

**Vehicle Research and Test Center**  
**2006 Ford Taurus SE into Left Front of a**  
**2006 Ford Taurus SE - 50% Offset - Oblique 15°**  
**TRC Inc. Test Number: 091020**

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**Final Report**  
**October 2009 – May 2010**

**Prepared For:**  
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**TRC TEST NUMBER: 091020**

Report Approved by:



Date: 6-3-10

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## Table of Contents

<u>Section</u>		<u>Page No.</u>
1	Purpose and Test Procedure	1
2	Test Summary	2
3	Vehicle Information Summary	6
4	Occupant, Vehicle, and Camera Measurement Summary	22
<u>Data Sheet No.</u>		
1	Target Vehicle General Test and Vehicle Parameter Data	7
2	Target Vehicle Seat, Seat Belt, Steering Wheel Adjustment and Fuel Systems Data	10
3	Bullet Vehicle General Test and Vehicle Parameter Data	12
4	Bullet Vehicle Seat, Seat Belt, Steering Wheel Adjustment and Fuel Systems Data	15
5	Vehicles' Accelerometer Placement and Data	17
6	General Test Data	19
7	Target Vehicle Post-Impact Dummy / Vehicle Data	20
8	Bullet Vehicle Post-Impact Dummy / Vehicle Data	21
9	Target Vehicle Dummy Clearance Dimensions	23
10	Target Vehicle Seat Belt Positioning Data	25
11	Bullet Vehicle Dummy Clearance Dimensions	26
12	Bullet Vehicle Seat Belt Positioning Data	28
13	Target Vehicle Profile Measurements	29
14	Target Vehicle Crush	31
15	Target Vehicle Intrusion Measurements	36
16	Bullet Vehicle Crush	43
17	Bullet Vehicle Intrusion Measurements	48
18	Camera Locations and Data	54
19	Target Dummy / Vehicle Temperature Stabilization	56
20	Bullet Dummy / Vehicle Temperature Stabilization	57
<u>Appendix</u>		
A	Photographs	A-1
B	Data Plots	B-1
C	Dummy Configuration and Performance Verification Data	C-1
D	Test Equipment and Instrumentation Calibration Information	D-1
E	Dummy FARO Measurements	E-1

## **SECTION 1**

### **PURPOSE AND TEST PROCEDURE**

#### **PURPOSE**

This 112.7 km/h (70 mph), 50% offset, 15° oblique, 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 112.7 km/h to impact the left front corner of the target vehicle, offset 50%, at an impact angle of 15 degrees. The purpose of this test was to evaluate the aggressiveness of the bullet vehicle, a 2006 Ford Taurus SE 4-door sedan, and the vehicle and occupant response of the target vehicle, a 2006 Ford Taurus SE 4-door sedan, in this vehicle-to-vehicle angled impact mode.

#### **TEST PROCEDURE**

This test was conducted in accordance with VRTC instructions for a 50% offset 15° oblique, vehicle-to-vehicle test. Data was obtained relative to FMVSS 208, "Occupant Crash Protection" (December 18, 2001) performance for the 70 mph test mode.

## **SECTION 2**

### **TEST SUMMARY**

A model year 2006 Ford Taurus SE 4-door sedan (target vehicle) was impacted on the left front corner by a 2006 Ford Taurus SE 4-door sedan (bullet vehicle) which was moving at a velocity of 112.7 km/h. The target vehicle was stationary and positioned at an angle of 15° to the line of forward motion and 50% overlap. The weight of the target vehicle as tested was 1730.7 kg and the test weight of the bullet vehicle was 1735.4 kg. The 50% Overlap, vehicle-to-vehicle impact test was conducted by TRC Inc. on October 20, 2009.

One (1) real-time motion picture camera and eighteen (18) high-speed digital motion picture cameras were used to document the impact event. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information are documented in this report. Pre-test and post-test photographs of the test vehicles and anthropomorphic test devices (Dummies) are included in Appendix A.

The target test vehicle had one restrained 50<sup>th</sup> percentile adult male THOR NT dummy placed in the driver designated seating position. The THOR NT driver was positioned according to instructions specified in the laboratory test procedure for FMVSS No. 208, “Occupant Crash Protection”, TP-208-13, July 27, 2005. The driver dummy was instrumented with 105 data channels 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 50<sup>th</sup> percentile adult male dummy and two Part 572O Hybrid III 5<sup>th</sup> percentile adult female dummies. In addition, the two dummies in the front outboard seating positions were equipped with lower THOR 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 50<sup>th</sup> percentile male dummy. The HIII 5<sup>th</sup> 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 HIII 5<sup>th</sup> percentile left rear seat occupant was positioned according to instructions specified in the laboratory test procedure for FMVSS 214D, "Side Impact Protection," TP-214-08, December, 15, 2006. Both front seat dummies were instrumented with sixty (60) data channels and the rear passenger with twenty-six (26) data channels 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 instrumented with eleven (11) structural accelerometers, shoulder and lap seat belt load cells, and four (4) 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 703 mm of static crush during the impact. The bullet vehicle sustained 700 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 test equipment and instrumentation calibration information. Appendix E contains the dummy FARO measurements.

## VEHICLE DUMMY INJURY CRITERIA SUMMARY

		Units	Target Vehicle	Bullet Vehicle		
			Driver	Driver	Passenger	LR Pass
Maximum Head Acceleration <sup>1</sup>	X	g	-43.0	-62.6	-44.9	-39.8
	Y	g	99.8	8.9	30.5	7.0
	Z	g	34.0	17.1	26.2	54.1
	R	g	107.4	64.2	50.6	58.9
Maximum Chest Acceleration <sup>1</sup>	X	g		-41.1	-34.6	-33.7
	Y	g		14.5	10.5	13.3
	Z	g		-16.5	-13.7	-12.9
	R	g		42.8	35.1	35.8
Head Injury Criteria <sup>2</sup>	HIC <sub>36</sub>	g	594.1	575.4	343.21	608.2
	T1	ms	114.64	67.92	56.24	82.48
	T2	ms	124.00	95.76	90.88	118.48
	HIC <sub>15</sub>	g	594.1	428.54	231.8	295.2
	T1	ms	114.64	72.48	63.28	83.92
	T2	ms	124.00	87.52	78.32	98.96
Chest Maximum Resultant Acceleration <sup>3</sup>		g		41.5	33.5	34.8
	T1	ms		75.59	58.88	84.44
	T2	ms		78.59	61.88	87.44
Chest Deflection		mm		-21.9	-23.5	-28.5
Upper Neck Injury Calculations (NIJ) <sup>2</sup>	NTF			0.26	0.23	0.70
	NTE			0.22	0.33	0.51
	NCF			0.00	0.08	0.01
	NCE			0.01	0.17	0.03
Upper Neck Axial Force	Tension	N	2767	1014	824	1923
	Compression	N	-353	-28	-334	-45
Upper Tibia Index (SAE)	Left		0.45	0.53	0.28	
	Right		0.37	0.57	0.21	
Lower Tibia Index (SAE)	Left		0.31	0.60	0.28	
	Right		0.59	0.79	0.20	
Maximum Femur Force	Left	N	-5755	-3736	-2165	2243
	Right	N	-3909	-3526	-1228	2238

<sup>1</sup> See Report Sign Convention in Appendix D.

<sup>2</sup> As defined in FMVSS No. 208.

<sup>3</sup> Defined as equal to or exceeding 0.003 sec. duration.

## **TEST NOTES:**

The bullet vehicle's left rear passenger right knee slider data channel, 14KNSLRI00HFDSXA, recorded questionable data throughout the event.

The bullet vehicle's driver lap belt load cell data channel, 11SEBE0000B5FO0A, exceeded its full scale at 13.1 milliseconds and recorded questionable data thereafter.

The target vehicle driver dummy's right knee displacement channel, 21KNSLRI00H3DSXA, recorded questionable data throughout the event.

The target vehicle driver dummy's right lower tibia X-axis force data channel, 21TIBIRLLXH3FOXA, recorded questionable data after approximately 50 milliseconds.

The target vehicle driver dummy's right lower tibia Y-axis force data channel, 21TIBIRLLXH3FOYA, recorded numerous data spikes from approximately 50 to 150 milliseconds into the event.

**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: 10/20/09

#### TARGET VEHICLE INFORMATION AND OPTIONS

Make:	Ford	Driver Front Airbag	Yes
Model Year:	2006	Driver Side Airbag	No
VIN:	1FAFP53U26A103463	Driver Head Airbag	No
Model:	Ford Taurus SE	Driver Curtain Airbag	No
Body style:	4-door Sedan	Driver Knee Airbag	No
Color:	Silver	Pass. Front Airbag	Yes <sup>1</sup>
Engine Displacement	3.0 Liters	Pass. Side Airbag	No
Type /No. of Cylinders	V 6	Pass. Head Airbag	No
Engine Placement:	Transverse	Pass. Curtain Airbag	No
Transmission data:	Automatic 4-speed	Pass. Knee Airbag	No
Final drive:	Front Wheel Drive	Load Limiters	No
Delivery Date	10/8/2009	Anti-lock Brakes	No
Odometer reading:	56,589	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	No
Roof Rack	No	Rear window defroster	Yes
Sunroof / T-Top	No	Automatic Door Locks	No
Traction Control	No	Other	
Does owner's manual provide instructions to turn off automatic door locks?			N/A

#### DATA FROM CERTIFICATION LABEL

Manufactured by	Ford Motor Co.	GVWR (kg)	2124
Date of Manufacture	05/05	GAWR Front (kg)	1157
		GAWR Rear (kg)	967

#### TARGET TEST VEHICLE SEAT TYPE AND CAPACITY

Measured Parameter	Front	Mid	Rear	Total
Type of Seats	Bucket	N/A	Bench	
Designated Seating Capacity (DSC)	3	0	3	6
Type of Seat Back	Manually Adjustable	N/A	Fixed	
(A) Capacity Wt. (VCW) (kg)				499
(B) DSC x 68.08 kg				408
(A-B) Cargo Wt. (RCLW) (kg)				91

<sup>1</sup> The passenger's 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: 10/20/09

**TEST VEHICLE WEIGHTS**

	Units	As Tested (ATW)		
		Front	Rear	Total
Left	kg	508.0	342.6	
Right	kg	538.5	341.6	
Ratio	%	60.5	39.5	
Totals	kg	1046.5	684.2	1730.7

**TARGET VEHICLE ATTITUDES AND CG**

	Units	LF	RF	LR	RR	CG(aft of front axle)
Delivered :	mm	705	702	694	693	
Pre-test:	mm	688	676	635	630	1089
Post-test:	mm	770	610	579	730	

**GENERAL TEST VEHICLE DATA**

Measurement Description	Units	Value
Test Vehicle Wheelbase	mm	2755
Total Vehicle Length at Left Side	mm	4833
Total Vehicle Length at Centerline	mm	5002
Total Vehicle Length at Right Side	mm	4831
Weight of Ballast in Cargo Area	kg	0
Weight of Vehicle Components Removed	kg	0
Amount of Stoddard Solvent in Fuel Tank	liters	0

Weight of ballast secured in vehicle: 102 kg plate in right front floor

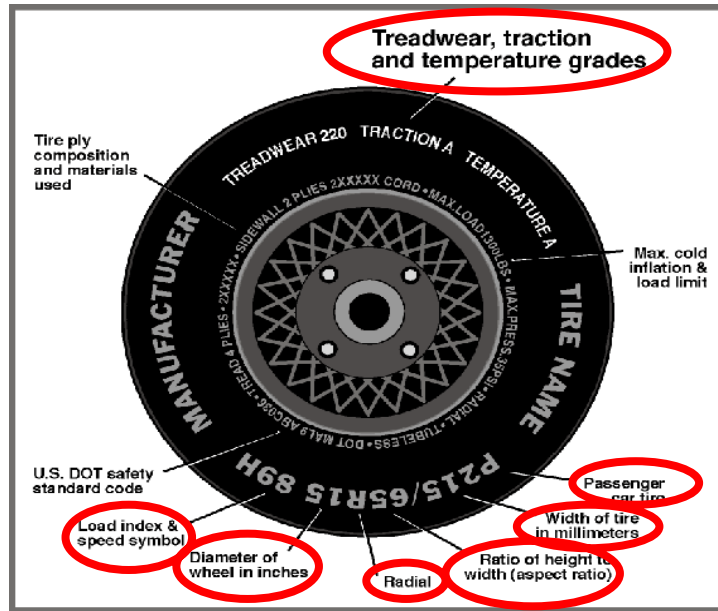
Components removed to meet target test weight: Stoddard removed from fuel tank

## DATA SHEET NO. 1 (CONTINUED)

### TARGET VEHICLE GENERAL TEST AND VEHICLE PARAMETER DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



### DATA FROM TIRE PLACARD

Measured Parameter	Left Front	Right Front	Left Rear	Right Rear
Maximum Tire Pressure (kPa)	300 (44 psi)	300 (44 psi)	300 (44 psi)	300 (44 psi)
Cold / Test Pressure (kPa)	205 (30 psi)	205 (30 psi)	205 (30 psi)	205 (30 psi)
Recommended Tire Size	P215/60 R16	P215/60 R16	P215/60 R16	P215/60 R16
Tire Size on Vehicle	P215/60 R16	P215/60 R16	P215/60 R16	P215/60 R16
Tire Manufacturer	Goodyear	Hero	Lexington	Kenda
Tire Name	VIVA 2	HR 668	ES-335	Kenetic
Load Index & Speed Symbol	94S	94S	94S	94S
Treadwear	440	440	440	440
Traction Grade	A	A	A	A
Temperature Grade	B	B	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

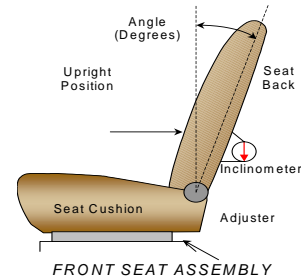
Test Date: 10/20/09

#### 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	22.2°
Front Passenger Seat <sup>1</sup>	N/A

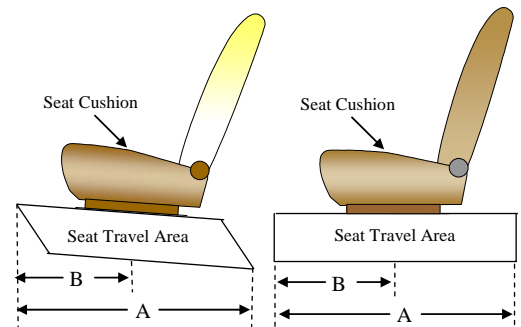


#### SEAT FORE/AFT POSITIONS

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	13	7
Front Passenger Seat <sup>1</sup>	13	N/A



#### TARGET SEAT BELT UPPER ANCHORAGE

	Total No. of Positions	Placed in Position No.
Driver Seat	5	1
Front Passenger Seat <sup>1</sup>	5	N/A

Position number one is the uppermost adjustment position.

<sup>1</sup> Not Recorded. No dummy seated in this position for this test.

**DATA SHEET NO. 2 (CONTINUED)**

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

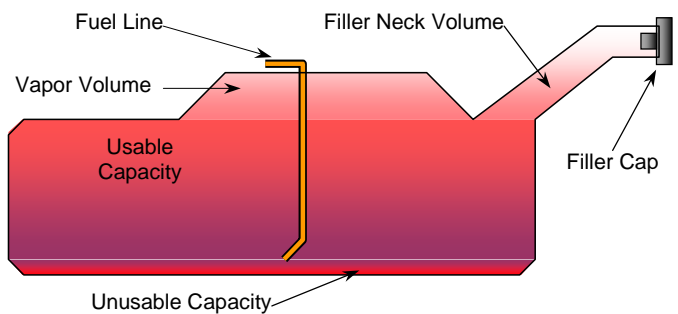
Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

**FUEL TANK CAPACITY**

	Liters
Usable Capacity of Tank	68.1
Usable Capacity used for FMVSS301	64.7
Actual Amount of Solvent used	0.0

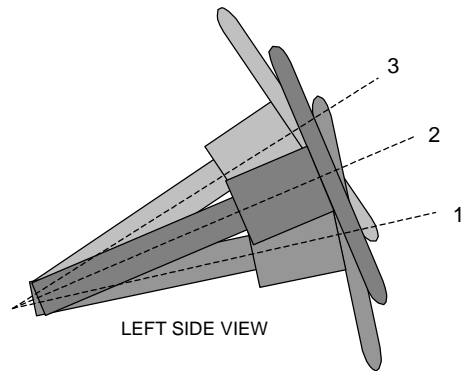
The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender. The standard fuel tank occupies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



VEHICLE FUEL TANK ASSEMBLY

**STEERING COLUMN ADJUSTMENT**

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



STEERING COLUMN ASSEMBLY

**STEERING COLUMN POSITIONS**

	Detents	Fore/Aft Position, mm
Lowermost Position No. 1	1 of 5	Not measured
Geometric Center Position No. 2	3 of 5	22.5
Uppermost Position No. 3	5 of 5	Not measured
Telescoping Steering Wheel Travel		No Feature
Test Position		Fixed

### DATA SHEET NO. 3

#### BULLET VEHICLE GENERAL TEST AND VEHICLE PARAMETER DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

#### BULLET VEHICLE INFORMATION AND OPTIONS

Make:	Ford	Driver Front Airbag	Yes
Model Year:	2006	Driver Side Airbag	Yes
VIN:	1FAHP53U16A117122	Driver Head Airbag	No
Model:	Ford Taurus SE	Driver Curtain Airbag	No
Body style:	4-door Sedan	Driver Knee Airbag	No
Color:	Black	Pass. Front Airbag	Yes
Engine Displacement	3.0 Liters	Pass. Side Airbag	Yes
Type /No. of Cylinders	V6	Pass. Head Airbag	No
Engine Placement:	Transverse	Pass. Curtain Airbag	No
Transmission data:	Automatic 4-speed	Pass. Knee Airbag	No
Final drive:	Front Wheel Drive	Load Limiters	No
Date vehicle received:	10/6/2009	Anti-lock Brakes	Yes
Odometer reading:	63,293	All-Wheel Drive	No
Dealer:	Unknown	Pretensioners	Yes
Power steering	Yes	Front Disc	Yes
Power brakes	Yes	Rear Disc	No
Power seats	Yes (Driver only)	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	No
Roof Rack	No	Rear window defroster	Yes
Sunroof / T-Top	No	Automatic Door Locks	No
Traction Control	No	Other	N/A
Does owner's manual provide instructions to turn off automatic door locks?			N/A

#### DATA FROM CERTIFICATION LABEL

Manufactured by	Ford Motor Co.	GVWR (kg)	2124
Date of Manufacture	05/05	GAWR Front (kg)	1157
		GAWR Rear (kg)	967

#### BULLET VEHICLE SEAT TYPE AND CAPACITY

Measured Parameter	Front	Mid	Rear	Total
Type of Seats	Bucket	N/A	Bench	
Designated Seating Capacity (DSC)	3	0	3	6
Type of Seat Back	Manual Adjustable	N/A	Fixed	
(A) Capacity Wt. (VCW) (kg)				499
(B) DSC x 68.08 kg				408
(A-B) Cargo Wt. (RCLW) (kg)				91

**DATA SHEET NO. 3 (CONTINUED)**

**BULLET VEHICLE GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

**TEST VEHICLE WEIGHTS**

	Units	As Tested (ATW)		
		Front	Rear	Total
Left	kg	519.8	369.8	
Right	kg	487.8	358.0	
Ratio	%	58.1	41.9	
Totals	kg	1007.6	727.8	1735.4

**BULLET VEHICLE ATTITUDES AND CG**

	Units	LF	RF	LR	RR	CG (aft of front axle)
Delivered :	mm	703	708	699	706	
Pre-test:	mm	692	703	636	639	1155
Post-test:	mm	777	708	633	644	

**GENERAL TEST VEHICLE DATA**

Measurement Description	Units	Value
Test Vehicle Wheelbase	mm	2753
Total Vehicle Length at Left Side	mm	4818
Total Vehicle Length at Centerline	mm	5013
Total Vehicle Length at Right Side	mm	4814
Weight of Ballast in Cargo Area	kg	0
Weight of Vehicle Components Removed	kg	Not Recorded
Amount of Stoddard Solvent in Fuel Tank	liters	0

Weight of ballast secured in vehicle: None

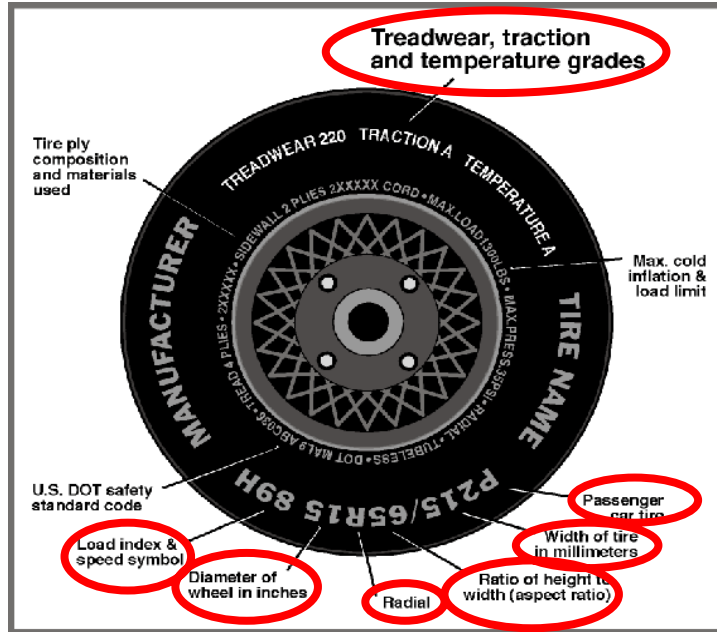
Components removed to meet target test weight: Stoddard removed from fuel tank, rear bumper fascia, rear deck lid, and exhaust system

**DATA SHEET NO. 3 (CONTINUED)**

**BULLET VEHICLE GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



**DATA FROM TIRE PLACARD**

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	300 (44 psi)	300 (44 psi)
Cold / Test Pressure (kPa)	205 (30 psi)	205 (30 psi)
Recommended Tire Size	P215/60 R16	P215/60 R16
Tire Size on Vehicle	P215/60 R16	P215/60 R16
Tire Manufacturer	FINALIST	FINALIST
Tire Name	F-109	F-109
Load Index & Speed Symbol	95H	95H
Treadwear	440	440
Traction Grade	A	A
Temperature Grade	A	A

## DATA SHEET NO. 4

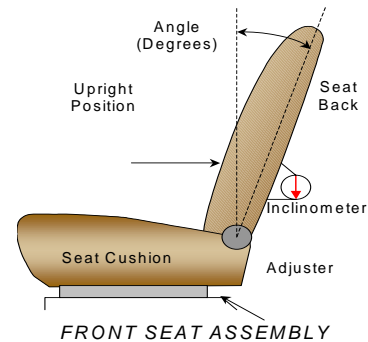
### BULLET VEHICLE SEAT, SEAT BELT, STEERING WHEEL ADJUSTMENT AND FUEL SYSTEMS DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

#### 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.



#### BULLET SEAT BACK ANGLE

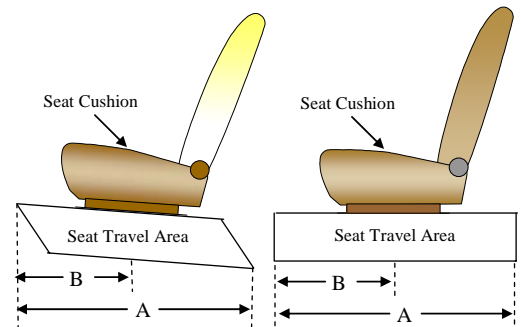
	Degrees
Driver Seat	20.3°
Front Passenger Seat	19.0°
Left Rear Passenger Seat	25.4°

#### 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.

#### BULLET SEAT FORE/AFT POSITIONING

	Total Fore/Aft Travel	Placed in Position No.
Driver Seat	250	160
Front Passenger Seat	13	1
Left Rear Seat	N/A	fixed



#### BULLET SEAT BELT UPPER ANCHORAGE

	Total No. of Positions	Placed in Position No.
Driver Seat	5	1
Front Passenger Seat	5	1
Left Rear Seat	N/A	Fixed

Position number one is the uppermost adjustment position.

**DATA SHEET NO. 4 (CONTINUED)**

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

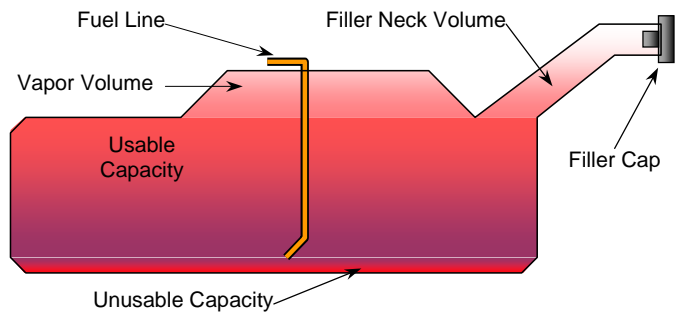
Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

**FUEL TANK CAPACITY**

	Liters
Usable Capacity of Tank	68.1
Usable Capacity used for FMVSS301	64.7
Actual Amount of Solvent used	0.0

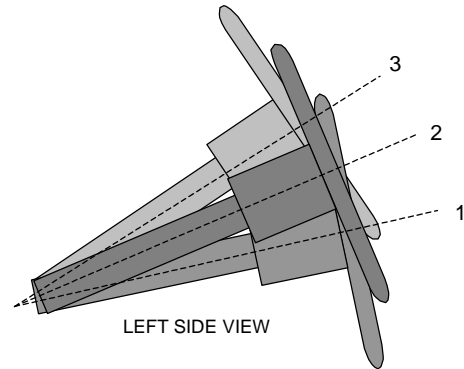
The test vehicle is equipped with an electric fuel pump. The fuel pump operates for approximately two seconds after the ignition is placed in the “ON” position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender. The standard fuel tank occupies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



VEHICLE FUEL TANK ASSEMBLY

**STEERING COLUMN ADJUSTMENT**

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



STEERING COLUMN ASSEMBLY

**STEERING COLUMN POSITIONS**

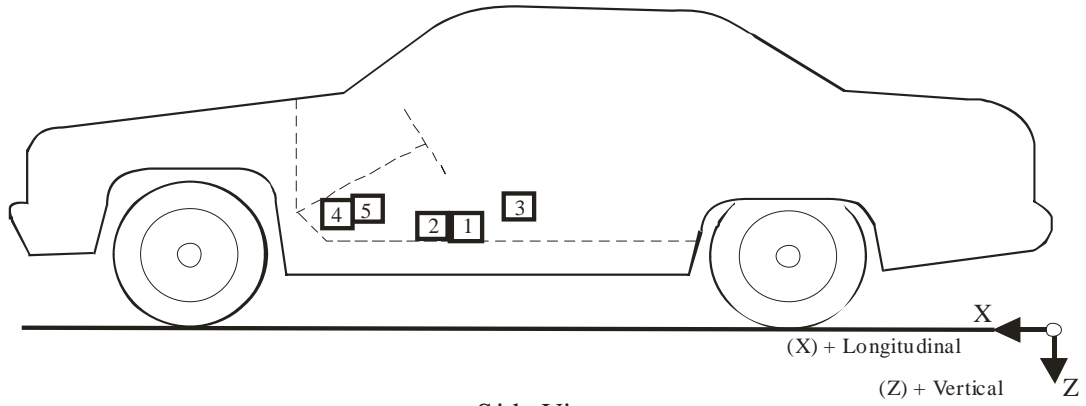
	Detents	Fore/Aft Position, mm
Lowermost Position No. 1	1 of 5	Not Measured
Geometric Center Position No. 2	3 of 5	21.1
Uppermost Position No. 3	5 of 5	Not Measured
Telescoping Steering Wheel Travel		No Feature
Test Position		Fixed

**DATA SHEET NO. 5**

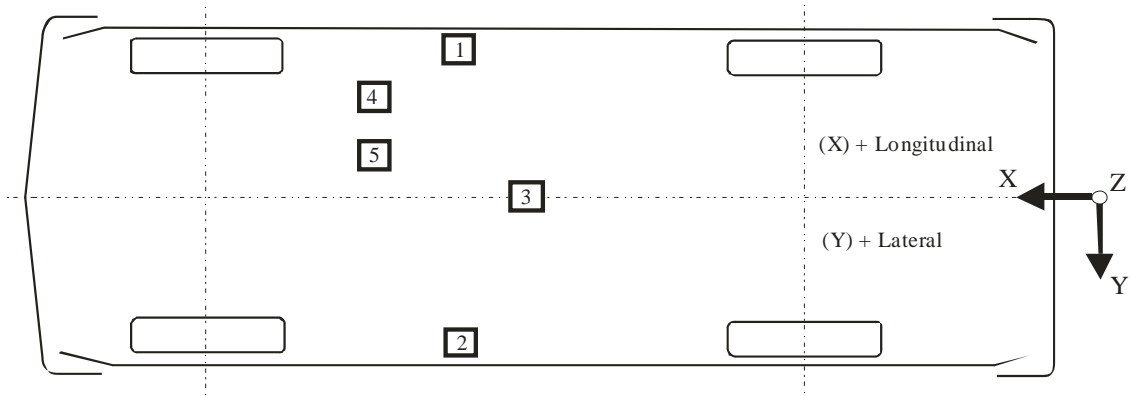
**VEHICLES' ACCELEROMETER PLACEMENT AND DATA**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



Side View



Bottom View

**DATA SHEET NO. 5 (CONTINUED)**

**VEHICLES' ACCELEROMETER PLACEMENT AND DATA**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

**TARGET VEHICLE INSTRUMENTATION DATA**

Location		Positive Direction		Negative Direction	
		Max. (g)	Time (ms)	Max. (g)	Time (ms)
(1) Left Sill Acceleration	X	3.0	211.7	26.5	54.2
	Y	29.7	51.0	5.8	127.4
(2) Right Sill Acceleration	X	1.5	215.5	37.6	46.6
	Y	25.1	46.1	2.3	96.0
(3) Vehicle Center of Gravity Acceleration	X	3.0	209.5	36.9	74.5
	Y	36.0	50.2	10.4	91.4
	Z	37.3	57.3	40.3	74.3
	R	58.3	74.2		
(4) Driver Foot Rest Acceleration	X	21.6	84.2	58.5	55.4
	Z	31.9	39.4	30.3	86.6
(5) Toe Pan Behind Center of Accelerator Acceleration	X	17.6	40.0	54.7	47.4
	Z	49.7	39.9	25.4	63.5

**BULLET VEHICLE INSTRUMENTATION DATA**

Location		Positive Direction		Negative Direction	
		Max. (g)	Time (ms)	Max. (g)	Time (ms)
(1) Left Sill Acceleration	X	1.5	211.5	31.7	56.9
	Y	27.3	47.4	9.9	88.0
(2) Right Sill Acceleration	X	0.7	215.1	30.5	59.3
	Y	19.6	44.5	9.4	85.6
(3) Vehicle Center of Gravity Acceleration	X	3.8	195.8	40.3	72.2
	Y	37.9	45.9	15.1	40.4
	Z	53.2	35.0	42.8	73.4
	R	59.6	58.2		
(4) Driver Foot Rest Acceleration	X	9.2	164.6	60.1	55.0
	Z	26.4	41.8	31.8	33.1
(5) Toe Pan Behind Center of Accelerator Acceleration	X	5.2	194.2	70.3	53.5
	Z	51.6	43.0	44.0	34.2

**DATA SHEET NO. 6**  
**GENERAL TEST DATA**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

Test Time: 16:25

Ambient temperature at impact area: 21° C

**SPEED TRAP DATA**

Measured Parameter	Units	Requirements	Value
Trap No. 1 Velocity (Primary)	km/h	110.2 - 115.1	112.7

**DATA CHANNELS**

TARGET ATD Sensors	105
TARGET Vehicle Structure Accelerometers	11
TARGET Seatbelt Load Cells	2
Airbag Signal Transducers	8
BULLET ATD Sensors	146
BULLET Vehicle Structure Accelerometers	11
BULLET Seatbelt Load Cells	4
Total	287

**CAMERA COVERAGE**

Cameras	
High-Speed Vehicle Onboard - TARGET	4
High-Speed Vehicle Onboard - BULLET	2
High-Speed Offboard	13
Real-Time	1
Total	20

**DATA SHEET NO. 7**

**TARGET VEHICLE POST-IMPACT DUMMY/VEHICLE DATA**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

**TEST DUMMY INFORMATION**

Description	Driver
Dummy Type/Serial No.	THOR / 0015
Head Contact	Front airbag, Upper door frame, Upper B-pillar, and Headrest
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	Right
Locked / Unlocked Doors	Unlocked	Unlocked
Front Door Opening	Jammed and Latched	Closed and Latched
Rear Door Opening	Jammed and Latched	Closed and Latched
Seat Track Shift (mm)	None	None
Seat Back Failure	None	None

**POST TEST STRUCTURAL OBSERVATIONS**

Critical Areas of Performance	Observations and Conclusions
Windshield Damage	Cracks throughout
Window Damage	N/A
Other Notable Effects	Left Front tire flattened

**SUPPLEMENTAL RESTRAINT SYSTEM INFORMATION**

Restraint Type	Driver (Occupant 1)		Passenger (Occupant 2)	
	Installed	Operated	Installed	Operated
Frontal Airbag	Yes	Yes	Yes	No
Knee Airbag	No	N/A	No	N/A
Side Torso Airbag	No	N/A	No	N/A
Head/Torso Side Airbag	No	N/A	No	N/A
Curtain Airbag	No	N/A	No	N/A
Seat Belt Pretensioner	Yes	Unknown	Yes	No
Seat Belt Load Limiter	Unknown	Unknown	Unknown	Unknown

## DATA SHEET NO. 8

### BULLET VEHICLE POST-IMPACT DUMMY/VEHICLE DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

#### TEST DUMMY INFORMATION

Description	Driver	Passenger	Left Rear
Dummy Type/Serial No.	HIII 50 <sup>th</sup> / 206	HIII 5 <sup>th</sup> / 329	HIII 5 <sup>th</sup> / 416
Head Contact	Front airbag and Headrest	Front Airbag and Headrest	None
Upper Torso Contact	Front airbag	Front airbag	None
Lower Torso Contact	None	None	None
Left Knee Contact	Knee bolster	Glove box	None
Right Knee Contact	Knee bolster	Glove box	None

#### 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	Left Front tire flattened

#### 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	No	N/A	No	N/A	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	Unknown	Unknown	Unknown	Unknown	No	N/A

**SECTION 4**

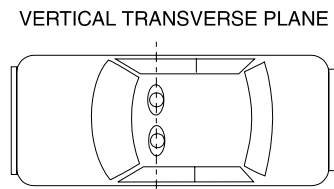
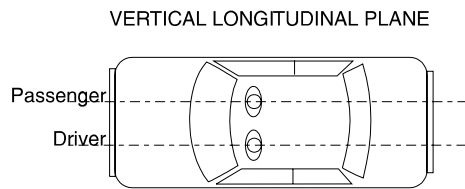
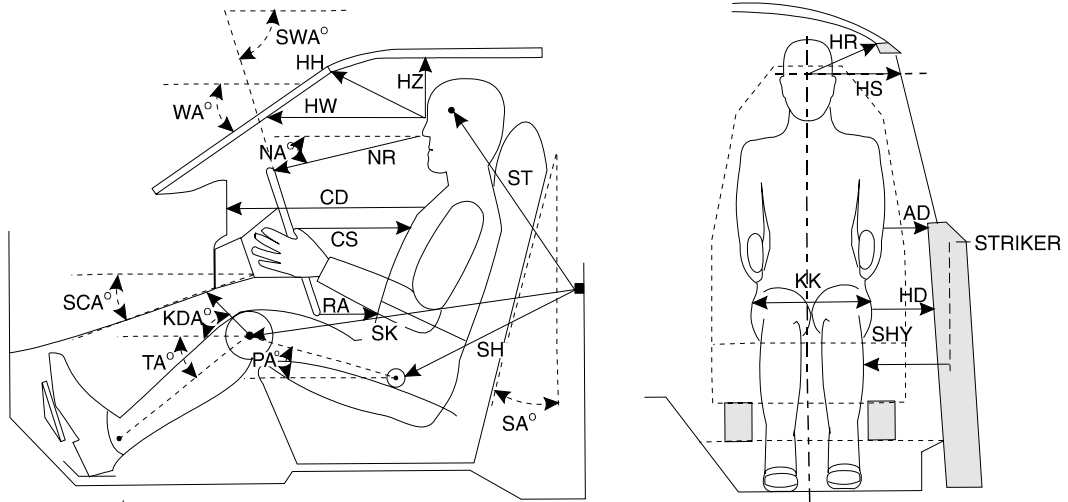
**OCCUPANT, VEHICLE, AND CAMERA MEASUREMENT SUMMARY**

# DATA SHEET NO. 9

## TARGET VEHICLE DUMMY CLEARANCE DIMENSIONS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



**DATA SHEET NO. 9 (CONTINUED)**

**TARGET VEHICLE DUMMY CLEARANCE DIMENSIONS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

Code	Measurement Description	Unit	Driver S/N 0015
WA	Windshield angle	°	22.4
SWA	Steering wheel angle	°	67.5
SCA	Steering column angle	°	22.5
SA	Seat back angle	°	22.2
HZ	Head to roof	mm	179
HH	Head to header	mm	357
HW	Head to windshield	mm	618
HR	Head to side header	mm	218
NR	Nose to rim	mm	452
NA	Nose to rim angle	°	13.3
CD	Chest to dash	mm	600
CS	Steering wheel to chest	mm	337
RA	Rim to abdomen	mm	189
KDL	Left knee to dash	mm	135
KDR	Right knee to dash	mm	127
KDA	Outboard knee to dash angle	°	12.2
PA	Pelvic angle	°	N/A
TA	Tibia angle	°	50
KK	Knee to knee	mm	427
ST <sup>1</sup>	Striker to head	mm	571
	Striker to head angle	°	-87.1
SK <sup>1</sup>	Striker to knee	mm	601
	Striker to knee angle	°	-0.45
SH <sup>1</sup>	Striker to H-point	mm	235
	Striker to H-point angle	°	26.4
SHY	Striker to H-point (Y dir.)	mm	237
HS	Head to side window	mm	320
HD	H-point to door	mm	155
AD	Arm to door	mm	231
	Final Head angle (X)	°	0.0
	Final Head angle (Y)	°	0.1

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

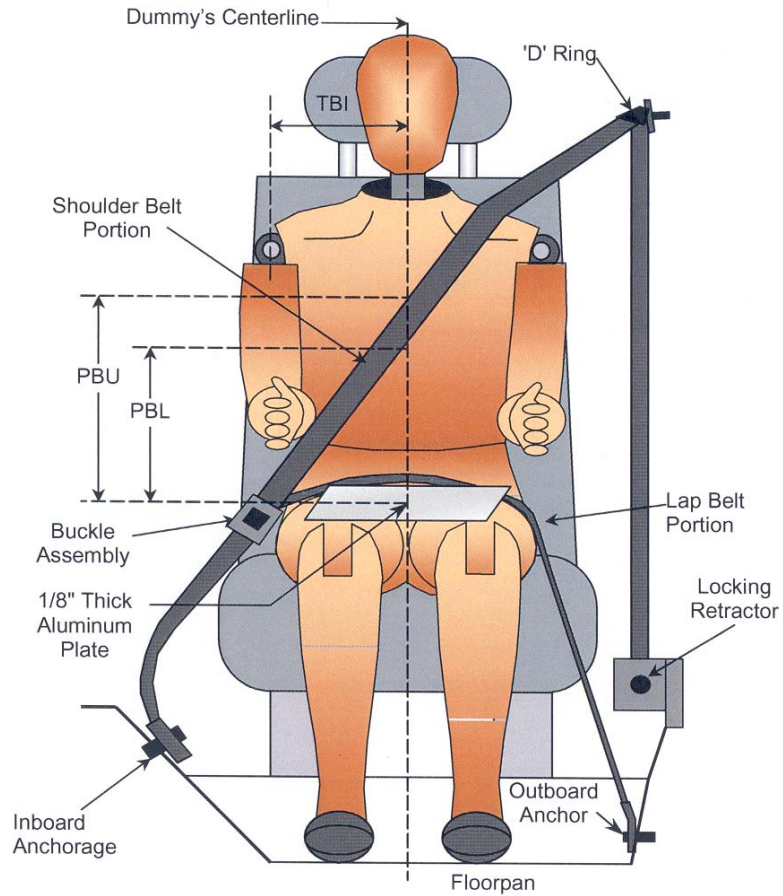
<sup>1</sup> A negative angle indicates the measurement point was above the striker.

## DATA SHEET NO. 10

### TARGET VEHICLE SEAT BELT POSITIONING DATA

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



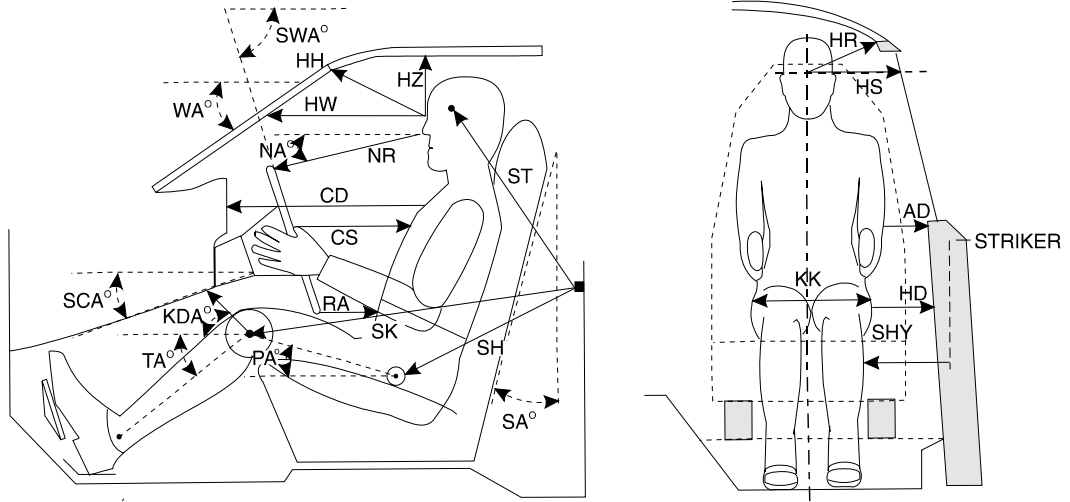
Measurement Parameter		Units	Driver S/N 0015
PBU	Top surface of aluminum plate to belt upper edge	mm	312
PBL	Top surface of aluminum plate to belt lower edge	mm	238
TBI	Dummy centerline to intersection of upper torso belt and lap belt	mm	200

**DATA SHEET NO. 11**

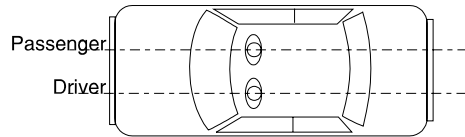
**BULLET VEHICLE DUMMY CLEARANCE DIMENSIONS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

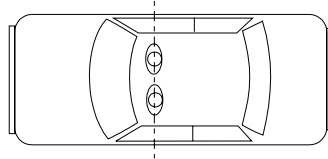
Test Date: 10/20/09



VERTICAL LONGITUDINAL PLANE



VERTICAL TRANSVERSE PLANE



**DATA SHEET NO. 11 (CONTINUED)**

**BULLET VEHICLE DUMMY CLEARANCE DIMENSIONS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

Code	Measurement Description	Unit	Driver S/N 206	Front Passenger S/N 329	Left Rear Passenger S/N 416
WA	Windshield angle	°	22.6		
SWA	Steering wheel angle	°	68.9		
SCA	Steering column angle	°	21.1		
SA	Seat back angle	°	20.3	19.0	25.4
HZ	Head to roof	mm	221	193	328
HH	Head to header	mm	352	267	627
HW	Head to windshield	mm	719	695	
HR	Head to side header	mm	224	247	286
NR	Nose to rim	mm	400		
NA	Nose to rim angle	°	5.8		
CD	Chest to dash	mm	589	371	
CS	Steering wheel to chest	mm	332		
RA	Rim to abdomen	mm	226		
KDL	Left knee to dash	mm	197	87	228
KDR	Right knee to dash	mm	179	84	246
KDA	Outboard knee to dash angle	°	24.3	29.4	7.2
PA	Pelvic angle	°	25.4	23	84
TA	Tibia angle	°	40.0	54.2	68.1
KK	Knee to knee	mm	372	262	278
ST <sup>1</sup>	Striker to head	mm	510	490	260
	Striker to head angle	°	-84.2	-66.8	-65.8
SK <sup>1</sup>	Striker to knee	mm	547	706	658
	Striker to knee angle	°	-1.2	1.0	17.8
SH <sup>1</sup>	Striker to H-point	mm	230	389	408
	Striker to H-point angle	°	38.7	13.0	47.7
SHY	Striker to H-point (Y dir.)	mm	179	169	213
HS	Head to side window	mm	335	364	389
HD	H-point to door	mm	80	86	137
AD	Arm to door	mm	143	168	166

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

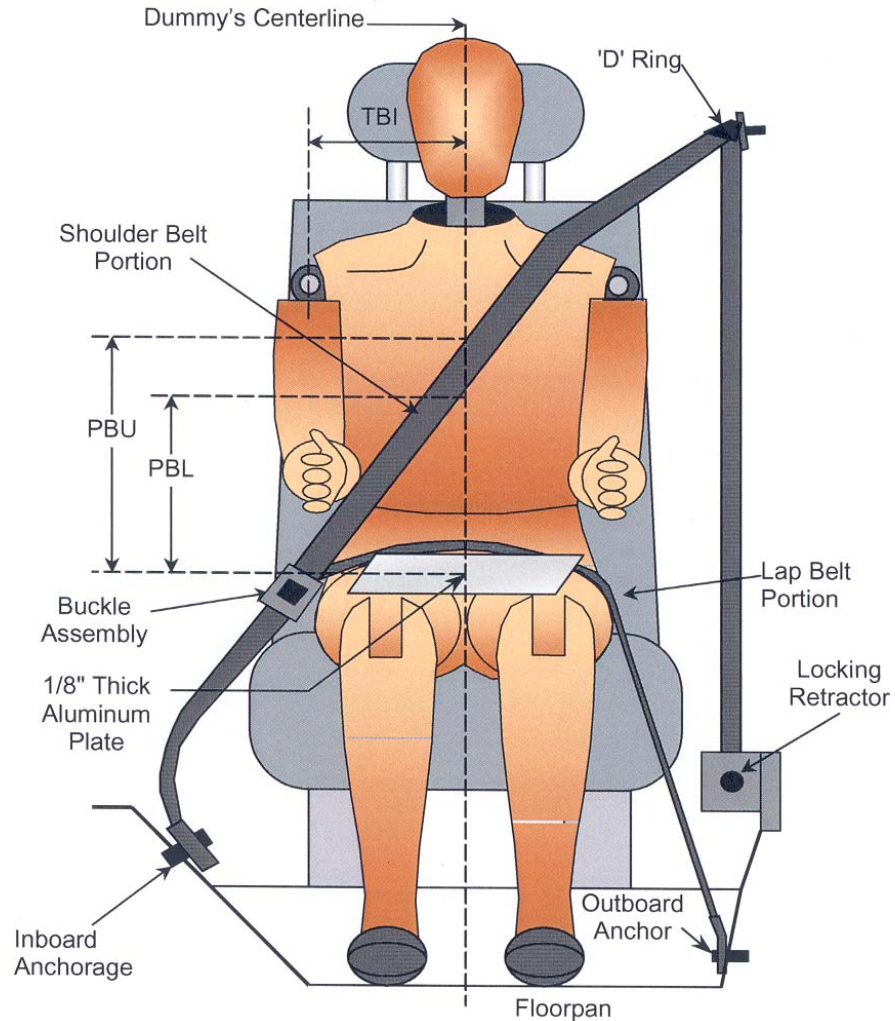
<sup>1</sup> A negative angle indicates the measurement point was above the striker.

**DATA SHEET NO. 12**

**BULLET VEHICLE SEAT BELT POSITIONING DATA**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



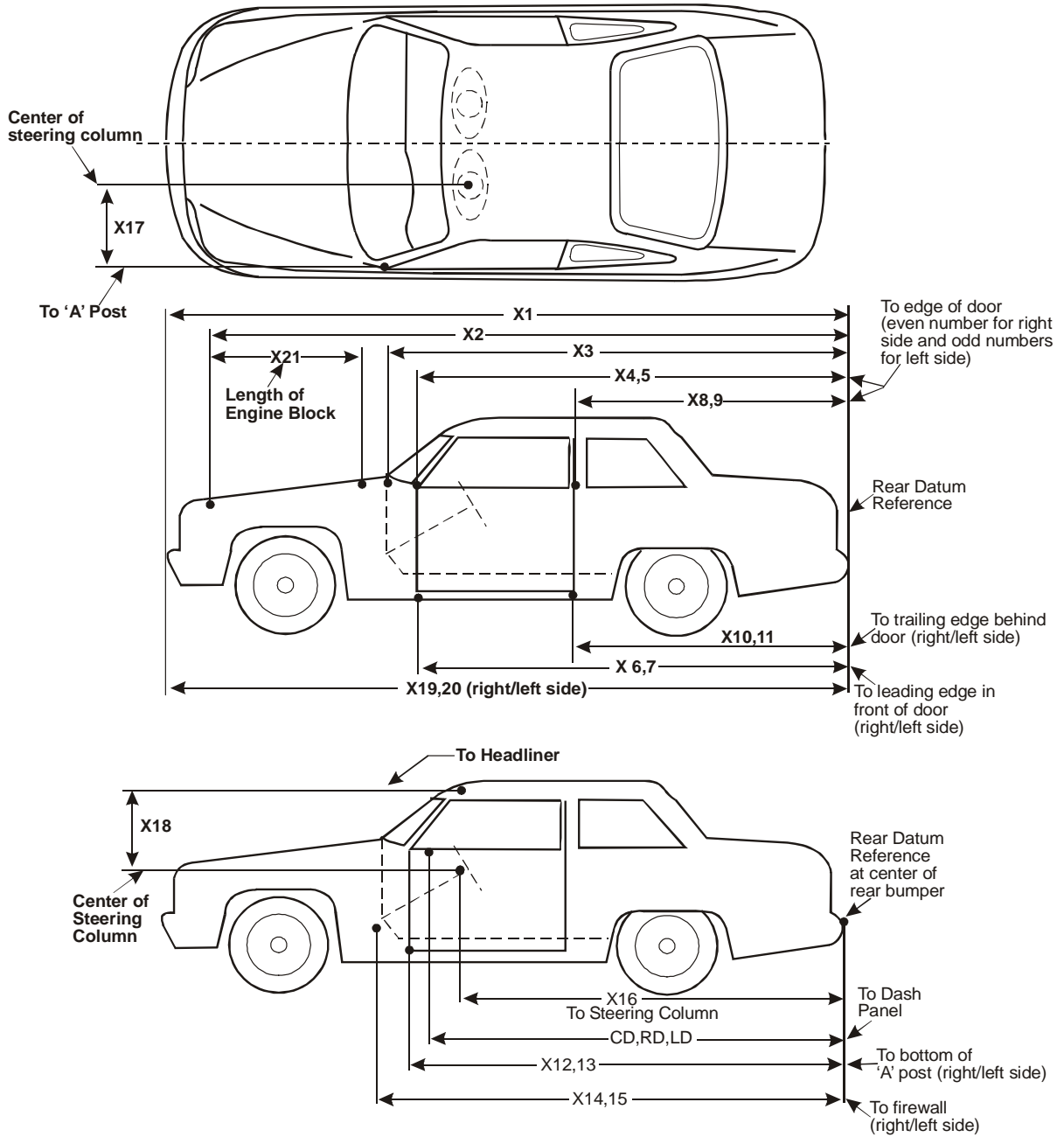
Measurement Parameter		Units	Driver S/N 206	Front Passenger S/N 329	Left Rear Passenger S/N 416
PBU	Top surface of aluminum plate to belt upper edge	mm	340	270	275
PBL	Top surface of aluminum plate to belt lower edge	mm	240	170	200
TBI	belt and lap belt	mm	190	170	170

# DATA SHEET NO. 13

## TARGET VEHICLE PROFILE MEASUREMENTS

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



**DATA SHEET NO. 13 (CONTINUED)**

**TARGET VEHICLE PROFILE MEASUREMENTS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

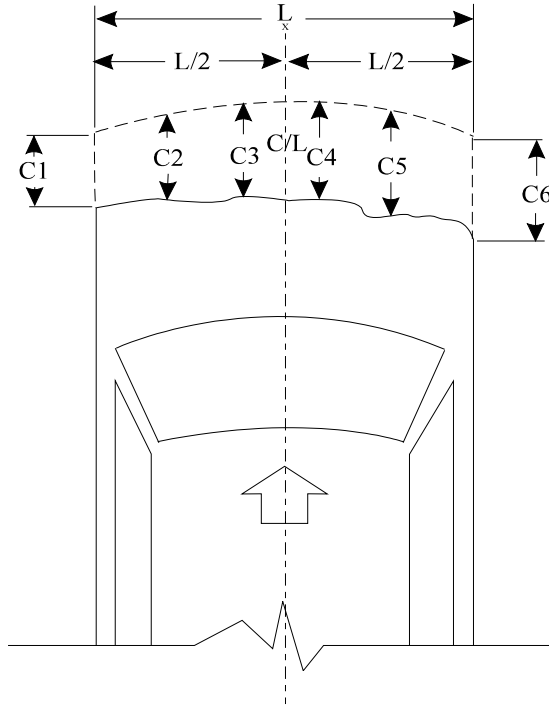
No.	Type of measurement	Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	5002	4494	508
X2	RSOV to Front of Engine Block	4397	4105	292
X3	RSOV to Firewall	3880	3405	475
X4	RSOV to Upper Leading Edge of Right Door	3447	3445	2
X5	RSOV to Upper Leading Edge of Left Door	3447	3170	277
X6	RSOV to Lower Leading Edge of Right Door	3402	3410	-8
X7	RSOV to Lower Leading Edge of Left Door	3404	3321	83
X8	RSOV to Upper Trailing Edge of Right Door	2422	2431	-9
X9	RSOV to Upper Trailing Edge of Left Door	2428	2370	58
X10	RSOV to Lower Trailing Edge of Right Door	2392	2395	-3
X11	RSOV to Lower Trailing Edge of Left Door	2390	2334	56
X12	RSOV to Bottom of " A " Post on Right Side	3427	3414	13
X13	RSOV to Bottom of " A " Post on Left Side	3422	3180	242
X14	RSOV to Firewall - Right Side	4056	4180	-124
X15	RSOV to Firewall - Left Side	4058	3445	613
X16	RSOV to Steering Wheel Center	3037	2840	197
X17	Center of Steering Column to " A " Post	290	395	-105
X18	Center of Steering Column to Headliner	400	440	-40
X19	RSOV to Right Side of Front Bumper	4831	4494	337
X20	RSOV to Left Side of Front Bumper	4833	3678	1155
X21	Length of Engine Block	400	400	0
RD	RSOV to Right Side of Dash Panel	3167	3175	-8
CD	RSOV to Center of Dash Panel	3222	3092	130
LD	RSOV to Left Side of Dash Panel	3162	2910	252
	Maximum Width	1850	1950	-100

All distance measurements are in millimeters.

**DATA SHEET NO. 14**  
**TARGET VEHICLE CRUSH**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



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

Vehicle: 2006 Ford Taurus SE  
Tape measured with bumper fascia in place:

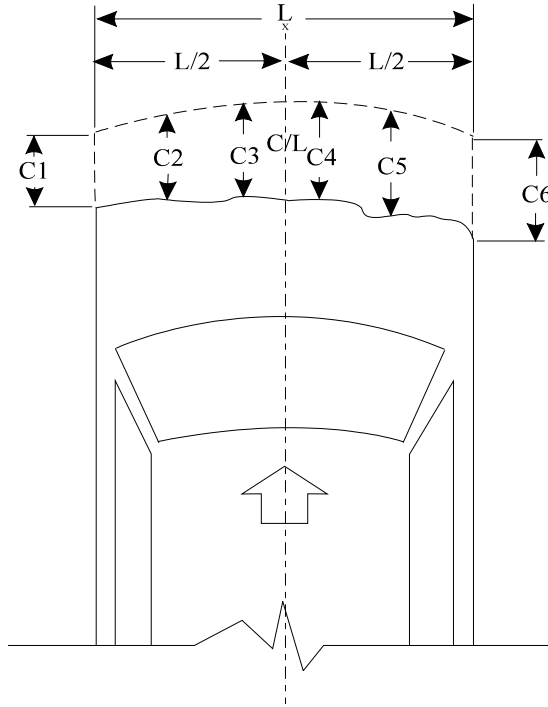
	Pre-test	Post-test	Difference	
L=	1524			mm
C1=	4833	4162	671	mm
C2=	4940	4237	703	mm
C3=	4997	4380	617	mm
C4=	4997	4561	436	mm
C5=	4947	4730	217	mm
C6=	4831	4486	345	mm
CL=	5002	4486	516	mm

**DATA SHEET NO. 14 (CONTINUED)**

**TARGET VEHICLE CRUSH**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



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

Vehicle: 2006 Ford Taurus SE  
 FARO measurements of bumper reinforcement:

	Pre-test	Post-test	Difference	
L=	1328			mm
C1=	4811	4206	605	mm
C2=	4881	4188	693	mm
C3=	4895	4387	508	mm
C4=	4896	4572	324	mm
C5=	4881	4745	136	mm
C6=	4808	4865	-57	mm
CL=	4928	4499	127	mm

## DATA SHEET NO. 14 (CONTINUED)

### TARGET VEHICLE CRUSH

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



#### LEFT SIDE VIEW

Measurements are taken with vehicle in the as tested condition.

All measurements below in mm.

#### MAXIMUM EXTERIOR STATIC CRUSH

Level	Measurement Description	Maximum Exterior Static Crush
5	Window Top	-58
4	Window Sill	278
3	Mid Door	-289
2	Occupant H-Point	-203
1	Sill Top	-10
	Maximum Crush	-289

**DATA SHEET NO. 14 (CONTINUED)**

**TARGET VEHICLE CRUSH**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

	Pre-Test					Post-Test					Difference						
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5		
100			-810					-563						-247			
200			-835					-567						-268			
300			-855					-566						-289			
400			-876					-621						-255			
500																	
600																	
700																	
800				-776						-636					-140		
900	-855			-801		---	1			-691		---	1		-110		
1000	-855			-823		---	1			-760		---	1		-63		
1100	-856	-903	-903	-838		---	1	-700	-717	-796		---	1	-203	-186	-42	
1200	-854	-903	-903	-847	-798	---	1	-786	-786	-817	-758	---	1	-117	-117	-30	-40
1300	-854	-911	-904	-851	-775	---	1	-837	-804	-830	-717	---	1	-74	-100	-21	-58
1400	-854	-914	-906	-858	-751	---	1	-893	-859	-897	-695	---	1	-21	-47	39	-56
1500	-854	-917	-907	-864	-724	-864	-969	-898	-949	-679	-10	52	-9	85	-45		
1600	-854	-920	-909	-871	-695	-861	-944	-989	-1029	-660	-7	24	80	158	-35		
1700	-853	-922	-911	-876	-664	-858	-975	-1038	-1105	-640	-5	53	127	229	-24		
1800	-852	-924	-913	-881	-629	-856	-1020	-1070	-1159	-613	-4	96	157	278	-16		
1900	-851	-925	-915	-885	-599	-853	-1063	-1103	-1128	-585	-2	138	188	243	-14		
2000	-849	-925	-916	-889	-583	-851	-1059	-1076	-1091	-557	-2	134	160	202	-26		
2100	-848	-925	-916	-893	-575	-849	-1042	-1054	-1051	-538	-1	117	138	158	-37		
2200	-848	-926	-917	-896	-571	-847	-1025	-1031	-1010	-523	1	99	114	114	-48		
2300		-927	-919	-898	-570		-1009	-1005	-959	-515		82	86	61	-55		
2400		-926	-917	-897	-570		-927	-917	-888	-526		1	0	-9	-44		
2500		-926	-917	-898	-572		-930	-919	-892	-532		4	2	-6	-40		
2600		-926	-917	-899	-574		-933	-922	-896	-540		7	5	-3	-34		
2700		-926	-917	-899	-579		-935	-925	-899	-551		9	8	0	-28		
2800		-925	-917	-899	-584		-937	-928	-902	-562		12	11	3	-22		
2900		-924	-918	-900	-593		-938	-930	-904	-577		14	12	4	-16		
3000		-923	-919	-899	-605		-940	-933	-906	-593		17	14	7	-12		
3100		-921	-919	-898	-618		-939	-936	-907	-611		18	17	9	-7		
3200		-917	-921	-897	-637		-923	-926	-907	-634		6	5	10	-3		
3300				-895	-659				-907	-659					12	0	

Reference plane is parallel to test vehicle longitudinal centerline.

Given measurements = Reference plane to car body

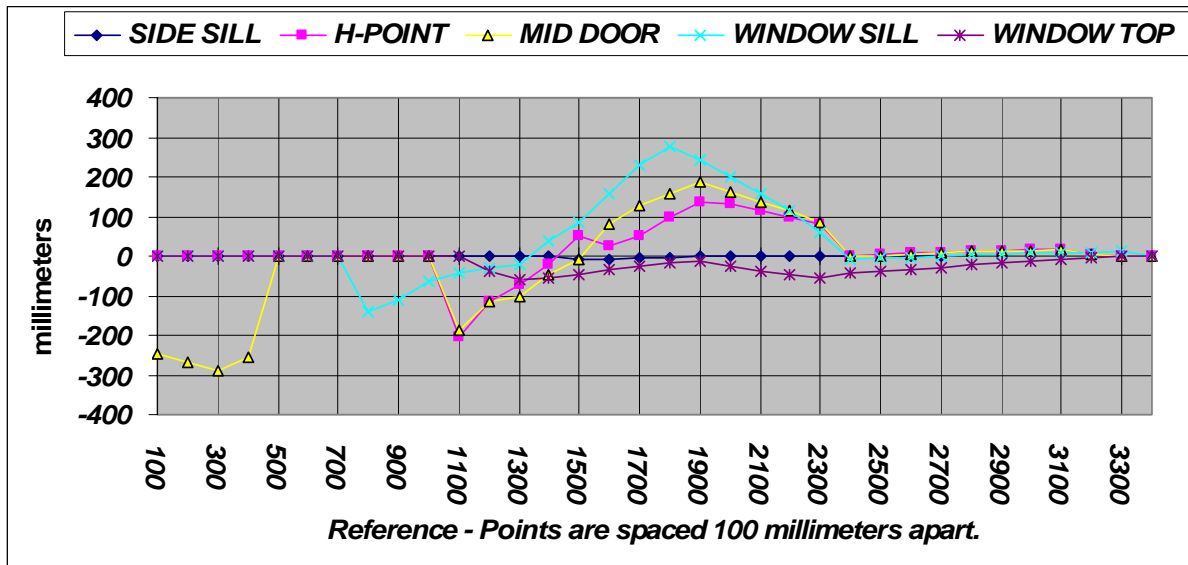
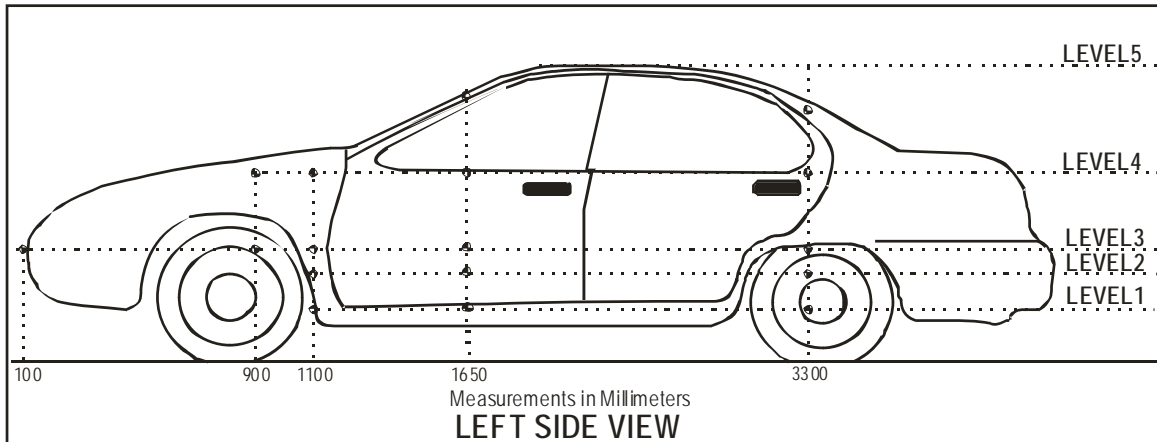
<sup>1</sup>Missing Points

**DATA SHEET NO. 14 (CONTINUED)**

**TARGET VEHICLE CRUSH**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



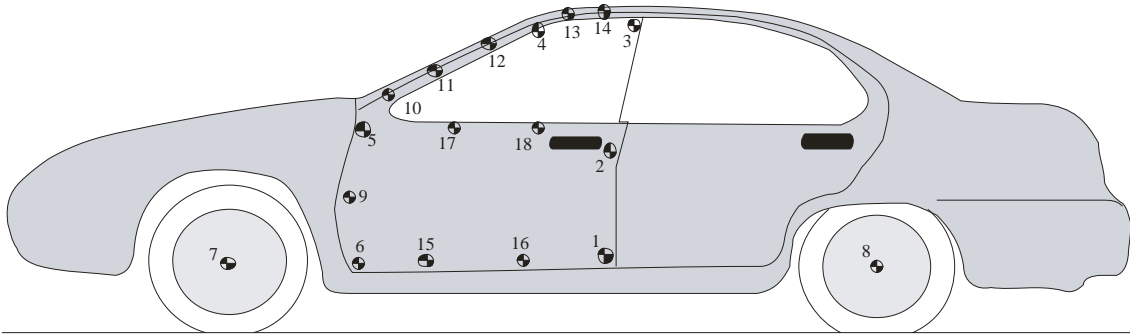
Side Crush data was collected at five levels; Window Top, Window Sill, Mid Door, Hip Point, and Side Sill, in increments of 100 mm. Point one of the grid is the forward-most point on the vehicle at the Mid Door height. The FARO origin (0, 0, and 0) is defined as the rearward most point along the centerline of the vehicle. The coordinate system conforms to SAE J211.

**DATA SHEET NO. 15**

**TARGET VEHICLE INTRUSION MEASUREMENTS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



LEFT SIDE VIEW

	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2535	-817	256	2523	-822	266	12	5	-10
2	2454	-807	-245	2436	-797	-235	18	-10	-10
3	2355	-586	-738	2353	-558	-724	2	-28	-14
4	2883	-612	-682	2785	-596	-949	98	-16	267
5	3415	-784	-303	3134	-723	-382	281	-61	79
6	3379	-808	241	3270	-772	138	109	-36	103
Front Axle 7	3970	-877	277	3664	-782	37	306	-95	240
Rear Axle 8	1220	-879	262	1213	-879	193	7	0	69
9	3406	-792	-45	3151	-722	-124	255	-70	79
10	3445	-790	-330	3163	-735	-406	282	-55	76
11	3283	-725	-464	3043	-673	-567	240	-52	103
12	3075	-667	-587	2916	-633	-775	159	-34	188
13	2708	-579	-731	2643	-557	-956	65	-22	225
14	2531	-568	-753	2500	-545	-850	31	-23	97
15	3127	-808	294	3107	-797	235	20	-11	59
16	2832	-809	292	2813	-808	270	19	-1	21
17	3014	-847	-339	2873	-1121	-364	141	274	25
18	2668	-858	-345	2572	-1051	-333	96	193	-12

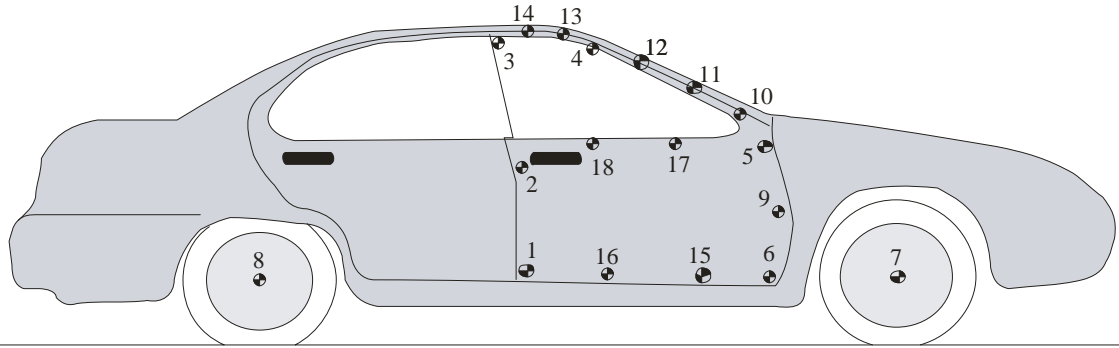
Units (mm)	(7-8) = Wheelbase Left
Pre-Test	2750
Post-Test	2451
Difference	299

**DATA SHEET NO. 15 (CONTINUED)**

**TARGET VEHICLE INTRUSION MEASUREMENTS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



RIGHT SIDE VIEW

	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2509	803	236	2516	804	179	-7	-1	57
2	2456	797	-237	2452	797	-292	4	0	55
3	2357	584	-733	2338	581	-783	19	3	50
4	2897	611	-668	2880	598	-738	17	12	70
5	3418	772	-290	3397	818	-383	21	-46	93
6	3364	793	272	3369	822	182	-5	-29	90
Front Axle 7	3972	859	287	4046	850	128	-74	9	159
Rear Axle 8	1220	873	272	1236	872	308	-16	1	-36
9	3409	775	-51	3400	815	-143	9	-40	92
10	3452	782	-305	3432	830	-401	20	-48	96
11	3277	712	-457	3257	744	-546	20	-32	89
12	3090	665	-570	3072	673	-648	18	-8	78
13	2733	581	-721	2714	574	-783	19	-7	62
14	2514	567	-751	2493	564	-806	21	-3	55
15	3094	793	304	3100	810	225	-6	-17	79
16	2793	795	302	2798	800	238	-5	-5	64
17	2995	838	-330	2980	880	-411	15	-42	81
18	2663	850	-338	2647	880	-404	16	-30	66

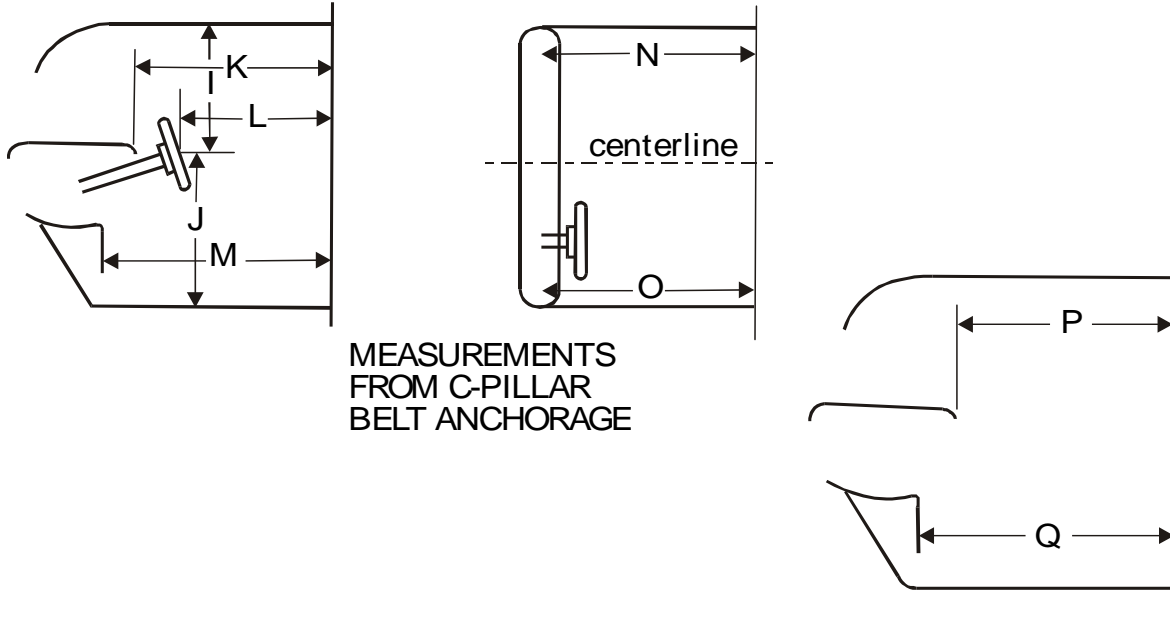
Units (mm)	(7-8) = Wheelbase Right
Pre-Test	2752
Post-Test	2810
Difference	-58

**DATA SHEET NO. 15 (CONTINUED)**

**TARGET VEHICLE INTRUSION MEASUREMENTS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



MEASUREMENTS FROM C-PILLAR BELT ANCHORAGE

**STATIC PASSENGER COMPARTMENT INTRUSION**

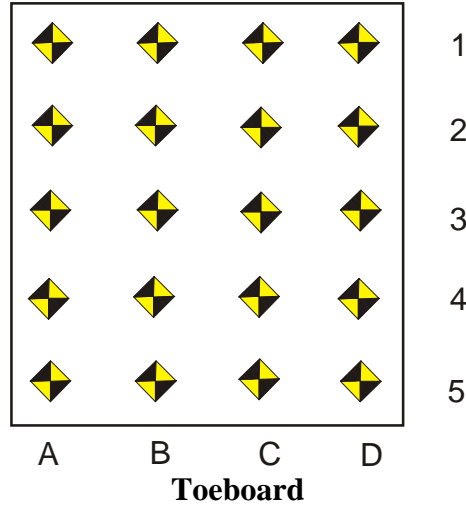
Measurement	Pre-Test	Post-Test	Difference
I	430	440	-10
J	700	725	-25
K	1862	1595	267
L	1690	1565	125
M	1955	1545	410
N	1850	1780	70
O	1905	1704	201
P = K (Pass.)	1870	1860	10
Q = M (Pass.)	1960	1936	24

**DATA SHEET NO. 15 (CONTINUED)**

**TARGET VEHICLE INTRUSION MEASUREMENTS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



**DRIVER'S SIDE TOEBOARD MEASUREMENTS**

Intrusion Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3540	-583	247	3348	-511	127	192	-72	120
B1	3626	-452	276	3453	-389	124	173	-63	152
C1	3620	-310	274	3472	-249	139	148	-61	135
D1	3623	-180	279	3498	-122	158	125	-58	121
A2	3510	-588	299	3345	-520	186	165	-68	113
B2	3570	-455	316	3420	-394	182	150	-61	134
C2	3556	-312	319	3427	-249	203	129	-63	116
D2	3560	-179	326	3457	-120	222	103	-59	104
A3	3473	-600	354	3332	-537	249	141	-63	105
B3	3481	-457	367	3357	-395	264	124	-62	103
C3	3476	-318	370	3365	-257	276	111	-61	94
D3	3485	-174	365	3385	-114	265	100	-60	100
A4	3224	-601	361	3109	-495	338	115	-106	23
B4	3225	-452	373	3150	-381	353	75	-71	20
C4	3235	-298	369	3152	-246	311	83	-52	58
D4	3218	-216	369	3134	-203	245	84	-13	124
A5	3005	-626	343	2934	-549	371	71	-77	-28
B5	2988	-459	363	2922	-426	302	66	-33	61
C5	3041	-292	346	2975	-270	245	66	-22	101
D5	3077	-251	357	3007	-231	243	70	-20	114

All measurements are in millimeters.

**DATA SHEET NO. 15 (CONTINUED)**

**TARGET VEHICLE INTRUSION MEASUREMENTS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

**DRIVER'S SIDE**

Intrusion Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
Front Outboard Seat Bolt	2925	-571	310	2900	-564	266	25	-7	44
Steering Center	2987	-367	-297	2805	-229	-523	182	-138	226
Left Knee Bolster	3235	-518	-94	2997	-445	-200	238	-73	106
Right Knee Bolster	3222	-215	-91	3050	-149	-191	172	-66	100
Accelerator Pedal	3551	-179	177	---- <sup>1</sup>	---- <sup>1</sup>	---- <sup>1</sup>	N/A	N/A	N/A
Brake Pedal	3491	-338	158	3261	-353	41	230	15	117
Footrest	3495	-576	207	3287	-499	113	208	-77	94
Parking Brake	3349	-627	94	3093	-583	28	256	-44	66
IIHS Toepan Right	3680	-196	164	3490	-122	40	190	-74	124
IIHS Toepan Center	3690	-345	161	3448	-263	18	242	-82	143
IIHS Toepan Left	3620	-499	162	3361	-406	38	259	-93	124
IIHS Footrest	3542	-598	162	3300	-514	56	242	-84	106

All measurements are in millimeters.

<sup>1</sup> Measurement not available.

**DATA SHEET NO. 15 (CONTINUED)**

**TARGET VEHICLE INTRUSION MEASUREMENTS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

**PASSENGER'S SIDE TOEBOARD**

Intrusion Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3579	192	285	3560	219	180	19	-27	105
B1	3581	293	284	3576	321	185	5	-28	99
C1	3598	421	287	3585	450	176	13	-29	111
D1	3554	558	268	3555	589	162	-1	-31	106
A2	3524	192	324	3521	212	233	3	-20	91
B2	3531	296	321	3533	324	228	-2	-28	93
C2	3539	426	327	3529	458	219	10	-32	108
D2	3527	567	320	3529	595	215	-2	-28	105
A3	3462	197	369	3466	222	286	-4	-25	83
B3	3468	305	370	3480	323	284	-12	-18	86
C3	3463	434	370	3469	462	272	-6	-28	98
D3	3470	570	359	3473	597	256	-3	-27	103
A4	3266	189	367	3278	205	254	-12	-16	113
B4	3256	301	375	3268	325	271	-12	-24	104
C4	3245	422	377	3253	439	282	-8	-17	95
D4	3242	575	368	3254	586	219	-12	-11	149
A5	3050	243	351	3066	251	280	-16	-8	71
B5	3013	312	371	3032	324	293	-19	-12	78
C5	3028	427	377	3041	430	283	-13	-3	94
D5	3044	584	355	3056	588	260	-12	-4	95

All measurements are in millimeters.

**DATA SHEET NO. 15 (CONTINUED)**

**TARGET VEHICLE INTRUSION MEASUREMENTS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

**BUMPER MEASUREMENTS  
(without fascia)**

Index	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	4808	657	129	4865	432	-192	-57	225	321
2	4865	538	129	4825	307	-188	40	231	317
3	4881	403	127	4745	198	-173	136	205	300
4	4890	267	126	4659	93	-155	231	174	281
5	4896	130	125	4572	-10	-137	324	140	262
6	4928	-10	123	4499	-133	-127	429	123	250
7	4895	-145	122	4387	-209	-95	508	64	217
8	4890	-282	122	4290	-305	-70	600	23	192
9	4881	-416	121	4188	-394	-45	693	-22	166
10	4867	-552	120	4287	-517	-119	580	-35	239
11	4811	-671	118	4206	-595	-115	605	-76	233

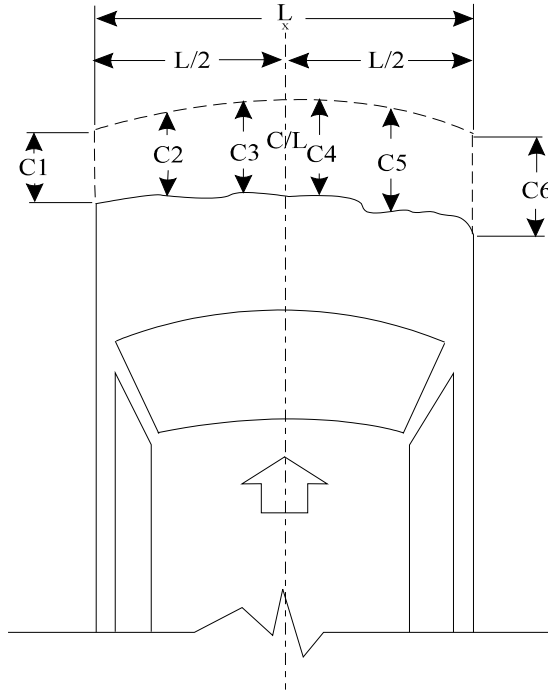
All measurements are in millimeters.

Point 1 is on the passenger side of the bumper.

**DATA SHEET NO. 16**  
**BULLET VEHICLE CRUSH**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



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

Vehicle: 2006 Ford Taurus SE  
Tape measured with bumper fascia in place:

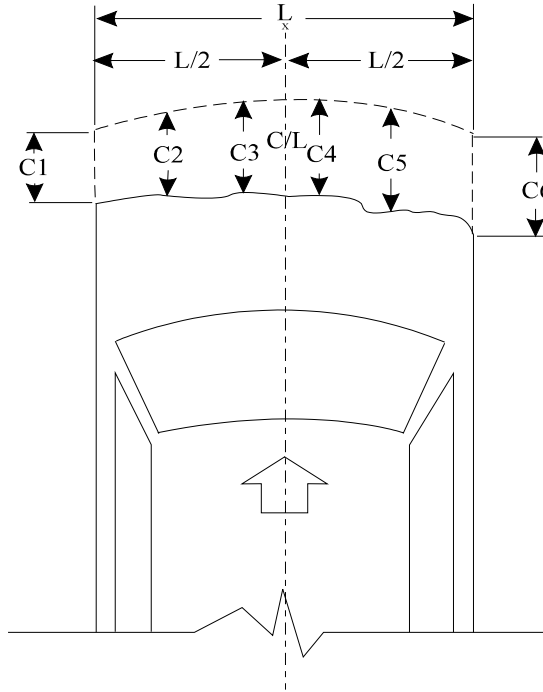
	Pre-test	Post-test	Difference
L=	1524		
C1=	4818	4118	700
C2=	4938	4238	700
C3=	4993	4333	660
C4=	4994	4518	476
C5=	4942	4651	291
C6=	4814	4803	11
CL=	5013	4451	562

**DATA SHEET NO. 16 (CONTINUED)**

**BULLET VEHICLE CRUSH**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



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

Vehicle: 2006 Ford Taurus SE  
 FARO measurements of bumper reinforcement:

	Pre-test	Post-test	Difference
L=	1331		
C1=	4809	4193	616
C2=	4879	4231	648
C3=	4895	4332	563
C4=	4895	4521	374
C5=	4879	4693	186
C6=	4806	4807	-1
CL=	4928	4452	476

**DATA SHEET NO. 16 (CONTINUED)**

**BULLET VEHICLE CRUSH**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



**LEFT SIDE VIEW**

Measurements are taken with vehicle in the as tested condition.

All measurements below in mm.

**MAXIMUM EXTERIOR STATIC CRUSH**

Level	Measurement Description	Maximum Exterior Static Crush
5	Window Top	39
4	Window Sill	90
3	Mid Door	102
2	Occupant H-Point	66
1	Sill Top	-56
	Maximum Crush	102

**DATA SHEET NO. 16 (CONTINUED)**

**BULLET VEHICLE CRUSH**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
100			-809					-911					102		
200			-832					-885					53		
300			-851					-858					7		
400			-872					-833					-39		
500															
600															
700															
800															
900				-777					-752					-25	
1000				-803					-804					1	
1100		-907	-905	-820			-866	-863	-841			-41	-42	21	
1200	-857	-902	-902	-831	-810	-828	-889	-884	-846	-823	29	-13	-18	15	13
1300	-845	-911	-904	-842	-784	-901	-950	-955	-900	-793	-56	39	51	58	9
1400	-848	-914	-906	-850	-754	-902	-959	-962	-913	-761	-54	45	56	63	7
1500	-849	-917	-909	-859	-729	-890	-961	-962	-925	-734	-41	44	53	66	5
1600	-850	-919	-911	-867	-701	-880	-963	-964	-937	-705	-30	44	53	70	4
1700	-851	-921	-913	-874	-671	-872	-966	-966	-948	-673	-21	45	53	74	2
1800	-852	-922	-914	-879	-637	-865	-970	-970	-957	-638	-13	48	56	78	1
1900	-853	-922	-916	-884	-615	-860	-972	-974	-966	-615	-7	50	58	82	0
2000	-854	-924	-918	-888	-600	-857	-978	-979	-974	-593	-3	54	61	86	-7
2100	-854	-926	-920	-892	-593	-856	-984	-984	-980	-576	-2	58	64	88	-17
2200	-854	-928	-922	-895	-590	-854	-991	-990	-985	-562	0	63	68	90	-28
2300	-854	-930	-924	-897	-590	-852	-996	-995	-987	-552	2	66	71	90	-38
2400	-854	-929	-923	-898	-589	-847	-914	-906	-876	-550	7	-15	-17	-22	-39
2500	-853	-929	-923	-899	-592	-846	-917	-909	-880	-561	7	-12	-14	-19	-31
2600	-852	-929	-923	-900	-592	-845	-920	-912	-883	-565	7	-9	-11	-17	-27
2700	-851	-928	-923	-901	-596	-844	-922	-915	-887	-574	7	-6	-8	-14	-22
2800	-850	-928	-923	-902	-602	-844	-924	-918	-890	-585	6	-4	-5	-12	-17
2900	-849	-927	-924	-902	-612	-843	-926	-920	-893	-599	6	-1	-4	-9	-13
3000	-848	-926	-924	-902	-622	-843	-928	-923	-895	-614	5	2	-1	-7	-8
3100	-846	-925	-923	-901	-635	-843	-928	-925	-897	-630	3	3	2	-4	-5
3200		-922	-927	-899	-652		-920	-925	-899	-649		-2	-2	0	-3
3300				-898	-675				-900	-674				2	-1

Reference plane is parallel to test vehicle longitudinal centerline.

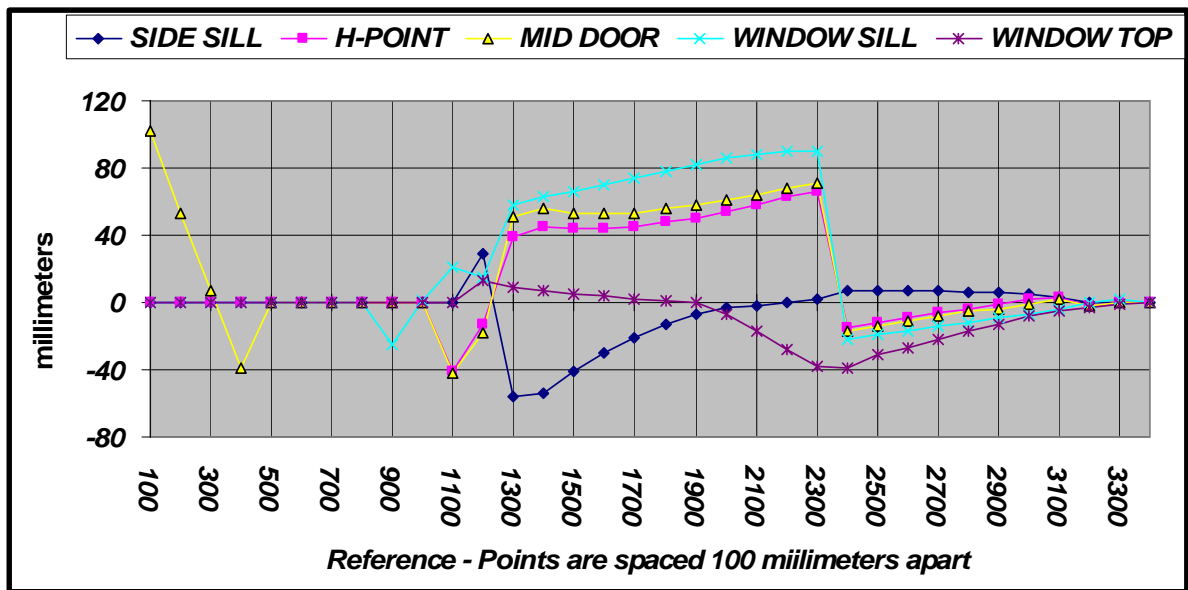
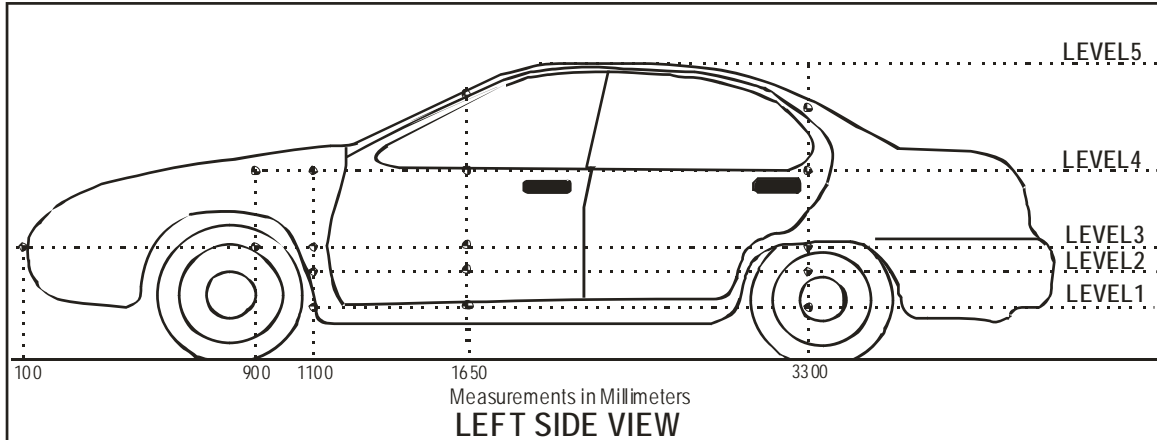
Given measurements = Reference plane to car body

**DATA SHEET NO. 16 (CONTINUED)**

**BULLET VEHICLE CRUSH**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



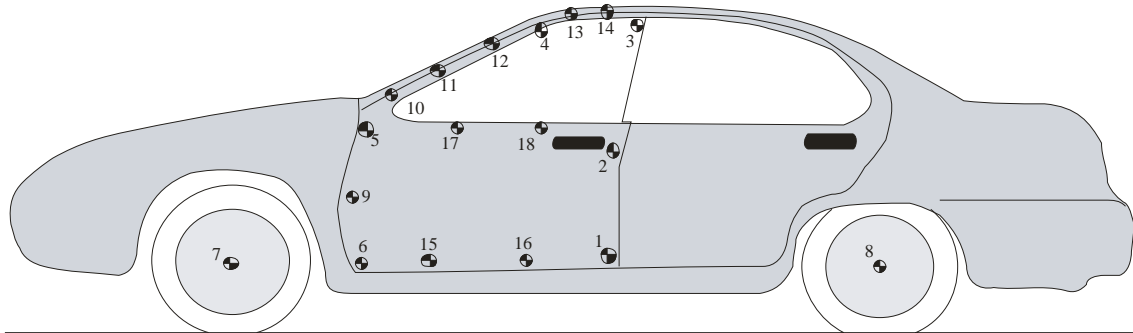
Side Crush data was collected at five levels; Window Top, Window Sill, Mid Door, Hip Point, and Side Sill, in increments of 100 mm. Point one of the grid is the forward-most point on the vehicle at the Mid Door height. The FARO origin (0, 0, and 0) is defined as the rearward most point along the centerline of the vehicle. The coordinate system conforms to SAE J211.

**DATA SHEET NO. 17**

**BULLET VEHICLE INTRUSION MEASUREMENTS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



LEFT SIDE VIEW

	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2514	-816	251	2503	-808	254	11	-8	-3
2	2457	-807	-227	2449	-786	-224	8	-21	-3
3	2362	-587	-728	2360	-556	-721	2	-31	-7
4	2886	-615	-666	2872	-614	-751	14	-1	85
5	3416	-783	-286	3346	-795	-305	70	12	19
6	3386	-809	251	3318	-838	234	68	29	17
Front Axle 7	3968	-882	297	3753	-783	292	215	-99	5
Rear Axle 8	1216	-889	282	1215	-872	286	1	-17	-4
9	3407	-787	-29	3321	-807	-49	86	20	20
10	3450	-794	-305	3381	-805	-322	69	11	17
11	3270	-723	-455	3218	-730	-491	52	7	36
12	3094	-675	-560	3060	-679	-619	34	4	59
13	2705	-584	-717	2699	-573	-784	6	-11	67
14	2498	-573	-743	2492	-553	-764	6	-20	21
15	3120	-806	311	3103	-810	305	17	4	6
16	2847	-808	309	2831	-808	294	16	0	15
17	3017	-845	-322	2952	-921	-332	65	76	10
18	2703	-856	-329	2638	-947	-334	65	91	5

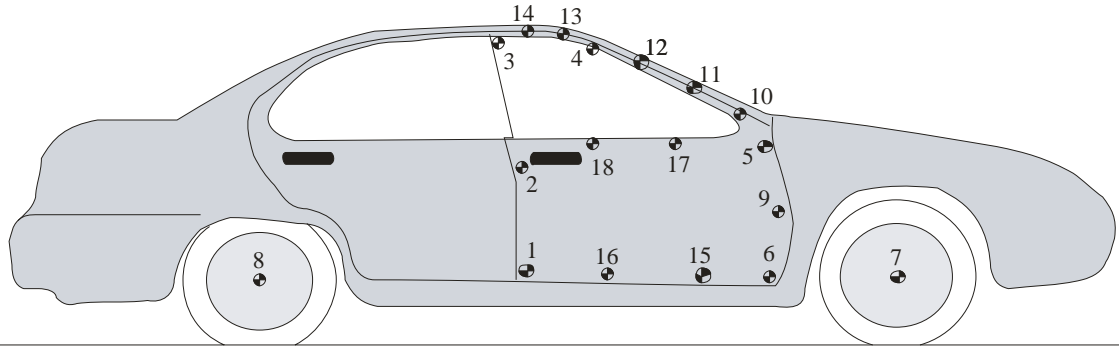
Units (mm)	(7-8) = Wheelbase Left
Pre-Test	2753
Post-Test	2539
Difference	214

**DATA SHEET NO. 17 (CONTINUED)**

**BULLET VEHICLE INTRUSION MEASUREMENTS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



RIGHT SIDE VIEW

	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	2540	807	270	2543	809	253	-3	2	17
2	2455	795	-241	2455	792	-257	0	3	16
3	2360	575	-732	2354	571	-747	6	4	15
4	2889	605	-670	2884	598	-691	5	7	21
5	3404	758	-323	3405	749	-351	-1	9	28
6	3383	802	249	3387	805	221	-4	-3	28
Front Axle 7	3966	872	291	3988	827	268	-22	45	23
Rear Axle 8	1213	881	278	1220	860	302	-7	21	-24
9	3406	774	-33	3409	774	-60	-3	0	27
10	3452	781	-306	3453	775	-333	-1	6	27
11	3285	712	-450	3285	706	-474	0	6	24
12	3097	661	-563	3095	656	-585	2	5	22
13	2724	569	-719	2720	568	-737	4	1	18
14	2501	555	-748	2497	556	-764	4	-1	16
15	3104	797	305	3108	805	282	-4	-8	23
16	2813	798	302	2815	804	283	-2	-6	19
17	3015	831	-327	3015	827	-349	0	4	22
18	2689	843	-336	2691	841	-355	-2	2	19

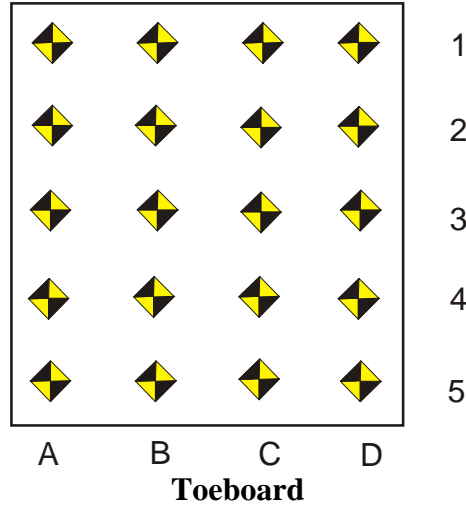
Units (mm)	(7-8) = Wheelbase Right
Pre-Test	2753
Post-Test	2768
Difference	-15

**DATA SHEET NO. 17 (CONTINUED)**

**BULLET VEHICLE INTRUSION MEASUREMENTS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



**DRIVER'S SIDE TOEBOARD MEASUREMENTS**

Intrusion Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3537	-578	268	3394	-573	220	143	-5	48
B1	3631	-435	283	3469	-422	215	162	-13	68
C1	3628	-299	283	3460	-285	219	168	-14	64
D1	3611	-158	291	3460	-148	247	151	-10	44
A2	3509	-578	317	3377	-573	273	132	-5	44
B2	3567	-446	331	3421	-435	277	146	-11	54
C2	3564	-302	326	3411	-291	278	153	-11	48
D2	3553	-157	340	3421	-151	313	132	-6	27
A3	3474	-578	372	3340	-570	324	134	-8	48
B3	3469	-443	383	3350	-438	365	119	-5	18
C3	3471	-305	384	3346	-300	367	125	-5	17
D3	3469	-170	383	3343	-169	360	126	-1	23
A4	3224	-602	383	3206	-599	437	18	-3	-54
B4	3222	-465	384	3188	-470	494	34	5	-110
C4	3213	-303	387	3179	-327	439	34	24	-52
D4	3217	-207	381	3177	-234	416	40	27	-35
A5	2996	-617	363	2985	-623	387	11	6	-24
B5	2980	-475	378	2957	-484	416	23	9	-38
C5	2980	-324	382	2950	-335	429	30	11	-47
D5	3050	-256	361	3020	-273	409	30	17	-48

All measurements are in millimeters

**DATA SHEET NO. 17 (CONTINUED)**

**BULLET VEHICLE INTRUSION MEASUREMENTS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

**DRIVER'S SIDE**

Intrusion Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
Front Outboard Seat Bolt	2920	-567	327	2915	-578	348	5	11	-21
Steering Center	2983	-365	-283	2907	-408	-379	76	43	96
Left Knee Bolster	3235	-516	-77	3147	-522	-124	88	6	47
Right Knee Bolster	3220	-214	-76	3155	-220	-117	65	6	41
Accelerator Pedal	3546	-168	190	3389	-114	147	157	-54	43
Brake Pedal	3485	-331	178	3387	-400	135	98	-69	43
Footrest	3494	-569	220	3343	-570	180	151	1	40
Parking Brake	3348	-623	114	3220	-653	66	128	30	48
IIHS Toepan Right	3677	-179	178	3472	-160	112	205	-19	66
IIHS Toepan Center	3684	-347	161	3474	-327	84	210	-20	77
IIHS Toepan Left	3617	-483	176	3428	-471	114	189	-12	62
IIHS Footrest	3542	-580	178	3381	-582	130	161	2	48

All measurements are in millimeters.

**DATA SHEET NO. 17 (CONTINUED)**

**BULLET VEHICLE INTRUSION MEASUREMENTS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

**PASSENGER'S SIDE TOEBOARD**

Intrusion Location	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
A1	3604	223	290	3548	223	263	56	0	27
B1	3596	342	284	3564	339	265	32	3	19
C1	3582	451	293	3551	444	267	31	7	26
D1	3544	578	274	3531	579	245	13	-1	29
A2	3543	224	334	3504	230	323	39	-6	11
B2	3538	339	327	3511	345	317	27	-6	10
C2	3531	449	329	3507	450	310	24	-1	19
D2	3524	580	320	3513	581	290	11	-1	30
A3	3462	227	381	3440	240	394	22	-13	-13
B3	3467	346	379	3449	357	381	18	-11	-2
C3	3471	457	379	3459	468	368	12	-11	11
D3	3481	591	369	3475	596	341	6	-5	28
A4	3237	201	379	3234	225	450	3	-24	-71
B4	3236	319	384	3233	341	434	3	-22	-50
C4	3232	451	380	3229	471	413	3	-20	-33
D4	3234	593	377	3237	602	355	-3	-9	22
A5	3090	217	378	3087	237	428	3	-20	-50
B5	3006	309	375	3007	325	405	-1	-16	-30
C5	3007	435	380	3005	450	397	2	-15	-17
D5	3013	594	361	3016	603	348	-3	-9	13

All measurements are in millimeters.

**DATA SHEET NO. 17 (CONTINUED)**

**BULLET VEHICLE INTRUSION MEASUREMENTS**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

**BUMPER MEASUREMENTS  
(without fascia)**

Index	Pre-Test			Post-Test			Difference		
	X	Y	Z	X	Y	Z	X	Y	Z
1	4806	662	144	4807	381	50	1	-281	-94
2	4864	543	146	4772	253	46	-92	-290	-100
3	4879	408	148	4693	144	41	-186	-264	-107
4	4889	273	149	4609	38	35	-280	-235	-114
5	4895	137	150	4521	-66	30	-374	-203	-120
6	4928	2	151	4452	-187	28	-476	-189	-123
7	4895	-140	151	4332	-270	20	-563	-130	-131
8	4890	-267	151	4245	-361	17	-645	-94	-134
9	4879	-413	153	4231	-567	6	-648	-154	-147
10	4865	-548	152	4274	-678	38	-591	-130	-114
11	4809	-668	151	4193	-774	70	-616	-106	-81

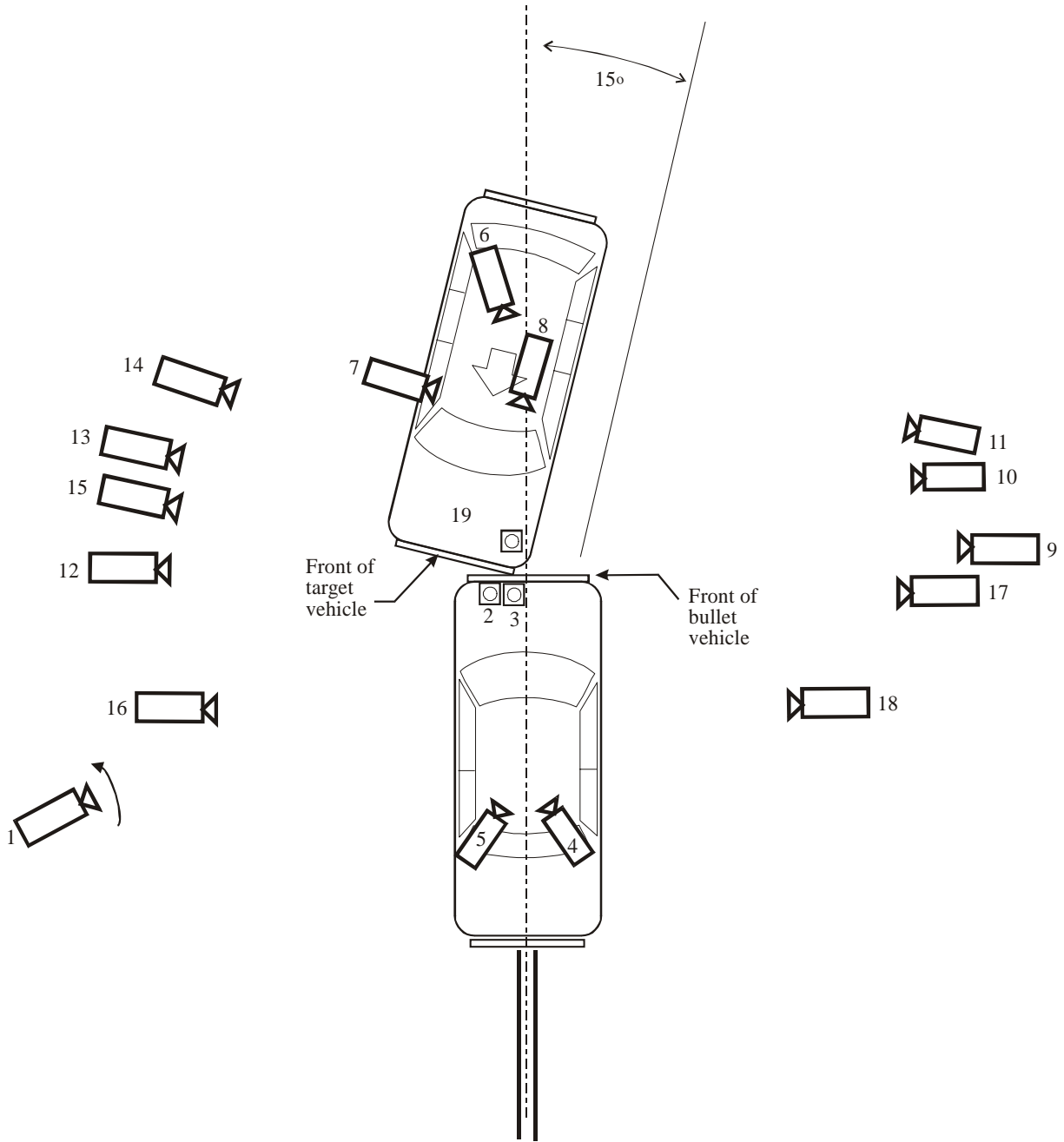
All measurements are in millimeters.

Point 1 is 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: 10/20/09



**DATA SHEET NO. 18 (CONTINUED)**

**CAMERA LOCATIONS AND DATA**

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

Ref.	Description / Location	Type	Len (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	50	1000
4	Bullet Onboard Driver Over shoulder	Redlake-LE	8.5	1000
5	Bullet Onboard Passenger Over shoulder	Redlake-LE	8.5	1000
6	Target Onboard Driver Over shoulder	Redlake-LE	8.5	1000
7	Target Onboard Driver	Redlake-LE	8.5	1000
8	Target Onboard Driver Footwell	VRTC		1000
9 <sup>1</sup>	Left Wide Bullet Vehicle/Target Vehicle at T-0	Redlake-LE	8.5	1000
10 <sup>1</sup>	Left Side Tight Target Vehicle B-Pillar to Bullet Vehicle	Redlake-LE	25	1000
11	Left Tight Target Driver to IP/Airbag Contact	Visario-G2	12.5	1000
12	Right Wide Target Vehicle/Bullet Vehicle at T-0	Visario-G1	16	1000
13	Right Side Tight Target Vehicle B-Pillar to Bullet Tight	Visario-G2	25	1000
14	Right Tight Target Passenger to IP/Airbag Contact	Visario-G1	50	1000
15	Left Side Tight Bullet Vehicle B-Pillar to Target Vehicle	Visario-G1	25	1000
16	Left Tight Bullet Driver to IP/Airbag Contact	Visario-G2	50	1000
17 <sup>1</sup>	Right Side Tight Bullet Vehicle B-Pillar to Target Tight	Redlake-LE	12.5	1000
18 <sup>1</sup>	Right Tight Bullet Passenger to IP/Airbag Contact	Redlake-LE	12.5	1000
19	Pit Wide	Redlake-LE	12.5	1000

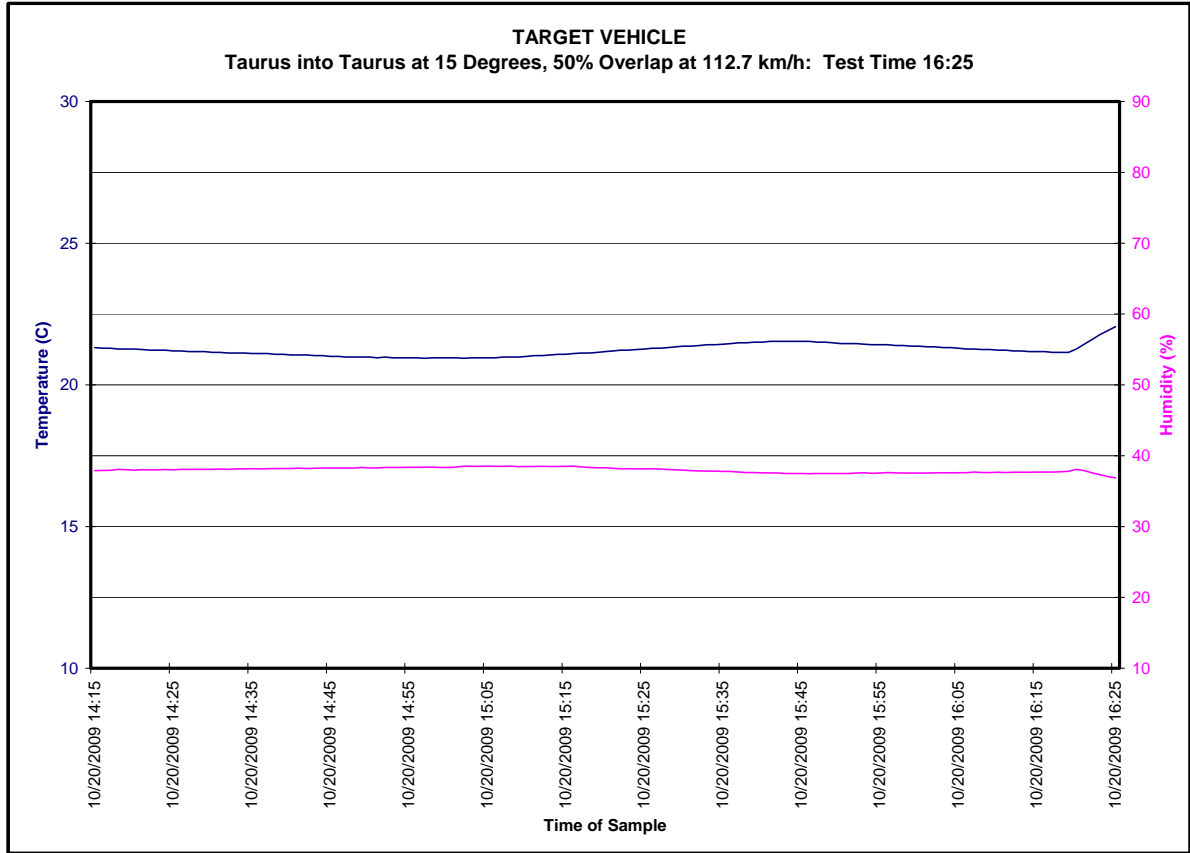
<sup>1</sup> Camera view triggered early. There is no usable video from these camera locations.

# DATA SHEET NO. 19

## TARGET DUMMY / VEHICLE TEMPERATURE STABILIZATION

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09

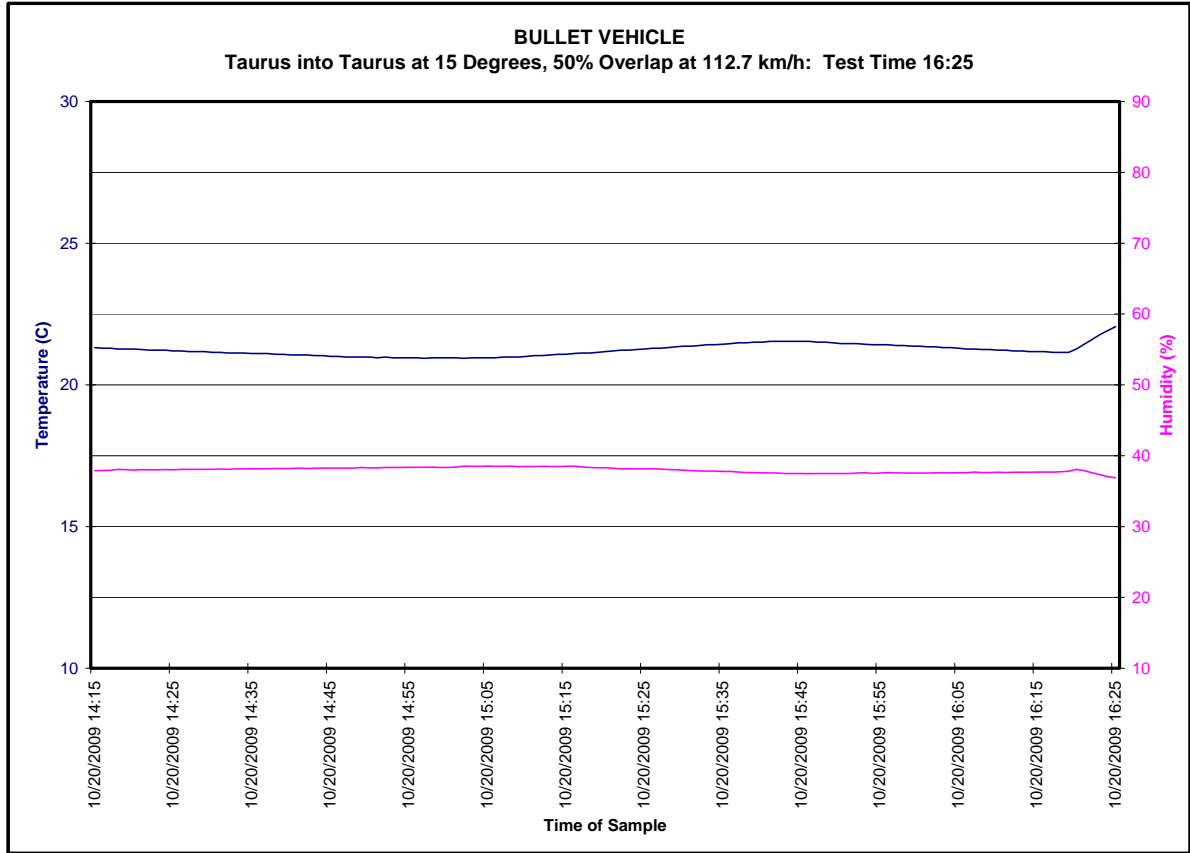


# DATA SHEET NO. 20

## BULLET DUMMY / VEHICLE TEMPERATURE STABILIZATION

Test Program: Vehicle to Vehicle Frontal Offset Impact

Test Date: 10/20/09



Appendix A

Photographs

## List of Photographs

<u>Figure</u>	<u>Description</u>	<u>Page</u>
A-1	Pre-Test Overall - View 1	A-7
A-2	Pre-Test Overall - View 2	A-7
A-3	Pre-Test Overall - View 3	A-8
A-4	Pre-Test Overall - View 4	A-8
A-5	Pre-Test Overall - View 5	A-9
A-6	Pre-Test Overall - View 6	A-9
A-7	Pre-Test Overall - View 7	A-10
A-8	Pre-Test Overall - View 8	A-10
A-9	Pre-Test Overhead Wide View	A-11
A-10	Pre-Test Overhead Tight View	A-11
A-11	Pre-Test Overhead Target Vehicle View	A-12
A-12	Pre-Test Overhead Bullet Vehicle View	A-12
A-13	Pre-Test Impact Alignment – View 1	A-13
A-14	Pre-Test Impact Alignment – View 2	A-13
A-15	Pre-Test Target Vehicle Front View *	A-14
A-16	Post-Test Target Vehicle Front View	A-14
A-17	Pre-Test Target Vehicle Left Front View *	A-15
A-18	Post-Test Target Vehicle Left Front View	A-15
A-19	Pre-Test Target Vehicle Left Side View	A-16
A-20	Post-Test Target Vehicle Left Side View	A-16
A-21	Pre-Test Target Vehicle Left Rear View	A-17
A-22	Post-Test Target Vehicle Left Rear View	A-17
A-23	Pre-Test Target Vehicle Rear View	A-18
A-24	Post-Test Target Vehicle Rear View	A-18
A-25	Pre-Test Target Vehicle Right Rear View	A-19
A-26	Post-Test Target Vehicle Right Rear View	A-19
A-27	Pre-Test Target Vehicle Right Side View	A-20
A-28	Post-Test Target Vehicle Right Side View	A-20

List of Photographs, Continued

<u>Figure</u>	<u>Description</u>	<u>Page</u>
A-29	Pre-Test Target Vehicle Right Front View *	A-21
A-30	Post-Test Target Vehicle Right Front View	A-21
A-31	Pre-Test Target Vehicle Engine Compartment View	A-22
A-32	Post-Test Target Vehicle Engine Compartment View	A-22
A-33	Pre-Test Target Vehicle Front Underbody View	A-23
A-34	Post-Test Target Vehicle Front Underbody View	A-23
A-35	Pre-Test Target Vehicle Mid Front Underbody View	A-24
A-36	Post-Test Target Vehicle Mid Front Underbody View	A-24
A-37	Pre-Test Target Vehicle Mid Underbody View	A-25
A-38	Post-Test Target Vehicle Mid Underbody View	A-25
A-39	Pre-Test Target Vehicle Mid Rear Underbody View	A-26
A-40	Post-Test Target Vehicle Mid Rear Underbody View	A-26
A-41	Pre-Test Target Vehicle Rear Underbody View	A-27
A-42	Post-Test Target Vehicle Rear Underbody View	A-27
A-43	Pre-Test Bullet Vehicle Front View	A-28
A-44	Post-Test Bullet Vehicle Front View	A-28
A-45	Pre-Test Bullet Vehicle Left Front View	A-29
A-46	Post-Test Bullet Vehicle Left Front View	A-29
A-47	Pre-Test Bullet Vehicle Left Side View *	A-30
A-48	Post-Test Bullet Vehicle Left Side View	A-30
A-49	Pre-Test Bullet Vehicle Left Rear View	A-31
A-50	Post-Test Bullet Vehicle Left Rear View	A-31
A-51	Pre-Test Bullet Vehicle Rear View	A-32
A-52	Post-Test Bullet Vehicle Rear View	A-32
A-53	Pre-Test Bullet Vehicle Right Rear View	A-33
A-54	Post-Test Bullet Vehicle Right Rear View	A-33
A-55	Pre-Test Bullet Vehicle Right Side View	A-34
A-56	Post-Test Bullet Vehicle Right Side View	A-34

List of Photographs, Continued

<u>Figure</u>	<u>Description</u>	<u>Page</u>
A-57	Pre-Test Bullet Vehicle Right Front View	A-35
A-58	Post-Test Bullet Vehicle Right Front View	A-35
A-59	Pre-Test Bullet Vehicle Engine Compartment View	A-36
A-60	Post-Test Bullet Vehicle Engine Compartment View	A-36
A-61	Pre-Test Bullet Vehicle Front Underbody View	A-37
A-62	Post-Test Bullet Vehicle Front Underbody View	A-37
A-63	Pre-Test Bullet Vehicle Mid Front Underbody View	A-38
A-64	Post-Test Bullet Vehicle Mid Front Underbody View	A-38
A-65	Pre-Test Bullet Vehicle Mid Underbody View	A-39
A-66	Post-Test Bullet Vehicle Mid Underbody View	A-39
A-67	Pre-Test Bullet Vehicle Mid Rear Underbody View	A-40
A-68	Post-Test Bullet Vehicle Mid Rear Underbody View	A-40
A-69	Pre-Test Bullet Vehicle Rear Underbody View	A-41
A-70	Post-Test Bullet Vehicle Rear Underbody View	A-41
A-71	Pre-Test Target Vehicle Driver Dummy through Windshield View	A-42
A-72	Post-Test Target Vehicle Driver Dummy through Windshield View *	A-42
A-73	Pre-Test Target Vehicle Driver Dummy - View 1	A-43
A-74	Post-Test Target Vehicle Driver Dummy - View 1	A-43
A-75	Pre-Test Target Vehicle Driver Dummy - View 2	A-44
A-76	Pre-Test Target Vehicle Driver Dummy - View 3	A-45
A-77	Post-Test Target Vehicle Driver Dummy - View 3	A-45
A-78	Pre-Test Target Vehicle Driver Dummy - View 4	A-46
A-79	Post-Test Target Vehicle Driver Dummy - View 4	A-46
A-80	Pre-Test Target Vehicle Driver Dummy Foot Position View	A-47
A-81	Pre-Test Target Vehicle Driver Dummy Seat Track View	A-47
A-82	Pre-Test Bullet Vehicle Driver and Passenger Dummies through Windshield View	A-48
A-83	Post-Test Bullet Vehicle Driver and Passenger Dummies through Windshield View	A-48

List of Photographs, Continued

<u>Figure</u>	<u>Description</u>	<u>Page</u>
A-84	Pre-Test Bullet Vehicle Driver Dummy - View 1	A-49
A-85	Post-Test Bullet Vehicle Driver Dummy - View 1	A-49
A-86	Pre-Test Bullet Vehicle Driver Dummy - View 2	A-50
A-87	Post-Test Bullet Vehicle Driver Dummy - View 2	A-50
A-88	Pre-Test Bullet Vehicle Driver Dummy - View 3	A-51
A-89	Post-Test Bullet Vehicle Driver Dummy - View 3	A-51
A-90	Pre-Test Bullet Vehicle Driver Dummy - View 4	A-52
A-91	Post-Test Bullet Vehicle Driver Dummy - View 4	A-52
A-92	Pre-Test Bullet Vehicle Driver Dummy Foot Position View	A-53
A-93	Pre-Test Bullet Vehicle Driver Dummy Seat Track View	A-53
A-94	Pre-Test Bullet Vehicle Right Front Passenger Dummy - View 1	A-54
A-95	Post-Test Bullet Vehicle Right Front Passenger Dummy - View 1	A-54
A-96	Pre-Test Bullet Vehicle Right Front Passenger Dummy - View 2	A-55
A-97	Post-Test Bullet Vehicle Right Front Passenger Dummy - View 2*	A-55
A-98	Pre-Test Bullet Vehicle Right Front Passenger Dummy - View 3	A-56
A-99	Post-Test Bullet Vehicle Right Front Passenger Dummy - View 3*	A-56
A-100	Pre-Test Bullet Vehicle Right Front Passenger Dummy - View 4	A-57
A-101	Post-Test Bullet Vehicle Right Front Passenger Dummy - View 4	A-57
A-102	Pre-Test Bullet Vehicle Right Front Passenger Dummy Foot Position View	A-58
A-103	Pre-Test Bullet Vehicle Right Front Passenger Dummy Seat Track View	A-58
A-104	Pre-Test Bullet Vehicle Left Rear Passenger Dummy - View 1	A-59
A-105	Post-Test Bullet Vehicle Left Rear Passenger Dummy - View 1	A-59
A-106	Pre-Test Bullet Vehicle Left Rear Passenger Dummy - View 2	A-60
A-107	Post-Test Bullet Vehicle Left Rear Passenger Dummy - View 2 *	A-60
A-108	Pre-Test Bullet Vehicle Left Rear Passenger Dummy - View 3	A-61
A-109	Post-Test Bullet Vehicle Left Rear Passenger Dummy - View 3 *	A-61

List of Photographs, Continued

<u>Figure</u>	<u>Description</u>	<u>Page</u>
A-110	Post-Test Target Vehicle Driver Dummy Head Contact - View 1	A-62
A-111	Post-Test Target Vehicle Driver Dummy Head Contact - View 2	A-62
A-112	Post-Test Target Vehicle Driver Dummy Knee Contact - View 1	A-63
A-113	Post-Test Target Vehicle Driver Dummy Knee Contact - View 2	A-63
A-114	Post-Test Target Vehicle Driver Door Damage View	A-64
A-115	Post-Test Target Vehicle Driver B-Pillar Damage View	A-64
A-116	Post-Test Bullet Vehicle Driver Dummy Head Contact - View 1	A-65
A-117	Post-Test Bullet Vehicle Driver Dummy Head Contact - View 2	A-65
A-118	Post-Test Bullet Vehicle Driver Dummy Knee Contact – View	A-66
A-119	Post-Test Bullet Vehicle Driver Dummy Toe Board Deformation View	A-66
A-120	Post-Test Bullet Vehicle Right Front Passenger Dummy Head Contact - View 1	A-67
A-121	Post-Test Bullet Vehicle Right Front Passenger Dummy Head Contact - View 2	A-67
A-122	Post-Test Bullet Vehicle Right Front Passenger Dummy Knee Contact - View 1	A-68
A-123	Post-Test Bullet Vehicle Right Front Passenger Dummy Toe board Deformation View	A-68
A-124	Post-Test Primary Light Trap Readout View	A-69
A-125	Post-Test Secondary Light Trap Readout View	A-69
A-126	Pre-Test Target Vehicle Ballast View	A-70
A-127	Pre-Test Target Vehicle Certification Label View	A-71
A-128	Pre-Test Target Vehicle Tire Load Label View	A-71
A-129	Pre-Test Bullet Vehicle Certification Label View	A-72
A-130	Pre-Test Bullet Vehicle Tire Load Label View	A-72

\* Photograph Not Available



**Figure A-1 Pre-Test Overall - View 1**



**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 Overall - View 5**



**Figure A-6 Pre-Test Overall - View 6**



**Figure A-7 Pre-Test Overall - View 7**



**Figure A-8 Pre-Test Overall - View 8**



**Figure A-9 Pre-Test Overhead Wide View**



**Figure A-10 Pre-Test Overhead Tight View**



**Figure A-11 Pre-Test Overhead Target Vehicle View**



**Figure A-12 Pre-Test Overhead Bullet Vehicle View**



**Figure A-13 Pre-Test Impact Alignment – View 1**



**Figure A-14 Pre-Test Impact Alignment – View 2**

**Photograph Not Available**

**Figure A-15 Pre-Test Target Vehicle Front View**



**Figure A-16 Post-Test Target Vehicle Front View**

**Photograph Not Available**

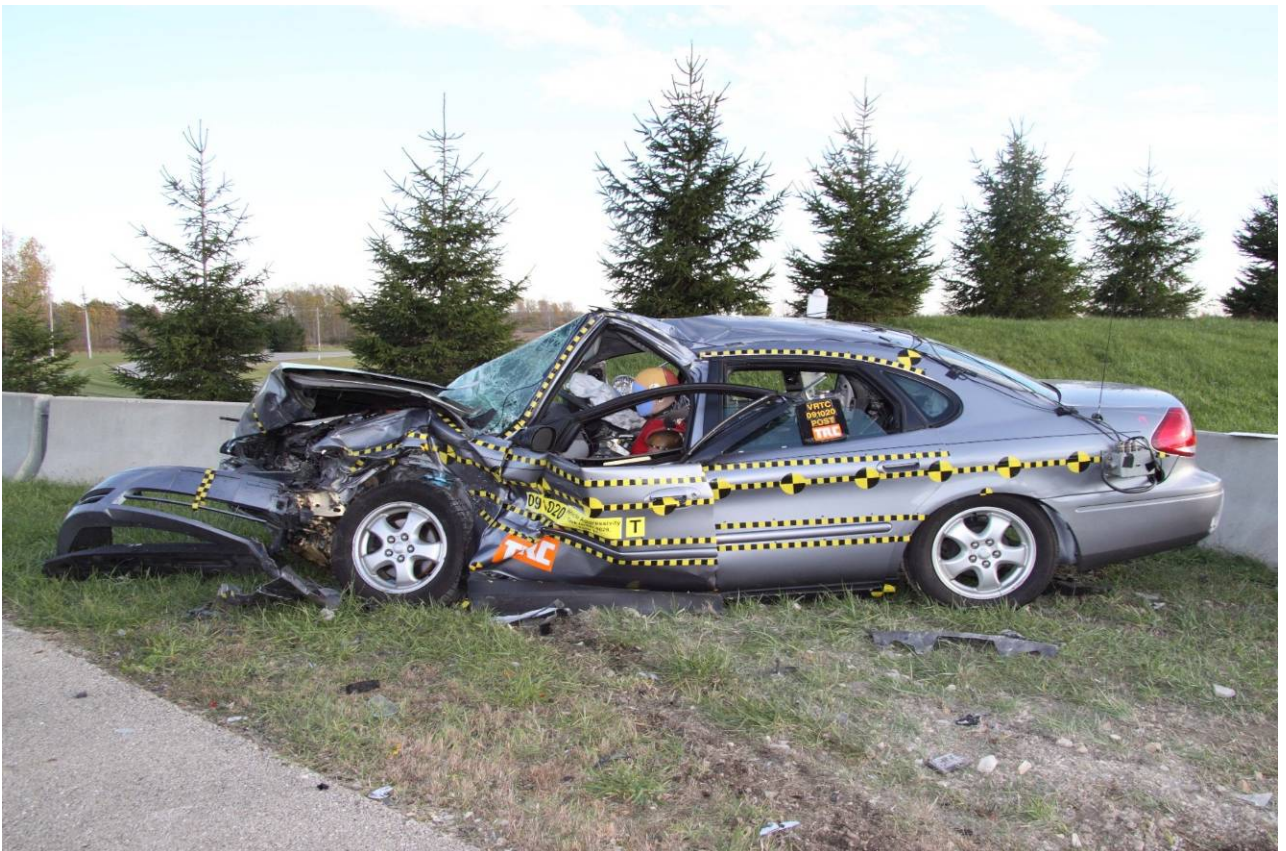
**Figure A-17 Pre-Test Target Vehicle Left Front View**



**Figure A-18 Post-Test Target Vehicle Left Front View**



**Figure A-19 Pre-Test Target Vehicle Left Side View**



**Figure A-20 Post-Test Target Vehicle Left Side View**



**Figure A-21 Pre-Test Target Vehicle Left Rear View**



**Figure A-22 Post-Test Target Vehicle Left Rear View**



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



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



**Figure A-25 Pre-Test Target Vehicle Right Rear View**



**Figure A-26 Post-Test Target Vehicle Right Rear View**



**Figure A-27 Pre-Test Target Vehicle Right Side View**



**Figure A-28 Post-Test Target Vehicle Right Side View**

**Photograph Not Available**

**Figure A-29 Pre-Test Target Vehicle Right Front View**



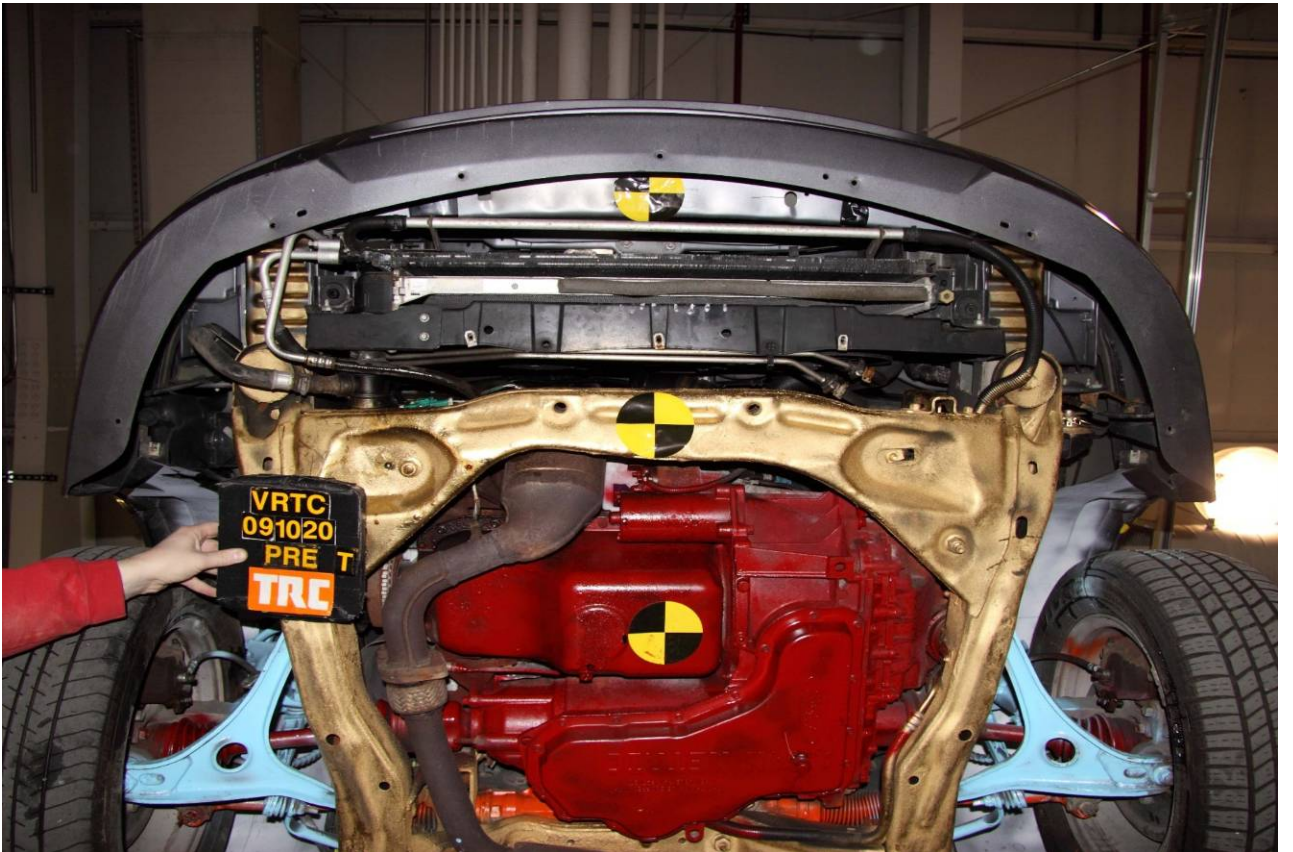
**Figure A-30 Post-Test Target Vehicle Right Front View**



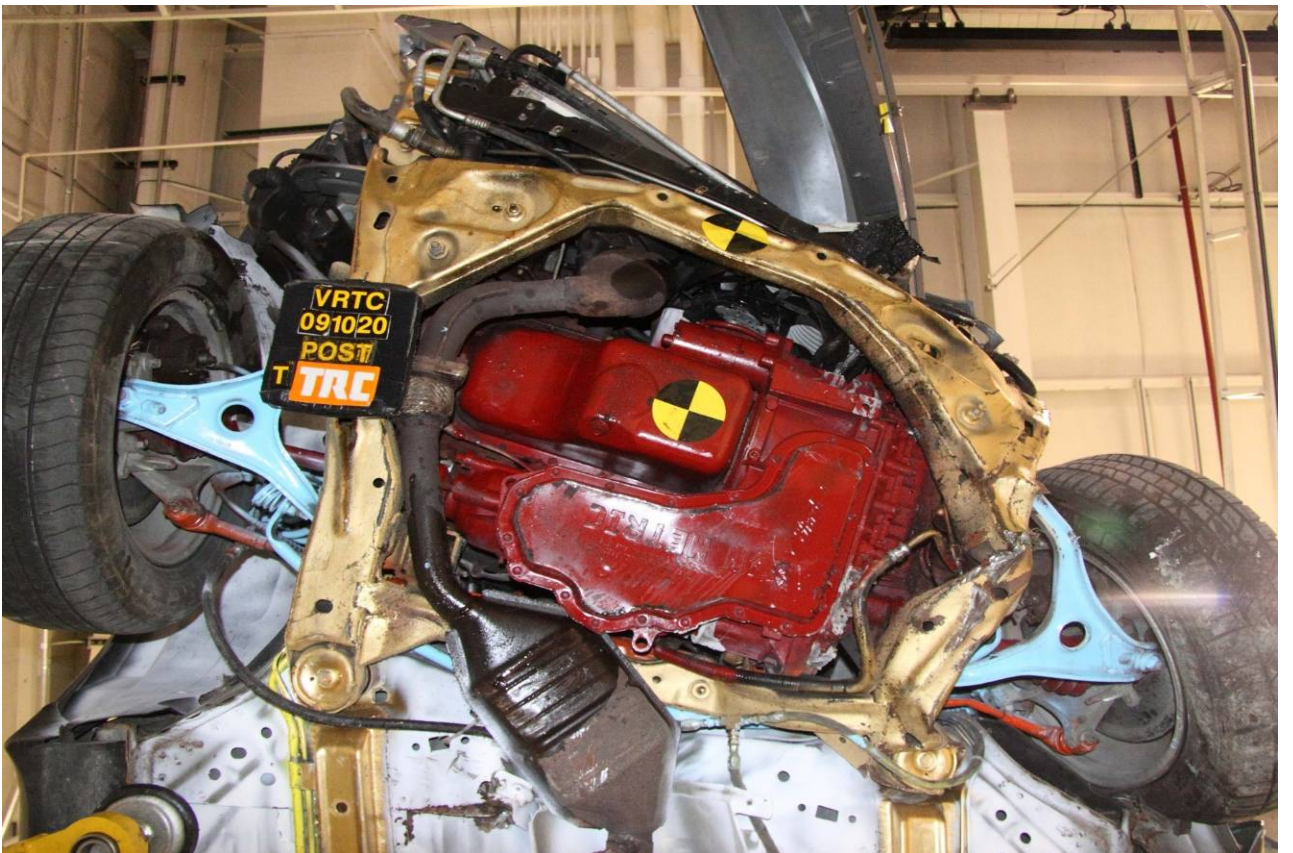
**Figure A-31 Pre-Test Target Vehicle Engine Compartment View**



**Figure A-32 Post-Test Target Vehicle Engine Compartment View**



**Figure A-33 Pre-Test Target Vehicle Front Underbody View**



**Figure A-34 Post-Test Target Vehicle Front Underbody View**

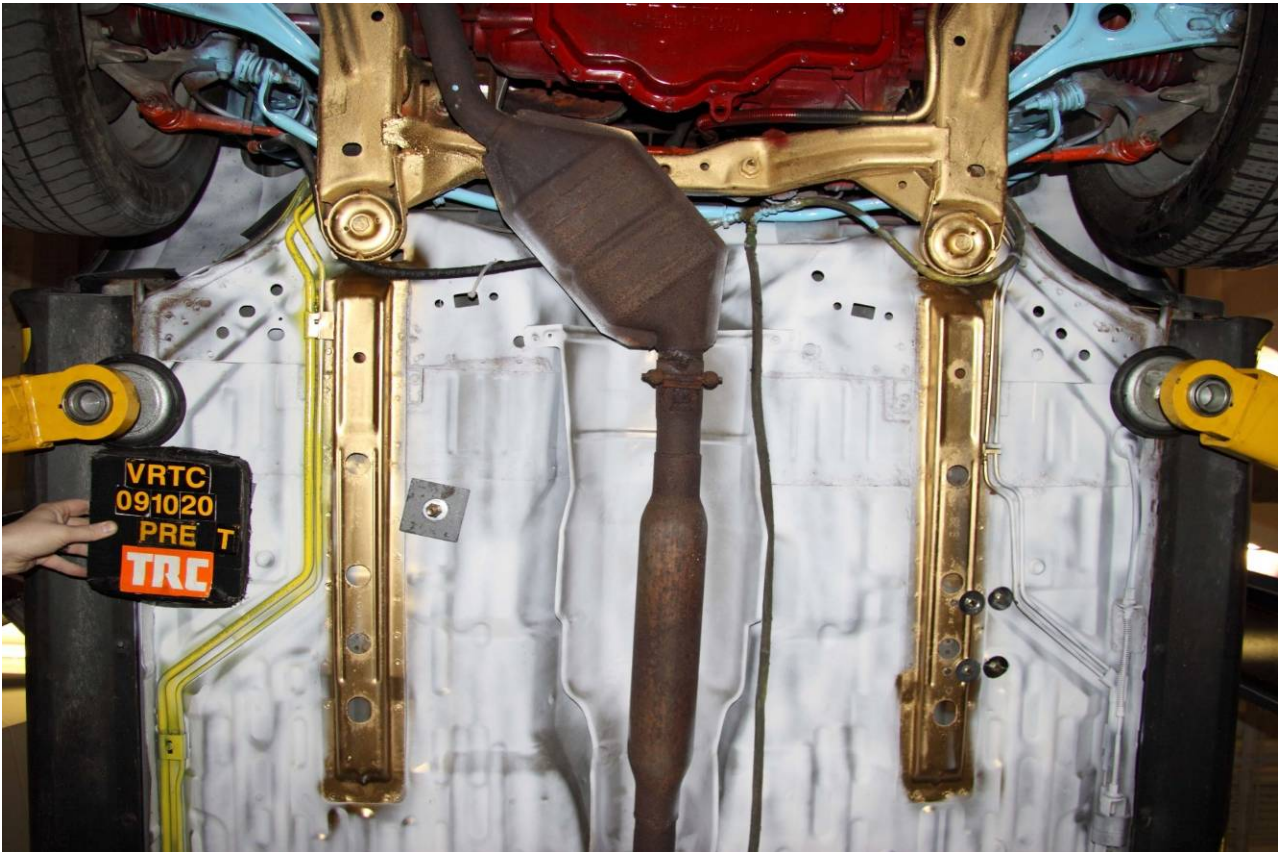


Figure A-35 Pre-Test Target Vehicle Mid Front Underbody View

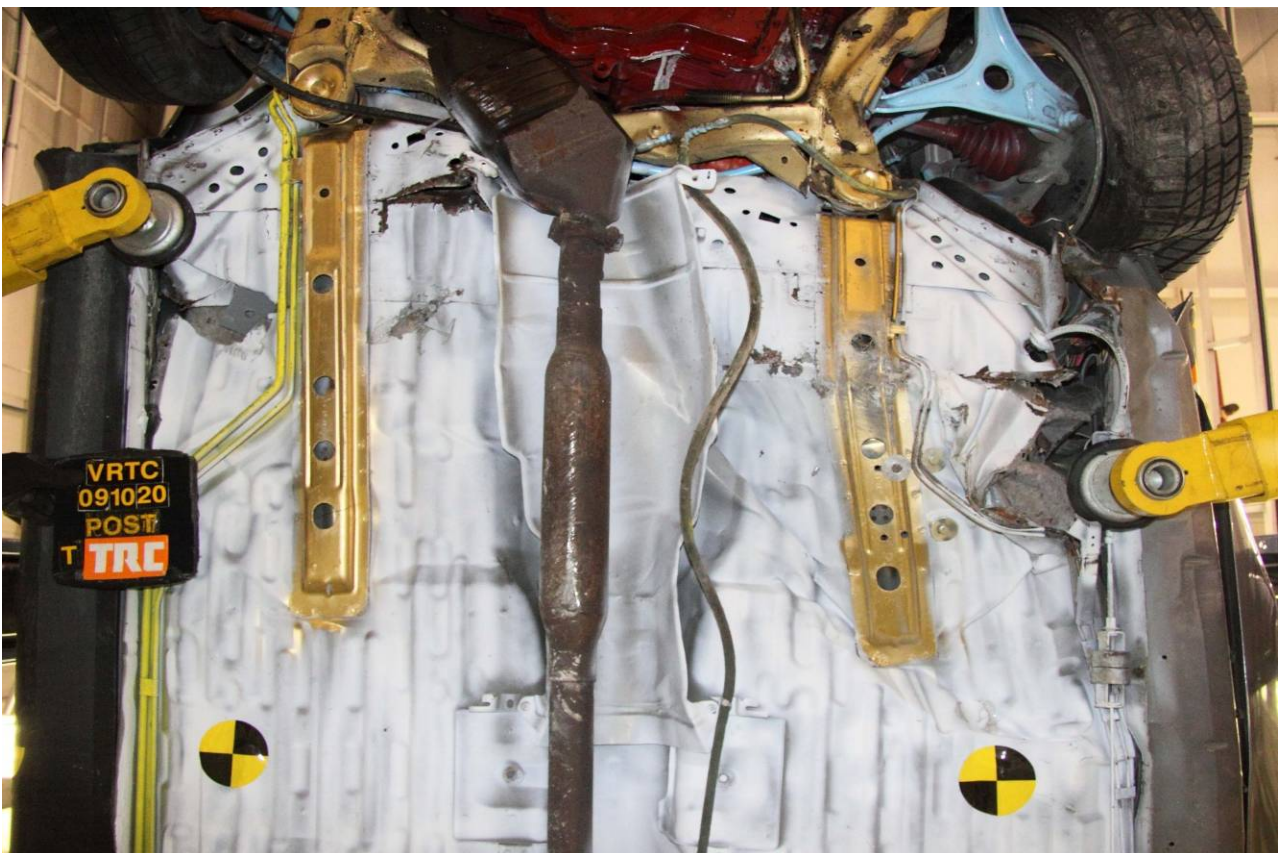


Figure A-36 Post-Test Target Vehicle Mid Front Underbody View



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

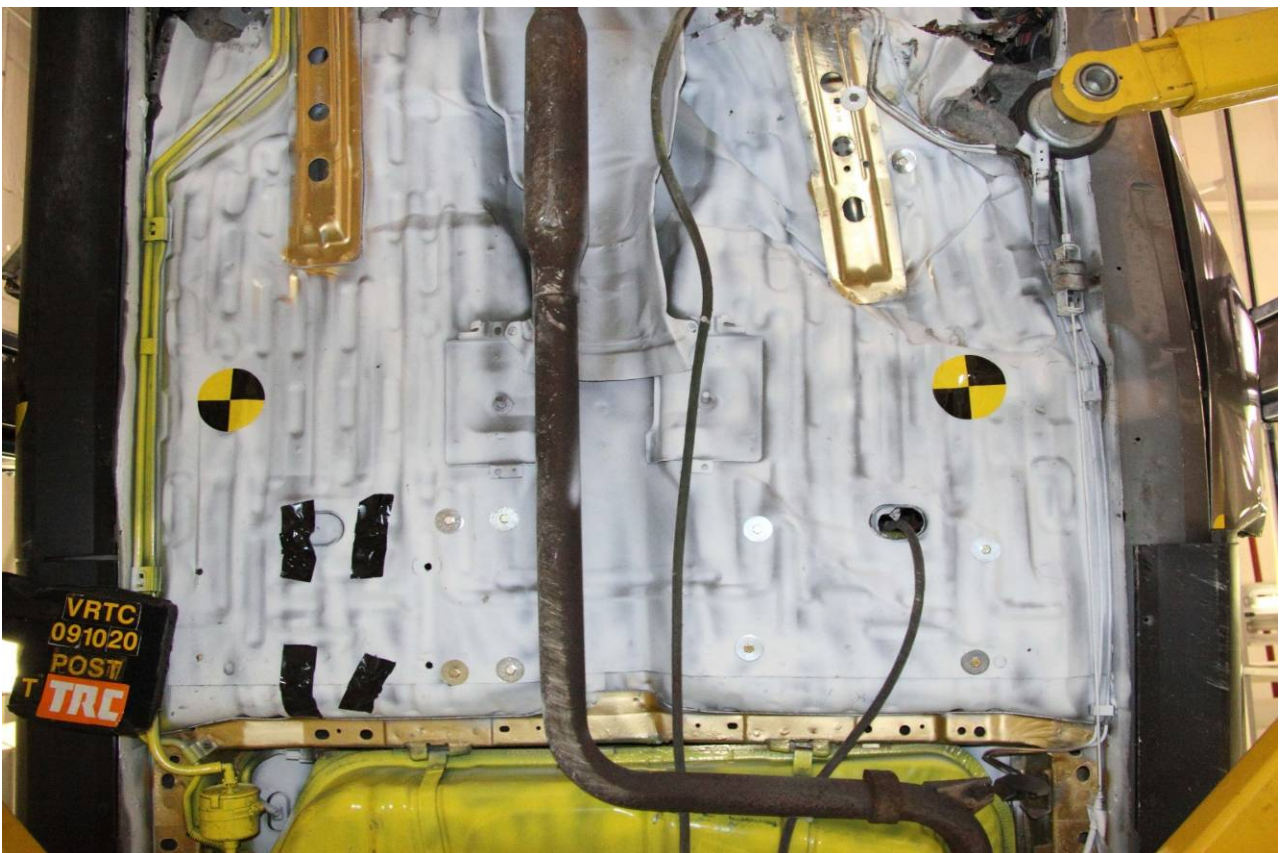
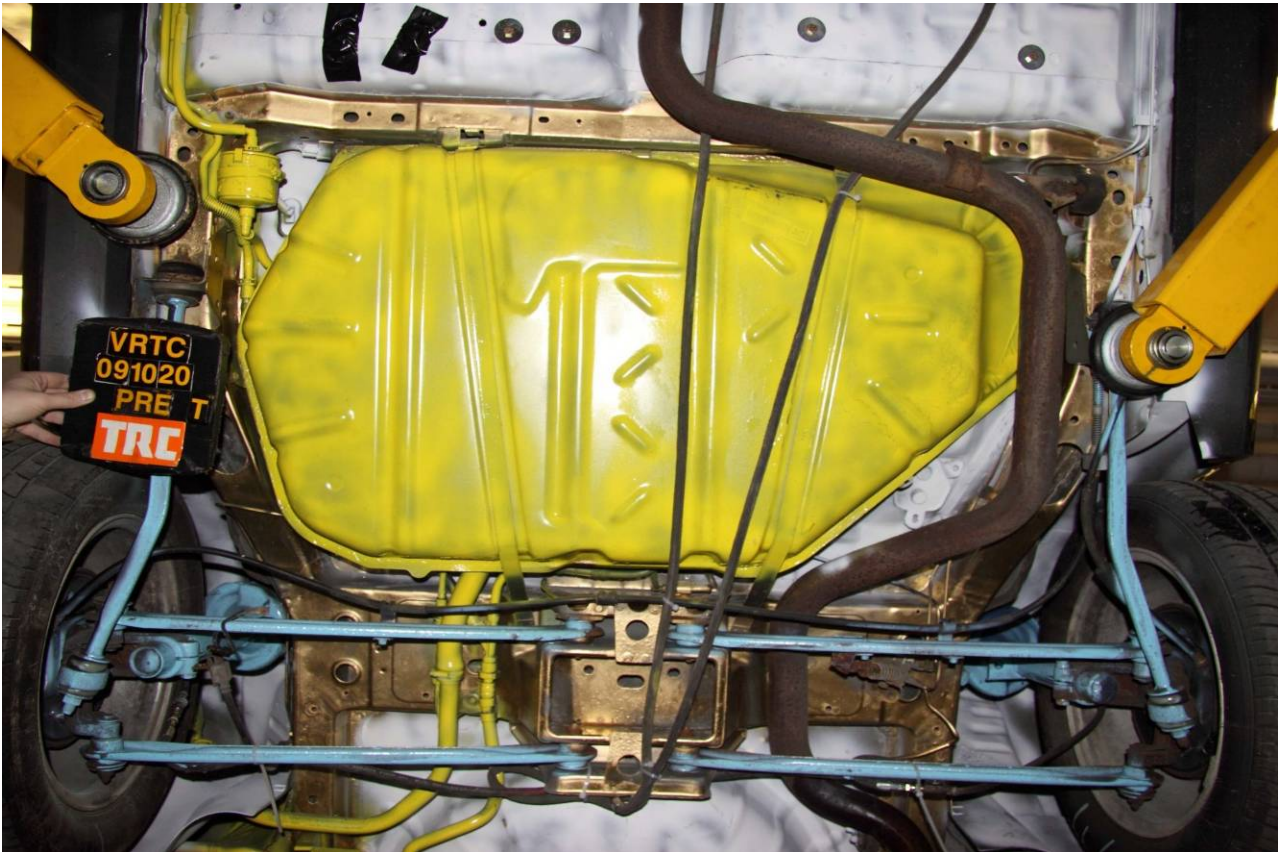
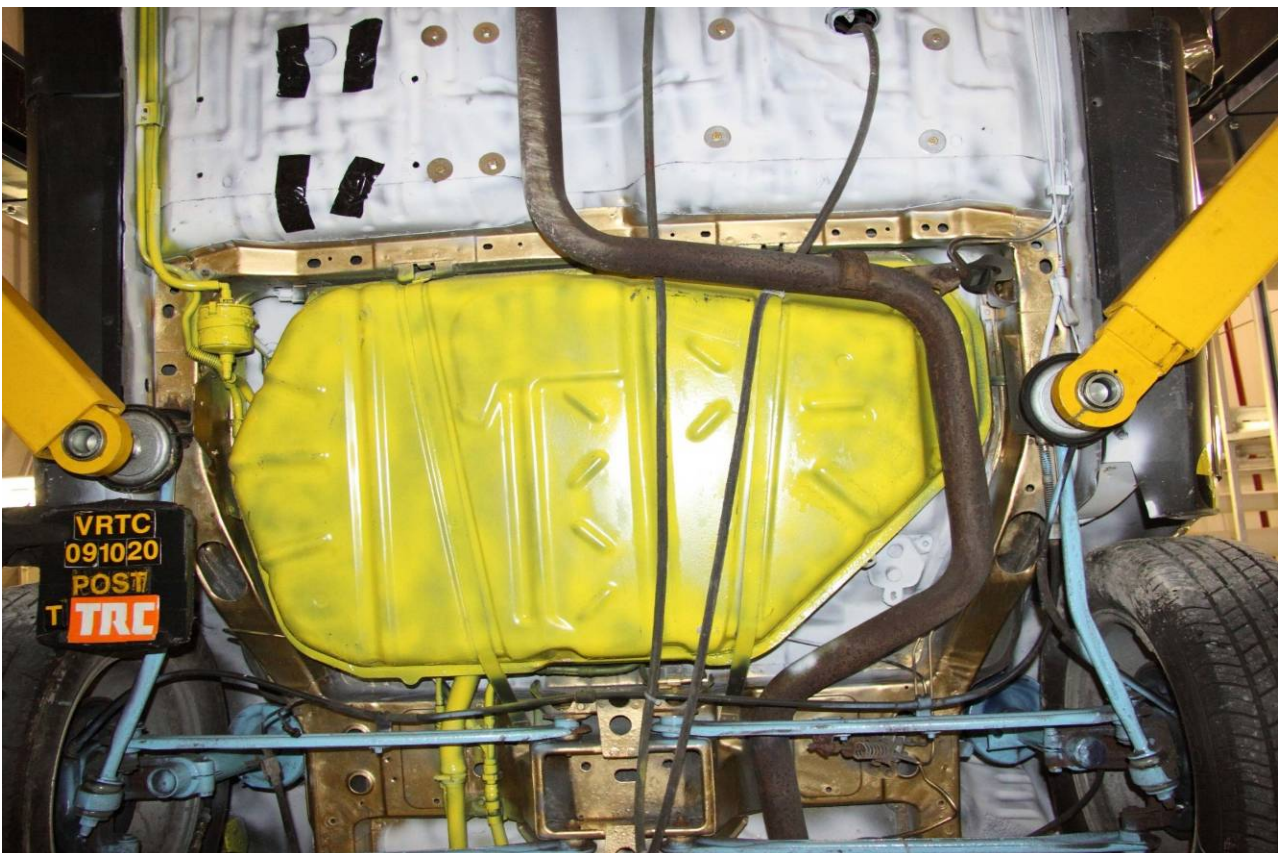


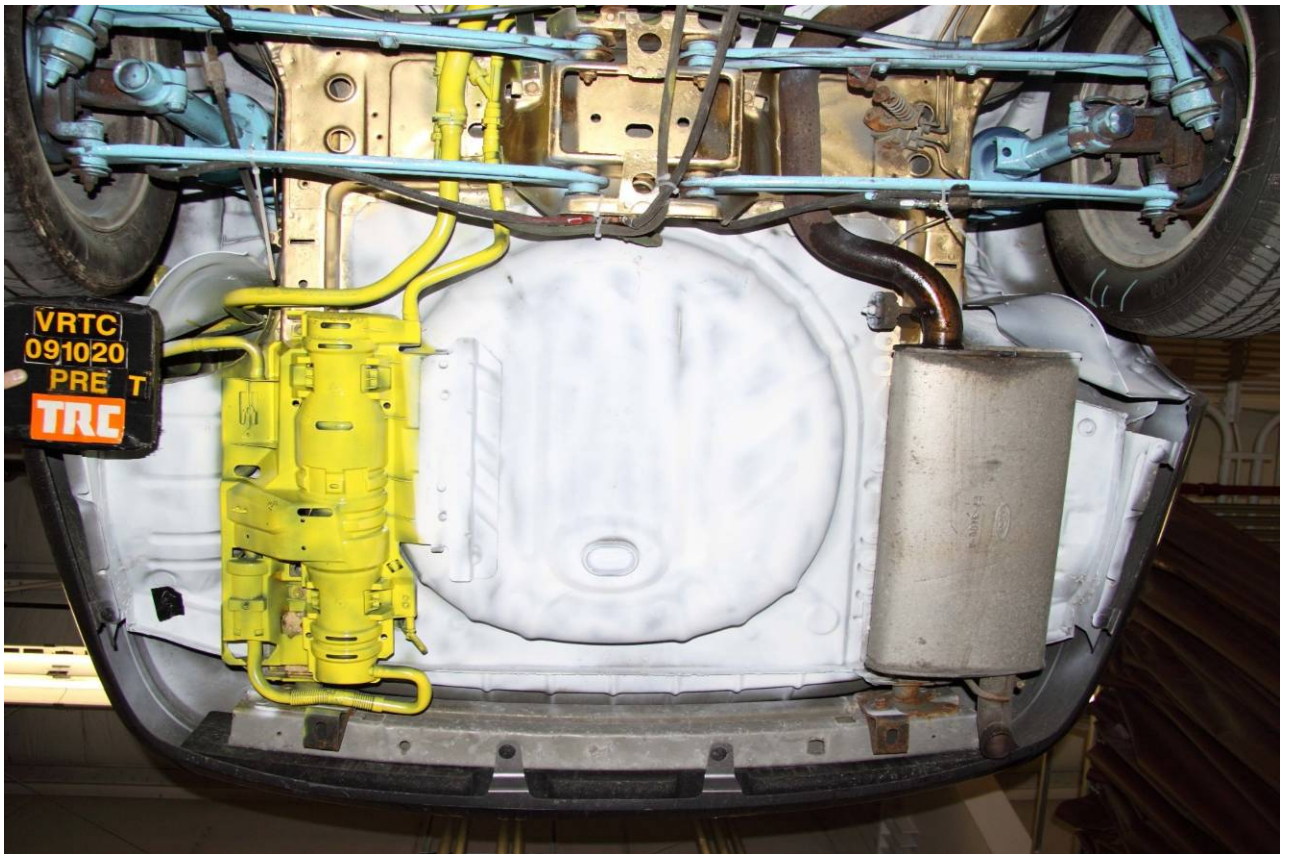
Figure A-38 Post-Test Target Vehicle Mid Underbody View



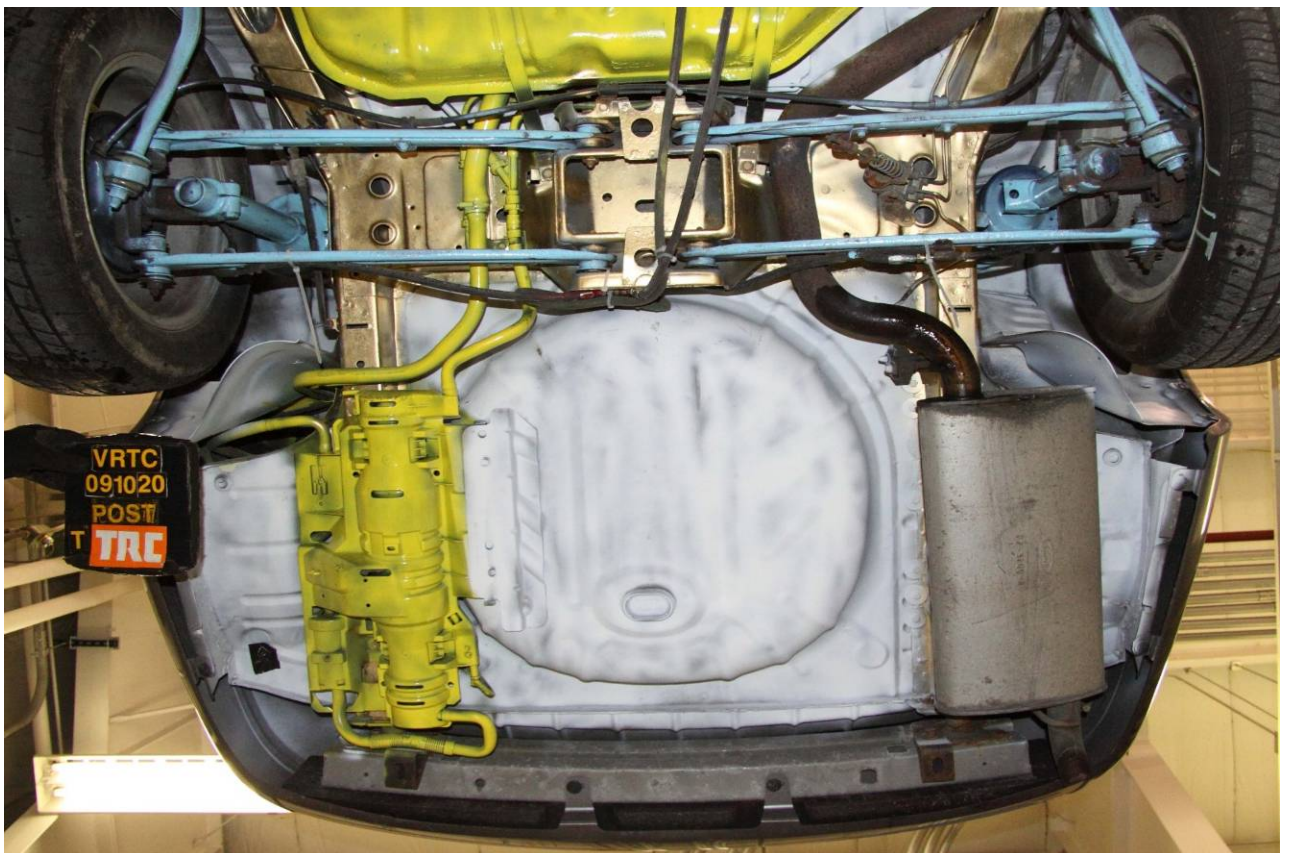
**Figure A-39 Pre-Test Target Vehicle Mid Rear Underbody View**



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



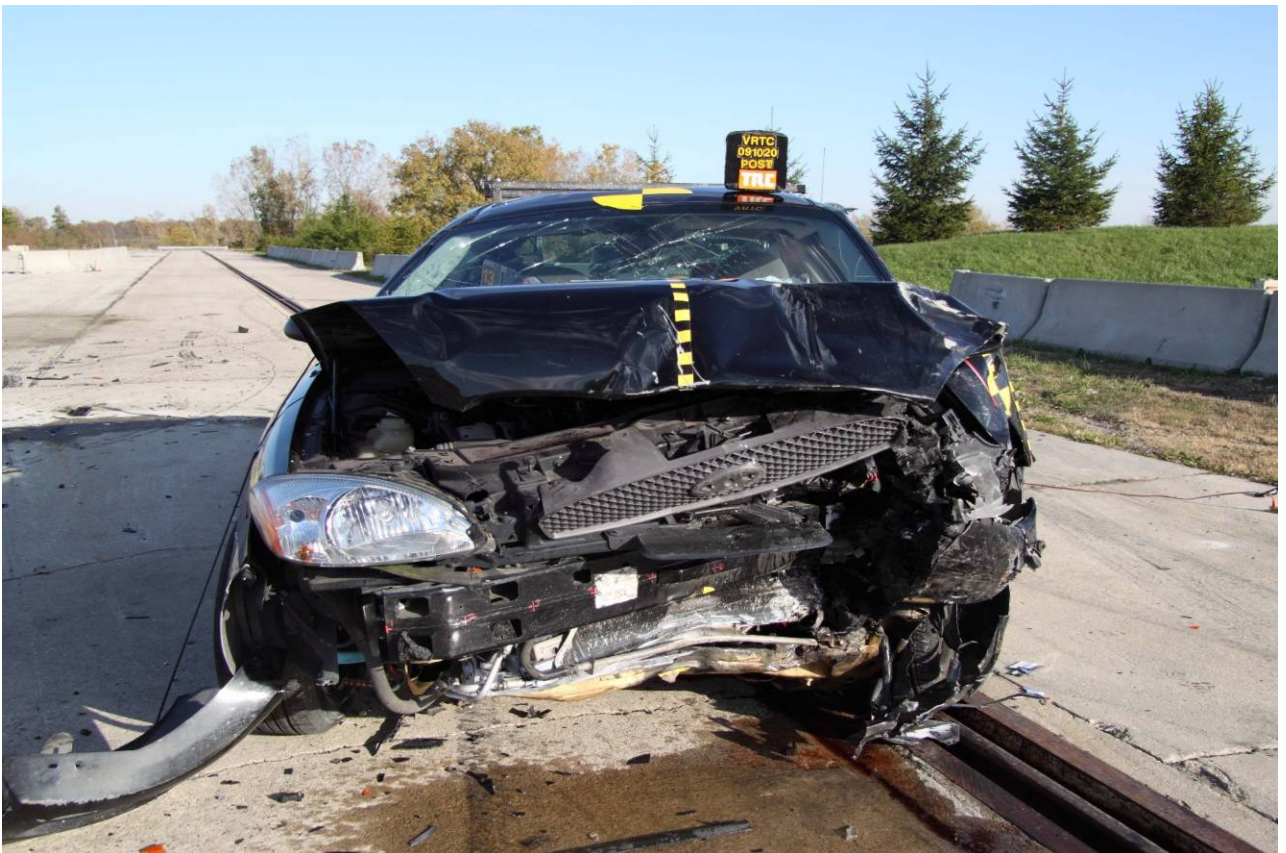
**Figure A-41 Pre-Test Target Vehicle Rear Underbody View**



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



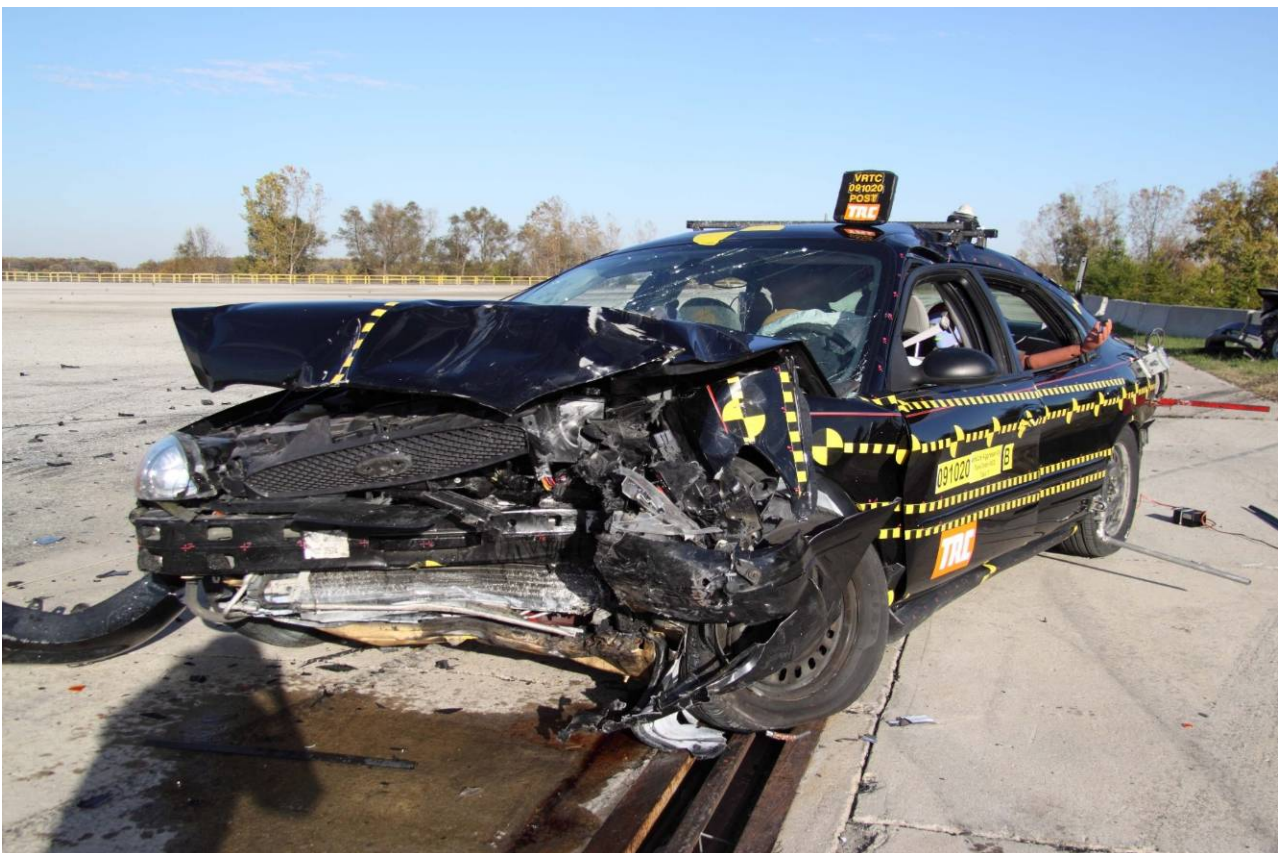
**Figure A-43 Pre-Test Bullet Vehicle Front View**



**Figure A-44 Post-Test Bullet Vehicle Front View**



**Figure A-45 Pre-Test Bullet Vehicle Left Front View**



**Figure A-46 Post-Test Bullet Vehicle Left Front View**

**Photograph Not Available**

**Figure A-47 Pre-Test Bullet Vehicle Left Side View**



**Figure A-48 Post-Test Bullet Vehicle Left Side View**



**Figure A-49 Pre-Test Bullet Vehicle Left Rear View**



**Figure A-50 Post-Test Bullet Vehicle Left Rear View**



**Figure A-51 Pre-Test Bullet Vehicle Rear View**



**Figure A-52 Post-Test Bullet Vehicle Rear View**



**Figure A-53 Pre-Test Bullet Vehicle Right Rear View**



**Figure A-54 Post-Test Bullet Vehicle Right Rear View**



**Figure A-55 Pre-Test Bullet Vehicle Right Side View**



**Figure A-56 Post-Test Bullet Vehicle Right Side View**



**Figure A-57 Pre-Test Bullet Vehicle Right Front View**



**Figure A-58 Post-Test Bullet Vehicle Right Front View**

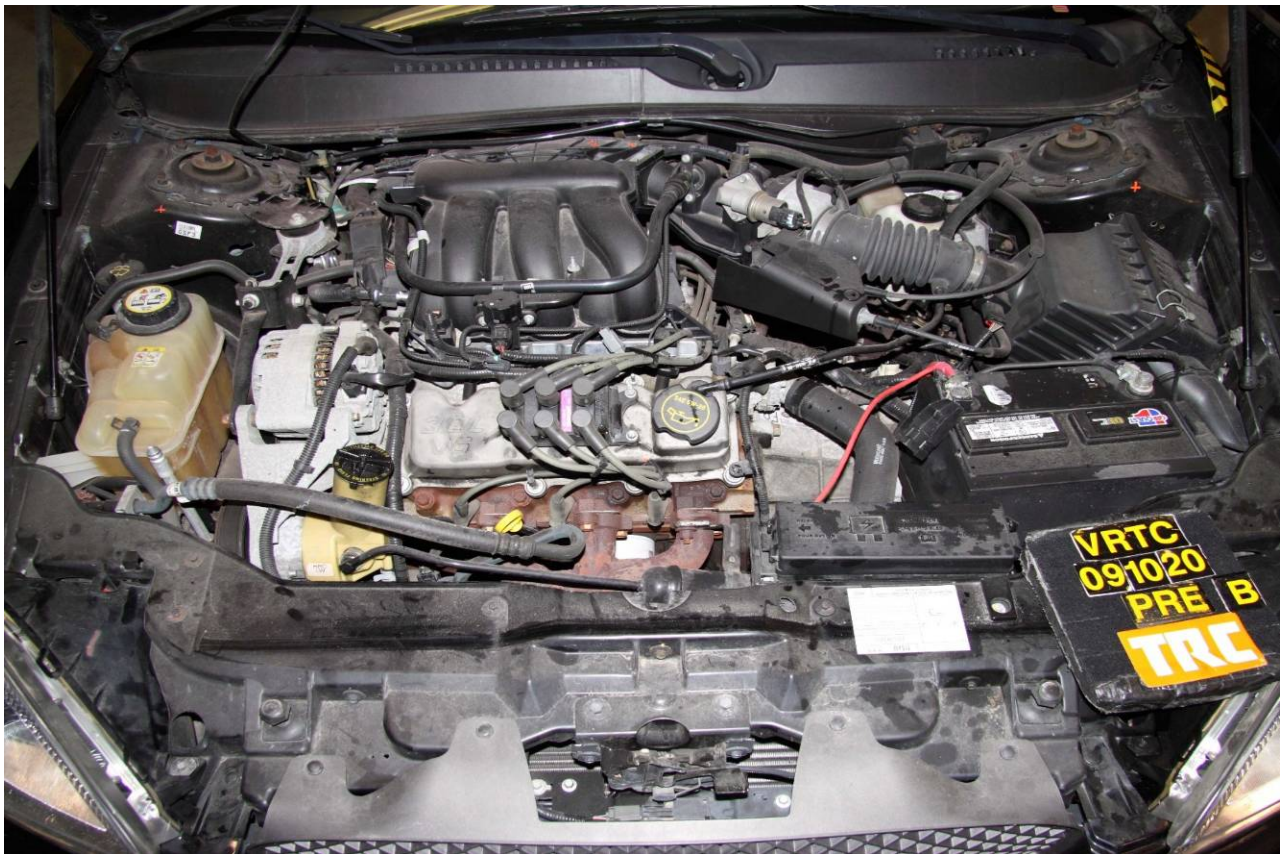
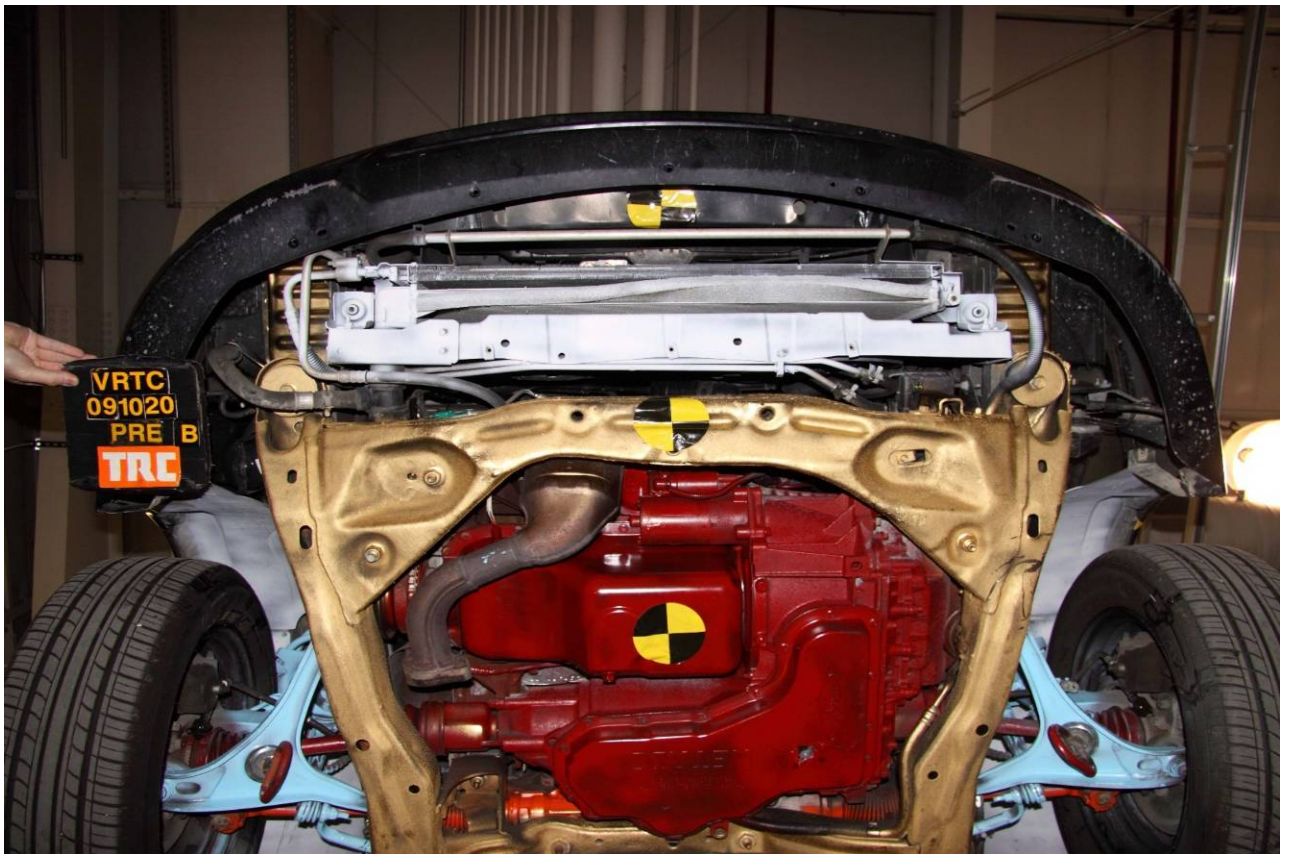


Figure A-59 Pre-Test Bullet Vehicle Engine Compartment View



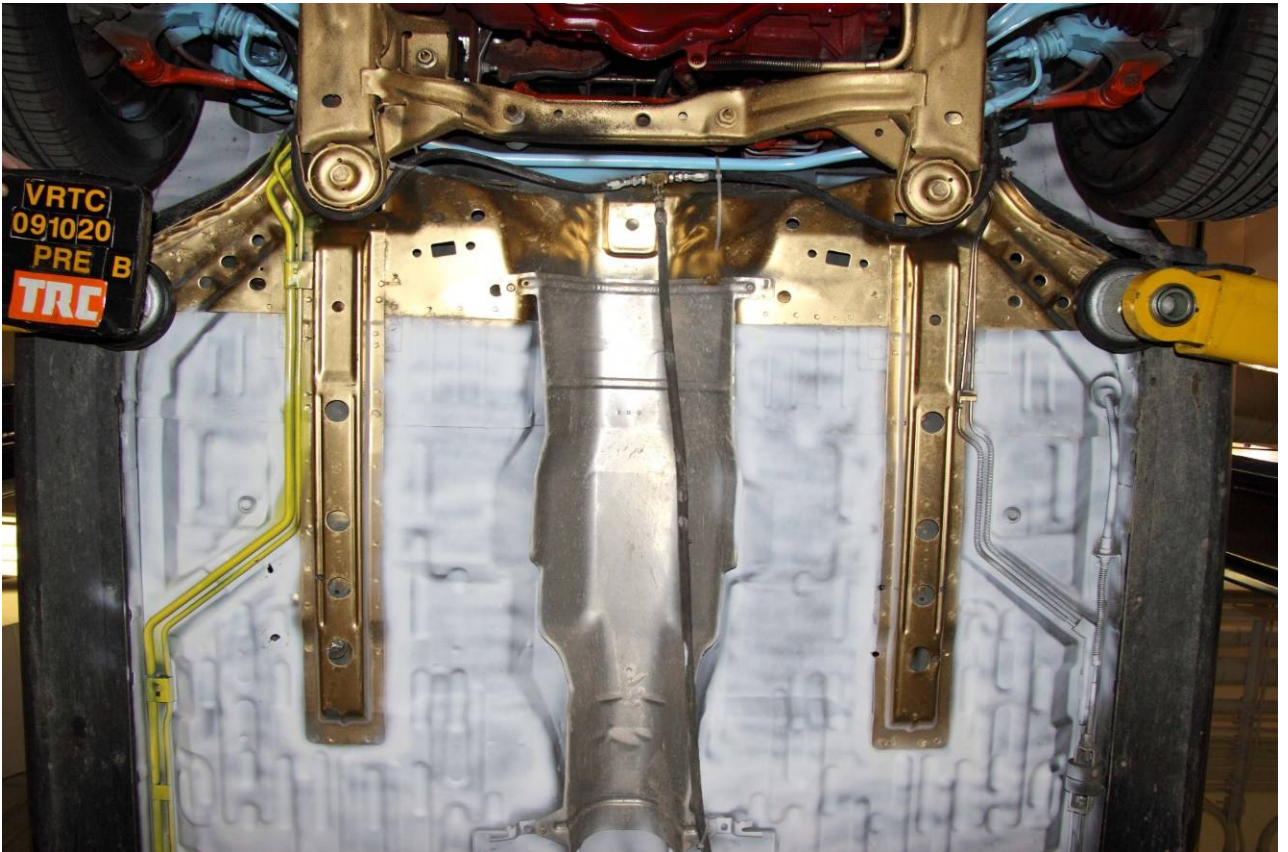
Figure A-60 Post-Test Bullet Vehicle Engine Compartment View



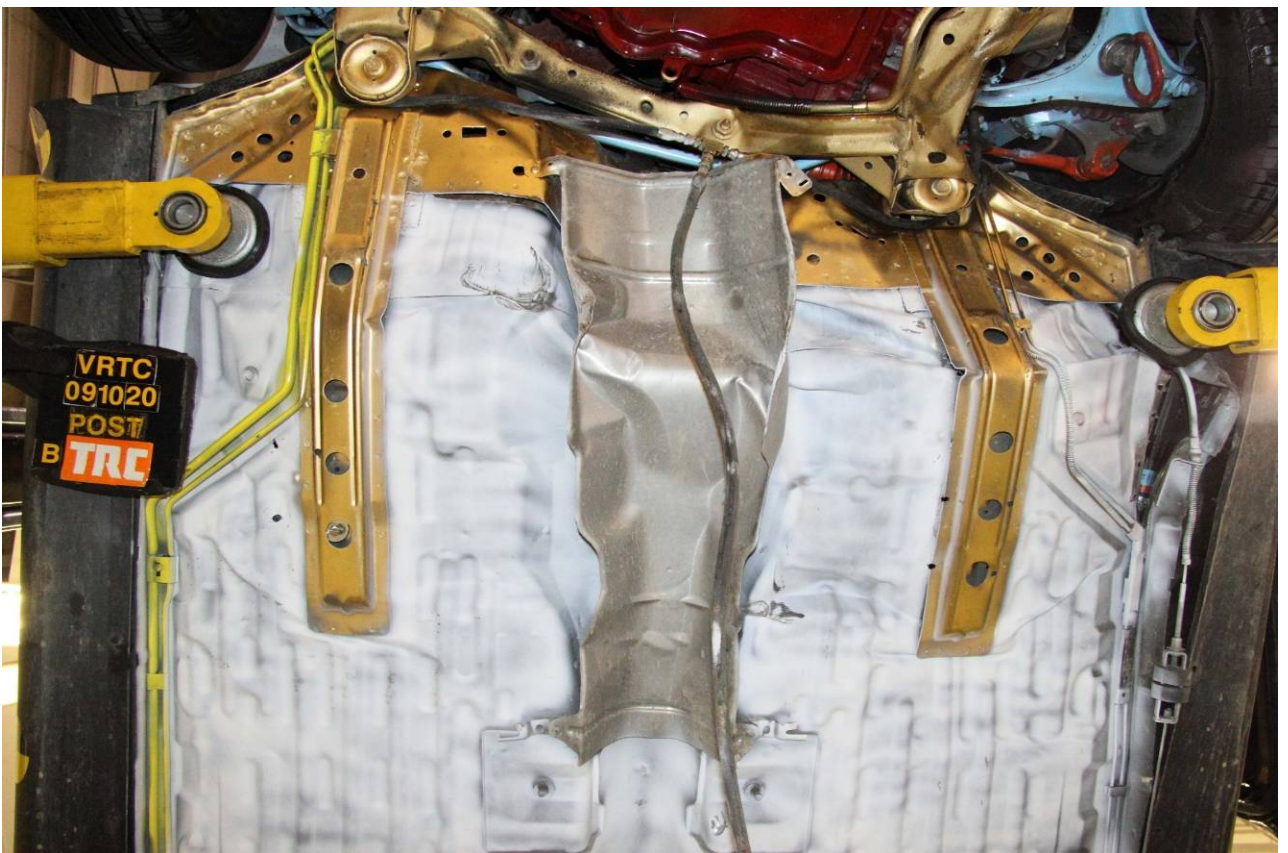
**Figure A-61 Pre-Test Bullet Vehicle Front Underbody View**



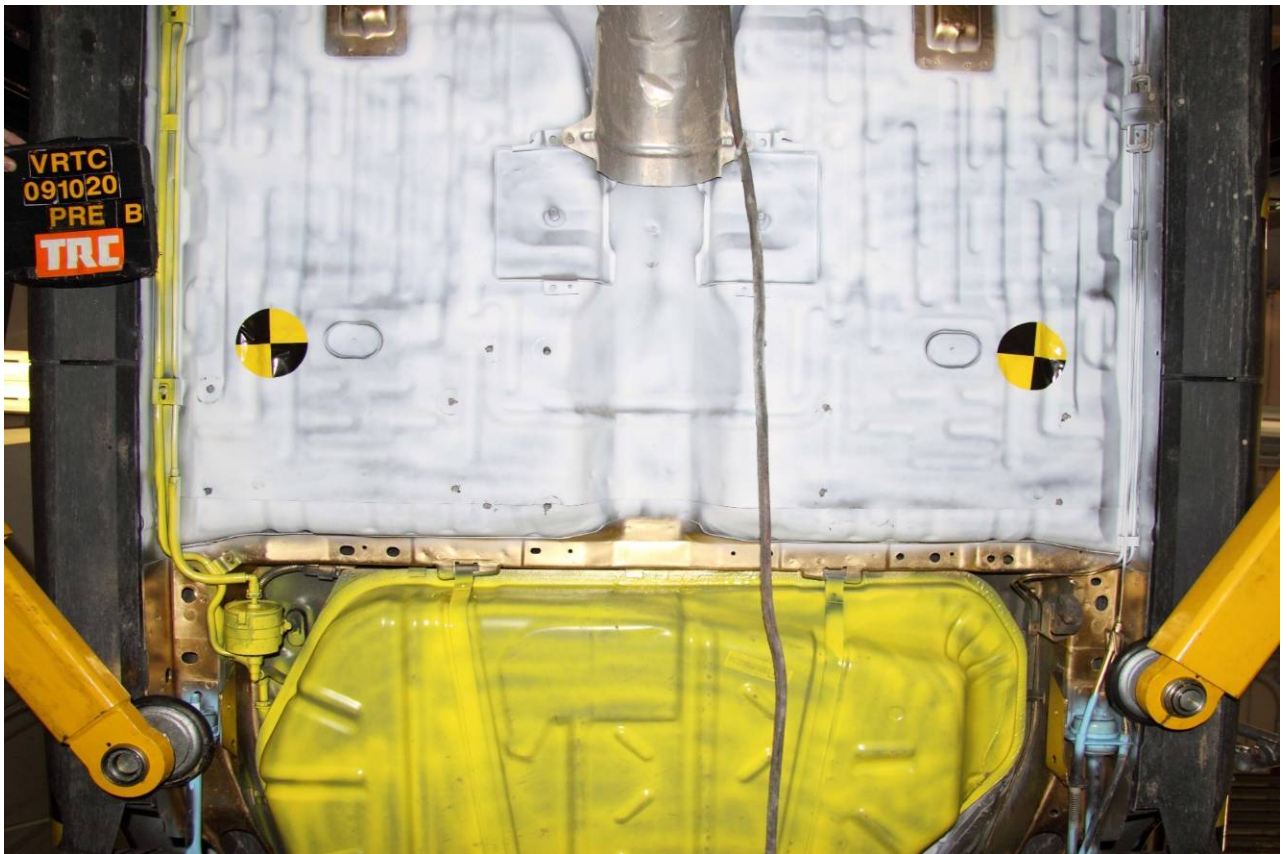
**Figure A-62 Post-Test Bullet Vehicle Front Underbody View**



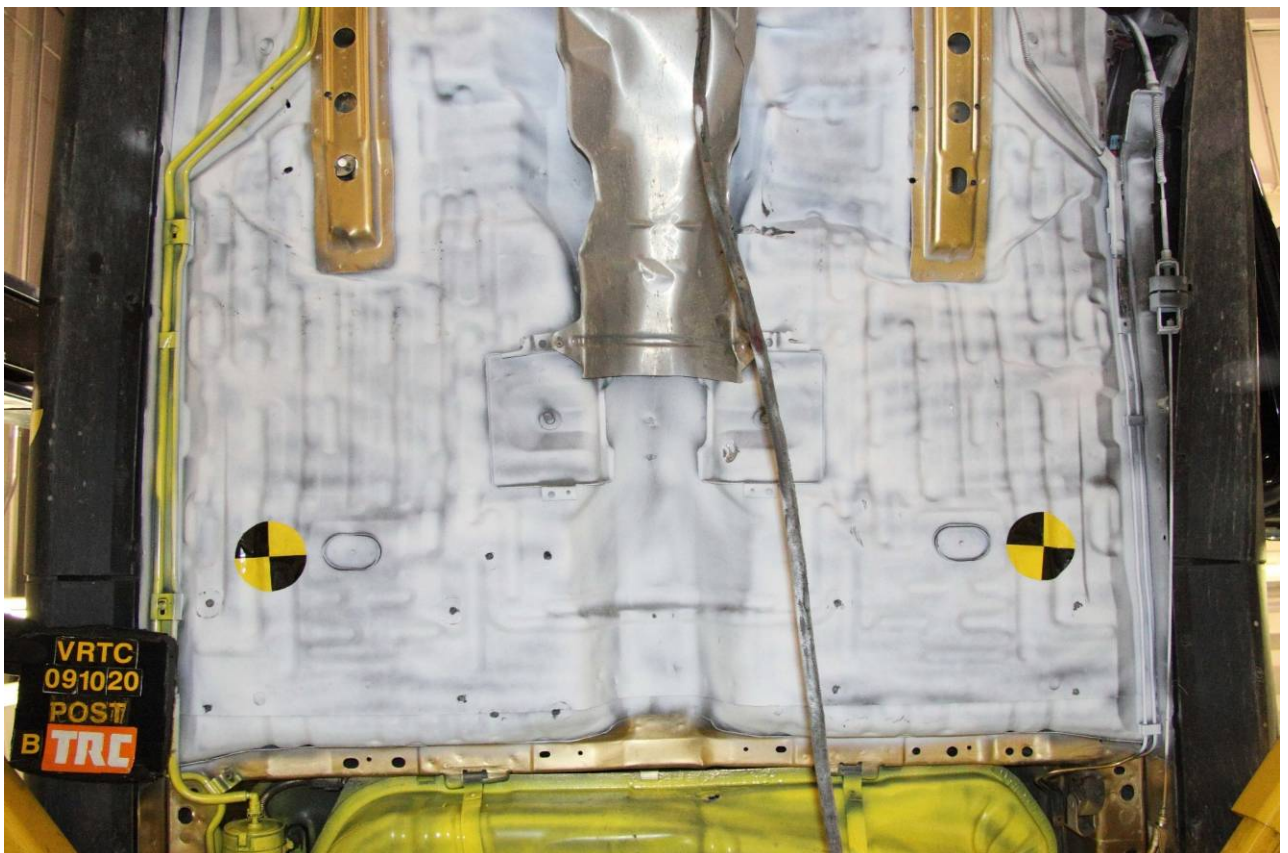
**Figure A-63 Pre-Test Bullet Vehicle Mid Front Underbody View**



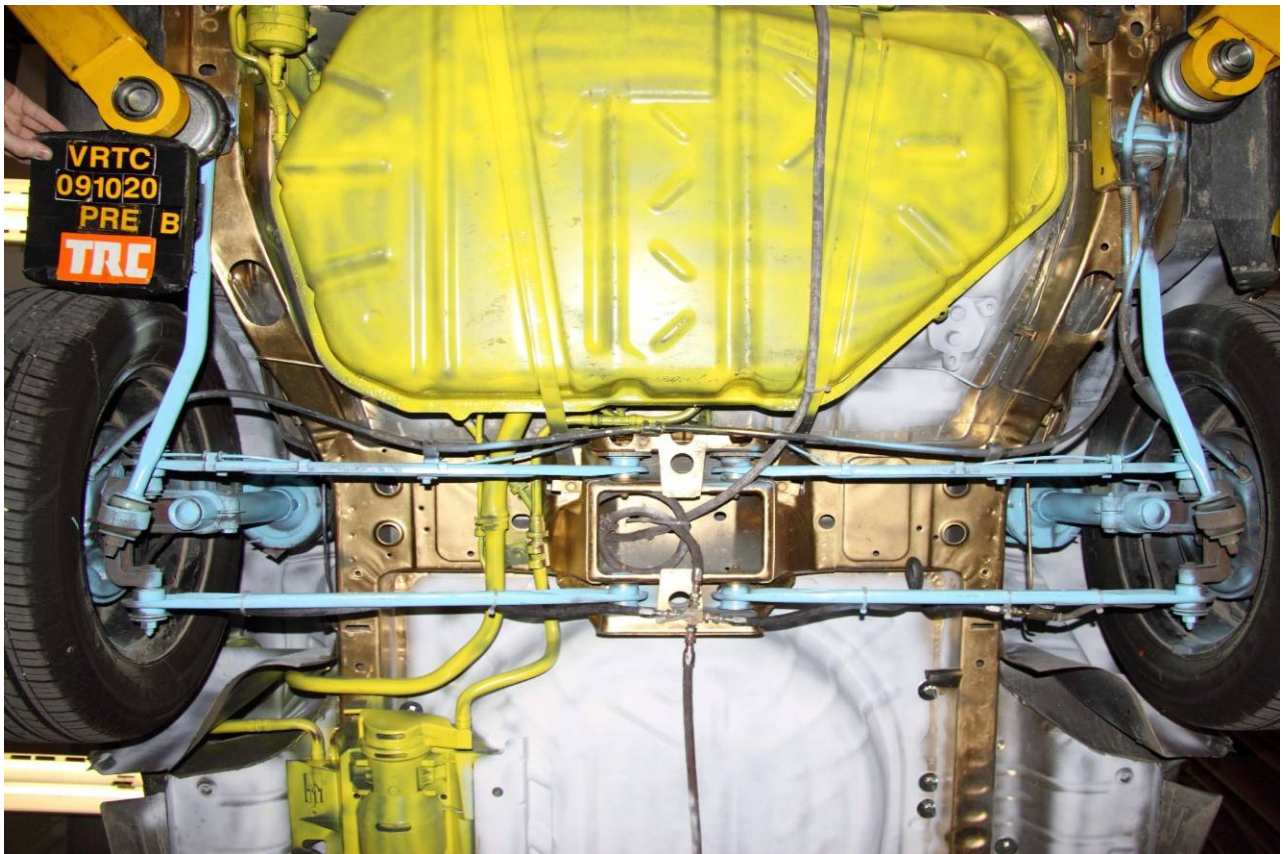
**Figure A-64 Post-Test Bullet Vehicle Mid Front Underbody View**



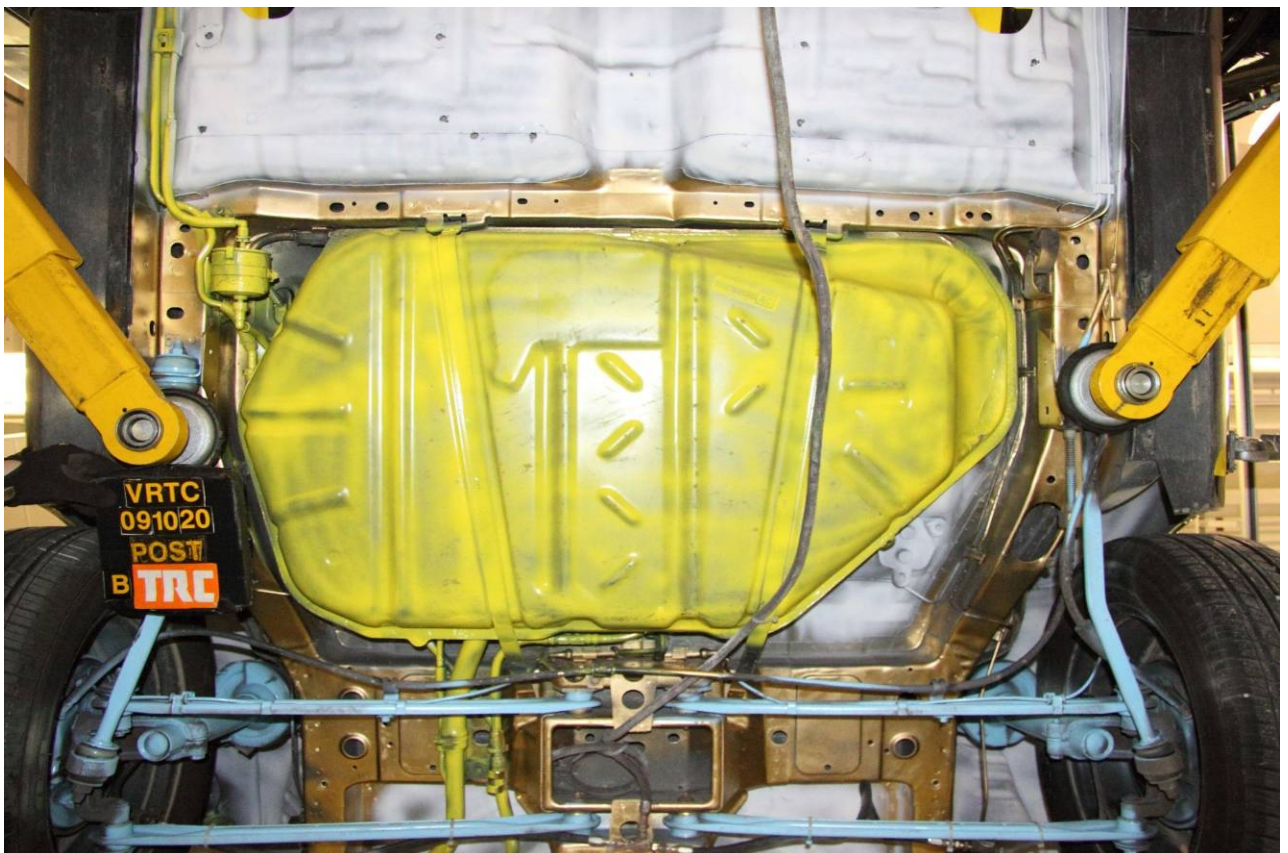
**Figure A-65 Pre-Test Bullet Vehicle Mid Underbody View**



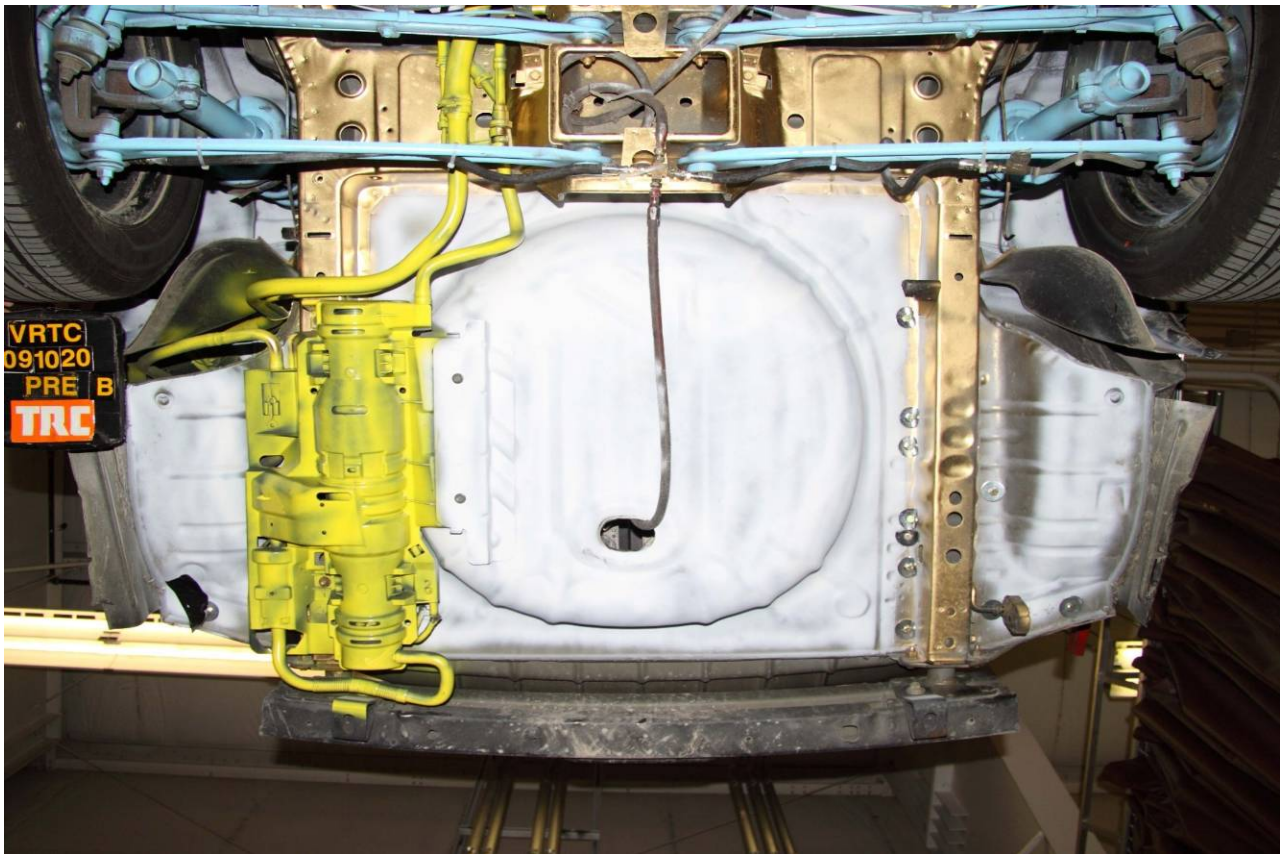
**Figure A-66 Post-Test Bullet Vehicle Mid Underbody View**



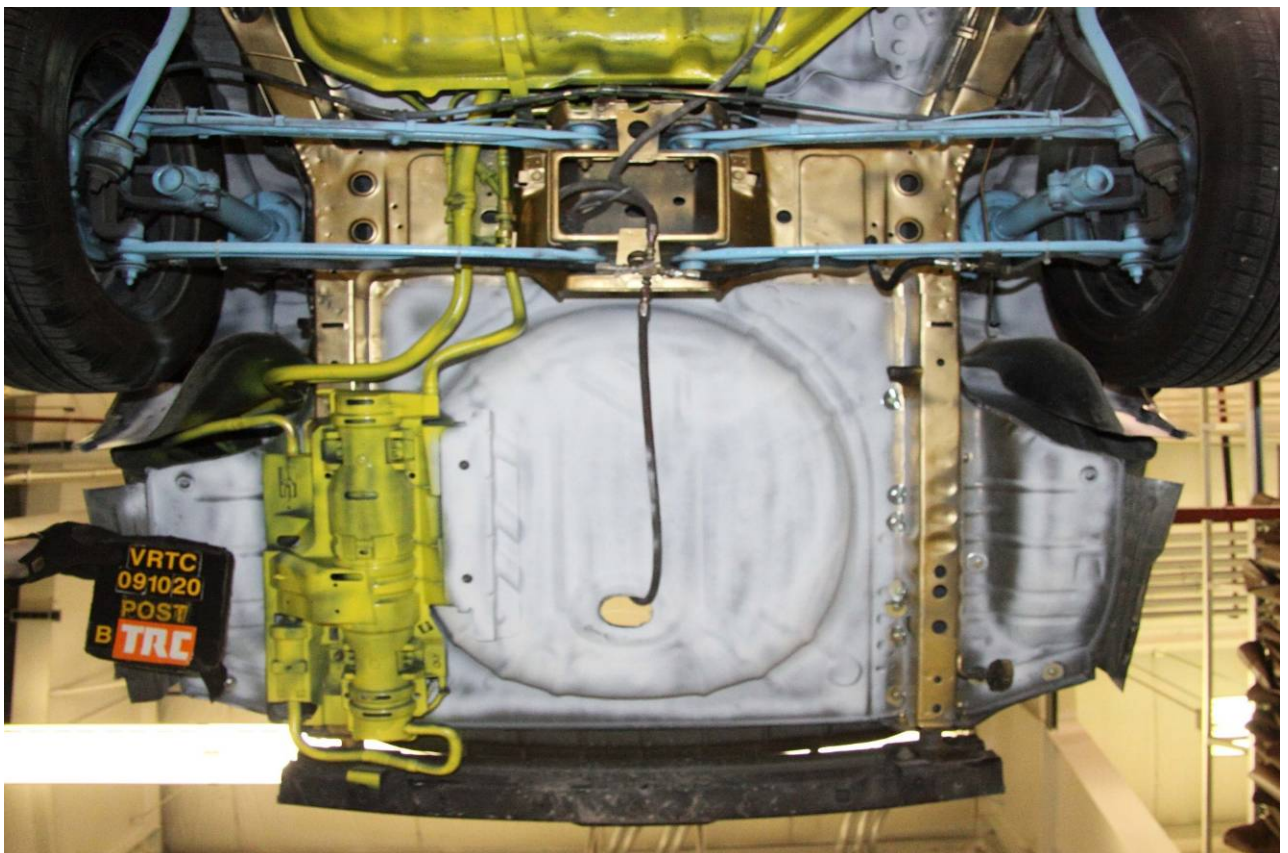
**Figure A-67 Pre-Test Bullet Vehicle Mid Rear Underbody View**



**Figure A-68 Post-Test Bullet Vehicle Mid Rear Underbody View**



**Figure A-69 Pre-Test Bullet Vehicle Rear Underbody View**



**Figure A-70 Post-Test Bullet Vehicle Rear Underbody View**



**Figure A-71 Pre-Test Target Vehicle Driver Dummy through Windshield View**

**Photograph Not Available**

**Figure A-72 Post-Test Target Vehicle Driver Dummy through Windshield View**



**Figure A-73 Pre-Test Target Vehicle Driver Dummy - View 1**



**Figure A-74 Post-Test Target Vehicle Driver Dummy - View 1**



**Figure A-75 Pre-Test Target Vehicle Driver Dummy - View 2**

**Intentionally Left Blank**



**Figure A-76 Pre-Test Target Vehicle Driver Dummy - View 3**



**Figure A-77 Post-Test Target Vehicle Driver Dummy - View 3**



**Figure A-78 Pre-Test Target Vehicle Driver Dummy - View 4**



**Figure A-79 Post-Test Target Vehicle Driver Dummy - View 4**



**Figure A-80 Pre-Test Target Vehicle Driver Dummy Foot Position View**



**Figure A-81 Pre-Test Target Vehicle Driver Dummy Seat Track View**



**Figure A-82 Pre-Test Bullet Vehicle Driver and Passenger Dummies through Windshield View**



**Figure A-83 Post-Test Bullet Vehicle Driver and Passenger Dummies through Windshield View**



Figure A-84 Pre-Test Bullet Vehicle Driver Dummy - View 1



Figure A-85 Post-Test Bullet Vehicle Driver Dummy - View 1



**Figure A-86 Pre-Test Bullet Vehicle Driver Dummy - View 2**



**Figure A-87 Post-Test Bullet Vehicle Driver Dummy - View 2**



**Figure A-88 Pre-Test Bullet Vehicle Driver Dummy - View 3**



**Figure A-89 Post-Test Bullet Vehicle Driver Dummy - View 3**



**Figure A-90 Pre-Test Bullet Vehicle Driver Dummy - View 4**



**Figure A-91 Post-Test Bullet Vehicle Driver Dummy - View 4**



**Figure A-92 Pre-Test Bullet Vehicle Driver Dummy Foot Position View**



**Figure A-93 Pre-Test Bullet Vehicle Driver Dummy Seat Track View**



**Figure A-94 Pre-Test Bullet Vehicle Right Front Passenger Dummy - View 1**



**Figure A-95 Post-Test Bullet Vehicle Right Front Passenger Dummy - View 1**



**Figure A-96 Pre-Test Bullet Vehicle Right Front Passenger Dummy - View 2**

**Photograph Not Available**

**Figure A-97 Post-Test Bullet Vehicle Right Front Passenger Dummy - View 2**



**Figure A-98 Pre-Test Bullet Vehicle Right Front Passenger Dummy - View 3**

**Photograph Not Available**

**Figure A-99 Post-Test Bullet Vehicle Right Front Passenger Dummy - View 3**



**Figure A-100 Pre-Test Bullet Vehicle Right Front Passenger Dummy - View 4**



**Figure A-101 Post-Test Bullet Vehicle Right Front Passenger Dummy - View 4**



**Figure A-102 Pre-Test Bullet Vehicle Right Front Passenger Dummy Foot Position View**



**Figure A-103 Pre-Test Bullet Vehicle Right Front Passenger Dummy Seat Track View**



**Figure A-104 Pre-Test Bullet Vehicle Left Rear Passenger Dummy - View 1**



**Figure A-105 Post-Test Bullet Vehicle Left Rear Passenger Dummy - View 1**



**Figure A-106 Pre-Test Bullet Vehicle Left Rear Passenger Dummy - View 2**

**Photograph Not Available**

**Figure A-107 Post-Test Bullet Vehicle Left Rear Passenger Dummy - View 2**



**Figure A-108 Pre-Test Bullet Vehicle Left Rear Passenger Dummy - View 3**

**Photograph Not Available**

**Figure A-109 Post-Test Bullet Vehicle Left Rear Passenger Dummy - View 3**

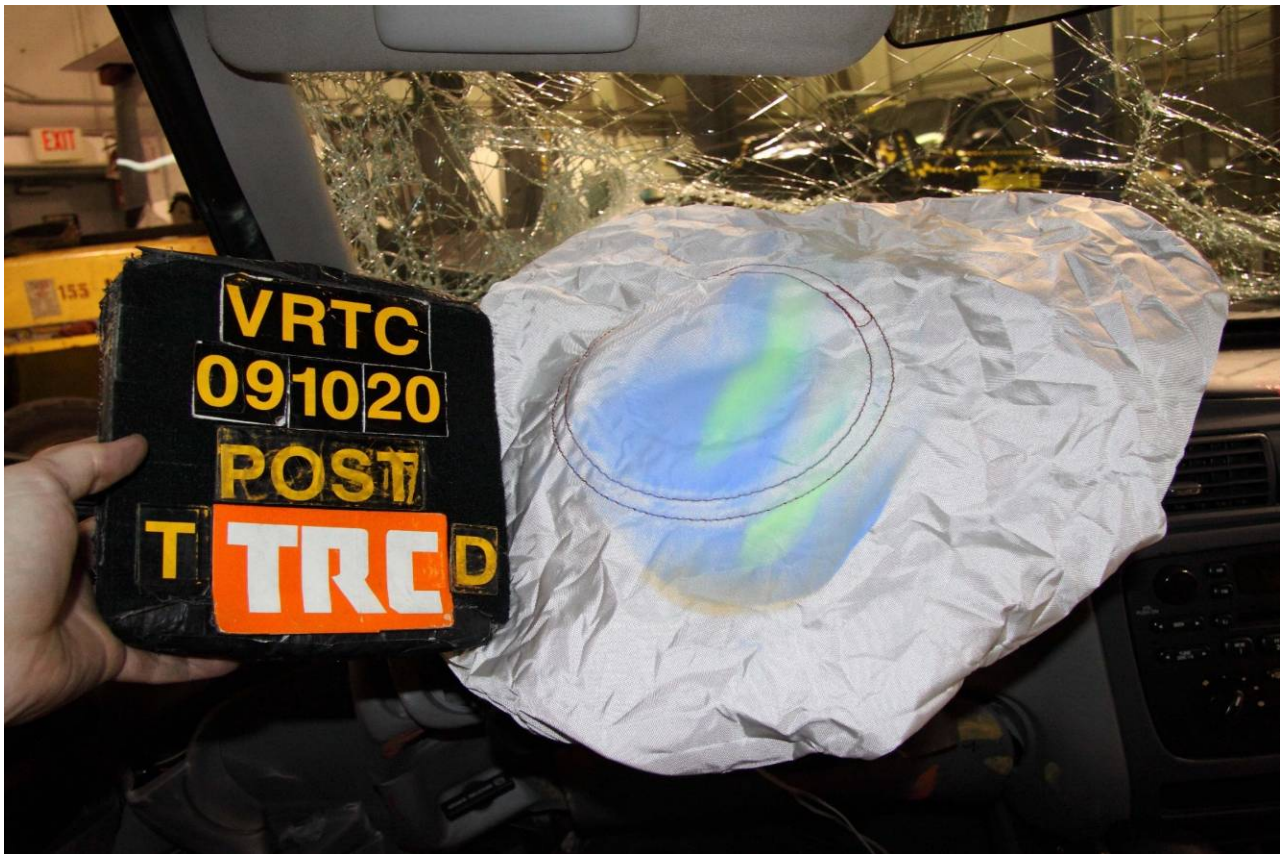


Figure A-110 Post-Test Target Vehicle Driver Dummy Head Contact - View 1



Figure A-111 Post-Test Target Vehicle Driver Dummy Head Contact - View 2

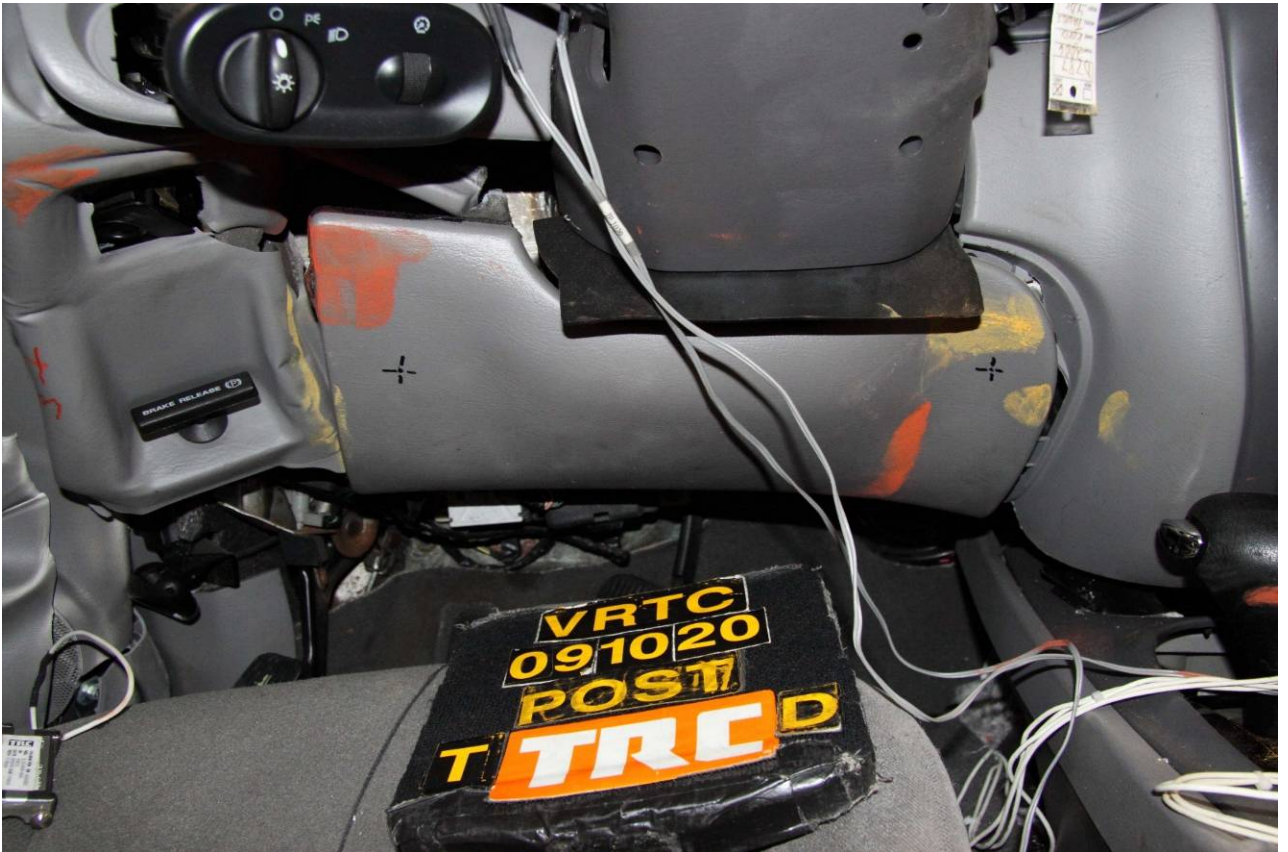


Figure A-112 Post-Test Target Vehicle Driver Dummy Knee Contact - View 1



Figure A-113 Post-Test Target Vehicle Driver Dummy Knee Contact - View 2



**Figure A-114 Post-Test Target Vehicle Driver Door Damage View**



**Figure A-115 Post-Test Target Vehicle Driver B-Pillar Damage View**



Figure A-116 Post-Test Bullet Vehicle Driver Dummy Head Contact - View 1



Figure A-117 Post-Test Bullet Vehicle Driver Dummy Head Contact - View 2



**Figure A-118 Post-Test Bullet Vehicle Driver Dummy Knee Contact – View**



**Figure A-119 Post-Test Bullet Vehicle Driver Dummy Toe board Deformation View**



Figure A-120 Post-Test Bullet Vehicle Right Front Passenger Dummy Head Contact -View 1



Figure A-121 Post-Test Bullet Vehicle Right Front Passenger Dummy Head Contact - View 2



Figure A-122 Post-Test Bullet Vehicle Right Front Passenger Dummy Knee Contact - View 1



Figure A-123 Post-Test Bullet Vehicle Right Front Passenger Dummy  
Toe Board Deformation View



**Figure A-124 Post-Test Primary Light Trap Readout View**



**Figure A-125 Post-Test Secondary Light Trap Readout View**



**Figure A-126 Pre-Test Target Vehicle Ballast View**

**Intentionally Left Blank**



Figure A-127 Pre-Test Target Vehicle Certification Label View



Figure A-128 Pre-Test Target Vehicle Tire Load Label View



Figure A-129 Pre-Test Bullet Vehicle Certification Label View



Figure A-130 Pre-Test Bullet Vehicle Tire Load Label View

Appendix B

Data Plots



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Head X-Axis Acceleration

Date: 10/20/2009

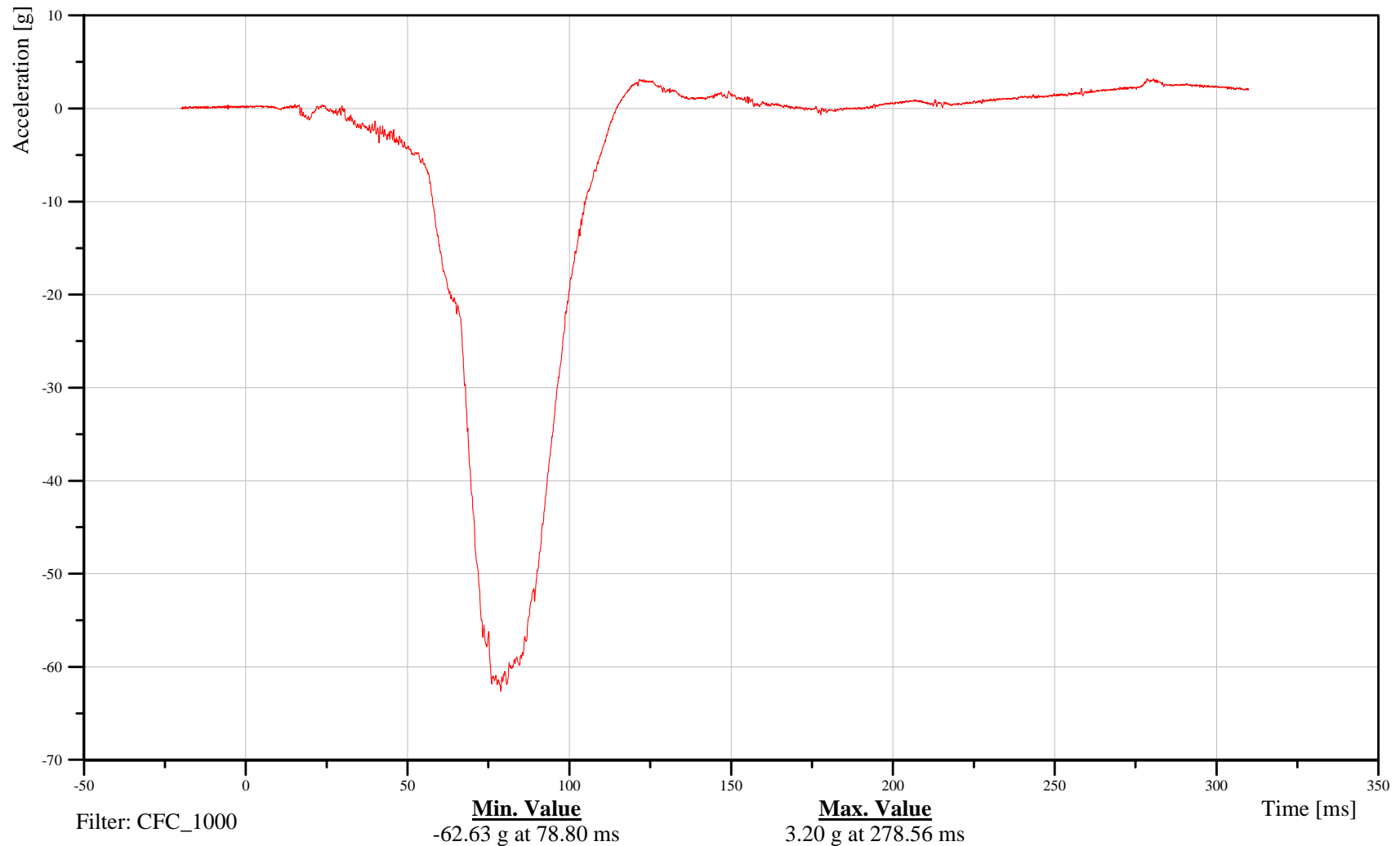
Time: 16:35

Customer: VRTC

# 11HEADCG00H3ACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-2

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Head Y-Axis Acceleration

Date: 10/20/2009

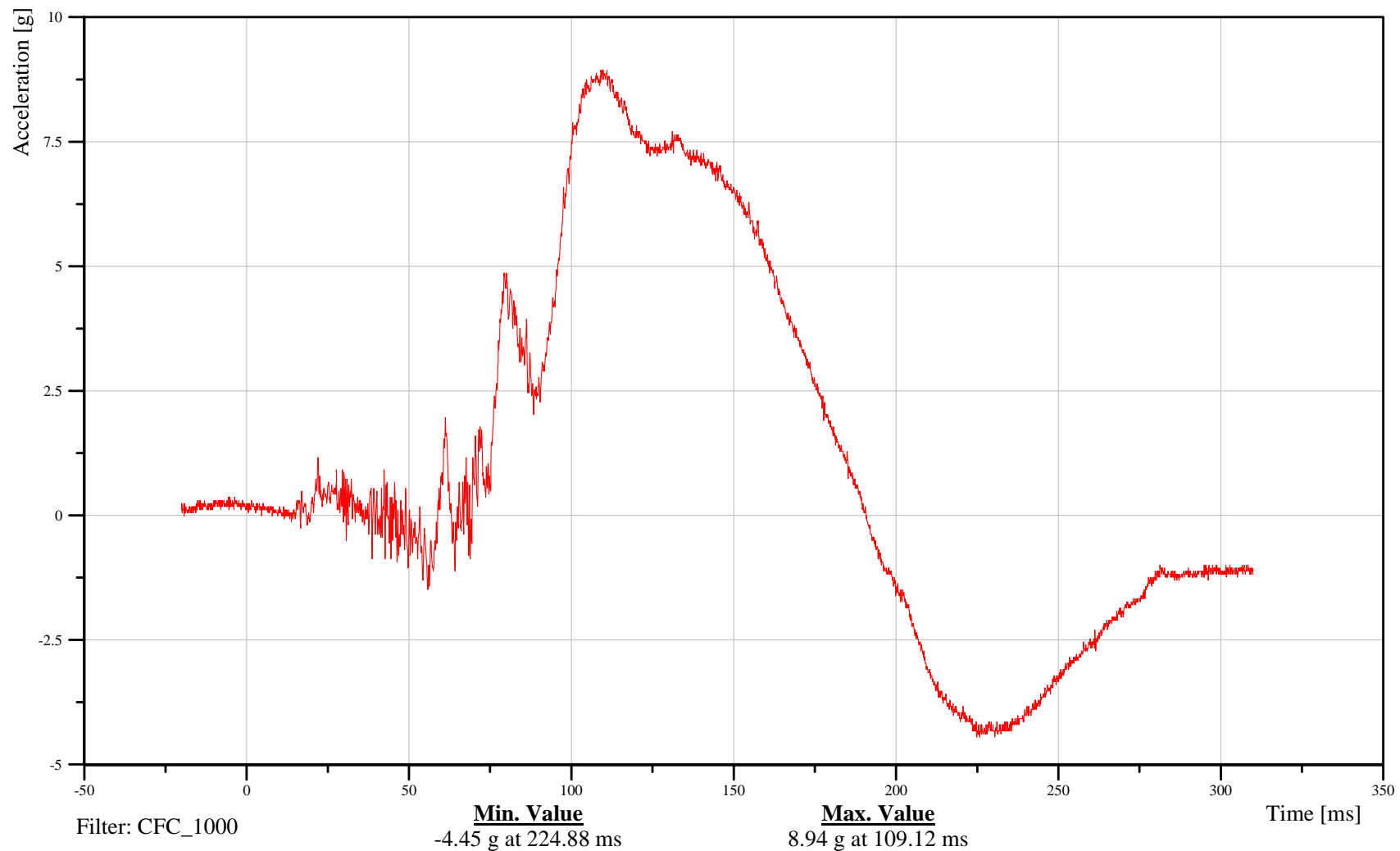
Time: 16:35

Customer: VRTC

# 11HEADCG00H3ACYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-3

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Head Z-Axis Acceleration

Date: 10/20/2009

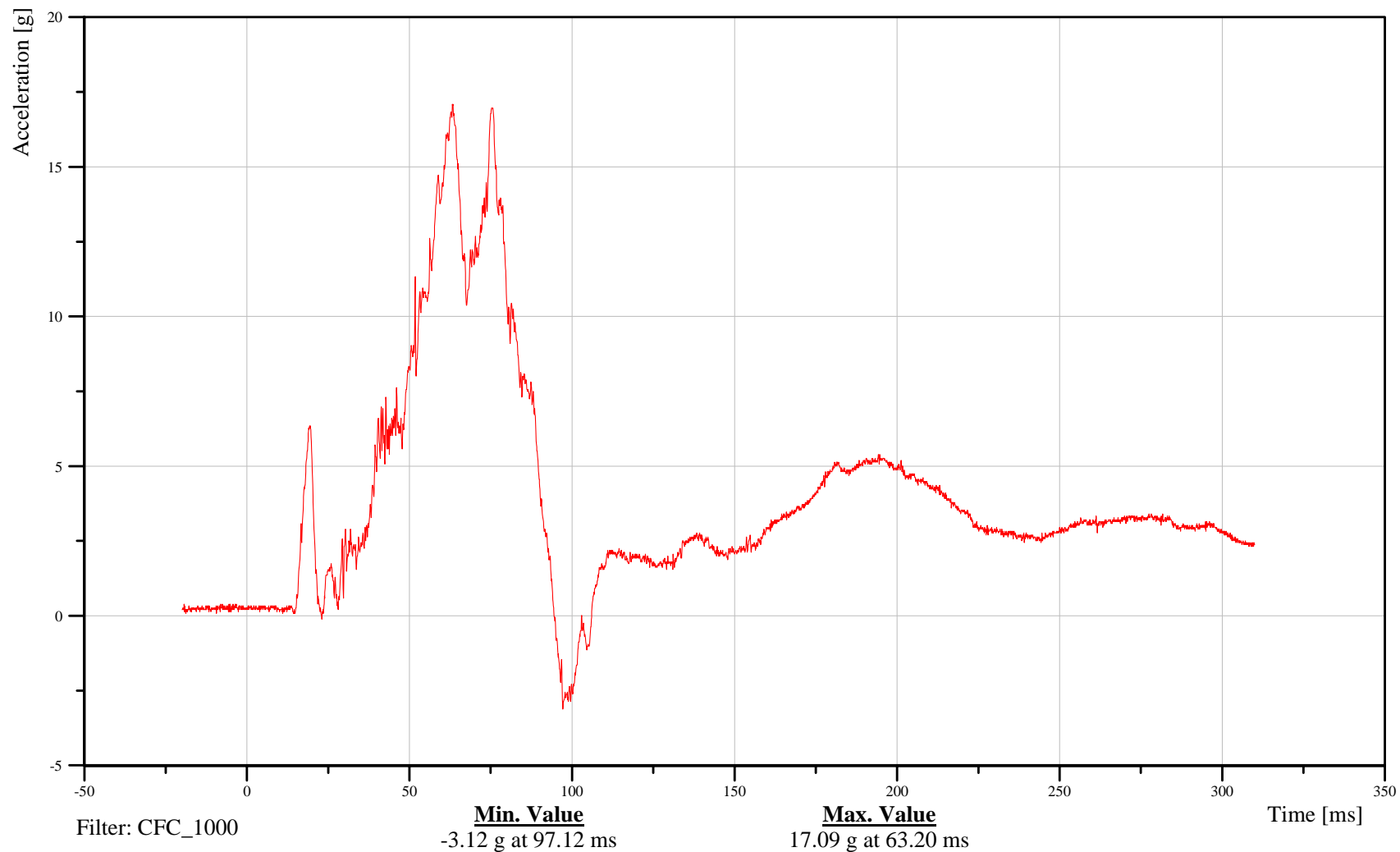
Time: 16:35

Customer: VRTC

### 11HEADCG00H3ACZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-4

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Driver Head Resultant Acceleration

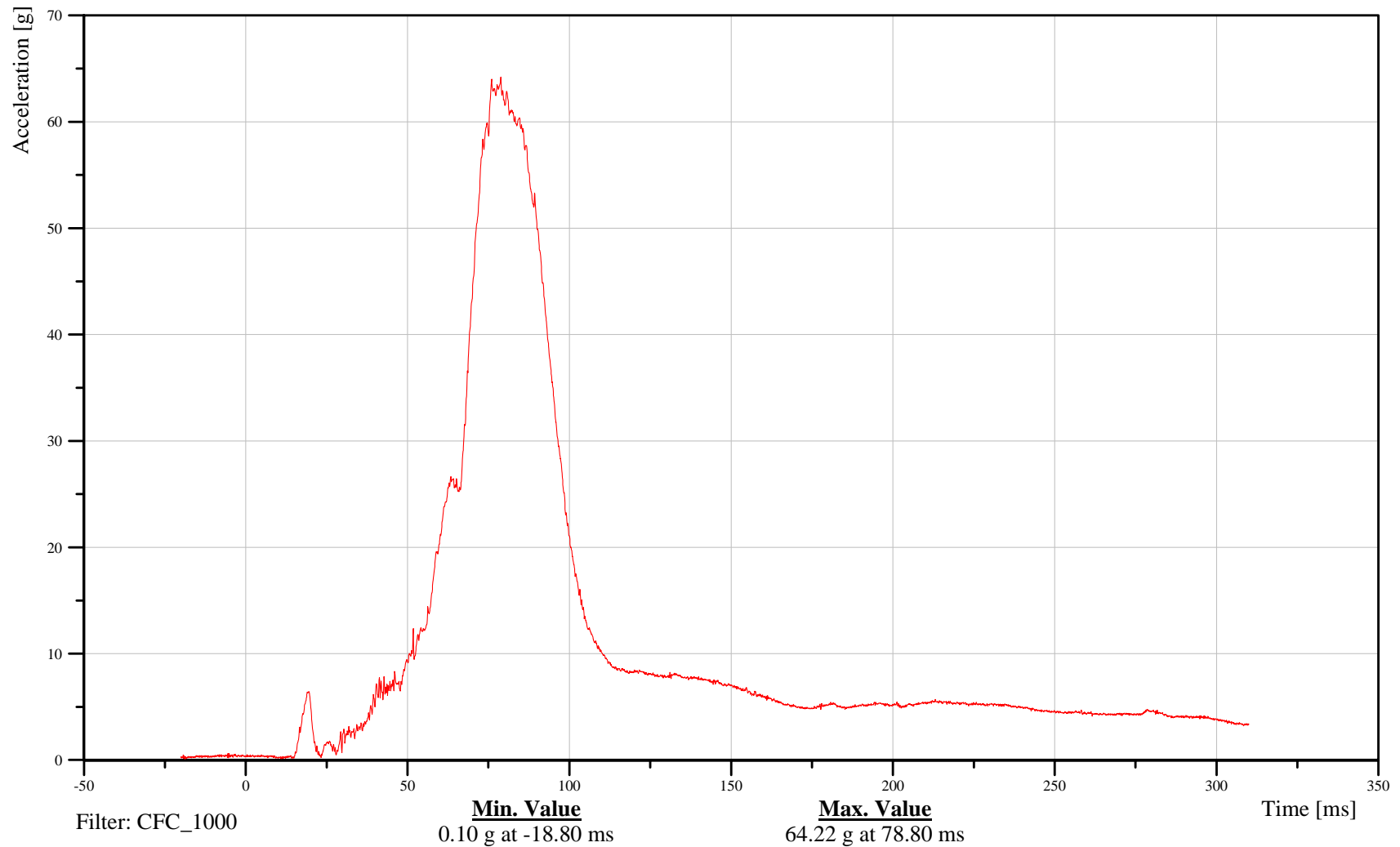
Time: 16:35

Customer: VRTC

### 11HEADCG00H3ACRA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-5

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

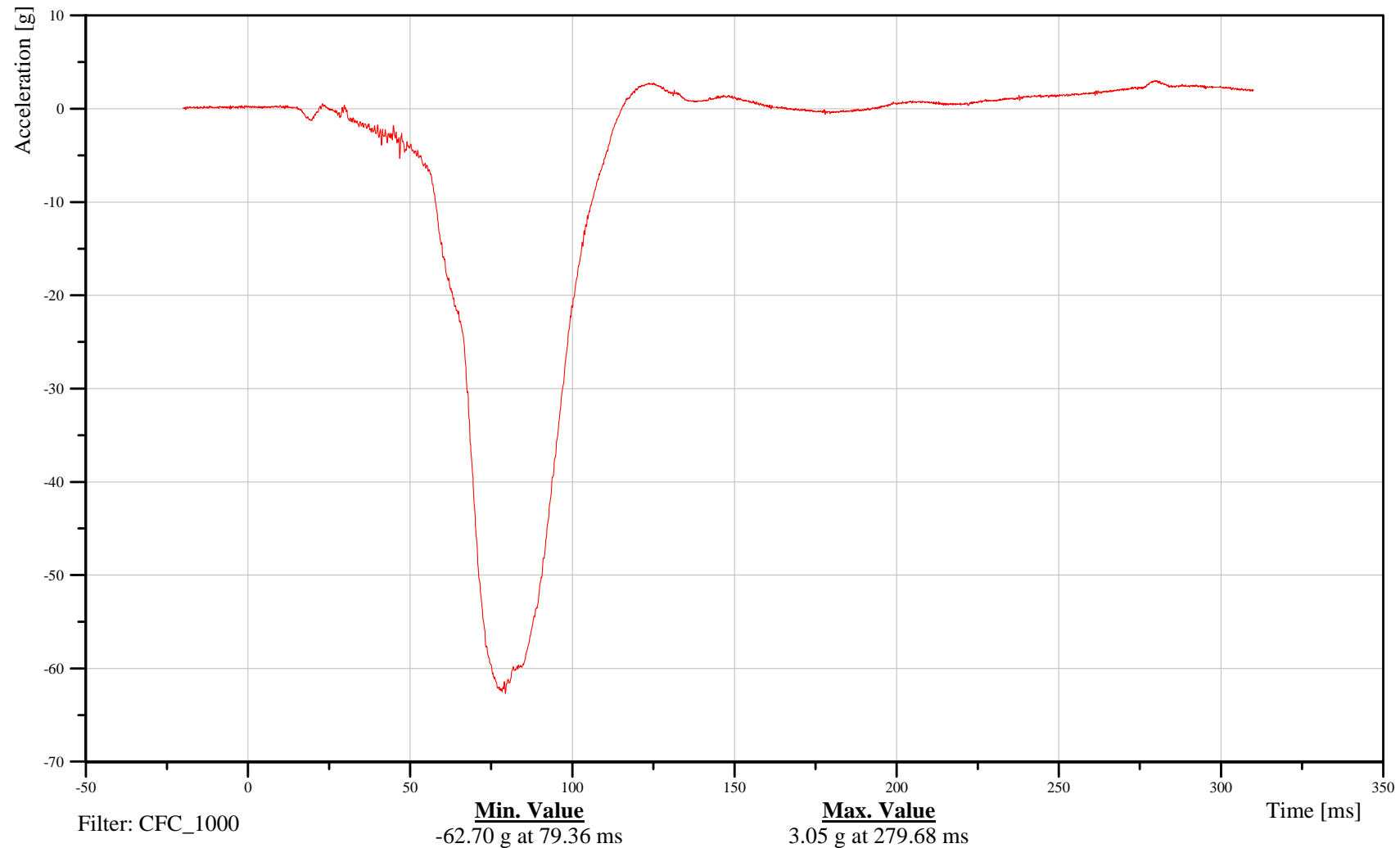
## Bullet Vehicle Driver Head Redundant X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11HEADCGRDH3ACXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-6

