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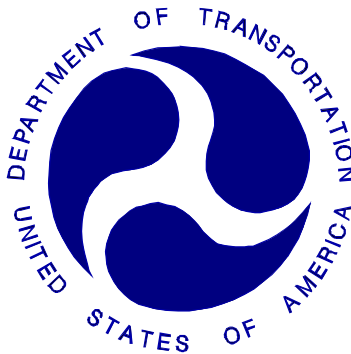
**NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
FRONTAL BARRIER 40% OFFSET IMPACT TEST**

NISSAN MOTOR CORP., LTD.
2002 NISSAN ALTIMA
4-DOOR SEDAN

NHTSA NUMBER: R25224

VERIDIAN TEST NUMBER: 8710-OFST-01

GENERAL DYNAMICS
TRANSPORTATION SCIENCES CENTER
P.O. BOX 400
BUFFALO, NEW YORK 14225



October 16,2003

FINAL REPORT

PREPARED FOR:

U.S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Applied Research
Office of Vehicle Safety Research
Mail Code: NVS-321
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Prepared by:

James Czarnecki, Project Engineer

Approved by:

David J. Travale, Program Manager
Transportation Science Center

Approval Date:

FINAL REPORT ACCEPTANCE BY OCS:

Contracting Officer's Technical Representative (COTR),
NHTSA, Office of Crashworthiness Standards

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4. <i>Title and Subtitle</i> Final Report of Frontal Barrier 40% Offset Testing of a 2002 Nissan Altima 4-door Sedan NHTSA No. R25224				5. <i>Report Date</i> October 16,2003	
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15. <i>Supplementary Notes</i>					
16. <i>Abstract</i> <p>This test is to evaluate the use of the Thor Advanced Lower Extremity (Thor-Lx) in the frontal 40% offset deformable barrier test. A frontal 40% offset barrier impact test of a 2002 Nissan Altima 4-door Sedan was performed at the General Dynamics crash test facility in Buffalo, New York, on October 16,2003.</p> <p>The impact velocity was 60.67 kph and the temperature at the barrier face was 20.0°C. The maximum post-test vehicle crush was 609 mm. The test vehicle was equipped with 3-point restraint systems, knee bolsters, and airbags at both the driver and right outboard passenger seating positions.</p> <p>With respect to FMVSS 208 "Occupant Crash Protection - Injury Criteria" both the driver and passenger appeared to comply with head, chest, and femur requirements.</p>					
ATD Position	HIC	Clip (g's)	Chest Disp (mm)	Left Femur (N)	Right Femur (N)
Driver (090)	261.1	38.4	29.3	1157.2	2407.1
Passenger (055)	363.3	37.8	29.1	2859.5	1152.3
17. <i>Key Words</i> Frontal 40% Offset Barrier Impact test Thor-Lx/HIIIr				18. <i>Distribution Statement</i> <u>Copies of this report are available from:</u> NHTSA Technical Reference Division National Highway Traffic Safety Admin. 400 Seventh St., SW, Room 5108 Washington, DC 20590	
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TABLE OF CONTENTS

<u>Section</u>		<u>Page No.</u>
1	PURPOSE AND SUMMARY OF NCAP TEST	1-1
2	OCCUPANT AND VEHICLE INFORMATION	2-1
<u>Data Sheet</u>	<u>Description</u>	
1.	CRASH TEST SUMMARY	2-1
2.	GENERAL TEST AND VEHICLE PARAMETER DATA	2-2
3.	POST IMPACT DATA	2-4
4.	TEST VEHICLE INFORMATION	2-5
5.	DUMMY POSITIONING IN VEHICLE	2-7
6.	SEAT BELT POSITIONING DATA	2-9
7.	VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY	2-10
8.	DUMMY INJURY CRITERIA VALUES	2-12
9.	SEAT BELT PERFORMANCE DATA	2-18
10.	SUMMARY OF FMVSS 212 DATA	2-19
11.	WINDSHIELD ZONE INTRUSION FMVSS 219 DATA	2-20
12.	FMVSS 301 FUEL SYSTEM INTEGRITY DATA	2-21
13.	FMVSS 310 ROLLOVER DATA	2-22
14.	TEST VEHICLE MEASUREMENTS	2-23
15.	HIGH SPEED CAMERA LOCATIONS	2-31
16.	VEHICLE REFERENCE PHOTO TARGET LOCATIONS	2-32
17.	LOAD CELL LOCATIONS RELATIVE TO FIXED BARRIER AND DEFORMABLE BARRIER FACE	2-34
18.	POST TEST AIR BAG DATA	2-35
19.	ACCIDENT INVESTIGATION DIVISION DATA	2-36
20.	OFFSET BARRIER AND VEHICLE ORIENTATION	2-37
21.	OFFSET BARRIER DEFORMATION	2-38
APPENDIX A	PHOTOGRAPHS	A-1
APPENDIX B	VEHICLE, LOAD CELL BARRIER AND DUMMY RESPONSE DATA	B-1
APPENDIX C	PART 572 DUMMY CONFIGURATION AND PERFORMANCE VERIFICATION TESTS	C-1
APPENDIX D	DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION	D-1

SECTION 1

PURPOSE AND SUMMARY OF TEST

PURPOSE

This 60.67 kph frontal 40% offset barrier impact test is part of the Test Procedure Development Program sponsored by the National Highway Traffic Safety Administration (NHTSA). The purpose of this test was to evaluate the performance of a Thor-Lx 50th percentile adult male- Hybrid III retrofit (Thor-Lx/HIIIr) version lower legs and obtain vehicle crashworthiness and occupant and restraint system performance data.

The frontal 40% offset barrier impact test was conducted in accordance with the Office of Crashworthiness Standards Laboratory Indicant Test procedure.

SUMMARY

A deformable honeycomb barrier mounted to a load cell barrier consisting of 30 load cells was impacted by a 2002 Nissan Altima 4-door Sedan at 40% overlap at a velocity of 60.67 kph. The test was performed at General Dynamics on October 16, 2003. Pre- and post-test photographs of the vehicle and dummies can be found in Appendix A.

One real-time camera and 16 high-speed cameras documented the offset frontal barrier impact event. Camera locations and other pertinent camera information can be found in this report.

Two Part 572E, 50th percentile male anthropomorphic test devices (ATDs), were placed in the driver and right-front passenger seating positions according to dummy placement instructions specified in the FMVSS 208-12 Laboratory Indicant Test Procedure.

Both ATDs were fully instrumented with 9 axis array head, head, chest, and pelvis triaxial accelerometers, chest displacement potentiometers, upper neck transducers, right/left femur load cells, knee sliders and Thor-Lx/HIIIr lower leg instrumentation. The driver (position 1) ATD (Serial No. 090) and the right-front passenger (position 2) ATD (Serial No. 055) were calibrated previous to this test. Certification details, along with instrumentation calibration data, are found in Appendix C.

The 203 channels of data were recorded on an on-board data acquisition system. Appendix B contains the vehicle, load cell barrier and dummy response data traces.

The occupant injury data is summarized below.

		Driver	Passenger	Limits
HIC15		134.4	257.6	700
HIC36		261.1	363.3	1000
Upper Neck Force (N)	Tension	1562.5	952.9	4170 N
	Compression	-319.4	-168.5	-4000 N
Neck Injury (Nij)	Ntf	0.31	0.13	1.0
	Nte	0.28	0.15	1.0
	Ncf	0.19	0.00	1.0
	Nce	0.24	0.13	1.0
Clip (g) 3 ms		38.4	37.8	60 g
Chest Displacement (mm)		-29.3	-29.1	-63 mm
Femur Force (N)	Left	-1157.2	-2859.5	-9040 N
	Right	-2407.1	-382.4	-9040 N
RTI Upper	Left	0.25	0.31	0.91
	Right	0.53	0.30	0.91
RTI Lower	Left	0.35	0.32	0.91
	Right	0.72	0.28	0.91
Upper Tibia Force (N)	Left	-1322.8	-1496.7	-5600 N
	Right	-1214.6	-1579.6	-5600 N
Lower Tibia Force (N)	Left	-3213.6	-1597.8	-5200 N
	Right	-3287.7	-2024.6	-5200 N
Dorsiflexion (deg)	Left	38.4	-5.1	35 deg
	Right	30.1	-6.0	35 deg
Plantarflexion (deg)	Left	-13.8	-39.4	-
	Right	-11.0	-27.9	-
Inversion (deg)	Left	-17.8	-23.3	-35 deg
	Right	1.0	4.7	35 deg
Eversion (deg)	Left	10.8	16.7	35 deg
	Right	-51.5	-43.4	-35 deg
Internal Rotation (deg)	Left	7.7	15.3	-
	Right	0.1	-11.9	-
External Rotation (deg)	Left	-7.6	-13.0	-
	Right	14.5	18.8	-

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2002 Nissan Altima 4-door Sedan

NHTSA No. : R25224 ; VIN: 1N4AL11D22C180110 ; Color: Brown

Engine Data: 4 cylinders; - CID; 2.5 Liters; - cc

Placement: x Longitudinal or In-Line; - Transverse or Lateral

Transmission Data: 4 speeds; - Manual; x Automatic; - Overdrive

Final Drive: - Rear Wheel Drive; x Front Wheel Drive; - Four Wheel Drive

Major Options: x A/C; x Pwr.Strg.; x Pwr. Brakes

x Pwr. Windows; x Pwr. Door Locks; x Tilt Wheel

Date Received: 10/1/03 ; Odometer Reading 30983 km

Selling Dealer: N/A

& Address: N/A

DATA FROM TIRE VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured by: Nissan Motor Corp., LTD.

Date of Manufacture 12/01

GVWR: 1905 kg; GAWR: 1020 kg FRONT; 893 kg REAR

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load: 199 kpa FRONT

199 kpa REAR

Recommended Tire Size: P205/65R16

* Recommended Cold Tire Pressure: 199 kpa FRONT; 199 kpa REAR

DATA FROM TIRE SIDEWALL:

Size of Tires on Test Vehicle: P205/65R16 ; Manufacturer: Bridgestone

VEHICLE CAPACITY DATA:

Type of Front Seats: - Bench; x Bucket; - Split Bench

Number of Occupants: 2 Front; 3 Rear; 5 Total

Vehicle Capacity Weight (VCW) = 390 kg

No. of Occupants x 68.04 kg = 340.2 kg

Rated Cargo/Luggage Weight (RCLW) = 49.8 kg

*Tire pressure used for test

DATA SHEET NO. 2 GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)

WEIGHT OF TEST VEHICLE AS RECEIVED FROM DEALER (with maximum fluids)= UDW:

Right Front =	<u>424</u> kg	Right Rear =	<u>270</u> kg
Left Front =	<u>434</u> kg	Left Rear =	<u>271</u> kg
TOTAL FRONT =	<u>858.0</u> kg	TOTAL REAR =	<u>541.0</u> kg
TOTAL DELIVERED WEIGHT =	<u>1399.0</u> kg		
% of Total Front of Vehicle Weight =	<u>61.3%</u>	% of Total Rear Weight =	<u>38.7%</u> %

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight (UDW) =	<u>1399</u> kg
Rated Cargo/Luggage Weight (RCLW) =	<u>49.8</u> kg
Weight of 2 p.572 Dummies @ 76 each =	<u>152</u> kg
TARGET TEST WEIGHT =	<u>1600.8</u> kg

WEIGHT OF TEST VEHICLE WITH TWO DUMMIES AND

42

KG OF CARGO WEIGHT:

Right Front =	<u>453</u> kg	Right Rear =	<u>338</u> kg
Left Front =	<u>460</u> kg	Left Rear =	<u>342</u> kg
TOTAL FRONT =	<u>913</u> kg	TOTAL REAR =	<u>680</u> kg
TOTAL TEST WEIGHT =	<u>1593</u> kg		
% of Total Front Weight =	<u>57.3%</u> %	% of Total Rear Weight =	<u>42.7%</u> %
Weight of Ballast Secured in Vehicle Trunk Area =	<u>0</u> kg		
Vehicle Components Removed for Weight Reduction:	<u>Muffler, tail lights and rear seat</u>		

VEHICLE ATTITUDE (all dimension in millimeters):

AS DELIVERED:	RF	<u>737</u>	LF	<u>732</u>	RR	<u>699</u>	LR	<u>698</u>
FULLY LOADED:	RF	<u>719</u>	LF	<u>710</u>	RR	<u>674</u>	LR	<u>675</u>
AS TESTED:	RF	<u>727</u>	LF	<u>722</u>	RR	<u>675</u>	LR	<u>675</u>
Vehicle's Wheel Base:	<u>2808</u> mm							
Location of Vehicle's C.G.:	<u>1199</u> mm rearward of front wheel center.							

FUEL SYSTEM DATA:

Fuel System Capacity From Owner's Manual =	<u>75.0</u> liters
Usable Capacity Figure Furnished by COTR =	<u>75.0</u> liters
Test Volume Range (92 to 94% of Usable Capacity) =	<u>69</u> to <u>70.5</u> liters
ACTUAL TEST VOLUME=	<u>70.0</u> liters (with entire fuel system filled)
Test Fluid Type:	<u>Stoddard Solution</u> ; Spec. Grav. = <u>0.764</u>
Kinematic Viscosity =	<u>0.96</u> centistokes; Color = <u>Orange</u>
Type of Fuel Pump: Electric-	<u>x</u> ; Mechanical- <u>-</u>
Does Electric Pump operate with ignition switch "ON" & engine "OFF"	Yes- <u>x</u> No- <u>-</u>
<u>Details of Fuel System: Fuel filler on left quarter panel with fuel lines running along left frame rail.</u>	
<u>Fuel tank is centered forward of rear axle.</u>	

DATA SHEET NO. 3 POST IMPACT DATA

TYPE OF TEST:

Type of Test: Offset Frontal Barrier Impact Angle: 0°
Test Date: October 16,2003 Time: 15:30 Temperature: 20.0 °C
Vehicle NHTSA No.: R25224
Required Impact Velocity Range: 59.0 to 61.0 kph

BARRIER IMPACT VELOCITY: (Speed traps within 5 feet of impact plane.)

Trap No. 1 = 60.67 kph; Trap No. 2 = 60.67 kph
Distance from vehicle to barrier: (1) entering trap = 813 mm
(2) exiting trap = 305 mm

VEHICLE STATIC CRUSH: (mm)

Vehicle Length:

Pre-Test	Left = <u>4754</u>	; C/L = <u>4870</u>	; Right = <u>4754</u>
Post-Test	Left = <u>4326</u>	; C/L = <u>4420</u>	; Right = <u>4715</u>
Crush	Left = <u>428</u>	; C/L = <u>450</u>	; Right = <u>39</u>
AVERAGE	= <u>306</u>	mm	

VEHICLE OFFSET DATA: (mm)

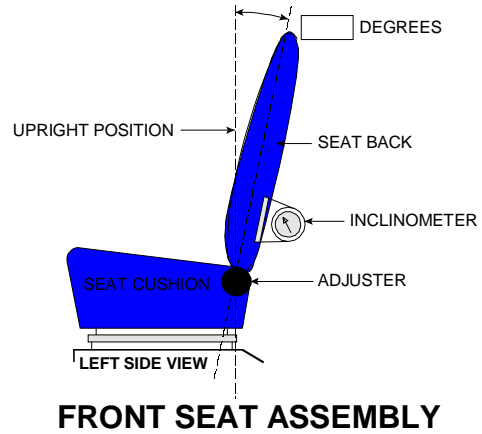
Vehicle Width	= <u>1790</u>	mm
Desired Vehicle Offset	= <u>716</u>	mm
Actual Vehicle Offset	= <u>763</u>	mm (from film analysis)
Offset Difference	= <u>-47</u>	mm
Actual Percent Offset	= <u>42.6</u>	%

DATA SHEET NO. 4 TEST VEHICLE INFORMATION

VEHICLE IDENTIFICATION:

Model Year: 2002 Vehicle Model: Nissan Altima Body Style: 4-door Sedan

1. Nominal Design Riding Position for adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.



Seat back angle for driver's seat: 21

Measurement instructions: Adjust seat to full upright position (0 detent), then push seat back 5 detents.

Seat back angle for passenger's seat: 21

Measurement instructions: Adjust seat to full upright position (0 detent), then push seat back 5 detents.

2. Seat Fore and Aft Positioning

Positioning of the driver's seat: Pull seat until it is locked in its full forward position (0 detent), then adjust seat 10 detents rearward.

Positioning of the passenger's seat: Pull seat until it is locked in its full forward position (0 detent), then adjust seat 10 detents rearward.

3. Fuel Tank Capacity Data

3.1 A. "Usable Capacity" of the standard equipment fuel tank is 75.0 liters

B. "Usable Capacity" of the optional equipment fuel tank is 0 liters

C. "Usable Capacity" of the vehicle(s) used for certification testing to requirements of FMVSS 301 = 71.25 liters

3.2 Amount of Stoddard solvent added to vehicle(s) used for certification test(s) = 70.0 liters

3.3 Is vehicle equipped with electric fuel pump? Yes- x ; No- -

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

With ignition turned to the "on" position.

DATA SHEET NO. 4 TEST VEHICLE INFORMATION (cont.)

4. STEERING COLUMN ADJUSTMENTS:

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes when it is moved through its full range of driving positions. If the tested vehicle has any of these adjustments, does your company use any specific procedures to determine the geometric center.

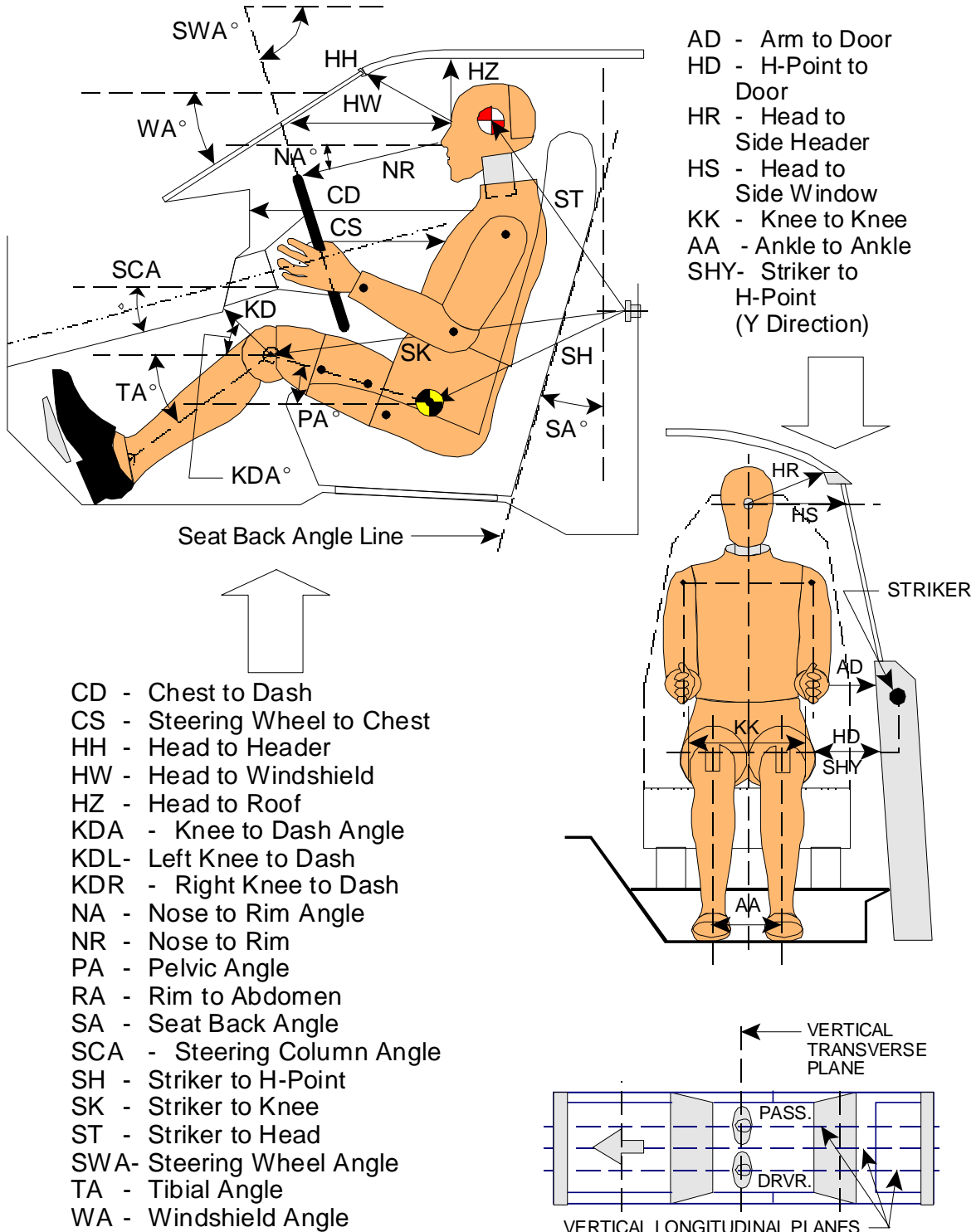
Operational Instructions: Adjusted telescoping column to its mid-travel position.

Adjust steering column to full upright position (0 detent), then set column to 3rd detent.

5. SEAT BELT UPPER ANCHORAGE

Nominal design riding position: The adjustable anchorages were positioned in their upmost location.

DUMMY MEASUREMENT FOR FRONT SEAT PASSENGERS

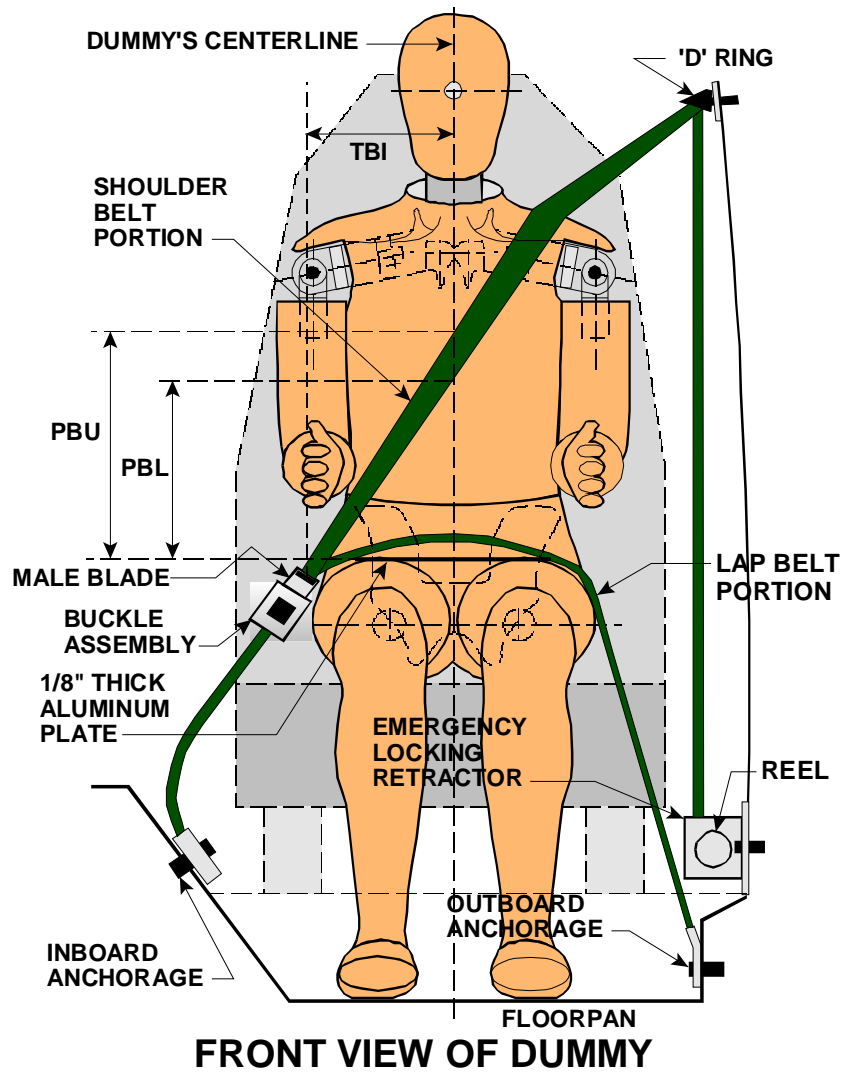


DATA SHEET NO. 5 FRONT SEAT DUMMY POSITIONING MEASUREMENTS IN VEHICLE (cont.)

	DRIVER (Serial #090)			PASS. (Serial #055)		
WA ^o	25.1 deg.			N/A		
SWA ^o	64.5 deg.			N/A		
SCA ^o	25.5 deg.			N/A		
SA ^o	21.3 deg.			21.3	deg.	
HZ	169			155		
HH	324			327		
HW	615			582		
HR	202			169		
NR	400	Angle	21 deg.	N/A		
CD	559			543		
CS	280			N/A		
RA	181			N/A		
KDL	208	Angle (KDA)	27 deg.	165		
KDR	165			200	Angle (KDA)	34 deg.
PA ^o	21.0 deg.			23.1 deg.		
TA ^o	46.0 deg.			36.5 deg.		
KK	310			219		
AA	372			240		
ST	539	Angle	15 deg.	547	Angle	13 deg.
SK	634	Angle	98 deg.	640	Angle	95 deg.
SH	245	Angle	124 deg.	250	Angle	127 deg.
SHY	235			234		
HS	303			305		
HD	147			142		
AD	133			121		

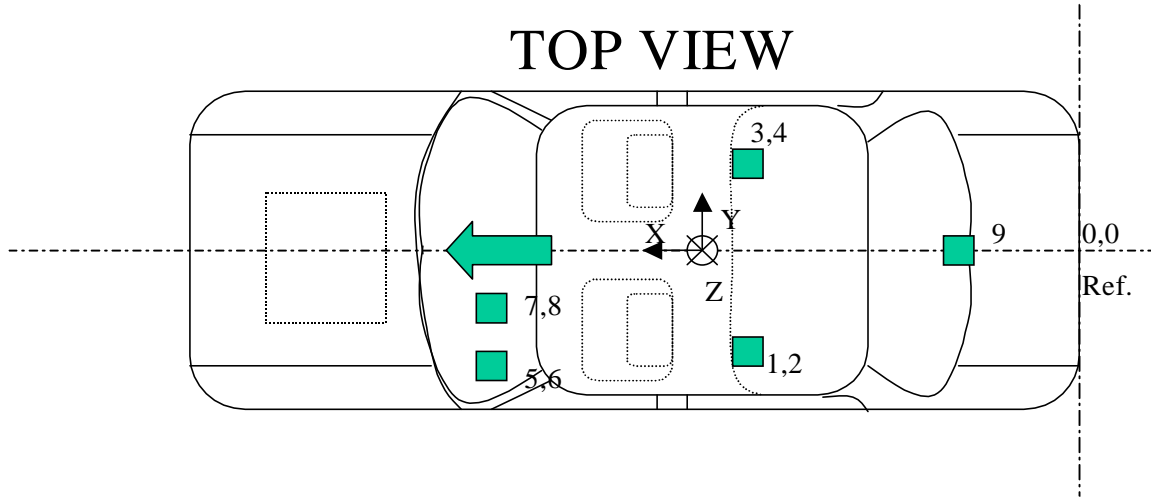
Dimensions in millimeters

SEAT BELT POSITIONING DATA



	DRIVER DUMMY (mm)	PASSENGER DUMMY (mm)
PBU -- Top surface of alum. plate to upper edge	355	360
PBL-- Top surface of alum. plate to belt lower edge	275	275
<u>LAP BELT TENSION</u>	10 N	10 N
<u>SHOULDER BELT TENSION</u>	Retractor	Retractor

DATA SHEET NO. 7 VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

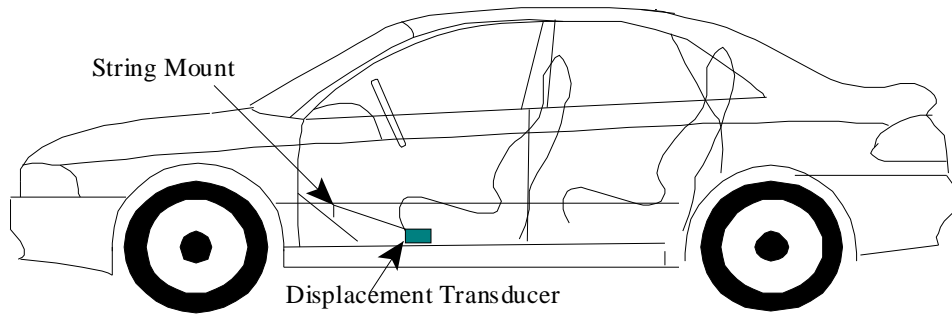


Accelerometer	X-Direction (mm)	Y-Direction (mm)	Z-Direction (mm)
Left Rear Seat Crossmember	1895	-646	-356
Right Rear Seat Crossmember	1896	577	-340
Driver Left Side Toepan	3503	-537	-477
Driver Right Side Toepan	3558	-244	-340
Vehicle CG	2721	0	-378
Trunk	994	0	-310

X-Direction is referenced from vehicle rear bumper (positive forward)
 Y-Direction is referenced from vehicle centerline (positive to right)
 Z-Direction is referenced from ground plane (positive down)

LOCATION NUMBER	DESCRIPTION	MAXIMUM VALUE (g's)			
		Pos.	msec.	Neg.	msec.
1	Rear Seat X-Member @ Left Side X	0.5	-16.4	-39	95.9
2	Rear Seat X-Member @ Left Side Y	10.2	89.6	-2.3	119.9
3	Rear Seat X-Member @ Right Side X	1.1	199.3	-33.5	94.1
4	Rear Seat X-Member @ Right Side Y	10.1	90.3	-2.8	120.8
5	Driver Toe Pan @ Left Side X	139.2	95.2	-40.6	82.9
6	Driver Toe Pan @ Left Side Z	32	95.5	-14	82.7
7	Driver Toe Pan @ Right Side X	7.4	95.3	-51.5	73.6
8	Driver Toe Pan @ Right Side Z	15.8	68.4	-29	86.3
9	Vehicle @ CG X	4.3	152.3	-39.7	94.4
10	Vehicle @ CG Y	33.5	79.5	-19.8	102.7
11	Vehicle @ CG Z	30.8	93.7	-19	81.7
12	Trunk Z	6.6	116	-6.8	90.8

SIDE VIEW



Driver Toe Pan Displacement

P1 Toe Pan Spoolout**	X-Direction (mm)	Y-Direction (mm)	Z-Direction (mm)	Vertical Angle* (Deg)
Pre-Test	3295	-433	-525	5
Post-Test	3298	-433	-527	5
Difference	-3	0	-2	0

** Measurements taken from string pot mounting base.

*Referenced from horizontal (0 degrees)

SENSOR NAME	MAXIMUM VALUE (mm)			
	Pos.	msec.	Neg.	msec.
P1 Toe Pan Movement	1	36.2	-71.9	127.6

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES

Vehicle Year/Make/Model/Body Style: 2002 Nissan Altima 4-door Sedan

NHTSA Test No.: R25224 Test Date: October 16,2003

DESCRIPTION	Unit	MAXIMUM VALUE							
		Driver				Passenger			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head 9 Array X Arm Y	g	10.6	114.3	-11.5	93.7	14.4	97.1	-4.7	104.0
Head 9 Array X Arm Z	g	37.5	264.6	-7.0	167.4	26.2	117.4	-5.5	171.6
Head 9 Array Y Arm X	g	54.8	264.7	-33.6	102.6	10.9	285.2	-44.5	114.1
Head 9 Array Y Arm Z	g	34.8	83.1	-5.2	81.8	28.9	111.1	-1.3	30.5
Head 9 Array Z Arm X	g	69.9	264.6	-38.2	83.4	17.0	285.1	-53.4	108.8
Head 9 Array Z Arm Y	g	16.7	157.4	-13.4	94.4	11.7	97.0	-6.7	104.0
Head X	g	51.2	264.7	-34.6	103.0	11.4	286.9	-45.9	113.3
Head Y	g	10.8	161.7	-10.3	98.4	9.5	124.4	-2.4	258.0
Head Z	g	30.6	83.2	-6.0	81.7	28.2	111.1	-1.3	30.6
Head Resultant	g	57.1	264.7	0.1	-49.6	53.3	111.2	0.0	-43.4
Redundant Head X	g	51.5	264.7	-34.1	103.0	11.3	286.9	-45.9	112.9
Redundant Head Y	g	10.8	161.6	-10.4	100.2	9.2	124.3	-2.3	258.3
Redundant Head Z	g	31.0	83.2	-5.9	81.7	27.6	110.8	-1.3	30.5
Redundant Head Resultant	g	57.3	264.7	0.1	-48.8	52.8	111.4	0.0	-38.5
Upper Neck Fx	N	132.8	248.6	-562.5	162.6	118.3	274.9	-459.6	90.9
Upper Neck Fy	N	450.5	161.9	-88.6	267.2	225.1	157.0	-62.8	299.9
Upper Neck Fz	N	1562.5	83.3	-319.4	267.4	952.9	110.6	-66.5	299.9
Upper Neck F Resultant	N	1564.9	83.3	3.0	-49.6	1001.6	110.6	1.6	-42.9
Upper Neck Mx	N-m	28.0	158.8	-10.2	115.7	12.3	164.3	-11.0	124.4
Upper Neck My	N-m	47.5	165.9	-35.4	273.5	26.2	171.6	-11.6	247.2
Upper Neck Mz	N-m	17.4	108.4	-2.1	299.9	11.6	187.1	-14.0	139.7
Upper Neck M Resultant	N-m	54.6	164.5	0.1	-16.8	29.0	170.9	0.1	-47.5
Lower Neck Fx	N	410.2	250.6	-579.0	82.1	N/E	N/E	N/E	N/E
Lower Neck Fy	N	496.9	147.0	-143.5	262.8	N/E	N/E	N/E	N/E
Lower Neck Fz	N	1812.9	83.4	-332.7	164.8	N/E	N/E	N/E	N/E
Lower Neck F Resultant	N	1877.6	83.4	3.0	-49.1	N/E	N/E	N/E	N/E
Lower Neck Mx	N-m	111.8	149.7	-21.8	257.3	N/E	N/E	N/E	N/E
Lower Neck My	N-m	174.2	162.7	-104	250.2	N/E	N/E	N/E	N/E
Lower Neck Mz	N-m	19.0	147.2	-4.0	294.5	N/E	N/E	N/E	N/E
Lower Neck M Resultant	N-m	203.7	161.6	0.8	-19.1	N/E	N/E	N/E	N/E

N/E – GFE Not Equipped

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)

Vehicle Year/Make/Model/Body Style: 2002 Nissan Altima 4-door Sedan

NHTSA Test No.: R25224 Test Date: October 16,2003

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Chest X	g	3.1	274.7	-36	105.1	3.0	299.9	-39.4	109.9
Chest Y	g	15.0	114.2	-3.4	49.6	7.6	97.6	-2.6	165.7
Chest Z	g	6.4	265.9	-9.2	140.8	3.7	37.1	-10.5	106.4
Chest Resultant	g	38.9	113.5	0.1	-43.0	40.4	109.8	0.0	-40.3
Redundant Chest X	g	3.1	274.7	-36.1	113.0	3.1	299.9	-39.6	109.7
Redundant Chest Y	g	15.0	113.9	-3.3	49.7	7.6	97.6	-2.5	154.9
Redundant Chest Z	g	6.4	265.8	-9.2	141.7	71.7*	90.4*	-153.2*	180.5*
Redundant Chest Resultant	g	39.1	112.9	0.0	-49.7	153.2	180.5	0.0	-37.1
Chest Displacement	mm	0.0	-8.3	-29.3	112.3	0.0	28.3	-29.1	100.5
Left Femur Fx	N	979	67.3	-1157.2	50.6	571.0	86.2	-2859.5	104.6
Right Femur Fx	N	556.2	76.5	-2407.1	104.4	1152.3	108.2	-382.4	123.1
Left Knee Shear Dx	mm	0.3	89.4	-0.9	120.9	1.6	89.8	-0.1	56.8
Right Knee Shear Dx	mm	1.0	166.7	-1.3	143.7	2.5	109.6	-0.9	42.9

* Data did not record accurately

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)

Vehicle Year/Make/Model/Body Style: 2002 Nissan Altima 4-door Sedan

NHTSA Test No.: R25224 Test Date: October 16,2003

		MAXIMUM VALUE							
		Driver				Passenger			
DESCRIPTION	Unit	Pos	msec	Neg	msec	Pos	msec	Neg	msec
Left Upper Tibia Fx	N	196.7	81.4	-289.2	98.5	282.6	102.7	-33.2	181.0
Left Upper Tibia Fz	N	45.7	196.5	-1322.8	115.7	257.9	40.4	-1496.7	101.1
Left Upper Tibia Mx	N-m	30.4	52.6	-8.1	299.9	24.9	120.5	-46.8	100.1
Left Upper Tibia My	N-m	23.6	123.3	-54.4	82.3	40.1	137.2	-34.6	85.4
Left Lower Tibia Fx	N	35.1	193.6	-695.8	109.7	140.2	144.6	-261.5	87.9
Left Lower Tibia Fy	N	104.0	98.2	-184.1	53.3	191.6	94.7	-158.7	120.3
Left Lower Tibia Fz	N	75.3	226.2	-3213.6	115.5	126.9	153.9	-1597.8	119.3
Left Lower Tibia FR	N	3236.8	115.5	1.3	-40.9	1604.9	119.3	0.2	-41.6
Left Lower Tibia Mx	N-m	16.2	119.4	-25.6	95.9	26.6	120.7	-42.2	95.0
Left Lower Tibia My	N-m	19.8	120.6	-40.4	81.1	16.0	135.9	-35.0	89.3
Right Upper Tibia Fx	N	321.7	95.0	-275.7	102.7	373.4	103.8	-48.8	141.7
Right Upper Tibia Fz	N	42.0	30.9	-1214.6	94.4	53.2	95.2	-1579.6	121.2
Right Upper Tibia Mx	N-m	23.8	118.6	-116.0	97.3	14.6	47.2	-23.9	79.7
Right Upper Tibia My	N-m	34.2	130.3	-68.4	94.3	17.0	125.7	-67.7	103.4
Right Lower Tibia Fx	N	45.5	197.8	-918.3	94.8	96.2	125.6	-408.4	103.8
Right Lower Tibia Fy	N	424.5	96.8	-264	116.5	81.0	97.5	-158.4	116.8
Right Lower Tibia Fz	N	18.1	271.4	-3287.7	94.6	52.2	208.0	-2024.6	120.9
Right Lower Tibia FR	N	3423.3	94.6	1.3	-43.4	2028.9	120.9	0.6	-17.5
Right Lower Tibia Mx	N-m	8.8	116.8	-164.3	96.3	5.9	46.1	-38.7	104.3
Right Lower Tibia My	N-m	18.5	128.3	-58.7	94.5	4.3	139.5	-54.9	103.4

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)

Vehicle Year/Make/Model/Body Style: 2002 Nissan Altima 4-door Sedan

NHTSA Test No.: R25224 Test Date: October 16,2003

DESCRIPTION	Unit	MAXIMUM VALUE							
		Driver				Passenger			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Left Tibia Ax	g	6.3	98.0	-39.5	90.1	4.1	137.6	-41.3	89.0
Left Tibia Ay	g	22.4	97.6	-11.1	101.4	42.9	95.0	-18.3	120.5
Right Tibia Ax	g	5.2	102.6	-50.1	95.0	6.3	125.4	-40.7	103.6
Right Tibia Ay	g	54.2	96.0	-21.1	116.5	11.8	99.7	-5.1	116.0
Left Ankle Rotation X	Deg	10.8	216.8	-17.8	109.0	16.7	165.5	-23.3	97.1
Left Ankle Rotation Y	Deg	38.4	132.7	-13.8	-13.6	-5.1	172.2	-39.4	70.6
Left Ankle Rotation Z	Deg	7.7	137.5	-7.6	110.6	15.3	143.8	-13.0	92.8
Right Ankle Rotation X	Deg	1.0	236.0	-51.5	108.5	4.7	200.7	-43.4	109.8
Right Ankle Rotation Y	Deg	30.1	155.0	-11.0	-5.9	-6.0	159.1	-27.9	63.1
Right Ankle Rotation Z	Deg	14.5	267.8	0.1	60.3	18.8	152.5	-11.9	94.1
Left Foot Ax	g	121.2	96.1	-63.1	96.8	5.8	175.4	-42.9	91.8
Left Foot Ay	g	312.2	94.9	-134.0	97.0	32.8	96.9	-15.4	123.5
Left Foot Az	g	98.2	94.7	-83.7	97.8	6.2	225.9	-25.5	89.9
Left Foot A Resultant	g	325.3	94.9	0.0	-41.7	53.1	93.6	0.0	-50.0
Right Foot Ax	g	18.5	100.5	-32.1	82.2	7.7	115.1	-35.2	100.4
Right Foot Ay	g	233.1	90.0	-39.4	85.1	25.1	106.9	-6.0	37.3
Right Foot Az	g	32.4	62.0	-57.8	90.6	4.2	37.0	-32.8	115.8
Right Foot A Resultant	g	238.7	90.0	0.0	-30.1	38.6	100.3	0.0	-49.7
Lap Belt Load	N	5186.8	102.9	-7.1	191.6	5137.9	101.3	-1.8	-13.4
Shoulder Belt Load	N	6451.7	96.3	-12.3	23.9	6306.2	108.1	-22.8	222.7

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)

Vehicle Year/Make/Model/Body Style: 2002 Nissan Altima 4-door Sedan

NHTSA Test No.: R25224 Test Date: October 16,2003

HEAD INJURY CRITERIA (HIC)								
HIC15					HIC36			
HIC	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂	HIC	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂	
Position #1 - Driver	134.4	100.6	115.6	38.1	261.1	87.2	123.2	35.0
Position #2 - Passenger	257.6	106.4	121.4	49.4	363.3	94.6	128.1	41.1

** HIC is as defined in FMVSS 208.

CLIP SUMMARY*				
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	38.4	111.9	114.9	309.8
Position #2 - Passenger	37.8	108.3	111.3	251.6

* The maximum chest resultant acceleration is defined as the maximum acceleration which exceeds 0.003 seconds in duration.

Position 1 Neck Injury Summary (HIII 50th Male)

Nij V10	Nij	Time (ms)	Z Force (N)	X Force (N)	Y Moment (N-m)
Ntf	0.31	83.3	1561.5	-87.4	24.4
Nte	0.28	118.1	1015.8	-406.1	-17.7
Ncf	0.19	166.9	-21.1	-545.4	56.9
Nce	0.24	272.0	-3.2	-135.5	-31.8

Peak Tension (CFC1000) 1562.5 N

Peak Compression (CFC1000) -319.4 N

Position 2 Neck Injury Summary (HIII 50th Male)

Nij V10	Nij	Time (ms)	Z Force (N)	X Force (N)	Y Moment (N-m)
Ntf	0.13	108.9	891.1	-294.4	0.1
Nte	0.15	111.2	939.6	-298.7	-1.6
Ncf	0.00	-78.9	-3.5	-5.4	0.5
Nce	0.13	310.6	-146.8	-41.1	-13.9

Peak Tension (CFC1000) 952.9 N

Peak Compression (CFC1000) -168.5 N

Critical Values

Nij Intercepts				Peak Limits	
Tension (CVt)	6806 N	Extension (mCVe)	135 N-m	Tension	4170 N
Compression (CVc)	6160 N	Flexion (mCVf)	310 N-m	Compression	4000 N

Condyle Offset 0.01778

DATA SHEET NO. 8 DUMMY INJURY CRITERIA VALUES (cont.)
REDUNDANT DATA

Vehicle Year/Make/Model/Body Style: 2003 Cadillac Seville SLS 4-Door Sedan

NHTSA Test No.: R30154 Test Date: October 23, 2003

	HEAD INJURY CRITERIA (HIC) (REDUNDANT)							
	HIC15				HIC36			
	HIC	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂	HIC	t ₁ (msec)	t ₂ (msec)	Average Acceleration t ₁ to t ₂
Position #1 - Driver	133.6	100.9	115.9	38.0	260.0	87.1	123.1	35.0
Position #2 - Passenger	254.1	106.6	121.6	49.2	357.5	94.4	128.1	40.8

** HIC is as defined in FMVSS 208.

	CLIP SUMMARY (REDUNDANT)*			
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #1 - Driver	38.7	111.6	114.6	318.2
Position #2 - Passenger	**	**	**	**

* The maximum chest resultant acceleration is defined as the maximum acceleration which exceeds 0.003 seconds in duration.

** Chest Az Redundant accelerometer failed.

DATA SHEET NO. 9 SEAT BELT PERFORMANCE ASSESSMENT TEST DATA

BELT LENGTH DATA:

	<u>Driver</u>	<u>Passenger</u>
Belt length from trim panel exit to bolt hole anchor point for continuous webbing systems.	179	183
Shoulder belt length as measured on Part 572 Dummy.	905	910
Lap belt length as measured on Part 572 Dummy.	807	809

SHOULDER BELT SPOOL-OFF DATA:

As determined by film analysis.	-	-
As determined mechanically.	-	-
As determined electronically.	-	-

BELT STRETCH DATA:

Measured electronically between shoulder belt load cell and the "D" ring.	-	-
Measured mechanically.	-	-

_____ Dimensions in millimeters

DATA SHEET NO.10 SUMMARY OF FMVSS 212 DATA

FMVSS NO. 212 - "WINDSHIELD MOUNTING" DATA

DETAILS OF WINDSHIELD MOUNTING SUCH AS RETENTION METHOD, TRIM TYPE, ETC.:

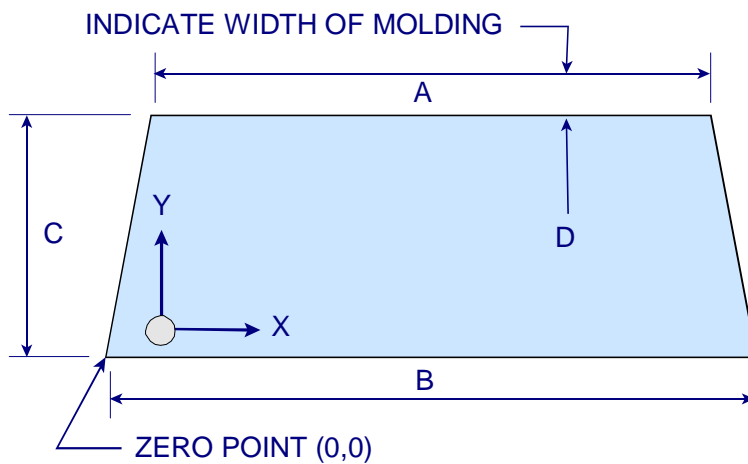
Windshield is bonded in place and covered with a 15 mm molding.

FMVSS 212 REQUIREMENTS:

The Post-Test periphery retention amount must be at least 75% of the Pre-Test periphery measurement for vehicles NOT equipped with automatic restraints, and 50% for each side of the windshield for vehicles equipped with automatic restraint systems for front occupants,

<u>FMVSS 212 TEST DATA</u>			
<u>WINDSHIELD PERIPHERY</u>			
	<u>PRE-TEST (mm)</u>	<u>POST-TEST (mm)</u>	<u>% OF RETENTION</u>
<u>RIGHT SIDE</u>	2175	2175	100.0%
<u>LEFT SIDE</u>	2175	2175	100.0%
<u>TOTAL</u>	4350	4350	100.0%

AREA OF RETENTION FAILURE: None



<u>DIMENSIONS (mm)</u>	
<u>A</u>	1170
<u>B</u>	1540
<u>C</u>	820
<u>D</u>	15

FRONT VIEW OF WINDSHIELD

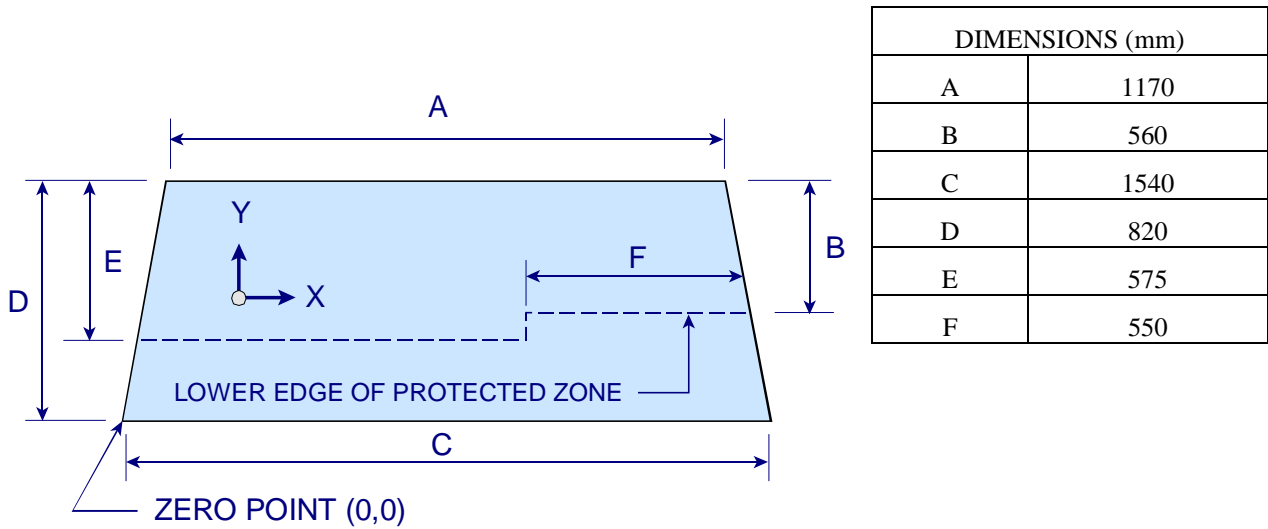
FAILURE DETAILS: None

DATA SHEET NO. 11 FMVSS NO. 219 (PARTIAL) - "WINDSHIELD ZONE INTRUSION" DATA

PROTECTED ZONE LOWER EDGE REQUIREMENT:

The lower edge of the protected zone is determined by placing a 165 mm diameter rigid sphere weighing 6.8 kg in a position such that it simultaneously contacts the inner surface of the windshield and the top surface of the instrument panel including padding. The locus of points is drawn on the inner surface of the windshield contacted by the sphere across the width of the instrument panel. From the outermost contactable points extend the locus line horizontally to the edges of the windshield, then draw a line on the inner surface of the windshield below and 13 mm distant from the locus line. The LOWER EDGE OF THE PROTECTED ZONE is the longitudinal projection of this line onto the outer surface of the windshield.

FMVSS 219 TEST DATA:



FRONT VIEW OF WINDSHIELD

DETAILS OF WINDSHIELD GLASS PENETRATION GREATER THAN 6 mm: None

(Show location of penetration on the above sketch)

	COORDINATES	
	X	Y
1.	-	-
2.	-	-
3.	-	-
4.	-	-

DATA SHEET NO. 12 FMVSS NO. 301-75 "FUEL SYSTEM INTEGRITY" POST IMPACT TEST DATA

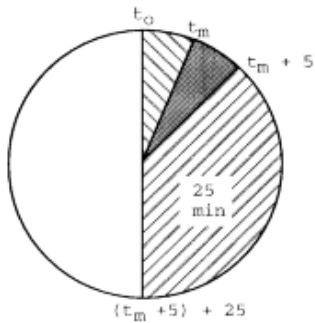
NHTSA TEST No.: R25224 TEST DATE: October 16,2003
VEHICLE MAKE/MODEL: 2002 Nissan Altima 4-door Sedan

The test vehicle was filled from 92% to 94% of the manufacture's "usable" capacity. The electric fuel pump was operating if it will operate without engine operation. Two Part 572 anthropomorphic test devices were located at each of the front designated seating positions.

=====

TEST VEHICLE IMPACT TYPE: X Offset Frontal (60 kph)
 Oblique (48 kph) with _____ deg. barrier face first
 contacting _____
 - (driver/passenger) side
 - Rear Moving Barrier (48 kph)
 - Lateral Moving Barrier (32 kph)

FUEL SPILLAGE MEASUREMENT:



1. From impact until vehicle motion ceases
2. For 5 minute period after vehicle motion ceases
3. For next 25 minutes

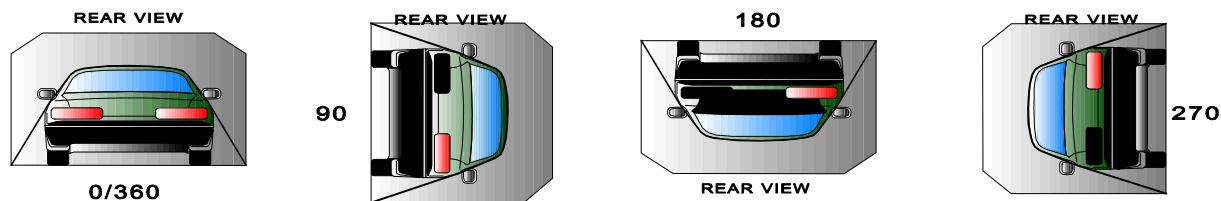
ACTUAL	MAX ALLOWED
0	28 g
0	141 g
0	28 g/min.

SOLVENT SPILLAGE DETAILS: None

DATA SHEET NO. 13 - ROLLOVER DATA

Vehicle: 2002 Nissan Altima 4-door Sedan

NHTSA No.: R25224



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Stage	Rotation Time (spec. 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
	minutes	seconds	minutes	seconds	minutes	seconds	minutes	seconds	minutes	seconds	minutes	seconds
0° - 90°	1	07	5	07	6	07	7	07	7	07	7	07
90° - 180°	1	12	5	12	6	12	12	12	12	12	7	07
180°-270°	1	14	5	14	6	14	14	14	14	14	7	07
270°-360°	1	04	5	04	6	04	4	04	4	04	7	07

II. FMVSS 301 REQUIREMENTS: (Maximum allowable solvent spillage):

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
142 g	28 g	28 g	28 g

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

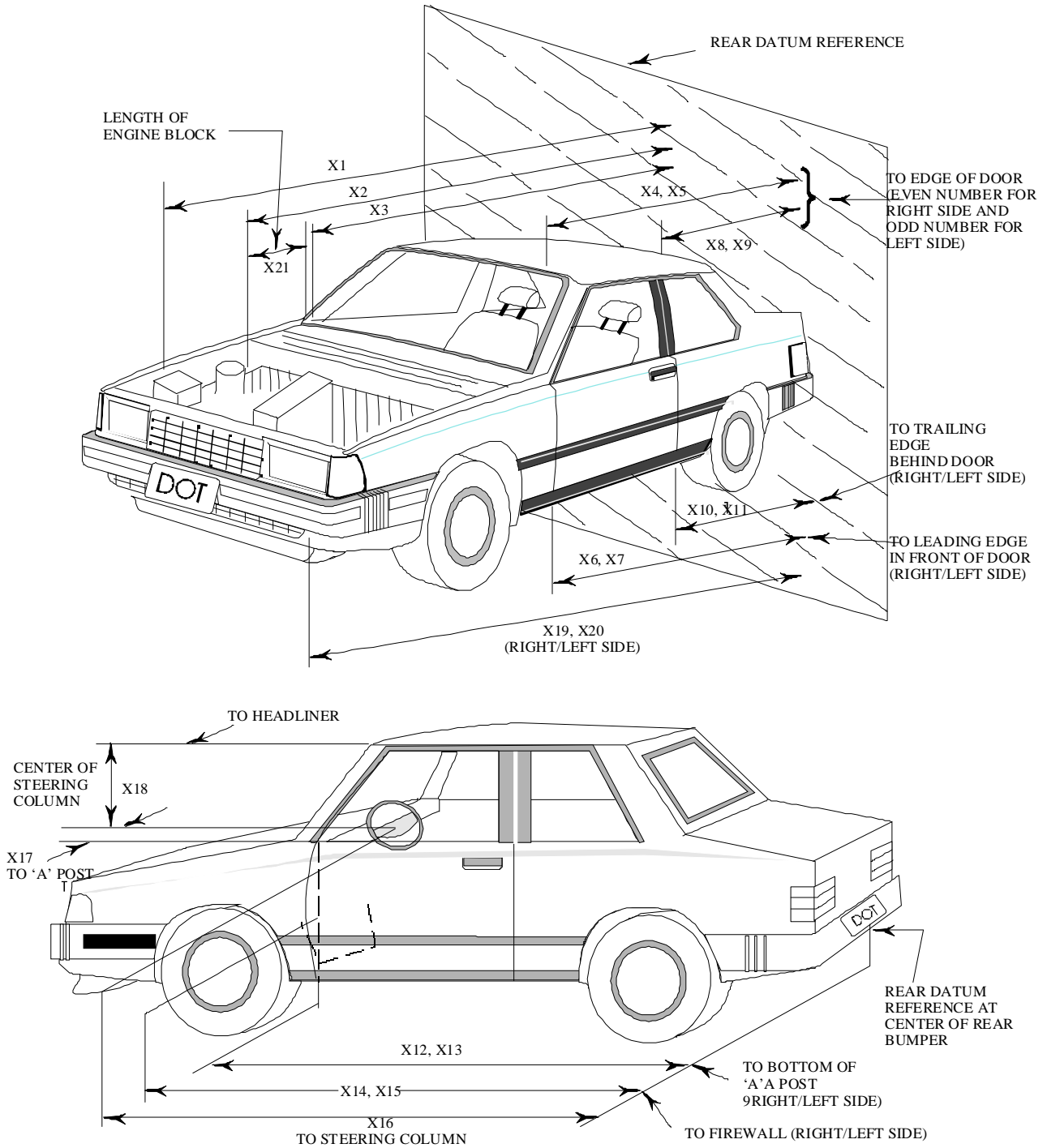
Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0° - 90°	0	0	0	-
90° - 180°	0	0	0	-
180°-270°	0	0	0	-
270°-360°	0	0	0	-

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

Rollover Stage	Spillage Location
0° - 90°	None
90° - 180°	None
180°-270°	None
270°-360°	None

DATA SHEET NO. 14 TEST VEHICLE MEASUREMENTS



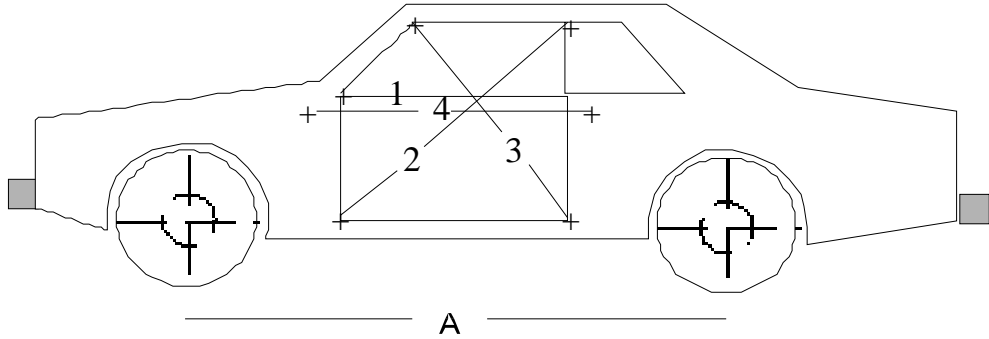
DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)

No.		Pre-Test	Post-Test	Difference
X1	Total Length of Vehicle at Centerline	4864	4453	411
X2	Rear Surface of Vehicle to Front of Engine	4346	4194	152
X3	Rear Surface of Vehicle to Firewall	3740	3674	66
X4	Rear Surface of Vehicle to Upper Leading Edge of Right Door	3381	3384	-3
X5	Rear Surface of Vehicle to Upper Leading Edge of Left Door	3386	3370	16
X6	Rear Surface of Vehicle to Lower Leading Edge of Right Door	3373	3380	-7
X7	Rear Surface of Vehicle to Lower Leading Edge of Left Door	3371	3371	0
X8	Rear Surface of Vehicle to Upper Trailing Edge of Right Door	2254	2255	-1
X9	Rear Surface of Vehicle to Upper Trailing Edge of Left Door	2260	2248	12
X10	Rear Surface of Vehicle to Lower Trailing Edge of Right Door	2262	2266	-4
X11	Rear Surface of Vehicle to Lower Trailing Edge of Left Door	2262	2264	-2
X12	Rear Surface of Vehicle to Bottom of "A" Post of Right Side	3455	3457	-2
X13	Rear Surface of Vehicle to Bottom of "A" Post of Left Side	3452	3426	26
X14	Rear Surface of Vehicle to Firewall, Right Side	3737	3707	30
X15	Rear Surface of Vehicle to Firewall, Left Side	3778	3613	165
X16	Rear Surface of Vehicle to Steering Column	2892	2863	29
X17	Center of Steering Column to "A" Post	323	289	34
X18	Center of Steering Column to Headliner	440	421	19
X19	Rear Surface of Vehicle to Right Side of Front Bumper	4793	4767	26
X20	Rear Surface of Vehicle to Left Side of Front Bumper	4798	4343	455
X21	Length of Engine Block	520	495	25
RD	Rear Surface of Vehicle to Right Side of Dash Panel	3140	3143	-3
CD	Rear Surface of Vehicle to Center of Dash Panel	3210	3166	44
LD	Rear Surface of Vehicle to Left Side of Dash Panel	3138	3104	34

All Dimensions in mm

All measurements taken forward from a lateral plane located at the rearmost point of the vehicle.

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
 VEHICLE INTRUSION MEASUREMENTS
 DOOR OPENING WIDTH

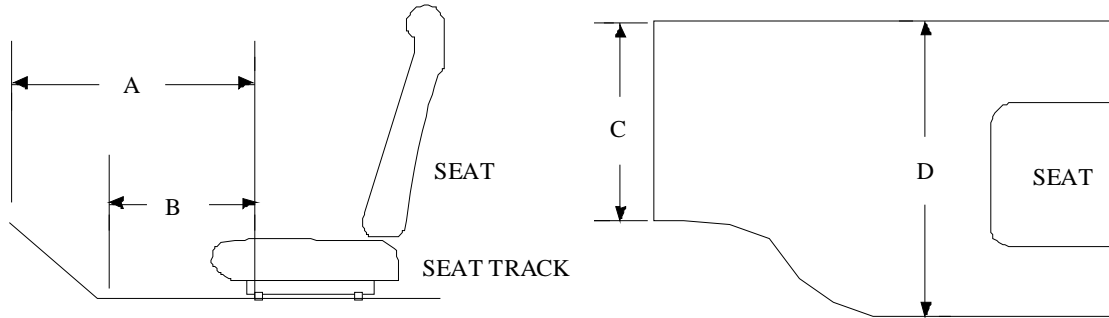


UNITS (mm)	LEFT				RIGHT		
MEASUREMENT	1	2	3	4*	1	2	3
BEFORE TEST	1064	1512	987	1191	1048	1510	982
AFTER TEST	1045	1497	1008	1175	1049	1511	984
DIFFERENCE	19	15	-21	16	-1	-1	-2

* Insurance Institute for Highway Safety (IIHS) measurement for driver's side only

UNITS (mm)	A = WHEELBASE LEFT	A = WHEELBASE RIGHT
BEFORE TEST	2813	2814
AFTER TEST	2644	2835
DIFFERENCE	169	-21

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
 VEHICLE INTRUSION MEASUREMENTS
 STATIC FOOTWELL DEFORMATION



DRIVER

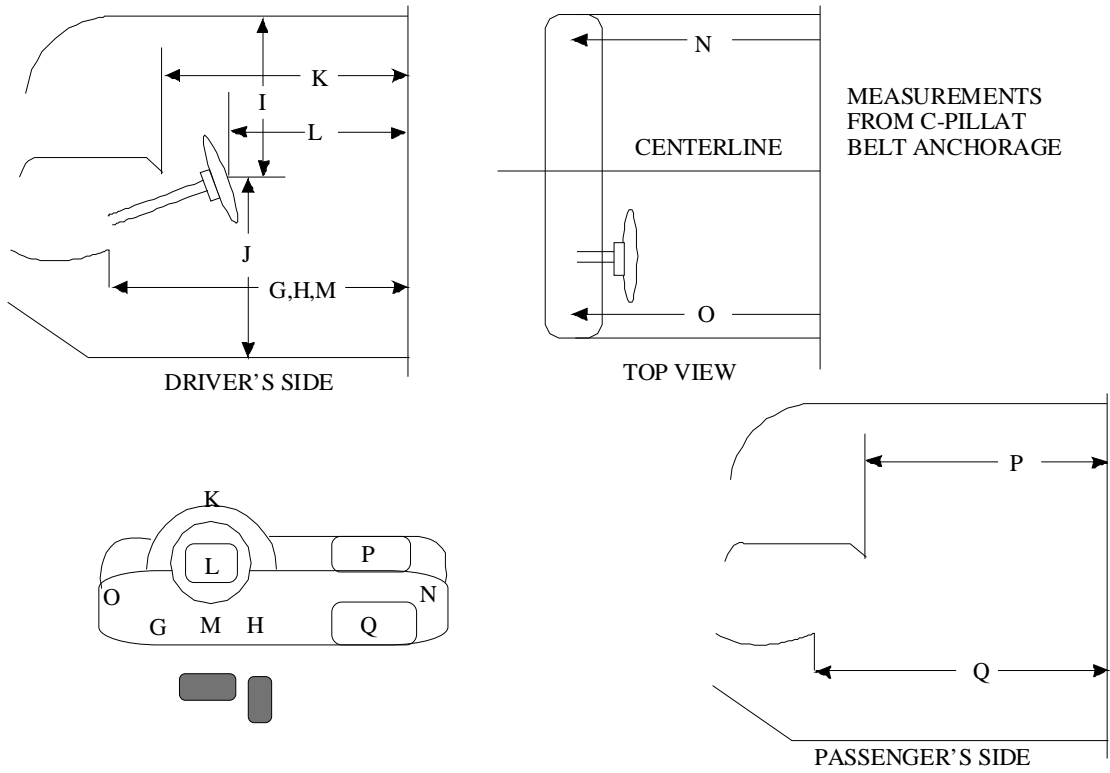
Measurement	Pre-Test	Post-Test	Difference
A	778	652	126
B	597	540	57
C	529	542	-13
D	502	490	12

PASSENGER

Measurement	Pre-Test	Post-Test	Difference
A	766	756	10
B	595	600	-5
C	493	522	-29
D	524	527	-3

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
VEHICLE INTRUSION MEASUREMENTS
STATIC PASSENGER COMPARTMENT INTRUSION

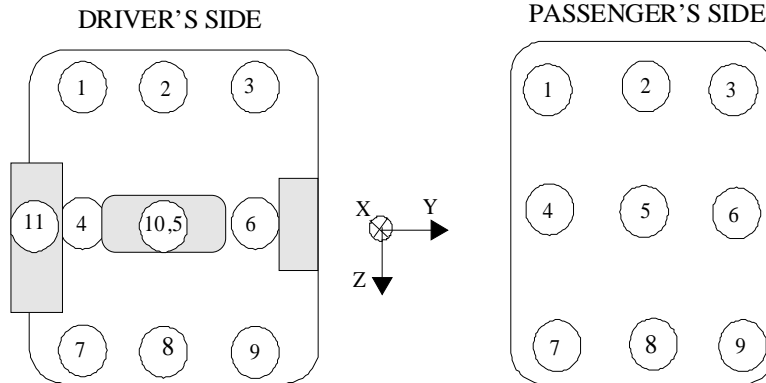


Measurement	Pre-Test	Post-Test	Difference
G*	2164	2141	23
H*	2132	2096	36
I	440	421	19
J	662	719	-57
K	2142	2087	55
L	1905	1872	33
M	2125	2093	32
N	2159	2163	-4
O	2150	2114	36
P = K (PASS.)	2169	2161	8
Q = M (PASS.)	2148	2144	4

* IHS measurement locations; 15 cm left and right of steering wheel center 45 cm from floor.

Units = mm

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
TOE-PAN INTRUSION



Driver Side Toe-pan Measurements

Toe-pan Location	X Deformation (mm)			Y Deformation (mm)			Z Deformation (mm)		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
1	3490	3415	75	-634	-621	-13	-431	-438	7
2	3613	3503	110	-442	-400	-42	-369	-419	50
3	3611	3482	129	-236	-205	-31	-354	-398	44
4*	3457	3406	51	-642	-619	-23	-360	-364	4
5* ^A	3508	3441	67	-449	-397	-52	-290	-338	48
6*	3536	3445	91	-229	-208	-21	-291	-316	25
7	3435	3426	9	-641	-625	-16	-245	-251	6
8	3432	3391	41	-440	-417	-23	-251	-254	3
9	3460	3423	37	-239	-225	-14	-227	-239	12
10	3386	3328	58	-357	-519	162	-430	-459	29
11*	3445	3398	47	-618	-607	-11	-345	-344	-1

Passenger Side Toe-pan Measurements

Toe-pan Location	X Deformation (mm)			Y Deformation (mm)			Z Deformation (mm)		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
1	3610	3611	-1	196	209	-13	-375	-400	25
2	3605	3604	1	412	422	-10	-384	-396	12
3	3523	3530	-7	573	607	-34	-393	-423	30
4	3528	3531	-3	211	217	-6	-293	-311	18
5	3518	3517	1	409	412	-3	-301	-314	13
6	3506	3509	-3	620	627	-7	-288	-306	18
7	3449	3412	37	205	182	23	-227	-231	4
8	3434	3448	-14	405	414	-9	-246	-258	12
9	3437	3444	-7	618	618	0	-228	-242	14

Reference: (SAE) X = Rear Bumper (pos: forward); Y = Vehicle Centerline (pos: right); Z = Ground (pos: down)

* IIHS measurement locations

*^A IIHS measurement located directly behind 10 (brake pedal center) on the vehicle floorpan in same vertical plane.

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
INSURANCE INSTITUTE MEASUREMENT LOCATION AND FLOOR PAN DEFORMATION DATA

IHS Measurement Location Data

Meas. Loc*	X Measurement (mm)			Y Measurement (mm)			Z Measurement (mm)		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
1	2892	2863	29	-379	-401	22	-891	-949	58
2	3152	3132	20	-537	-534	-3	-698	-709	11
3	3120	3087	33	-229	-228	-1	-708	-737	29
4	3386	3328	58	-357	-519	162	-430	-459	29
5	3457	3406	51	-642	-619	-23	-360	-364	4
6	3508	3441	67	-449	-397	-52	-290	-338	48
7	3536	3445	91	-229	-208	-21	-291	-316	25
8	3445	3398	47	-618	-607	-11	-345	-344	-1
17	3378	3365	13	-788	-797	9	-963	-970	7
18	2206	2208	-2	-732	-728	-4	-1168	-1164	-4

Floor Pan Deformation Measurement Data

Meas. Loc**	X Measurement (mm)			Y Measurement (mm)			Z Measurement (mm)		
	Pre	Post	Δ	Pre	Post	Δ	Pre	Post	Δ
P0	2667	2674	-7	-586	-578	-8	-316	-310	-6
P1	3350	3343	-7	-597	-579	-8	-223	-216	6
P2	3348	3341	7	-446	-432	-18	-234	-231	-7
P3	3347	3301	7	-282	-269	-14	-244	-243	-3
P4	3201	3195	46	-592	-569	-13	-225	-219	-1
P5	3206	3196	6	-440	-427	-23	-233	-225	-6
P6	3225	3160	10	-301	-272	-13	-245	-242	-8
P7	3057	3050	65	-590	-572	-29	-226	-215	-3
P8	3055	3046	7	-438	-425	-18	-233	-228	-11
P9	3049	3007	9	-276	-270	-13	-253	-252	-5

Reference: (SAE) X = Rear Bumper (pos: forward); Y = Vehicle Centerline (pos: right); Z = Ground (pos: down)

Measurement Location Descriptions*

P0. Front Outside Seat Anchor Bolt

1. Steering Column - Geometric center of the steering wheel on airbag door.
2. Lower Instrument Panel Left - Taken 45 cm above floorpan and 15 cm to the left of the steering wheel center.
3. Lower Instrument Panel Right - Taken 45 cm above floorpan and 15 cm to the right of the steering wheel center.
4. Brake Pedal - Geometric center of the brake pedal.
5. Toepan Left - Taken 15 cm to the left of the brake pedal center on the same vertical plane on the vehicle toepan.
6. Toepan Center - Taken directly behind the brake pedal center on the same vertical plane on the vehicle toepan.
7. Toepan Right - Taken 15 cm to the right of the brake pedal center on the same vertical plane on the vehicle toepan.
8. Left Footrest - Taken 25 cm to the left of the brake pedal center on the same vertical plane on the vehicle toepan.
17. A-pillar - Taken on the vehicle exterior at the same vertical coordinate as the base on the left front window.
18. B-pillar - Taken on the vehicle exterior at the same vertical coordinate as the lower A-pillar mark.

** There is an equal spaced 3 x 3 floor pan matrix. Position 1 if floor pan left side forwardmost position; Position 9 is located on the right side rearmost position of the 3 x 3 grid.

DATA SHEET NO.14 VEHICLE MEASUREMENTS (cont.)
TEST VEHICLE FRONTAL PROFILE DATA

		PRE-TEST PROFILE					
		Vehicle Left			Vehicle Right		
		Pt 1	Pt 2	Pt 3	Pt 4	Pt5	Pt 6
Bottom of Front Bumper	X	4747.3	4816.0	4840.4	4849.0	4821.2	4747.2
	Y	-641.0	-391.5	-134.9	131.9	385.3	641.1
	Z	-315.9	-308.0	-302.0	-293.2	-298.4	-303.2
Top of Front Bumper	X	4776.2	4844.6	4876.9	4872.1	4849.1	4775.2
	Y	-643.9	-389.9	-133.4	130.5	390.1	647.2
	Z	-453.5	-441.5	-435.5	-434.6	-436.3	-436.3
Center of Grille	X	4737.2	4788.3	4816.3	4815.0	4784.1	4736.4
	Y	-641.8	-387.6	-128.8	129.5	389.1	646.5
	Z	-582.4	-612.8	-607.0	-605.0	-603.7	-566.1
Front of Hood	X	4540.5	4711.1	4753.0	4752.1	4711.5	4498.4
	Y	-624.0	-382.1	-124.4	131.8	389.1	654.7
	Z	-786.6	-725.1	-731.4	-731.3	-716.6	-783.5

		POST-TEST PROFILE					
		Vehicle Left			Vehicle Right		
		Pt 1	Pt 2	Pt 3	Pt 4	Pt5	Pt 6
Bottom of Front Bumper	X	4138.5	4233.5	4326.6	4490.7	4618.9	4561.7
	Y	-642.7	-410.3	-164.2	50.6	276.2	567.9
	Z	-423.6	-404.3	-399.8	-374.9	-408.7	-394.1
Top of Front Bumper	X	†	4336.4	4350.2	4557.2	4730.2	†
	Y	†	-431.0	-163.2	36.8	229.0	†
	Z	†	-613.2	-651.6	-731.3	-778.8	†
Center of Grille	X	†	†	†	†	†	†
	Y	†	†	†	†	†	†
	Z	†	†	†	†	†	†
Front of Hood	X	4238.4	4265.7	4359.2	4475.5	4544.7	4450.8
	Y	-586.9	-403.6	-162.3	66.4	318.1	603.3
	Z	-947.9	-796.2	-765.8	-786.6	-836.2	-999.4

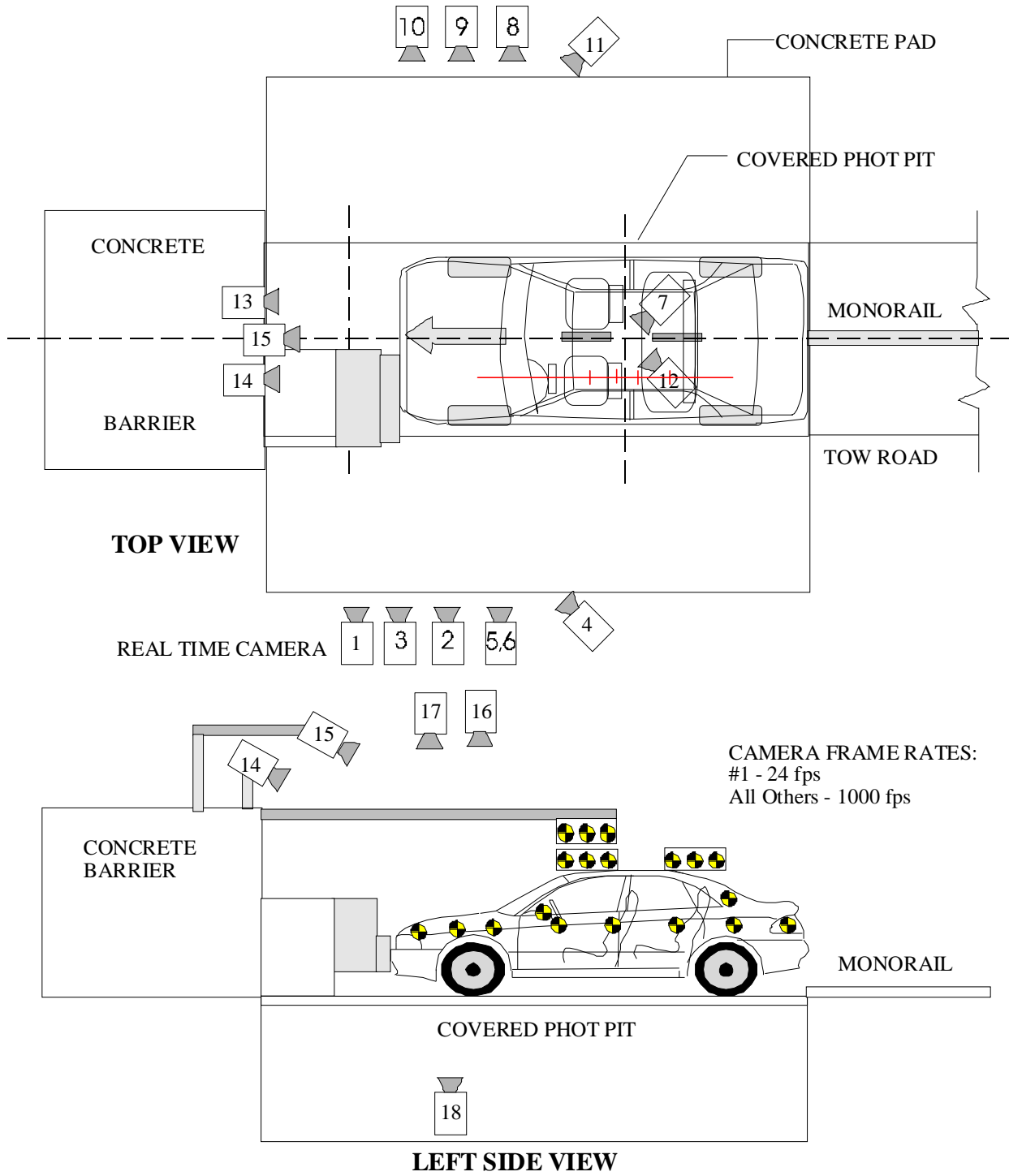
		CHANGE					
		Vehicle Left			Vehicle Right		
		Pt 1	Pt 2	Pt 3	Pt 4	Pt5	Pt 6
Bottom of Front Bumper	X	608.9	582.4	513.7	358.3	202.3	185.5
	Y	1.7	18.8	29.3	81.2	109.2	73.3
	Z	107.8	96.3	97.8	81.7	110.3	90.9
Top of Front Bumper	X	†	508.2	526.7	314.9	118.9	†
	Y	†	41.2	29.8	93.7	161.1	†
	Z	†	171.7	216.1	296.7	342.5	†
Center of Grille	X	†	†	†	†	†	†
	Y	†	†	†	†	†	†
	Z	†	†	†	†	†	†
Front of Hood	X	302.0	445.3	393.8	276.7	166.8	47.6
	Y	-37.1	21.5	37.9	65.3	71.0	51.4
	Z	161.3	71.1	34.4	55.4	119.6	215.9

All dimensions are in mm.

† Point was not measurable following the test.

DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS

NOTE: Camera information shown in DATA SHEET NO. 15.



DATA SHEET NO.15 HIGH-SPEED CAMERA LOCATIONS (cont.)

NHTSA Test No.: R25224 Vehicle: 2002 Nissan Altima 4-door Sedan

CAMERA NO.	VIEW	CAMERA POSITIONS (mm)*			ANGLE (deg)**	FILM PLANE TO HEAD TARGET	LENS (mm)	SPEED (fps)
		X	Y	Z				
1	Real-Time Camera	-	-	-	-	-	-	24
2	Overall Left Side	7620	1136	1086	4.9	6879	12.5	1000
3	Left Side View	8881	761	1090	2.4	8500	12.5	1005
4	Driver and Interior View	7488	1918	1967	18.4	-	25	1000
5	Steering Column (Bottom)	9604	1543	1181	2.2	9223	25	1000
6	Steering Column (Top)	9604	1543	1771	6.8	9223	25	1000
7	Interior Driver View	-	-	-	-	-	-	-
8	Overall Right Side View	7634	1614	1051	3.3	7253	12.5	1005
9	Right Side View	9705	715	1049	2.2	9324	25	1005
10	Right Passenger View	9144	1319	1319	2.4	8763	35	1010
11	Passenger and Interior View	9098	2629	1966	8.0	-	25	1000
12	Interior Passenger View	-	-	-	-	-	-	-
13	Passenger Front View	520	-2050	1987	-27	-	13	1000
14	Driver Front View	-520	-2167	3488	-36	-	13	1010
15	Windshield View	0	-2167	3048	-41	-	13	1055
16	Overhead Overall View	0	156	4880	-90	-	13	1010
17	Overhead Close-Up View	0	323	4880	-90	-	13	1010
18	Pit View of Engine	0	1325	-3048	-90	-	13	1005

*X = film plane to monorail centerline

** = referenced to horizontal plane

Y = film plane to impact location

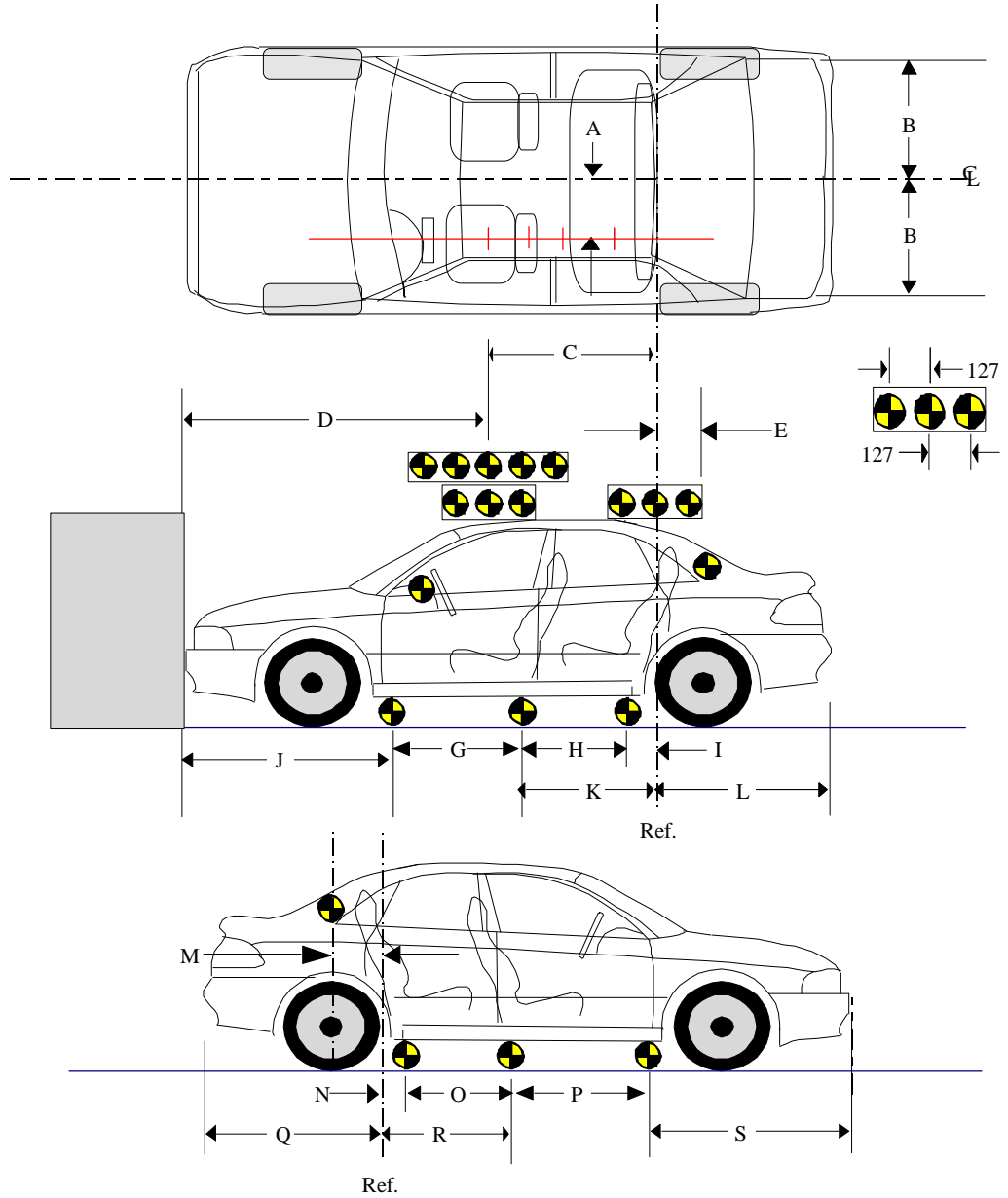
N.T. indicates No Timing

Z = film plane to ground

DATA SHEET NO. 16 VEHICLE REFERENCE PHOTO TARGET LOCATIONS

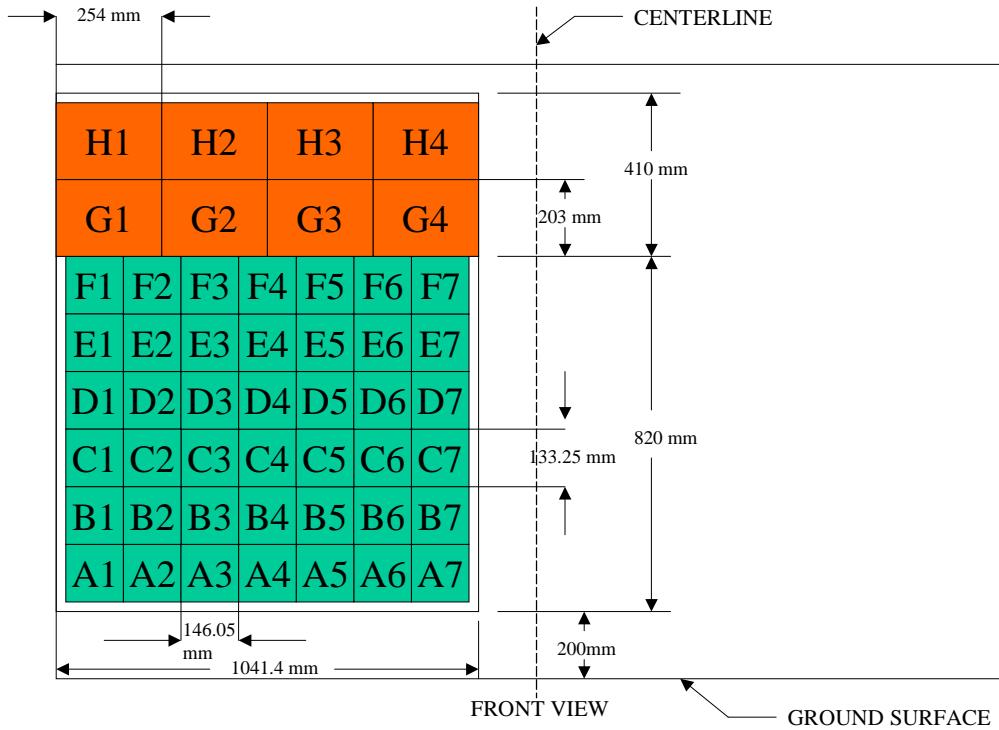
(Dimensions in millimeters)

A	381
B	637
C	1227
D	2203
E	449
F	1638
G	966
H	955
I	103
J	1404
K	1058
L	1437
M	455
N	102
O	962
P	950
Q	1435
R	1064
S	1420



DATA SHEET NO. 17 LOAD CELL LOCATIONS RELATIVE TO FIXED BARRIER AND DEFORMABLE BARRIER FACE

48 Load Cells



	Bottom Array	Top Array
Load cell width	146 mm	254 mm
Load cell height	133 mm	203 mm
Vertical gap between load cells	6 mm	6 mm
Horizontal gap between load cells	6 mm	6 mm
Vertical filler block width	55 mm	55 mm

The following data is presented in Appendix B:

- (1) X Direction Data from load cells A1 through F7
- (2) X Direction Data from load cells G1 through H4

DATA SHEET NO. 18 POST TEST AIR BAG DATA

NHTSA No.: R25224; Test Date: October 16,2003; Technician: James Czarnecki

Vehicle Model Year/Make/Model: 2002 Nissan Altima 4-door Sedan

A. No. of vent holes: 2 -Driver 2 -Passenger

B. Size of vent holes: (mm²) 50 -Driver 30 -Passenger

C. Total vent area: (mm²) 100 -Driver 60 -Passenger

D. Deflated air bag length and width dimensions or, if round, diameter. (mm)

Driver: 460 -Height; 460 -Width; 300 -Depth

Passenger: 450 -Height; 550 -Width; 400 -Depth

E. Is the air bag tethered?

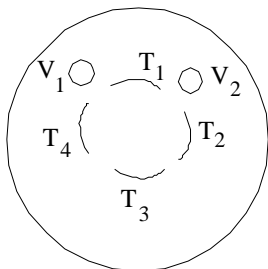
Driver: 2 -Yes; - -No; If yes, record length of tether- 200

Passenger: - -Yes; x -No; If yes, record length of tether- -

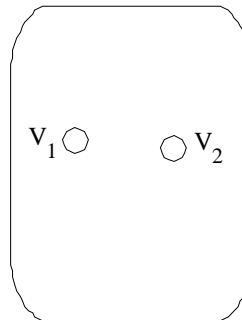
Sketch the air bag showing the location of the vent holes, how the bag is tethered, and where the bag is tethered. Also describe how the tethers are attached to the bag and the steering wheel.

(Note: Not to scale; V_n = Vent hole_n, T_n = Tether_n).

Driver



Passenger



F. Record part numbers and manufacturer name of the air bag and gas generator.

Driver: Air bag: -

 Generator: -

Passenger: Air bag: -

 Generator: -

DATA SHEET NO. 19 ACCIDENT INVESTIGATION DIVISION DATA

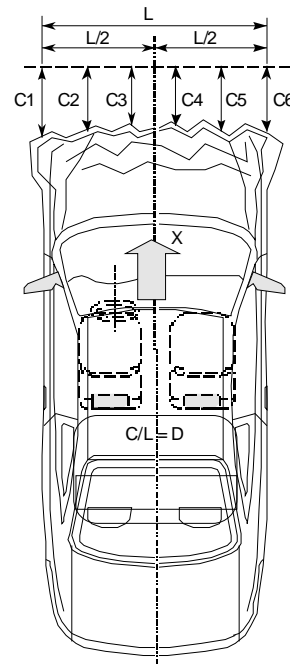
FOR 56.3 KPH OFFSET FRONTAL BARRIER IMPACT

Vehicle Make/Model/Body Style: Nissan Altima 4-door Sedan
 NHTSA Test No.: R25224 VIN: 1N4AL11D22C180110
 Model Year: 2002 Build Date: 12/01 Test Date: October 16,2003
 Vehicle Size Category: Sedan Test Weight: 1593 kg
 Vehicle Wheelbase: 2808 mm; Front Overhang: 949 mm; Overall Width: 1790 mm
 Collision Deformation Classification (CDC) Code: 12FDEW3

Crush Depth Dimensions

	PRE	POST	DIFF	
C1 =	4776	NA	NA	mm
C2 =	4845	4336	509	mm
C3 =	4877	4350	527	mm
C4 =	4872	4557	315	mm
C5 =	4849	4730	119	mm
C6 =	4775	NA	NA	mm

NA: Not available, point could not be measured following the test.



