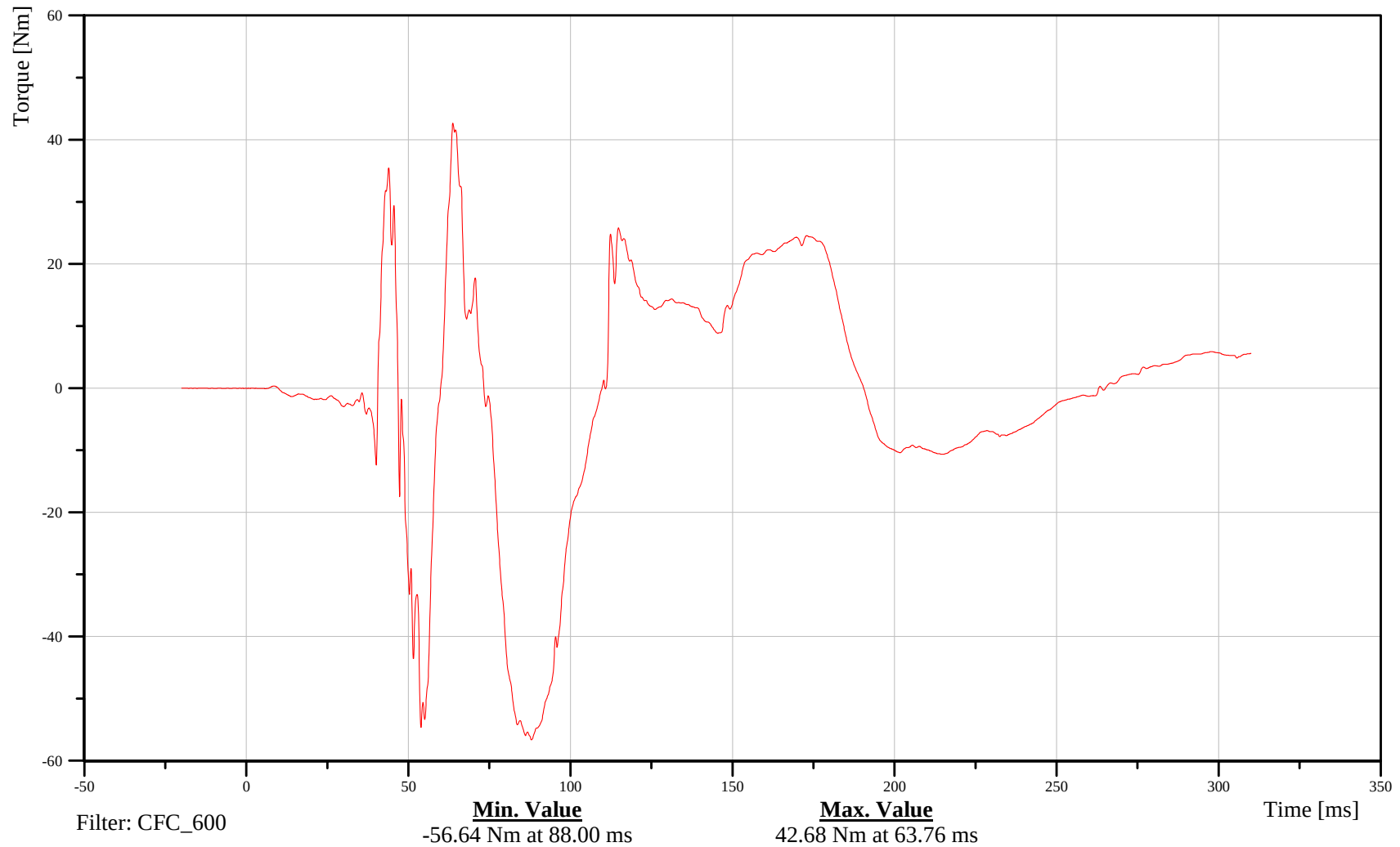
Target Vehicle Driver Left Femur Moment About Y-Axis

Customer: VRTC

21FEMRLL00THMOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-256

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

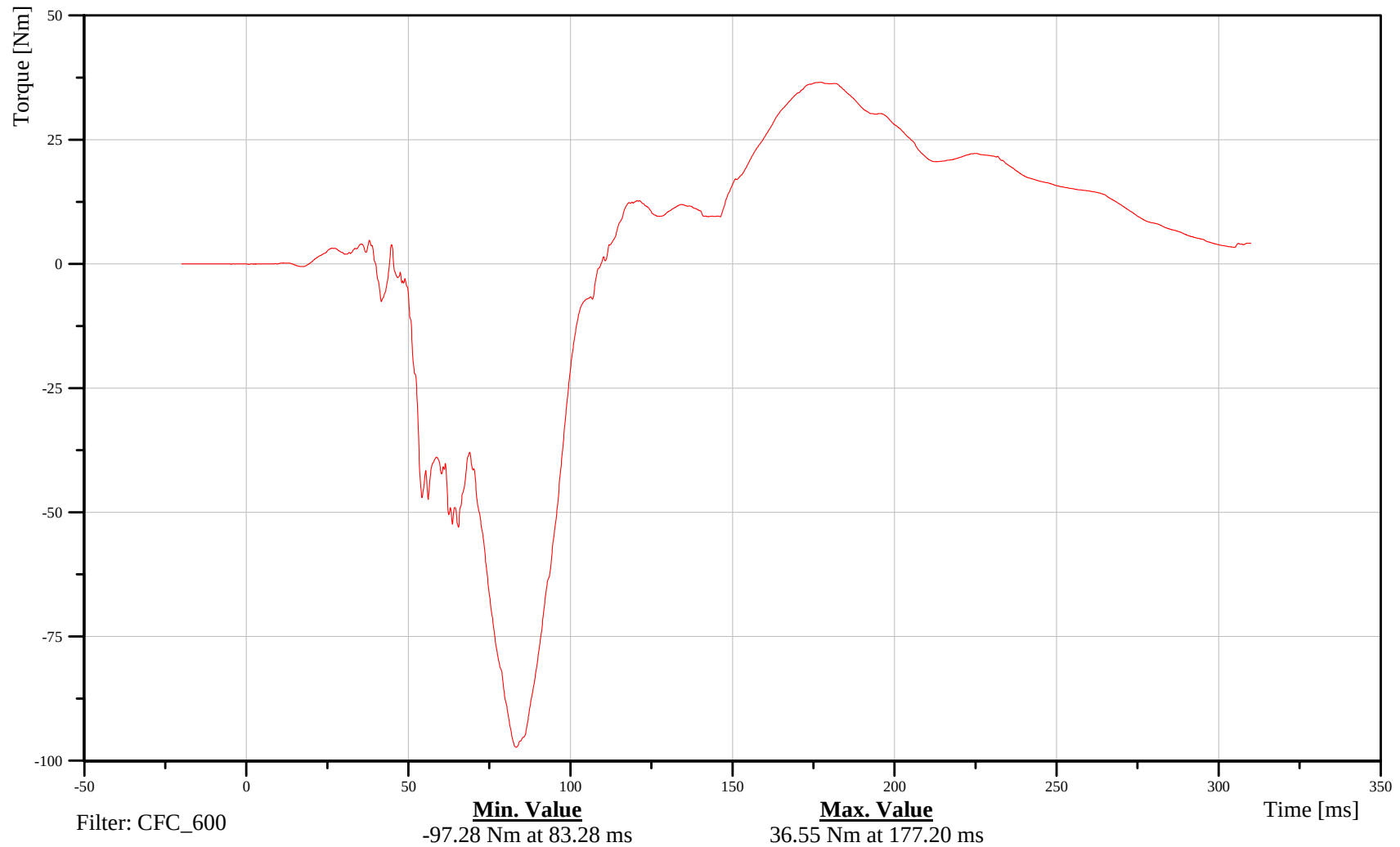
Target Vehicle Driver Left Femur Moment About Z-Axis

Customer: VRTC

21FEMRLL00THMOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-257

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

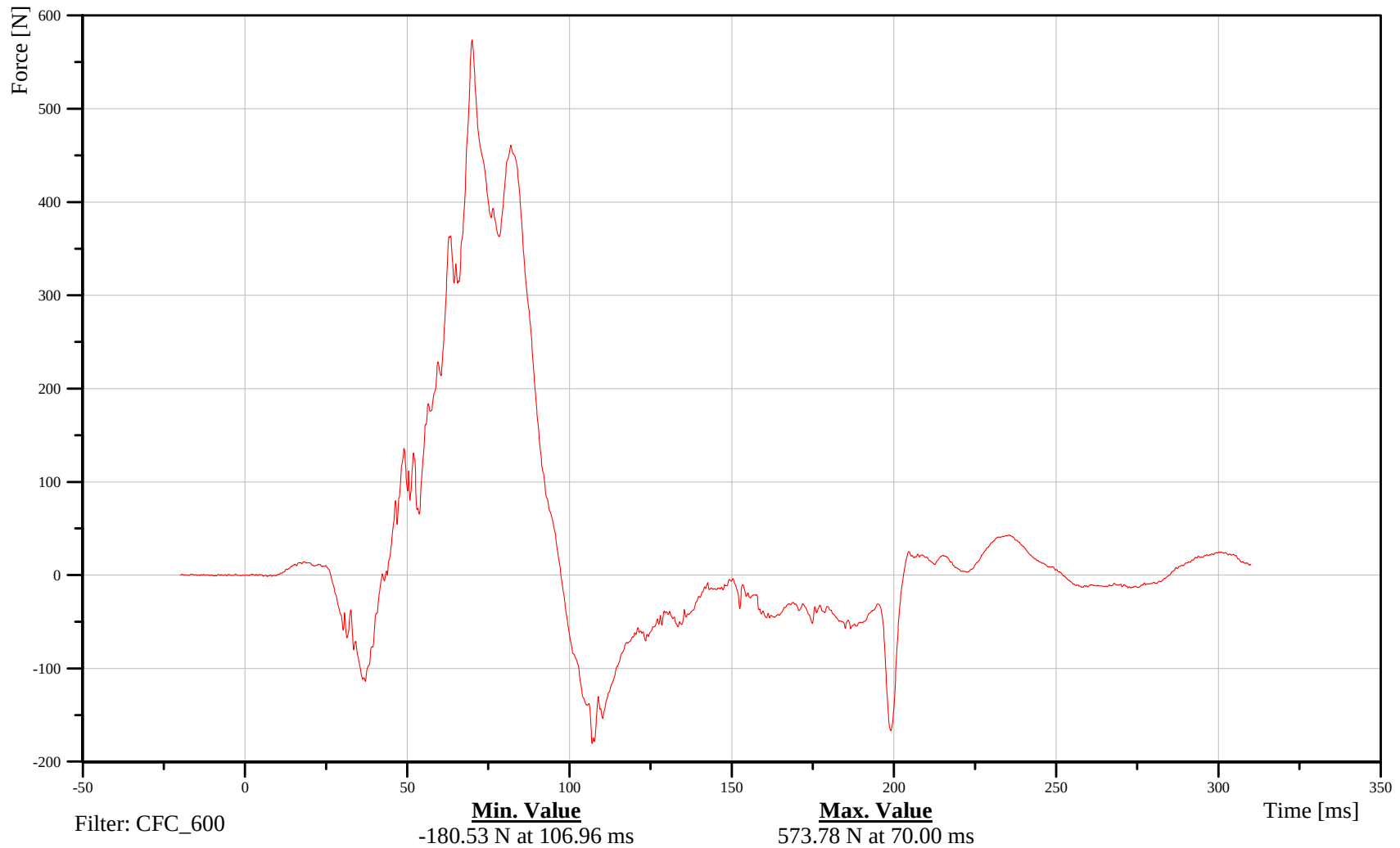
Target Vehicle Driver Right Femur X-Axis Force

Customer: VRTC

21FEMRRL00THFOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-258

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

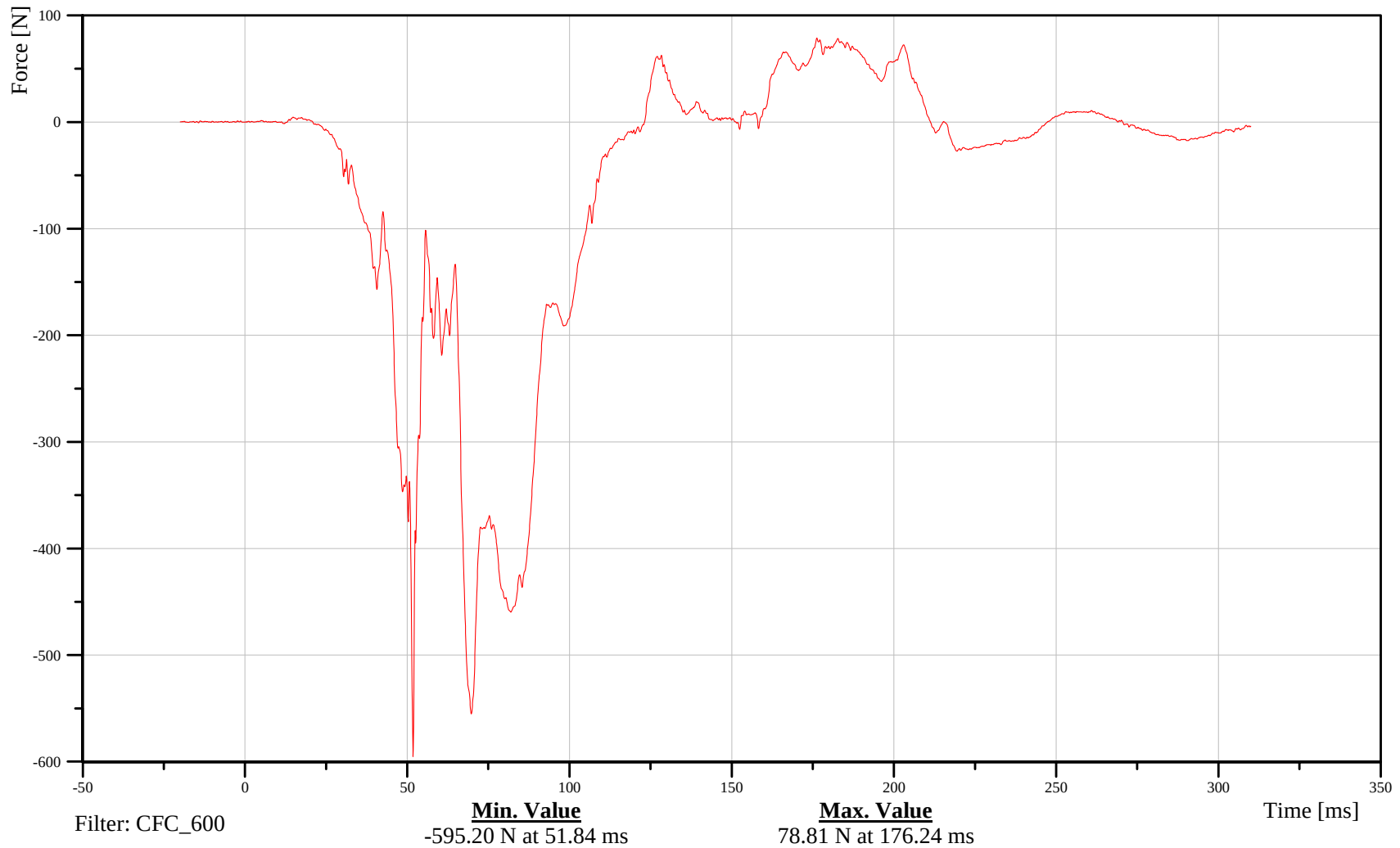
Target Vehicle Driver Right Femur Y-Axis Force

Customer: VRTC

21FEMRRL00THFOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-259

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

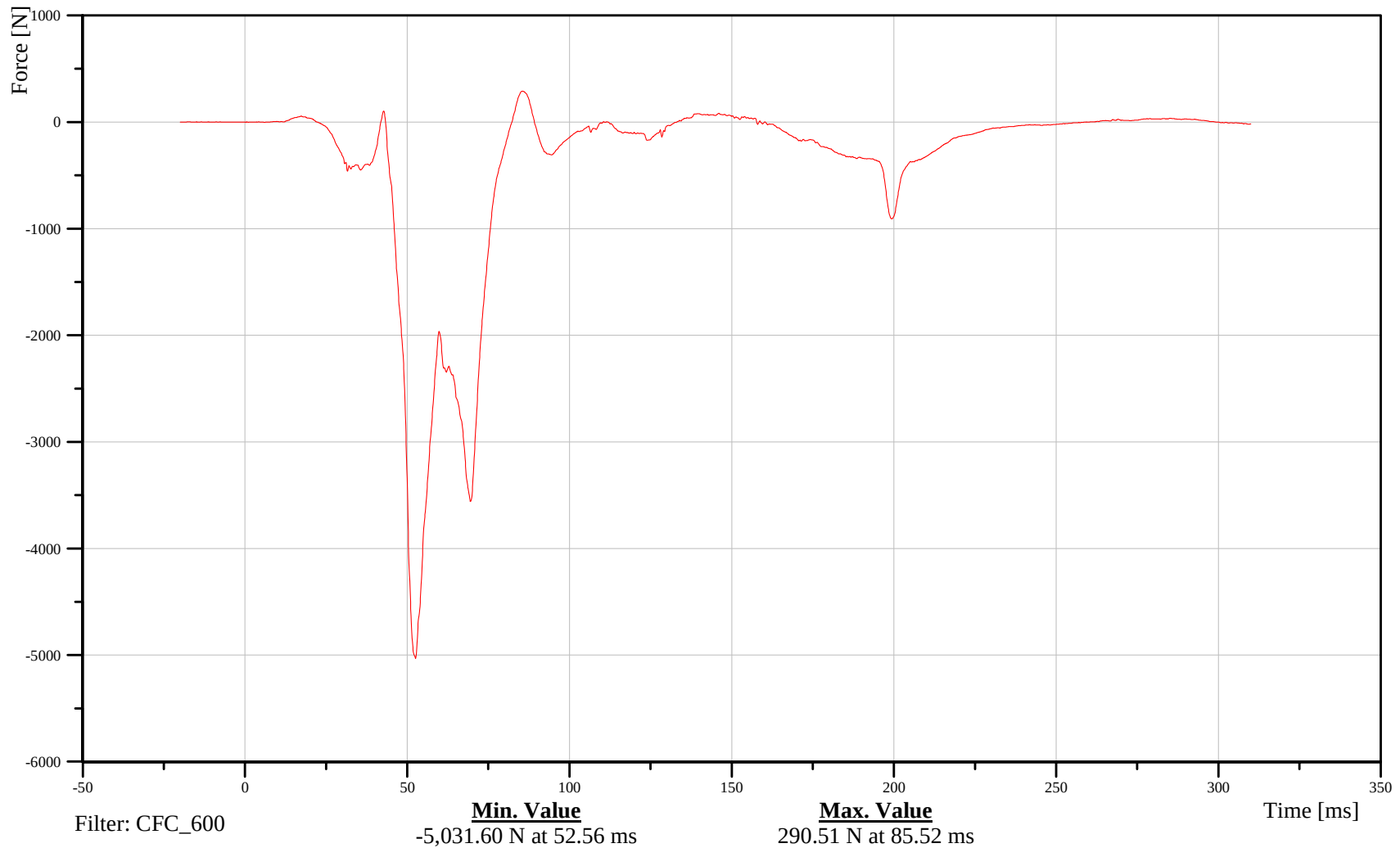
Target Vehicle Driver Right Femur Z-Axis Force

Customer: VRTC

21FEMRRL00THFOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-260

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

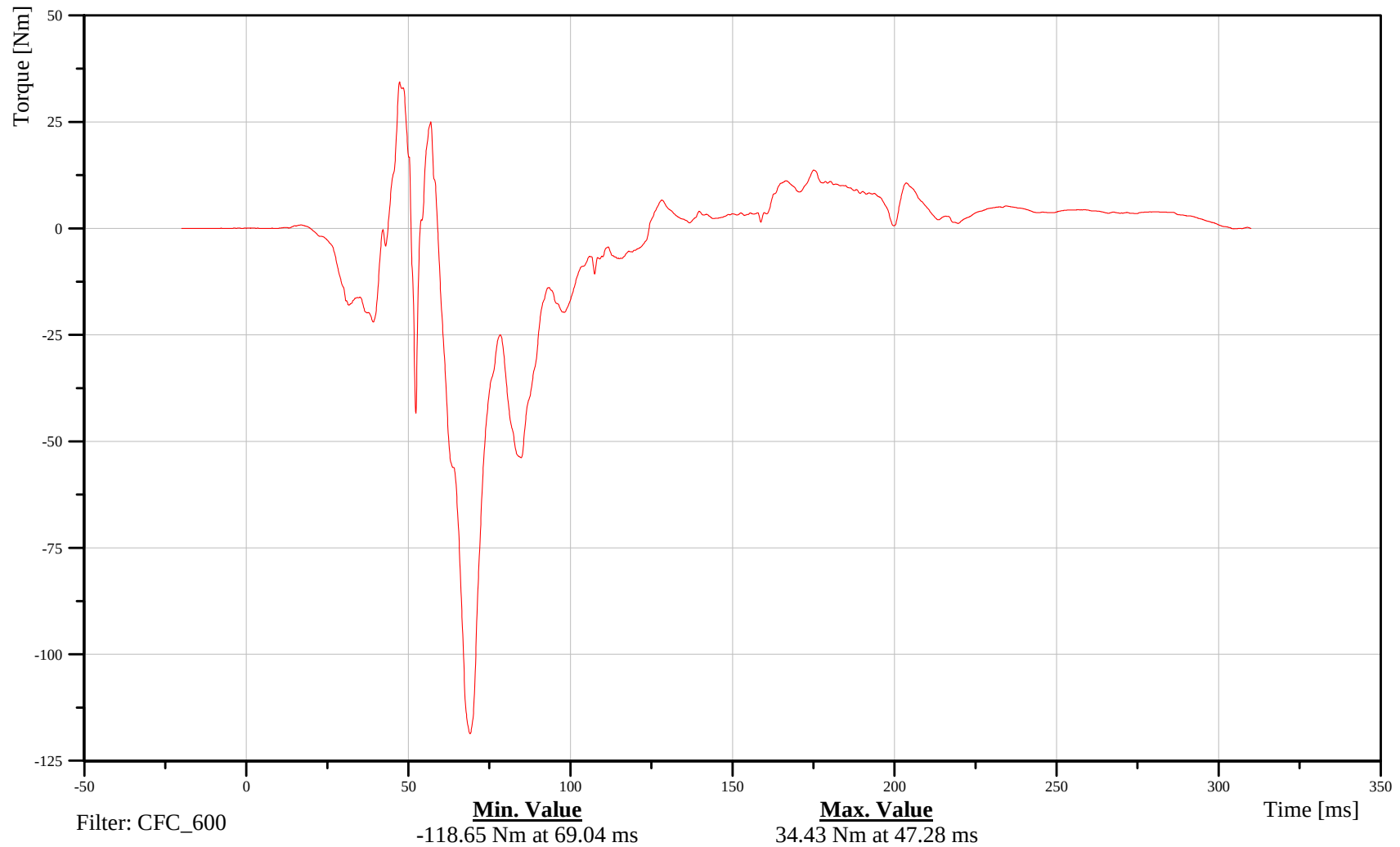
Target Vehicle Driver Right Femur Moment About X-Axis

Customer: VRTC

21FEMRRL00THMOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-261

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

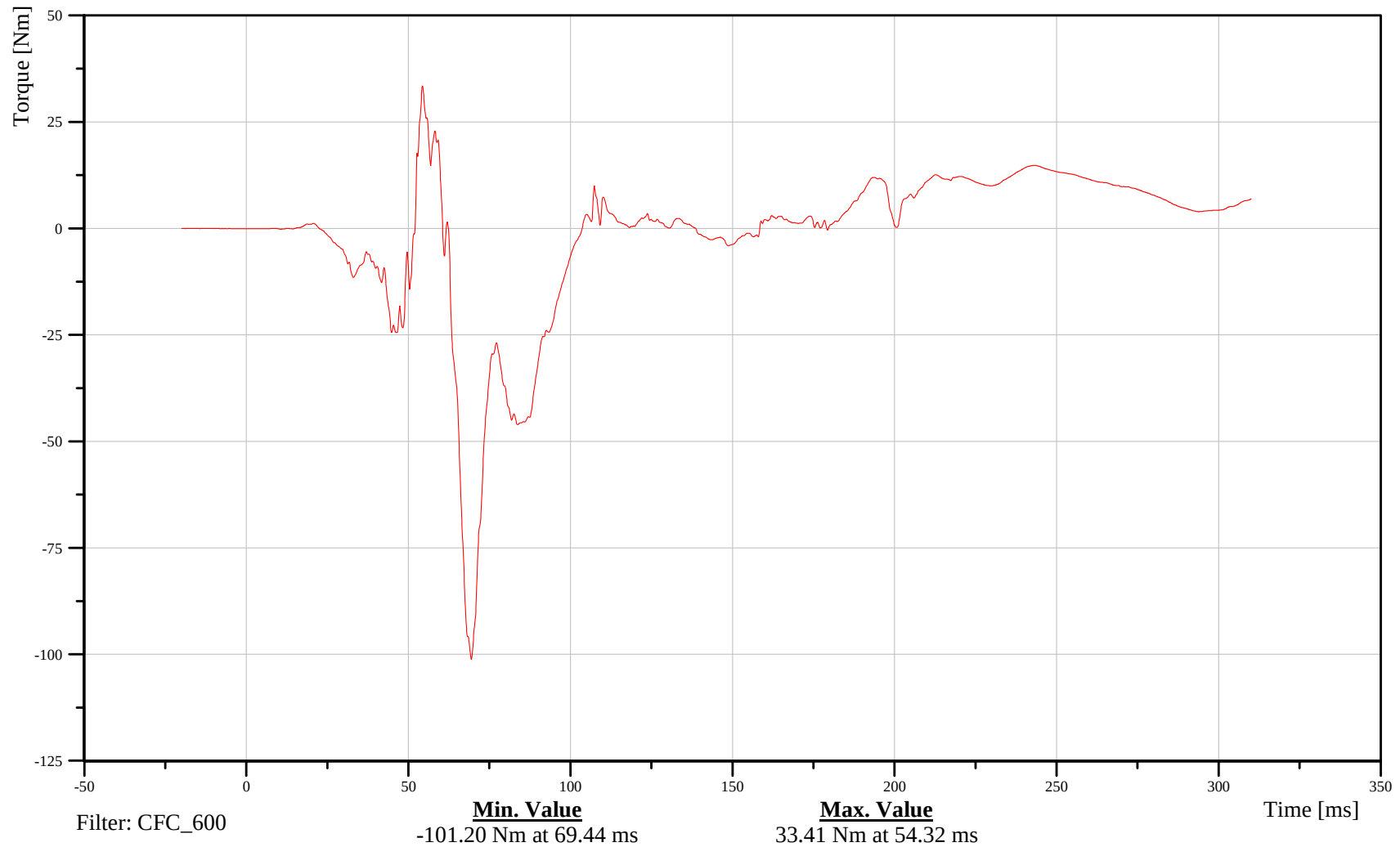
Target Vehicle Driver Right Femur Moment About Y-Axis

Customer: VRTC

21FEMRRL00THMOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-262

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver Right Femur Moment About Z-Axis

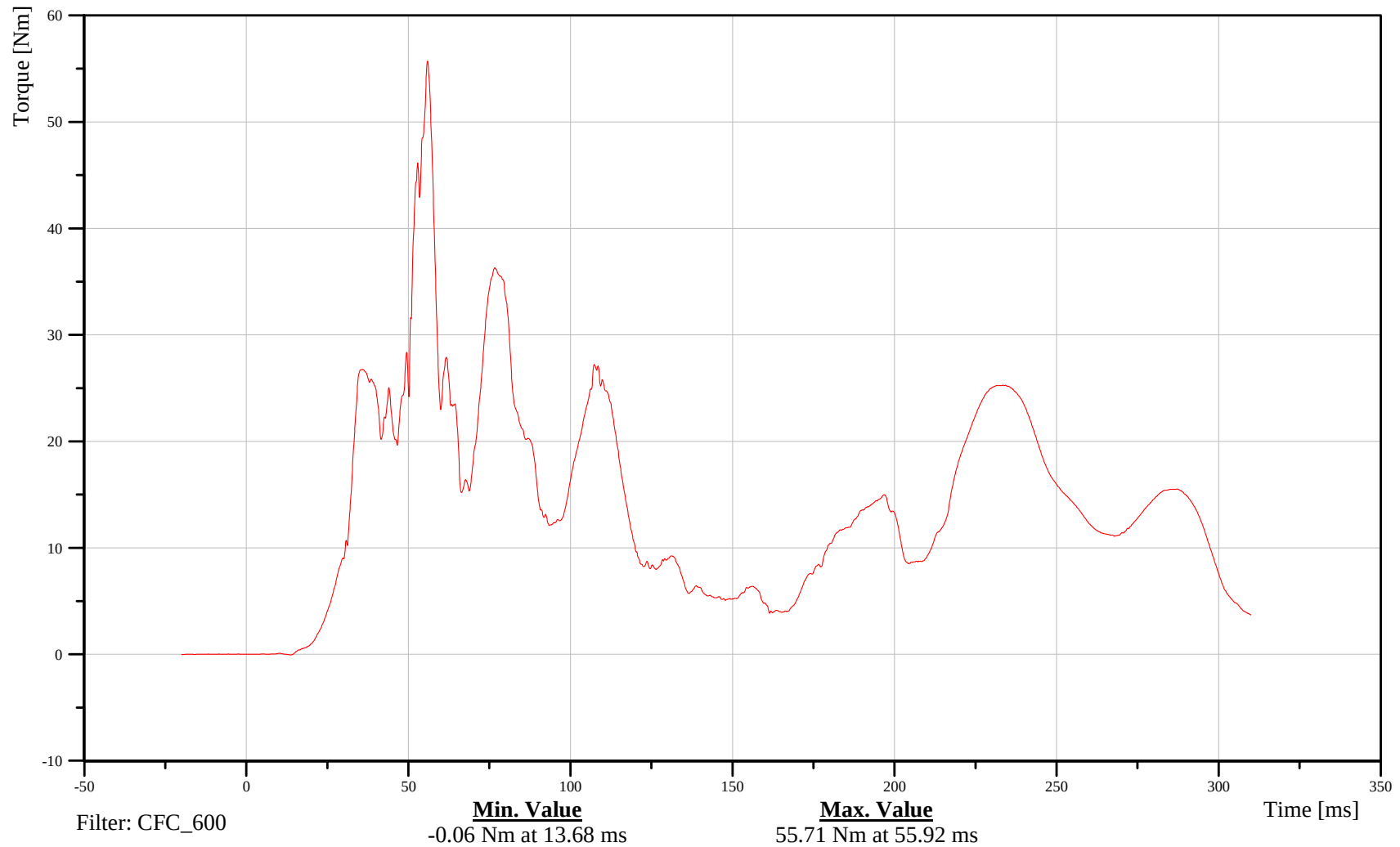
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21FEMRRL00THMOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-263

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

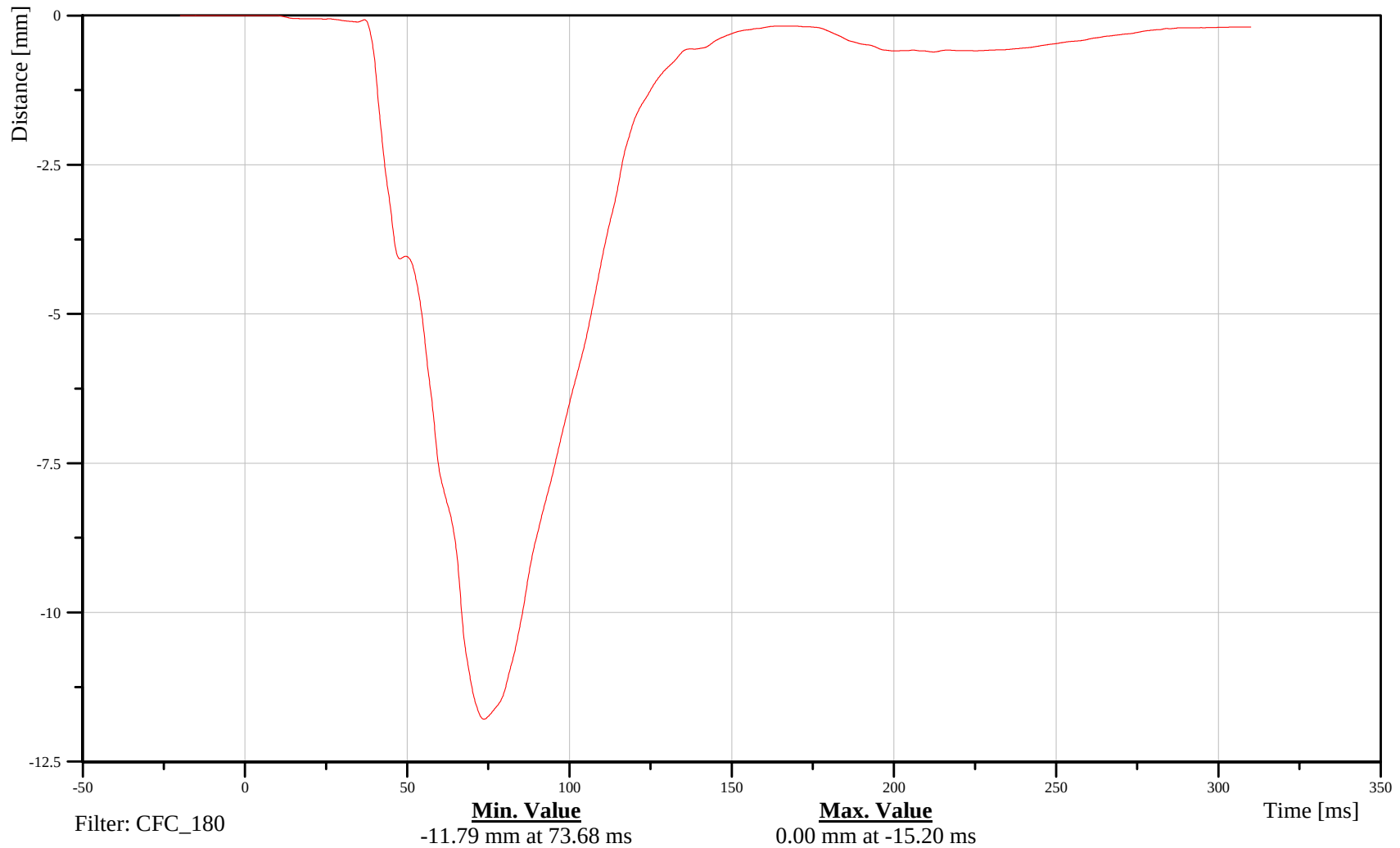
Target Vehicle Driver Left Knee X-Axis Displacement

Customer: VRTC

21KNSLLE00H3DSXC

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

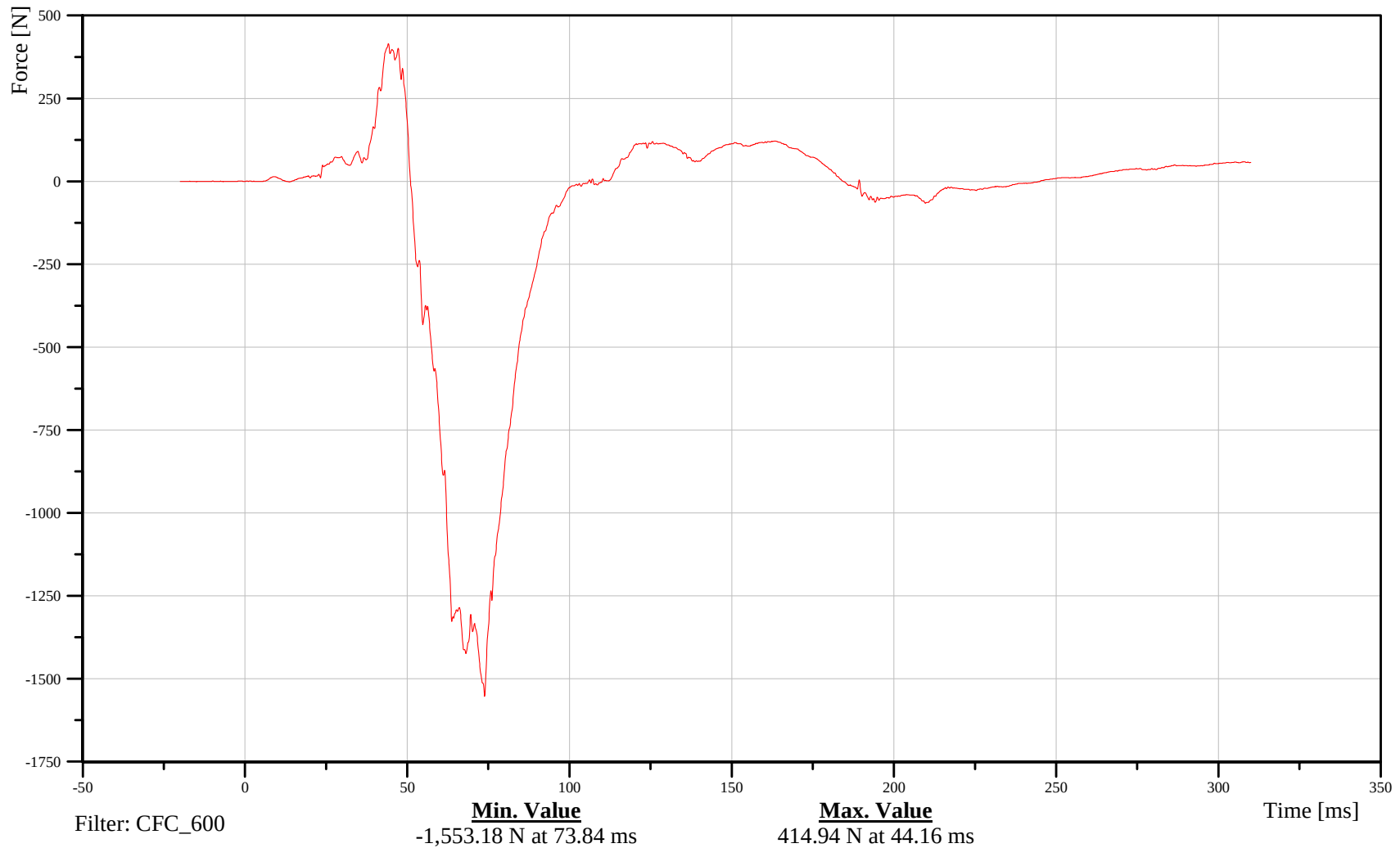
Target Vehicle Driver Left Upper Tibia X-Axis Force

Customer: VRTC

21TIBILULXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-265

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

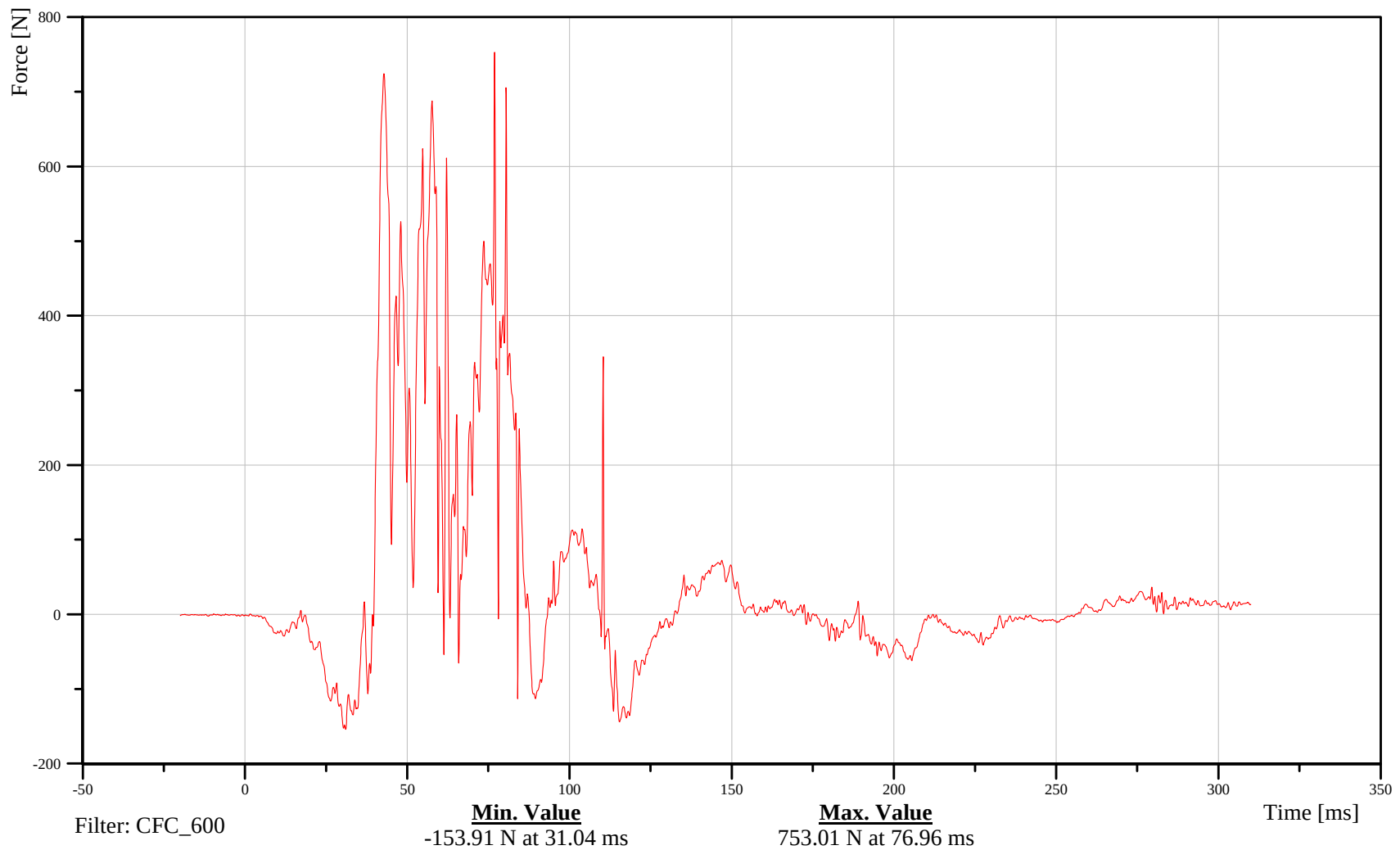
Target Vehicle Driver Left Upper Tibia Z-Axis Force

Customer: VRTC

21TIBILULXH3FOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-266

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

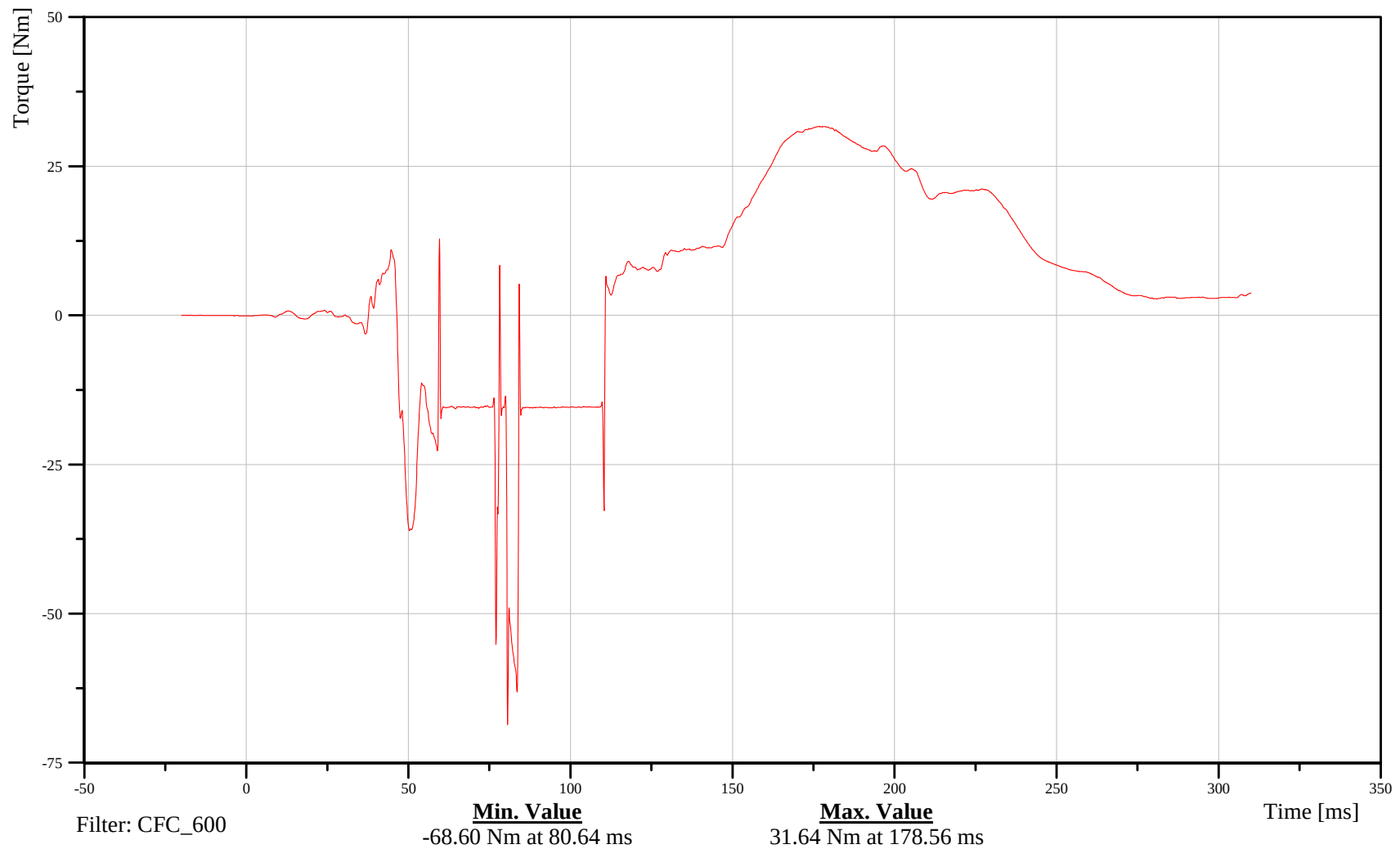
Target Vehicle Driver Left Upper Tibia Moment About X Axis

Customer: VRTC

21TIBILULXH3MOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-267

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

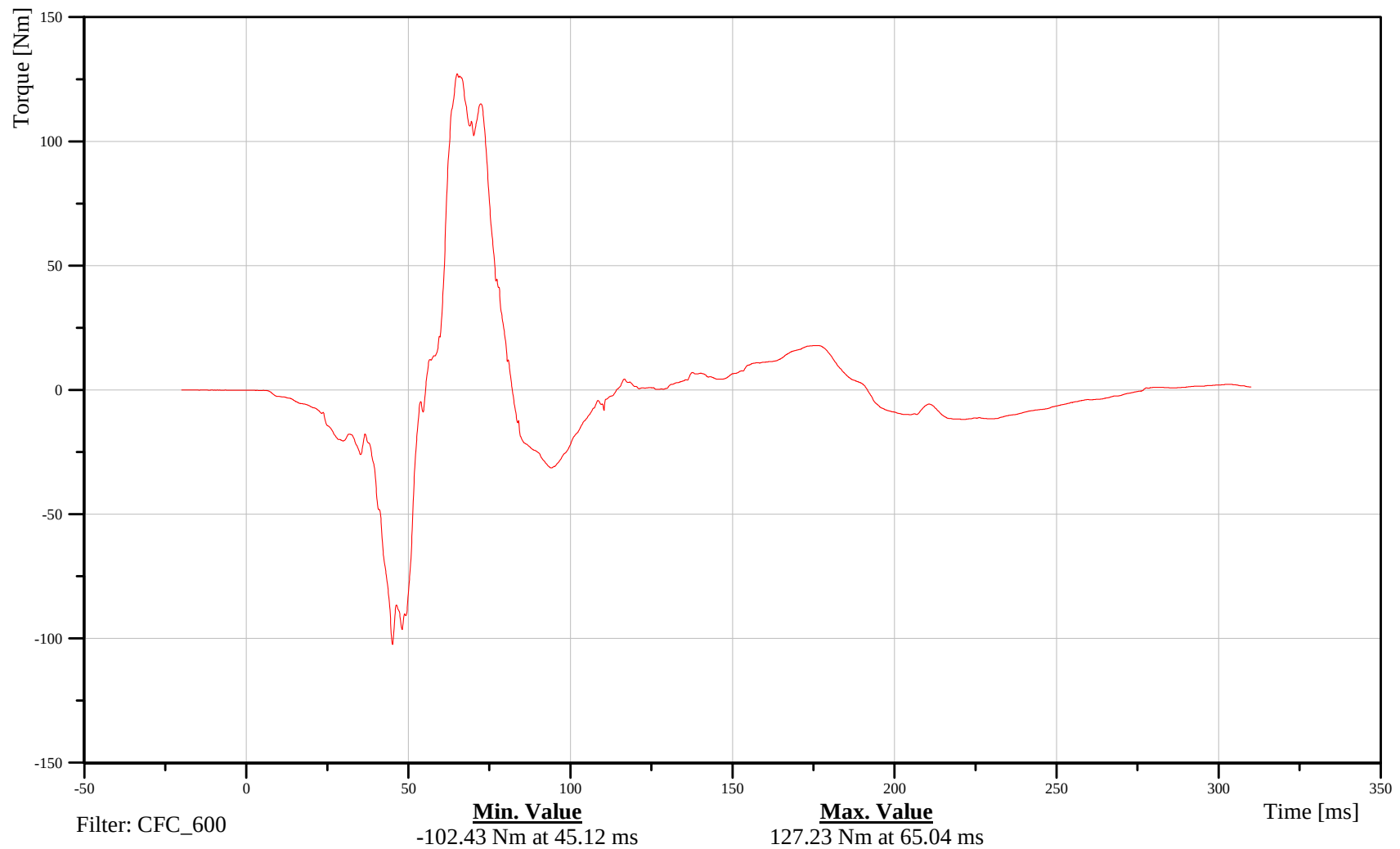
Target Vehicle Driver Left Upper Tibia Moment About Y Axis

Customer: VRTC

21TIBILULXH3MOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-268

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

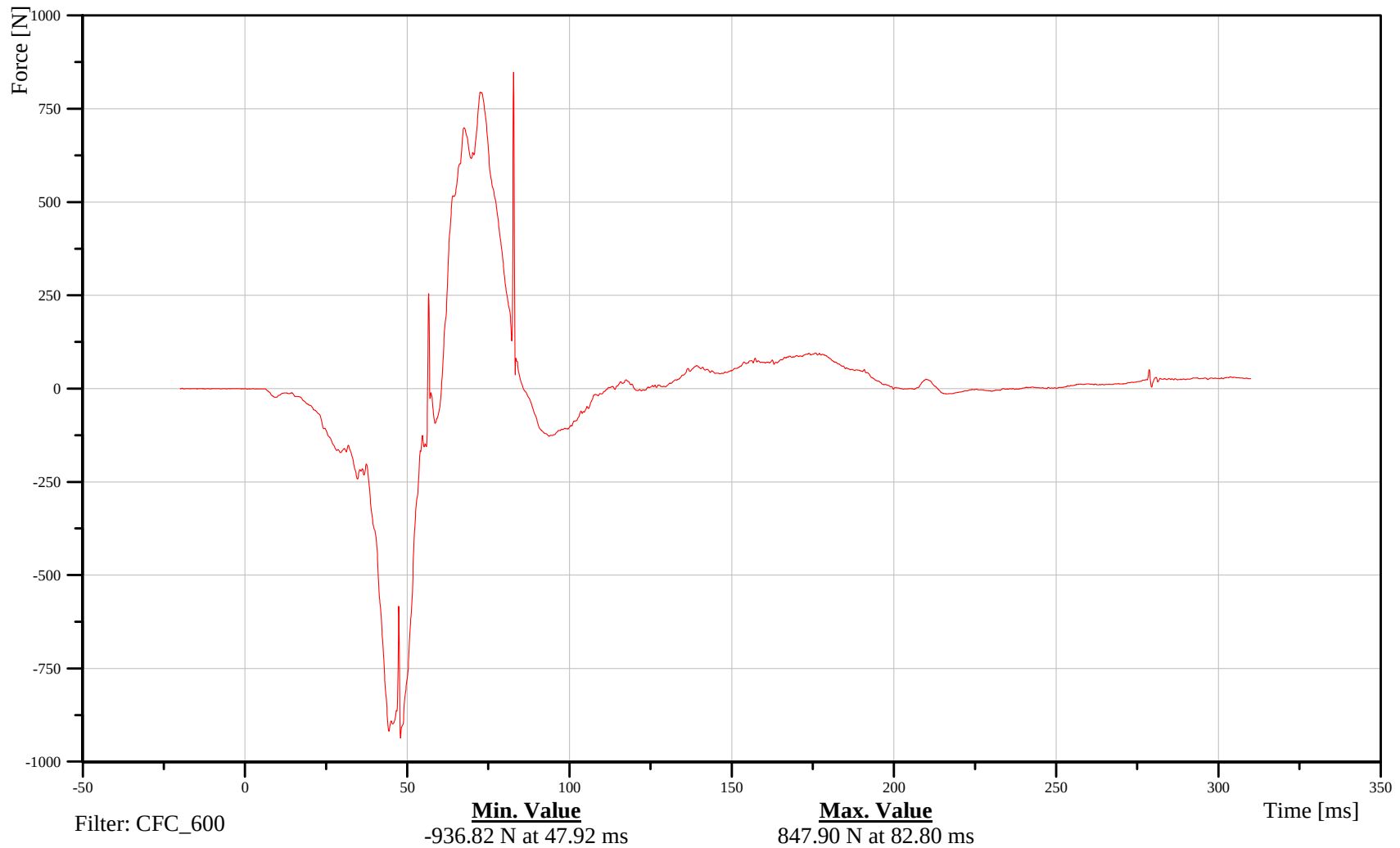
Target Vehicle Driver Left Lower Tibia X-Axis Force

Customer: VRTC

21TIBILLXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-269

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver Left Lower Tibia Y-Axis Force

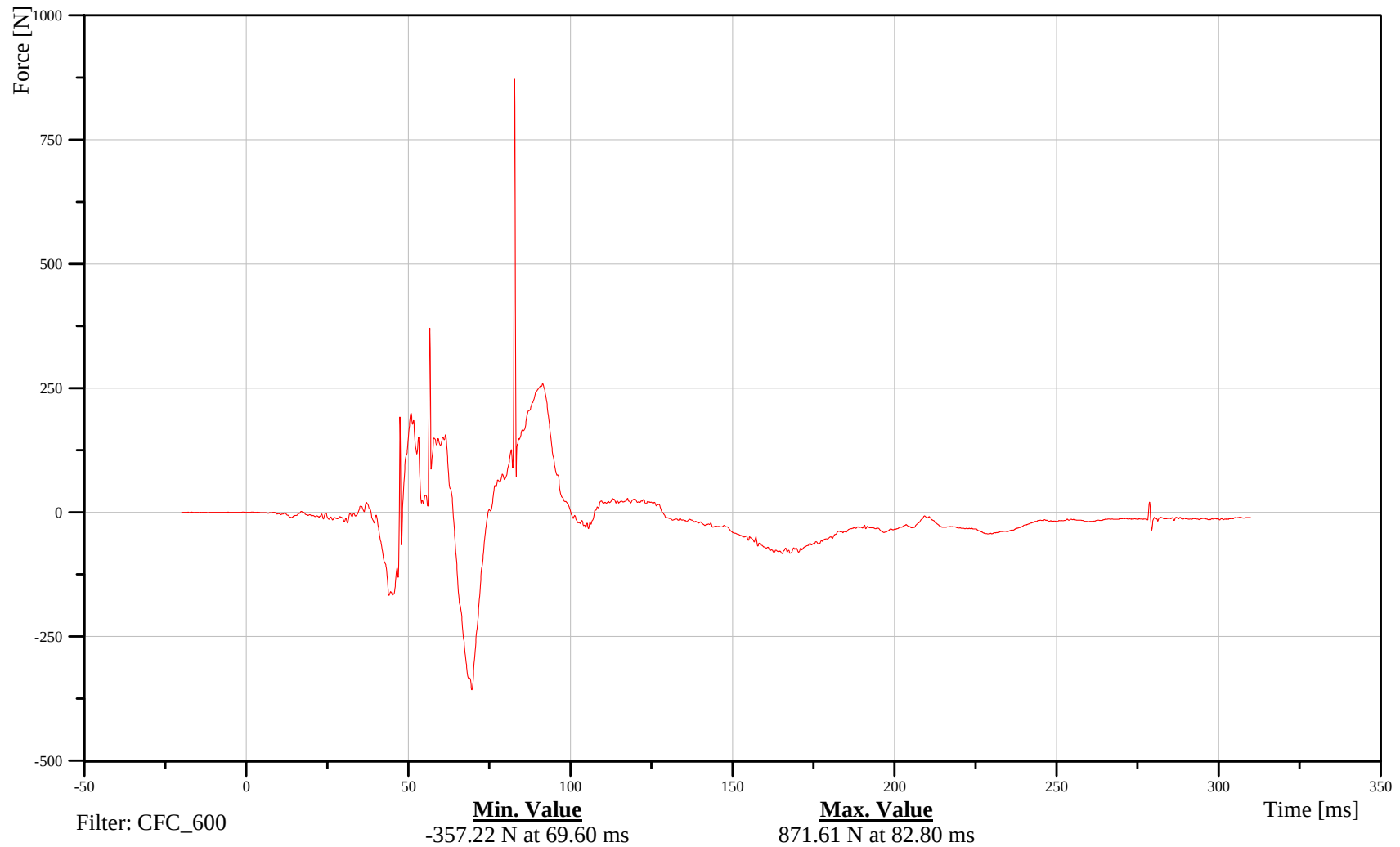
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21TIBILLXH3FOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-270

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

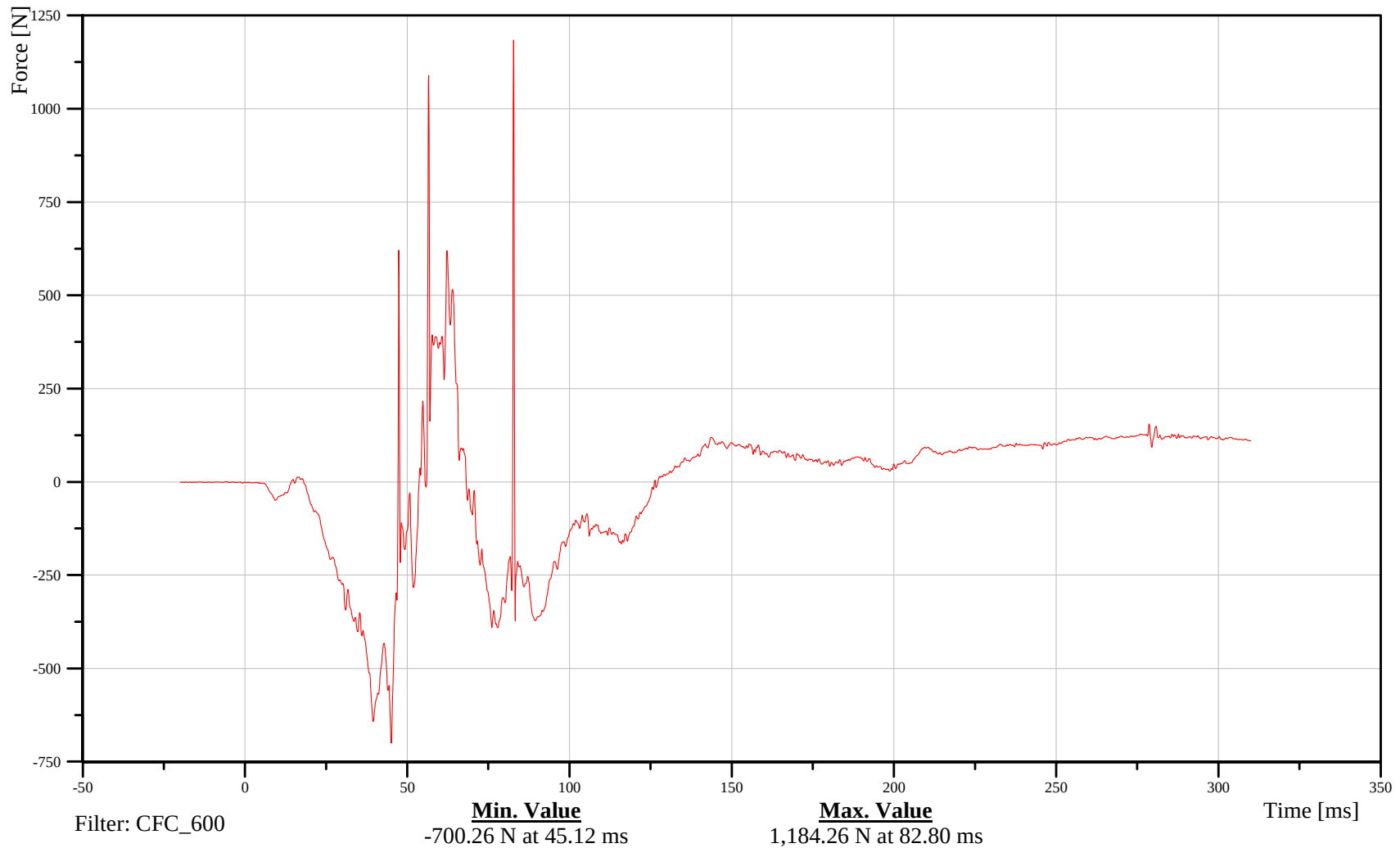
Target Vehicle Driver Left Lower Tibia Z-Axis Force

Customer: VRTC

21TIBILLX3H3FOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-271

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver Left Lower Tibia Moment About X Axis

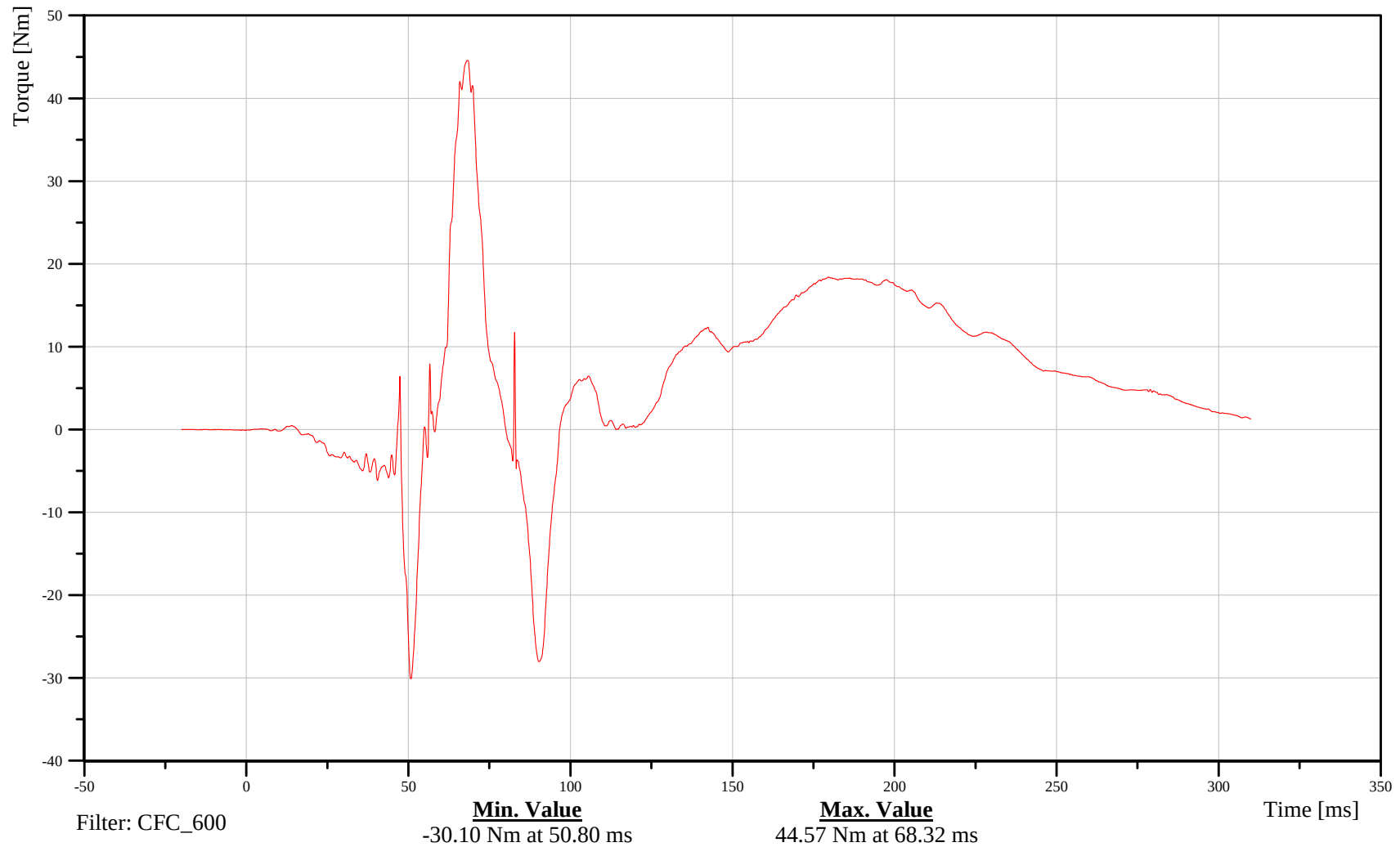
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21TIBILLXH3MOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-272

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

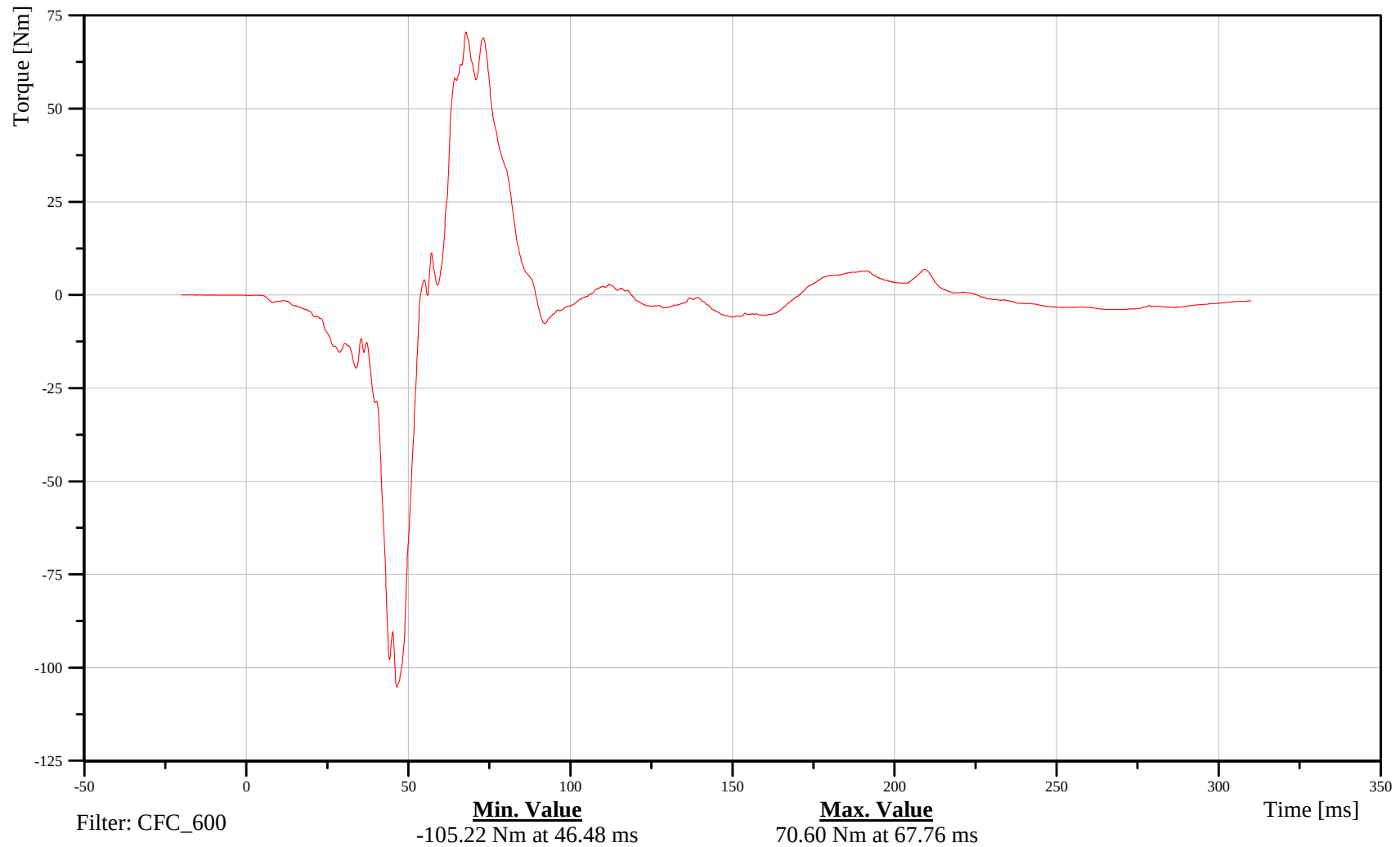
Target Vehicle Driver Left Lower Tibia Moment About Y Axis

Customer: VRTC

21TIBILLXH3MOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-273

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

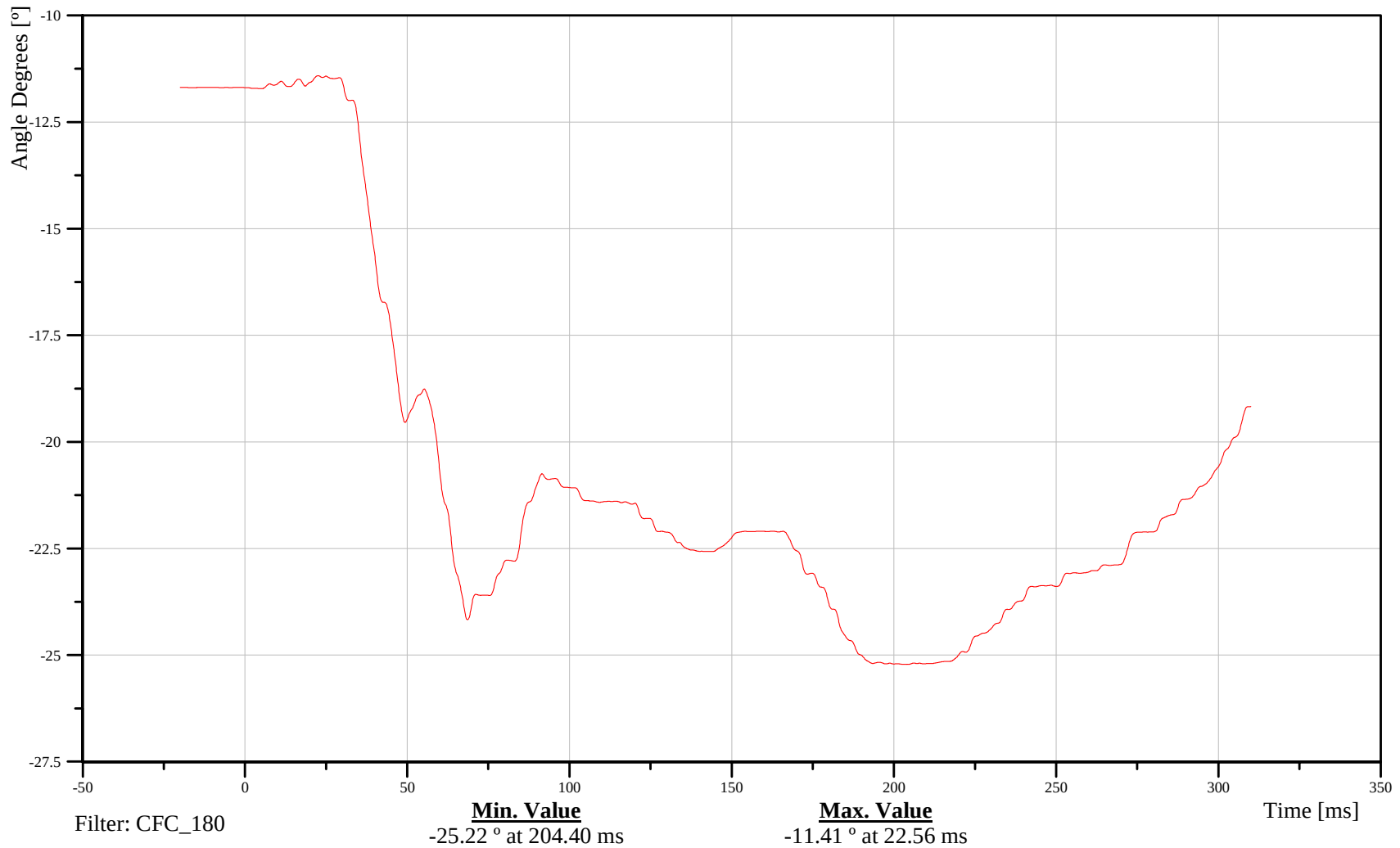
Target Vehicle Driver Left Foot Angular X-Axis Displacement

Customer: VRTC

21FOOTLELXH3ANXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-274

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

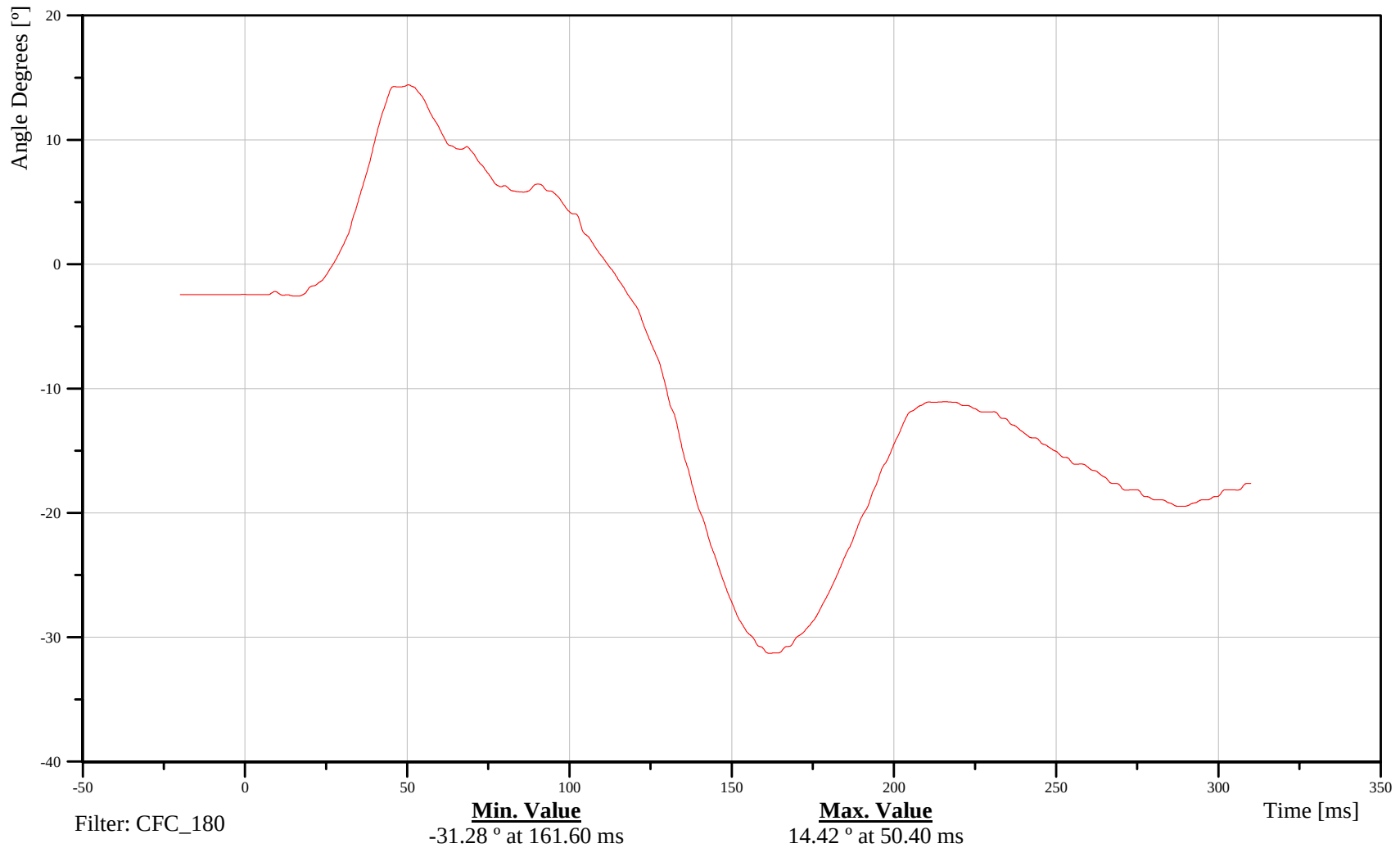
Target Vehicle Driver Left Foot Angular Y-Axis Displacement

Customer: VRTC

21FOOTLELXH3ANYC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-275

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

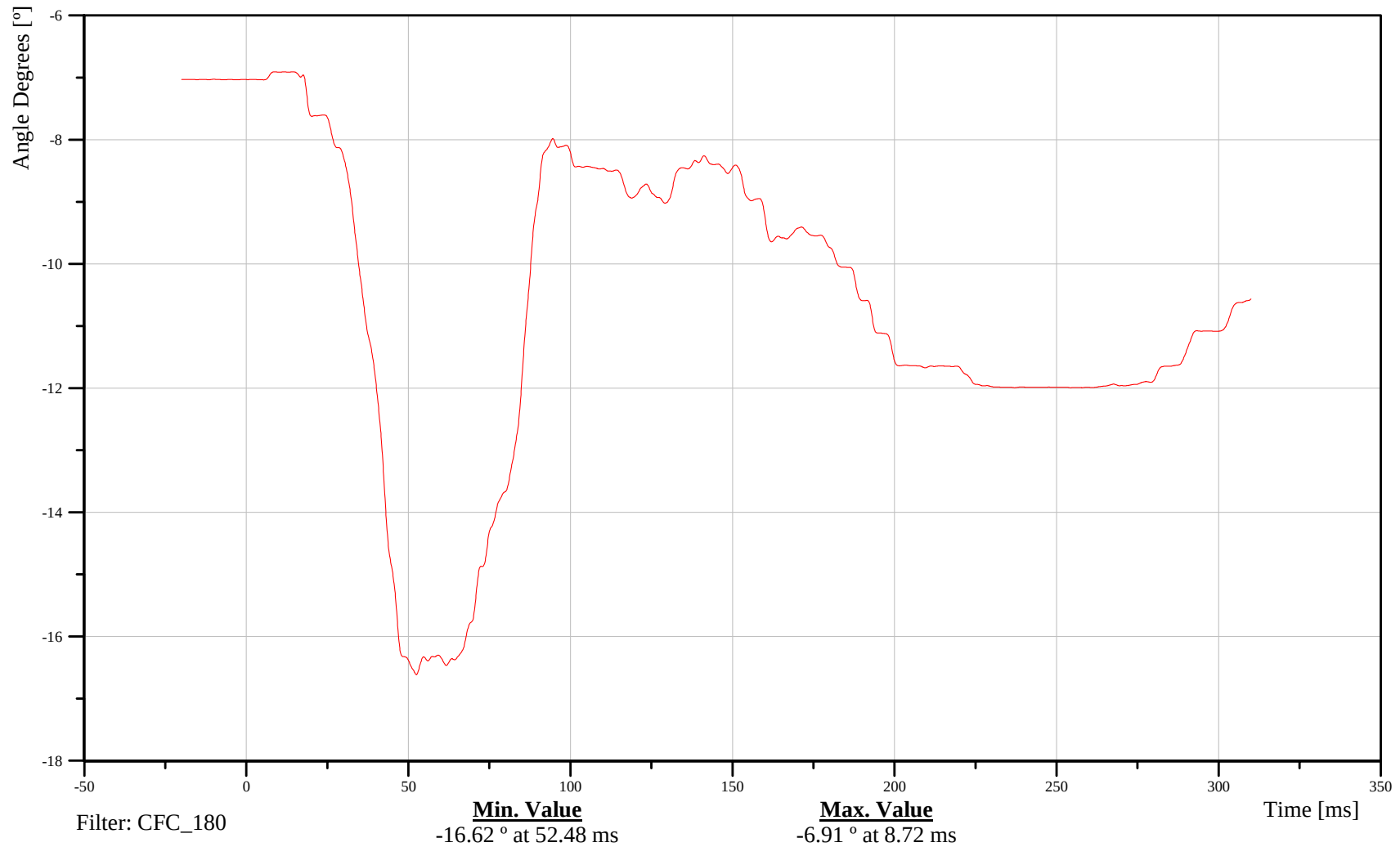
Target Vehicle Driver Left Foot Angular Z-Axis Displacement

Customer: VRTC

21FOOTLELXH3ANZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-276

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

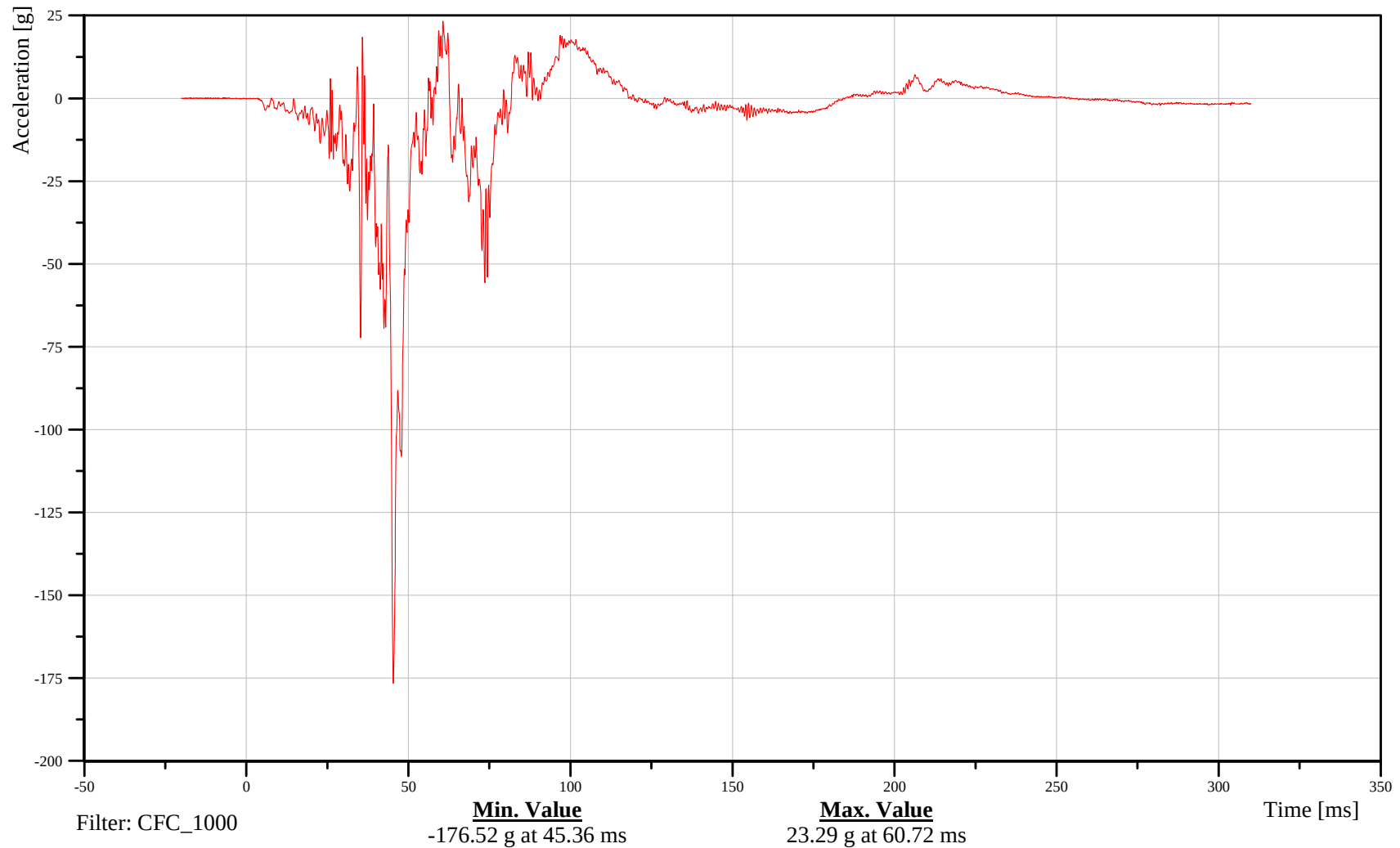
Target Vehicle Driver Left Foot X-Axis Acceleration

Customer: VRTC

21FOOTLELXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-277

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

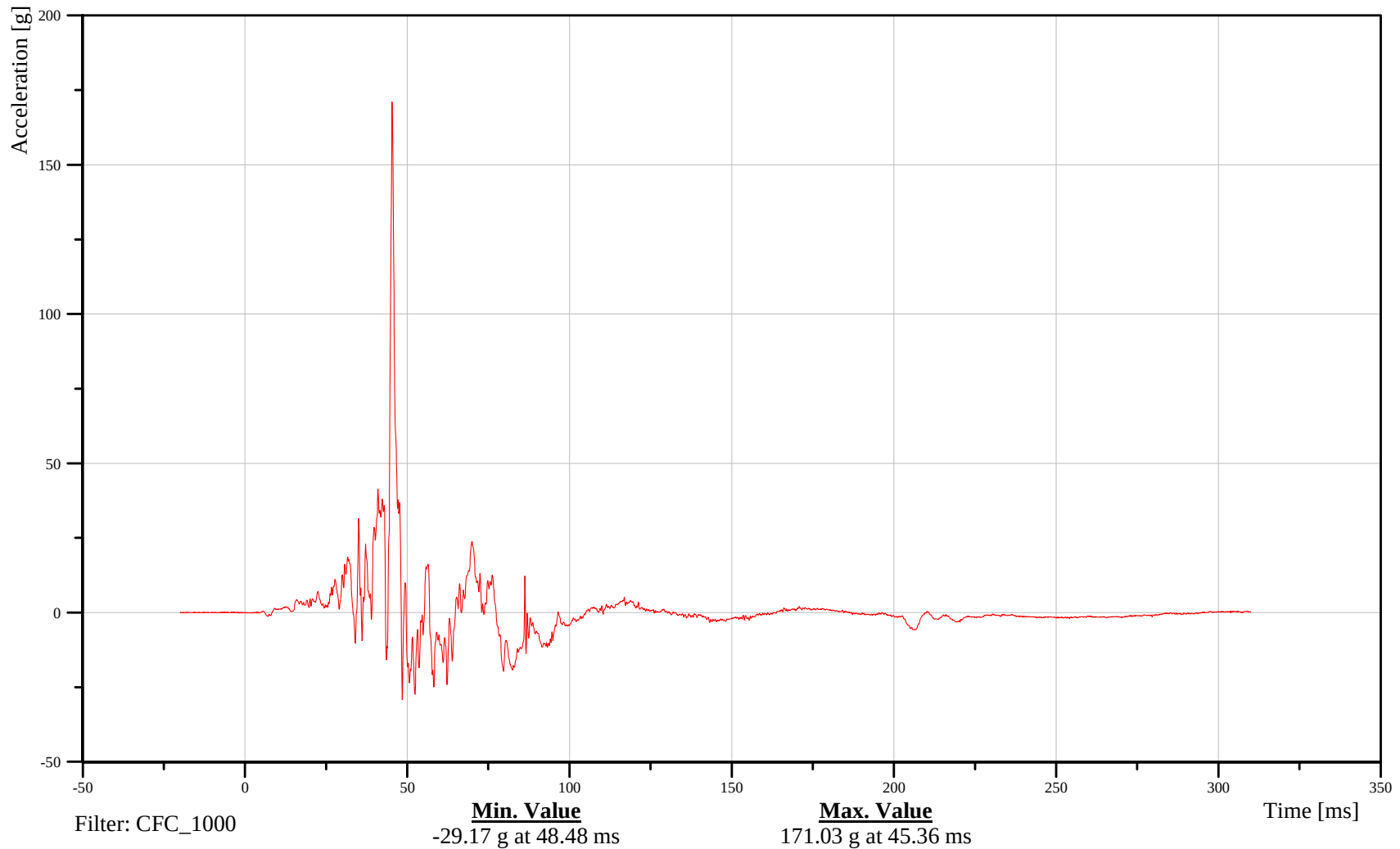
Target Vehicle Driver Left Foot Y-Axis Acceleration

Customer: VRTC

21FOOTLELXH3ACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-278

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

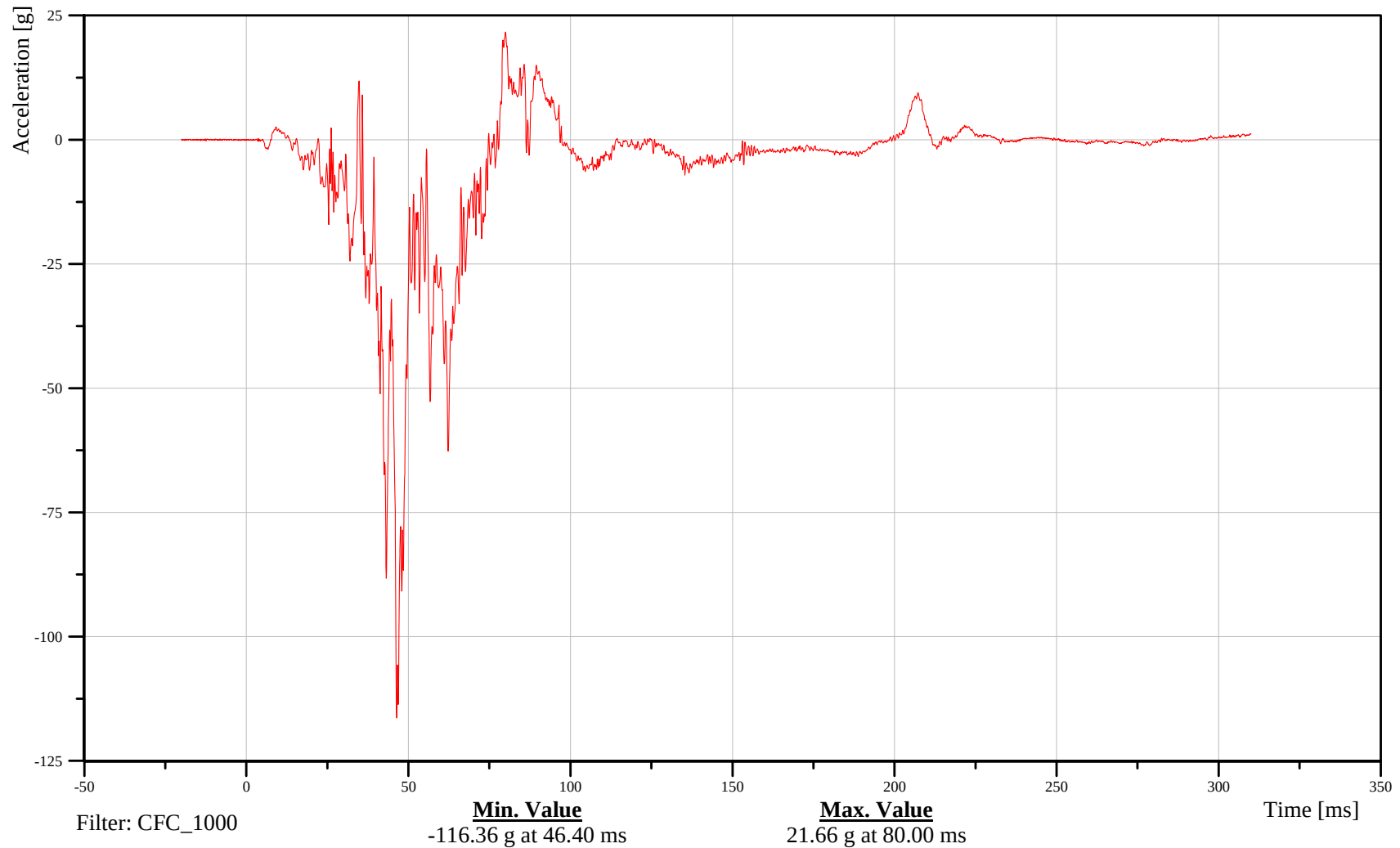
Target Vehicle Driver Left Foot Z-Axis Acceleration