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Head Redundant Y-Axis Acceleration

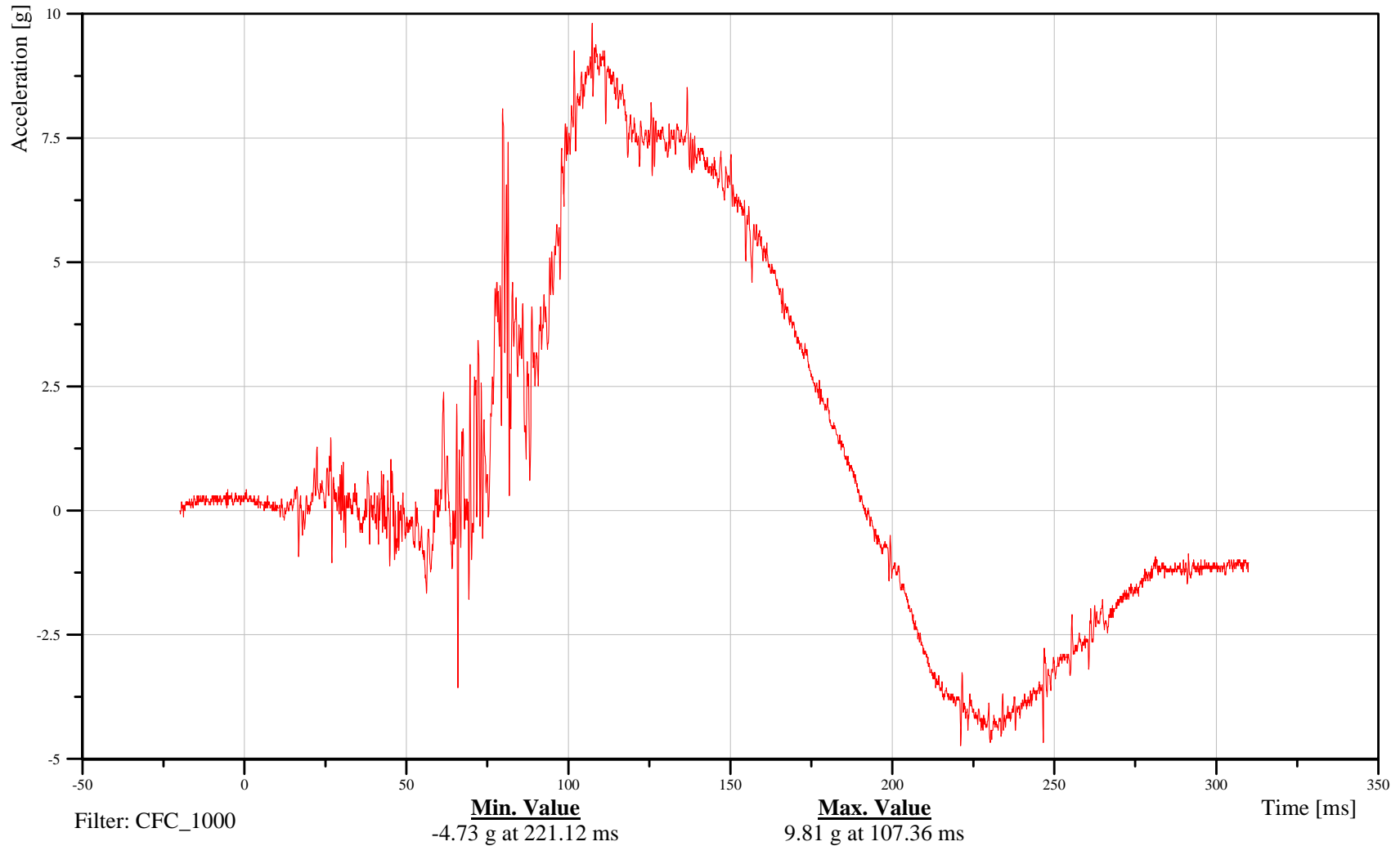
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11HEADCGRDH3ACYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-7

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

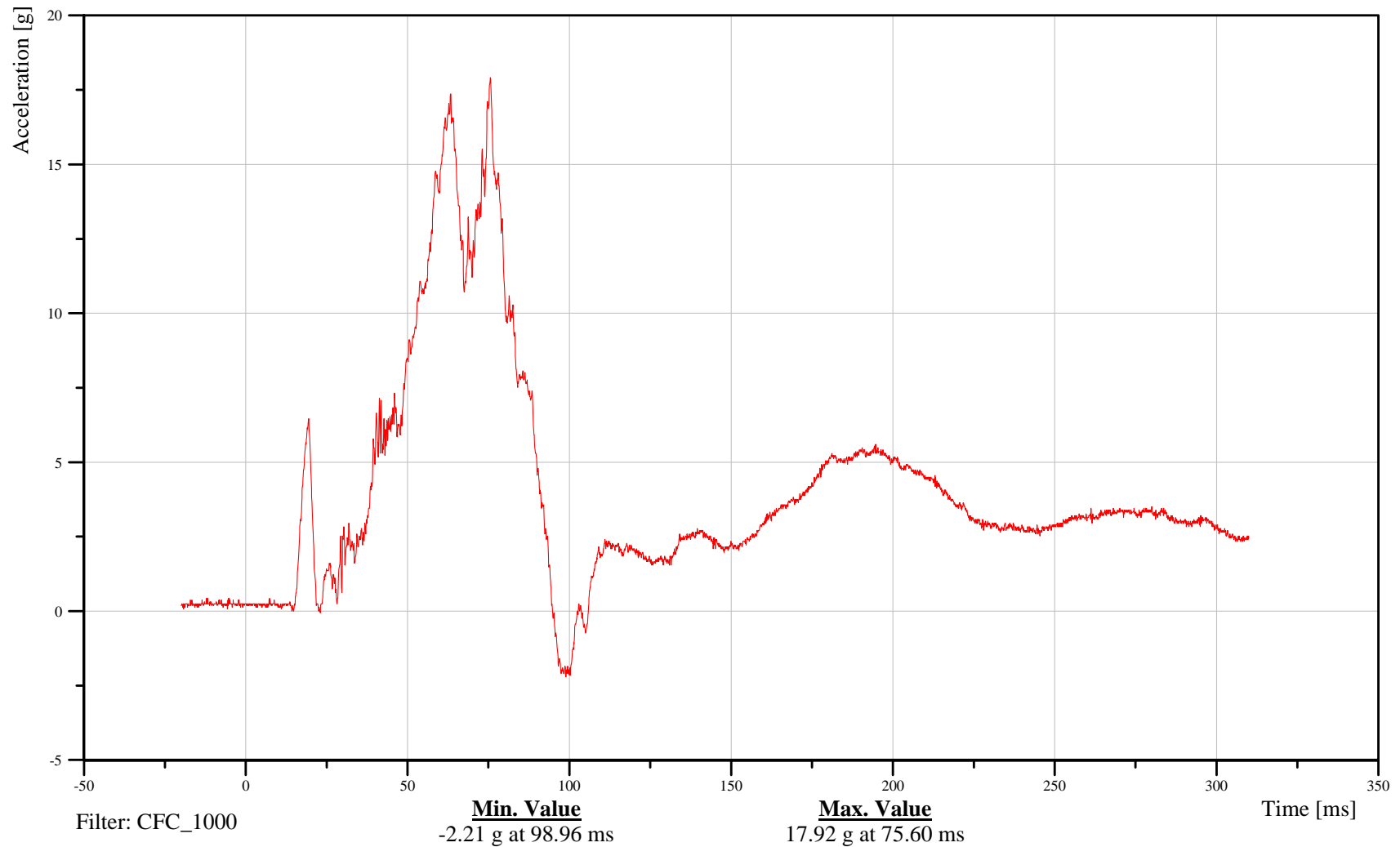
## Bullet Vehicle Driver Head Redundant Z-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11HEADCGRDH3ACZA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-8

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

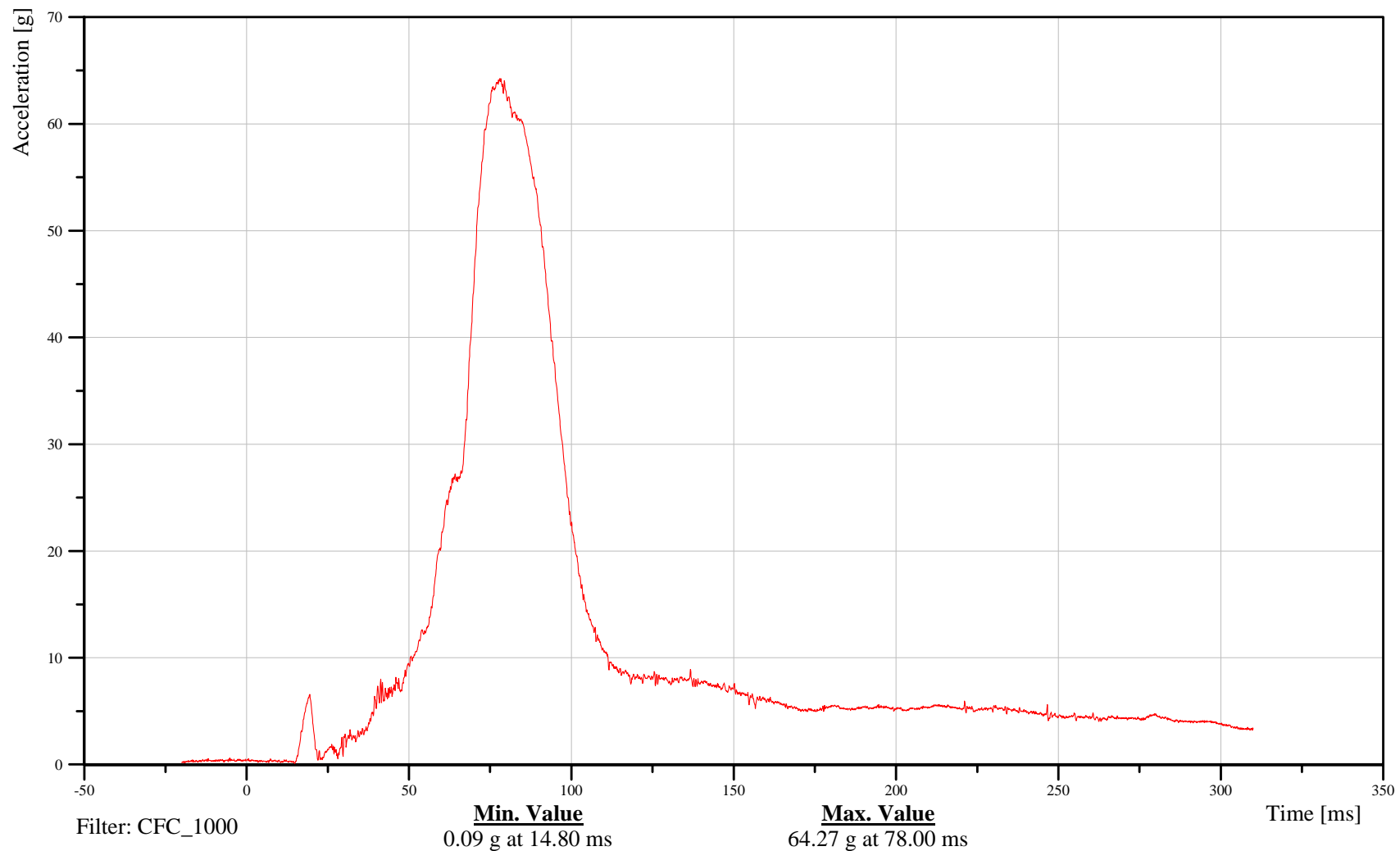
## Bullet Vehicle Driver Head Redundant Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11HEADCGRDH3ACRA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-9

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Driver Upper Neck X-Axis Force

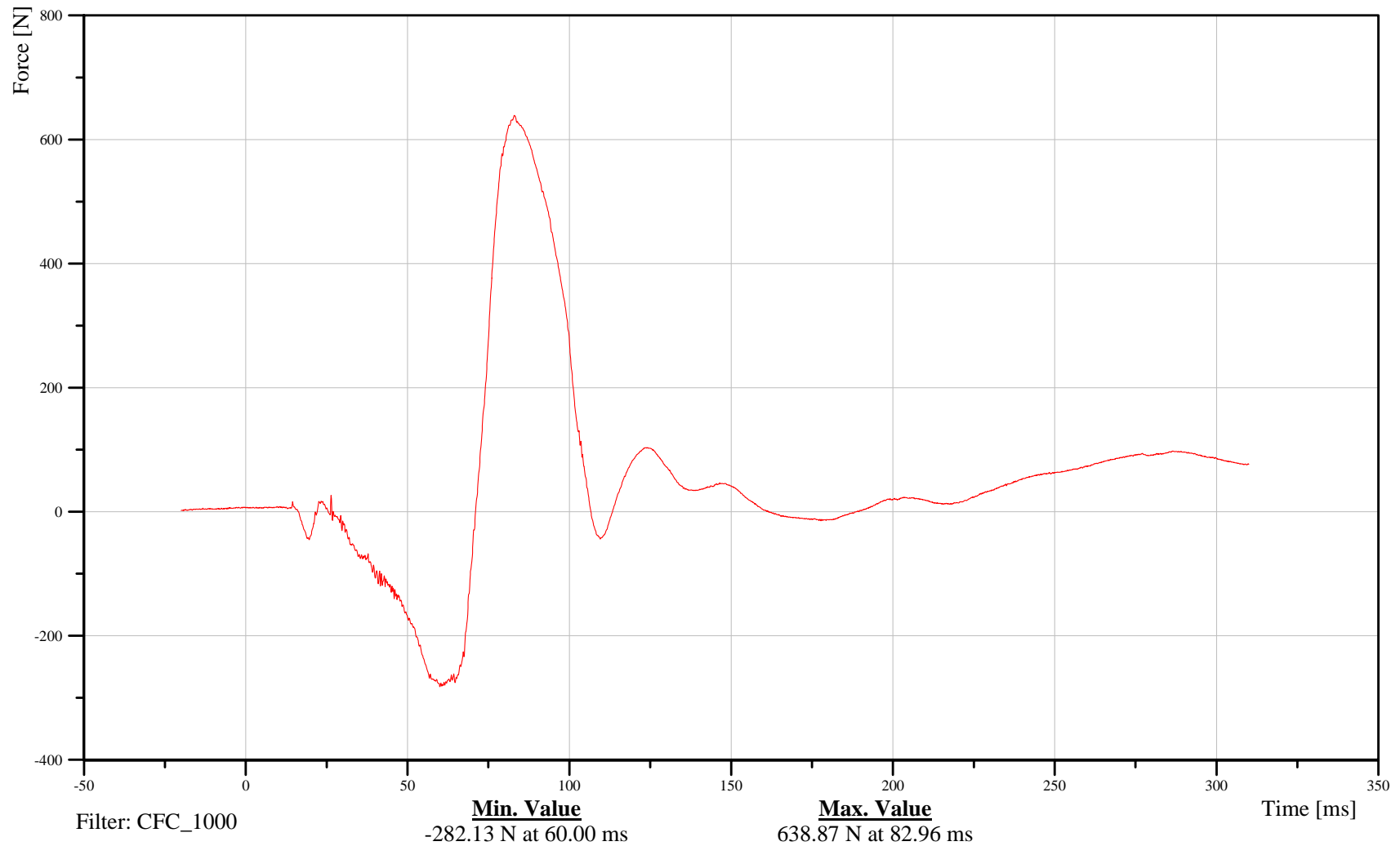
Time: 16:35

Customer: VRTC

# 11NECKUP00H3FOXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-10

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Driver Upper Neck Y-Axis Force

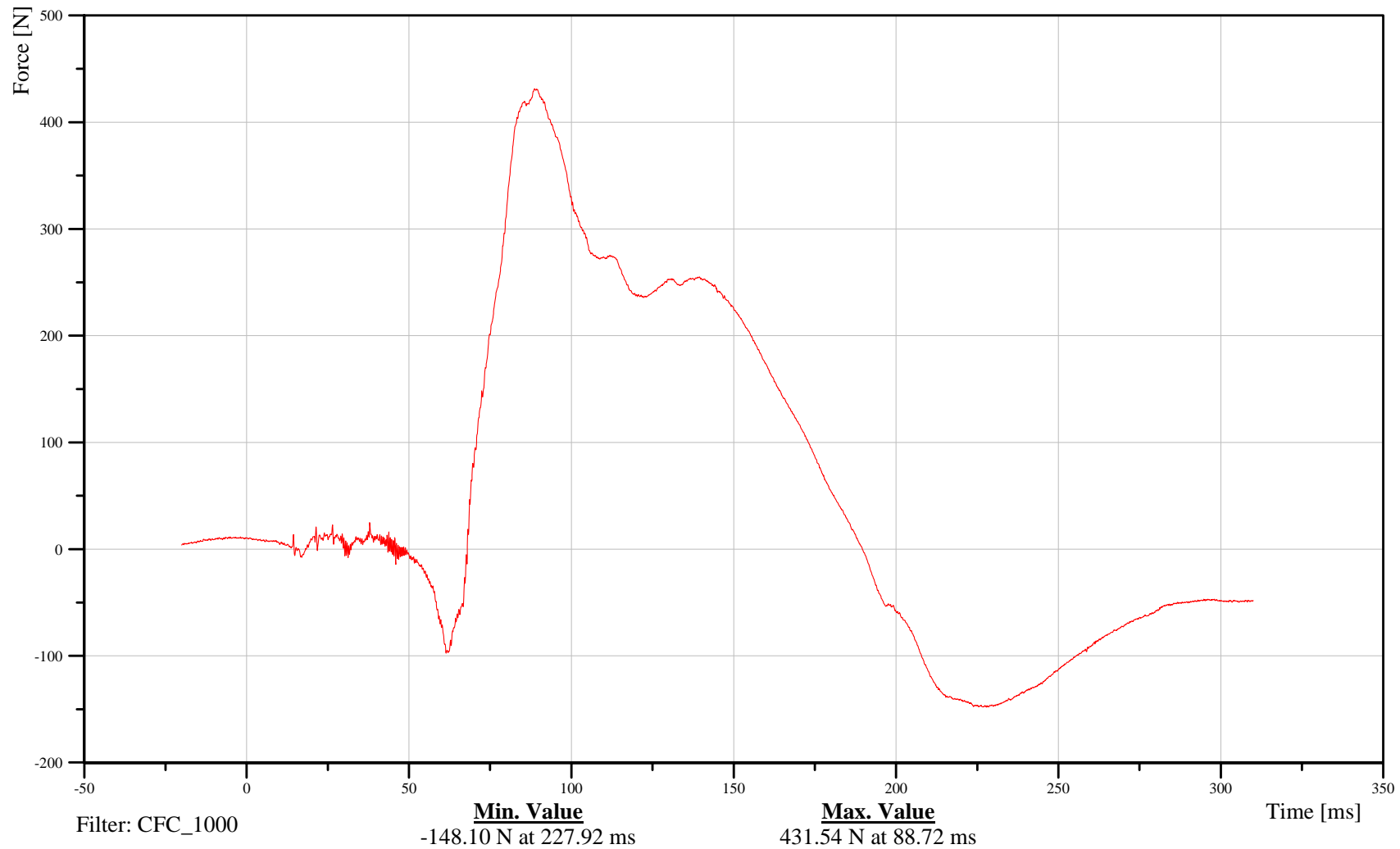
Time: 16:35

Customer: VRTC

# 11NECKUP00H3FOYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-11

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Driver Upper Neck Z-Axis Force

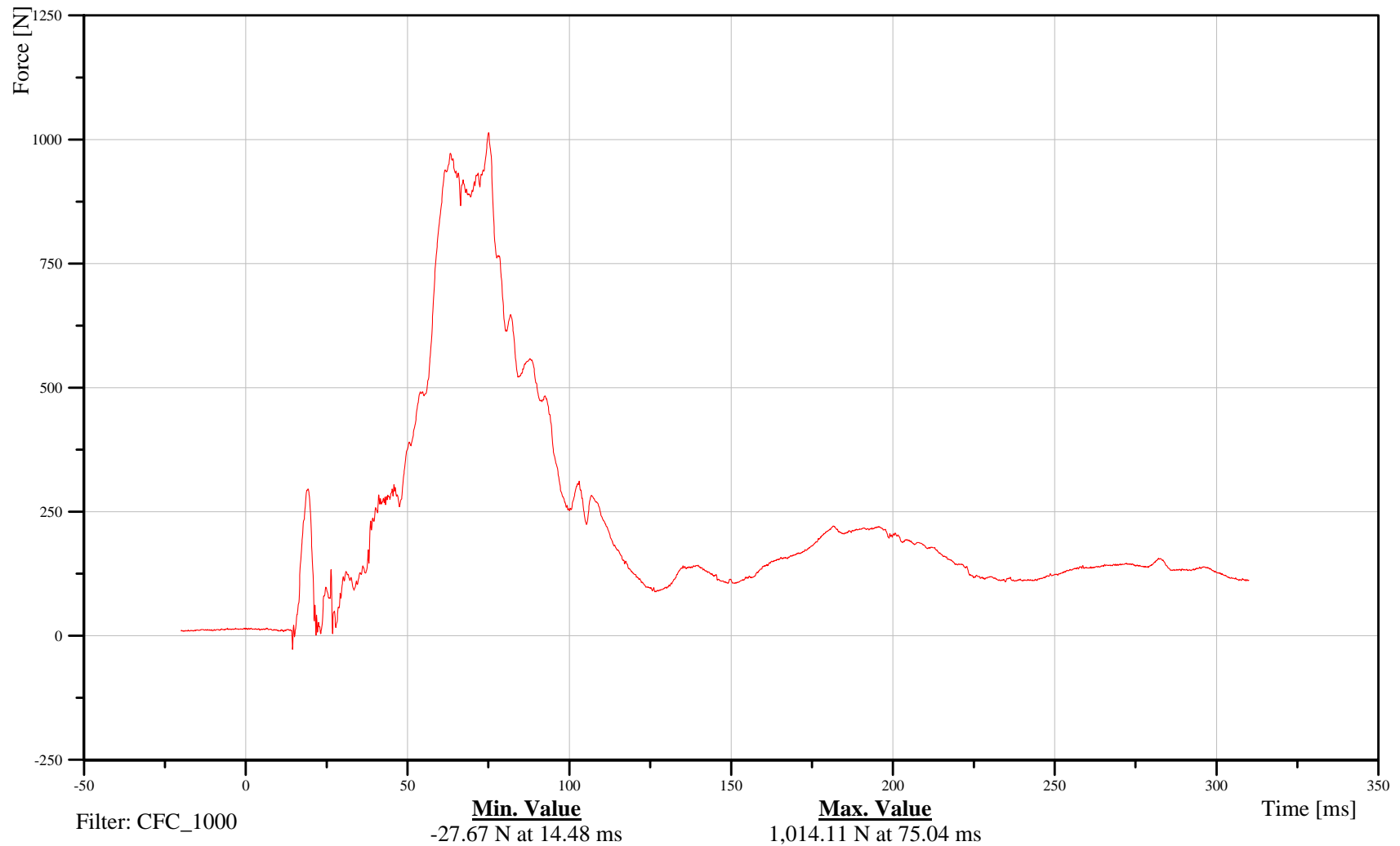
Time: 16:35

Customer: VRTC

# 11NECKUP00H3FOZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-12

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

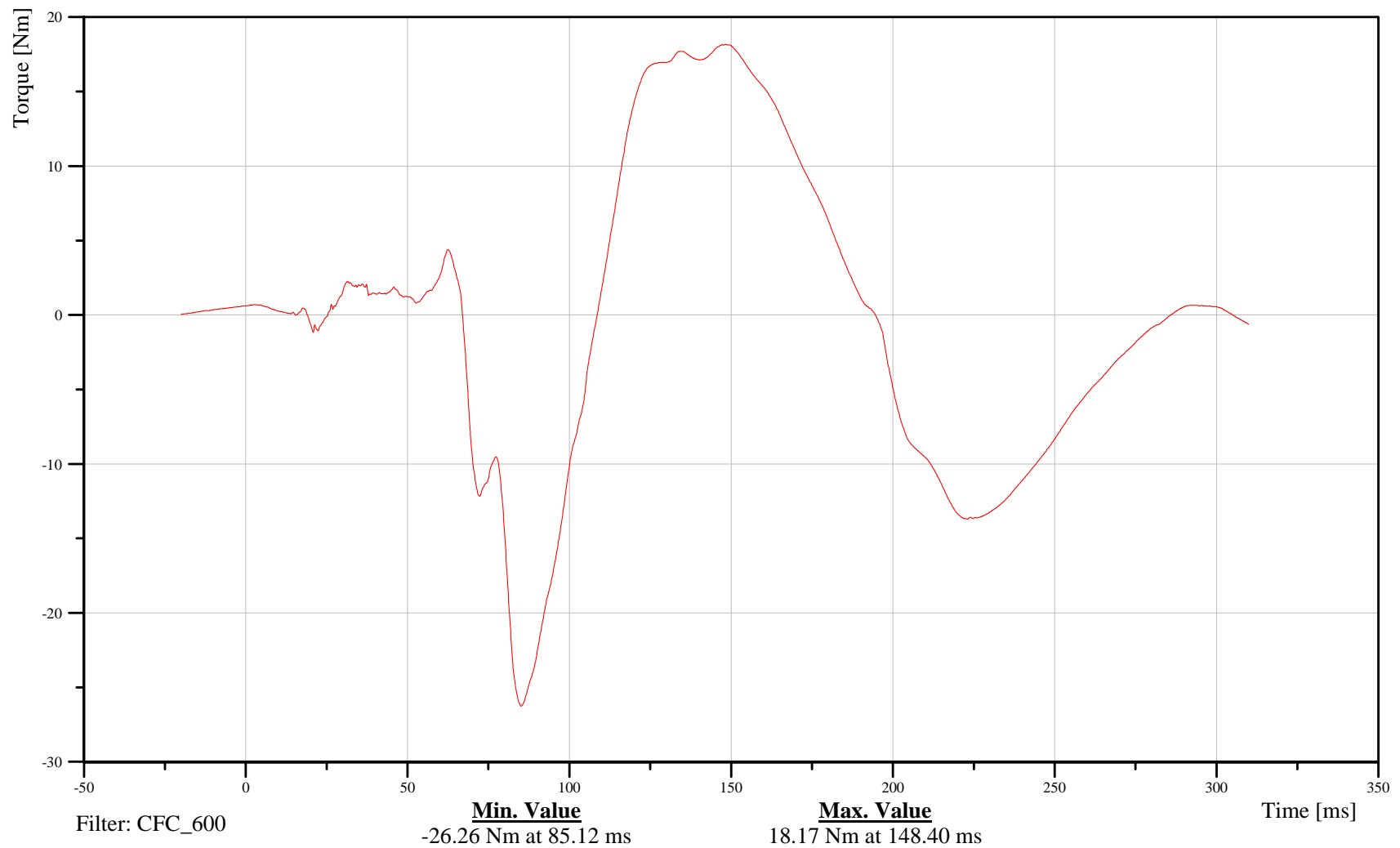
## Bullet Vehicle Driver Upper Neck Moment About X Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11NECKUP00H3MOXB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-13

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

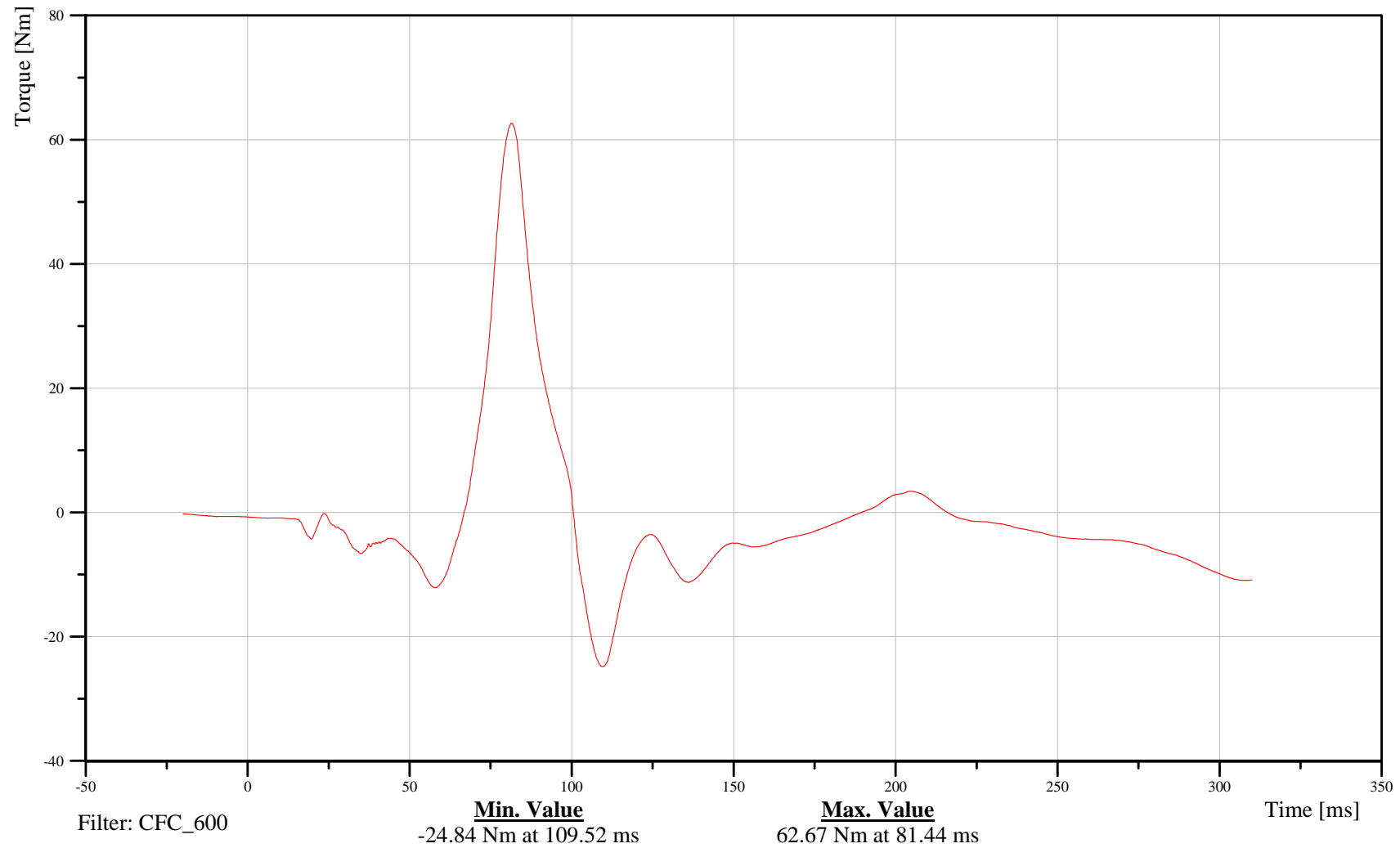
## Bullet Vehicle Driver Upper Neck Moment About Y Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11NECKUP00H3MOYB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-14

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Upper Neck Moment About Z Axis

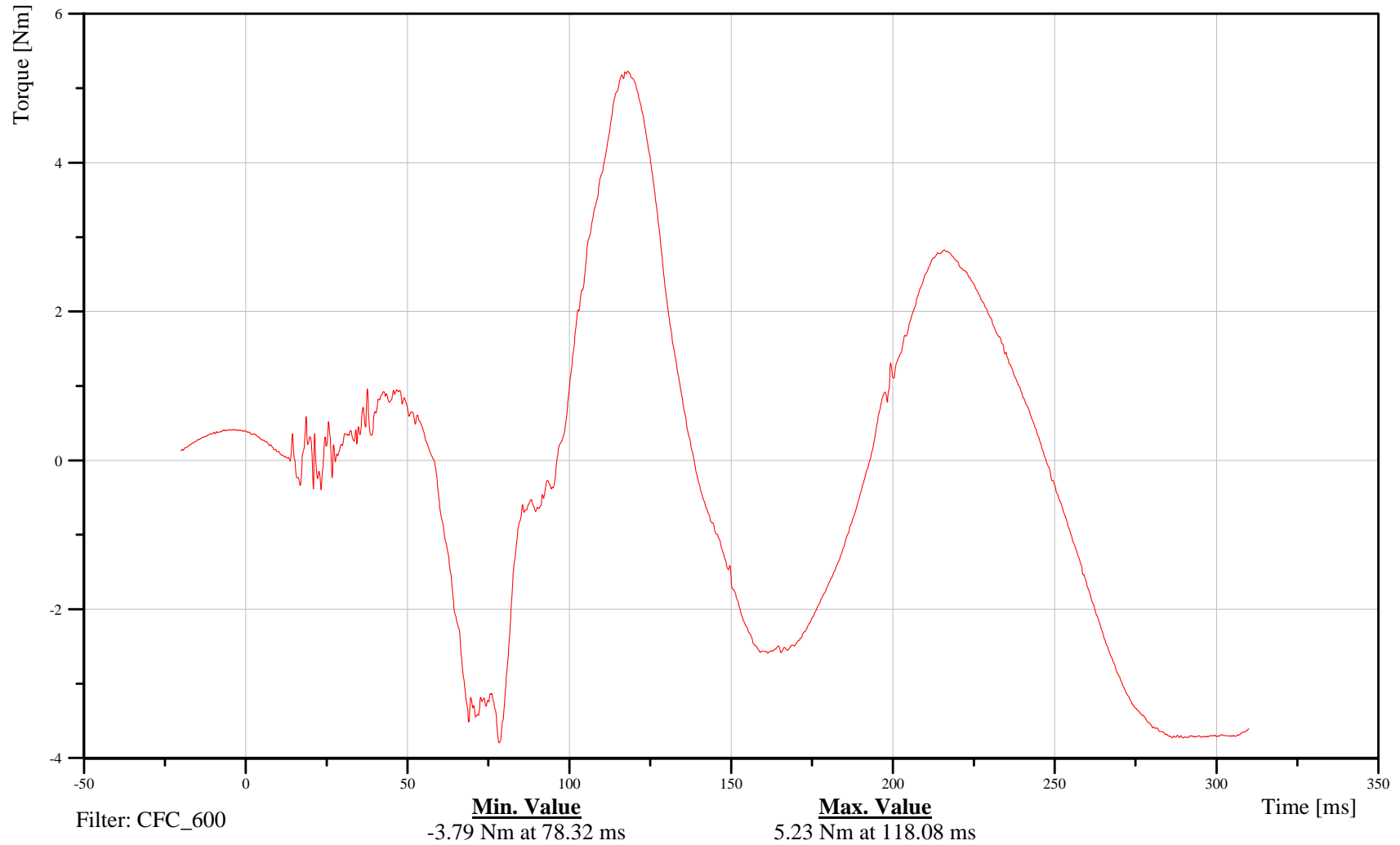
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11NECKUP00H3MOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-15

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

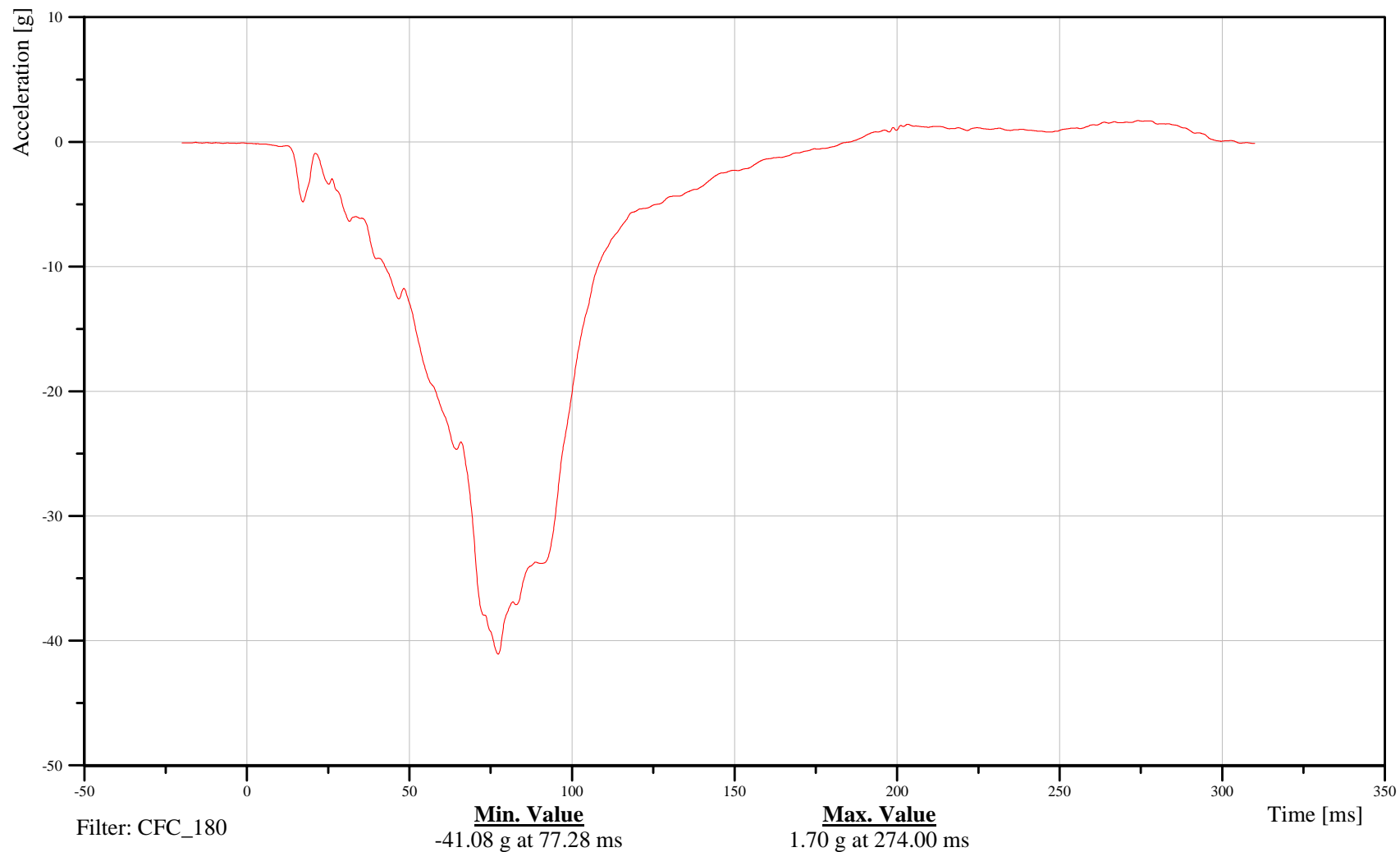
## Bullet Vehicle Driver Chest X-Axis Acceleration

Customer: VRTC

# 11CHSTCG00H3ACXC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-16

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Driver Chest Y-Axis Acceleration

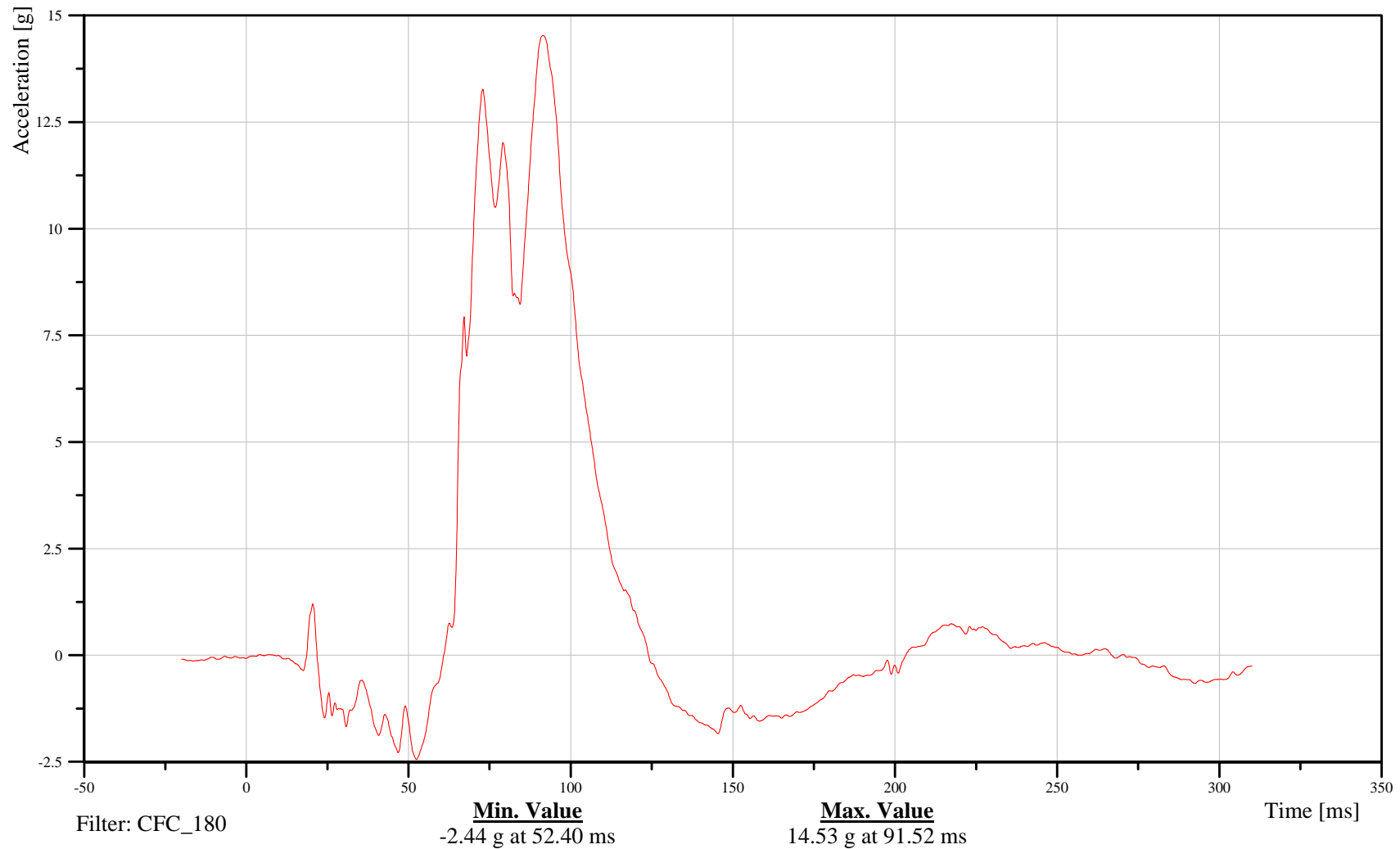
Time: 16:35

Customer: VRTC

# 11CHSTCG00H3ACYC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-17

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Chest Z-Axis Acceleration

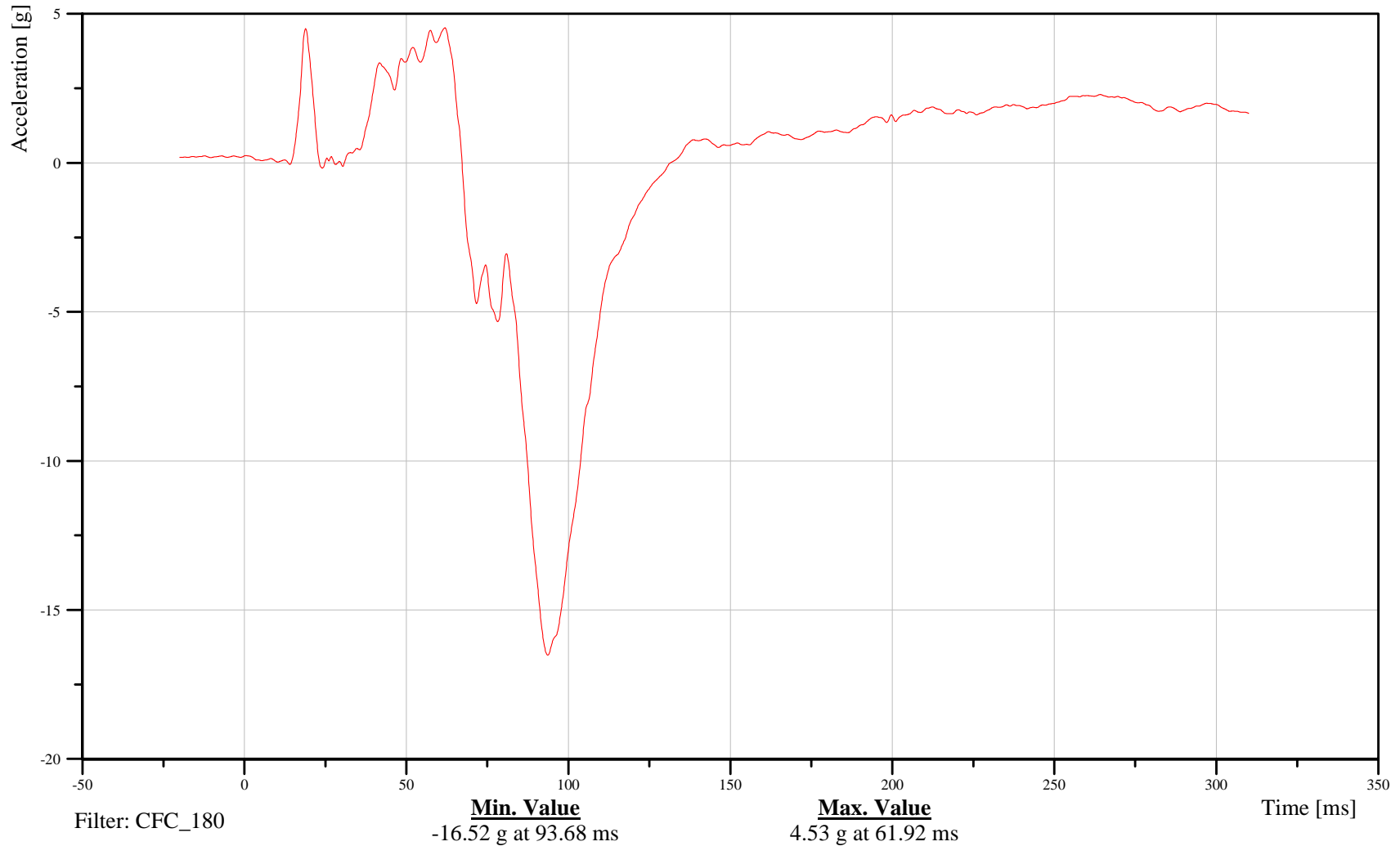
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

# 11CHSTCG00H3ACZC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-18

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Driver Chest Resultant Acceleration

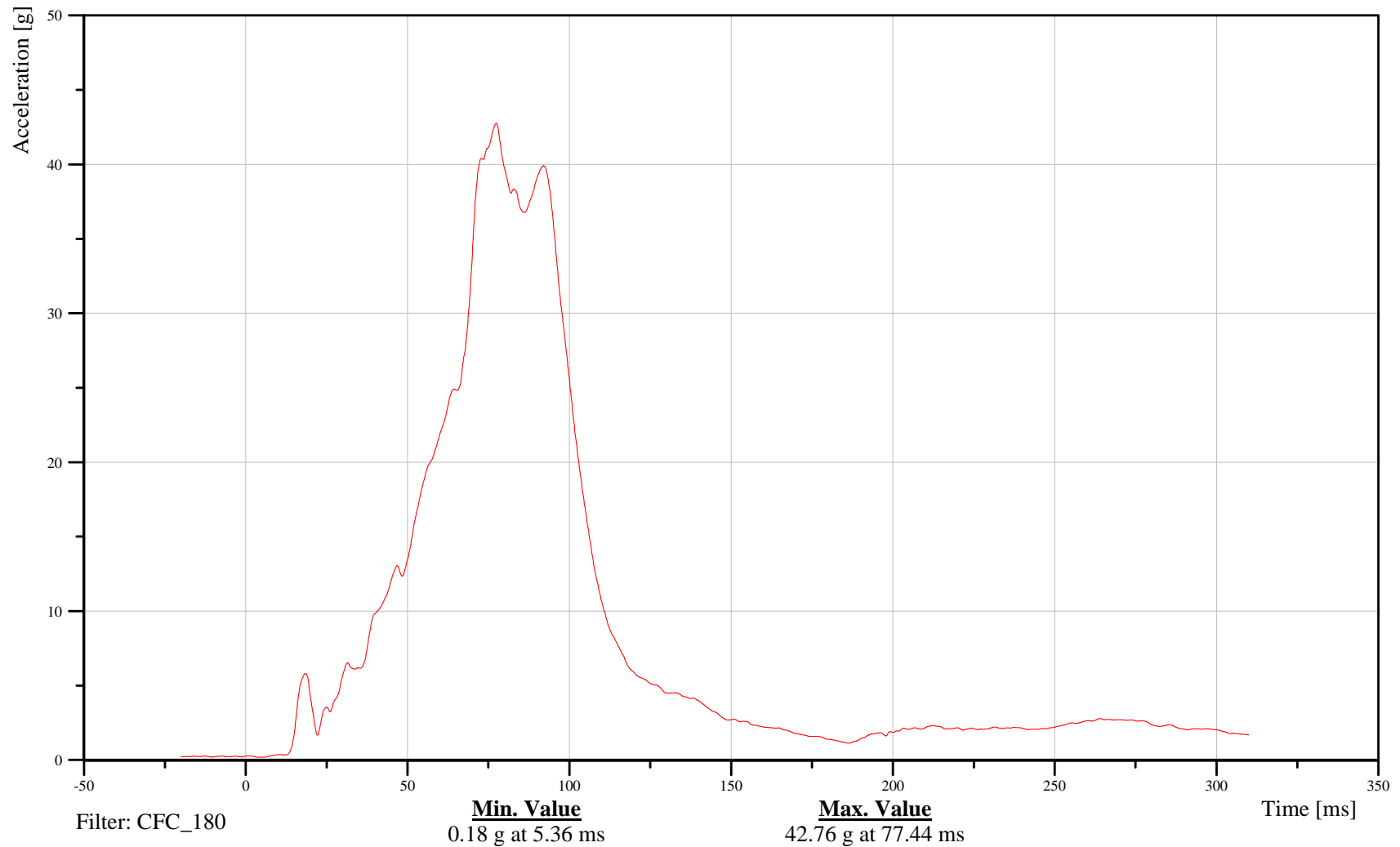
Time: 16:35

Customer: VRTC

# 11CHSTCG00H3ACRC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-19

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

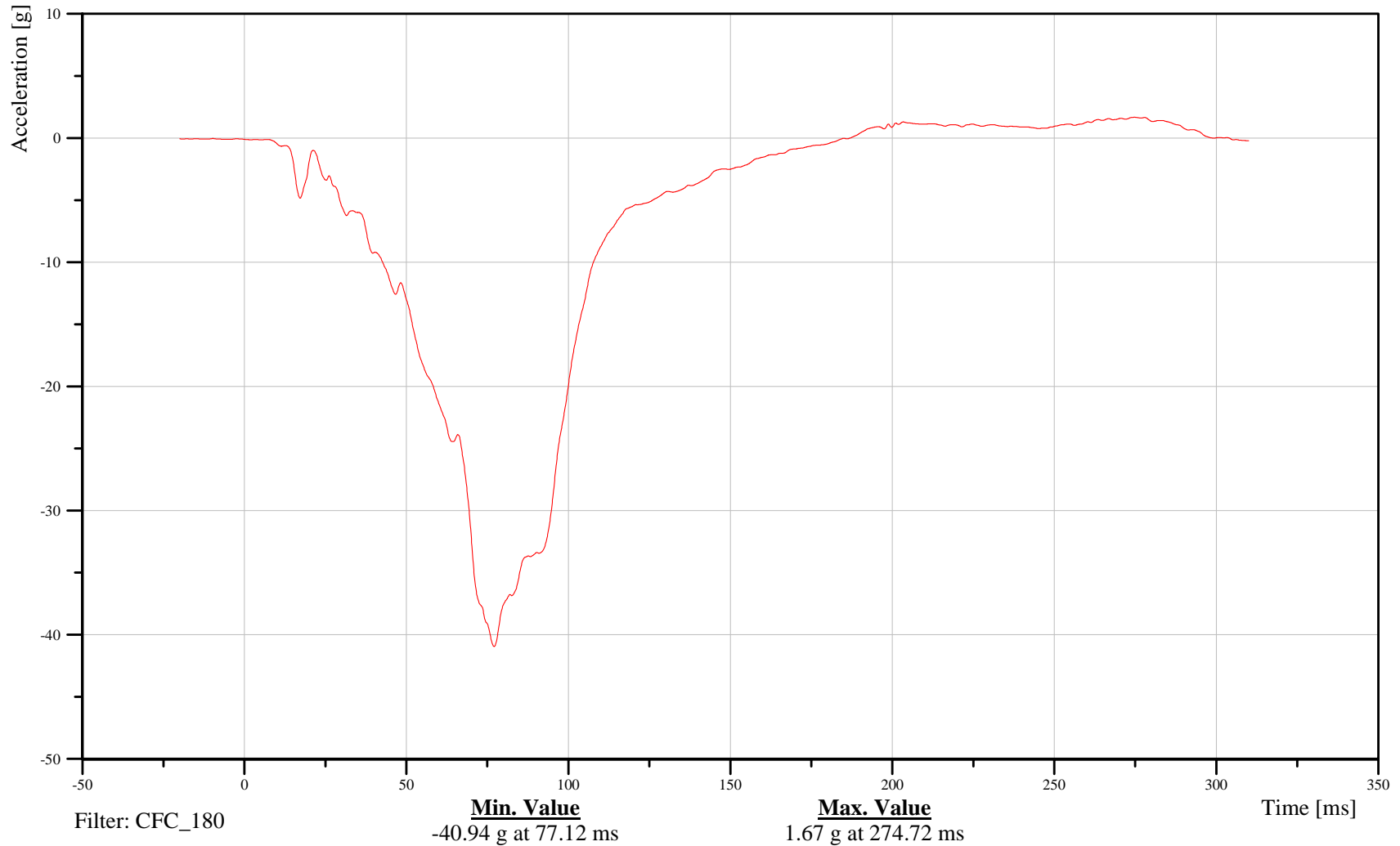
## Bullet Vehicle Driver Chest Redundant X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11CHSTCGRDH3ACXC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-20

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

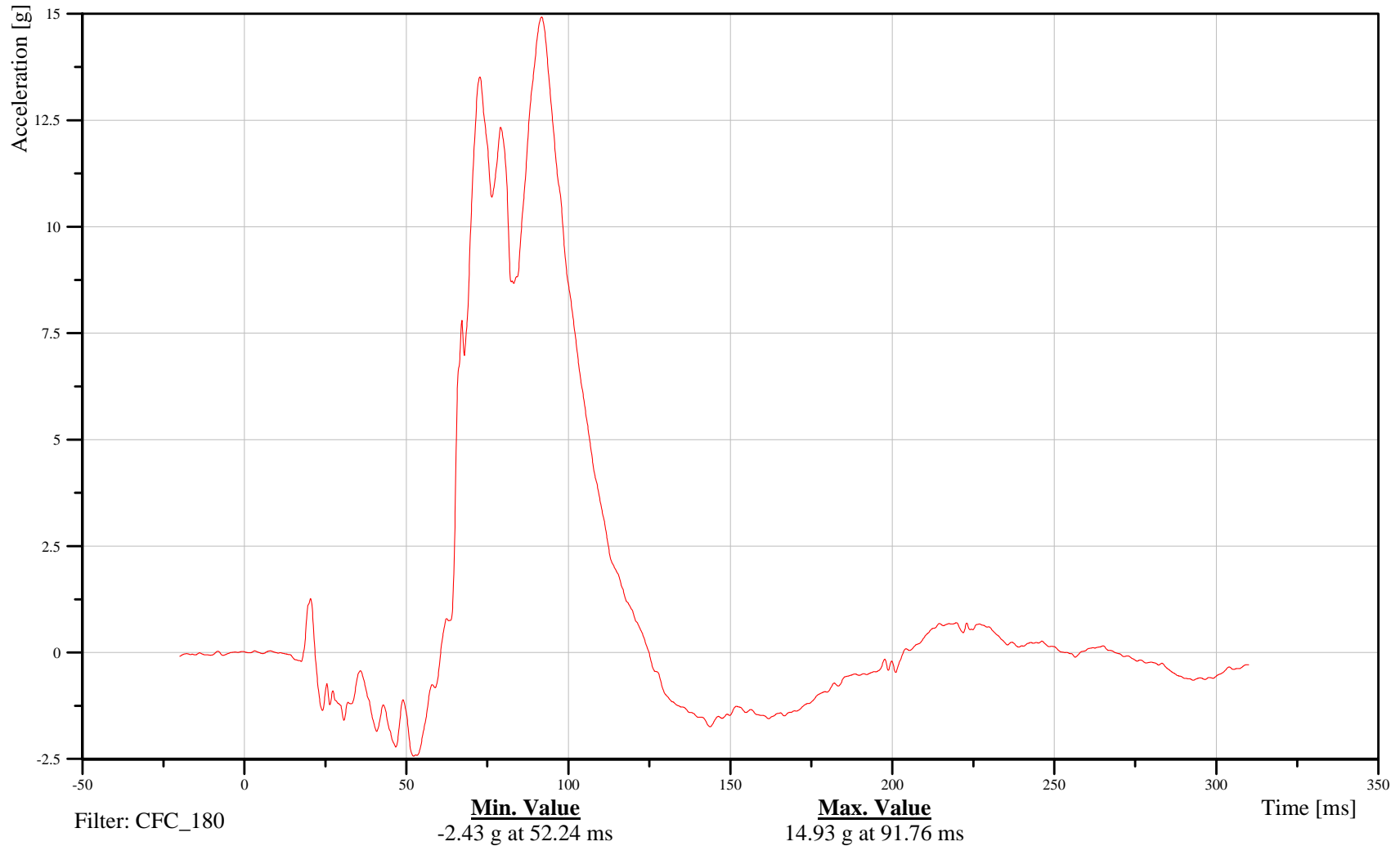
## Bullet Vehicle Driver Chest Redundant Y-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11CHSTCGRDH3ACYC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-21

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

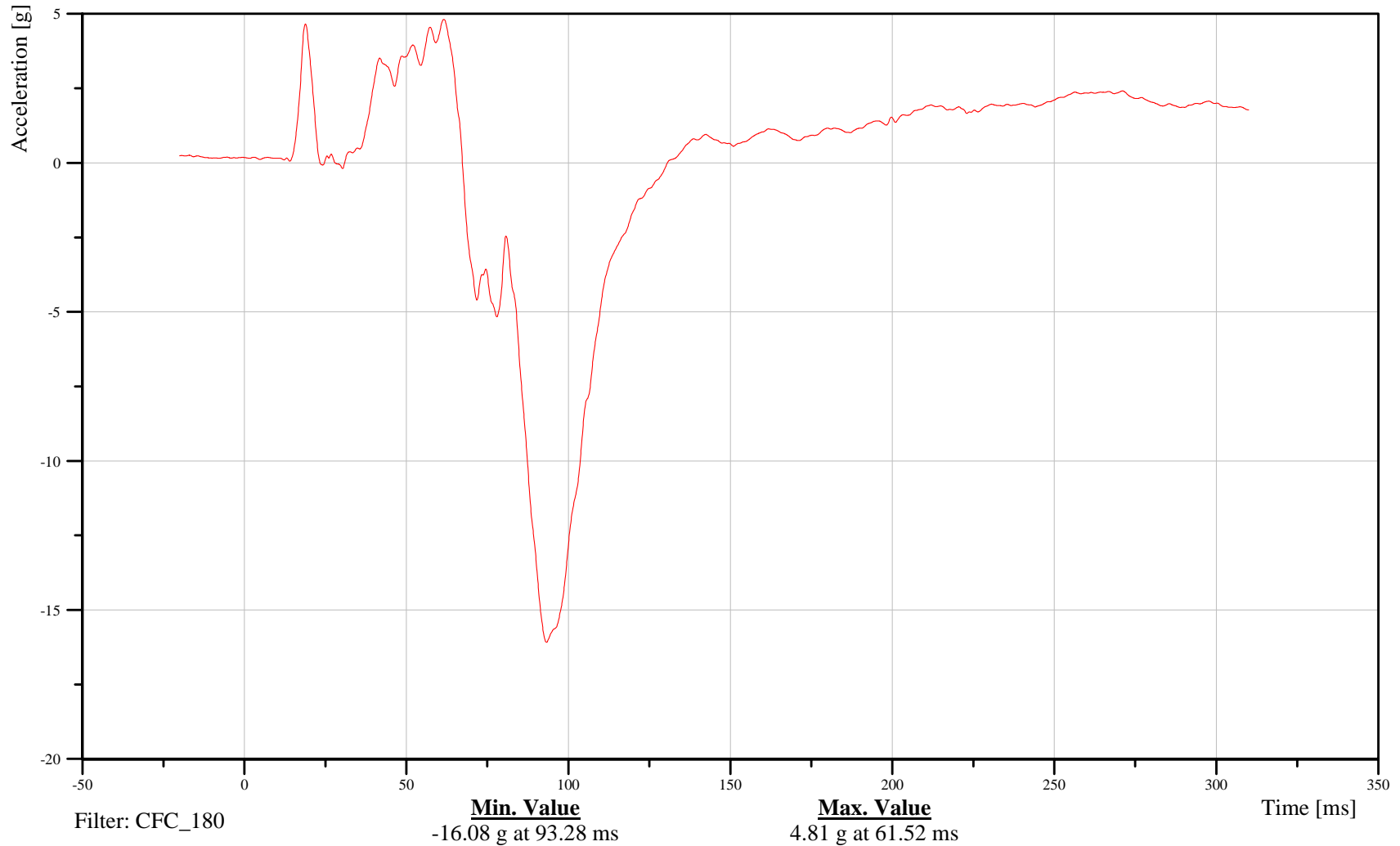
## Bullet Vehicle Driver Chest Redundant Z-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11CHSTCGRDH3ACZC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-22

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

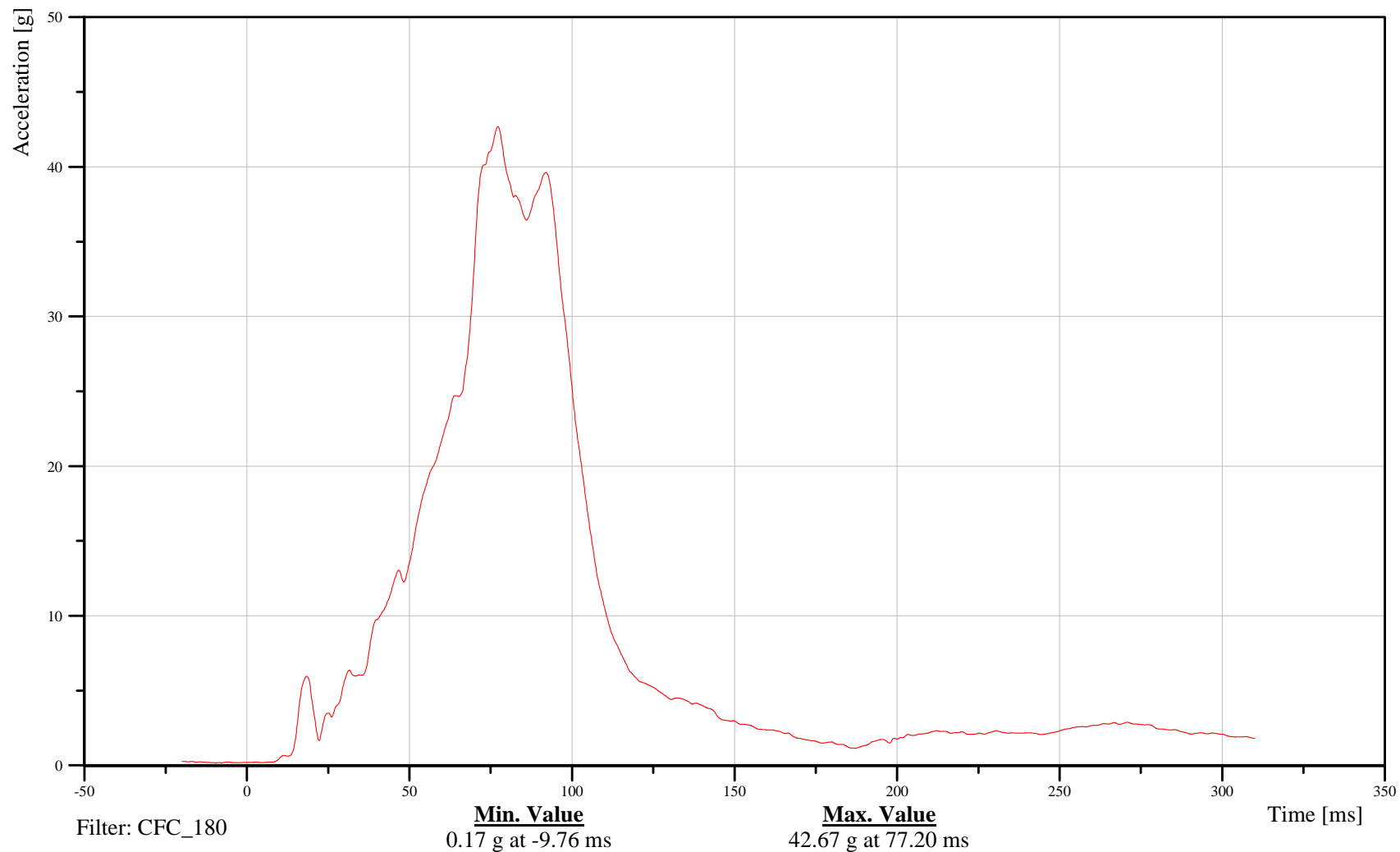
## Bullet Vehicle Driver Chest Redundant Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11CHSTCGRDH3ACRC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-23

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

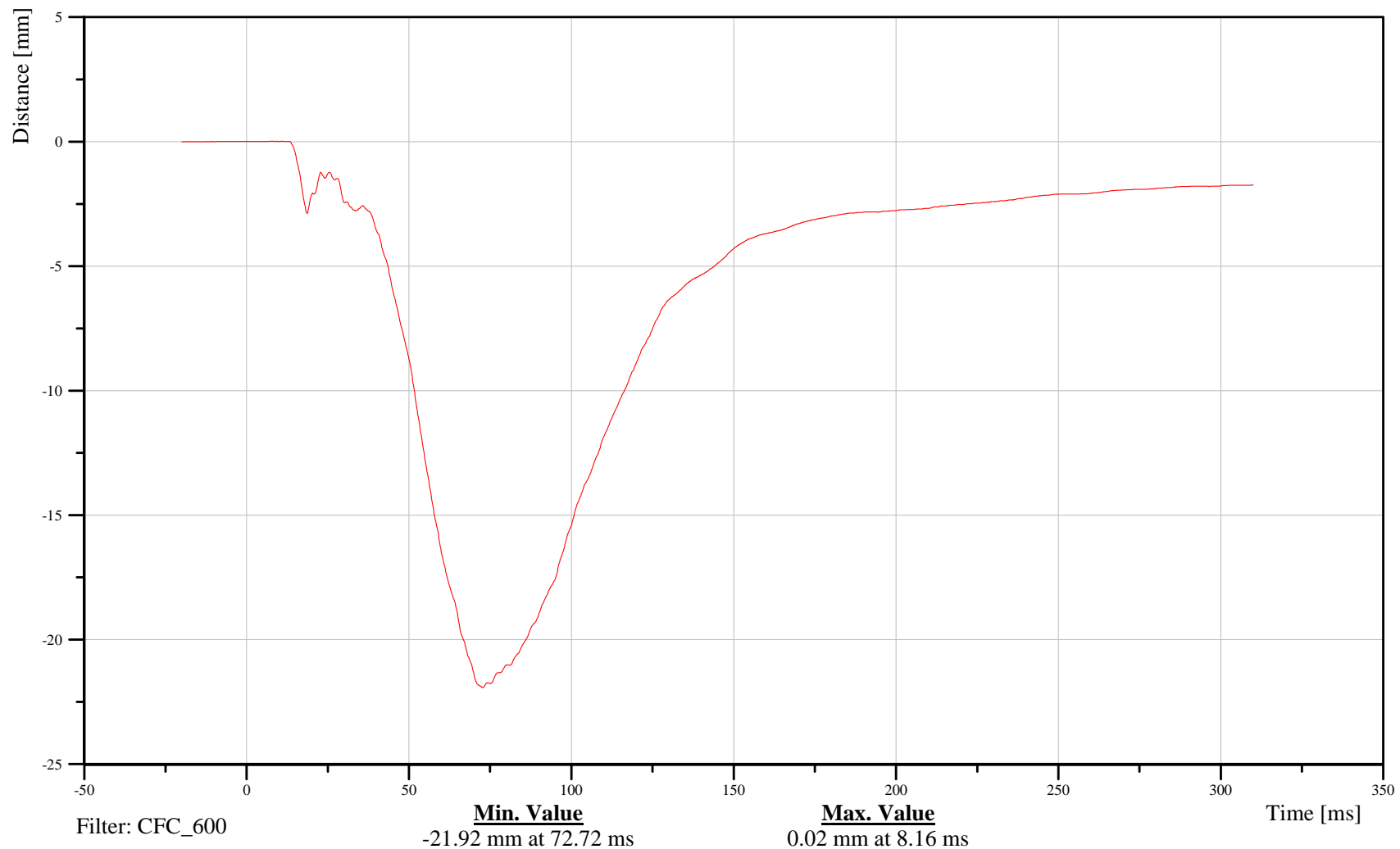
## Bullet Vehicle Driver Chest X-Axis Displacement

Customer: VRTC

# 11CHST0000H3DSXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-24

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Driver Pelvis X-Axis Acceleration

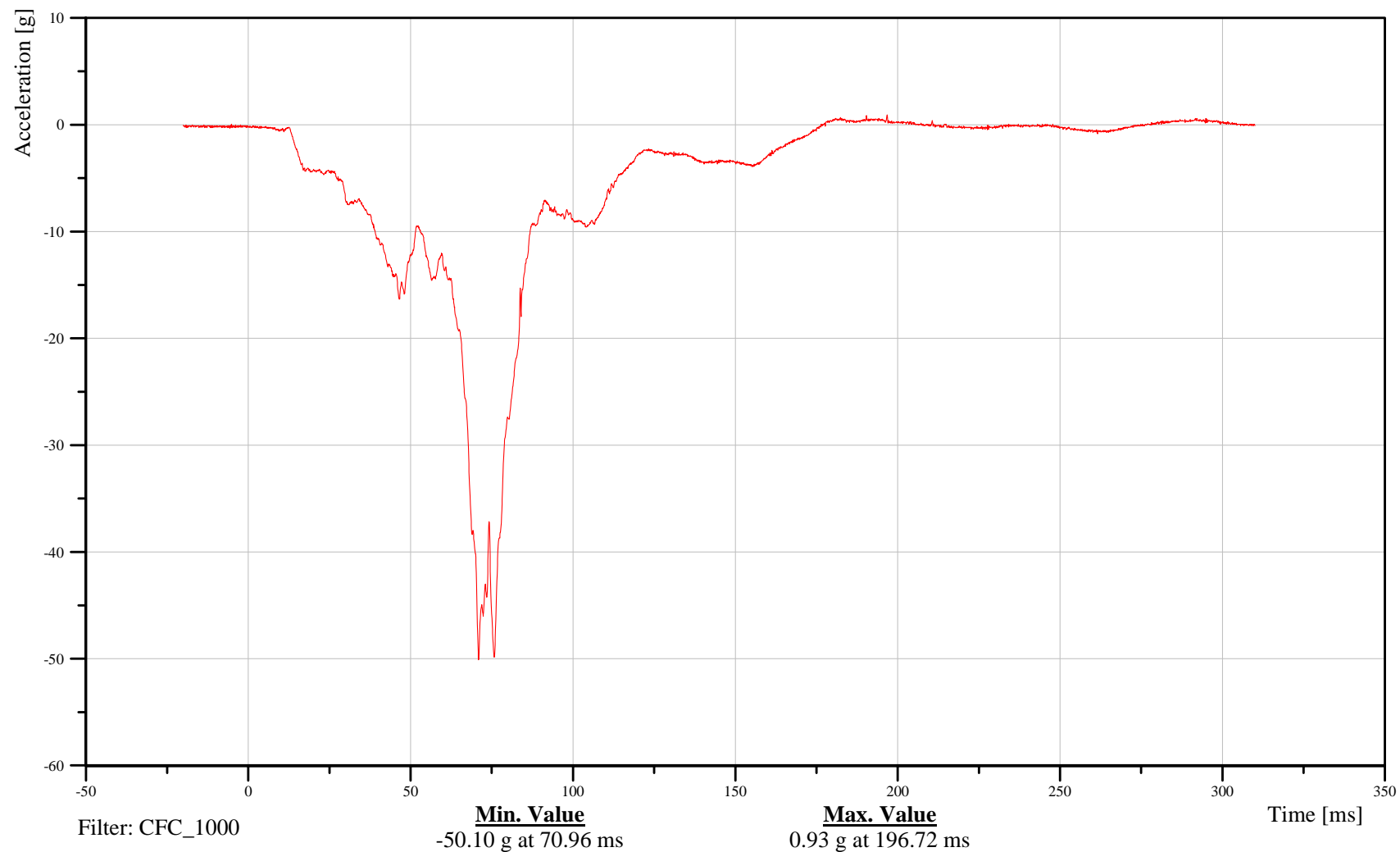
Time: 16:35

Customer: VRTC

# 11PELVCG00H3ACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-25

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

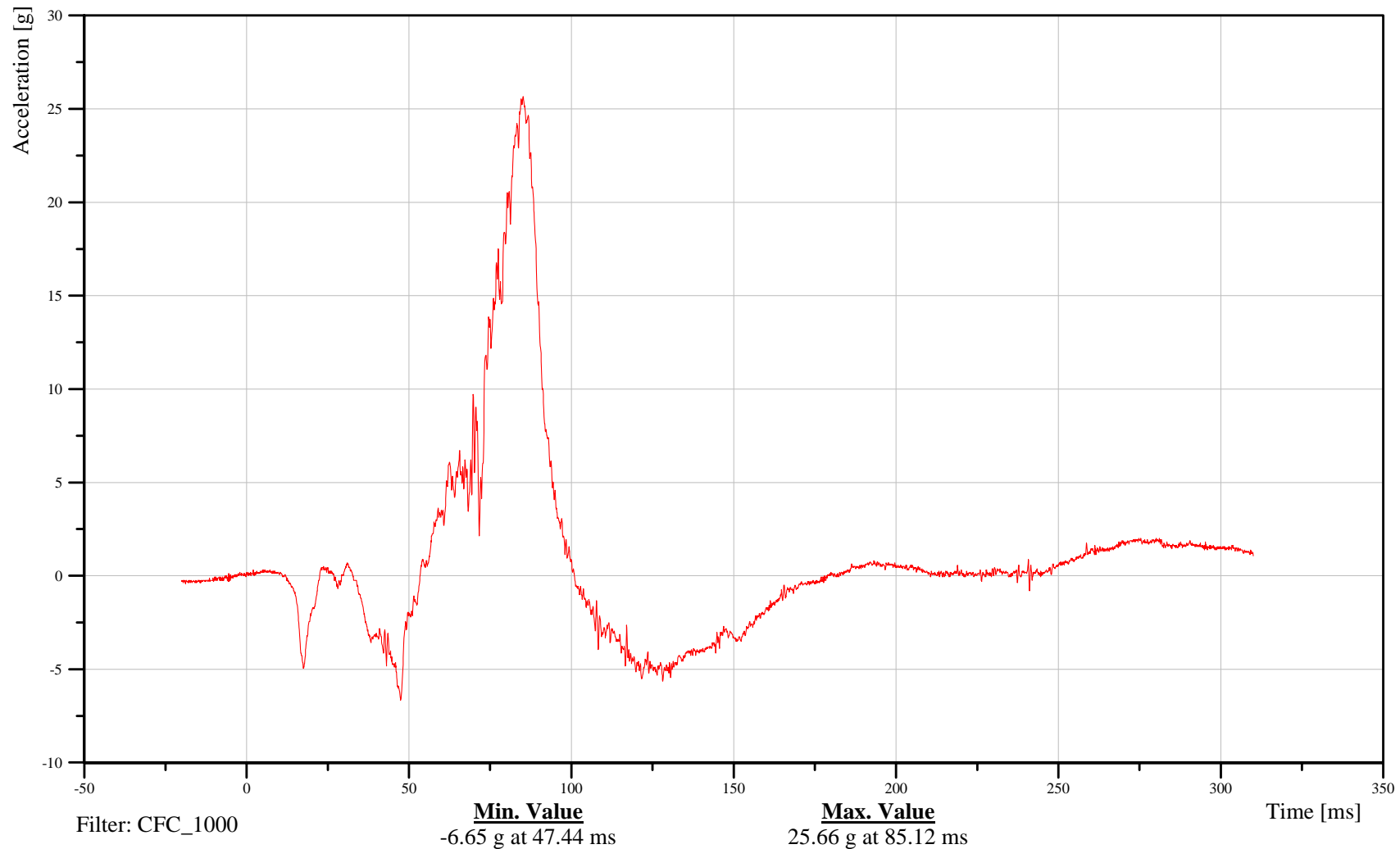
## Bullet Vehicle Driver Pelvis Y-Axis Acceleration

Customer: VRTC

# 11PELVCG00H3ACYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-26

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Driver Pelvis Z-Axis Acceleration

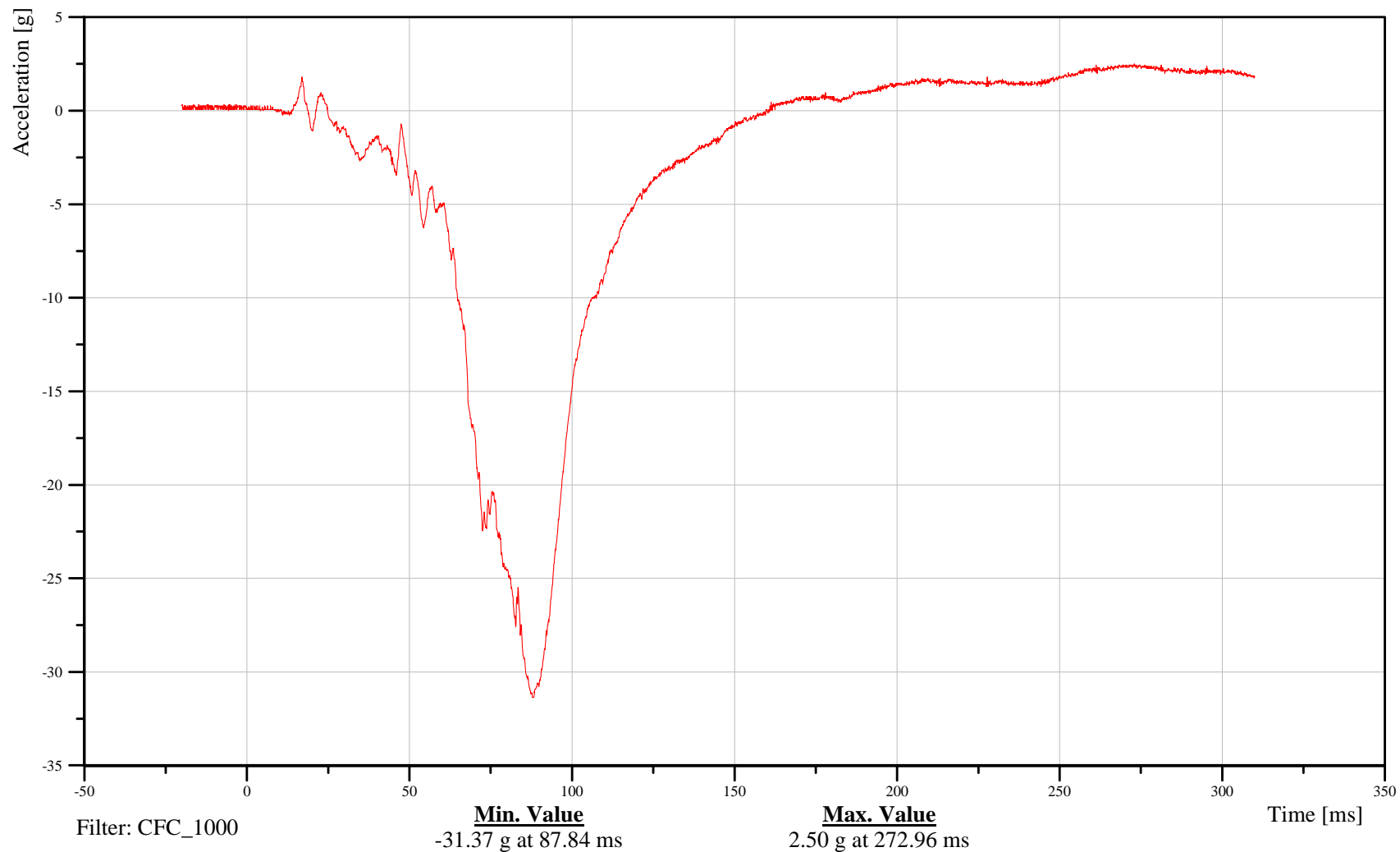
Time: 16:35

Customer: VRTC

# 11PELVCG00H3ACZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-27

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

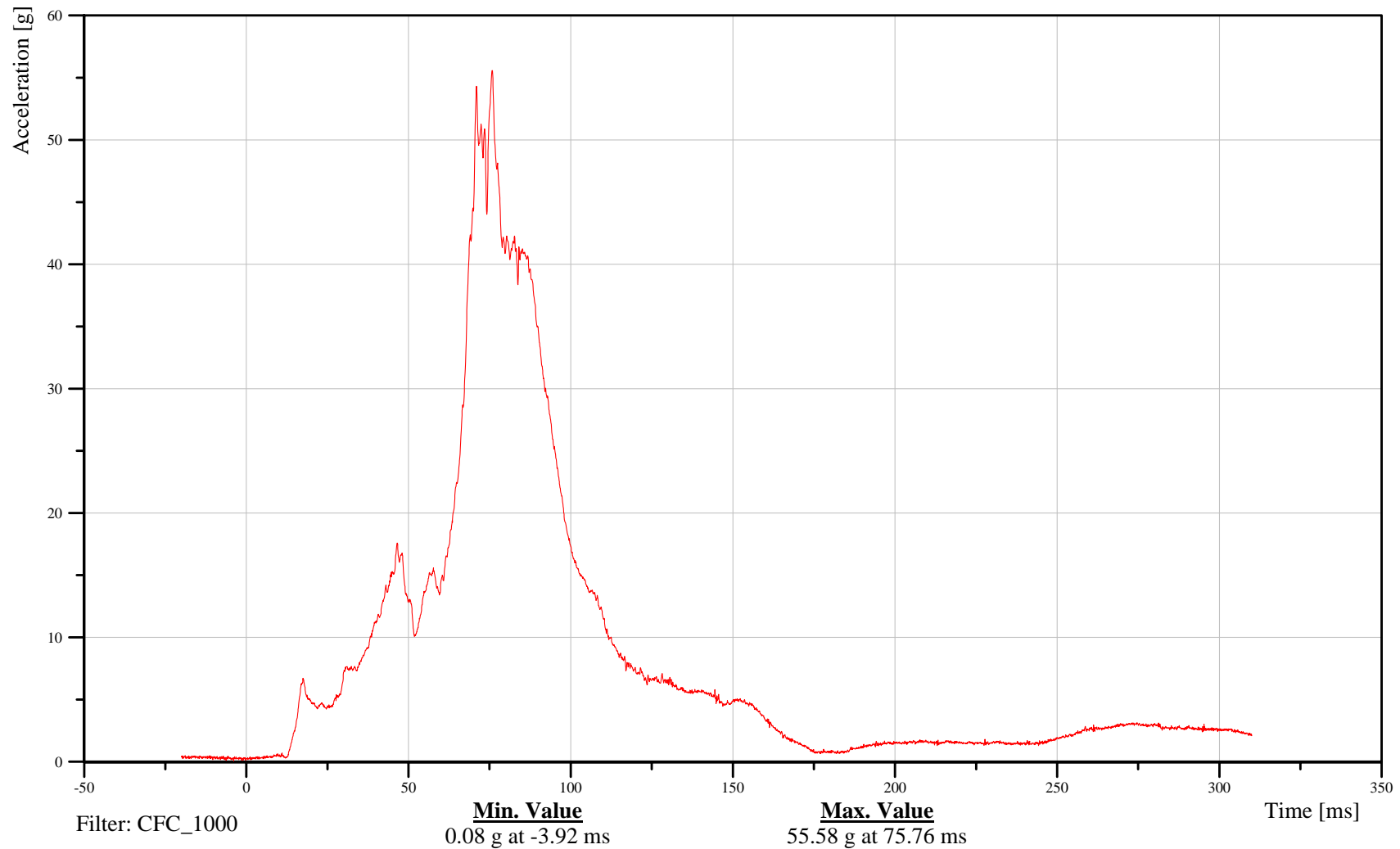
## Bullet Vehicle Driver Pelvis Resultant Acceleration

Customer: VRTC

# 11PELVCG00H3ACRA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-28

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Driver Left Femur Z-Axis Force

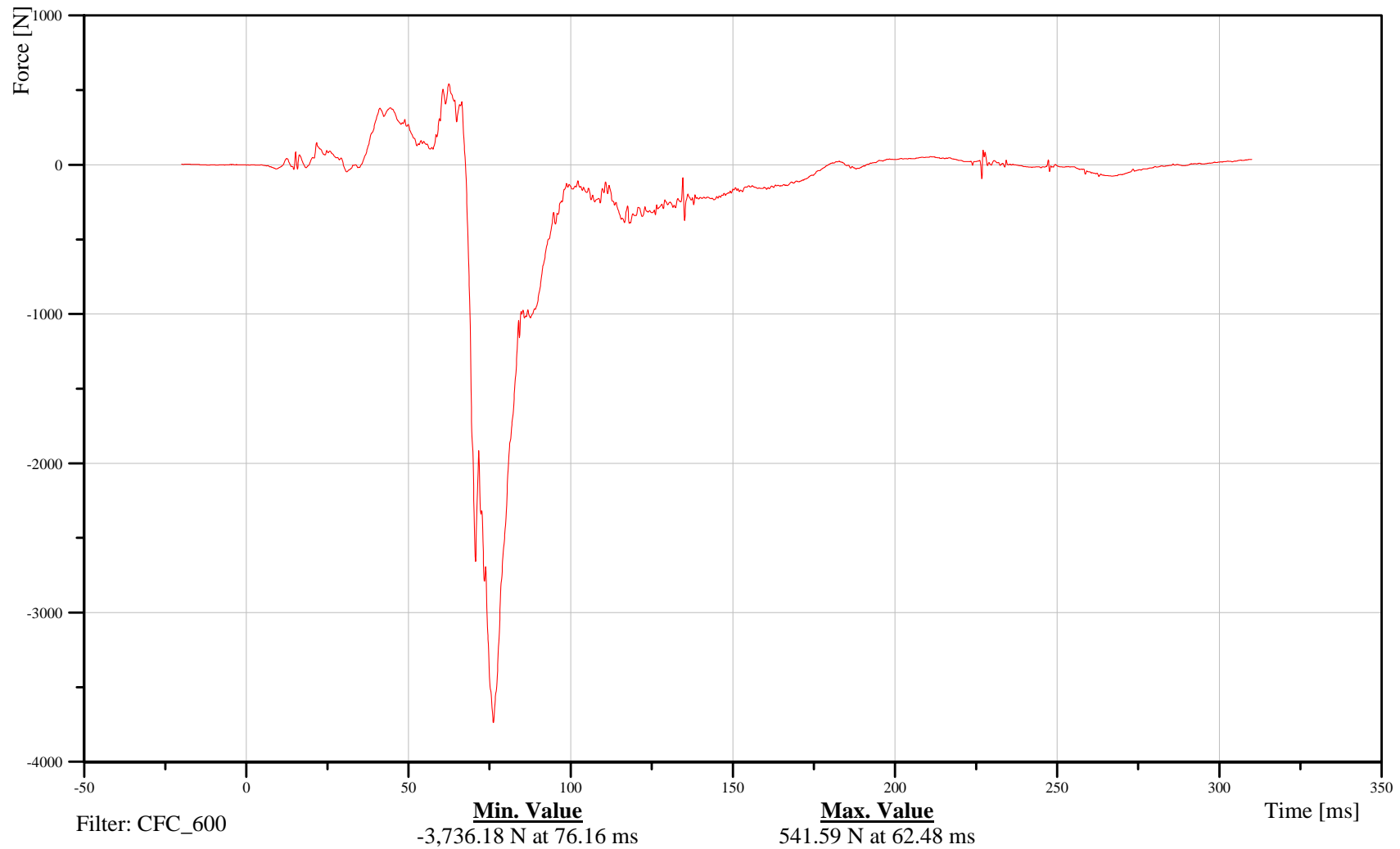
Time: 16:35

Customer: VRTC

### 11FEMRLL00H3FOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-29

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

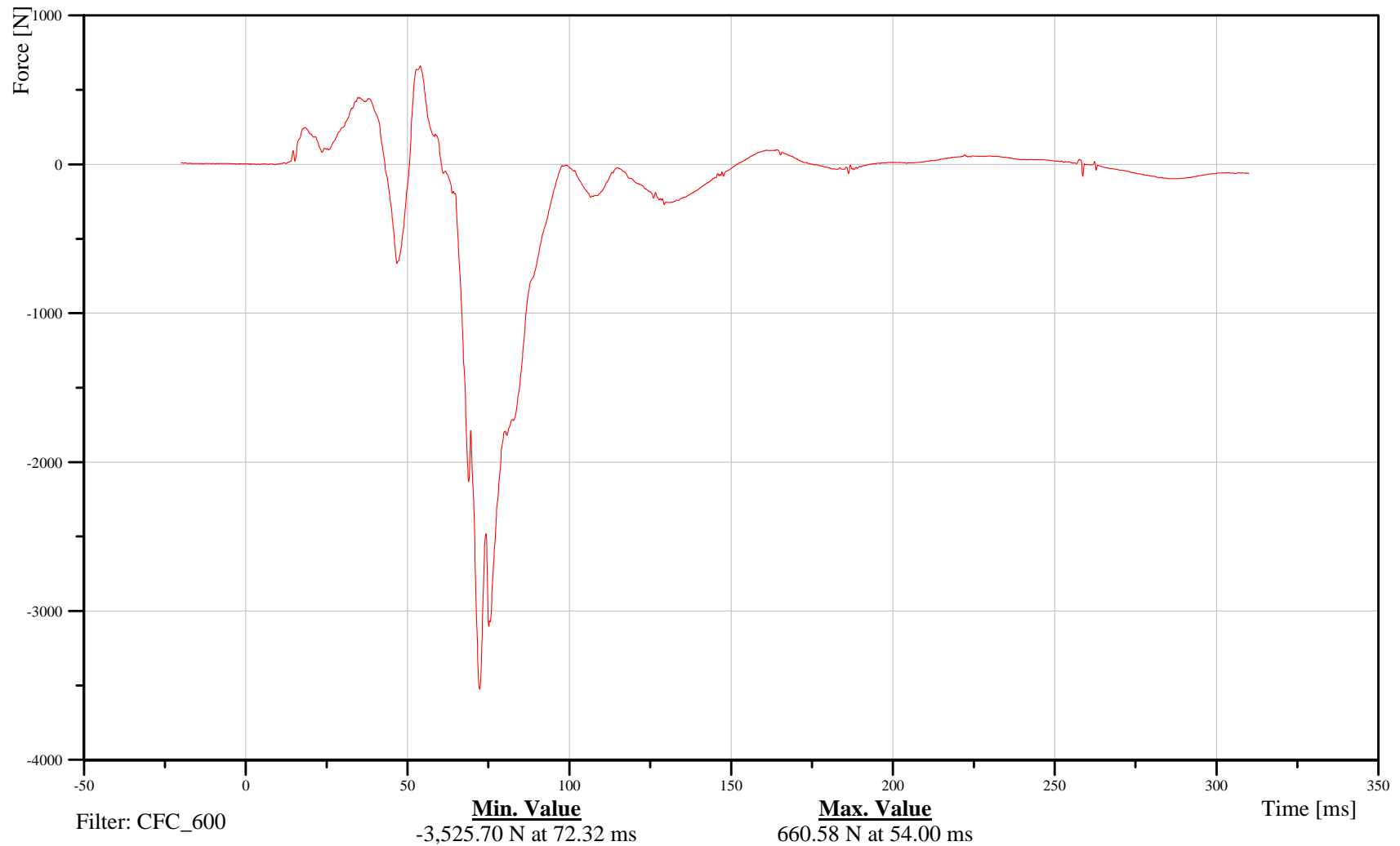
## Bullet Vehicle Driver Right Femur Z-Axis Force

Customer: VRTC

# 11FEMRRL00H3FOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-30

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

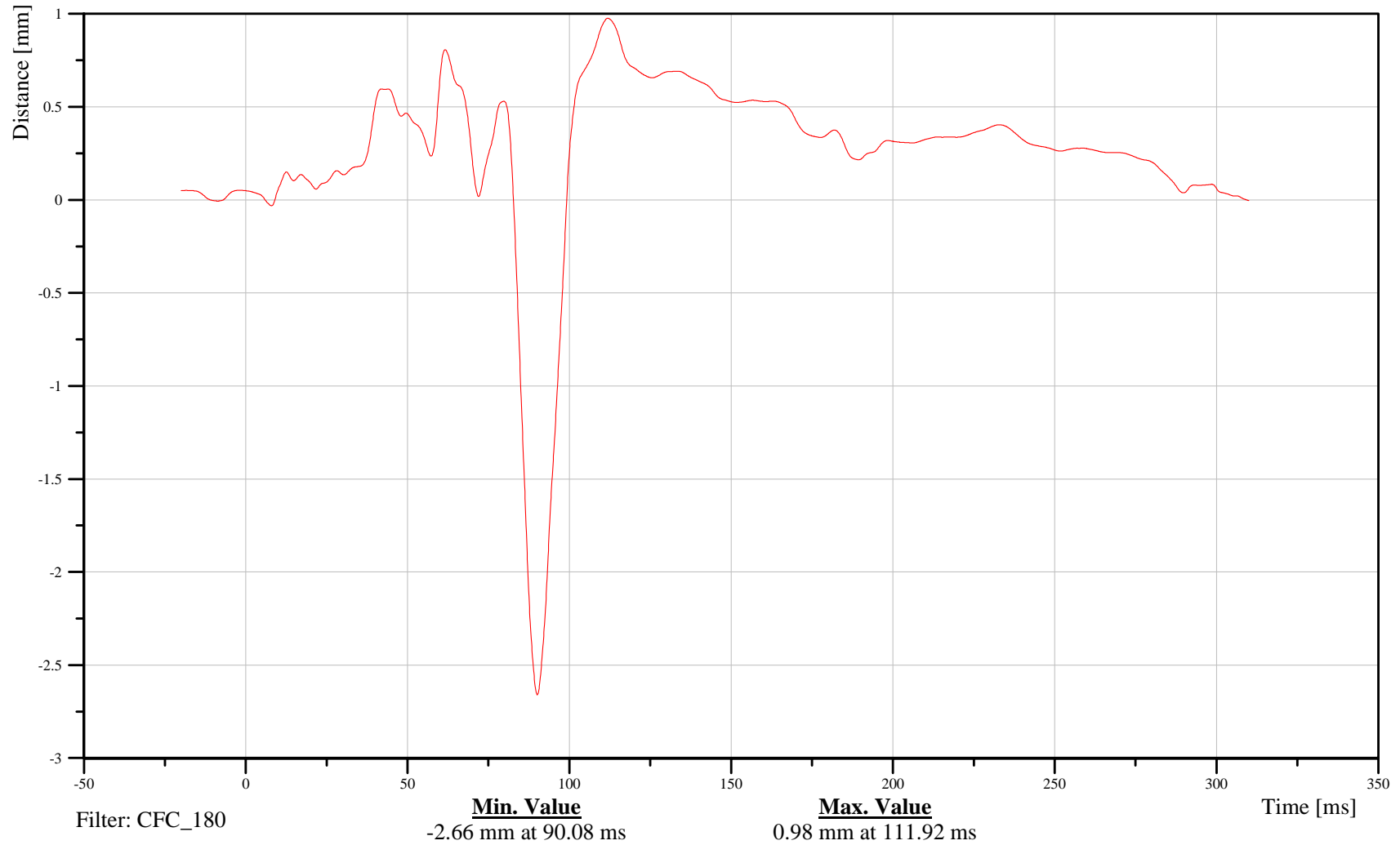
## Bullet Vehicle Driver Left Knee X-Axis Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11KNSLLE00H3DSXC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-31

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

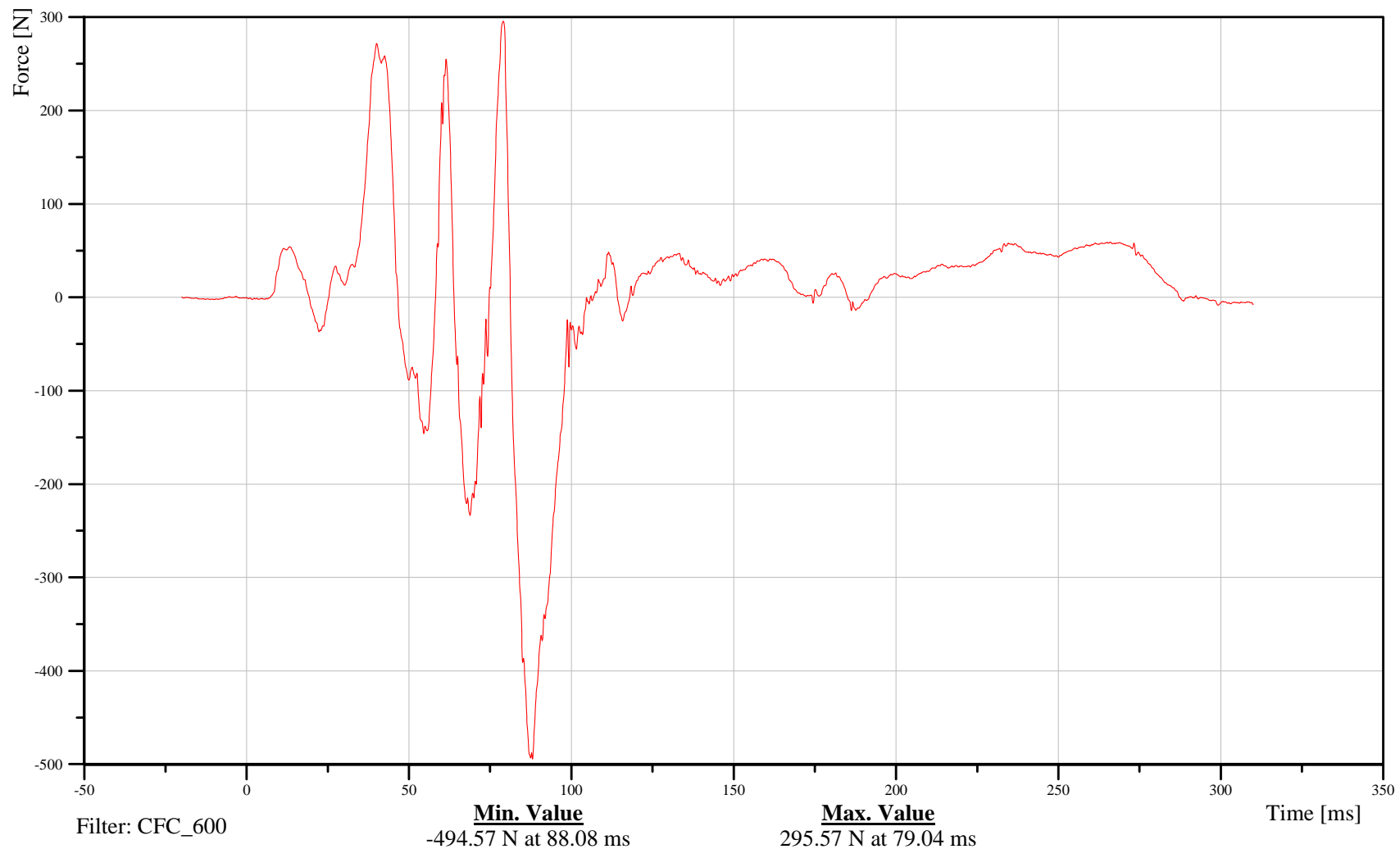
## Bullet Vehicle Driver Left Upper Tibia X-Axis Force

Customer: VRTC

# 11TIBILULXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-32

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

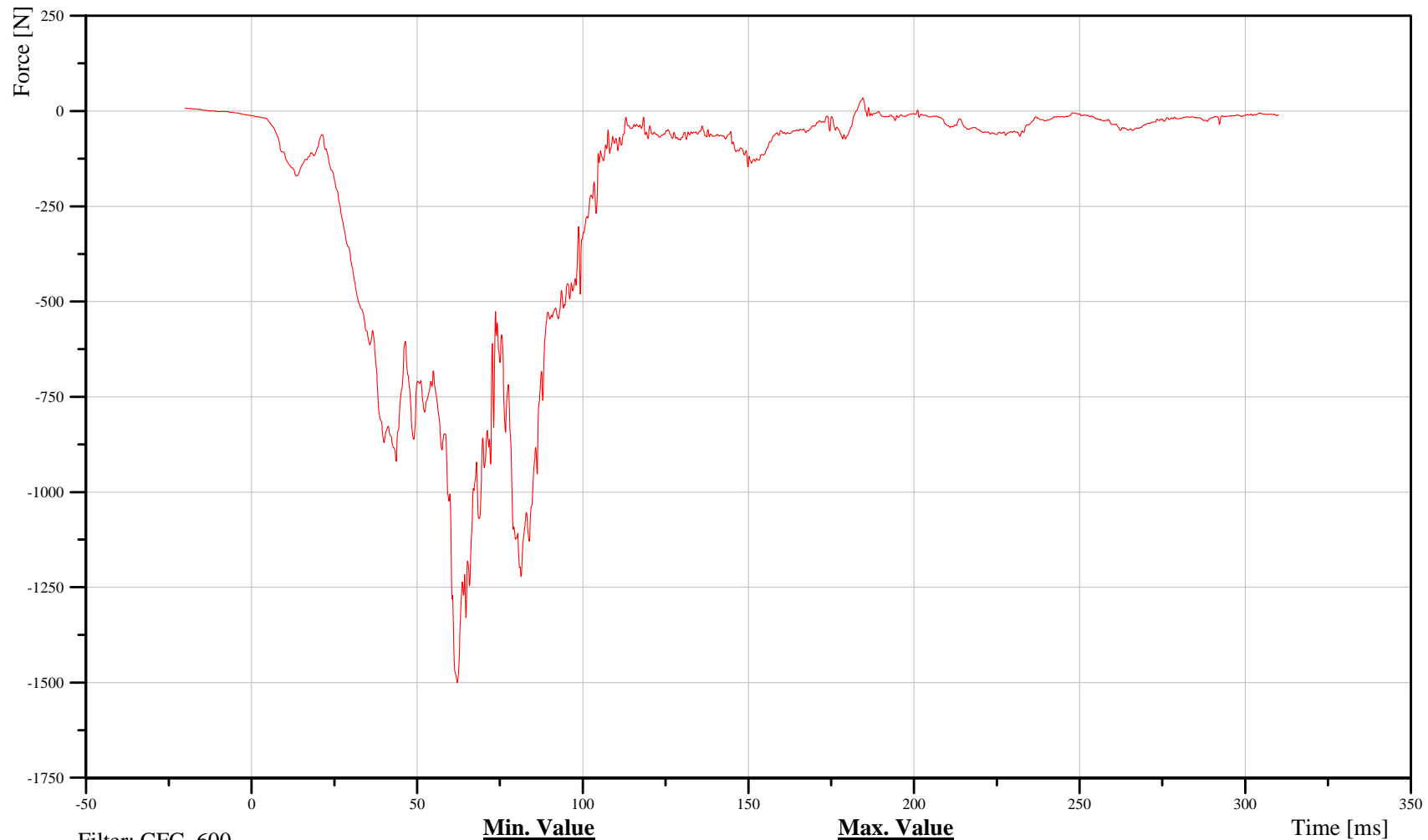
## Bullet Vehicle Driver Left Upper Tibia Z-Axis Force

Customer: VRTC

# 11TIBILULXH3FOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



Filter: CFC\_600

**Min. Value**  
-1,500.05 N at 62.16 ms

**Max. Value**  
34.80 N at 184.56 ms

Time [ms]

B-33

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Left Upper Tibia Moment About X Axis

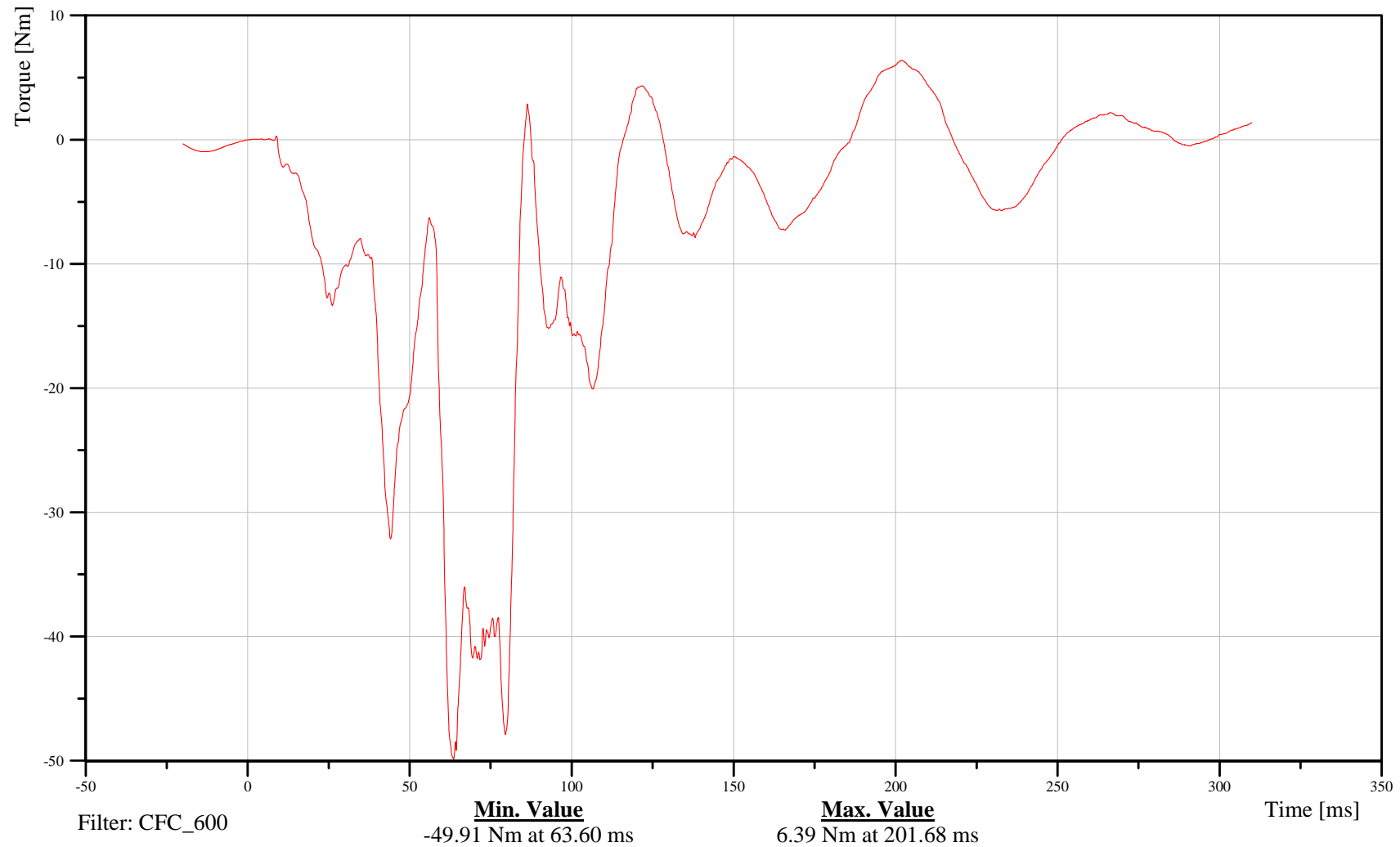
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11TIBILULXH3MOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-34

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Left Upper Tibia Moment About Y Axis

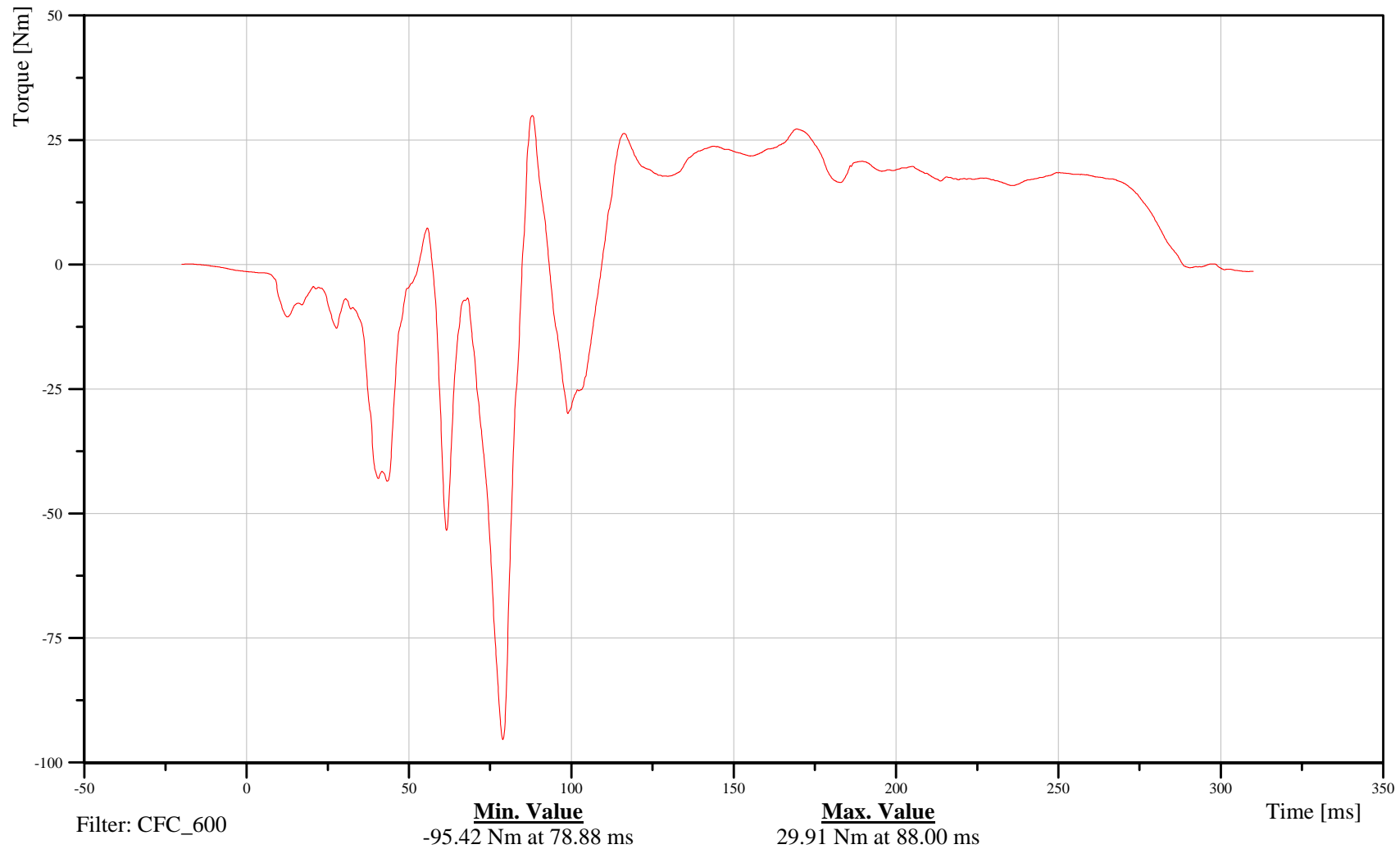
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11TIBILULXH3MOYB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-35

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009  
Time: 16:35

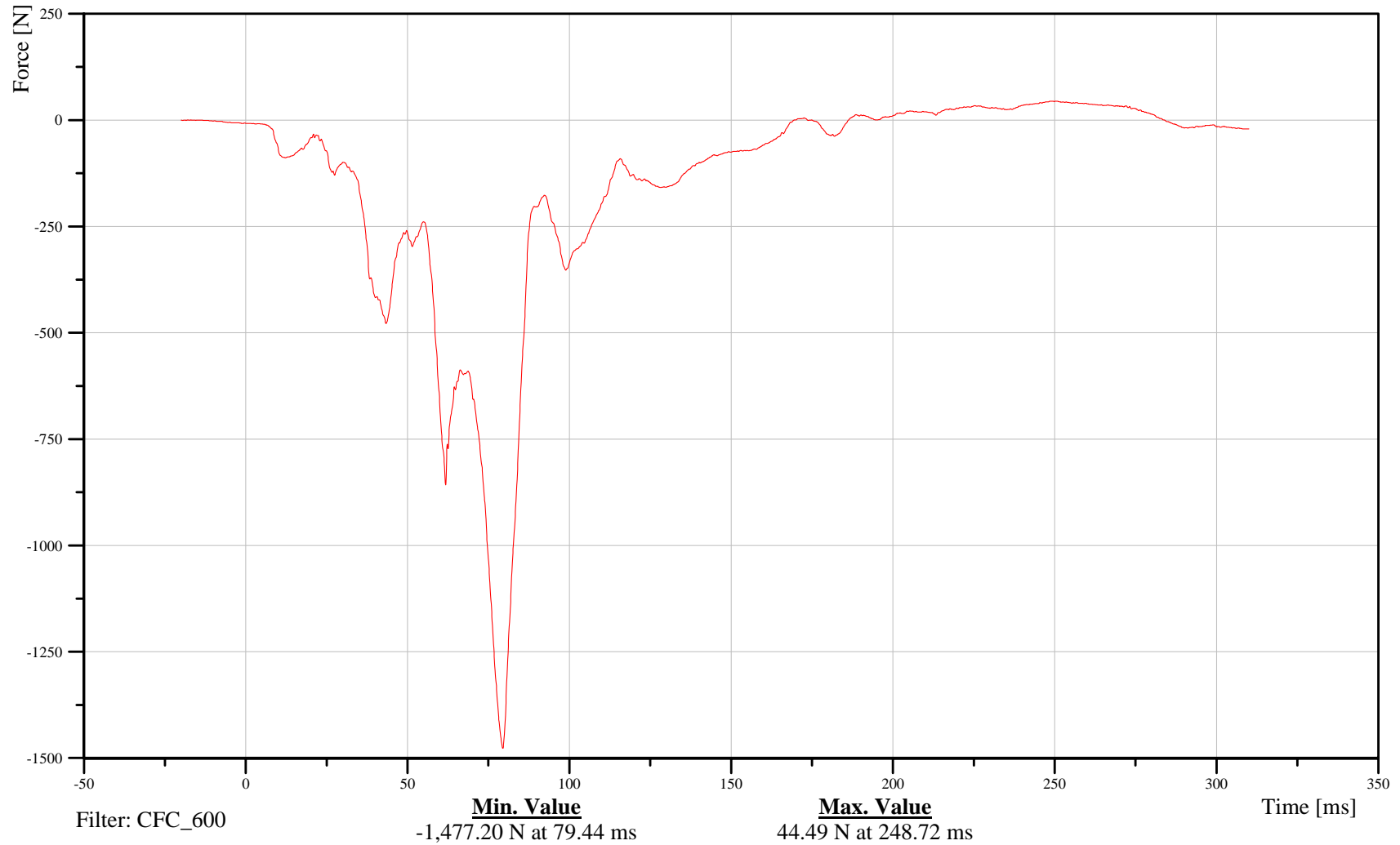
## Bullet Vehicle Driver Left Lower Tibia X-Axis Force

Customer: VRTC

# 11TIBILLXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-36

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

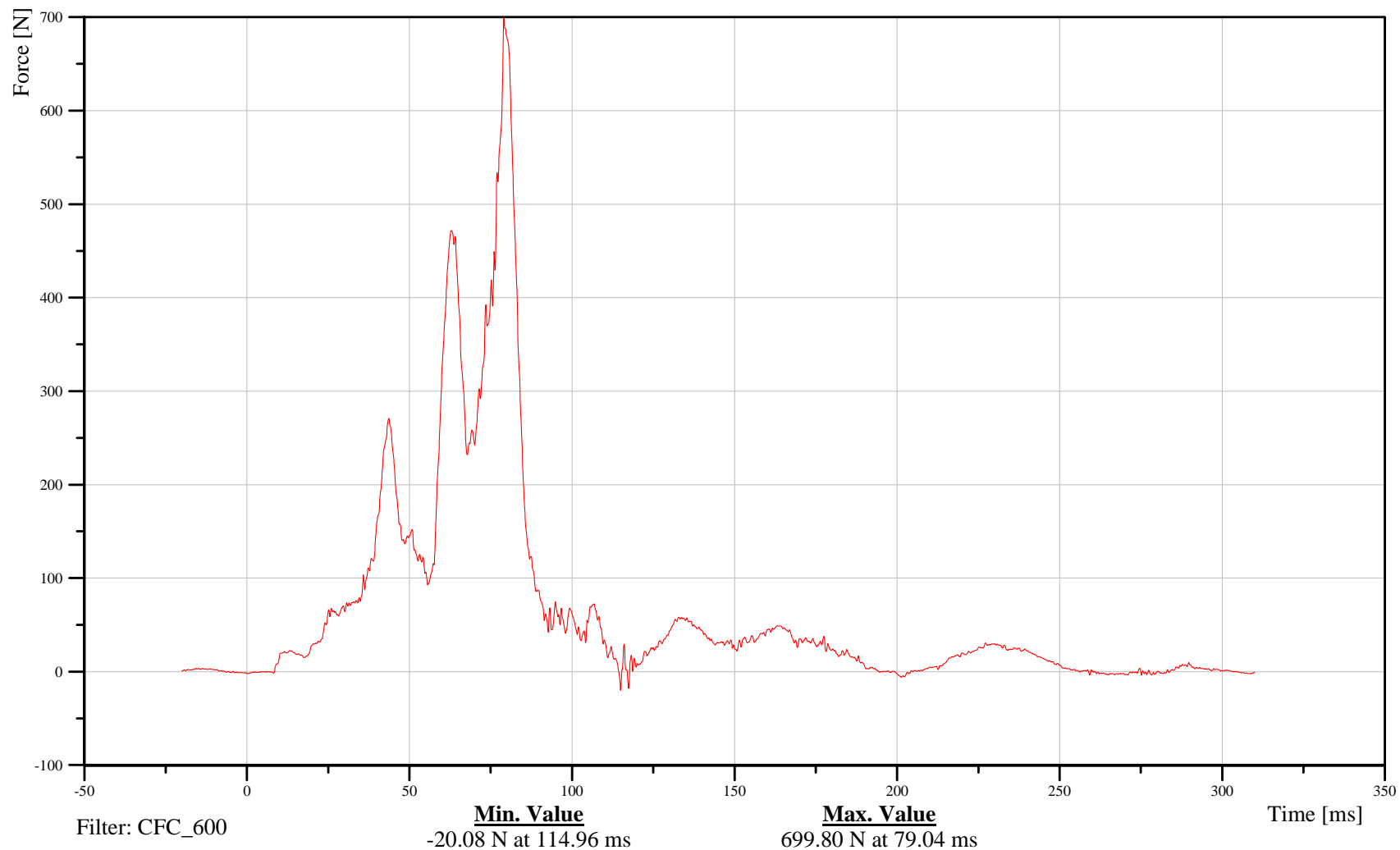
## Bullet Vehicle Driver Left Lower Tibia Y-Axis Force

Customer: VRTC

# 11TIBILLXH3FOYB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-37

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

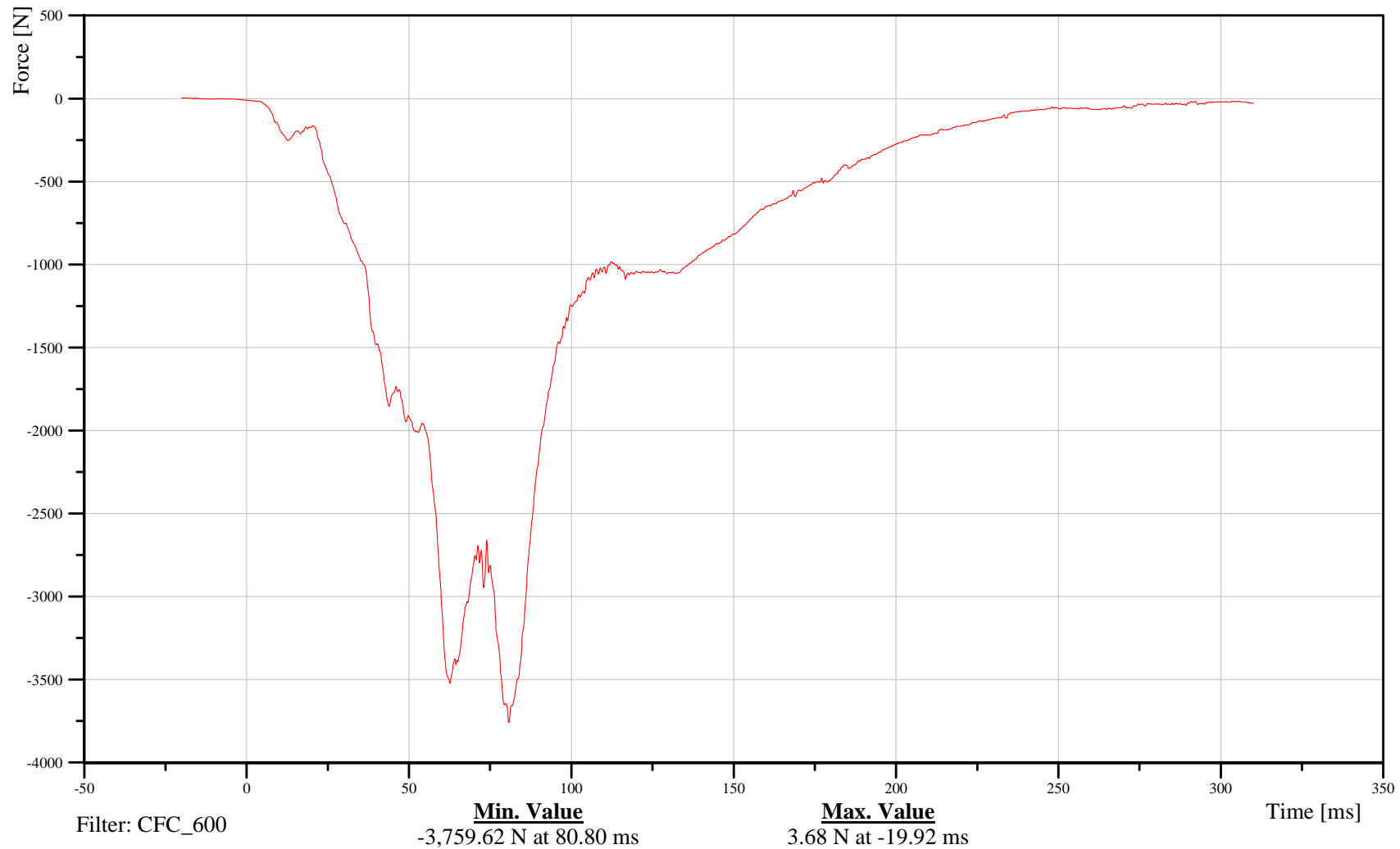
## Bullet Vehicle Driver Left Lower Tibia Z-Axis Force

Customer: VRTC

# 11TIBILLXH3FOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-38

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

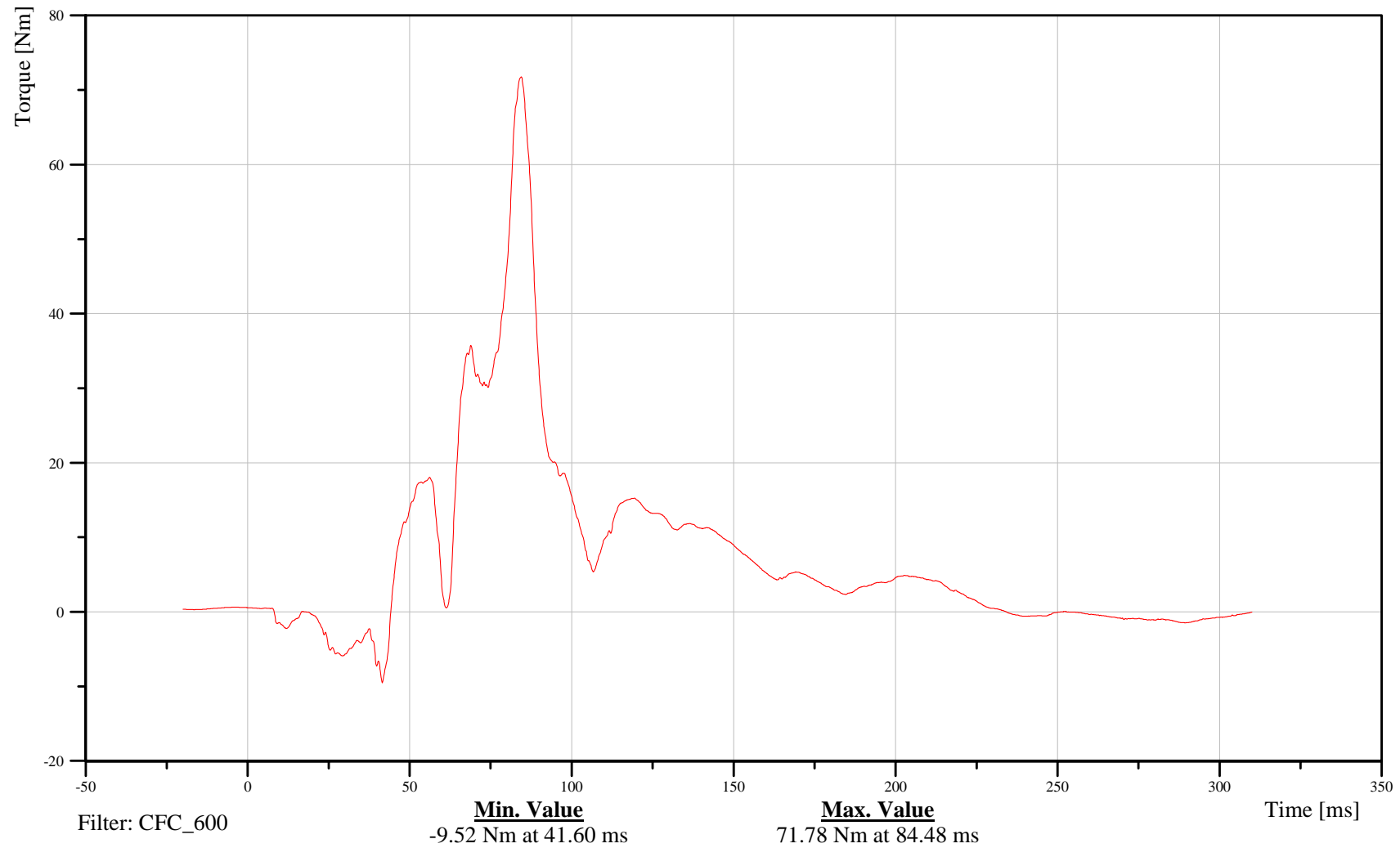
## Bullet Vehicle Driver Left Lower Tibia Moment About X Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11TIBILLXH3MOXB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-39

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Left Lower Tibia Moment About Y Axis

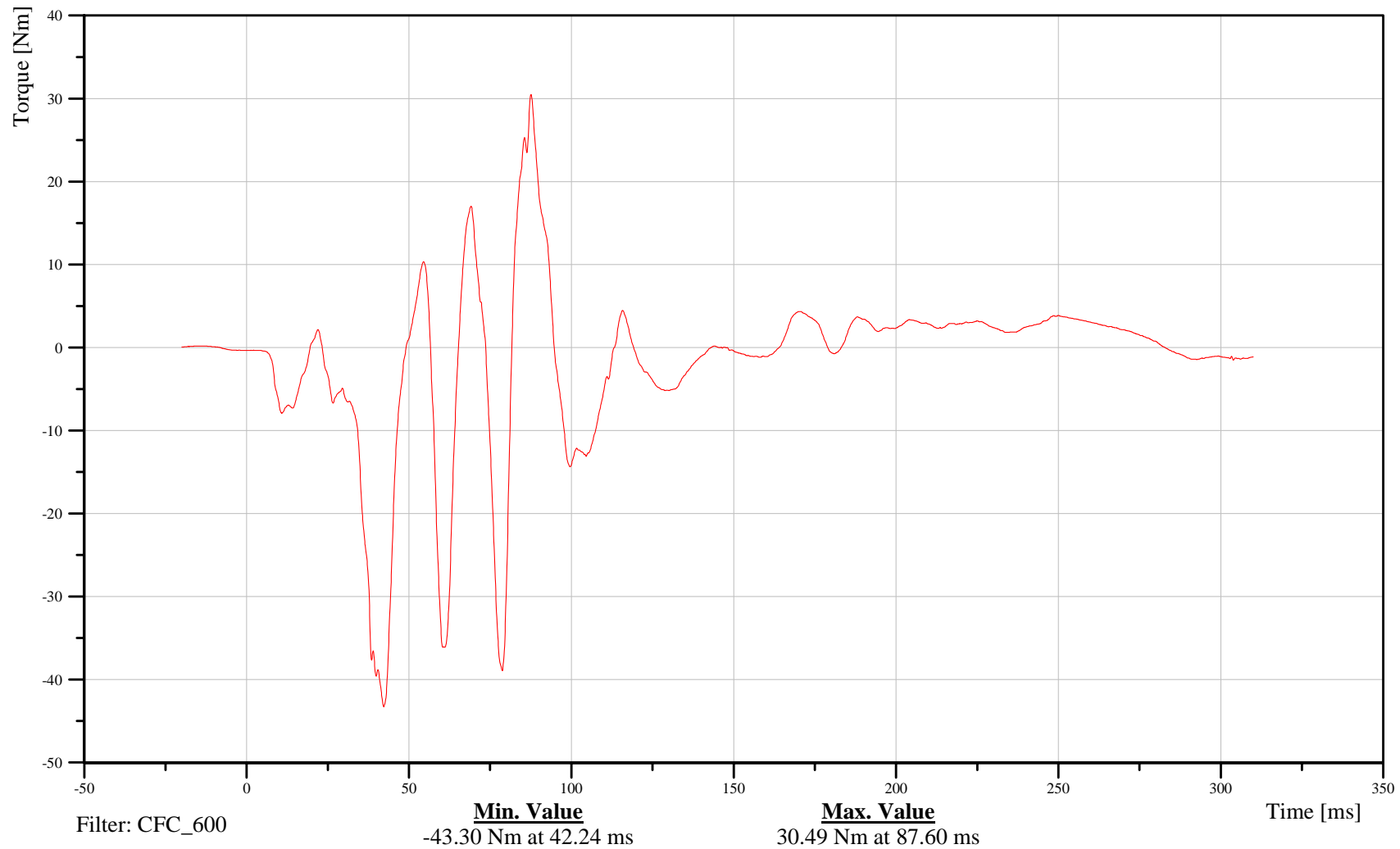
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11TIBILLXH3MOYB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-40

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

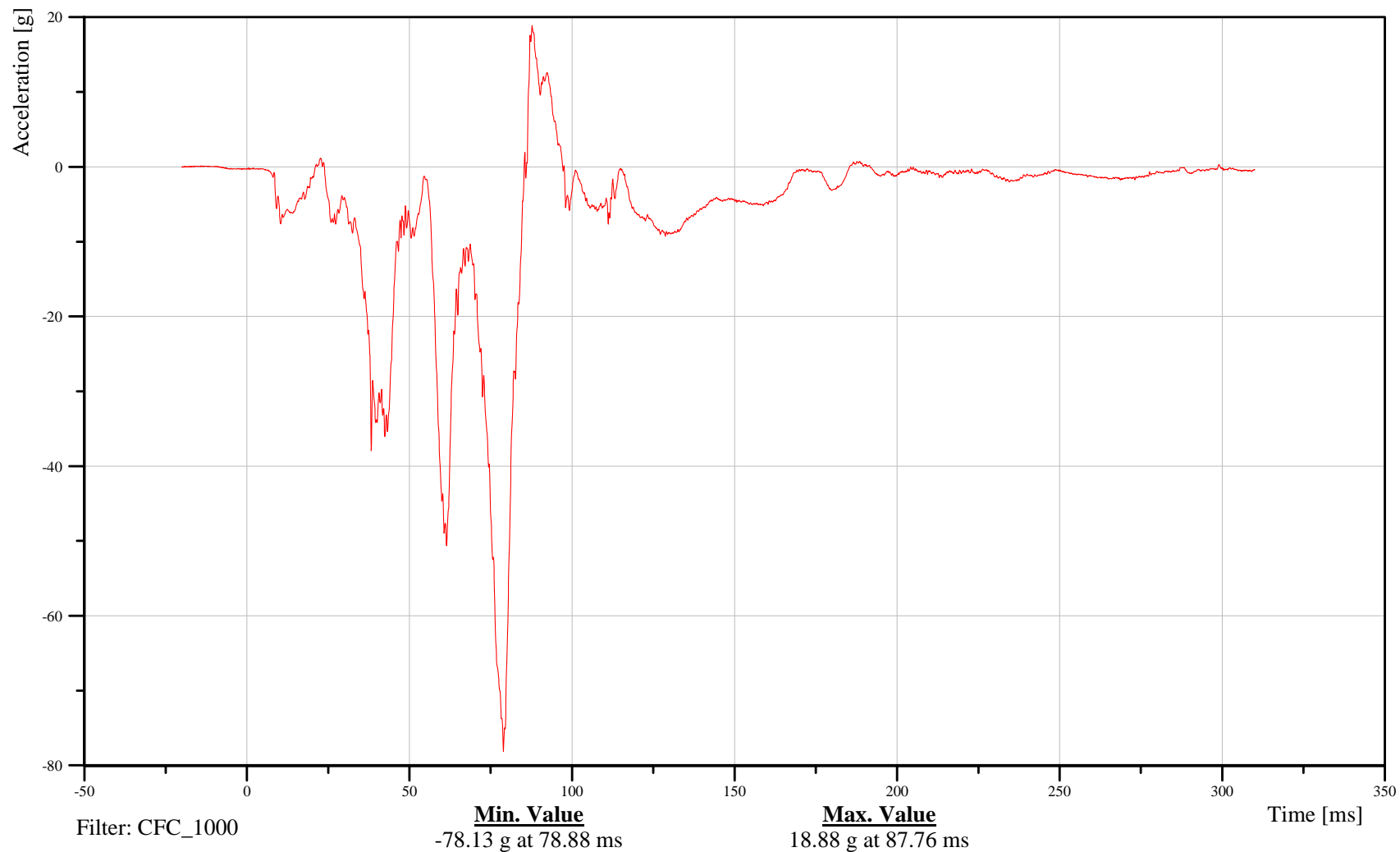
## Bullet Vehicle Driver Left Tibia X-Axis Acceleration

Customer: VRTC

# 11TIBILELXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-41

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

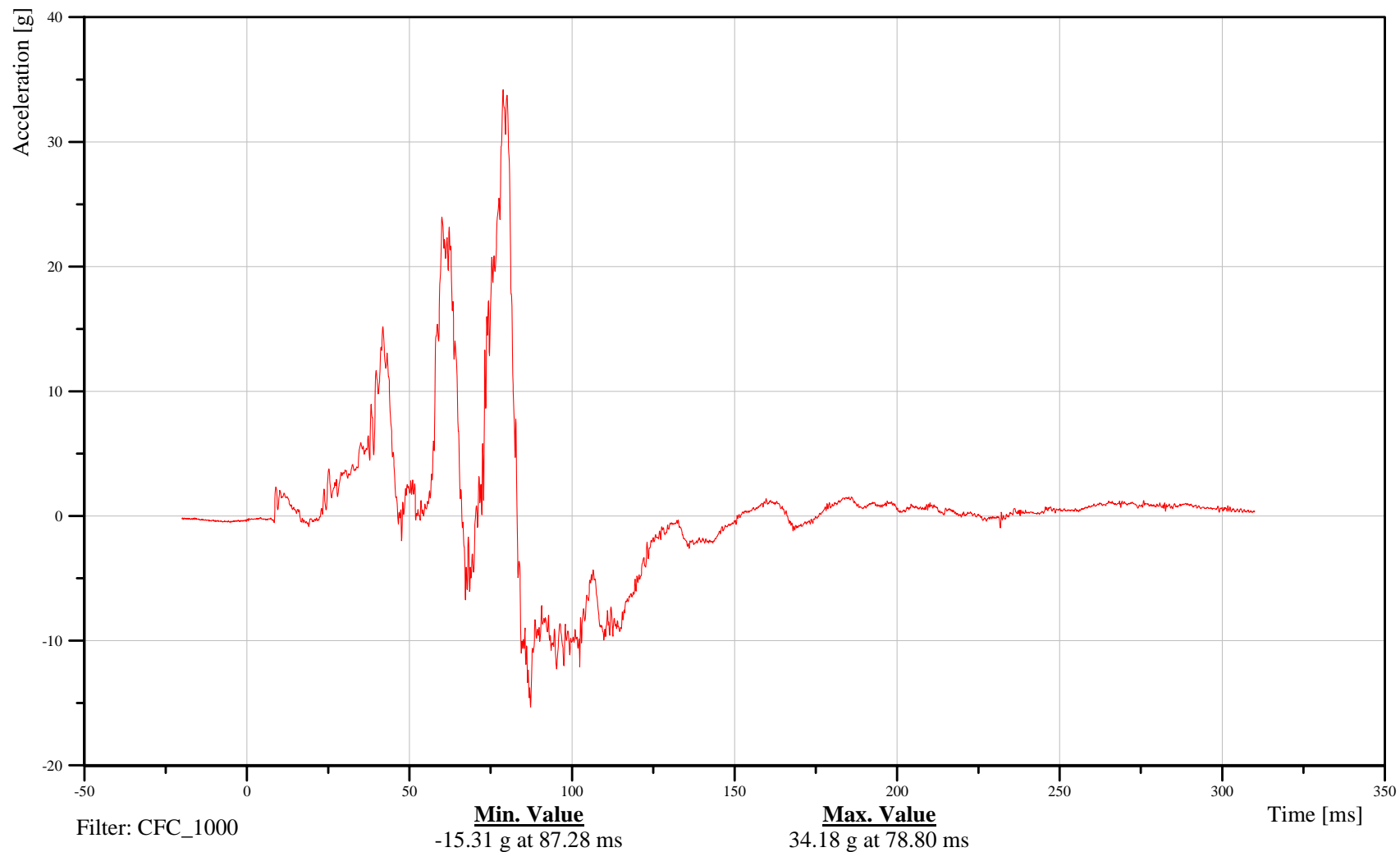
## Bullet Vehicle Driver Left Tibia Y-Axis Acceleration

Customer: VRTC

# 11TIBILELXH3ACYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-42

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

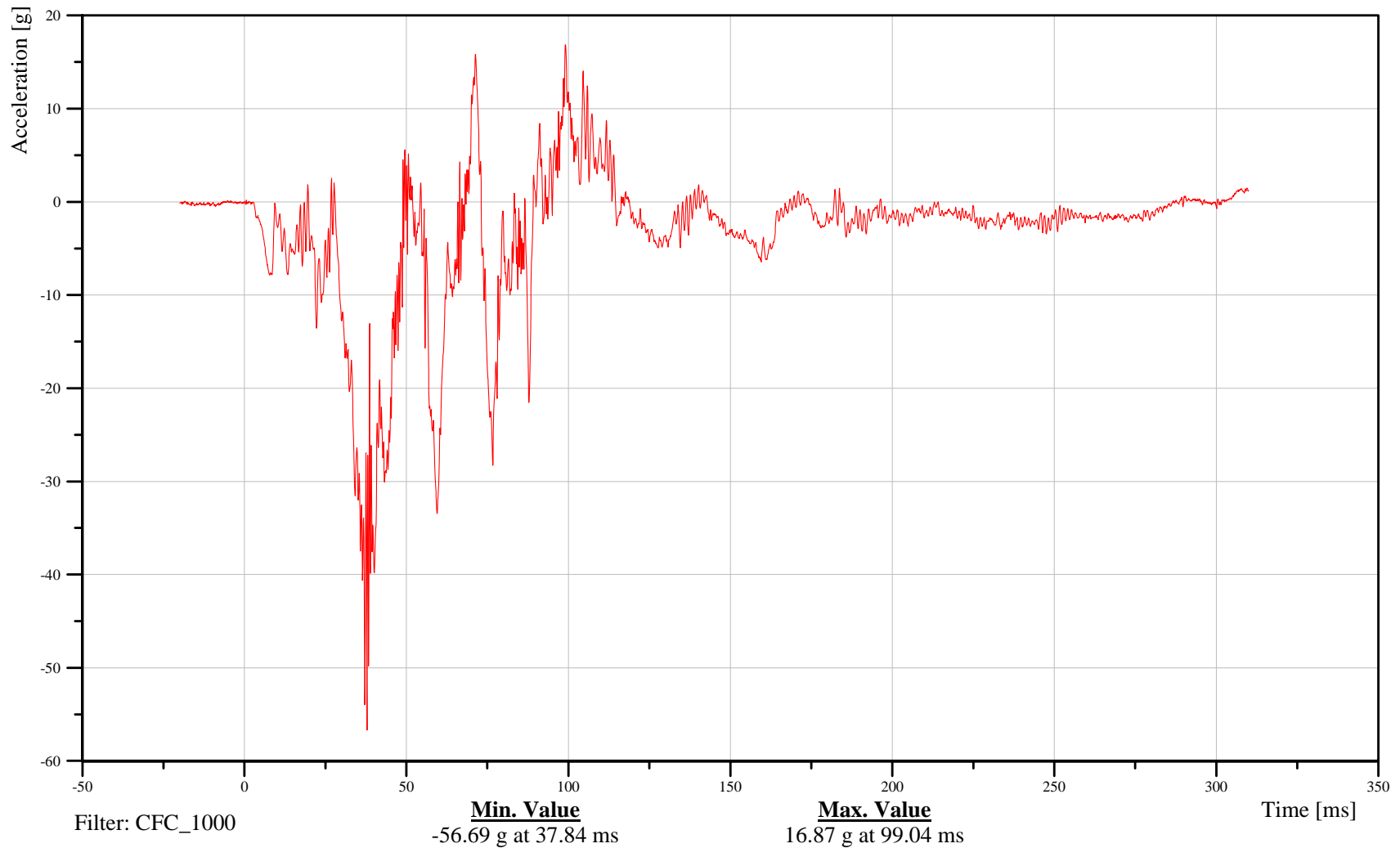
## Bullet Vehicle Driver Left Foot X-Axis Acceleration

Customer: VRTC

# 11FOOTLELXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-43

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Driver Left Foot Y-Axis Acceleration

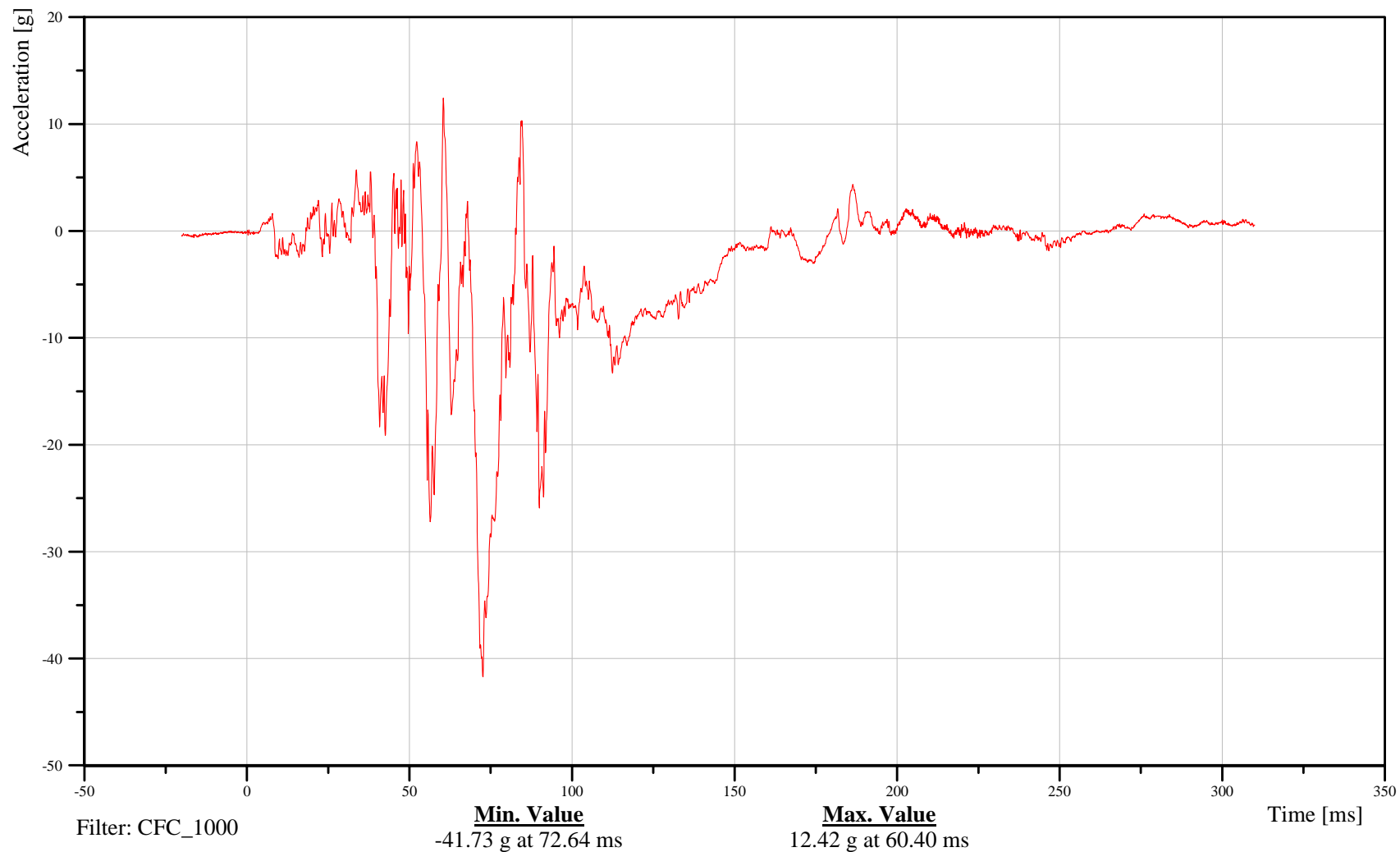
Time: 16:35

Customer: VRTC

# 11FOOTLELXH3ACYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-44

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

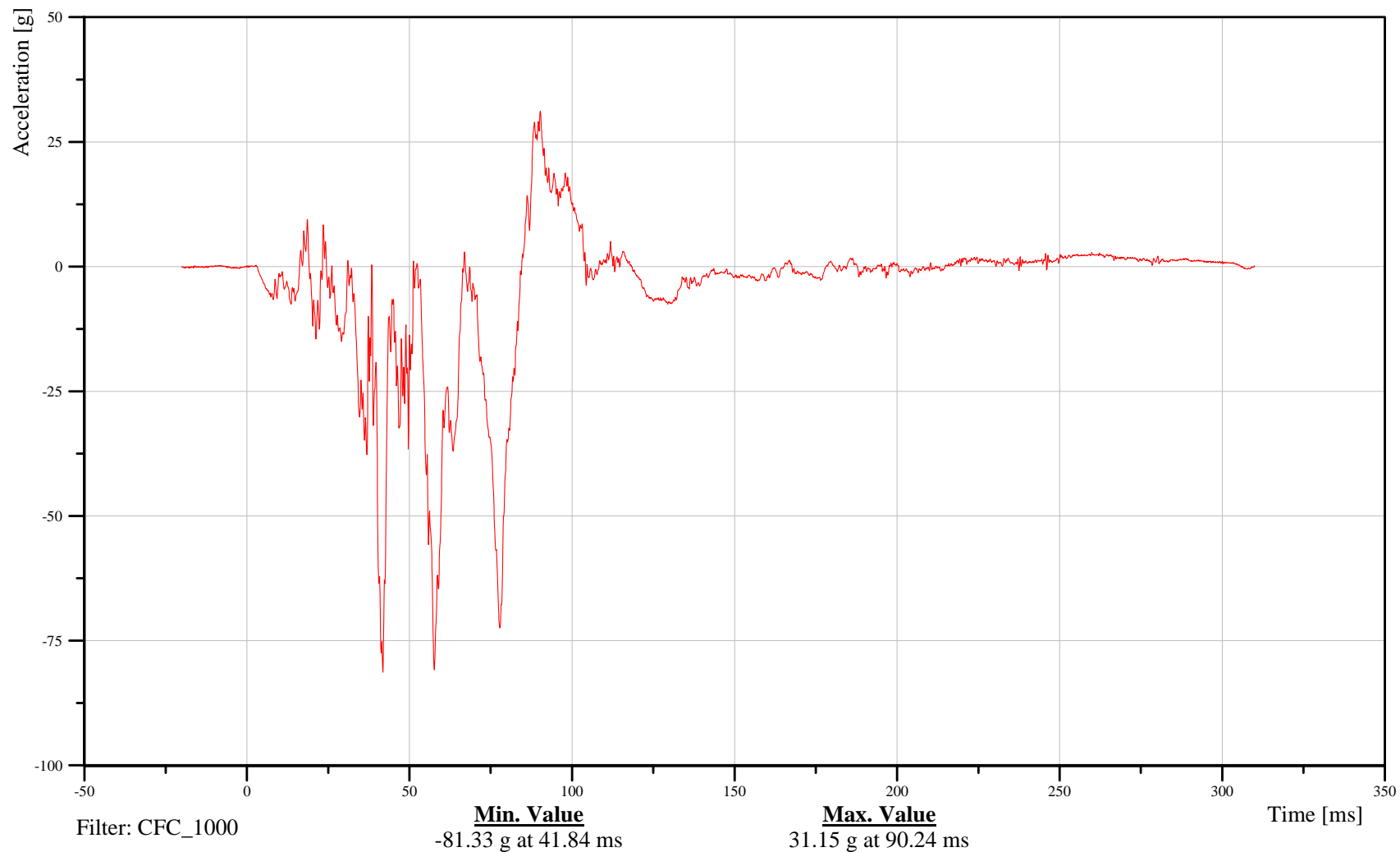
## Bullet Vehicle Driver Left Foot Z-Axis Acceleration

Customer: VRTC

# 11FOOTLELXH3ACZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-45

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Left Foot Resultant Acceleration

Date: 10/20/2009

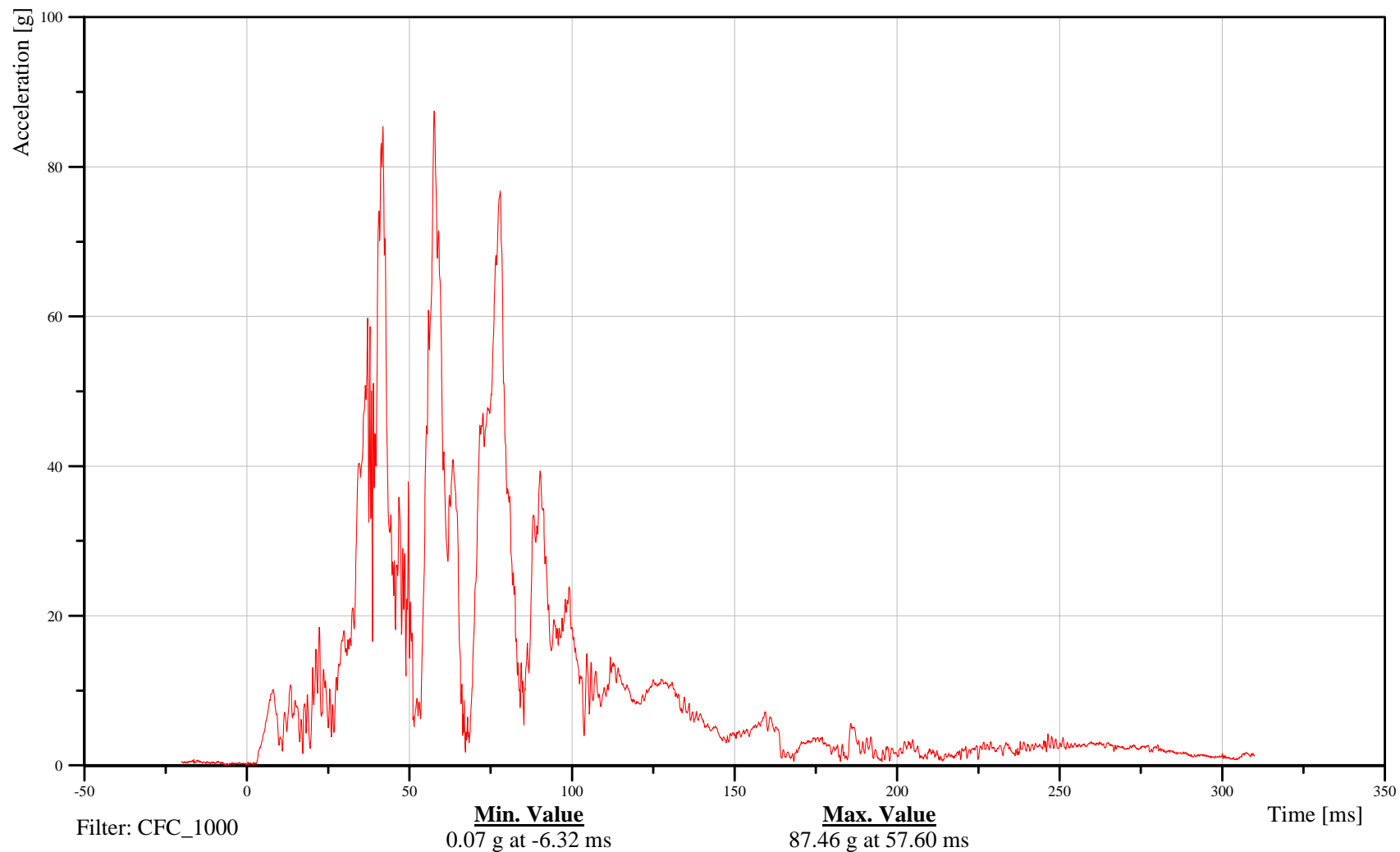
Time: 16:35

Customer: VRTC

# 11FOOTLELXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-46

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Left Foot X-Axis Angular Displacement

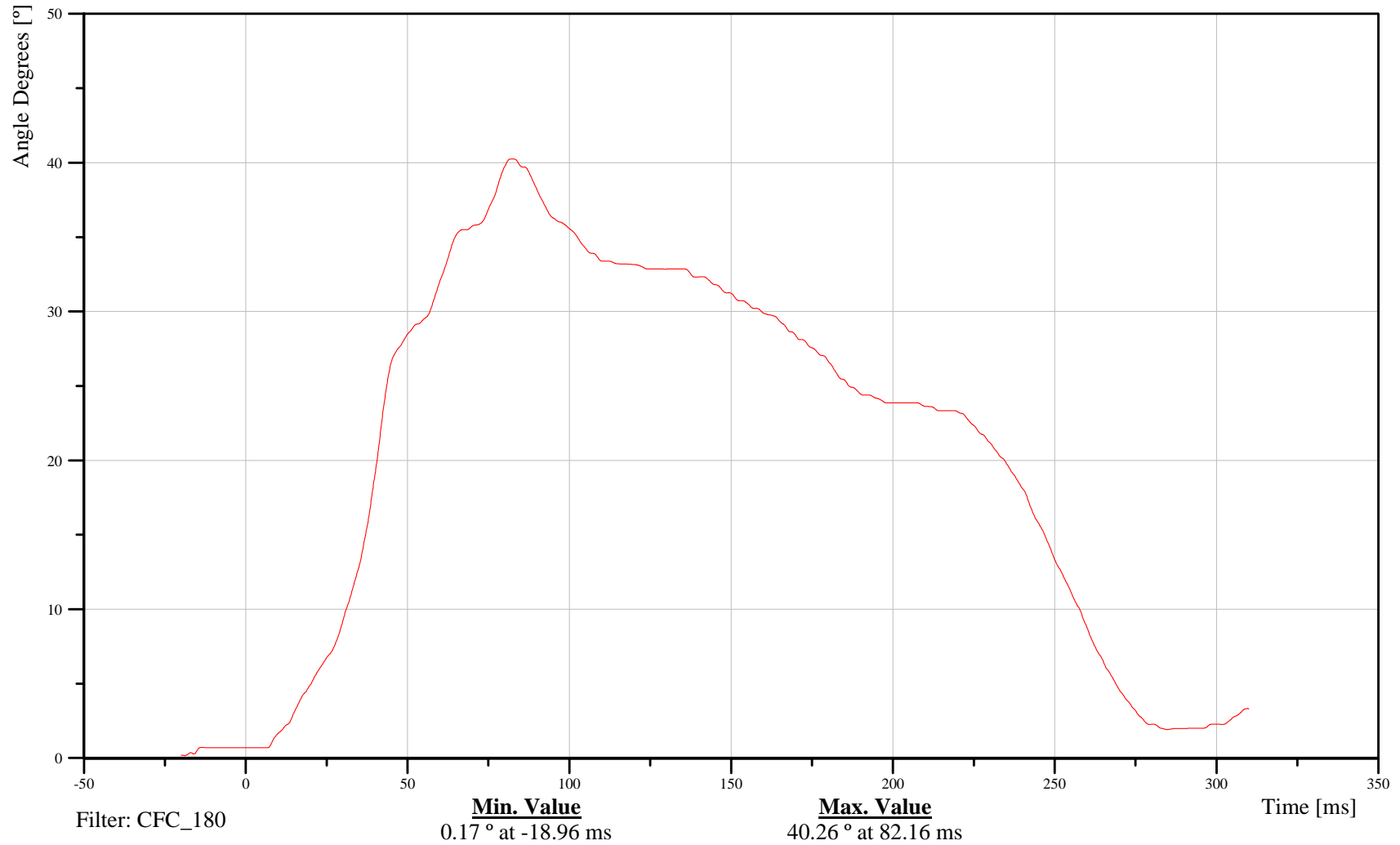
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11FOOTLELXH3ANXC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-47

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

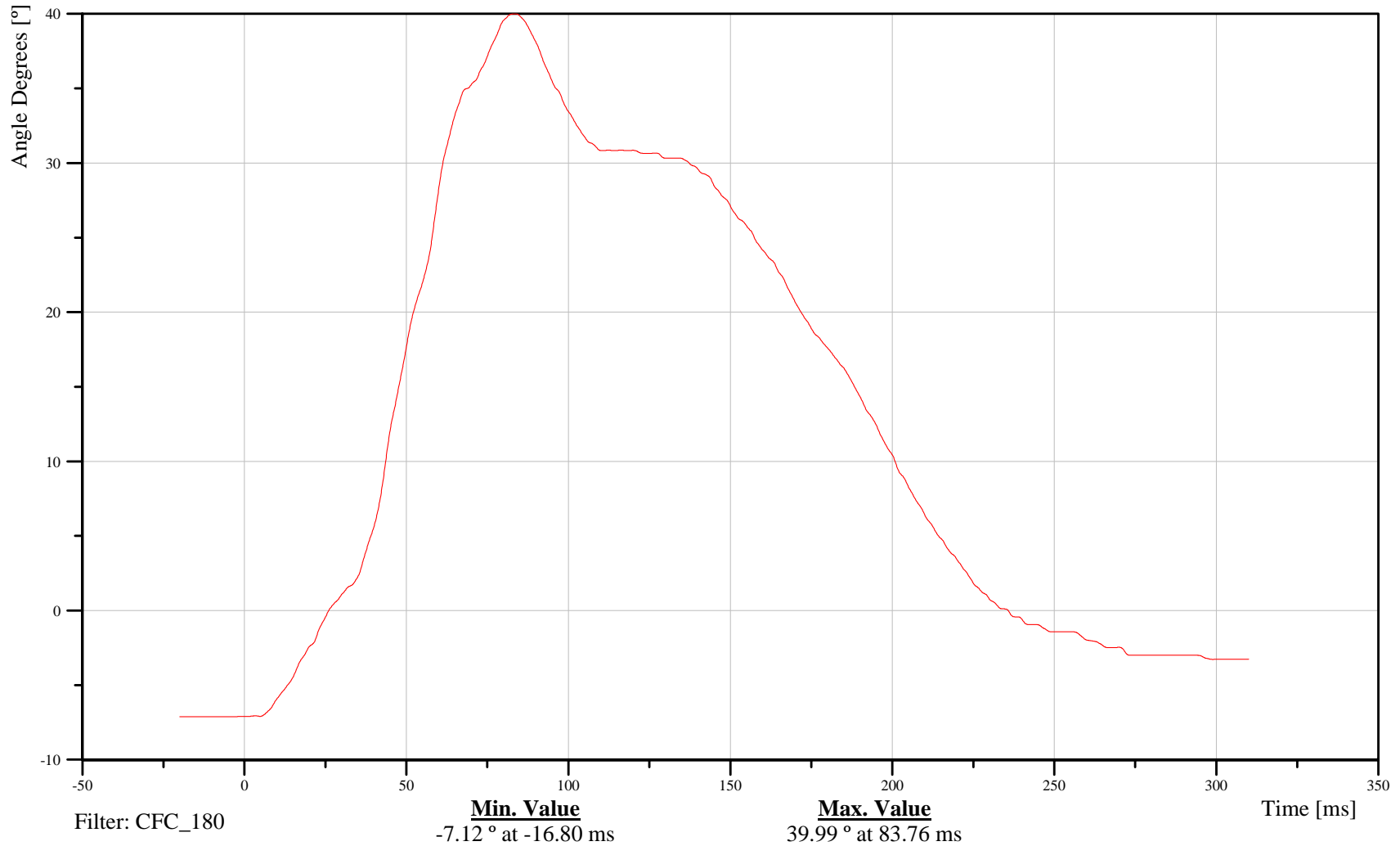
## Bullet Vehicle Driver Left Foot Y-Axis Angular Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11FOOTLELXH3ANYC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-48

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

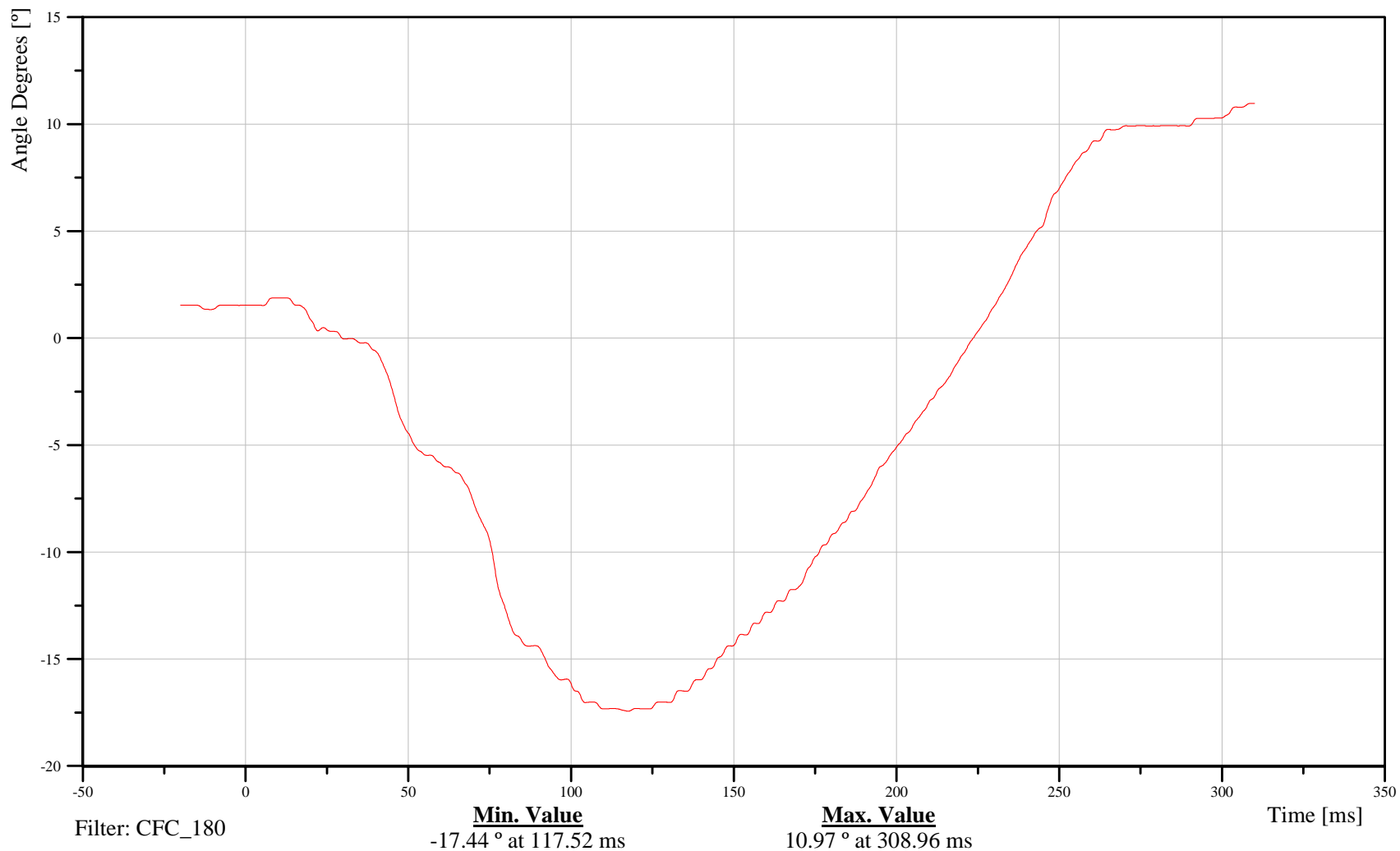
## Bullet Vehicle Driver Left Foot Z-Axis Angular Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11FOOTLELXH3ANZC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-49

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Driver Right Knee X-Axis Displacement

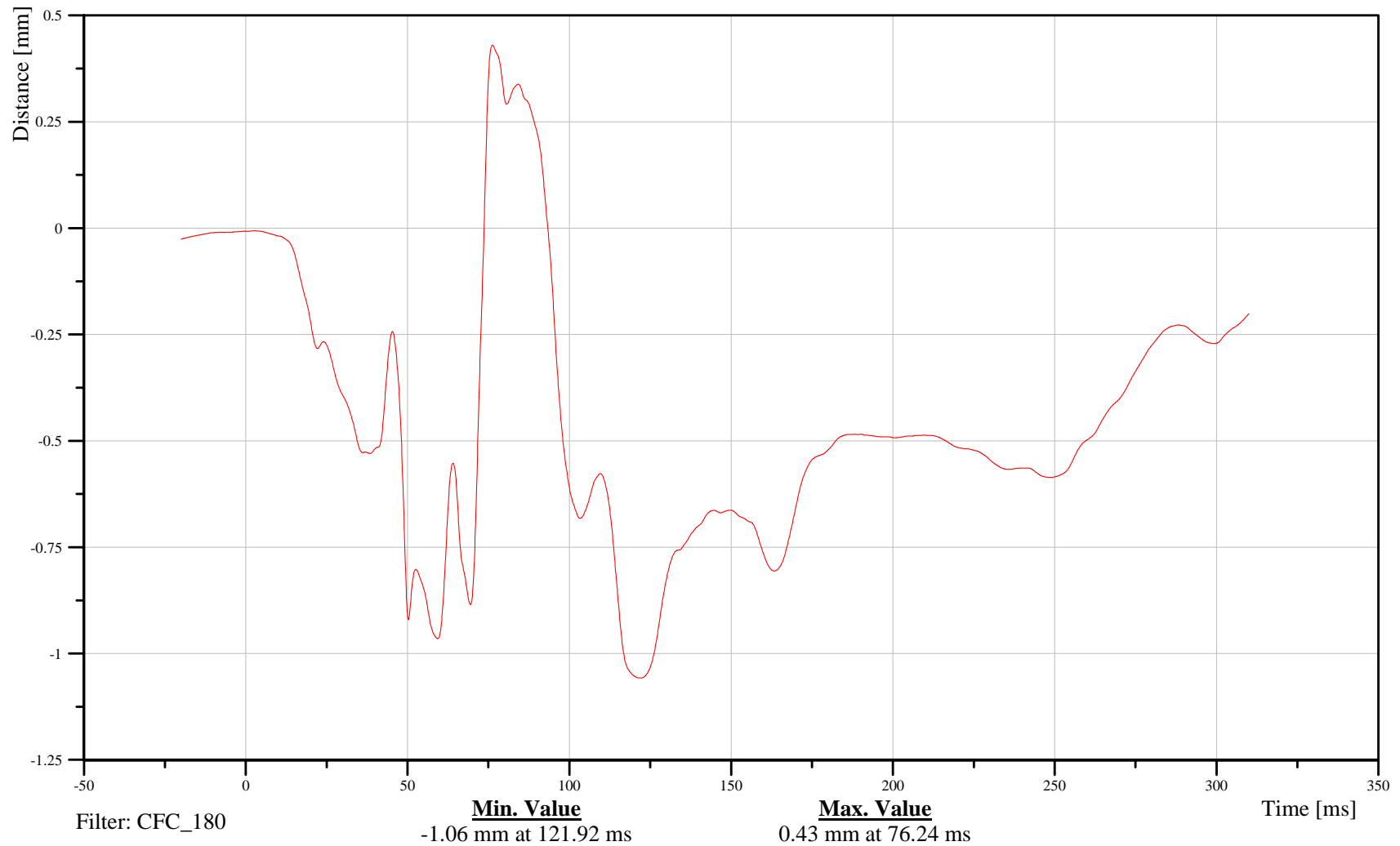
Time: 16:35

Customer: VRTC

### 11KNSLRI00H3DSXC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-50

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Right Upper Tibia X-Axis Force

Date: 10/20/2009

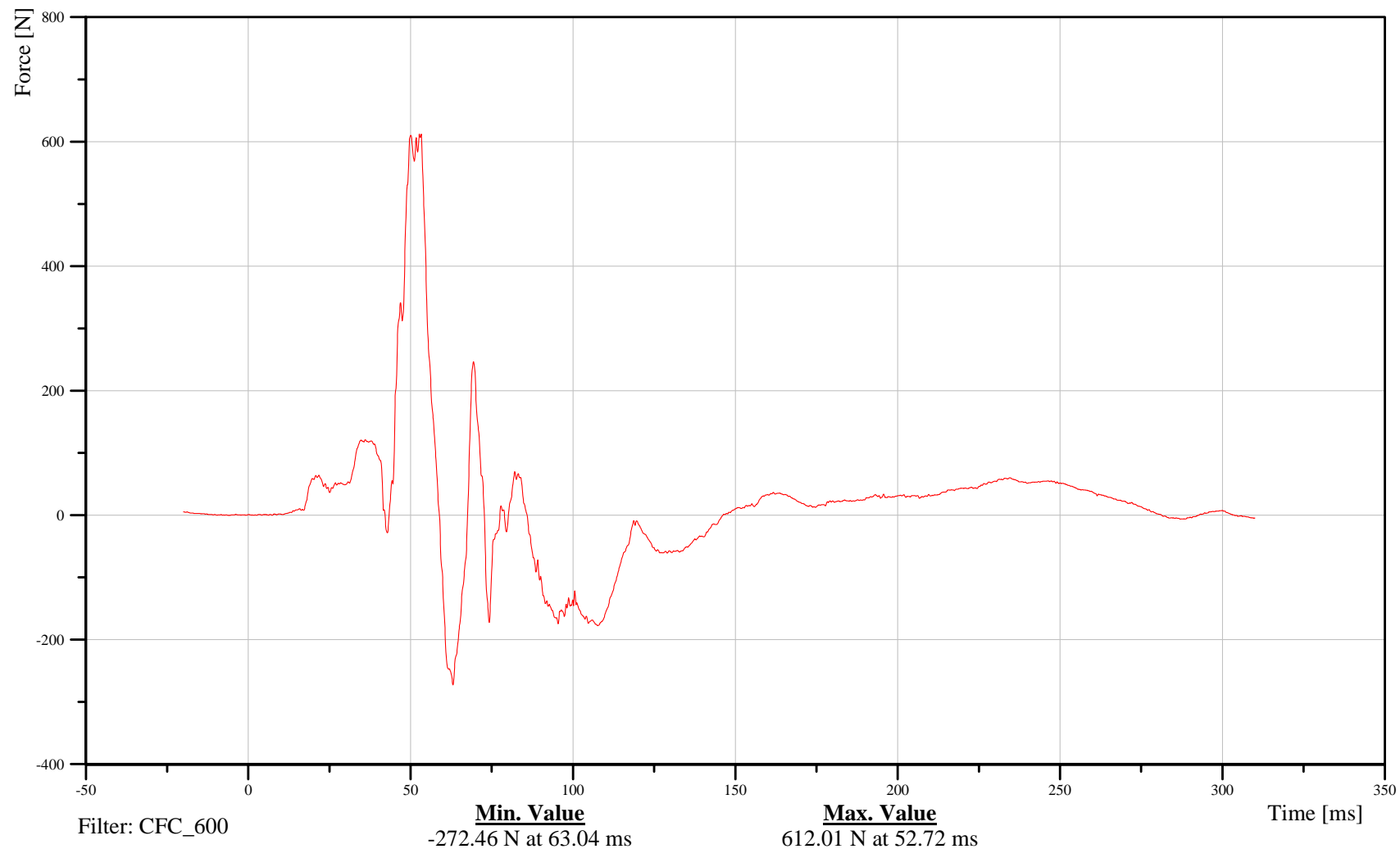
Time: 16:35

Customer: VRTC

### 11TIBIRULXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-51

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

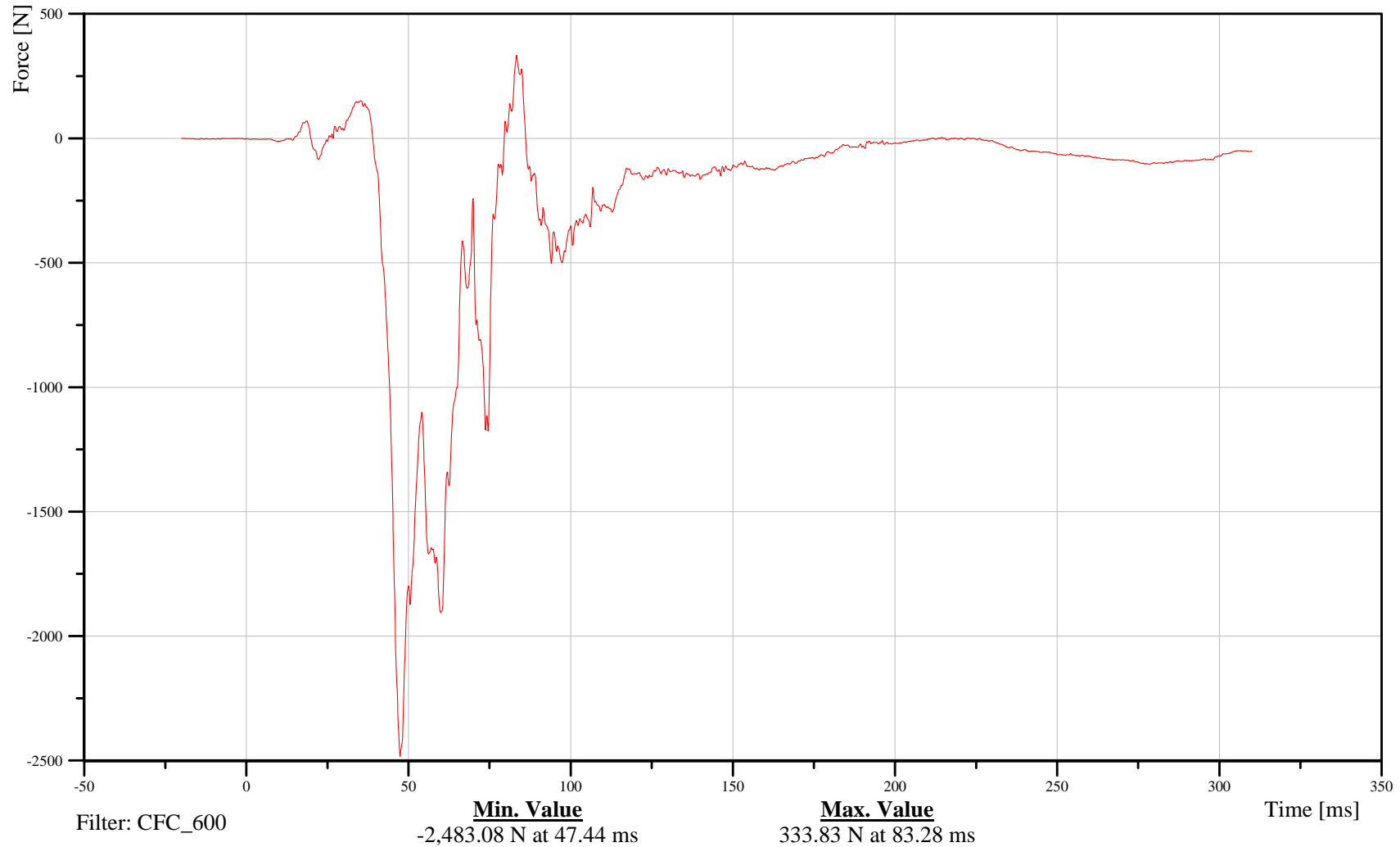
## Bullet Vehicle Driver Right Upper Tibia Z-Axis Force

Customer: VRTC

# 11TIBIRULXH3FOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-52

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

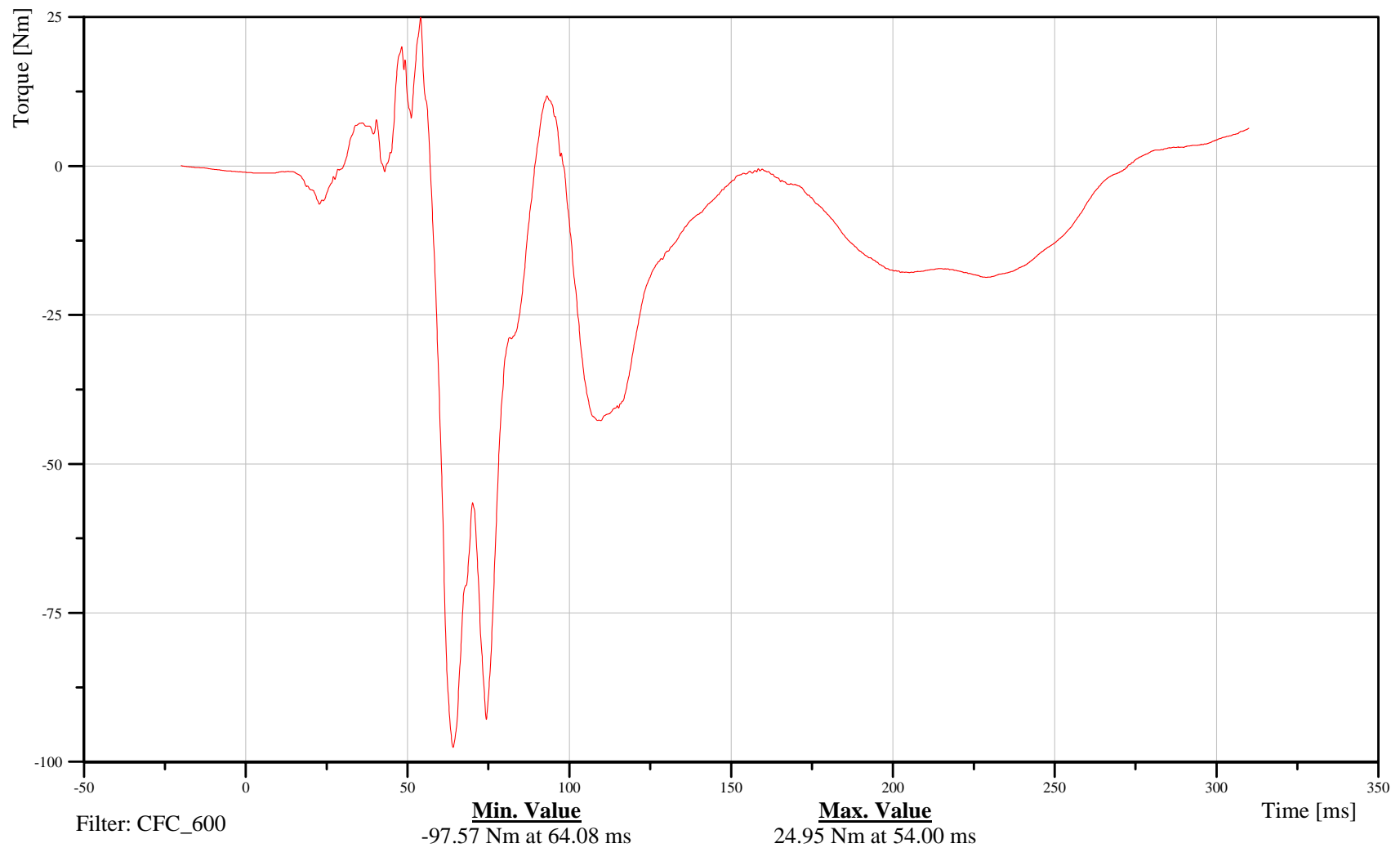
## Bullet Vehicle Driver Right Upper Tibia Moment About X Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11TIBIRULXH3MOXB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-53

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

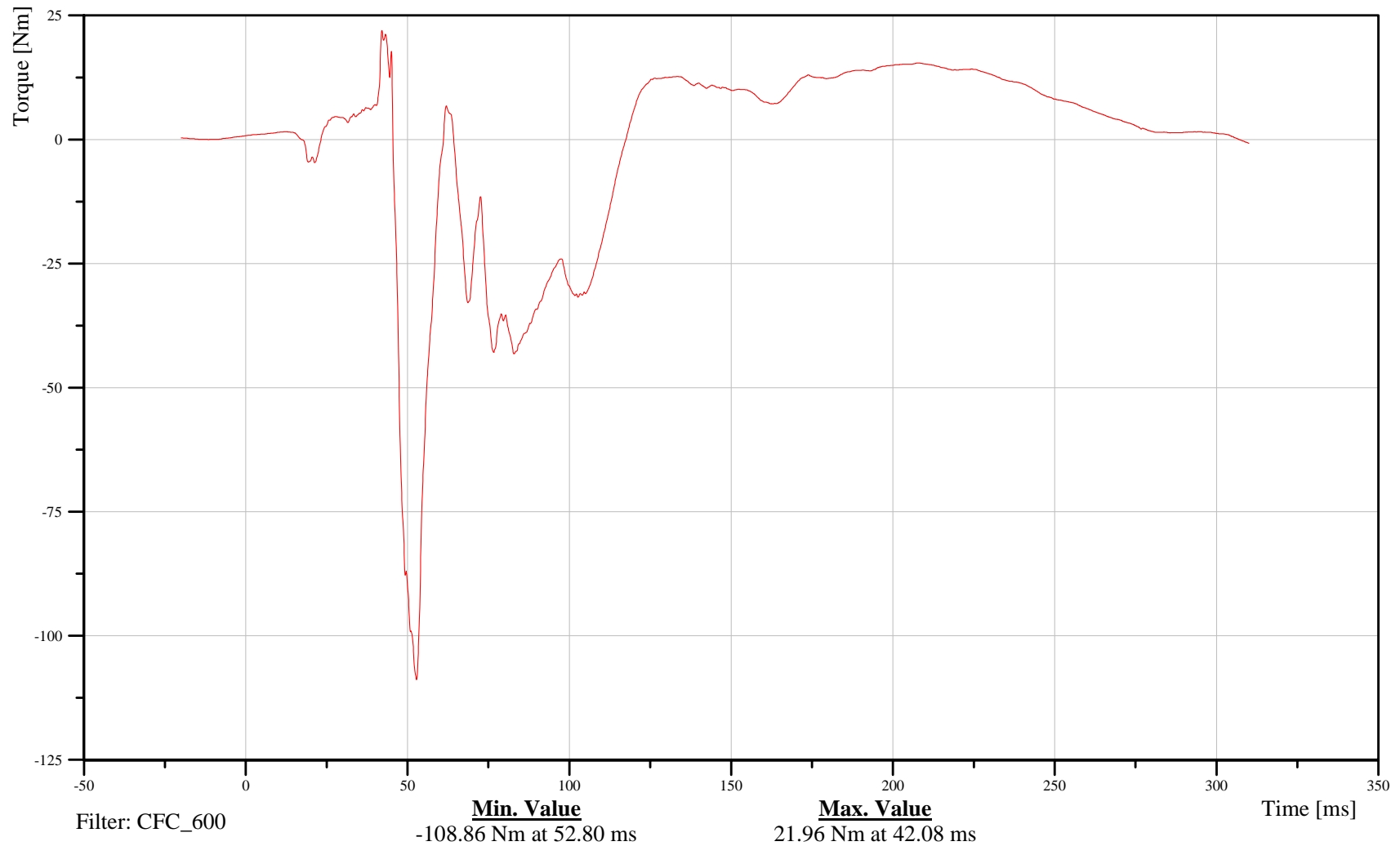
## Bullet Vehicle Driver Right Upper Tibia Moment About Y Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11TIBIRULXH3MOYB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-54

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Right Lower Tibia X-Axis Force

Date: 10/20/2009

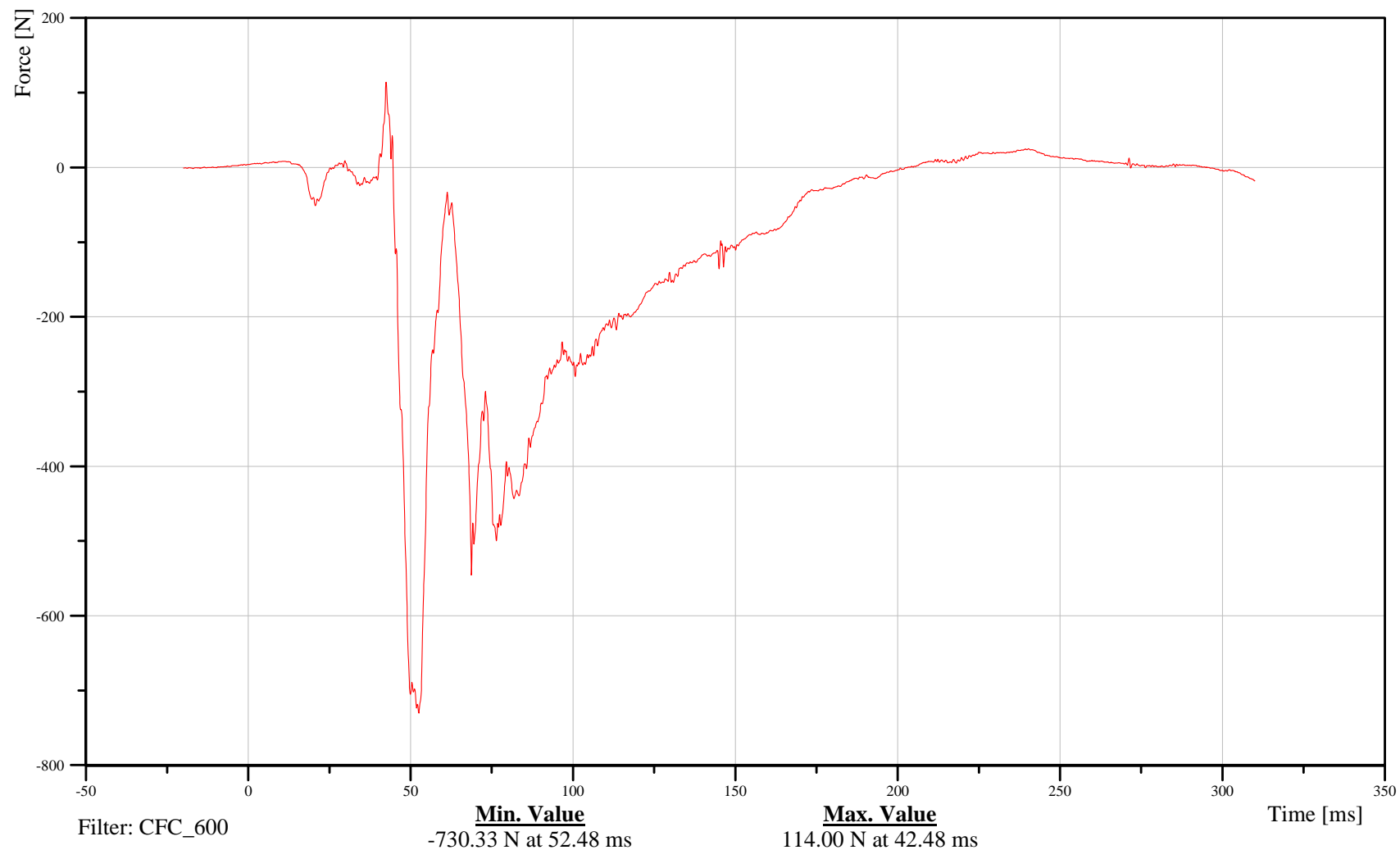
Time: 16:35

Customer: VRTC

### 11TIBIRLLXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-55

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Right Lower Tibia Y-Axis Force

Date: 10/20/2009

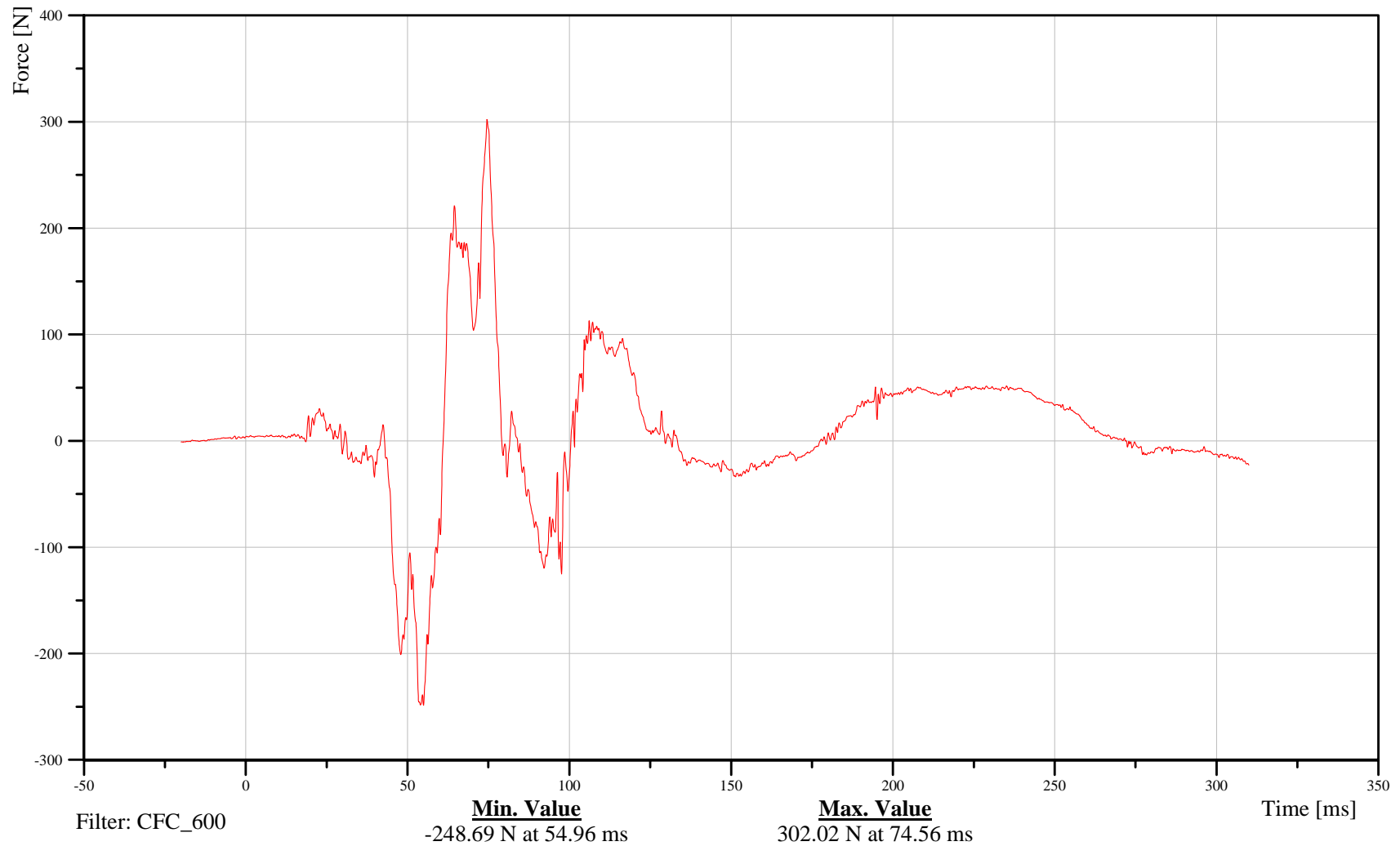
Time: 16:35

Customer: VRTC

# 11TIBIRLLXH3FOYB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-56

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Right Lower Tibia Z-Axis Force

Date: 10/20/2009

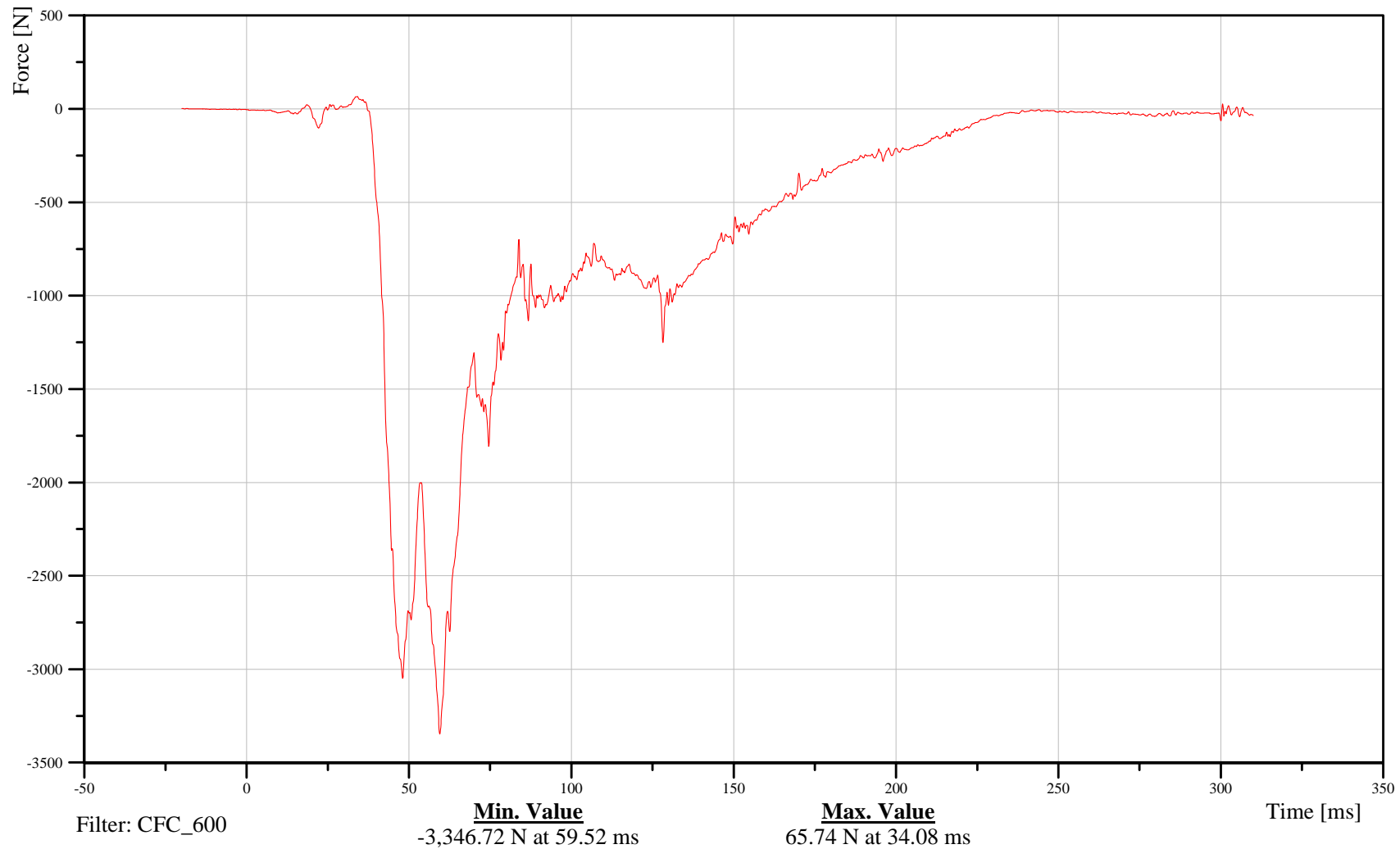
Time: 16:35

Customer: VRTC

# 11TIBIRLLXH3FOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-57

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Right Lower Tibia Moment About X Axis

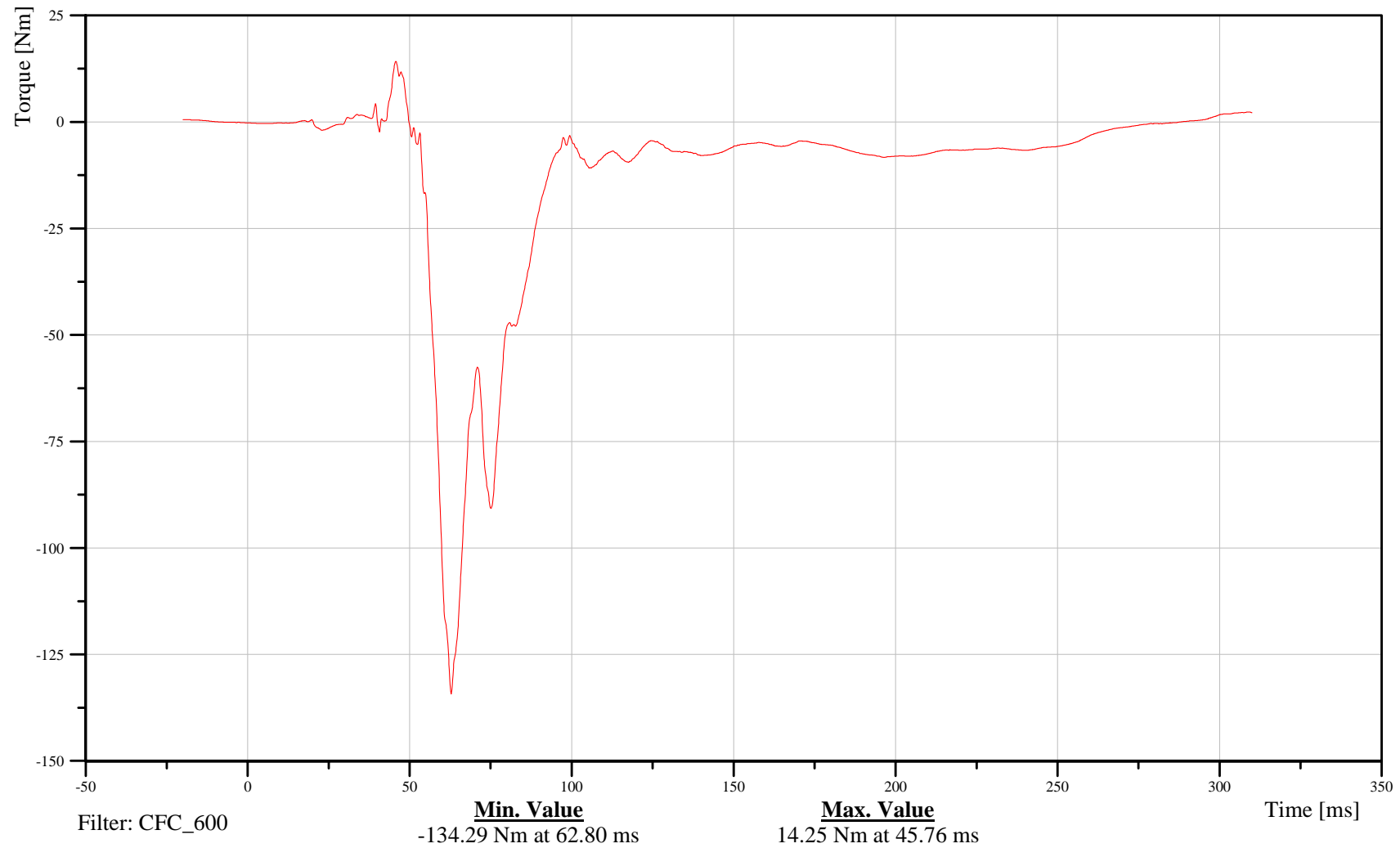
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11TIBIRLLXH3MOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-58

091020



Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Driver Right Lower Tibia Moment About Y Axis

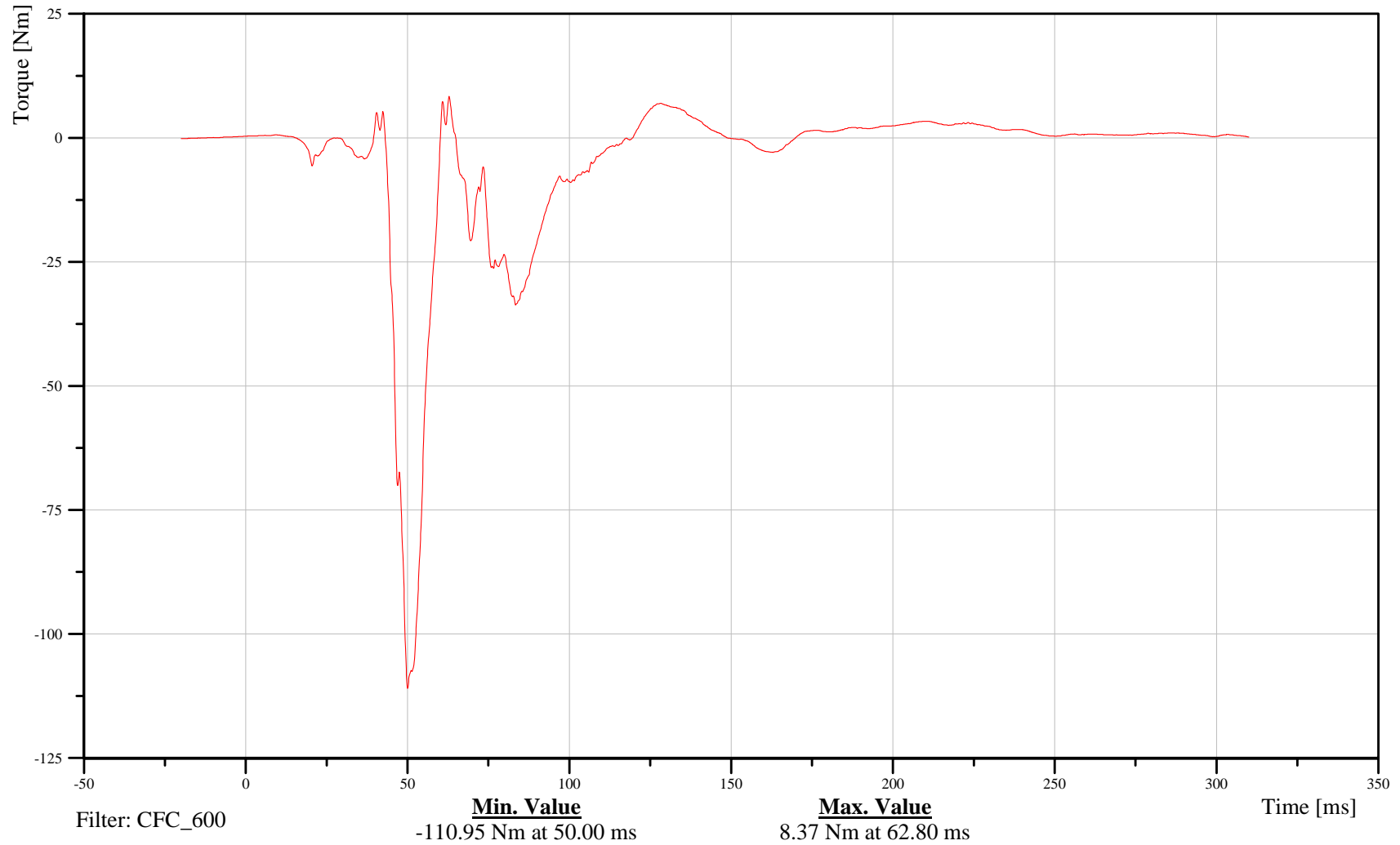
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

11TIBIRLLXH3MOYB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-59

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Right Tibia X-Axis Acceleration

Date: 10/20/2009

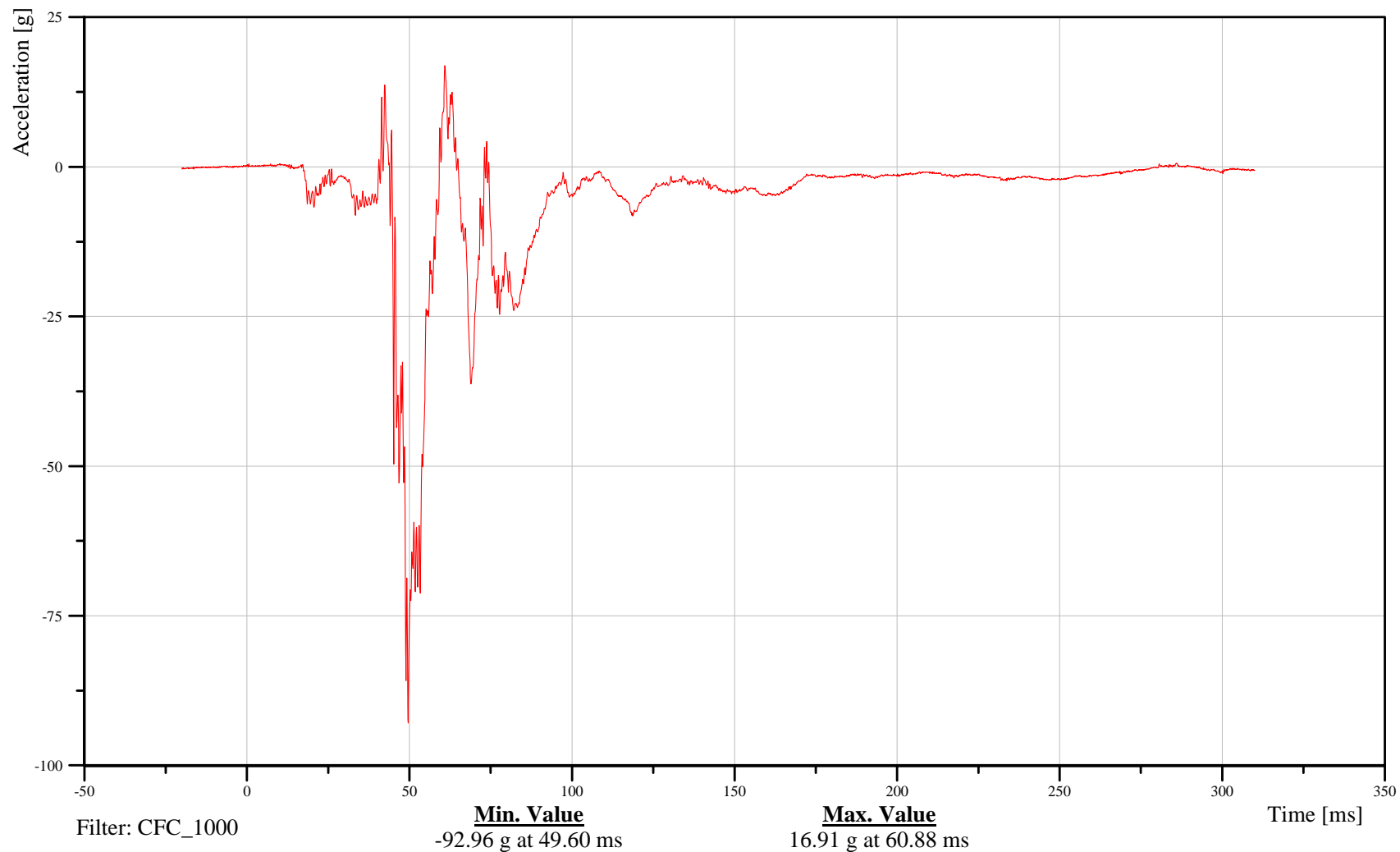
Time: 16:35

Customer: VRTC

### 11TIBIRILXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-60

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Driver Right Tibia Y-Axis Acceleration

Date: 10/20/2009

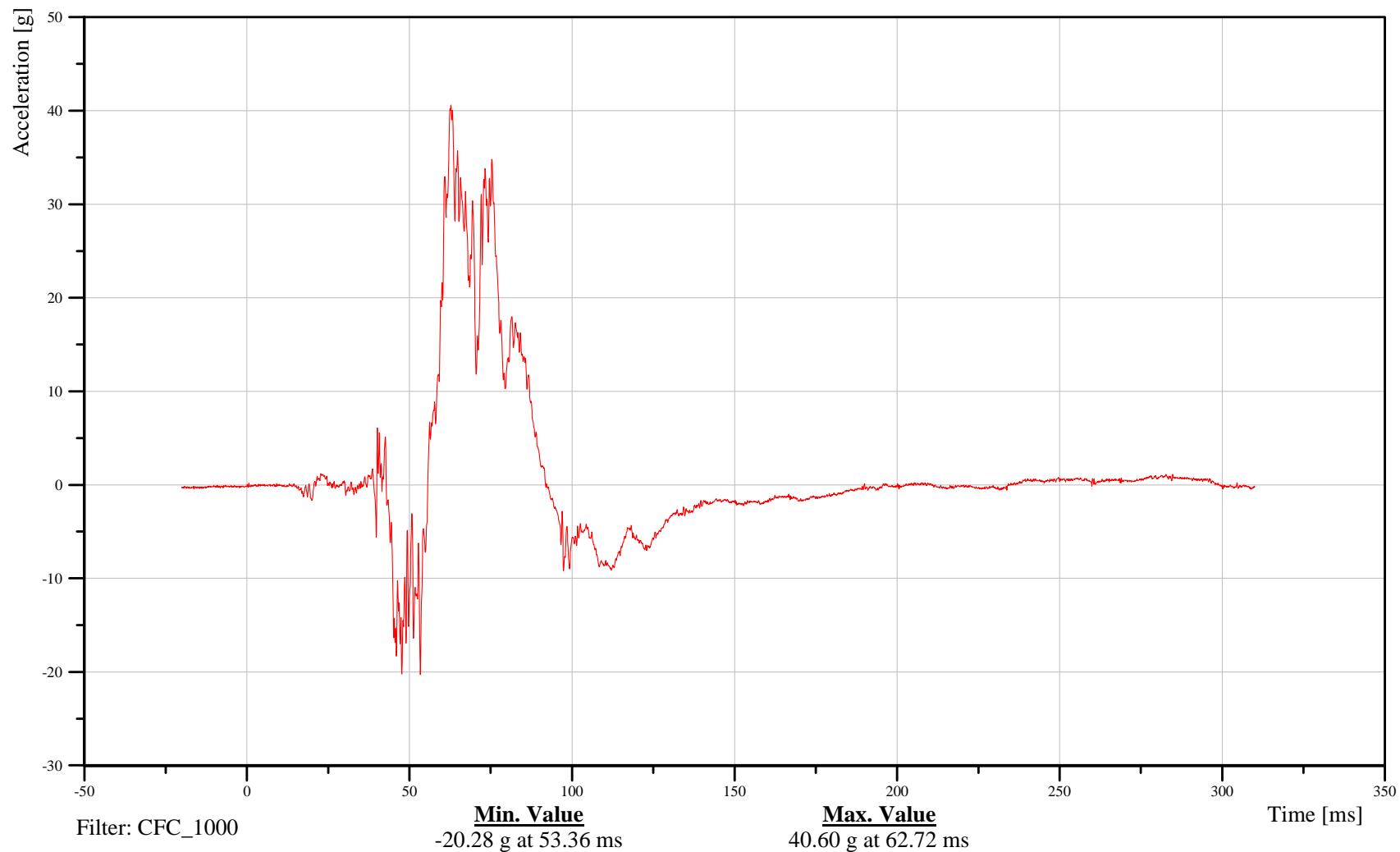
Time: 16:35

Customer: VRTC

# 11TIBIRILXH3ACYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-61

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

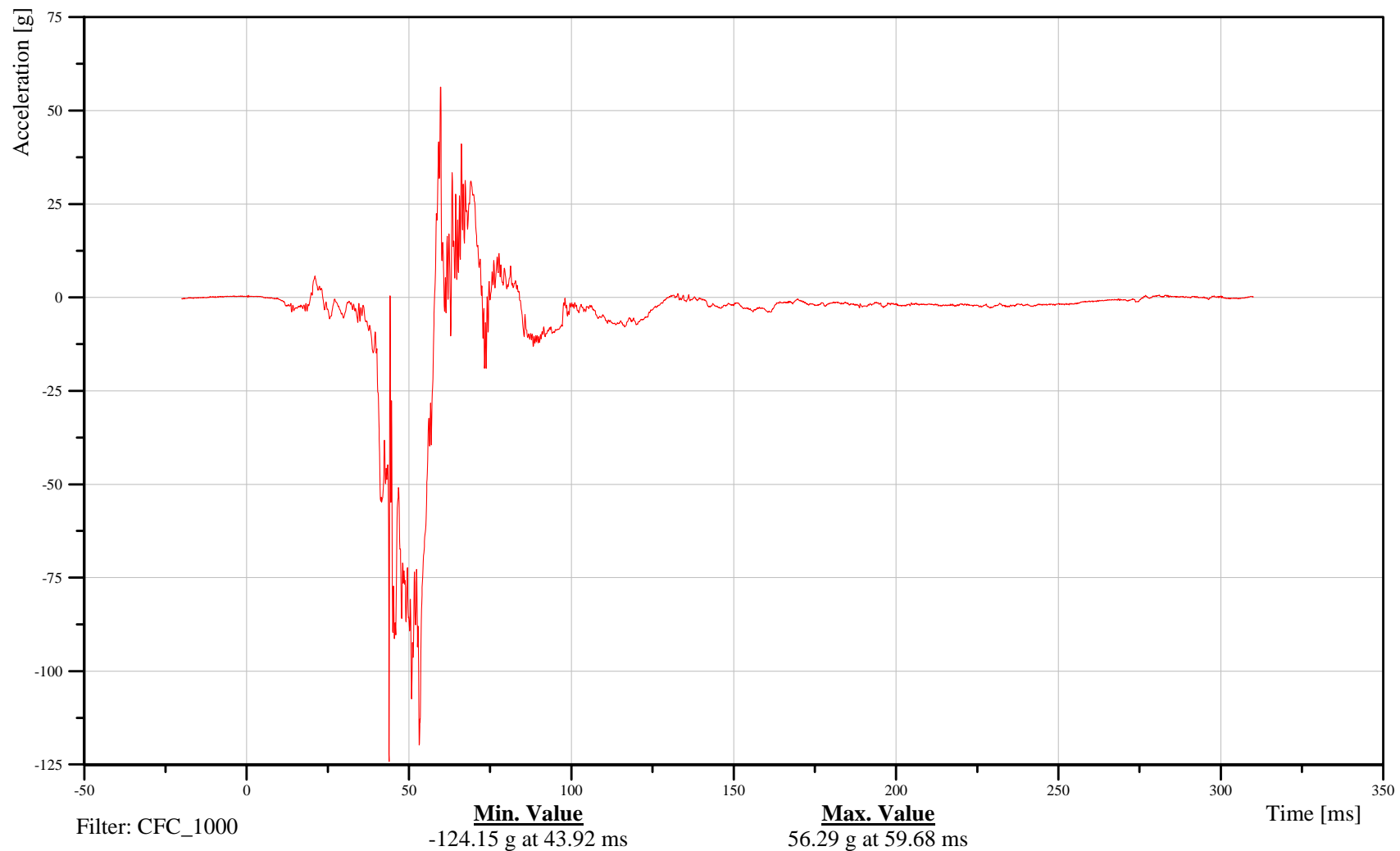
## Bullet Vehicle Driver Right Foot X-Axis Acceleration

Customer: VRTC

# 11FOOTRILXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-62

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Driver Right Foot Y-Axis Acceleration

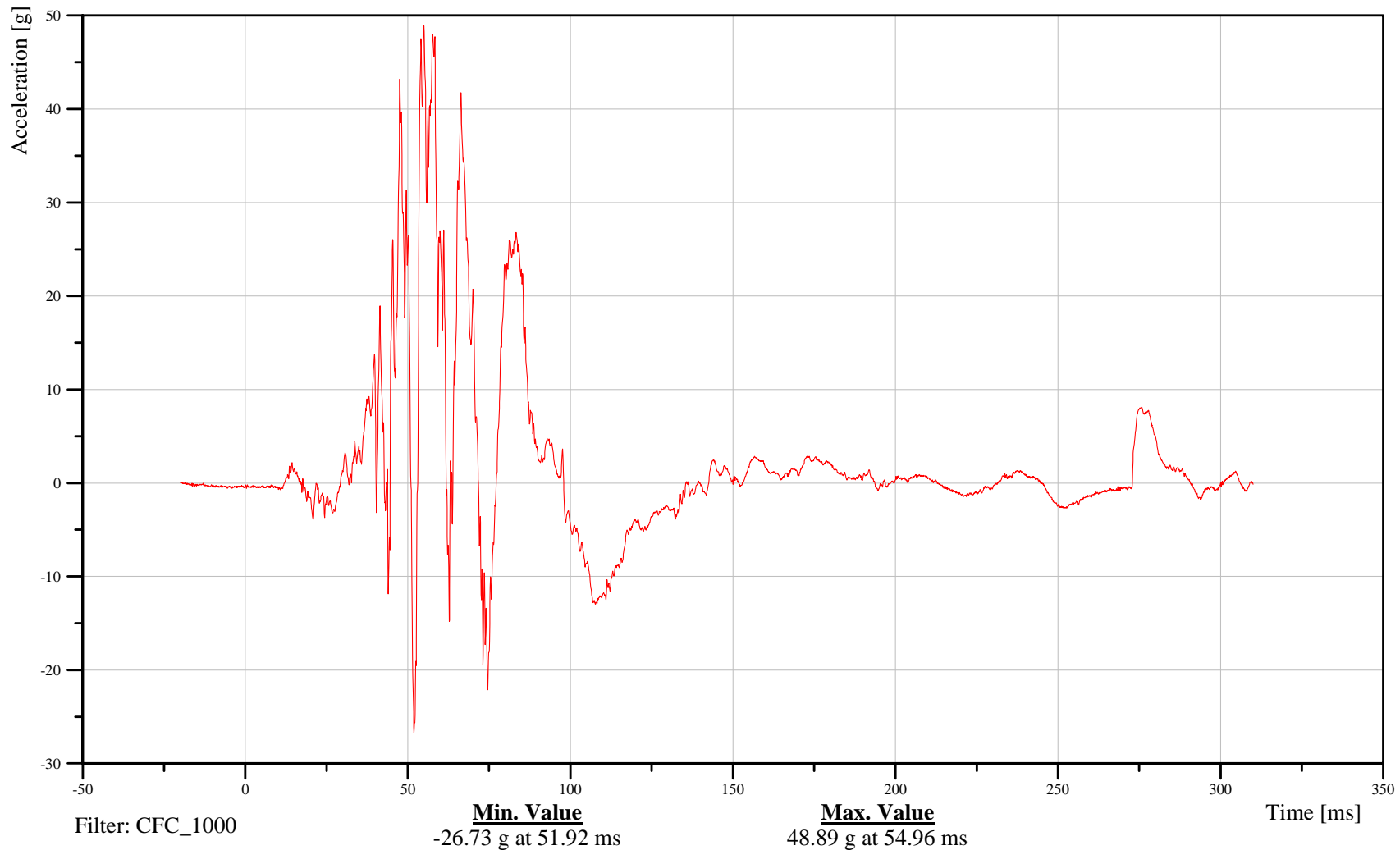
Time: 16:35

Customer: VRTC

# 11FOOTRILXH3ACYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-63

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

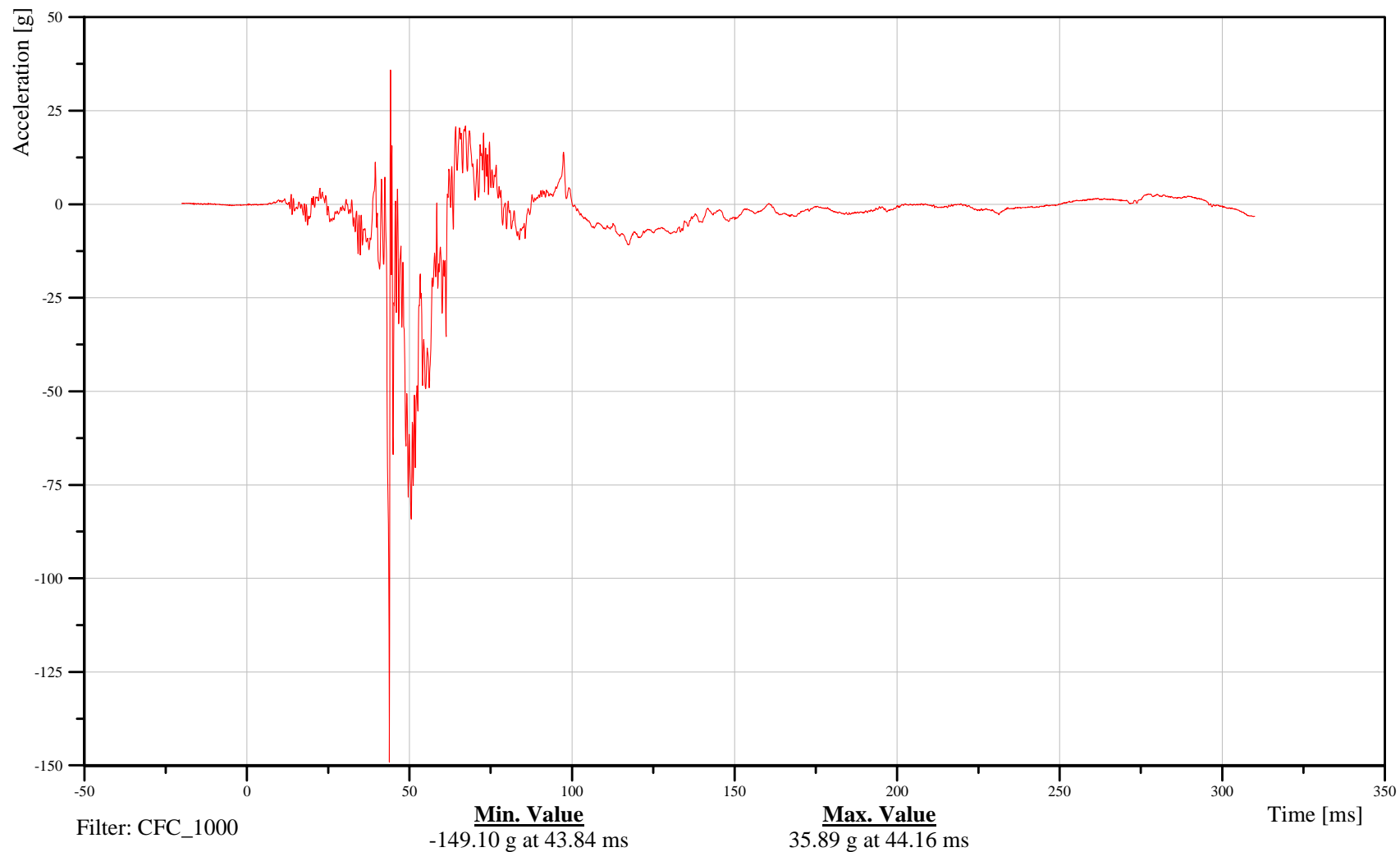
## Bullet Vehicle Driver Right Foot Z-Axis Acceleration

Customer: VRTC

# 11FOOTRILXH3ACZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-64

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Driver Right Foot Resultant Acceleration

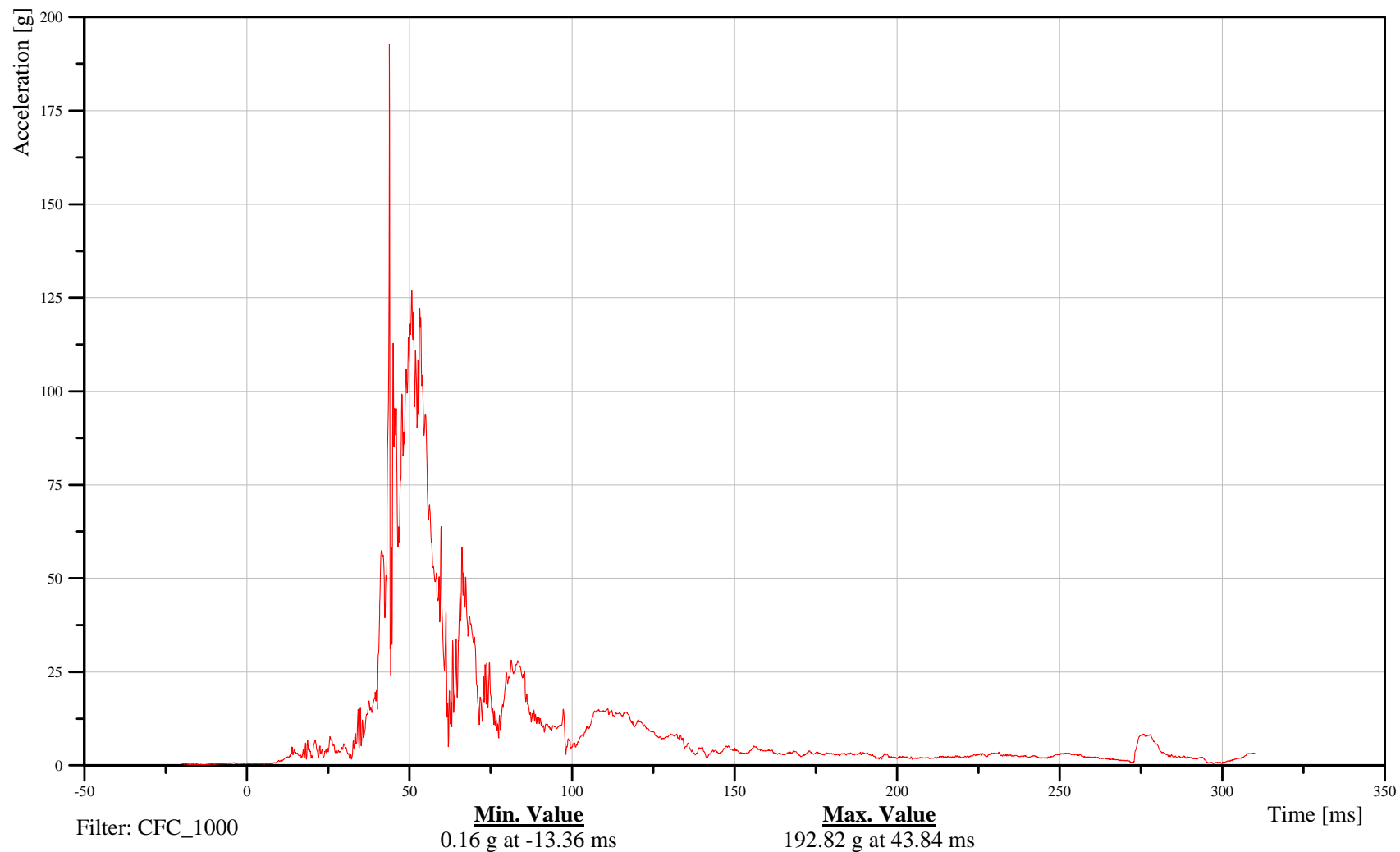
Time: 16:35

Customer: VRTC

# 11FOOTRILXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-65

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

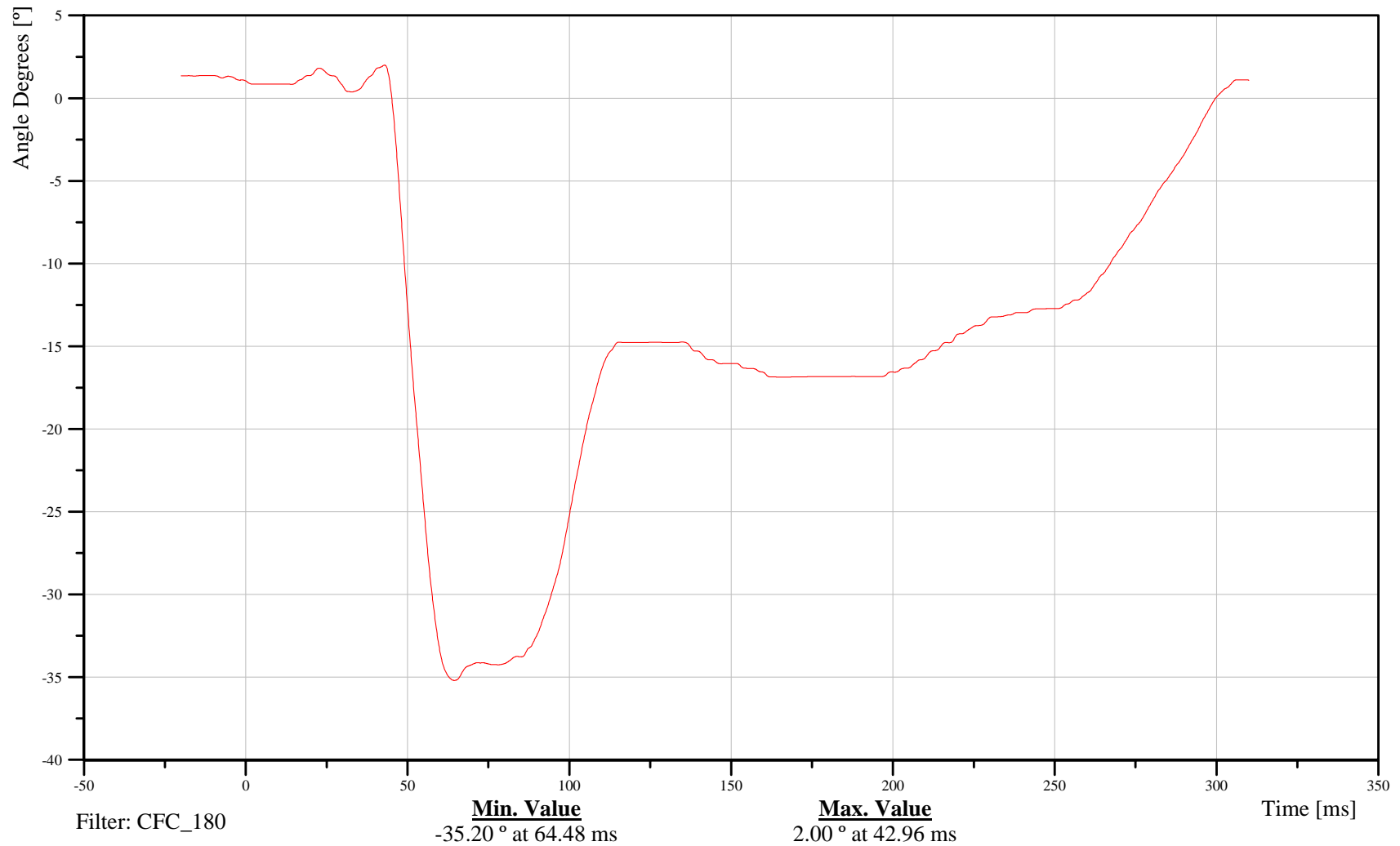
## Bullet Vehicle Driver Right Foot X-Axis Angular Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11FOOTRILXH3ANXC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-66

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

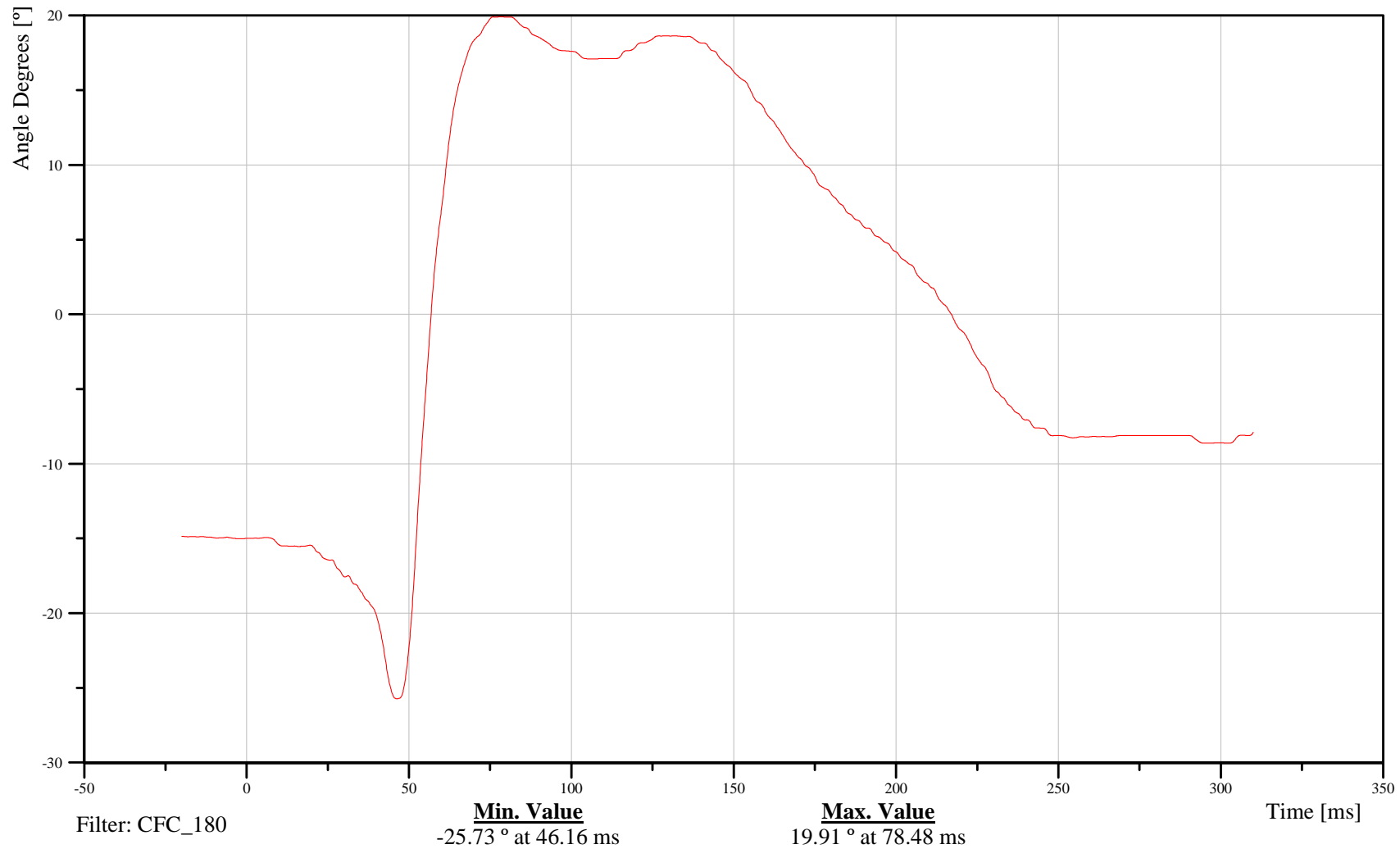
## Bullet Vehicle Driver Right Foot Y-Axis Angular Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