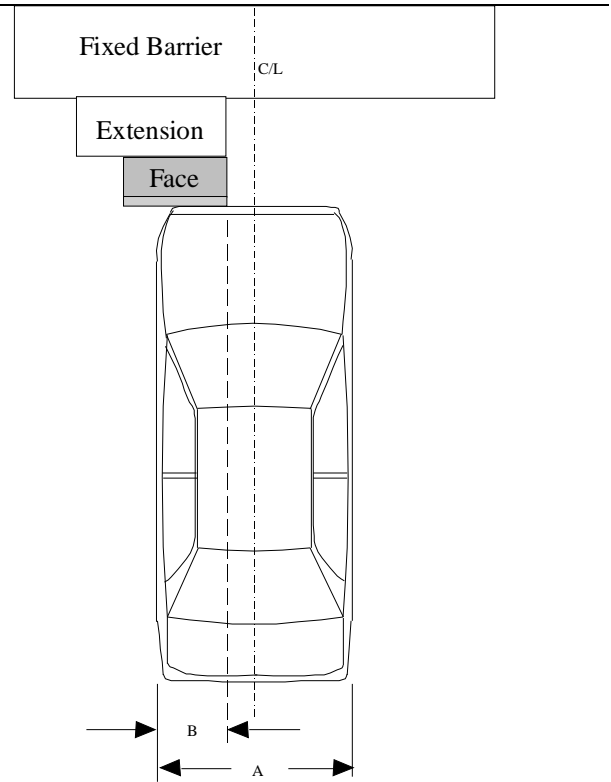
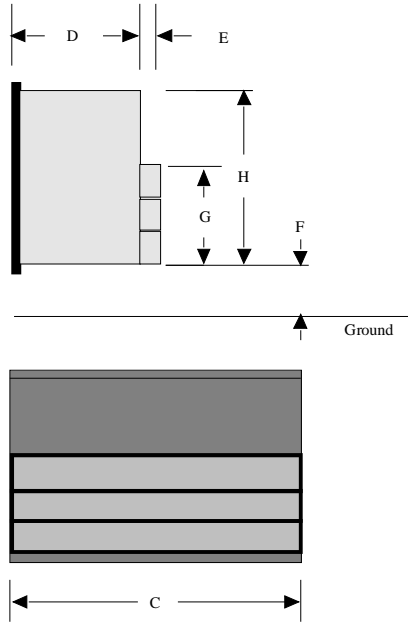
Midpoint of Damage: D = Vehicle Centerline (Longitudinal)

Length of Damaged Region: L1= 1291 mm
 L2= 645.5 mm
 L5= 258.2 mm

DATA SHEET NO. 20 OFFSET BARRIER AND VEHICLE ORIENTATION

NHTSA Test No.: R25224 Vehicle: 2002 Nissan Altima 4-door Sedan

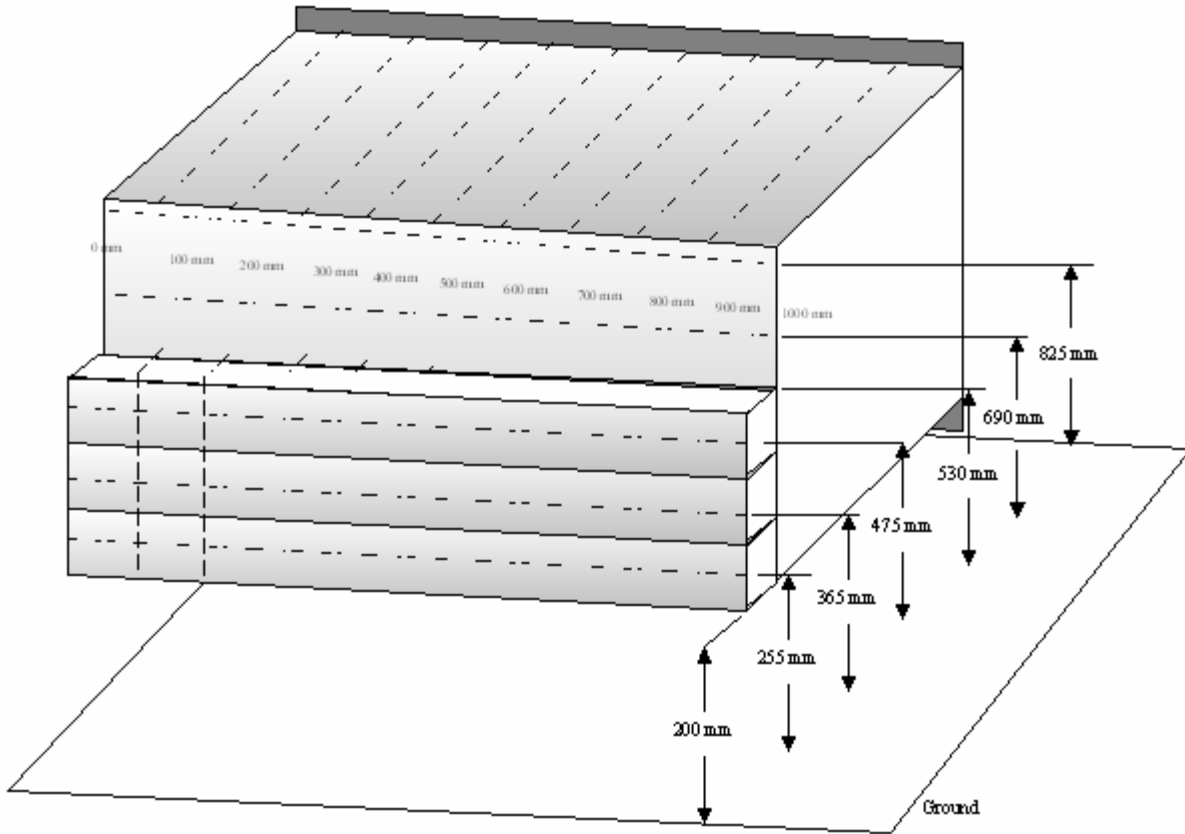
Barrier Manufacturer and Serial Number: _____



A	Total Vehicle Width	<u>1790</u>	mm
B	40% Overlap Distance	<u>716.0</u>	mm
C	Deformable Face Width	<u>1000</u>	mm
D	Single Stage Honeycomb Depth	<u>450</u>	mm
E	Bumper Element Depth	<u>90</u>	mm
F	Lower Edge Height From Ground	<u>200</u>	mm
G*	Bumper Element Height	<u>330</u>	mm
H	Deformable Barrier Honeycomb Height	<u>650</u>	mm

* The bumper element consists of three 110 mm height blocks of 1.723 MPa honeycomb

Offset Barrier Measurement Locations



DATA SHEET NO. 21 OFFSET BARRIER DEFORMATION (continued)

**EXTERIOR STATIC CRUSH FOR BARRIER FACE
(Grid as looking at barrier from front)**

Vehicle: _ 2002 Nissan Altima 4-door Sedan

NHTSA No. R25224

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

LEVEL	HEIGHT AT CL (mm)*		DISTANCE RIGHT OF CENTER (mm)					0	DISTANCE LEFT OF CENTER (mm)					
			500	400	300	200	100		100	200	300	400	500	
LEVEL 6 TOP STACK	825	PRE	546	546	546	546	546	546	546	546	546	546	546	546
		POST	527	539	553	573	593	622	674	717	769	811	854	
		CRUSH	-19	-7	7	27	47	76	128	171	223	265	308	
LEVEL 5 MID STACK	687	PRE	546	546	546	546	546	546	546	546	546	546	546	546
		POST	505	516	549	597	640	689	744	773	821	828	868	
		CRUSH	-41	-30	3	51	94	143	198	227	275	282	322	
LEVEL 4 TOP BUMPER	530	PRE	546	546	546	546	546	546	546	546	546	546	546	546
		POST	508	571	624	717	737	795	924	901	897	896	900	
		CRUSH	-38	25	78	171	191	249	378	355	351	350	354	
LEVEL 3 BUMPER TOP	475	PRE	456	456	456	456	456	456	456	456	456	456	456	456
		POST	436	505	568	619	674	743	915	915	913	910	915	
		CRUSH	-20	49	112	163	218	287	459	459	457	454	459	
LEVEL 2 BUMPER MID	365	PRE	456	456	456	456	456	456	456	456	456	456	456	456
		POST	446	503	562	605	663	749	829	845	841	840	869	
		CRUSH	-10	47	106	149	207	293	373	389	385	384	413	
LEVEL 1 BUMPER LOW	255	PRE	456	456	456	456	456	456	456	456	456	456	456	456
		POST	441	494	542	591	649	737	824	849	869	890	931	
		CRUSH	-15	38	86	135	193	281	368	393	413	434	475	

LEVEL	HEIGHT AT CL (mm)*	MAX CRUSH
LEVEL 6 TOP STACK	825	308
LEVEL 5 MID STACK	687	322
LEVEL 4 TOP BUMPER	530	378
LEVEL 3 BUMPER TOP	475	459
LEVEL 2 BUMPER MID	365	413
LEVEL 1 BUMPER LOW	255	475

*Heights measured above ground level.

APPENDIX A
PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

<u>Figure</u>	<u>Title</u>	<u>Page</u>
A-1	PRE-TEST FRONT VIEW	A-3
A-2	POST-TEST FRONT VIEW	A-4
A-3	PRE-TEST LEFT SIDE VIEW	A-5
A-4	POST-TEST LEFT SIDE VIEW	A-6
A-5	PRE-TEST RIGHT SIDE VIEW	A-7
A-6	POST-TEST RIGHT SIDE VIEW	A-8
A-7	PRE-TEST RIGHT FRONT THREE-QUARTER VIEW	A-9
A-8	POST-TEST RIGHT FRONT THREE-QUARTER VIEW	A-10
A-9	PRE-TEST LEFT REAR THREE-QUARTER VIEW	A-11
A-10	POST-TEST LEFT REAR THREE-QUARTER VIEW	A-12
A-11	PRE-TEST WINDSHIELD VIEW	A-13
A-12	POST-TEST WINDSHIELD VIEW	A-14
A-13	PRE-TEST ENGINE COMPARTMENT VIEW	A-15
A-14	FUEL CAP VIEW	A-16
A-15	PRE-TEST FRONT UNDERBODY VIEW	A-17
A-16	POST-TEST FRONT UNDERBODY VIEW	A-18
A-17	PRE-TEST FRONT SIDE UNDERBODY VIEW	A-19
A-18	POST-TEST FRONT SIDE UNDERBODY VIEW	A-20
A-19	PRE-TEST REAR UNDERBODY VIEW	A-21
A-20	POST-TEST REAR UNDERBODY VIEW	A-22
A-21	PRE-TEST DRIVER POSITION VIEW	A-23
A-22	POST-TEST DRIVER POSITION VIEW	A-24
A-23	PRE-TEST PASSENGER POSITION VIEW	A-25
A-24	POST-TEST PASSENGER POSITION VIEW	A-26
A-25	PRE-TEST DRIVER AND INTERIOR VIEW	A-27
A-26	POST-TEST DRIVER AND INTERIOR VIEW	A-28
A-27	PRE-TEST PASSENGER AND INTERIOR VIEW	A-29
A-28	POST-TEST PASSENGER AND INTERIOR VIEW	A-30
A-29	PRE-TEST DRIVER HEAD LOCATION	A-31
A-30	POST-TEST DRIVER HEAD LOCATION	A-32
A-31	PRE-TEST PASSENGER HEAD LOCATION	A-33
A-32	POST-TEST PASSENGER HEAD LOCATION	A-34
A-33	PRE-TEST DRIVER FLOOR PAN VIEW	A-35
A-34	POST-TEST DRIVER FLOOR PAN VIEW	A-36
A-35	PRE-TEST PASSENGER FLOOR PAN VIEW	A-37
A-36	POST-TEST PASSENGER FLOOR PAN VIEW	A-38
A-37	PRE-TEST BARRIER FRONT VIEW	A-39
A-38	POST-TEST BARRIER FRONT VIEW	A-40
A-39	PRE-TEST BARRIER LEFT SIDE VIEW	A-41
A-40	POST-TEST BARRIER LEFT SIDE VIEW	A-42
A-41	PRE-TEST BARRIER RIGHT SIDE VIEW	A-43
A-42	POST-TEST BARRIER RIGHT SIDE VIEW	A-44
A-43	PRE-TEST BARRIER TOP VIEW	A-45
A-44	POST-TEST BARRIER TOP VIEW	A-46
A-45	POST-TEST OVERHEAD VIEW	A-47
A-46	ROLLOVER VIEW	A-48
A-47	IMPACT VIEW	A-49



Figure A-1: PRE-TEST FRONT VIEW



Figure A-2: POST-TEST FRONT VIEW



Figure A-3: PRE-TEST LEFT SIDE VIEW



Figure A-4: POST-TEST LEFT SIDE VIEW



Figure A-5: PRE-TEST RIGHT SIDE VIEW



Figure A-6: POST-TEST RIGHT SIDE VIEW



Figure A-7: PRE-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-8: POST-TEST RIGHT FRONT THREE-QUARTER VIEW



Figure A-9: PRE-TEST LEFT REAR THREE-QUARTER VIEW



Figure A-10: POST-TEST LEFT REAR THREE-QUARTER VIEW



Figure A-11: PRE-TEST WINDSHIELD VIEW



Figure A-12: POST-TEST WINDSHIELD VIEW



Figure A-13: PRE-TEST ENGINE COMPARTMENT VIEW



Figure A-14: FUEL CAP VIEW



Figure A-15: PRE-TEST FRONT UNDERBODY VIEW



Figure A-16: POST-TEST FRONT UNDERBODY VIEW



Figure A-17: PRE-TEST FRONT SIDE UNDERBODY VIEW



Figure A-18: POST-TEST FRONT SIDE UNDERBODY VIEW



Figure A-19: PRE-TEST REAR UNDERBODY VIEW



Figure A-20: POST-TEST REAR UNDERBODY VIEW



Figure A-21: PRE-TEST DRIVER POSITION VIEW



Figure A-22: POST-TEST DRIVER POSITION VIEW



Figure A-23: PRE-TEST PASSENGER POSITION VIEW



Figure A-24: POST-TEST PASSENGER POSITION VIEW



Figure A-25: PRE-TEST DRIVER AND INTERIOR VIEW



Figure A-26: POST-TEST DRIVER AND INTERIOR VIEW



Figure A-27: PRE-TEST PASSENGER AND INTERIOR VIEW



Figure A-28: POST-TEST PASSENGER AND INTERIOR VIEW



Figure A-29: PRE-TEST DRIVER HEAD LOCATION



Figure A-30: POST-TEST DRIVER HEAD LOCATION



Figure A-31: PRE-TEST PASSENGER HEAD LOCATION



Figure A-32: POST-TEST PASSENGER HEAD LOCATION



Figure A-33: PRE-TEST DRIVER FLOOR PAN VIEW



Figure A-34: POST-TEST DRIVER FLOOR PAN VIEW



Figure A-35: PRE-TEST PASSENGER FLOOR PAN VIEW



Figure A-36: POST-TEST PASSENGER FLOOR PAN VIEW



Figure A-37: PRE-TEST BARRIER FRONT VIEW



Figure A-38: POST-TEST BARRIER FRONT VIEW



Figure A-39: PRE-TEST BARRIER LEFT SIDE VIEW



Figure A-40: POST-TEST BARRIER LEFT SIDE VIEW



Figure A-41: PRE-TEST BARRIER RIGHT SIDE VIEW



Figure A-42: POST-TEST BARRIER RIGHT SIDE VIEW



Figure A-43: PRE-TEST BARRIER TOP VIEW

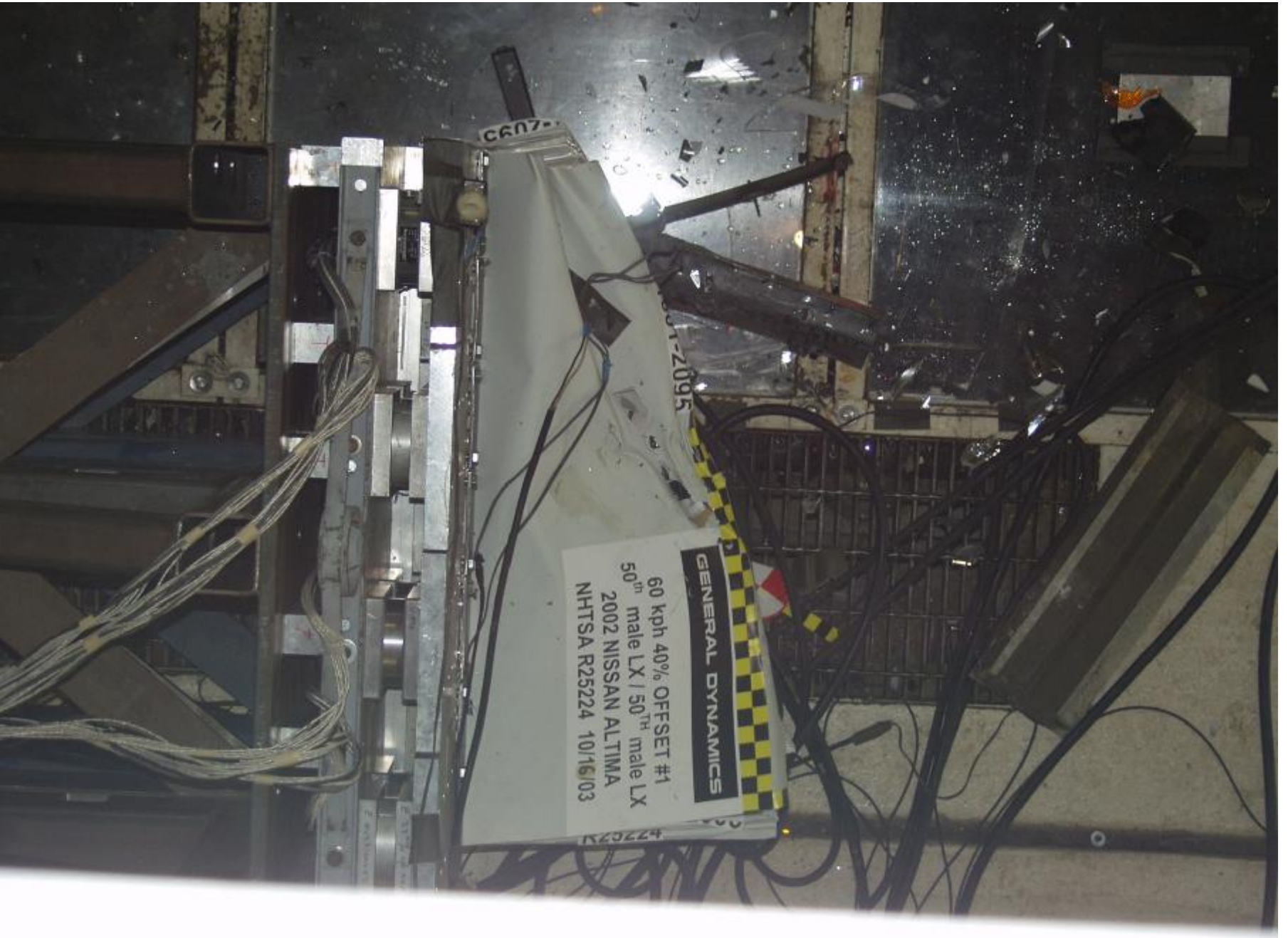


Figure A-44: POST-TEST BARRIER TOP VIEW



Figure A-45: POST-TEST OVERHEAD VIEW



Figure A-46: ROLLOVER VIEW



Figure A-47: IMPACT VIEW

<u>Figure</u>	<u>Title</u>	<u>Page</u>
A-48	PRE-TEST DRIVER FOOT/LEG CLOSE-UP	A-51
A-49	POST-TEST DRIVER FOOT/LEG CLOSE-UP	A-52
A-50	PRE-TEST PASSENGER FOOT/LEG CLOSE-UP	A-53
A-51	POST-TEST PASSENGER FOOT/LEG CLOSE-UP	A-54
A-52	PRE-TEST DRIVER ABDOMEN	A-55
A-53	POST-TEST DRIVER ABDOMEN	A-56
A-54	PRE-TEST DRIVER TOE-PAN	A-57
A-55	POST-TEST DRIVER TOR-PAN	A-58
A-56	PRE-TEST PASSENGER TOE-PAN	A-59
A-57	POST-TEST PASSENGER TOE-PAN	A-60
A-58	POST-TEST OF DRIVER SIDE A-PILLAR	A-61
A-59	PRE-TEST FRONT WHEEL WELL	A-62
A-60	POST-TEST FRONT WHEEL WELL	A-63
A-61	PRE-TEST DRIVER SIDE FRONT FENDER	A-64
A-62	POST-TEST DRIVER SIDE SHOTGUN	A-65
A-63	PRE-TEST STEERING RACK/SWAY BAR	A-66
A-64	POST-TEST STEERING RACK/SWAY BAR	A-67
A-65	POST-TEST BUMPER TO RAIL ATTACHMENTS	A-68
A-66	POST-TEST WHEEL/TIRE DEFORMATION	A-69
A-67	POST-TEST WHEEL TO A-PILLAR	A-70
A-68	PRE-TEST FRONT SUB-FRAME	A-71
A-69	POST-TEST FRONT SUB-FRAME	A-72
A-70	PRE-TEST UNDERBODY OVERALL	A-73
A-71	POST-TEST UNDERBODY OVERALL	A-74
A-72	PRE-TEST UNDERBODY FRONT STRUCTURE	A-75
A-73	POST-TEST UNDERBODY FRONT STRUCTURE	A-76



Figure A-48 : PRE-TEST DRIVER FOOT/LEG CLOSE-UP

PICTURE NOT AVAILABLE

Figure A-49 : POST-TEST DRIVER FOOT/LEG CLOSE-UP



A-53

8710-OFST-01

Figure A-50 : PRE-TEST PASSENGER FOOT/LEG CLOSE-UP



A-54

8710-OFST-01

Figure A-51 : POST-TEST PASSENGER FOOT/LEG CLOSE-UP



Figure A-52 : PRE-TEST DRIVER ABDOMEN

PICTURE NOT AVAILABLE

Figure A-53 : POST-TEST DRIVER ABDOMEN



Figure A-54 : PRE-TEST DRIVER TOE-PAN



Figure A-55 : POST-TEST DRIVER TOR-PAN



Figure A-56 : PRE-TEST PASSENGER TOE-PAN



Figure A-57 : POST-TEST PASSENGER TOE-PAN



Figure A-58 : POST-TEST OF DRIVER SIDE A-PILLAR



Figure A-59 : PRE-TEST FRONT WHEEL WELL



A-63

8710-OFST-01

Figure A-60 : POST-TEST FRONT WHEEL WELL



Figure A-61 : PRE-TEST DRIVER SIDE FRONT FENDER



Figure A-62 : POST-TEST DRIVER SIDE SHOTGUN



Figure A-63 : PRE-TEST STEERING RACK/SWAY BAR



Figure A-64 : POST-TEST STEERING RACK/SWAY BAR



Figure A-65 : POST-TEST BUMPER TO RAIL ATTACHMENTS



Figure A-66 : POST-TEST WHEEL/TIRE DEFORMATION



Figure A-67 : POST-TEST WHEEL TO A-PILLAR



Figure A-68 : PRE-TEST FRONT SUB-FRAME

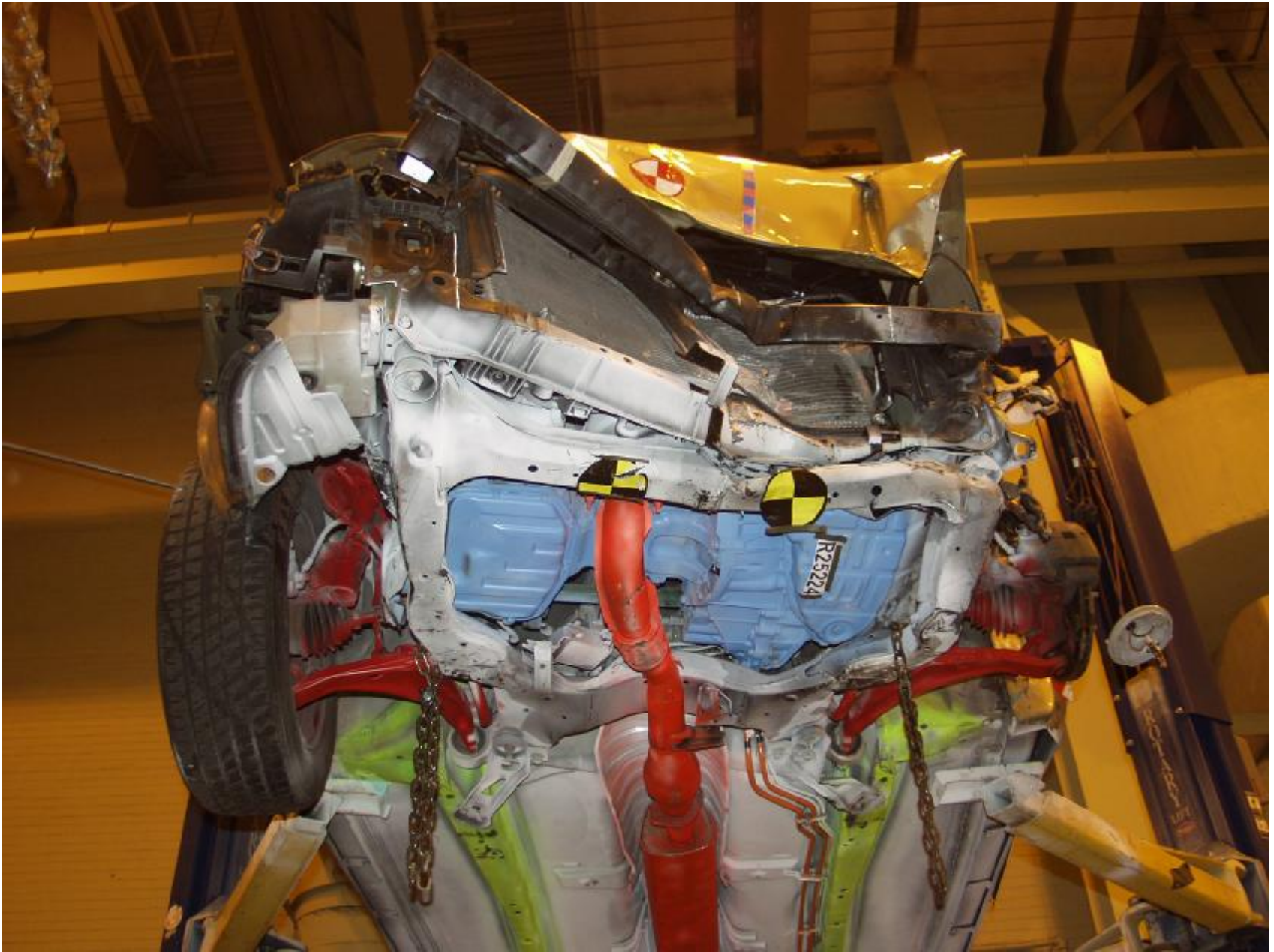


Figure A-69 : POST-TEST FRONT SUB-FRAME



Figure A-70 : PRE-TEST UNDERBODY OVERALL

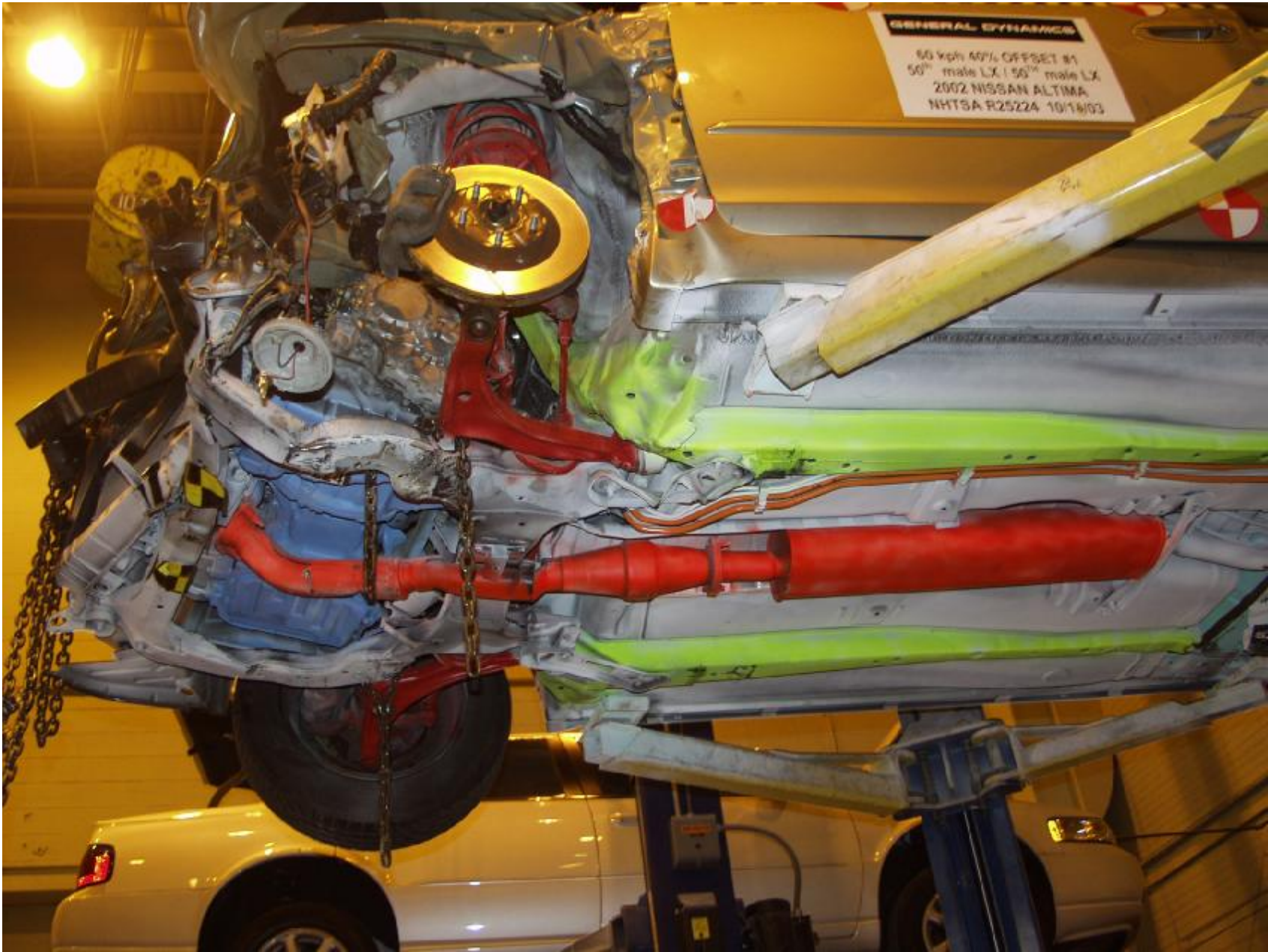


Figure A-71 : POST-TEST UNDERBODY OVERALL



Figure A-72 : PRE-TEST UNDERBODY FRONT STRUCTURE



Figure A-73 : POST-TEST UNDERBODY FRONT STRUCTURE

APPENDIX B

DUMMY, VEHICLE AND LOAD CELL BARRIER RESPONSE DATA

**Hybrid III Dummy Sign Conventions
Load Cells and Special Transducers**

Transducer	SAE Sign Convention (positive unless noted)
Upper Neck Load Cell	Fx Head rearward, Chest Forward Fy Head leftward, Chest rightward Fz Head Upward, Chest Downward Mx Left ear toward left shoulder My Chin toward sternum (flexion) Mz Chin toward left shoulder (look left)
Chest Displacement Potentiometer	Compression is negative
Pelvic Load Cell (Lower Lumbar)	Fx Chest rearward Fy Chest left Fz Spine in tension
Femur Load Cell (right and left leg)	Fx Knee Upward, Upper Femur Downward Fy Knee Rightward, Upper Femur Leftward Fz Knee Forward, Pelvis Rearward Mx Knee Leftward, Hold Upper Femur in Place My Knee Upward, Hold Upper Femur in Place Mz Tibia Leftward, Hold Pelvis in Place
Upper Tibia Load Cell (right and left leg)	Fx Ankle Forward, Knee Rearward Fy Ankle Rightward, Knee Leftward Fz Tibia Downward, Femur Upward Mx Ankle Leftward, Hold Knee in Place My Ankle Forward, Bottom of Knee Clevis Rearward
Lower Tibia Load Cell (right and left leg)	Fx Ankle Forward, Knee Rearward Fy Ankle Rightward, Knee Leftward Fz Tibia Downward, Femur Upward Mx Ankle Leftward, Hold Knee in Place My Ankle Forward, Bottom of Knee Clevis Rearward
Knee Shear Displacement	X Hold Femur Move Tibia Forward
Tibia Mid-Shaft Accelerometer	X Forward Y To the Right
Foot Rotations (left foot)	X Eversion Y Dorsi Flexion Z Internal Rotation
Foot Rotations (right foot)	X Inversion Y Dorsi Flexion Z External Rotation
Foot Accelerometer (right and left foot)	X Forward Y To the Right Z Down

DATA CHANNEL FILTER CLASS SUMMARY

NHTSA TEST NO. R25224

DATA TYPE	SAE FILTER CLASS (Hz)
Dummy Head Accelerations	1000
Dummy Neck Forces	1000
Dummy Neck Moments	600
Dummy Chest Accelerations	180
Dummy Chest Displacements	60
Dummy Femur Forces	600
Dummy Femur Moments	600
Dummy Knee Displacement	180
Dummy Tibia Accelerations	600
Dummy Tibia Forces	600
Dummy Tibia Moments	600
Dummy Ankle Rotations	180
Dummy Foot Accelerations	600
Dummy Belt Displacements	180
Dummy Belt Loads	60
Vehicle Accelerations	60
Vehicle Velocity Integrations	180
Vehicle Displacement Integrations	180
Load Cell Barrier Forces	60

PLOT	PLOT NAME[UNITS, CHANNEL FILTER CLASS]	PAGE
1	V1P1 Head 9 Array X Arm Ay [g, CFC_1000]	B-10
2	V1P1 Head 9 Array X Arm Az [g, CFC_1000]	B-11
3	V1P1 Head 9 Array Y Arm Ax [g, CFC_1000]	B-12
4	V1P1 Head 9 Array Y Arm Az [g, CFC_1000]	B-13
5	V1P1 Head 9 Array Z Arm Ax [g, CFC_1000]	B-14
6	V1P1 Head 9 Array Z Arm Ay [g, CFC_1000]	B-15
7	V1P1 Head x [g, CFC_1000]	B-16
8	V1P1 Head y [g, CFC_1000]	B-17
9	V1P1 Head z [g, CFC_1000]	B-18
10	V1P1 Head Resultant [g, CFC_1000]	B-19
11	V1P1 Head Red x [g, CFC_1000]	B-20
12	V1P1 Head Red y [g, CFC_1000]	B-21
13	V1P1 Head Red z [g, CFC_1000]	B-22
14	V1P1 Head Red Resultant [g, CFC_1000]	B-23
15	V1P1 Upper Neck Fx [N, CFC_1000]	B-24
16	V1P1 Upper Neck Fy [N, CFC_1000]	B-25
17	V1P1 Upper Neck Fz [N, CFC_1000]	B-26
18	V1P1 Upper Neck F Resultant [N, CFC_1000]	B-27
19	V1P1 Upper Neck Mx [N-m, CFC_600]	B-28
20	V1P1 Upper Neck My [N-m, CFC_600]	B-29
21	V1P1 Upper Neck Mz [N-m, CFC_600]	B-30
22	V1P1 Upper Neck M Resultant [N-m, CFC_600]	B-31
23	V1P1 Lower Neck Fx [N, CFC_1000]	B-32
24	V1P1 Lower Neck Fy [N, CFC_1000]	B-33
25	V1P1 Lower Neck Fz [N, CFC_1000]	B-34
26	V1P1 Lower Neck F Resultant [N, CFC_1000]	B-35
27	V1P1 Lower Neck Mx [N-m, CFC_600]	B-36
28	V1P1 Lower Neck My [N-m, CFC_600]	B-37
29	V1P1 Lower Neck Mz [N-m, CFC_600]	B-38
30	V1P1 Lower Neck M Resultant [N-m, CFC_600]	B-39
31	V1P1 Chest x [g, CFC_180]	B-40
32	V1P1 Chest y [g, CFC_180]	B-41
33	V1P1 Chest z [g, CFC_180]	B-42
34	V1P1 Chest Resultant [g, CFC_180]	B-43
35	V1P1 Chest Red x [g, CFC_180]	B-44
36	V1P1 Chest Red y [g, CFC_180]	B-45
37	V1P1 Chest Red z [g, CFC_180]	B-46
38	V1P1 Chest Red Resultant [g, CFC_180]	B-47
39	V1P1 Chest Displacement [mm, CFC_600]	B-48
40	V1P1 Left Femur [N, CFC_600]	B-49
41	V1P1 Right Femur [N, CFC_600]	B-50
42	V1P1 Left Knee Shear [mm, CFC_180]	B-51
43	V1P1 Right Knee Shear [mm, CFC_180]	B-52
44	V1P1 Left Upper Tibia Fx [N, CFC_600]	B-53
45	V1P1 Left Upper Tibia Fz [N, CFC_600]	B-54
46	V1P1 Left Upper Tibia Mx [N-m, CFC_600]	B-55

47	V1P1 Left Upper Tibia My [N-m, CFC_600]	B-56
48	V1P1 Left Lower Tibia Fx [N, CFC_600]	B-57
49	V1P1 Left Lower Tibia Fy [N, CFC_600]	B-58
50	V1P1 Left Lower Tibia Fz [N, CFC_600]	B-59
51	V1P1 Left Lower Tibia F Resultant [N, CFC_600]	B-60
52	V1P1 Left Lower Tibia Mx [N-m, CFC_600]	B-61
53	V1P1 Left Lower Tibia My [N-m, CFC_600]	B-62
54	V1P1 Right Upper Tibia Fx [N, CFC_600]	B-63
55	V1P1 Right Upper Tibia Fz [N, CFC_600]	B-64
56	V1P1 Right Upper Tibia Mx [N-m, CFC_600]	B-65
57	V1P1 Right Upper Tibia My [N-m, CFC_600]	B-66
58	V1P1 Right Lower Tibia Fx [N, CFC_600]	B-67
59	V1P1 Right Lower Tibia Fy [N, CFC_600]	B-68
60	V1P1 Right Lower Tibia Fz [N, CFC_600]	B-69
61	V1P1 Right Lower Tibia F Resultant [N, CFC_600]	B-70
62	V1P1 Right Lower Tibia Mx [N-m, CFC_600]	B-71
63	V1P1 Right Lower Tibia My [N-m, CFC_600]	B-72
64	V1P1 Left Tibia x [g, CFC_600]	B-73
65	V1P1 Left Tibia y [g, CFC_600]	B-74
66	V1P1 Right Tibia x [g, CFC_600]	B-75
67	V1P1 Right Tibia y [g, CFC_600]	B-76
68	V1P1 Left Ankle Rotation x [deg, CFC_180]	B-77
69	V1P1 Left Ankle Rotation y [deg, CFC_180]	B-78
70	V1P1 Left Ankle Rotation z [deg, CFC_180]	B-79
71	V1P1 Right Ankle Rotation x [deg, CFC_180]	B-80
72	V1P1 Right Ankle Rotation y [deg, CFC_180]	B-81
73	V1P1 Right Ankle Rotation z [deg, CFC_180]	B-82
74	V1P1 Left Foot Ax [g, CFC_600]	B-83
75	V1P1 Left Foot Ay [g, CFC_600]	B-84
76	V1P1 Left Foot Az [g, CFC_600]	B-85
77	V1P1 Left Foot A Resultant [g, CFC_600]	B-86
78	V1P1 Right Foot x [g, CFC_600]	B-87
79	V1P1 Right Foot y [g, CFC_600]	B-88
80	V1P1 Right Foot z [g, CFC_600]	B-89
81	V1P1 Right Foot Resultant [g, CFC_600]	B-90
82	V1P1 Lap Belt Load [N, CFC_60]	B-91
83	V1P1 Shoulder Belt Load [N, CFC_60]	B-92
84	V1P1 Air Bag T/E	B-93
85	V1P1 Toe Pan Deflection [mm, CFC_1000]	B-94
86	V1P2 Head 9 Array x Arm Ay [g, CFC_1000]	B-95
87	V1P2 Head 9 Array x Arm Az [g, CFC_1000]	B-96
88	V1P2 Head 9 Array y Arm Ax [g, CFC_1000]	B-97
89	V1P2 Head 9 Array y Arm Az [g, CFC_1000]	B-98
90	V1P2 Head 9 Array z Arm Ax [g, CFC_1000]	B-99
91	V1P2 Head 9 Array z Arm Ay [g, CFC_1000]	B-100
92	V1P2 Head x [g, CFC_1000]	B-101
93	V1P2 Head y [g, CFC_1000]	B-102

94	V1P2 Head z [g, CFC_1000]	B-103
95	V1P2 Head Resultant [g, CFC_1000]	B-104
96	V1P2 Head Red x [g, CFC_1000]	B-105
97	V1P2 Head Red y [g, CFC_1000]	B-106
98	V1P2 Head Red z [g, CFC_1000]	B-107
99	V1P2 Head Red Resultant [g, CFC_1000]	B-108
100	V1P2 Upper Neck Fx [N, CFC_1000]	B-109
101	V1P2 Upper Neck Fy [N, CFC_1000]	B-110
102	V1P2 Upper Neck Fz [N, CFC_1000]	B-111
103	V1P2 Upper Neck F Resultant [N, CFC_1000]	B-112
104	V1P2 Upper Neck Mx [N-m, CFC_600]	B-113
105	V1P2 Upper Neck My [N-m, CFC_600]	B-114
106	V1P2 Upper Neck Mz [N-m, CFC_600]	B-115
107	V1P2 Upper Neck M Resultant [N-m, CFC_600]	B-116
108	V1P2 Chest x [g, CFC_180]	B-117
109	V1P2 Chest y [g, CFC_180]	B-118
110	V1P2 Chest z [g, CFC_180]	B-119
111	V1P2 Chest Resultant [g, CFC_180]	B-120
112	V1P2 Chest Red x [g, CFC_180]	B-121
113	V1P2 Chest Red y [g, CFC_180]	B-122
114	V1P2 Chest Red z [g, CFC_180]	B-123
115	V1P2 Chest Red Resultant [g, CFC_180]	B-124
116	V1P2 Chest Displacement [mm, CFC_600]	B-125
117	V1P2 Left Femur [N, CFC_600]	B-126
118	V1P2 Right Femur [N, CFC_600]	B-127
119	V1P2 Left Knee Shear [mm, CFC_180]	B-128
120	V1P2 Right Knee Shear [mm, CFC_180]	B-129
121	V1P2 Left Upper Tibia Fx [N, CFC_600]	B-130
122	V1P2 Left Upper Tibia Fz [N, CFC_600]	B-131
123	V1P2 Left Upper Tibia Mx [N-m, CFC_600]	B-132
124	V1P2 Left Upper Tibia My [N-m, CFC_600]	B-133
125	V1P2 Left Lower Tibia Fx [N, CFC_600]	B-134
126	V1P2 Left Lower Tibia Fy [N, CFC_600]	B-135
127	V1P2 Left Lower Tibia Fz [N, CFC_600]	B-136
128	V1P2 Left Lower Tibia F Resultant [N, CFC_600]	B-137
129	V1P2 Left Lower Tibia Mx [N-m, CFC_600]	B-138
130	V1P2 Left Lower Tibia My [N-m, CFC_600]	B-139
131	V1P2 Right Upper Tibia Fx [N, CFC_600]	B-140
132	V1P2 Right Upper Tibia Fz [N, CFC_600]	B-141
133	V1P2 Right Upper Tibia Mx [N-m, CFC_600]	B-142
134	V1P2 Right Upper Tibia My [N-m, CFC_600]	B-143
135	V1P2 Right Lower Tibia Fx [N, CFC_600]	B-144
136	V1P2 Right Lower Tibia Fy [N, CFC_600]	B-145
137	V1P2 Right Lower Tibia Fz [N, CFC_600]	B-146
138	V1P2 Right Lower Tibia F Resultant [N, CFC_600]	B-147
139	V1P2 Right Lower Tibia Mx [N-m, CFC_600]	B-148
140	V1P2 Right Lower Tibia My [N-m, CFC_600]	B-149

141	V1P2 Left Tibia x [g, CFC_600]	B-150
142	V1P2 Left Tibia y [g, CFC_600]	B-151
143	V1P2 Right Tibia x [g, CFC_600]	B-152
144	V1P2 Right Tibia y [g, CFC_600]	B-153
145	V1P2 Left Ankle Rotation x [deg, CFC_180]	B-154
146	V1P2 Left Ankle Rotation y [deg, CFC_180]	B-155
147	V1P2 Left Ankle Rotation z [deg, CFC_180]	B-156
148	V1P2 Right Ankle Rotation x [deg, CFC_180]	B-157
149	V1P2 Right Ankle Rotation y [deg, CFC_180]	B-158
150	V1P2 Right Ankle Rotation z [deg, CFC_180]	B-159
151	V1P2 Left Foot x [g, CFC_600]	B-160
152	V1P2 Left Foot y [g, CFC_600]	B-161
153	V1P2 Left Foot z [g, CFC_600]	B-162
154	V1P2 Left Foot Resultant [g, CFC_600]	B-163
155	V1P2 Right Foot x [g, CFC_600]	B-164
156	V1P2 Right Foot y [g, CFC_600]	B-165
157	V1P2 Right Foot z [g, CFC_600]	B-166
158	V1P2 Right Foot Resultant [g, CFC_600]	B-167
159	V1P2 Lap Belt Load [N, CFC_60]	B-168
160	V1P2 Shoulder Belt Load [N, CFC_60]	B-169
161	V1P2 Air Bag T/E	B-170
162	V1 LR Seat Xmember x [g, CFC_60]	B-171
163	V1 LR Seat Xmember x Velocity [kph, CFC_180]	B-172
164	V1 LR Seat Xmember x Displacement [mm, CFC_180]	B-173
165	V1 LR Seat Xmember y [g, CFC_60]	B-174
166	V1 LR Seat Xmember y Velocity [kph, CFC_180]	B-175
167	V1 LR Seat Xmember y Displacement [mm, CFC_180]	B-176
168	V1 RR Seat Xmember x [g, CFC_60]	B-177
169	V1 RR Seat Xmember x Velocity [kph, CFC_180]	B-178
170	V1 RR Seat Xmember x Displacement [mm, CFC_180]	B-179
171	V1 RR Seat Xmember y [g, CFC_60]	B-180
172	V1 RR Seat Xmember y Velocity [kph, CFC_180]	B-181
173	V1 RR Seat Xmember y Displacement [mm, CFC_180]	B-182
174	V1 P1 Left Toepan x [g, CFC_60]	B-183
175	V1 P1 Left Toepan x Velocity [kph, CFC_180]	B-184
176	V1 P1 Left Toepan x Displacement [mm, CFC_180]	B-185
177	V1 P1 Left Toepan z [g, CFC_60]	B-186
178	V1 P1 Left Toepan z Velocity [kph, CFC_180]	B-187
179	V1 P1 Left Toepan z Displacement [mm, CFC_180]	B-188
180	V1 P1 Right Toepan x [g, CFC_60]	B-189
181	V1 P1 Right Toepan x Velocity [kph, CFC_180]	B-190
182	V1 P1 Right Toepan x Displacement [mm, CFC_180]	B-191
183	V1 P1 Right Toepan z [g, CFC_60]	B-192
184	V1 P1 Right Toepan z Velocity [kph, CFC_180]	B-193
185	V1 P1 Right Toepan z Displacement [mm, CFC_180]	B-194
186	V1 CG x [g, CFC_60]	B-195
187	V1 CG x Velocity [kph, CFC_180]	B-196

188	V1 CG x Displacement [mm, CFC_180]	B-197
189	V1 CG y [g, CFC_60]	B-198
190	V1 CG y Velocity [kph, CFC_180]	B-199
191	V1 CG y Displacement [mm, CFC_180]	B-200
192	V1 CG z [g, CFC_60]	B-201
193	V1 CG z Velocity [kph, CFC_180]	B-202
194	V1 CG z Displacement [mm, CFC_180]	B-203
195	V1 CG Resultant [g, CFC_60]	B-204
196	V1 Rear Deck z [g, CFC_60]	B-205
197	V1 Rear Deck z Velocity [kph, CFC_180]	B-206
198	V1 Rear Deck z Displacement [mm, CFC_180]	B-207
199	Barrier Load Cell H1 FX [N, CFC_60]	B-208
200	Barrier Load Cell H2 FX [N, CFC_60]	B-209
201	Barrier Load Cell H3 FX [N, CFC_60]	B-210
202	Barrier Load Cell H4 FX [N, CFC_60]	B-211
203	Barrier Load Cell G1 FX [N, CFC_60]	B-212
204	Barrier Load Cell G2 FX [N, CFC_60]	B-213
205	Barrier Load Cell G3 FX [N, CFC_60]	B-214
206	Barrier Load Cell G4 FX [N, CFC_60]	B-215
207	Barrier Load Cell F1 FX [N, CFC_60]	B-216
208	Barrier Load Cell F2 FX [N, CFC_60]	B-217
209	Barrier Load Cell F3 FX [N, CFC_60]	B-218
210	Barrier Load Cell F4 FX [N, CFC_60]	B-219
211	Barrier Load Cell F5 FX [N, CFC_60]	B-220
212	Barrier Load Cell F6 FX [N, CFC_60]	B-221
213	Barrier Load Cell F7 FX [N, CFC_60]	B-222
214	Barrier Load Cell E1 FX [N, CFC_60]	B-223
215	Barrier Load Cell E2 FX [N, CFC_60]	B-224
216	Barrier Load Cell E3 FX [N, CFC_60]	B-225
217	Barrier Load Cell E4 FX [N, CFC_60]	B-226
218	Barrier Load Cell E5 FX [N, CFC_60]	B-227
219	Barrier Load Cell E6 FX [N, CFC_60]	B-228
220	Barrier Load Cell E7 FX [N, CFC_60]	B-229
221	Barrier Load Cell D1 FX [N, CFC_60]	B-230
222	Barrier Load Cell D2 FX [N, CFC_60]	B-231
223	Barrier Load Cell D3 FX [N, CFC_60]	B-232
224	Barrier Load Cell D4 FX [N, CFC_60]	B-233
225	Barrier Load Cell D5 FX [N, CFC_60]	B-234
226	Barrier Load Cell D6 FX [N, CFC_60]	B-235
227	Barrier Load Cell D7 FX [N, CFC_60]	B-236
228	Barrier Load Cell C1 FX [N, CFC_60]	B-237
229	Barrier Load Cell C2 FX [N, CFC_60]	B-238
230	Barrier Load Cell C3 FX [N, CFC_60]	B-239
231	Barrier Load Cell C4 FX [N, CFC_60]	B-240
232	Barrier Load Cell C5 FX [N, CFC_60]	B-241
233	Barrier Load Cell C6 FX [N, CFC_60]	B-242
234	Barrier Load Cell C7 FX [N, CFC_60]	B-243

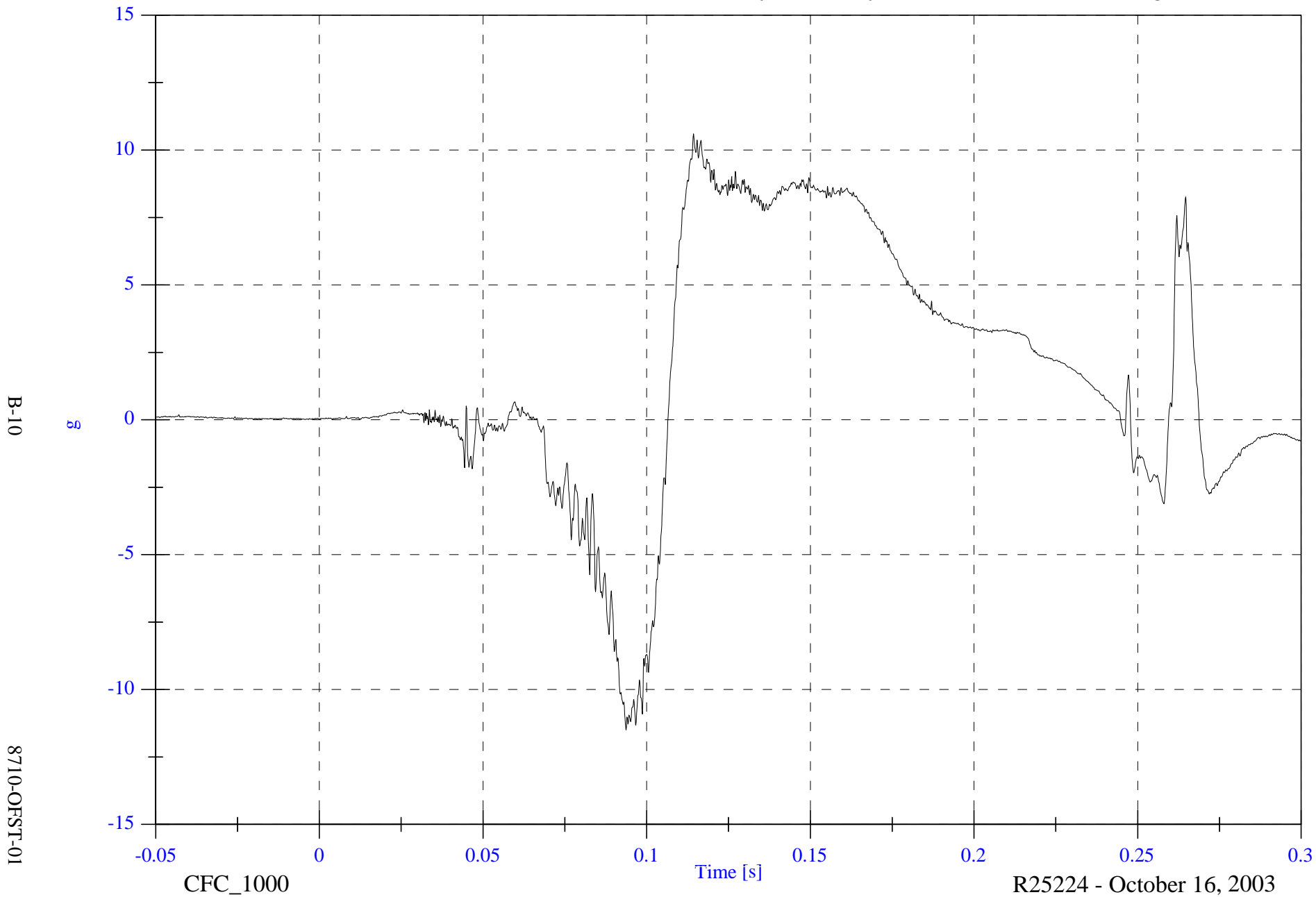
235	Barrier Load Cell B1 FX [N, CFC_60]	B-244
236	Barrier Load Cell B2 FX [N, CFC_60]	B-245
237	Barrier Load Cell B3 FX [N, CFC_60]	B-246
238	Barrier Load Cell B4 FX [N, CFC_60]	B-247
239	Barrier Load Cell B5 FX [N, CFC_60]	B-248
240	Barrier Load Cell B6 FX [N, CFC_60]	B-249
241	Barrier Load Cell B7 FX [N, CFC_60]	B-250
242	Barrier Load Cell A1 FX [N, CFC_60]	B-251
243	Barrier Load Cell A2 FX [N, CFC_60]	B-252
244	Barrier Load Cell A3 FX [N, CFC_60]	B-253
245	Barrier Load Cell A4 FX [N, CFC_60]	B-254
246	Barrier Load Cell A5 FX [N, CFC_60]	B-255
247	Barrier Load Cell A6 FX [N, CFC_60]	B-256
248	Barrier Load Cell A7 FX [N, CFC_60]	B-257

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Head 9 Array X Arm Ay

Max: 10.6 [g] at 0.114 [s]

Min: -11.5 [g] at 0.094 [s]

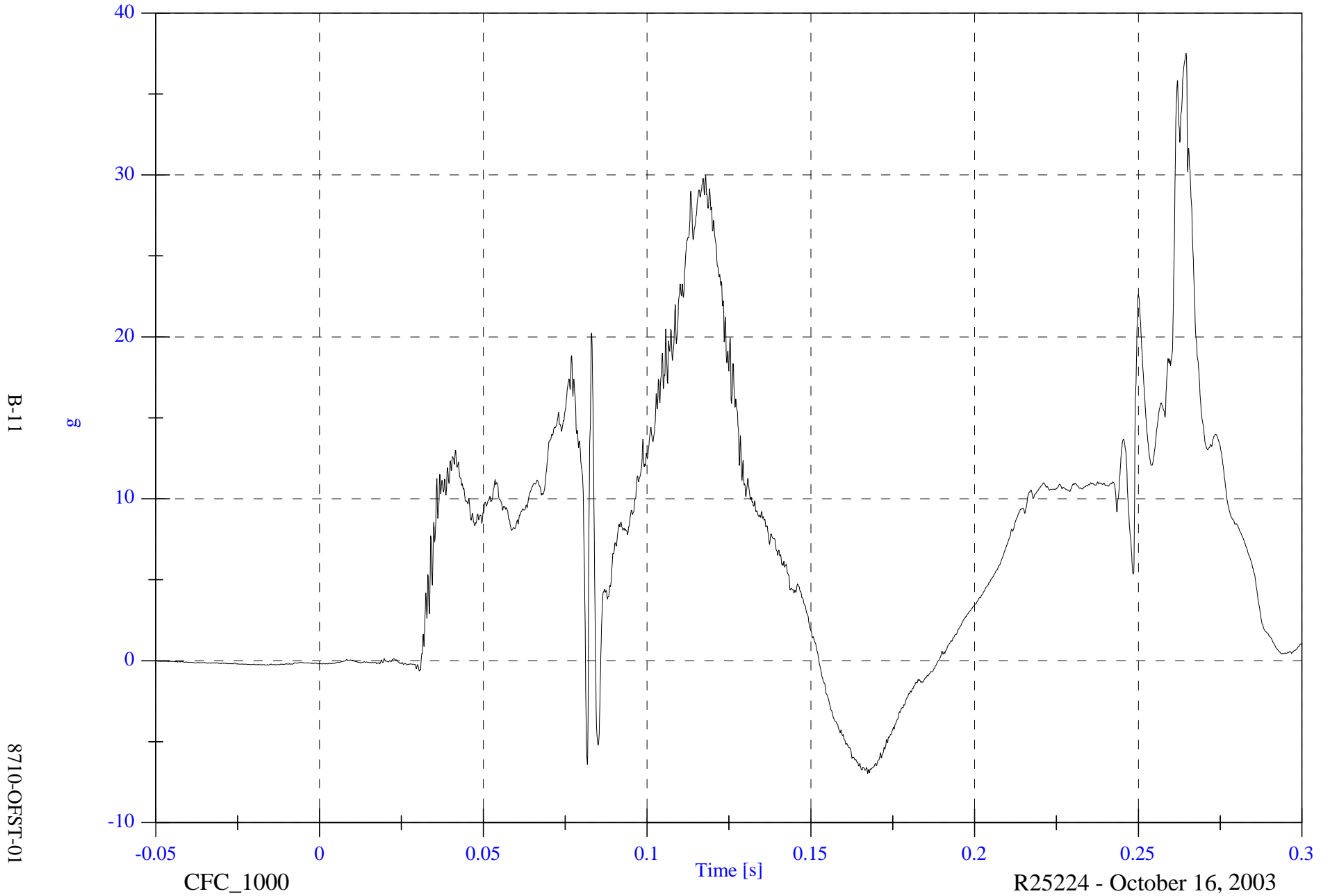


2004 Offset Barrier Test 1 2002 Nissan Altima

VIP1 Head 9 Array X Arm Az

Max: 37.5 [g] at 0.265 [s]

Min: -7.0 [g] at 0.167 [s]



B-11

8710-OFST-01

CFC_1000

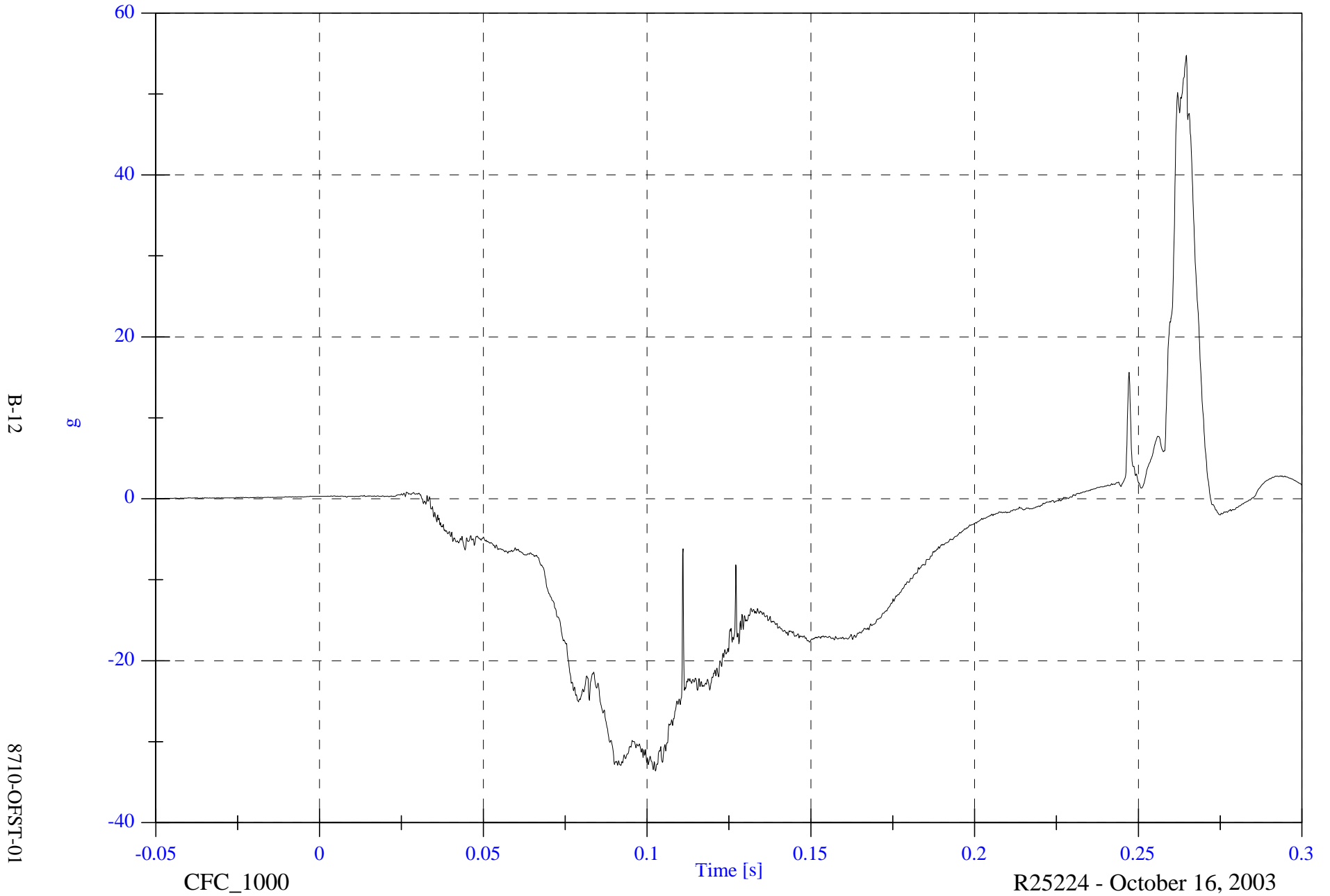
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Head 9 Array Y Arm Ax

Max: 54.8 [g] at 0.265 [s]

Min: -33.6 [g] at 0.103 [s]

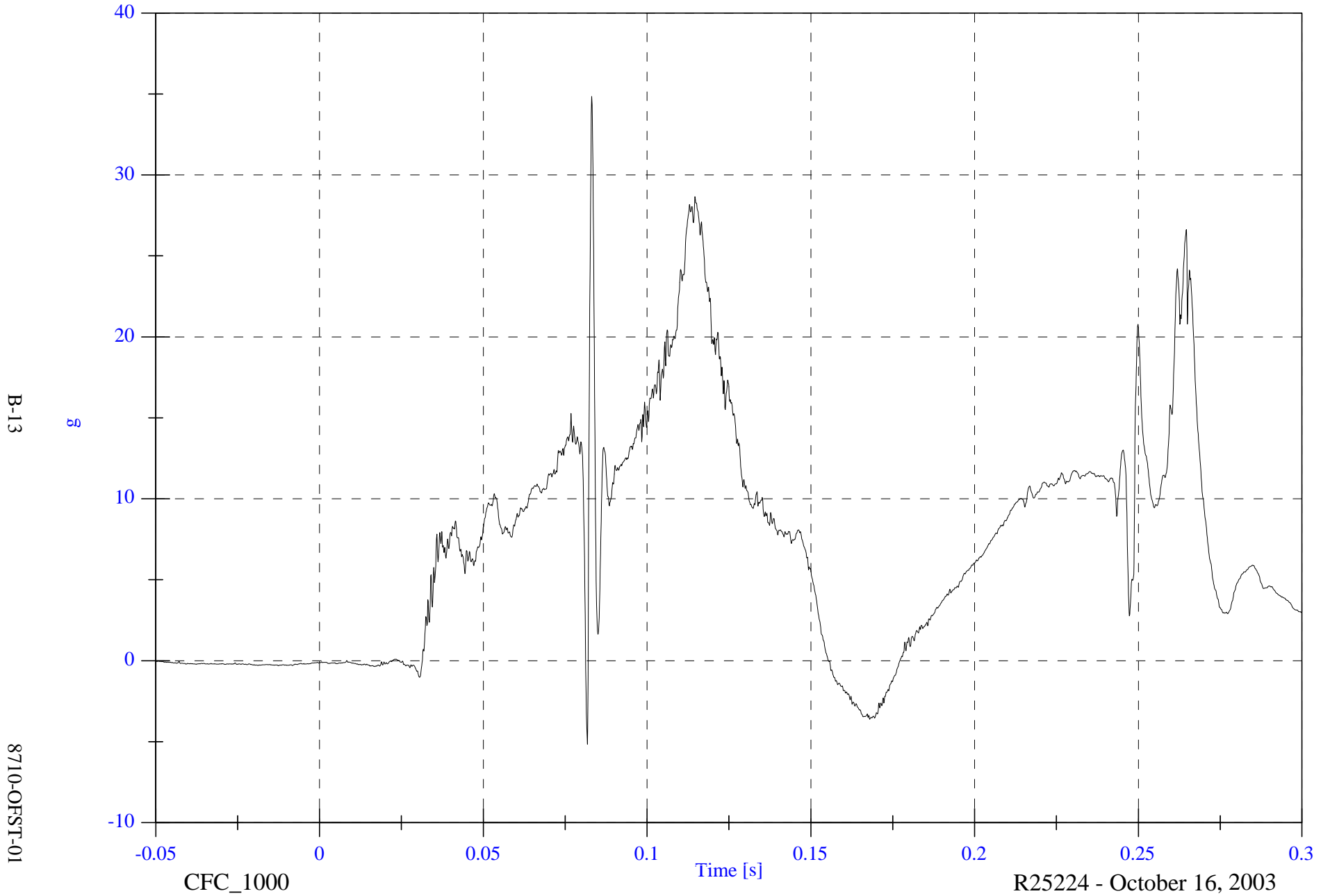


2004 Offset Barrier Test 1 2002 Nissan Altima

VIP1 Head 9 Array Y Arm Az

Max: 34.8 [g] at 0.083 [s]

Min: -5.2 [g] at 0.082 [s]



B-13

8710-OFST-01

CFC_1000

Time [s]

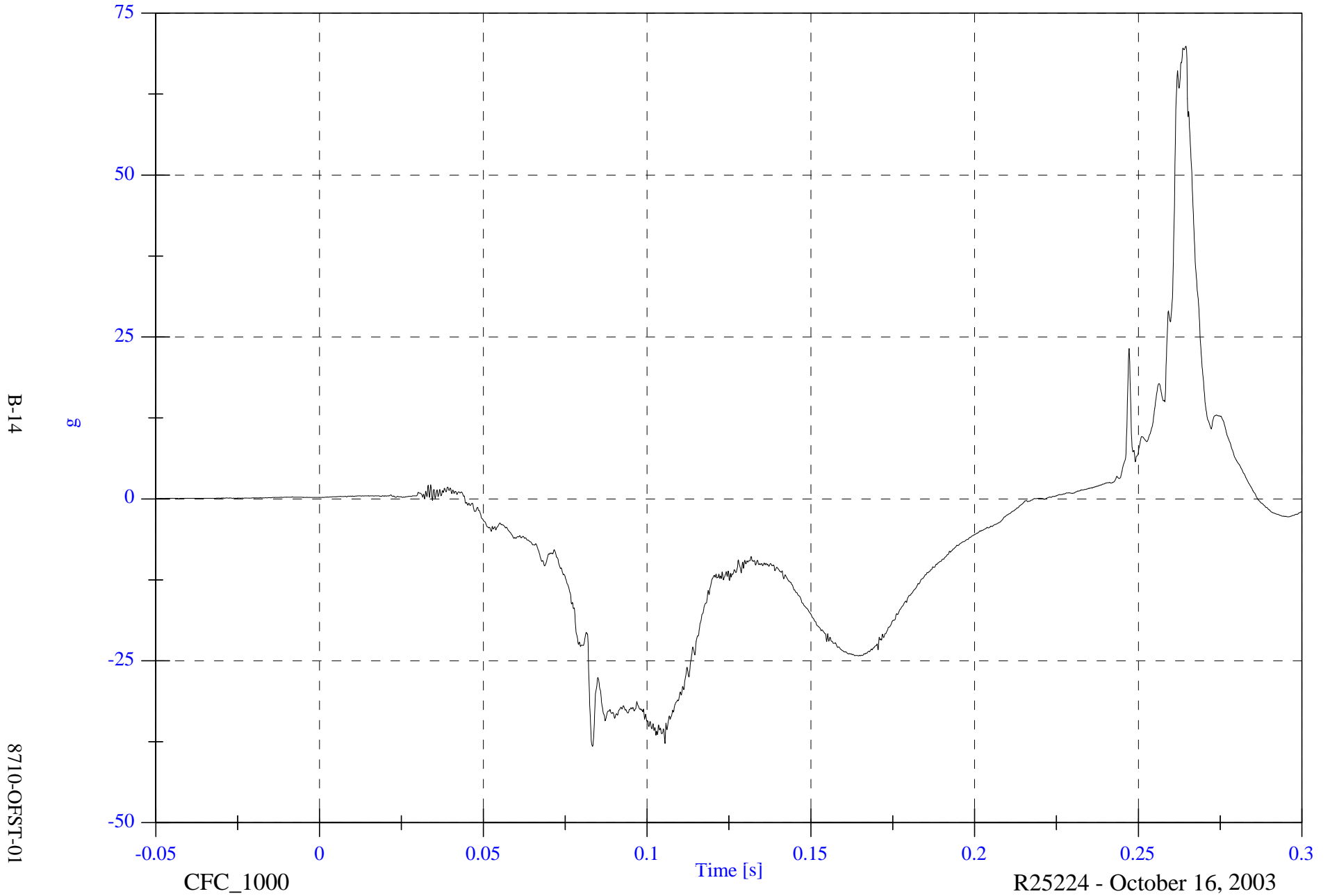
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Head 9 Array Z Arm Ax

Max: 69.9 [g] at 0.265 [s]

Min: -38.2 [g] at 0.083 [s]



B-14

8710-OFST-01

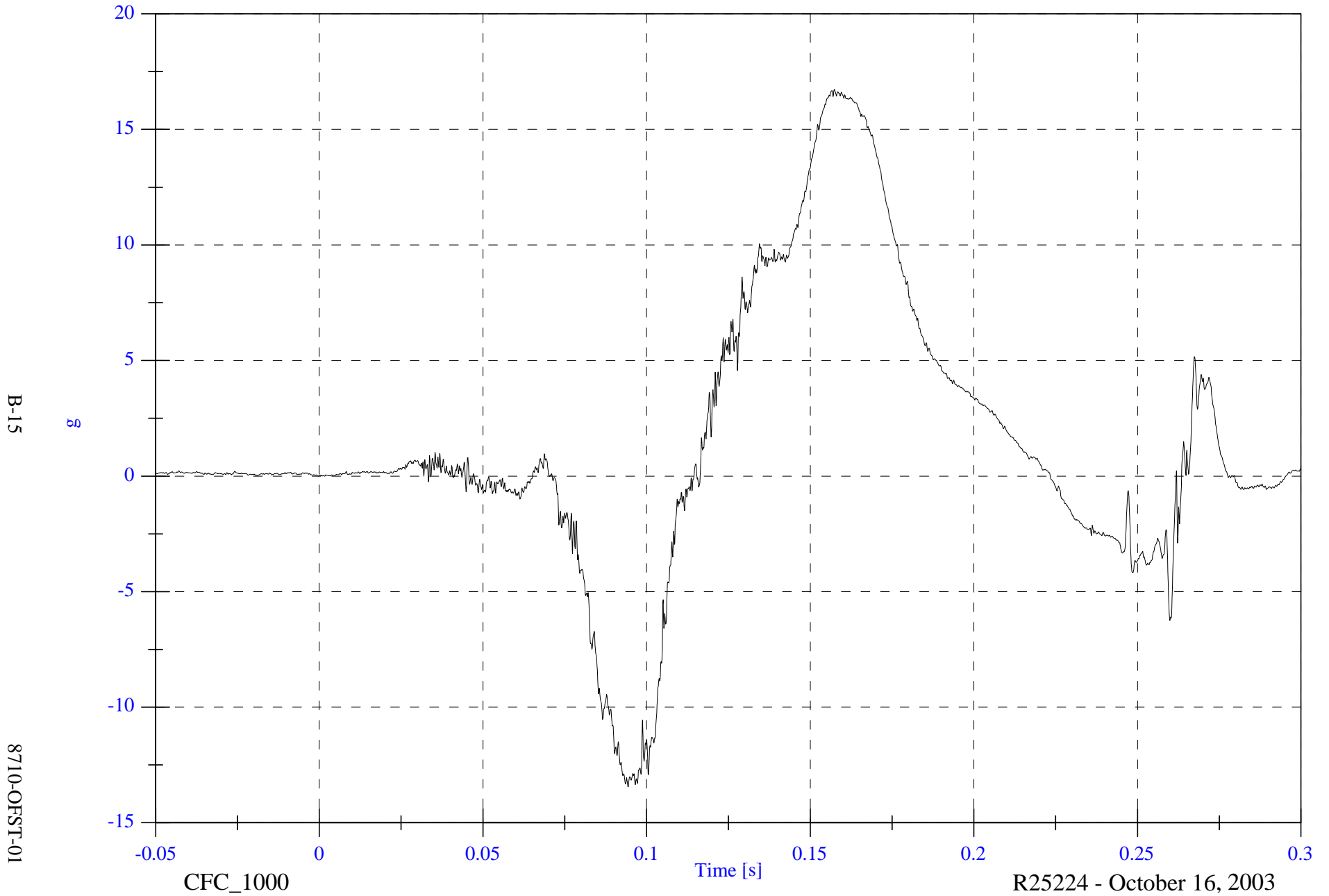
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Head 9 Array Z Arm Ay

Max: 16.7 [g] at 0.157 [s]

Min: -13.4 [g] at 0.094 [s]



B-15

8710-OFST-01

CFC_1000

Time [s]

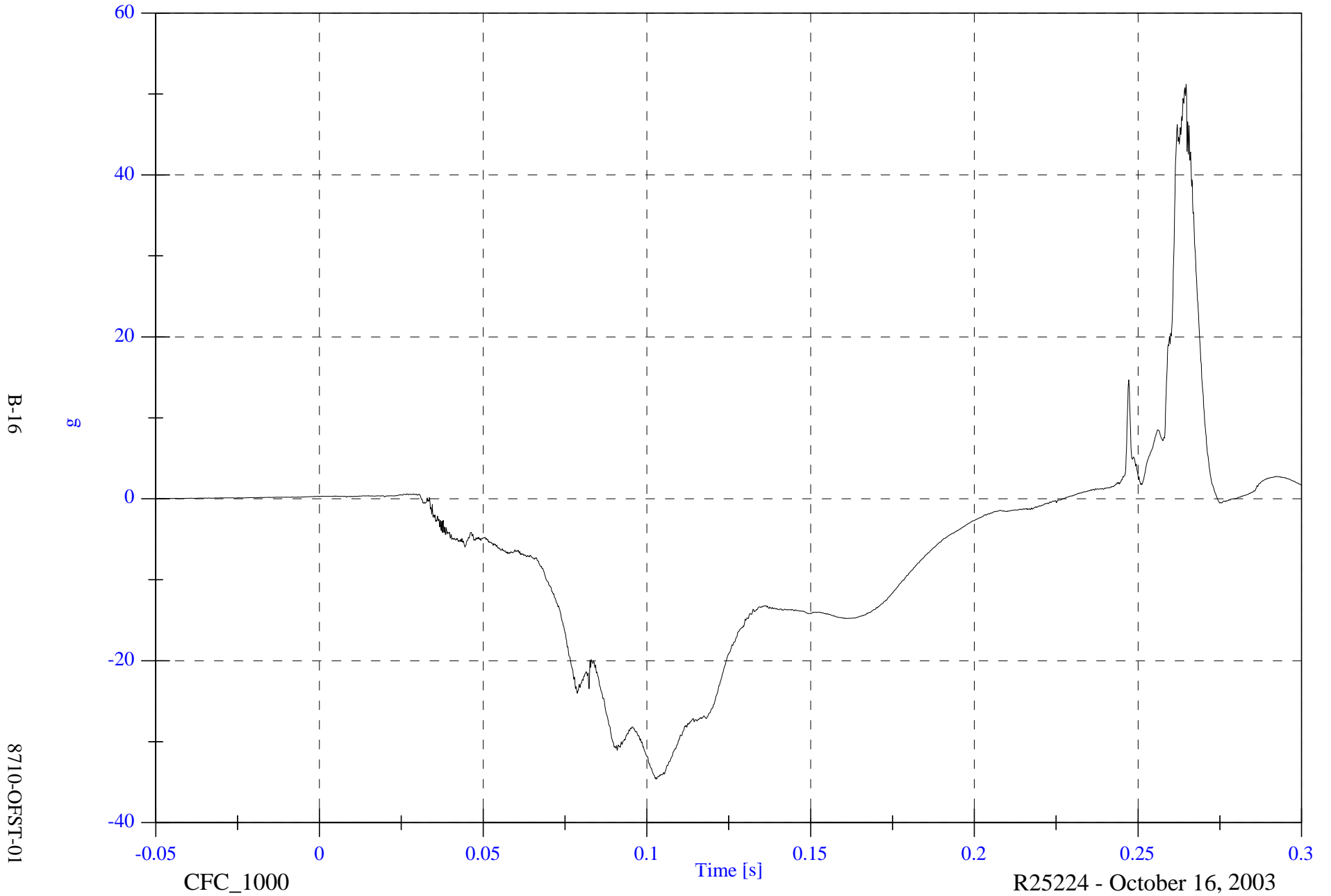
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Head x

Max: 51.2 [g] at 0.265 [s]

Min: -34.6 [g] at 0.103 [s]

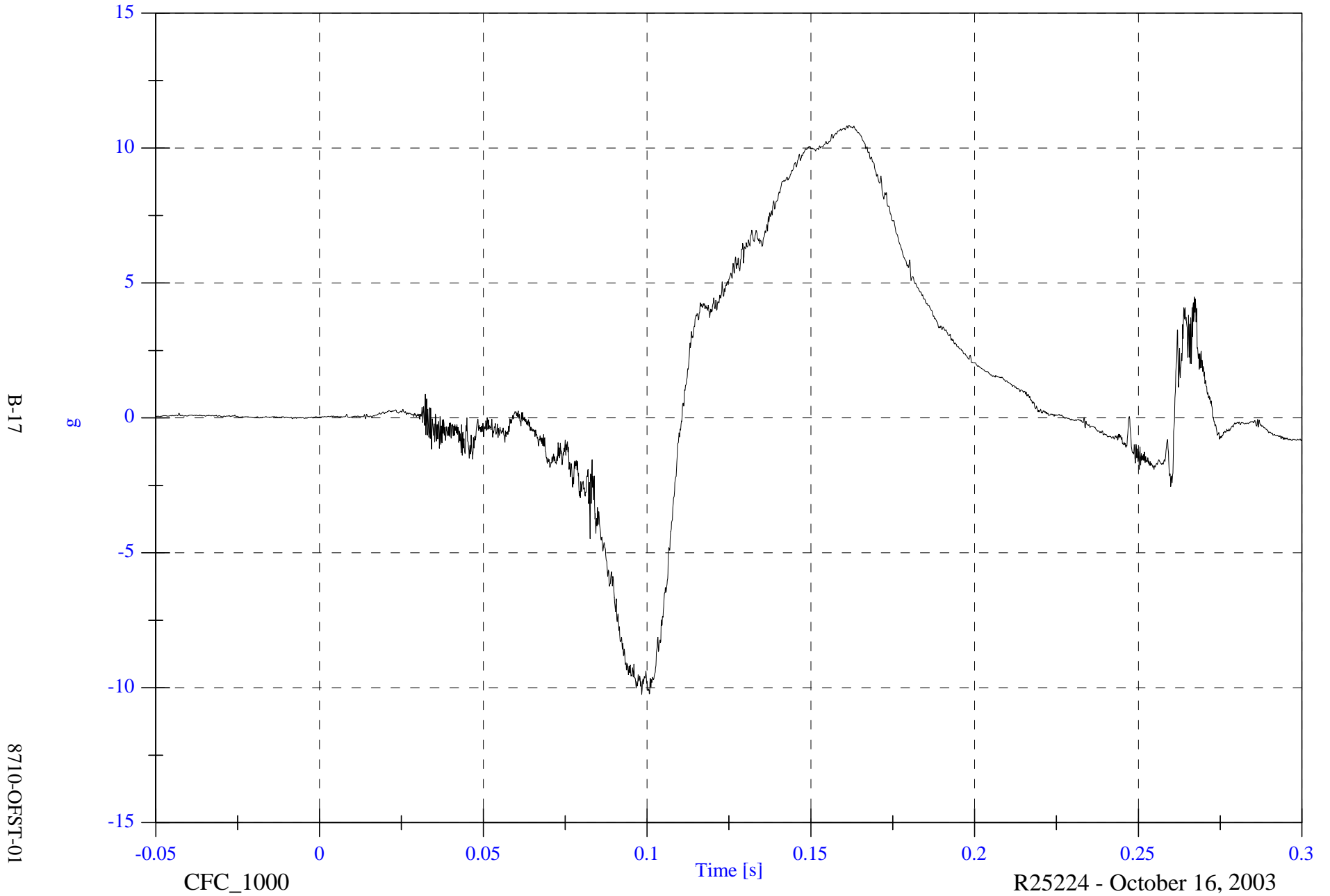


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Head y

Max: 10.8 [g] at 0.162 [s]

Min: -10.3 [g] at 0.098 [s]

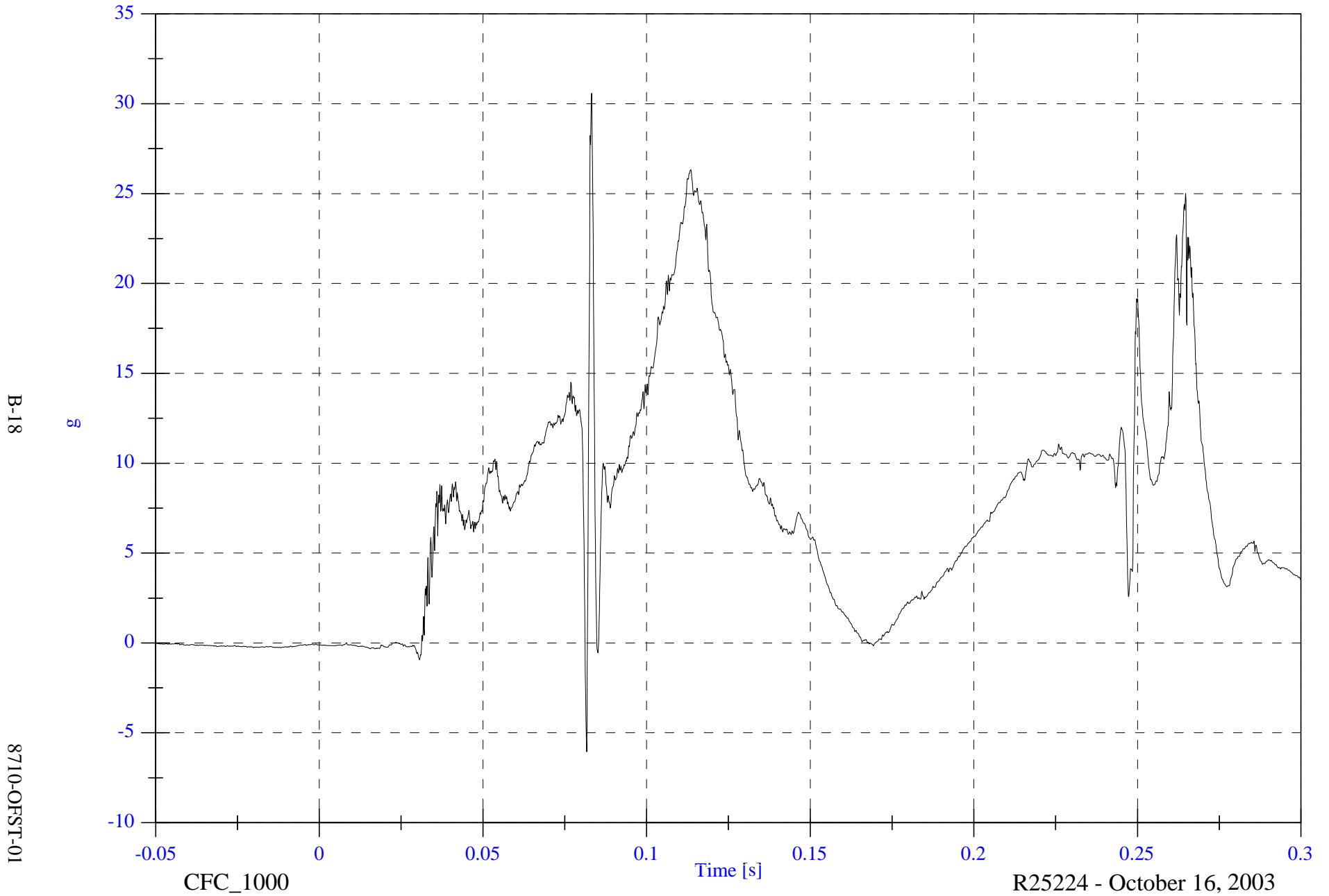


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Head z

Max: 30.6 [g] at 0.083 [s]

Min: -6.0 [g] at 0.082 [s]



B-18

8710-OFST-01

CFC_1000

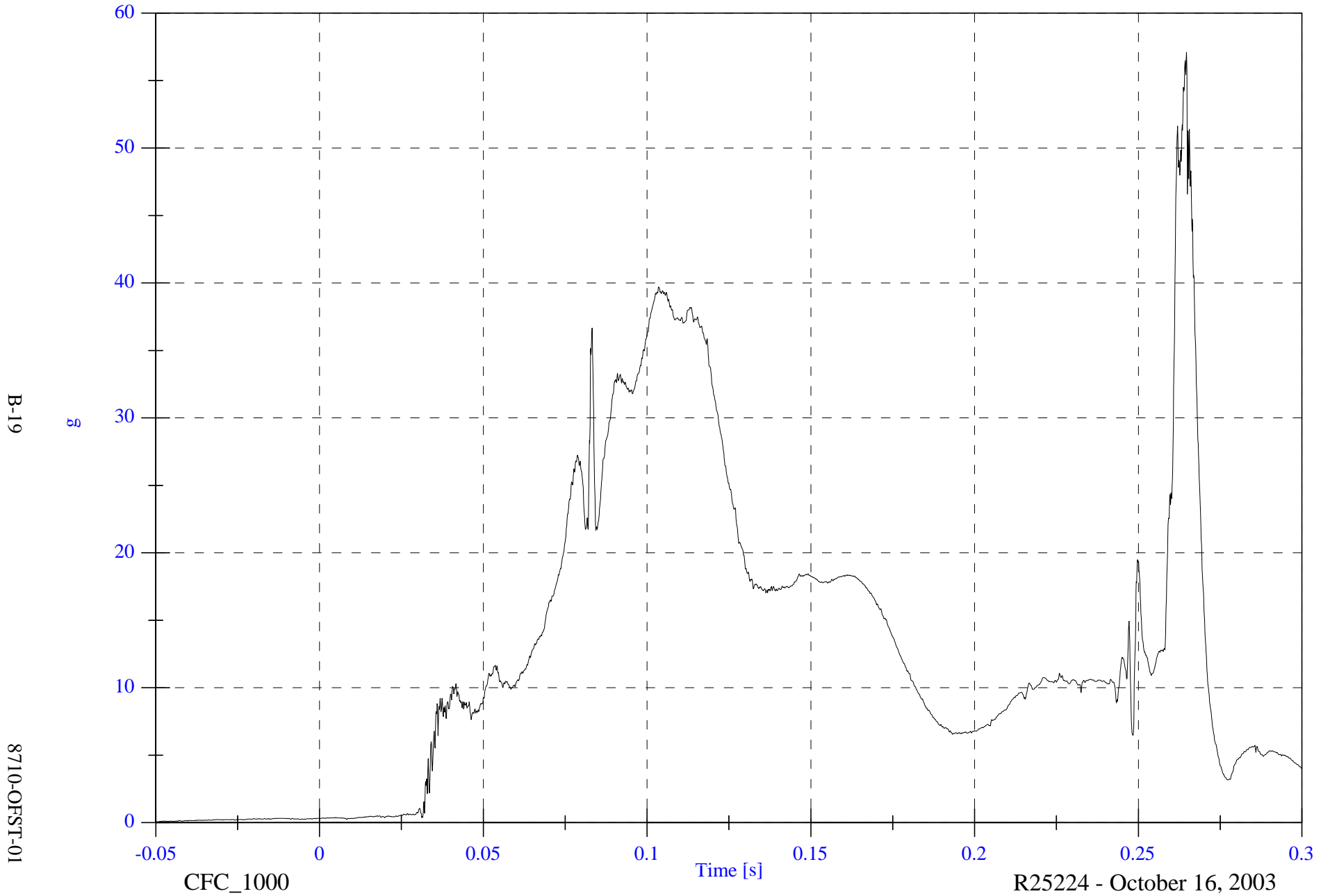
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Head Resultant

Max: 57.1 [g] at 0.265 [s]

Min: 0.1 [g] at -0.050 [s]



B-19

8710-OFST-01

CFC_1000

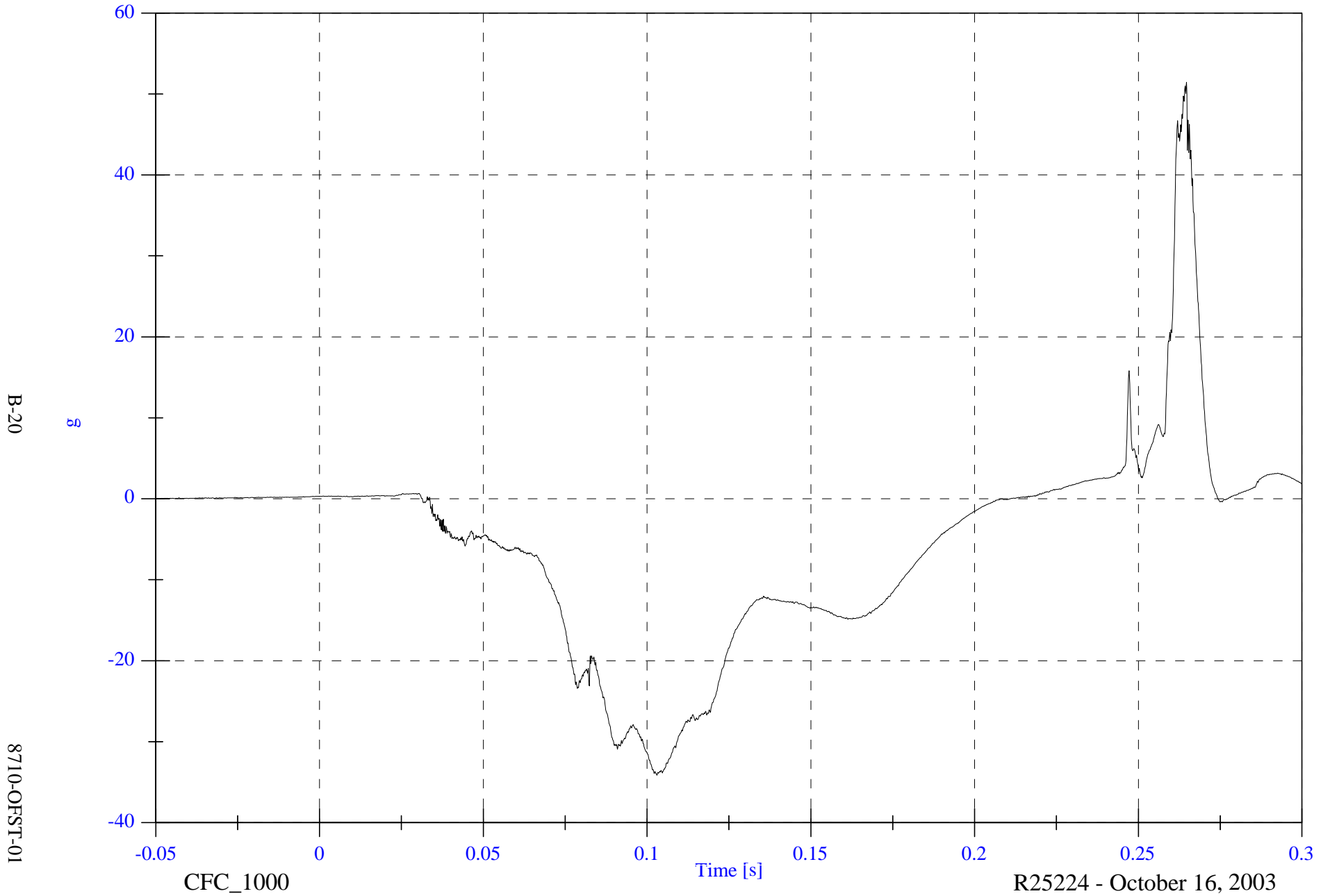
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Head Red x

Max: 51.5 [g] at 0.265 [s]

Min: -34.1 [g] at 0.103 [s]