Customer: VRTC

21FOOTLELXH3ACZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-279

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

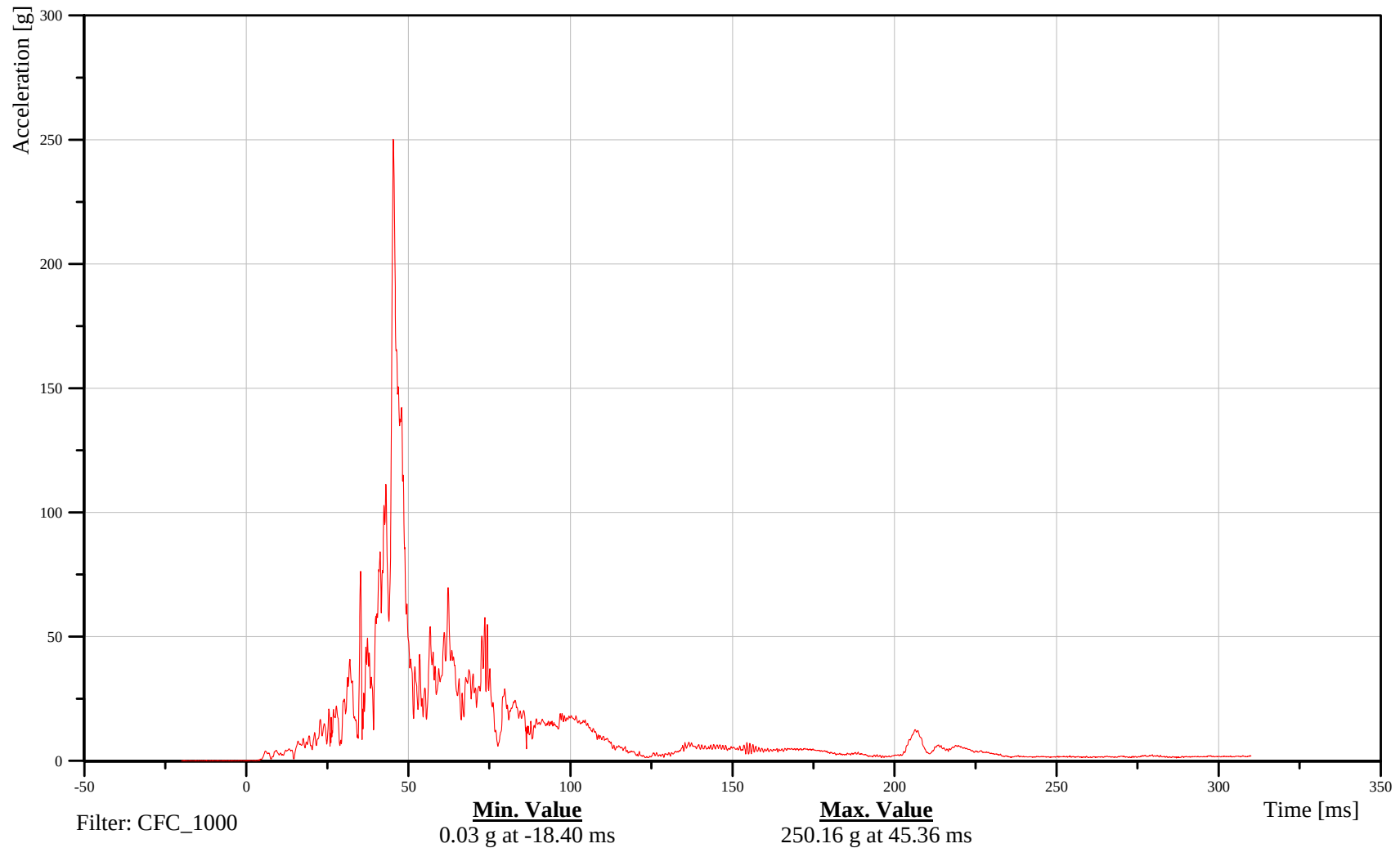
Target Vehicle Driver Left Foot Resultant Acceleration

Customer: VRTC

21FOOTLELXH3ACRA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-280

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

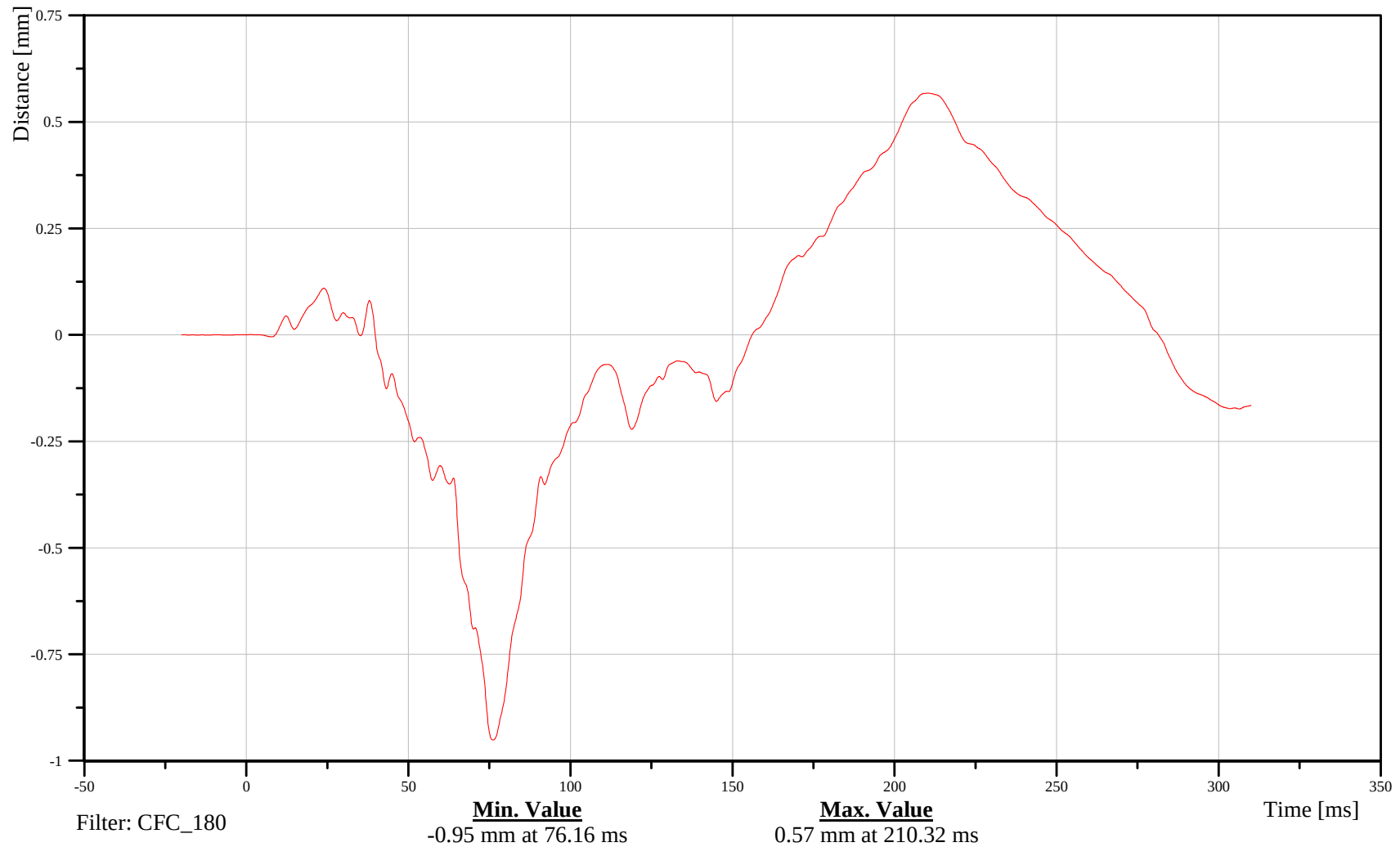
Target Vehicle Driver Right Knee X-Axis Displacement

Customer: VRTC

21KNSLRI00H3DSXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-281

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

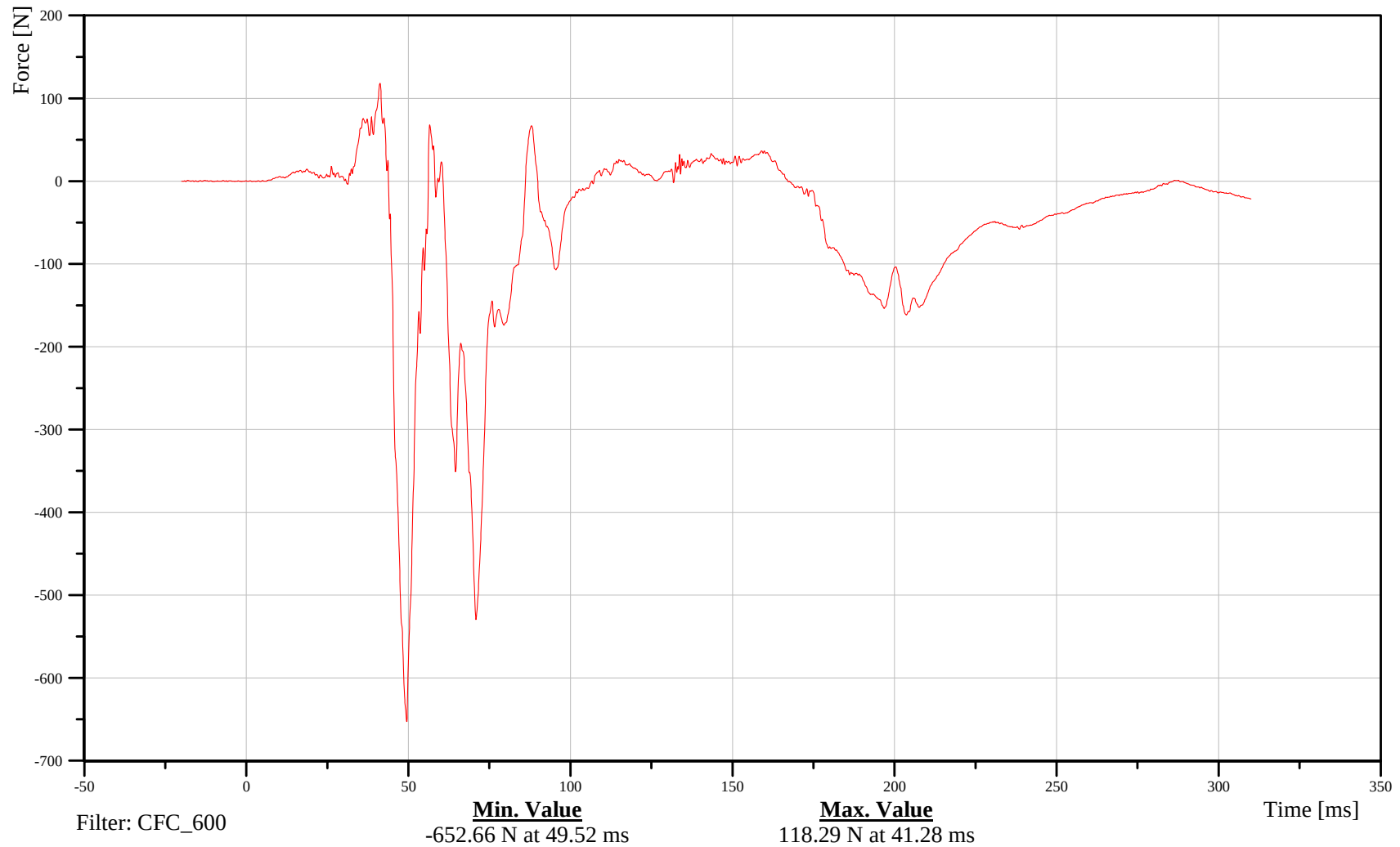
Target Vehicle Driver Right Upper Tibia X-Axis Force

Customer: VRTC

21TIBIRULXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-282

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

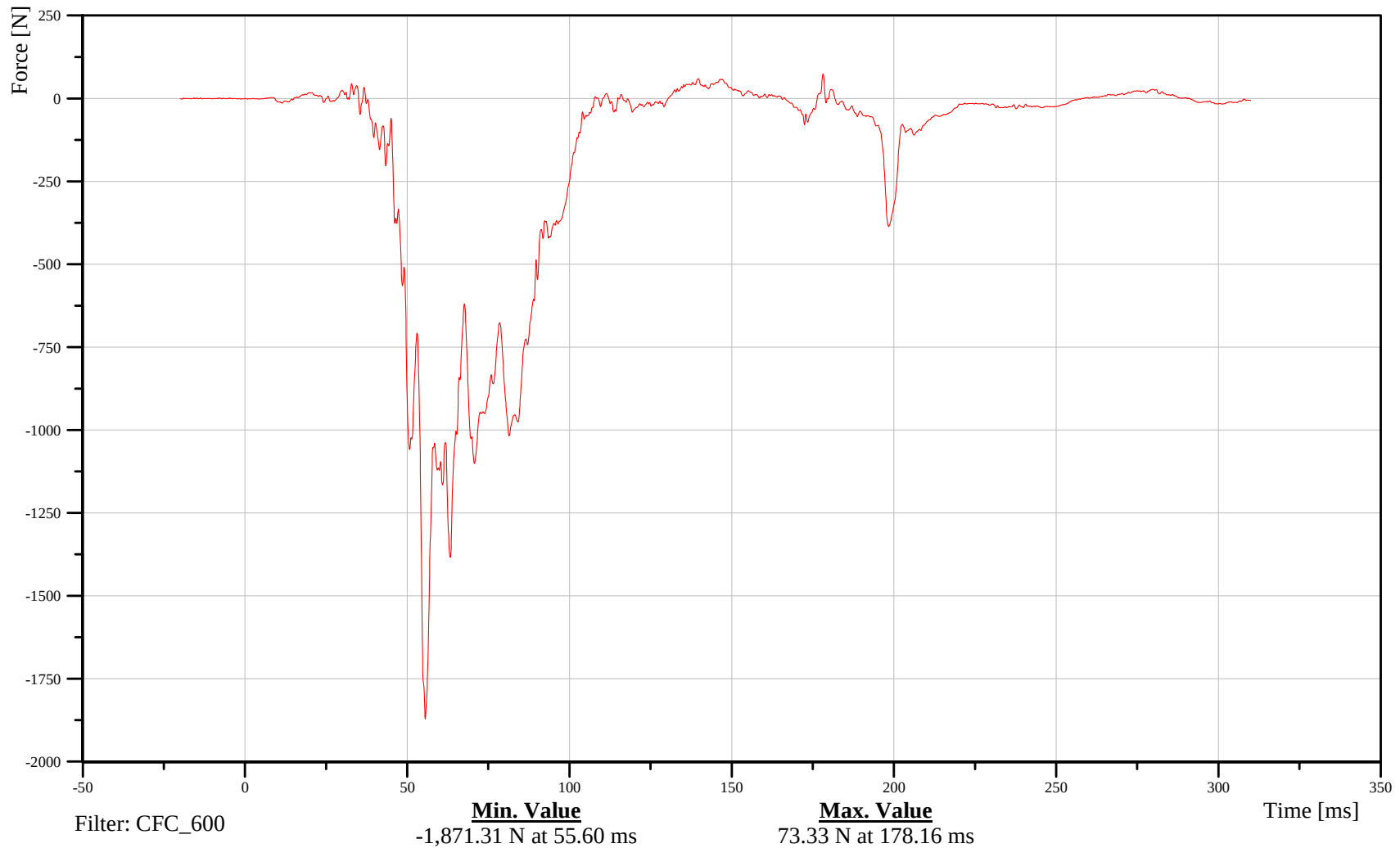
Target Vehicle Driver Right Upper Tibia Z-Axis Force

Customer: VRTC

21TIBIRULXH3FOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-283

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver Right Upper Tibia Moment About X Axis

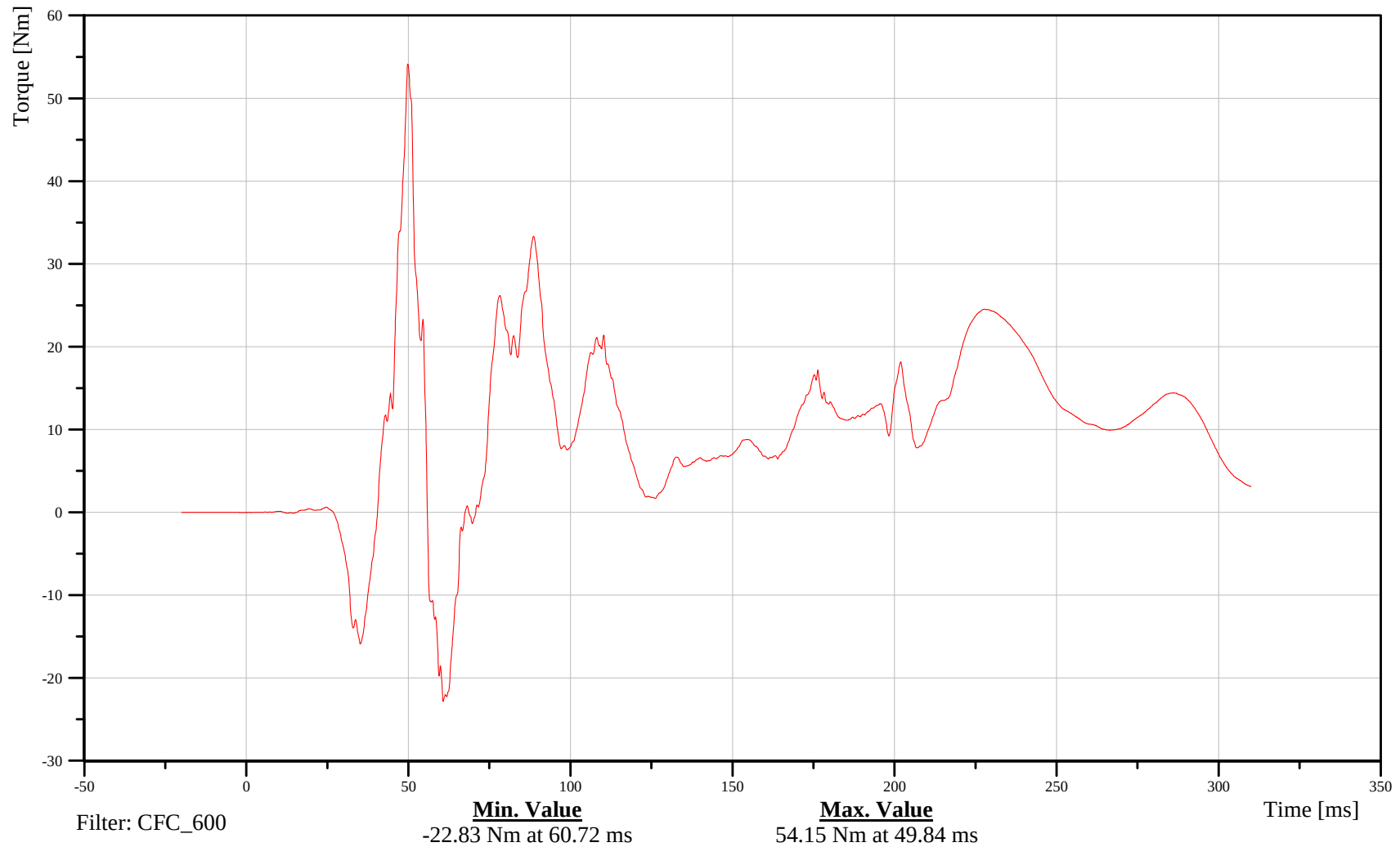
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21TIBIRULXH3MOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-284

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver Right Upper Tibia Moment About Y Axis

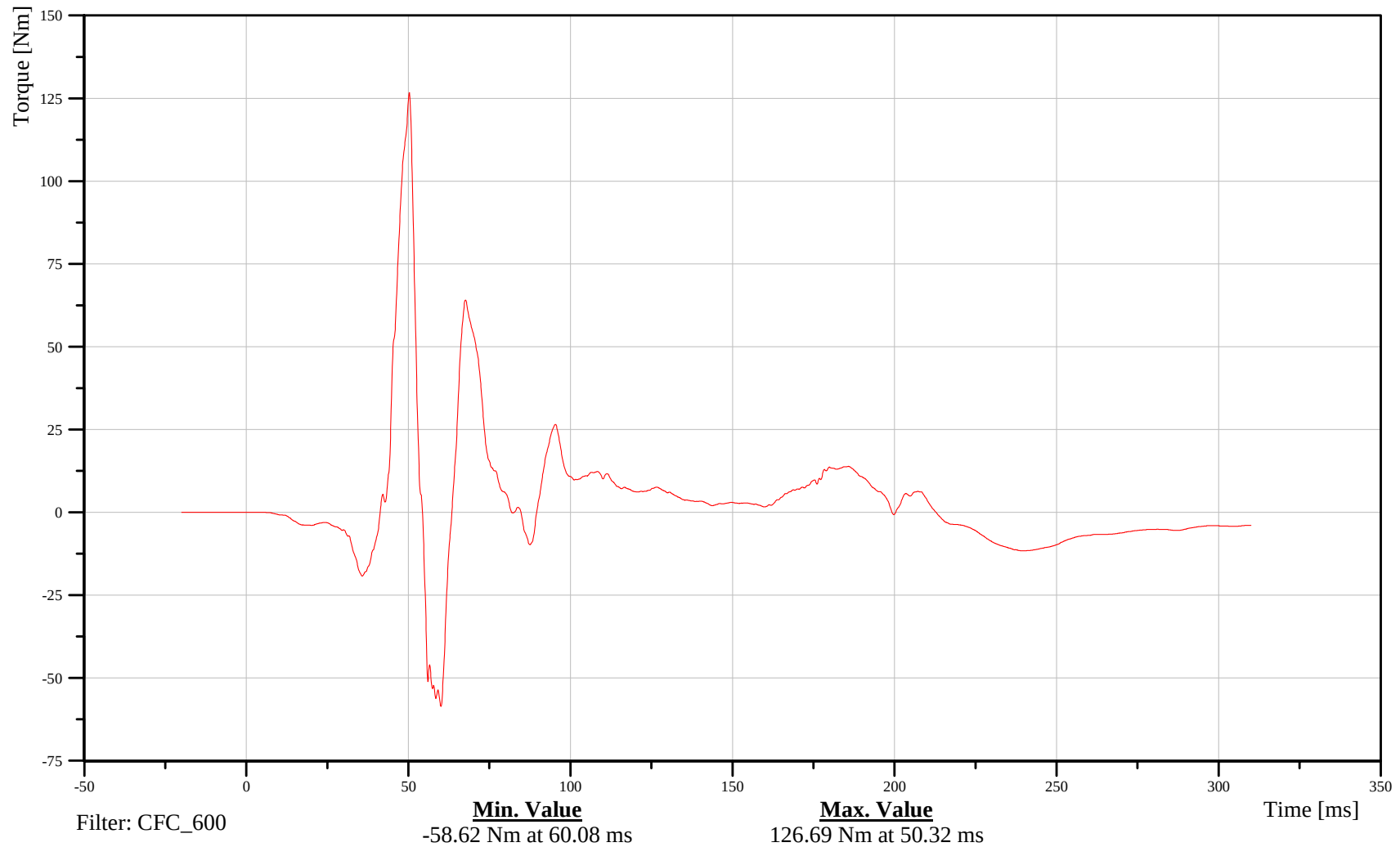
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21TIBIRULXH3MOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-285

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

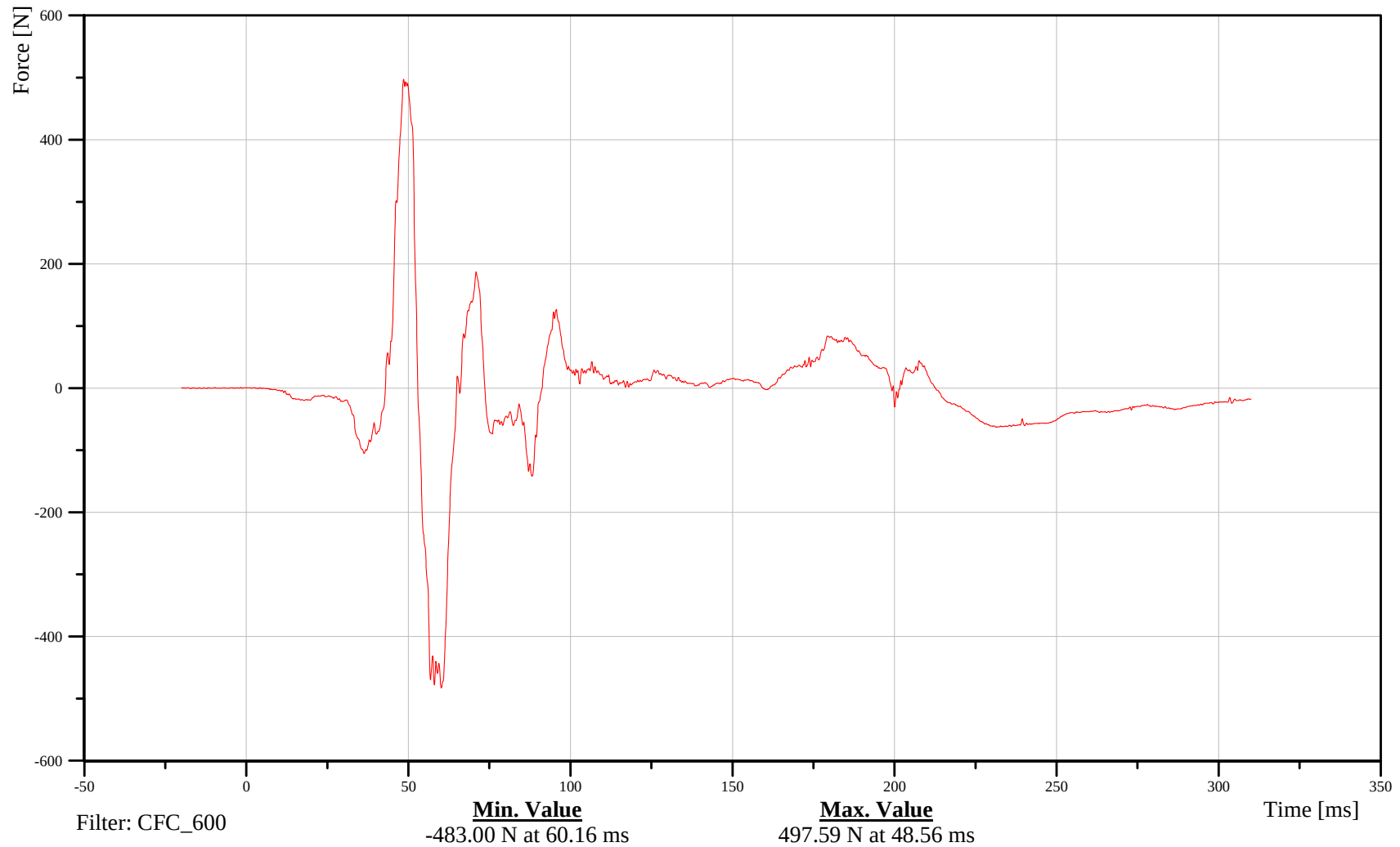
Target Vehicle Driver Right Lower Tibia X-Axis Force

Customer: VRTC

21TIBIRLLXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-286

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

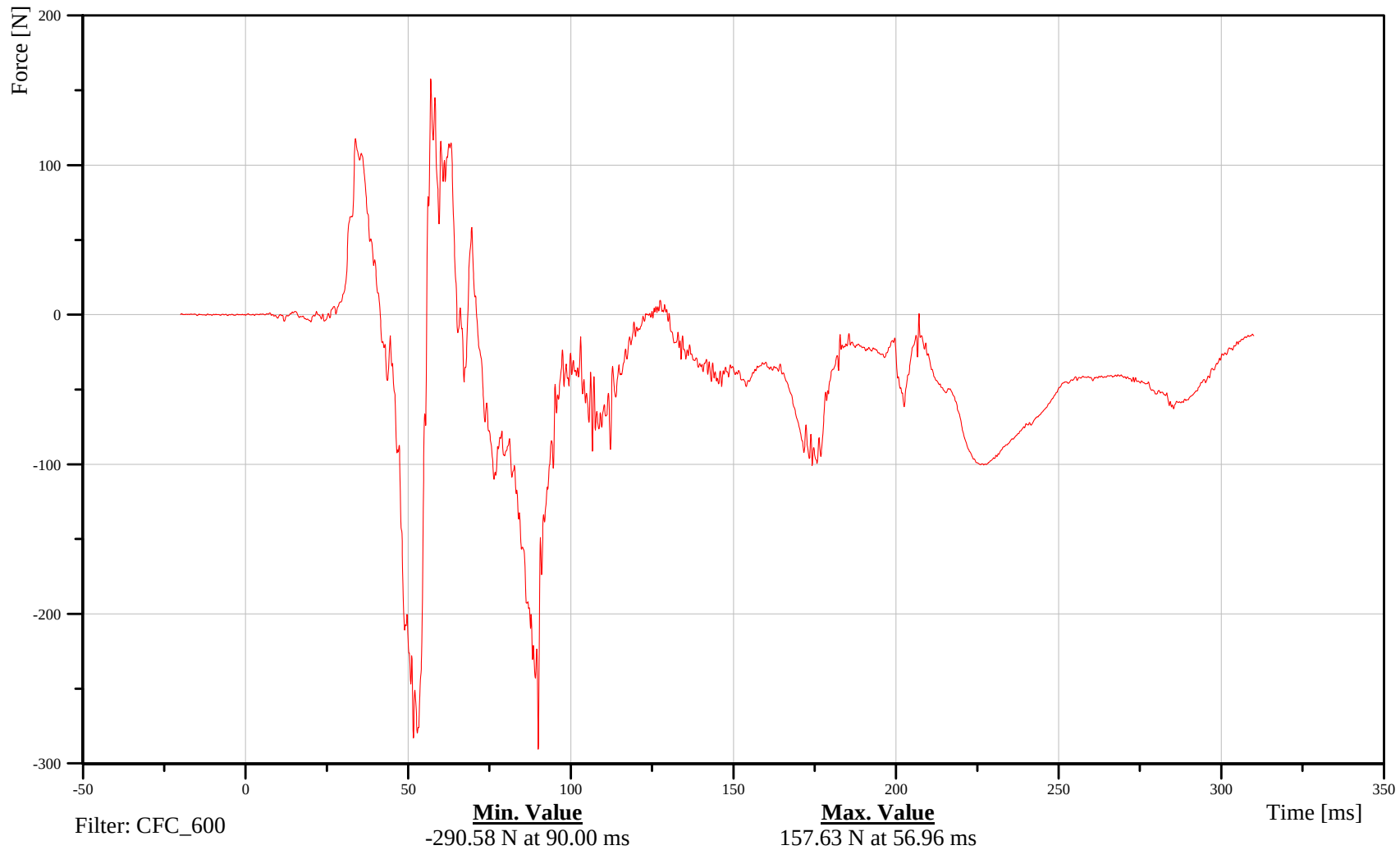
Target Vehicle Driver Right Lower Tibia Y-Axis Force

Customer: VRTC

21TIBIRLLXH3FOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-287

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

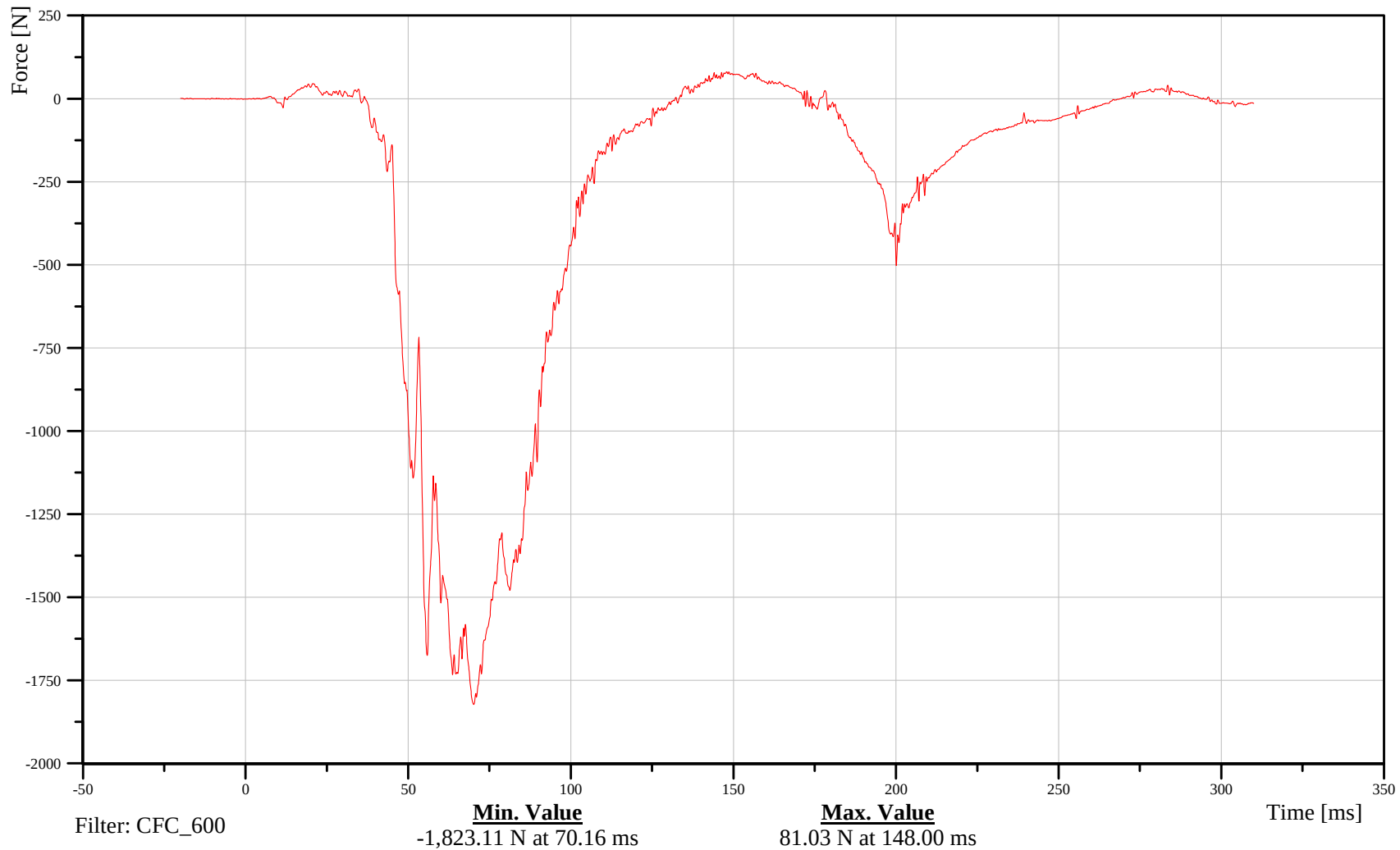
Target Vehicle Driver Right Lower Tibia Z-Axis Force

Customer: VRTC

21TIBIRLLXH3FOZB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-288

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver Right Lower Tibia Moment About X Axis

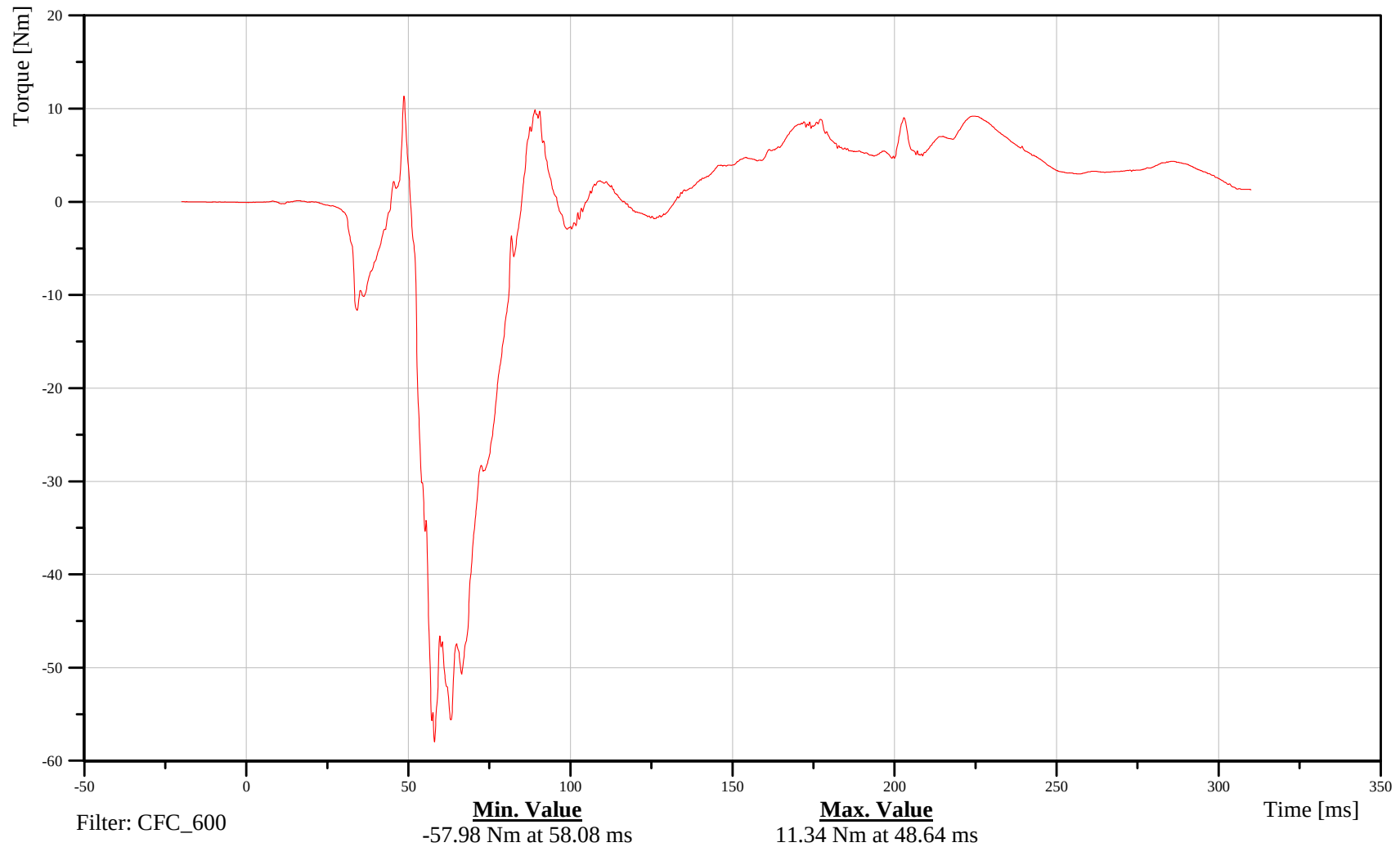
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21TIBIRLLXH3MOXB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-289

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver Right Lower Tibia Moment About Y Axis

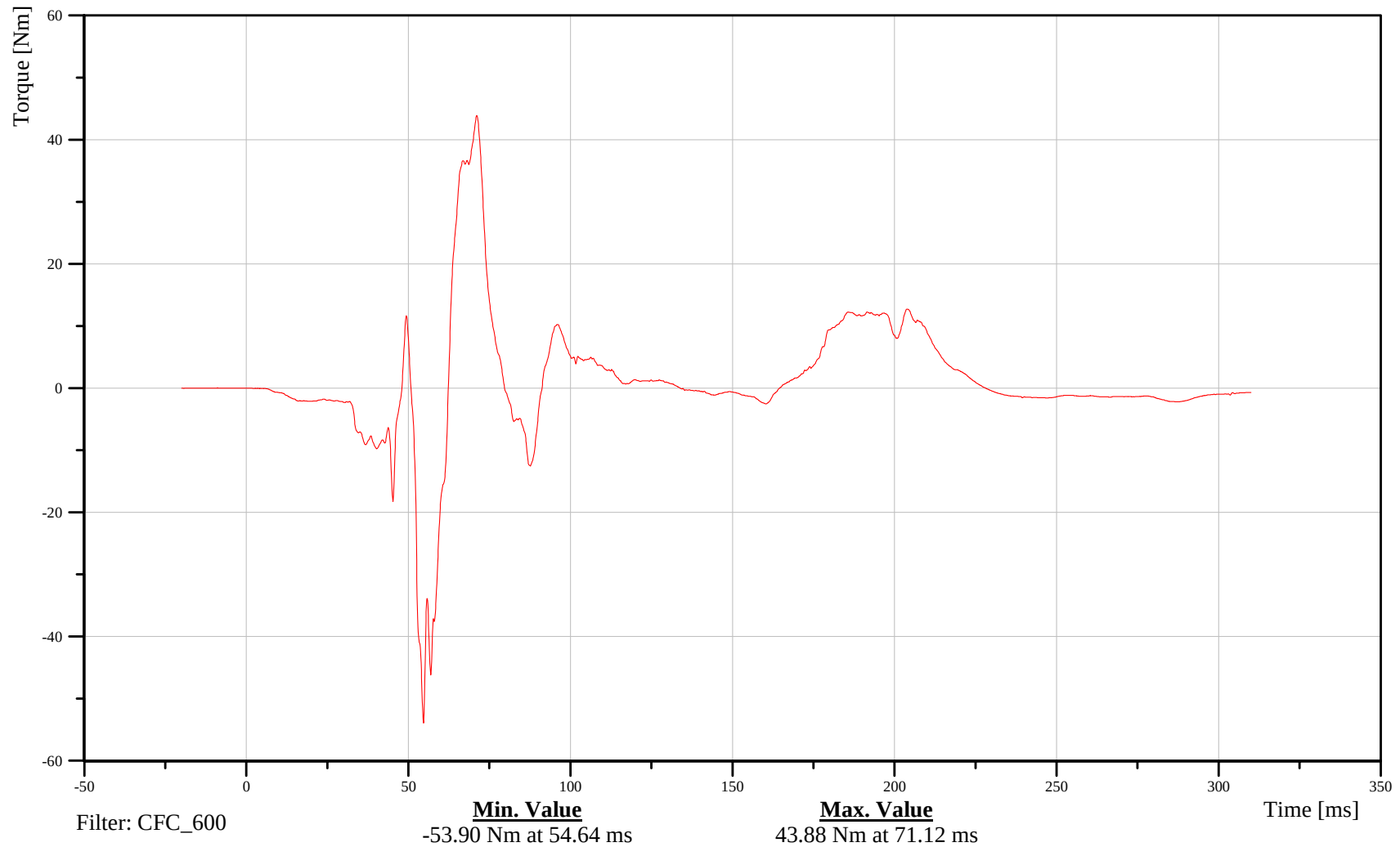
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21TIBIRLLXH3MOYB

TRC Inc. Test Lab: CTF

Test Number: 101207



B-290

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

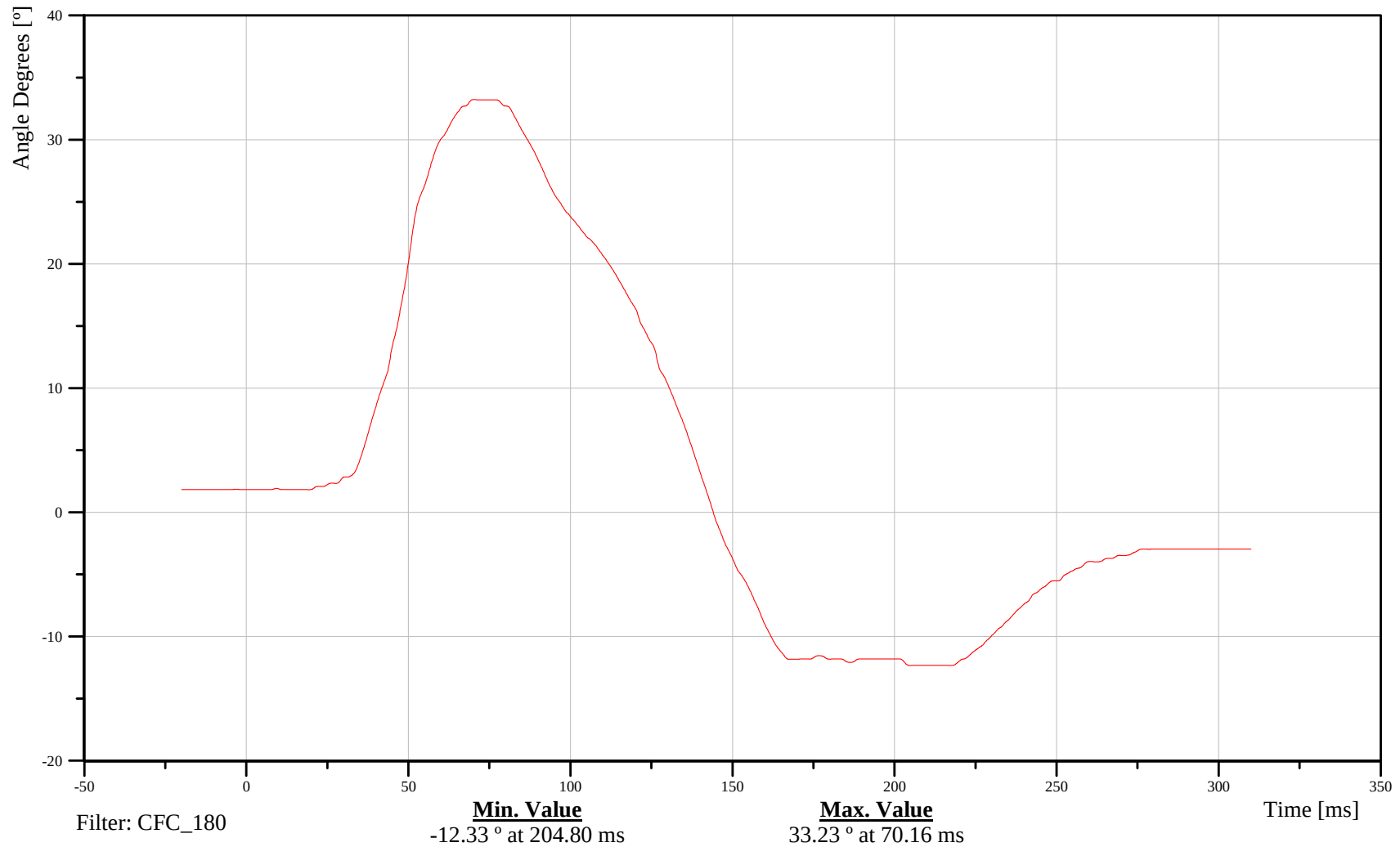
Target Vehicle Driver Right Foot Angular X-Axis Displacement

Customer: VRTC

21FOOTRILXH3ANXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-291

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver Right Foot Angular Y-Axis Displacement

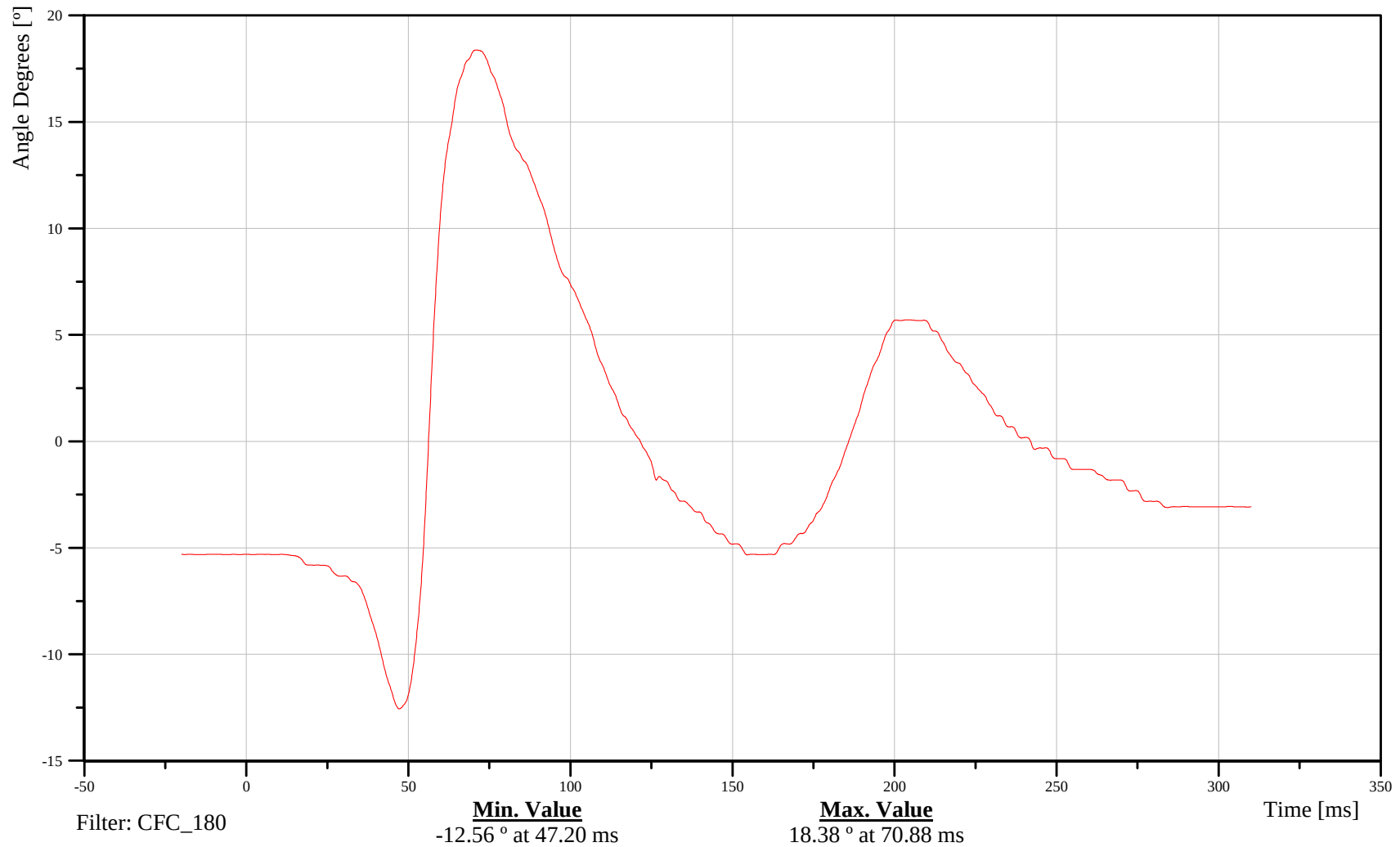
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21FOOTRILXH3ANYC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-292

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver Right Foot Angular Z-Axis Displacement

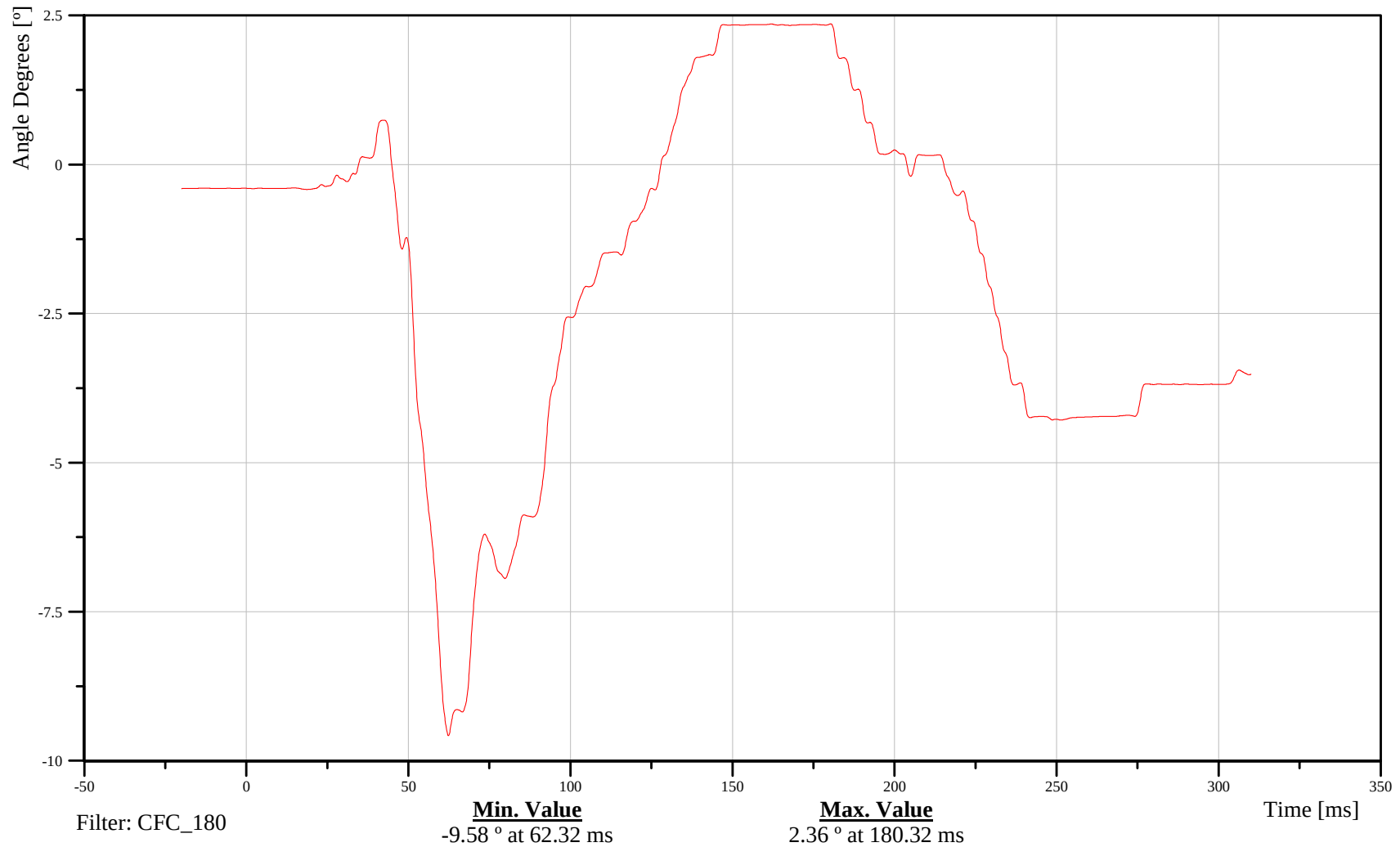
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21FOOTRILXH3ANZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-293

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

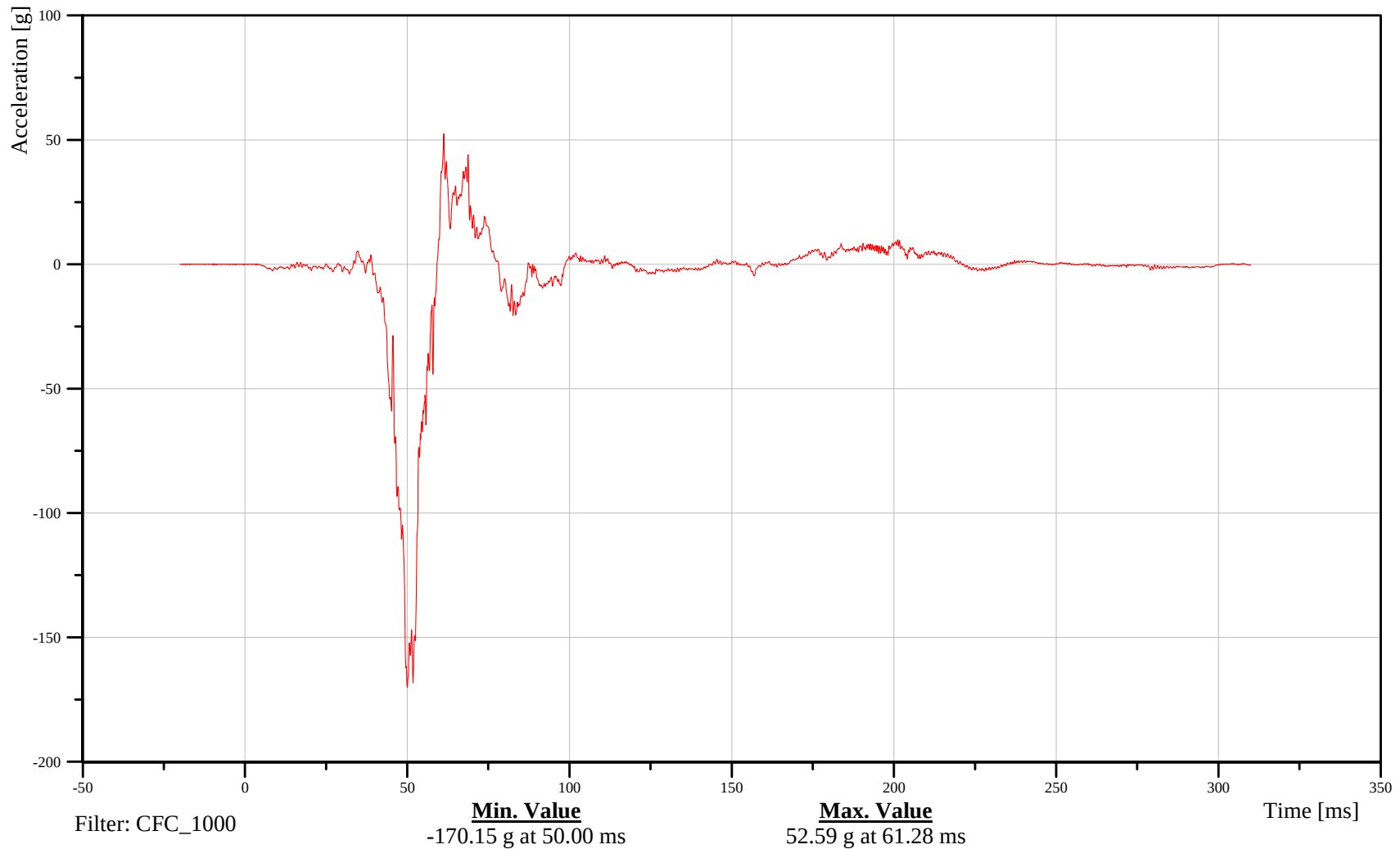
Target Vehicle Driver Right Foot X-Axis Acceleration

Customer: VRTC

21FOOTRILXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-294

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

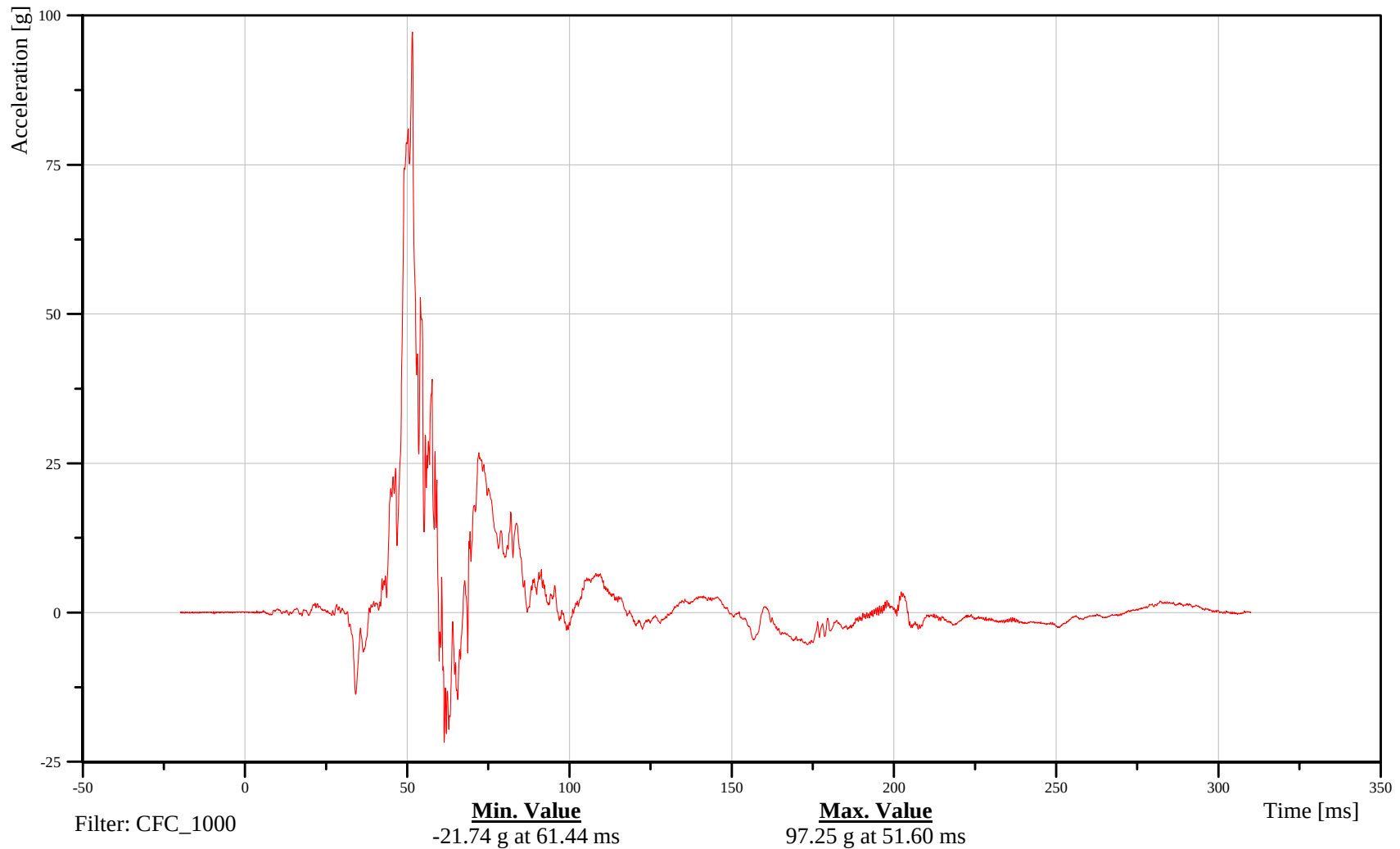
Target Vehicle Driver Right Foot Y-Axis Acceleration

Customer: VRTC

21FOOTRILXH3ACYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-295

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

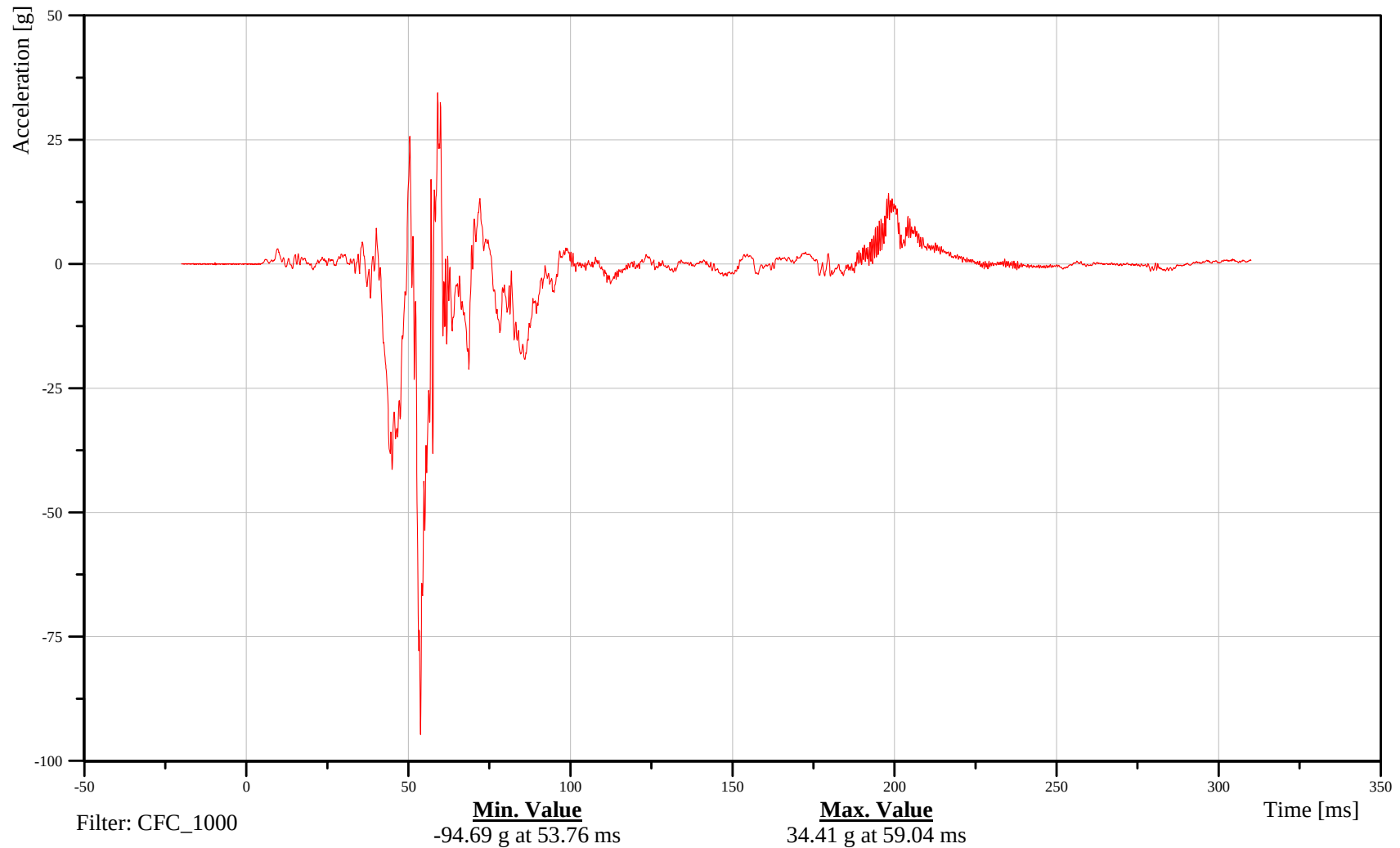
Target Vehicle Driver Right Foot Z-Axis Acceleration

Customer: VRTC

21FOOTRILXH3ACZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-296

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

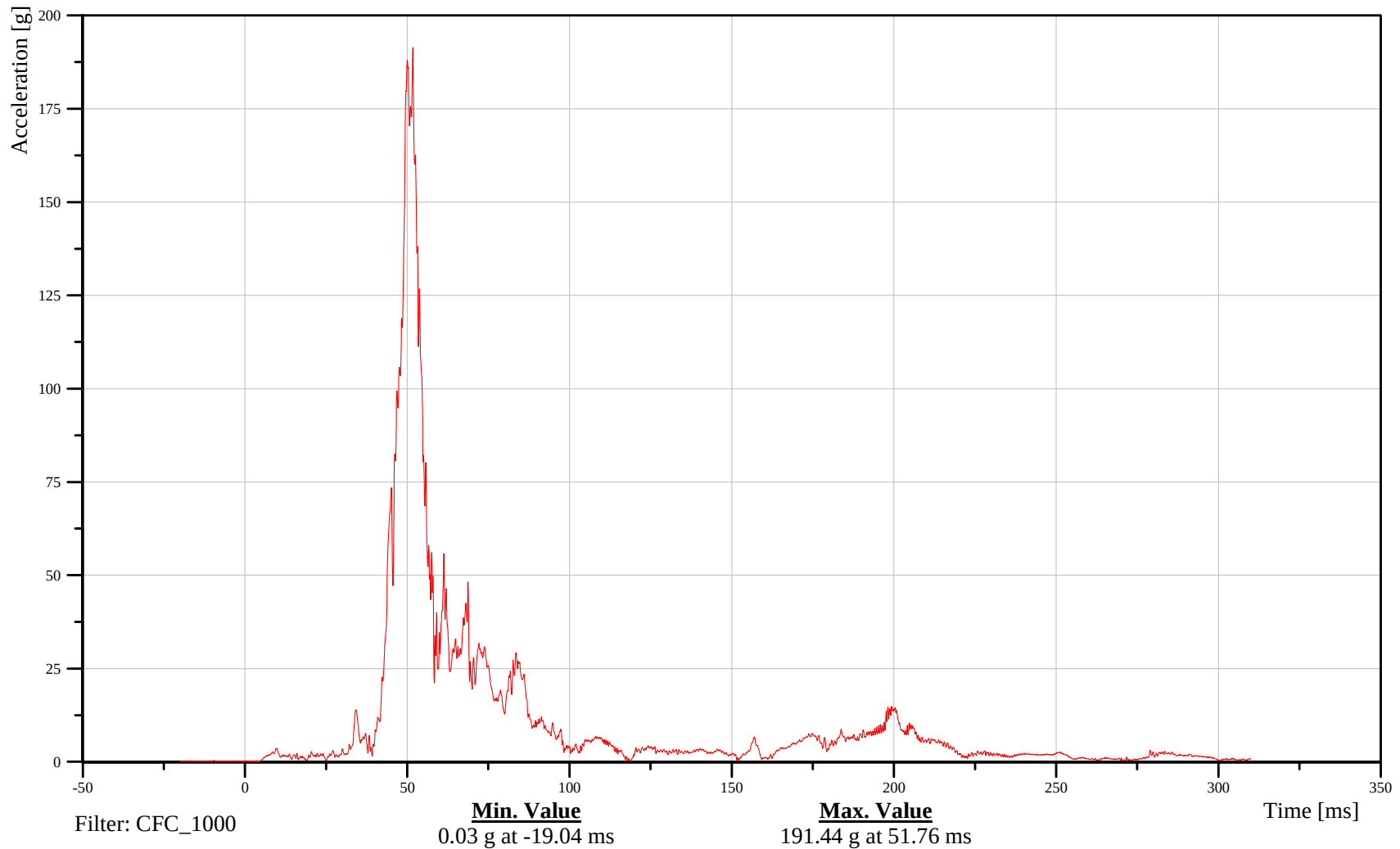
Target Vehicle Driver Right Foot Resultant Acceleration

Customer: VRTC

21FOOTRILXH3ACRA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-297

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

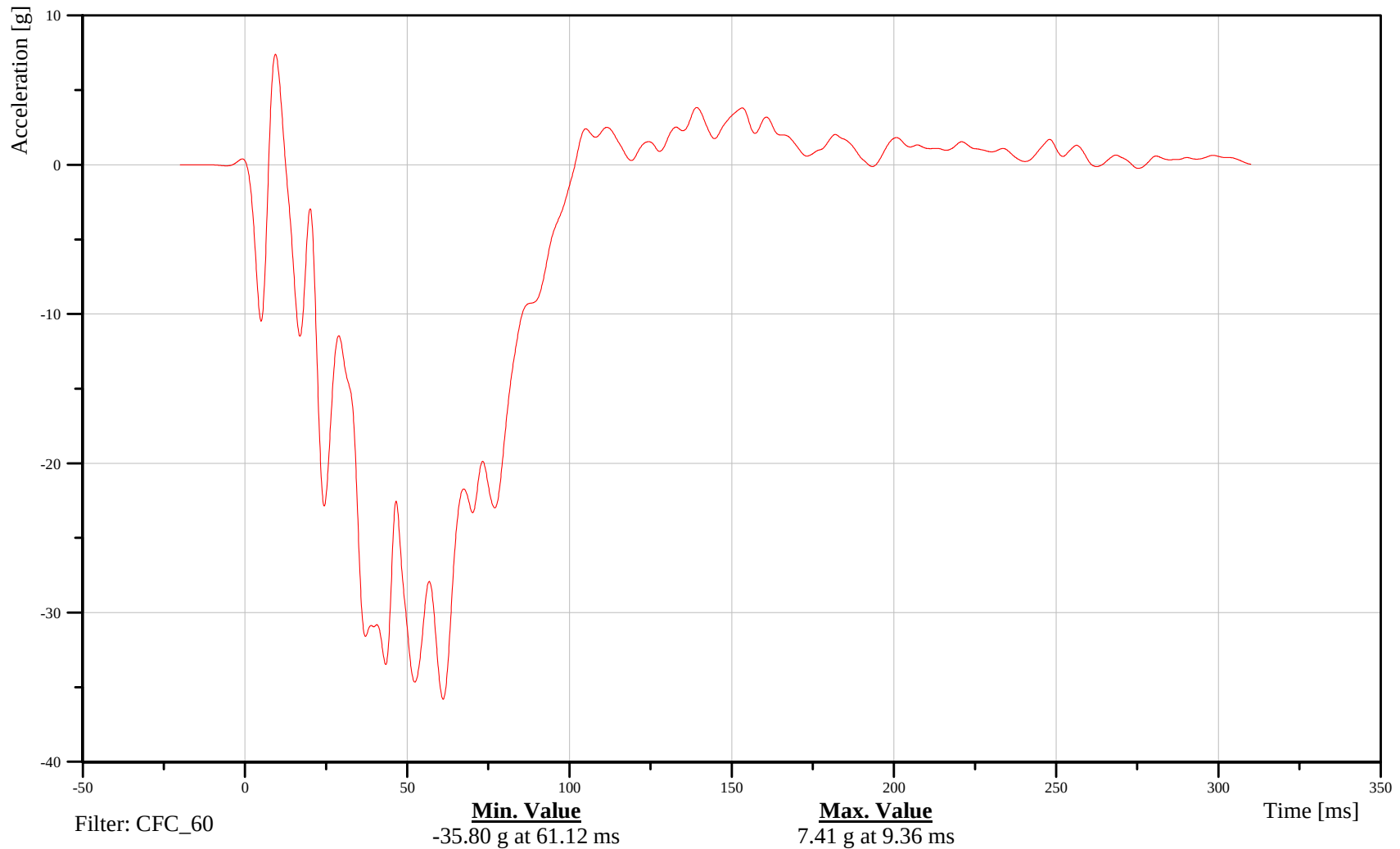
Target Vehicle Left Sill X-Axis Acceleration

Customer: VRTC

20SILLE0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-298

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Left Sill Y-Axis Acceleration

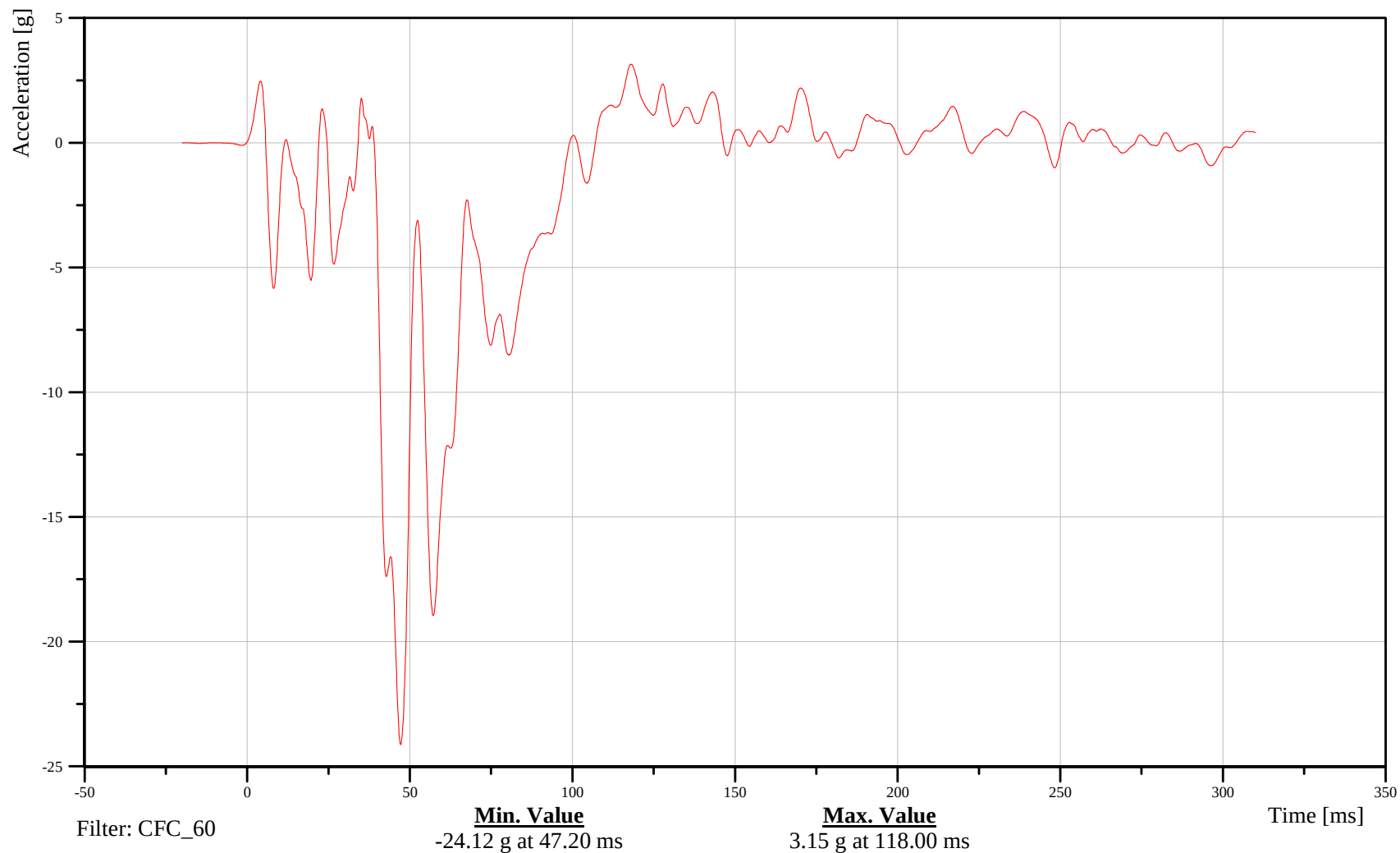
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

20SILLLE0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-299

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

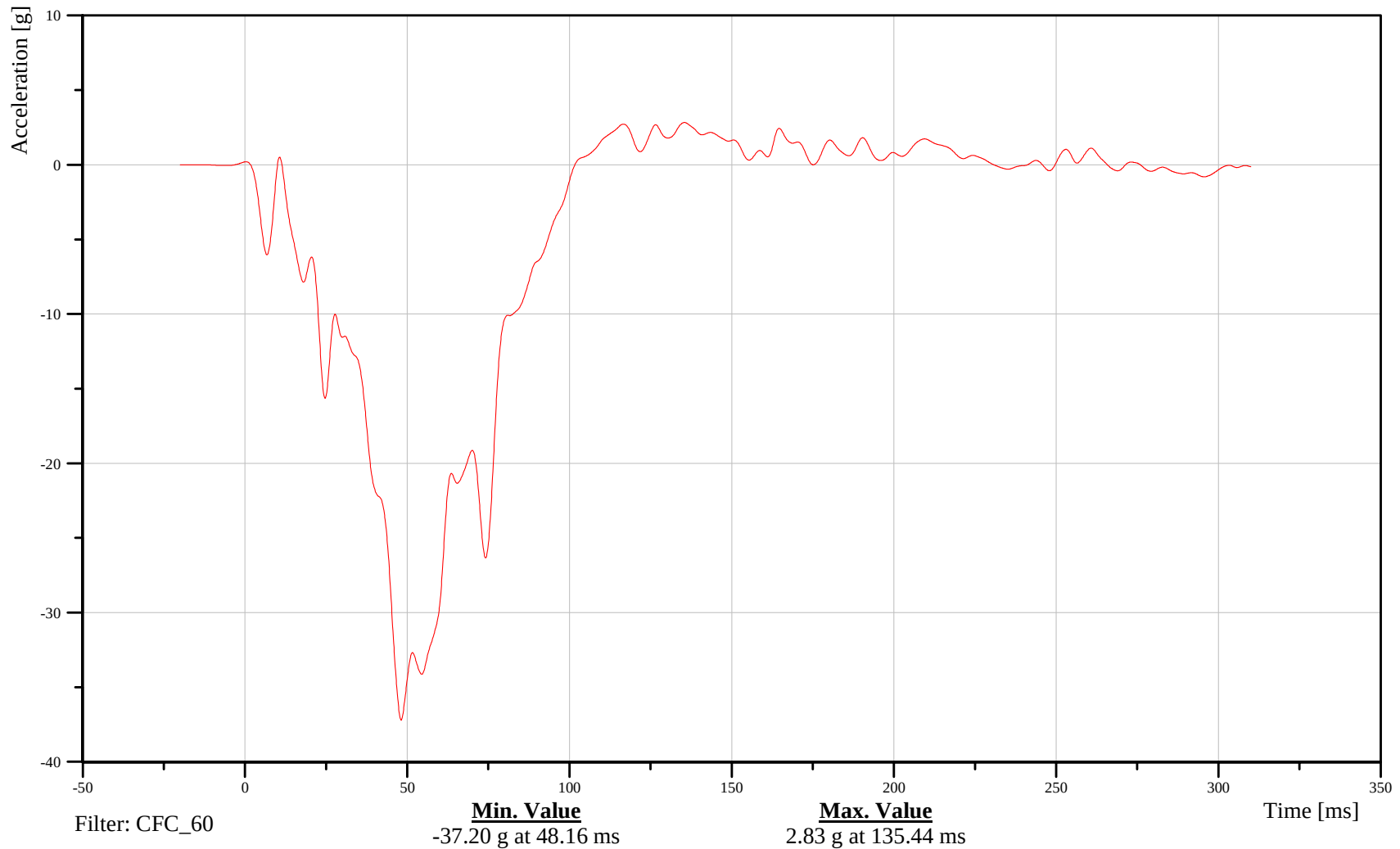
Target Vehicle Right Sill X-Axis Acceleration

Customer: VRTC

20SILLRI0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-300

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

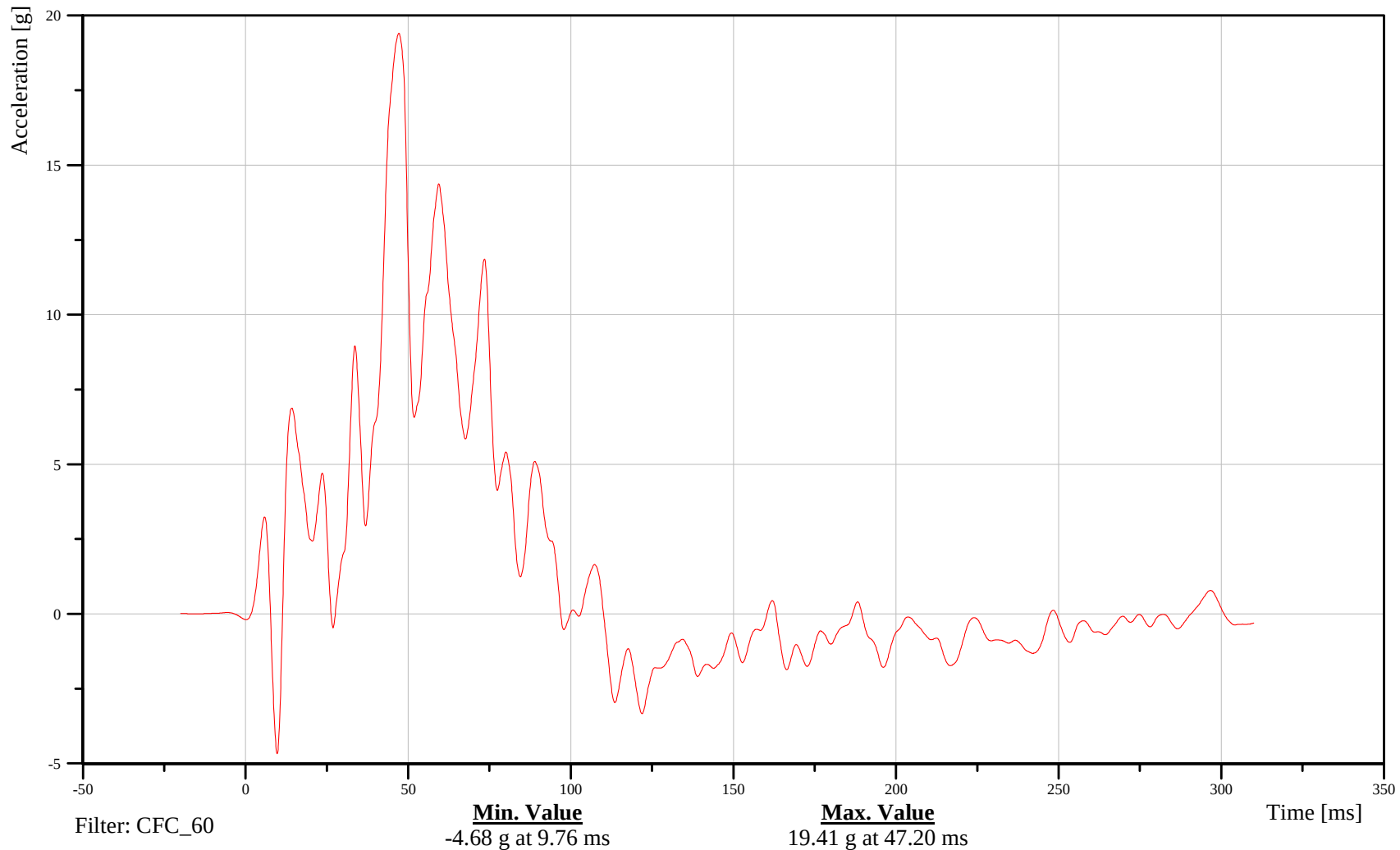
Target Vehicle Right Sill Y-Axis Acceleration

Customer: VRTC

20SILLRI0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-301

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

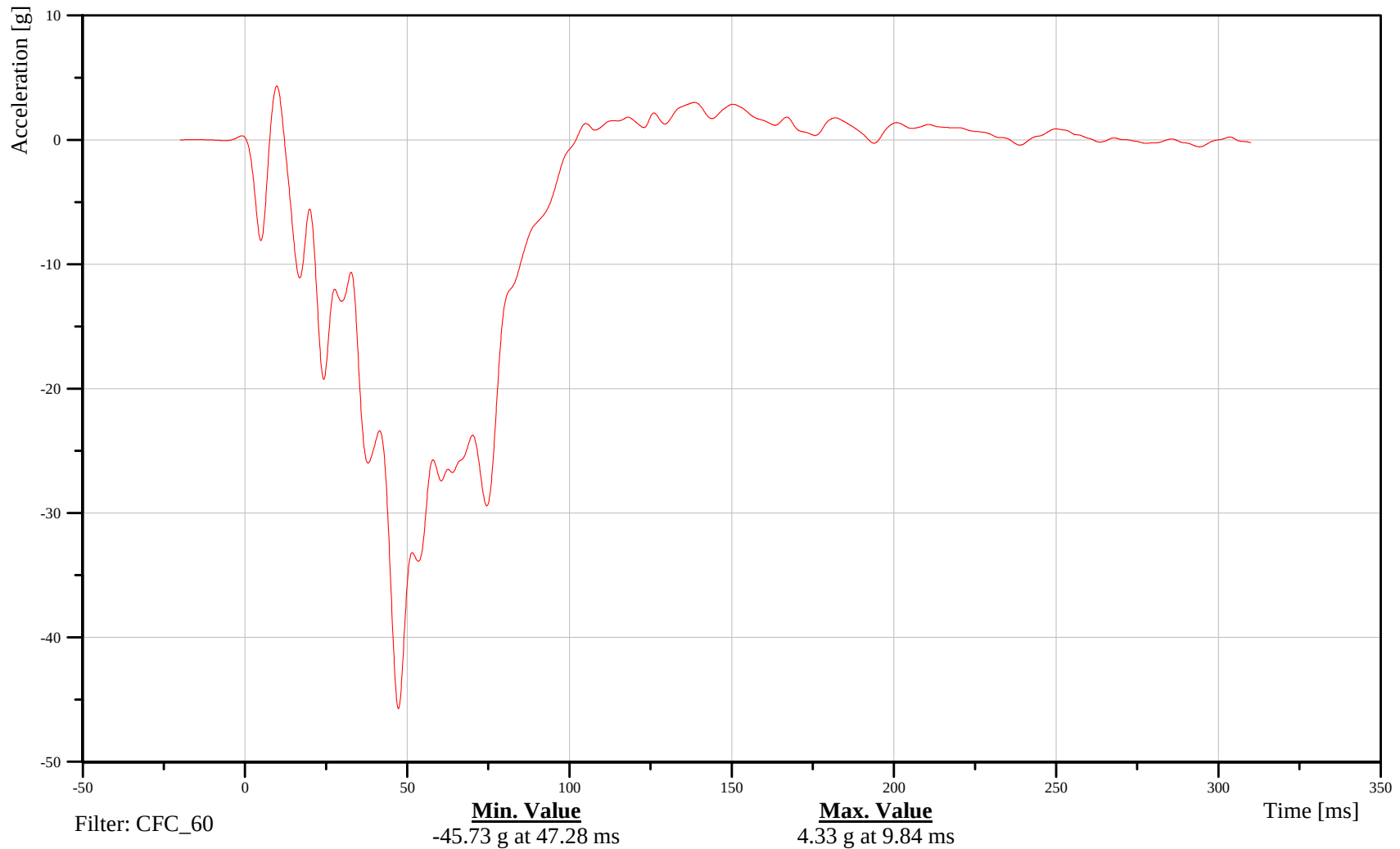
Target Vehicle Vehicle Center of Gravity X-Axis Acceleration