# 11FOOTRILXH3ANYC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-67

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

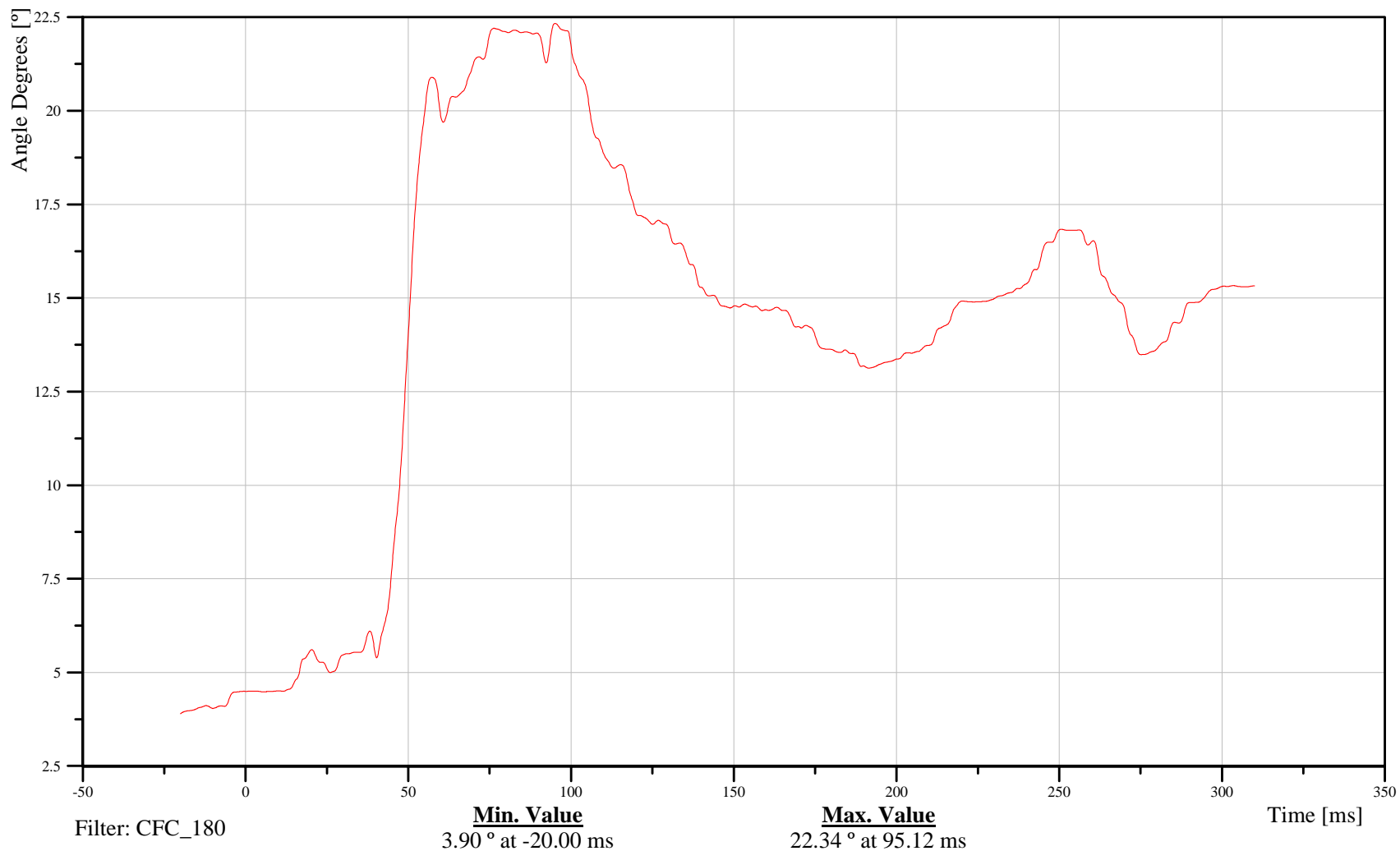
## Bullet Vehicle Driver Right Foot Z-Axis Angular Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 11FOOTRILXH3ANZC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-68

091020



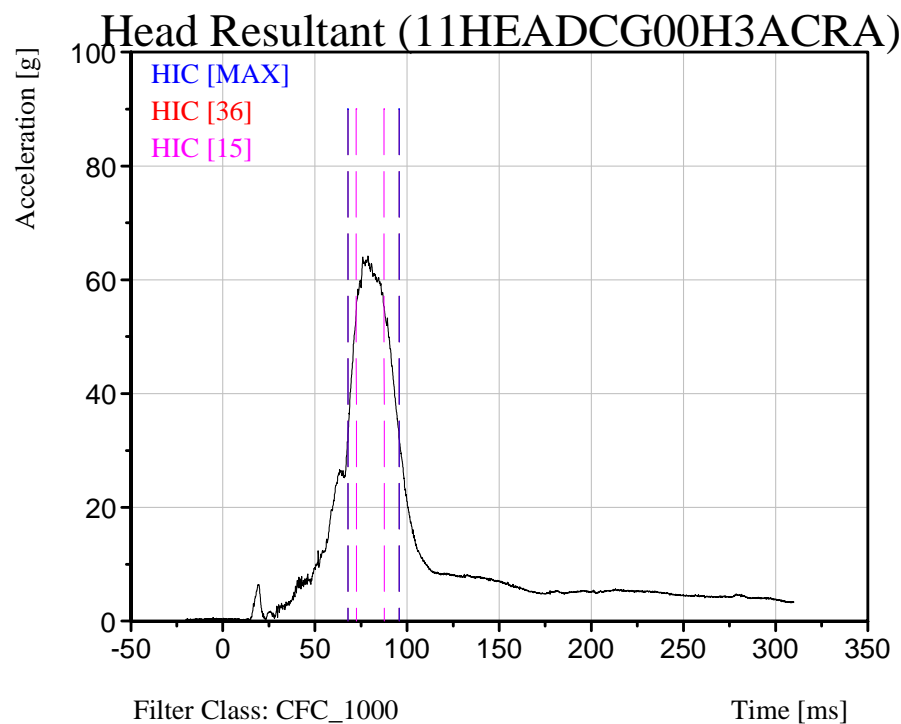
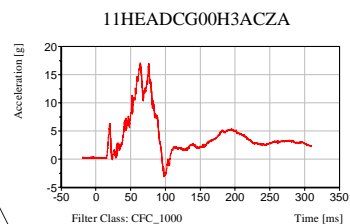
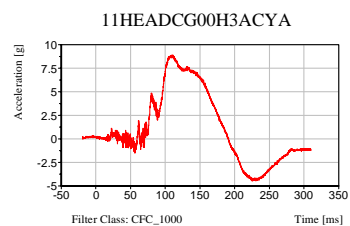
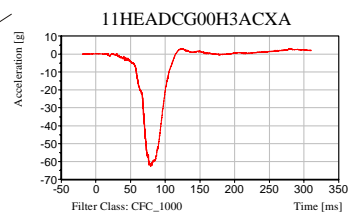
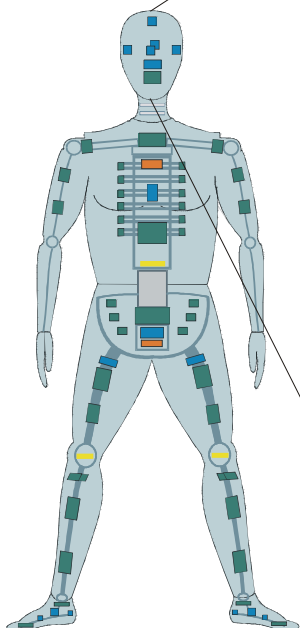
# Taurus into Taurus at 15 Degrees, 50% Overlap

## Head Injury Criterion (HIC)

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-69

091020

Dummy: HIII 50th Male  
Seating Position:  
Driver

	<u>T1</u> (Begin)	<u>T2</u> (End)	<u>Avg. g T1 to T2</u>
HIC [Max.] = 575.42	67.92 ms	95.76 ms	53.17 g
HIC [36] = 575.42	67.92 ms	95.76 ms	53.17 g
HIC [15] = 428.54	72.48 ms	87.52 ms	60.49 g

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



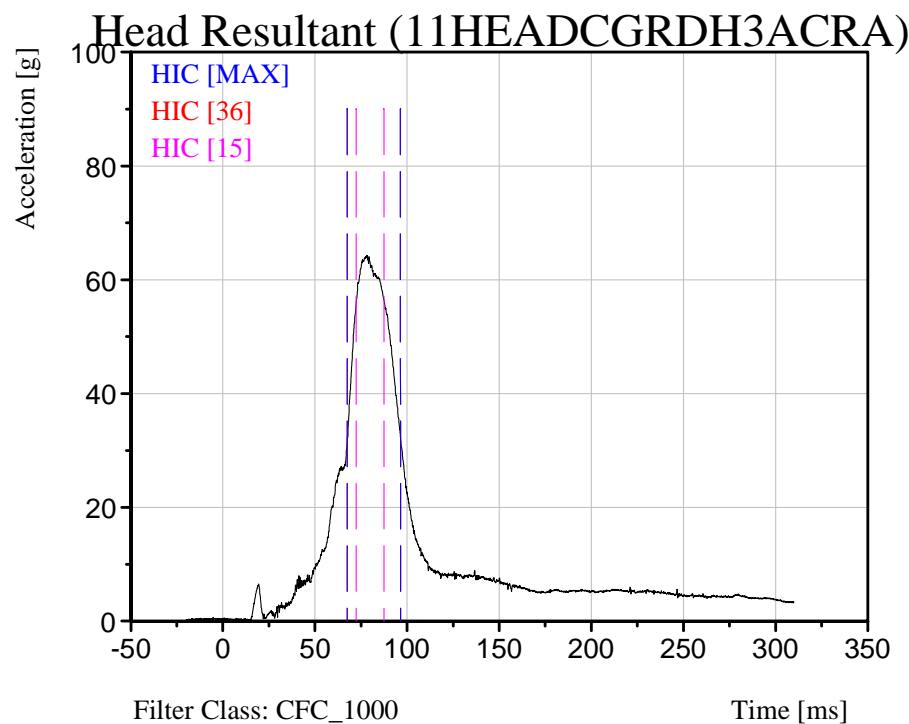
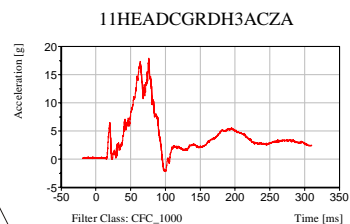
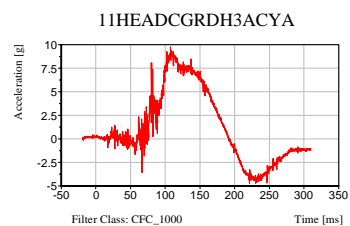
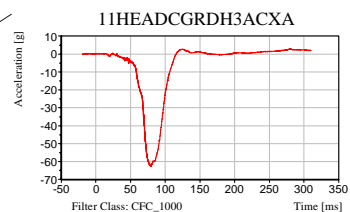
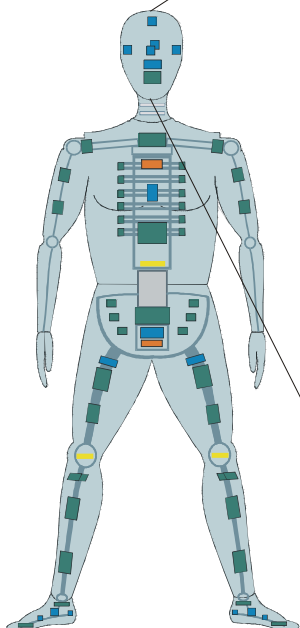
# Taurus into Taurus at 15 Degrees, 50% Overlap

## Head Injury Criterion (HIC)

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-70

091020

Dummy: HIII 50th Male  
Seating Position:  
Driver

	<u>T1</u> (Begin)	<u>T2</u> (End)	<u>Avg. g T1 to T2</u>
HIC [Max.] = 607.24	67.52 ms	96.48 ms	53.47 g
HIC [36] = 607.24	67.52 ms	96.48 ms	53.47 g
HIC [15] = 440.39	72.40 ms	87.44 ms	61.16 g

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



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

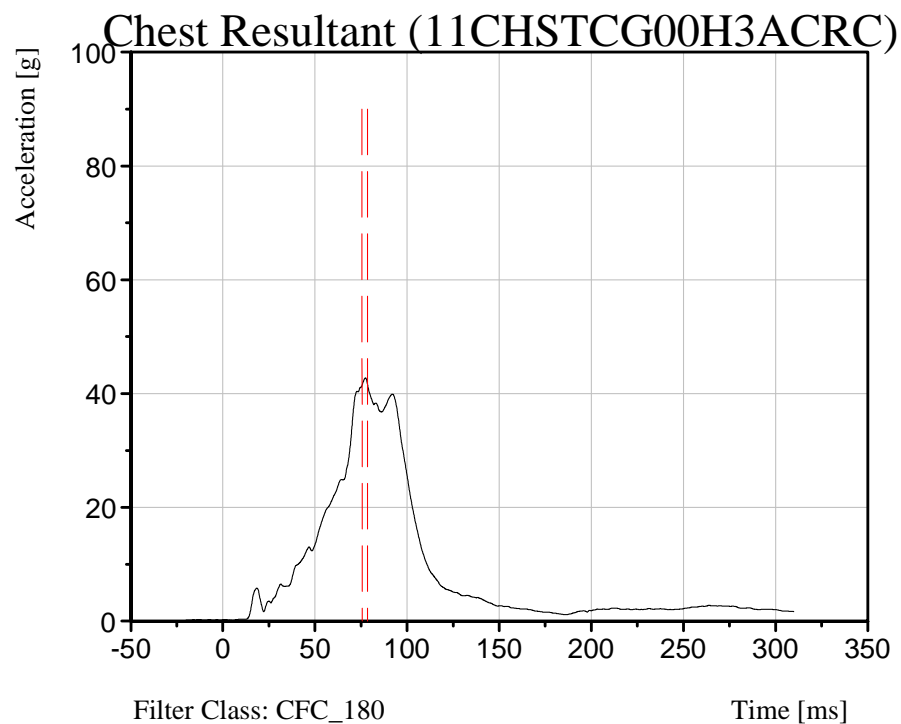
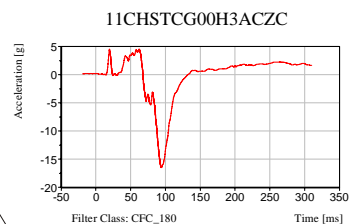
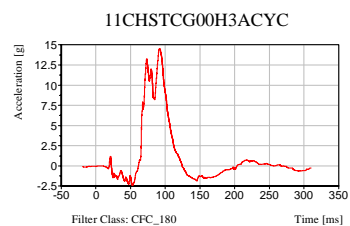
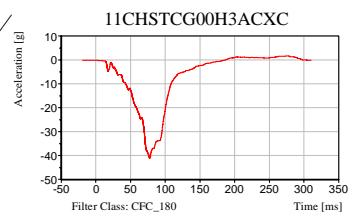
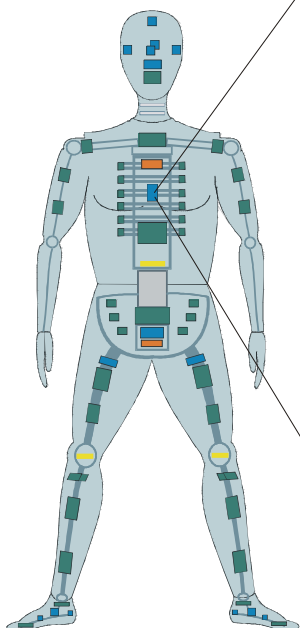
Time: 16:35

## 3 ms Duration Acceleration (Chest)

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



3 ms Duration Acceleration = 41.50 g  
 Chest Severity Index = 340.61

<u>T1</u> (Begin)	<u>T2</u> (End)
75.59 ms	78.59 ms

Dummy: HIII 50th Male  
 Seating Position:  
 Driver

3 ms Duration Acceleration Source Code : vbScript w/DIADEM 9.0

B-71

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

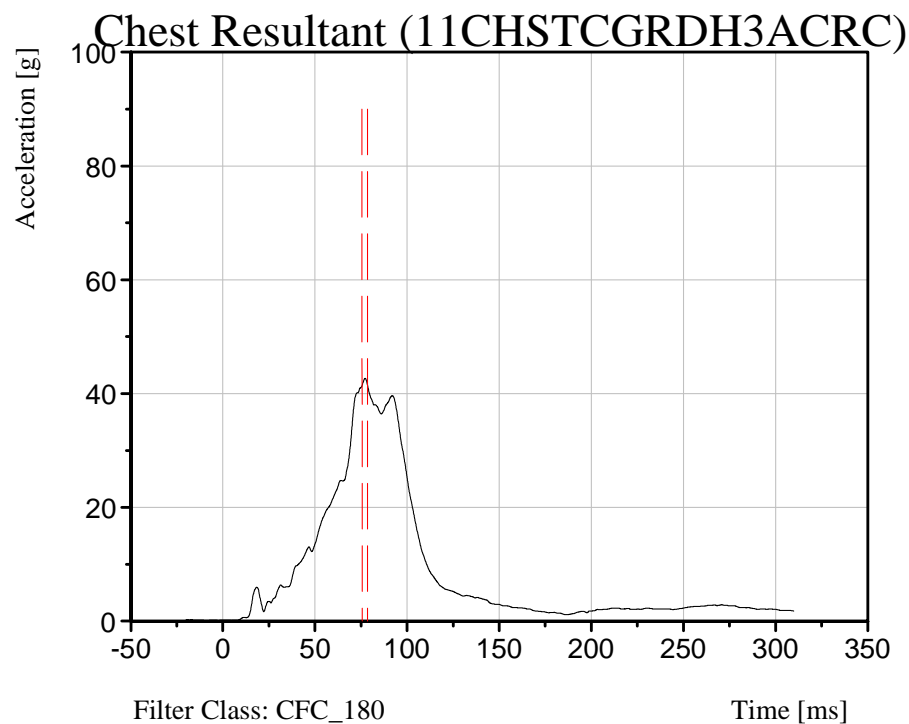
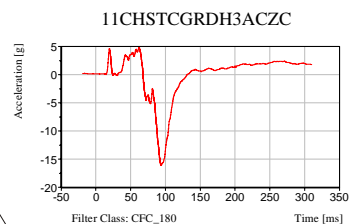
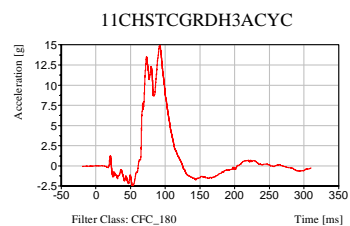
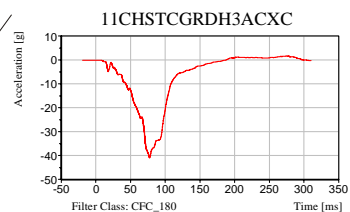
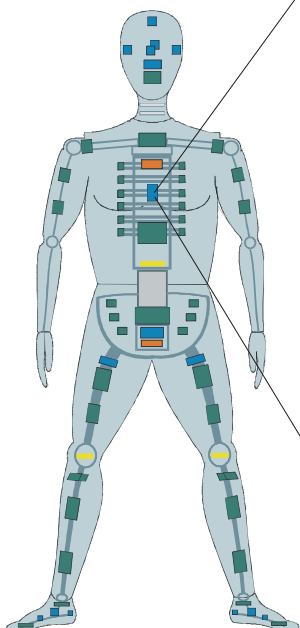
Time: 16:35

## 3 ms Duration Acceleration (Chest)

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-72

3 ms Duration Acceleration = 41.42 g  
 Chest Severity Index = 336.13

<u>T1</u> (Begin)	<u>T2</u> (End)
75.56 ms	78.56 ms

Dummy:HIII 50th Male  
 Seating Position:  
 Driver

3 ms Duration Acceleration Source Code : vbScript w/DIADEM 9.0

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

## Chest Deflection

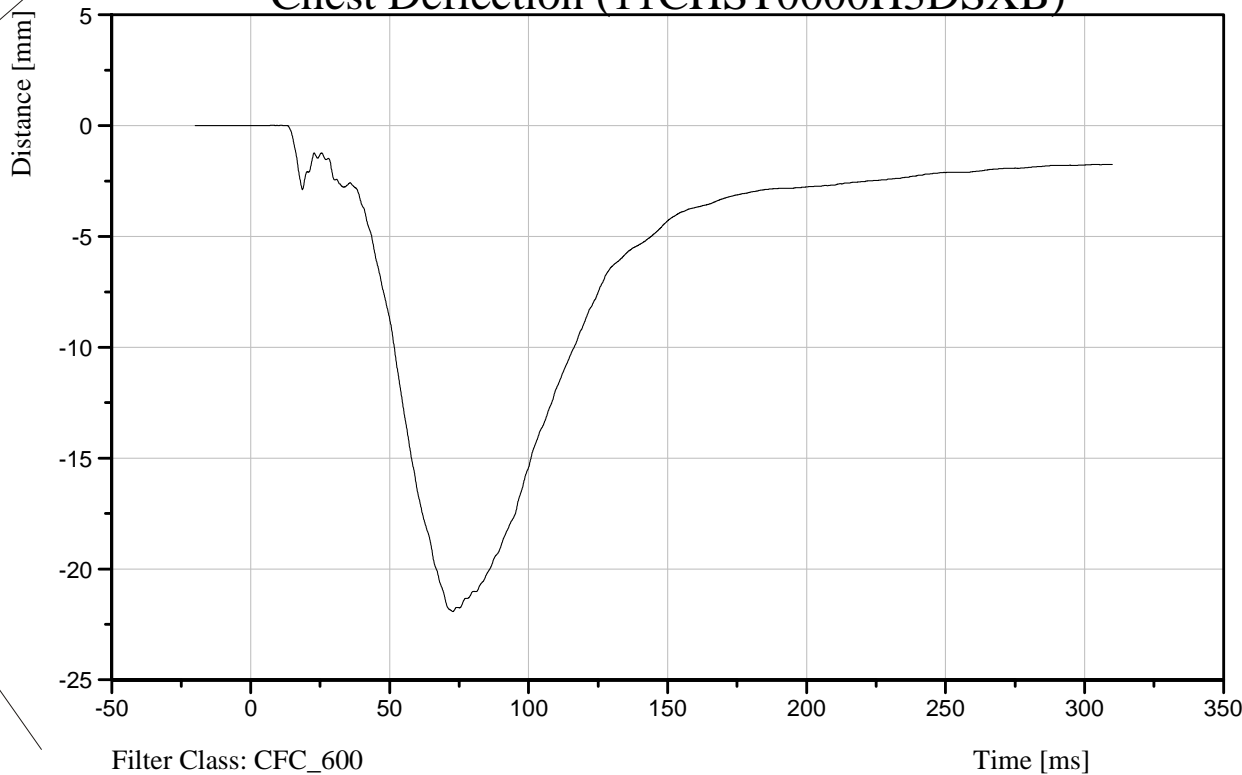
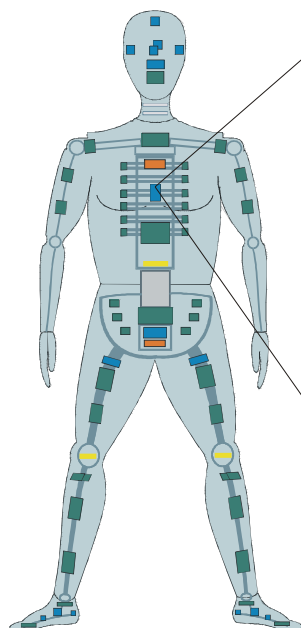
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

### Chest Deflection (11CHST0000H3DSXB)



Dummy: HIII 50th Male

Seating Position:

Driver

[Max.] 0.02 mm at 8.16 ms

[Min.] -21.92 mm at 72.72 ms

ChestDeflection Source Code : Min/Max of 11CHST0000H3DSXB (CFC\_600)

B-73

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap Neck Moment about the Occipital Condyle (NECK OM)

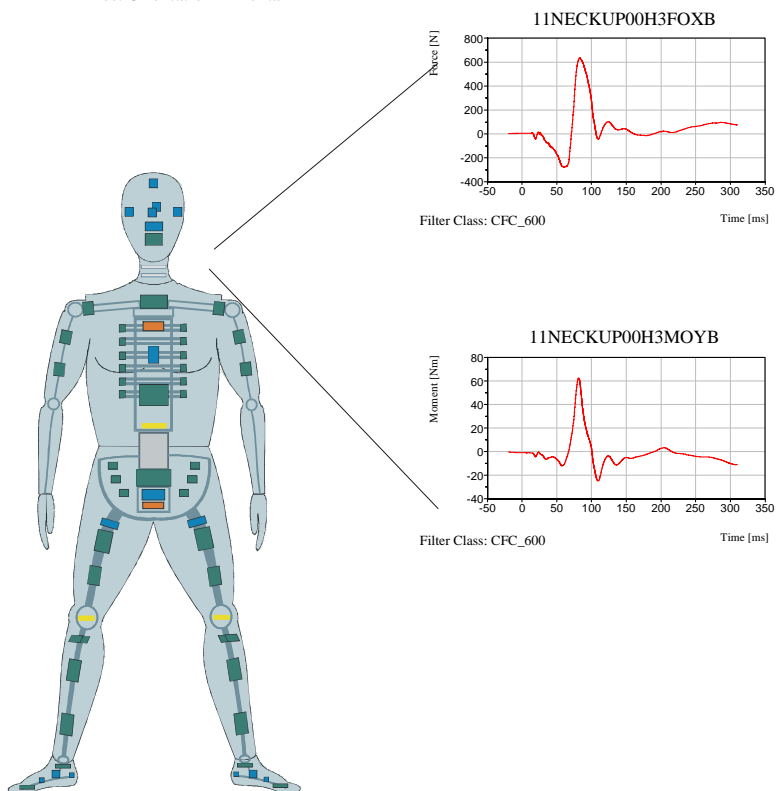
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

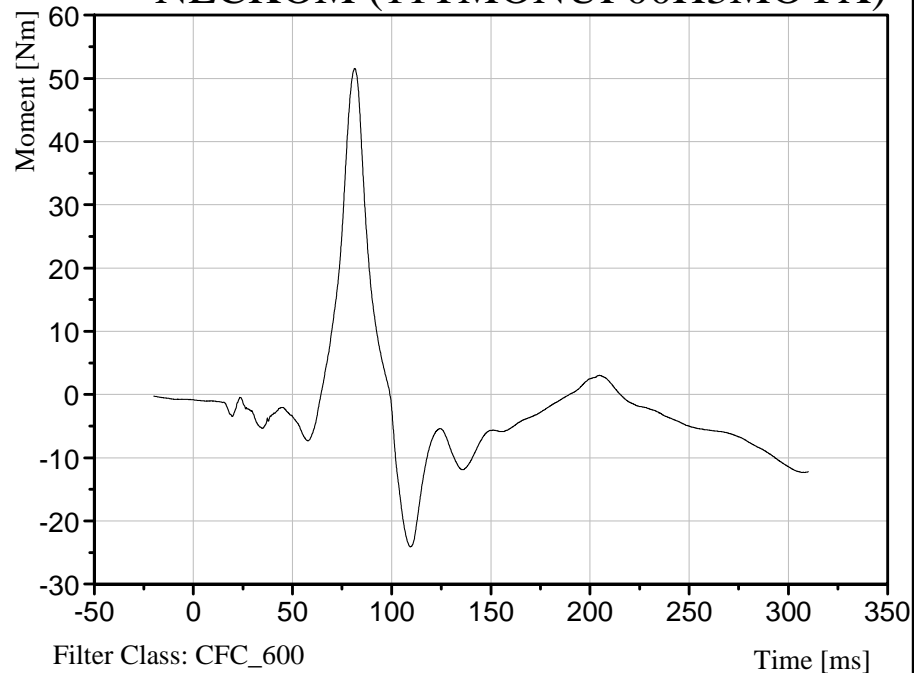
TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal



## NECKOM (11TMONUP00H3MOYX)



Dummy: HIII 50th Male  
Seating Position:  
Driver

Neck OM Source Code: My - (D\*Fx)

[Max.] 51.59 Nm at 81.44 ms

[Min.] -24.08 Nm at 109.36 ms

B-74

091020



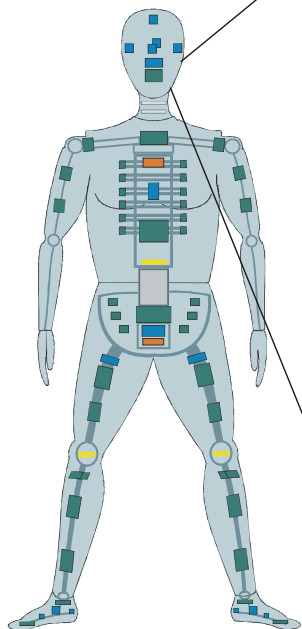
# Taurus into Taurus at 15 Degrees, 50% Overlap

## Neck Injury Predictor (NIJ)

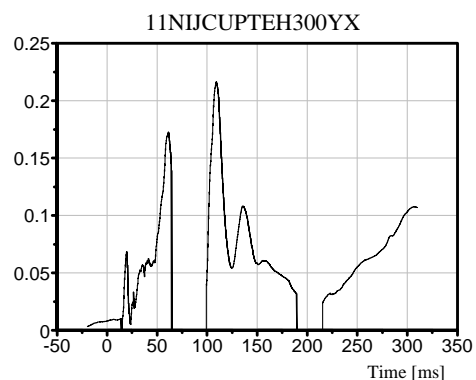
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

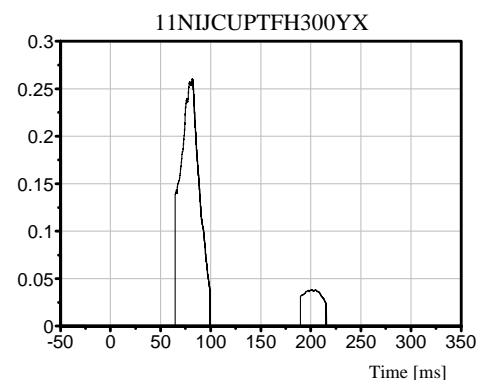
Test Orientation = Frontal  
Fzc(Tension) = 6806  
Fzc(Compression) = 6160  
Myc(Extension) = 135  
Myc(Flexion) = 310



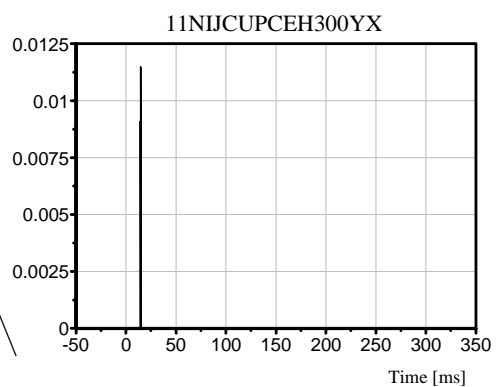
TRC Inc. Test Lab: CTF  
Test Number: 091020



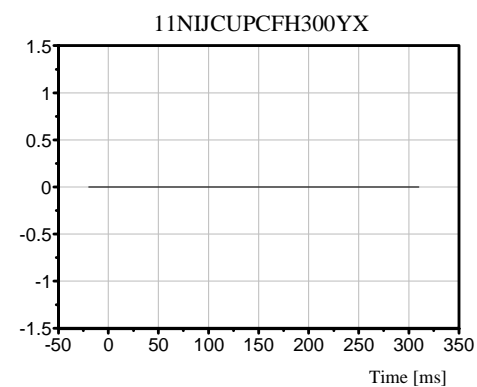
Max [NTE] 0.2165 at 109.12 ms



Max [NTF] 0.2608 at 81.68 ms



Max [NCE] 0.0115 at 14.48 ms



Max [NCF] 0.0000 at -20.00 ms

Dummy: HIII 50th Male  
Seating Position:

Driver

NIJ Source Code: (Fz/Fzc)+(Myc/Myc)

B-75

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009  
Time: 16:35

## Neck Shear Force

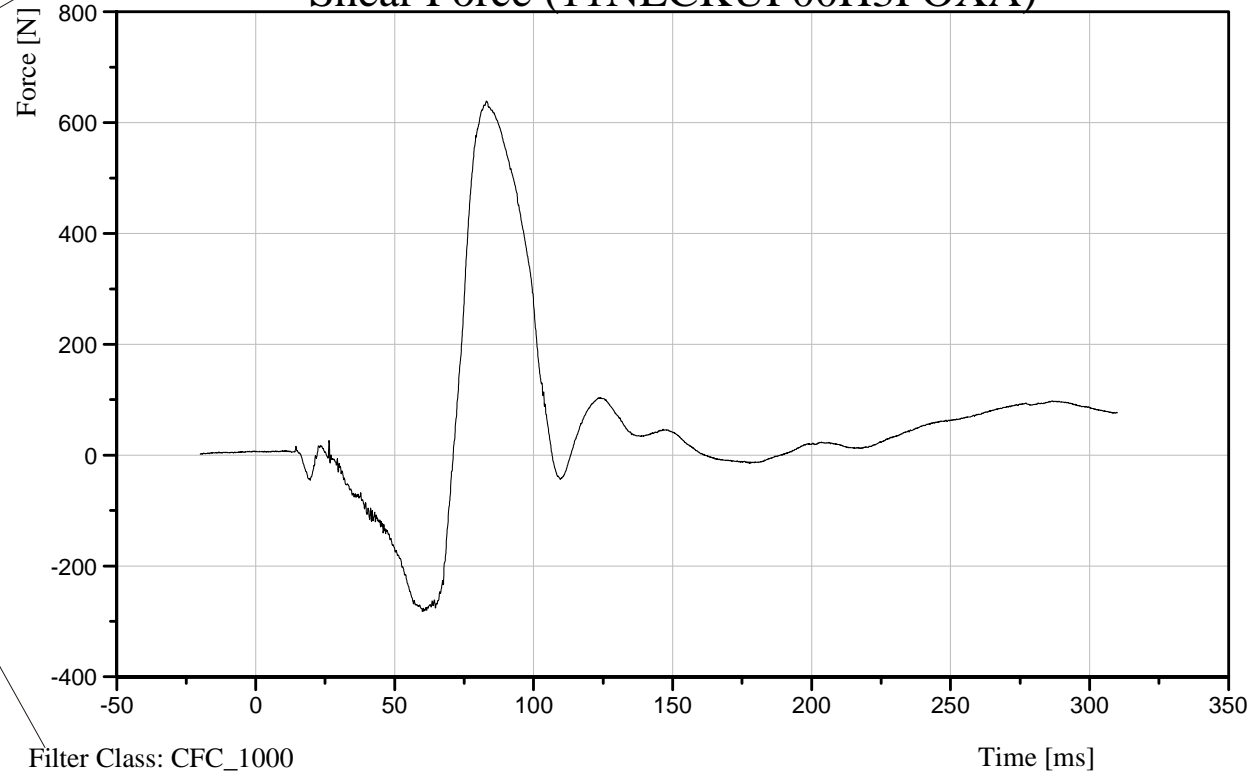
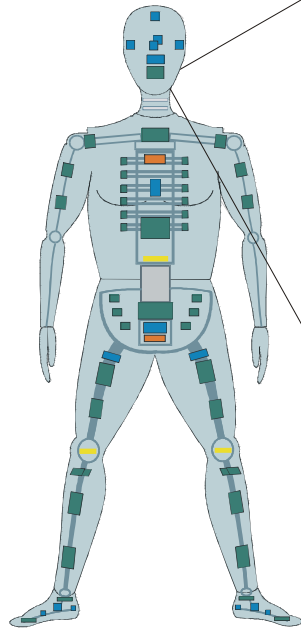
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

### Shear Force (11NECKUP00H3FOXA)



Filter Class: CFC\_1000

Dummy: HIII 50th Male  
Seating Position:  
Driver

[Max.] 638.87 N at 82.96 ms

[Min.] -282.13 N at 60.00 ms

Neck Shear Force Source Code: Min/Max of 11NECKUP00H3FOXA

B-76

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009  
Time: 16:35

## Neck Shear Force

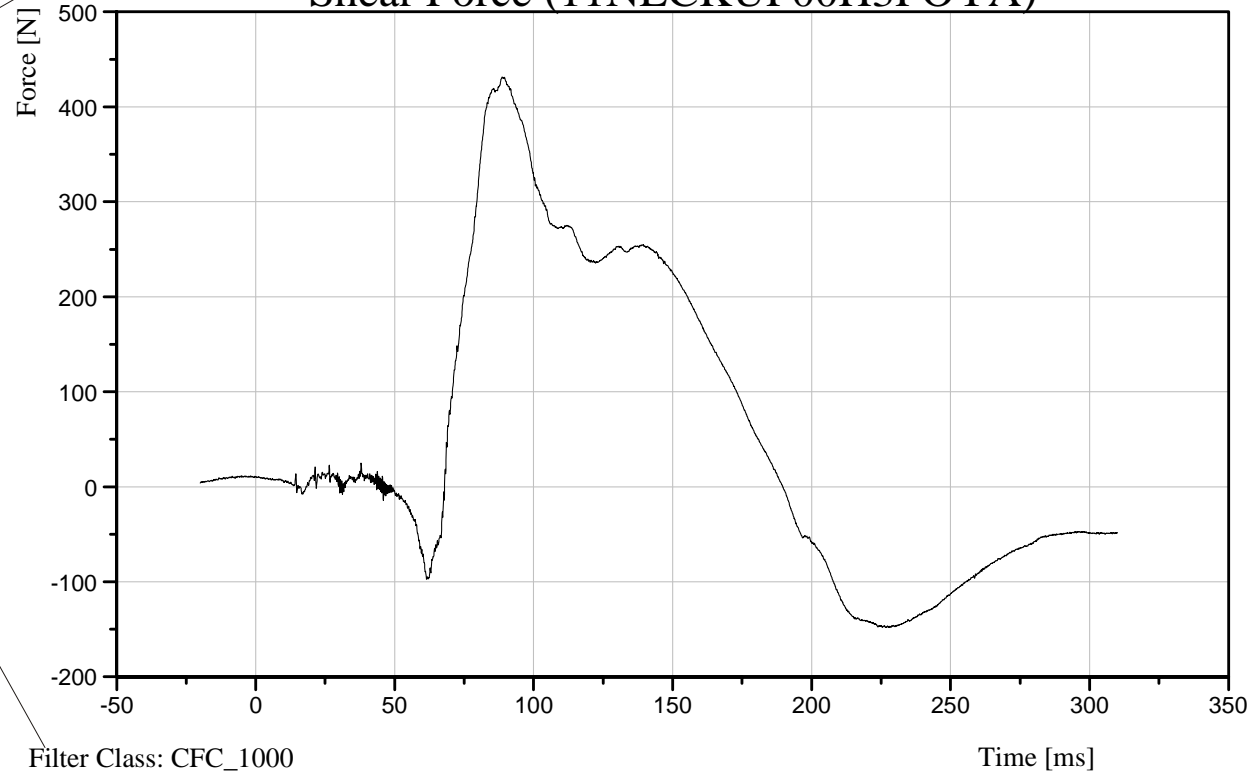
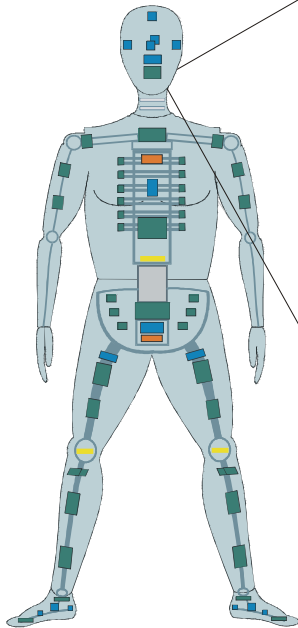
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

### Shear Force (11NECKUP00H3FOYA)



Filter Class: CFC\_1000

Dummy: HIII 50th Male

Seating Position:

Driver

Neck Shear Force Source Code: Min/Max of 11NECKUP00H3FOYA

[Max.] 431.54 N at 88.72 ms

[Min.] -148.10 N at 227.92 ms

B-77

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009  
Time: 16:35

## Neck Axial Force

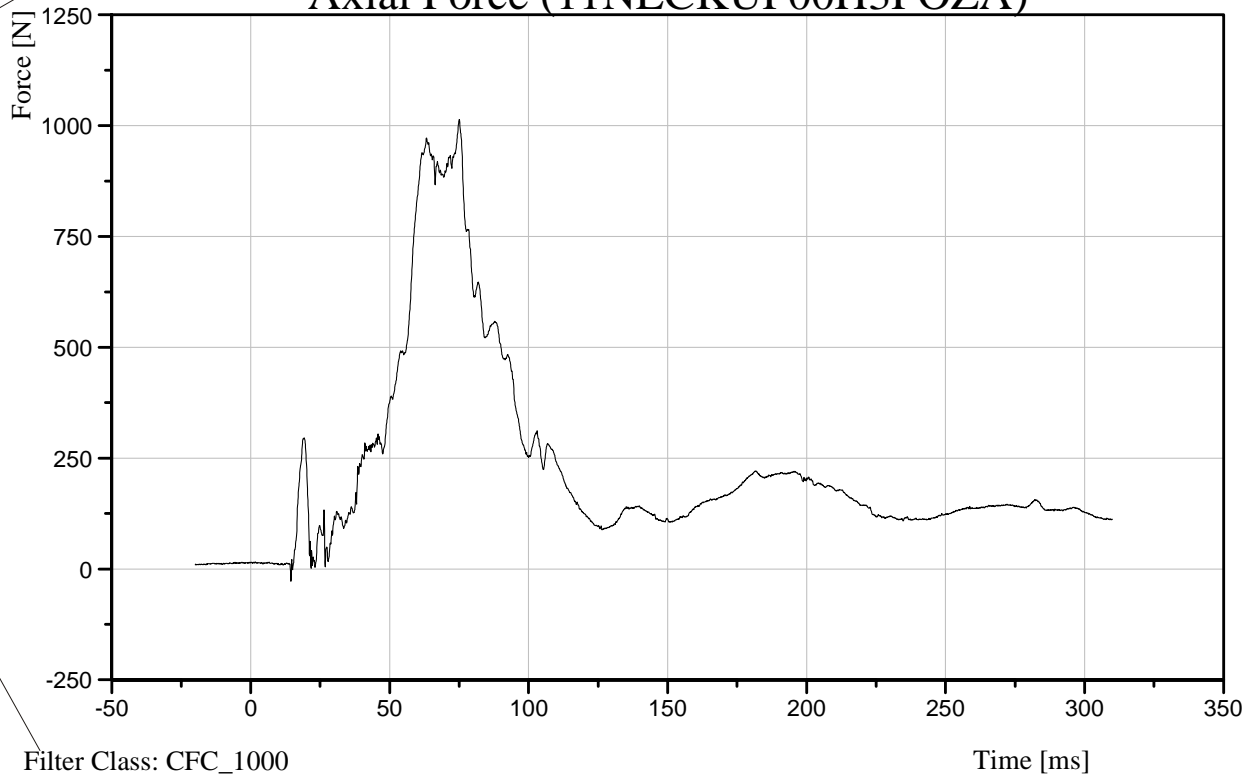
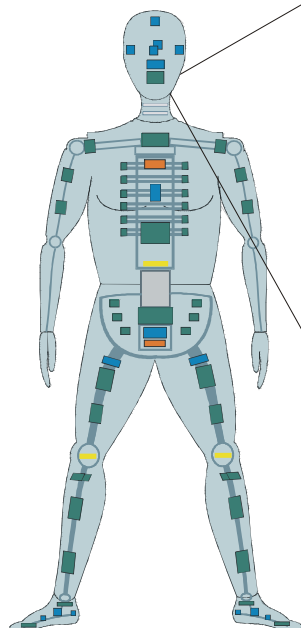
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

### Axial Force (11NECKUP00H3FOZA)



Dummy: HIII 50th Male

Seating Position:

Driver

[Max.] 1,014.11 N at 75.04 ms

[Min.] -27.67 N at 14.48 ms

Neck Axial Force Source Code: Min/Max of 11NECKUP00H3FOZA

B-78

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

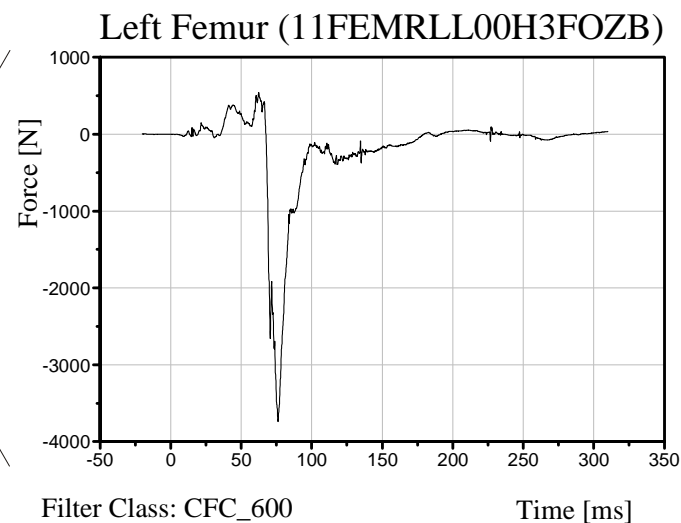
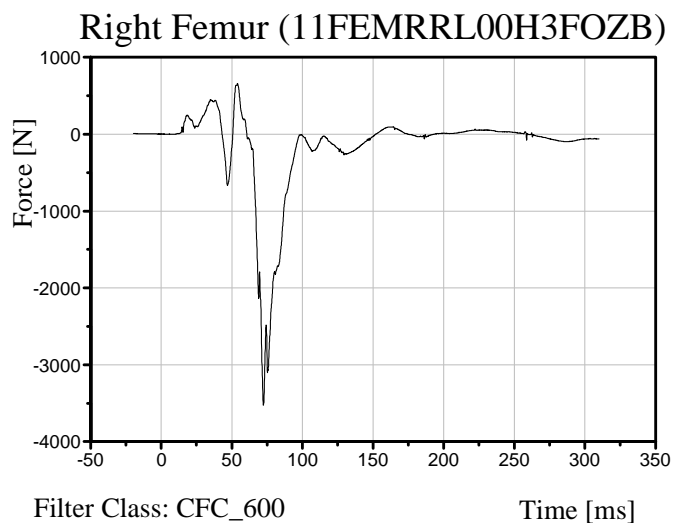
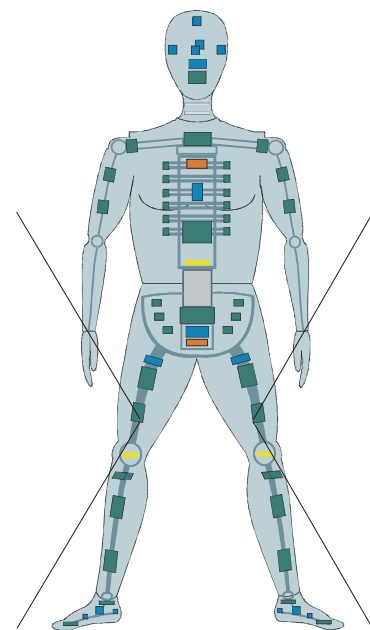
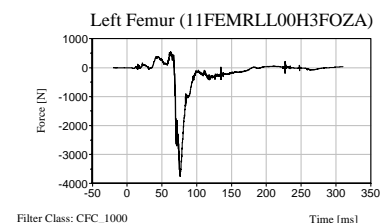
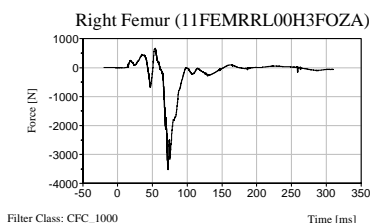
Time: 16:35

## Femur Load

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



Max [Tension] 660.58 N at 54.00 ms  
 Min [Compression] -3,525.70 N at 72.32 ms

Dummy: HIII 50th Male  
 Seating Position:  
 Driver

Max [Tension] 541.59 N at 62.48 ms  
 Min [Compression] -3,736.18 N at 76.16 ms

Femur Load Source Code : Min/Max of 11FEMRRL00H3FOZB and 11FEMRLL00H3FOZB (CFC 600)

B-79

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Knee Slider Displacement

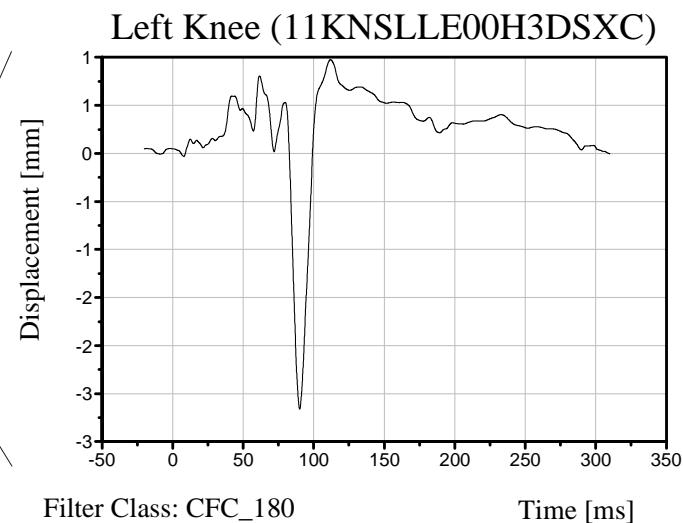
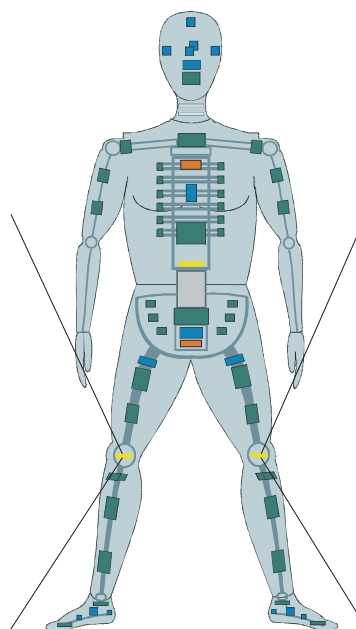
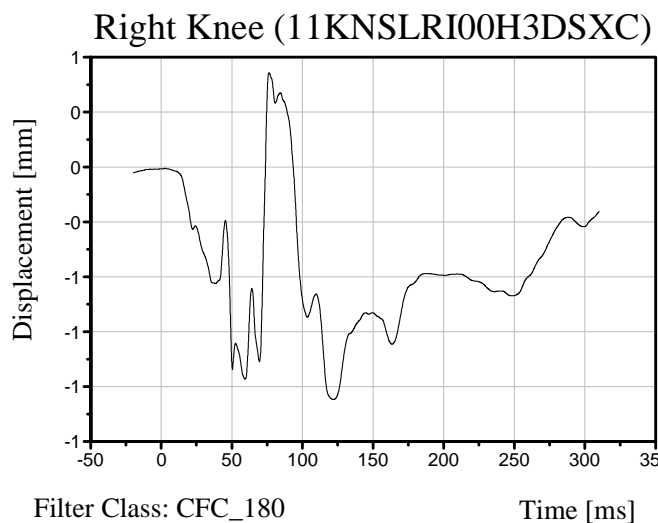
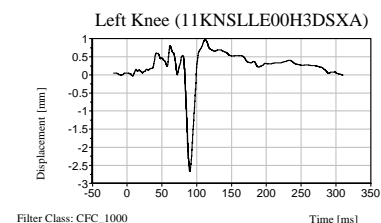
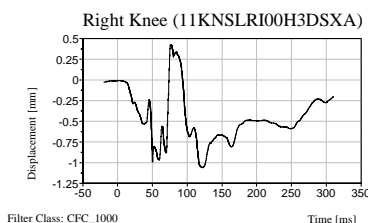
Date: 10/20/2009

Time: 16:35

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



Max. [Tension] 0.43 mm at 76.24 ms  
 Min. [Compression] -1.06 mm at 121.92 ms

Dummy: HIII 50th Male  
 Seating Position:  
 Driver

Max. [Tension] 0.98 mm at 111.92 ms  
 Min. [Compression] -2.66 mm at 90.08 ms

Knee Displacement Source Code : Min/Max of 11KNSLRI00H3DSXC and 11KNSLLE00H3DSXC (CFC 600)

B-80

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Tibia Index (TI)

Date: 10/20/2009

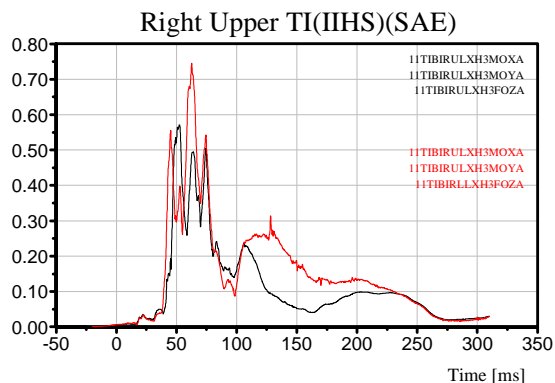
Time: 16:35

Customer: VRTC

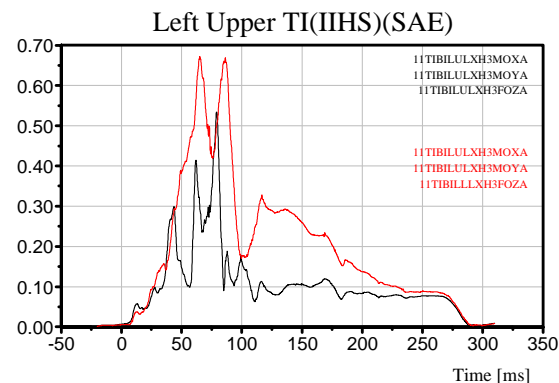
TRC Inc. Test Lab: CTF

Test Number: 091020

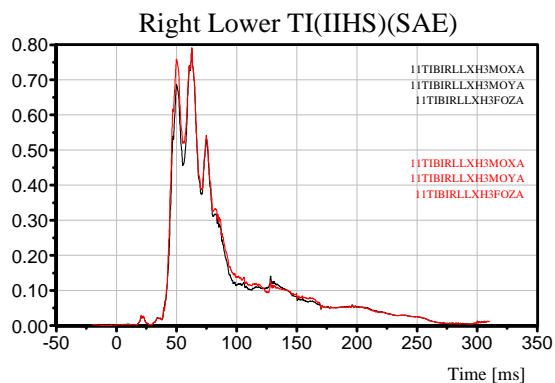
Critical Bending Moment = 240 N·m  
Critical Compression Force = 12000 N



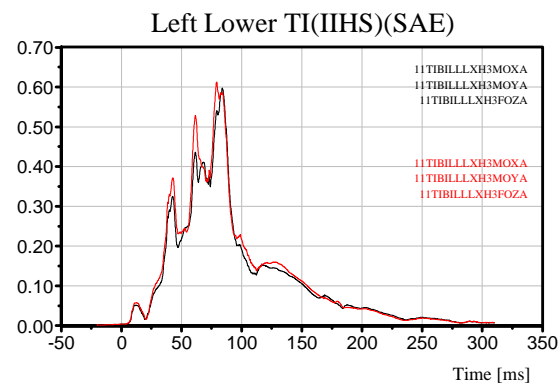
Max = 0.57 at 52.72 ms (SAE)  
Max = 0.75 at 62.64 ms (IIHS)



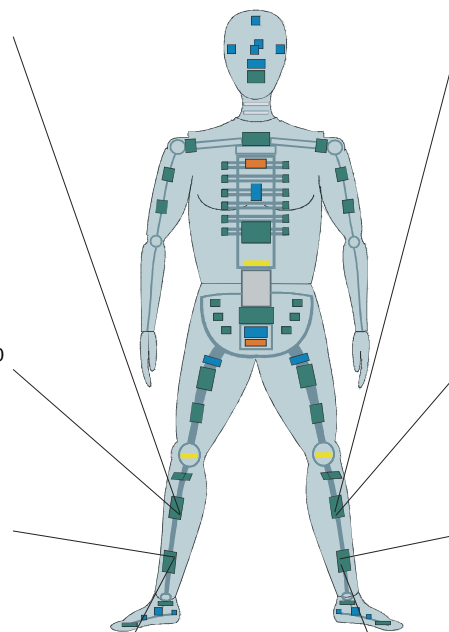
Max = 0.53 at 79.04 ms (SAE)  
Max = 0.67 at 65.12 ms (IIHS)



Max = 0.79 at 62.72 ms (SAE)  
Max = 0.79 at 62.64 ms (IIHS)



Max = 0.60 at 83.84 ms (SAE)  
Max = 0.61 at 79.28 ms (IIHS)



Dummy: IIII 50th Male  
Seating Position:  
Driver

Tibia Index Source Code : Guideline 96/79/EC; SAE J1727 AUG96; and IIHS Crashworthiness Evaluation Offset Barrier Crash Test Protocol (Version X)

B-81

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

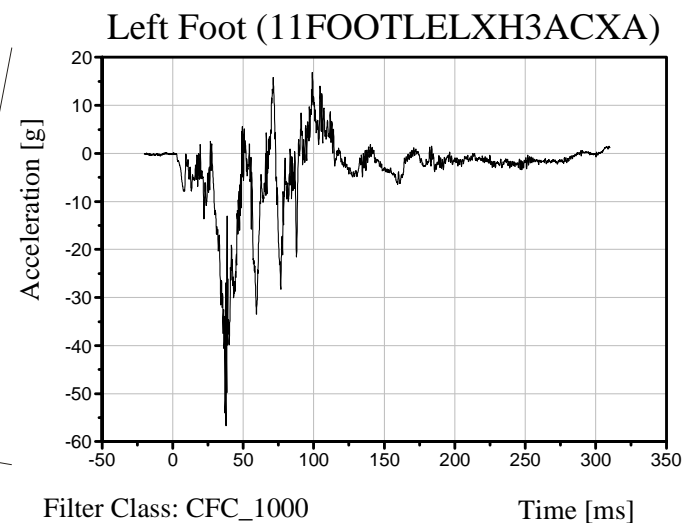
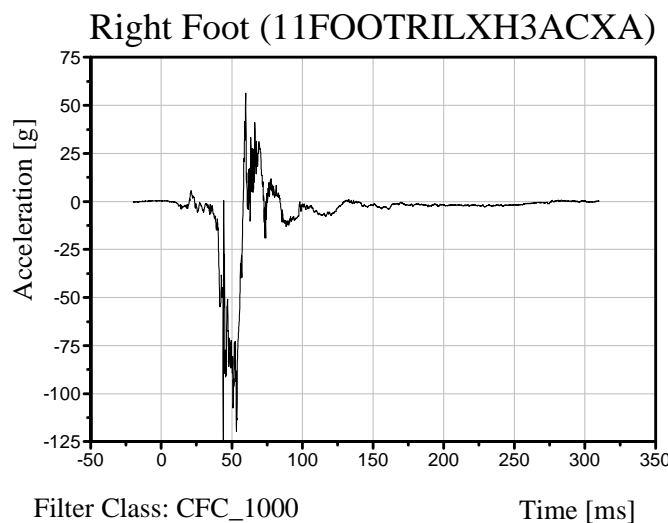
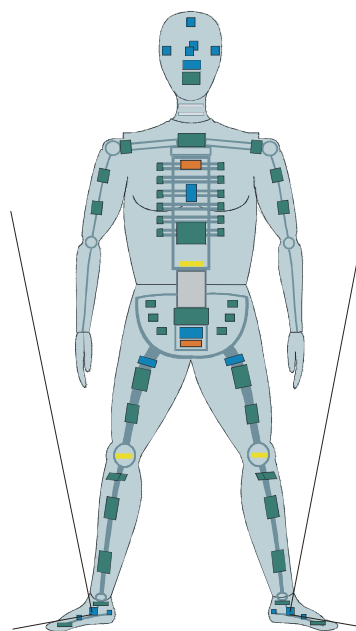
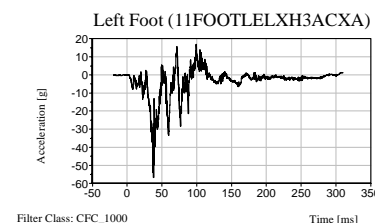
Time: 16:35

## Foot Acceleration

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



Max [Acceleration] 56.29 g at 59.68 ms  
 Min [Acceleration] -124.15 g at 43.92 ms

Dummy:HIII 50th Male  
 Seating Position:  
 Driver

Max [Acceleration] 16.87 g at 99.04 ms  
 Min [Acceleration] -56.69 g at 37.84 ms

Foot Acceleration Source Code : Min/Max of 11FOOTRILXH3ACXA and 11FOOTLELXH3ACXA

B-82

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

## Injury Criteria Summary

Customer: VRTC

Dummy: HIII 50th Male

Seating Position:  
Driver

Max. Shear (Head Aft) = 638.87 N at 82.96 ms  
Min. Shear (Head Fore) = -282.13 N at 60.00 ms

NTE = 0.2165 at 109.12 ms  
NTF = 0.2608 at 81.68 ms  
NCE = 0.0115 at 14.48 ms  
NCF = 0.0000 at -20.00 ms

(MAX.)  
575.42  
T1: 67.92 ms  
T2: 95.76 ms  
Mean: 53.17 g  
HIC  
(36)  
575.42  
67.92 ms  
95.76 ms  
53.17 g  
(15)  
428.54  
72.48 ms  
87.52 ms  
60.49 g

TRC Inc. Test Lab: CTF

Test Number: 091020

NeckOM Flexion = 51.59 Nm at 81.44 ms  
NeckOM Extension = -24.08 Nm at 109.36 ms  
Axial Tension = 1,014.11 N at 75.04 ms  
Axial Compression = -27.67 N at 14.48 ms

Chest 3ms Duration (CLIP) = 41.50 g  
T1: 75.59 ms  
T2: 78.59 ms  
CSI: 340.61

Chest Deflection Outward = 0.02 mm at 8.16 ms  
Chest Deflection Inward = -21.92 mm at 72.72 ms

Right Lower Femur Tension = 660.58 N 54.00 ms  
Right Lower Femur Compression = -3,525.70 N 72.32 ms

Left Lower Femur Tension = 541.59 N 62.48 ms  
Left Lower Femur Compression = -3,736.18 N 76.16 ms

Right Knee Slider Outward = 0.43 mm at 76.24 ms  
Right Knee Slider Inward = -1.06 mm at 121.92 ms

Left Knee Slider Outward = 0.98 mm at 111.92 ms  
Left Knee Slider Inward = -2.66 mm at 90.08 ms

Upper Right TI (SAE) = 0.57 at 52.72 ms  
Upper Right TI (IHHS) = 0.75 at 62.64 ms

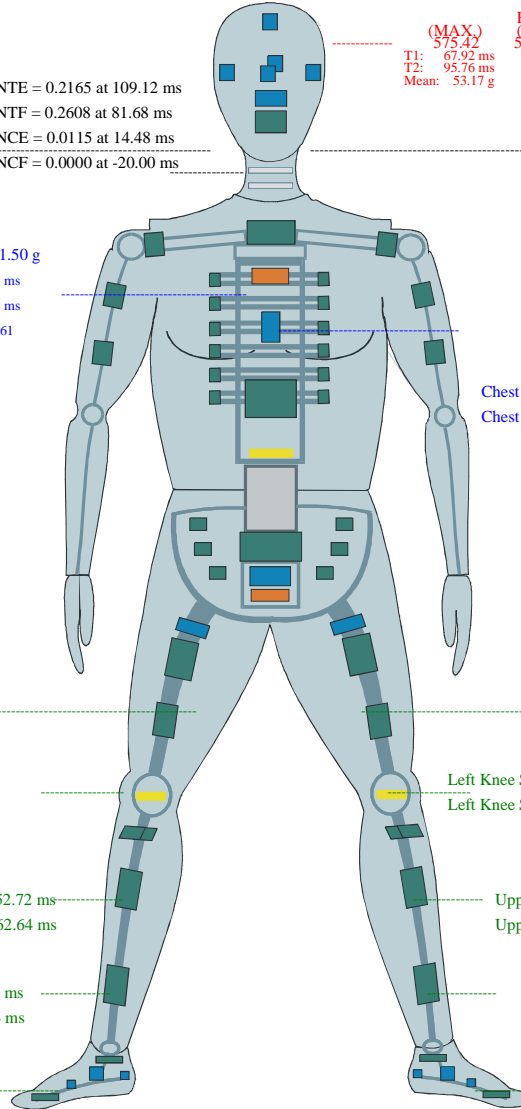
Upper Left TI (SAE) = 0.53 at 79.04 ms  
Upper Left TI (IHHS) = 0.67 at 65.12 ms

Lower Right TI (SAE) = 0.79 at 62.72 ms  
Lower Right TI (IHHS) = 0.79 at 62.64 ms

Lower Left TI (SAE) = 0.60 at 83.84 ms  
Lower Left TI (IHHS) = 0.61 at 79.28 ms

Max Right Foot = 56.29 g at 59.68 ms  
Min Right Foot = -124.15 g at 43.92 ms

Max Left Foot = 16.87 g at 99.04 ms  
Min Left Foot = -56.69 g at 37.84 ms





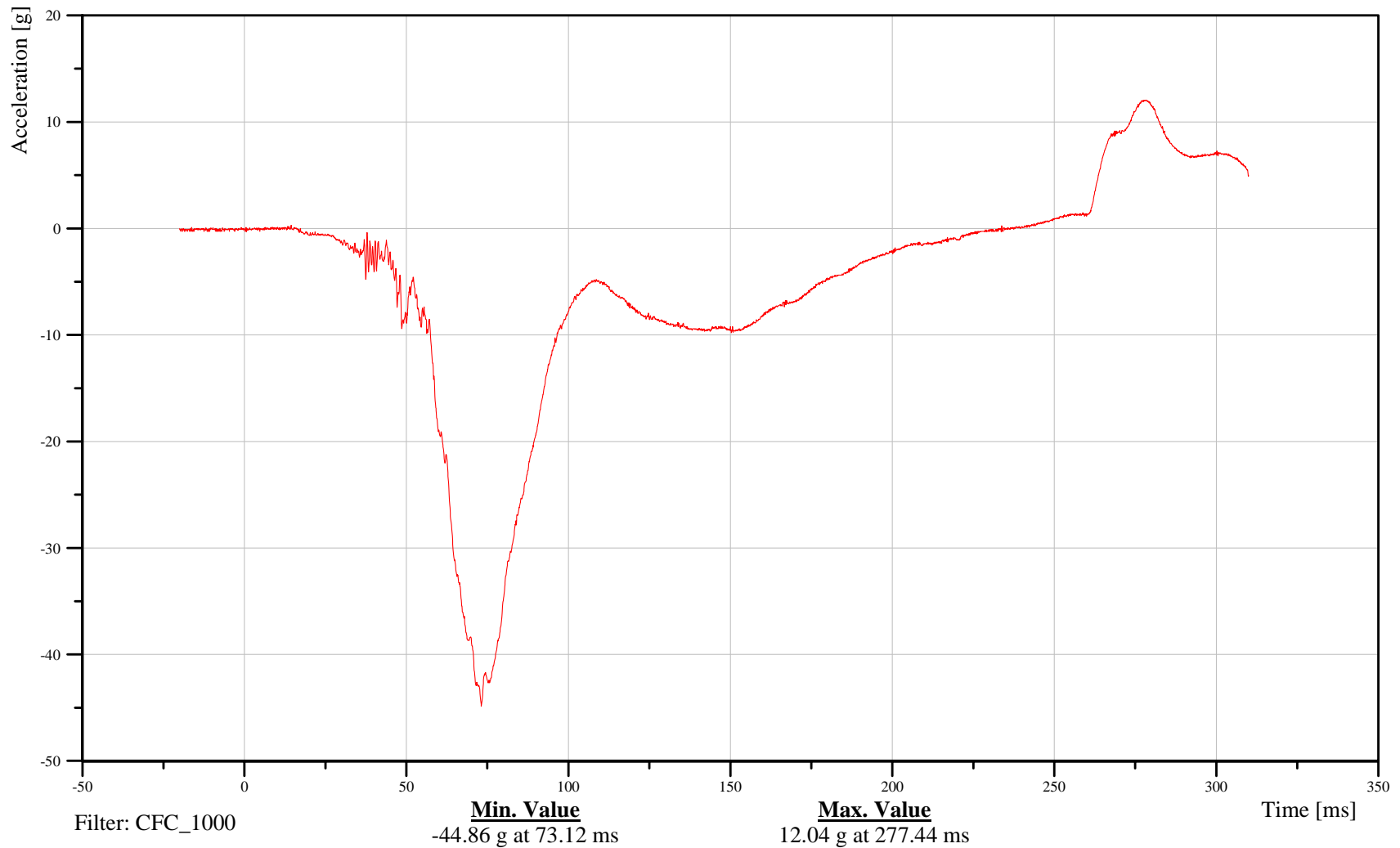
Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Head X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13HEADCG00HFACXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-84

091020



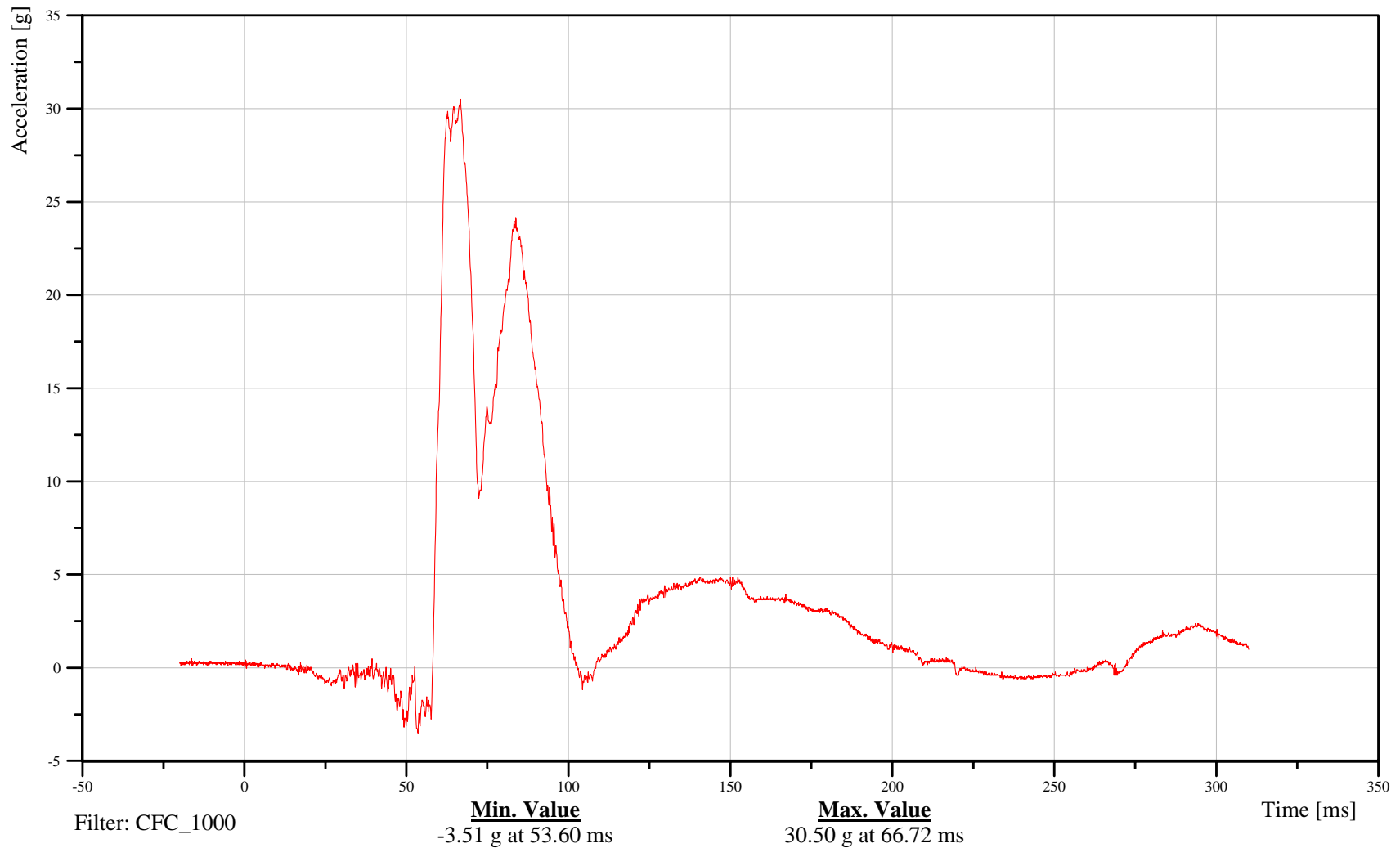
Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Head Y-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13HEADCG00HFACYA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-85

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

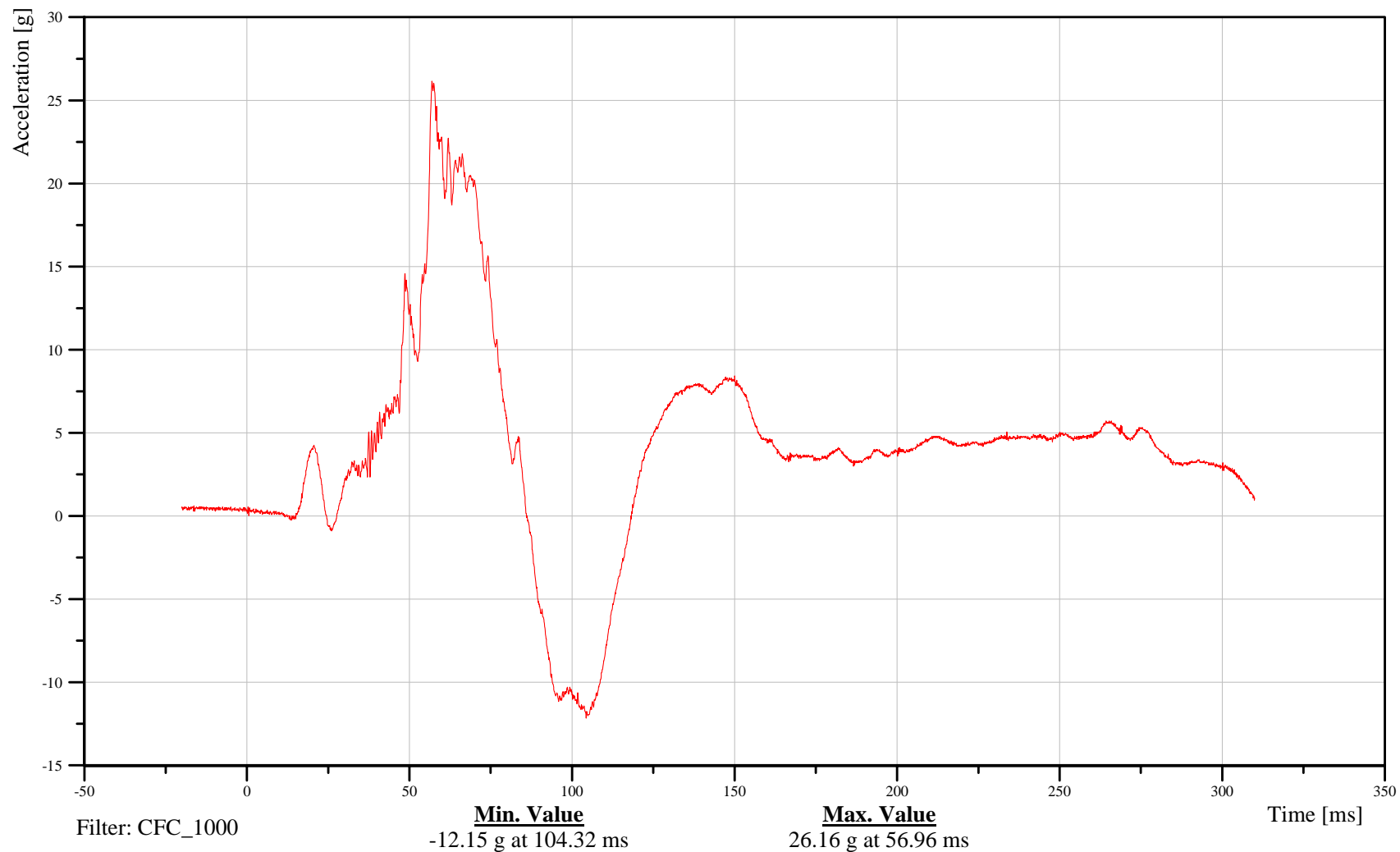
## Bullet Vehicle Right Front Passenger Head Z-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13HEADCG00HFACZA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-86

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

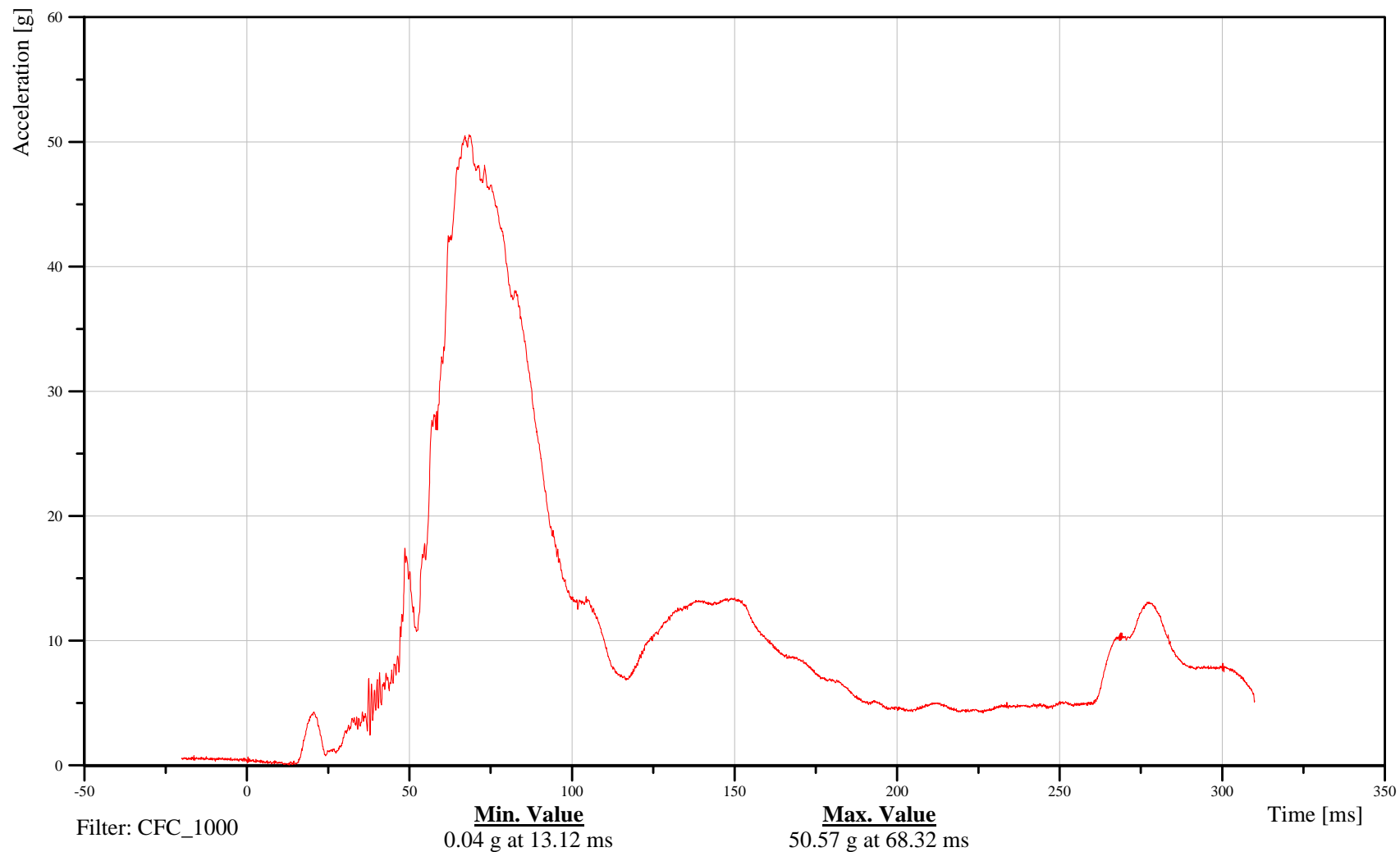
## Bullet Vehicle Right Front Passenger Head Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13HEADCG00HFACRA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-87

091020



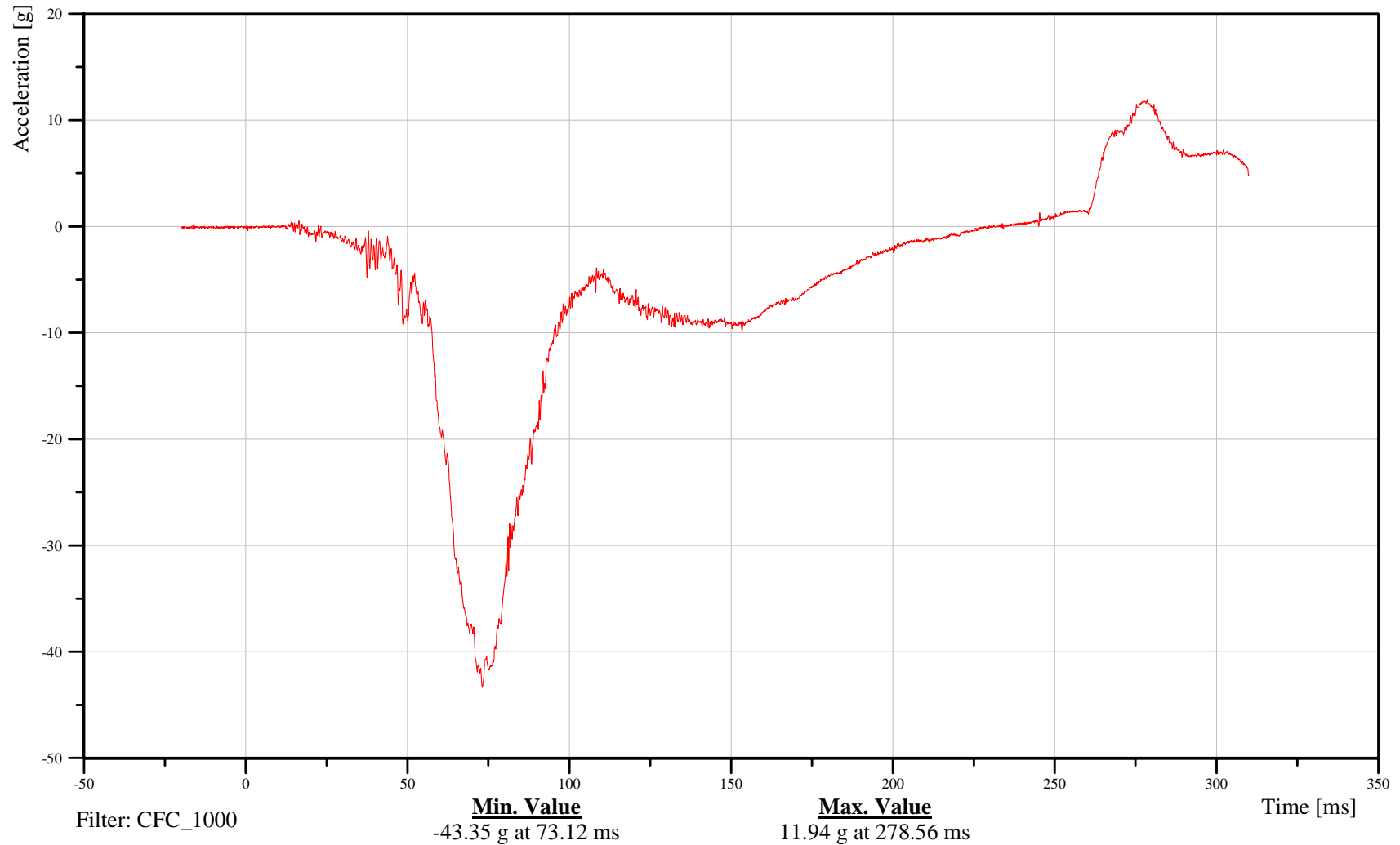
Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Head Redundant X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13HEADCGRDHFACXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-88

091020



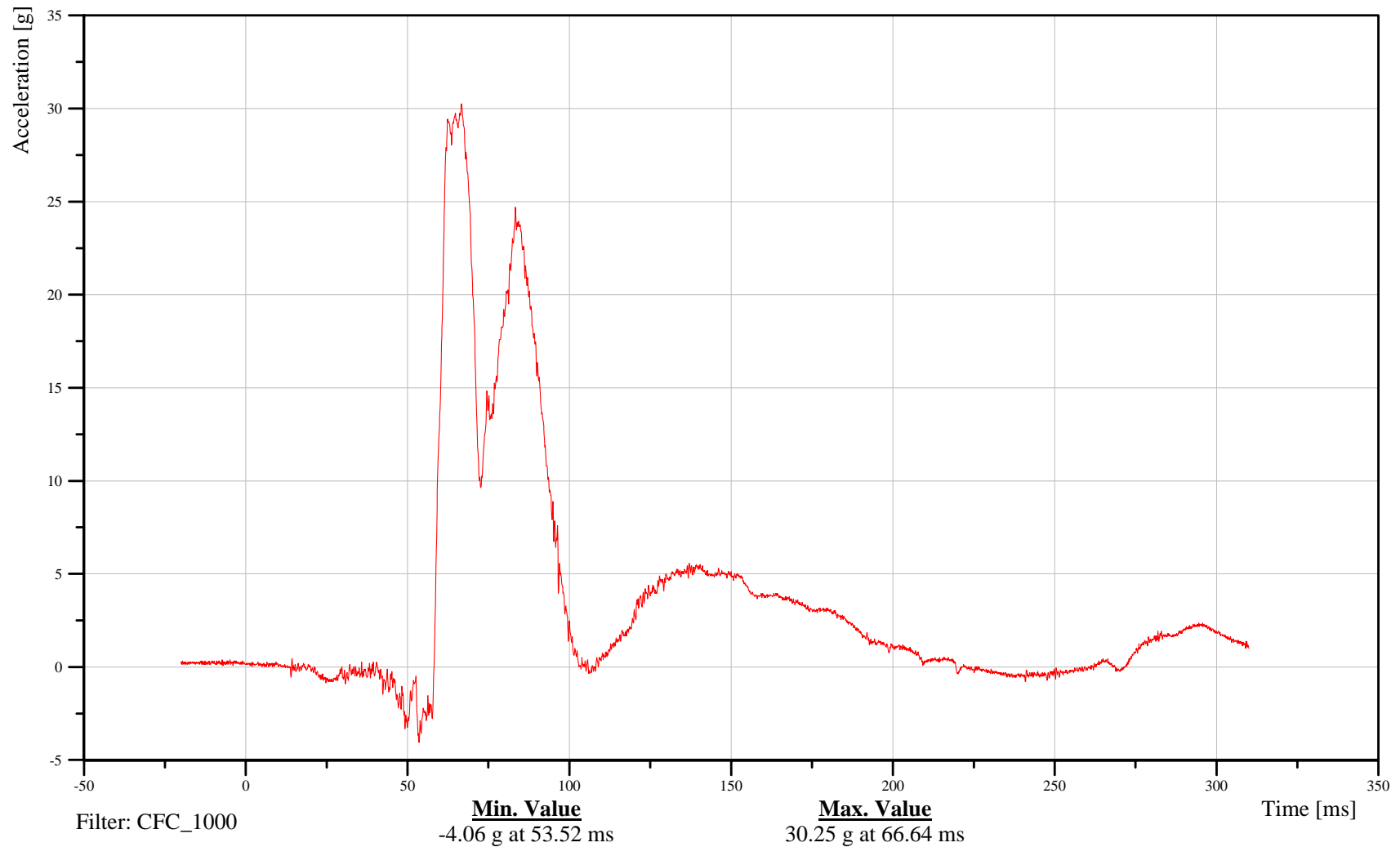
Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Head Redundant Y-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13HEADCGRDHFACYA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-89

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

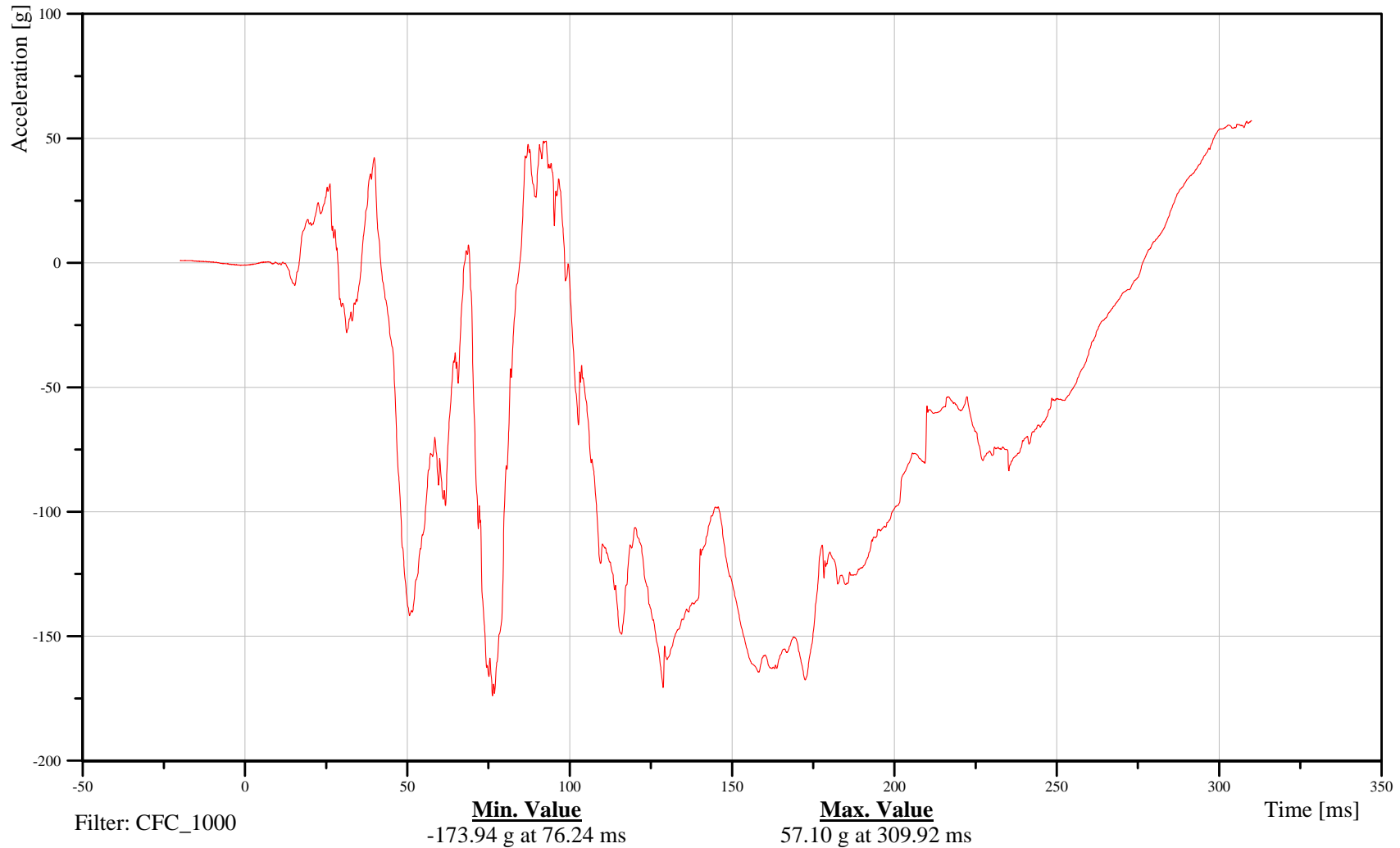
## Bullet Vehicle Right Front Passenger Head Redundant Z-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13HEADCGRDHFACZA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-90

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

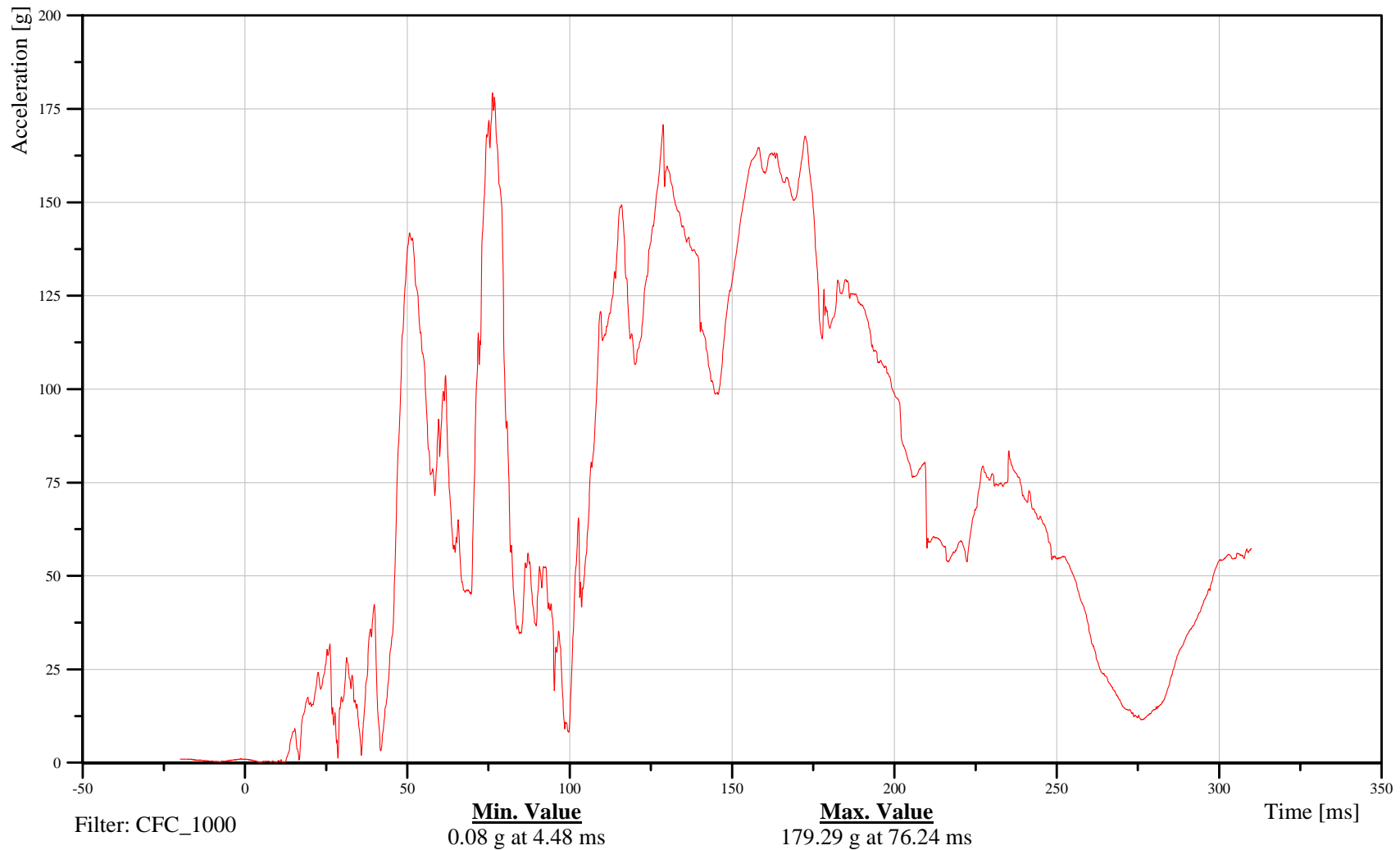
## Bullet Vehicle Right Front Passenger Head Redundant Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13HEADCGRDHFACRA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-91

091020



Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Upper Neck X-Axis Force

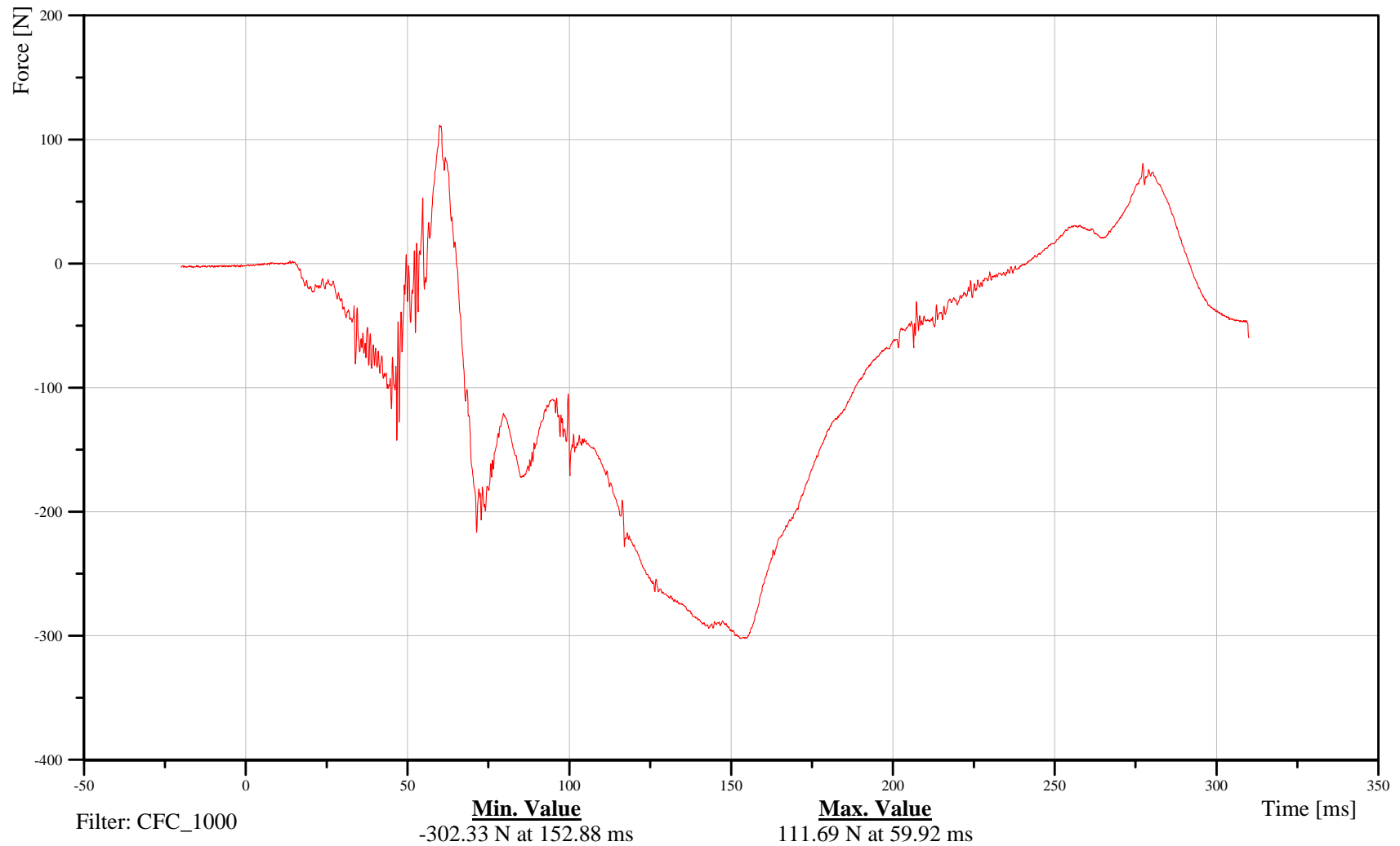
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13NECKUP00HFFOXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-92

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

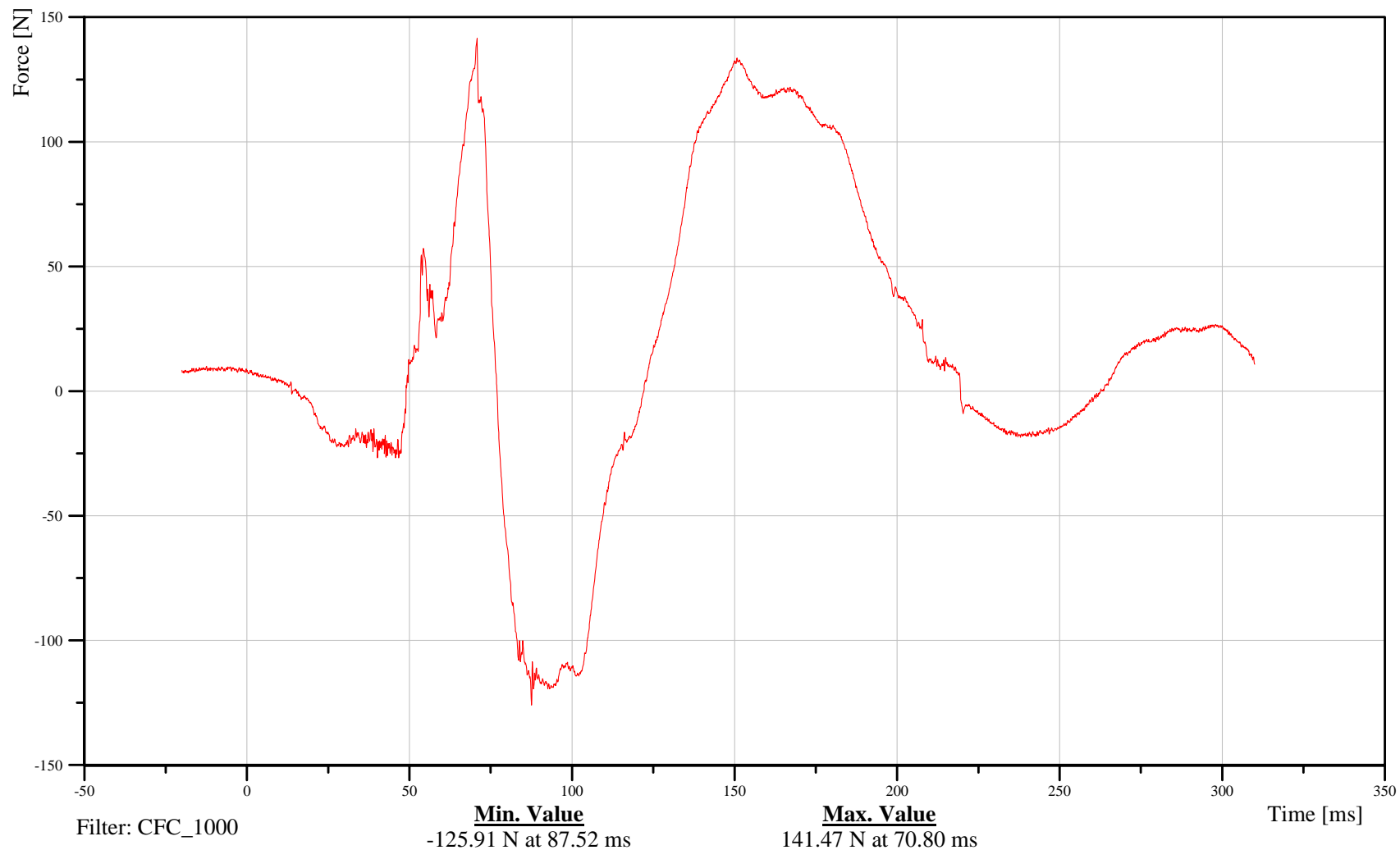
## Bullet Vehicle Right Front Passenger Upper Neck Y-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13NECKUP00HFFOYA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-93

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

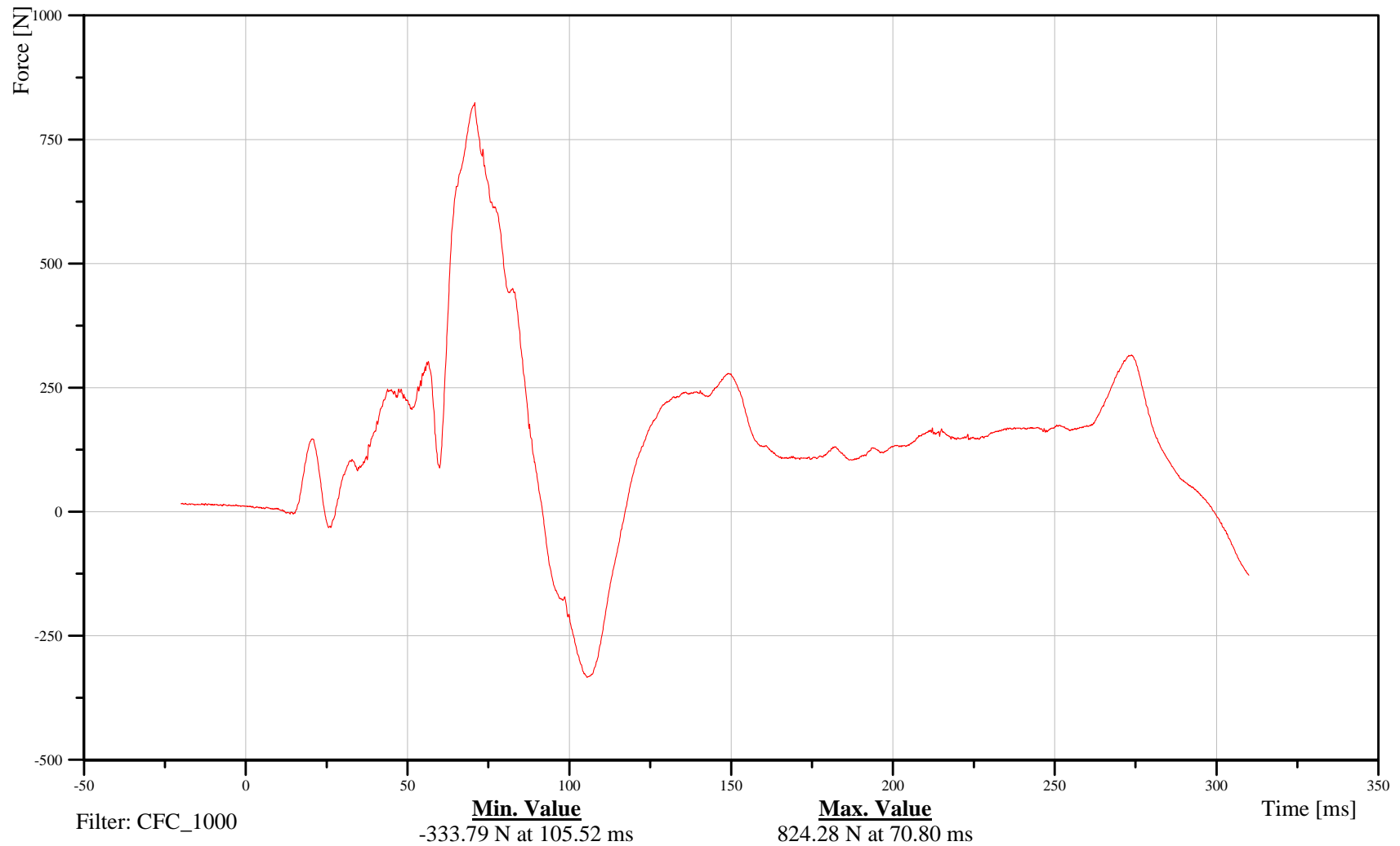
## Bullet Vehicle Right Front Passenger Upper Neck Z-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13NECKUP00HFFOZA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-94

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

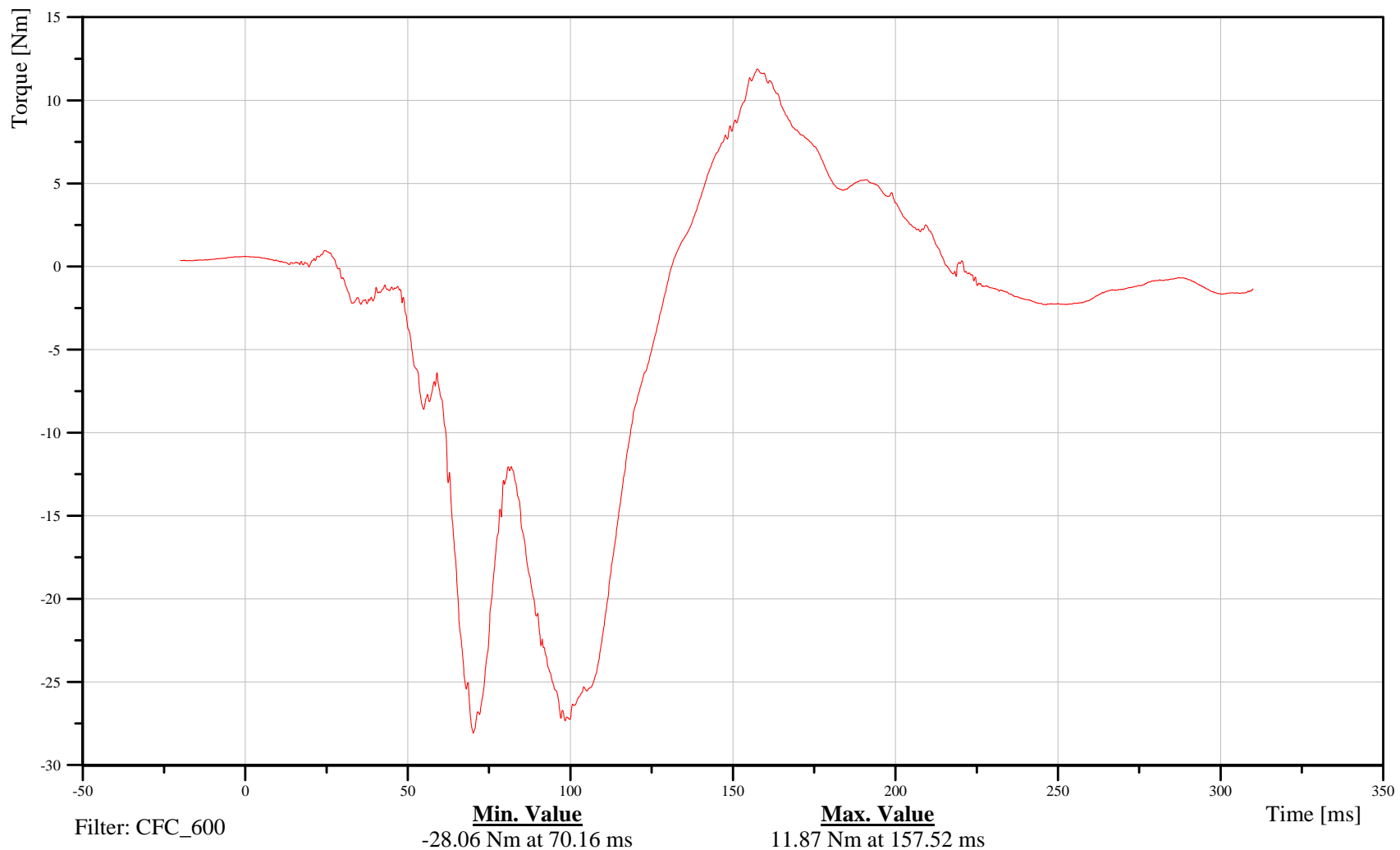
## Bullet Vehicle Right Front Passenger Upper Neck Moment About X Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13NECKUP00HFMOXB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-95

091020



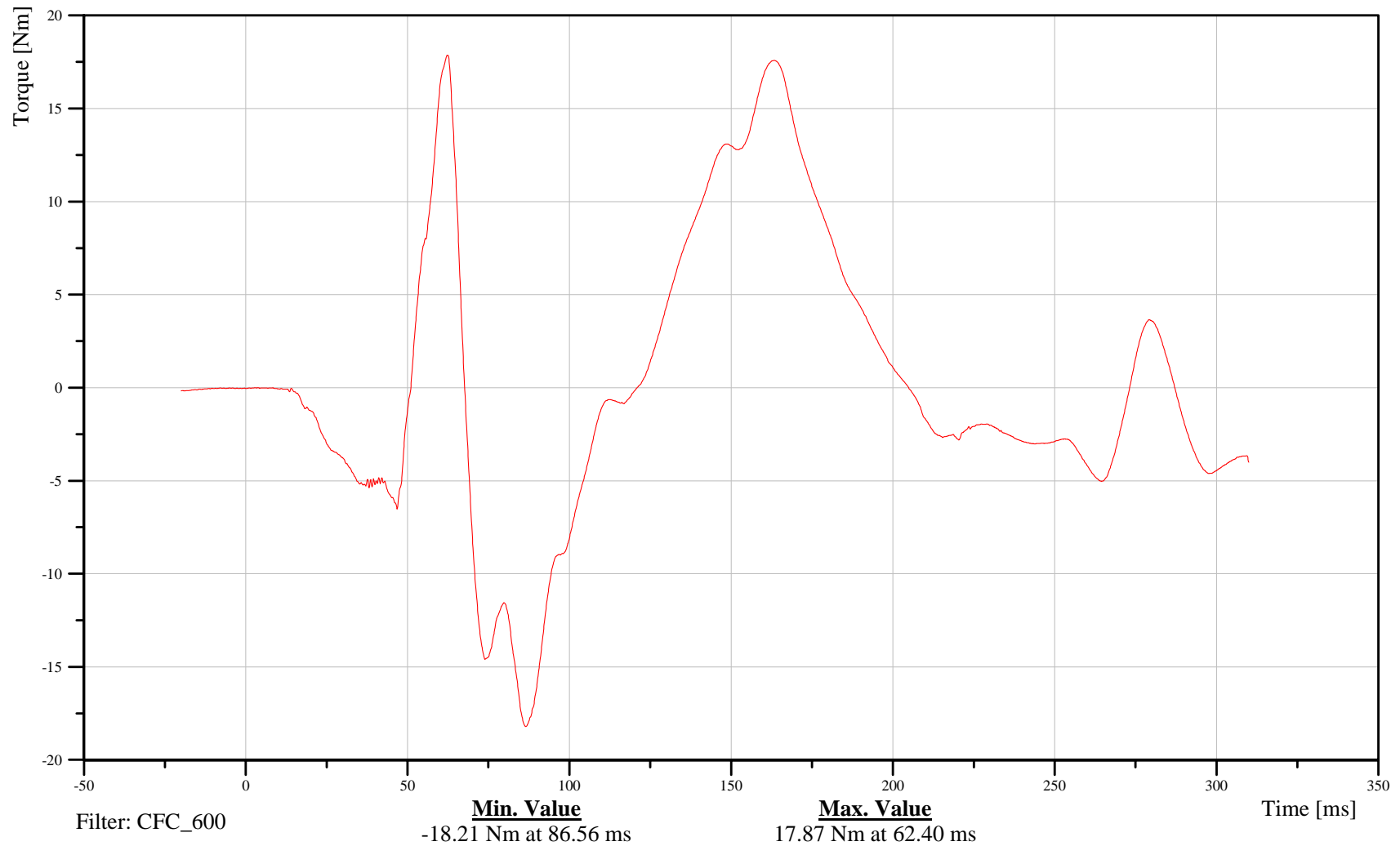
Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Upper Neck Moment About Y Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13NECKUP00HFMOYB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-96

091020



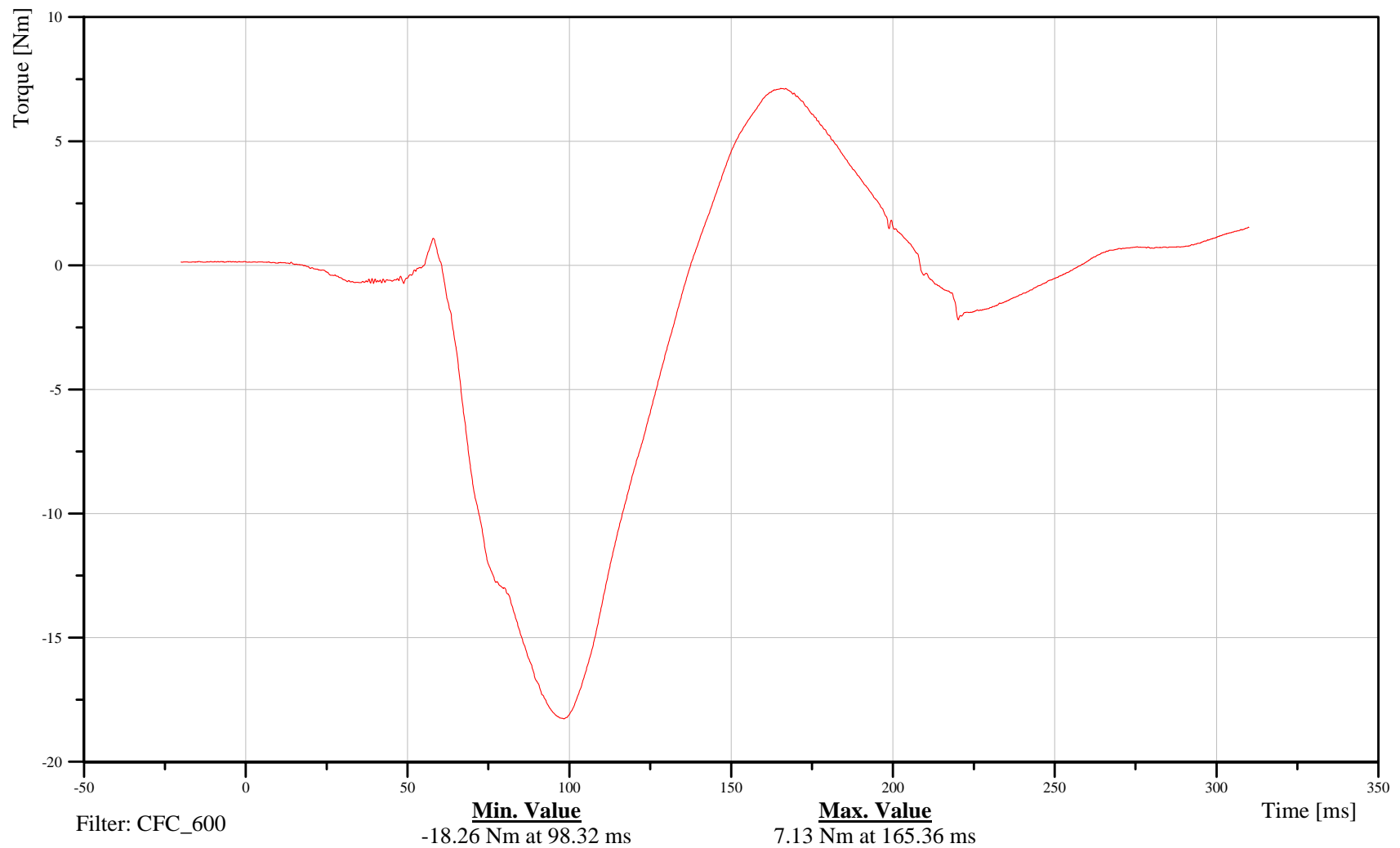
Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Upper Neck Moment About Z Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13NECKUP00HFMOZB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-97

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

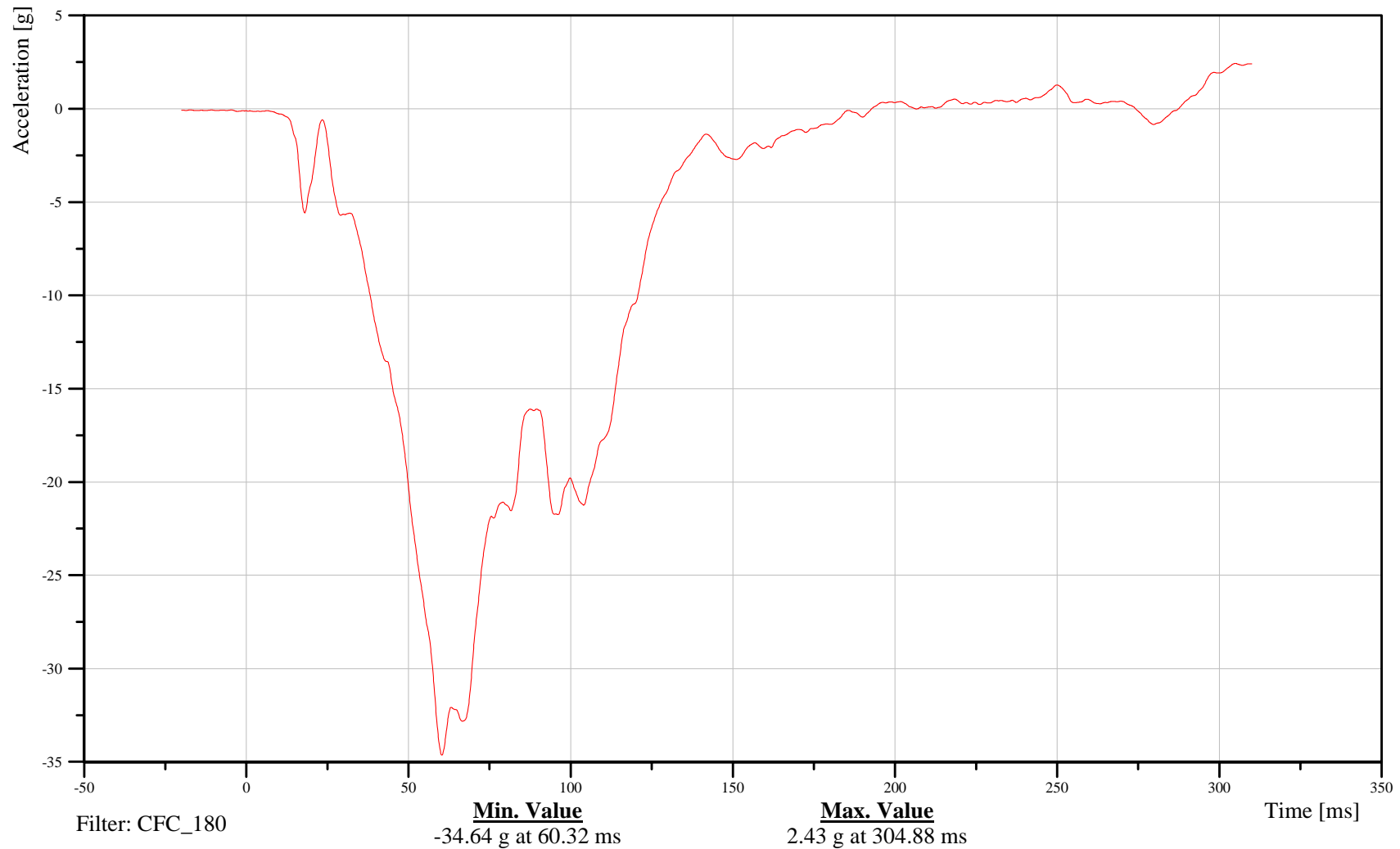
## Bullet Vehicle Right Front Passenger Chest X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13CHSTCG00HFACXC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-98

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Right Front Passenger Chest Y-Axis Acceleration

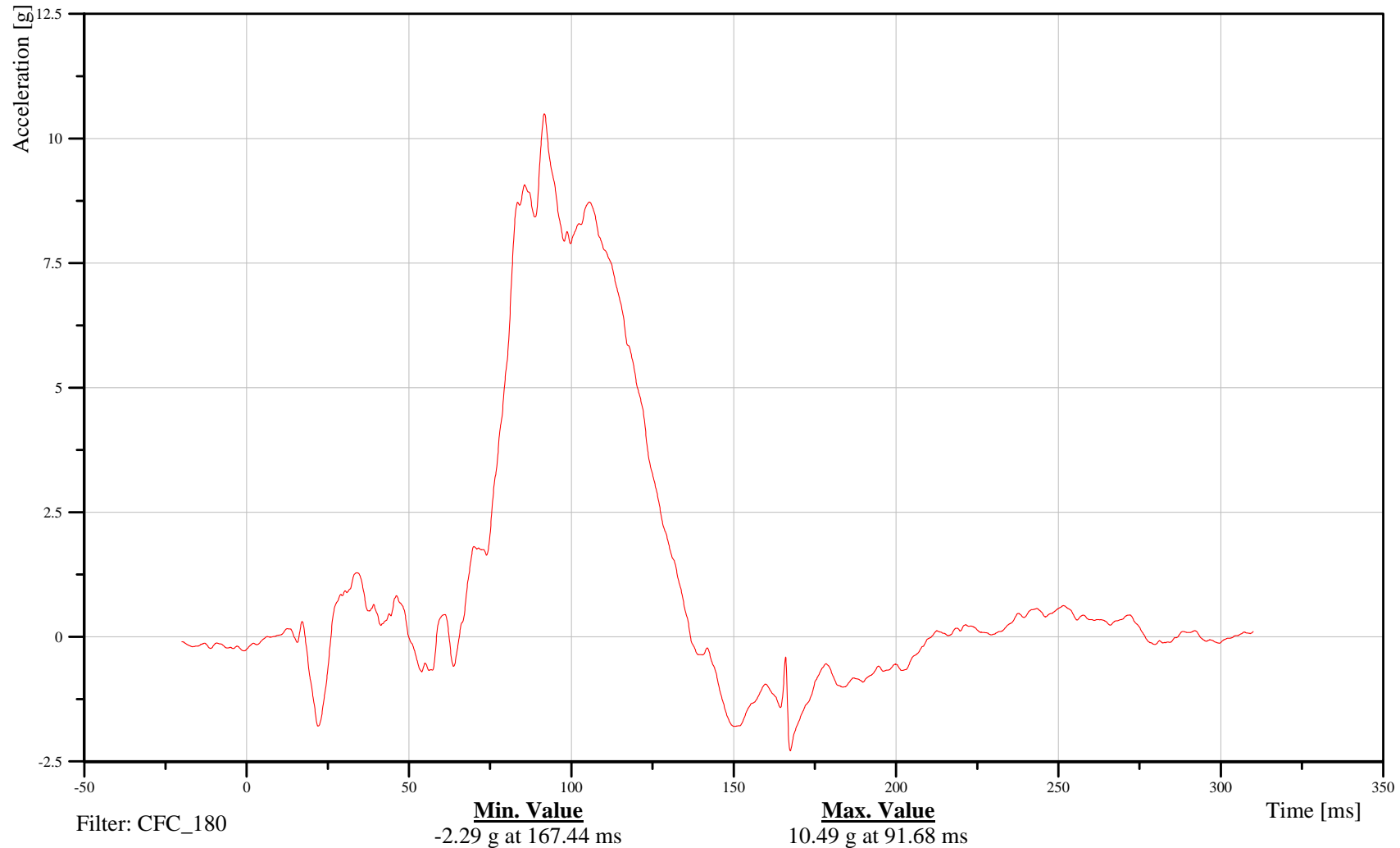
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13CHSTCG00HFACYC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-99

091020



Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Chest Z-Axis Acceleration

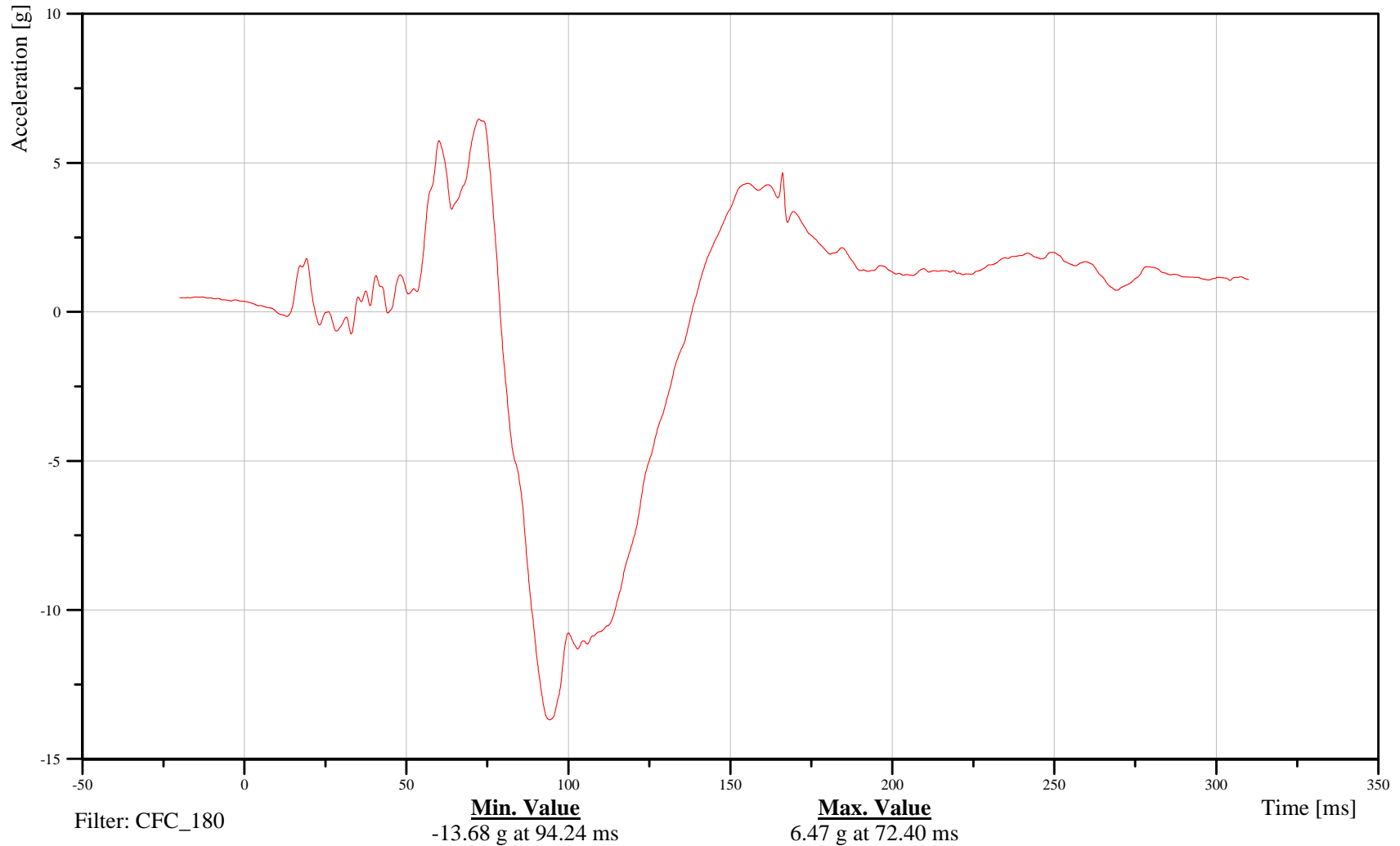
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13CHSTCG00HFACZC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-100

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

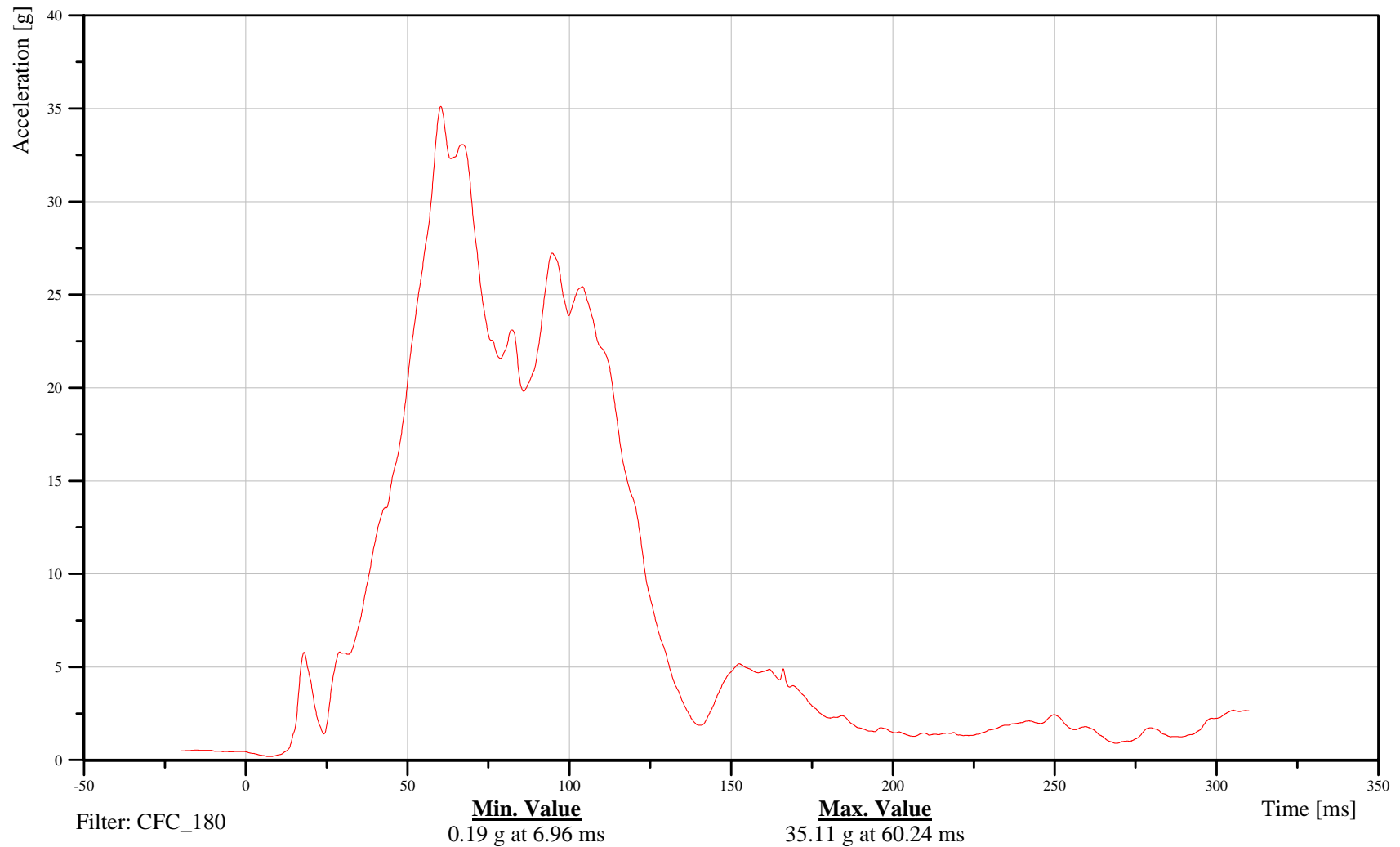
## Bullet Vehicle Right Front Passenger Chest Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13CHSTCG00HFACRC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-101

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

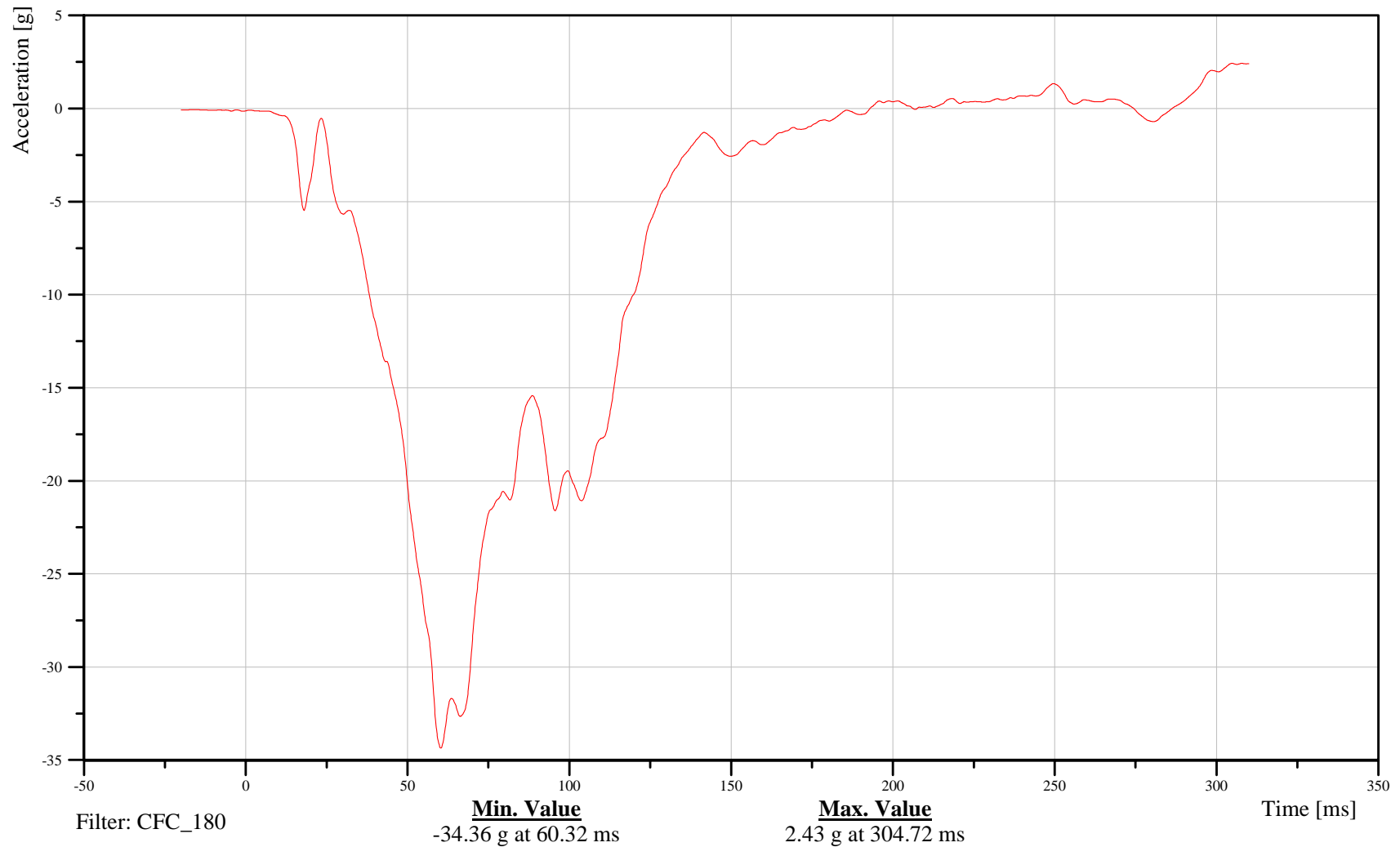
## Bullet Vehicle Right Front Passenger Chest Redundant X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13CHSTCGRDHFACXC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-102

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

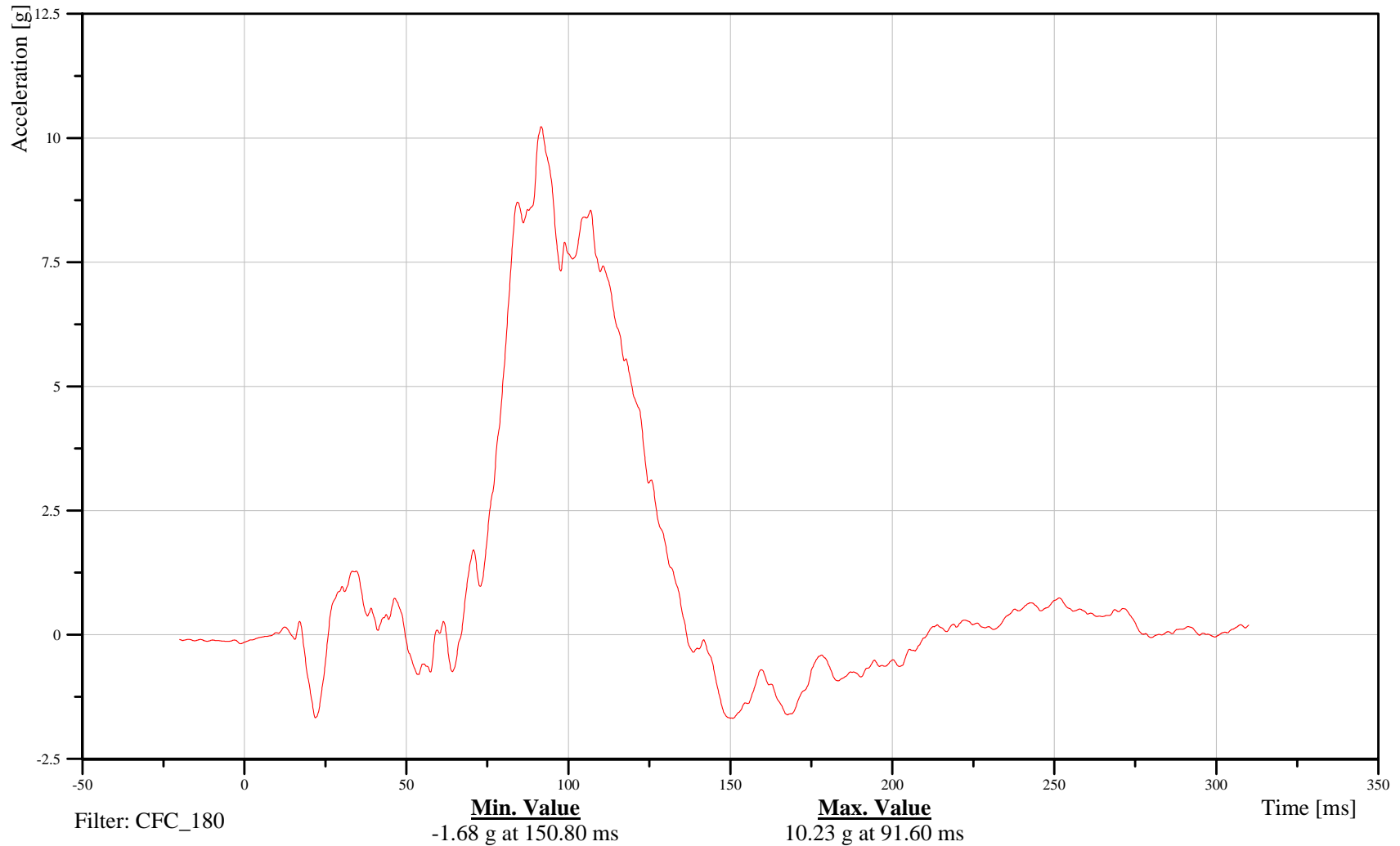
## Bullet Vehicle Right Front Passenger Chest Redundant Y-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13CHSTCGRDHFACYC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-103

091020



Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Chest Redundant Z-Axis Acceleration

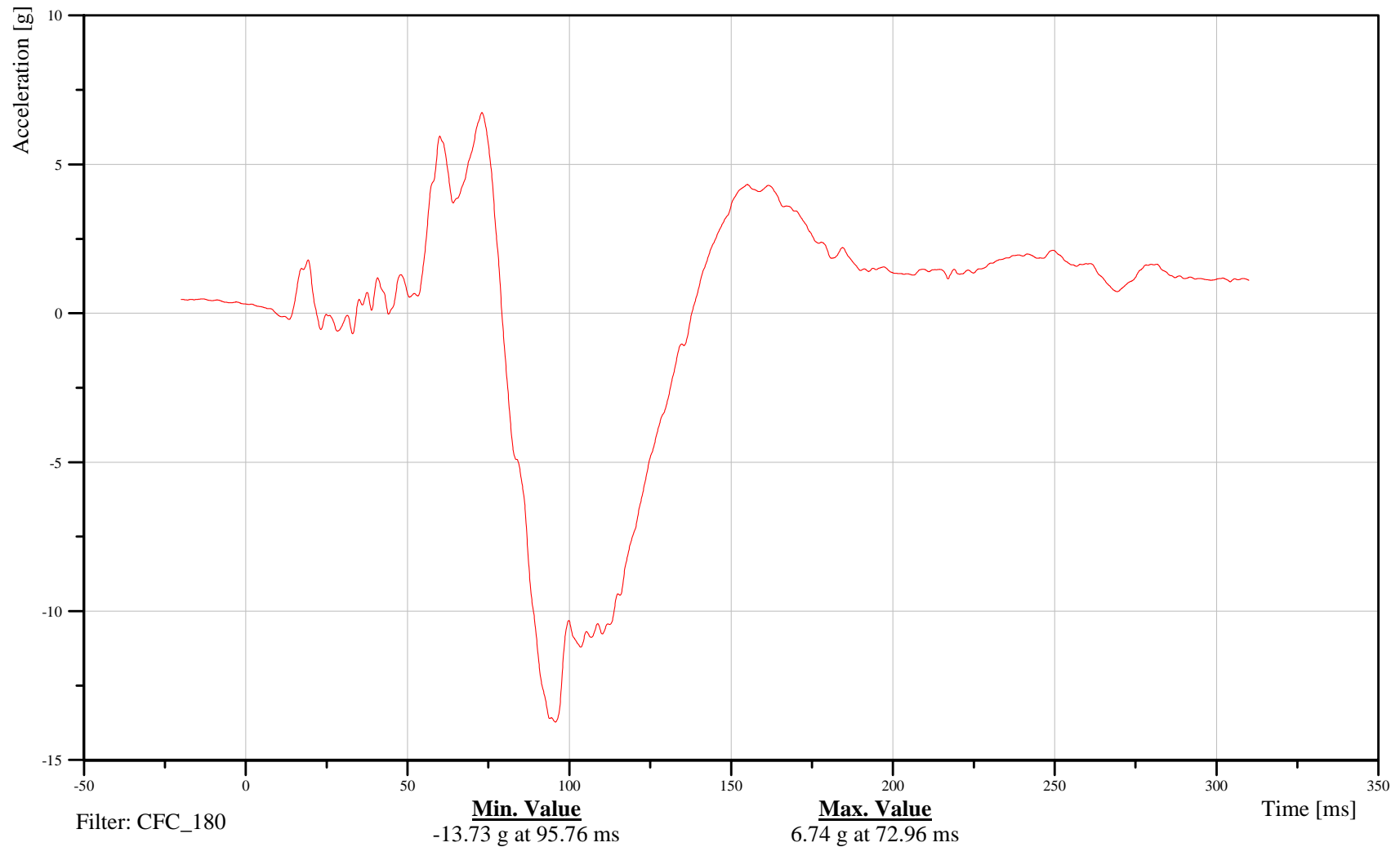
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13CHSTCGRDHFACZC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-104

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

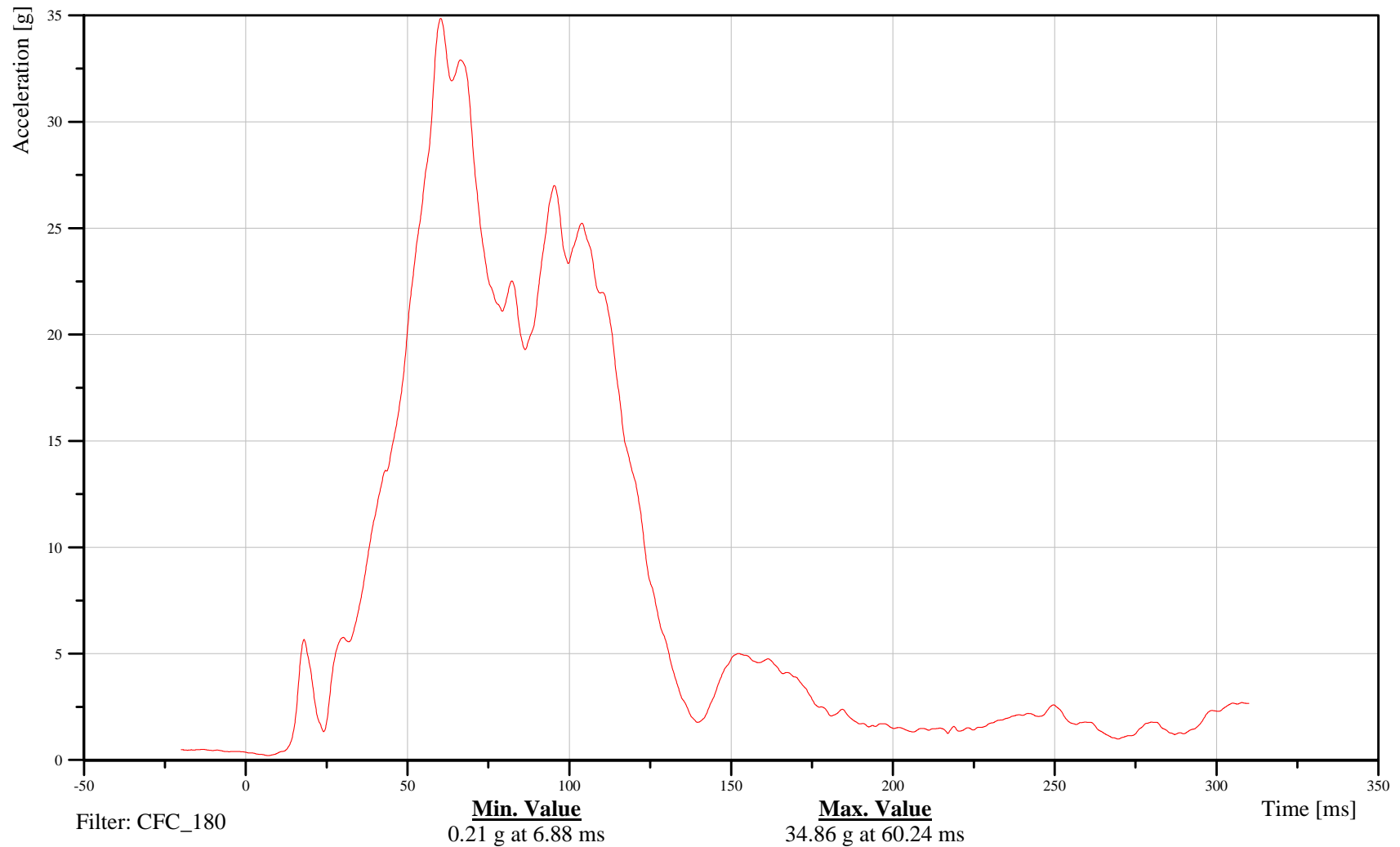
## Bullet Vehicle Right Front Passenger Chest Redundant Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13CHSTCGRDHFACRC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-105

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

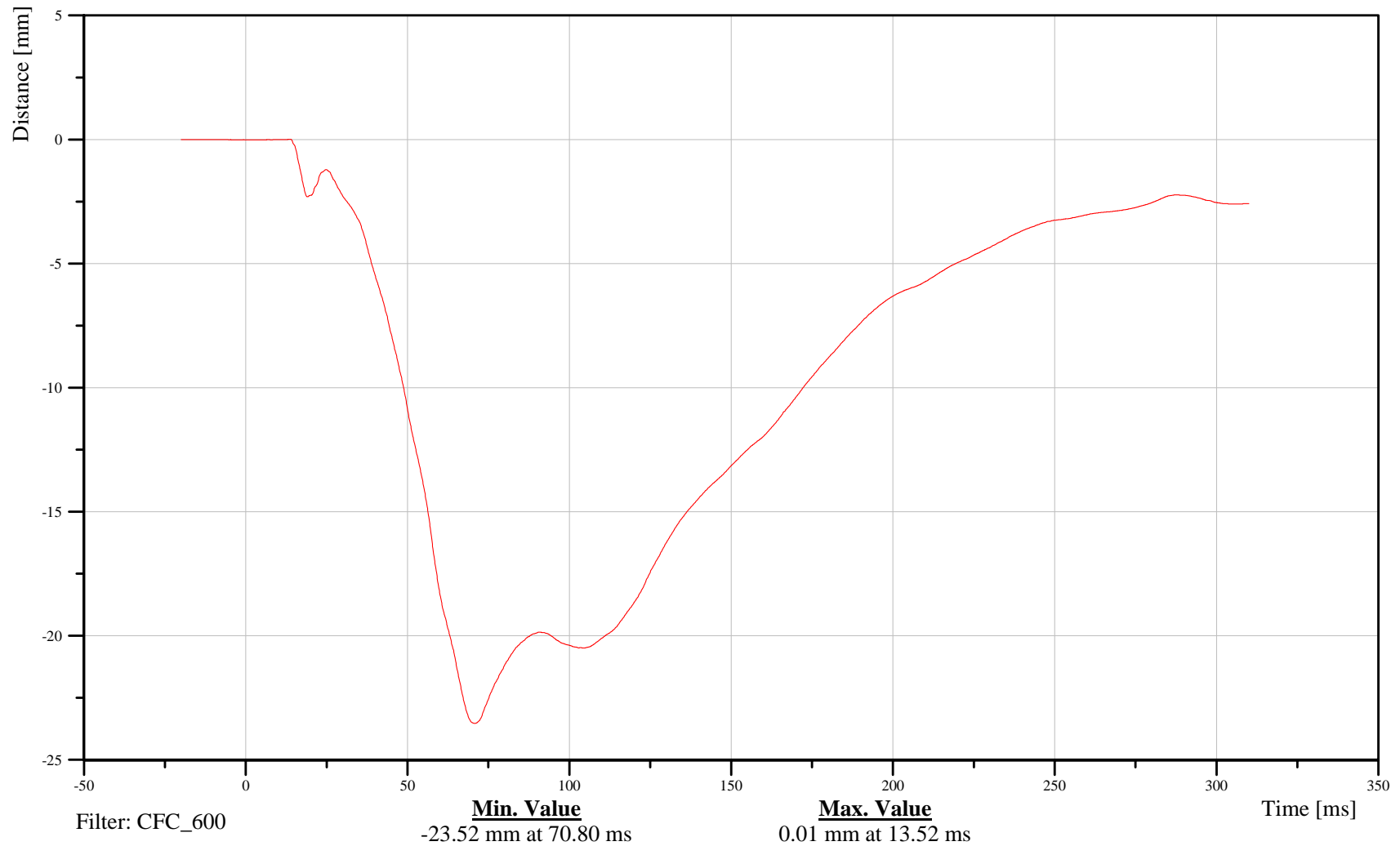
## Bullet Vehicle Right Front Passenger Chest X-Axis Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13CHST0000HFDSXB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-106

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

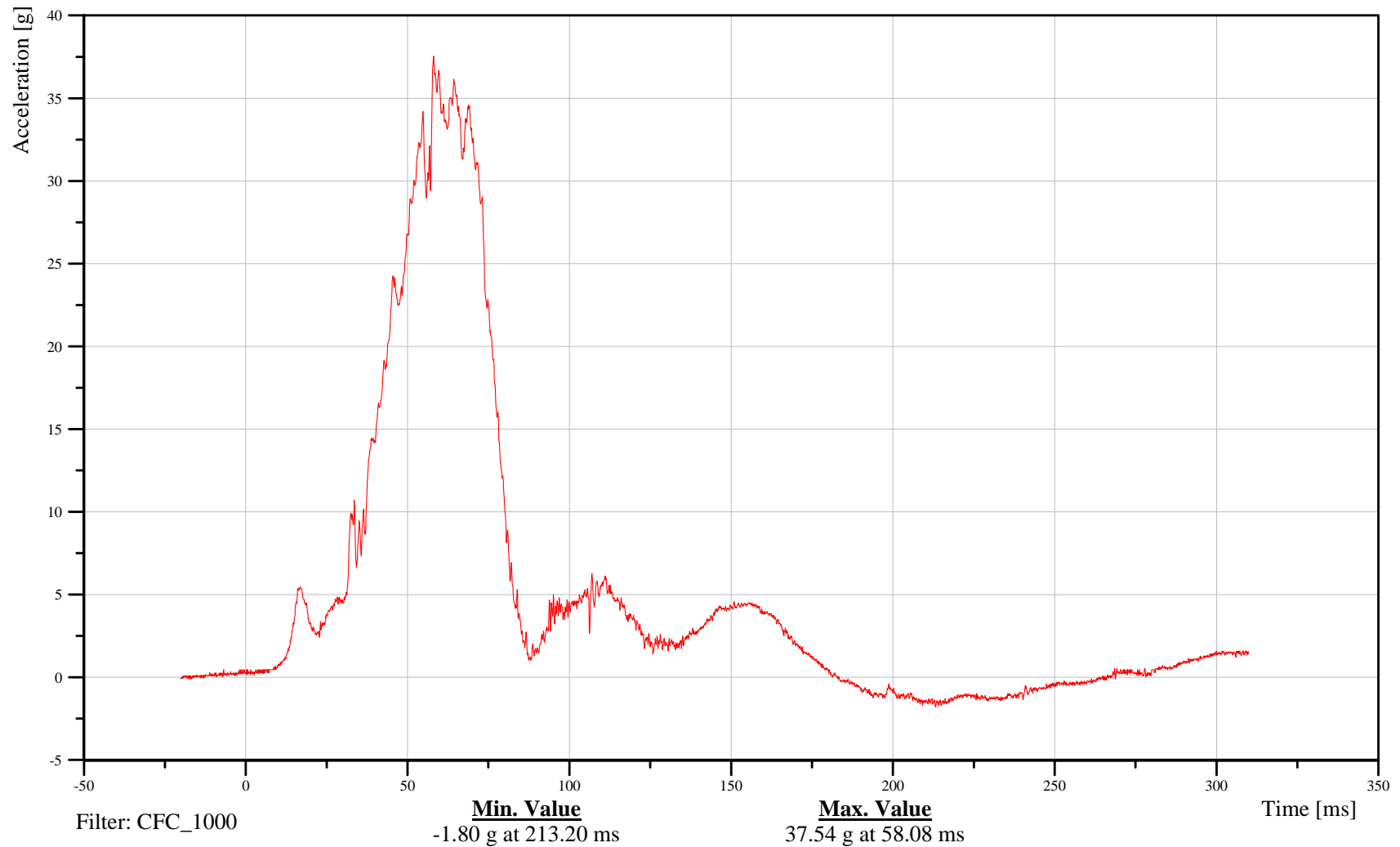
## Bullet Vehicle Right Front Passenger Pelvis X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13PELVCG00HFACXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-107

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

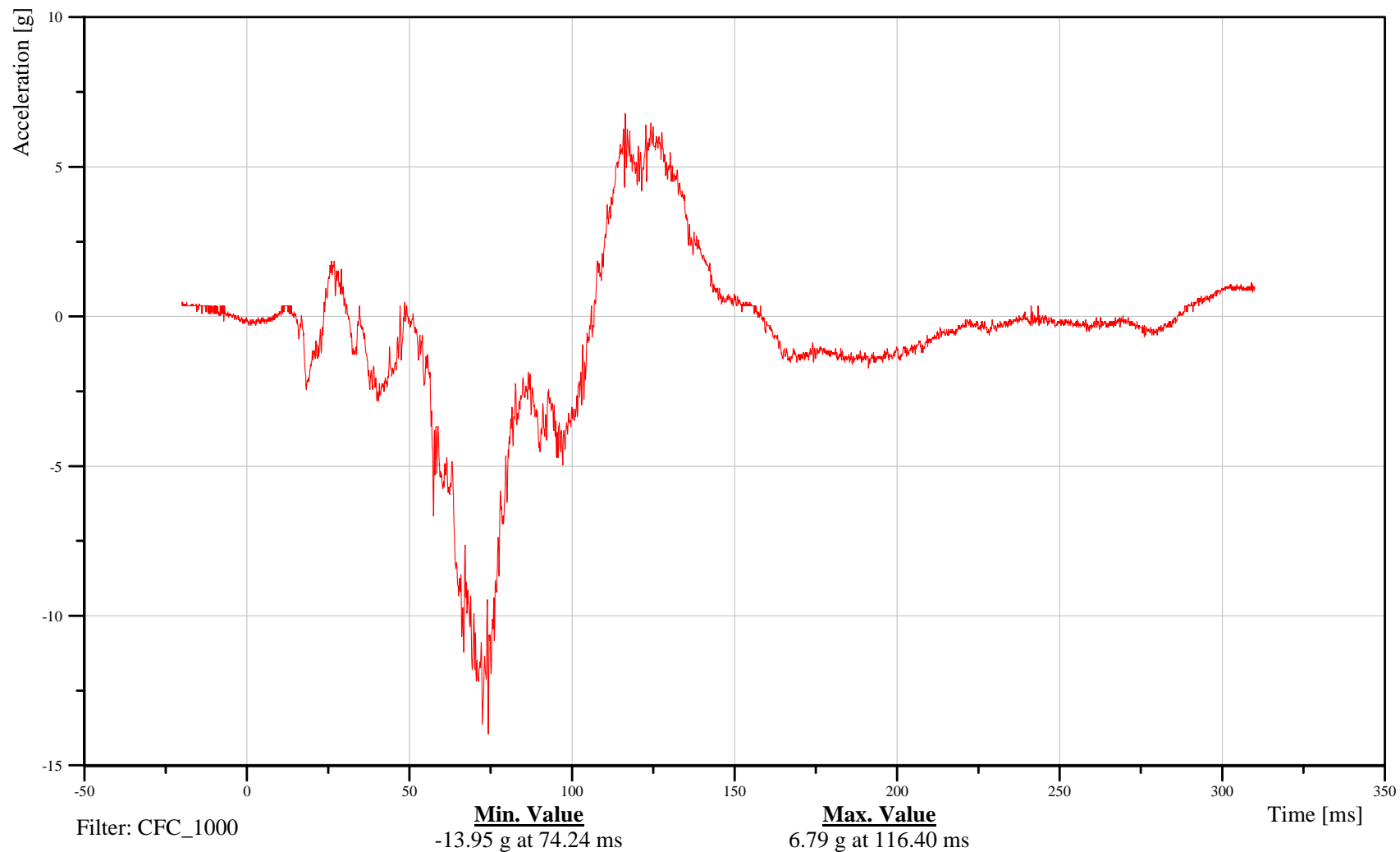
## Bullet Vehicle Right Front Passenger Pelvis Y-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13PELVCG00HFACYA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-108

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

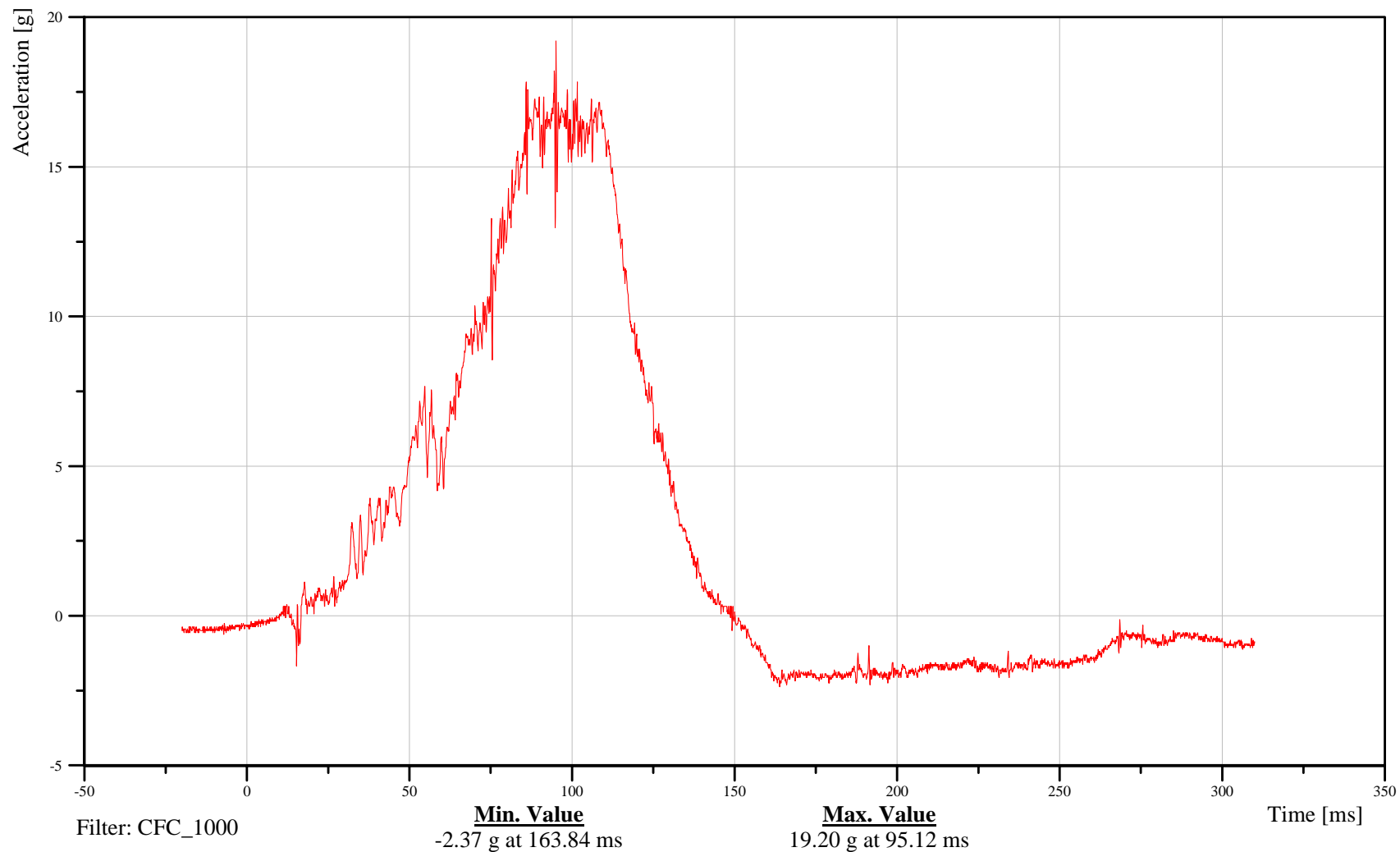
## Bullet Vehicle Right Front Passenger Pelvis Z-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13PELVCG00HFACZA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-109

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

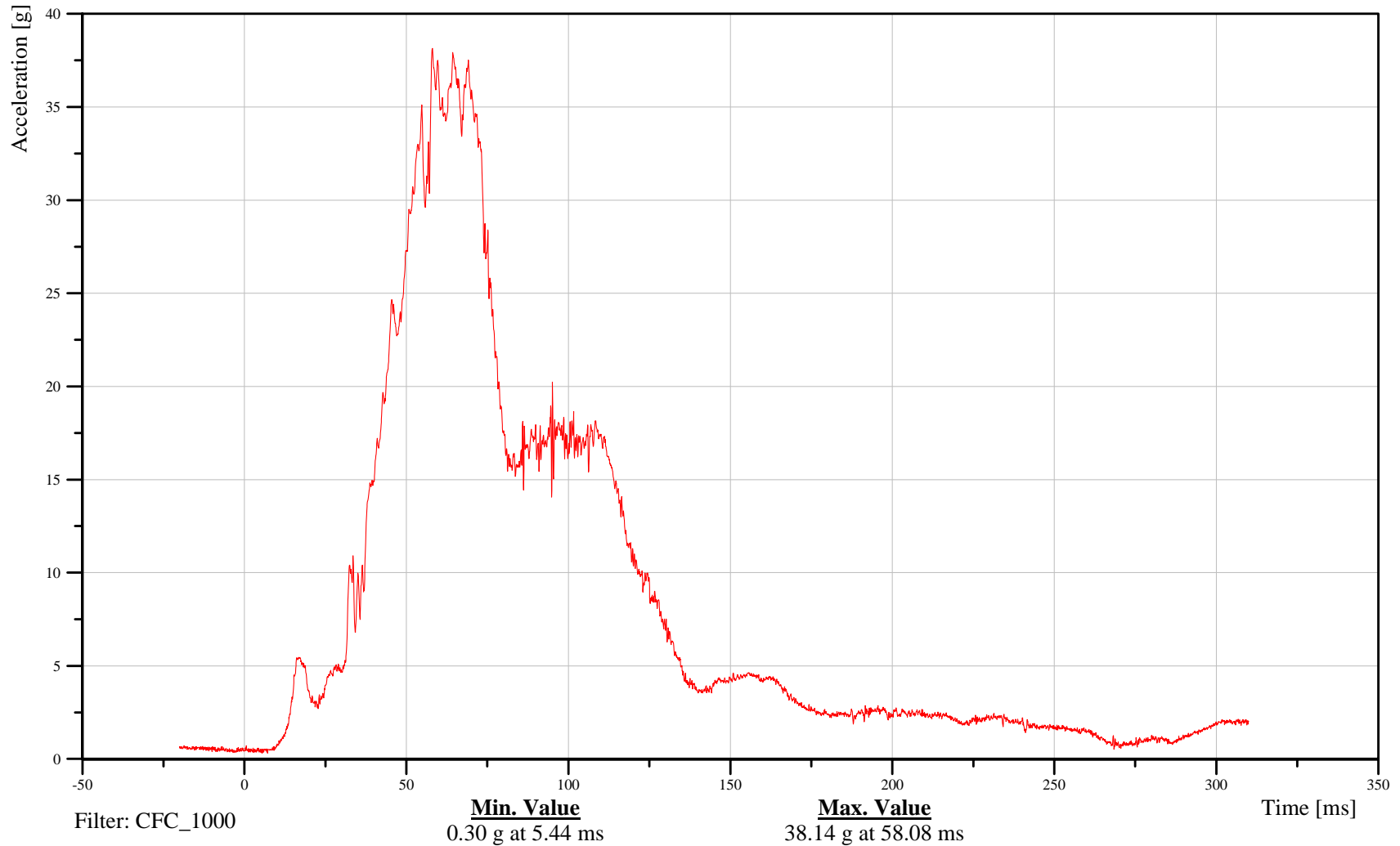
## Bullet Vehicle Right Front Passenger Pelvis Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13PELVCG00HFACRA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-110

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

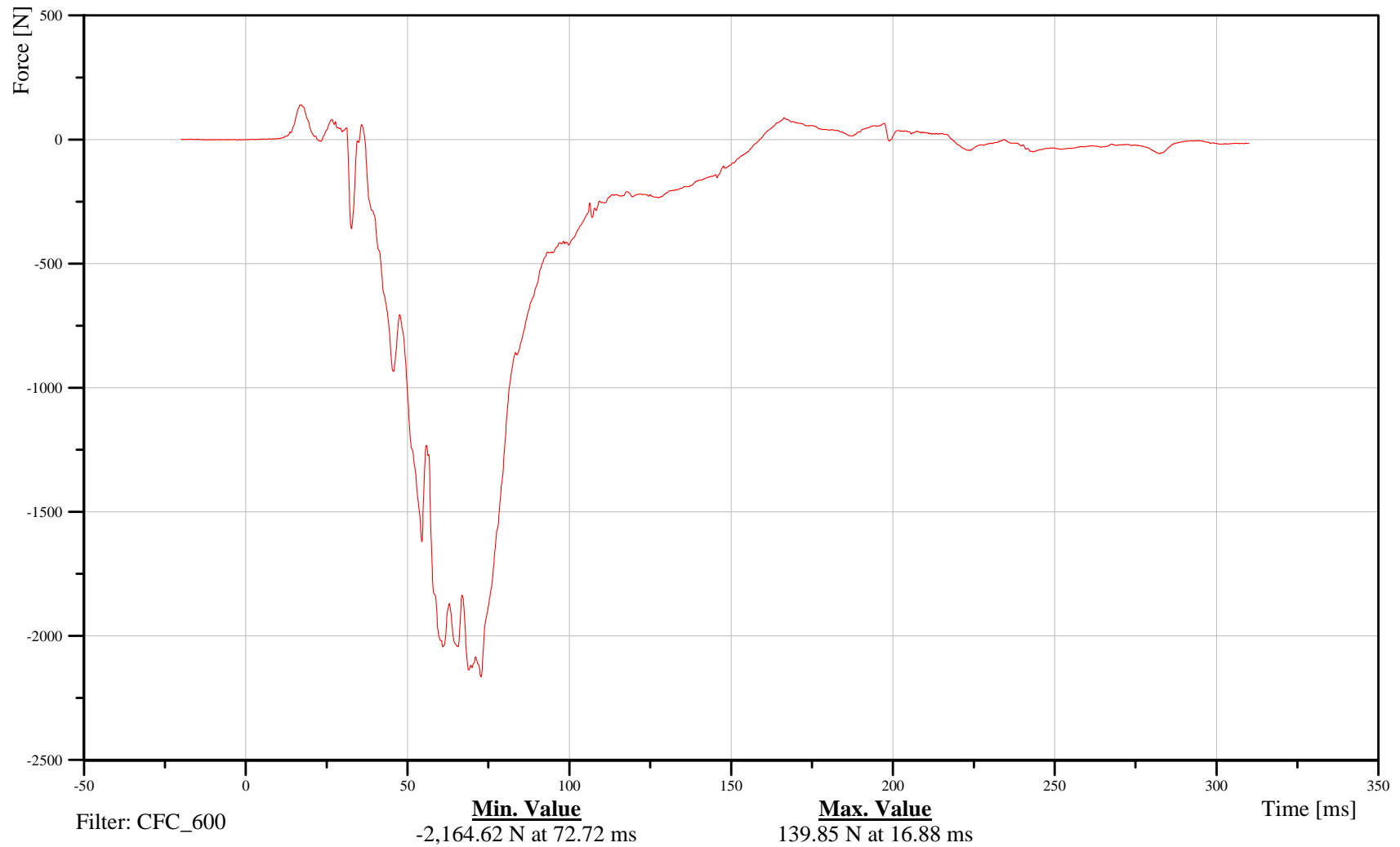
## Bullet Vehicle Right Front Passenger Left Femur Z-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13FEMRLU00HFFOZB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-111

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

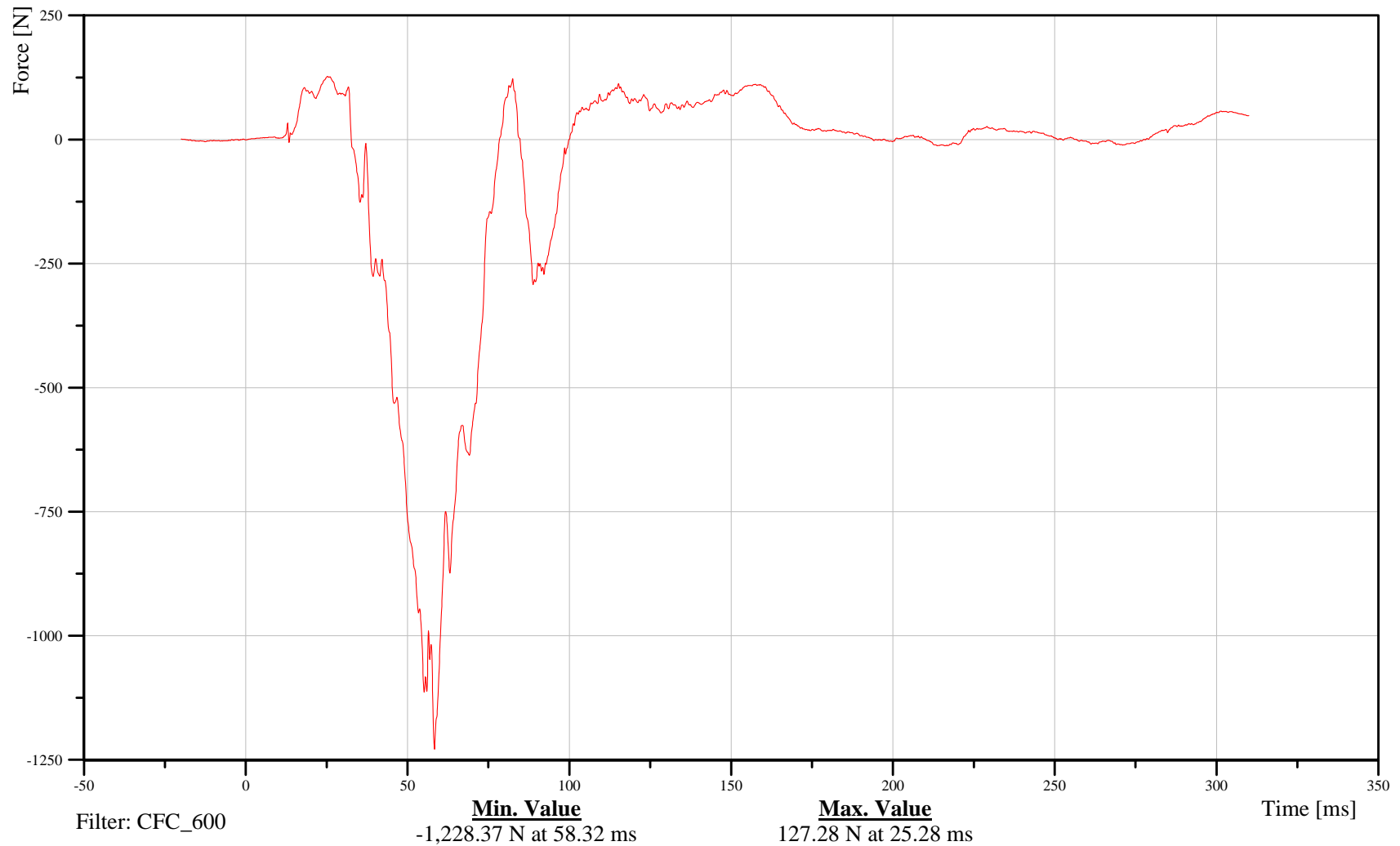
## Bullet Vehicle Right Front Passenger Right Femur Z-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13FEMRRU00HFFOZB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-112

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

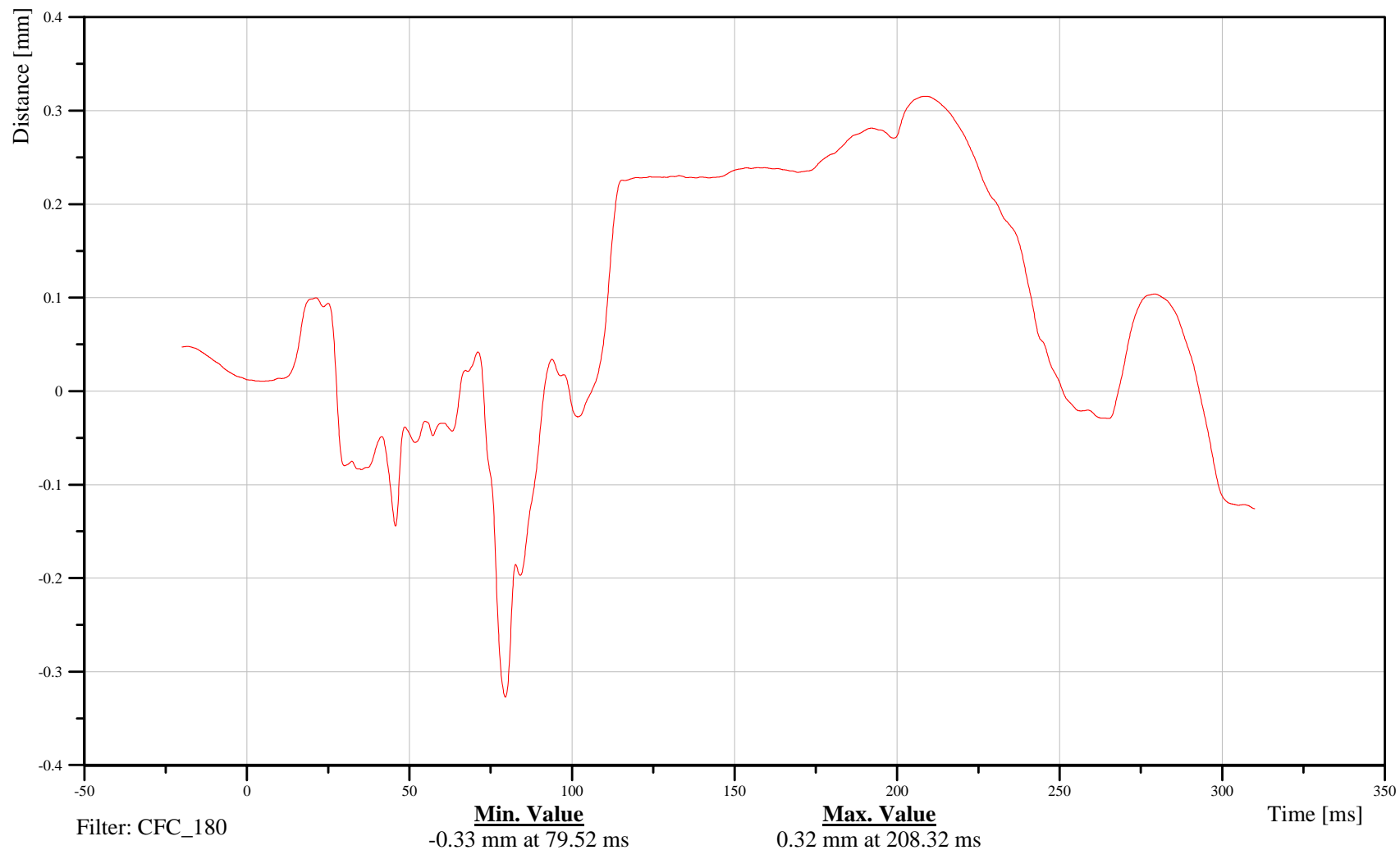
## Bullet Vehicle Right Front Passenger Left Knee X-Axis Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13KNSLLE00HFDSXC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-113

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

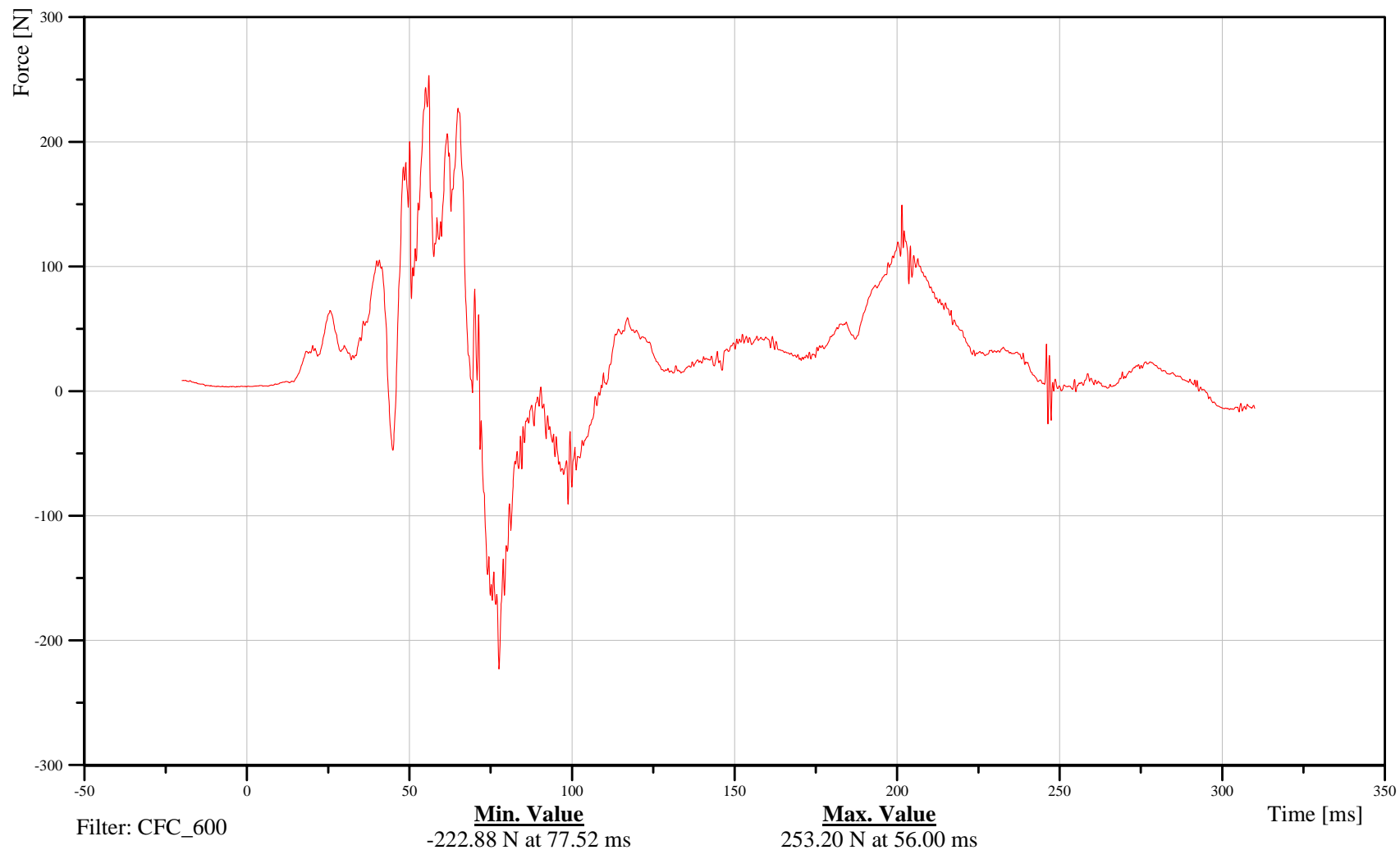
## Bullet Vehicle Right Front Passenger Left Upper Tibia X-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBILULXHFFOXB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-114

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

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

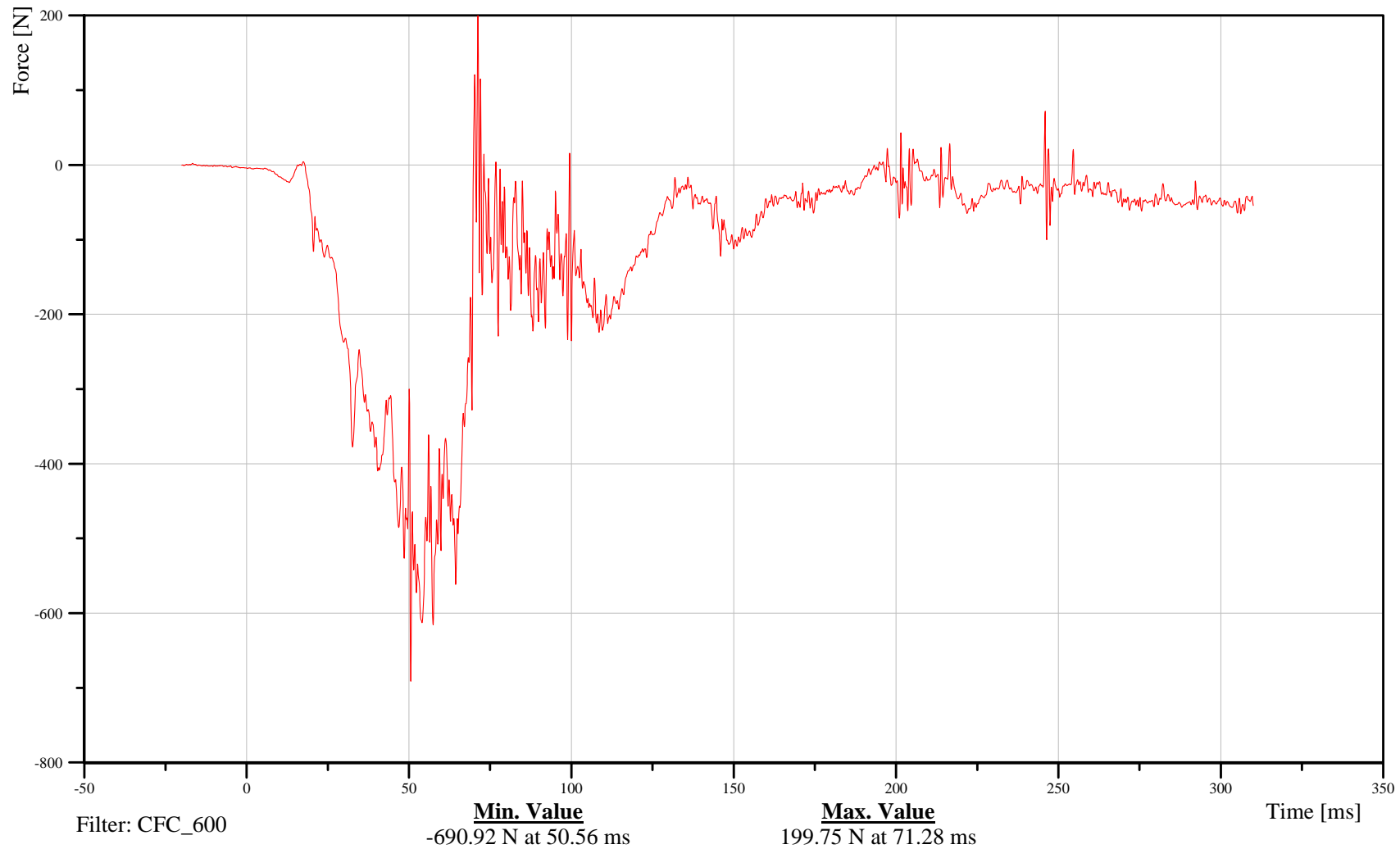
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBILULXHFFOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-115

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

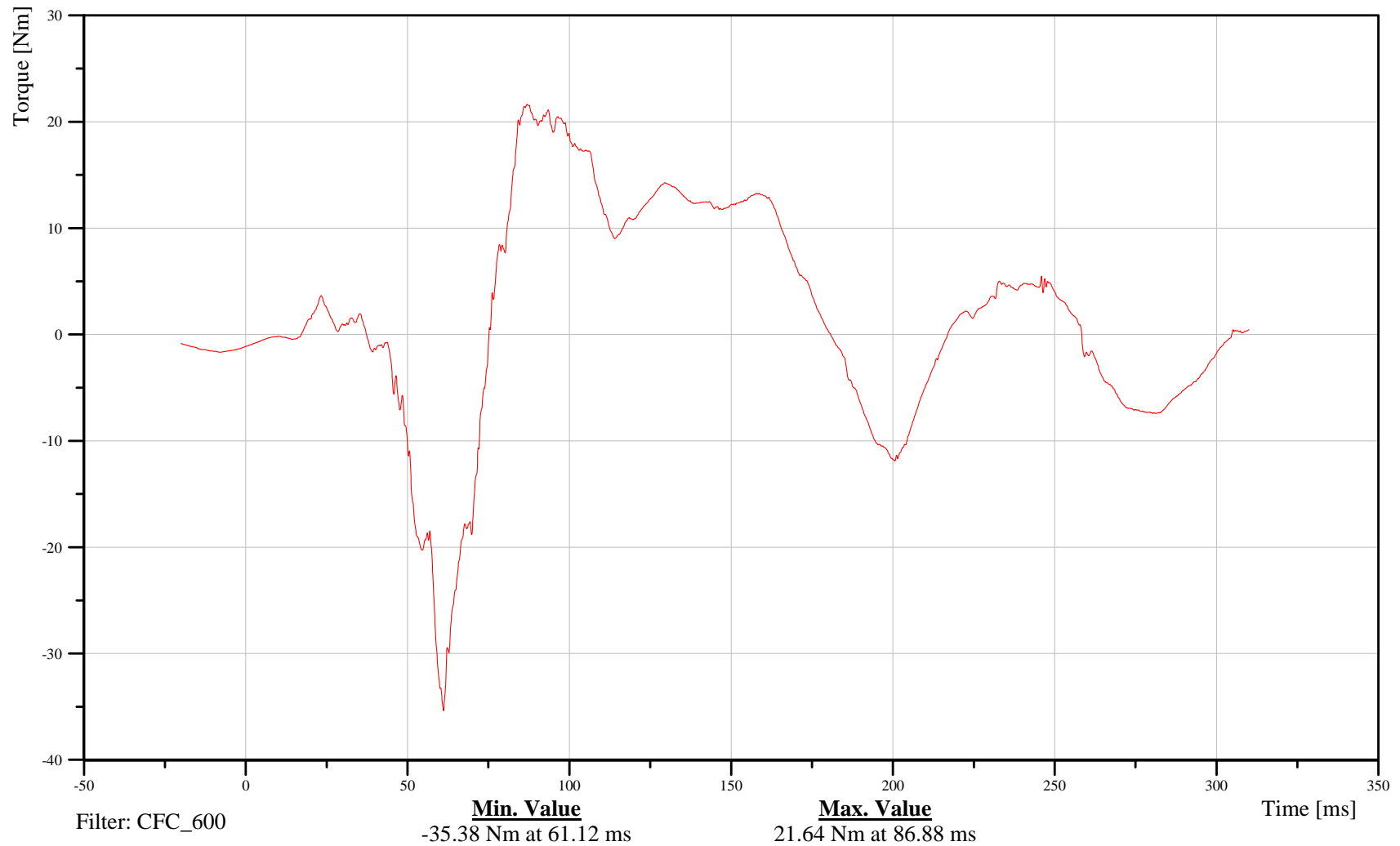
## Bullet Vehicle Right Front Passenger Left Upper Tibia Moment About X Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBILULXHFM0XB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-116

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

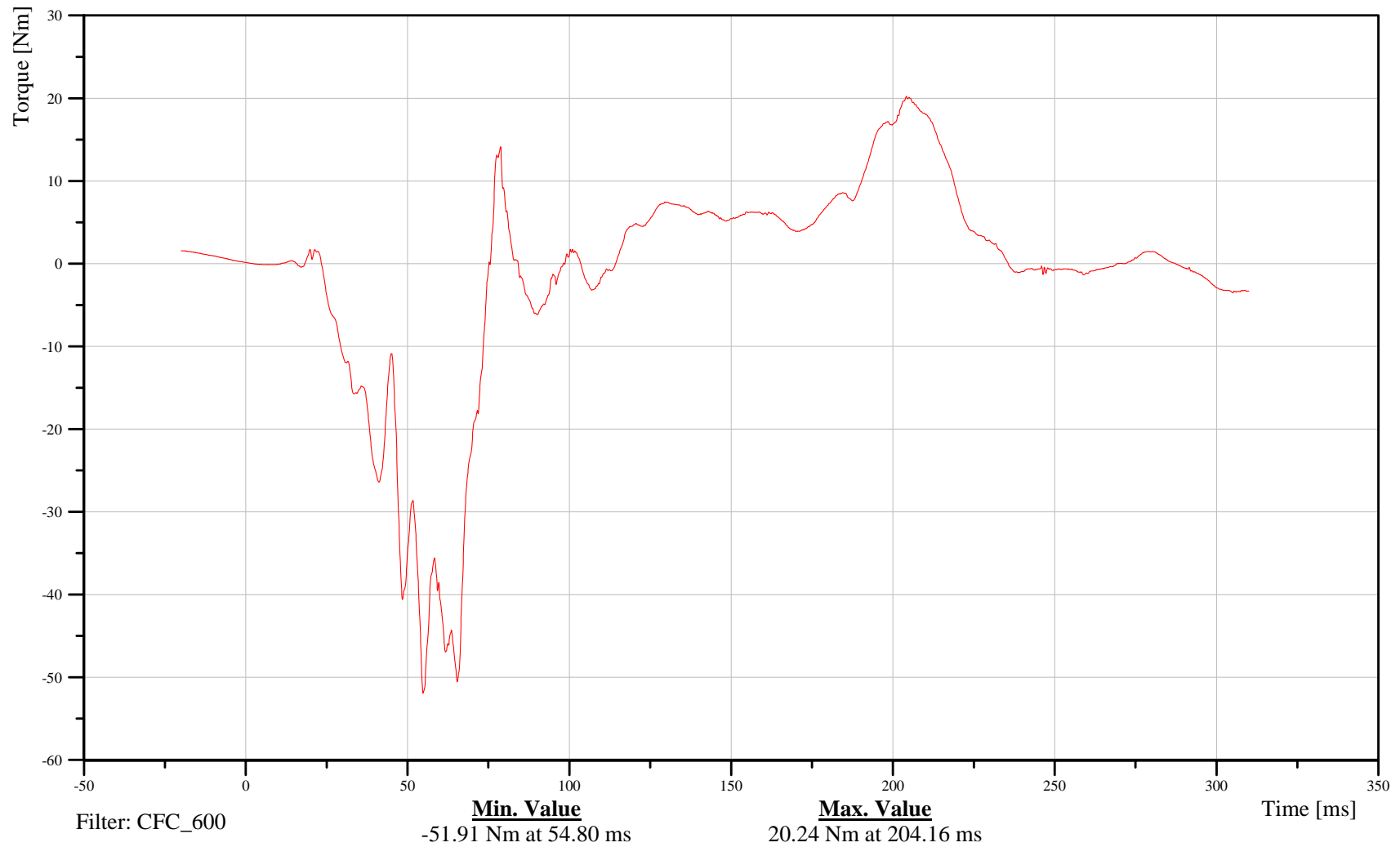
## Bullet Vehicle Right Front Passenger Left Upper Tibia Moment About Y Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBILULXHFM0YB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-117

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

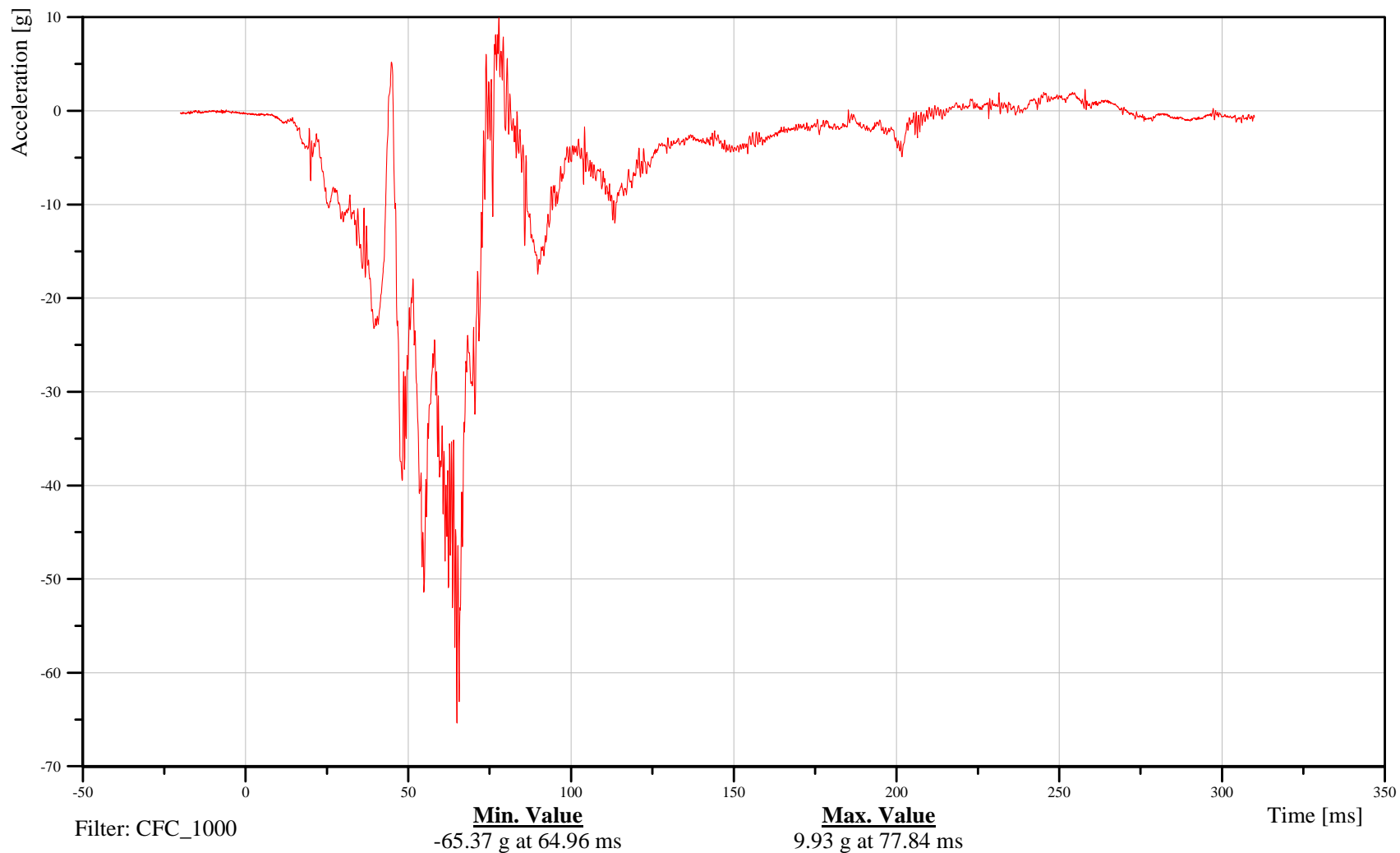
## Bullet Vehicle Right Front Passenger Left Tibia X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBILELXHFACEA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-118

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

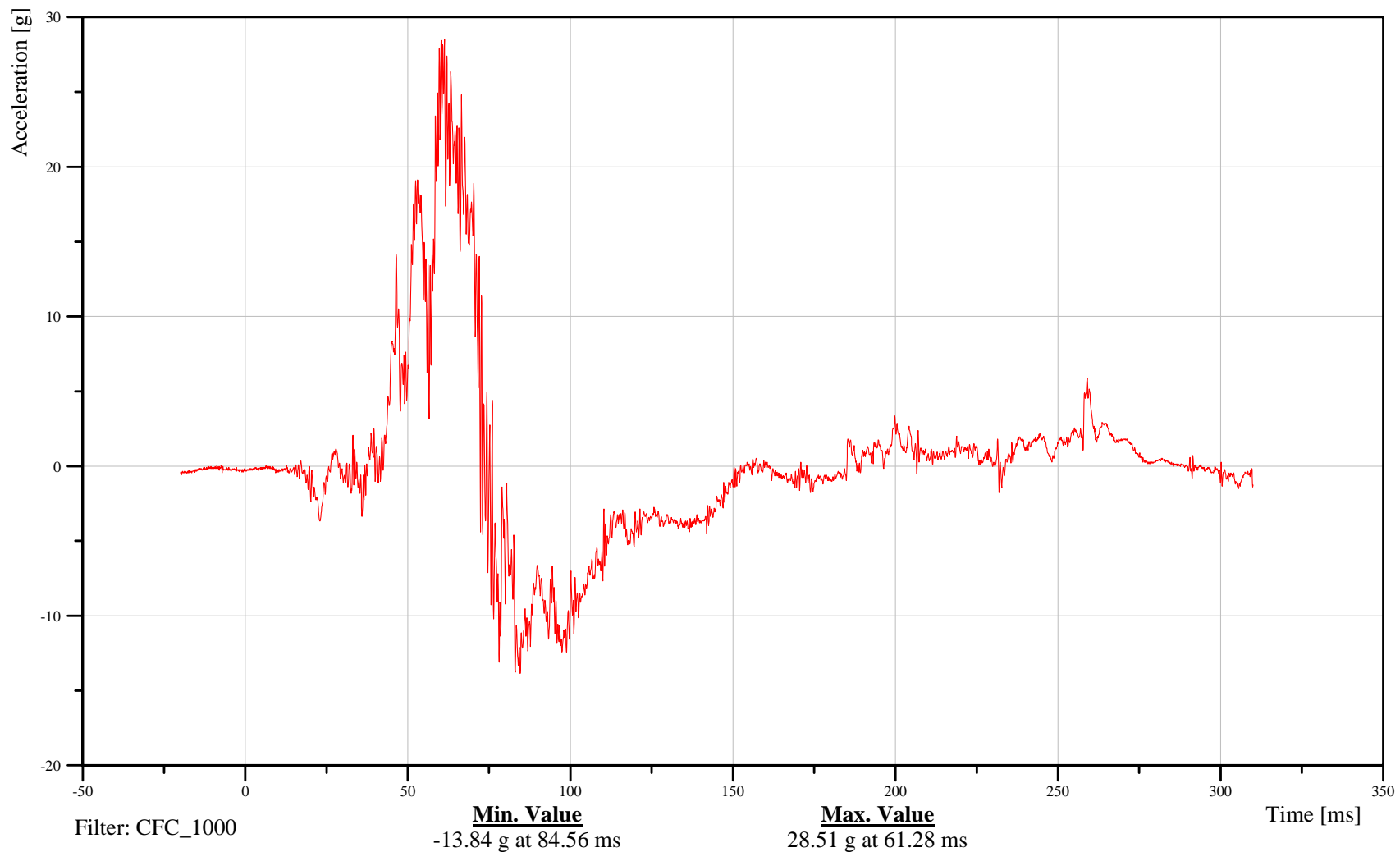
## Bullet Vehicle Right Front Passenger Left Tibia Y-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBILELXHFCYA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-119

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

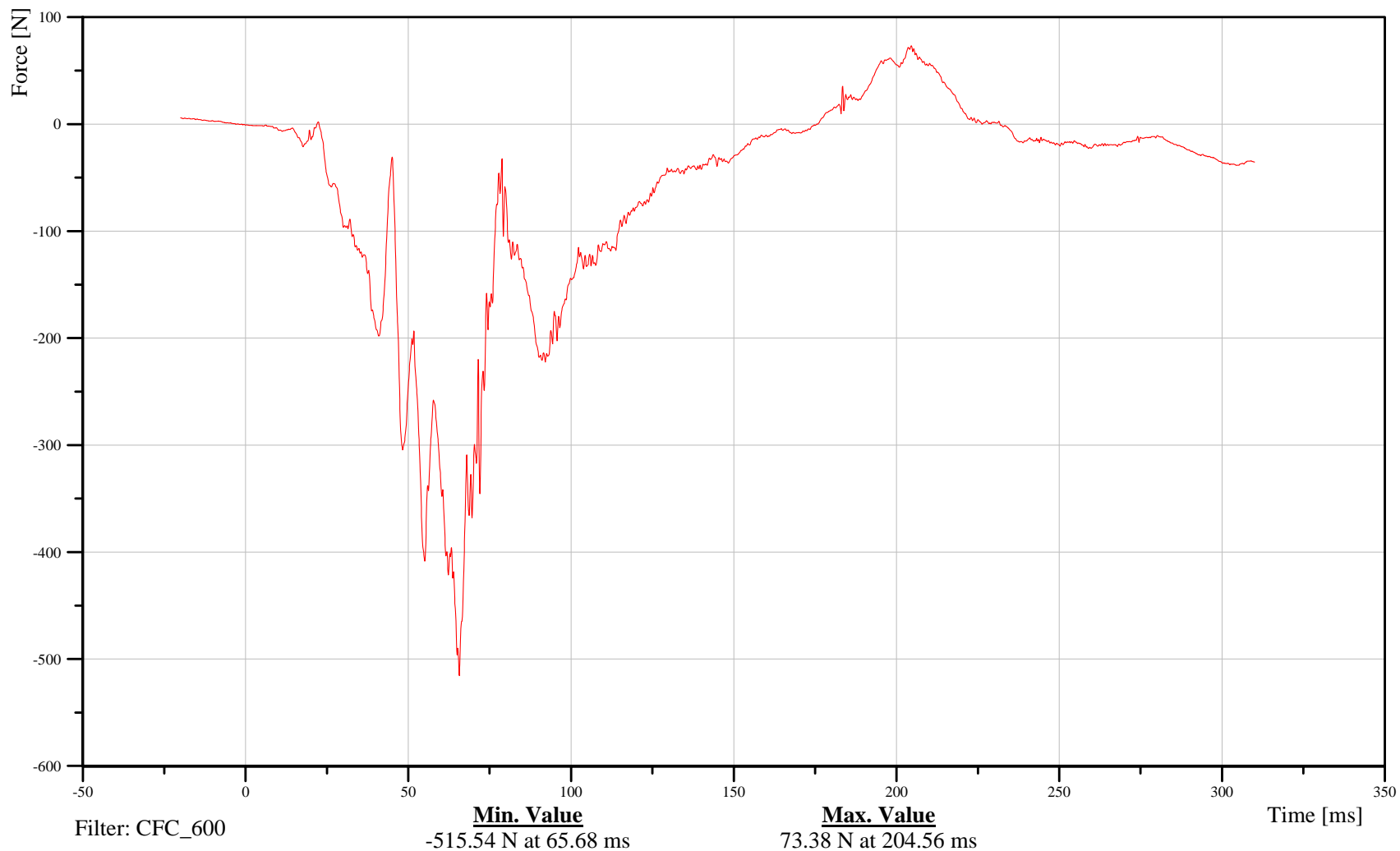
## Bullet Vehicle Right Front Passenger Left Lower Tibia X-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBILLXHFFOXB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-120

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

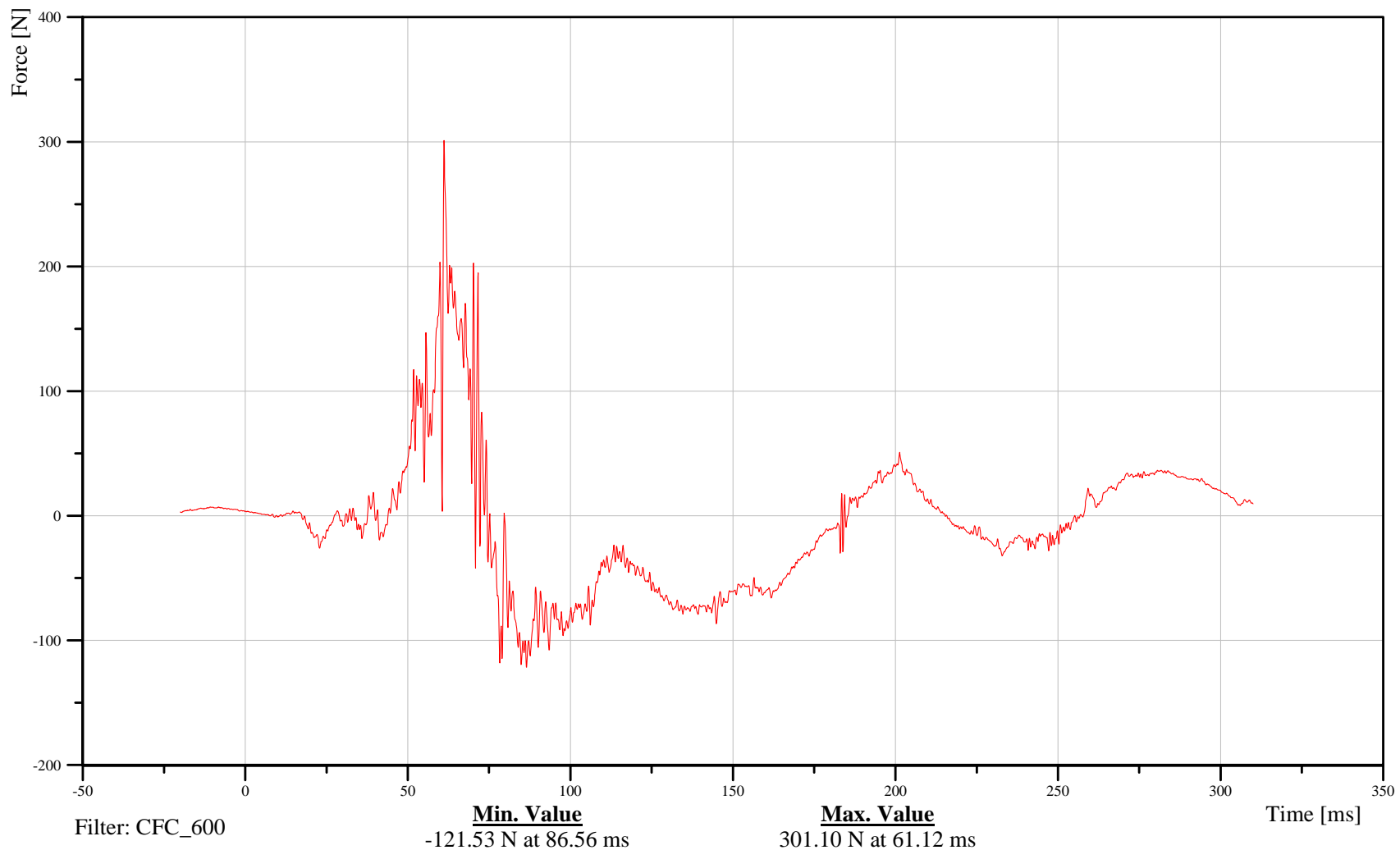
## Bullet Vehicle Right Front Passenger Left Lower Tibia Y-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBILLXHHFOYB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-121

091020



Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Left Lower Tibia Z-Axis Force

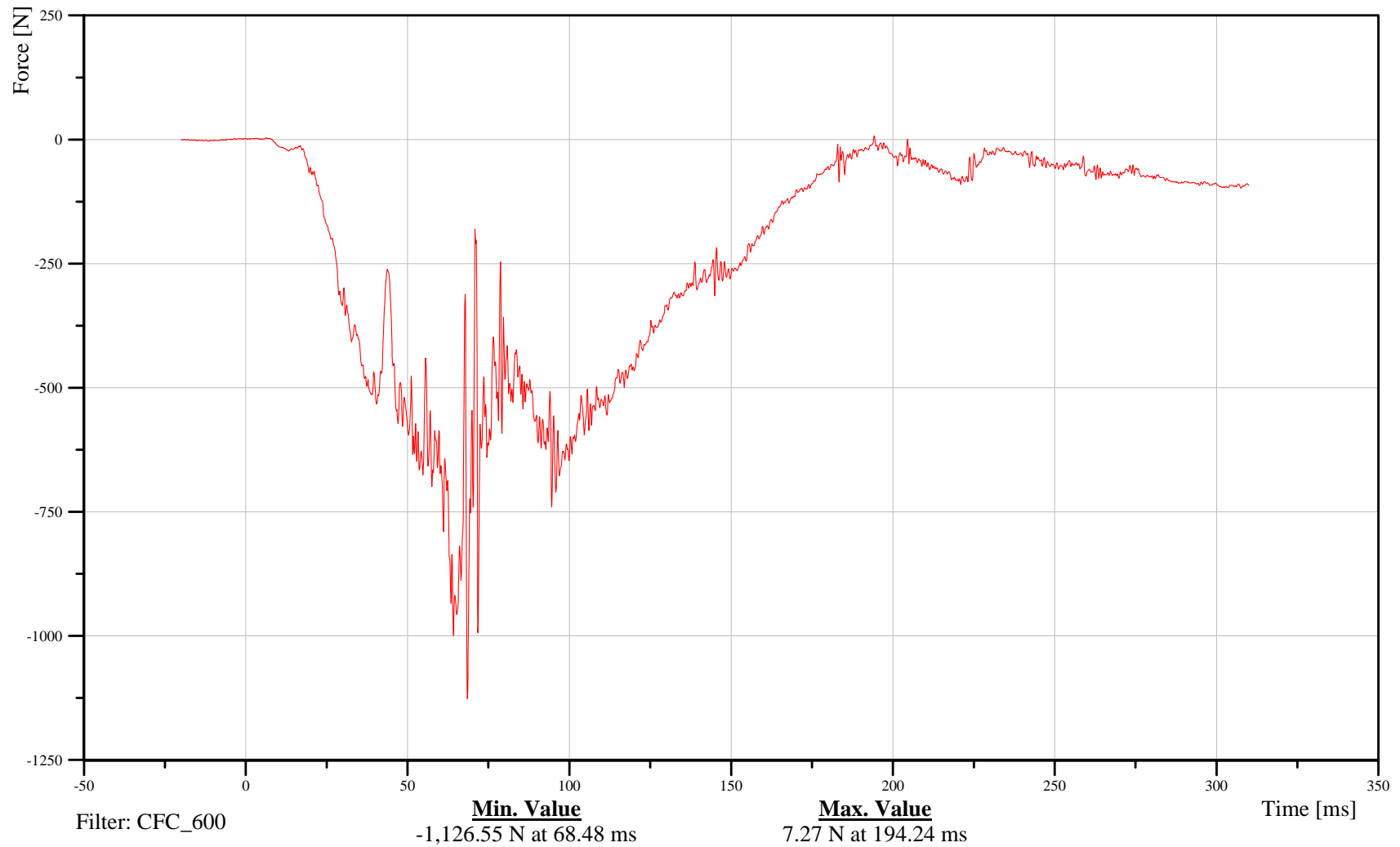
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13TIBILLXHFFOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-122

091020



Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Left Lower Tibia Moment About X Axis

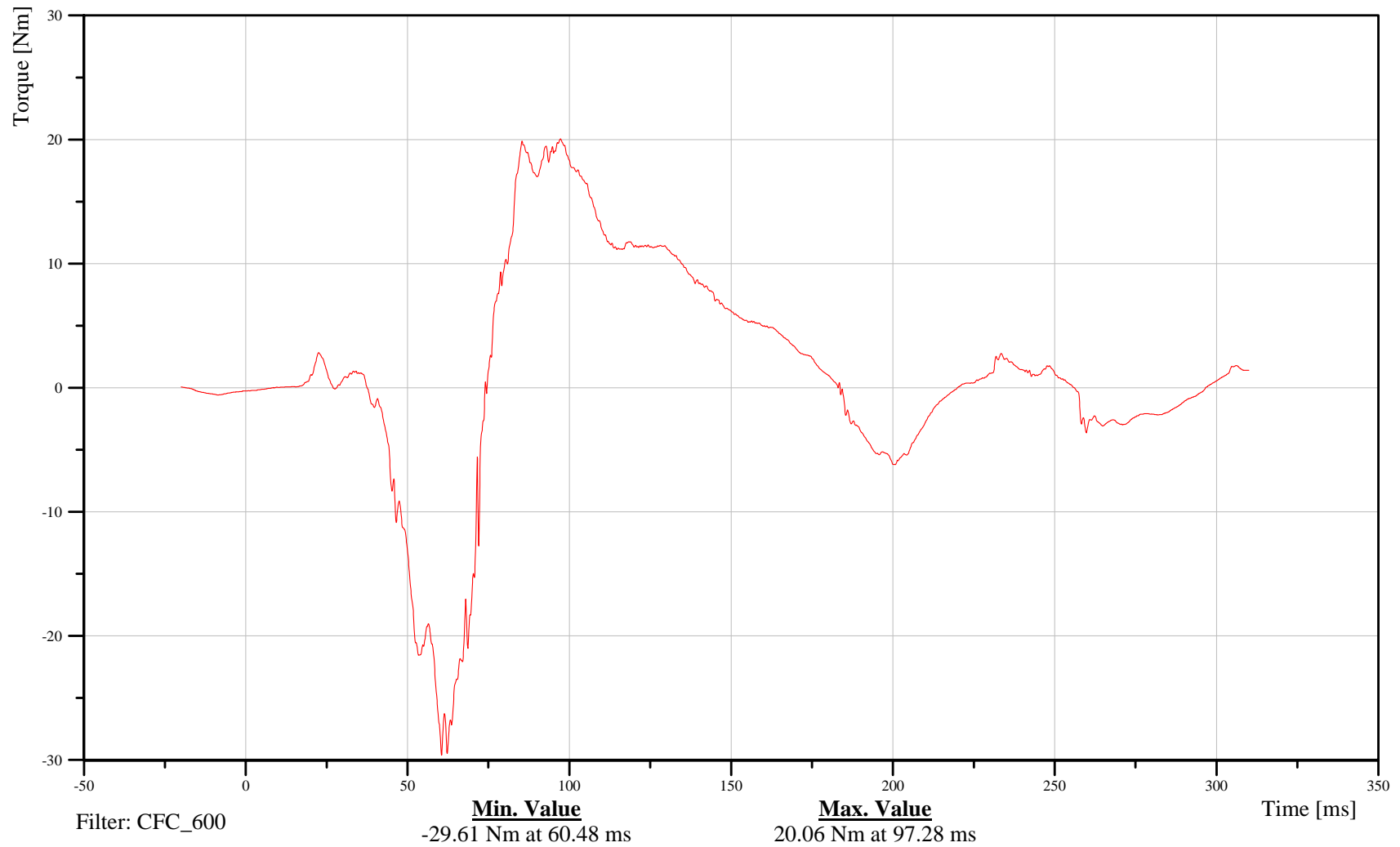
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13TIBILLXHFMOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-123

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

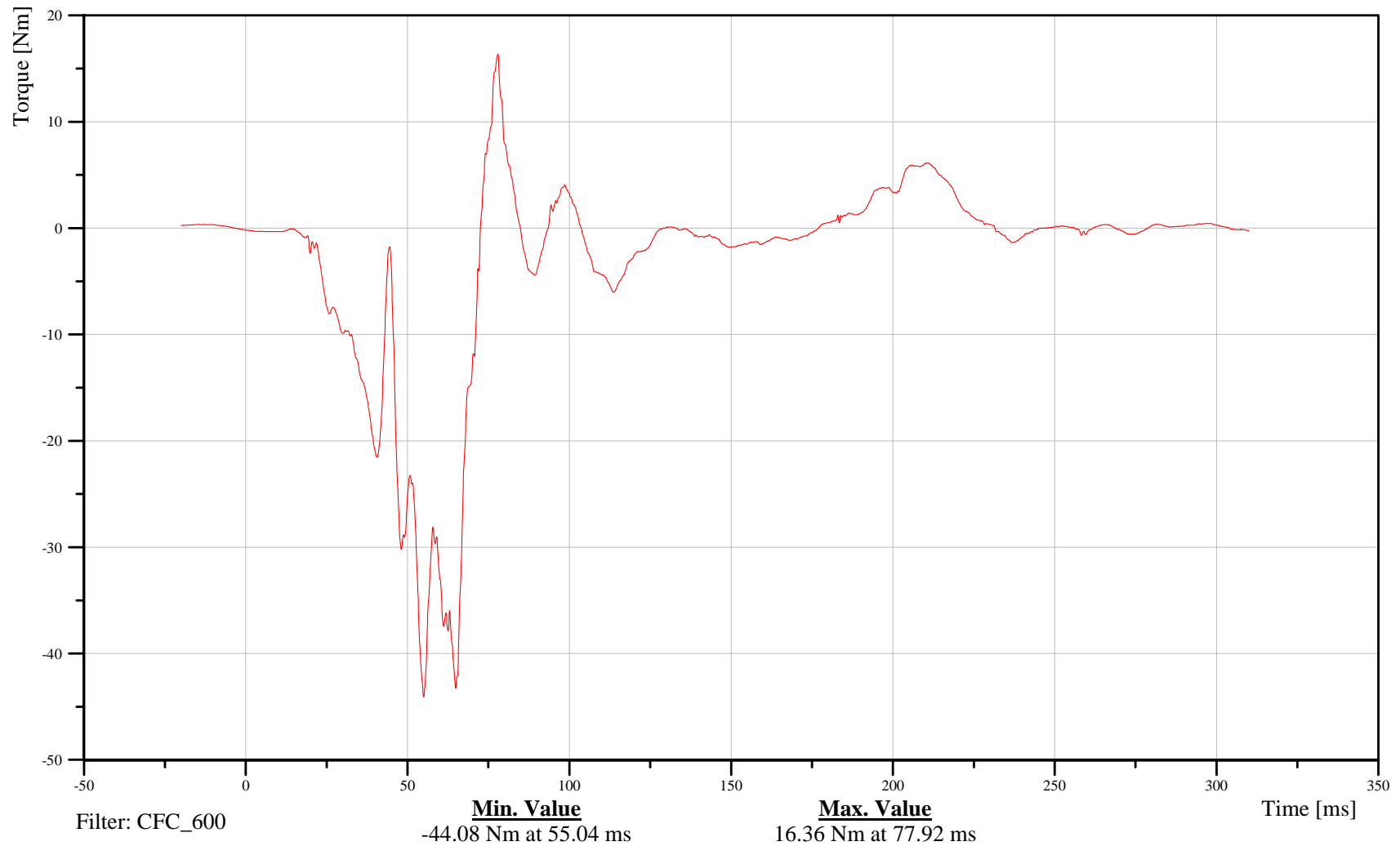
## Bullet Vehicle Right Front Passenger Left Lower Tibia Moment About Y Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBILLXHFM0YB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-124

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

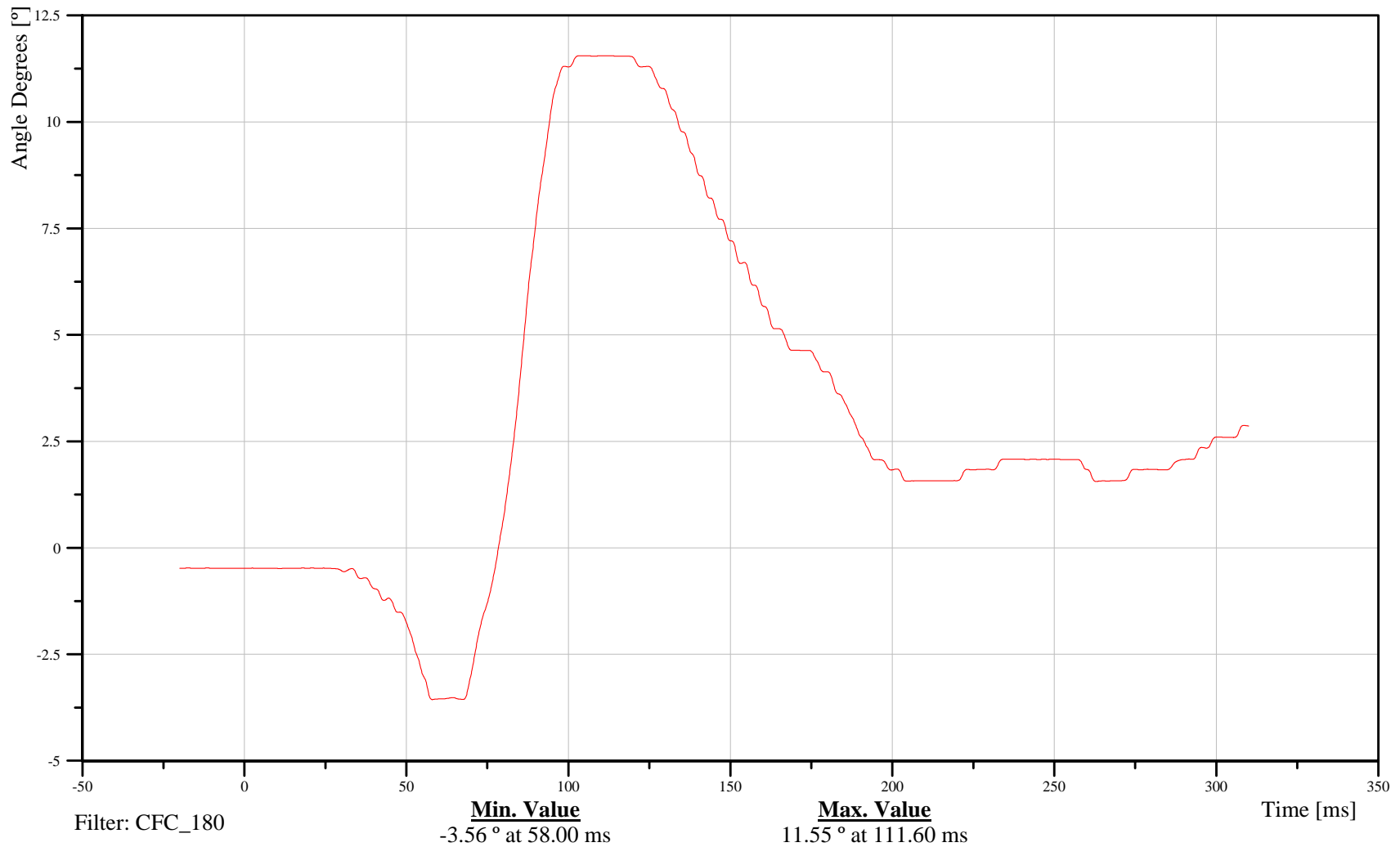
## Bullet Vehicle Right Front Passenger Left Foot X-Axis Angular Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13FOOTLELXHFANXC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-125

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

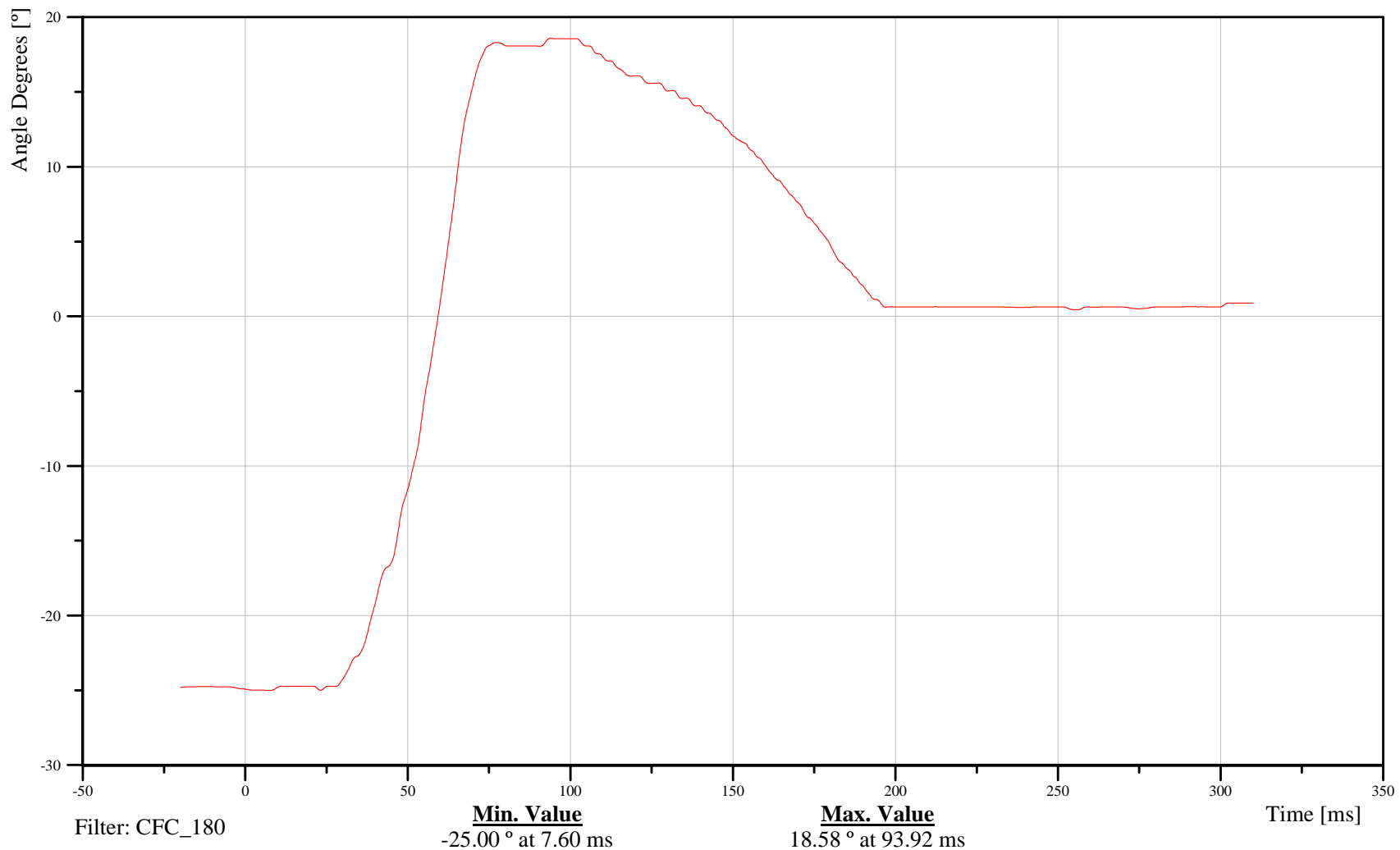
## Bullet Vehicle Right Front Passenger Left Foot Y-Axis Angular Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13FOOTLELXHFANYC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-126

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

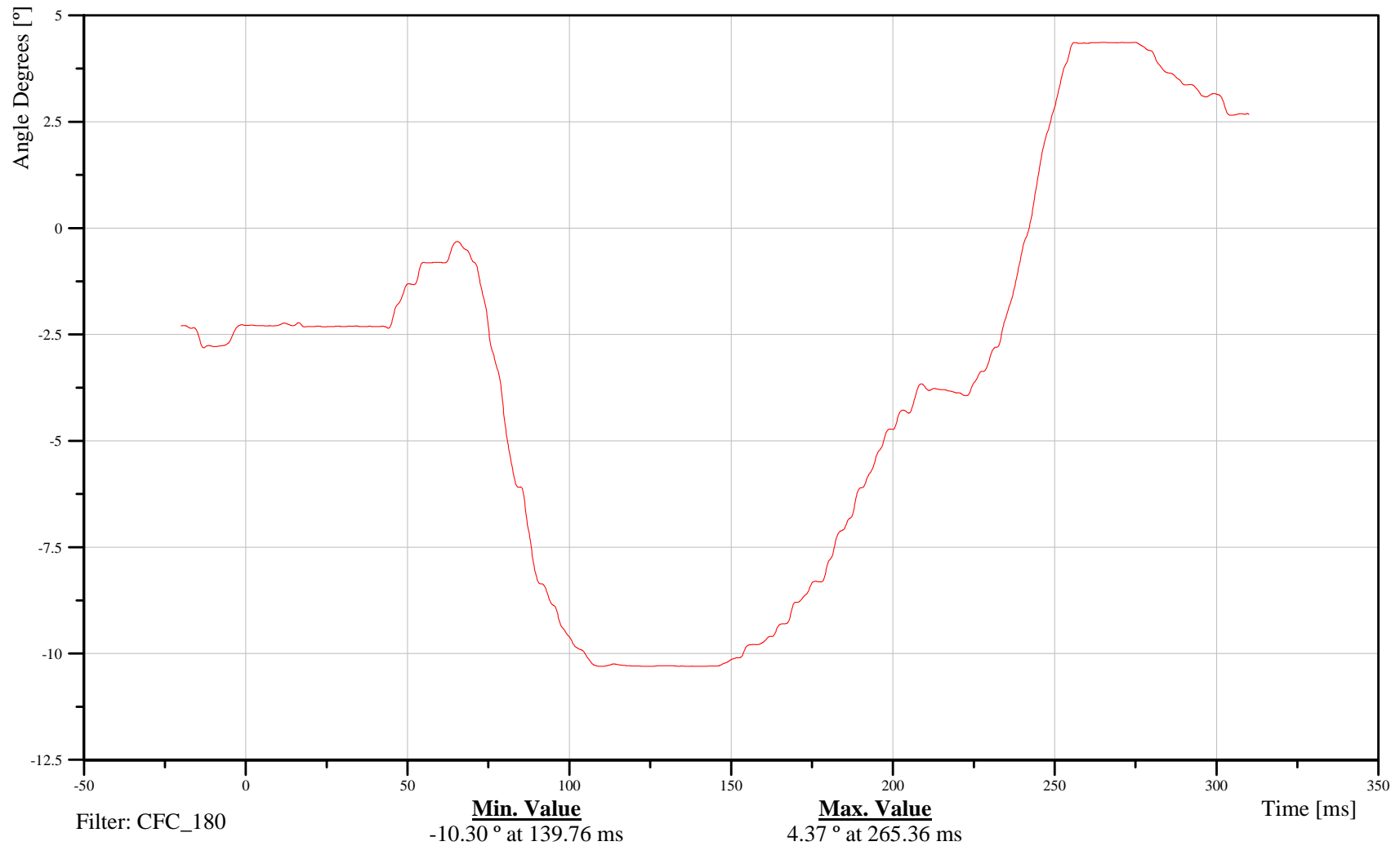
## Bullet Vehicle Right Front Passenger Left Foot Z-Axis Angular Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13FOOTLELXHFANZC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-127

091020



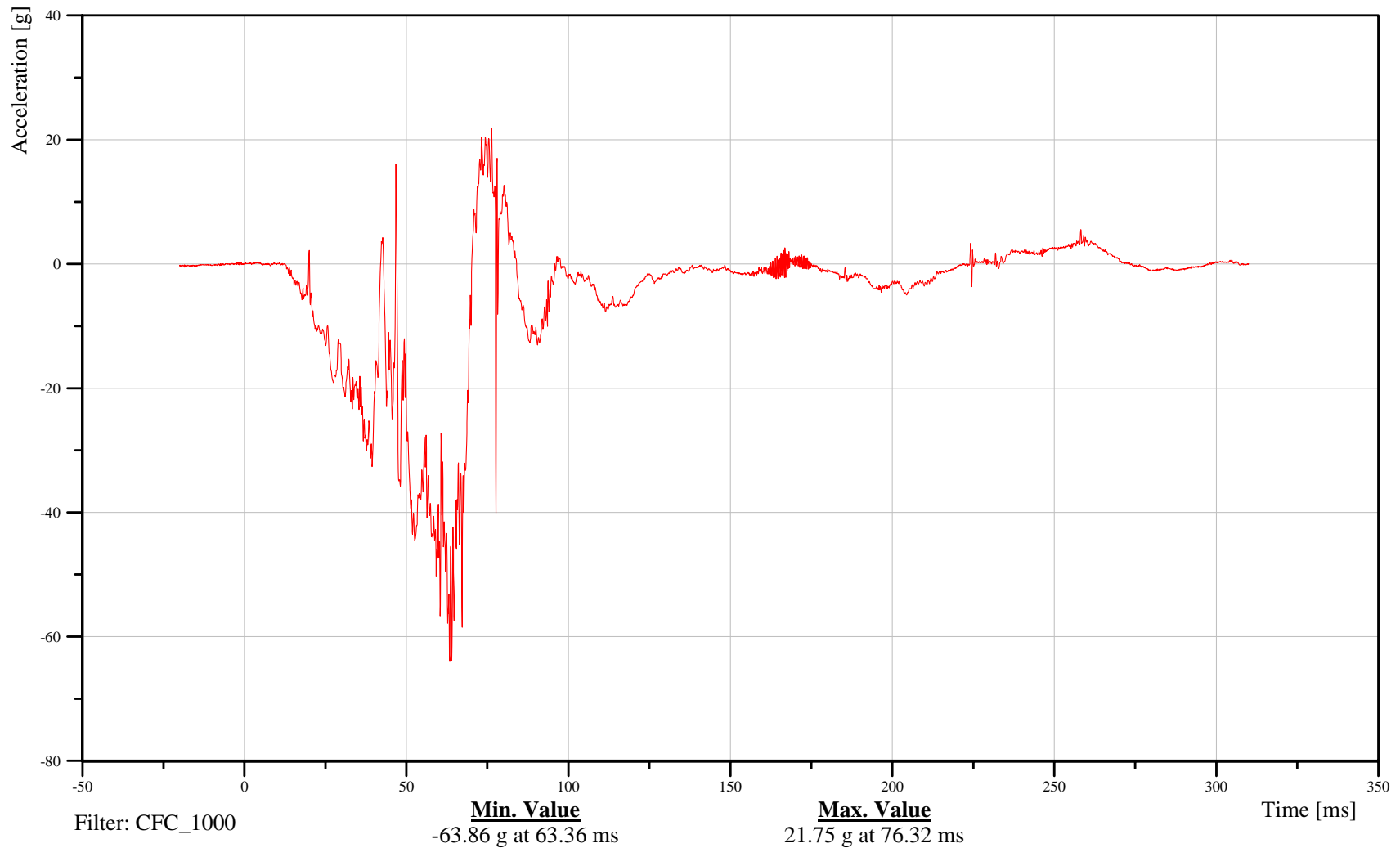
Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Left Foot X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13FOOTLELXHFACXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-128