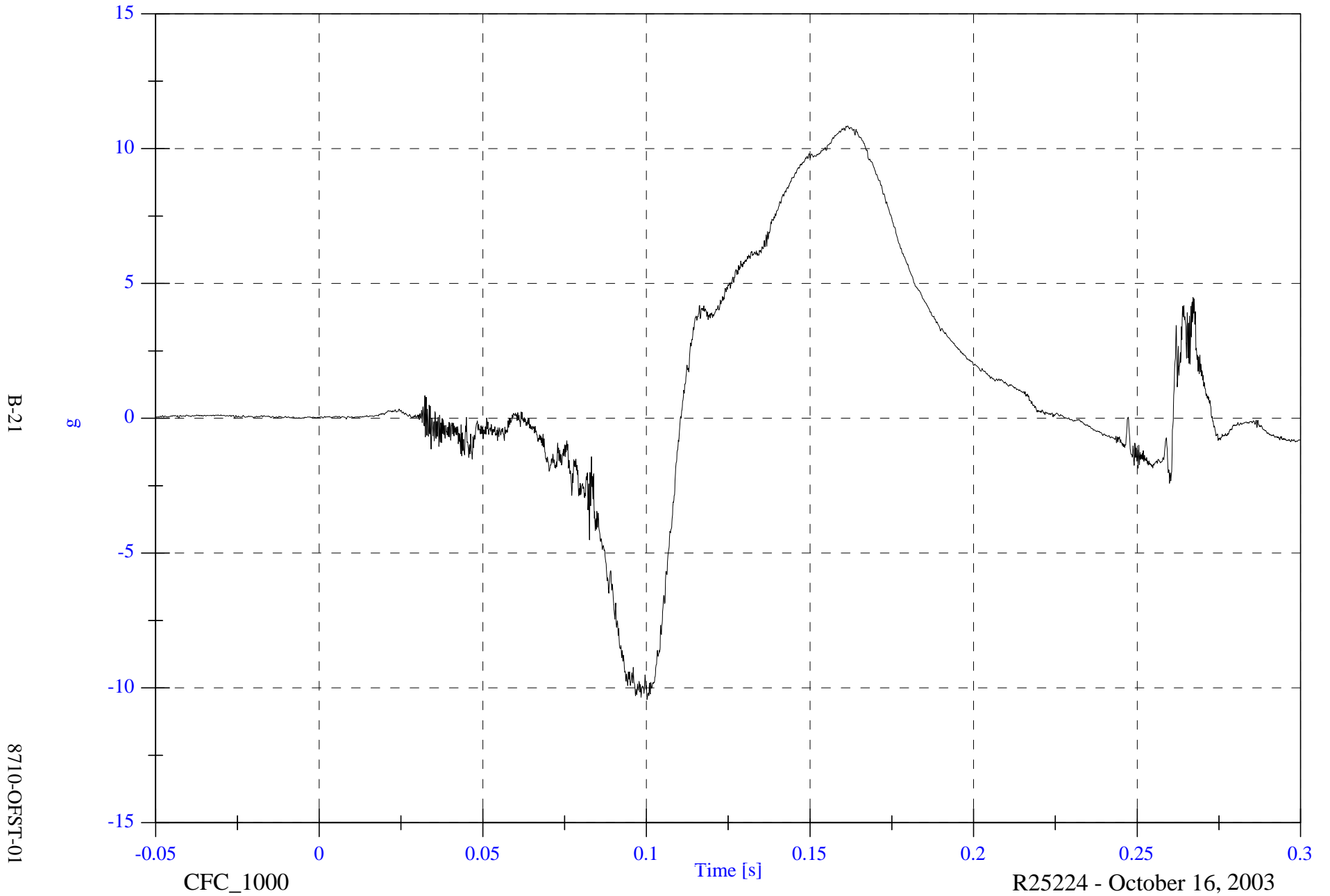
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 10.8 [g] at 0.162 [s]

Min: -10.4 [g] at 0.100 [s]

V1P1 Head Red y

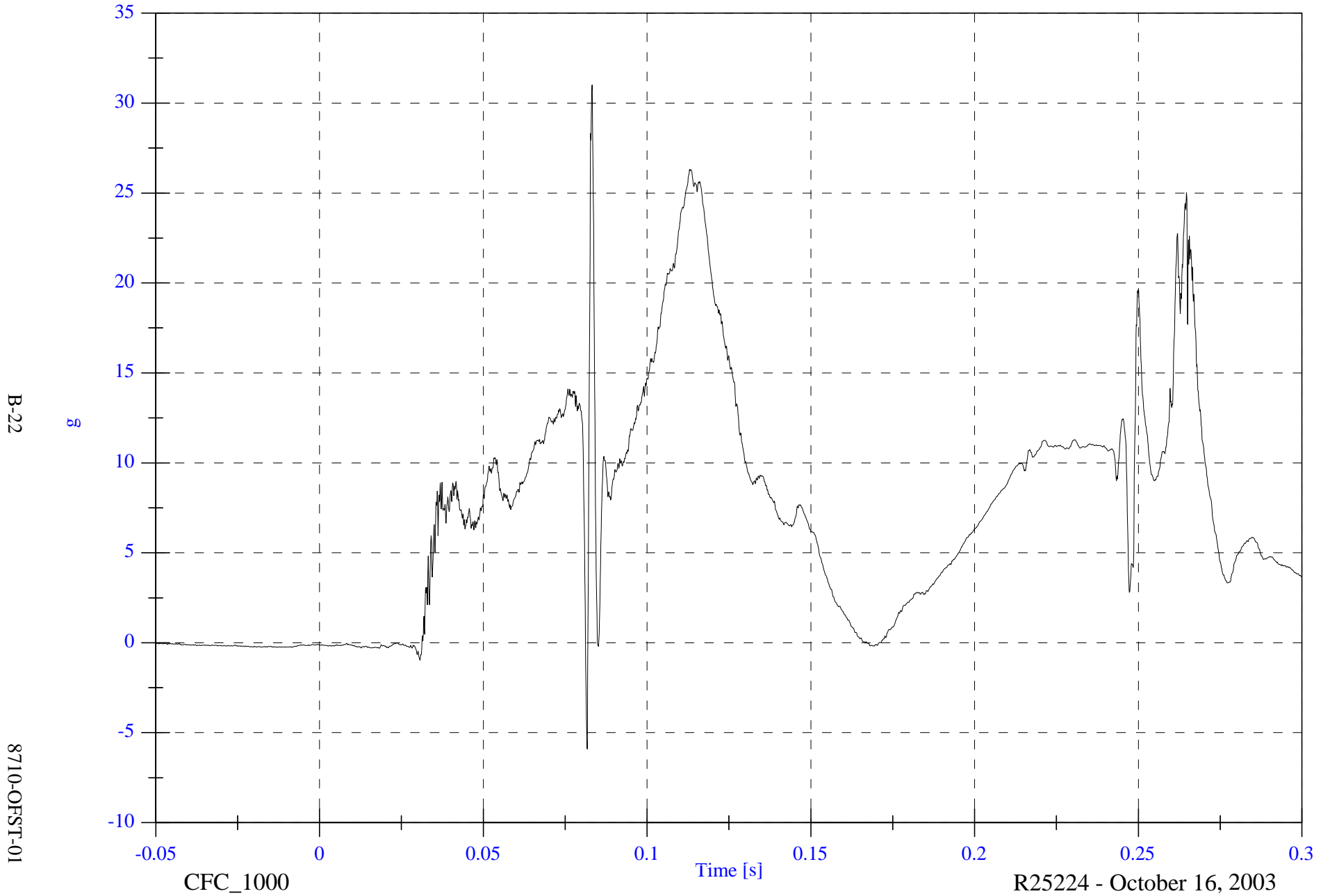


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Head Red z

Max: 31.0 [g] at 0.083 [s]

Min: -5.9 [g] at 0.082 [s]



B-22

8710-OFST-01

CFC_1000

Time [s]

R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

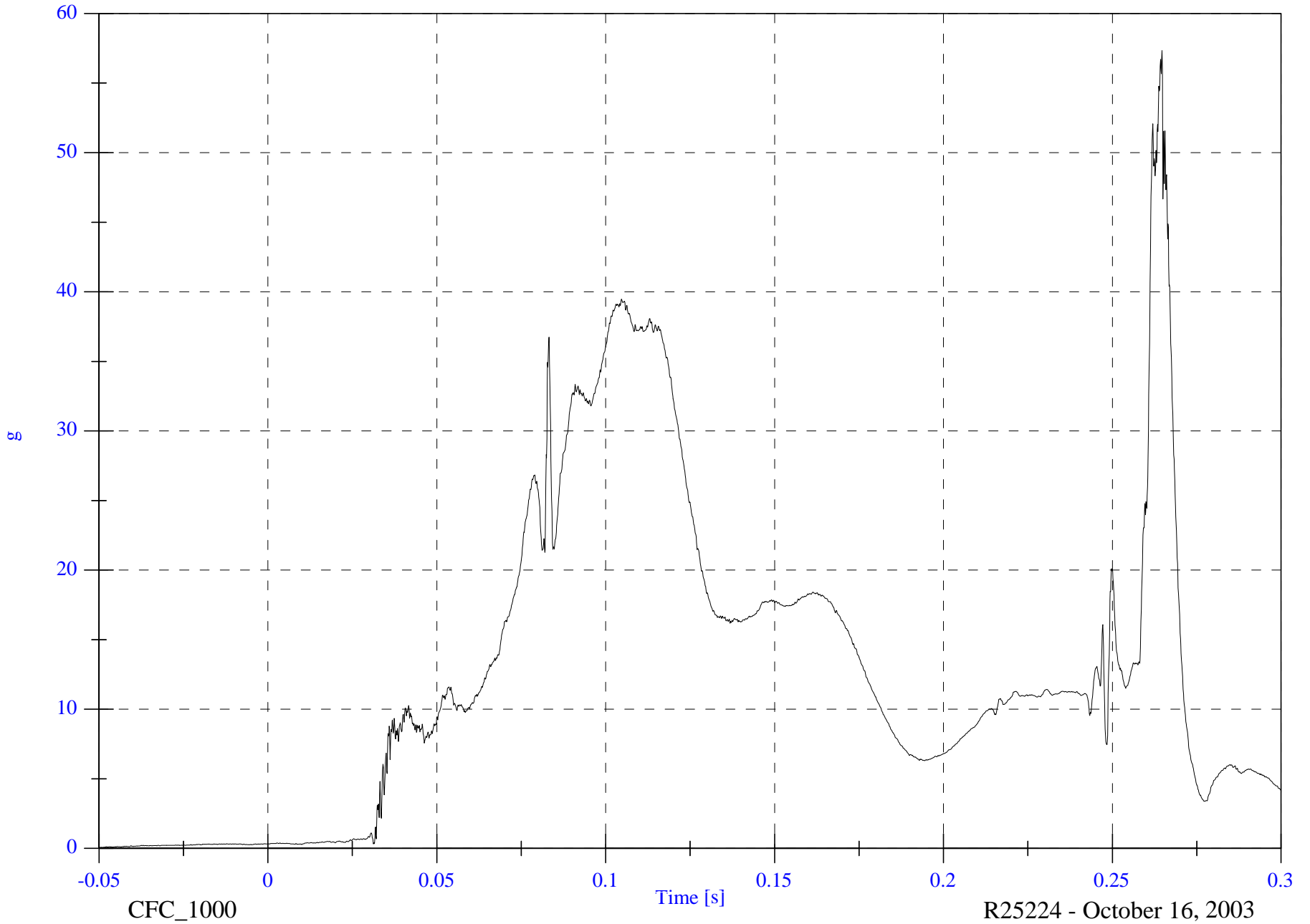
V1P1 Head Red Resultant

Max: 57.3 [g] at 0.265 [s]

Min: 0.1 [g] at -0.049 [s]

B-23

8710-OFST-01



CFC_1000

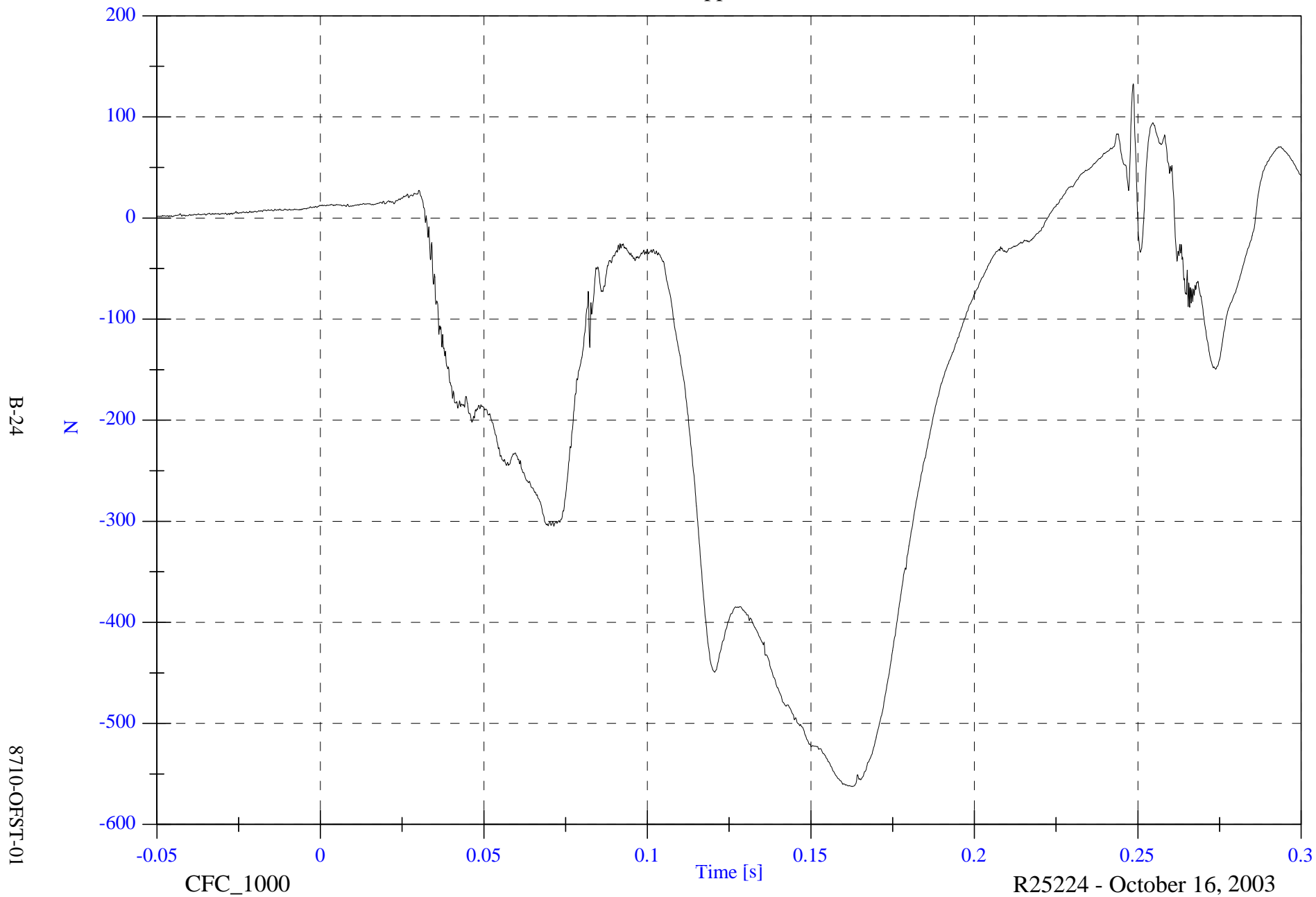
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Upper Neck Fx

Max: 132.8 [N] at 0.249 [s]

Min: -562.5 [N] at 0.163 [s]



B-24

8710-OFST-01

CFC_1000

Time [s]

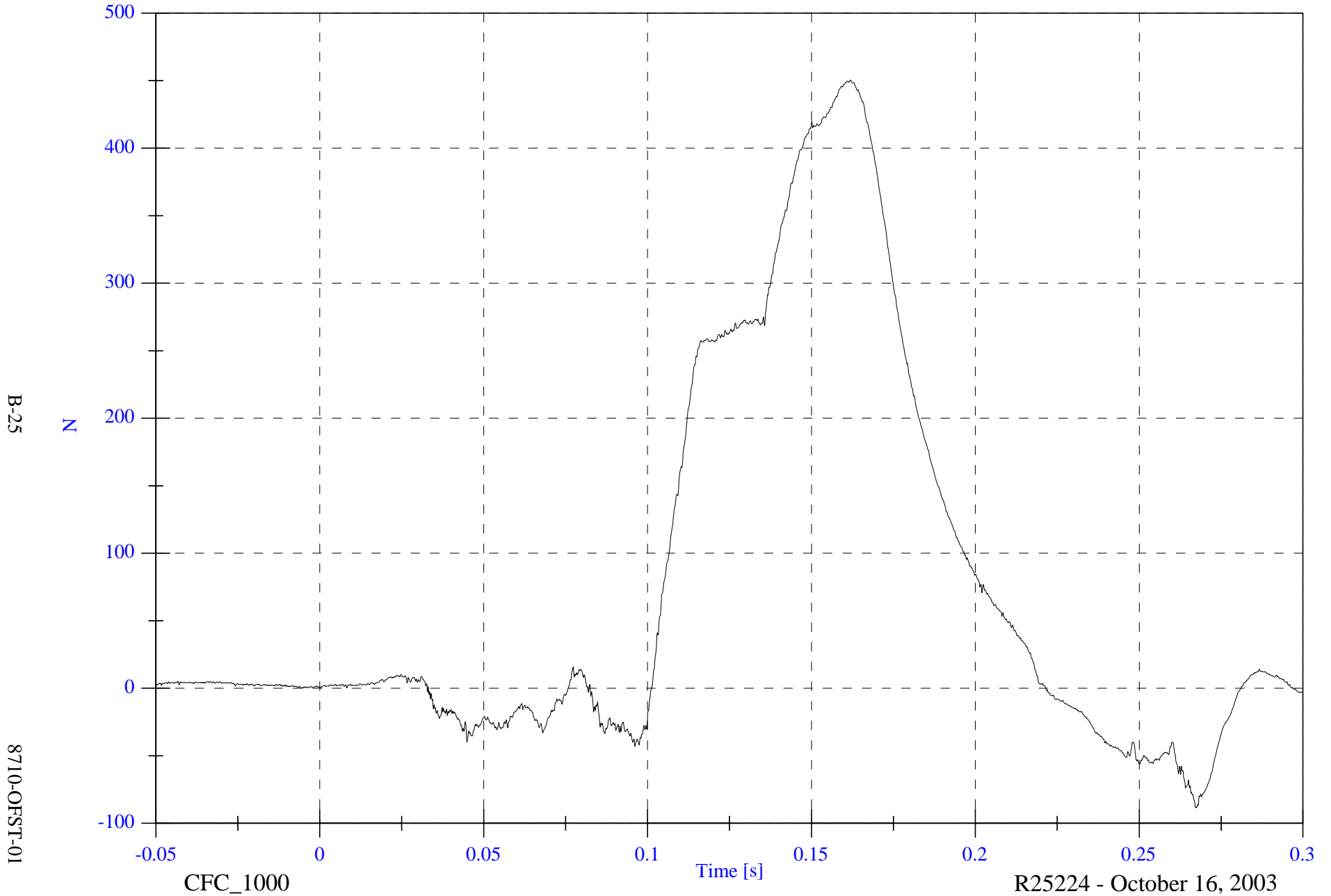
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Upper Neck Fy

Max: 450.5 [N] at 0.162 [s]

Min: -88.6 [N] at 0.267 [s]



B-25

8710-OFST-01

CFC_1000

Time [s]

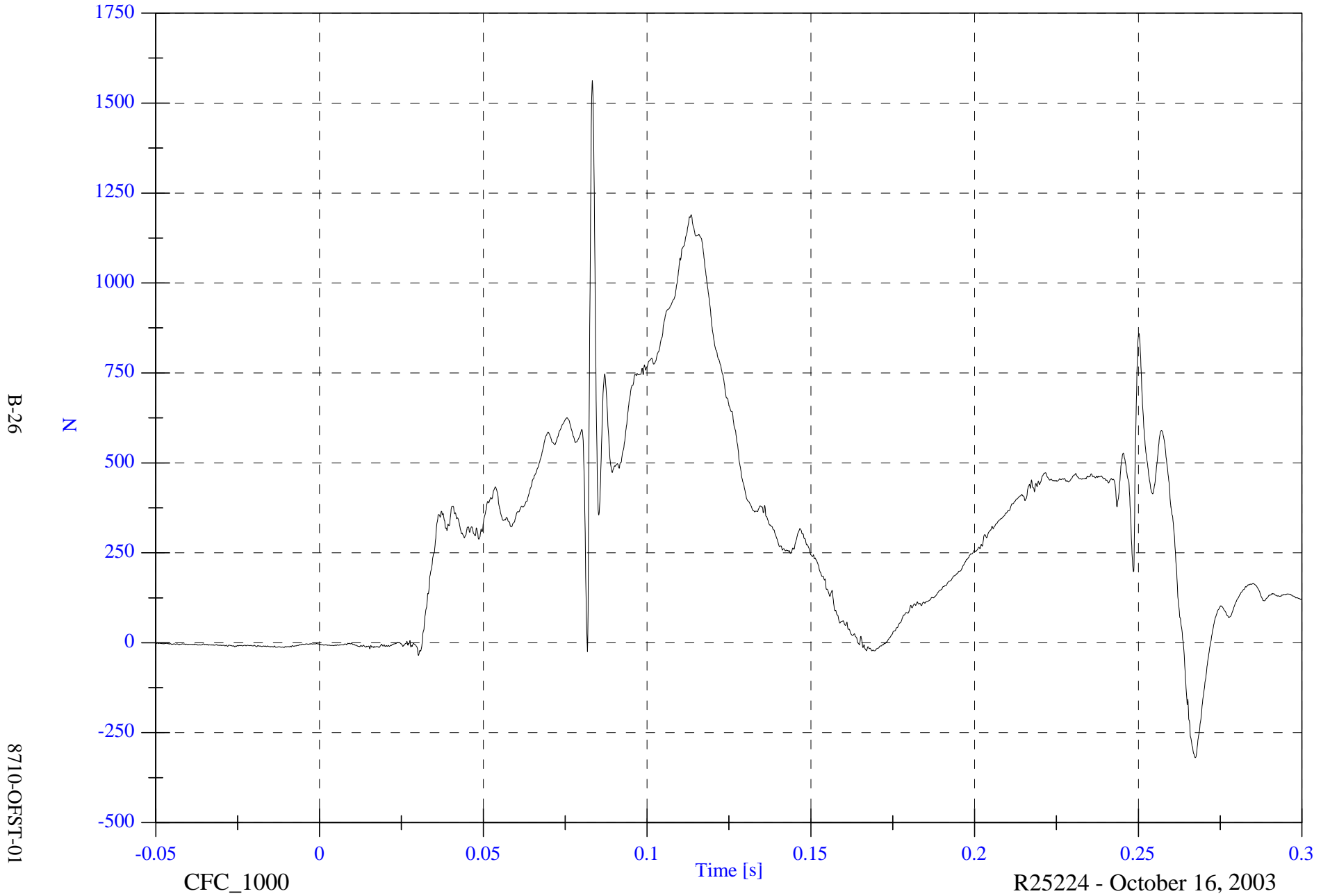
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 1562.5 [N] at 0.083 [s]

V1P1 Upper Neck Fz

Min: -319.4 [N] at 0.267 [s]



B-26

8710-OFST-01

CFC_1000

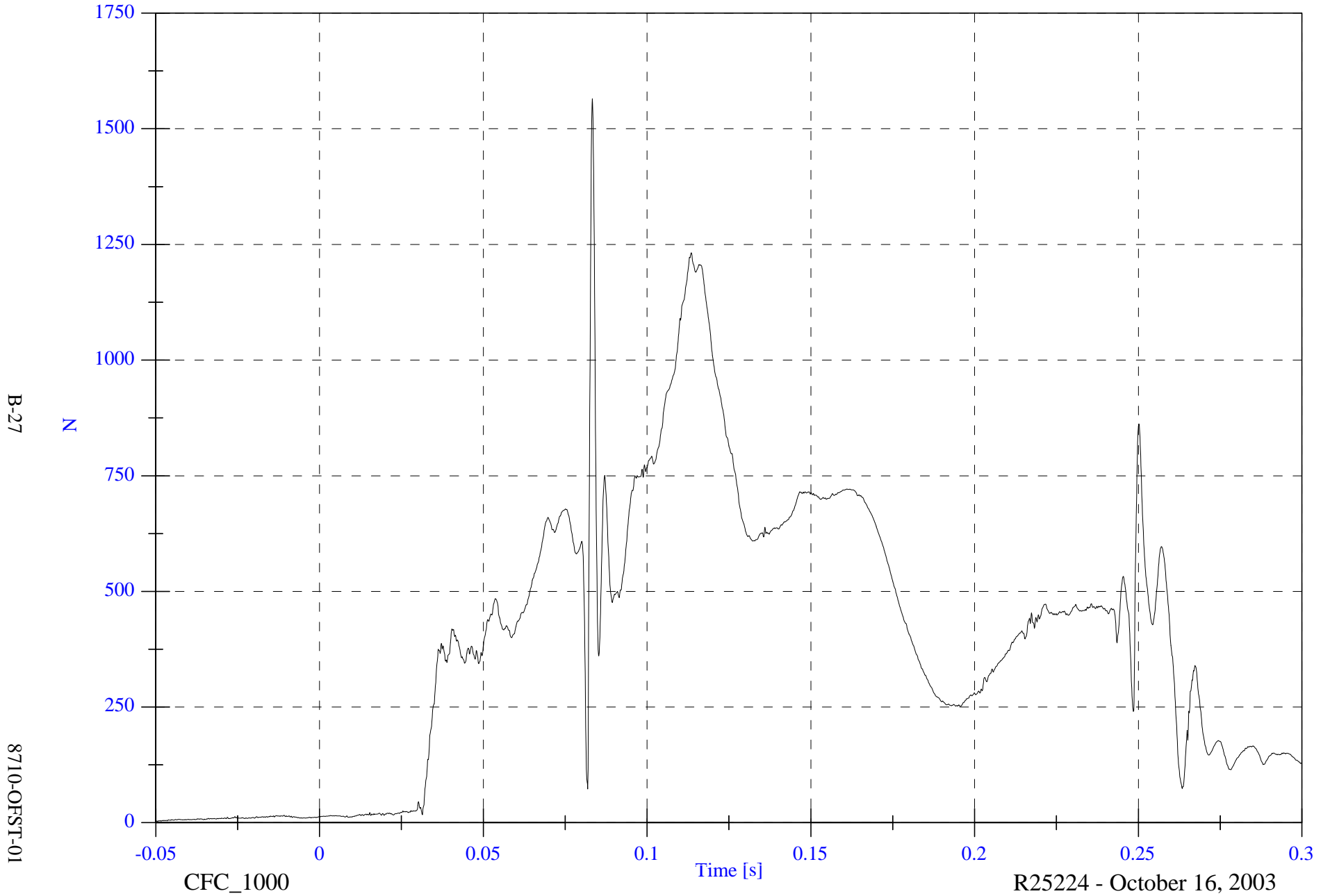
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 1564.9 [N] at 0.083 [s]

V1P1 Upper Neck F Resultant

Min: 3.0 [N] at -0.050 [s]

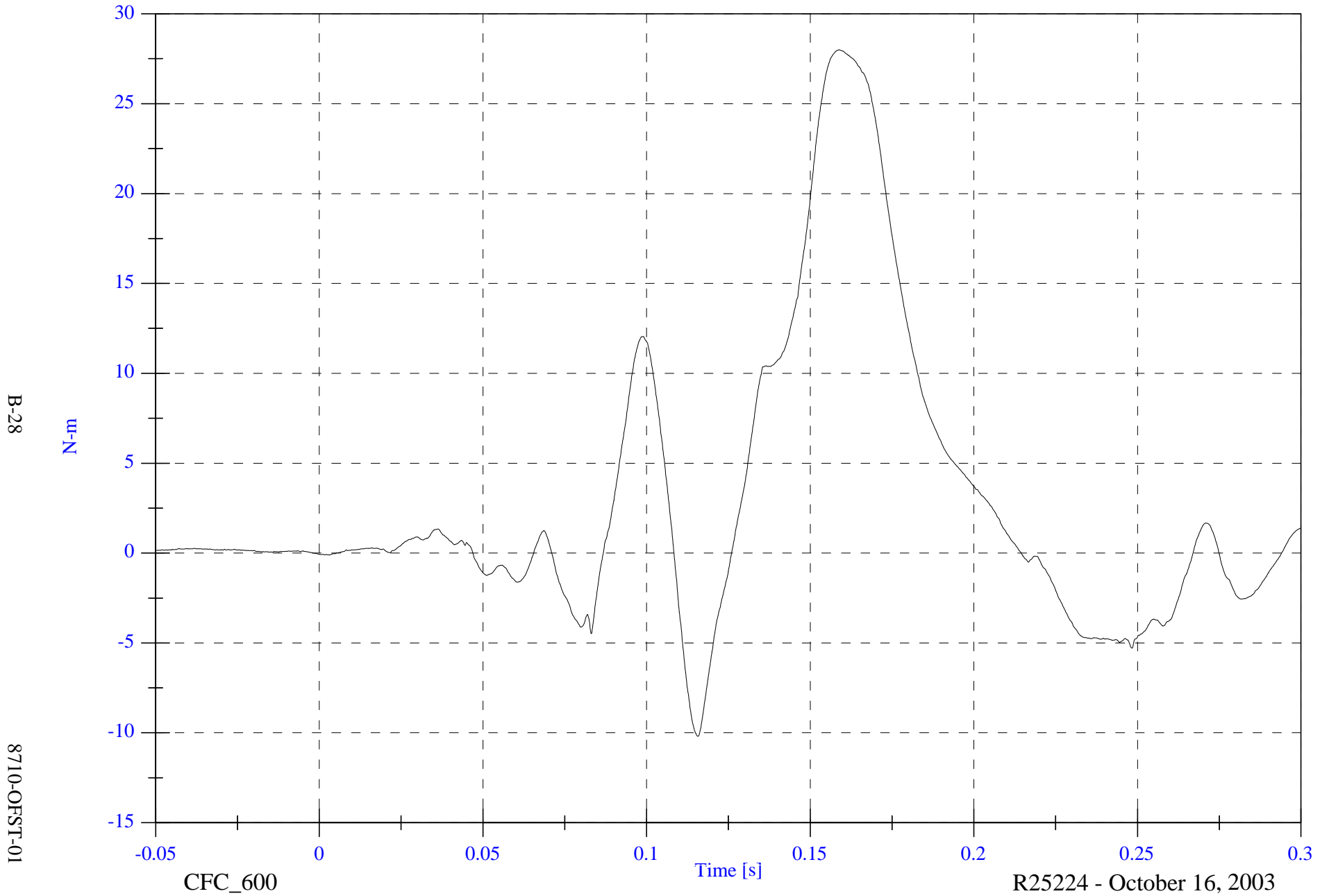


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 28.0 [N-m] at 0.159 [s]

V1P1 Upper Neck Mx

Min: -10.2 [N-m] at 0.116 [s]



B-28

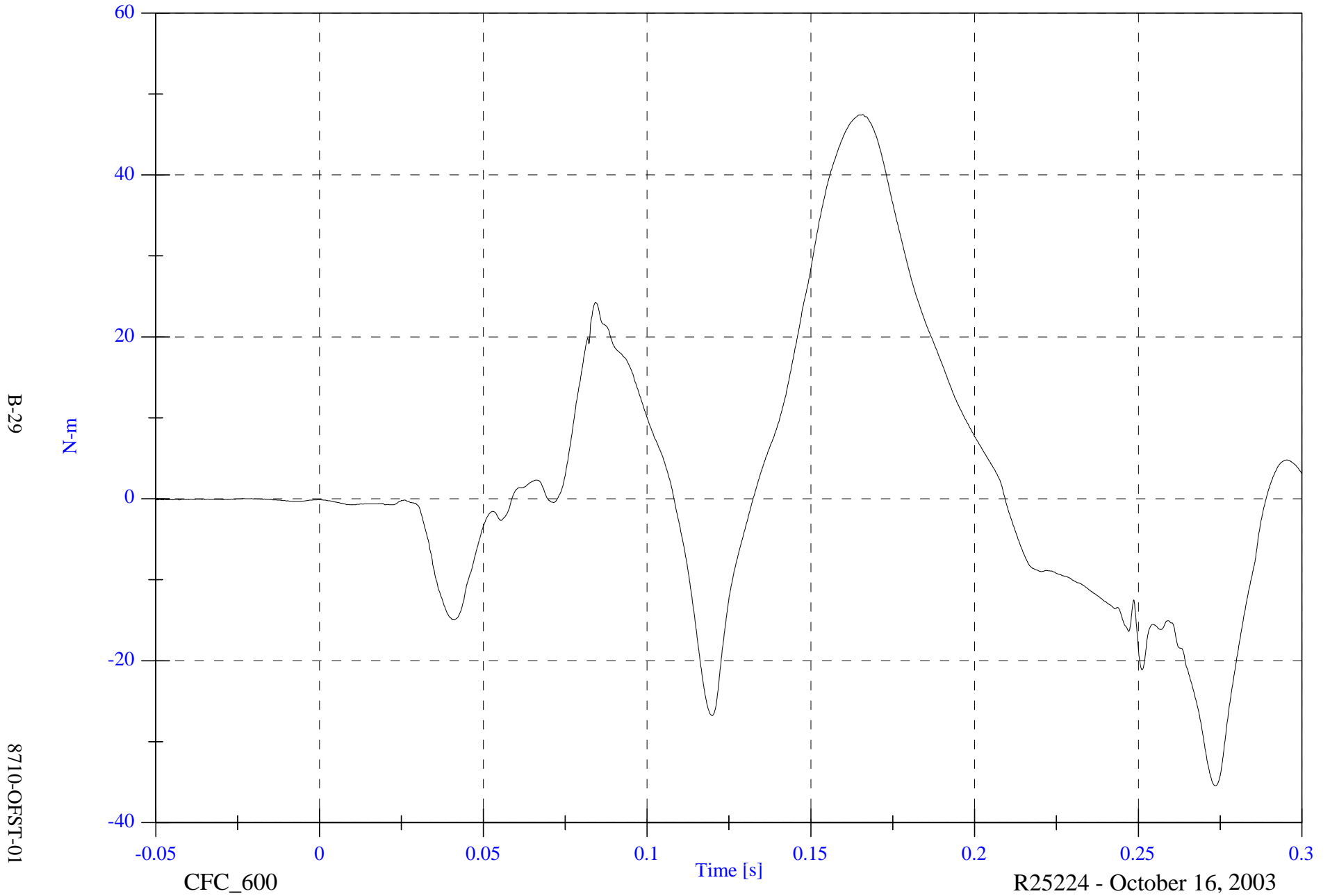
8710-OFST-01

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Upper Neck My

Max: 47.5 [N-m] at 0.166 [s]

Min: -35.4 [N-m] at 0.274 [s]



B-29

8710-OFST-01

CFC_600

Time [s]

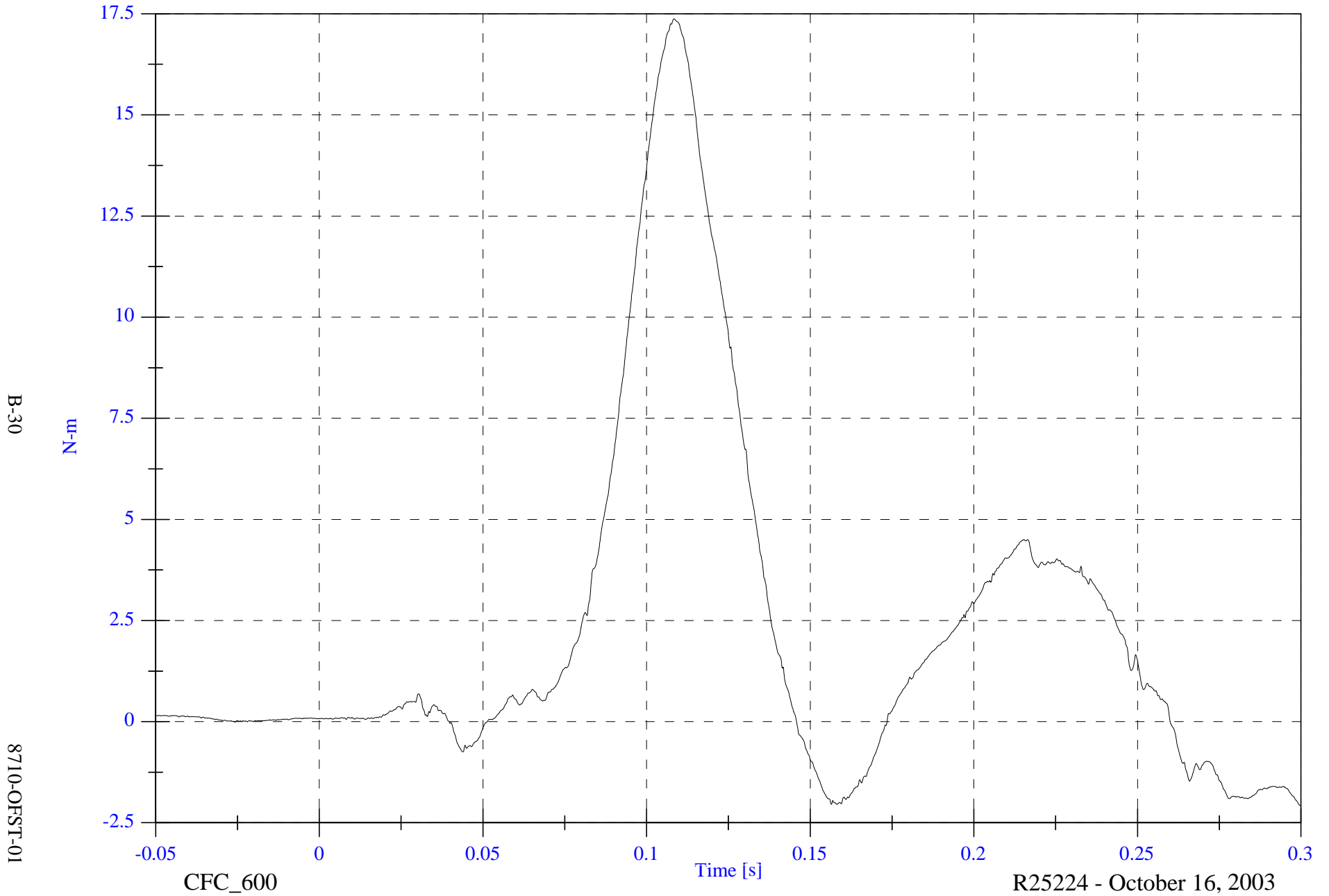
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 17.4 [N-m] at 0.108 [s]

V1P1 Upper Neck Mz

Min: -2.1 [N-m] at 0.300 [s]



2004 Offset Barrier Test 1 2002 Nissan Altima

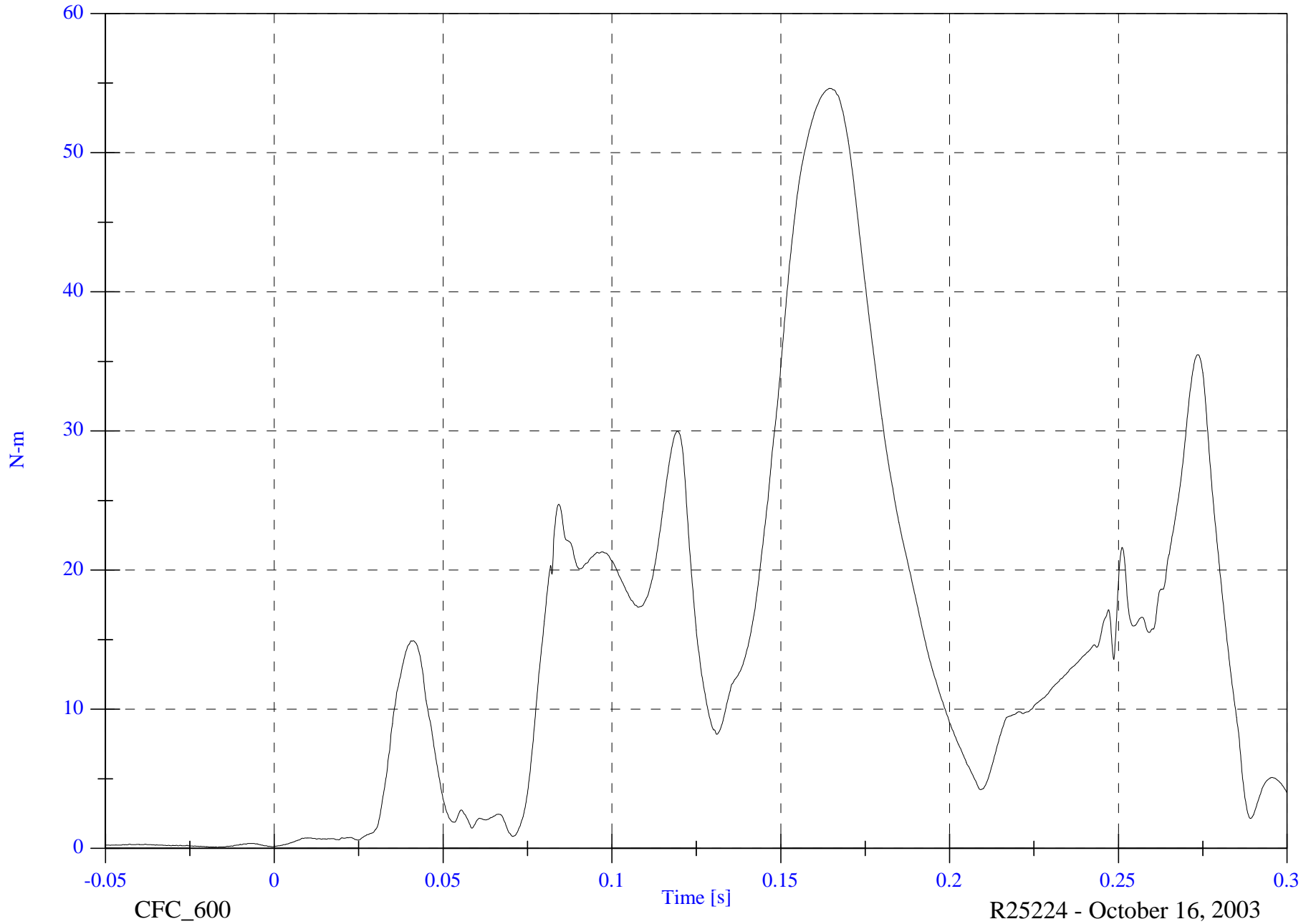
V1P1 Upper Neck M Resultant

Max: 54.6 [N-m] at 0.165 [s]

Min: 0.1 [N-m] at -0.017 [s]

B-31

8710-OFST-01



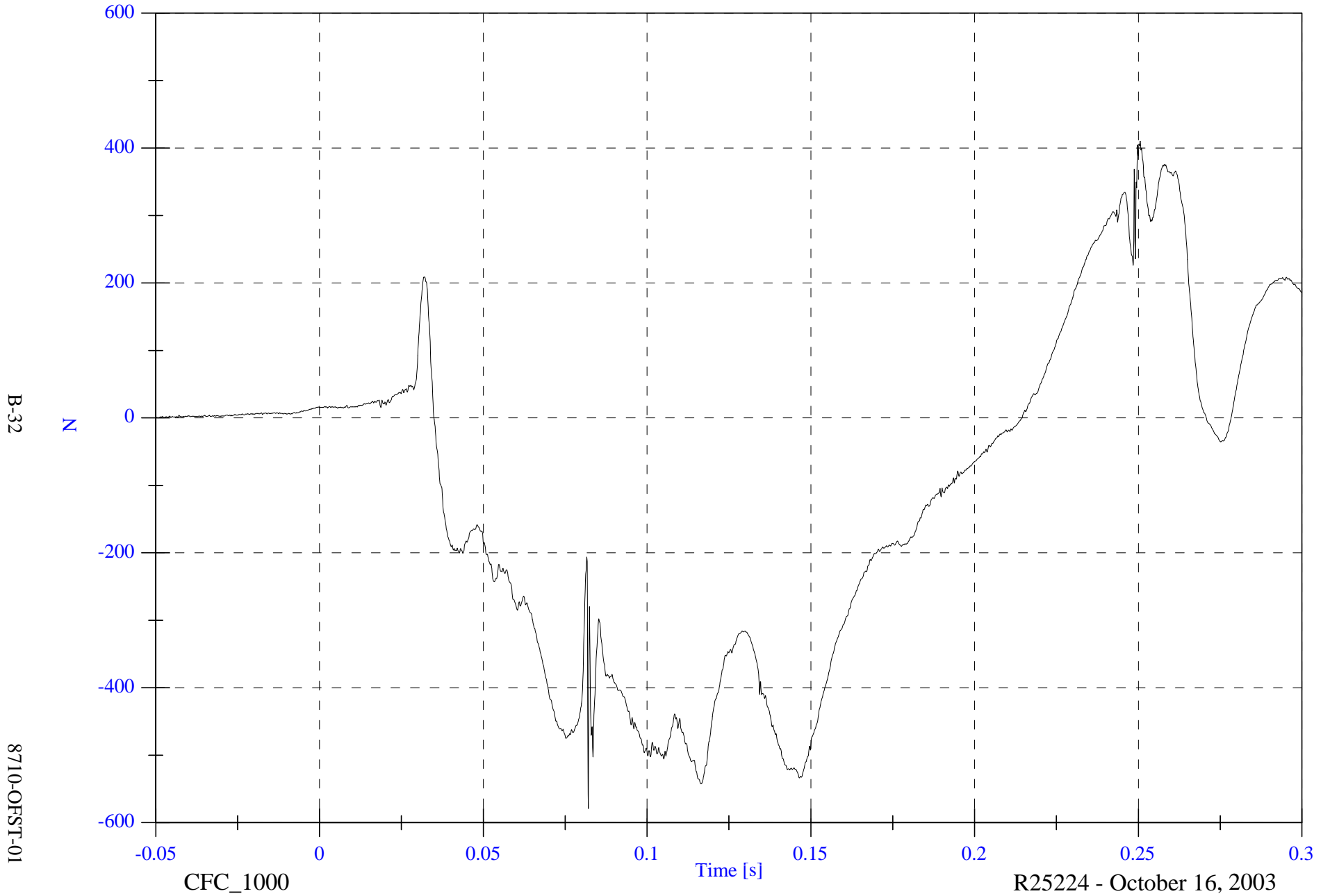
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Lower Neck Fx

Max: 410.2 [N] at 0.251 [s]

Min: -579.0 [N] at 0.082 [s]

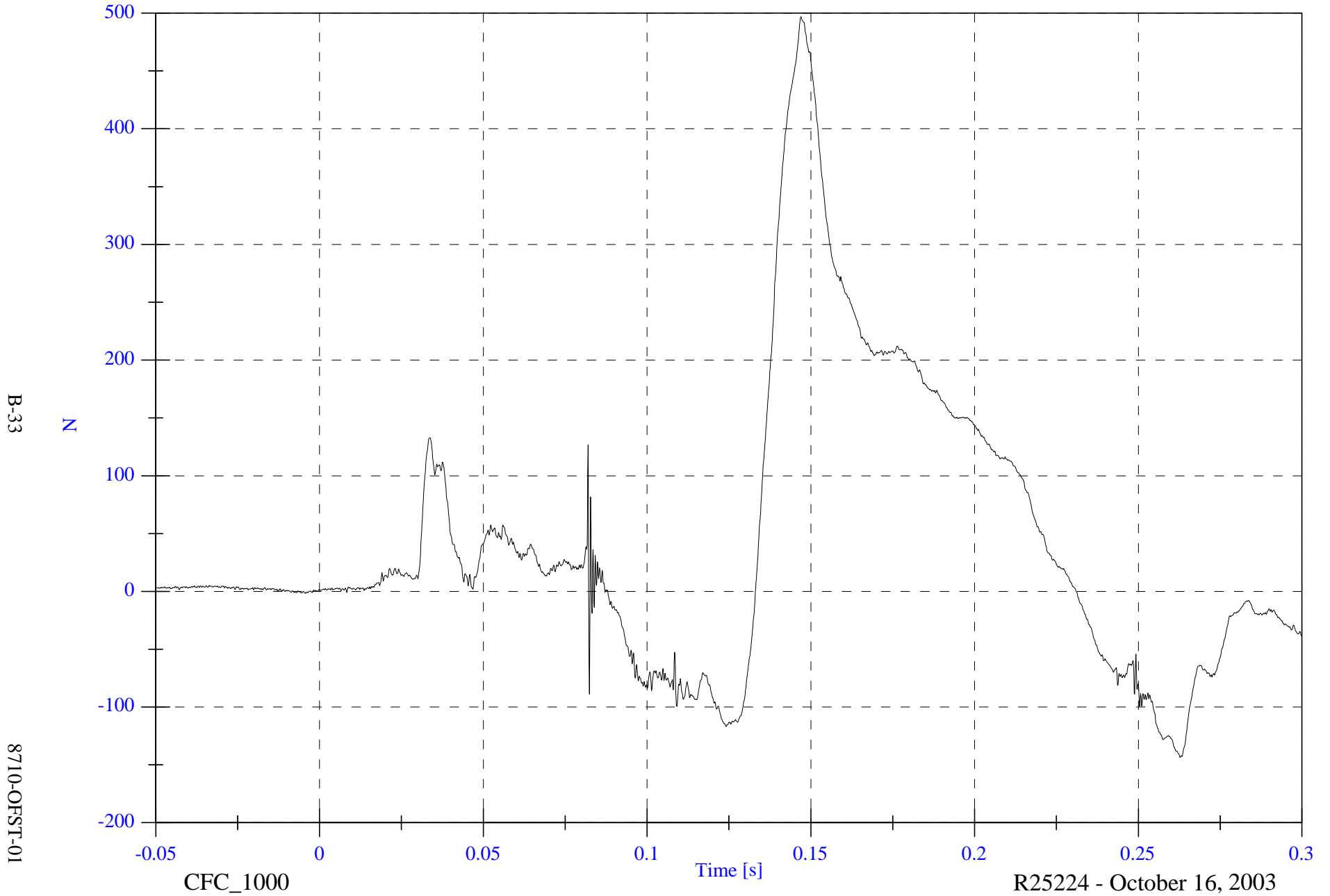


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 496.9 [N] at 0.147 [s]

V1P1 Lower Neck Fy

Min: -143.5 [N] at 0.263 [s]

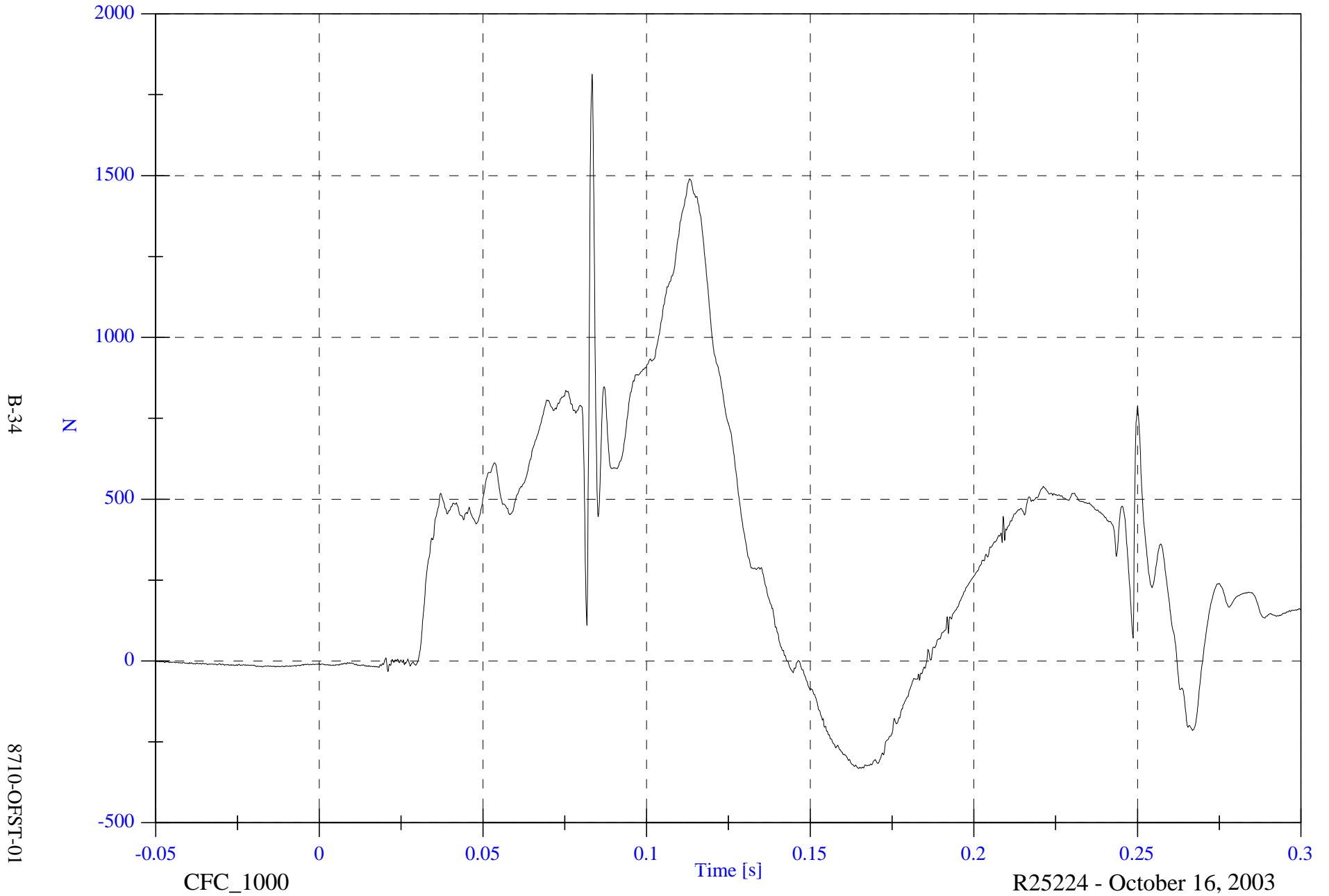


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 1812.9 [N] at 0.083 [s]

V1P1 Lower Neck Fz

Min: -332.7 [N] at 0.165 [s]



B-34

8710-OFST-01

CFC_1000

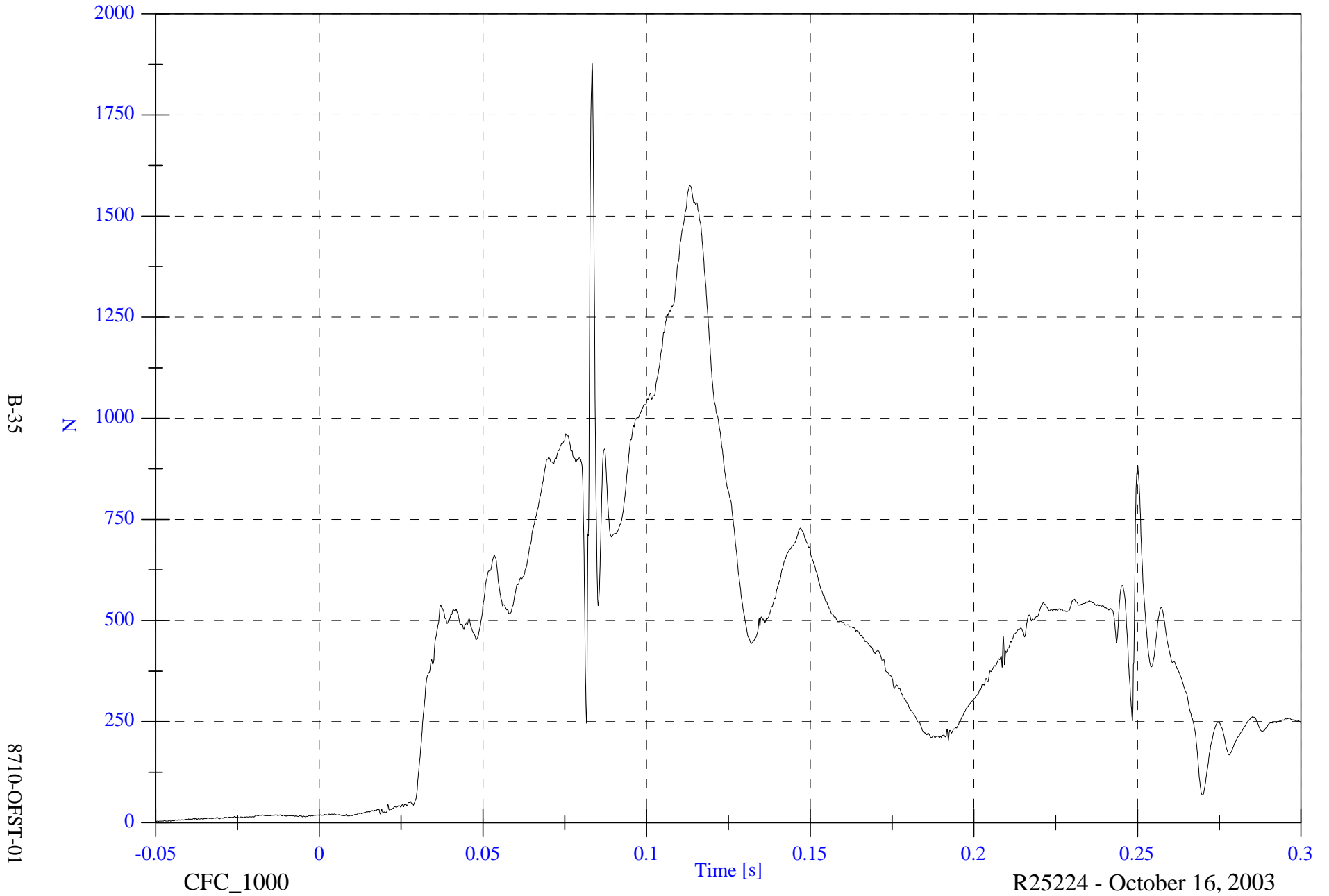
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 1877.6 [N] at 0.083 [s]

V1P1 Lower Neck F Resultant

Min: 3.0 [N] at -0.049 [s]



B-35

8710-OFST-01

CFC_1000

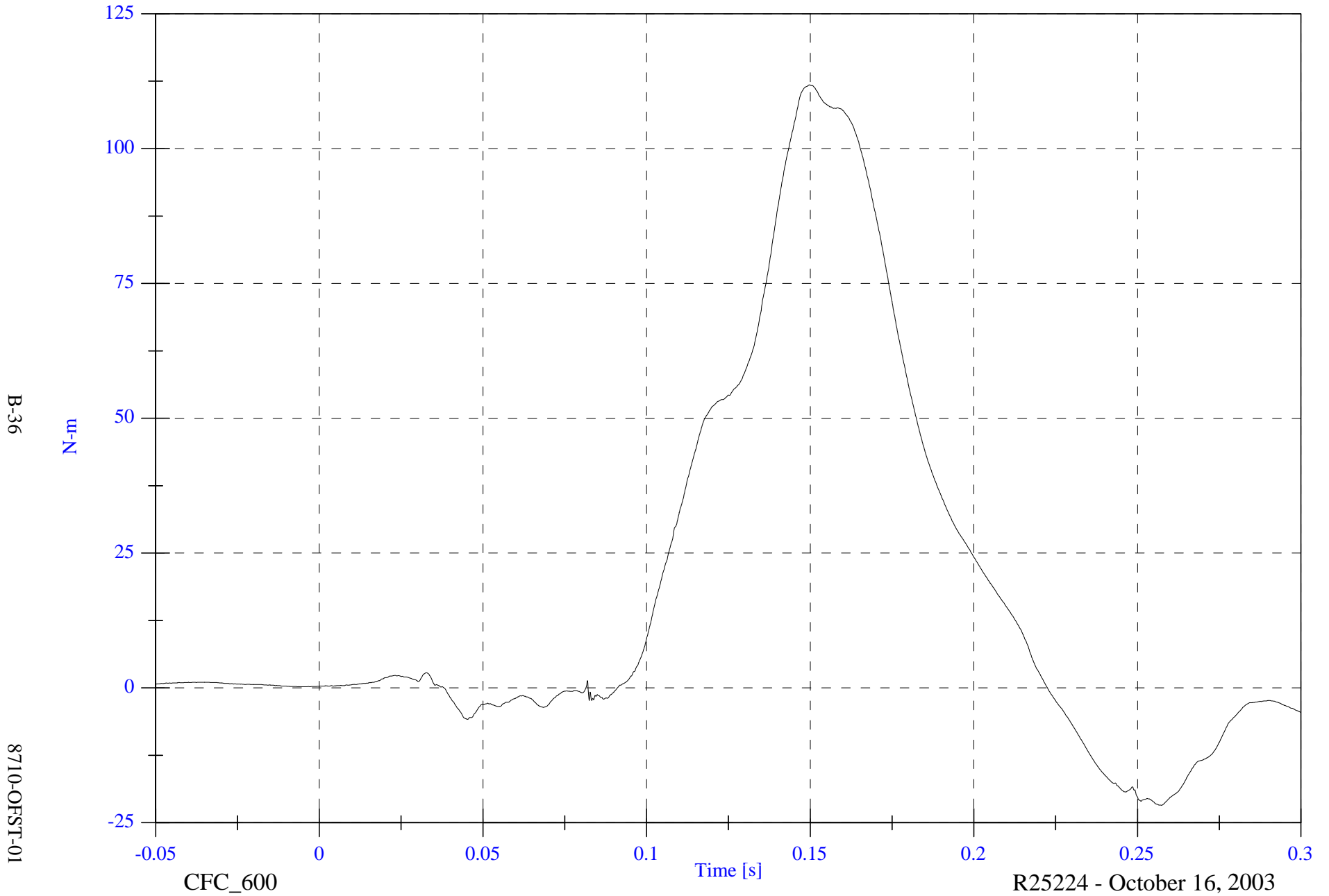
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Lower Neck Mx

Max: 111.8 [N-m] at 0.150 [s]

Min: -21.8 [N-m] at 0.257 [s]



B-36

8710-OFST-01

CFC_600

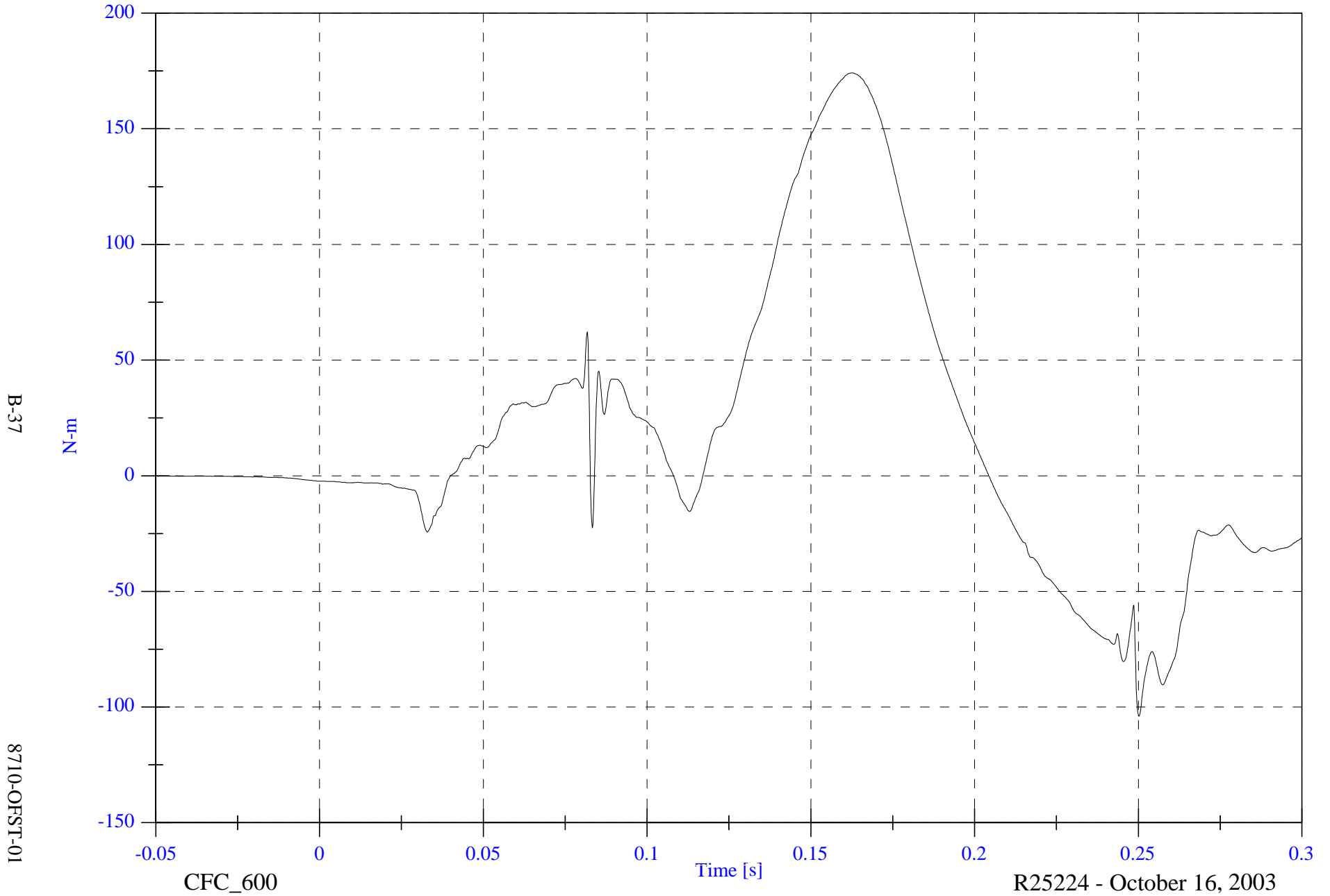
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Lower Neck My

Max: 174.2 [N-m] at 0.163 [s]

Min: -104.0 [N-m] at 0.250 [s]

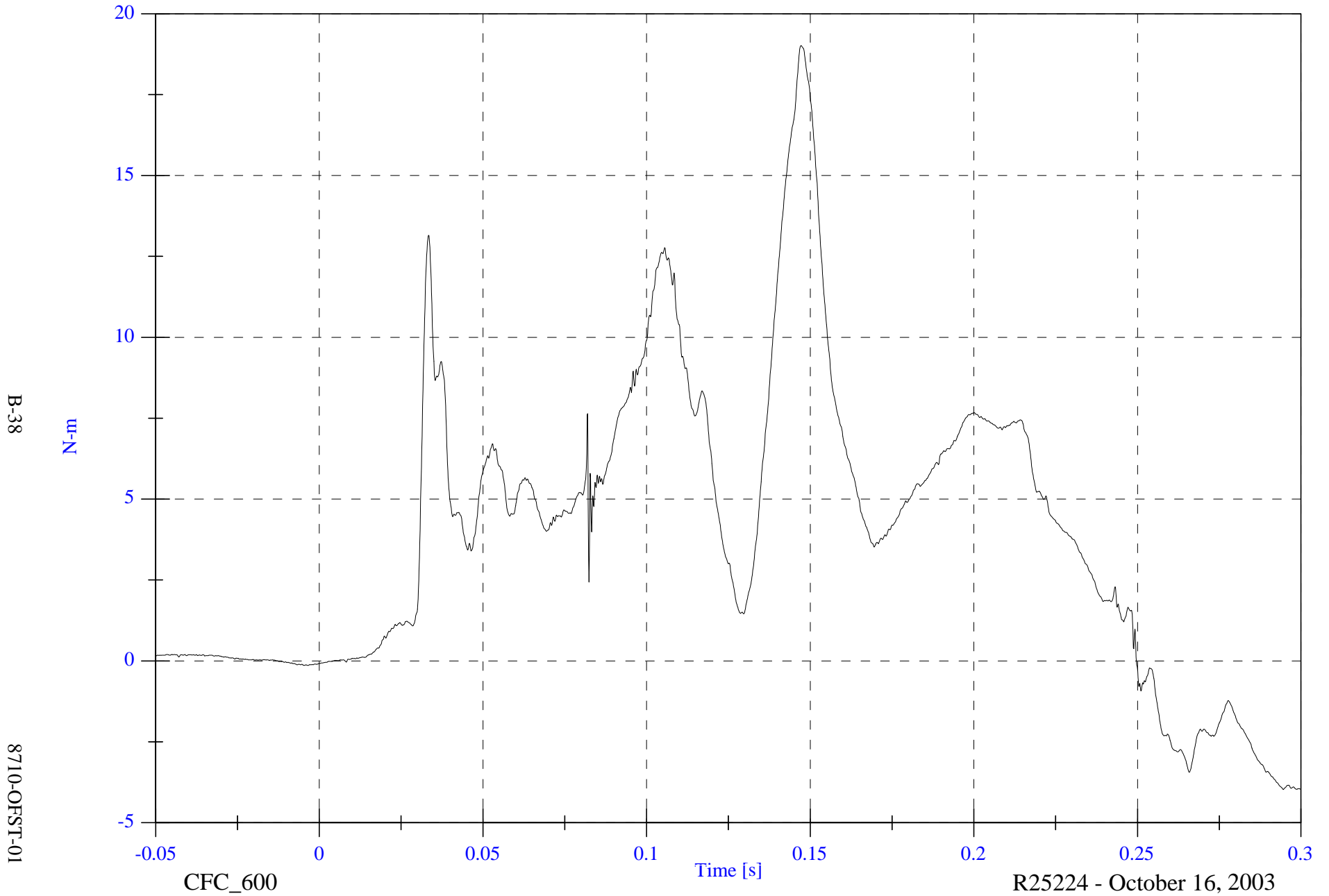


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Lower Neck Mz

Max: 19.0 [N-m] at 0.147 [s]

Min: -4.0 [N-m] at 0.294 [s]



2004 Offset Barrier Test 1 2002 Nissan Altima

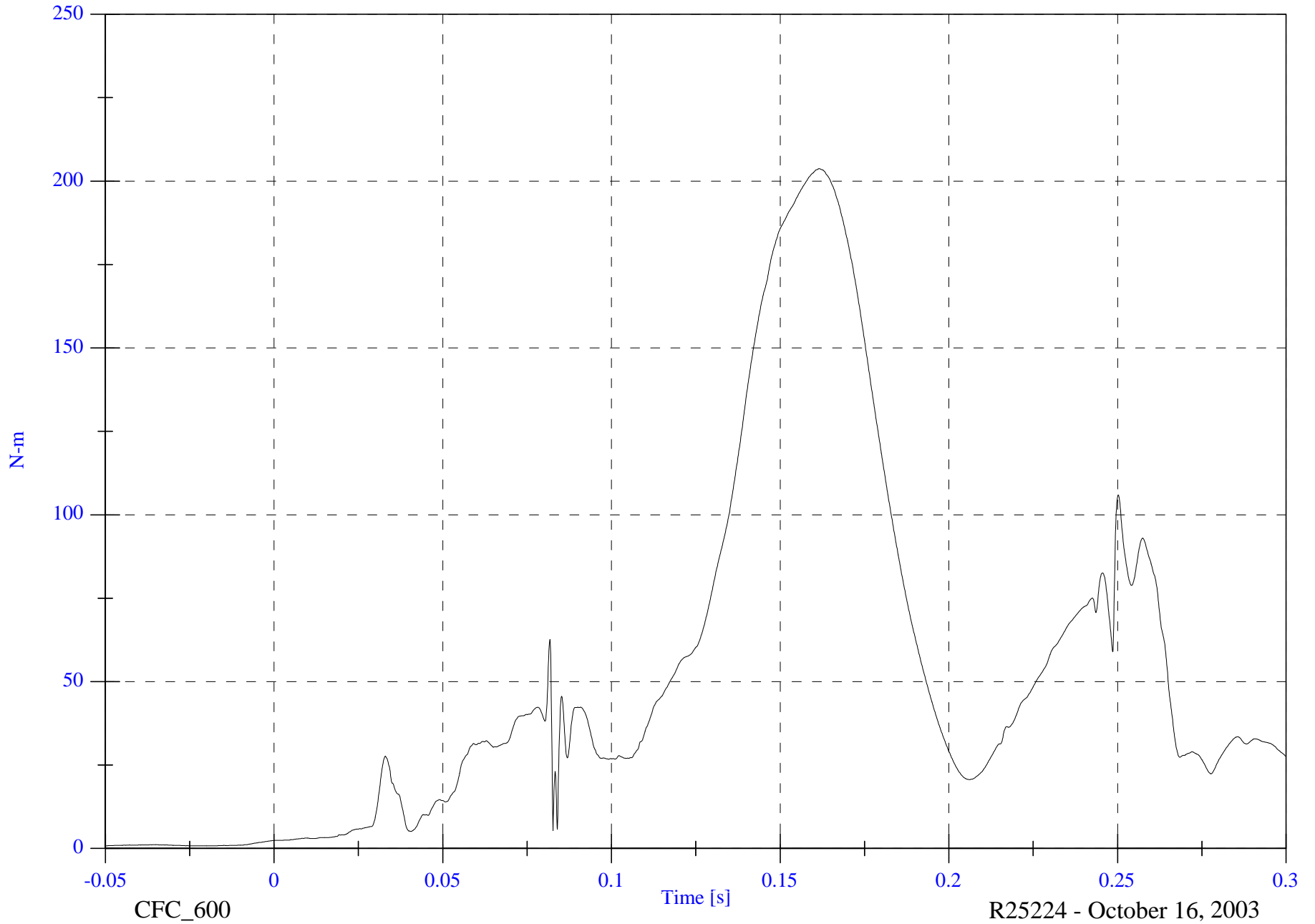
V1P1 Lower Neck M Resultant

Max: 203.7 [N-m] at 0.162 [s]

Min: 0.8 [N-m] at -0.019 [s]

B-39

8710-OFST-01



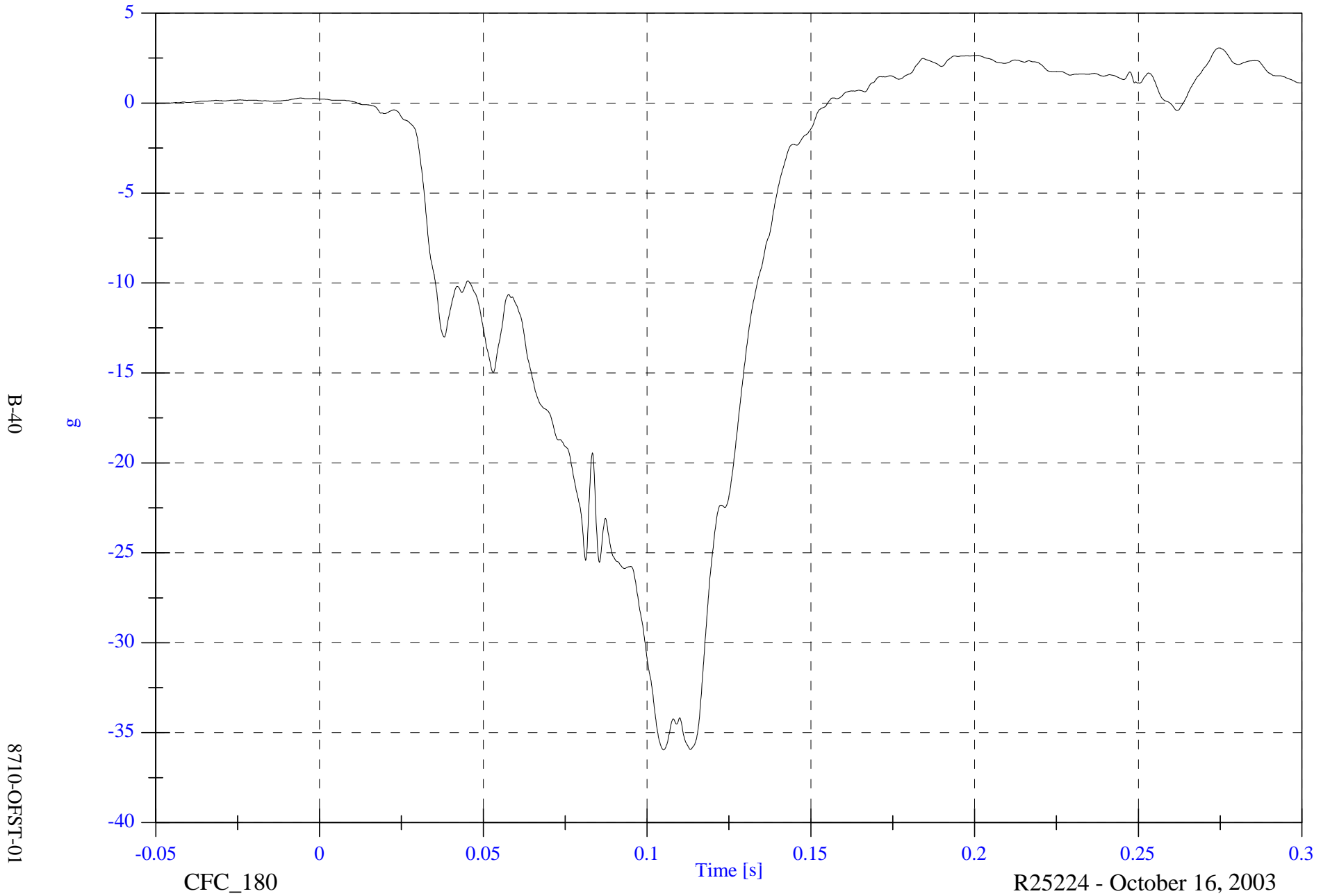
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

VIP1 Chest x

Max: 3.1 [g] at 0.275 [s]

Min: -36.0 [g] at 0.105 [s]



B-40

g

8710-OFST-01

CFC_180

Time [s]

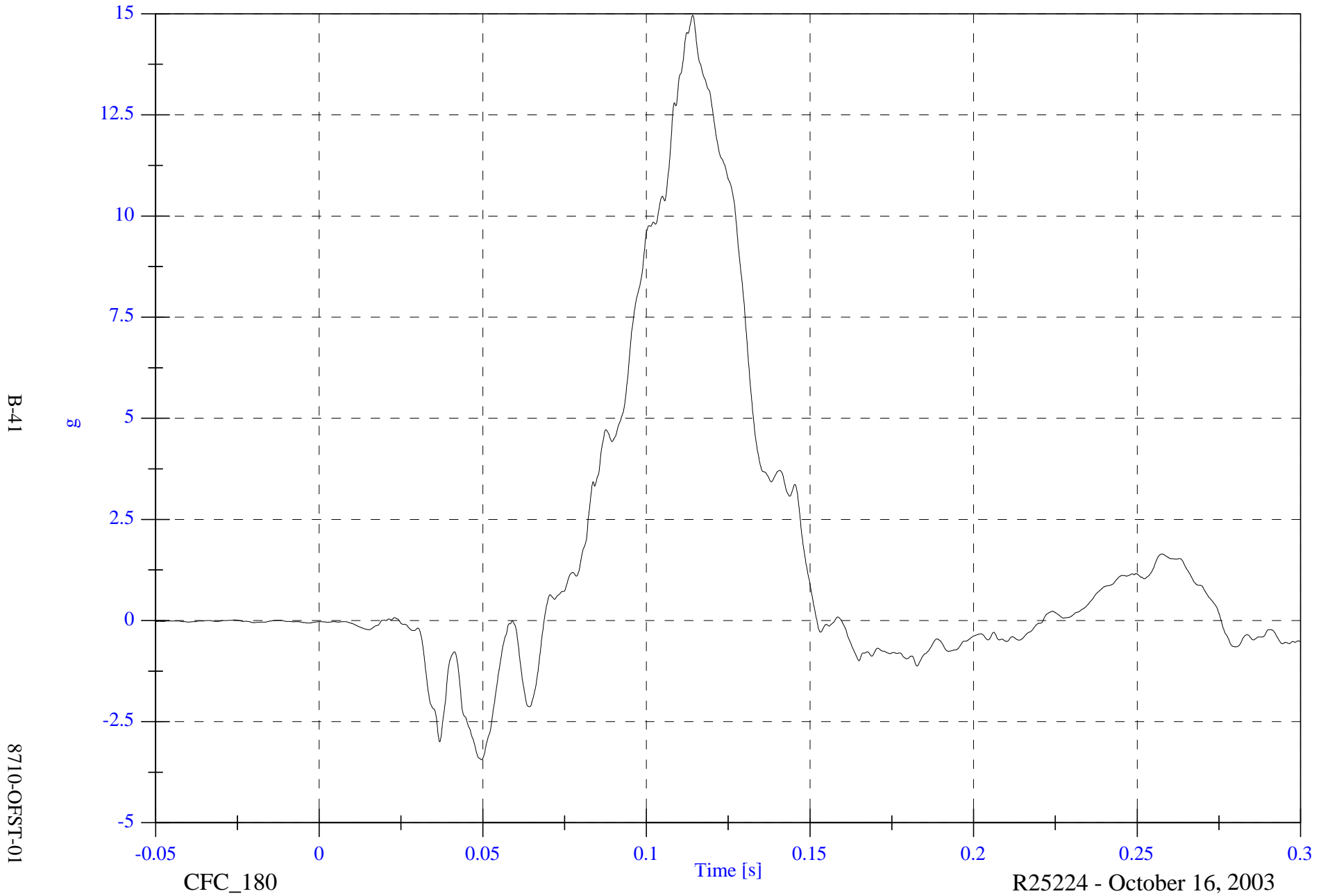
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 15.0 [g] at 0.114 [s]

Min: -3.4 [g] at 0.050 [s]

VIP1 Chest y



B-41

8710-OFST-01

2004 Offset Barrier Test 1 2002 Nissan Altima

VIP1 Chest z

Max: 6.4 [g] at 0.266 [s]

Min: -9.2 [g] at 0.141 [s]



B-42

8710-OFST-01

CFC_180

Time [s]

R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

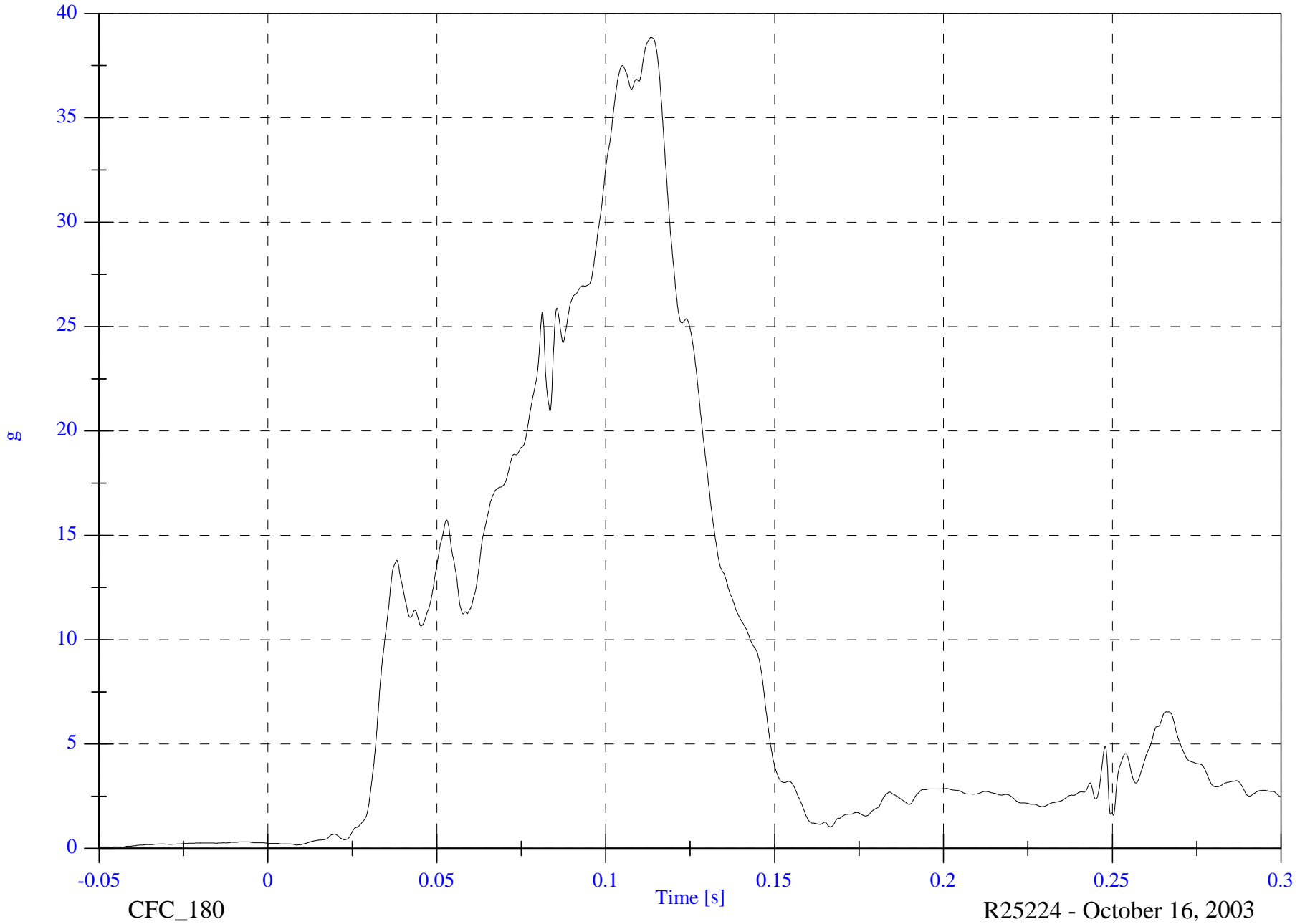
VIP1 Chest Resultant

Max: 38.9 [g] at 0.114 [s]

Min: 0.1 [g] at -0.043 [s]

B-43

8710-OFST-01



CFC_180

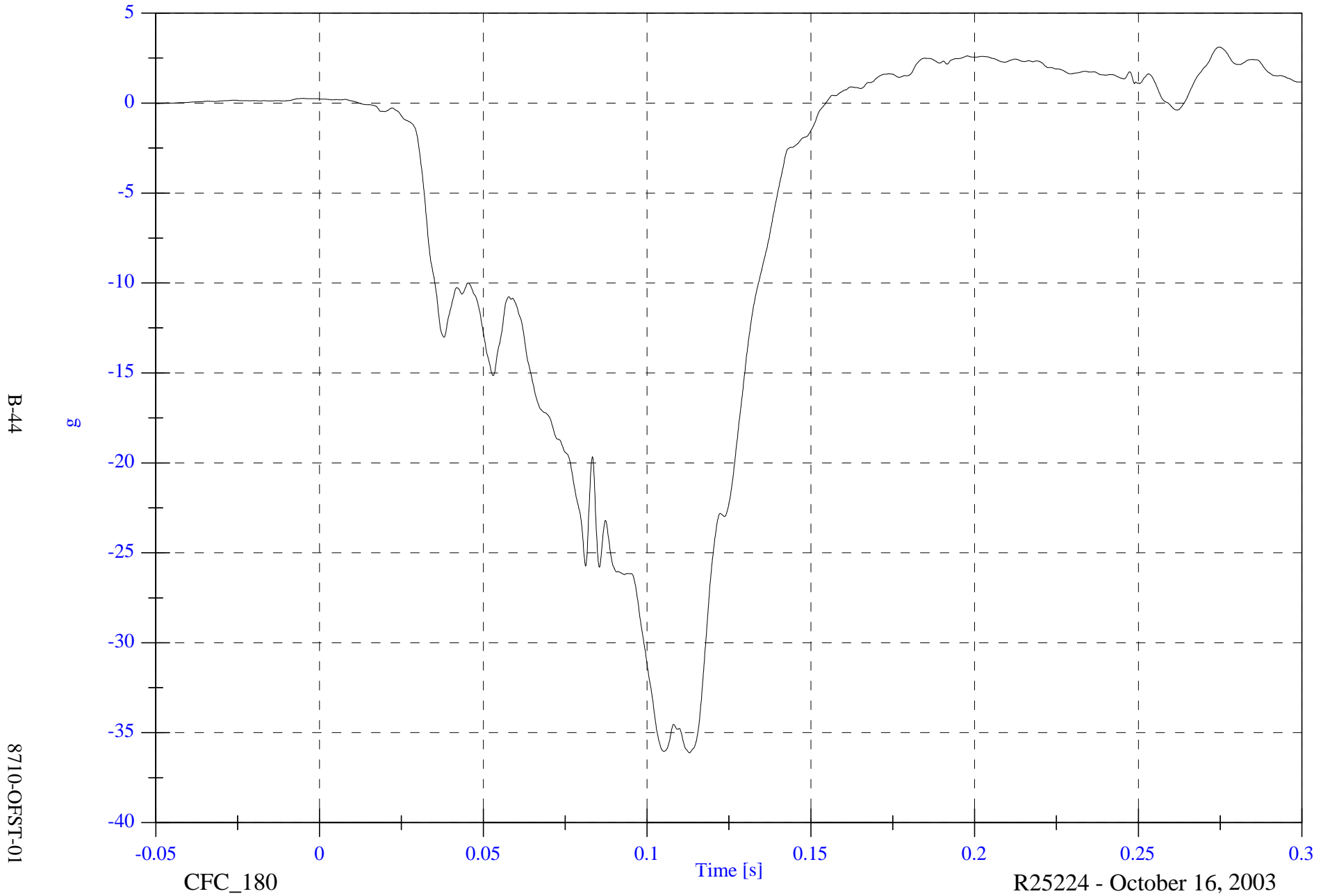
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

VIP1 Chest Red x

Max: 3.1 [g] at 0.275 [s]

Min: -36.1 [g] at 0.113 [s]



2004 Offset Barrier Test 1 2002 Nissan Altima

VIP1 Chest Red y

Max: 15.0 [g] at 0.114 [s]

Min: -3.3 [g] at 0.050 [s]



2004 Offset Barrier Test 1 2002 Nissan Altima

VIP1 Chest Red z

Max: 6.4 [g] at 0.266 [s]

Min: -9.2 [g] at 0.142 [s]



2004 Offset Barrier Test 1 2002 Nissan Altima

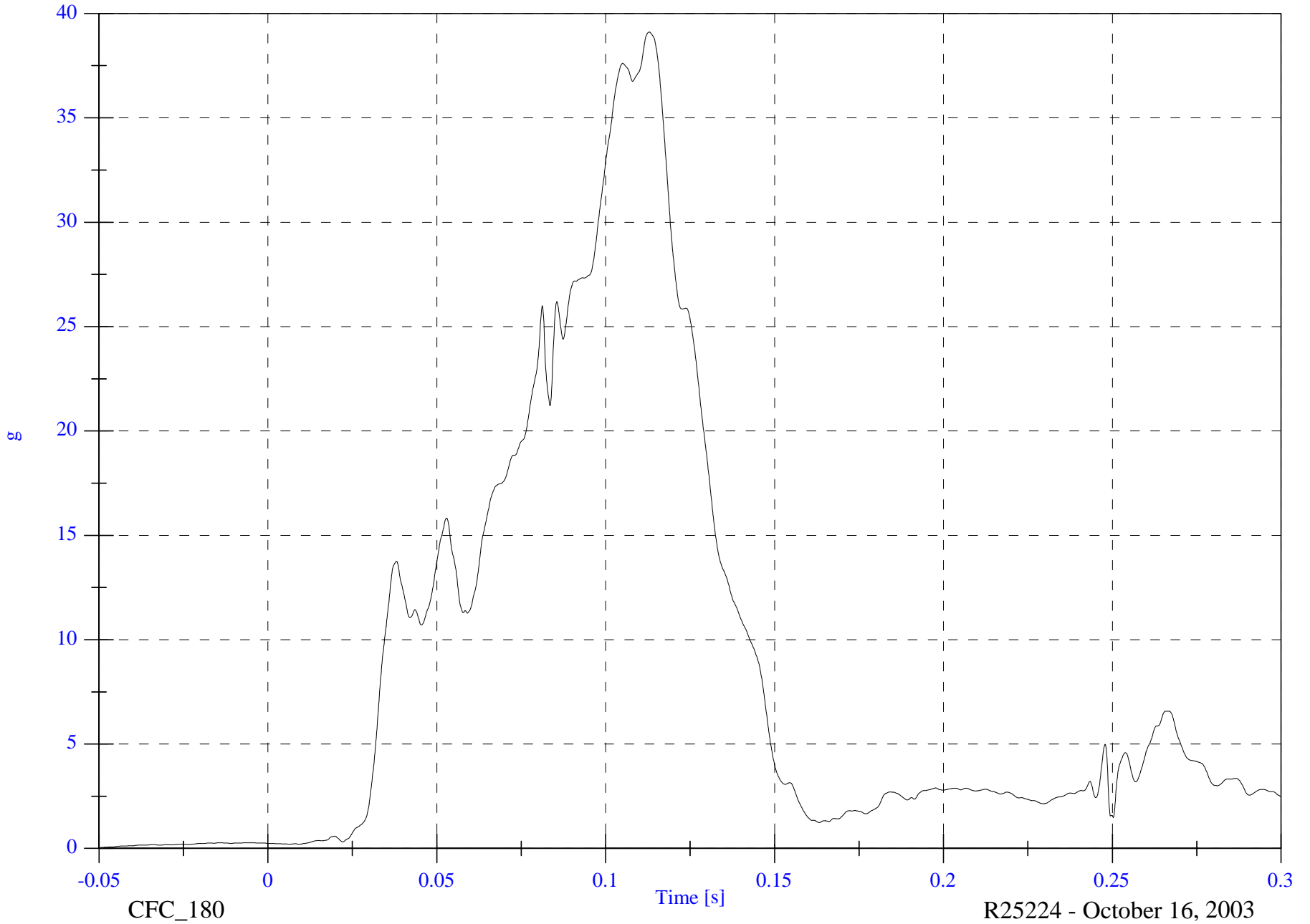
V1P1 Chest Red Resultant

Max: 39.1 [g] at 0.113 [s]

Min: 0.0 [g] at -0.050 [s]