Customer: VRTC

20VEHCCG0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-302

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

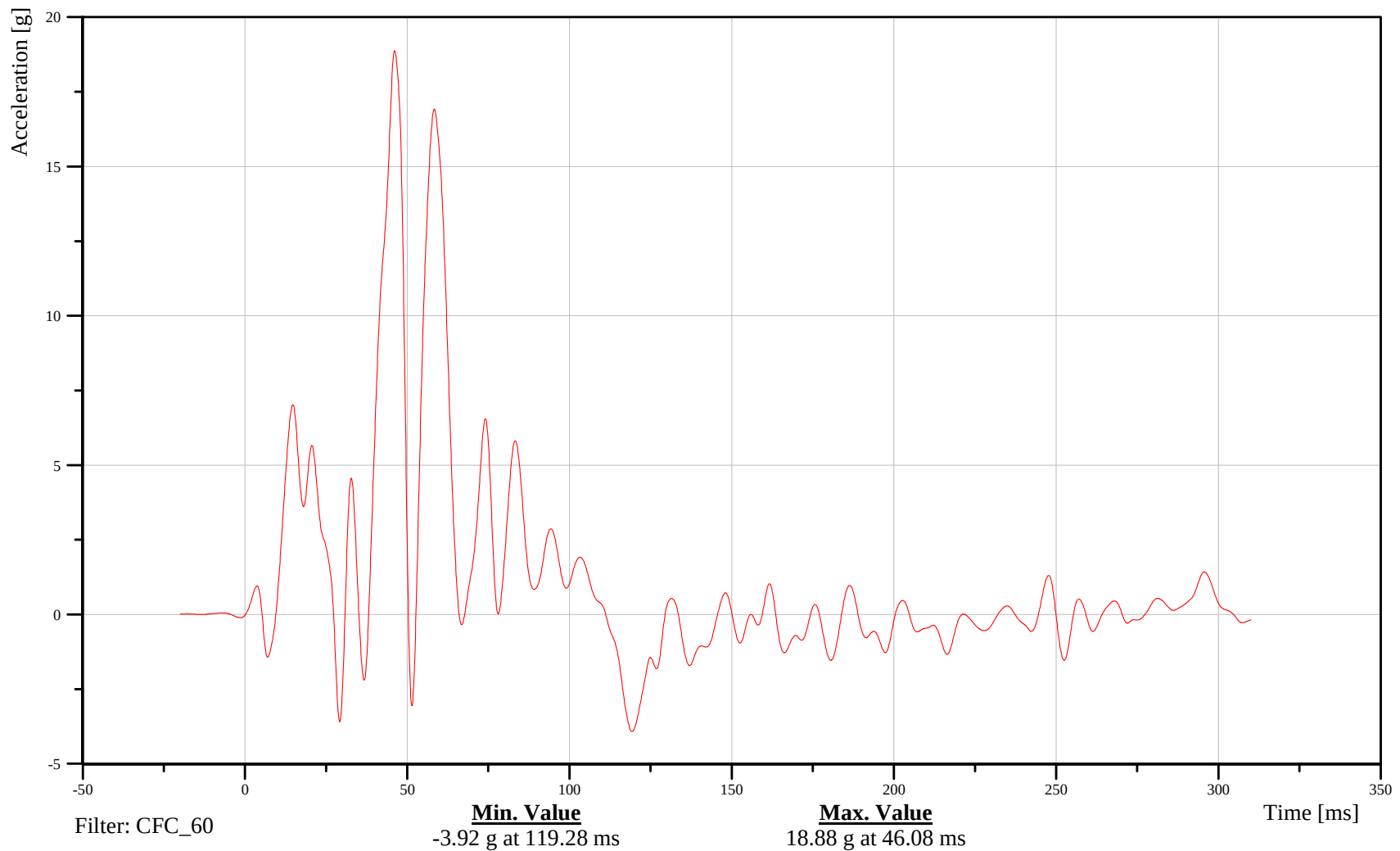
Target Vehicle Vehicle Center of Gravity Y-Axis Acceleration

Customer: VRTC

20VEHCCG0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-303

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

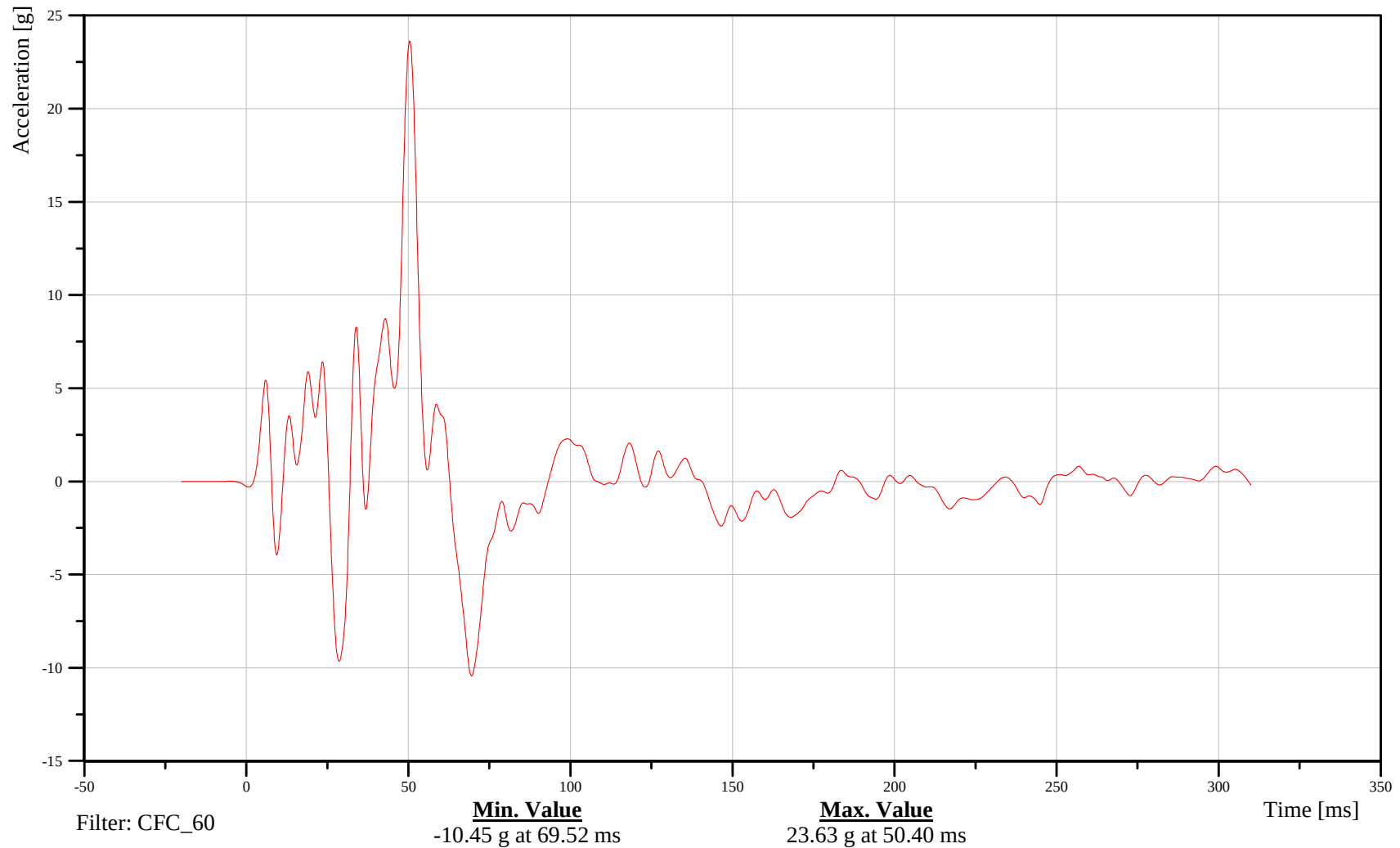
Target Vehicle Vehicle Center of Gravity Z-Axis Acceleration

Customer: VRTC

20VEHCCG0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-304

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

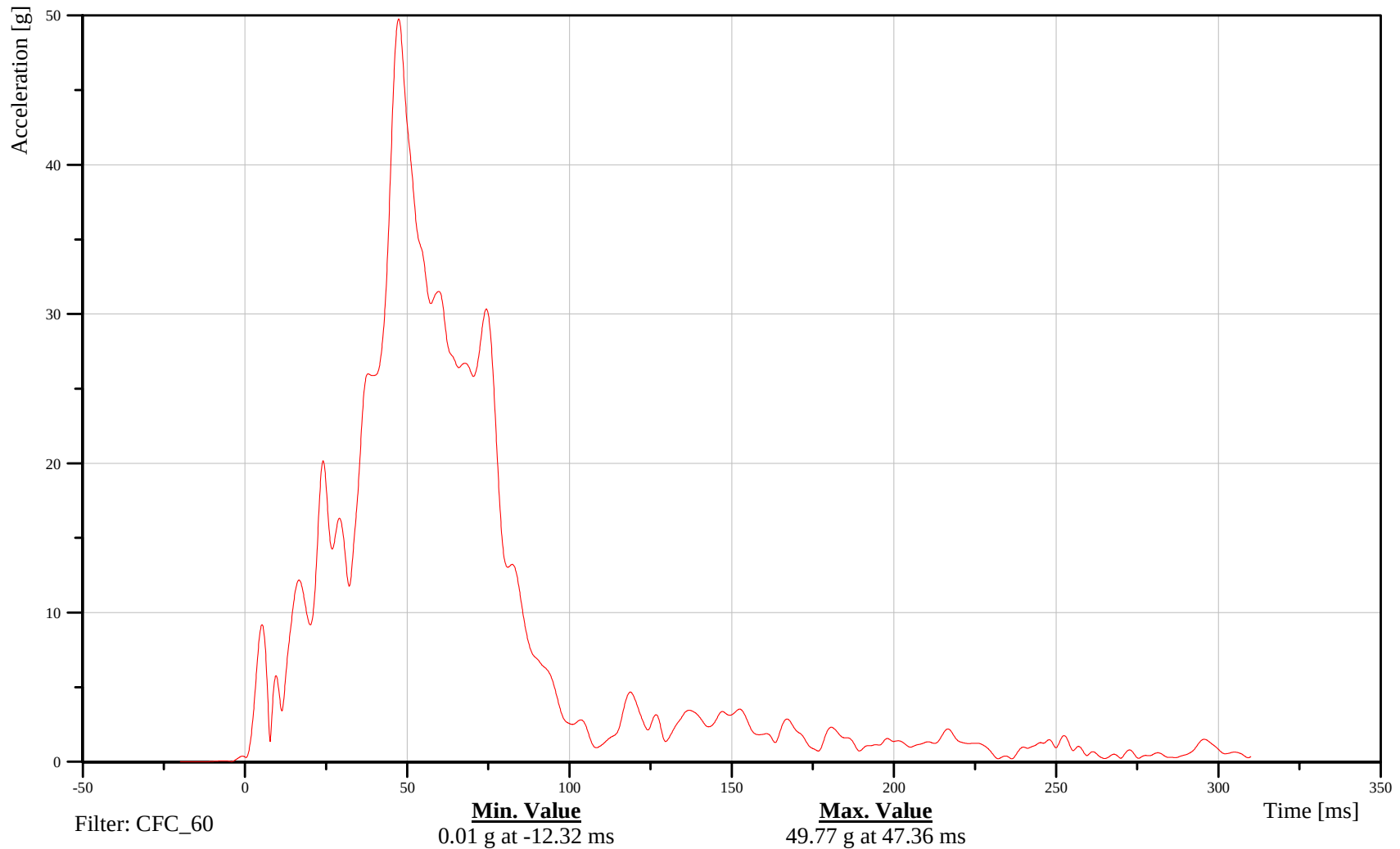
Target Vehicle Vehicle Center of Gravity Resultant Acceleration

Customer: VRTC

20VEHCCG0000ACRD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-305

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

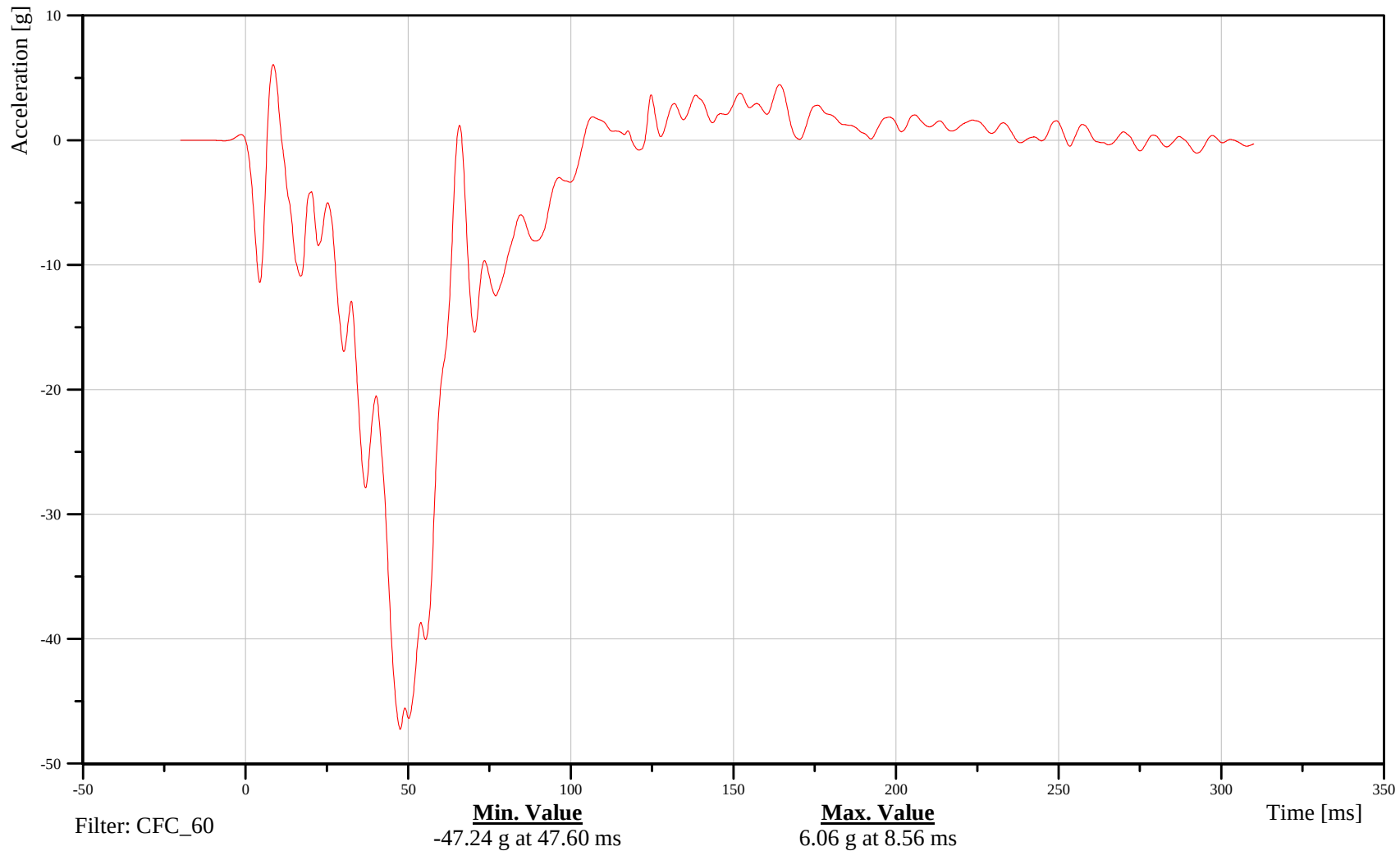
Target Vehicle Driver Footrest X-Axis Acceleration

Customer: VRTC

20FOOTLE0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-306

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

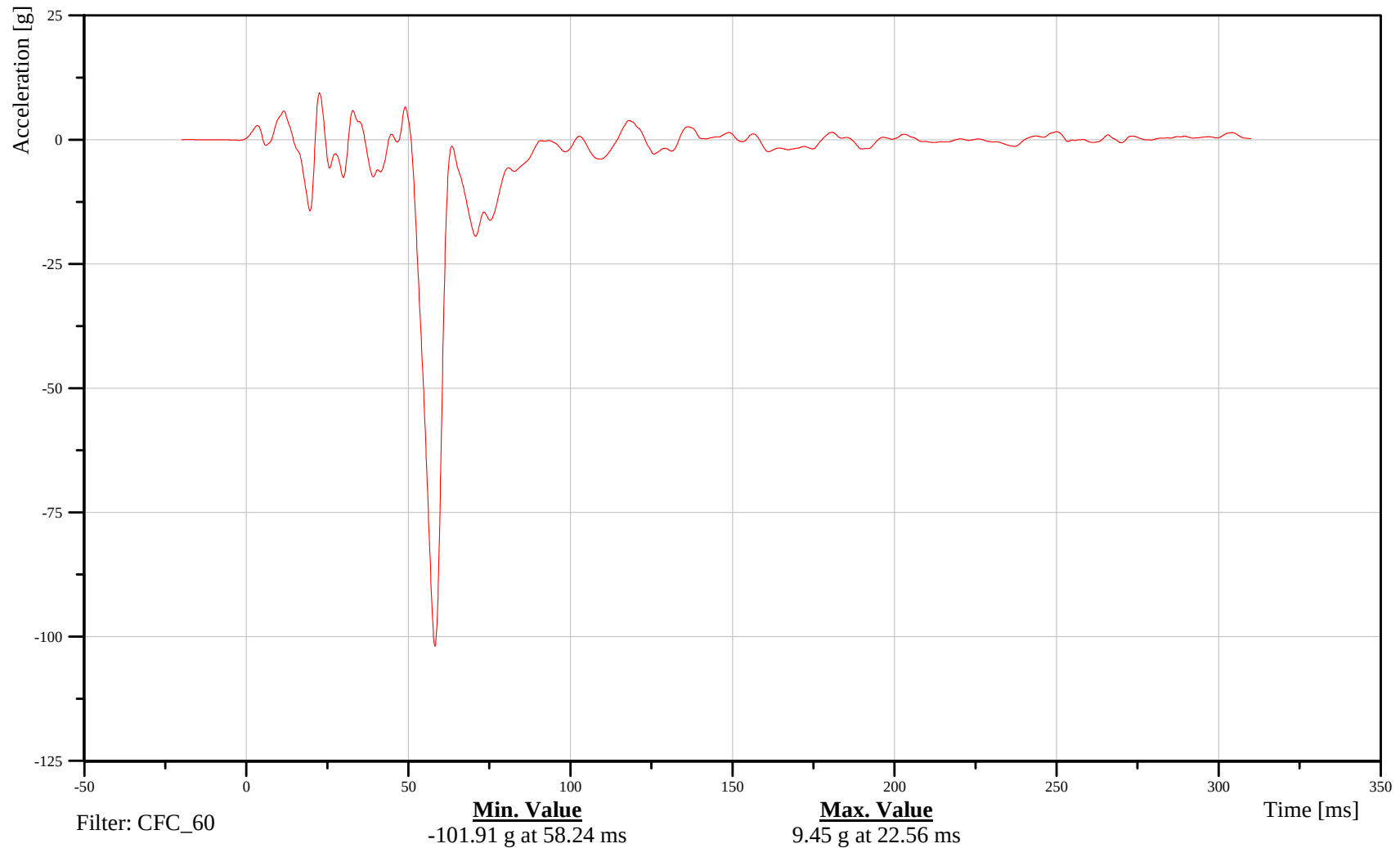
Target Vehicle Driver Footrest Z-Axis Acceleration

Customer: VRTC

20FOOTLE0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-307

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

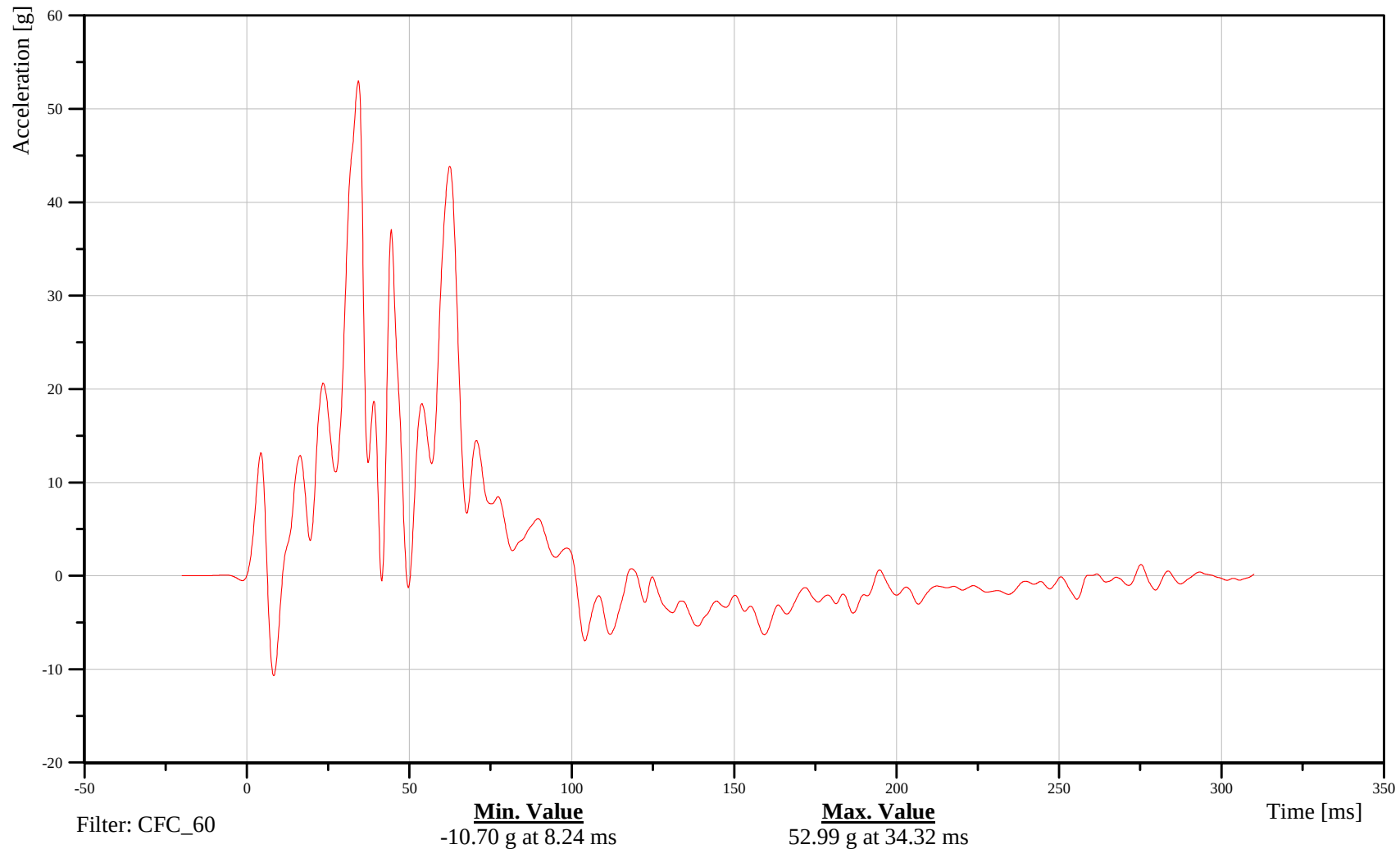
Target Vehicle Toepan Behind Center of Accelerator X-Axis Acceleration

Customer: VRTC

20TPANLE0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-308

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

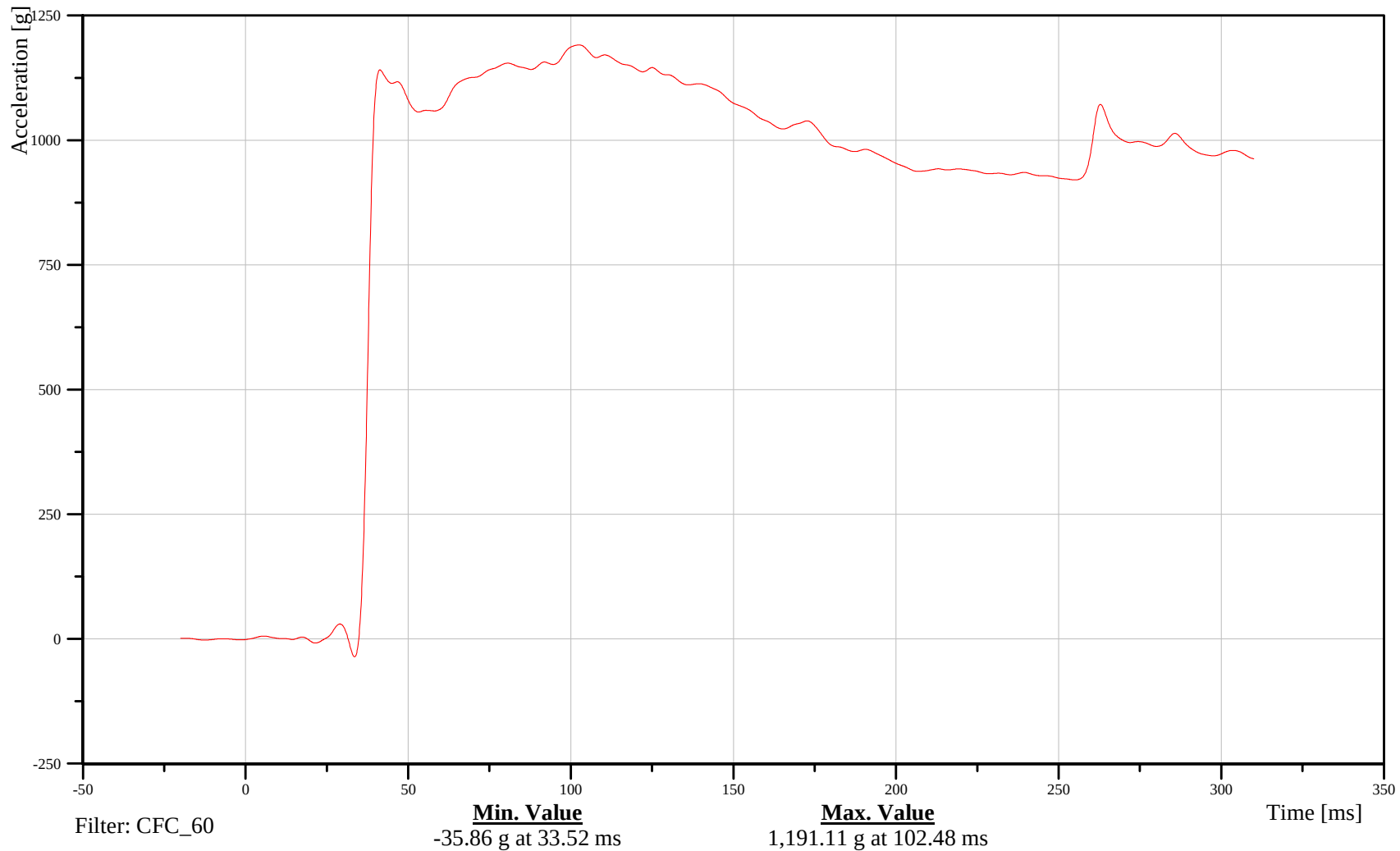
Target Vehicle Toepan Behind Center of Accelerator Z-Axis Acceleration

Customer: VRTC

20TPANLE0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 101207



B-309

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

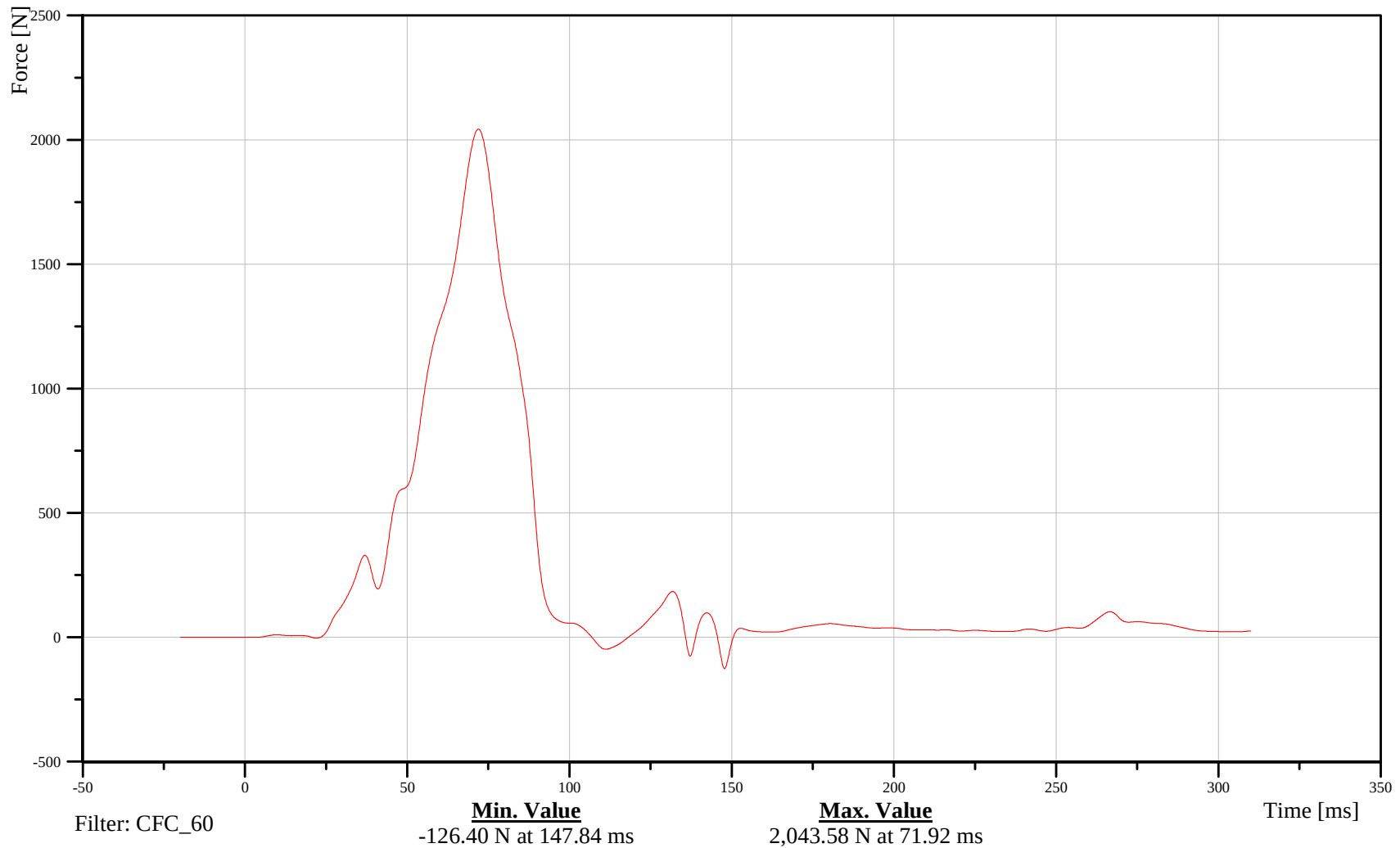
Target Vehicle Driver Lap Belt Force

Customer: VRTC

21SEBE0000B5FO0D

TRC Inc. Test Lab: CTF

Test Number: 101207



B-310

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

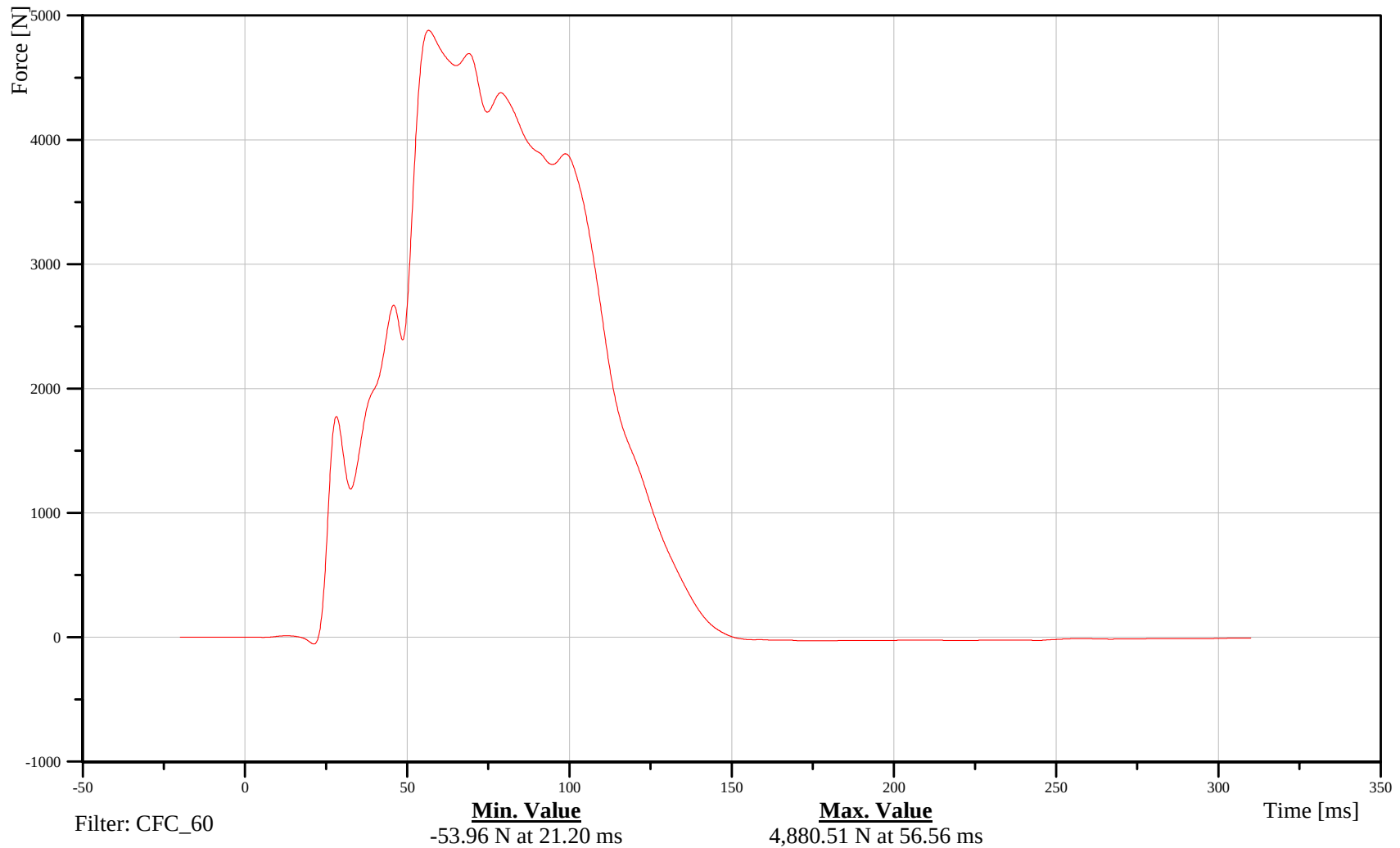
Target Vehicle Driver Shoulder Belt Force

Customer: VRTC

21SEBE0000B3FO0D

TRC Inc. Test Lab: CTF

Test Number: 101207



B-311

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

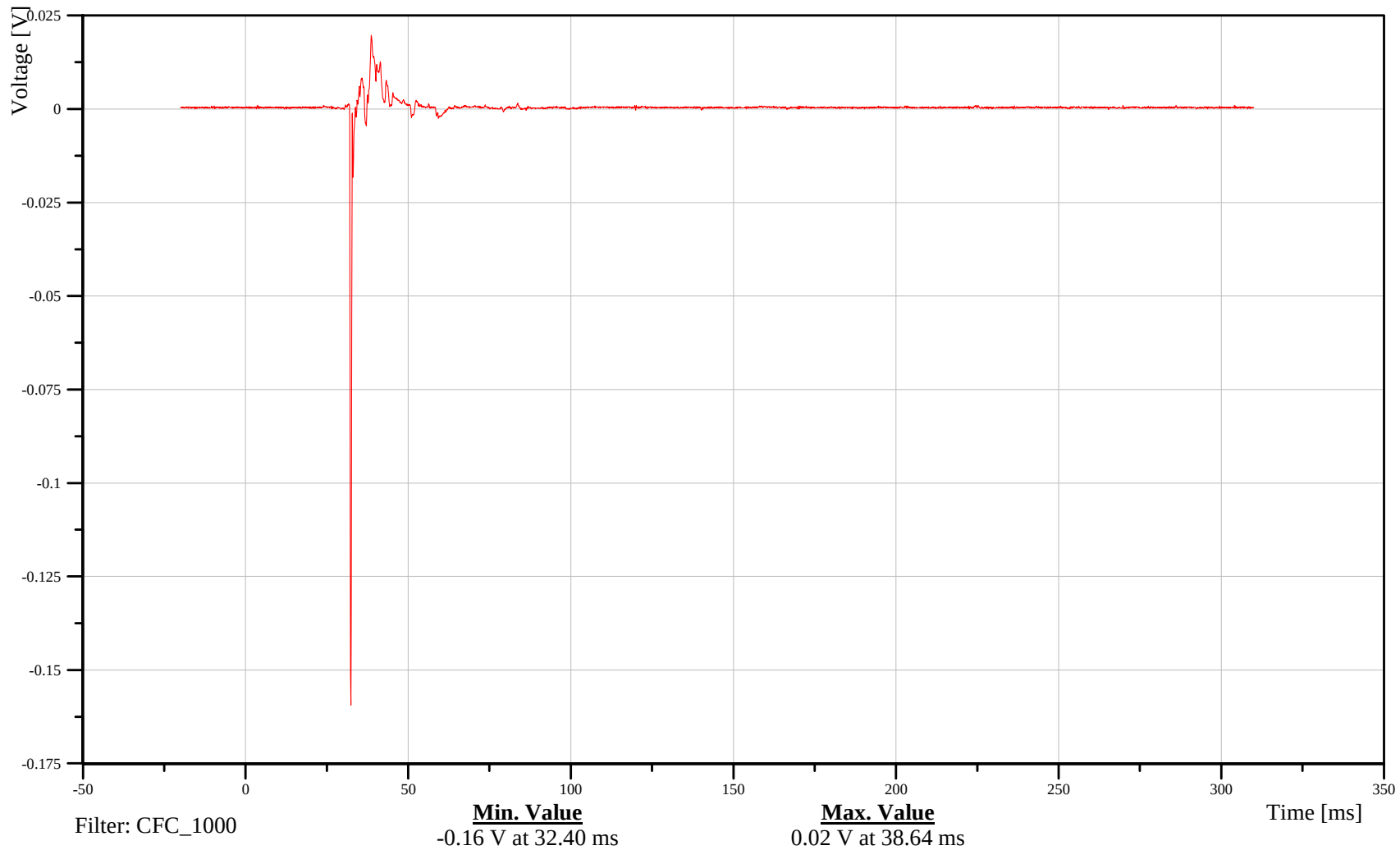
Target Vehicle Driver Airbag 1st Stage Fire Time

Customer: VRTC

20AIRBLEFR25VO0A

TRC Inc. Test Lab: CTF

Test Number: 101207



B-312

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

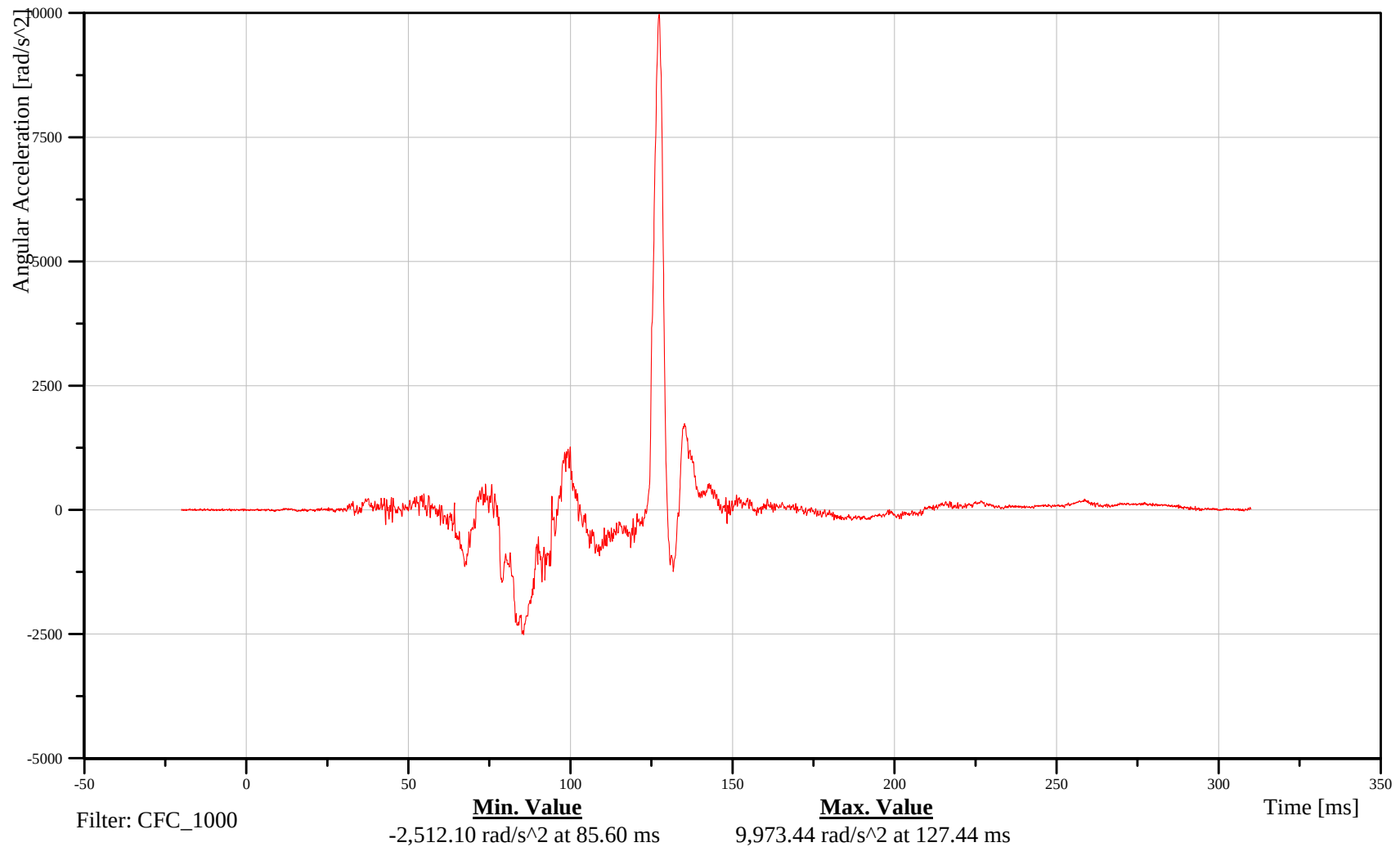
Calculated Head Angular X-Axis

Customer: VRTC

21HEAD0000THAAXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-313

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

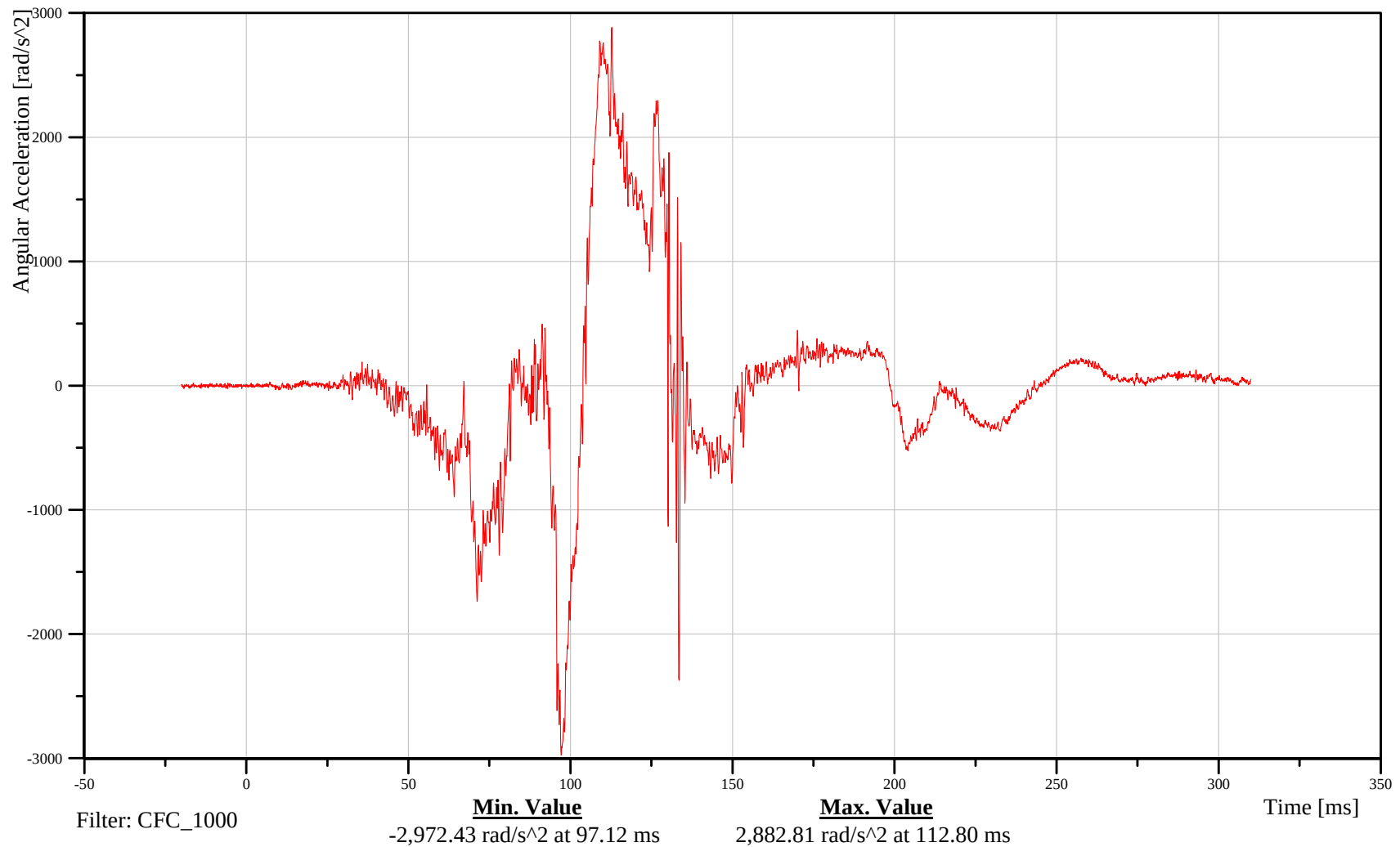
Calculated Head Angular Y-Axis

Customer: VRTC

21HEAD0000THAAYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-314

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

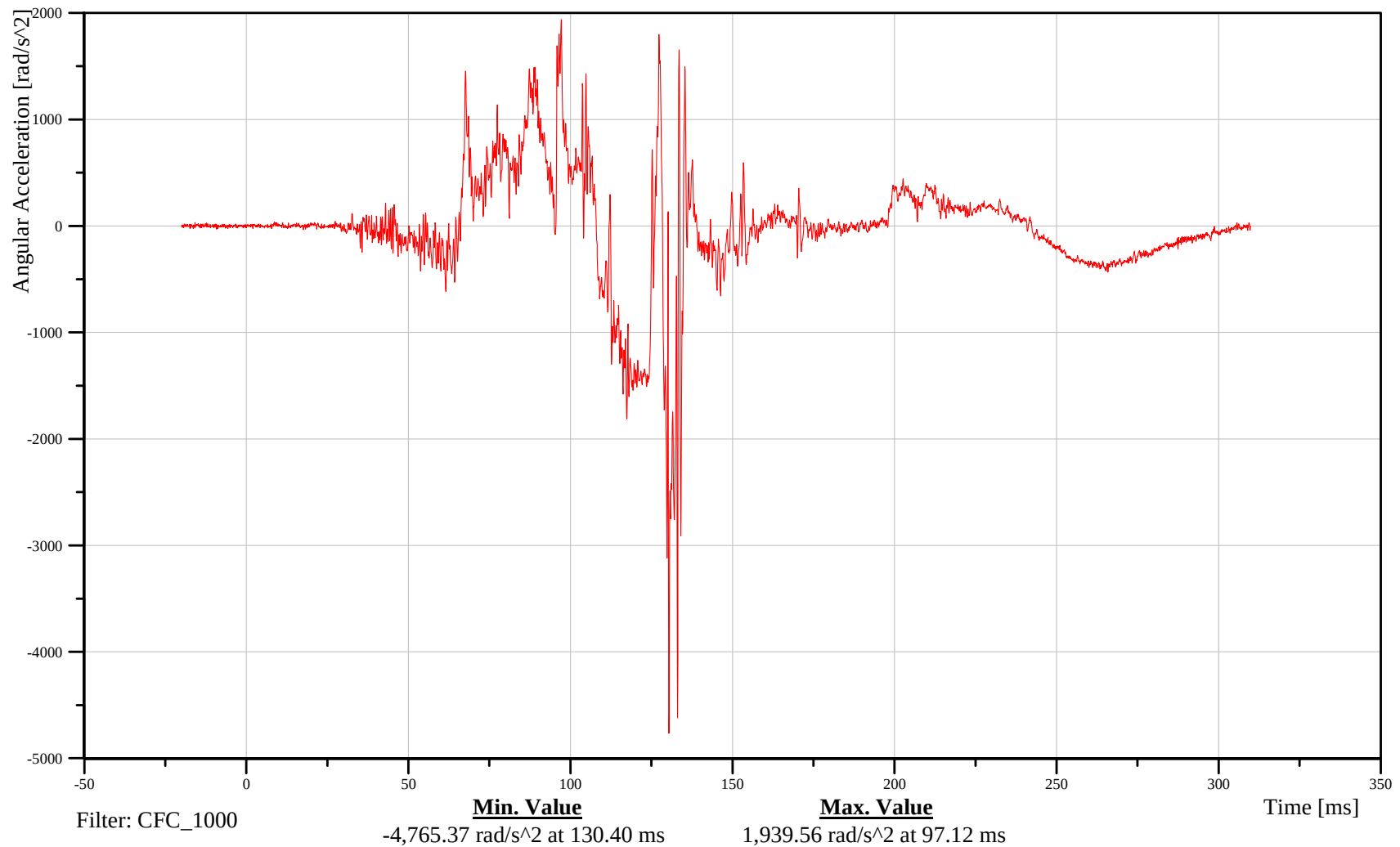
Calculated Head Angular Z-Axis

Customer: VRTC

21HEAD0000THAAZA

TRC Inc. Test Lab: CTF

Test Number: 101207





Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

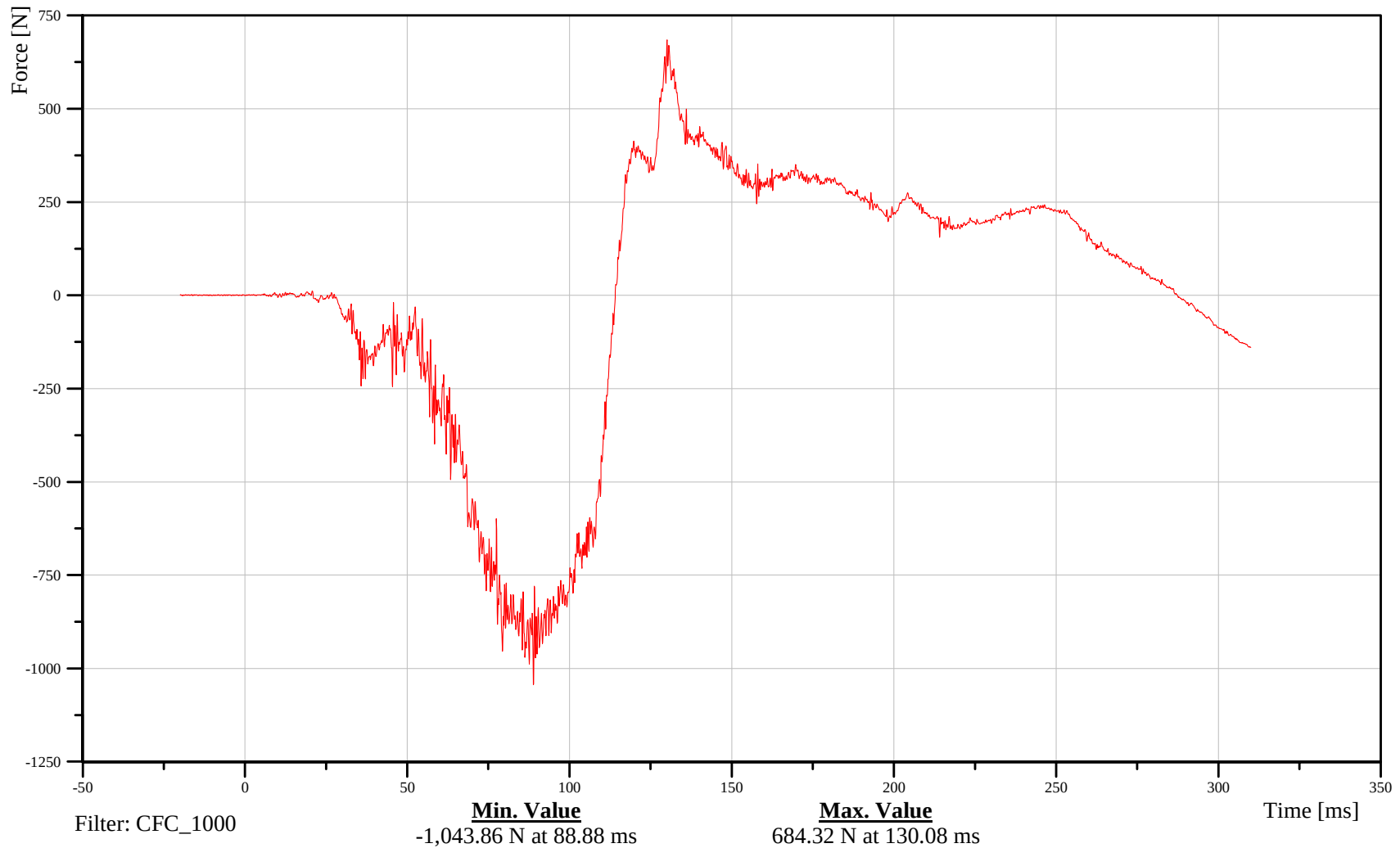
Calculated Neck Force Component X-Axis

Customer: VRTC

21NECKUPSUTHFOXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-316

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

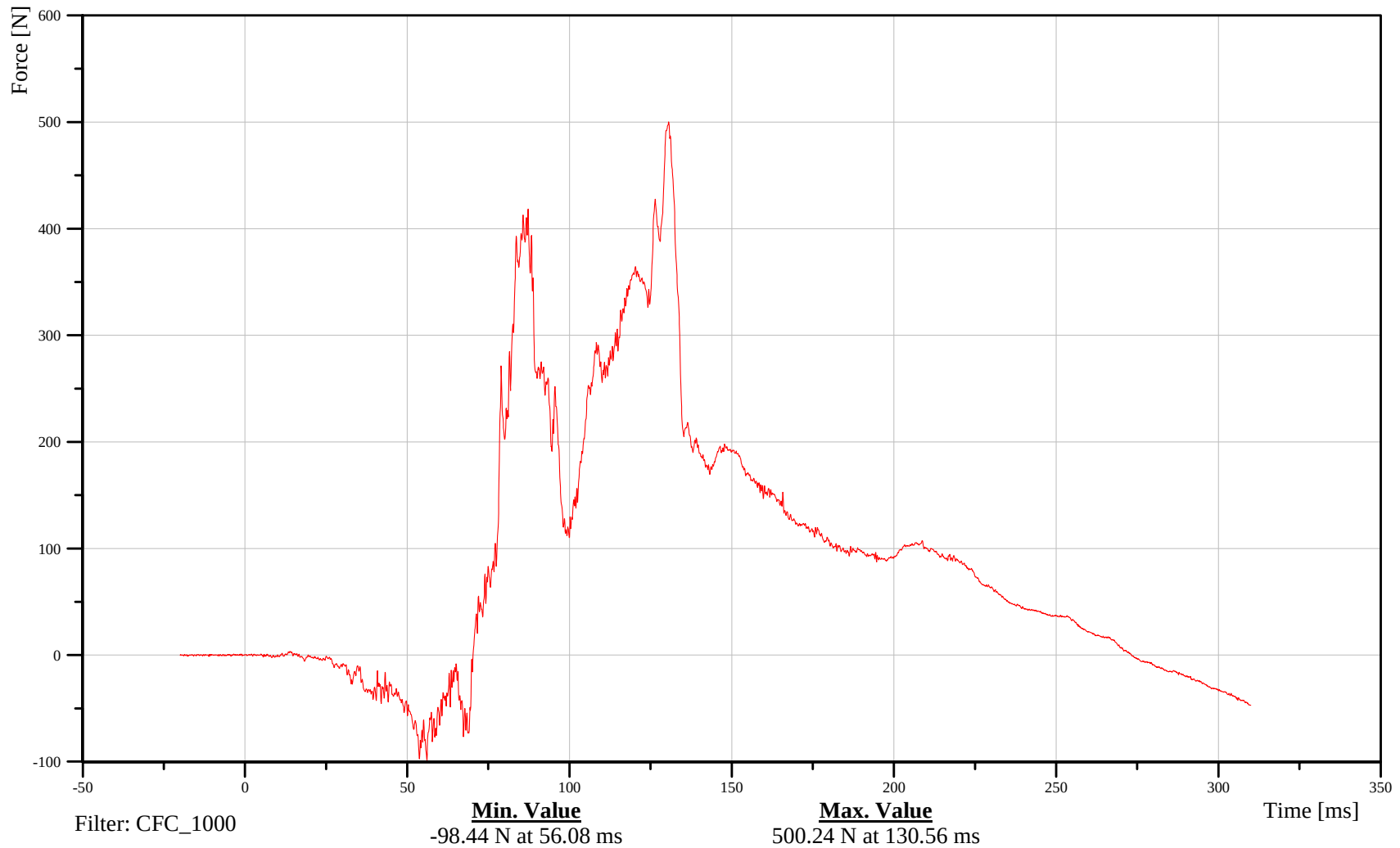
Calculated Neck Force Component Y-Axis

Customer: VRTC

21NECKUPSUTHFOYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-317

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

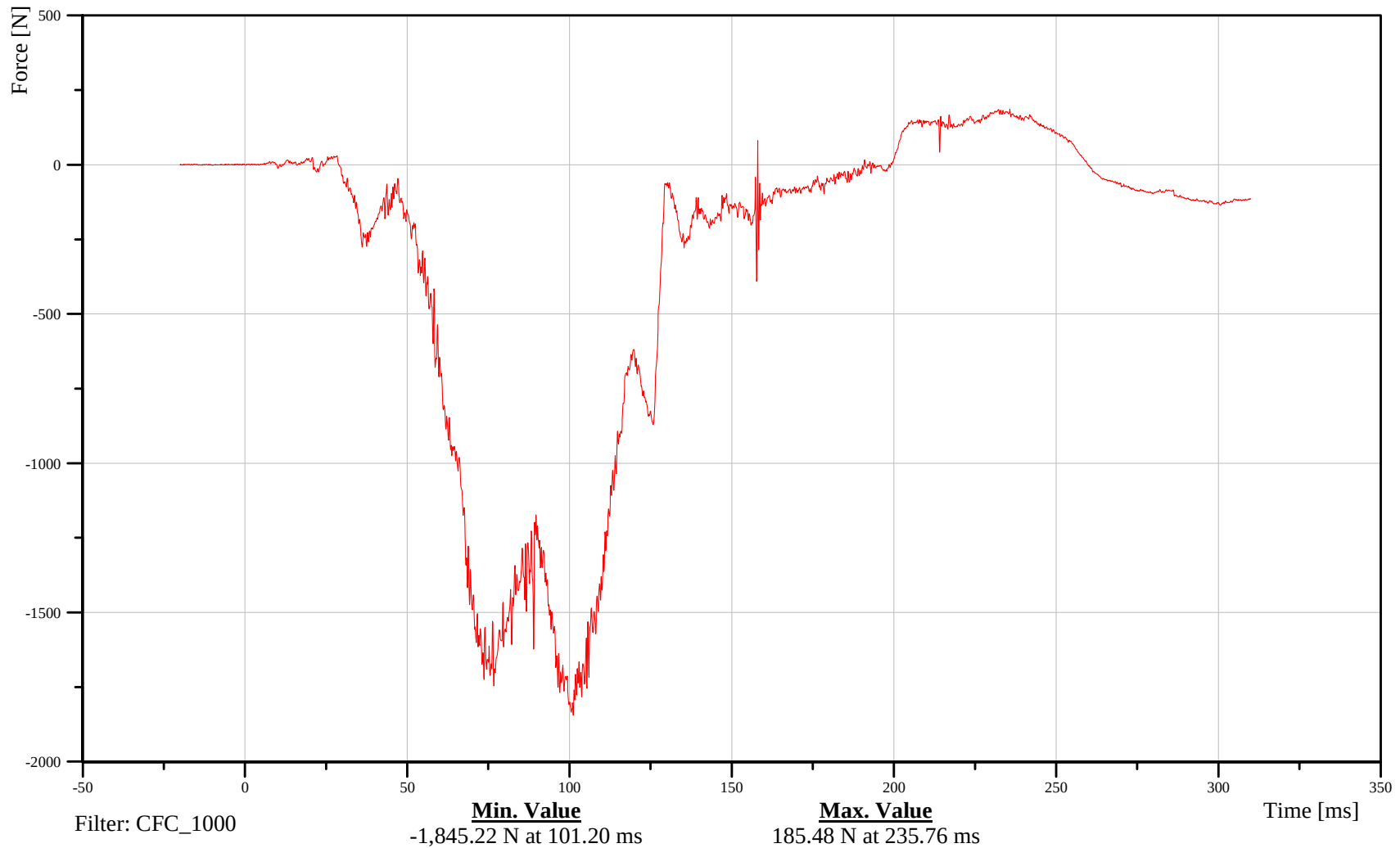
Calculated Neck Force Component Z-Axis

Customer: VRTC

21NECKUPSUTHFOZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-318

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

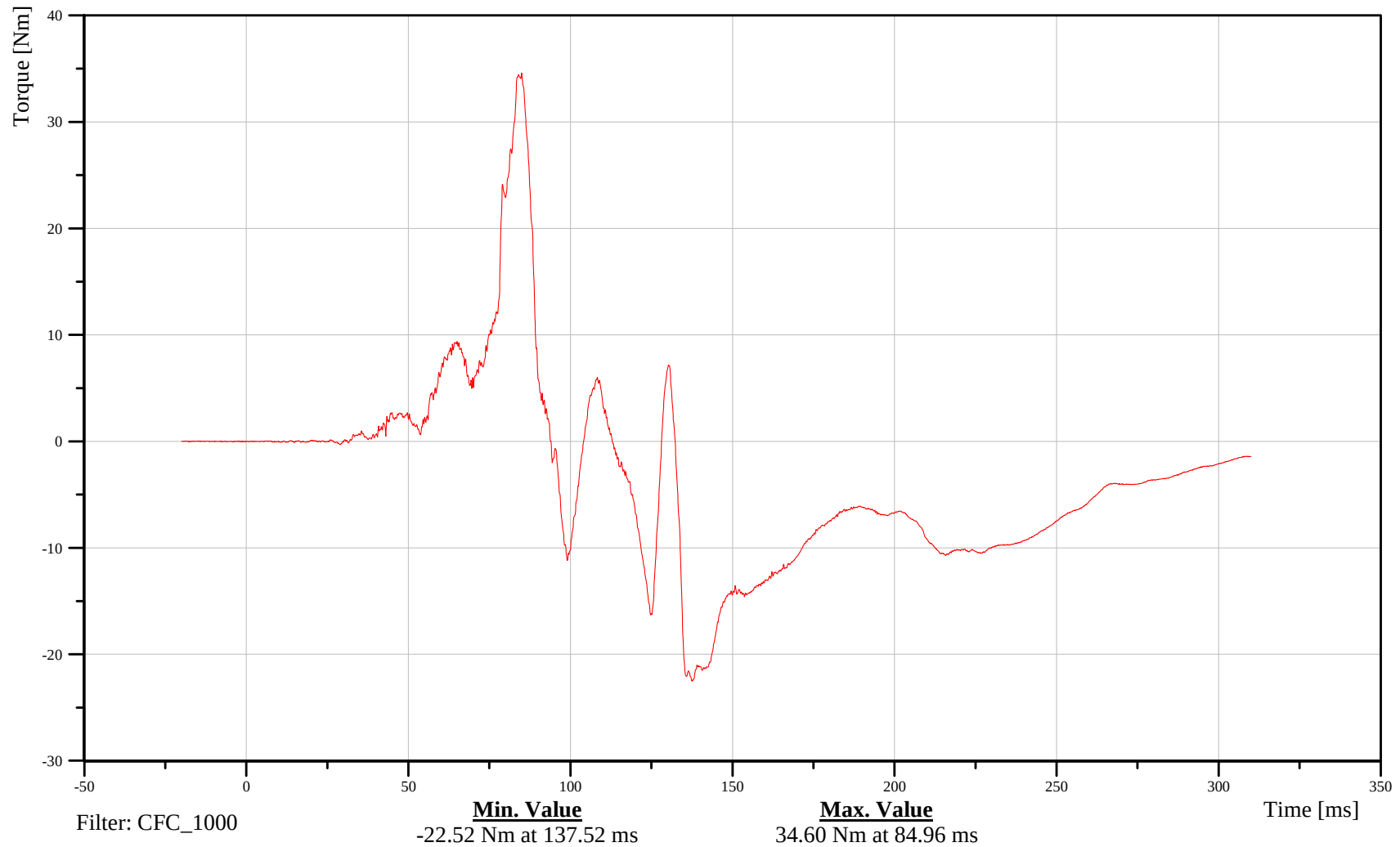
Calculated Neck Moment Component About X

Customer: VRTC

21NECKUPSUTHMOXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-319

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

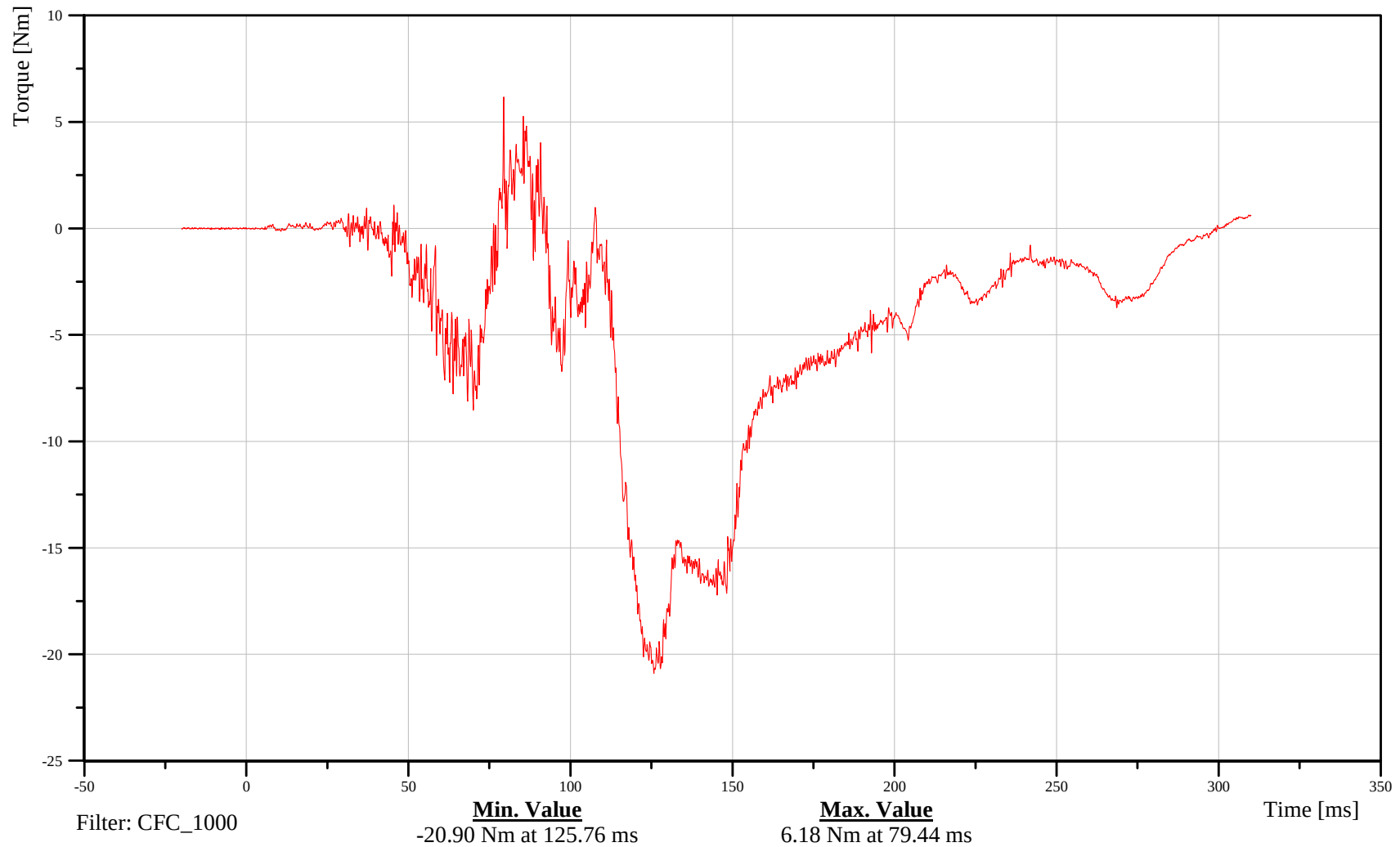
Calculated Neck Moment Component About Y

Customer: VRTC

21NECKUPSUTHMOYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-320

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

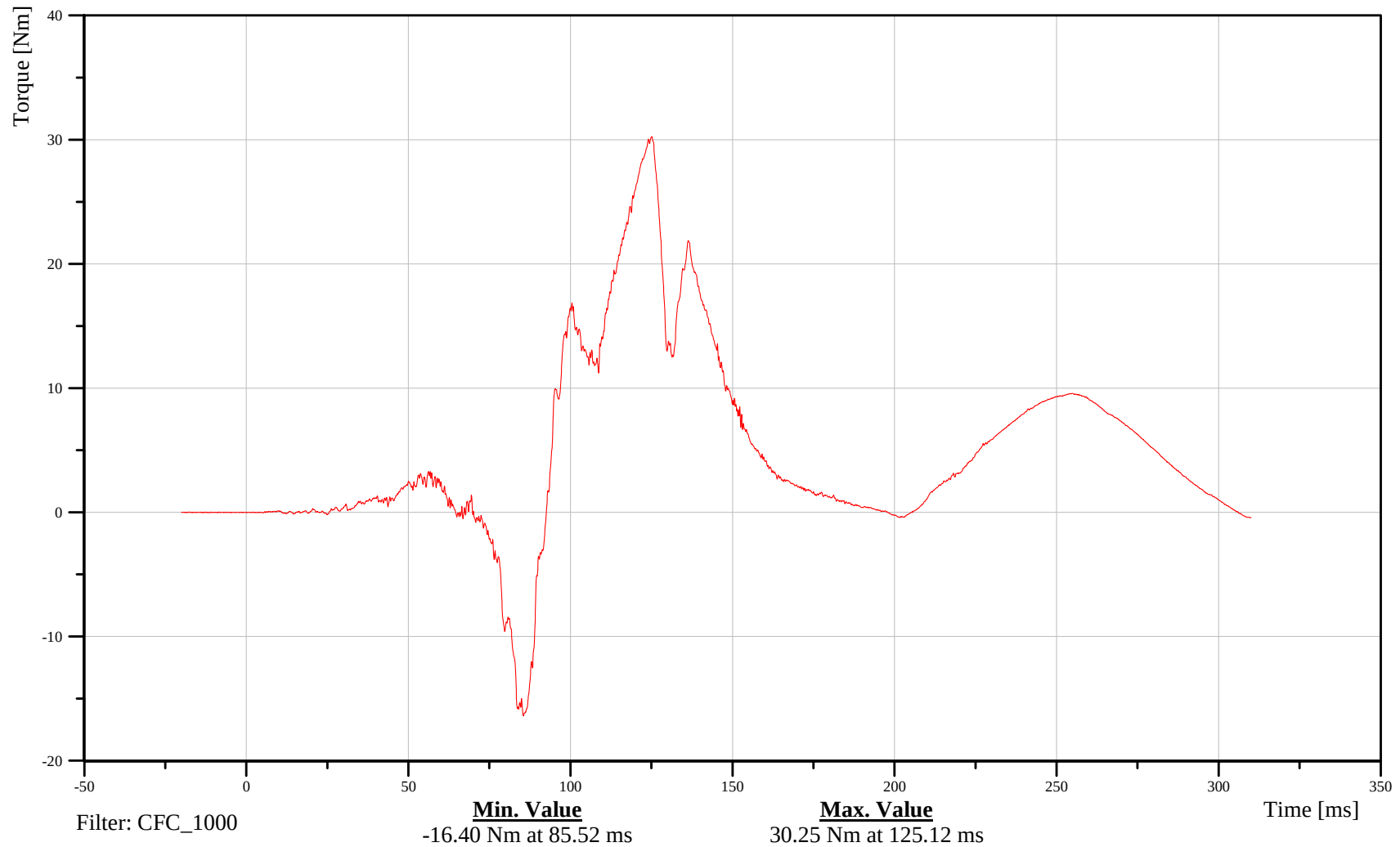
Calculated Neck Moment Component About Z

Customer: VRTC

21NECKUPSUTHMOZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-321

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

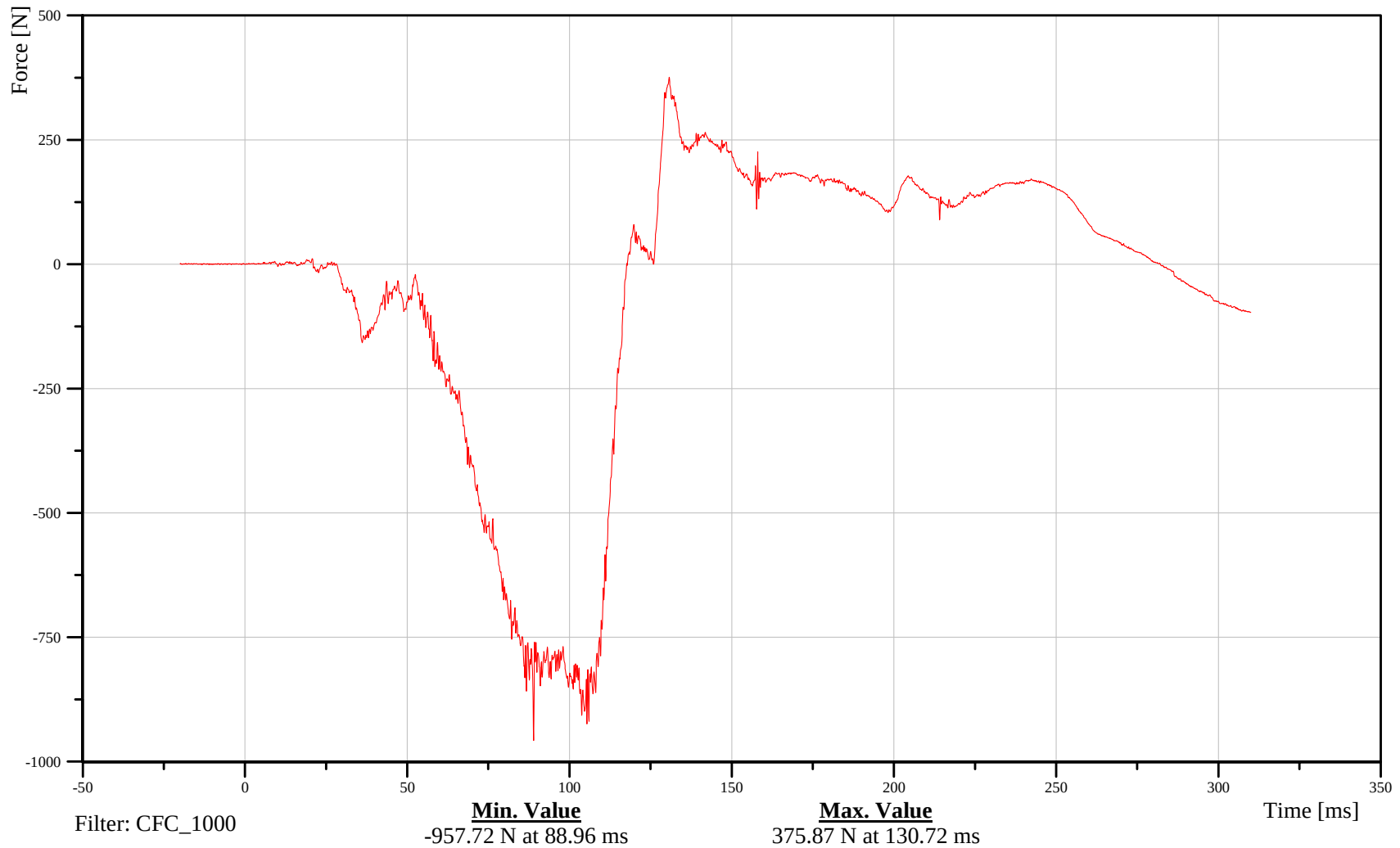
Calculated NeckOM X Force

Customer: VRTC

21TMONUP00THFOXA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-322

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

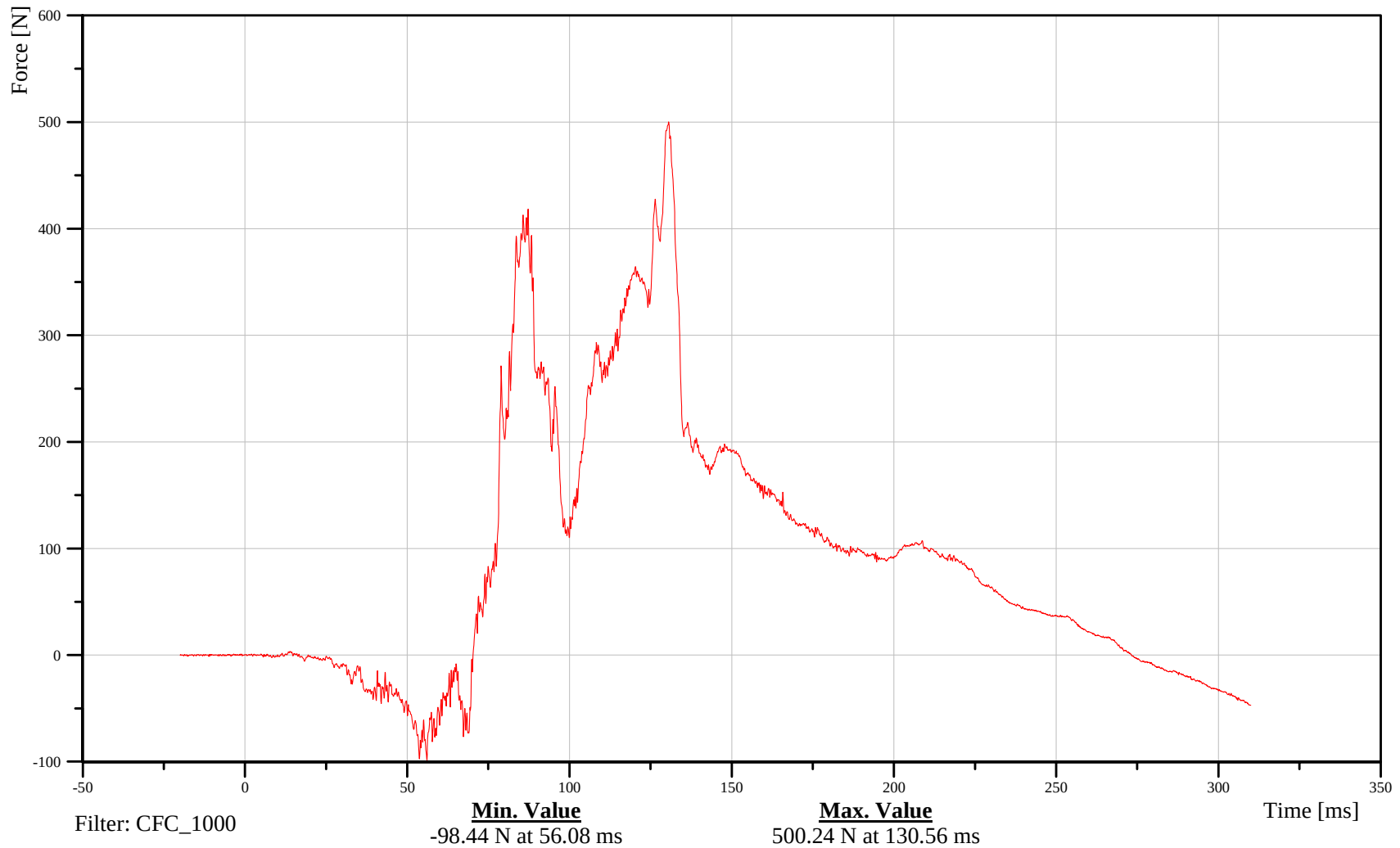
Calculated NeckOM Y Force

Customer: VRTC

21TMONUP00THFOYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-323

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Calculated NeckOM Z Force

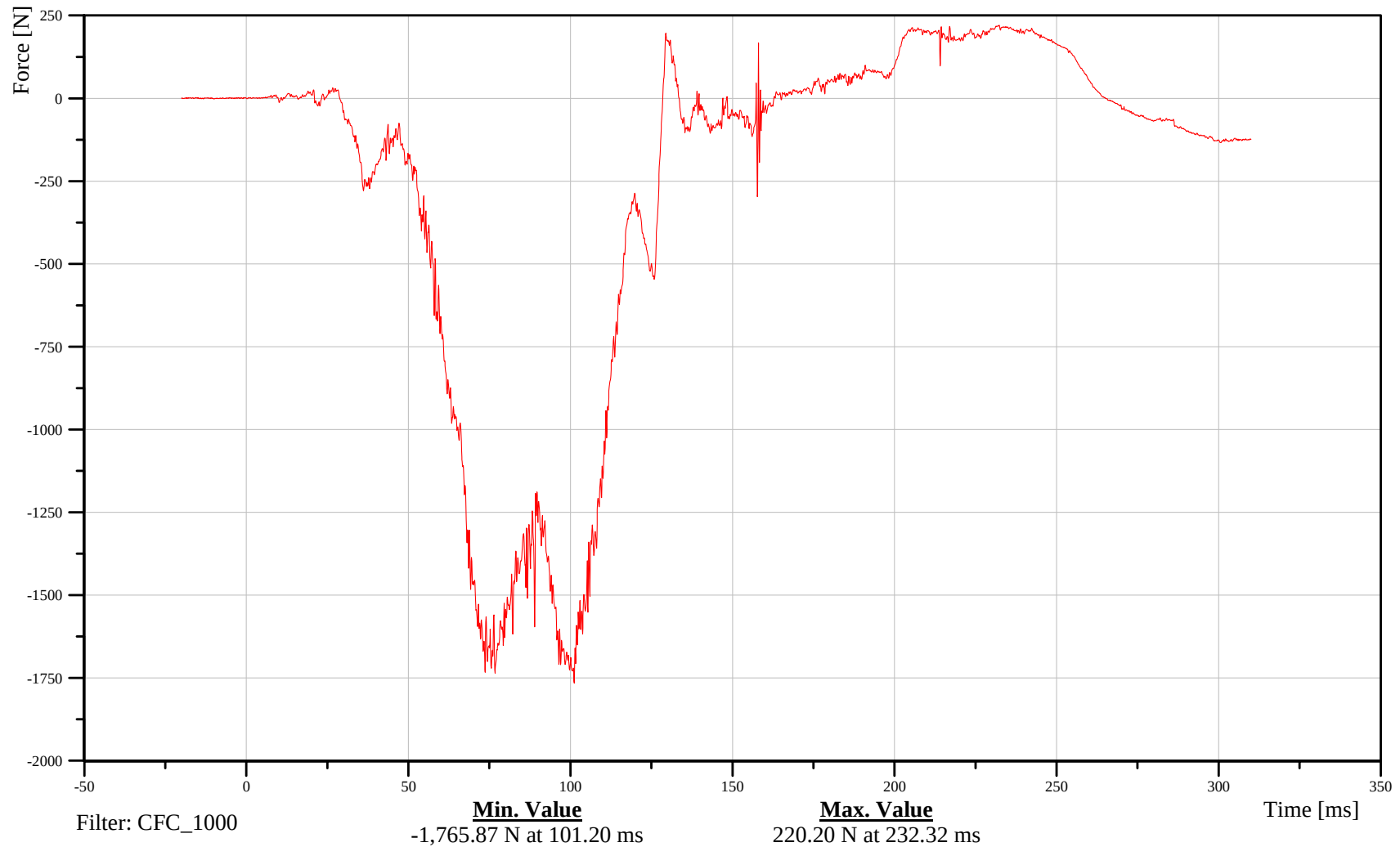
Date: 12/07/2010
Time: 16:40 PM

Customer: VRTC

21TMONUP00THFOZA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-324

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

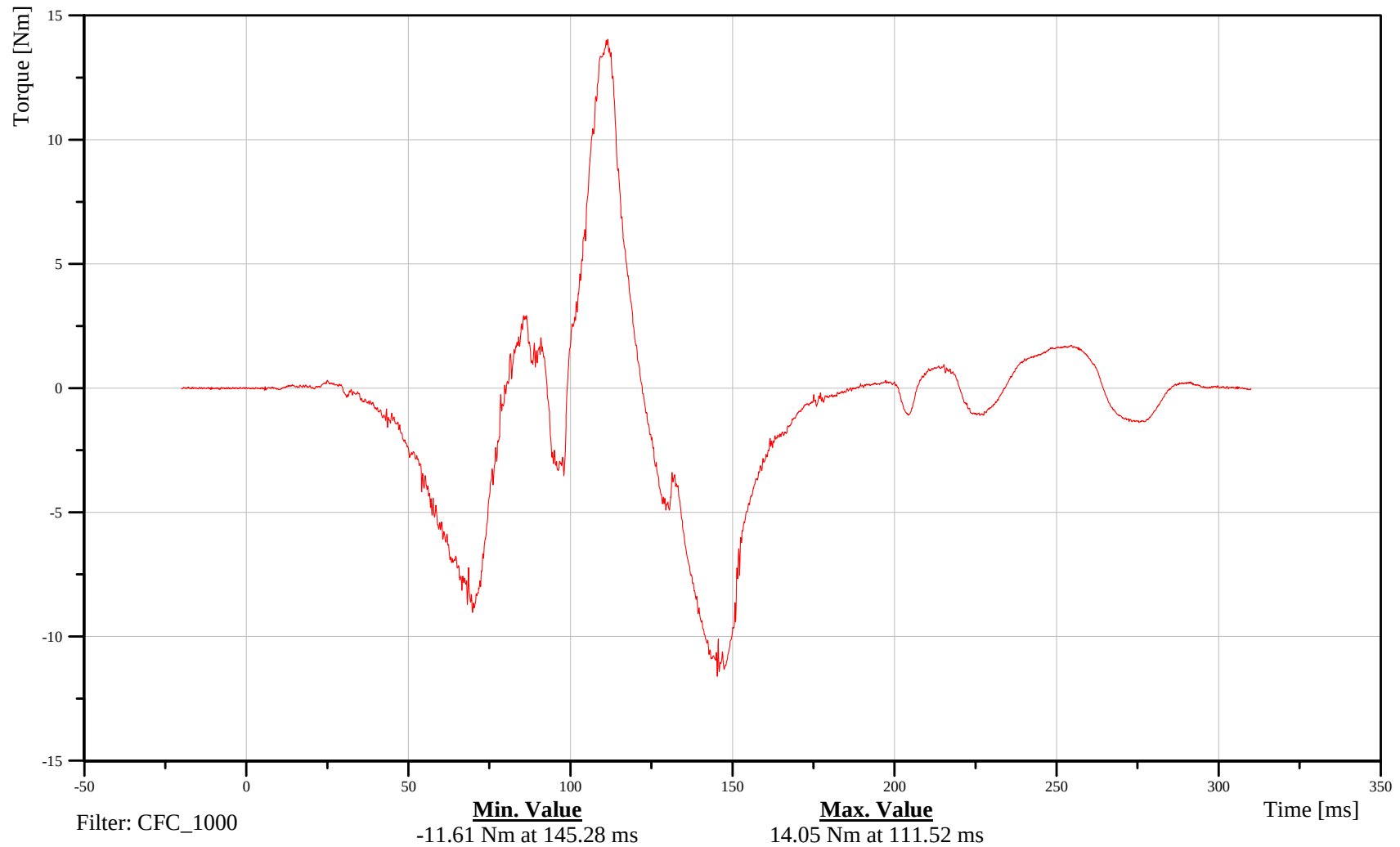
Calculated NeckOM Moment About Y

Customer: VRTC

21TMONUP00THMOYA

TRC Inc. Test Lab: CTF

Test Number: 101207



B-325

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

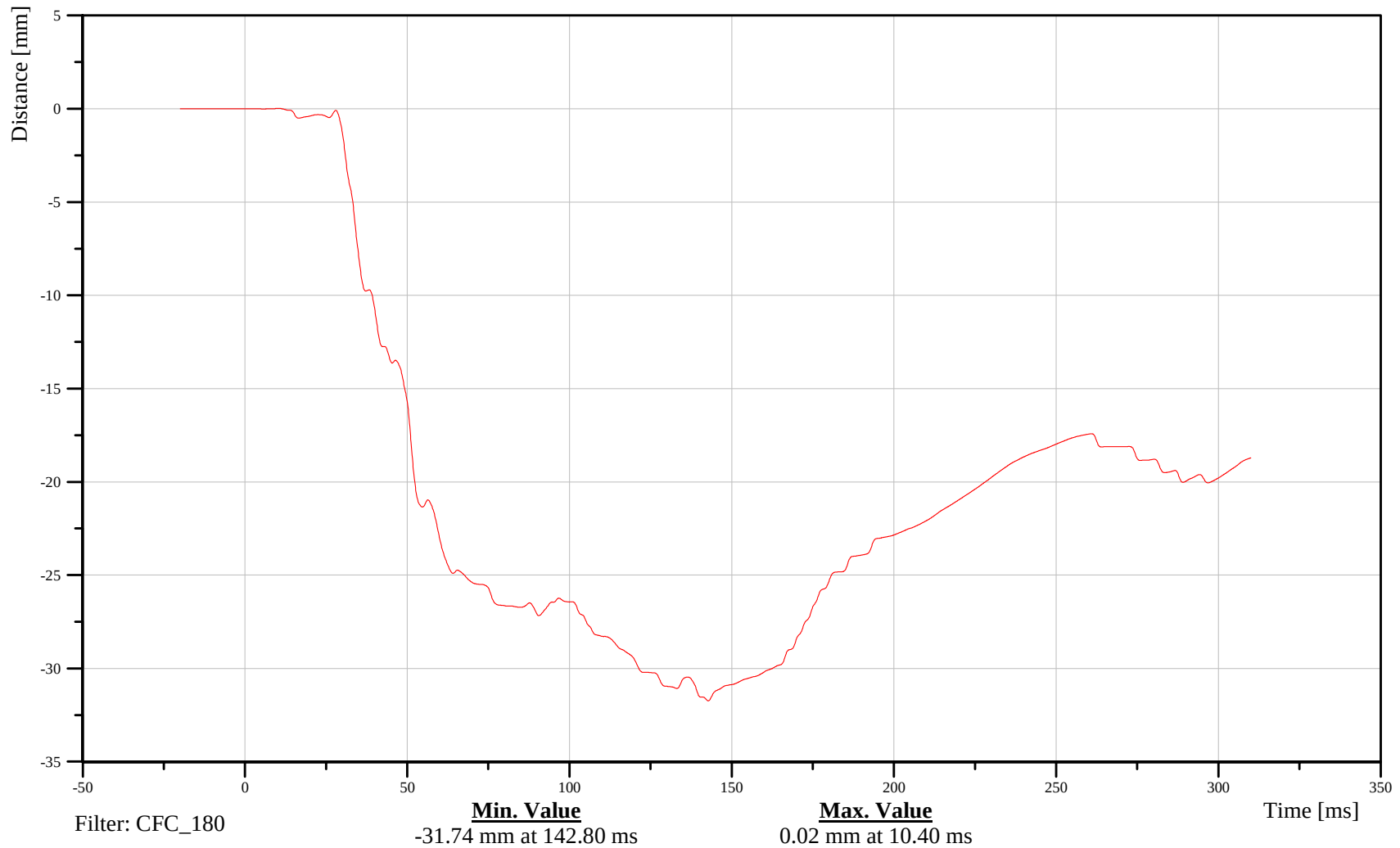
Calculated Left Lower Abdominal X-Axis Displacement