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

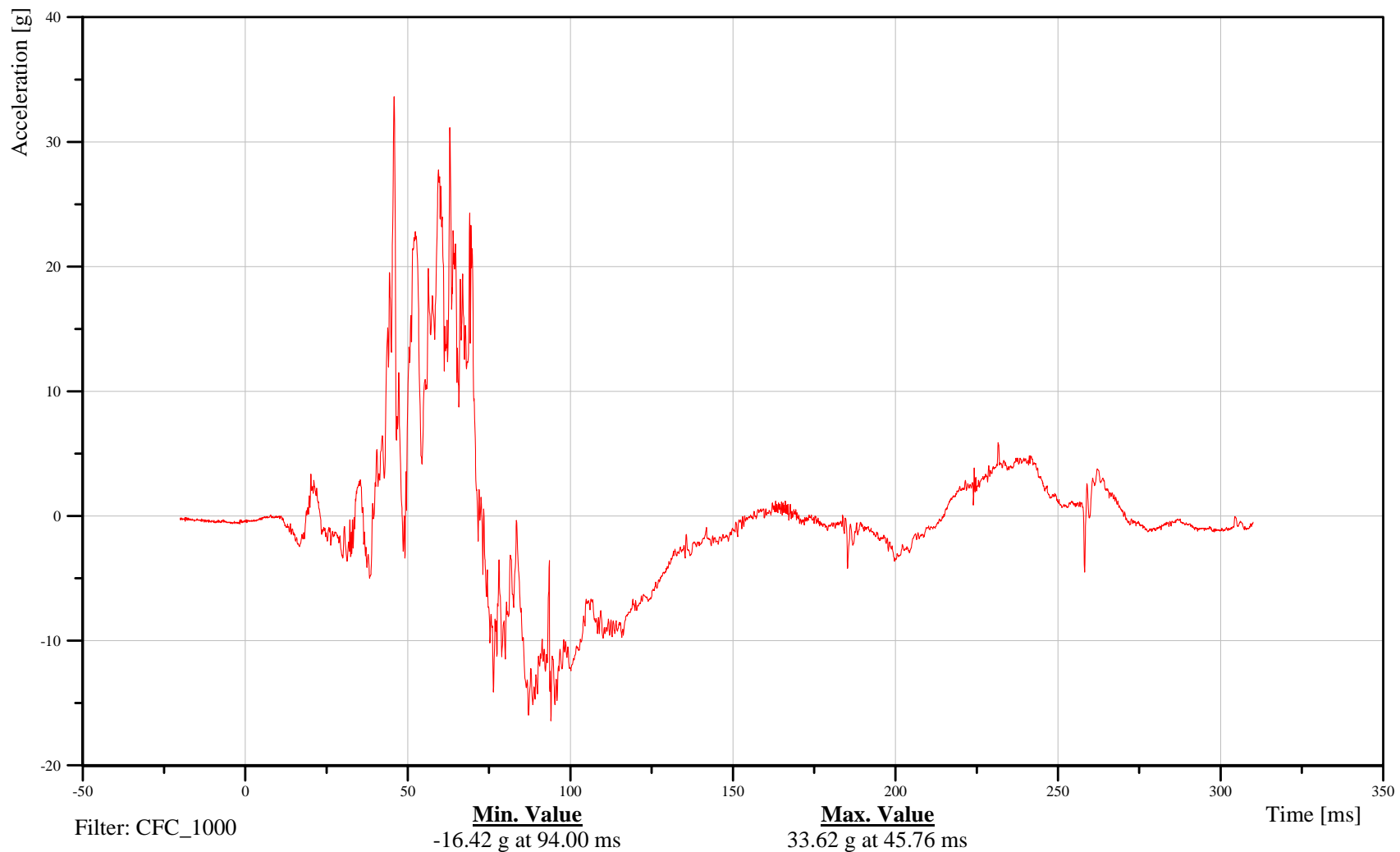
## Bullet Vehicle Right Front Passenger Left Foot Y-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

# 13FOOTLELXHFACYA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-129

091020



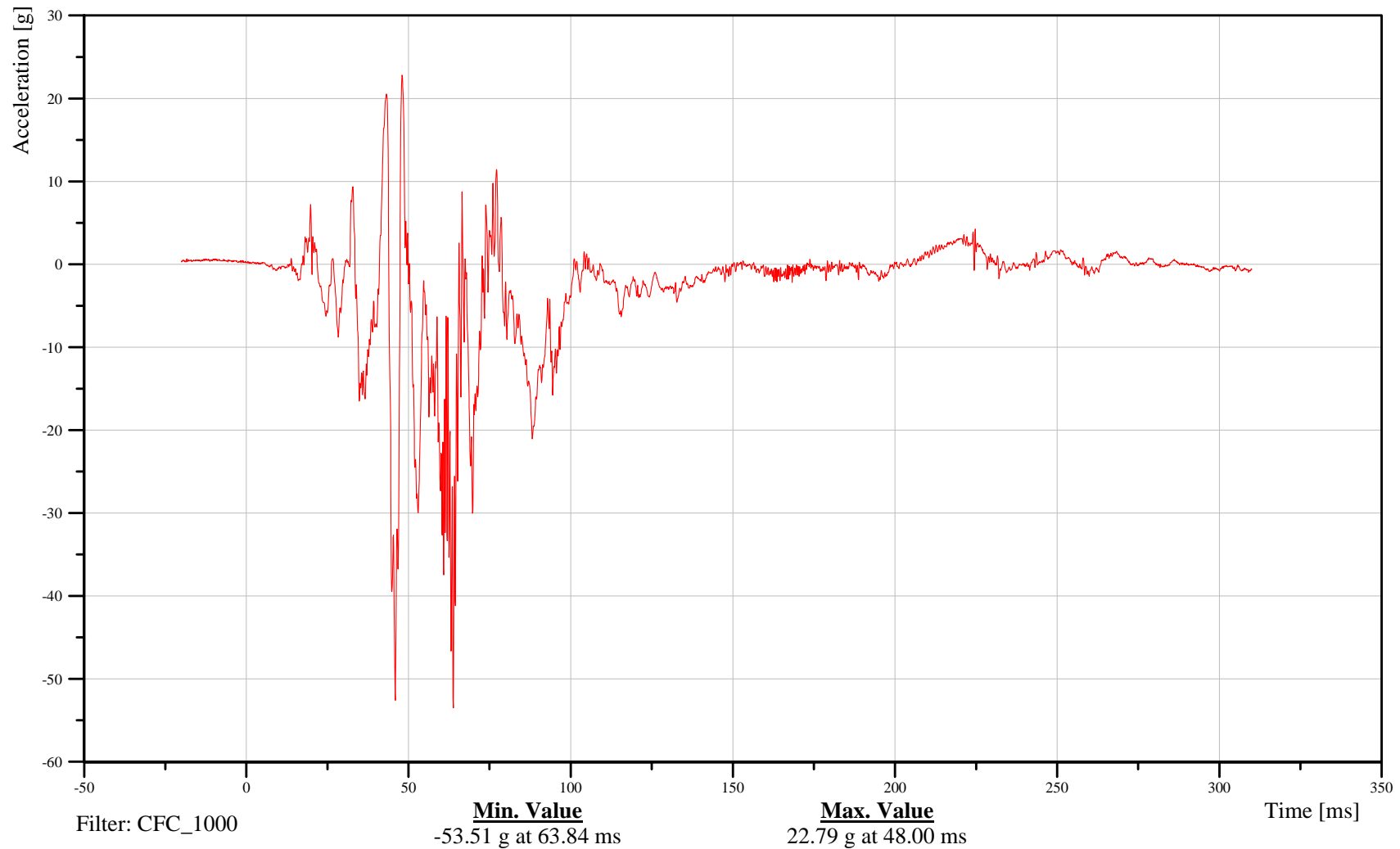
Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Left Foot Z-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13FOOTLELXHFACZA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-130

091020



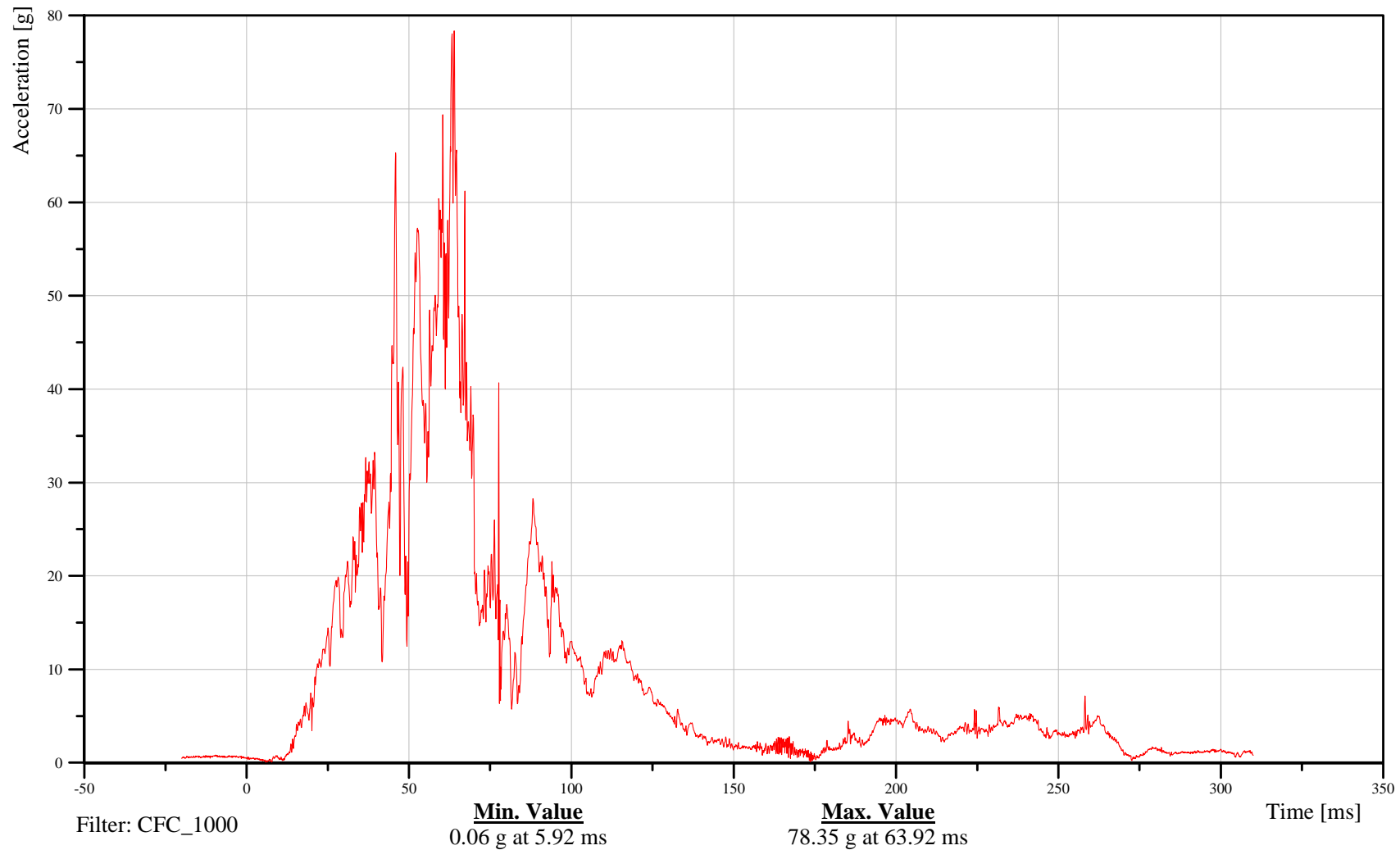
Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Left Foot Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13FOOTLELXHFACXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-131

091020



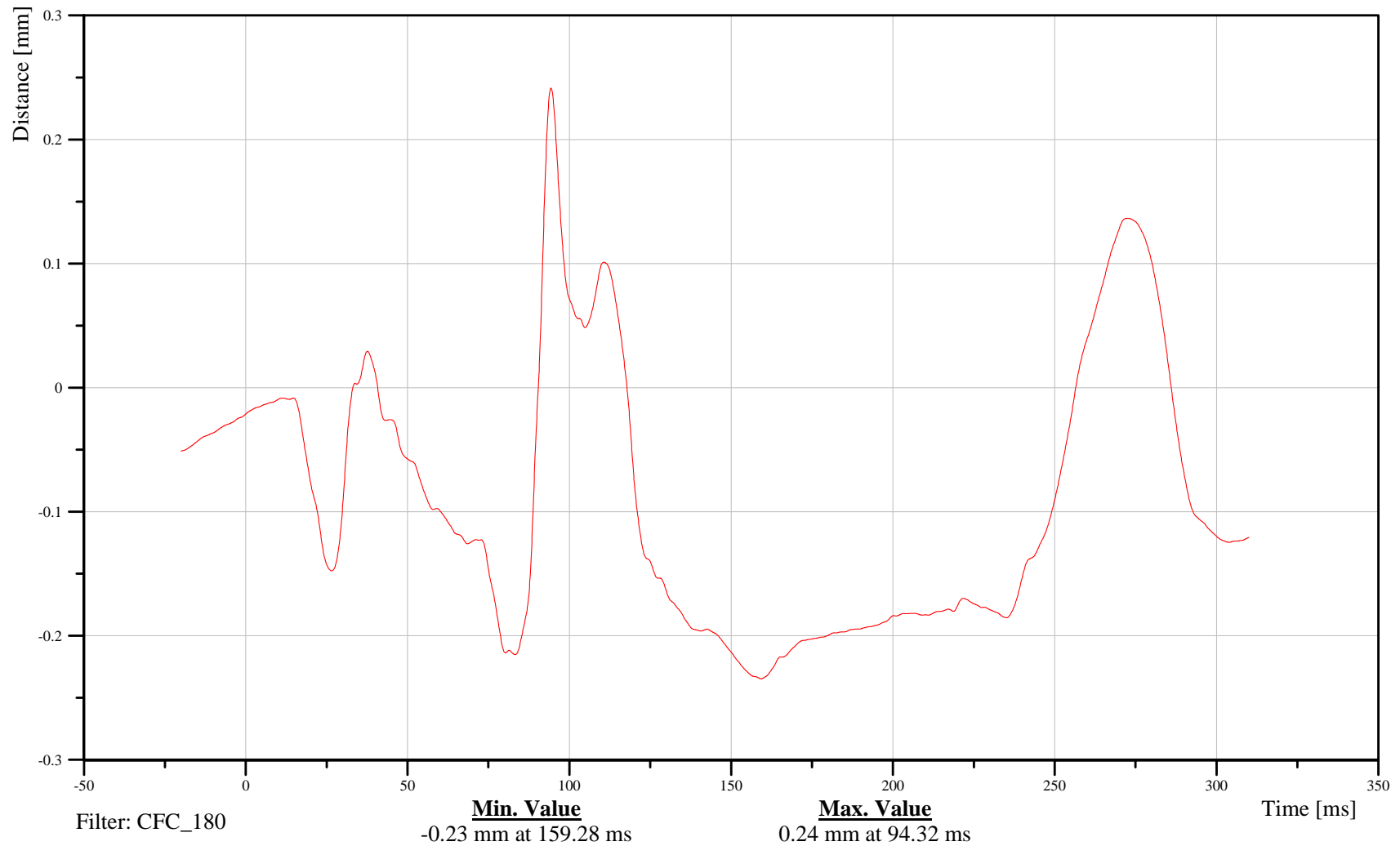
Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Right Knee X-Axis Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13KNSLRI00HFDSXC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-132

091020



Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Right Upper Tibia X-Axis Force

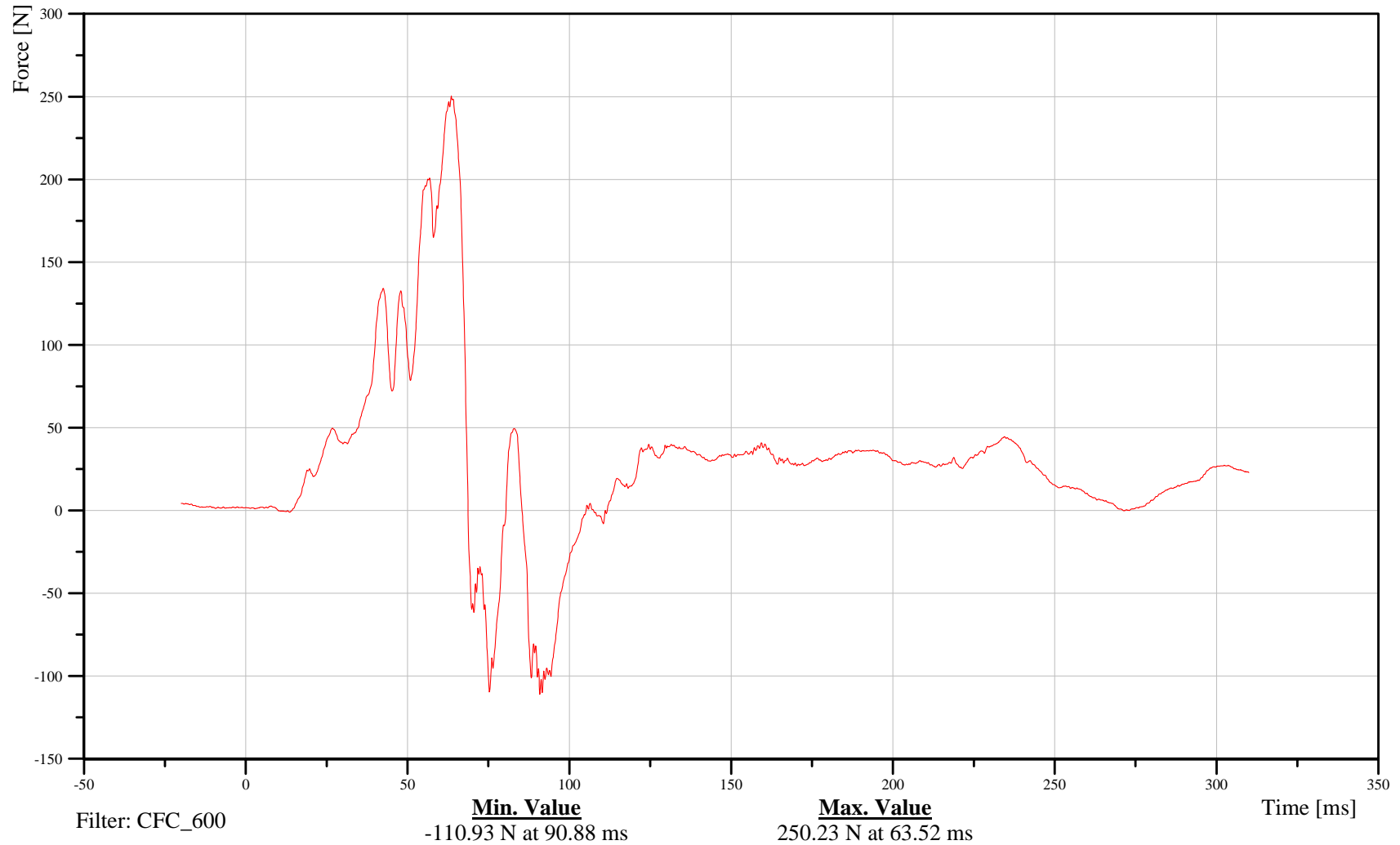
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13TIBIRULXHFFOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-133

091020



Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Right Upper Tibia Z-Axis Force

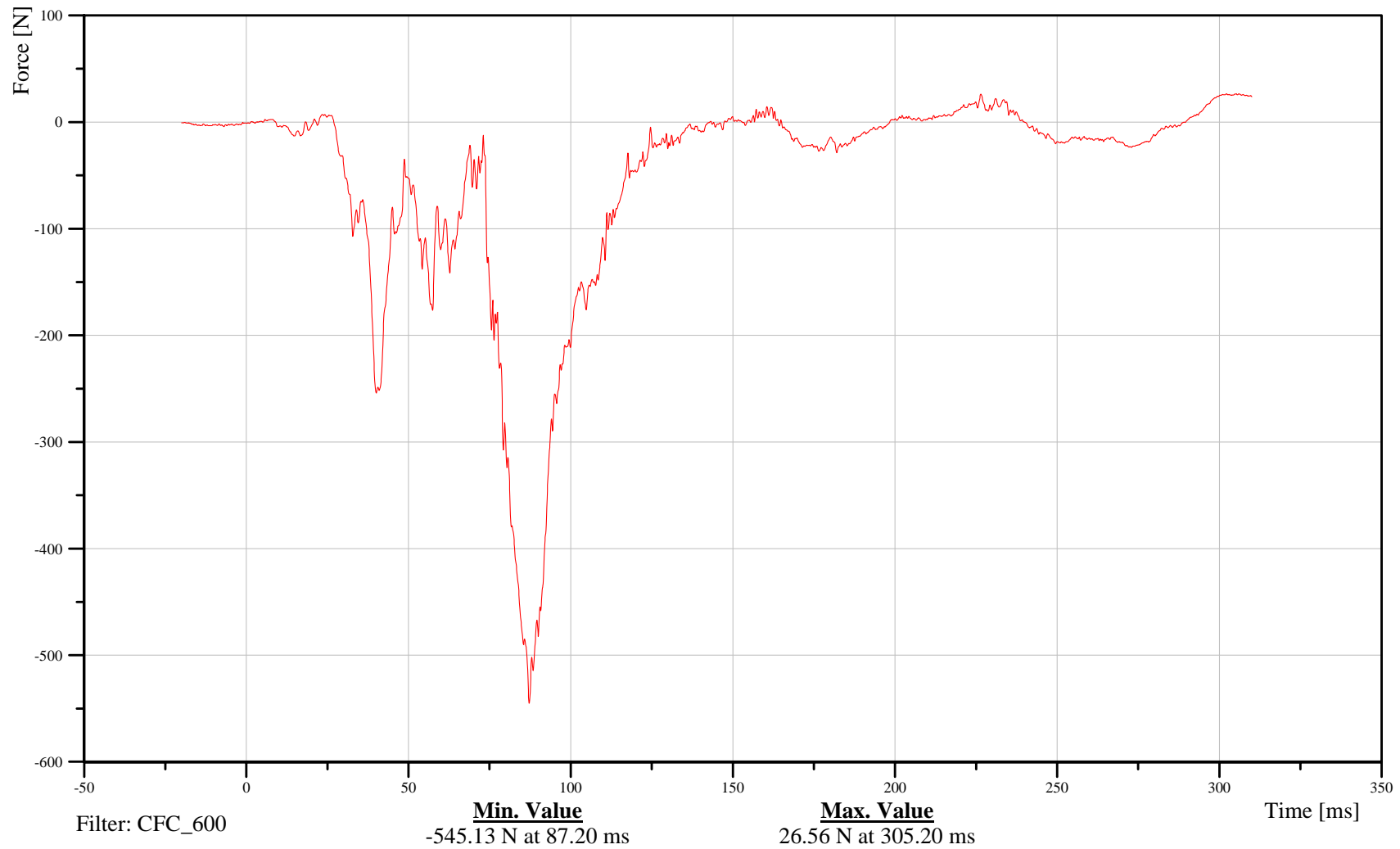
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13TIBIRULXHFFOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-134

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

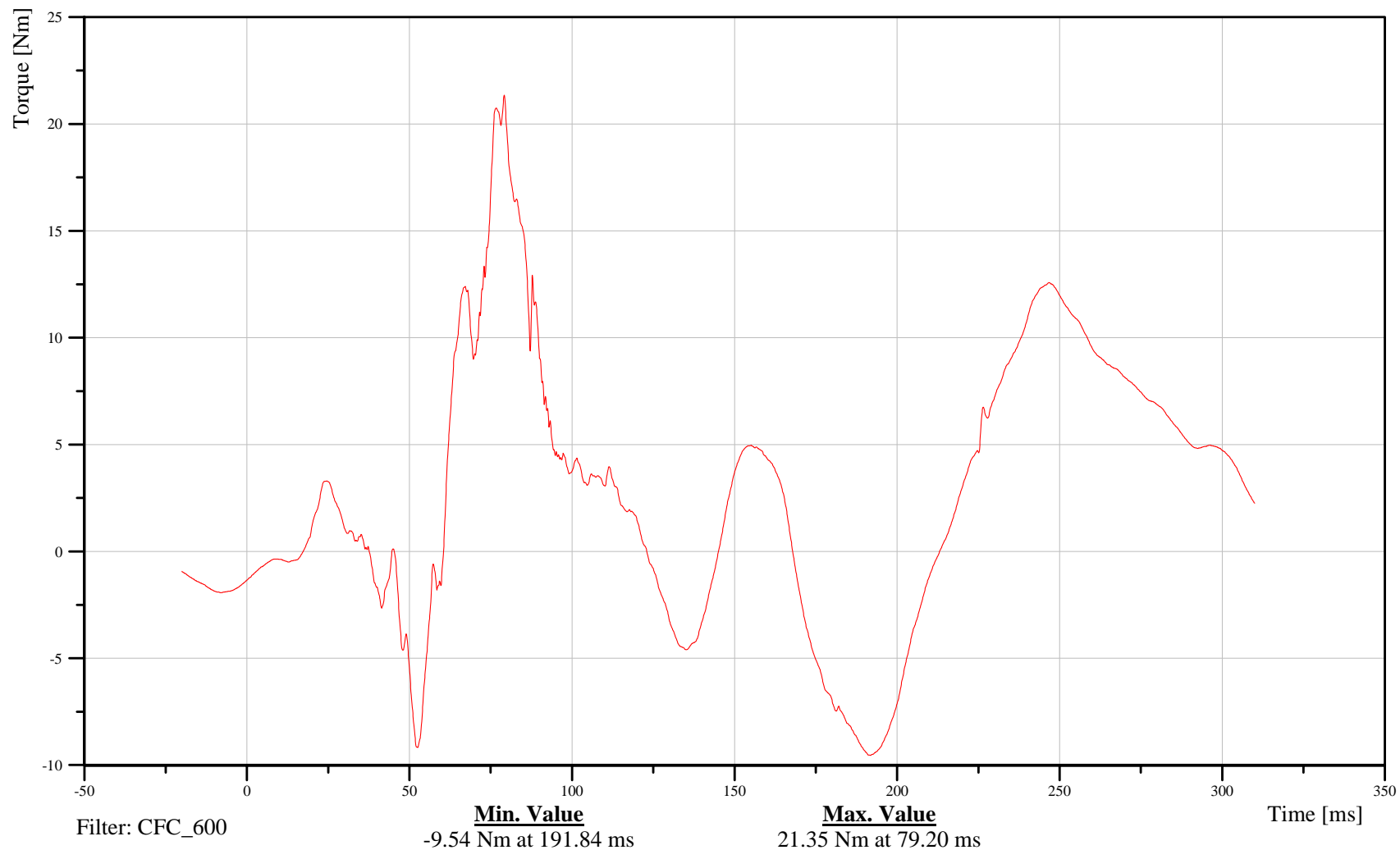
## Bullet Vehicle Right Front Passenger Right Upper Tibia Moment About X Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBIRULXHFM0XB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-135

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

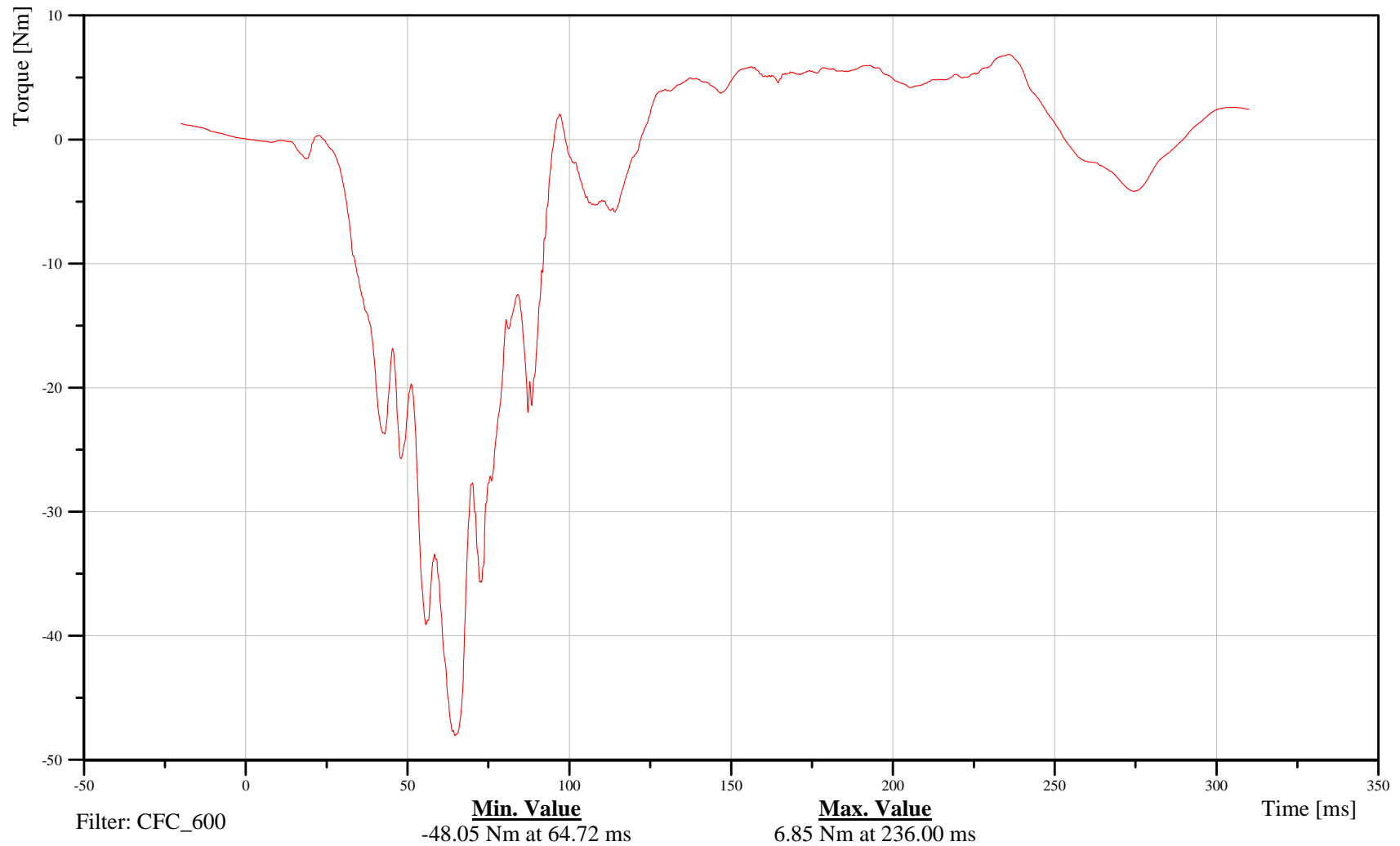
## Bullet Vehicle Right Front Passenger Right Upper Tibia Moment About Y Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBIRULXHFM0YB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-136

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Right Front Passenger Right Tibia X-Axis Acceleration

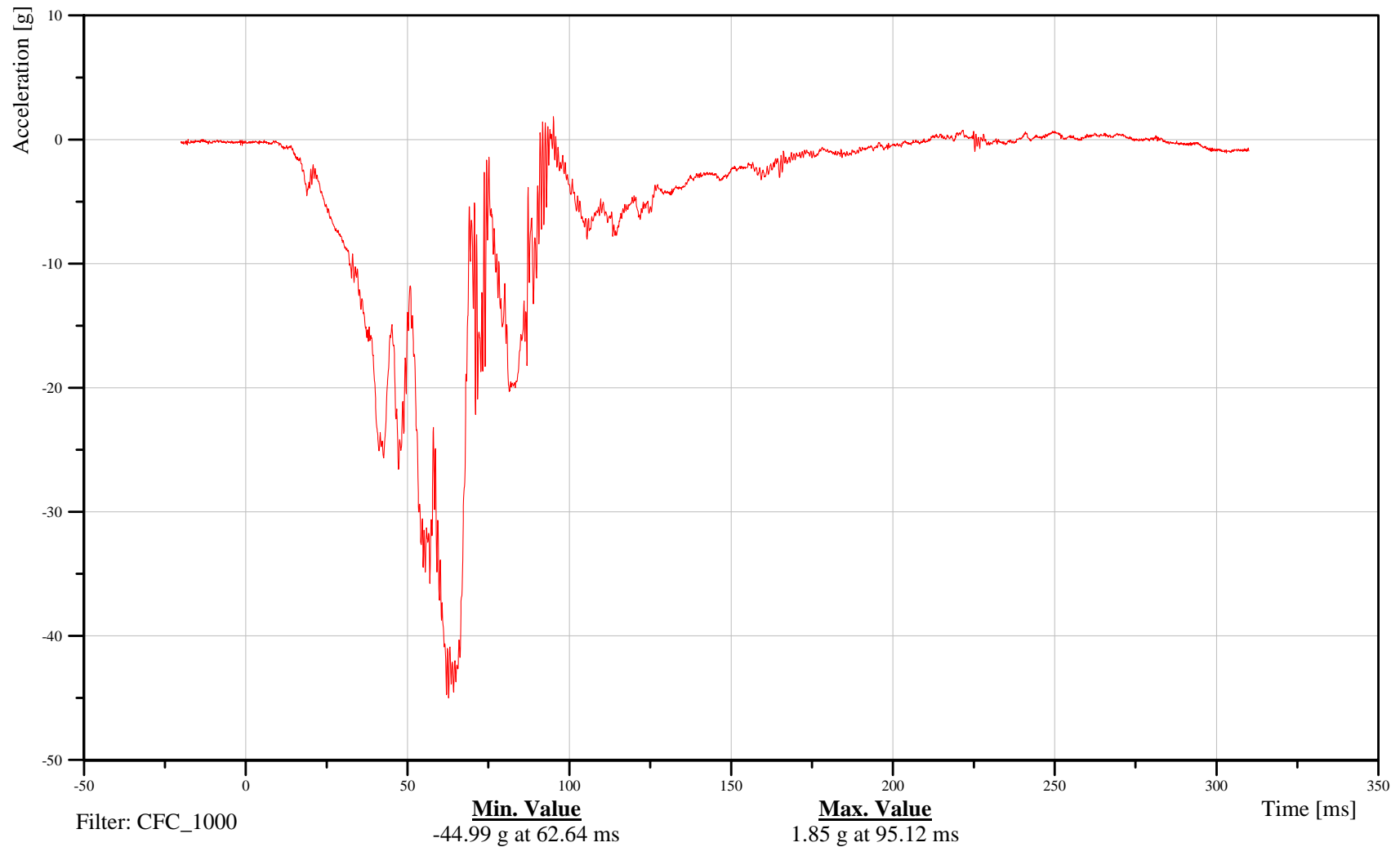
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBIRILXHFACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-137

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

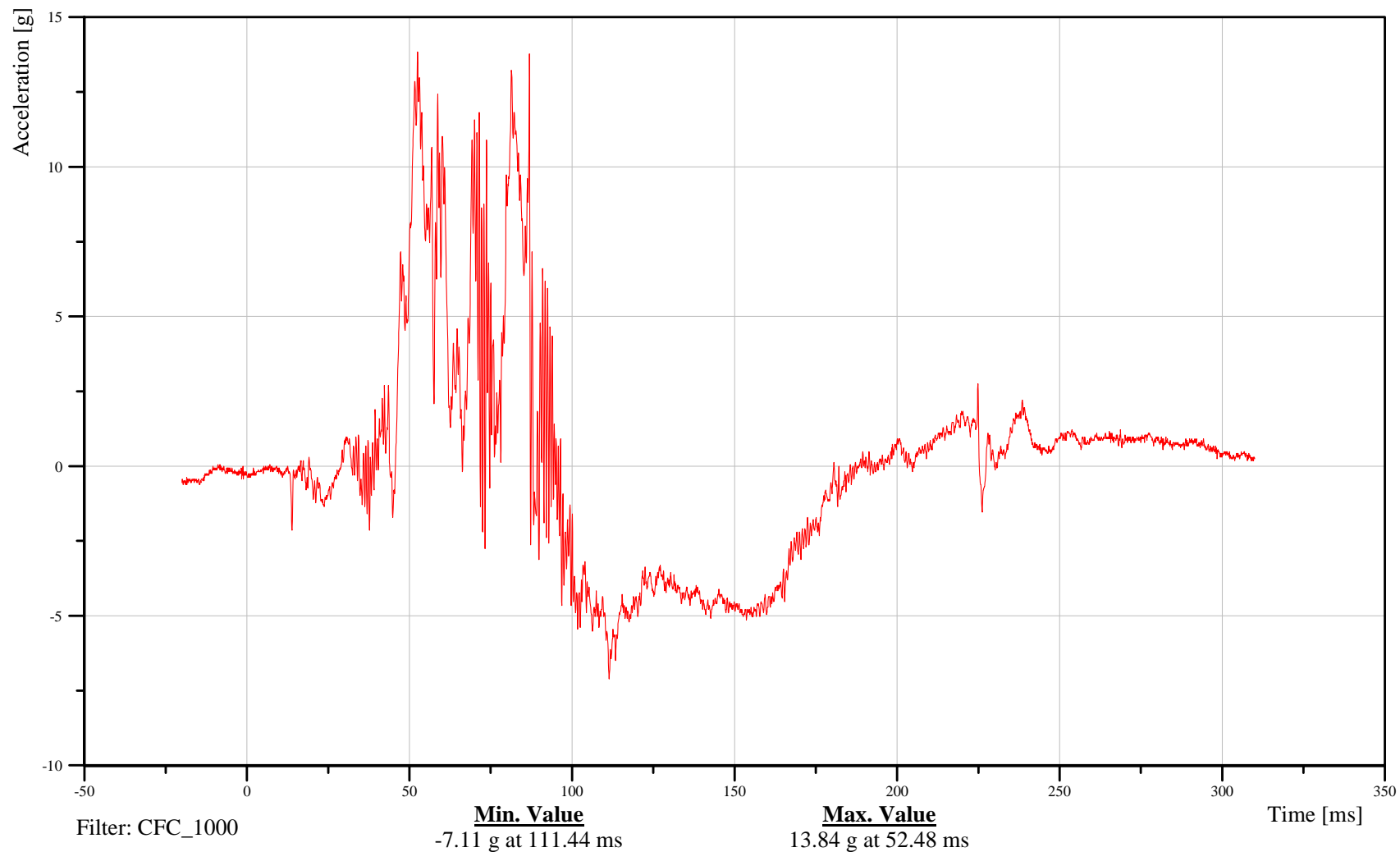
## Bullet Vehicle Right Front Passenger Right Tibia Y-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBIRILXHFACYA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-138

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

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

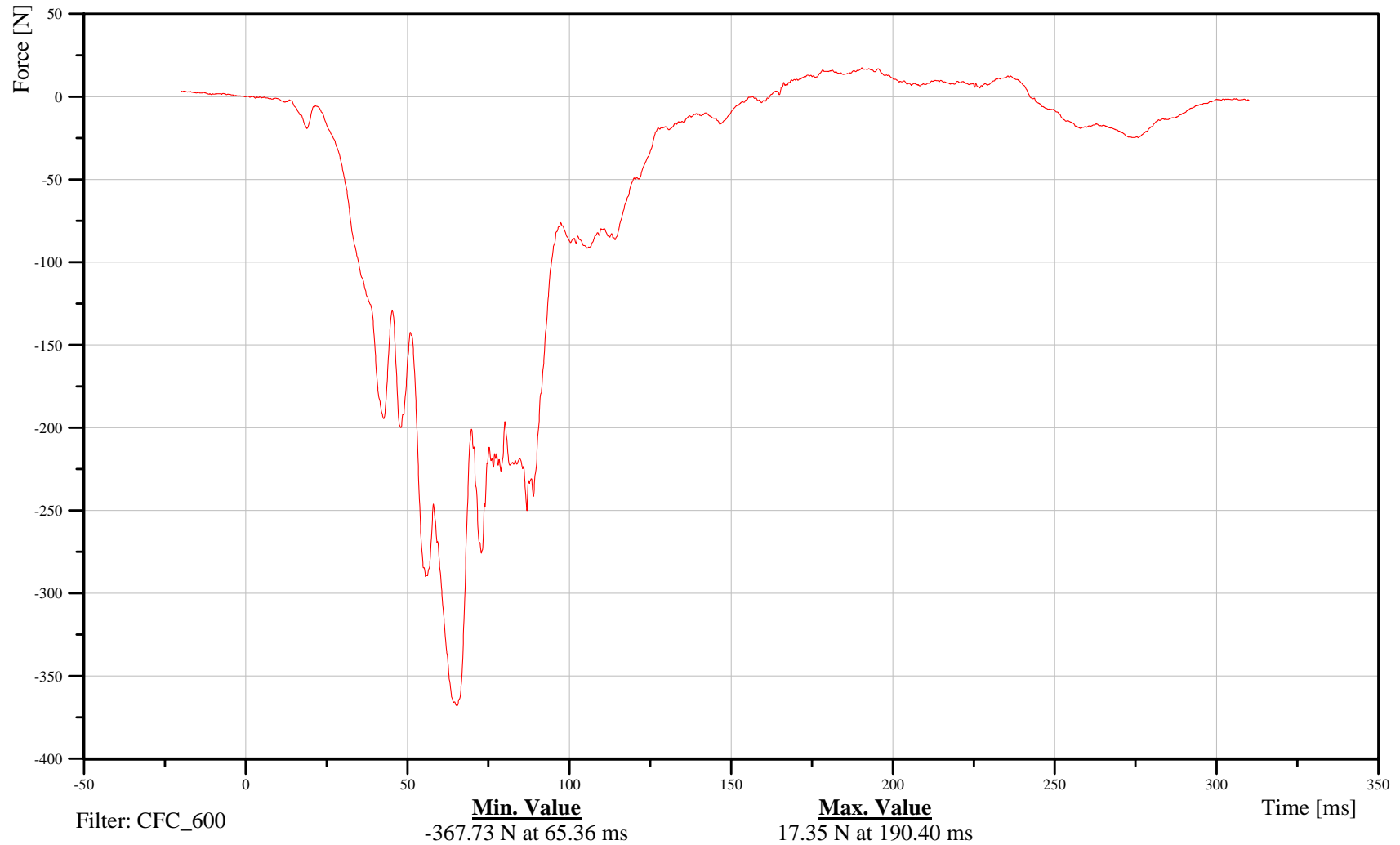
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBIRLLXHFFOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-139

091020



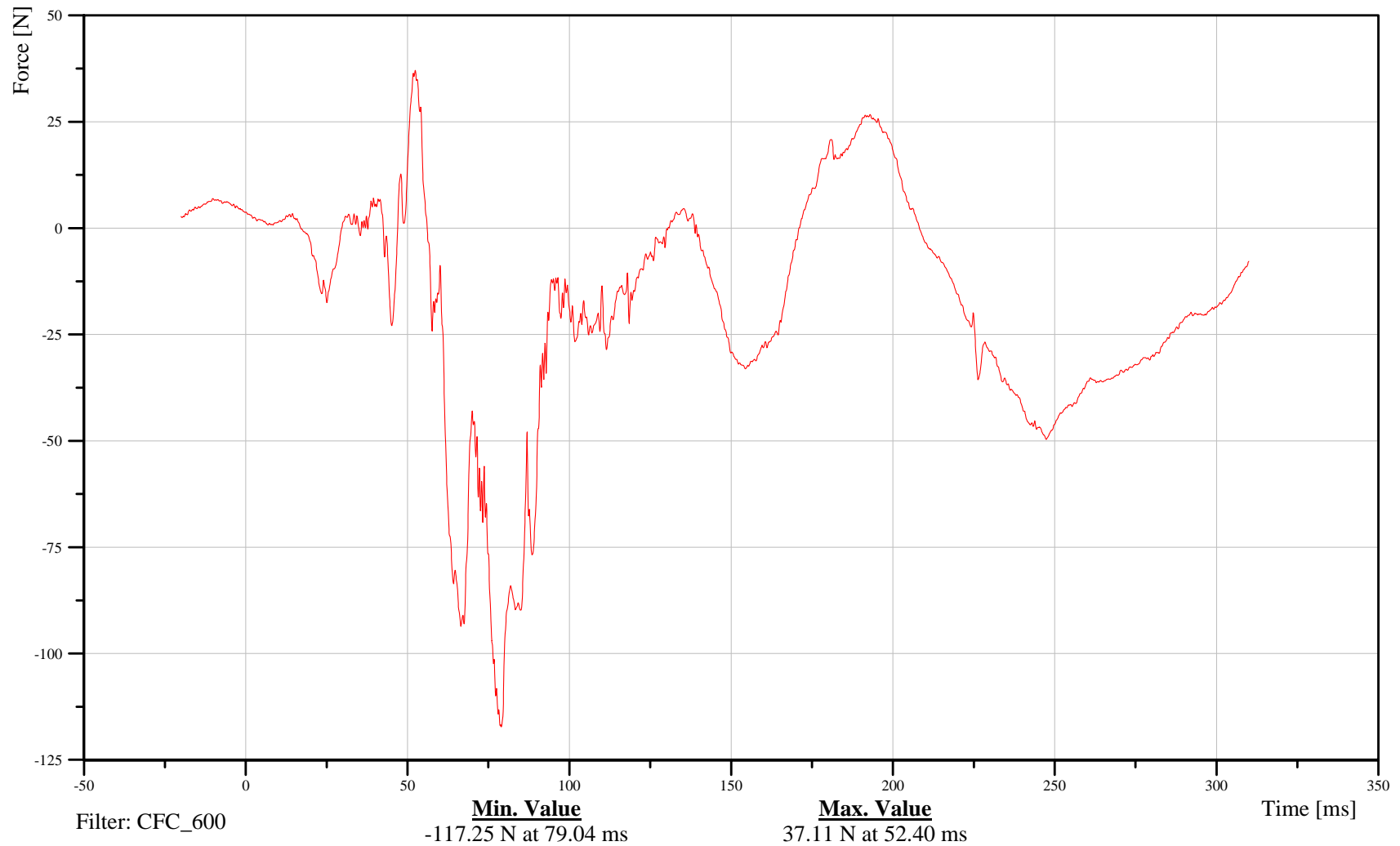
Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Right Lower Tibia Y-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13TIBIRLLXHFFOYB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-140

091020



Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Right Lower Tibia Z-Axis Force

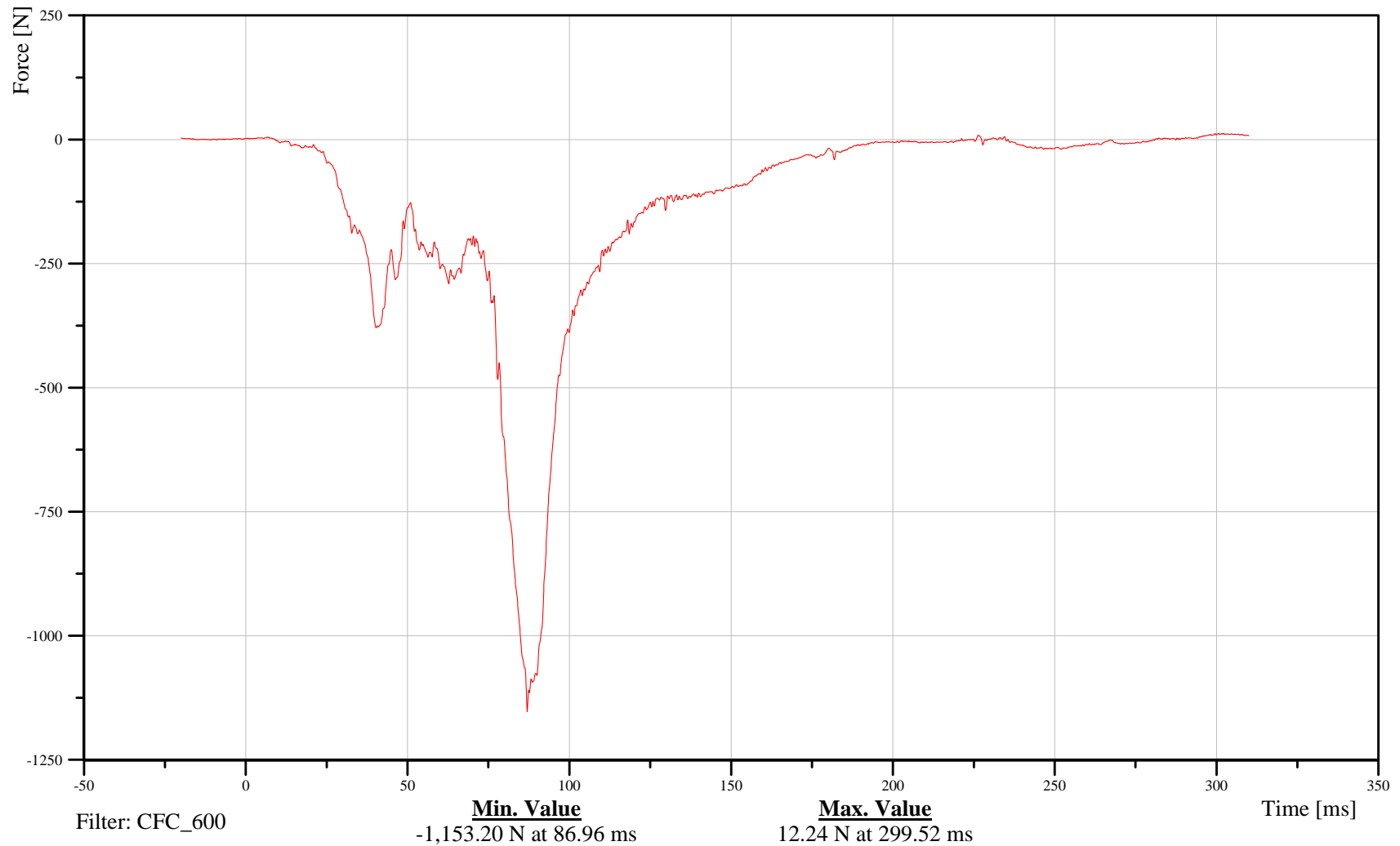
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13TIBIRLLXHFFOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-141

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

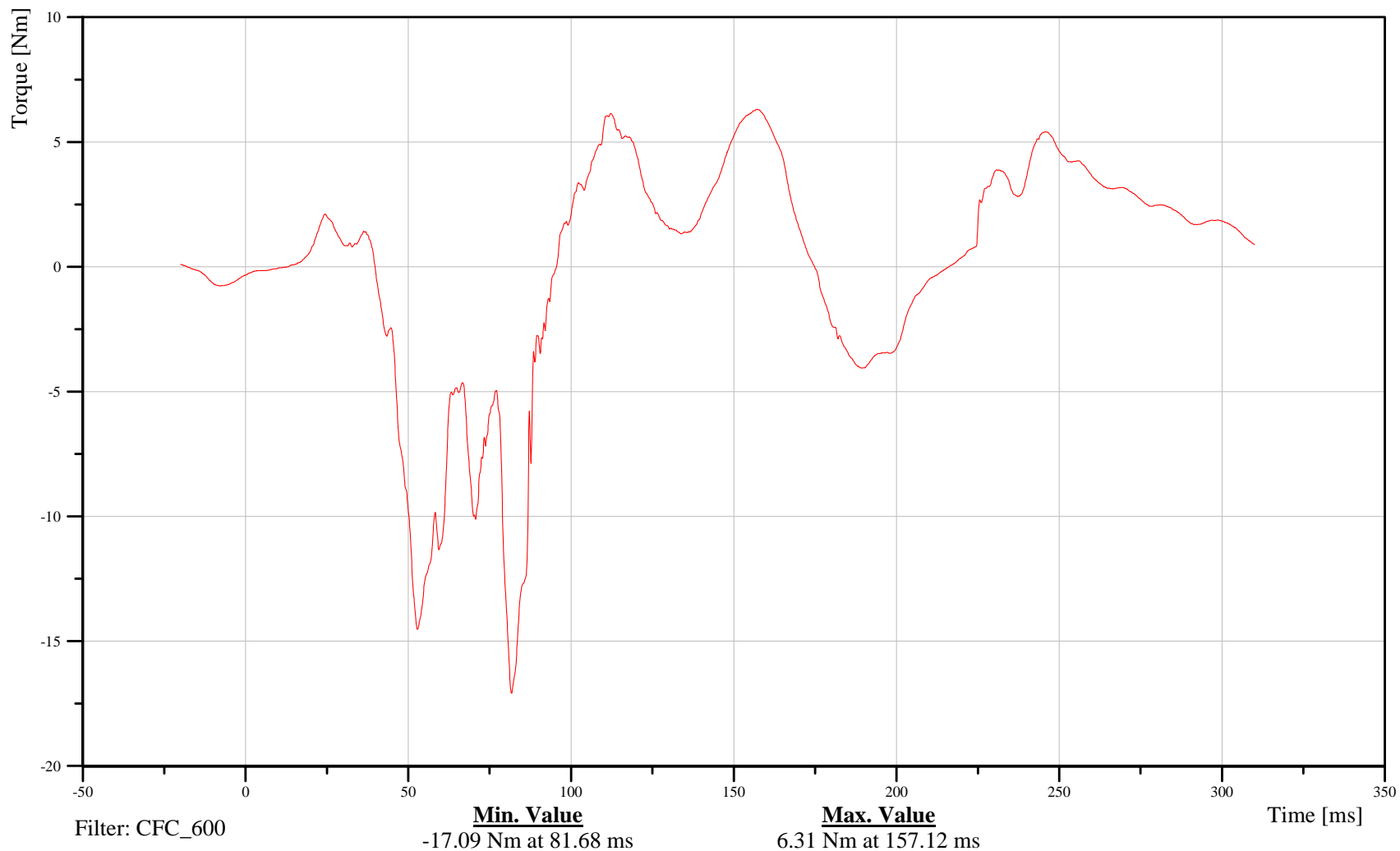
## Bullet Vehicle Right Front Passenger Right Lower Tibia Moment About X Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBIRLLXHFM0XB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-142

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

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

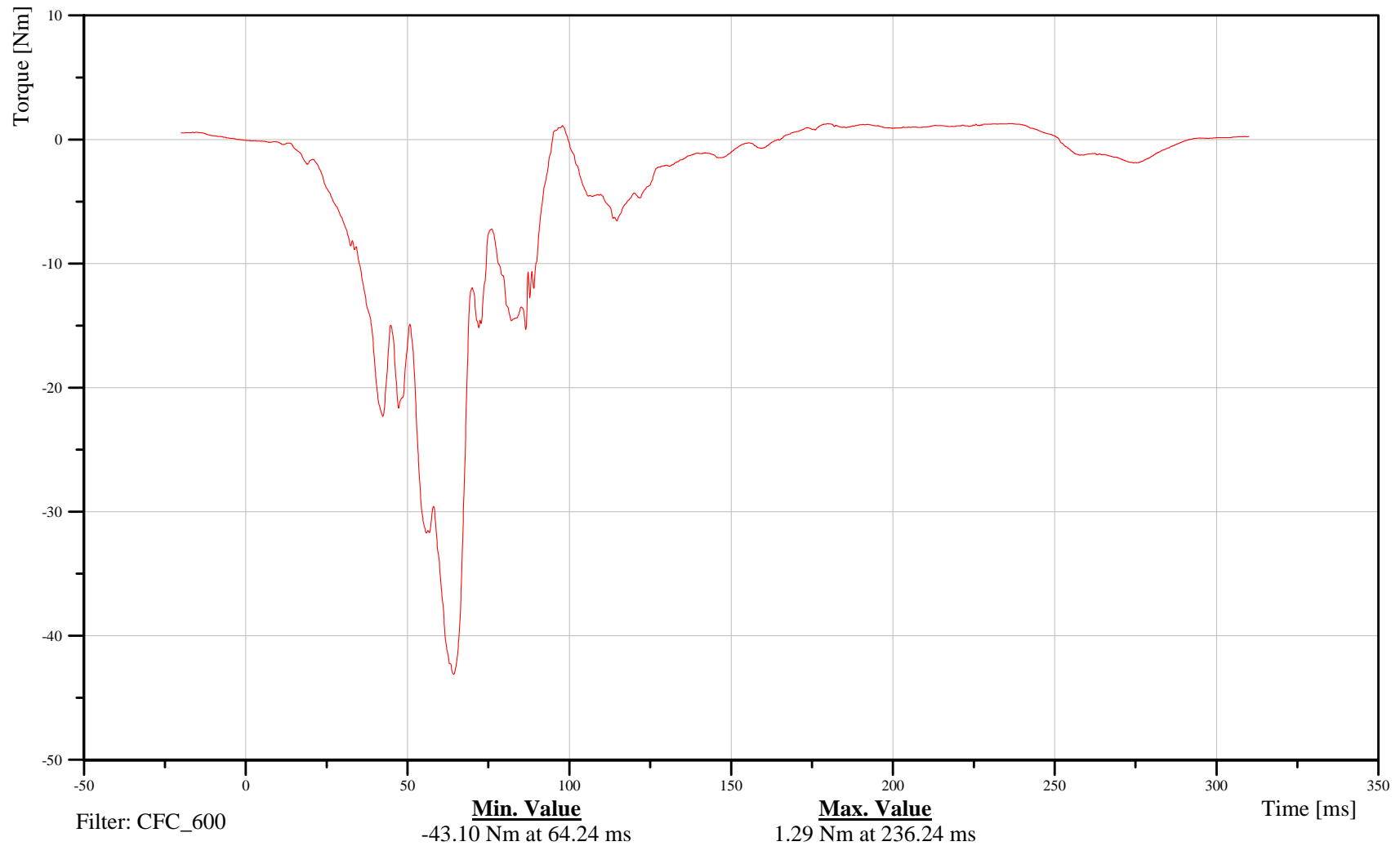
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13TIBIRLLXHFM0YB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-143

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

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

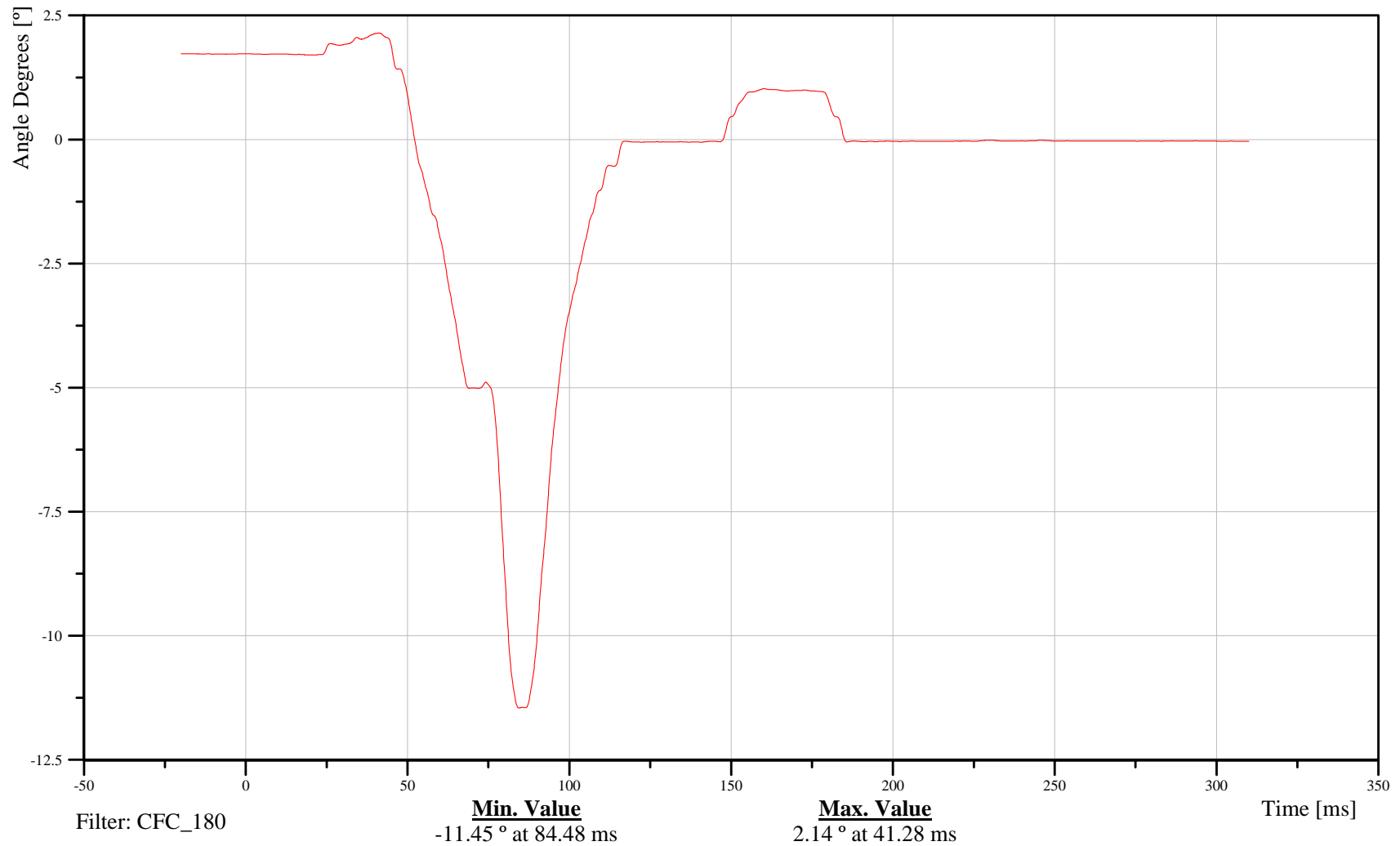
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13FOOTRILXHFANXC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-144

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

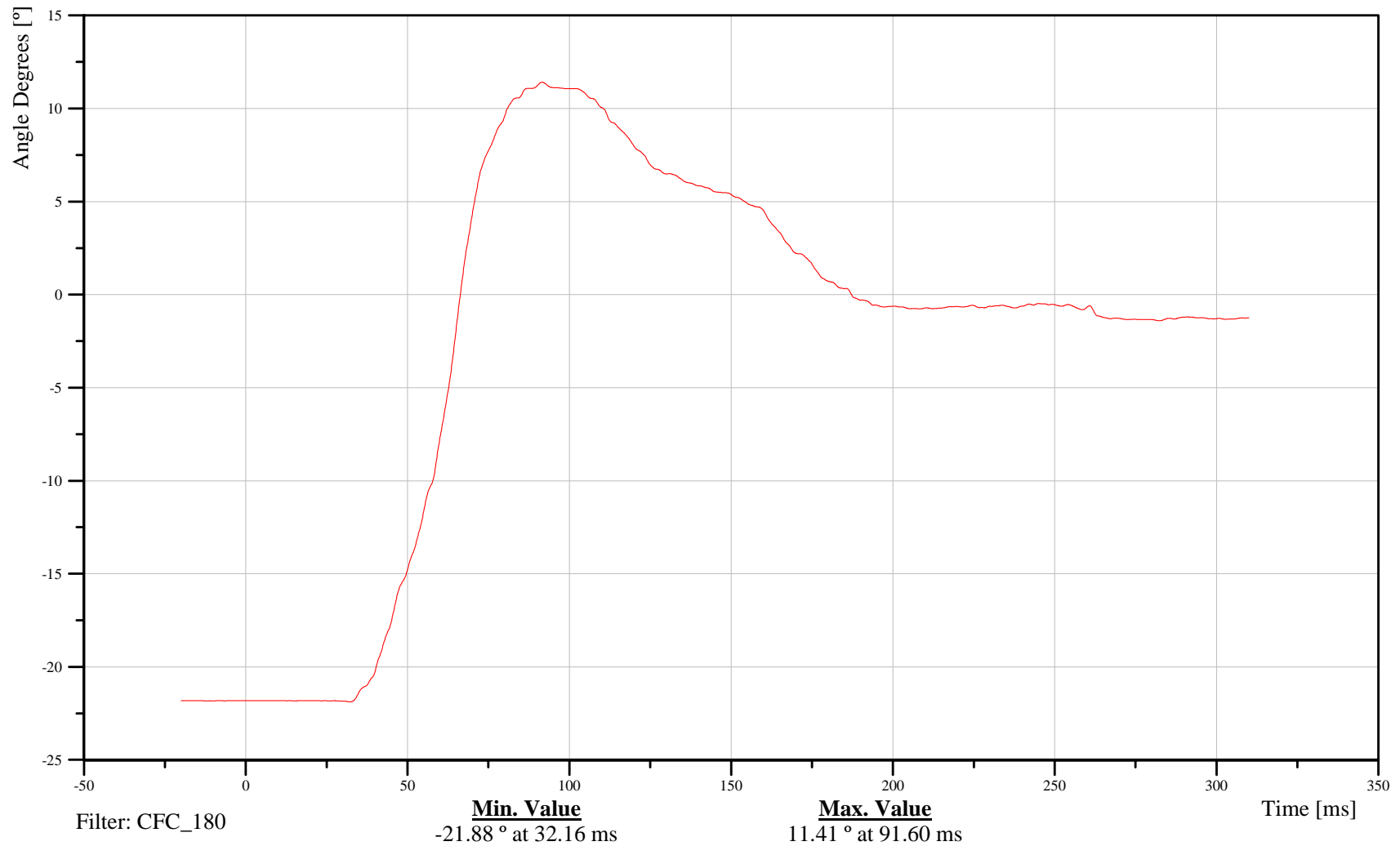
## Bullet Vehicle Right Front Passenger Right Foot Y-Axis Angular Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

# 13FOOTRILXHFANYC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-145

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

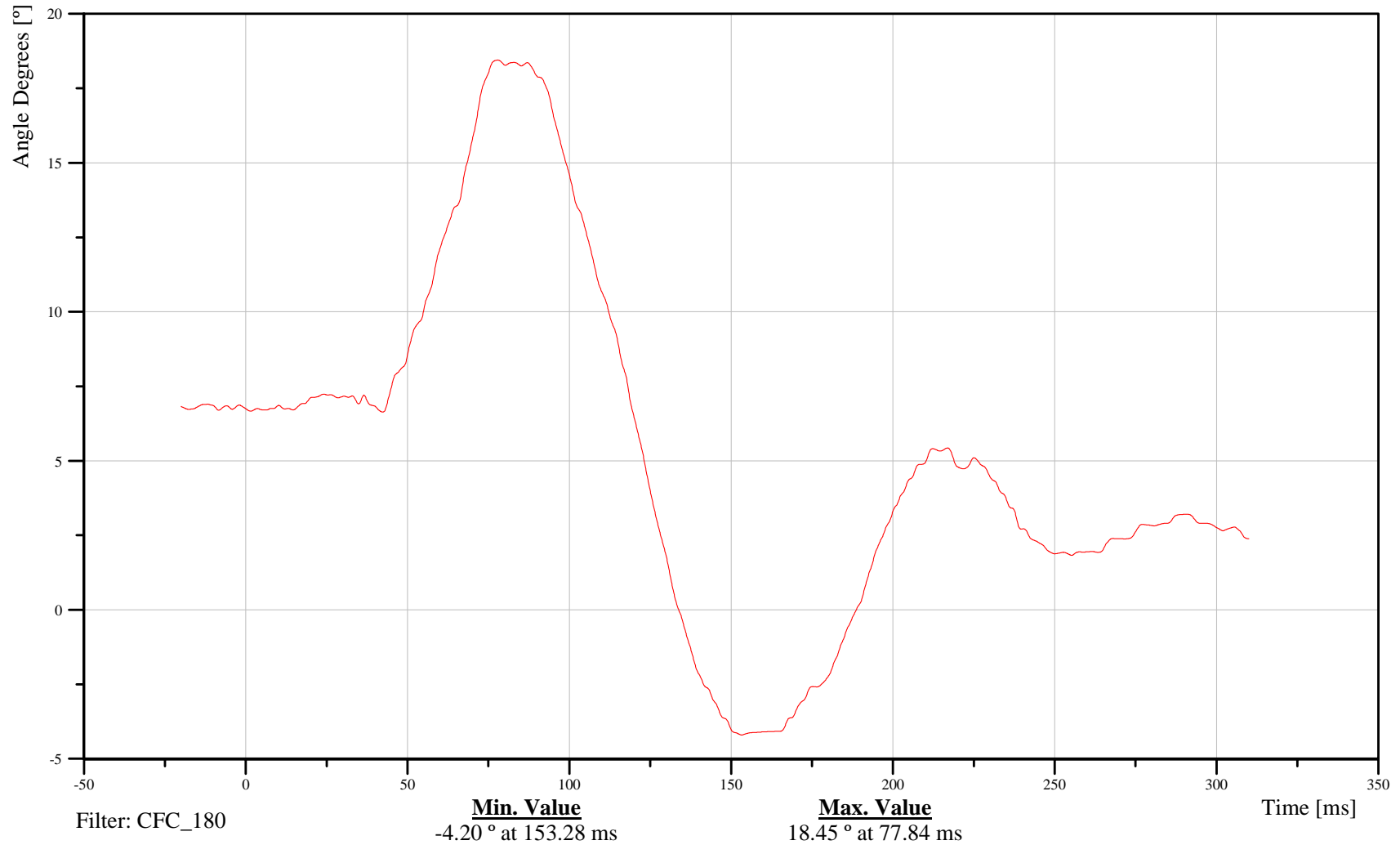
## Bullet Vehicle Right Front Passenger Right Foot Z-Axis Angular Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

# 13FOOTRILXHFANZC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-146

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

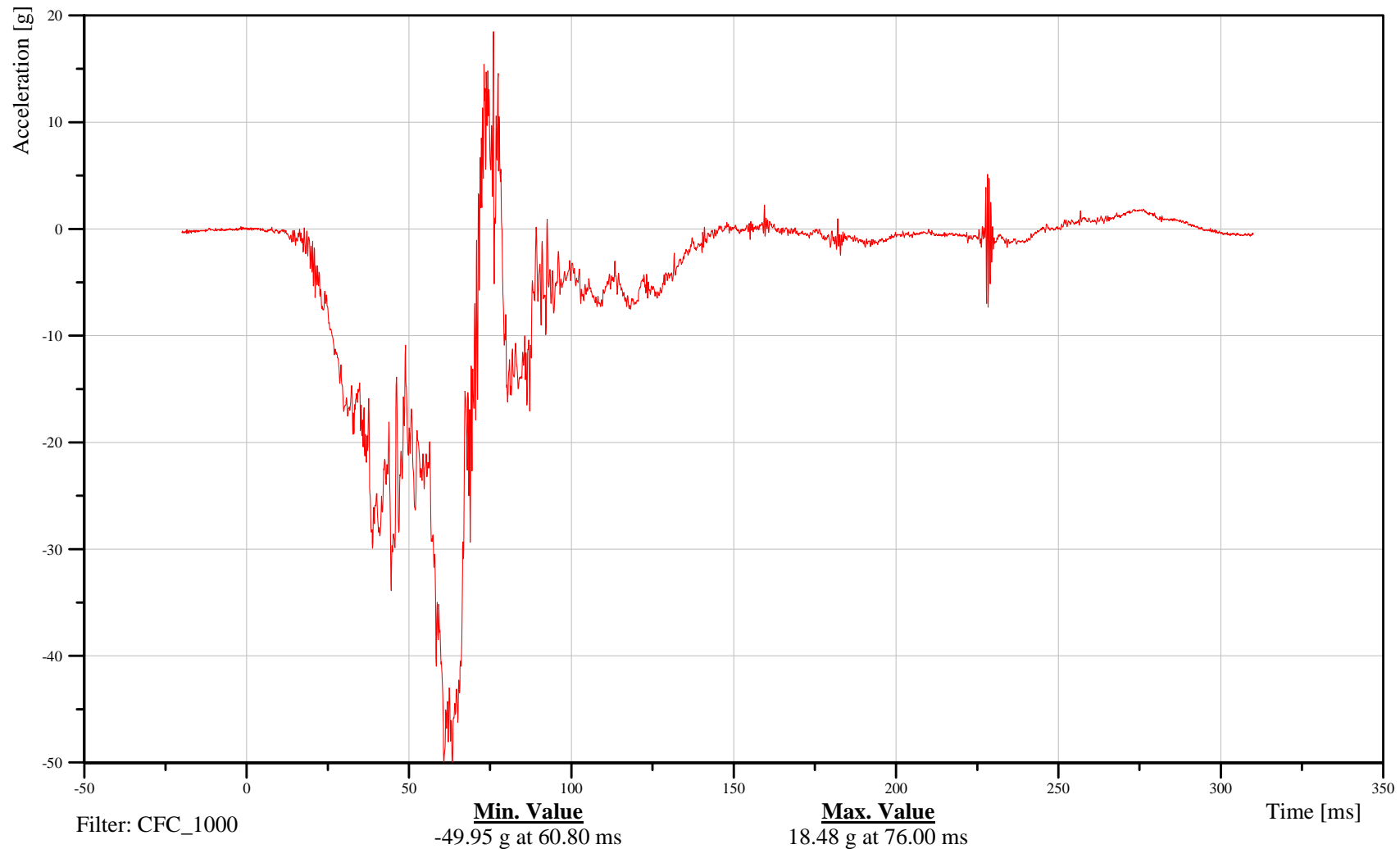
## Bullet Vehicle Right Front Passenger Right Foot X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13FOOTRILXHFACXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-147

091020



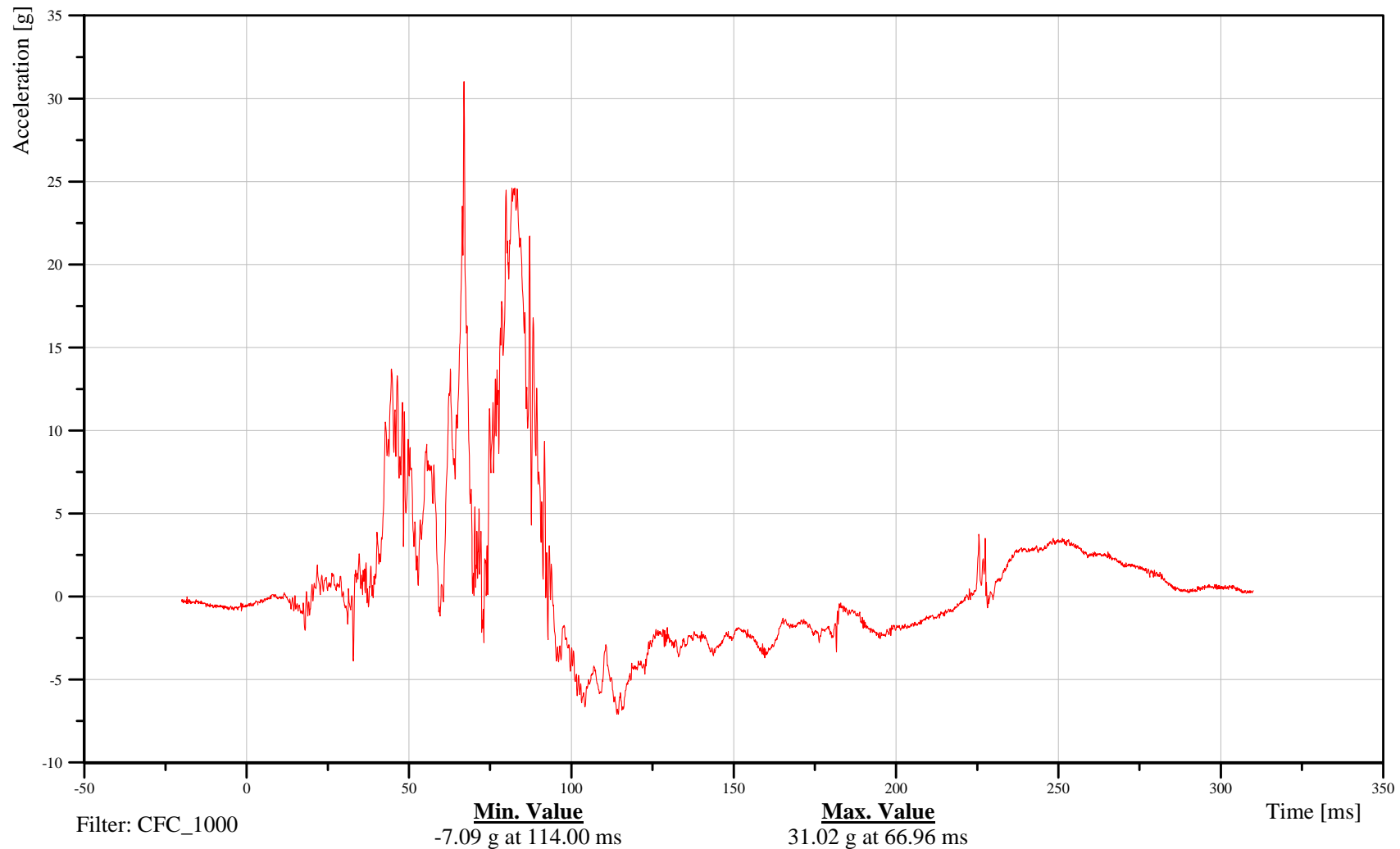
Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Right Foot Y-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

13FOOTRILXHFACYA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-148

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

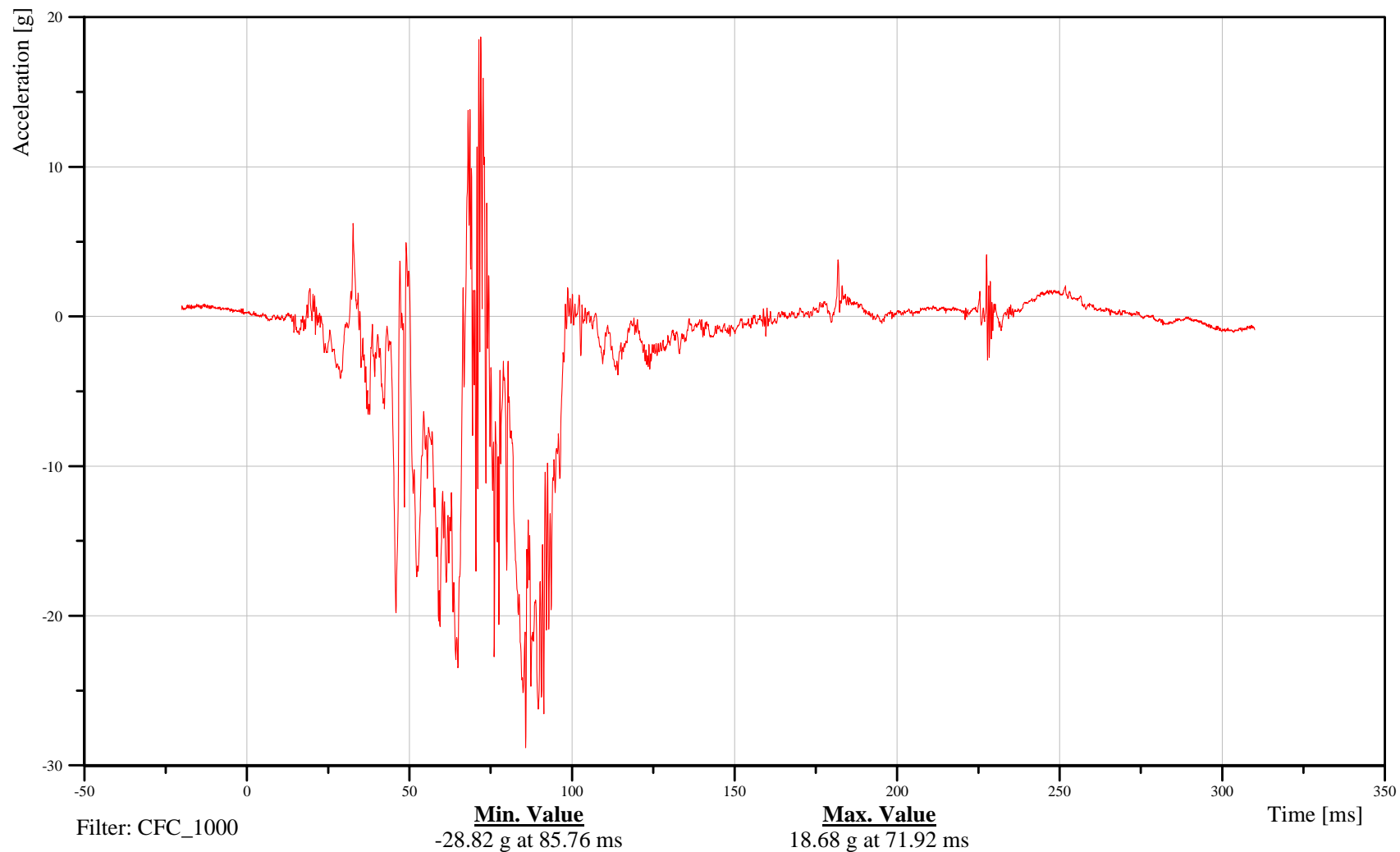
## Bullet Vehicle Right Front Passenger Right Foot Z-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13FOOTRILXHFACZA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-149

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

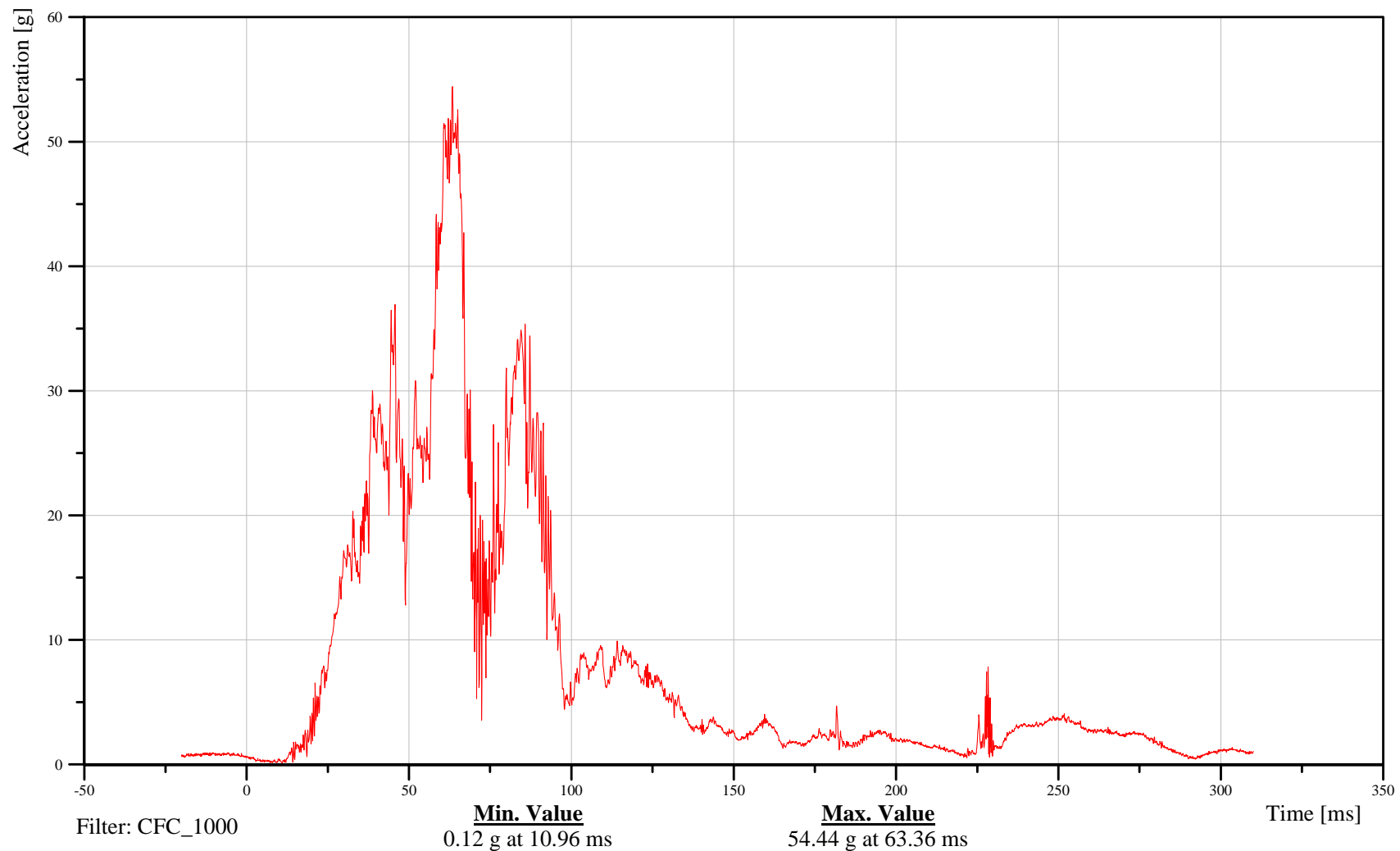
## Bullet Vehicle Right Front Passenger Right Foot Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13FOOTRILXHFACXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-150

091020



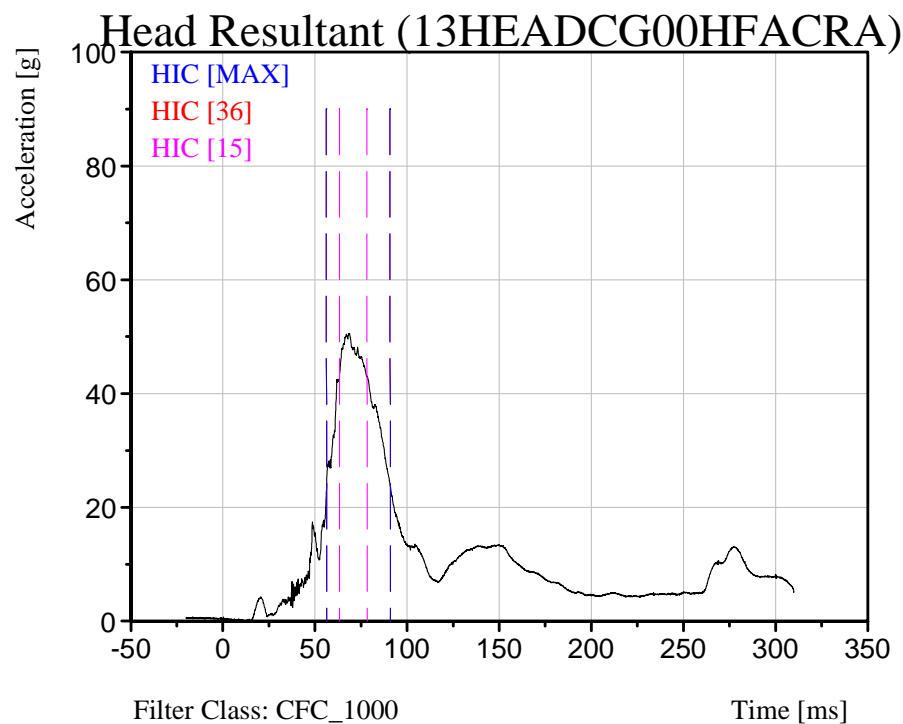
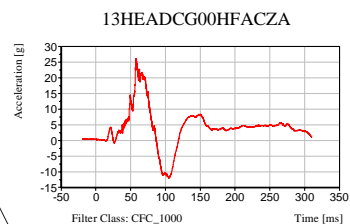
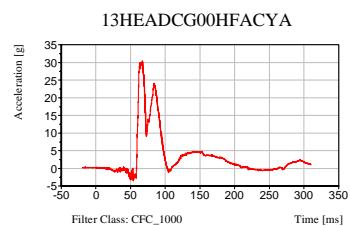
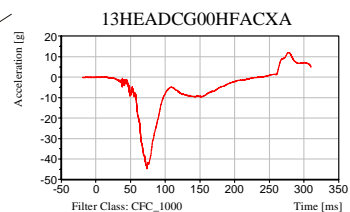
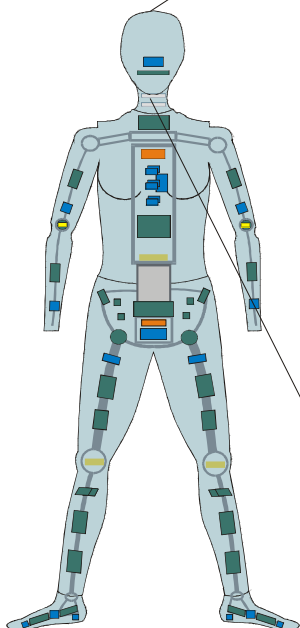
# Taurus into Taurus at 15 Degrees, 50% Overlap

## Head Injury Criterion (HIC)

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

TRC Inc. Test Lab: CTF  
Test Number: 091020



	<u>T1</u> (Begin)	<u>T2</u> (End)	<u>Avg. g T1 to T2</u>
HIC [Max.] = 343.21	56.24 ms	90.88 ms	39.63 g
HIC [36] = 343.21	56.24 ms	90.88 ms	39.63 g
HIC [15] = 231.83	63.28 ms	78.32 ms	47.31 g

Dummy: HIII 5th Female  
Seating Position:  
Right Front Passenger

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

B-151

091020



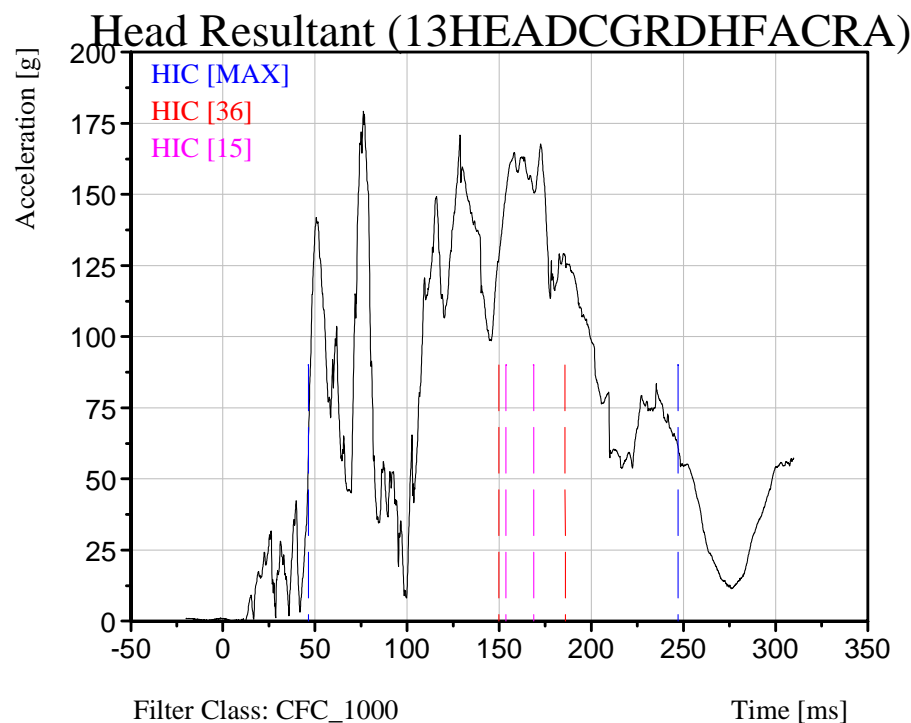
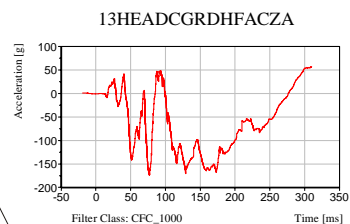
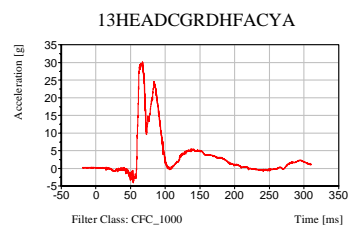
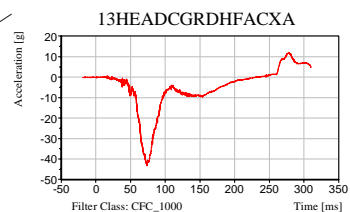
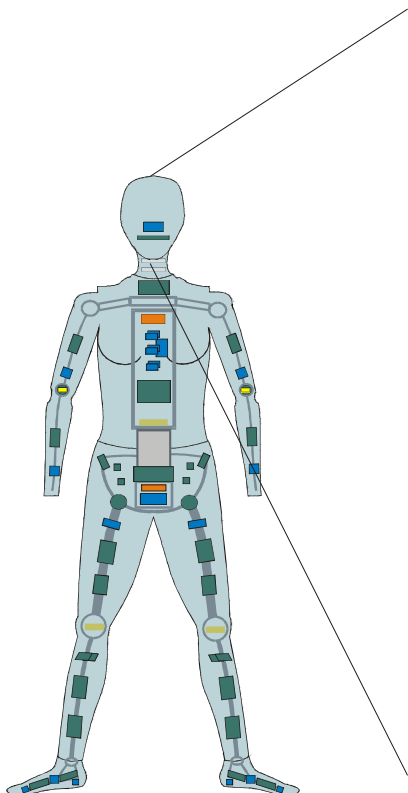
# Taurus into Taurus at 15 Degrees, 50% Overlap

## Head Injury Criterion (HIC)

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

TRC Inc. Test Lab: CTF  
Test Number: 091020



	<u>T1</u> (Begin)	<u>T2</u> (End)	<u>Avg. g T1 to T2</u>
HIC [Max.] = 20,896.28	46.48 ms	247.20 ms	101.61 g
HIC [36] = 9,347.08	149.84 ms	185.84 ms	146.43 g
HIC [15] = 4,801.52	153.76 ms	168.80 ms	159.05 g

Dummy: HIII 5th Female  
Seating Position:  
Right Front Passenger

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

B-152

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

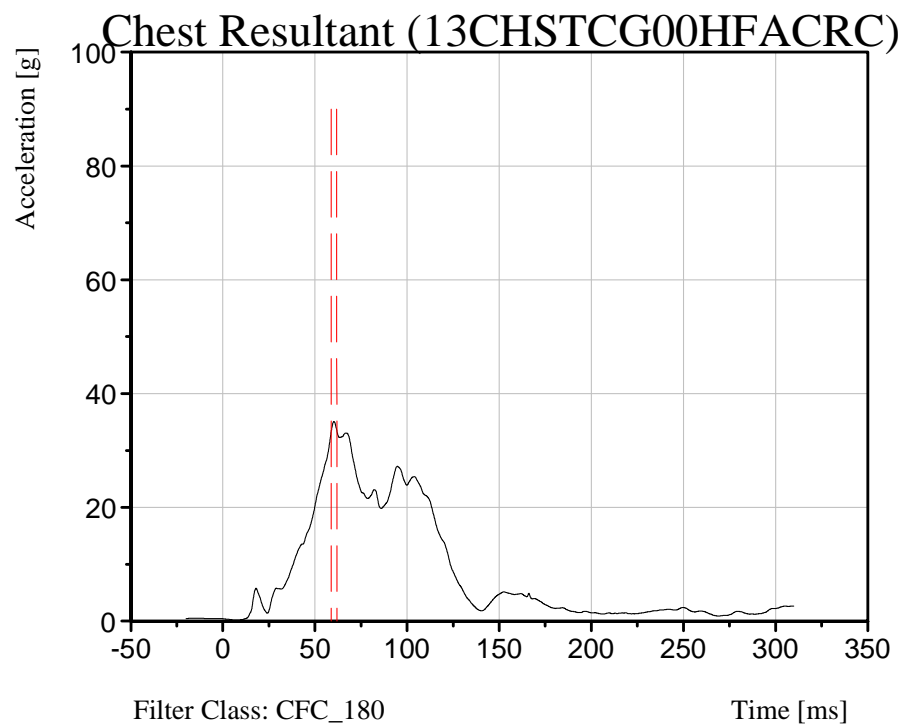
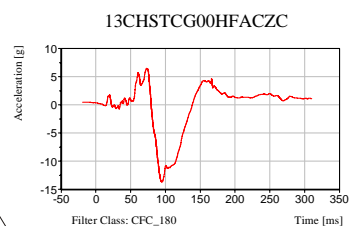
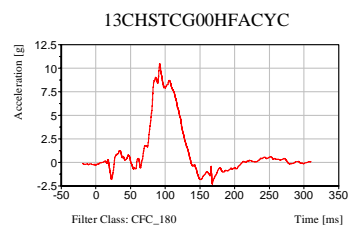
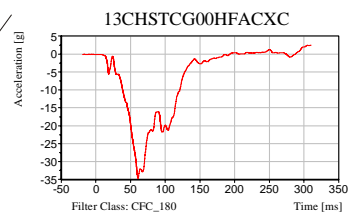
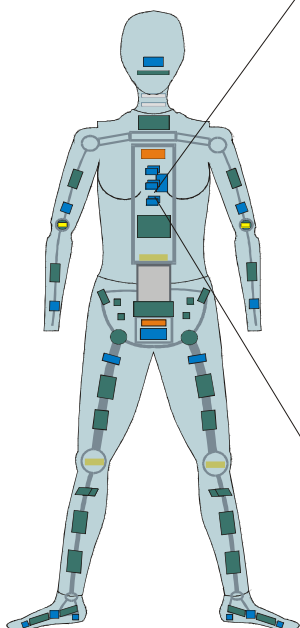
Time: 16:35

## 3 ms Duration Acceleration (Chest)

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



3 ms Duration Acceleration = 33.46 g  
Chest Severity Index = 244.70

<u>T1</u> (Begin)	<u>T2</u> (End)
58.88 ms	61.88 ms

Dummy: HIII 5th Female  
Seating Position:  
Right Front Passenger

3 ms Duration Acceleration Source Code : vbScript w/DIADEM 9.0

B-153

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

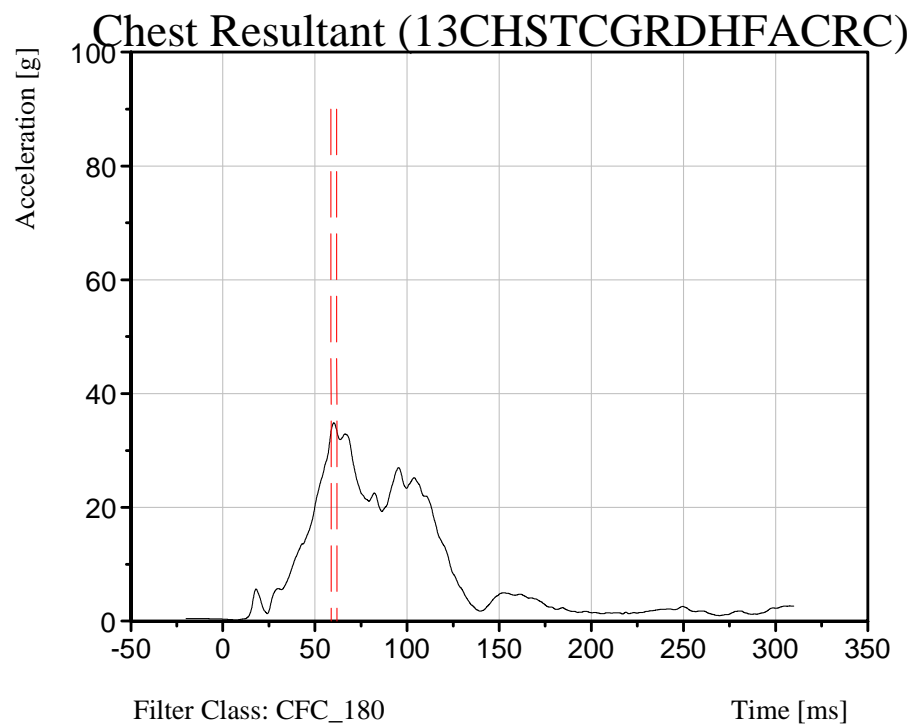
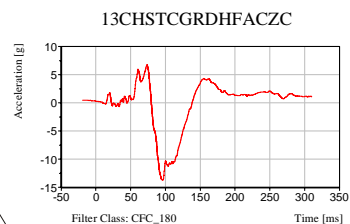
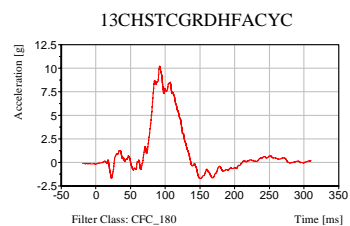
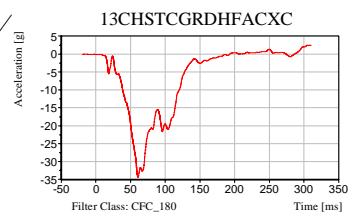
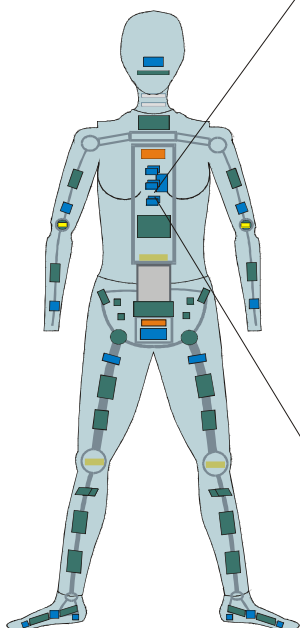
Time: 16:35

## 3 ms Duration Acceleration (Chest)

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



3 ms Duration Acceleration = 33.51 g  
Chest Severity Index = 237.30

T1 (Begin)      T2 (End)  
58.81 ms      61.81 ms

Dummy: HIII 5th Female  
Seating Position:  
Right Front Passenger

3 ms Duration Acceleration Source Code : vbScript w/DIADEM 9.0

B-154

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

## Chest Deflection

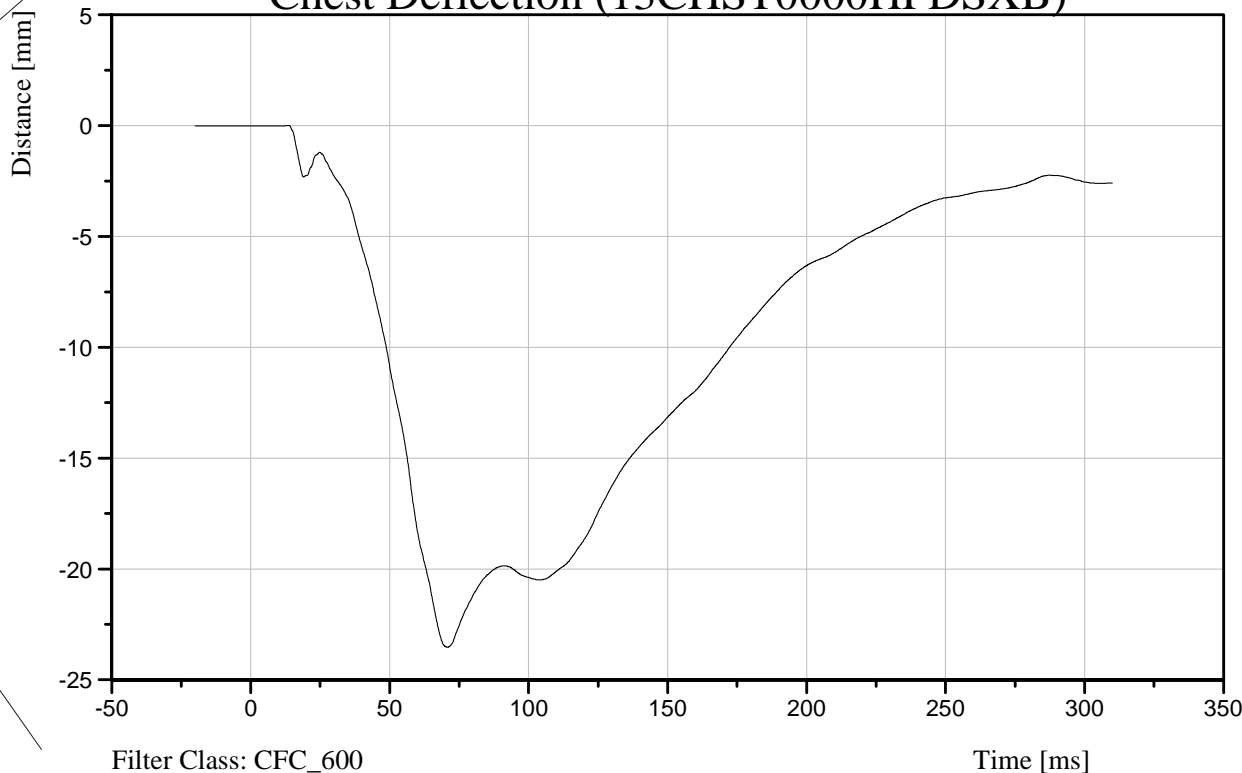
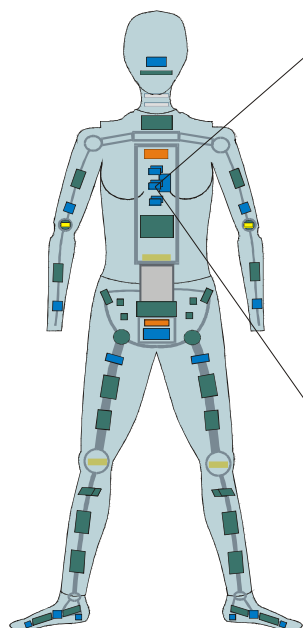
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

### Chest Deflection (13CHST0000HFDSXB)



Dummy: HIII 5th Female

Seating Position:

Right Front Passenger

[Max.] 0.01 mm at 13.52 ms

[Min.] -23.52 mm at 70.80 ms

ChestDeflection Source Code : Min/Max of 13CHST0000HFDSXB (CFC\_600)

B-155

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap Neck Moment about the Occipital Condyle (NECK OM)

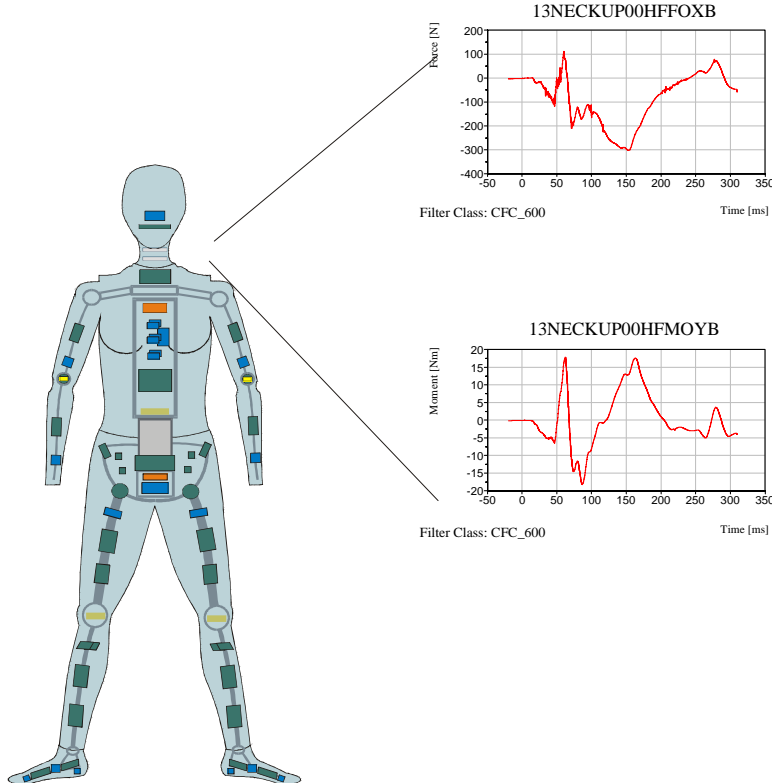
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

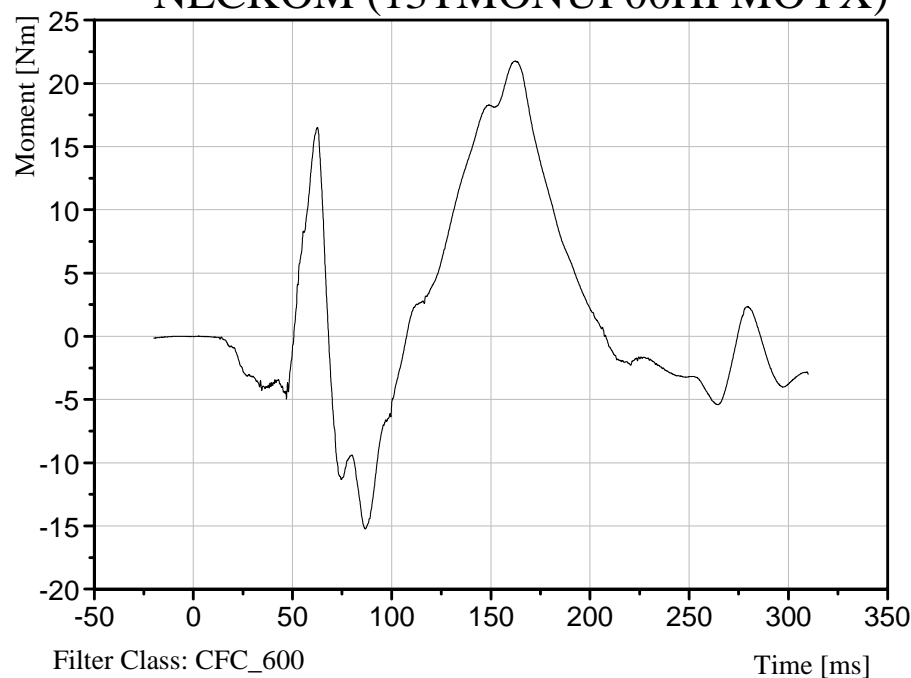
TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal



## NECKOM (13TMONUP00HFMOYX)



Dummy: HIII 5th Female  
Seating Position:  
Right Front Passenger

Neck OM Source Code: My - (D\*Fx)

[Max.] 21.77 Nm at 162.40 ms

[Min.] -15.21 Nm at 86.80 ms

B-156

091020



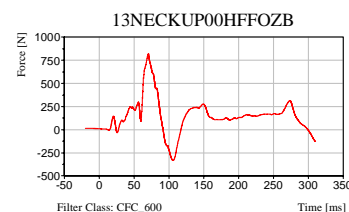
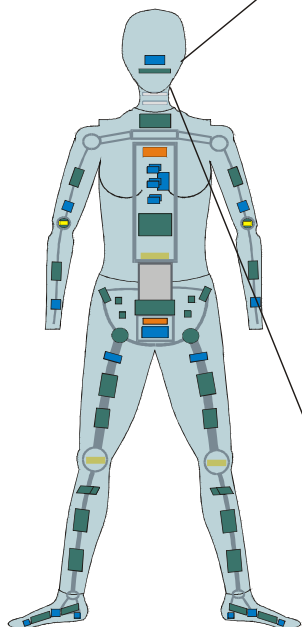
# Taurus into Taurus at 15 Degrees, 50% Overlap

## Neck Injury Predictor (NIJ)

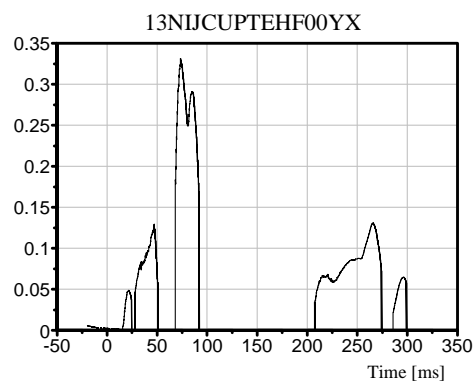
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

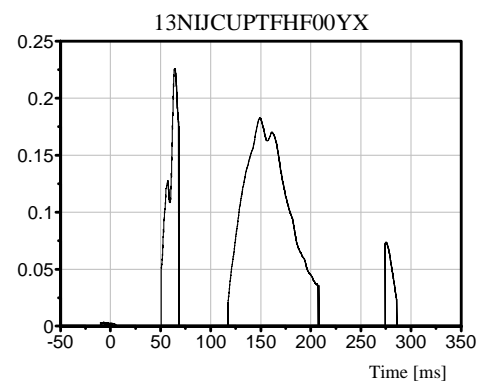
Test Orientation = Frontal  
Fzc(Tension) = 4287  
Fzc(Compression) = 3880  
Myc(Extension) = 67  
Myc(Flexion) = 155



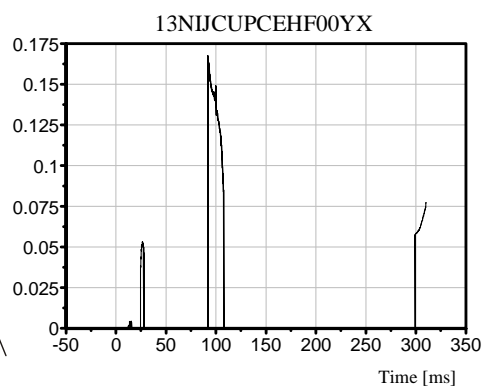
TRC Inc. Test Lab: CTF  
Test Number: 091020



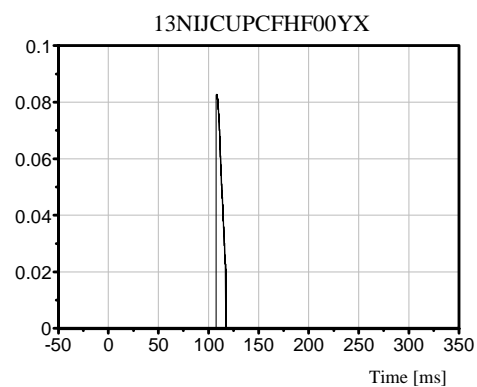
Max [NTE] 0.3315 at 73.36 ms



Max [NTF] 0.2261 at 64.16 ms



Max [NCE] 0.1676 at 91.76 ms



Max [NCF] 0.0828 at 108.08 ms

Dummy: HIII 5th Female  
Seating Position:  
Right Front Passenger

NIJ Source Code: (Fz/Fzc)+(Myc/Myc)

B-157

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009  
Time: 16:35

## Neck Shear Force

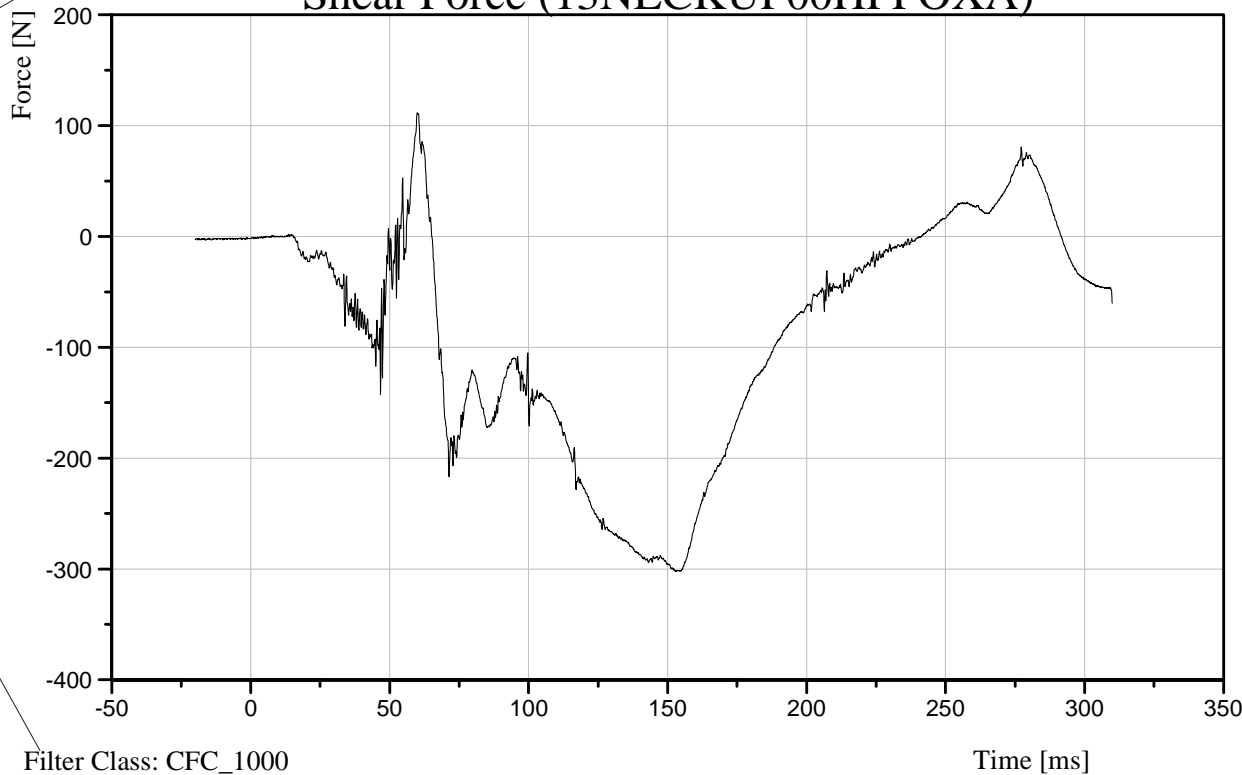
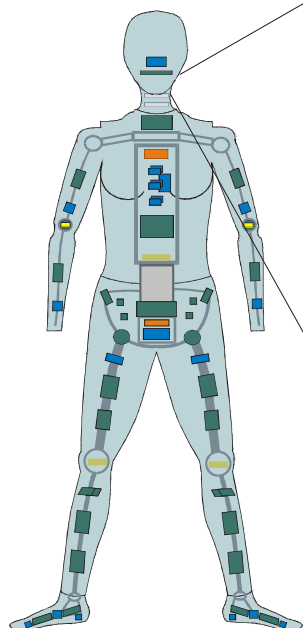
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

### Shear Force (13NECKUP00HFFOXA)



Dummy: HIII 5th Female  
Seating Position:  
Right Front Passenger

[Max.] 111.69 N at 59.92 ms

[Min.] -302.33 N at 152.88 ms

Neck Shear Force Source Code: Min/Max of 13NECKUP00HFFOXA

B-158

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

## Neck Shear Force

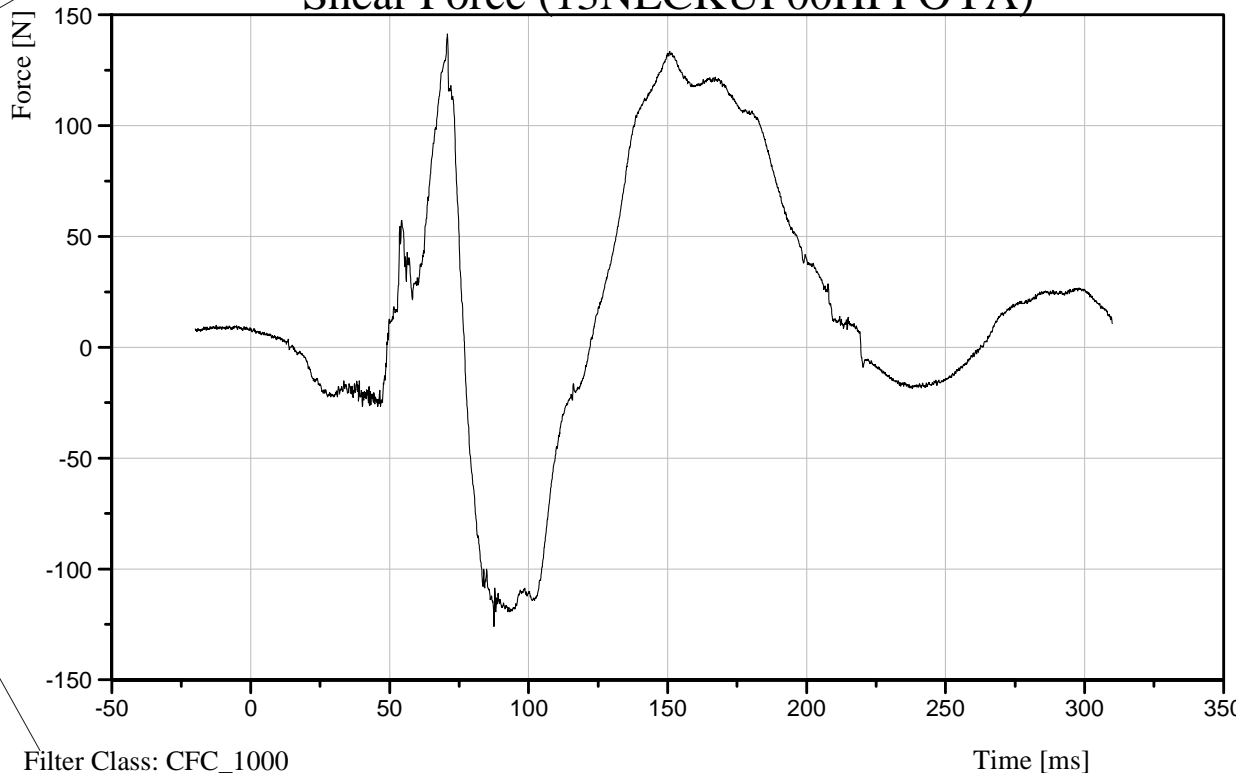
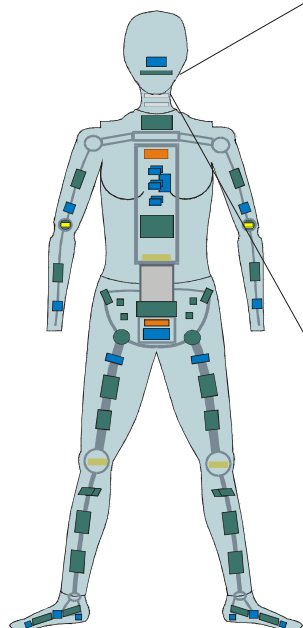
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

### Shear Force (13NECKUP00HFFOYA)



Dummy: HIII 5th Female  
Seating Position:  
Right Front Passenger

[Max.] 141.47 N at 70.80 ms

[Min.] -125.91 N at 87.52 ms

Neck Shear Force Source Code: Min/Max of 13NECKUP00HFFOYA

B-159

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

## Neck Axial Force

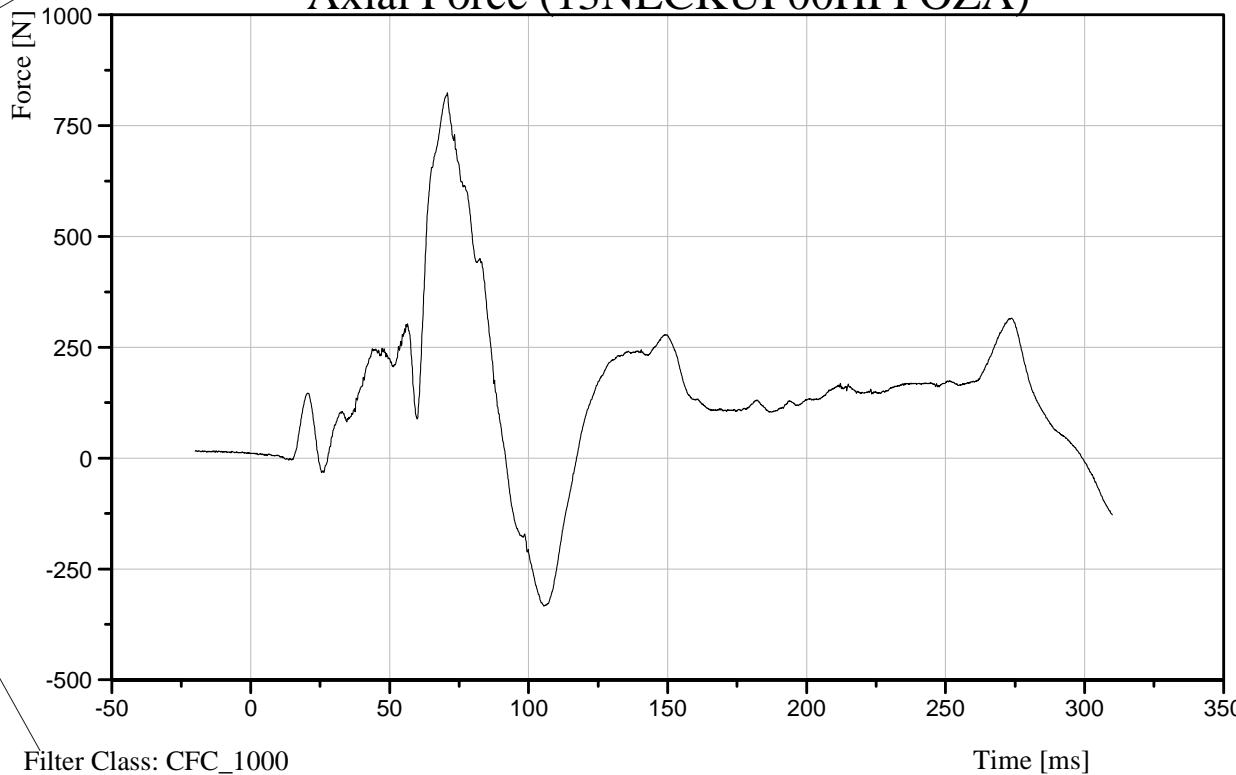
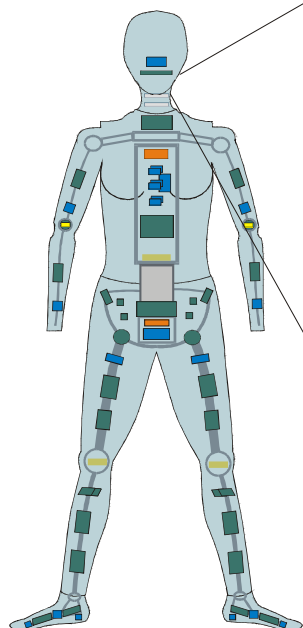
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

### Axial Force (13NECKUP00HFFOZA)



Filter Class: CFC\_1000

Dummy: HIII 5th Female  
Seating Position:  
Right Front Passenger

[Max.] 824.28 N at 70.80 ms

[Min.] -333.79 N at 105.52 ms

Neck Axial Force Source Code: Min/Max of 13NECKUP00HFFOZA

B-160

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

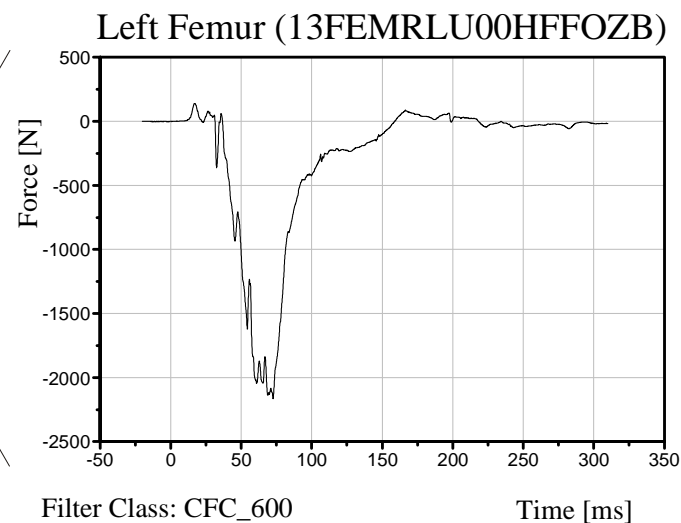
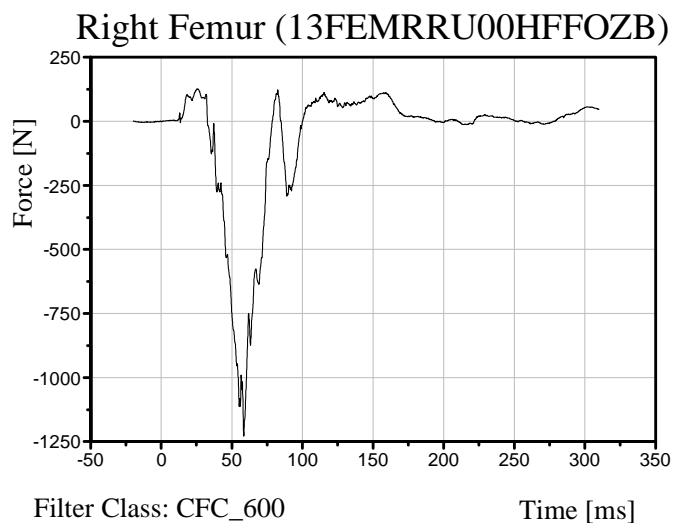
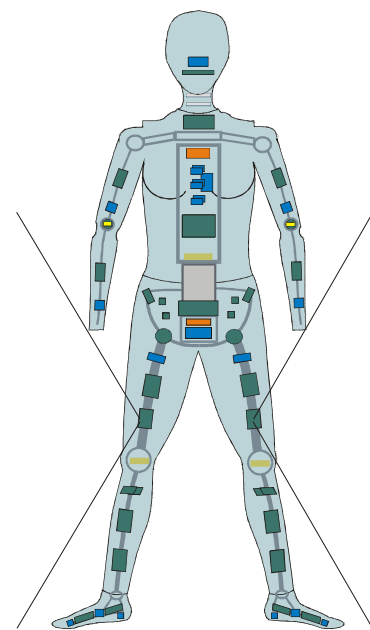
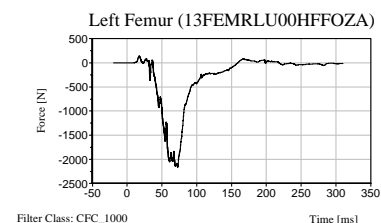
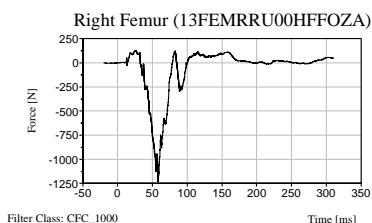
Time: 16:35

## Femur Load

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



Max [Tension] 127.28 N at 25.28 ms  
 Min [Compression] -1,228.37 N at 58.32 ms

Dummy:HIII 5th Female  
 Seating Position:  
 Right Front Passenger

Max [Tension] 139.85 N at 16.88 ms  
 Min [Compression] -2,164.62 N at 72.72 ms

Femur Load Source Code : Min/Max of 13FEMRRU00HFFOZB and 13FEMRLU00HFFOZB (CFC 600)

B-161

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

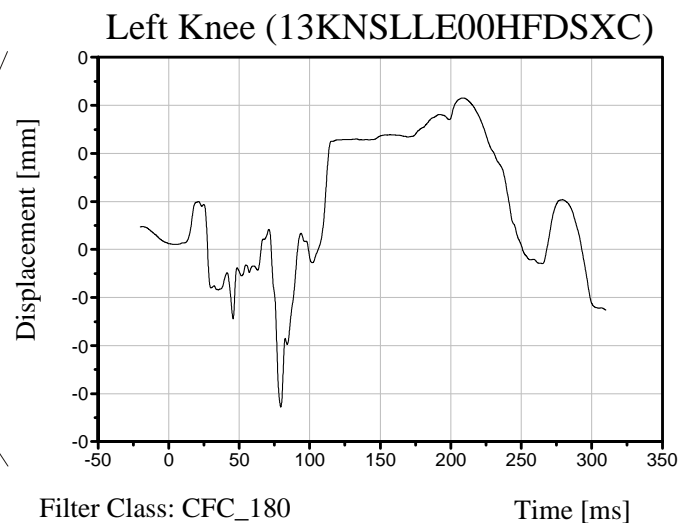
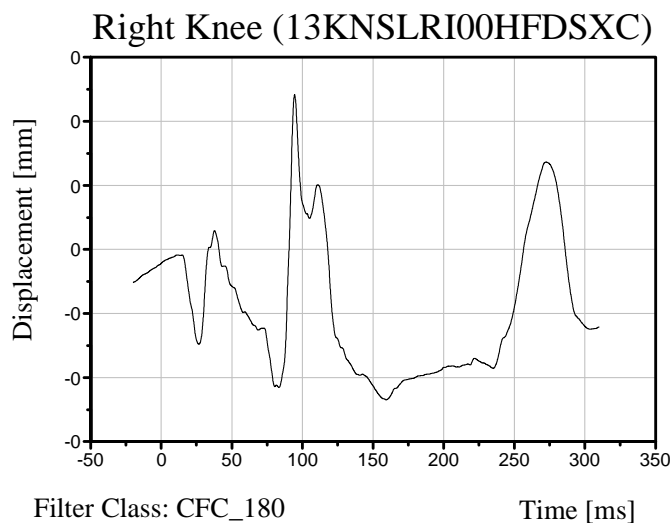
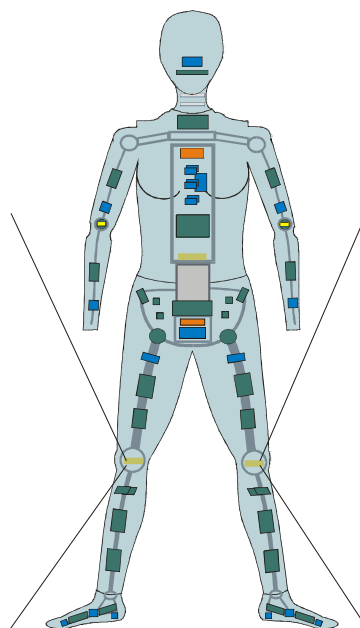
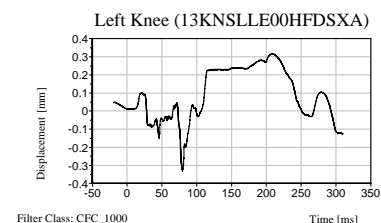
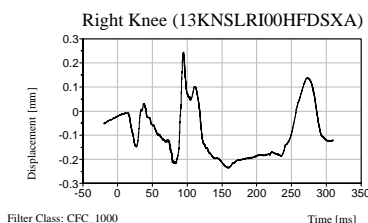
Time: 16:35

## Knee Slider Displacement

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



Max. [Tension] 0.24 mm at 94.32 ms  
 Min. [Compression] -0.23 mm at 159.28 ms

Dummy: HIII 5th Female  
 Seating Position:  
 Right Front Passenger

Max. [Tension] 0.32 mm at 208.32 ms  
 Min. [Compression] -0.33 mm at 79.52 ms

Knee Displacement Source Code : Min/Max of 13KNSLRI00HFDSXC and 13KNSLLE00HFDSXC (CFC 600)

B-162

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Tibia Index (TI)

Date: 10/20/2009

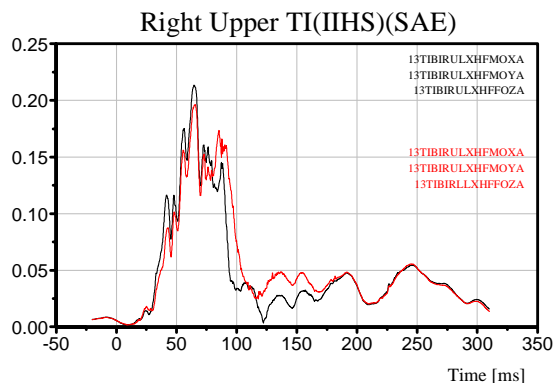
Time: 16:35

Customer: VRTC

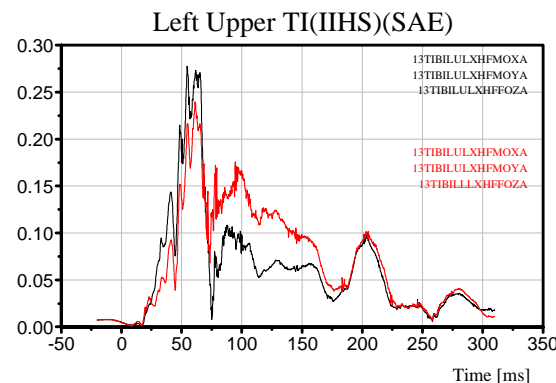
TRC Inc. Test Lab: CTF

Test Number: 091020

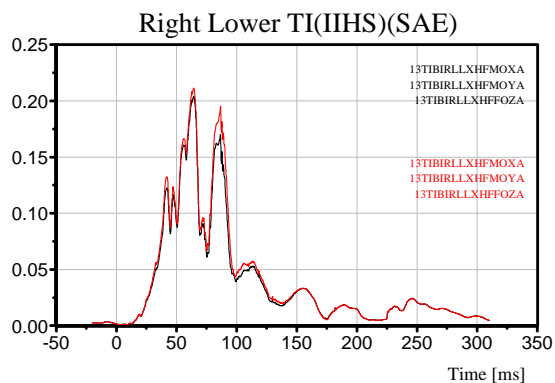
Critical Bending Moment = 240 N·m  
Critical Compression Force = 12000 N



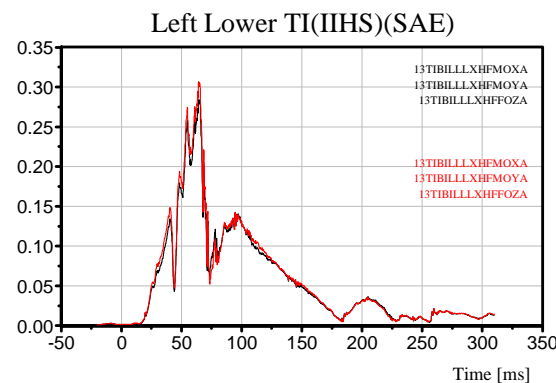
Max = 0.21 at 64.64 ms (SAE)  
Max = 0.20 at 65.44 ms (IIHS)



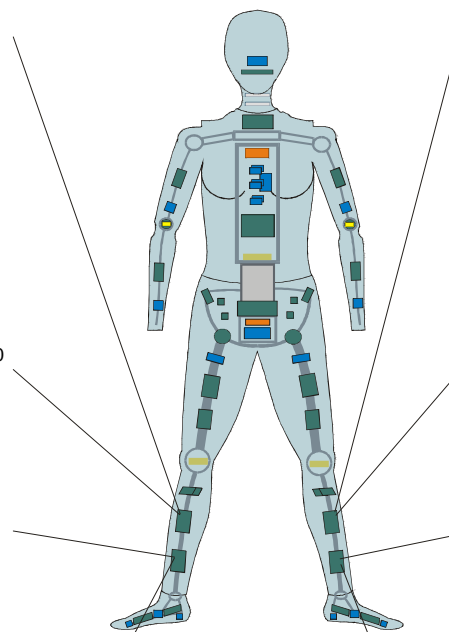
Max = 0.28 at 54.64 ms (SAE)  
Max = 0.24 at 61.20 ms (IIHS)



Max = 0.20 at 64.40 ms (SAE)  
Max = 0.21 at 64.40 ms (IIHS)



Max = 0.28 at 64.16 ms (SAE)  
Max = 0.31 at 64.16 ms (IIHS)



Dummy:HII 5th Female  
Seating Position:  
Right Front Passenger

Tibia Index Source Code : Guideline 96/79/EC; SAE J1727 AUG96; and IIHS Crashworthiness Evaluation Offset Barrier Crash Test Protocol (Version X)

B-163

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

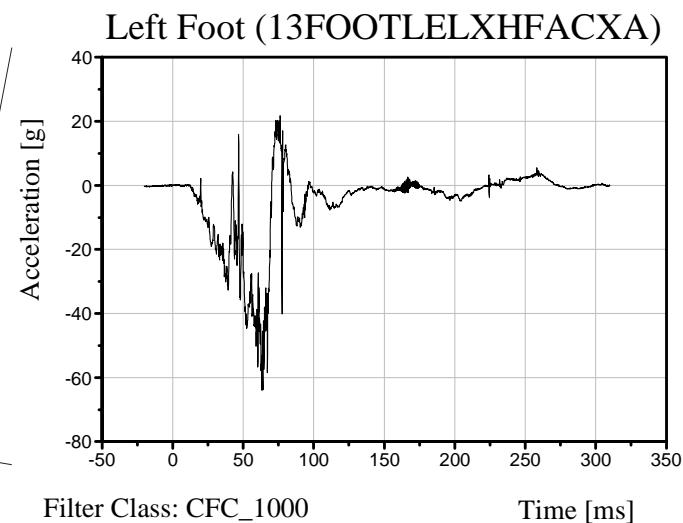
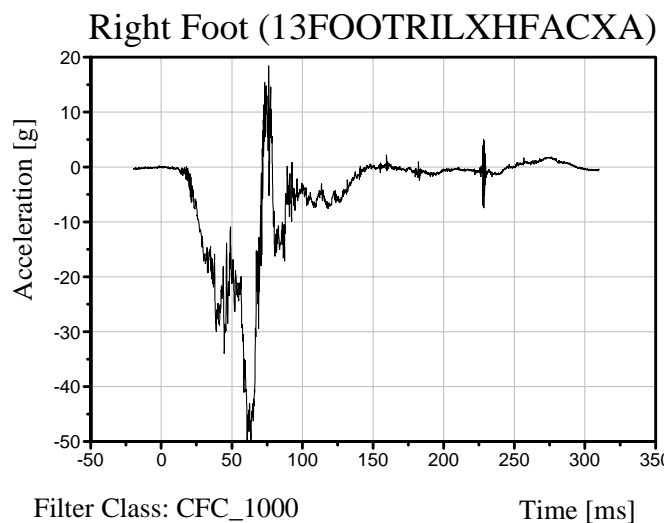
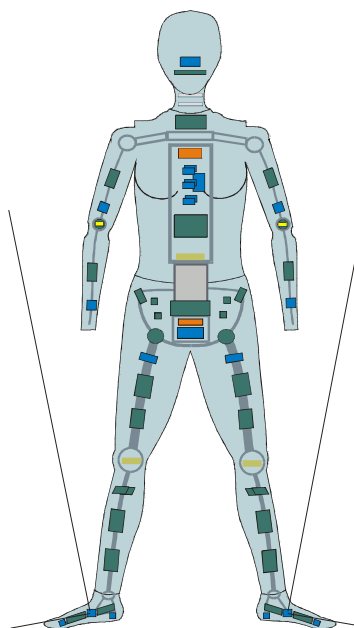
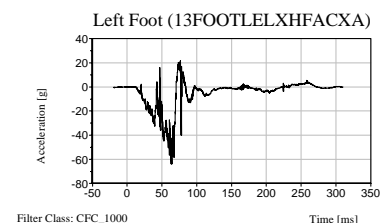
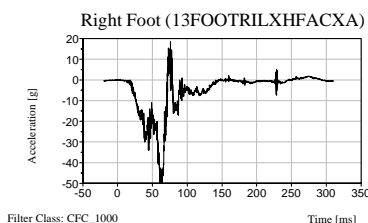
Time: 16:35

## Foot Acceleration

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



Max [Acceleration] 18.48 g at 76.00 ms  
 Min [Acceleration] -49.95 g at 60.80 ms

Dummy:HIII 5th Female  
 Seating Position:  
 Right Front Passenger

Max [Acceleration] 21.75 g at 76.32 ms  
 Min [Acceleration] -63.86 g at 63.36 ms

Foot Acceleration Source Code : Min/Max of 13FOOTRILXHFACXA and 13FOOTLELXHFACXA

B-164

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

## Injury Criteria Summary

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Dummy: HIII 5th Female

Seating Position: Right Front Passenger

Max. Shear (Head Aft) = 111.69 N at 59.92 ms  
Min. Shear (Head Fore) = -302.33 N at 152.88 ms

NTE = 0.3315 at 73.36 ms  
NTF = 0.2261 at 64.16 ms  
NCE = 0.1676 at 91.76 ms  
NCF = 0.0828 at 108.08 ms

(MAX) HIC (36) (15)  
343.21 343.21 231.83  
T1: 56.24 ms 56.24 ms 63.28 ms  
T2: 90.88 ms 90.88 ms 78.32 ms  
Mean: 39.63 g 39.63 g 47.51 g

NeckOM Flexion = 21.77 Nm at 162.40 ms  
NeckOM Extension = -15.21 Nm at 86.80 ms  
Axial Tension = 824.28 N at 70.80 ms  
Axial Compression = -333.79 N at 105.52 ms

Chest 3ms Duration (CLIP) = 33.46 g

T1: 58.88 ms  
T2: 61.88 ms  
CSI: 244.70

Chest Deflection Outward = 0.01 mm at 13.52 ms  
Chest Deflection Inward = -23.52 mm at 70.80 ms

Right Upper Femur Tension = 127.28 N 25.28 ms  
Right Upper Femur Compression = -1,228.37 N 58.32 ms

Left Upper Femur Tension = 139.85 N 16.88 ms  
Left Upper Femur Compression = -2,164.62 N 72.72 ms

Right Knee Slider Outward = 0.24 mm at 94.32 ms  
Right Knee Slider Inward = -0.23 mm at 159.28 ms

Left Knee Slider Outward = 0.32 mm at 208.32 ms  
Left Knee Slider Inward = -0.33 mm at 79.52 ms

Upper Right TI (SAE) = 0.21 at 64.64 ms  
Upper Right TI (IHHS) = 0.20 at 65.44 ms

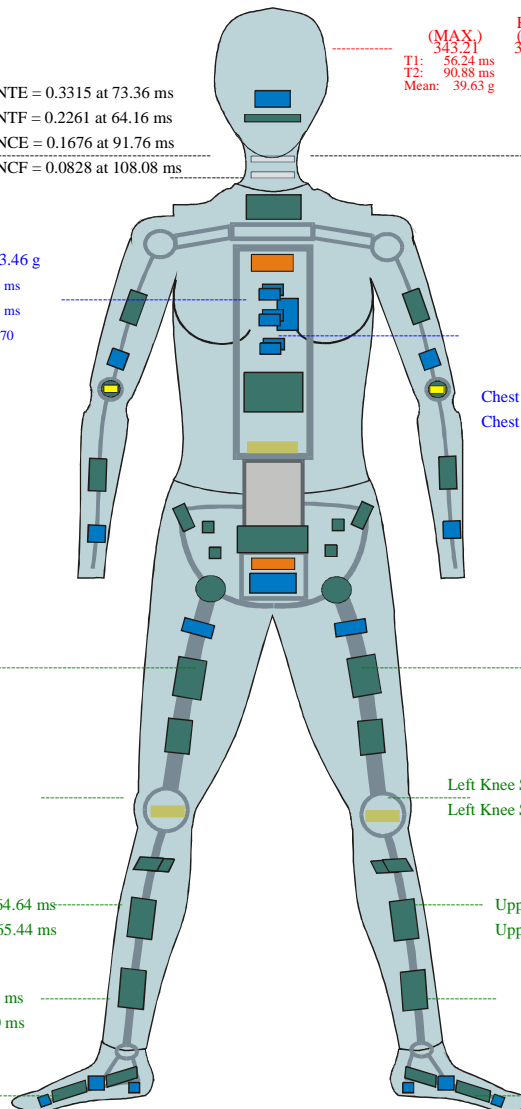
Upper Left TI (SAE) = 0.28 at 54.64 ms  
Upper Left TI (IHHS) = 0.24 at 61.20 ms

Lower Right TI (SAE) = 0.20 at 64.40 ms  
Lower Right TI (IHHS) = 0.21 at 64.40 ms

Lower Left TI (SAE) = 0.28 at 64.16 ms  
Lower Left TI (IHHS) = 0.31 at 64.16 ms

Max Right Foot = 18.48 g at 76.00 ms  
Min Right Foot = -49.95 g at 60.80 ms

Max Left Foot = 21.75 g at 76.32 ms  
Min Left Foot = -63.86 g at 63.36 ms



B-165

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

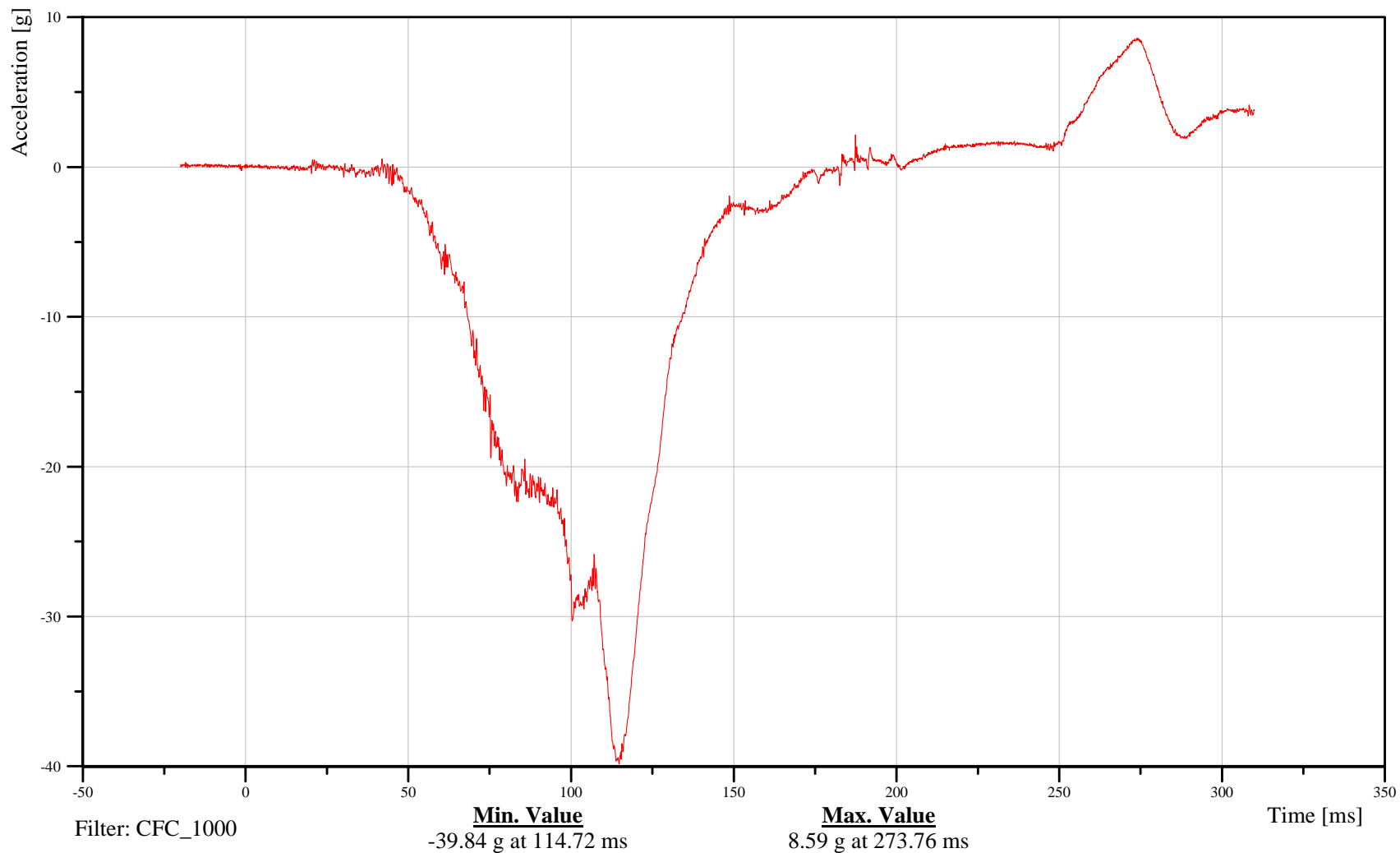
## Bullet Vehicle Left Rear Passenger Head X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14HEADCG00HFACXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-166

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

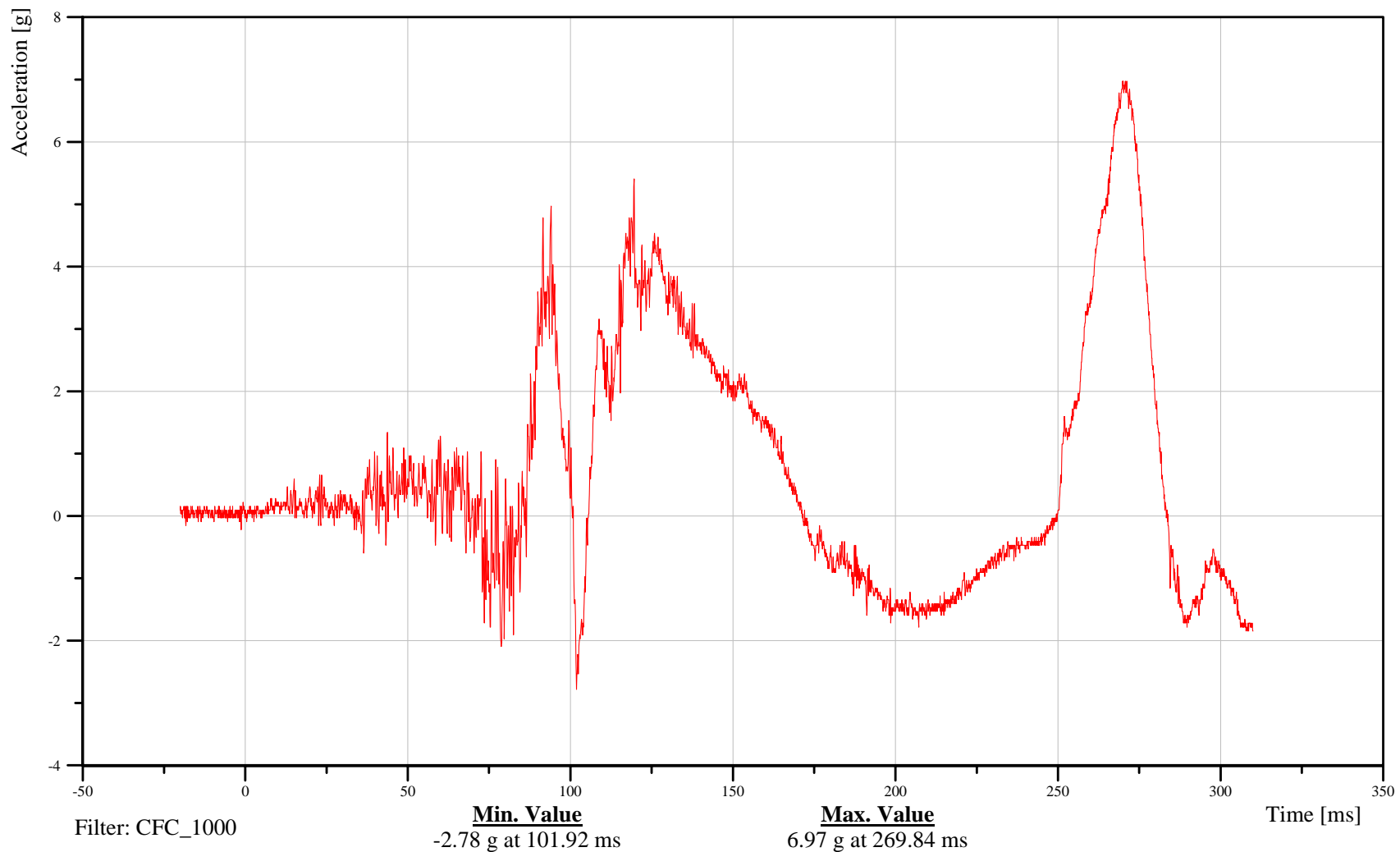
## Bullet Vehicle Left Rear Passenger Head Y-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14HEADCG00HFACYA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-167

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

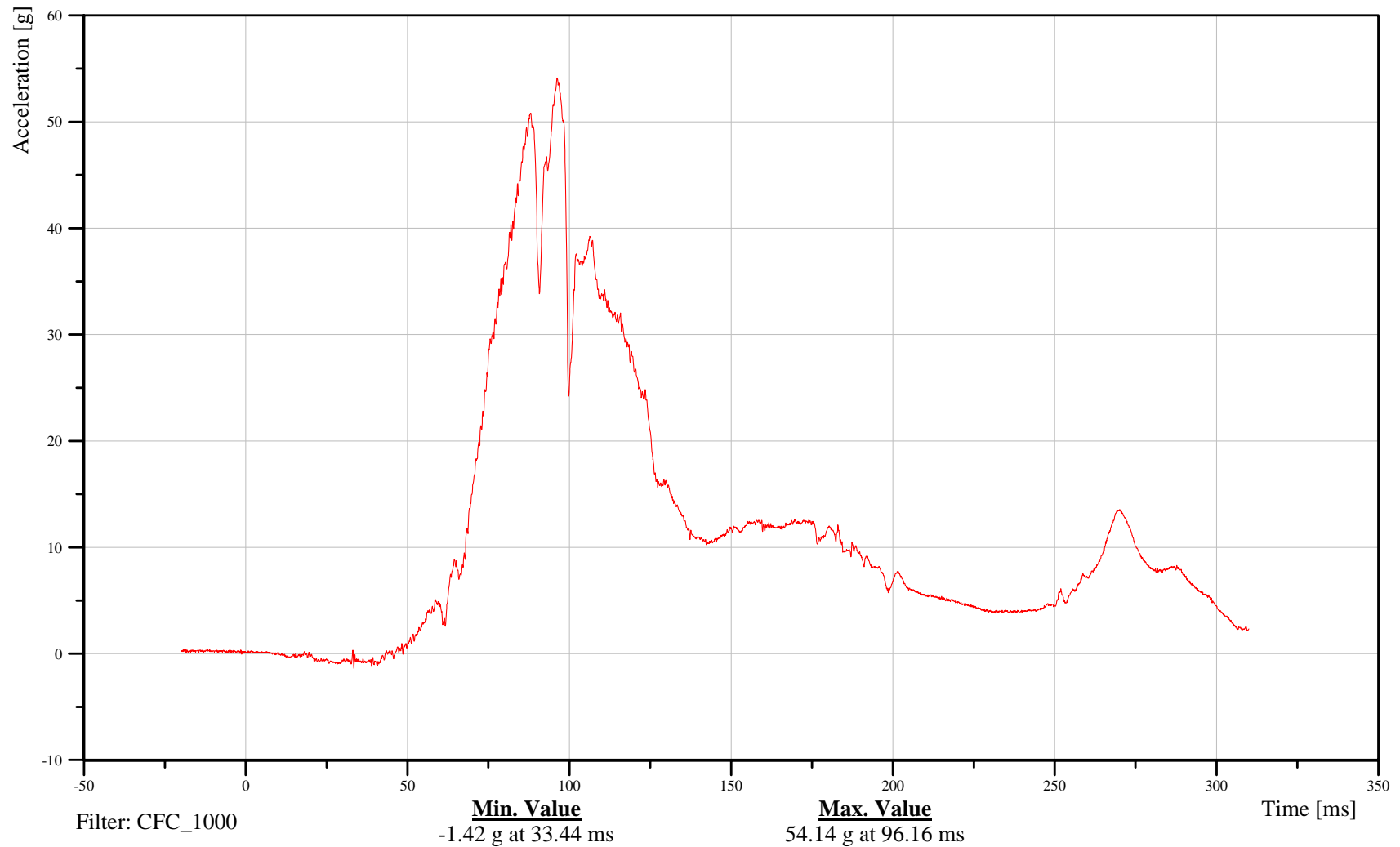
## Bullet Vehicle Left Rear Passenger Head Z-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14HEADCG00HFACZA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-168

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

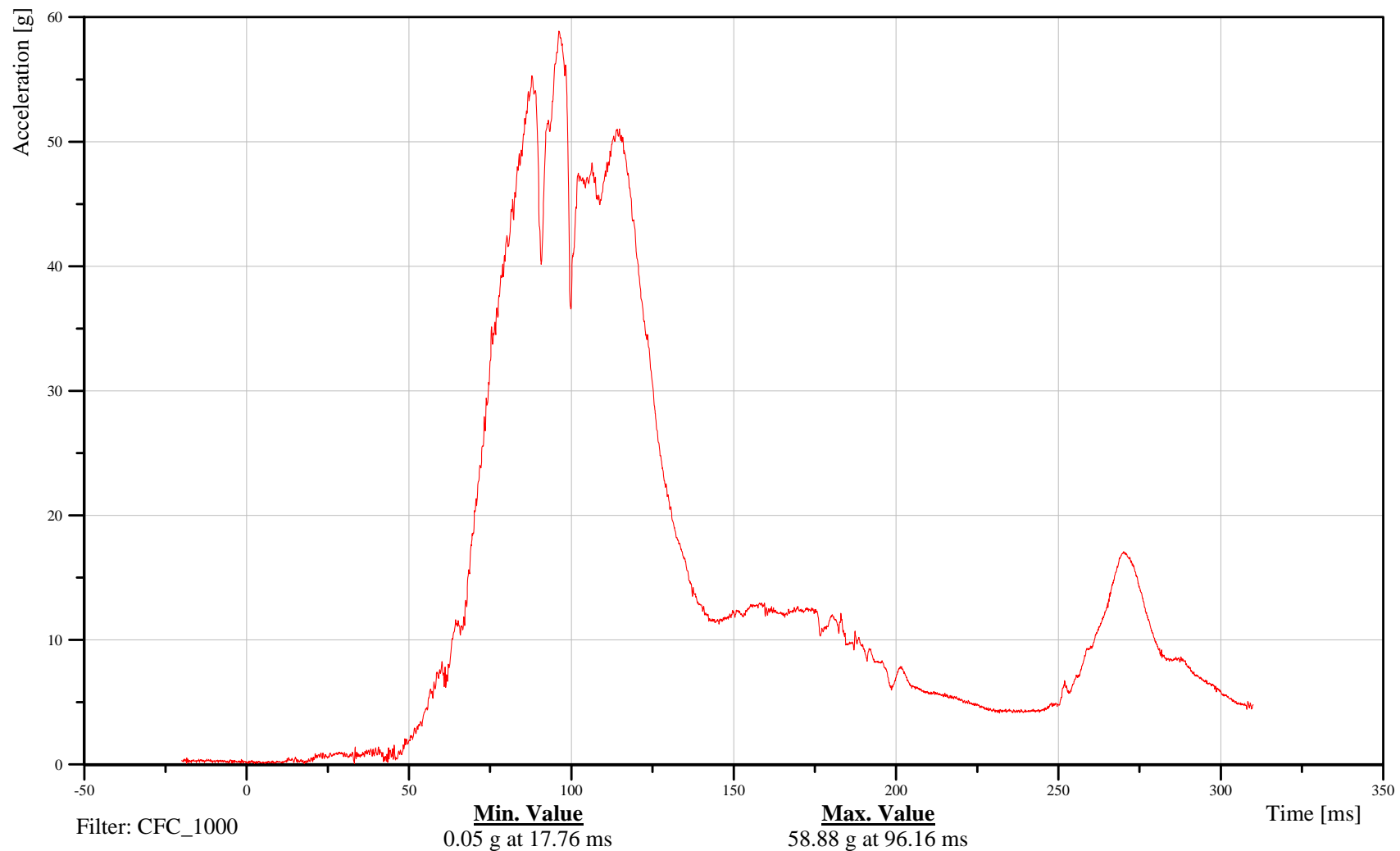
## Bullet Vehicle Left Rear Passenger Head Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14HEADCG00HFACRA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-169

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

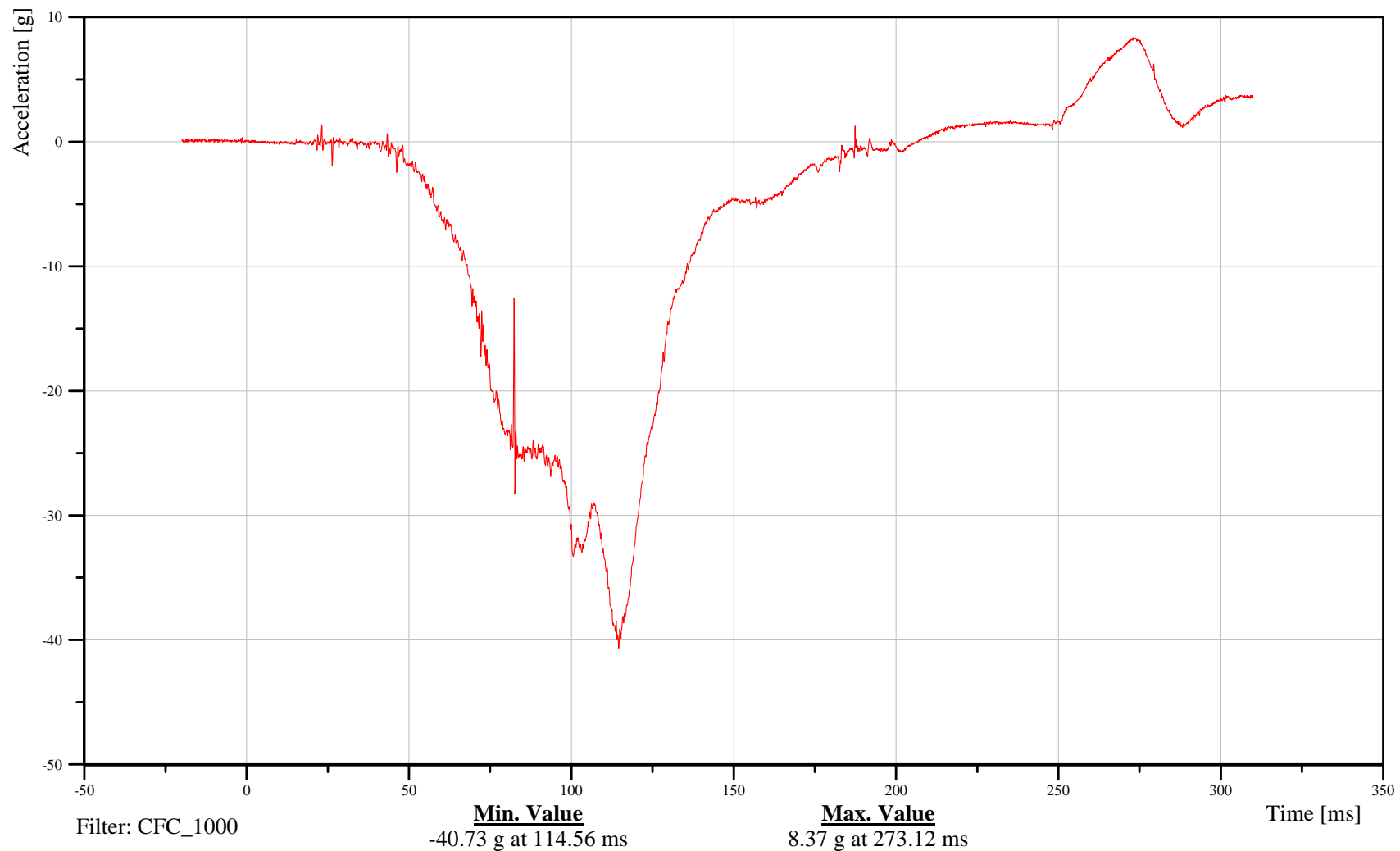
## Bullet Vehicle Left Rear Passenger Head Redundant X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14HEADCGRDHFACXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-170

091020



Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Left Rear Passenger Head Redundant Y-Axis Acceleration

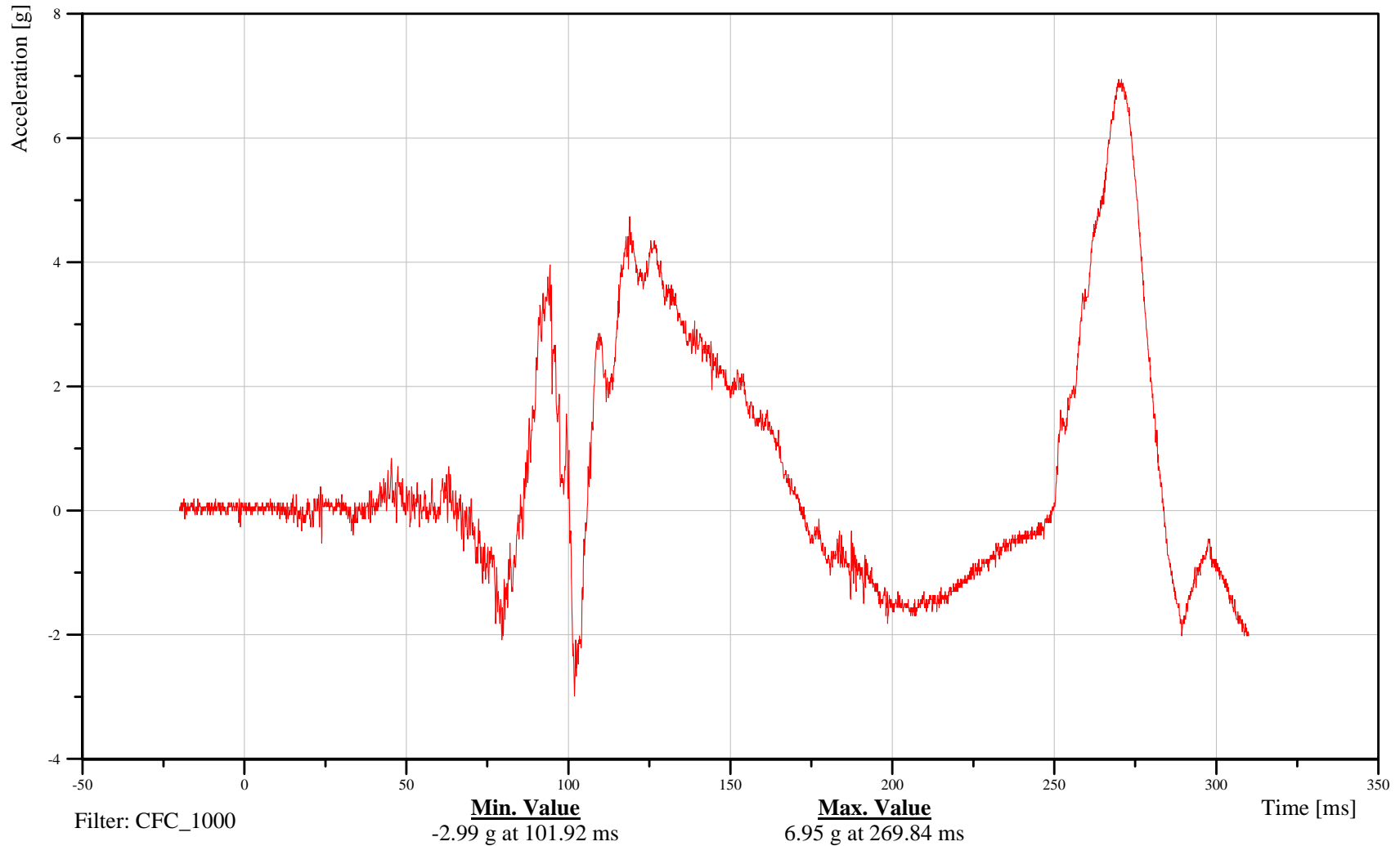
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

14HEADCGRDHFACYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-171

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Left Rear Passenger Head Redundant Z-Axis Acceleration

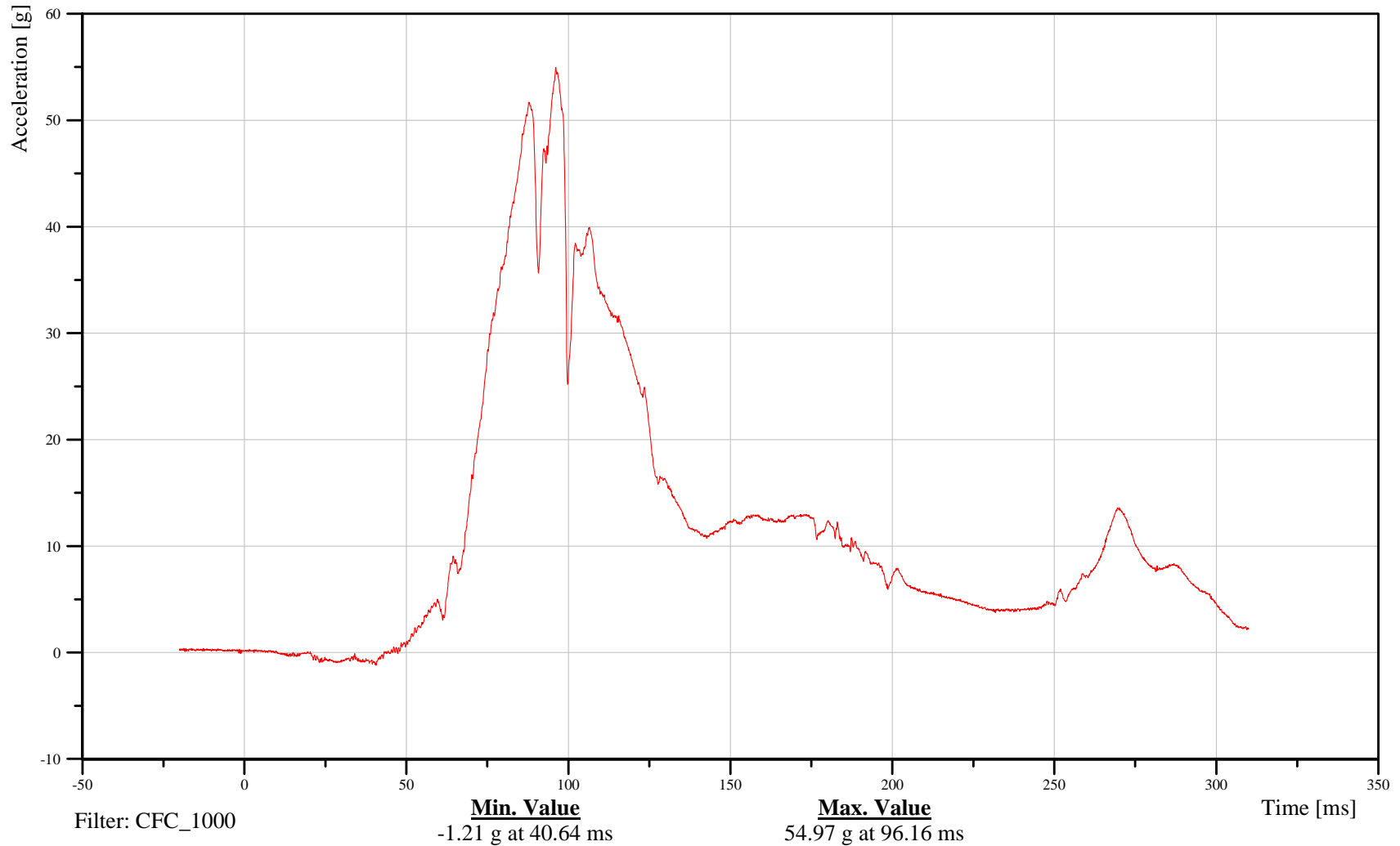
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14HEADCGRDHFACZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-172

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

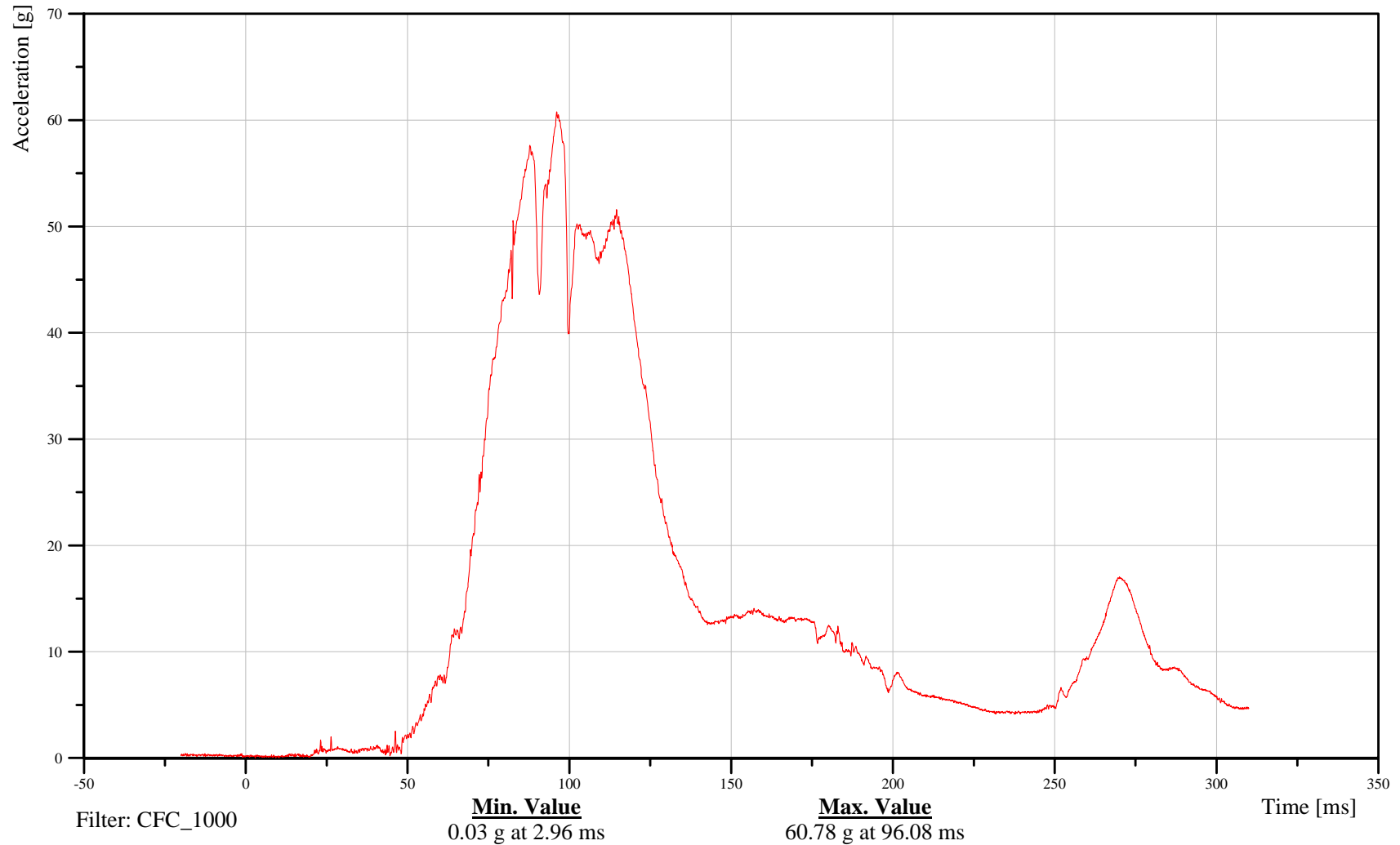
## Bullet Vehicle Left Rear Passenger Head Redundant Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14HEADCGRDHFACRA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-173

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

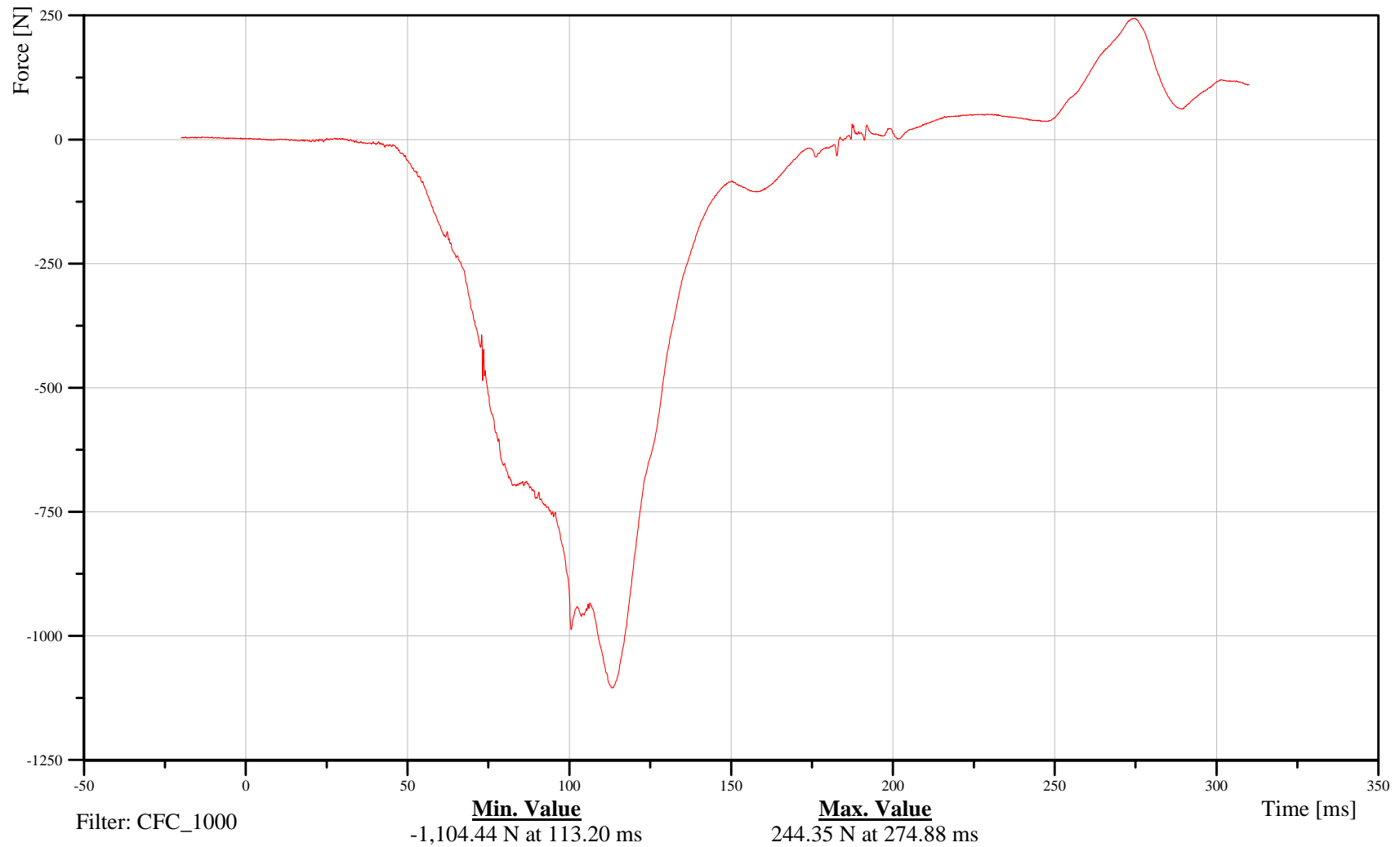
## Bullet Vehicle Left Rear Passenger Upper Neck X-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14NECKUP00HFFOXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-174

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

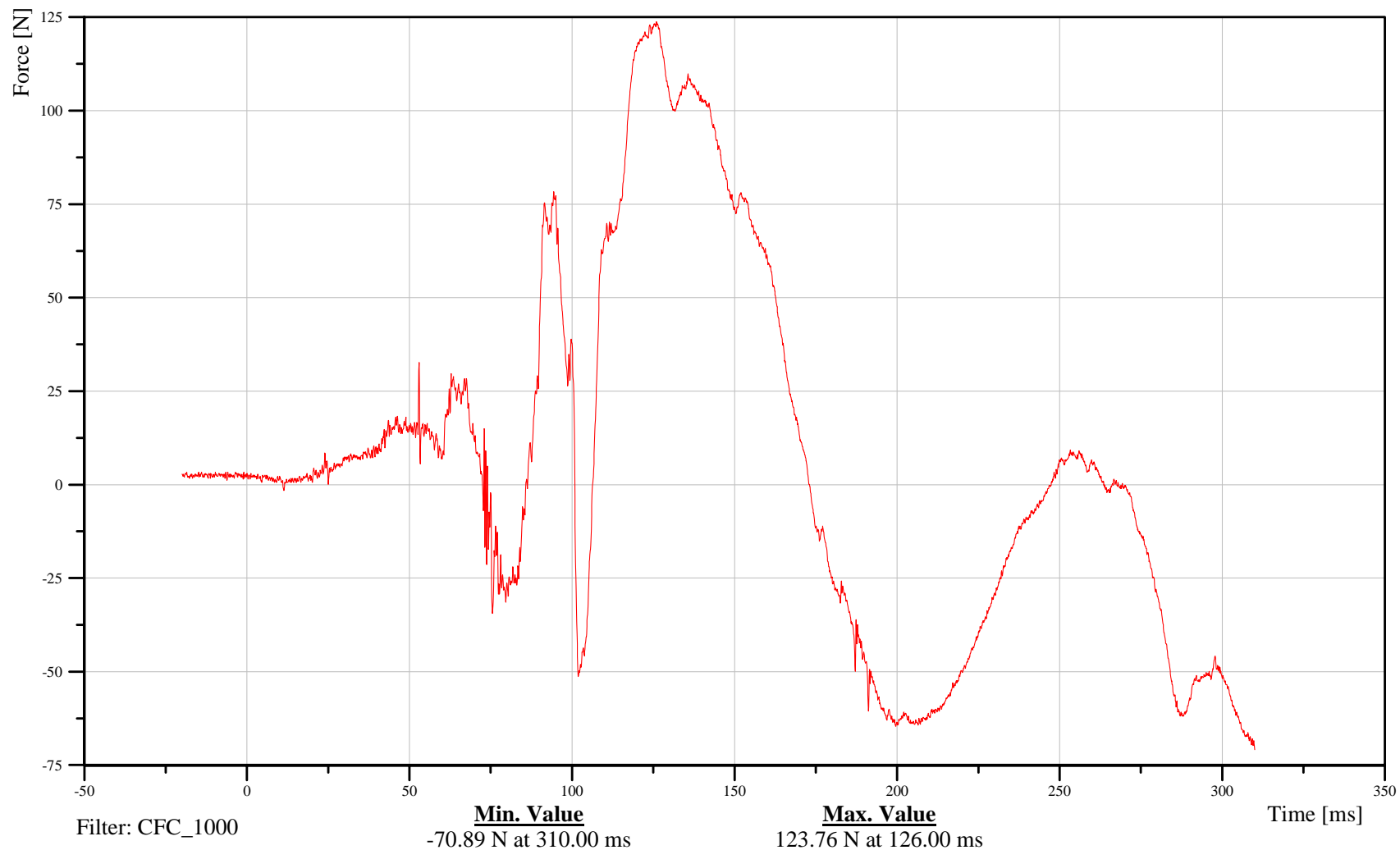
## Bullet Vehicle Left Rear Passenger Upper Neck Y-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14NECKUP00HFFOYA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-175

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

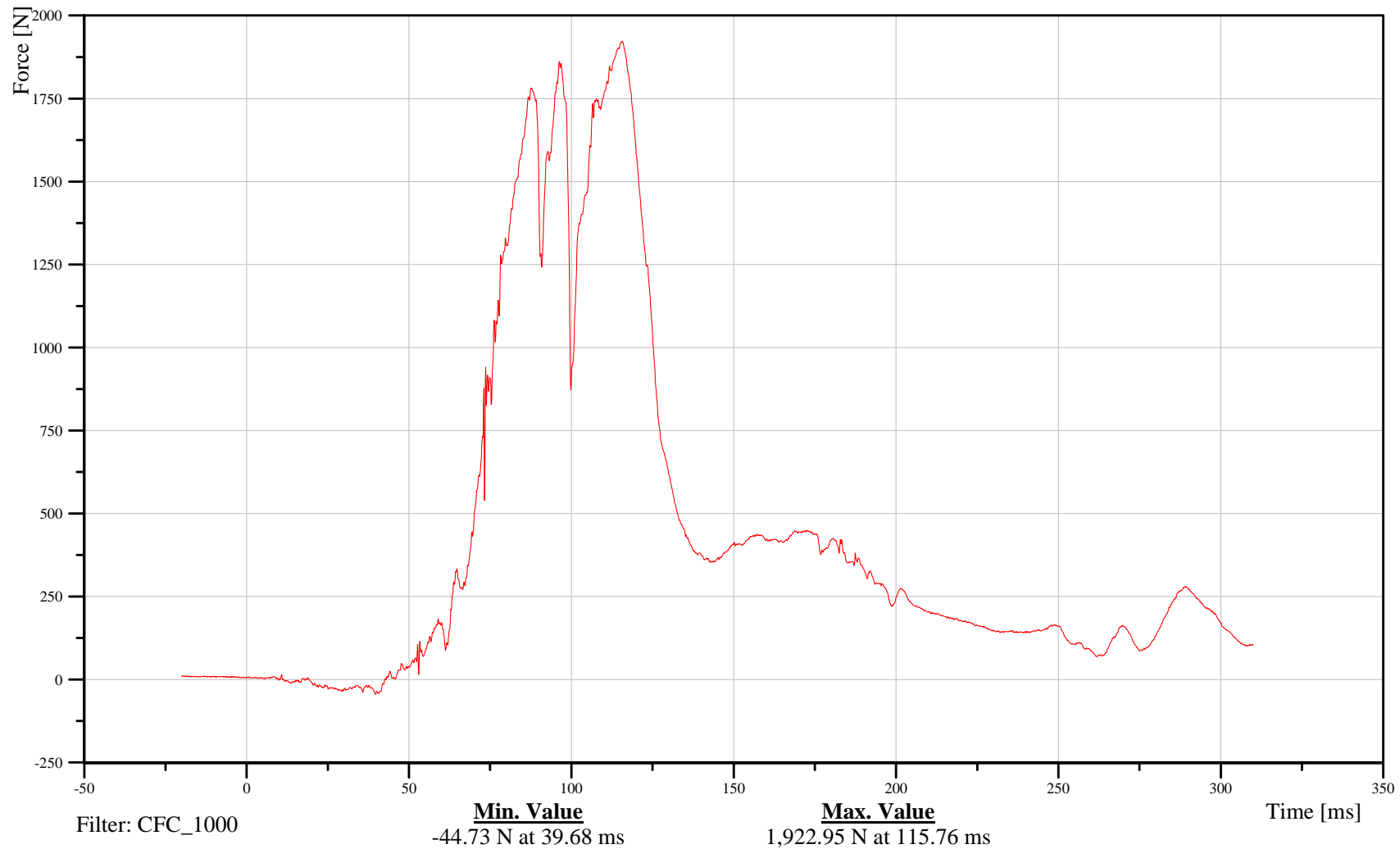
## Bullet Vehicle Left Rear Passenger Upper Neck Z-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14NECKUP00HFFOZA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-176

091020



Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Left Rear Passenger Upper Neck Moment About X Axis

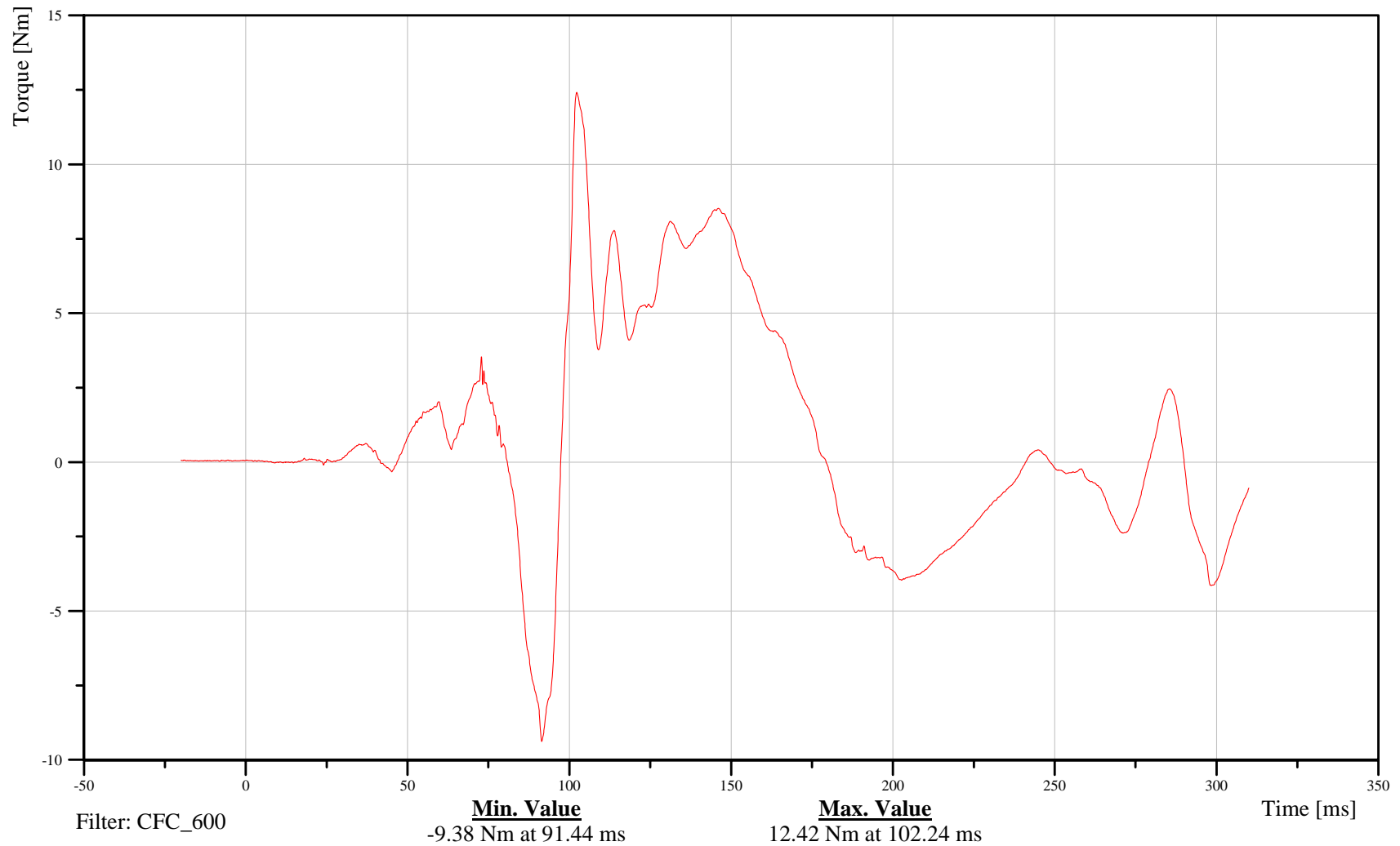
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

14NECKUP00HFMOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-177

091020



Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Left Rear Passenger Upper Neck Moment About Y Axis

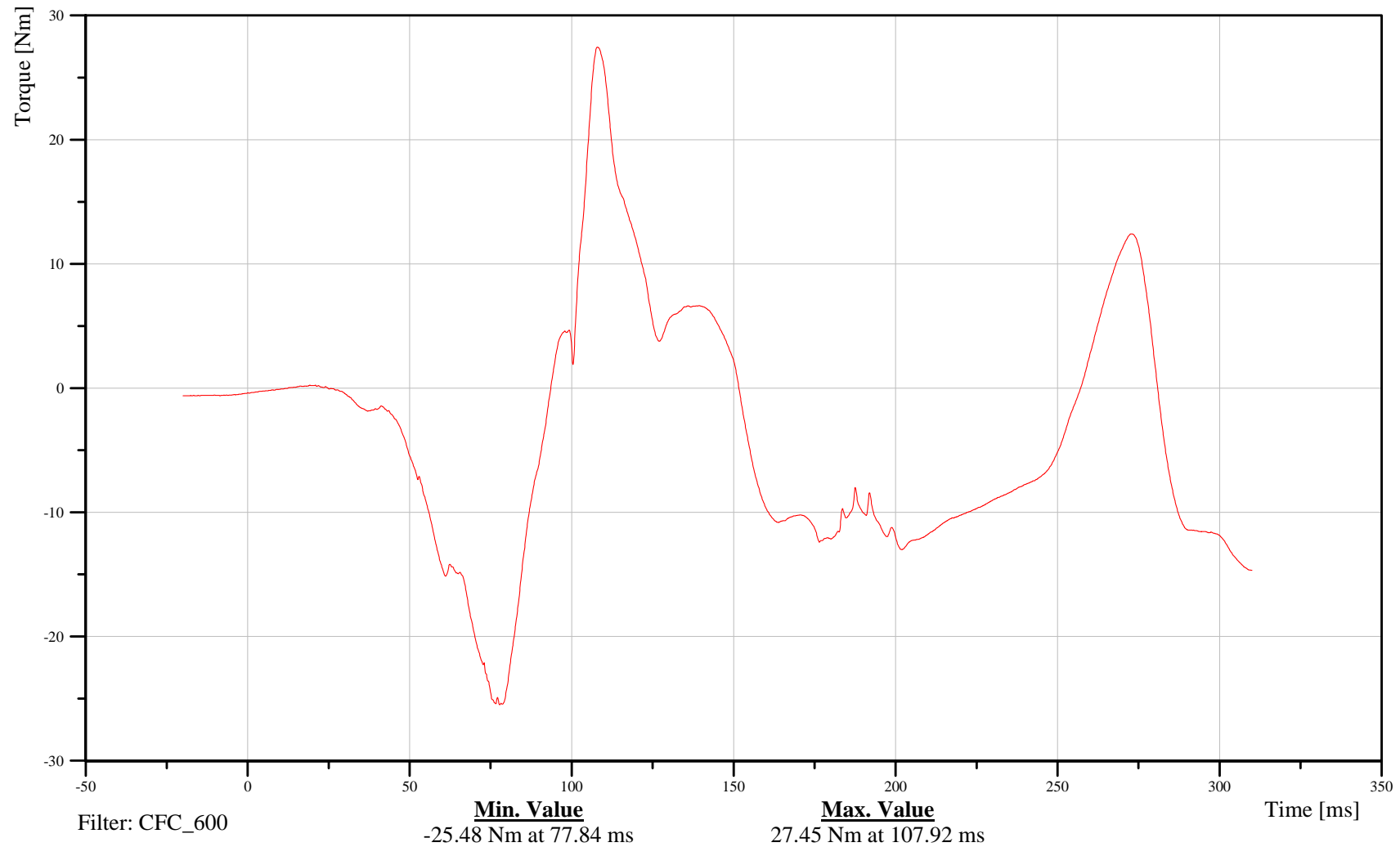
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

14NECKUP00HFMOYB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-178

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

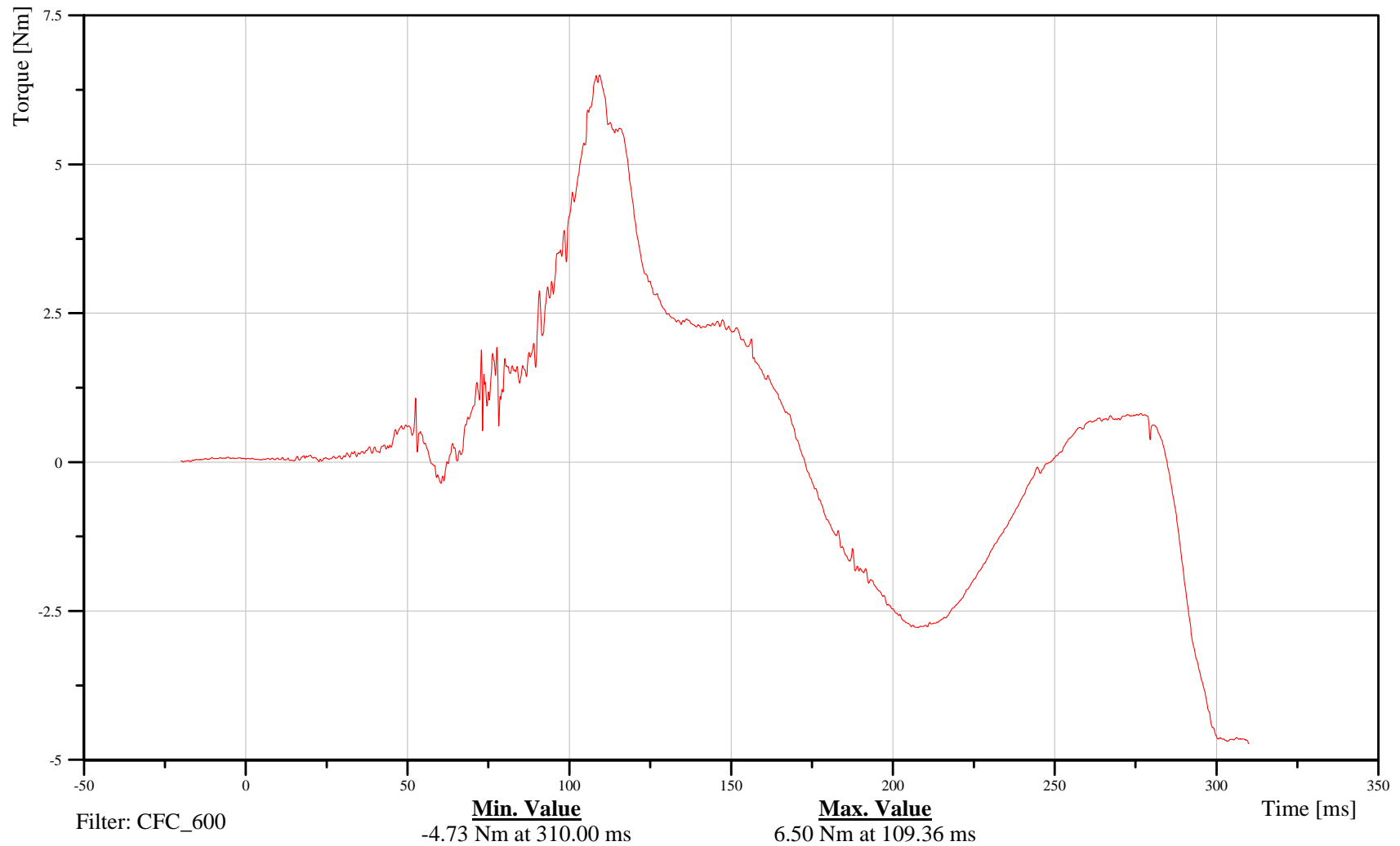
## Bullet Vehicle Left Rear Passenger Upper Neck Moment About Z Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14NECKUP00HFMOZB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-179

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

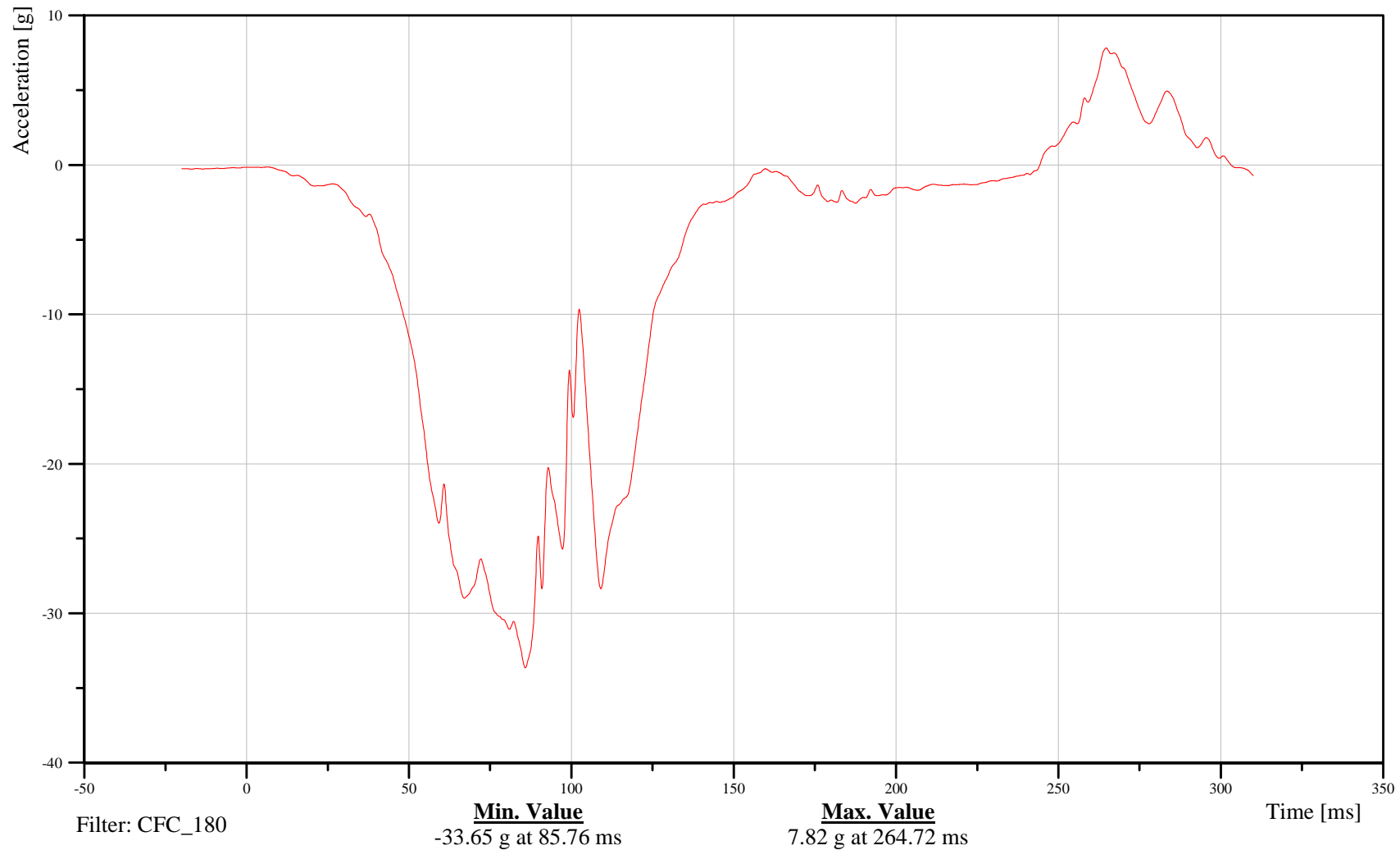
## Bullet Vehicle Left Rear Passenger Chest X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14CHSTCG00HFACXC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-180

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

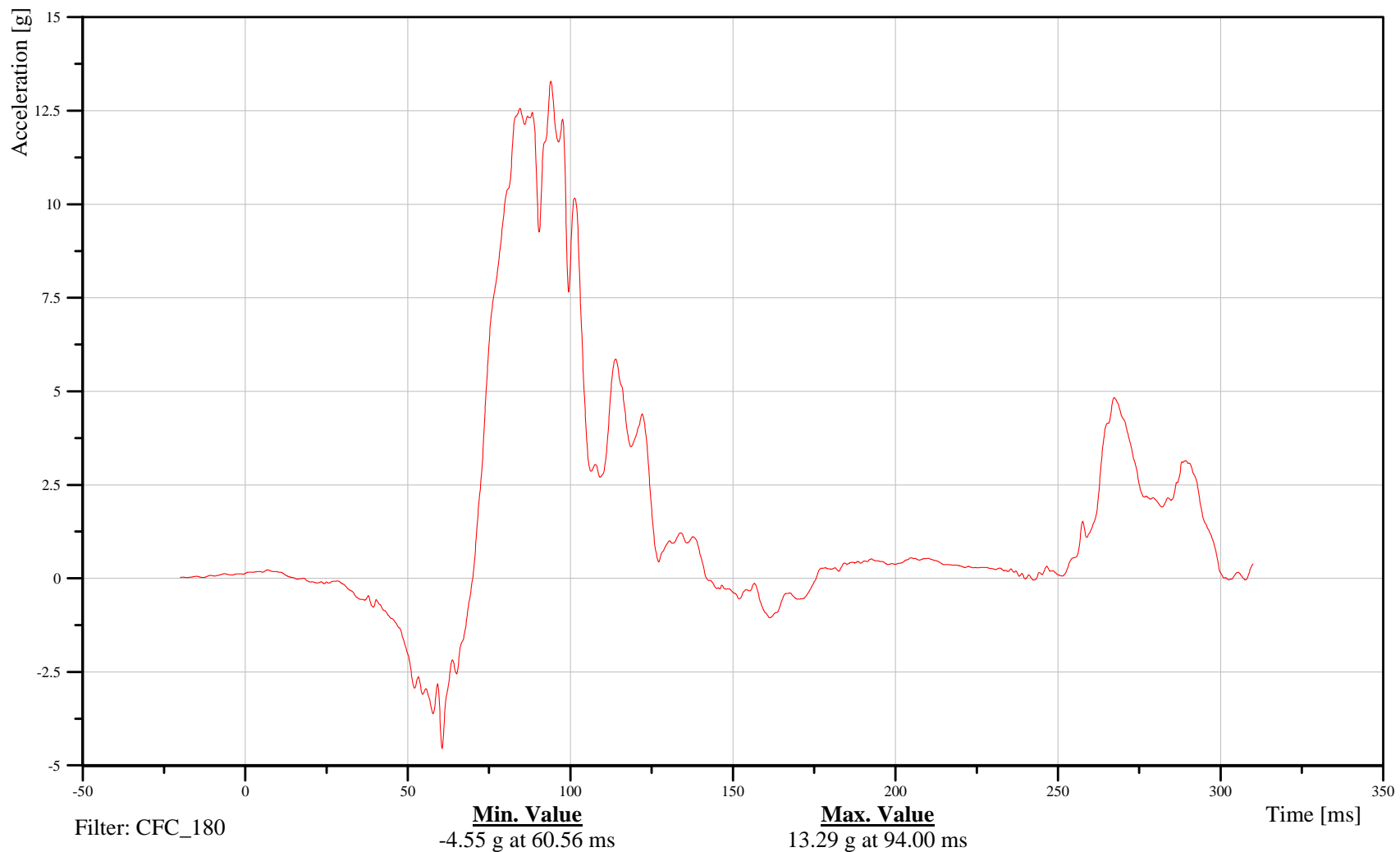
## Bullet Vehicle Left Rear Passenger Chest Y-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14CHSTCG00HFACYC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-181

091020



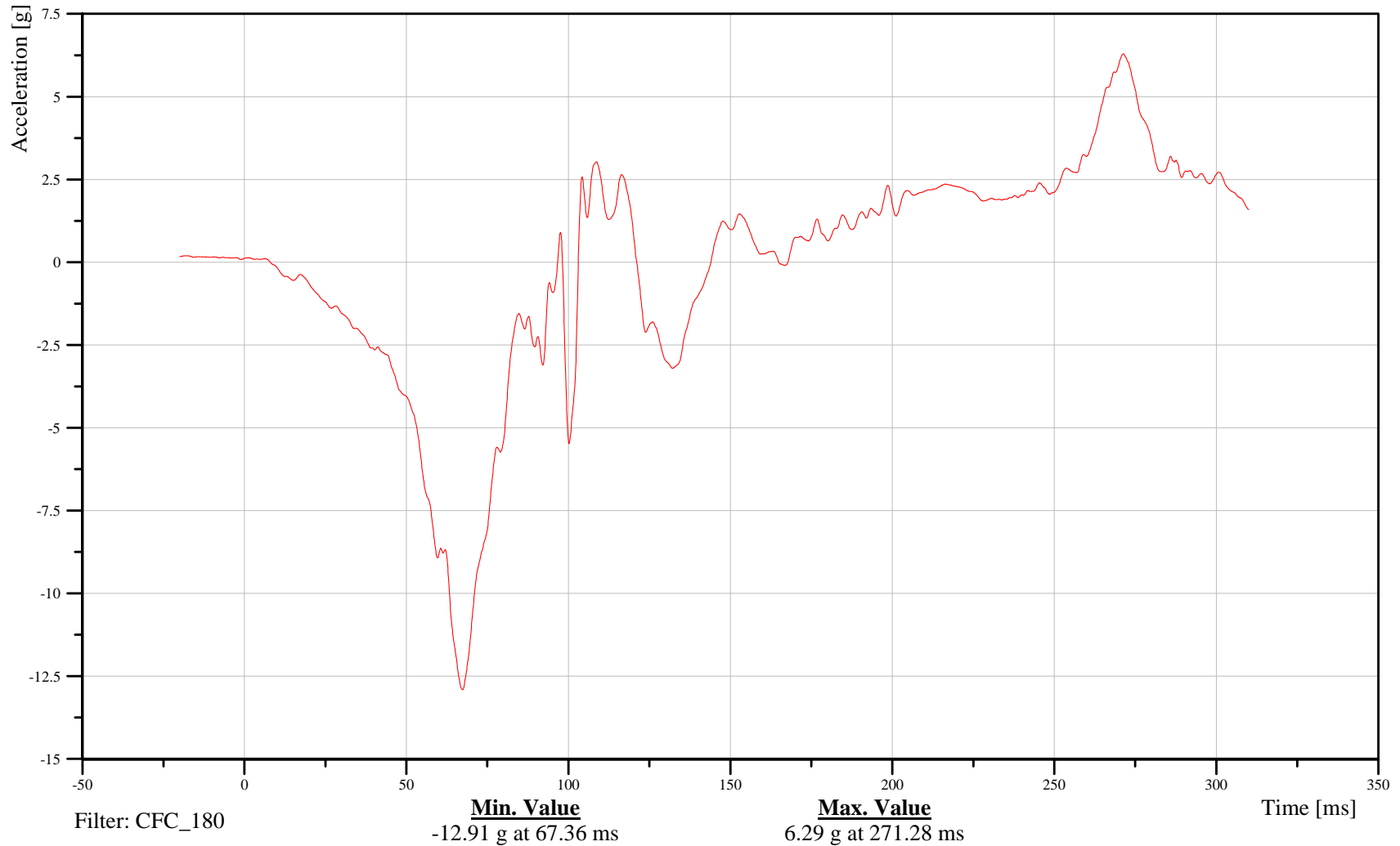
Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Left Rear Passenger Chest Z-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

14CHSTCG00HFACZC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-182

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

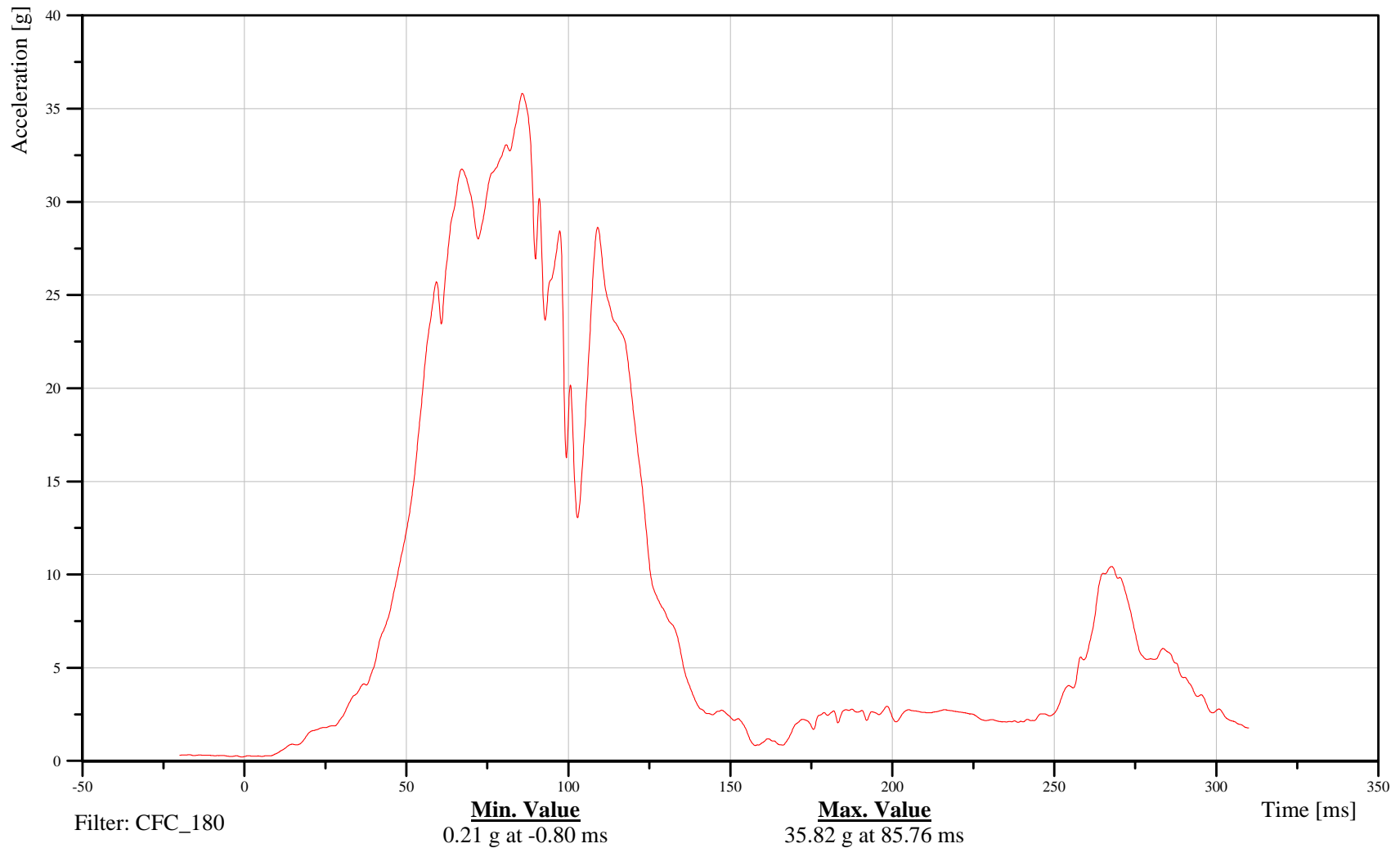
## Bullet Vehicle Left Rear Passenger Chest Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14CHSTCG00HFACRC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-183

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

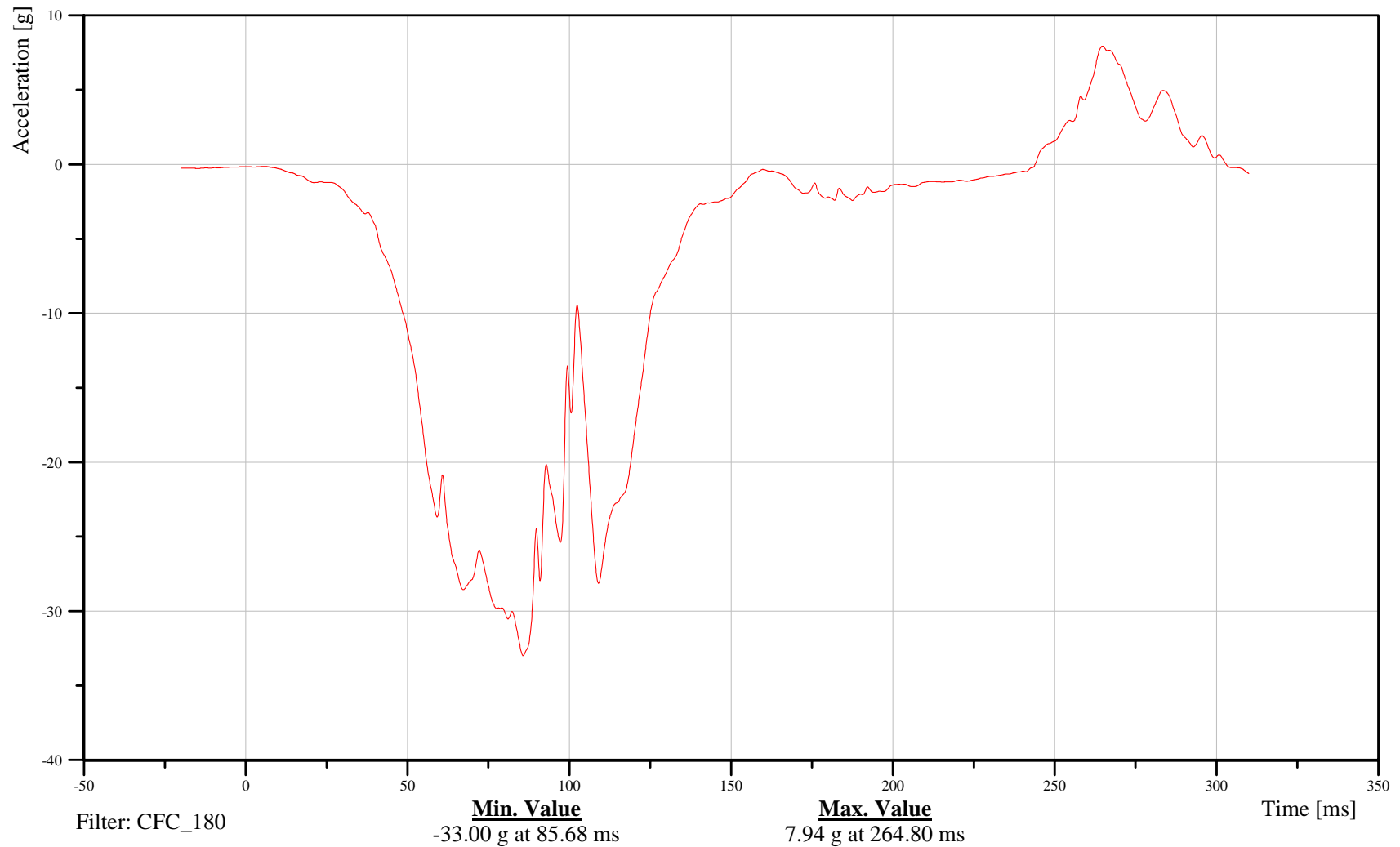
## Bullet Vehicle Left Rear Passenger Chest Redundant X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14CHSTCGRDHFACXC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-184

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

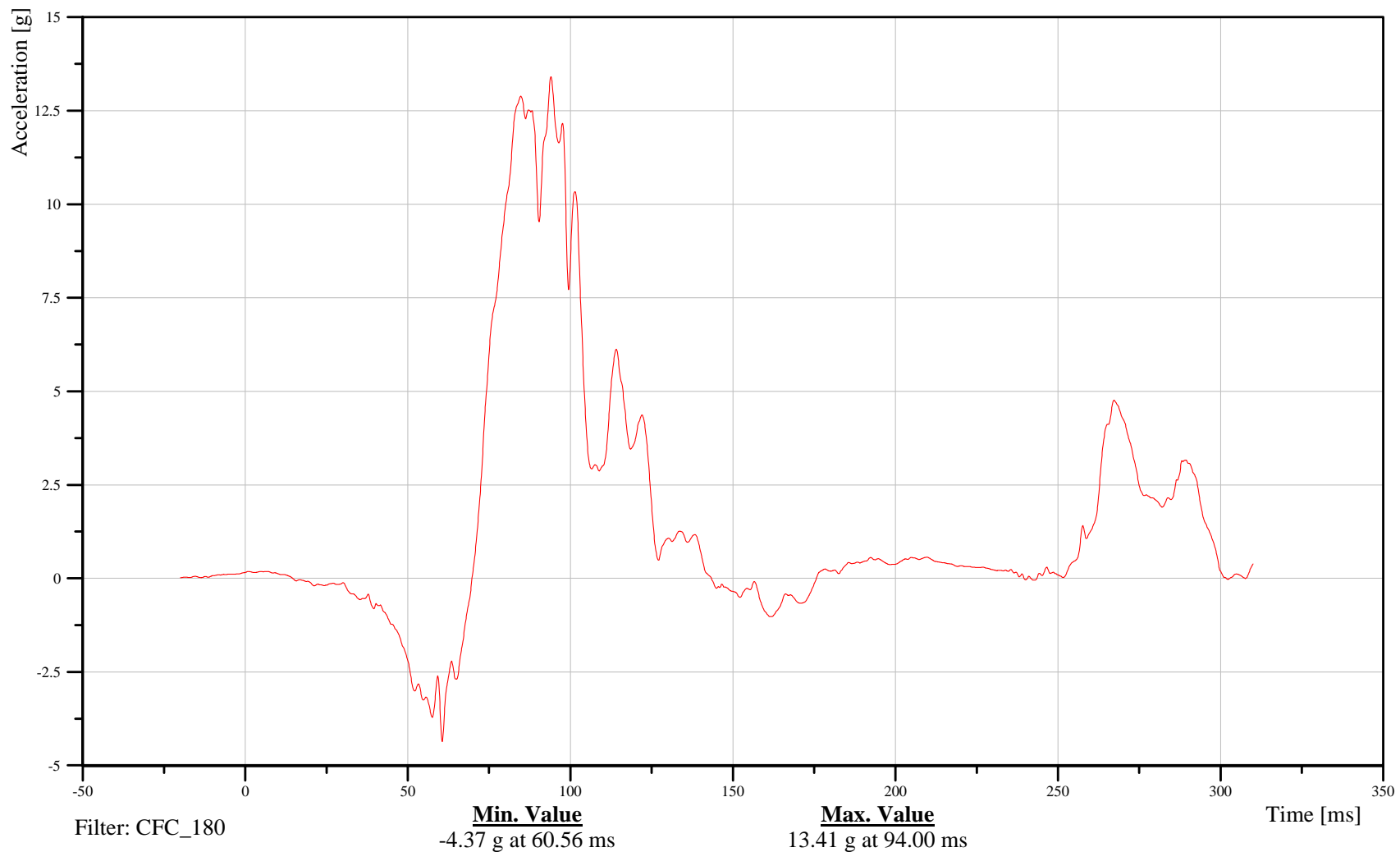
## Bullet Vehicle Left Rear Passenger Chest Redundant Y-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14CHSTCGRDHFACYC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-185

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

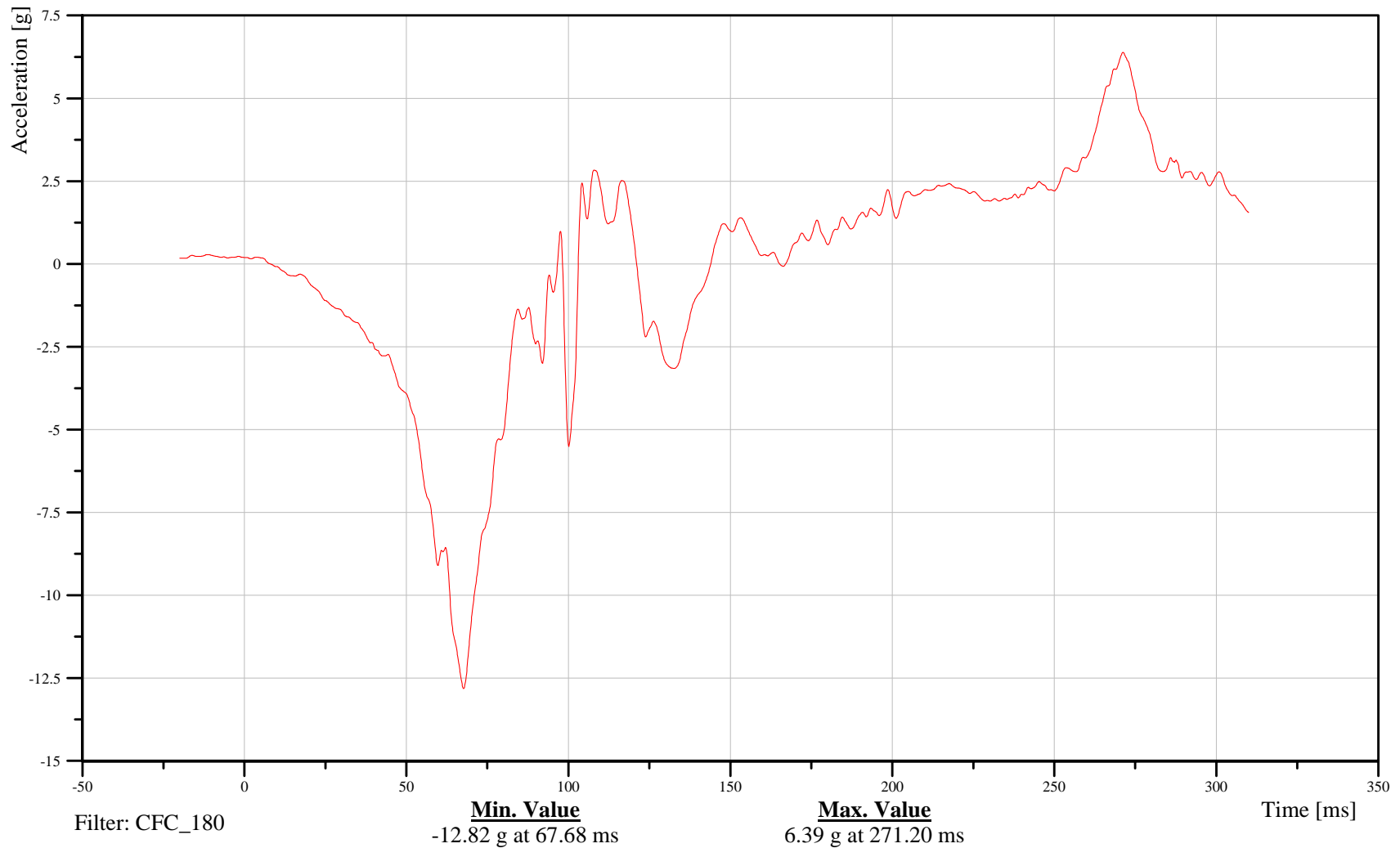
## Bullet Vehicle Left Rear Passenger Chest Redundant Z-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14CHSTCGRDHFACZC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-186

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Left Rear Passenger Chest Redundant Resultant Acceleration

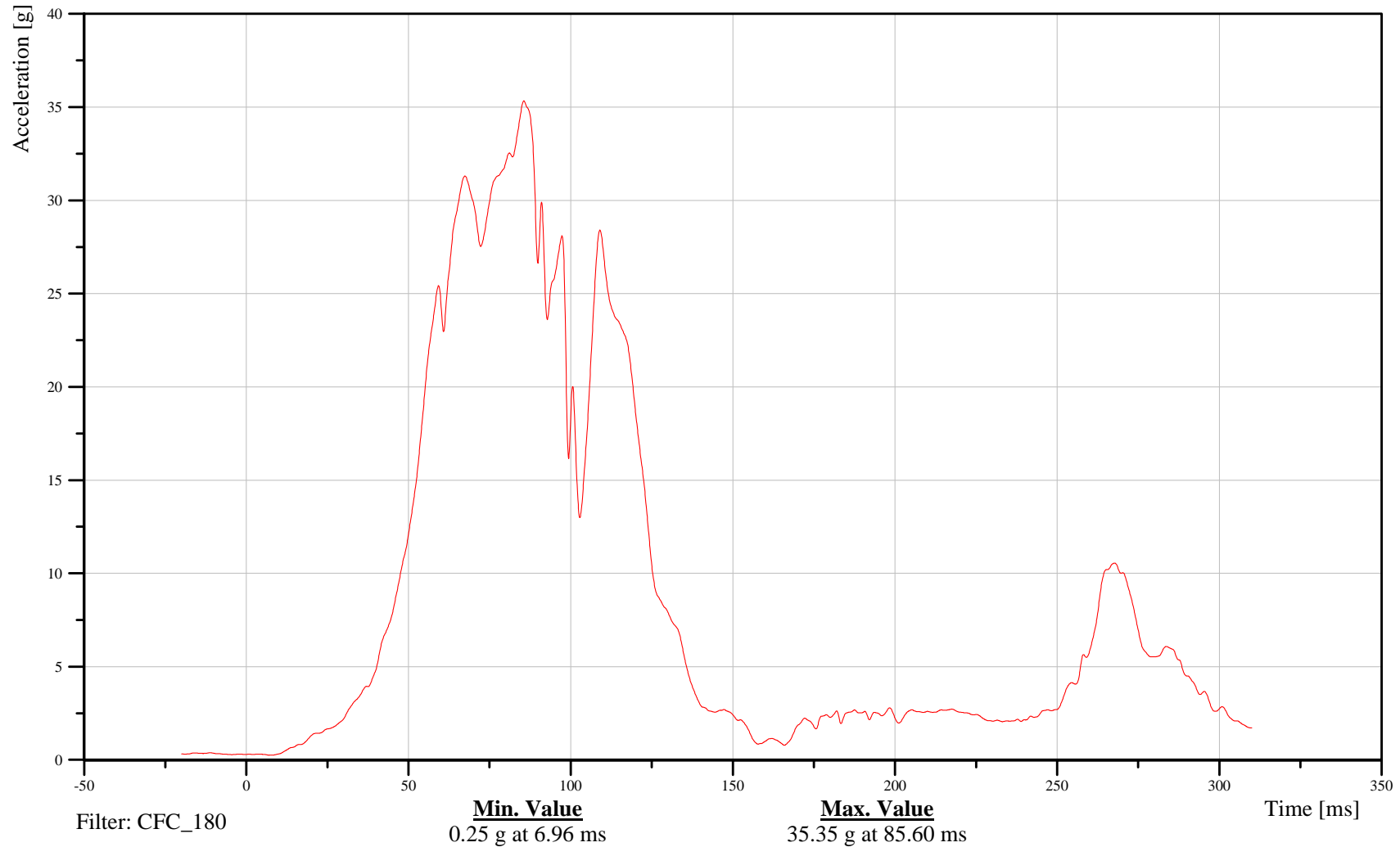
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14CHSTCGRDHFACRC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-187

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

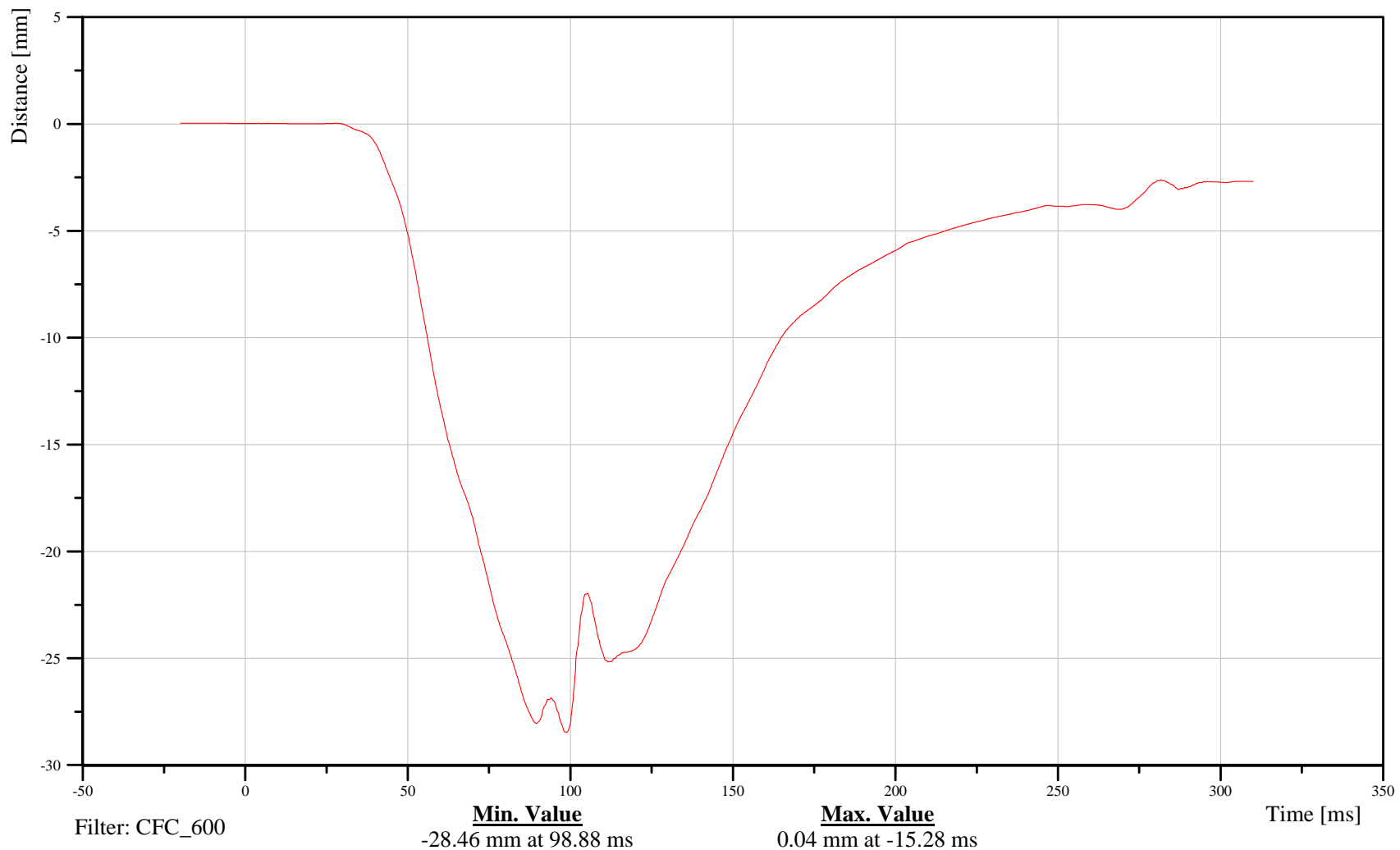
## Bullet Vehicle Left Rear Passenger Chest X-Axis Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14CHST0000HFDSXB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-188