B-47

8710-OFST-01

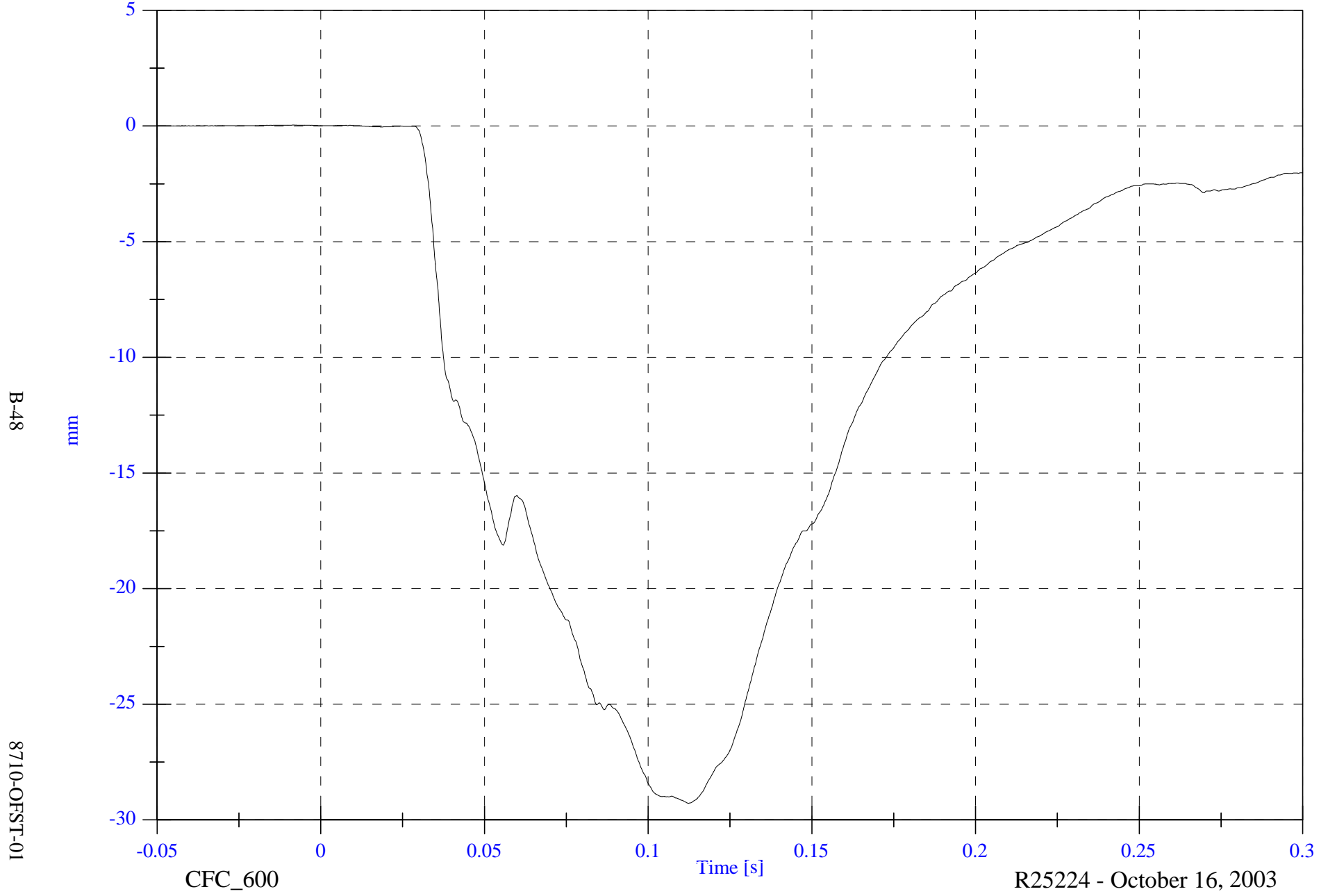


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 0.0 [mm] at -0.008 [s]

V1P1 Chest Displacement

Min: -29.3 [mm] at 0.112 [s]



B-48

8710-OFST-01

CFC_600

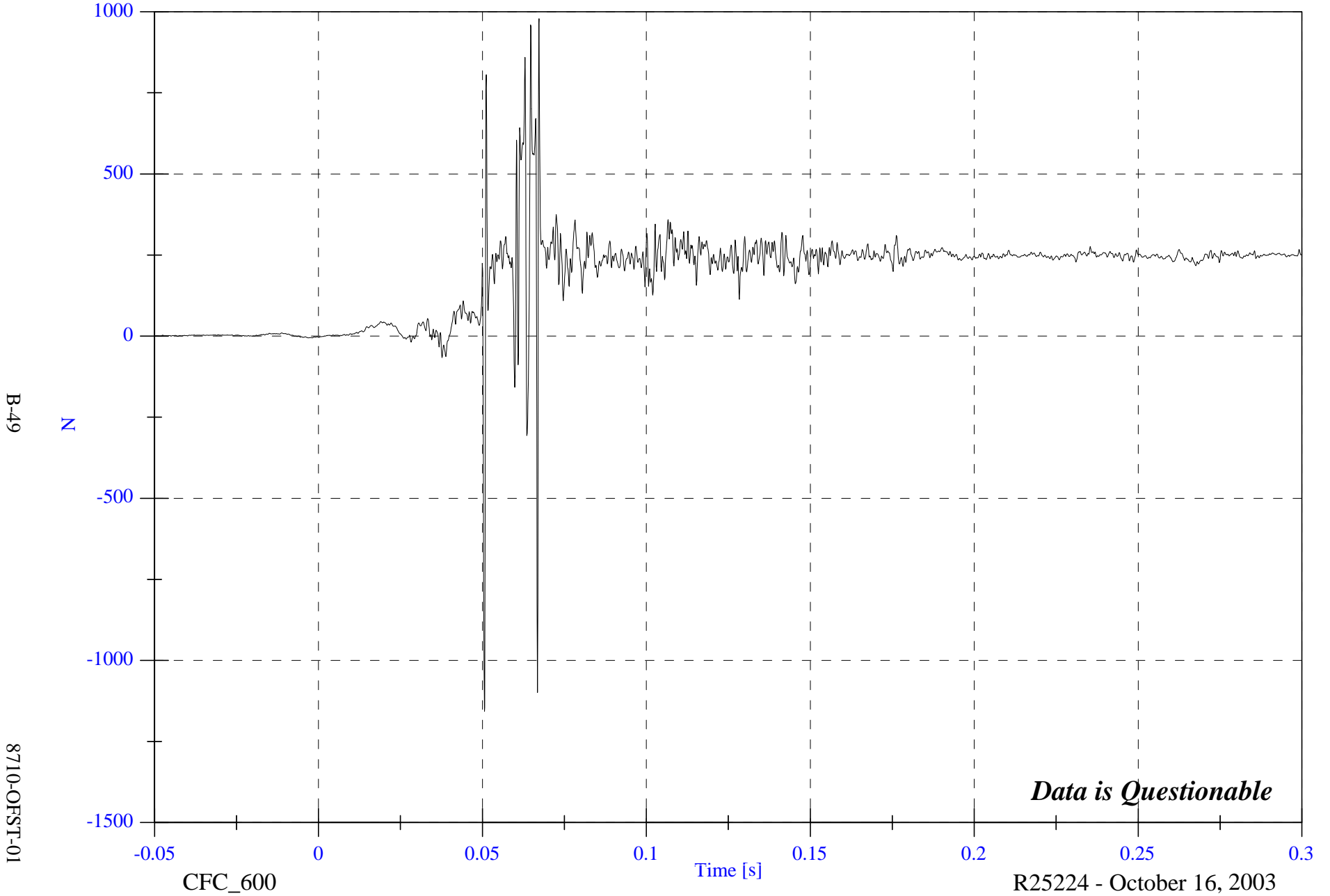
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Left Femur

Max: 979.0 [N] at 0.067 [s]

Min: -1157.2 [N] at 0.051 [s]

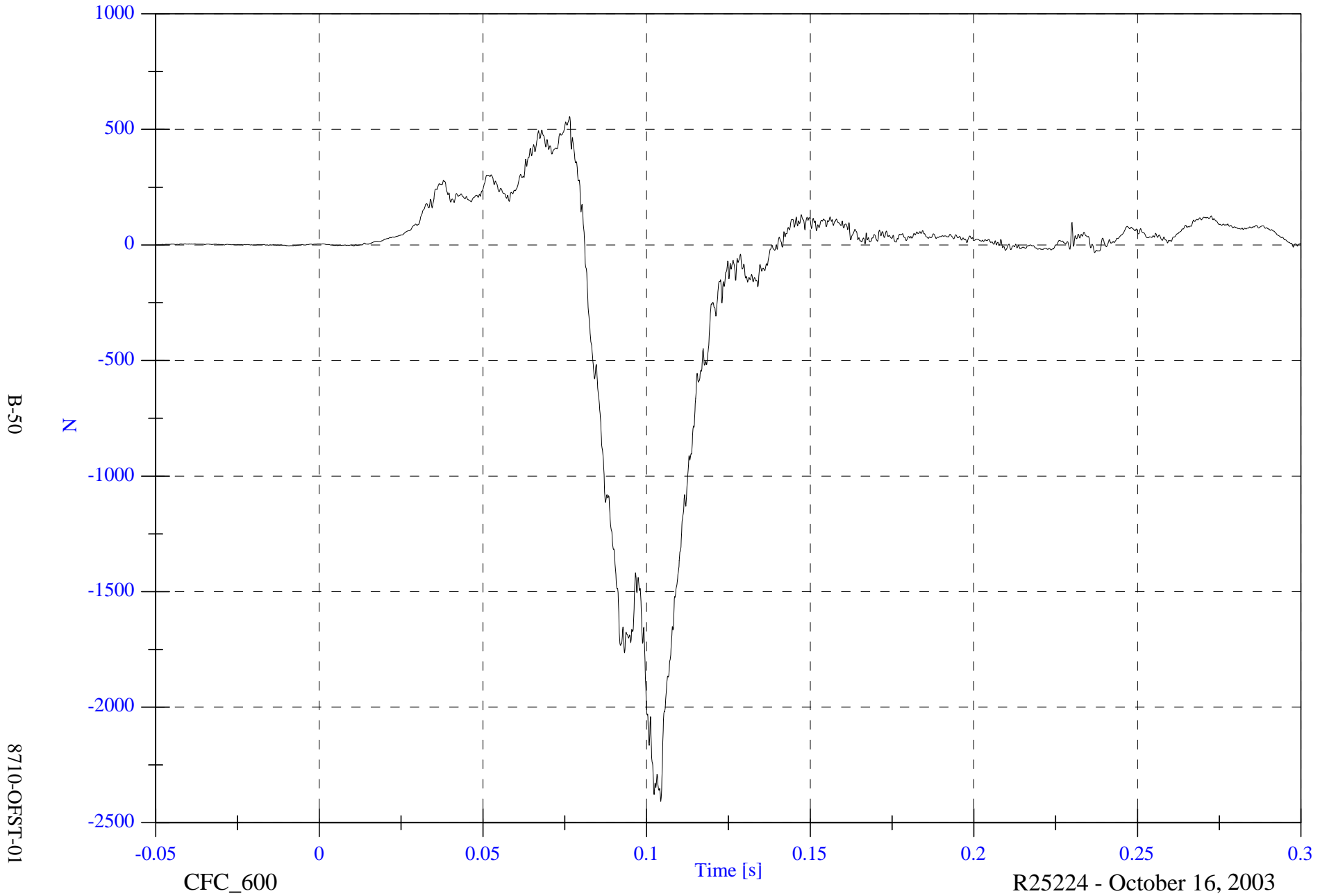


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Right Femur

Max: 556.2 [N] at 0.076 [s]

Min: -2407.1 [N] at 0.104 [s]

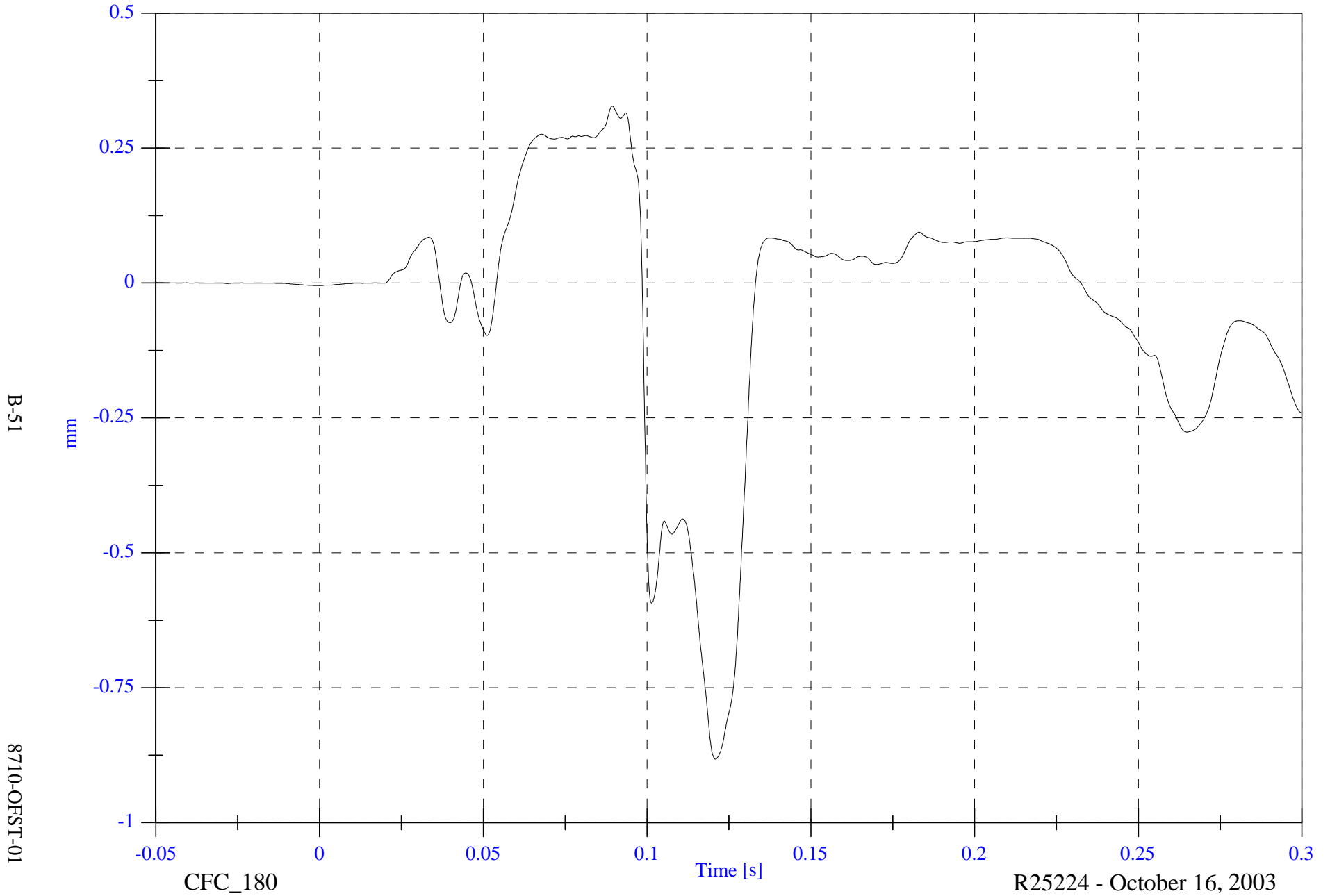


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Left Knee Shear

Max: 0.3 [mm] at 0.089 [s]

Min: -0.9 [mm] at 0.121 [s]



B-51

mm

8710-OFST-01

CFC_180

Time [s]

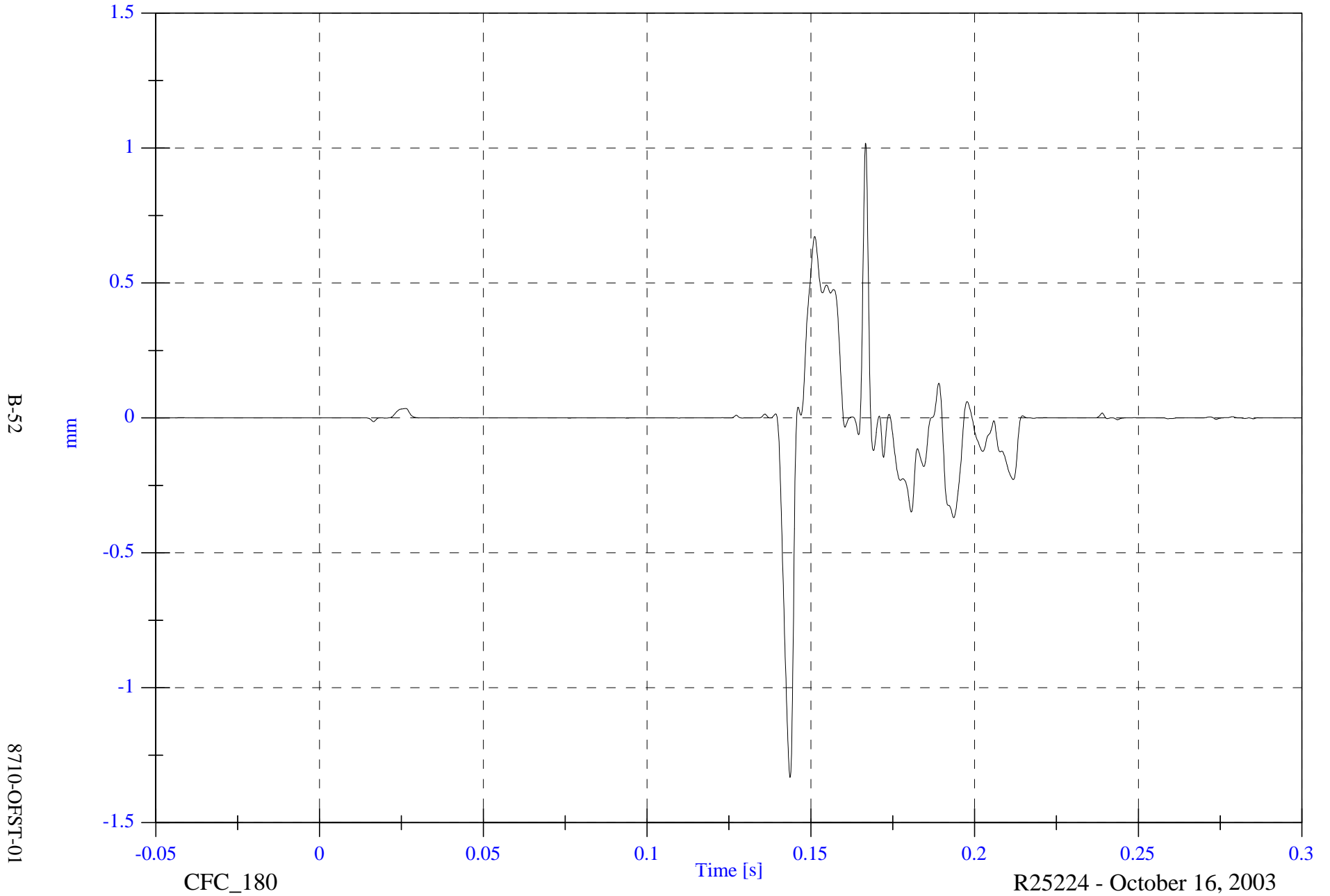
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Right Knee Shear

Max: 1.0 [mm] at 0.167 [s]

Min: -1.3 [mm] at 0.144 [s]

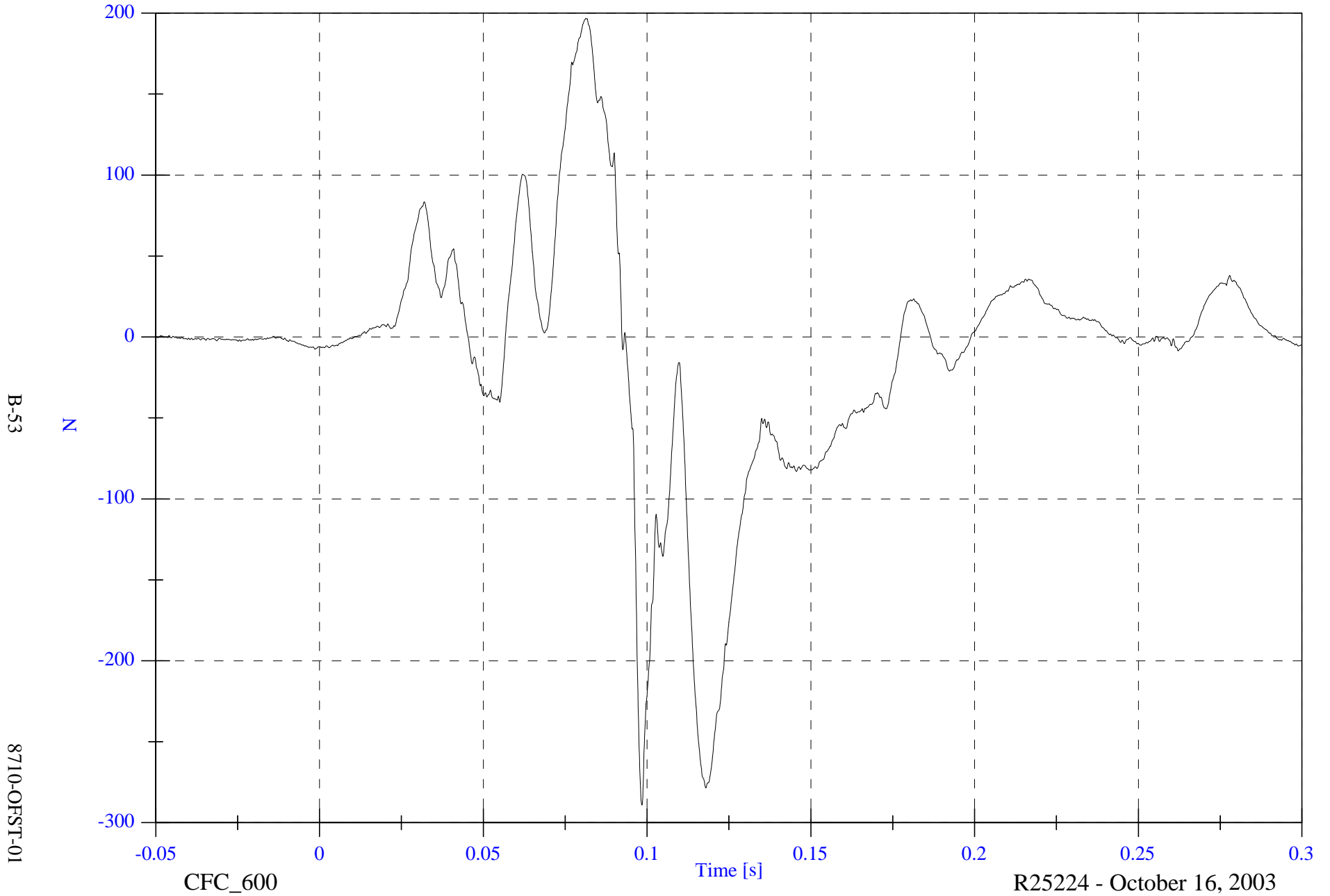


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 196.7 [N] at 0.081 [s]

V1P1 Left Upper Tibia Fx

Min: -289.2 [N] at 0.098 [s]

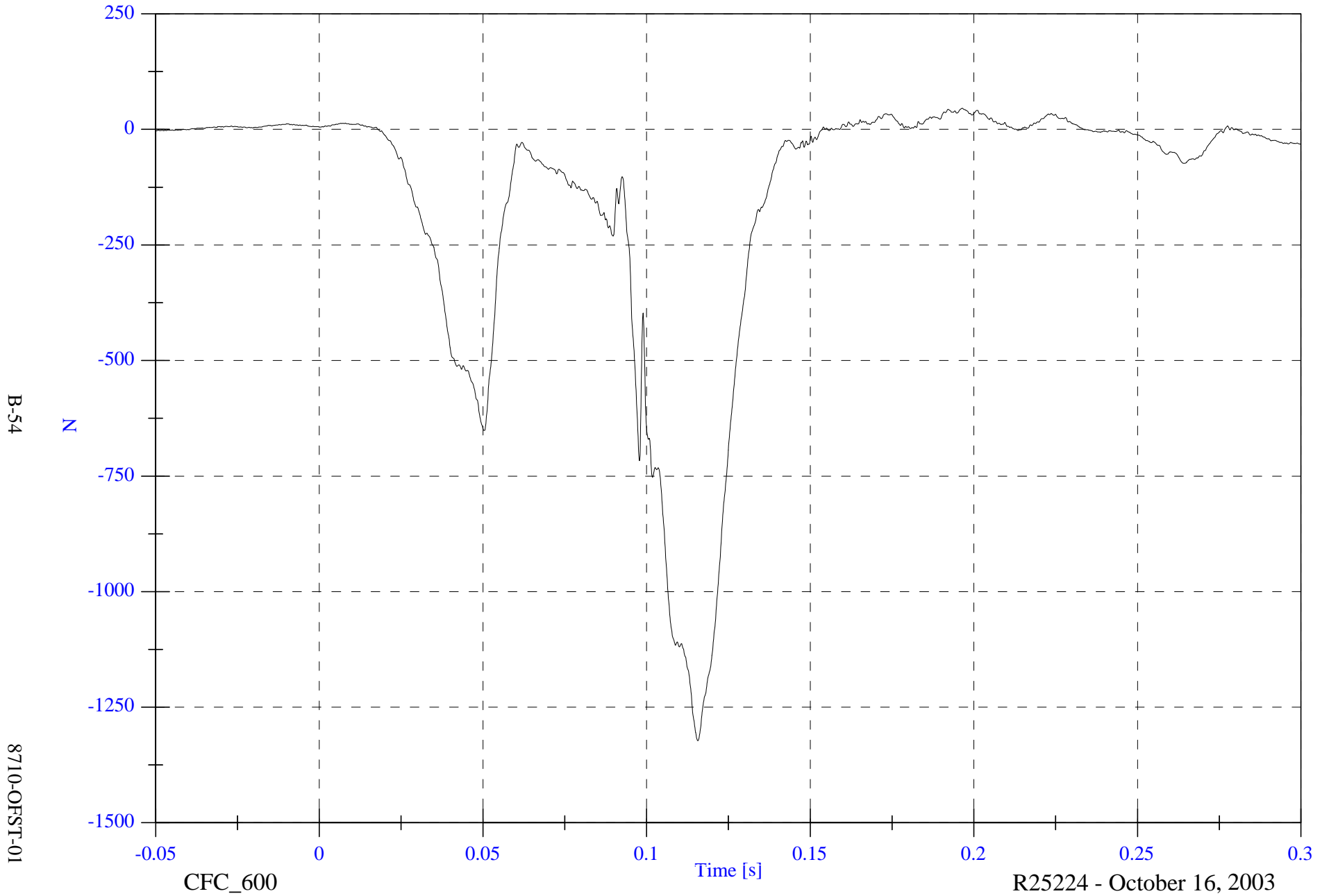


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Left Upper Tibia Fz

Max: 45.7 [N] at 0.196 [s]

Min: -1322.8 [N] at 0.116 [s]



B-54

8710-OFST-01

CFC_600

Time [s]

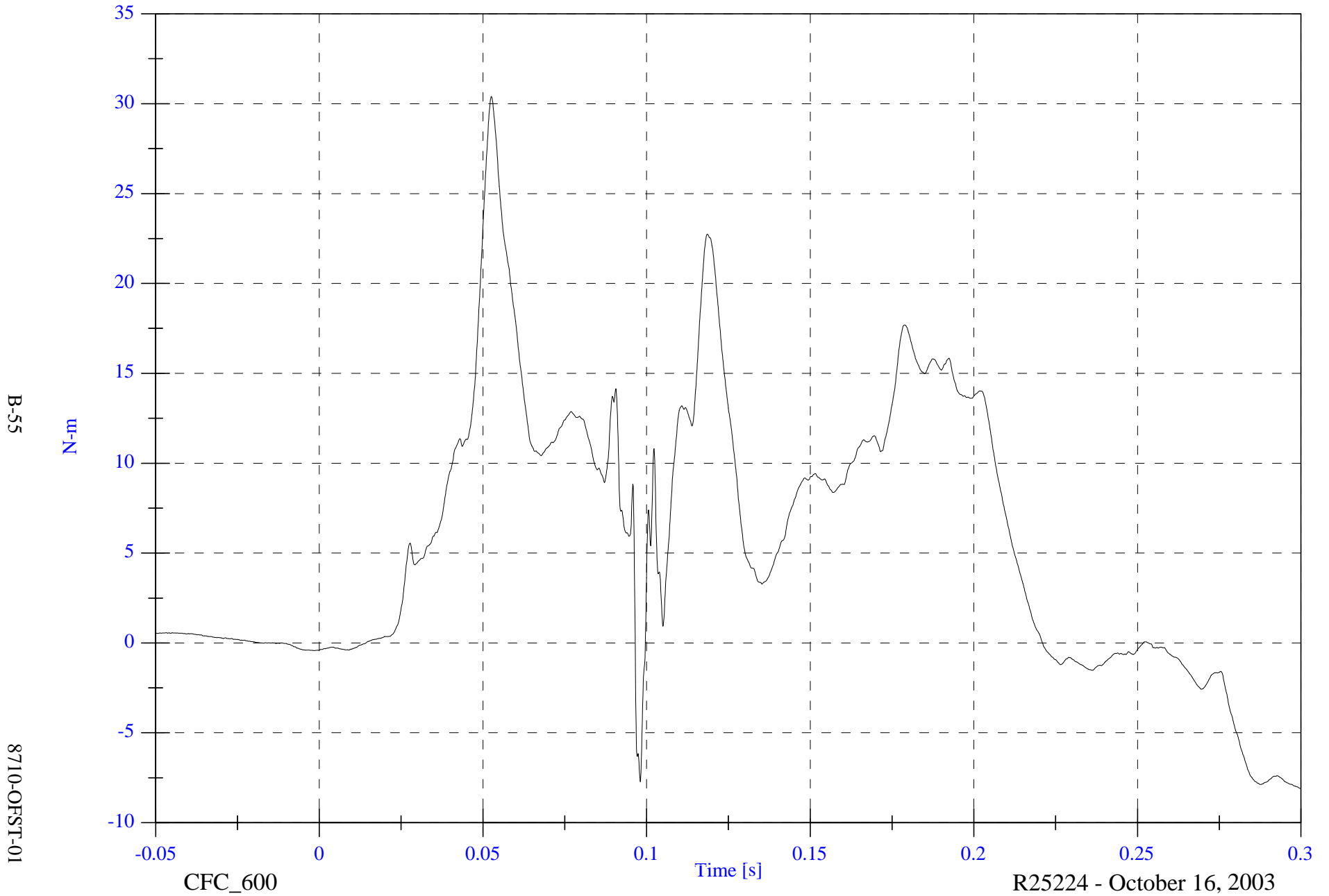
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 30.4 [N-m] at 0.053 [s]

V1P1 Left Upper Tibia Mx

Min: -8.1 [N-m] at 0.300 [s]

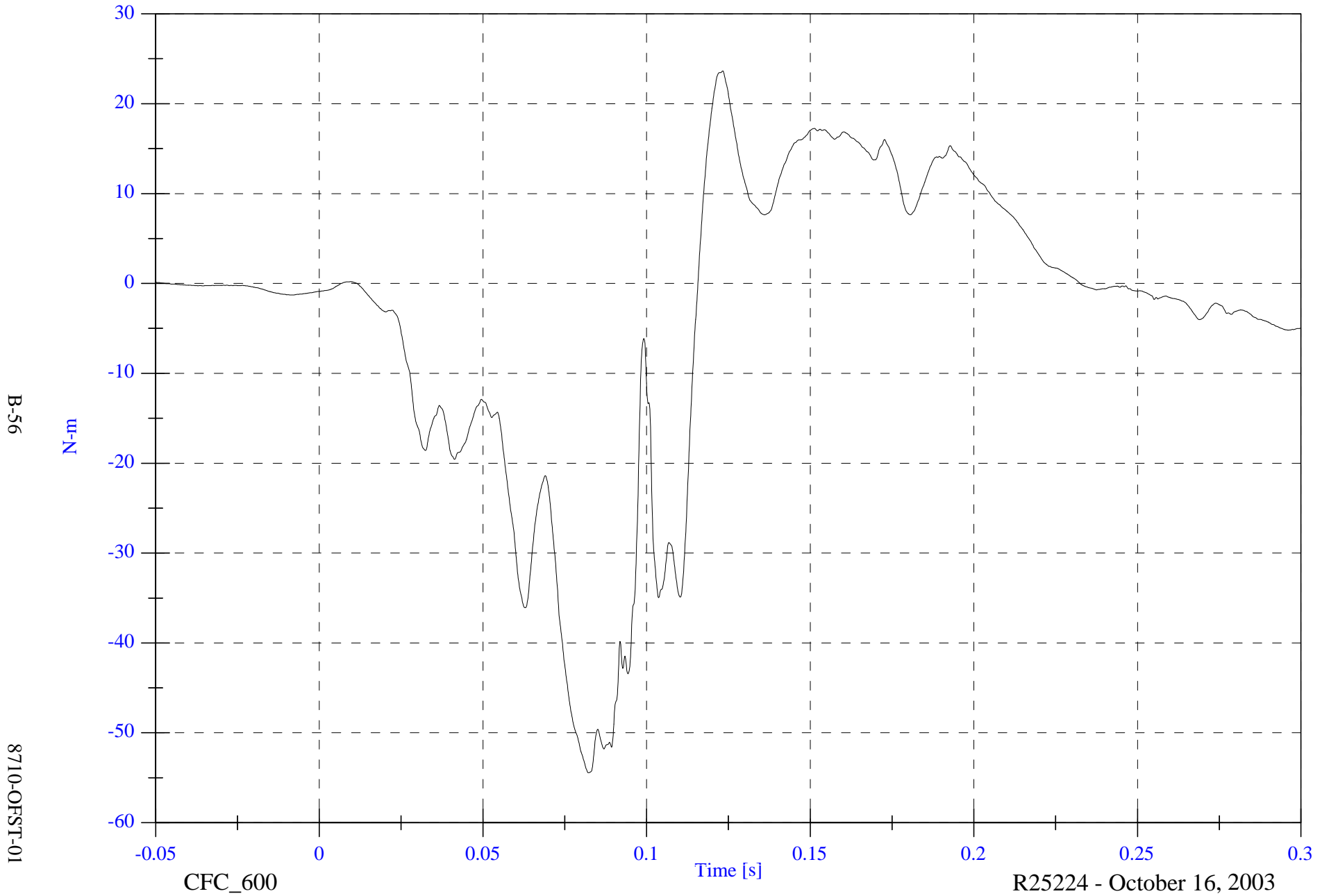


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Left Upper Tibia My

Max: 23.6 [N-m] at 0.123 [s]

Min: -54.4 [N-m] at 0.082 [s]



2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Left Lower Tibia Fx

Max: 35.1 [N] at 0.194 [s]

Min: -695.8 [N] at 0.110 [s]



B-57

8710-OFST-01

CFC_600

Time [s]

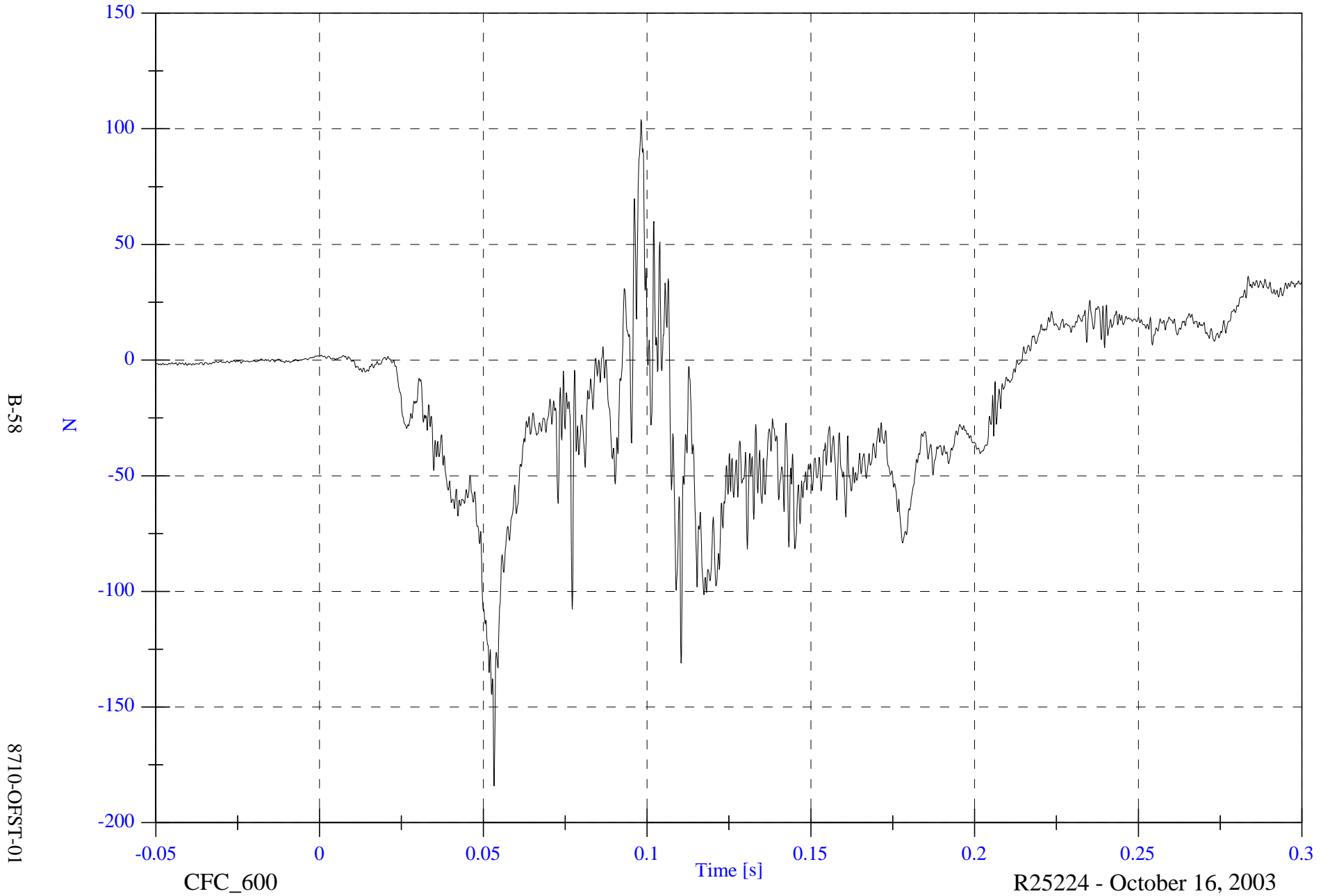
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 104.0 [N] at 0.098 [s]

V1P1 Left Lower Tibia Fy

Min: -184.1 [N] at 0.053 [s]

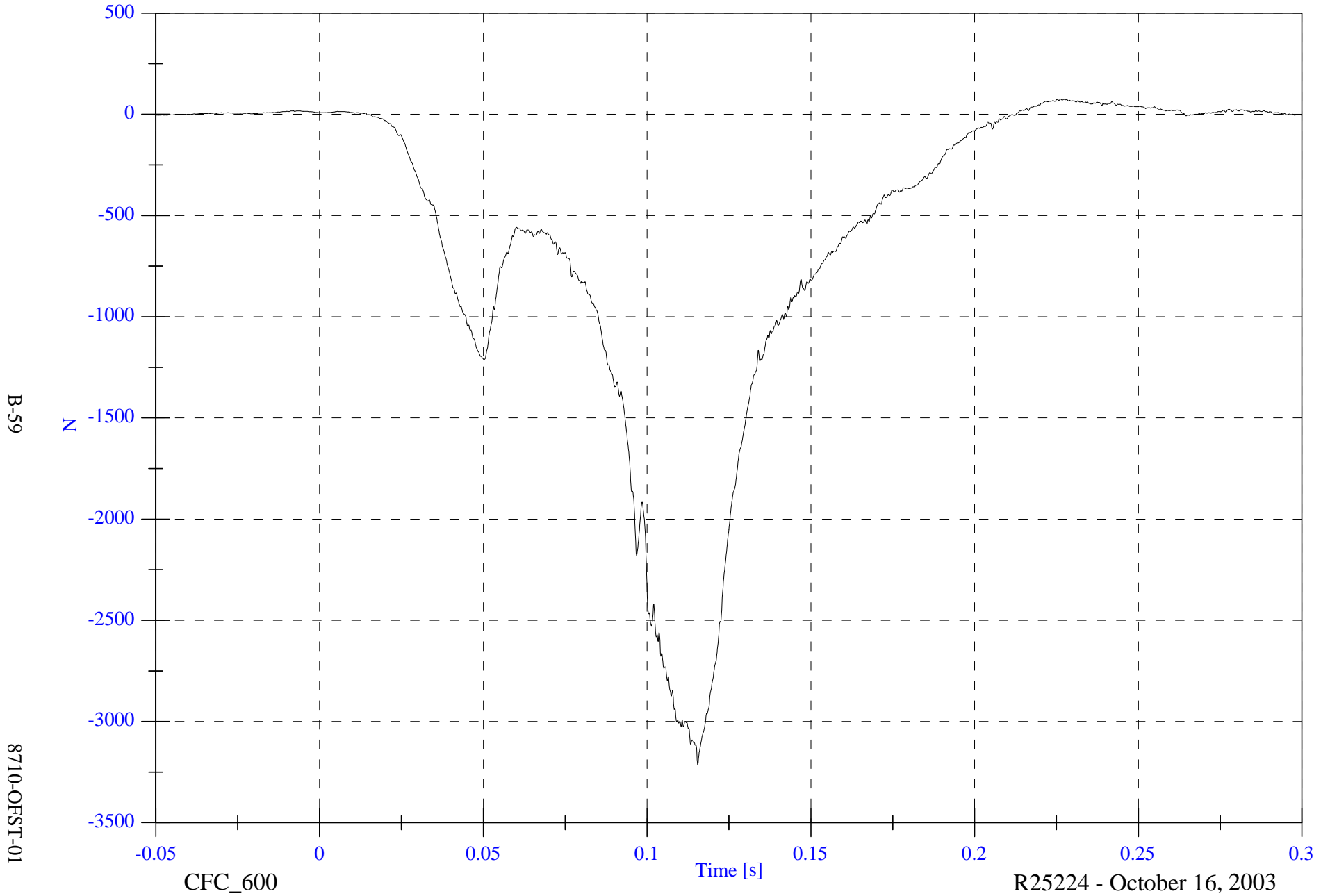


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Left Lower Tibia Fz

Max: 75.3 [N] at 0.226 [s]

Min: -3213.6 [N] at 0.115 [s]



B-59

8710-OFST-01

CFC_600

Time [s]

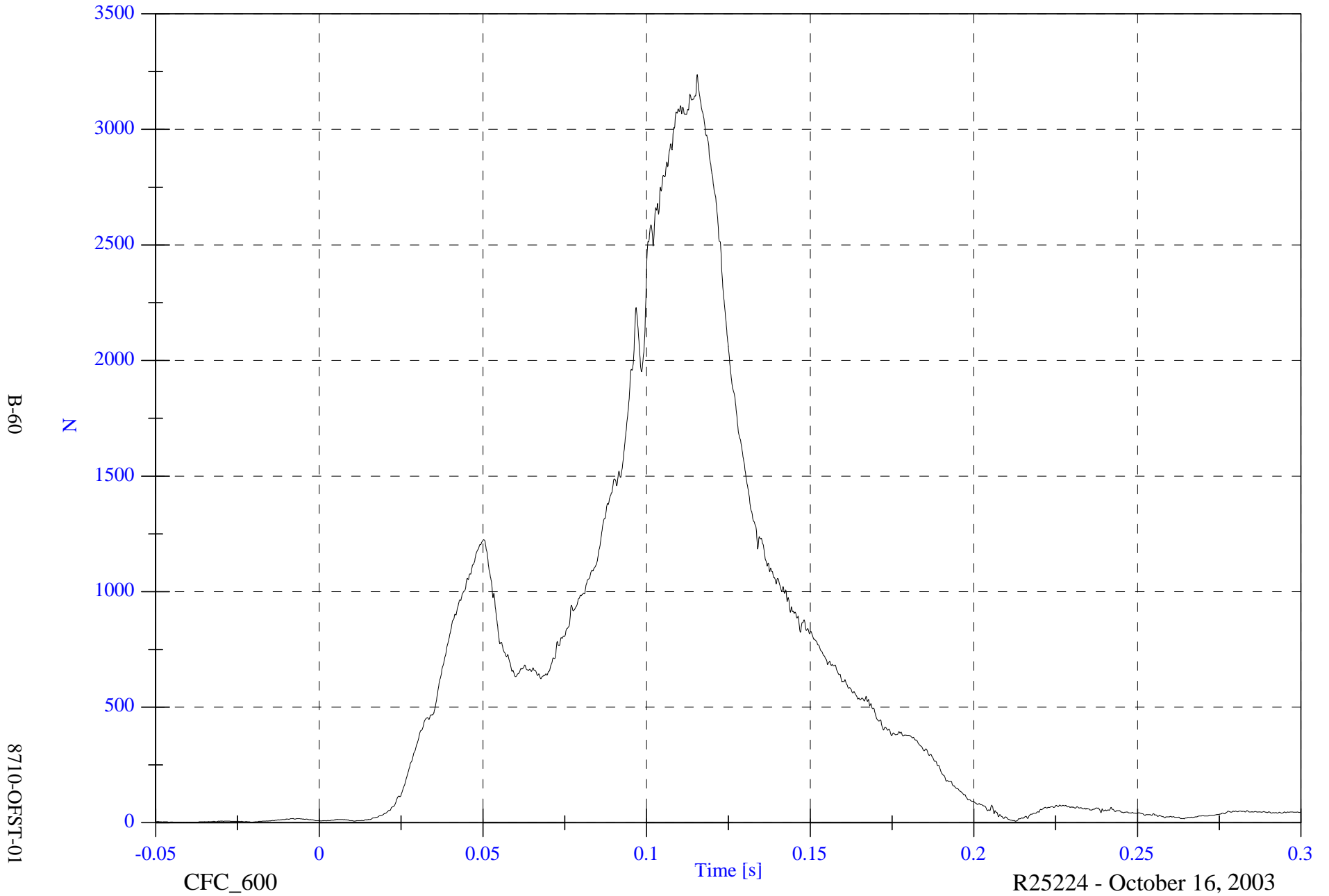
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 3236.8 [N] at 0.115 [s]

V1P1 Left Lower Tibia F Resultant

Min: 1.3 [N] at -0.041 [s]

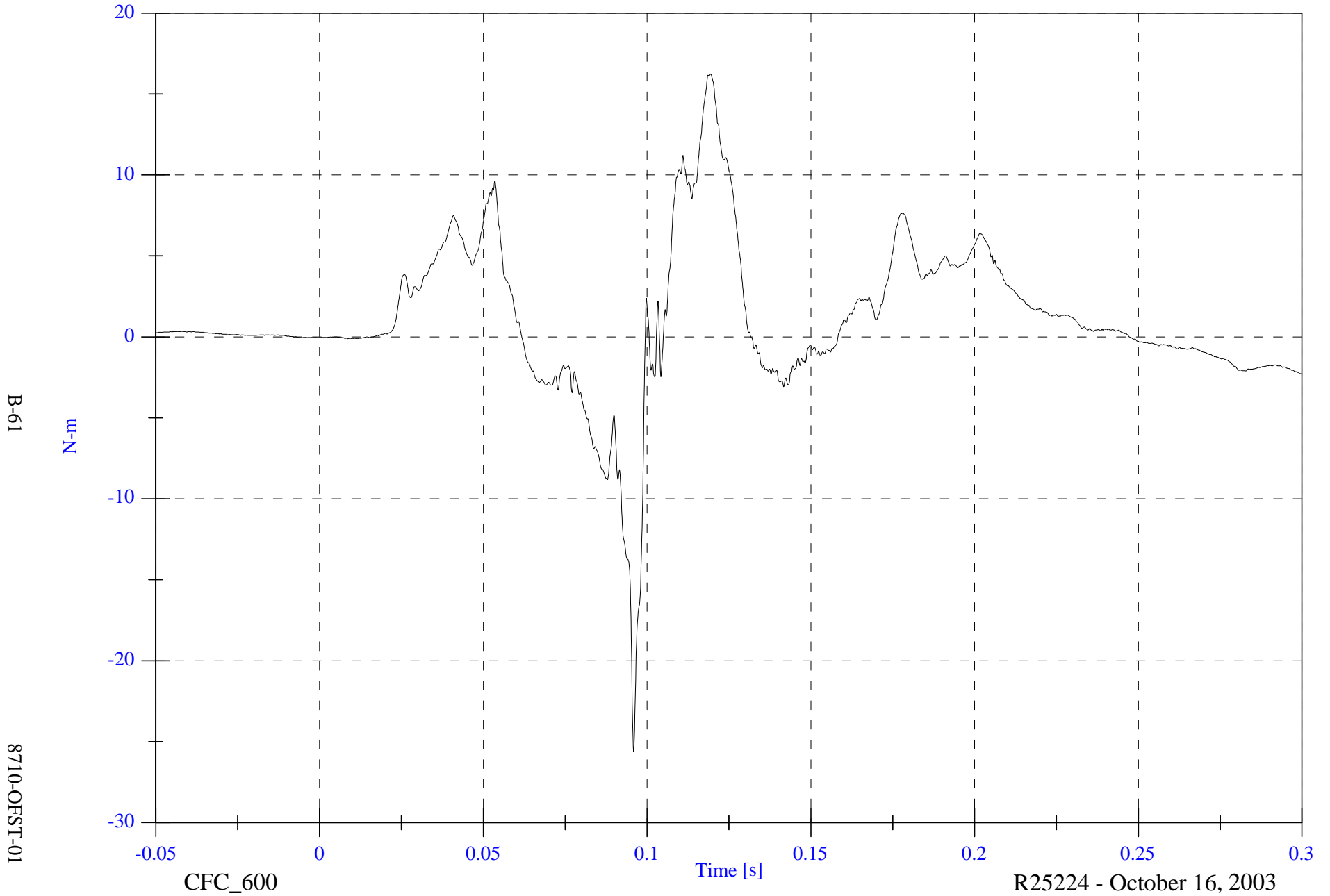


2004 Offset Barrier Test 1 2002 Nissan Altima

VIP1 Left Lower Tibia Mx

Max: 16.2 [N-m] at 0.119 [s]

Min: -25.6 [N-m] at 0.096 [s]

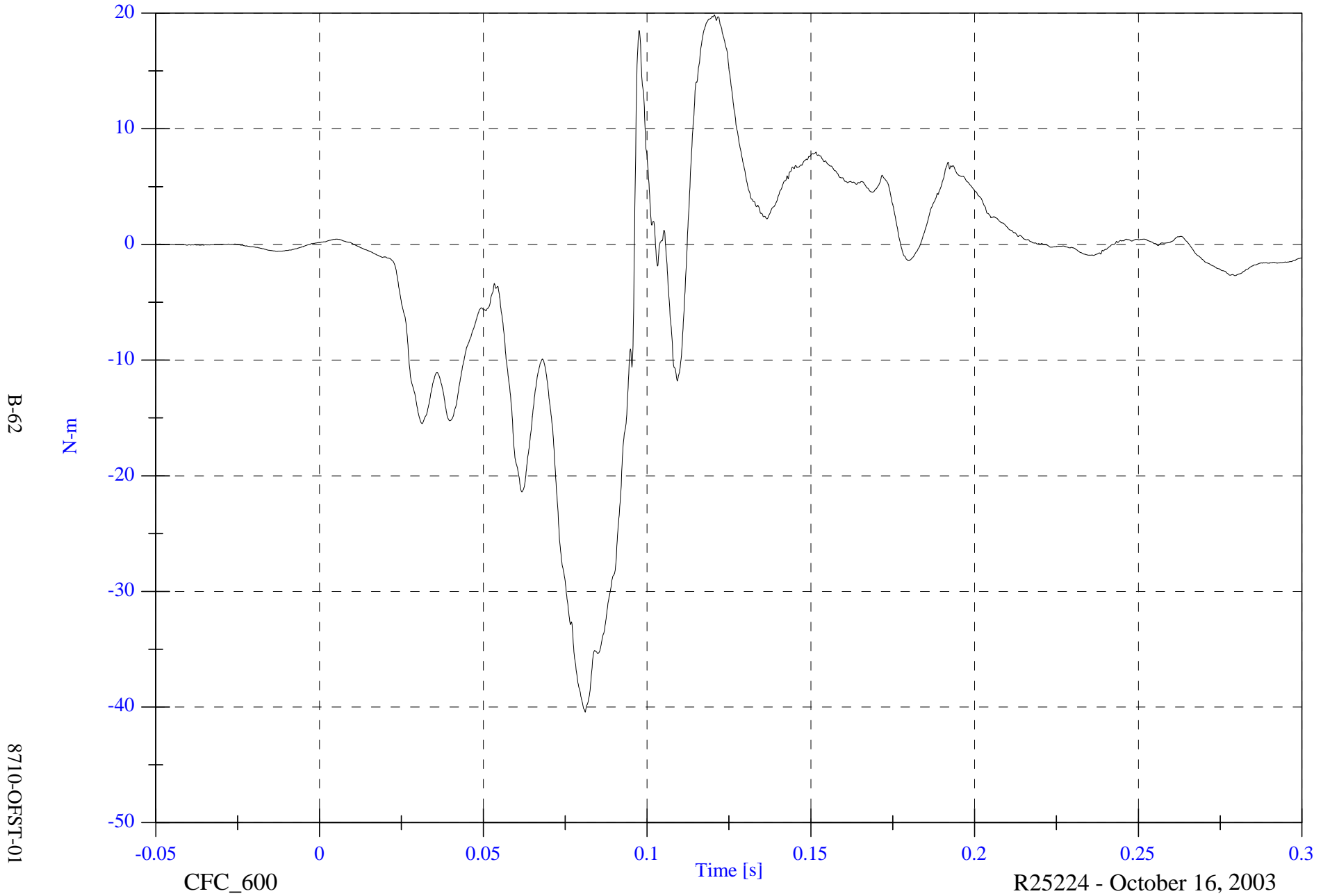


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 19.8 [N-m] at 0.121 [s]

VIP1 Left Lower Tibia My

Min: -40.4 [N-m] at 0.081 [s]

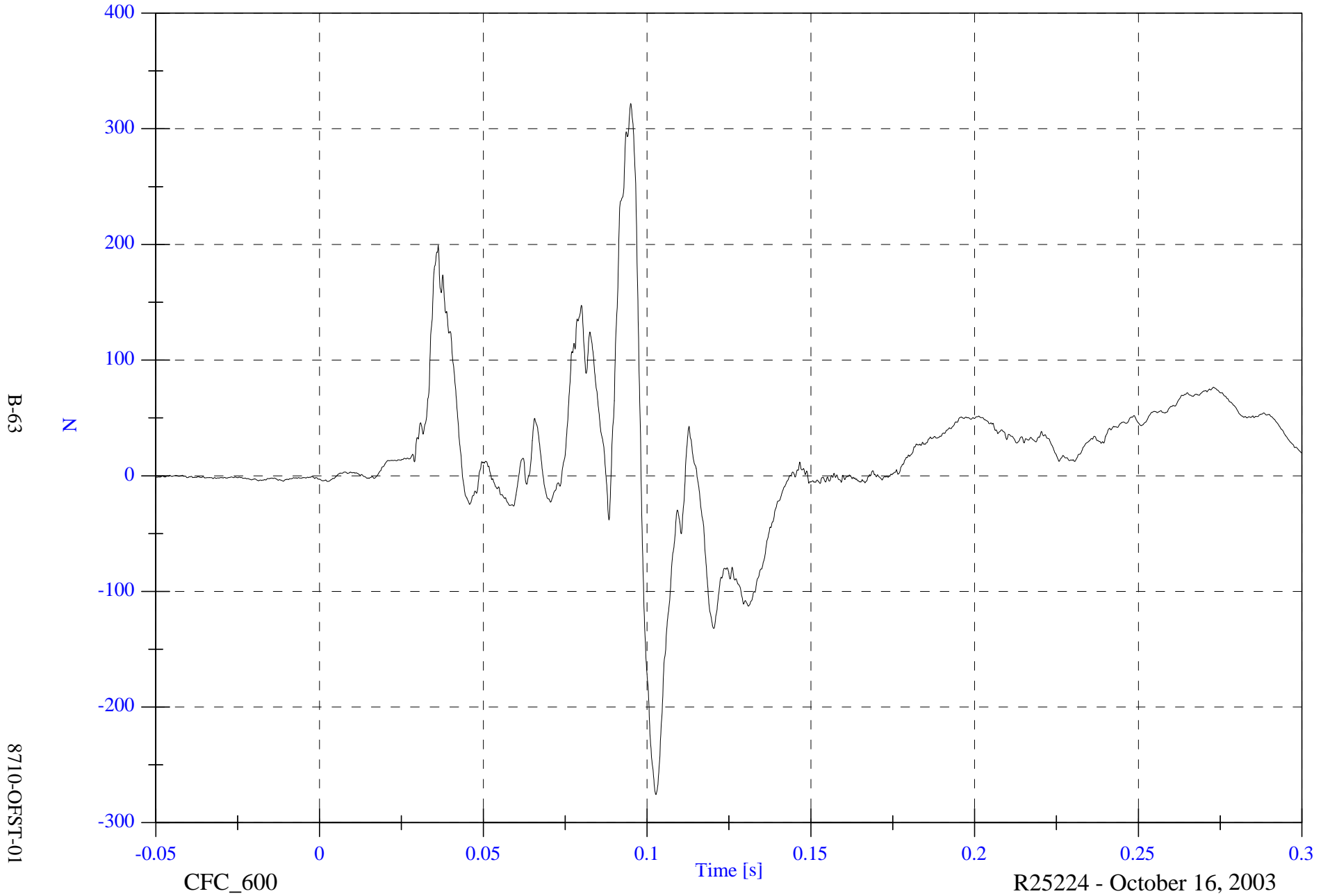


2004 Offset Barrier Test 1 2002 Nissan Altima

VIP1 Right Upper Tibia Fx

Max: 321.7 [N] at 0.095 [s]

Min: -275.7 [N] at 0.103 [s]

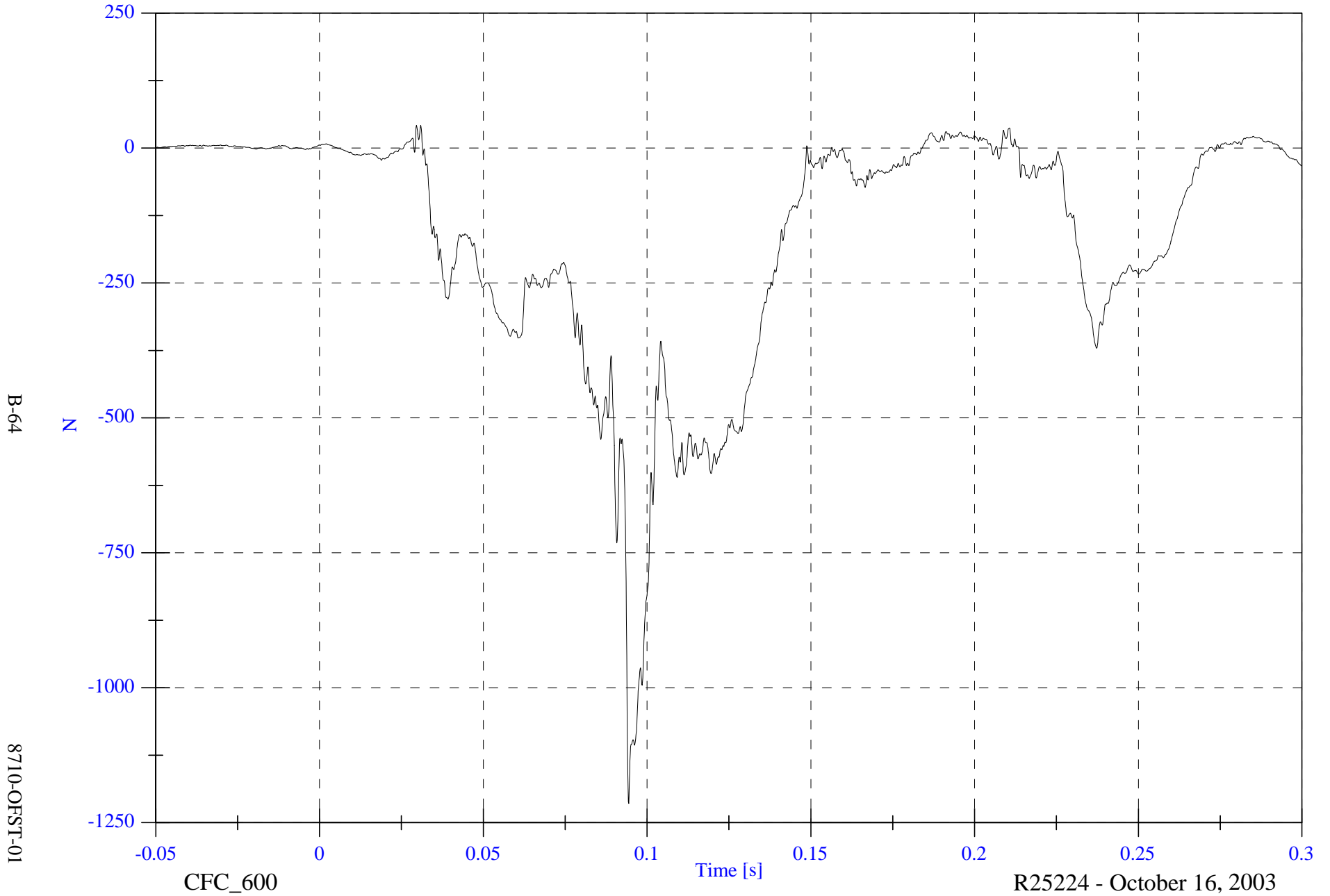


2004 Offset Barrier Test 1 2002 Nissan Altima

VIP1 Right Upper Tibia Fz

Max: 42.0 [N] at 0.031 [s]

Min: -1214.6 [N] at 0.094 [s]

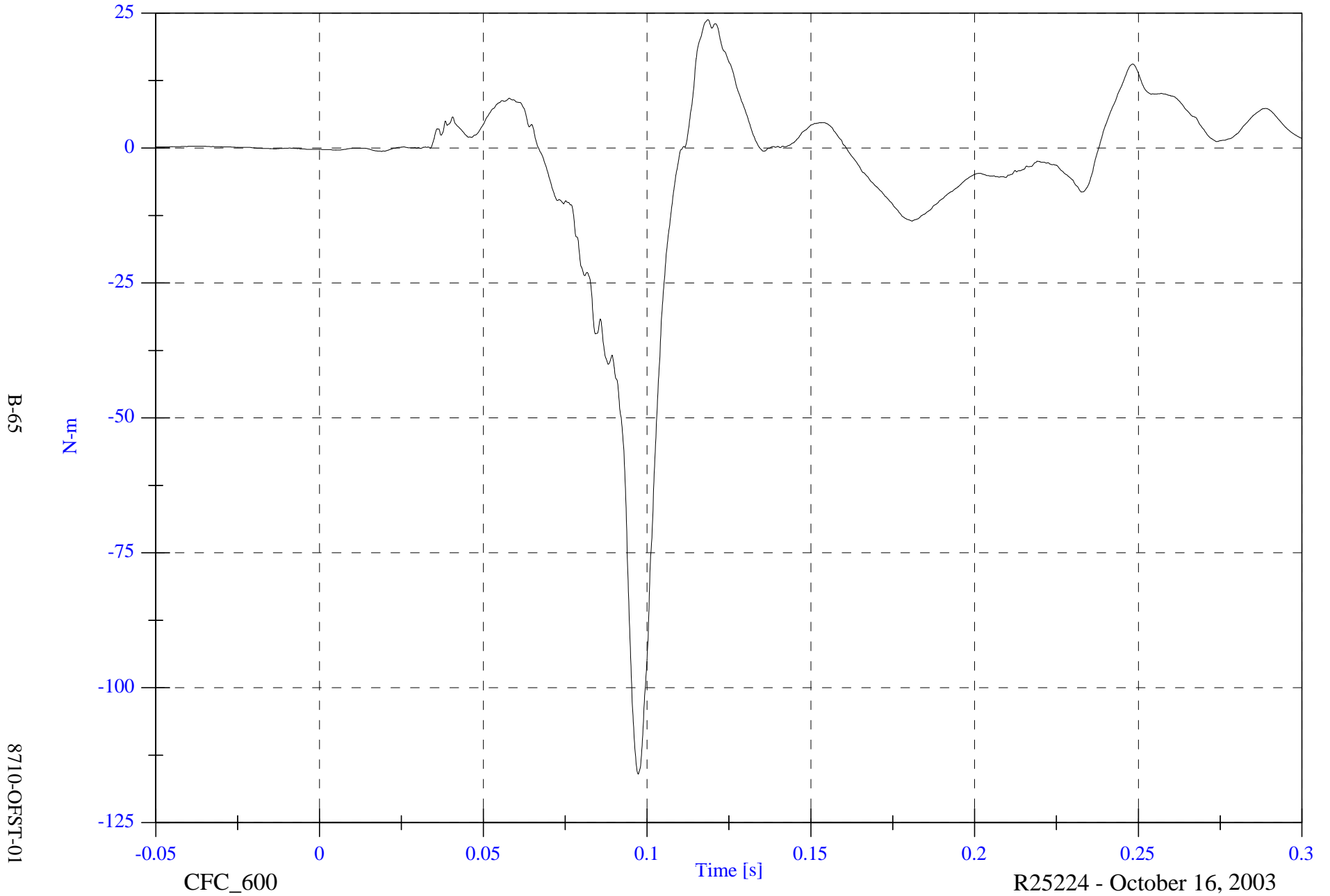


2004 Offset Barrier Test 1 2002 Nissan Altima

VIP1 Right Upper Tibia Mx

Max: 23.8 [N-m] at 0.119 [s]

Min: -116.0 [N-m] at 0.097 [s]



B-65

8710-OFST-01

CFC_600

Time [s]

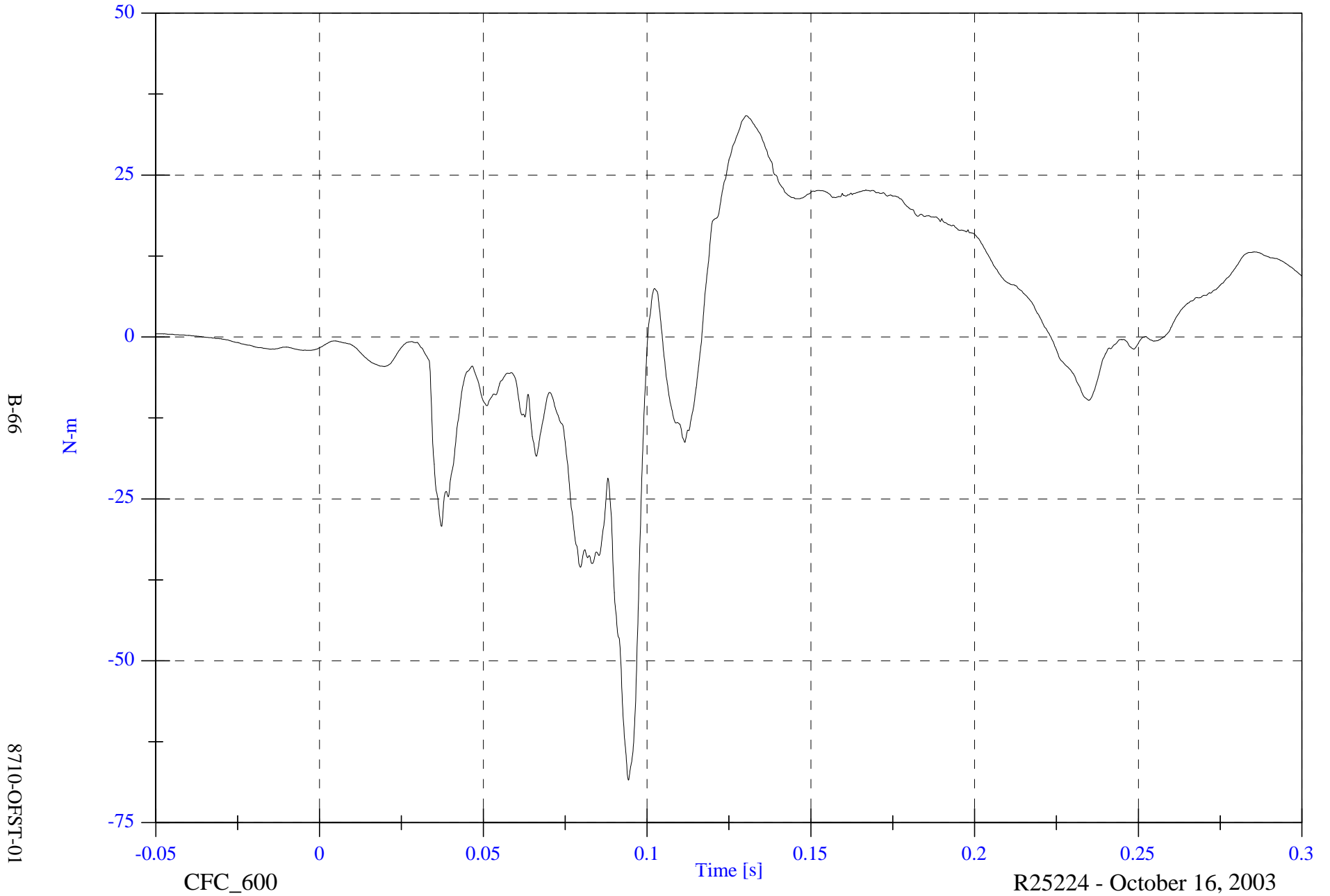
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Right Upper Tibia My

Max: 34.2 [N-m] at 0.130 [s]

Min: -68.4 [N-m] at 0.094 [s]



B-66

8710-OFST-01

CFC_600

Time [s]

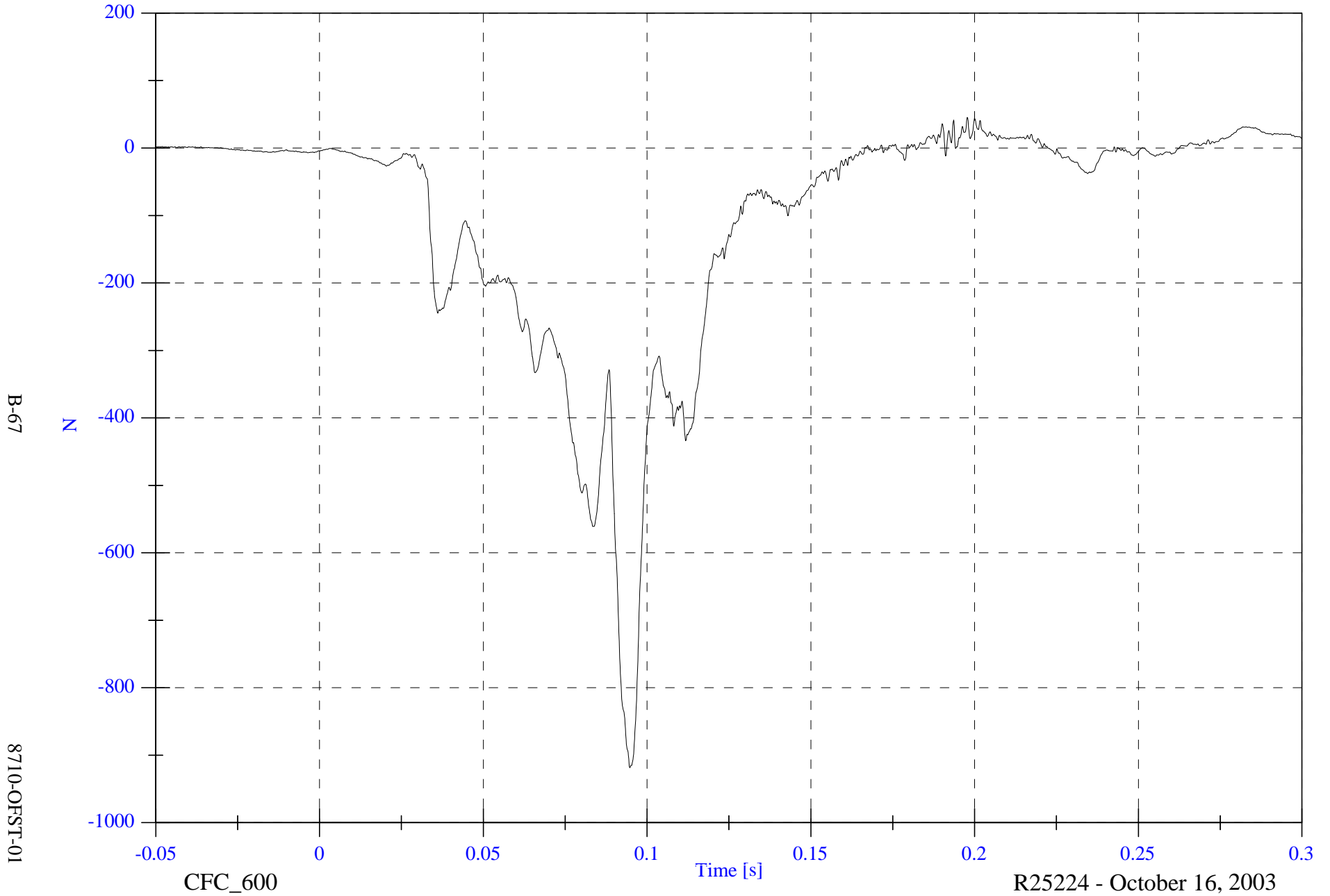
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

VIP1 Right Lower Tibia Fx

Max: 45.5 [N] at 0.198 [s]

Min: -918.3 [N] at 0.095 [s]

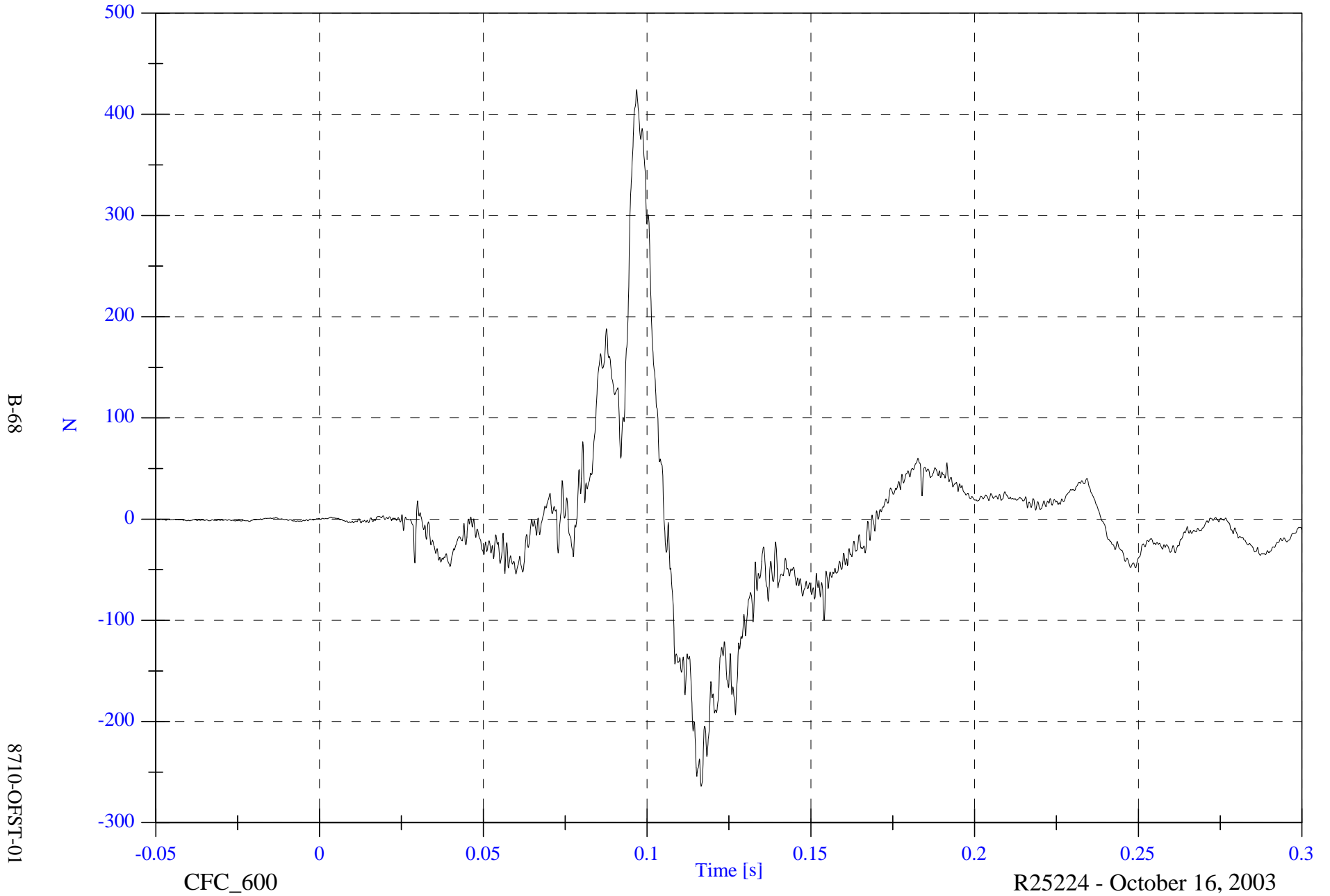


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 424.5 [N] at 0.097 [s]

V1P1 Right Lower Tibia Fy

Min: -264.0 [N] at 0.116 [s]



B-68

8710-OFST-01

CFC_600

Time [s]

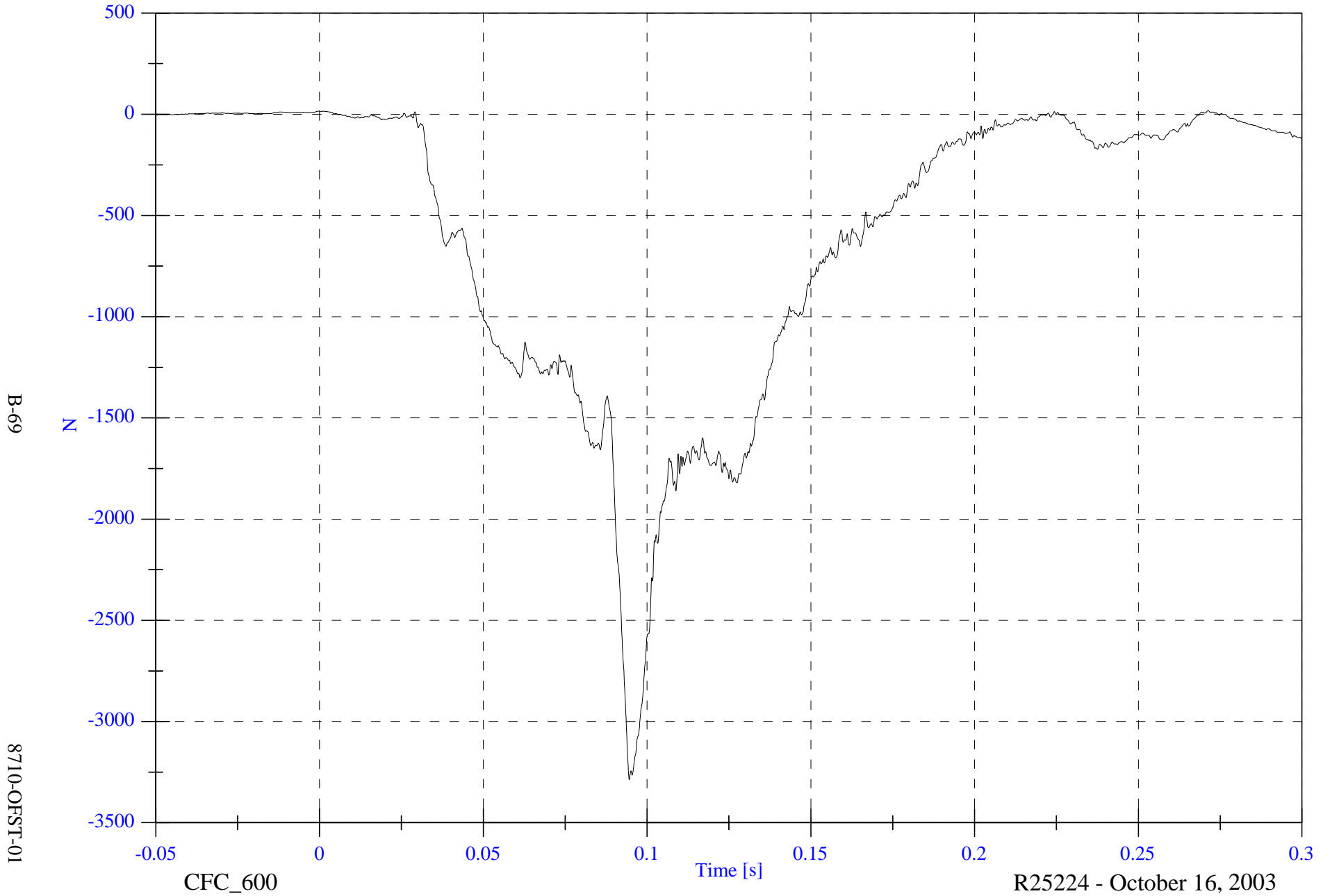
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

VIP1 Right Lower Tibia Fz

Max: 18.1 [N] at 0.271 [s]

Min: -3287.7 [N] at 0.095 [s]

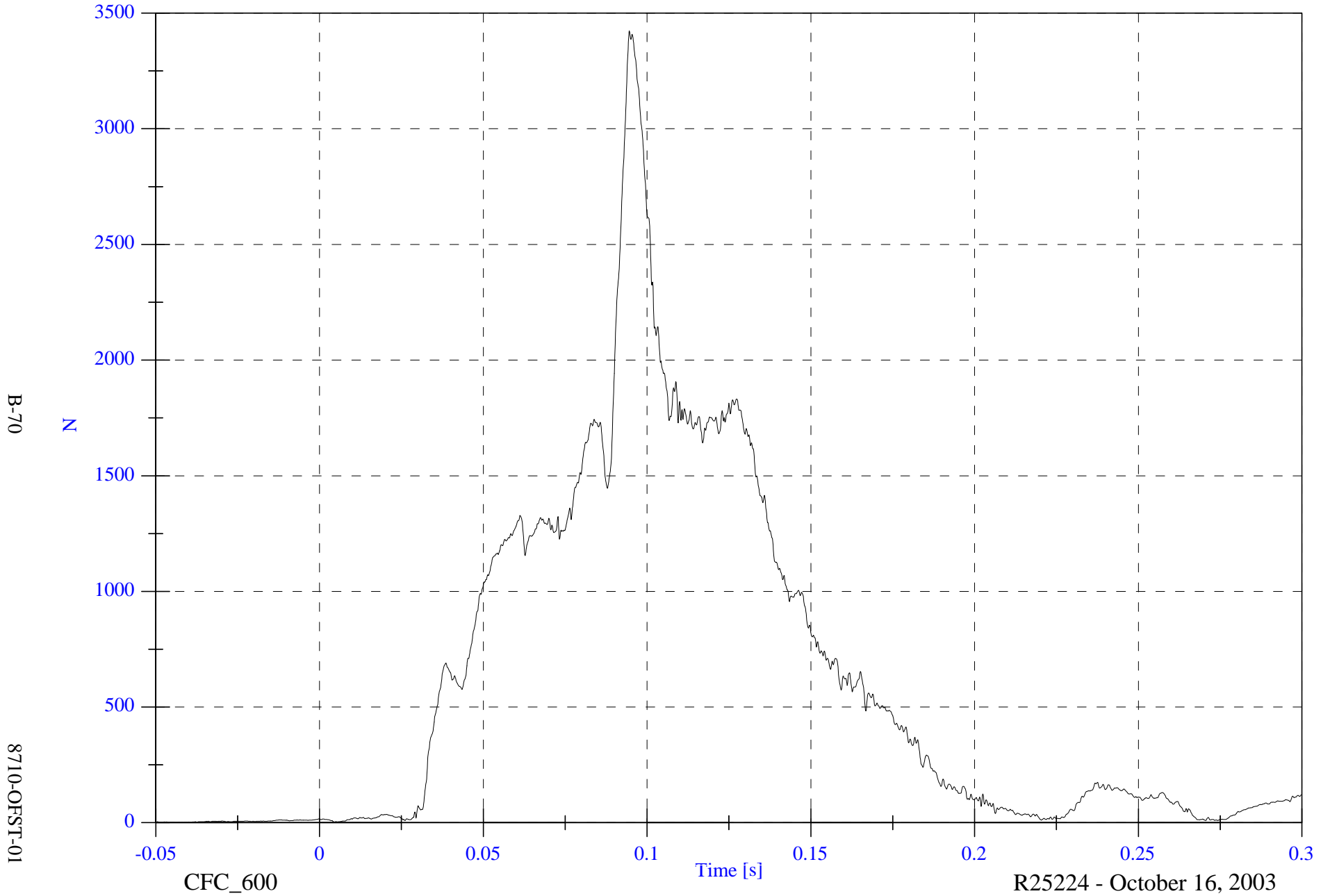


2004 Offset Barrier Test 1 2002 Nissan Altima

VIP1 Right Lower Tibia F Resultant

Max: 3423.3 [N] at 0.095 [s]

Min: 1.3 [N] at -0.043 [s]



B-70

N

8710-OFST-01

CFC_600

Time [s]

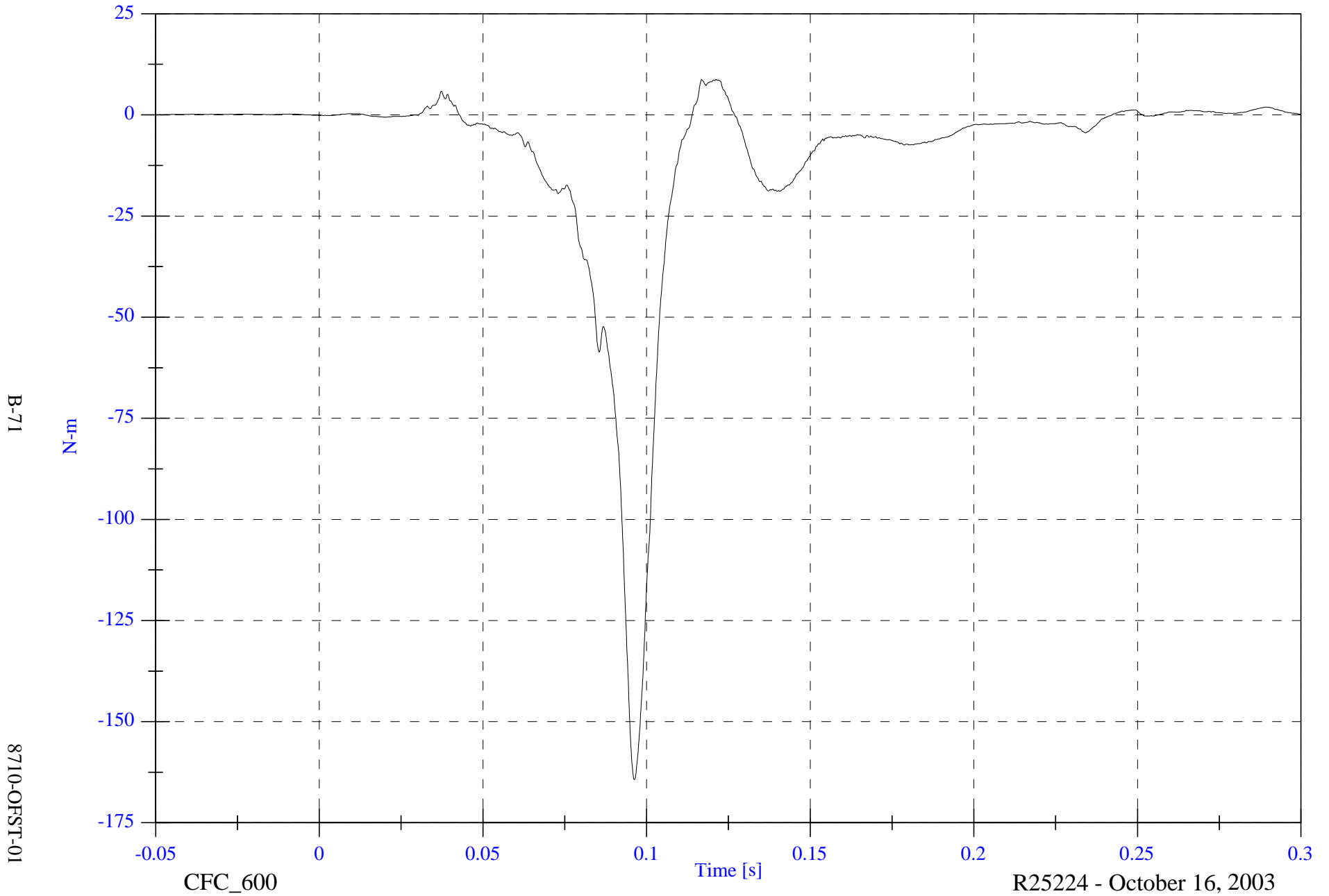
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Right Lower Tibia Mx

Max: 8.8 [N-m] at 0.117 [s]

Min: -164.3 [N-m] at 0.096 [s]



B-71

8710-OFST-01

CFC_600

Time [s]

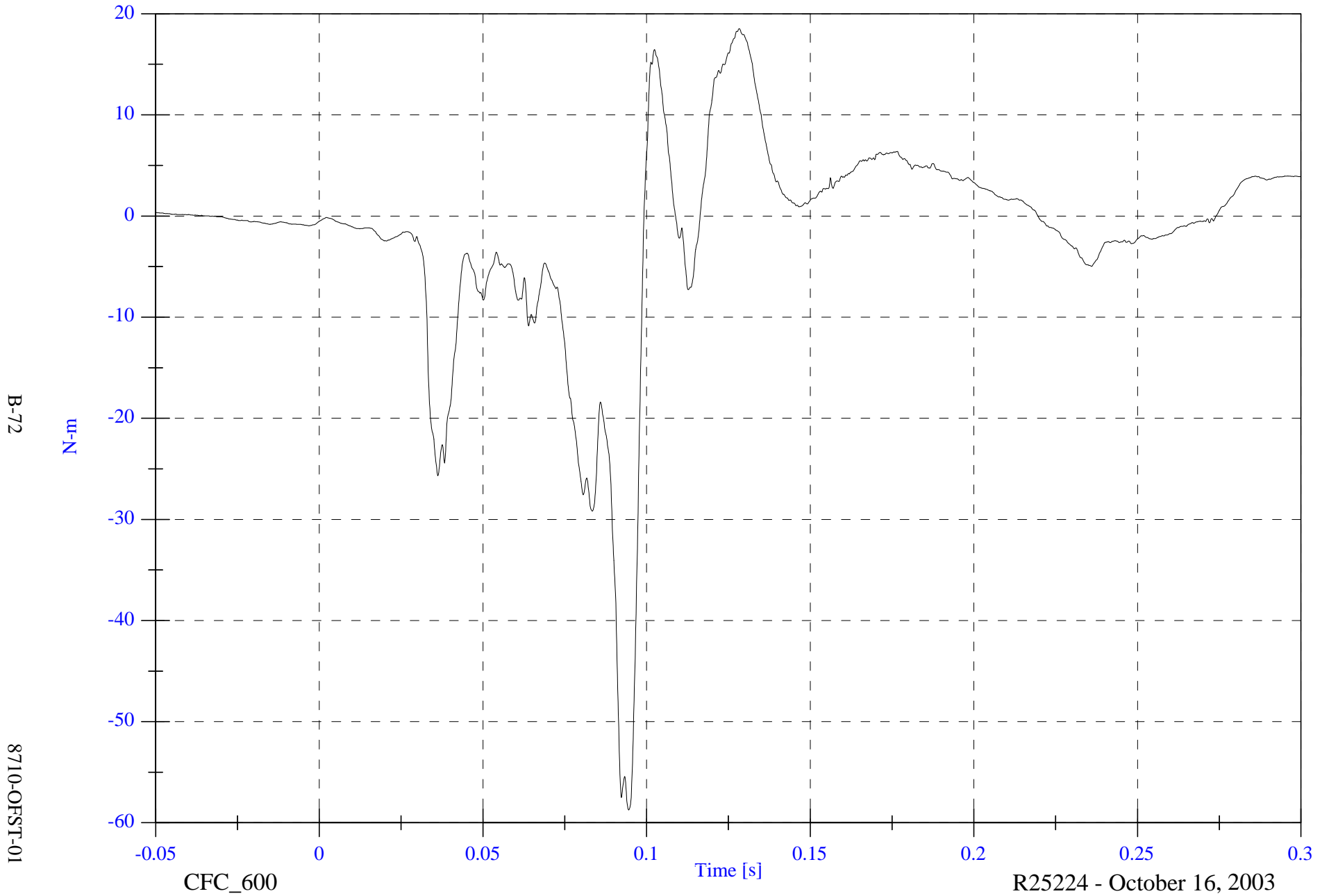
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 18.5 [N-m] at 0.128 [s]

V1P1 Right Lower Tibia My

Min: -58.7 [N-m] at 0.095 [s]



B-72

8710-OFST-01

CFC_600

Time [s]

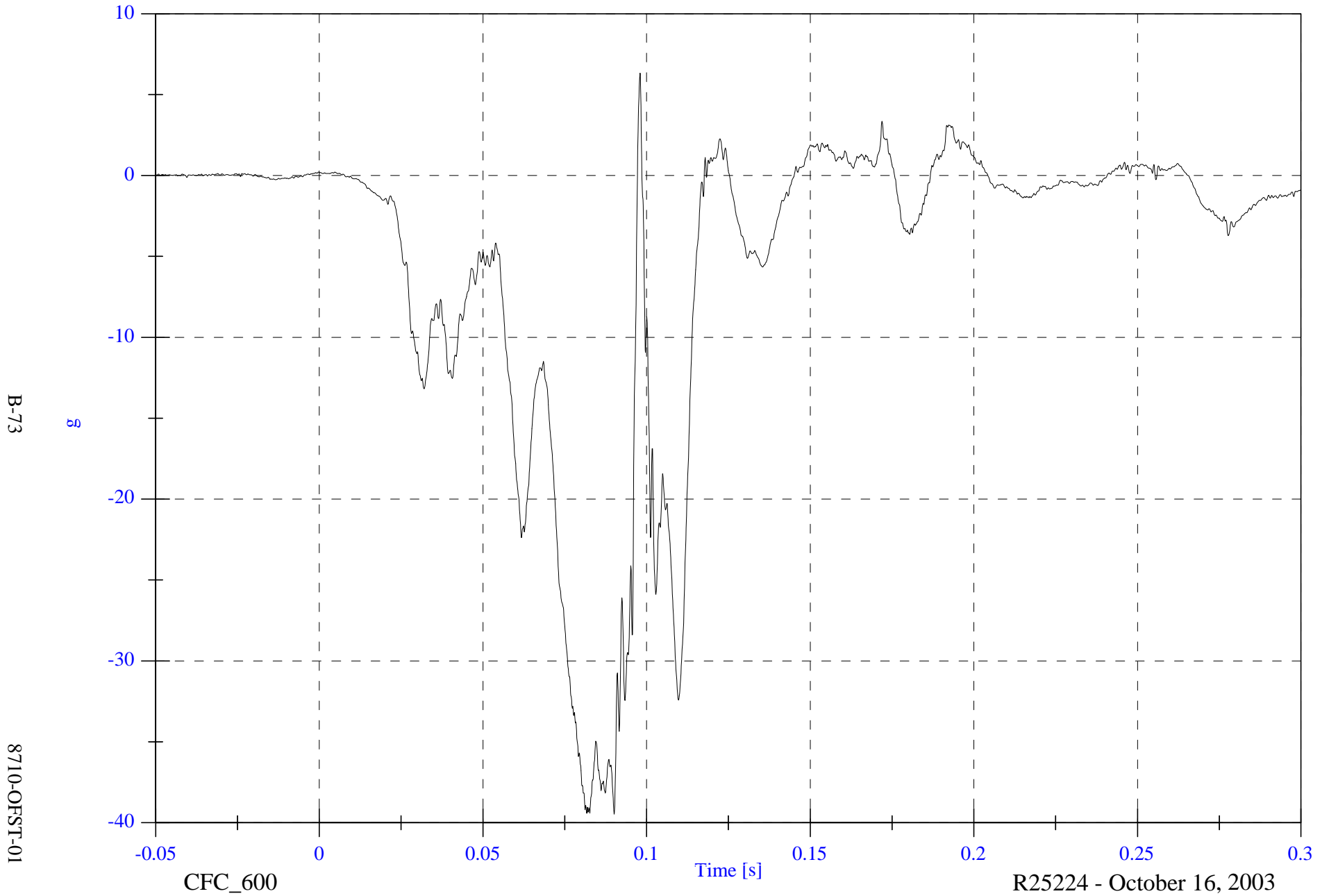
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 6.3 [g] at 0.098 [s]