Customer: VRTC

21ABDOLL00THDSXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-326

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

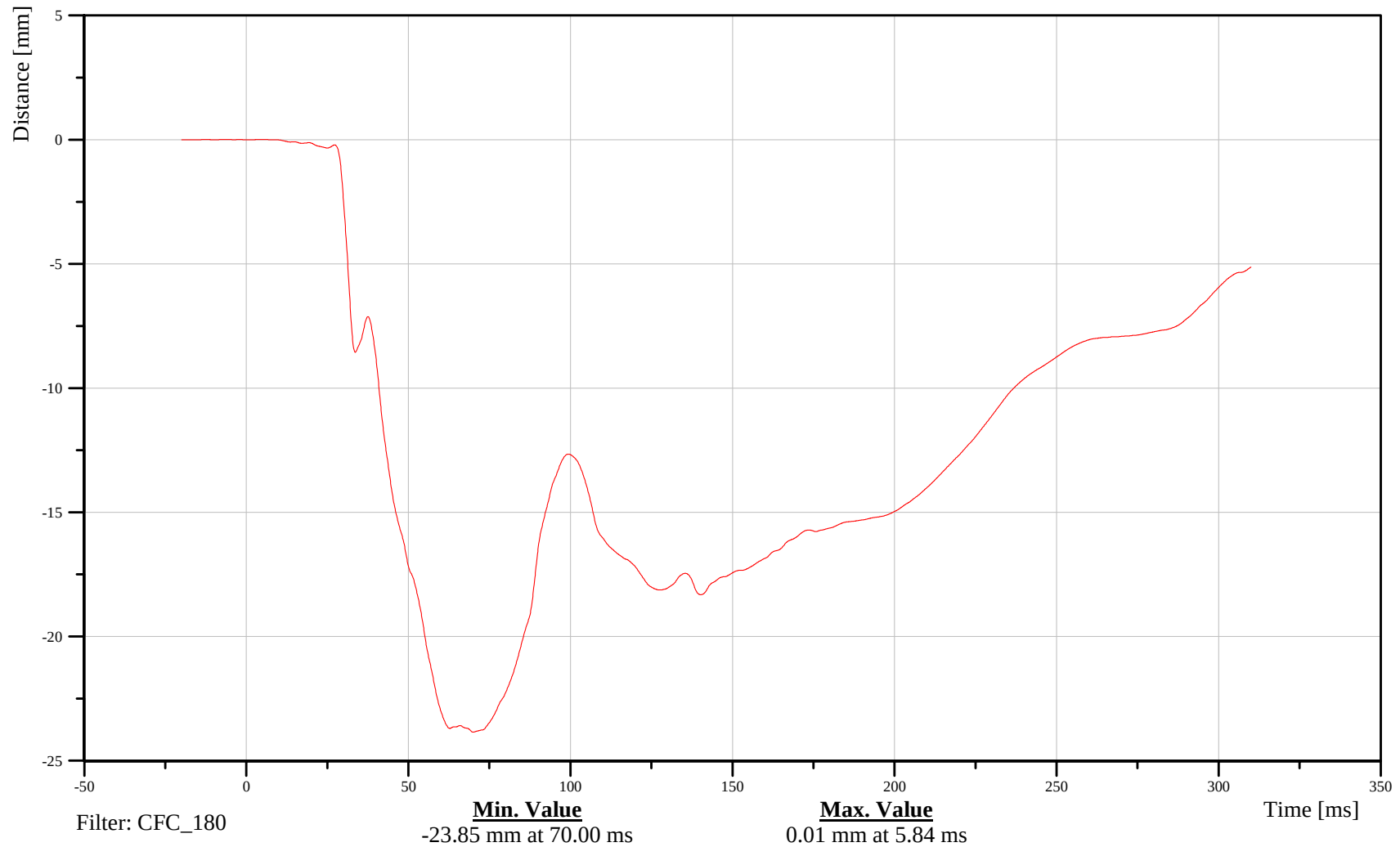
Calculated Left Lower Abdominal Y-Axis Displacement

Customer: VRTC

21ABDOLL00THDSYC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-327

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

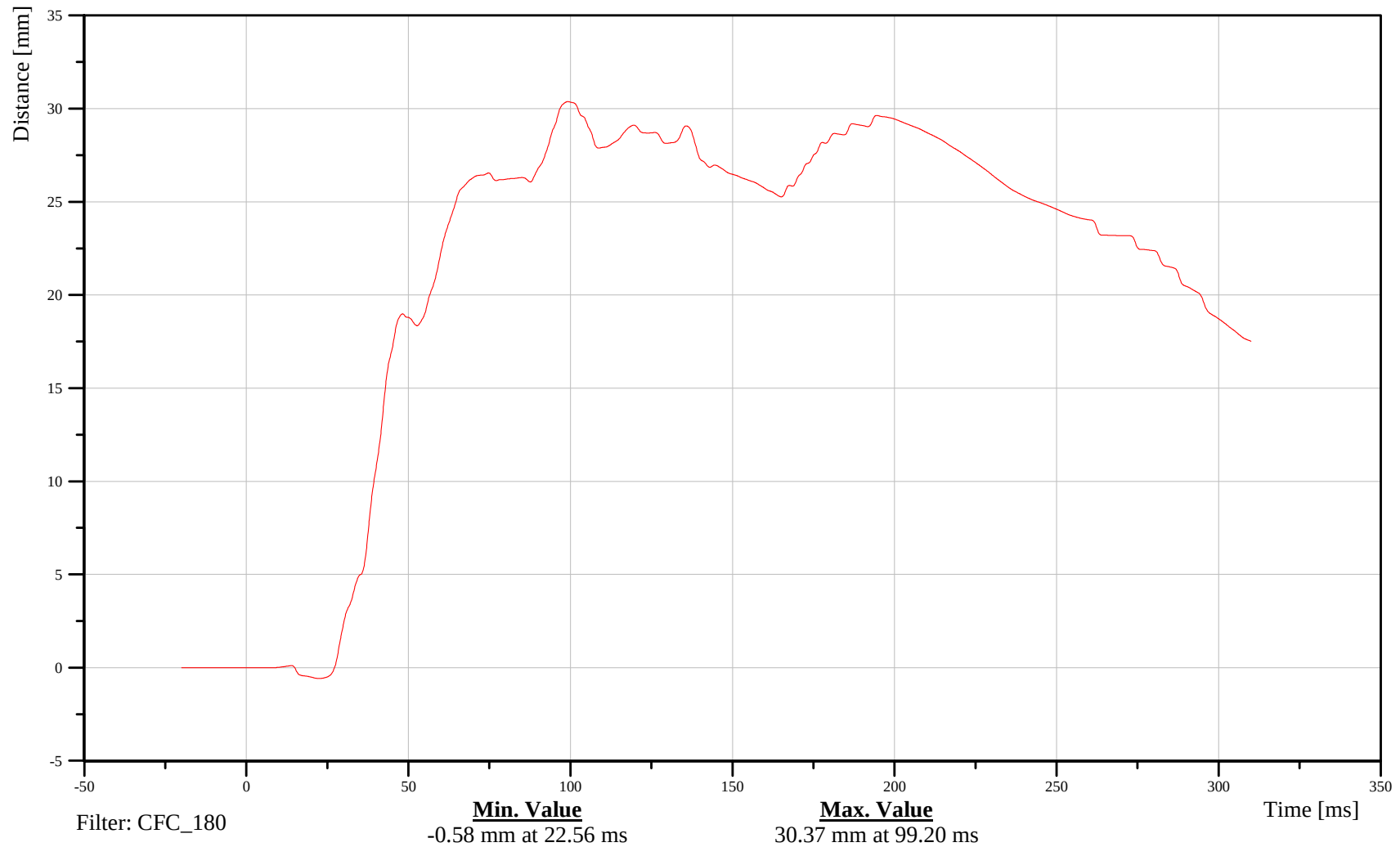
Calculated Left Lower Abdominal Z-Axis Displacement

Customer: VRTC

21ABDOLL00THDSZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-328

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Target Vehicle Driver Airbag 2nd Stage Fire Time

Date: 12/07/2010

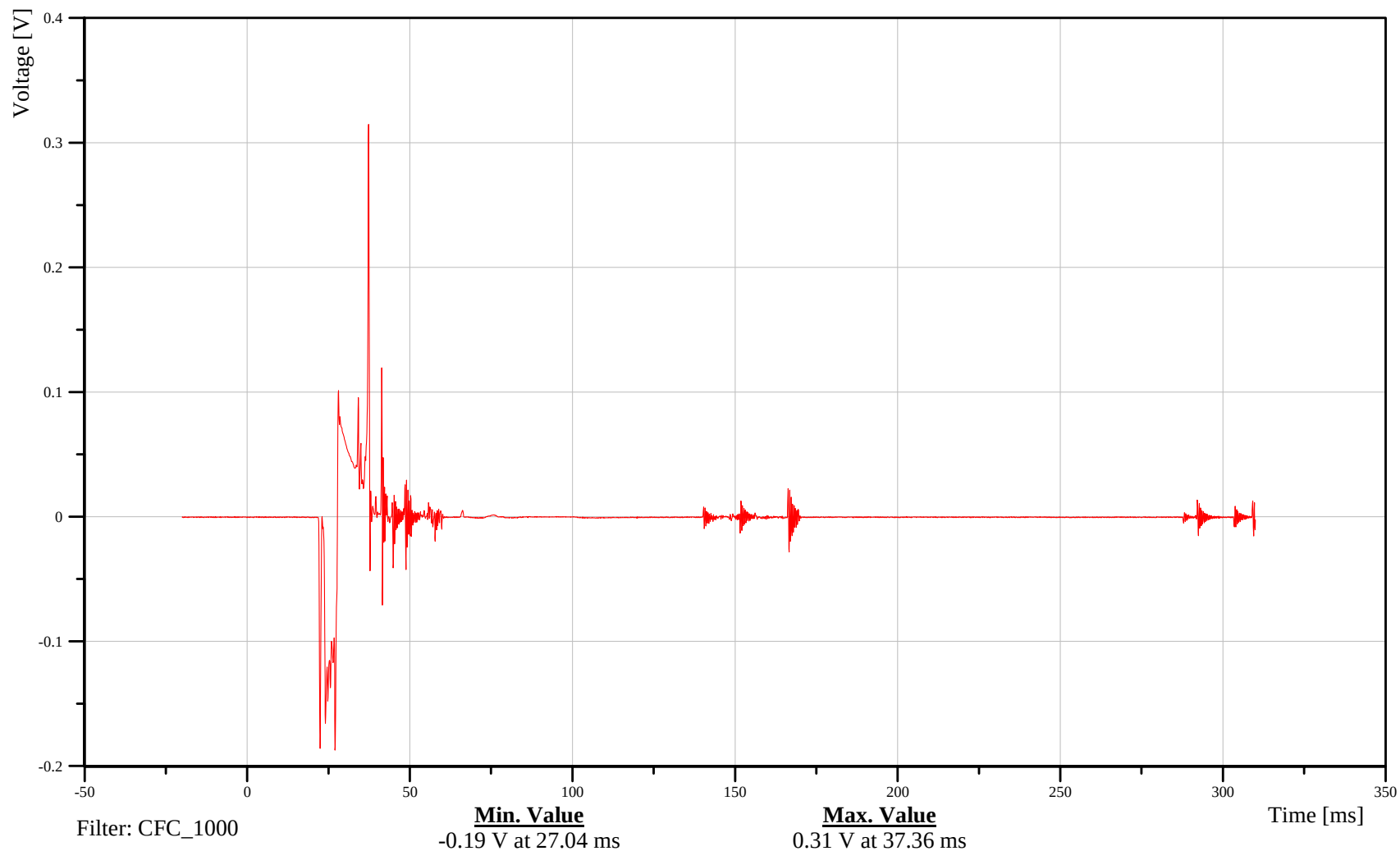
Time: 16:40 PM

Customer: VRTC

20AIRBLEFR26VO0A

TRC Inc. Test Lab: CTF

Test Number: 101207



B-329

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

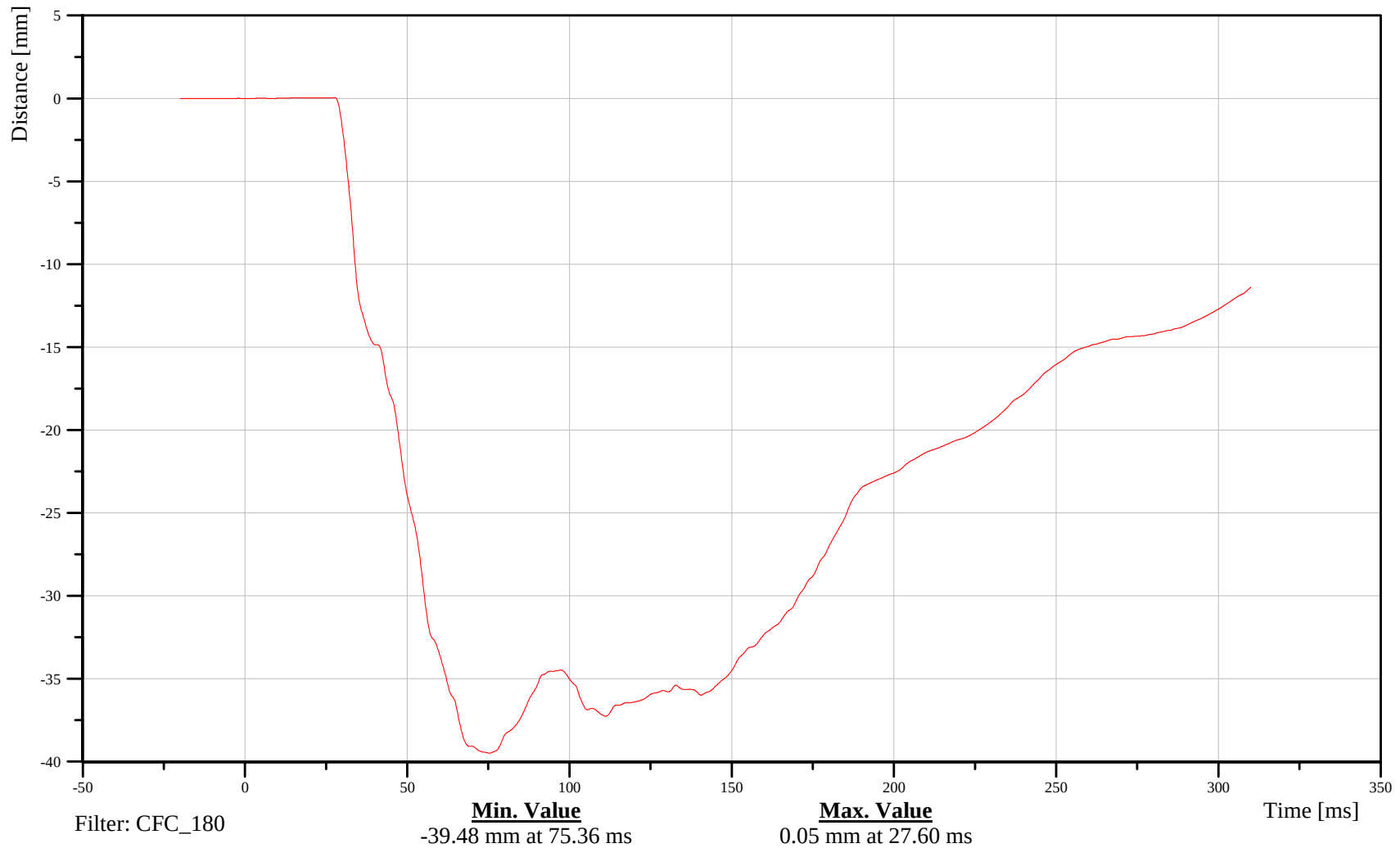
Calculated Right Lower Abdominal X-Axis Displacement

Customer: VRTC

21ABDORL00THDSXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-330

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

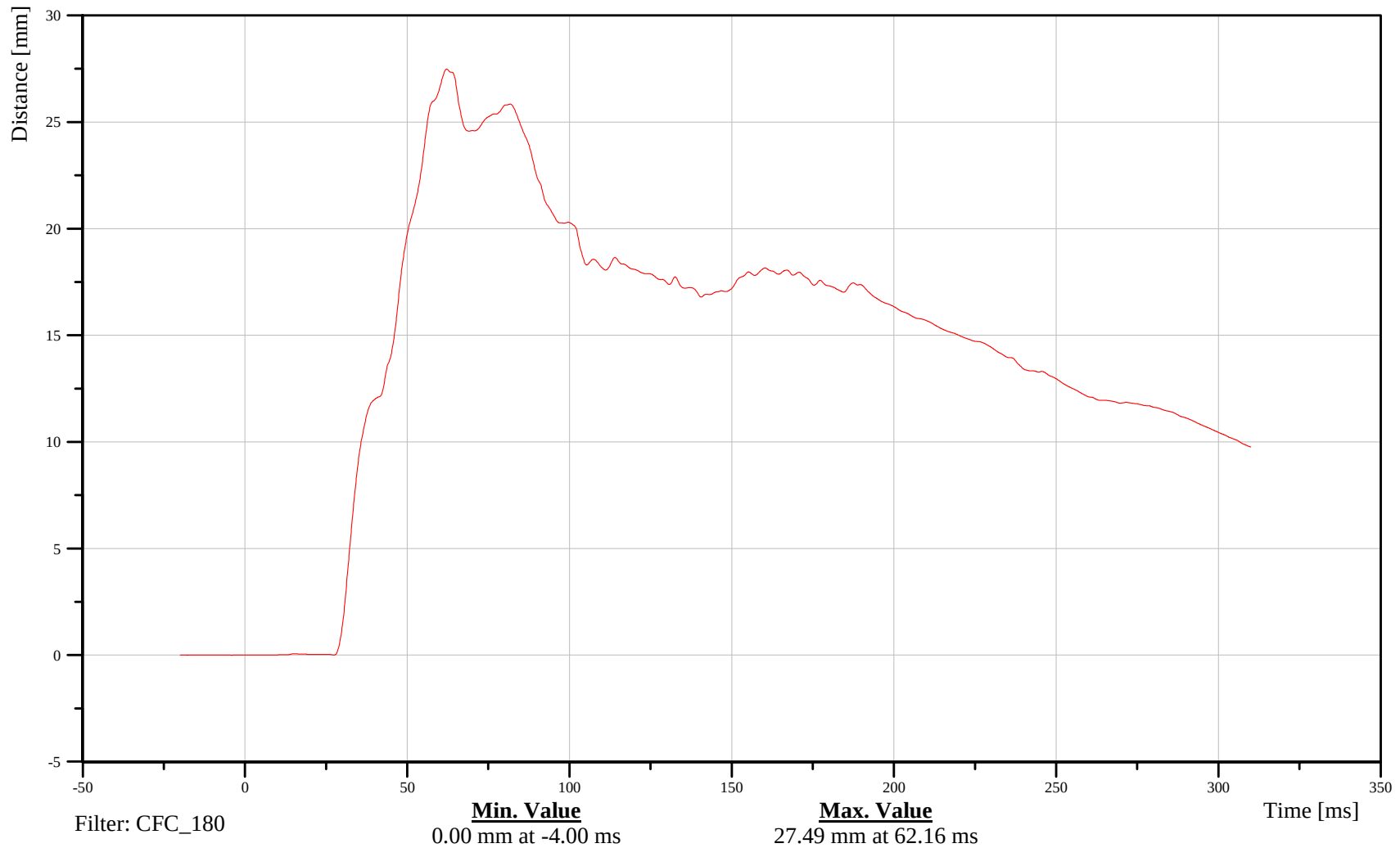
Calculated Right Lower Abdominal Y-Axis Displacement

Customer: VRTC

21ABDORL00THDSYC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-331

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

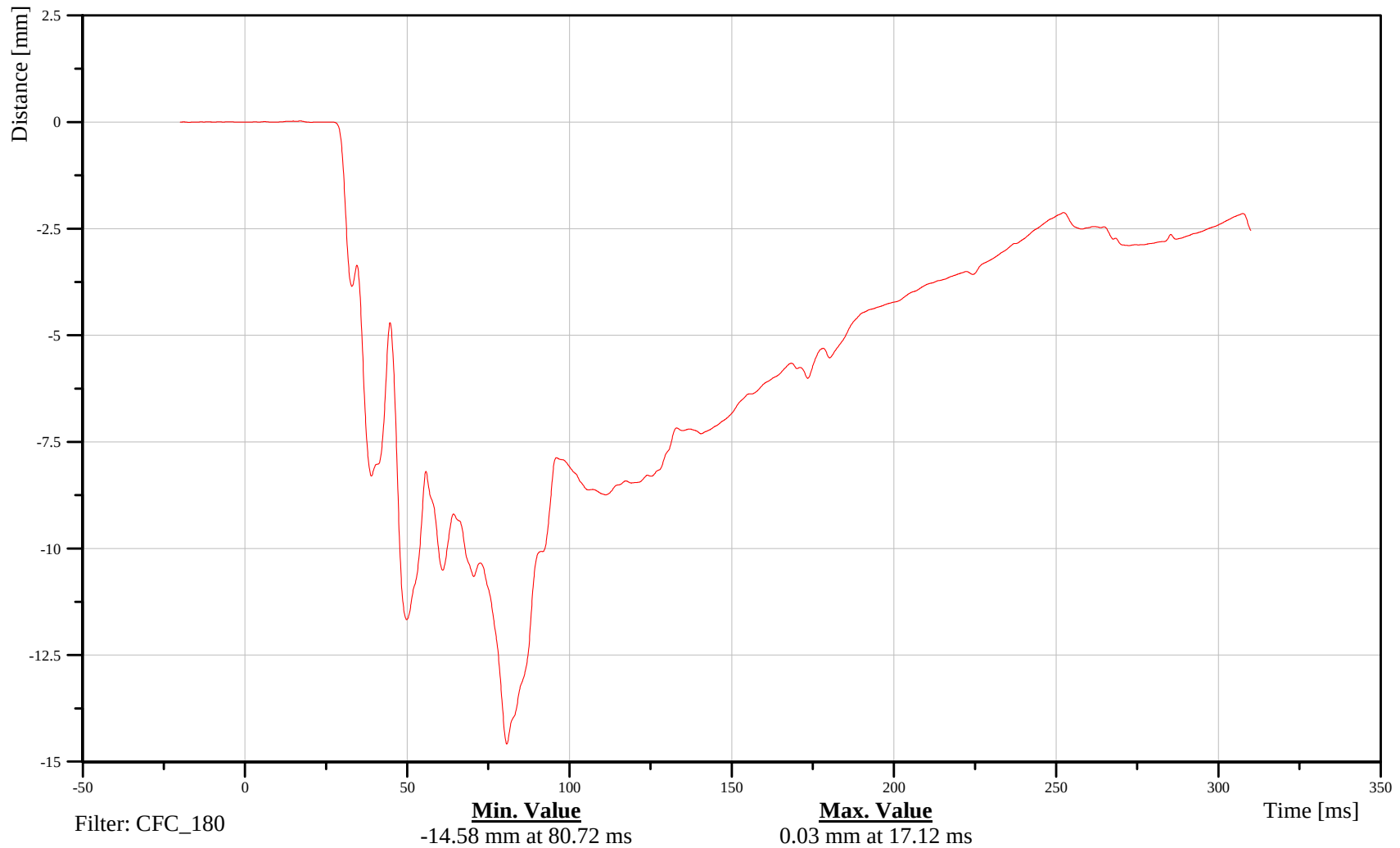
Calculated Right Lower Abdominal Z-Axis Displacement

Customer: VRTC

21ABDORL00THDSZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-332

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

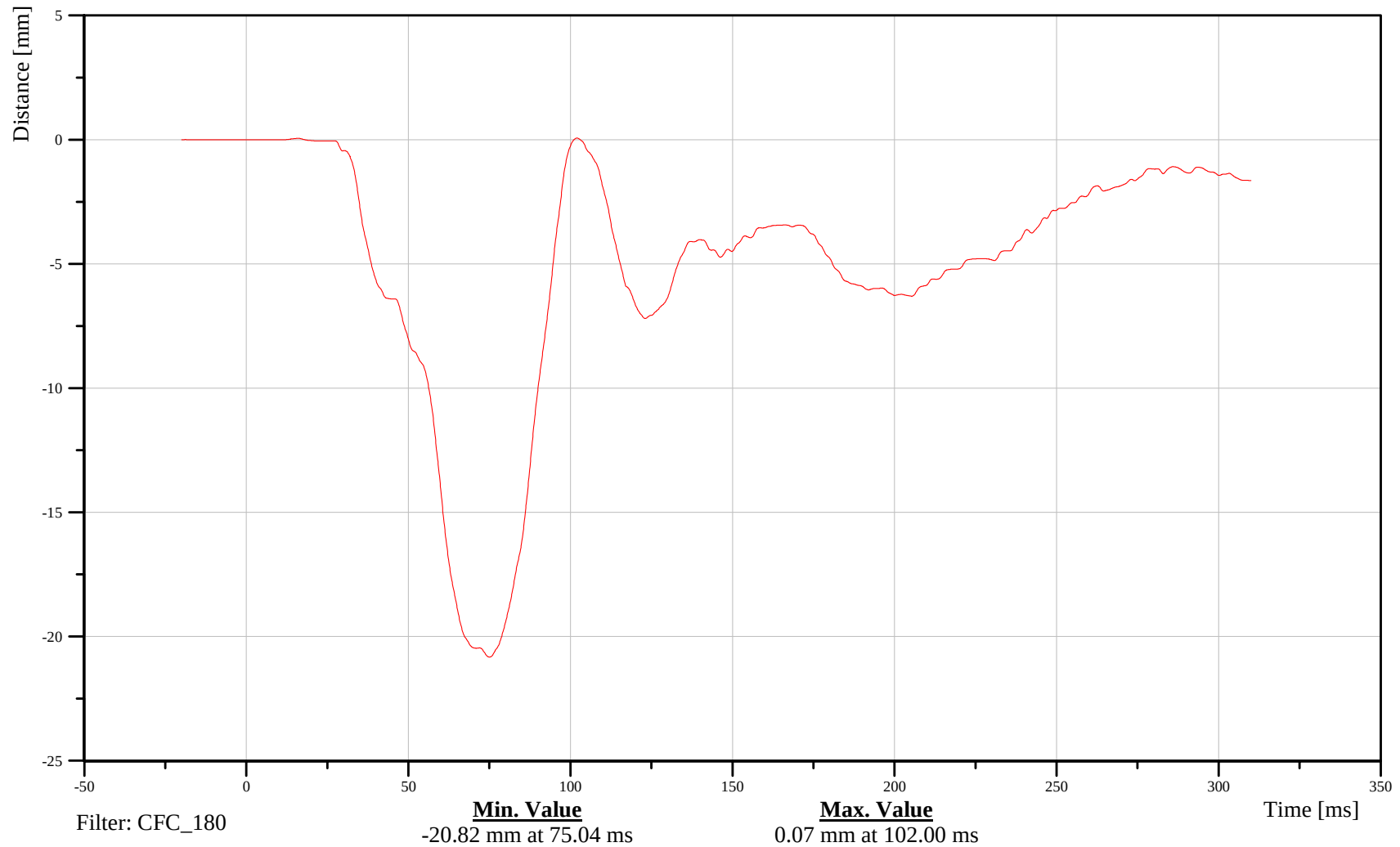
Calculated Left Upper Chest Rib X-Axis Displacement

Customer: VRTC

21CHRILU00THDSXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-333

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

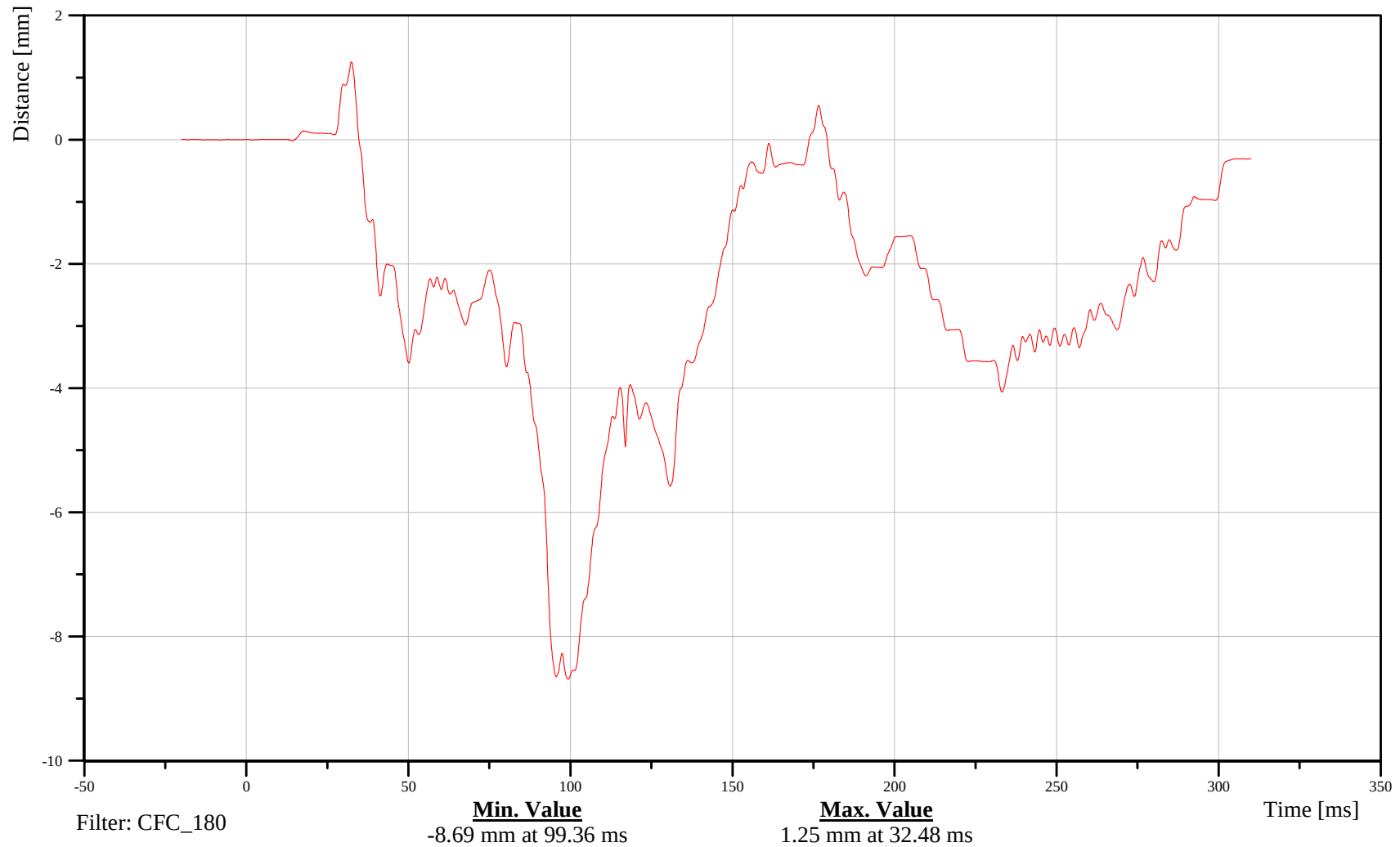
Calculated Left Upper Chest Rib Y-Axis Displacement

Customer: VRTC

21CHRILU00THDSYC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-334

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

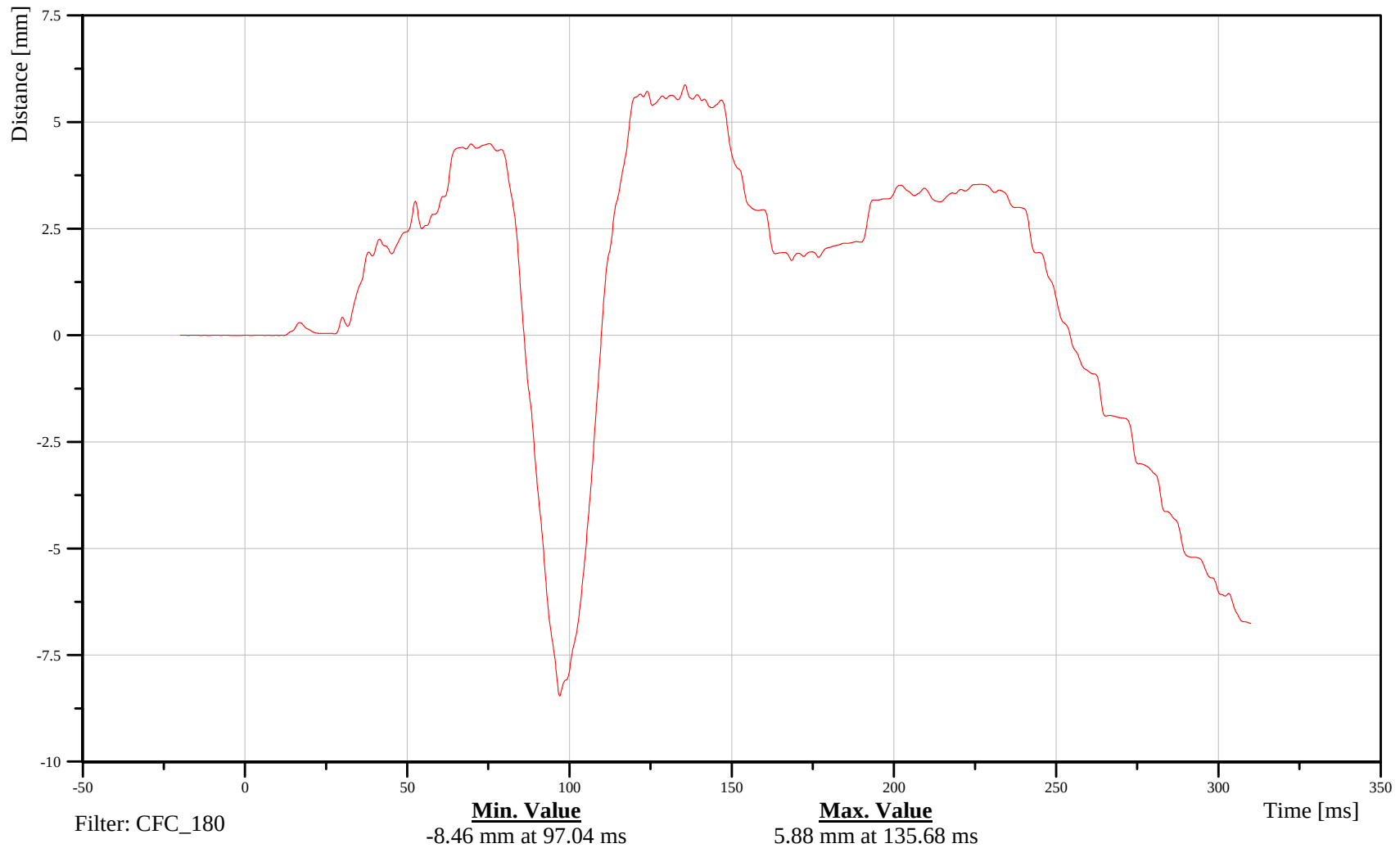
Calculated Left Upper Chest Rib Z-Axis Displacement

Customer: VRTC

21CHRILU00THDSZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-335

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

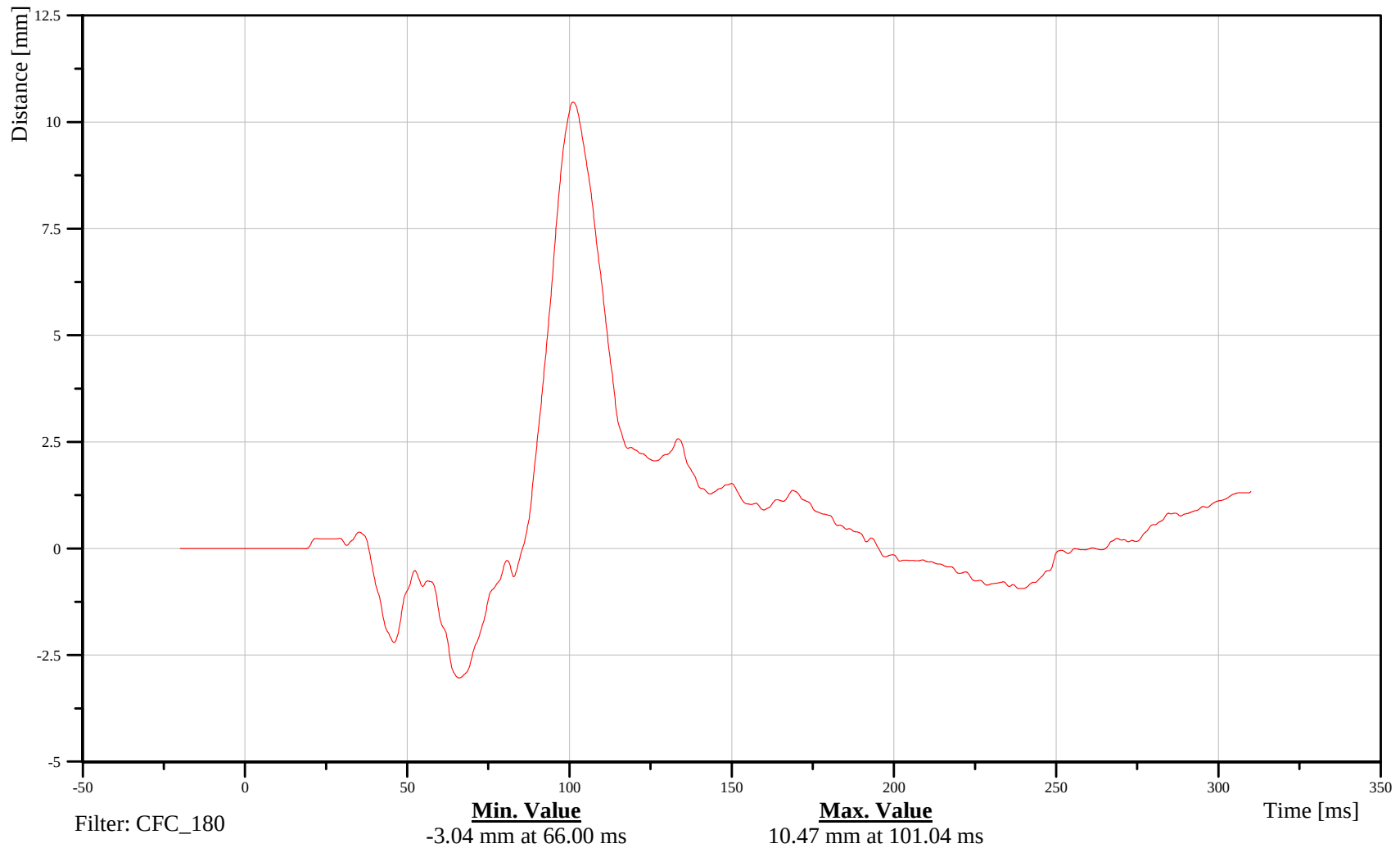
Calculated Left Lower Chest Rib X-Axis Displacement

Customer: VRTC

21CHRILL00THDSXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-336

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

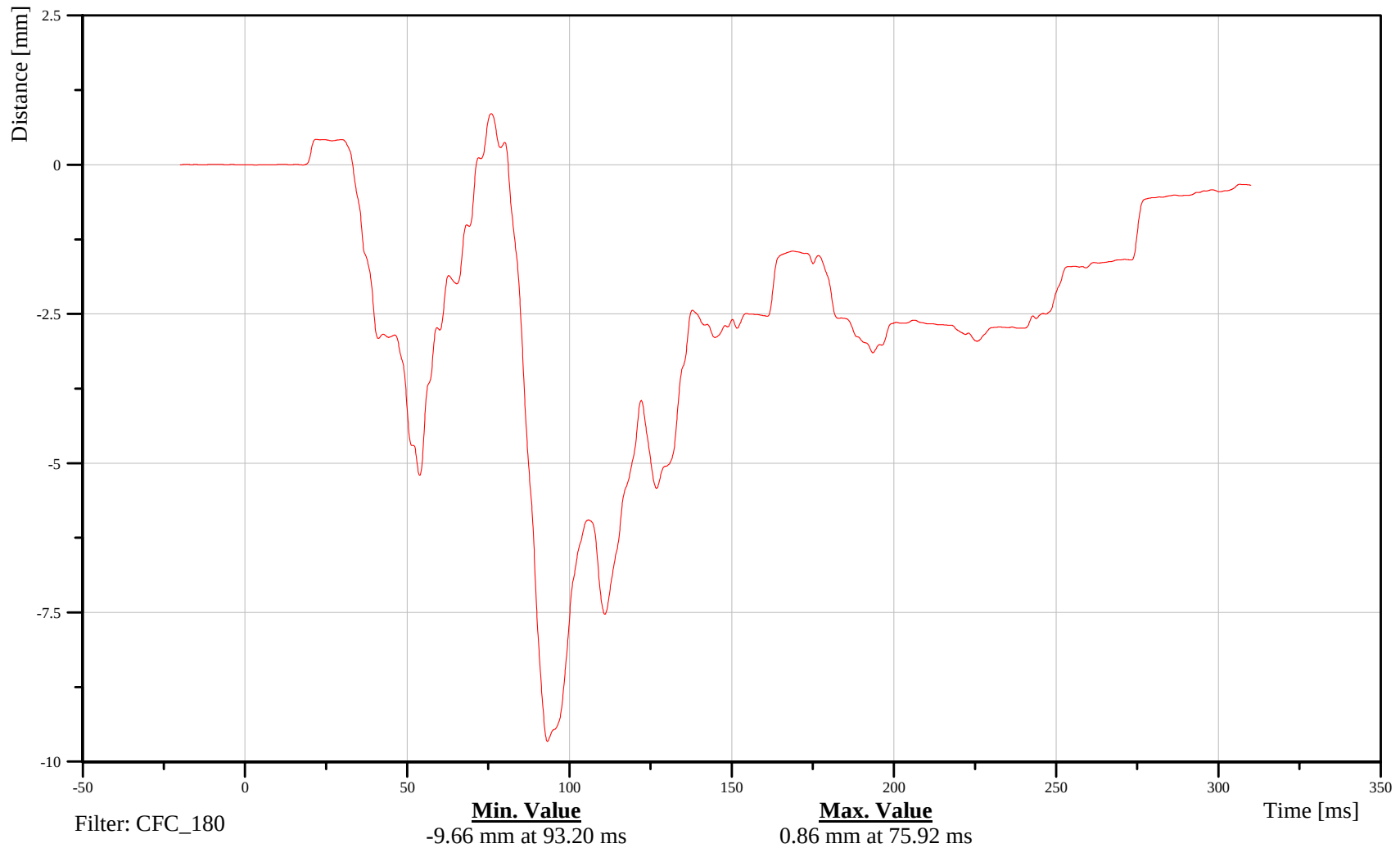
Calculated Left Lower Chest Rib Y-Axis Displacement

Customer: VRTC

21CHRILL00THDSYC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-337

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

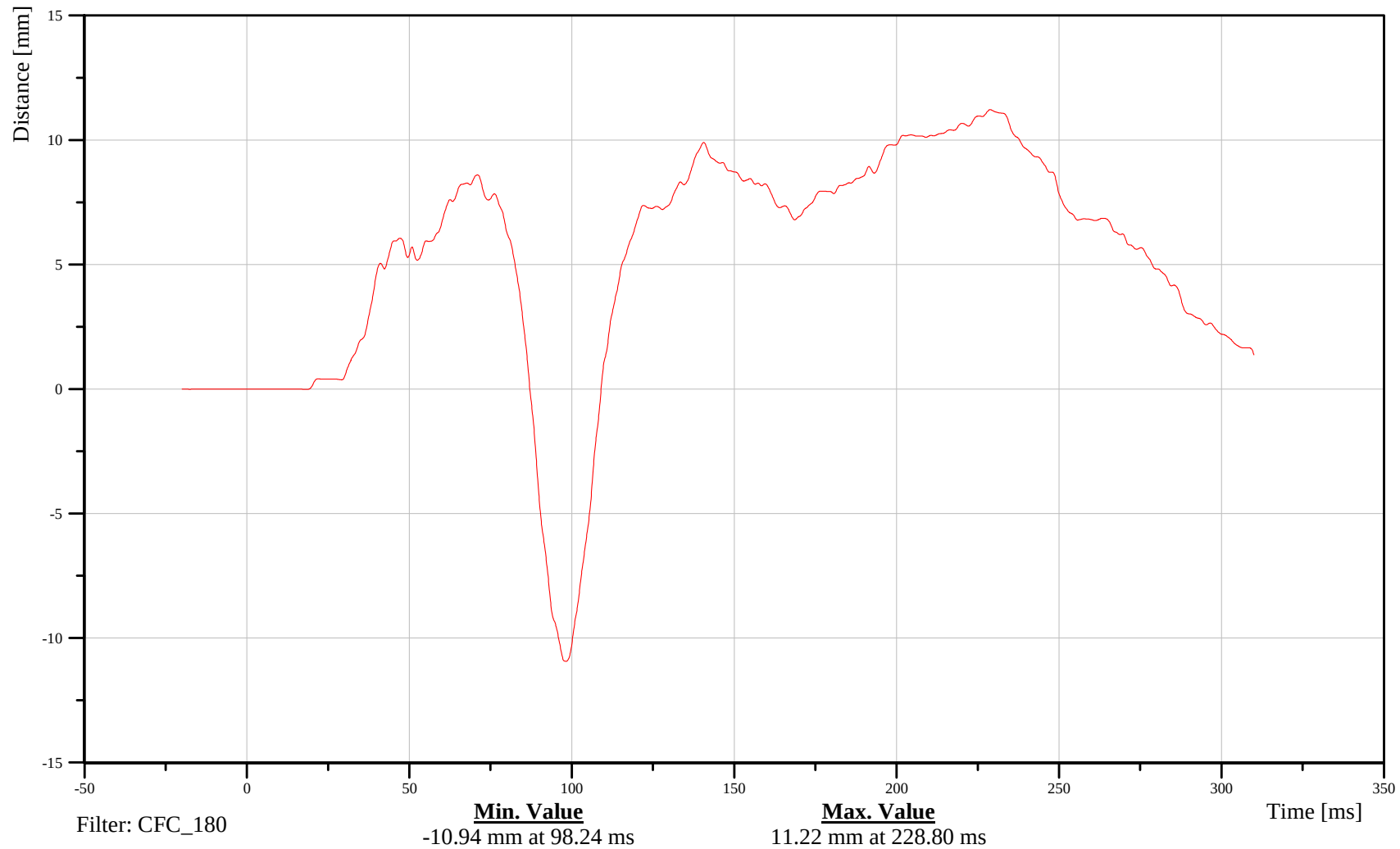
Calculated Left Lower Chest Rib Z-Axis Displacement

Customer: VRTC

21CHRILL00THDSZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-338

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

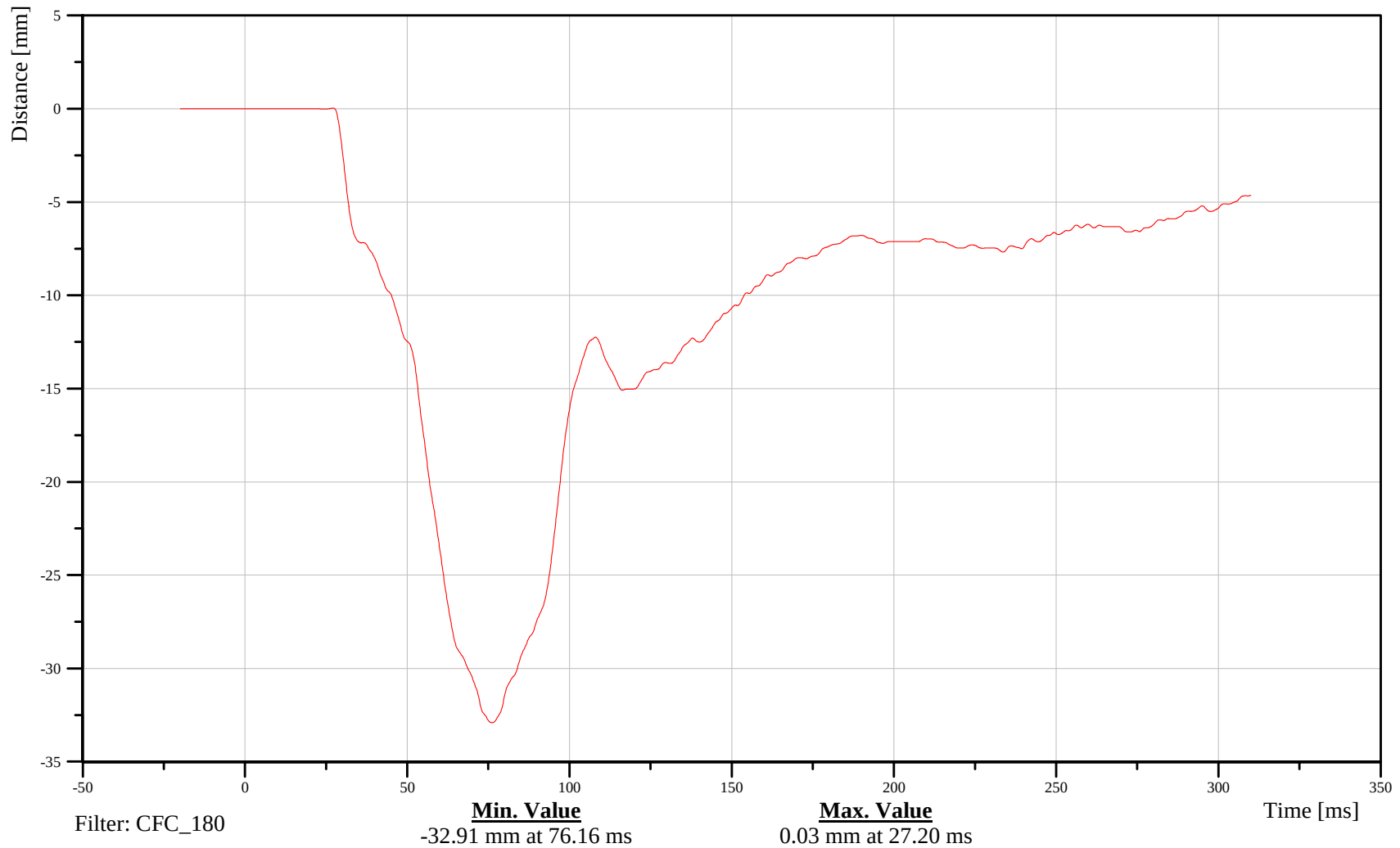
Calculated Right Upper Chest Rib X-Axis Displacement

Customer: VRTC

21CHRIRU00THDSXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-339

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

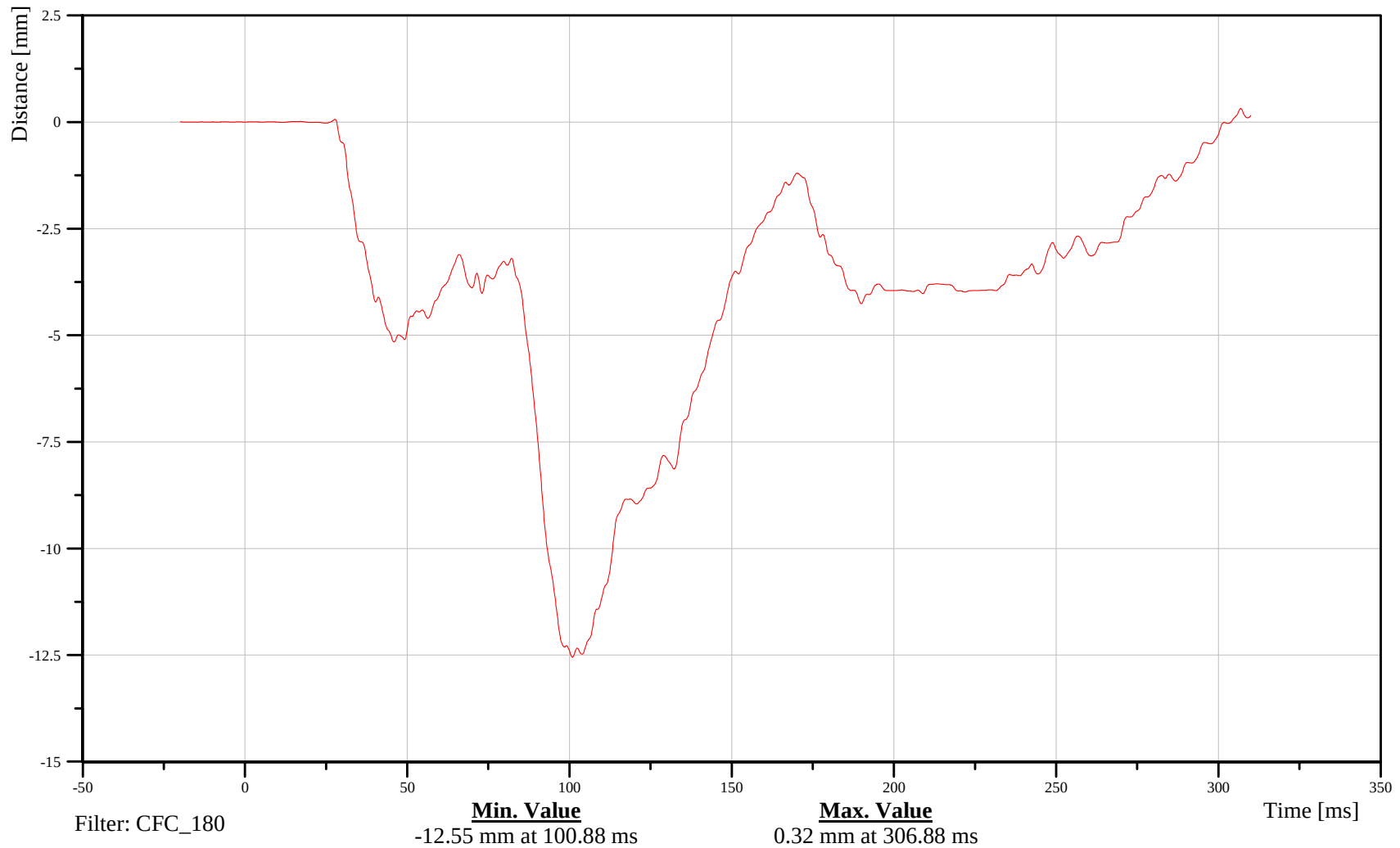
Calculated Right Upper Chest Rib Y-Axis Displacement

Customer: VRTC

21CHRIRU00THDSYC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-340

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

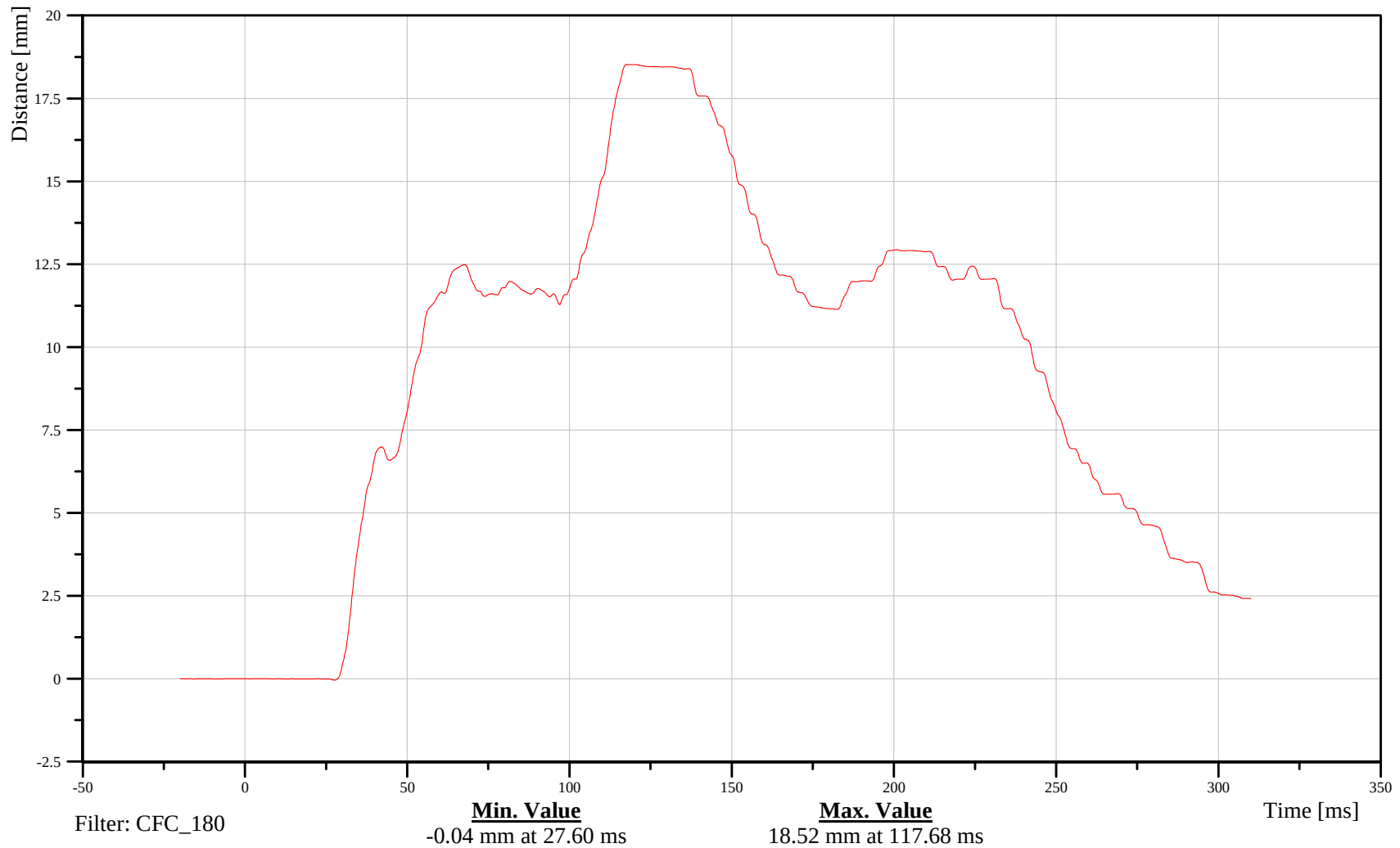
Calculated Right Upper Chest Rib Z-Axis Displacement

Customer: VRTC

21CHRIRU00THDSZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-341

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

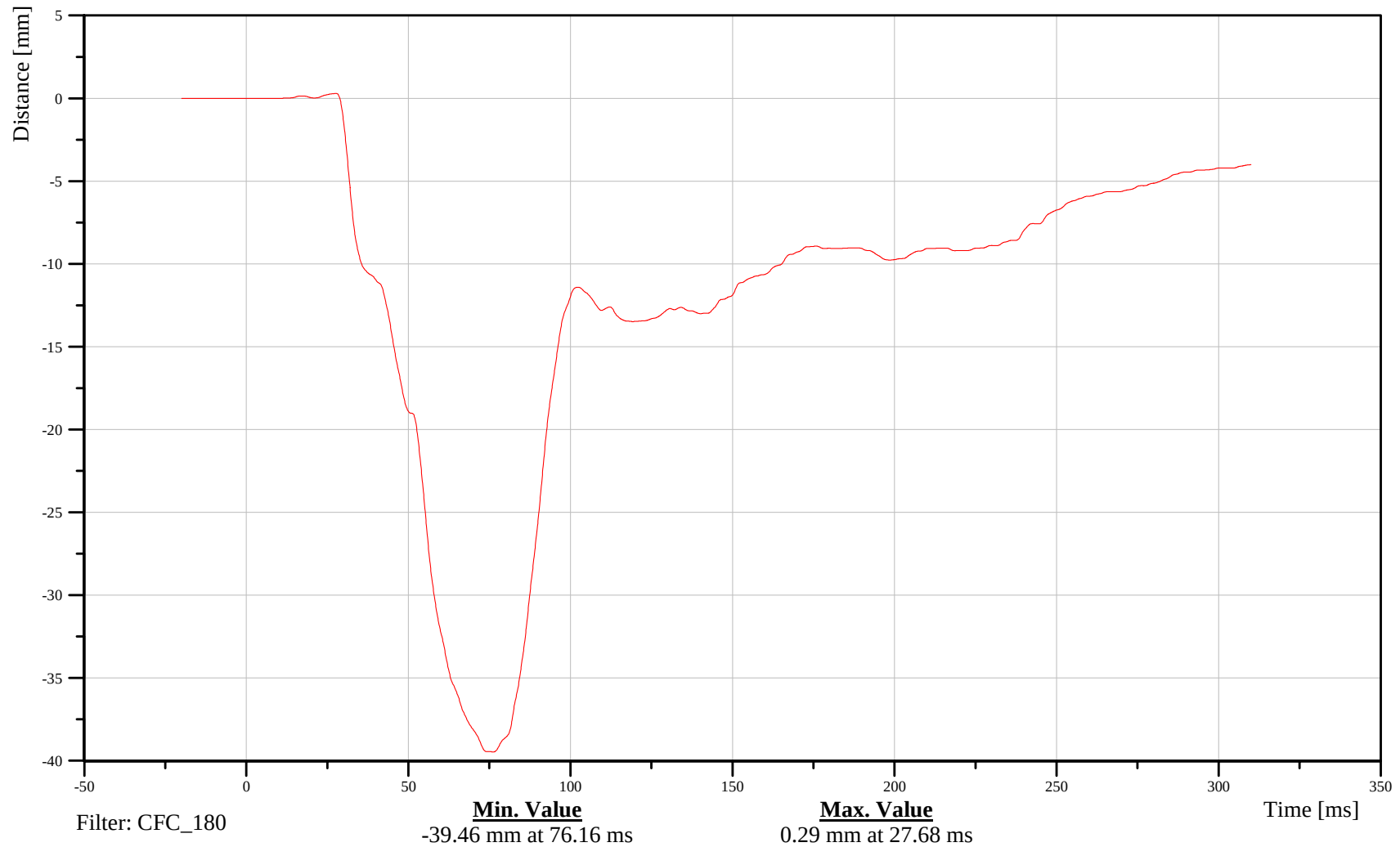
Calculated Right Lower Chest Rib X-Axis Displacement

Customer: VRTC

21CHRIRL00THDSXC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-342

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010

Time: 16:40 PM

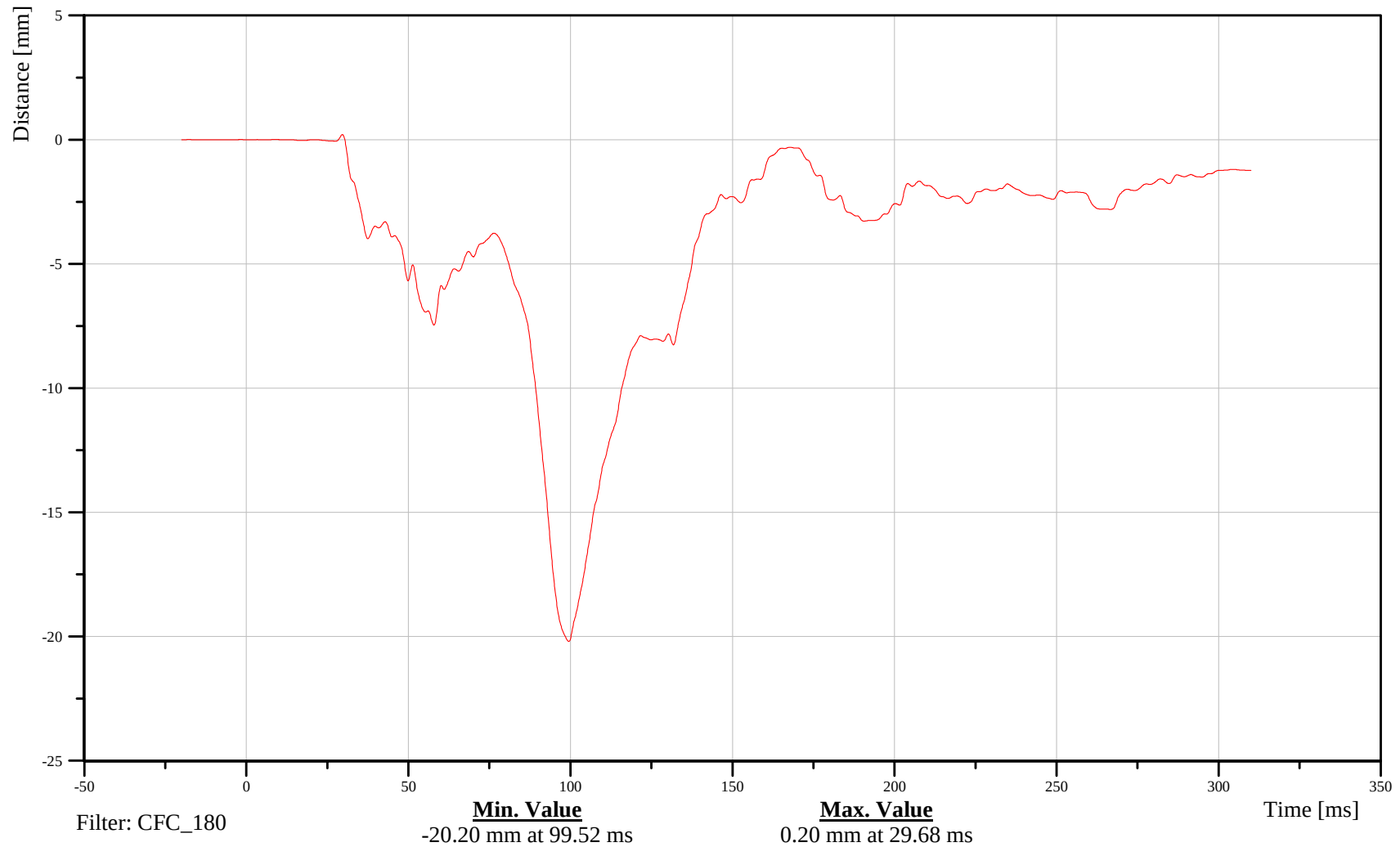
Calculated Right Lower Chest Rib Y-Axis Displacement

Customer: VRTC

21CHRIRL00THDSYC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-343

101207



Yaris into Yaris at 7 Degrees, 70 mph, No Frame Rail Overlap

Date: 12/07/2010
Time: 16:40 PM

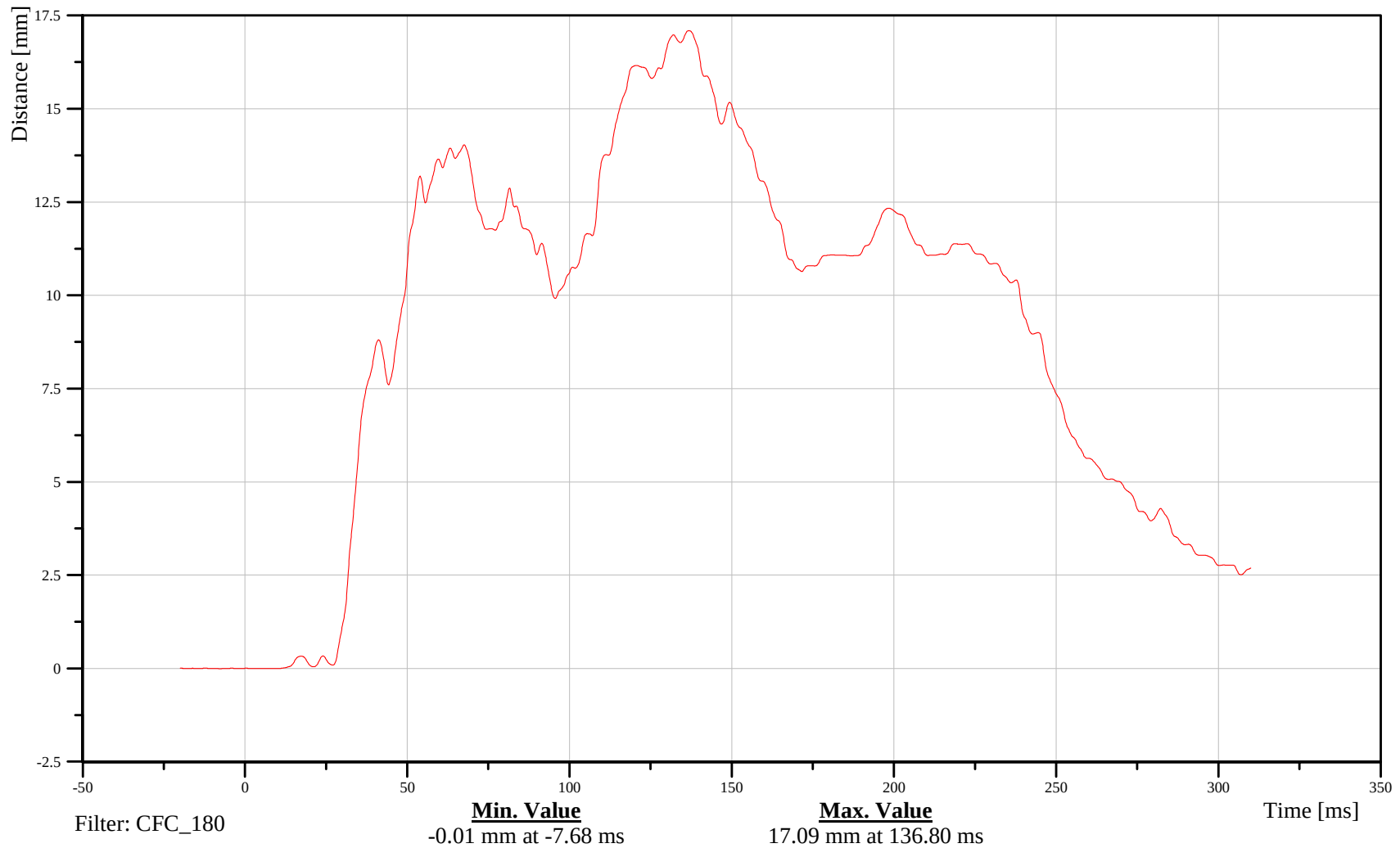
Calculated Right Lower Chest Rib Z-Axis Displacement

Customer: VRTC

21CHRIRL00THDSZC

TRC Inc. Test Lab: CTF

Test Number: 101207



B-344

101207

Appendix C

Dummy Configuration and Performance Verification Data

Pre-Test Dummy Configuration and Performance Verification Data

Bullet Vehicle Driver Dummy S/N: 168

Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 168 Certification No. 28-1

Test Date: 8/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	61 %	Yes
Peak Head Resultant Acceleration	225 - 275 g	257.0 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	4.4 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

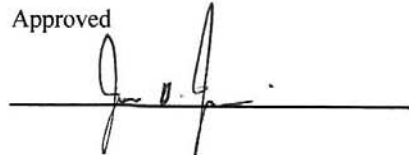
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

08.06.2010 08:20:44 601



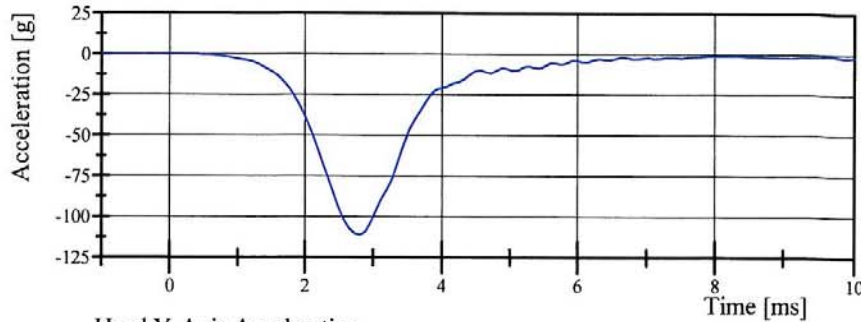
Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 168 Certification No. 28-1

Test Date: 8/6/2010

Head X-Axis Acceleration

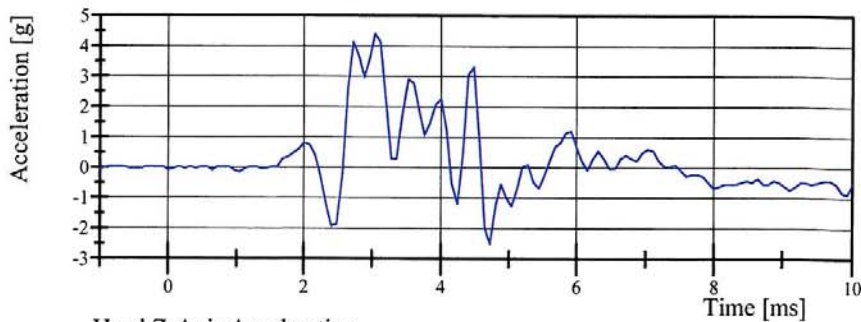


Filter Class: CFC_1000

Max: 0.1 g at -1.0 ms

Min: -111.4 g at 2.8 ms

Head Y-Axis Acceleration

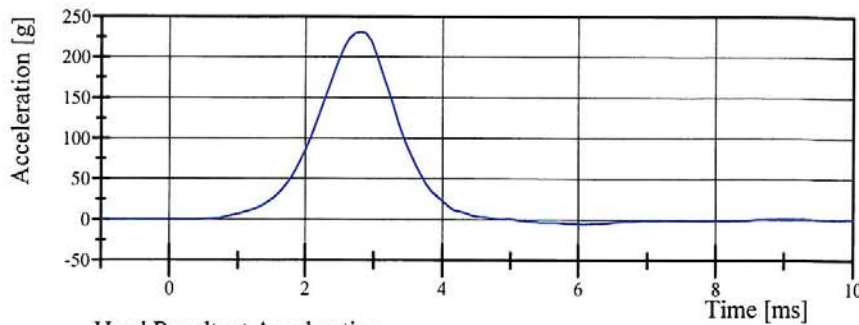


Filter Class: CFC_1000

Max: 4.4 g at 3.0 ms

Min: -2.5 g at 4.7 ms

Head Z-Axis Acceleration

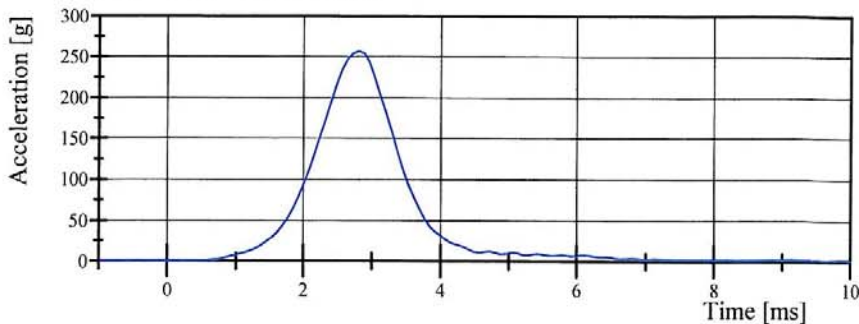


Filter Class: CFC_1000

Max: 231.6 g at 2.8 ms

Min: -5.6 g at 6.1 ms

Head Resultant Acceleration



Filter Class: CFC_1000

Max: 257.0 g at 2.8 ms

Min: 0.0 g at 0.2 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

08.06.2010 08:20:51 601



Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 168 Certification No. 28-1

Test Date: 8/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	63 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	6.920 m/s	Yes
Pendulum Acceleration Decay Crossing -5g	34 - 42 ms	38.8 ms	Yes
Pendulum Acceleration at 10ms	(-22.5) - (-27.5) g	-24.93 g	Yes
Pendulum Acceleration at 20ms	(-17.6) - (-22.6) g	-20.59 g	Yes
Pendulum Acceleration at 30ms	(-12.5) - (-18.5) g	-15.29 g	Yes
Pendulum Acceleration > 30ms	>= (-29.0) g	-15.29 g	Yes
Total Head D-Plane Rotation Peak	(-64) - (-78) °	-72.2 °	Yes
Time of Peak	57 - 64 ms	60.8 ms	Yes
Total Head D-Plane Rotation Decay to 0°	113 - 128 ms	117.3 ms	Yes
Total Neck Occipital Condyles Moment Peak	88 - 108 N·m	95.8 N·m	Yes
Time of Peak	47 - 58 ms	51.2 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	97 - 107 ms	104.6 ms	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

08.06.2010 08:42:19 2975

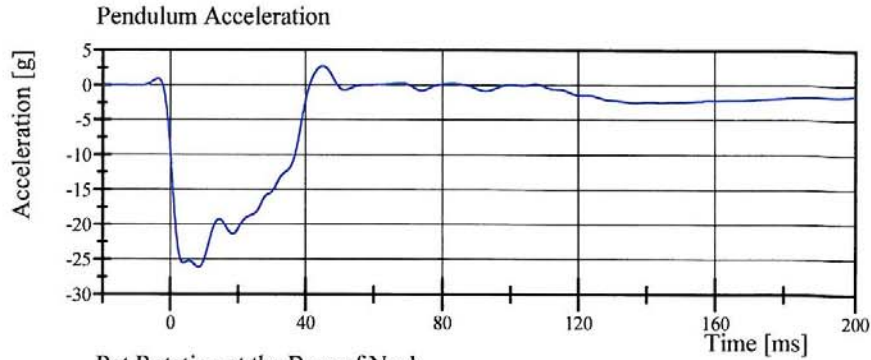


Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 168 Certification No. 28-1

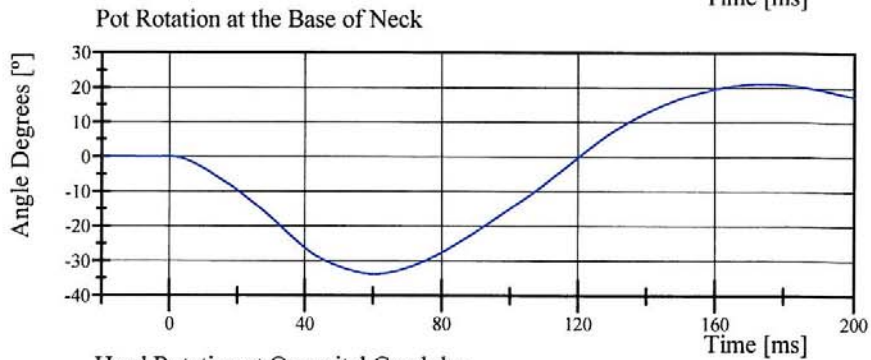
Test Date: 8/6/2010



Filter Class: CFC_60

Max: 2.7 g at 45.0 ms

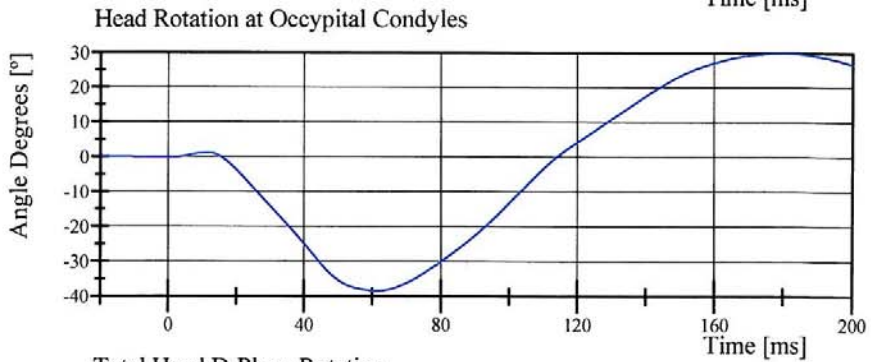
Min: -26.1 g at 8.3 ms



Filter Class: CFC_60

Max: 21.2 ° at 175.0 ms

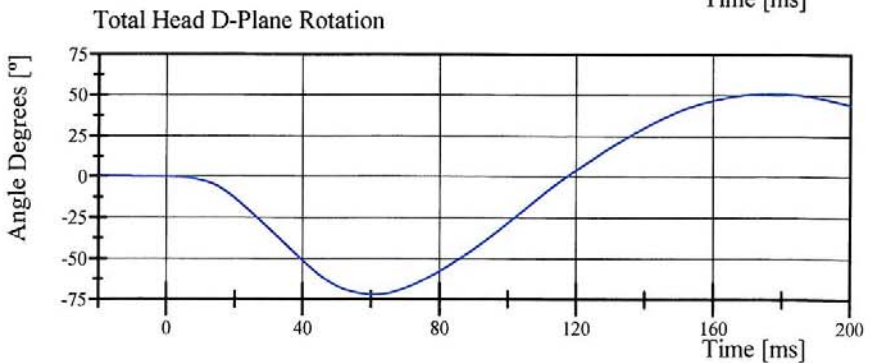
Min: -33.8 ° at 60.2 ms



Filter Class: CFC_60

Max: 30.0 ° at 180.0 ms

Min: -38.4 ° at 61.3 ms



Filter Class: CFC_60

Max: 51.1 ° at 177.8 ms

Min: -72.2 ° at 60.8 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

08.06.2010 08:42:26 2975

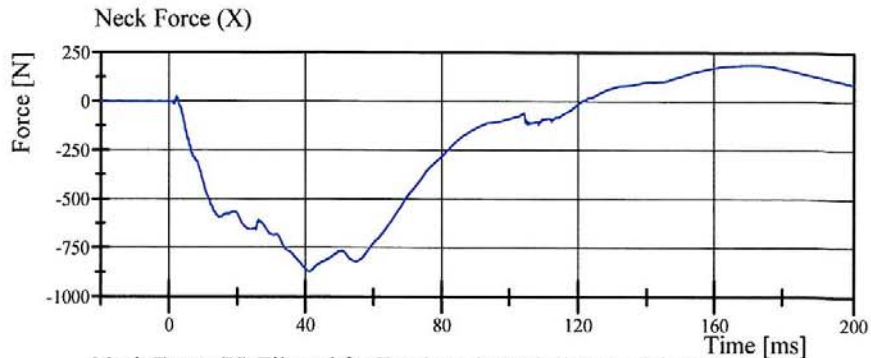


Transportation Research Center Inc.

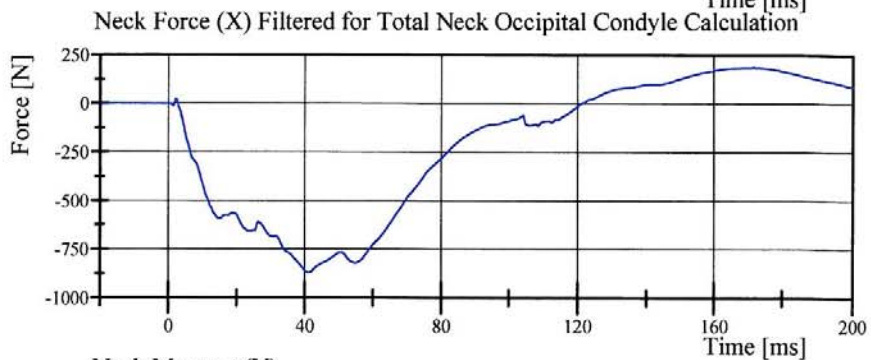
Neck Flexion

HIII 50th Serial No. 168 Certification No. 28-1

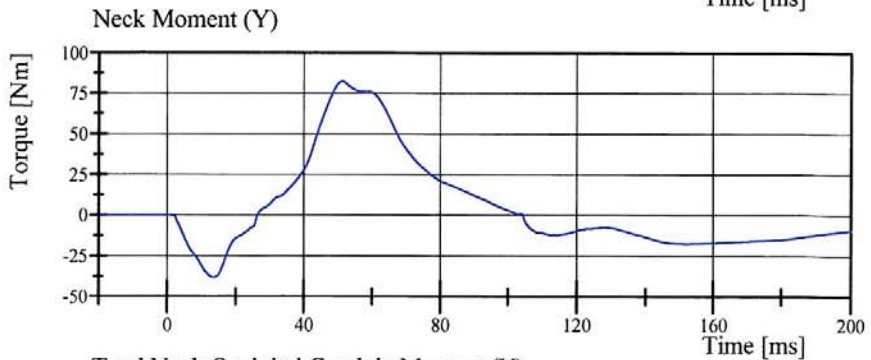
Test Date: 8/6/2010



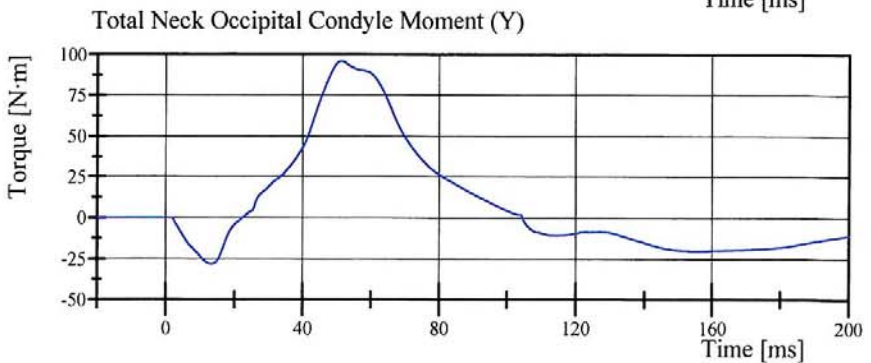
Filter Class: CFC_1000
Max: 188.3 N at 171.8 ms
Min: -871.1 N at 41.2 ms



Filter Class: CFC_600
Max: 187.8 N at 171.8 ms
Min: -870.8 N at 41.2 ms



Filter Class: CFC_600
Max: 82.3 Nm at 51.1 ms
Min: -38.3 Nm at 13.7 ms



Filter Class: CFC_600
Max: 95.8 N·m at 51.2 ms
Min: -28.3 N·m at 13.2 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

08.06.2010 08:42:27 2975



Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 168 Certification No. 28-2

Test Date: 8/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	61 %	Yes
Pendulum Velocity	(-5.95) - (-6.18) m/s	-6.005 m/s	Yes
Pendulum Acceleration Decay Crossing 5g	38 - 46 ms	44.7 ms	Yes
Pendulum Acceleration at 10ms	17.2 - 21.2 g	19.24 g	Yes
Pendulum Acceleration at 20ms	14.0 - 19.0 g	16.17 g	Yes
Pendulum Acceleration at 30ms	11.0 - 16.0 g	13.65 g	Yes
Pendulum Acceleration > 30ms	<= 22.0 g	13.65 g	Yes
Total Head D-Plane Rotation Peak	81 - 106 °	97.6 °	Yes
Time of Peak	72 - 82 ms	79.0 ms	Yes
Total Head D-Plane Rotation Decay to 0°	147 - 174 ms	156.7 ms	Yes
Total Neck Occipital Condyles Moment Peak	(-53) - (-80) N·m	-68.0 N·m	Yes
Time of Peak	65 - 79 ms	72.6 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	120 - 148 ms	145.1 ms	Yes

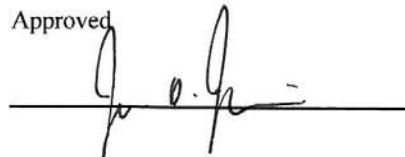
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

08.06.2010 10:11:53 3047

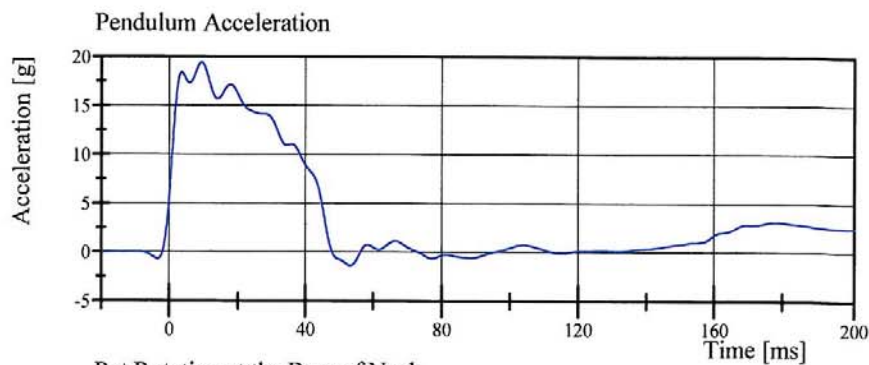


Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 168 Certification No. 28-2

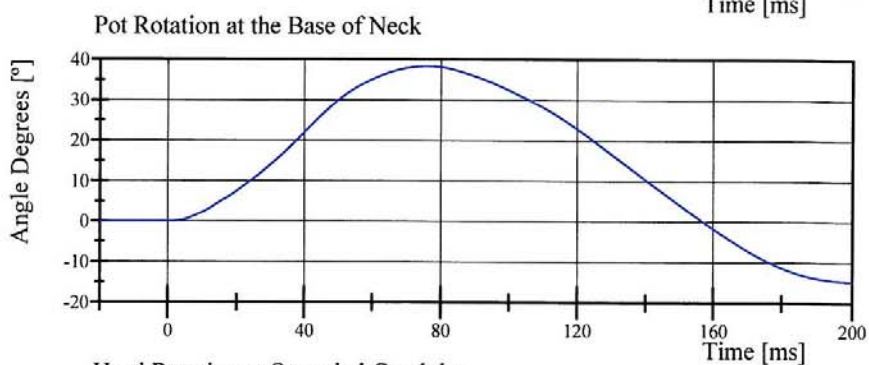
Test Date: 8/6/2010



Filter Class: CFC_60

Max: 19.4 g at 9.4 ms

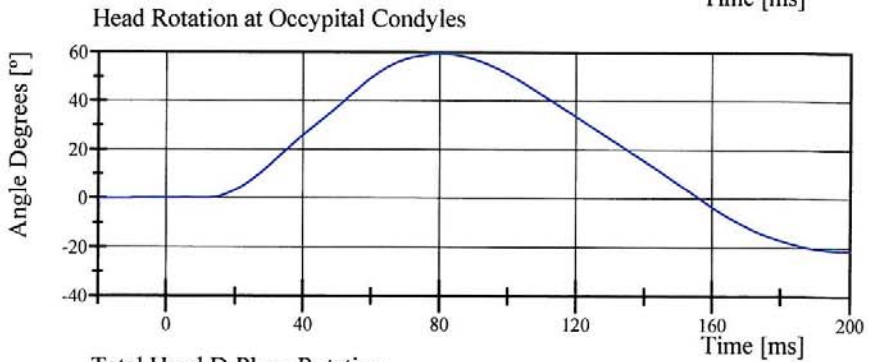
Min: -1.4 g at 53.1 ms



Filter Class: CFC_60

Max: 38.4 ° at 76.3 ms

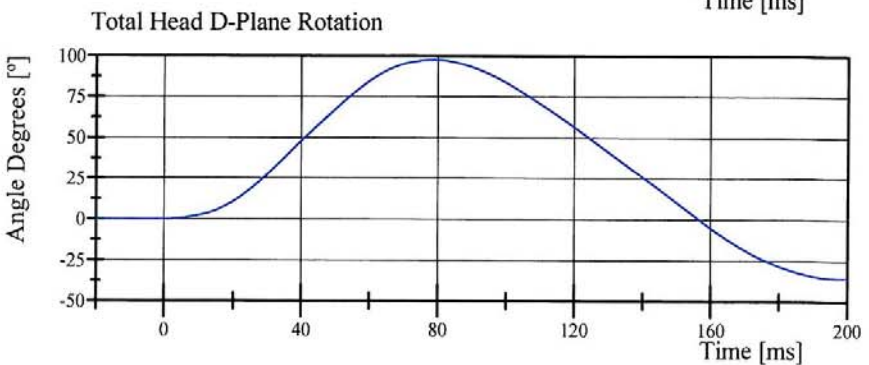
Min: -14.7 ° at 200.0 ms



Filter Class: CFC_60

Max: 59.4 ° at 80.6 ms

Min: -21.2 ° at 198.1 ms



Filter Class: CFC_60

Max: 97.6 ° at 79.0 ms

Min: -35.8 ° at 199.0 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

08.06.2010 10:12:00 3047

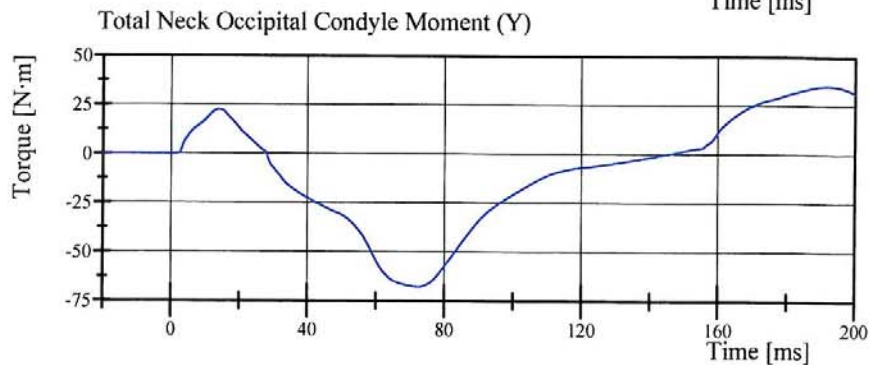
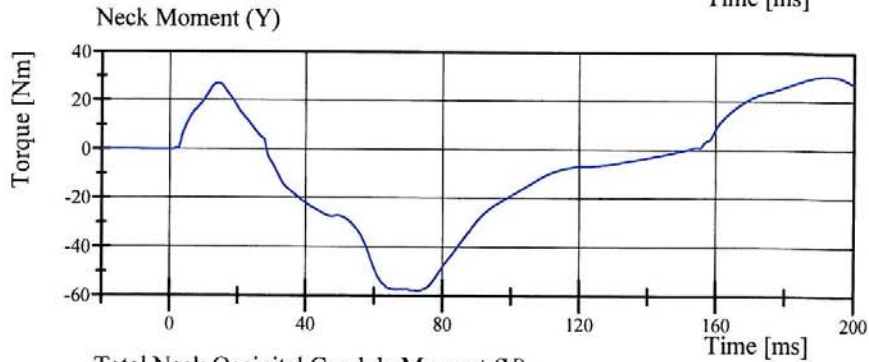
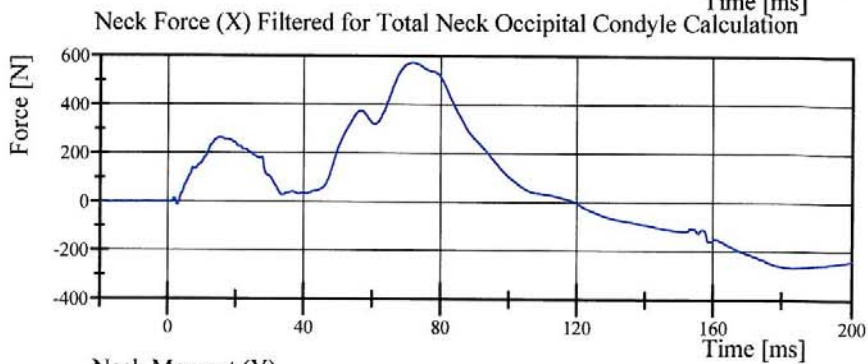
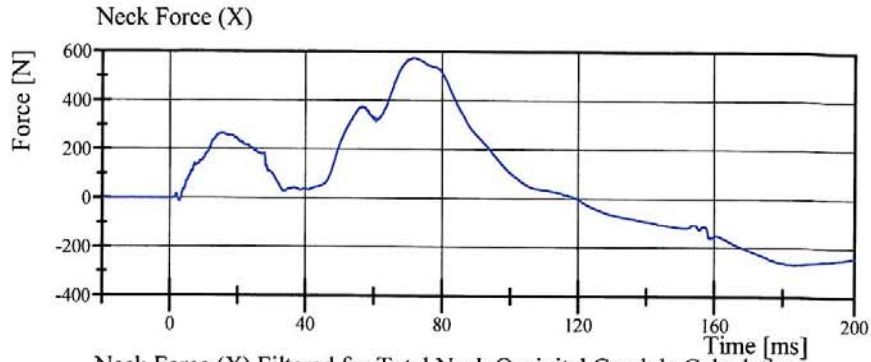


Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 168 Certification No. 28-2

Test Date: 8/6/2010



Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

08.06.2010 10:12:01 3047



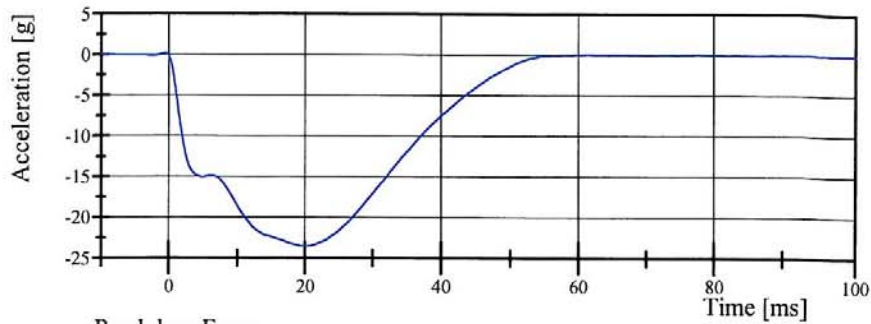
Transportation Research Center Inc.