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

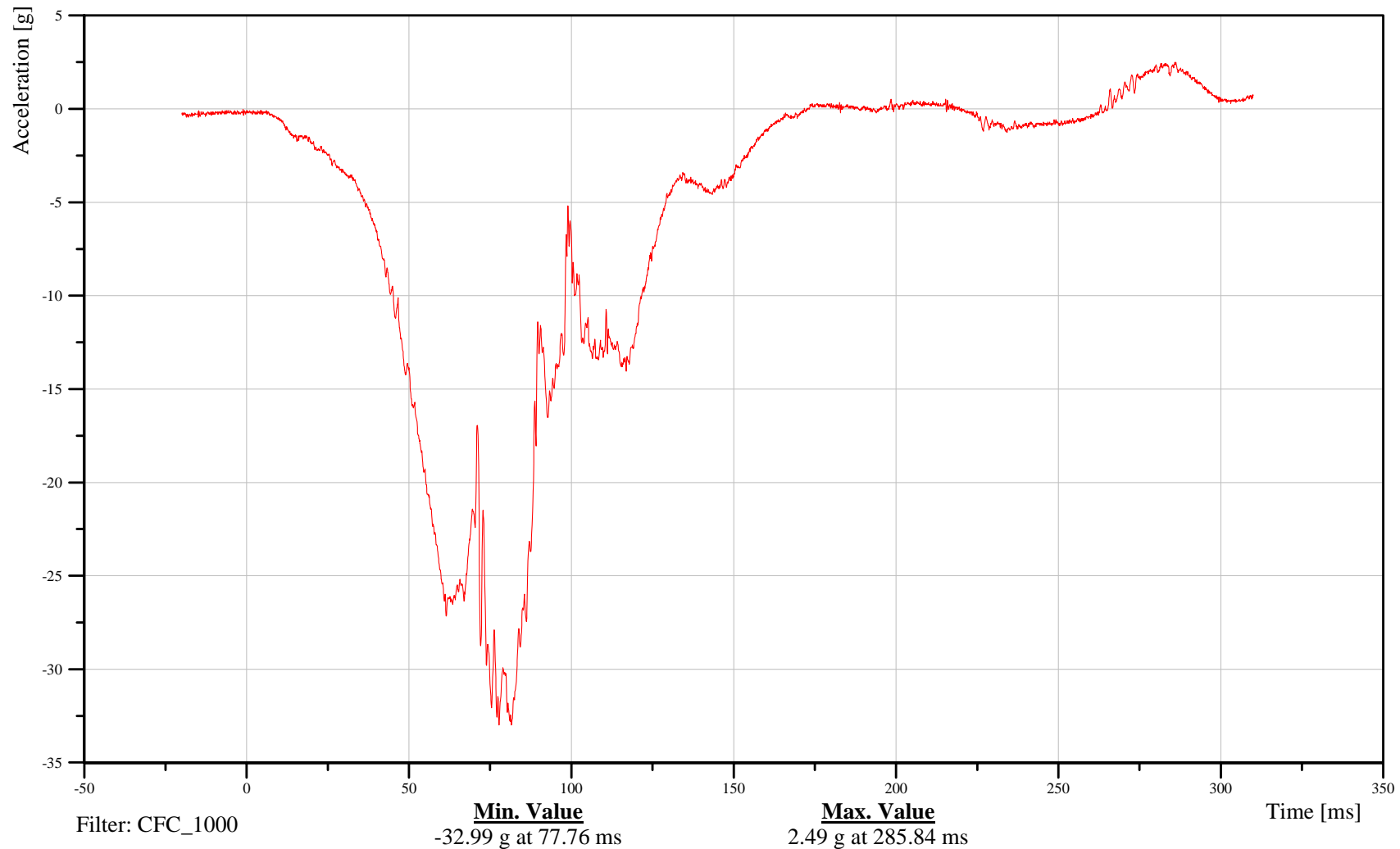
## Bullet Vehicle Left Rear Passenger Pelvis X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14PELVCG00HFACXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-189

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

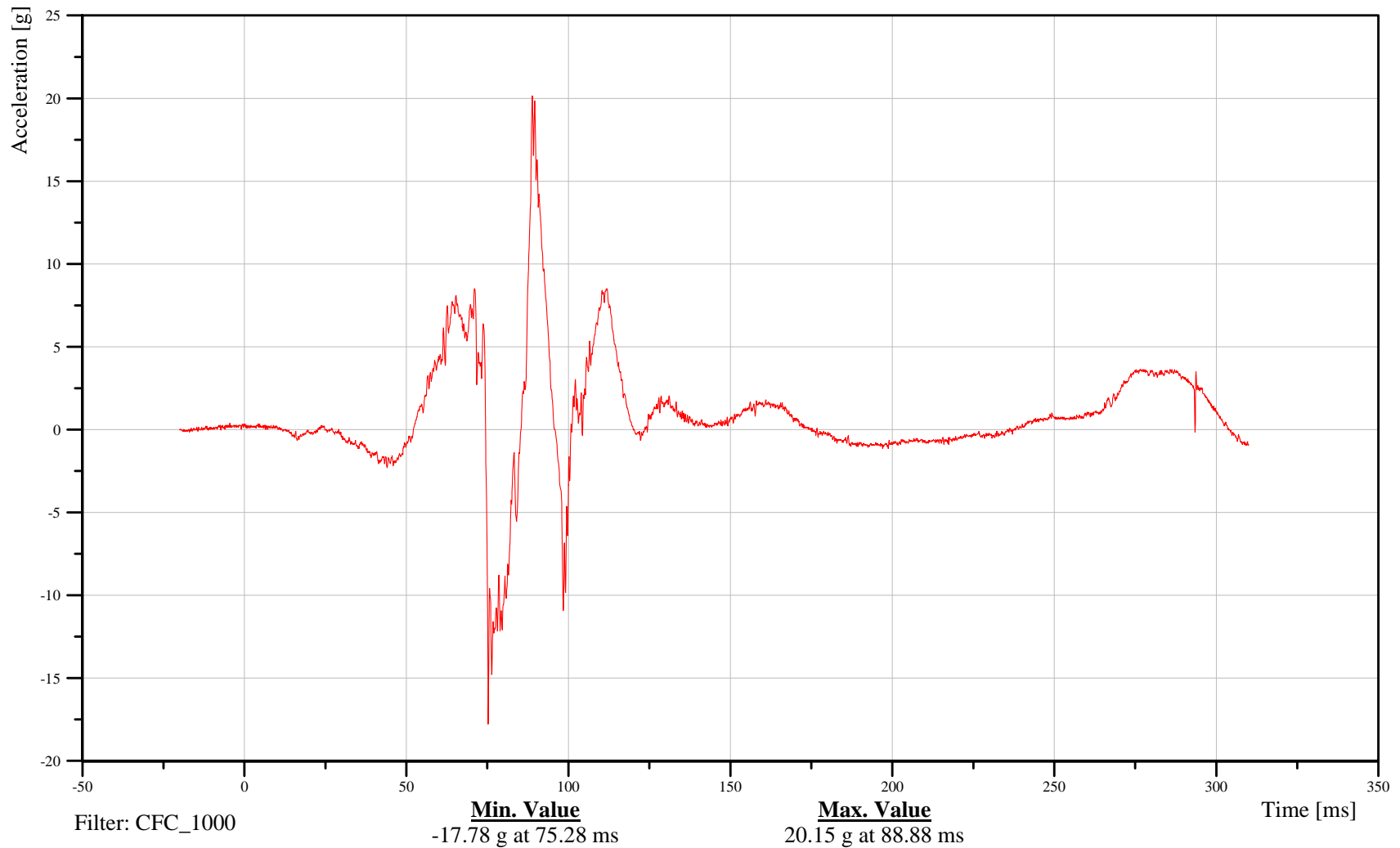
## Bullet Vehicle Left Rear Passenger Pelvis Y-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14PELVCG00HFACYA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-190

091020



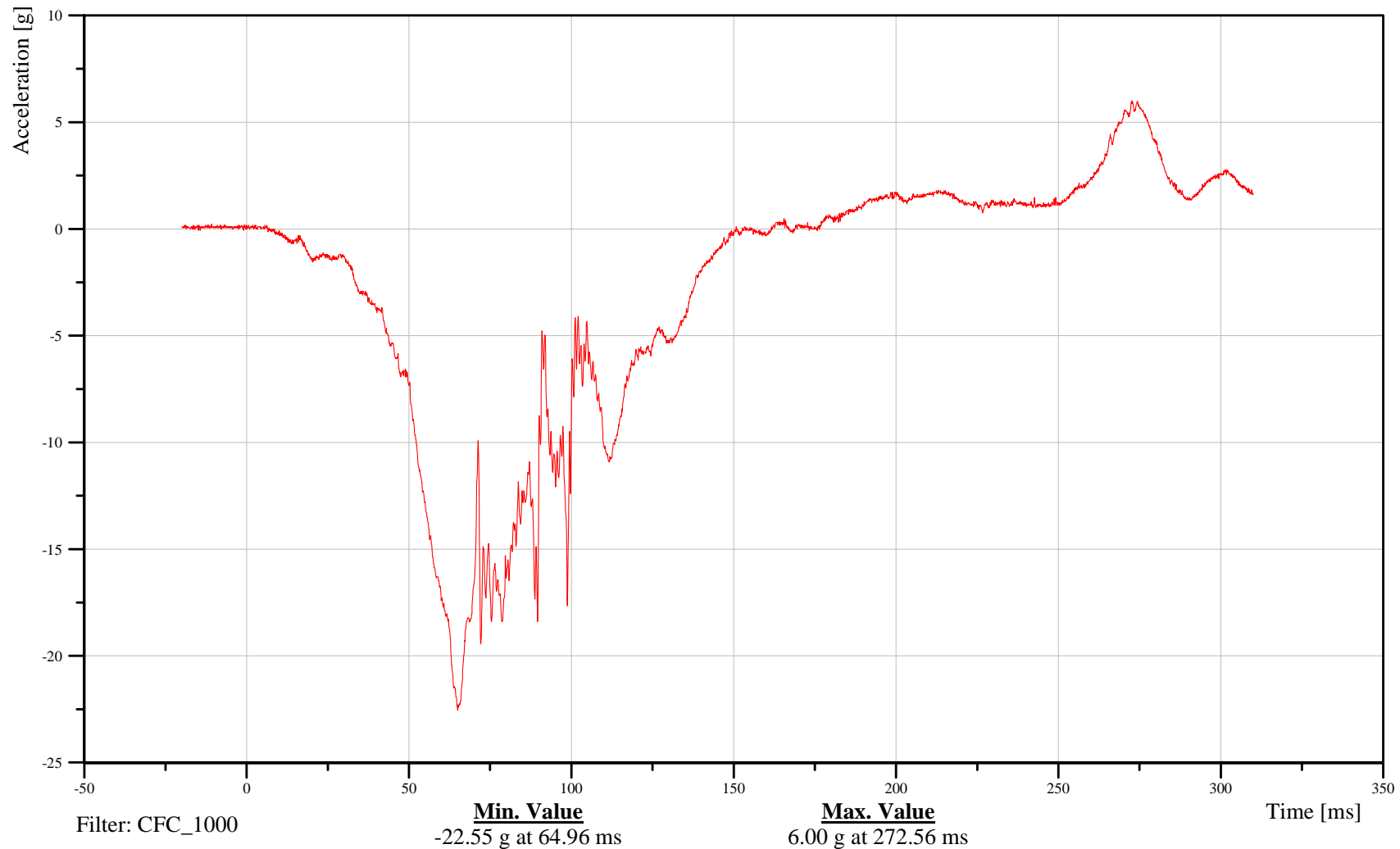
Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Left Rear Passenger Pelvis Z-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

14PELVCG00HFACZA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-191

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Left Rear Passenger Pelvis Resultant Acceleration

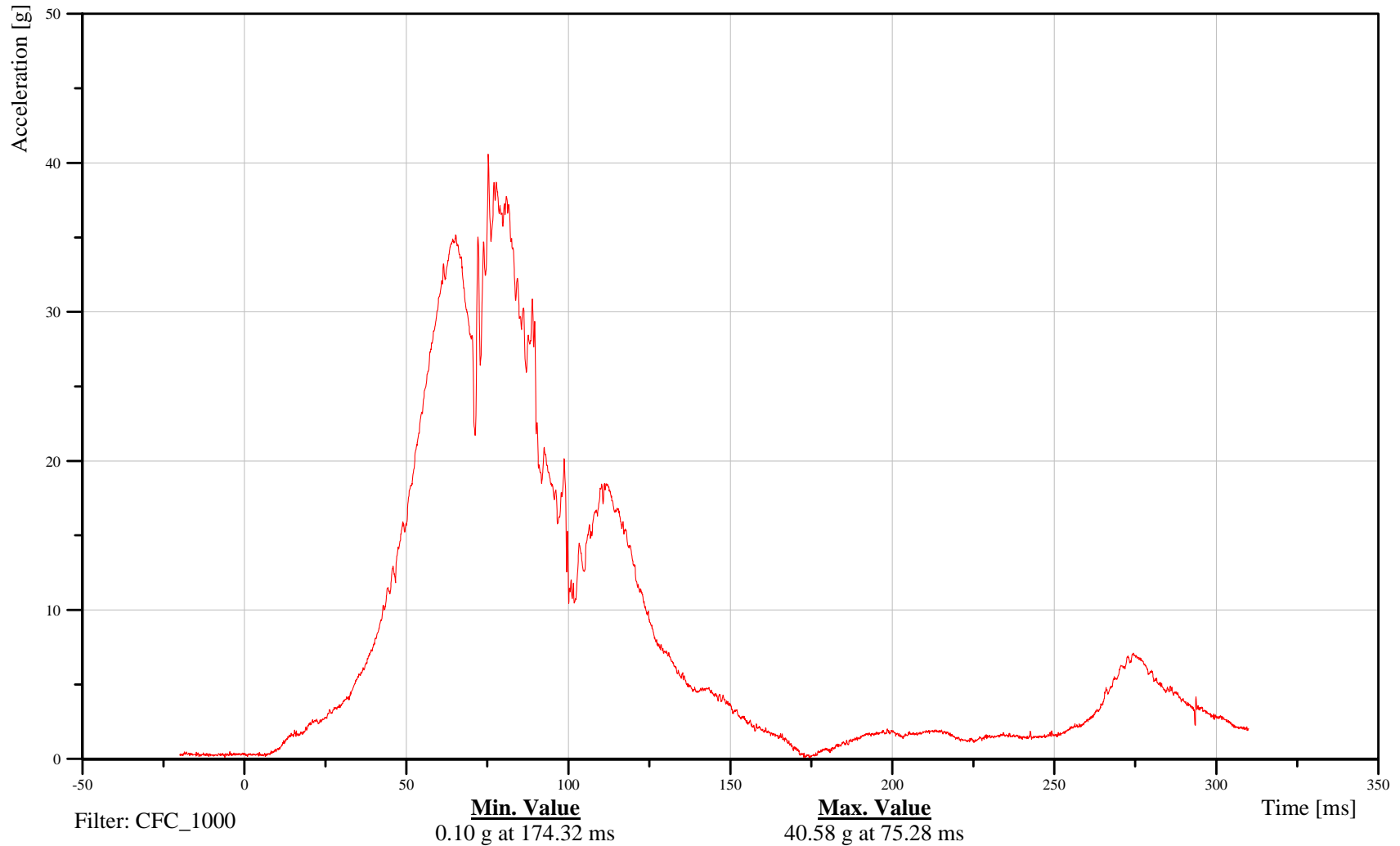
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14PELVCG00HFACRA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-192

091020



Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Left Rear Passenger Left Femur Z-Axis Force

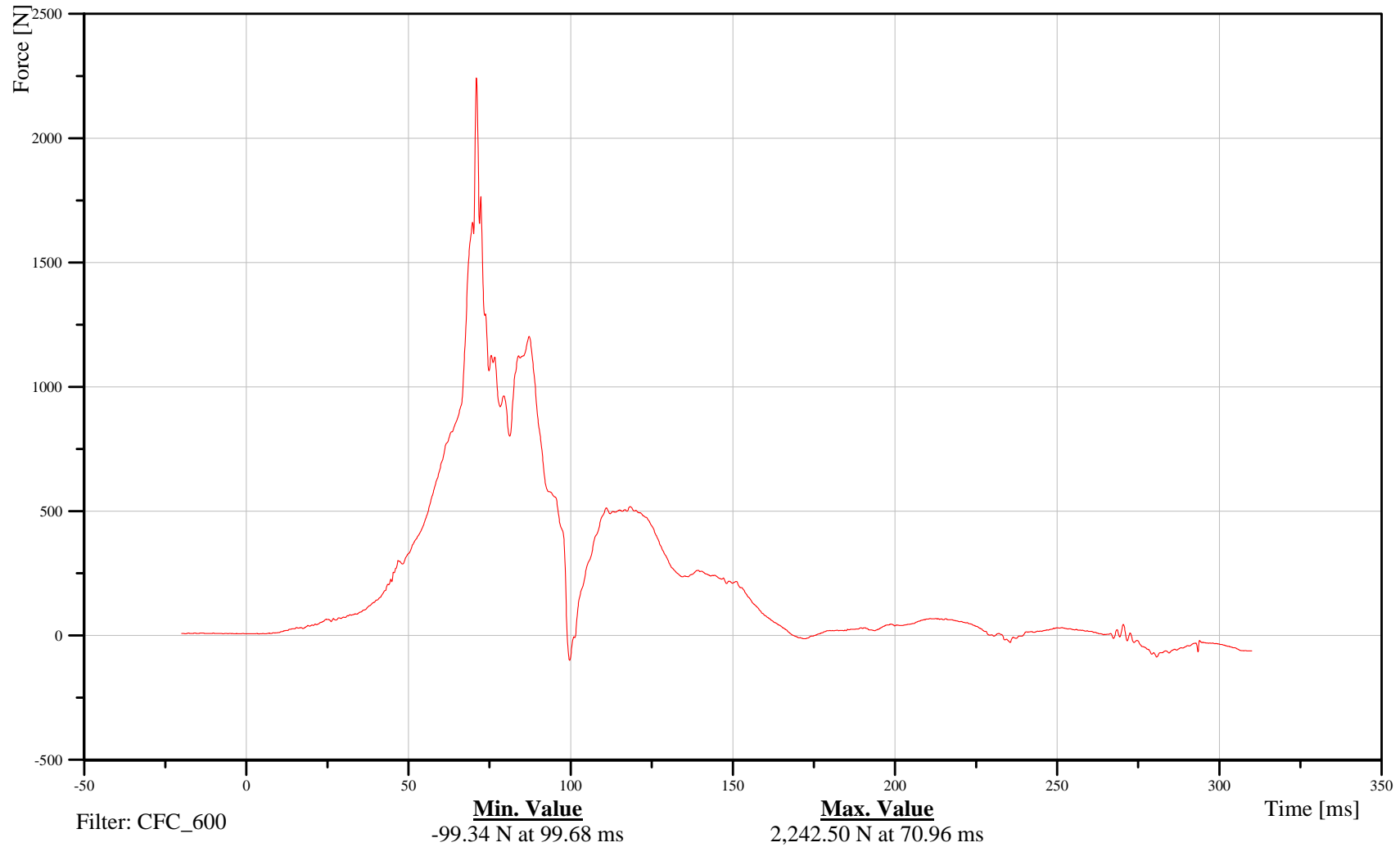
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

14FEMRLL00HFFOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-193

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Left Rear Passenger Right Femur Z-Axis Force

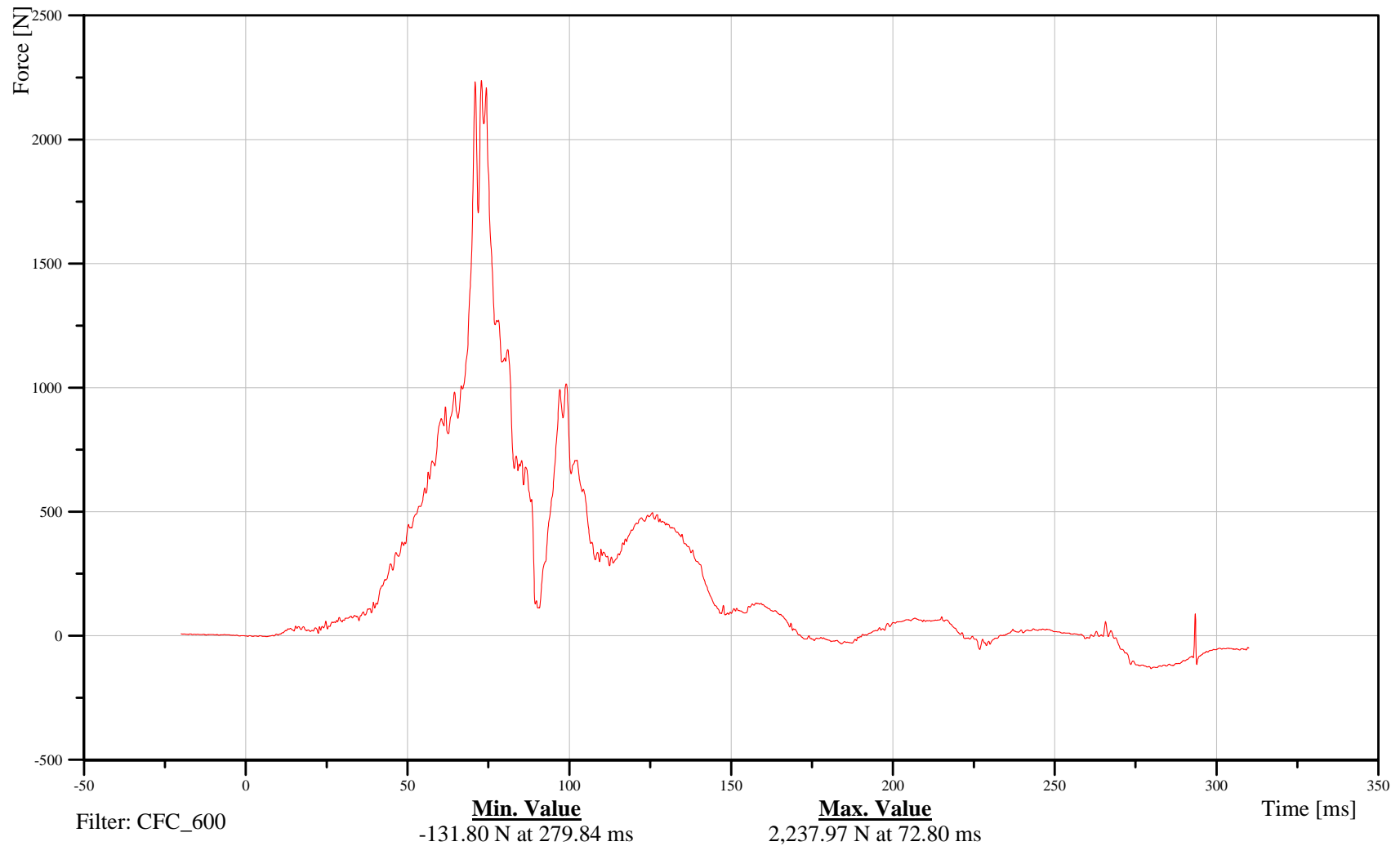
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14FEMRRL00HFFOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-194

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Left Rear Passenger Left Knee X-Axis Displacement

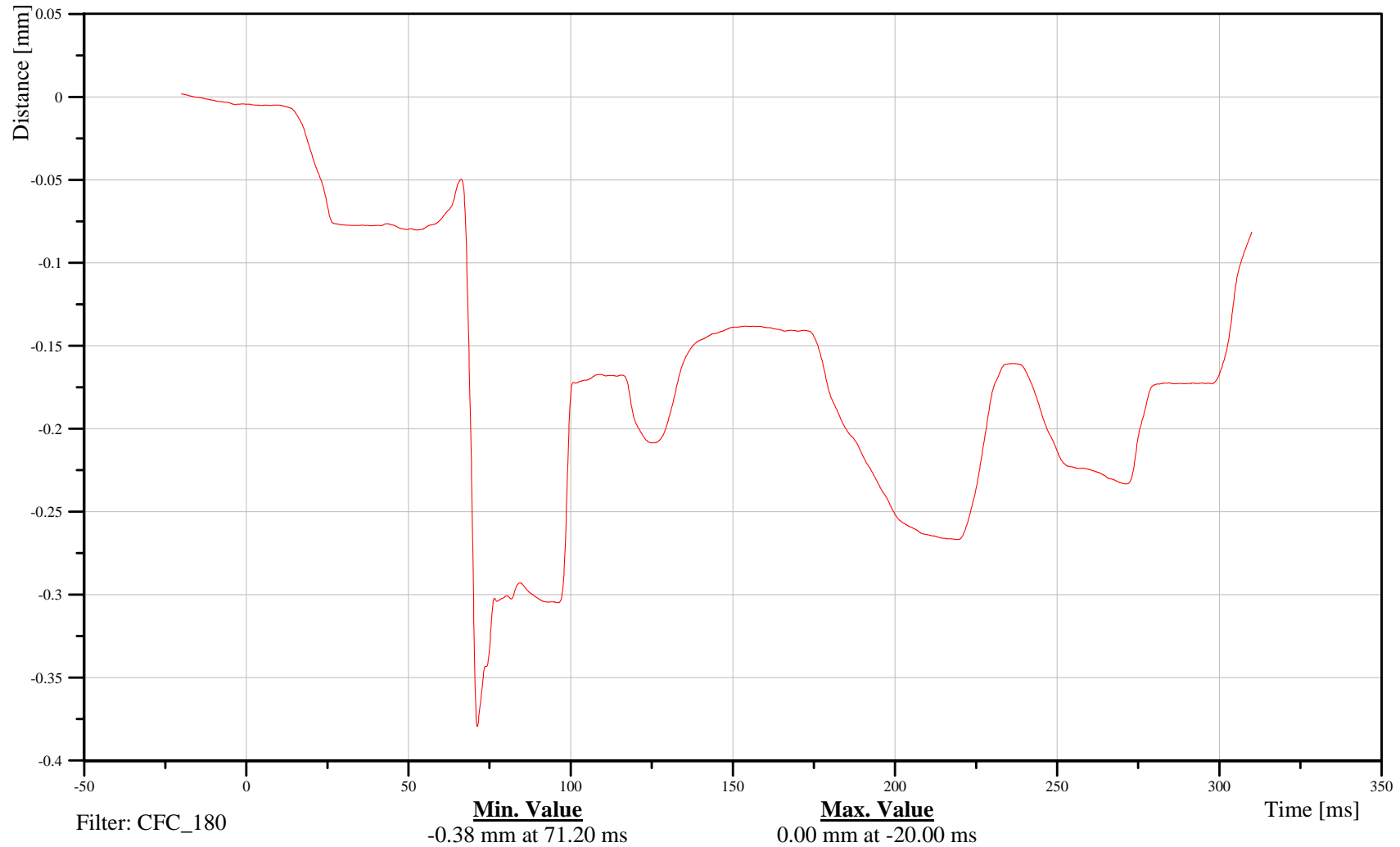
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14KNSLLE00HFDSXC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-195

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

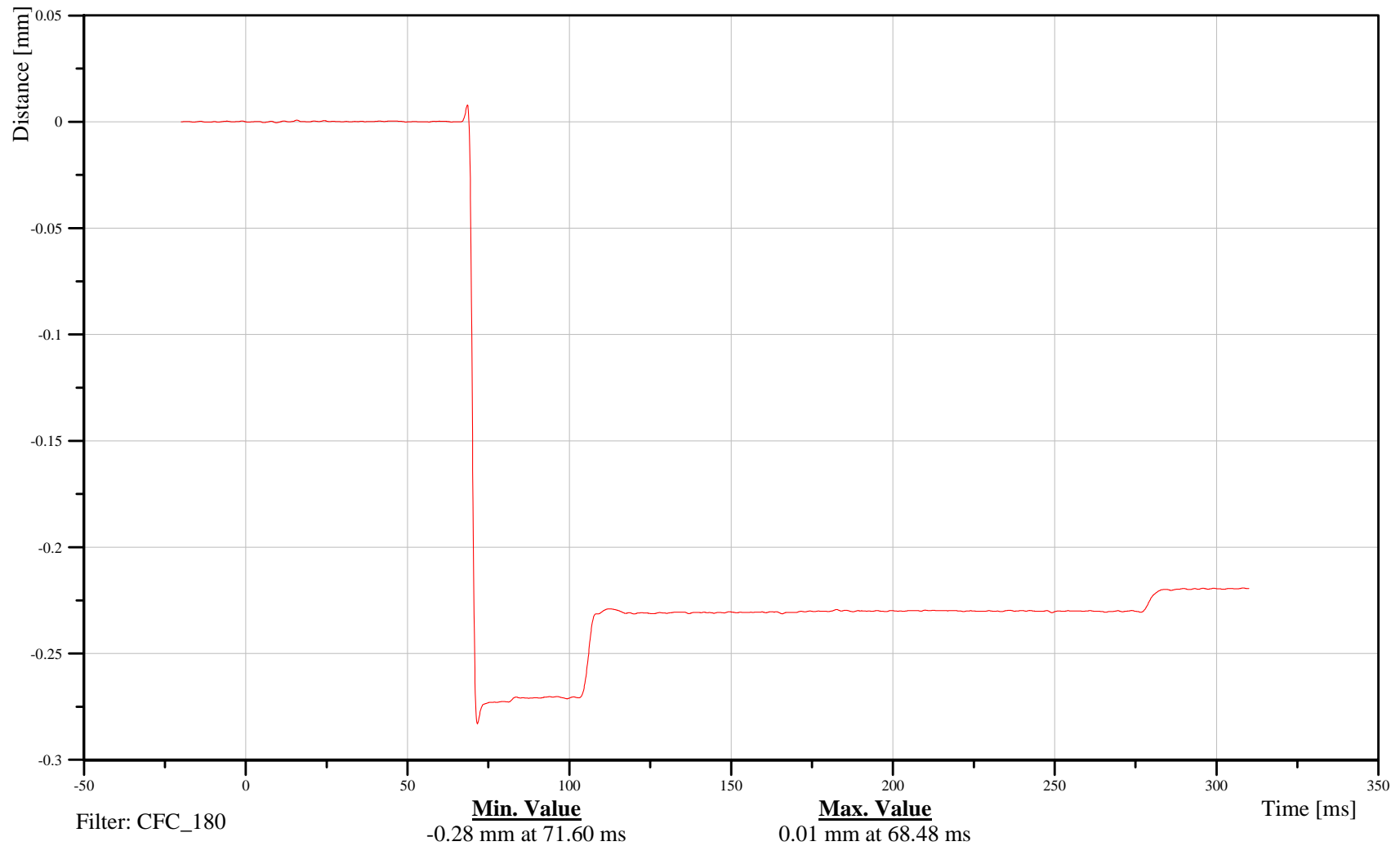
## Bullet Vehicle Left Rear Passenger Right Knee X-Axis Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 14KNSLRI00HFDSXC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-196

091020



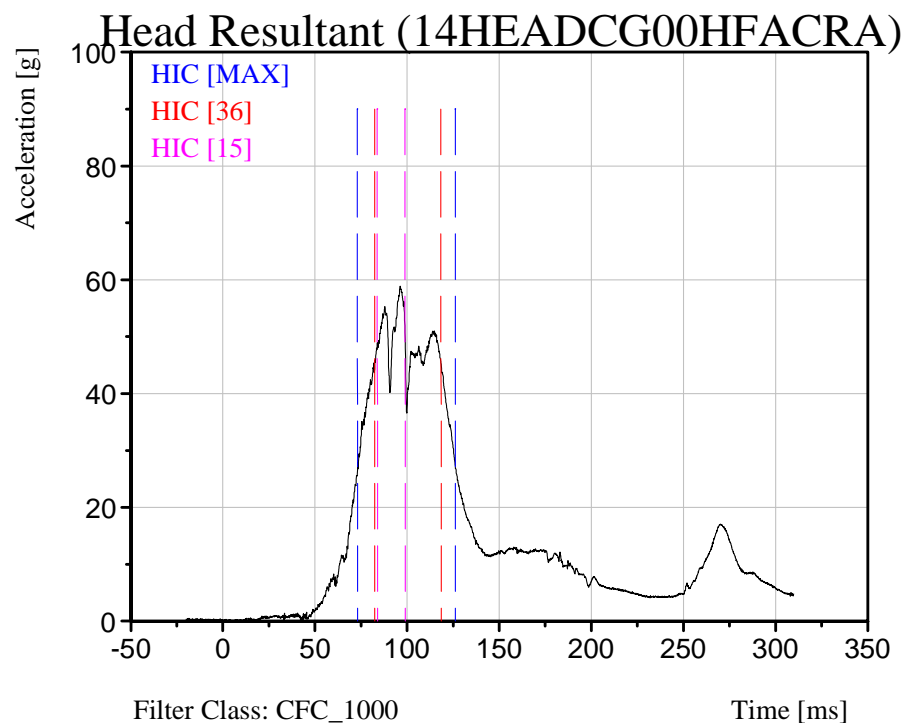
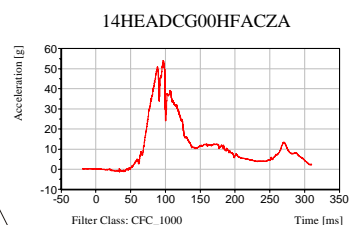
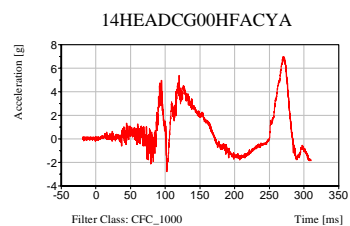
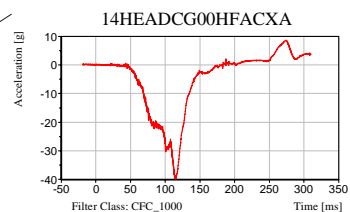
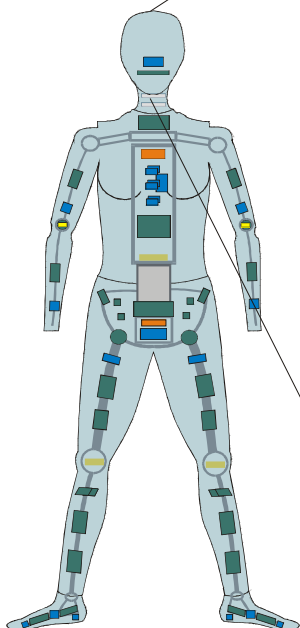
# Taurus into Taurus at 15 Degrees, 50% Overlap

## Head Injury Criterion (HIC)

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

TRC Inc. Test Lab: CTF  
Test Number: 091020



Dummy: HIII 5th Female  
Seating Position:  
Left Rear Passenger

	<u>T1</u> (Begin)	<u>T2</u> (End)	<u>Avg. g T1 to T2</u>
HIC [Max.] = 725.94	73.04 ms	126.24 ms	45.05 g
HIC [36] = 608.23	82.48 ms	118.48 ms	49.09 g
HIC [15] = 295.19	83.92 ms	98.96 ms	52.12 g

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

B-197

091020



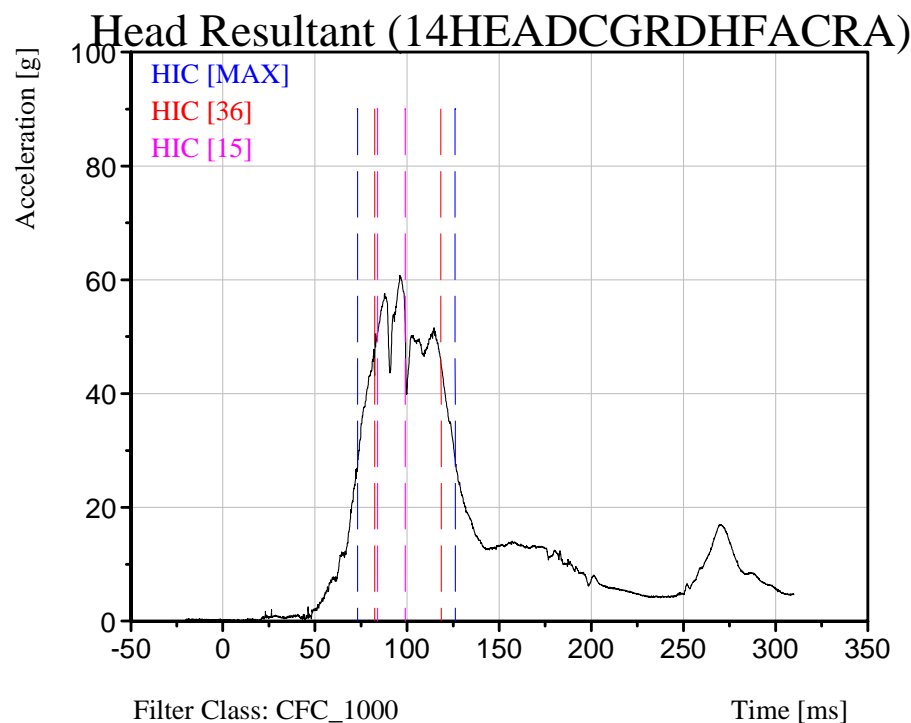
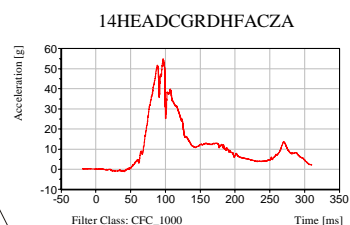
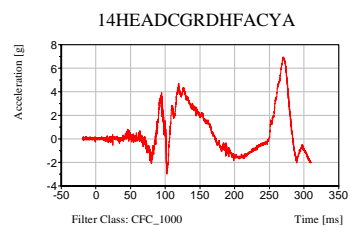
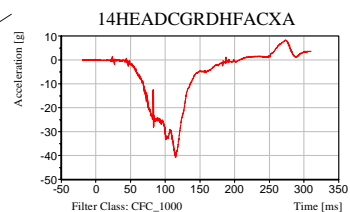
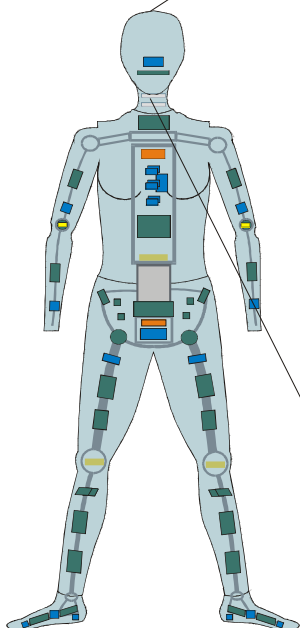
# Taurus into Taurus at 15 Degrees, 50% Overlap

## Head Injury Criterion (HIC)

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

TRC Inc. Test Lab: CTF  
Test Number: 091020



Dummy: HIII 5th Female  
Seating Position:  
Left Rear Passenger

	<u>T1</u> (Begin)	<u>T2</u> (End)	<u>Avg. g T1 to T2</u>
HIC [Max.] = 794.04	73.20 ms	126.16 ms	46.78 g
HIC [36] = 667.93	82.48 ms	118.48 ms	50.96 g
HIC [15] = 331.50	84.00 ms	99.04 ms	54.59 g

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

B-198

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

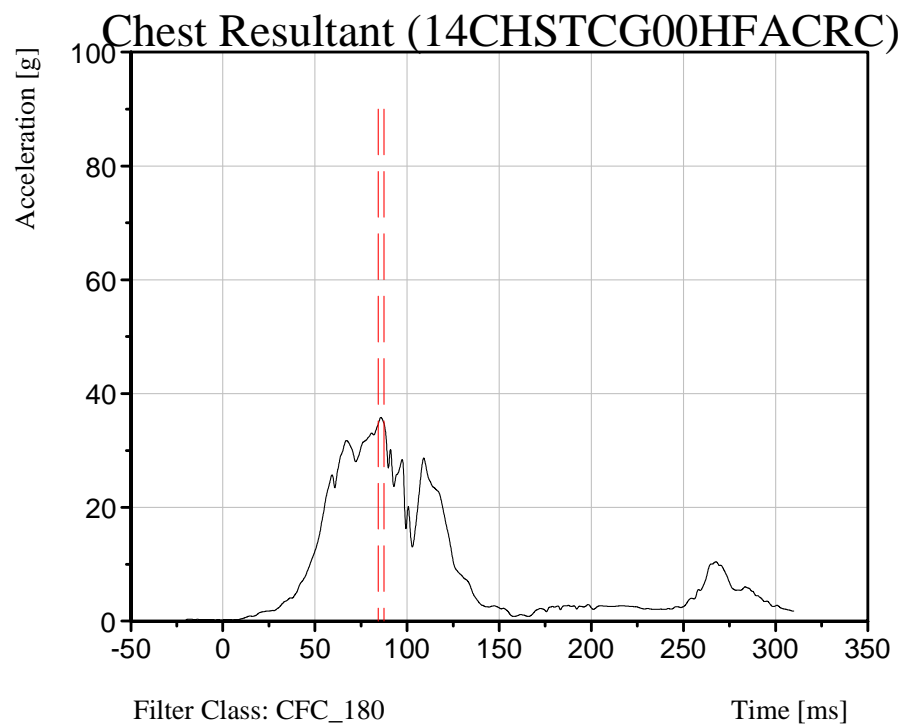
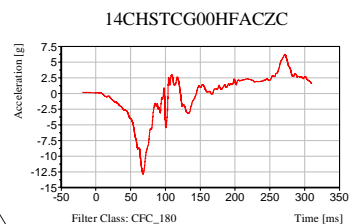
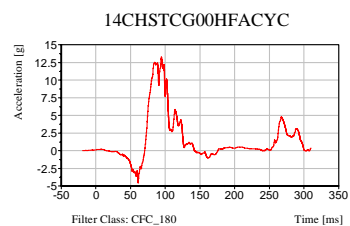
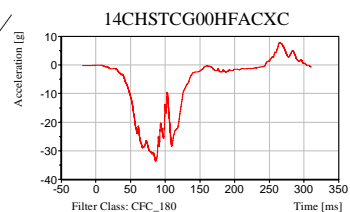
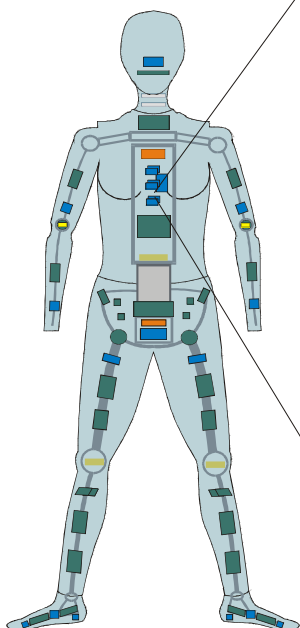
Time: 16:35

## 3 ms Duration Acceleration (Chest)

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



3 ms Duration Acceleration = 34.77 g  
Chest Severity Index = 277.49

T1 (Begin)      T2 (End)  
84.44 ms      87.44 ms

Dummy: HIII 5th Female  
Seating Position:  
Left Rear Passenger

3 ms Duration Acceleration Source Code : vbScript w/DIADEM 9.0

B-199

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

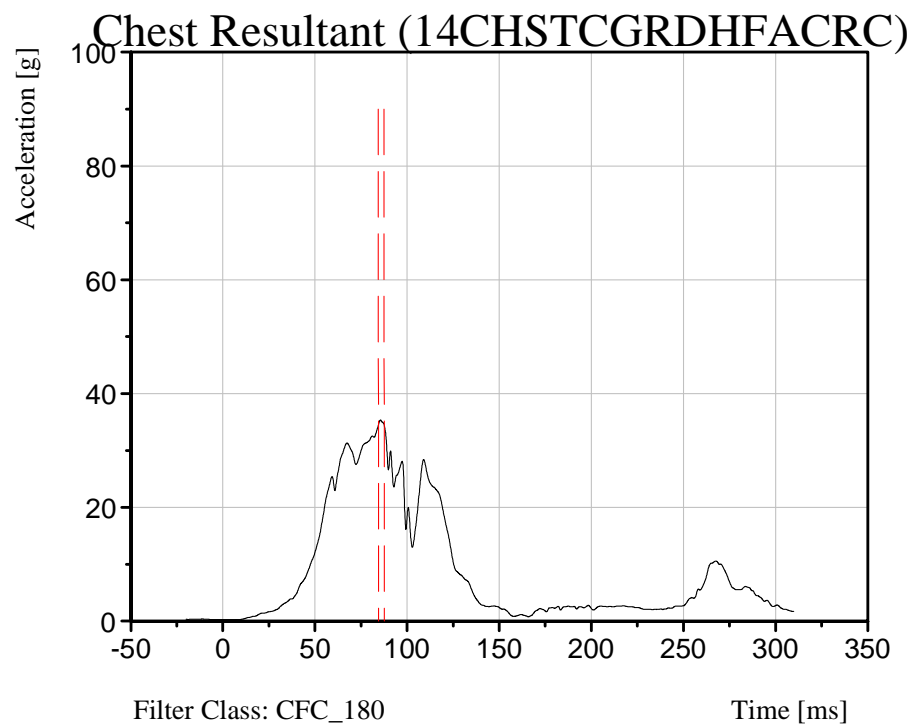
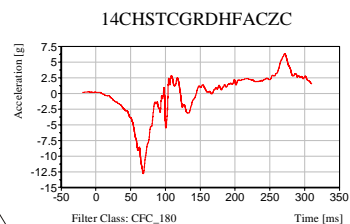
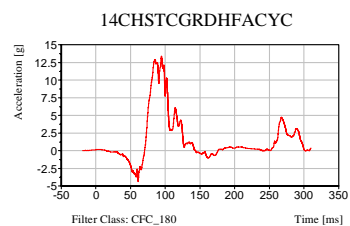
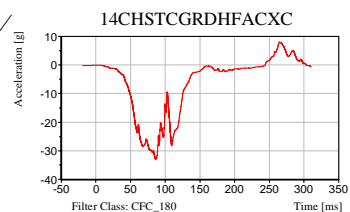
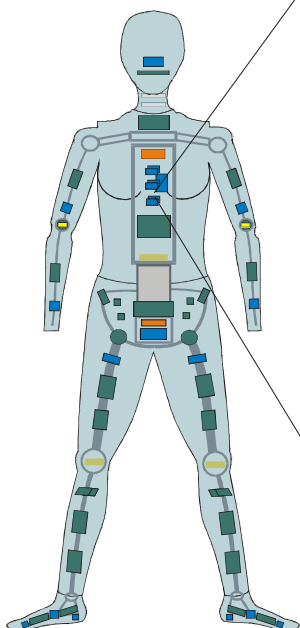
Time: 16:35

## 3 ms Duration Acceleration (Chest)

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



3 ms Duration Acceleration = 34.55 g  
Chest Severity Index = 269.65

T1 (Begin)      T2 (End)  
84.49 ms      87.49 ms

Dummy: HIII 5th Female  
Seating Position:  
Left Rear Passenger

3 ms Duration Acceleration Source Code : vbScript w/DIADEM 9.0

B-200

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009  
Time: 16:35

## Chest Deflection

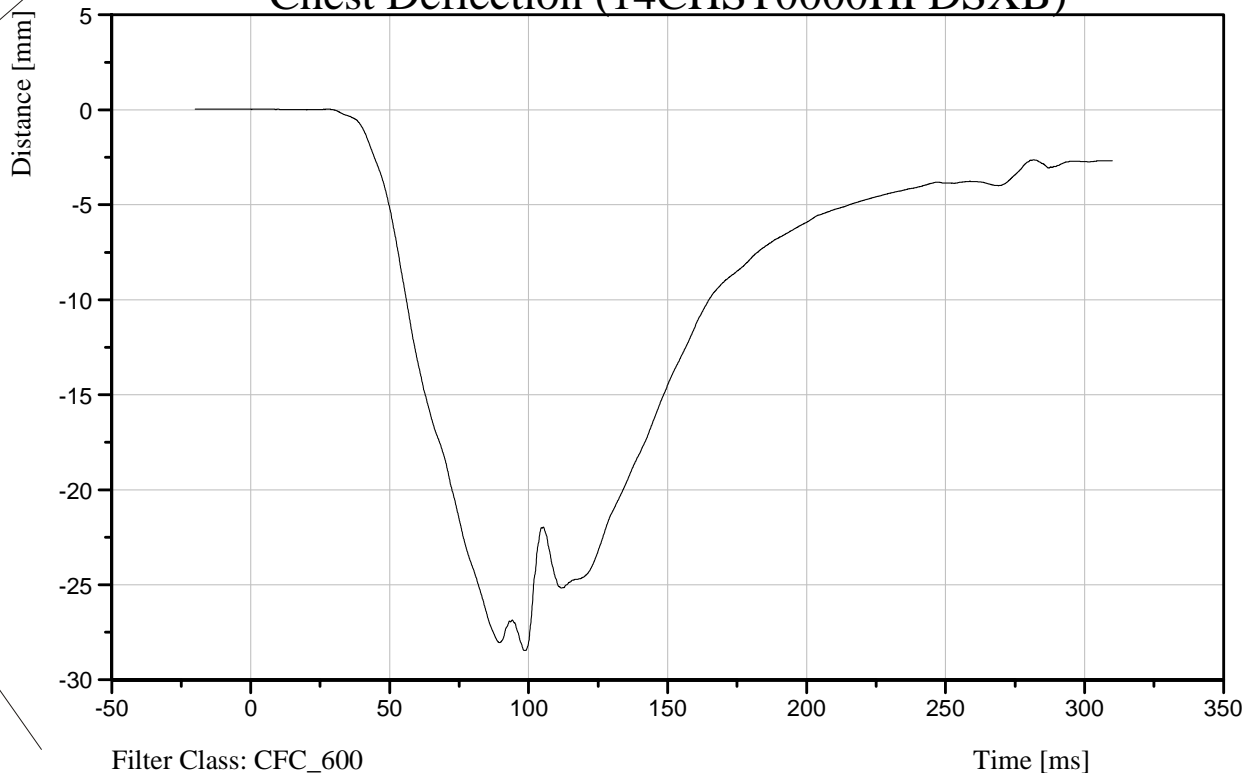
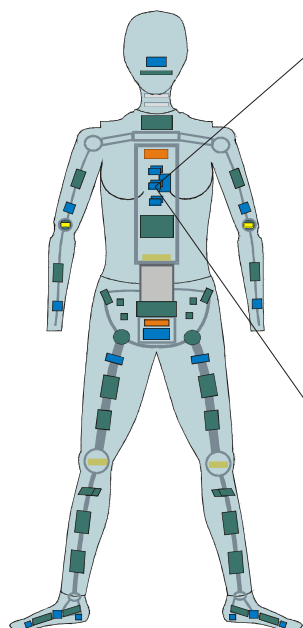
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

### Chest Deflection (14CHST0000HFDSXB)



Dummy: HIII 5th Female  
Seating Position:  
Left Rear Passenger

[Max.] 0.04 mm at -15.28 ms  
[Min.] -28.46 mm at 98.88 ms

ChestDeflection Source Code : Min/Max of 14CHST0000HFDSXB (CFC\_600)

B-201

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap Neck Moment about the Occipital Condyle (NECK OM)

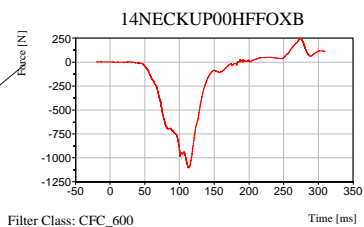
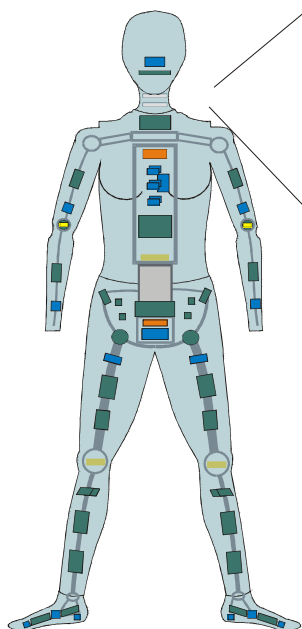
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

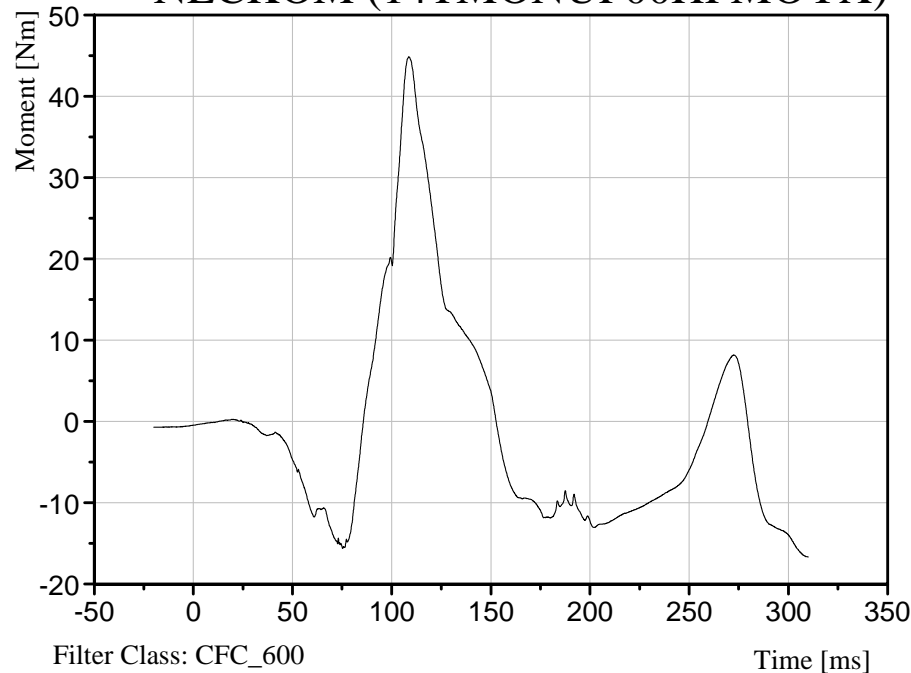
TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal



## NECKOM (14TMONUP00HFMOYX)



Dummy:HIII 5th Female  
Seating Position:  
Left Rear Passenger

Neck OM Source Code: My - (D<sup>o</sup>Fx)

[Max.] 44.89 Nm at 108.72 ms

[Min.] -16.63 Nm at 309.84 ms

B-202

091020



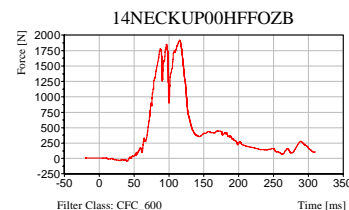
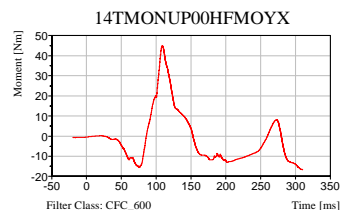
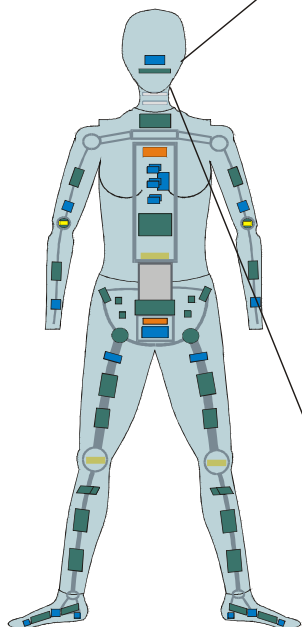
# Taurus into Taurus at 15 Degrees, 50% Overlap

## Neck Injury Predictor (NIJ)

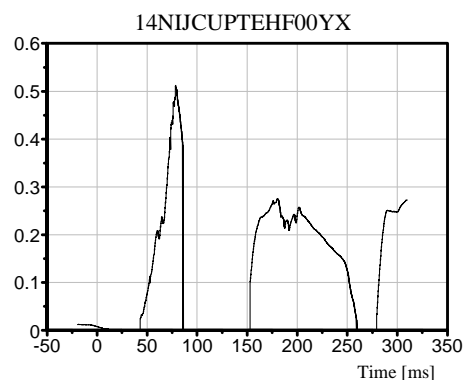
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

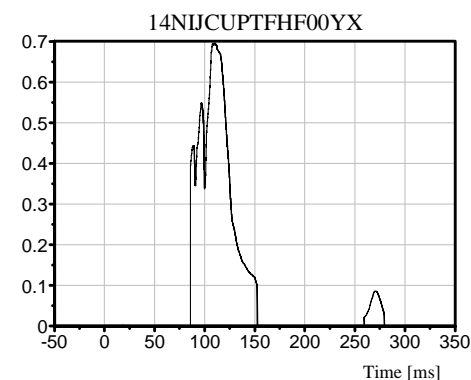
Test Orientation = Frontal  
Fzc(Tension) = 4287  
Fzc(Compression) = 3880  
Myc(Extension) = 67  
Myc(Flexion) = 155



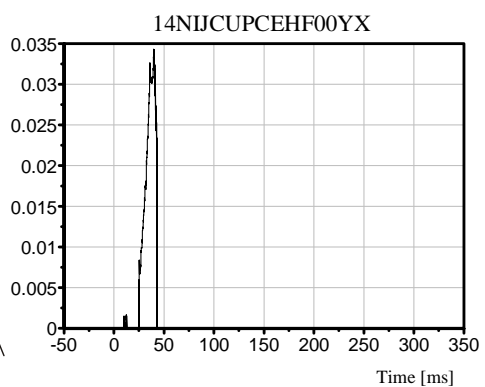
TRC Inc. Test Lab: CTF  
Test Number: 091020



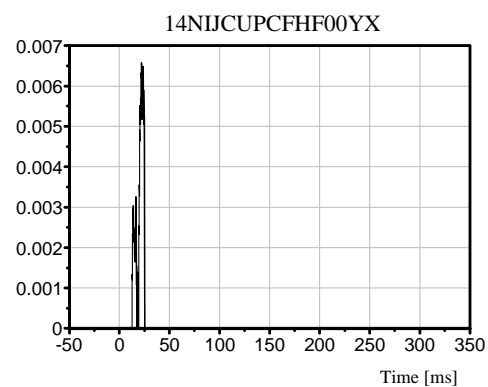
Max [NTE] 0.5126 at 78.32 ms



Max [NTF] 0.6958 at 110.16 ms



Max [NCE] 0.0343 at 39.68 ms



Max [NCF] 0.0066 at 22.00 ms

Dummy: HIII 5th Female  
Seating Position:  
Left Rear Passenger

NIJ Source Code: (Fz/Fzc)+(Myc/Myc)

B-203

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

## Neck Shear Force

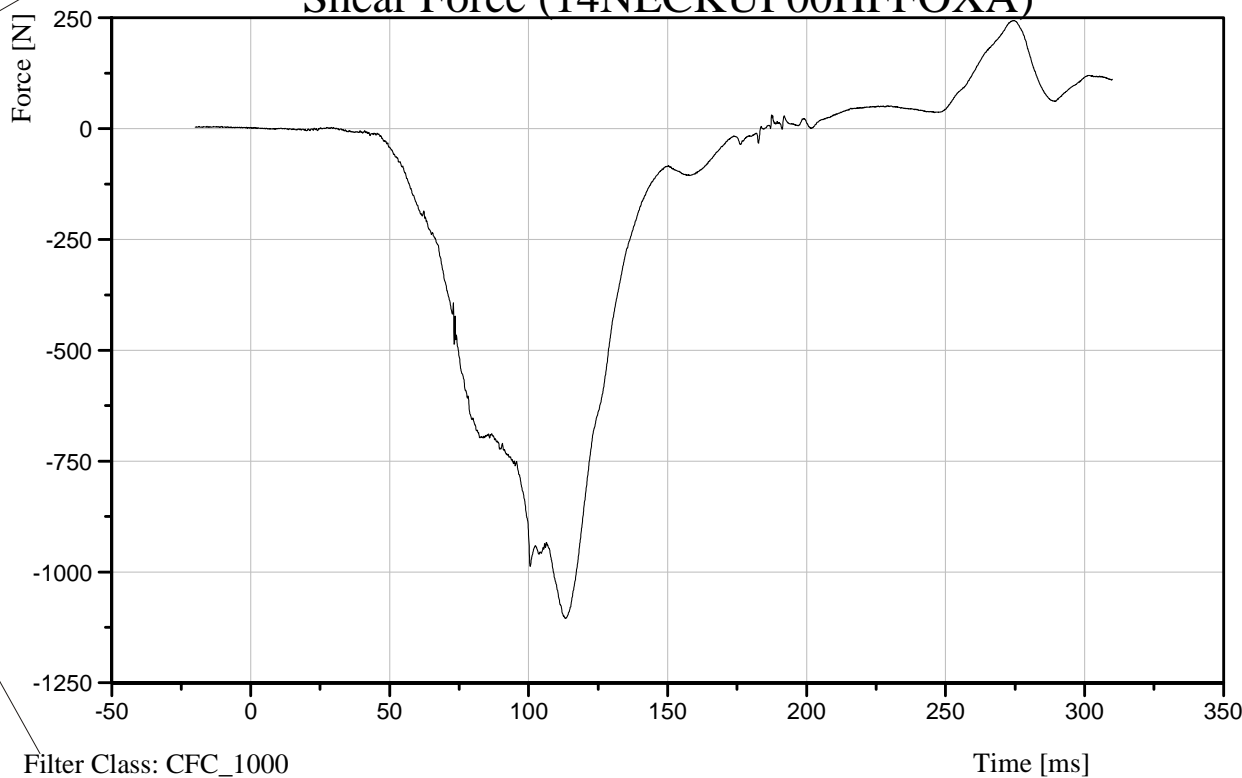
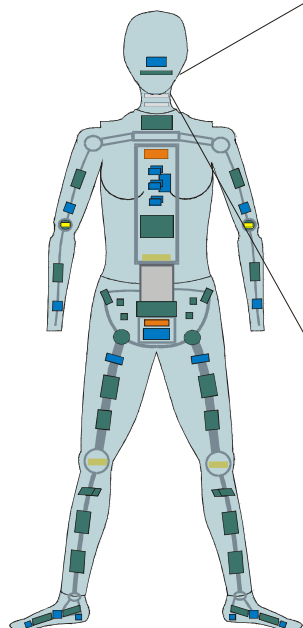
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

### Shear Force (14NECKUP00HFFOXA)



Dummy: HIII 5th Female

Seating Position:

Left Rear Passenger

Neck Shear Force Source Code: Min/Max of 14NECKUP00HFFOXA

[Max.] 244.35 N at 274.88 ms

[Min.] -1,104.44 N at 113.20 ms

B-204

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

## Neck Shear Force

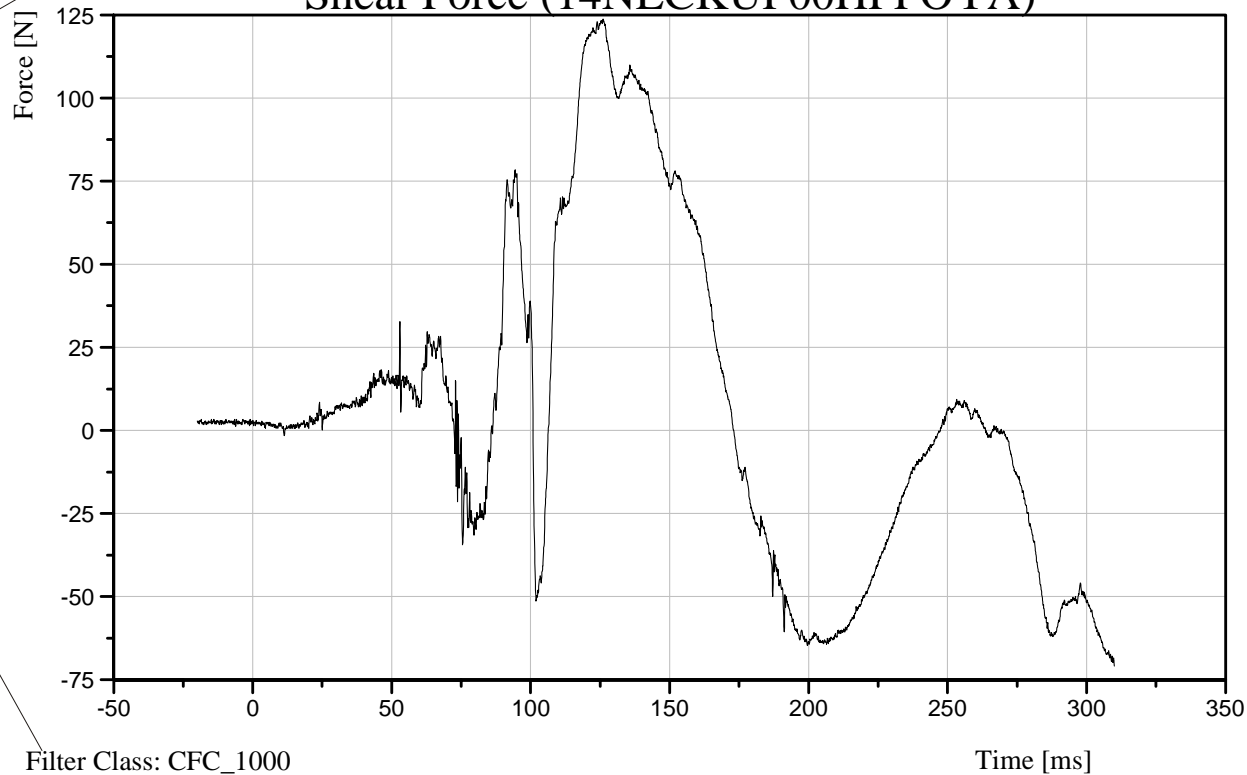
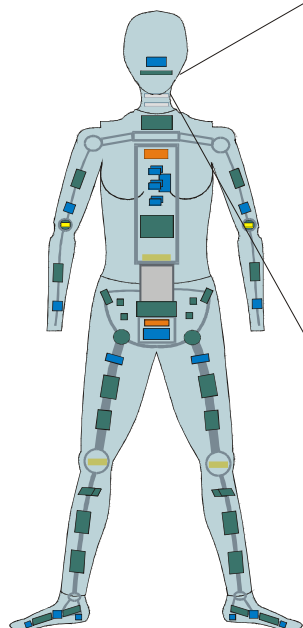
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

### Shear Force (14NECKUP00HFFOYA)



Filter Class: CFC\_1000

Dummy: HIII 5th Female

Seating Position:

Left Rear Passenger

[Max.] 123.76 N at 126.00 ms

[Min.] -70.89 N at 310.00 ms

Neck Shear Force Source Code: Min/Max of 14NECKUP00HFFOYA

B-205

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009  
Time: 16:35

## Neck Axial Force

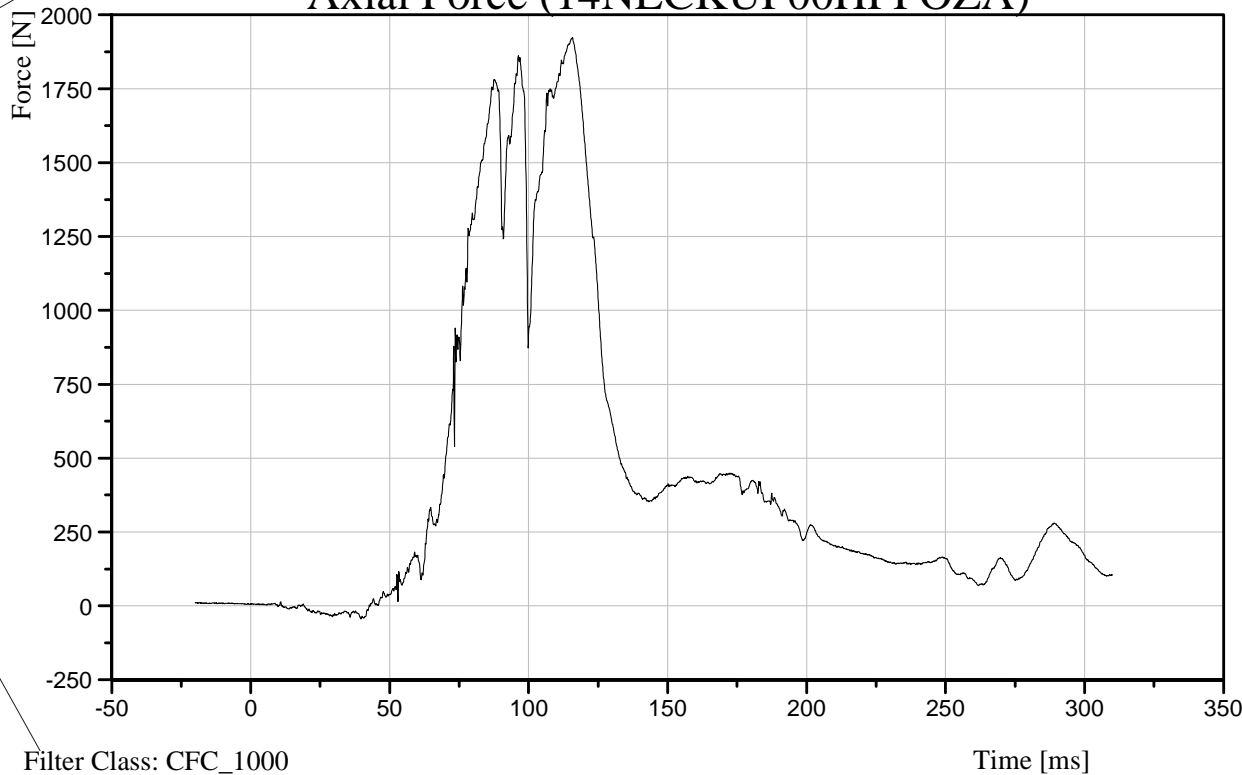
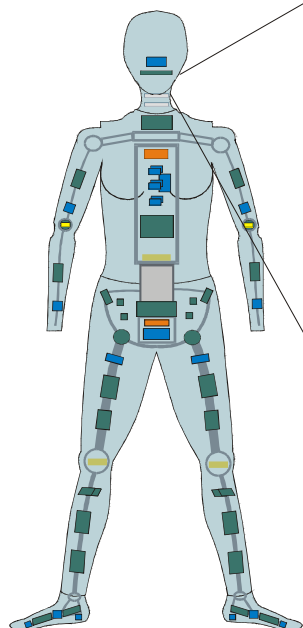
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

### Axial Force (14NECKUP00HFFOZA)



Filter Class: CFC\_1000

Dummy: HIII 5th Female  
Seating Position:  
Left Rear Passenger

[Max.] 1,922.95 N at 115.76 ms

[Min.] -44.73 N at 39.68 ms

Neck Axial Force Source Code: Min/Max of 14NECKUP00HFFOZA

B-206

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

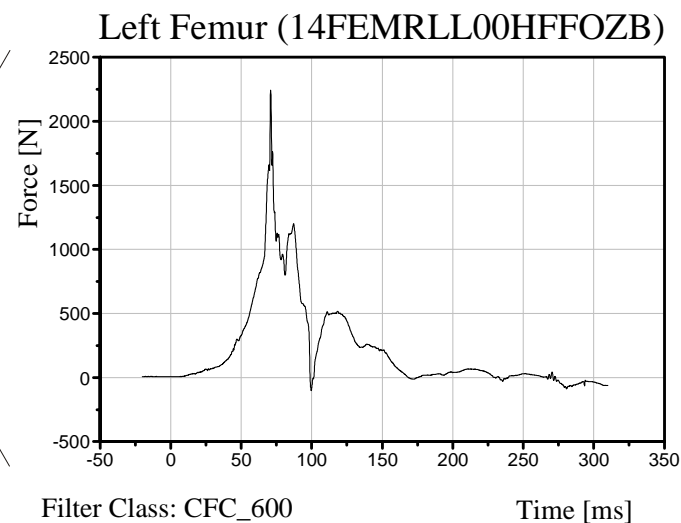
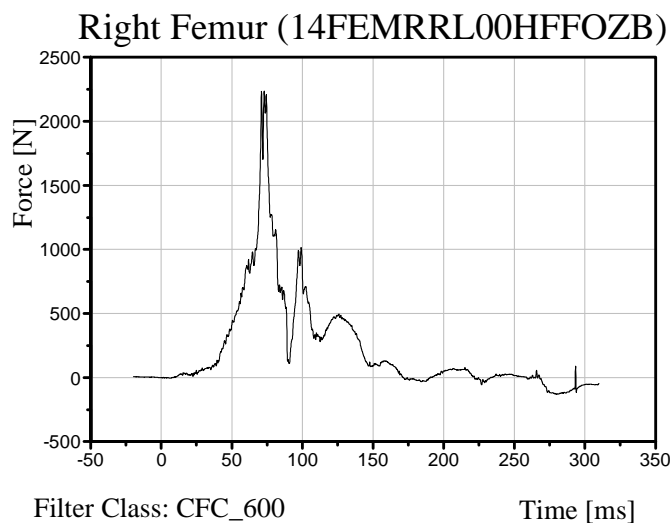
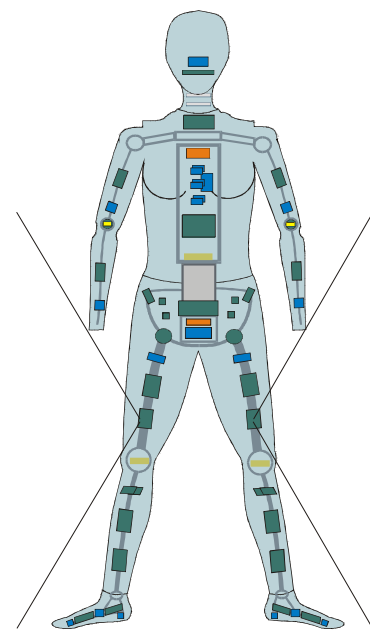
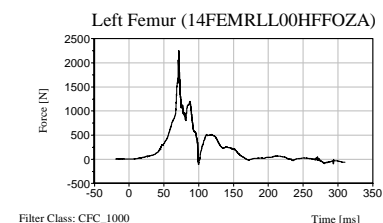
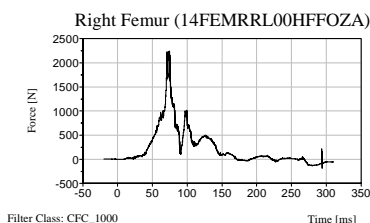
Time: 16:35

## Femur Load

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



Max [Tension] 2,237.97 N at 72.80 ms  
 Min [Compression] -131.80 N at 279.84 ms

Dummy:HIII 5th Female  
 Seating Position:  
 Left Rear Passenger

Max [Tension] 2,242.50 N at 70.96 ms  
 Min [Compression] -99.34 N at 99.68 ms

Femur Load Source Code : Min/Max of 14FEMRRL00HFFOZB and 14FEMRLL00HFFOZB (CFC 600)

B-207

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Knee Slider Displacement

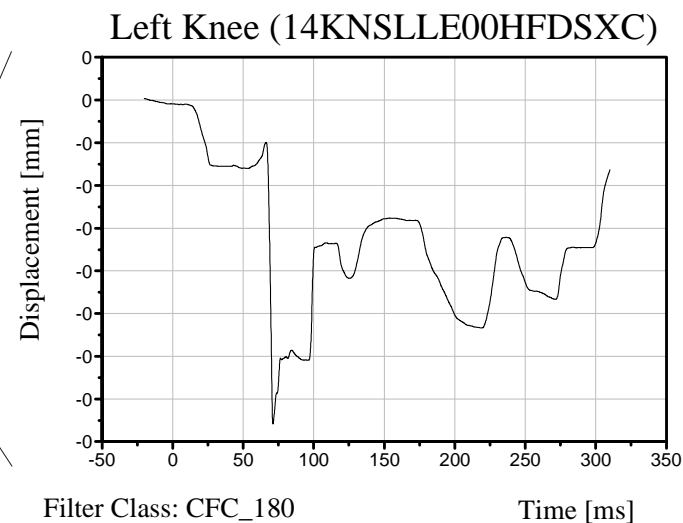
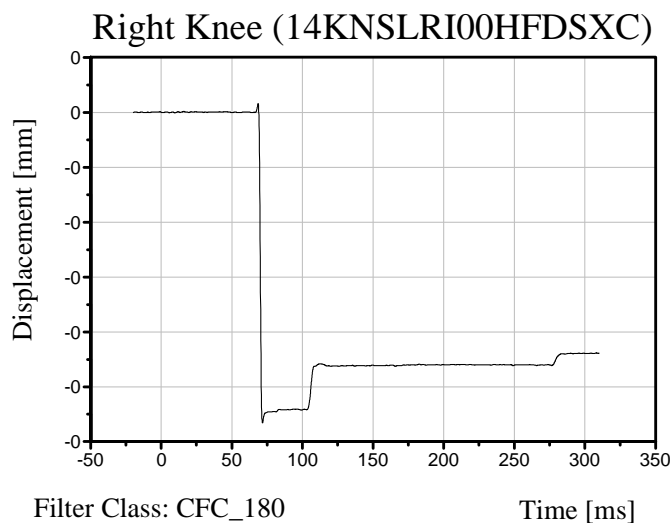
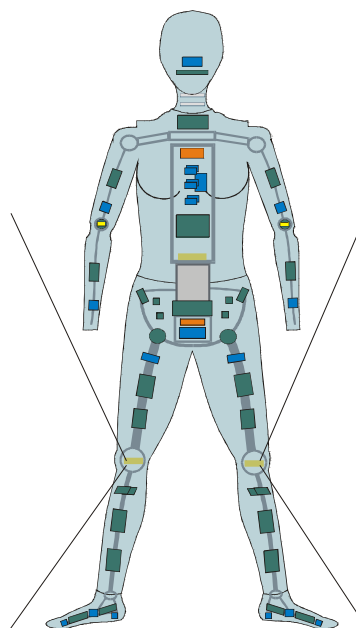
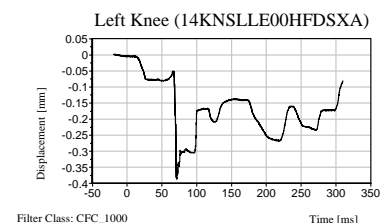
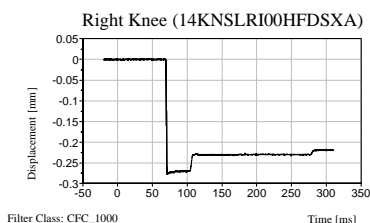
Date: 10/20/2009

Time: 16:35

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



Max. [Tension] 0.01 mm at 68.48 ms  
 Min. [Compression] -0.28 mm at 71.60 ms

Dummy:HIII 5th Female  
 Seating Position:  
 Left Rear Passenger

Max. [Tension] 0.00 mm at -20.00 ms  
 Min. [Compression] -0.38 mm at 71.20 ms

Knee Displacement Source Code : Min/Max of 14KNSLRI00HFDSXC and 14KNSLLE00HFDSXC (CFC 600)

B-208

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

## Injury Criteria Summary

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Dummy: HIII 5th Female

Seating Position: Left Rear Passenger

Max. Shear (Head Aft) = 244.35 N at 274.88 ms  
Min. Shear (Head Fore) = -1,104.44 N at 113.20 ms

NTE = 0.5126 at 78.32 ms  
NTF = 0.6958 at 110.16 ms  
NCE = 0.0343 at 39.68 ms  
NCF = 0.0066 at 22.00 ms

	(MAX.) 725.94	HIC (36) 608.23	(15) 295.19
T1:	73.04 ms	82.48 ms	83.92 ms
T2:	126.24 ms	118.48 ms	98.96 ms
Mean:	-45.05 g	-49.09 g	52.12 g

NeckOM Flexion = 44.89 Nm at 108.72 ms  
NeckOM Extension = -16.63 Nm at 309.84 ms  
Axial Tension = 1,922.95 N at 115.76 ms  
Axial Compression = -44.73 N at 39.68 ms

Chest 3ms Duration (CLIP) = 34.77 g

T1: 84.44 ms  
T2: 87.44 ms  
CSI: 277.49

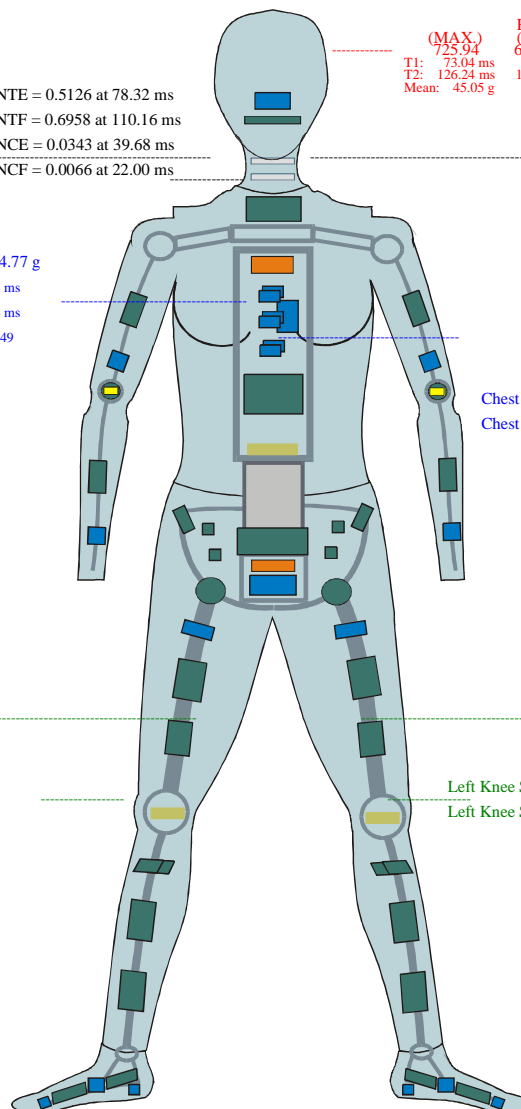
Chest Deflection Outward = 0.04 mm at -15.28 ms  
Chest Deflection Inward = -28.46 mm at 98.88 ms

Right Lower Femur Tension = 2,237.97 N 72.80 ms  
Right Lower Femur Compression = -131.80 N 279.84 ms

Left Lower Femur Tension = 2,242.50 N 70.96 ms  
Left Lower Femur Compression = -99.34 N 99.68 ms

Right Knee Slider Outward = 0.01 mm at 68.48 ms  
Right Knee Slider Inward = -0.28 mm at 71.60 ms

Left Knee Slider Outward = 0.00 mm at -20.00 ms  
Left Knee Slider Inward = -0.38 mm at 71.20 ms



B-209

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Left Sill X-Axis Acceleration

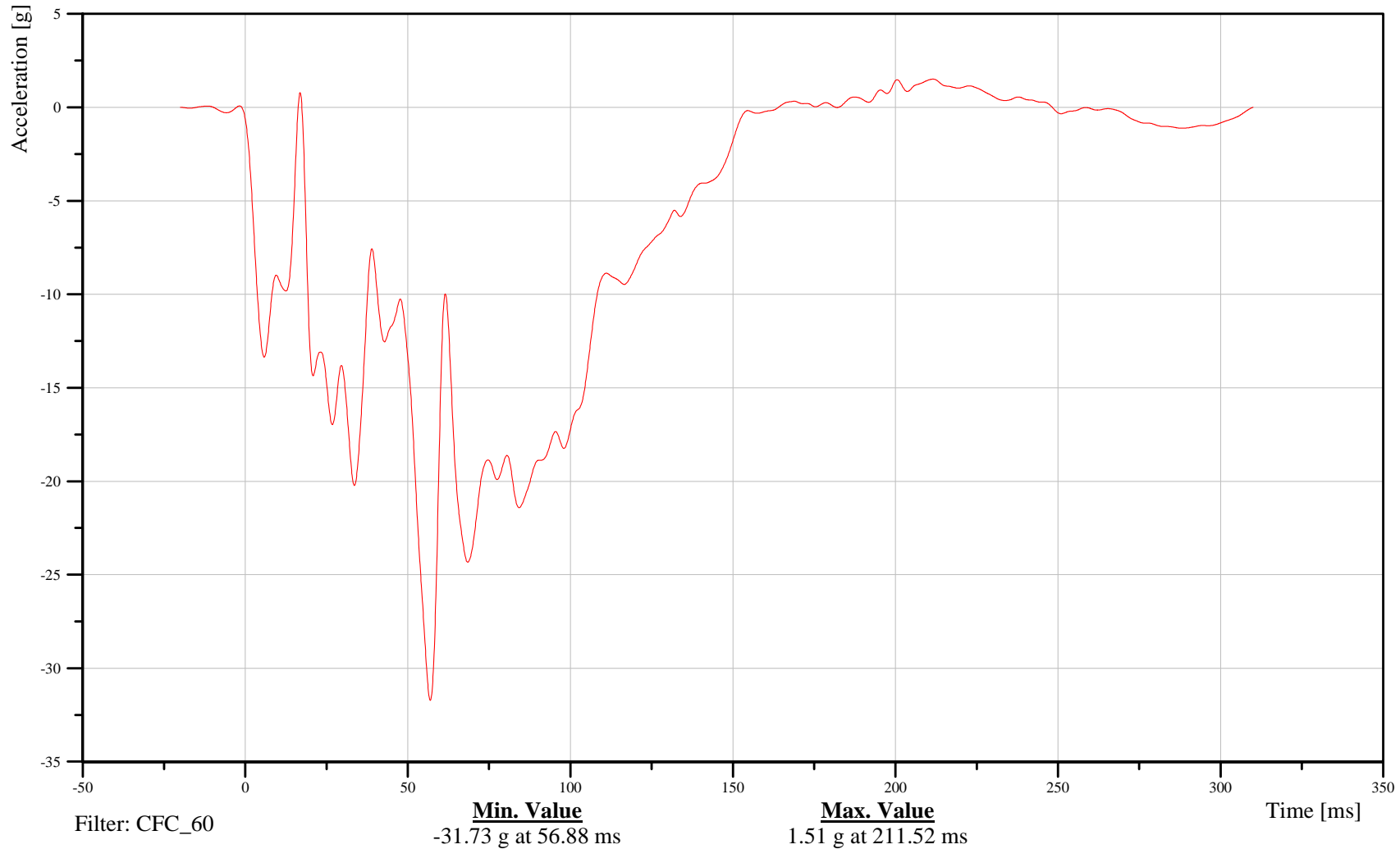
Time: 16:35

Customer: VRTC

### 10SILLE0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-210

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

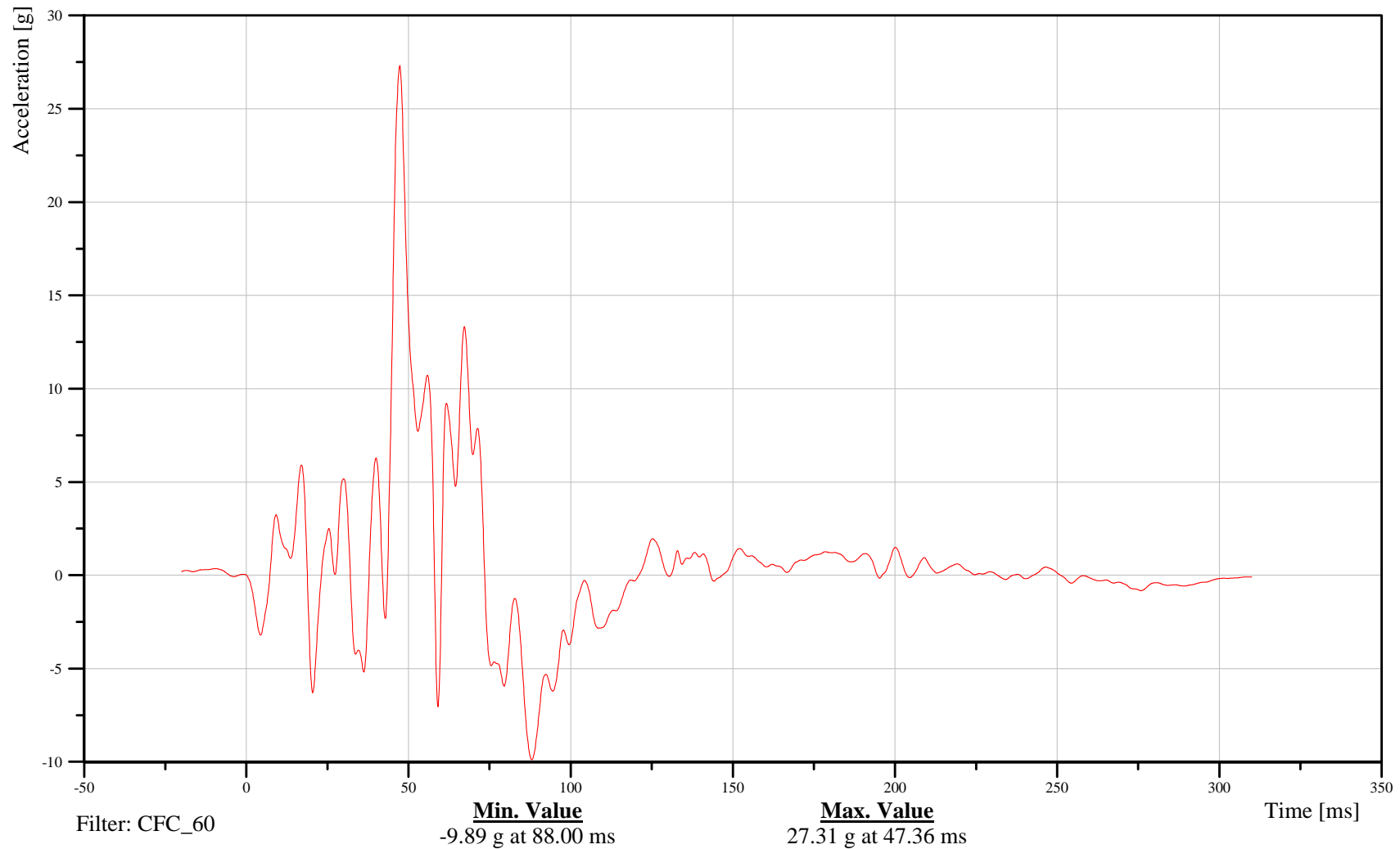
## Bullet Vehicle Left Sill Y-Axis Acceleration

Customer: VRTC

# 10SILLE0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-211

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

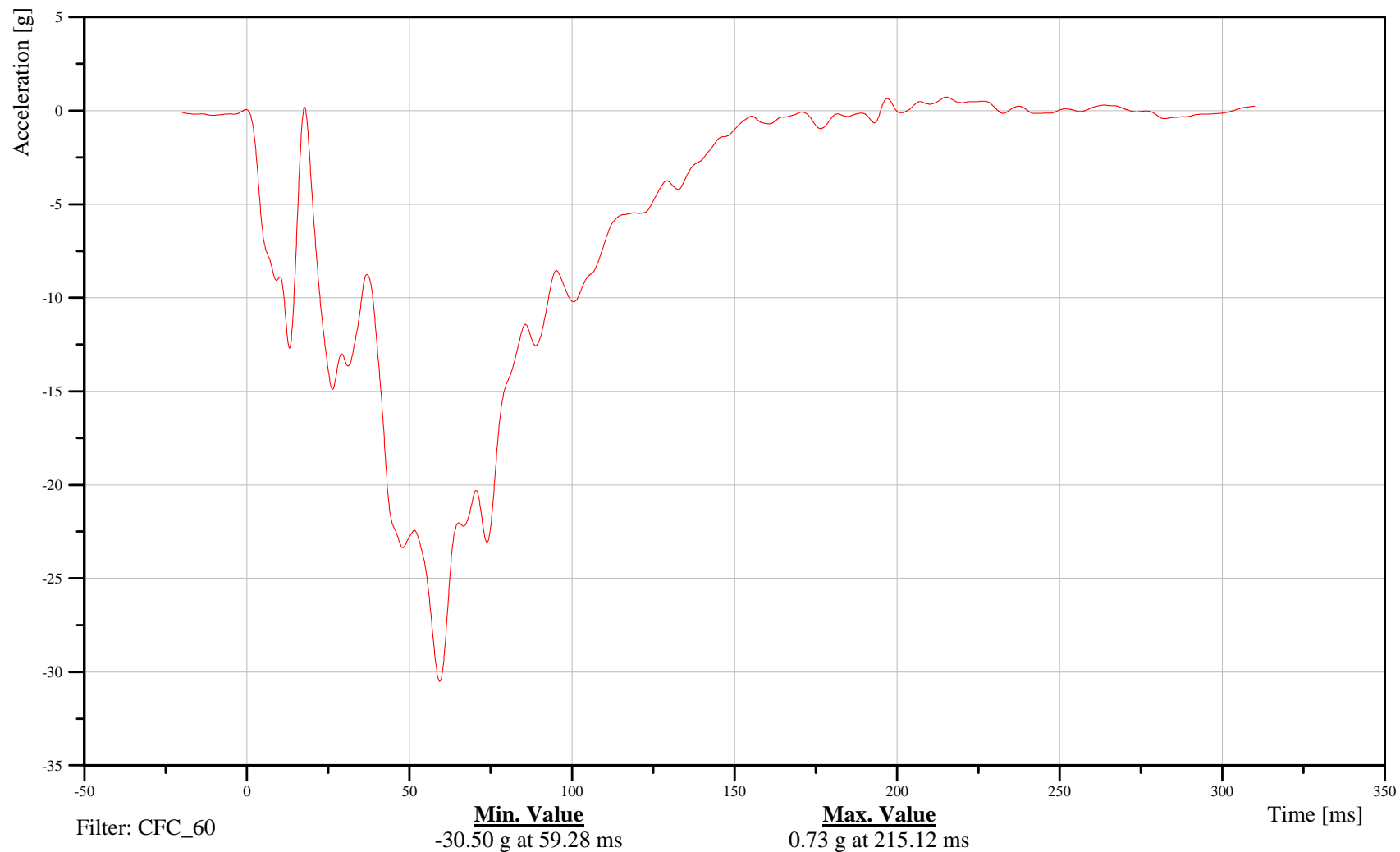
## Bullet Vehicle Right Sill X-Axis Acceleration

Customer: VRTC

# 10SILLRI0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-212

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

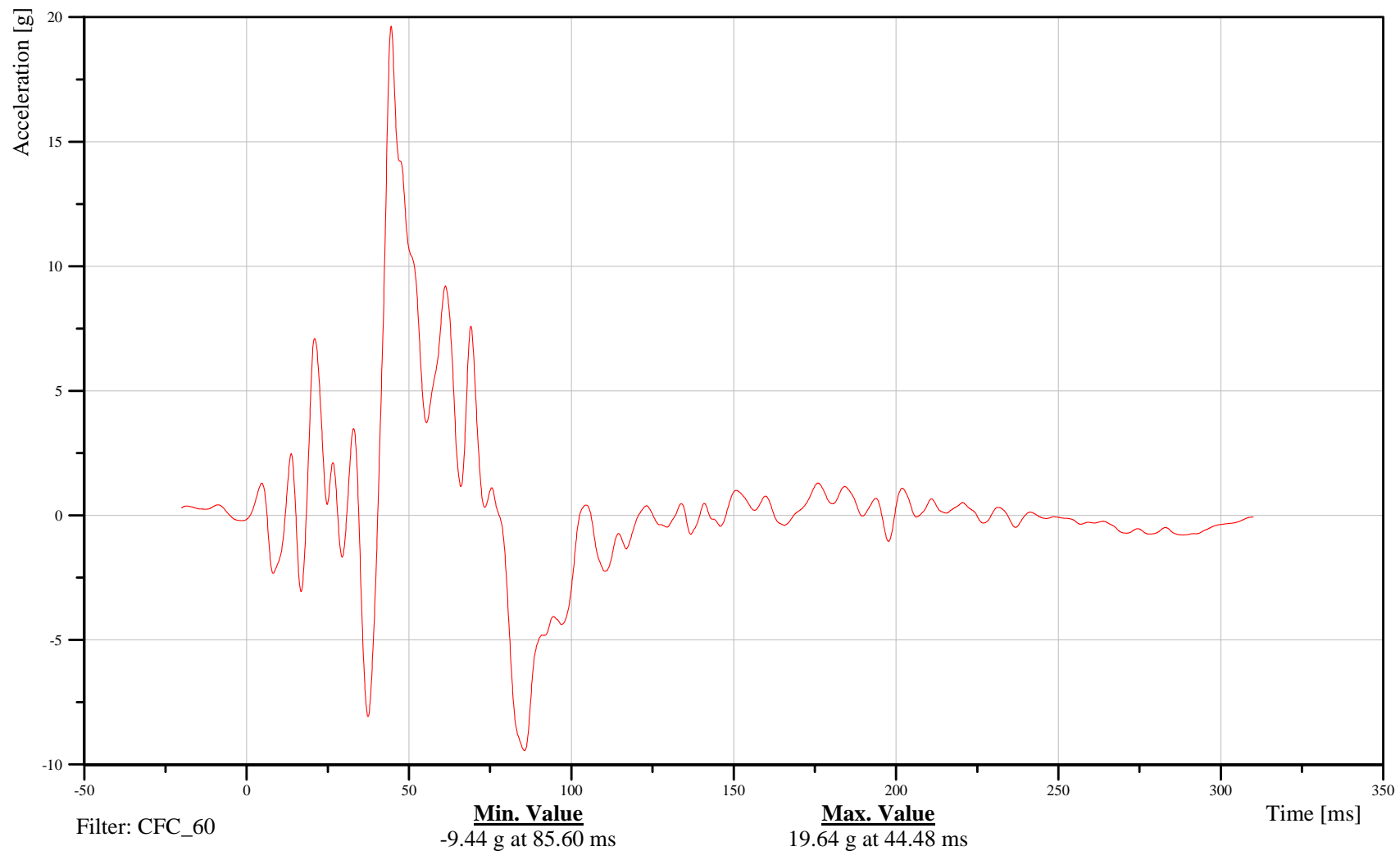
## Bullet Vehicle Right Sill Y-Axis Acceleration

Customer: VRTC

# 10SILLRI0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-213

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

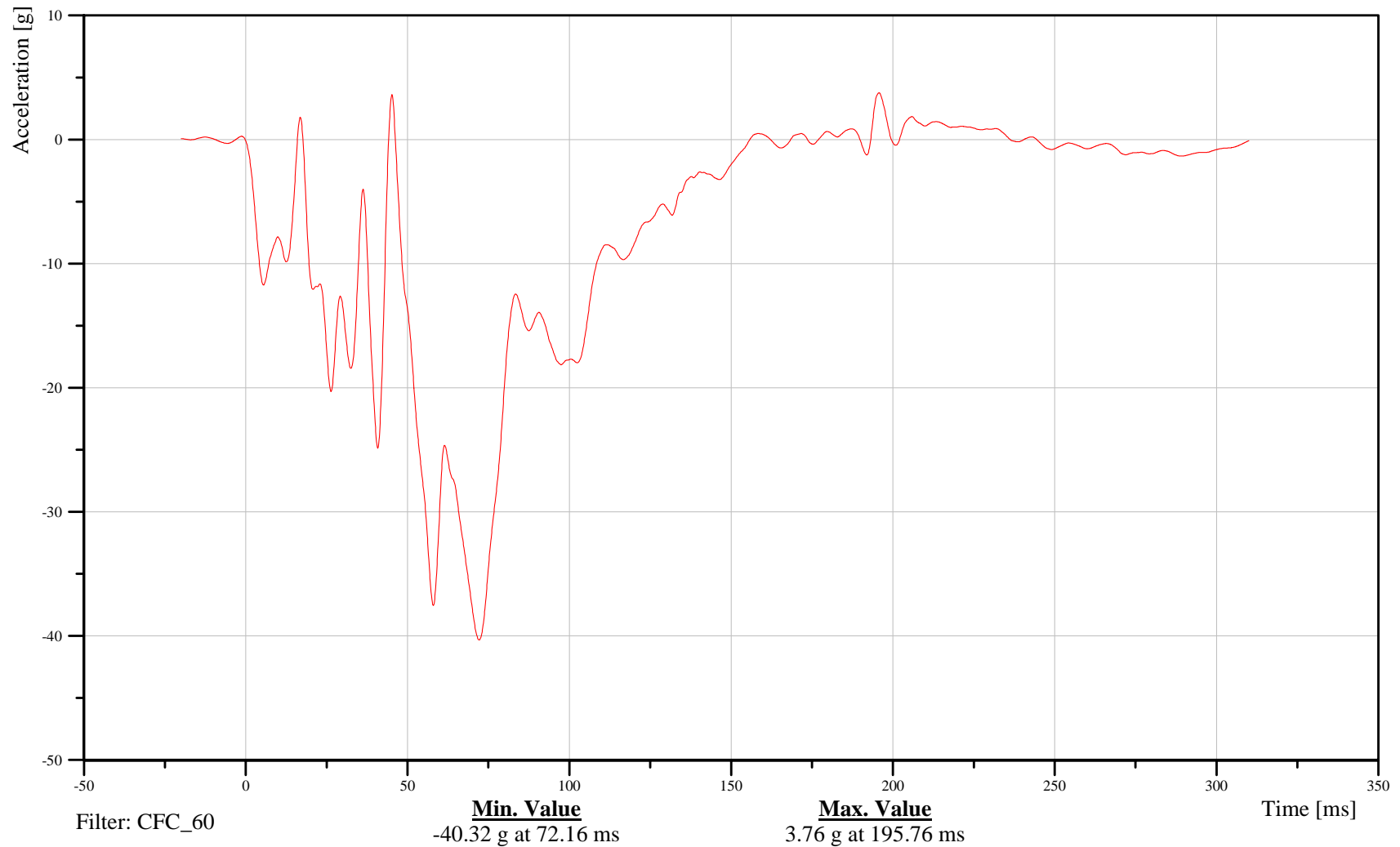
## Bullet Vehicle Vehicle Center of Gravity X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 10VEHCCG0000ACXD

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-214

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

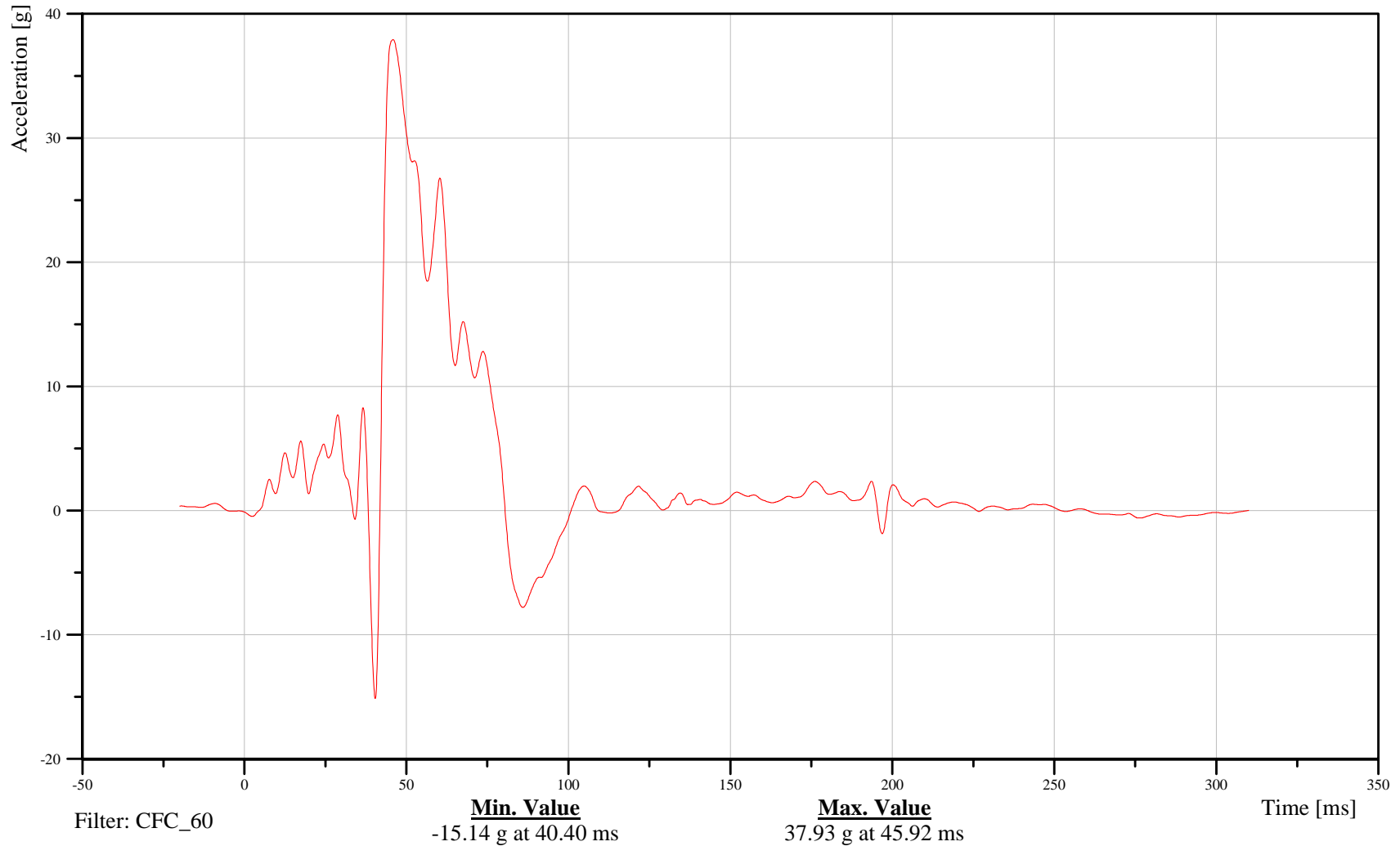
## Bullet Vehicle Vehicle Center of Gravity Y-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 10VEHCCG0000ACYD

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-215

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Vehicle Center of Gravity Z-Axis Acceleration

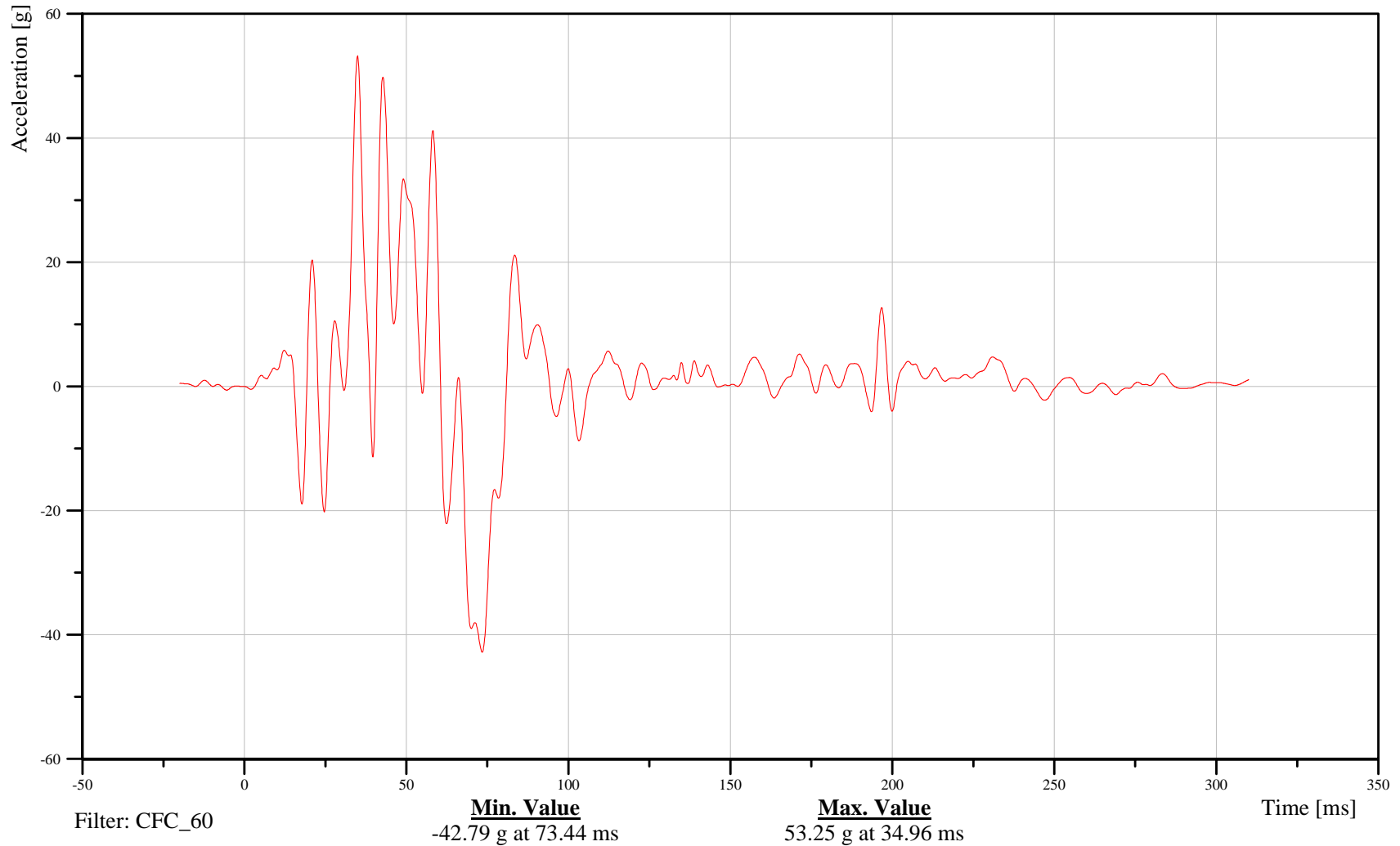
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 10VEHCCG0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-216

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

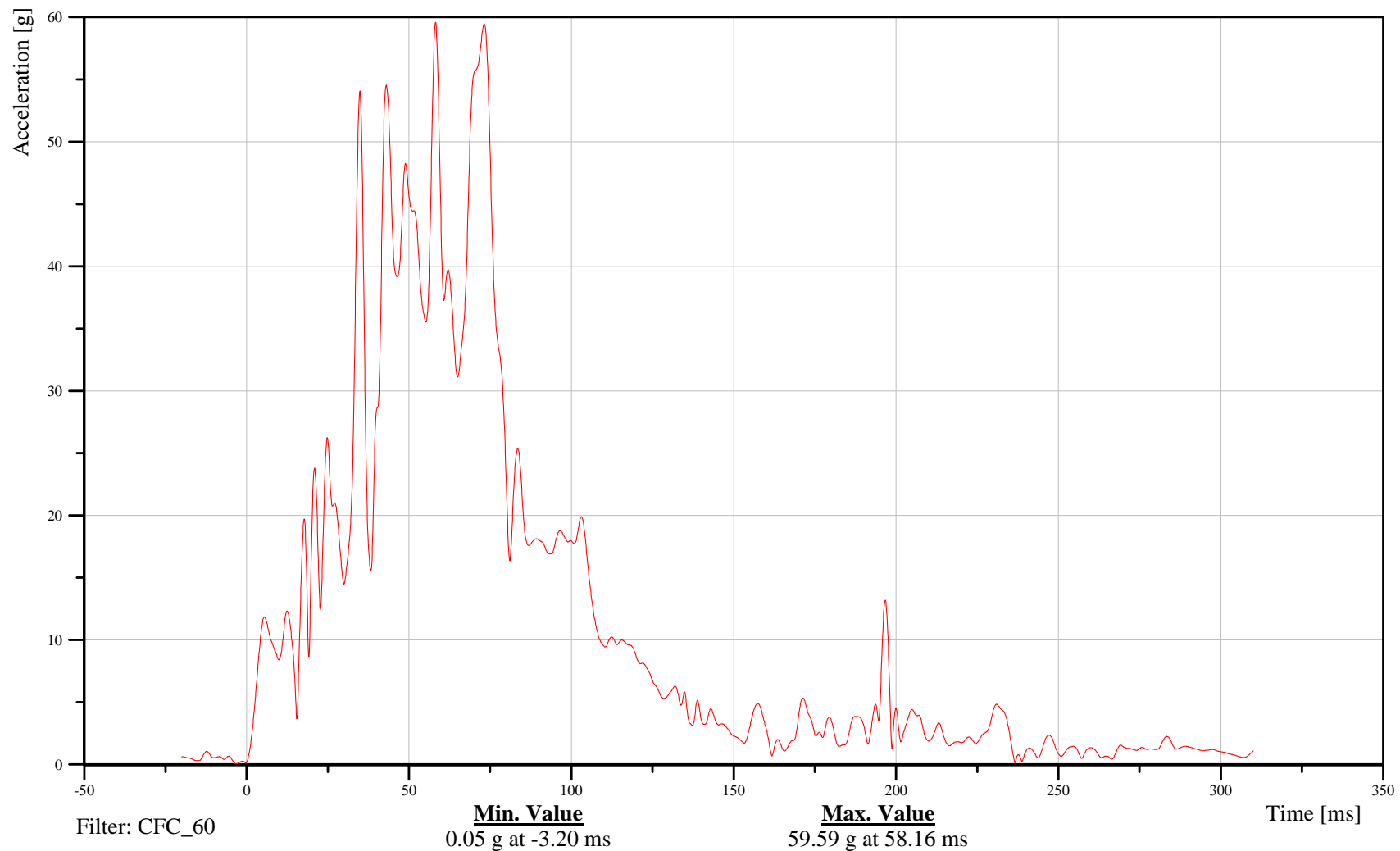
## Bullet Vehicle Vehicle Center of Gravity Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 10VEHCCG0000ACRD

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-217

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009  
Time: 16:35

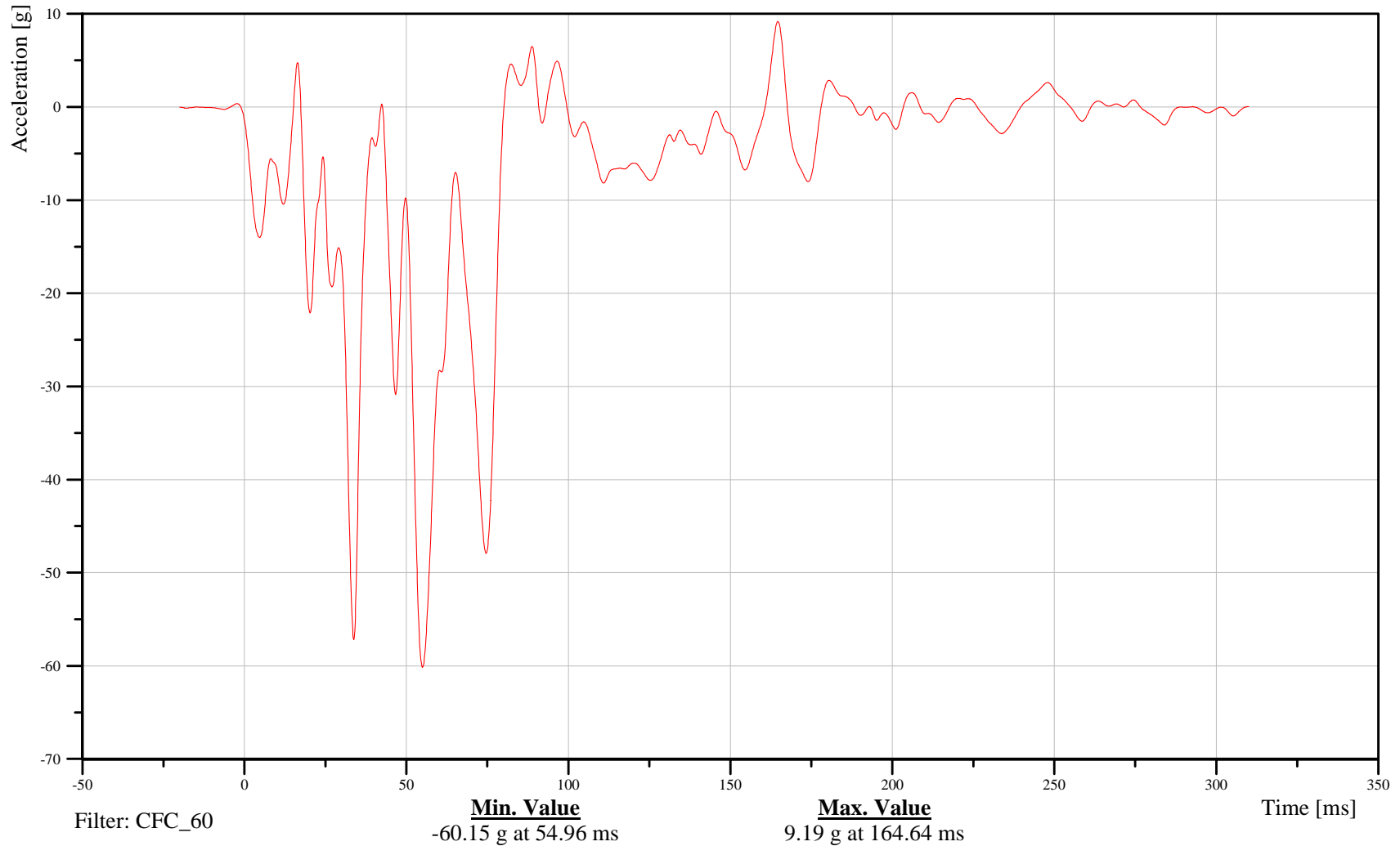
## Bullet Vehicle Driver Footrest X-Axis Acceleration

Customer: VRTC

# 10FOOTLE0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-218

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

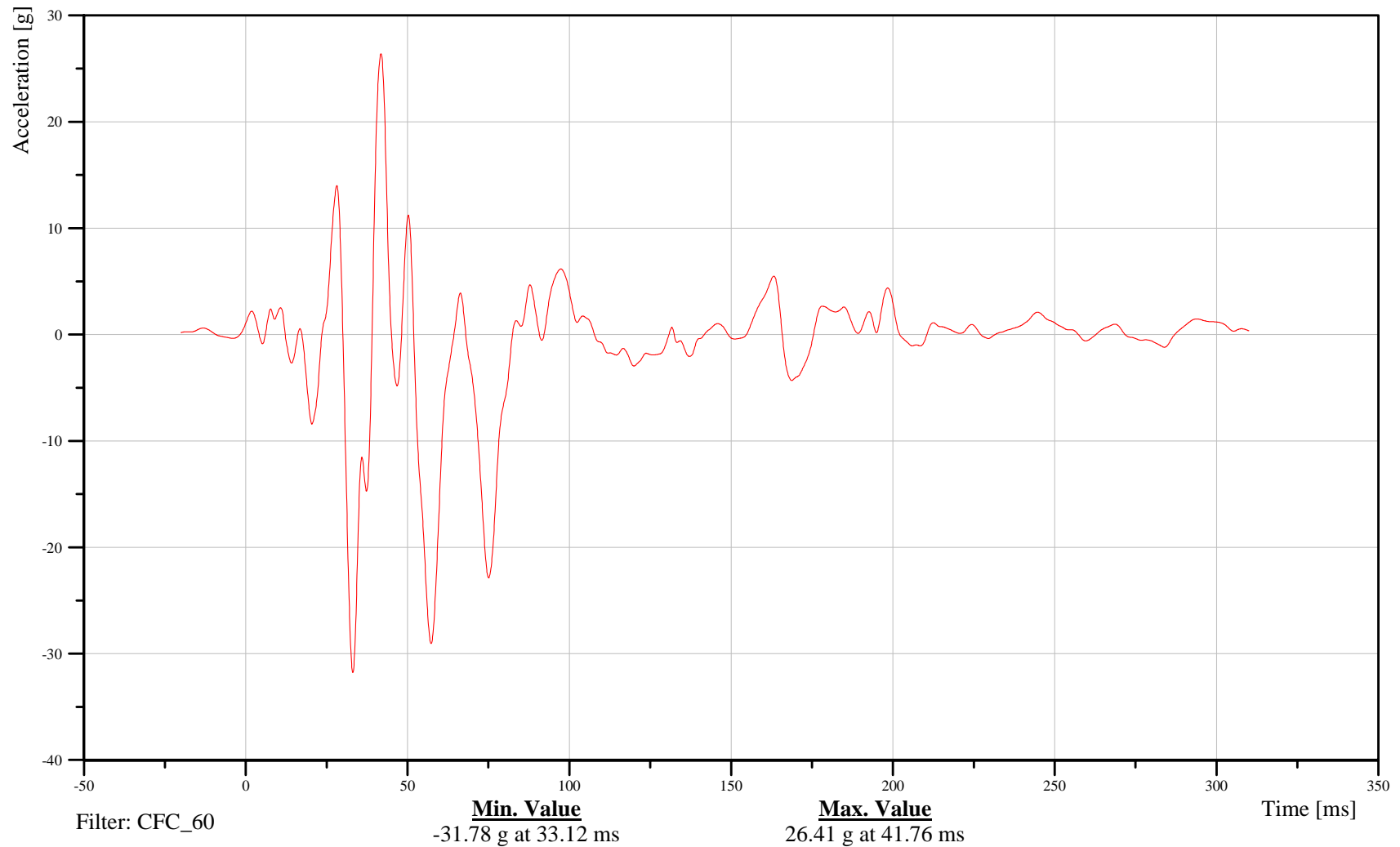
## Bullet Vehicle Driver Footrest Z-Axis Acceleration

Customer: VRTC

# 10FOOTLE0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-219

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

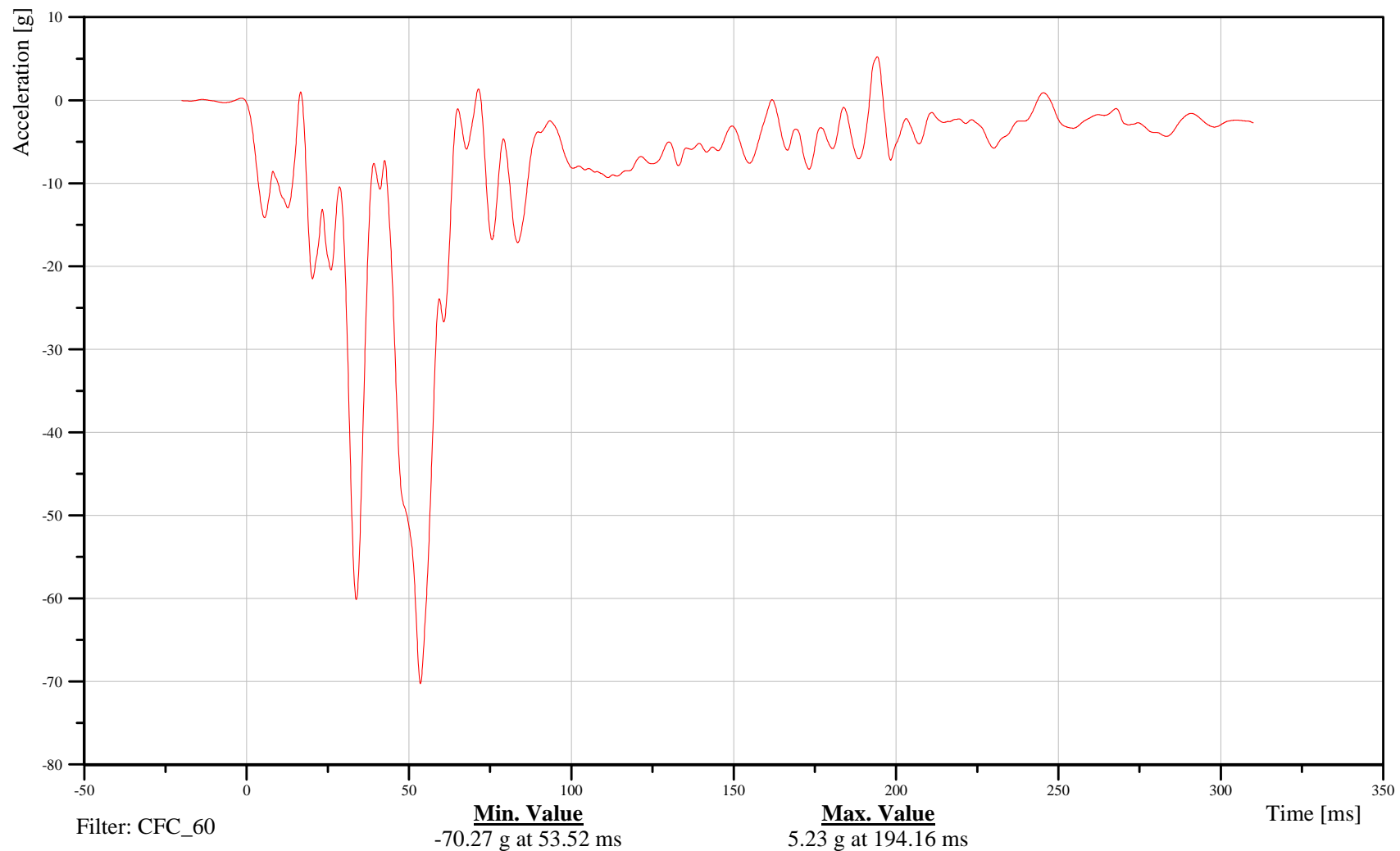
## Bullet Vehicle Toepan Behind Center of Accelerator X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 10TPANLE0000ACXD

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-220

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

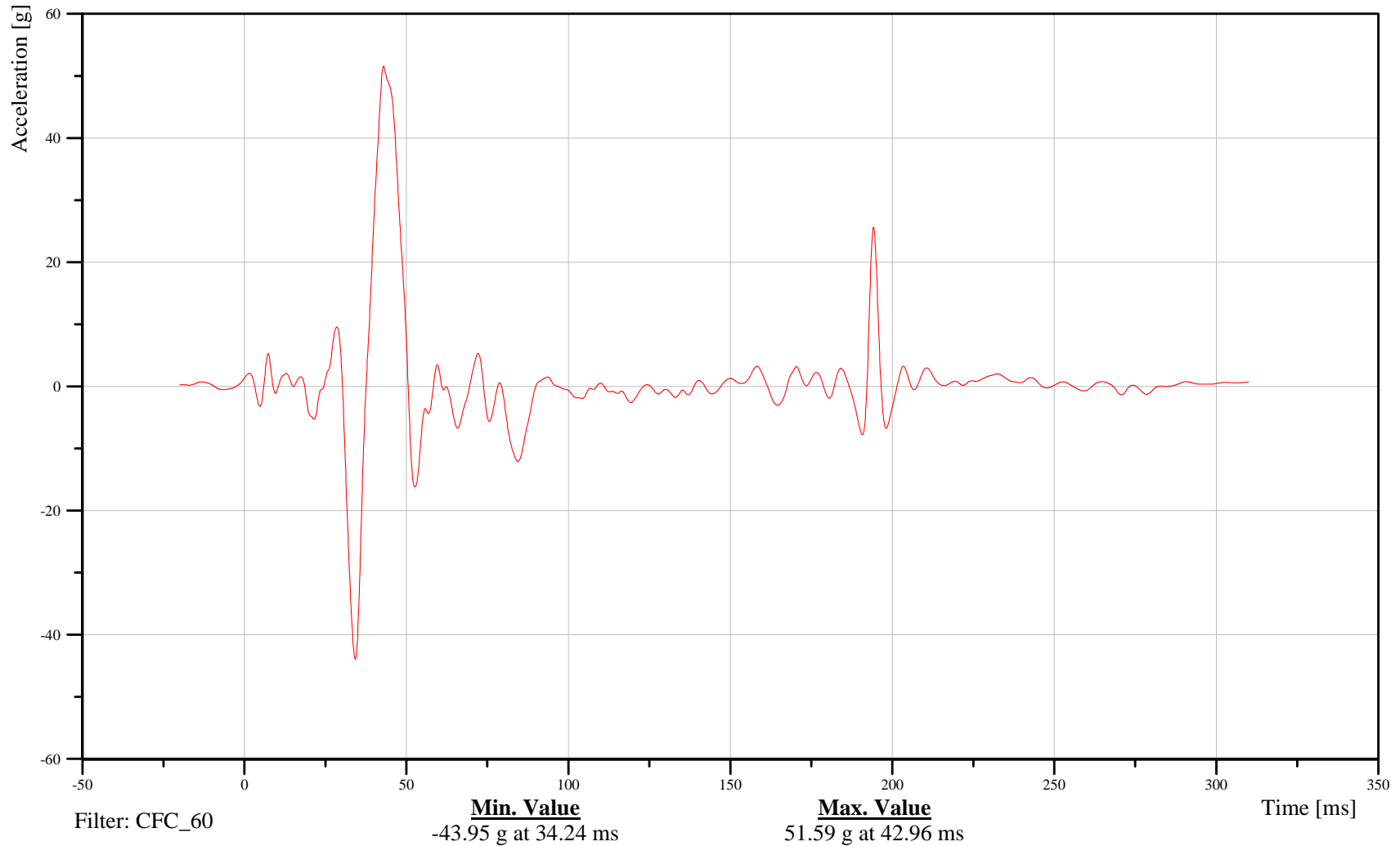
## Bullet Vehicle Toepan Behind Center of Accelerator Z-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 10TPANLE0000ACZD

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-221

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009  
Time: 16:35

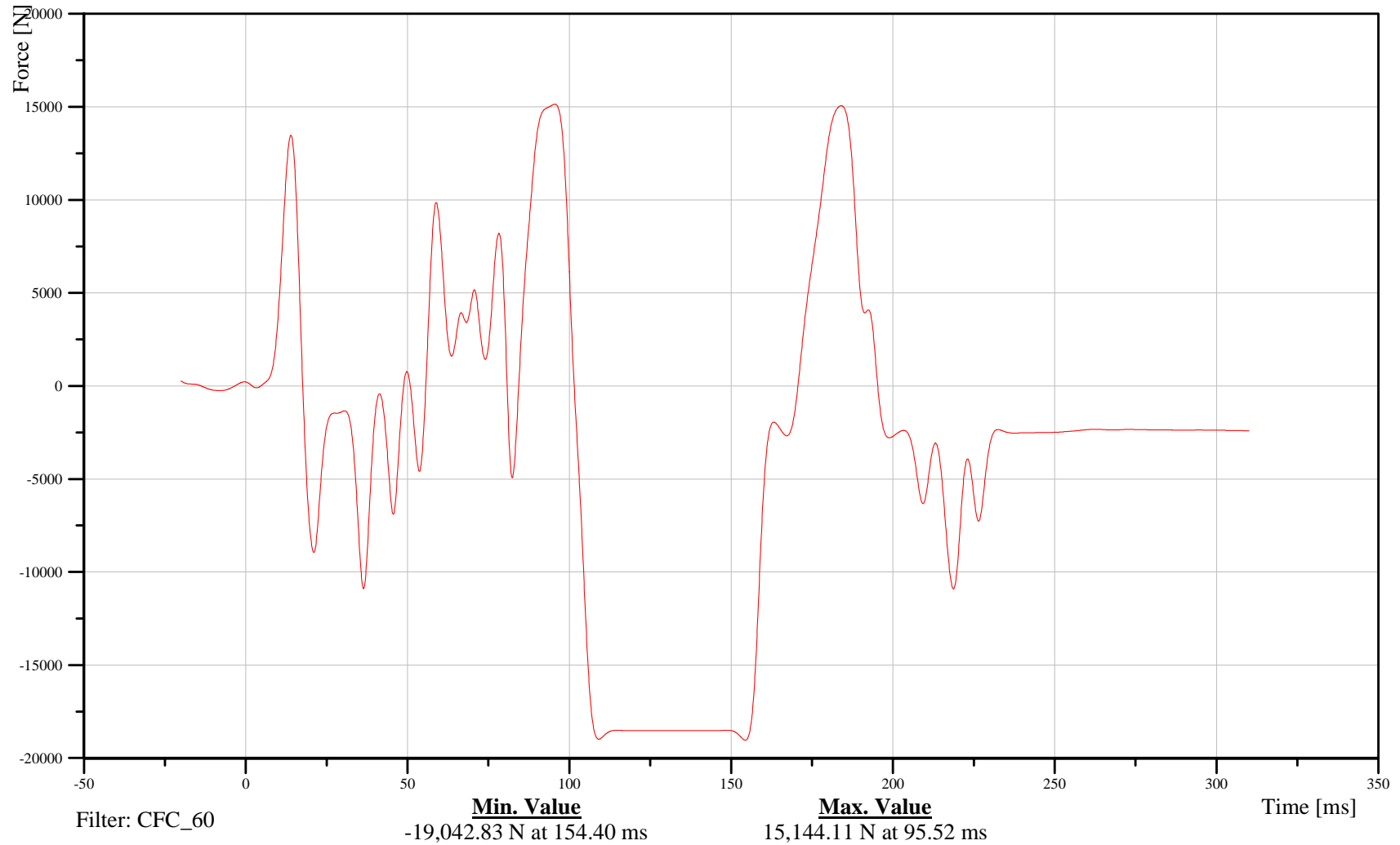
## Bullet Vehicle Driver Lap Belt Force

Customer: VRTC

# 11SEBE0000B5FO0D

TRC Inc. Test Lab: CTF

Test Number: 091020



B-222

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

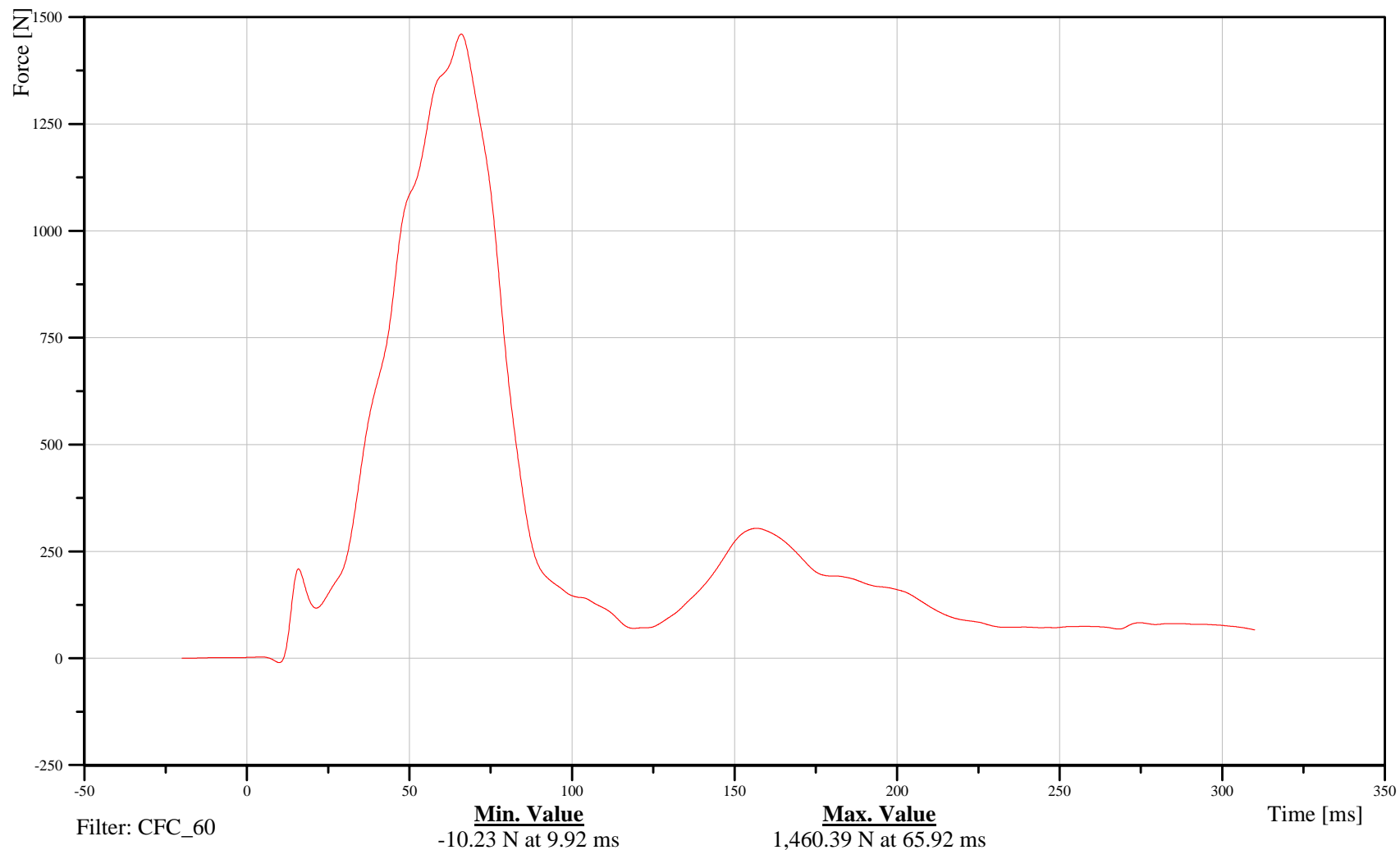
## Bullet Vehicle Right Front Passenger Lap Belt Force

Customer: VRTC

# 13SEBE0000B5FOOD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-223

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

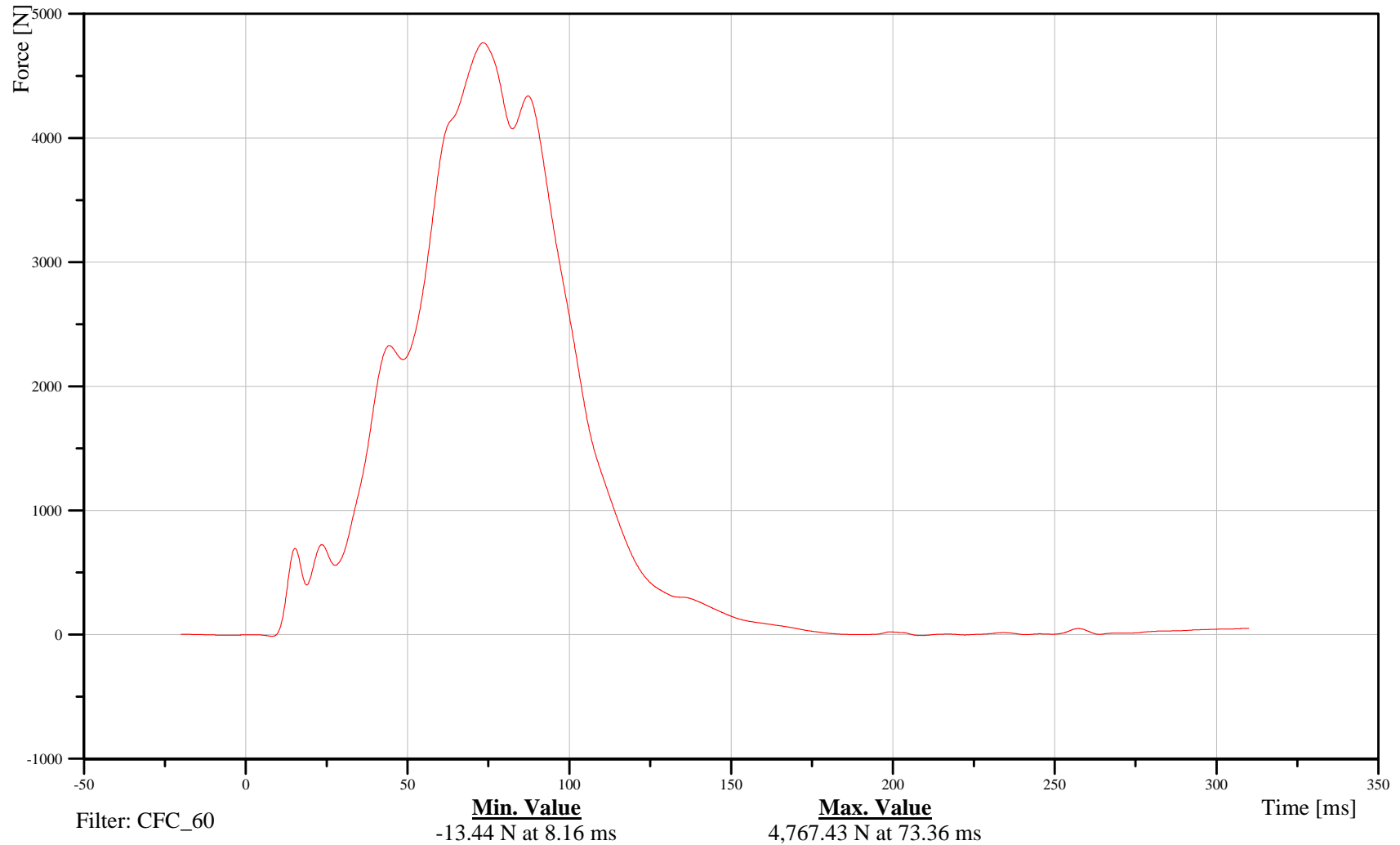
## Bullet Vehicle Driver Shoulder Belt Force

Customer: VRTC

# 11SEBE0000B3FOOD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-224

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Bullet Vehicle Right Front Passenger Shoulder Belt Force

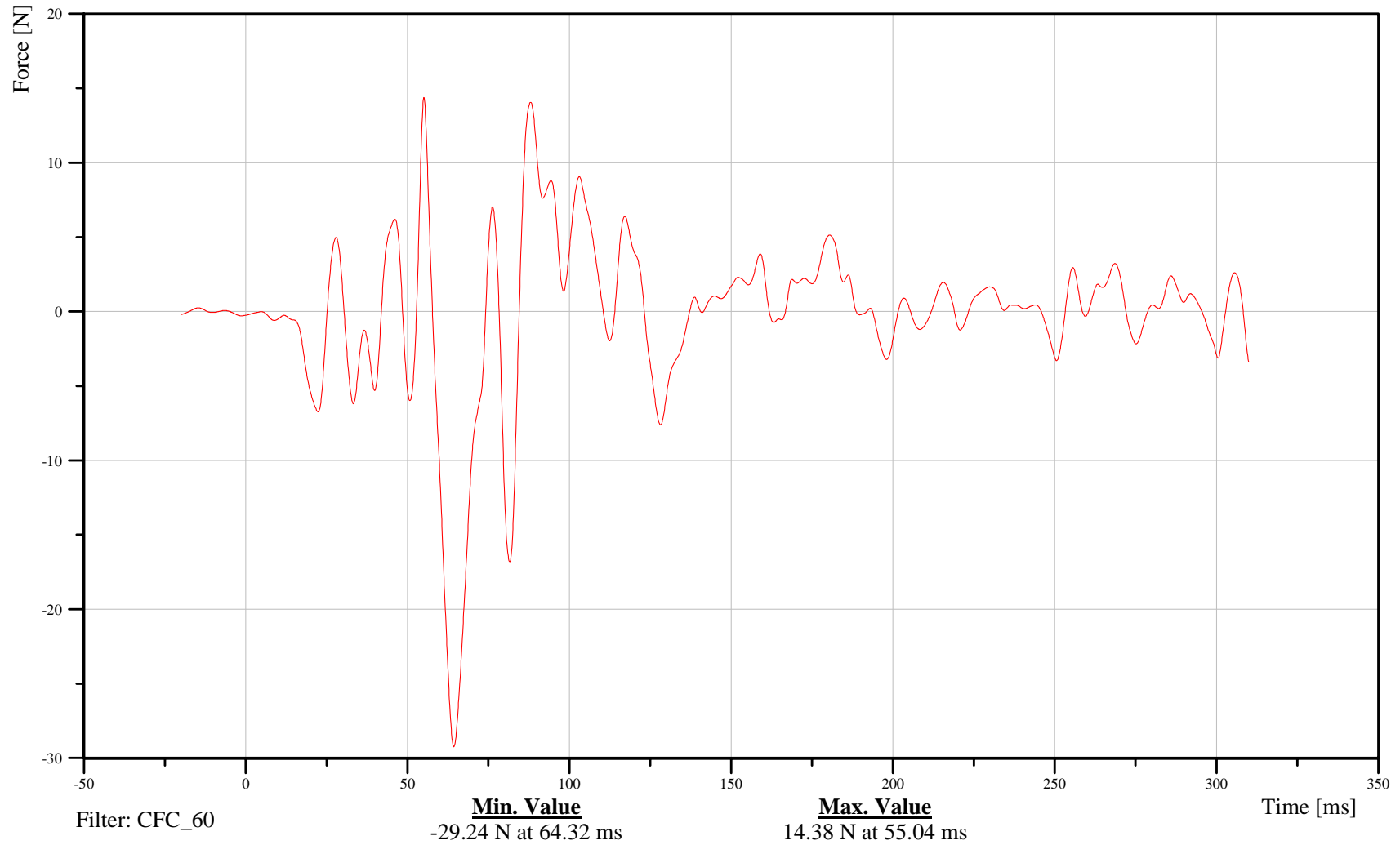
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 13SEBE0000B3FOOD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-225

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Driver Airbag 1st Stage Fire Time

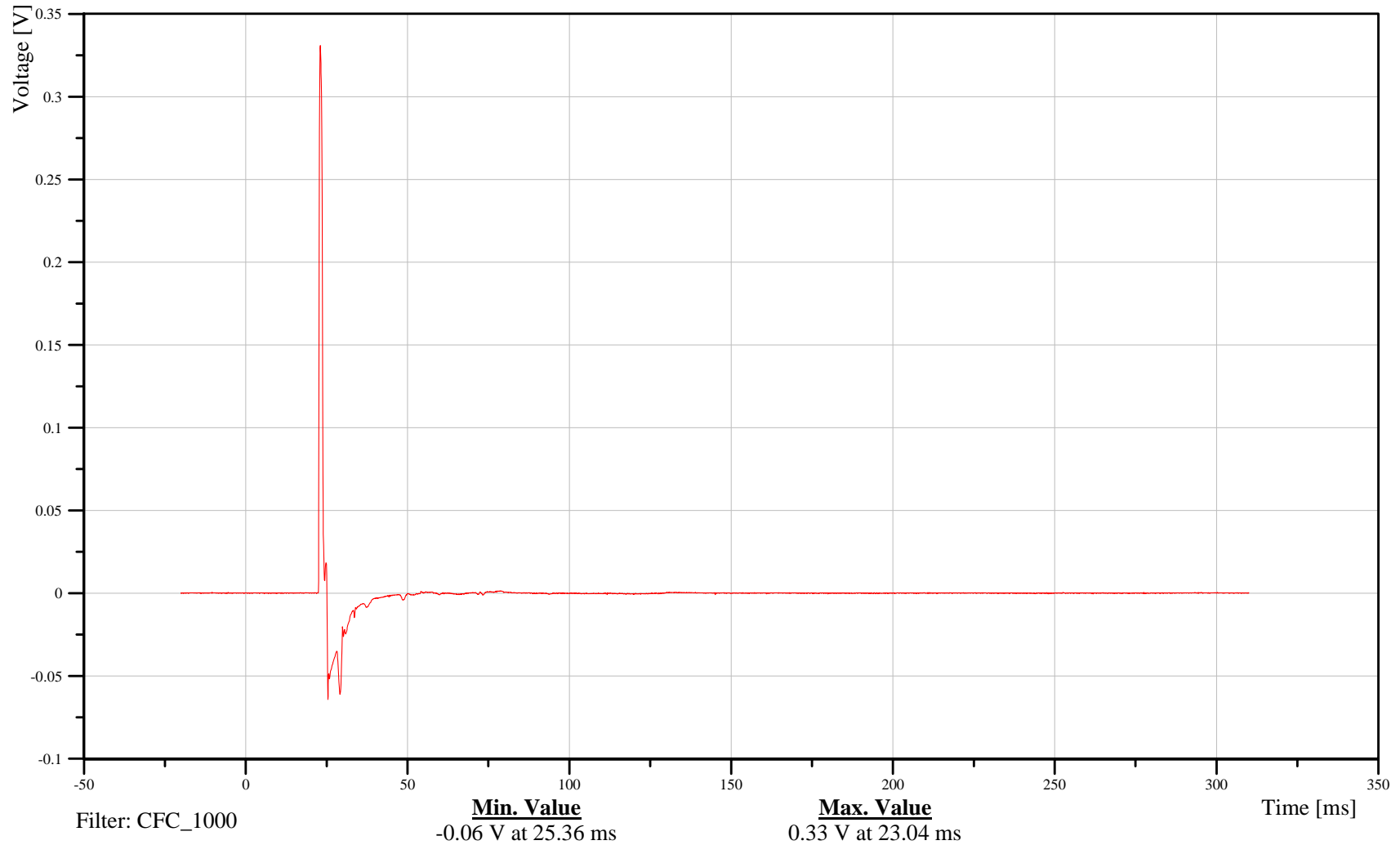
Time: 16:35

Customer: VRTC

### 10AIRBLEFR25V00A

TRC Inc. Test Lab: CTF

Test Number: 091020



B-226

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Bullet Vehicle Driver Airbag 2nd Stage Fire Time

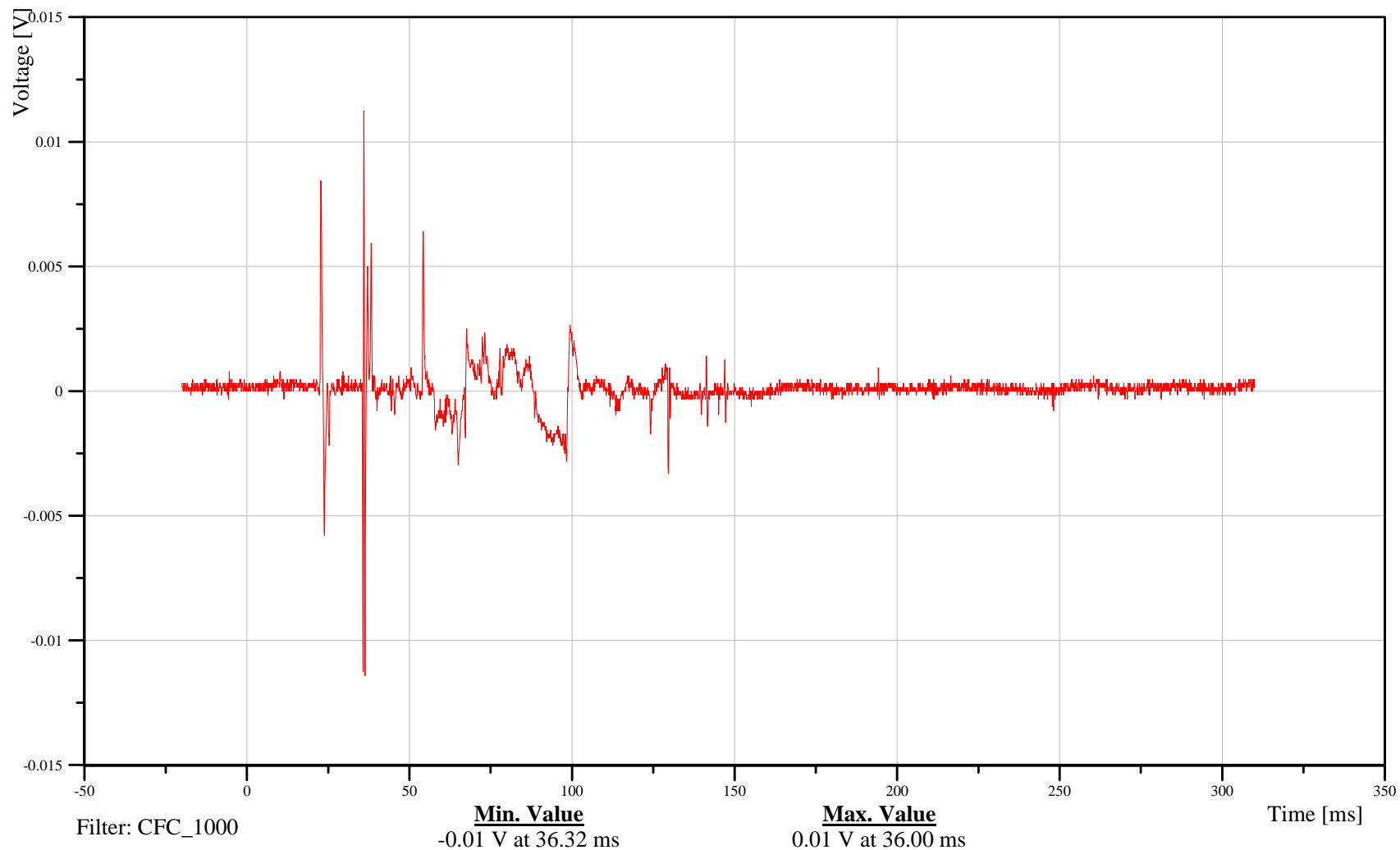
Time: 16:35

Customer: VRTC

# 10AIRBLEFR26V00A

TRC Inc. Test Lab: CTF

Test Number: 091020



B-227

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

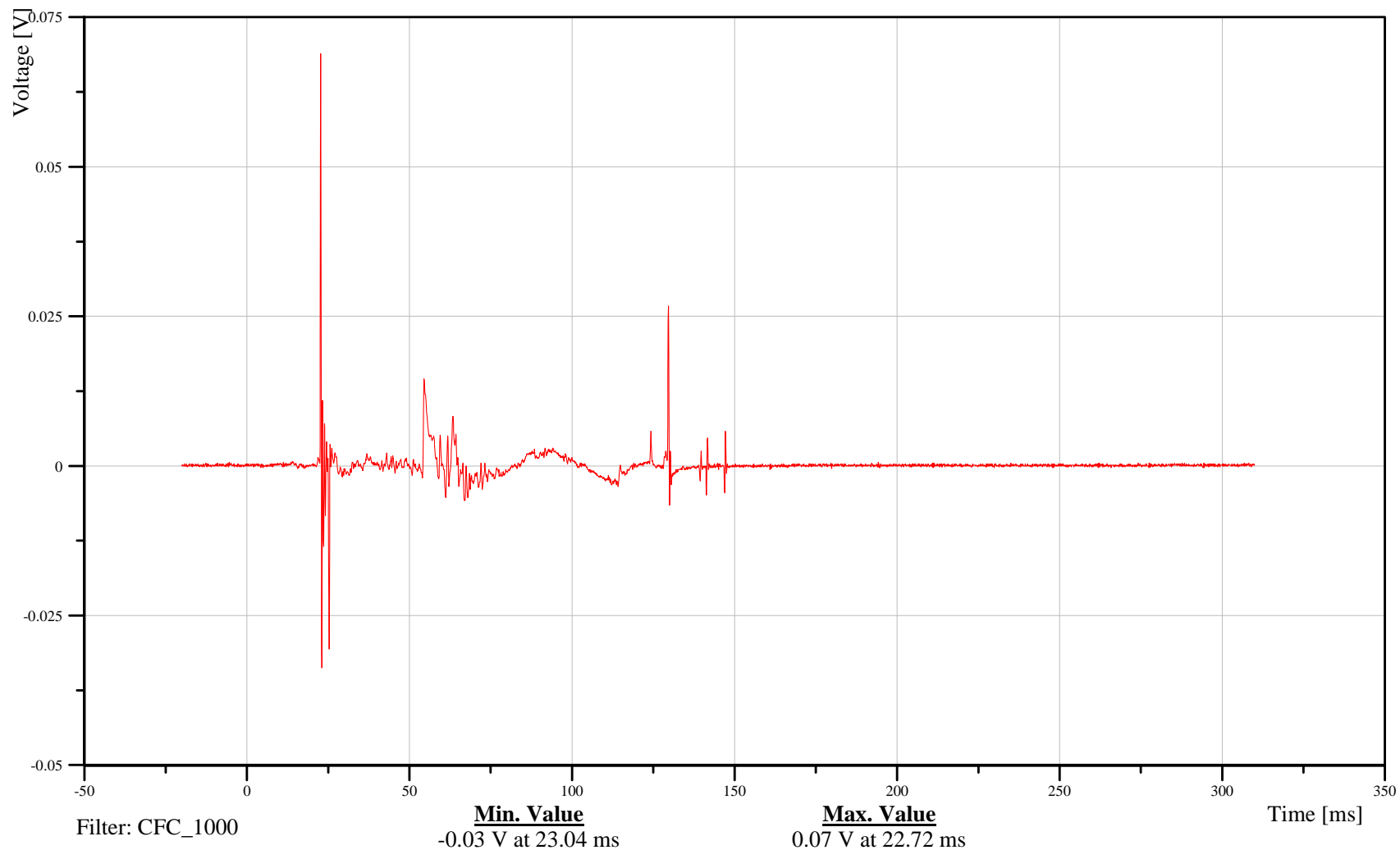
## Bullet Vehicle Right Front Passenger Airbag 1st Stage Fire Time

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 10AIRBRIFR25V00A

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-228

091020



Taurus into Taurus at 15 Degrees, 50% Overlap  
Bullet Vehicle Right Front Passenger Airbag 2nd Stage Fire Time

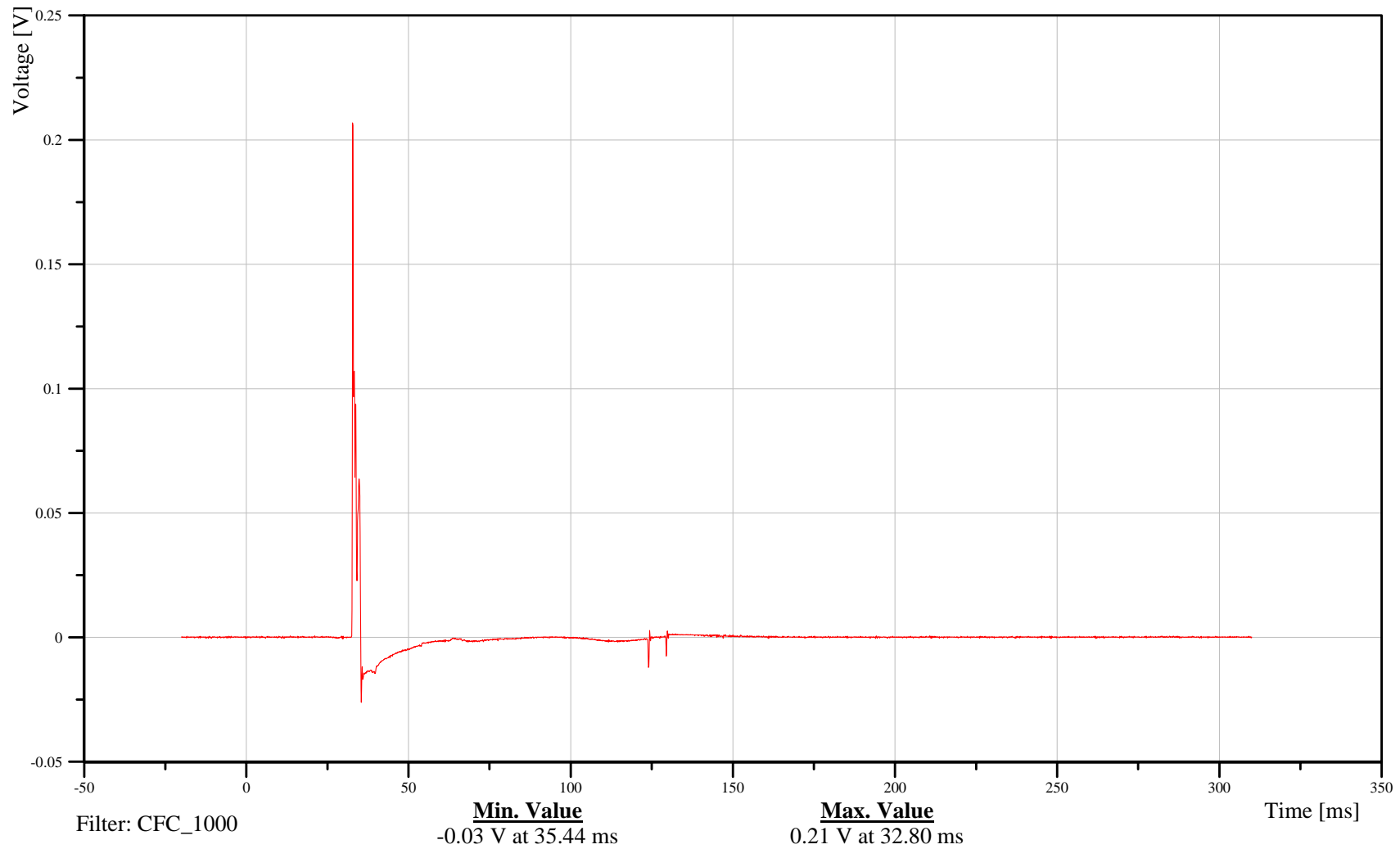
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

10AIRBRIFR26V00A

TRC Inc. Test Lab: CTF

Test Number: 091020



B-229

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

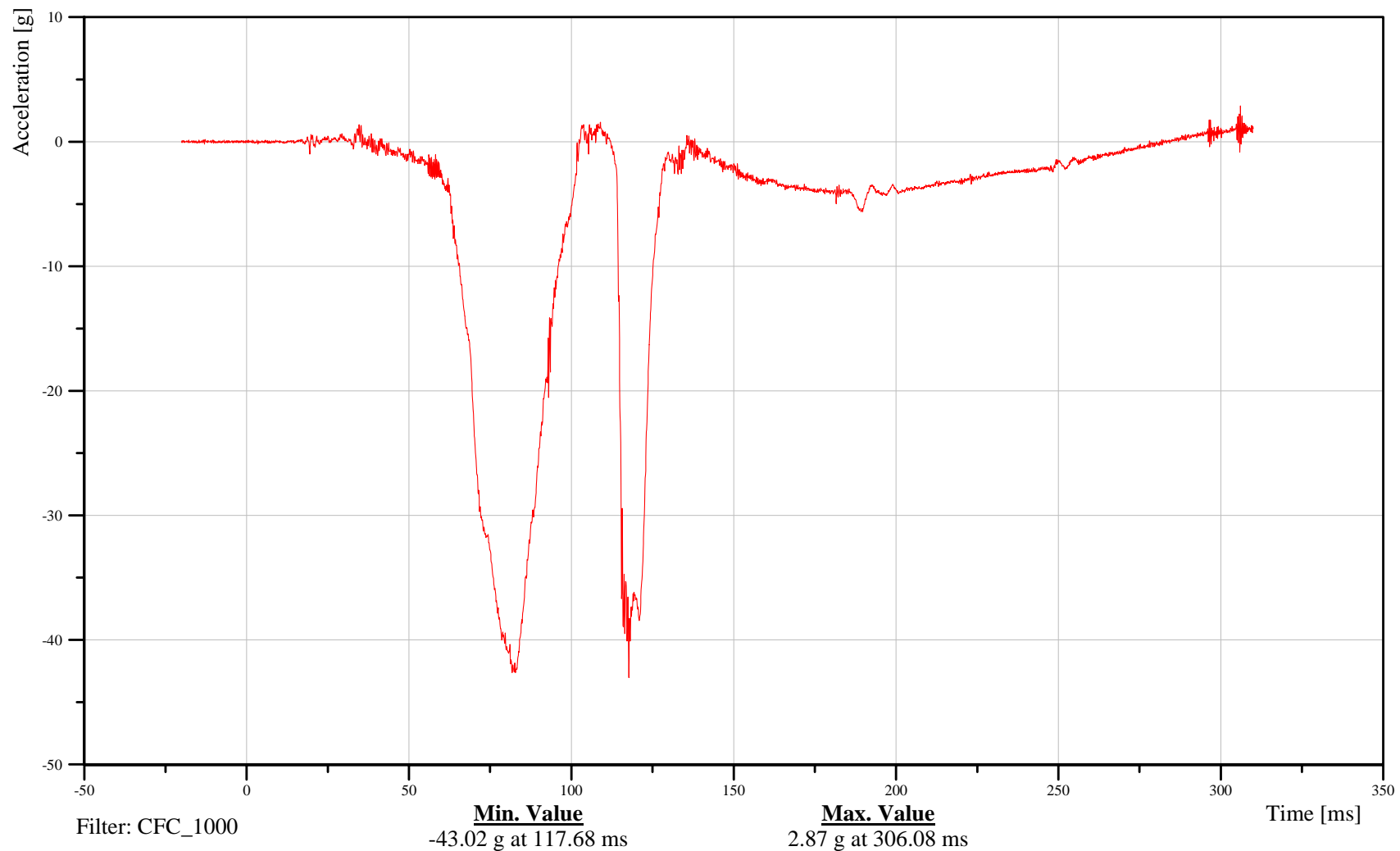
## Target Vehicle Driver Head X-Axis Acceleration

Customer: VRTC

# 21HEADCG00THACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-230

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Head Y-Axis Acceleration

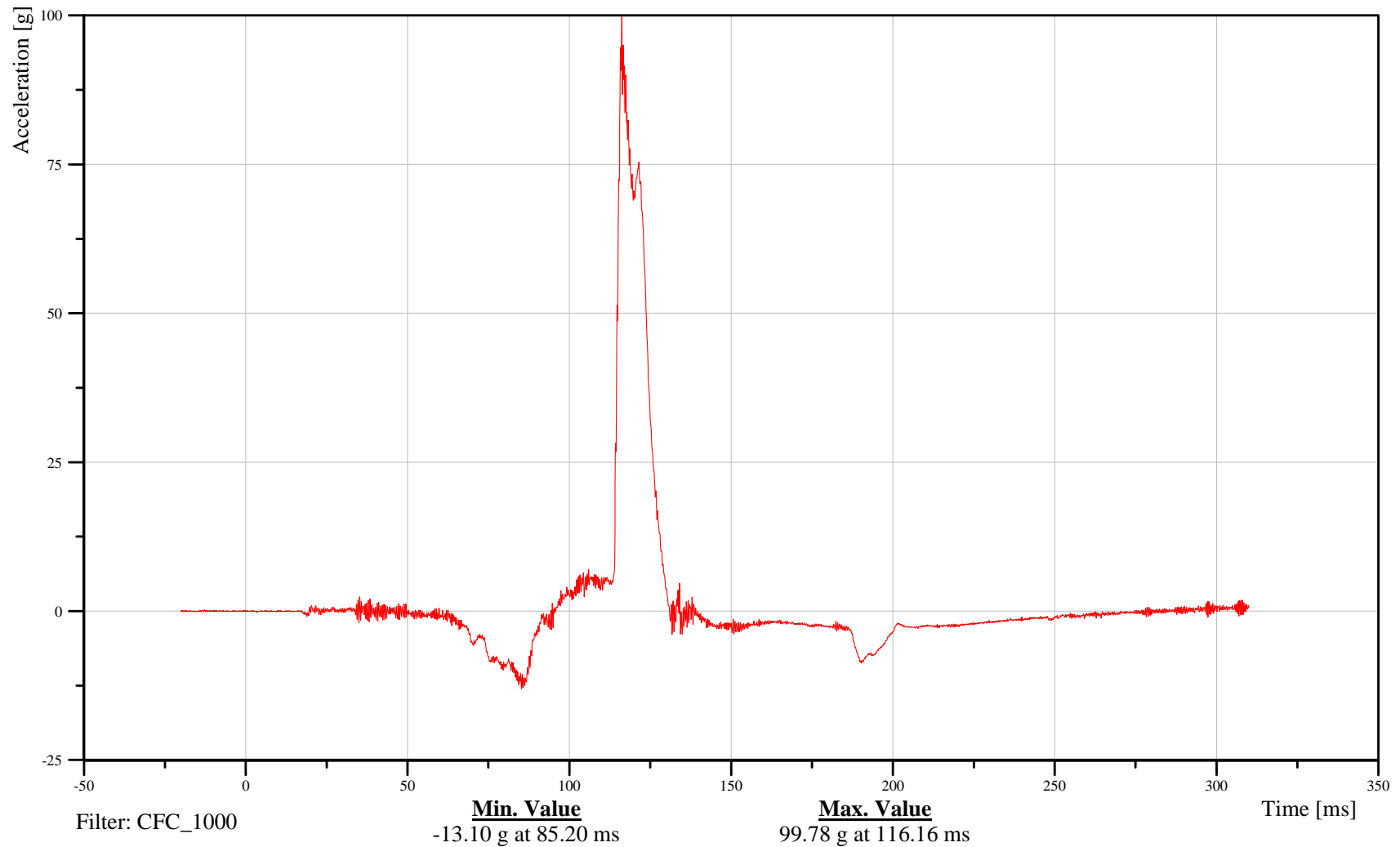
Time: 16:35

Customer: VRTC

# 21HEADCG00THACYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-231

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Head Z-Axis Acceleration

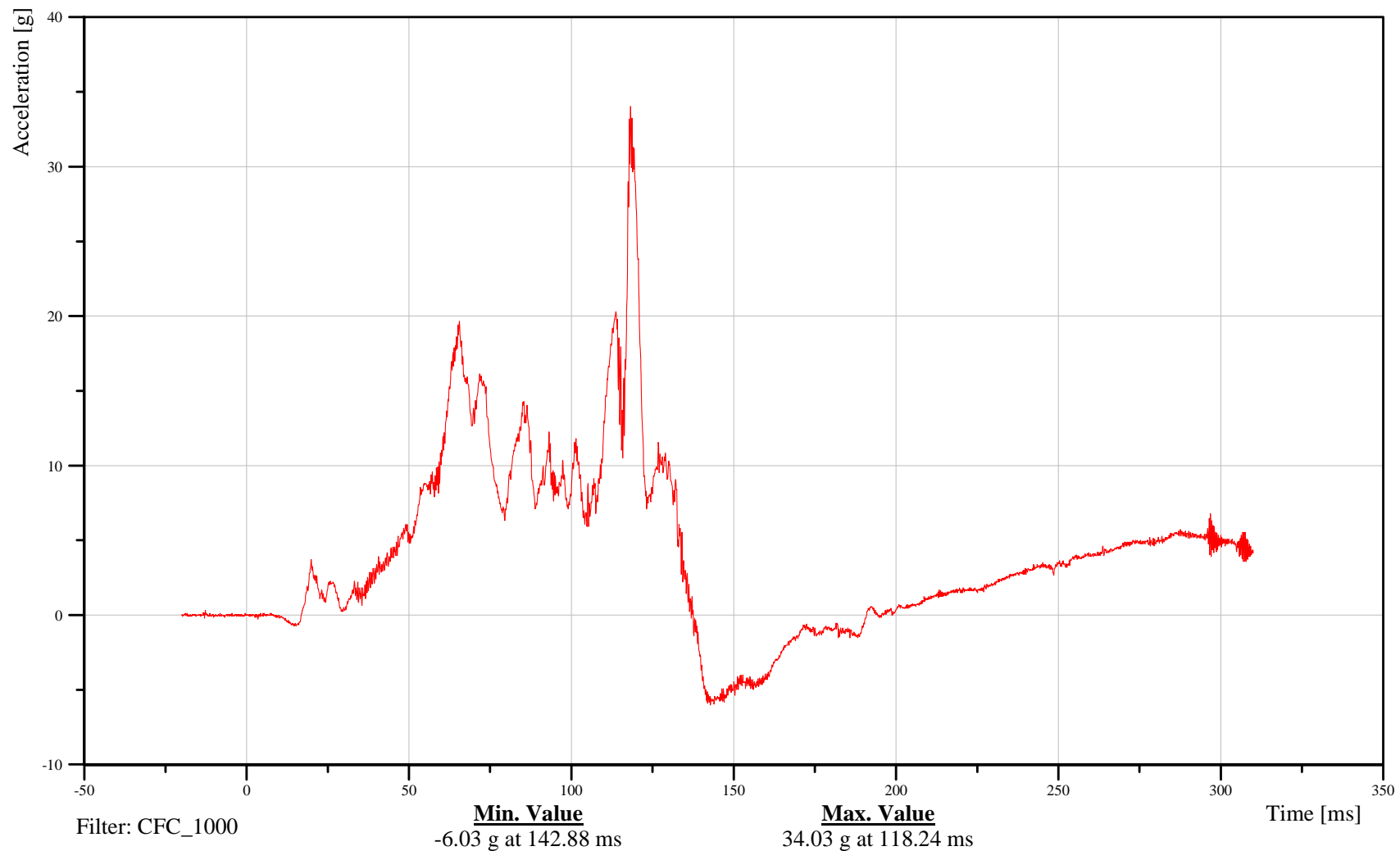
Time: 16:35

Customer: VRTC

### 21HEADCG00THACZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-232

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

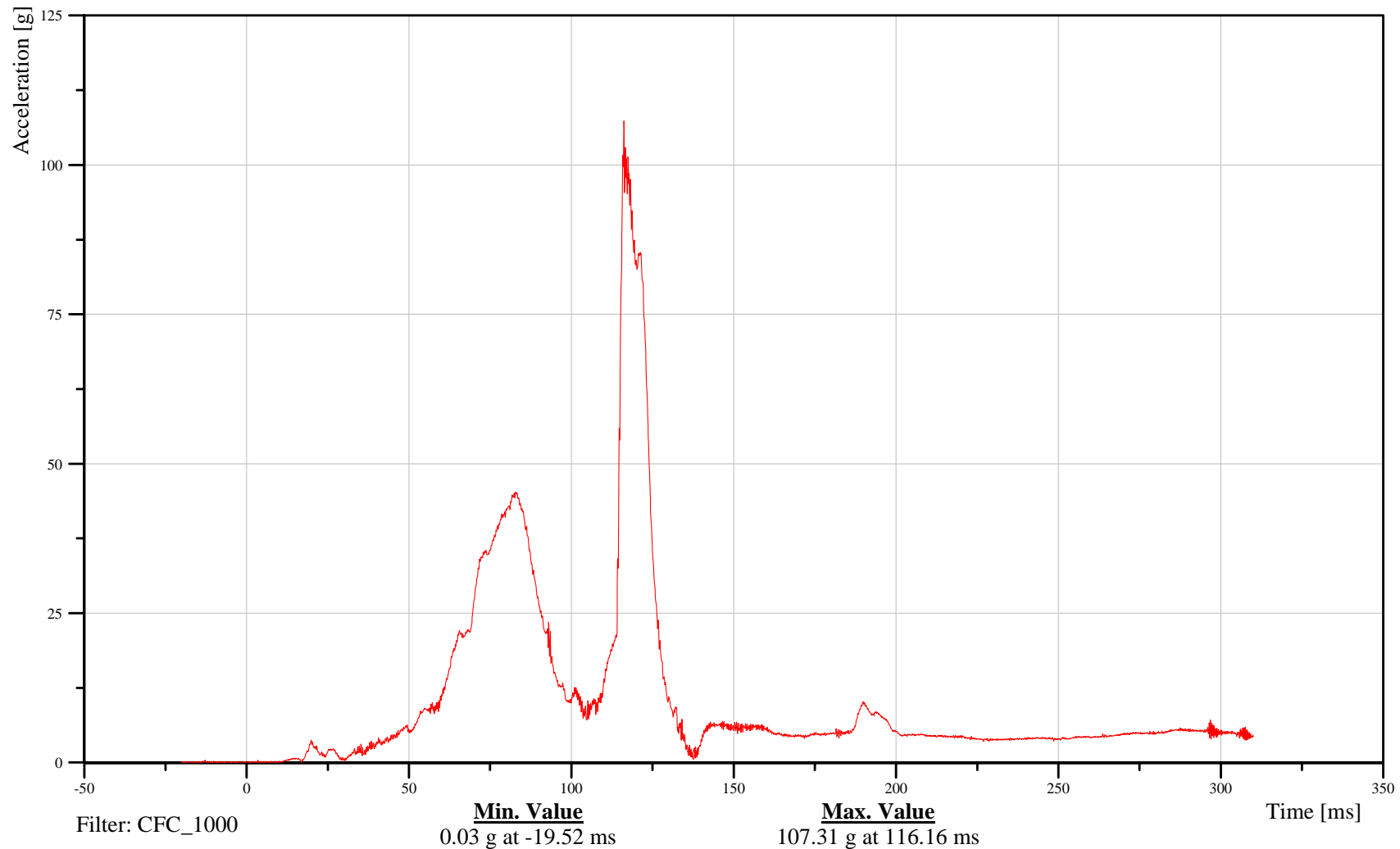
## Target Vehicle Driver Head Resultant Acceleration

Customer: VRTC

# 21HEADCG00THACRA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-233

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

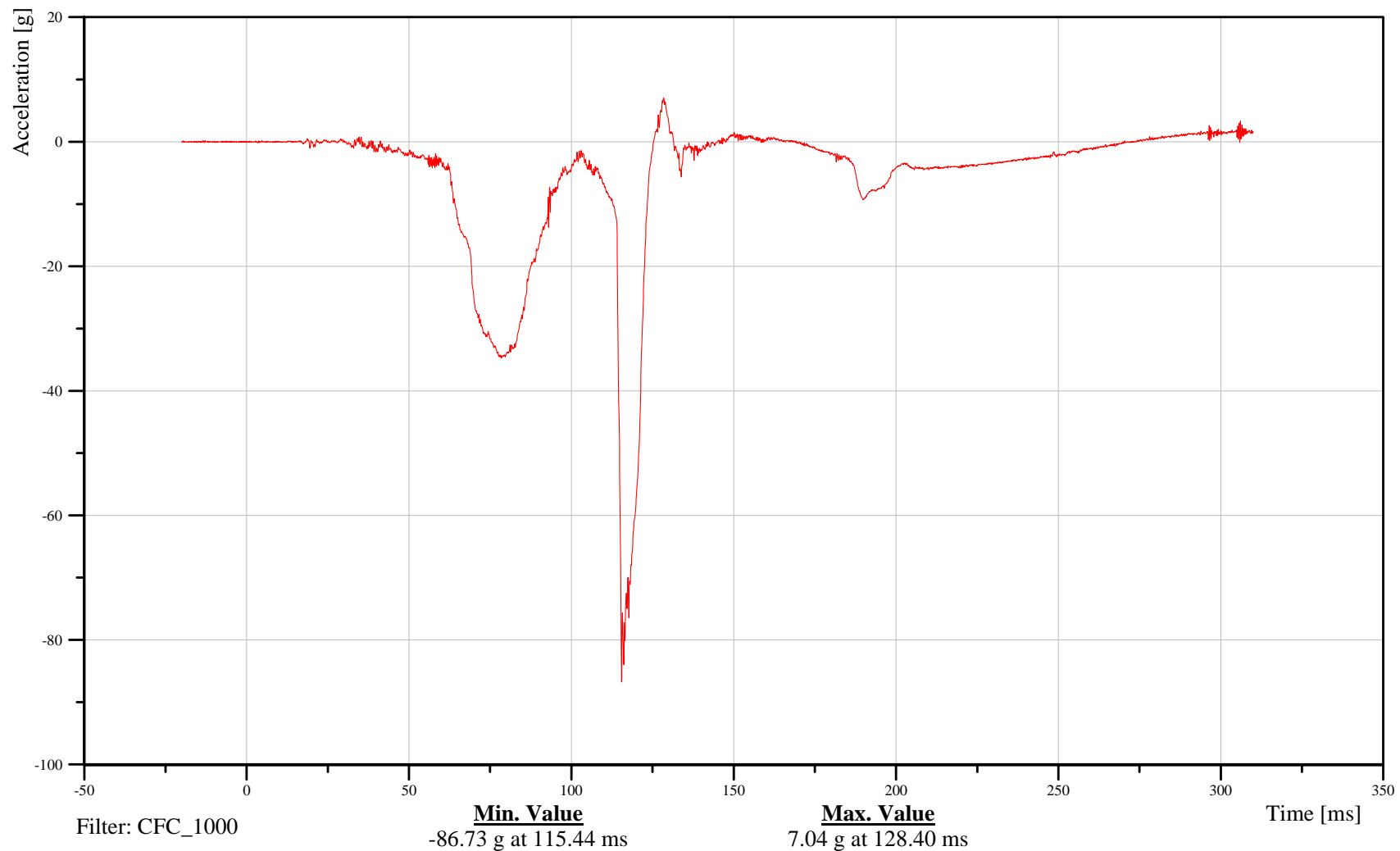
## Target Vehicle Driver Head Left X-Axis Acceleration

Customer: VRTC

# 21HEADLE00THACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-234

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Head Left Z-Axis Acceleration

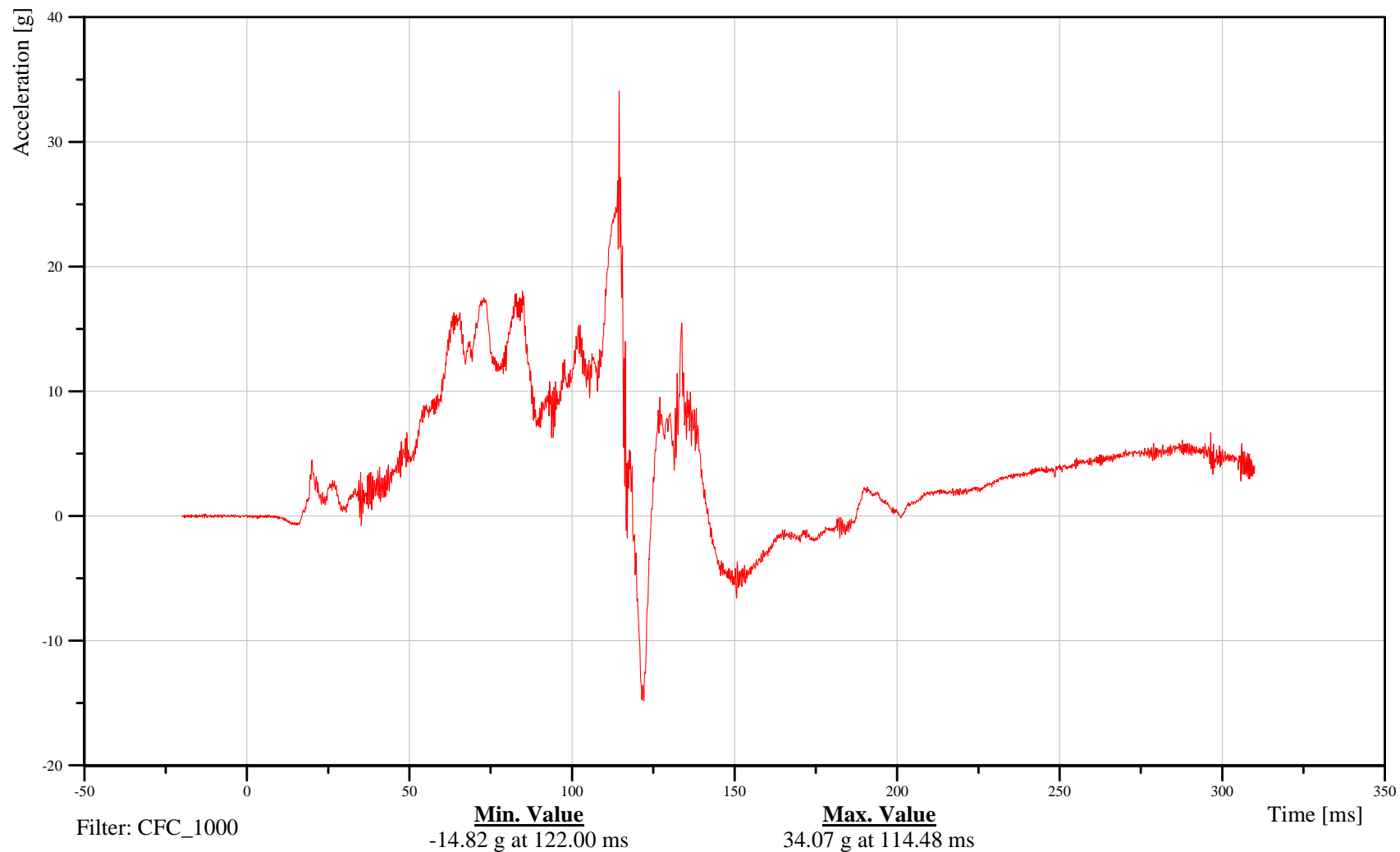
Time: 16:35

Customer: VRTC

### 21HEADLE00THACZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-235

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

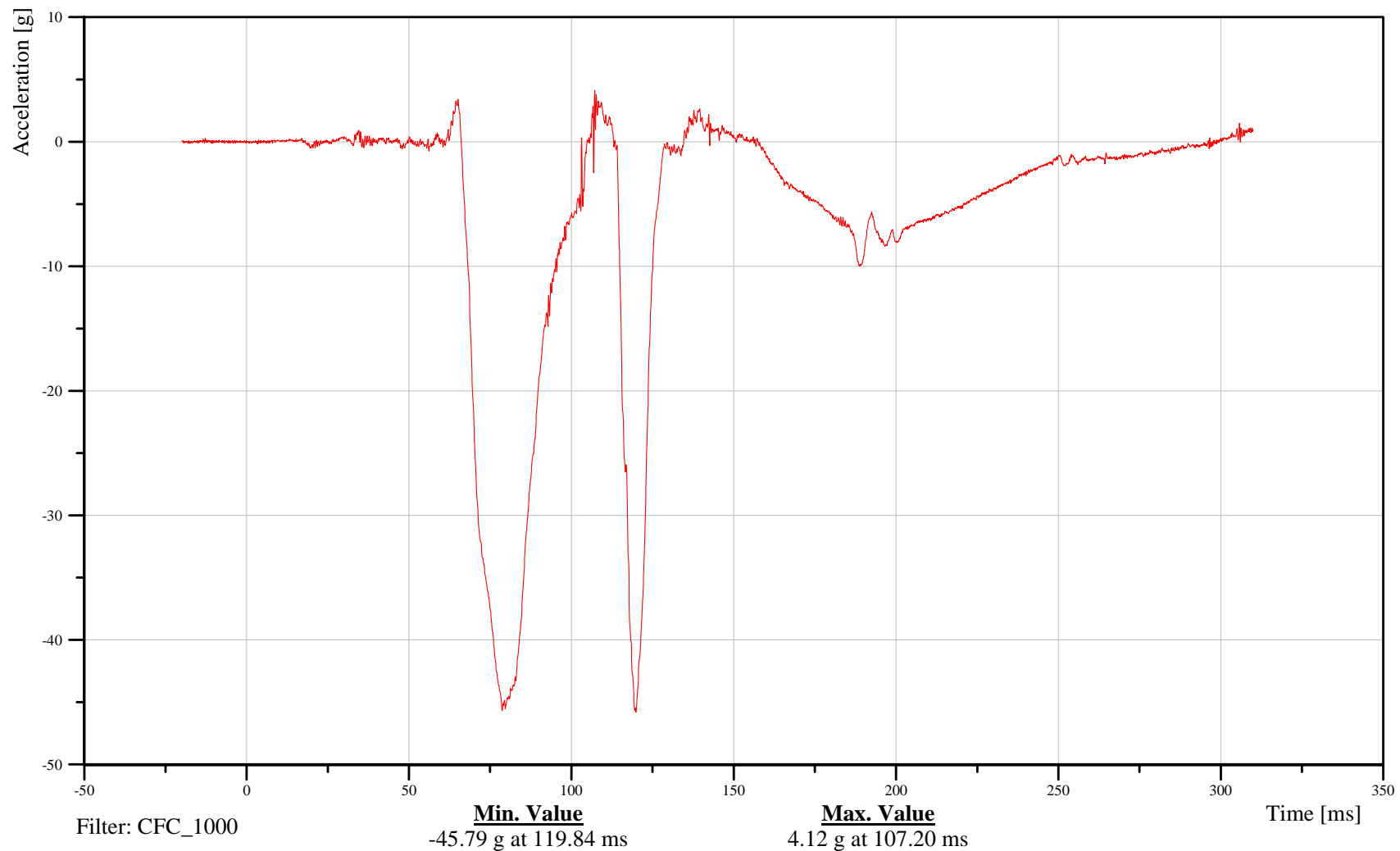
## Target Vehicle Driver Head Top X-Axis Acceleration

Customer: VRTC

# 21HEADUP00THACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-236

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Head Top Y-Axis Acceleration

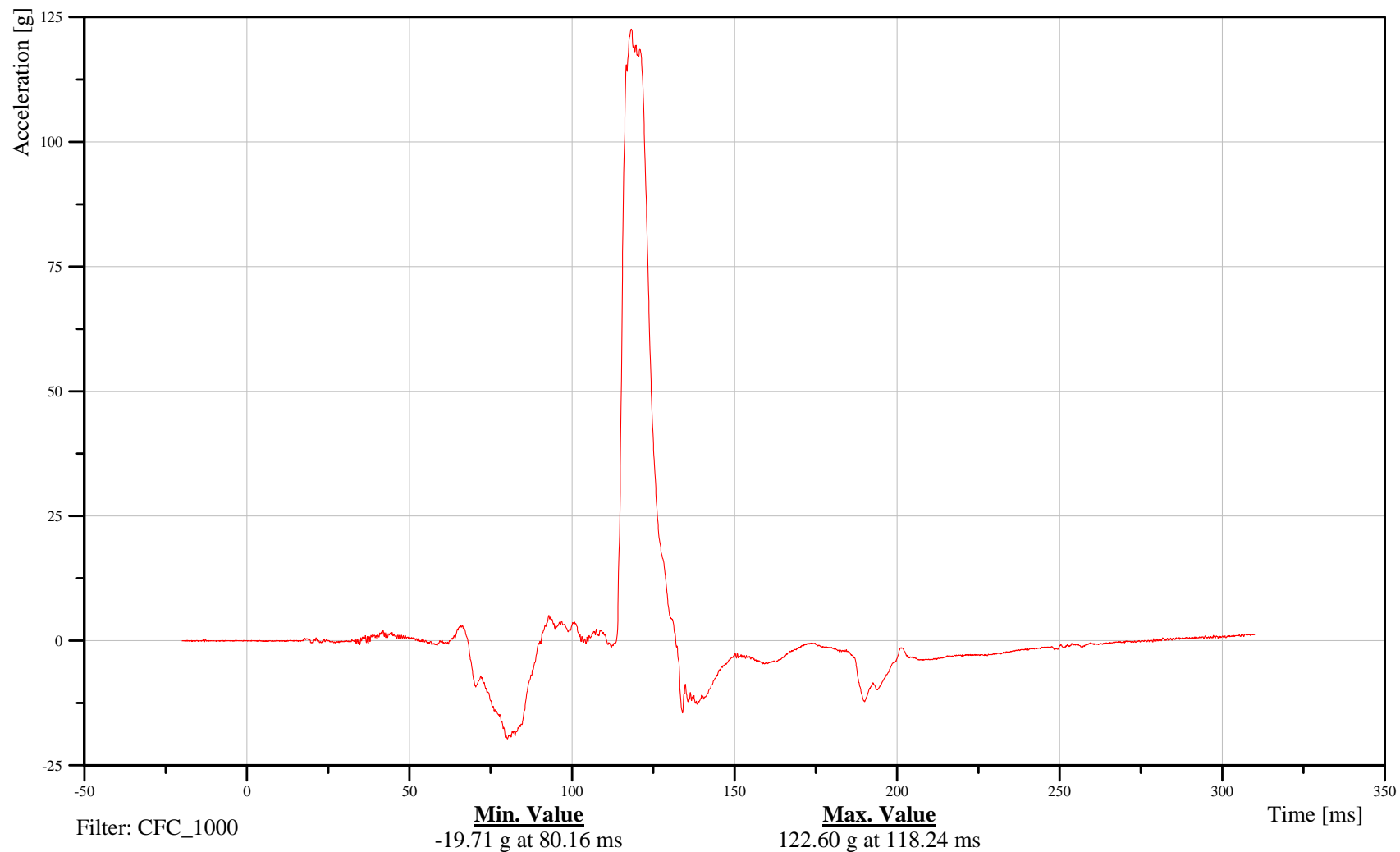
Time: 16:35

Customer: VRTC

# 21HEADUP00THACYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-237

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

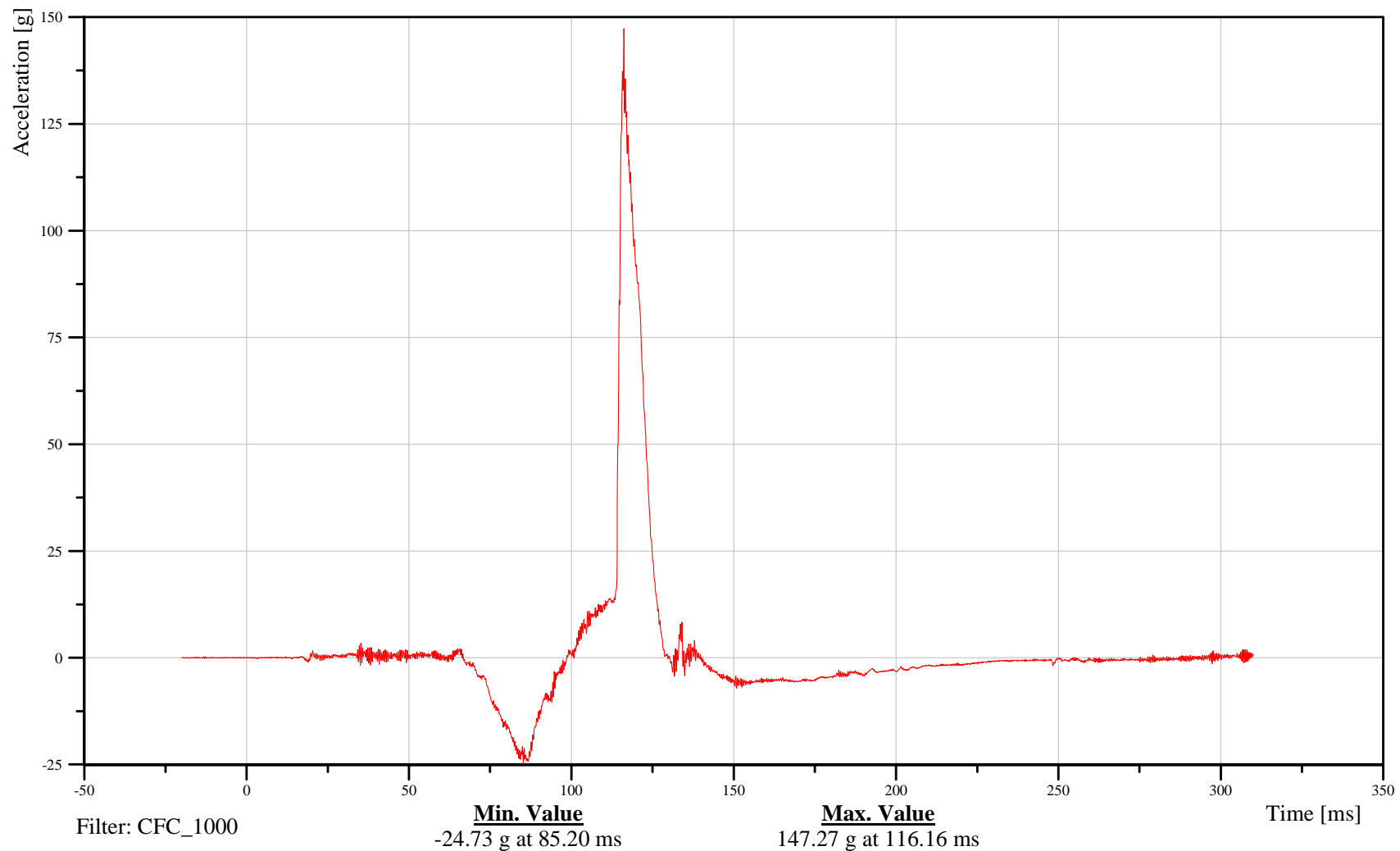
## Target Vehicle Driver Head Rear Y-Axis Acceleration

Customer: VRTC

# 21HEADRE00THACYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-238

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Head Rear Z-Axis Acceleration

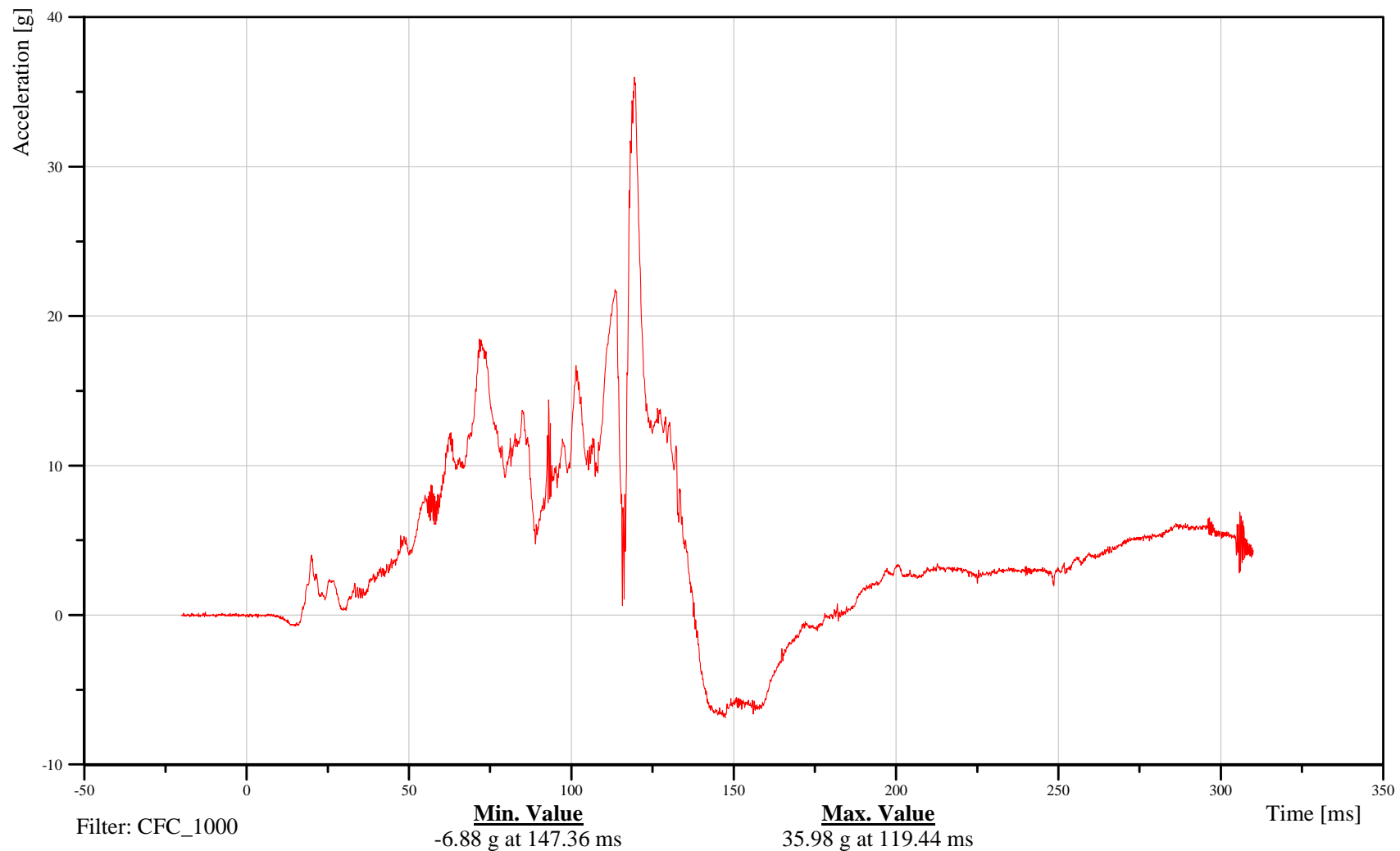
Time: 16:35

Customer: VRTC

### 21HEADRE00THACZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-239

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

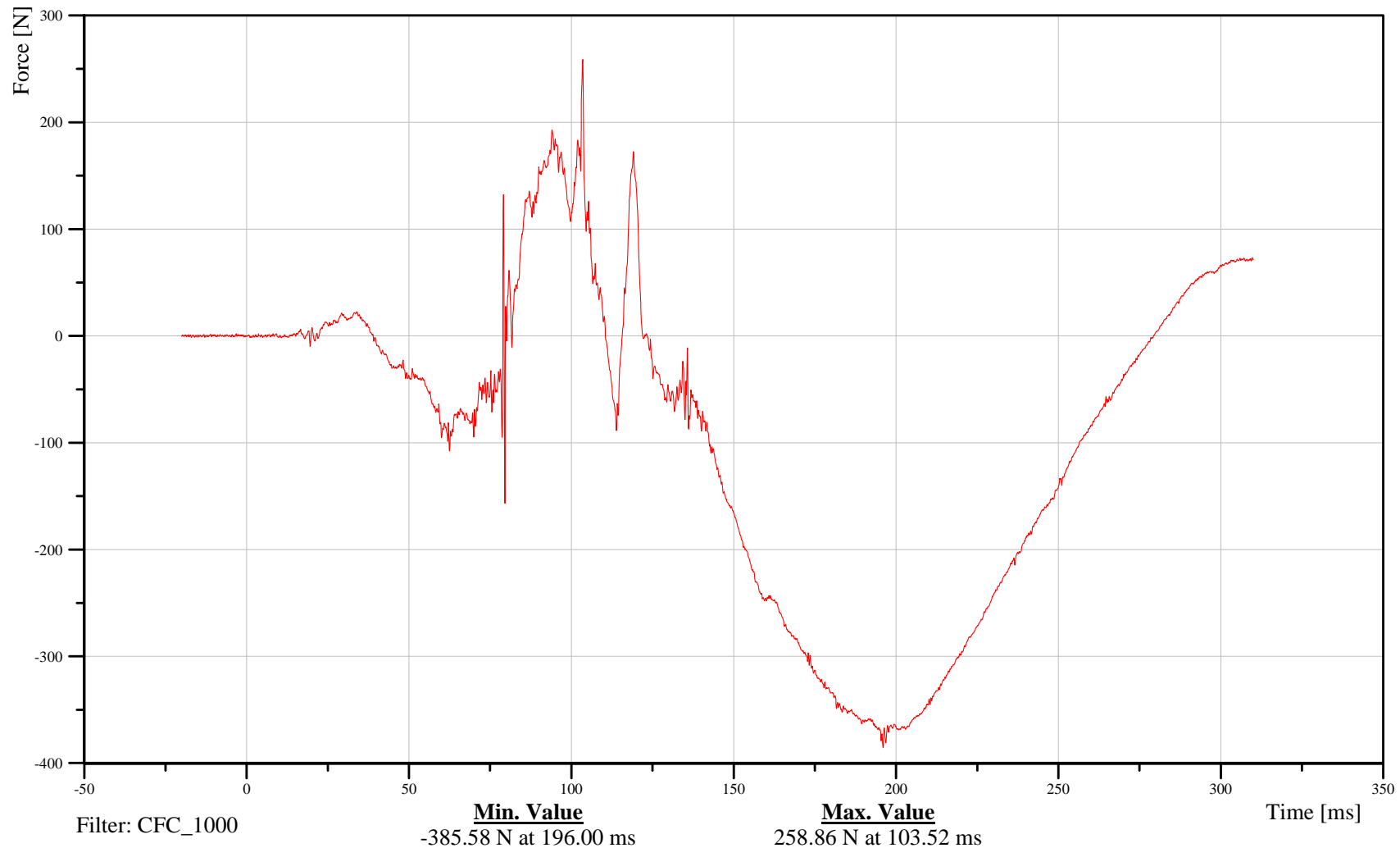
## Target Vehicle Driver Upper Neck X-Axis Force

Customer: VRTC

# 21NECKUP00THFOXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-240

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Upper Neck Y-Axis Force

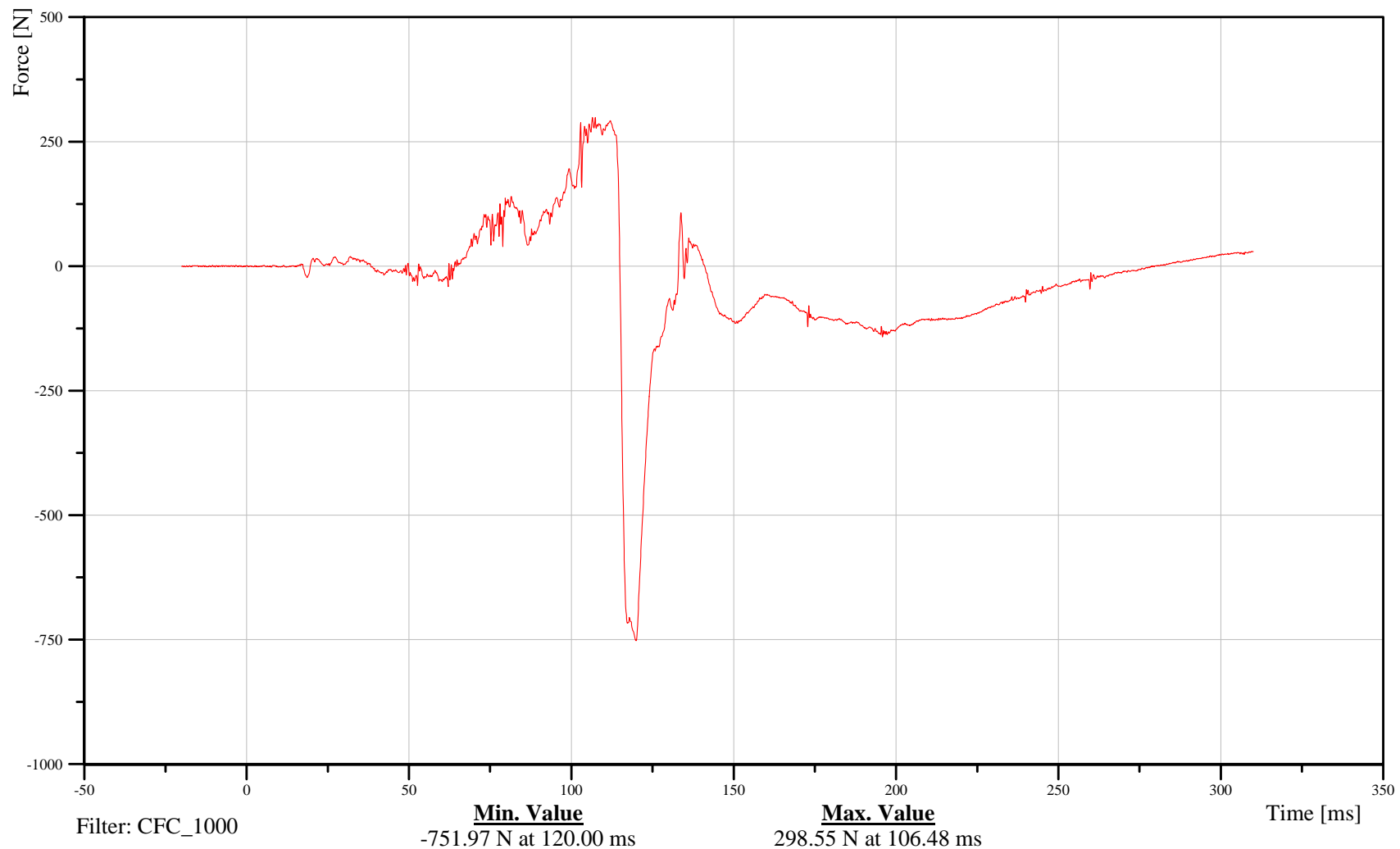
Time: 16:35

Customer: VRTC

### 21NECKUP00THFOYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-241

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Upper Neck Z-Axis Force

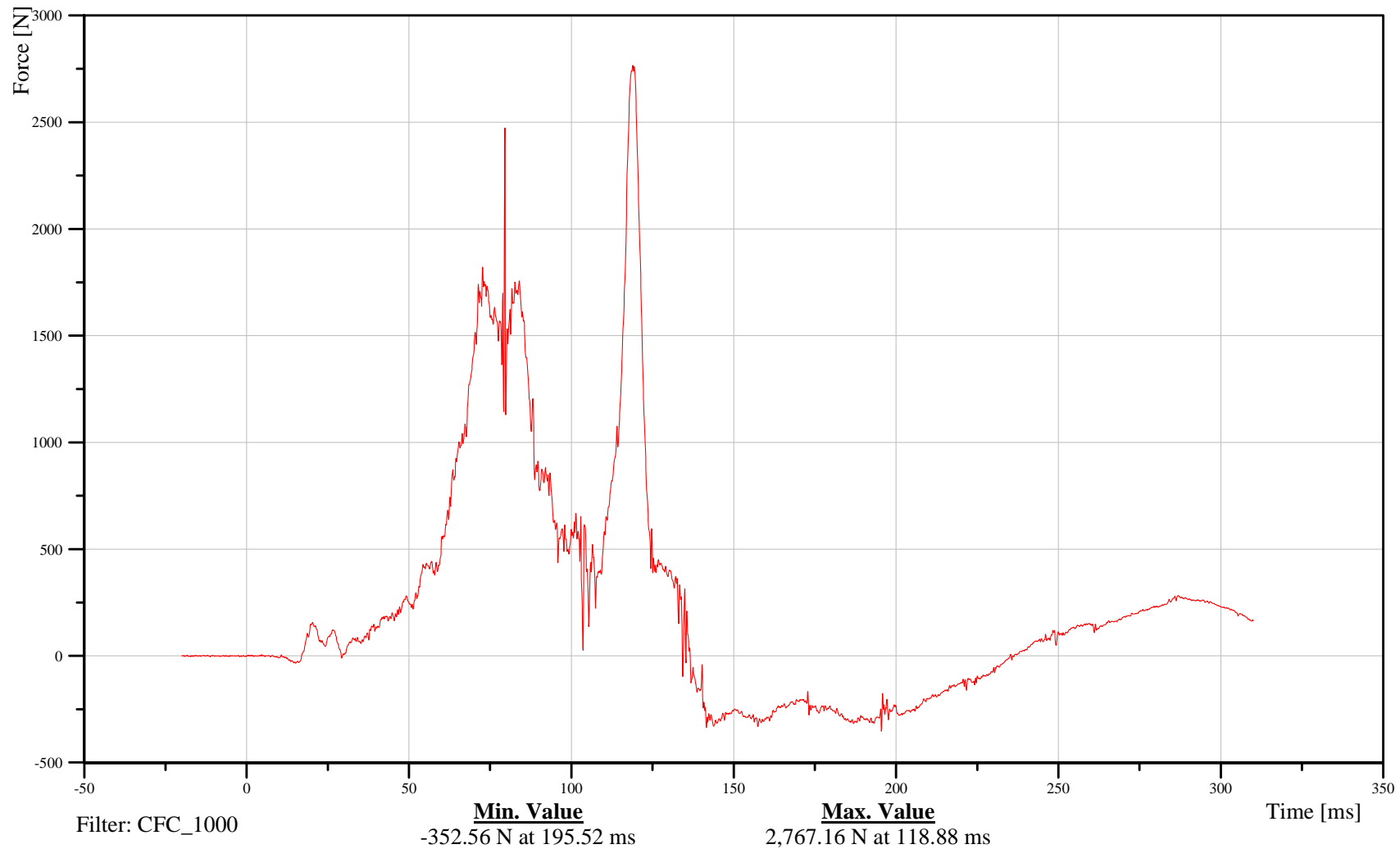
Time: 16:35

Customer: VRTC

# 21NECKUP00THFOZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-242

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

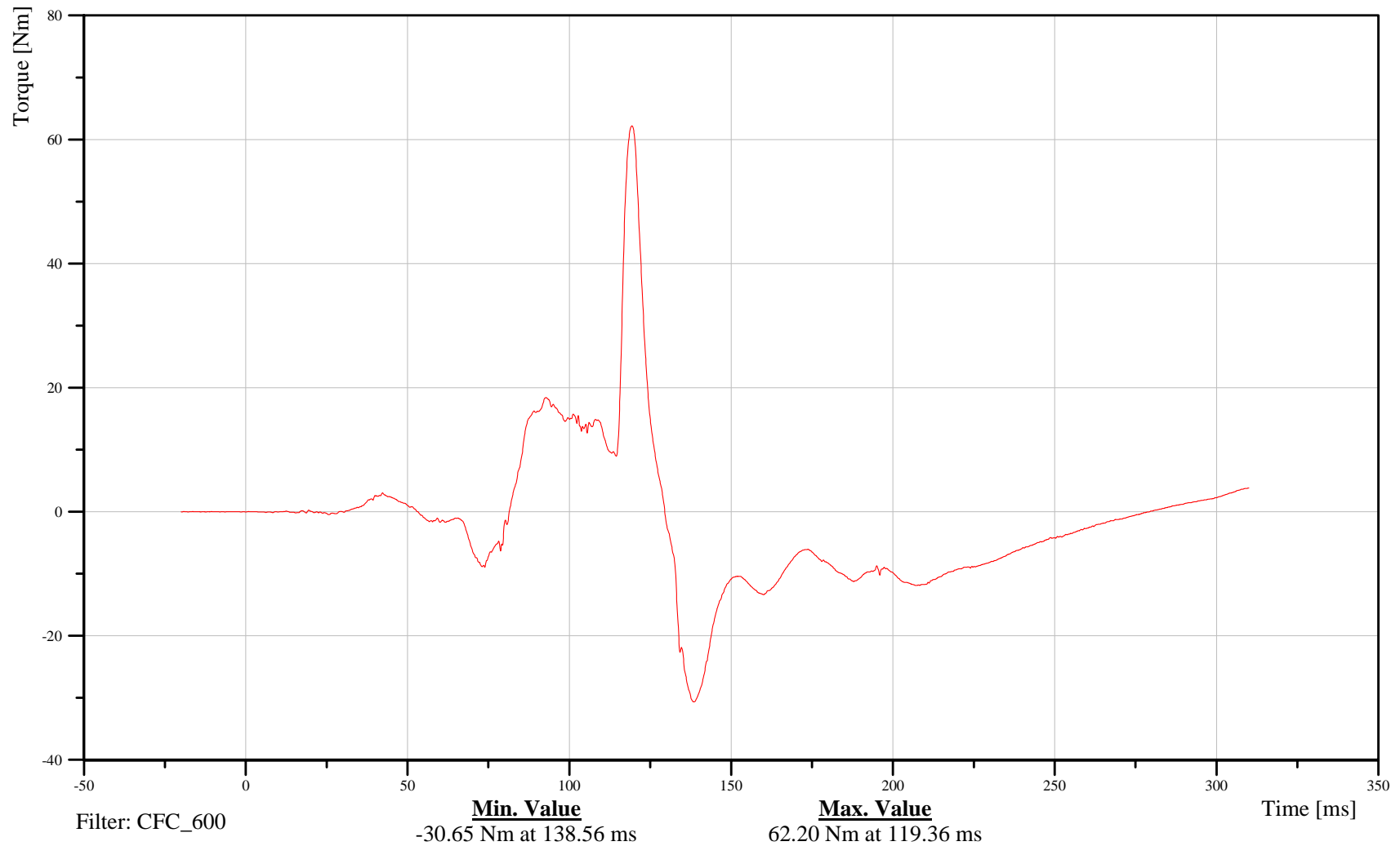
## Target Vehicle Driver Upper Neck Moment About X Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21NECKUP00THMOXB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-243

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

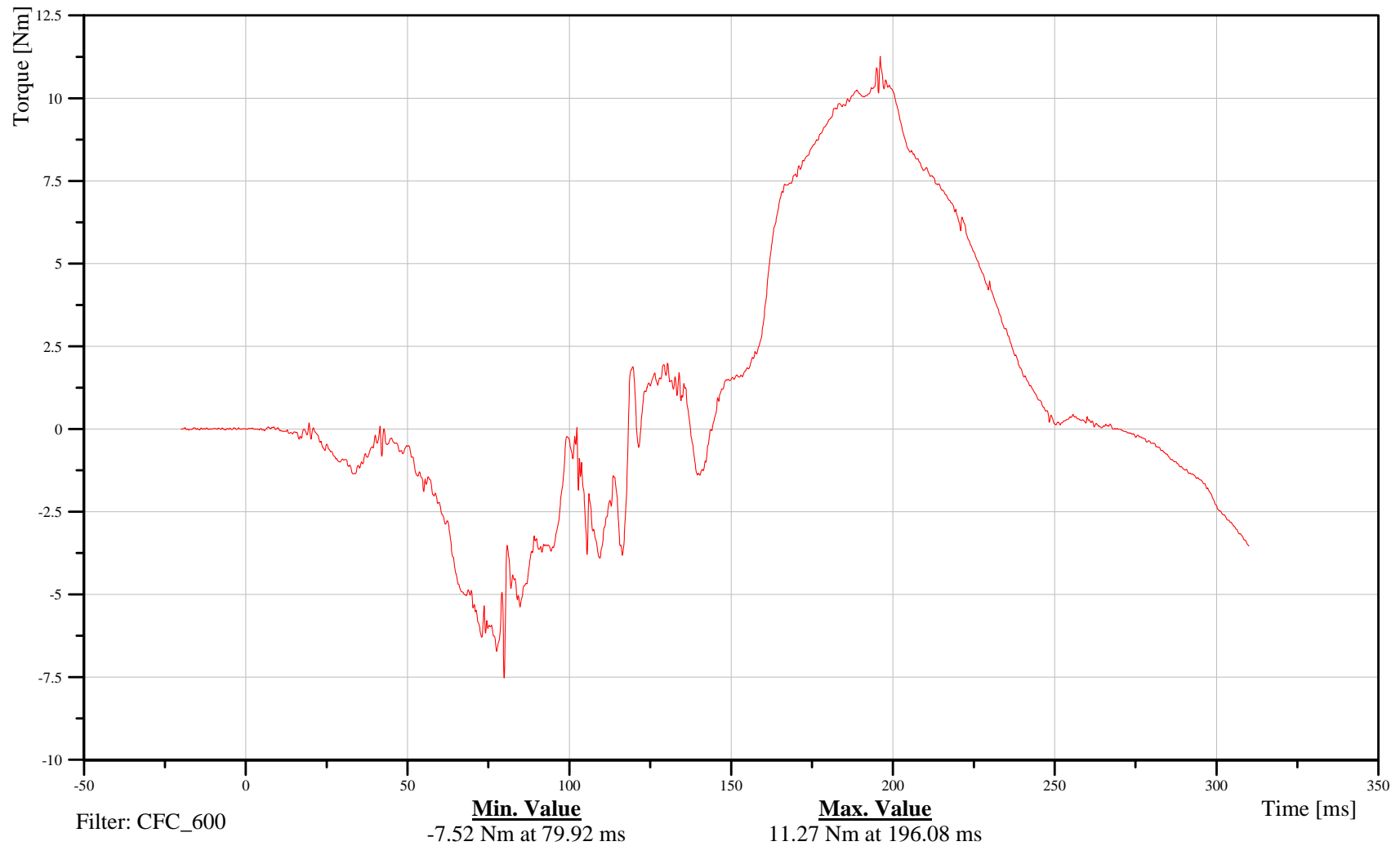
## Target Vehicle Driver Upper Neck Moment About Y Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21NECKUP00THMOYB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-244

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

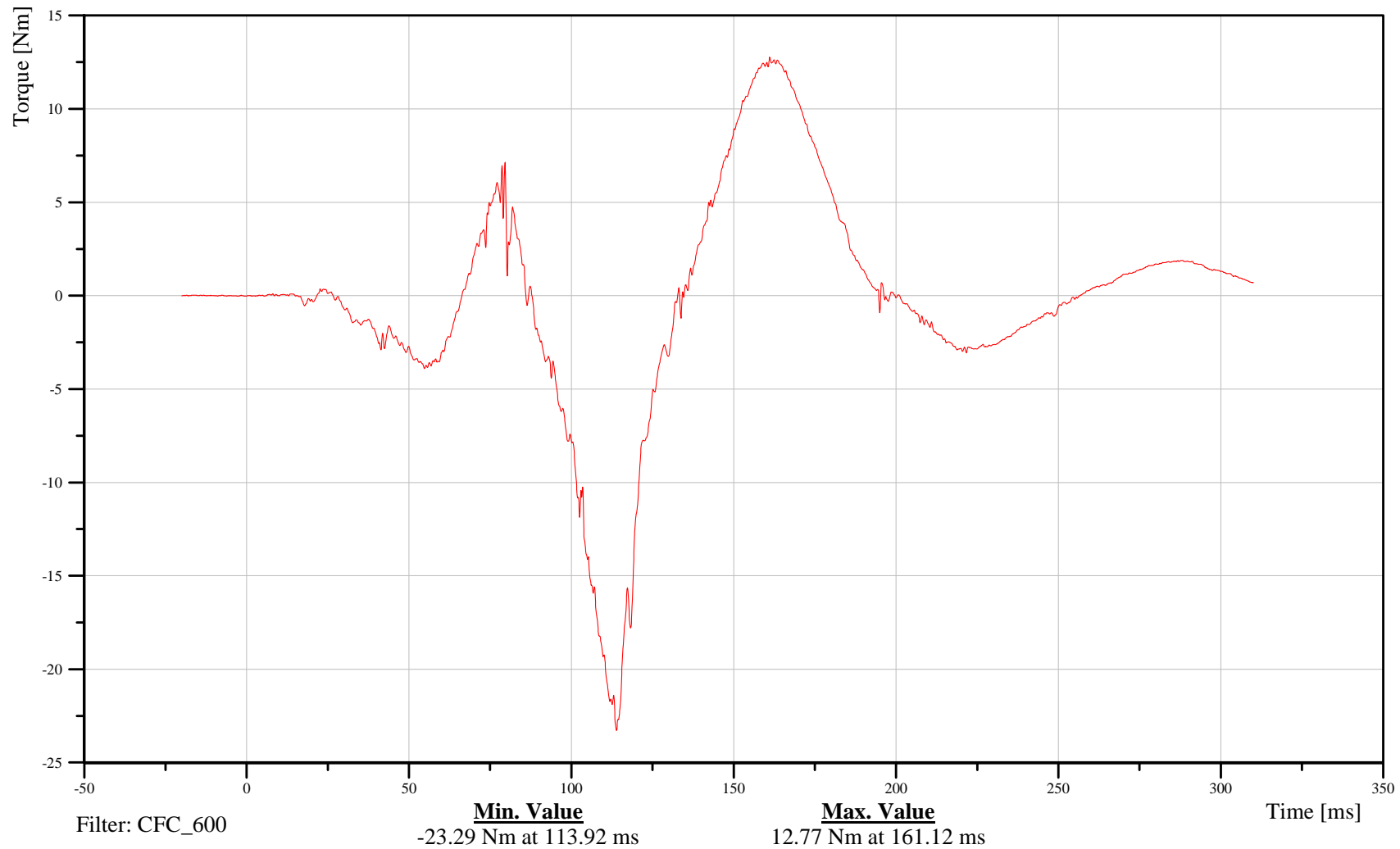
## Target Vehicle Driver Upper Neck Moment About Z Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21NECKUP00THMOZB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-245

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Target Vehicle Driver Lower Neck X-Axis Force

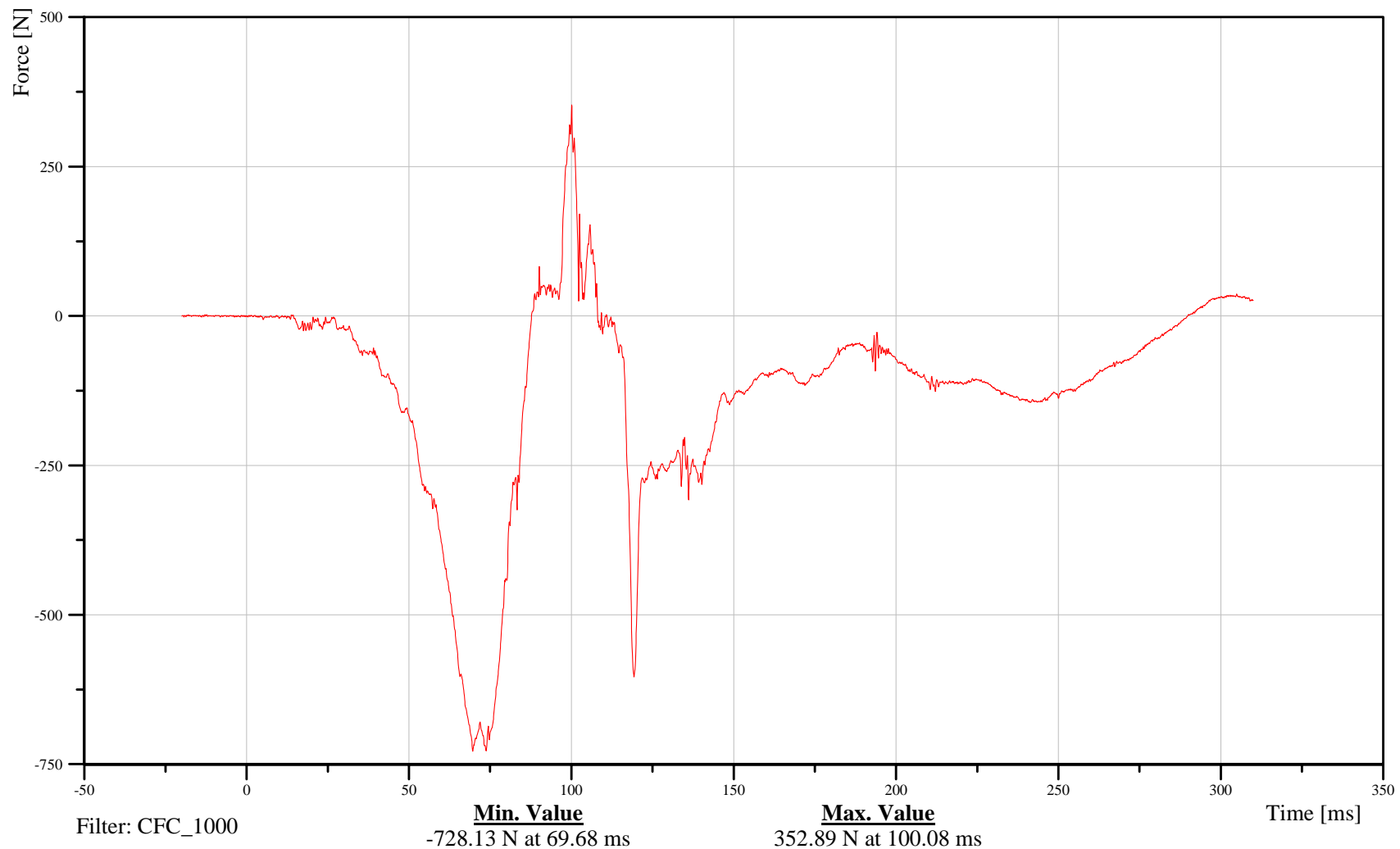
Time: 16:35

Customer: VRTC

## 21NECKLO00THFOXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-246

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

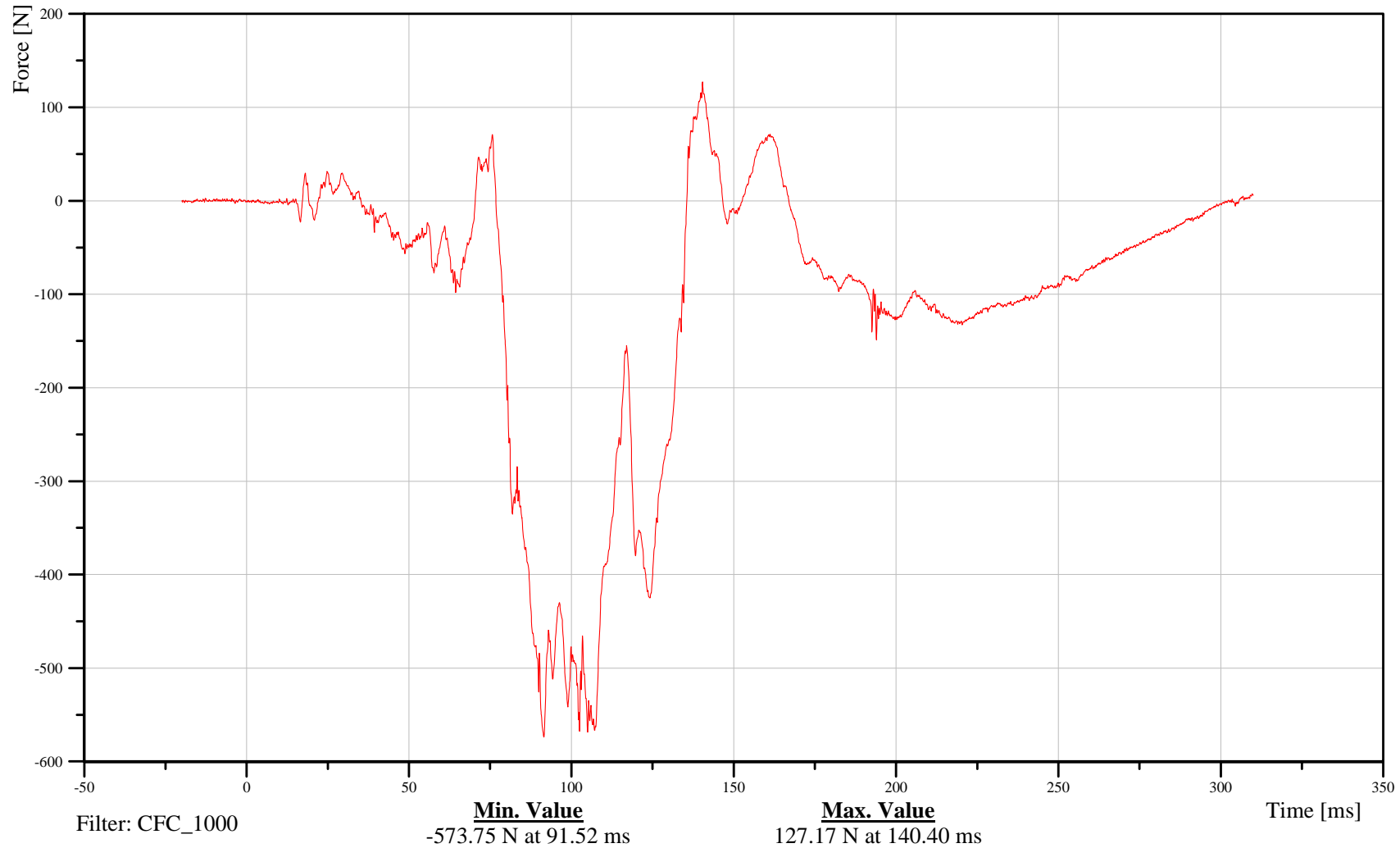
## Target Vehicle Driver Lower Neck Y-Axis Force

Customer: VRTC

# 21NECKLO00THFOYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-247

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Lower Neck Z-Axis Force

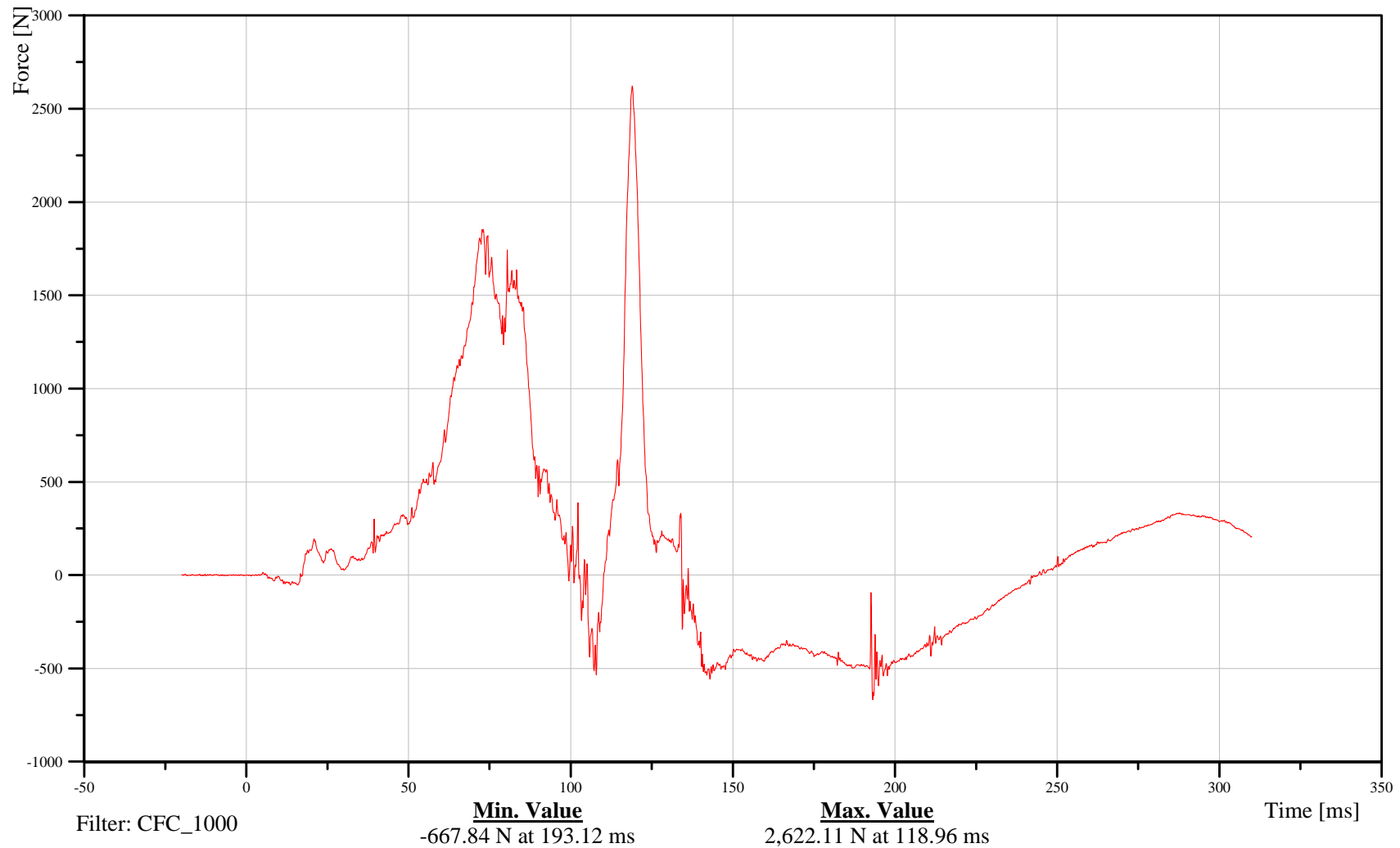
Time: 16:35

Customer: VRTC

# 21NECKLO00THFOZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-248

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

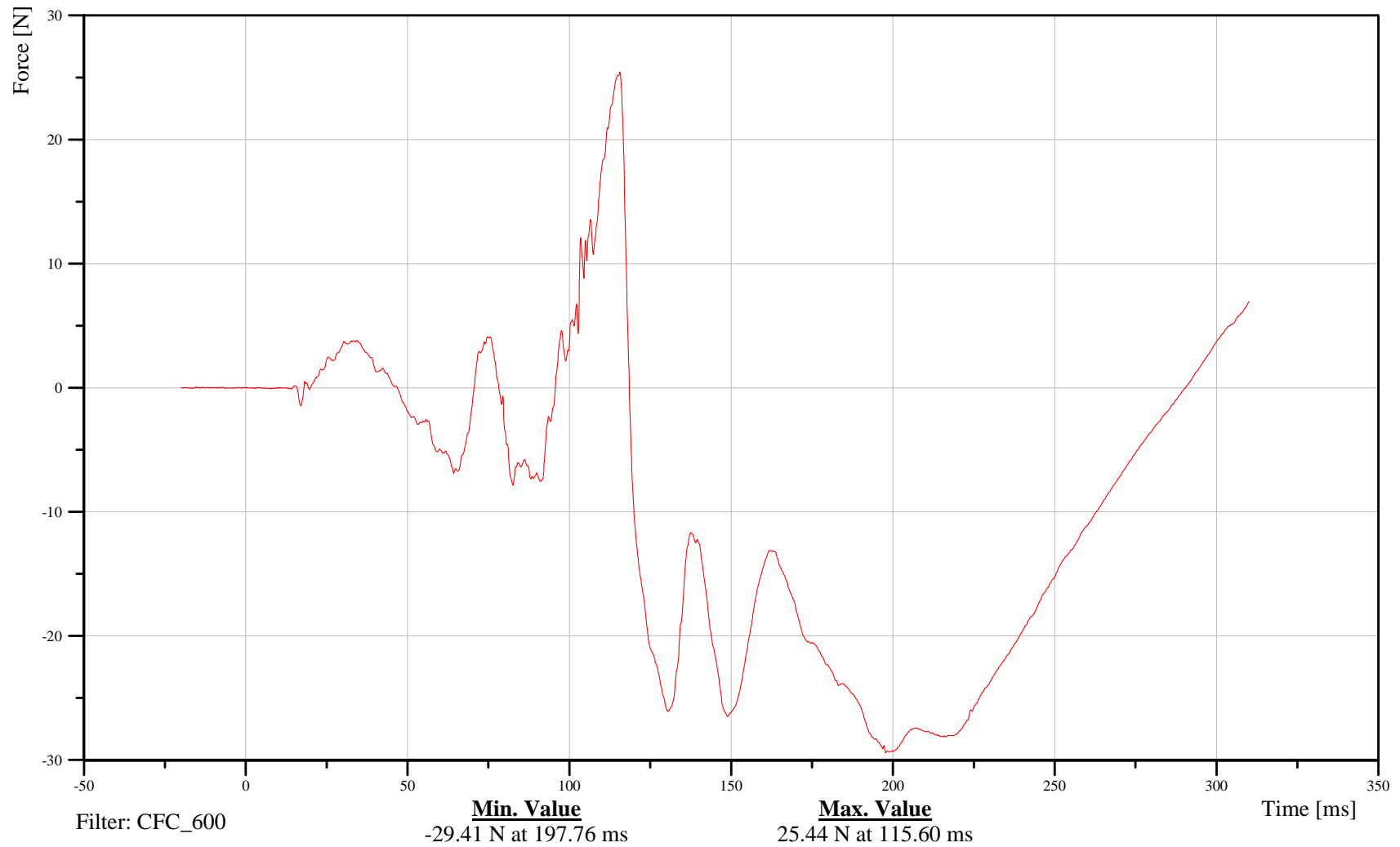
## Target Vehicle Driver Lower Neck Moment About X Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21NECKLO00THMOXB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-249