Min: -39.5 [g] at 0.090 [s]

V1P1 Left Tibia x



2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 22.4 [g] at 0.098 [s]

Min: -11.1 [g] at 0.101 [s]

V1P1 Left Tibia y



B-74

8710-OFST-01

CFC_600

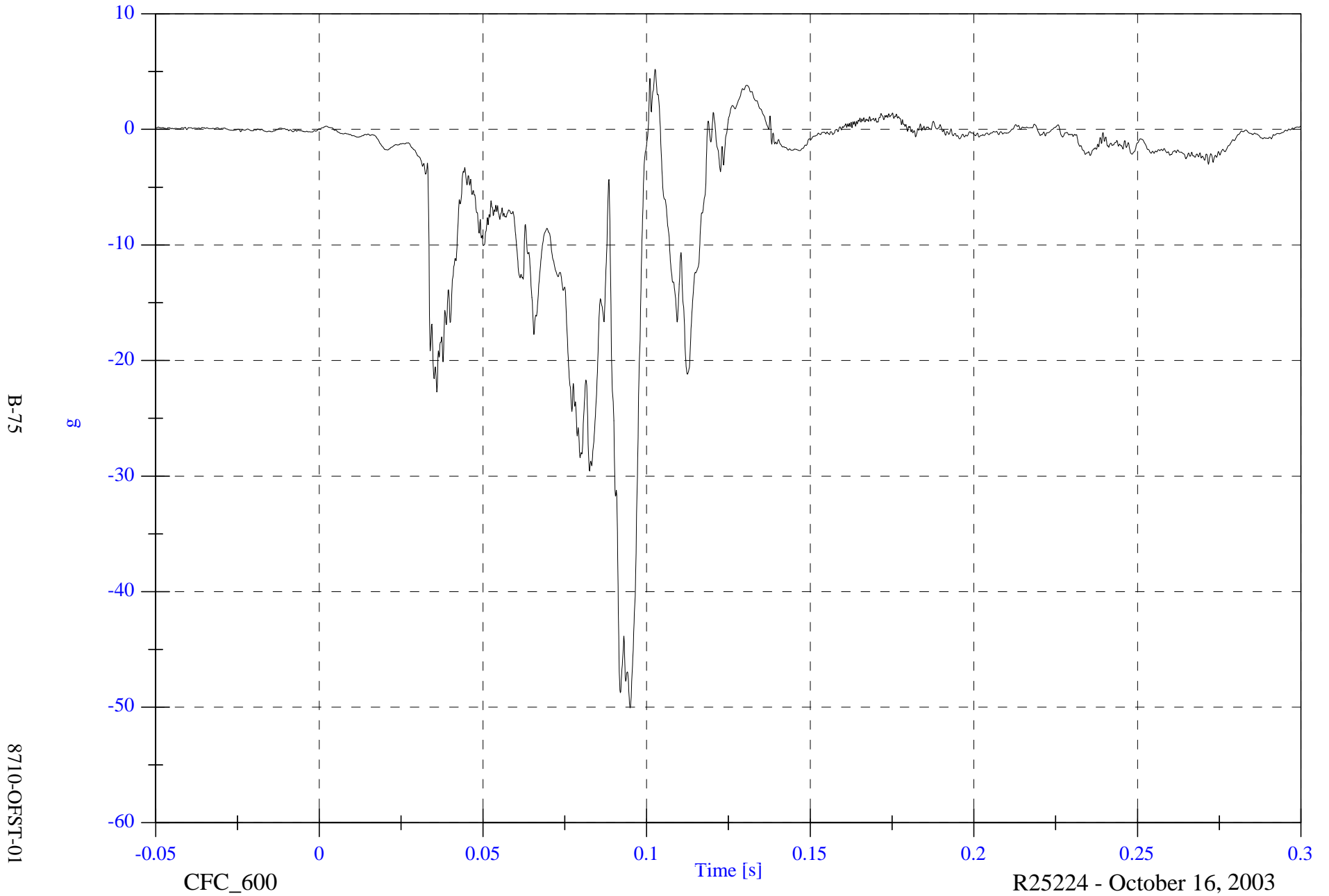
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 5.2 [g] at 0.103 [s]

Min: -50.1 [g] at 0.095 [s]

VIP1 Right Tibia x



2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 54.2 [g] at 0.096 [s]

Min: -21.1 [g] at 0.116 [s]

V1P1 Right Tibia y



B-76

8710-OFST-01

CFC_600

Time [s]

R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Left Ankle Rotation x

Max: 10.8 [deg] at 0.217 [s]

Min: -17.8 [deg] at 0.109 [s]



B-77

8710-OFST-01

CFC_180

Time [s]

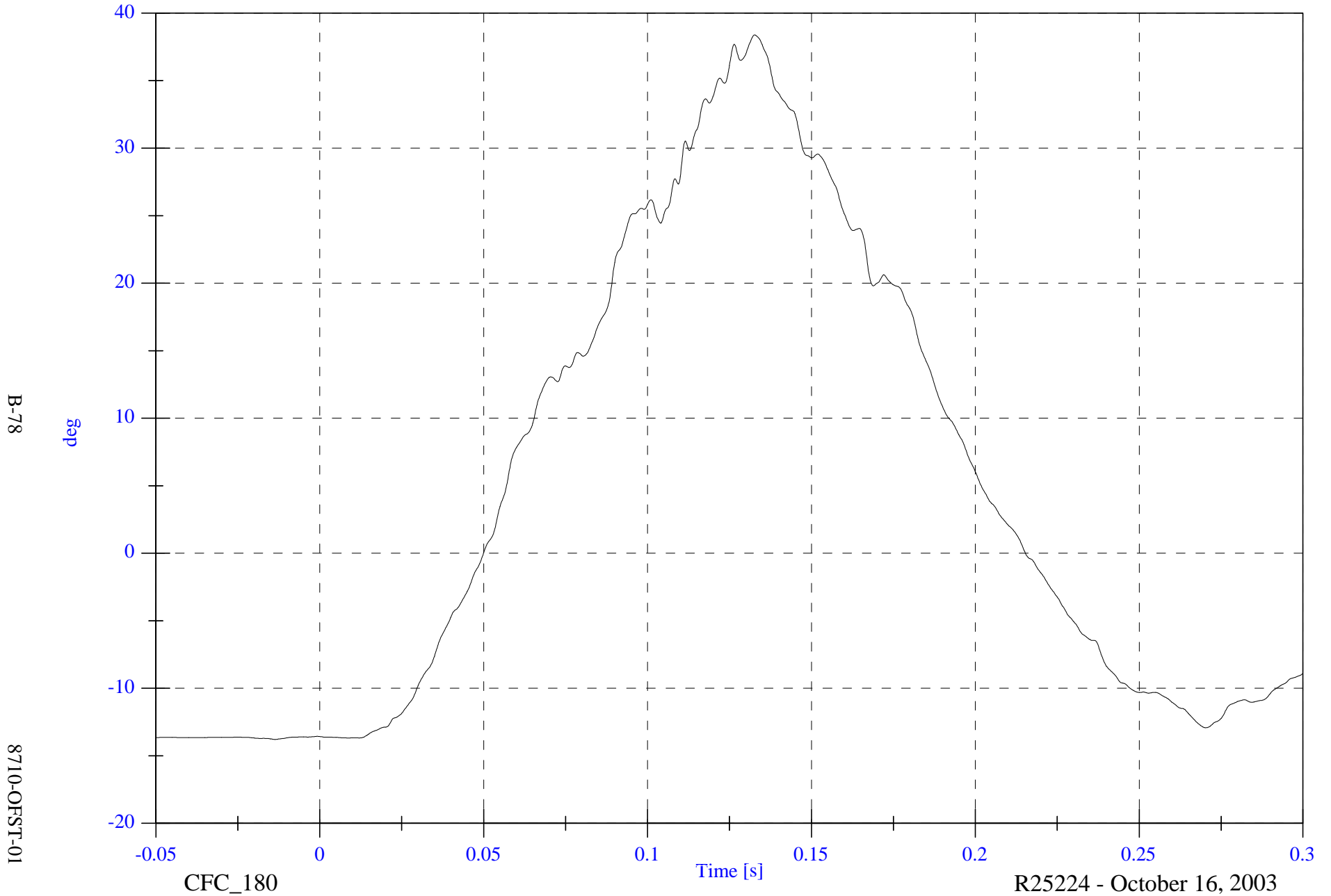
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Left Ankle Rotation y

Max: 38.4 [deg] at 0.133 [s]

Min: -13.8 [deg] at -0.014 [s]

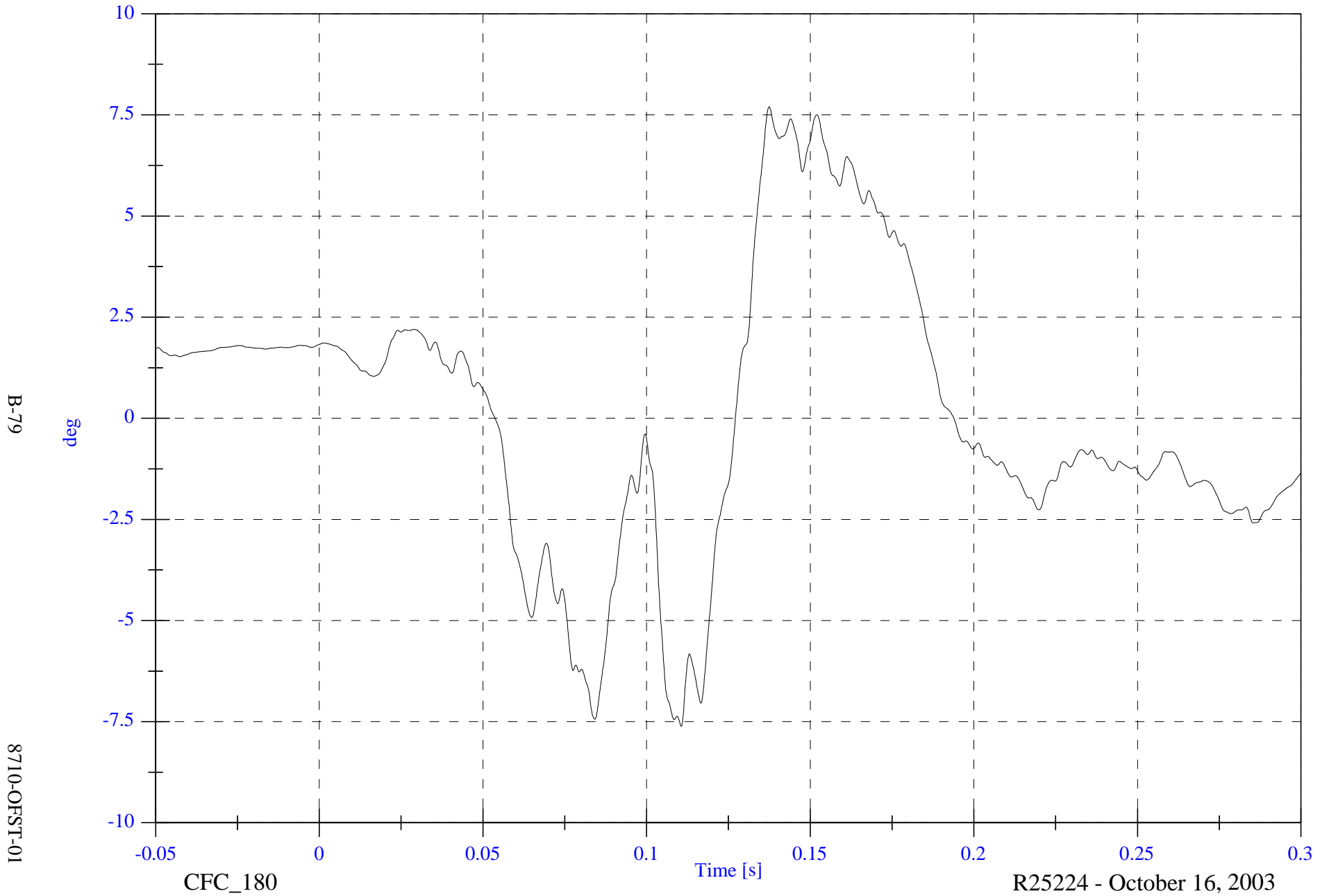


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 7.7 [deg] at 0.137 [s]

VIP1 Left Ankle Rotation z

Min: -7.6 [deg] at 0.111 [s]

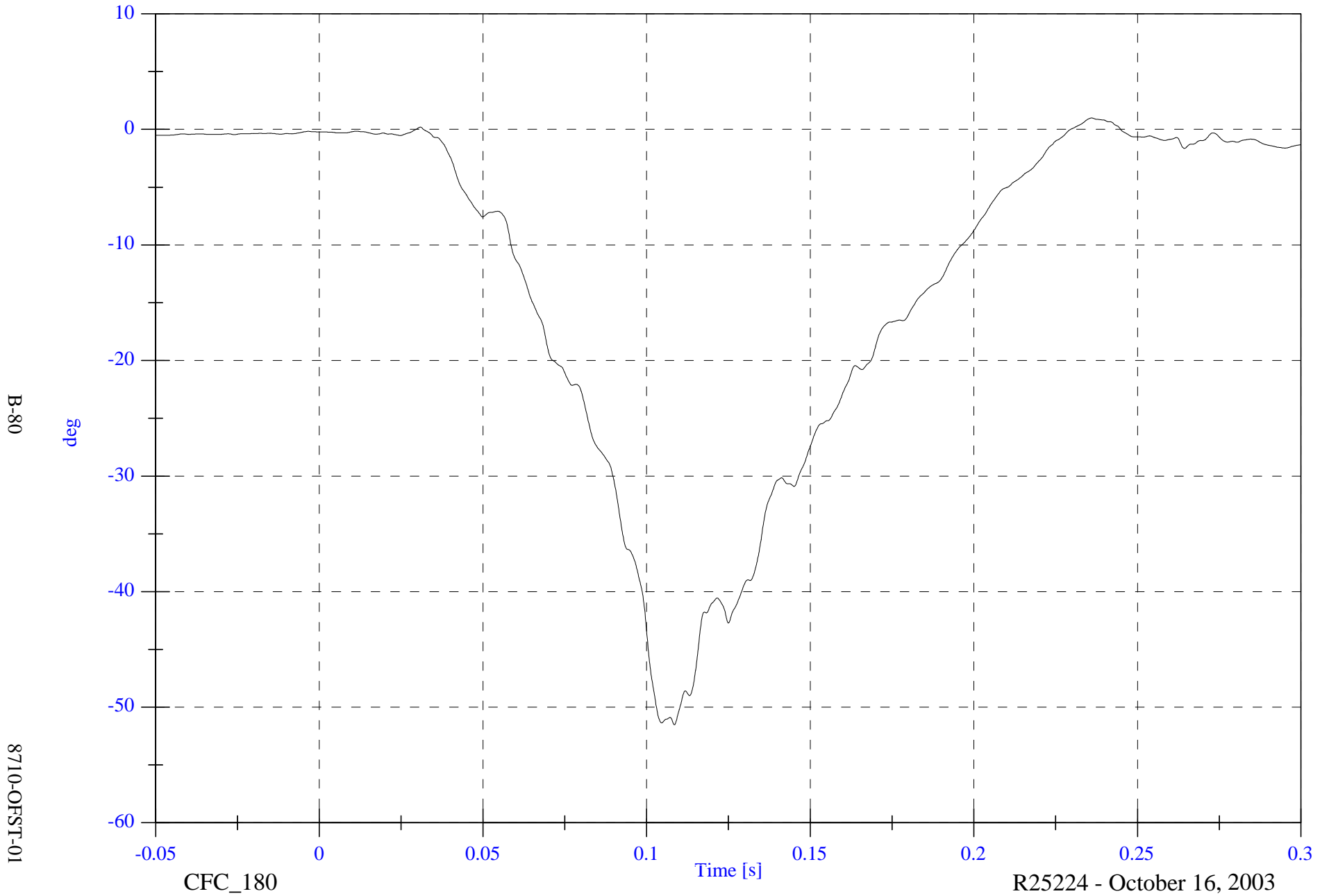


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 1.0 [deg] at 0.236 [s]

V1P1 Right Ankle Rotation x

Min: -51.5 [deg] at 0.109 [s]



B-80

8710-OFST-01

CFC_180

Time [s]

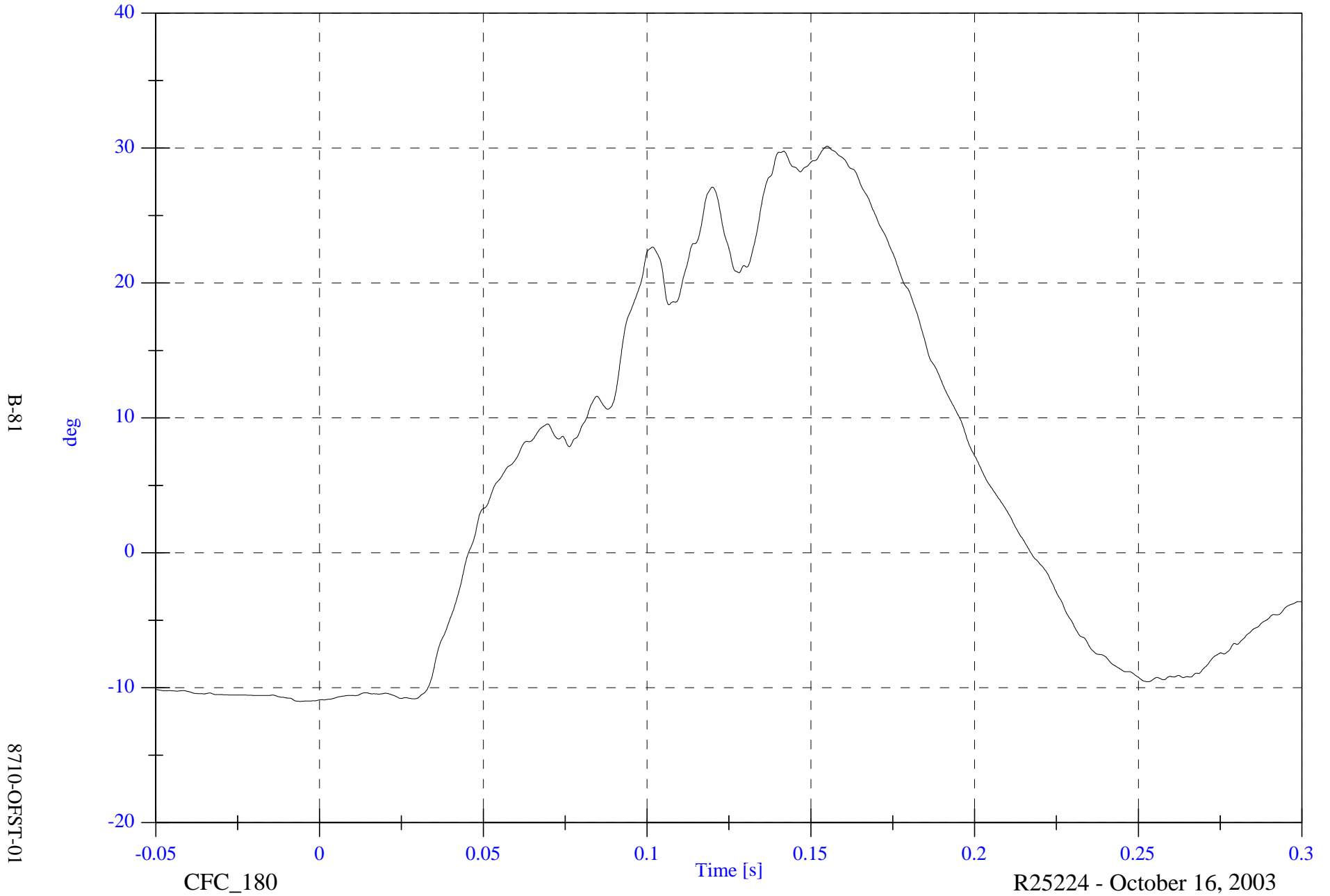
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Right Ankle Rotation y

Max: 30.1 [deg] at 0.155 [s]

Min: -11.0 [deg] at -0.006 [s]

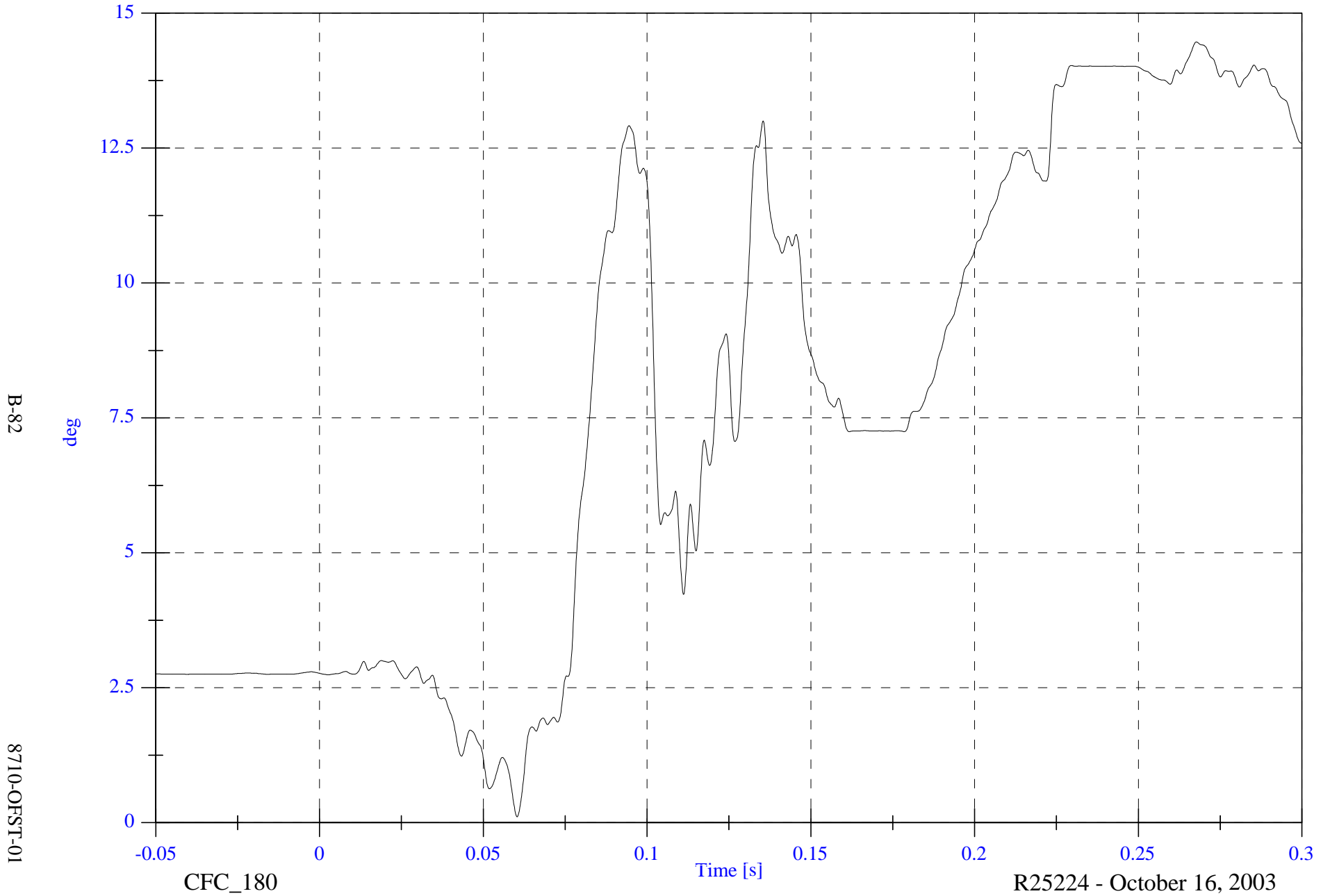


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Right Ankle Rotation z

Max: 14.5 [deg] at 0.268 [s]

Min: 0.1 [deg] at 0.060 [s]

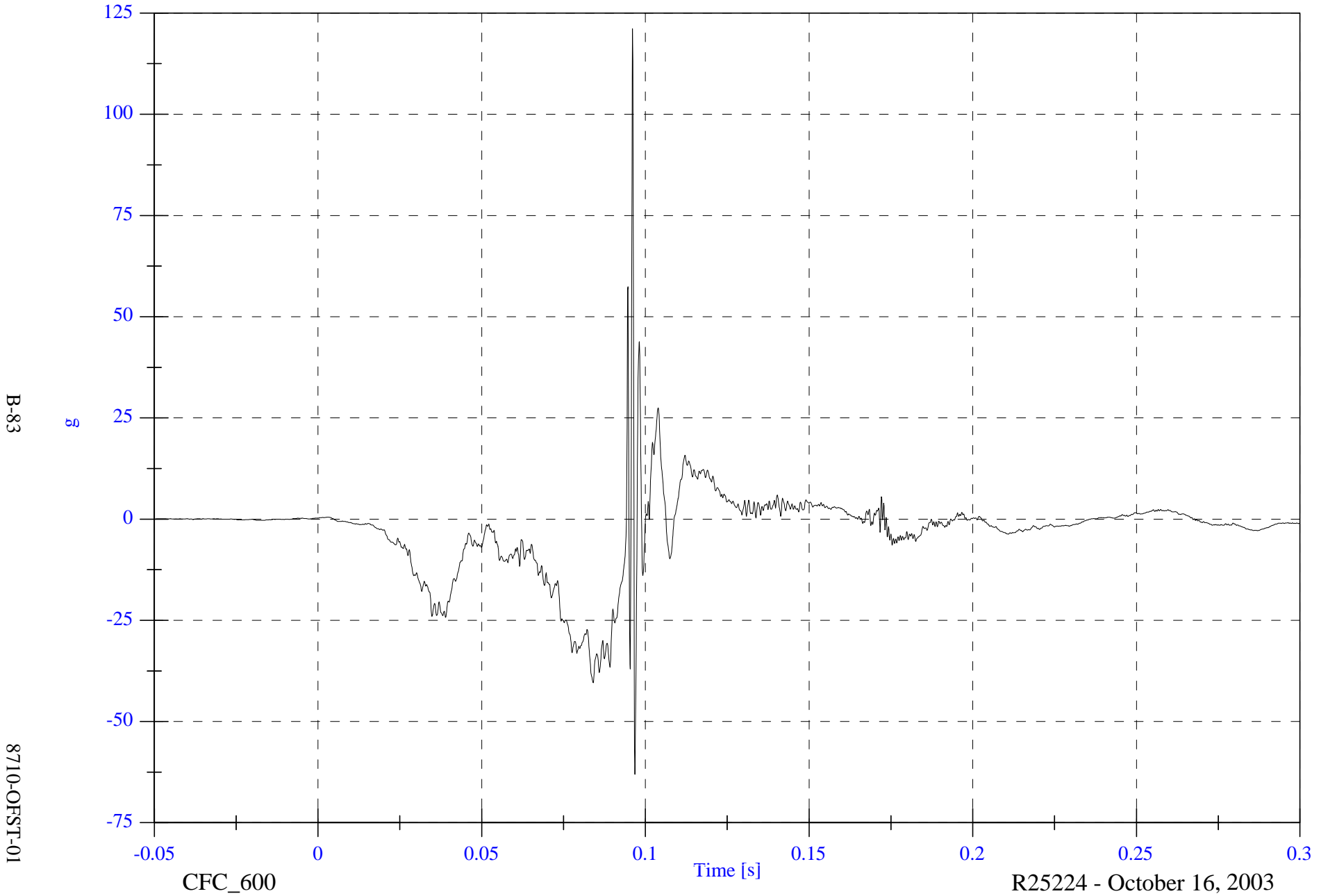


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 121.2 [g] at 0.096 [s]

V1P1 Left Foot Ax

Min: -63.1 [g] at 0.097 [s]

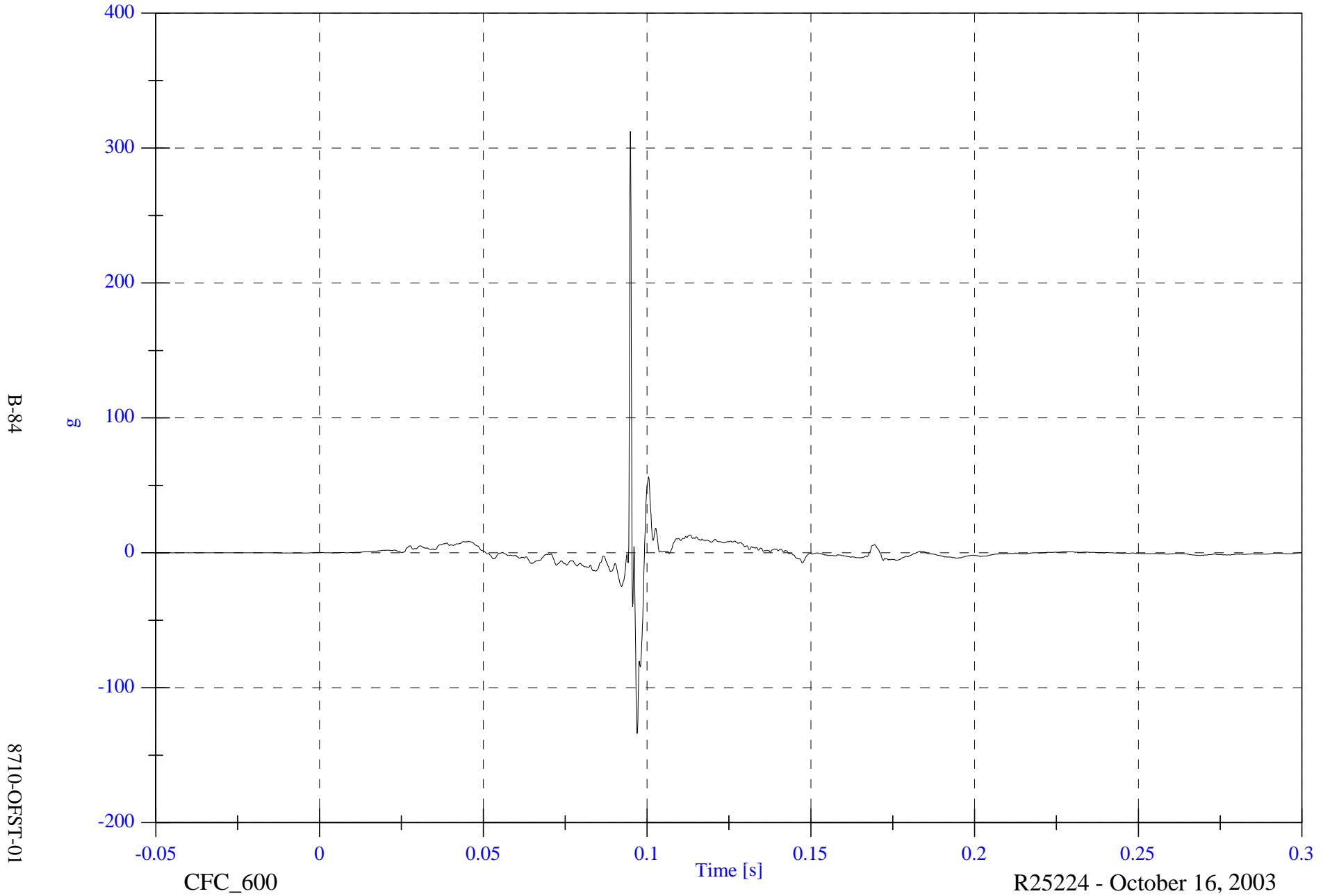


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Left Foot Ay

Max: 312.2 [g] at 0.095 [s]

Min: -134.0 [g] at 0.097 [s]

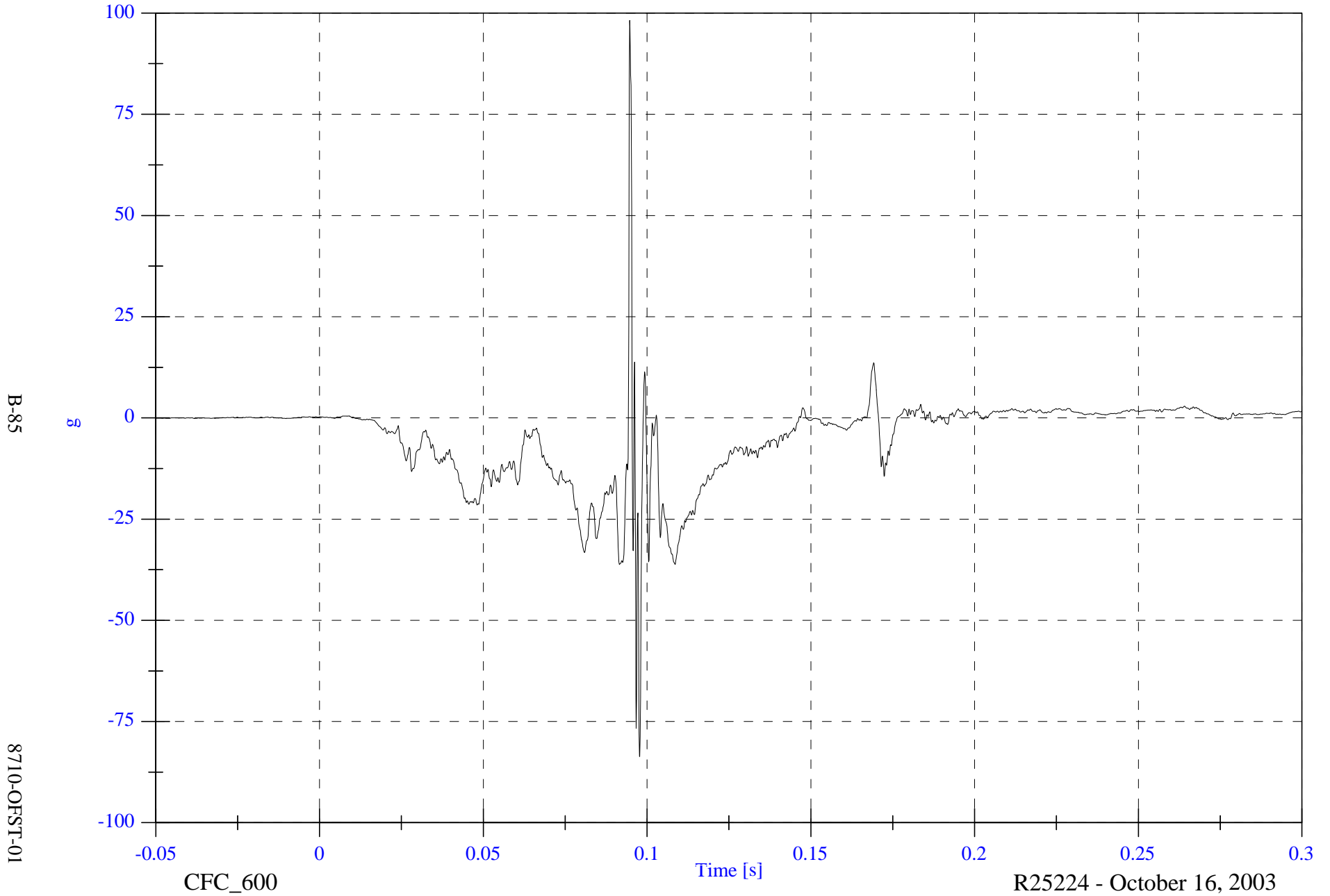


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Left Foot Az

Max: 98.2 [g] at 0.095 [s]

Min: -83.7 [g] at 0.098 [s]

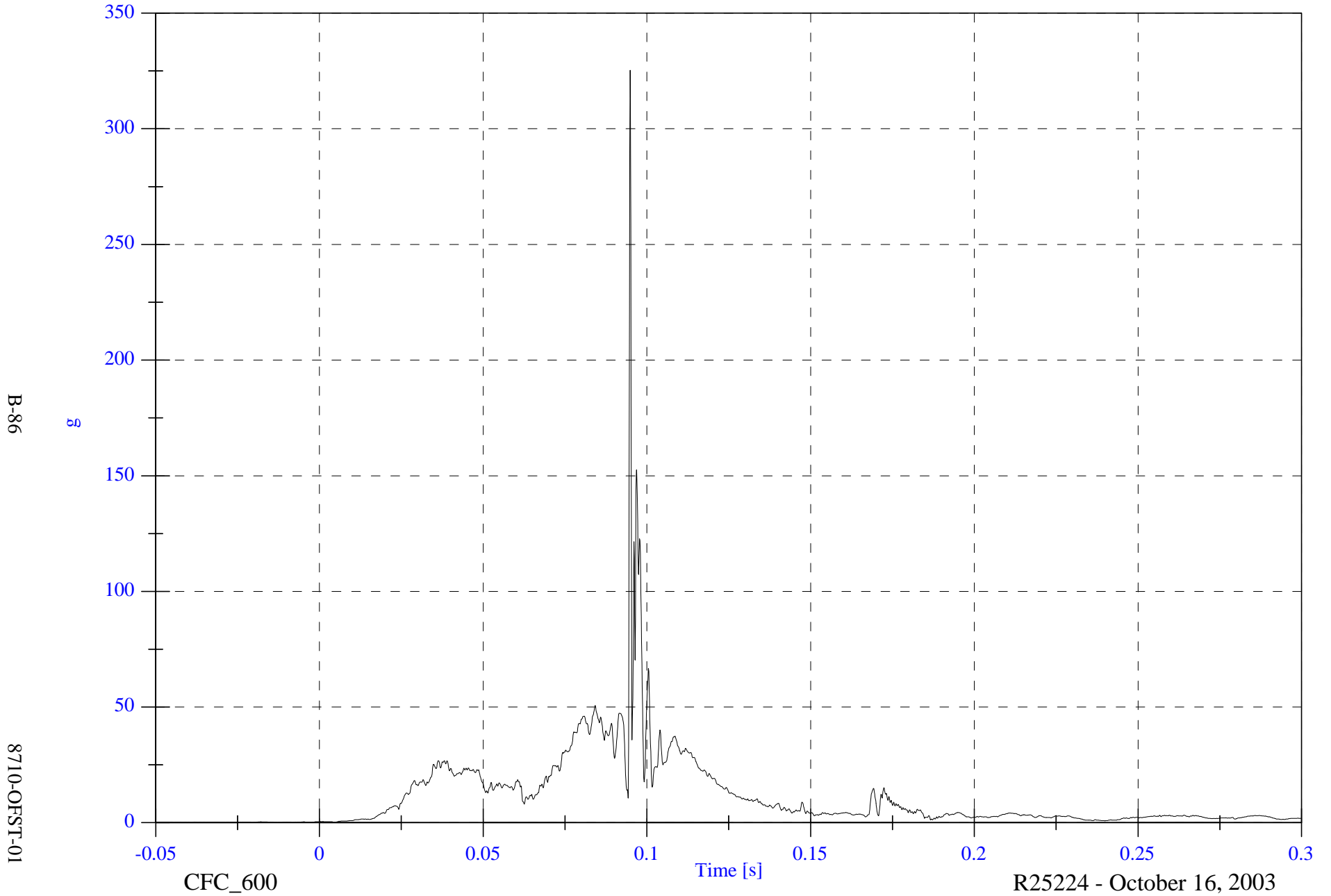


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Left Foot A Resultant

Max: 325.3 [g] at 0.095 [s]

Min: 0.0 [g] at -0.042 [s]



B-86

8710-OFST-01

CFC_600

Time [s]

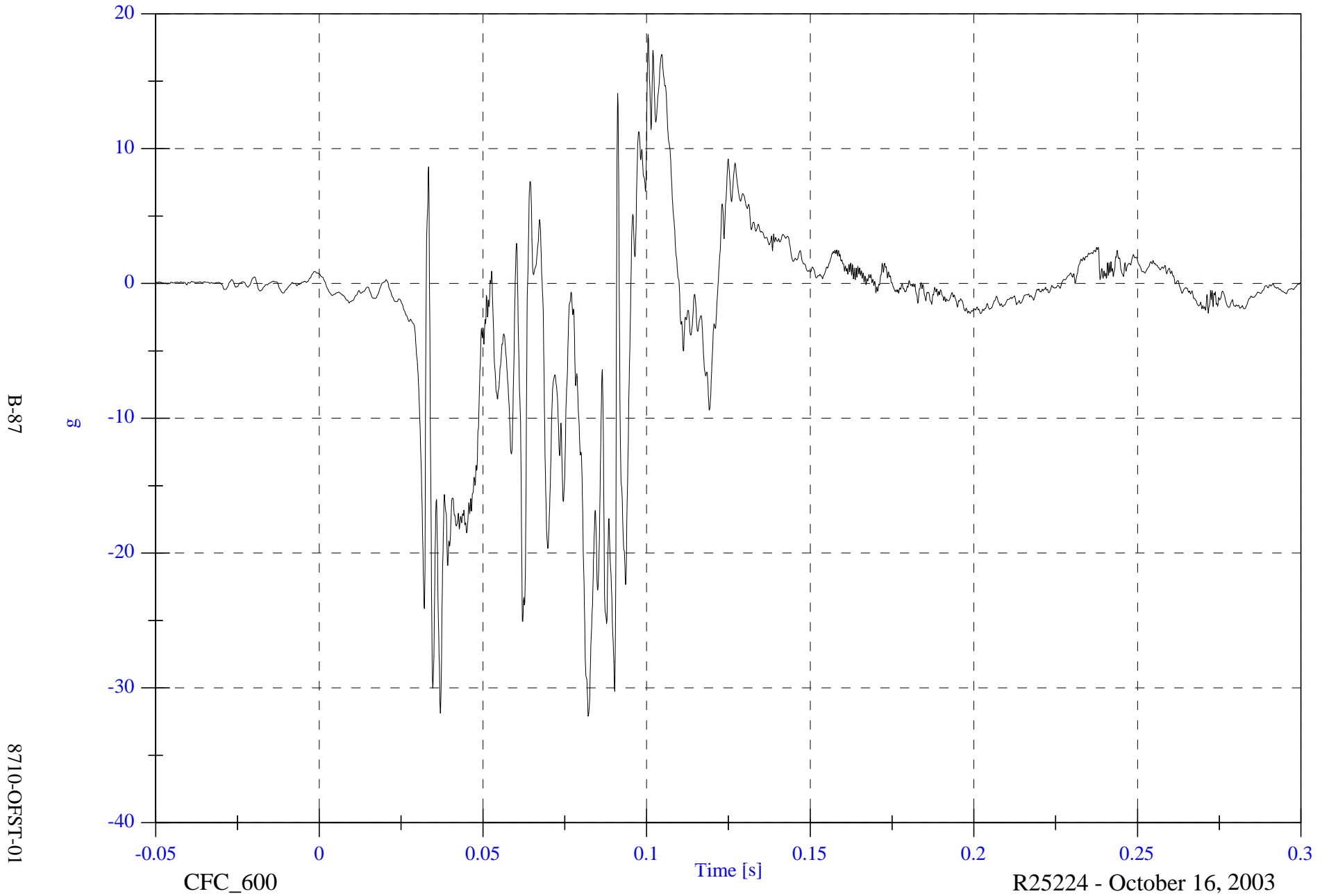
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 18.5 [g] at 0.100 [s]

Min: -32.1 [g] at 0.082 [s]

V1P1 Right Foot x

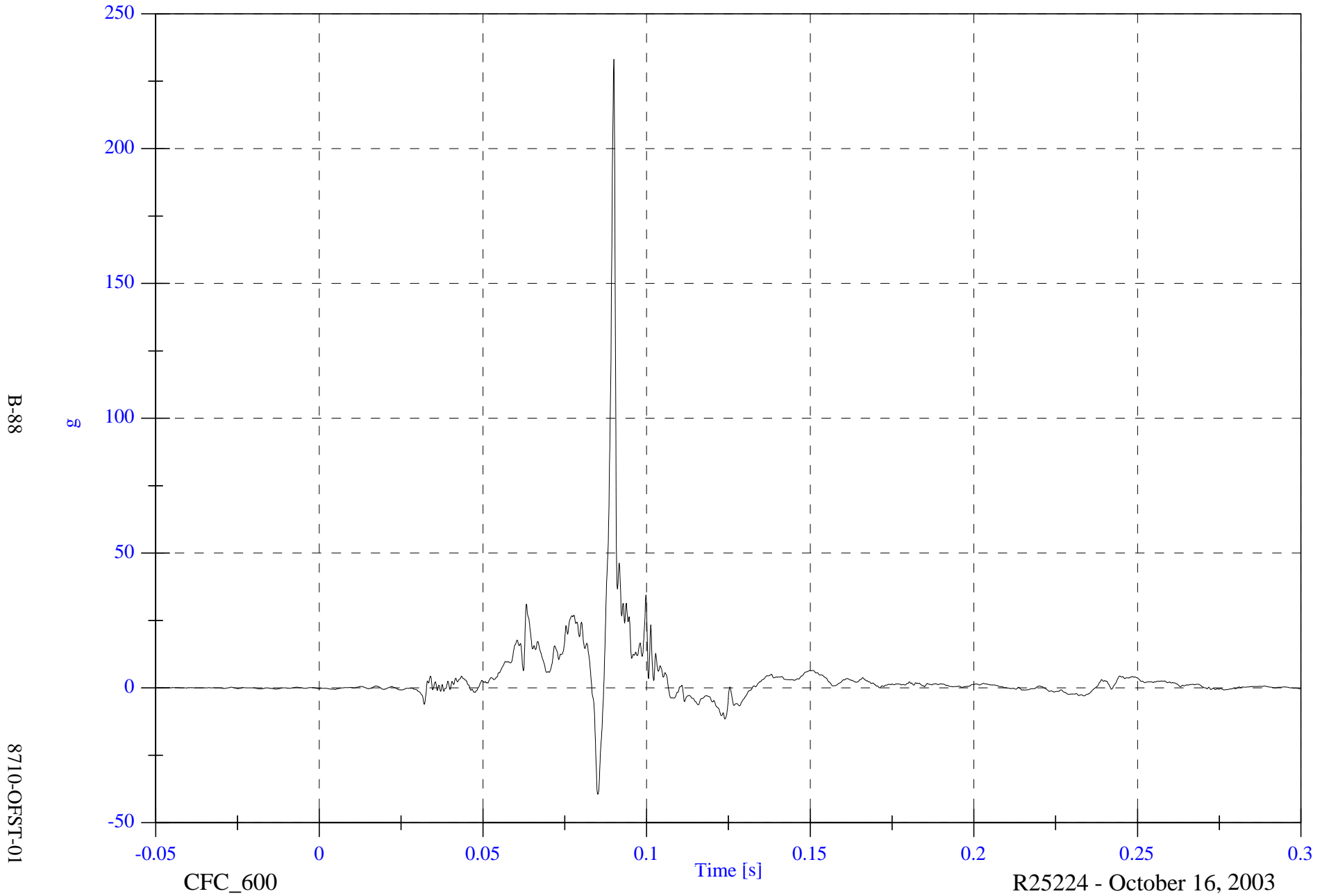


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 233.1 [g] at 0.090 [s]

Min: -39.4 [g] at 0.085 [s]

V1P1 Right Foot y

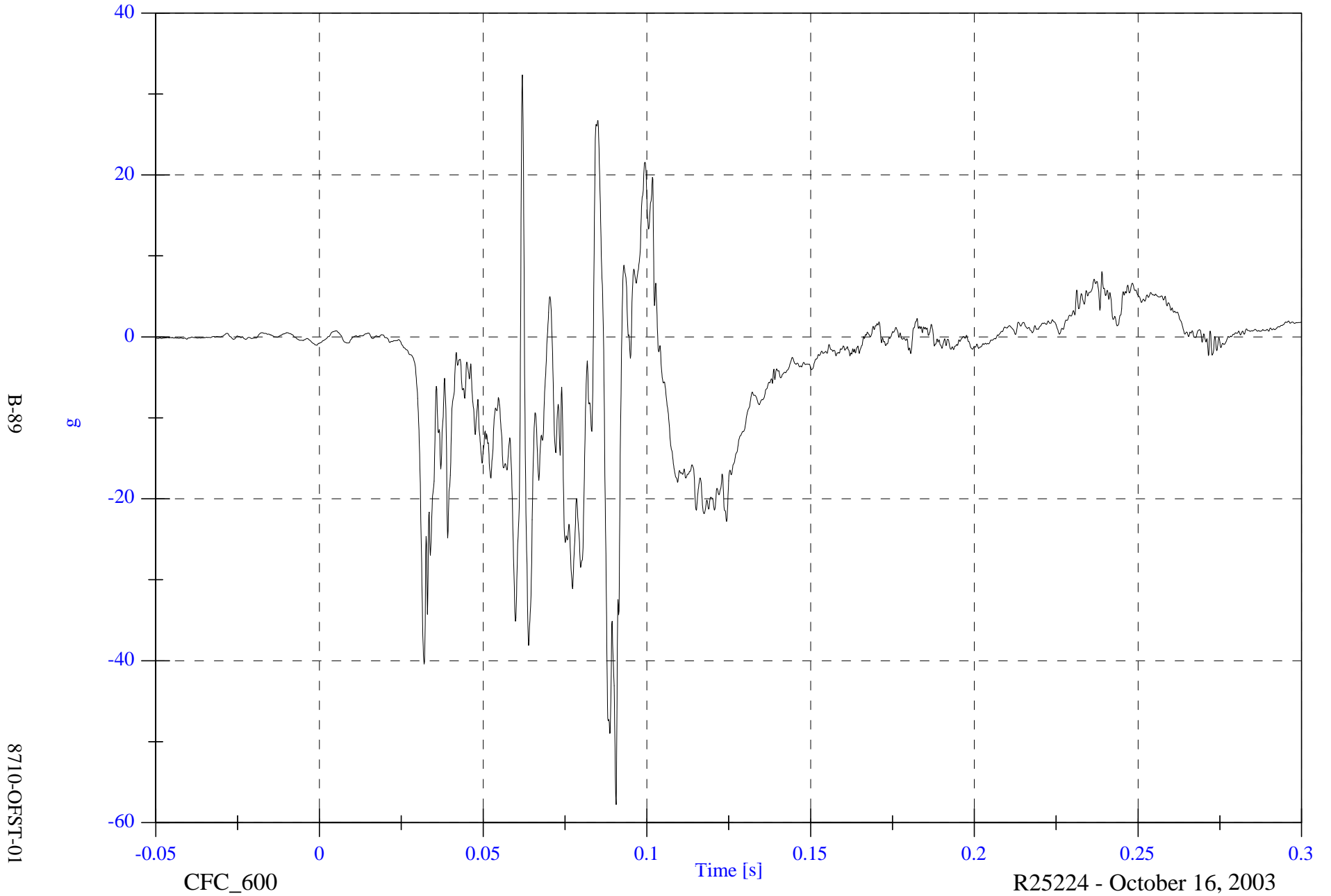


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 32.4 [g] at 0.062 [s]

Min: -57.8 [g] at 0.091 [s]

VIP1 Right Foot z

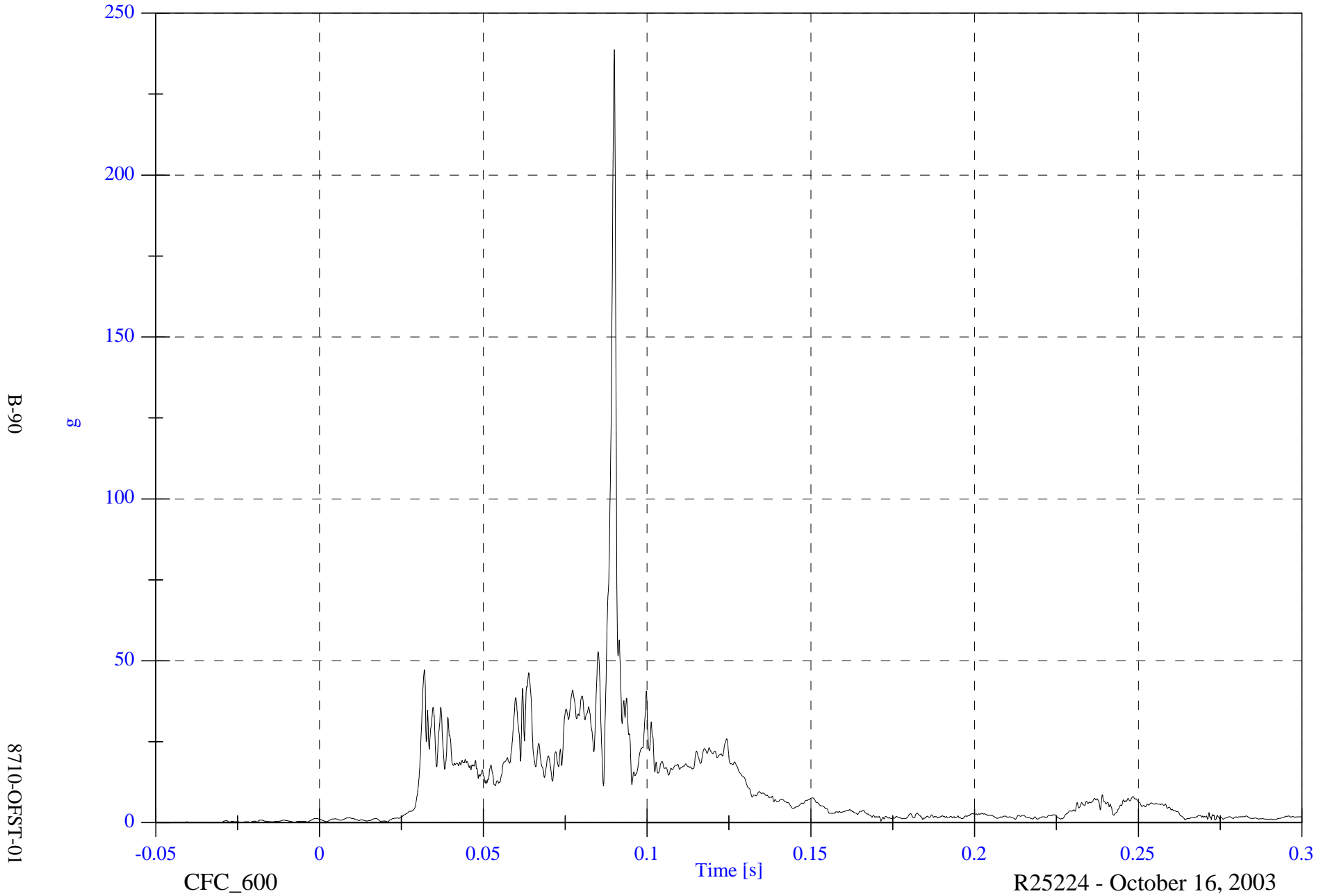


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Right Foot Resultant

Max: 238.7 [g] at 0.090 [s]

Min: 0.0 [g] at -0.030 [s]

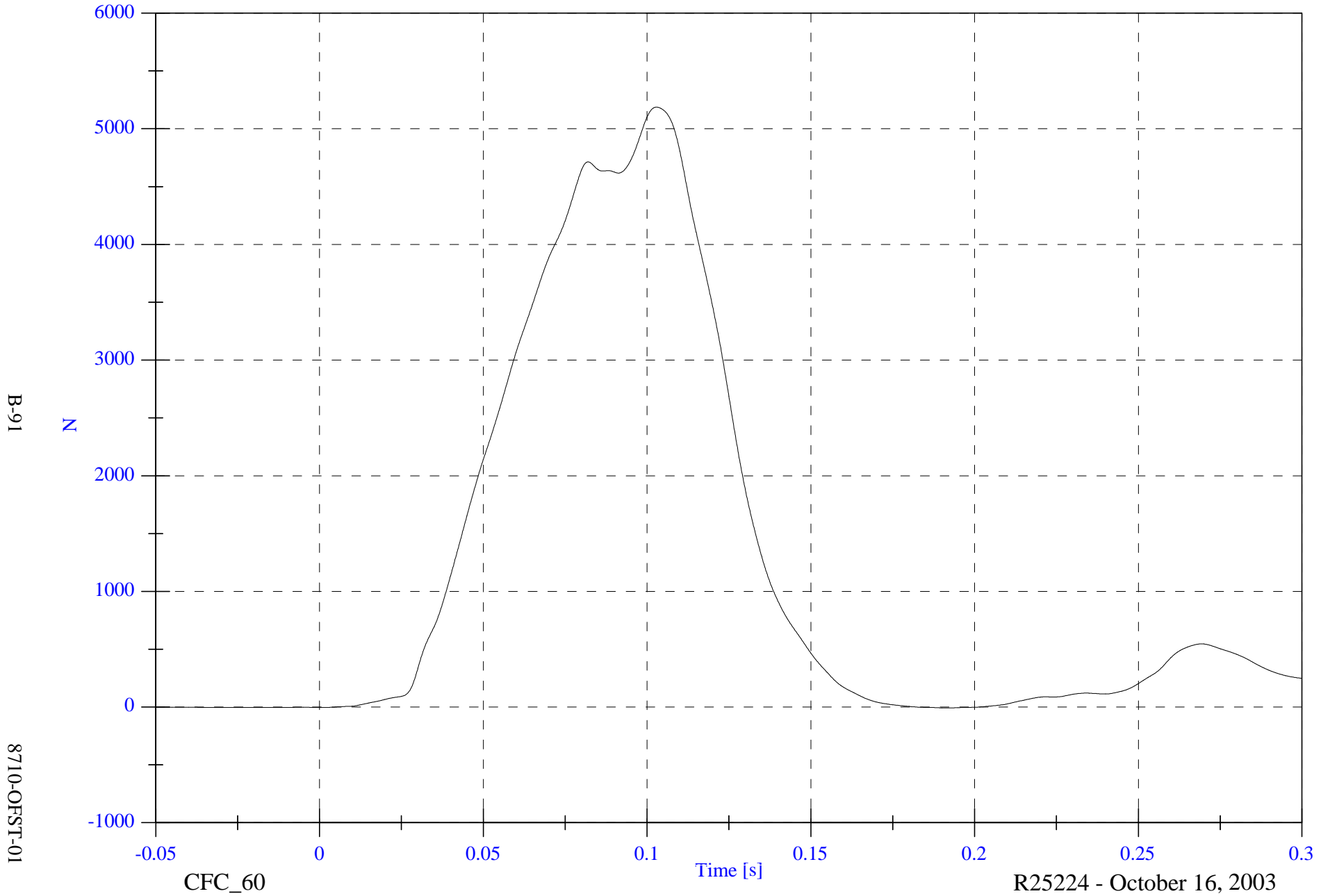


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P1 Lap Belt Load

Max: 5186.8 [N] at 0.103 [s]

Min: -7.1 [N] at 0.192 [s]



B-91

8710-OFST-01

CFC_60

Time [s]

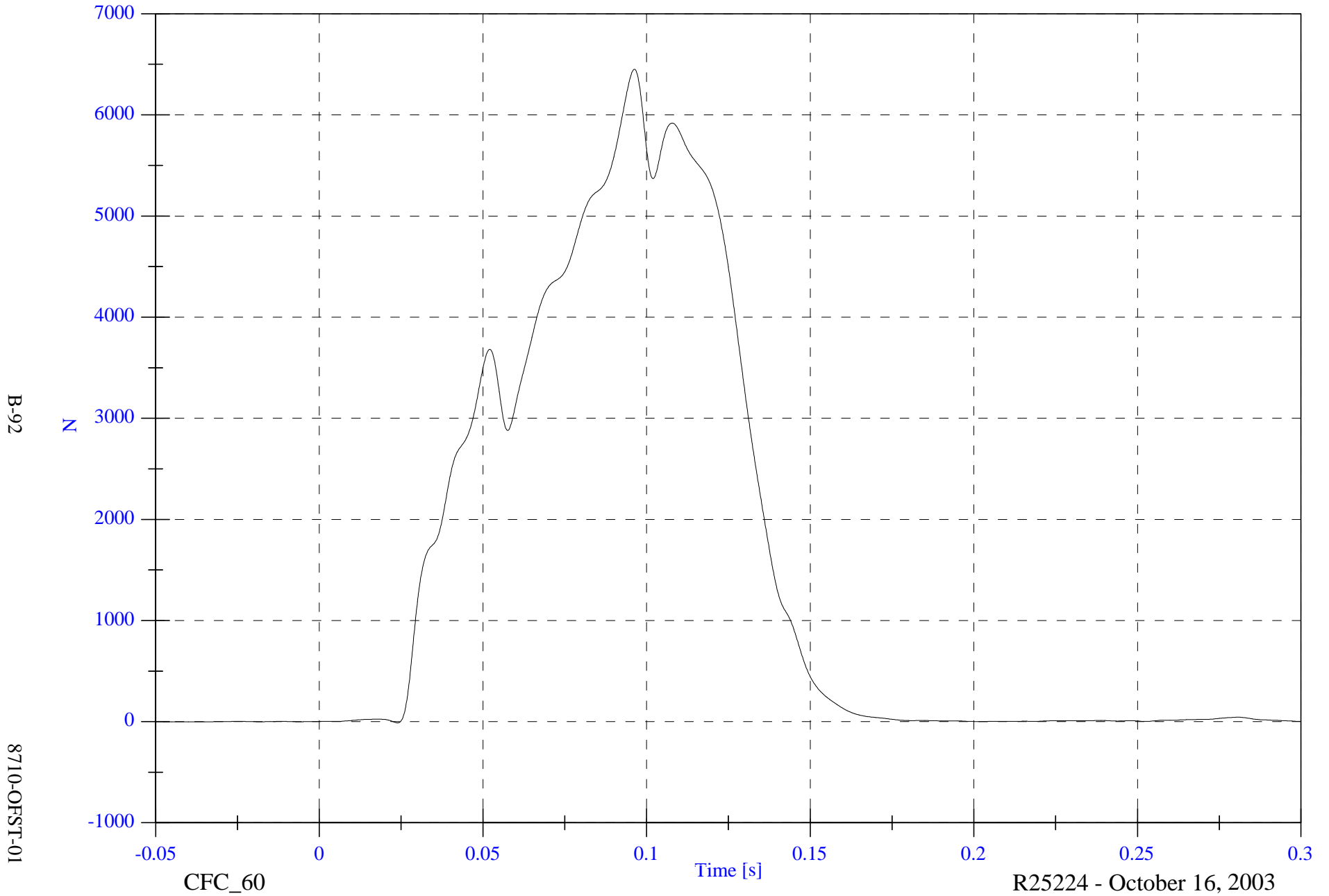
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 6451.7 [N] at 0.096 [s]

V1P1 Shoulder Belt Load

Min: -12.3 [N] at 0.024 [s]



B-92

8710-OFST-01

CFC_60

Time [s]

R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

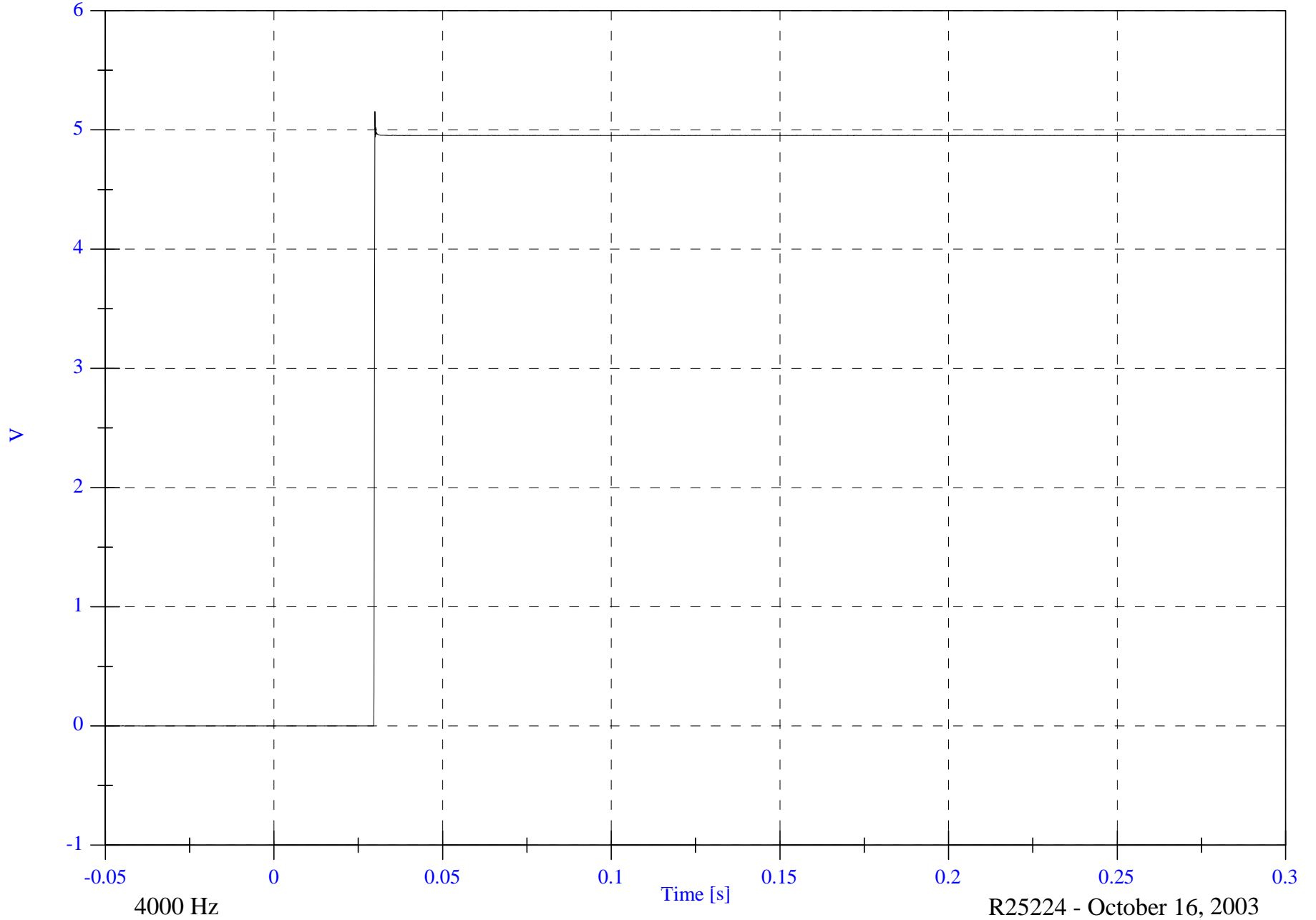
VIP1 Air Bag T/E

Max: 5.2 [V] at 0.030 [s]

Min: -0.0 [V] at 0.021 [s]

B-93

8710-OFST-01



4000 Hz

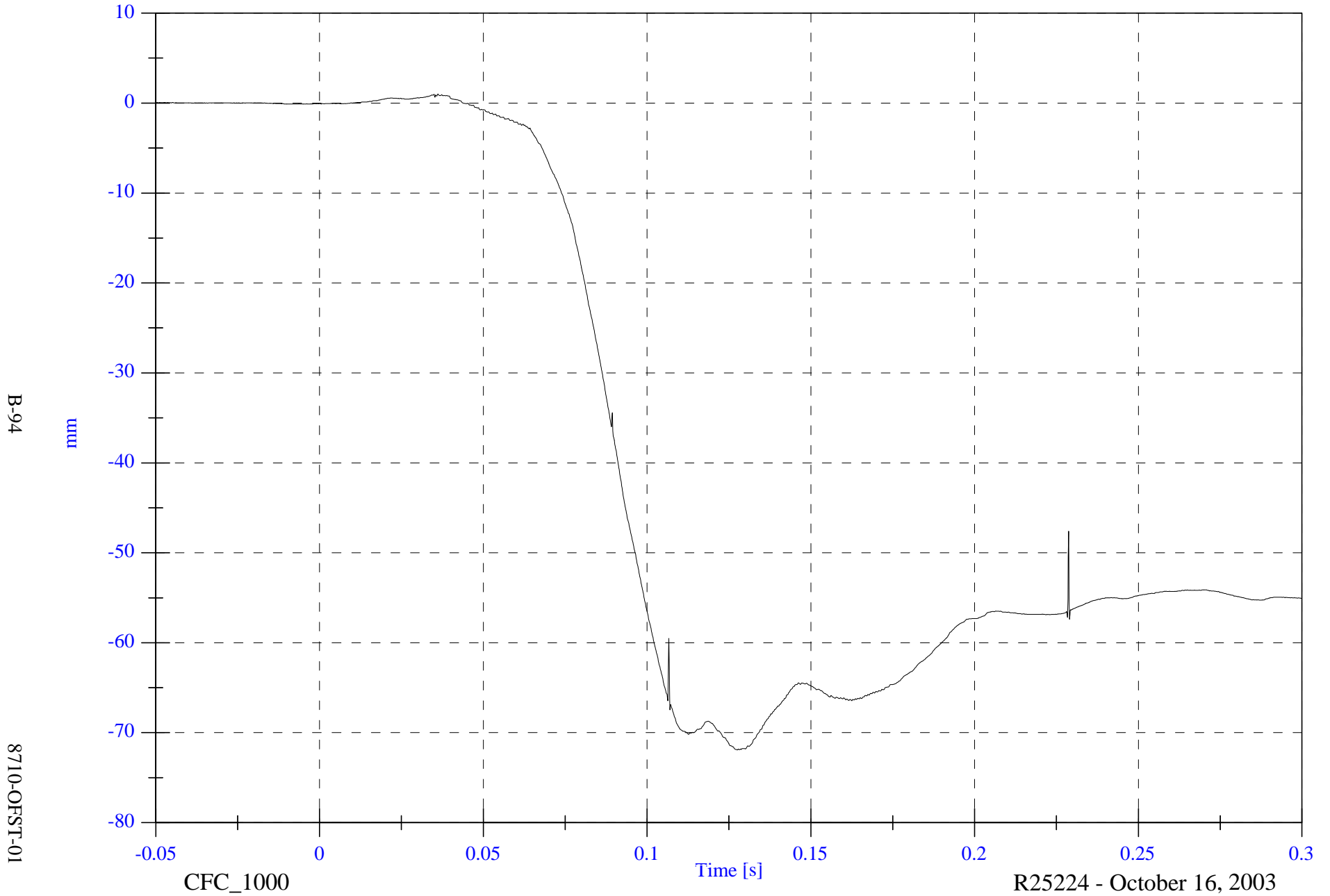
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

VIP1 Toe Pan Deflection

Max: 1.0 [mm] at 0.036 [s]

Min: -71.9 [mm] at 0.128 [s]



B-94

8710-OFST-01

CFC_1000

Time [s]

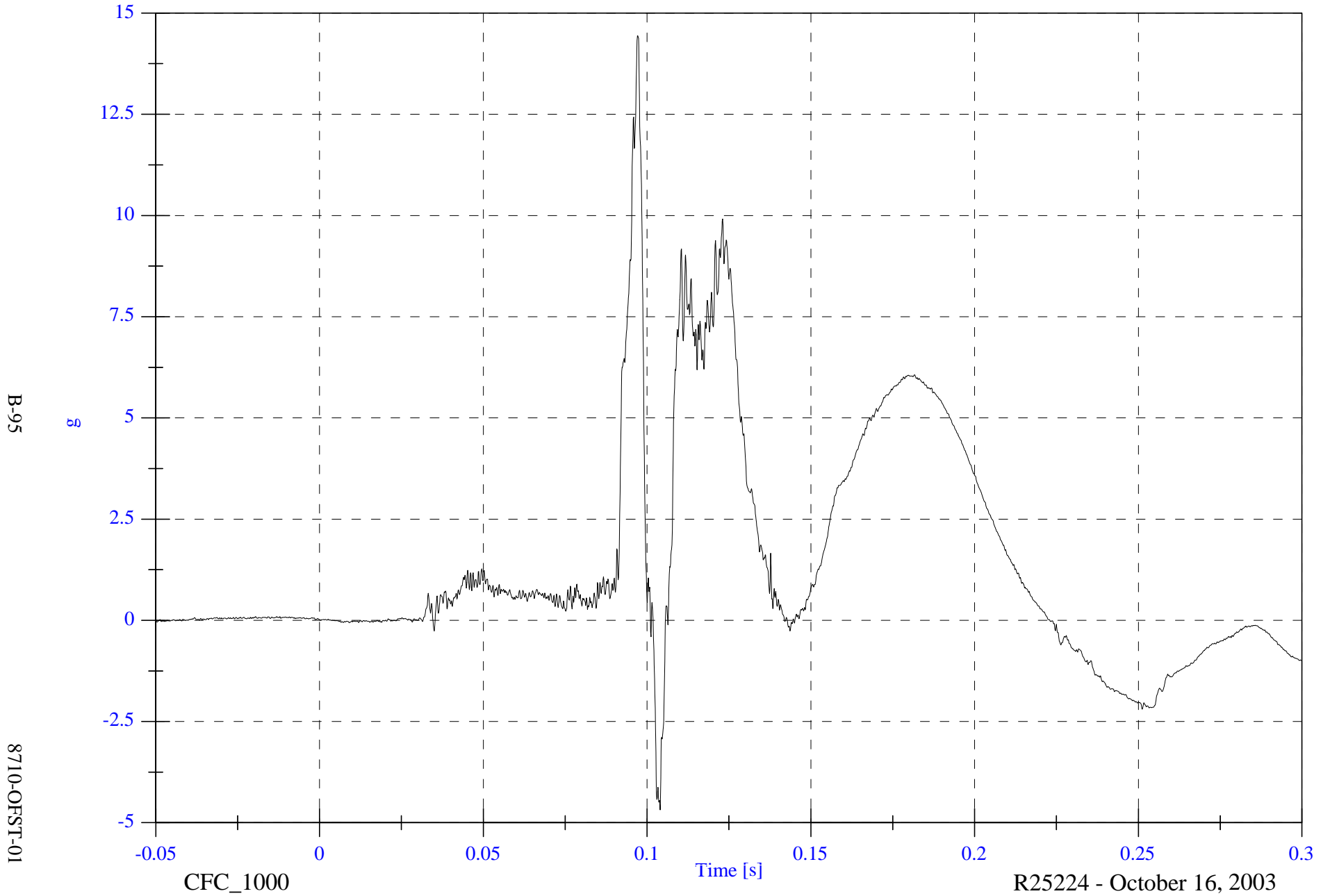
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Head 9 Array x Arm Ay

Max: 14.4 [g] at 0.097 [s]

Min: -4.7 [g] at 0.104 [s]

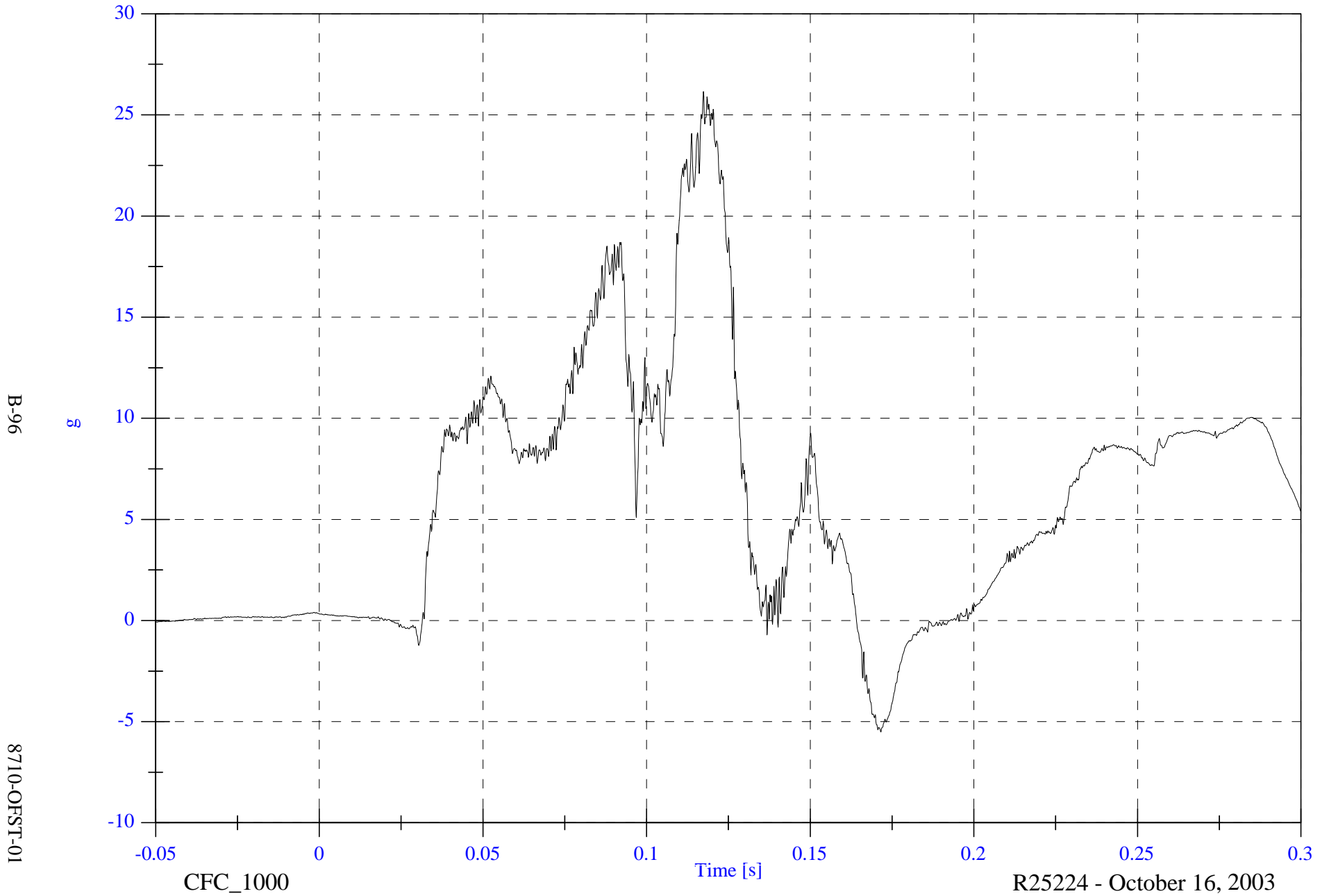


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Head 9 Array x Arm Az

Max: 26.2 [g] at 0.117 [s]

Min: -5.5 [g] at 0.172 [s]

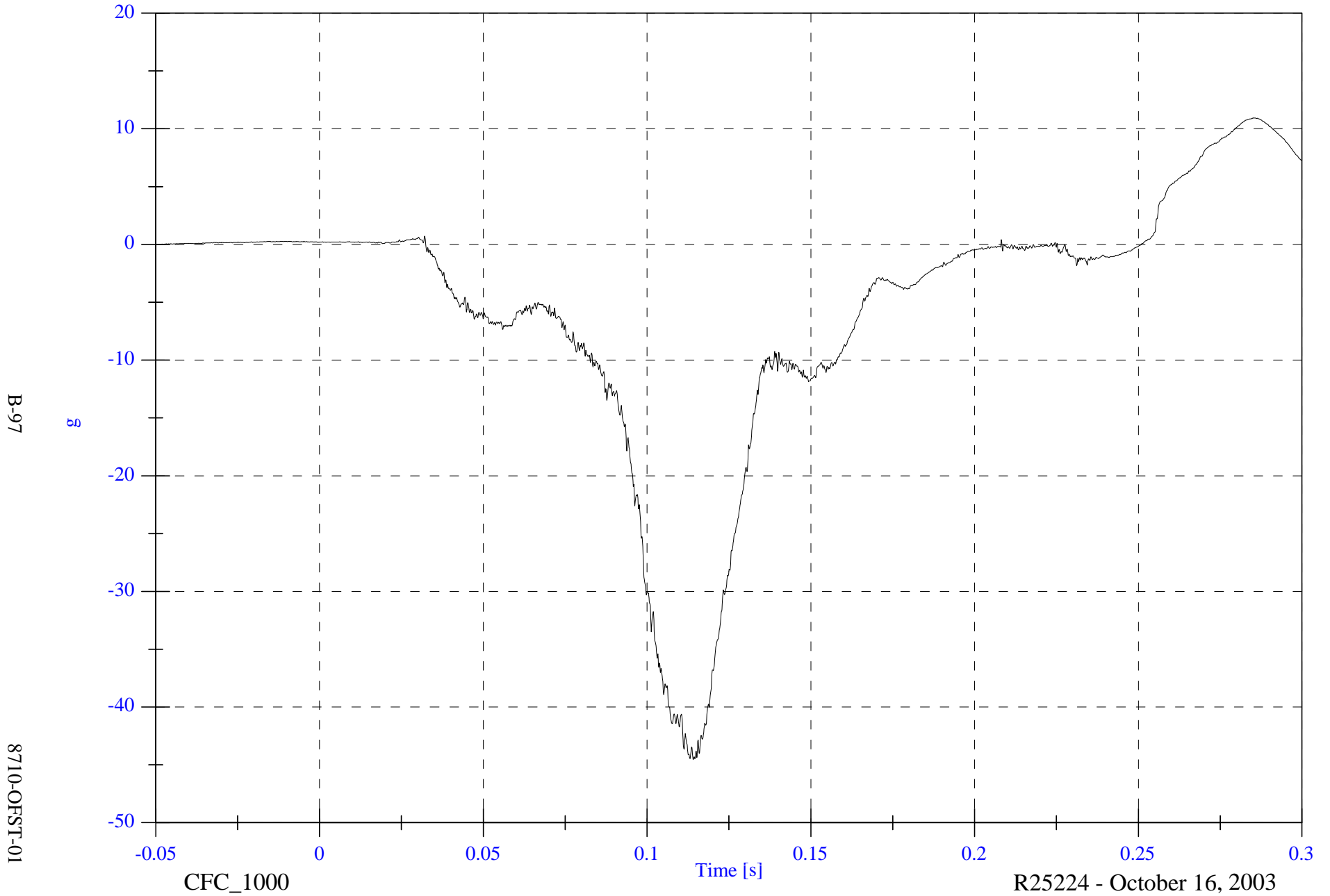


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Head 9 Array y Arm Ax

Max: 10.9 [g] at 0.285 [s]

Min: -44.5 [g] at 0.114 [s]



B-97

8710-OFFST-01

CFC_1000

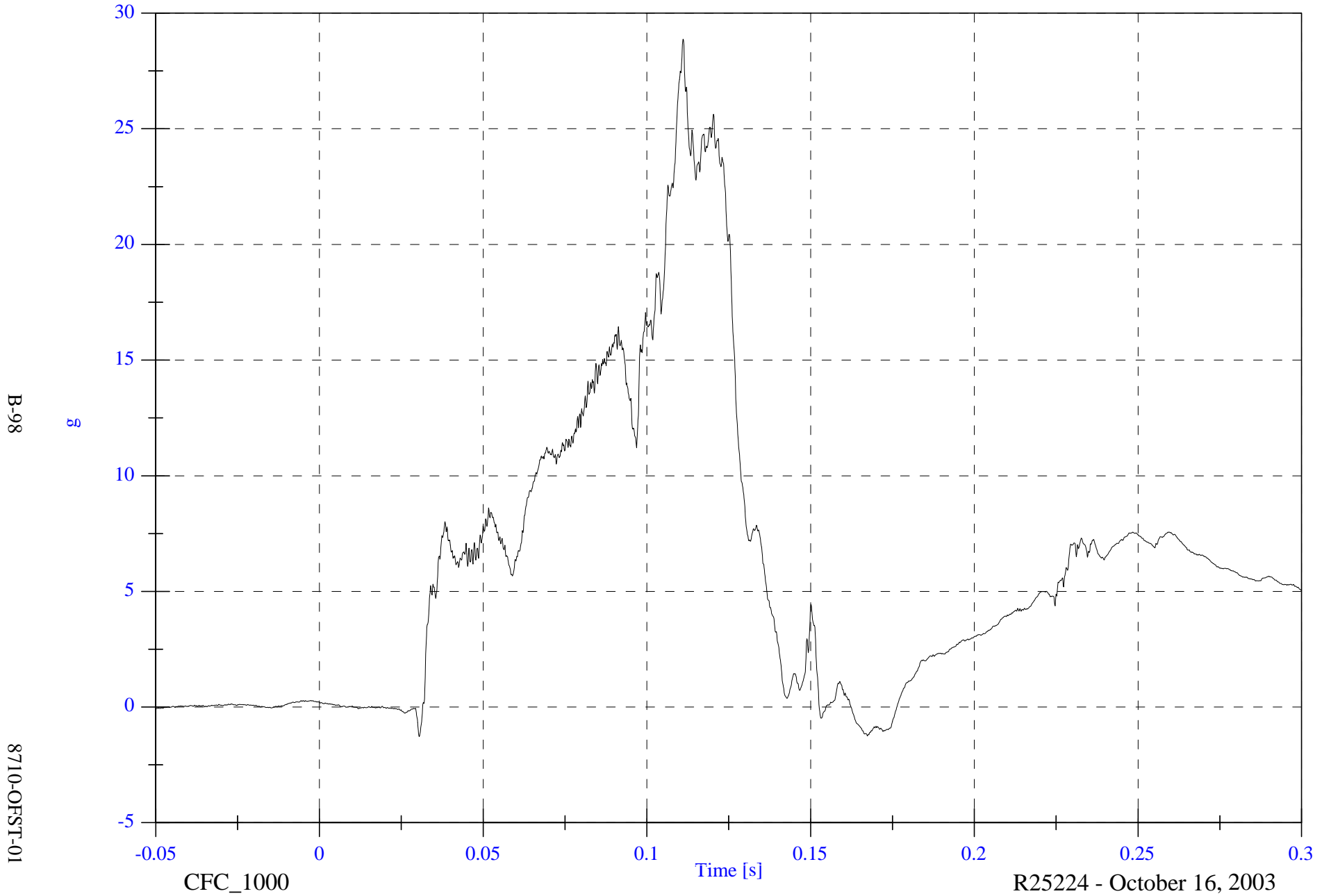
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Head 9 Array y Arm Az

Max: 28.9 [g] at 0.111 [s]

Min: -1.3 [g] at 0.030 [s]



B-98

g

8710-OFST-01

CFC_1000

Time [s]

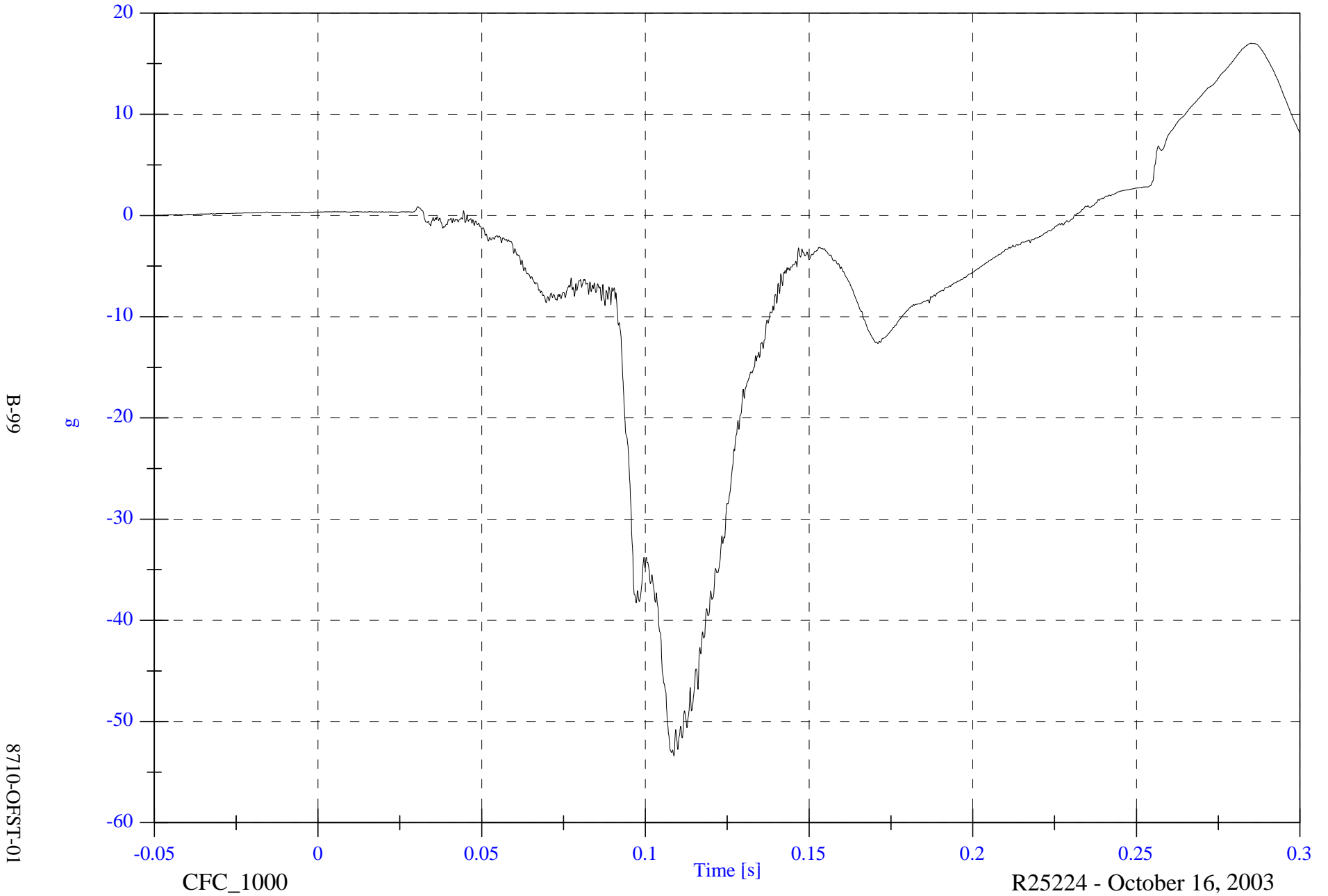
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Head 9 Array z Arm Ax

Max: 17.0 [g] at 0.285 [s]

Min: -53.4 [g] at 0.109 [s]

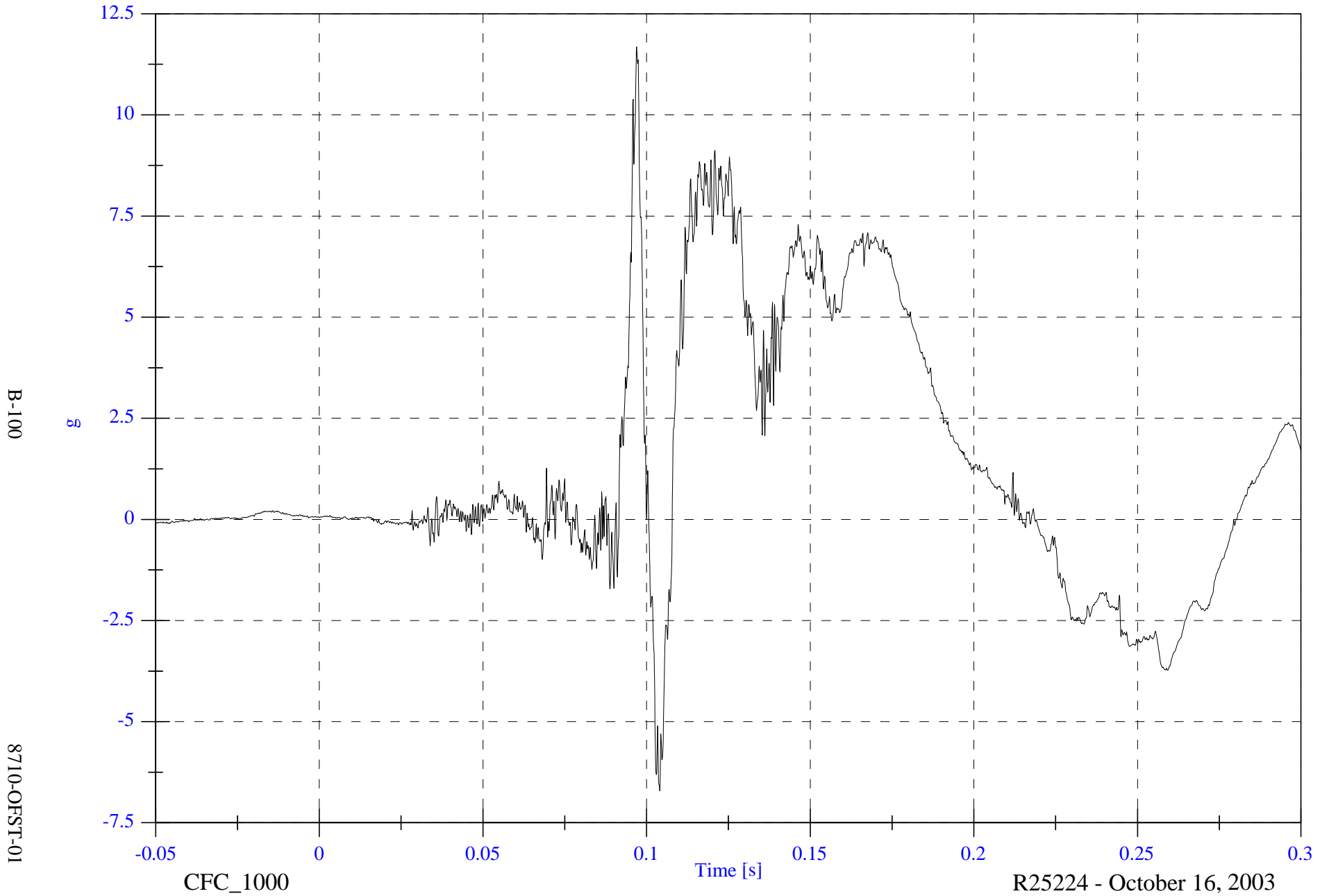


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Head 9 Array z Arm Ay

Max: 11.7 [g] at 0.097 [s]