Front Thorax

HIII 50th Serial No. 168 Certification No. 28-1

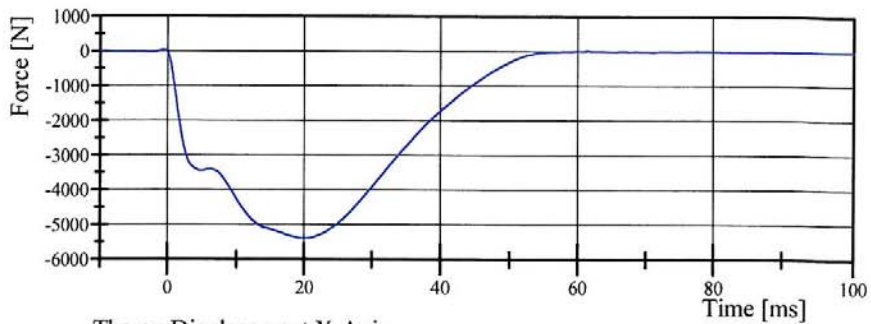
Test Date: 8/6/2010

Pendulum Acceleration



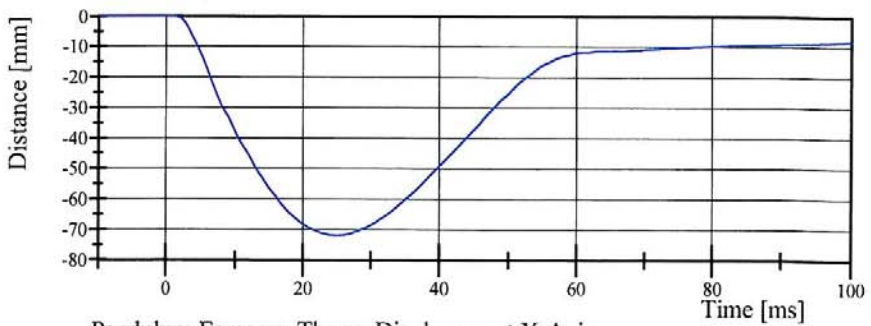
Filter Class: CFC_180
Max: 0.2 g at -0.6 ms
Min: -23.6 g at 19.7 ms

Pendulum Force



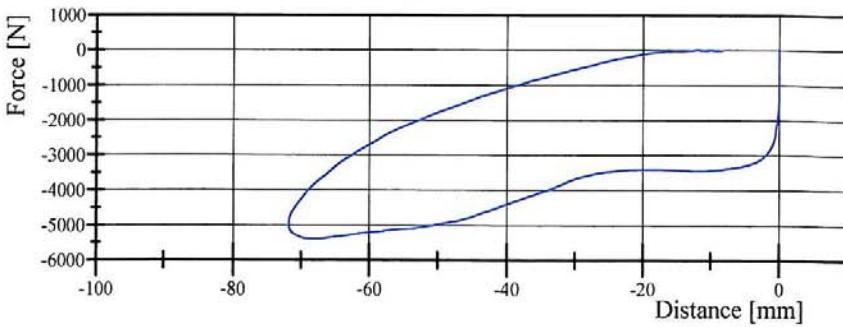
Filter Class: CFC_180
Max: 49.5 N at -0.6 ms
Min: -5,397.5 N at 19.7 ms

Thorax Displacement X-Axis



Filter Class: CFC_600
Max: 0.0 mm at -2.3 ms
Min: -71.9 mm at 24.9 ms

Pendulum Force vs. Thorax Displacement X-Axis



Filter Class: CFC_180
Max: 49.5 N at -0.0 mm
Min: -5,397.5 N at -67.8 mm

Transportation Research Center Inc

Hybrid III Hip Range of Motion

Serial Number: 168L

Date: 08/05/2010

Test Number: 168C28

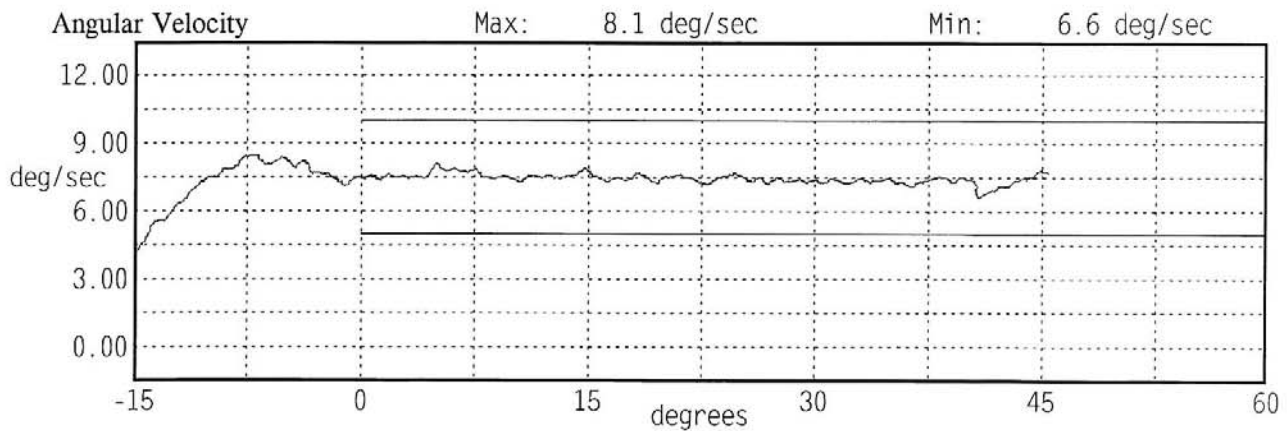
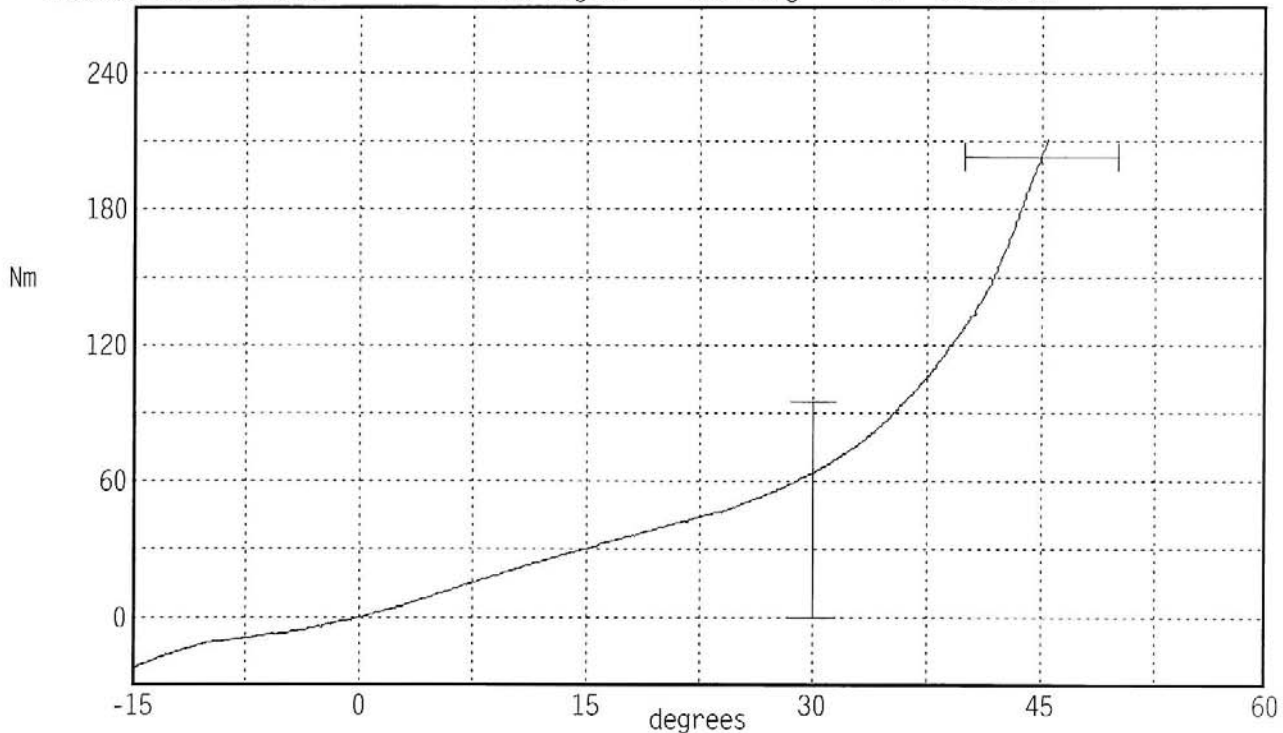
Time: 15:07

Comments:

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.7 °C	Pass
Humidity	10 - 70	56 %	Pass
Moment at 30 deg	<= 94.9	63.5 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	45.0 deg	Pass
Average Velocity	5.0 - 10.0	7.5 deg/sec	Pass

Moment About H-Point

Peak Moment: 211.0 Nm at 45.4 deg
Peak Angle: 45.4 deg at 211.0 Nm



Transportation Research Center Inc

Hybrid III Hip Range of Motion

Serial Number: 168R

Date: 08/06/2010

Test Number: 168C28

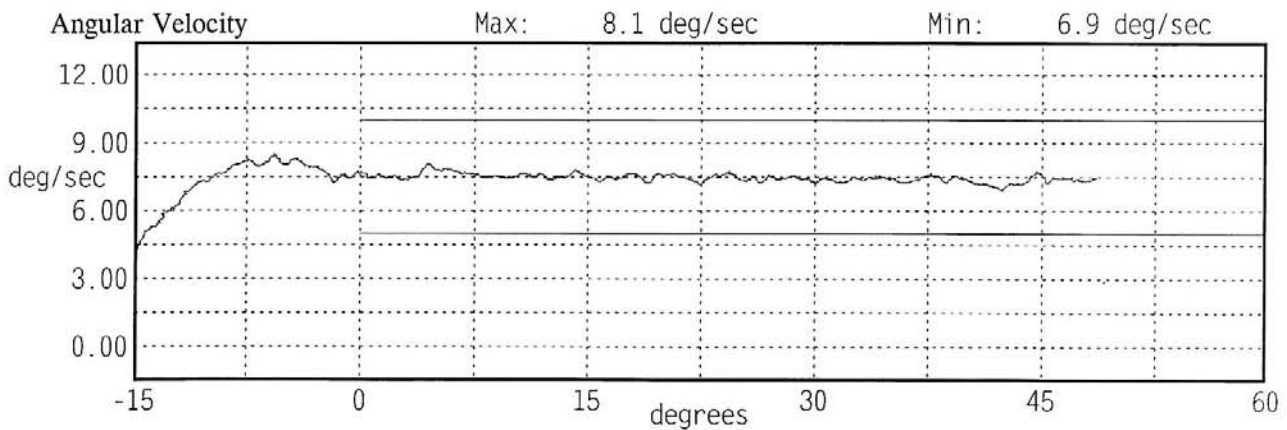
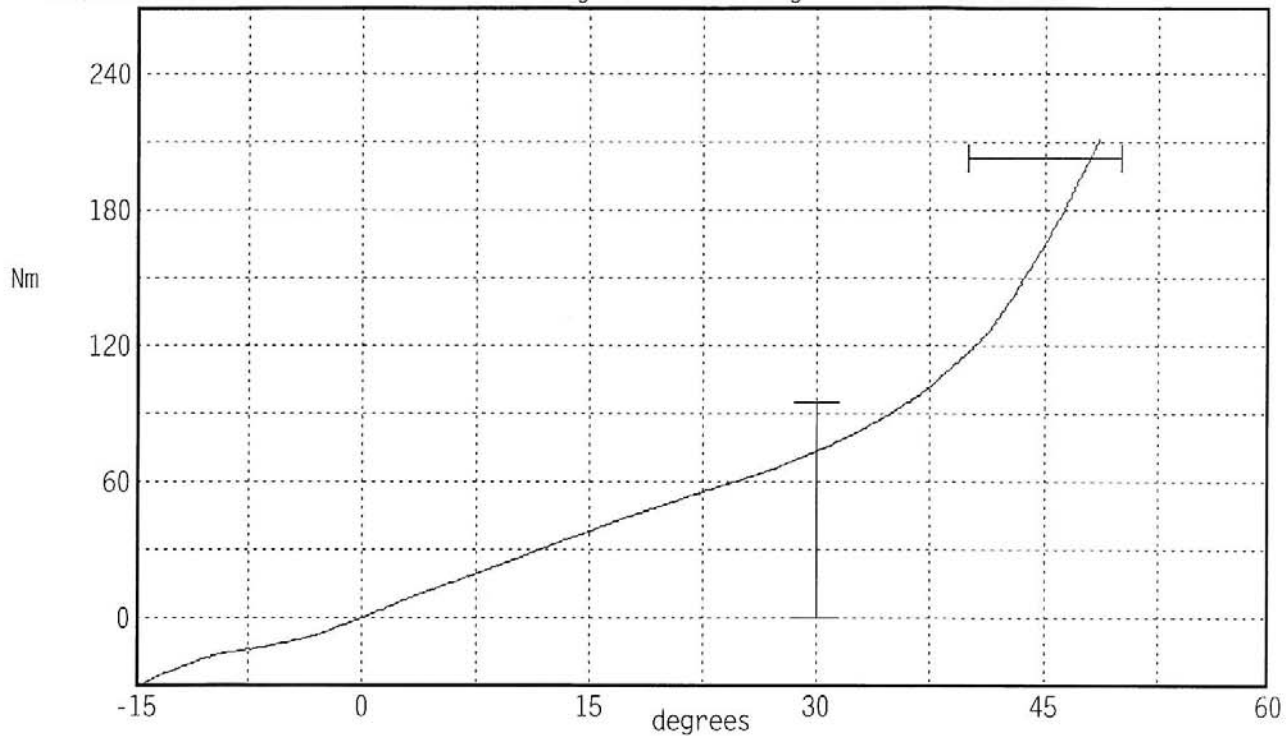
Time: 07:34

Comments:

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	18.9 - 25.6	21.5 °C Pass
Humidity	10 - 70	60 % Pass
Moment at 30 deg	<= 94.9	73.9 Nm Pass
Angle at 203 Nm	40.0 - 50.0	48.0 deg Pass
Average Velocity	5.0 - 10.0	7.5 deg/sec Pass

Moment About H-Point

Peak Moment: 211.4 Nm at 48.5 deg
Peak Angle: 48.5 deg at 211.4 Nm



Transportation Research Center Inc.

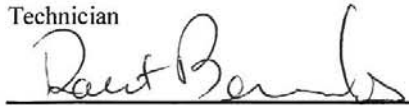
Left Knee Femur Response Test
HIII 50th Serial No. 168 Certification No. 28-1
Test Date: 8/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	62 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.098 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,150.33 N	Yes

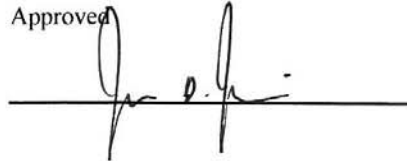
Test meets specifications.

Comments:

Technician



Approved



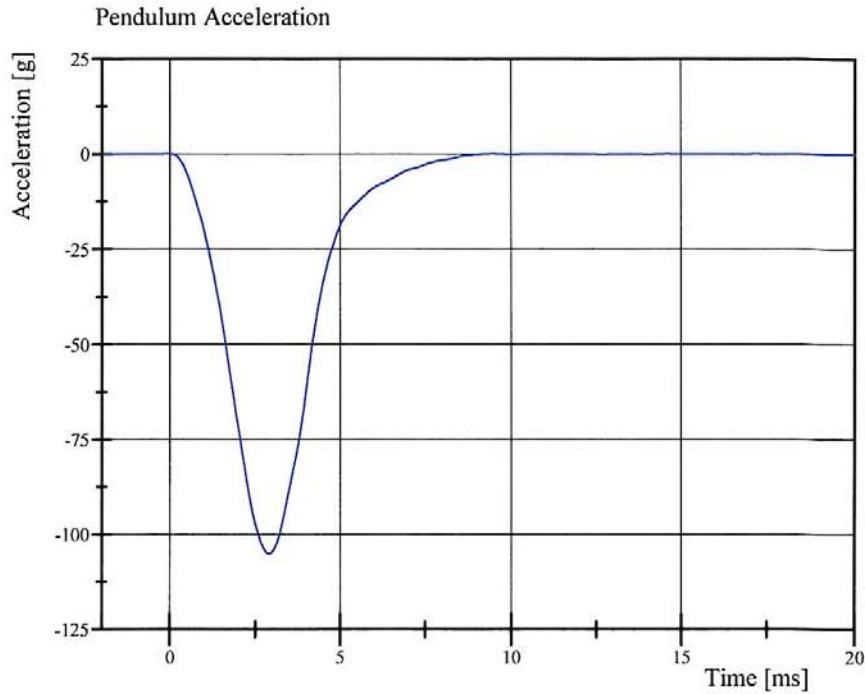
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

08.06.2010 07:44:02 1769

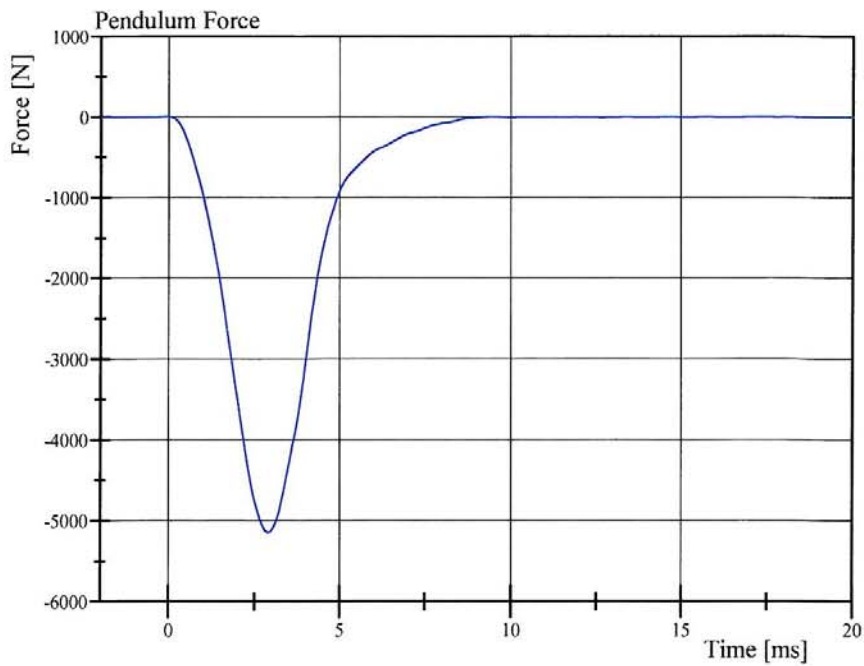


Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. 168 Certification No. 28-1
Test Date: 8/6/2010



Filter Class: CFC_600
Max: 0.1 g at -0.1 ms
Min: -105.3 g at 2.9 ms



Filter Class: CFC_600
Max: 5.8 N at -0.1 ms
Min: -5,150.3 N at 2.9 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

08.06.2010 07:44:12 1769



Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. 168 Certification No. 28-1
Test Date: 8/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	61 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.109 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,290.20 N	Yes

Test meets specifications.

Comments:

Technician



Approved



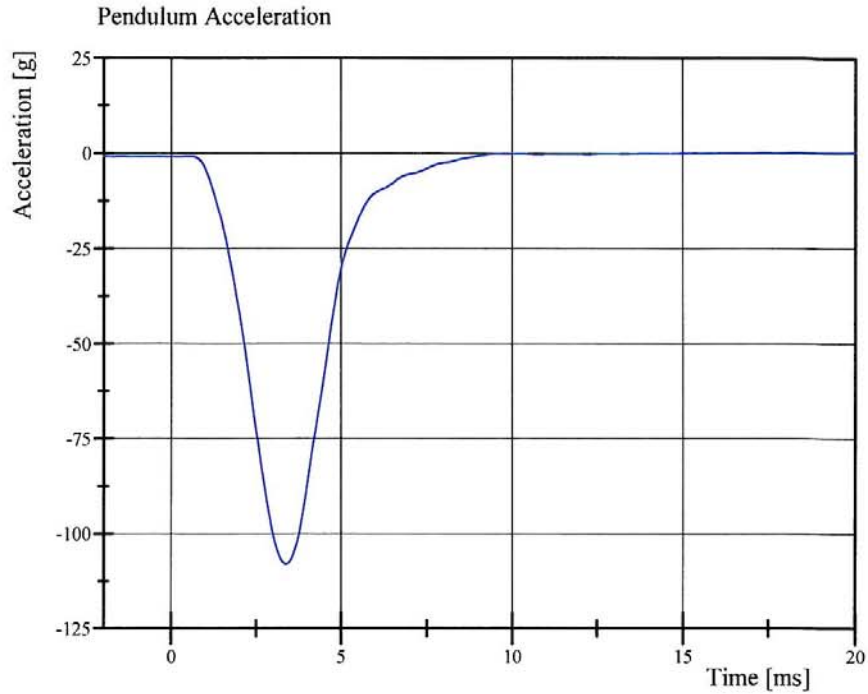
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

08.06.2010 07:49:44 1760

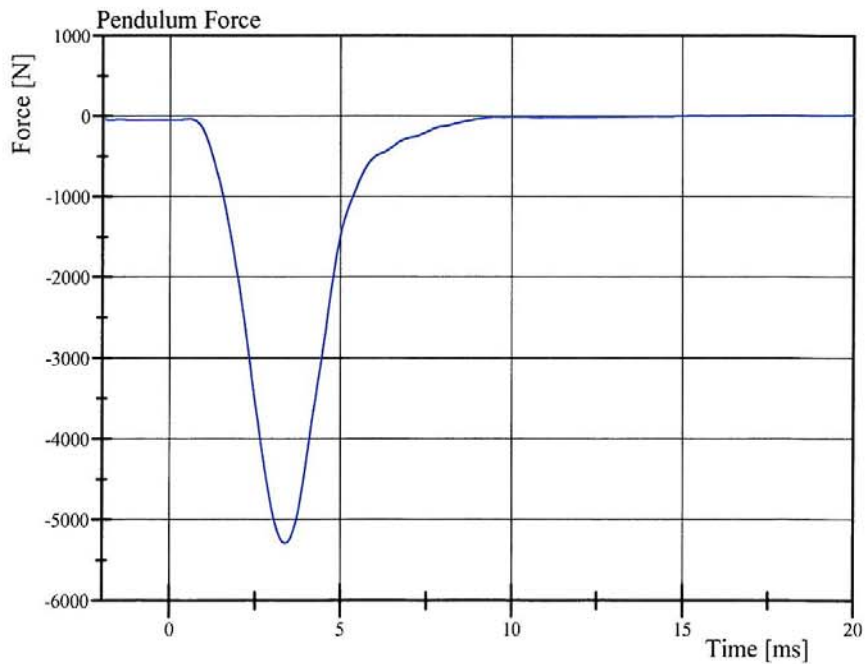


Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 50th Serial No. 168 Certification No. 28-1
Test Date: 8/6/2010



Filter Class: CFC_600
Max: 0.3 g at 20.0 ms
Min: -108.1 g at 3.4 ms



Filter Class: CFC_600
Max: 12.5 N at 20.0 ms
Min: -5,290.2 N at 3.4 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

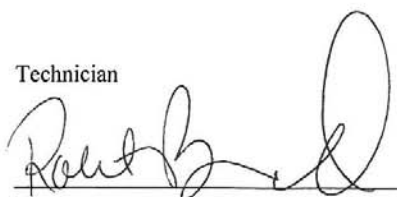
08.06.2010 07:49:52 1760



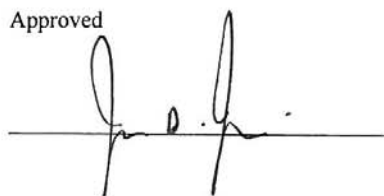
Transportation Research Center Inc.
572E HIII 50th Male Dummy
External Dimensions
Serial No. 168 Calibration No. 28

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	884	Yes
B	Shoulder Pivot Height	505.5 - 520.7	514	Yes
C	H-Point Height	83.8 - 88.9	87	Yes
D	H-Point From Seatback	134.6 - 139.7	136	Yes
E	Shoulder Pivot From Backline	83.8 - 94.0	91	Yes
F	Thigh Clearance	139.7 - 154.9	152	Yes
G	Back Of Elbow To Wrist Pivot	289.6 - 304.8	295	Yes
H	Skull Cap To Backline	40.6 - 45.7	45	Yes
I	Shoulder-Elbow Length	330.2 - 345.4	340	Yes
J	Elbow Rest Height	190.5 - 210.8	202	Yes
K	Buttock Knee Length	579.1 - 604.5	595	Yes
L	Popliteal Height	429.3 - 454.7	440	Yes
M	Knee Pivot Height	485.1 - 500.4	492	Yes
N	Buttock Popliteal Length	452.1 - 477.5	470	Yes
O	Chest Depth	213.4 - 228.6	222	Yes
P	Foot Length	251.5 - 266.7	260	Yes
V	Shoulder Breadth	421.6 - 436.9	428	Yes
W	Foot Breadth	91.4 - 106.7	100	Yes
Y	Chest Circumference	970.3 - 1000.8	990	Yes
Z	Waist Circumference	835.7 - 866.1	860	Yes
AA	Location For Chest Circumference	429.3 - 434.3	432	Yes
BB	Location For Waist Circumference	226.1 - 231.1	229	Yes

Technician



Approved




Revised 3/13/3003

Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. LX00180019 Certification No. 3-1
Test Date: 11/8/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.094 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,307.11 N	Yes

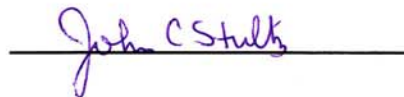
Test meets specifications.

Comments:

Technician



Approved



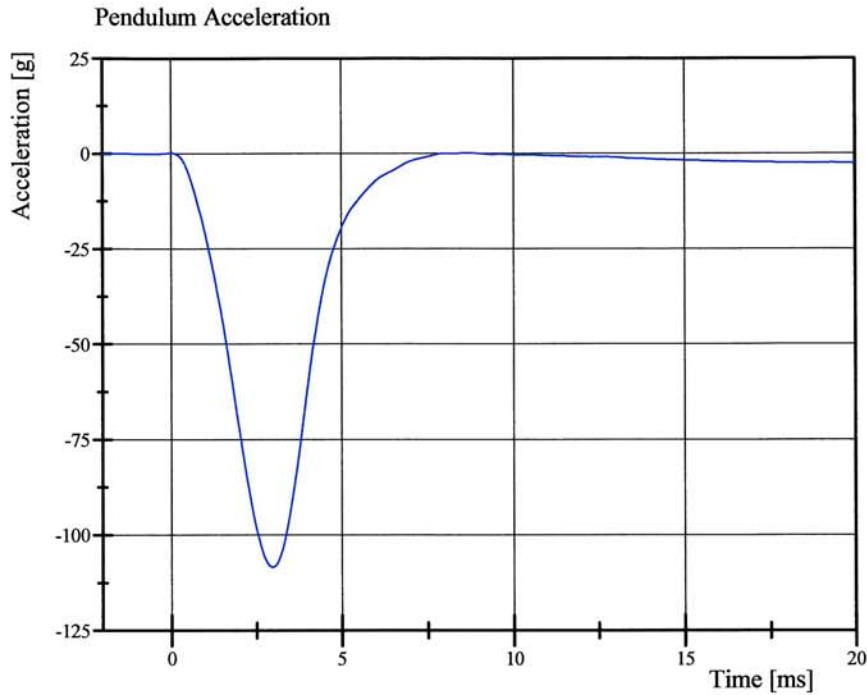
Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

11.08.2010 08:14:29 1696

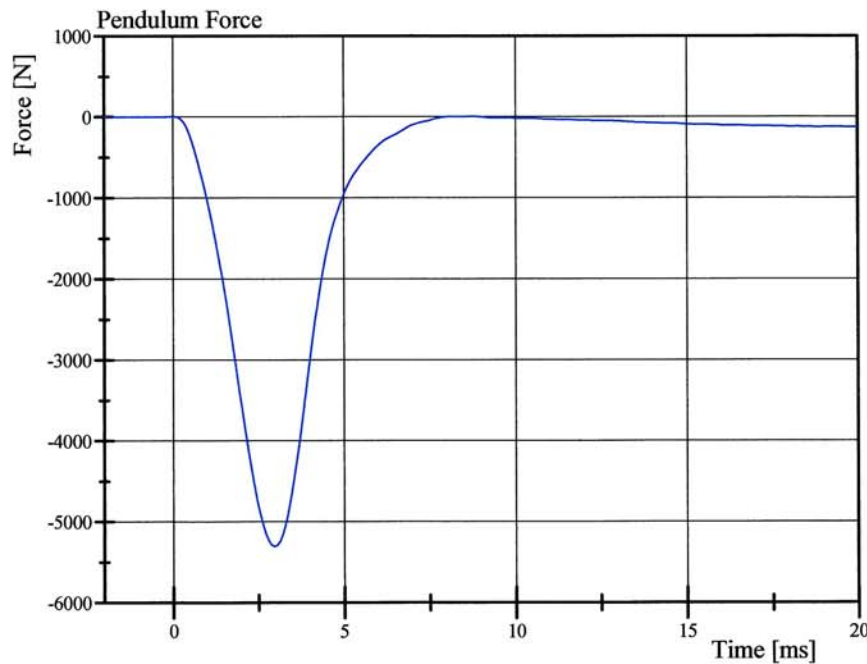


Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 50th Serial No. LX00180019 Certification No. 3-1
Test Date: 11/8/2010



Filter Class: CFC_600
Max: 0.1 gn at 0.0 ms
Min: -108.5 gn at 3.0 ms



Filter Class: CFC_600
Max: 5.3 N at 0.0 ms
Min: -5,307.1 N at 3.0 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

11.08.2010 08:14:41 1696



Transportation Research Center Inc.

Right Knee Femur Response Test

HIII 50th Serial No. LX00180019 Certification No. 3-1

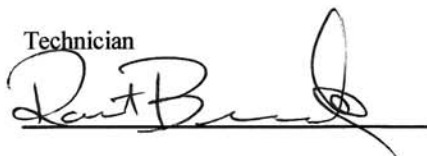
Test Date: 11/8/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	22.0 °C	Yes
Relative Humidity	10 - 70 %	31 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.093 m/s	Yes
Peak Femur Force	(-4,715.2) - (-5,782.6) N	-5,087.49 N	Yes

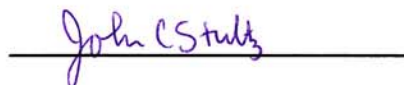
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

11.08.2010 08:24:17 1698

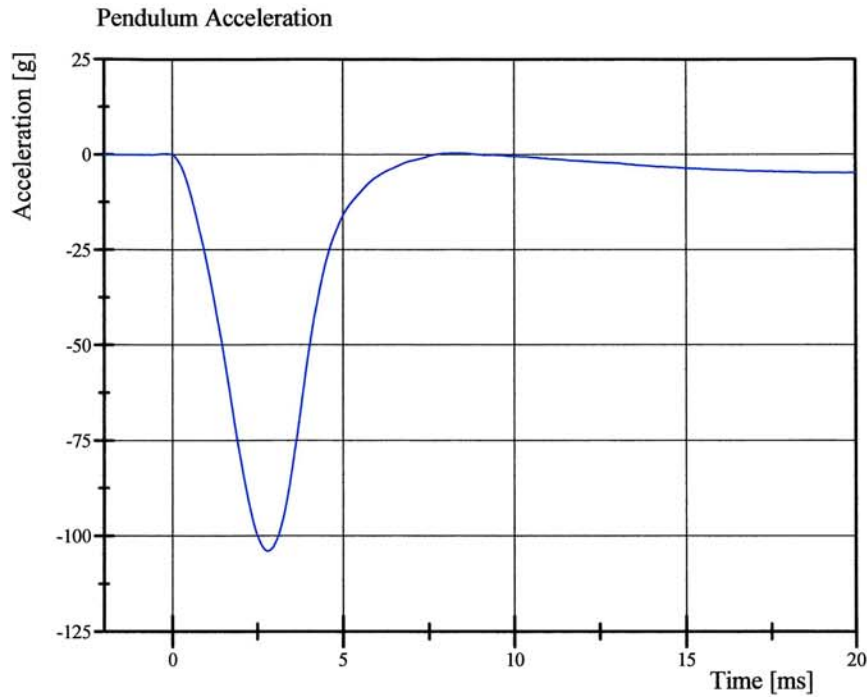


Transportation Research Center Inc.

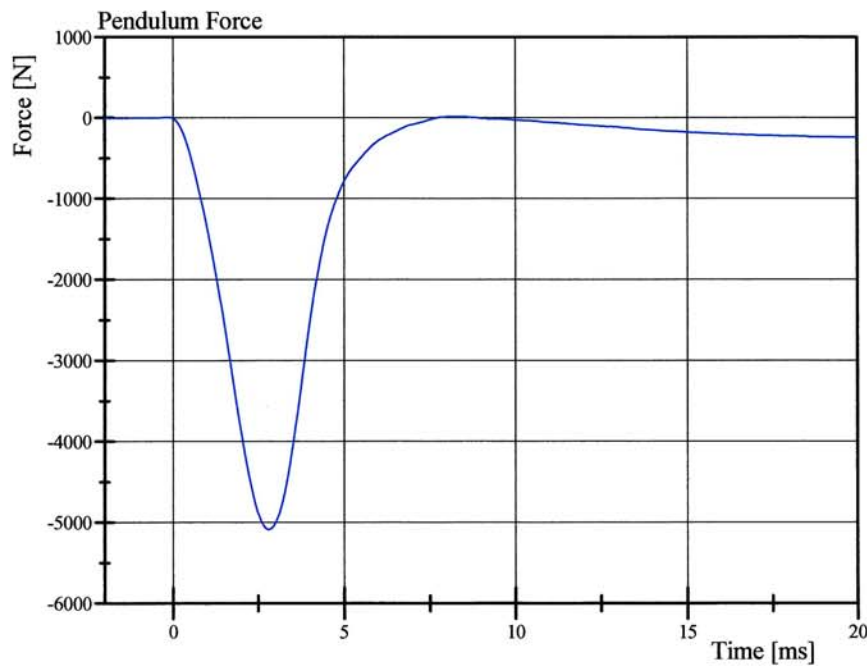
Right Knee Femur Response Test

HIII 50th Serial No. LX00180019 Certification No. 3-1

Test Date: 11/8/2010



Filter Class: CFC_600
Max: 0.3 gn at 8.3 ms
Min: -104.0 gn at 2.8 ms



Filter Class: CFC_600
Max: 16.0 N at 8.3 ms
Min: -5,087.5 N at 2.8 ms

Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

11.08.2010 08:24:27 1698



Transportation Research Center Inc.

Left Knee Slider

HIII 50th Serial No. LX00180019 Certification No. 3-6

Test Date: 11/8/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	22.0 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Probe Velocity	2.70 - 2.80 m/s	2.710 m/s	Yes
Force Peak at 10.0 mm Deflection	(-1,260) - (-1,720) N	-1,692.0 N	Yes
Force Peak at 18.0 mm Deflection	(-2,270) - (-3,100) N	-3,092.0 N	Yes

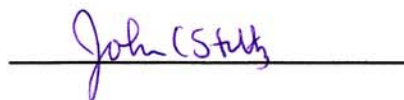
Test meets specifications.

Comments:

Technician



Approved



Specification Source: SAE User's Manual with Polarity in Accordance with J211

11.08.2010 12:37:47 1460



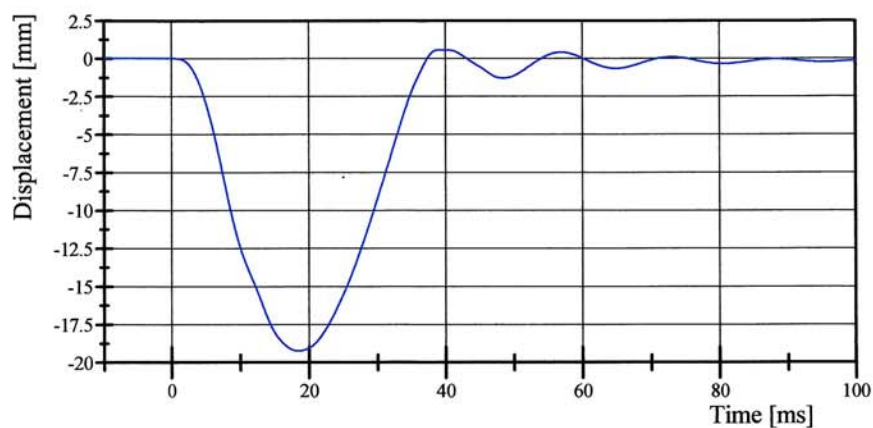
Transportation Research Center Inc.

Left Knee Slider

HIII 50th Serial No. LX00180019 Certification No. 3-6

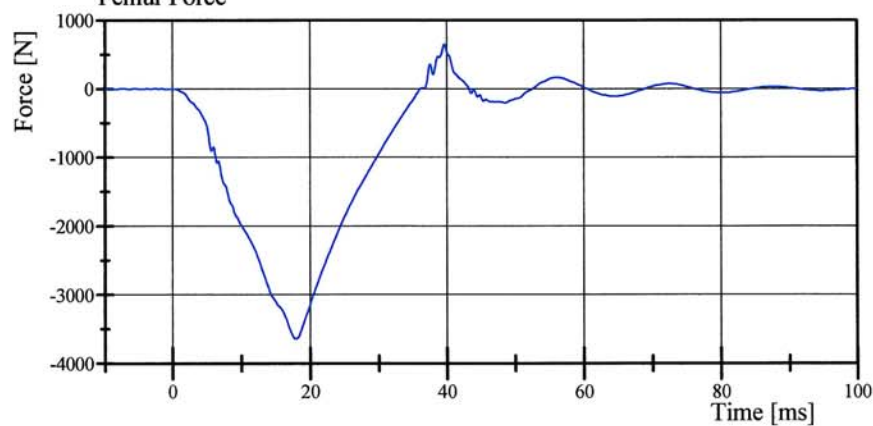
Test Date: 11/8/2010

Knee Slider Displacement



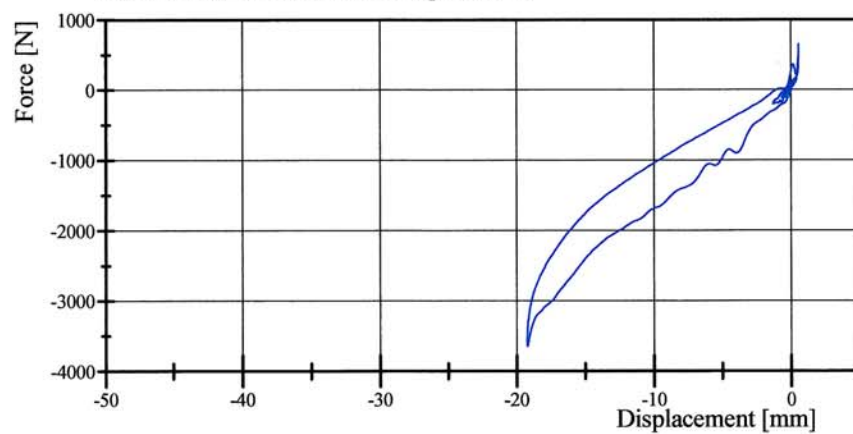
Filter Class: CFC_180
Max: 0.6 mm at 39.6 ms
Min: -19.2 mm at 18.5 ms

Femur Force



Filter Class: CFC_600
Max: 649.4 N at 39.7 ms
Min: -3,641.9 N at 17.9 ms

Femur Force vs. Knee Slider Displacement



Filter Class: CFC_600
Max: 649.4 N at 0.6 mm
Min: -3,641.9 N at -19.2 mm

Transportation Research Center Inc.

Right Knee Slider

HIII 50th Serial No. LX00180019 Certification No. 3-2

Test Date: 11/8/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	22.0 °C	Yes
Relative Humidity	10 - 70 %	33 %	Yes
Probe Velocity	2.70 - 2.80 m/s	2.713 m/s	Yes
Force Peak at 10.0 mm Deflection	(-1,260) - (-1,720) N	-1,325.8 N	Yes
Force Peak at 18.0 mm Deflection	(-2,270) - (-3,100) N	-2,556.3 N	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: SAE User's Manual with Polarity in Accordance with J211

11.08.2010 09:12:43 1460



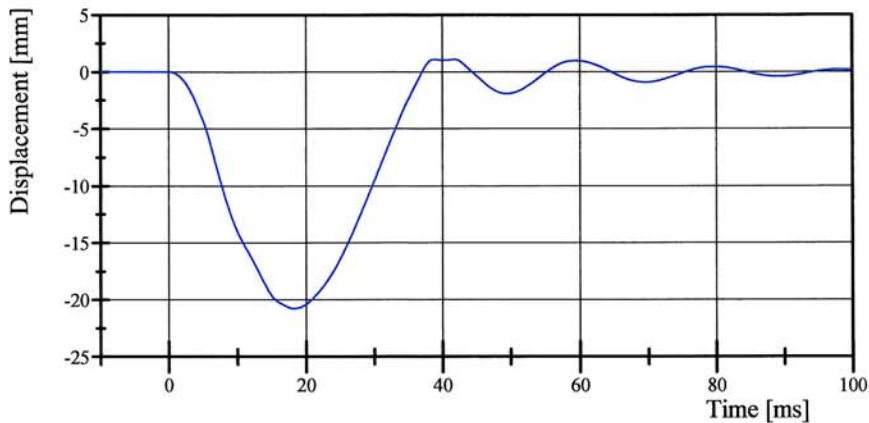
Transportation Research Center Inc.

Right Knee Slider

HIII 50th Serial No. LX00180019 Certification No. 3-2

Test Date: 11/8/2010

Knee Slider Displacement

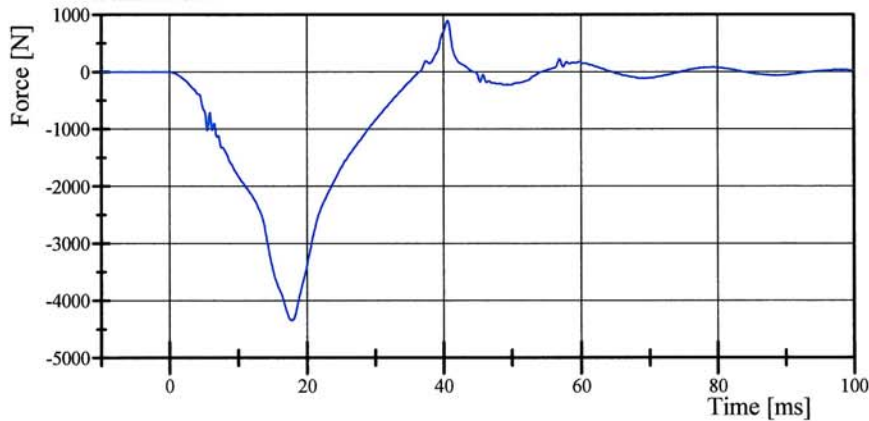


Filter Class: CFC_180

Max: 1.1 mm at 41.8 ms

Min: -20.8 mm at 18.2 ms

Femur Force

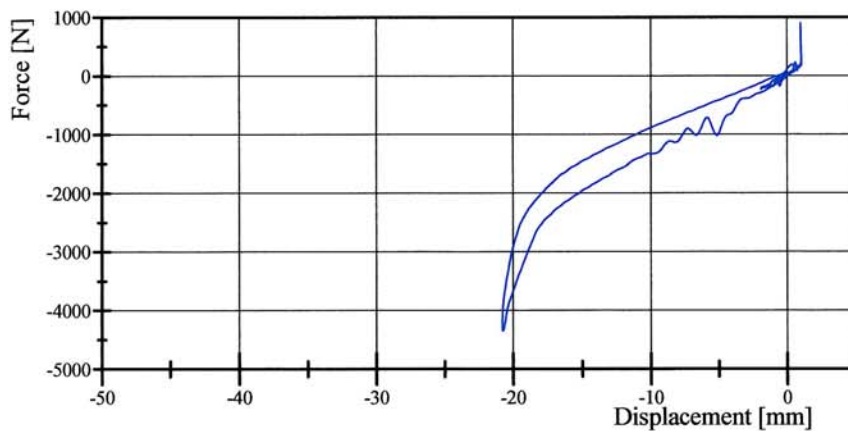


Filter Class: CFC_600

Max: 896.5 N at 40.6 ms

Min: -4,344.8 N at 17.8 ms

Femur Force vs. Knee Slider Displacement



Filter Class: CFC_600

Max: 896.5 N at 1.0 mm

Min: -4,344.8 N at -20.7 mm

Pre-Test Dummy Configuration and Performance Verification Data

Bullet Vehicle Right Front Passenger Dummy S/N: 426

Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 426 Certification No. 8-1

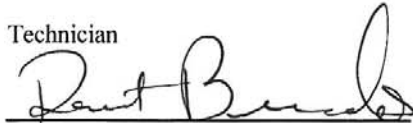
Test Date: 10/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Peak Head Resultant Acceleration	250 - 300 g	279.2 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	3.1 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 12:27:25 610



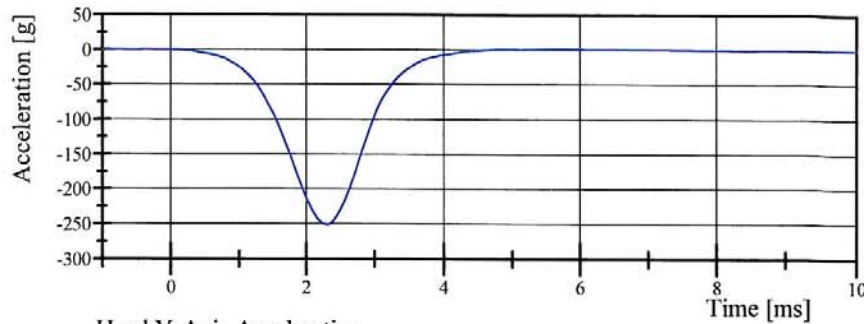
Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 426 Certification No. 8-1

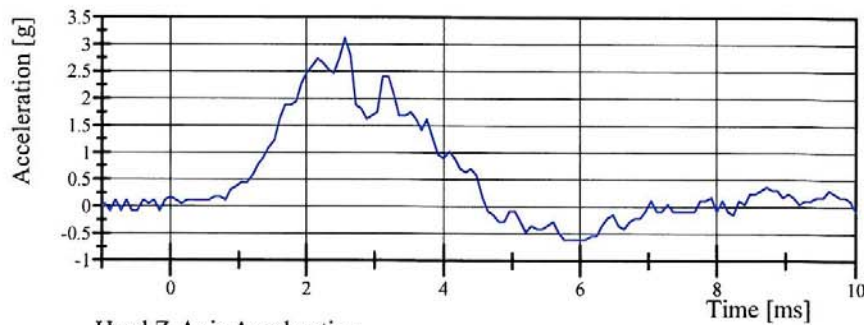
Test Date: 10/6/2010

Head X-Axis Acceleration



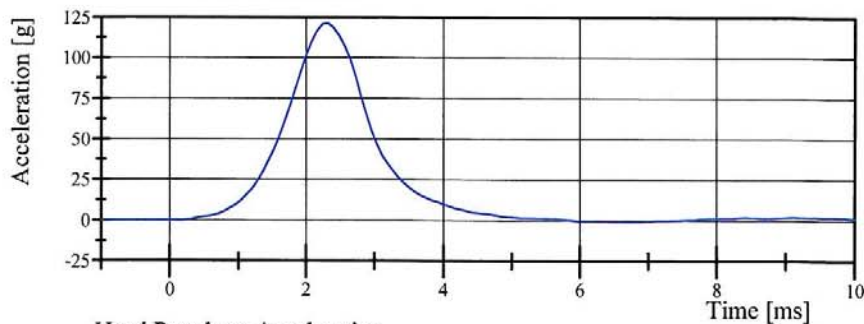
Filter Class: CFC_1000
Max: 1.9 gn at 5.8 ms
Min: -251.3 gn at 2.3 ms

Head Y-Axis Acceleration



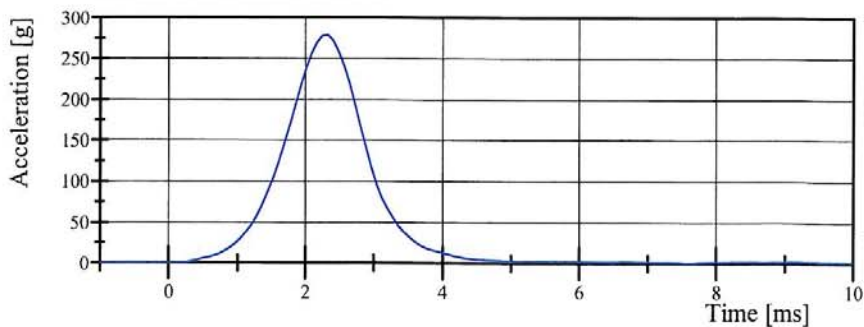
Filter Class: CFC_1000
Max: 3.1 gn at 2.6 ms
Min: -0.6 gn at 5.8 ms

Head Z-Axis Acceleration



Filter Class: CFC_1000
Max: 121.5 gn at 2.3 ms
Min: -0.9 gn at 6.6 ms

Head Resultant Acceleration



Filter Class: CFC_1000
Max: 279.2 gn at 2.3 ms
Min: 0.1 gn at -0.3 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 12:27:38 610



Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 426 Certification No. 8-2

Test Date: 10/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	6.941 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	(-2.1) - (-2.5) m/s	-2.45 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	(-4.0) - (-5.0) m/s	-4.71 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	(-5.8) - (-7.0) m/s	-6.60 m/s	Yes
Total Head D-Plane Rotation	(-77) - (-91) °	-78.4 °	Yes
Total Neck Occipital Condyles Moment Between -77° and -91° Rotation	69 - 83 N·m	71.8 N·m	Yes
Total Neck Occipital Condyles Moment Decay to 10 N·m	80 - 100 ms	85.7 ms	Yes

Test meets specifications.

Comments:

Technician

Approved

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 14:54:21 1094

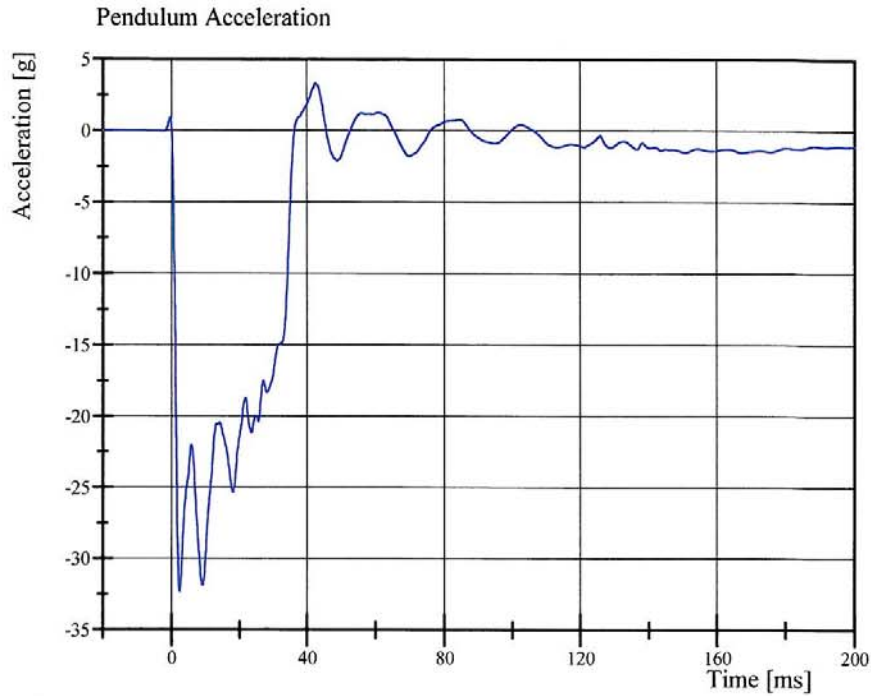


Transportation Research Center Inc.

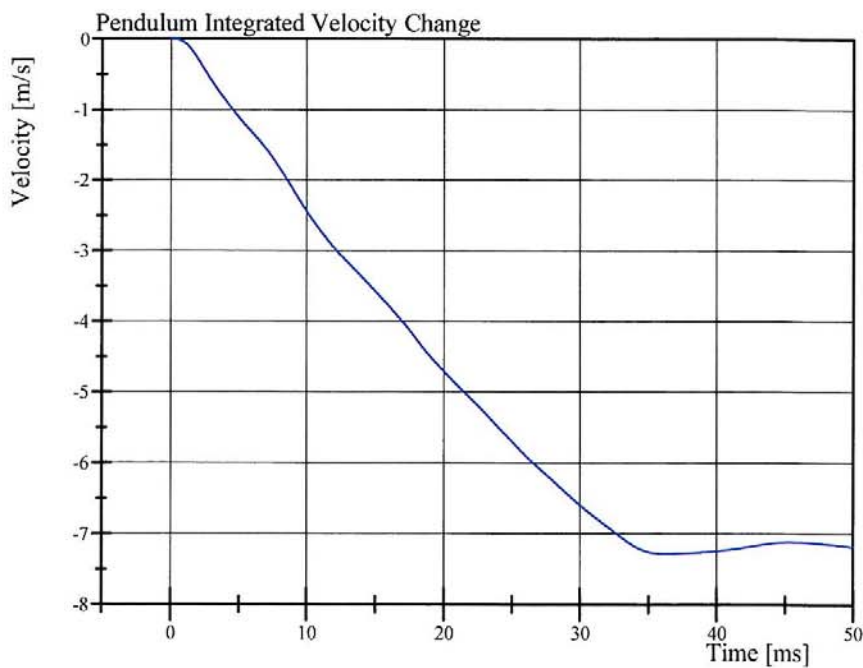
Neck Flexion

HIII 5th Serial No. 426 Certification No. 8-2

Test Date: 10/6/2010



Filter Class: CFC_180
Max: 3.3 gn at 42.4 ms
Min: -32.3 gn at 2.3 ms



Filter Class: CFC_180
Max: 0.0 m/s at 0.0 ms
Min: -7.3 m/s at 36.2 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 14:54:35 1094



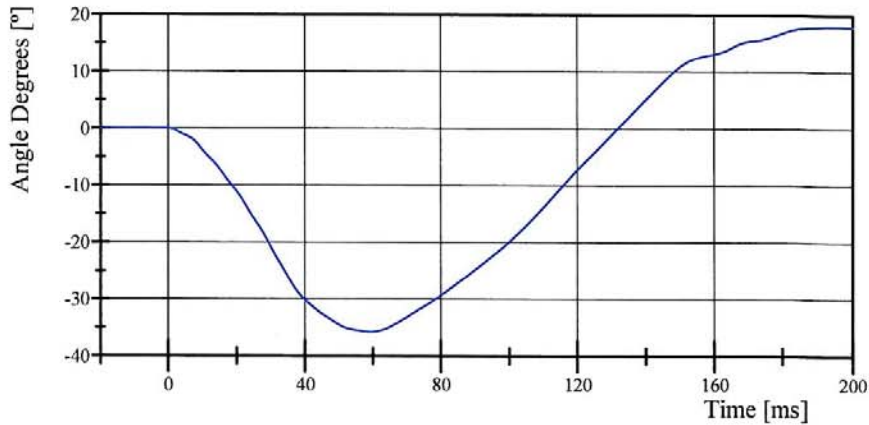
Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 426 Certification No. 8-2

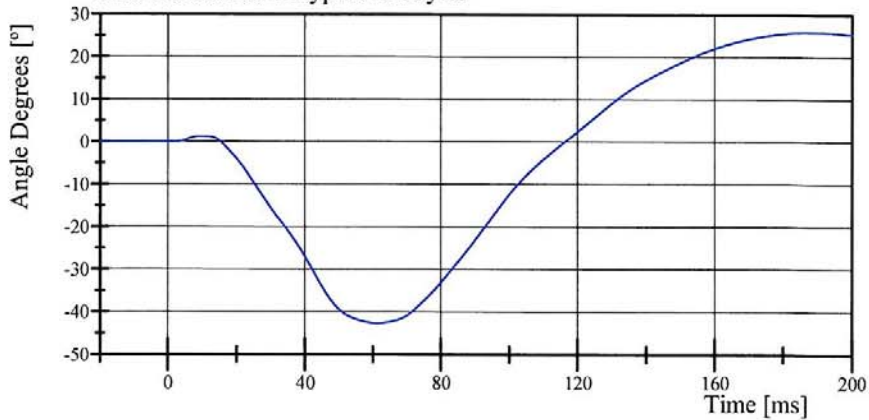
Test Date: 10/6/2010

Pot Rotation at the Base of Neck



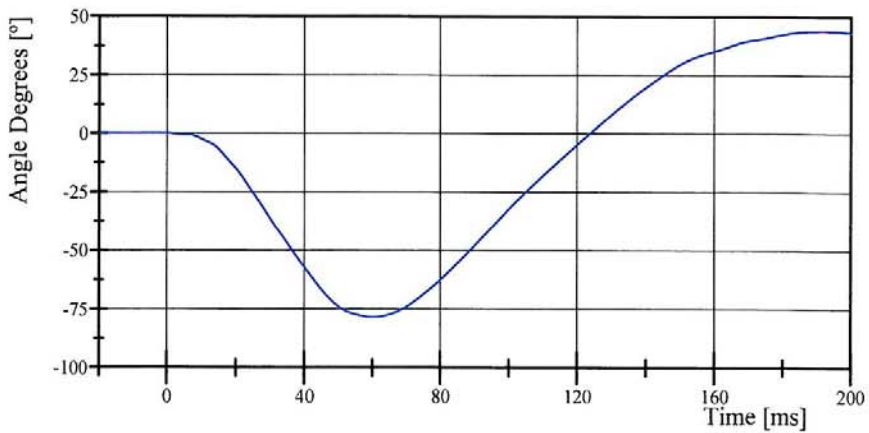
Filter Class: CFC_60
Max: 18.1 ° at 194.0 ms
Min: -35.8 ° at 59.3 ms

Head Rotation at Occipital Condyles



Filter Class: CFC_60
Max: 25.9 ° at 188.6 ms
Min: -42.7 ° at 61.1 ms

Total Head D-Plane Rotation



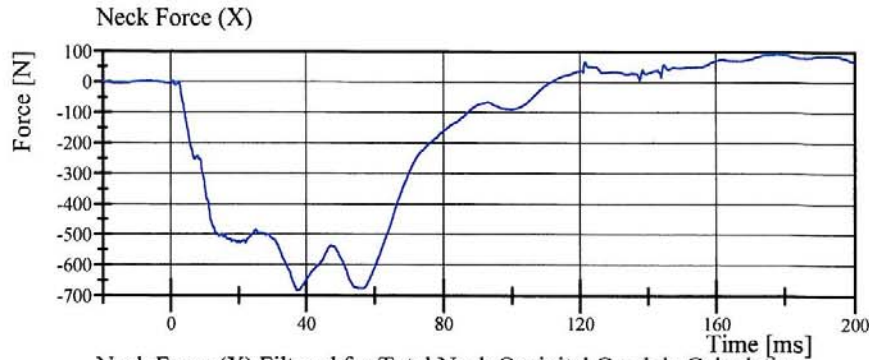
Filter Class: CFC_60
Max: 43.9 ° at 191.5 ms
Min: -78.4 ° at 60.2 ms

Transportation Research Center Inc.

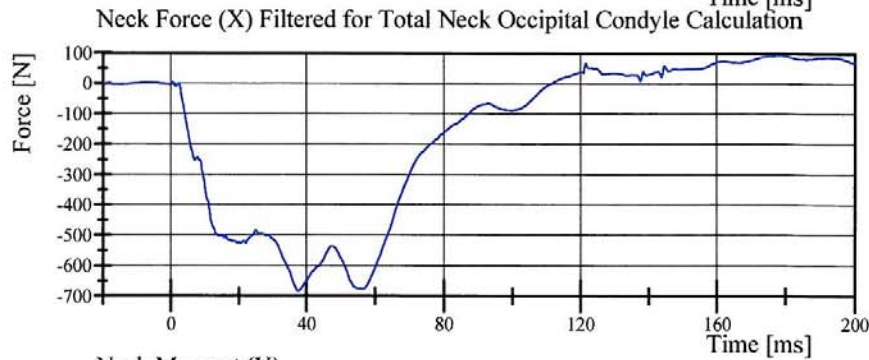
Neck Flexion

HIII 5th Serial No. 426 Certification No. 8-2

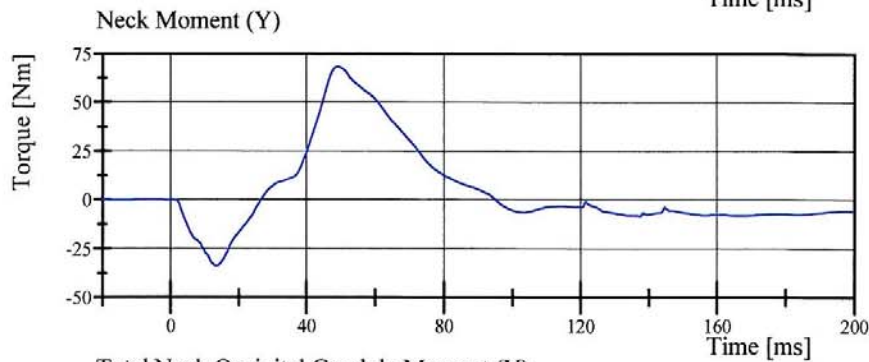
Test Date: 10/6/2010



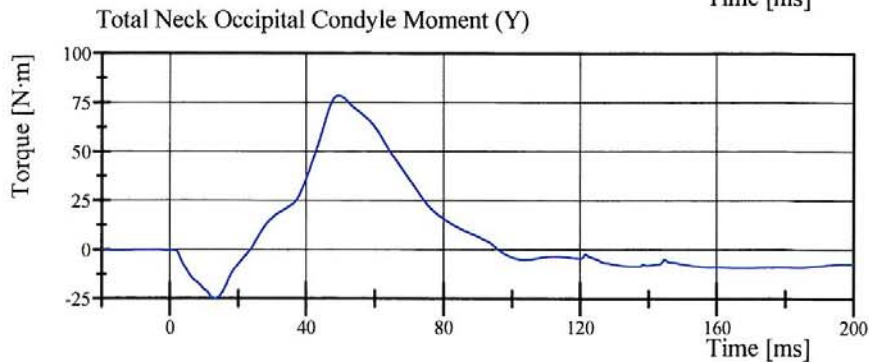
Filter Class: CFC_1000
Max: 95.3 N at 178.9 ms
Min: -683.0 N at 37.2 ms



Filter Class: CFC_600
Max: 94.8 N at 178.9 ms
Min: -682.8 N at 37.4 ms



Filter Class: CFC_600
Max: 68.6 Nm at 49.2 ms
Min: -33.7 Nm at 13.1 ms



Filter Class: CFC_600
Max: 78.5 N·m at 49.3 ms
Min: -24.9 N·m at 13.2 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 14:54:36 1094



Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 426 Certification No. 8-1

Test Date: 10/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Pendulum Velocity	(-5.95) - (-6.19) m/s	-6.075 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	1.5 - 1.9 m/s	1.87 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	3.1 - 3.9 m/s	3.82 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	4.6 - 5.6 m/s	5.50 m/s	Yes
Total Head D-Plane Rotation	99 - 114 °	113.3 °	Yes
Total Neck Occipital Condyles Moment Between 99° and 114° Rotation	(-53) - (-65) N·m	-61.4 N·m	Yes
Total Neck Occipital Condyles Moment Decay to -10 N·m	94 - 114 ms	102.0 ms	Yes

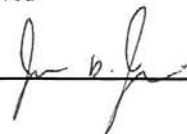
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 15:47:33 1863



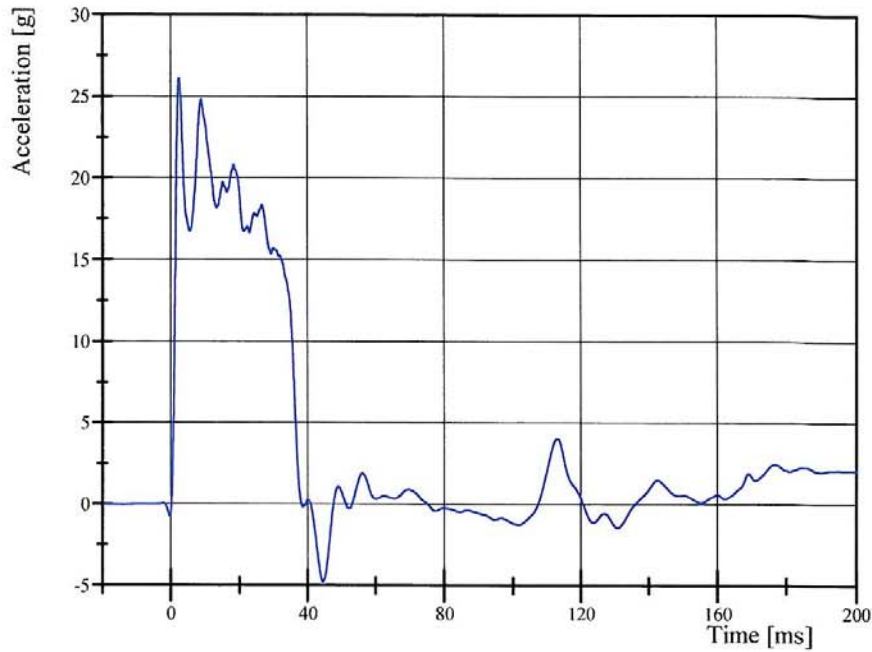
Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 426 Certification No. 8-1

Test Date: 10/6/2010

Pendulum Acceleration

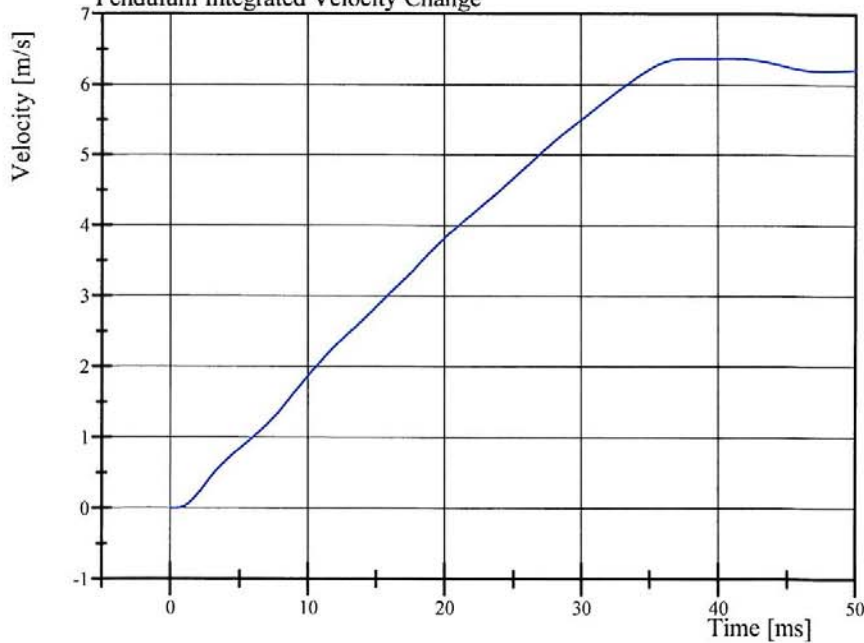


Filter Class: CFC_180

Max: 26.1 gn at 2.4 ms

Min: -4.8 gn at 44.5 ms

Pendulum Integrated Velocity Change



Filter Class: CFC_180

Max: 6.4 m/s at 40.9 ms

Min: -0.0 m/s at 0.1 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 15:47:46 1863



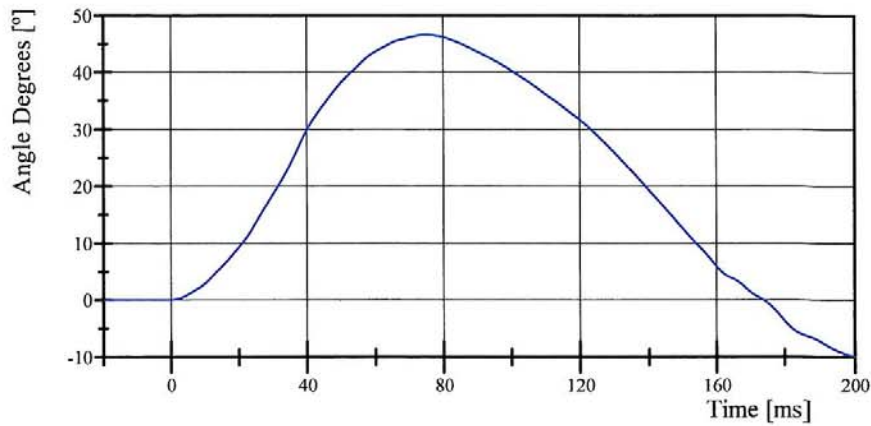
Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 426 Certification No. 8-1

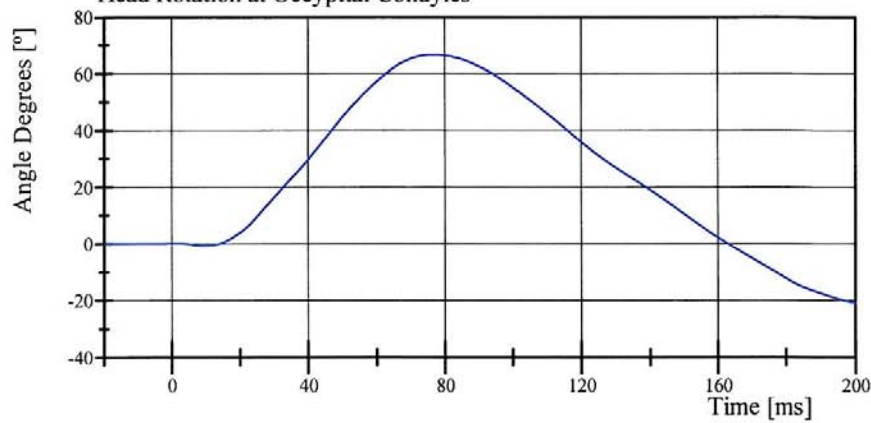
Test Date: 10/6/2010

Pot Rotation at the Base of Neck



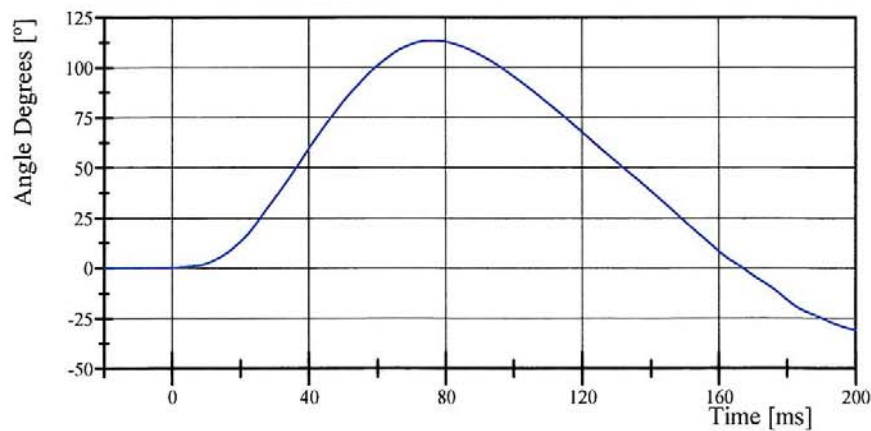
Filter Class: CFC_60
Max: 46.6 ° at 74.7 ms
Min: -9.9 ° at 200.0 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 66.7 ° at 76.8 ms
Min: -20.9 ° at 200.0 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 113.3 ° at 76.0 ms
Min: -30.8 ° at 200.0 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 15:47:46 1863

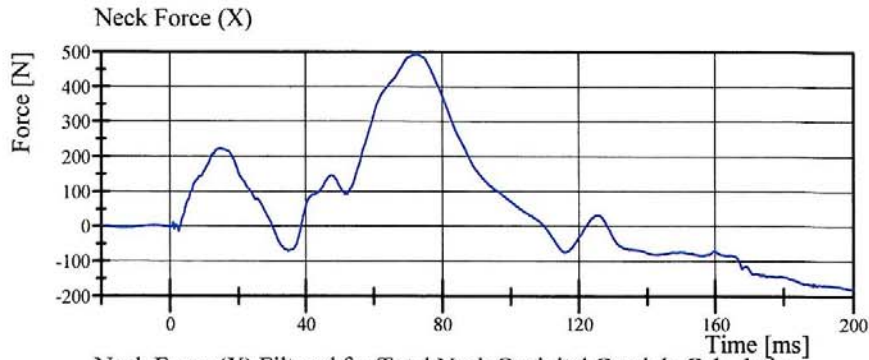


Transportation Research Center Inc.

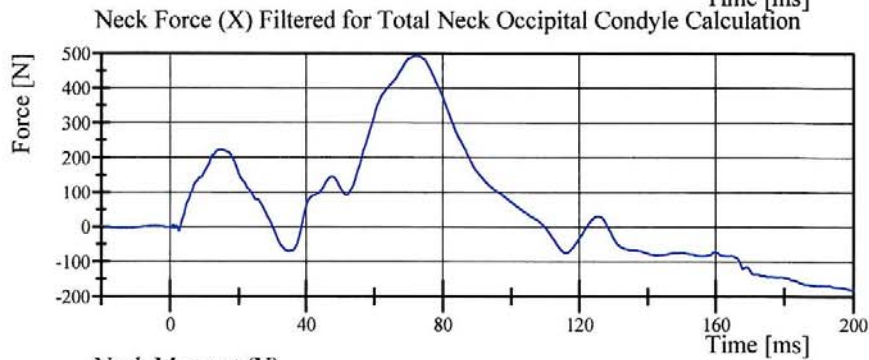
Neck Extension

HIII 5th Serial No. 426 Certification No. 8-1

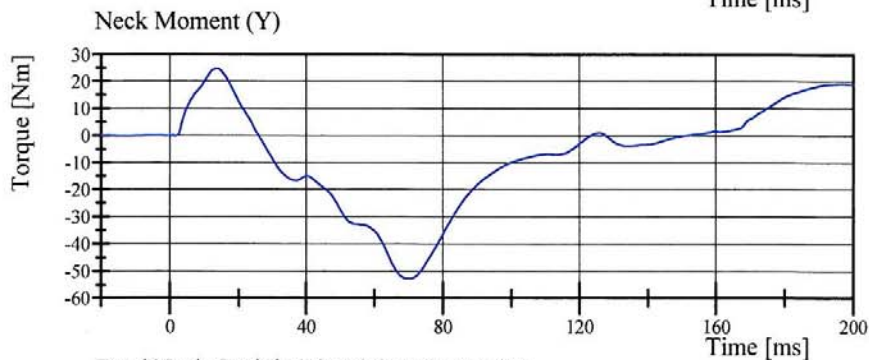
Test Date: 10/6/2010



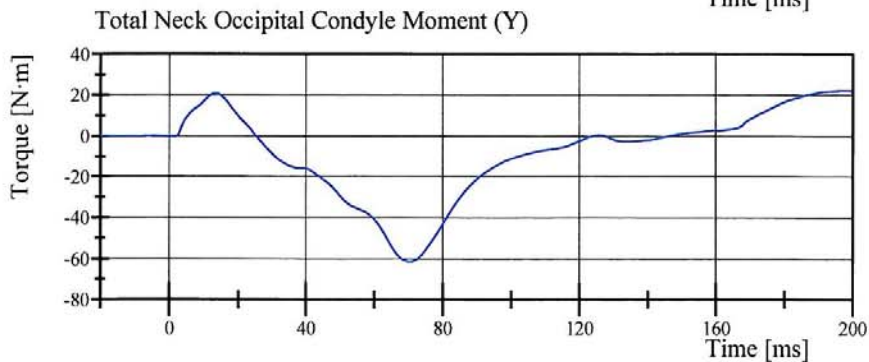
Filter Class: CFC_1000
Max: 494.3 N at 71.8 ms
Min: -180.5 N at 199.6 ms



Filter Class: CFC_600
Max: 493.9 N at 71.8 ms
Min: -180.1 N at 199.6 ms



Filter Class: CFC_600
Max: 24.8 Nm at 13.5 ms
Min: -52.8 Nm at 70.3 ms



Filter Class: CFC_600
Max: 22.2 N·m at 197.4 ms
Min: -61.4 N·m at 70.4 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 15:47:47 1863



Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 426 Certification No. 8-13

Test Date: 10/8/2010

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	22.0 °C	Yes
Relative Humidity	10 - 70 %	39 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.723 m/s	Yes
Probe Force Peak Between 50.0 mm and 58.0 mm Chest Deflection	(-3,900) - (-4,400) N	-4,206.1 N	Yes
Probe Force Peak Between 18.0 mm and 50.0 mm Chest Deflection	$\geq$ (-4,600) N	-4,380.6 N	Yes
Maximum Chest Compression	(-50) - (-58) mm	-50.2 mm	Yes
Internal Hysteresis	69 - 85 %	74.6 %	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.08.2010 15:36:48 392



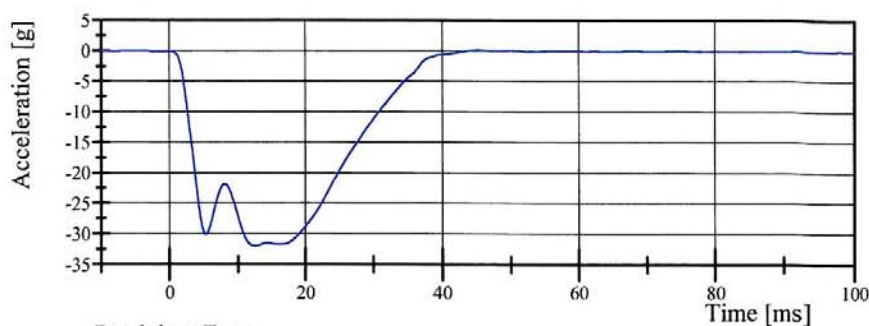
Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 426 Certification No. 8-13

Test Date: 10/8/2010

Pendulum Acceleration

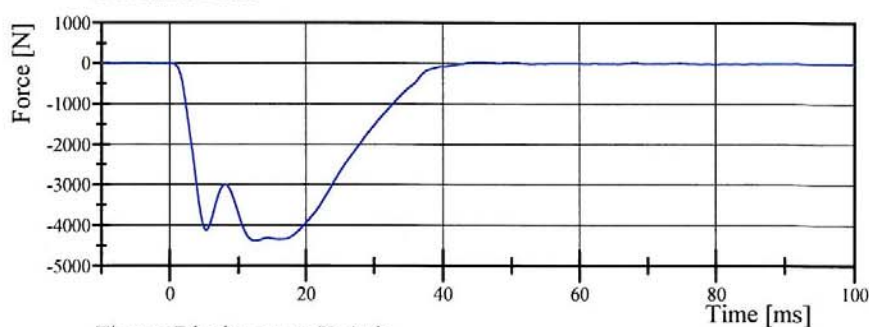


Filter Class: CFC_180

Max: 0.2 gn at 45.1 ms

Min: -32.0 gn at 12.5 ms

Pendulum Force

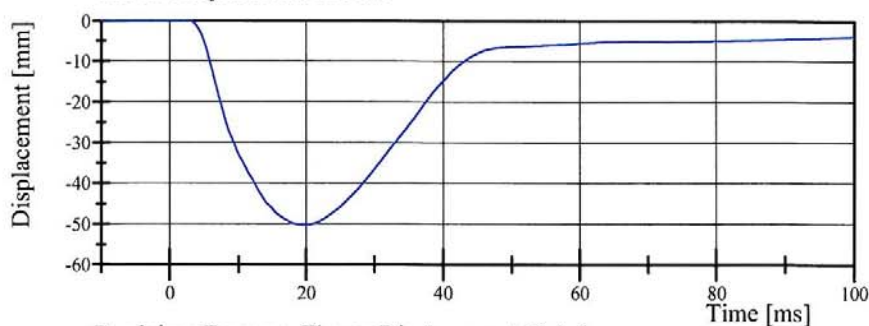


Filter Class: CFC_180

Max: 28.0 N at 45.1 ms

Min: -4,380.6 N at 12.5 ms

Thorax Displacement X-Axis

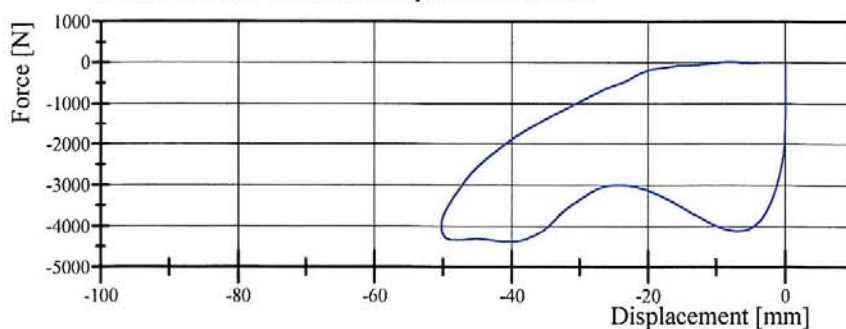


Filter Class: CFC_600

Max: 0.0 mm at -8.5 ms

Min: -50.2 mm at 19.5 ms

Pendulum Force vs. Thorax Displacement X-Axis



Filter Class: CFC_180

Max: 28.0 N at -8.0 mm

Min: -4,380.6 N at -40.5 mm

TRANSPORTATION RESEARCH CENTER INC.

TORSO FLEXION TEST

HYBRID III SMALL FEMALE

CAL DATE: 06-Oct-10

TRC, INC.

TEST NO: TOFL-02

572 O SN426 TORSO FLEX CAL 08

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TIME		1030
TEMPERATURE	20.6 – 22.2° C	21.6 ° C
RELATIVE HUMIDITY	10 – 70 %	35 %
INITIAL ANGLE OF UNSUPPORTRED DUMMY <u>START ANGLE</u>	<= 20° REFERENCED TO VERTICAL	16.5 °
DIFFERENCE BETWEEN <u>RETURN</u> <u>ANGLE</u> & INTIAL ANGLE	+/- 8 ° OF INTIAL ANGLE	2.9 °
MAXIMUM FORCE AT 45 DEG. DURING 10 SECOND PERIOD	320 – 390 N	371.1 N
RATE	0.5° - 1.5 °/sec	0.98°/sec

TEST MEETS SPECIFICATIONS

Comments:

TECHNICIAN



Transportation Research Center Inc.

Left Knee Femur Response Test

HIII 5th Serial No. 426 Certification No. 8-1

Test Date: 10/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.127 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,746.2 N	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 10:16:06 1718

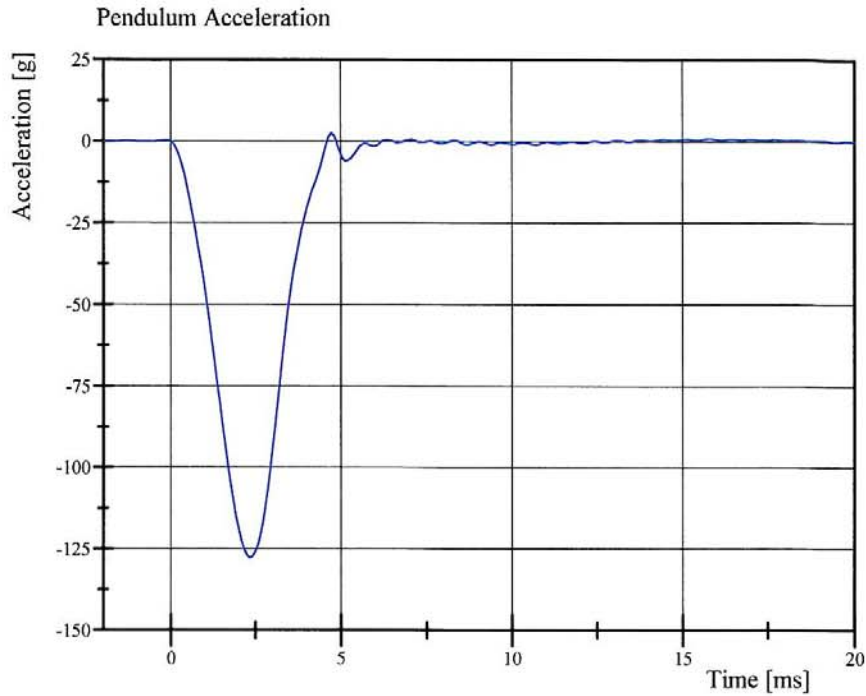


Transportation Research Center Inc.