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

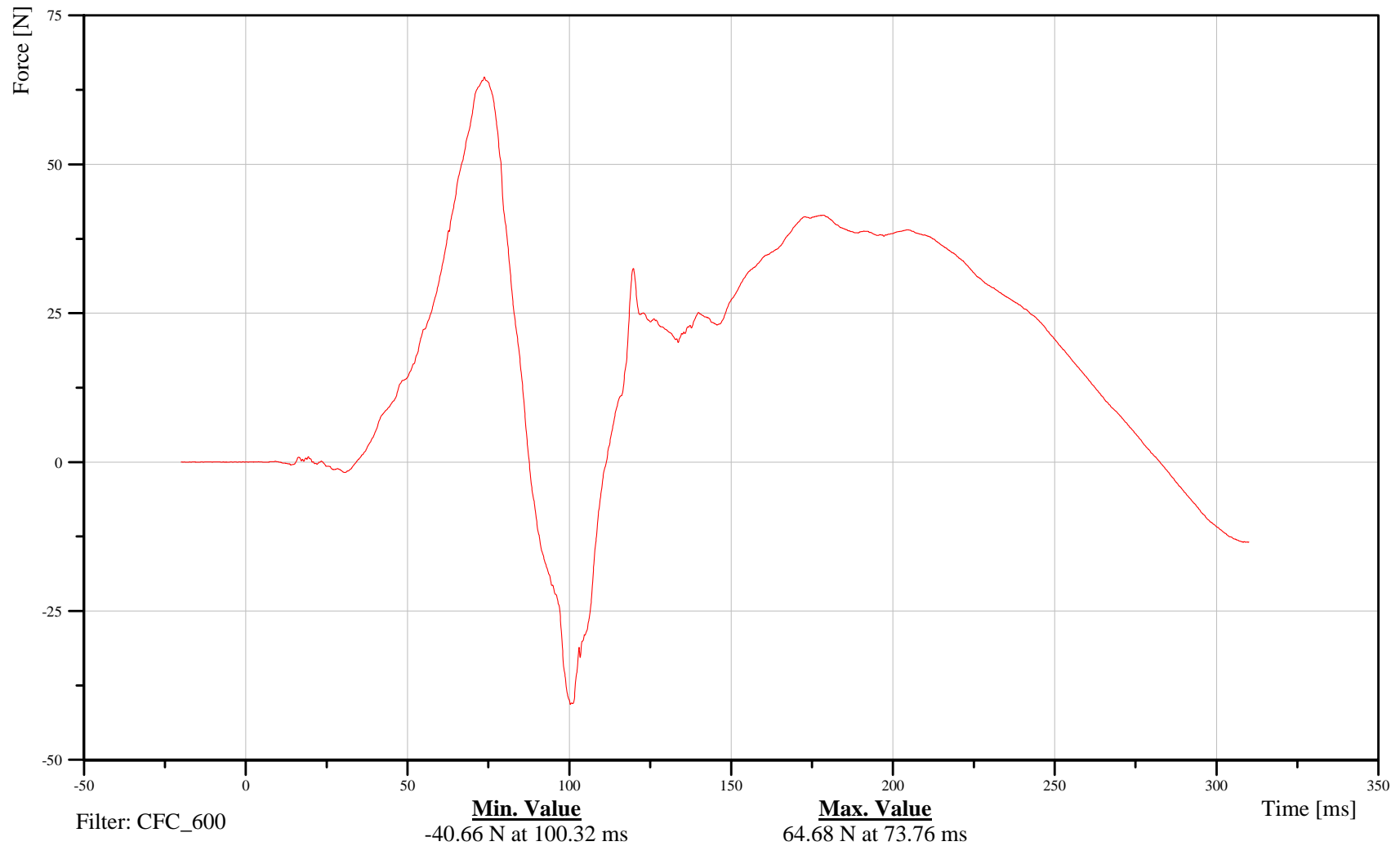
## Target Vehicle Driver Lower Neck Moment About Y Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21NECKLO00THMOYB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-250

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

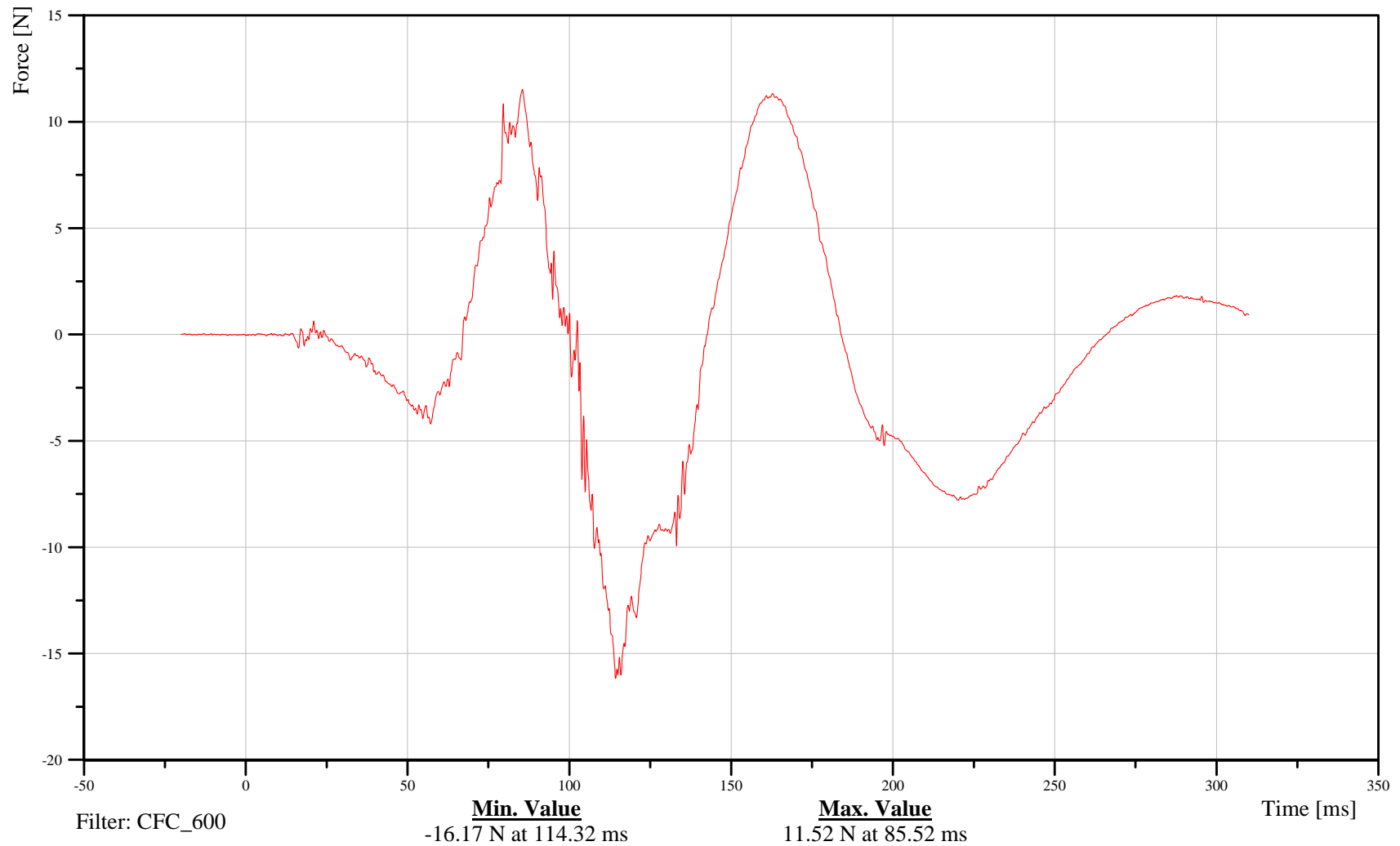
## Target Vehicle Driver Lower Neck Moment About Z Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21NECKLO00THMOZB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-251

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

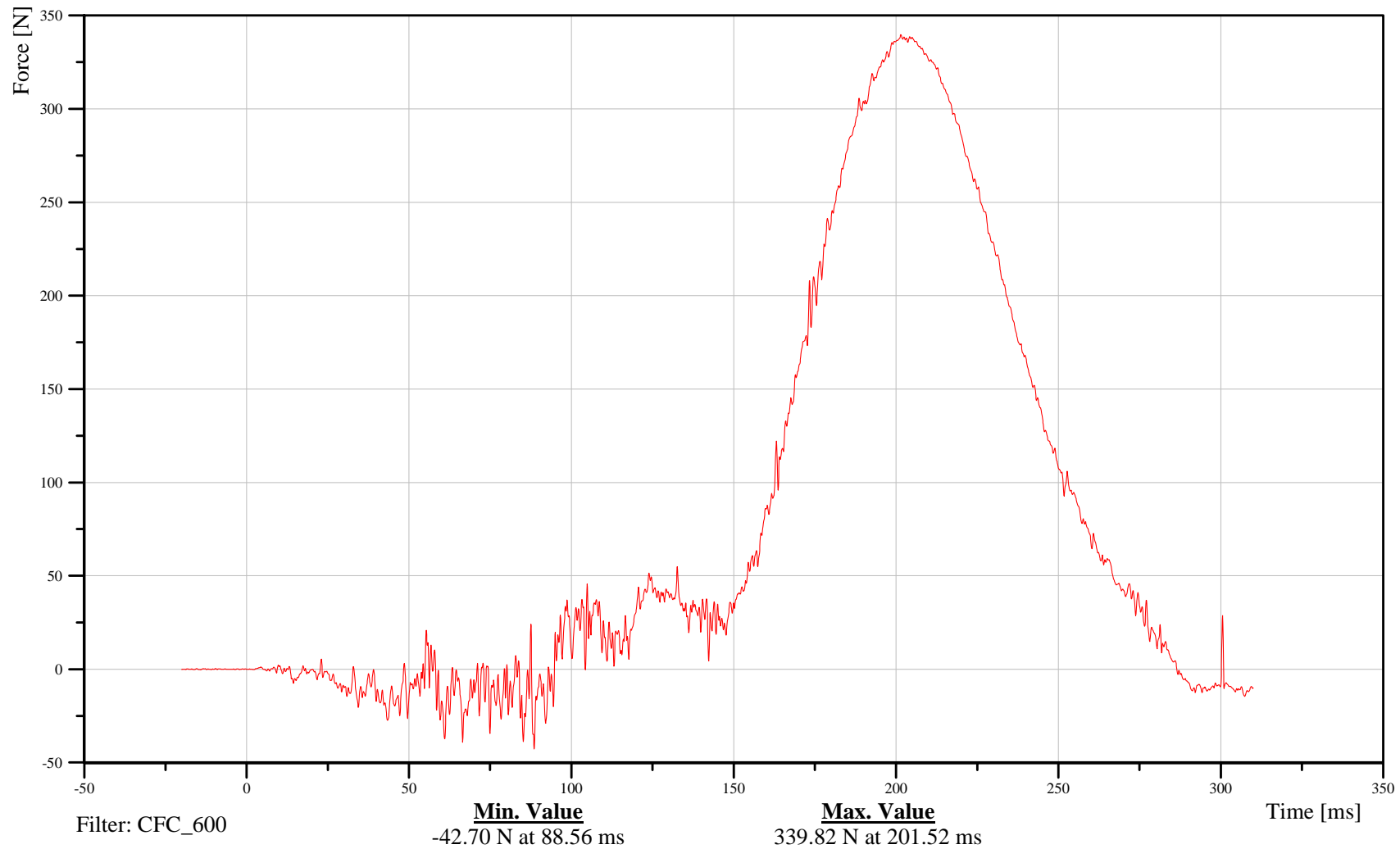
## Target Vehicle Driver Rear Skull Spring Z-Axis Force

Customer: VRTC

# 21NECKRE00THFO0B

TRC Inc. Test Lab: CTF

Test Number: 091020



B-252

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

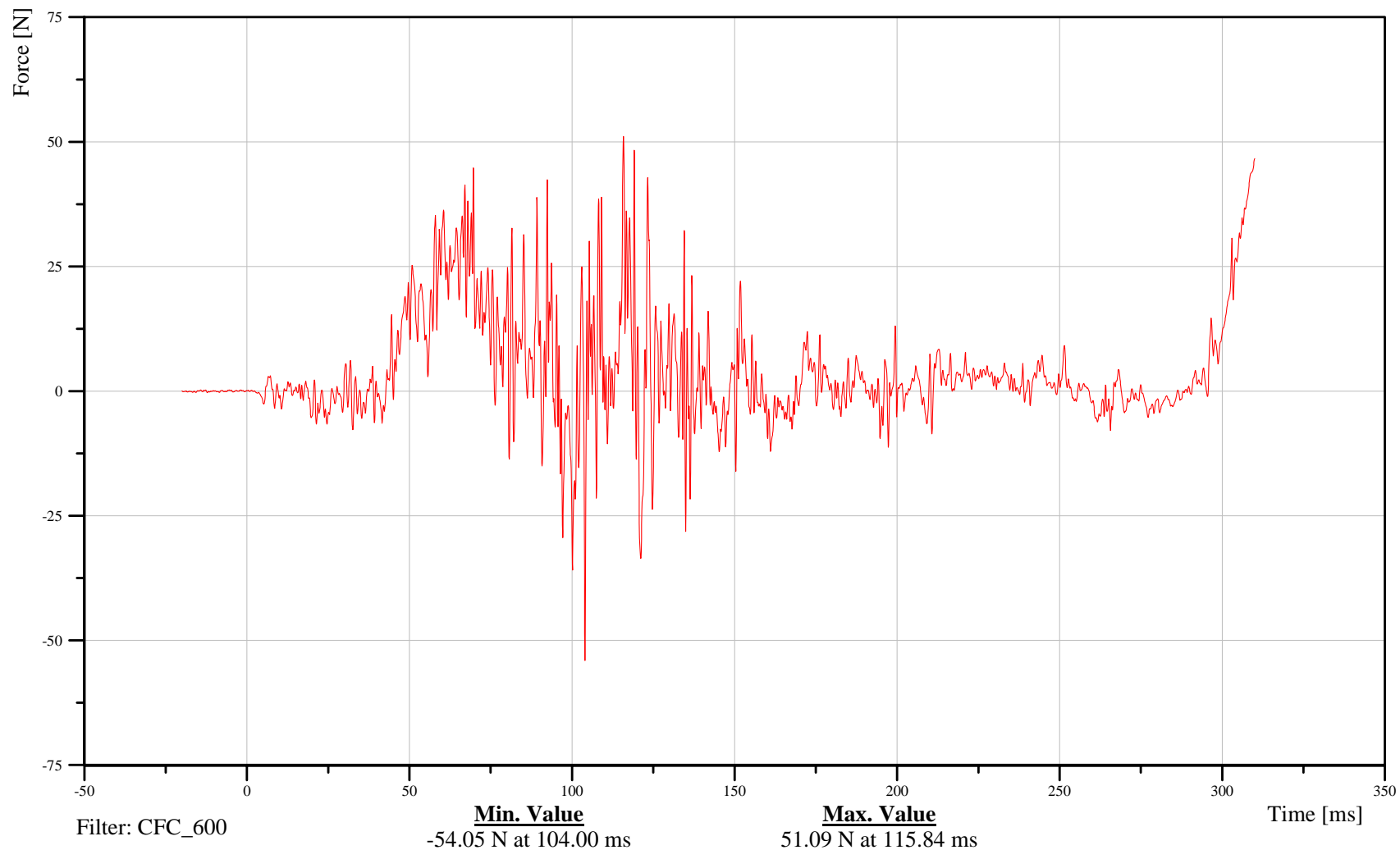
## Target Vehicle Driver Front Skull Spring Z-Axis Force

Customer: VRTC

# 21NECKFR00THFO0B

TRC Inc. Test Lab: CTF

Test Number: 091020



B-253

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

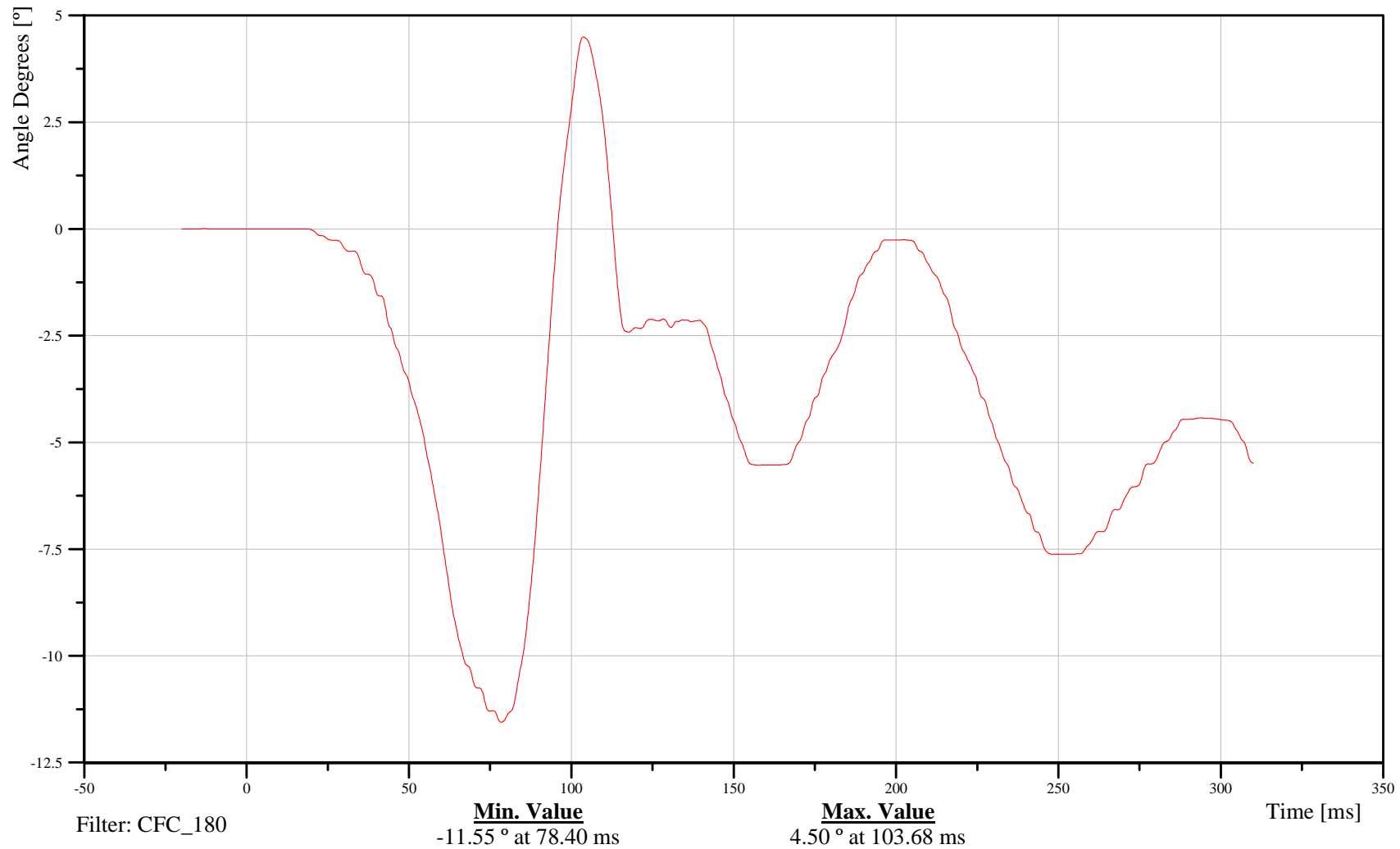
## Target Vehicle Driver Occipital Condyle Rotary Pot

Customer: VRTC

# 21NECKUP00THANYC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-254

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

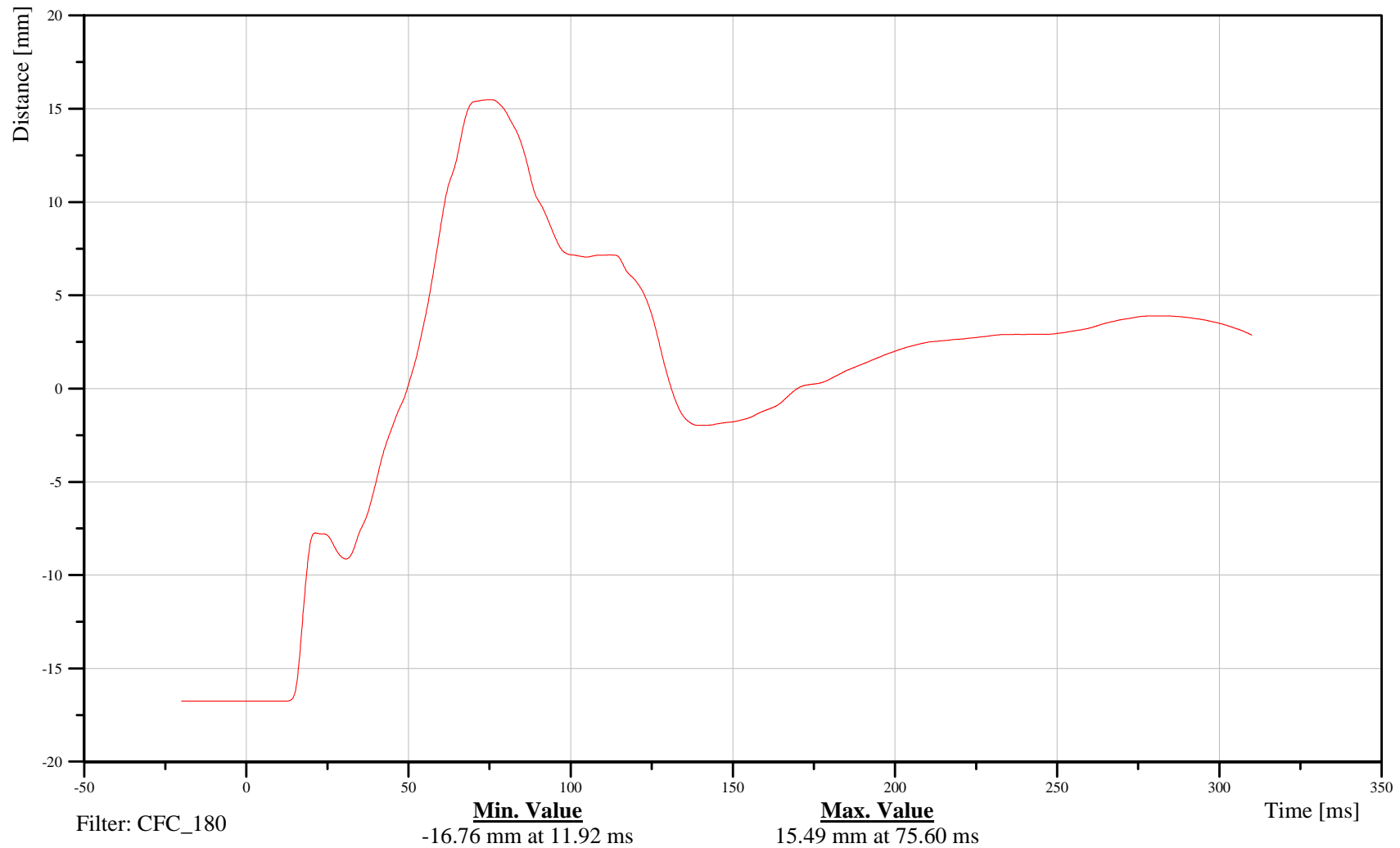
## Target Vehicle Driver Lower Abdomen DGSP Right Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21ABDORL00THDS0C

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-255

091020



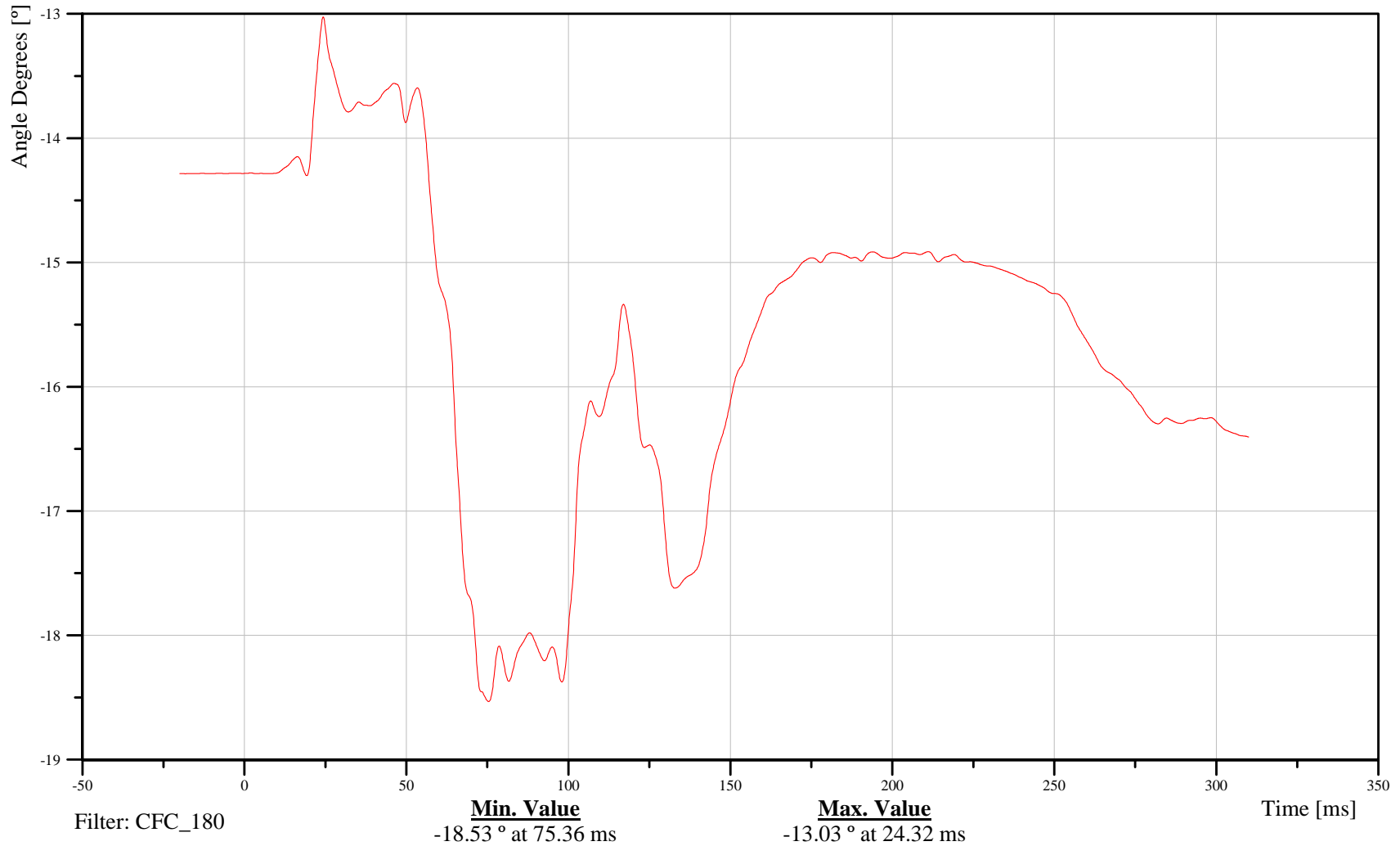
Taurus into Taurus at 15 Degrees, 50% Overlap  
Target Vehicle Driver Lower Abdomen DGSP Right Pitch

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

21ABDORL00THANYC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-256

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Target Vehicle Driver Lower Abdomen DGSP Right Yaw

Date: 10/20/2009

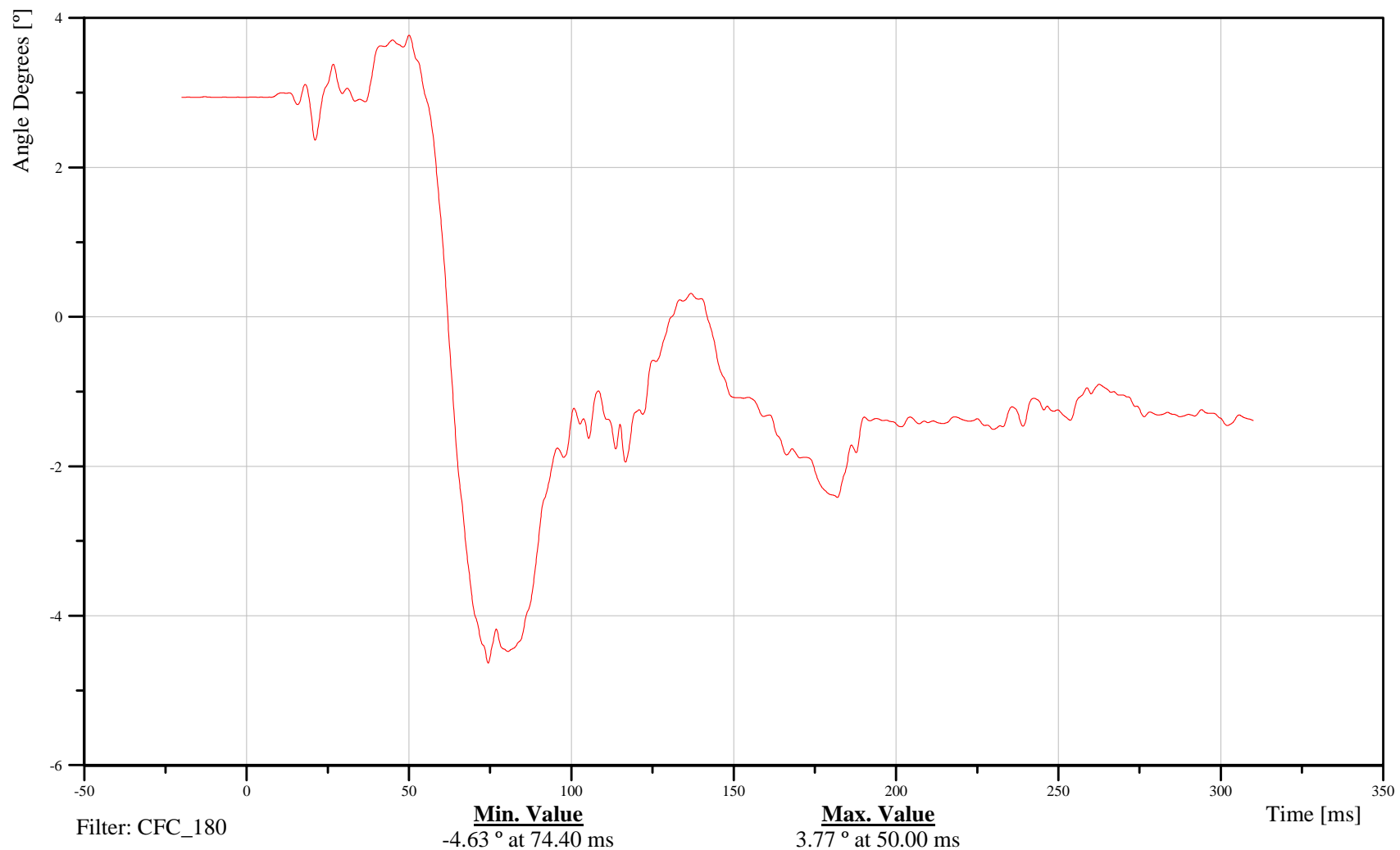
Time: 16:35

Customer: VRTC

## 21ABDORL00THANZC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-257

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

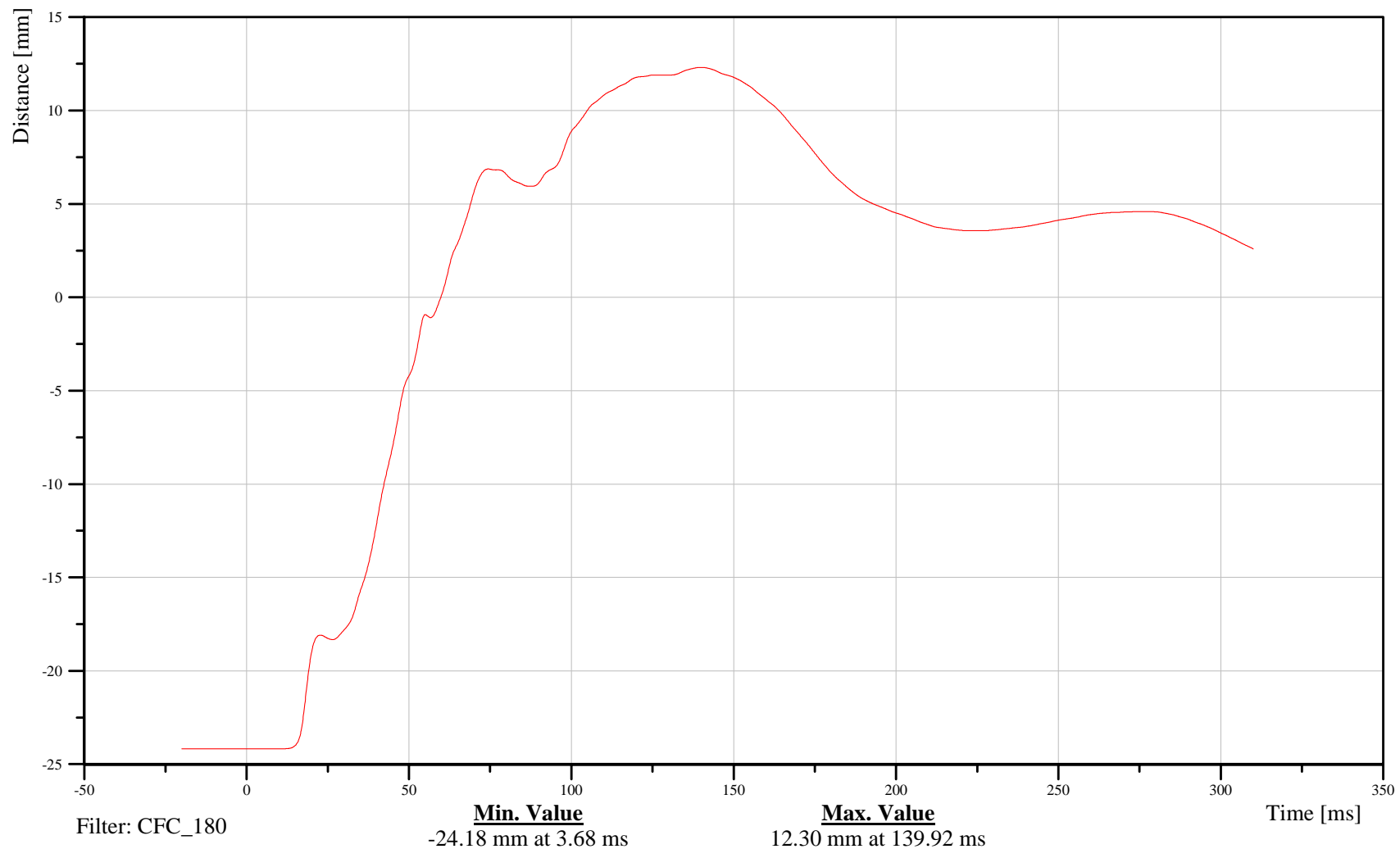
## Target Vehicle Driver Lower Abdomen DGSP Left Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21ABDOLL00THDS0C

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-258

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Target Vehicle Driver Lower Abdomen DGSP Left Pitch

Date: 10/20/2009

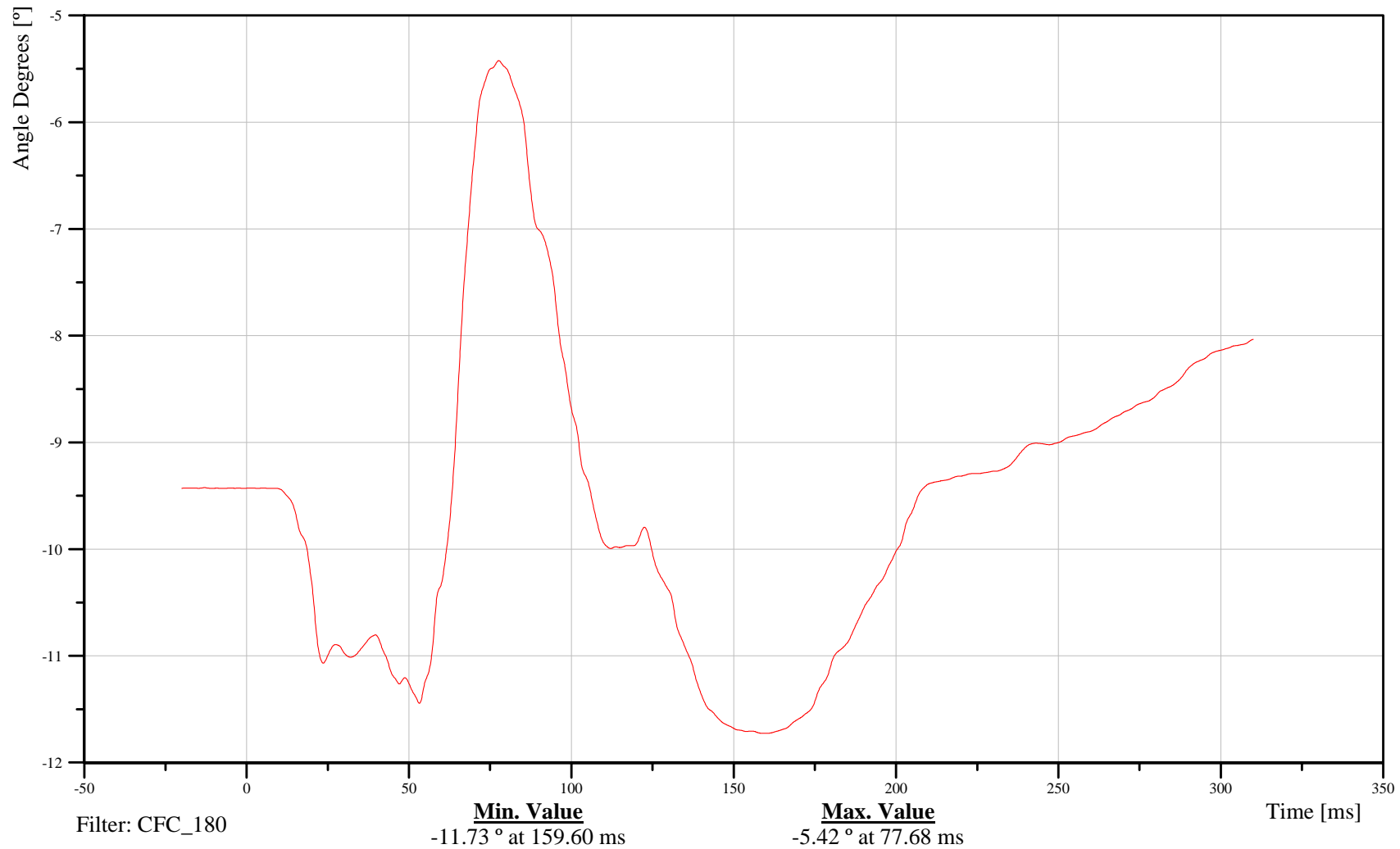
Time: 16:35

Customer: VRTC

## 21ABDOLL00THANYC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-259

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Target Vehicle Driver Lower Abdomen DGSP Left Yaw

Date: 10/20/2009

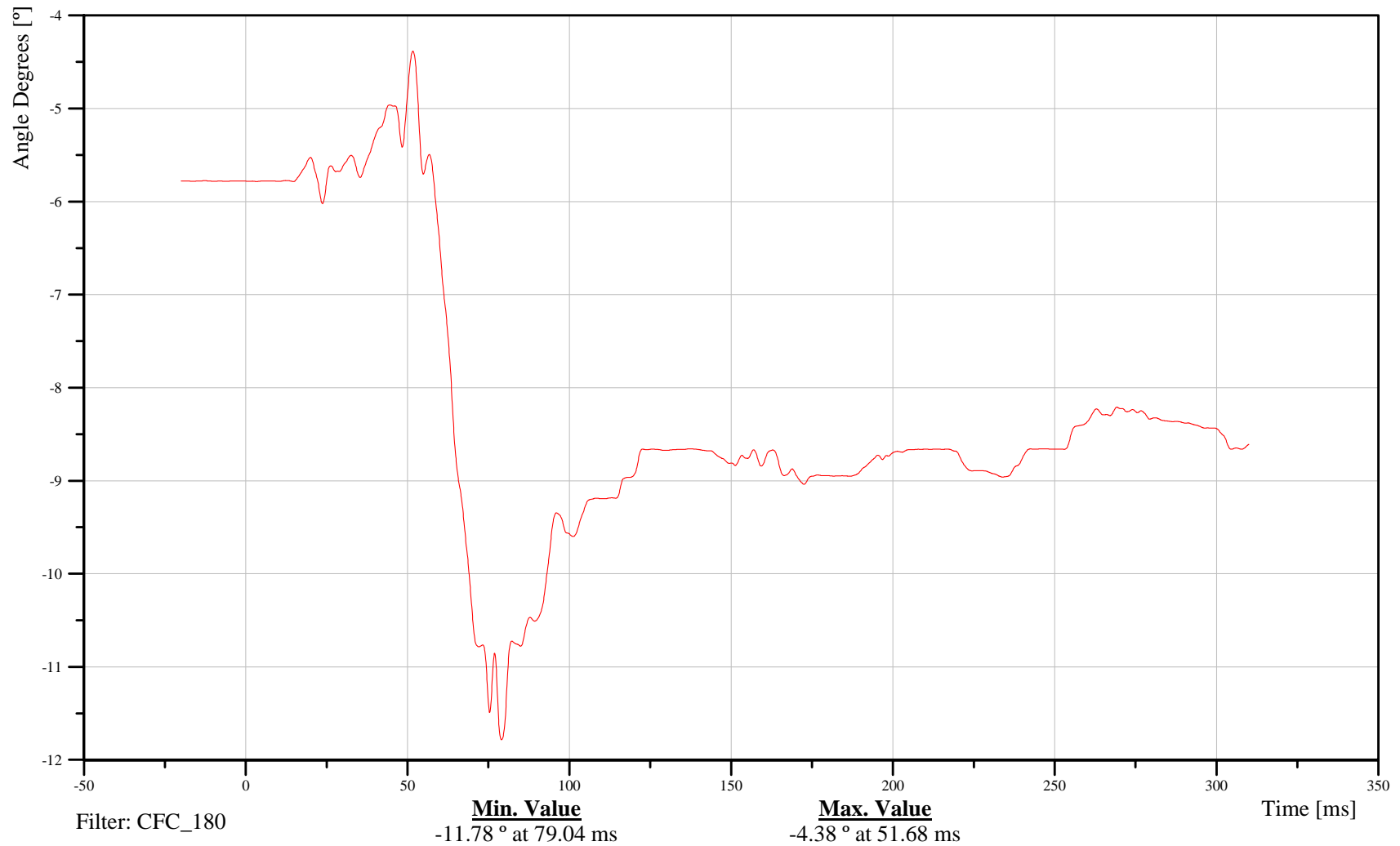
Time: 16:35

Customer: VRTC

## 21ABDOLL00THANZC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-260

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Thorax CG X-Axis Acceleration

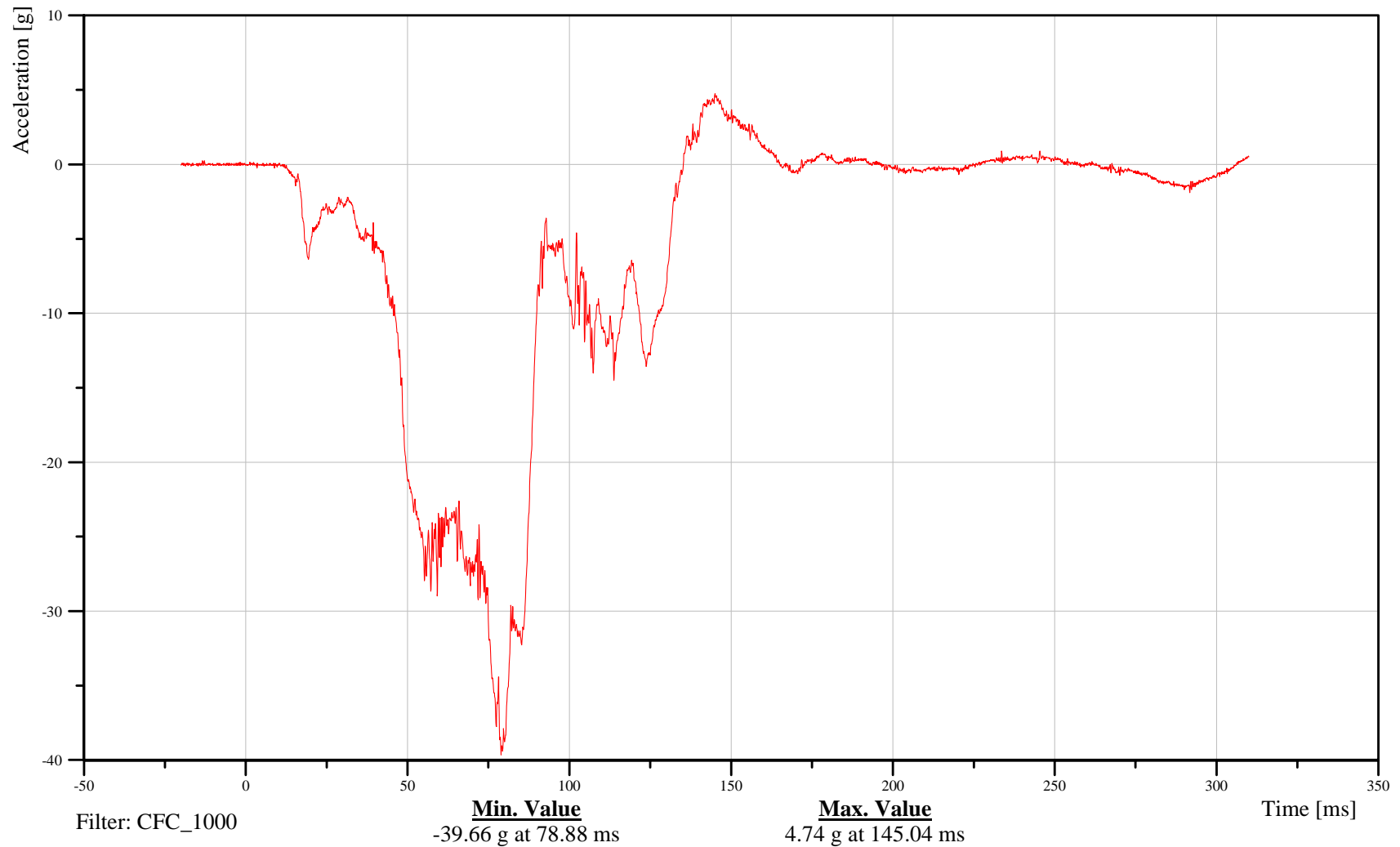
Time: 16:35

Customer: VRTC

# 21TRRICG00THACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-261

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Target Vehicle Driver Thorax CG Y-Axis Acceleration

Date: 10/20/2009

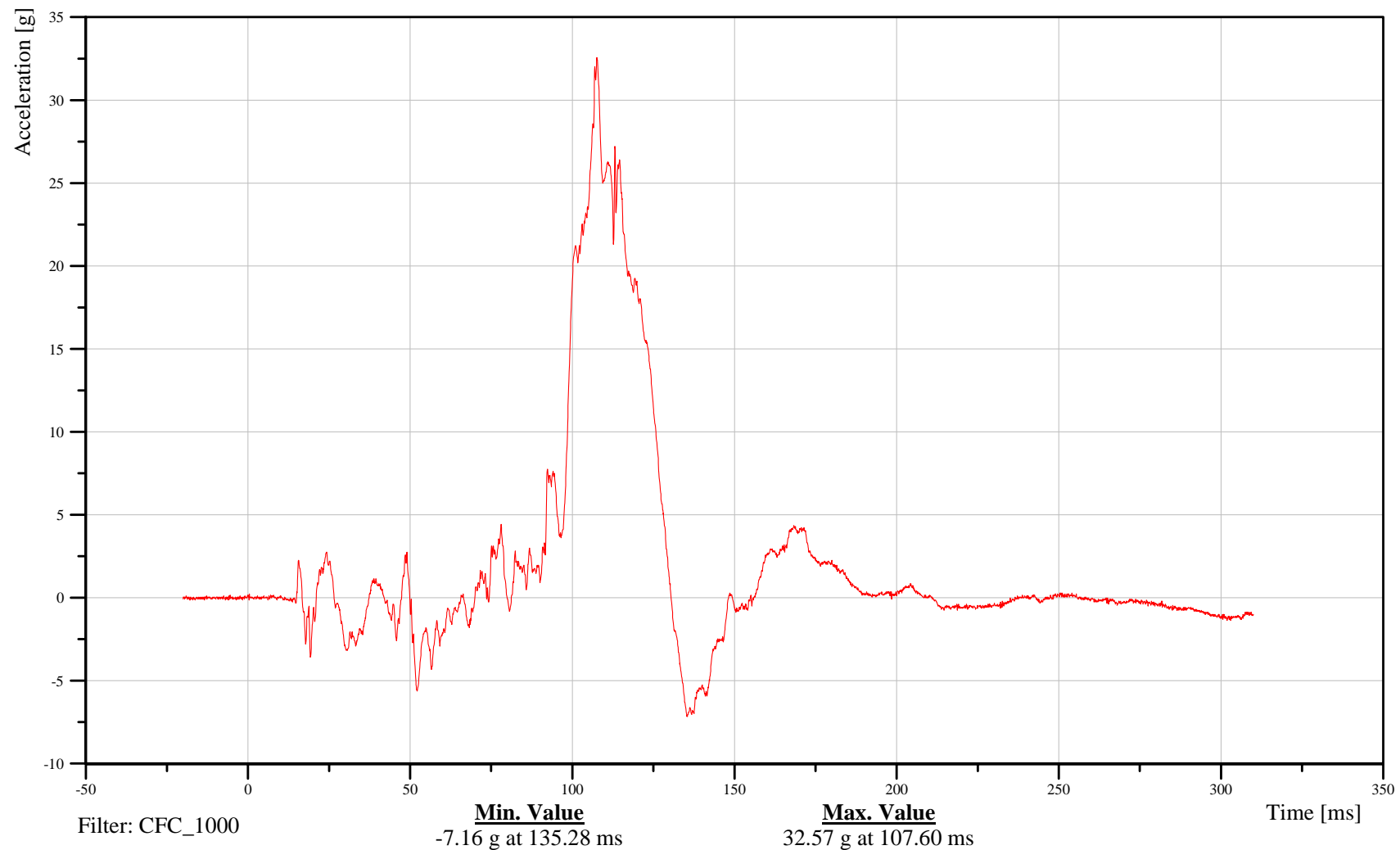
Time: 16:35

Customer: VRTC

# 21TRRICG00THACYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-262

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Thorax CG Z-Axis Acceleration

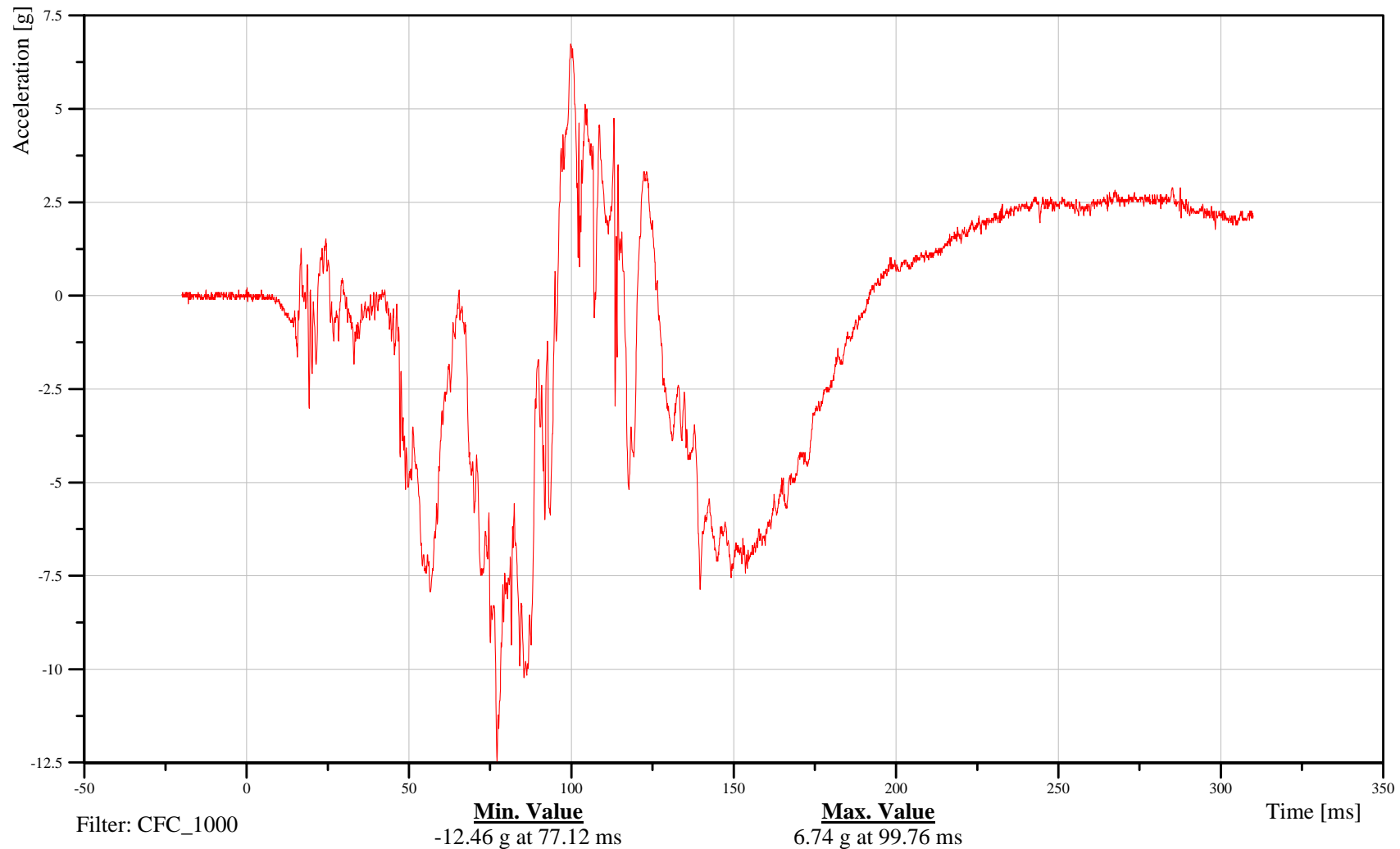
Time: 16:35

Customer: VRTC

# 21TRRICG00THACZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-263

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

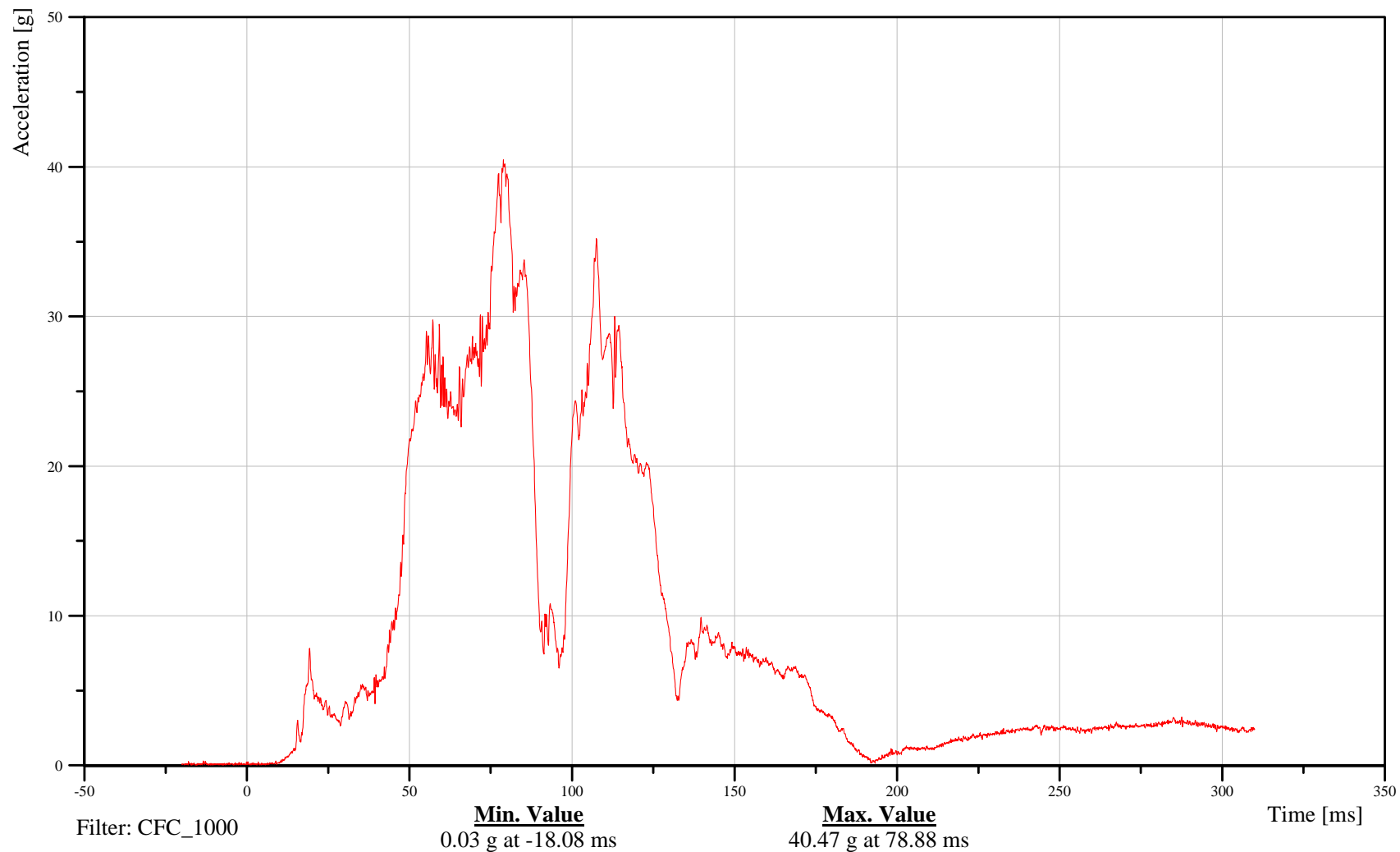
## Target Vehicle Driver Thorax CG Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21TRRICG00THACRA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-264

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

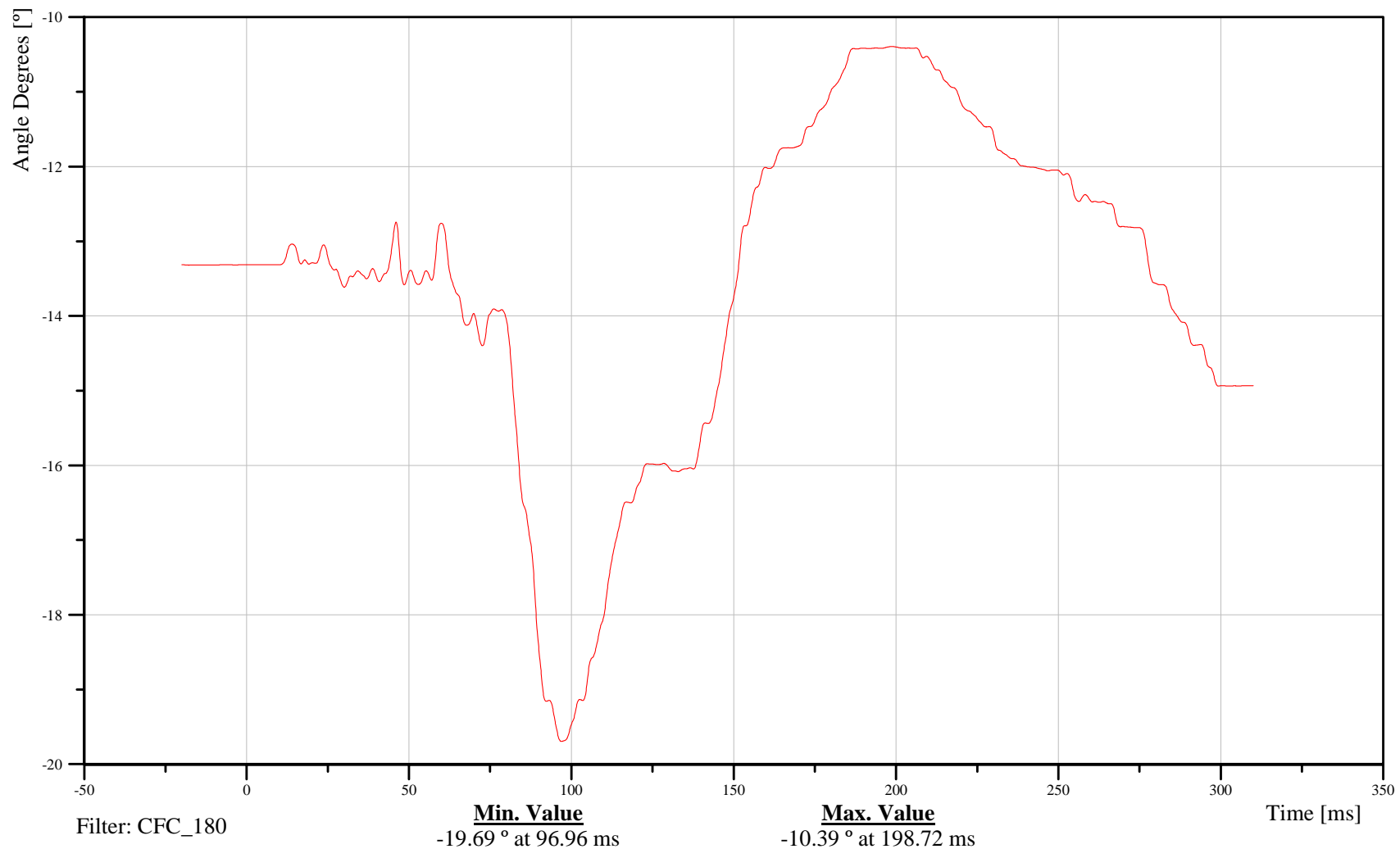
Target Vehicle Driver CRUX T015 Base Upper Left Thorax Pot

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

## 21CHRILU01THAN0C

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-265

091020



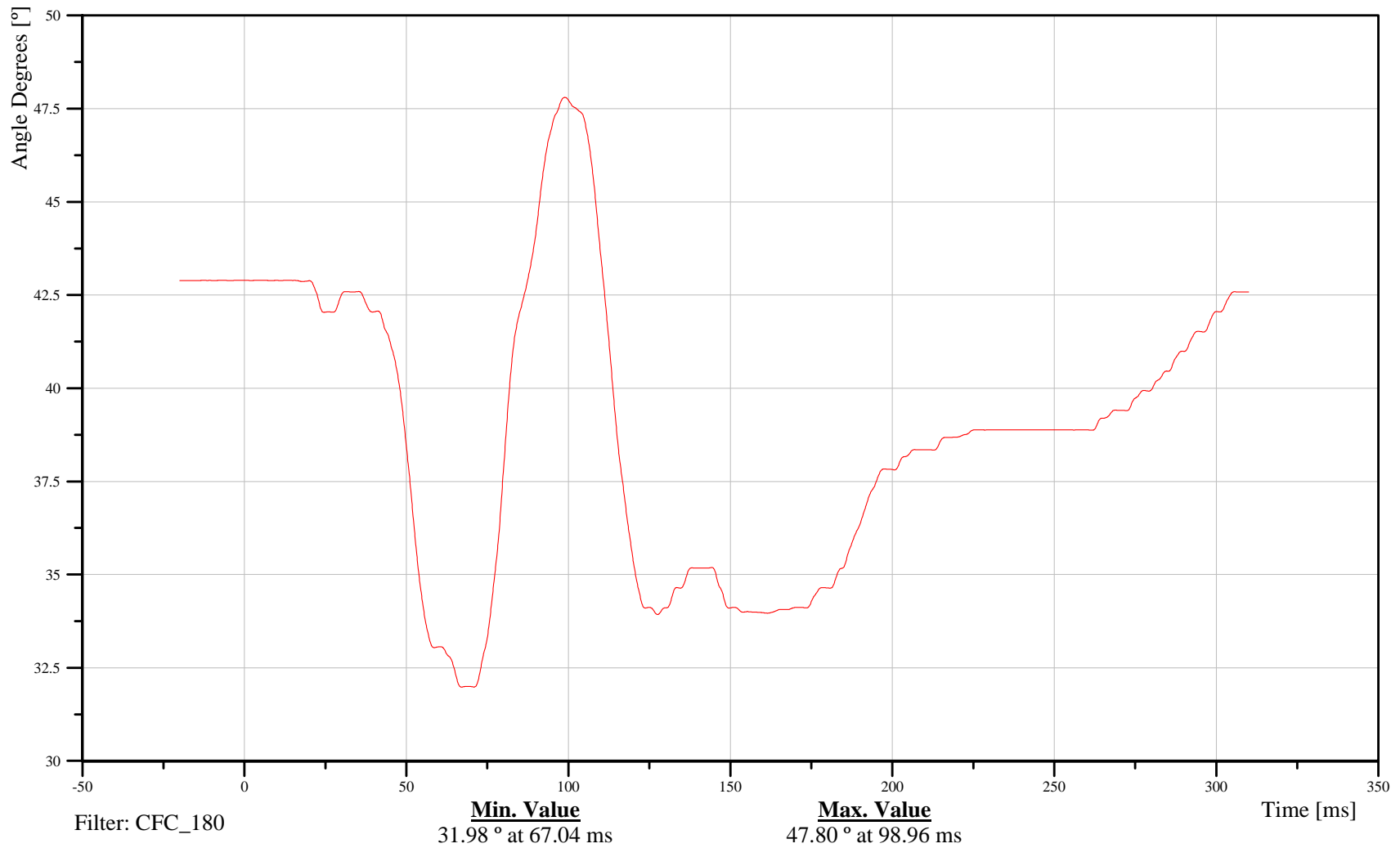
Taurus into Taurus at 15 Degrees, 50% Overlap  
Target Vehicle Driver CRUX T015 Mid Upper Left Thorax Pot

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

21CHRILU02THAN0C

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-266

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

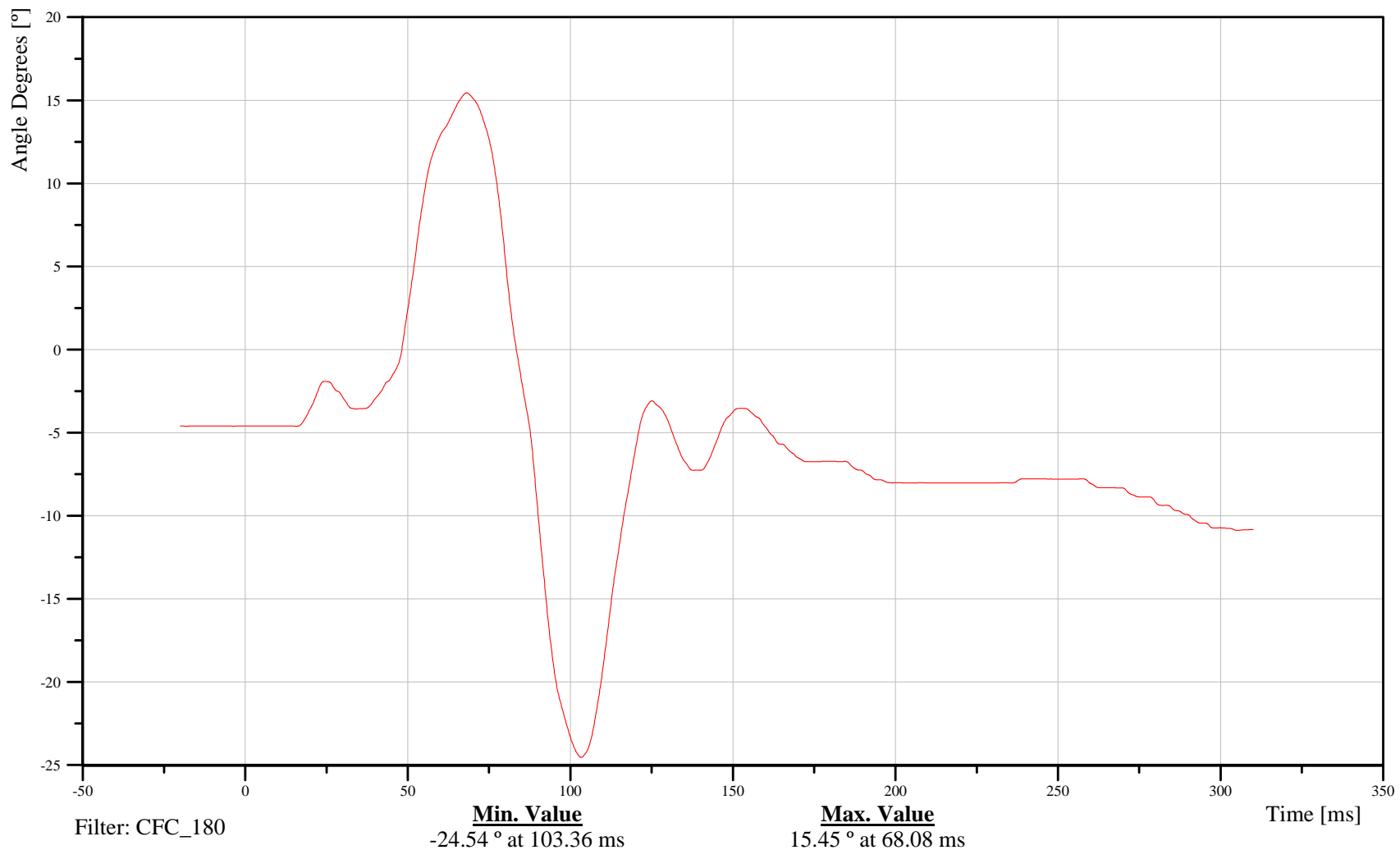
Target Vehicle Driver CRUX T015 Elbow Upper Left Thorax Pot

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

## 21CHRILU03THAN0C

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-267

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

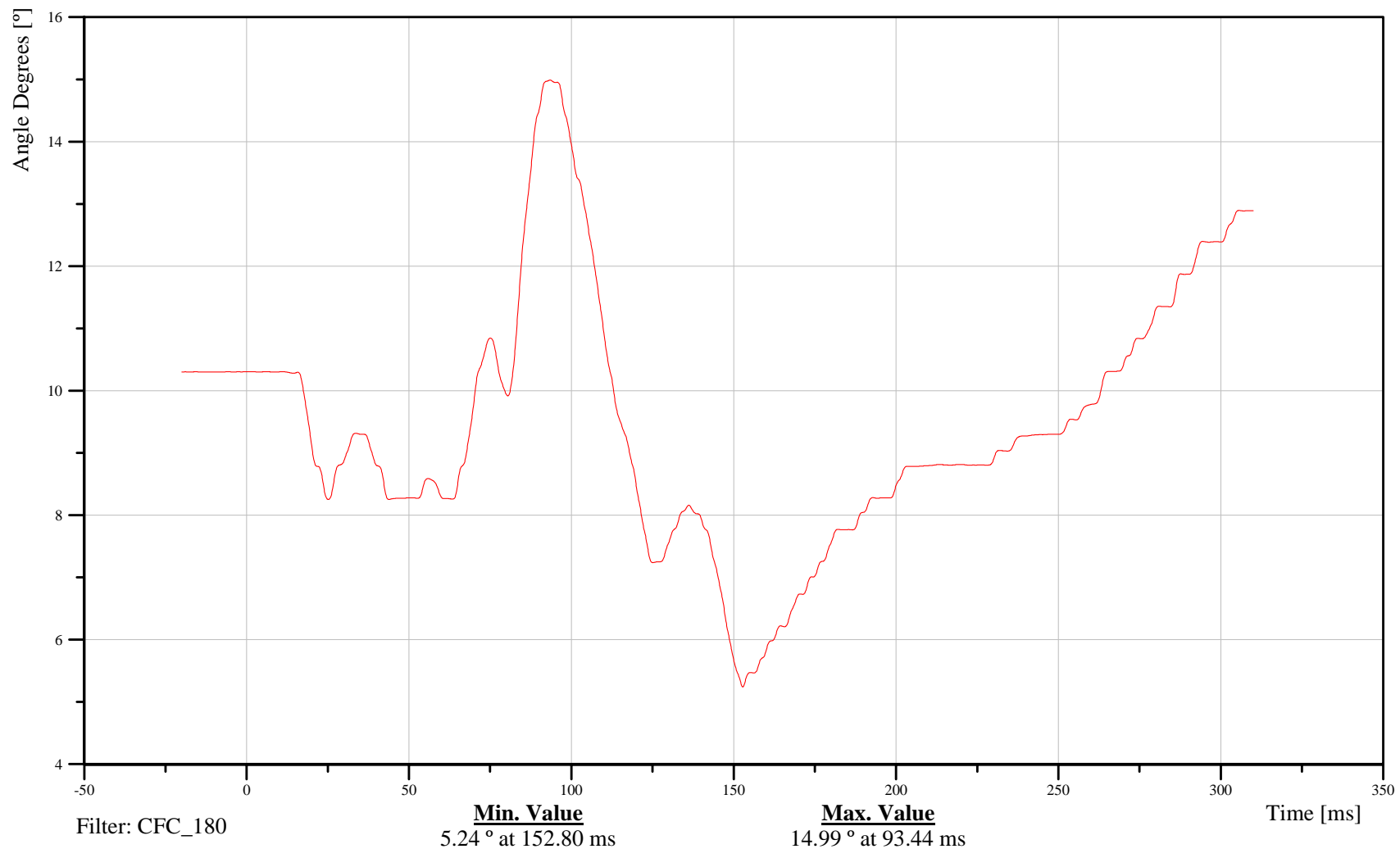
Target Vehicle Driver CRUX T015 Base Upper Right Thorax Pot

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

## 21CHRIRU01THAN0C

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-268

091020



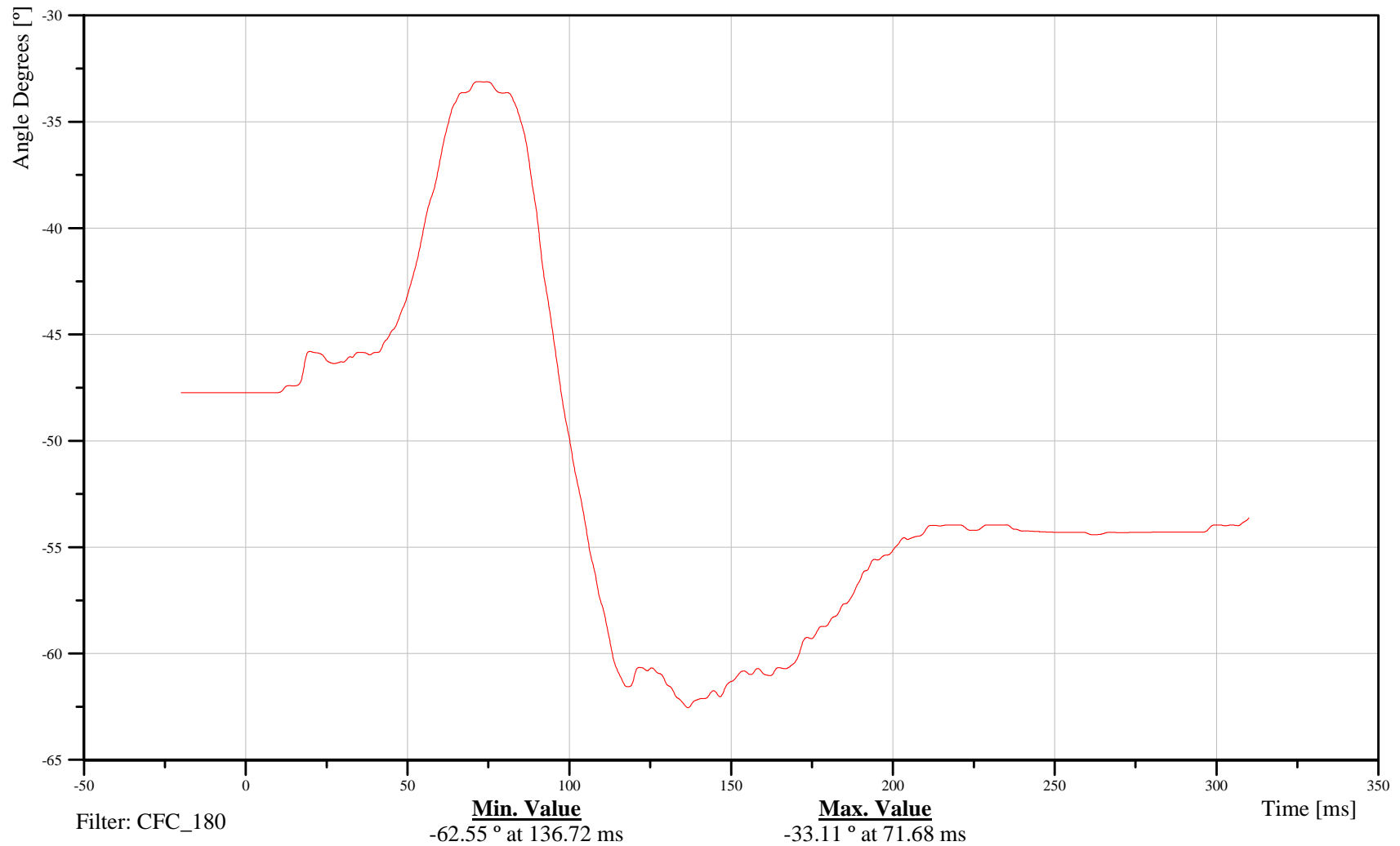
Taurus into Taurus at 15 Degrees, 50% Overlap  
Target Vehicle Driver CRUX T015 Mid Upper Right Thorax Pot

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

21CHRIRU02THAN0C

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-269

091020



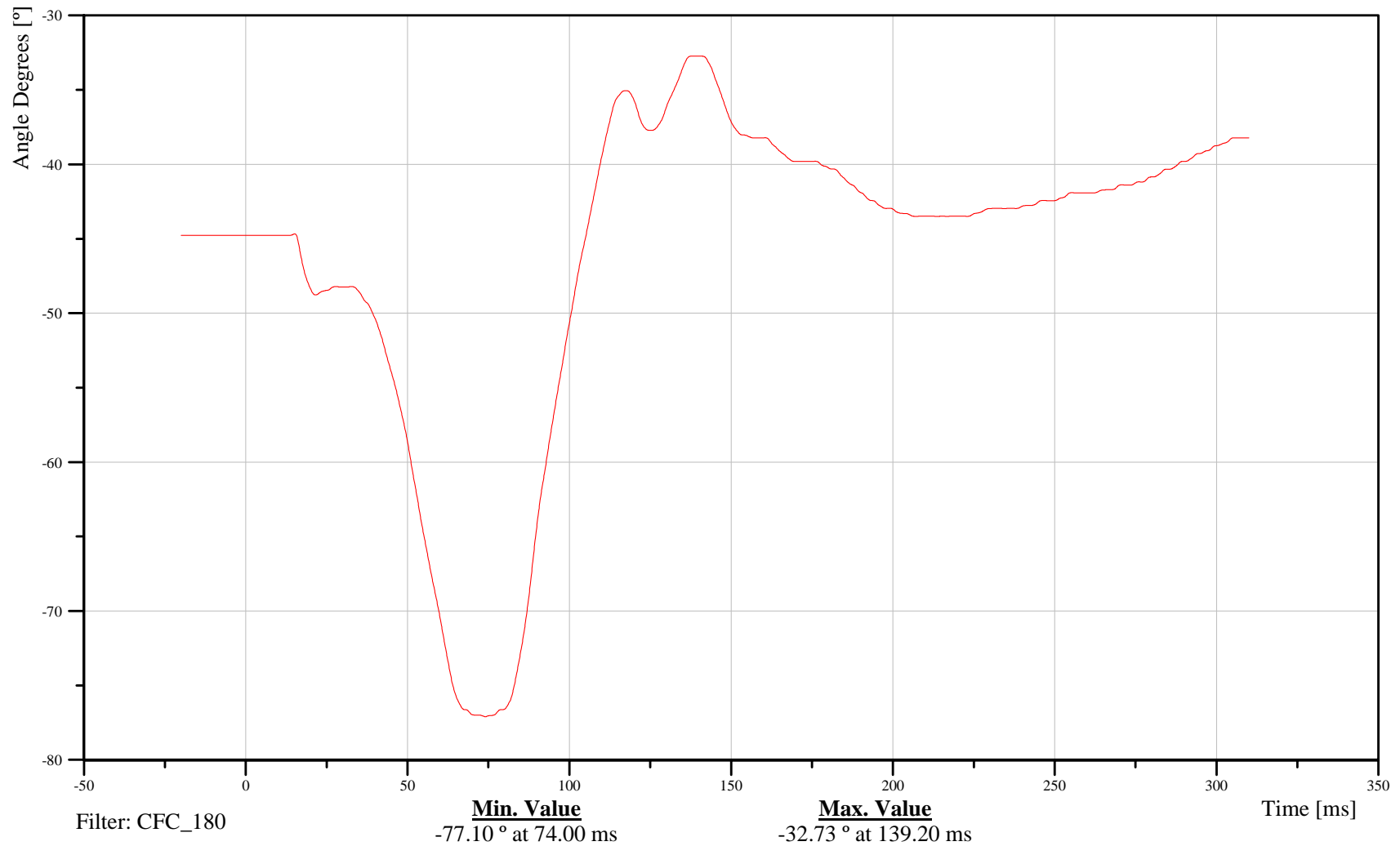
Taurus into Taurus at 15 Degrees, 50% Overlap  
Target Vehicle Driver CRUX T015 Elbow Upper Right Thorax Pot

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

21CHRIRU03THAN0C

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-2770

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

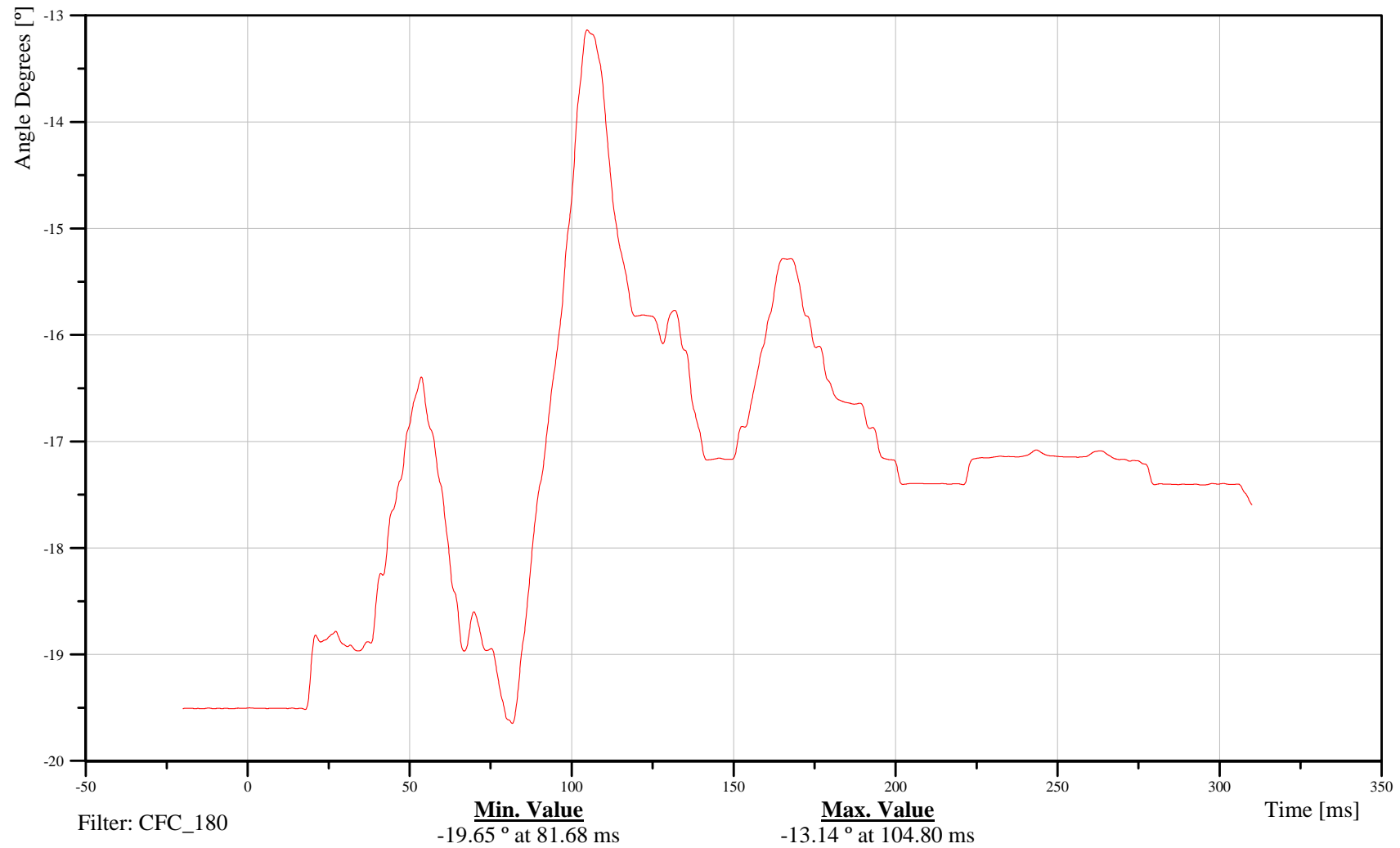
## Target Vehicle Driver CRUX T015 Base Lower Left Thorax Pot

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

# 21CHRILL01THAN0C

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-271

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

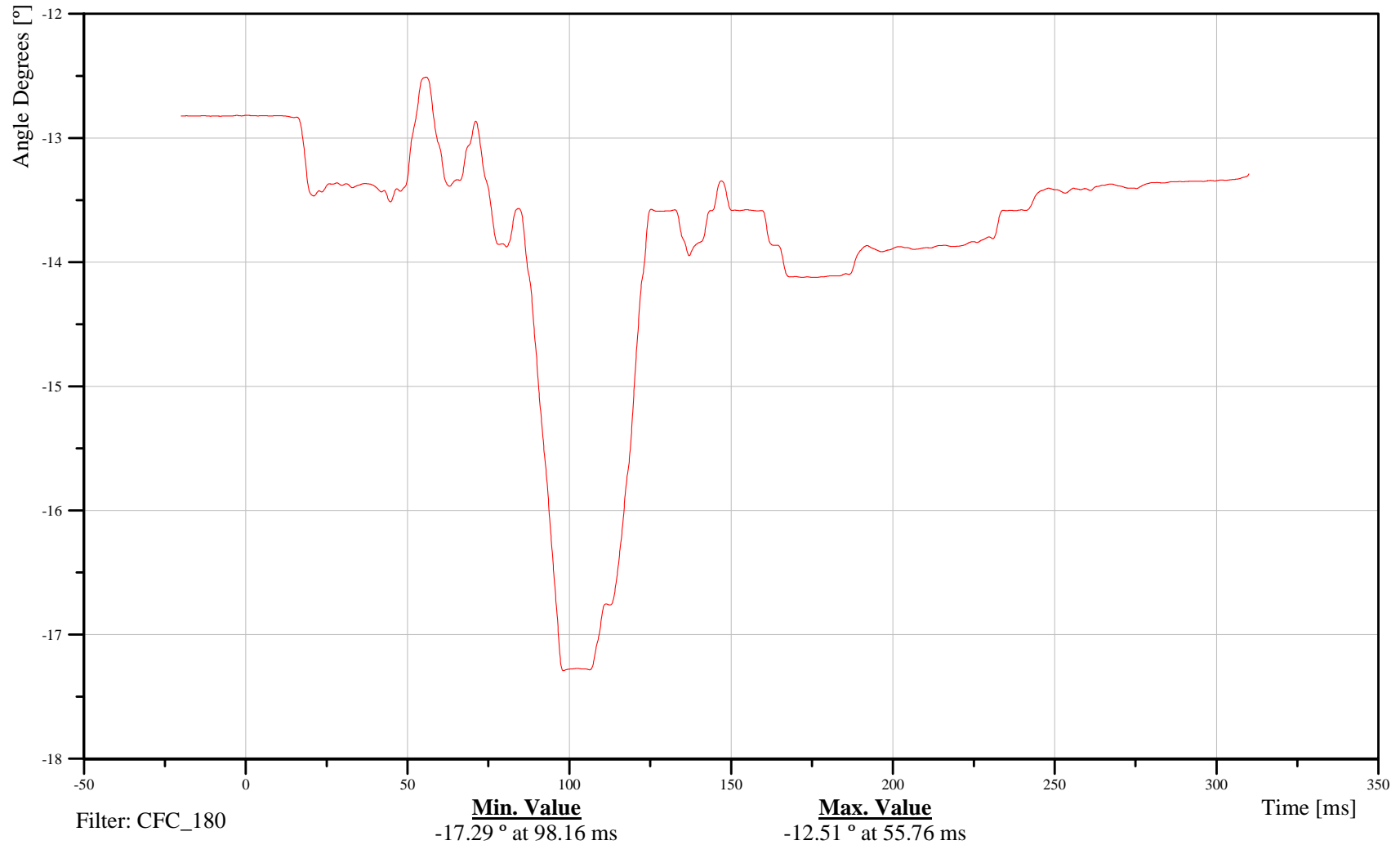
Target Vehicle Driver CRUX T015 Mid Lower Left Thorax Pot

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

## 21CHRILL02THAN0C

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-2772

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

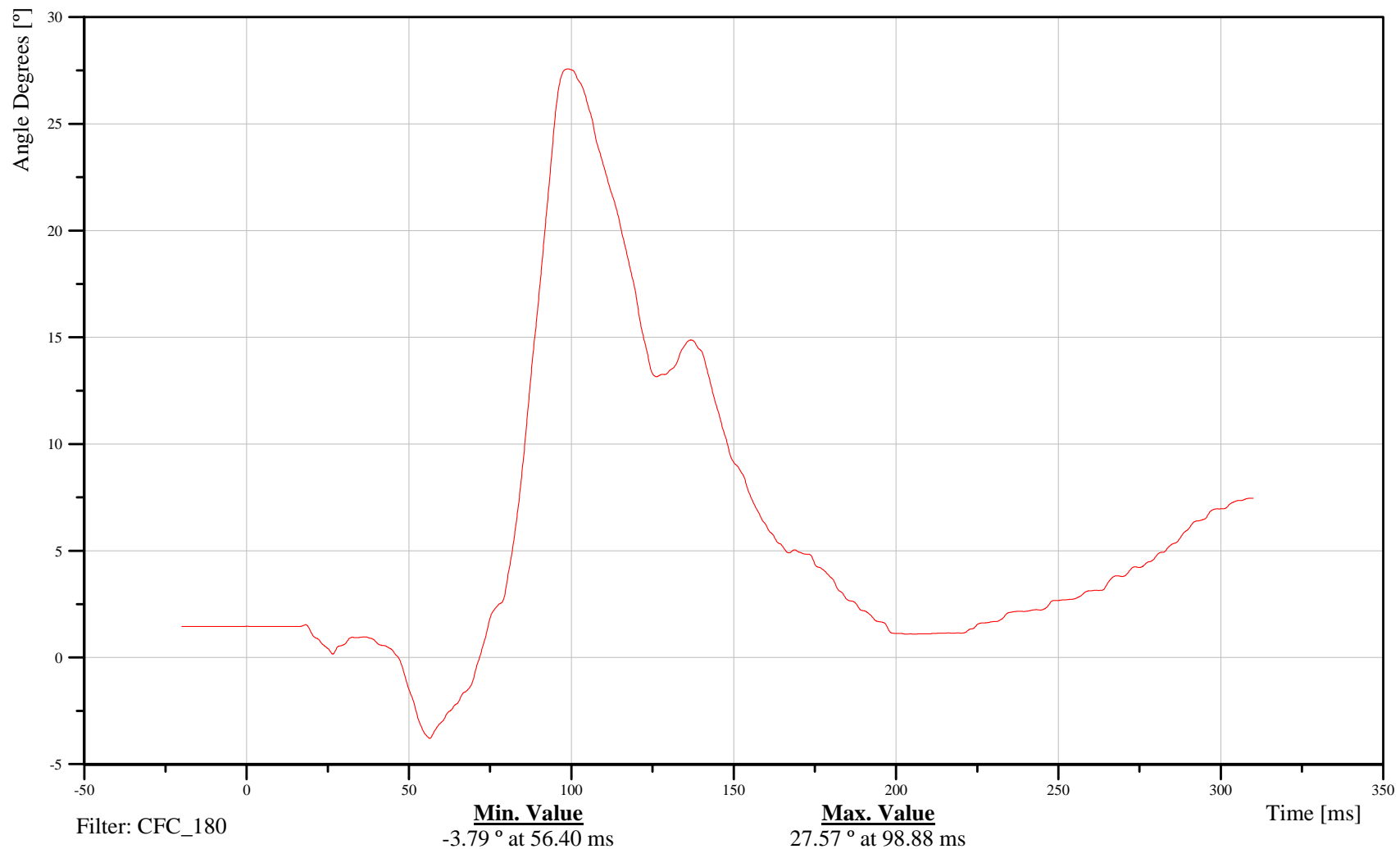
Target Vehicle Driver CRUX T015 Elbow Lower Left Thorax Pot

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

## 21CHRILL03THAN0C

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-273

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

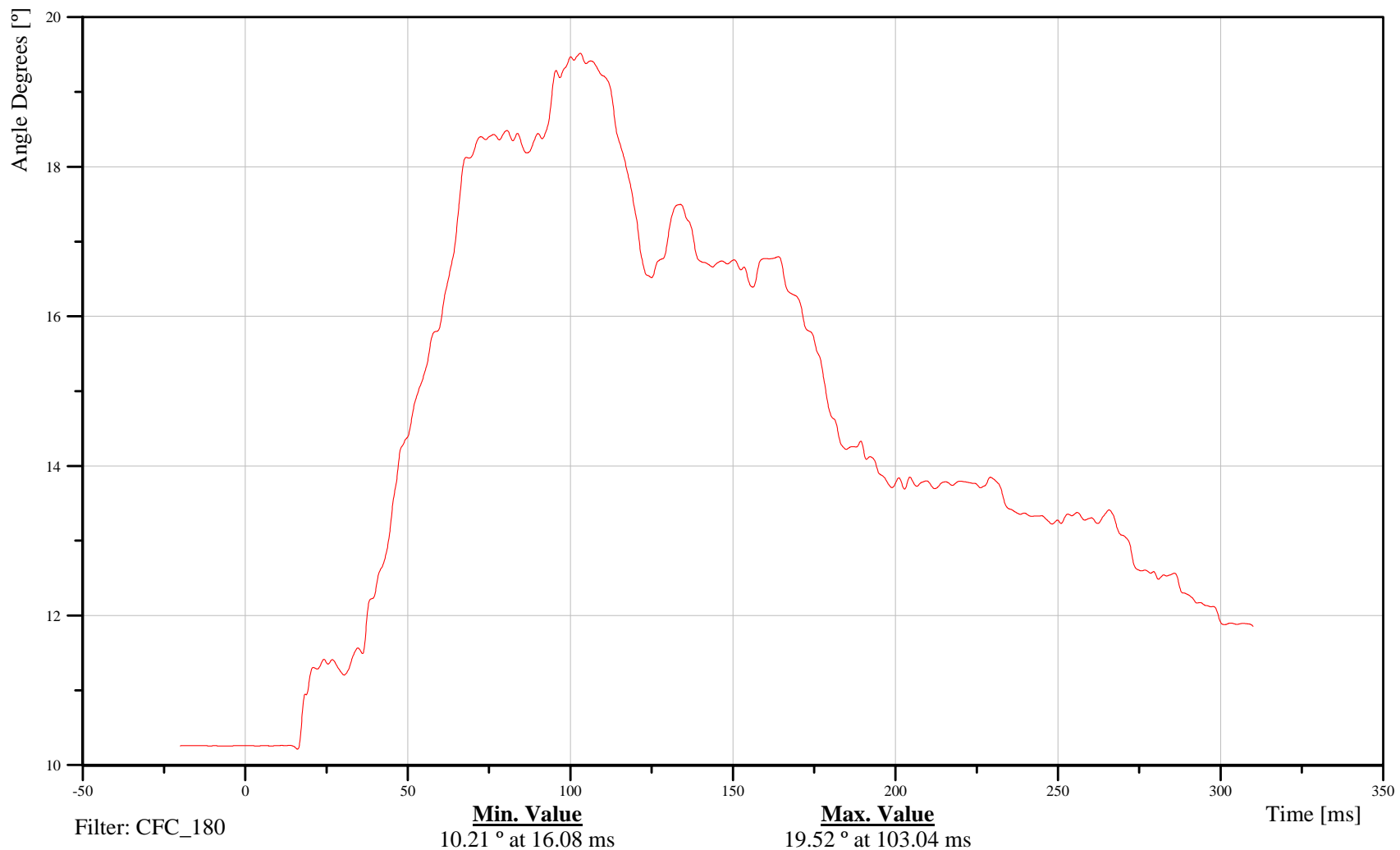
Target Vehicle Driver CRUX T015 Base Lower Right Thorax Pot

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

## 21CHRIRL01THAN0C

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-274

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

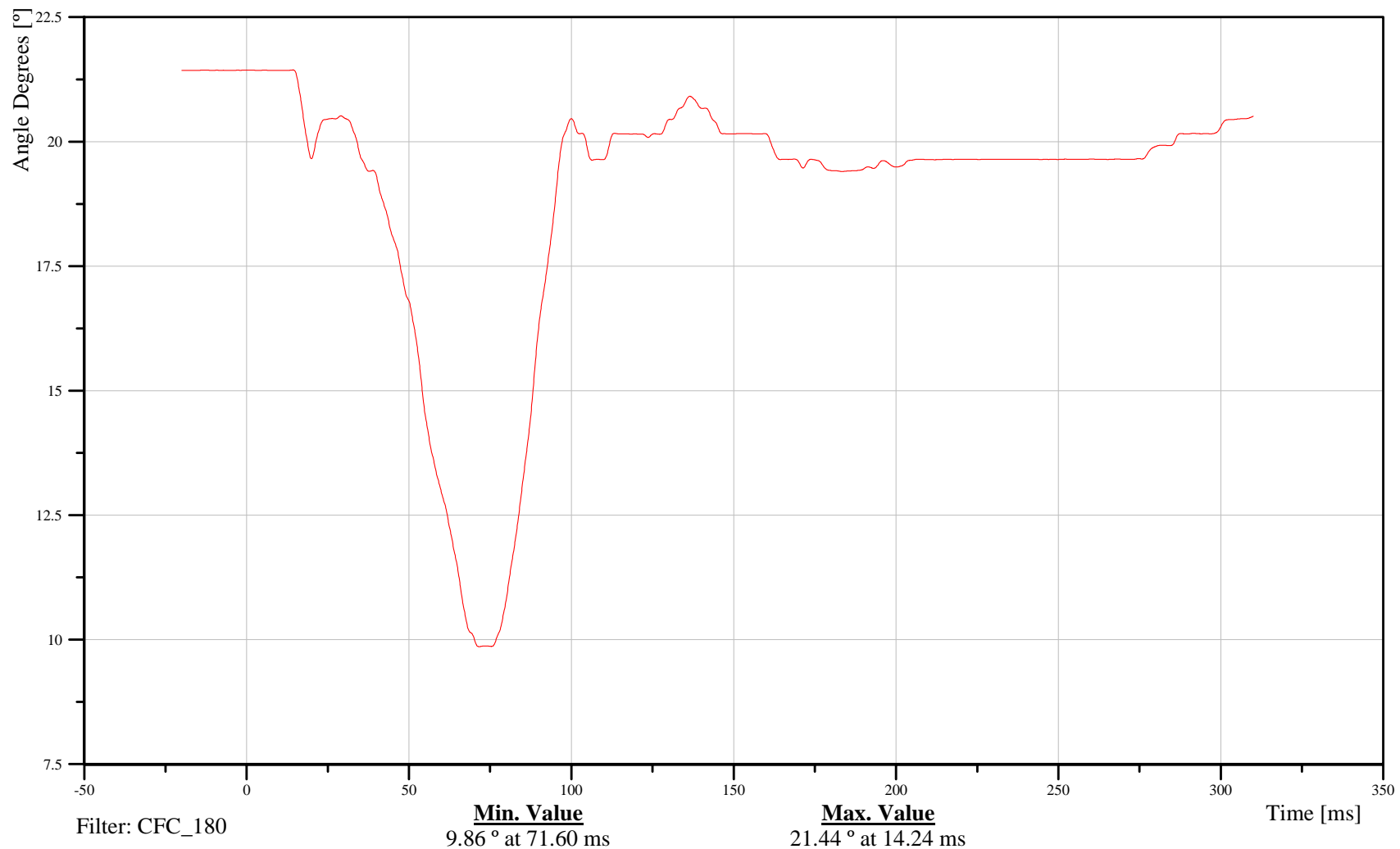
Target Vehicle Driver CRUX T015 Mid Lower Right Thorax Pot

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

## 21CHRIRL02THAN0C

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-275

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

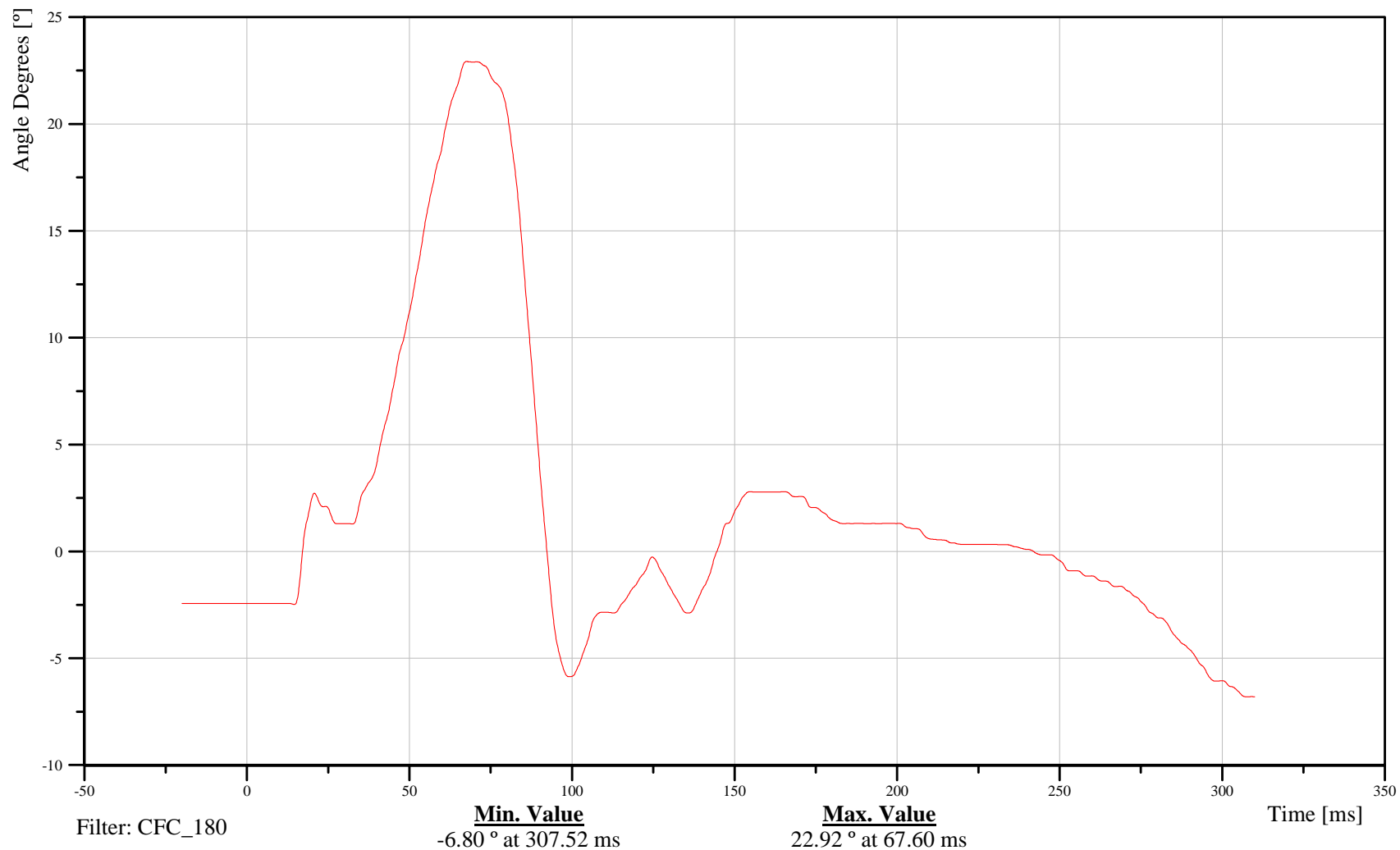
## Target Vehicle Driver CRUX T015 Elbow Lower Right Thorax Pot

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21CHRIRL03THAN0C

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-276

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

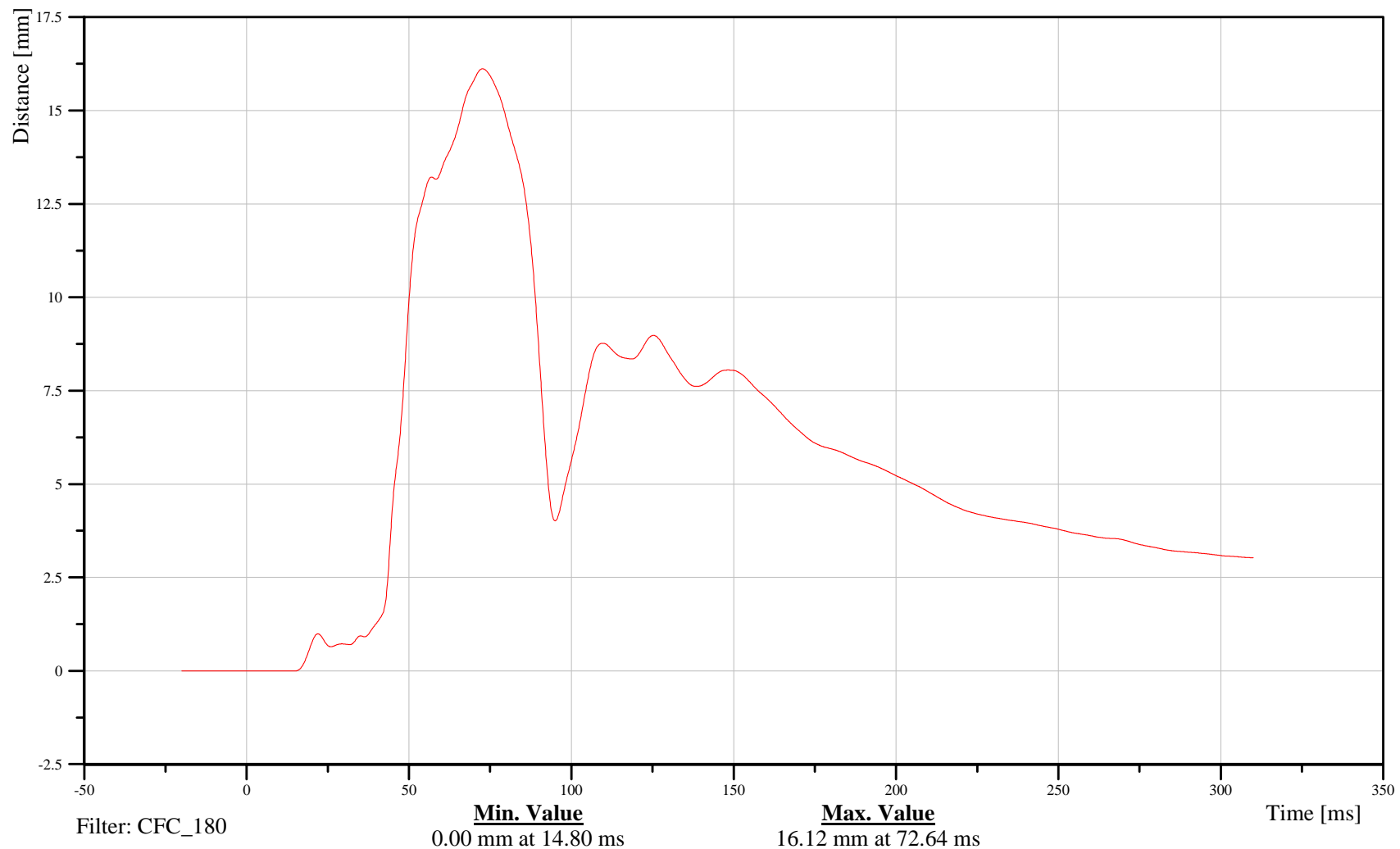
## Target Vehicle Driver Upper Abdomen String Pot

Customer: VRTC

# 21ABDOUP00THDS0C

TRC Inc. Test Lab: CTF

Test Number: 091020



B-277

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

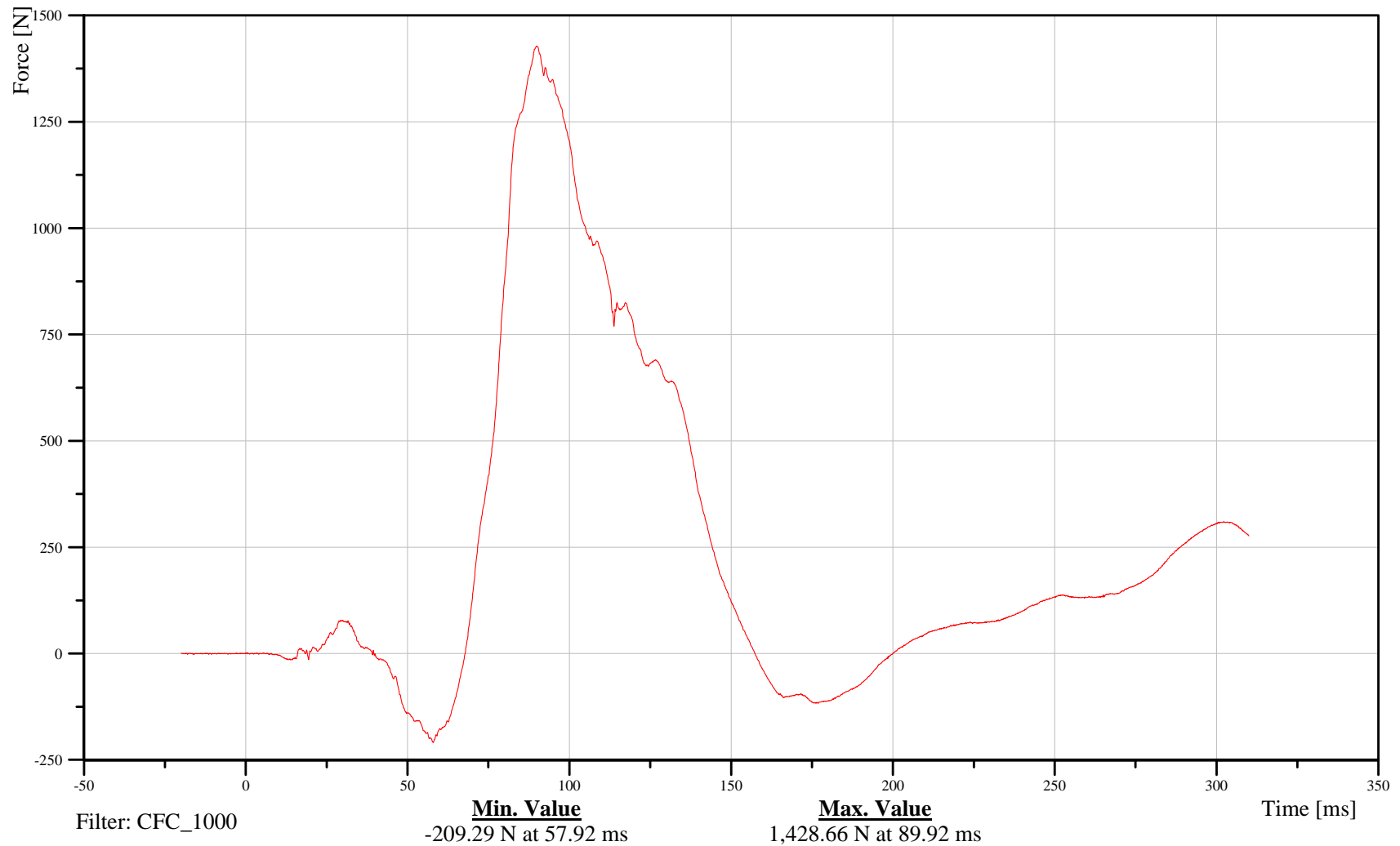
## Target Vehicle Driver T12 Thoracic Spine X-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21THSP1200THFOXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-278

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

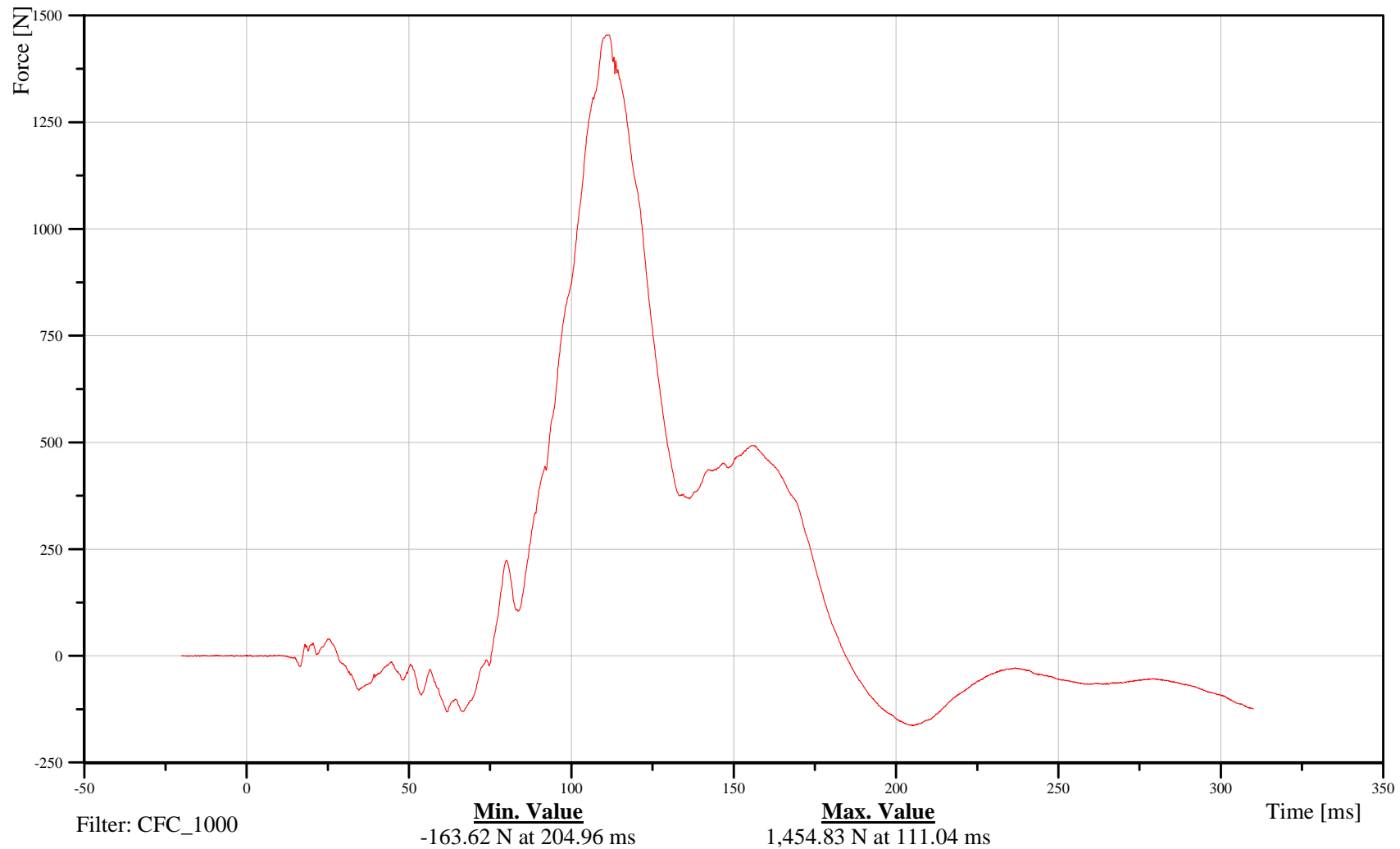
## Target Vehicle Driver T12 Thoracic Spine Y-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21THSP1200THFOYA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-279

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver T12 Thoracic Spine Z-Axis Force

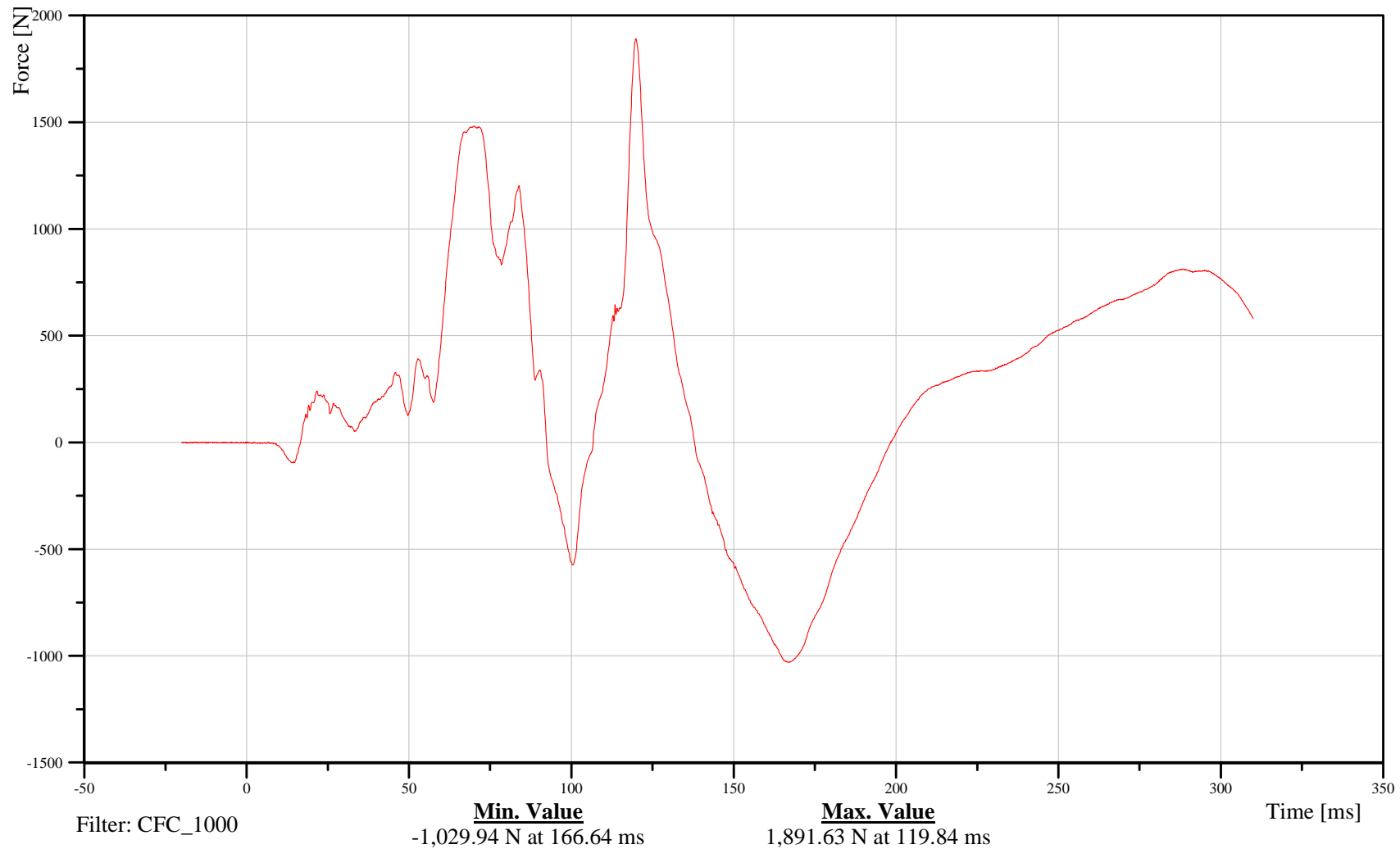
Time: 16:35

Customer: VRTC

### 21THSP1200THFOZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-280

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

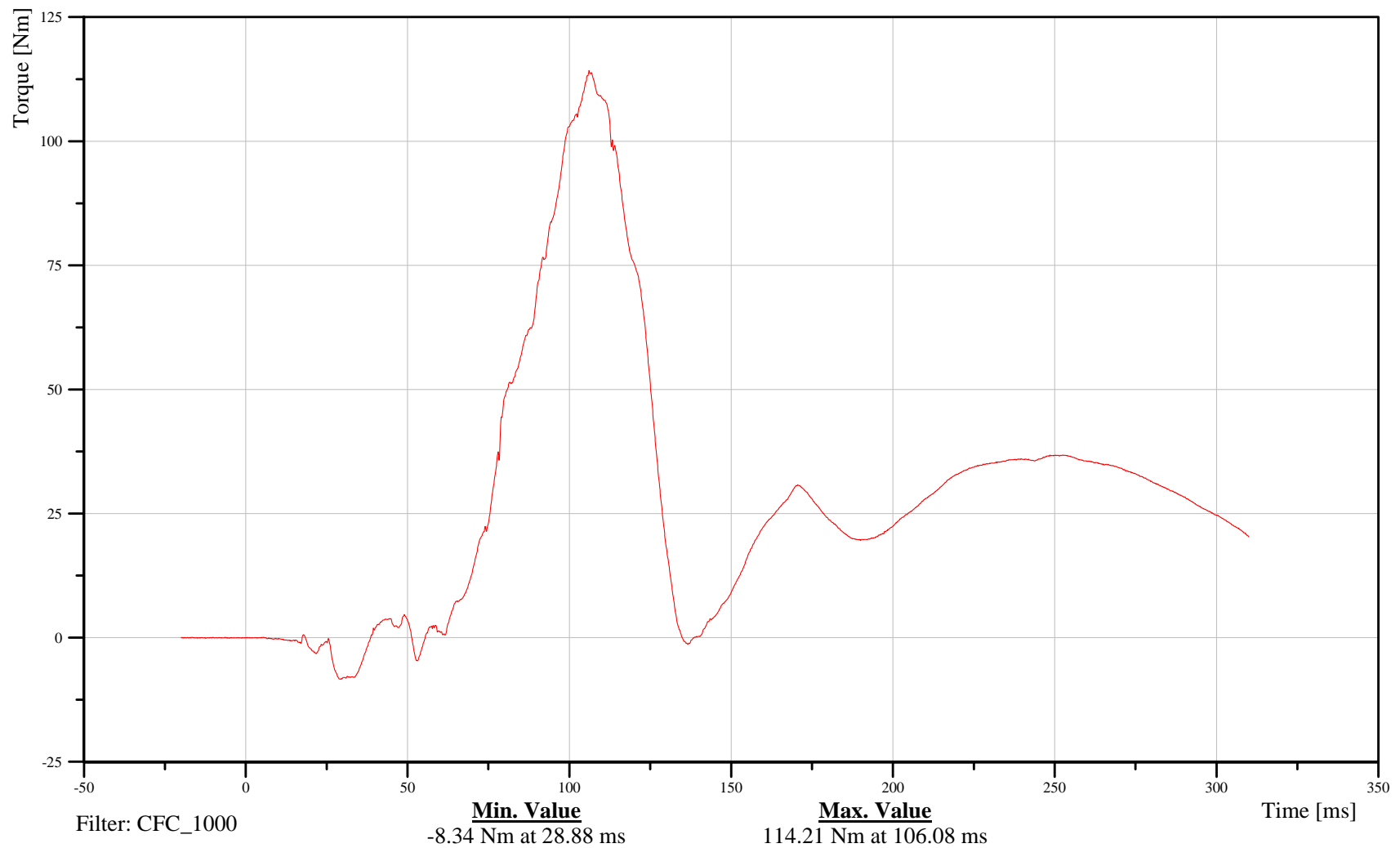
## Target Vehicle Driver T12 Thoracic Moment About X Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21THSP12000HMOXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-281

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

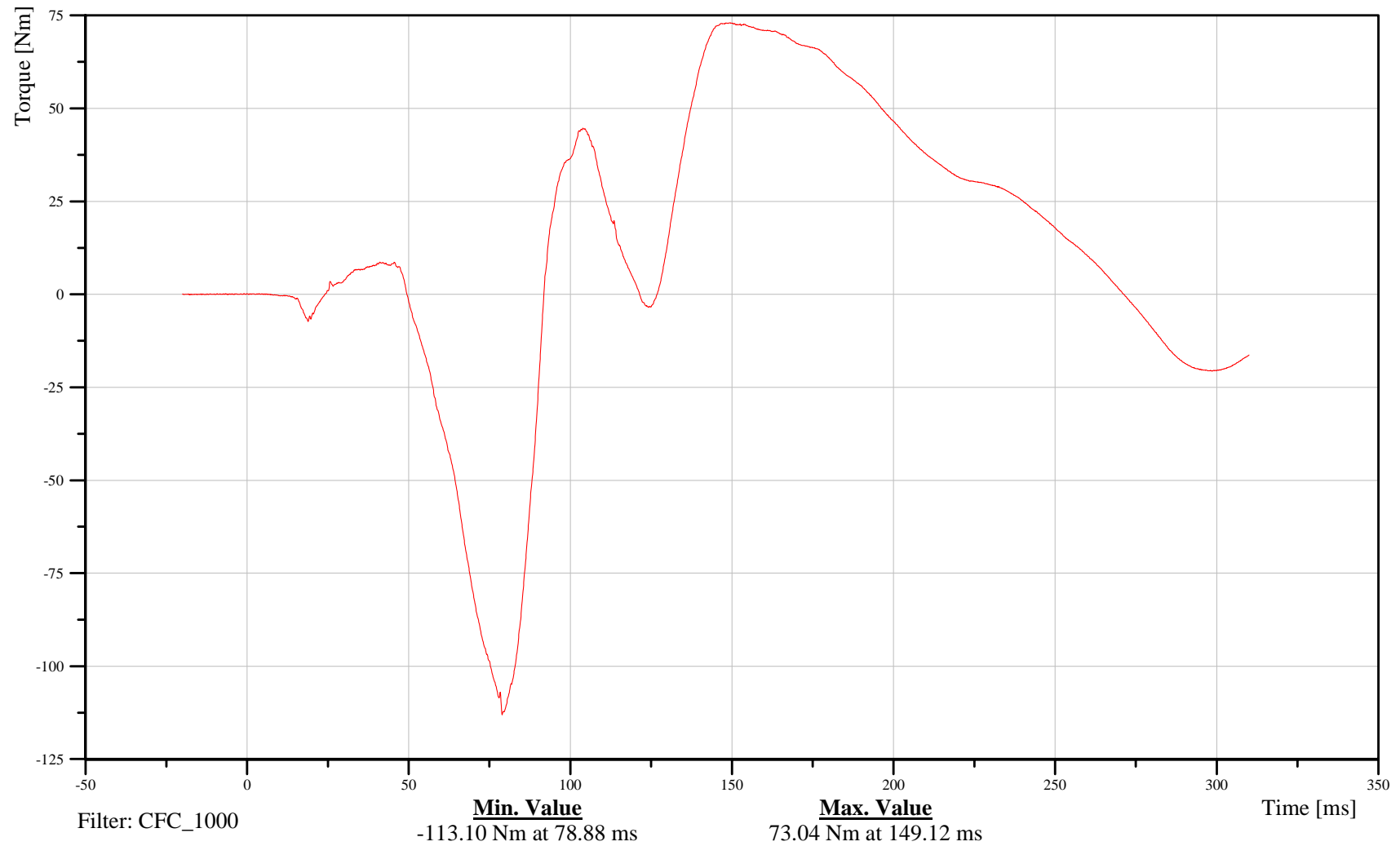
## Target Vehicle Driver T12 Thoracic Moment About Y Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21THSP12000HMOYA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-282

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

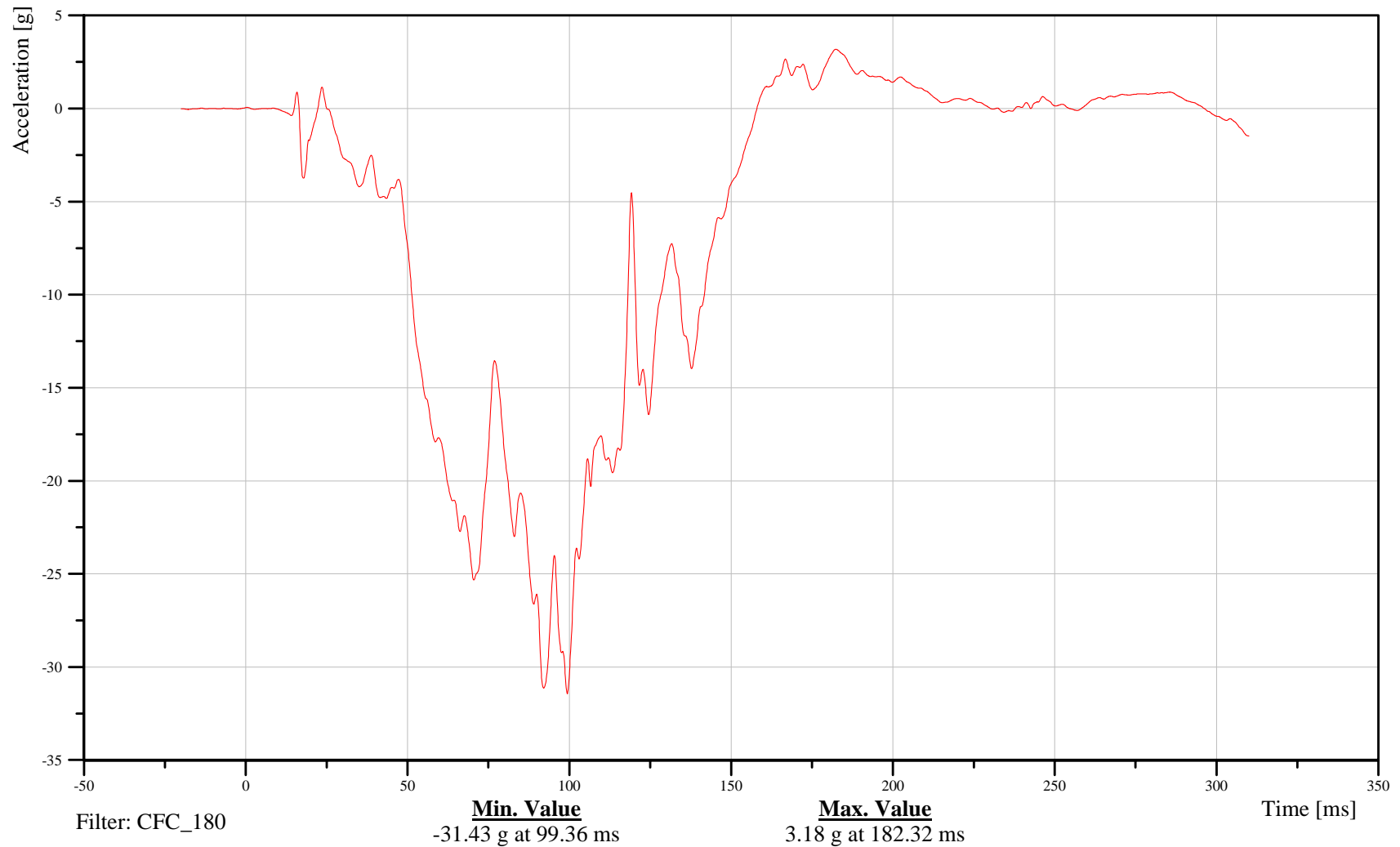
## Target Vehicle Driver T1 Upper Spine X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21SPINUP00THACXC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-283

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

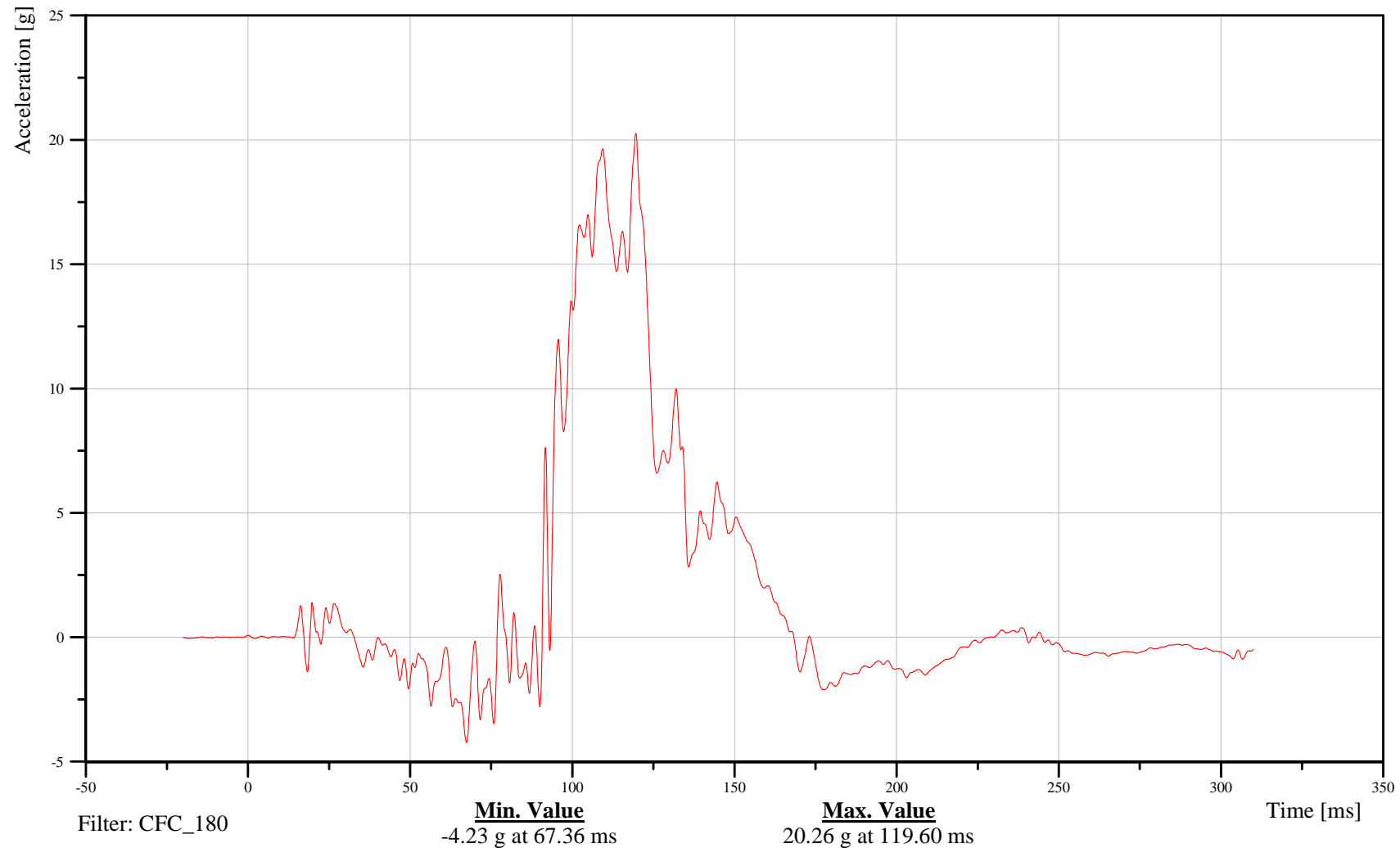
## Target Vehicle Driver T1 Upper Spine Y-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21SPINUP00THACYC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-284

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

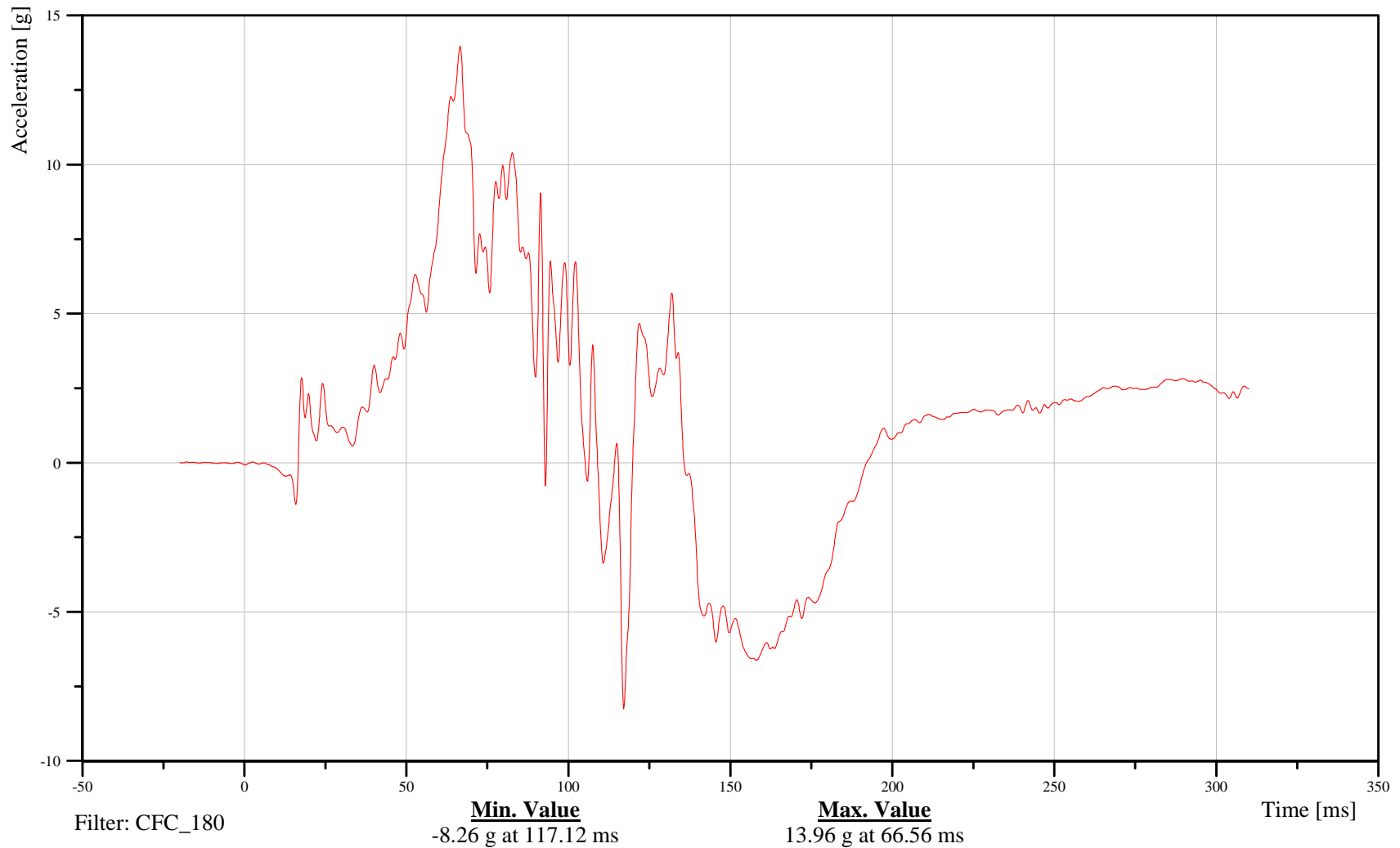
## Target Vehicle Driver T1 Upper Spine Z-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21SPINUP00THACZC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-285

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

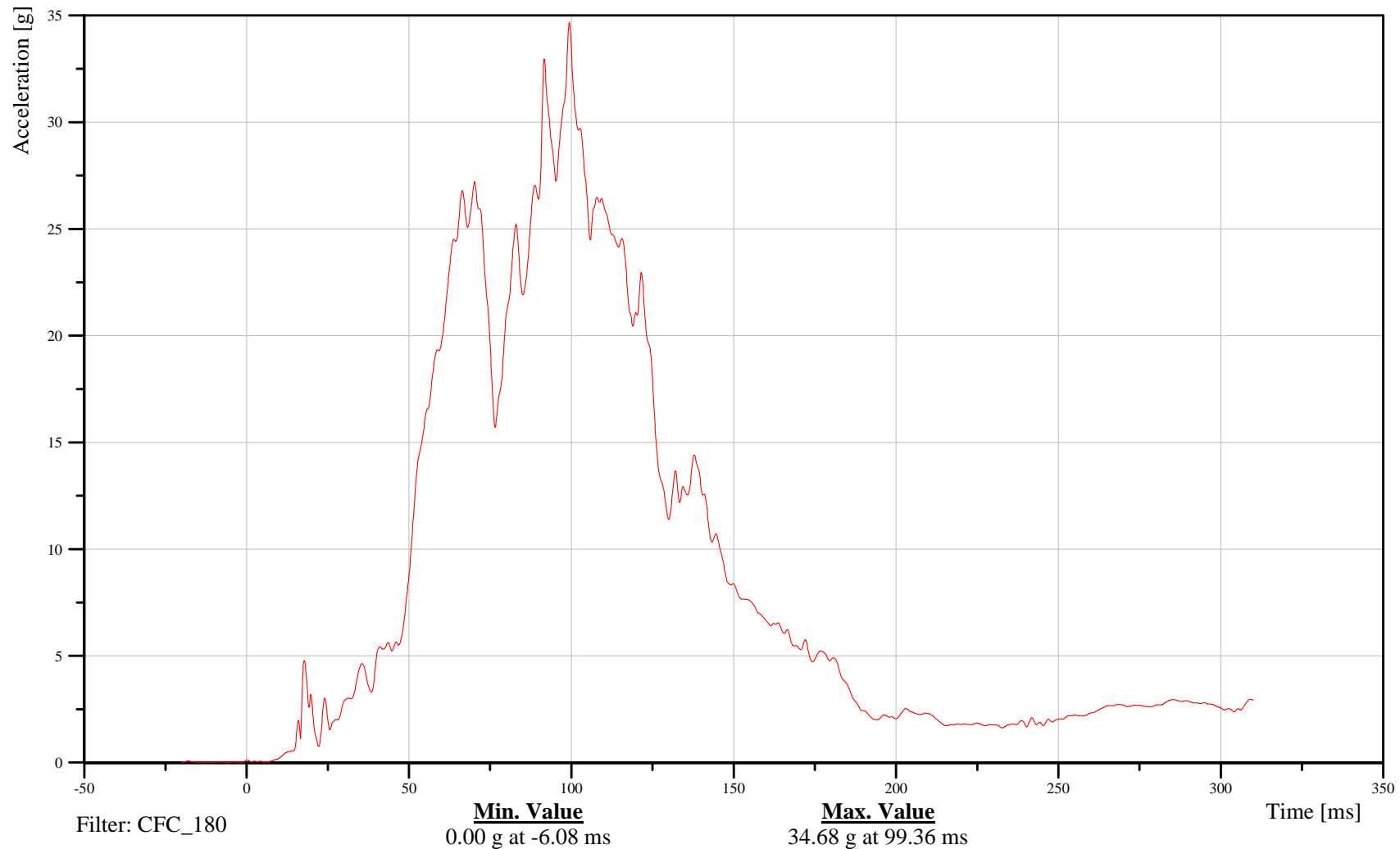
## Target Vehicle Driver T1 Upper Spine Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21SPINUP00THACRC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-286

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

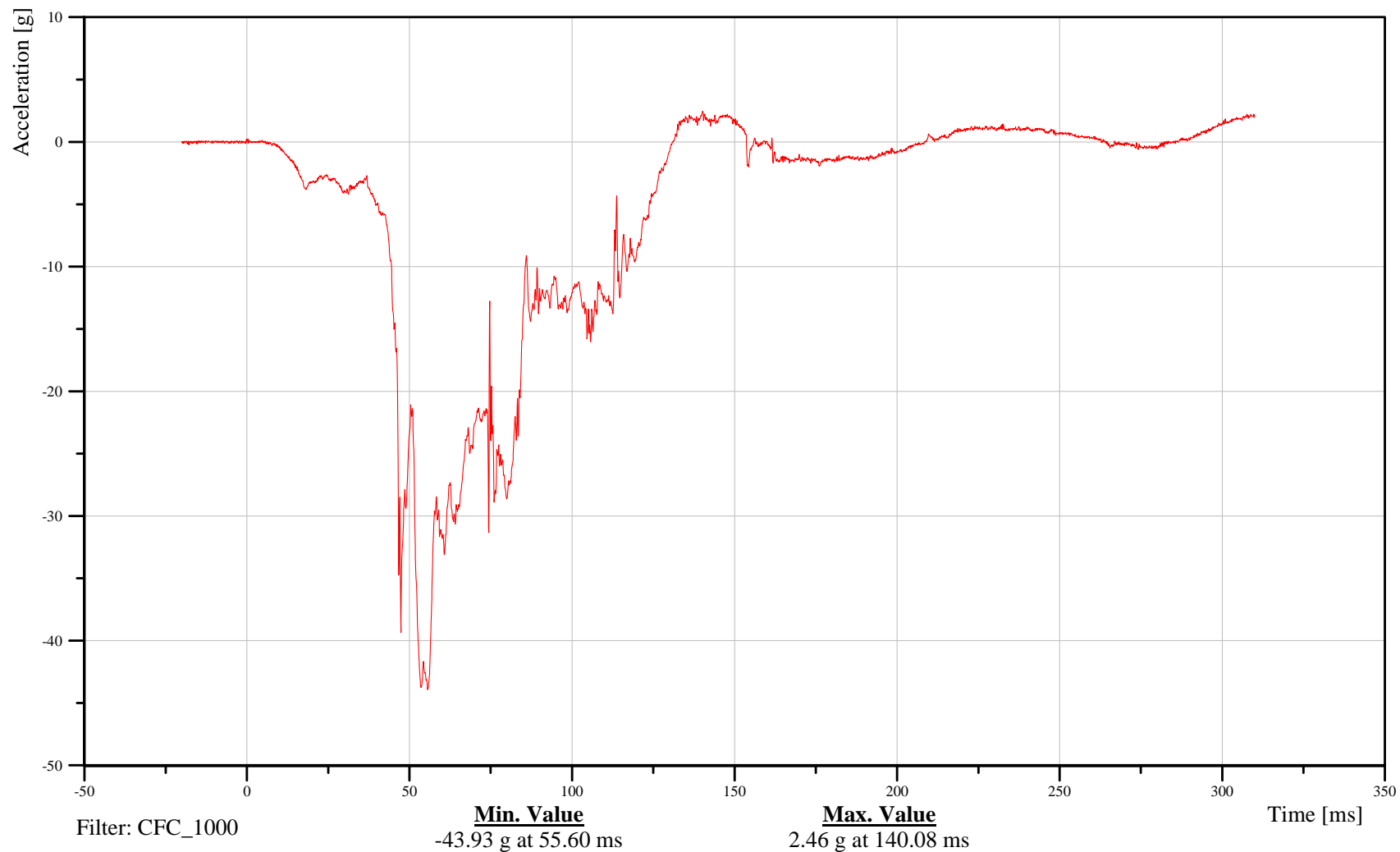
## Target Vehicle Driver Pelvis X-Axis Acceleration

Customer: VRTC

# 21PELV0000THACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-287

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

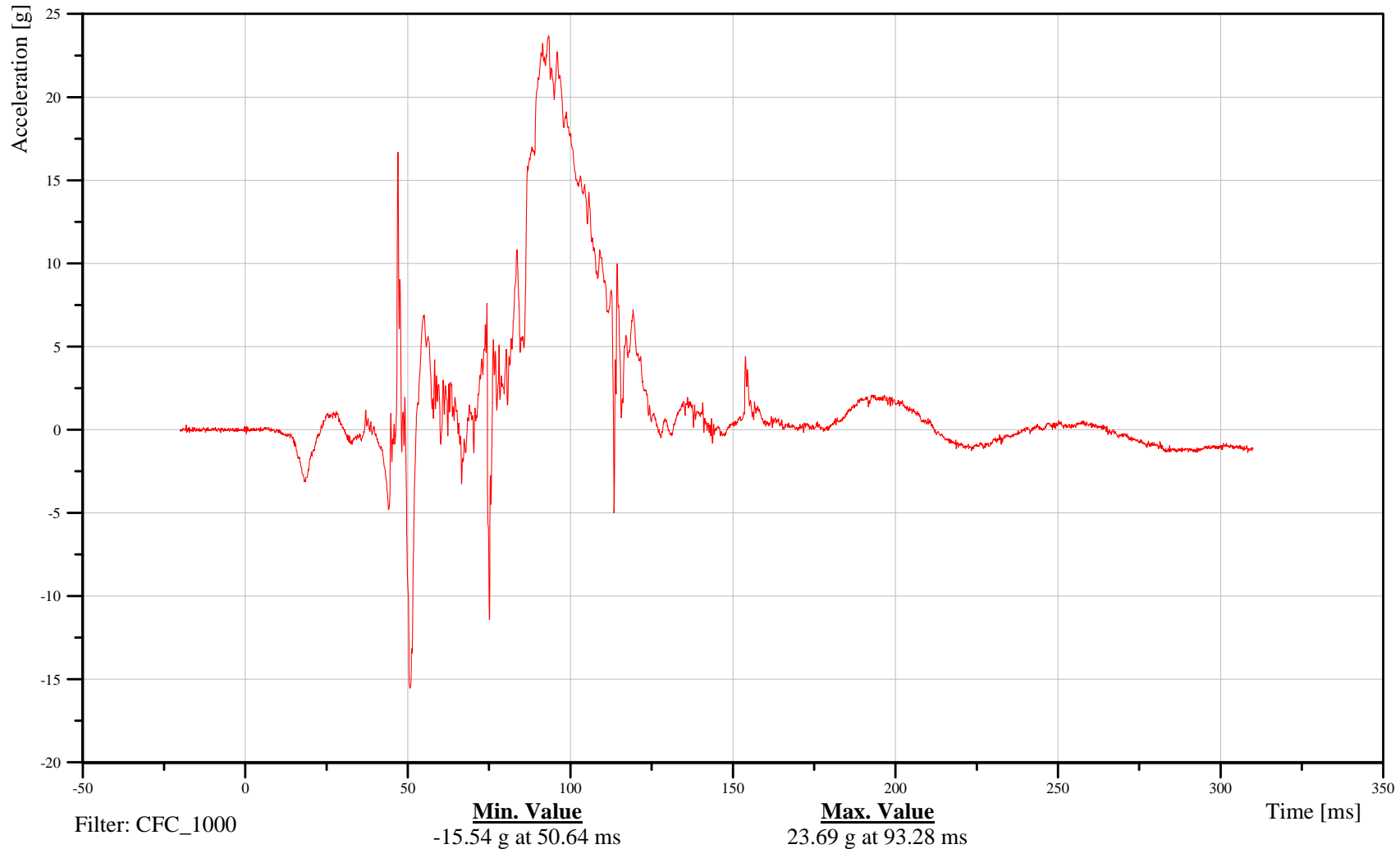
## Target Vehicle Driver Pelvis Y-Axis Acceleration

Customer: VRTC

# 21PELV0000THACYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-288

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

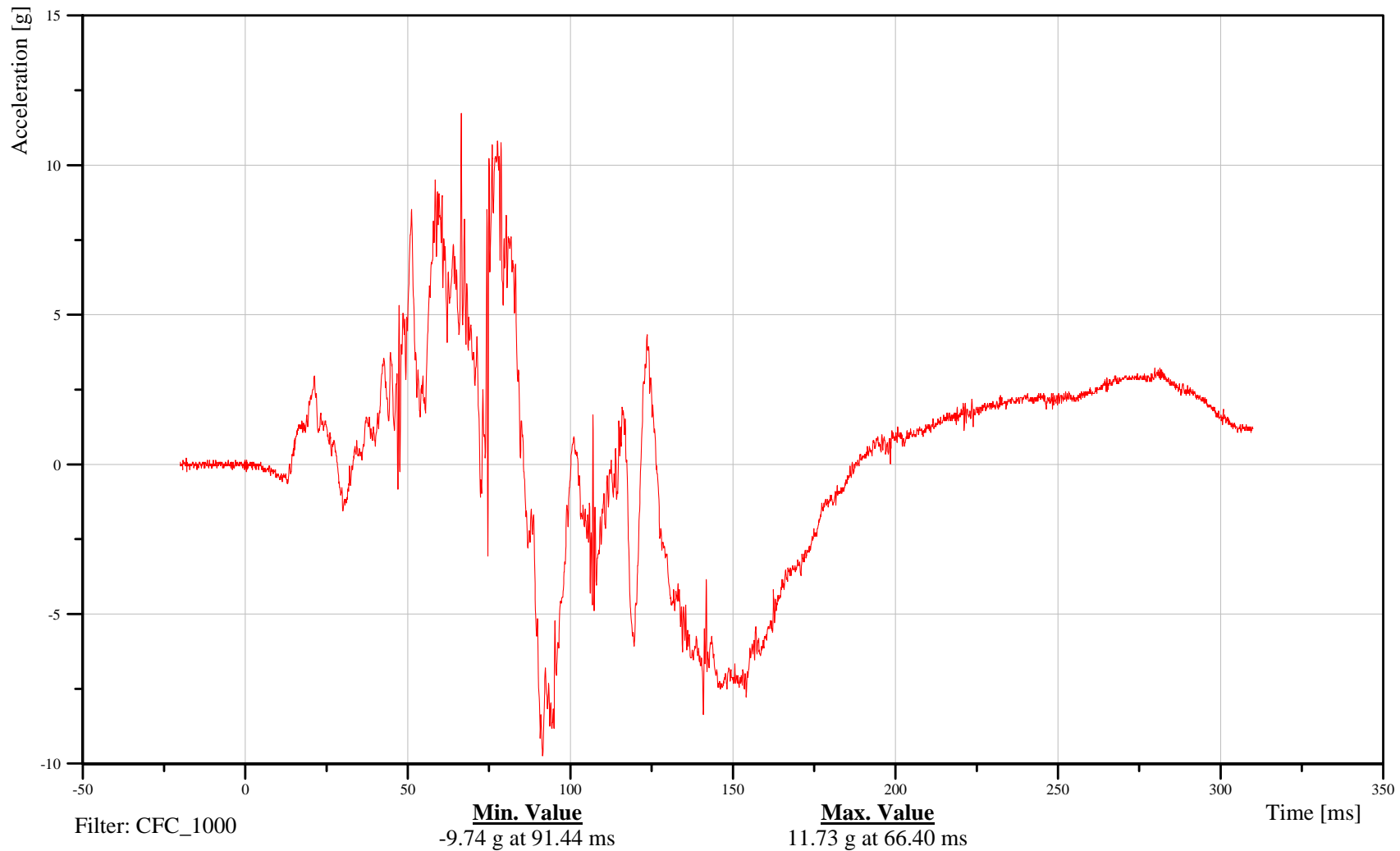
## Target Vehicle Driver Pelvis Z-Axis Acceleration

Customer: VRTC

# 21PELV0000THACZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-289

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

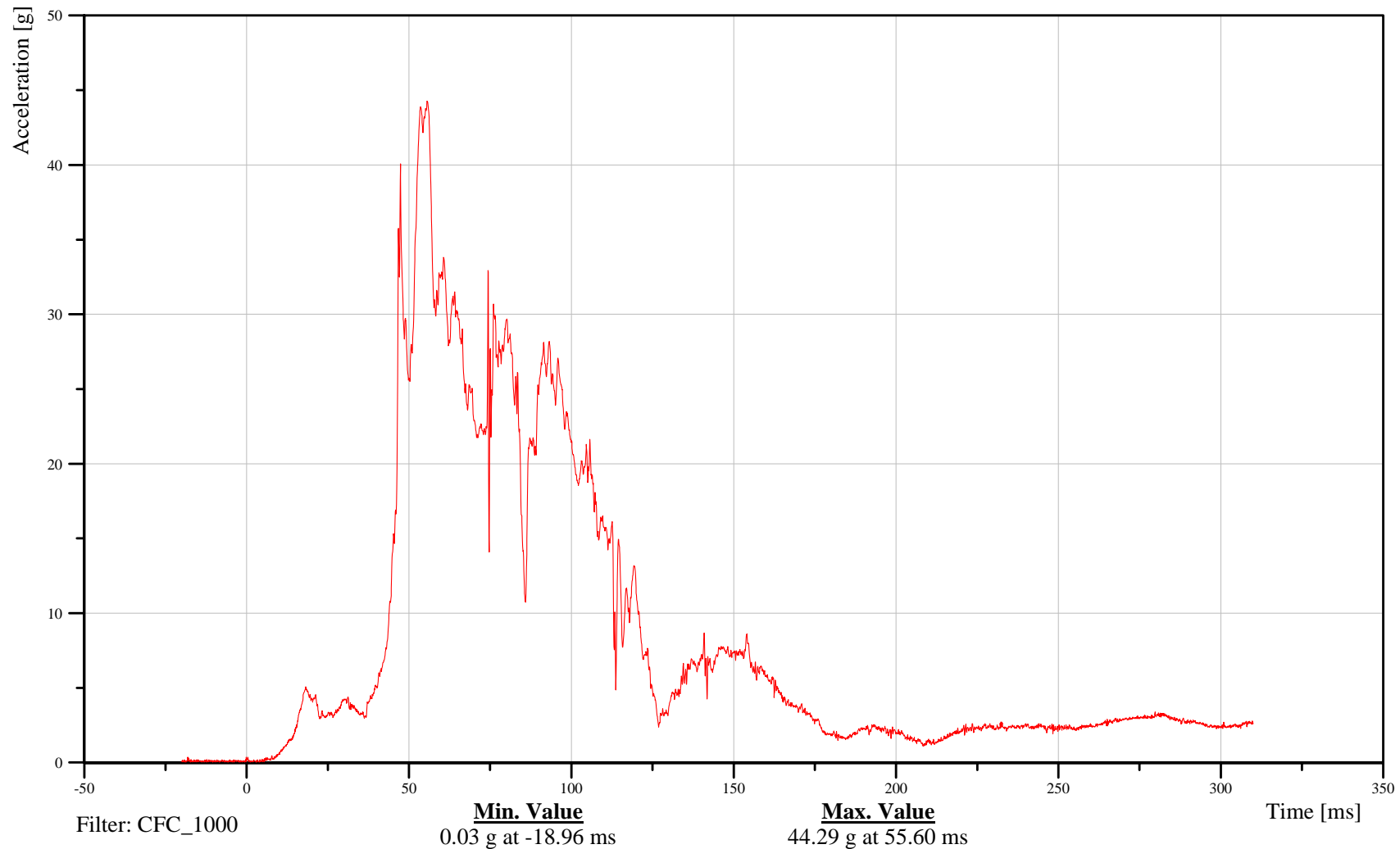
## Target Vehicle Driver Pelvis Resultant Acceleration

Customer: VRTC

# 21PELV0000THACRA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-290

091020



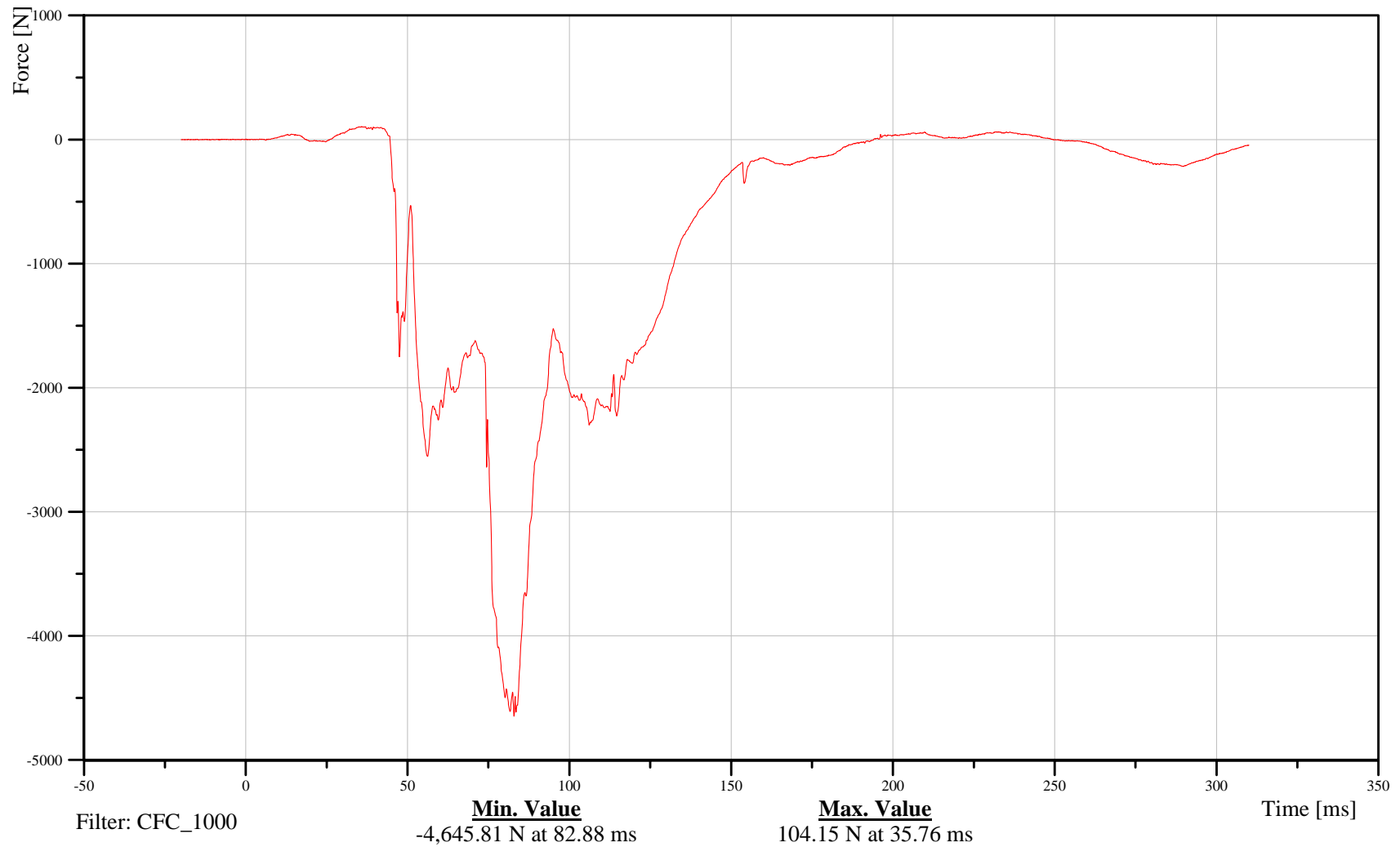
Taurus into Taurus at 15 Degrees, 50% Overlap  
Target Vehicle Driver Pelvis/Acetabulum Left X-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

21ACTBLE00THFOXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-291

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

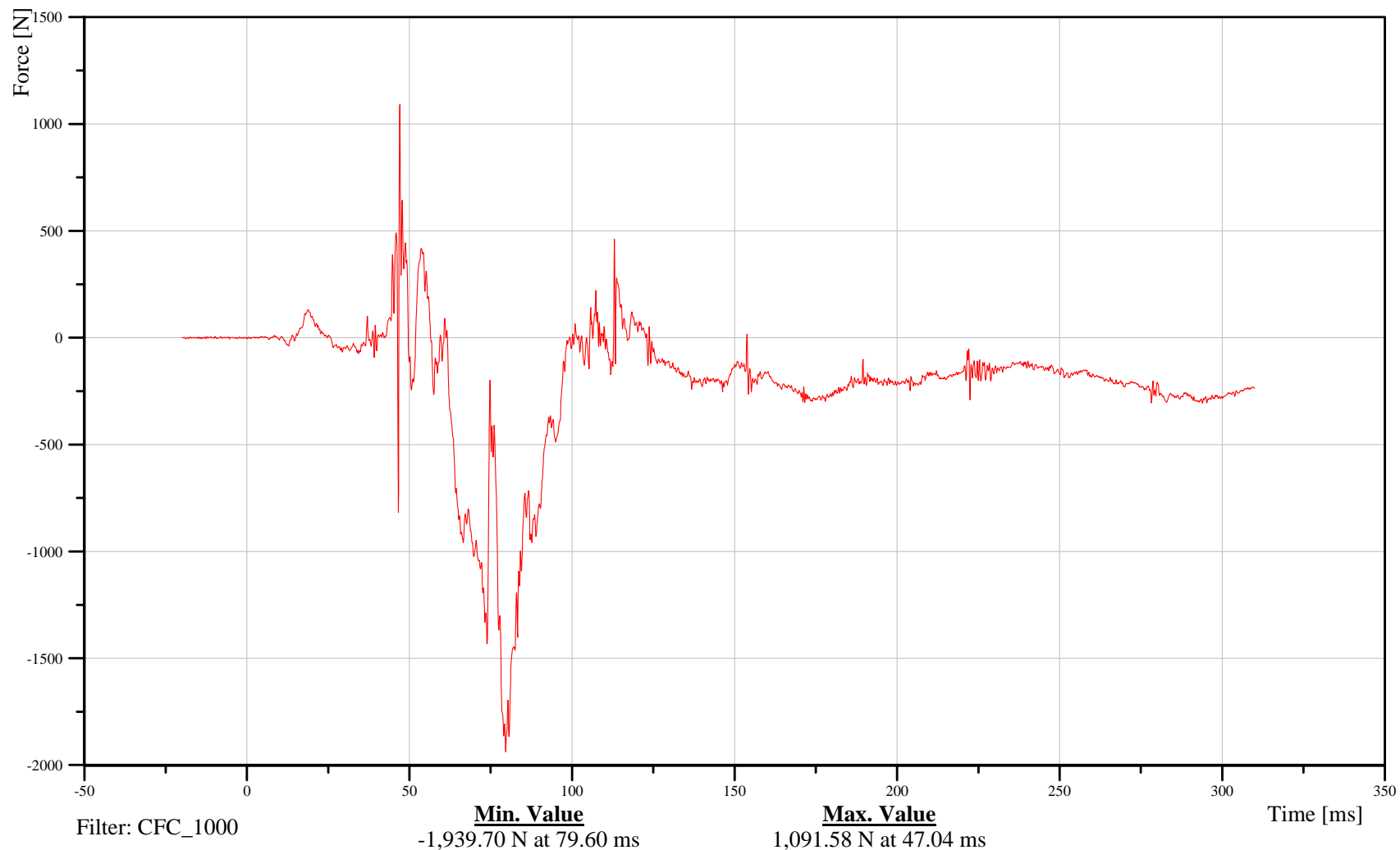
## Target Vehicle Driver Pelvis/Acetabulum Left Y-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21ACTBLE00THFOYA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-292

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

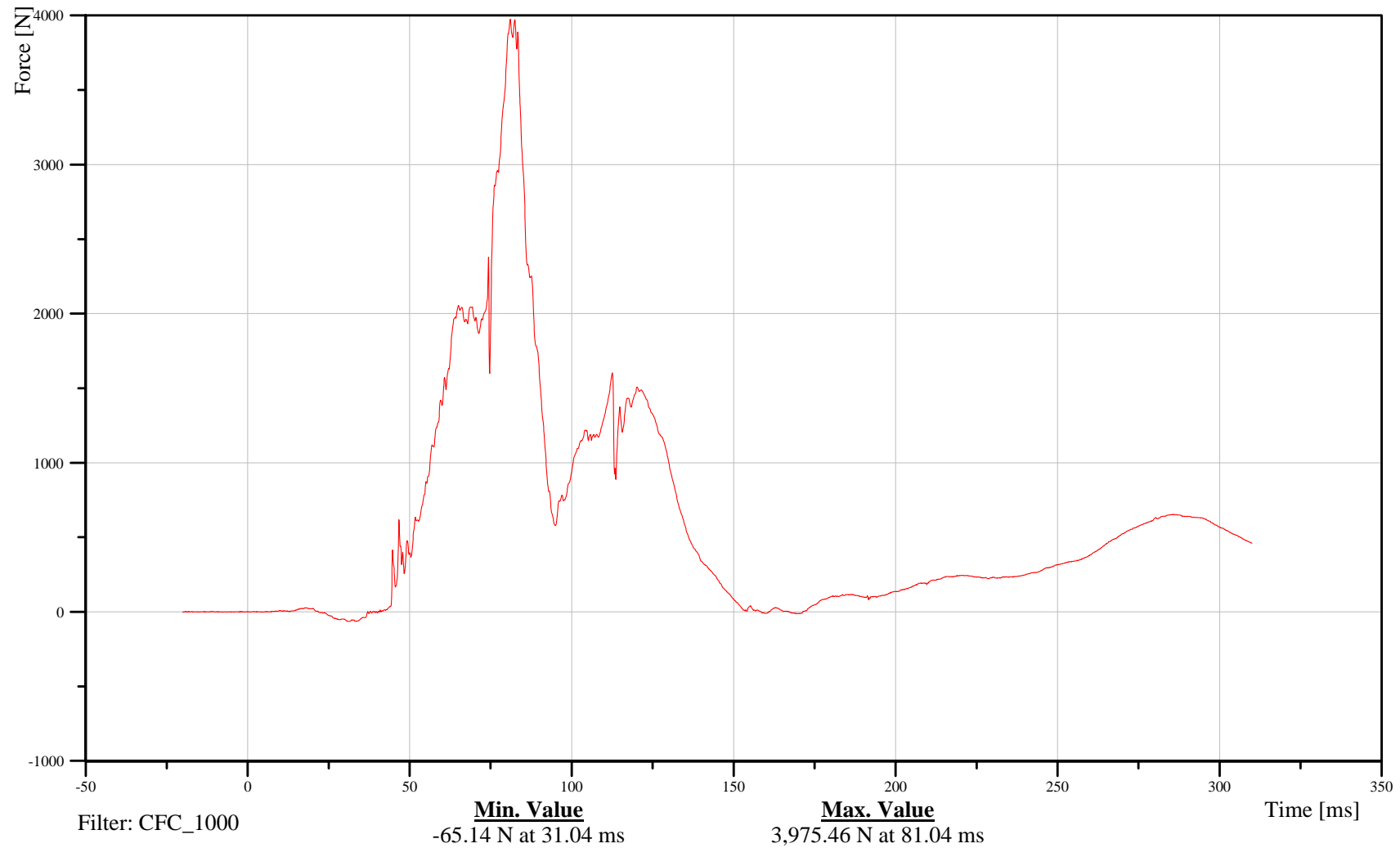
## Target Vehicle Driver Pelvis/Acetabulum Left Z-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21ACTBLE00THFOZA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-293

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

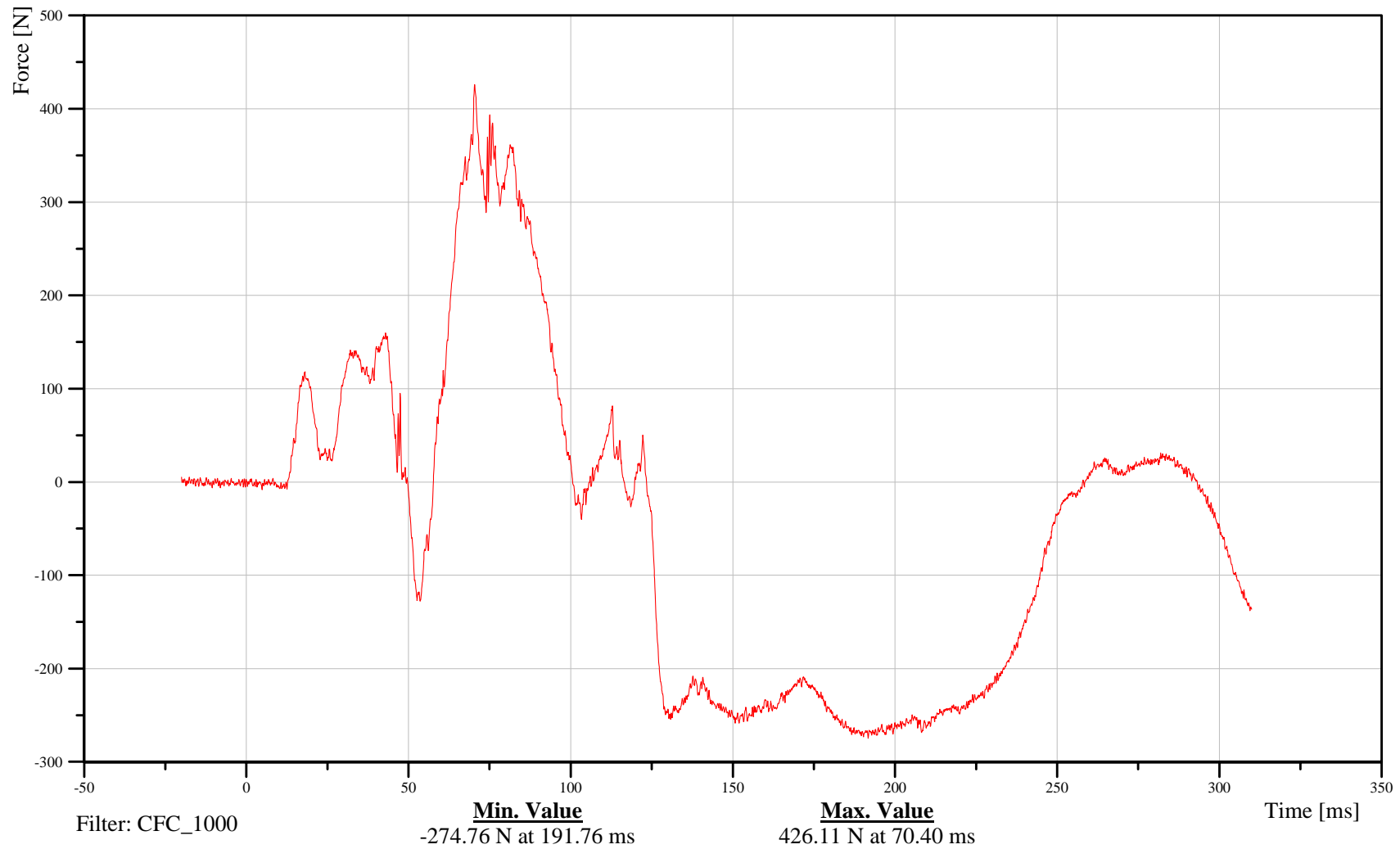
## Target Vehicle Driver Pelvis/Acetabulum Right X-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21ACTBRI00THFOXA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-294

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

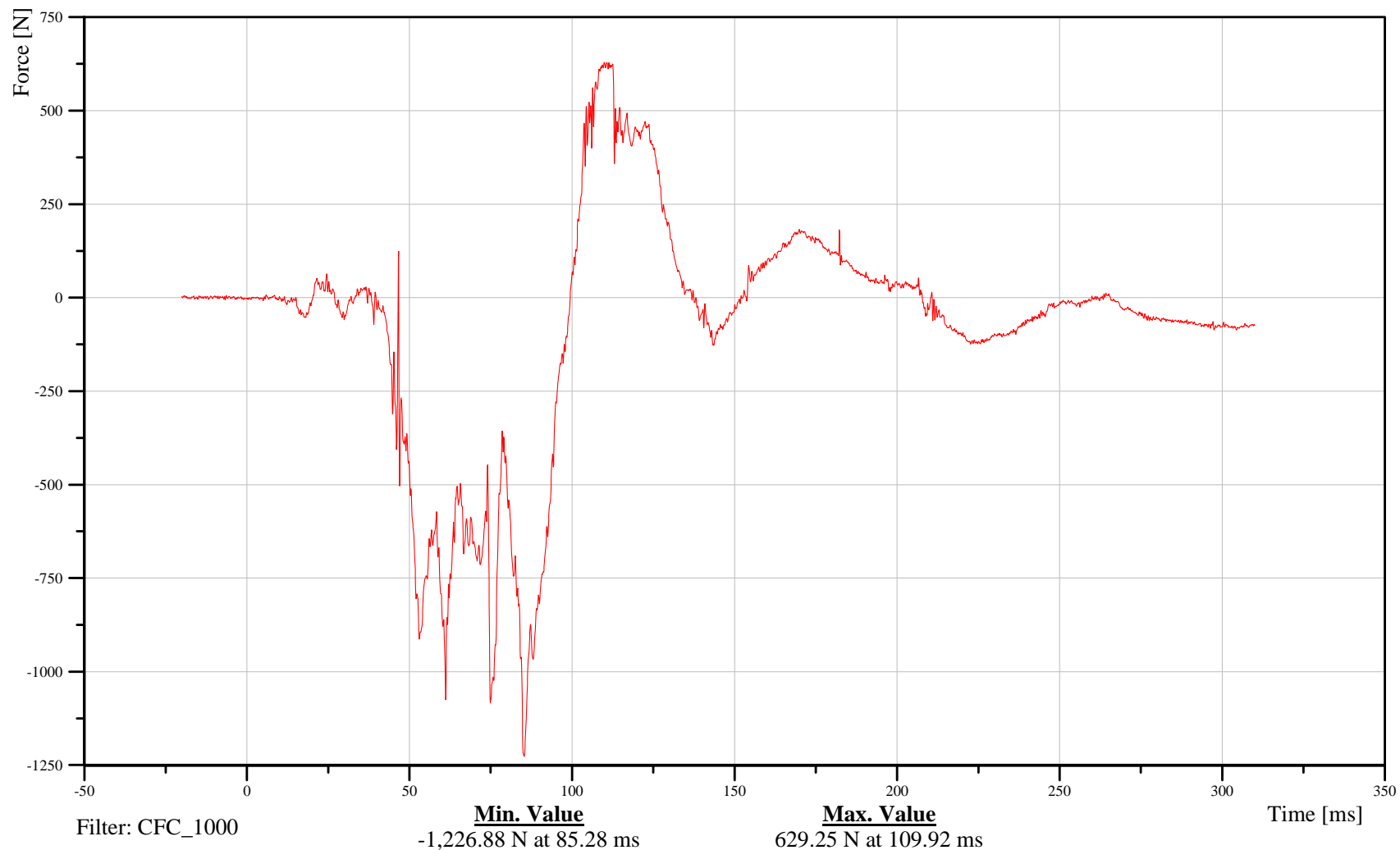
## Target Vehicle Driver Pelvis/Acetabulum Right Y-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21ACTBRI00THFOYA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-295

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

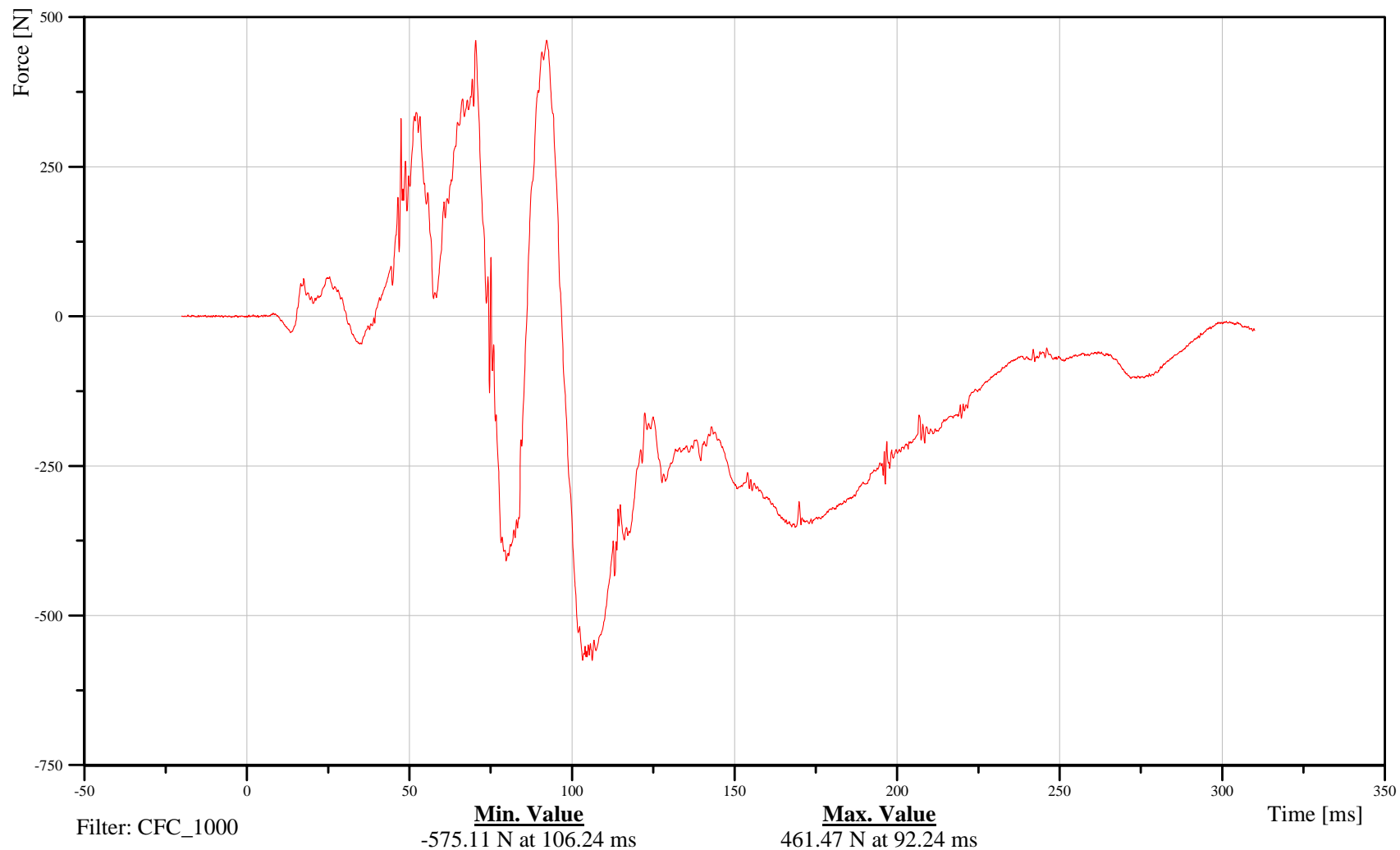
## Target Vehicle Driver Pelvis/Acetabulum Right Z-Axis Force

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21ACTBRI00THFOZA

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-296

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

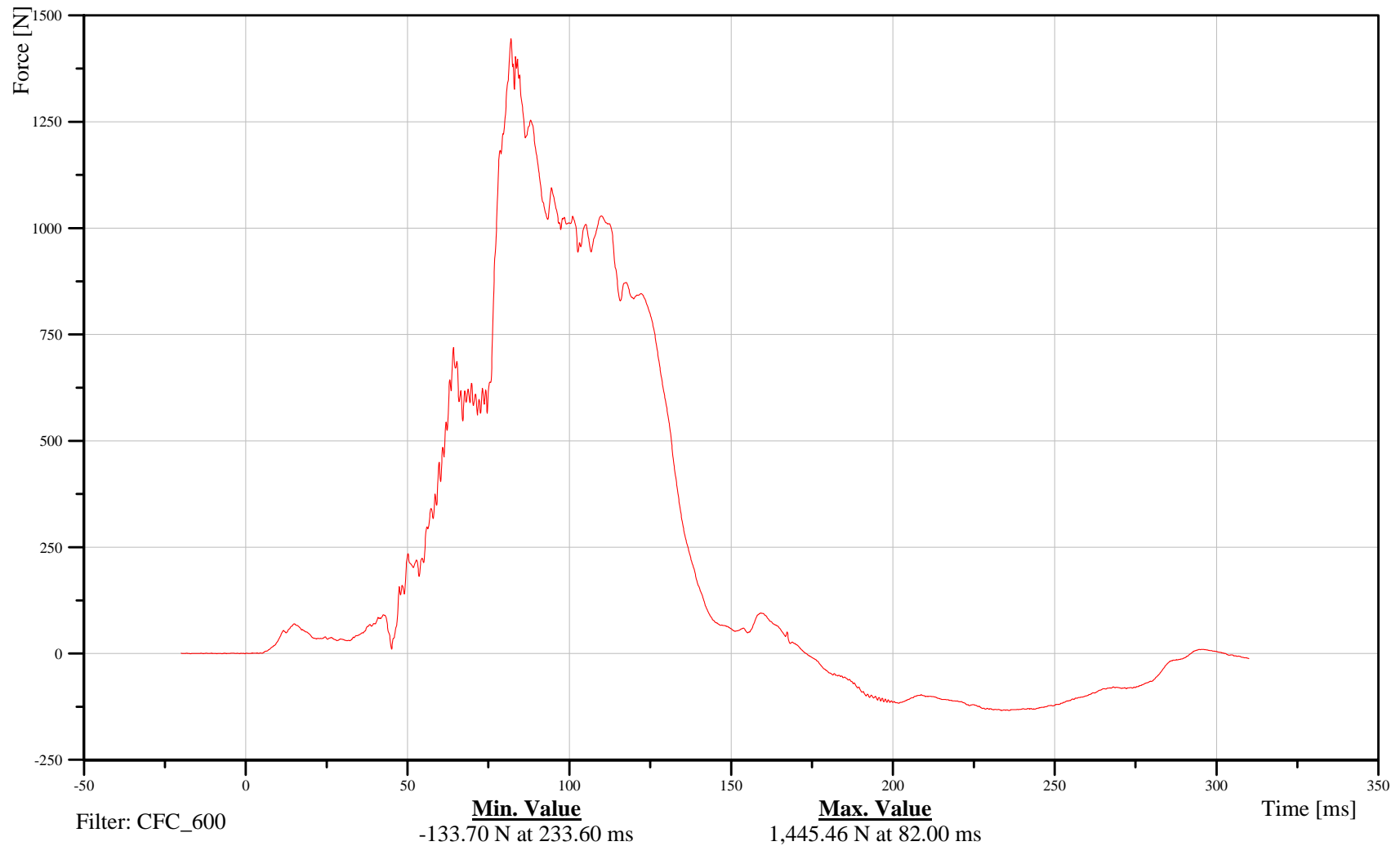
## Target Vehicle Driver Left Femur X-Axis Force

Customer: VRTC

### 21FEMRLL00THFOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-297

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Left Femur Y-Axis Force

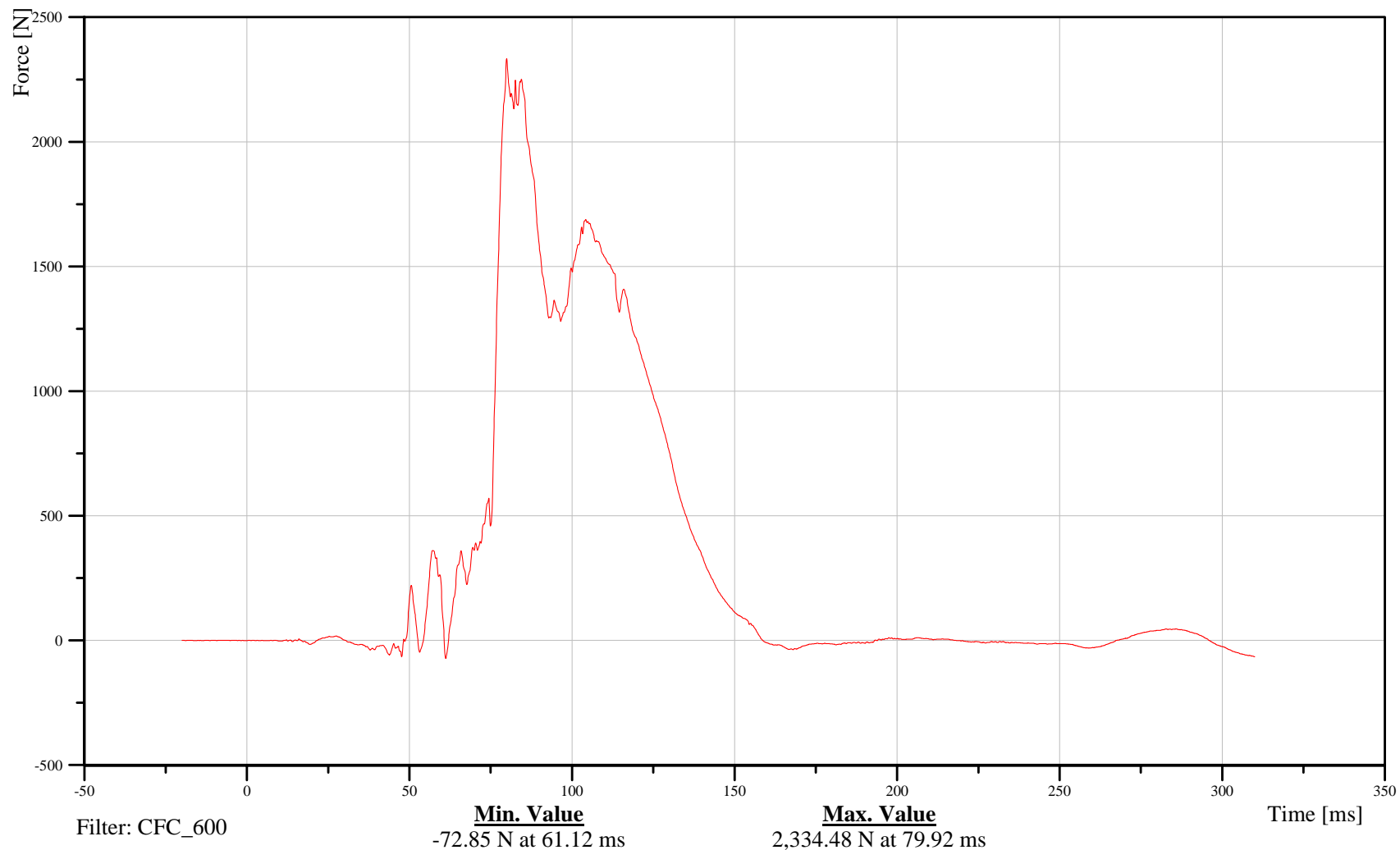
Time: 16:35

Customer: VRTC

### 21FEMRLL00THFOYB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-298

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

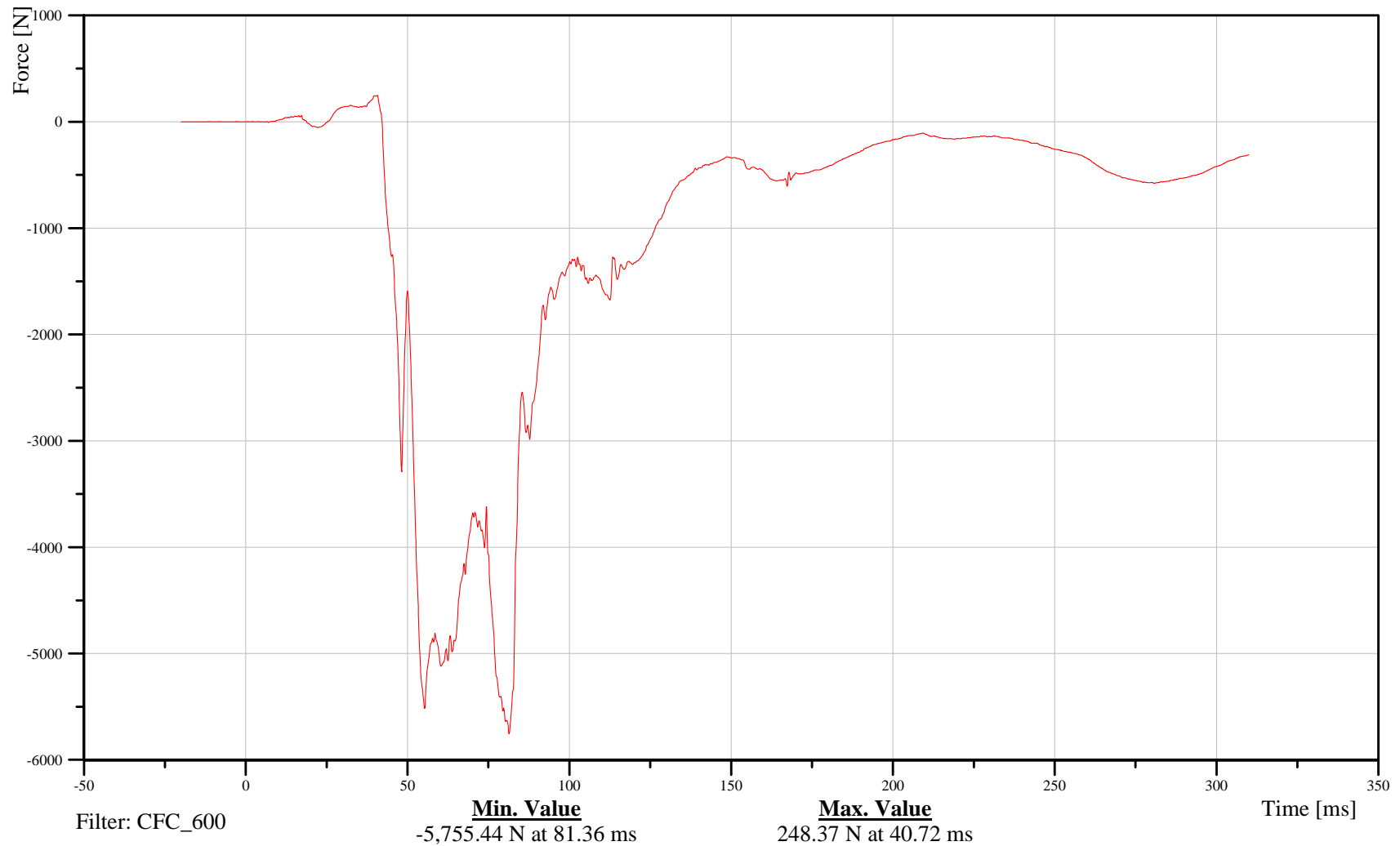
## Target Vehicle Driver Left Femur Z-Axis Force

Customer: VRTC

# 21FEMRLL00THFOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-299

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Left Femur Moment About X-Axis

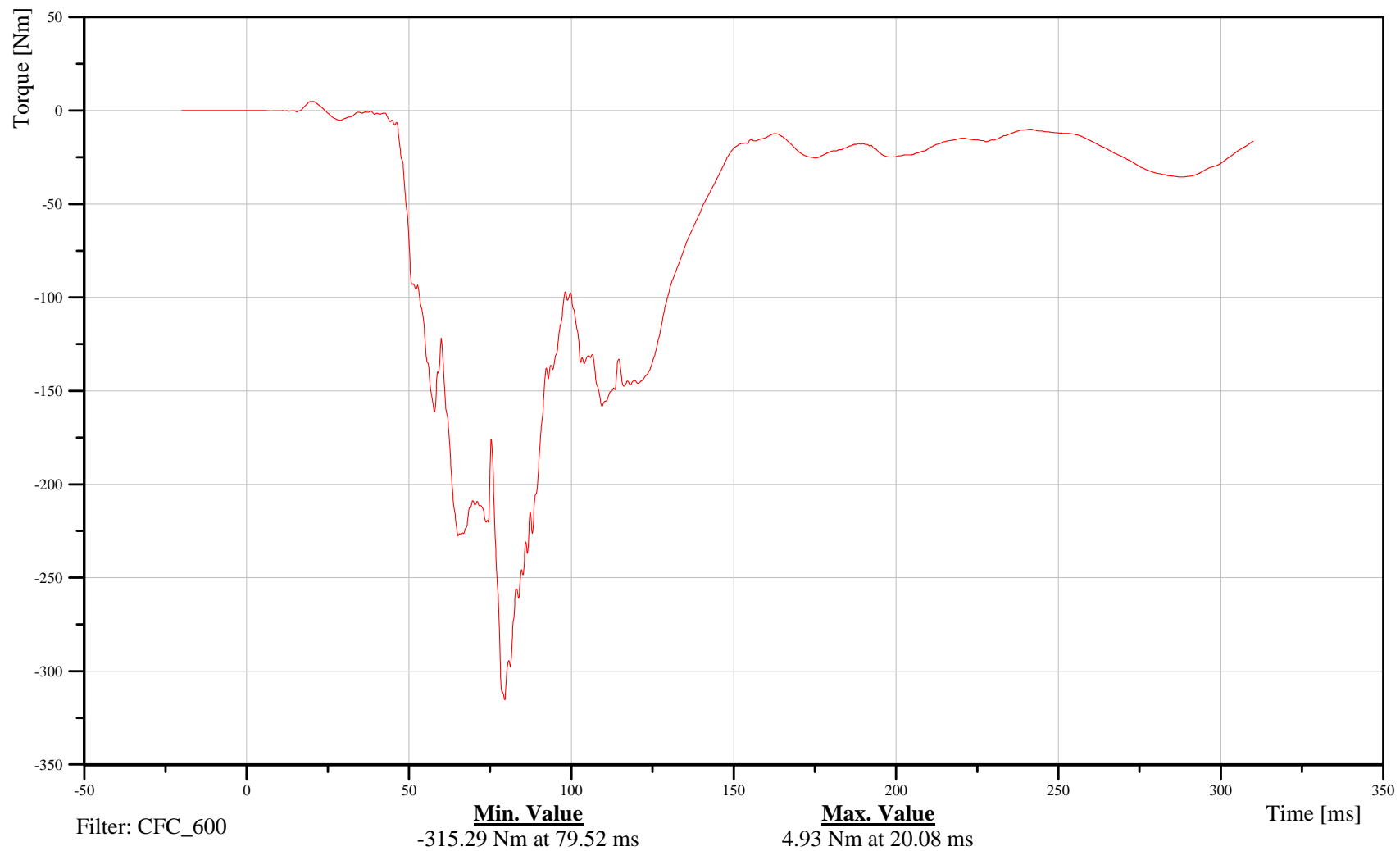
Time: 16:35

Customer: VRTC

### 21FEMRLL00THMOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-300

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Left Femur Moment About Y-Axis

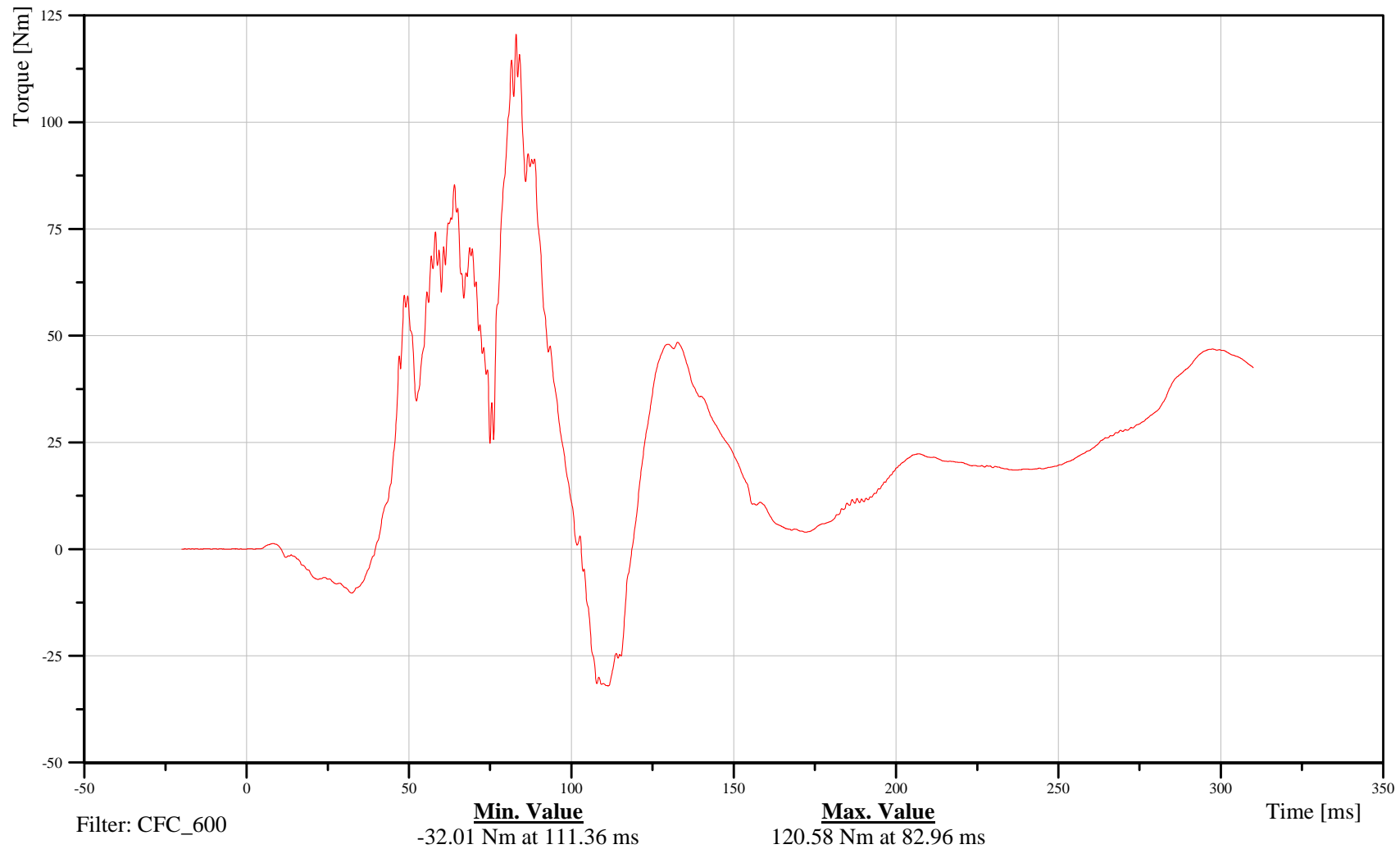
Time: 16:35

Customer: VRTC

### 21FEMRLL00THMOYB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-301

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

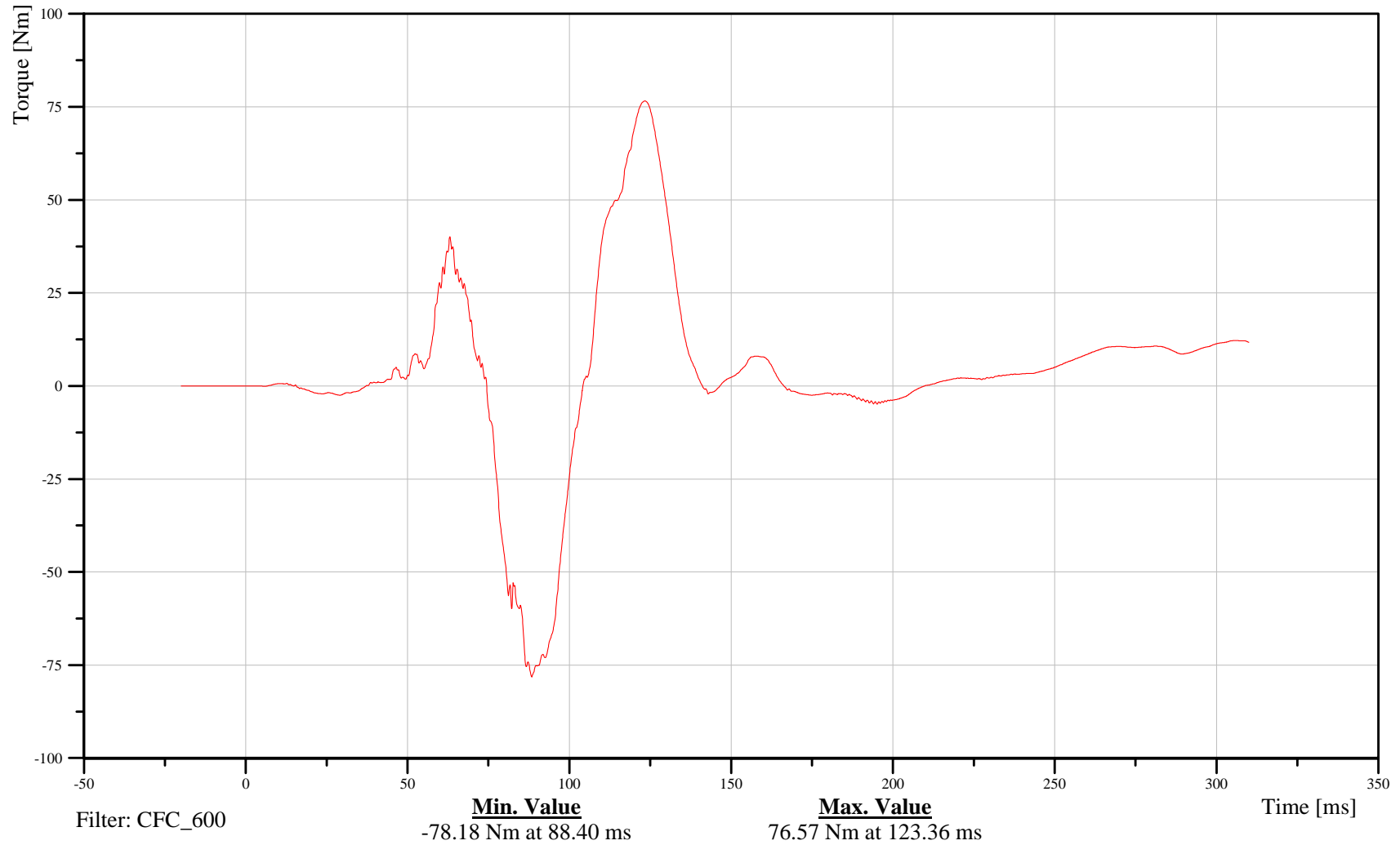
## Target Vehicle Driver Left Femur Moment About Z-Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21FEMRLL00THMOZB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-302

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

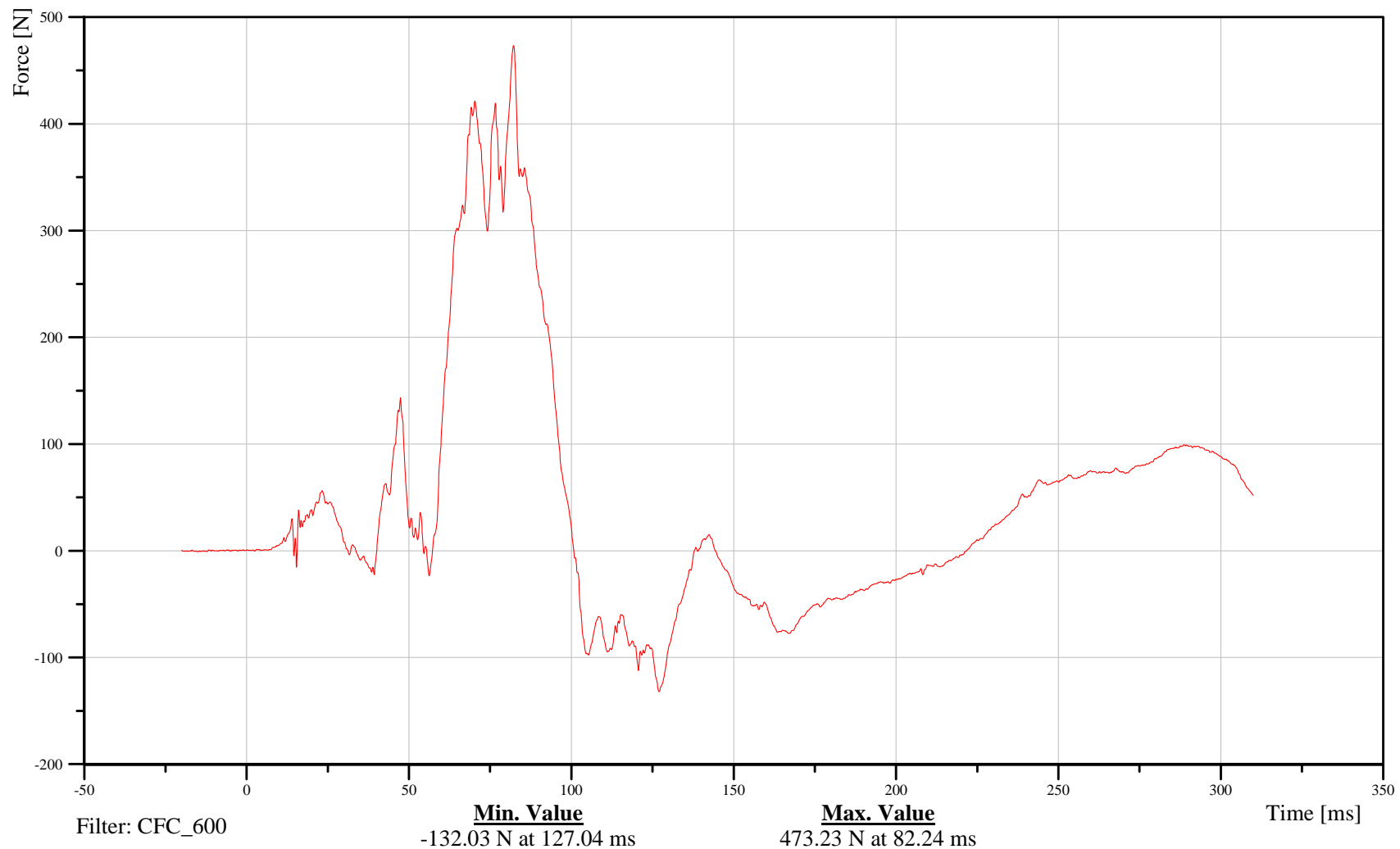
## Target Vehicle Driver Right Femur X-Axis Force

Customer: VRTC

# 21FEMRRL00THFOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-303

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

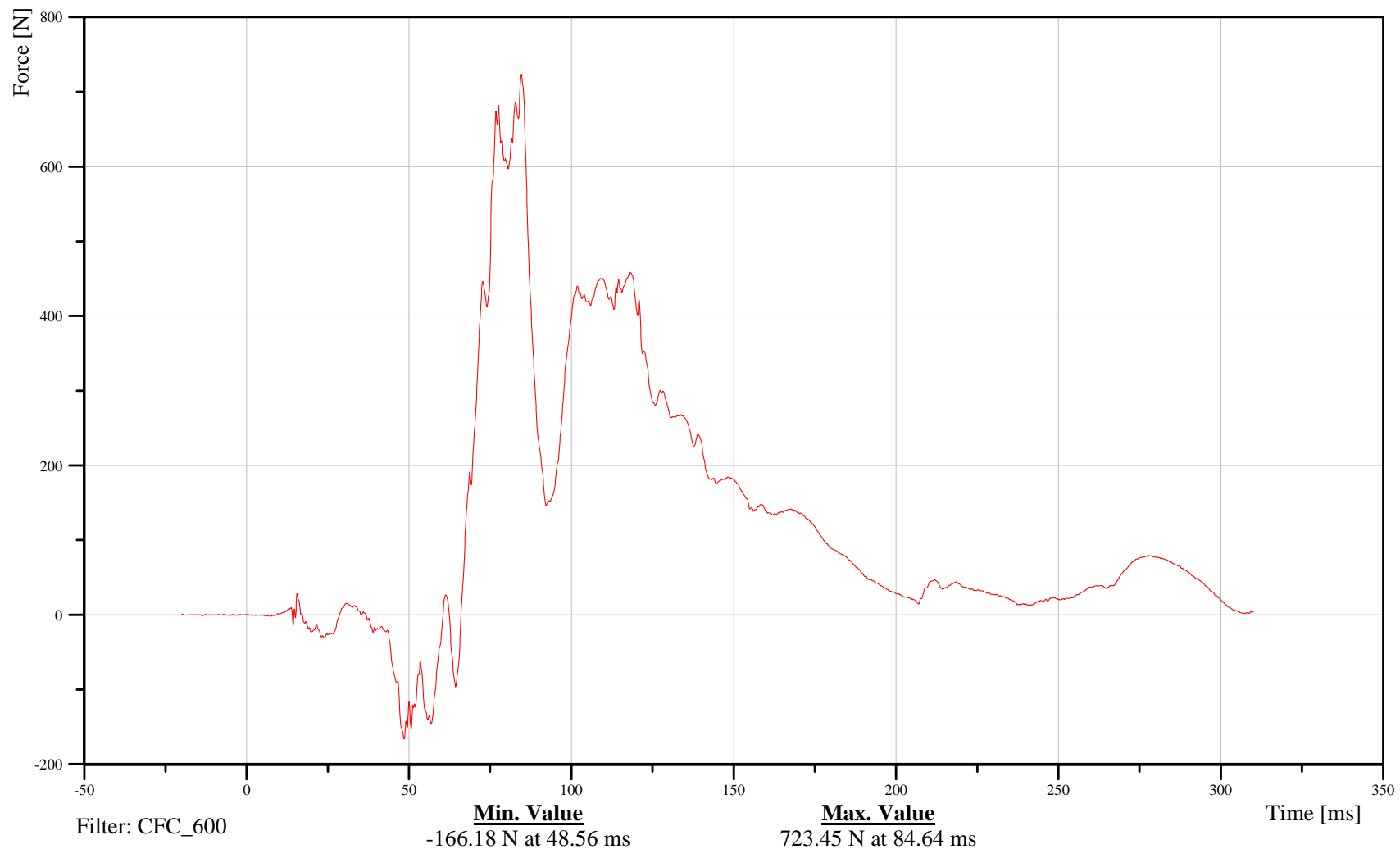
## Target Vehicle Driver Right Femur Y-Axis Force

Customer: VRTC

# 21FEMRRL00THFOYB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-304

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Right Femur Z-Axis Force

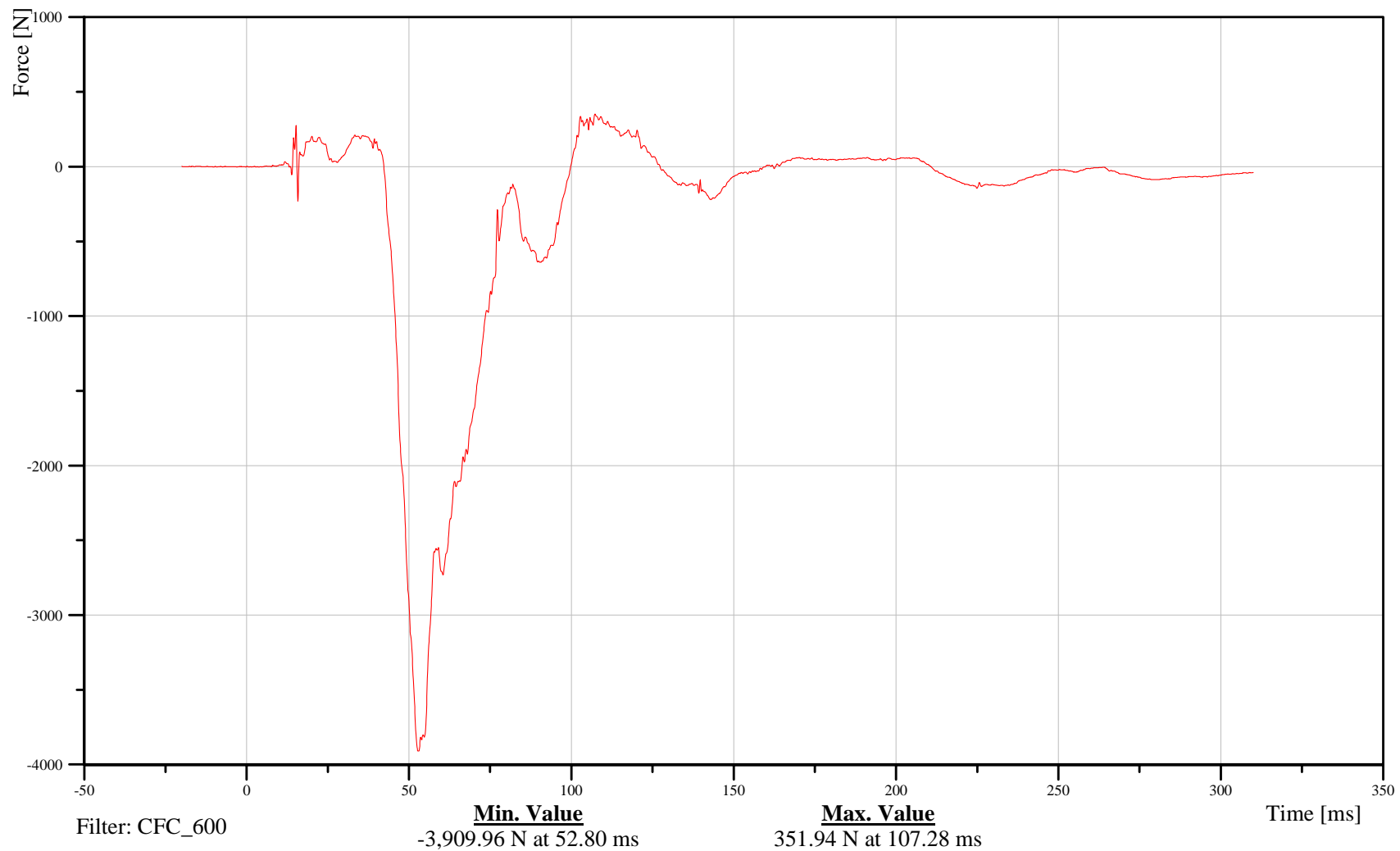
Time: 16:35

Customer: VRTC

### 21FEMRRL00THFOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-305

091020



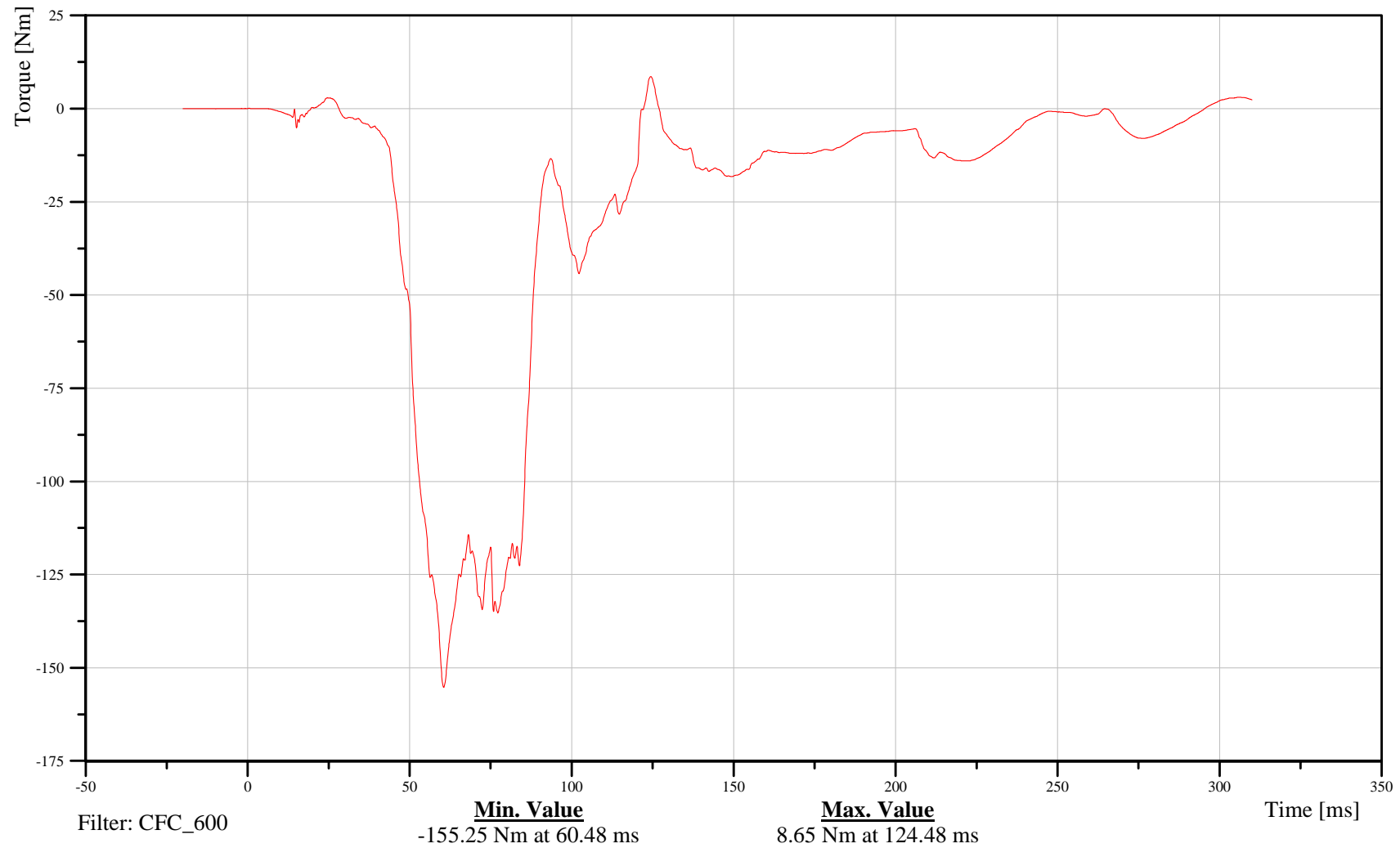
Taurus into Taurus at 15 Degrees, 50% Overlap  
Target Vehicle Driver Right Femur Moment About X-Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

21FEMRRL00THMOXB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-306

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

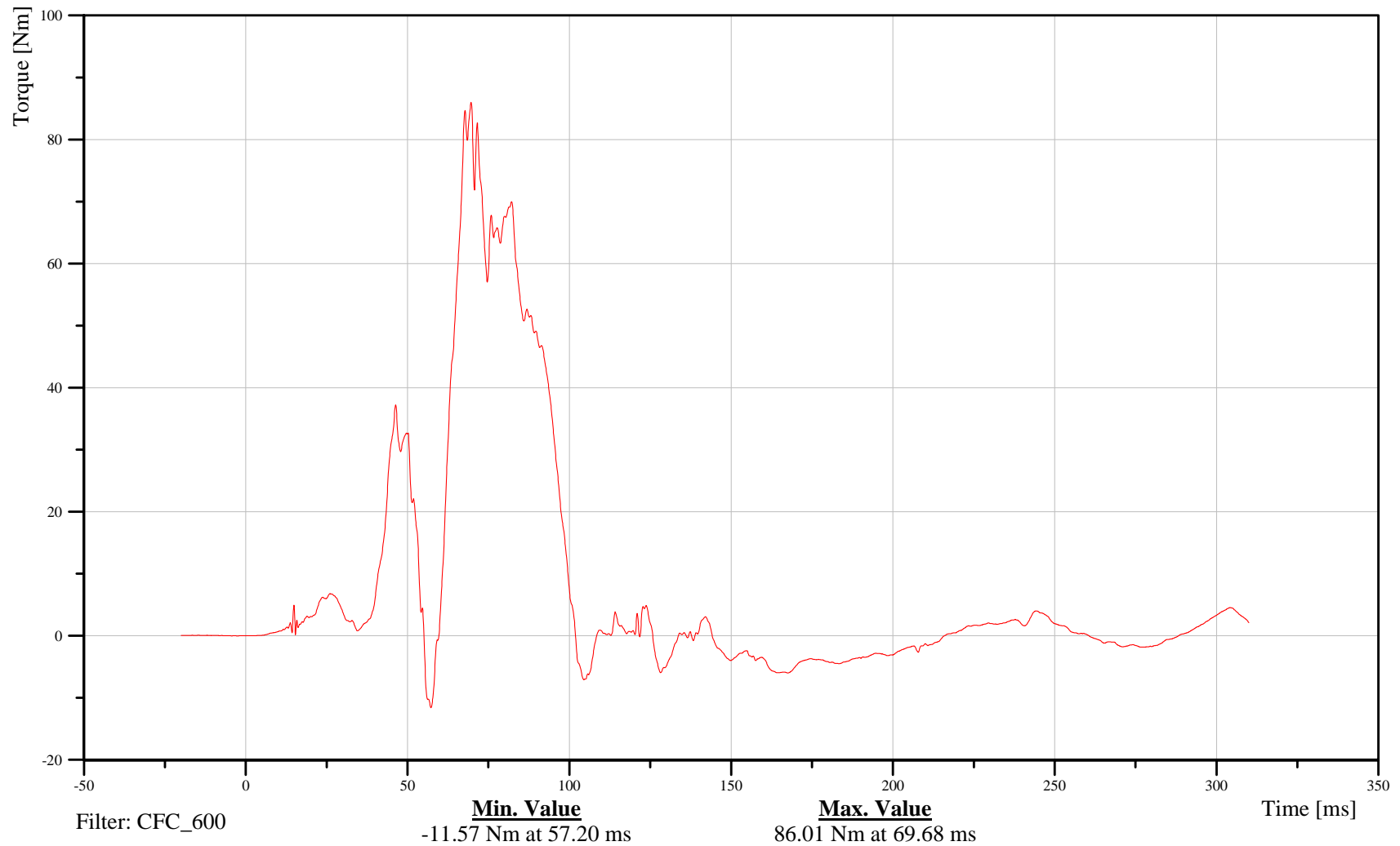
## Target Vehicle Driver Right Femur Moment About Y-Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21FEMRRL00THMOYB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-307

091020



Taurus into Taurus at 15 Degrees, 50% Overlap  
Target Vehicle Driver Right Femur Moment About Z-Axis

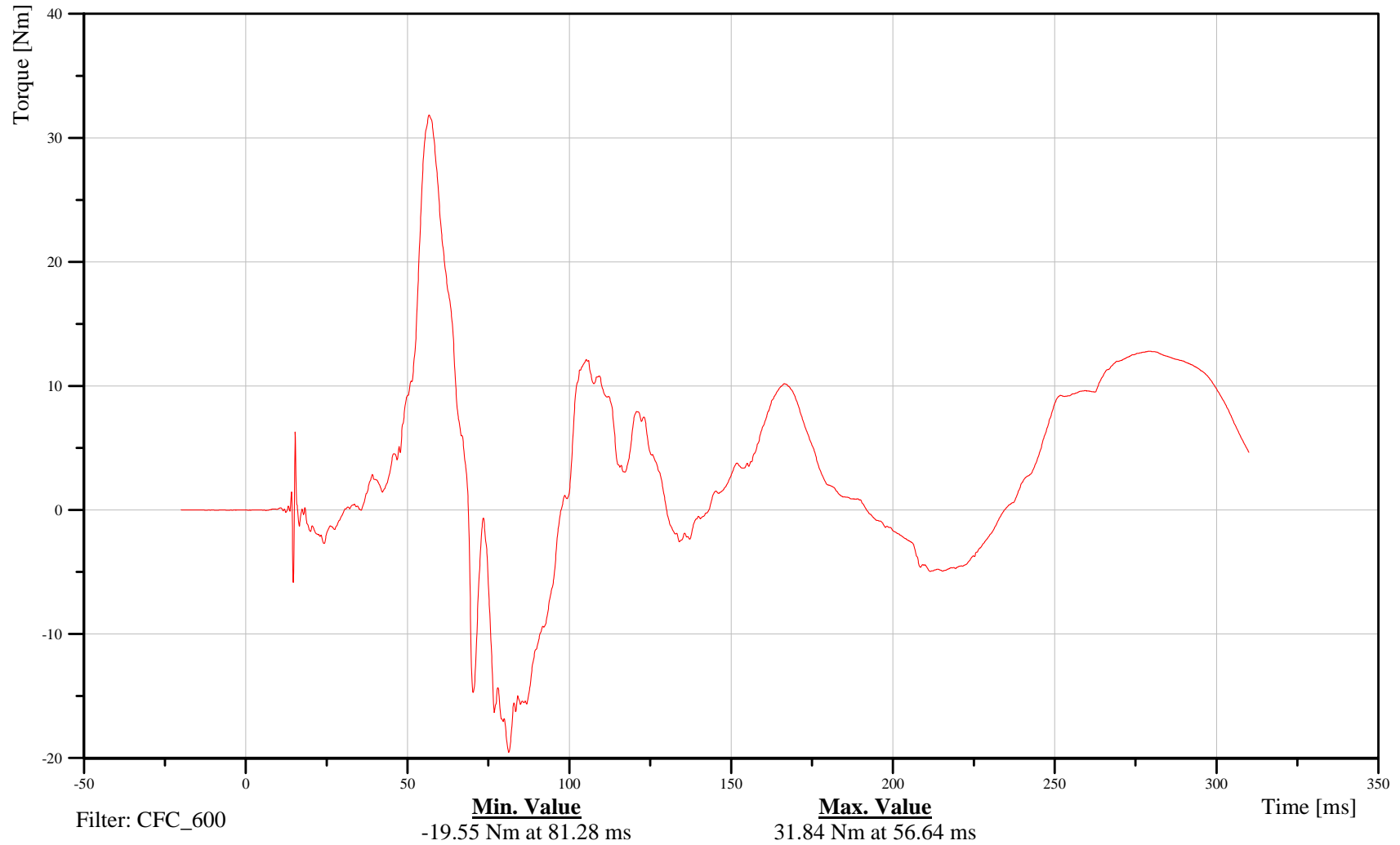
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

21FEMRRL00THMOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-308

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

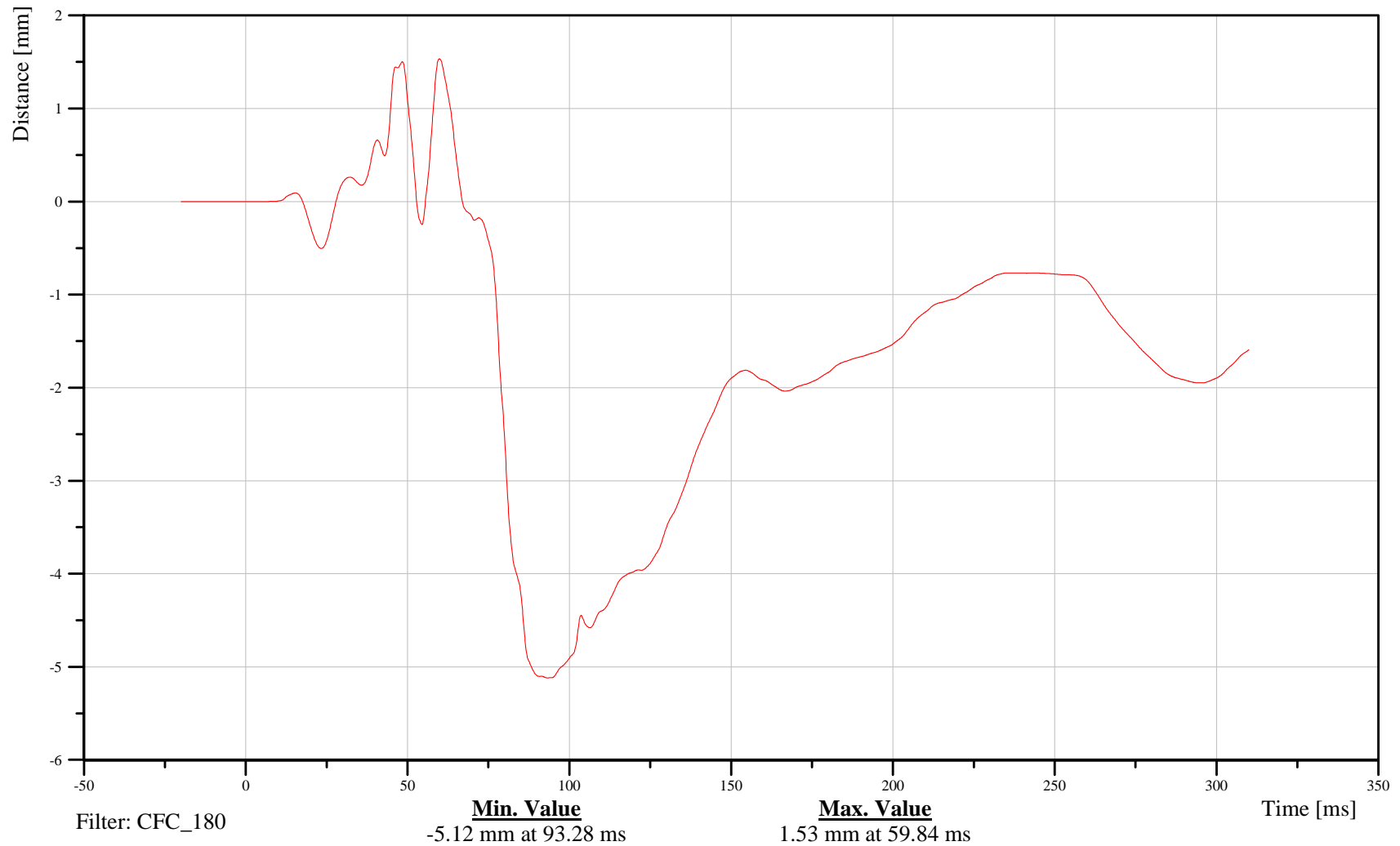
## Target Vehicle Driver Left Knee X-Axis Displacement

Customer: VRTC

# 21KNSLLE00H3DSXC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-309

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

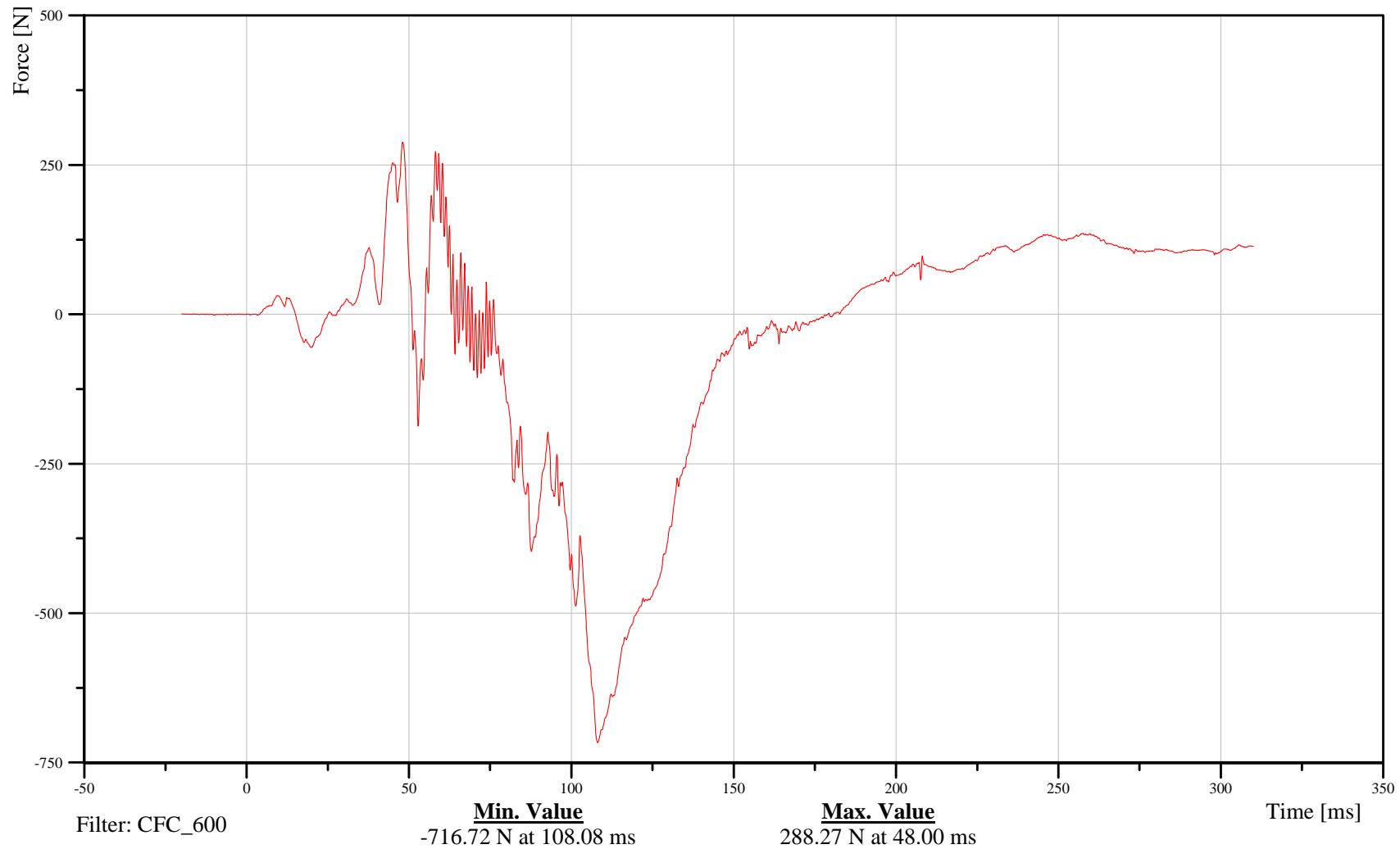
## Target Vehicle Driver Left Upper Tibia X-Axis Force