Min: -6.7 [g] at 0.104 [s]

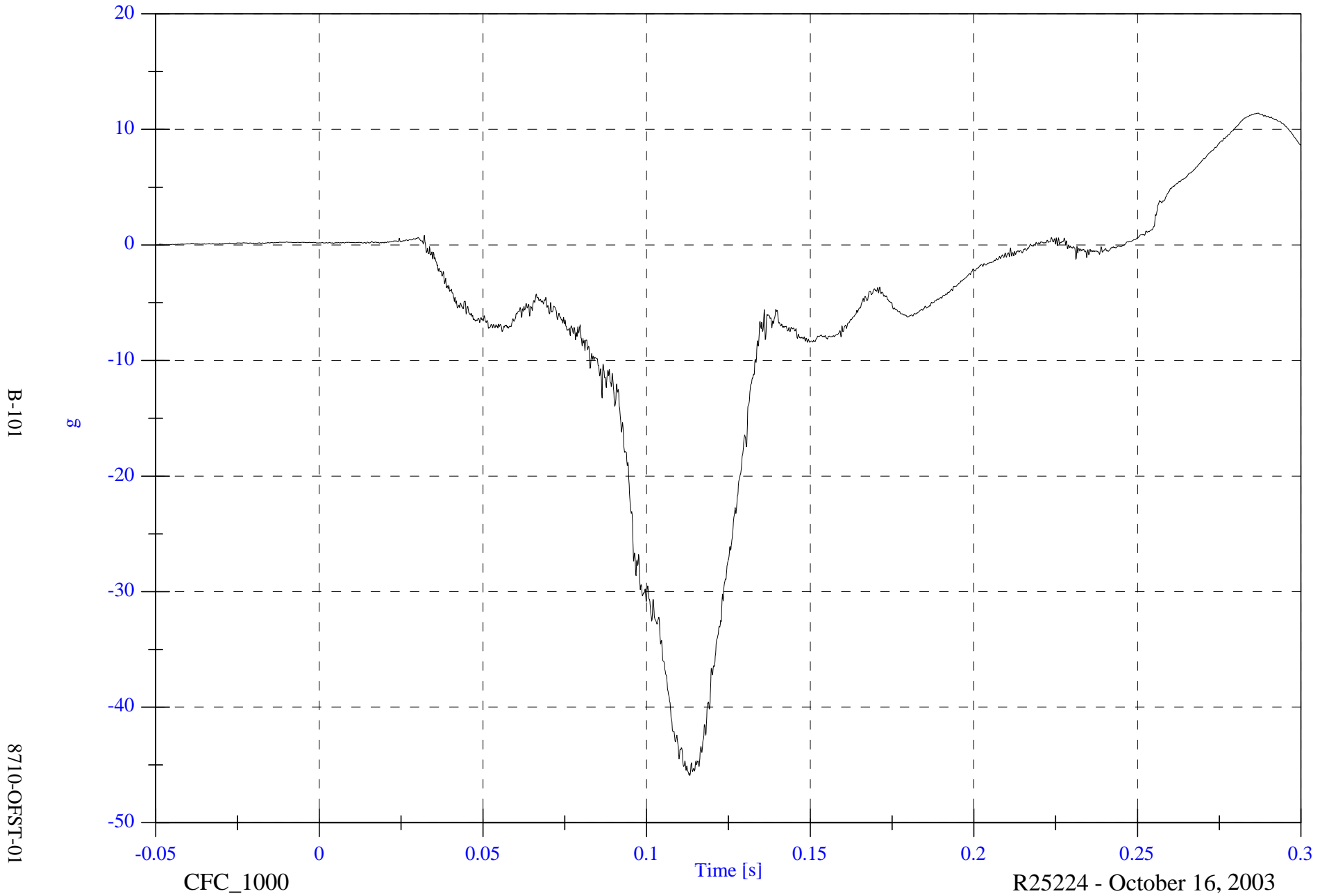


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Head x

Max: 11.4 [g] at 0.287 [s]

Min: -45.9 [g] at 0.113 [s]

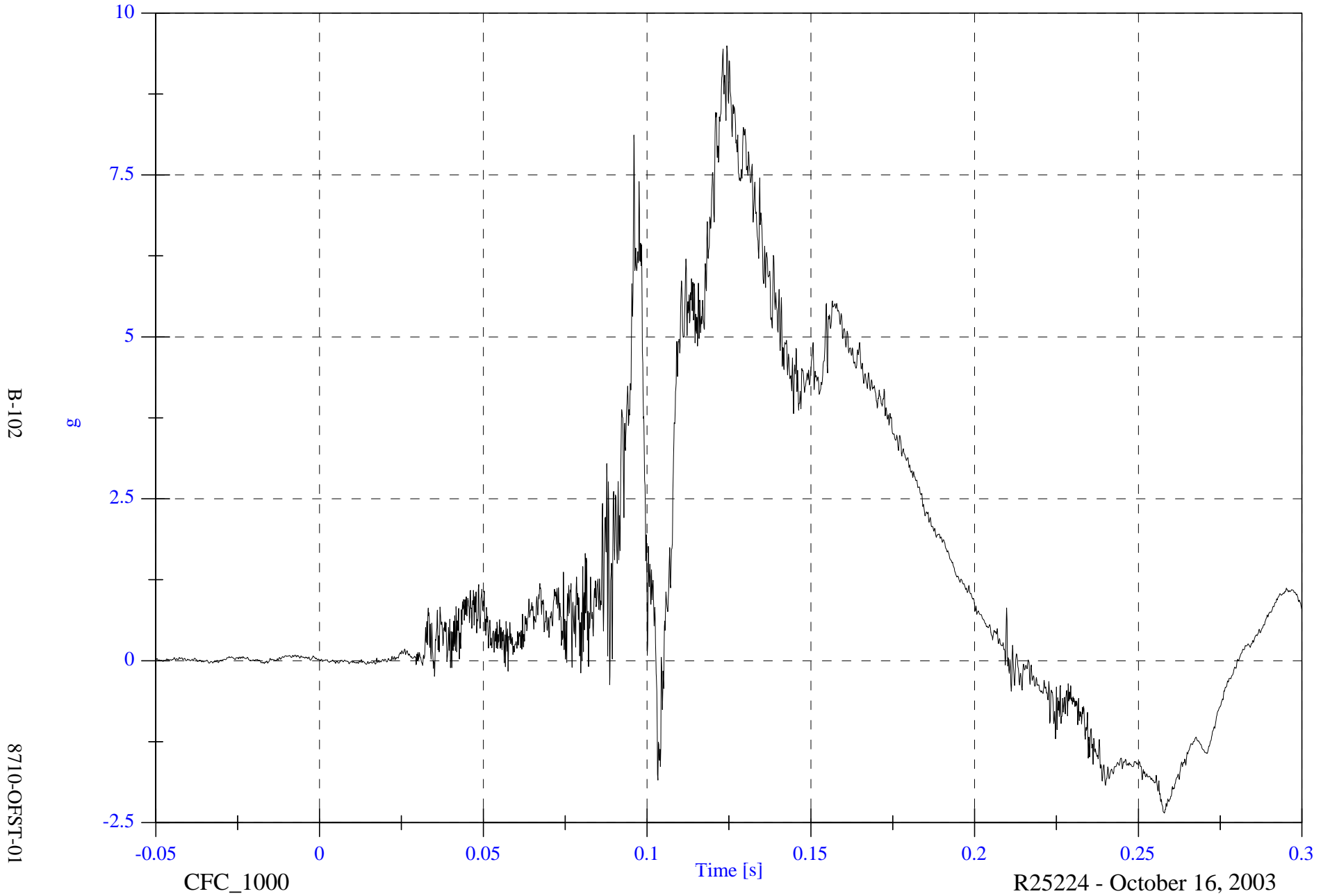


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Head y

Max: 9.5 [g] at 0.124 [s]

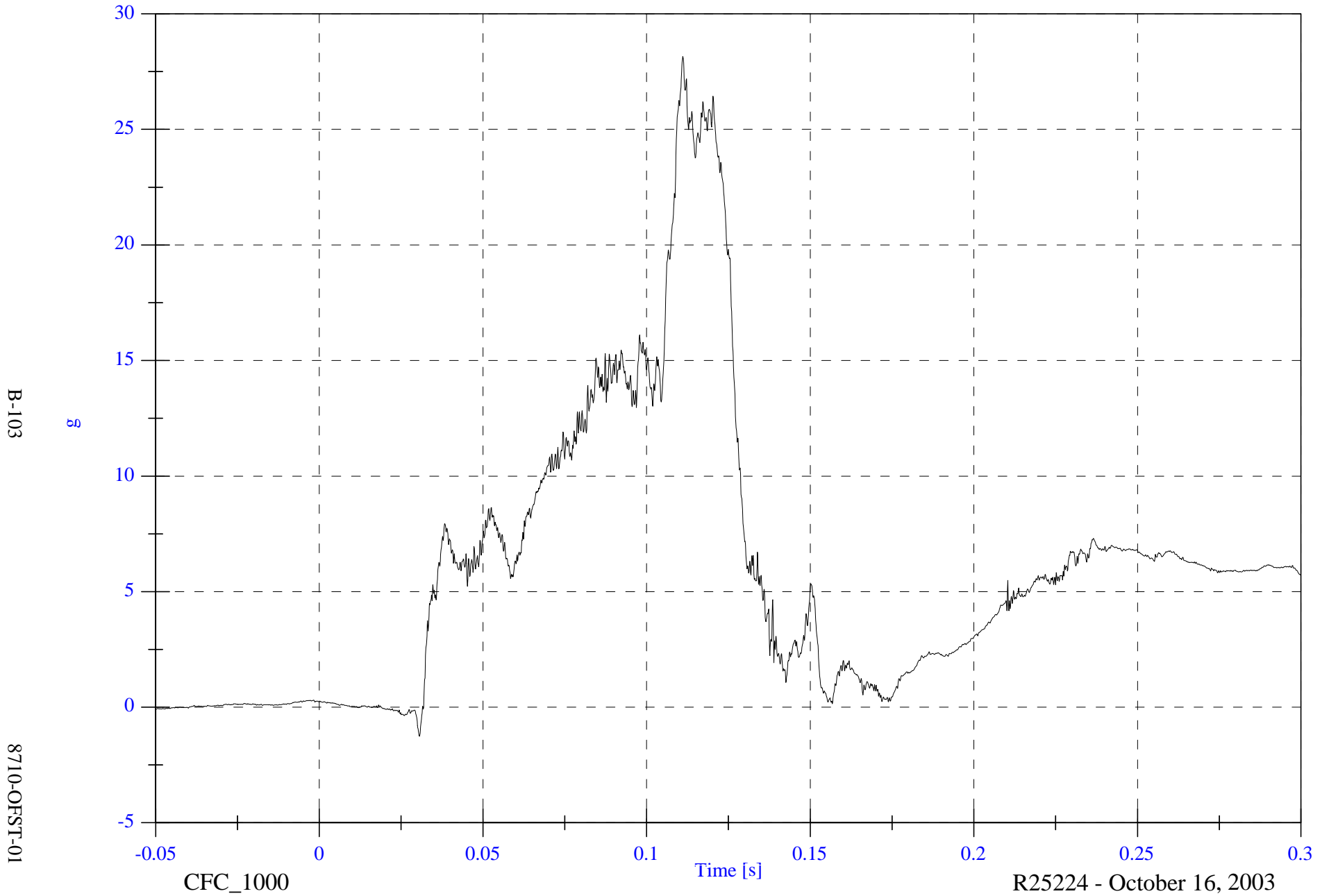
Min: -2.4 [g] at 0.258 [s]



2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 28.2 [g] at 0.111 [s]
Min: -1.3 [g] at 0.031 [s]

V1P2 Head z



B-103

8710-OFST-01

CFC_1000

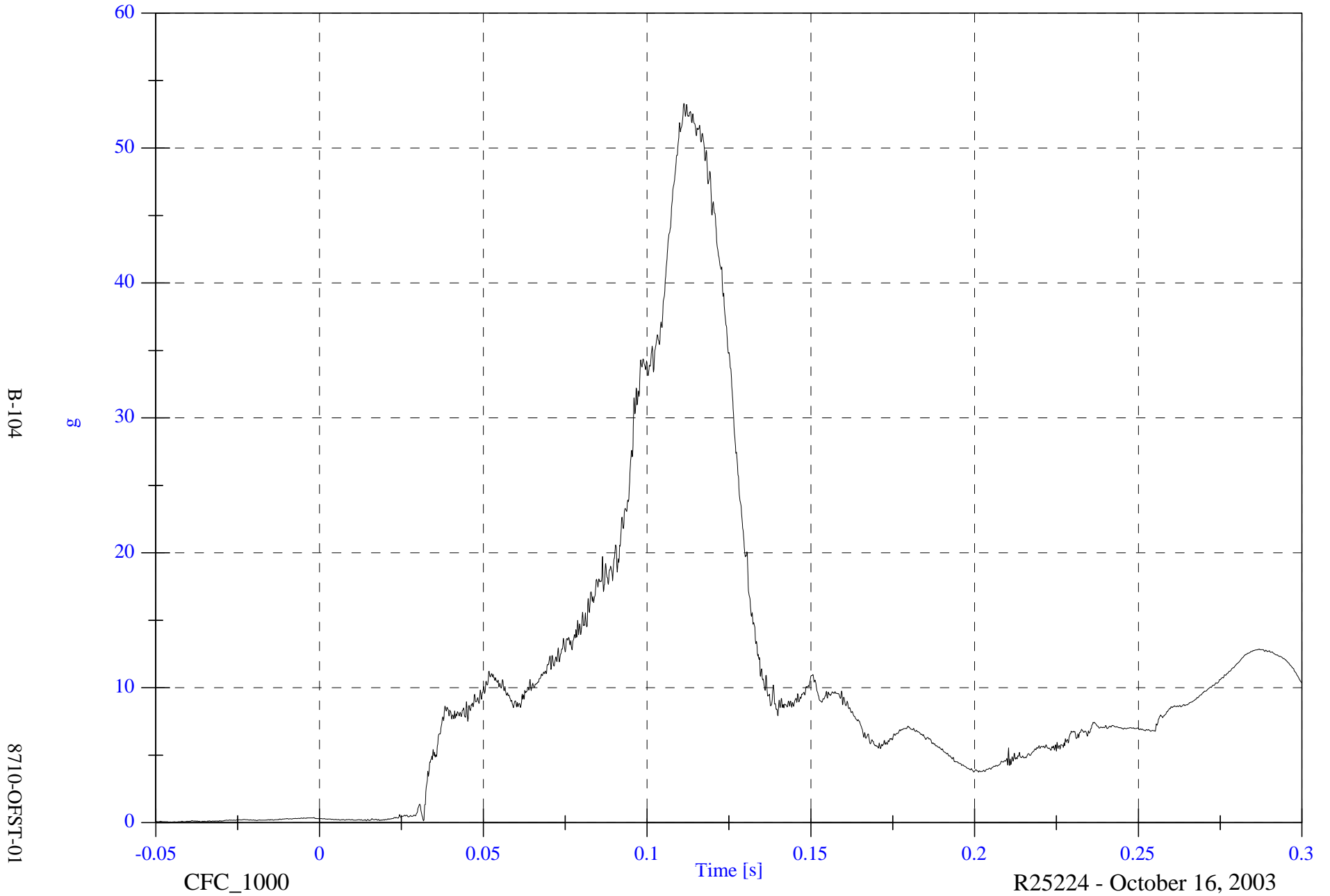
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Head Resultant

Max: 53.3 [g] at 0.111 [s]

Min: 0.0 [g] at -0.043 [s]

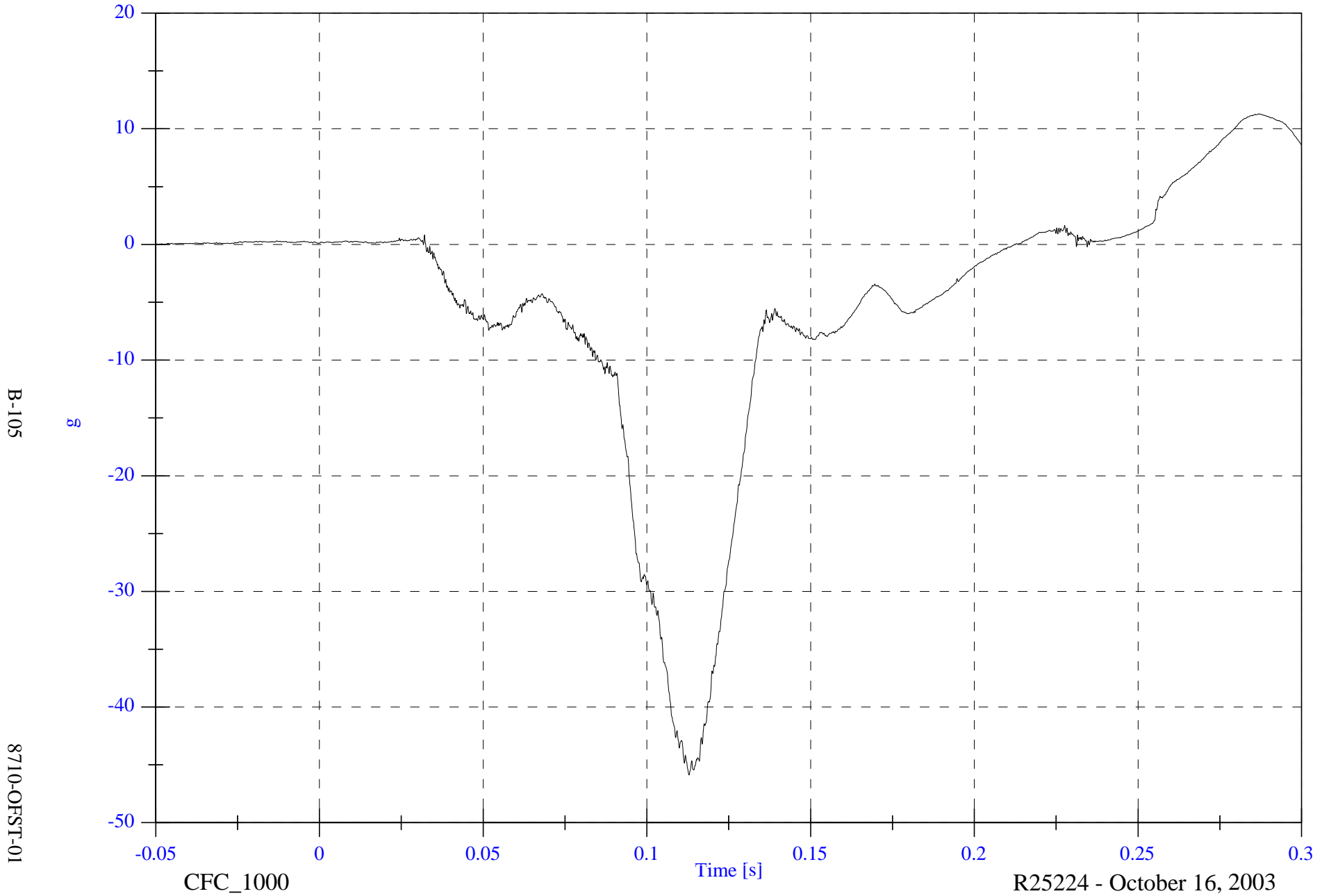


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Head Red x

Max: 11.3 [g] at 0.287 [s]

Min: -45.9 [g] at 0.113 [s]

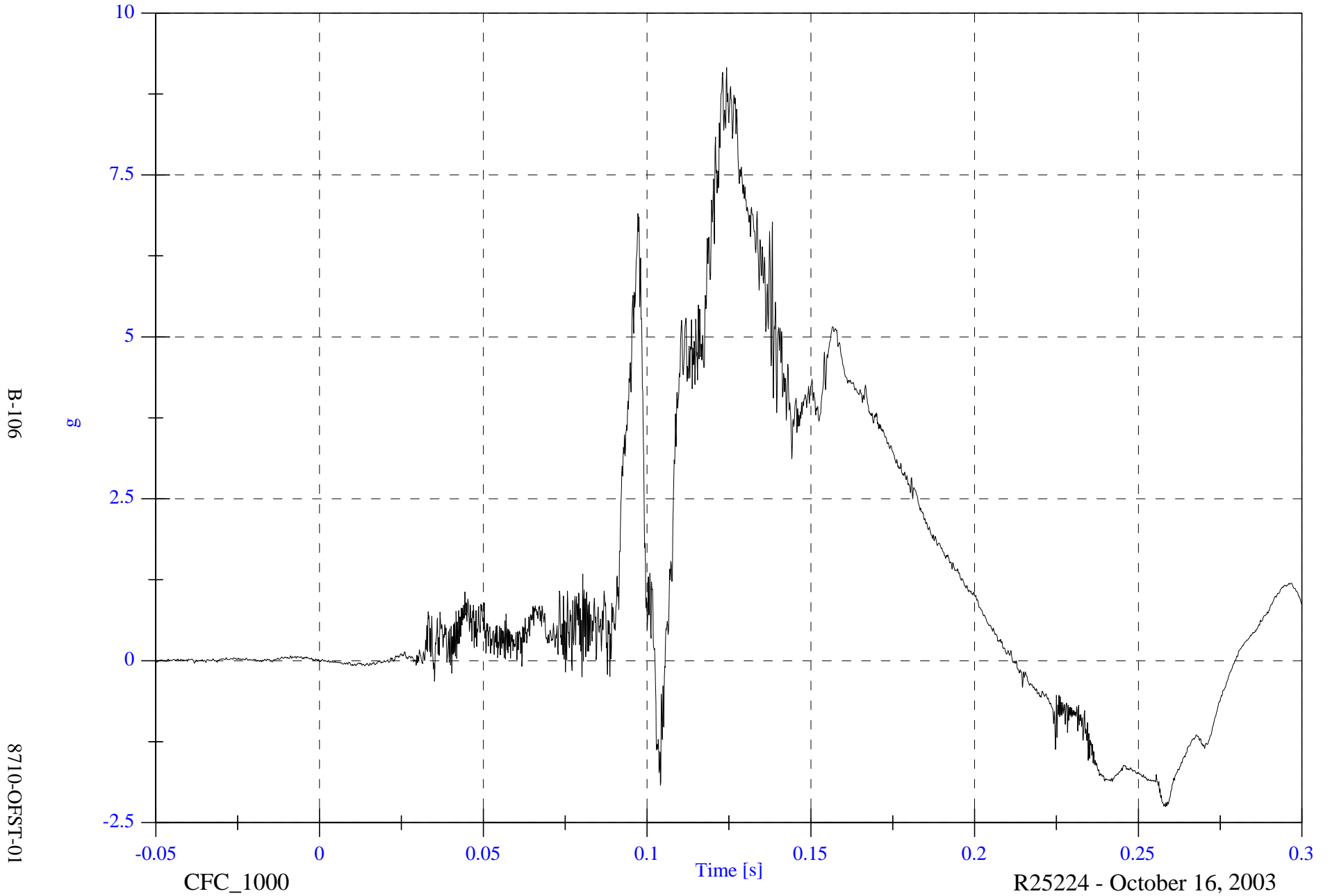


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 9.2 [g] at 0.124 [s]

Min: -2.3 [g] at 0.258 [s]

V1P2 Head Red y

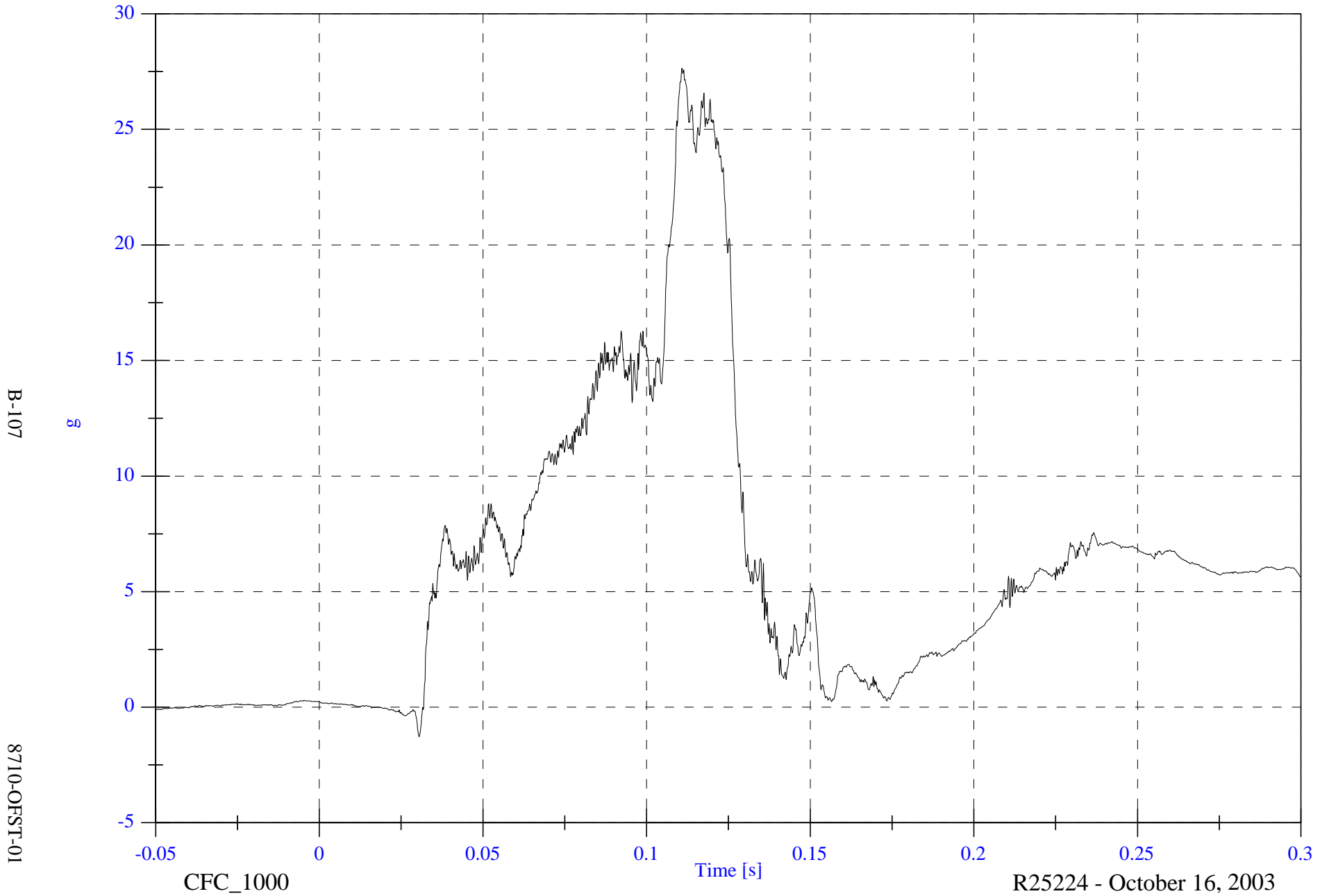


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Head Red z

Max: 27.6 [g] at 0.111 [s]

Min: -1.3 [g] at 0.030 [s]



B-107

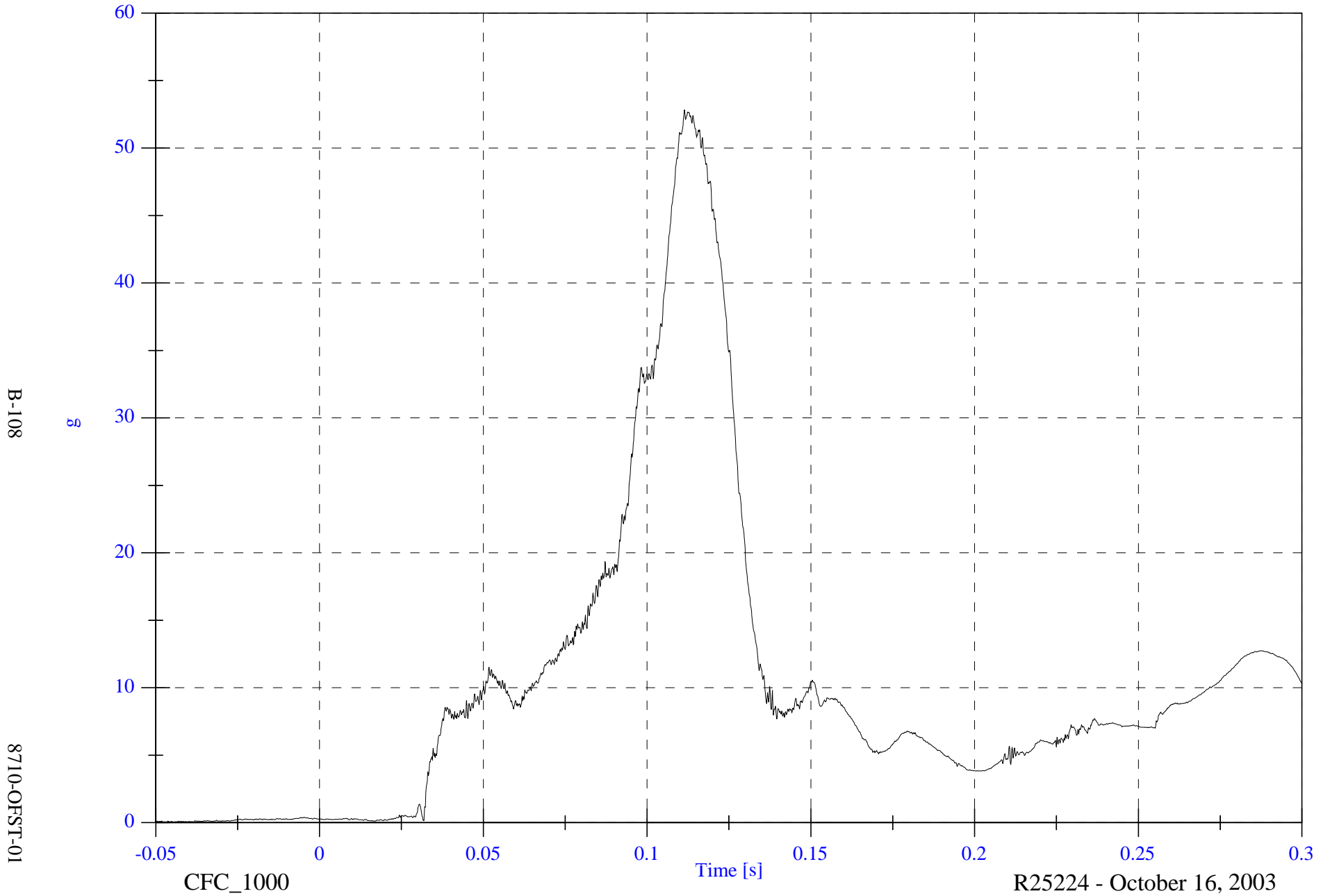
8710-OFST-01

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Head Red Resultant

Max: 52.8 [g] at 0.111 [s]

Min: 0.0 [g] at -0.039 [s]

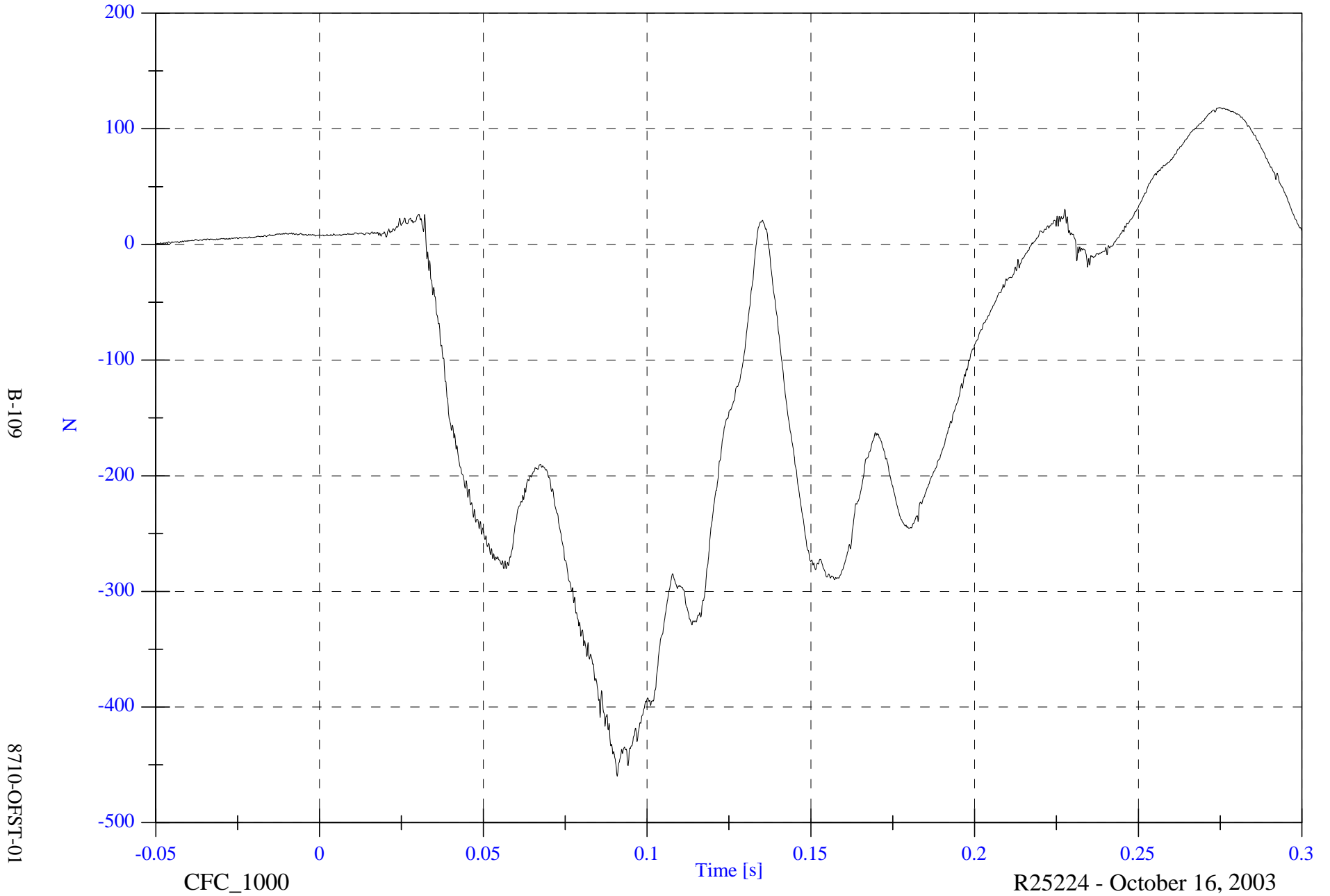


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Upper Neck Fx

Max: 118.3 [N] at 0.275 [s]

Min: -459.6 [N] at 0.091 [s]

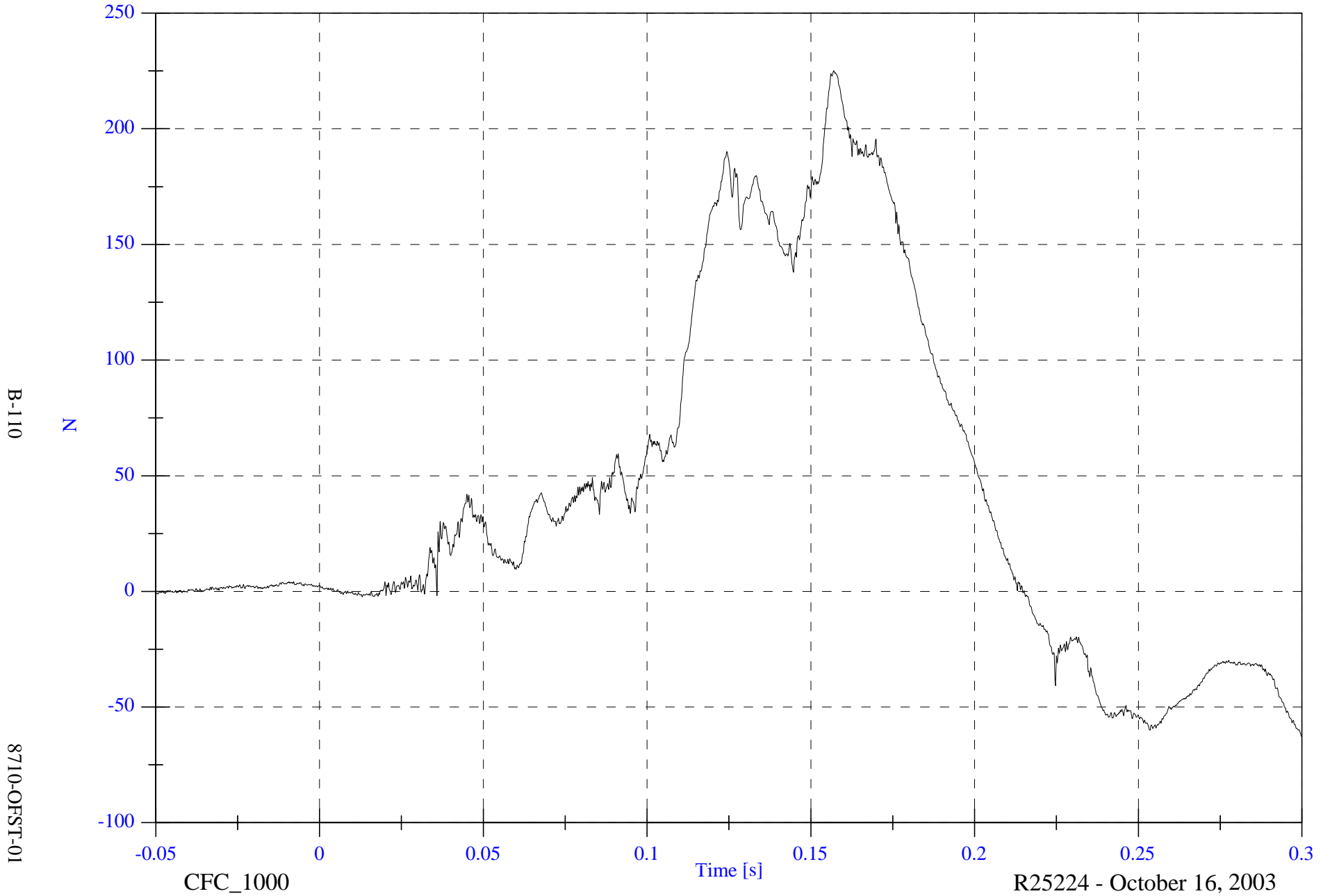


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Upper Neck Fy

Max: 225.1 [N] at 0.157 [s]

Min: -62.8 [N] at 0.300 [s]



B-110

8710-OFST-01

CFC_1000

Time [s]

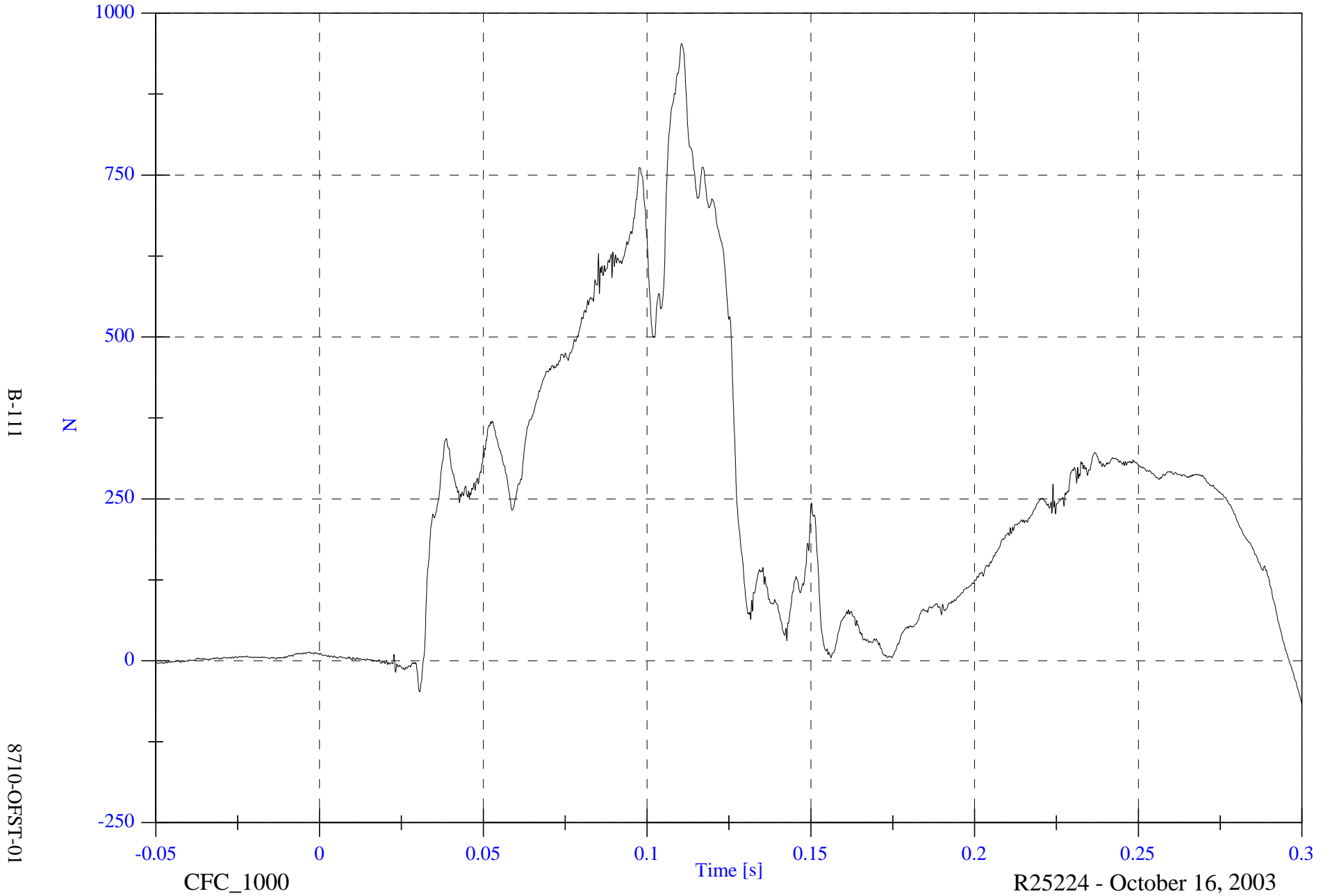
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 952.9 [N] at 0.111 [s]

V1P2 Upper Neck Fz

Min: -66.5 [N] at 0.300 [s]



B-111

8710-OFST-01

CFC_1000

Time [s]

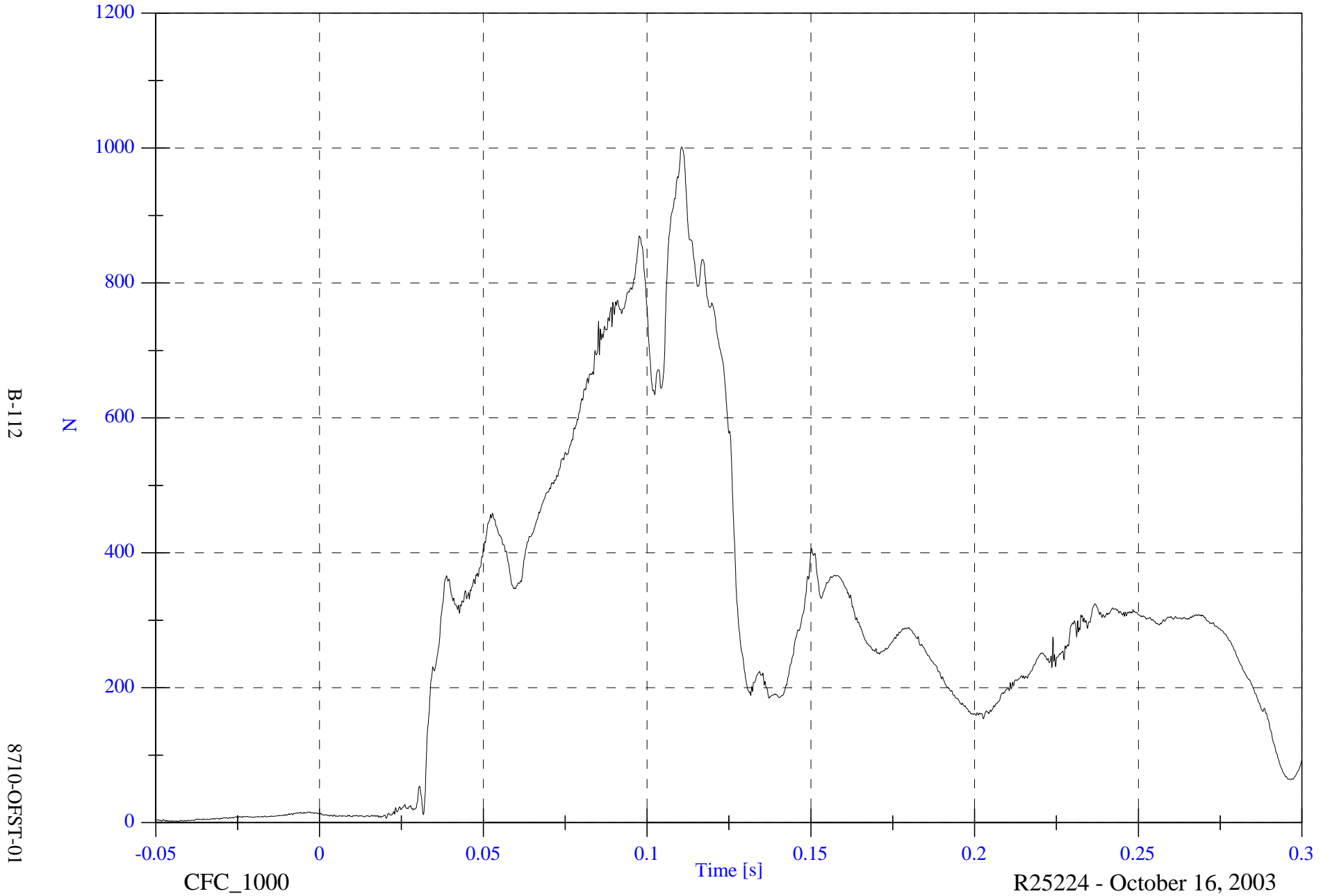
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 1001.6 [N] at 0.111 [s]

V1P2 Upper Neck F Resultant

Min: 1.6 [N] at -0.043 [s]

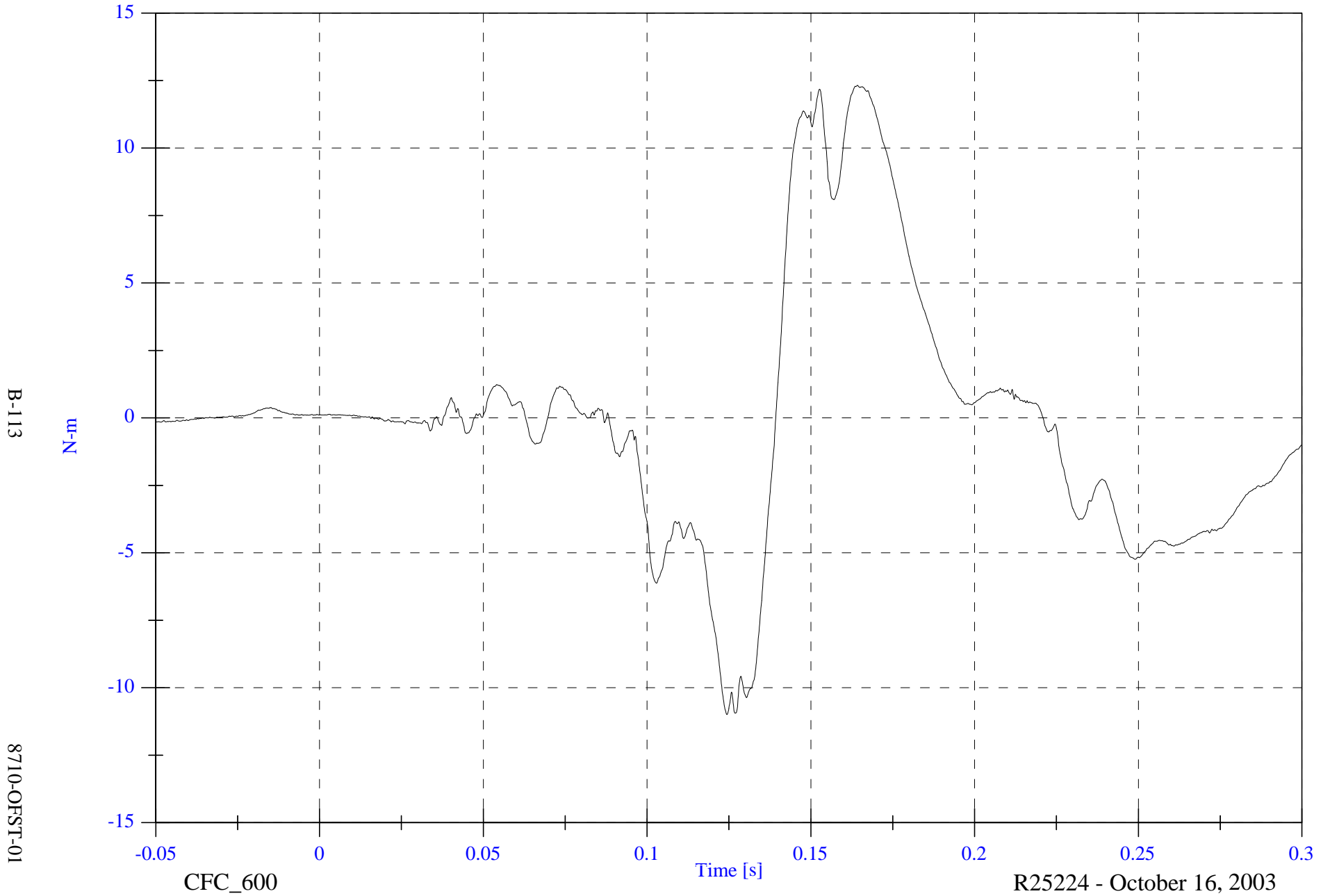


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Upper Neck Mx

Max: 12.3 [N-m] at 0.164 [s]

Min: -11.0 [N-m] at 0.124 [s]



B-113

8710-OFST-01

CFC_600

Time [s]

R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

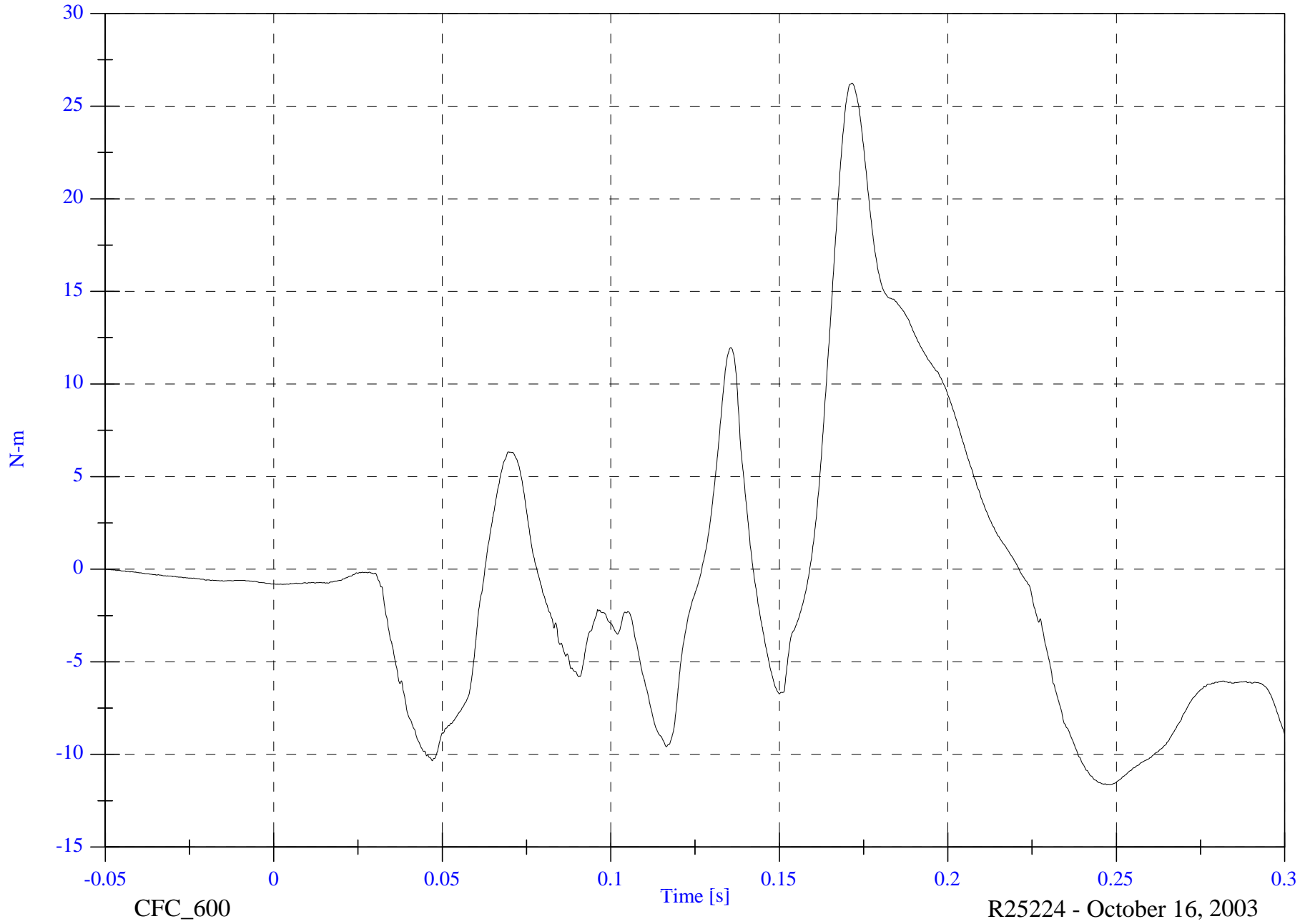
V1P2 Upper Neck My

Max: 26.2 [N-m] at 0.172 [s]

Min: -11.6 [N-m] at 0.247 [s]

B-114

8710-OFST-01

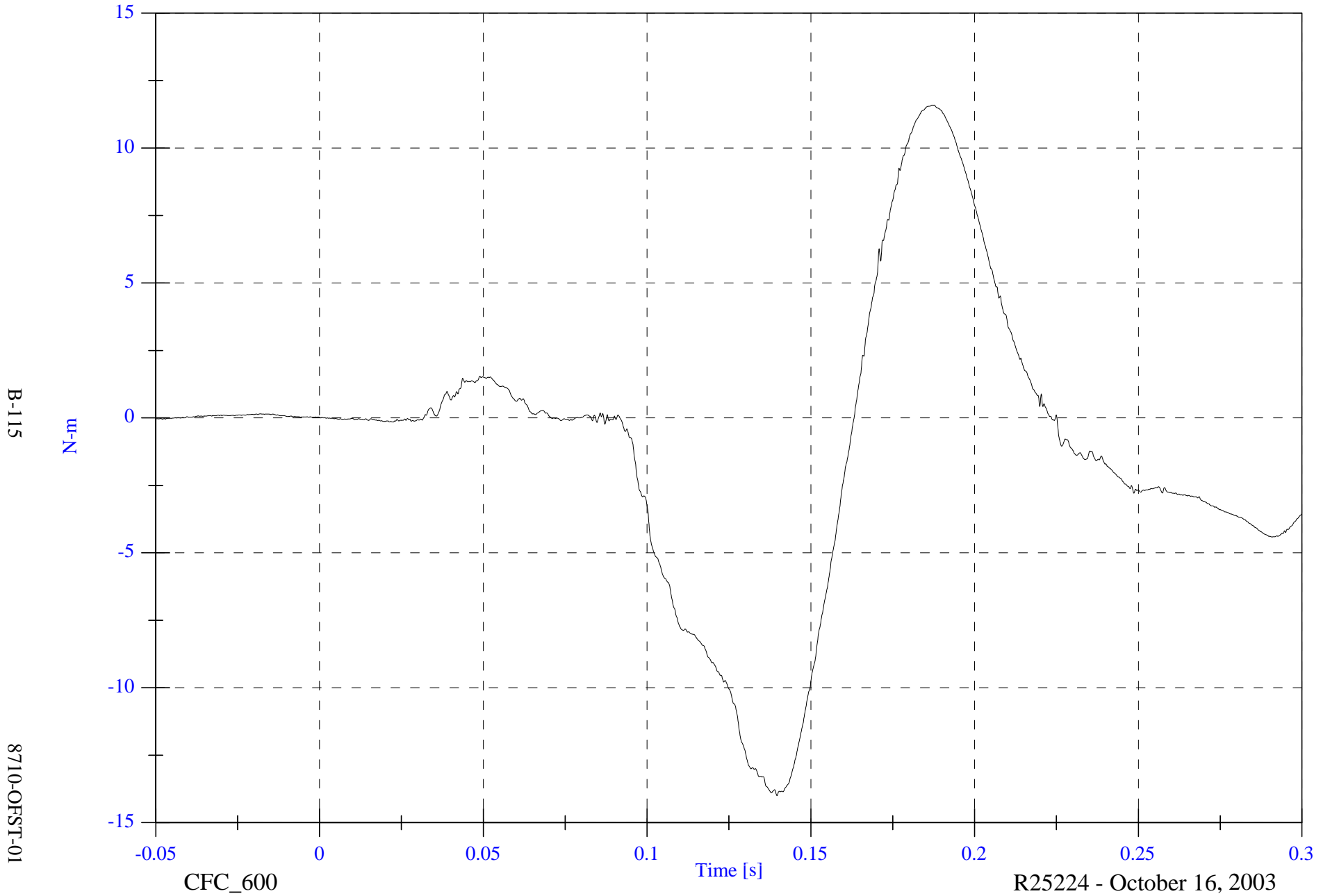


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Upper Neck Mz

Max: 11.6 [N-m] at 0.187 [s]

Min: -14.0 [N-m] at 0.140 [s]



B-115

8710-OFST-01

CFC_600

Time [s]

R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

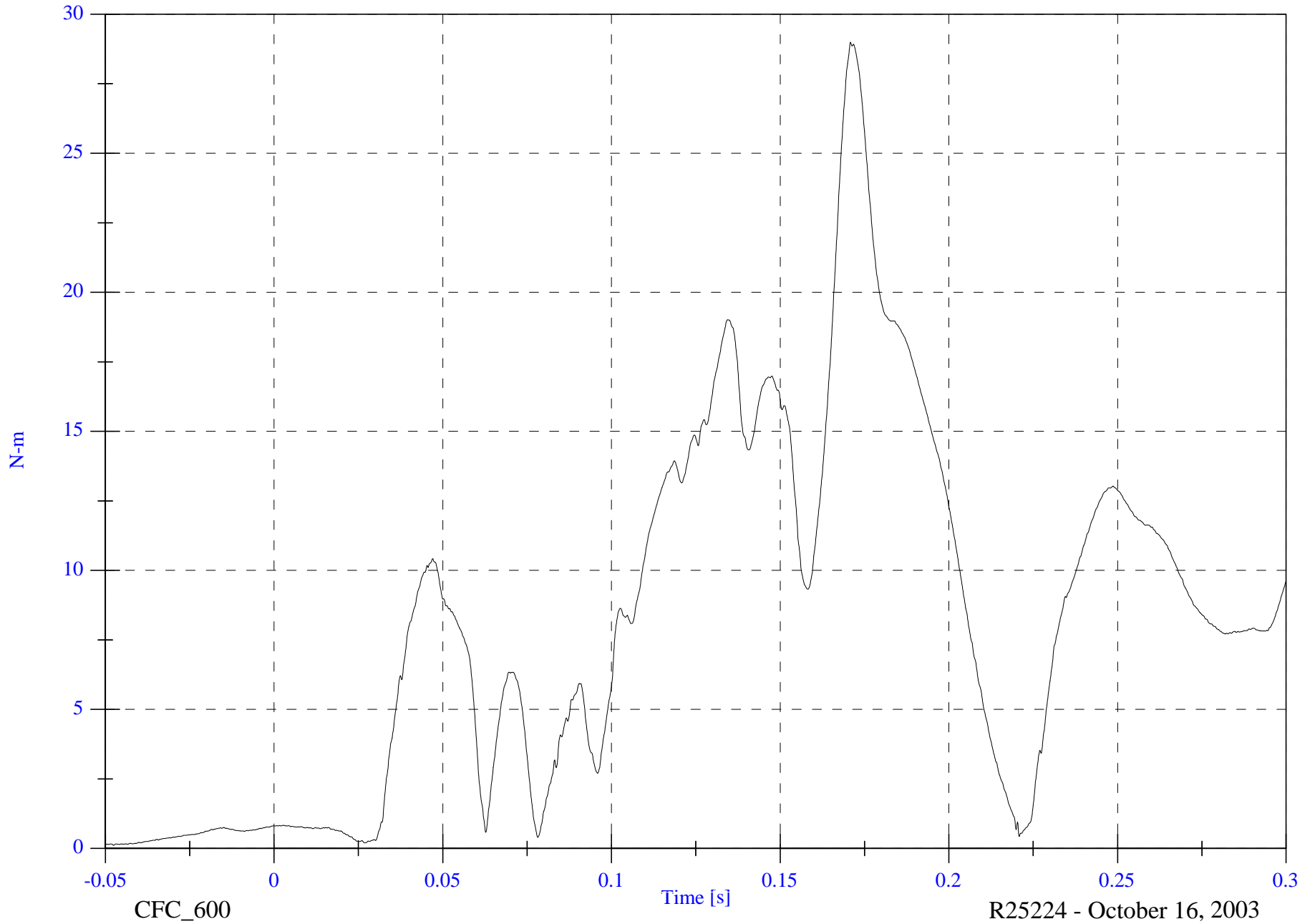
V1P2 Upper Neck M Resultant

Max: 29.0 [N-m] at 0.171 [s]

Min: 0.1 [N-m] at -0.048 [s]

B-116

8710-OFST-01



CFC_600

Time [s]

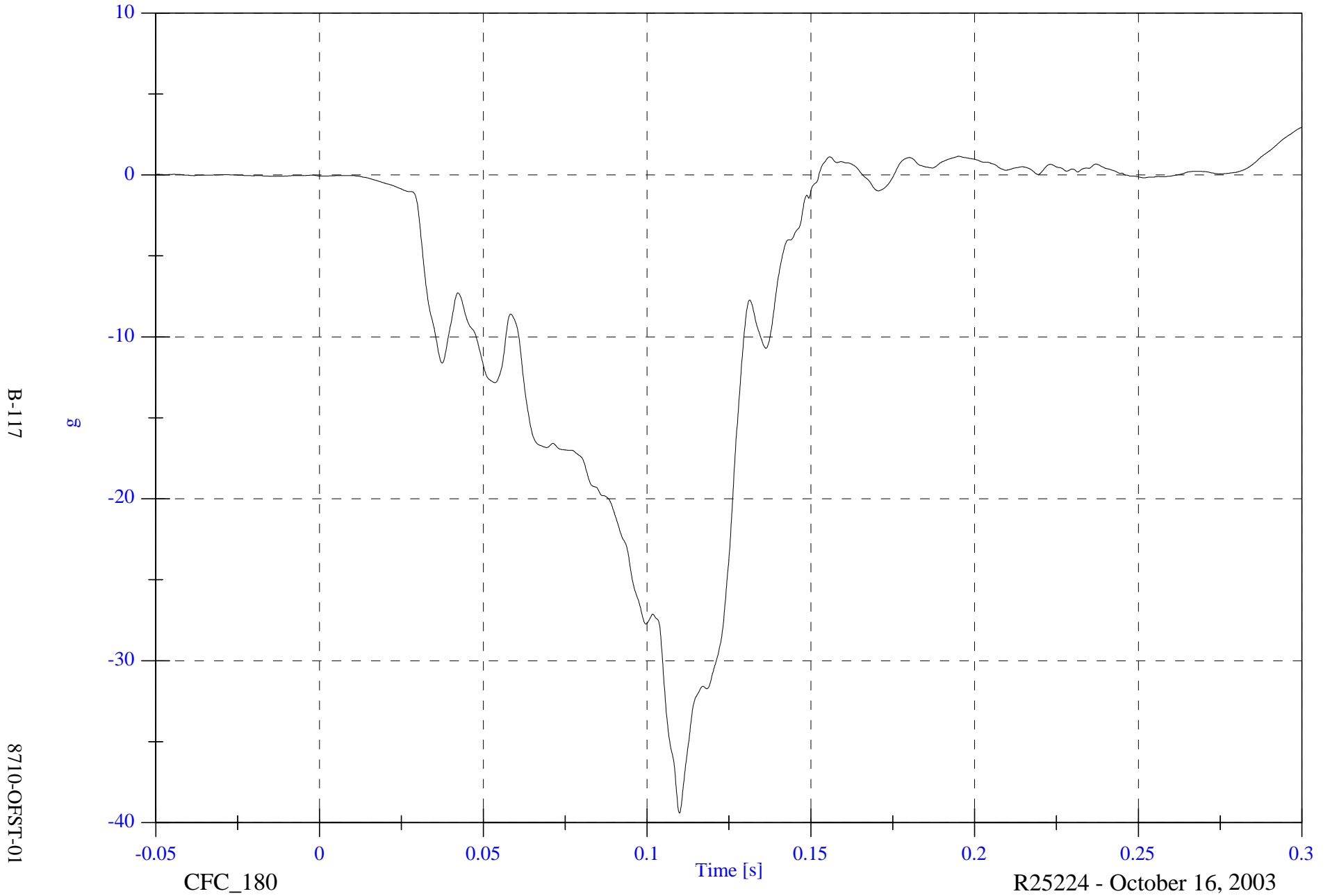
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Chest x

Max: 3.0 [g] at 0.300 [s]

Min: -39.4 [g] at 0.110 [s]



B-117

8710-OFST-01

CFC_180

Time [s]

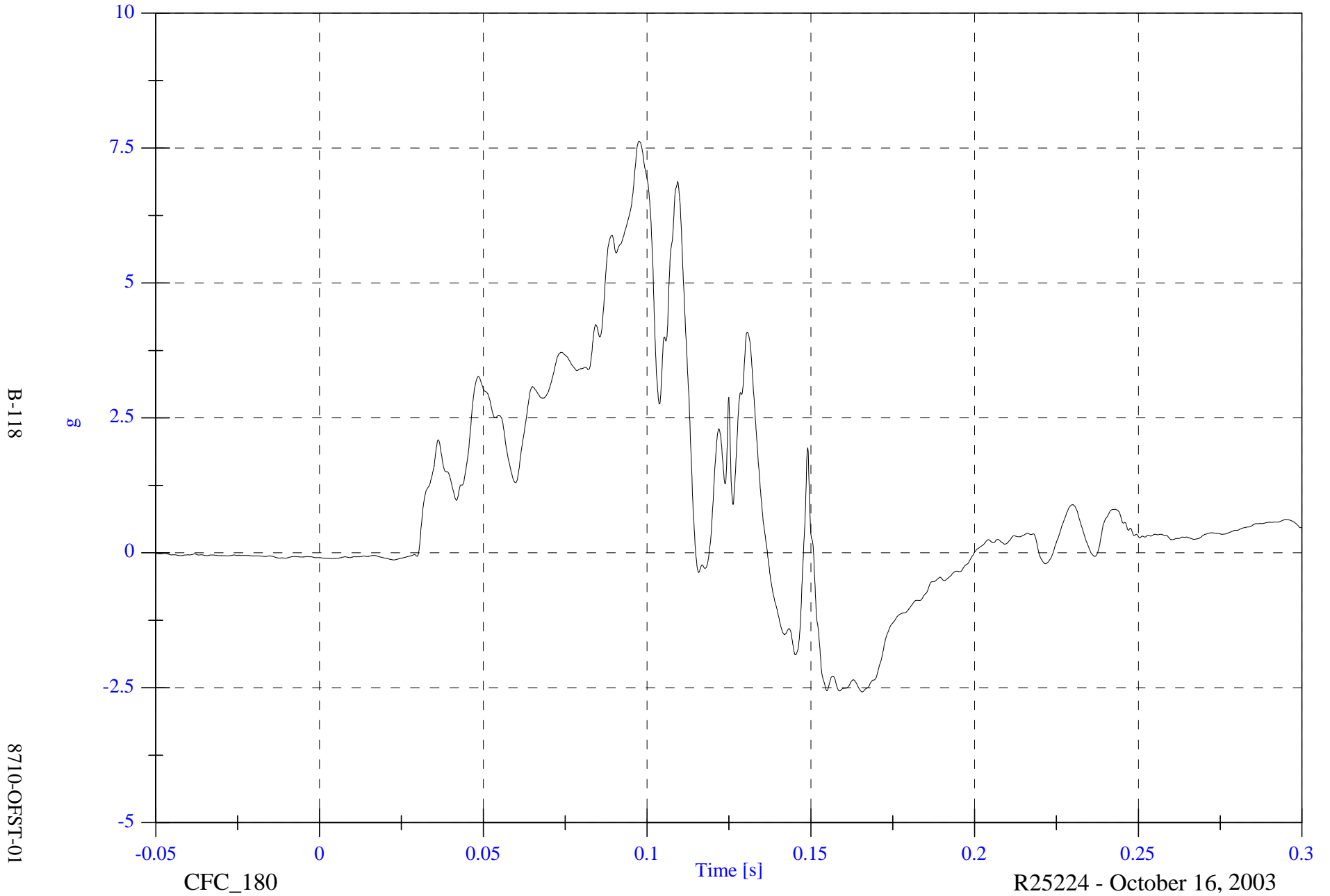
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Chest y

Max: 7.6 [g] at 0.098 [s]

Min: -2.6 [g] at 0.166 [s]



B-118

8710-OFST-01

CFC_180

Time [s]

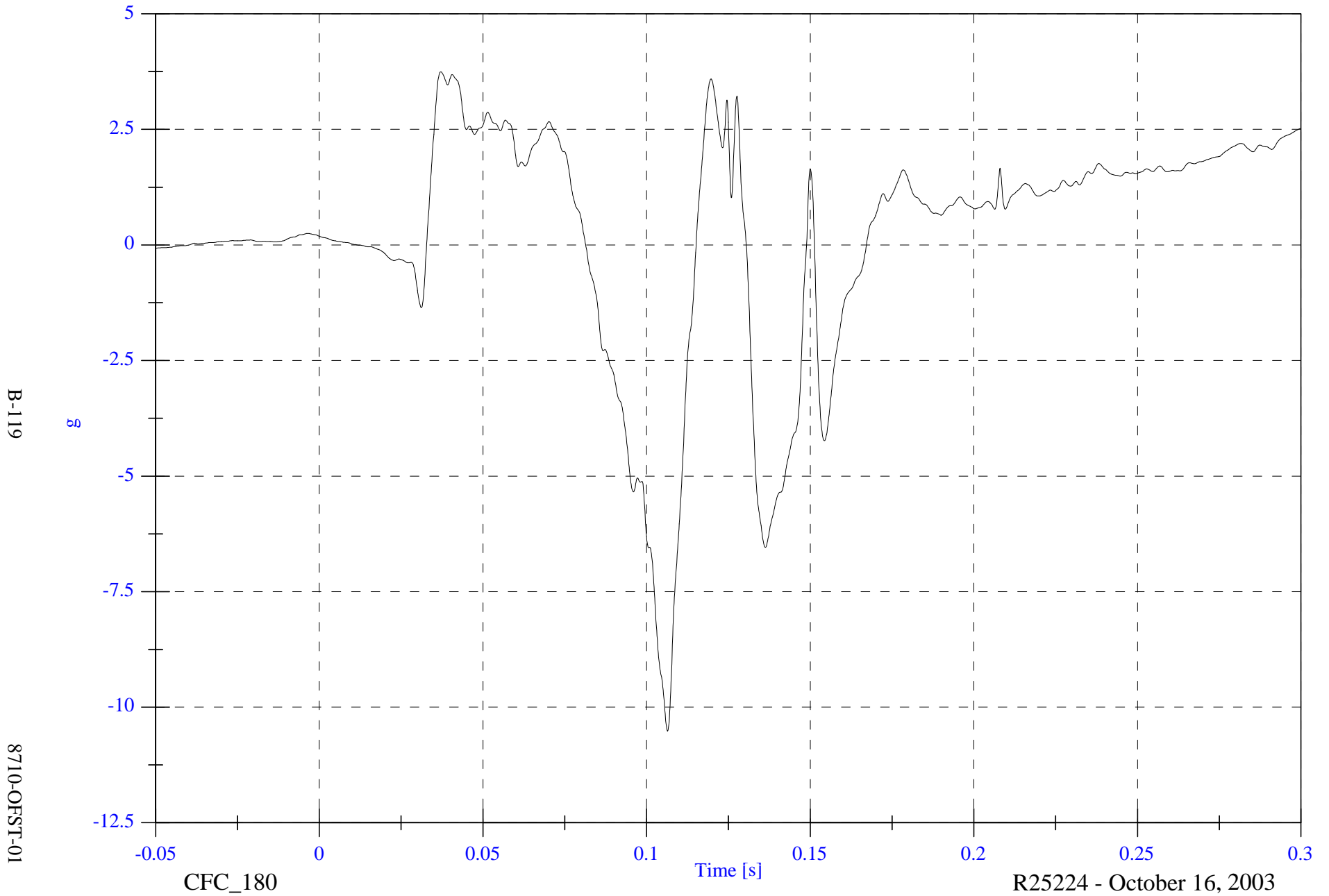
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

VIP2 Chest z

Max: 3.7 [g] at 0.037 [s]

Min: -10.5 [g] at 0.106 [s]



B-119

8710-OFST-01

CFC_180

Time [s]

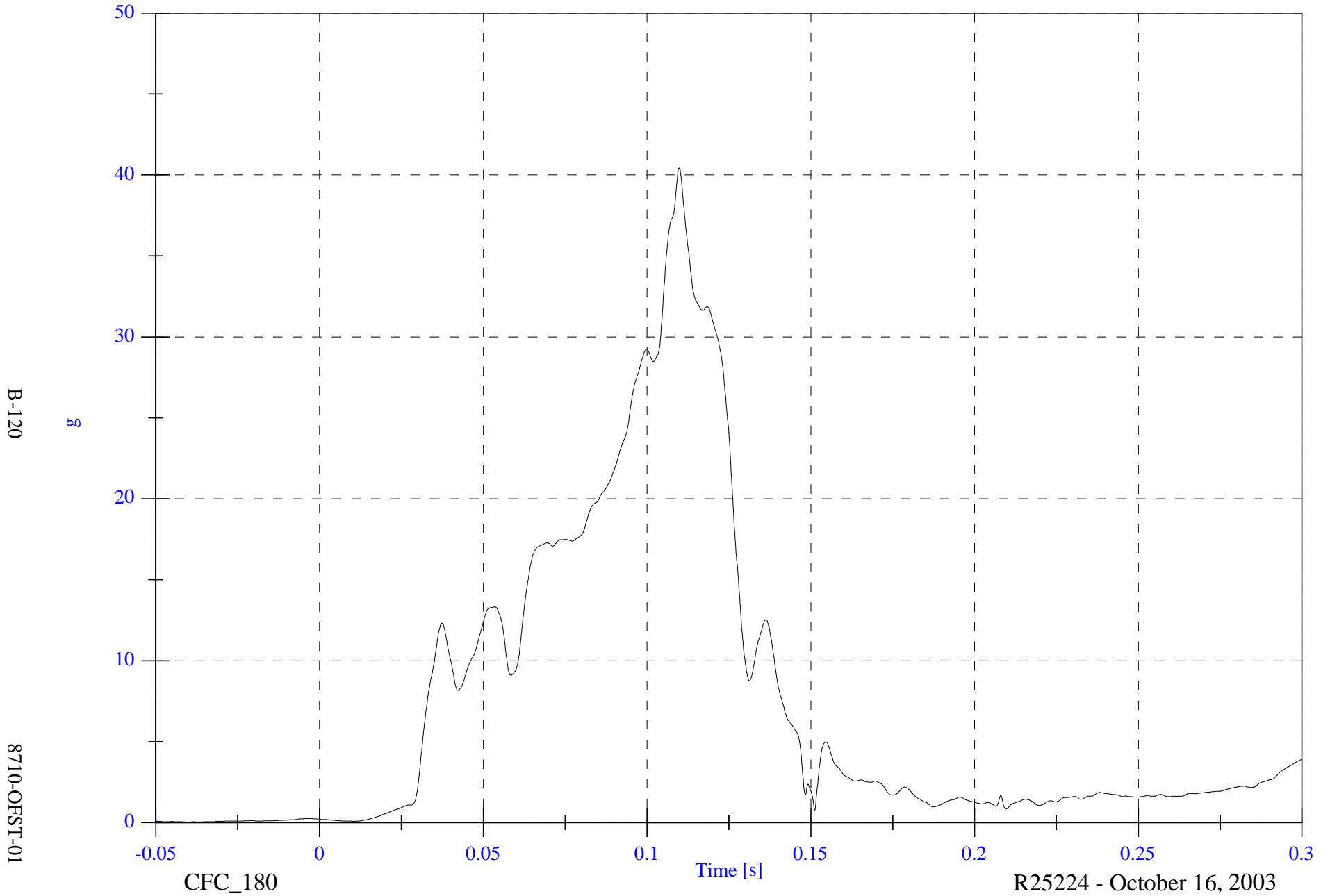
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Chest Resultant

Max: 40.4 [g] at 0.110 [s]

Min: 0.0 [g] at -0.040 [s]

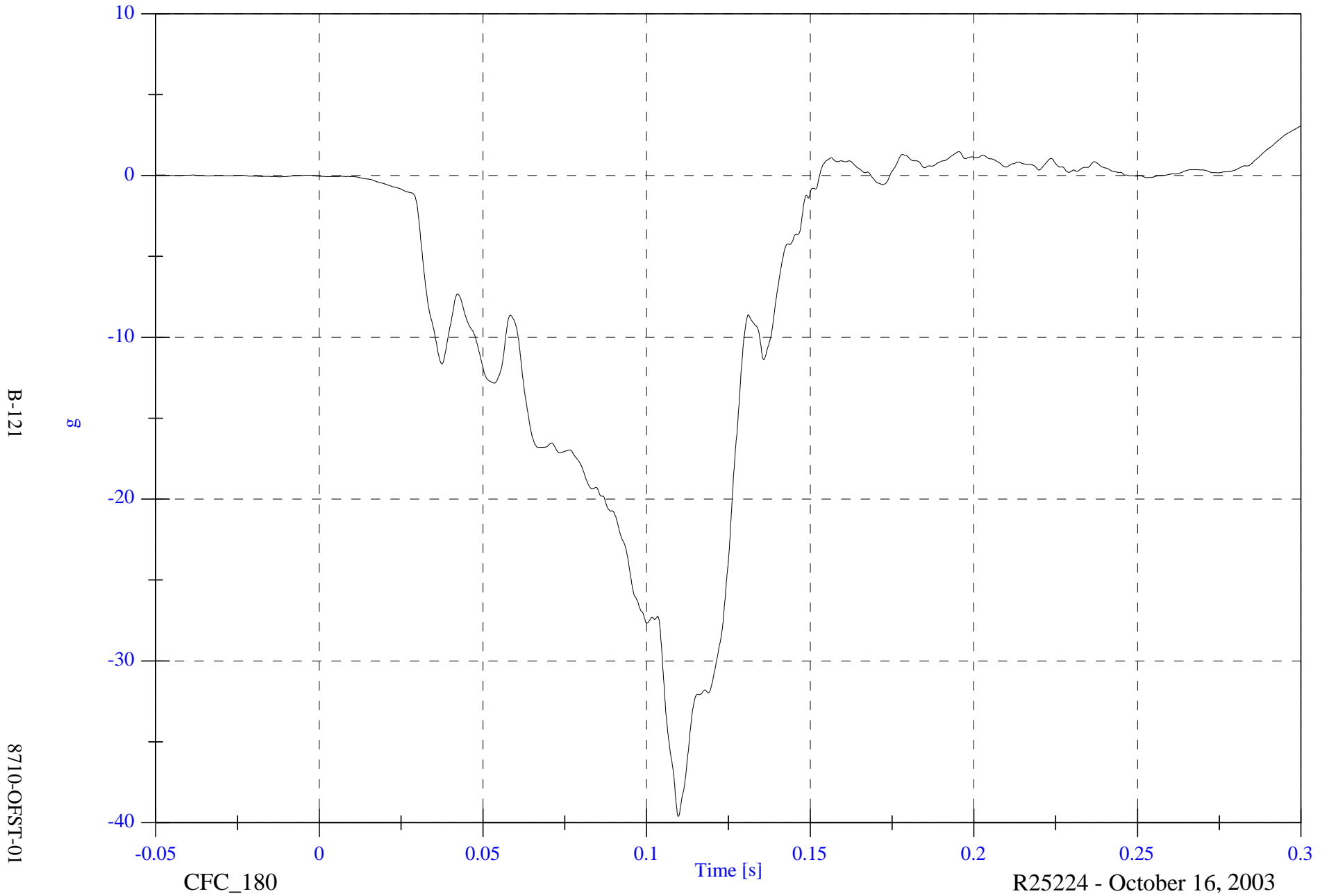


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Chest Red x

Max: 3.1 [g] at 0.300 [s]

Min: -39.6 [g] at 0.110 [s]



B-121

8710-OFST-01

CFC_180

Time [s]

R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

VIP2 Chest Red y

Max: 7.6 [g] at 0.098 [s]

Min: -2.5 [g] at 0.155 [s]

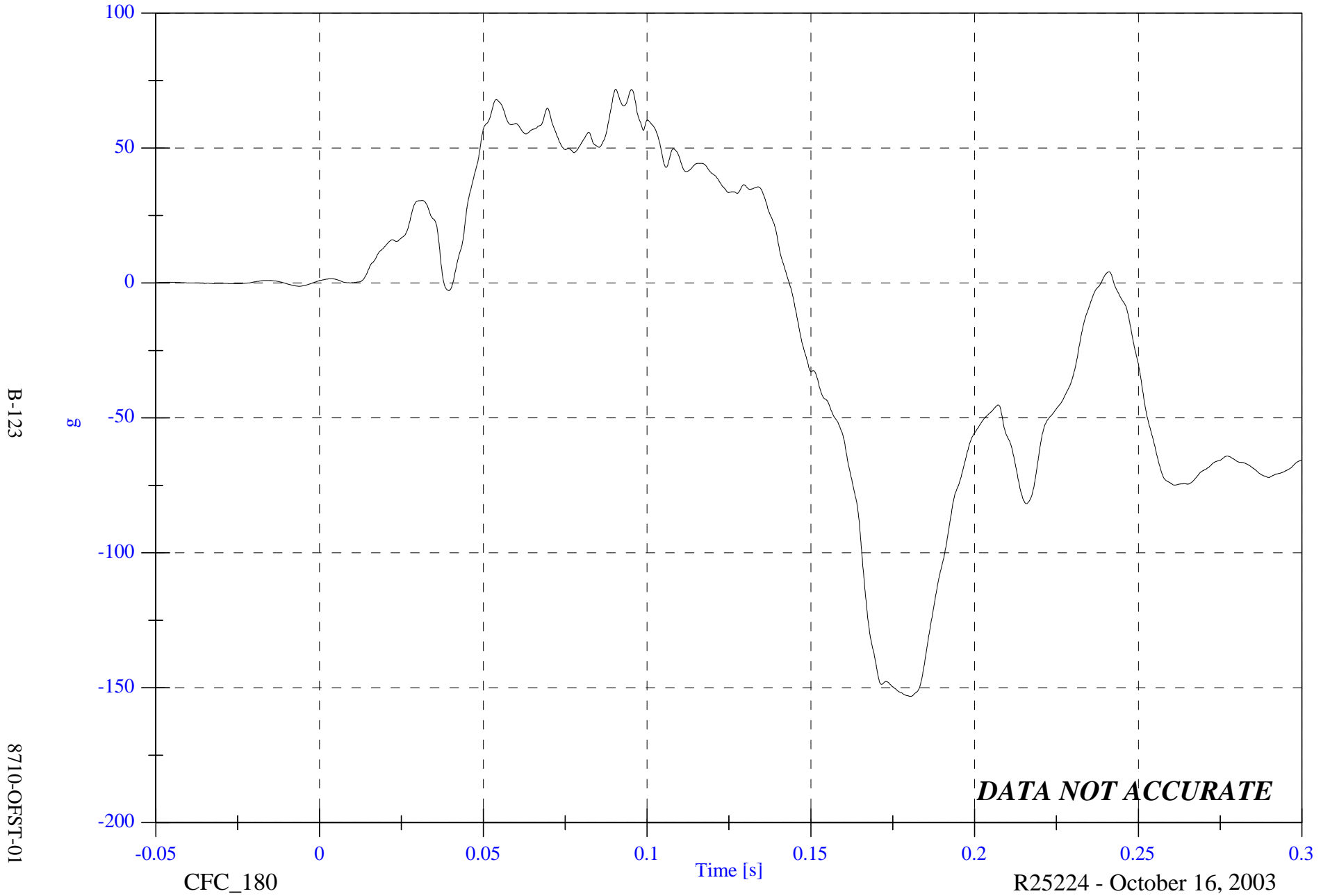


2004 Offset Barrier Test 1 2002 Nissan Altima

VIP2 Chest Red z

Max: 71.7 [g] at 0.090 [s]

Min: -153.2 [g] at 0.180 [s]



B-123

8710-OFST-01

CFC_180

Time [s]

R25224 - October 16, 2003

DATA NOT ACCURATE

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Chest Red Resultant

Max: 153.2 [g] at 0.180 [s]

Min: 0.0 [g] at -0.037 [s]



B-124

8710-OFST-01

CFC_180

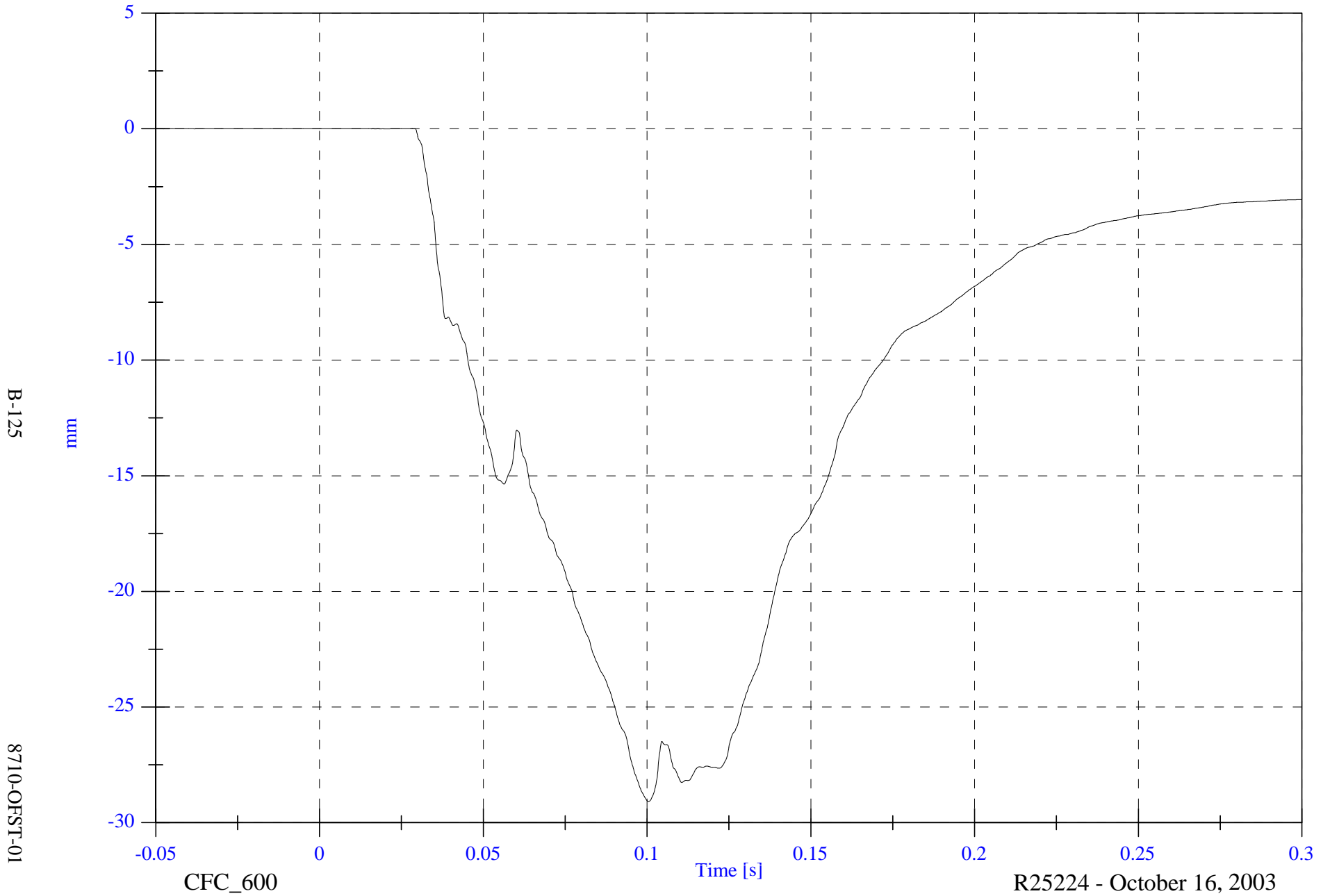
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

VIP2 Chest Displacement

Max: 0.0 [mm] at 0.028 [s]

Min: -29.1 [mm] at 0.100 [s]



B-125

8710-OFST-01

CFC_600

Time [s]

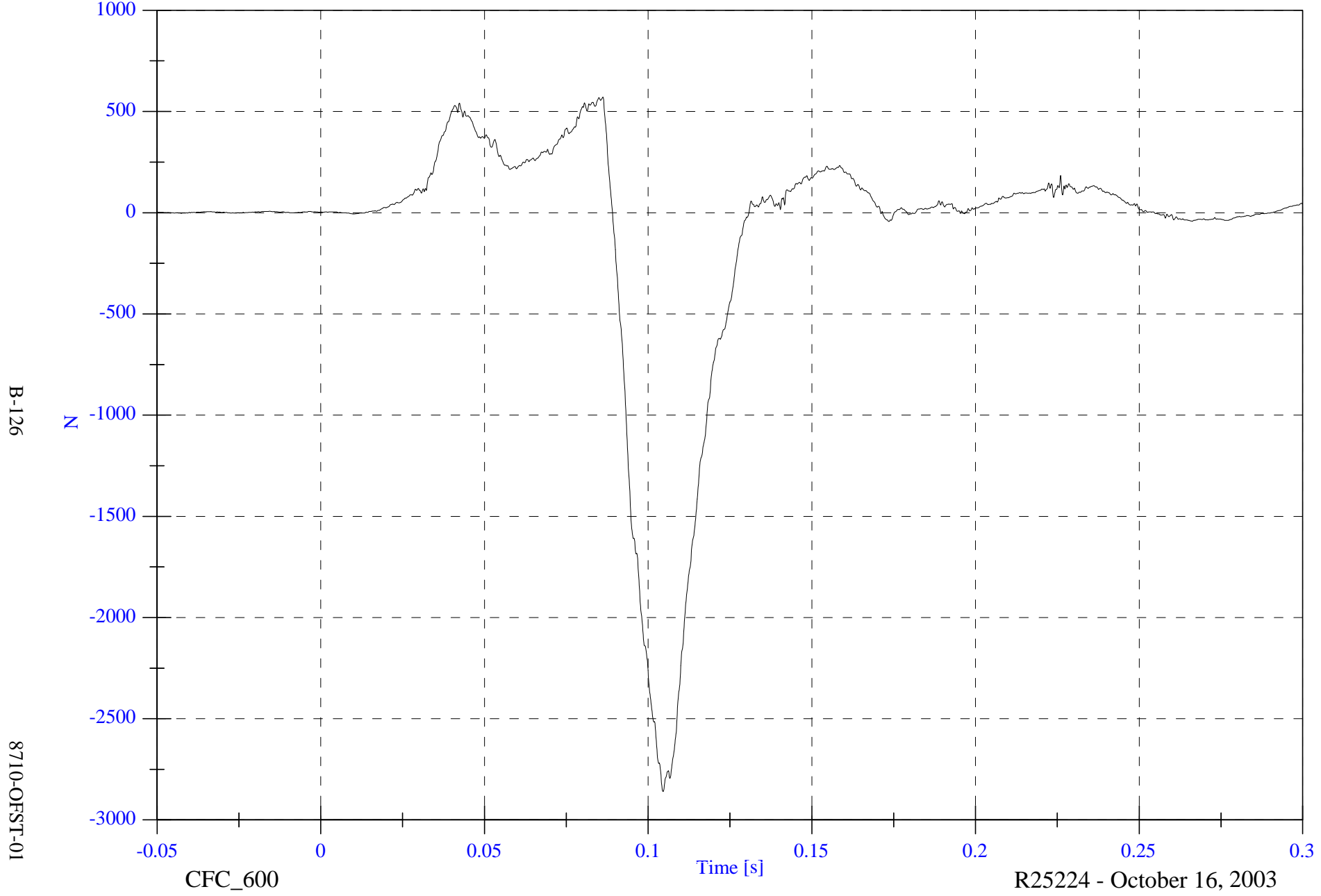
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 571.0 [N] at 0.086 [s]