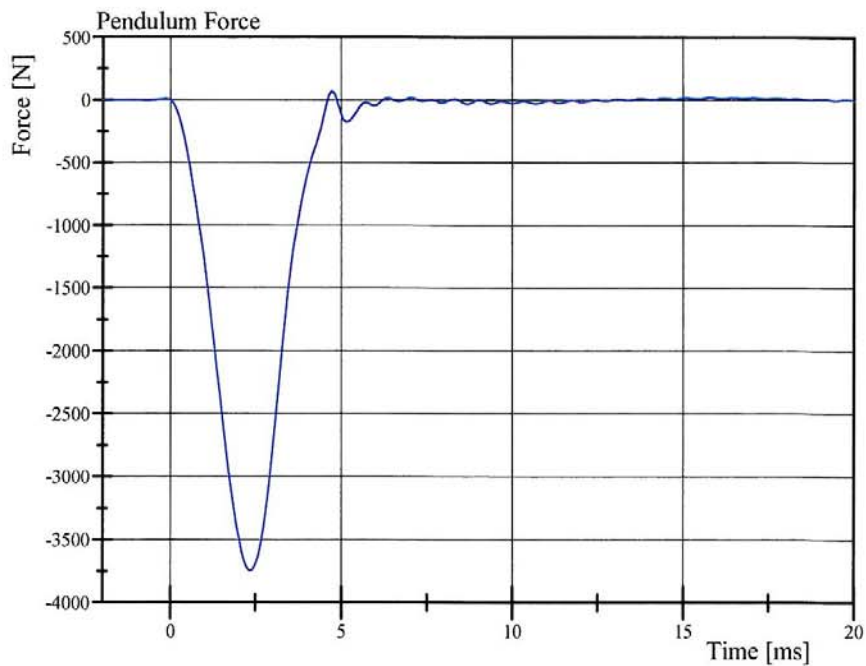
Left Knee Femur Response Test

HIII 5th Serial No. 426 Certification No. 8-1

Test Date: 10/6/2010



Filter Class: CFC_600
Max: 2.4 gn at 4.7 ms
Min: -127.8 gn at 2.3 ms



Filter Class: CFC_600
Max: 70.7 N at 4.7 ms
Min: -3,746.2 N at 2.3 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 10:16:27 1718



Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 8-1
Test Date: 10/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.128 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,549.2 N	Yes

Test meets specifications.

Comments:

Technician



Approved



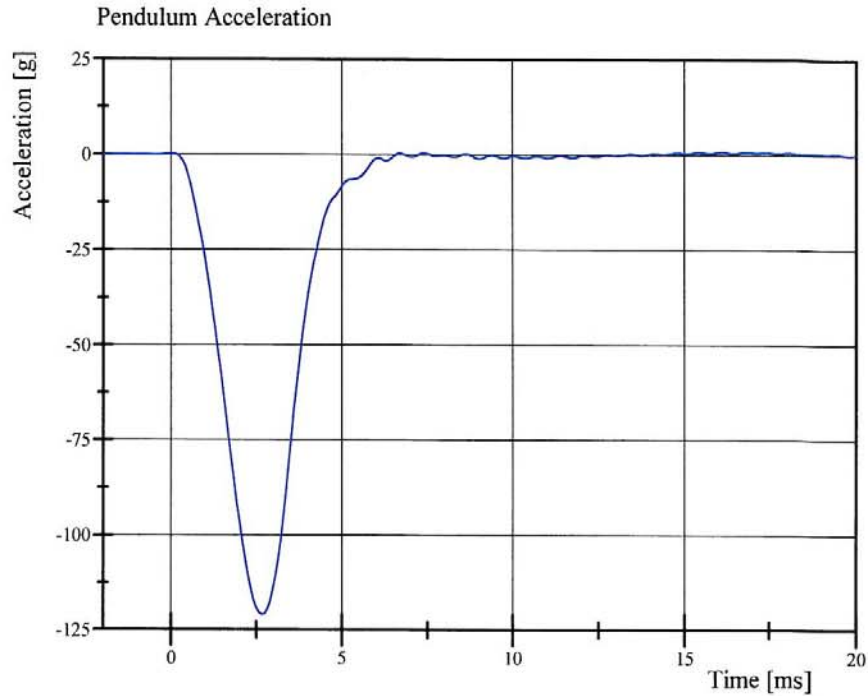
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 10:24:06 1712

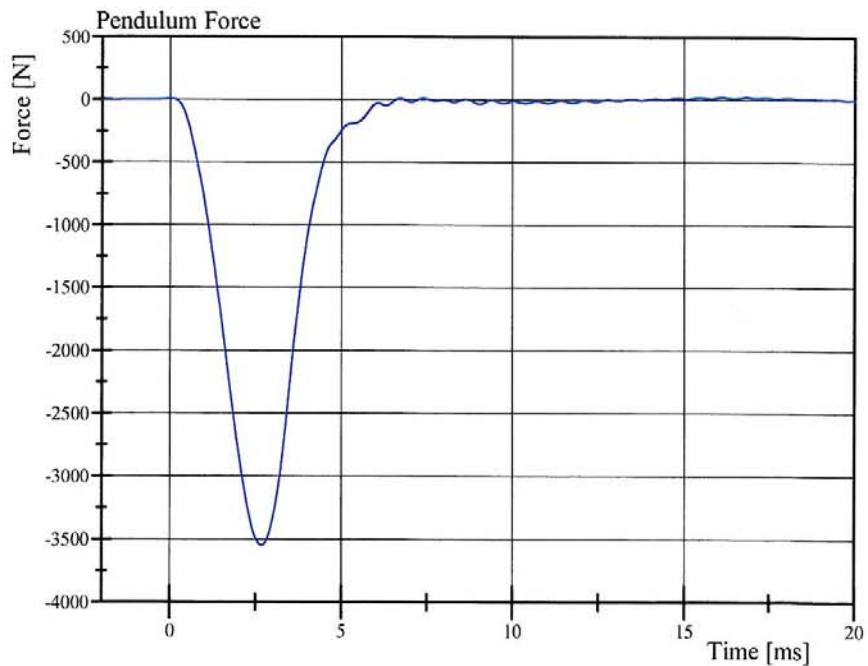


Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 426 Certification No. 8-1
Test Date: 10/6/2010



Filter Class: CFC_600
Max: 0.8 gn at 16.2 ms
Min: -121.0 gn at 2.6 ms



Filter Class: CFC_600
Max: 22.9 N at 16.2 ms
Min: -3,549.2 N at 2.6 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

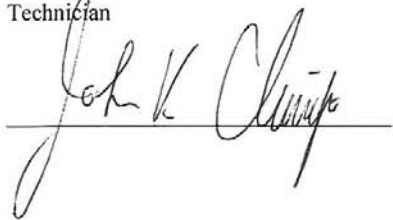
10.06.2010 10:24:17 1712



Transportation Research Center Inc.
5720 HIII 5th Dummy
External Dimensions
Serial No. 426 Calibration No. 08

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	774.7 - 800.1	785	Yes
B	Shoulder Pivot Height	431.8 - 457.2	445	Yes
C	Hip Pivot Height	81.3 - 86.3	85	Yes
D	Hip Pivot from Backline	144.8 - 149.8	148	Yes
E	Shoulder Pivot from Backline	68.6 - 83.8	81	Yes
F	Thigh Clearance	119.4 - 134.6	129	Yes
G	Back of Elbow to Wrist Pivot	243.9 - 259.1	251	Yes
H	Head Back to Backline	43.2 - 48.2	46	Yes
I	Shoulder to Elbow Length	276.8 - 297.2	283	Yes
J	Elbow Rest Height	182.8 - 203.2	199	Yes
K	Buttock Knee Length	520.7 - 546.1	535	Yes
L	Popliteal Height	355.6 - 376.0	371	Yes
M	Knee Pivot Height	393.7 - 419.1	417	Yes
N	Buttock Popliteal Length	414.0 - 439.4	436	Yes
O	Chest Depth without Jacket	175.3 - 190.5	185	Yes
P	Foot Length	218.5 - 233.7	221	Yes
R	Buttock to Knee Pivot Length	457.2 - 482.6	475	Yes
S	Head Breadth	137.1 - 147.3	140	Yes
T	Head Depth	177.8 - 188.0	182	Yes
U	Hip Breadth	299.7 - 314.9	307	Yes
V	Shoulder Breadth	350.5 - 365.7	362	Yes
W	Foot Breadth	78.8 - 94.0	83	Yes
X	Head Circumference	528.3 - 548.7	539	Yes
Y	Chest Circumference with Jacket	850.9 - 881.3	863	Yes
Z	Waist Circumference	759.5 - 789.9	770	Yes
AA	Reference Location for Chest Circumference	332.7 - 358.1	345	Yes
BB	Reference Location for Waist Circumference	160.0 - 170.2	165	Yes

Technician



Approved




Revised 3/19/3003

Transportation Research Center Inc.

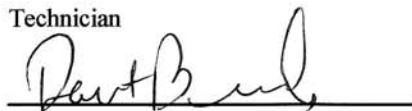
Left Knee Femur Response Test
HIII 5th Serial No. FLXD001D002 Certification No. 1-1
Test Date: 11/9/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.122 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,674.0 N	Yes

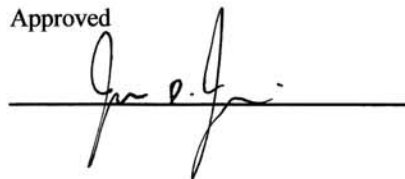
Test meets specifications.

Comments:

Technician



Approved



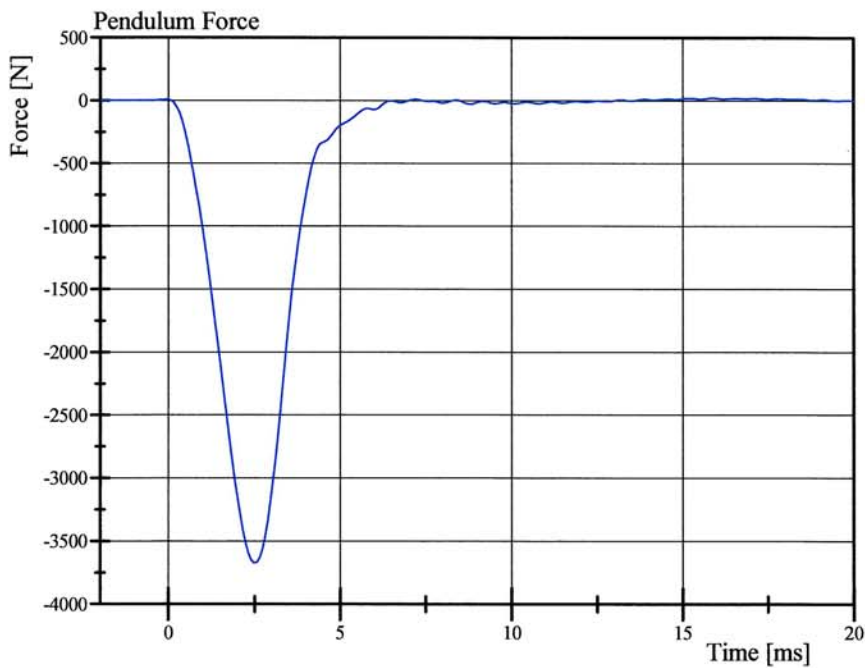
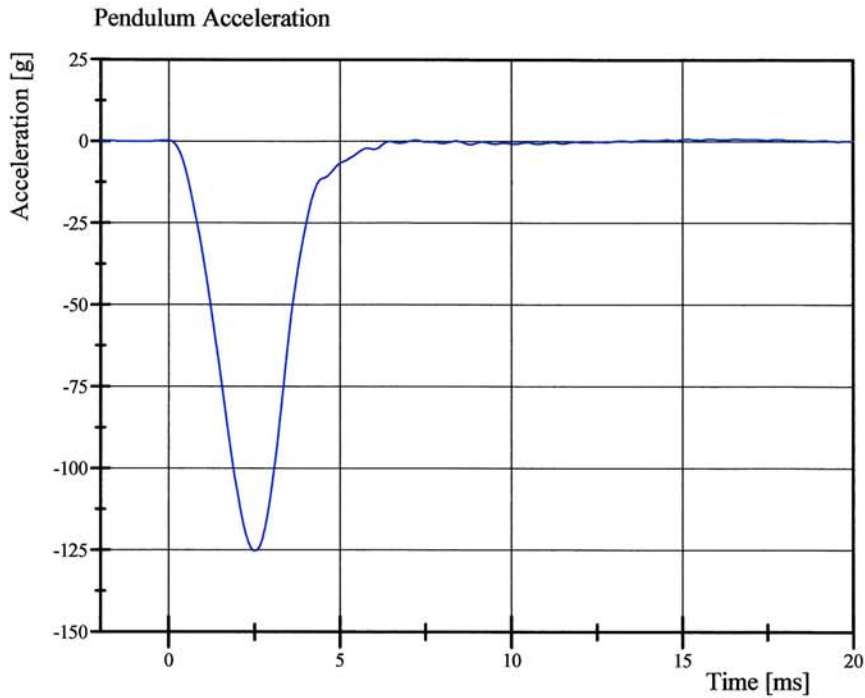
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

11.09.2010 09:17:24 1695



Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 5th Serial No. FLXD001D002 Certification No. 1-1
Test Date: 11/9/2010



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

11.09.2010 09:17:39 1695



Transportation Research Center Inc.

Right Knee Femur Response Test

HIH 5th Serial No. FLXD001D002 Certification No. 1-1

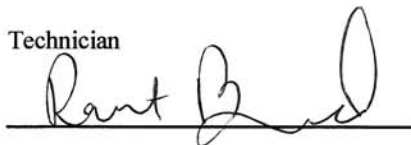
Test Date: 11/9/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.111 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,700.7 N	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

11.09.2010 10:22:31 1704



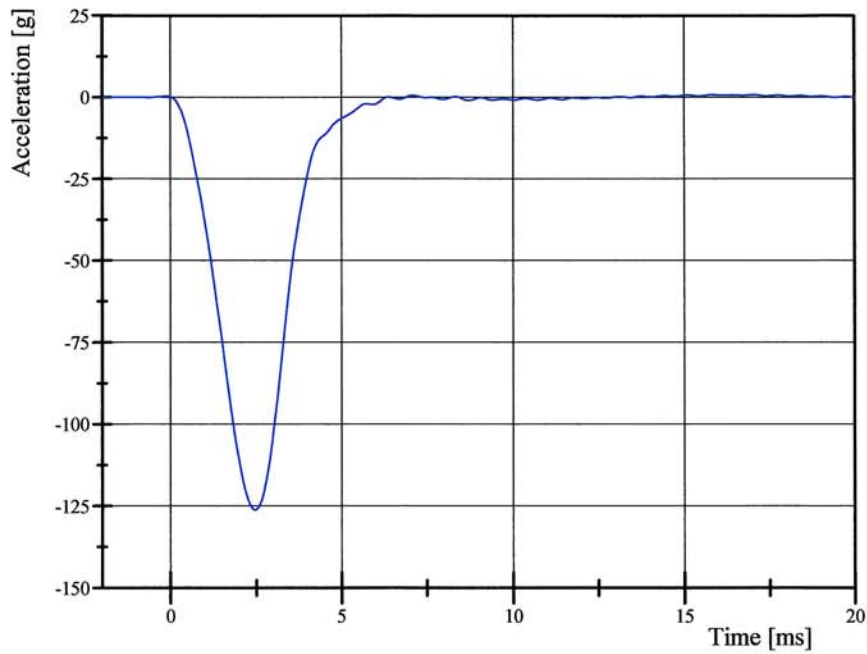
Transportation Research Center Inc.

Right Knee Femur Response Test

HIII 5th Serial No. FLXD001D002 Certification No. 1-1

Test Date: 11/9/2010

Pendulum Acceleration

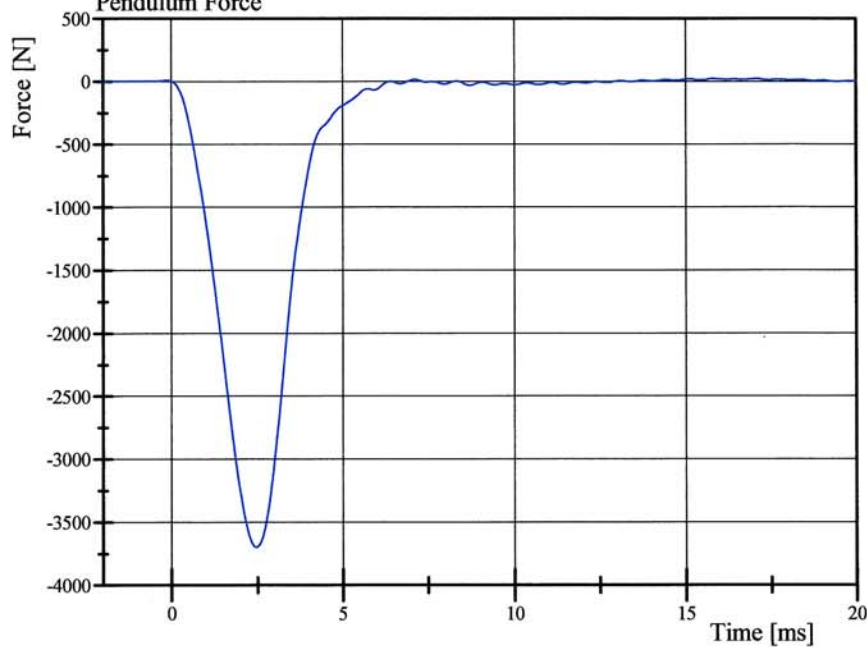


Filter Class: CFC_600

Max: 0.8 gn at 17.0 ms

Min: -126.2 gn at 2.5 ms

Pendulum Force



Filter Class: CFC_600

Max: 22.3 N at 17.0 ms

Min: -3,700.7 N at 2.5 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

11.09.2010 10:22:53 1704



Transportation Research Center Inc.

Left Knee Slider

HIII 5th Serial No. FLXD001D002 Certification No. 1-11

Test Date: 11/10/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Probe Velocity	2.70 - 2.80 m/s	2.790 m/s	Yes
Peak Deflection	(-12.7) - (-15.5) mm	-13.41 mm	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: SAE Engineering Aide 25 with Polarity in Accordance with J211

11.10.2010 12:22:22 1483

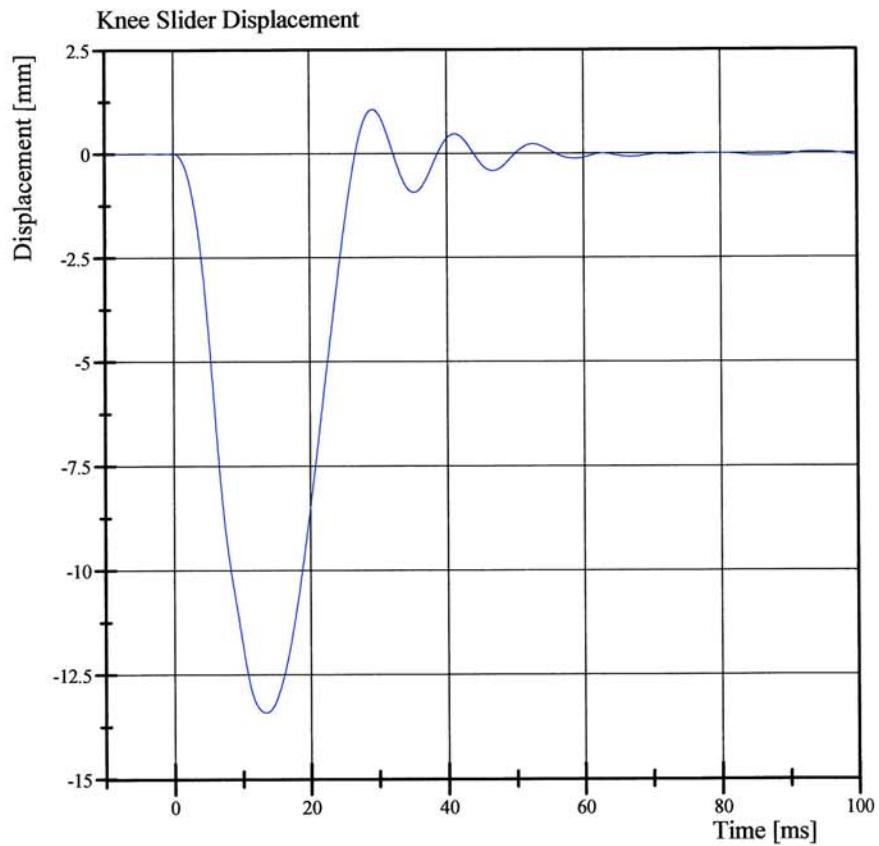


Transportation Research Center Inc.

Left Knee Slider

HIII 5th Serial No. FLXD001D002 Certification No. 1-11

Test Date: 11/10/2010



Filter Class: CFC_180

Max: 1.1 mm at 29.3 ms

Min: -13.4 mm at 13.4 ms

Transportation Research Center Inc.

Right Knee Slider

HIII 5th Serial No. FLXD001D002 Certification No. 1-3

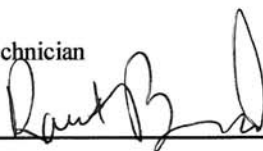
Test Date: 11/9/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	27 %	Yes
Probe Velocity	2.70 - 2.80 m/s	2.790 m/s	Yes
Peak Deflection	(-12.7) - (-15.5) mm	-12.71 mm	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: SAE Engineering Aide 25 with Polarity in Accordance with J211

11.09.2010 16:01:03 1477

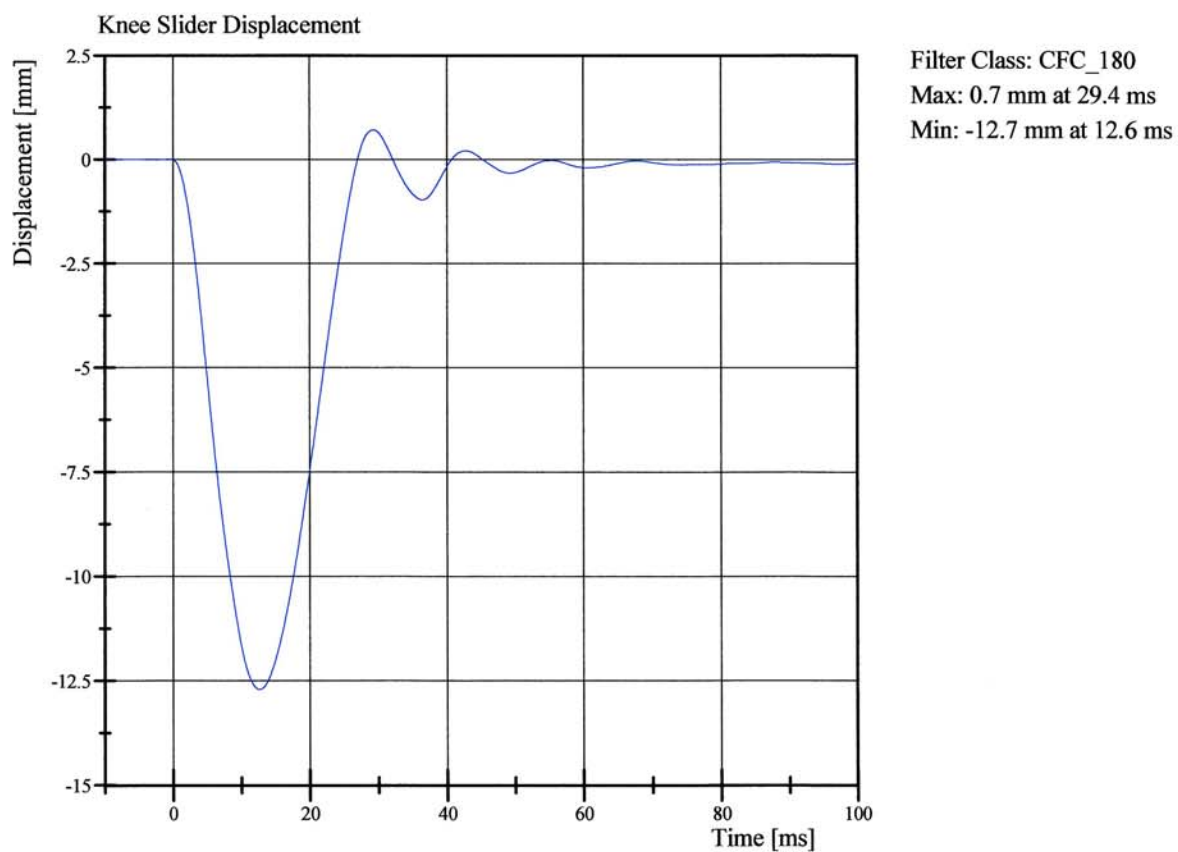


Transportation Research Center Inc.

Right Knee Slider

HIII 5th Serial No. FLXD001D002 Certification No. 1-3

Test Date: 11/9/2010



Specification Source: SAE Engineering Aide 25 with Polarity in Accordance with J211

11.09.2010 16:01:47 1477



Pre-Test Dummy Configuration and Performance Verification Data

Bullet Vehicle Left Rear Passenger Dummy S/N: 329

Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 329 Certification No. 15-1

Test Date: 10/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	35 %	Yes
Peak Head Resultant Acceleration	250 - 300 g	271.1 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	3.1 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 10:46:59 610

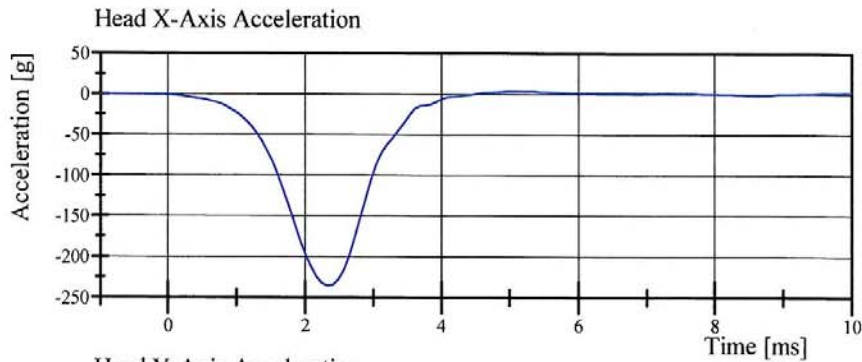


Transportation Research Center Inc.

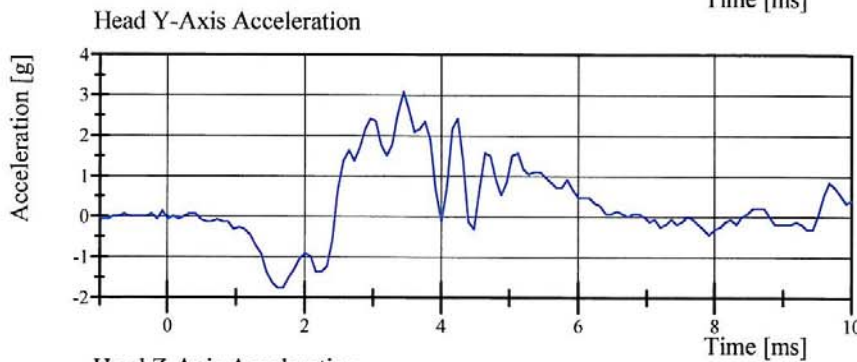
Front Head Drop

HIII 5th Serial No. 329 Certification No. 15-1

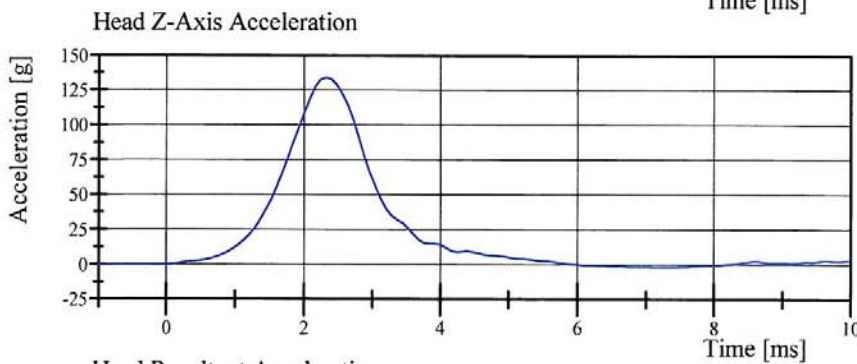
Test Date: 10/6/2010



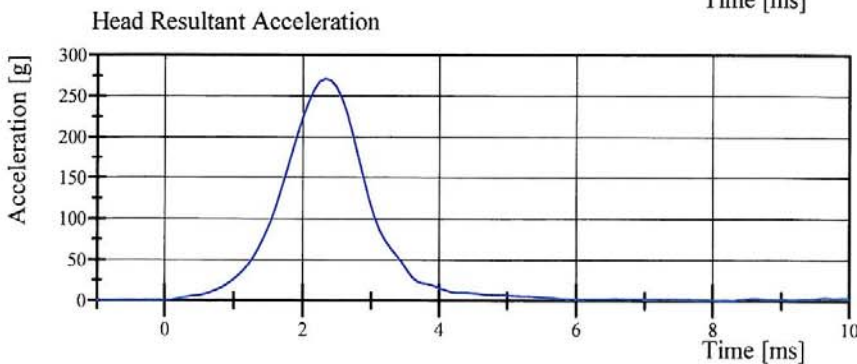
Filter Class: CFC_1000
Max: 3.6 gn at 5.0 ms
Min: -235.7 gn at 2.3 ms



Filter Class: CFC_1000
Max: 3.1 gn at 3.4 ms
Min: -1.8 gn at 1.6 ms



Filter Class: CFC_1000
Max: 134.0 gn at 2.3 ms
Min: -1.7 gn at 7.4 ms



Filter Class: CFC_1000
Max: 271.1 gn at 2.3 ms
Min: 0.0 gn at -0.7 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 10:47:10 610



Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 329 Certification No. 15-1

Test Date: 10/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	7.065 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	(-2.1) - (-2.5) m/s	-2.48 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	(-4.0) - (-5.0) m/s	-4.67 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	(-5.8) - (-7.0) m/s	-6.43 m/s	Yes
Total Head D-Plane Rotation	(-77) - (-91) °	-80.0 °	Yes
Total Neck Occipital Condyles Moment Between -77° and -91° Rotation	69 - 83 N·m	79.6 N·m	Yes
Total Neck Occipital Condyles Moment Decay to 10 N·m	80 - 100 ms	84.2 ms	Yes

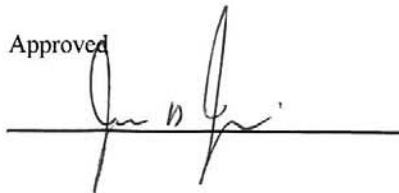
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 11:09:17 1748

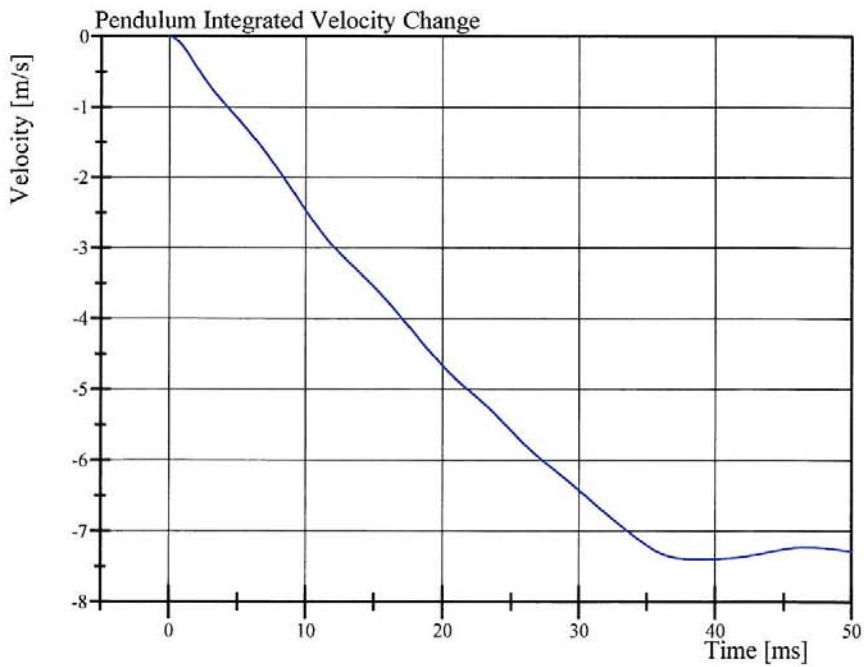
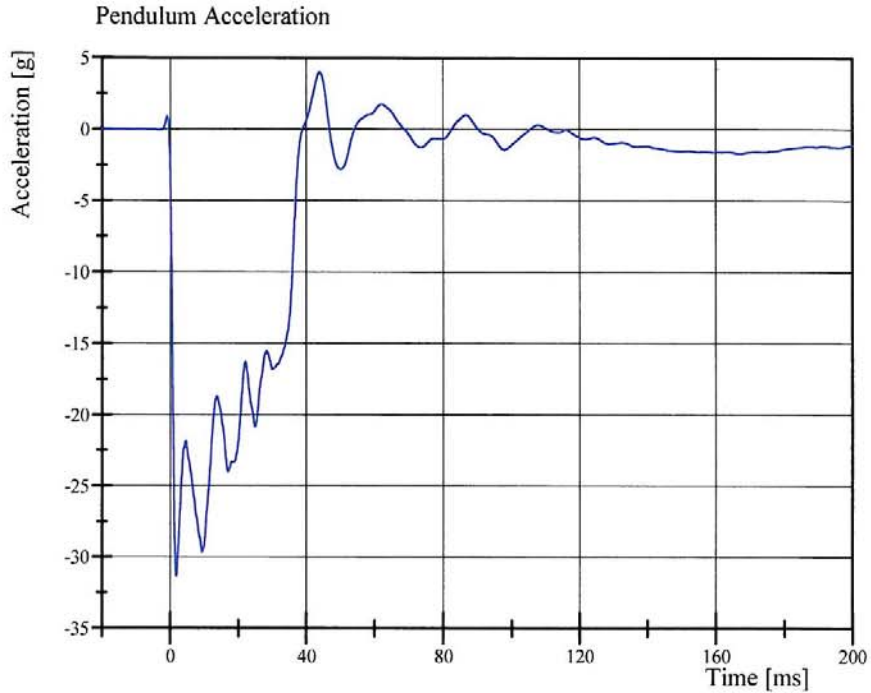


Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 329 Certification No. 15-1

Test Date: 10/6/2010



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 11:09:24 1748



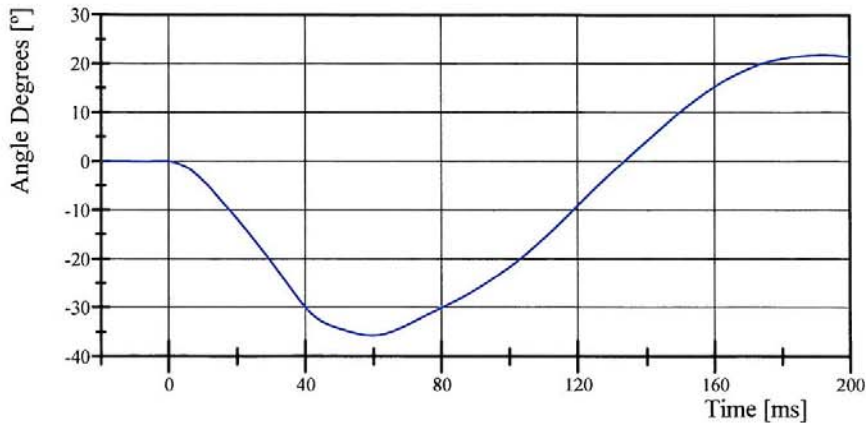
Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 329 Certification No. 15-1

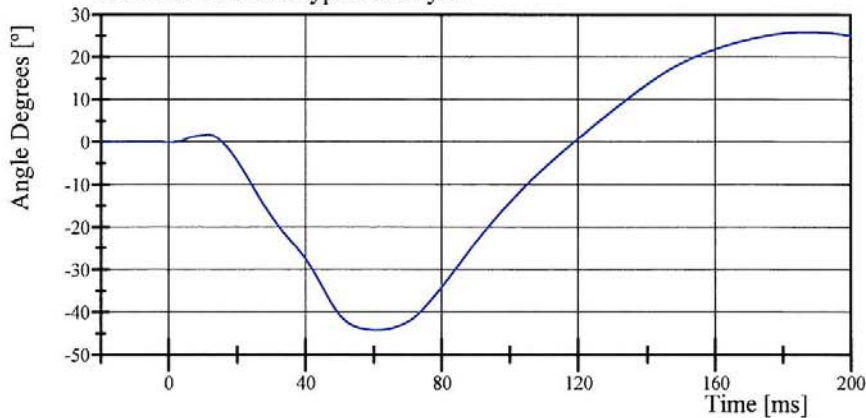
Test Date: 10/6/2010

Pot Rotation at the Base of Neck



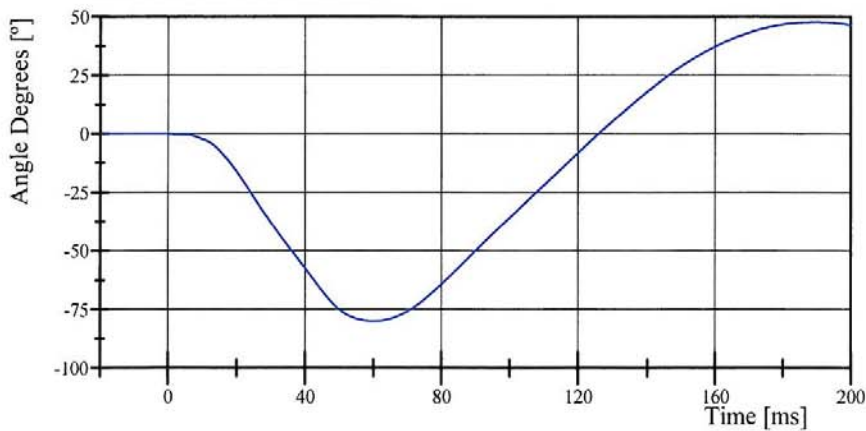
Filter Class: CFC_60
Max: 21.8 ° at 192.0 ms
Min: -35.7 ° at 59.5 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 25.9 ° at 187.4 ms
Min: -44.3 ° at 60.9 ms

Total Head D-Plane Rotation



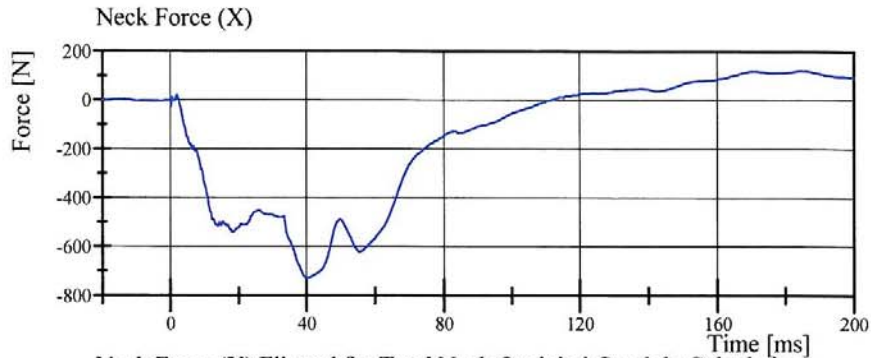
Filter Class: CFC_60
Max: 47.6 ° at 189.4 ms
Min: -80.0 ° at 60.3 ms

Transportation Research Center Inc.

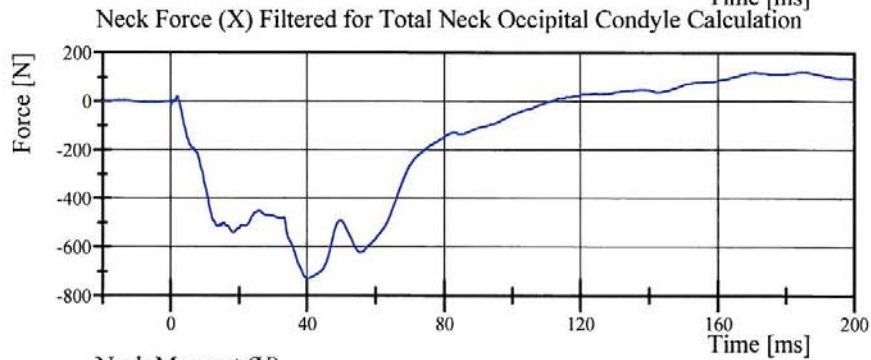
Neck Flexion

HIII 5th Serial No. 329 Certification No. 15-1

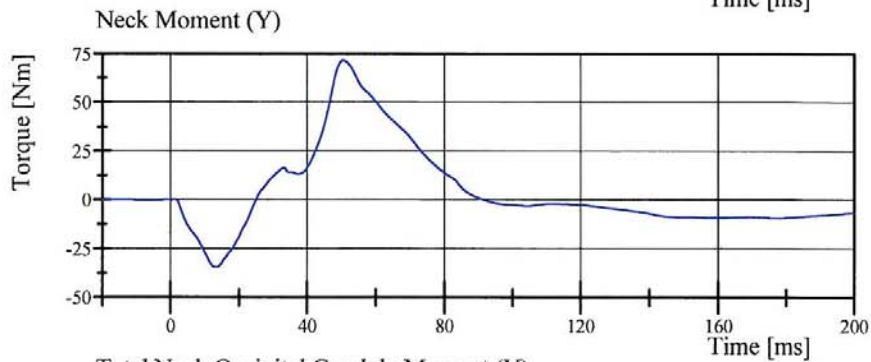
Test Date: 10/6/2010



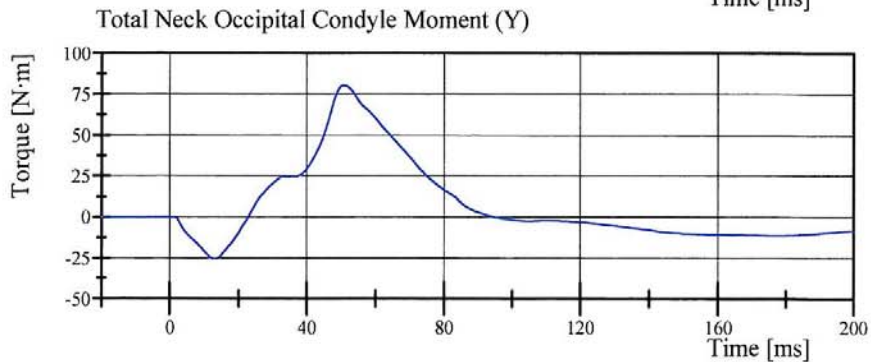
Filter Class: CFC_1000
Max: 122.3 N at 186.3 ms
Min: -728.8 N at 40.3 ms



Filter Class: CFC_600
Max: 121.7 N at 186.3 ms
Min: -727.7 N at 40.4 ms



Filter Class: CFC_600
Max: 71.6 Nm at 50.5 ms
Min: -34.6 Nm at 13.3 ms



Filter Class: CFC_600
Max: 80.6 N·m at 50.7 ms
Min: -25.6 N·m at 13.2 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 11:09:25 1748



Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 329 Certification No. 15-1

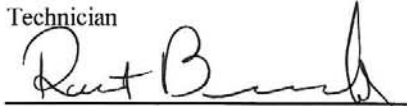
Test Date: 10/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.8 °C	Yes
Relative Humidity	10 - 70 %	36 %	Yes
Pendulum Velocity	(-5.95) - (-6.19) m/s	-6.052 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	1.5 - 1.9 m/s	1.85 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	3.1 - 3.9 m/s	3.62 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	4.6 - 5.6 m/s	5.20 m/s	Yes
Total Head D-Plane Rotation	99 - 114 °	101.8 °	Yes
Total Neck Occipital Condyles Moment Between 99° and 114° Rotation	(-53) - (-65) N·m	-54.3 N·m	Yes
Total Neck Occipital Condyles Moment Decay to -10 N·m	94 - 114 ms	102.5 ms	Yes

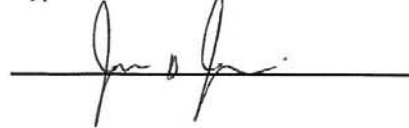
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 12:11:11 1878

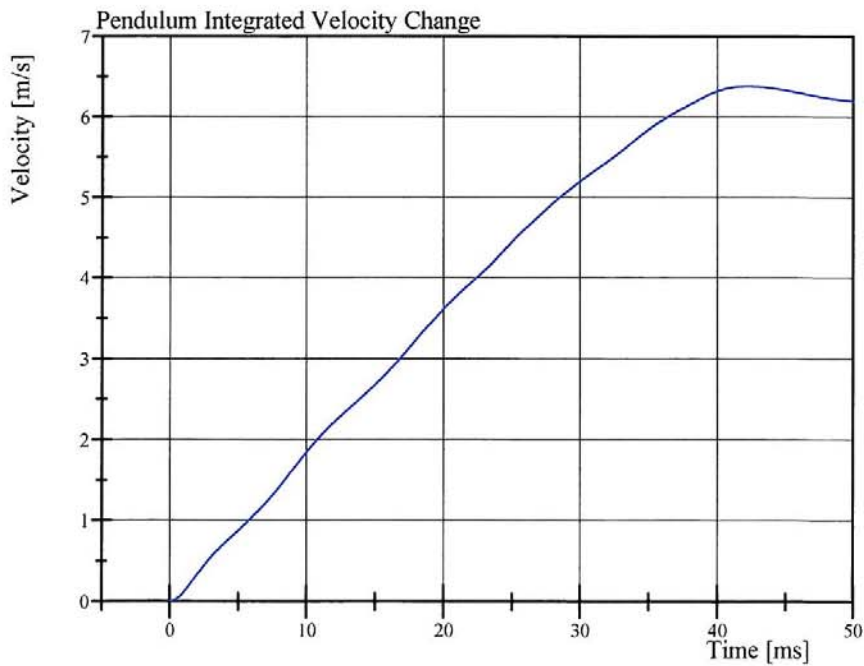
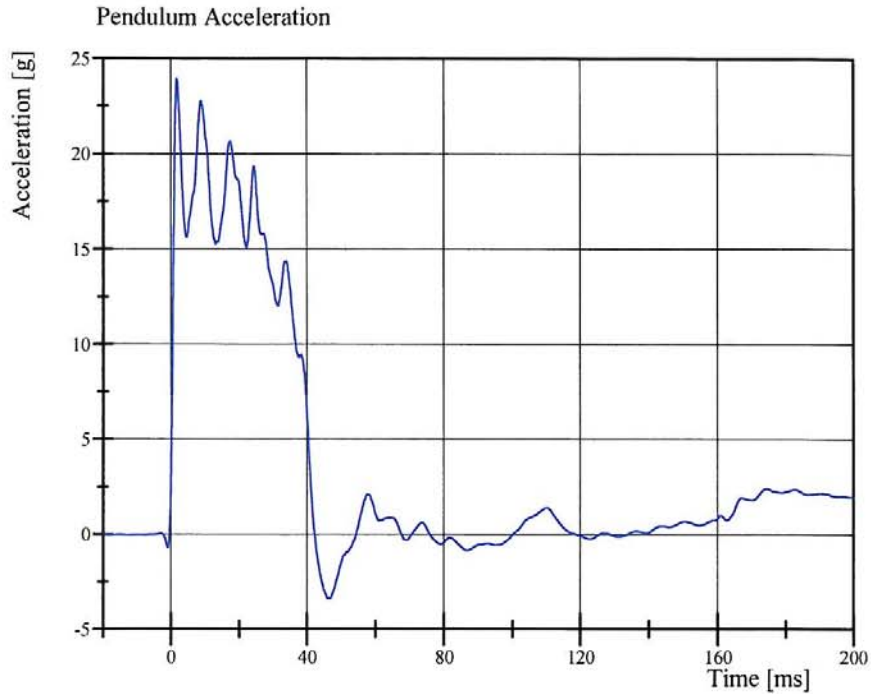


Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 329 Certification No. 15-1

Test Date: 10/6/2010



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 12:11:18 1878



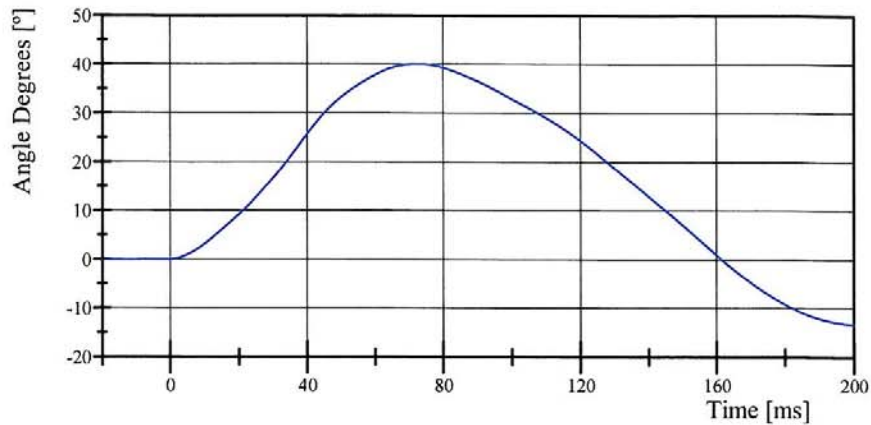
Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 329 Certification No. 15-1

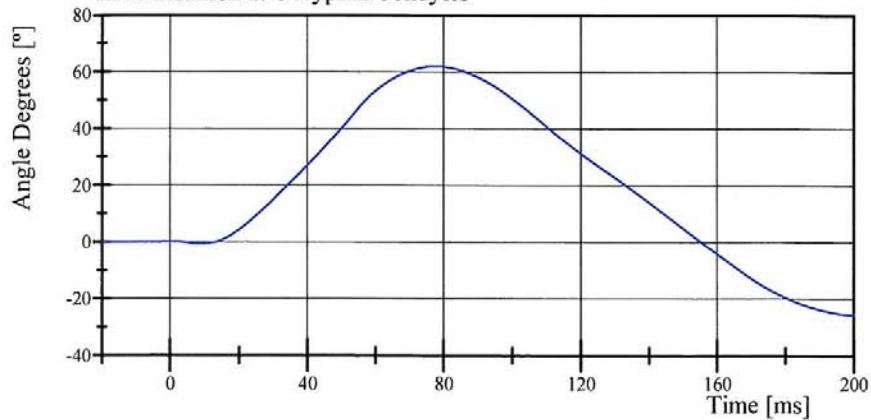
Test Date: 10/6/2010

Pot Rotation at the Base of Neck



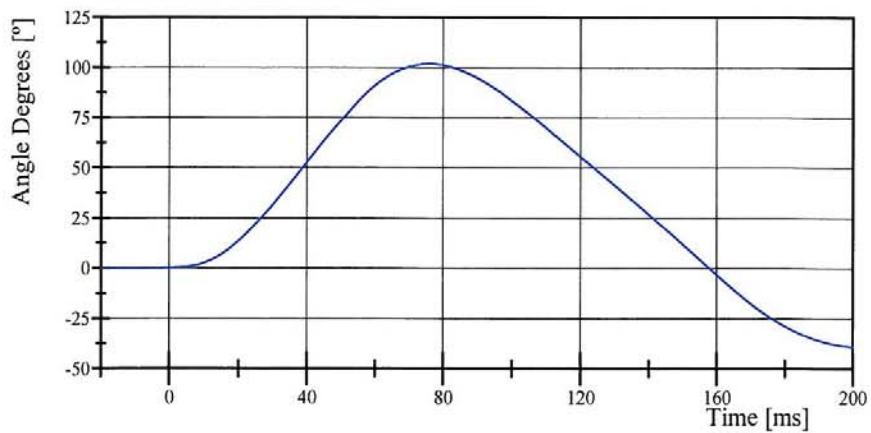
Filter Class: CFC_60
Max: 40.1 ° at 72.7 ms
Min: -13.3 ° at 200.0 ms

Head Rotation at Occypital Condyles



Filter Class: CFC_60
Max: 62.0 ° at 77.6 ms
Min: -25.7 ° at 200.0 ms

Total Head D-Plane Rotation



Filter Class: CFC_60
Max: 101.8 ° at 75.8 ms
Min: -39.0 ° at 200.0 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 12:11:18 1878

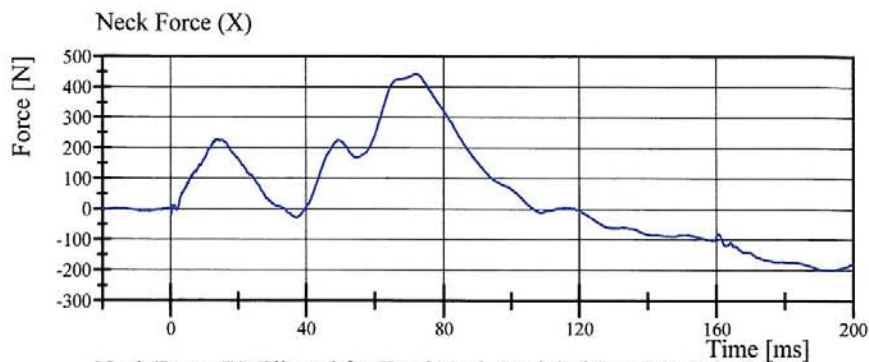


Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 329 Certification No. 15-1

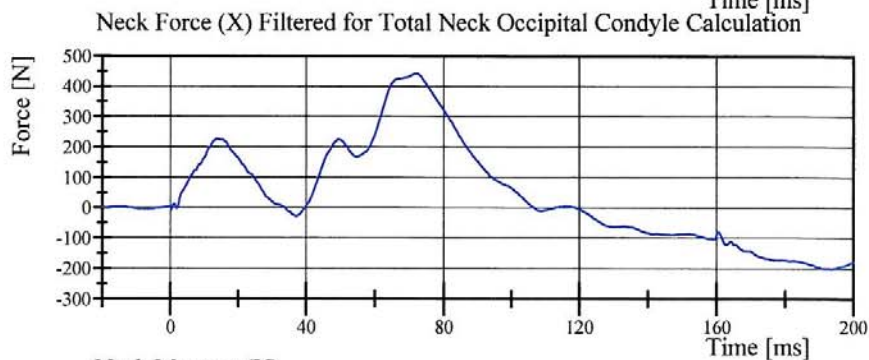
Test Date: 10/6/2010



Filter Class: CFC_1000

Max: 443.8 N at 71.7 ms

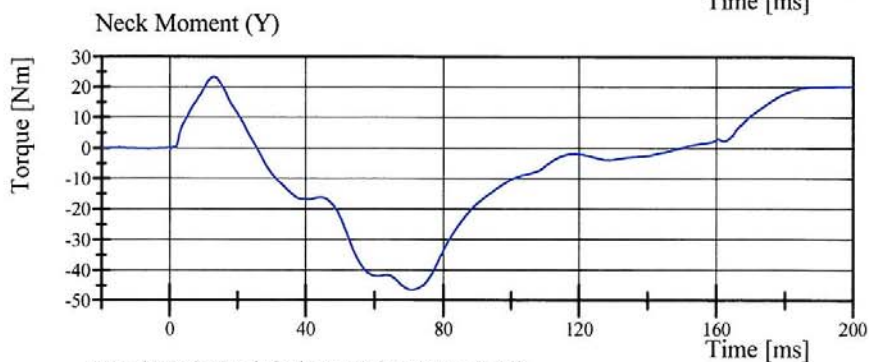
Min: -200.5 N at 192.0 ms



Filter Class: CFC_600

Max: 443.8 N at 71.9 ms

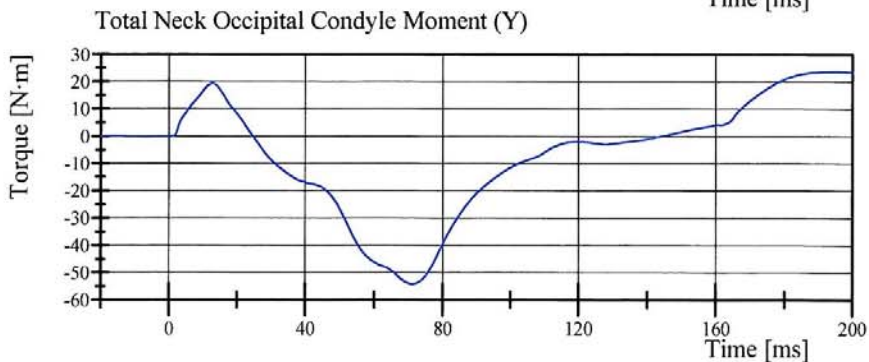
Min: -200.4 N at 193.4 ms



Filter Class: CFC_600

Max: 23.3 Nm at 12.7 ms

Min: -46.5 Nm at 70.6 ms



Filter Class: CFC_600

Max: 23.7 N·m at 194.2 ms

Min: -54.3 N·m at 71.0 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 12:11:19 1878



Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 329 Certification No. 15-1

Test Date: 10/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	22.0 °C	Yes
Relative Humidity	10 - 70 %	37 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.736 m/s	Yes
Probe Force Peak Between 50.0 mm and 58.0 mm Chest Deflection	(-3,900) - (-4,400) N	-3,931.6 N	Yes
Probe Force Peak Between 18.0 mm and 50.0 mm Chest Deflection	$\geq$ (-4,600) N	-3,781.5 N	Yes
Maximum Chest Compression	(-50) - (-58) mm	-57.2 mm	Yes
Internal Hysteresis	69 - 85 %	70.9 %	Yes

Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 12:48:18 387

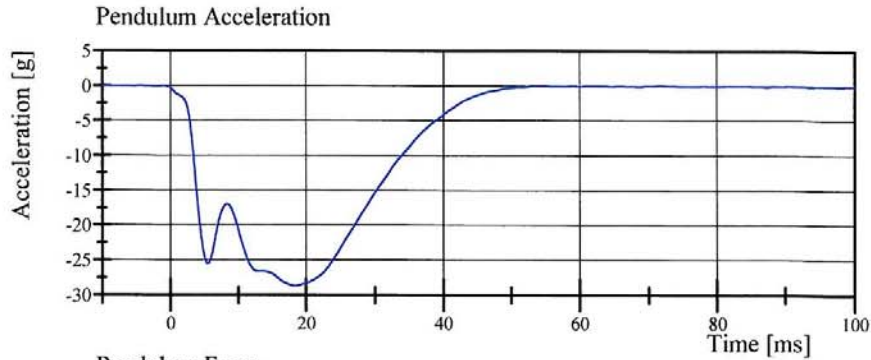


Transportation Research Center Inc.

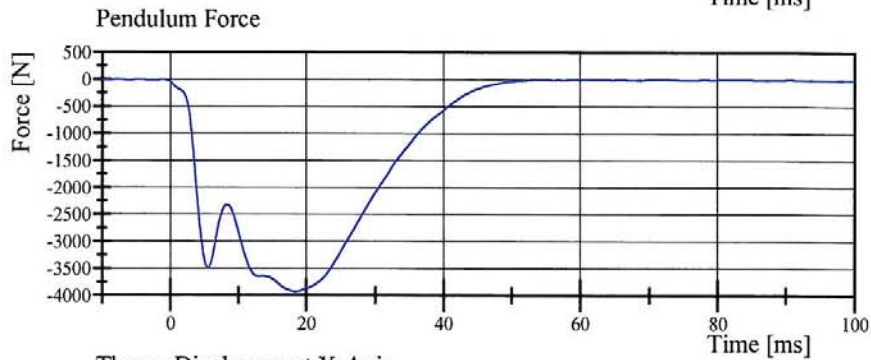
Front Thorax

HIII 5th Serial No. 329 Certification No. 15-1

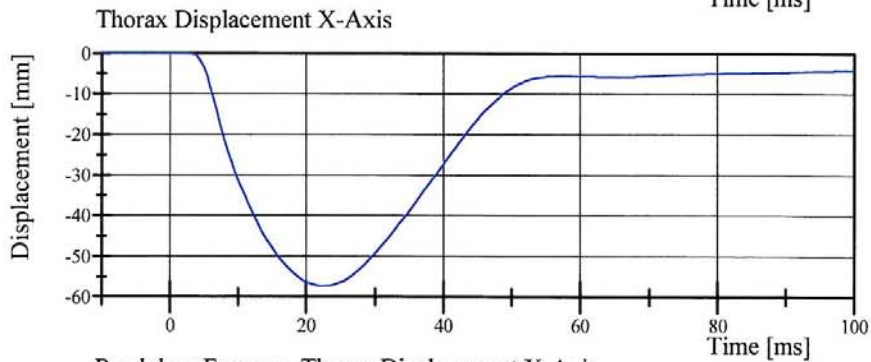
Test Date: 10/6/2010



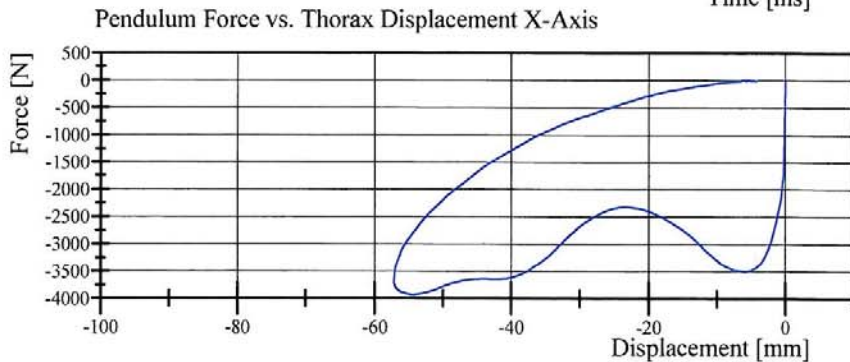
Filter Class: CFC_180
Max: 0.1 gn at 71.8 ms
Min: -28.7 gn at 18.3 ms



Filter Class: CFC_180
Max: 8.5 N at 71.8 ms
Min: -3,931.6 N at 18.3 ms



Filter Class: CFC_600
Max: 0.0 mm at -3.0 ms
Min: -57.2 mm at 22.2 ms



Filter Class: CFC_180
Max: 8.5 N at -5.4 mm
Min: -3,931.6 N at -54.4 mm

TRANSPORTATION RESEARCH CENTER INC.

TORSO FLEXION TEST

HYBRID III SMALL FEMALE

CAL DATE: 06-Oct-10

TRC, INC.

TEST NO: TOFL-01

572 O SN329 TORSO FLEX CAL 15

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TIME		1615
TEMPERATURE	20.6 – 22.2° C	21.8 ° C
RELATIVE HUMIDITY	10 – 70 %	35 %
INITIAL ANGLE OF UNSUPPORTED DUMMY <u>START ANGLE</u>	$\leq 20^\circ$ REFERENCED TO VERTICAL	17.7 °
DIFFERENCE BETWEEN <u>RETURN</u> <u>ANGLE</u> & INTIAL ANGLE	+/- 8 ° OF INTIAL ANGLE	3.1 °
MAXIMUM FORCE AT 45 DEG. DURING 10 SECOND PERIOD	320 – 390 N	362.6 N
RATE	0.5° - 1.5 °/sec	0.99°/sec

TEST MEETS SPECIFICATIONS

Comments:

TECHNICIAN 

Transportation Research Center Inc.

Left Knee Femur Response Test

HIII 5th Serial No. 329 Certification No. 15-1

Test Date: 10/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.116 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,988.6 N	Yes

Test meets specifications.

Comments:

Technician

Approved

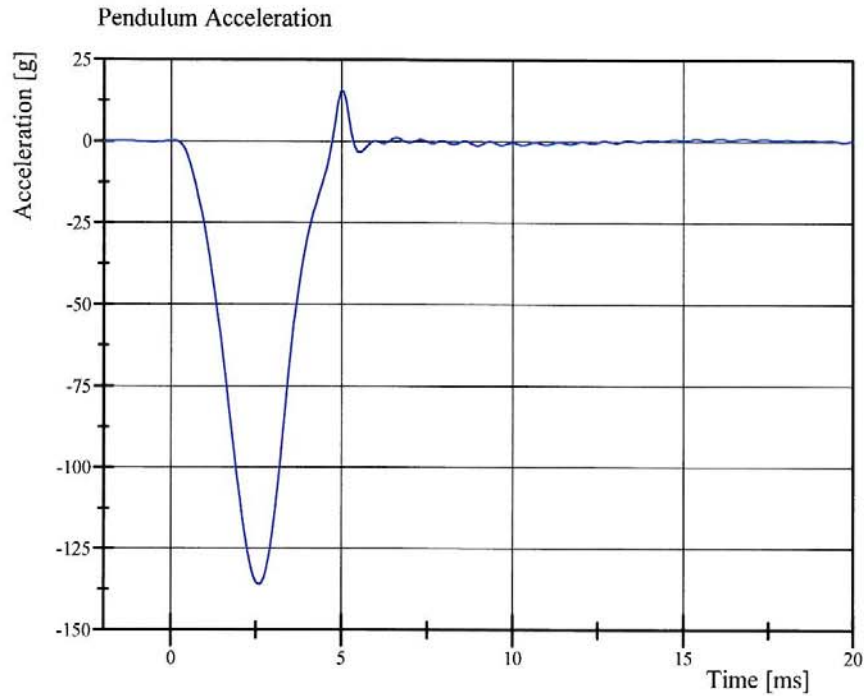
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 09:34:26 1716

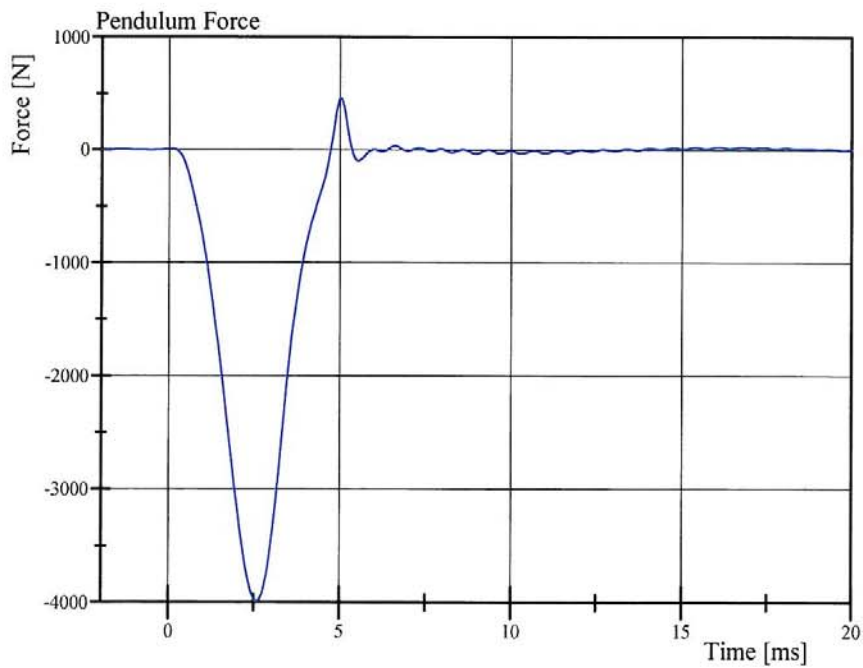


Transportation Research Center Inc.

Left Knee Femur Response Test
HIII 5th Serial No. 329 Certification No. 15-1
Test Date: 10/6/2010



Filter Class: CFC_600
Max: 15.6 gn at 5.0 ms
Min: -136.0 gn at 2.6 ms



Filter Class: CFC_600
Max: 457.3 N at 5.0 ms
Min: -3,988.6 N at 2.6 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 09:34:44 1716



Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 329 Certification No. 15-1
Test Date: 10/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	34 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.114 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,879.3 N	Yes

Test meets specifications.

Comments:

Technician



Approved



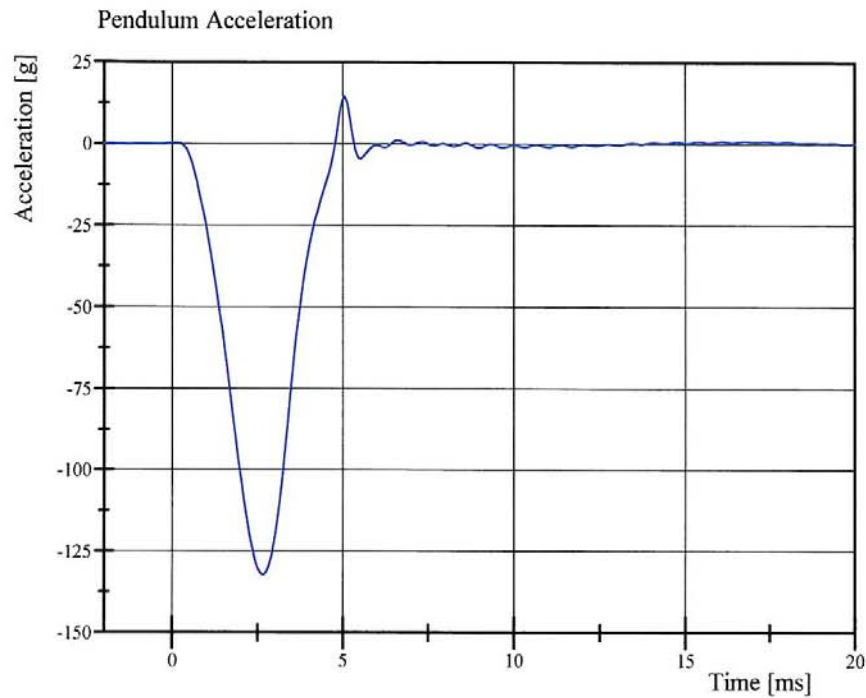
Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 09:40:35 1720

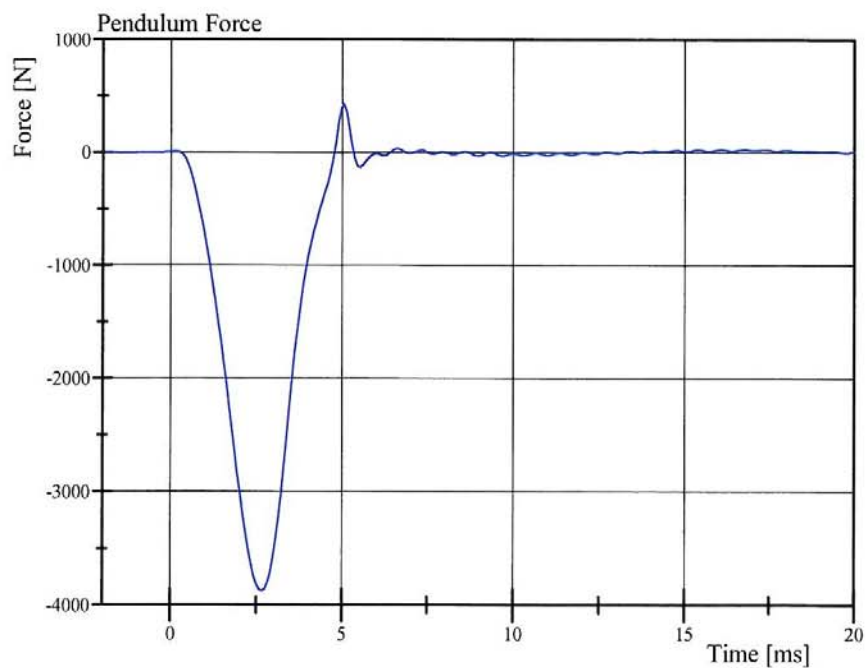


Transportation Research Center Inc.

Right Knee Femur Response Test
HIII 5th Serial No. 329 Certification No. 15-1
Test Date: 10/6/2010



Filter Class: CFC_600
Max: 14.6 gn at 5.0 ms
Min: -132.3 gn at 2.6 ms



Filter Class: CFC_600
Max: 428.6 N at 5.0 ms
Min: -3,879.3 N at 2.6 ms

Specification Source: CFR49 Part 572 Subpart O
with Polarity in accordance with J211

10.06.2010 09:40:48 1720



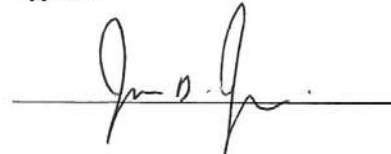
Transportation Research Center Inc.
5720 HIII 5th Female Dummy
External Dimensions
Serial No. 329 Calibration No. 15

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	774.7 - 800.1	782	Yes
B	Shoulder Pivot Height	431.8 - 457.2	449	Yes
C	Hip Pivot Height	81.3 - 86.3	83	Yes
D	Hip Pivot from Backline	144.8 - 149.8	147	Yes
E	Shoulder Pivot from Backline	68.6 - 83.8	80	Yes
F	Thigh Clearance	119.4 - 134.6	127	Yes
G	Back of Elbow to Wrist Pivot	243.9 - 259.1	247	Yes
H	Head Back to Backline	43.2 - 48.2	45	Yes
I	Shoulder to Elbow Length	276.8 - 297.2	282	Yes
J	Elbow Rest Height	182.8 - 203.2	190	Yes
K	Buttock Knee Length	520.7 - 546.1	539	Yes
L	Popliteal Height	355.6 - 376.0	359	Yes
M	Knee Pivot Height	393.7 - 419.1	396	Yes
N	Buttock Popliteal Length	414.0 - 439.4	430	Yes
O	Chest Depth without Jacket	175.3 - 190.5	184	Yes
P	Foot Length	218.5 - 233.7	225	Yes
R	Buttock to Knee Pivot Length	457.2 - 482.6	469	Yes
S	Head Breadth	137.1 - 147.3	142	Yes
T	Head Depth	177.8 - 188.0	183	Yes
U	Hip Breadth	299.7 - 314.9	307	Yes
V	Shoulder Breadth	350.5 - 365.7	361	Yes
W	Foot Breadth	78.8 - 94.0	83	Yes
X	Head Circumference	528.3 - 548.7	532	Yes
Y	Chest Circumference with Jacket	850.9 - 881.3	861	Yes
Z	Waist Circumference	759.5 - 789.9	775	Yes
AA	Reference Location for Chest Circumference	332.7 - 358.1	340	Yes
BB	Reference Location for Waist Circumference	160.0 - 170.2	165	Yes

Technician



Approved




Revised 3/19/3003

Appendix D

Test Equipment and Instrumentation Calibration Information

Sign Convention
SAE J211 MAR95

Accelerometers:

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

Potentiometers:

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

Rotation potentiometers:

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

Load cells:

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

Neck load cells:

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

Tibia load cells:

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

Frequency Response Classes
SAE J211 MAR95

<u>Typical Test Measurements</u>	<u>Channel Class</u>
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	600
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Head form Accelerations	1000

Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 168 Certification No. 28-1

Test Date: 8/6/2010

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	61 %	Yes
Peak Head Resultant Acceleration	225 - 275 g	257.0 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	4.4 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

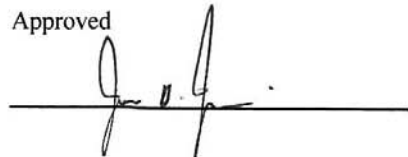
Test meets specifications.

Comments:

Technician



Approved



Specification Source: CFR49 Part 572 Subpart E
with Polarity in accordance with J211

08.06.2010 08:20:44 601



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 101207

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
1	Trig D1	10ZERO00000VO0A	EVENT		1 Logic	Bipolar	
2	P13574	11HEADCG00H3ACXA	Head Accel X	2000 g		-Bipolar	1-168 HIII 50th VRTC.001
3	AGR67	11HEADCG00H3ACYA	Head Accel Y	2000 g		-Bipolar	1-168 HIII 50th VRTC.002
4	AAKD0	11HEADCG00H3ACZA	Head Accel Z	2000 g		-Bipolar	1-168 HIII 50th VRTC.003
5	J20382	11HEADCGRDH3ACXA	Head Accel X Red	2000 g		Bipolar	1-168 HIII 50th VRTC.004
6	J35562	11HEADCGRDH3ACYA	Head Accel Y Red	2000 g		-Bipolar	1-168 HIII 50th VRTC.005
7	J32157	11HEADCGRDH3ACZA	Head Accel Z Red	2000 g		-Bipolar	1-168 HIII 50th VRTC.006
8	1716A-1647-FX	11NECKUP00H3FOXA	Upper Neck Force X	8896 N		-Bipolar	1-168 HIII 50th VRTC.009
9	1716A-1647-FY	11NECKUP00H3FOYA	Upper Neck Force Y	8896 N		Bipolar	1-168 HIII 50th VRTC.010
10	1716A-1647-FZ	11NECKUP00H3FOZA	Upper Neck Force Z	13344 N		Bipolar	1-168 HIII 50th VRTC.011
11	1716A-1647-MX	11NECKUP00H3MOXA	Upper Neck Moment X	282 Nm		-Bipolar	1-168 HIII 50th VRTC.012
12	1716A-1647-MY	11NECKUP00H3MOYA	Upper Neck Moment Y	282 Nm		Bipolar	1-168 HIII 50th VRTC.013
13	1716A-1647-MZ	11NECKUP00H3MOZA	Upper Neck Moment Z	282 Nm		Bipolar	1-168 HIII 50th VRTC.014
14	J28708	11CHSTCG00H3ACXA	Chest Accel X	2000 g		Bipolar	1-168 HIII 50th VRTC.021
15	P16493	11CHSTCG00H3ACYA	Chest Accel Y	2000 g		-Bipolar	1-168 HIII 50th VRTC.022
16	P51684	11CHSTCG00H3ACZA	Chest Accel Z	2000 g		-Bipolar	1-168 HIII 50th VRTC.023
17	01G19-F03	11CHSTCGRDH3ACXA	Chest Accel X Red	2000 g		-Bipolar	1-168 HIII 50th VRTC.024
18	00L20-A11	11CHSTCGRDH3ACYA	Chest Accel Y Red	2000 g		-Bipolar	1-168 HIII 50th VRTC.025
19	99I08-F28	11CHSTCGRDH3ACZA	Chest Accel Z Red	2000 g		-Bipolar	1-168 HIII 50th VRTC.026
20	14CB1-2897-CST168	11CHST0000H3DSXA	Chest Deflection X	84 mm		Bipolar	1-168 HIII 50th VRTC.030
21	P52020	11PELVCG00H3ACXA	Pelvis Accel X	2000 g		-Bipolar	1-168 HIII 50th VRTC.031
22	05G15-L04	11PELVCG00H3ACYA	Pelvis Accel Y	2000 g		-Bipolar	1-168 HIII 50th VRTC.032
23	03E03E20-N13	11PELVCG00H3ACZA	Pelvis Accel Z	2000 g		-Bipolar	1-168 HIII 50th VRTC.033
24	1914A-363-FZ	11FEMRL00H3FOZA	Left Femur Force Z	22240 N		Bipolar	1-168 HIII 50th VRTC.039
25	1914A-0257-FZ	11FEMRL00H3FOZA	Right Femur Force Z	22240 N		Bipolar	1-168 HIII 50th VRTC.045
26	150-0121VR-019664	11KNSLLE00H3DSXA	Left Knee Displacement X	30 mm		-Bipolar	1-LX0018 & 0019 VRTC.001
27	4509J-134-FX	11TIBILULXH3FOXA	Left Upper Tibia Force X	11120 N		Bipolar	1-LX0018 & 0019 VRTC.002
28	4509J-134-FZ	11TIBILULXH3FOZA	Left Upper Tibia Force Z	11120 N		Bipolar	1-LX0018 & 0019 VRTC.004
29	4509J-134-MX	11TIBILULXH3MOXA	Left Upper Tibia Moment X	395 Nm		Bipolar	1-LX0018 & 0019 VRTC.005
30	4509J-134-MY	11TIBILULXH3MOYA	Left Upper Tibia Moment Y	395 Nm		Bipolar	1-LX0018 & 0019 VRTC.006
31	4929J-79-FX	11TIBILLXH3FOXA	Left Lower Tibia Force X	11120 N		Bipolar	1-LX0018 & 0019 VRTC.009
32	4929J-79-FY	11TIBILLXH3FOYA	Left Lower Tibia Force Y	11120 N		Bipolar	1-LX0018 & 0019 VRTC.010
33	4929J-79-FZ	11TIBILLXH3FOZA	Left Lower Tibia Force Z	11120 N		Bipolar	1-LX0018 & 0019 VRTC.011
34	4929J-79-MX	11TIBILLXH3MOXA	Left Lower Tibia Moment X	395 Nm		Bipolar	1-LX0018 & 0019 VRTC.012
35	4929J-79-MY	11TIBILLXH3MOYA	Left Lower Tibia Moment Y	395 Nm		Bipolar	1-LX0018 & 0019 VRTC.013
36	P63847	11TIBILELXH3ACXA	Left Tibia Accel X	2000 g		Bipolar	1-LX0018 & 0019 VRTC.007
37	P64002	11TIBILELXH3ACYA	Left Tibia Accel Y	2000 g		Bipolar	1-LX0018 & 0019 VRTC.008
38	P52039	11FOOTLELXH3ACXA	Left Foot Accel X	2000 g		Bipolar	1-LX0018 & 0019 VRTC.017
39	P58851	11FOOTLELXH3ACYA	Left Foot Accel Y	2000 g		Bipolar	1-LX0018 & 0019 VRTC.018
40	P51737	11FOOTLELXH3ACZA	Left Foot Accel Z	2000 g		Bipolar	1-LX0018 & 0019 VRTC.019
41	PD210-4B-ANKLX	11FOOTLELXH3ANXA	Left Foot Angular Dis. X	180 °		-Bipolar	1-LX0018 & 0019 VRTC.014
42	PD210-4B-ANKLY	11FOOTLELXH3ANYA	Left Foot Angular Dis. Y	180 °		Bipolar	1-LX0018 & 0019 VRTC.015
43	PD210-4B-ANKLZ	11FOOTLELXH3ANZA	Left Foot Angular Dis. Z	180 °		-Bipolar	1-LX0018 & 0019 VRTC.016
44	150-0121VL-019597	11KNSLR00H3DSXA	Right Knee Displacement X	33 mm		-Bipolar	1-LX0018 & 0019 VRTC.020

Channel Report Test Number 101207

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
45	4509J-133-FX	11TIBIRULXH3FOXA	Right Upper Tibia Force X	11120 N	N	Bipolar	1-LX0018 & 0019 VRTC.021
46	4509J-133-FZ	11TIBIRULXH3FOZA	Right Upper Tibia Force Z	11120 N	N	Bipolar	1-LX0018 & 0019 VRTC.023
47	4509J-133-MX	11TIBIRULXH3MOXA	Right Upper Tibia Moment X	395 Nm	Nm	Bipolar	1-LX0018 & 0019 VRTC.024
48	4509J-133-MY	11TIBIRULXH3MOYA	Right Upper Tibia Moment Y	395 Nm	Nm	Bipolar	1-LX0018 & 0019 VRTC.025
49	4929J-127-FX	11TIBIRLLXH3FOXA	Right Lower Tibia Force X	11120.5 N	N	Bipolar	1-LX0018 & 0019 VRTC.028
50	4929J-127-FY	11TIBIRLLXH3FOYA	Right Lower Tibia Force Y	11120.5 N	N	Bipolar	1-LX0018 & 0019 VRTC.029
51	4929J-127-FZ	11TIBIRLLXH3FOZA	Right Lower Tibia Force Z	11120.5 N	N	Bipolar	1-LX0018 & 0019 VRTC.030
52	4929J-127-MX	11TIBIRLLXH3MOXA	Right Lower Tibia Moment X	395.4 Nm	Nm	Bipolar	1-LX0018 & 0019 VRTC.031
53	4929J-127-MY	11TIBIRLLXH3MOYA	Right Lower Tibia Moment Y	395.4 Nm	Nm	Bipolar	1-LX0018 & 0019 VRTC.032
54	00L20-A07	11TIBIRILXH3ACXA	Right Tibia Accel X	2000 g	g	Bipolar	1-LX0018 & 0019 VRTC.026
55	00L20-A04	11TIBIRILXH3ACYA	Right Tibia Accel Y	2000 g	g	Bipolar	1-LX0018 & 0019 VRTC.027
56	03F03F17-N32	11FOOTRILXH3ACXA	Right Foot Accel X	2000 g	g	Bipolar	1-LX0018 & 0019 VRTC.036
57	99H30-Z14	11FOOTRILXH3ACYA	Right Foot Accel Y	2000 g	g	Bipolar	1-LX0018 & 0019 VRTC.037
58	02I02I10-N01	11FOOTRILXH3ACZA	Right Foot Accel Z	2000 g	g	Bipolar	1-LX0018 & 0019 VRTC.038
59	PD210-4B-ANKRX	11FOOTRILXH3ANXA	Right Foot Angular Dis. X	180 °	°	-Bipolar	1-LX0018 & 0019 VRTC.033
60	PD210-4B-ANKRY	11FOOTRILXH3ANYA	Right Foot Angular Dis. Y	180 °	°	Bipolar	1-LX0018 & 0019 VRTC.034
61	PD210-4B-ANKRZ	11FOOTRILXH3ANZA	Right Foot Angular Dis. Z	180 °	°	-Bipolar	1-LX0018 & 0019 VRTC.035
62	P51986	13HEADCG00HFACXA	Head Accel X	2000 g	g	-Bipolar	3-426 HIII 5th FTSS.001
63	P64092	13HEADCG00HFACYA	Head Accel Y	2000 g	g	-Bipolar	3-426 HIII 5th FTSS.002
64	P51878	13HEADCG00HFACZA	Head Accel Z	2000 g	g	-Bipolar	3-426 HIII 5th FTSS.003
65	P54787	13HEADCGRDHFACXA	Head Red. Accel X	2000 g	g	-Bipolar	3-426 HIII 5th FTSS.004
66	P64136	13HEADCGRDHFACYA	Head Red. Accel Y	2000 g	g	-Bipolar	3-426 HIII 5th FTSS.005
67	00L13-F22	13HEADCGRDHFACZA	Head Red. Accel Z	2000 g	g	-Bipolar	3-426 HIII 5th FTSS.006
68	1716A-1746-FX	13NECKUP00HFFOXA	Neck Force X	8896.4 N	N	-Bipolar	3-426 HIII 5th FTSS.007
69	1716A-1746-FY	13NECKUP00HFFOYA	Neck Force Y	8896.4 N	N	Bipolar	3-426 HIII 5th FTSS.008
70	1716A-1746-FZ	13NECKUP00HFFOZA	Neck Force Z	13344.6 N	N	Bipolar	3-426 HIII 5th FTSS.009
71	1716A-1746-MX	13NECKUP00HFMOXA	Neck Moment X	282.5 Nm	Nm	-Bipolar	3-426 HIII 5th FTSS.010
72	1716A-1746-MY	13NECKUP00HFMOYA	Neck Moment Y	282.5 Nm	Nm	Bipolar	3-426 HIII 5th FTSS.011
73	1716A-1746-MZ	13NECKUP00HFMOZA	Neck Moment Z	282.5 Nm	Nm	Bipolar	3-426 HIII 5th FTSS.012
74	P51687	13CHSTCG00HFACXA	Chest Accel X	2000 g	g	Bipolar	3-426 HIII 5th FTSS.019
75	P49459	13CHSTCG00HFACYA	Chest Accel Y	2000 g	g	-Bipolar	3-426 HIII 5th FTSS.020
76	P58869	13CHSTCG00HFACZA	Chest Accel Z	2000 g	g	-Bipolar	3-426 HIII 5th FTSS.021
77	P58861	13CHSTCGRDHFACXA	Chest Red. Accel X	2000 g	g	-Bipolar	3-426 HIII 5th FTSS.022
78	P58808	13CHSTCGRDHFACYA	Chest Red. Accel Y	2000 g	g	-Bipolar	3-426 HIII 5th FTSS.023
79	P63851	13CHSTCGRDHFACZA	Chest Red. Accel Z	2000 g	g	-Bipolar	3-426 HIII 5th FTSS.024
80	14CB1-2897-CST426	13CHST0000HFDSDXA	Chest Deflection X	81 mm	mm	Bipolar	3-426 HIII 5th FTSS.025
81	02I02I05-F11	13PELVCG00HFACXA	Pelvis Accel X	2000 g	g	-Bipolar	3-426 HIII 5th FTSS.026
82	03E03D30-N22	13PELVCG00HFACYA	Pelvis Accel Y	2000 g	g	-Bipolar	3-426 HIII 5th FTSS.027
83	03E03E21-M15	13PELVCG00HFACZA	Pelvis Accel Z	2000 g	g	-Bipolar	3-426 HIII 5th FTSS.028
84	2121A-1394	13FEMRL00HFFOZA	Left Femur Force Z	13344 N	N	Bipolar	3-426 HIII 5th FTSS.029
85	2121A-1395	13FEMRRL00HFFOZA	Right Femur Force Z	13344 N	N	Bipolar	3-426 HIII 5th FTSS.030
86	150-0121VR-030589	13KNSLLE00HFDSDXA	Left Knee Displacement X	33 mm	mm	-Bipolar	3-FLXD001 & D002 VRTC.001
87	4825J-97-FX	13TIBILULXHFFOXA	Left Upper Tibia Force X	8896 N	N	Bipolar	3-FLXD001 & D002 VRTC.002
88	4825J-97-FZ	13TIBILULXHFFOZA	Left Upper Tibia Force Z	8896 N	N	Bipolar	3-FLXD001 & D002 VRTC.003