Customer: VRTC

# 21TIBILULXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-310

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

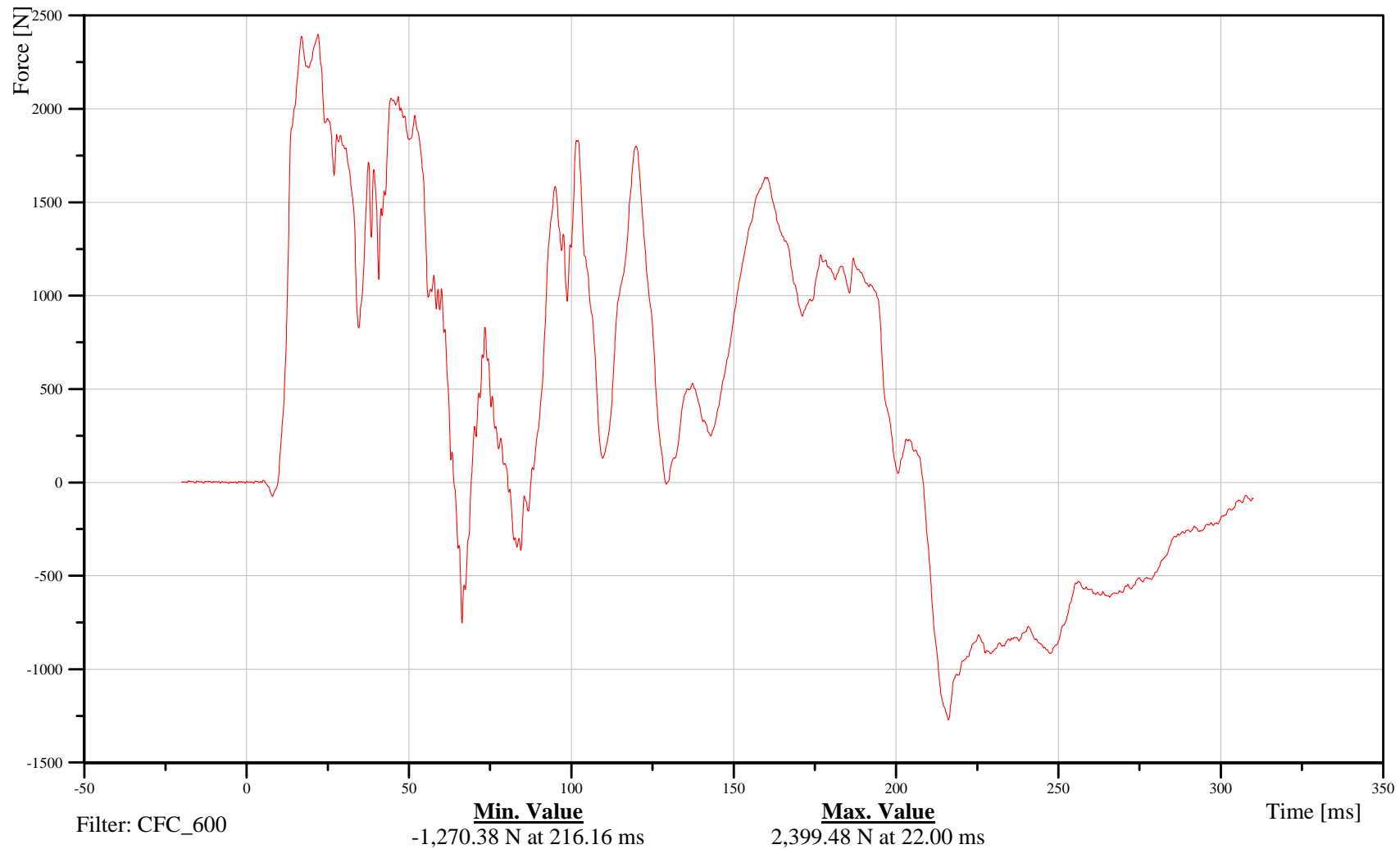
## Target Vehicle Driver Left Upper Tibia Z-Axis Force

Customer: VRTC

# 21TIBILULXH3FOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-311

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

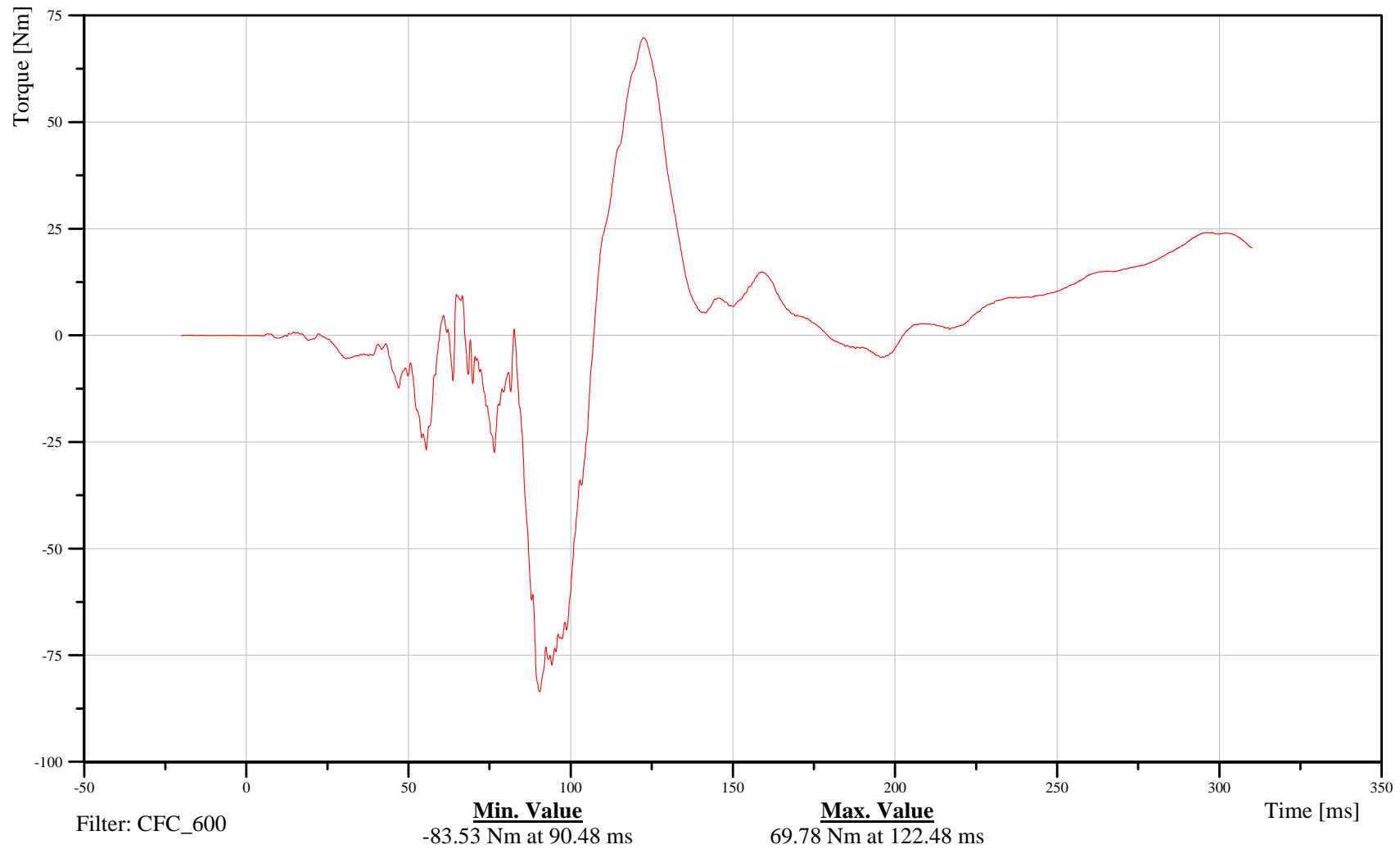
## Target Vehicle Driver Left Upper Tibia Moment About X Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21TIBILULXH3MOXB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-312

091020



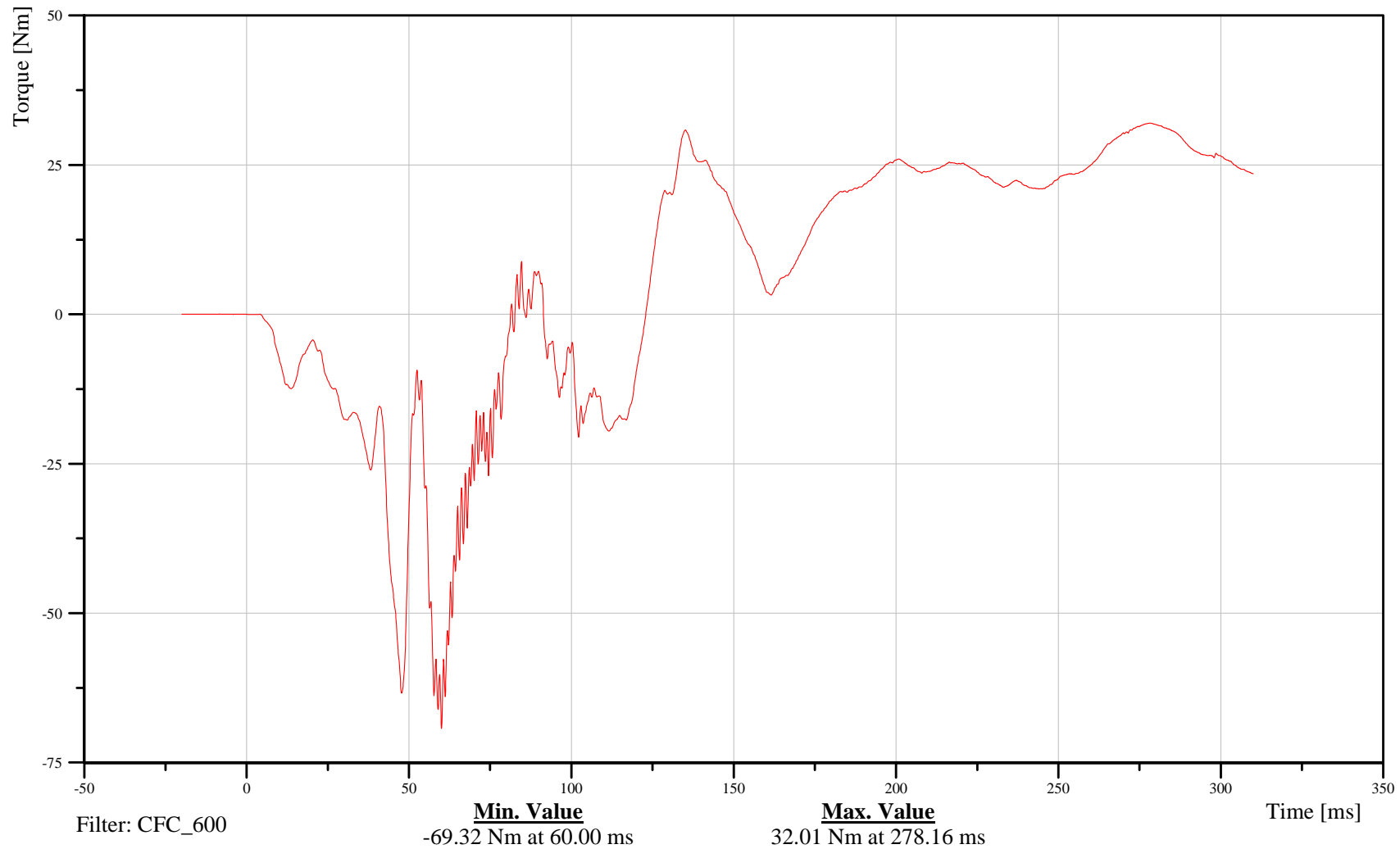
Taurus into Taurus at 15 Degrees, 50% Overlap  
Target Vehicle Driver Left Upper Tibia Moment About Y Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

21TIBILULXH3MOYB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-313

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

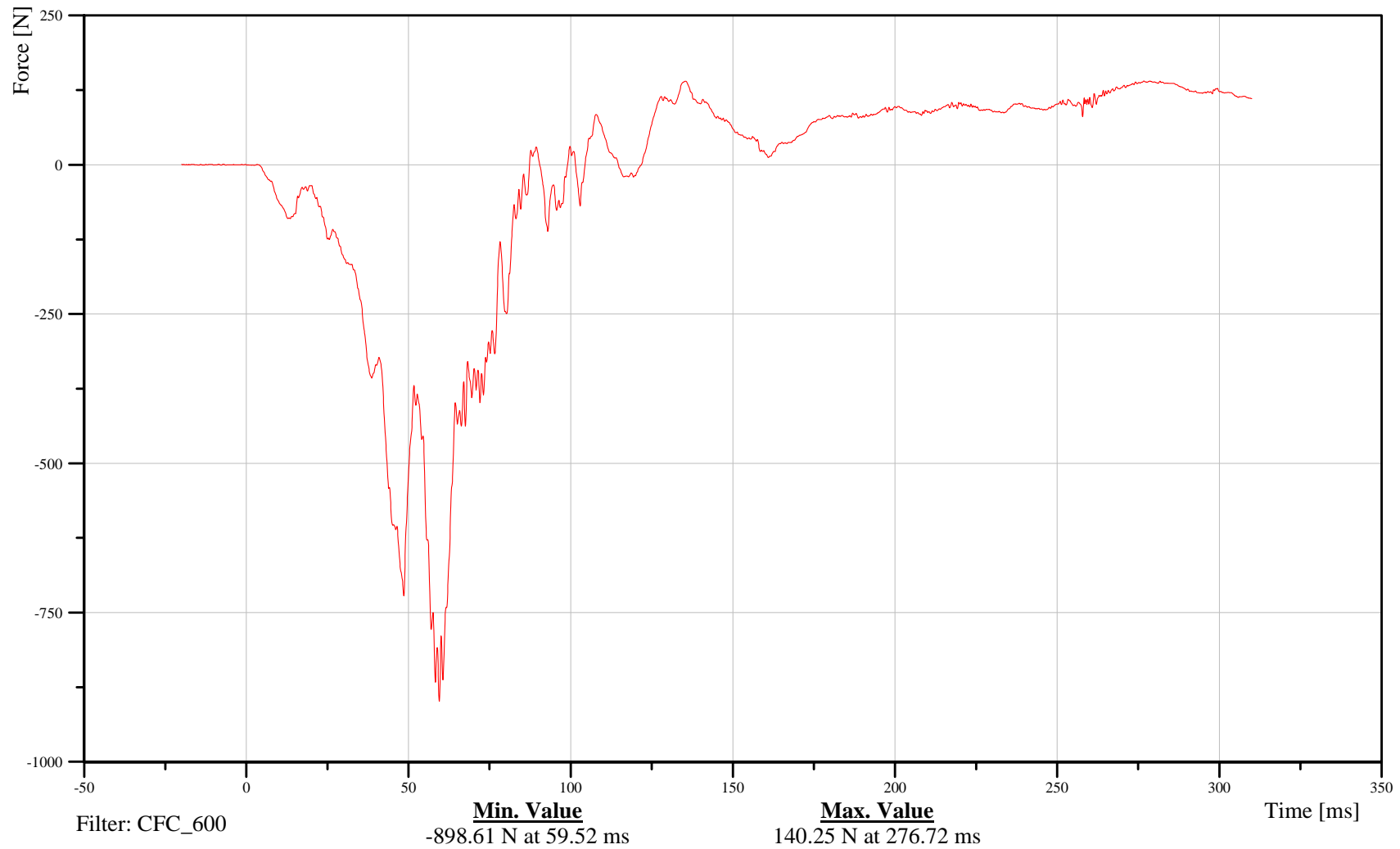
## Target Vehicle Driver Left Lower Tibia X-Axis Force

Customer: VRTC

# 21TIBILLXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-314

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Left Lower Tibia Y-Axis Force

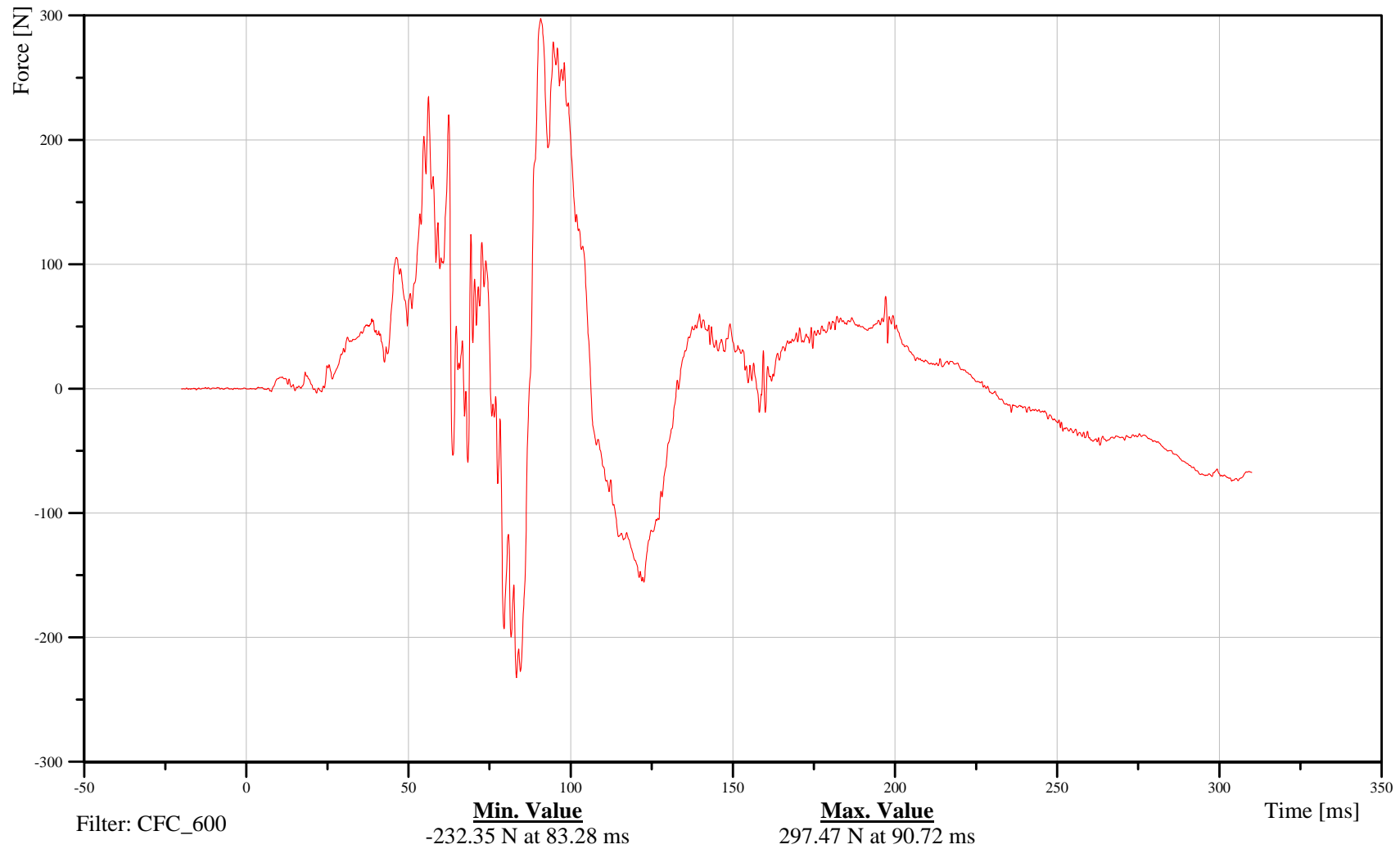
Time: 16:35

Customer: VRTC

### 21TIBILLXH3FOYB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-315

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

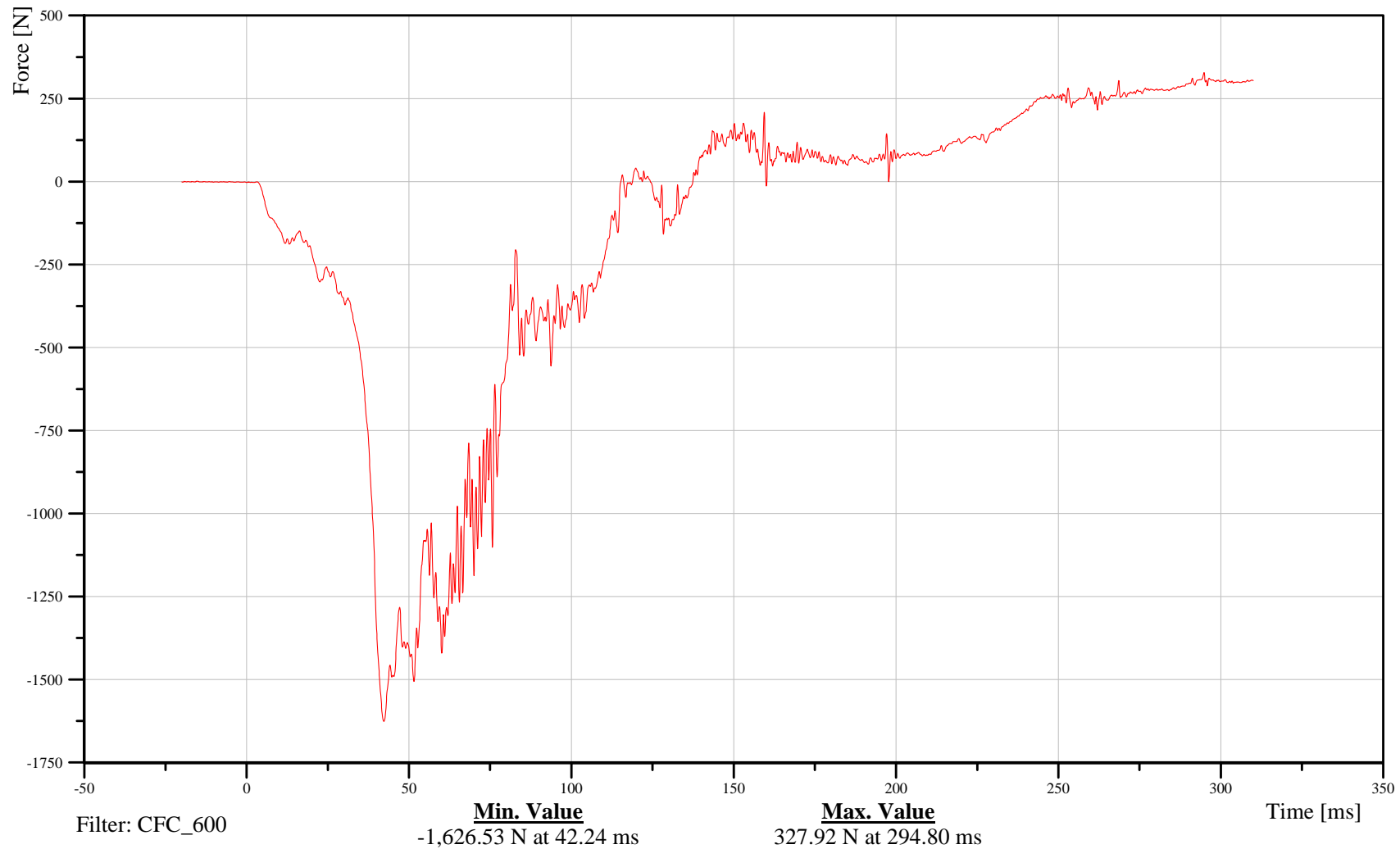
## Target Vehicle Driver Left Lower Tibia Z-Axis Force

Customer: VRTC

# 21TIBILLXH3FOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-316

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

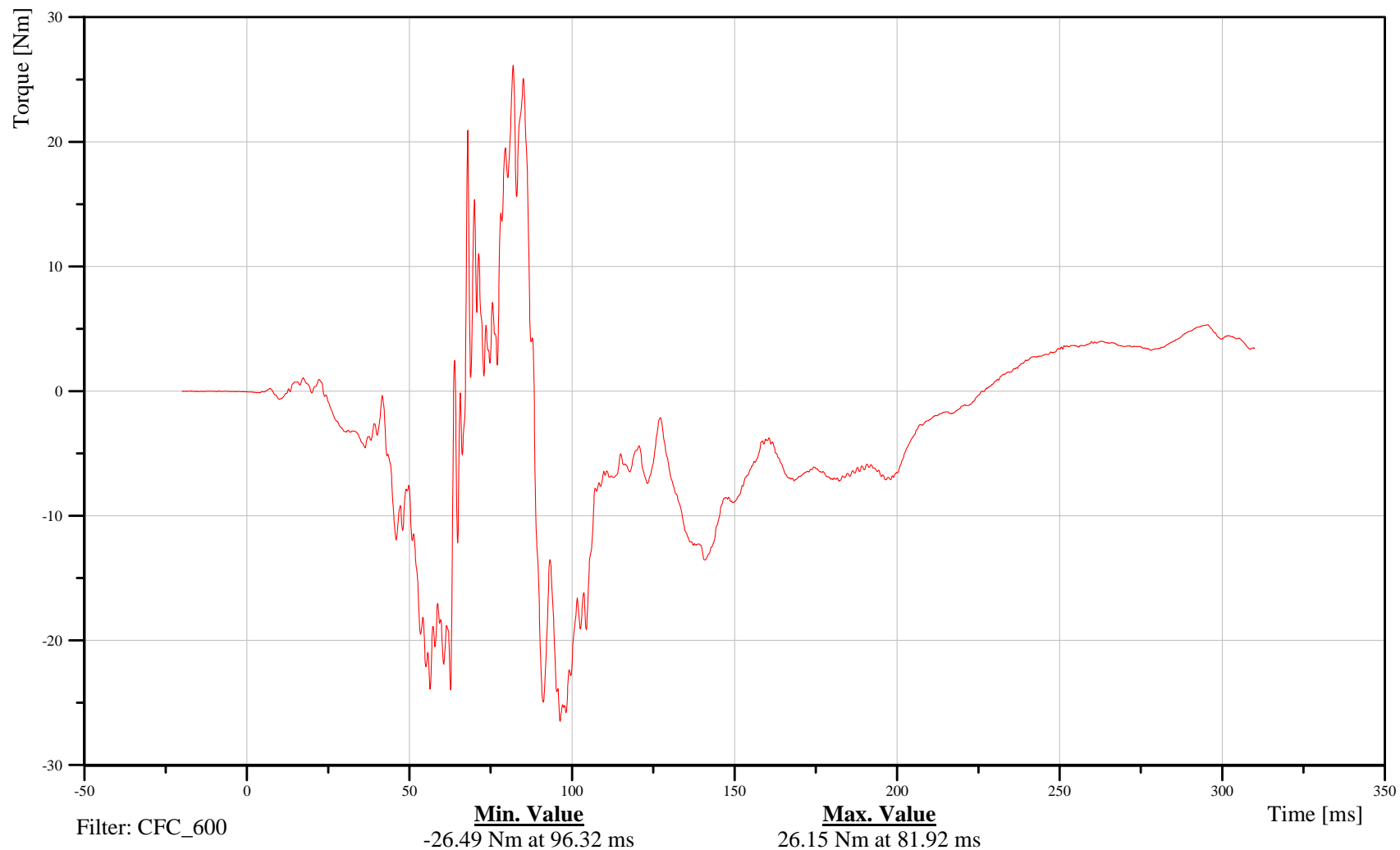
## Target Vehicle Driver Left Lower Tibia Moment About X Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21TIBILLXH3MOXB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-317

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

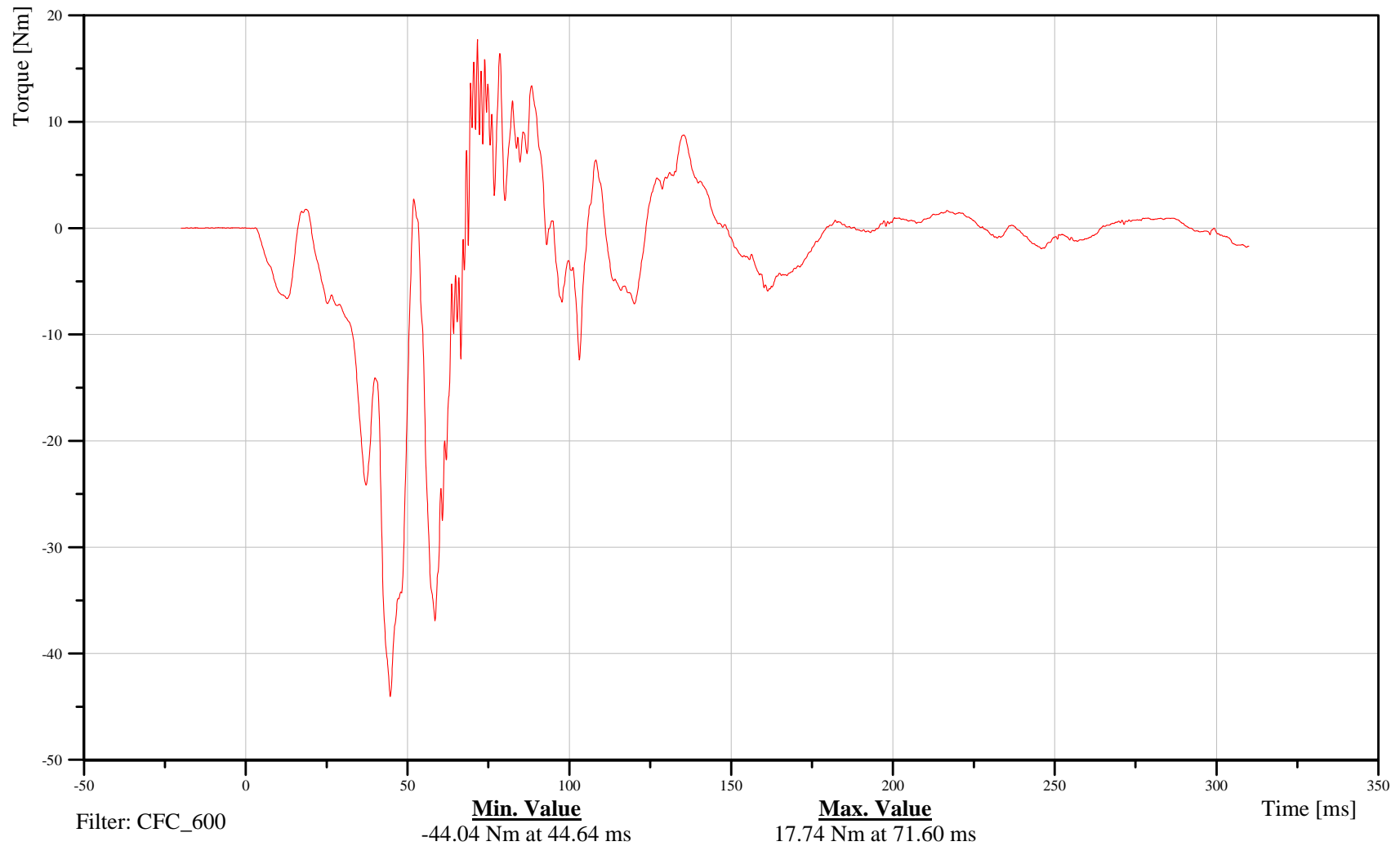
## Target Vehicle Driver Left Lower Tibia Moment About Y Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21TIBILLXH3MOYB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-318

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

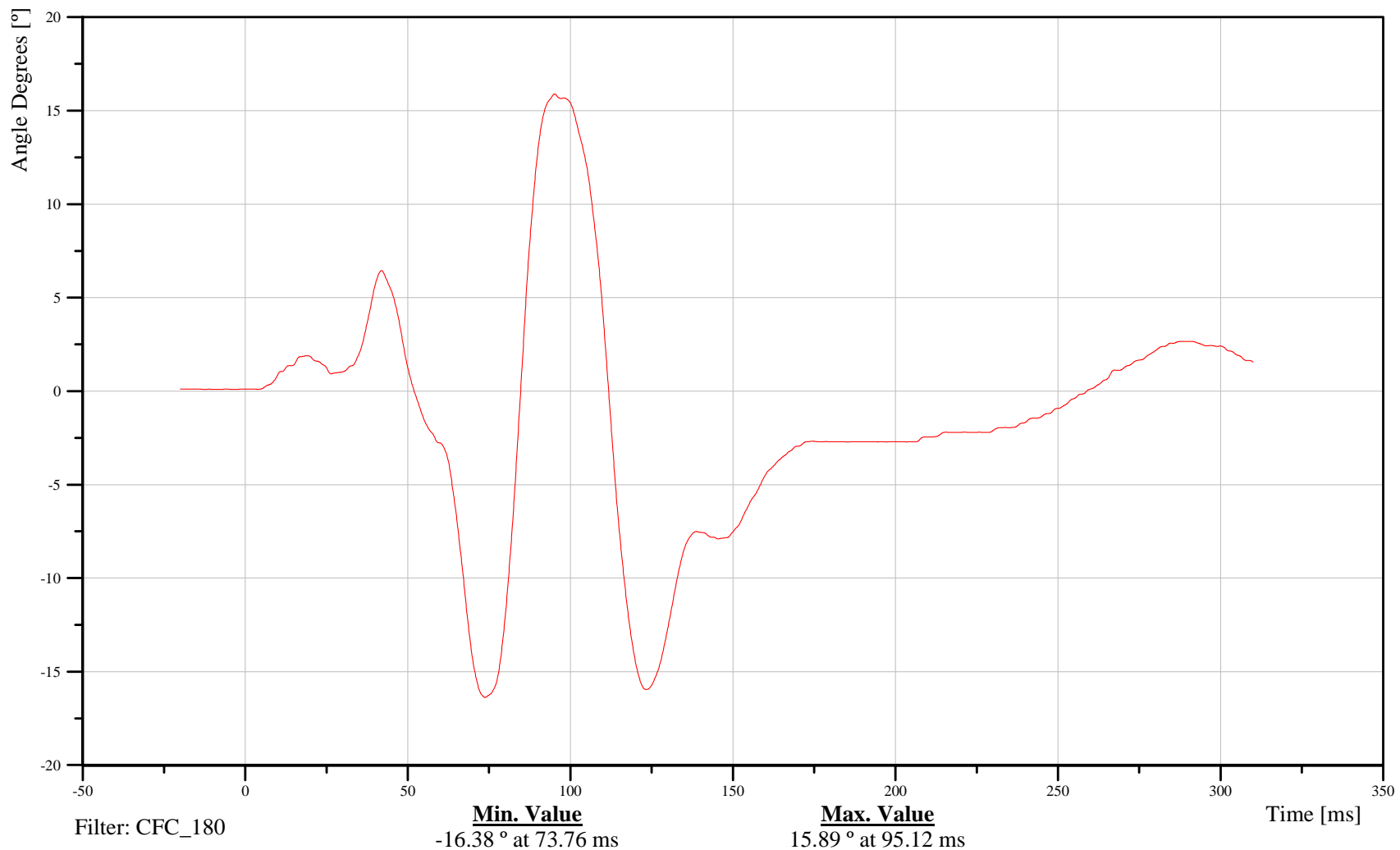
## Target Vehicle Driver Left Foot Angular X-Axis Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21FOOTLELXH3ANXC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-319

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

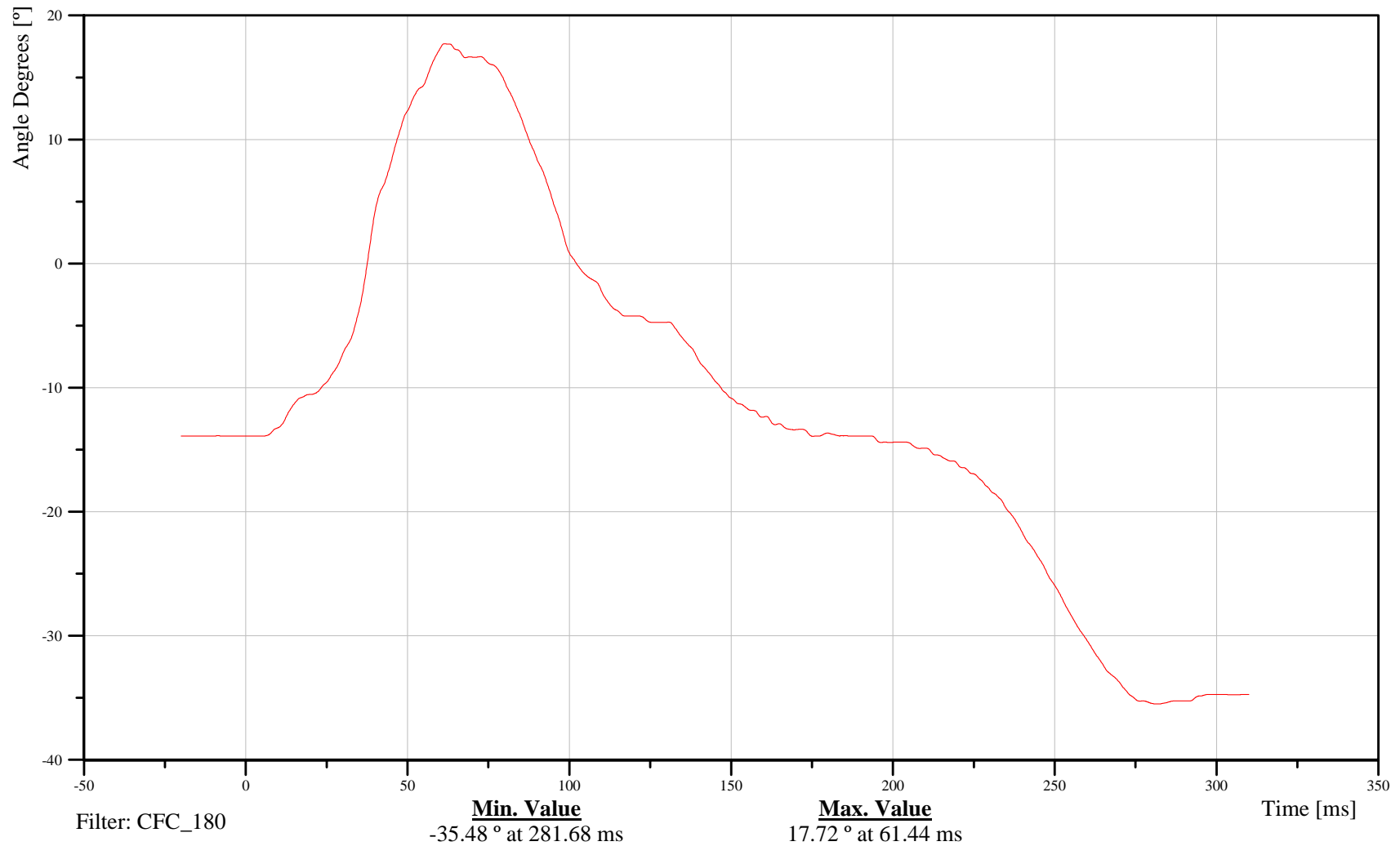
## Target Vehicle Driver Left Foot Angular Y-Axis Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21FOOTLELXH3ANYC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-320

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

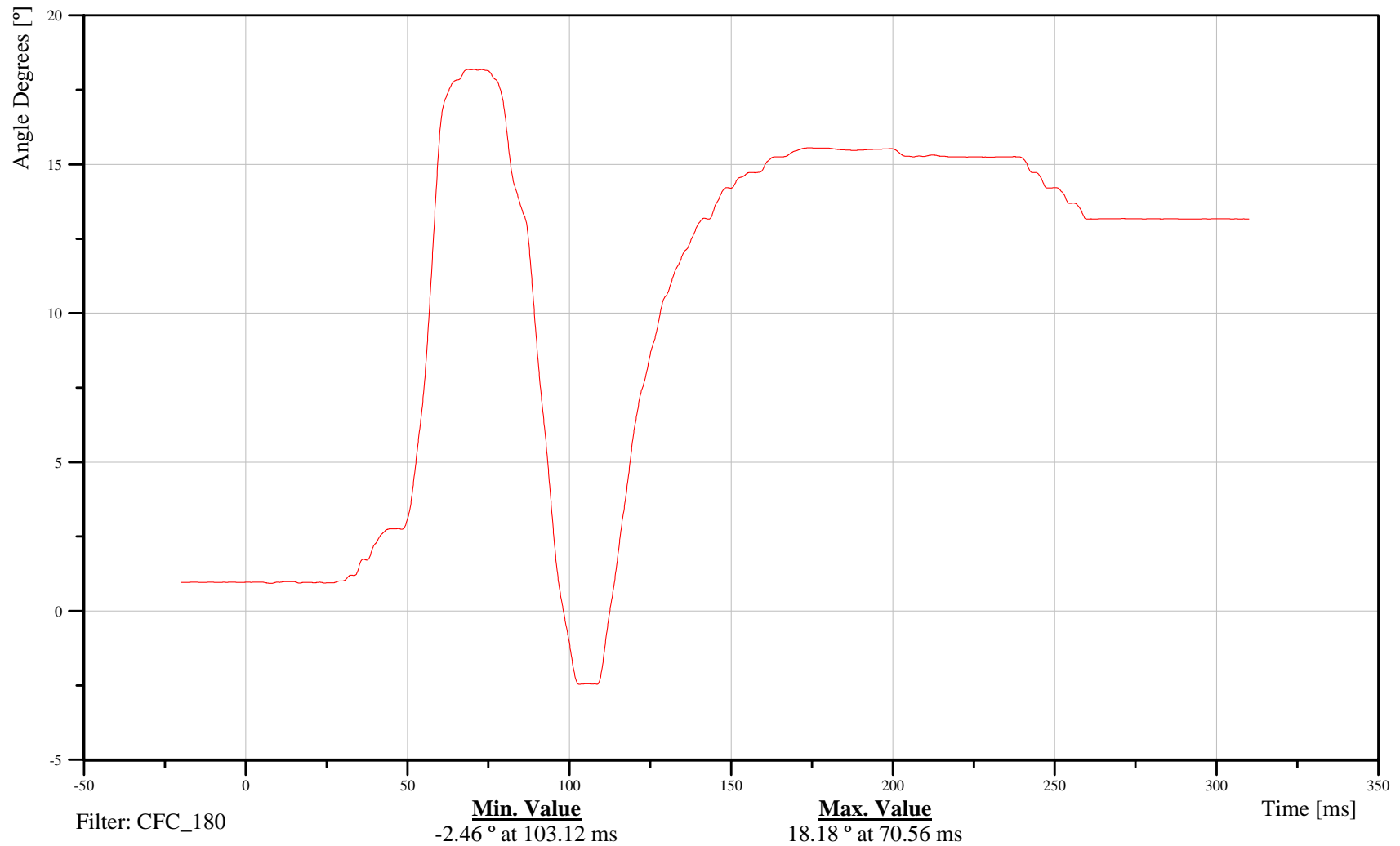
## Target Vehicle Driver Left Foot Angular Z-Axis Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21FOOTLELXH3ANZC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-321

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

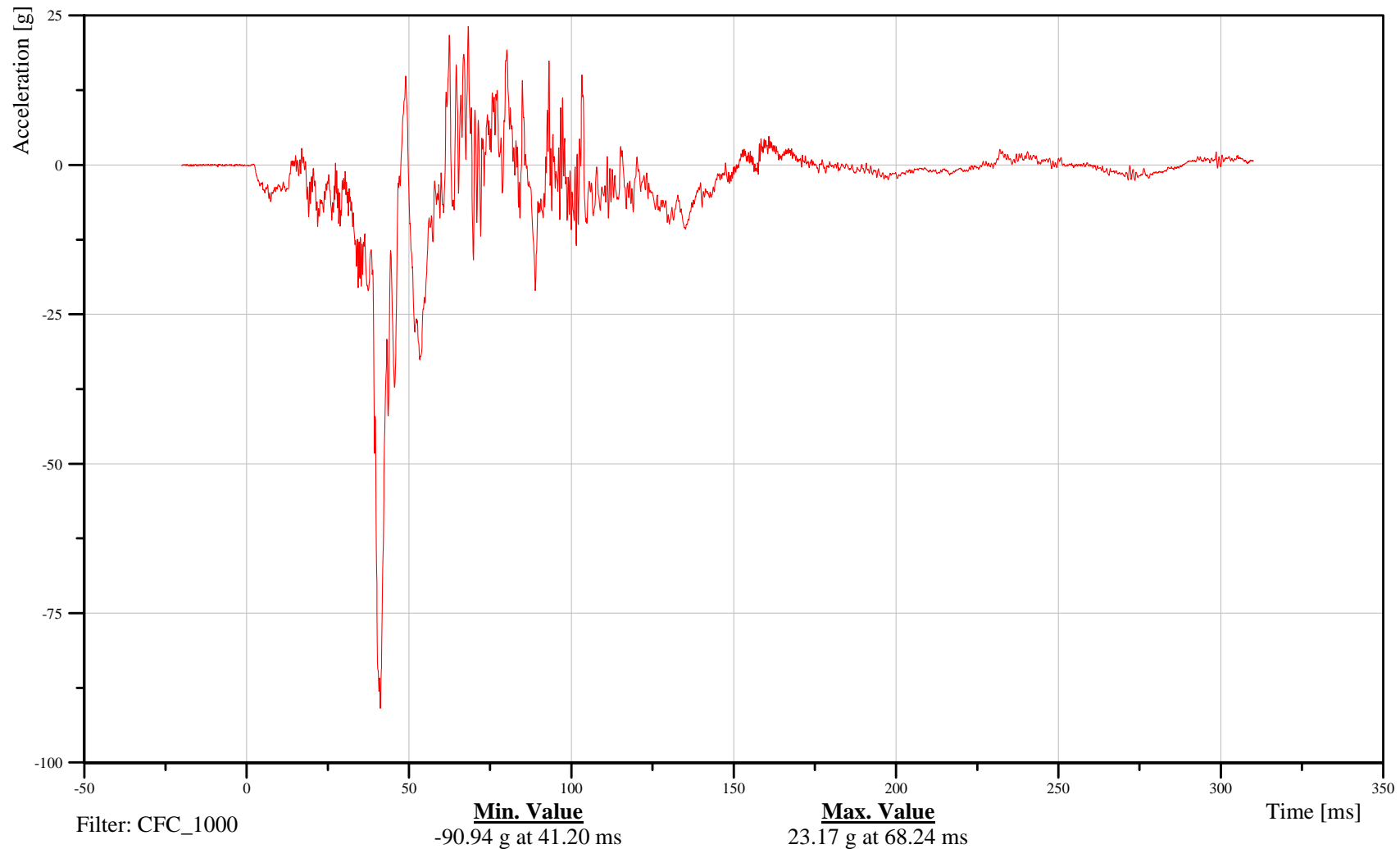
## Target Vehicle Driver Left Foot X-Axis Acceleration

Customer: VRTC

# 21FOOTLELXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-322

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Left Foot Y-Axis Acceleration

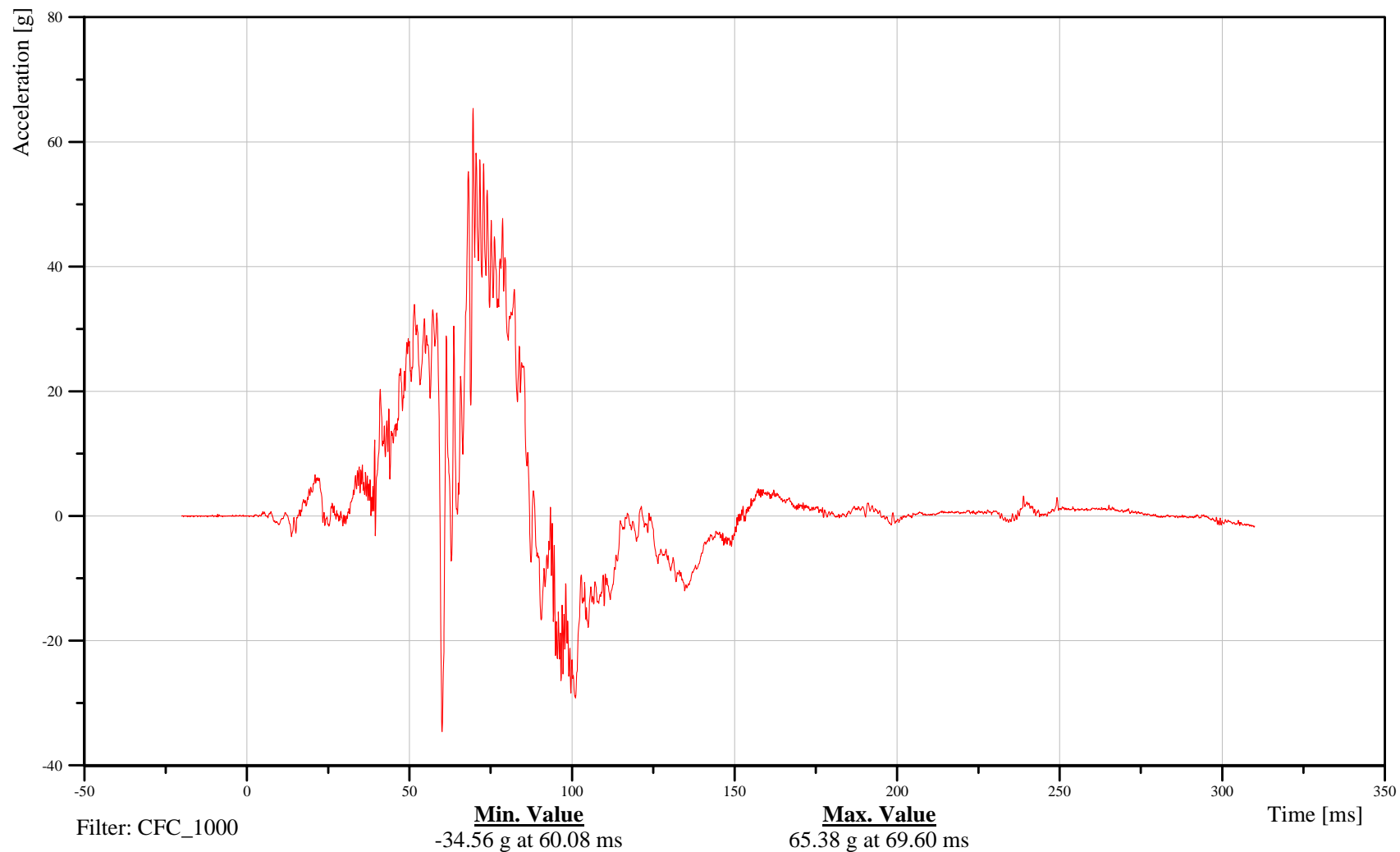
Time: 16:35

Customer: VRTC

# 21FOOTLELXH3ACYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-323

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

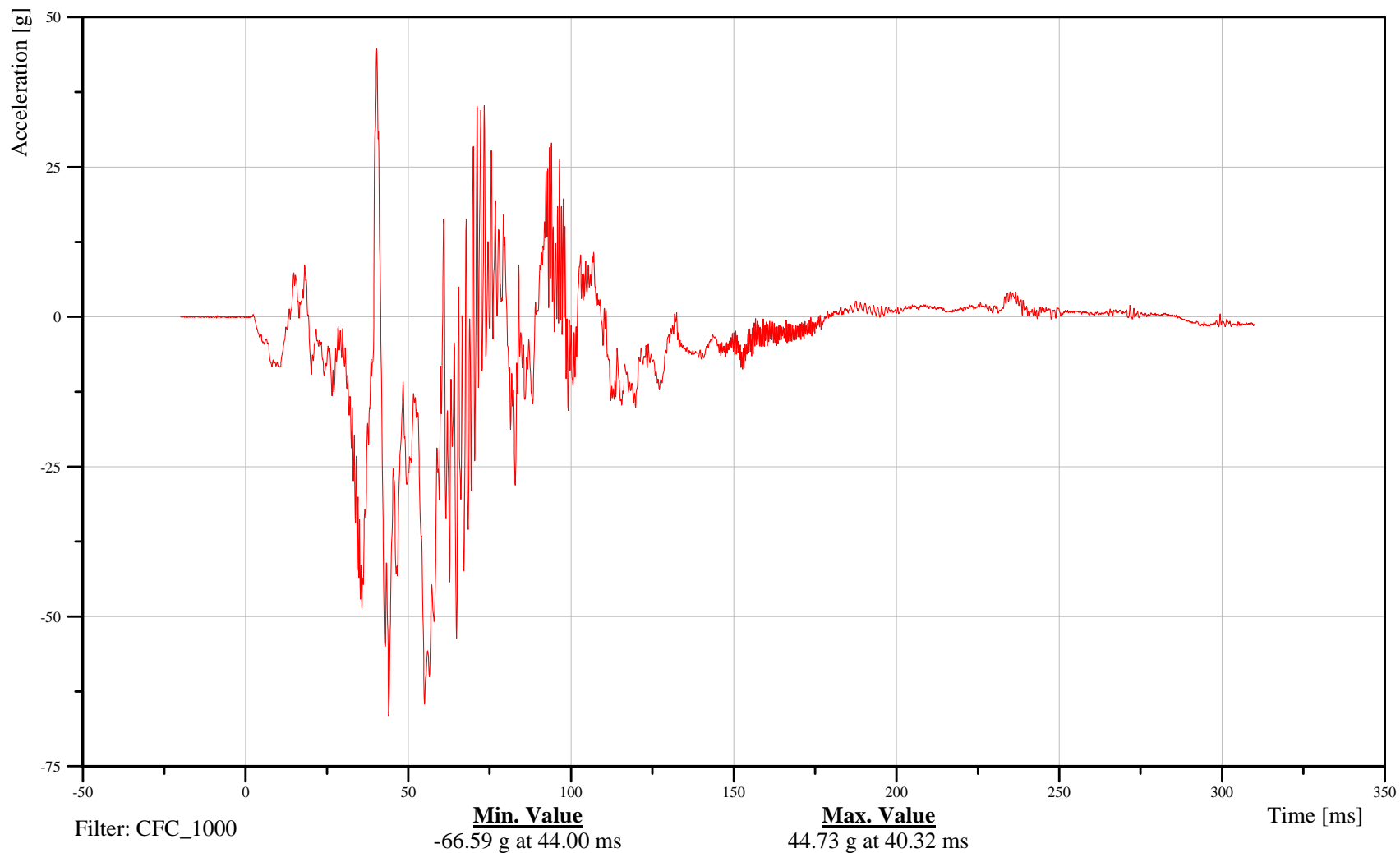
## Target Vehicle Driver Left Foot Z-Axis Acceleration

Customer: VRTC

# 21FOOTLELXH3ACZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-324

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Left Foot Resultant Acceleration

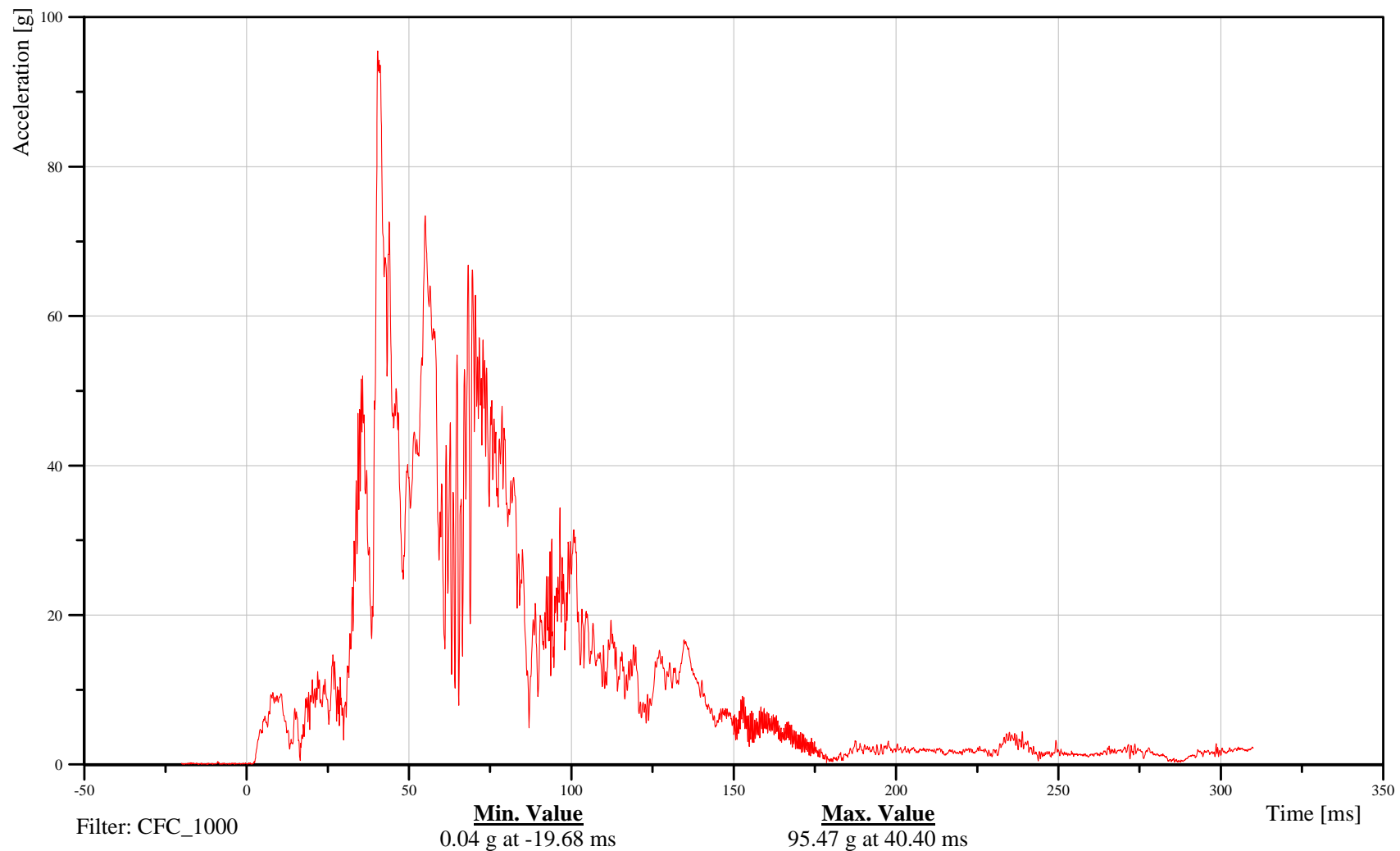
Time: 16:35

Customer: VRTC

# 21FOOTLELXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-325

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

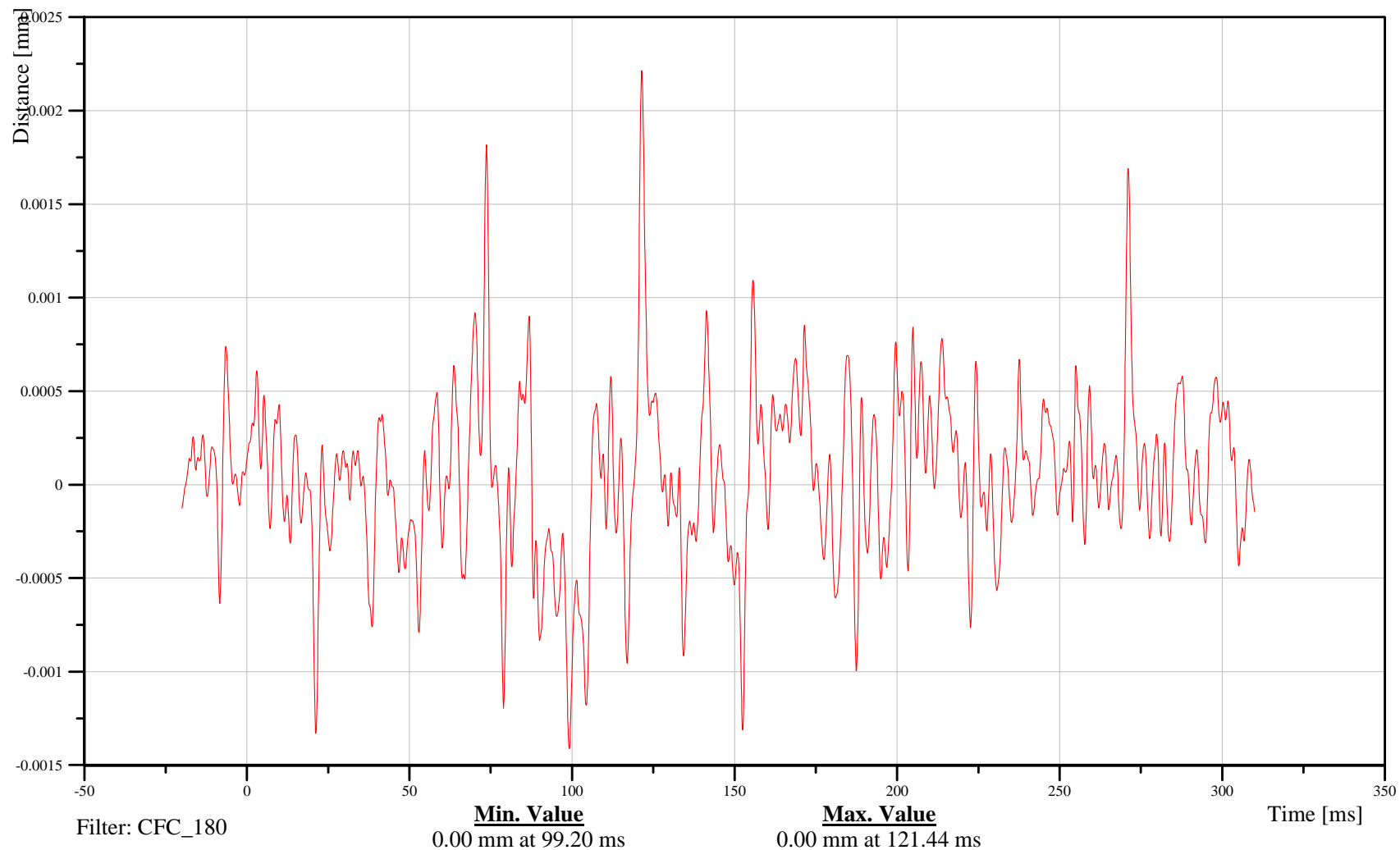
## Target Vehicle Driver Right Knee X-Axis Displacement

Customer: VRTC

# 21KNSLRI00H3DSXC

TRC Inc. Test Lab: CTF

Test Number: 091020



B-326

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

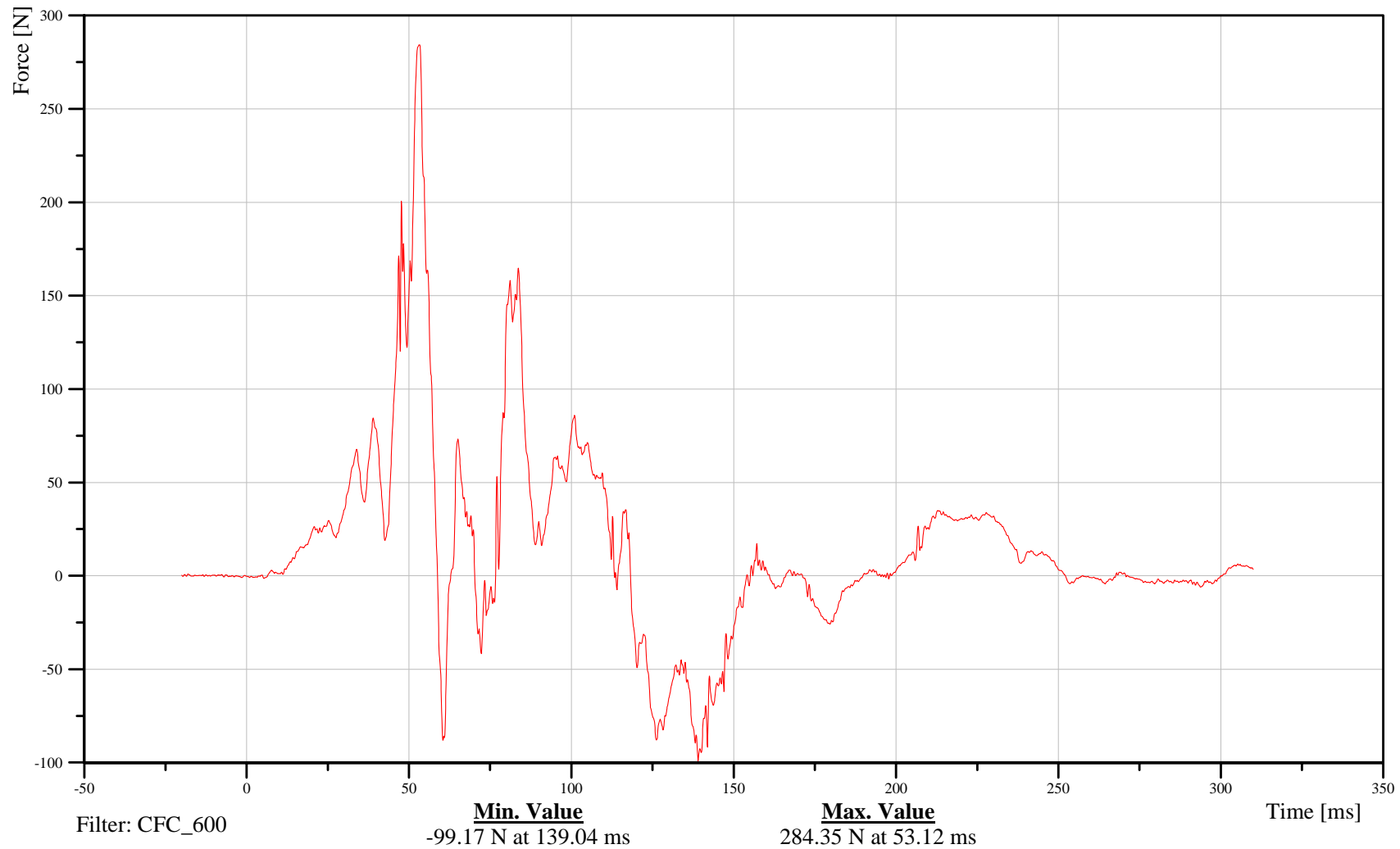
## Target Vehicle Driver Right Upper Tibia X-Axis Force

Customer: VRTC

# 21TIBIRULXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-327

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

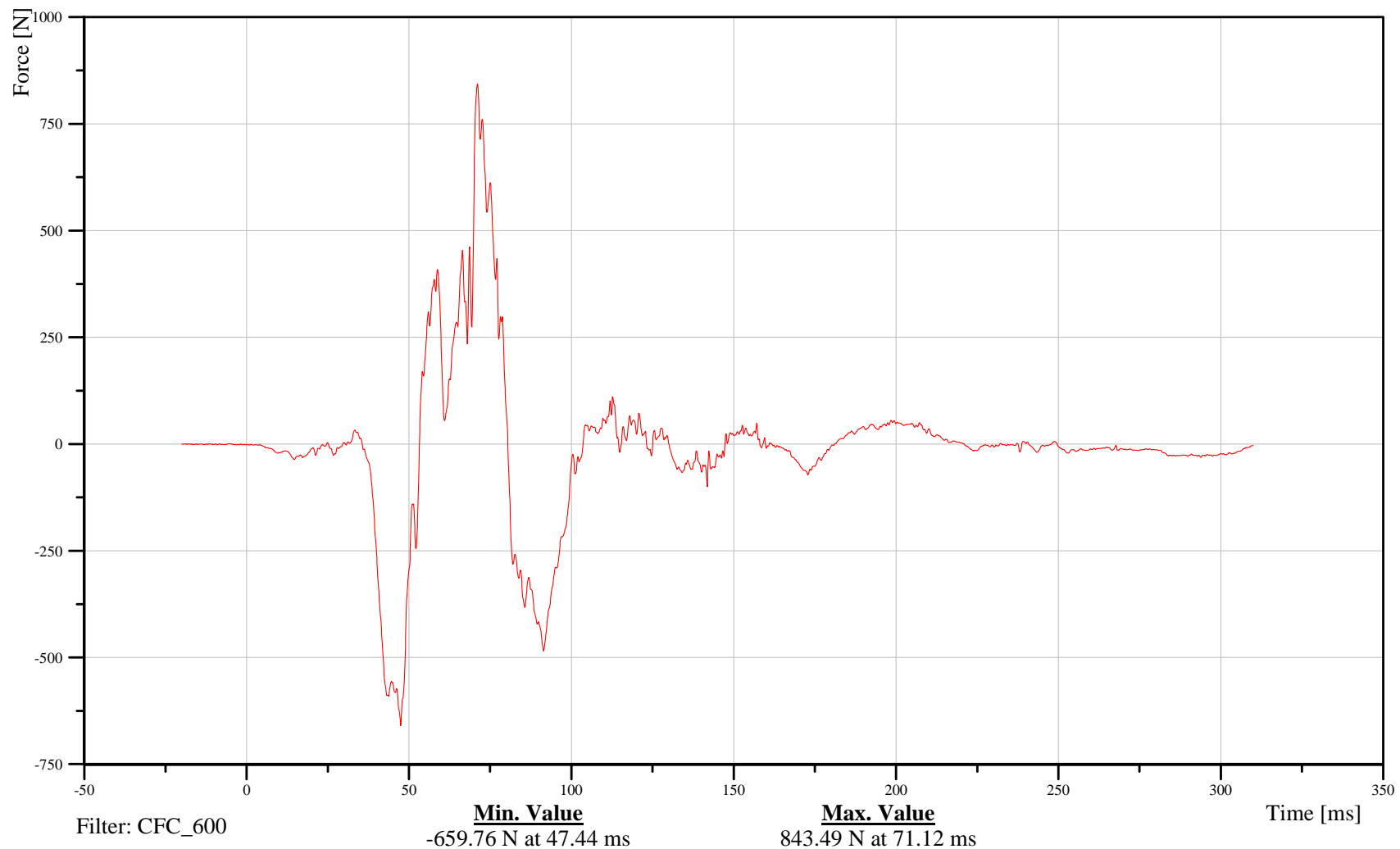
## Target Vehicle Driver Right Upper Tibia Z-Axis Force

Customer: VRTC

# 21TIBIRULXH3FOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-328

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

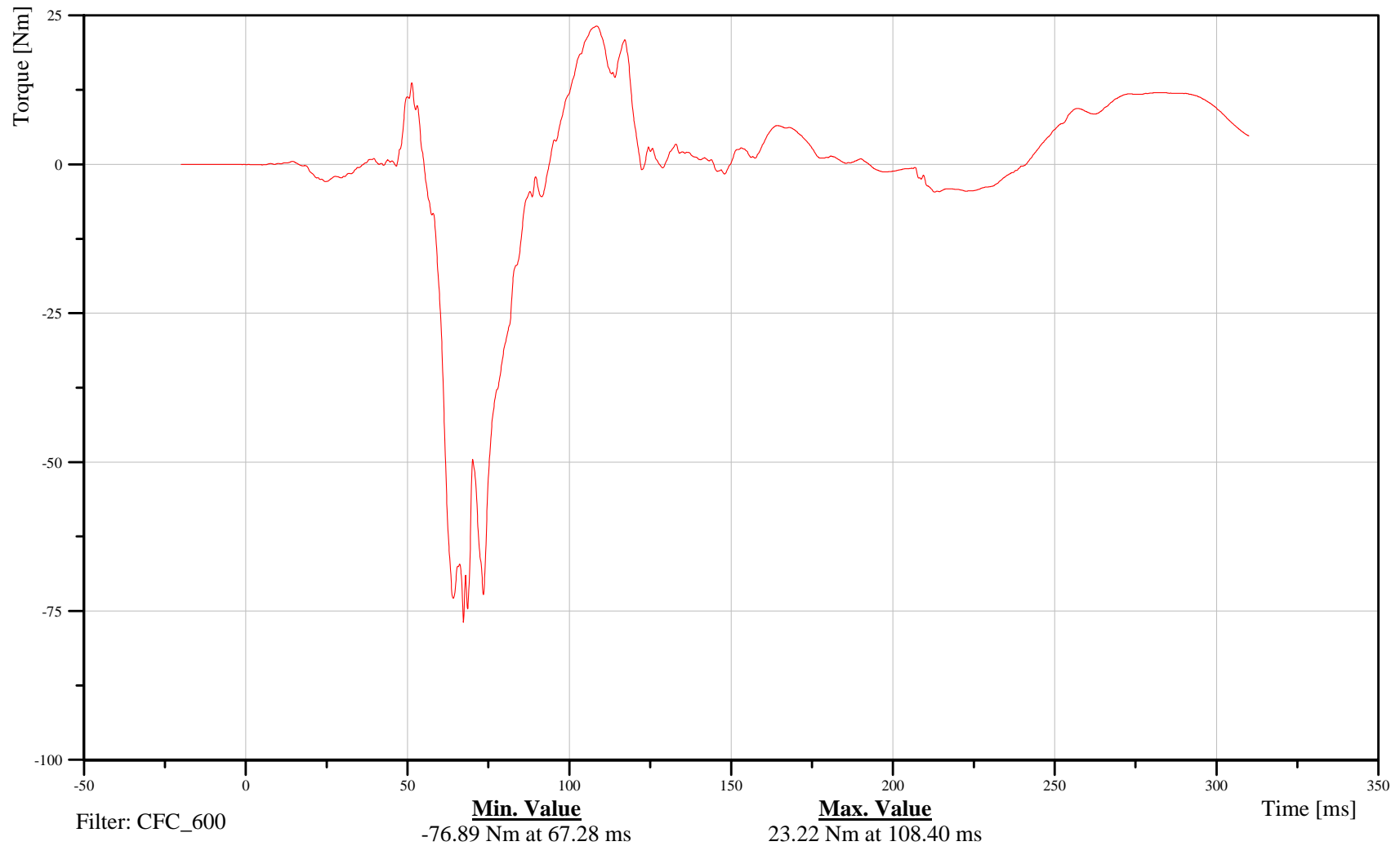
## Target Vehicle Driver Right Upper Tibia Moment About X Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21TIBIRULXH3MOXB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-329

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

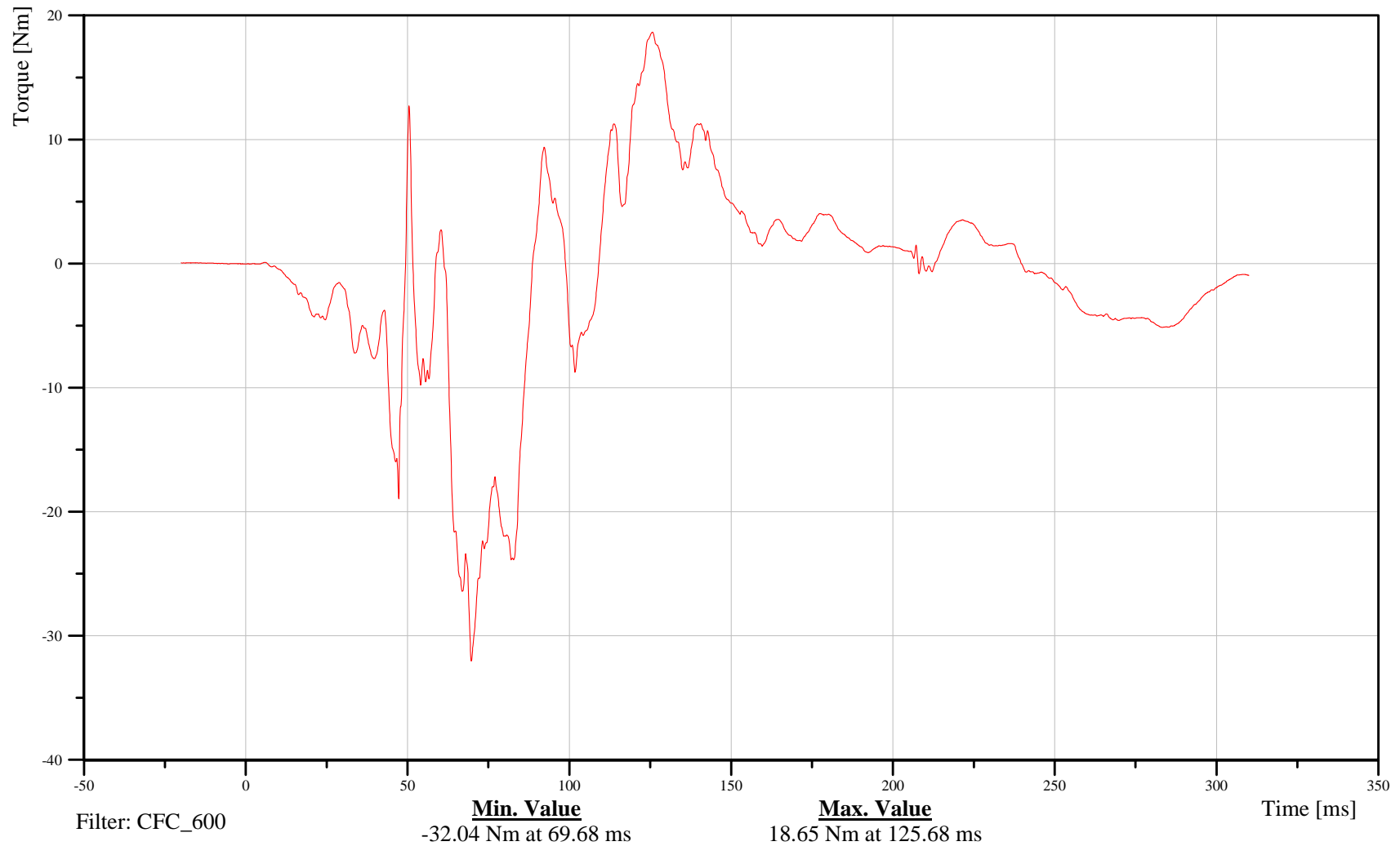
## Target Vehicle Driver Right Upper Tibia Moment About Y Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21TIBIRULXH3MOYB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-330

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

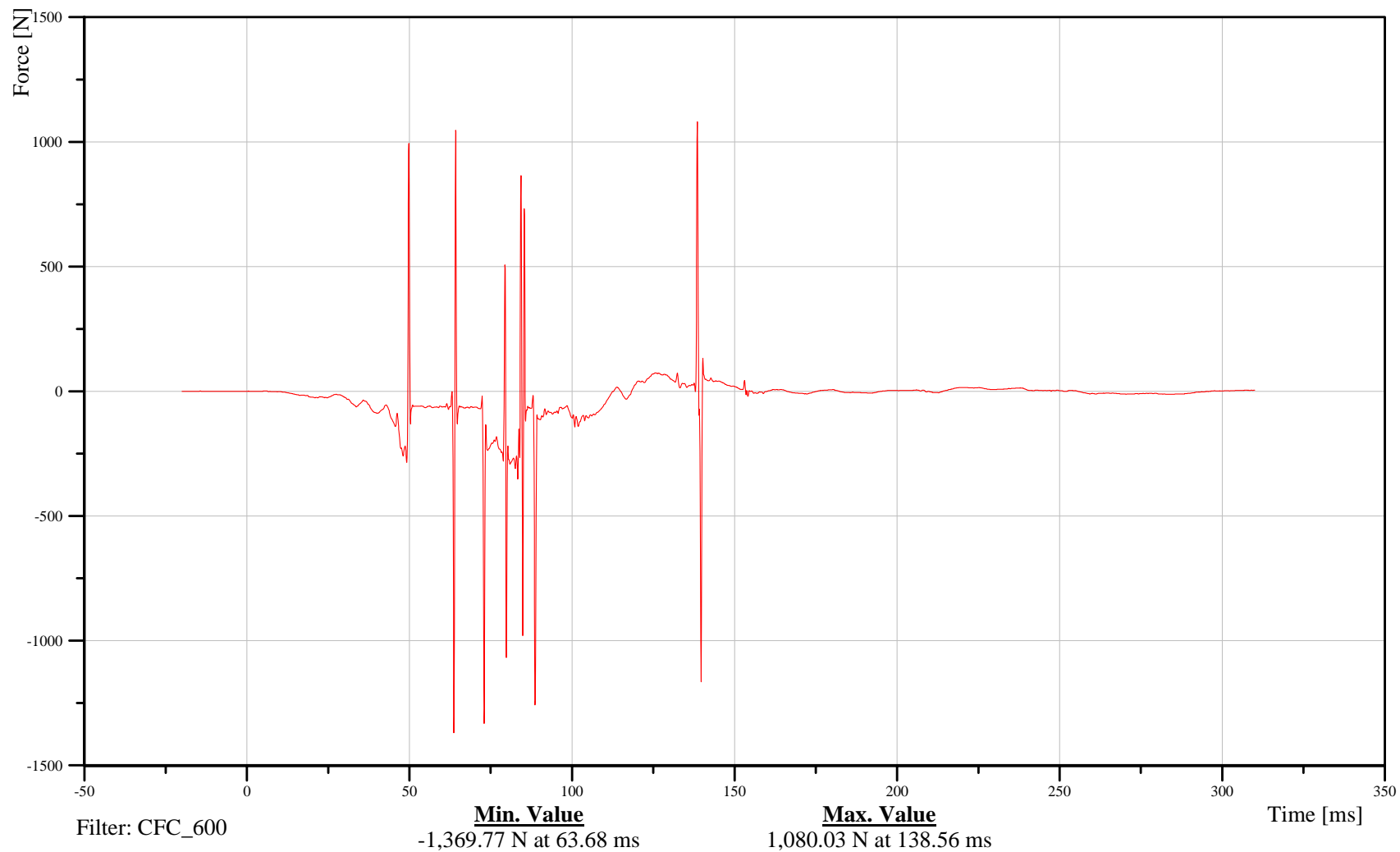
## Target Vehicle Driver Right Lower Tibia X-Axis Force

Customer: VRTC

# 21TIBIRLLXH3FOXB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-331

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

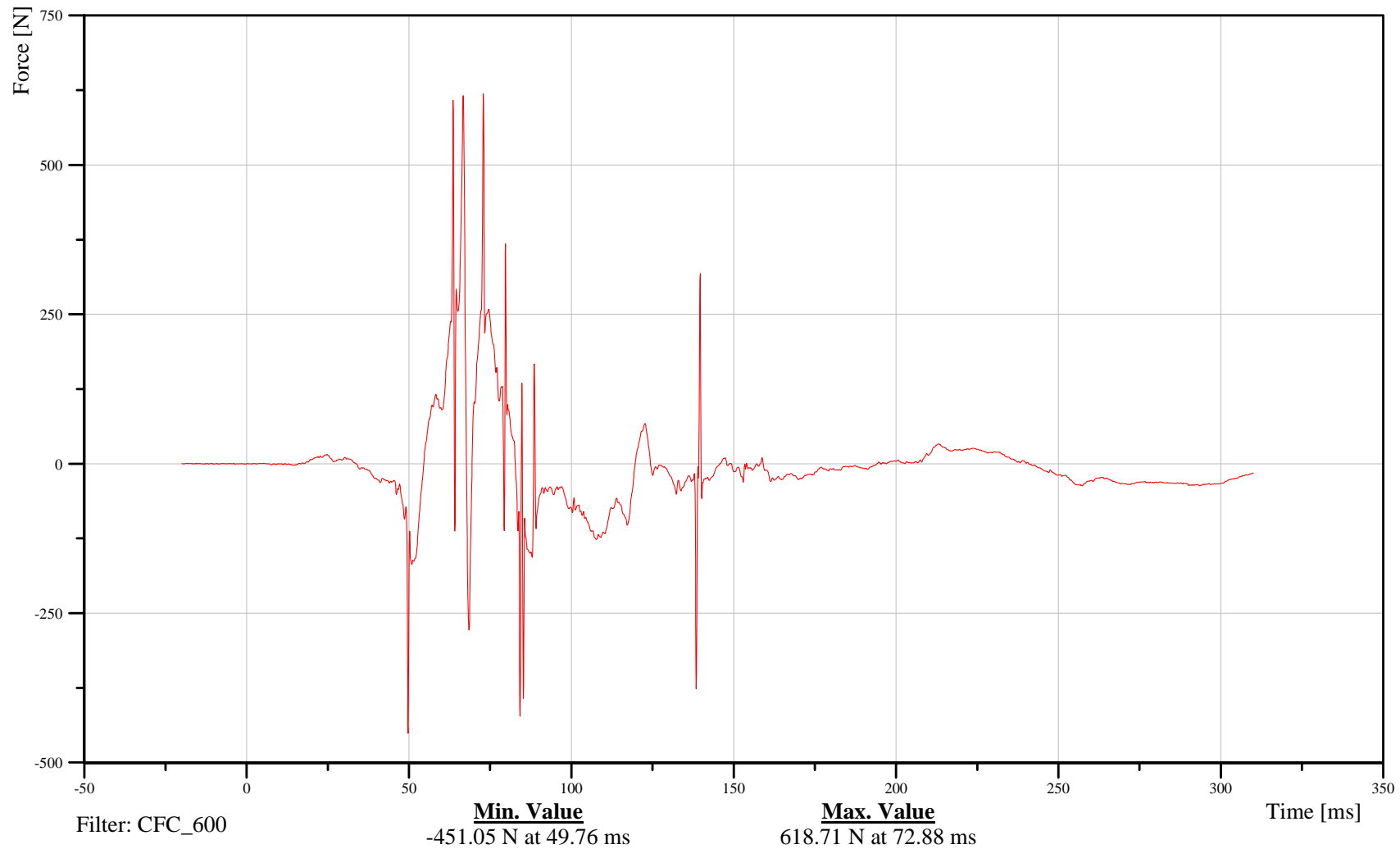
## Target Vehicle Driver Right Lower Tibia Y-Axis Force

Customer: VRTC

# 21TIBIRLLXH3FOYB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-332

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

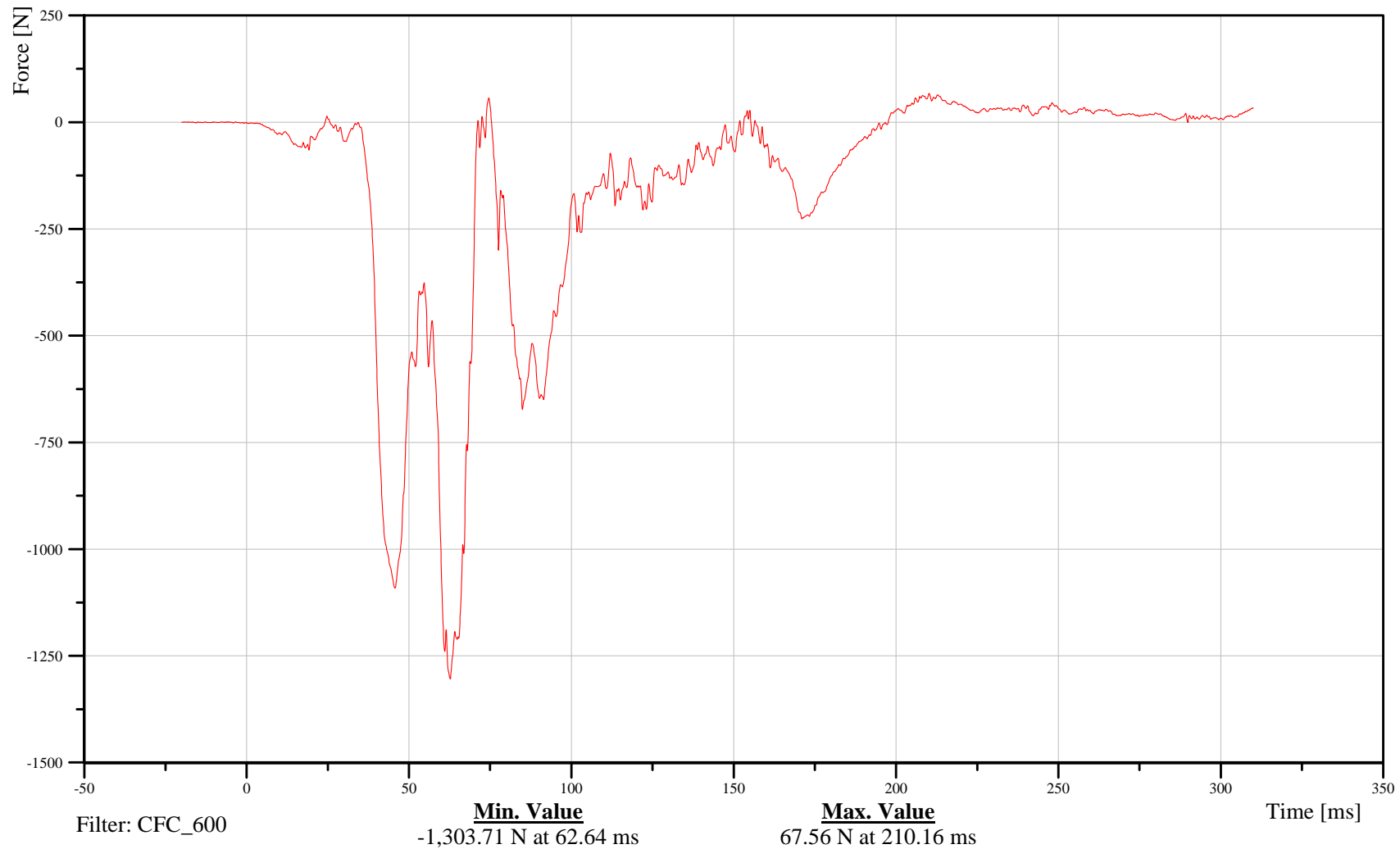
## Target Vehicle Driver Right Lower Tibia Z-Axis Force

Customer: VRTC

# 21TIBIRLLXH3FOZB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-333

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

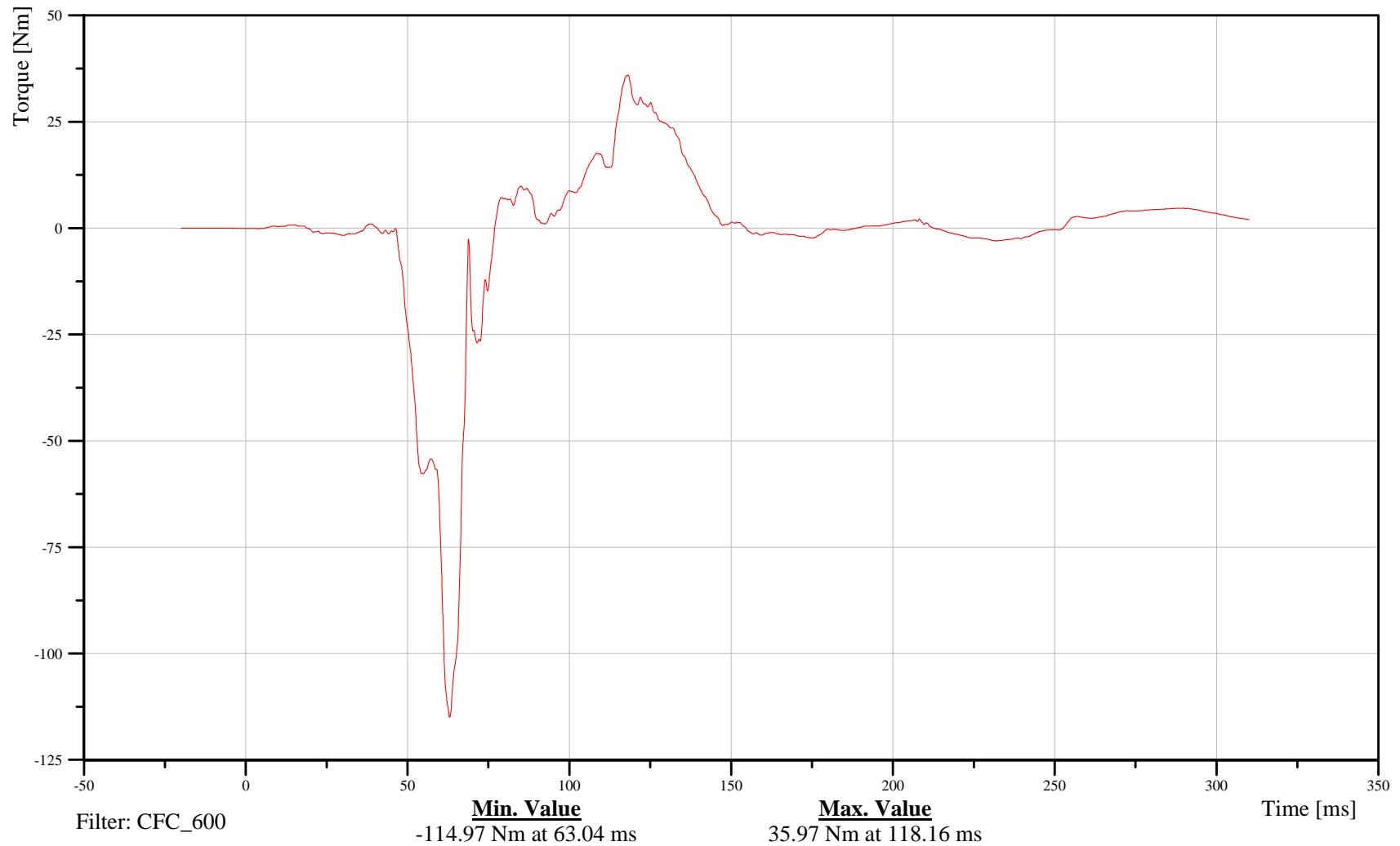
## Target Vehicle Driver Right Lower Tibia Moment About X Axis

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21TIBIRLLXH3MOXB

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-334

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Target Vehicle Driver Right Lower Tibia Moment About Y Axis

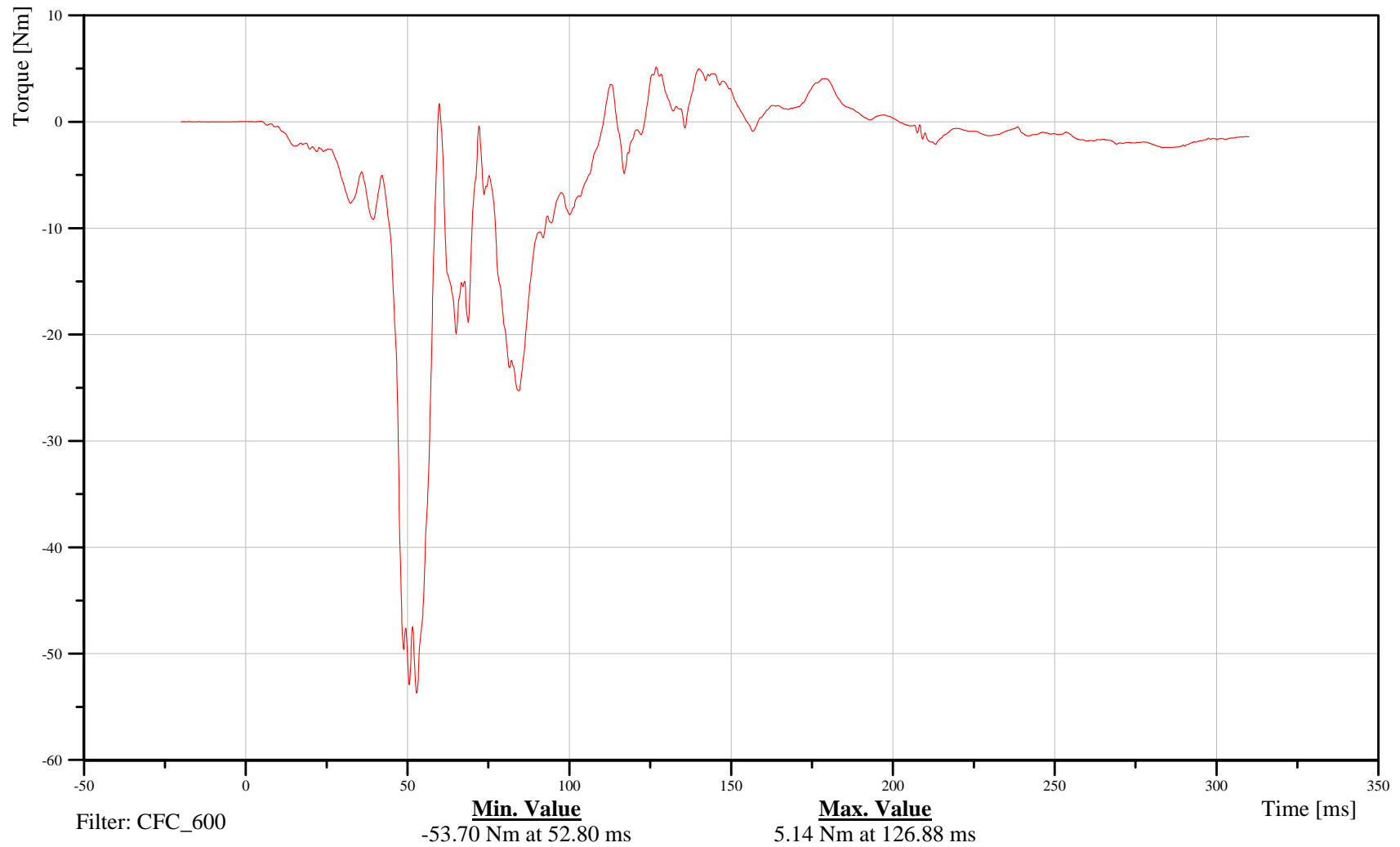
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21TIBIRLLXH3MOYB

TRC Inc. Test Lab: CTF

Test Number: 091020



B-335

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

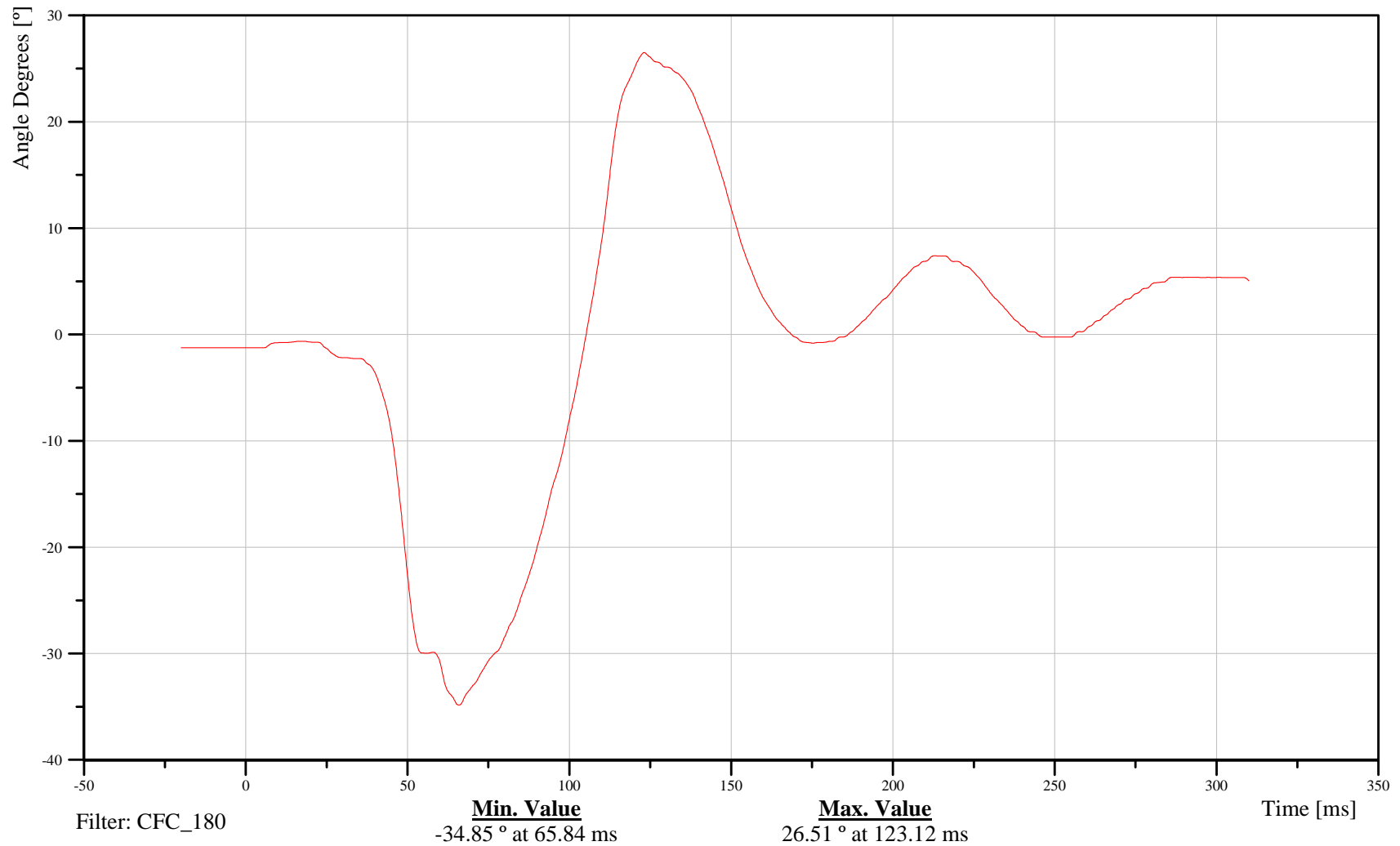
## Target Vehicle Driver Right Foot Angular X-Axis Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21FOOTRILXH3ANXC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-336

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

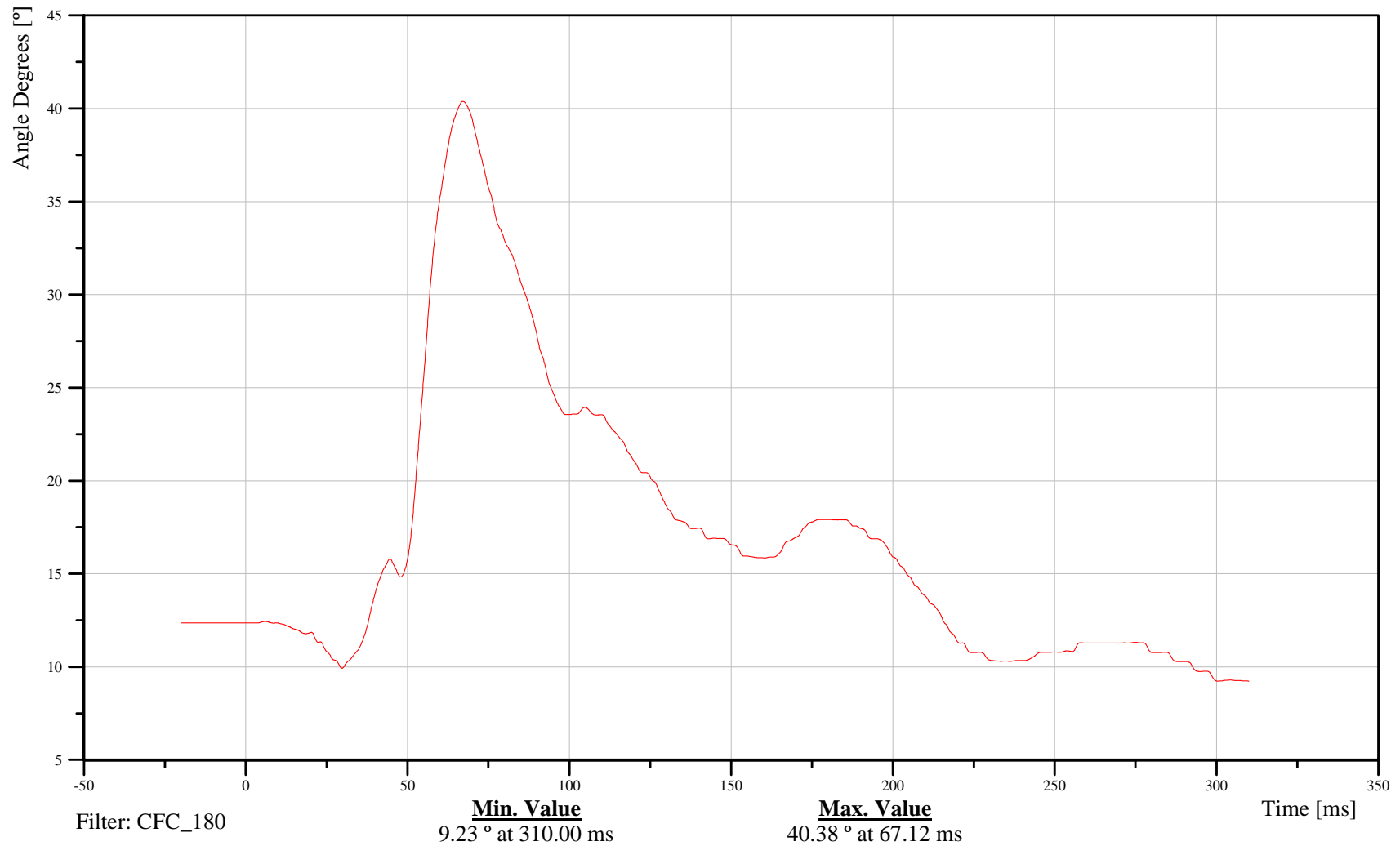
## Target Vehicle Driver Right Foot Angular Y-Axis Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

# 21FOOTRILXH3ANYC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-337

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

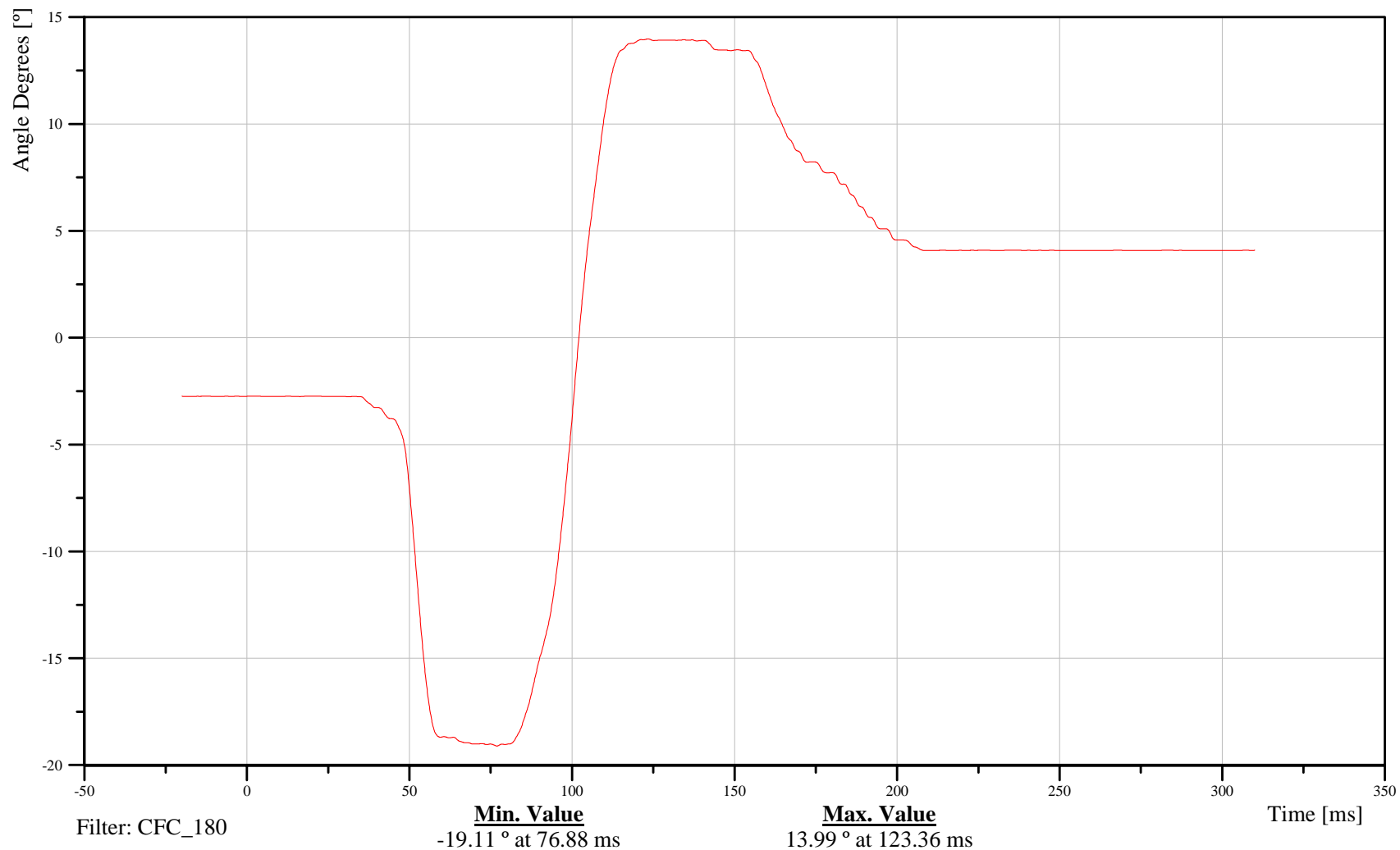
## Target Vehicle Driver Right Foot Angular Z-Axis Displacement

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 21FOOTRILXH3ANZC

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-338

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

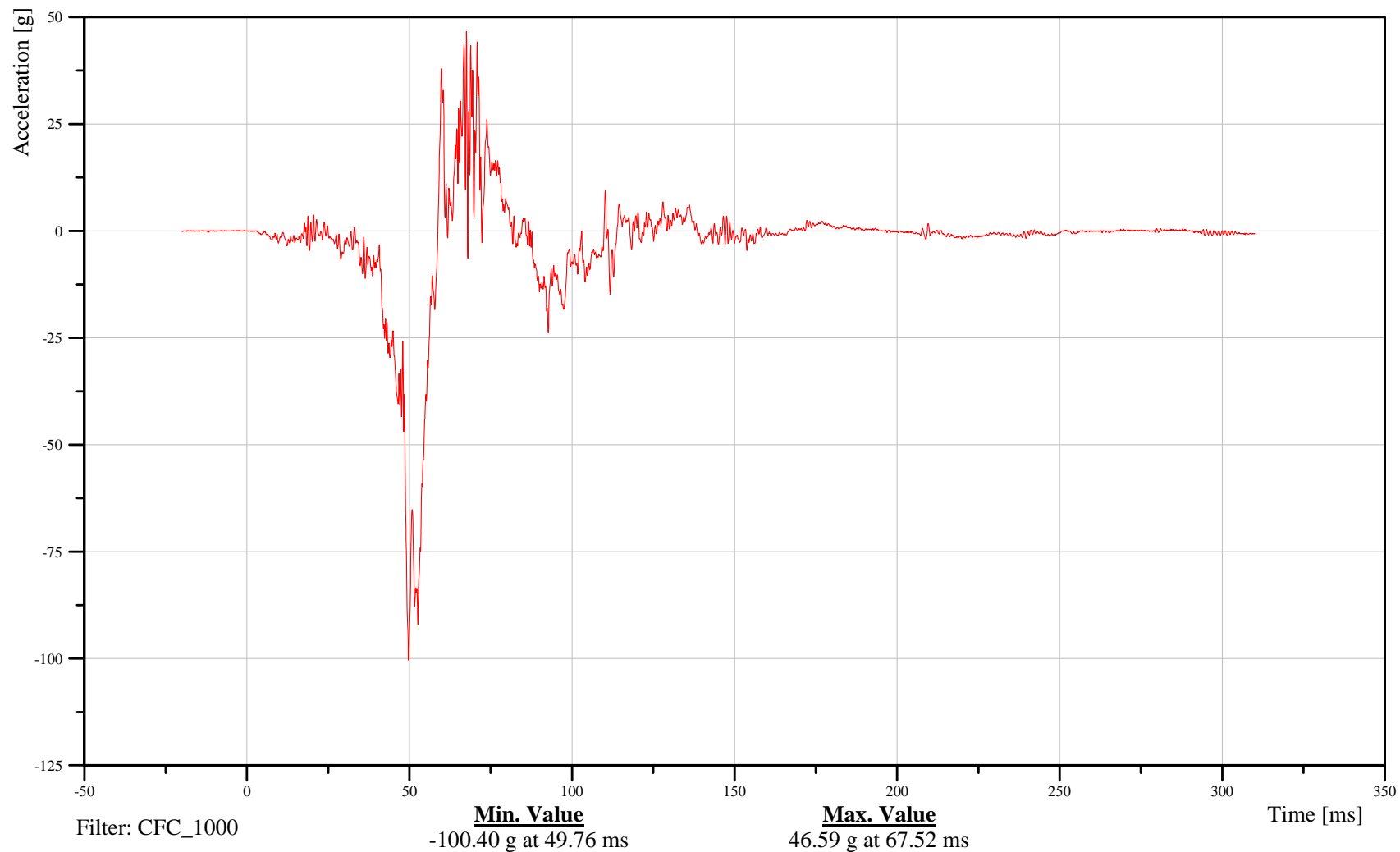
## Target Vehicle Driver Right Foot X-Axis Acceleration

Customer: VRTC

# 21FOOTRILXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-339

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

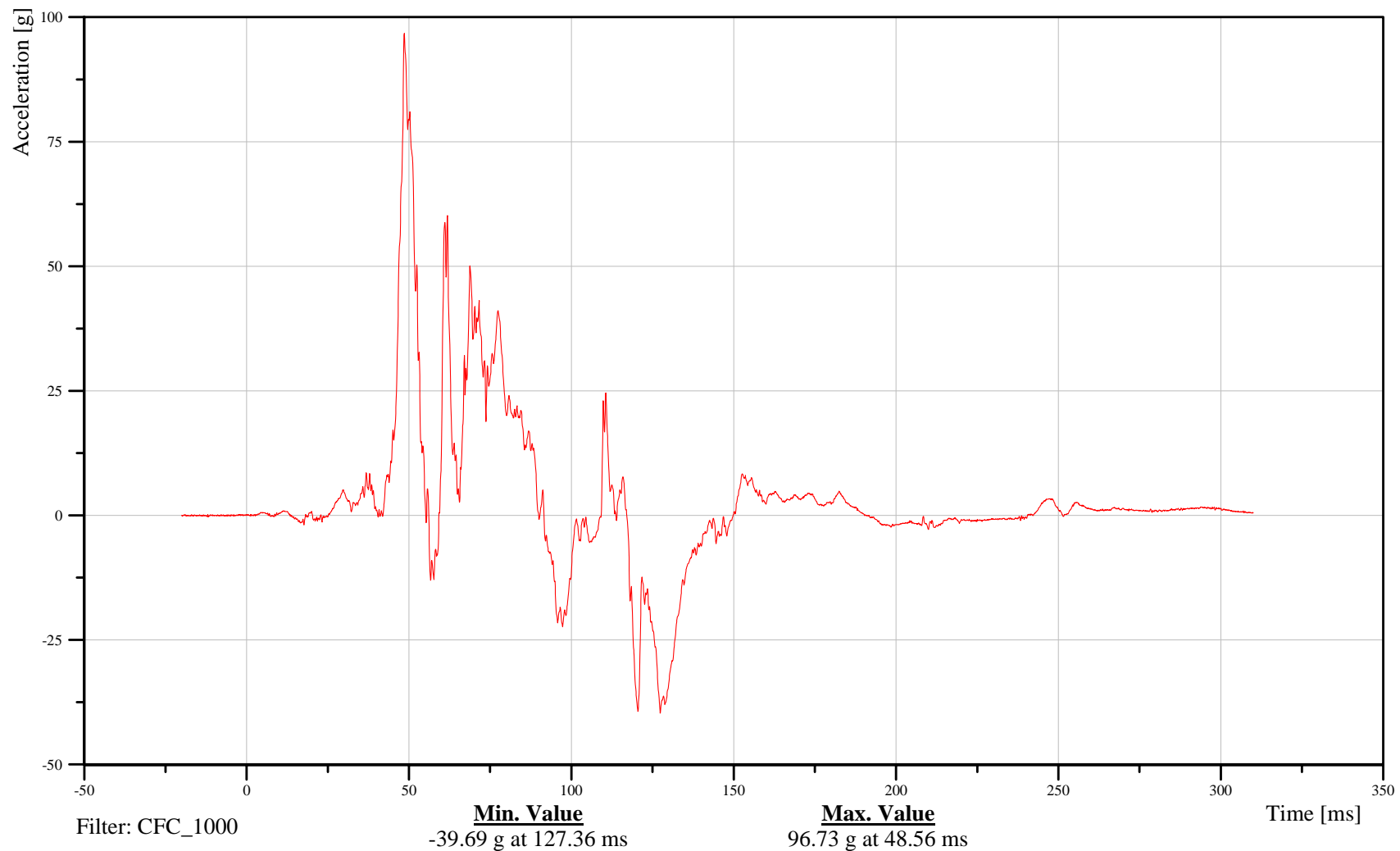
## Target Vehicle Driver Right Foot Y-Axis Acceleration

Customer: VRTC

# 21FOOTRILXH3ACYA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-340

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

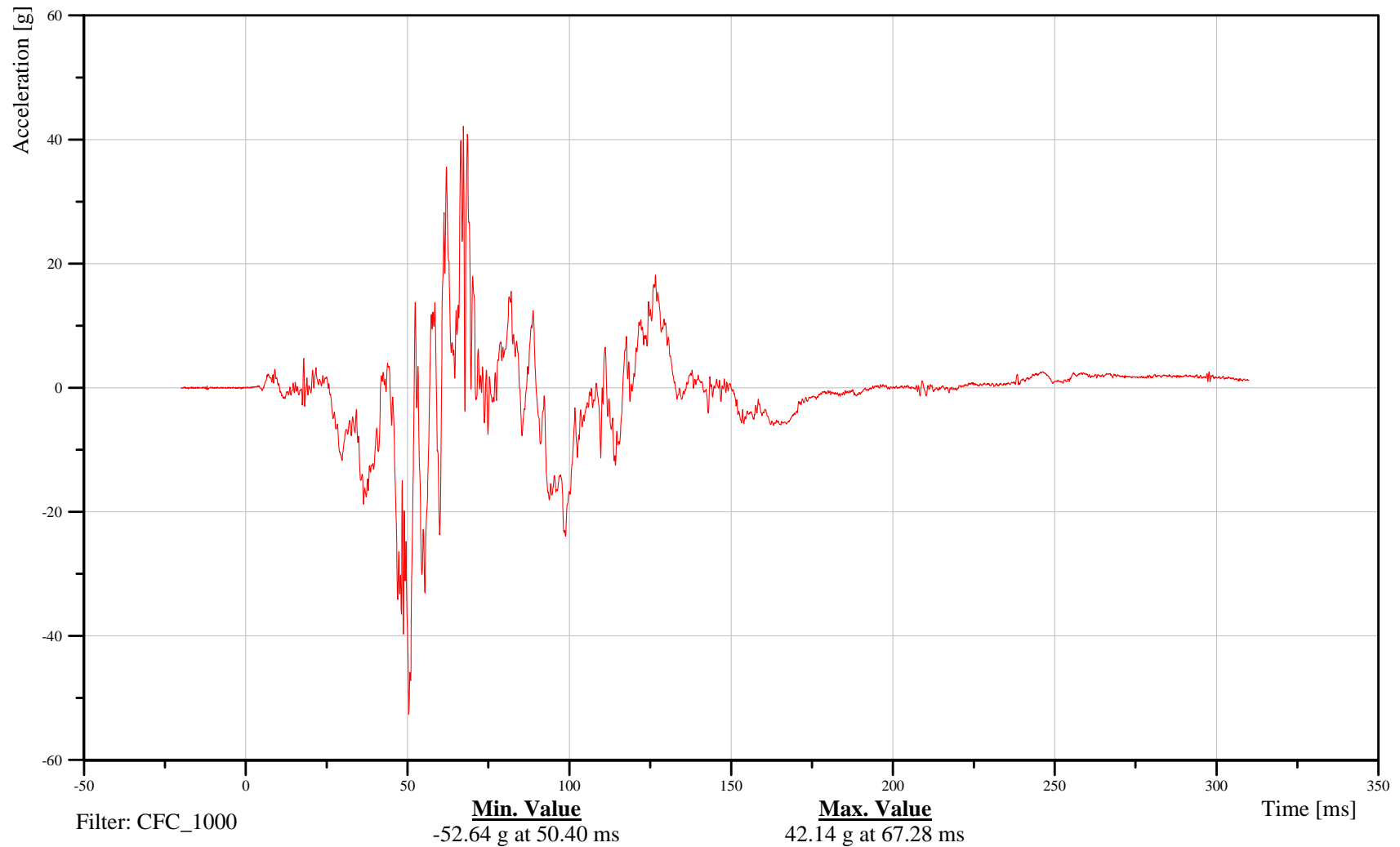
## Target Vehicle Driver Right Foot Z-Axis Acceleration

Customer: VRTC

# 21FOOTRILXH3ACZA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-341

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

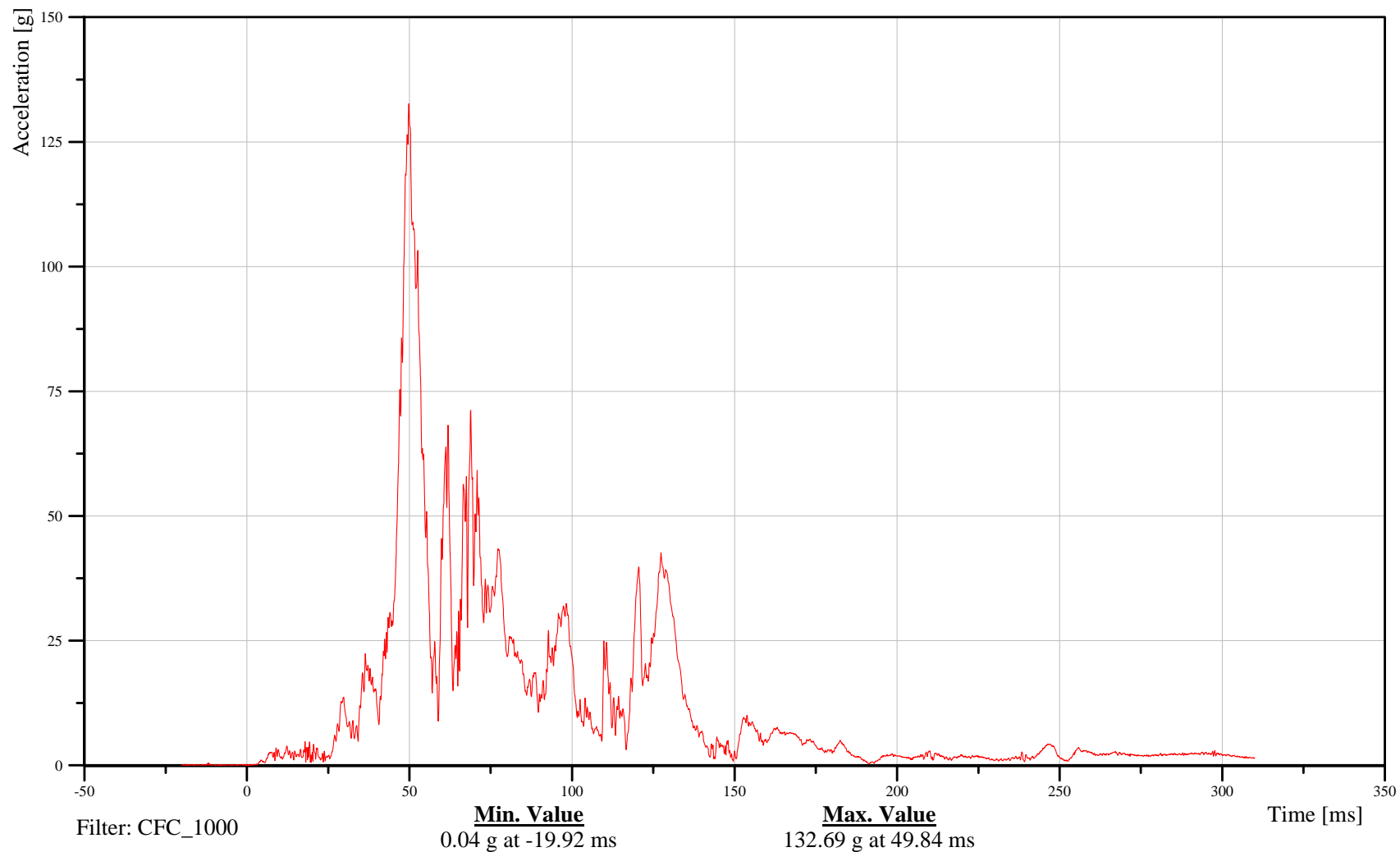
## Target Vehicle Driver Right Foot Resultant Acceleration

Customer: VRTC

# 21FOOTRILXH3ACXA

TRC Inc. Test Lab: CTF

Test Number: 091020



B-342

091020



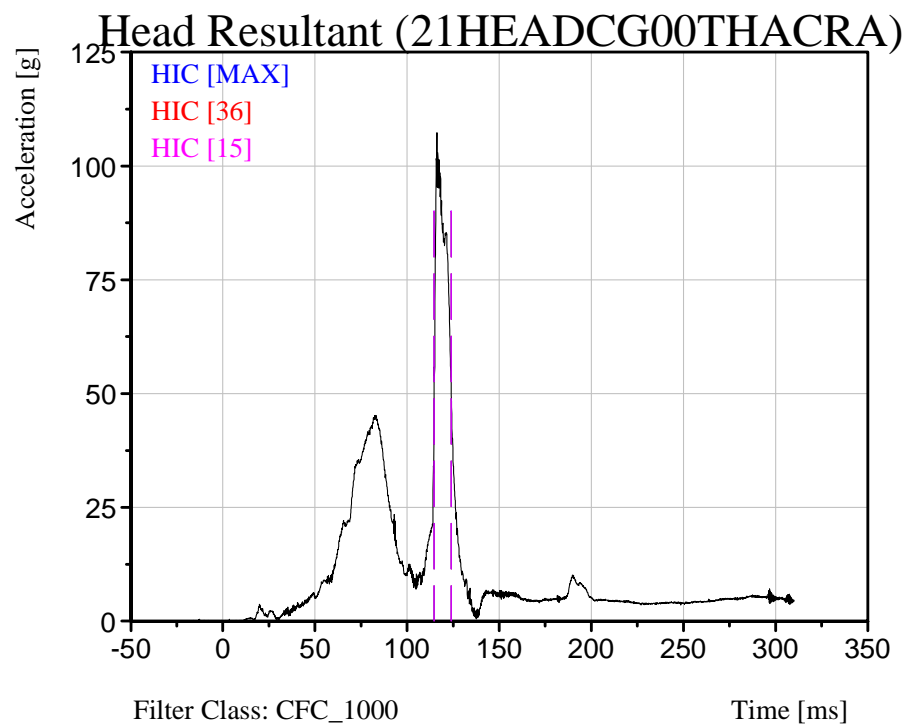
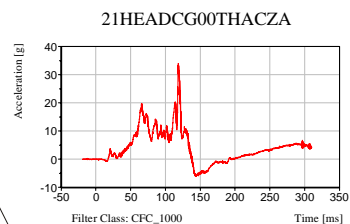
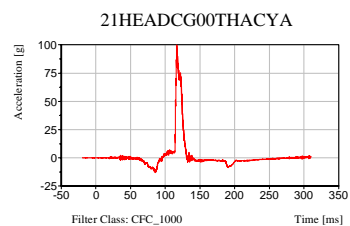
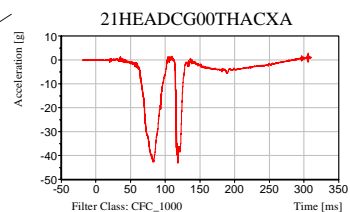
# Taurus into Taurus at 15 Degrees, 50% Overlap

## Head Injury Criterion (HIC)

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

TRC Inc. Test Lab: CTF  
Test Number: 091020



	<u>T1</u> (Begin)	<u>T2</u> (End)	<u>Avg. g T1 to T2</u>
HIC [Max.] = 594.07	114.64 ms	124.00 ms	83.09 g
HIC [36] = 594.07	114.64 ms	124.00 ms	83.09 g
HIC [15] = 594.07	114.64 ms	124.00 ms	83.09 g

Dummy: THOR Male  
Seating Position:  
Driver

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

B-343

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap Neck Moment about the Occipital Condyle (NECK OM)

Date: 10/20/2009  
Time: 16:35

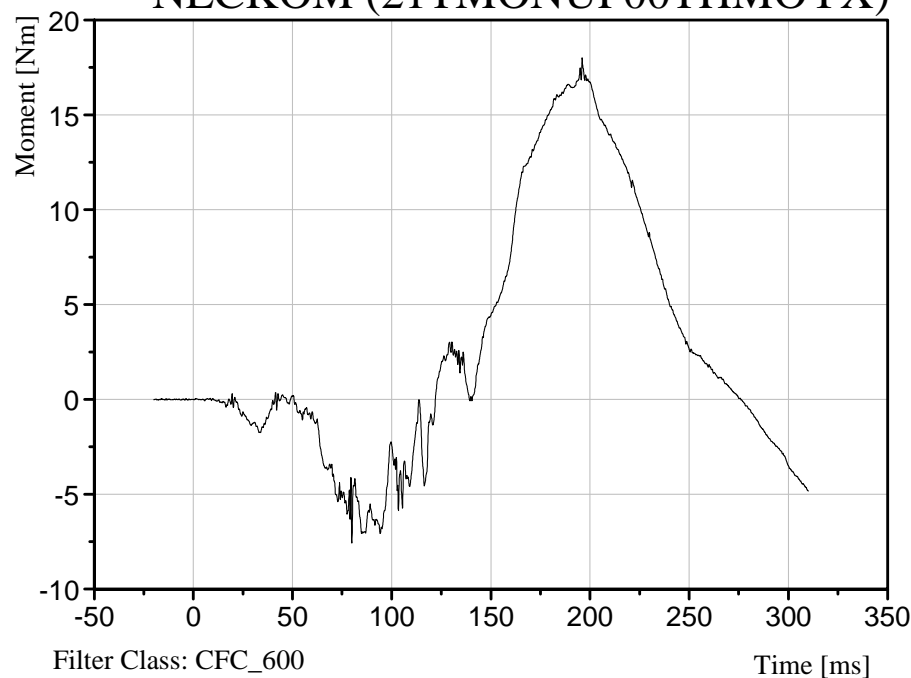
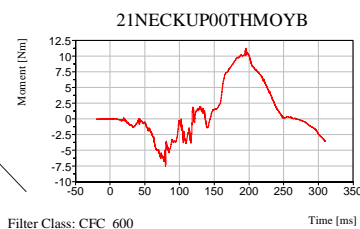
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

## NECKOM (21TMONUP00THMOYX)



Dummy: THOR Male  
Seating Position:  
Driver

Neck OM Source Code: My - (D\*Fx)

[Max.] 18.01 Nm at 196.08 ms

[Min.] -7.56 Nm at 79.92 ms

B-344

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

## Neck Shear Force

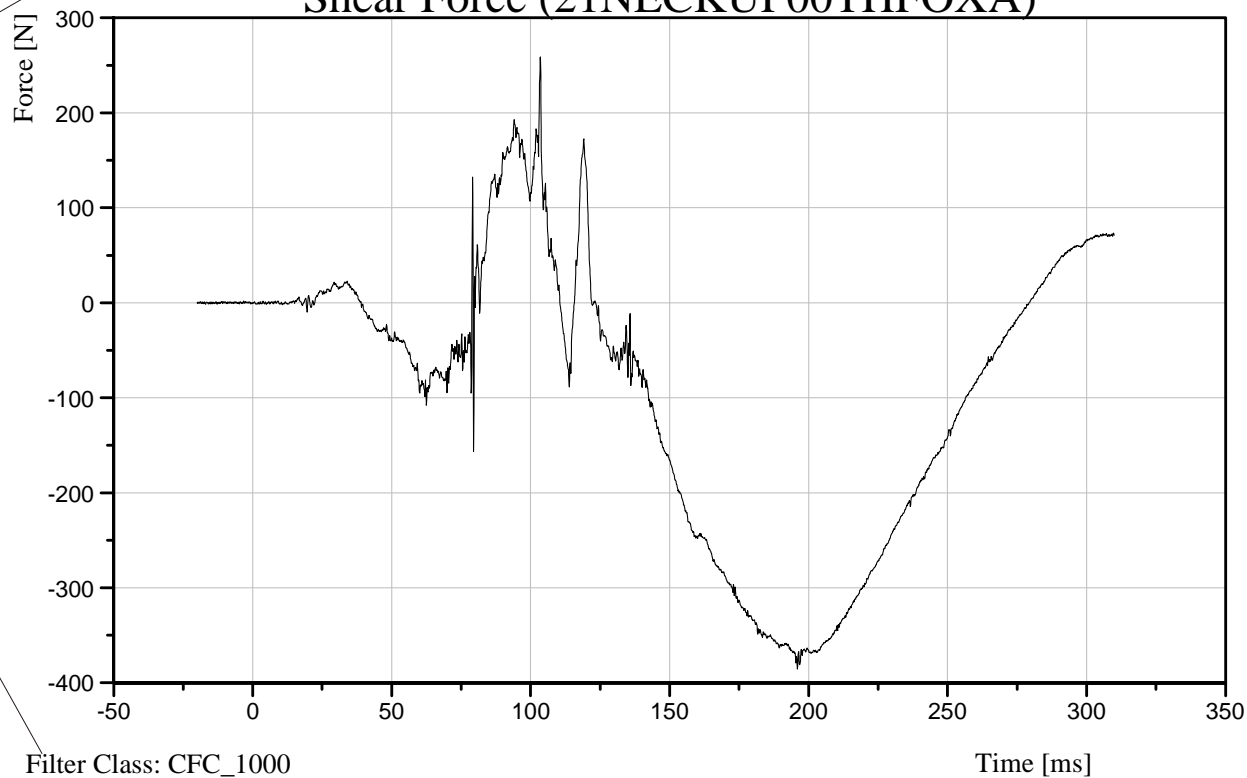
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

### Shear Force (21NECKUP00THFOXA)



Dummy: THOR Male

Seating Position:

Driver

[Max.] 258.86 N at 103.52 ms

[Min.] -385.58 N at 196.00 ms

Neck Shear Force Source Code: Min/Max of 21NECKUP00THFOXA

B-345

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

## Neck Shear Force

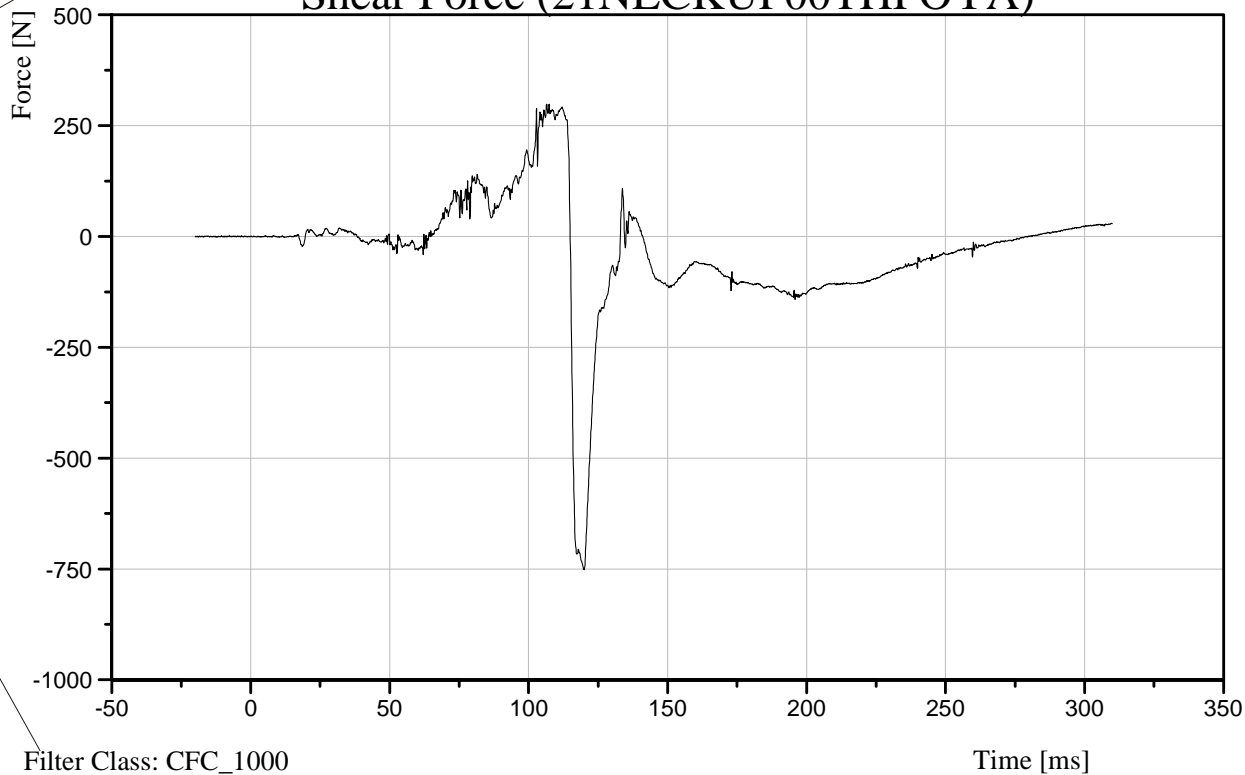
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

### Shear Force (21NECKUP00THFOYA)



Dummy: THOR Male

Seating Position:

Driver

[Max.] 298.55 N at 106.48 ms

[Min.] -751.97 N at 120.00 ms

Neck Shear Force Source Code: Min/Max of 21NECKUP00THFOYA

B-346

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009  
Time: 16:35

## Neck Axial Force

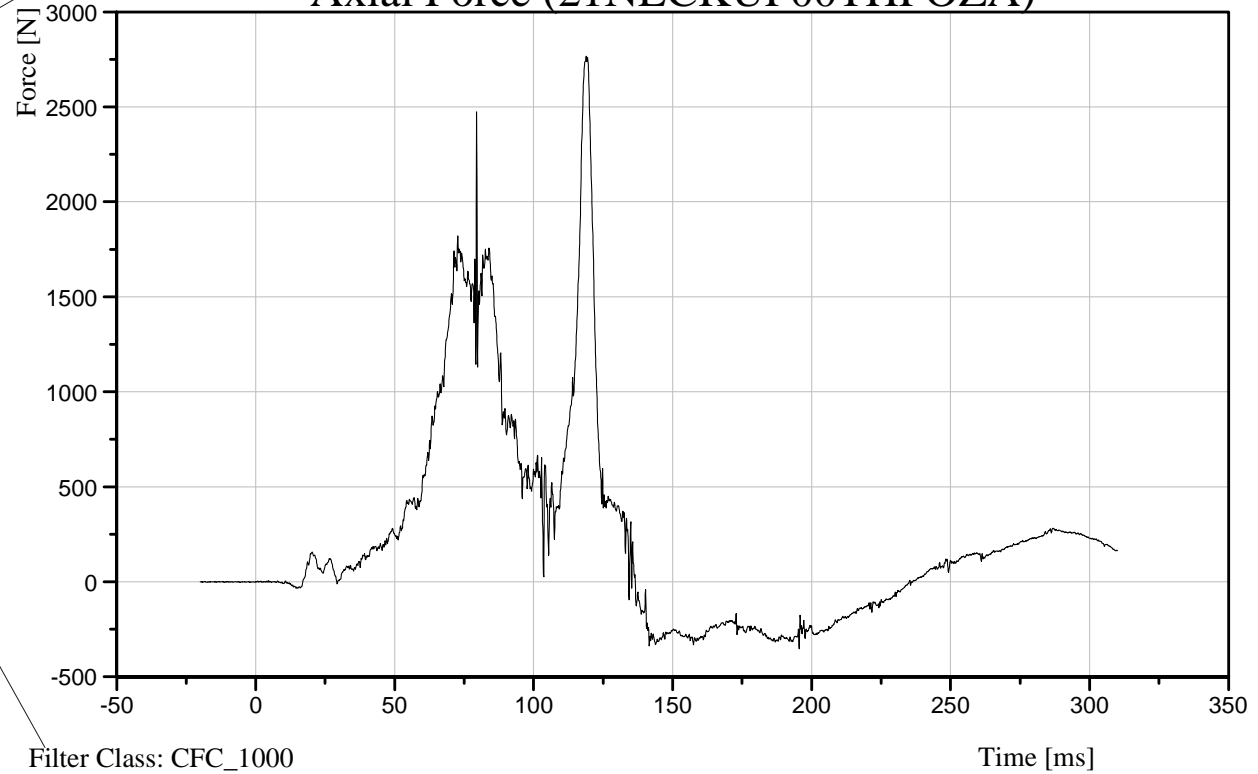
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

Test Orientation = Frontal

### Axial Force (21NECKUP00THFOZA)



Dummy: THOR Male  
Seating Position:  
Driver

[Max.] 2,767.16 N at 118.88 ms

[Min.] -352.56 N at 195.52 ms

Neck Axial Force Source Code: Min/Max of 21NECKUP00THFOZA

B-347

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Femur Load

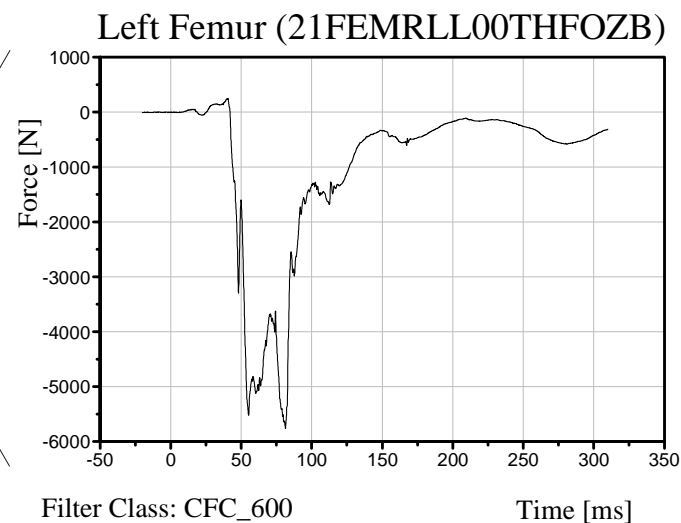
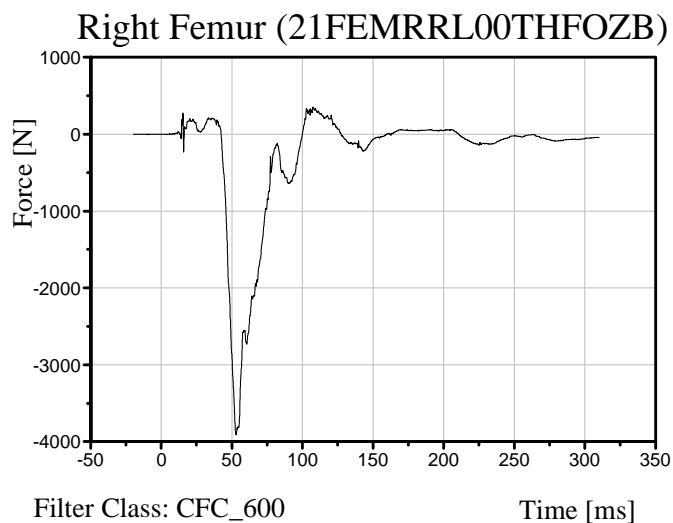
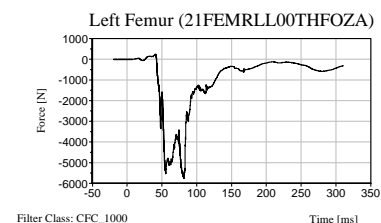
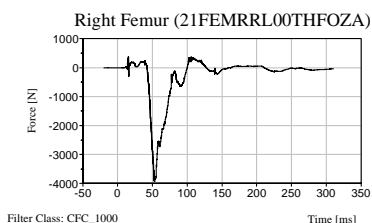
Date: 10/20/2009

Time: 16:35

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



Max [Tension] 351.94 N at 107.28 ms  
 Min [Compression] -3,909.96 N at 52.80 ms

Dummy: THOR Male  
 Seating Position:  
 Driver

Max [Tension] 248.37 N at 40.72 ms  
 Min [Compression] -5,755.44 N at 81.36 ms

Femur Load Source Code : Min/Max of 21FEMRRL00THFOZB and 21FEMRLL00THFOZB (CFC 600)

B-348

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Knee Slider Displacement

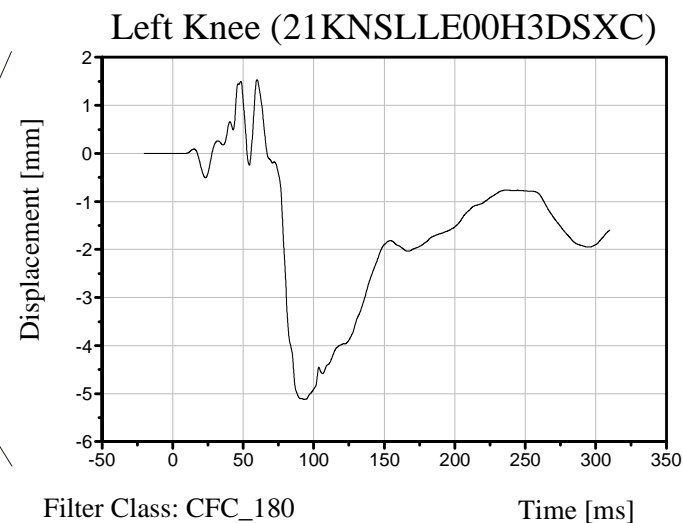
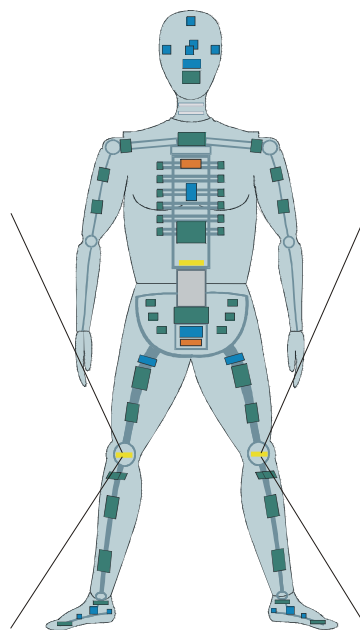
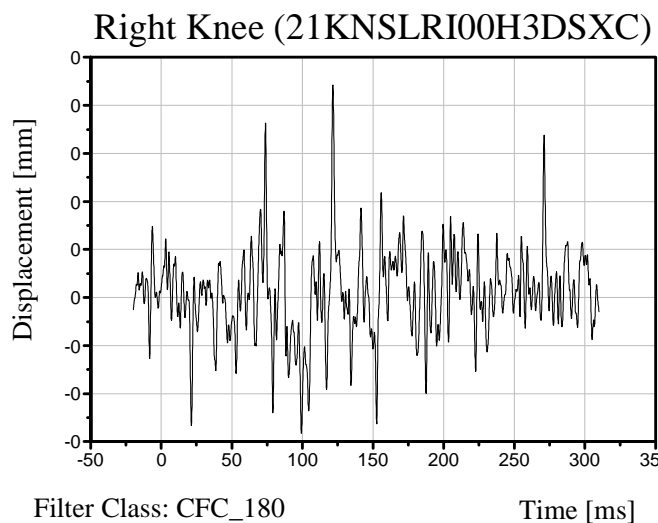
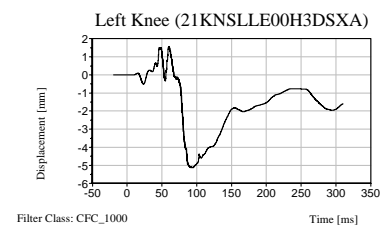
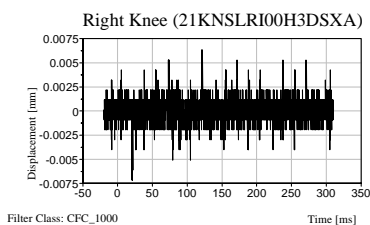
Date: 10/20/2009

Time: 16:35

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



Max. [Tension] 0.00 mm at 121.44 ms  
 Min. [Compression] -0.00 mm at 99.20 ms

Dummy: HIII 50th Male  
 Seating Position:  
 Driver

Max. [Tension] 1.53 mm at 59.84 ms  
 Min. [Compression] -5.12 mm at 93.28 ms

Knee Displacement Source Code : Min/Max of 21KNSLRI00H3DSXC and 21KNSLLE00H3DSXC (CFC 600)

B-349

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Tibia Index (TI)

Date: 10/20/2009

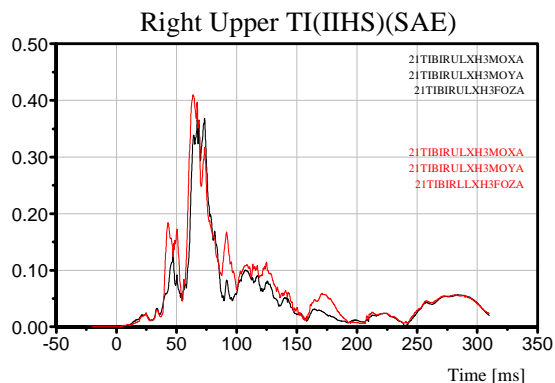
Time: 16:35

Customer: VRTC

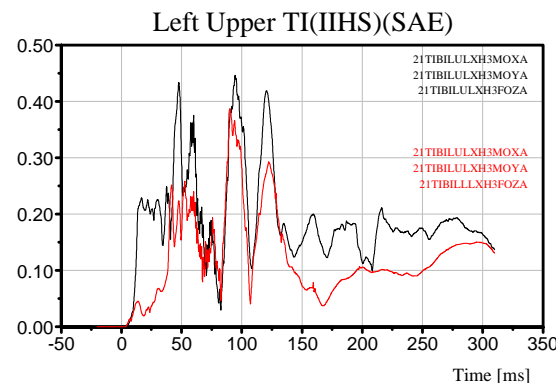
TRC Inc. Test Lab: CTF

Test Number: 091020

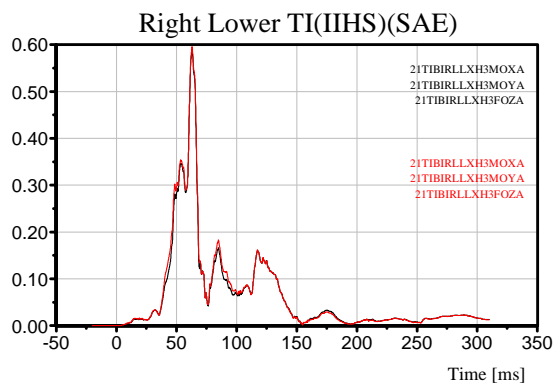
Critical Bending Moment = 240 N·m  
Critical Compression Force = 12000 N



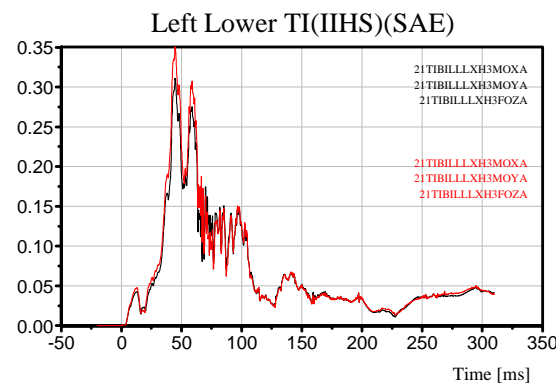
Max = 0.37 at 73.36 ms (SAE)  
Max = 0.41 at 63.76 ms (IIHS)



Max = 0.45 at 94.40 ms (SAE)  
Max = 0.39 at 90.08 ms (IIHS)



Max = 0.59 at 62.96 ms (SAE)  
Max = 0.60 at 62.96 ms (IIHS)



Max = 0.31 at 44.72 ms (SAE)  
Max = 0.35 at 44.72 ms (IIHS)

Dummy: III 50th Male  
Seating Position:  
Driver

Tibia Index Source Code : Guideline 96/79/EC; SAE J1727 AUG96; and IIHS Crashworthiness Evaluation Offset Barrier Crash Test Protocol (Version X)

B-350

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

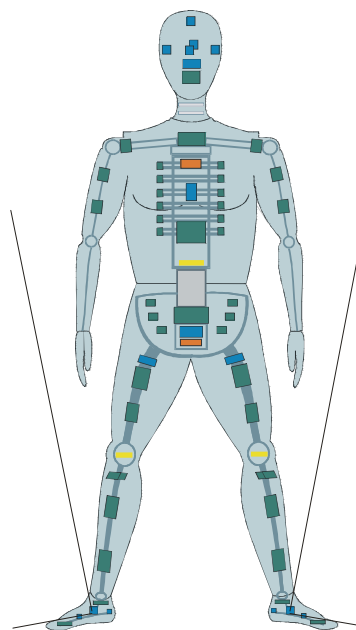
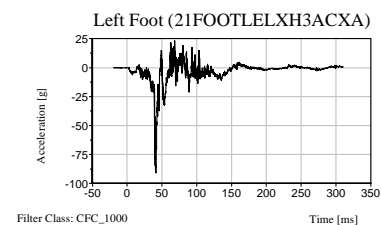
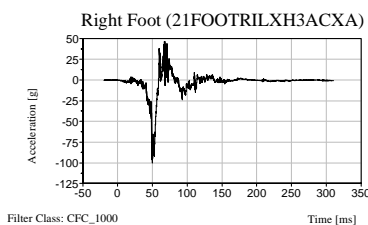
Time: 16:35

## Foot Acceleration

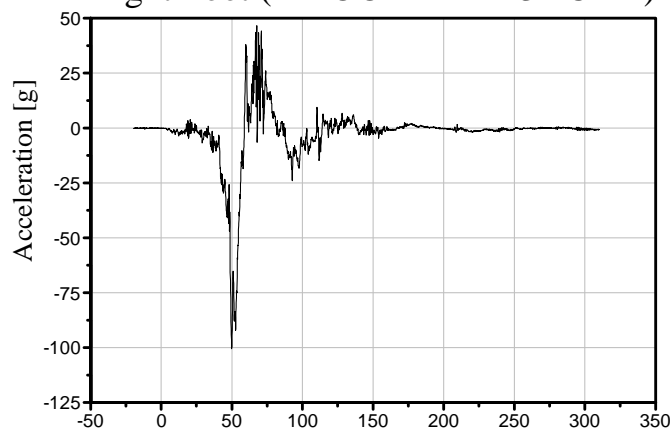
Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020



Right Foot (21FOOTRILXH3ACXA)

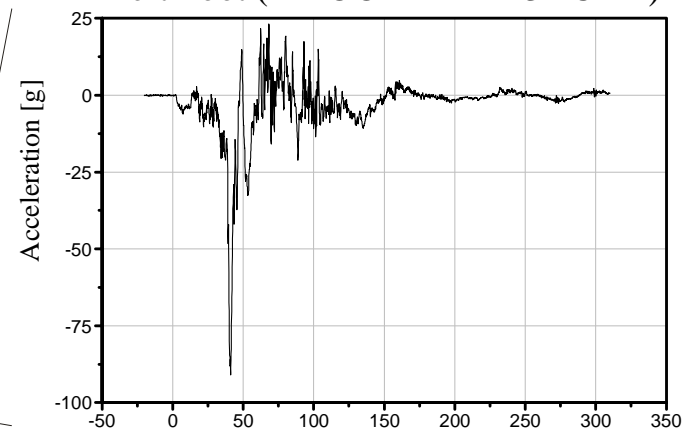


Filter Class: CFC\_1000

Time [ms]

Max [Acceleration] 46.59 g at 67.52 ms  
 Min [Acceleration] -100.40 g at 49.76 ms

Left Foot (21FOOTLELXH3ACXA)



Filter Class: CFC\_1000

Time [ms]

Max [Acceleration] 23.17 g at 68.24 ms  
 Min [Acceleration] -90.94 g at 41.20 ms

Dummy:HIII 50th Male  
 Seating Position:  
 Driver

Foot Acceleration Source Code : Min/Max of 21FOOTRILXH3ACXA and 21FOOTLELXH3ACXA

B-351

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

## Injury Criteria Summary

Customer: VRTC

TRC Inc. Test Lab: CTF

Test Number: 091020

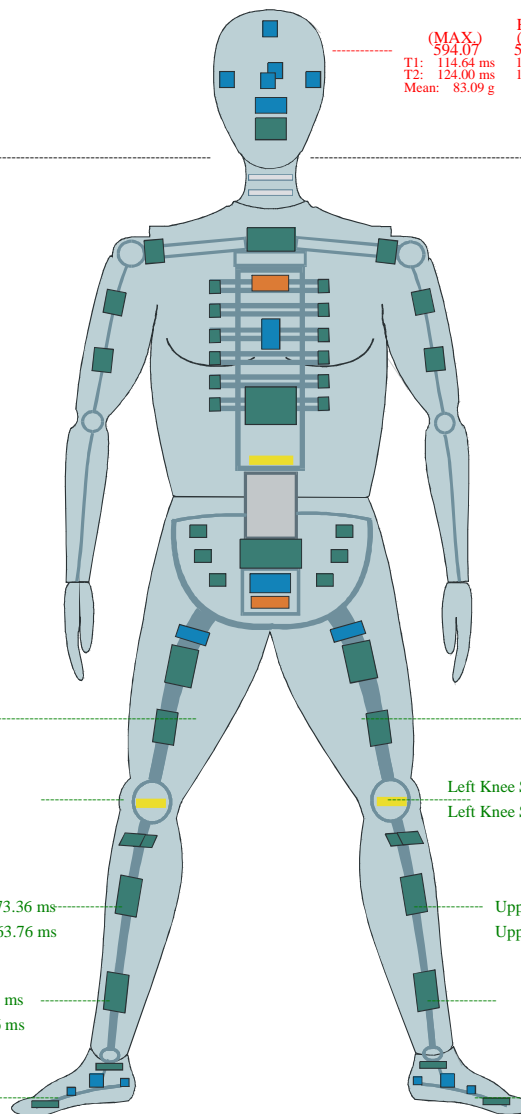
Dummy: HIII 50th Male

Seating Position:  
Driver

Max. Shear (Head Aft) = 258.86 N at 103.52 ms  
Min. Shear (Head Fore) = -385.58 N at 196.00 ms

	(MAX.) 594.07	HIC (36) 594.07	(15) 594.07
T1:	114.64 ms	114.64 ms	114.64 ms
T2:	124.00 ms	124.00 ms	124.00 ms
Mean:	83.09 g	83.09 g	83.09 g

NeckOM Flexion = 18.01 Nm at 196.08 ms  
NeckOM Extension = -7.56 Nm at 79.92 ms  
Axial Tension = 2,767.16 N at 118.88 ms  
Axial Compression = -352.56 N at 195.52 ms



Right Lower Femur Tension = 351.94 N 107.28 ms  
Right Lower Femur Compression = -3,909.96 N 52.80 ms

Left Lower Femur Tension = 248.37 N 40.72 ms  
Left Lower Femur Compression = -5,755.44 N 81.36 ms

Right Knee Slider Outward = 0.00 mm at 121.44 ms  
Right Knee Slider Inward = -0.00 mm at 99.20 ms

Left Knee Slider Outward = 1.53 mm at 59.84 ms  
Left Knee Slider Inward = -5.12 mm at 93.28 ms

Upper Right TI (SAE) = 0.37 at 73.36 ms  
Upper Right TI (IHHS) = 0.41 at 63.76 ms

Upper Left TI (SAE) = 0.45 at 94.40 ms  
Upper Left TI (IHHS) = 0.39 at 90.08 ms

Lower Right TI (SAE) = 0.59 at 62.96 ms  
Lower Right TI (IHHS) = 0.60 at 62.96 ms

Lower Left TI (SAE) = 0.31 at 44.72 ms  
Lower Left TI (IHHS) = 0.35 at 44.72 ms

Max Right Foot = 46.59 g at 67.52 ms  
Min Right Foot = -100.40 g at 49.76 ms

Max Left Foot = 23.17 g at 68.24 ms  
Min Left Foot = -90.94 g at 41.20 ms

B-352

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009  
Time: 16:35

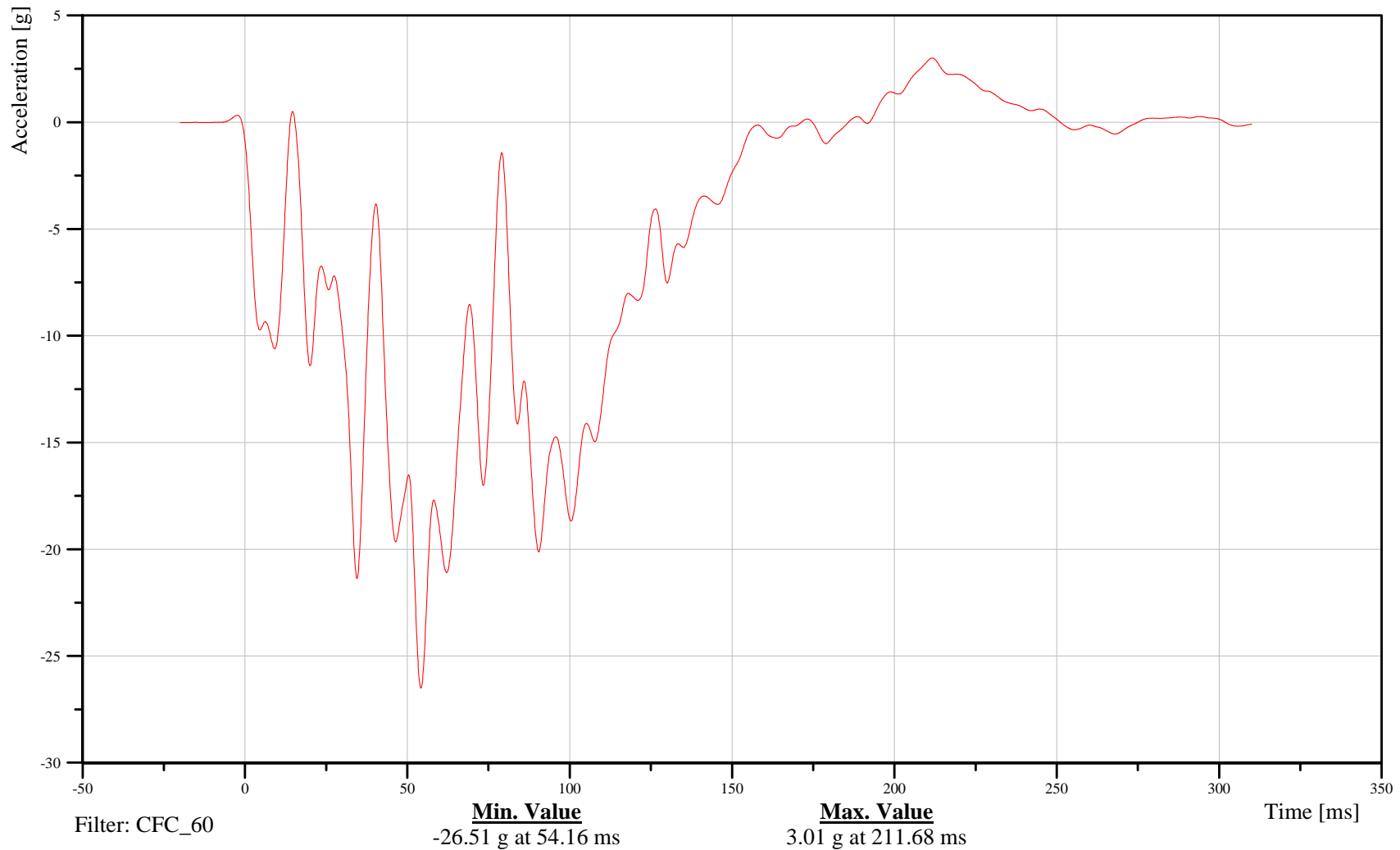
## Target Vehicle Left Sill X-Axis Acceleration

Customer: VRTC

### 20SILLE0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-353

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

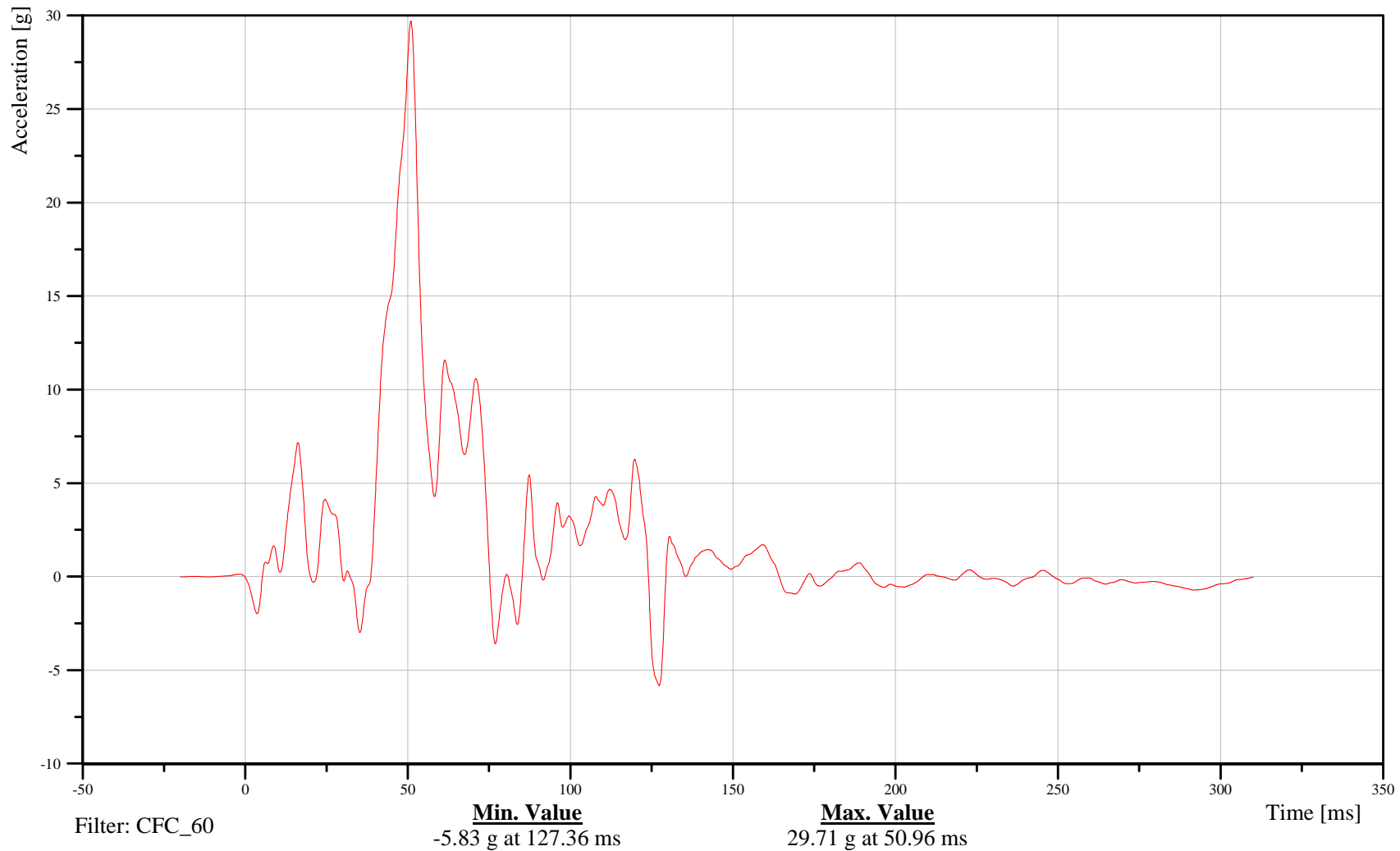
## Target Vehicle Left Sill Y-Axis Acceleration

Customer: VRTC

# 20SILLE0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-354

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

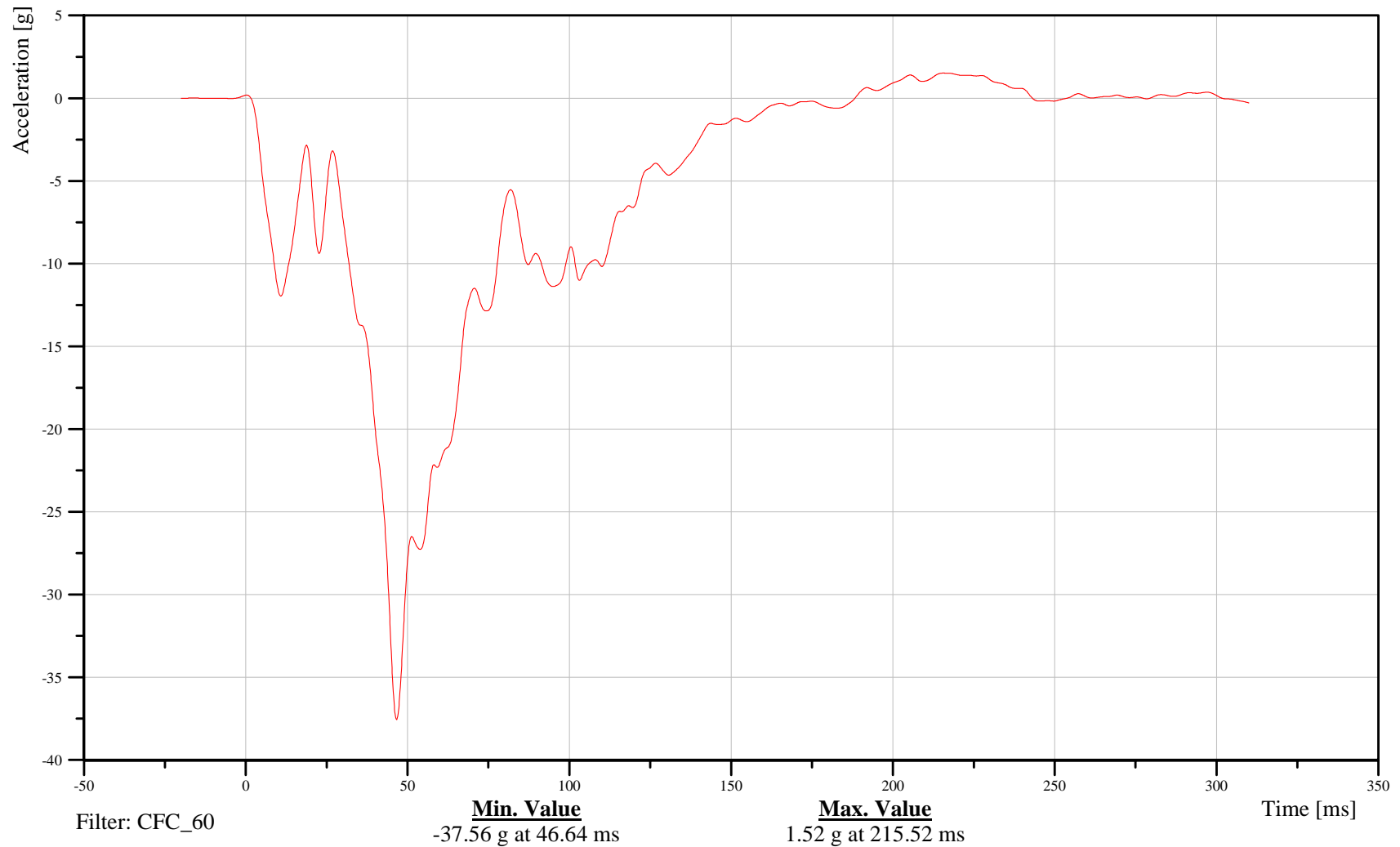
## Target Vehicle Right Sill X-Axis Acceleration

Customer: VRTC

# 20SILLRI0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-355

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

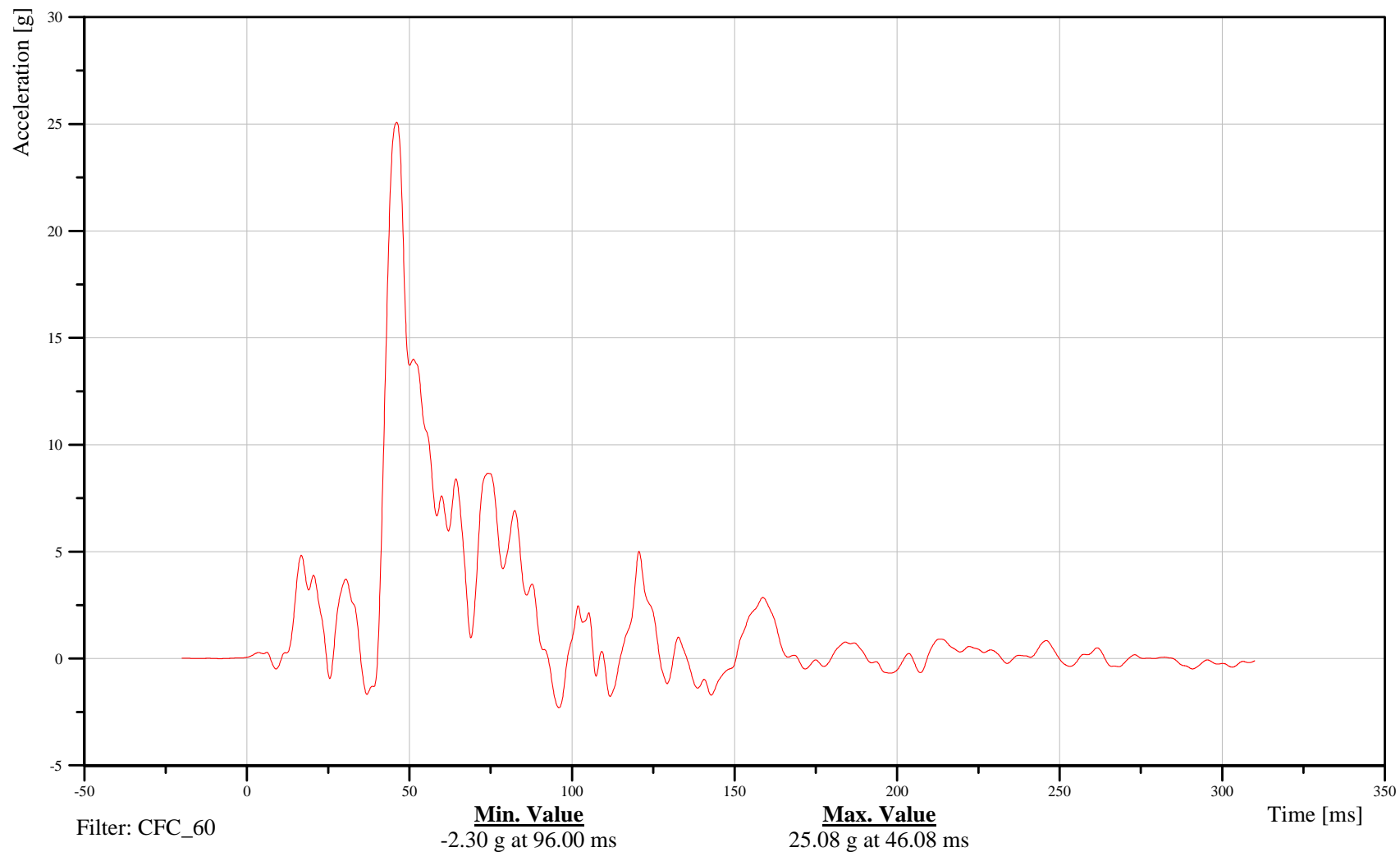
## Target Vehicle Right Sill Y-Axis Acceleration

Customer: VRTC

# 20SILLRI0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-356

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

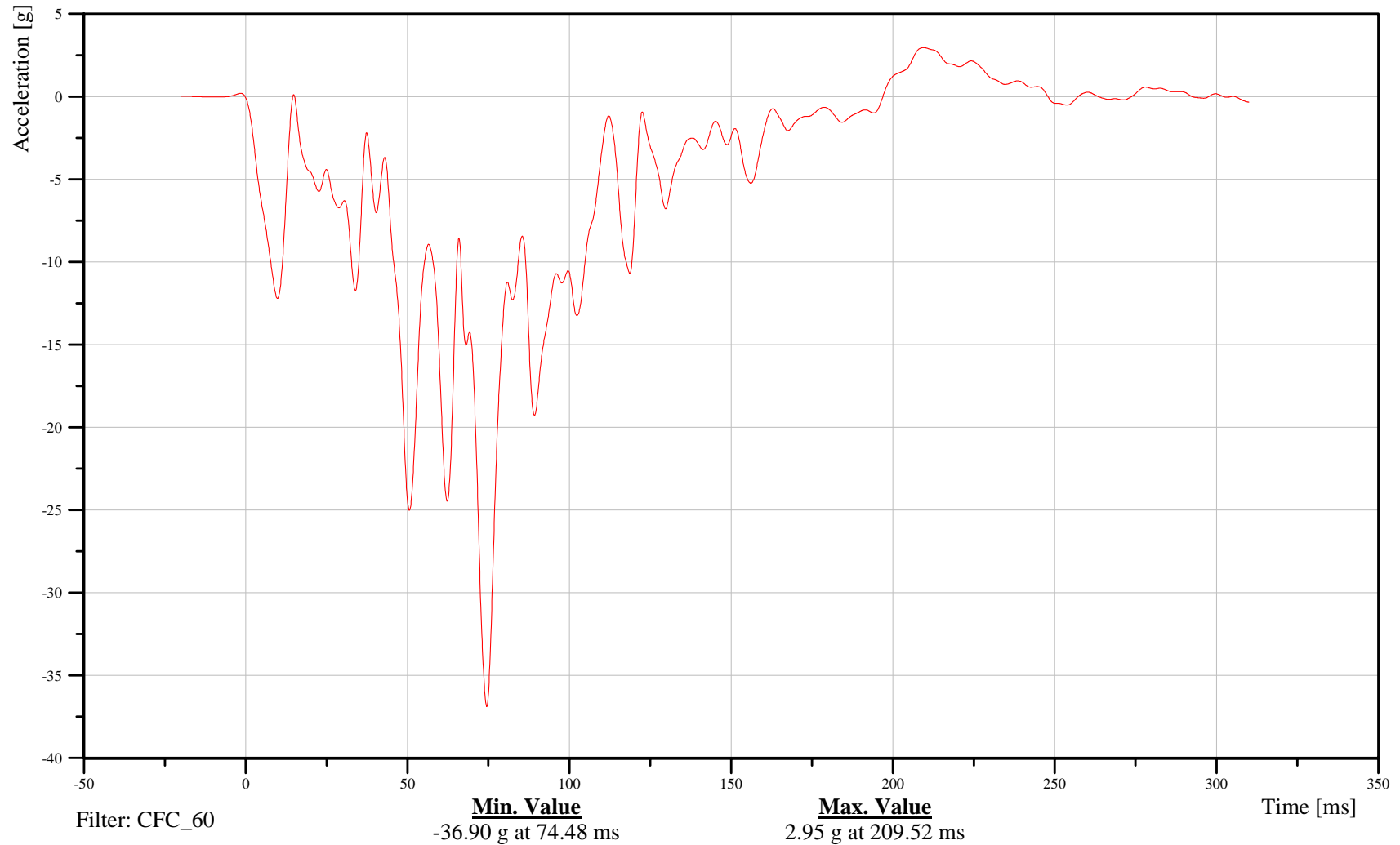
## Target Vehicle Vehicle Center of Gravity X-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 20VEHCCG0000ACXD

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-357

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Target Vehicle Vehicle Center of Gravity Y-Axis Acceleration

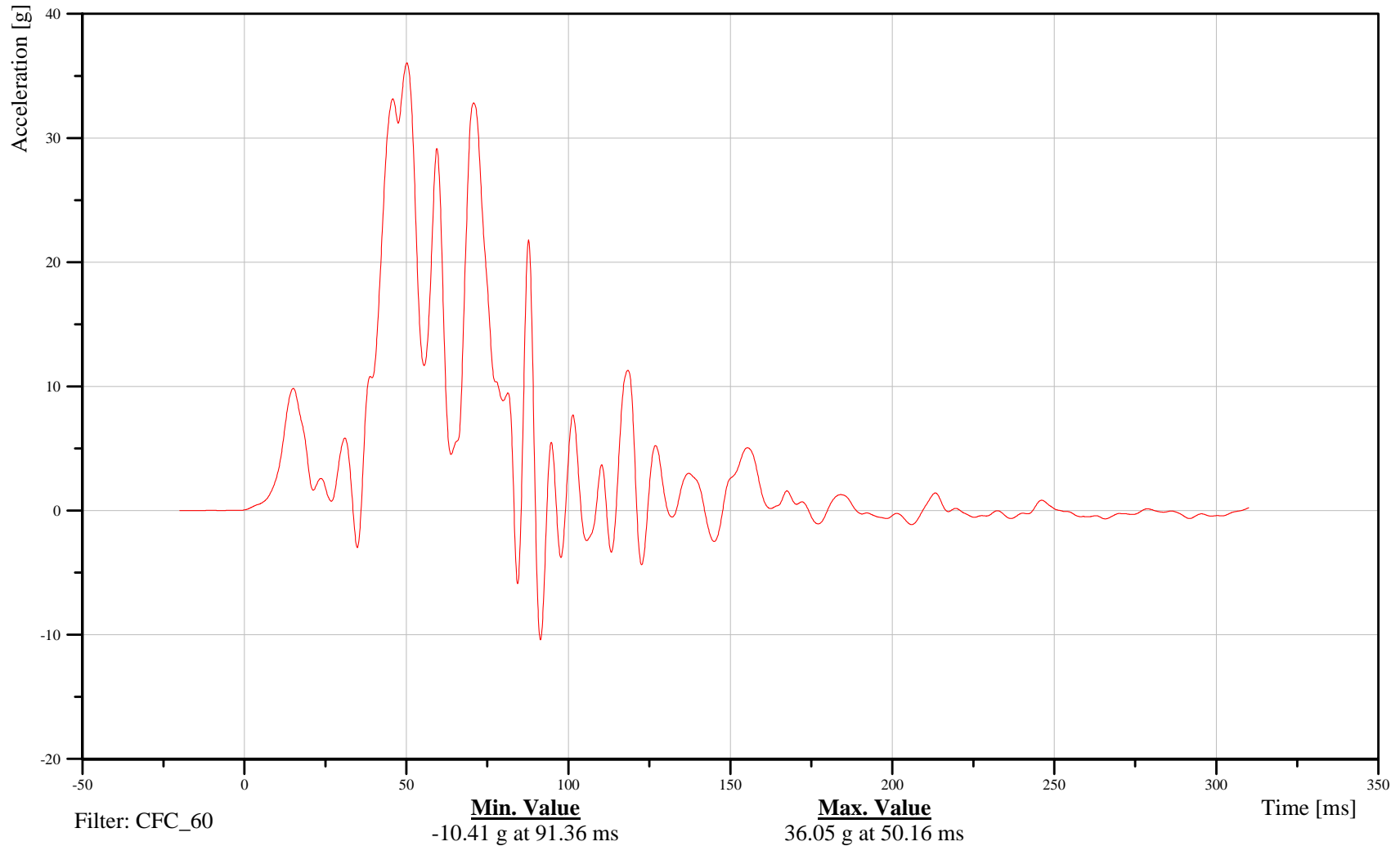
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 20VEHCCG0000ACYD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-358

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

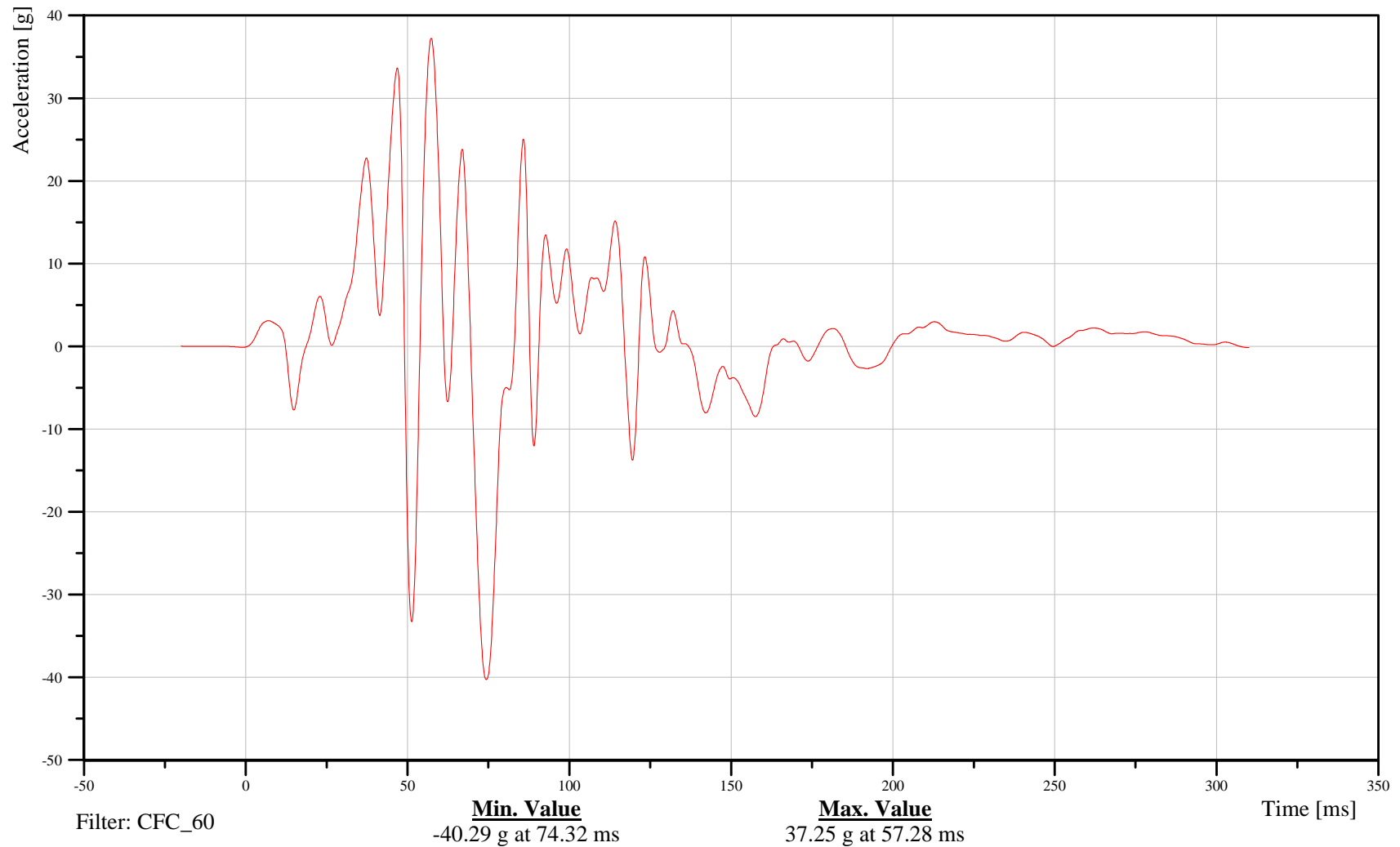
## Target Vehicle Vehicle Center of Gravity Z-Axis Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 20VEHCCG0000ACZD

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-359

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

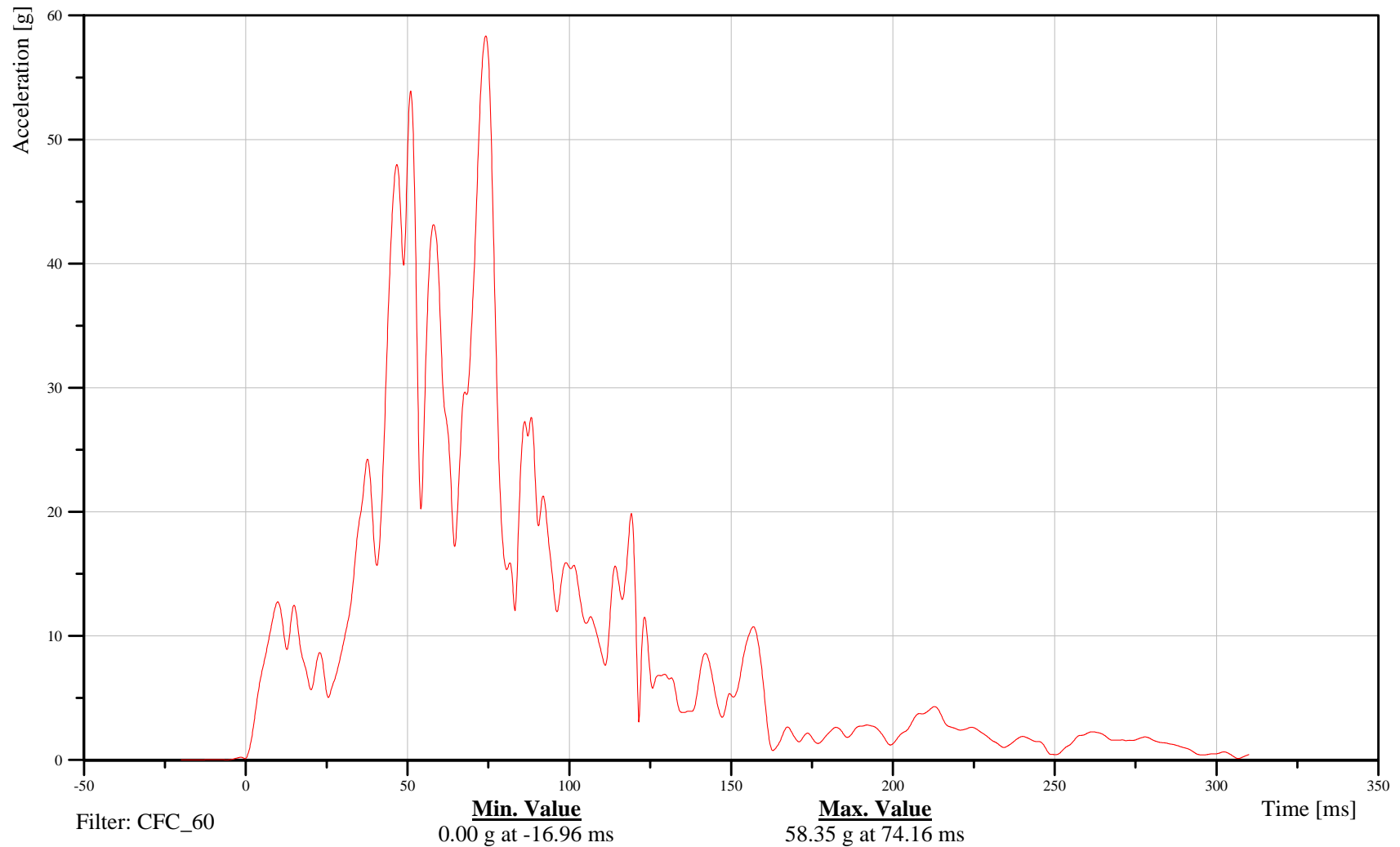
## Target Vehicle Vehicle Center of Gravity Resultant Acceleration

Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 20VEHCCG0000ACRD

TRC Inc. Test Lab: CTF  
Test Number: 091020



B-360

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

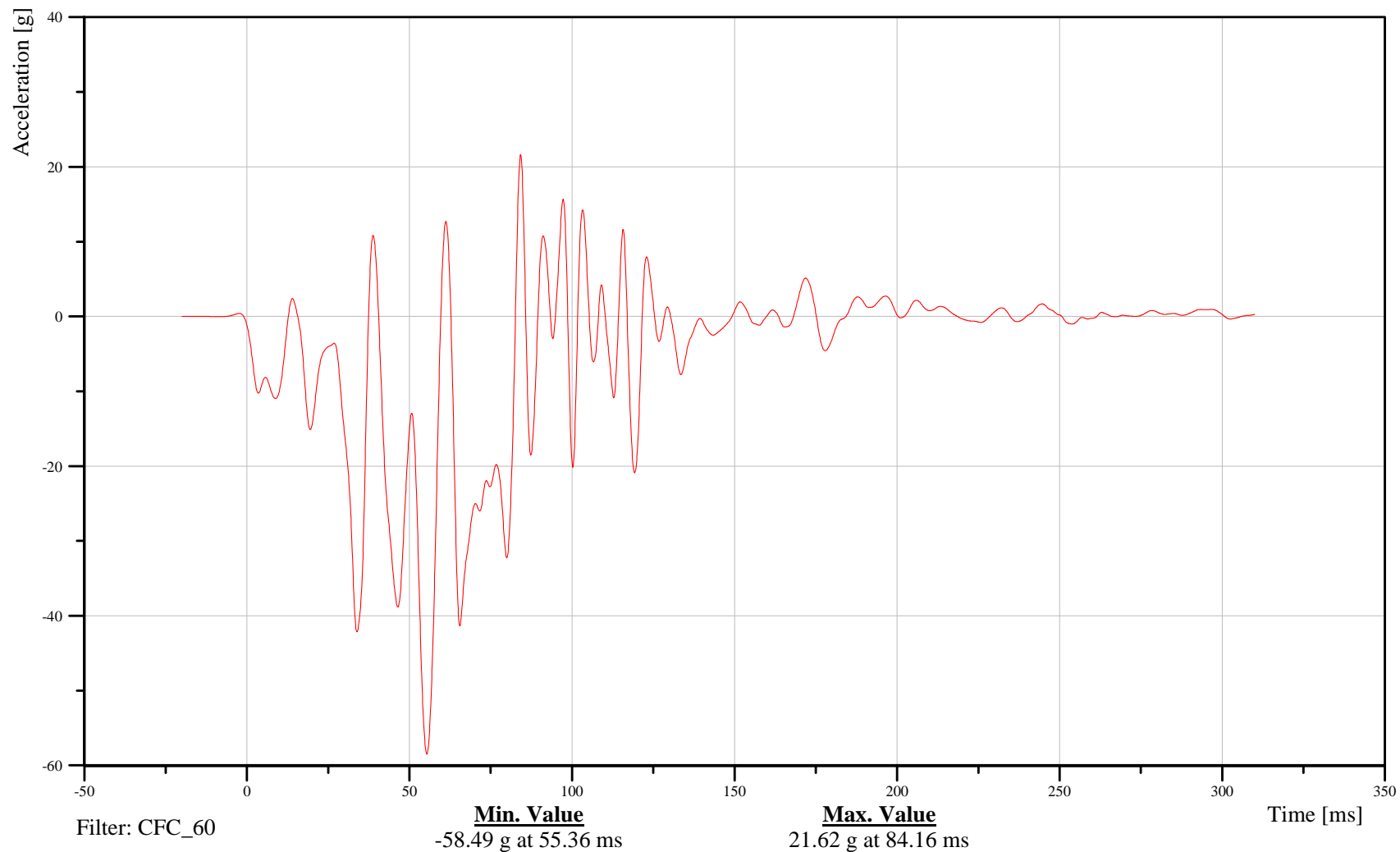
## Target Vehicle Driver Footrest X-Axis Acceleration

Customer: VRTC

# 20FOOTLE0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-361

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

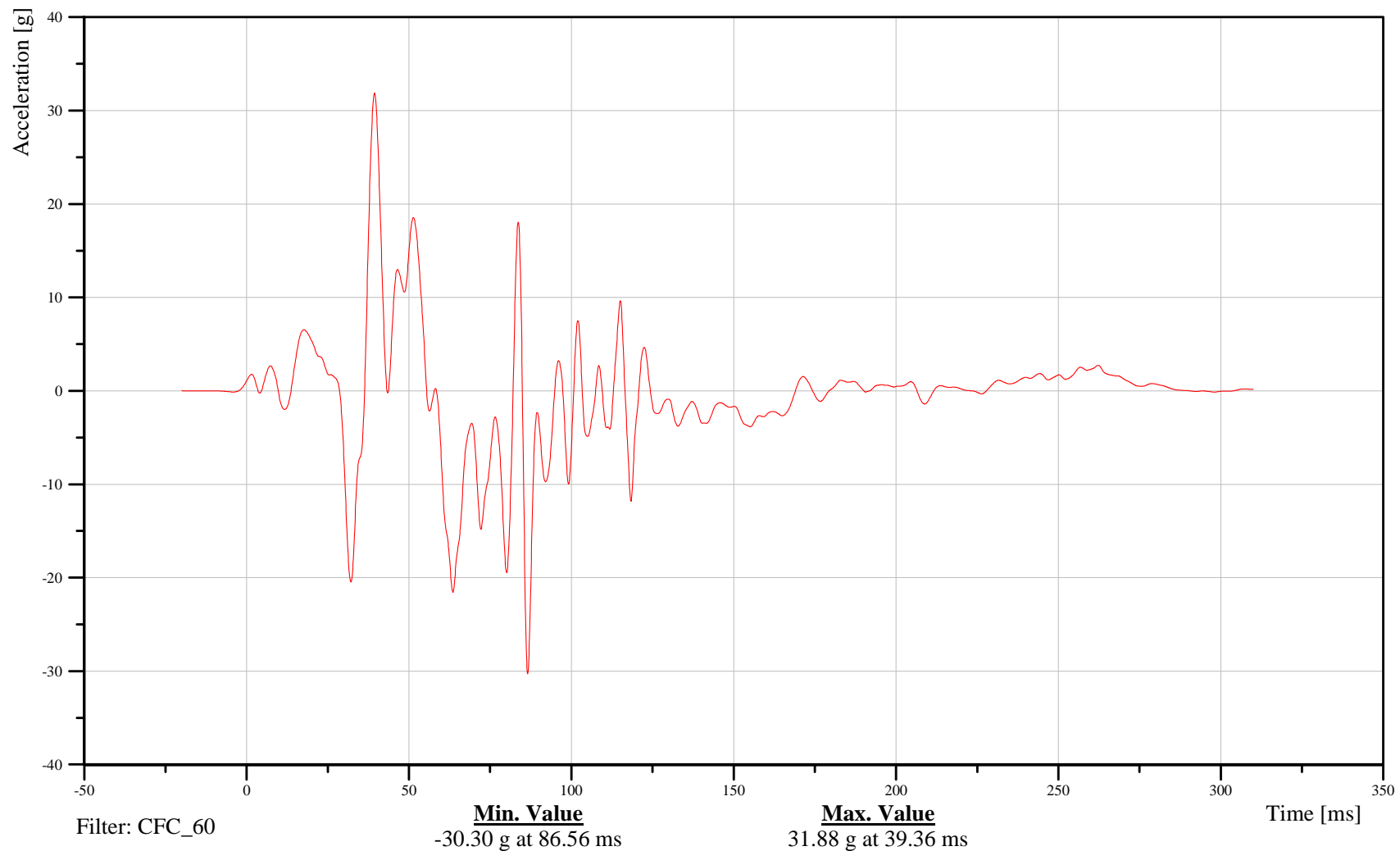
## Target Vehicle Driver Footrest Z-Axis Acceleration

Customer: VRTC

# 20FOOTLE0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-362

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Target Vehicle Toepan Behind Center of Accelerator X-Axis Acceleration

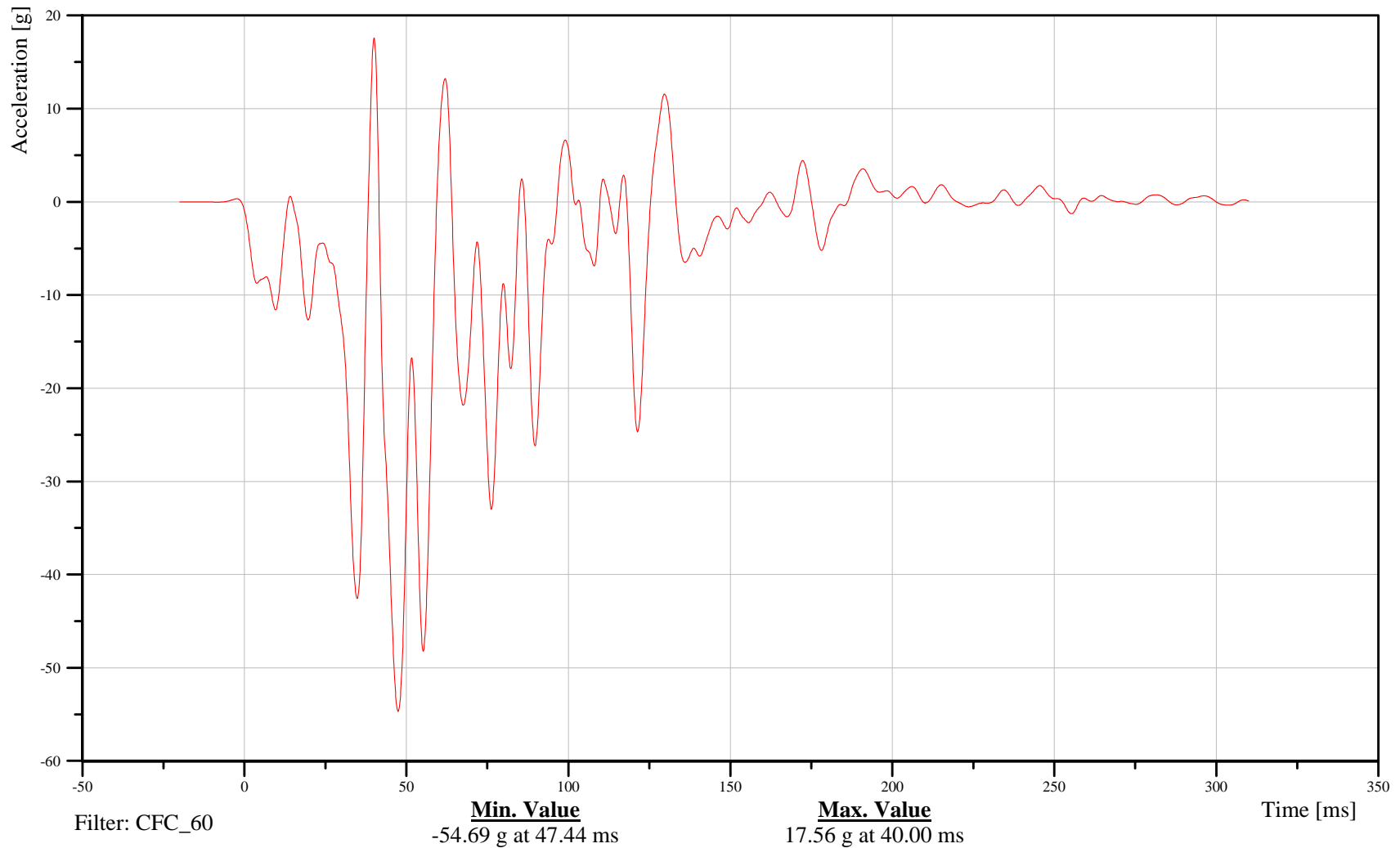
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 20TPANLE0000ACXD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-363

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

## Target Vehicle Toepan Behind Center of Accelerator Z-Axis Acceleration

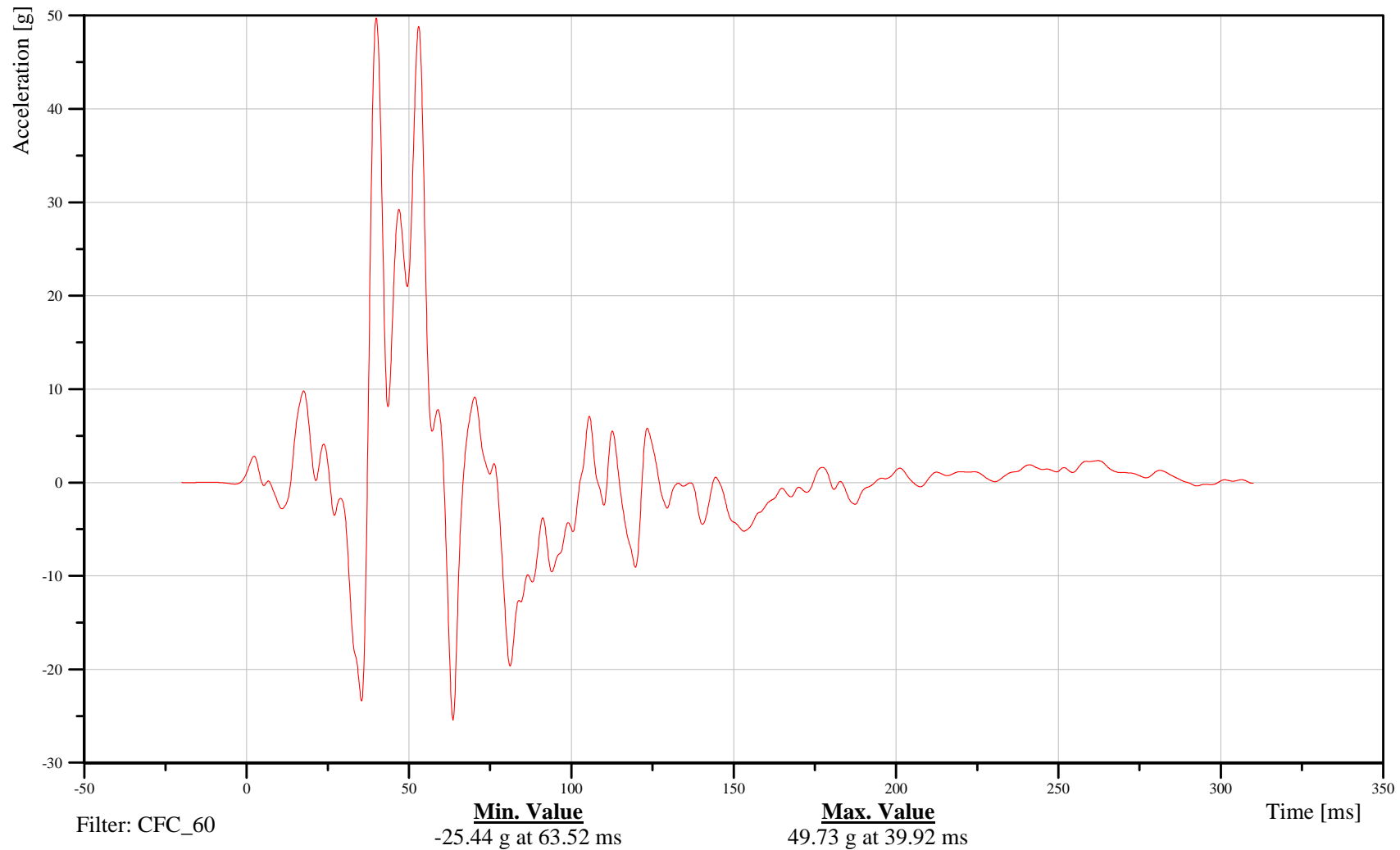
Date: 10/20/2009  
Time: 16:35

Customer: VRTC

### 20TPANLE0000ACZD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-364

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

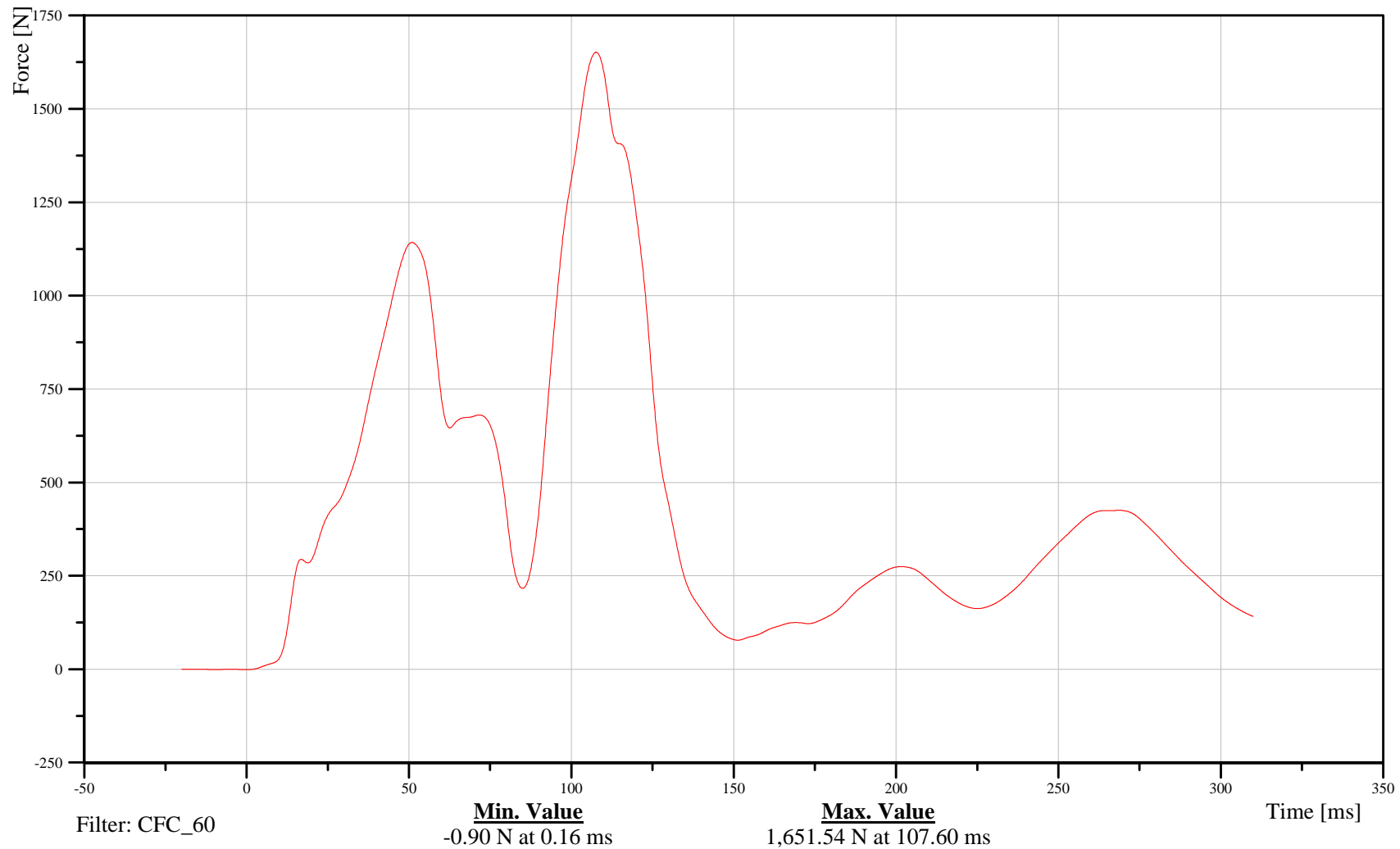
## Target Vehicle Driver Lap Belt Force

Customer: VRTC

# 21SEBE0000B5FOOD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-365

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

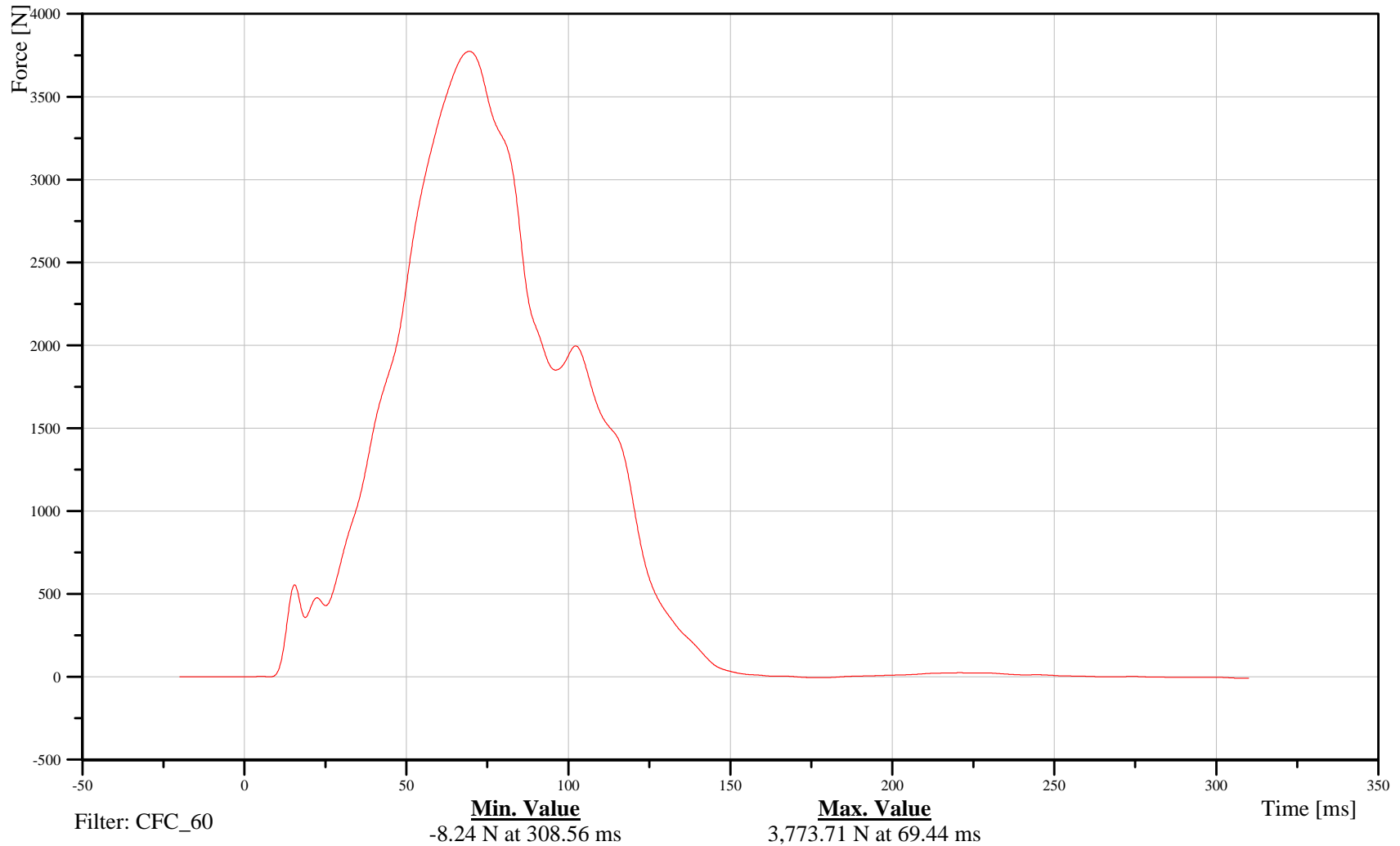
## Target Vehicle Driver Shoulder Belt Force

Customer: VRTC

# 21SEBE0000B3FOOD

TRC Inc. Test Lab: CTF

Test Number: 091020



B-366

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

## Target Vehicle Driver Airbag 1st Stage Fire Time

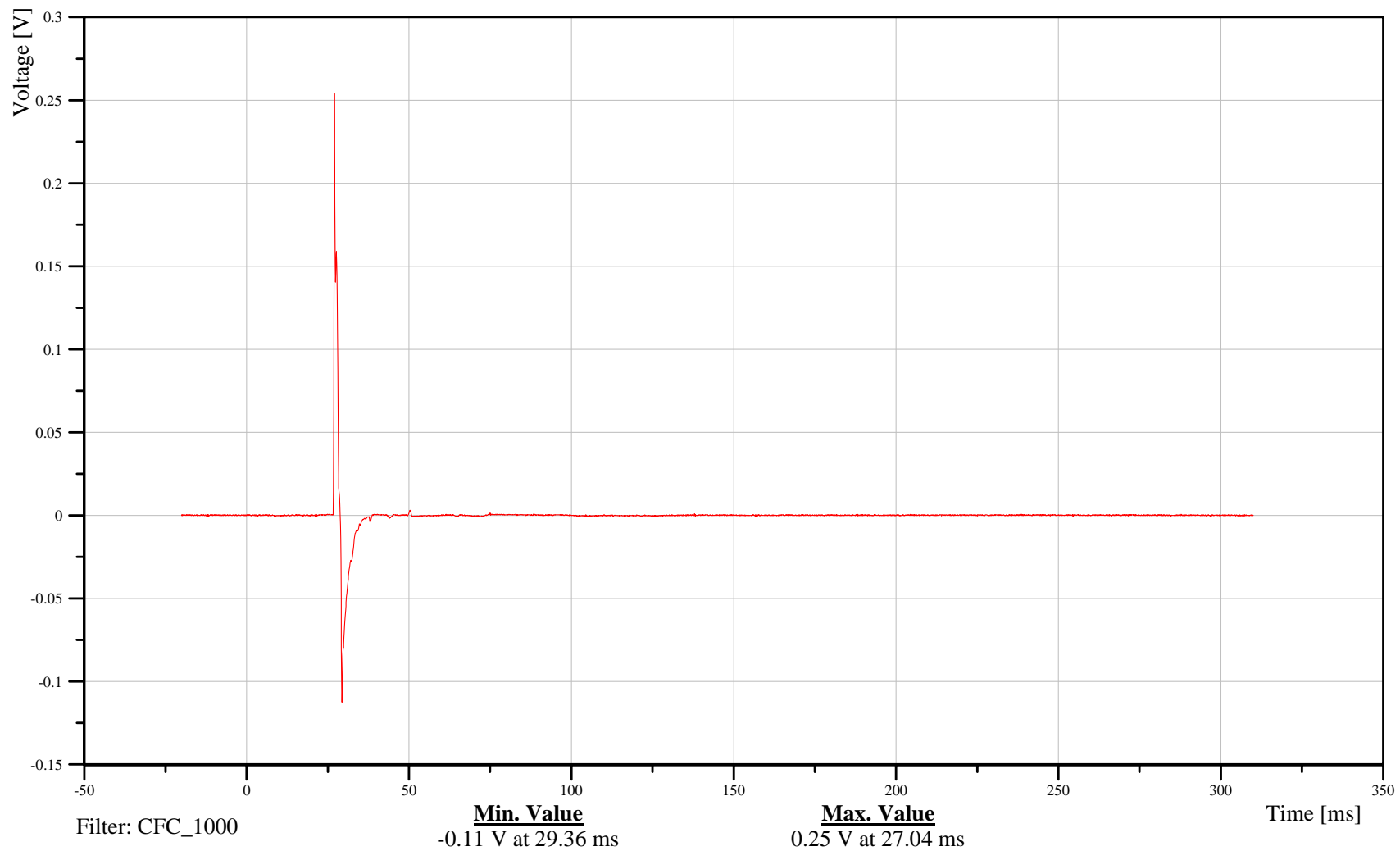
Time: 16:35

Customer: VRTC

### 20AIRBLEFR25V00A

TRC Inc. Test Lab: CTF

Test Number: 091020



B-367

091020



# Taurus into Taurus at 15 Degrees, 50% Overlap

Date: 10/20/2009

Time: 16:35

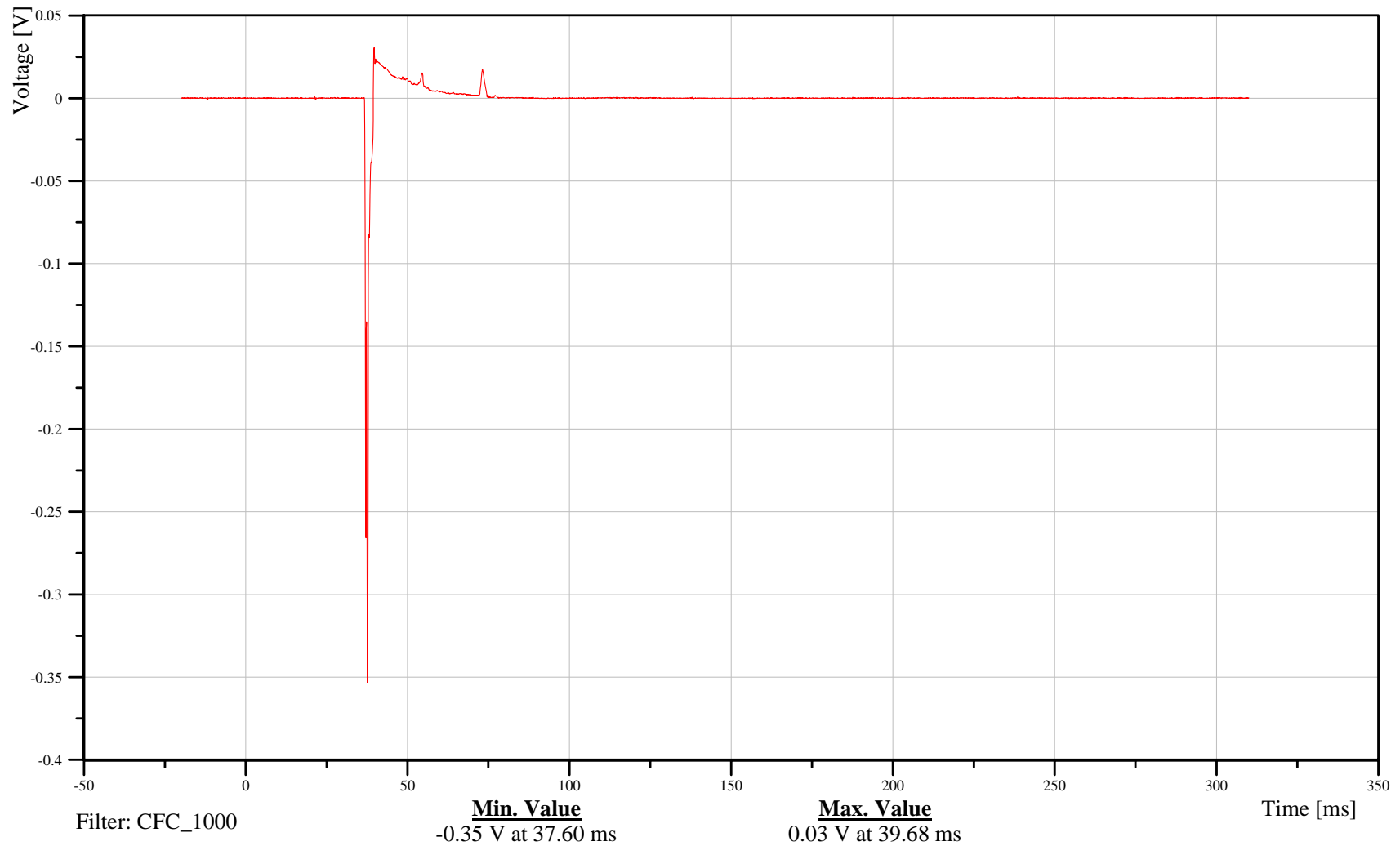
## Target Vehicle Driver Airbag 2nd Stage Fire Time

Customer: VRTC

# 20AIRBLEFR26V00A

TRC Inc. Test Lab: CTF

Test Number: 091020



B-368

091020

Appendix C

Dummy Configuration and Performance Verification Data

Pre-Test Dummy Configuration and Performance Verification Data

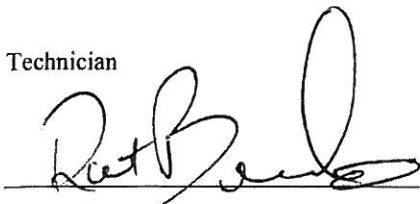
Bullet Vehicle Driver Dummy S/N: 206

**Transportation Research Center Inc.**  
**572E HIII 50th Male Dummy**  
**External Dimensions**  
**Serial No. 206 Calibration No. 21**

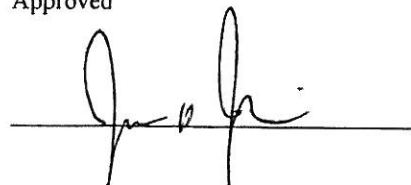
Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	878.8 - 889.0	880	Yes
B	Shoulder Pivot Height	505.5 - 520.7	510	Yes
C	H-Point Height	83.8 - 88.9	88	Yes
D	H-Point From Seatback	134.6 - 139.7	138	Yes
E	Shoulder Pivot From Backline	83.8 - 94.0	93	Yes
F	Thigh Clearance	139.7 - 154.9	152	Yes
G	Back Of Elbow To Wrist Pivot	289.6 - 304.8	292	Yes
H	Skull Cap To Backline	40.6 - 45.7	45	Yes
I	Shoulder-Elbow Length	330.2 - 345.4	331	Yes
J	Elbow Rest Height	190.5 - 210.8	198	Yes
K	Buttock Knee Length	579.1 - 604.5	600	Yes
L	Popliteal Height	429.3 - 454.7	420	No
M	Knee Pivot Height	485.1 - 500.4	490	Yes
N	Buttock Popliteal Length	452.1 - 477.5	475	Yes
O	Chest Depth	213.4 - 228.6	220	Yes
P	Foot Length	251.5 - 266.7	252	Yes
V	Shoulder Breadth	421.6 - 436.9	422	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	430	Yes
BB	Location For Waist Circumference	226.1 - 231.1	230	Yes

Thor leg used

Technician



Approved



# Transportation Research Center Inc.

Front Head Drop

HIII 50th Serial No. 206 Certification No. 21-1

Test Date: 8/31/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Peak Head Resultant Acceleration	225 - 275 g	267.7 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	4.9 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

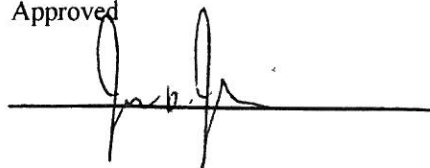
**Test meets specifications.**

**Comments:**

Technician



Approved



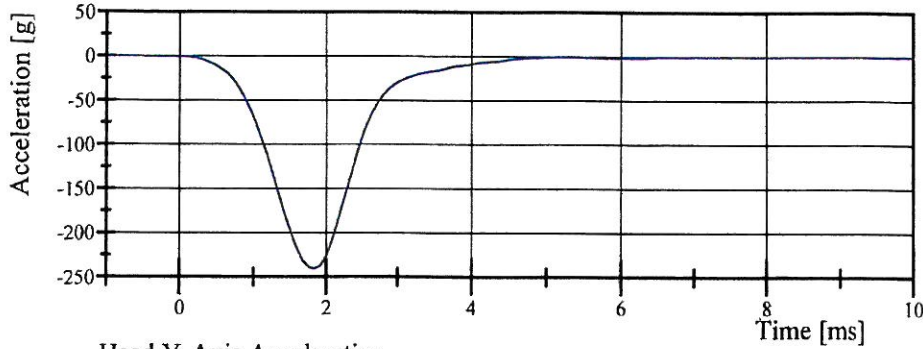
# Transportation Research Center Inc.

## Front Head Drop

HIII 50th Serial No. 206 Certification No. 21-1

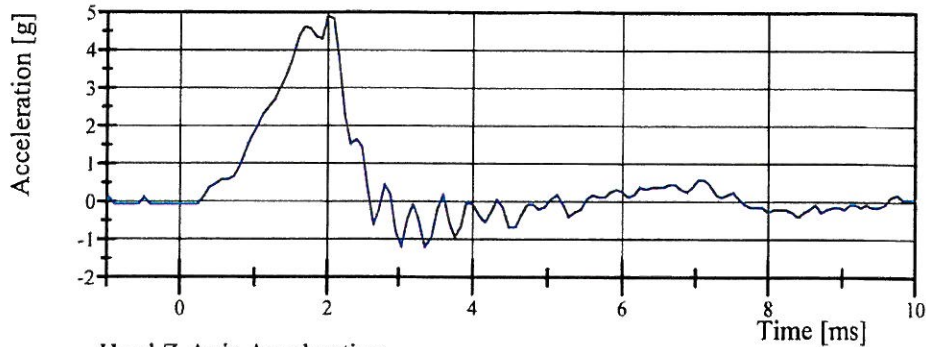
Test Date: 8/31/2009

### Head X-Axis Acceleration



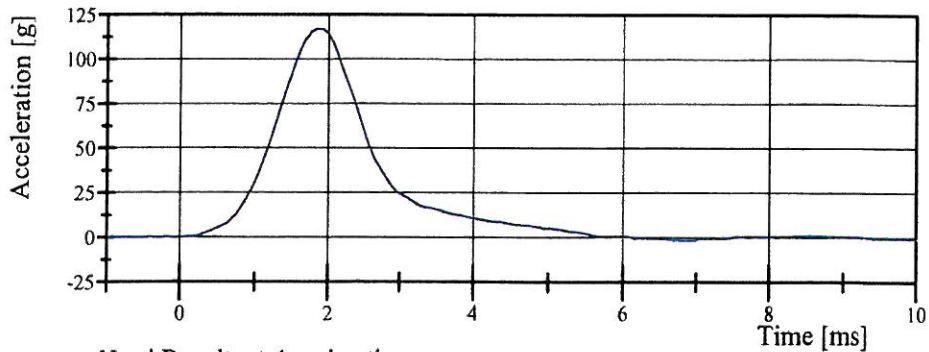
Filter Class: CFC\_1000  
Max: 0.1 g at 7.4 ms  
Min: -240.7 g at 1.8 ms

### Head Y-Axis Acceleration



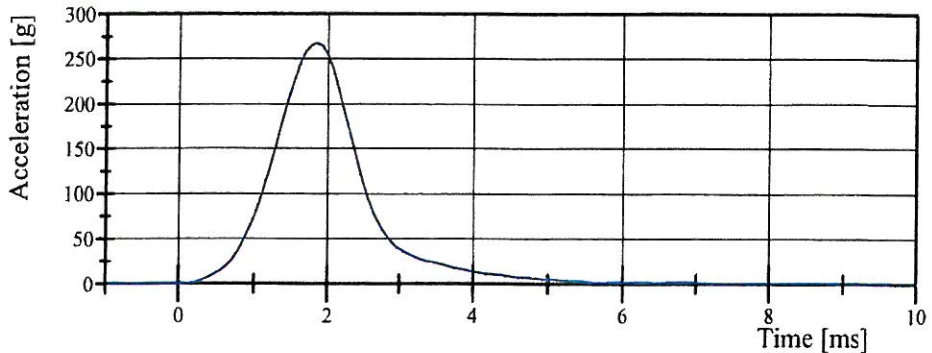
Filter Class: CFC\_1000  
Max: 4.9 g at 2.0 ms  
Min: -1.2 g at 3.0 ms

### Head Z-Axis Acceleration



Filter Class: CFC\_1000  
Max: 117.1 g at 1.8 ms  
Min: -1.8 g at 6.9 ms

### Head Resultant Acceleration



Filter Class: CFC\_1000  
Max: 267.7 g at 1.8 ms  
Min: 0.1 g at -0.9 ms

# Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 206 Certification No. 21-1

Test Date: 8/31/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	46 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	6.937 m/s	Yes
Pendulum Acceleration Decay Crossing -5g	34 - 42 ms	41.1 ms	Yes
Pendulum Acceleration at 10ms	(-22.5) - (-27.5) g	-26.24 g	Yes
Pendulum Acceleration at 20ms	(-17.6) - (-22.6) g	-20.90 g	Yes
Pendulum Acceleration at 30ms	(-12.5) - (-18.5) g	-14.79 g	Yes
Pendulum Acceleration > 30ms	>= (-29.0) g	-14.79 g	Yes
Total Head D-Plane Rotation Peak	(-64) - (-78) °	-75.4 °	Yes
Time of Peak	57 - 64 ms	60.6 ms	Yes
Total Head D-Plane Rotation Decay to 0°	113 - 128 ms	118.5 ms	Yes
Total Neck Occipital Condyles Moment Peak	88 - 108 N·m	97.2 N·m	Yes
Time of Peak	47 - 58 ms	53.5 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	97 - 107 ms	106.7 ms	Yes

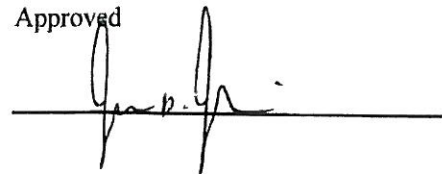
**Test meets specifications.**

**Comments:**

Technician



Approved



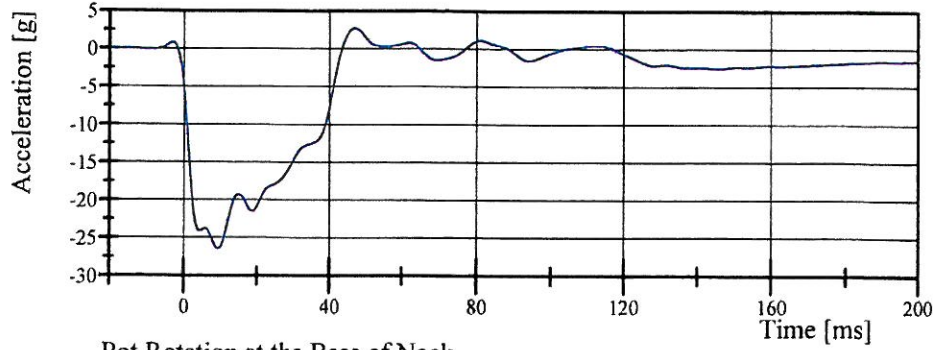
# Transportation Research Center Inc.