Min: -2859.5 [N] at 0.105 [s]

V1P2 Left Femur



B-126

8710-OFST-01

CFC_600

Time [s]

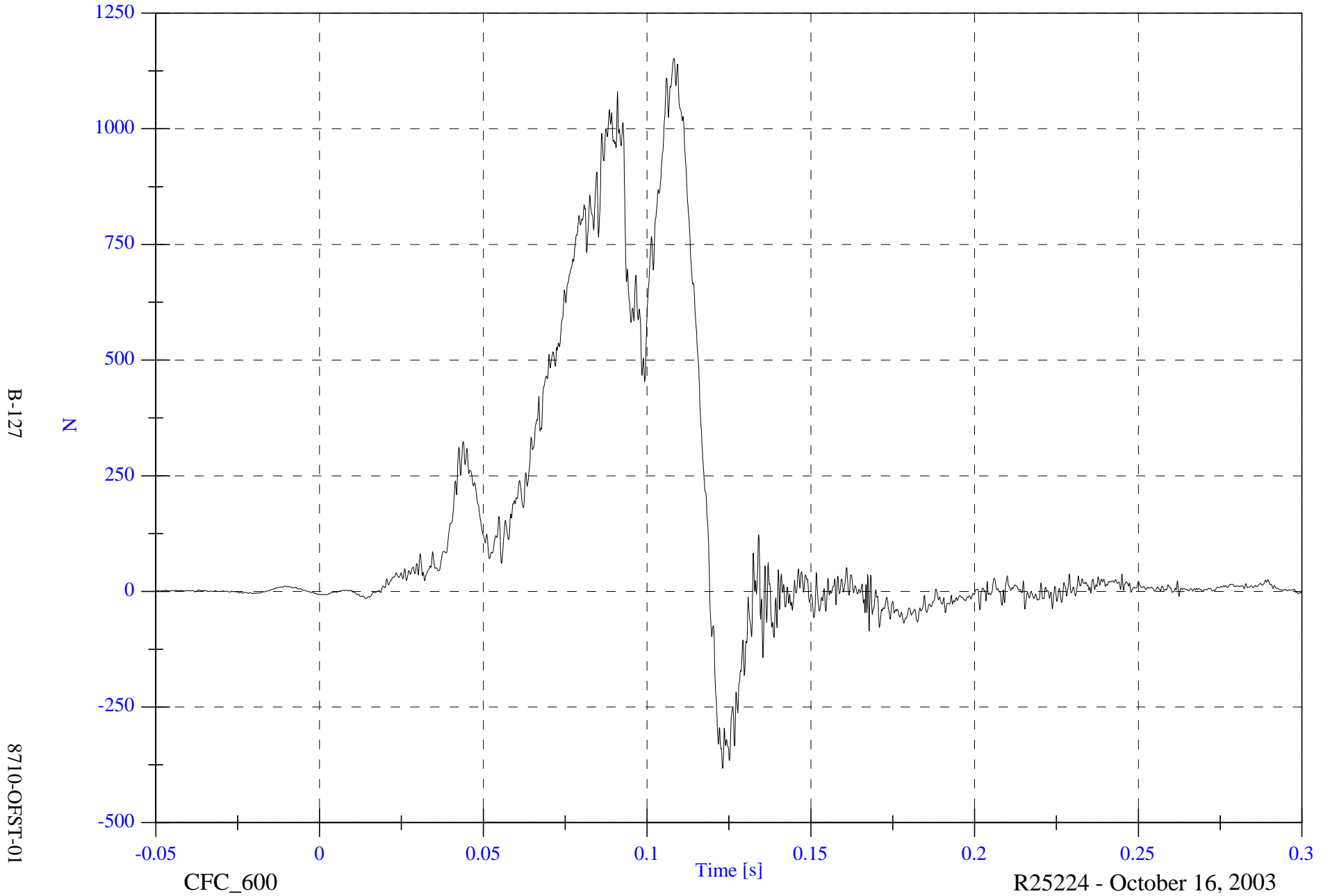
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Right Femur

Max: 1152.3 [N] at 0.108 [s]

Min: -382.4 [N] at 0.123 [s]



B-127

8710-OFST-01

CFC_600

Time [s]

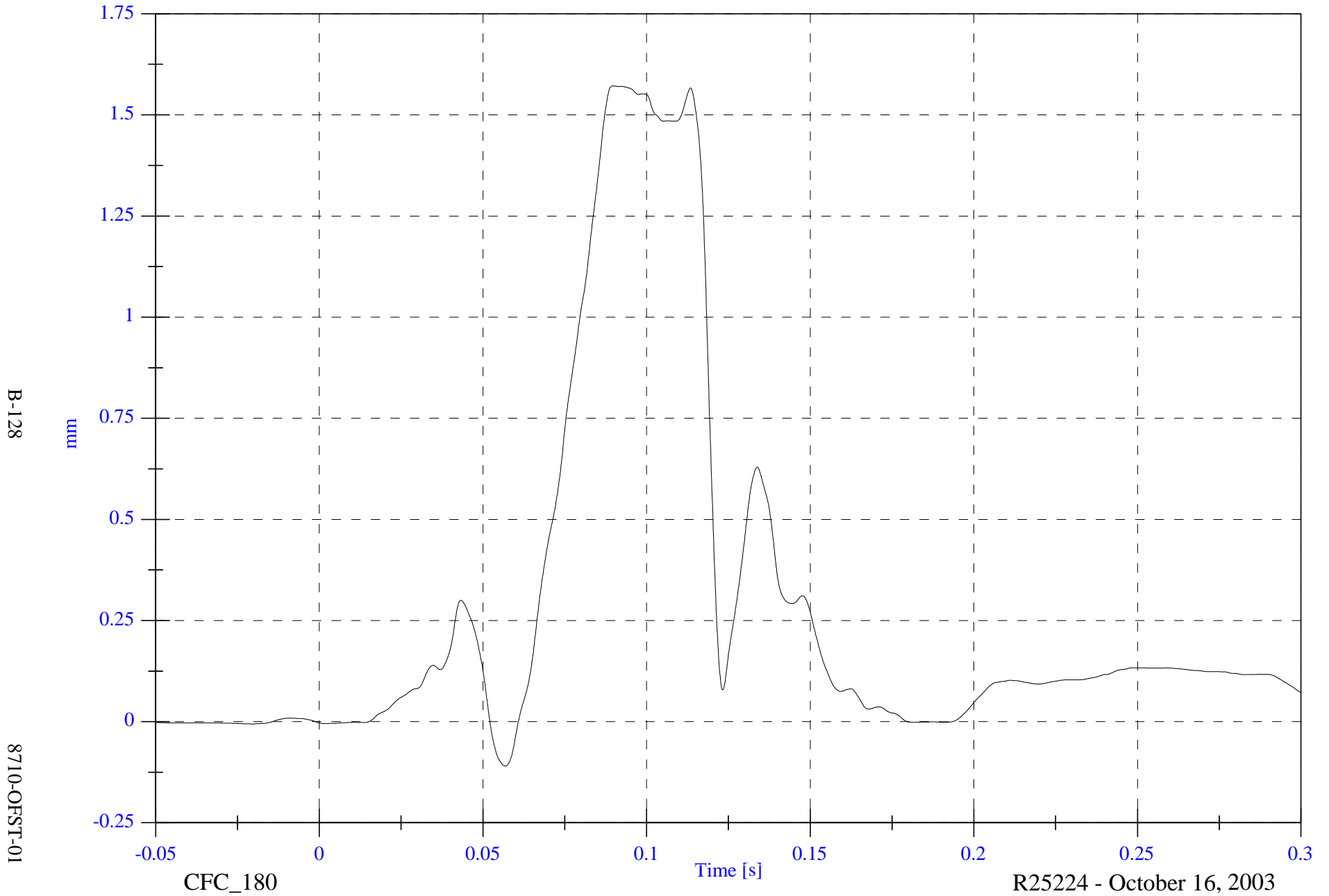
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Left Knee Shear

Max: 1.6 [mm] at 0.090 [s]

Min: -0.1 [mm] at 0.057 [s]

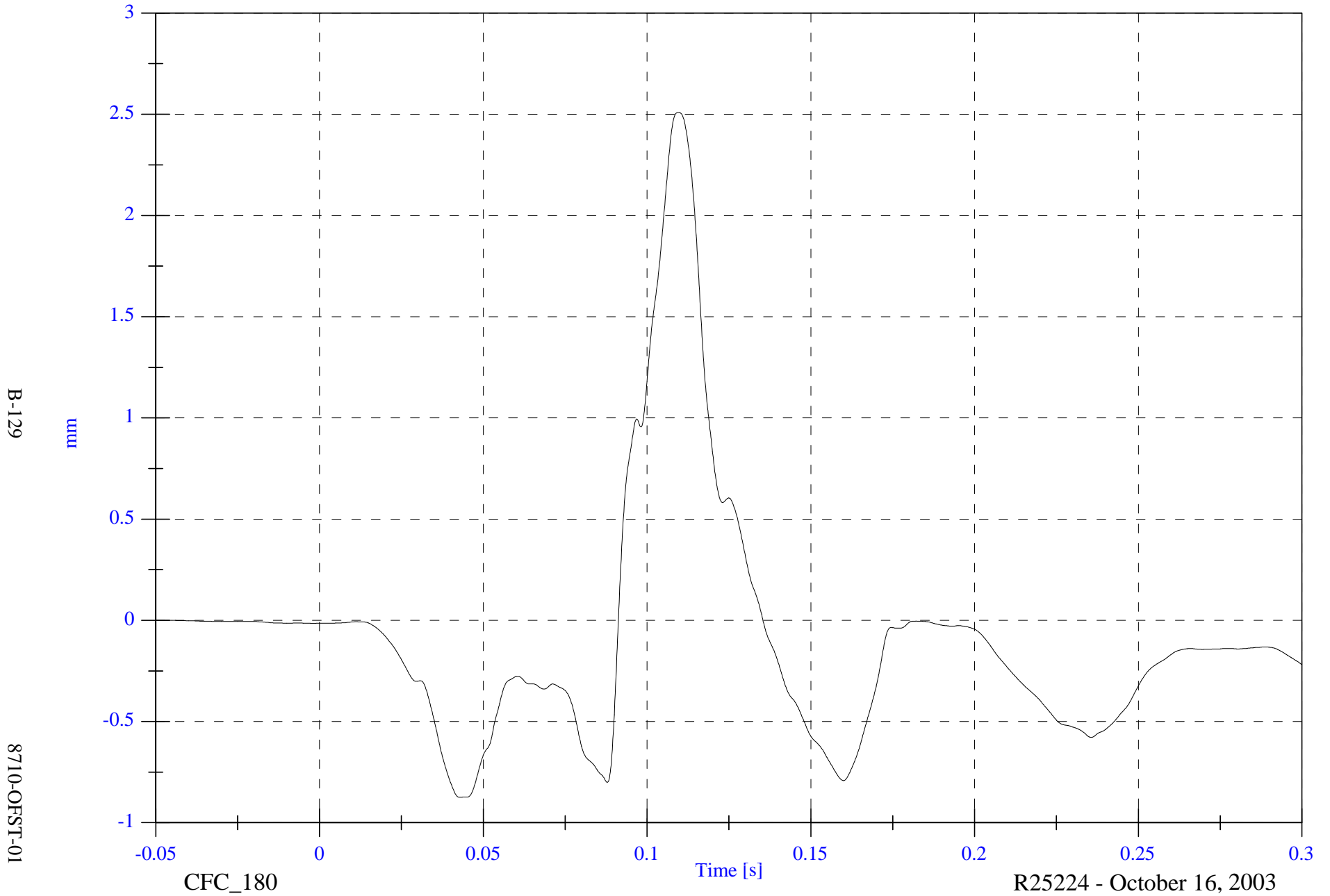


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Right Knee Shear

Max: 2.5 [mm] at 0.110 [s]

Min: -0.9 [mm] at 0.043 [s]



B-129

8710-OFST-01

CFC_180

Time [s]

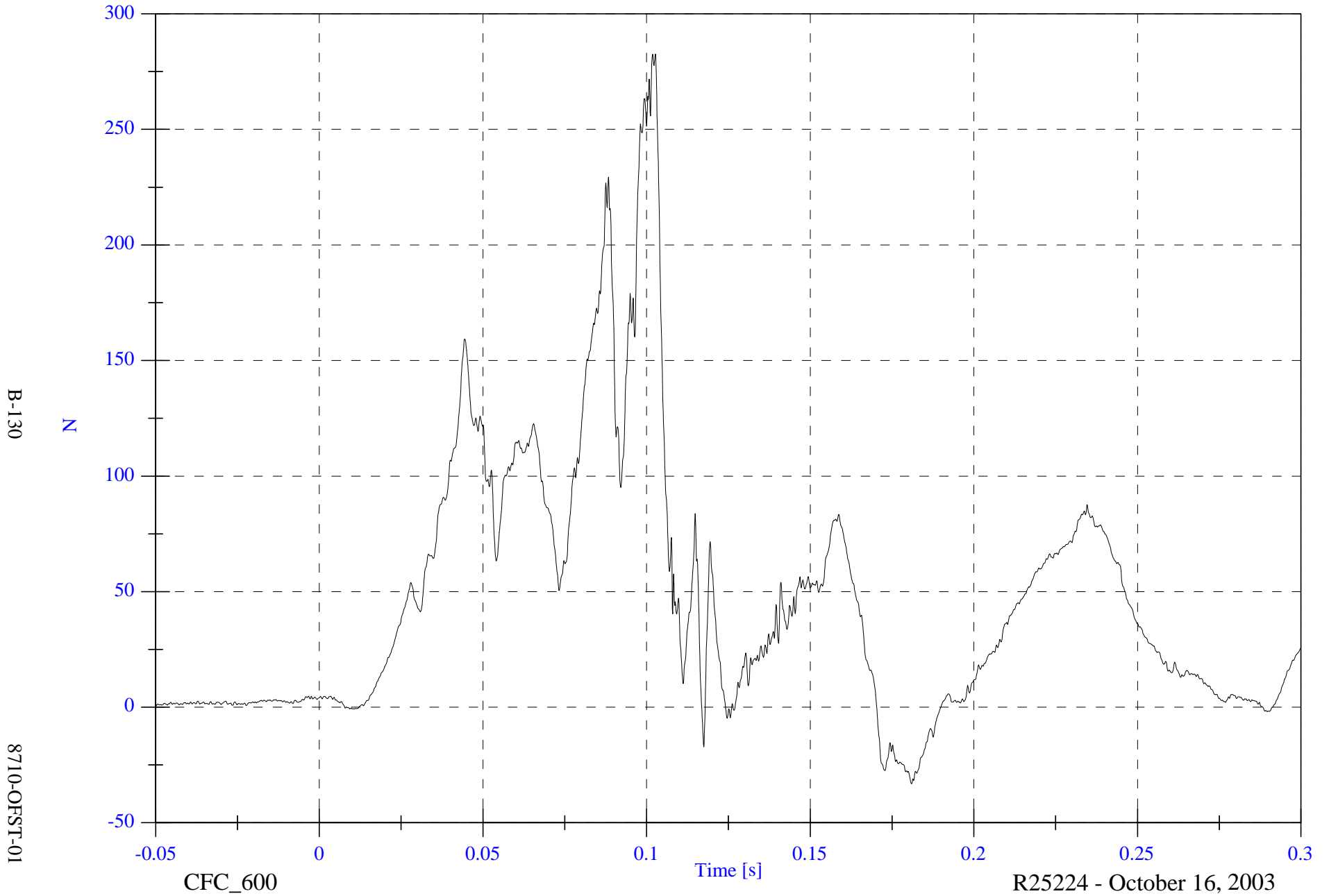
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 282.6 [N] at 0.103 [s]

V1P2 Left Upper Tibia Fx

Min: -33.2 [N] at 0.181 [s]



B-130

N

8710-OFST-01

CFC_600

Time [s]

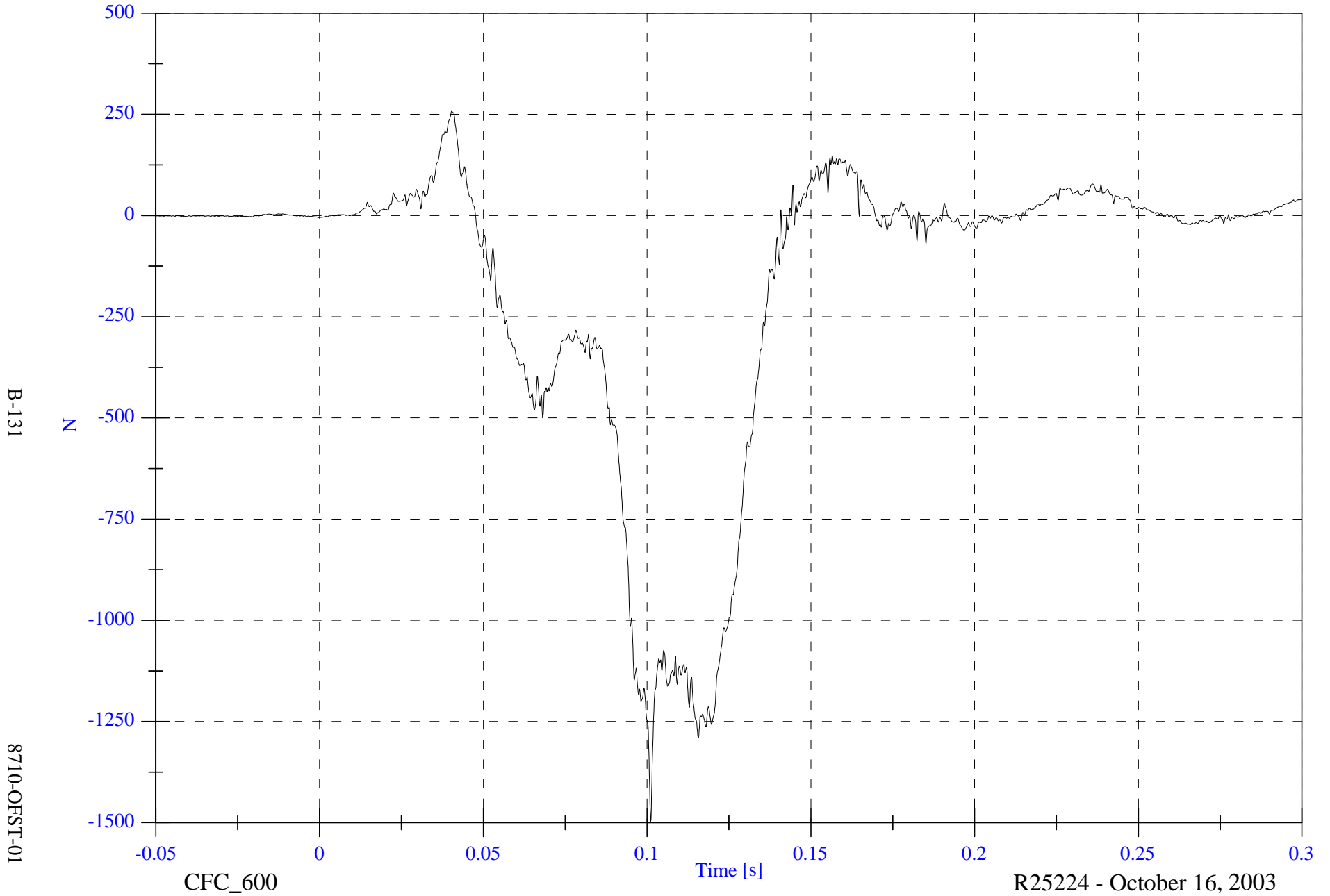
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 257.9 [N] at 0.040 [s]

V1P2 Left Upper Tibia Fz

Min: -1496.7 [N] at 0.101 [s]



2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Left Upper Tibia Mx

Max: 24.9 [N-m] at 0.120 [s]

Min: -46.8 [N-m] at 0.100 [s]



B-132

8710-OFST-01

CFC_600

Time [s]

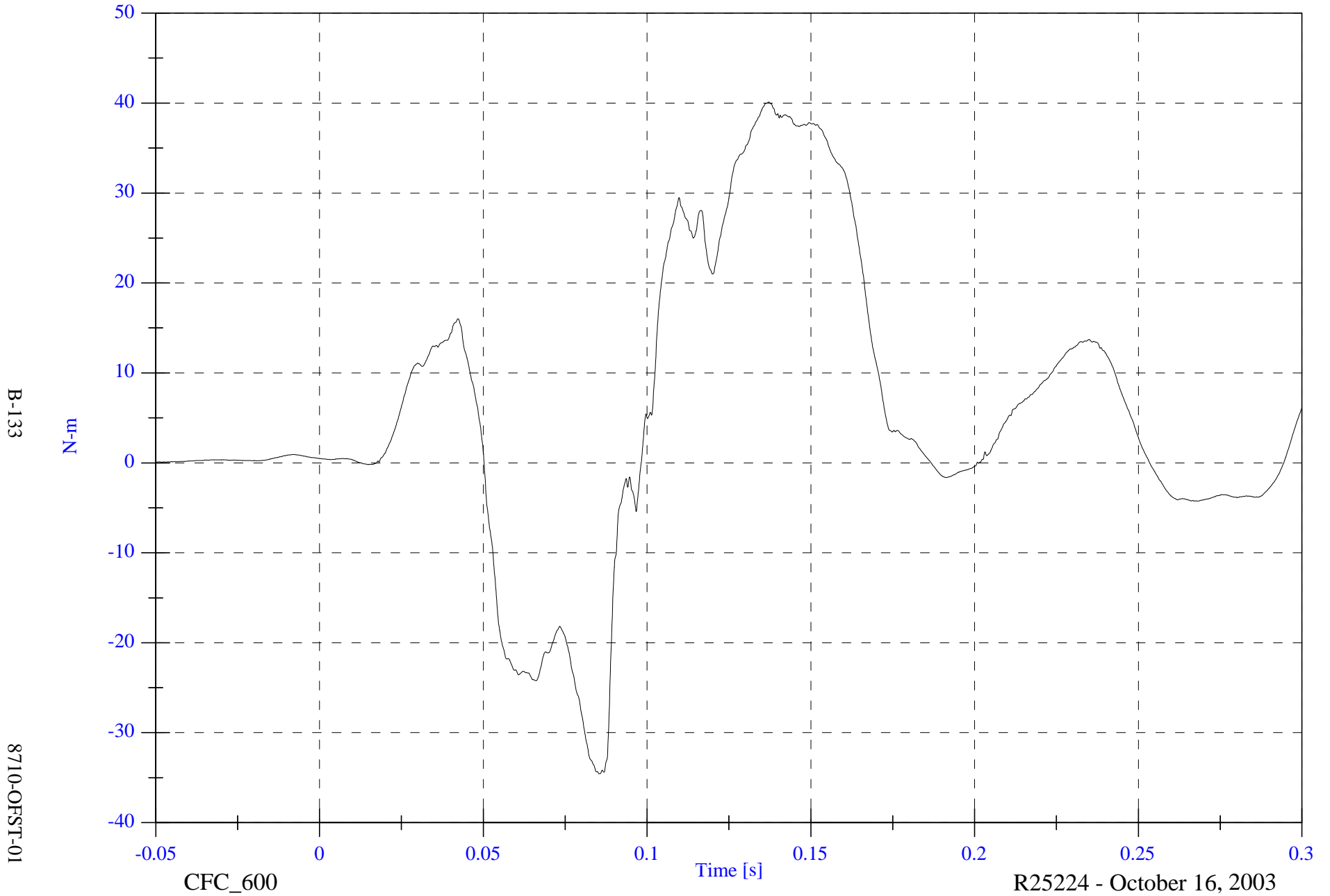
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Left Upper Tibia My

Max: 40.1 [N-m] at 0.137 [s]

Min: -34.6 [N-m] at 0.085 [s]



B-133

8710-OFST-01

CFC_600

Time [s]

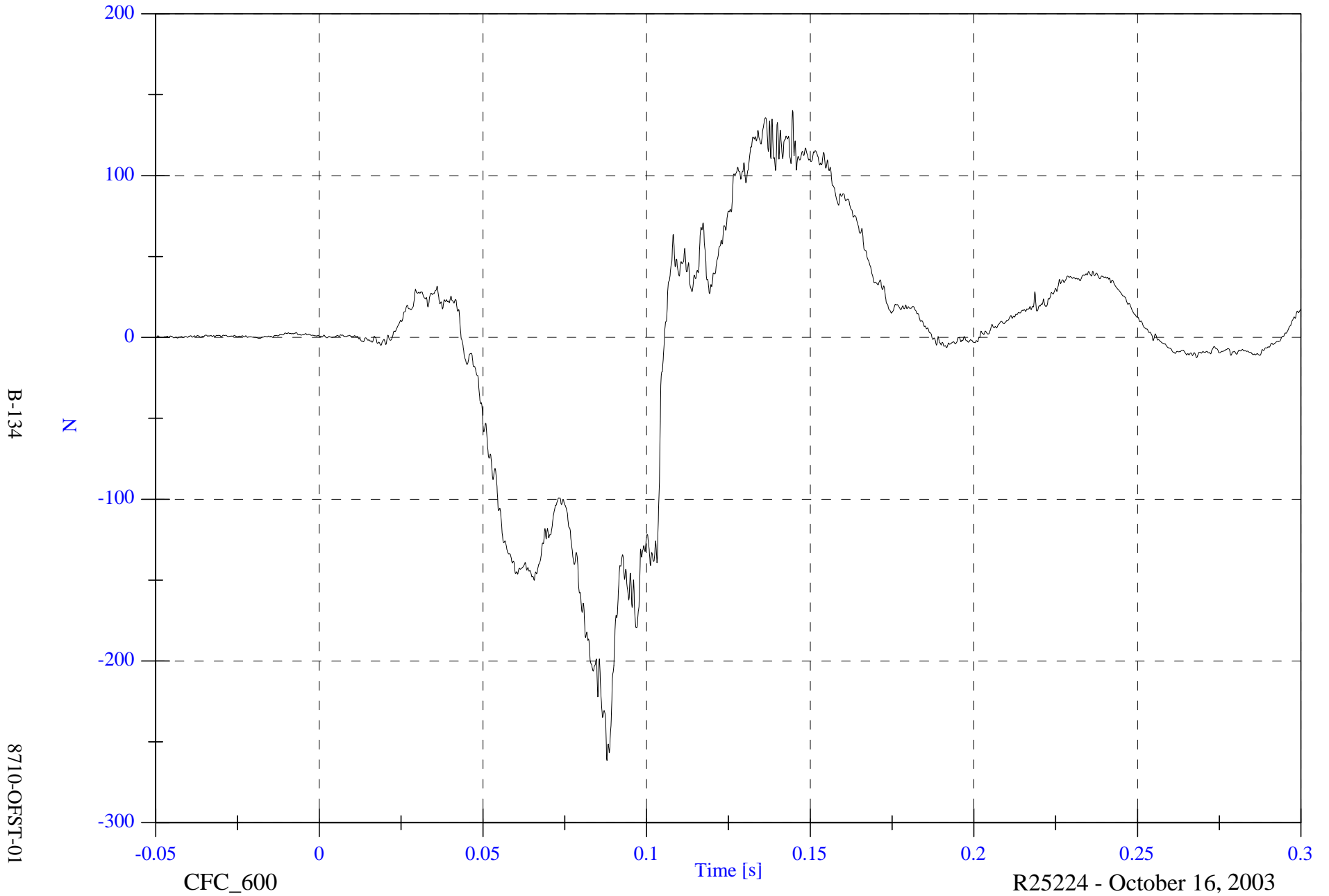
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 140.2 [N] at 0.145 [s]

V1P2 Left Lower Tibia Fx

Min: -261.5 [N] at 0.088 [s]

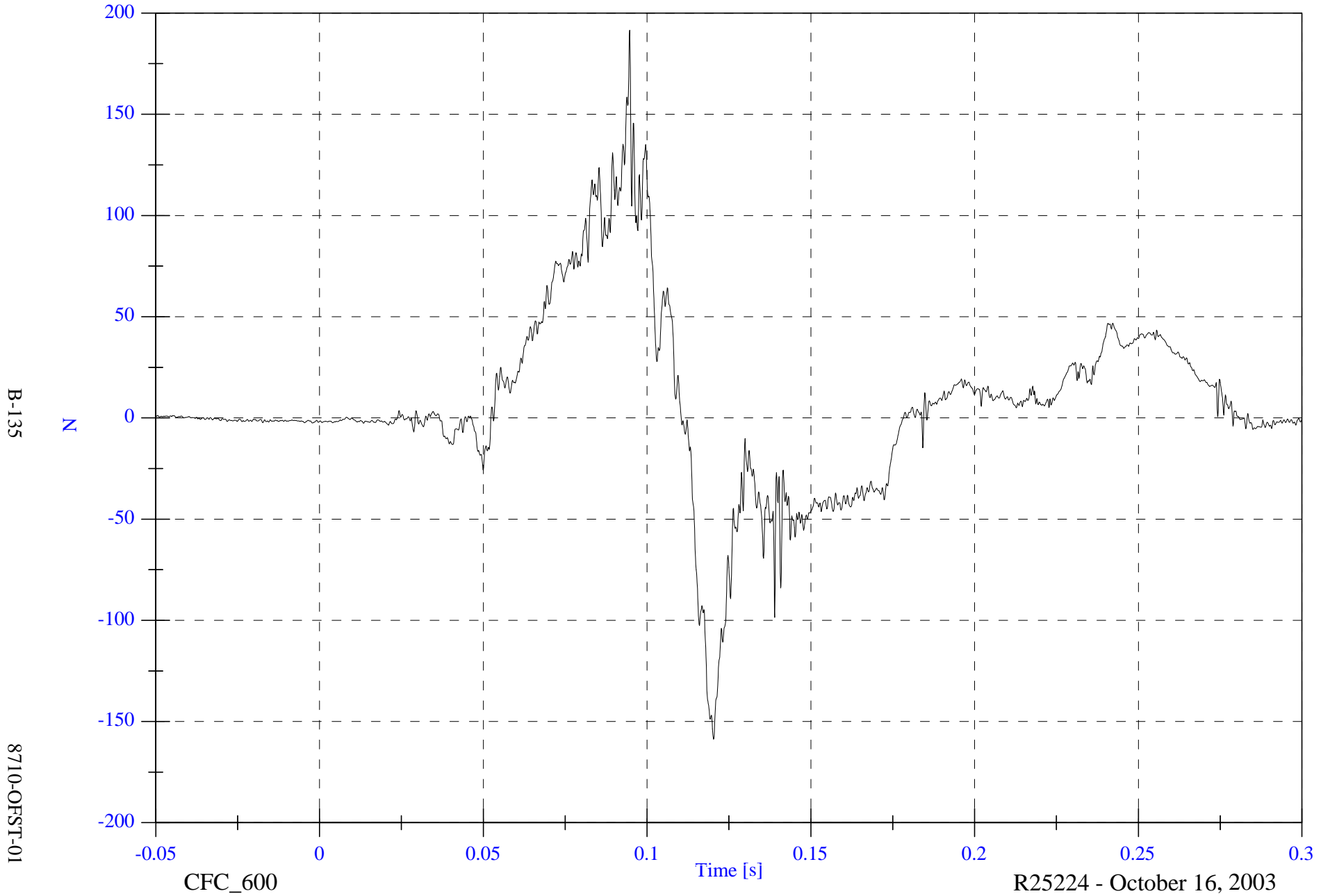


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 191.6 [N] at 0.095 [s]

V1P2 Left Lower Tibia Fy

Min: -158.7 [N] at 0.120 [s]

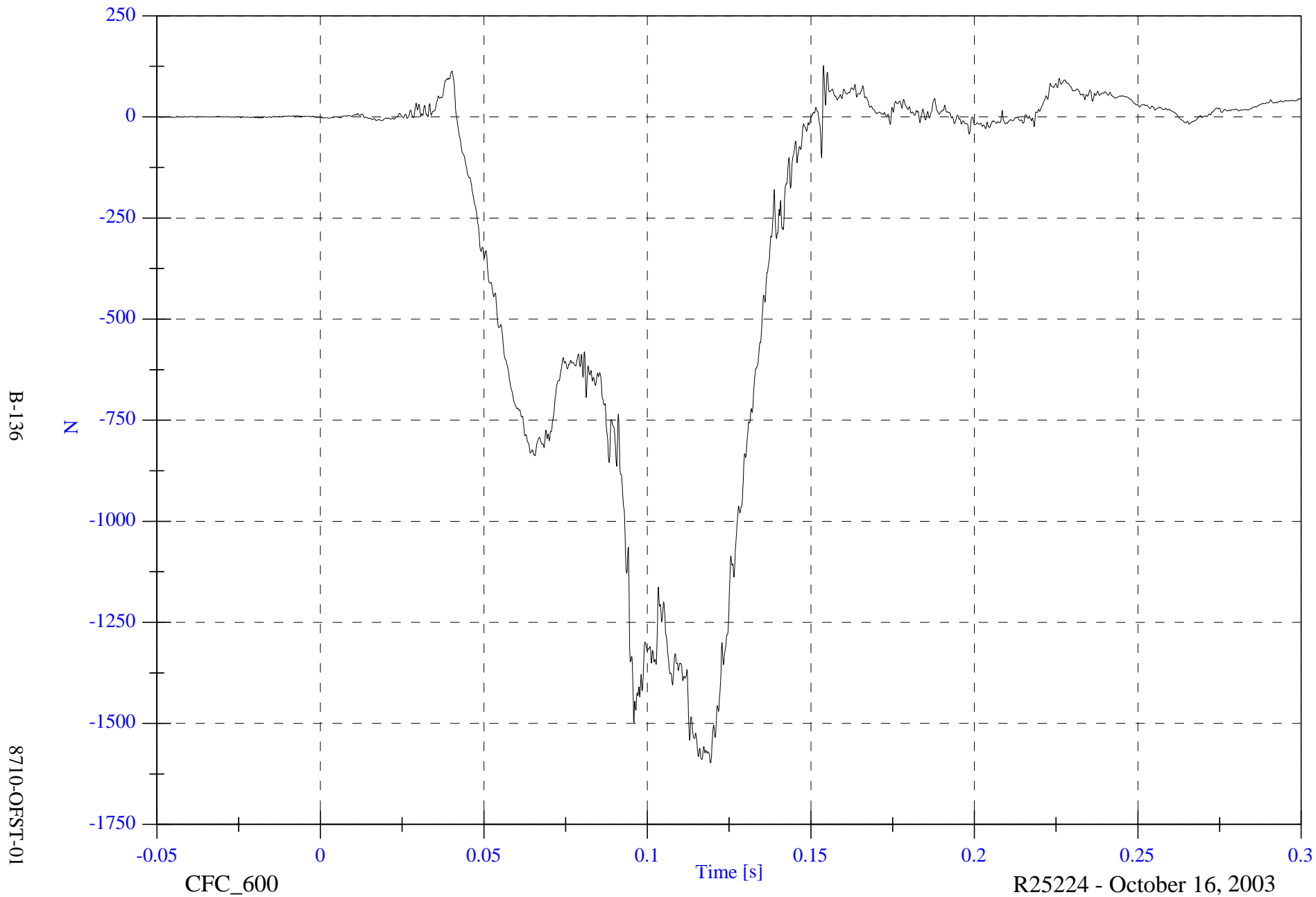


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 126.9 [N] at 0.154 [s]

V1P2 Left Lower Tibia Fz

Min: -1597.8 [N] at 0.119 [s]



B-136

8710-OFST-01

CFC_600

Time [s]

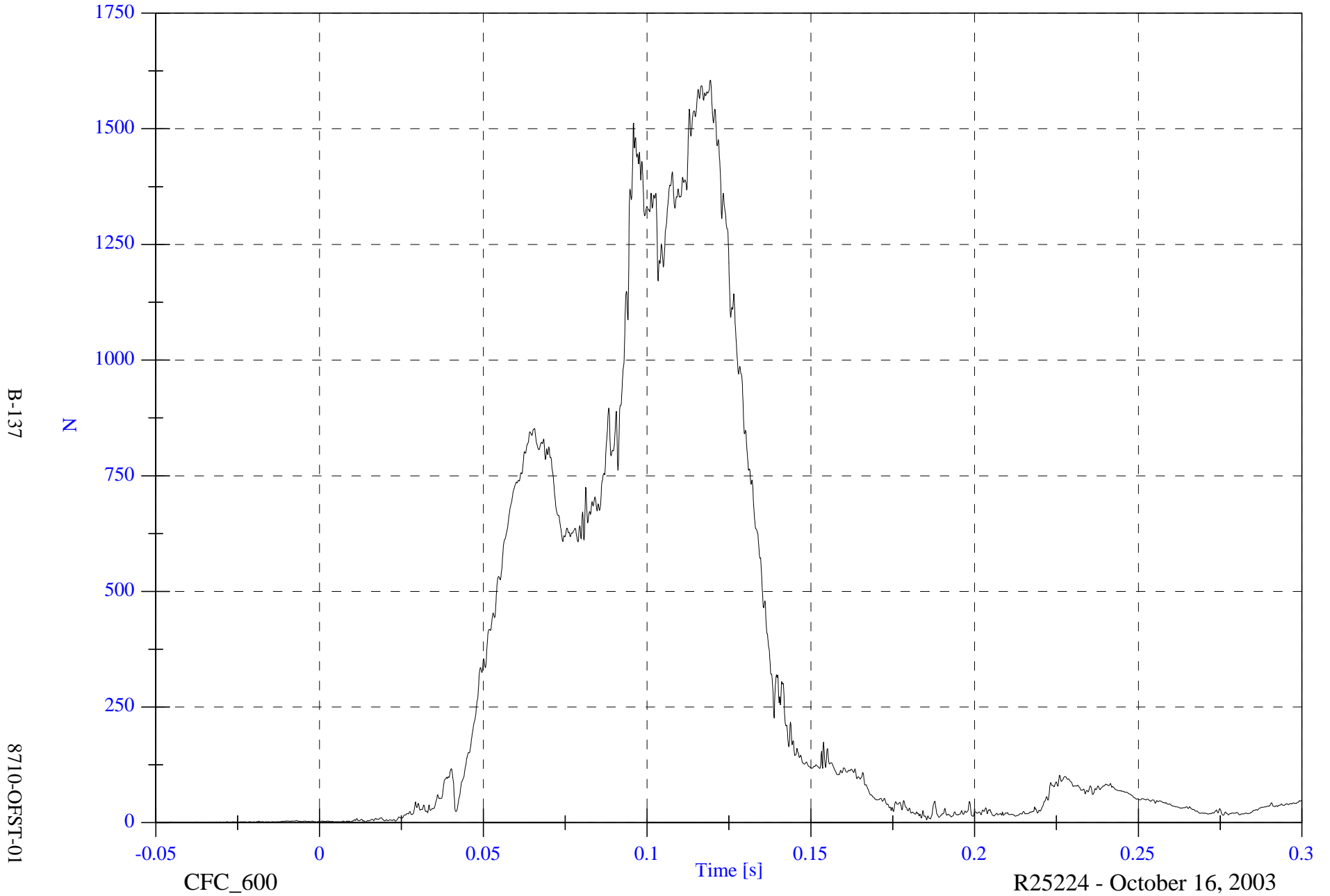
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 1604.9 [N] at 0.119 [s]

V1P2 Left Lower Tibia F Resultant

Min: 0.2 [N] at -0.042 [s]

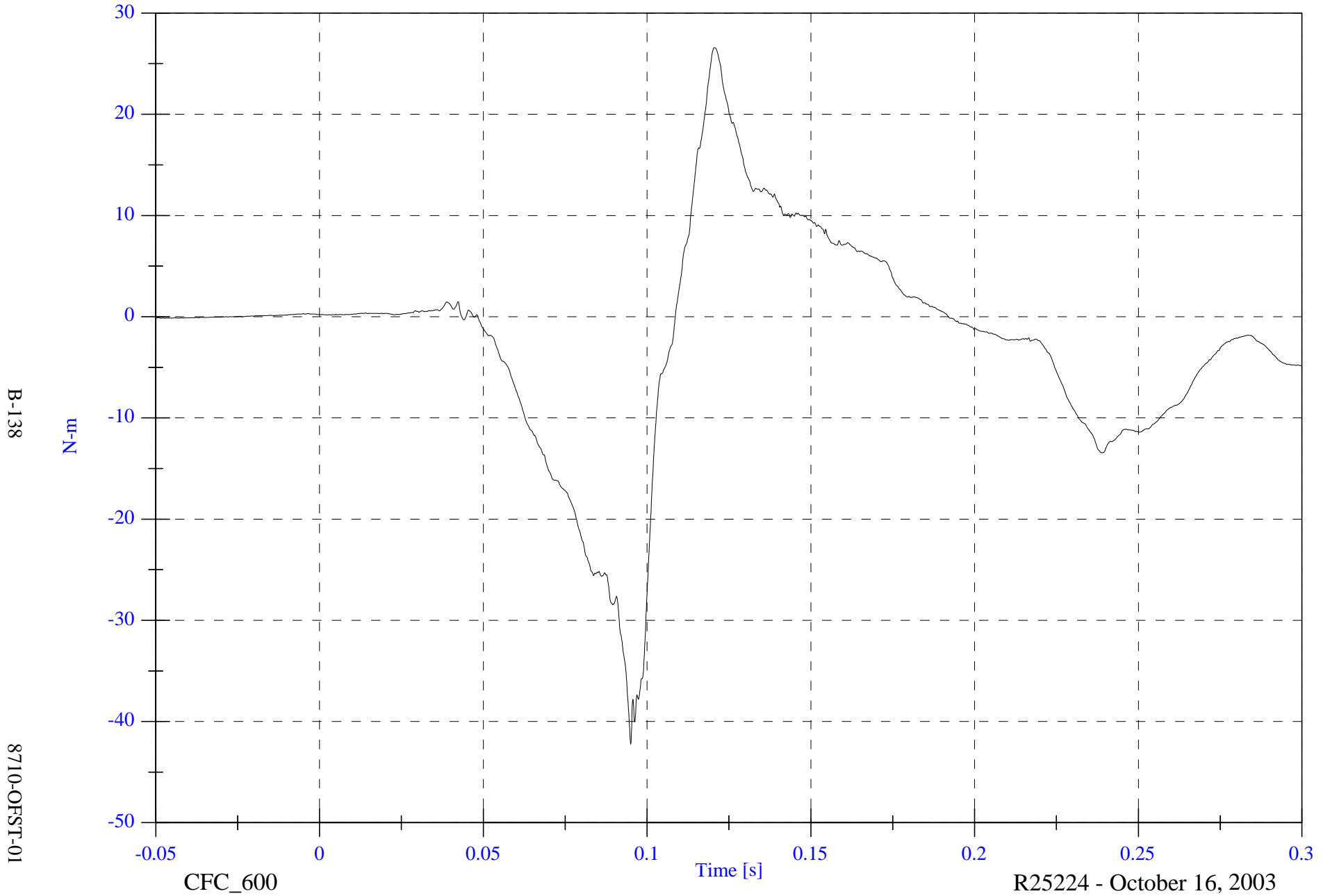


2004 Offset Barrier Test 1 2002 Nissan Altima

VIP2 Left Lower Tibia Mx

Max: 26.6 [N-m] at 0.121 [s]

Min: -42.2 [N-m] at 0.095 [s]



B-138

8710-OFST-01

CFC_600

Time [s]

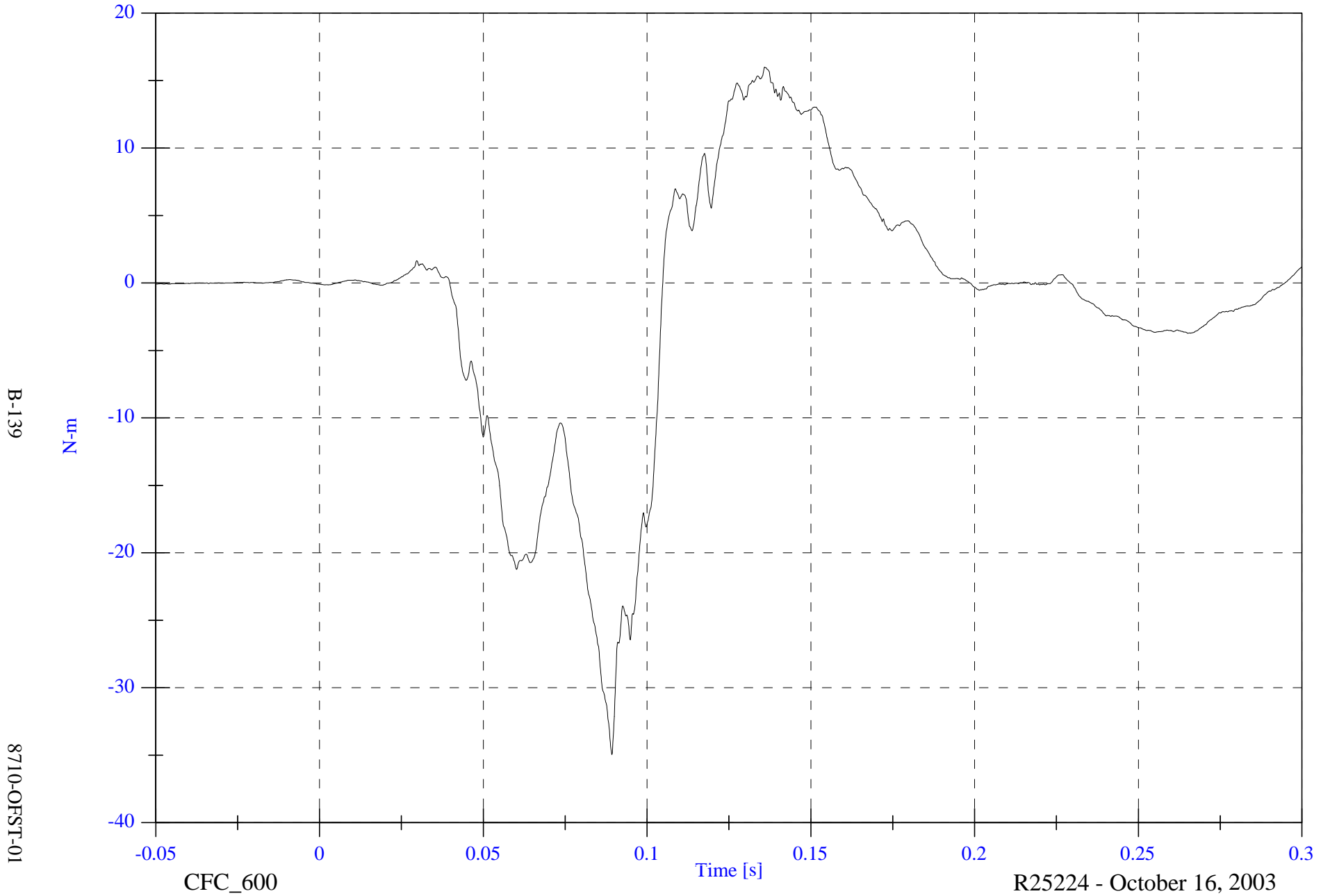
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Left Lower Tibia My

Max: 16.0 [N-m] at 0.136 [s]

Min: -35.0 [N-m] at 0.089 [s]



B-139

8710-OFST-01

CFC_600

Time [s]

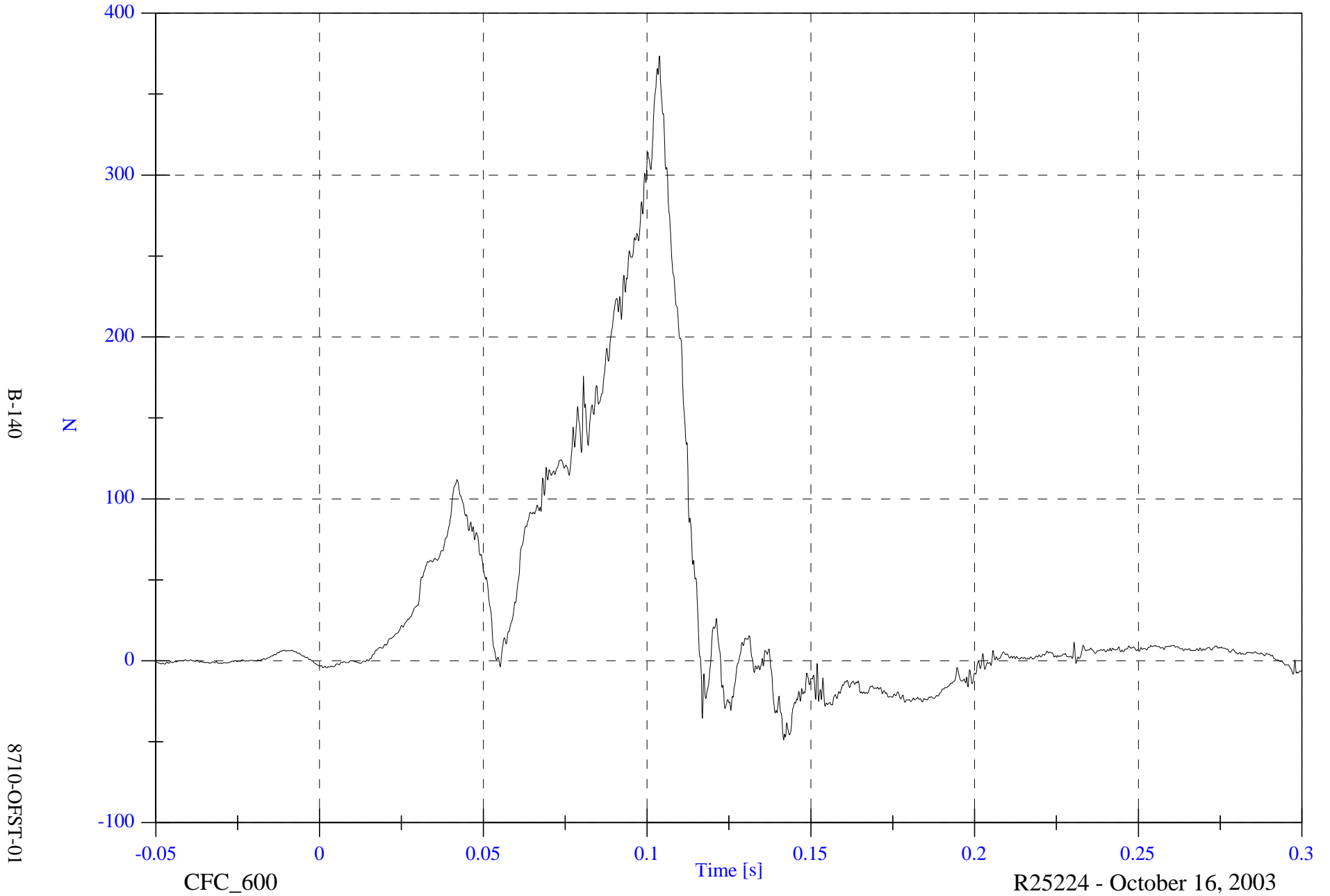
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 373.4 [N] at 0.104 [s]

V1P2 Right Upper Tibia Fx

Min: -48.8 [N] at 0.142 [s]



B-140

8710-OFST-01

CFC_600

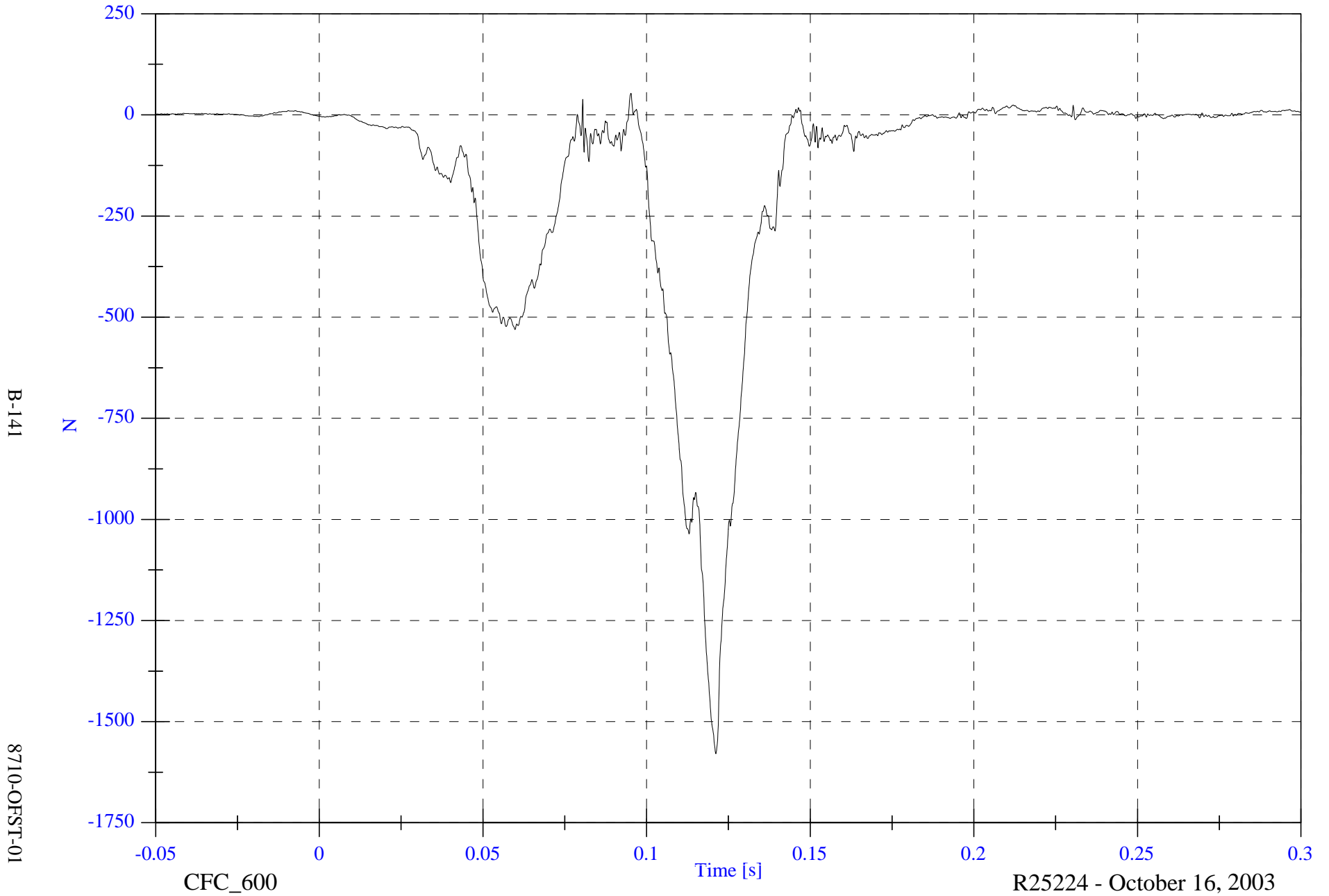
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Right Upper Tibia Fz

Max: 53.2 [N] at 0.095 [s]

Min: -1579.6 [N] at 0.121 [s]



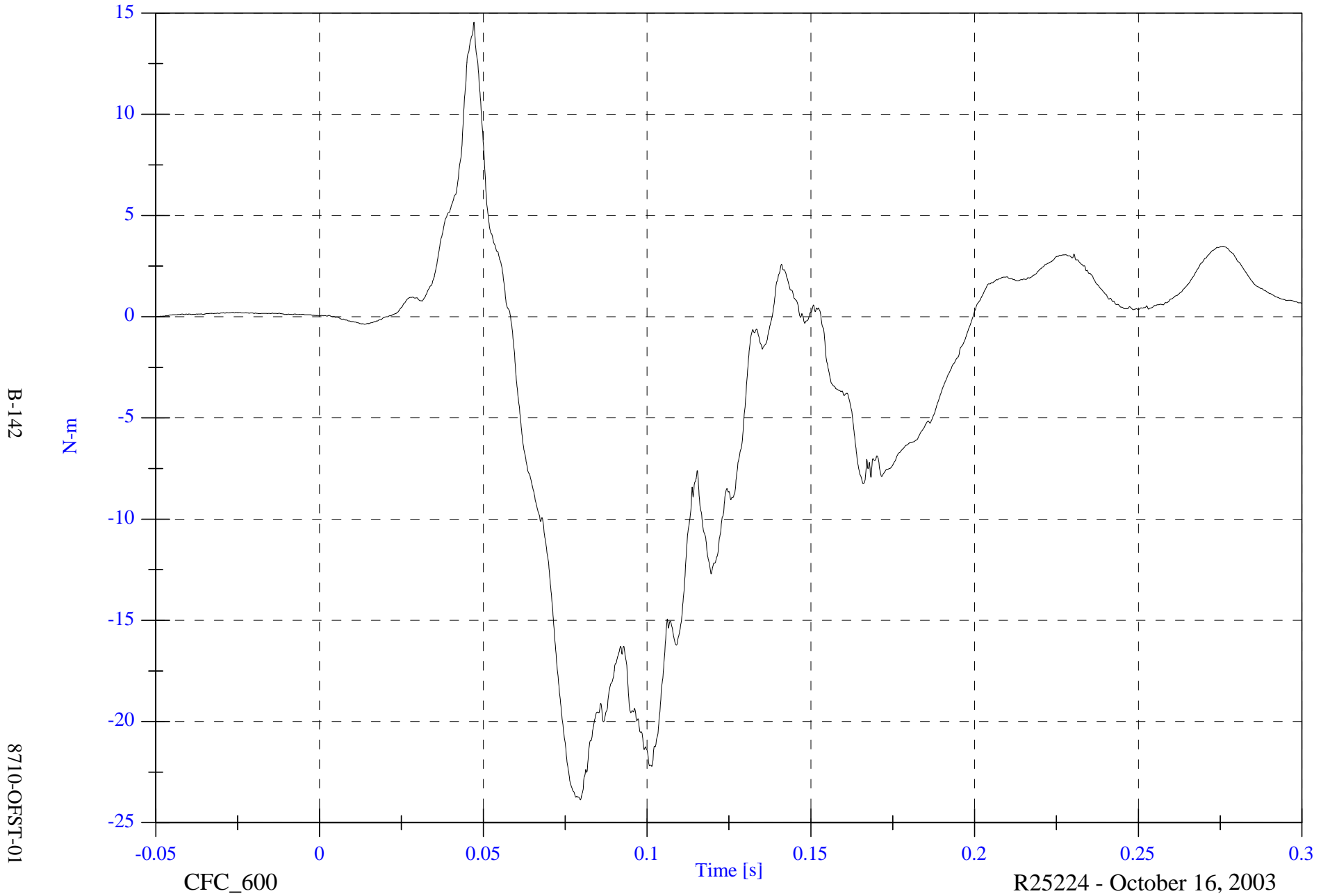
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Right Upper Tibia Mx

Max: 14.6 [N-m] at 0.047 [s]

Min: -23.9 [N-m] at 0.080 [s]

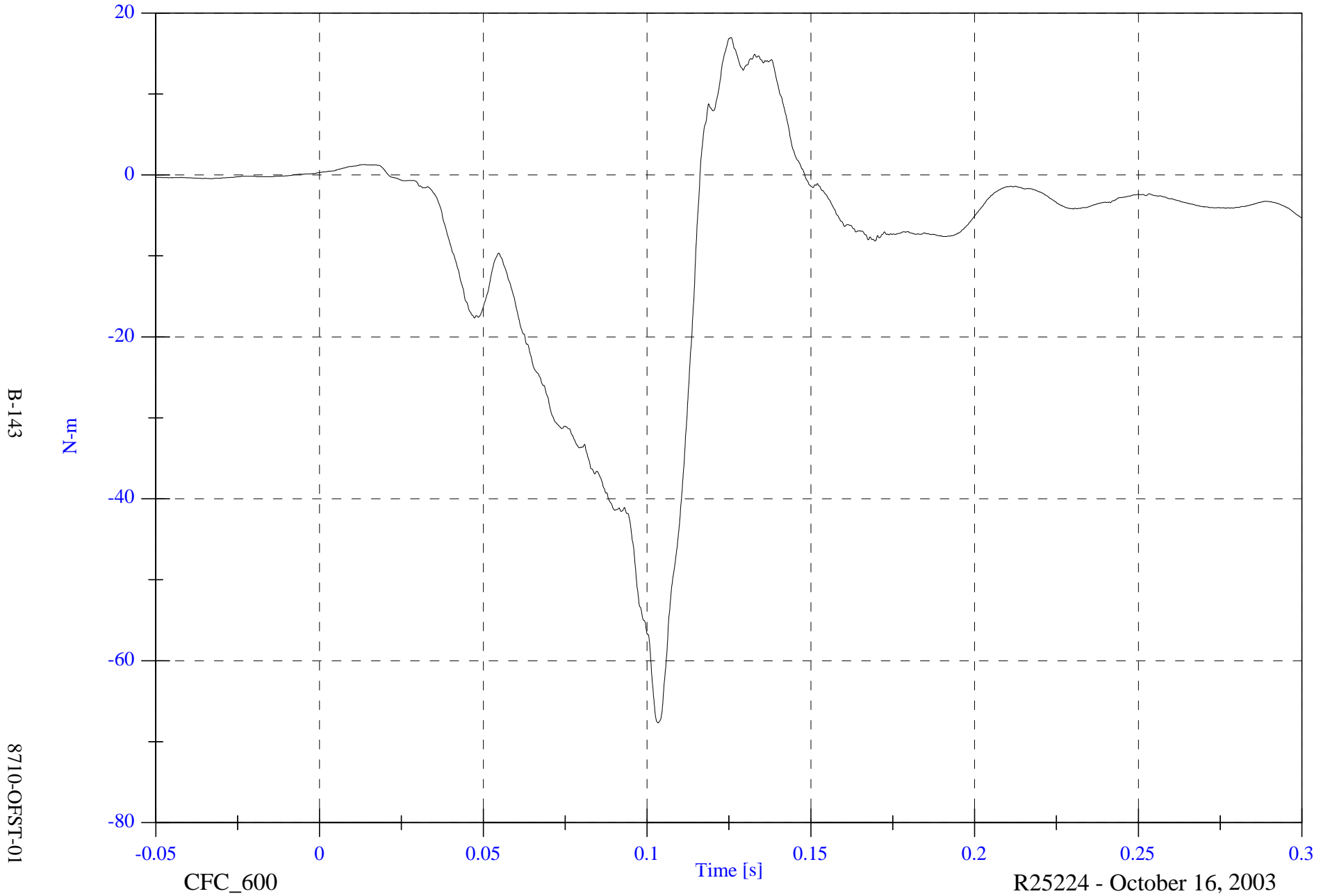


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Right Upper Tibia My

Max: 17.0 [N-m] at 0.126 [s]

Min: -67.7 [N-m] at 0.103 [s]



B-143

8710-OFST-01

CFC_600

Time [s]

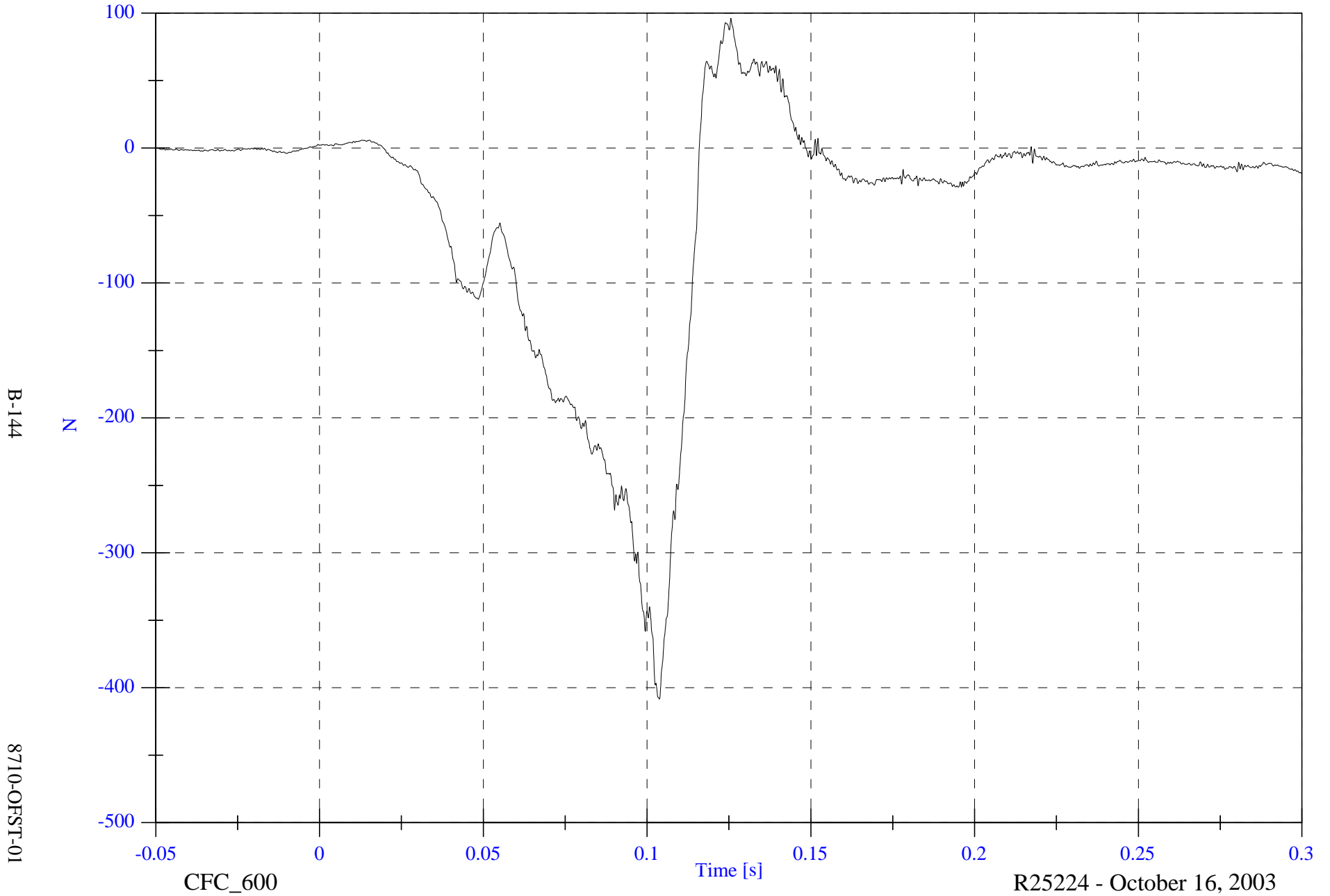
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Right Lower Tibia Fx

Max: 96.2 [N] at 0.126 [s]

Min: -408.4 [N] at 0.104 [s]



B-144

8710-OFST-01

CFC_600

Time [s]

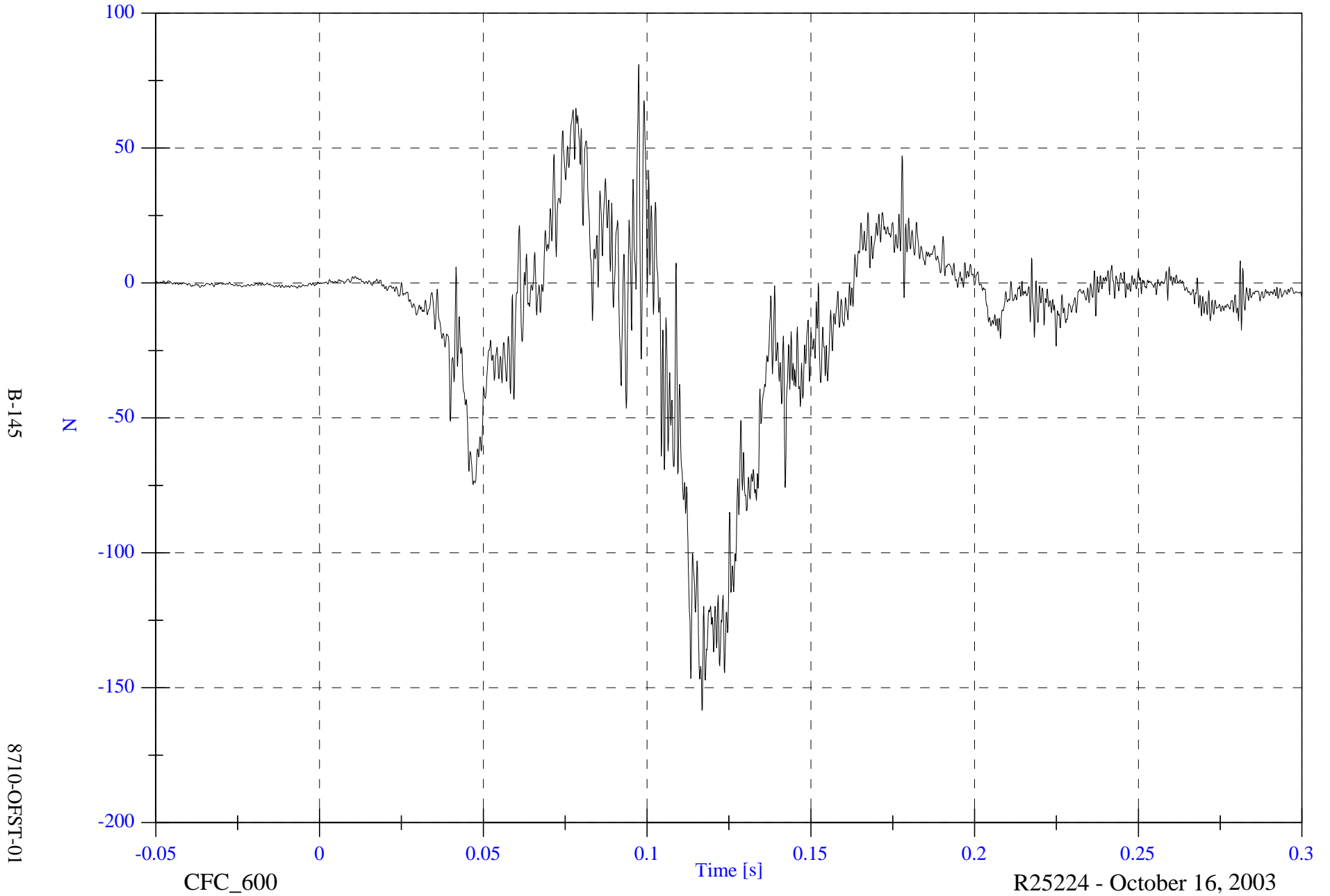
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Right Lower Tibia Fy

Max: 81.0 [N] at 0.097 [s]

Min: -158.4 [N] at 0.117 [s]

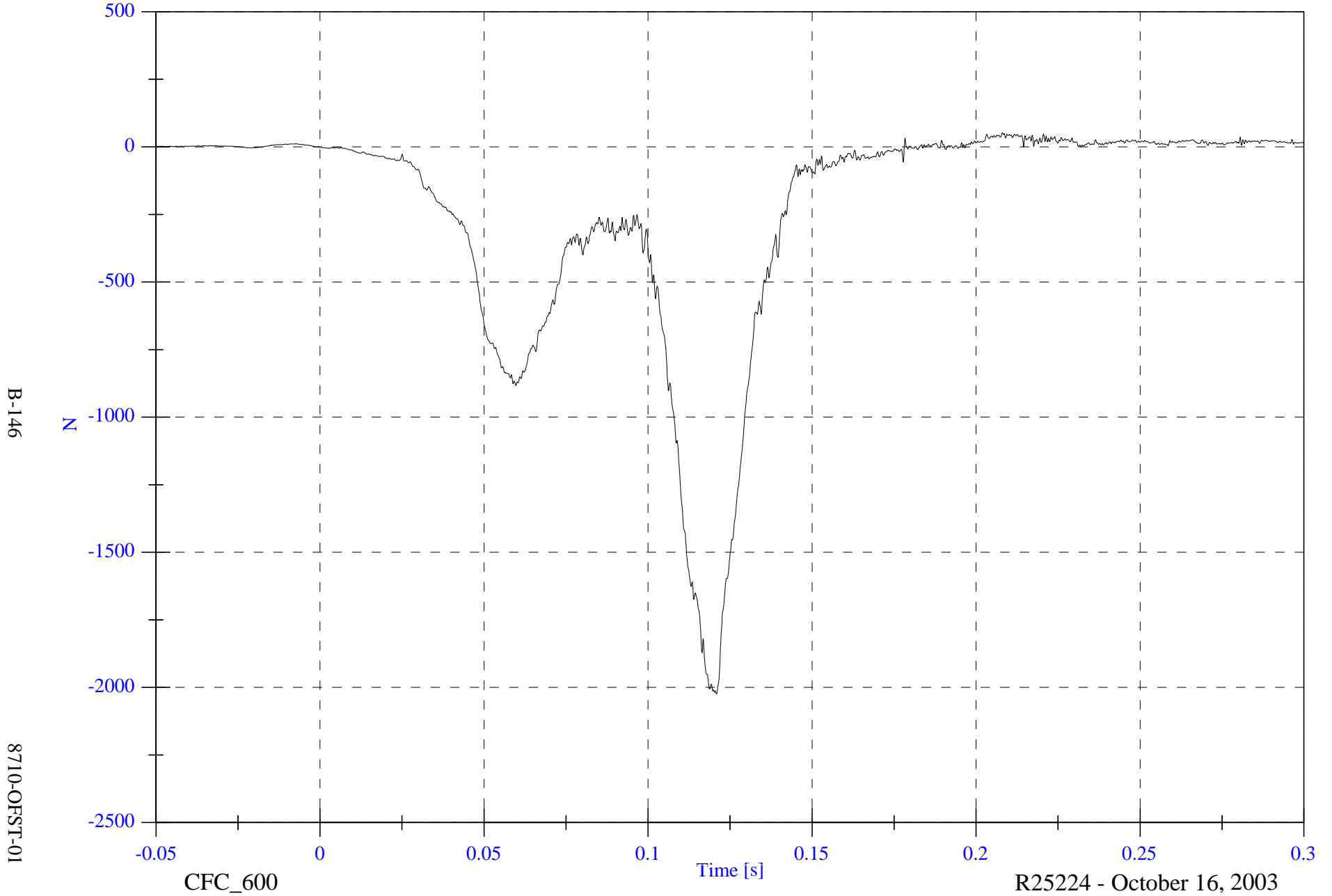


2004 Offset Barrier Test 1 2002 Nissan Altima

VIP2 Right Lower Tibia Fz

Max: 52.2 [N] at 0.208 [s]

Min: -2024.6 [N] at 0.121 [s]



B-146

8710-OFST-01

CFC_600

Time [s]

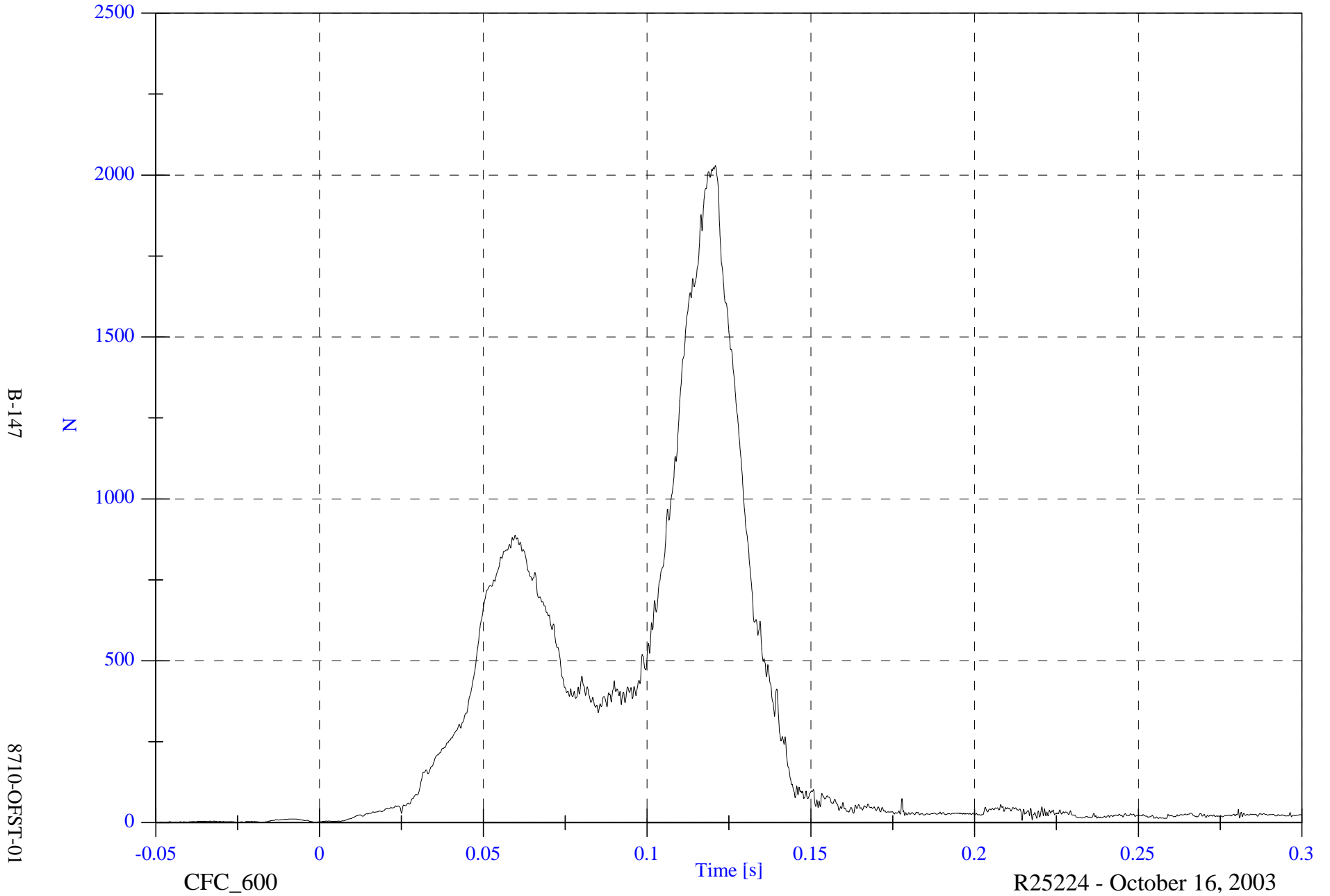
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Right Lower Tibia F Resultant

Max: 2028.9 [N] at 0.121 [s]

Min: 0.6 [N] at -0.018 [s]



B-147

8710-OFST-01

CFC_600

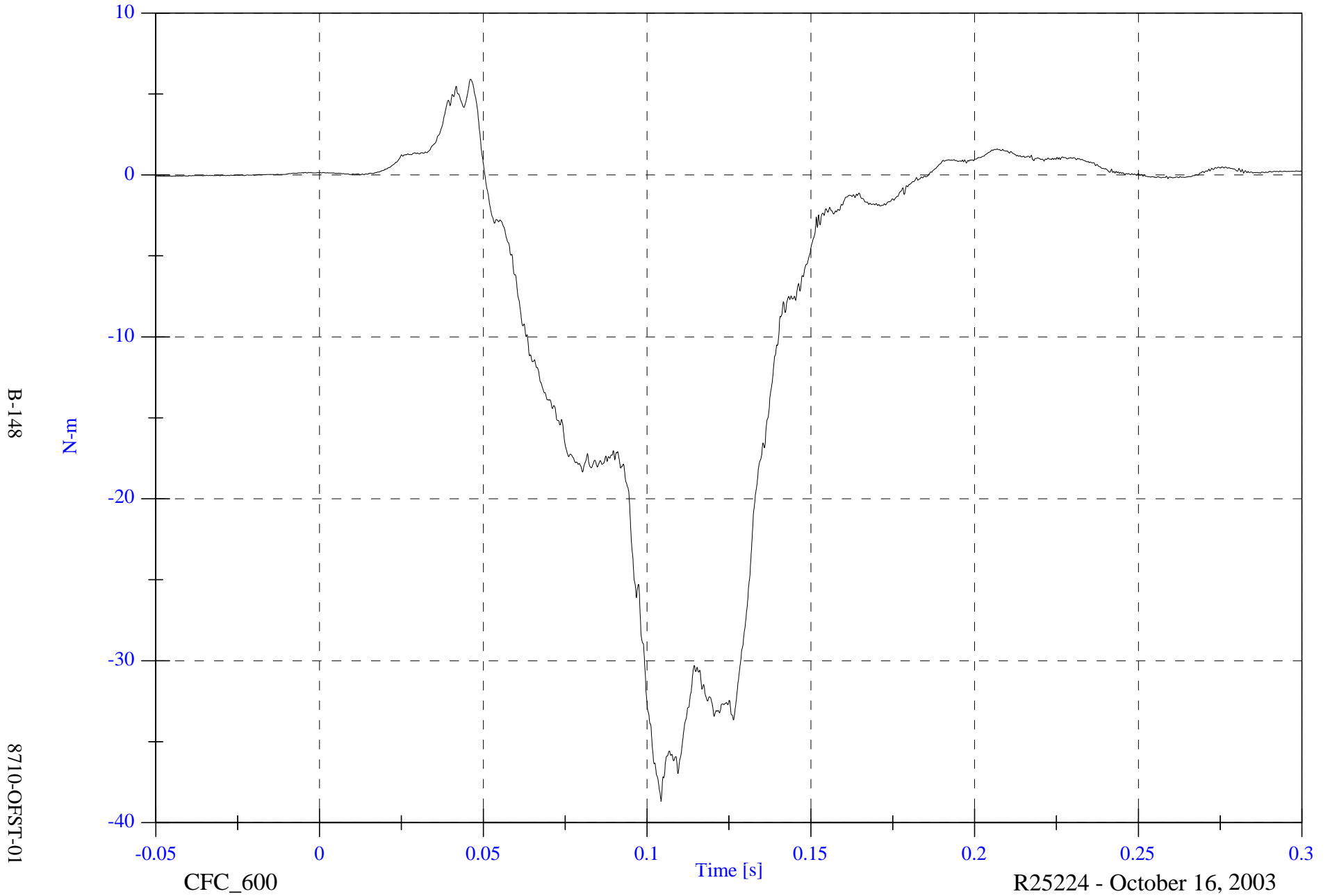
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Right Lower Tibia Mx

Max: 5.9 [N-m] at 0.046 [s]

Min: -38.7 [N-m] at 0.104 [s]



B-148

8710-OFST-01

CFC_600

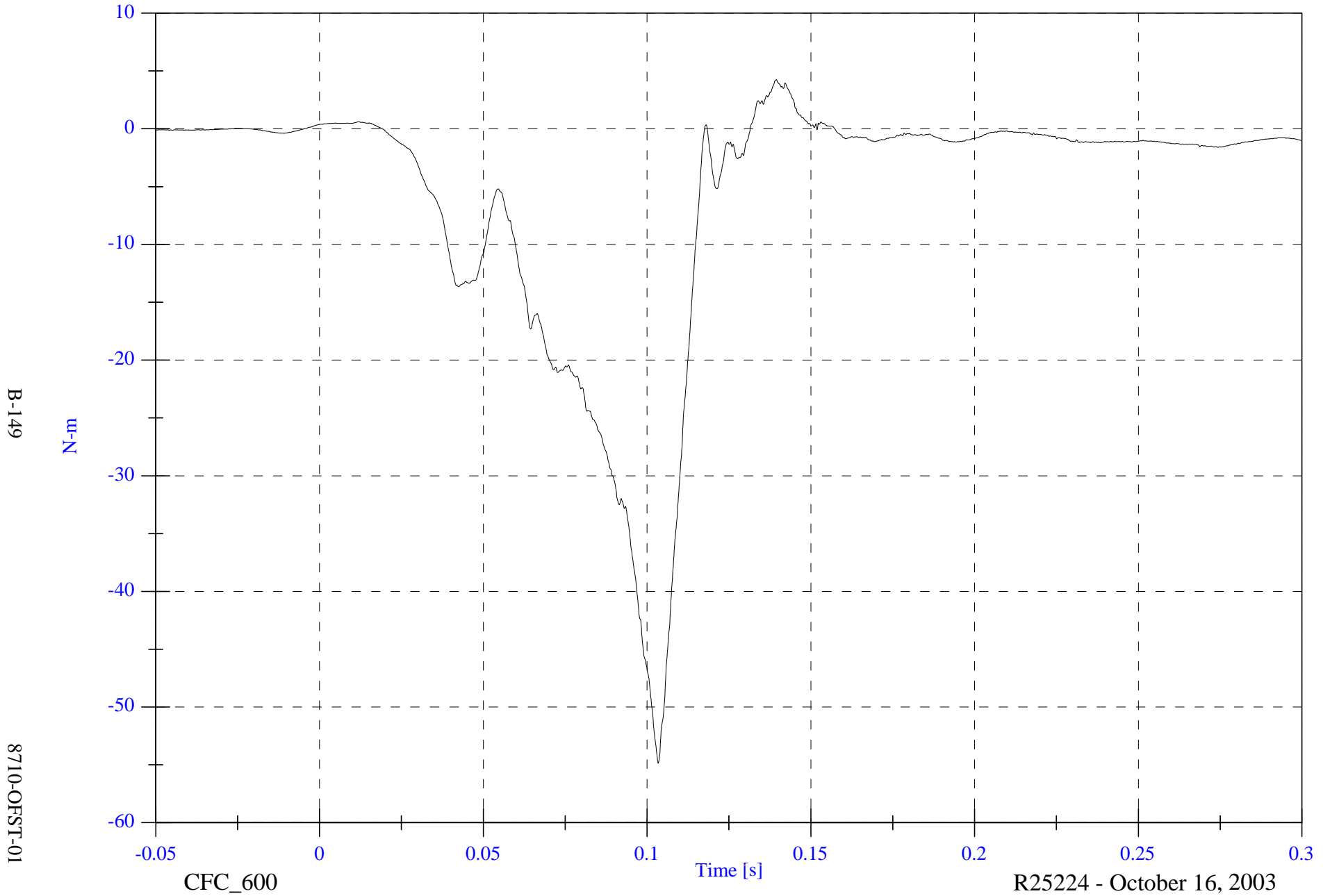
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Right Lower Tibia My

Max: 4.3 [N-m] at 0.139 [s]

Min: -54.9 [N-m] at 0.103 [s]



B-149

8710-OFST-01

CFC_600

Time [s]

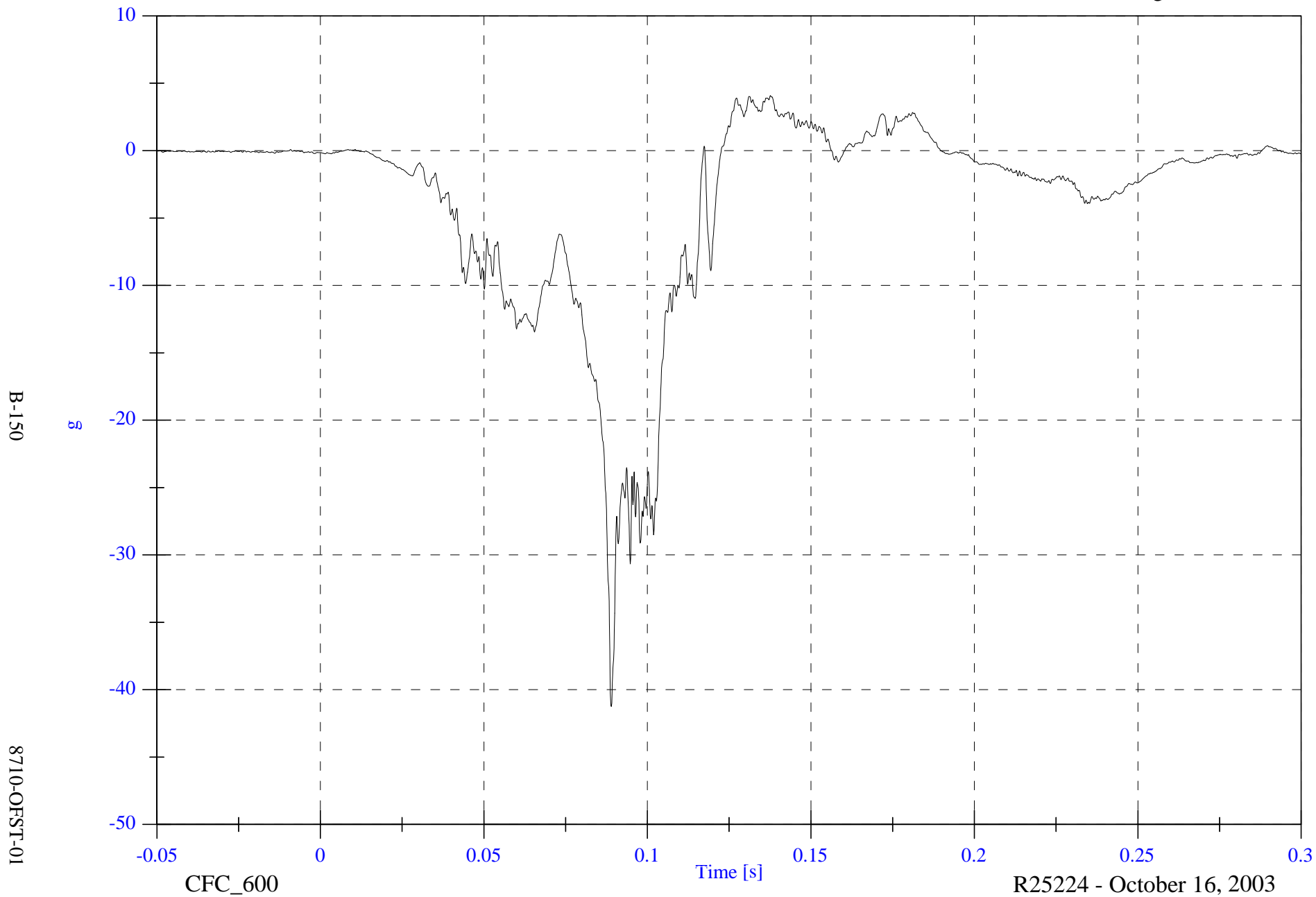
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 4.1 [g] at 0.138 [s]

V1P2 Left Tibia x

Min: -41.3 [g] at 0.089 [s]



B-150

8710-OFST-01

CFC_600

Time [s]

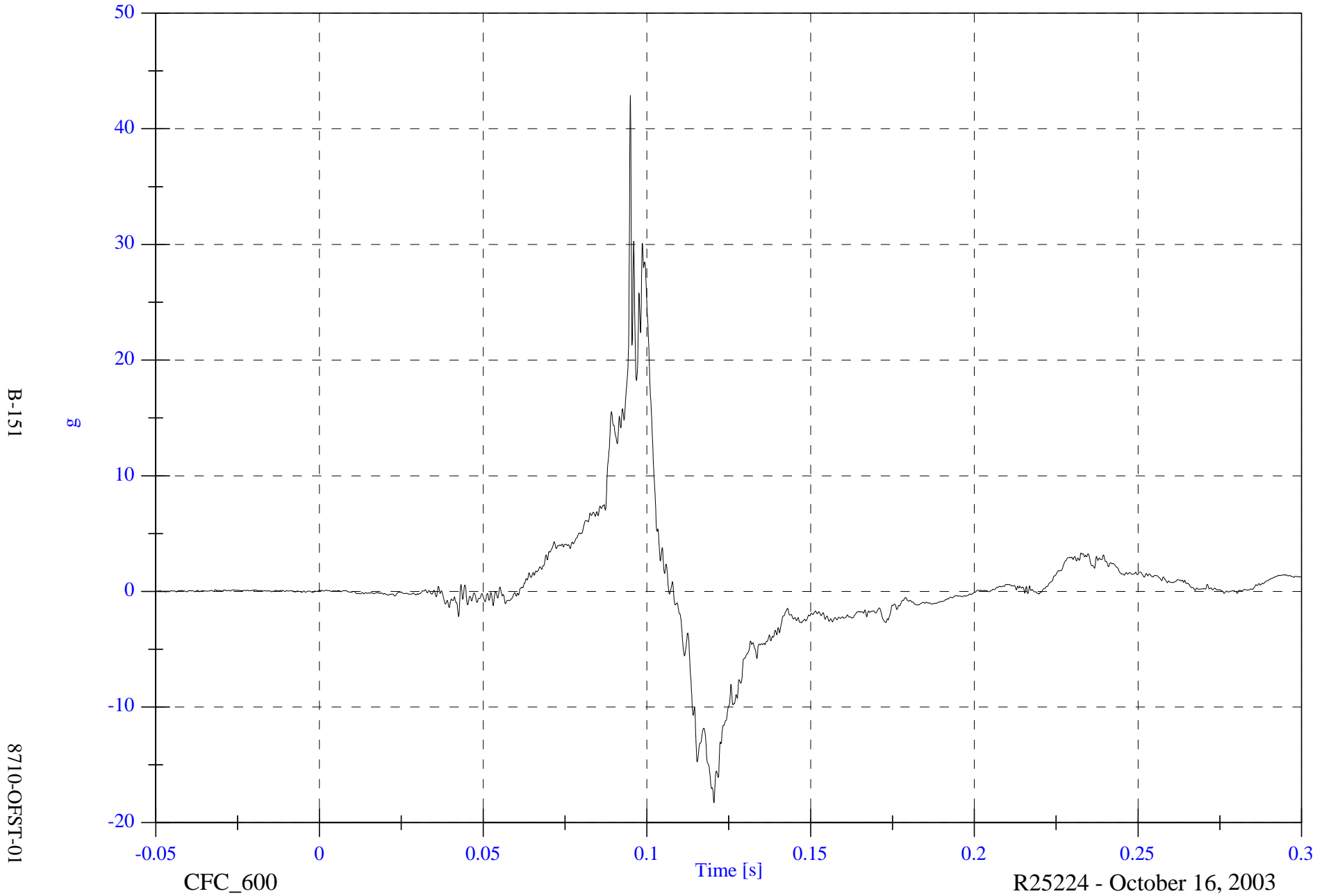
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 42.9 [g] at 0.095 [s]

Min: -18.3 [g] at 0.120 [s]