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Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
89	4825J-97-MX	13TIBILULXHFMOMA	Left Upper Tibia Moment X	282 Nm		Bipolar	3-FLXD001 & D002 VRTC.004
90	4825J-97-MY	13TIBILULXHFMOMA	Left Upper Tibia Moment Y	282 Nm		Bipolar	3-FLXD001 & D002 VRTC.005
91	4826J-108-FX	13TIBILLLXHFFOMA	Left Lower Tibia Force X	8896 N		Bipolar	3-FLXD001 & D002 VRTC.008
92	4826J-108-FY	13TIBILLLXHFFOMA	Left Lower Tibia Force Y	8896 N		Bipolar	3-FLXD001 & D002 VRTC.009
93	4826J-108-FZ	13TIBILLLXHFFOZA	Left Lower Tibia Force Z	8896 N		Bipolar	3-FLXD001 & D002 VRTC.010
94	4826J-108-MX	13TIBILLLXHFMOMA	Left Lower Tibia Moment X	282 Nm		Bipolar	3-FLXD001 & D002 VRTC.011
95	4826J-108-MY	13TIBILLLXHFMOMA	Left Lower Tibia Moment Y	282 Nm		Bipolar	3-FLXD001 & D002 VRTC.012
96	P63954	13TIBILELXHFMOMA	Left Tibia Accel X	2000 g		Bipolar	3-FLXD001 & D002 VRTC.006
97	P64001	13TIBILELXHFMOMA	Left Tibia Accel Y	2000 g		Bipolar	3-FLXD001 & D002 VRTC.007
98	P64008	13FOOTLELXHFMOMA	Left Foot Accel X	2000 g		Bipolar	3-FLXD001 & D002 VRTC.016
99	P63989	13FOOTLELXHFMOMA	Left Foot Accel Y	2000 g		Bipolar	3-FLXD001 & D002 VRTC.017
100	P58807	13FOOTLELXHFMOMA	Left Foot Accel Z	2000 g		Bipolar	3-FLXD001 & D002 VRTC.018
101	PD210-4B-7921-0179	13FOOTLELXHFMOMA	Left Foot Angular Dis. X	318 °		-Bipolar	3-FLXD001 & D002 VRTC.013
102	PD210-4B-7921-0184	13FOOTLELXHFMOMA	Left Foot Angular Dis. Y	318 °		Bipolar	3-FLXD001 & D002 VRTC.014
103	PD210-4B-7921-0183	13FOOTLELXHFMOMA	Left Foot Angular Dis. Z	318 °		-Bipolar	3-FLXD001 & D002 VRTC.015
104	150-0121VL-030583	13KNSLR100HFDSDXA	Right Knee Displacement X	33 mm		-Bipolar	3-FLXD001 & D002 VRTC.019
105	4825J-77-FX	13TIBIRULXHFMOMA	Right Upper Tibia Force X	8896 N		Bipolar	3-FLXD001 & D002 VRTC.020
106	4825J-77-FZ	13TIBIRULXHFMOMA	Right Upper Tibia Force Z	8896 N		Bipolar	3-FLXD001 & D002 VRTC.021
107	4825J-77-MX	13TIBIRULXHFMOMA	Right Upper Tibia Moment X	282 Nm		Bipolar	3-FLXD001 & D002 VRTC.022
108	4825J-77-MY	13TIBIRULXHFMOMA	Right Upper Tibia Moment Y	282 Nm		Bipolar	3-FLXD001 & D002 VRTC.023
109	4826J-107-FX	13TIBIRLLXHFMOMA	Right Lower Tibia Force X	8896 N		Bipolar	3-FLXD001 & D002 VRTC.026
110	4826J-107-FY	13TIBIRLLXHFMOMA	Right Lower Tibia Force Y	8896 N		Bipolar	3-FLXD001 & D002 VRTC.027
111	4826J-107-FZ	13TIBIRLLXHFMOMA	Right Lower Tibia Force Z	8896 N		Bipolar	3-FLXD001 & D002 VRTC.028
112	4826J-107-MX	13TIBIRLLXHFMOMA	Right Lower Tibia Moment X	282 Nm		Bipolar	3-FLXD001 & D002 VRTC.029
113	4826J-107-MY	13TIBIRLLXHFMOMA	Right Lower Tibia Moment Y	282 Nm		Bipolar	3-FLXD001 & D002 VRTC.030
114	P63987	13TIBIRILXHFMOMA	Right Tibia Accel X	2000 g		Bipolar	3-FLXD001 & D002 VRTC.024
115	P63991	13TIBIRILXHFMOMA	Right Tibia Accel Y	2000 g		Bipolar	3-FLXD001 & D002 VRTC.025
116	P52061	13FOOTRILXHFMOMA	Right Foot Accel X	2000 g		Bipolar	3-FLXD001 & D002 VRTC.034
117	P51925	13FOOTRILXHFMOMA	Right Foot Accel Y	2000 g		Bipolar	3-FLXD001 & D002 VRTC.035
118	P58836	13FOOTRILXHFMOMA	Right Foot Accel Z	2000 g		Bipolar	3-FLXD001 & D002 VRTC.036
119	PD210-4B-7921-0180	13FOOTRILXHFMOMA	Right Foot Angular Dis. X	318 °		-Bipolar	3-FLXD001 & D002 VRTC.031
120	PD210-4B-7921-0181	13FOOTRILXHFMOMA	Right Foot Angular Dis. Y	318 °		Bipolar	3-FLXD001 & D002 VRTC.032
121	PD210-4B-7921-0182	13FOOTRILXHFMOMA	Right Foot Angular Dis. Z	318 °		-Bipolar	3-FLXD001 & D002 VRTC.033
122	P50066	14HEADCG00HFMOMA	Head Accel X	2000 g		-Bipolar	4-329 HIII 5th VRTC.001
123	P49232	14HEADCG00HFMOMA	Head Accel Y	2000 g		-Bipolar	4-329 HIII 5th VRTC.002
124	P50077	14HEADCG00HFMOMA	Head Accel Z	2000 g		-Bipolar	4-329 HIII 5th VRTC.003
125	P51716	14HEADCG00HFMOMA	Head Red. Accel X	2000 g		-Bipolar	4-329 HIII 5th VRTC.004
126	P16155	14HEADCG00HFMOMA	Head Red. Accel Y	2000 g		-Bipolar	4-329 HIII 5th VRTC.005
127	P58732	14HEADCG00HFMOMA	Head Red. Accel Z	2000 g		-Bipolar	4-329 HIII 5th VRTC.006
128	1716A-1035-FX	14NECKUP00HFMOMA	Neck Force X	8896.4 N		-Bipolar	4-329 HIII 5th VRTC.007
129	1716A-1035-FY	14NECKUP00HFMOMA	Neck Force Y	8896.4 N		Bipolar	4-329 HIII 5th VRTC.008
130	1716A-1035-FZ	14NECKUP00HFMOMA	Neck Force Z	13344.6 N		Bipolar	4-329 HIII 5th VRTC.009
131	1716A-1035-MX	14NECKUP00HFMOMA	Neck Moment X	282.5 Nm		-Bipolar	4-329 HIII 5th VRTC.010
132	1716A-1035-MY	14NECKUP00HFMOMA	Neck Moment Y	282.5 Nm		Bipolar	4-329 HIII 5th VRTC.011

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Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
133	1716A-1035-MZ	14NECKUP00HFM0ZA	Neck Moment Z	282.5	Nm	Bipolar	4-329 HIII 5th VRTC.012
134	P49164	14CHSTCG00HFACXA	Chest Accel X	2000	g	Bipolar	4-329 HIII 5th VRTC.019
135	P51871	14CHSTCG00HFACYA	Chest Accel Y	2000	g	-Bipolar	4-329 HIII 5th VRTC.020
136	P63842	14CHSTCG00HFACZA	Chest Accel Z	2000	g	-Bipolar	4-329 HIII 5th VRTC.021
137	02102110-N14	14CHSTCGRDHFACXA	Chest Red. Accel X	2000	g	-Bipolar	4-329 HIII 5th VRTC.022
138	J20209	14CHSTCGRDHFACYA	Chest Red. Accel Y	2000	g	-Bipolar	4-329 HIII 5th VRTC.023
139	DC33J	14CHSTCGRDHFACZA	Chest Red. Accel Z	2000	g	-Bipolar	4-329 HIII 5th VRTC.024
140	14CB1-2897-CST329	14CHST0000HFD5XA	Chest Deflection X	81	mm	Bipolar	4-329 HIII 5th VRTC.025
141	J18059	14PELVCG00HFACXA	Pelvis Accel X	2000	g	-Bipolar	4-329 HIII 5th VRTC.026
142	BI30J	14PELVCG00HFACYA	Pelvis Accel Y	2000	g	-Bipolar	4-329 HIII 5th VRTC.027
143	AJ535	14PELVCG00HFACZA	Pelvis Accel Z	2000	g	-Bipolar	4-329 HIII 5th VRTC.028
144	2121AJ-1700	14FEMRLU00HFFOZA	Left Femur Force Z	13344	N	Bipolar	4-329 HIII 5th VRTC.029
145	2430-560	14FEMRRU00HFFOZA	Right Femur Force Z EXT P11	13344	N	Bipolar	4-329 HIII 5th VRTC.030
146	P61400	10SILLLE0000ACXA	Bullet Left Sill X-Axis Acceleration	2000	g	-Bipolar	
147	P63168	10SILLLE0000ACYA	Bullet Left Sill Y-Axis Acceleration	2000	g	Bipolar	
148	P66742	10SILLRI0000ACXA	Bullet Right Sill X-Axis Acceleration	2000	g	Bipolar	
149	P66883	10SILLRI0000ACYA	Bullet Right Sill Y-Axis Acceleration	2000	g	-Bipolar	
150	P62548	10VEHCCG0000ACXA	Bullet Center of Gravity X-Axis Acceleration	2000	g	Bipolar	
151	P67022	10VEHCCG0000ACYA	Bullet Center of Gravity Y-Axis Acceleration	2000	g	-Bipolar	
152	P62625	10VEHCCG0000ACZA	Bullet Center of Gravity Z-Axis Acceleration	2000	g	-Bipolar	
153	P63194	10FOOTLE0000ACXA	Bullet Driver Footrest X-Axis Acceleration	2000	g	-Bipolar	
154	P64865	10FOOTLE0000ACZA	Bullet Driver Footrest Z-Axis Acceleration	2000	g	-Bipolar	
155	P67040	10TPANLE0000ACXA	Bullet Toepan Behind Center of Accelerator X-Ax	2000	g	Bipolar	
156	P67061	10TPANLE0000ACZA	Bullet Toepan Behind Center of Accelerator Z-Ax	2000	g	-Bipolar	
157	EL20-S458-16KN-N100ED	11SEBE0000B5FO0A	Bullet Driver Lap Belt Force	16000	N	Bipolar	
158	EL20-S458-16KN-N100E9	13SEBE0000B5FO0A	Bullet Right Front Passenger Lap Belt Force	16000	N	Bipolar	
159	EL20-S458-16KN-N100E8	11SEBE0000B3FO0A	Bullet Driver Shoulder Belt Force	16000	N	Bipolar	
160	EL20-S458-16KN-N100E7	13SEBE0000B3FO0A	Bullet Right Front Passenger Shoulder Belt Force	16000	N	Bipolar	
161	ABFire1	10AIRBLEFR25VO0A	Bullet Driver Airbag 1st Stage Fire Time 1004	5	V	Bipolar	
162	ABFire2	10AIRBLEFR26VO0A	Bullet Driver Airbag 2nd Stage Fire Time 1006	5	V	Bipolar	
163	ABFire3	10AIRBRIFR25VO0A	Bullet Right Front Pass Airbag 1st Stage Fire Tir	5	V	Bipolar	
164	ABFire4	10AIRBRIFR26VO0A	Bullet Right Front Pass Airbag 2nd Stage Fire Tir	5	V	Bipolar	
165	P51989	21HEADCG00THACXA	Head Accel X	2000	g	Bipolar	1-Thor 016 NT VRTC.001
166	P49237	21HEADCG00THACYA	Head Accel Y	2000	g	Bipolar	1-Thor 016 NT VRTC.002
167	P49213	21HEADCG00THACZA	Head Accel Z	2000	g	Bipolar	1-Thor 016 NT VRTC.003
168	P52055	21HEADLE00THACXA	Head (LT) Accel X	2000	g	Bipolar	1-Thor 016 NT VRTC.004
169	P51962	21HEADLE00THACZA	Head (LT) Accel Z	2000	g	Bipolar	1-Thor 016 NT VRTC.005
170	P58787	21HEADUP00THACXA	Head (TP) Accel X	2000	g	Bipolar	1-Thor 016 NT VRTC.006
171	P59000	21HEADUP00THACYA	Head (TP) Accel Y	2000	g	Bipolar	1-Thor 016 NT VRTC.007
172	P49197	21HEADRE00THACYA	Head (RR) Accel Y	2000	g	Bipolar	1-Thor 016 NT VRTC.008
173	P17196	21HEADRE00THACZA	Head (RR) Accel Z	2000	g	Bipolar	1-Thor 016 NT VRTC.009
174	3454J-75-FX	21NECKUP00THFOXA	Upr Neck Force X	8896	N	Bipolar	1-Thor 016 NT VRTC.010
175	3454J-75-FY	21NECKUP00THFOYA	Upr Neck Force Y	8896	N	Bipolar	1-Thor 016 NT VRTC.011
176	3454J-75-FZ	21NECKUP00THFOZA	Upr Neck Force Z	13340	N	Bipolar	1-Thor 016 NT VRTC.012

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Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
177	3454J-75-MX	21NECKUP00THMOXA	Upr Neck Moment X	282 N	Bipolar	1-Thor 016 NT VRTC.013	
178	3454J-75-MY	21NECKUP00THMOYA	Upr Neck Moment Y	282 N		1-Thor 016 NT VRTC.014	
179	3454J-75-MZ	21NECKUP00THMOZA	Upr Neck Moment Z	282 N		1-Thor 016 NT VRTC.015	
180	4366J-80-FX	21NECKLO00THFOXA	Lwr Neck Force X	13340 N	Bipolar	1-Thor 016 NT VRTC.016	
181	4366J-80-FY	21NECKLO00THFOYA	Lwr Neck Force Y	13340 N	Bipolar	1-Thor 016 NT VRTC.017	
182	4366J-80-FZ	21NECKLO00THFOZA	Lwr Neck Force Z	13340 N	Bipolar	1-Thor 016 NT VRTC.018	
183	4366J-80-MX	21NECKLO00THMOXA	Lwr Neck Moment X	452 Nm	Bipolar	1-Thor 016 NT VRTC.019	
184	4366J-80-MY	21NECKLO00THMOYA	Lwr Neck Moment Y	452 Nm	Bipolar	1-Thor 016 NT VRTC.020	
185	4366J-80-MZ	21NECKLO00THMOZA	Lwr Neck Moment Z	226 Nm	Bipolar	1-Thor 016 NT VRTC.021	
186	6005J-75	21NECKRE00THFO0A	Rear Skull Spring Comp Force Z	4448 N	Bipolar	1-Thor 016 NT VRTC.022	
187	6005J-80	21NECKFR00THFO0A	Front Skull Spring Comp Force Z	4448 N	Bipolar	1-Thor 016 NT VRTC.023	
188	PD210-4B-7921-0521	21NECKUP00THANYA	Occipital Condile Rotary Pot	180 □	Bipolar	1-Thor 016 NT VRTC.024	
189	DGSP-010809	21ABDORL00THDS0A	Lwr Abd DGSP Rgt Disp	100 mm	Bipolar	1-Thor 016 NT VRTC.025	
190	DGSP-0103a	21ABDORL00THANYA	Lwr Abd DGSP Rgt Pitch	180 □	Bipolar	1-Thor 016 NT VRTC.026	
191	DGSP-0360	21ABDORL00THANZA	Lwr Abd DGSP Rgt Yaw	180 □	Bipolar	1-Thor 016 NT VRTC.027	
192	DGSP-010808	21ABDOLL00THDS0A	Lwr Abd DGSP Lft Disp	100 mm	Bipolar	1-Thor 016 NT VRTC.028	
193	DGSP-0103	21ABDOLL00THANYA	Lwr Abd DGSP Lft Pitch	180 □	Bipolar	1-Thor 016 NT VRTC.029	
194	DGSP-0359	21ABDOLL00THANZA	Lwr Abd DGSP Lft Yaw	180 □	Bipolar	1-Thor 016 NT VRTC.030	
195	J23772	21SPINMI00THACXA	T6 Mid Spine X	2000 g	-Bipolar	1-Thor 016 NT VRTC.055	
196	J17988	21SPINMI00THACYA	T6 Mid Spine Y	2000 g	Bipolar	1-Thor 016 NT VRTC.056	
197	J14234	21SPINMI00THACZA	T6 Mid Spine Z	2000 g	Bipolar	1-Thor 016 NT VRTC.057	
198	CRUX-0366	21CHRILU01THAN0A	CRUX T016 Base Upper Left Thorax Pot	180 □	Bipolar	1-Thor 016 NT VRTC.034	
199	CRUX-0367	21CHRILU02THAN0A	CRUX T016 Mid Upper Left Thorax Pot	180 □	Bipolar	1-Thor 016 NT VRTC.035	
200	CRUX-0369	21CHRILU03THAN0A	CRUX T016 Elbow Upper Left Thorax Pot	180 □	Bipolar	1-Thor 016 NT VRTC.036	
201	CRUX-0253	21CHRIRU01THAN0A	CRUX T016 Base Upper Right Thorax Pot	180 □	Bipolar	1-Thor 016 NT VRTC.037	
202	CRUX-0303	21CHRIRU02THAN0A	CRUX T016 Mid Upper Right Thorax Pot	180 □	Bipolar	1-Thor 016 NT VRTC.038	
203	CRUX-0304	21CHRIRU03THAN0A	CRUX T016 Elbow Upper Right Thorax Pot	180 □	Bipolar	1-Thor 016 NT VRTC.039	
204	CRUX-0312	21CHRILL01THAN0A	CRUX T016 Base Lower Left Thorax Pot	180 □	Bipolar	1-Thor 016 NT VRTC.040	
205	CRUX-0319	21CHRILL02THAN0A	CRUX T016 Mid Lower Left Thorax Pot	180 □	Bipolar	1-Thor 016 NT VRTC.041	
206	CRUX-0397	21CHRILL03THAN0A	CRUX T016 Elbow Lower Left Thorax Pot	180 □	Bipolar	1-Thor 016 NT VRTC.042	
207	CRUX-0390	21CHRIRL01THAN0A	CRUX T016 Base Lower Right Thorax Pot	180 □	Bipolar	1-Thor 016 NT VRTC.043	
208	CRUX-0354	21CHRIRL02THAN0A	CRUX T016 Mid Lower Right Thorax Pot	180 □	Bipolar	1-Thor 016 NT VRTC.044	
209	CRUX-0467	21CHRIRL03THAN0A	CRUX T016 Elbow Lower Right Thorax Pot	180 □	Bipolar	1-Thor 016 NT VRTC.045	
210	300647-039185	21ABDOUP00THDS0A	Upper Abdomen Sring Pot	100 mm	Bipolar	1-Thor 016 NT VRTC.046	
211	1911A-123-FX	21THSP1200THFOXA	T12 Thoracic Spine FX	13344 N	Bipolar	1-Thor 016 NT VRTC.047	
212	1911A-123-FY	21THSP1200THFOYA	T12 Thoracic Spine FY	13344 N	Bipolar	1-Thor 016 NT VRTC.048	
213	1911A-123-FZ	21THSP1200THFOZA	T12 Thoracic Spine FZ	17793 N	Bipolar	1-Thor 016 NT VRTC.049	
214	1911A-123-MX	21THSP12000HMOXA	T12 Thoracic Moment X	565 Nm	Bipolar	1-Thor 016 NT VRTC.050	
215	1911A-123-MY	21THSP12000HMOYA	T12 Thoracic Moment Y	903.9 Nm	Bipolar	1-Thor 016 NT VRTC.051	
216	04J04I01-R06	21SPINUP00THACXA	T1 Upper Spine X	2000 g	-Bipolar	1-Thor 016 NT VRTC.052	
217	04J04I20-Z23	21SPINUP00THACYA	T1 Upper Spine Y	2000 g	Bipolar	1-Thor 016 NT VRTC.053	
218	02I02I10-N25	21SPINUP00THACZA	T1 Upper Spine Z	2000 g	Bipolar	1-Thor 016 NT VRTC.054	
219	J14384	21PELV0000THACXA	Pelvis Accel X	2000 g	Bipolar	1-Thor 016 NT VRTC.061	
220	J32126	21PELV0000THACYA	Pelvis Accel Y	2000 g	Bipolar	1-Thor 016 NT VRTC.062	

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221	DE54J	21PELV000THACZA	Pelvis Accel Z	2000 g		Bipolar	1-Thor 016 NT VRTC.063
222	3455J-76-FX	21ACTBLE00THFOXA	Pelvis/Acetabulum Left FX	22240 N		Bipolar	1-Thor 016 NT VRTC.064
223	3455J-76-FY	21ACTBLE00THFOYA	Pelvis/Acetabulum Left FY	13340 N		Bipolar	1-Thor 016 NT VRTC.065
224	3455J-76-FZ	21ACTBLE00THFOZA	Pelvis/Acetabulum Left FZ	13340 N		Bipolar	1-Thor 016 NT VRTC.066
225	3455J-77-FX	21ACTBRI00THFOXA	Pelvis/Acetabulum Right FX	22240 N		Bipolar	1-Thor 016 NT VRTC.067
226	3455J-77-FY	21ACTBRI00THFOYA	Pelvis/Acetabulum Right FY	13340 N		Bipolar	1-Thor 016 NT VRTC.068
227	3455J-77-FZ	21ACTBRI00THFOZA	Pelvis/Acetabulum Right FZ	13340 N		Bipolar	1-Thor 016 NT VRTC.069
228	1914A-412-FX	21FEMRL00THFOXA	Left Femur FX	13344 N		Bipolar	1-Thor 016 NT VRTC.070
229	1914A-412-FY	21FEMRL00THFOYA	Left Femur FY	13344 N		Bipolar	1-Thor 016 NT VRTC.071
230	1914A-412-FZ	21FEMRL00THFOZA	Left Femur FZ	22240 N		Bipolar	1-Thor 016 NT VRTC.072
231	1914A-412-MX	21FEMRL00THMOXA	Left Femur MX	339 Nm		Bipolar	1-Thor 016 NT VRTC.073
232	1914A-412-MY	21FEMRL00THMOYA	Left Femur MY	339 Nm		Bipolar	1-Thor 016 NT VRTC.074
233	1914A-412-MZ	21FEMRL00THMOZA	Left Femur MZ	339 Nm		Bipolar	1-Thor 016 NT VRTC.075
234	IF-625-142-FX	21FEMRRL00THFOXA	Right Femur FX	13344 N		Bipolar	1-Thor 016 NT VRTC.076
235	IF-625-142-FY	21FEMRRL00THFOYA	Right Femur FY	13344 N		Bipolar	1-Thor 016 NT VRTC.077
236	IF-625-142-FZ	21FEMRRL00THFOZA	Right Femur FZ	22240 N		Bipolar	1-Thor 016 NT VRTC.078
237	IF-625-142-MX	21FEMRRL00THMOXA	Right Femur MX	339 Nm		Bipolar	1-Thor 016 NT VRTC.079
238	IF-625-142-MY	21FEMRRL00THMOYA	Right Femur MY	339 Nm		Bipolar	1-Thor 016 NT VRTC.080
239	IF-625-142-MZ	21FEMRRL00THMOZA	Right Femur MZ	339 Nm		Bipolar	1-Thor 016 NT VRTC.081
240	150-0121VR-022701	21KNSLLE00H3DSXA	Left Knee Displacement X	30 mm		-Bipolar	1-LX 103 & 104 VRTC.001
241	4509J-110-FX	21TIBILULXH3FOXA	Left Upper Tibia Force X	11120 N		Bipolar	1-LX 103 & 104 VRTC.002
242	4509J-110-FZ	21TIBILULXH3FOZA	Left Upper Tibia Force Z	11120 N		Bipolar	1-LX 103 & 104 VRTC.004
243	4509J-110-MX	21TIBILULXH3MOXA	Left Upper Tibia Moment X	395 Nm		Bipolar	1-LX 103 & 104 VRTC.005
244	4509J-110-MY	21TIBILULXH3MOYA	Left Upper Tibia Moment Y	395 Nm		Bipolar	1-LX 103 & 104 VRTC.006
245	4929J-78-FX	21TIBILLXH3FOXA	Left Lower Tibia Force X	11120 N		Bipolar	1-LX 103 & 104 VRTC.009
246	4929J-78-FY	21TIBILLXH3FOYA	Left Lower Tibia Force Y	11120 N		Bipolar	1-LX 103 & 104 VRTC.010
247	4929J-78-FZ	21TIBILLXH3FOZA	Left Lower Tibia Force Z	11120 N		Bipolar	1-LX 103 & 104 VRTC.011
248	4929J-78-MX	21TIBILLXH3MOXA	Left Lower Tibia Moment X	395 Nm		Bipolar	1-LX 103 & 104 VRTC.012
249	4929J-78-MY	21TIBILLXH3MOYA	Left Lower Tibia Moment Y	395 Nm		Bipolar	1-LX 103 & 104 VRTC.013
250	PD210-4B-7921-0118	21FOOTLELXH3ANXA	Left Foot Angular Dis. X	318 °		Bipolar	1-LX 103 & 104 VRTC.014
251	PD210-4B-7921-0229	21FOOTLELXH3ANYA	Left Foot Angular Dis. Y	318 °		Bipolar	1-LX 103 & 104 VRTC.015
252	PD210-4B-7921-0224	21FOOTLELXH3ANZA	Left Foot Angular Dis. Z	318 °		Bipolar	1-LX 103 & 104 VRTC.016
253	P64087	21FOOTLELXH3ACXA	Left Foot Accel X	2000 g		Bipolar	1-LX 103 & 104 VRTC.017
254	P49194	21FOOTLELXH3ACYA	Left Foot Accel Y	2000 g		Bipolar	1-LX 103 & 104 VRTC.018
255	P49463	21FOOTLELXH3ACZA	Left Foot Accel Z	2000 g		Bipolar	1-LX 103 & 104 VRTC.019
256	150-0121VL-030577	21KNSLRI00H3DSXA	Right Knee Displacement X	30 mm		-Bipolar	1-LX 103 & 104 VRTC.020
257	4509J-108-FX	21TIBIRULXH3FOXA	Right Upper Tibia Force X	11120 N		Bipolar	1-LX 103 & 104 VRTC.021
258	4509J-108-FZ	21TIBIRULXH3FOZA	Right Upper Tibia Force Z	11120 N		Bipolar	1-LX 103 & 104 VRTC.023
259	4509J-108-MX	21TIBIRULXH3MOXA	Right Upper Tibia Moment X	395 Nm		Bipolar	1-LX 103 & 104 VRTC.024
260	4509J-108-MY	21TIBIRULXH3MOYA	Right Upper Tibia Moment Y	395 Nm		Bipolar	1-LX 103 & 104 VRTC.025
261	4929-76-FX	21TIBIRLLXH3FOXA	Right Lower Tibia Force X	11120 N		Bipolar	1-LX 103 & 104 VRTC.028
262	4929-76-FY	21TIBIRLLXH3FOYA	Right Lower Tibia Force Y	11120 N		Bipolar	1-LX 103 & 104 VRTC.029
263	4929-76-FZ	21TIBIRLLXH3FOZA	Right Lower Tibia Force Z	11120 N		Bipolar	1-LX 103 & 104 VRTC.030
264	4929-76-MX	21TIBIRLLXH3MOXA	Right Lower Tibia Moment X	395 Nm		Bipolar	1-LX 103 & 104 VRTC.031

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Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
265	4929-76-MY	21TIBIRLLXH3MOYA	Right Lower Tibia Moment Y	395	Nm	Bipolar	1-LX 103 & 104 VRTC.032
266	PD210-4B-7921-0037	21FOOTRILXH3ANXA	Right Foot Angular Dis. X AK037X	318	□	Bipolar	1-LX 103 & 104 VRTC.033
267	PD210-4B-7921-0225	21FOOTRILXH3ANYA	Right Foot Angular Dis. Y AK225Y	318	□	Bipolar	1-LX 103 & 104 VRTC.034
268	PD210-4B-7921-0539	21FOOTRILXH3ANZA	Right Foot Angular Dis. Z AK539Z	318	□	Bipolar	1-LX 103 & 104 VRTC.035
269	P63926	21FOOTRILXH3ACXA	Right Foot Accel X	2000	g	Bipolar	1-LX 103 & 104 VRTC.036
270	P52050	21FOOTRILXH3ACYA	Right Foot Accel Y	2000	g	Bipolar	1-LX 103 & 104 VRTC.037
271	P64132	21FOOTRILXH3ACZA	Right Foot Accel Z	2000	g	Bipolar	1-LX 103 & 104 VRTC.038
272	P67032	20SILLLE0000ACXA	Target Left Sill X-Axis Acceleration	2000	g	Bipolar	
273	P63192	20SILLLE0000ACYA	Target Left Sill Y-Axis Acceleration	2000	g	-Bipolar	
274	P67021	20SILLRI0000ACXA	Target Right Sill X-Axis Acceleration	2000	g	Bipolar	
275	P61537	20SILLRI0000ACYA	Target Right Sill Y-Axis Acceleration	2000	g	-Bipolar	
276	P57808	20VEHCCG0000ACXA	Target Center of Gravity X-Axis Acceleration	2000	g	Bipolar	
277	P61738	20VEHCCG0000ACYA	Target Center of Gravity Y-Axis Acceleration	2000	g	-Bipolar	
278	P58105	20VEHCCG0000ACZA	Target Center of Gravity Z-Axis Acceleration	2000	g	-Bipolar	
279	P61997	20FOOTLE0000ACXA	Target Driver Footrest X-Axis Acceleration	2000	g	-Bipolar	
280	P62012	20FOOTLE0000ACZA	Target Driver Footrest Z-Axis Acceleration	2000	g	-Bipolar	
281	P67039	20TPANLE0000ACXA	Target Toe Pan Behind Center of Accelerator X-A	2000	g	Bipolar	
282	P67041	20TPANLE0000ACZA	Target Toe Pan Behind Center of Accelerator Z-A	2000	g	-Bipolar	
283	3419-830	21SEBE0000B5FO0A	Target Driver Lap Belt Force	15568	N	Bipolar	
284	X08010	21SEBE0000B3FO0A	Target Driver Shoulder Belt Force	15568	N	Bipolar	
285	ABFire5	20AIRBLEFR25VO0A	Target Driver Airbag 1st Stage Fire Time 1018	5	V	Bipolar	
286	ABFire6	20AIRBLEFR26VO0A	Target Driver Airbag 2nd Stage Fire Time 99	5	V	Bipolar	

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Chan#	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale	V5 Index
1	11HEADCG00H3ACXA	Bullet Vehicle Driver Head X-Axis Acceleration	1000 +	yes	2000	1	
2	11HEADCG00H3ACYA	Bullet Vehicle Driver Head Y-Axis Acceleration	1000 +	yes	2000	2	
3	11HEADCG00H3ACZA	Bullet Vehicle Driver Head Z-Axis Acceleration	1000 +	yes	2000	3	
3A	11HEADCG00H3ACRA	Bullet Vehicle Driver Head Resultant Acceleration	1000				
4	11HEADCGRDH3ACXA	Bullet Vehicle Driver Head Redundant X-Axis Acceleration	1000 +	yes	2000	4	
5	11HEADCGRDH3ACYA	Bullet Vehicle Driver Head Redundant Y-Axis Acceleration	1000 +	yes	2000	5	
6	11HEADCGRDH3ACZA	Bullet Vehicle Driver Head Redundant Z-Axis Acceleration	1000 +	yes	2000	6	
6A	11HEADCGRDH3ACRA	Bullet Vehicle Driver Head Redundant Resultant Acceleration	1000				
7	11NECKUP00H3FOXA	Bullet Vehicle Driver Upper Neck X-Axis Force	1000 +	yes	8896	7	
8	11NECKUP00H3FOYA	Bullet Vehicle Driver Upper Neck Y-Axis Force	1000 +	yes	8896	8	
9	11NECKUP00H3FOZA	Bullet Vehicle Driver Upper Neck Z-Axis Force	1000 +	yes	13344	9	
10	11NECKUP00H3MOXA	Bullet Vehicle Driver Upper Neck Moment About X Axis	600 +	yes	282	10	
11	11NECKUP00H3MOYA	Bullet Vehicle Driver Upper Neck Moment About Y Axis	600 +	yes	282	11	
12	11NECKUP00H3MOZA	Bullet Vehicle Driver Upper Neck Moment About Z Axis	600 +	yes	282	12	
13	11CHSTCG00H3ACXA	Bullet Vehicle Driver Chest X-Axis Acceleration	180 +	yes	2000	13	
14	11CHSTCG00H3ACYA	Bullet Vehicle Driver Chest Y-Axis Acceleration	180 +	yes	2000	14	
15	11CHSTCG00H3ACZA	Bullet Vehicle Driver Chest Z-Axis Acceleration	180 +	yes	2000	15	
15A	11CHSTCG00H3ACRA	Bullet Vehicle Driver Chest Resultant Acceleration	180				
16	11CHSTCGRDH3ACXA	Bullet Vehicle Driver Chest Redundant X-Axis Acceleration	180 +	yes	2000	16	
17	11CHSTCGRDH3ACYA	Bullet Vehicle Driver Chest Redundant Y-Axis Acceleration	180 +	yes	2000	17	
18	11CHSTCGRDH3ACZA	Bullet Vehicle Driver Chest Redundant Z-Axis Acceleration	180 +	yes	2000	18	
18A	11CHSTCGRDH3ACRA	Bullet Vehicle Driver Chest Redundant Resultant Acceleration	180				
19	11CHST0000H3DSXA	Bullet Vehicle Driver Chest X-Axis Displacement	600 +	yes	84	19	
20	11PELVCG00H3ACXA	Bullet Vehicle Driver Pelvis X-Axis Acceleration	1000 +	yes	2000	20	
21	11PELVCG00H3ACYA	Bullet Vehicle Driver Pelvis Y-Axis Acceleration	1000 +	yes	2000	21	
22	11PELVCG00H3ACZA	Bullet Vehicle Driver Pelvis Z-Axis Acceleration	1000 +	yes	2000	22	
22A	11PELVCG00H3ACRA	Bullet Vehicle Driver Pelvis Resultant Acceleration	1000				
23	11FEMRL00H3FOZA	Bullet Vehicle Driver Left Femur Z-Axis Force	600 +	yes	22240	23	
24	11FEMRL00H3FOXA	Bullet Vehicle Driver Right Femur Z-Axis Force	600 +	yes	22240	24	
25	11KNSLLE00H3DSXA	Bullet Vehicle Driver Left Knee X-Axis Displacement	180 +	yes	30	25	
26	11TIBILULXH3FOXA	Bullet Vehicle Driver Left Upper Tibia X-Axis Force	600 +	yes	11120	26	
27	11TIBILULXH3FOZA	Bullet Vehicle Driver Left Upper Tibia Z-Axis Force	600 +	yes	11120	27	
28	11TIBILULXH3MOXA	Bullet Vehicle Driver Left Upper Tibia Moment About X Axis	600 +	yes	395	28	
29	11TIBILULXH3MOYA	Bullet Vehicle Driver Left Upper Tibia Moment About Y Axis	600 +	yes	395	29	
30	11TIBILLLXH3FOXA	Bullet Vehicle Driver Left Lower Tibia X-Axis Force	600 +	yes	11120	30	
31	11TIBILLLXH3FOYA	Bullet Vehicle Driver Left Lower Tibia Y-Axis Force	600 +	yes	11120	31	
32	11TIBILLLXH3FOZA	Bullet Vehicle Driver Left Lower Tibia Z-Axis Force	600 +	yes	11120	32	
33	11TIBILLLXH3MOXA	Bullet Vehicle Driver Left Lower Tibia Moment About X Axis	600 +	yes	395	33	
34	11TIBILLLXH3MOYA	Bullet Vehicle Driver Left Lower Tibia Moment About Y Axis	600 +	yes	395	34	
35	11TIBILELXH3ACXA	Bullet Vehicle Driver Left Tibia X-Axis Acceleration	1000 +	yes	2000	35	
36	11TIBILELXH3ACYA	Bullet Vehicle Driver Left Tibia Y-Axis Acceleration	1000 +	yes	2000	36	
37	11FOOTLELXH3ACXA	Bullet Vehicle Driver Left Foot X-Axis Acceleration	1000 +	yes	2000	37	
38	11FOOTLELXH3ACYA	Bullet Vehicle Driver Left Foot Y-Axis Acceleration	1000 +	yes	2000	38	
39	11FOOTLELXH3ACZA	Bullet Vehicle Driver Left Foot Z-Axis Acceleration	1000 +	yes	2000	39	
39A	11FOOTLELXH3ACRA	Bullet Vehicle Driver Left Foot Resultant Acceleration	1000				
40	11FOOTLELXH3ANXA	Bullet Vehicle Driver Left Foot X-Axis Angular Displacement	180 +	no	180	40	

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Chan	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale	V5 Index
41	11FOOTLELXH3ANYA	Bullet Vehicle Driver Left Foot Y-Axis Angular Displacement	180 +	no	180	41	
42	11FOOTLELXH3ANZA	Bullet Vehicle Driver Left Foot Z-Axis Angular Displacement	180 +	no	180	42	
43	11KNSLRI00H3DSXA	Bullet Vehicle Driver Right Knee X-Axis Displacement	180 +	yes	33	43	
44	11TIBIRULXH3FOXA	Bullet Vehicle Driver Right Upper Tibia X-Axis Force	600 +	yes	11120	44	
45	11TIBIRULXH3FOZA	Bullet Vehicle Driver Right Upper Tibia Z-Axis Force	600 +	yes	11120	45	
46	11TIBIRULXH3MOXA	Bullet Vehicle Driver Right Upper Tibia Moment About X Axis	600 +	yes	395	46	
47	11TIBIRULXH3MOYA	Bullet Vehicle Driver Right Upper Tibia Moment About Y Axis	600 +	yes	395	47	
48	11TIBIRLLXH3FOXA	Bullet Vehicle Driver Right Lower Tibia X-Axis Force	600 +	yes	11120.5	48	
49	11TIBIRLLXH3FOZA	Bullet Vehicle Driver Right Lower Tibia Y-Axis Force	600 +	yes	11120.5	49	
50	11TIBIRLLXH3MOXA	Bullet Vehicle Driver Right Lower Tibia Z-Axis Force	600 +	yes	11120.5	50	
51	11TIBIRLLXH3MOYA	Bullet Vehicle Driver Right Lower Tibia Moment About X Axis	600 +	yes	395.4	51	
52	11TIBIRLLXH3MOYA	Bullet Vehicle Driver Right Lower Tibia Moment About Y Axis	600 +	yes	395.4	52	
53	11TIBIRILXH3ACXA	Bullet Vehicle Driver Right Tibia X-Axis Acceleration	1000 +	yes	2000	53	
54	11TIBIRILXH3ACYA	Bullet Vehicle Driver Right Tibia Y-Axis Acceleration	1000 +	yes	2000	54	
55	11FOOTRILXH3ACXA	Bullet Vehicle Driver Right Foot X-Axis Acceleration	1000 +	yes	2000	55	
56	11FOOTRILXH3ACYA	Bullet Vehicle Driver Right Foot Y-Axis Acceleration	1000 +	yes	2000	56	
57	11FOOTRILXH3ACZA	Bullet Vehicle Driver Right Foot Z-Axis Acceleration	1000 +	yes	2000	57	
57A	11FOOTRILXH3ACRA	Bullet Vehicle Driver Right Foot Resultant Acceleration	1000				
58	11FOOTRILXH3ANXA	Bullet Vehicle Driver Right Foot X-Axis Angular Displacement	180 +	no	180	58	
59	11FOOTRILXH3ANYA	Bullet Vehicle Driver Right Foot Y-Axis Angular Displacement	180 +	no	180	59	
60	11FOOTRILXH3ANZA	Bullet Vehicle Driver Right Foot Z-Axis Angular Displacement	180 +	no	180	60	
61	13HEADCG00HFACXA	Bullet Vehicle Right Front Passenger Head X-Axis Acceleration	1000 +	yes	2000	61	
62	13HEADCG00HFACYA	Bullet Vehicle Right Front Passenger Head Y-Axis Acceleration	1000 +	yes	2000	62	
63	13HEADCG00HFACZA	Bullet Vehicle Right Front Passenger Head Z-Axis Acceleration	1000 +	yes	2000	63	
63A	13HEADCG00HFACRA	Bullet Vehicle Right Front Passenger Head Resultant Acceleration	1000				
64	13HEADCGRDHFACXA	Bullet Vehicle Right Front Passenger Head Redundant X-Axis Acceleration	1000 +	yes	2000	64	
65	13HEADCGRDHFACYA	Bullet Vehicle Right Front Passenger Head Redundant Y-Axis Acceleration	1000 +	yes	2000	65	
66	13HEADCGRDHFACZA	Bullet Vehicle Right Front Passenger Head Redundant Z-Axis Acceleration	1000 +	yes	2000	66	
66A	13HEADCGRDHFACRA	Bullet Vehicle Right Front Passenger Head Redundant Resultant Acceleration	1000				
67	13NECKUP00HFFOXA	Bullet Vehicle Right Front Passenger Upper Neck X-Axis Force	1000 +	yes	8896.4	67	
68	13NECKUP00HFFOYA	Bullet Vehicle Right Front Passenger Upper Neck Y-Axis Force	1000 +	yes	8896.4	68	
69	13NECKUP00HFFOZA	Bullet Vehicle Right Front Passenger Upper Neck Z-Axis Force	1000 +	yes	13344.6	69	
70	13NECKUP00HFM0XA	Bullet Vehicle Right Front Passenger Upper Neck Moment About X Axis	600 +	yes	282.5	70	
71	13NECKUP00HFM0YA	Bullet Vehicle Right Front Passenger Upper Neck Moment About Y Axis	600 +	yes	282.5	71	
72	13NECKUP00HFM0ZA	Bullet Vehicle Right Front Passenger Upper Neck Moment About Z Axis	600 +	yes	282.5	72	
73	13CHSTCG00HFACXA	Bullet Vehicle Right Front Passenger Chest X-Axis Acceleration	180 +	yes	2000	73	
74	13CHSTCG00HFACYA	Bullet Vehicle Right Front Passenger Chest Y-Axis Acceleration	180 +	yes	2000	74	
75	13CHSTCG00HFACZA	Bullet Vehicle Right Front Passenger Chest Z-Axis Acceleration	180 +	yes	2000	75	
75A	13CHSTCG00HFACRA	Bullet Vehicle Right Front Passenger Chest Resultant Acceleration	180				
76	13CHSTCGRDHFACXA	Bullet Vehicle Right Front Passenger Chest Redundant X-Axis Acceleration	180 +	yes	2000	76	
77	13CHSTCGRDHFACYA	Bullet Vehicle Right Front Passenger Chest Redundant Y-Axis Acceleration	180 +	yes	2000	77	
78	13CHSTCGRDHFACZA	Bullet Vehicle Right Front Passenger Chest Redundant Z-Axis Acceleration	180 +	yes	2000	78	
78A	13CHSTCGRDHFACRA	Bullet Vehicle Right Front Passenger Chest Redundant Resultant Acceleration	180				
79	13CHST0000HFD0XA	Bullet Vehicle Right Front Passenger Chest X-Axis Displacement	600 +	yes	81	79	
80	13PELVCG00HFACXA	Bullet Vehicle Right Front Passenger Pelvis X-Axis Acceleration	1000 +	yes	2000	80	
81	13PELVCG00HFACYA	Bullet Vehicle Right Front Passenger Pelvis Y-Axis Acceleration	1000 +	yes	2000	81	

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Chan		ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale	V5 Index
82	13PELVCG00	HFA	CZA	Bullet Vehicle Right Front Passenger Pelvis Z-Axis Acceleration	1000 +	yes	2000	82
82A	13PELVCG00	HFA	CRA	Bullet Vehicle Right Front Passenger Pelvis Resultant Acceleration	1000			
83	13FEMRLL00	HFF	OZA	Bullet Vehicle Right Front Passenger Left Femur Z-Axis Force	600 +	yes	13344	83
84	13FEMRRL00	HFF	OZA	Bullet Vehicle Right Front Passenger Right Femur Z-Axis Force	600 +	yes	13344	84
85	13KNSLLE00	HFD	SXA	Bullet Vehicle Right Front Passenger Left Knee X-Axis Displacement	180 +	yes	33	85
86	13TIBILULX	HFF	OXA	Bullet Vehicle Right Front Passenger Left Upper Tibia X-Axis Force	600 +	yes	8896	86
87	13TIBILULX	HFF	OZA	Bullet Vehicle Right Front Passenger Left Upper Tibia Z-Axis Force	600 +	yes	8896	87
88	13TIBILULX	HFM	OMXA	Bullet Vehicle Right Front Passenger Left Upper Tibia Moment About X Axis	600 +	yes	282	88
89	13TIBILULX	HFM	OMYA	Bullet Vehicle Right Front Passenger Left Upper Tibia Moment About Y Axis	600 +	yes	282	89
90	13TIBILELX	HFA	CXA	Bullet Vehicle Right Front Passenger Left Tibia X-Axis Acceleration	1000 +	yes	2000	90
91	13TIBILELX	HFA	CYA	Bullet Vehicle Right Front Passenger Left Tibia Y-Axis Acceleration	1000 +	yes	2000	91
92	13TIBILLLX	HFF	OXA	Bullet Vehicle Right Front Passenger Left Lower Tibia X-Axis Force	600 +	yes	8896	92
93	13TIBILLLX	HFF	OYA	Bullet Vehicle Right Front Passenger Left Lower Tibia Y-Axis Force	600 +	yes	8896	93
94	13TIBILLLX	HFF	OZA	Bullet Vehicle Right Front Passenger Left Lower Tibia Z-Axis Force	600 +	yes	8896	94
95	13TIBILLLX	HFM	OMXA	Bullet Vehicle Right Front Passenger Left Lower Tibia Moment About X Axis	600 +	yes	282	95
96	13TIBILLLX	HFM	OMYA	Bullet Vehicle Right Front Passenger Left Lower Tibia Moment About Y Axis	600 +	yes	282	96
97	13FOOTLELX	HFA	CXA	Bullet Vehicle Right Front Passenger Left Foot X-Axis Angular Displacement	180 +	no	318	97
98	13FOOTLELX	HFA	CYA	Bullet Vehicle Right Front Passenger Left Foot X-Axis Angular Displacement	180 +	no	318	98
99	13FOOTLELX	HFA	CNZA	Bullet Vehicle Right Front Passenger Left Foot Z-Axis Angular Displacement	180 +	no	318	99
100	13FOOTLELX	HFA	CXA	Bullet Vehicle Right Front Passenger Left Foot X-Axis Acceleration	1000 +	yes	2000	100
101	13FOOTLELX	HFA	CYA	Bullet Vehicle Right Front Passenger Left Foot Y-Axis Acceleration	1000 +	yes	2000	101
102	13FOOTLELX	HFA	CZA	Bullet Vehicle Right Front Passenger Left Foot Z-Axis Acceleration	1000 +	yes	2000	102
102A	13FOOTLELX	HFA	CRA	Bullet Vehicle Right Front Passenger Left Foot Resultant Acceleration	1000			
103	13KNSLR00	HFD	SXA	Bullet Vehicle Right Front Passenger Right Knee X-Axis Displacement	180 +	yes	33	103
104	13TIBIRULX	HFF	OXA	Bullet Vehicle Right Front Passenger Right Upper Tibia X-Axis Force	600 +	yes	8896	104
105	13TIBIRULX	HFF	OZA	Bullet Vehicle Right Front Passenger Right Upper Tibia Z-Axis Force	600 +	yes	8896	105
106	13TIBIRULX	HFM	OMXA	Bullet Vehicle Right Front Passenger Right Upper Tibia Moment About X Axis	600 +	yes	282	106
107	13TIBIRULX	HFM	OMYA	Bullet Vehicle Right Front Passenger Right Upper Tibia Moment About Y Axis	600 +	yes	282	107
108	13TIBIRILX	HFA	CXA	Bullet Vehicle Right Front Passenger Right Tibia X-Axis Acceleration	1000 +	yes	2000	108
109	13TIBIRILX	HFA	CYA	Bullet Vehicle Right Front Passenger Right Tibia Y-Axis Acceleration	1000 +	yes	2000	109
110	13TIBIRLLX	HFF	OXA	Bullet Vehicle Right Front Passenger Right Lower Tibia X-Axis Force	600 +	yes	8896	110
111	13TIBIRLLX	HFF	OYA	Bullet Vehicle Right Front Passenger Right Lower Tibia Y-Axis Force	600 +	yes	8896	111
112	13TIBIRLLX	HFF	OZA	Bullet Vehicle Right Front Passenger Right Lower Tibia Z-Axis Force	600 +	yes	8896	112
113	13TIBIRLLX	HFM	OMXA	Bullet Vehicle Right Front Passenger Right Lower Tibia Moment About X Axis	600 +	yes	282	113
114	13TIBIRLLX	HFM	OMYA	Bullet Vehicle Right Front Passenger Right Lower Tibia Moment About Y Axis	600 +	yes	282	114
115	13FOOTRILX	HFA	CNZA	Bullet Vehicle Right Front Passenger Right Foot X-Axis Angular Displacement	180 +	no	318	115
116	13FOOTRILX	HFA	CXA	Bullet Vehicle Right Front Passenger Right Foot X-Axis Angular Displacement	180 +	no	318	116
117	13FOOTRILX	HFA	CNZA	Bullet Vehicle Right Front Passenger Right Foot Z-Axis Angular Displacement	180 +	no	318	117
118	13FOOTRILX	HFA	CXA	Bullet Vehicle Right Front Passenger Right Foot X-Axis Acceleration	1000 +	yes	2000	118
119	13FOOTRILX	HFA	CYA	Bullet Vehicle Right Front Passenger Right Foot Y-Axis Acceleration	1000 +	yes	2000	119
120	13FOOTRILX	HFA	CZA	Bullet Vehicle Right Front Passenger Right Foot Z-Axis Acceleration	1000 +	yes	2000	120
120A	13FOOTRILX	HFA	CRA	Bullet Vehicle Right Front Passenger Right Foot Resultant Acceleration	1000			
121	14HEADCG00	HFA	CXA	Bullet Vehicle Left Rear Passenger Head X-Axis Acceleration	1000 +	yes	2000	121
122	14HEADCG00	HFA	CYA	Bullet Vehicle Left Rear Passenger Head Y-Axis Acceleration	1000 +	yes	2000	122
123	14HEADCG00	HFA	CZA	Bullet Vehicle Left Rear Passenger Head Z-Axis Acceleration	1000 +	yes	2000	123
123A	14HEADCG00	HFA	CRA	Bullet Vehicle Left Rear Passenger Head Resultant Acceleration	1000			

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Chan#	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale	V5 Index
124	14HEADCGRDHFACXA	Bullet Vehicle Left Rear Passenger Head Redundant X-Axis Acceleration	1000 +	yes	2000	124	
125	14HEADCGRDHFACYA	Bullet Vehicle Left Rear Passenger Head Redundant Y-Axis Acceleration	1000 +	yes	2000	125	
126	14HEADCGRDHFACZA	Bullet Vehicle Left Rear Passenger Head Redundant Z-Axis Acceleration	1000 +	yes	2000	126	
126A	14HEADCGRDHFACRA	Bullet Vehicle Left Rear Passenger Head Redundant Resultant Acceleration	1000				
127	14NECKUP00HFFOXA	Bullet Vehicle Left Rear Passenger Upper Neck X-Axis Force	1000 +	yes	8896.4	127	
128	14NECKUP00HFFOYA	Bullet Vehicle Left Rear Passenger Upper Neck Y-Axis Force	1000 +	yes	8896.4	128	
129	14NECKUP00HFFOZA	Bullet Vehicle Left Rear Passenger Upper Neck Z-Axis Force	1000 +	yes	13344.6	129	
130	14NECKUP00HFMOXA	Bullet Vehicle Left Rear Passenger Upper Neck Moment About X Axis	600 +	yes	282.5	130	
131	14NECKUP00HFMOYA	Bullet Vehicle Left Rear Passenger Upper Neck Moment About Y Axis	600 +	yes	282.5	131	
132	14NECKUP00HFMOZA	Bullet Vehicle Left Rear Passenger Upper Neck Moment About Z Axis	600 +	yes	282.5	132	
133	14CHSTCG00HFACXA	Bullet Vehicle Left Rear Passenger Chest X-Axis Acceleration	180 +	yes	2000	133	
134	14CHSTCG00HFACYA	Bullet Vehicle Left Rear Passenger Chest Y-Axis Acceleration	180 +	yes	2000	134	
135	14CHSTCG00HFACZA	Bullet Vehicle Left Rear Passenger Chest Z-Axis Acceleration	180 +	yes	2000	135	
135A	14CHSTCG00HFACRA	Bullet Vehicle Left Rear Passenger Chest Resultant Acceleration	180				
136	14CHSTCGRDHFACXA	Bullet Vehicle Left Rear Passenger Chest Redundant X-Axis Acceleration	180 +	yes	2000	136	
137	14CHSTCGRDHFACYA	Bullet Vehicle Left Rear Passenger Chest Redundant Y-Axis Acceleration	180 +	yes	2000	137	
138	14CHSTCGRDHFACZA	Bullet Vehicle Left Rear Passenger Chest Redundant Z-Axis Acceleration	180 +	yes	2000	138	
138A	14CHSTCGRDHFACRA	Bullet Vehicle Left Rear Passenger Chest Redundant Resultant Acceleration	180				
139	14CHST00000HFDSCA	Bullet Vehicle Left Rear Passenger Chest X-Axis Displacement	600 +	yes	81	139	
140	14PELVCG00HFACXA	Bullet Vehicle Left Rear Passenger Pelvis X-Axis Acceleration	1000 +	yes	2000	140	
141	14PELVCG00HFACYA	Bullet Vehicle Left Rear Passenger Pelvis Y-Axis Acceleration	1000 +	yes	2000	141	
142	14PELVCG00HFACZA	Bullet Vehicle Left Rear Passenger Pelvis Z-Axis Acceleration	1000 +	yes	2000	142	
142A	14PELVCG00HFACRA	Bullet Vehicle Left Rear Passenger Pelvis Resultant Acceleration	1000				
143	14FEMRLU00HFFOZA	Bullet Vehicle Left Rear Passenger Left Femur Z-Axis Force	600 +	yes	13344	143	
144	14FEMRRU00HFFOZA	Bullet Vehicle Left Rear Passenger Right Femur Z-Axis Force	600 +	yes	13344	144	
145	10SILLLE0000ACXA	Bullet Vehicle Left Sill X-Axis Acceleration	60 +	yes	2000	145	
146	10SILLLE0000ACYA	Bullet Vehicle Left Sill Y-Axis Acceleration	60 +	yes	2000	146	
147	10SILLRI0000ACXA	Bullet Vehicle Right Sill X-Axis Acceleration	60 +	yes	2000	147	
148	10SILLRI0000ACYA	Bullet Vehicle Right Sill Y-Axis Acceleration	60 +	yes	2000	148	
149	10VEHCCG0000ACXA	Bullet Vehicle Vehicle Center of Gravity X-Axis Acceleration	60 +	yes	2000	149	
150	10VEHCCG0000ACYA	Bullet Vehicle Vehicle Center of Gravity Y-Axis Acceleration	60 +	yes	2000	150	
151	10VEHCCG0000ACZA	Bullet Vehicle Vehicle Center of Gravity Z-Axis Acceleration	60 +	yes	2000	151	
151A	10VEHCCG0000ACRA	Bullet Vehicle Vehicle Center of Gravity Resultant Acceleration	60				
152	10FOOTLE0000ACXA	Bullet Vehicle Driver Footrest X-Axis Acceleration	60 +	yes	2000	152	
153	10FOOTLE0000ACZA	Bullet Vehicle Driver Footrest Z-Axis Acceleration	60 +	yes	2000	153	
154	10TPANLE0000ACXA	Bullet Vehicle Toepan Behind Center of Accelerator X-Axis Acceleration	60 +	yes	2000	154	
155	10TPANLE0000ACZA	Bullet Vehicle Toepan Behind Center of Accelerator Z-Axis Acceleration	60 +	yes	2000	155	
156	11SEBE00000B5FO0A	Bullet Vehicle Driver Lap Belt Force	60 +	yes	16000	156	
157	13SEBE00000B5FO0A	Bullet Vehicle Right Front Passenger Lap Belt Force	60 +	yes	16000	157	
158	11SEBE00000B3FO0A	Bullet Vehicle Driver Shoulder Belt Force	60 +	yes	16000	158	
159	13SEBE00000B3FO0A	Bullet Vehicle Right Front Passenger Shoulder Belt Force	60 +	yes	16000	159	
160	10AIRBLEFR25VO0A	Bullet Vehicle Driver Airbag 1st Stage Fire Time	1000 +	no	5	160	
161	10AIRBLEFR26VO0A	Bullet Vehicle Driver Airbag 2nd Stage Fire Time	1000 +	no	5	161	
162	10AIRBRIFR25VO0A	Bullet Vehicle Right Front Passenger Airbag 1st Stage Fire Time	1000 +	no	5	162	
163	10AIRBRIFR26VO0A	Bullet Vehicle Right Front Passenger Airbag 2nd Stage Fire Time	1000 +	no	5	163	
164	21HEADCG00THACXA	Target Vehicle Driver Head X-Axis Acceleration	1000 +	yes	2000	164	

Command File Test Number 101207

Chantr ISO mnemonic		Channel Title	Filter Class	Flip	Zero	Full Scale	V5 Index
165	21HEADCG00THACYA	Target Vehicle Driver Head Y-Axis Acceleration	1000 +	yes	2000	165	
166	21HEADCG00THACZA	Target Vehicle Driver Head Z-Axis Acceleration	1000 +	yes	2000	166	
166A	21HEADCG00THACRA	Target Vehicle Driver Head Resultant Acceleration	1000				
167	21HEADLE00THACXA	Target Vehicle Driver Head Left X-Axis Acceleration	1000 +	yes	2000	167	
168	21HEADLE00THACZA	Target Vehicle Driver Head Left Z-Axis Acceleration	1000 +	yes	2000	168	
169	21HEADUP00THACXA	Target Vehicle Driver Head Top X-Axis Acceleration	1000 +	yes	2000	169	
170	21HEADUP00THACYA	Target Vehicle Driver Head Top Y-Axis Acceleration	1000 +	yes	2000	170	
171	21HEADRE00THACYA	Target Vehicle Driver Head Rear Y-Axis Acceleration	1000 +	yes	2000	171	
172	21HEADRE00THACZA	Target Vehicle Driver Head Rear Z-Axis Acceleration	1000 +	yes	2000	172	
173	21NECKUP00THFOXA	Target Vehicle Driver Upper Neck X-Axis Force	1000 +	yes	8896	173	
174	21NECKUP00THFOYA	Target Vehicle Driver Upper Neck Y-Axis Force	1000 +	yes	8896	174	
175	21NECKUP00THFOZA	Target Vehicle Driver Upper Neck Z-Axis Force	1000 +	yes	13340	175	
176	21NECKUP00THMOXA	Target Vehicle Driver Upper Neck Moment About X Axis	600 +	yes	282	176	
177	21NECKUP00THMOYA	Target Vehicle Driver Upper Neck Moment About Y Axis	600 +	yes	282	177	
178	21NECKUP00THMOZA	Target Vehicle Driver Upper Neck Moment About Z Axis	600 +	yes	282	178	
179	21NECKLO00THFOXA	Target Vehicle Driver Lower Neck X-Axis Force	1000 +	yes	13340	179	
180	21NECKLO00THFOYA	Target Vehicle Driver Lower Neck Y-Axis Force	1000 +	yes	13340	180	
181	21NECKLO00THFOZA	Target Vehicle Driver Lower Neck Z-Axis Force	1000 +	yes	13340	181	
182	21NECKLO00THMOXA	Target Vehicle Driver Lower Neck Moment About X Axis	600 +	yes	452	182	
183	21NECKLO00THMOYA	Target Vehicle Driver Lower Neck Moment About Y Axis	600 +	yes	452	183	
184	21NECKLO00THMOZA	Target Vehicle Driver Lower Neck Moment About Z Axis	600 +	yes	226	184	
185	21NECKRE00THFO0A	Target Vehicle Driver Rear Skull Spring Z-Axis Force	600 +	yes	4448	185	
186	21NECKFR00THFO0A	Target Vehicle Driver Front Skull Spring Z-Axis Force	600 +	yes	4448	186	
187	21NECKUP00THANYA	Target Vehicle Driver Occipital Condyle Rotary Pot	180 +	yes	180	187	
188	21ABDORL00THDS0A	Target Vehicle Driver Lower Abdomen DGSP Right Displacement	180 +	no	100	188	
189	21ABDORL00THANYA	Target Vehicle Driver Lower Abdomen DGSP Right Pitch	180 +	no	180	189	
190	21ABDORL00THANZA	Target Vehicle Driver Lower Abdomen DGSP Right Yaw	180 +	no	180	190	
191	21ABDOLL00THDS0A	Target Vehicle Driver Lower Abdomen DGSP Left Displacement	180 +	no	100	191	
192	21ABDOLL00THANYA	Target Vehicle Driver Lower Abdomen DGSP Left Pitch	180 +	no	180	192	
193	21ABDOLL00THANZA	Target Vehicle Driver Lower Abdomen DGSP Left Yaw	180 +	no	180	193	
194	21SPINMI00THACXA	Target Vehicle Driver T6 Mid Spine X-Axis Acceleration	1000 +	yes	2000	194	
195	21SPINMI00THACYA	Target Vehicle Driver T6 Mid Spine Y-Axis Acceleration	1000 +	yes	2000	195	
196	21SPINMI00THACZA	Target Vehicle Driver T6 Mid Spine Z-Axis Acceleration	1000 +	yes	2000	196	
196A	21SPINMI00THACRA	Target Vehicle Driver T6 Mid Spine Resultant Acceleration	1000				
197	21CHRILU01THAN0A	Target Vehicle Driver CRUX T016 Base Upper Left Thorax Pot	180 +	no	180	197	
198	21CHRILU02THAN0A	Target Vehicle Driver CRUX T016 Mid Upper Left Thorax Pot	180 +	no	180	198	
199	21CHRILU03THAN0A	Target Vehicle Driver CRUX T016 Elbow Upper Left Thorax Pot	180 +	no	180	199	
200	21CHRIRU01THAN0A	Target Vehicle Driver CRUX T016 Base Upper Right Thorax Pot	180 +	no	180	200	
201	21CHRIRU02THAN0A	Target Vehicle Driver CRUX T016 Mid Upper Right Thorax Pot	180 +	no	180	201	
202	21CHRIRU03THAN0A	Target Vehicle Driver CRUX T016 Elbow Upper Right Thorax Pot	180 +	no	180	202	
203	21CHRILLO1THAN0A	Target Vehicle Driver CRUX T016 Base Lower Left Thorax Pot	180 +	no	180	203	
204	21CHRILLO2THAN0A	Target Vehicle Driver CRUX T016 Mid Lower Left Thorax Pot	180 +	no	180	204	
205	21CHRILLO3THAN0A	Target Vehicle Driver CRUX T016 Elbow Lower Left Thorax Pot	180 +	no	180	205	
206	21CHRIRLO1THAN0A	Target Vehicle Driver CRUX T016 Base Lower Right Thorax Pot	180 +	no	180	206	
207	21CHRIRLO2THAN0A	Target Vehicle Driver CRUX T016 Mid Lower Right Thorax Pot	180 +	no	180	207	
208	21CHRIRLO3THAN0A	Target Vehicle Driver CRUX T016 Elbow Lower Right Thorax Pot	180 +	no	180	208	

Command File Test Number 101207

Chan	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale	V5 Index
209	21ABDOUP00THDS0A	Target Vehicle Driver Upper Abdomen String Pot	180 +	yes	100	209	
210	21THSP1200THFOXA	Target Vehicle Driver T12 Thoracic Spine X-Axis Force	1000 +	yes	13344	210	
211	21THSP1200THFOYA	Target Vehicle Driver T12 Thoracic Spine Y-Axis Force	1000 +	yes	13344	211	
212	21THSP1200THFOZA	Target Vehicle Driver T12 Thoracic Spine Z-Axis Force	1000 +	yes	17793	212	
213	21THSP1200HMOXA	Target Vehicle Driver T12 Thoracic Moment About X Axis	1000 +	yes	565	213	
214	21THSP1200HMOYA	Target Vehicle Driver T12 Thoracic Moment About Y Axis	1000 +	yes	903.9	214	
215	21SPINUP00THACXA	Target Vehicle Driver T1 Upper Spine X-Axis Acceleration	180 +	yes	2000	215	
216	21SPINUP00THACYA	Target Vehicle Driver T1 Upper Spine Y-Axis Acceleration	180 +	yes	2000	216	
217	21SPINUP00THACZA	Target Vehicle Driver T1 Upper Spine Z-Axis Acceleration	180 +	yes	2000	217	
217A	21SPINUP00THACRA	Target Vehicle Driver T1 Upper Spine Resultant Acceleration	180				
218	21PELV0000THACXA	Target Vehicle Driver Pelvis X-Axis Acceleration	1000 +	yes	2000	218	
219	21PELV0000THACYA	Target Vehicle Driver Pelvis Y-Axis Acceleration	1000 +	yes	2000	219	
220	21PELV0000THACZA	Target Vehicle Driver Pelvis Z-Axis Acceleration	1000 +	yes	2000	220	
220A	21PELV0000THACRA	Target Vehicle Driver Pelvis Resultant Acceleration	1000				
221	21ACTBLE00THFOXA	Target Vehicle Driver Pelvis/Acetabulum Left X-Axis Force	1000 +	yes	22240	221	
222	21ACTBLE00THFOYA	Target Vehicle Driver Pelvis/Acetabulum Left Y-Axis Force	1000 +	yes	13340	222	
223	21ACTBLE00THFOZA	Target Vehicle Driver Pelvis/Acetabulum Left Z-Axis Force	1000 +	yes	13340	223	
224	21ACTBRI00THFOXA	Target Vehicle Driver Pelvis/Acetabulum Right X-Axis Force	1000 +	yes	22240	224	
225	21ACTBRI00THFOYA	Target Vehicle Driver Pelvis/Acetabulum Right Y-Axis Force	1000 +	yes	13340	225	
226	21ACTBRI00THFOZA	Target Vehicle Driver Pelvis/Acetabulum Right Z-Axis Force	1000 +	yes	13340	226	
227	21FEMRL00THFOXA	Target Vehicle Driver Left Femur X-Axis Force	600 +	yes	13344	227	
228	21FEMRL00THFOYA	Target Vehicle Driver Left Femur Y-Axis Force	600 +	yes	13344	228	
229	21FEMRL00THFOZA	Target Vehicle Driver Left Femur Z-Axis Force	600 +	yes	22240	229	
230	21FEMRL00THMOXA	Target Vehicle Driver Left Femur Moment About X-Axis	600 +	yes	339	230	
231	21FEMRL00THMOYA	Target Vehicle Driver Left Femur Moment About Y-Axis	600 +	yes	339	231	
232	21FEMRL00THMOZA	Target Vehicle Driver Left Femur Moment About Z-Axis	600 +	yes	339	232	
233	21FEMRRL00THFOXA	Target Vehicle Driver Right Femur X-Axis Force	600 +	yes	13344	233	
234	21FEMRRL00THFOYA	Target Vehicle Driver Right Femur Y-Axis Force	600 +	yes	13344	234	
235	21FEMRRL00THFOZA	Target Vehicle Driver Right Femur Z-Axis Force	600 +	yes	22240	235	
236	21FEMRRL00THMOXA	Target Vehicle Driver Right Femur Moment About X-Axis	600 +	yes	339	236	
237	21FEMRRL00THMOYA	Target Vehicle Driver Right Femur Moment About Y-Axis	600 +	yes	339	237	
238	21FEMRRL00THMOZA	Target Vehicle Driver Right Femur Moment About Z-Axis	600 +	yes	339	238	
239	21KNSLLE00H3DSXA	Target Vehicle Driver Left Knee X-Axis Displacement	180 +	yes	30	239	
240	21TIBILULXH3FOXA	Target Vehicle Driver Left Upper Tibia X-Axis Force	600 +	yes	11120	240	
241	21TIBILULXH3FOZA	Target Vehicle Driver Left Upper Tibia Z-Axis Force	600 +	yes	11120	241	
242	21TIBILULXH3MOXA	Target Vehicle Driver Left Upper Tibia Moment About X Axis	600 +	yes	395	242	
243	21TIBILULXH3MOYA	Target Vehicle Driver Left Upper Tibia Moment About Y Axis	600 +	yes	395	243	
244	21TIBILLLXH3FOXA	Target Vehicle Driver Left Lower Tibia X-Axis Force	600 +	yes	11120	244	
245	21TIBILLLXH3FOYA	Target Vehicle Driver Left Lower Tibia Y-Axis Force	600 +	yes	11120	245	
246	21TIBILLLXH3FOZA	Target Vehicle Driver Left Lower Tibia Z-Axis Force	600 +	yes	11120	246	
247	21TIBILLLXH3MOXA	Target Vehicle Driver Left Lower Tibia Moment About X Axis	600 +	yes	395	247	
248	21TIBILLLXH3MOYA	Target Vehicle Driver Left Lower Tibia Moment About Y Axis	600 +	yes	395	248	
249	21FOOTLELXH3ANXA	Target Vehicle Driver Left Foot Angular X-Axis Displacement	180 +	no	318	249	
250	21FOOTLELXH3ANYA	Target Vehicle Driver Left Foot Angular Y-Axis Displacement	180 +	no	318	250	
251	21FOOTLELXH3ANZA	Target Vehicle Driver Left Foot Angular Z-Axis Displacement	180 +	no	318	251	
252	21FOOTLELXH3ACXA	Target Vehicle Driver Left Foot X-Axis Acceleration	1000 +	yes	2000	252	

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Chan#	ISO mnemonic	Channel Title	Filter Class	Flip	Zero	Full Scale	V5 Index
253	21FOOTLELXH3ACYA	Target Vehicle Driver Left Foot Y-Axis Acceleration	1000 +	yes	2000	253	
254	21FOOTLELXH3ACZA	Target Vehicle Driver Left Foot Z-Axis Acceleration	1000 +	yes	2000	254	
254A	21FOOTLELXH3ACRA	Target Vehicle Driver Left Foot Resultant Acceleration	1000				
255	21KNSLR100H3DSXA	Target Vehicle Driver Right Knee X-Axis Displacement	180 +	yes	30	255	
256	21TIBIRULXH3FOXA	Target Vehicle Driver Right Upper Tibia X-Axis Force	600 +	yes	11120	256	
257	21TIBIRULXH3FOZA	Target Vehicle Driver Right Upper Tibia Z-Axis Force	600 +	yes	11120	257	
258	21TIBIRULXH3MOXA	Target Vehicle Driver Right Upper Tibia Moment About X Axis	600 +	yes	395	258	
259	21TIBIRULXH3MOYA	Target Vehicle Driver Right Upper Tibia Moment About Y Axis	600 +	yes	395	259	
260	21TIBIRLLXH3FOXA	Target Vehicle Driver Right Lower Tibia X-Axis Force	600 +	yes	11120	260	
261	21TIBIRLLXH3FOYA	Target Vehicle Driver Right Lower Tibia Y-Axis Force	600 +	yes	11120	261	
262	21TIBIRLLXH3FOZA	Target Vehicle Driver Right Lower Tibia Z-Axis Force	600 +	yes	11120	262	
263	21TIBIRLLXH3MOXA	Target Vehicle Driver Right Lower Tibia Moment About X Axis	600 +	yes	395	263	
264	21TIBIRLLXH3MOYA	Target Vehicle Driver Right Lower Tibia Moment About Y Axis	600 +	yes	395	264	
265	21FOOTRILXH3ANXA	Target Vehicle Driver Right Foot Angular X-Axis Displacement	180 +	no	318	265	
266	21FOOTRILXH3ANYA	Target Vehicle Driver Right Foot Angular Y-Axis Displacement	180 +	no	318	266	
267	21FOOTRILXH3ANZA	Target Vehicle Driver Right Foot Angular Z-Axis Displacement	180 +	no	318	267	
268	21FOOTRILXH3ACXA	Target Vehicle Driver Right Foot X-Axis Acceleration	1000 +	yes	2000	268	
269	21FOOTRILXH3ACYA	Target Vehicle Driver Right Foot Y-Axis Acceleration	1000 +	yes	2000	269	
270	21FOOTRILXH3ACZA	Target Vehicle Driver Right Foot Z-Axis Acceleration	1000 +	yes	2000	270	
270A	21FOOTRILXH3ACRA	Target Vehicle Driver Right Foot Resultant Acceleration	1000				
271	20SILLLE0000ACXA	Target Vehicle Left Sill X-Axis Acceleration	60 +	yes	2000	271	
272	20SILLLE0000ACYA	Target Vehicle Left Sill Y-Axis Acceleration	60 +	yes	2000	272	
273	20SILLRI0000ACXA	Target Vehicle Right Sill X-Axis Acceleration	60 +	yes	2000	273	
274	20SILLRI0000ACYA	Target Vehicle Right Sill Y-Axis Acceleration	60 +	yes	2000	274	
275	20VEHCCG0000ACXA	Target Vehicle Vehicle Center of Gravity X-Axis Acceleration	60 +	yes	2000	275	
276	20VEHCCG0000ACYA	Target Vehicle Vehicle Center of Gravity Y-Axis Acceleration	60 +	yes	2000	276	
277	20VEHCCG0000ACZA	Target Vehicle Vehicle Center of Gravity Z-Axis Acceleration	60 +	yes	2000	277	
277A	20VEHCCG0000ACRA	Target Vehicle Vehicle Center of Gravity Resultant Acceleration	60				
278	20FOOTLE0000ACXA	Target Vehicle Driver Footrest X-Axis Acceleration	60 +	yes	2000	278	
279	20FOOTLE0000ACZA	Target Vehicle Driver Footrest Z-Axis Acceleration	60 +	yes	2000	279	
280	20TPANLE0000ACXA	Target Vehicle Toepan Behind Center of Accelerator X-Axis Acceleration	60 +	yes	2000	280	
281	20TPANLE0000ACZA	Target Vehicle Toepan Behind Center of Accelerator Z-Axis Acceleration	60 +	yes	2000	281	
282	21SEBE0000B5FO0A	Target Vehicle Driver Lap Belt Force	60 +	yes	16000	282	
283	21SEBE0000B3FO0A	Target Vehicle Driver Shoulder Belt Force	60 +	yes	16000	283	
284	20AIRBLEFR25VO0A	Target Vehicle Driver Airbag 1st Stage Fire Time	1000 +	no	5	284	
285	20AIRBLEFR26VO0A	Target Vehicle Driver Airbag 2nd Stage Fire Time	1000 +	no	5	285	

THOR LOC X THOR LOC Y THOR LOC Z THOR LOC2 X THOR LOC2 Y THOR LOC2 Z THOR SETUP THOR CAL

-0.0483								
		-0.0716						
-0.0508								
0	0	0.0254						
0	0	0.0254						
0	0	0.0254						
0	0	0.0254						
0	0	0.0254						
0	0	0.0254						
-0.06	0	0.0086	-0.0396	0	0.0472	0	1	
0.0381	0	-0.0086	0.0381	0	0.0206	0	1	
						188.3	1	
						198.2	1	
						160.3	1	
						188.8	1	
						210.9	1	
						155.1	1	
79.25		18.6	67.75		9.91	152	1	
79.25		18.6	67.75		9.91	239.2	1	
79.25		18.6	67.75		9.91	68.4	1	
79.25		18.6	67.75		9.91	164.8	1	
79.25		18.6	67.75		9.91	69.6	1	
79.25		18.6	67.75		9.91	248.6	1	
85.6		18.6	73.1		9.91	156.1	1	
85.6		18.6	73.1		9.91	73.7	1	
85.6		18.6	73.1		9.91	245.6	1	
85.6		18.6	73.1		9.91	157	1	
85.6		18.6	73.1		9.91	246.3	1	
85.6		18.6	73.1		9.91	70.2	1	

Appendix E

Dummy Faro Measurements

Target Vehicle Dummy FARO Measurements

Driver	Xmm	Ymm	Zmm
M_HEAD CG1	87.7	332.5	-507.2
M_BRIDGE_OF_NOSE1	194.8	404.1	-492.0
M_NECK PIVOT1 (HEAD BOLT)	81.7	375.2	-443.9
M_CHIN1	191.6	406.1	-378.3
M_SHOULDER1	151.9	177.3	-208.9
M_CHEST1	227.3	418.7	-204.5
M_ELBOW PIVOT1	306.4	188.8	-55.4
M_WRIST1	542.6	236.1	-135.2
M_HIP POINT1	275.3	143.0	194.6
M_OSCAR1 (X)	271.8	46.5	388.2
M_LEFT KNEE TOP1	672.5	226.6	-37.3
M_RIGHT KNEE TOP1	689.9	573.8	-28.8
M_LEFT KNEE PIVOT1	664.3	181.1	28.5
M_LEFT UPPER LEG1	742.0	178.3	108.9
M_ANKLE1	929.6	187.2	355.6
M_LEFT HEEL1	931.4	188.1	491.2
M_LEFT TOE1	1104.2	237.7	248.9
M_HEAD REST POST1	-124.6	329.2	-289.4
M_UPPER RIM1	675.7	418.3	-305.1
M_STEERING CENTER1	590.9	416.3	-144.2
M_LOWER RIM1	527.3	420.9	-0.7
M_SEAT CENTER1 (Y)	489.7	412.0	203.5

Bullet Vehicle Dummy FARO Measurements

Driver	Xmm	Ymm	Zmm
M_HEAD_CENTER_OF_GRAVITY1	2133.8	-401.5	-724.3
M_NOSE_BRIDGE1	2224.9	-332.6	-736.9
M_NOSE_TIP1	2245.6	-329.6	-690.0
M_HEAD_CHIN1	2222.7	-327.9	-620.7
M_ARM1	2122.6	-556.9	-432.5
M_HIP_POINT1	2257.4	-525.4	-76.7
M_PELV_FORE1	2214.5	-533.5	-138.5
M_PELV_AFT1	2150.4	-530.1	-106.9
M_KNEE_OUTBOARD1	2631.4	-509.0	-215.7

M_KNEE_INBOARD1	2647.1	-138.8	-207.2
M_ANKLE_OUTBOARD1	2918.0	-541.7	90.0
M_HEADRESTTOP1	1875.4	-409.8	-610.6
M_HEADRESTBOTTOM1	1877.6	-409.8	-558.9
M_ROOF1	2224.9	-332.6	-925.6
M_HEADER_FRONT1	2590.9	-330.4	-873.9
M_WINDOW_FRONT1	2939.9	-332.6	-736.9
M_STEERING_WHEEL_RIM_TOP1	2699.9	-317.0	-585.6
M_DASH_TOP1	2911.5	-317.5	-462.4
M_STEERING_WHEEL_CENTER1	2609.6	-316.5	-407.6
M_CHEST_CENTER1	2271.0	-316.5	-407.6
M_STEERING_WHEEL_RIM_BOTTOM1	2551.5	-318.2	-274.9
M ABDOMEN1	2303.0	-318.2	-274.9
M_DASH_BOTTOM1	2794.2	-466.9	-276.6
M_HEADER_SIDE1	2226.8	-500.5	-832.2
M_WINDOW_SIDE1	2224.9	-639.7	-736.9
M_DOOR_TOP1	2122.6	-659.6	-432.5
M_DOOR_BOTTOM1	2257.4	-642.6	-76.7
M_STRIKER1	2068.9	-741.5	-233.9
Front Passenger			
M_HEAD_CENTER_OF_GRAVITY3	2273.4	396.9	-653.2
M_NOSE_BRIDGE3	2357.2	334.4	-666.3
M_NOSE_TIP3	2380.5	334.2	-632.2
M_HEAD_CHIN3	2365.7	330.2	-560.3
M_ARM3	2262.4	520.0	-372.4
M_HIP_POINT3	2417.2	590.1	-83.6
M_PELV_FORE3	2364.2	600.3	-139.2
M_PELV_AFT3	2293.9	597.1	-115.5
M_KNEE_OUTBOARD3	2750.5	457.1	-163.4
M_KNEE_INBOARD3	2770.3	201.3	-157.2
M_ANKLE_OUTBOARD3	2957.9	442.9	103.9
M_HEADRESTTOP3	2003.7	407.3	-620.2
M_HEADRESTBOTTOM3	2008.5	407.6	-565.4
M_ROOF3	2357.2	334.4	-899.9
M_HEADER_FRONT3	2575.1	330.4	-864.5
M_WINDOW_FRONT3	3075.1	334.4	-666.3
M_DASH_TOP3	2821.0	330.9	-332.3

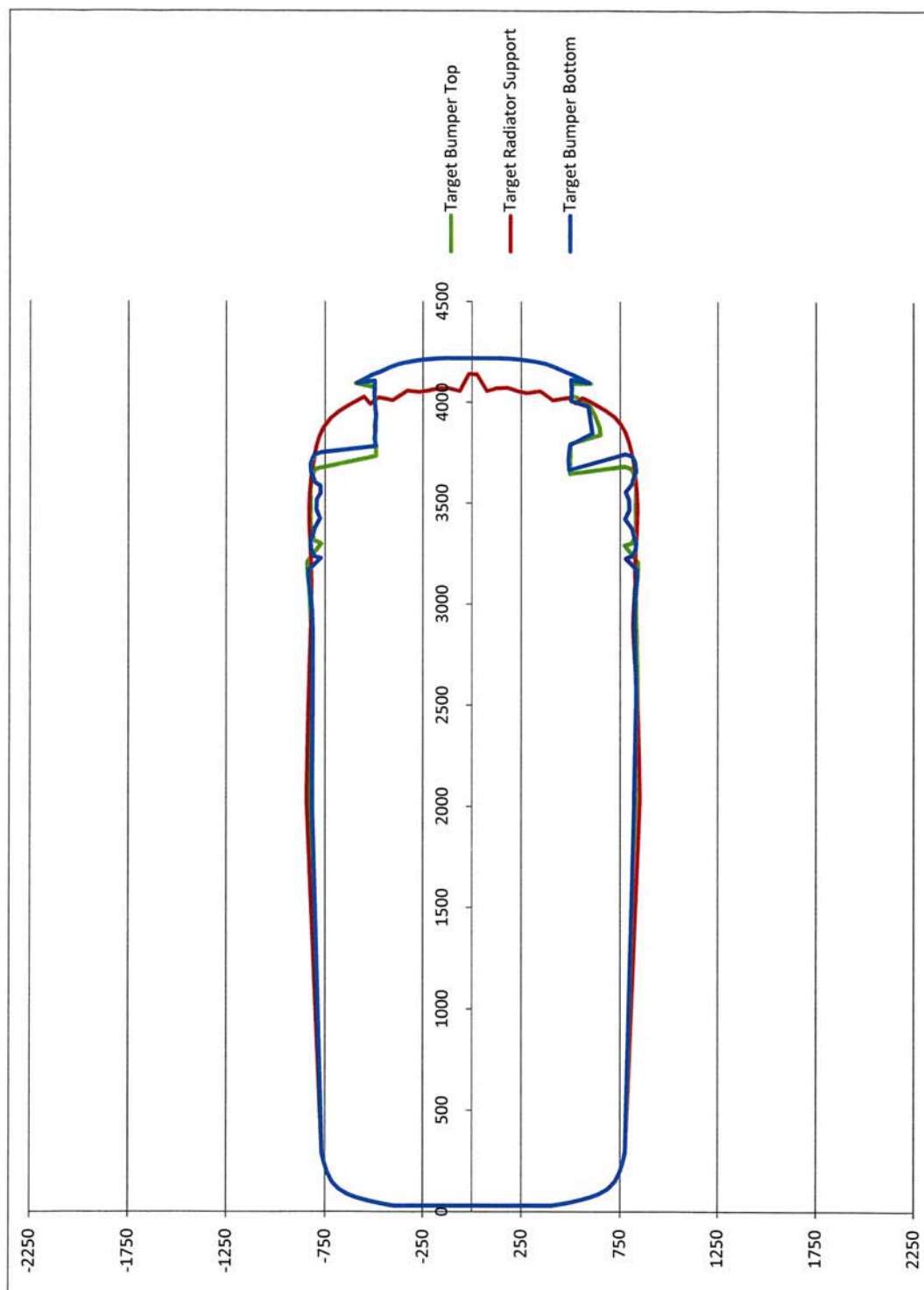
M_DASH_BOTTOM3	2855.0	409.3	-228.1
M_HEADER_SIDE3	2360.9	497.1	-818.3
M_WINDOW_SIDE3	2357.2	659.9	-666.3
M_DOOR_TOP3	2262.4	664.7	-372.4
M_DOOR_BOTTOM3	2417.2	653.3	-83.6
M_STRIKER3	2068.3	745.4	-234.7

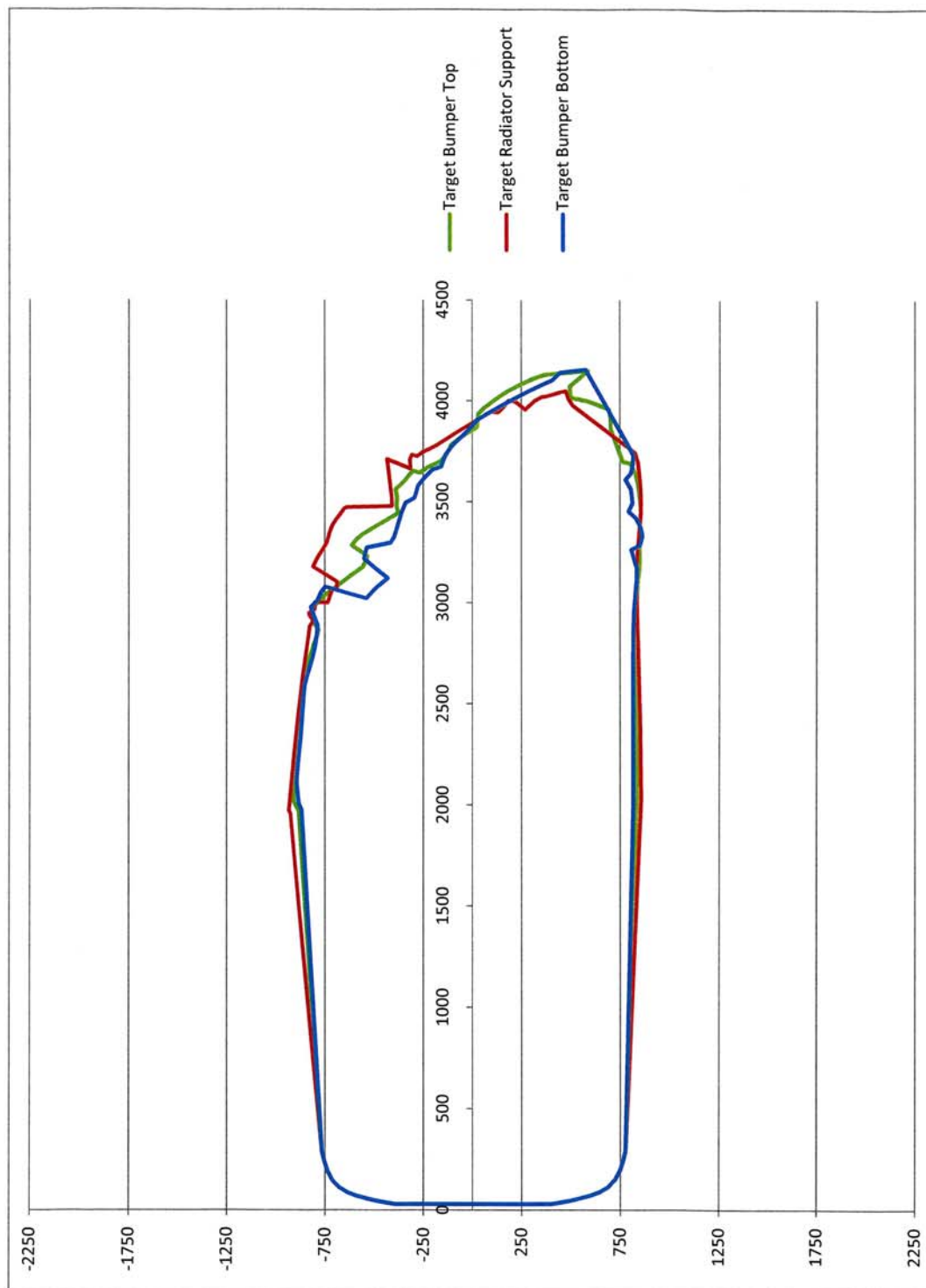
Left Rear Passenger

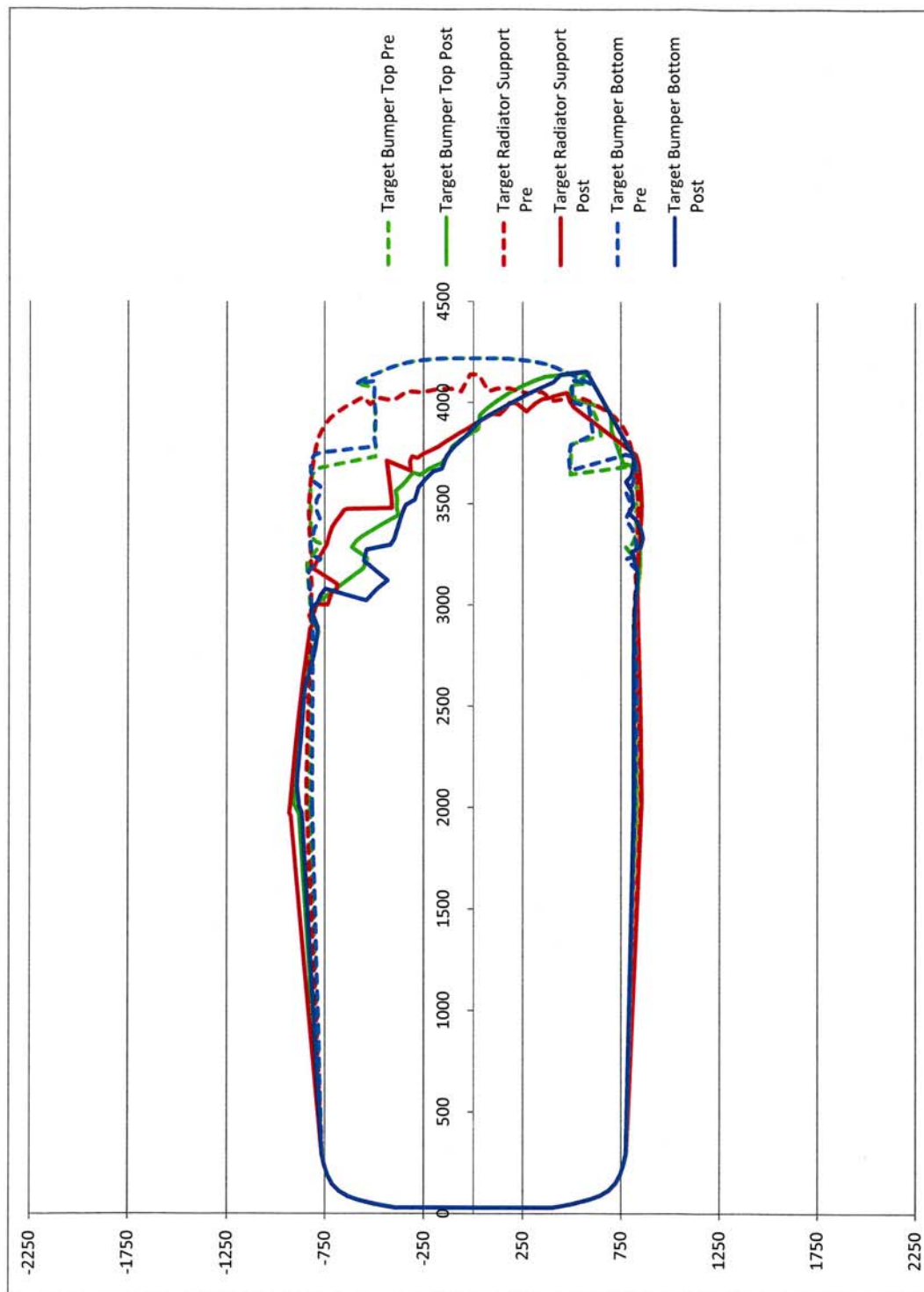
M_HEAD_CENTER_OF_GRAVITY4	1243.4	-380.9	-656.5
M_NOSE_BRIDGE4	1324.7	-311.8	-661.0
M_NOSE_TIP4	1347.8	-312.6	-625.5
M_HEAD_CHIN4	1332.4	-318.7	-553.6
M_ARM4	1223.8	-517.9	-362.1
M_HIP_POINT4	1411.7	-604.3	-91.6
M_PELV_FORE4	1358.6	-617.0	-146.3
M_PELV_AFT4	1290.2	-620.0	-121.1
M_KNEE_OUTBOARD4	1741.9	-439.2	-142.5
M_KNEE_INBOARD4	1735.6	-214.5	-141.3
M_ANKLE_OUTBOARD4	1856.3	-408.8	148.6
M_HEADRESTTOP4	970.4	-404.2	-684.7
M_HEADRESTBOTTOM4	992.6	-402.9	-611.6
M_ROOF4	1324.7	-311.8	-911.5
M_HEADER_FRONT4	1875.6	-311.9	-758.6
M_WINDOW_FRONT4	1854.8	-311.8	-661.0
M_DASH_TOP4	1829.1	-312.5	-496.8
M_DASH_BOTTOM4	1986.1	-404.4	-174.0
M_HEADER_SIDE4	1326.7	-504.2	-797.5
M_WINDOW_SIDE4	1324.7	-653.3	-661.0
M_DOOR_TOP4	1223.8	-637.2	-362.1
M_DOOR_BOTTOM4	1411.7	-647.8	-91.6
M_STRIKER4	1119.8	-746.8	-333.1