Neck Flexion

HIII 50th Serial No. 206 Certification No. 21-1

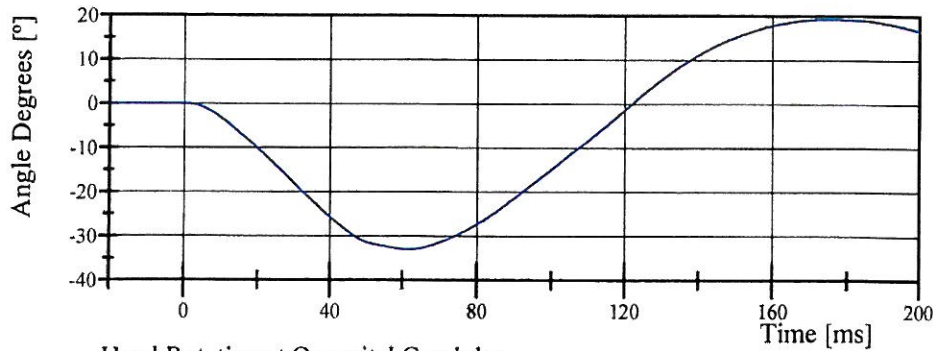
Test Date: 8/31/2009

Pendulum Acceleration



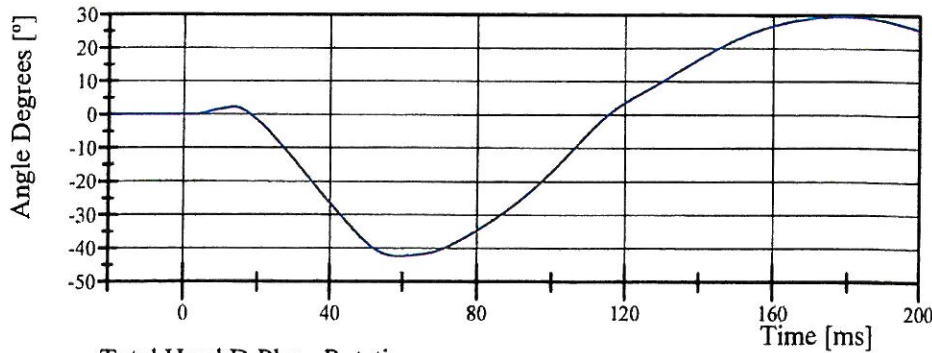
Filter Class: CFC\_60  
Max: 2.8 g at 47.1 ms  
Min: -26.4 g at 9.5 ms

Pot Rotation at the Base of Neck



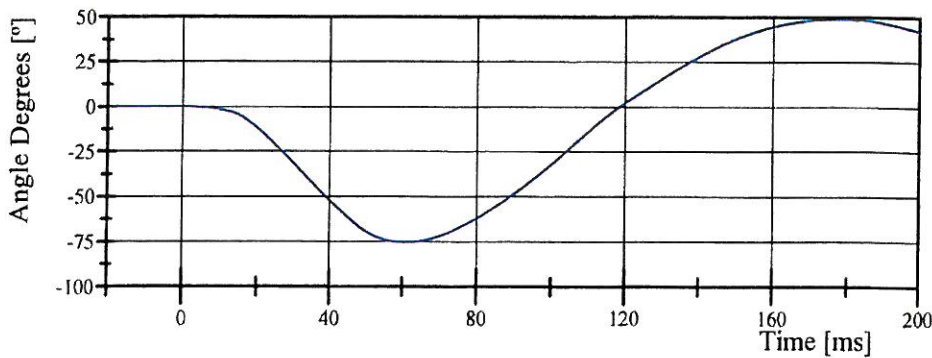
Filter Class: CFC\_60  
Max: 19.3 ° at 174.6 ms  
Min: -33.1 ° at 62.0 ms

Head Rotation at Occypital Condyles



Filter Class: CFC\_60  
Max: 29.6 ° at 178.8 ms  
Min: -42.4 ° at 59.2 ms

Total Head D-Plane Rotation



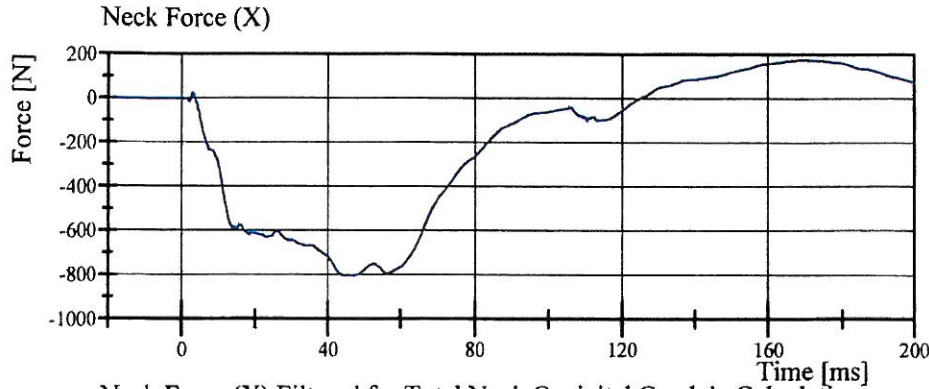
Filter Class: CFC\_60  
Max: 48.9 ° at 177.8 ms  
Min: -75.4 ° at 60.6 ms

# Transportation Research Center Inc.

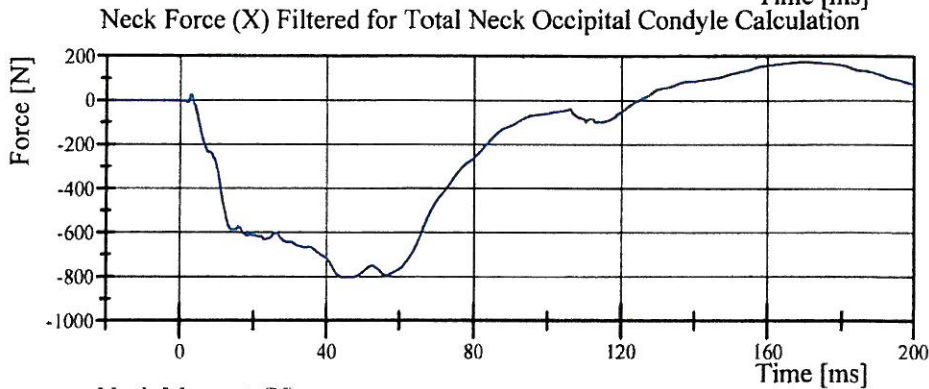
## Neck Flexion

HIII 50th Serial No. 206 Certification No. 21-1

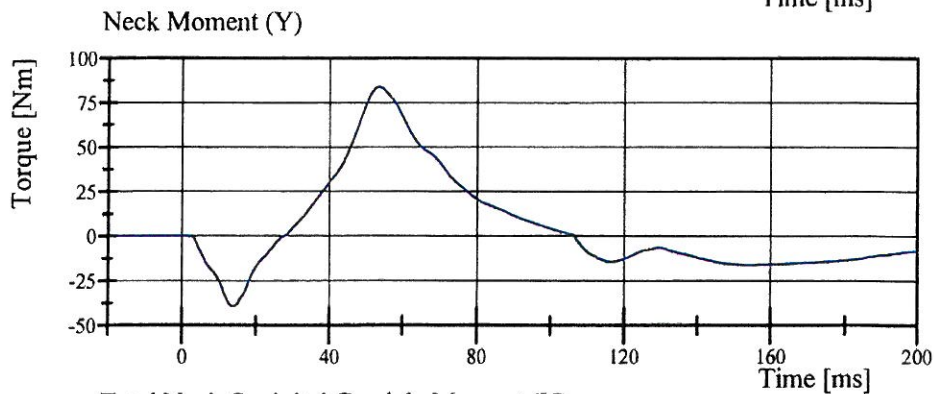
Test Date: 8/31/2009



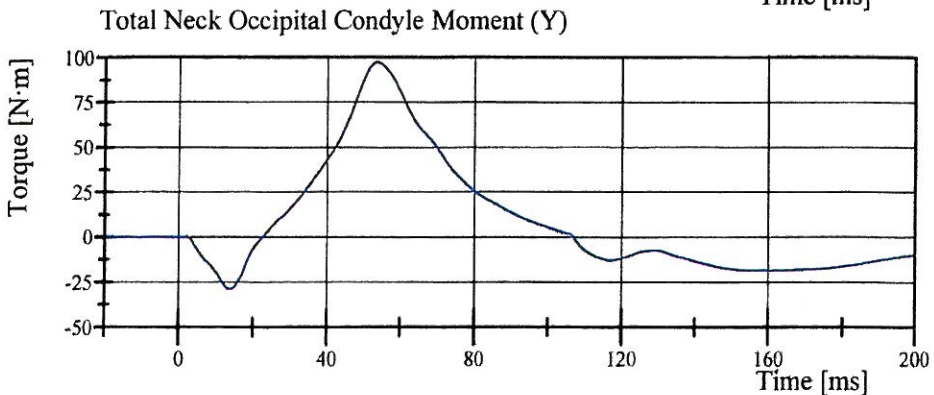
Filter Class: CFC\_1000  
Max: 175.6 N at 170.1 ms  
Min: -804.9 N at 46.7 ms



Filter Class: CFC\_600  
Max: 175.2 N at 170.1 ms  
Min: -804.6 N at 46.7 ms



Filter Class: CFC\_600  
Max: 83.9 Nm at 53.3 ms  
Min: -39.3 Nm at 13.9 ms



Filter Class: CFC\_600  
Max: 97.2 N·m at 53.5 ms  
Min: -29.0 N·m at 13.8 ms

# Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 206 Certification No. 21-1

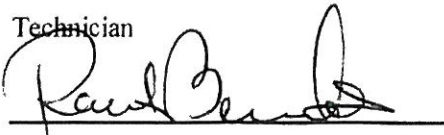
Test Date: 8/31/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.5 °C	Yes
Relative Humidity	10 - 70 %	45 %	Yes
Pendulum Velocity	(-5.95) - (-6.18) m/s	-5.968 m/s	Yes
Pendulum Acceleration Decay Crossing 5g	38 - 46 ms	39.7 ms	Yes
Pendulum Acceleration at 10ms	17.2 - 21.2 g	20.55 g	Yes
Pendulum Acceleration at 20ms	14.0 - 19.0 g	17.51 g	Yes
Pendulum Acceleration at 30ms	11.0 - 16.0 g	13.43 g	Yes
Pendulum Acceleration > 30ms	<= 22.0 g	13.43 g	Yes
Total Head D-Plane Rotation Peak	81 - 106 °	96.5 °	Yes
Time of Peak	72 - 82 ms	75.2 ms	Yes
Total Head D-Plane Rotation Decay to 0°	147 - 174 ms	153.9 ms	Yes
Total Neck Occipital Condyles Moment Peak	(-53) - (-80) N·m	-67.2 N·m	Yes
Time of Peak	65 - 79 ms	70.4 ms	Yes
Total Neck Occipital Condyles Moment Decay to 0 N·m	120 - 148 ms	141.1 ms	Yes

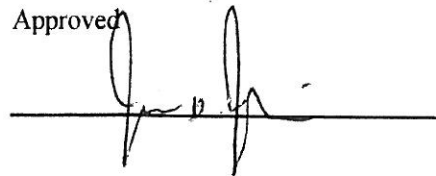
**Test meets specifications.**

**Comments:**

Technician



Approved



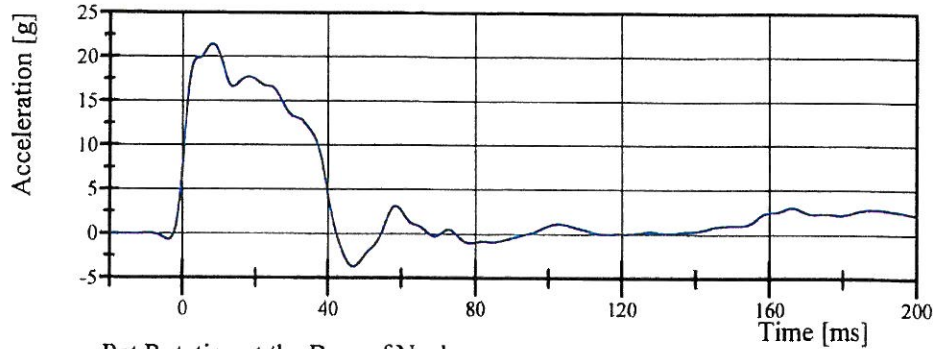
# Transportation Research Center Inc.

Neck Extension

HIII 50th Serial No. 206 Certification No. 21-1

Test Date: 8/31/2009

Pendulum Acceleration

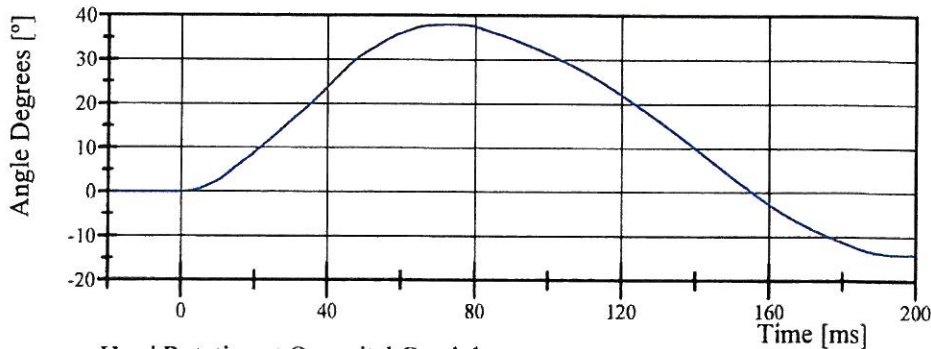


Filter Class: CFC\_60

Max: 21.5 g at 8.2 ms

Min: -3.7 g at 47.0 ms

Pot Rotation at the Base of Neck

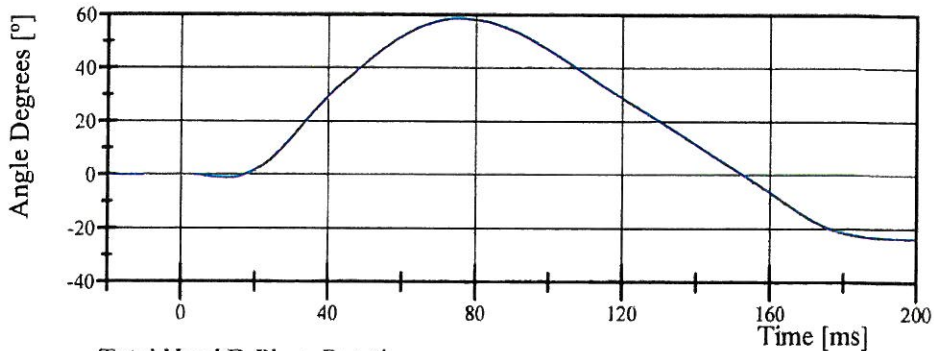


Filter Class: CFC\_60

Max: 38.0 ° at 73.5 ms

Min: -14.1 ° at 196.8 ms

Head Rotation at Occypital Condyles

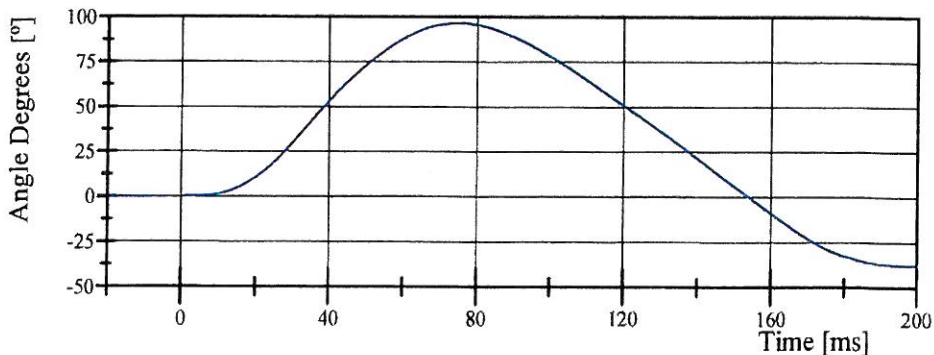


Filter Class: CFC\_60

Max: 58.6 ° at 75.6 ms

Min: -23.7 ° at 197.8 ms

Total Head D-Plane Rotation



Filter Class: CFC\_60

Max: 96.5 ° at 75.2 ms

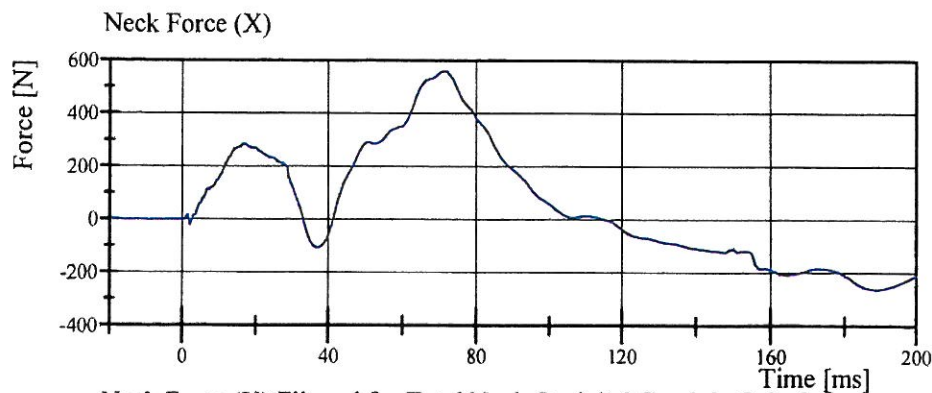
Min: -37.8 ° at 197.3 ms

# Transportation Research Center Inc.

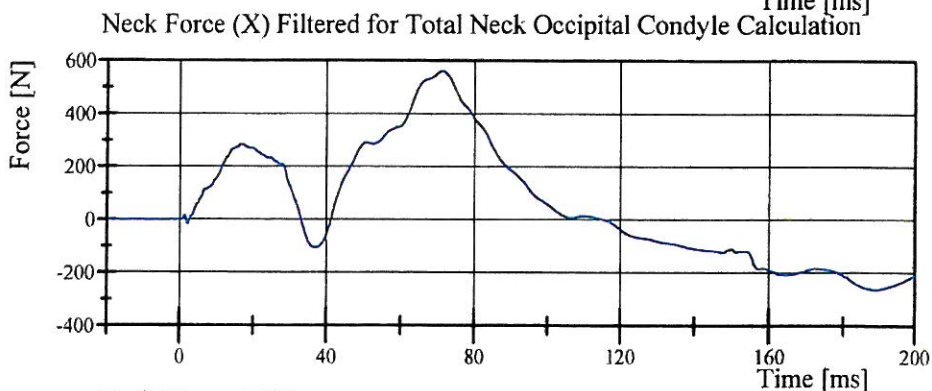
Neck Extension

HIII 50th Serial No. 206 Certification No. 21-1

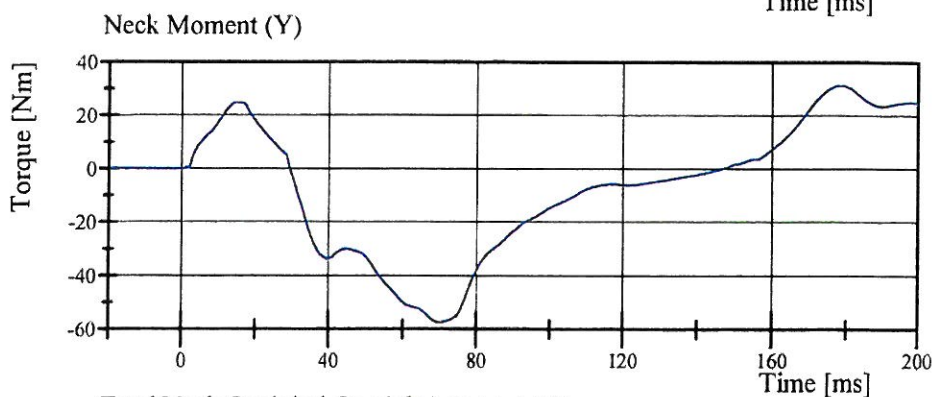
Test Date: 8/31/2009



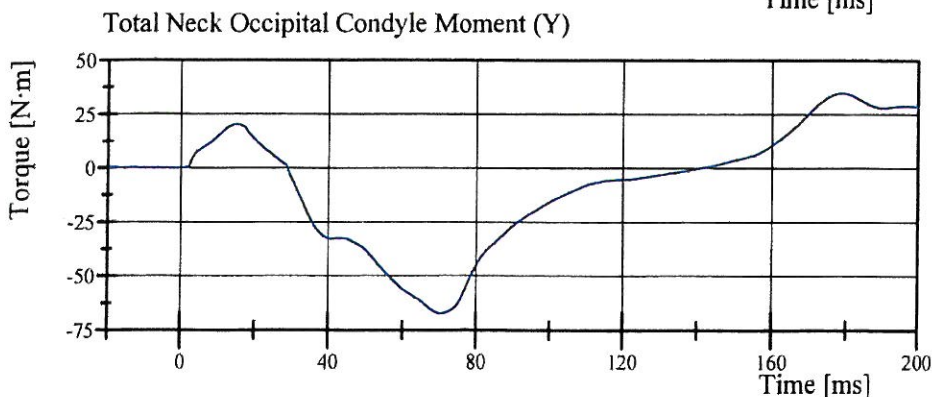
Filter Class: CFC\_1000  
Max: 561.6 N at 71.1 ms  
Min: -263.3 N at 189.4 ms



Filter Class: CFC\_600  
Max: 561.3 N at 71.2 ms  
Min: -262.9 N at 189.3 ms



Filter Class: CFC\_600  
Max: 31.4 Nm at 178.3 ms  
Min: -57.4 Nm at 70.1 ms



Filter Class: CFC\_600  
Max: 34.9 N-m at 178.8 ms  
Min: -67.2 N-m at 70.4 ms

# Transportation Research Center Inc.

Front Thorax

HIII 50th Serial No. 206 Certification No. 21-1

Test Date: 9/1/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	41 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.741 m/s	Yes
Probe Force Peak	(-5,160) - (-5,893) N	-5,740.3 N	Yes
Maximum Chest Compression	(-63.5) - (-72.6) mm	-70.11 mm	Yes
Internal Hysteresis	65 - 85 %	71.3 %	Yes

**Test meets specifications.**

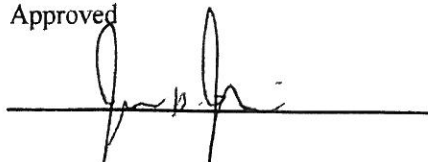
**Comments:**

Technician



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Approved



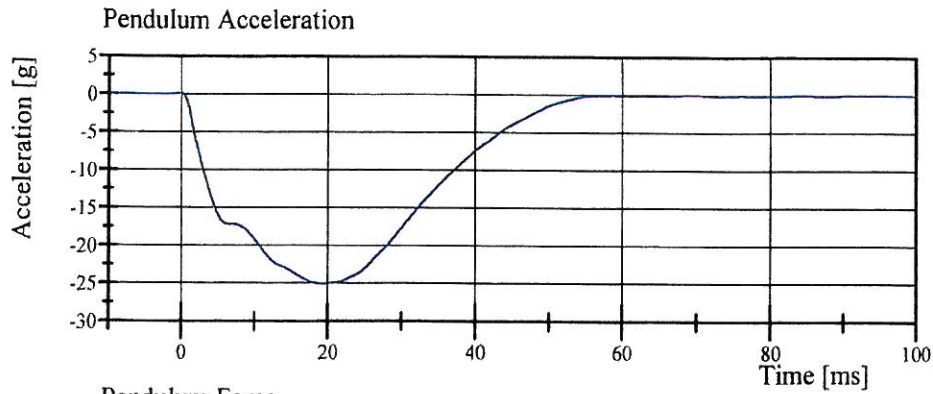
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# Transportation Research Center Inc.

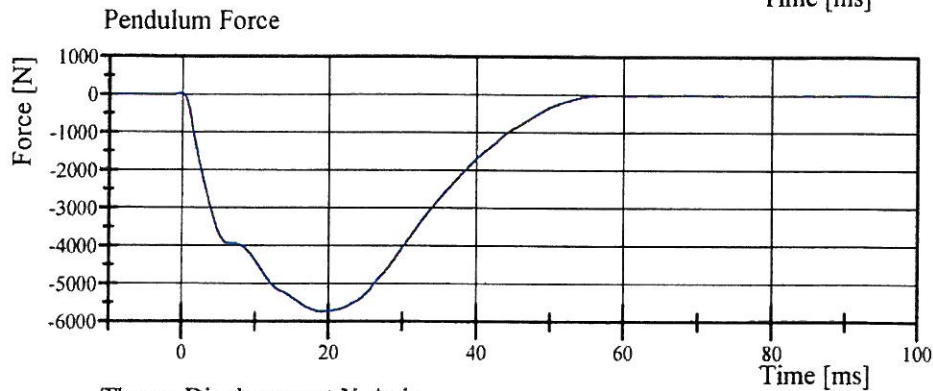
Front Thorax

HIII 50th Serial No. 206 Certification No. 21-1

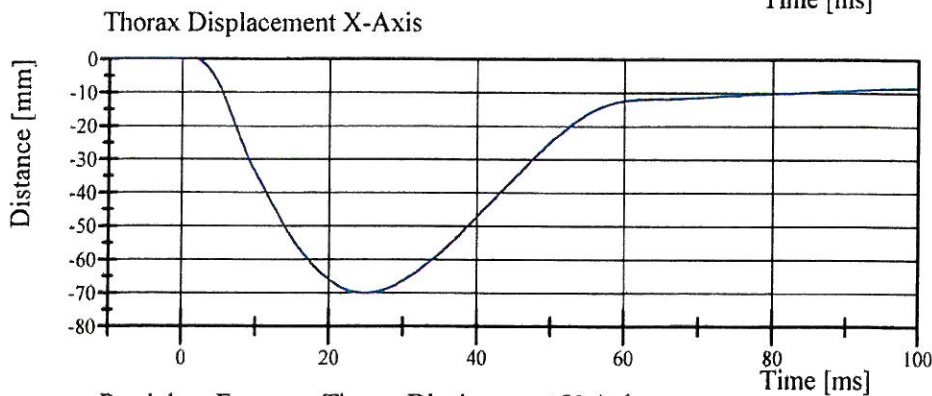
Test Date: 9/1/2009



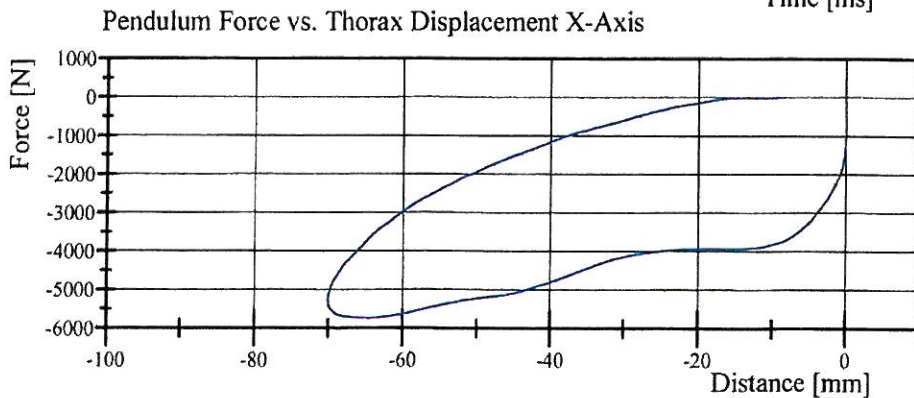
Filter Class: CFC\_180  
Max: 0.1 g at -0.2 ms  
Min: -25.0 g at 19.0 ms



Filter Class: CFC\_180  
Max: 31.2 N at -0.2 ms  
Min: -5,740.3 N at 19.0 ms



Filter Class: CFC\_600  
Max: 0.0 mm at -9.0 ms  
Min: -70.1 mm at 25.0 ms



Filter Class: CFC\_180  
Max: 31.2 N at -0.0 mm  
Min: -5,740.3 N at -64.4 mm

# Transportation Research Center Inc

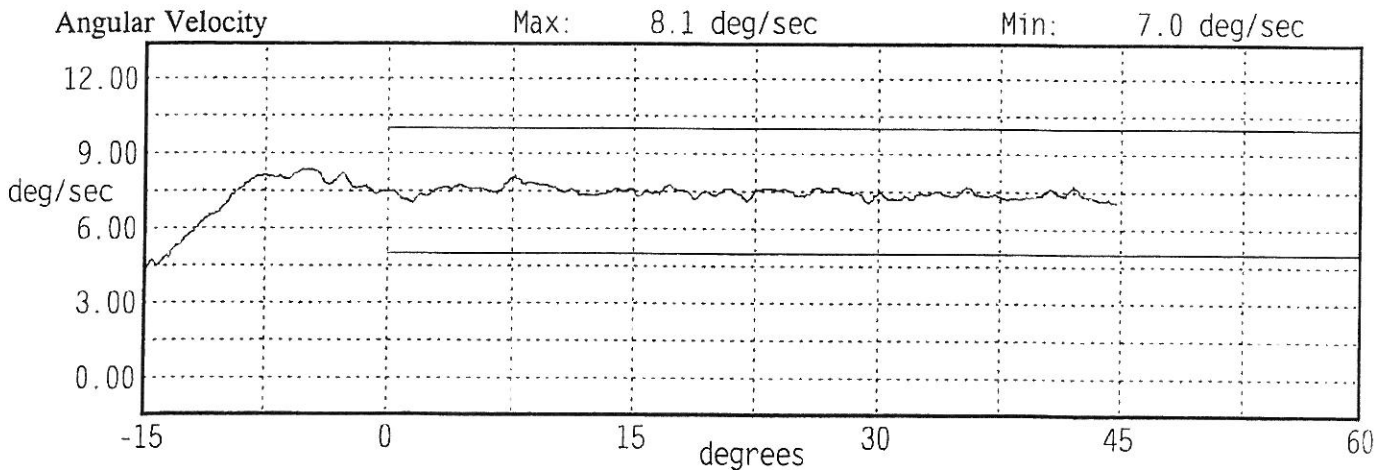
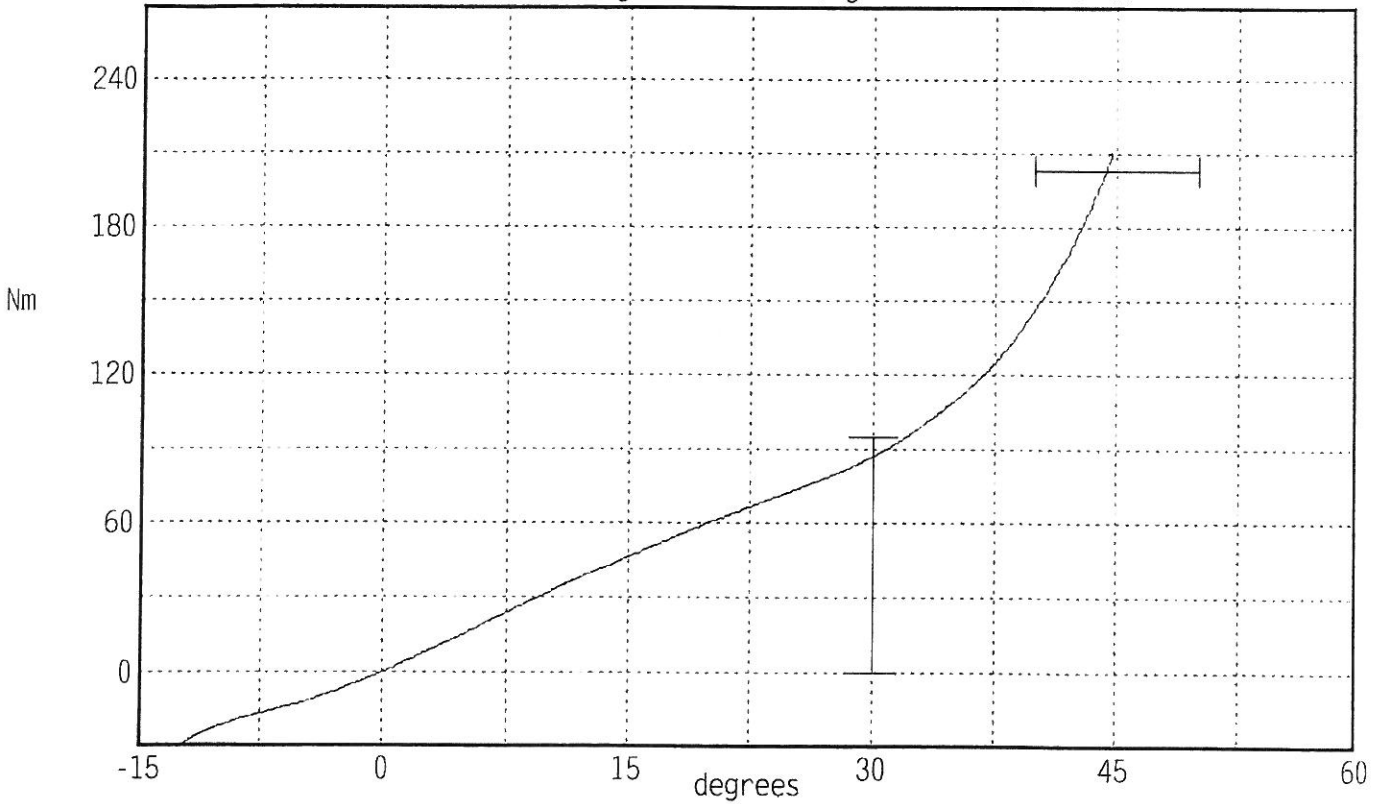
Hybrid III Hip Range of Motion

Serial Number: 206L  
Test Number: 206C21  
Comments:

Date: 08/31/2009  
Time: 16:59

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.6 °C	Pass
Humidity	10 - 70	45 %	Pass
Moment at 30 deg	<= 94.9	87.3 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	44.4 deg	Pass
Average Velocity	5.0 - 10.0	7.4 deg/sec	Pass

Moment About H-Point  
Peak Moment: 210.3 Nm at 44.7 deg  
Peak Angle: 44.7 deg at 210.3 Nm



# Transportation Research Center Inc

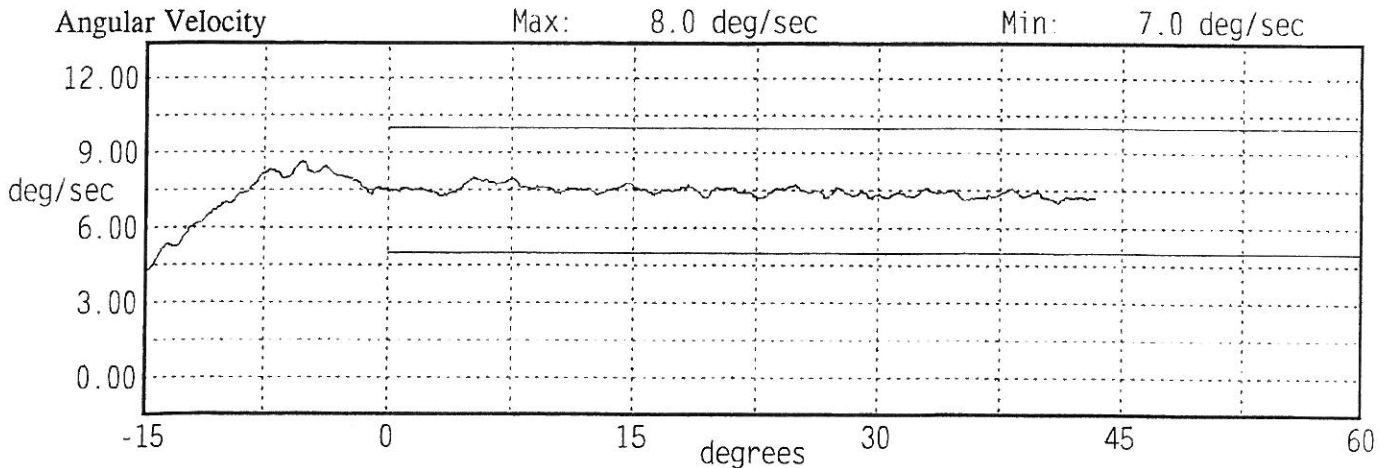
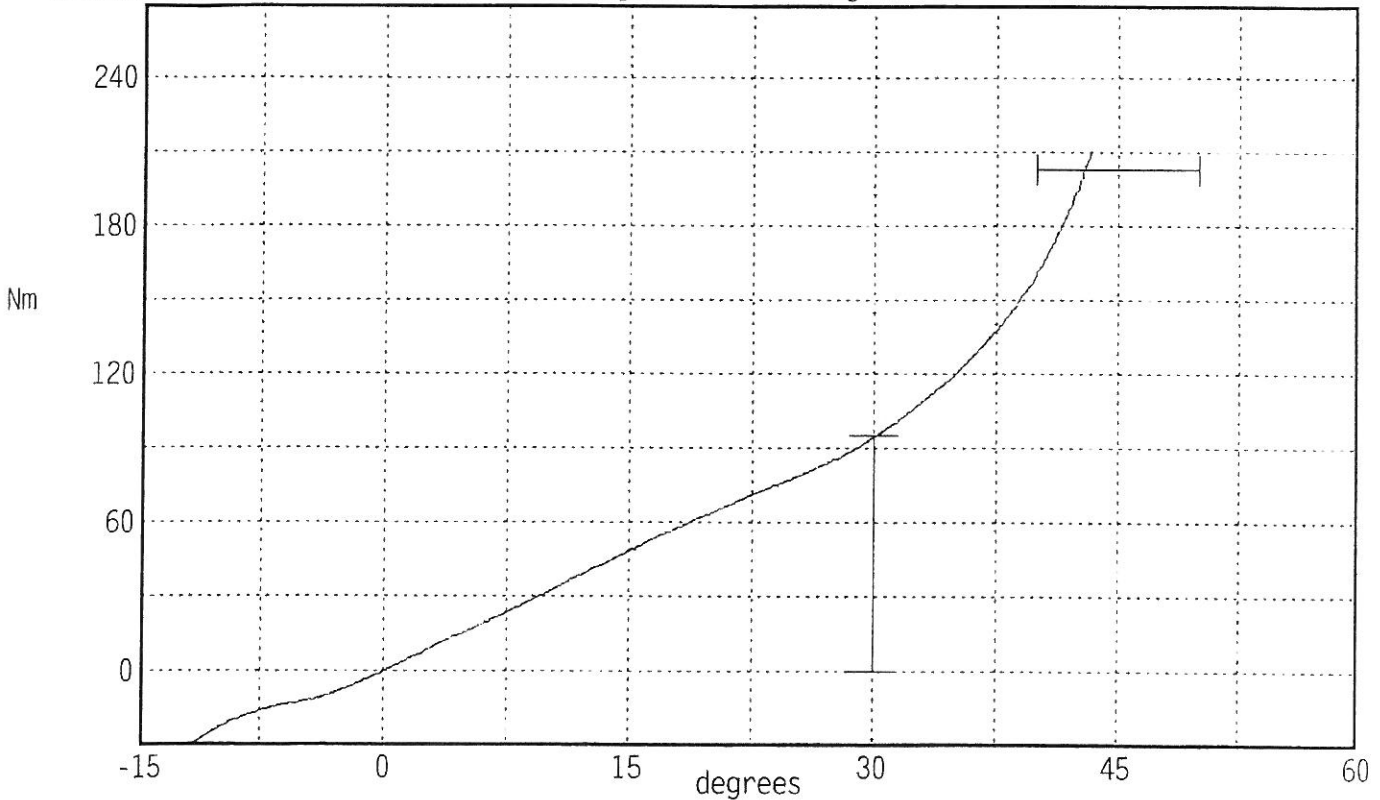
Hybrid III Hip Range of Motion

Serial Number: 206R  
Test Number: 206C21  
Comments:

Date: 08/31/2009  
Time: 17:35

TEST PARAMETER	SPECIFICATION	TEST RESULTS	
Temperature	18.9 - 25.6	21.6 °C	Pass
Humidity	10 - 70	45 %	Pass
Moment at 30 deg	<= 94.9	94.1 Nm	Pass
Angle at 203 Nm	40.0 - 50.0	43.0 deg	Pass
Average Velocity	5.0 - 10.0	7.4 deg/sec	Pass

Moment About H-Point  
Peak Moment: 210.5 Nm at 43.4 deg  
Peak Angle: 43.4 deg at 210.5 Nm



Pre-Test Dummy Configuration and Performance Verification Data

Bullet Vehicle Passenger Dummy S/N: 329

**Transportation Research Center Inc.**  
**5720 HIII 5th Female Dummy**  
**External Dimensions**  
**Serial No. 329 Calibration No. 12**

Symbol	Description	Specification	Results	Pass
		mm	mm	
A	Total Sitting Height	774.7 - 800.1	777	Yes
B	Shoulder Pivot Height	431.8 - 457.2	450	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	75	Yes
F	Thigh Clearance	119.4 - 134.6	128	Yes
G	Back of Elbow to Wrist Pivot	243.9 - 259.1	245	Yes
H	Head Back to Backline	43.2 - 48.2	45	Yes
I	Shoulder to Elbow Length	276.8 - 297.2	281	Yes
J	Elbow Rest Height	182.8 - 203.2	183	Yes
K	Buttock Knee Length	520.7 - 546.1	543	Yes
L	Popliteal Height	355.6 - 376.0	357	Yes
M	Knee Pivot Height	393.7 - 419.1	395	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	471	Yes
S	Head Breadth	137.1 - 147.3	141	Yes
T	Head Depth	177.8 - 188.0	182	Yes
U	Hip Breadth	299.7 - 314.9	306	Yes
V	Shoulder Breadth	350.5 - 365.7	361	Yes
W	Foot Breadth	78.8 - 94.0	85	Yes
X	Head Circumference	528.3 - 548.7	532	Yes
Y	Chest Circumference with Jacket	850.9 - 881.3	870	Yes
Z	Waist Circumference	759.5 - 789.9	773	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

Ronald Barend

Approved

Jan. Jan



# Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 329 Certification No. 12-3

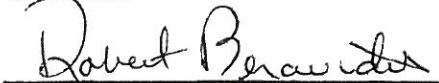
Test Date: 5/5/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Peak Head Resultant Acceleration	250 - 300 g	274.9 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	2.6 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

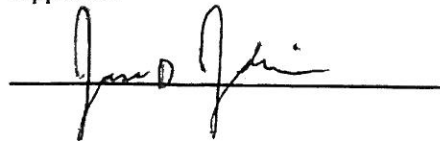
**Test meets specifications.**

**Comments:**

Technician



Approved



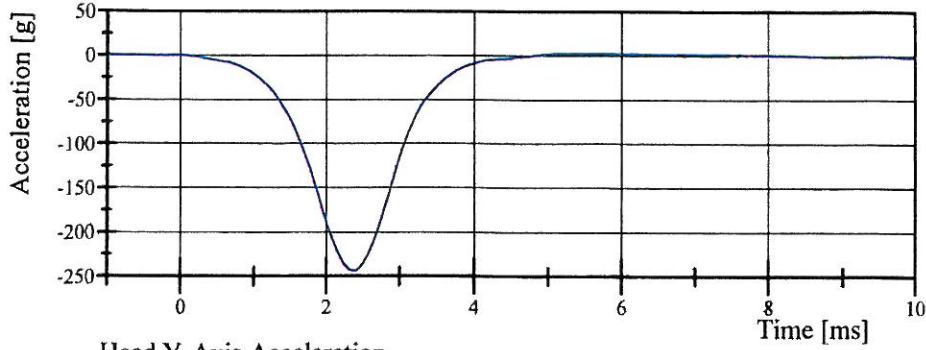
# Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 329 Certification No. 12-3

Test Date: 5/5/2009

Head X-Axis Acceleration

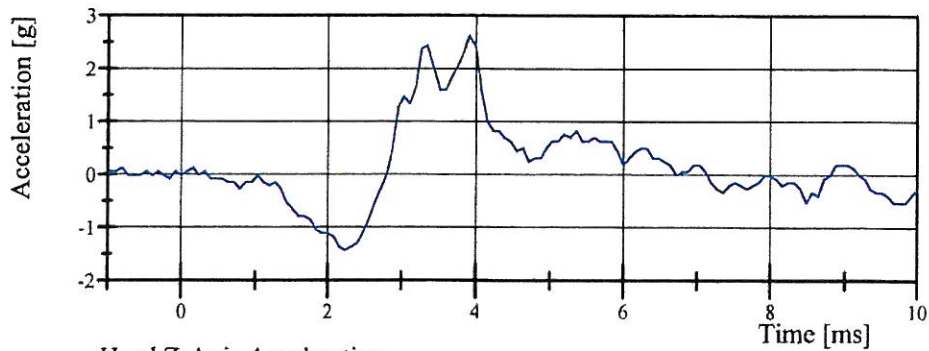


Filter Class: CFC\_1000

Max: 2.7 g at 5.8 ms

Min: -244.2 g at 2.4 ms

Head Y-Axis Acceleration

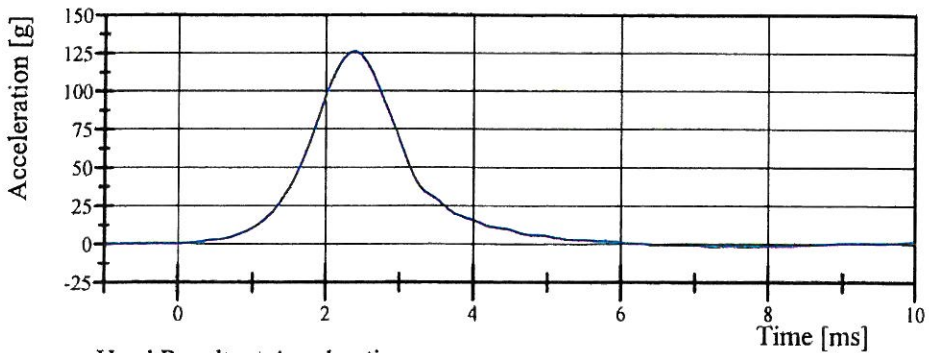


Filter Class: CFC\_1000

Max: 2.6 g at 3.9 ms

Min: -1.4 g at 2.2 ms

Head Z-Axis Acceleration

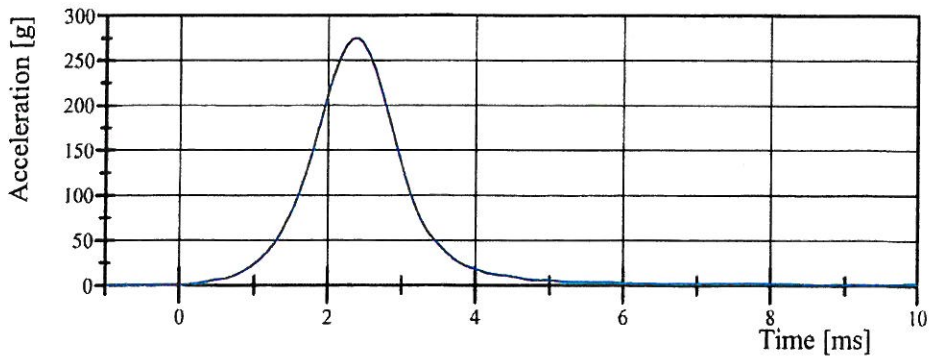


Filter Class: CFC\_1000

Max: 126.4 g at 2.4 ms

Min: -1.9 g at 7.8 ms

Head Resultant Acceleration



Filter Class: CFC\_1000

Max: 274.9 g at 2.4 ms

Min: 0.0 g at -0.4 ms

# Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 329 Certification No. 12-4

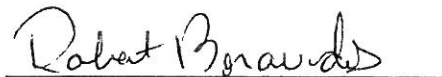
Test Date: 5/5/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.9 °C	Yes
Relative Humidity	10 - 70 %	41 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	7.010 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	(-2.1) - (-2.5) m/s	-2.26 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	(-4.0) - (-5.0) m/s	-4.31 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	(-5.8) - (-7.0) m/s	-6.02 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	81.2 N·m	Yes
Total Neck Occipital Condyles Moment Decay to 10 N·m	80 - 100 ms	85.8 ms	Yes

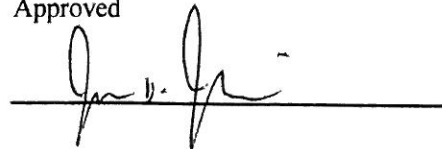
**Test meets specifications.**

**Comments:**

Technician

  
\_\_\_\_\_

Approved

  
\_\_\_\_\_

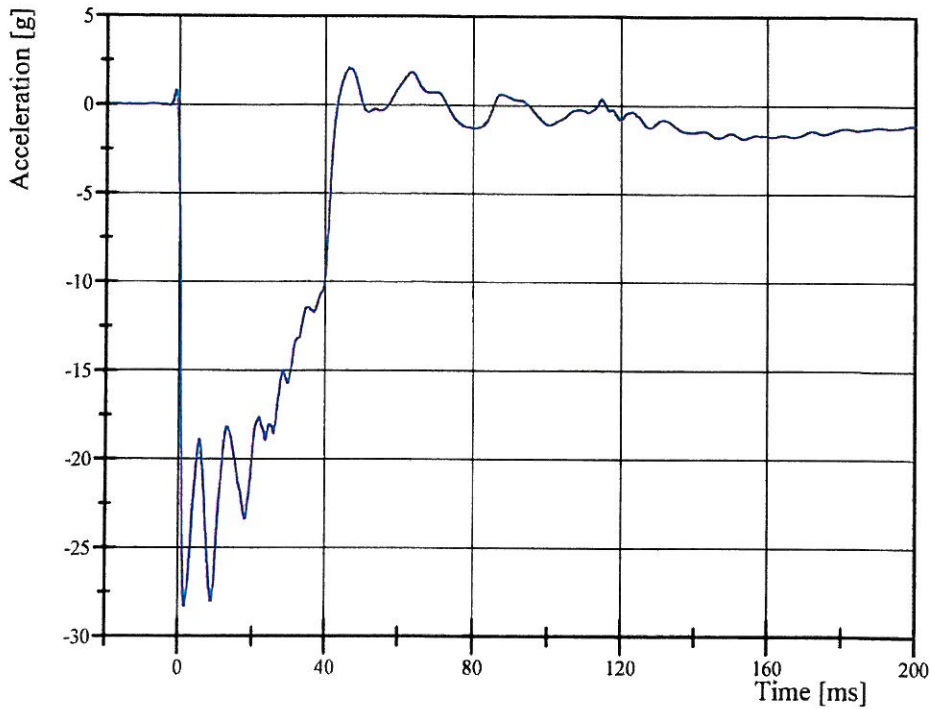
# Transportation Research Center Inc.

Neck Flexion

HIII 5th Serial No. 329 Certification No. 12-4

Test Date: 5/5/2009

Pendulum Acceleration

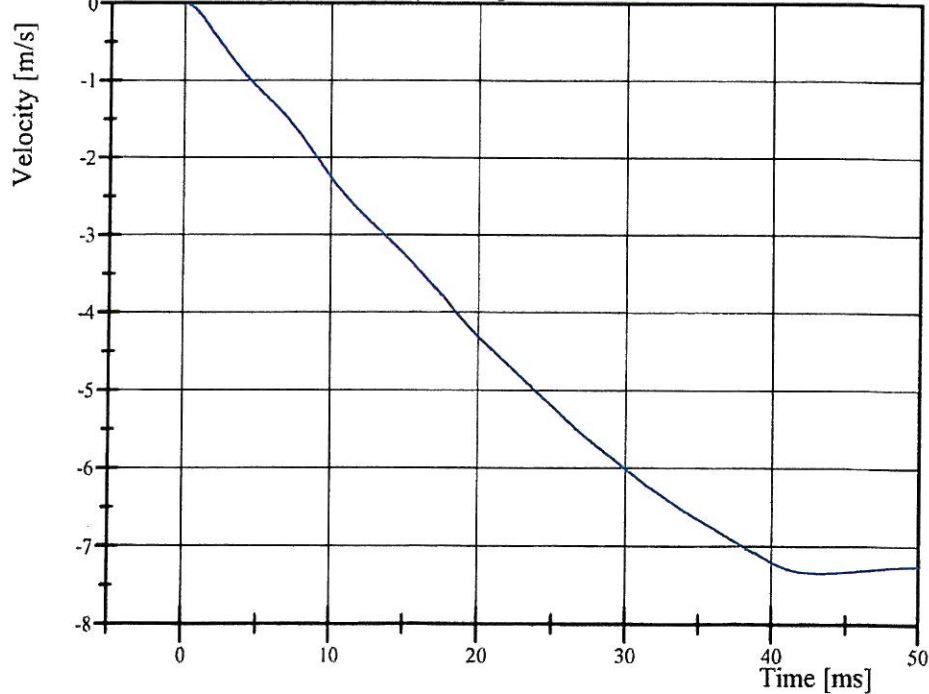


Filter Class: CFC\_180

Max: 2.1 g at 46.6 ms

Min: -28.3 g at 1.9 ms

Pendulum Integrated Velocity Change



Filter Class: CFC\_180

Max: 0.0 m/s at 0.0 ms

Min: -7.3 m/s at 43.3 ms

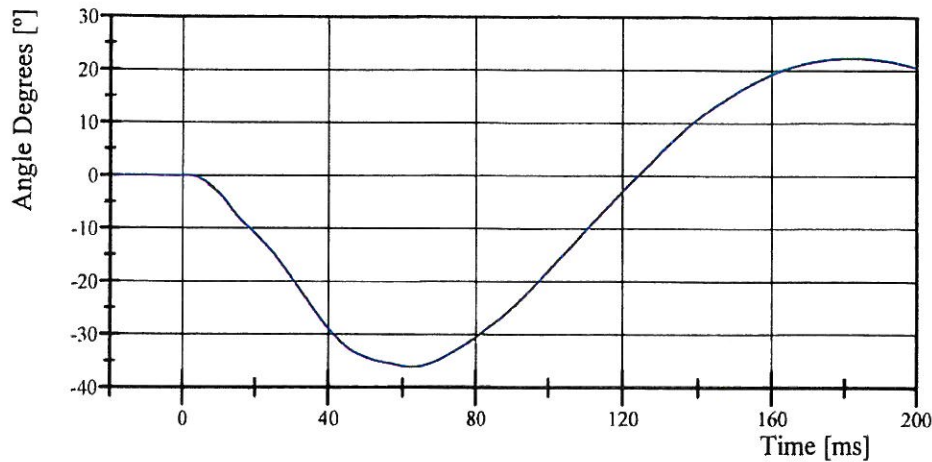
# Transportation Research Center Inc.

## Neck Flexion

HIII 5th Serial No. 329 Certification No. 12-4

Test Date: 5/5/2009

### Pot Rotation at the Base of Neck

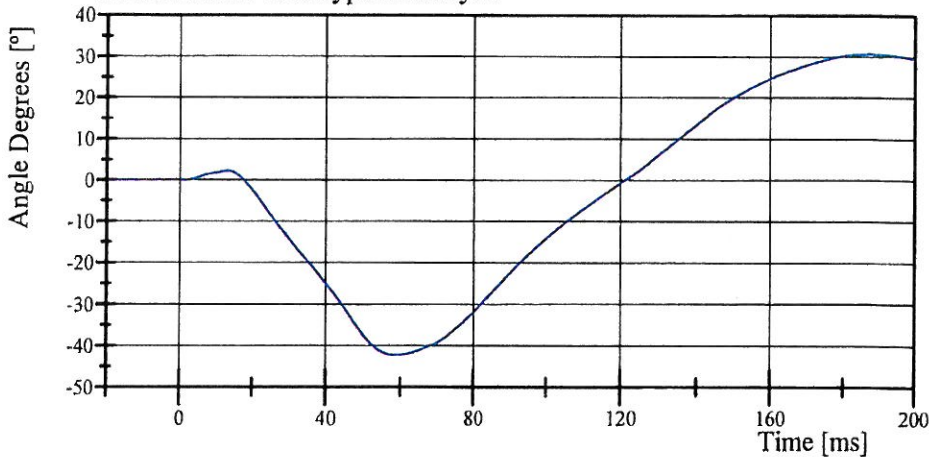


Filter Class: CFC\_60

Max: 22.3 ° at 182.6 ms

Min: -36.1 ° at 62.8 ms

### Head Rotation at Occypital Condyles

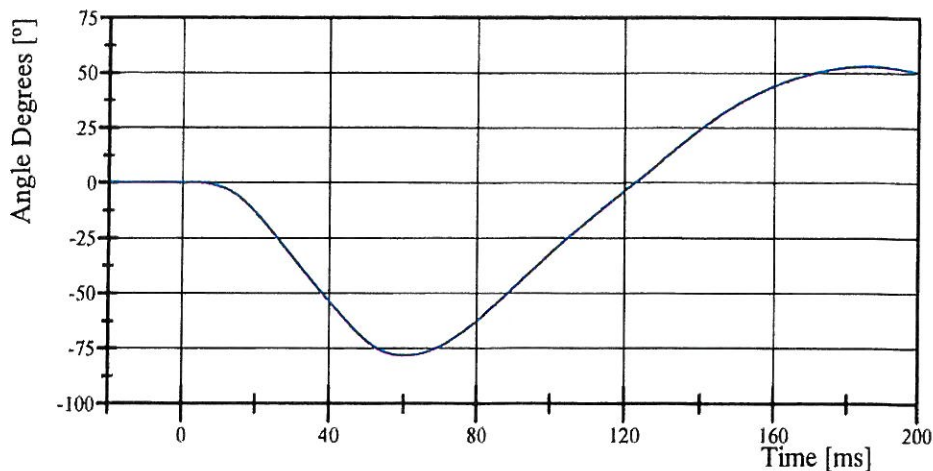


Filter Class: CFC\_60

Max: 30.7 ° at 187.8 ms

Min: -42.4 ° at 58.9 ms

### Total Head D-Plane Rotation



Filter Class: CFC\_60

Max: 52.9 ° at 185.8 ms

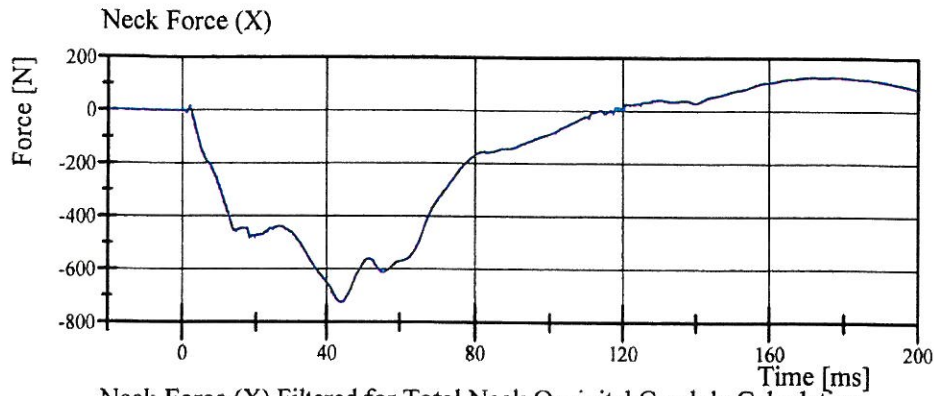
Min: -78.4 ° at 60.3 ms

# Transportation Research Center Inc.

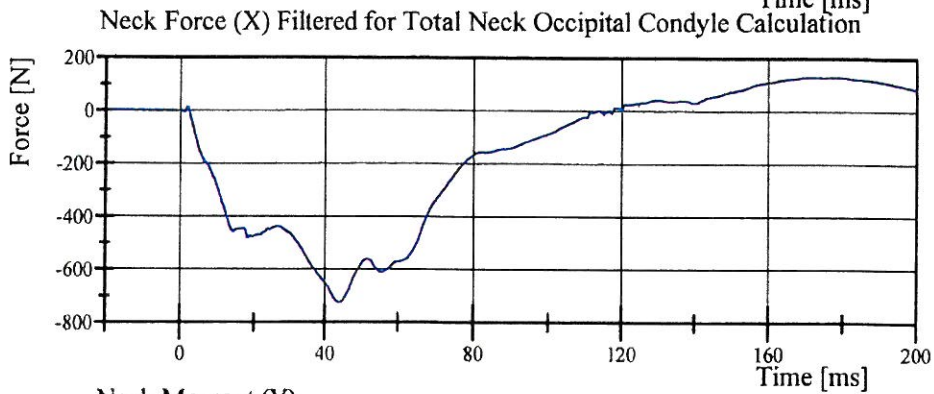
Neck Flexion

HIII 5th Serial No. 329 Certification No. 12-4

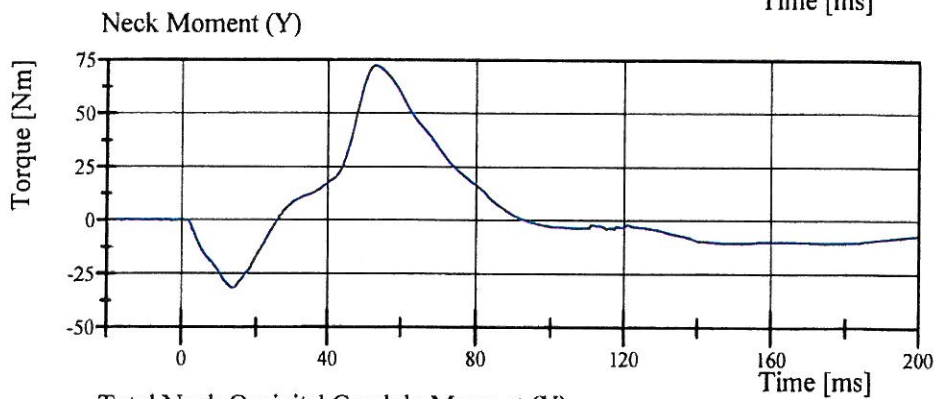
Test Date: 5/5/2009



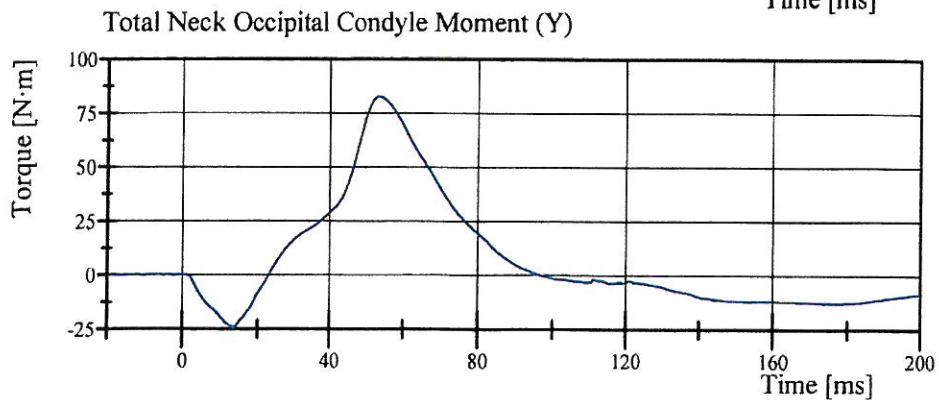
Filter Class: CFC\_1000  
Max: 130.2 N at 171.6 ms  
Min: -726.2 N at 44.0 ms



Filter Class: CFC\_600  
Max: 129.7 N at 171.6 ms  
Min: -725.5 N at 44.0 ms



Filter Class: CFC\_600  
Max: 72.3 Nm at 53.2 ms  
Min: -31.9 Nm at 13.7 ms



Filter Class: CFC\_600  
Max: 82.6 N·m at 53.5 ms  
Min: -24.0 N·m at 13.4 ms

# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 329 Certification No. 12-2

Test Date: 5/5/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.6 °C	Yes
Relative Humidity	10 - 70 %	42 %	Yes
Pendulum Velocity	(-5.95) - (-6.19) m/s	-6.042 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	1.5 - 1.9 m/s	1.88 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	3.1 - 3.9 m/s	3.65 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	4.6 - 5.6 m/s	5.28 m/s	Yes
Total Head D-Plane Rotation	99 - 114 °	106.8 °	Yes
Total Neck Occipital Condyles Moment Between 99° and 114° Rotation	(-53) - (-65) N·m	-59.0 N·m	Yes
Total Neck Occipital Condyles Moment Decay to -10 N·m	94 - 114 ms	102.3 ms	Yes

**Test meets specifications.**

**Comments:**

Technician

Robert Barrows

Approved

J. V. [Signature]

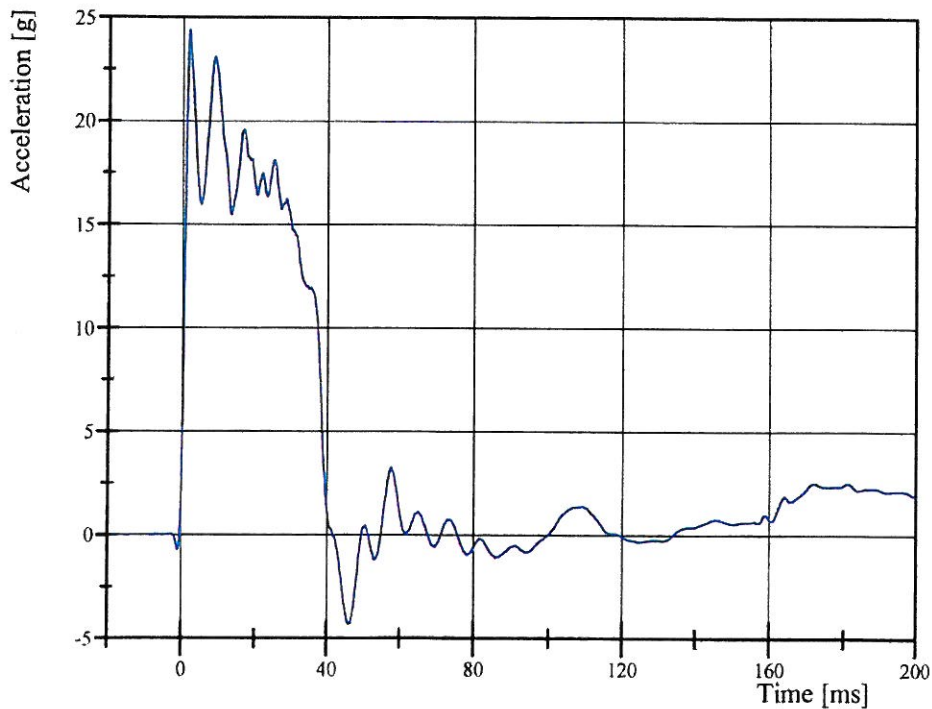
# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 329 Certification No. 12-2

Test Date: 5/5/2009

### Pendulum Acceleration

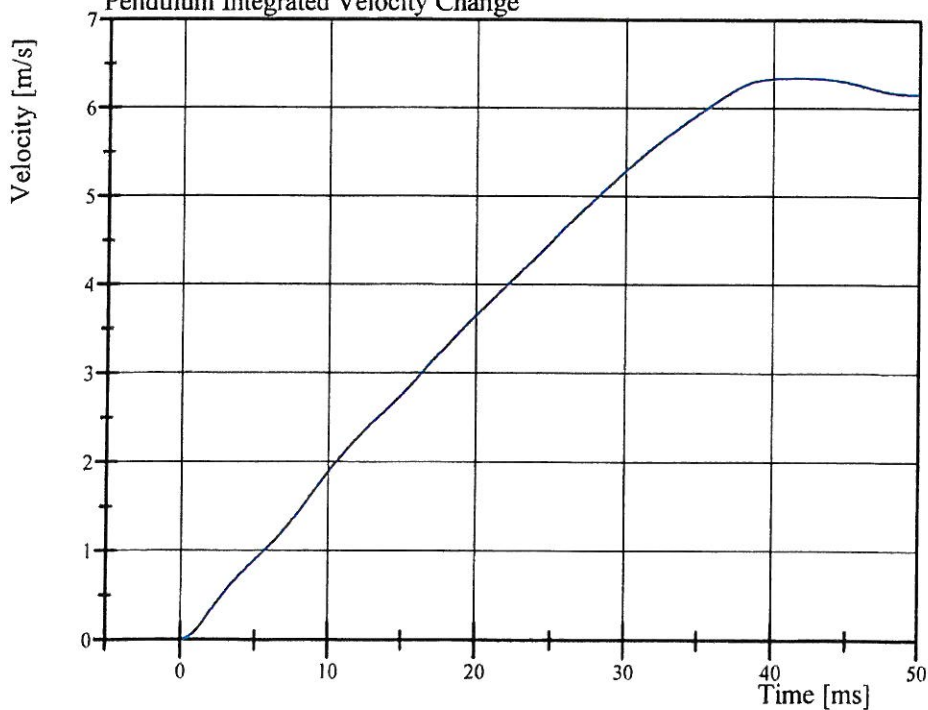


Filter Class: CFC\_180

Max: 24.4 g at 1.8 ms

Min: -4.3 g at 46.4 ms

### Pendulum Integrated Velocity Change



Filter Class: CFC\_180

Max: 6.3 m/s at 41.7 ms

Min: 0.0 m/s at 0.0 ms

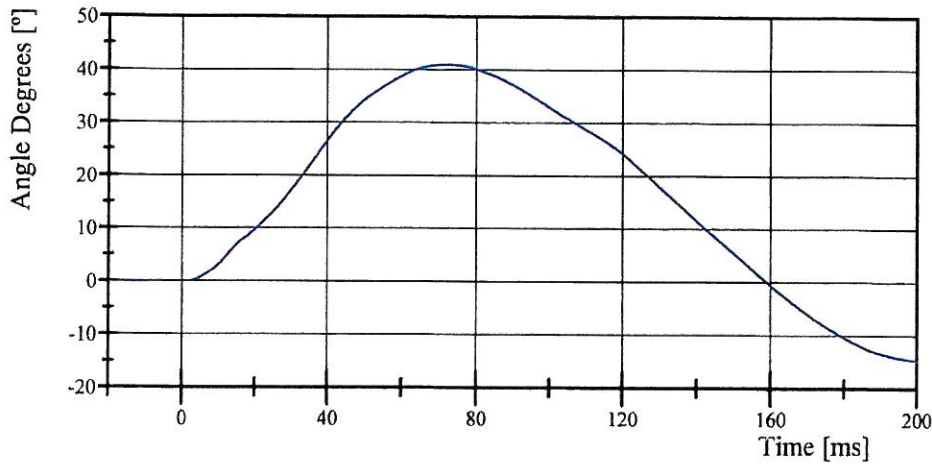
# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 329 Certification No. 12-2

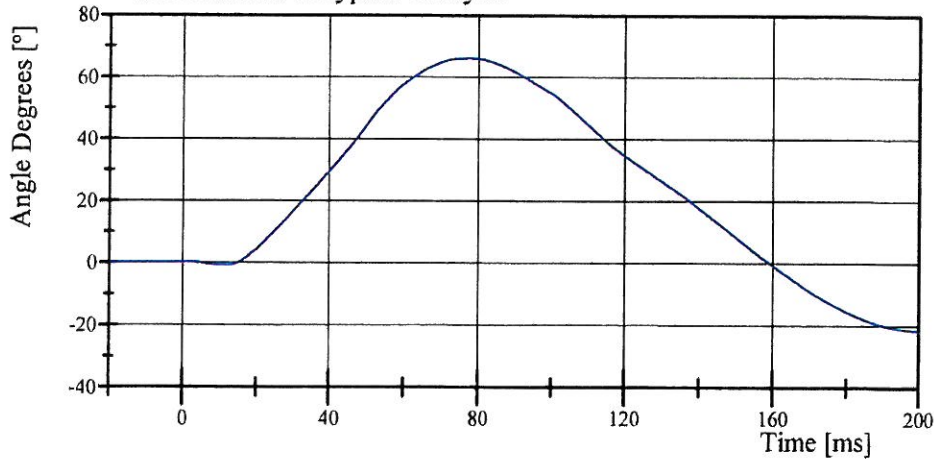
Test Date: 5/5/2009

Pot Rotation at the Base of Neck



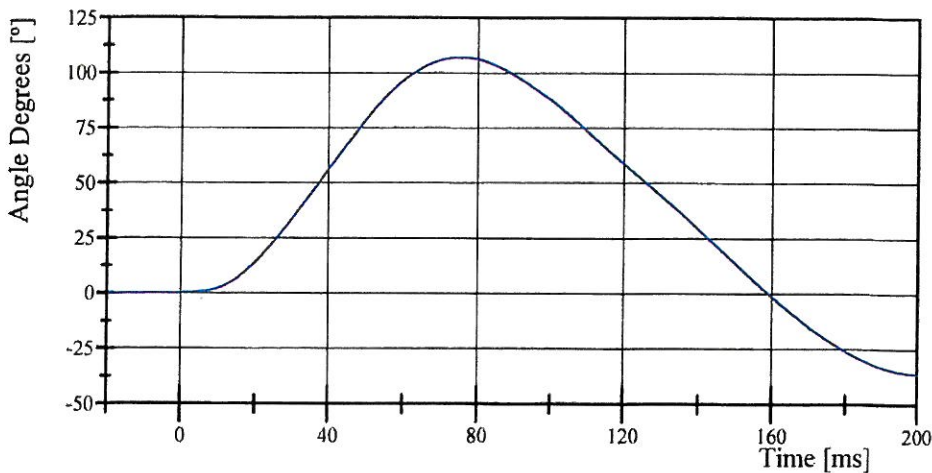
Filter Class: CFC\_60  
Max: 41.0 ° at 71.9 ms  
Min: -14.7 ° at 200.0 ms

Head Rotation at Occypital Condyles



Filter Class: CFC\_60  
Max: 66.1 ° at 77.8 ms  
Min: -21.7 ° at 200.0 ms

Total Head D-Plane Rotation



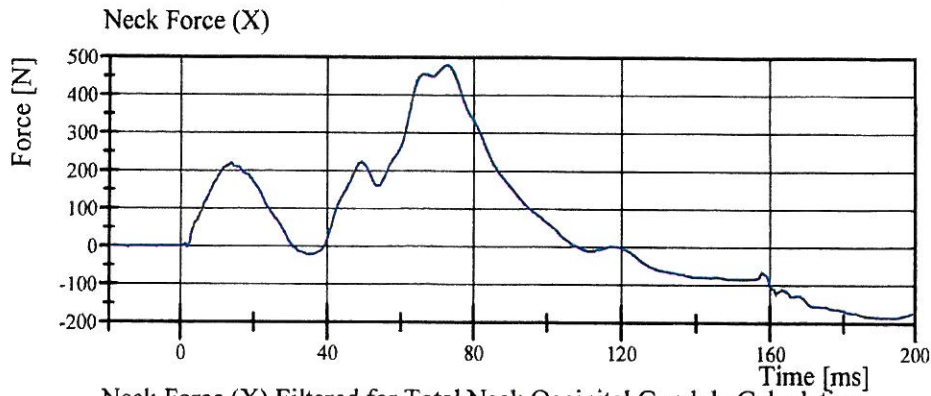
Filter Class: CFC\_60  
Max: 106.8 ° at 75.0 ms  
Min: -36.4 ° at 200.0 ms

# Transportation Research Center Inc.

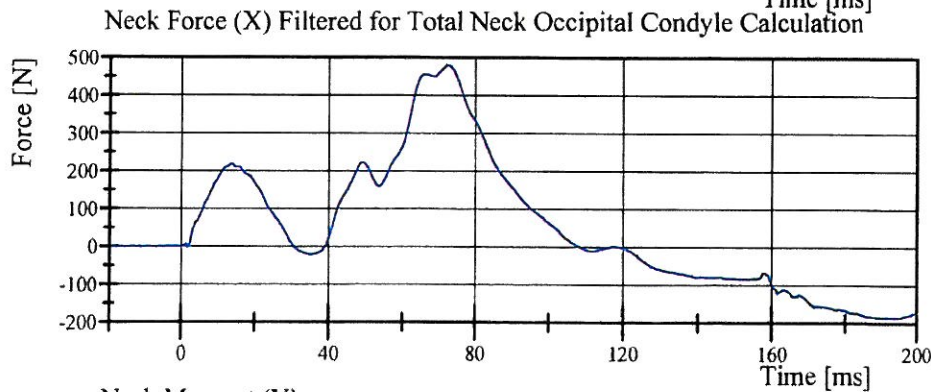
Neck Extension

HIII 5th Serial No. 329 Certification No. 12-2

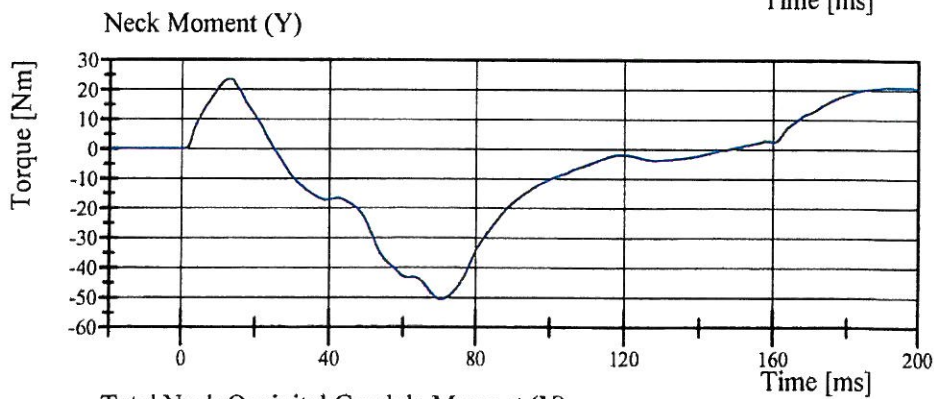
Test Date: 5/5/2009



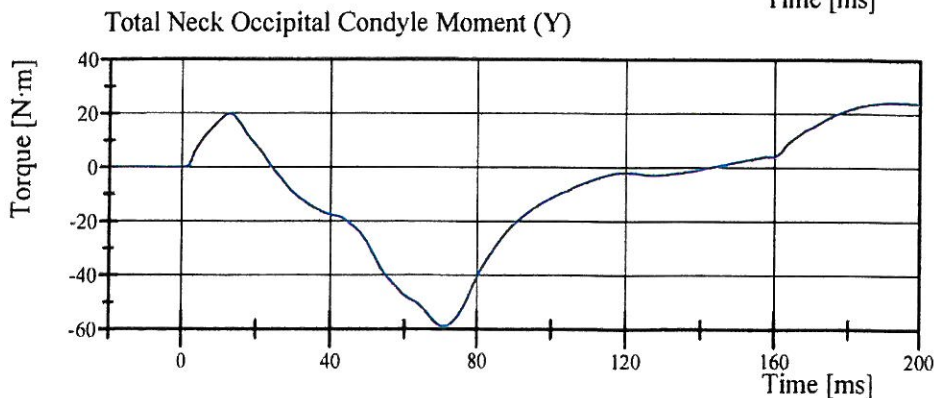
Filter Class: CFC\_1000  
Max: 480.1 N at 72.2 ms  
Min: -186.2 N at 193.8 ms



Filter Class: CFC\_600  
Max: 480.0 N at 72.4 ms  
Min: -185.8 N at 193.7 ms



Filter Class: CFC\_600  
Max: 23.5 Nm at 13.2 ms  
Min: -50.7 Nm at 70.4 ms



Filter Class: CFC\_600  
Max: 24.2 N·m at 192.6 ms  
Min: -59.0 N·m at 70.7 ms

# Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 329 Certification No. 12-2

Test Date: 5/6/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	50 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.712 m/s	Yes
Probe Force Peak Between 50.0 mm and 58.0 mm Chest Deflection	(-3,900) - (-4,400) N	-4,263.1 N	Yes
Probe Force Peak Between 18.0 mm and 50.0 mm Chest Deflection	$\geq$ (-4,600) N	-4,263.0 N	Yes
Maximum Chest Compression	(-50) - (-58) mm	-52.1 mm	Yes
Internal Hysteresis	69 - 85 %	72.0 %	Yes

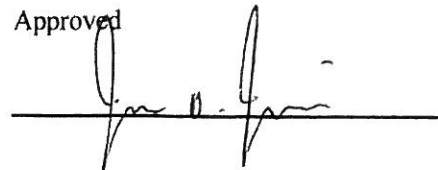
**Test meets specifications.**

**Comments:**

Technician

  
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Approved

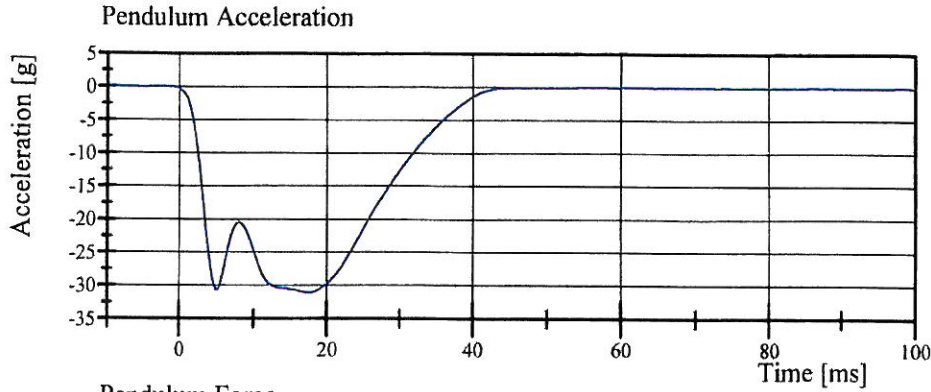
  
\_\_\_\_\_

# Transportation Research Center Inc.

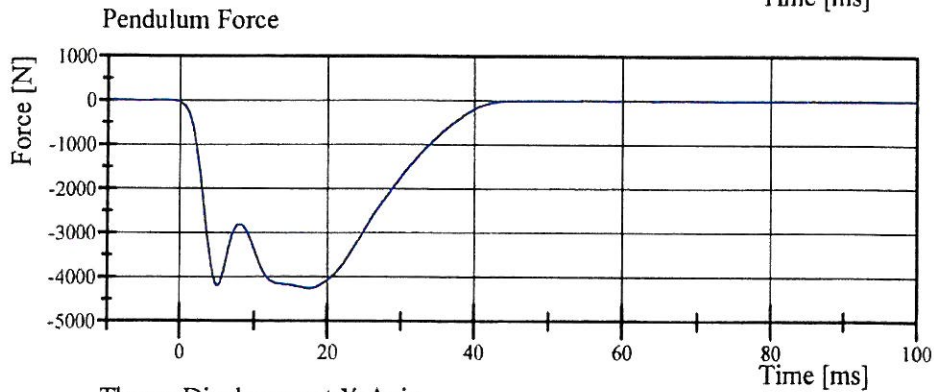
Front Thorax

HIII 5th Serial No. 329 Certification No. 12-2

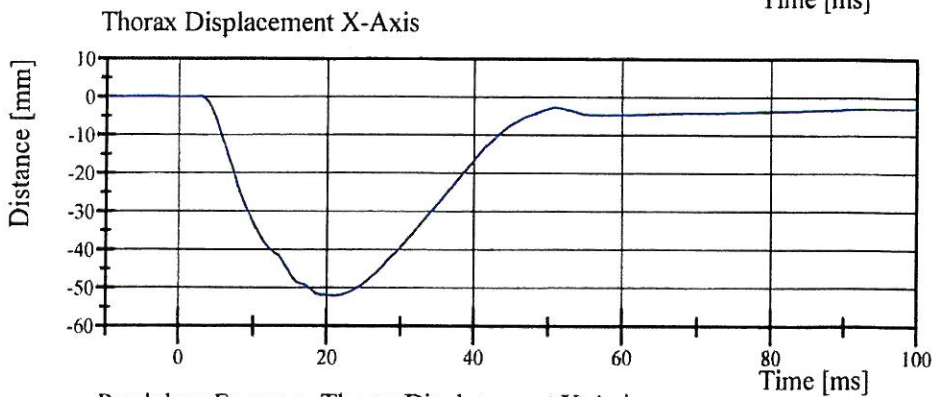
Test Date: 5/6/2009



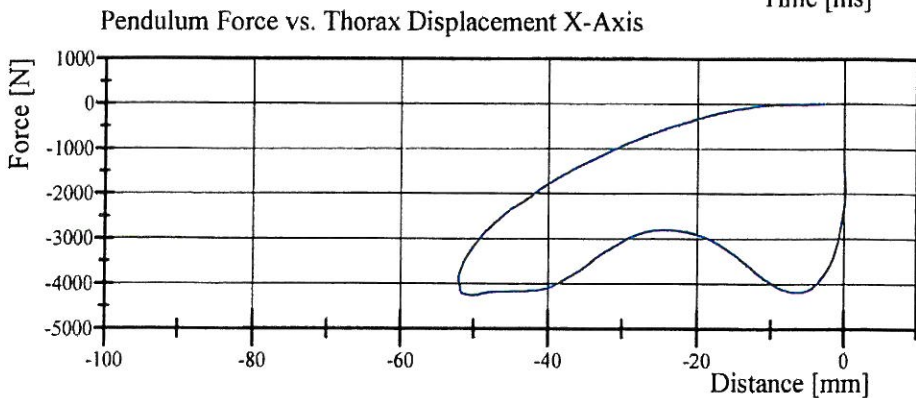
Filter Class: CFC\_180  
Max: 0.0 g at 63.0 ms  
Min: -31.1 g at 17.6 ms



Filter Class: CFC\_180  
Max: 1.9 N at 63.0 ms  
Min: -4,263.1 N at 17.6 ms



Filter Class: CFC\_600  
Max: 0.2 mm at 3.0 ms  
Min: -52.1 mm at 20.9 ms



Filter Class: CFC\_180  
Max: 1.9 N at -4.5 mm  
Min: -4,263.1 N at -50.1 mm

TRANSPORTATION RESEARCH CENTER INC.

TORSO FLEXION TEST

HYBRID III SMALL FEMALE

CAL DATE: 05-May-09

TRC, INC. TEST NO: TOFL-01 572 O SN329 TORSO FLEX CAL 12

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TIME		1607
TEMPERATURE	20.6 - 22.2° C	21.3 ° C
RELATIVE HUMIDITY	10 - 70 %	41 %
INITIAL ANGLE OF UNSUPPORTTED DUMMY <u>START ANGLE</u>	<= 20°  REFERENCED  TO VERTICAL	196 °
DIFFERENCE BETWEEN <u>RETURN</u> <u>ANGLE</u> & INTIAL ANGLE	+/- 8 ° OF  INTIAL ANGLE	4.4 °
MAXIMUM FORCE AT 45 DEG.  DURING 10 SECOND PERIOD	320 - 390 N	373.3 N
RATE	0.5° - 1.5 °/sec	.97°/sec

TEST MEETS SPECIFICATIONS

Comments:

TECHNICIAN



Pre-Test Dummy Configuration and Performance Verification Data

Bullet Vehicle Passenger Dummy S/N: 416

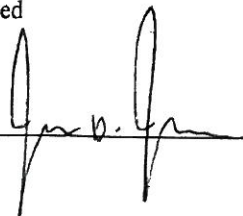
**Transportation Research Center Inc.**  
**5720 HIII 5th Female Dummy**  
**External Dimensions**  
**Serial No. 416 Calibration No. 48**

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	447	Yes
C	Hip Pivot Height	81.3 - 86.3	85	Yes
D	Hip Pivot from Backline	144.8 - 149.8	145	Yes
E	Shoulder Pivot from Backline	68.6 - 83.8	83	Yes
F	Thigh Clearance	119.4 - 134.6	128	Yes
G	Back of Elbow to Wrist Pivot	243.9 - 259.1	254	Yes
H	Head Back to Backline	43.2 - 48.2	46	Yes
I	Shoulder to Elbow Length	276.8 - 297.2	284	Yes
J	Elbow Rest Height	182.8 - 203.2	184	Yes
K	Buttock Knee Length	520.7 - 546.1	540	Yes
L	Popliteal Height	355.6 - 376.0	369	Yes
M	Knee Pivot Height	393.7 - 419.1	415	Yes
N	Buttock Popliteal Height	414.0 - 439.4	433	Yes
O	Chest Depth without Jacket	175.3 - 190.5	183	Yes
P	Foot Length	218.5 - 233.7	221	Yes
R	Buttock to Knee Pivot Length	457.2 - 482.6	468	Yes
S	Head Breadth	137.1 - 147.3	139	Yes
T	Head Depth	177.8 - 188.0	180	Yes
U	Hip Breadth	299.7 - 314.9	302	Yes
V	Shoulder Breadth	350.5 - 365.7	351	Yes
W	Foot Breadth	78.8 - 94.0	88	Yes
X	Head Circumference	528.3 - 548.7	535	Yes
Y	Chest Circumference with Jacket	850.9 - 881.3	866	Yes
Z	Waist Circumference	759.5 - 789.9	771	Yes
AA	Reference Location for Chest Circumference	332.7 - 358.1	354	Yes
BB	Reference Location for Waist Circumference	160.0 - 170.2	167	Yes

Technician



Approved





# Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 416 Certification No. 48-1

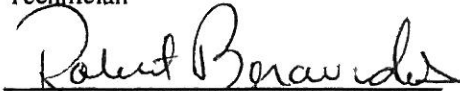
Test Date: 7/20/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.5 °C	21.4 °C	Yes
Relative Humidity	10 - 70 %	47 %	Yes
Peak Head Resultant Acceleration	250 - 300 g	268.1 g	Yes
Peak Head Lateral Acceleration	(-15) - 15 g	-0.8 g	Yes
Is Acceleration Curve Unimodal within 10% of Peak?	Yes	Yes	Yes

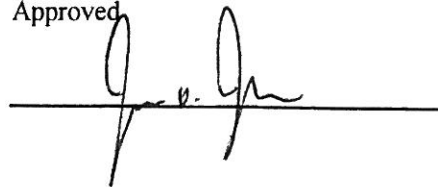
**Test meets specifications.**

**Comments:**

Technician

  
\_\_\_\_\_

Approved

  
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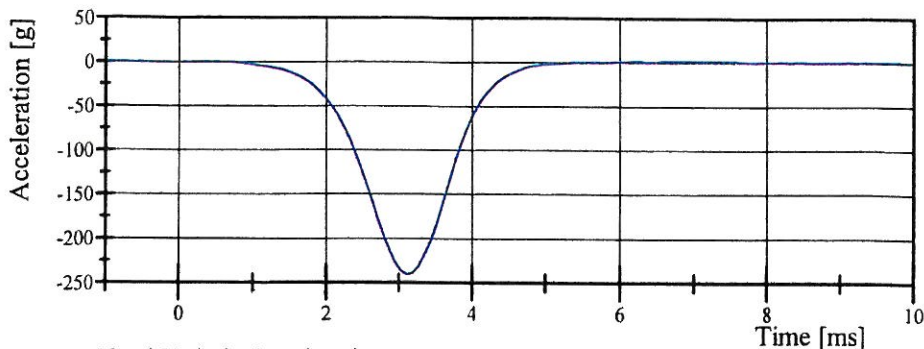
# Transportation Research Center Inc.

Front Head Drop

HIII 5th Serial No. 416 Certification No. 48-1

Test Date: 7/20/2009

Head X-Axis Acceleration

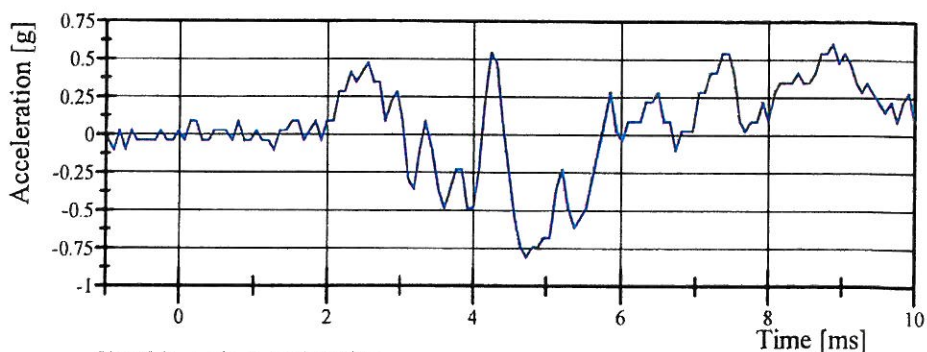


Filter Class: CFC\_1000

Max: 1.4 g at 7.1 ms

Min: -240.2 g at 3.1 ms

Head Y-Axis Acceleration

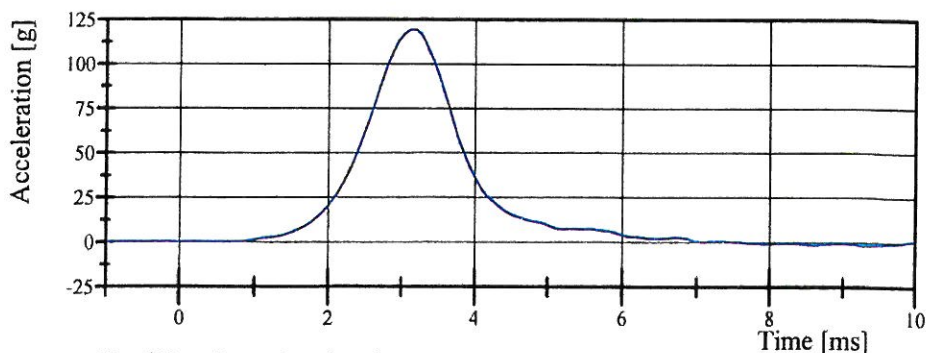


Filter Class: CFC\_1000

Max: 0.6 g at 8.9 ms

Min: -0.8 g at 4.7 ms

Head Z-Axis Acceleration

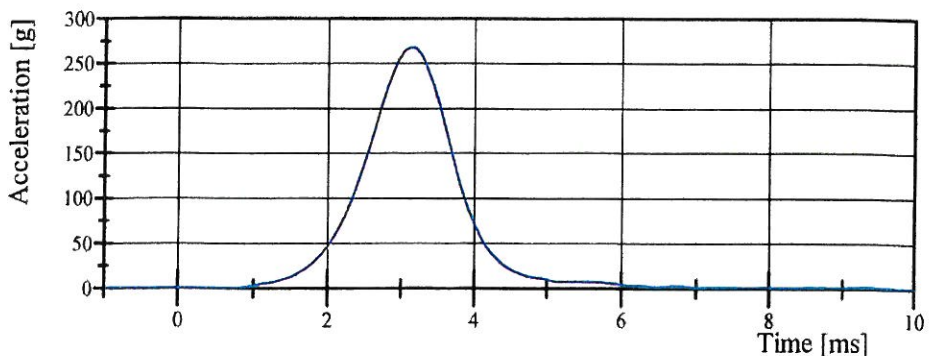


Filter Class: CFC\_1000

Max: 119.3 g at 3.2 ms

Min: -1.8 g at 9.4 ms

Head Resultant Acceleration



Filter Class: CFC\_1000

Max: 268.1 g at 3.1 ms

Min: 0.0 g at 0.0 ms

# Transportation Research Center Inc.

## Neck Flexion

HIII 5th Serial No. 416 Certification No. 48-2

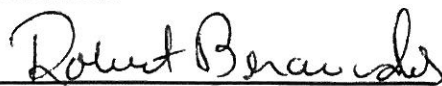
Test Date: 7/21/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Pendulum Velocity	6.89 - 7.13 m/s	7.070 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	(-2.1) - (-2.5) m/s	-2.44 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	(-4.0) - (-5.0) m/s	-4.84 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	(-5.8) - (-7.0) m/s	-6.77 m/s	Yes
Total Head D-Plane Rotation	(-77) - (-91) °	-80.9 °	Yes
Total Neck Occipital Condyles Moment Between -77° and -91° Rotation	69 - 83 N·m	77.9 N·m	Yes
Total Neck Occipital Condyles Moment Decay to 10 N·m	80 - 100 ms	86.0 ms	Yes

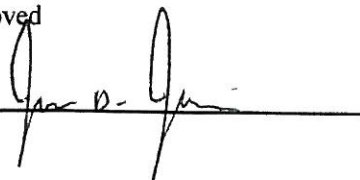
**Test meets specifications.**

**Comments:**

Technician



Approved



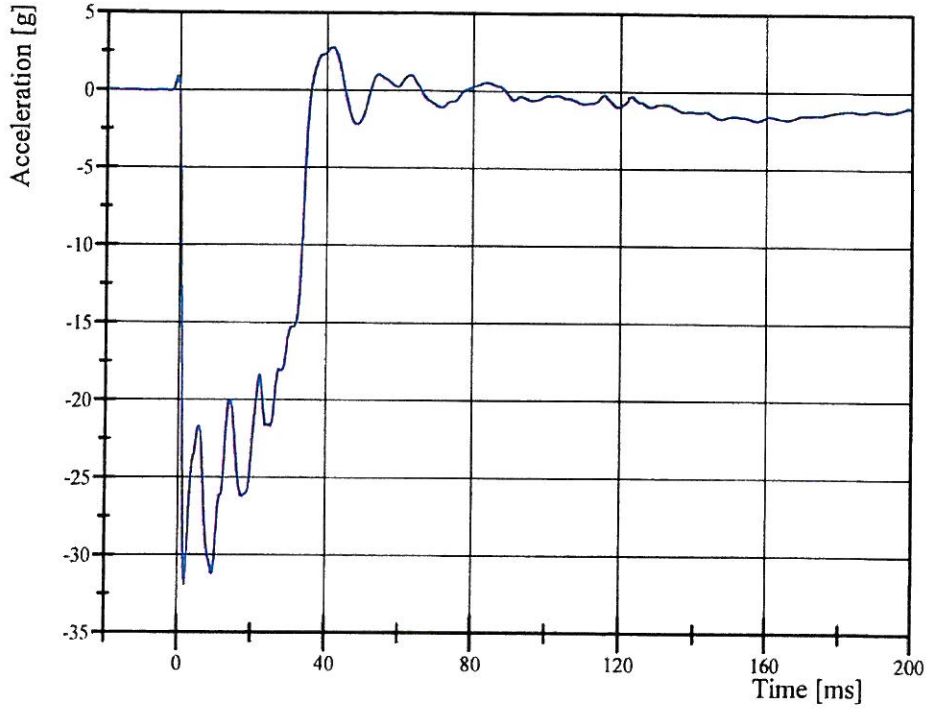
# Transportation Research Center Inc.

Neck Flexion

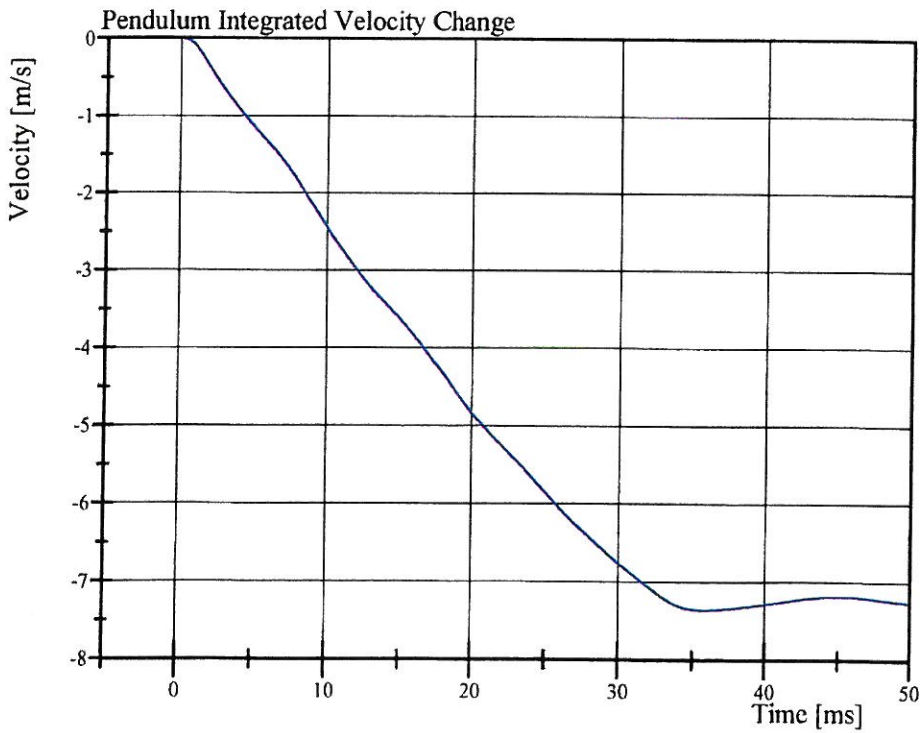
HIII 5th Serial No. 416 Certification No. 48-2

Test Date: 7/21/2009

Pendulum Acceleration



Filter Class: CFC\_180  
Max: 2.8 g at 41.7 ms  
Min: -31.9 g at 2.0 ms



Filter Class: CFC\_180  
Max: 0.0 m/s at 0.0 ms  
Min: -7.4 m/s at 35.8 ms

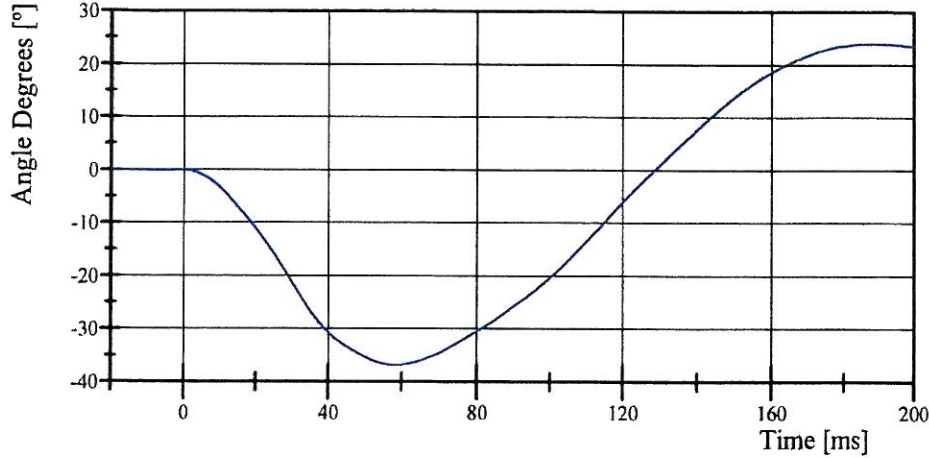
# Transportation Research Center Inc.

## Neck Flexion

HIII 5th Serial No. 416 Certification No. 48-2

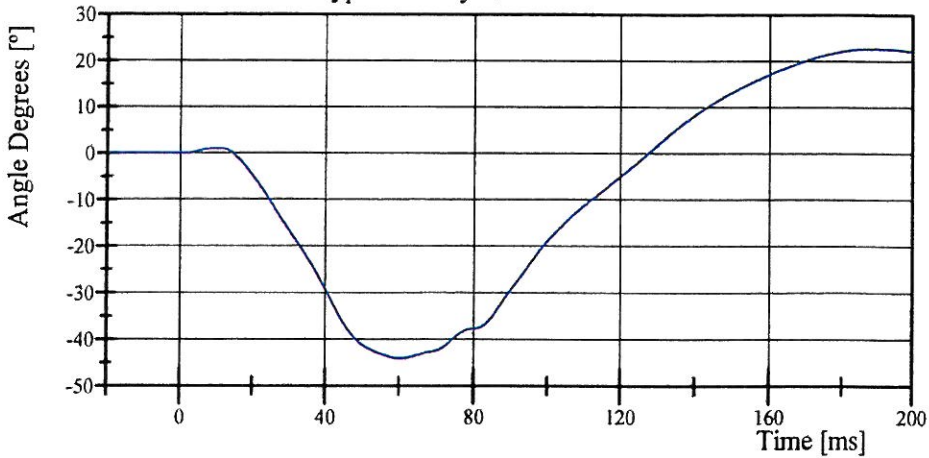
Test Date: 7/21/2009

### Pot Rotation at the Base of Neck



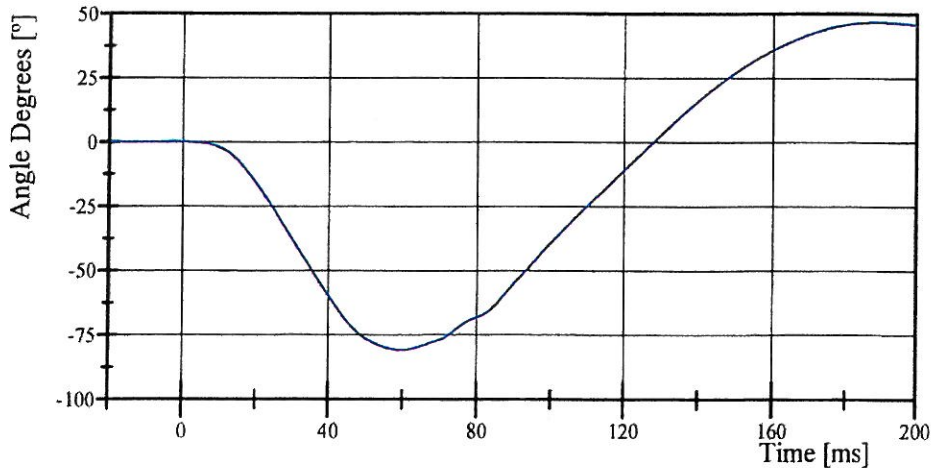
Filter Class: CFC\_60  
Max: 24.1 ° at 187.8 ms  
Min: -36.8 ° at 58.4 ms

### Head Rotation at Occypital Condyles



Filter Class: CFC\_60  
Max: 22.7 ° at 189.7 ms  
Min: -44.1 ° at 60.4 ms

### Total Head D-Plane Rotation



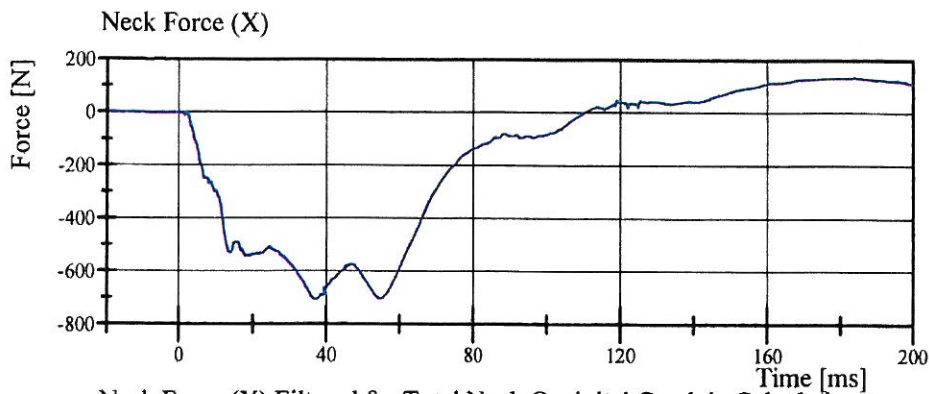
Filter Class: CFC\_60  
Max: 46.8 ° at 188.7 ms  
Min: -80.9 ° at 59.8 ms

# Transportation Research Center Inc.

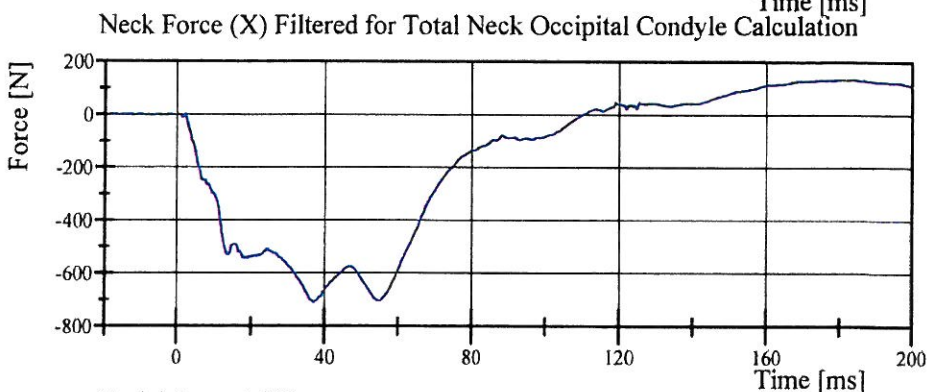
## Neck Flexion

HIII 5th Serial No. 416 Certification No. 48-2

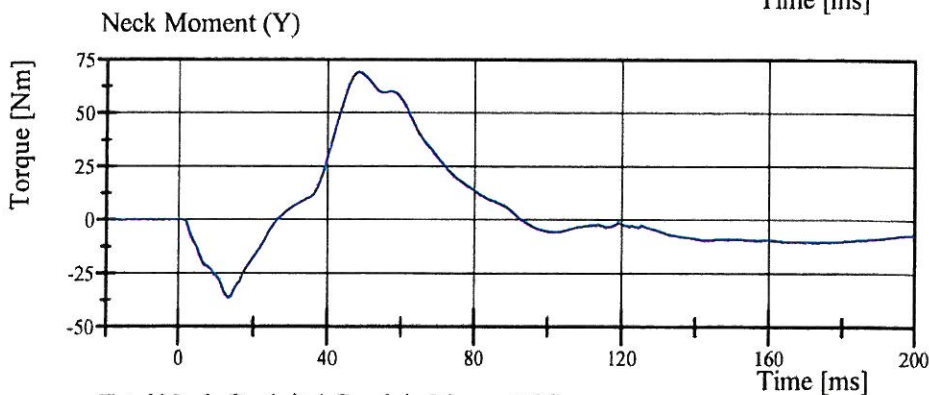
Test Date: 7/21/2009



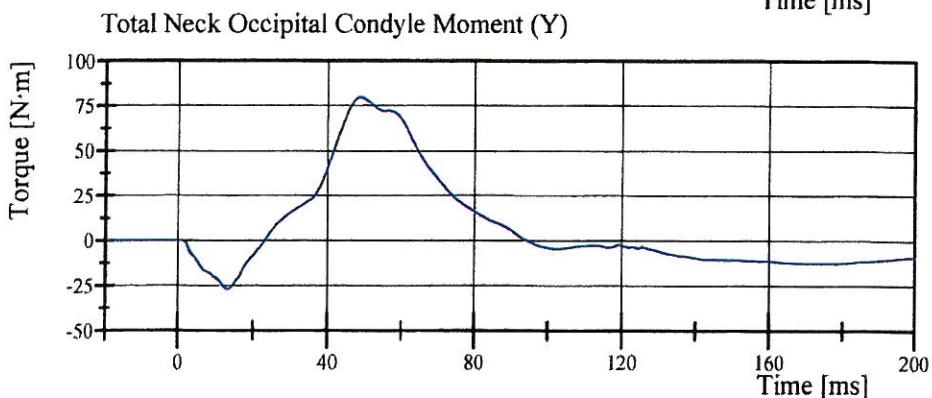
Filter Class: CFC\_1000  
Max: 136.2 N at 183.7 ms  
Min: -707.7 N at 37.0 ms



Filter Class: CFC\_600  
Max: 136.0 N at 183.8 ms  
Min: -707.3 N at 37.0 ms



Filter Class: CFC\_600  
Max: 69.1 Nm at 48.4 ms  
Min: -36.3 Nm at 13.5 ms



Filter Class: CFC\_600  
Max: 79.6 N·m at 48.7 ms  
Min: -27.0 N·m at 13.4 ms

# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 416 Certification No. 48-2

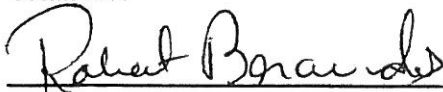
Test Date: 7/21/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	54 %	Yes
Pendulum Velocity	(-5.95) - (-6.19) m/s	-6.001 m/s	Yes
Pendulum Integrated Velocity Change at 10ms	1.5 - 1.9 m/s	1.80 m/s	Yes
Pendulum Integrated Velocity Change at 20ms	3.1 - 3.9 m/s	3.57 m/s	Yes
Pendulum Integrated Velocity Change at 30ms	4.6 - 5.6 m/s	5.09 m/s	Yes
Total Head D-Plane Rotation	99 - 114 °	105.5 °	Yes
Total Neck Occipital Condyles Moment Between 99° and 114° Rotation	(-53) - (-65) N·m	-55.7 N·m	Yes
Total Neck Occipital Condyles Moment Decay to -10 N·m	94 - 114 ms	104.7 ms	Yes

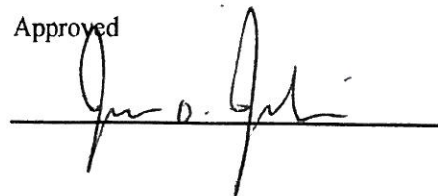
**Test meets specifications.**

**Comments:**

Technician

  
\_\_\_\_\_

Approved

  
\_\_\_\_\_

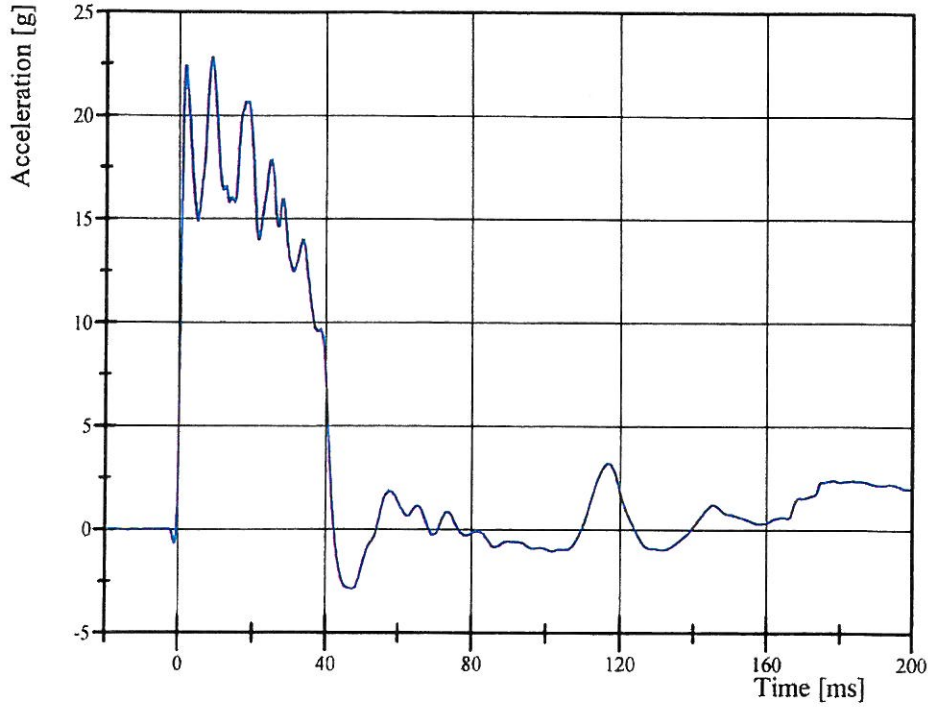
# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 416 Certification No. 48-2

Test Date: 7/21/2009

### Pendulum Acceleration



Filter Class: CFC\_180  
Max: 22.8 g at 8.8 ms  
Min: -2.9 g at 47.2 ms

### Pendulum Integrated Velocity Change



Filter Class: CFC\_180  
Max: 6.3 m/s at 42.3 ms  
Min: 0.0 m/s at 0.0 ms

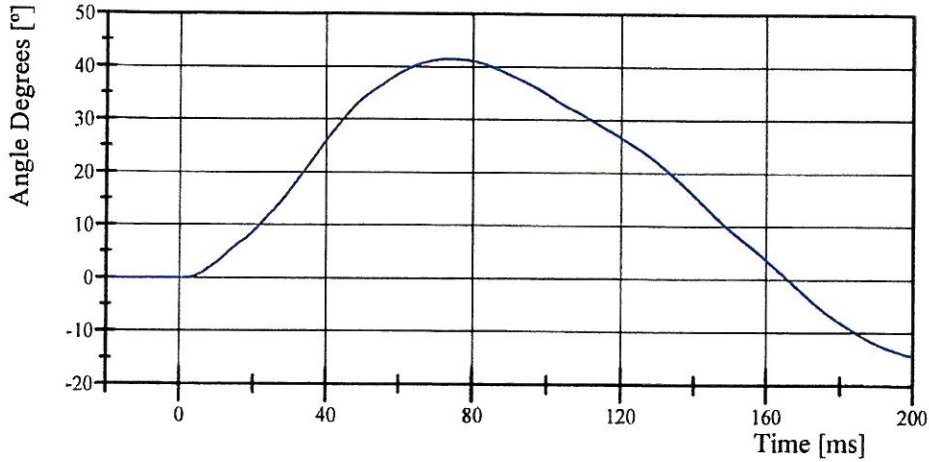
# Transportation Research Center Inc.

Neck Extension

HIII 5th Serial No. 416 Certification No. 48-2

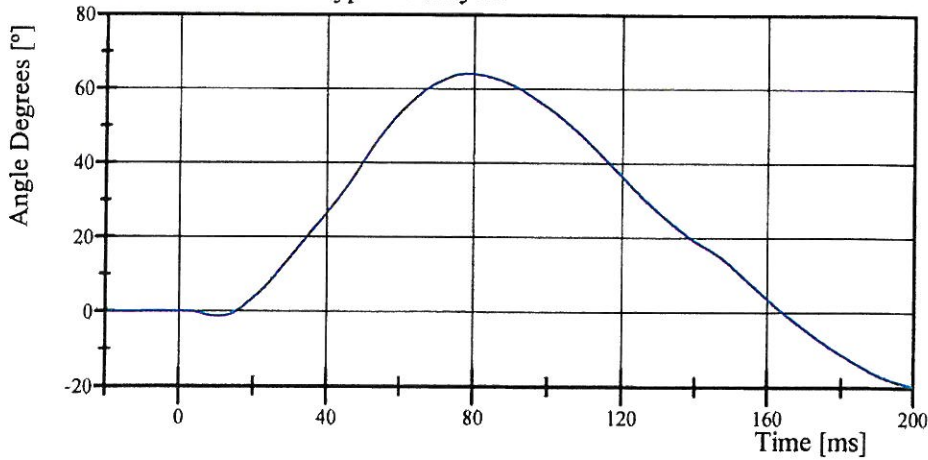
Test Date: 7/21/2009

Pot Rotation at the Base of Neck



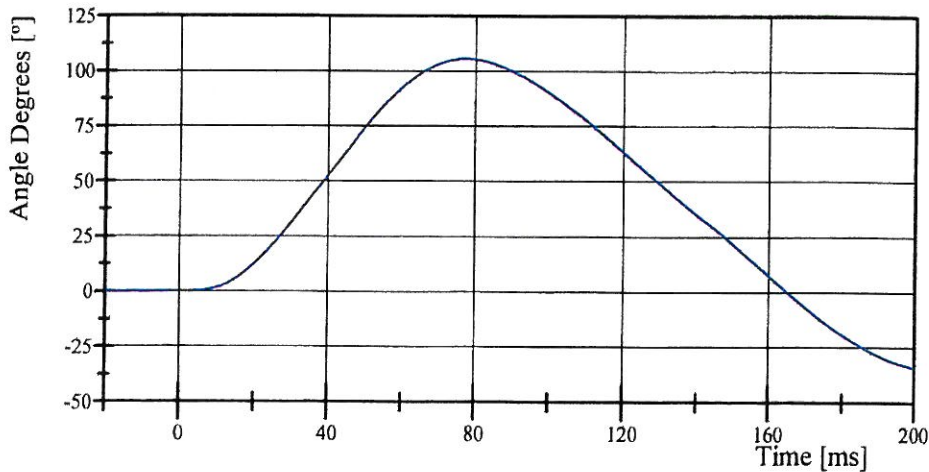
Filter Class: CFC\_60  
Max: 41.6 ° at 73.3 ms  
Min: -14.4 ° at 200.0 ms

Head Rotation at Occipital Condyles



Filter Class: CFC\_60  
Max: 64.1 ° at 78.4 ms  
Min: -19.7 ° at 200.0 ms

Total Head D-Plane Rotation



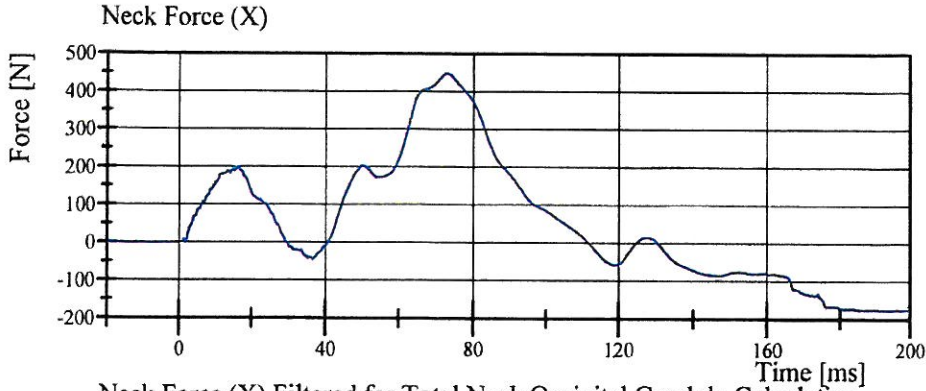
Filter Class: CFC\_60  
Max: 105.5 ° at 77.4 ms  
Min: -34.2 ° at 200.0 ms

# Transportation Research Center Inc.

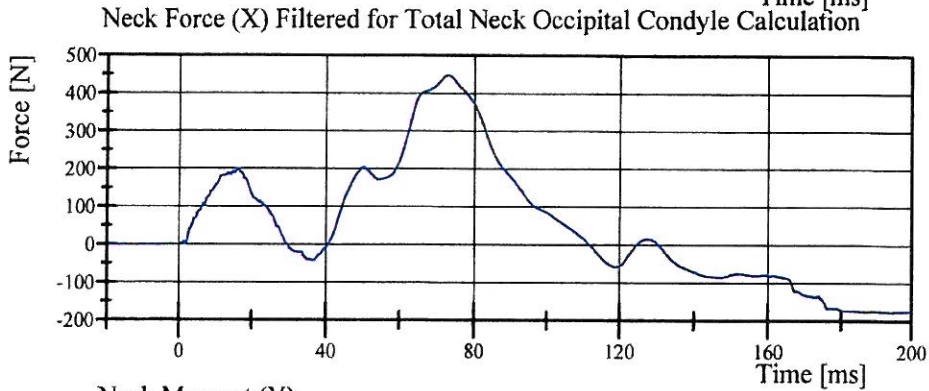
Neck Extension

HIII 5th Serial No. 416 Certification No. 48-2

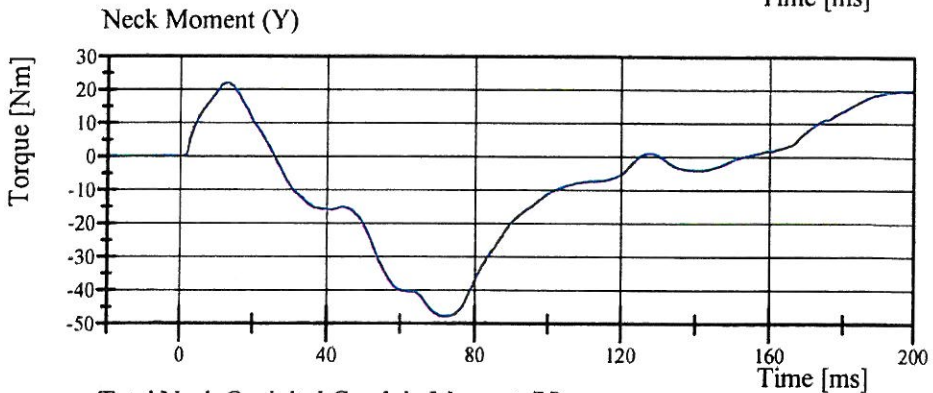
Test Date: 7/21/2009



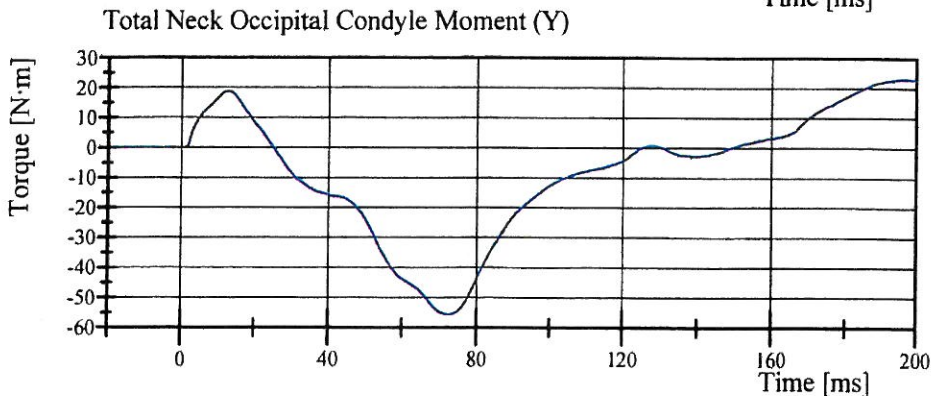
Filter Class: CFC\_1000  
Max: 449.2 N at 72.8 ms  
Min: -176.8 N at 193.6 ms



Filter Class: CFC\_600  
Max: 448.9 N at 72.9 ms  
Min: -176.4 N at 194.5 ms



Filter Class: CFC\_600  
Max: 22.0 Nm at 13.2 ms  
Min: -47.7 Nm at 72.1 ms



Filter Class: CFC\_600  
Max: 23.0 N·m at 196.9 ms  
Min: -55.7 N·m at 72.5 ms

# Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 416 Certification No. 48-1

Test Date: 7/21/2009

Test Parameter	Specification	Test Results	Pass
Temperature	20.6 - 22.2 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Probe Velocity	6.59 - 6.83 m/s	6.691 m/s	Yes
Probe Force Peak Between 50.0 mm and 58.0 mm Chest Deflection	(-3,900) - (-4,400) N	-4,021.6 N	Yes
Probe Force Peak Between 18.0 mm and 50.0 mm Chest Deflection	>= (-4,600) N	-4,003.8 N	Yes
Maximum Chest Compression	(-50) - (-58) mm	-54.7 mm	Yes
Internal Hysteresis	69 - 85 %	72.0 %	Yes

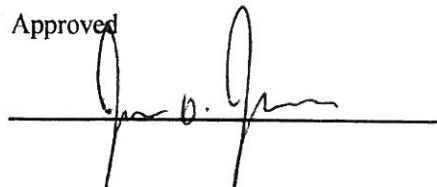
**Test meets specifications.**

**Comments:**

Technician



Approved



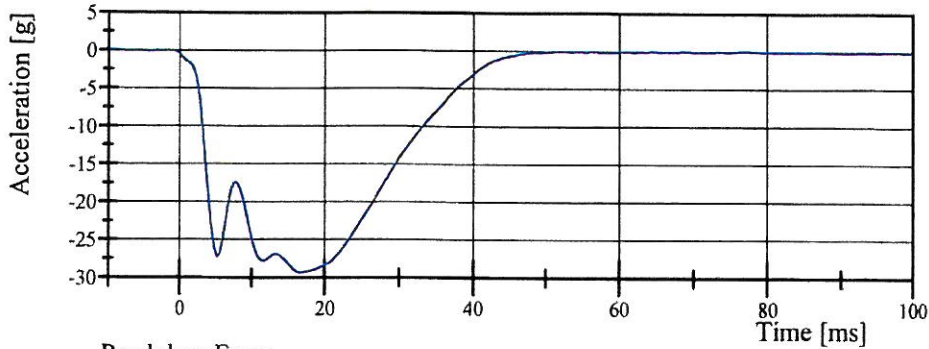
# Transportation Research Center Inc.

Front Thorax

HIII 5th Serial No. 416 Certification No. 48-1

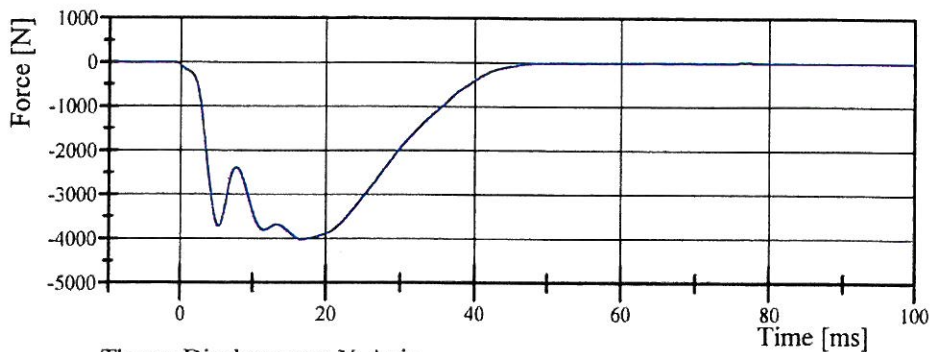
Test Date: 7/21/2009

Pendulum Acceleration



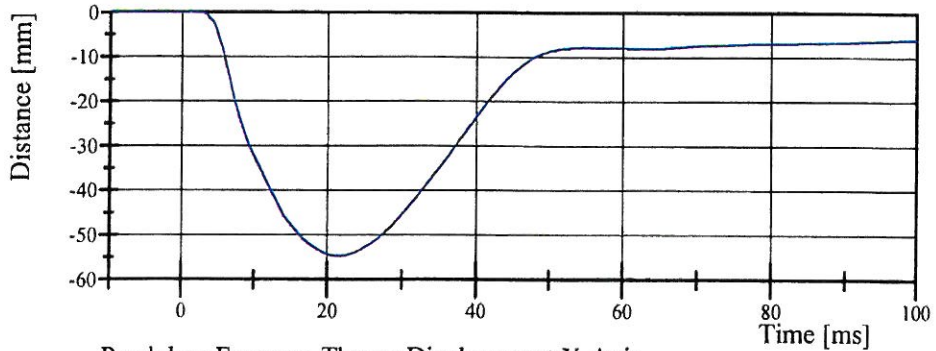
Filter Class: CFC\_180  
Max: 0.1 g at 76.7 ms  
Min: -29.4 g at 16.7 ms

Pendulum Force



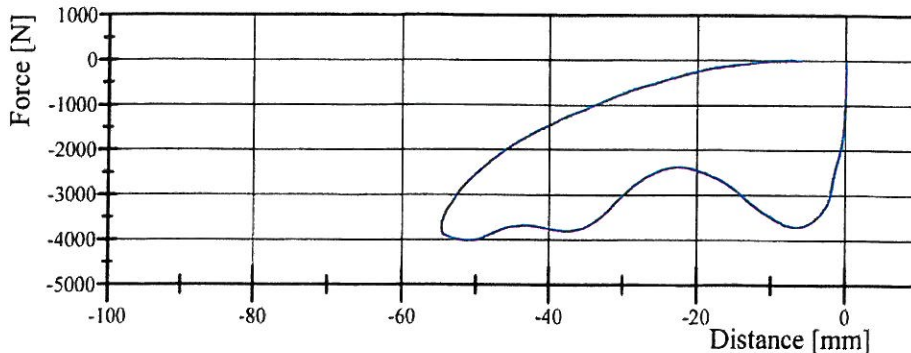
Filter Class: CFC\_180  
Max: 9.3 N at 76.7 ms  
Min: -4,021.6 N at 16.7 ms

Thorax Displacement X-Axis



Filter Class: CFC\_600  
Max: 0.0 mm at -2.3 ms  
Min: -54.7 mm at 21.6 ms

Pendulum Force vs. Thorax Displacement X-Axis



Filter Class: CFC\_180  
Max: 9.3 N at -7.0 mm  
Min: -4,021.6 N at -51.1 mm

TRANSPORTATION RESEARCH CENTER INC.

TORSO FLEXION TEST

HYBRID III SMALL FEMALE

CAL DATE: 20-Jul-09

TRC, INC. TEST NO: TOFL-01 572 O SN416 TORSO FLEX CAL 48

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	20.6 – 22.2° C	21.3° C
RELATIVE HUMIDITY	10 – 70 %	49 %
INITIAL ANGLE OF UNSUPPORTRED DUMMY	<= 20° REFERENCED TO VERTICAL	14.2°
MAXIMUM FORCE AT 45 DEG. DURING 10 SECOND PERIOD	320 – 390 N	369.4 N
DIFFERENCE BETWEEN RETURN ANGLE & INTIAL ANGLE	+/- 8 ° OF INTIAL ANGLE	4.4 °
RATE	0.5° - 1.5°/sec	0.97 °/sec

TEST MEETS SPECIFICATIONS

Comments:

TECHNICIAN John K. Cloutier

# Transportation Research Center Inc.

Left Knee Femur Response Test  
HIII 5th Serial No. 416 Certification No. 48-1  
Test Date: 7/21/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	52 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.130 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,719.3 N	Yes

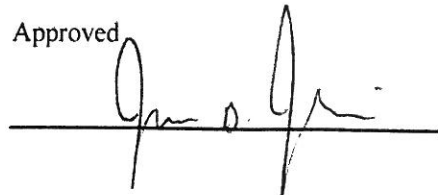
**Test meets specifications.**

**Comments:**

Technician

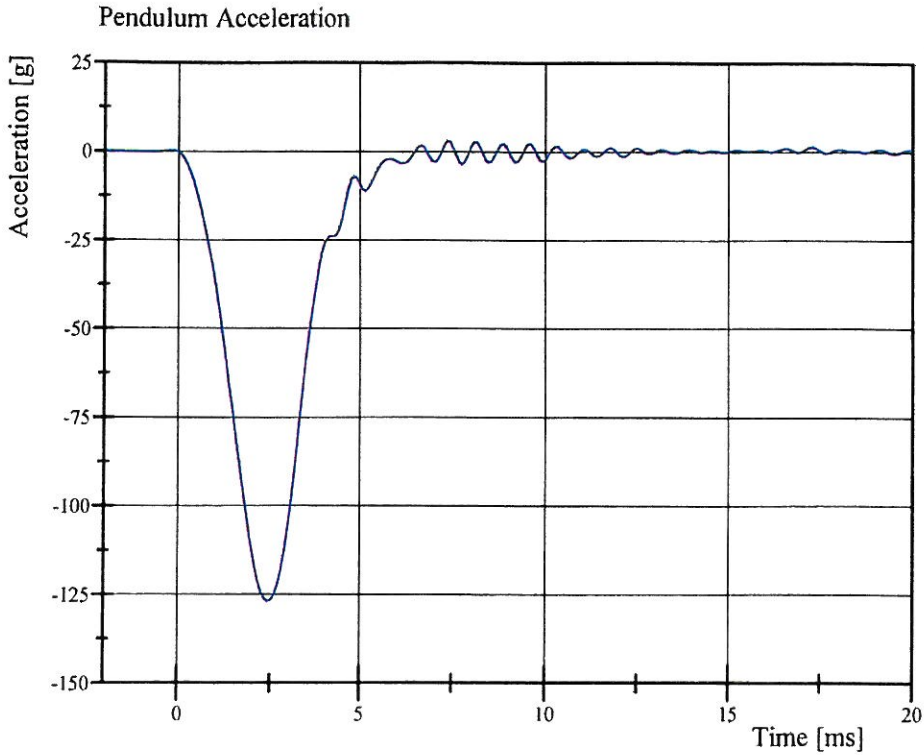


Approved

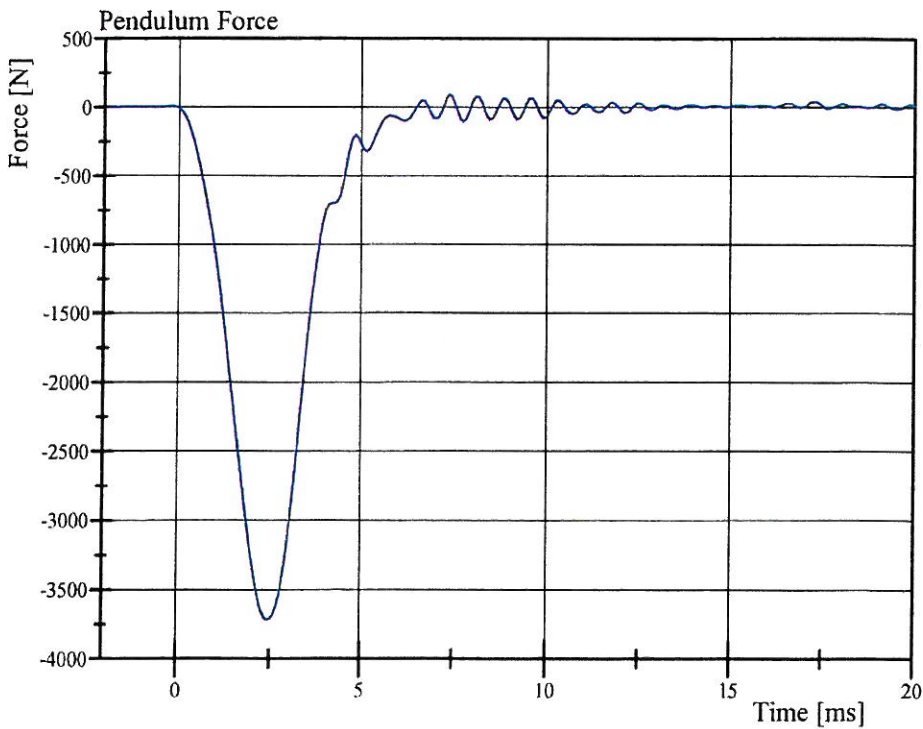


# Transportation Research Center Inc.

Left Knee Femur Response Test  
HIII 5th Serial No. 416 Certification No. 48-1  
Test Date: 7/21/2009



Filter Class: CFC\_600  
Max: 3.1 g at 7.4 ms  
Min: -126.8 g at 2.4 ms



Filter Class: CFC\_600  
Max: 91.2 N at 7.4 ms  
Min: -3,719.3 N at 2.4 ms

# Transportation Research Center Inc.

Right Knee Femur Response Test  
HIII 5th Serial No. 416 Certification No. 48-1  
Test Date: 7/21/2009

Test Parameter	Specification	Test Results	Pass
Temperature	18.9 - 25.6 °C	21.7 °C	Yes
Relative Humidity	10 - 70 %	53 %	Yes
Probe Velocity	2.08 - 2.13 m/s	2.122 m/s	Yes
Peak Femur Force	(-3,450) - (-4,060) N	-3,614.2 N	Yes

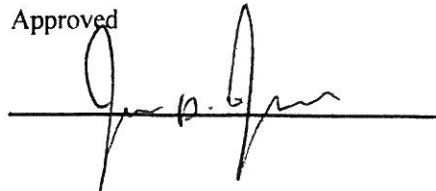
**Test meets specifications.**

**Comments:**

Technician

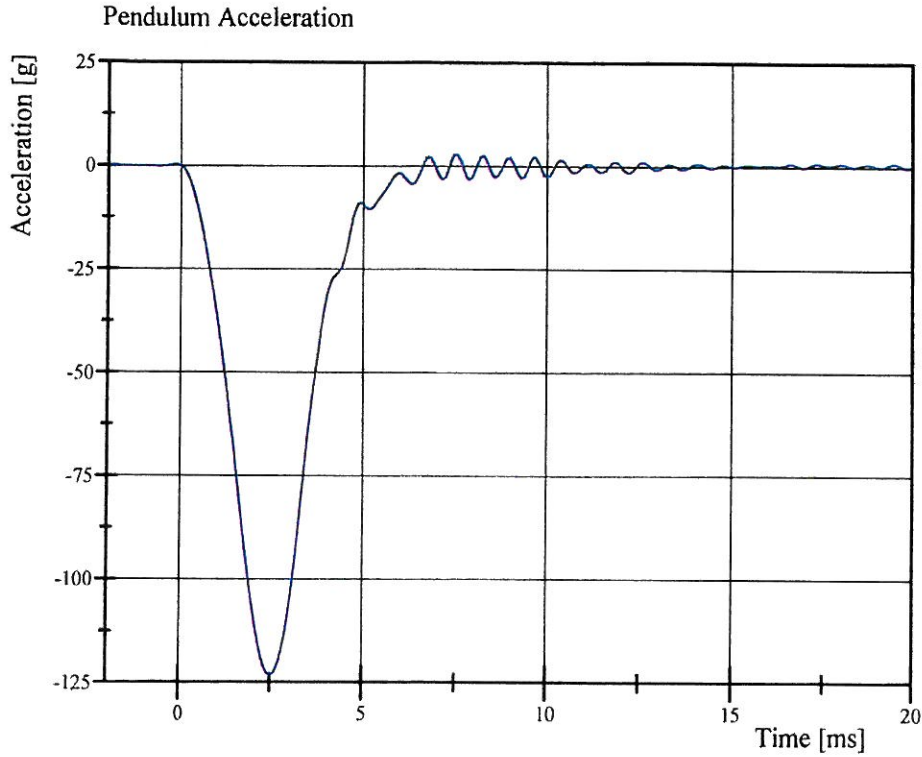
  
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Approved

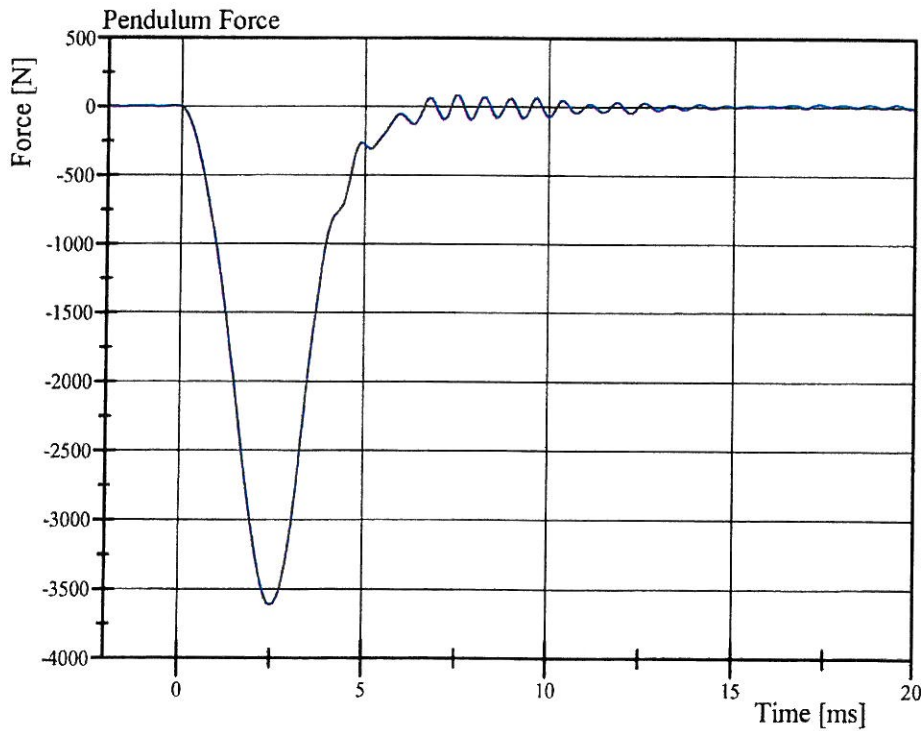
  
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# Transportation Research Center Inc.

Right Knee Femur Response Test  
HIII 5th Serial No. 416 Certification No. 48-1  
Test Date: 7/21/2009



Filter Class: CFC\_600  
Max: 2.9 g at 7.4 ms  
Min: -123.3 g at 2.5 ms



Filter Class: CFC\_600  
Max: 84.5 N at 7.4 ms  
Min: -3,614.2 N at 2.5 ms

Appendix D

Test Equipment and Instrumentation Calibration Information



Frequency Response Classes  
SAE J211 MAR95

<u>Typical Test Measurements</u>	<u>Channel Class</u>
Vehicle Structural Accelerations for use in:	
Total vehicle comparison	60
Collision simulation input	60
Component analysis	600
Integration for velocity or displacement	180
Barrier Face Forces	60
Belt Restraint System Loads	60
Anthropomorphic Test Device	
Head accelerations (linear and angular)	1000
Neck	
Forces	1000
Moments	600
Thorax	
Spine accelerations	180
Rib accelerations	1000
Sternum accelerations	1000
Deflections	600
Lumbar	
Forces	1000
Moments	1000
Pelvis	
Accelerations	1000
Forces	1000
Moments	1000
Femur/Knee/Tibia/Ankle	
Forces	600
Moments	600
Displacements	180
Sled Accelerations	60
Steering Column Loads	600
Head form Accelerations	1000

The direction column on the following sheets describes the transducer output as mounted and wired in the test location. The polarity column indicates whether a polarity change occurred during data acquisition to conform to J211 MAR95. See Report Sign Convention sheet for description of data output as presented in the report: occasionally channels have been adjusted in post-acquisition processing to conform to J211 MAR95.

## Channel Report Test Number 091020

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
1	Trig D1	10ZERO000000VO0A	EVENT		1 Logic	Bipolar	
2	J32100	11HEADCG00H3ACXA	Head Accel X	2000	g	-Bipolar	1-206 HIII 50th ASTC.001
3	J36741	11HEADCG00H3ACYA	Head Accel Y	2000	g	-Bipolar	1-206 HIII 50th ASTC.002
4	J19925	11HEADCG00H3ACZA	Head Accel Z	2000	g	-Bipolar	1-206 HIII 50th ASTC.003
5	J14189	11HEADCGRDH3ACXA	Head Accel X Red	2000	g	Bipolar	1-206 HIII 50th ASTC.004
6	ALAB9	11HEADCGRDH3ACYA	Head Accel Y Red	2000	g	-Bipolar	1-206 HIII 50th ASTC.005
7	ACC62	11HEADCGRDH3ACZA	Head Accel Z Red	2000	g	-Bipolar	1-206 HIII 50th ASTC.006
8	1716A-2192-FX	11NECKUP00H3FOXA	Neck Force X	8896	N	-Bipolar	1-206 HIII 50th ASTC.007
9	1716A-2192-FY	11NECKUP00H3FOYA	Neck Force Y	8896	N	Bipolar	1-206 HIII 50th ASTC.008
10	1716A-2192-FZ	11NECKUP00H3FOZA	Neck Force Z	13344	N	Bipolar	1-206 HIII 50th ASTC.009
11	1716A-2192-MX	11NECKUP00H3MOXA	Neck Moment X	282	Nm	-Bipolar	1-206 HIII 50th ASTC.010
12	1716A-2192-MY	11NECKUP00H3MOYA	Neck Moment Y	282	Nm	Bipolar	1-206 HIII 50th ASTC.011
13	1716A-2192-MZ	11NECKUP00H3MOZA	Neck Moment Z	282	Nm	Bipolar	1-206 HIII 50th ASTC.012
14	J18662	11CHSTCG00H3ACXA	Chest Accel X	2000	g	Bipolar	1-206 HIII 50th ASTC.013
15	J23997	11CHSTCG00H3ACYA	Chest Accel Y	2000	g	-Bipolar	1-206 HIII 50th ASTC.014
16	J20209	11CHSTCG00H3ACZA	Chest Accel Z	2000	g	-Bipolar	1-206 HIII 50th ASTC.015
17	ACC82	11CHSTCGRDH3ACXA	Chest Accel X Red.	2000	g	-Bipolar	1-206 HIII 50th ASTC.016
18	J27366	11CHSTCGRDH3ACYA	Chest Accel Y Red.	2000	g	-Bipolar	1-206 HIII 50th ASTC.017
19	ACC63	11CHSTCGRDH3ACZA	Chest Accel Z Red.	2000	g	-Bipolar	1-206 HIII 50th ASTC.018
20	14CB1-2897-CST206	11CHST0000H3DSXA	Chest Deflection X	84	mm	Bipolar	1-206 HIII 50th ASTC.019
21	P17912	11PELVCG00H3ACXA	Pelvis Accel X	2000	g	-Bipolar	1-206 HIII 50th ASTC.020
22	J18059	11PELVCG00H3ACYA	Pelvis Accel Y	2000	g	-Bipolar	1-206 HIII 50th ASTC.021
23	ACC59	11PELVCG00H3ACZA	Pelvis Accel Z	2000	g	-Bipolar	1-206 HIII 50th ASTC.022
24	2430-741	11FEMRLL00H3FOZA	Left Femur Force Z	13344	N	Bipolar	1-206 HIII 50th ASTC.023
25	2430 726	11FEMRRL00H3FOZA	Right Femur Force Z	13344	N	Bipolar	1-206 HIII 50th ASTC.024
26	150-0121VR-022689	11KNSLLE00H3DSXA	Left Knee Displacement X	33	mm	-Bipolar	1-LX045-046 VOLPE THOR LEGS.001
27	4509J- 88-FX	11TIBILULXH3FOXA	Left Upper Tibia Force X	11120.5	N	Bipolar	1-LX045-046 VOLPE THOR LEGS.002
28	4509J-88-FZ	11TIBILULXH3FOZA	Left Upper Tibia Force Z	11120.5	N	Bipolar	1-LX045-046 VOLPE THOR LEGS.004
29	4509J-88MX	11TIBILULXH3MOXA	Left Upper Tibia Moment X	395.4	Nm	Bipolar	1-LX045-046 VOLPE THOR LEGS.005
30	4509J-88-MY	11TIBILULXH3MOYA	Left Upper Tibia Moment Y	395.4	Nm	Bipolar	1-LX045-046 VOLPE THOR LEGS.006
31	4929J-139-FX	11TIBILLLXH3FOXA	Left Lower Tibia Force X	11120.5	N	Bipolar	1-LX045-046 VOLPE THOR LEGS.009
32	4929J-139-FY	11TIBILLLXH3FOYA	Left Lower Tibia Force Y	11120.5	N	Bipolar	1-LX045-046 VOLPE THOR LEGS.010
33	4929J-139-FZ	11TIBILLLXH3FOZA	Left Lower Tibia Force Z	11120.5	N	Bipolar	1-LX045-046 VOLPE THOR LEGS.011
34	4929J-139-MX	11TIBILLLXH3MOXA	Left Lower Tibia Moment X	395.4	Nm	Bipolar	1-LX045-046 VOLPE THOR LEGS.012
35	4929J-139-MY	11TIBILLLXH3MOYA	Left Lower Tibia Moment Y	395.4	Nm	Bipolar	1-LX045-046 VOLPE THOR LEGS.013
36	J19440	11TIBILELXH3ACXA	Left Tibia Accel X	1000	g	Bipolar	1-LX045-046 VOLPE THOR LEGS.007
37	J29006	11TIBILELXH3ACYA	Left Tibia Accel Y	1000	g	Bipolar	1-LX045-046 VOLPE THOR LEGS.008
38	AJ5R0	11FOOTLELXH3ACXA	Left Foot Accel X	2000	g	Bipolar	1-LX045-046 VOLPE THOR LEGS.017
39	J18733	11FOOTLELXH3ACYA	Left Foot Accel Y	2000	g	Bipolar	1-LX045-046 VOLPE THOR LEGS.018

D-5

091020

## Channel Report Test Number 091020

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
40	J19927	11FOOTLELXH3ACZA	Left Foot Accel Z	2000	g	Bipolar	1-LX045-046 VOLPE THOR LEGS.019
41	PD210-4B-7921-0525	11FOOTLELXH3ANXA	Left Foot Angular Dis. X LX104X	180	°	-Bipolar	1-LX045-046 VOLPE THOR LEGS.014
42	PD210-4B-7921-0524	11FOOTLELXH3ANYA	Left Foot Angular Dis. Y LX104Y	180	°	Bipolar	1-LX045-046 VOLPE THOR LEGS.015
43	PD210-4B-7921-0523	11FOOTLELXH3ANZA	Left Foot Angular Dis. Z LX104Z	180	°	-Bipolar	1-LX045-046 VOLPE THOR LEGS.016
44	150-0121VL-033646	11KNSLRIO0H3DSXA	Right Knee Displacement X	33	mm	-Bipolar	1-LX045-046 VOLPE THOR LEGS.020
45	4509J-95-FX	11TIBIRULXH3FOXA	Right Upper Tibia Force X	11120.5	N	Bipolar	1-LX045-046 VOLPE THOR LEGS.021
46	4509J-95-FZ	11TIBIRULXH3FOZA	Right Upper Tibia Force Z	11120.5	N	Bipolar	1-LX045-046 VOLPE THOR LEGS.023
47	4509J-95-MX	11TIBIRULXH3MOXA	Right Upper Tibia Moment X	395.4	Nm	Bipolar	1-LX045-046 VOLPE THOR LEGS.024
48	4509J-95-MY	11TIBIRULXH3MOYA	Right Upper Tibia Moment Y	395.4	Nm	Bipolar	1-LX045-046 VOLPE THOR LEGS.025
49	4929J-138-FX	11TIBIRLLXH3FOXA	Right Lower Tibia Force X	11120.5	N	Bipolar	1-LX045-046 VOLPE THOR LEGS.028
50	4929J-138-FY	11TIBIRLLXH3FOYA	Right Lower Tibia Force Y	11120.5	N	Bipolar	1-LX045-046 VOLPE THOR LEGS.029
51	4929J-138-FZ	11TIBIRLLXH3FOZA	Right Lower Tibia Force Z	11120.5	N	Bipolar	1-LX045-046 VOLPE THOR LEGS.030
52	4929J-138-MX	11TIBIRLLXH3MOXA	Right Lower Tibia Moment X	395.4	Nm	Bipolar	1-LX045-046 VOLPE THOR LEGS.031
53	4929J-138-MY	11TIBIRLLXH3MOYA	Right Lower Tibia Moment Y	395.4	Nm	Bipolar	1-LX045-046 VOLPE THOR LEGS.032
54	J14688	11TIBIRILXH3ACYA	Right Tibia Accel Y	2000	g	Bipolar	1-LX045-046 VOLPE THOR LEGS.027
55	J35987	11TIBIRILXH3ACXA	Right Tibia Accel X	2000	g	Bipolar	1-LX045-046 VOLPE THOR LEGS.026
56	J36611	11FOOTRILXH3ACXA	Right Foot Accel X	2000	g	Bipolar	1-LX045-046 VOLPE THOR LEGS.036
57	ACB45	11FOOTRILXH3ACYA	Right Foot Accel Y	2000	g	Bipolar	1-LX045-046 VOLPE THOR LEGS.037
58	00L13-F25	11FOOTRILXH3ACZA	Right Foot Accel Z	2000	g	Bipolar	1-LX045-046 VOLPE THOR LEGS.038
59	PD210-4B-7921-0528	11FOOTRILXH3ANXA	Right Foot Angular Dis. X AK037X	180	°	-Bipolar	1-LX045-046 VOLPE THOR LEGS.033
60	PD210-4B-7921-0526	11FOOTRILXH3ANYA	Right Foot Angular Dis. Y AK225Y	180	°	Bipolar	1-LX045-046 VOLPE THOR LEGS.034
61	PD210-4B-7921-0527	11FOOTRILXH3ANZA	Right Foot Angular Dis. Z AK039Z	180	°	-Bipolar	1-LX045-046 VOLPE THOR LEGS.035
62	02102105-F07	13HEADCG00HFACXA	Head Accel X	2000	g	-Bipolar	3-329 VRTC 5th Female.001
63	P63985	13HEADCG00HFACYA	Head Accel Y	2000	g	-Bipolar	3-329 VRTC 5th Female.002
64	05H06-L14	13HEADCG00HFACZA	Head Accel Z	2000	g	-Bipolar	3-329 VRTC 5th Female.003
65	P59000	13HEADCGRDHFACXA	Head Accel Redundant X	2000	g	-Bipolar	3-329 VRTC 5th Female.004
66	P58787	13HEADCGRDHFACYA	Head Accel Redundant Y	2000	g	-Bipolar	3-329 VRTC 5th Female.005
67	P58786	13HEADCGRDHFACZA	Head Accel Redundant Z	2000	g	-Bipolar	3-329 VRTC 5th Female.006
68	1716A-1911-FX	13NECKUP00HFFOXA	Neck Force X	8896	N	-Bipolar	3-329 VRTC 5th Female.007
69	1716A-1911-FY	13NECKUP00HFFOYA	Neck Force Y	8896	N	Bipolar	3-329 VRTC 5th Female.008
70	1716A-1911-FZ	13NECKUP00HFFOZA	Neck Force Z	13344	N	Bipolar	3-329 VRTC 5th Female.009
71	1716A-1911-MX	13NECKUP00HFMOXA	Neck Moment X	282.5	Nm	-Bipolar	3-329 VRTC 5th Female.010
72	1716A-1911-MY	13NECKUP00HFMOYA	Neck Moment Y	282.5	Nm	Bipolar	3-329 VRTC 5th Female.011
73	1716A-1911-MZ	13NECKUP00HFMOZA	Neck Moment Z	282.5	Nm	Bipolar	3-329 VRTC 5th Female.012
74	P52154	13CHSTCG00HFACXA	Chest Accel X	2000	g	Bipolar	3-329 VRTC 5th Female.013
75	01G25-N16	13CHSTCG00HFACYA	Chest Accel Y	2000	g	-Bipolar	3-329 VRTC 5th Female.014
76	02102105-F01	13CHSTCG00HFACZA	Chest Accel Z	2000	g	-Bipolar	3-329 VRTC 5th Female.015
77	P52069	13CHSTCGRDHFACXA	Chest Accel Redundant X	2000	g	-Bipolar	3-329 VRTC 5th Female.016
78	P51668	13CHSTCGRDHFACYA	Chest Accel Redundant Y	2000	g	-Bipolar	3-329 VRTC 5th Female.017

## Channel Report Test Number 091020

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
79	P58883	13CHSTCGRDHFACZA	Chest Accel Redundant Z	2000	g	-Bipolar	3-329 VRTC 5th Female.018
80	14CB1-2897-CST329	13CHST0000HFDSXA	Chest Deflection X	75	mm	Bipolar	3-329 VRTC 5th Female.019
81	P50062	13PELVCG00HFACXA	Pelvis Accel X	2000	g	Bipolar	3-329 VRTC 5th Female.020
82	P50073	13PELVCG00HFACYA	Pelvis Accel Y	2000	g	Bipolar	3-329 VRTC 5th Female.021
83	P58885	13PELVCG00HFACZA	Pelvis Accel Z	2000	g	Bipolar	3-329 VRTC 5th Female.022
84	2121AJ-1702	13FEMRLU00HFFOZA	Left Femur Force Z	13344	N	Bipolar	3-329 VRTC 5th Female.023
85	2121A-1396	13FEMRRU00HFFOZA	Right Femur Force Z	13344	N	Bipolar	3-329 VRTC 5th Female.024
86	150-0121VR-030587	13KNSLLE00HFDSXA	Left Knee Displacement X	33	mm	-Bipolar	3-FLX001A & FLX001B VRTC.001
87	4825J-75-FX	13TIBILULXHFFOXA	Left Upper Tibia Force X	8896	N	Bipolar	3-FLX001A & FLX001B VRTC.002
88	4825J-75-FZ	13TIBILULXHFFOZA	Left Upper Tibia Force Z	8896	N	Bipolar	3-FLX001A & FLX001B VRTC.003
89	4825J-75-MX	13TIBILULXHFMOMA	Left Upper Tibia Moment X	282.5	Nm	Bipolar	3-FLX001A & FLX001B VRTC.004
90	4825J-75-MY	13TIBILULXHFMOMA	Left Upper Tibia Moment Y	282.5	Nm	Bipolar	3-FLX001A & FLX001B VRTC.005
91	J32157	13TIBILELXHFFACXA	Left Tibia Accel X	2000	g	Bipolar	3-FLX001A & FLX001B VRTC.006
92	AGR67	13TIBILELXHFFACYA	Left Tibia Accel Y	2000	g	Bipolar	3-FLX001A & FLX001B VRTC.007
93	4826J-75-FX	13TIBILLLXHFFOXA	Left Lower Tibia Force X	8896	N	Bipolar	3-FLX001A & FLX001B VRTC.008
94	4826J-75-FY	13TIBILLLXHFFOYA	Left Lower Tibia Force Y	8896	N	Bipolar	3-FLX001A & FLX001B VRTC.009
95	4826J-75-FZ	13TIBILLLXHFFOZA	Left Lower Tibia Force Z	8896	N	Bipolar	3-FLX001A & FLX001B VRTC.010
96	4826J-75-MX	13TIBILLLXHFMOMA	Left Lower Tibia Moment X	282	Nm	Bipolar	3-FLX001A & FLX001B VRTC.011
97	4826J-75-MY	13TIBILLLXHFMOMA	Left Lower Tibia Moment Y	282	Nm	Bipolar	3-FLX001A & FLX001B VRTC.012
98	PD210-4B-7921-P011	13FOOTLELXHFFANXA	Left Foot Angular Dis. X LX104X	318	°	Bipolar	3-FLX001A & FLX001B VRTC.013
99	PD210-4B-7921-P012	13FOOTLELXHFFANYA	Left Foot Angular Dis. Y LX104Y	318	°	Bipolar	3-FLX001A & FLX001B VRTC.014
100	PD210-4B-7921-P013	13FOOTLELXHFFANZA	Left Foot Angular Dis. Z LX104Z	318	°	Bipolar	3-FLX001A & FLX001B VRTC.015
101	J20382	13FOOTLELXHFFACXA	Left Foot Accel X	2000	g	Bipolar	3-FLX001A & FLX001B VRTC.016
102	J14667	13FOOTLELXHFFACYA	Left Foot Accel Y	2000	g	Bipolar	3-FLX001A & FLX001B VRTC.017
103	AAKD0	13FOOTLELXHFFACZA	Left Foot Accel Z	2000	g	Bipolar	3-FLX001A & FLX001B VRTC.018
104	150-0121VL-023435	13KNSLRI00HFDSXA	Right Knee Displacement X	33	mm	-Bipolar	3-FLX001A & FLX001B VRTC.019
105	4825J-88-FX	13TIBIRULXHFFOXA	Right Upper Tibia Force X	8896	N	Bipolar	3-FLX001A & FLX001B VRTC.020
106	4825J-88-FZ	13TIBIRULXHFFOZA	Right Upper Tibia Force Z	8896	N	Bipolar	3-FLX001A & FLX001B VRTC.021
107	4825J-88-MX	13TIBIRULXHFMOMA	Right Upper Tibia Moment X	282	Nm	Bipolar	3-FLX001A & FLX001B VRTC.022
108	4825J-88-MY	13TIBIRULXHFMOMA	Right Upper Tibia Moment Y	282	Nm	Bipolar	3-FLX001A & FLX001B VRTC.023
109	ACCW9	13TIBIRILXHFFACXA	Right Tibia Accel X	2000	g	Bipolar	3-FLX001A & FLX001B VRTC.024
110	J28708	13TIBIRILXHFFACYA	Right Tibia Accel Y	2000	g	Bipolar	3-FLX001A & FLX001B VRTC.025
111	4826J-88-FX	13TIBIRLLXHFFOXA	Right Lower Tibia Force X	8896	N	Bipolar	3-FLX001A & FLX001B VRTC.026
112	4826J-88-FY	13TIBIRLLXHFFOYA	Right Lower Tibia Force Y	8896	N	Bipolar	3-FLX001A & FLX001B VRTC.027
113	4826J-88-FZ	13TIBIRLLXHFFOZA	Right Lower Tibia Force Z	8896	N	Bipolar	3-FLX001A & FLX001B VRTC.028
114	4826J-88-MX	13TIBIRLLXHFMOMA	Right Lower Tibia Moment X	282	Nm	Bipolar	3-FLX001A & FLX001B VRTC.029
115	4826J-88-MY	13TIBIRLLXHFMOMA	Right Lower Tibia Moment Y	282	Nm	Bipolar	3-FLX001A & FLX001B VRTC.030
116	PD210-4B-7921-P008	13FOOTRILXHFFANXA	Right Foot Angular Dis. X AK037X	318	°	Bipolar	3-FLX001A & FLX001B VRTC.031
117	PD210-4B-7921-P009	13FOOTRILXHFFANYA	Right Foot Angular Dis. Y AK225Y	318	°	Bipolar	3-FLX001A & FLX001B VRTC.032

D-7

091020

## Channel Report Test Number 091020

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
118	PD210-4B-7921-P010	13FOOTRILXHFANZA	Right Foot Angular Dis. Z AK039Z	318	°	Bipolar	3-FLX001A & FLX001B VRTC.033
119	J35562	13FOOTRILXHFACXA	Right Foot Accel X	2000	g	Bipolar	3-FLX001A & FLX001B VRTC.034
120	J34330	13FOOTRILXHFACYA	Right Foot Accel Y	2000	g	Bipolar	3-FLX001A & FLX001B VRTC.035
121	P15334	13FOOTRILXHFACZA	Right Foot Accel Z	2000	g	Bipolar	3-FLX001A & FLX001B VRTC.036
122	P50097	14HEADCG00HFACXA	Head Accel X	2000	g	-Bipolar	4-416 HIII 5th FTSS.001
123	P52123	14HEADCG00HFACYA	Head Accel Y	2000	g	-Bipolar	4-416 HIII 5th FTSS.002
124	P50089	14HEADCG00HFACZA	Head Accel Z	2000	g	-Bipolar	4-416 HIII 5th FTSS.003
125	P58799	14HEADCGRDHFACXA	Head Accel X Redundant	2000	g	Bipolar	4-416 HIII 5th FTSS.004
126	P49211	14HEADCGRDHFACYA	Head Accel Y Redundant	2000	g	-Bipolar	4-416 HIII 5th FTSS.005
127	P59002	14HEADCGRDHFACZA	Head Accel Z Redundant	2000	g	-Bipolar	4-416 HIII 5th FTSS.006
128	1716A-499-FX	14NECKUP00HFFOXA	Neck Force X	8896	N	-Bipolar	4-416 HIII 5th FTSS.007
129	1716A-499-FY	14NECKUP00HFFOYA	Neck Force Y	8896	N	Bipolar	4-416 HIII 5th FTSS.008
130	1716A-499-FZ	14NECKUP00HFFOZA	Neck Force Z	13344	N	Bipolar	4-416 HIII 5th FTSS.009
131	1716A-499-MX	14NECKUP00HFMOXA	Neck Moment X	282.5	Nm	-Bipolar	4-416 HIII 5th FTSS.010
132	1716A-499-MY	14NECKUP00HFMOYA	Neck Moment Y	282.5	Nm	Bipolar	4-416 HIII 5th FTSS.011
133	1716A-499-MZ	14NECKUP00HFMOZA	Neck Moment Z	282.5	Nm	Bipolar	4-416 HIII 5th FTSS.012
134	P49463	14CHSTCG00HFACXA	Chest Accel X	2000	g	Bipolar	4-416 HIII 5th FTSS.013
135	P50065	14CHSTCG00HFACYA	Chest Accel Y	2000	g	-Bipolar	4-416 HIII 5th FTSS.014
136	P49186	14CHSTCG00HFACZA	Chest Accel Z	2000	g	-Bipolar	4-416 HIII 5th FTSS.015
137	P52040	14CHSTCGRDHFACXA	Chest Accel X Redundant	2000	g	-Bipolar	4-416 HIII 5th FTSS.016
138	P51979	14CHSTCGRDHFACYA	Chest Accel Y Redundant	2000	g	-Bipolar	4-416 HIII 5th FTSS.017
139	P51280	14CHSTCGRDHFACZA	Chest Accel Z Redundant	2000	g	-Bipolar	4-416 HIII 5th FTSS.018
140	14CB1-2897-CST416	14CHST0000HFDSXA	Chest Deflection X-S30	80	mm	Bipolar	4-416 HIII 5th FTSS.019
141	J14234	14PELVCG00HFACXA	Pelvis Accel X	2000	g	-Bipolar	4-416 HIII 5th FTSS.020
142	J23914	14PELVCG00HFACYA	Pelvis Accel Y	2000	g	-Bipolar	4-416 HIII 5th FTSS.021
143	P64004	14PELVCG00HFACZA	Pelvis Accel Z	2000	g	-Bipolar	4-416 HIII 5th FTSS.022
144	2121AJ-1700	14FEMRLL00HFFOZA	Left Femur Force Z #8	13344	N	Bipolar	4-416 HIII 5th FTSS.023
145	2430-560	14FEMRRL00HFFOZA	Right Femur Force Z Ext P11	13344	N	Bipolar	4-416 HIII 5th FTSS.024
146	08TC1-2702-9242A	14KNSLLE00HFDSXA	Left slider	25.4	mm	Bipolar	4-416 HIII 5th FTSS.025
147	08TC1-2702-9230	14KNSLRI00HFDSXA	right slider	25.4	mm	Bipolar	4-416 HIII 5th FTSS.026
148	P61325	10SILLLE0000ACXA	Left Sill X Acceleration	2000	g	Bipolar	
149	P62627	10SILLLE0000ACYA	Left Sill Y Acceleration	2000	g	Bipolar	
150	P57781	10SILLRI0000ACXA	Right Sill X Acceleration	2000	g	Bipolar	
151	A044587	10SILLRI0000ACYA	Right Sill Y Acceleration	2000	g	-Bipolar	
152	P61736	10VEHCCG0000ACXA	Vehicle Center of Gravity X-axis Acceleration	2000	g	Bipolar	
153	P57430	10VEHCCG0000ACYA	Vehicle Center of Gravity Y-axis Acceleration	2000	g	-Bipolar	
154	P61317	10VEHCCG0000ACZA	Vehicle Center of Gravity Z-axis Acceleration	2000	g	-Bipolar	
155	P62573	10FOOTLE0000ACXA	Driver Foot Rest X Acceleration	2000	g	Bipolar	
156	P62630	10FOOTLE0000ACZA	Driver Foot Rest Z Acceleration	2000	g	-Bipolar	

## Channel Report Test Number 091020

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
157	P47331	10TPANLE0000ACXA	Toe Pan Behind Center of Accelerator X Accel	2000	g	Bipolar	
158	P47536	10TPANLE0000ACZA	Toe Pan Behind Center of Accelerator Z Accel	2000	g	-Bipolar	
159	3419-829	11SEBE0000B5FO0A	Driver Lap Belt Load Cell	15568	N	Bipolar	
160	X08011	13SEBE0000B5FO0A	Passenger Lap BeltLoad Cell (j17)	16000	N	Bipolar	
161	3419T-828	11SEBE0000B3FO0A	Driver Shoulder Belt Load Cell	15568	N	Bipolar	
162	X08010	13SEBE0000B3FO0A	Passenger Shoulder Belt Load Cell (s1510)	16000	N	Bipolar	
163	ABFire1	10AIRBLEFR25VO0A	Driver Airbag 1st Stage Fire Time IP1014	5	V	Bipolar	
164	ABFire2	10AIRBLEFR26VO0A	Driver Airbag 2nd Stage Fire Time IP1030	5	V	Bipolar	
165	ABFire3	10AIRBRIFR25VO0A	Passenger Airbag 1st Stage Fire Time IP1015	5	V	Bipolar	
166	ABFire4	10AIRBRIFR26VO0A	Passenger Airbag 2nd Stage Fire Time IP1017	5	V	Bipolar	
167	P63991	21HEADCG00THACXA	Head Accel X	2000	g	Bipolar	1-VRTC Thor NT T 015.001
168	P64001	21HEADCG00THACYA	Head Accel Y	2000	g	Bipolar	1-VRTC Thor NT T 015.002
169	P64002	21HEADCG00THACZA	Head Accel Z	2000	g	Bipolar	1-VRTC Thor NT T 015.003
170	P63847	21HEADLE00THACXA	Head (LT) Accel X	2000	g	Bipolar	1-VRTC Thor NT T 015.004
171	P63954	21HEADLE00THACZA	Head (LT) Accel Z	2000	g	Bipolar	1-VRTC Thor NT T 015.005
172	P63988	21HEADUP00THACXA	Head (TP) Accel X	2000	g	Bipolar	1-VRTC Thor NT T 015.006
173	P63987	21HEADUP00THACYA	Head (TP) Accel Y	2000	g	Bipolar	1-VRTC Thor NT T 015.007
174	P63989	21HEADRE00THACYA	Head (RR) Accel Y	2000	g	Bipolar	1-VRTC Thor NT T 015.008
175	P64008	21HEADRE00THACZA	Head (RR) Accel Z	2000	g	Bipolar	1-VRTC Thor NT T 015.009
176	3454-77-FX	21NECKUP00THFOXA	Upr Neck Force X	8900	N	Bipolar	1-VRTC Thor NT T 015.010
177	3454-77-FY	21NECKUP00THFOYA	Upr Neck Force Y	8900	N	Bipolar	1-VRTC Thor NT T 015.011
178	3454-77-FZ	21NECKUP00THFOZA	Upr Neck Force Z	13340	N	Bipolar	1-VRTC Thor NT T 015.012
179	3454-77-MX	21NECKUP00THMOXA	Upr Neck Moment X	282	Nm	Bipolar	1-VRTC Thor NT T 015.013
180	3454-77-MY	21NECKUP00THMOYA	Upr Neck Moment Y	282	Nm	Bipolar	1-VRTC Thor NT T 015.014
181	3454-77-MZ	21NECKUP00THMOZA	Upr Neck Moment Z	282	Nm	Bipolar	1-VRTC Thor NT T 015.015
182	4366J-79-FX	21NECKLO00THFOXA	Lwr Neck Force X	13340	N	Bipolar	1-VRTC Thor NT T 015.016
183	4366J-79-FY	21NECKLO00THFOYA	Lwr Neck Force Y	13340	N	Bipolar	1-VRTC Thor NT T 015.017
184	4366J-79-FZ	21NECKLO00THFOZA	Lwr Neck Force Z	13340	N	Bipolar	1-VRTC Thor NT T 015.018
185	4366J-79-MX	21NECKLO00THMOXA	Lwr Neck Moment X	452	N	Bipolar	1-VRTC Thor NT T 015.019
186	4366J-79-MY	21NECKLO00THMOYA	Lwr Neck Moment Y	452	N	Bipolar	1-VRTC Thor NT T 015.020
187	4366J-79-MZ	21NECKLO00THMOZA	Lwr Neck Moment Z	226	N	Bipolar	1-VRTC Thor NT T 015.021
188	6005J-76	21NECKRE00THFO0A	Rear Skull Spring Comp Force Z	4448	N	Bipolar	1-VRTC Thor NT T 015.022
189	6005J-79	21NECKFR00THFO0A	Front Skull Spring Comp Force Z	4448	N	Bipolar	1-VRTC Thor NT T 015.023
190	PD210-4B-0392	21NECKUP00THANYA	Occipital Condile Rotary Pot	180	°	Bipolar	1-VRTC Thor NT T 015.024
191	DGSP-029489	21ABDORL00THDS0A	Lwr Abd DGSP Rgt Disp	100	mm	Bipolar	1-VRTC Thor NT T 015.025
192	DGSP-0108	21ABDORL00THANYA	Lwr Abd DGSP Rgt Ptch	180	°	Bipolar	1-VRTC Thor NT T 015.026
193	DGSP-0353	21ABDORL00THANZA	Lwr Abd DGSP Rgt Yaw	180	°	Bipolar	1-VRTC Thor NT T 015.027
194	DGSP-029174	21ABDOLL00THDS0A	Lwr Abd DGSP Lft Disp	100	mm	Bipolar	1-VRTC Thor NT T 015.028
195	DGSP-0111	21ABDOLL00THANYA	Lwr Abd DGSP Lft Ptch	180	°	Bipolar	1-VRTC Thor NT T 015.029

## Channel Report Test Number 091020

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
196	DGSP-0419-1	21ABDOLL00THANZA	Lwr Abd DGSP Lft Yaw	180	°	Bipolar	1-VRTC Thor NT T 015.030
197	P58836	21TRRICG00THACXA	Thorax CG X	2000	g	Bipolar	1-VRTC Thor NT T 015.031
198	P51925	21TRRICG00THACYA	Thorax CG Y	2000	g	Bipolar	1-VRTC Thor NT T 015.032
199	P52061	21TRRICG00THACZA	Thorax CG Z	2000	g	Bipolar	1-VRTC Thor NT T 015.033
200	CRUX-0366	21CHRILU01THAN0A	CRUX T015 Base Upper Left Thorax Pot	180	°	Bipolar	1-VRTC Thor NT T 015.034
201	CRUX-0367	21CHRILU02THAN0A	CRUX T105 Mid Upper Left Thorax Pot	180	°	Bipolar	1-VRTC Thor NT T 015.035
202	CRUX-0369	21CHRILU03THAN0A	CRUX T105 Elbow Upper Left Thorax Pot	180	°	Bipolar	1-VRTC Thor NT T 015.036
203	CRUX-0253	21CHRIRU01THAN0A	CRUX T105 Base Upper Right Thorax Pot	180	°	Bipolar	1-VRTC Thor NT T 015.037
204	CRUX-0303	21CHRIRU02THAN0A	CRUX T105 Mid Upper Right Thorax Pot	180	°	Bipolar	1-VRTC Thor NT T 015.038
205	CRUX-0304	21CHRIRU03THAN0A	CRUX T105 Elbow Upper Right Thorax Pot	180	°	Bipolar	1-VRTC Thor NT T 015.039
206	CRUX-0312	21CHRILL01THAN0A	CRUX T015 Base Lower Left Thorax Pot	180	°	Bipolar	1-VRTC Thor NT T 015.040
207	CRUX-0319	21CHRILL02THAN0A	CRUX T015 Mid Lower Left Thorax Pot	180	°	Bipolar	1-VRTC Thor NT T 015.041
208	CRUX-0397	21CHRILL03THAN0A	CRUX T015 Elbow Lower Left Thorax Pot	180	°	Bipolar	1-VRTC Thor NT T 015.042
209	CRUX-0390	21CHRIRL01THAN0A	CRUX T015 Base Lower Right Thorax Pot	180	°	Bipolar	1-VRTC Thor NT T 015.043
210	CRUX-0354	21CHRIRL02THAN0A	CRUX T015 Mid Lower Right Thorax Pot	180	°	Bipolar	1-VRTC Thor NT T 015.044
211	CRUX-0377	21CHRIRL03THAN0A	CRUX T015 Elbow Lower Right Thorax Pot	180	°	Bipolar	1-VRTC Thor NT T 015.045
212	300647-034644	21ABDOUP00THDS0A	Upper Abdomen Sring Pot	100	mm	Bipolar	1-VRTC Thor NT T 015.046
213	1911A-173-FX	21THSP1200THFOXA	T12 Thoracic Spine FX	13344	N	Bipolar	1-VRTC Thor NT T 015.047
214	1911A-173-FY	21THSP1200THFOYA	T12 Thoracic Spine FY	13344	N	Bipolar	1-VRTC Thor NT T 015.048
215	1911A-173-FZ	21THSP1200THFOZA	T12 Thoracic Spine FZ	20000	N	Bipolar	1-VRTC Thor NT T 015.049
216	1911A-173-MX	21THSP12000HMOXA	T12 Thoracic Moment X	565	Nm	Bipolar	1-VRTC Thor NT T 015.050
217	1911A-173-MY	21THSP12000HMOYA	T12 Thoracic Moment Y	904	Nm	Bipolar	1-VRTC Thor NT T 015.051
218	P51921	21SPINUP00THACXA	T1 Upper Spine X	2000	g	Bipolar	1-VRTC Thor NT T 015.052
219	P52068	21SPINUP00THACYA	T1 Upper Spine Y	2000	g	Bipolar	1-VRTC Thor NT T 015.053
220	P51884	21SPINUP00THACZA	T1 Upper Spine Z	2000	g	-Bipolar	1-VRTC Thor NT T 015.054
221	P59001	21PELV0000THACXA	Pelvis Accel X	2000	g	Bipolar	1-VRTC Thor NT T 015.055
222	P51635	21PELV0000THACYA	Pelvis Accel Y	2000	g	Bipolar	1-VRTC Thor NT T 015.056
223	P51947	21PELV0000THACZA	Pelvis Accel Z	2000	g	Bipolar	1-VRTC Thor NT T 015.057
224	3855-81-FX	21ACTBLE00THFOXA	Pelvis/Acetabulum Left FX	22240	N	Bipolar	1-VRTC Thor NT T 015.058
225	3855-81-FY	21ACTBLE00THFOYA	Pelvis/Acetabulum Left FY	13340	N	Bipolar	1-VRTC Thor NT T 015.059
226	3855-81-FZ	21ACTBLE00THFOZA	Pelvis/Acetabulum Left FZ	13340	N	Bipolar	1-VRTC Thor NT T 015.060
227	3455J-84-FX	21ACTBRI00THFOXA	Pelvis/Acetabulum Right FX	22240	N	Bipolar	1-VRTC Thor NT T 015.061
228	3455J-84-FY	21ACTBRI00THFOYA	Pelvis/Acetabulum Right FY	13340	N	Bipolar	1-VRTC Thor NT T 015.062
229	3455J-84-FZ	21ACTBRI00THFOZA	Pelvis/Acetabulum Right FZ	13340	N	Bipolar	1-VRTC Thor NT T 015.063
230	1914A-362-FX	21FEMRLL00THFOXA	Left Femur FX	13344	N	Bipolar	1-VRTC Thor NT T 015.064
231	1914A-362-FY	21FEMRLL00THFOYA	Left Femur FY	13344	N	Bipolar	1-VRTC Thor NT T 015.065
232	1914A-362-FZ	21FEMRLL00THFOZA	Left Femur FZ	22240	N	Bipolar	1-VRTC Thor NT T 015.066
233	1914A-362-MX	21FEMRLL00THMOXA	Left Femur MX	339	Nm	Bipolar	1-VRTC Thor NT T 015.067
234	1914A-362-MY	21FEMRLL00THMOYA	Left Femur MY	339	Nm	Bipolar	1-VRTC Thor NT T 015.068

D-10

091020

## Channel Report Test Number 091020

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
235	1914A-362-MZ	21FEMRLL00THMOZA	Left Femur MZ	339	Nm	Bipolar	1-VRTC Thor NT T 015.069
236	1914A-383-FX	21FEMRRL00THFOXA	Right Femur FX	13344	N	Bipolar	1-VRTC Thor NT T 015.070
237	1914A-383-FY	21FEMRRL00THFOYA	Right Femur FY	13344	N	Bipolar	1-VRTC Thor NT T 015.071
238	1914A-383-FZ	21FEMRRL00THFOZA	Right Femur FZ	22240	N	Bipolar	1-VRTC Thor NT T 015.072
239	1914A-383-MX	21FEMRRL00THMOXA	Right Femur MX	339	Nm	Bipolar	1-VRTC Thor NT T 015.073
240	1914A-383-MY	21FEMRRL00THMOYA	Right Femur MY	339	Nm	Bipolar	1-VRTC Thor NT T 015.074
241	1914A-383-MZ	21FEMRRL00THMOZA	Right Femur MZ	339	Nm	Bipolar	1-VRTC Thor NT T 015.075
242	150-0121VR-019664	21KNSLLE00H3DSXA	Left Knee Displacement X	30	mm	-Bipolar	1-LX0018 & 0019 VRTC.001
243	4509J-89-FX	21TIBILULXH3FOXA	Left Upper Tibia Force X	11120	N	Bipolar	1-LX0018 & 0019 VRTC.002
244	4509J-89-FZ	21TIBILULXH3FOZA	Left Upper Tibia Force Z	11120	N	Bipolar	1-LX0018 & 0019 VRTC.004
245	4509J-89-MX	21TIBILULXH3MOXA	Left Upper Tibia Moment X	395	Nm	Bipolar	1-LX0018 & 0019 VRTC.005
246	4509J-89-MY	21TIBILULXH3MOYA	Left Upper Tibia Moment Y	395	Nm	Bipolar	1-LX0018 & 0019 VRTC.006
247	4929J-127-FX	21TIBILLXHX3FOXA	Left Lower Tibia Force X	11120	N	Bipolar	1-LX0018 & 0019 VRTC.009
248	4929J-127-FY	21TIBILLXHX3FOYA	Left Lower Tibia Force Y	11120	N	Bipolar	1-LX0018 & 0019 VRTC.010
249	4929J-127-FZ	21TIBILLXHX3FOZA	Left Lower Tibia Force Z	11120	N	Bipolar	1-LX0018 & 0019 VRTC.011
250	4929J-127-MX	21TIBILLXHX3MOXA	Left Lower Tibia Moment X	395	Nm	Bipolar	1-LX0018 & 0019 VRTC.012
251	4929J-127-MY	21TIBILLXHX3MOYA	Left Lower Tibia Moment Y	395	Nm	Bipolar	1-LX0018 & 0019 VRTC.013
252	PD210-4B-7921-LX0019X	21FOOTLELXH3ANXA	Left Foot Angular Dis. X LX104X	318	°	-Bipolar	1-LX0018 & 0019 VRTC.014
253	PD210-4B-7921-LX0019Y	21FOOTLELXH3ANYA	Left Foot Angular Dis. Y LX104Y	318	°	Bipolar	1-LX0018 & 0019 VRTC.015
254	PD210-4B-7921-LX0019Z	21FOOTLELXH3ANZA	Left Foot Angular Dis. Z LX104Z	318	°	-Bipolar	1-LX0018 & 0019 VRTC.016
255	P63853	21FOOTLELXH3ACXA	Left Foot Accel X	2000	g	Bipolar	1-LX0018 & 0019 VRTC.017
256	P51924	21FOOTLELXH3ACYA	Left Foot Accel Y	2000	g	Bipolar	1-LX0018 & 0019 VRTC.018
257	P52017	21FOOTLELXH3ACZA	Left Foot Accel Z	2000	g	Bipolar	1-LX0018 & 0019 VRTC.019
258	150-0121VL-019597	21KNSLRI00H3DSXA	Right Knee Displacement X	33	mm	-Bipolar	1-LX0018 & 0019 VRTC.020
259	4353-77-FX	21TIBIRULXH3FOXA	Right Upper Tibia Force X	11120	N	Bipolar	1-LX0018 & 0019 VRTC.021
260	4353-77-FZ	21TIBIRULXH3FOZA	Right Upper Tibia Force Z	11120	N	Bipolar	1-LX0018 & 0019 VRTC.023
261	4353-77-MX	21TIBIRULXH3MOXA	Right Upper Tibia Moment X	395	Nm	Bipolar	1-LX0018 & 0019 VRTC.024
262	4353-77-MY	21TIBIRULXH3MOYA	Right Upper Tibia Moment Y	395	Nm	Bipolar	1-LX0018 & 0019 VRTC.025
263	4929J-120-FX	21TIBIRLLXH3FOXA	Right Lower Tibia Force X	11120	N	Bipolar	1-LX0018 & 0019 VRTC.028
264	4929J-120-FY	21TIBIRLLXH3FOYA	Right Lower Tibia Force Y	11120	N	Bipolar	1-LX0018 & 0019 VRTC.029
265	4929J-120-FZ	21TIBIRLLXH3FOZA	Right Lower Tibia Force Z	11120	N	Bipolar	1-LX0018 & 0019 VRTC.030
266	4929J-120-MX	21TIBIRLLXH3MOXA	Right Lower Tibia Moment X	395	Nm	Bipolar	1-LX0018 & 0019 VRTC.031
267	4929J-120-MY	21TIBIRLLXH3MOYA	Right Lower Tibia Moment Y	395	Nm	Bipolar	1-LX0018 & 0019 VRTC.032
268	PD210-4B-7921-LX0018X	21FOOTRILXH3ANXA	Right Foot Angular Dis. X AK037X	318	°	-Bipolar	1-LX0018 & 0019 VRTC.033
269	PD210-4B-7921-LX0018Y	21FOOTRILXH3ANYA	Right Foot Angular Dis. Y AK225Y	318	°	Bipolar	1-LX0018 & 0019 VRTC.034
270	PD210-4B-7921-LX0018Z	21FOOTRILXH3ANZA	Right Foot Angular Dis. Z AK039Z	318	°	-Bipolar	1-LX0018 & 0019 VRTC.035
271	P52050	21FOOTRILXH3ACXA	Right Foot Accel X	2000	g	Bipolar	1-LX0018 & 0019 VRTC.036
272	P52037	21FOOTRILXH3ACYA	Right Foot Accel Y	2000	g	Bipolar	1-LX0018 & 0019 VRTC.037
273	P51913	21FOOTRILXH3ACZA	Right Foot Accel Z	2000	g	Bipolar	1-LX0018 & 0019 VRTC.038

D-11

091020

## Channel Report Test Number 091020

Ref	Transducer ID	ISO Signal Identifier	Description	FScale	Units	Polarity	Assembly
274	P61405	20SILLLE0000ACXA	Left Sill X Acceleration	2000	g	Bipolar	
275	P61384	20SILLLE0000ACYA	Left Sill Y Acceleration	2000	g	Bipolar	
276	P62628	20SILLRI0000ACXA	Right Sill X Acceleration	2000	g	Bipolar	
277	P61296	20SILLRI0000ACYA	Right Sill Y Acceleration	2000	g	-Bipolar	
278	P49042	20VEHCCG0000ACXA	Vehicle Center of Gravity X-axis Acceleration	2000	g	Bipolar	
279	P61280	20VEHCCG0000ACYA	Vehicle Center of Gravity Y-axis Acceleration	2000	g	-Bipolar	
280	P61269	20VEHCCG0000ACZA	Vehicle Center of Gravity Z-axis Acceleration	2000	g	-Bipolar	
281	P62574	20FOOTLE0000ACXA	Driver Foot Rest X Acceleration	2000	g	Bipolar	
282	P63138	20FOOTLE0000ACZA	Driver Foot Rest Z Acceleration	2000	g	-Bipolar	
283	P63158	20TPANLE0000ACXA	Toe Pan Behind Center of Accelerator X Accel	2000	g	Bipolar	
284	P61767	20TPANLE0000ACZA	Toe Pan Behind Center of Accelerator Z Accel	2000	g	-Bipolar	
285	X08012	21SEBE0000B5FO0A	Driver Lap Belt Load Cell (j1)	16000	N	Bipolar	
286	X08014	21SEBE0000B3FO0A	Driver Shoulder Belt Load Cell (j14)	16000	N	Bipolar	
287	ABFire5	20AIRBLEFR25VO0A	Driver Airbag 1st Stage Fire Time IP1018		5 V	Bipolar	
288	ABFire6	20AIRBLEFR26VO0A	Driver Airbag 2nd Stage Fire Time IP1029		5 V	Bipolar	

# Command File Test Number 091020

Channel	ISO mnemonic	Channel Title	Filter	Flip	Zero	Full Scale
1	11HEADCG00H3ACXA	Bullet Vehicle Driver Head X-Axis Acceleration	1000 +		yes	2000
2	11HEADCG00H3ACYA	Bullet Vehicle Driver Head Y-Axis Acceleration	1000 +		yes	2000
3	11HEADCG00H3ACZA	Bullet Vehicle Driver Head Z-Axis Acceleration	1000 +		yes	2000
3A	11HEADCG00H3ACRA	Bullet Vehicle Driver Head Resultant Acceleration	1000			
4	11HEADCGRDH3ACXA	Bullet Vehicle Driver Head Redundant X-Axis Acceleration	1000 +		yes	2000
5	11HEADCGRDH3ACYA	Bullet Vehicle Driver Head Redundant Y-Axis Acceleration	1000 +		yes	2000
6	11HEADCGRDH3ACZA	Bullet Vehicle Driver Head Redundant Z-Axis Acceleration	1000 +		yes	2000
6A	11HEADCGRDH3ACRA	Bullet Vehicle Driver Head Redundant Resultant Acceleration	1000			
7	11NECKUP00H3FOXA	Bullet Vehicle Driver Upper Neck X-Axis Force	1000 +		yes	8896
8	11NECKUP00H3FOYA	Bullet Vehicle Driver Upper Neck Y-Axis Force	1000 +		yes	8896
9	11NECKUP00H3FOZA	Bullet Vehicle Driver Upper Neck Z-Axis Force	1000 +		yes	13340
10	11NECKUP00H3MOXA	Bullet Vehicle Driver Upper Neck Moment About X Axis	600 +		yes	282
11	11NECKUP00H3MOYA	Bullet Vehicle Driver Upper Neck Moment About Y Axis	600 +		yes	282
12	11NECKUP00H3MOZA	Bullet Vehicle Driver Upper Neck Moment About Z Axis	600 +		yes	282
13	11CHSTCG00H3ACXA	Bullet Vehicle Driver Chest X-Axis Acceleration	180 +		yes	2000
14	11CHSTCG00H3ACYA	Bullet Vehicle Driver Chest Y-Axis Acceleration	180 +		yes	2000
15	11CHSTCG00H3ACZA	Bullet Vehicle Driver Chest Z-Axis Acceleration	180 +		yes	2000
15A	11CHSTCG00H3ACRA	Bullet Vehicle Driver Chest Resultant Acceleration	180			
16	11CHSTCGRDH3ACXA	Bullet Vehicle Driver Chest Redundant X-Axis Acceleration	180 +		yes	2000
17	11CHSTCGRDH3ACYA	Bullet Vehicle Driver Chest Redundant Y-Axis Acceleration	180 +		yes	2000
18	11CHSTCGRDH3ACZA	Bullet Vehicle Driver Chest Redundant Z-Axis Acceleration	180 +		yes	2000
18A	11CHSTCGRDH3ACRA	Bullet Vehicle Driver Chest Redundant Resultant Acceleration	180			
19	11CHST0000H3DSXA	Bullet Vehicle Driver Chest X-Axis Displacement	600 +		yes	84
20	11PELVCG00H3ACXA	Bullet Vehicle Driver Pelvis X-Axis Acceleration	1000 +		yes	2000
21	11PELVCG00H3ACYA	Bullet Vehicle Driver Pelvis Y-Axis Acceleration	1000 +		yes	2000
22	11PELVCG00H3ACZA	Bullet Vehicle Driver Pelvis Z-Axis Acceleration	1000 +		yes	2000
22A	11PELVCG00H3ACRA	Bullet Vehicle Driver Pelvis Resultant Acceleration	1000			
23	11FEMRLL00H3FOZA	Bullet Vehicle Driver Left Femur Z-Axis Force	600 +		yes	13344
24	11FEMRRL00H3FOXA	Bullet Vehicle Driver Right Femur Z-Axis Force	600 +		yes	13344
25	11KNSLLE00H3DSXA	Bullet Vehicle Driver Left Knee X-Axis Displacement	180 +		yes	33
26	11TIBILULXH3FOXA	Bullet Vehicle Driver Left Upper Tibia X-Axis Force	600 +		yes	11120.5
27	11TIBILULXH3FOZA	Bullet Vehicle Driver Left Upper Tibia Z-Axis Force	600 +		yes	11120.5
28	11TIBILULXH3MOXA	Bullet Vehicle Driver Left Upper Tibia Moment About X Axis	600 +		yes	395.4
29	11TIBILULXH3MOYA	Bullet Vehicle Driver Left Upper Tibia Moment About Y Axis	600 +		yes	395.4
30	11TIBILLLXH3FOXA	Bullet Vehicle Driver Left Lower Tibia X-Axis Force	600 +		yes	11120.5
31	11TIBILLLXH3FOYA	Bullet Vehicle Driver Left Lower Tibia Y-Axis Force	600 +		yes	11120.5
32	11TIBILLLXH3FOZA	Bullet Vehicle Driver Left Lower Tibia Z-Axis Force	600 +		yes	11120.5
33	11TIBILLLXH3MOXA	Bullet Vehicle Driver Left Lower Tibia Moment About X Axis	600 +		yes	395.4
34	11TIBILLLXH3MOYA	Bullet Vehicle Driver Left Lower Tibia Moment About Y Axis	600 +		yes	395.4
35	11TIBILELXH3ACXA	Bullet Vehicle Driver Left Tibia X-Axis Acceleration	1000 +		yes	1000
36	11TIBILELXH3ACYA	Bullet Vehicle Driver Left Tibia Y-Axis Acceleration	1000 +		yes	1000
37	11FOOTLELXH3ACXA	Bullet Vehicle Driver Left Foot X-Axis Acceleration	1000 +		yes	2000

D-13

091020

# Command File Test Number 091020

Channel	ISO mnemonic	Channel Title	Filter	Flip	Zero	Full Scale
38	11FOOTLELXH3ACYA	Bullet Vehicle Driver Left Foot Y-Axis Acceleration	1000 +		yes	2000
39	11FOOTLELXH3ACZA	Bullet Vehicle Driver Left Foot Z-Axis Acceleration	1000 +		yes	2000
39A	11FOOTLELXH3ACRA	Bullet Vehicle Driver Left Foot Resultant Acceleration	1000			
40	11FOOTLELXH3ANXA	Bullet Vehicle Driver Left Foot X-Axis Angular Displacement	180 +		no	180
41	11FOOTLELXH3ANYA	Bullet Vehicle Driver Left Foot Y-Axis Angular Displacement	180 +		no	180
42	11FOOTLELXH3ANZA	Bullet Vehicle Driver Left Foot Z-Axis Angular Displacement	180 +		no	180
43	11KNSLRI00H3DSXA	Bullet Vehicle Driver Right Knee X-Axis Displacement	180 +		yes	33
44	11TIBIRULXH3FOXA	Bullet Vehicle Driver Right Upper Tibia X-Axis Force	600 +		yes	11120.5
45	11TIBIRULXH3FOZA	Bullet Vehicle Driver Right Upper Tibia Z-Axis Force	600 +		yes	11120.5
46	11TIBIRULXH3MOXA	Bullet Vehicle Driver Right Upper Tibia Moment About X Axis	600 +		yes	395.4
47	11TIBIRULXH3MOYA	Bullet Vehicle Driver Right Upper Tibia Moment About Y Axis	600 +		yes	395.4
48	11TIBIRLLXH3FOXA	Bullet Vehicle Driver Right Lower Tibia X-Axis Force	600 +		yes	11120.5
49	11TIBIRLLXH3FOYA	Bullet Vehicle Driver Right Lower Tibia Y-Axis Force	600 +		yes	11120.5
50	11TIBIRLLXH3FOZA	Bullet Vehicle Driver Right Lower Tibia Z-Axis Force	600 +		yes	11120.5
51	11TIBIRLLXH3MOXA	Bullet Vehicle Driver Right Lower Tibia Moment About X Axis	600 +		yes	395.4
52	11TIBIRLLXH3MOYA	Bullet Vehicle Driver Right Lower Tibia Moment About Y Axis	600 +		yes	395.4
53	11TIBIRILXH3ACXA	Bullet Vehicle Driver Right Tibia X-Axis Acceleration	1000 +		yes	2000
54	11TIBIRILXH3ACYA	Bullet Vehicle Driver Right Tibia Y-Axis Acceleration	1000 +		yes	2000
55	11FOOTRILXH3ACXA	Bullet Vehicle Driver Right Foot X-Axis Acceleration	1000 +		yes	2000
56	11FOOTRILXH3ACYA	Bullet Vehicle Driver Right Foot Y-Axis Acceleration	1000 +		yes	2000
57	11FOOTRILXH3ACZA	Bullet Vehicle Driver Right Foot Z-Axis Acceleration	1000 +		yes	2000
57A	11FOOTRILXH3ACRA	Bullet Vehicle Driver Right Foot Resultant Acceleration	1000			
58	11FOOTRILXH3ANXA	Bullet Vehicle Driver Right Foot X-Axis Angular Displacement	180 +		no	180
59	11FOOTRILXH3ANYA	Bullet Vehicle Driver Right Foot Y-Axis Angular Displacement	180 +		no	180
60	11FOOTRILXH3ANZA	Bullet Vehicle Driver Right Foot Z-Axis Angular Displacement	180 +		no	180
61	13HEADCG00HFACXA	Bullet Vehicle Right Front Passenger Head X-Axis Acceleration	1000 +		yes	2000
62	13HEADCG00HFACYA	Bullet Vehicle Right Front Passenger Head Y-Axis Acceleration	1000 +		yes	2000
63	13HEADCG00HFACZA	Bullet Vehicle Right Front Passenger Head Z-Axis Acceleration	1000 +		yes	2000
63A	13HEADCG00HFACRA	Bullet Vehicle Right Front Passenger Head Resultant Acceleration	1000			
64	13HEADCGRDHFACXA	Bullet Vehicle Right Front Passenger Head Redundant X-Axis Accelerat	1000 +		yes	2000
65	13HEADCGRDHFACYA	Bullet Vehicle Right Front Passenger Head Redundant Y-Axis Accelerat	1000 +		yes	2000
66	13HEADCGRDHFACZA	Bullet Vehicle Right Front Passenger Head Redundant Z-Axis Accelerat	1000 +		yes	2000
66A	13HEADCGRDHFACRA	Bullet Vehicle Right Front Passenger Head Redundant Resultant Accele	1000			
67	13NECKUP00HFFOXA	Bullet Vehicle Right Front Passenger Upper Neck X-Axis Force	1000 +		yes	8896
68	13NECKUP00HFFOYA	Bullet Vehicle Right Front Passenger Upper Neck Y-Axis Force	1000 +		yes	8896
69	13NECKUP00HFFOZA	Bullet Vehicle Right Front Passenger Upper Neck Z-Axis Force	1000 +		yes	13344
70	13NECKUP00HFMOXA	Bullet Vehicle Right Front Passenger Upper Neck Moment About X Axis	600 +		yes	282.5
71	13NECKUP00HFMOYA	Bullet Vehicle Right Front Passenger Upper Neck Moment About Y Axis	600 +		yes	282.5
72	13NECKUP00HFMOZA	Bullet Vehicle Right Front Passenger Upper Neck Moment About Z Axis	600 +		yes	282.5
73	13CHSTCG00HFACXA	Bullet Vehicle Right Front Passenger Chest X-Axis Acceleration	180 +		yes	2000
74	13CHSTCG00HFACYA	Bullet Vehicle Right Front Passenger Chest Y-Axis Acceleration	180 +		yes	2000
75	13CHSTCG00HFACZA	Bullet Vehicle Right Front Passenger Chest Z-Axis Acceleration	180 +		yes	2000

# Command File Test Number 091020

Channel	ISO mnemonic	Channel Title	Filter	Flip	Zero	Full Scale
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
77	13CHSTCGRDHFACYA	Bullet Vehicle Right Front Passenger Chest Redundant Y-Axis Acceleration	180 +		yes	2000
78	13CHSTCGRDHFACZA	Bullet Vehicle Right Front Passenger Chest Redundant Z-Axis Acceleration	180 +		yes	2000
78A	13CHSTCGRDHFACRA	Bullet Vehicle Right Front Passenger Chest Redundant Resultant Acceleration	180			
79	13CHST0000HFDSXA	Bullet Vehicle Right Front Passenger Chest X-Axis Displacement	600 +		yes	75
80	13PELVCG00HFACXA	Bullet Vehicle Right Front Passenger Pelvis X-Axis Acceleration	1000 +		yes	2000
81	13PELVCG00HFACYA	Bullet Vehicle Right Front Passenger Pelvis Y-Axis Acceleration	1000 +		yes	2000
82	13PELVCG00HFACZA	Bullet Vehicle Right Front Passenger Pelvis Z-Axis Acceleration	1000 +		yes	2000
82A	13PELVCG00HFACRA	Bullet Vehicle Right Front Passenger Pelvis Resultant Acceleration	1000			
83	13FEMRLU00HFFOZA	Bullet Vehicle Right Front Passenger Left Femur Z-Axis Force	600 +		yes	13344
84	13FEMRRU00HFFOZA	Bullet Vehicle Right Front Passenger Right Femur Z-Axis Force	600 +		yes	13344
85	13KNSLLE00HFDSXA	Bullet Vehicle Right Front Passenger Left Knee X-Axis Displacement	180 +		yes	33
86	13TIBILULXHFACXA	Bullet Vehicle Right Front Passenger Left Upper Tibia X-Axis Force	600 +		yes	8896
87	13TIBILULXHFACZA	Bullet Vehicle Right Front Passenger Left Upper Tibia Z-Axis Force	600 +		yes	8896
88	13TIBILULXHFMOXA	Bullet Vehicle Right Front Passenger Left Upper Tibia Moment About X	600 +		yes	282.5
89	13TIBILULXHFMOYA	Bullet Vehicle Right Front Passenger Left Upper Tibia Moment About Y	600 +		yes	282.5
90	13TIBILELXHFACXA	Bullet Vehicle Right Front Passenger Left Tibia X-Axis Acceleration	1000 +		yes	2000
91	13TIBILELXHFACYA	Bullet Vehicle Right Front Passenger Left Tibia Y-Axis Acceleration	1000 +		yes	2000
92	13TIBILLLXHFACXA	Bullet Vehicle Right Front Passenger Left Lower Tibia X-Axis Force	600 +		yes	8896
93	13TIBILLLXHFACZA	Bullet Vehicle Right Front Passenger Left Lower Tibia Y-Axis Force	600 +		yes	8896
94	13TIBILLLXHFMOXA	Bullet Vehicle Right Front Passenger Left Lower Tibia Z-Axis Force	600 +		yes	8896
95	13TIBILLLXHFMOYA	Bullet Vehicle Right Front Passenger Left Lower Tibia Moment About X	600 +		yes	282
96	13TIBILLLXHFMOYA	Bullet Vehicle Right Front Passenger Left Lower Tibia Moment About Y	600 +		yes	282
97	13FOOTLELXHFANXA	Bullet Vehicle Right Front Passenger Left Foot X-Axis Angular Displacement	180 +		no	318
98	13FOOTLELXHFANYA	Bullet Vehicle Right Front Passenger Left Foot Y-Axis Angular Displacement	180 +		no	318
99	13FOOTLELXHFANZA	Bullet Vehicle Right Front Passenger Left Foot Z-Axis Angular Displacement	180 +		no	318
100	13FOOTLELXHFACXA	Bullet Vehicle Right Front Passenger Left Foot X-Axis Acceleration	1000 +		yes	2000
101	13FOOTLELXHFACYA	Bullet Vehicle Right Front Passenger Left Foot Y-Axis Acceleration	1000 +		yes	2000
102	13FOOTLELXHFACZA	Bullet Vehicle Right Front Passenger Left Foot Z-Axis Acceleration	1000 +		yes	2000
102A	13FOOTLELXHFACRA	Bullet Vehicle Right Front Passenger Left Foot Resultant Acceleration	1000			
103	13KNSLRI00HFDSXA	Bullet Vehicle Right Front Passenger Right Knee X-Axis Displacement	180 +		yes	33
104	13TIBIRULXHFACXA	Bullet Vehicle Right Front Passenger Right Upper Tibia X-Axis Force	600 +		yes	8896
105	13TIBIRULXHFACZA	Bullet Vehicle Right Front Passenger Right Upper Tibia Z-Axis Force	600 +		yes	8896
106	13TIBIRULXHFMOXA	Bullet Vehicle Right Front Passenger Right Upper Tibia Moment About X	600 +		yes	282
107	13TIBIRULXHFMOYA	Bullet Vehicle Right Front Passenger Right Upper Tibia Moment About Y	600 +		yes	282
108	13TIBIRILXHFACXA	Bullet Vehicle Right Front Passenger Right Tibia X-Axis Acceleration	1000 +		yes	2000
109	13TIBIRILXHFACYA	Bullet Vehicle Right Front Passenger Right Tibia Y-Axis Acceleration	1000 +		yes	2000
110	13TIBIRLLXHFACXA	Bullet Vehicle Right Front Passenger Right Lower Tibia X-Axis Force	600 +		yes	8896
111	13TIBIRLLXHFACZA	Bullet Vehicle Right Front Passenger Right Lower Tibia Y-Axis Force	600 +		yes	8896
112	13TIBIRLLXHFMOXA	Bullet Vehicle Right Front Passenger Right Lower Tibia Z-Axis Force	600 +		yes	8896
113	13TIBIRLLXHFMOYA	Bullet Vehicle Right Front Passenger Right Lower Tibia Moment About X	600 +		yes	282

## Command File Test Number 091020

Channel	ISO mnemonic	Channel Title	Filter	Flip	Zero	Full Scale
114	13TIBIRLLXHFMOYA	Bullet Vehicle Right Front Passenger Right Lower Tibia Moment About	600 +	yes	282	
115	13FOOTRILXHFANXA	Bullet Vehicle Right Front Passenger Right Foot X-Axis Angular Displ	180 +	no	318	
116	13FOOTRILXHFANYA	Bullet Vehicle Right Front Passenger Right Foot Y-Axis Angular Displ	180 +	no	318	
117	13FOOTRILXHFANZA	Bullet Vehicle Right Front Passenger Right Foot Z-Axis Angular Displ	180 +	no	318	
118	13FOOTRILXHFACXA	Bullet Vehicle Right Front Passenger Right Foot X-Axis Acceleration	1000 +	yes	2000	
119	13FOOTRILXHFACYA	Bullet Vehicle Right Front Passenger Right Foot Y-Axis Acceleration	1000 +	yes	2000	
120	13FOOTRILXHFACZA	Bullet Vehicle Right Front Passenger Right Foot Z-Axis Acceleration	1000 +	yes	2000	
120A	13FOOTRILXHFACRA	Bullet Vehicle Right Front Passenger Right Foot Resultant Accelerati	1000			
121	14HEADCG00HFACXA	Bullet Vehicle Left Rear Passenger Head X-Axis Acceleration	1000 +	yes	2000	
122	14HEADCG00HFACYA	Bullet Vehicle Left Rear Passenger Head Y-Axis Acceleration	1000 +	yes	2000	
123	14HEADCG00HFACZA	Bullet Vehicle Left Rear Passenger Head Z-Axis Acceleration	1000 +	yes	2000	
123A	14HEADCG00HFACRA	Bullet Vehicle Left Rear Passenger Head Resultant Acceleration	1000			
124	14HEADCGRDHFACXA	Bullet Vehicle Left Rear Passenger Head Redundant X-Axis Acceleratio	1000 +	yes	2000	
125	14HEADCGRDHFACYA	Bullet Vehicle Left Rear Passenger Head Redundant Y-Axis Acceleratio	1000 +	yes	2000	
126	14HEADCGRDHFACZA	Bullet Vehicle Left Rear Passenger Head Redundant Z-Axis Acceleratio	1000 +	yes	2000	
126A	14HEADCGRDHFACRA	Bullet Vehicle Left Rear Passenger Head Redundant Resultant Accelera	1000			
127	14NECKUP00HFFOXA	Bullet Vehicle Left Rear Passenger Upper Neck X-Axis Force	1000 +	yes	8896	
128	14NECKUP00HFFOYA	Bullet Vehicle Left Rear Passenger Upper Neck Y-Axis Force	1000 +	yes	8896	
129	14NECKUP00HFFOZA	Bullet Vehicle Left Rear Passenger Upper Neck Z-Axis Force	1000 +	yes	13344	
130	14NECKUP00HFMOXA	Bullet Vehicle Left Rear Passenger Upper Neck Moment About X Axis	600 +	yes	282.5	
131	14NECKUP00HFMOYA	Bullet Vehicle Left Rear Passenger Upper Neck Moment About Y Axis	600 +	yes	282.5	
132	14NECKUP00HFMOZA	Bullet Vehicle Left Rear Passenger Upper Neck Moment About Z Axis	600 +	yes	282.5	
133	14CHSTCG00HFACXA	Bullet Vehicle Left Rear Passenger Chest X-Axis Acceleration	180 +	yes	2000	
134	14CHSTCG00HFACYA	Bullet Vehicle Left Rear Passenger Chest Y-Axis Acceleration	180 +	yes	2000	
135	14CHSTCG00HFACZA	Bullet Vehicle Left Rear Passenger Chest Z-Axis Acceleration	180 +	yes	2000	
135A	14CHSTCG00HFACRA	Bullet Vehicle Left Rear Passenger Chest Resultant Acceleration	180			
136	14CHSTCGRDHFACXA	Bullet Vehicle Left Rear Passenger Chest Redundant X-Axis Accelerati	180 +	yes	2000	
137	14CHSTCGRDHFACYA	Bullet Vehicle Left Rear Passenger Chest Redundant Y-Axis Accelerati	180 +	yes	2000	
138	14CHSTCGRDHFACZA	Bullet Vehicle Left Rear Passenger Chest Redundant Z-Axis Accelerati	180 +	yes	2000	
138A	14CHSTCGRDHFACRA	Bullet Vehicle Left Rear Passenger Chest Redundant Resultant Acceler	180			
139	14CHST0000HFDSXA	Bullet Vehicle Left Rear Passenger Chest X-Axis Displacement	600 +	yes	80	
140	14PELVCG00HFACXA	Bullet Vehicle Left Rear Passenger Pelvis X-Axis Acceleration	1000 +	yes	2000	
141	14PELVCG00HFACYA	Bullet Vehicle Left Rear Passenger Pelvis Y-Axis Acceleration	1000 +	yes	2000	
142	14PELVCG00HFACZA	Bullet Vehicle Left Rear Passenger Pelvis Z-Axis Acceleration	1000 +	yes	2000	
142A	14PELVCG00HFACRA	Bullet Vehicle Left Rear Passenger Pelvis Resultant Acceleration	1000			
143	14FEMRLL00HFFOZA	Bullet Vehicle Left Rear Passenger Left Femur Z-Axis Force	600 +	yes	13344	
144	14FEMRRL00HFFOZA	Bullet Vehicle Left Rear Passenger Right Femur Z-Axis Force	600 +	yes	13344	
145	14KNSLLE00HFDSXA	Bullet Vehicle Left Rear Passenger Left Knee X-Axis Displacement	180 +	yes	25.4	
146	14KNSLRI00HFDSXA	Bullet Vehicle Left Rear Passenger Right Knee X-Axis Displacement	180 +	yes	25.4	
147	10SILLLE0000ACXA	Bullet Vehicle Left Sill X-Axis Acceleration	60 +	yes	2000	
148	10SILLLE0000ACYA	Bullet Vehicle Left Sill Y-Axis Acceleration	60 +	yes	2000	
149	10SILLRI0000ACXA	Bullet Vehicle Right Sill X-Axis Acceleration	60 +	yes	2000	

# Command File Test Number 091020

Channel	ISO mnemonic	Channel Title	Filter	Flip	Zero	Full Scale
150	10SILLRI0000ACYA	Bullet Vehicle Right Sill Y-Axis Acceleration	60 +		yes	2000
151	10VEHCCG0000ACXA	Bullet Vehicle Vehicle Center of Gravity X-Axis Acceleration	60 +		yes	2000
152	10VEHCCG0000ACYA	Bullet Vehicle Vehicle Center of Gravity Y-Axis Acceleration	60 +		yes	2000
153	10VEHCCG0000ACZA	Bullet Vehicle Vehicle Center of Gravity Z-Axis Acceleration	60 +		yes	2000
153A	10VEHCCG0000ACRA	Bullet Vehicle Vehicle Center of Gravity Resultant Acceleration	60			
154	10FOOTLE0000ACXA	Bullet Vehicle Driver Footrest X-Axis Acceleration	60 +		yes	2000
155	10FOOTLE0000ACZA	Bullet Vehicle Driver Footrest Z-Axis Acceleration	60 +		yes	2000
156	10TPANLE0000ACXA	Bullet Vehicle Toepan Behind Center of Accelerator X-Axis Accelerati	60 +		yes	2000
157	10TPANLE0000ACZA	Bullet Vehicle Toepan Behind Center of Accelerator Z-Axis Accelerati	60 +		yes	2000
158	11SEBE0000B5FOOA	Bullet Vehicle Driver Lap Belt Force	60 +		yes	15568
159	13SEBE0000B5FOOA	Bullet Vehicle Right Front Passenger Lap Belt Force	60 +		yes	15568
160	11SEBE0000B3FOOA	Bullet Vehicle Driver Shoulder Belt Force	60 +		yes	16000
161	13SEBE0000B3FOOA	Bullet Vehicle Right Front Passenger Shoulder Belt Force	60 +		yes	16000
162	10AIRBLEFR25VOOA	Bullet Vehicle Driver Airbag 1st Stage Fire Time	1000 +		no	5
163	10AIRBLEFR26VOOA	Bullet Vehicle Driver Airbag 2nd Stage Fire Time	1000 +		no	5
164	10AIRBRIFR25VOOA	Bullet Vehicle Right Front Passenger Airbag 1st Stage Fire Time	1000 +		no	5
165	10AIRBRIFR26VOOA	Bullet Vehicle Right Front Passenger Airbag 2nd Stage Fire Time	1000 +		no	5
166	21HEADCG00THACXA	Target Vehicle Driver Head X-Axis Acceleration	1000 +		yes	2000
167	21HEADCG00THACYA	Target Vehicle Driver Head Y-Axis Acceleration	1000 +		yes	2000
168	21HEADCG00THACZA	Target Vehicle Driver Head Z-Axis Acceleration	1000 +		yes	2000
168A	21HEADCG00THACRA	Target Vehicle Driver Head Resultant Acceleration	1000			
169	21HEADLE00THACXA	Target Vehicle Driver Head Left X-Axis Acceleration	1000 +		yes	2000
170	21HEADLE00THACZA	Target Vehicle Driver Head Left Z-Axis Acceleration	1000 +		yes	2000
171	21HEADUP00THACXA	Target Vehicle Driver Head Top X-Axis Acceleration	1000 +		yes	2000
172	21HEADUP00THACYA	Target Vehicle Driver Head Top Y-Axis Acceleration	1000 +		yes	2000
173	21HEADRE00THACYA	Target Vehicle Driver Head Rear Y-Axis Acceleration	1000 +		yes	2000
174	21HEADRE00THACZA	Target Vehicle Driver Head Rear Z-Axis Acceleration	1000 +		yes	2000
175	21NECKUP00THFOXA	Target Vehicle Driver Upper Neck X-Axis Force	1000 +		yes	8900
176	21NECKUP00THFOYA	Target Vehicle Driver Upper Neck Y-Axis Force	1000 +		yes	8900
177	21NECKUP00THFOZA	Target Vehicle Driver Upper Neck Z-Axis Force	1000 +		yes	13340
178	21NECKUP00THMOXA	Target Vehicle Driver Upper Neck Moment About X Axis	600 +		yes	282
179	21NECKUP00THMOYA	Target Vehicle Driver Upper Neck Moment About Y Axis	600 +		yes	282
180	21NECKUP00THMOZA	Target Vehicle Driver Upper Neck Moment About Z Axis	600 +		yes	282
181	21NECKLO00THFOXA	Target Vehicle Driver Lower Neck X-Axis Force	1000 +		yes	13340
182	21NECKLO00THFOYA	Target Vehicle Driver Lower Neck Y-Axis Force	1000 +		yes	13340
183	21NECKLO00THFOZA	Target Vehicle Driver Lower Neck Z-Axis Force	1000 +		yes	13340
184	21NECKLO00THMOXA	Target Vehicle Driver Lower Neck Moment About X Axis	600 +		yes	452
185	21NECKLO00THMOYA	Target Vehicle Driver Lower Neck Moment About Y Axis	600 +		yes	452
186	21NECKLO00THMOZA	Target Vehicle Driver Lower Neck Moment About Z Axis	600 +		yes	226
187	21NECKRE00THFOOA	Target Vehicle Driver Rear Skull Spring Z-Axis Force	600 +		yes	4448
188	21NECKFR00THFOOA	Target Vehicle Driver Front Skull Spring Z-Axis Force	600 +		yes	4448
189	21NECKUP00THANYA	Target Vehicle Driver Occipital Condyle Rotary Pot	180 +		yes	180

# Command File Test Number 091020

Channel	ISO mnemonic	Channel Title	Filter	Flip	Zero	Full Scale
190	21ABDORL00THDS0A	Target Vehicle Driver Lower Abdomen DGSP Right Displacement	180 +		no	100
191	21ABDORL00THANYA	Target Vehicle Driver Lower Abdomen DGSP Right Pitch	180 +		no	180
192	21ABDORL00THANZA	Target Vehicle Driver Lower Abdomen DGSP Right Yaw	180 +		no	180
193	21ABDOLL00THDS0A	Target Vehicle Driver Lower Abdomen DGSP Left Displacement	180 +		no	100
194	21ABDOLL00THANYA	Target Vehicle Driver Lower Abdomen DGSP Left Pitch	180 +		no	180
195	21ABDOLL00THANZA	Target Vehicle Driver Lower Abdomen DGSP Left Yaw	180 +		no	180
196	21TRRICG00THACXA	Target Vehicle Driver Thorax CG X-Axis Acceleration	1000 +		yes	2000
197	21TRRICG00THACYA	Target Vehicle Driver Thorax CG Y-Axis Acceleration	1000 +		yes	2000
198	21TRRICG00THACZA	Target Vehicle Driver Thorax CG Z-Axis Acceleration	1000 +		yes	2000
198A	21TRRICG00THACRA	Target Vehicle Driver Thorax CG Resultant Acceleration	1000		yes	
199	21CHRILU01THANOA	Target Vehicle Driver CRUX T015 Base Upper Left Thorax Pot	180 +		no	180
200	21CHRILU02THANOA	Target Vehicle Driver CRUX T015 Mid Upper Left Thorax Pot	180 +		no	180
201	21CHRILU03THANOA	Target Vehicle Driver CRUX T015 Elbow Upper Left Thorax Pot	180 +		no	180
202	21CHRIRU01THANOA	Target Vehicle Driver CRUX T015 Base Upper Right Thorax Pot	180 +		no	180
203	21CHRIRU02THANOA	Target Vehicle Driver CRUX T015 Mid Upper Right Thorax Pot	180 +		no	180
204	21CHRIRU03THANOA	Target Vehicle Driver CRUX T015 Elbow Upper Right Thorax Pot	180 +		no	180
205	21CHRILL01THANOA	Target Vehicle Driver CRUX T015 Base Lower Left Thorax Pot	180 +		no	180
206	21CHRILL02THANOA	Target Vehicle Driver CRUX T015 Mid Lower Left Thorax Pot	180 +		no	180
207	21CHRILL03THANOA	Target Vehicle Driver CRUX T015 Elbow Lower Left Thorax Pot	180 +		no	180
208	21CHRIRL01THANOA	Target Vehicle Driver CRUX T015 Base Lower Right Thorax Pot	180 +		no	180
209	21CHRIRL02THANOA	Target Vehicle Driver CRUX T015 Mid Lower Right Thorax Pot	180 +		no	180
210	21CHRIRL03THANOA	Target Vehicle Driver CRUX T015 Elbow Lower Right Thorax Pot	180 +		no	180
211	21ABDOUP00THDS0A	Target Vehicle Driver Upper Abdomen String Pot	180 +		yes	100
212	21THSP1200THFOXA	Target Vehicle Driver T12 Thoracic Spine X-Axis Force	1000 +		yes	13344
213	21THSP1200THFOYA	Target Vehicle Driver T12 Thoracic Spine Y-Axis Force	1000 +		yes	13344
214	21THSP1200THFOZA	Target Vehicle Driver T12 Thoracic Spine Z-Axis Force	1000 +		yes	20000
215	21THSP1200HMOXA	Target Vehicle Driver T12 Thoracic Moment About X Axis	1000 +		yes	565
216	21THSP1200HMOYA	Target Vehicle Driver T12 Thoracic Moment About Y Axis	1000 +		yes	904
217	21SPINUP00THACXA	Target Vehicle Driver T1 Upper Spine X-Axis Acceleration	180 +		yes	2000
218	21SPINUP00THACYA	Target Vehicle Driver T1 Upper Spine Y-Axis Acceleration	180 +		yes	2000
219	21SPINUP00THACZA	Target Vehicle Driver T1 Upper Spine Z-Axis Acceleration	180 +		yes	2000
219A	21SPINUP00THACRA	Target Vehicle Driver T1 Upper Spine Resultant Acceleration	180			
220	21PELV0000THACXA	Target Vehicle Driver Pelvis X-Axis Acceleration	1000 +		yes	2000
221	21PELV0000THACYA	Target Vehicle Driver Pelvis Y-Axis Acceleration	1000 +		yes	2000
222	21PELV0000THACZA	Target Vehicle Driver Pelvis Z-Axis Acceleration	1000 +		yes	2000
222A	21PELV0000THACRA	Target Vehicle Driver Pelvis Resultant Acceleration	1000			
223	21ACTBLE00THFOXA	Target Vehicle Driver Pelvis/Acetabulum Left X-Axis Force	1000 +		yes	22240
224	21ACTBLE00THFOYA	Target Vehicle Driver Pelvis/Acetabulum Left Y-Axis Force	1000 +		yes	13340
225	21ACTBLE00THFOZA	Target Vehicle Driver Pelvis/Acetabulum Left Z-Axis Force	1000 +		yes	13340
226	21ACTBRI00THFOXA	Target Vehicle Driver Pelvis/Acetabulum Right X-Axis Force	1000 +		yes	22240
227	21ACTBRI00THFOYA	Target Vehicle Driver Pelvis/Acetabulum Right Y-Axis Force	1000 +		yes	13340
228	21ACTBRI00THFOZA	Target Vehicle Driver Pelvis/Acetabulum Right Z-Axis Force	1000 +		yes	13340

D-18

091020

# Command File Test Number 091020

Channel	ISO mnemonic	Channel Title	Filter	Flip	Zero	Full Scale
229	21FEMRL00THFOXA	Target Vehicle Driver Left Femur X-Axis Force	600 +		yes	13344
230	21FEMRL00THFOYA	Target Vehicle Driver Left Femur Y-Axis Force	600 +		yes	13344
231	21FEMRL00THFOZA	Target Vehicle Driver Left Femur Z-Axis Force	600 +		yes	22240
232	21FEMRL00THMOXA	Target Vehicle Driver Left Femur Moment About X-Axis	600 +		yes	339
233	21FEMRL00THMOYA	Target Vehicle Driver Left Femur Moment About Y-Axis	600 +		yes	339
234	21FEMRL00THMOZA	Target Vehicle Driver Left Femur Moment About Z-Axis	600 +		yes	339
235	21FEMRRL00THFOXA	Target Vehicle Driver Right Femur X-Axis Force	600 +		yes	13344
236	21FEMRRL00THFOYA	Target Vehicle Driver Right Femur Y-Axis Force	600 +		yes	13344
237	21FEMRRL00THFOZA	Target Vehicle Driver Right Femur Z-Axis Force	600 +		yes	22240
238	21FEMRRL00THMOXA	Target Vehicle Driver Right Femur Moment About X-Axis	600 +		yes	339
239	21FEMRRL00THMOYA	Target Vehicle Driver Right Femur Moment About Y-Axis	600 +		yes	339
240	21FEMRRL00THMOZA	Target Vehicle Driver Right Femur Moment About Z-Axis	600 +		yes	339
241	21KNSLLE00H3DSXA	Target Vehicle Driver Left Knee X-Axis Displacement	180 +		yes	30
242	21TIBILULXH3FOXA	Target Vehicle Driver Left Upper Tibia X-Axis Force	600 +		yes	11120
243	21TIBILULXH3FOZA	Target Vehicle Driver Left Upper Tibia Z-Axis Force	600 +		yes	11120
244	21TIBILULXH3MOXA	Target Vehicle Driver Left Upper Tibia Moment About X Axis	600 +		yes	395
245	21TIBILULXH3MOYA	Target Vehicle Driver Left Upper Tibia Moment About Y Axis	600 +		yes	395
246	21TIBILLXHX3FOXA	Target Vehicle Driver Left Lower Tibia X-Axis Force	600 +		yes	11120
247	21TIBILLXHX3FOYA	Target Vehicle Driver Left Lower Tibia Y-Axis Force	600 +		yes	11120
248	21TIBILLXHX3FOZA	Target Vehicle Driver Left Lower Tibia Z-Axis Force	600 +		yes	11120
249	21TIBILLXHX3MOXA	Target Vehicle Driver Left Lower Tibia Moment About X Axis	600 +		yes	395
250	21TIBILLXHX3MOYA	Target Vehicle Driver Left Lower Tibia Moment About Y Axis	600 +		yes	395
251	21FOOTLELXH3ANXA	Target Vehicle Driver Left Foot Angular X-Axis Displacement	180 +		no	318
252	21FOOTLELXH3ANYA	Target Vehicle Driver Left Foot Angular Y-Axis Displacement	180 +		no	318
253	21FOOTLELXH3ANZA	Target Vehicle Driver Left Foot Angular Z-Axis Displacement	180 +		no	318
254	21FOOTLELXH3ACXA	Target Vehicle Driver Left Foot X-Axis Acceleration	1000 +		yes	2000
255	21FOOTLELXH3ACYA	Target Vehicle Driver Left Foot Y-Axis Acceleration	1000 +		yes	2000
256	21FOOTLELXH3ACZA	Target Vehicle Driver Left Foot Z-Axis Acceleration	1000 +		yes	2000
256A	21FOOTLELXH3ACRA	Target Vehicle Driver Left Foot Resultant Acceleration	1000			
257	21KNSLRI00H3DSXA	Target Vehicle Driver Right Knee X-Axis Displacement	180 +		yes	33
258	21TIBIRULXH3FOXA	Target Vehicle Driver Right Upper Tibia X-Axis Force	600 +		yes	11120
259	21TIBIRULXH3FOZA	Target Vehicle Driver Right Upper Tibia Z-Axis Force	600 +		yes	11120
260	21TIBIRULXH3MOXA	Target Vehicle Driver Right Upper Tibia Moment About X Axis	600 +		yes	395
261	21TIBIRULXH3MOYA	Target Vehicle Driver Right Upper Tibia Moment About Y Axis	600 +		yes	395
262	21TIBIRLLXH3FOXA	Target Vehicle Driver Right Lower Tibia X-Axis Force	600 +		yes	11120
263	21TIBIRLLXH3FOYA	Target Vehicle Driver Right Lower Tibia Y-Axis Force	600 +		yes	11120
264	21TIBIRLLXH3FOZA	Target Vehicle Driver Right Lower Tibia Z-Axis Force	600 +		yes	11120
265	21TIBIRLLXH3MOXA	Target Vehicle Driver Right Lower Tibia Moment About X Axis	600 +		yes	395
266	21TIBIRLLXH3MOYA	Target Vehicle Driver Right Lower Tibia Moment About Y Axis	600 +		yes	395
267	21FOOTRILXH3ANXA	Target Vehicle Driver Right Foot Angular X-Axis Displacement	180 +		no	318
268	21FOOTRILXH3ANYA	Target Vehicle Driver Right Foot Angular Y-Axis Displacement	180 +		no	318
269	21FOOTRILXH3ANZA	Target Vehicle Driver Right Foot Angular Z-Axis Displacement	180 +		no	318

## Command File Test Number 091020

Channel	ISO mnemonic	Channel Title	Filter	Flip	Zero	Full Scale
270	21FOOTRILXH3ACXA	Target Vehicle Driver Right Foot X-Axis Acceleration	1000 +	+	yes	2000
271	21FOOTRILXH3ACYA	Target Vehicle Driver Right Foot Y-Axis Acceleration	1000 +	+	yes	2000
272	21FOOTRILXH3ACZA	Target Vehicle Driver Right Foot Z-Axis Acceleration	1000 +	+	yes	2000
272A	21FOOTRILXH3ACRA	Target Vehicle Driver Right Foot Resultant Acceleration	1000 +	+	yes	
273	20SILLE0000ACXA	Target Vehicle Left Sill X-Axis Acceleration	60 +	+	yes	2000
274	20SILLE0000ACYA	Target Vehicle Left Sill Y-Axis Acceleration	60 +	+	yes	2000
275	20SILLRI0000ACXA	Target Vehicle Right Sill X-Axis Acceleration	60 +	+	yes	2000
276	20SILLRI0000ACYA	Target Vehicle Right Sill Y-Axis Acceleration	60 +	+	yes	2000
277	20VEHCCG0000ACXA	Target Vehicle Vehicle Center of Gravity X-Axis Acceleration	60 +	+	yes	2000
278	20VEHCCG0000ACYA	Target Vehicle Vehicle Center of Gravity Y-Axis Acceleration	60 +	+	yes	2000
279	20VEHCCG0000ACZA	Target Vehicle Vehicle Center of Gravity Z-Axis Acceleration	60 +	+	yes	2000
279A	20VEHCCG0000ACRA	Target Vehicle Vehicle Center of Gravity Resultant Acceleration	60			
280	20FOOTLE0000ACXA	Target Vehicle Driver Footrest X-Axis Acceleration	60 +	+	yes	2000
281	20FOOTLE0000ACZA	Target Vehicle Driver Footrest Z-Axis Acceleration	60 +	+	yes	2000
282	20TPANLE0000ACXA	Target Vehicle Toepan Behind Center of Accelerator X-Axis Accelerati	60 +	+	yes	2000
283	20TPANLE0000ACZA	Target Vehicle Toepan Behind Center of Accelerator Z-Axis Accelerati	60 +	+	yes	2000
284	21SEBE0000B5FO0A	Target Vehicle Driver Lap Belt Force	60 +	+	yes	16000
285	21SEBE0000B3FO0A	Target Vehicle Driver Shoulder Belt Force	60 +	+	yes	16000
286	20AIRBLEFR25VO0A	Target Vehicle Driver Airbag 1st Stage Fire Time	1000 +	+	no	5
287	20AIRBLEFR26VO0A	Target Vehicle Driver Airbag 2nd Stage Fire Time	1000 +	+	no	5

Appendix E

Dummy FARO Measurements

**Bullet Vehicle Dummy FARO Measurements**

<b>Driver</b>	<b>Xmm</b>	<b>Ymm</b>	<b>Zmm</b>
M_HEAD_CENTER_OF_GRAVITY1	2522.5	-440.5	-607.2
M_NOSE_BRIDGE1	2614.3	-370.1	-616.4
M_NOSE_TIP1	2633.2	-369.6	-577.6
M_HEAD_CHIN1	2610.2	-369.9	-504.7
M_ARM1	2519.3	-592.5	-308.6
M_HIP_POINT1	2650.4	-620.5	43.5
M_PELV_FORE1	2605.3	-631.4	-19.4
M_PELV_AFT1	2542.5	-628.8	10.4
M_KNEE_OUTBOARD1	3018.5	-548.0	-111.3
M_KNEE_INBOARD1	3036.0	-176.2	-114.6
M_ANKLE_OUTBOARD1	3341.8	-548.4	160.2
M_HEADRESTTOP1	2242.1	-460.1	-523.6
M_HEADRESTBOTTOM1	2273.1	-459.4	-439.7
M_ROOF1	2614.3	-370.1	-837.5
M_HEADER_FRONT1	2921.6	-370.5	-788.2
M_WINDOW_FRONT1	3333.4	-370.1	-616.4
M_STEERING_WHEEL_RIM_TOP1	3030.4	-354.0	-537.2
M_DASH_TOP1	3188.8	-356.0	-488.7
M_STEERING_WHEEL_CENTER1	2971.8	-357.1	-351.7
M_CHEST_CENTER1	2639.3	-357.1	-351.7
M_STEERING_WHEEL_RIM_BOTTOM1	2900.4	-345.1	-200.9
M ABDOMEN1	2674.7	-345.1	-200.9
M_DASH_BOTTOM1	3197.8	-488.0	-192.1
M_HEADER_SIDE1	2614.6	-551.4	-748.4
M_WINDOW_SIDE1	2614.3	-705.4	-616.4
M_DOOR_TOP1	2519.3	-735.2	-308.6
M_DOOR_BOTTOM1	2650.4	-700.1	43.5
M_STRIKER1	2471.3	-799.7	-100.0
M_S1	2921.5	-624.7	109.1
M_S2	2561.1	-602.5	80.1
M_S3	2271.1	-461.3	-436.7

**Front Passenger**

M_HEAD_CENTER_OF_GRAVITY3	2432.2	421.0	-405.6
M_NOSE_BRIDGE3	2524.5	353.9	-418.8
M_NOSE_TIP3	2547.1	353.4	-387.4
M_HEAD_CHIN3	2532.0	353.4	-315.0
M_ARM3	2442.3	550.5	-129.2
M_HIP_POINT3	2617.9	622.4	132.2
M_PELV_FORE3	2556.0	633.0	84.3
M_PELV_AFT3	2489.9	634.5	112.7

M_KNEE_OUTBOARD3	2945.4	485.1	57.3
M_KNEE_INBOARD3	2951.9	223.3	71.3
M_ANKLE_OUTBOARD3	3142.5	470.4	330.6
M_HEADRESTTOP3	2179.7	447.5	-430.8
M_HEADRESTBOTTOM3	2210.0	449.9	-342.6
M_ROOF3	2524.5	353.9	-611.5
M_HEADER_FRONT3	2684.5	354.6	-632.1
M_WINDOW_FRONT3	3219.4	353.9	-418.8
M_DASH_TOP3	2902.5	376.7	-183.9
M_DASH_BOTTOM3	3018.8	429.1	15.9
M_HEADER_SIDE3	2523.1	527.4	-594.2
M_WINDOW_SIDE3	2524.5	718.3	-418.8
M_DOOR_TOP3	2442	718.9	-129
M_DOOR_BOTTOM3	2617.9	708.0	132.2
M_STRIKER3	2239.3	791.1	44.9
M_S1	2873.3	632.7	226.8
M_S2	2498.8	601.9	176.9
M_S3	2214.4	451.8	-340.8

**Left Rear Passenger**

M_HEAD_CENTER_OF_GRAVITY3	1550.7	-421.4	-526.4
M_NOSE_BRIDGE3	1634.4	-352.2	-533.3
M_NOSE_TIP3	1659.2	-352.8	-500.4
M_HEAD_CHIN3	1646.3	-353.6	-427.8
M_ARM3	1532.1	-556.8	-250.9
M_HIP_POINT3	1718.7	-589.6	11.6
M_PELV_FORE3	1547.6	-835.8	-73.5
M_PELV_AFT3	1547.5	-836.4	-72.9
M_KNEE_OUTBOARD3	2070.9	-537.8	-88.6
M_KNEE_INBOARD3	2089.3	-260.6	-84.8
M_ANKLE_OUTBOARD3	2189.7	-492.6	206.3
M_HEADRESTTOP3	1414.2	-542.4	-331.1
M_HEADRESTBOTTOM3	1488.4	-545.1	-174.9
M_ROOF3	1634.4	-352.2	-861.8
M_HEADER_FRONT3	2244.1	-352.6	-680.6
M_WINDOW_FRONT3	2210.6	-352.2	-533.3
M_DASH_TOP3	2231.4	-353.1	-408.1
M_DASH_BOTTOM3	2314.7	-492.2	-119.6
M_HEADER_SIDE3	1633.3	-600.6	-674.7
M_WINDOW_SIDE3	1634.4	-741.4	-533.3
M_DOOR_TOP3	1532.1	-722.5	-250.9
M_DOOR_BOTTOM3	1718.7	-726.5	11.6
M_STRIKER3	1444.3	-802.7	-289.7

**Target Vehicle Dummy FARO Measurements**

<b>Driver</b>	<b>Xmm</b>	<b>Ymm</b>	<b>Zmm</b>
M_HEAD_CENTER_OF_GRAVITY1	2260.0	-406.4	-500.8
M_NOSE_BRIDGE1	2357.2	-340.9	-497.6
M_NOSE_TIP1	2358.4	-341.1	-458.4
M_HEAD_CHIN1	2353.4	-341.4	-372.2
M_ARM1	2295.1	-509.2	-271.2
M_HIP_POINT1	2441.8	-561.3	173.7
M_KNEE_OUTBOARD1	2829.8	-574.8	21.6
M_KNEE_INBOARD1	2844.7	-148.8	42.6
M_ANKLE_OUTBOARD1	3109.4	-571.7	355.3
M_HEADRESTTOP1	2023.5	-444.8	-349.0
M_HEADRESTBOTTOM1	2053.4	-448.3	-275.6
M_ROOF1	2357.2	-340.9	-676.3
M_HEADER_FRONT1	2695.5	-340.8	-613.0
M_WINDOW_FRONT1	2975.0	-340.9	-497.6
M_STEERING_WHEEL_RIM_TOP1	2798.3	-350.8	-354.0
M_DASH_TOP1	2949.4	-373.7	-306.0
M_STEERING_WHEEL_CENTER1	2738.3	-359.9	-172.6
M_CHEST_CENTER1	2400.9	-359.9	-172.6
M_STEERING_WHEEL_RIM_BOTTOM1	2662.5	-359.3	-25.7
M ABDOMEN1	2473.0	-359.3	-25.7
M_DASH_BOTTOM1	2961.5	-517.7	-6.9
M_HEADER_SIDE1	2364.3	-543.7	-577.6
M_WINDOW_SIDE1	2357.2	-661.2	-497.6
M_DOOR_TOP1	2295.1	-740.5	-271.2
M_DOOR_BOTTOM1	2441.8	-716.4	173.7
M_STRIKER1	2231.0	-798.4	69.2
M_S1	2765.3	-639.5	269.3
M_S2	2390.9	-603.5	224.4
M_S3	2073.8	-449.1	-275.3
M_HEAD_PIVOT	2272.8	-368.1	-440.4
M_LEFT_KNEE_TOP	2837.8	-525.4	-44.5
M_RIGHT_KNEE_TOP	2863.1	-223.1	-25.3
M_LEFT_UPPER_TIBIA_TARGET	2881.8	-562.6	70.2
M_DRIVER_LEFT_SHOE_LACE	3207.9	-548.0	283.7
M_RIGHT_UPPER_TIBIA_TARGET	2908.3	-254.2	87.1