Appendix F

Exterior Crush Profiles







PRE-TEST		TARGET	
M_RADIATOR_SUPPORT_1	2017	-843	-251
M_RADIATOR_SUPPORT_2	2028	-843	-252
M_RADIATOR_SUPPORT_3	2078	-843	-251
M_RADIATOR_SUPPORT_4	2130	-842	-252
M_RADIATOR_SUPPORT_5	2181	-841	-253
M_RADIATOR_SUPPORT_6	2232	-841	-252
M_RADIATOR_SUPPORT_7	2282	-840	-253
M_RADIATOR_SUPPORT_8	2333	-839	-253
M_RADIATOR_SUPPORT_9	2383	-837	-254
M_RADIATOR_SUPPORT_10	2434	-836	-253
M_RADIATOR_SUPPORT_11	2484	-835	-253
M_RADIATOR_SUPPORT_12	2535	-833	-253
M_RADIATOR_SUPPORT_13	2586	-832	-254
M_RADIATOR_SUPPORT_14	2638	-830	-254
M_RADIATOR_SUPPORT_15	2688	-828	-254
M_RADIATOR_SUPPORT_16	2739	-827	-253
M_RADIATOR_SUPPORT_17	2789	-825	-255
M_RADIATOR_SUPPORT_18	2839	-823	-255
M_RADIATOR_SUPPORT_19	2891	-822	-255
M_RADIATOR_SUPPORT_20	2941	-820	-255
M_RADIATOR_SUPPORT_21	2991	-819	-255
M_RADIATOR_SUPPORT_22	3043	-818	-256
M_RADIATOR_SUPPORT_23	3093	-818	-256
M_RADIATOR_SUPPORT_24	3144	-819	-256
M_RADIATOR_SUPPORT_25	3195	-819	-257
M_RADIATOR_SUPPORT_26	3246	-821	-258
M_RADIATOR_SUPPORT_27	3297	-824	-258
M_RADIATOR_SUPPORT_28	3348	-827	-258
M_RADIATOR_SUPPORT_29	3398	-829	-259
M_RADIATOR_SUPPORT_30	3447	-830	-258
M_RADIATOR_SUPPORT_31	3499	-830	-258
M_RADIATOR_SUPPORT_32	3551	-827	-260
M_RADIATOR_SUPPORT_33	3602	-823	-260
M_RADIATOR_SUPPORT_34	3652	-817	-259
M_RADIATOR_SUPPORT_35	3699	-809	-258
M_RADIATOR_SUPPORT_36	3750	-800	-252
M_RADIATOR_SUPPORT_37	3783	-793	-248
M_RADIATOR_SUPPORT_38	3832	-778	-248
M_RADIATOR_SUPPORT_39	3877	-756	-248
M_RADIATOR_SUPPORT_40	3918	-724	-248
M_RADIATOR_SUPPORT_41	3951	-684	-248
M_RADIATOR_SUPPORT_42	3978	-641	-248
M_RADIATOR_SUPPORT_43	4002	-597	-249
M_RADIATOR_SUPPORT_44	4025	-554	-247
M_RADIATOR_SUPPORT_45	3990	-521	-251
M_RADIATOR_SUPPORT_46	4023	-477	-247
M_RADIATOR_SUPPORT_47	4009	-403	-246
M_RADIATOR_SUPPORT_48	4056	-333	-247
M_RADIATOR_SUPPORT_49	4050	-268	-244
M_RADIATOR_SUPPORT_50	4056	-228	-248

M_RADIATOR_SUPPORT_51	4068	-170	-244
M_RADIATOR_SUPPORT_52	4069	-116	-243
M_RADIATOR_SUPPORT_53	4056	-63	-247
M_RADIATOR_SUPPORT_54	4139	-17	-245
M_RADIATOR_SUPPORT_55	4139	24	-245
M_RADIATOR_SUPPORT_56	4056	76	-246
M_RADIATOR_SUPPORT_57	4070	122	-243
M_RADIATOR_SUPPORT_58	4072	182	-243
M_RADIATOR_SUPPORT_59	4054	239	-247
M_RADIATOR_SUPPORT_60	4046	279	-248
M_RADIATOR_SUPPORT_61	4054	346	-245
M_RADIATOR_SUPPORT_62	4009	409	-242
M_RADIATOR_SUPPORT_63	4022	486	-243
M_RADIATOR_SUPPORT_64	3995	523	-237
M_RADIATOR_SUPPORT_65	4021	558	-249
M_RADIATOR_SUPPORT_66	4008	587	-250
M_RADIATOR_SUPPORT_67	3984	631	-250
M_RADIATOR_SUPPORT_68	3960	675	-250
M_RADIATOR_SUPPORT_69	3930	717	-249
M_RADIATOR_SUPPORT_70	3892	752	-250
M_RADIATOR_SUPPORT_71	3850	777	-250
M_RADIATOR_SUPPORT_72	3803	795	-250
M_RADIATOR_SUPPORT_73	3754	808	-249
M_RADIATOR_SUPPORT_74	3707	818	-249
M_RADIATOR_SUPPORT_75	3655	823	-257
M_RADIATOR_SUPPORT_76	3608	830	-253
M_RADIATOR_SUPPORT_77	3559	834	-252
M_RADIATOR_SUPPORT_78	3508	837	-253
M_RADIATOR_SUPPORT_79	3456	838	-251
M_RADIATOR_SUPPORT_80	3405	836	-253
M_RADIATOR_SUPPORT_81	3354	834	-251
M_RADIATOR_SUPPORT_82	3305	831	-251
M_RADIATOR_SUPPORT_83	3253	828	-251
M_RADIATOR_SUPPORT_84	3202	826	-251
M_RADIATOR_SUPPORT_85	3152	825	-252
M_RADIATOR_SUPPORT_86	3102	826	-250
M_RADIATOR_SUPPORT_87	3046	823	-249
M_RADIATOR_SUPPORT_88	2996	820	-250
M_RADIATOR_SUPPORT_89	2947	817	-250
M_RADIATOR_SUPPORT_90	2895	816	-249
M_RADIATOR_SUPPORT_91	2845	817	-250
M_RADIATOR_SUPPORT_92	2794	821	-250
M_RADIATOR_SUPPORT_93	2743	824	-249
M_RADIATOR_SUPPORT_94	2693	827	-250
M_RADIATOR_SUPPORT_95	2642	830	-249
M_RADIATOR_SUPPORT_96	2591	833	-248
M_RADIATOR_SUPPORT_97	2540	835	-249
M_RADIATOR_SUPPORT_98	2490	837	-249
M_RADIATOR_SUPPORT_99	2438	839	-248
M_RADIATOR_SUPPORT_100	2388	841	-249
M_RADIATOR_SUPPORT_101	2338	843	-248
M_RADIATOR_SUPPORT_102	2286	845	-248

M_RADIATOR_SUPPORT_103	2236	847	-247
M_RADIATOR_SUPPORT_104	2185	847	-248
M_RADIATOR_SUPPORT_105	2134	849	-247
M_RADIATOR_SUPPORT_106	2084	849	-247
M_RADIATOR_SUPPORT_107	2033	849	-247
M_RADIATOR_SUPPORT_108	2019	849	-247
POST-TEST			
M_RADIATOR_SUPPORT_1	1958	-924	-244
M_RADIATOR_SUPPORT_2	1971	-932	-245
M_RADIATOR_SUPPORT_3	2025	-926	-247
M_RADIATOR_SUPPORT_4	2077	-921	-248
M_RADIATOR_SUPPORT_5	2117	-918	-248
M_RADIATOR_SUPPORT_6	2174	-912	-250
M_RADIATOR_SUPPORT_7	2227	-907	-250
M_RADIATOR_SUPPORT_8	2276	-902	-252
M_RADIATOR_SUPPORT_9	2328	-896	-253
M_RADIATOR_SUPPORT_10	2377	-891	-254
M_RADIATOR_SUPPORT_11	2425	-885	-254
M_RADIATOR_SUPPORT_12	2475	-879	-255
M_RADIATOR_SUPPORT_13	2526	-873	-257
M_RADIATOR_SUPPORT_14	2576	-867	-258
M_RADIATOR_SUPPORT_15	2626	-861	-259
M_RADIATOR_SUPPORT_16	2678	-854	-259
M_RADIATOR_SUPPORT_17	2728	-847	-260
M_RADIATOR_SUPPORT_18	2777	-839	-261
M_RADIATOR_SUPPORT_19	2833	-832	-262
M_RADIATOR_SUPPORT_20	2882	-825	-264
M_RADIATOR_SUPPORT_21	2910	-807	-265
M_RADIATOR_SUPPORT_22	2936	-826	-266
M_RADIATOR_SUPPORT_23	2947	-828	-263
M_RADIATOR_SUPPORT_24	2964	-802	-265
M_RADIATOR_SUPPORT_25	3001	-797	-266
M_RADIATOR_SUPPORT_26	3000	-734	-266
M_RADIATOR_SUPPORT_27	3042	-721	-267
M_RADIATOR_SUPPORT_28	3068	-712	-267
M_RADIATOR_SUPPORT_29	3066	-689	-267
M_RADIATOR_SUPPORT_30	3102	-686	-268
M_RADIATOR_SUPPORT_31	3177	-809	-270
M_RADIATOR_SUPPORT_32	3222	-786	-271
M_RADIATOR_SUPPORT_33	3257	-763	-271
M_RADIATOR_SUPPORT_34	3297	-739	-273
M_RADIATOR_SUPPORT_35	3342	-726	-272
M_RADIATOR_SUPPORT_36	3382	-711	-273
M_RADIATOR_SUPPORT_37	3408	-694	-274
M_RADIATOR_SUPPORT_38	3437	-671	-274
M_RADIATOR_SUPPORT_39	3466	-651	-275
M_RADIATOR_SUPPORT_40	3472	-632	-276
M_RADIATOR_SUPPORT_41	3478	-411	-268
M_RADIATOR_SUPPORT_42	3517	-411	-274
M_RADIATOR_SUPPORT_43	3711	-435	-277
M_RADIATOR_SUPPORT_44	3663	-316	-276
M_RADIATOR_SUPPORT_45	3709	-319	-277

M_RADIATOR_SUPPORT_46	3732	-308	-277
M_RADIATOR_SUPPORT_47	3725	-280	-276
M_RADIATOR_SUPPORT_48	3744	-253	-276
M_RADIATOR_SUPPORT_49	3760	-220	-277
M_RADIATOR_SUPPORT_50	3782	-178	-276
M_RADIATOR_SUPPORT_51	3805	-141	-278
M_RADIATOR_SUPPORT_52	3827	-106	-276
M_RADIATOR_SUPPORT_53	3848	-71	-276
M_RADIATOR_SUPPORT_54	3869	-35	-278
M_RADIATOR_SUPPORT_55	3891	1	-277
M_RADIATOR_SUPPORT_56	3911	35	-278
M_RADIATOR_SUPPORT_57	3930	70	-278
M_RADIATOR_SUPPORT_58	3945	96	-277
M_RADIATOR_SUPPORT_59	3942	131	-278
M_RADIATOR_SUPPORT_60	3970	161	-278
M_RADIATOR_SUPPORT_61	4000	185	-279
M_RADIATOR_SUPPORT_62	3997	218	-279
M_RADIATOR_SUPPORT_63	3957	270	-278
M_RADIATOR_SUPPORT_64	4001	320	-278
M_RADIATOR_SUPPORT_65	4019	353	-279
M_RADIATOR_SUPPORT_66	4022	376	-278
M_RADIATOR_SUPPORT_67	4043	450	-278
M_RADIATOR_SUPPORT_68	4049	477	-278
M_RADIATOR_SUPPORT_69	4010	490	-278
M_RADIATOR_SUPPORT_70	3978	512	-279
M_RADIATOR_SUPPORT_71	3741	827	-270
M_RADIATOR_SUPPORT_72	3695	840	-271
M_RADIATOR_SUPPORT_73	3656	846	-270
M_RADIATOR_SUPPORT_74	3607	851	-269
M_RADIATOR_SUPPORT_75	3557	854	-268
M_RADIATOR_SUPPORT_76	3506	856	-266
M_RADIATOR_SUPPORT_77	3456	855	-265
M_RADIATOR_SUPPORT_78	3405	853	-265
M_RADIATOR_SUPPORT_79	3353	848	-264
M_RADIATOR_SUPPORT_80	3303	843	-264
M_RADIATOR_SUPPORT_81	3252	839	-262
M_RADIATOR_SUPPORT_82	3202	836	-261
M_RADIATOR_SUPPORT_83	3151	834	-259
M_RADIATOR_SUPPORT_84	3103	833	-259
M_RADIATOR_SUPPORT_85	3052	834	-258
M_RADIATOR_SUPPORT_86	3001	835	-256
M_RADIATOR_SUPPORT_87	2951	836	-256
M_RADIATOR_SUPPORT_88	2899	837	-255
M_RADIATOR_SUPPORT_89	2849	839	-254
M_RADIATOR_SUPPORT_90	2798	840	-253
M_RADIATOR_SUPPORT_91	2747	842	-254
M_RADIATOR_SUPPORT_92	2697	843	-250
M_RADIATOR_SUPPORT_93	2646	845	-250
M_RADIATOR_SUPPORT_94	2594	846	-249
M_RADIATOR_SUPPORT_95	2544	848	-248
M_RADIATOR_SUPPORT_96	2493	849	-246
M_RADIATOR_SUPPORT_97	2442	850	-245

M_RADIATOR_SUPPORT_98	2391	852	-245
M_RADIATOR_SUPPORT_99	2339	852	-243
M_RADIATOR_SUPPORT_100	2289	853	-243
M_RADIATOR_SUPPORT_101	2238	854	-242
M_RADIATOR_SUPPORT_102	2187	854	-241
M_RADIATOR_SUPPORT_103	2137	855	-240
M_RADIATOR_SUPPORT_104	2085	855	-238
M_RADIATOR_SUPPORT_105	2037	855	-239
M_RADIATOR_SUPPORT_106	2023	855	-237
PRE-TEST			
M BUMPER_TOP_1	2006	-827	-21
M BUMPER_TOP_2	2029	-827	-20
M BUMPER_TOP_3	2081	-827	-22
M BUMPER_TOP_4	2130	-827	-22
M BUMPER_TOP_5	2181	-827	-23
M BUMPER_TOP_6	2232	-826	-22
M BUMPER_TOP_7	2283	-826	-23
M BUMPER_TOP_8	2333	-826	-23
M BUMPER_TOP_9	2385	-825	-23
M BUMPER_TOP_10	2435	-825	-23
M BUMPER_TOP_11	2486	-825	-23
M BUMPER_TOP_12	2537	-824	-24
M BUMPER_TOP_13	2587	-823	-24
M BUMPER_TOP_14	2638	-823	-24
M BUMPER_TOP_15	2689	-822	-25
M BUMPER_TOP_16	2739	-822	-25
M BUMPER_TOP_17	2790	-821	-24
M BUMPER_TOP_18	2842	-821	-25
M BUMPER_TOP_19	2892	-821	-25
M BUMPER_TOP_20	2943	-822	-26
M BUMPER_TOP_21	2995	-824	-26
M BUMPER_TOP_22	3045	-827	-26
M BUMPER_TOP_23	3094	-831	-26
M BUMPER_TOP_24	3146	-838	-27
M BUMPER_TOP_25	3196	-839	-25
M BUMPER_TOP_26	3208	-839	-26
M BUMPER_TOP_27	3298	-769	-26
M BUMPER_TOP_28	3316	-806	-25
M BUMPER_TOP_29	3348	-816	-26
M BUMPER_TOP_30	3388	-822	-25
M BUMPER_TOP_31	3428	-823	-25
M BUMPER_TOP_32	3467	-822	-25
M BUMPER_TOP_33	3513	-822	-25
M BUMPER_TOP_34	3562	-823	-25
M BUMPER_TOP_35	3605	-820	-25
M BUMPER_TOP_36	3643	-811	-26
M BUMPER_TOP_37	3668	-796	-28
M BUMPER_TOP_38	3674	-770	-28
M BUMPER_TOP_39	3731	-491	-24
M BUMPER_TOP_40	3773	-491	-26
M BUMPER_TOP_41	3813	-492	-25
M BUMPER_TOP_42	3879	-497	-25

M BUMPER_TOP_43	3924	-492	-25
M BUMPER_TOP_44	3987	-495	-22
M BUMPER_TOP_45	4034	-498	-22
M BUMPER_TOP_46	4071	-495	-20
M BUMPER_TOP_47	4092	-593	-23
M BUMPER_TOP_48	4113	-551	-23
M BUMPER_TOP_49	4134	-507	-22
M BUMPER_TOP_50	4153	-459	-22
M BUMPER_TOP_51	4173	-413	-23
M BUMPER_TOP_52	4190	-365	-23
M BUMPER_TOP_53	4200	-315	-22
M BUMPER_TOP_54	4207	-272	-22
M BUMPER_TOP_55	4213	-220	-22
M BUMPER_TOP_56	4217	-172	-22
M BUMPER_TOP_57	4218	-113	-22
M BUMPER_TOP_58	4218	-72	-21
M BUMPER_TOP_59	4218	-14	-19
M BUMPER_TOP_60	4218	29	-19
M BUMPER_TOP_61	4218	76	-19
M BUMPER_TOP_62	4218	128	-21
M BUMPER_TOP_63	4217	179	-21
M BUMPER_TOP_64	4213	226	-22
M BUMPER_TOP_65	4207	278	-20
M BUMPER_TOP_66	4200	327	-20
M BUMPER_TOP_67	4190	375	-20
M BUMPER_TOP_68	4173	422	-20
M BUMPER_TOP_69	4154	466	-22
M BUMPER_TOP_70	4134	511	-25
M BUMPER_TOP_71	4113	559	-28
M BUMPER_TOP_72	4092	602	-23
M BUMPER_TOP_73	4091	506	-18
M BUMPER_TOP_74	4034	505	-18
M BUMPER_TOP_75	3994	588	-21
M BUMPER_TOP_76	3936	621	-18
M BUMPER_TOP_77	3879	644	-19
M BUMPER_TOP_78	3837	649	-18
M BUMPER_TOP_79	3793	498	-19
M BUMPER_TOP_80	3751	497	-18
M BUMPER_TOP_81	3702	496	-18
M BUMPER_TOP_82	3645	495	-19
M BUMPER_TOP_83	3681	776	-19
M BUMPER_TOP_84	3669	807	-21
M BUMPER_TOP_85	3638	822	-20
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M BUMPER_TOP_87	3560	831	-18
M BUMPER_TOP_88	3524	830	-21
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M BUMPER_TOP_90	3434	830	-18
M BUMPER_TOP_91	3376	830	-19
M BUMPER_TOP_92	3330	822	-19
M BUMPER_TOP_93	3301	811	-18
M BUMPER_TOP_94	3290	773	-19

M BUMPER_TOP_95	3206	841	-17
M BUMPER_TOP_96	3190	841	-17
M BUMPER_TOP_97	3138	839	-17
M BUMPER_TOP_98	3092	834	-18
M BUMPER_TOP_99	3040	831	-17
M BUMPER_TOP_100	2988	831	-17
M BUMPER_TOP_101	2937	832	-18
M BUMPER_TOP_102	2884	833	-17
M BUMPER_TOP_103	2836	834	-17
M BUMPER_TOP_104	2785	835	-18
M BUMPER_TOP_105	2732	837	-17
M BUMPER_TOP_106	2683	838	-18
M BUMPER_TOP_107	2630	839	-18
M BUMPER_TOP_108	2579	838	-10
M BUMPER_TOP_109	2529	838	-12
M BUMPER_TOP_110	2477	838	-17
M BUMPER_TOP_111	2424	837	-16
M BUMPER_TOP_112	2376	837	-16
M BUMPER_TOP_113	2324	836	-16
M BUMPER_TOP_114	2272	835	-16
M BUMPER_TOP_115	2224	834	-16
M BUMPER_TOP_116	2172	832	-16
M BUMPER_TOP_117	2121	831	-16
M BUMPER_TOP_118	2071	830	-16
M BUMPER_TOP_119	2021	829	-16
M BUMPER_TOP_120	2009	829	-15
POST-TEST			
M BUMPER_TOP_1	1967	-881	-16
M BUMPER_TOP_2	2013	-906	-17
M BUMPER_TOP_3	2063	-907	-18
M BUMPER_TOP_4	2115	-905	-20
M BUMPER_TOP_5	2165	-901	-20
M BUMPER_TOP_6	2216	-896	-21
M BUMPER_TOP_7	2266	-892	-22
M BUMPER_TOP_8	2316	-888	-24
M BUMPER_TOP_9	2368	-883	-25
M BUMPER_TOP_10	2418	-878	-26
M BUMPER_TOP_11	2468	-873	-27
M BUMPER_TOP_12	2519	-868	-28
M BUMPER_TOP_13	2570	-862	-29
M BUMPER_TOP_14	2620	-854	-29
M BUMPER_TOP_15	2670	-843	-30
M BUMPER_TOP_16	2719	-830	-31
M BUMPER_TOP_17	2767	-813	-32
M BUMPER_TOP_18	2815	-795	-33
M BUMPER_TOP_19	2864	-781	-35
M BUMPER_TOP_20	2901	-807	-34
M BUMPER_TOP_21	2945	-822	-37
M BUMPER_TOP_22	2989	-796	-38
M BUMPER_TOP_23	3008	-777	-37
M BUMPER_TOP_24	3032	-754	-39
M BUMPER_TOP_25	3177	-555	-37

M BUMPER_TOP_26	3228	-534	-39
M BUMPER_TOP_27	3282	-611	-40
M BUMPER_TOP_28	3313	-589	-41
M BUMPER_TOP_29	3339	-556	-41
M BUMPER_TOP_30	3442	-378	-47
M BUMPER_TOP_31	3480	-387	-48
M BUMPER_TOP_32	3521	-384	-49
M BUMPER_TOP_33	3561	-392	-51
M BUMPER_TOP_34	3595	-353	-51
M BUMPER_TOP_35	3652	-304	-51
M BUMPER_TOP_36	3642	-267	-51
M BUMPER_TOP_37	3668	-227	-52
M BUMPER_TOP_38	3682	-199	-51
M BUMPER_TOP_39	3700	-160	-52
M BUMPER_TOP_40	3736	-129	-51
M BUMPER_TOP_41	3780	-108	-53
M BUMPER_TOP_42	3820	-58	-53
M BUMPER_TOP_43	3853	-2	-54
M BUMPER_TOP_44	3869	25	-52
M BUMPER_TOP_45	3936	32	-55
M BUMPER_TOP_46	3964	61	-56
M BUMPER_TOP_47	3996	104	-55
M BUMPER_TOP_48	4025	146	-56
M BUMPER_TOP_49	4058	202	-56
M BUMPER_TOP_50	4078	240	-57
M BUMPER_TOP_51	4095	278	-57
M BUMPER_TOP_52	4110	316	-58
M BUMPER_TOP_53	4129	371	-57
M BUMPER_TOP_54	4134	427	-57
M BUMPER_TOP_55	4139	483	-57
M BUMPER_TOP_56	4145	538	-57
M BUMPER_TOP_57	4148	589	-56
M BUMPER_TOP_58	4072	498	-51
M BUMPER_TOP_59	4015	500	-51
M BUMPER_TOP_60	3998	585	-50
M BUMPER_TOP_61	3973	654	-49
M BUMPER_TOP_62	3957	696	-48
M BUMPER_TOP_63	3913	703	-48
M BUMPER_TOP_64	3861	704	-47
M BUMPER_TOP_65	3697	764	-43
M BUMPER_TOP_66	3689	802	-43
M BUMPER_TOP_67	3645	826	-41
M BUMPER_TOP_68	3598	838	-41
M BUMPER_TOP_69	3539	847	-39
M BUMPER_TOP_70	3489	853	-39
M BUMPER_TOP_71	3442	855	-36
M BUMPER_TOP_72	3388	850	-36
M BUMPER_TOP_73	3211	848	-34
M BUMPER_TOP_74	3161	847	-32
M BUMPER_TOP_75	3110	841	-31
M BUMPER_TOP_76	3060	838	-32
M BUMPER_TOP_77	3009	834	-31

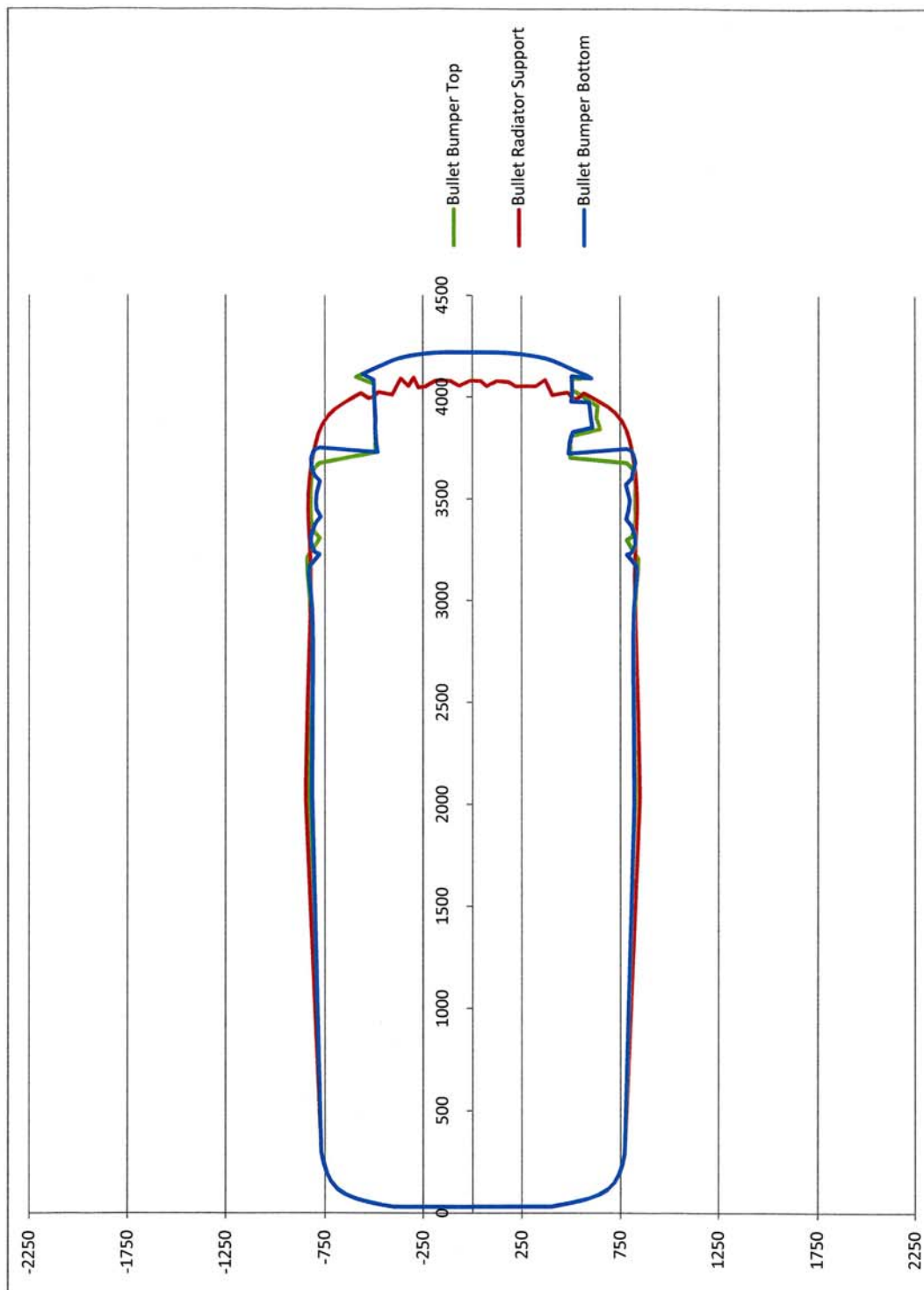
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M BUMPER_TOP_79	2907	831	-29
M BUMPER_TOP_80	2856	830	-28
M BUMPER_TOP_81	2805	830	-27
M BUMPER_TOP_82	2754	830	-27
M BUMPER_TOP_83	2702	830	-25
M BUMPER_TOP_84	2652	831	-25
M BUMPER_TOP_85	2601	831	-23
M BUMPER_TOP_86	2550	832	-22
M BUMPER_TOP_87	2498	832	-21
M BUMPER_TOP_88	2448	832	-19
M BUMPER_TOP_89	2396	832	-20
M BUMPER_TOP_90	2345	832	-18
M BUMPER_TOP_91	2294	832	-17
M BUMPER_TOP_92	2244	832	-16
M BUMPER_TOP_93	2193	832	-15
M BUMPER_TOP_94	2141	832	-14
M BUMPER_TOP_95	2090	832	-13
M BUMPER_TOP_96	2050	832	-13
M BUMPER_TOP_97	2012	832	-13
PRE-TEST			
M BUMPER_BOTTOM_1	1999	-814	61
M BUMPER_BOTTOM_2	2049	-814	61
M BUMPER_BOTTOM_3	2100	-814	60
M BUMPER_BOTTOM_4	2151	-814	60
M BUMPER_BOTTOM_5	2201	-814	60
M BUMPER_BOTTOM_6	2254	-814	61
M BUMPER_BOTTOM_7	2305	-814	60
M BUMPER_BOTTOM_8	2355	-813	61
M BUMPER_BOTTOM_9	2406	-813	60
M BUMPER_BOTTOM_10	2455	-813	58
M BUMPER_BOTTOM_11	2507	-812	59
M BUMPER_BOTTOM_12	2558	-812	59
M BUMPER_BOTTOM_13	2609	-812	58
M BUMPER_BOTTOM_14	2658	-811	59
M BUMPER_BOTTOM_15	2711	-811	58
M BUMPER_BOTTOM_16	2761	-811	59
M BUMPER_BOTTOM_17	2812	-811	58
M BUMPER_BOTTOM_18	2863	-812	58
M BUMPER_BOTTOM_19	2914	-813	58
M BUMPER_BOTTOM_20	2964	-815	58
M BUMPER_BOTTOM_21	3016	-819	58
M BUMPER_BOTTOM_22	3066	-824	58
M BUMPER_BOTTOM_23	3116	-831	58
M BUMPER_BOTTOM_24	3167	-832	57
M BUMPER_BOTTOM_25	3226	-770	55
M BUMPER_BOTTOM_26	3234	-802	56
M BUMPER_BOTTOM_27	3266	-819	56
M BUMPER_BOTTOM_28	3309	-823	56
M BUMPER_BOTTOM_29	3348	-809	56
M BUMPER_BOTTOM_30	3373	-802	55
M BUMPER_BOTTOM_31	3424	-775	55

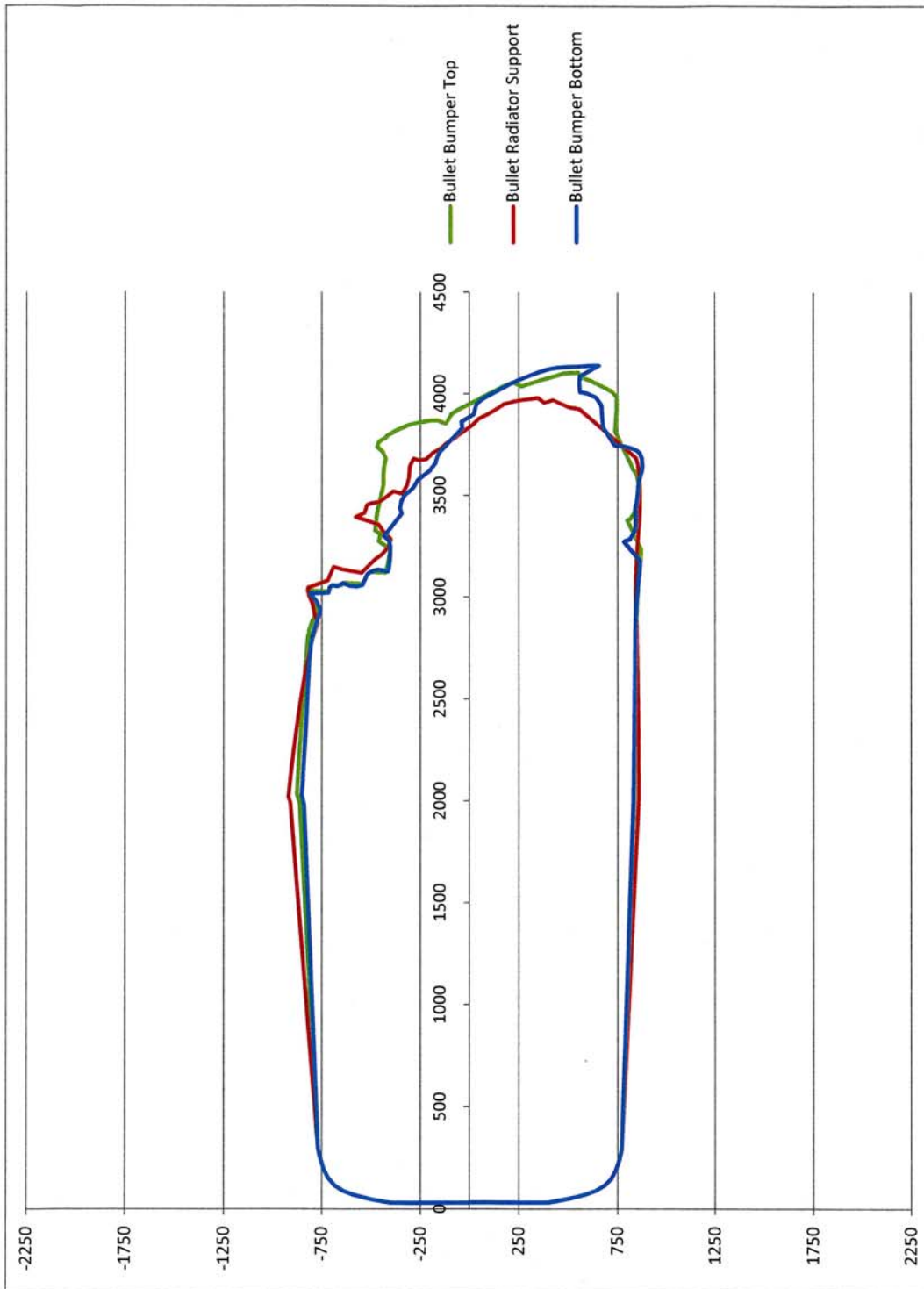
M BUMPER_BOTTOM_32	3467	-793	55
M BUMPER_BOTTOM_33	3517	-792	56
M BUMPER_BOTTOM_34	3548	-772	54
M BUMPER_BOTTOM_35	3584	-773	58
M BUMPER_BOTTOM_36	3602	-802	55
M BUMPER_BOTTOM_37	3626	-808	55
M BUMPER_BOTTOM_38	3654	-821	54
M BUMPER_BOTTOM_39	3694	-822	54
M BUMPER_BOTTOM_40	3719	-814	54
M BUMPER_BOTTOM_41	3737	-804	54
M BUMPER_BOTTOM_42	3749	-771	57
M BUMPER_BOTTOM_43	3781	-489	57
M BUMPER_BOTTOM_44	3816	-498	56
M BUMPER_BOTTOM_45	3858	-492	58
M BUMPER_BOTTOM_46	3896	-492	56
M BUMPER_BOTTOM_47	3937	-490	56
M BUMPER_BOTTOM_48	3992	-496	56
M BUMPER_BOTTOM_49	4039	-498	55
M BUMPER_BOTTOM_50	4076	-497	57
M BUMPER_BOTTOM_51	4105	-495	56
M BUMPER_BOTTOM_52	4093	-584	60
M BUMPER_BOTTOM_53	4109	-558	59
M BUMPER_BOTTOM_54	4135	-509	59
M BUMPER_BOTTOM_55	4149	-467	59
M BUMPER_BOTTOM_56	4171	-417	60
M BUMPER_BOTTOM_57	4188	-370	60
M BUMPER_BOTTOM_58	4198	-323	60
M BUMPER_BOTTOM_59	4206	-275	60
M BUMPER_BOTTOM_60	4212	-222	61
M BUMPER_BOTTOM_61	4216	-175	60
M BUMPER_BOTTOM_62	4218	-124	61
M BUMPER_BOTTOM_63	4218	-75	61
M BUMPER_BOTTOM_64	4218	-27	61
M BUMPER_BOTTOM_65	4218	25	62
M BUMPER_BOTTOM_66	4218	76	60
M BUMPER_BOTTOM_67	4218	124	61
M BUMPER_BOTTOM_68	4217	176	61
M BUMPER_BOTTOM_69	4213	224	62
M BUMPER_BOTTOM_70	4207	276	62
M BUMPER_BOTTOM_71	4200	327	61
M BUMPER_BOTTOM_72	4189	374	63
M BUMPER_BOTTOM_73	4172	423	61
M BUMPER_BOTTOM_74	4152	469	63
M BUMPER_BOTTOM_75	4135	512	61
M BUMPER_BOTTOM_76	4111	563	62
M BUMPER_BOTTOM_77	4094	596	60
M BUMPER_BOTTOM_78	4111	501	51
M BUMPER_BOTTOM_79	4065	503	51
M BUMPER_BOTTOM_80	4006	502	53
M BUMPER_BOTTOM_81	3979	589	53
M BUMPER_BOTTOM_82	3918	599	51
M BUMPER_BOTTOM_83	3844	609	52

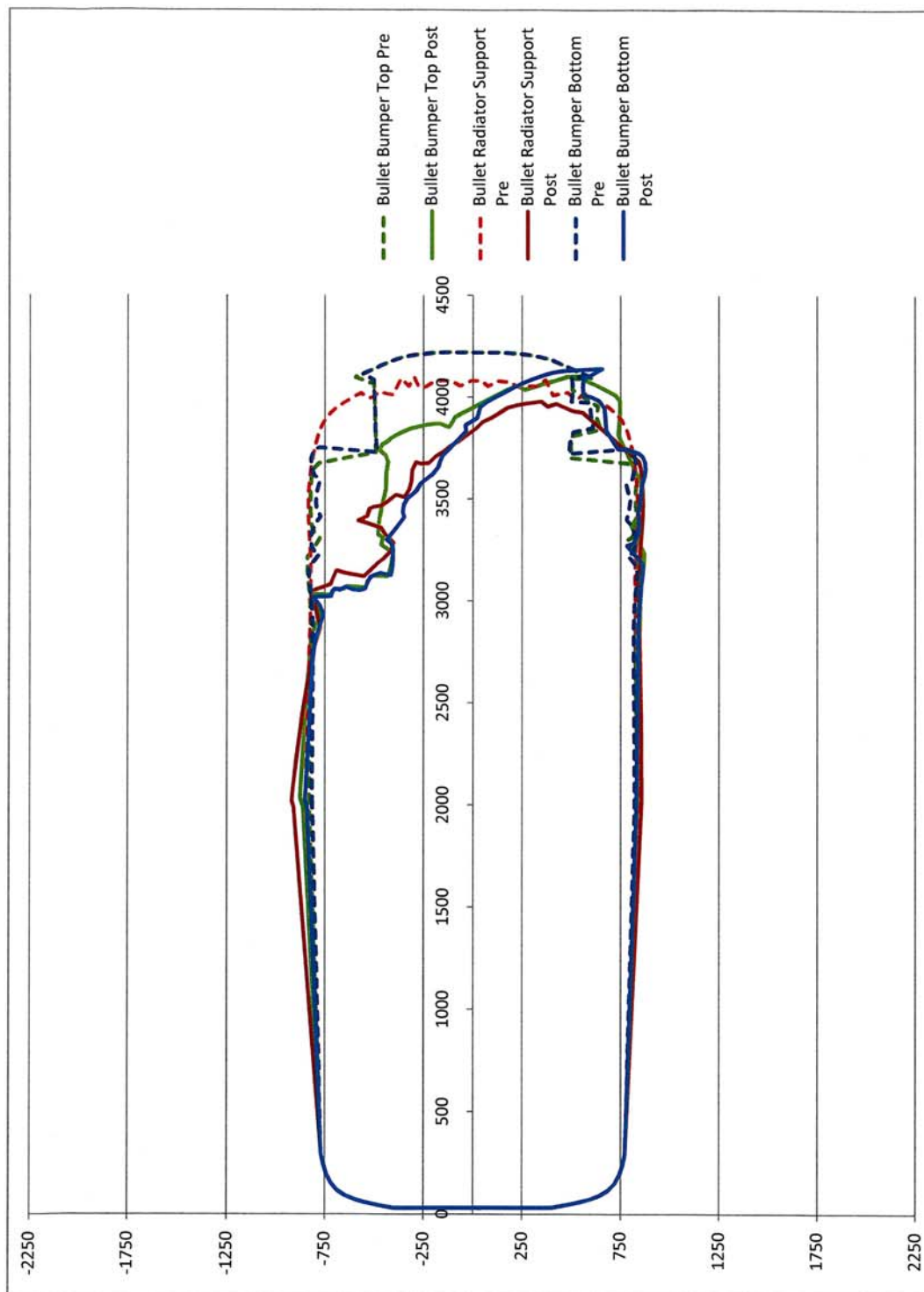
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M BUMPER_BOTTOM_86	3714	487	54
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M BUMPER_BOTTOM_88	3742	777	53
M BUMPER_BOTTOM_89	3733	811	53
M BUMPER_BOTTOM_90	3702	827	54
M BUMPER_BOTTOM_91	3656	831	55
M BUMPER_BOTTOM_92	3618	817	54
M BUMPER_BOTTOM_93	3594	810	52
M BUMPER_BOTTOM_94	3555	778	53
M BUMPER_BOTTOM_95	3515	795	52
M BUMPER_BOTTOM_96	3465	796	52
M BUMPER_BOTTOM_97	3422	775	55
M BUMPER_BOTTOM_98	3374	810	55
M BUMPER_BOTTOM_99	3349	817	54
M BUMPER_BOTTOM_100	3309	831	55
M BUMPER_BOTTOM_101	3271	828	55
M BUMPER_BOTTOM_102	3240	815	53
M BUMPER_BOTTOM_103	3226	779	53
M BUMPER_BOTTOM_104	3170	835	55
M BUMPER_BOTTOM_105	3120	836	55
M BUMPER_BOTTOM_106	3069	829	54
M BUMPER_BOTTOM_107	3018	825	55
M BUMPER_BOTTOM_108	2968	824	56
M BUMPER_BOTTOM_109	2916	824	56
M BUMPER_BOTTOM_110	2865	825	55
M BUMPER_BOTTOM_111	2815	826	55
M BUMPER_BOTTOM_112	2764	827	55
M BUMPER_BOTTOM_113	2713	829	55
M BUMPER_BOTTOM_114	2663	830	56
M BUMPER_BOTTOM_115	2611	831	56
M BUMPER_BOTTOM_116	2561	831	56
M BUMPER_BOTTOM_117	2510	831	56
M BUMPER_BOTTOM_118	2459	830	56
M BUMPER_BOTTOM_119	2408	830	56
M BUMPER_BOTTOM_120	2357	828	56
M BUMPER_BOTTOM_121	2305	827	57
M BUMPER_BOTTOM_122	2255	826	57
M BUMPER_BOTTOM_123	2205	825	57
M BUMPER_BOTTOM_124	2154	824	57
M BUMPER_BOTTOM_125	2103	823	57
M BUMPER_BOTTOM_126	2052	822	58
M BUMPER_BOTTOM_127	2001	821	57
POST-TEST			
M BUMPER_BOTTOM_1	1973	-866	67
M BUMPER_BOTTOM_2	2006	-880	64
M BUMPER_BOTTOM_3	2057	-887	62
M BUMPER_BOTTOM_4	2107	-891	61
M BUMPER_BOTTOM_5	2159	-888	60
M BUMPER_BOTTOM_6	2210	-883	58
M BUMPER_BOTTOM_7	2260	-878	58

M BUMPER_BOTTOM_8	2311	-873	58
M BUMPER_BOTTOM_9	2386	-867	56
M BUMPER_BOTTOM_10	2438	-863	55
M BUMPER_BOTTOM_11	2487	-859	54
M BUMPER_BOTTOM_12	2539	-856	53
M BUMPER_BOTTOM_13	2590	-850	52
M BUMPER_BOTTOM_14	2639	-837	52
M BUMPER_BOTTOM_15	2687	-822	50
M BUMPER_BOTTOM_16	2736	-808	49
M BUMPER_BOTTOM_17	2786	-797	47
M BUMPER_BOTTOM_18	2837	-790	46
M BUMPER_BOTTOM_19	2887	-786	46
M BUMPER_BOTTOM_20	2933	-804	45
M BUMPER_BOTTOM_21	2975	-819	44
M BUMPER_BOTTOM_22	3011	-785	44
M BUMPER_BOTTOM_23	3047	-770	43
M BUMPER_BOTTOM_24	3077	-746	41
M BUMPER_BOTTOM_25	3021	-539	44
M BUMPER_BOTTOM_26	3073	-489	43
M BUMPER_BOTTOM_27	3120	-430	43
M BUMPER_BOTTOM_28	3217	-551	41
M BUMPER_BOTTOM_29	3271	-538	38
M BUMPER_BOTTOM_30	3295	-417	40
M BUMPER_BOTTOM_31	3326	-398	39
M BUMPER_BOTTOM_32	3446	-362	32
M BUMPER_BOTTOM_33	3493	-341	33
M BUMPER_BOTTOM_34	3518	-294	33
M BUMPER_BOTTOM_35	3580	-276	32
M BUMPER_BOTTOM_36	3619	-242	33
M BUMPER_BOTTOM_37	3657	-204	30
M BUMPER_BOTTOM_38	3672	-159	31
M BUMPER_BOTTOM_39	3734	-136	30
M BUMPER_BOTTOM_40	3782	-97	28
M BUMPER_BOTTOM_41	3817	-57	30
M BUMPER_BOTTOM_42	3859	-14	27
M BUMPER_BOTTOM_43	3904	24	26
M BUMPER_BOTTOM_44	3934	74	27
M BUMPER_BOTTOM_45	3954	110	27
M BUMPER_BOTTOM_46	3976	151	26
M BUMPER_BOTTOM_47	4036	266	26
M BUMPER_BOTTOM_48	4056	307	28
M BUMPER_BOTTOM_49	4080	361	27
M BUMPER_BOTTOM_50	4100	406	28
M BUMPER_BOTTOM_51	4139	447	26
M BUMPER_BOTTOM_52	4147	514	25
M BUMPER_BOTTOM_53	4154	577	26
M BUMPER_BOTTOM_54	3777	792	52
M BUMPER_BOTTOM_55	3730	817	52
M BUMPER_BOTTOM_56	3683	815	53
M BUMPER_BOTTOM_57	3640	805	54
M BUMPER_BOTTOM_58	3609	778	54
M BUMPER_BOTTOM_59	3560	807	56

M BUMPER_BOTTOM_60	3491	813	56
M BUMPER_BOTTOM_61	3451	793	56
M BUMPER_BOTTOM_62	3418	831	59
M BUMPER_BOTTOM_63	3373	854	59
M BUMPER_BOTTOM_64	3330	864	61
M BUMPER_BOTTOM_65	3281	851	59
M BUMPER_BOTTOM_66	3262	807	62
M BUMPER_BOTTOM_67	3166	836	63
M BUMPER_BOTTOM_68	3114	835	64
M BUMPER_BOTTOM_69	3064	830	65
M BUMPER_BOTTOM_70	3013	825	65
M BUMPER_BOTTOM_71	2962	821	66
M BUMPER_BOTTOM_72	2911	818	67
M BUMPER_BOTTOM_73	2860	817	68
M BUMPER_BOTTOM_74	2809	816	69
M BUMPER_BOTTOM_75	2759	816	70
M BUMPER_BOTTOM_76	2707	816	70
M BUMPER_BOTTOM_77	2657	815	73
M BUMPER_BOTTOM_78	2606	816	73
M BUMPER_BOTTOM_79	2554	816	73
M BUMPER_BOTTOM_80	2504	816	75
M BUMPER_BOTTOM_81	2453	816	76
M BUMPER_BOTTOM_82	2401	816	76
M BUMPER_BOTTOM_83	2350	816	77
M BUMPER_BOTTOM_84	2299	816	78
M BUMPER_BOTTOM_85	2247	816	79
M BUMPER_BOTTOM_86	2196	816	81
M BUMPER_BOTTOM_87	2146	816	81
M BUMPER_BOTTOM_88	2096	816	82
M BUMPER_BOTTOM_89	2043	816	84
M BUMPER_BOTTOM_90	2005	815	85







BULLET

PRE-TEST

M_RADIATOR_SUPPORT_1	2020	-846	-215
M_RADIATOR_SUPPORT_2	2049	-846	-214
M_RADIATOR_SUPPORT_3	2100	-845	-215
M_RADIATOR_SUPPORT_4	2151	-845	-214
M_RADIATOR_SUPPORT_5	2202	-844	-215
M_RADIATOR_SUPPORT_6	2253	-843	-216
M_RADIATOR_SUPPORT_7	2305	-842	-215
M_RADIATOR_SUPPORT_8	2355	-841	-216
M_RADIATOR_SUPPORT_9	2406	-839	-217
M_RADIATOR_SUPPORT_10	2457	-838	-216
M_RADIATOR_SUPPORT_11	2508	-837	-216
M_RADIATOR_SUPPORT_12	2559	-835	-218
M_RADIATOR_SUPPORT_13	2610	-834	-217
M_RADIATOR_SUPPORT_14	2661	-832	-218
M_RADIATOR_SUPPORT_15	2711	-831	-218
M_RADIATOR_SUPPORT_16	2763	-829	-217
M_RADIATOR_SUPPORT_17	2814	-827	-219
M_RADIATOR_SUPPORT_18	2864	-826	-218
M_RADIATOR_SUPPORT_19	2915	-824	-219
M_RADIATOR_SUPPORT_20	2966	-823	-219
M_RADIATOR_SUPPORT_21	3017	-822	-220
M_RADIATOR_SUPPORT_22	3068	-822	-219
M_RADIATOR_SUPPORT_23	3119	-822	-220
M_RADIATOR_SUPPORT_24	3169	-823	-220
M_RADIATOR_SUPPORT_25	3221	-824	-221
M_RADIATOR_SUPPORT_26	3271	-826	-221
M_RADIATOR_SUPPORT_27	3322	-829	-221
M_RADIATOR_SUPPORT_28	3373	-832	-222
M_RADIATOR_SUPPORT_29	3424	-834	-222
M_RADIATOR_SUPPORT_30	3475	-834	-223
M_RADIATOR_SUPPORT_31	3526	-833	-222
M_RADIATOR_SUPPORT_32	3577	-829	-223
M_RADIATOR_SUPPORT_33	3627	-824	-223
M_RADIATOR_SUPPORT_34	3678	-817	-224
M_RADIATOR_SUPPORT_35	3727	-806	-225
M_RADIATOR_SUPPORT_36	3771	-796	-226
M_RADIATOR_SUPPORT_37	3821	-783	-226
M_RADIATOR_SUPPORT_38	3866	-763	-226
M_RADIATOR_SUPPORT_39	3908	-733	-225
M_RADIATOR_SUPPORT_40	3941	-696	-225
M_RADIATOR_SUPPORT_41	3969	-653	-225
M_RADIATOR_SUPPORT_42	3994	-610	-225
M_RADIATOR_SUPPORT_43	4018	-567	-226
M_RADIATOR_SUPPORT_44	3994	-527	-222
M_RADIATOR_SUPPORT_45	3999	-503	-225
M_RADIATOR_SUPPORT_46	4023	-476	-226
M_RADIATOR_SUPPORT_47	4010	-407	-216
M_RADIATOR_SUPPORT_48	4090	-363	-224
M_RADIATOR_SUPPORT_49	4052	-324	-225
M_RADIATOR_SUPPORT_50	4095	-297	-223

M_RADIATOR_SUPPORT_51	4046	-272	-224
M_RADIATOR_SUPPORT_52	4050	-239	-224
M_RADIATOR_SUPPORT_53	4080	-188	-224
M_RADIATOR_SUPPORT_54	4081	-150	-224
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M_RADIATOR_SUPPORT_57	4080	-12	-225
M_RADIATOR_SUPPORT_58	4080	44	-226
M_RADIATOR_SUPPORT_59	4054	74	-224
M_RADIATOR_SUPPORT_60	4079	127	-224
M_RADIATOR_SUPPORT_61	4074	184	-221
M_RADIATOR_SUPPORT_62	4053	222	-225
M_RADIATOR_SUPPORT_63	4054	259	-224
M_RADIATOR_SUPPORT_64	4054	323	-224
M_RADIATOR_SUPPORT_65	4085	368	-221
M_RADIATOR_SUPPORT_66	4010	406	-222
M_RADIATOR_SUPPORT_67	4024	482	-223
M_RADIATOR_SUPPORT_68	3998	506	-232
M_RADIATOR_SUPPORT_69	3991	528	-226
M_RADIATOR_SUPPORT_70	4020	564	-232
M_RADIATOR_SUPPORT_71	4000	603	-231
M_RADIATOR_SUPPORT_72	3976	646	-232
M_RADIATOR_SUPPORT_73	3951	688	-231
M_RADIATOR_SUPPORT_74	3923	724	-231
M_RADIATOR_SUPPORT_75	3885	757	-230
M_RADIATOR_SUPPORT_76	3839	781	-231
M_RADIATOR_SUPPORT_77	3790	797	-230
M_RADIATOR_SUPPORT_78	3742	809	-229
M_RADIATOR_SUPPORT_79	3690	818	-232
M_RADIATOR_SUPPORT_80	3639	825	-231
M_RADIATOR_SUPPORT_81	3591	830	-232
M_RADIATOR_SUPPORT_82	3539	834	-232
M_RADIATOR_SUPPORT_83	3488	836	-232
M_RADIATOR_SUPPORT_84	3438	835	-232
M_RADIATOR_SUPPORT_85	3386	834	-231
M_RADIATOR_SUPPORT_86	3334	831	-231
M_RADIATOR_SUPPORT_87	3284	828	-229
M_RADIATOR_SUPPORT_88	3234	826	-229
M_RADIATOR_SUPPORT_89	3184	824	-230
M_RADIATOR_SUPPORT_90	3133	824	-230
M_RADIATOR_SUPPORT_91	3078	823	-230
M_RADIATOR_SUPPORT_92	3028	824	-229
M_RADIATOR_SUPPORT_93	2979	825	-229
M_RADIATOR_SUPPORT_94	2927	826	-229
M_RADIATOR_SUPPORT_95	2876	827	-229
M_RADIATOR_SUPPORT_96	2826	829	-229
M_RADIATOR_SUPPORT_97	2773	831	-229
M_RADIATOR_SUPPORT_98	2724	832	-228
M_RADIATOR_SUPPORT_99	2673	834	-228
M_RADIATOR_SUPPORT_100	2622	836	-228
M_RADIATOR_SUPPORT_101	2572	837	-228
M_RADIATOR_SUPPORT_102	2521	839	-228

M_RADIATOR_SUPPORT_103	2469	840	-228
M_RADIATOR_SUPPORT_104	2419	842	-228
M_RADIATOR_SUPPORT_105	2368	843	-227
M_RADIATOR_SUPPORT_106	2317	844	-227
M_RADIATOR_SUPPORT_107	2266	845	-227
M_RADIATOR_SUPPORT_108	2215	846	-227
M_RADIATOR_SUPPORT_109	2164	847	-227
M_RADIATOR_SUPPORT_110	2114	848	-226
M_RADIATOR_SUPPORT_111	2062	849	-227
M_RADIATOR_SUPPORT_112	2021	849	-226
POST-TEST			
M_RADIATOR_SUPPORT_1	1989	-909	-245
M_RADIATOR_SUPPORT_2	2018	-919	-244
M_RADIATOR_SUPPORT_3	2068	-914	-246
M_RADIATOR_SUPPORT_4	2120	-908	-247
M_RADIATOR_SUPPORT_5	2170	-902	-250
M_RADIATOR_SUPPORT_6	2220	-896	-250
M_RADIATOR_SUPPORT_7	2271	-889	-253
M_RADIATOR_SUPPORT_8	2321	-883	-255
M_RADIATOR_SUPPORT_9	2371	-875	-256
M_RADIATOR_SUPPORT_10	2423	-868	-258
M_RADIATOR_SUPPORT_11	2472	-861	-259
M_RADIATOR_SUPPORT_12	2522	-853	-262
M_RADIATOR_SUPPORT_13	2573	-844	-263
M_RADIATOR_SUPPORT_14	2623	-835	-265
M_RADIATOR_SUPPORT_15	2672	-825	-266
M_RADIATOR_SUPPORT_16	2723	-814	-268
M_RADIATOR_SUPPORT_17	2771	-803	-270
M_RADIATOR_SUPPORT_18	2821	-789	-272
M_RADIATOR_SUPPORT_19	2870	-771	-273
M_RADIATOR_SUPPORT_20	2914	-787	-276
M_RADIATOR_SUPPORT_21	2964	-796	-277
M_RADIATOR_SUPPORT_22	3012	-817	-277
M_RADIATOR_SUPPORT_23	3046	-819	-279
M_RADIATOR_SUPPORT_24	3080	-719	-285
M_RADIATOR_SUPPORT_25	3112	-706	-286
M_RADIATOR_SUPPORT_26	3148	-690	-288
M_RADIATOR_SUPPORT_27	3135	-649	-288
M_RADIATOR_SUPPORT_28	3119	-552	-289
M_RADIATOR_SUPPORT_29	3152	-516	-293
M_RADIATOR_SUPPORT_30	3185	-479	-293
M_RADIATOR_SUPPORT_31	3205	-450	-294
M_RADIATOR_SUPPORT_32	3242	-417	-296
M_RADIATOR_SUPPORT_33	3284	-402	-298
M_RADIATOR_SUPPORT_34	3326	-443	-298
M_RADIATOR_SUPPORT_35	3357	-464	-291
M_RADIATOR_SUPPORT_36	3392	-579	-300
M_RADIATOR_SUPPORT_37	3413	-536	-301
M_RADIATOR_SUPPORT_38	3451	-524	-302
M_RADIATOR_SUPPORT_39	3461	-500	-304
M_RADIATOR_SUPPORT_40	3465	-465	-304
M_RADIATOR_SUPPORT_41	3484	-435	-307

M_RADIATOR_SUPPORT_42	3519	-390	-306
M_RADIATOR_SUPPORT_43	3507	-345	-308
M_RADIATOR_SUPPORT_44	3547	-321	-310
M_RADIATOR_SUPPORT_45	3588	-310	-310
M_RADIATOR_SUPPORT_46	3641	-305	-314
M_RADIATOR_SUPPORT_47	3680	-286	-315
M_RADIATOR_SUPPORT_48	3673	-264	-315
M_RADIATOR_SUPPORT_49	3676	-223	-314
M_RADIATOR_SUPPORT_50	3709	-187	-317
M_RADIATOR_SUPPORT_51	3731	-148	-318
M_RADIATOR_SUPPORT_52	3760	-114	-319
M_RADIATOR_SUPPORT_53	3780	-77	-322
M_RADIATOR_SUPPORT_54	3801	-49	-324
M_RADIATOR_SUPPORT_55	3845	14	-324
M_RADIATOR_SUPPORT_56	3878	48	-327
M_RADIATOR_SUPPORT_57	3901	97	-328
M_RADIATOR_SUPPORT_58	3929	145	-330
M_RADIATOR_SUPPORT_59	3949	175	-331
M_RADIATOR_SUPPORT_60	3962	225	-333
M_RADIATOR_SUPPORT_61	3970	271	-334
M_RADIATOR_SUPPORT_62	3974	307	-335
M_RADIATOR_SUPPORT_63	3979	348	-336
M_RADIATOR_SUPPORT_64	3955	380	-333
M_RADIATOR_SUPPORT_65	3968	423	-335
M_RADIATOR_SUPPORT_66	3933	507	-329
M_RADIATOR_SUPPORT_67	3924	557	-338
M_RADIATOR_SUPPORT_68	3686	842	-334
M_RADIATOR_SUPPORT_69	3651	853	-333
M_RADIATOR_SUPPORT_70	3606	857	-331
M_RADIATOR_SUPPORT_71	3557	861	-330
M_RADIATOR_SUPPORT_72	3505	862	-329
M_RADIATOR_SUPPORT_73	3455	863	-326
M_RADIATOR_SUPPORT_74	3403	861	-325
M_RADIATOR_SUPPORT_75	3351	858	-322
M_RADIATOR_SUPPORT_76	3301	854	-321
M_RADIATOR_SUPPORT_77	3247	850	-319
M_RADIATOR_SUPPORT_78	3198	847	-318
M_RADIATOR_SUPPORT_79	3145	844	-316
M_RADIATOR_SUPPORT_80	3093	843	-314
M_RADIATOR_SUPPORT_81	3045	843	-313
M_RADIATOR_SUPPORT_82	2995	843	-312
M_RADIATOR_SUPPORT_83	2943	843	-310
M_RADIATOR_SUPPORT_84	2894	844	-308
M_RADIATOR_SUPPORT_85	2843	845	-306
M_RADIATOR_SUPPORT_86	2790	846	-305
M_RADIATOR_SUPPORT_87	2742	847	-304
M_RADIATOR_SUPPORT_88	2690	848	-302
M_RADIATOR_SUPPORT_89	2639	849	-300
M_RADIATOR_SUPPORT_90	2588	850	-299
M_RADIATOR_SUPPORT_91	2538	851	-297
M_RADIATOR_SUPPORT_92	2486	853	-295
M_RADIATOR_SUPPORT_93	2436	853	-294

M_RADIATOR_SUPPORT_94	2384	854	-293
M_RADIATOR_SUPPORT_95	2333	855	-290
M_RADIATOR_SUPPORT_96	2283	855	-290
M_RADIATOR_SUPPORT_97	2233	856	-288
M_RADIATOR_SUPPORT_98	2179	856	-286
M_RADIATOR_SUPPORT_99	2130	856	-284
M_RADIATOR_SUPPORT_100	2078	856	-282
M_RADIATOR_SUPPORT_101	2028	856	-282
M_RADIATOR_SUPPORT_102	2011	856	-280
PRE-TEST			
M BUMPER_TOP_1	2008	-829	5
M BUMPER_TOP_2	2033	-829	5
M BUMPER_TOP_3	2083	-829	4
M BUMPER_TOP_4	2134	-828	4
M BUMPER_TOP_5	2186	-828	3
M BUMPER_TOP_6	2236	-828	4
M BUMPER_TOP_7	2287	-827	4
M BUMPER_TOP_8	2337	-827	3
M BUMPER_TOP_9	2387	-826	3
M BUMPER_TOP_10	2438	-826	3
M BUMPER_TOP_11	2489	-825	2
M BUMPER_TOP_12	2539	-824	2
M BUMPER_TOP_13	2591	-824	2
M BUMPER_TOP_14	2641	-824	1
M BUMPER_TOP_15	2691	-823	1
M BUMPER_TOP_16	2742	-822	1
M BUMPER_TOP_17	2793	-822	1
M BUMPER_TOP_18	2844	-822	0
M BUMPER_TOP_19	2895	-823	0
M BUMPER_TOP_20	2946	-824	0
M BUMPER_TOP_21	2995	-825	0
M BUMPER_TOP_22	3047	-828	0
M BUMPER_TOP_23	3097	-833	0
M BUMPER_TOP_24	3147	-838	0
M BUMPER_TOP_25	3198	-839	-1
M BUMPER_TOP_26	3212	-838	0
M BUMPER_TOP_27	3304	-775	-1
M BUMPER_TOP_28	3342	-812	-2
M BUMPER_TOP_29	3392	-820	-3
M BUMPER_TOP_30	3441	-822	-2
M BUMPER_TOP_31	3493	-822	-3
M BUMPER_TOP_32	3542	-822	-3
M BUMPER_TOP_33	3593	-819	-3
M BUMPER_TOP_34	3642	-808	-2
M BUMPER_TOP_35	3672	-780	-1
M BUMPER_TOP_36	3727	-491	14
M BUMPER_TOP_37	3769	-492	15
M BUMPER_TOP_38	3805	-492	13
M BUMPER_TOP_39	3876	-494	15
M BUMPER_TOP_40	3929	-494	13
M BUMPER_TOP_41	3970	-497	14
M BUMPER_TOP_42	4011	-499	13

M_BUMPER_TOP_43	4062	-500	14
M_BUMPER_TOP_44	4096	-592	4
M_BUMPER_TOP_45	4114	-553	4
M_BUMPER_TOP_46	4134	-507	5
M_BUMPER_TOP_47	4154	-461	7
M_BUMPER_TOP_48	4174	-414	9
M_BUMPER_TOP_49	4191	-367	8
M_BUMPER_TOP_50	4202	-317	7
M_BUMPER_TOP_51	4209	-270	7
M_BUMPER_TOP_52	4214	-219	6
M_BUMPER_TOP_53	4218	-173	6
M_BUMPER_TOP_54	4219	-122	7
M_BUMPER_TOP_55	4219	-72	4
M_BUMPER_TOP_56	4219	-23	5
M_BUMPER_TOP_57	4219	27	5
M_BUMPER_TOP_58	4219	77	4
M_BUMPER_TOP_59	4218	127	2
M_BUMPER_TOP_60	4217	176	2
M_BUMPER_TOP_61	4213	226	2
M_BUMPER_TOP_62	4208	275	2
M_BUMPER_TOP_63	4200	326	3
M_BUMPER_TOP_64	4190	374	4
M_BUMPER_TOP_65	4173	424	3
M_BUMPER_TOP_66	4153	468	3
M_BUMPER_TOP_67	4134	513	0
M_BUMPER_TOP_68	4113	560	-6
M_BUMPER_TOP_69	4092	603	-6
M_BUMPER_TOP_70	4089	505	6
M_BUMPER_TOP_71	4035	505	6
M_BUMPER_TOP_72	3954	634	6
M_BUMPER_TOP_73	3896	628	6
M_BUMPER_TOP_74	3842	648	7
M_BUMPER_TOP_75	3807	498	6
M_BUMPER_TOP_76	3756	497	7
M_BUMPER_TOP_77	3701	496	6
M_BUMPER_TOP_78	3675	784	6
M_BUMPER_TOP_79	3648	814	7
M_BUMPER_TOP_80	3617	822	6
M_BUMPER_TOP_81	3570	827	8
M_BUMPER_TOP_82	3522	827	7
M_BUMPER_TOP_83	3473	827	8
M_BUMPER_TOP_84	3426	828	8
M_BUMPER_TOP_85	3403	828	8
M_BUMPER_TOP_86	3351	822	8
M_BUMPER_TOP_87	3312	810	8
M_BUMPER_TOP_88	3297	784	6
M_BUMPER_TOP_89	3204	841	9
M_BUMPER_TOP_90	3150	841	10
M_BUMPER_TOP_91	3099	836	10
M_BUMPER_TOP_92	3048	831	10
M_BUMPER_TOP_93	2998	828	9
M_BUMPER_TOP_94	2947	826	10

M BUMPER_TOP_95	2896	825	10
M BUMPER_TOP_96	2846	825	11
M BUMPER_TOP_97	2795	825	10
M BUMPER_TOP_98	2745	825	10
M BUMPER_TOP_99	2694	826	11
M BUMPER_TOP_100	2643	827	11
M BUMPER_TOP_101	2592	827	10
M BUMPER_TOP_102	2542	828	11
M BUMPER_TOP_103	2490	829	11
M BUMPER_TOP_104	2440	829	11
M BUMPER_TOP_105	2389	830	11
M BUMPER_TOP_106	2338	830	11
M BUMPER_TOP_107	2288	831	11
M BUMPER_TOP_108	2237	831	11
M BUMPER_TOP_109	2186	831	11
M BUMPER_TOP_110	2135	832	11
M BUMPER_TOP_111	2085	832	12
M BUMPER_TOP_112	2034	832	12
M BUMPER_TOP_113	2009	832	12
POST-TEST			
M BUMPER_TOP_1	1987	-860	-18
M BUMPER_TOP_2	2032	-875	-19
M BUMPER_TOP_3	2081	-872	-21
M BUMPER_TOP_4	2133	-869	-22
M BUMPER_TOP_5	2182	-866	-23
M BUMPER_TOP_6	2233	-862	-24
M BUMPER_TOP_7	2285	-859	-27
M BUMPER_TOP_8	2334	-856	-29
M BUMPER_TOP_9	2385	-853	-30
M BUMPER_TOP_10	2436	-850	-32
M BUMPER_TOP_11	2486	-846	-33
M BUMPER_TOP_12	2536	-843	-35
M BUMPER_TOP_13	2587	-839	-37
M BUMPER_TOP_14	2638	-835	-38
M BUMPER_TOP_15	2688	-831	-41
M BUMPER_TOP_16	2739	-826	-42
M BUMPER_TOP_17	2788	-821	-43
M BUMPER_TOP_18	2838	-813	-45
M BUMPER_TOP_19	2886	-795	-47
M BUMPER_TOP_20	2931	-772	-50
M BUMPER_TOP_21	2973	-787	-51
M BUMPER_TOP_22	3018	-817	-52
M BUMPER_TOP_23	3032	-823	-54
M BUMPER_TOP_24	3026	-718	-54
M BUMPER_TOP_25	3056	-699	-56
M BUMPER_TOP_26	3055	-650	-55
M BUMPER_TOP_27	3070	-637	-54
M BUMPER_TOP_28	3063	-543	-58
M BUMPER_TOP_29	3096	-532	-57
M BUMPER_TOP_30	3122	-508	-61
M BUMPER_TOP_31	3118	-429	-59
M BUMPER_TOP_32	3158	-417	-62

M BUMPER_TOP_33	3188	-412	-64
M BUMPER_TOP_34	3235	-404	-65
M BUMPER_TOP_35	3273	-462	-67
M BUMPER_TOP_36	3309	-454	-65
M BUMPER_TOP_37	3324	-479	-65
M BUMPER_TOP_38	3352	-477	-67
M BUMPER_TOP_39	3390	-473	-69
M BUMPER_TOP_40	3425	-467	-70
M BUMPER_TOP_41	3466	-458	-72
M BUMPER_TOP_42	3506	-449	-73
M BUMPER_TOP_43	3552	-439	-75
M BUMPER_TOP_44	3593	-438	-76
M BUMPER_TOP_45	3624	-438	-77
M BUMPER_TOP_46	3654	-433	-79
M BUMPER_TOP_47	3681	-428	-80
M BUMPER_TOP_48	3713	-442	-76
M BUMPER_TOP_49	3737	-470	-80
M BUMPER_TOP_50	3763	-459	-81
M BUMPER_TOP_51	3781	-431	-83
M BUMPER_TOP_52	3796	-415	-83
M BUMPER_TOP_53	3818	-373	-85
M BUMPER_TOP_54	3842	-320	-87
M BUMPER_TOP_55	3853	-276	-88
M BUMPER_TOP_56	3862	-233	-89
M BUMPER_TOP_57	3867	-196	-89
M BUMPER_TOP_58	3867	-162	-90
M BUMPER_TOP_59	3858	-139	-91
M BUMPER_TOP_60	3851	-122	-90
M BUMPER_TOP_61	3870	-110	-90
M BUMPER_TOP_62	3899	-92	-91
M BUMPER_TOP_63	3918	-60	-92
M BUMPER_TOP_64	3930	-36	-93
M BUMPER_TOP_65	3942	-12	-96
M BUMPER_TOP_66	3963	31	-98
M BUMPER_TOP_67	3985	73	-99
M BUMPER_TOP_68	4004	111	-101
M BUMPER_TOP_69	4022	146	-100
M BUMPER_TOP_70	4037	176	-102
M BUMPER_TOP_71	4055	222	-104
M BUMPER_TOP_72	4035	263	-104
M BUMPER_TOP_73	4051	314	-104
M BUMPER_TOP_74	4065	358	-105
M BUMPER_TOP_75	4075	396	-105
M BUMPER_TOP_76	4084	428	-108
M BUMPER_TOP_77	4095	465	-107
M BUMPER_TOP_78	4100	480	-108
M BUMPER_TOP_79	4103	550	-109
M BUMPER_TOP_80	4079	574	-110
M BUMPER_TOP_81	4063	615	-111
M BUMPER_TOP_82	4043	658	-111
M BUMPER_TOP_83	4026	692	-110
M BUMPER_TOP_84	4009	724	-110

M BUMPER_TOP_85	3982	745	-109
M BUMPER_TOP_86	3952	746	-108
M BUMPER_TOP_87	3917	745	-108
M BUMPER_TOP_88	3870	743	-105
M BUMPER_TOP_89	3815	738	-105
M BUMPER_TOP_90	3623	832	-96
M BUMPER_TOP_91	3602	847	-94
M BUMPER_TOP_92	3569	855	-96
M BUMPER_TOP_93	3527	854	-98
M BUMPER_TOP_94	3490	850	-95
M BUMPER_TOP_95	3450	844	-95
M BUMPER_TOP_96	3412	834	-93
M BUMPER_TOP_97	3384	815	-91
M BUMPER_TOP_98	3377	799	-91
M BUMPER_TOP_99	3234	868	-88
M BUMPER_TOP_100	3182	867	-86
M BUMPER_TOP_101	3133	862	-83
M BUMPER_TOP_102	3082	856	-82
M BUMPER_TOP_103	3032	853	-81
M BUMPER_TOP_104	2981	850	-79
M BUMPER_TOP_105	2929	848	-76
M BUMPER_TOP_106	2880	847	-75
M BUMPER_TOP_107	2829	846	-73
M BUMPER_TOP_108	2777	846	-72
M BUMPER_TOP_109	2727	846	-71
M BUMPER_TOP_110	2677	845	-68
M BUMPER_TOP_111	2626	846	-67
M BUMPER_TOP_112	2575	846	-65
M BUMPER_TOP_113	2526	846	-64
M BUMPER_TOP_114	2473	845	-63
M BUMPER_TOP_115	2424	845	-61
M BUMPER_TOP_116	2373	845	-59
M BUMPER_TOP_117	2321	844	-58
M BUMPER_TOP_118	2271	844	-56
M BUMPER_TOP_119	2221	844	-54
M BUMPER_TOP_120	2169	843	-52
M BUMPER_TOP_121	2119	843	-51
M BUMPER_TOP_122	2068	842	-49
M BUMPER_TOP_123	2018	842	-47
M BUMPER_TOP_124	2008	841	-48
PRE-TEST			
M BUMPER_BOTTOM_1	1998	-814	91
M BUMPER_BOTTOM_2	2051	-815	91
M BUMPER_BOTTOM_3	2100	-814	91
M BUMPER_BOTTOM_4	2151	-814	91
M BUMPER_BOTTOM_5	2202	-814	90
M BUMPER_BOTTOM_6	2253	-814	90
M BUMPER_BOTTOM_7	2303	-814	90
M BUMPER_BOTTOM_8	2355	-813	90
M BUMPER_BOTTOM_9	2405	-813	90
M BUMPER_BOTTOM_10	2456	-813	90
M BUMPER_BOTTOM_11	2507	-813	89

M BUMPER_BOTTOM_12	2558	-812	90
M BUMPER_BOTTOM_13	2608	-812	90
M BUMPER_BOTTOM_14	2659	-811	89
M BUMPER_BOTTOM_15	2709	-811	88
M BUMPER_BOTTOM_16	2760	-811	90
M BUMPER_BOTTOM_17	2811	-811	88
M BUMPER_BOTTOM_18	2862	-812	88
M BUMPER_BOTTOM_19	2912	-813	88
M BUMPER_BOTTOM_20	2964	-815	87
M BUMPER_BOTTOM_21	3014	-819	87
M BUMPER_BOTTOM_22	3064	-824	87
M BUMPER_BOTTOM_23	3115	-830	88
M BUMPER_BOTTOM_24	3166	-829	88
M BUMPER_BOTTOM_25	3226	-777	86
M BUMPER_BOTTOM_26	3235	-800	86
M BUMPER_BOTTOM_27	3258	-815	87
M BUMPER_BOTTOM_28	3290	-822	86
M BUMPER_BOTTOM_29	3317	-819	88
M BUMPER_BOTTOM_30	3340	-811	86
M BUMPER_BOTTOM_31	3362	-804	87
M BUMPER_BOTTOM_32	3384	-793	88
M BUMPER_BOTTOM_33	3410	-770	88
M BUMPER_BOTTOM_34	3443	-791	86
M BUMPER_BOTTOM_35	3481	-795	86
M BUMPER_BOTTOM_36	3528	-792	86
M BUMPER_BOTTOM_37	3586	-775	87
M BUMPER_BOTTOM_38	3617	-804	87
M BUMPER_BOTTOM_39	3654	-817	87
M BUMPER_BOTTOM_40	3692	-821	86
M BUMPER_BOTTOM_41	3731	-808	87
M BUMPER_BOTTOM_42	3742	-796	85
M BUMPER_BOTTOM_43	3750	-777	87
M BUMPER_BOTTOM_44	3727	-480	95
M BUMPER_BOTTOM_45	3773	-487	93
M BUMPER_BOTTOM_46	3805	-491	93
M BUMPER_BOTTOM_47	3846	-493	92
M BUMPER_BOTTOM_48	3898	-492	92
M BUMPER_BOTTOM_49	3950	-495	93
M BUMPER_BOTTOM_50	3993	-498	91
M BUMPER_BOTTOM_51	4034	-500	93
M BUMPER_BOTTOM_52	4084	-501	92
M BUMPER_BOTTOM_53	4111	-558	100
M BUMPER_BOTTOM_54	4132	-511	102
M BUMPER_BOTTOM_55	4152	-463	101
M BUMPER_BOTTOM_56	4173	-416	99
M BUMPER_BOTTOM_57	4186	-383	98
M BUMPER_BOTTOM_58	4197	-336	97
M BUMPER_BOTTOM_59	4206	-287	97
M BUMPER_BOTTOM_60	4211	-240	98
M BUMPER_BOTTOM_61	4216	-189	96
M BUMPER_BOTTOM_62	4219	-138	94
M BUMPER_BOTTOM_63	4219	-86	94

M BUMPER_BOTTOM_64	4219	-35	94
M BUMPER_BOTTOM_65	4219	15	94
M BUMPER_BOTTOM_66	4219	64	95
M BUMPER_BOTTOM_67	4218	115	94
M BUMPER_BOTTOM_68	4218	165	95
M BUMPER_BOTTOM_69	4214	217	95
M BUMPER_BOTTOM_70	4209	265	94
M BUMPER_BOTTOM_71	4202	314	95
M BUMPER_BOTTOM_72	4192	366	95
M BUMPER_BOTTOM_73	4179	408	94
M BUMPER_BOTTOM_74	4162	449	95
M BUMPER_BOTTOM_75	4143	493	95
M BUMPER_BOTTOM_76	4122	540	102
M BUMPER_BOTTOM_77	4103	583	85
M BUMPER_BOTTOM_78	4091	604	79
M BUMPER_BOTTOM_79	4102	502	86
M BUMPER_BOTTOM_80	4048	506	86
M BUMPER_BOTTOM_81	4007	505	86
M BUMPER_BOTTOM_82	3978	501	87
M BUMPER_BOTTOM_83	3974	592	86
M BUMPER_BOTTOM_84	3894	601	86
M BUMPER_BOTTOM_85	3849	609	86
M BUMPER_BOTTOM_86	3829	510	86
M BUMPER_BOTTOM_87	3778	494	87
M BUMPER_BOTTOM_88	3722	487	86
M BUMPER_BOTTOM_89	3746	783	86
M BUMPER_BOTTOM_90	3738	804	85
M BUMPER_BOTTOM_91	3719	817	87
M BUMPER_BOTTOM_92	3677	828	89
M BUMPER_BOTTOM_93	3633	817	88
M BUMPER_BOTTOM_94	3627	815	88
M BUMPER_BOTTOM_95	3601	809	85
M BUMPER_BOTTOM_96	3568	779	85
M BUMPER_BOTTOM_97	3492	799	86
M BUMPER_BOTTOM_98	3438	791	86
M BUMPER_BOTTOM_99	3399	779	87
M BUMPER_BOTTOM_100	3363	810	87
M BUMPER_BOTTOM_101	3339	817	88
M BUMPER_BOTTOM_102	3313	826	88
M BUMPER_BOTTOM_103	3275	826	87
M BUMPER_BOTTOM_104	3250	817	86
M BUMPER_BOTTOM_105	3232	804	87
M BUMPER_BOTTOM_106	3226	784	86
M BUMPER_BOTTOM_107	3168	834	88
M BUMPER_BOTTOM_108	3116	835	87
M BUMPER_BOTTOM_109	3066	829	87
M BUMPER_BOTTOM_110	3016	824	87
M BUMPER_BOTTOM_111	2964	820	87
M BUMPER_BOTTOM_112	2914	818	87
M BUMPER_BOTTOM_113	2863	817	87
M BUMPER_BOTTOM_114	2812	816	86
M BUMPER_BOTTOM_115	2761	816	88

M BUMPER_BOTTOM_116	2711	817	87
M BUMPER_BOTTOM_117	2659	817	87
M BUMPER_BOTTOM_118	2609	817	89
M BUMPER_BOTTOM_119	2558	818	87
M BUMPER_BOTTOM_120	2507	818	88
M BUMPER_BOTTOM_121	2456	819	87
M BUMPER_BOTTOM_122	2406	819	89
M BUMPER_BOTTOM_123	2354	819	88
M BUMPER_BOTTOM_124	2305	819	89
M BUMPER_BOTTOM_125	2254	820	88
M BUMPER_BOTTOM_126	2202	820	89
M BUMPER_BOTTOM_127	2152	820	89
M BUMPER_BOTTOM_128	2101	821	89
M BUMPER_BOTTOM_129	2050	821	89
M BUMPER_BOTTOM_130	2001	821	89
POST-TEST			
M BUMPER_BOTTOM_1	1984	-839	60
M BUMPER_BOTTOM_2	2030	-851	59
M BUMPER_BOTTOM_3	2079	-847	58
M BUMPER_BOTTOM_4	2130	-843	56
M BUMPER_BOTTOM_5	2182	-840	55
M BUMPER_BOTTOM_6	2231	-837	53
M BUMPER_BOTTOM_7	2282	-834	51
M BUMPER_BOTTOM_8	2333	-831	50
M BUMPER_BOTTOM_9	2384	-829	47
M BUMPER_BOTTOM_10	2435	-826	46
M BUMPER_BOTTOM_11	2485	-823	45
M BUMPER_BOTTOM_12	2536	-821	43
M BUMPER_BOTTOM_13	2587	-818	42
M BUMPER_BOTTOM_14	2637	-815	40
M BUMPER_BOTTOM_15	2687	-813	39
M BUMPER_BOTTOM_16	2739	-809	36
M BUMPER_BOTTOM_17	2789	-800	34
M BUMPER_BOTTOM_18	2837	-788	33
M BUMPER_BOTTOM_19	2887	-771	31
M BUMPER_BOTTOM_20	2934	-756	29
M BUMPER_BOTTOM_21	2976	-776	26
M BUMPER_BOTTOM_22	3016	-809	27
M BUMPER_BOTTOM_23	3019	-716	23
M BUMPER_BOTTOM_24	3047	-709	23
M BUMPER_BOTTOM_25	3055	-696	22
M BUMPER_BOTTOM_26	3051	-670	22
M BUMPER_BOTTOM_27	3067	-642	23
M BUMPER_BOTTOM_28	3054	-608	26
M BUMPER_BOTTOM_29	3050	-573	20
M BUMPER_BOTTOM_30	3058	-546	20
M BUMPER_BOTTOM_31	3083	-535	19
M BUMPER_BOTTOM_32	3113	-520	19
M BUMPER_BOTTOM_33	3125	-497	16
M BUMPER_BOTTOM_34	3134	-467	17
M BUMPER_BOTTOM_35	3129	-442	16
M BUMPER_BOTTOM_36	3124	-415	15

M BUMPER_BOTTOM_37	3142	-411	13
M BUMPER_BOTTOM_38	3168	-408	14
M BUMPER_BOTTOM_39	3198	-405	12
M BUMPER_BOTTOM_40	3228	-405	13
M BUMPER_BOTTOM_41	3249	-404	13
M BUMPER_BOTTOM_42	3267	-408	11
M BUMPER_BOTTOM_43	3279	-412	11
M BUMPER_BOTTOM_44	3298	-435	11
M BUMPER_BOTTOM_45	3409	-347	7
M BUMPER_BOTTOM_46	3436	-355	6
M BUMPER_BOTTOM_47	3471	-348	5
M BUMPER_BOTTOM_48	3502	-330	4
M BUMPER_BOTTOM_49	3516	-310	3
M BUMPER_BOTTOM_50	3538	-286	2
M BUMPER_BOTTOM_51	3575	-263	8
M BUMPER_BOTTOM_52	3619	-204	-1
M BUMPER_BOTTOM_53	3656	-175	-8
M BUMPER_BOTTOM_54	3682	-167	-6
M BUMPER_BOTTOM_55	3713	-154	-7
M BUMPER_BOTTOM_56	3736	-128	-12
M BUMPER_BOTTOM_57	3765	-101	-11
M BUMPER_BOTTOM_58	3801	-66	-11
M BUMPER_BOTTOM_59	3830	-37	-12
M BUMPER_BOTTOM_60	3862	-40	-13
M BUMPER_BOTTOM_61	3880	-9	-15
M BUMPER_BOTTOM_62	3897	20	-16
M BUMPER_BOTTOM_63	3950	36	-17
M BUMPER_BOTTOM_64	3975	70	-20
M BUMPER_BOTTOM_65	4002	120	-22
M BUMPER_BOTTOM_66	4021	154	-23
M BUMPER_BOTTOM_67	4040	191	-24
M BUMPER_BOTTOM_68	4057	227	-26
M BUMPER_BOTTOM_69	4072	262	-28
M BUMPER_BOTTOM_70	4090	307	-28
M BUMPER_BOTTOM_71	4101	340	-30
M BUMPER_BOTTOM_72	4111	371	-30
M BUMPER_BOTTOM_73	4119	399	-31
M BUMPER_BOTTOM_74	4126	430	-32
M BUMPER_BOTTOM_75	4129	459	-32
M BUMPER_BOTTOM_76	4132	500	-34
M BUMPER_BOTTOM_77	4133	549	-35
M BUMPER_BOTTOM_78	4135	578	-36
M BUMPER_BOTTOM_79	4137	601	-36
M BUMPER_BOTTOM_80	4138	630	-37
M BUMPER_BOTTOM_81	4138	657	-36
M BUMPER_BOTTOM_82	4086	559	-29
M BUMPER_BOTTOM_83	4052	557	-32
M BUMPER_BOTTOM_84	4008	560	-30
M BUMPER_BOTTOM_85	4002	597	-31
M BUMPER_BOTTOM_86	3982	641	-31
M BUMPER_BOTTOM_87	3944	668	-29
M BUMPER_BOTTOM_88	3869	674	-30

M BUMPER_BOTTOM_89	3835	677	-28
M BUMPER_BOTTOM_90	3744	737	-28
M BUMPER_BOTTOM_91	3743	767	-28
M BUMPER_BOTTOM_92	3739	793	-28
M BUMPER_BOTTOM_93	3731	820	-29
M BUMPER_BOTTOM_94	3723	844	-29
M BUMPER_BOTTOM_95	3708	862	-29
M BUMPER_BOTTOM_96	3680	873	-26
M BUMPER_BOTTOM_97	3644	876	-25
M BUMPER_BOTTOM_98	3613	871	-24
M BUMPER_BOTTOM_99	3565	857	-23
M BUMPER_BOTTOM_100	3525	854	-23
M BUMPER_BOTTOM_101	3474	849	-22
M BUMPER_BOTTOM_102	3434	840	-18
M BUMPER_BOTTOM_103	3392	843	-16
M BUMPER_BOTTOM_104	3348	842	-15
M BUMPER_BOTTOM_105	3319	834	-15
M BUMPER_BOTTOM_106	3284	814	-15
M BUMPER_BOTTOM_107	3271	783	-12
M BUMPER_BOTTOM_108	3179	863	-8
M BUMPER_BOTTOM_109	3128	862	-7
M BUMPER_BOTTOM_110	3079	855	-5
M BUMPER_BOTTOM_111	3027	850	-3
M BUMPER_BOTTOM_112	2978	846	-1
M BUMPER_BOTTOM_113	2927	843	0
M BUMPER_BOTTOM_114	2875	841	1
M BUMPER_BOTTOM_115	2825	840	2
M BUMPER_BOTTOM_116	2774	839	5
M BUMPER_BOTTOM_117	2722	838	5
M BUMPER_BOTTOM_118	2672	837	9
M BUMPER_BOTTOM_119	2622	837	9
M BUMPER_BOTTOM_120	2570	837	11
M BUMPER_BOTTOM_121	2520	836	13
M BUMPER_BOTTOM_122	2470	836	14
M BUMPER_BOTTOM_123	2418	835	16
M BUMPER_BOTTOM_124	2368	835	17
M BUMPER_BOTTOM_125	2317	834	19
M BUMPER_BOTTOM_126	2266	834	20
M BUMPER_BOTTOM_127	2216	833	22
M BUMPER_BOTTOM_128	2165	832	23
M BUMPER_BOTTOM_129	2114	831	26
M BUMPER_BOTTOM_130	2064	831	27
M BUMPER_BOTTOM_131	2018	830	26
M BUMPER_BOTTOM_132	2001	831	24