V1P2 Left Tibia y

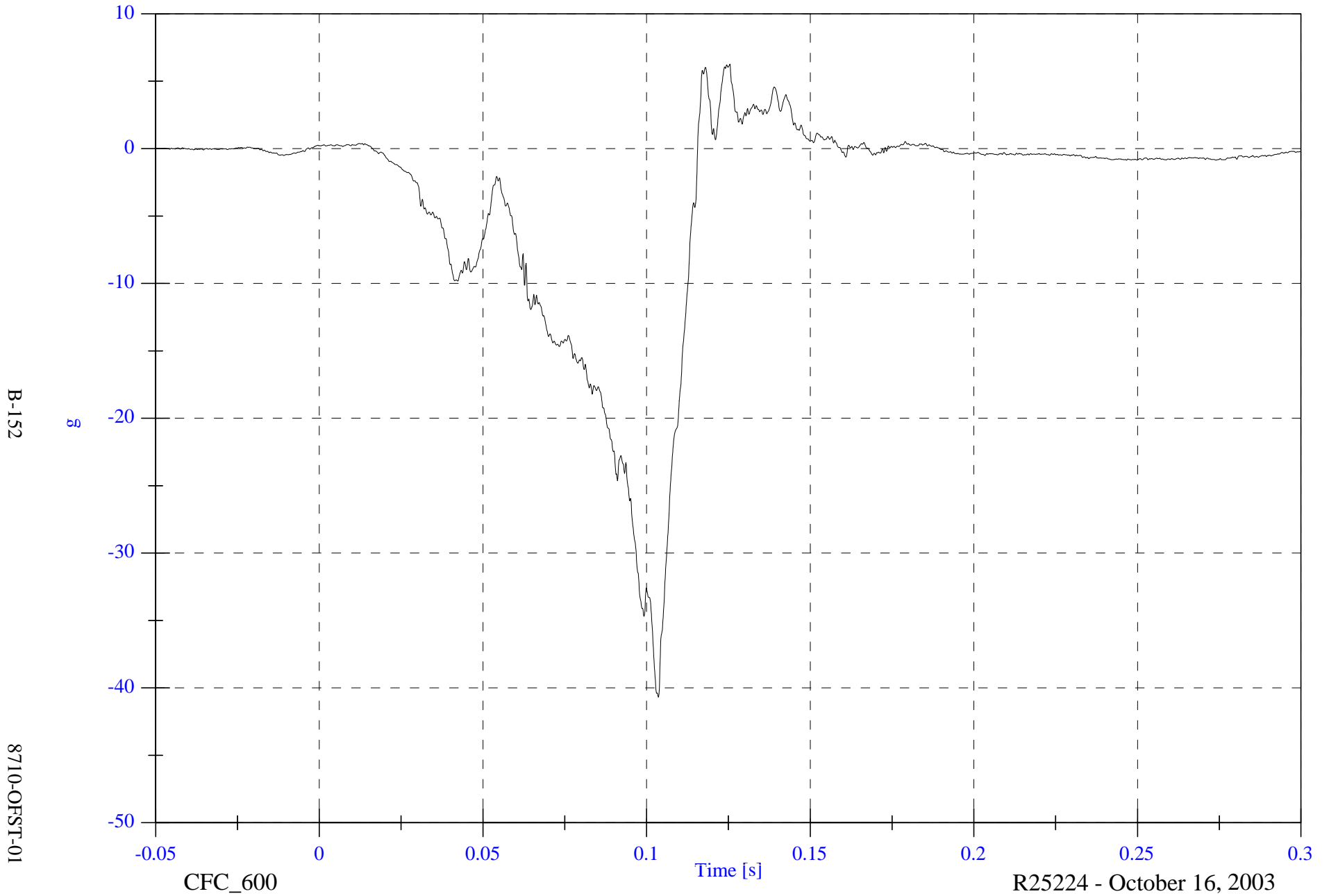


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 6.3 [g] at 0.125 [s]

Min: -40.7 [g] at 0.104 [s]

V1P2 Right Tibia x



B-152

8710-OFST-01

CFC_600

Time [s]

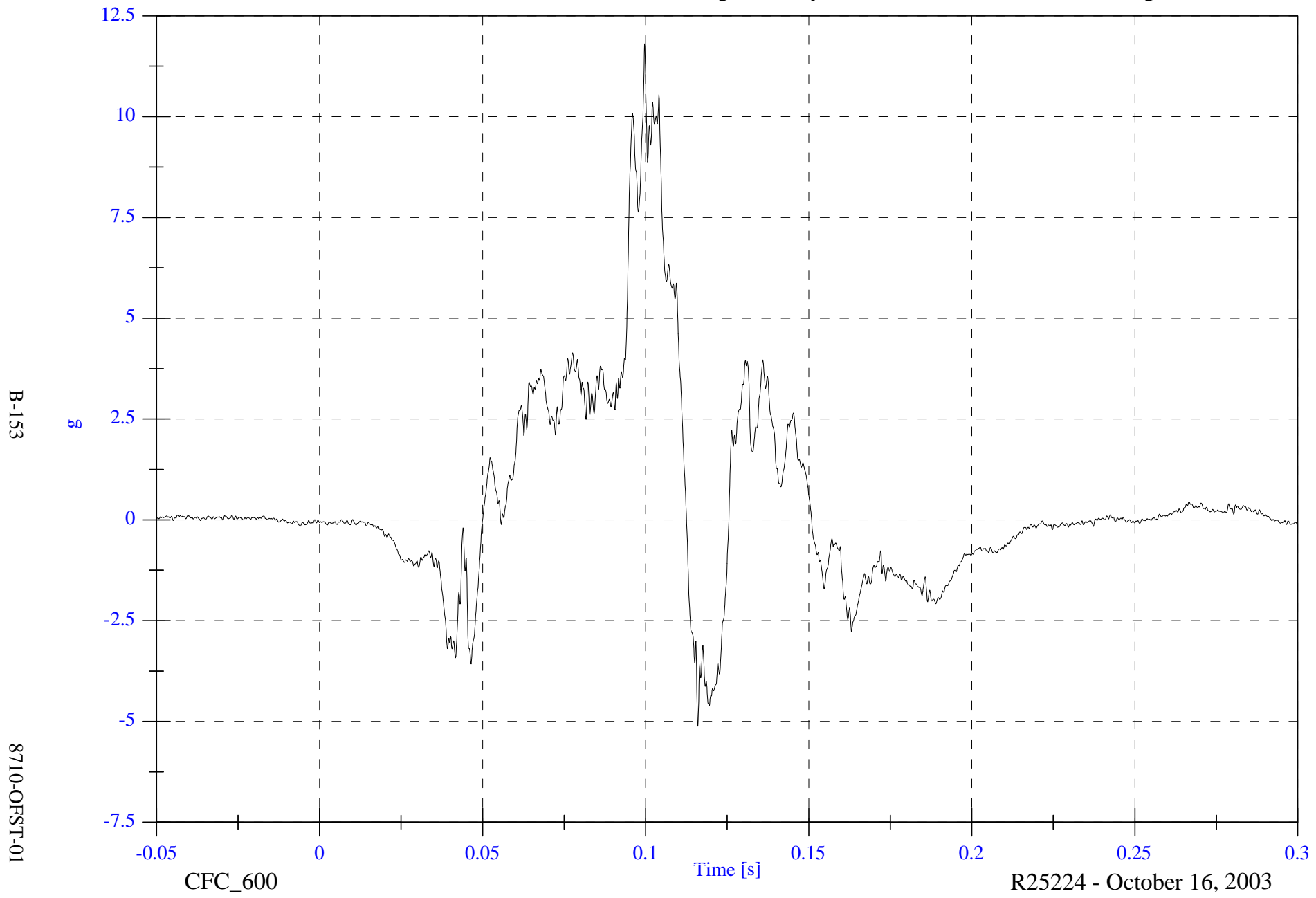
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 11.8 [g] at 0.100 [s]

Min: -5.1 [g] at 0.116 [s]

V1P2 Right Tibia y



B-153

8710-OFST-01

CFC_600

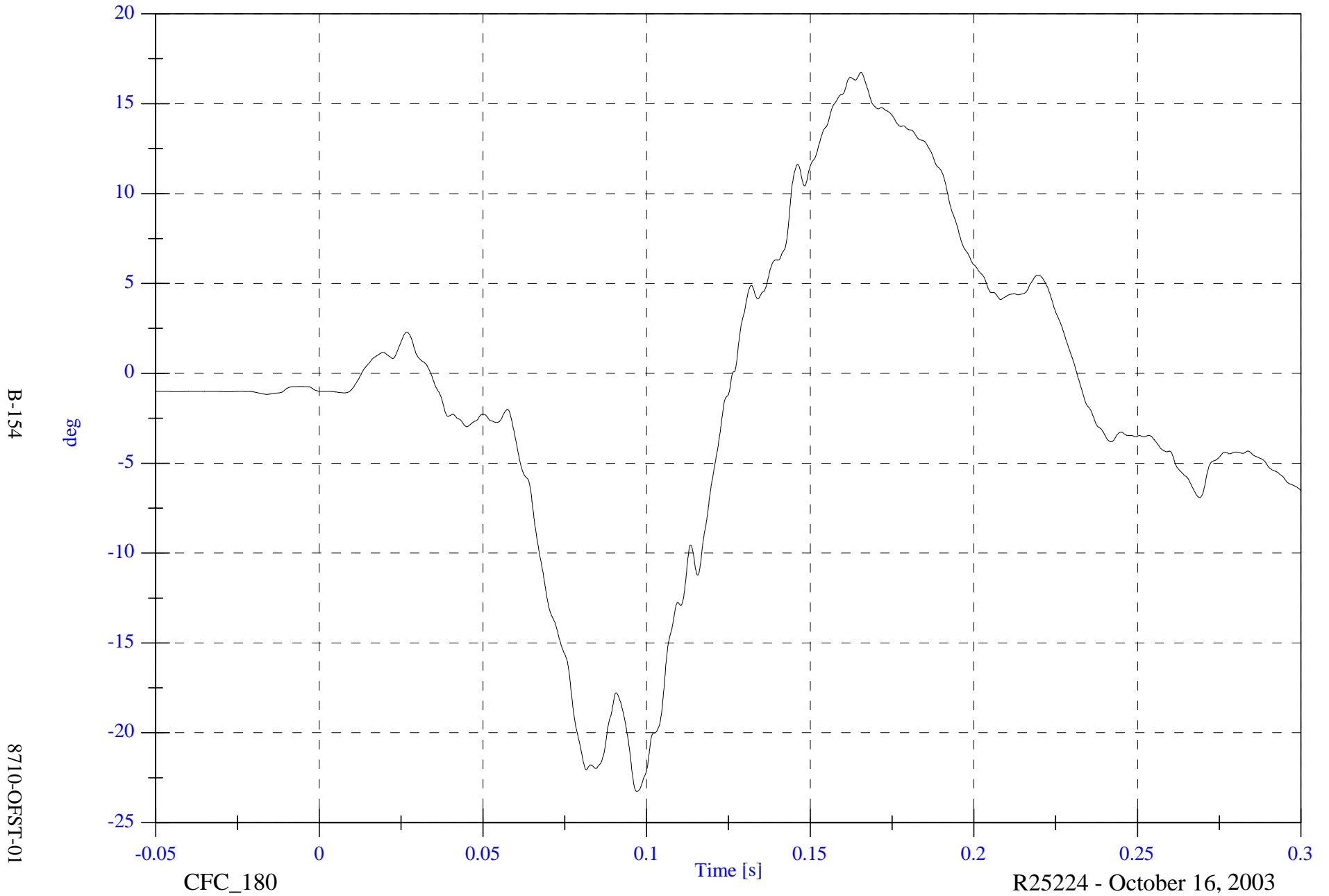
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Left Ankle Rotation x

Max: 16.7 [deg] at 0.166 [s]

Min: -23.3 [deg] at 0.097 [s]



B-154

8710-OFST-01

CFC_180

Time [s]

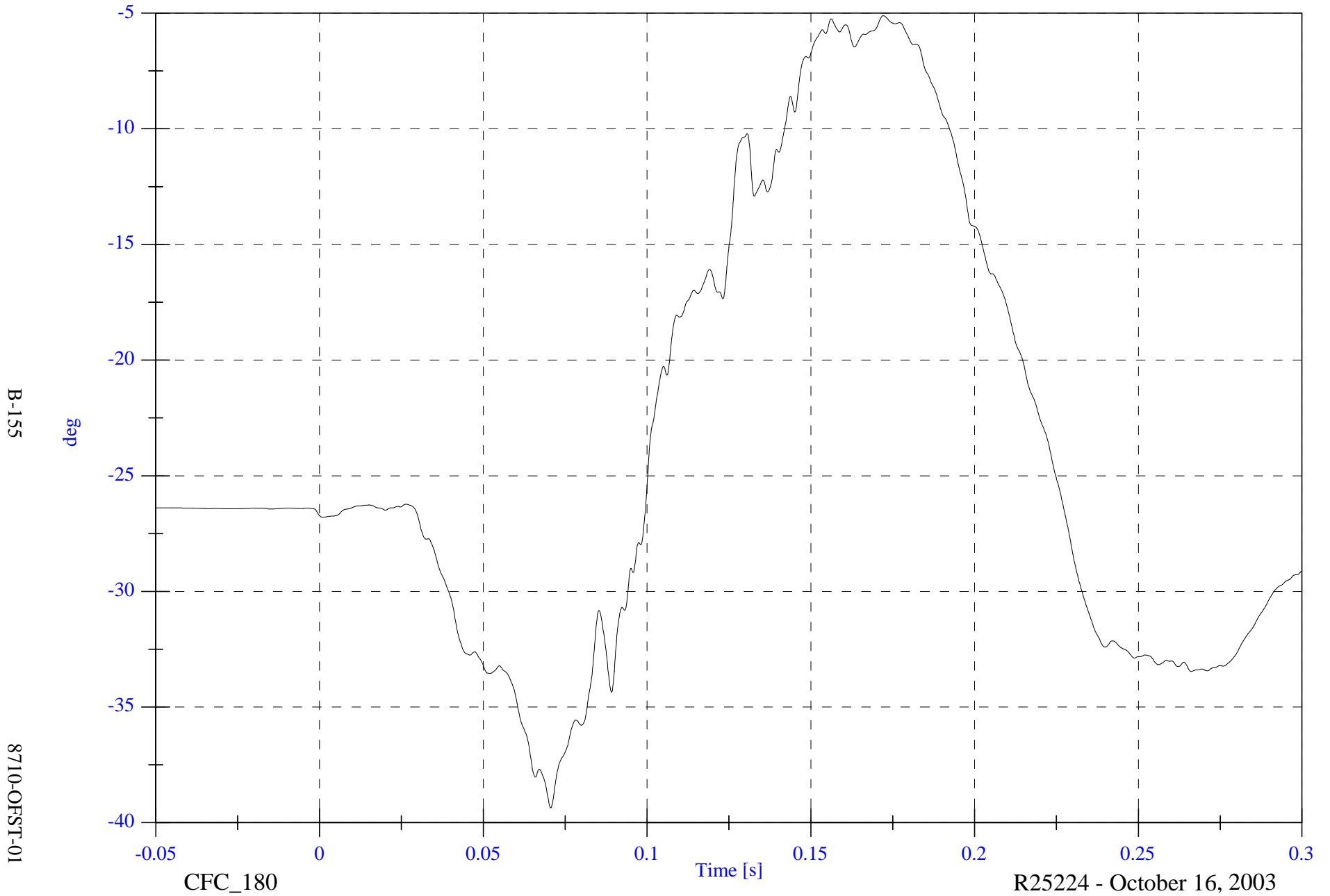
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Left Ankle Rotation y

Max: -5.1 [deg] at 0.172 [s]

Min: -39.4 [deg] at 0.071 [s]



B-155

8710-OFST-01

CFC_180

Time [s]

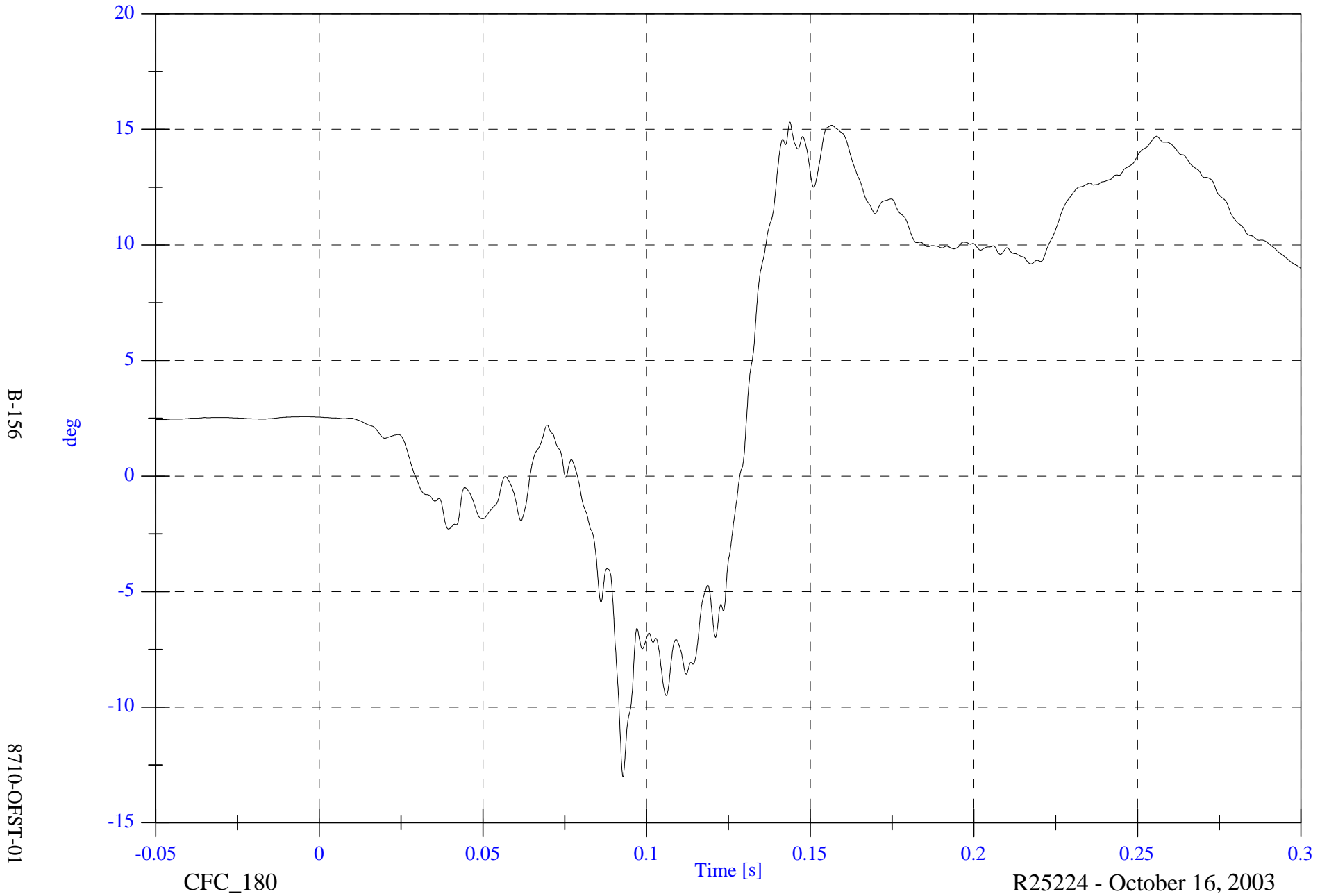
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Left Ankle Rotation z

Max: 15.3 [deg] at 0.144 [s]

Min: -13.0 [deg] at 0.093 [s]

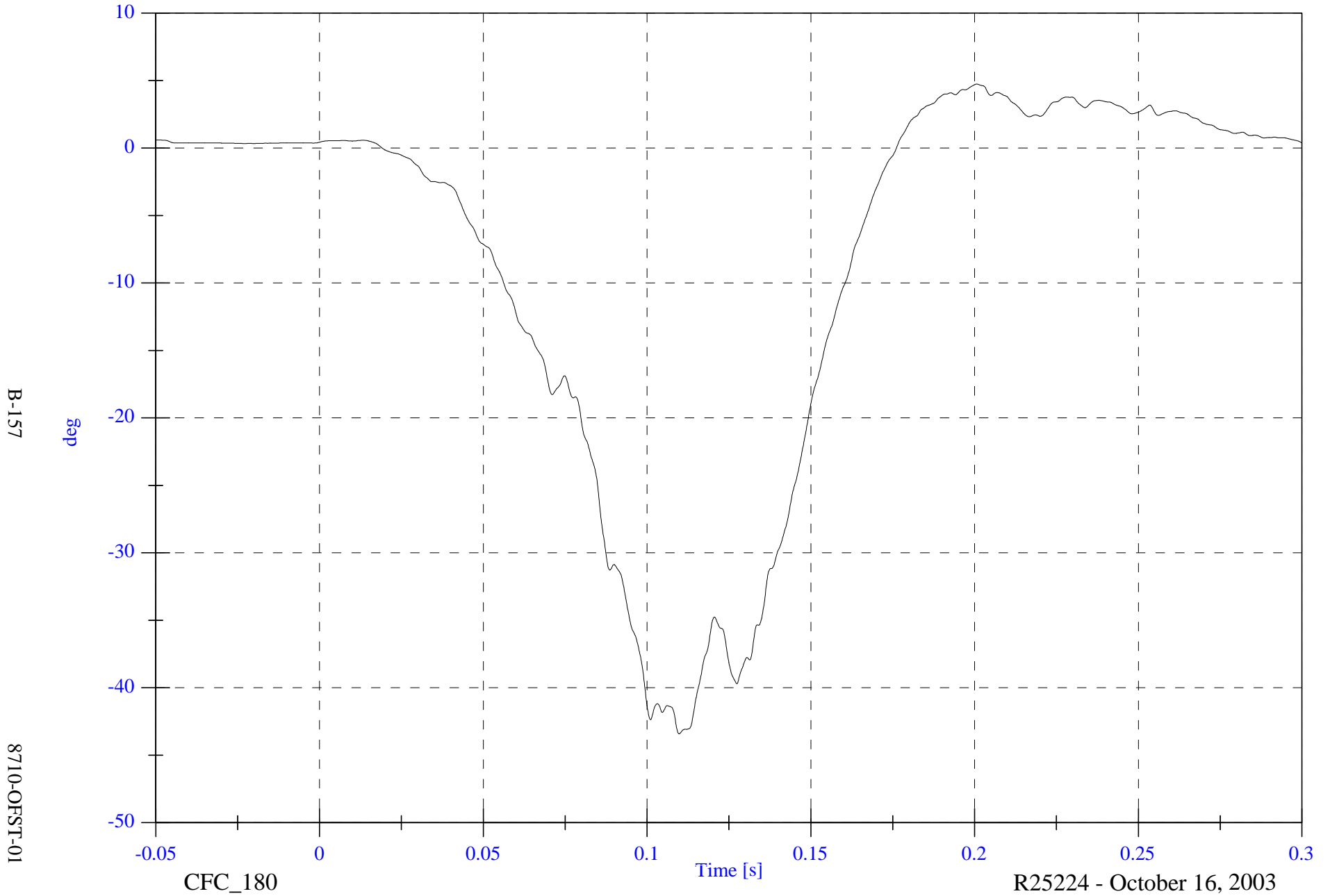


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Right Ankle Rotation x

Max: 4.7 [deg] at 0.201 [s]

Min: -43.4 [deg] at 0.110 [s]

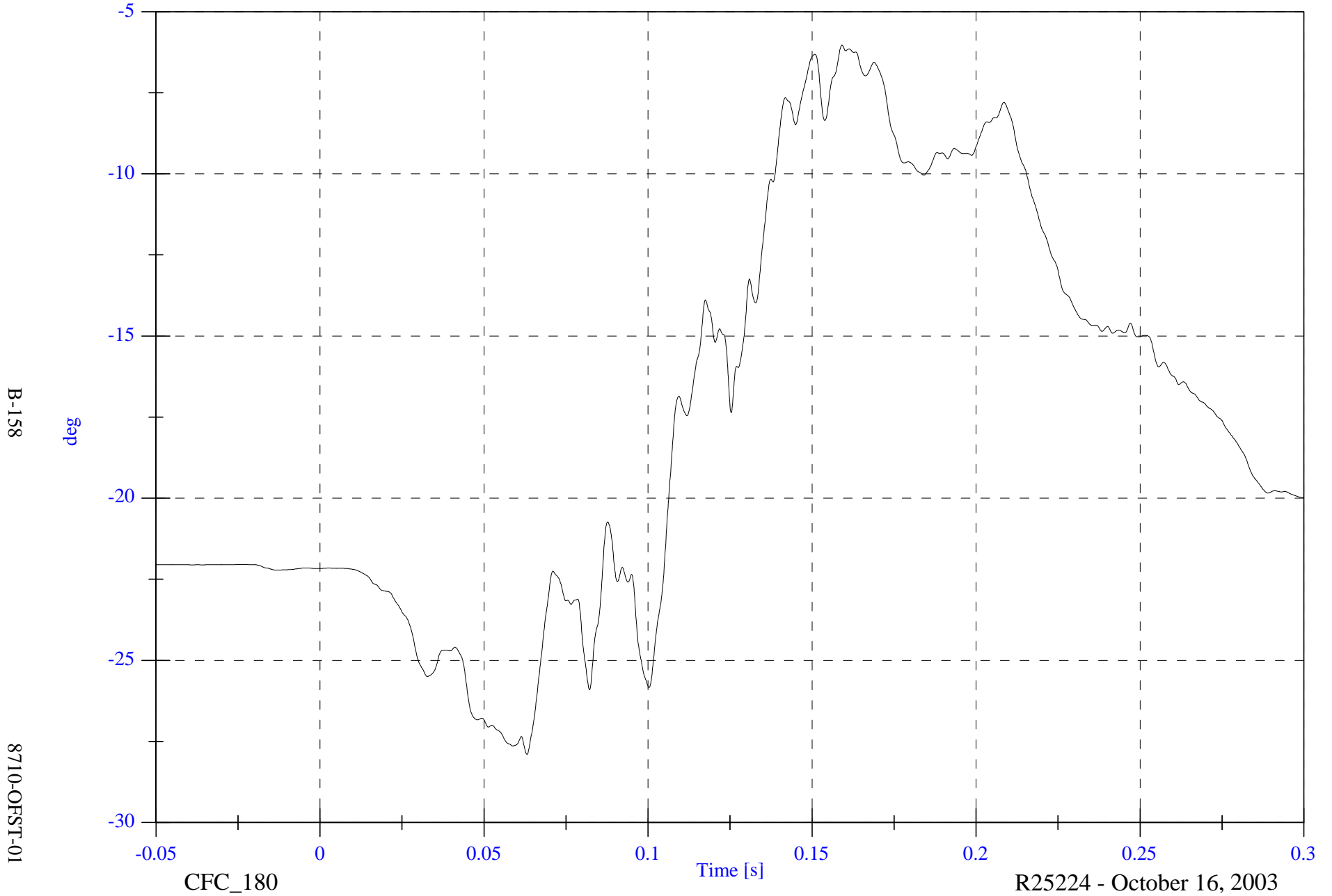


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Right Ankle Rotation y

Max: -6.0 [deg] at 0.159 [s]

Min: -27.9 [deg] at 0.063 [s]



B-158

8710-OFST-01

CFC_180

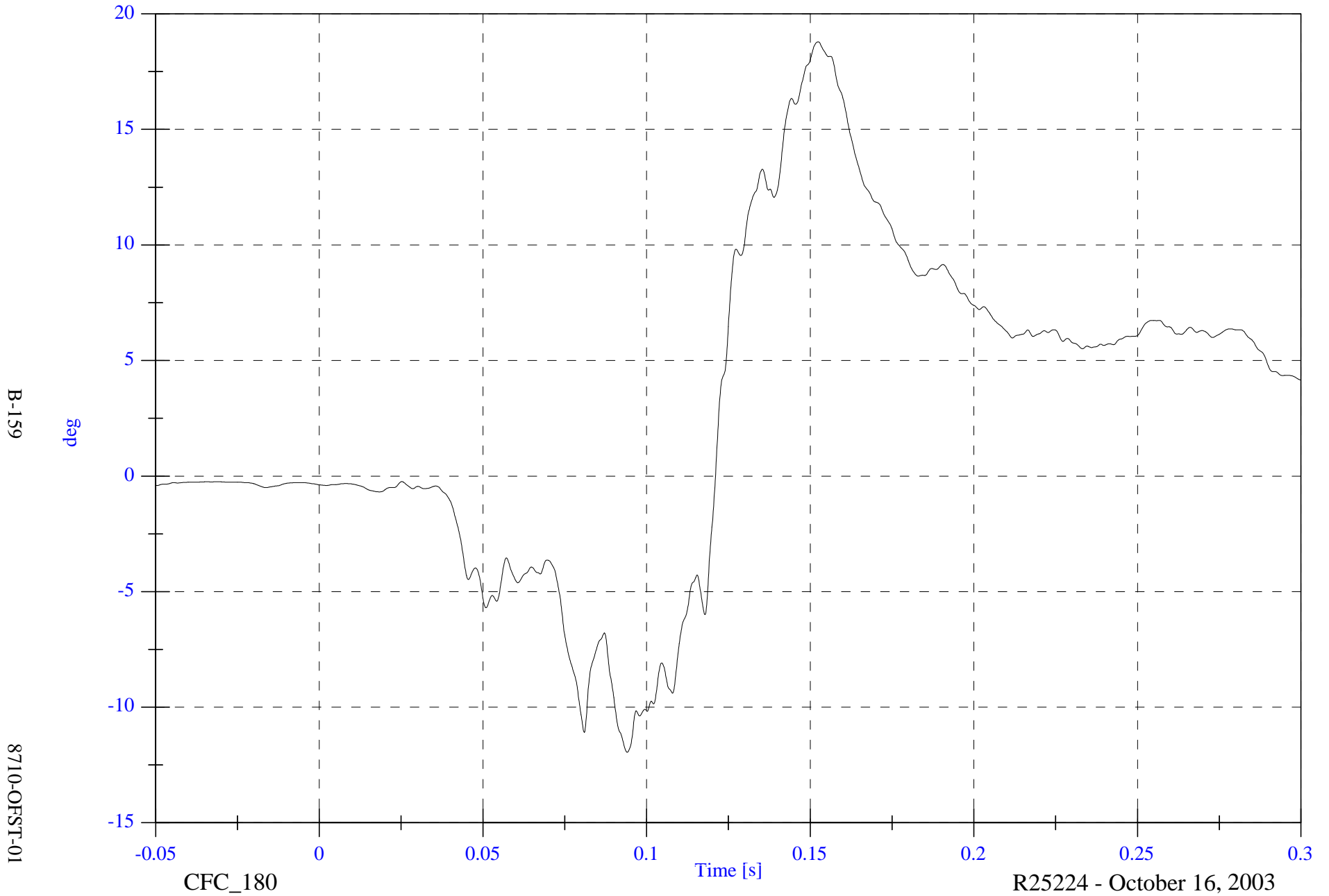
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Right Ankle Rotation z

Max: 18.8 [deg] at 0.152 [s]

Min: -11.9 [deg] at 0.094 [s]



B-159

8710-OFST-01

CFC_180

Time [s]

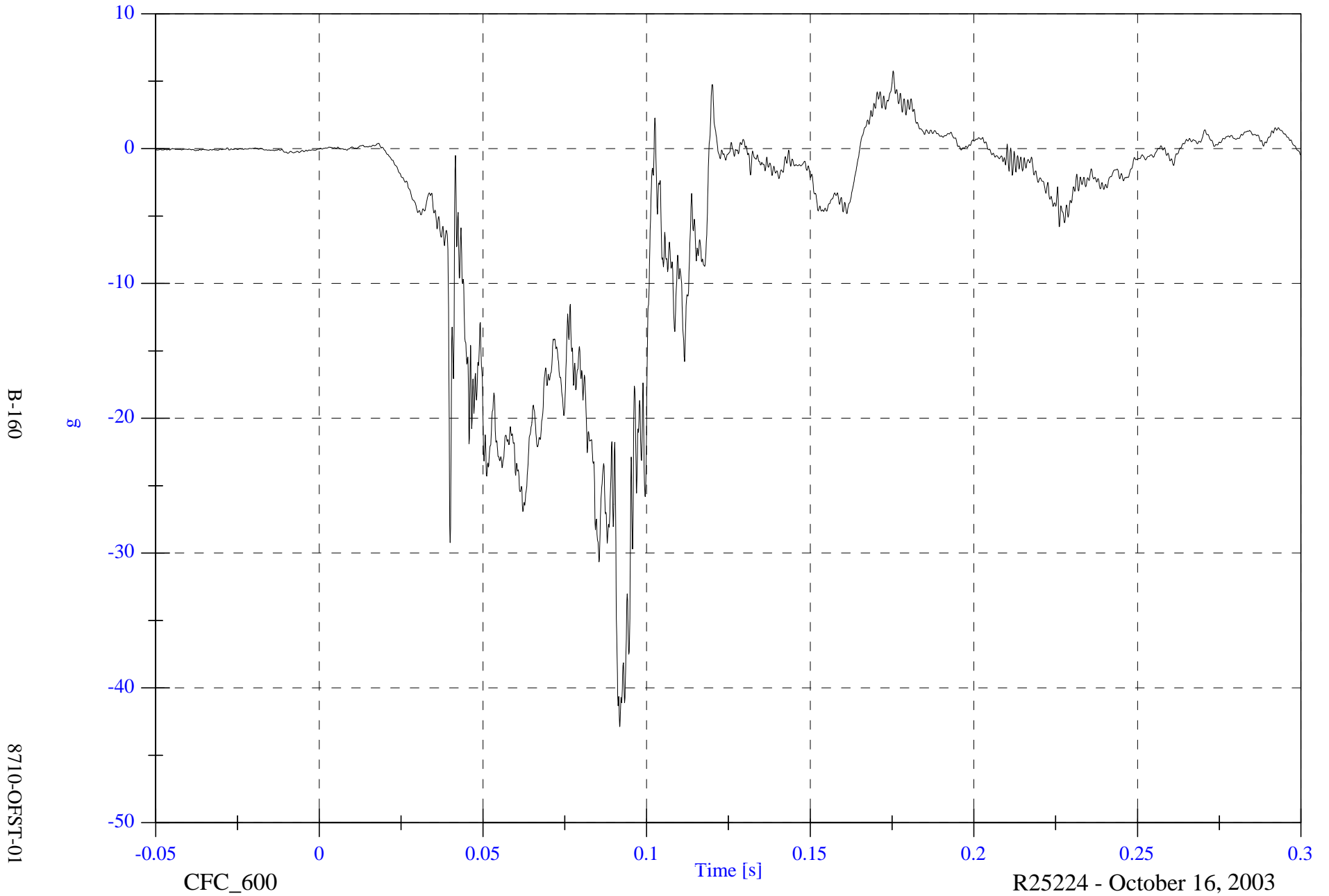
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 5.8 [g] at 0.175 [s]

Min: -42.9 [g] at 0.092 [s]

V1P2 Left Foot x

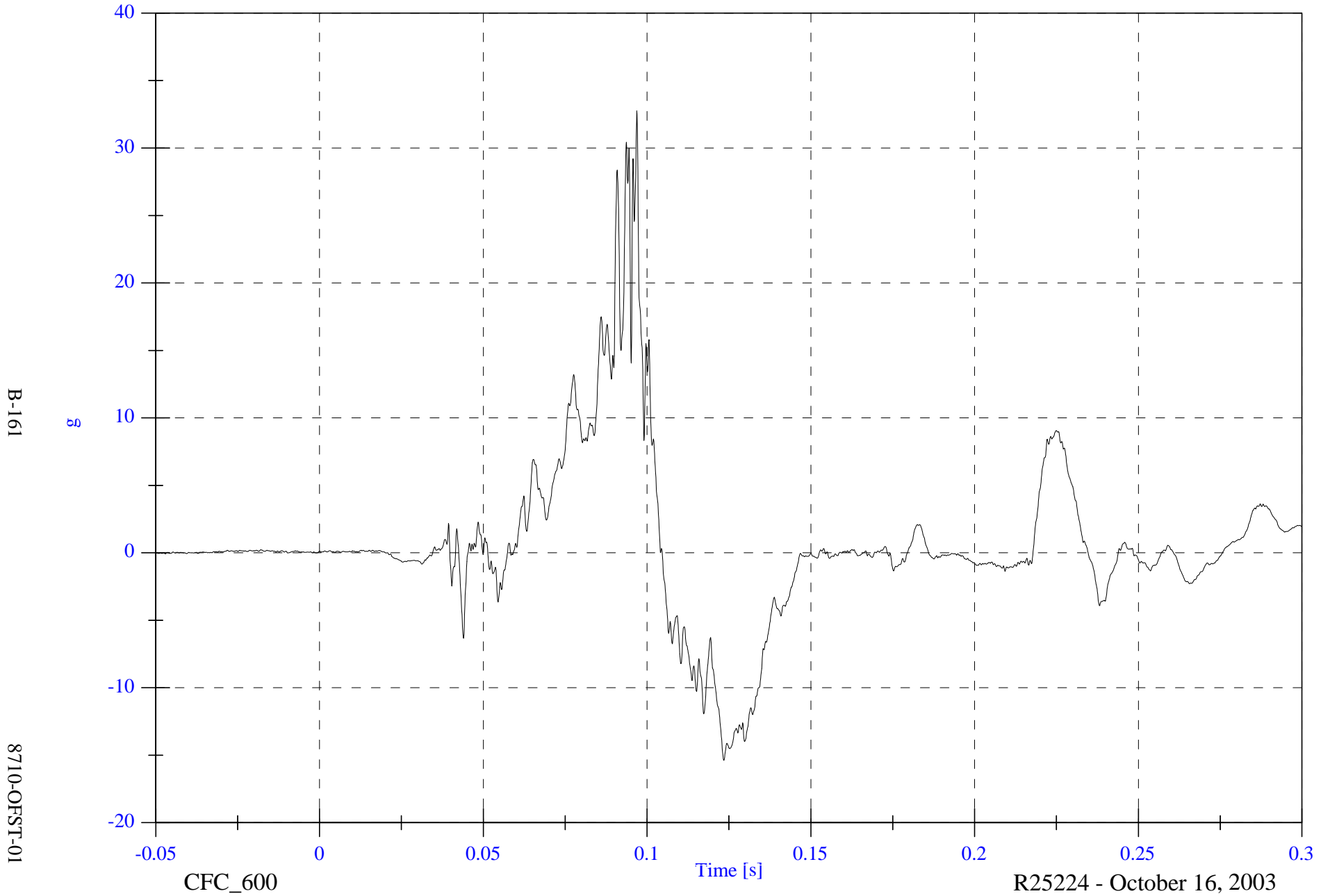


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 32.8 [g] at 0.097 [s]

Min: -15.4 [g] at 0.123 [s]

V1P2 Left Foot y



B-161

8710-OFST-01

2004 Offset Barrier Test 1 2002 Nissan Altima

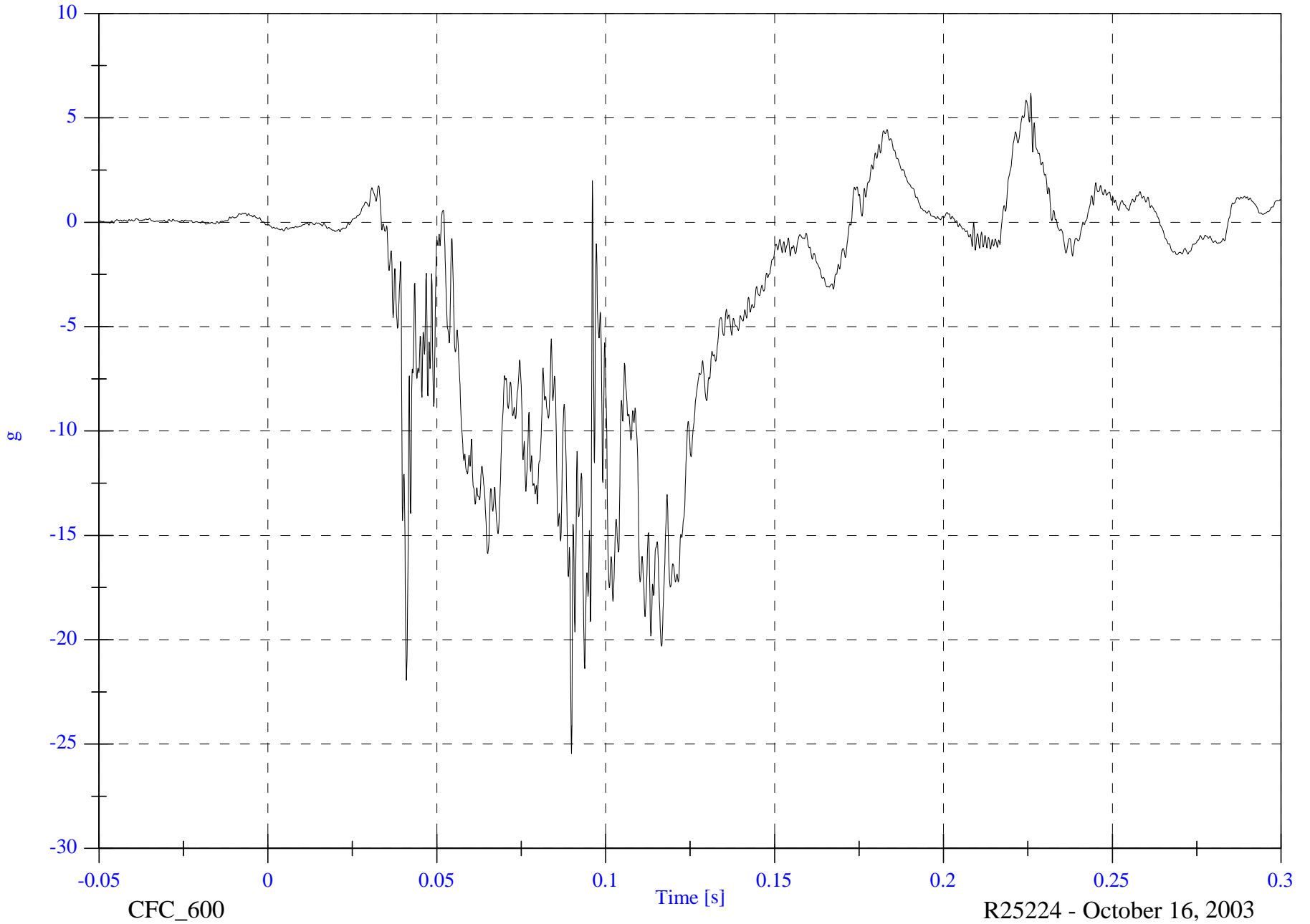
Max: 6.2 [g] at 0.226 [s]

V1P2 Left Foot z

Min: -25.5 [g] at 0.090 [s]

B-162

8710-OFST-01



2004 Offset Barrier Test 1 2002 Nissan Altima

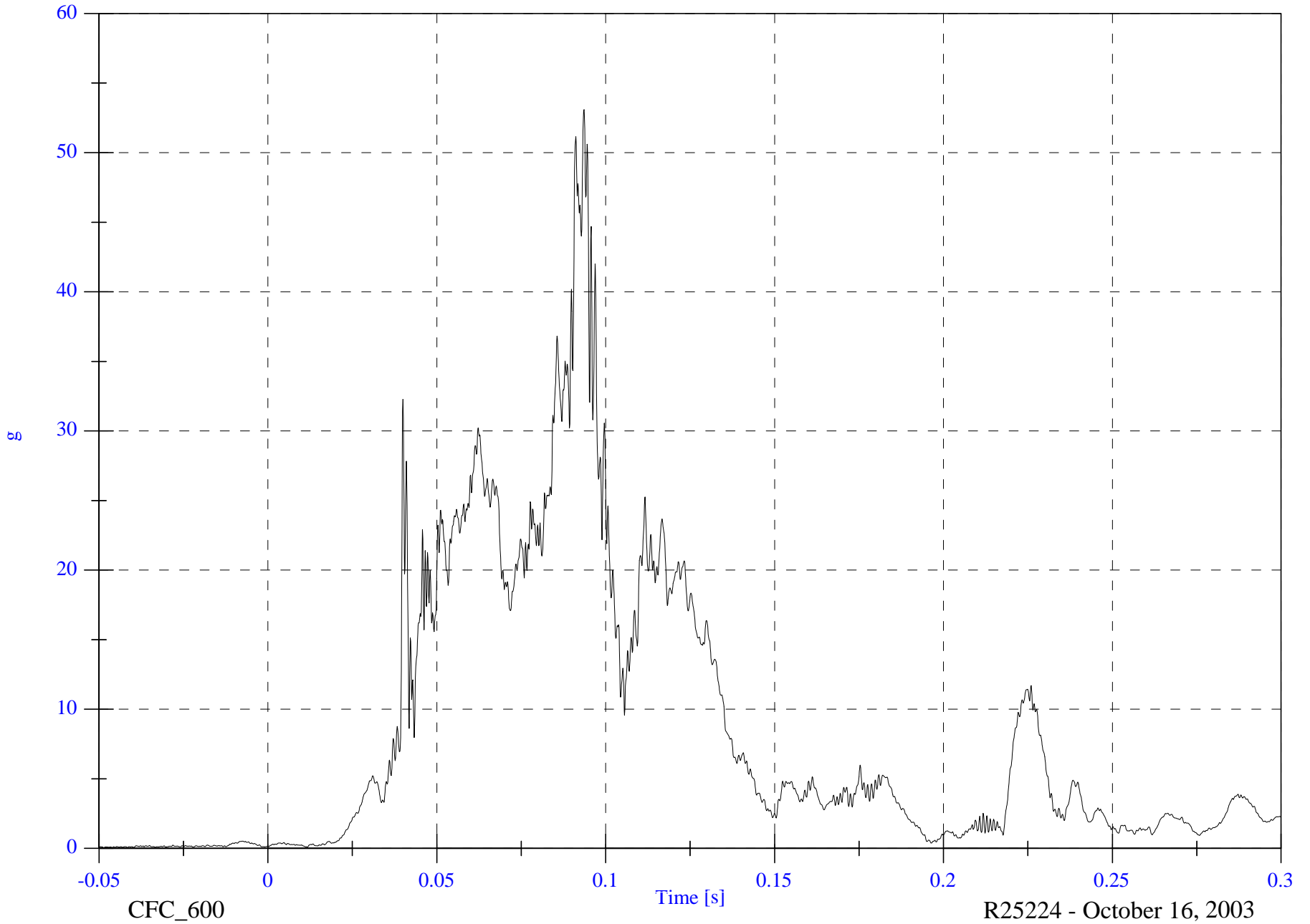
V1P2 Left Foot Resultant

Max: 53.1 [g] at 0.094 [s]

Min: 0.0 [g] at -0.050 [s]

B-163

8710-OFST-01



CFC_600

Time [s]

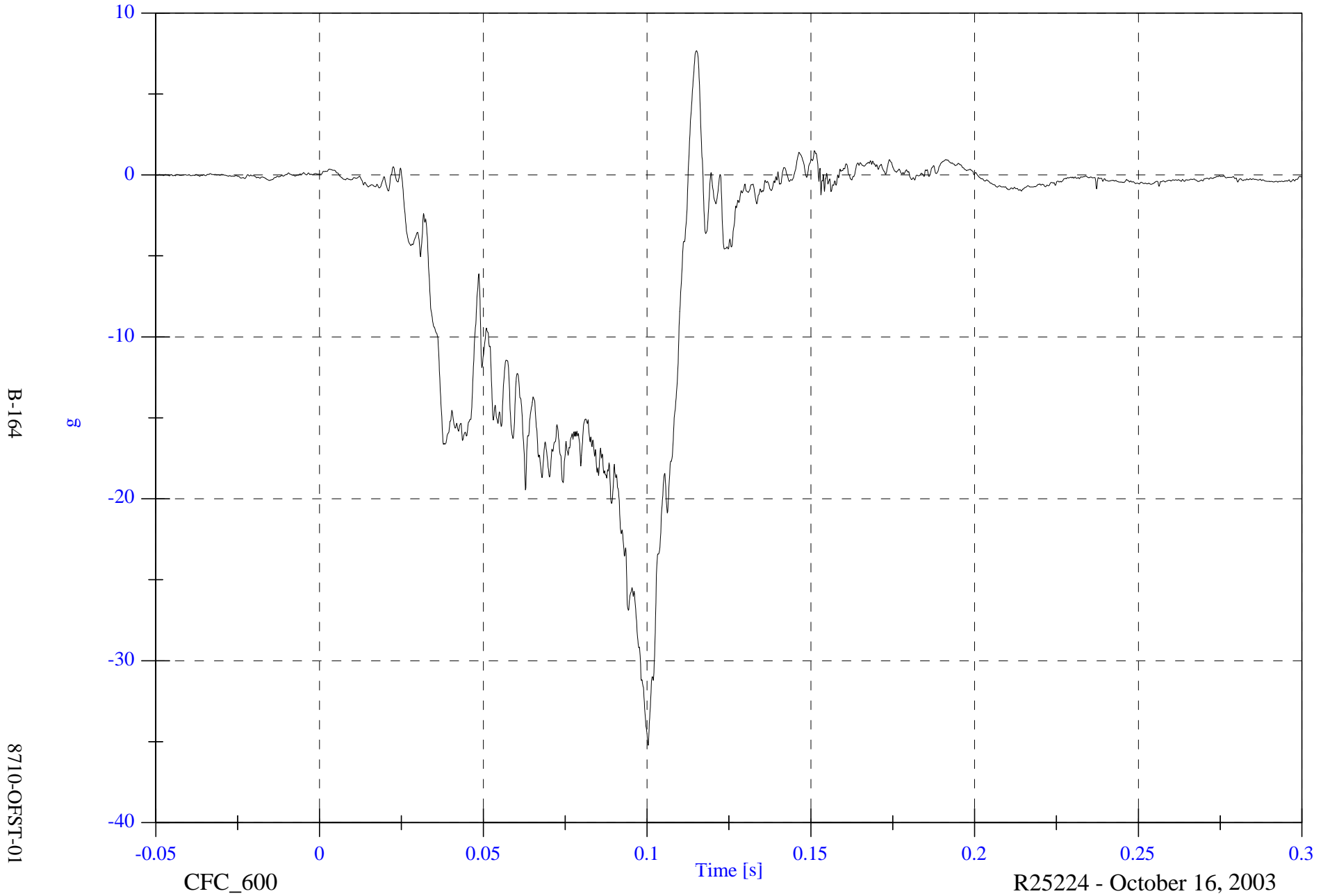
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Right Foot x

Max: 7.7 [g] at 0.115 [s]

Min: -35.2 [g] at 0.100 [s]



B-164

8710-OFST-01

CFC_600

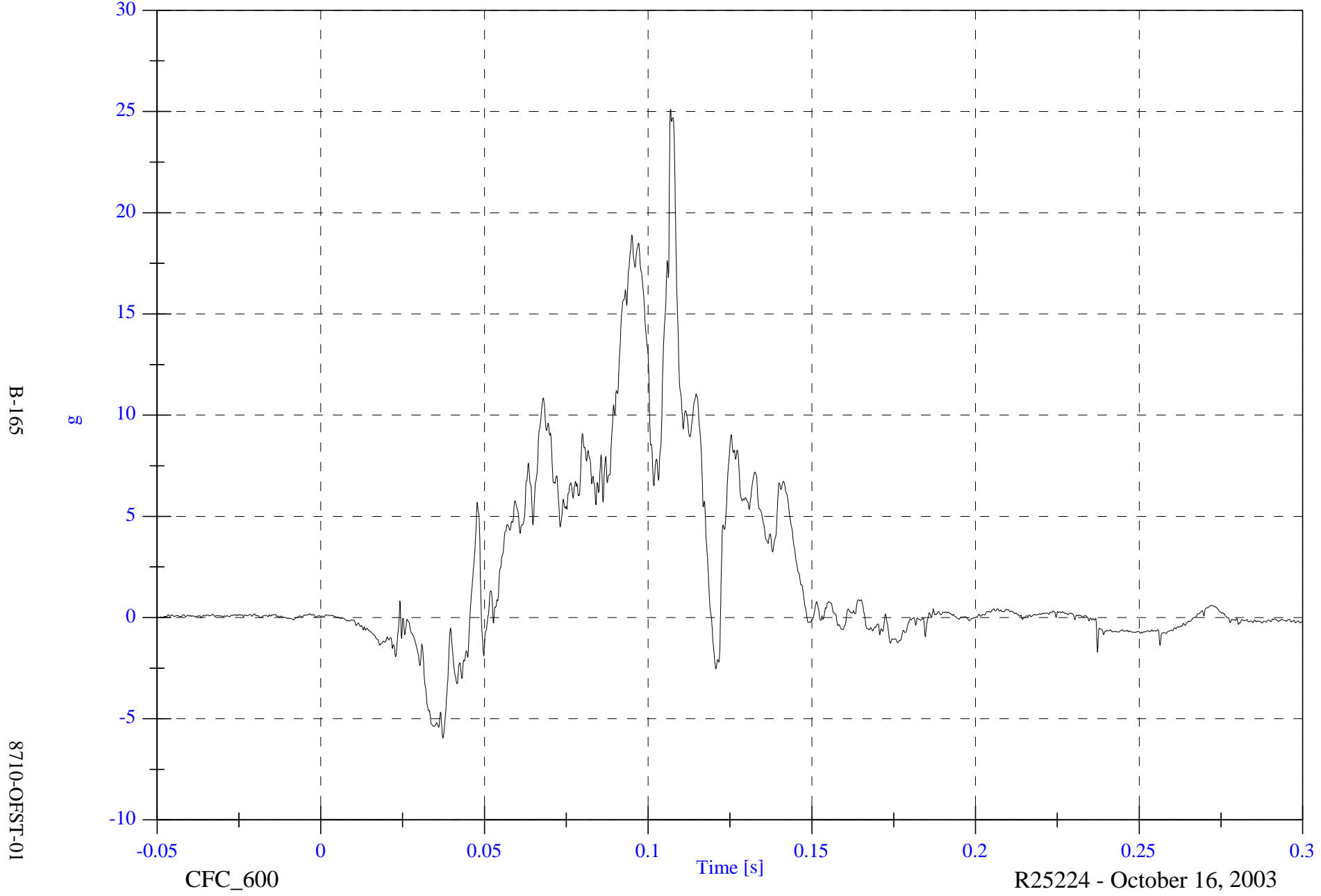
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 25.1 [g] at 0.107 [s]

Min: -6.0 [g] at 0.037 [s]

V1P2 Right Foot y

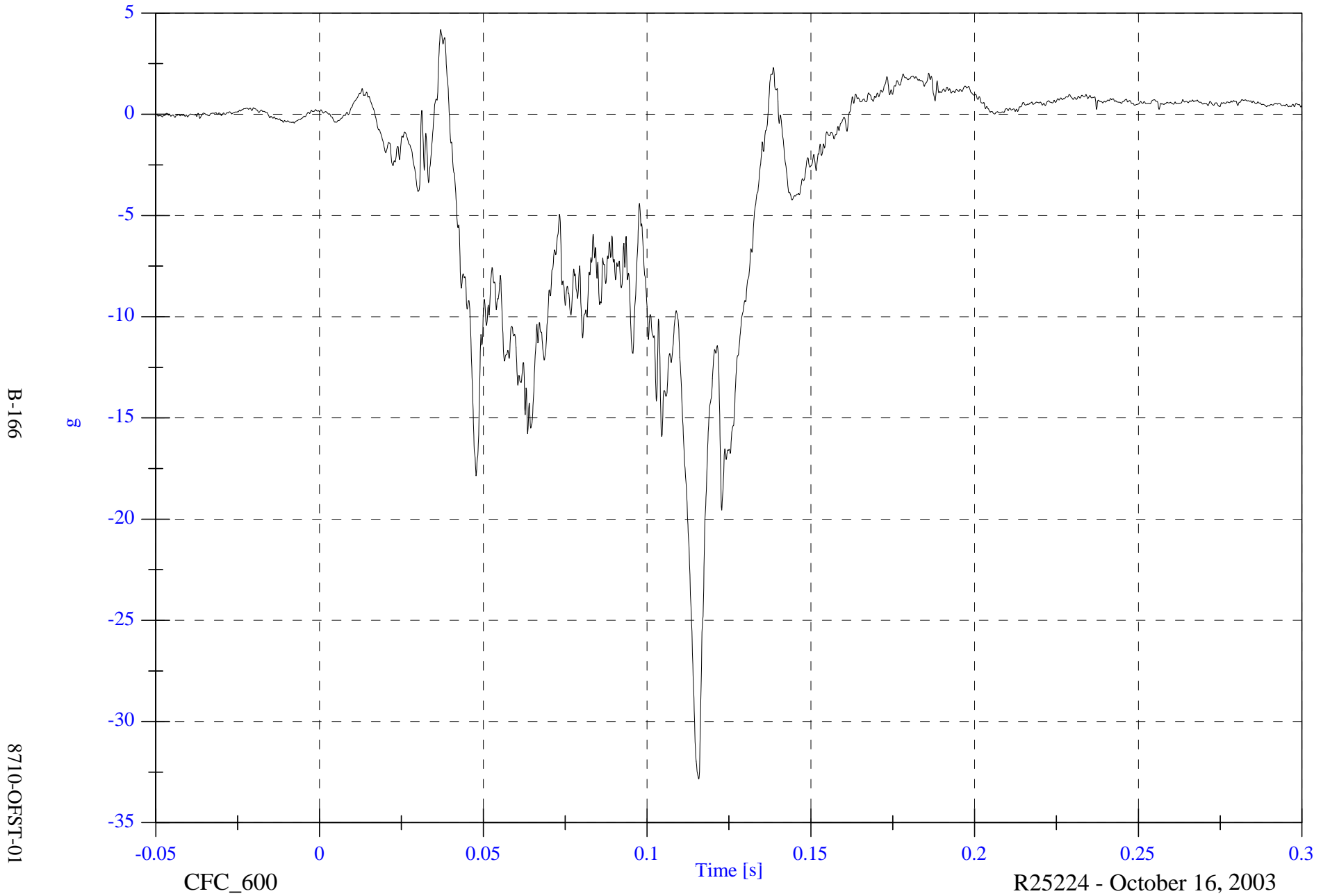


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 4.2 [g] at 0.037 [s]

V1P2 Right Foot z

Min: -32.8 [g] at 0.116 [s]



B-166

8710-OFST-01

2004 Offset Barrier Test 1 2002 Nissan Altima

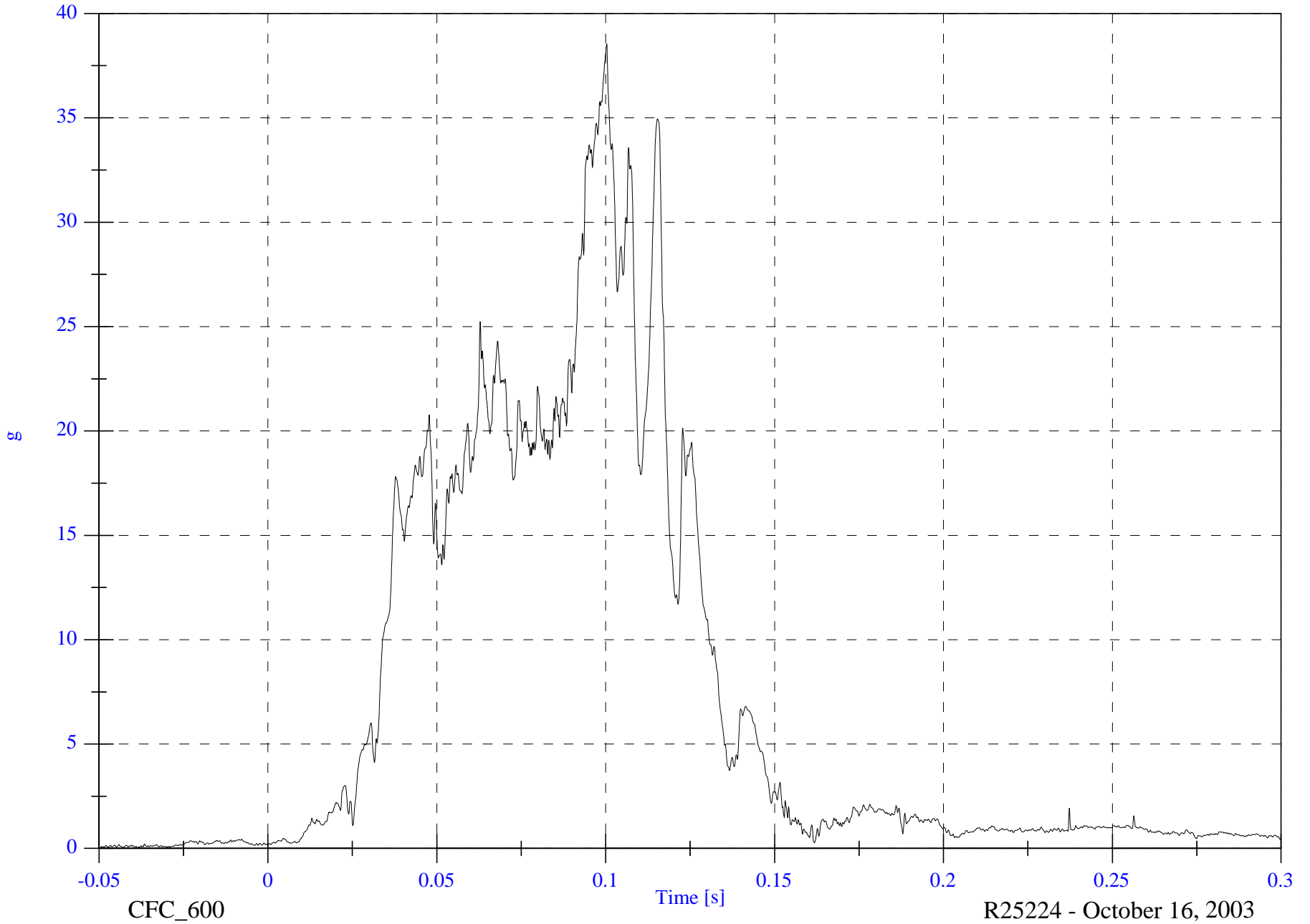
V1P2 Right Foot Resultant

Max: 38.6 [g] at 0.100 [s]

Min: 0.0 [g] at -0.050 [s]

B-167

8710-OFST-01

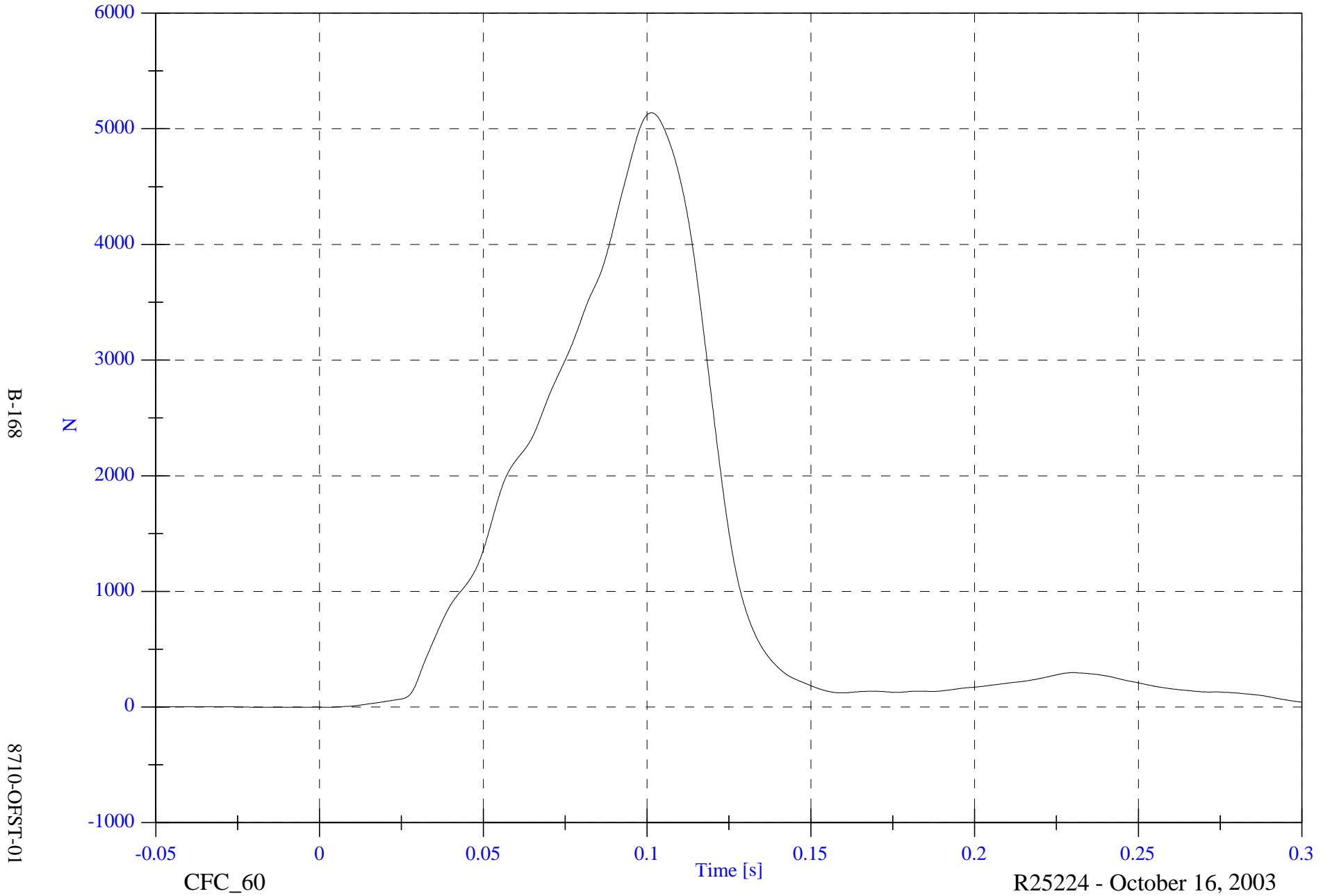


2004 Offset Barrier Test 1 2002 Nissan Altima

V1P2 Lap Belt Load

Max: 5137.9 [N] at 0.101 [s]

Min: -1.8 [N] at -0.013 [s]

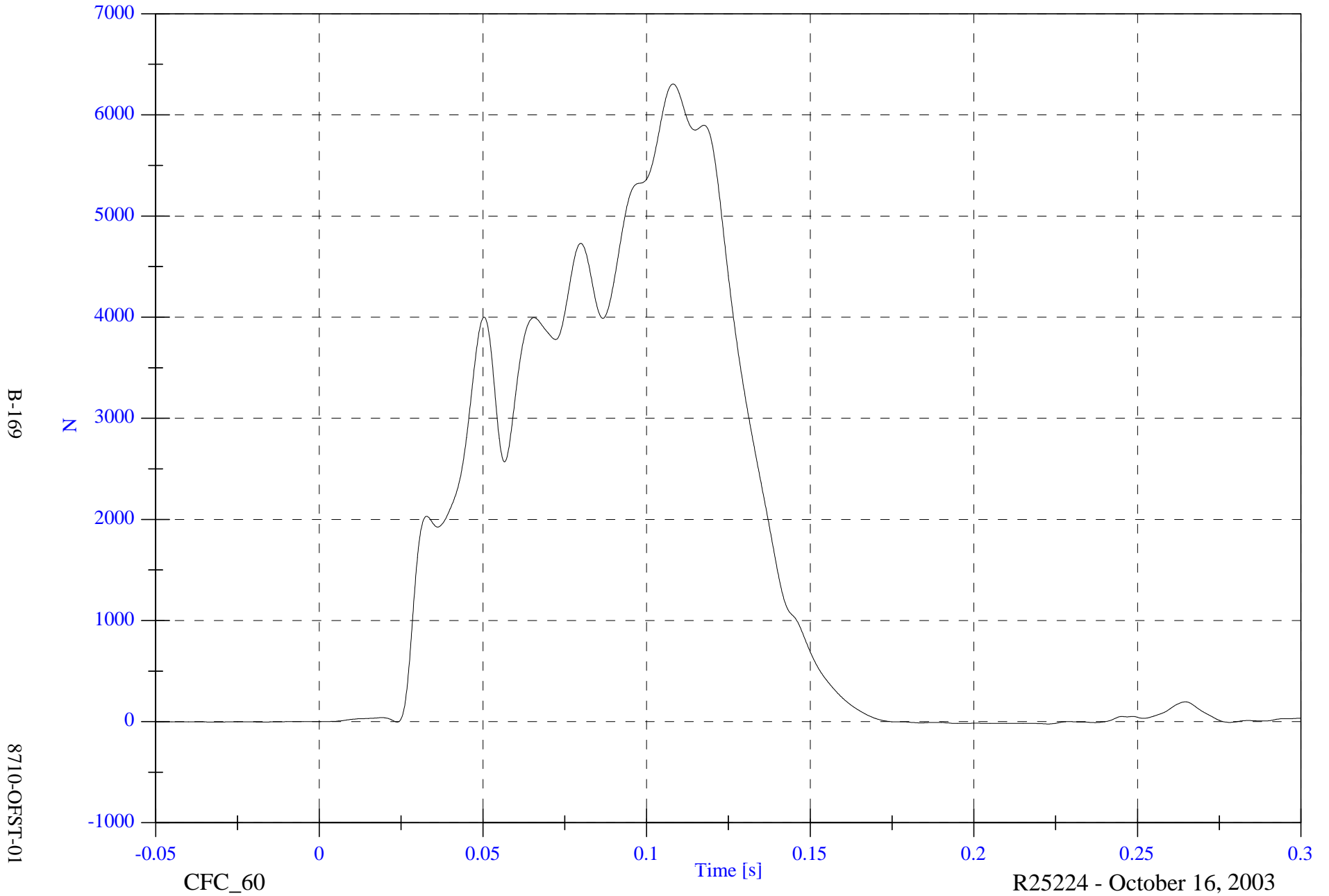


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 6306.2 [N] at 0.108 [s]

V1P2 Shoulder Belt Load

Min: -22.8 [N] at 0.223 [s]



B-169

8710-OFST-01

CFC_60

Time [s]

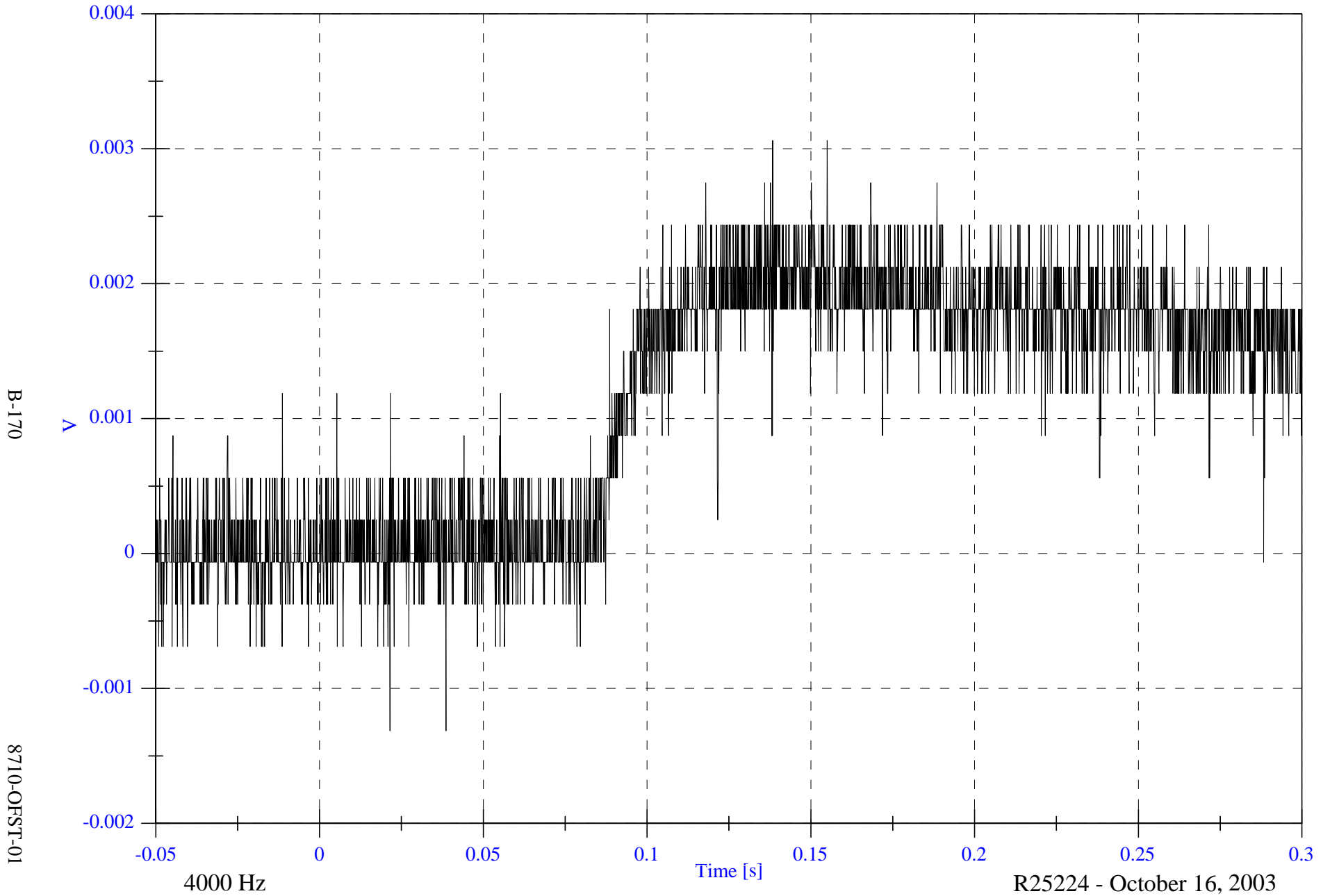
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

VIP2 Air Bag T/E

Max: 0.0 [V] at 0.138 [s]

Min: -0.0 [V] at 0.021 [s]



R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1 LR Seat Xmember x

Max: 0.5 [g] at -0.016 [s]

Min: -39.0 [g] at 0.096 [s]



2004 Offset Barrier Test 1 2002 Nissan Altima

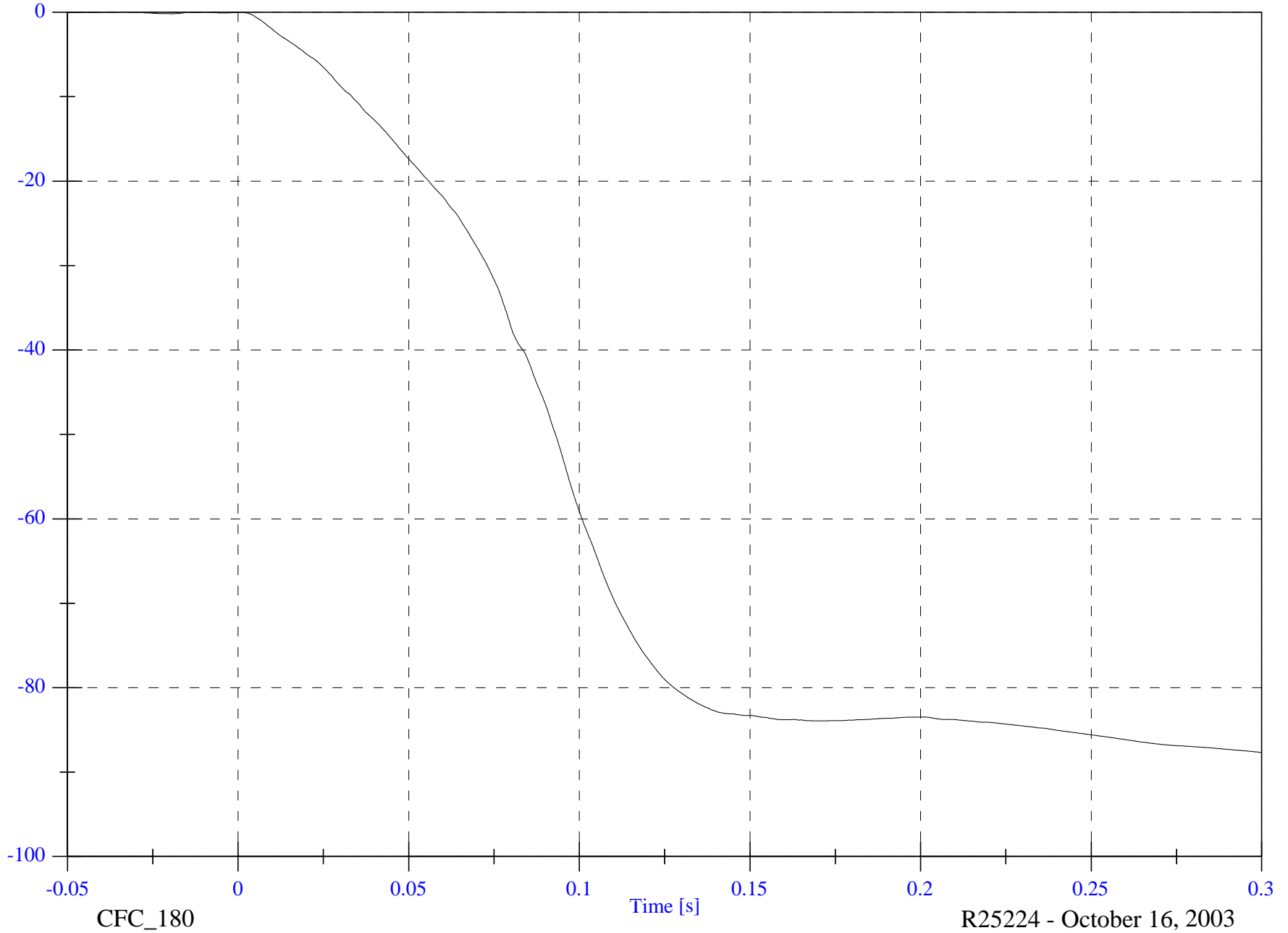
V1 LR Seat Xmember x Velocity

Max: 0.0 [kph] at -0.032 [s]

Min: -87.7 [kph] at 0.300 [s]

B-172

8710-OFST-01



CFC_180

Time [s]

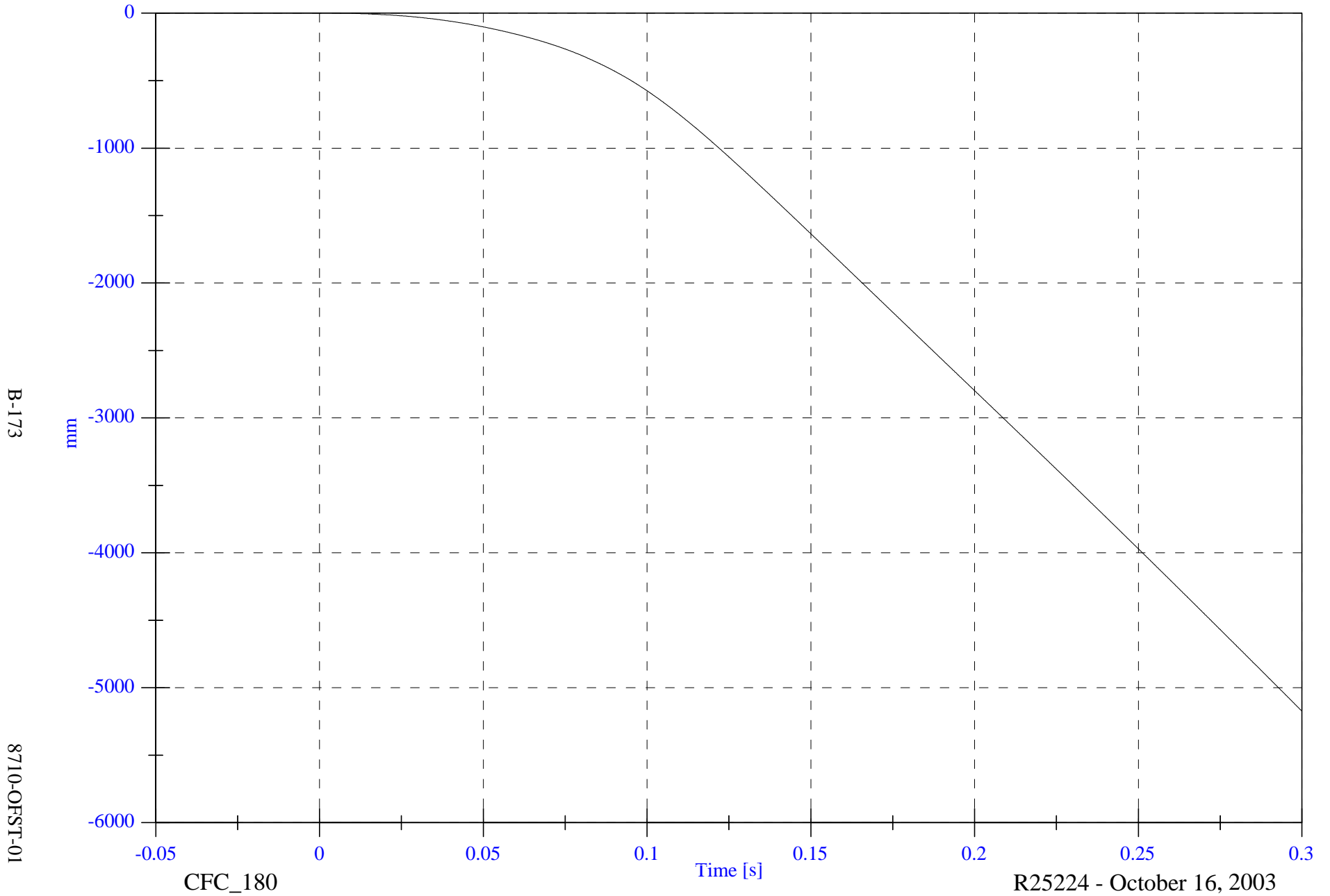
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1 LR Seat Xmember x Displacement

Max: 0.6 [mm] at -0.050 [s]

Min: -5172.0 [mm] at 0.300 [s]



B-173

8710-OFST-01

CFC_180

Time [s]

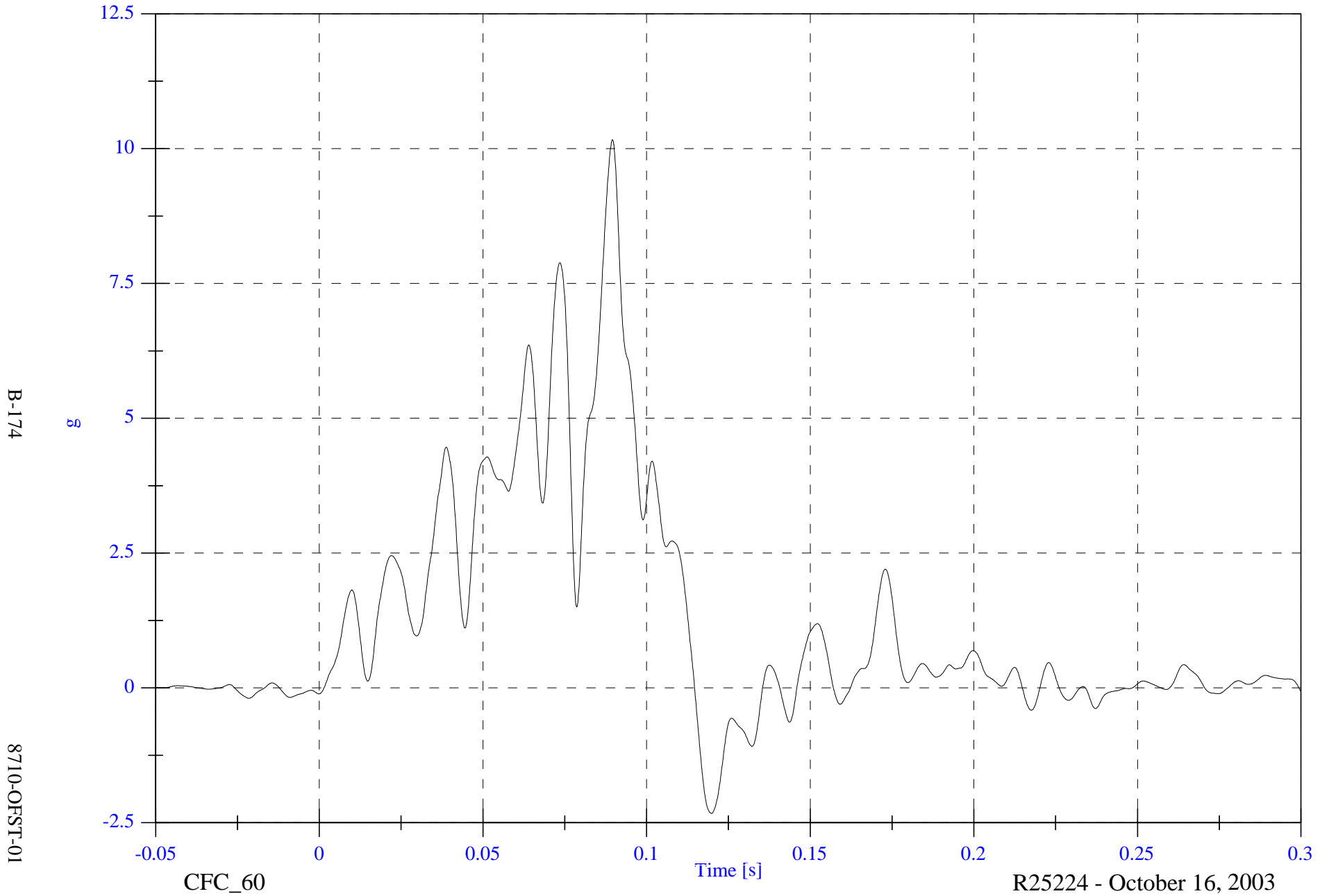
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1 LR Seat Xmember y

Max: 10.2 [g] at 0.090 [s]

Min: -2.3 [g] at 0.120 [s]

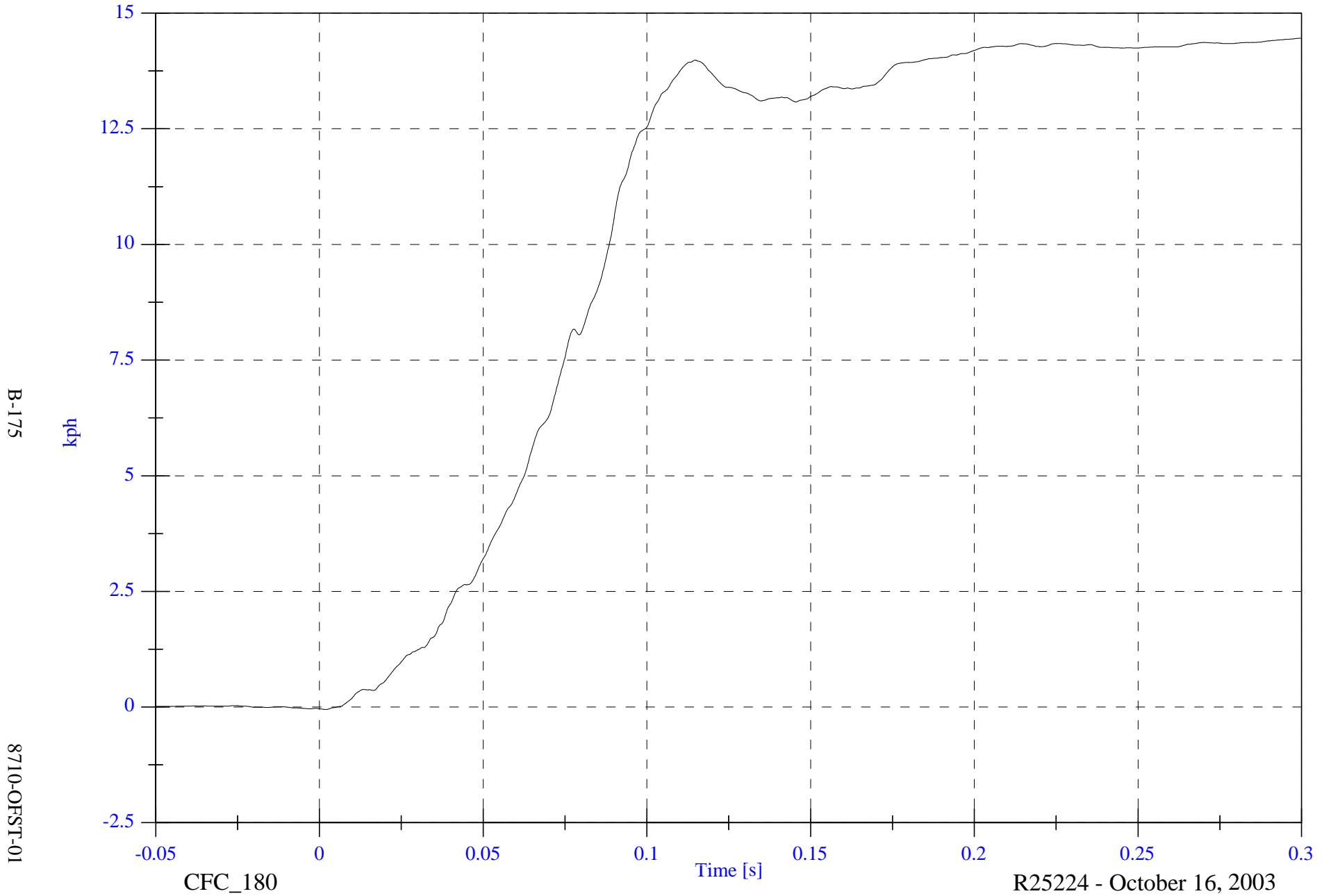


2004 Offset Barrier Test 1 2002 Nissan Altima

V1 LR Seat Xmember y Velocity

Max: 14.5 [kph] at 0.299 [s]

Min: -0.1 [kph] at 0.002 [s]



B-175

8710-OFST-01

CFC_180

Time [s]

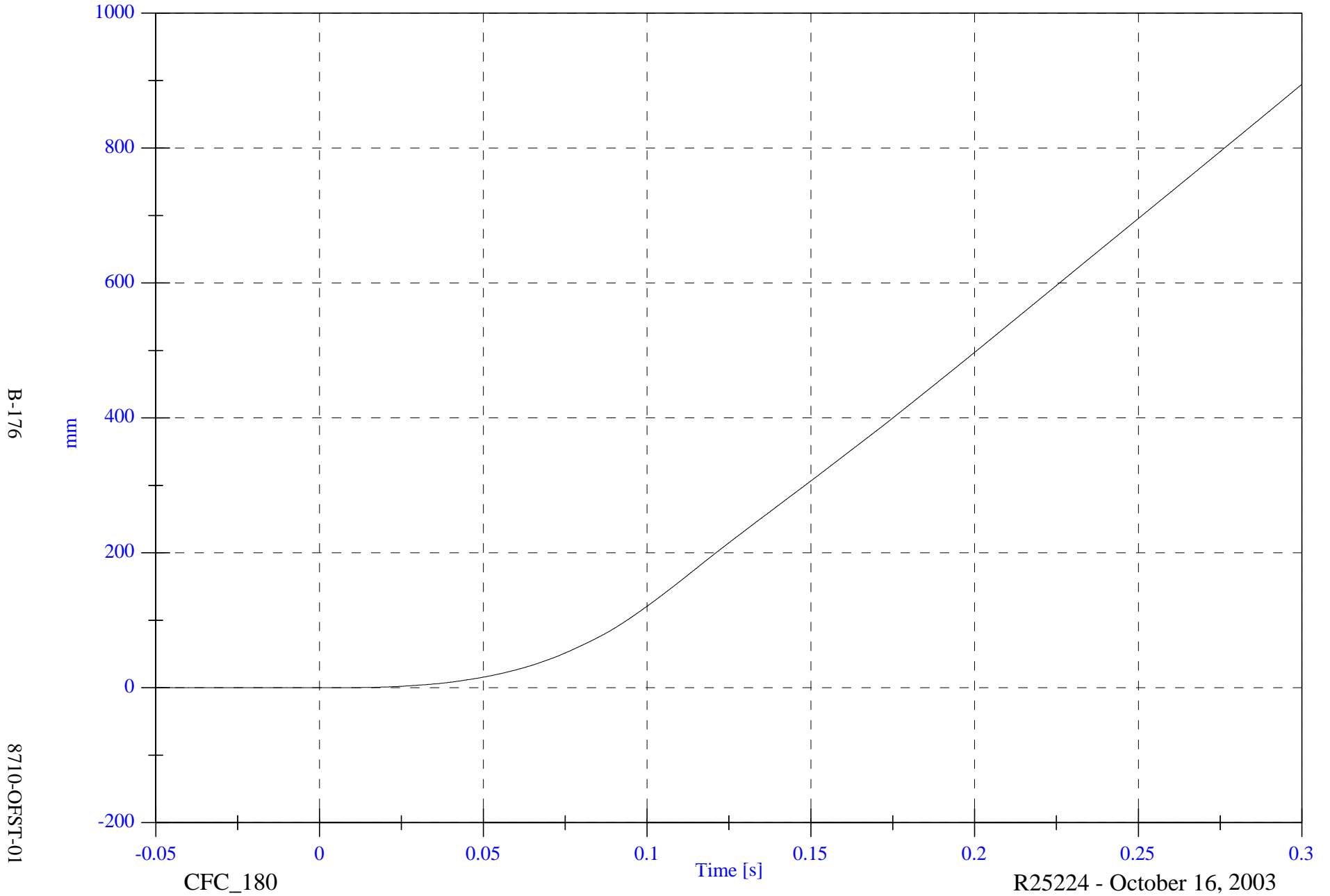
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1 LR Seat Xmember y Displacement

Max: 894.3 [mm] at 0.300 [s]

Min: -0.1 [mm] at -0.050 [s]



B-176

8710-OFST-01

CFC_180

Time [s]

R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1 RR Seat Xmember x

Max: 1.1 [g] at 0.199 [s]

Min: -33.5 [g] at 0.094 [s]



B-177

8710-OFST-01

CFC_60

Time [s]

R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

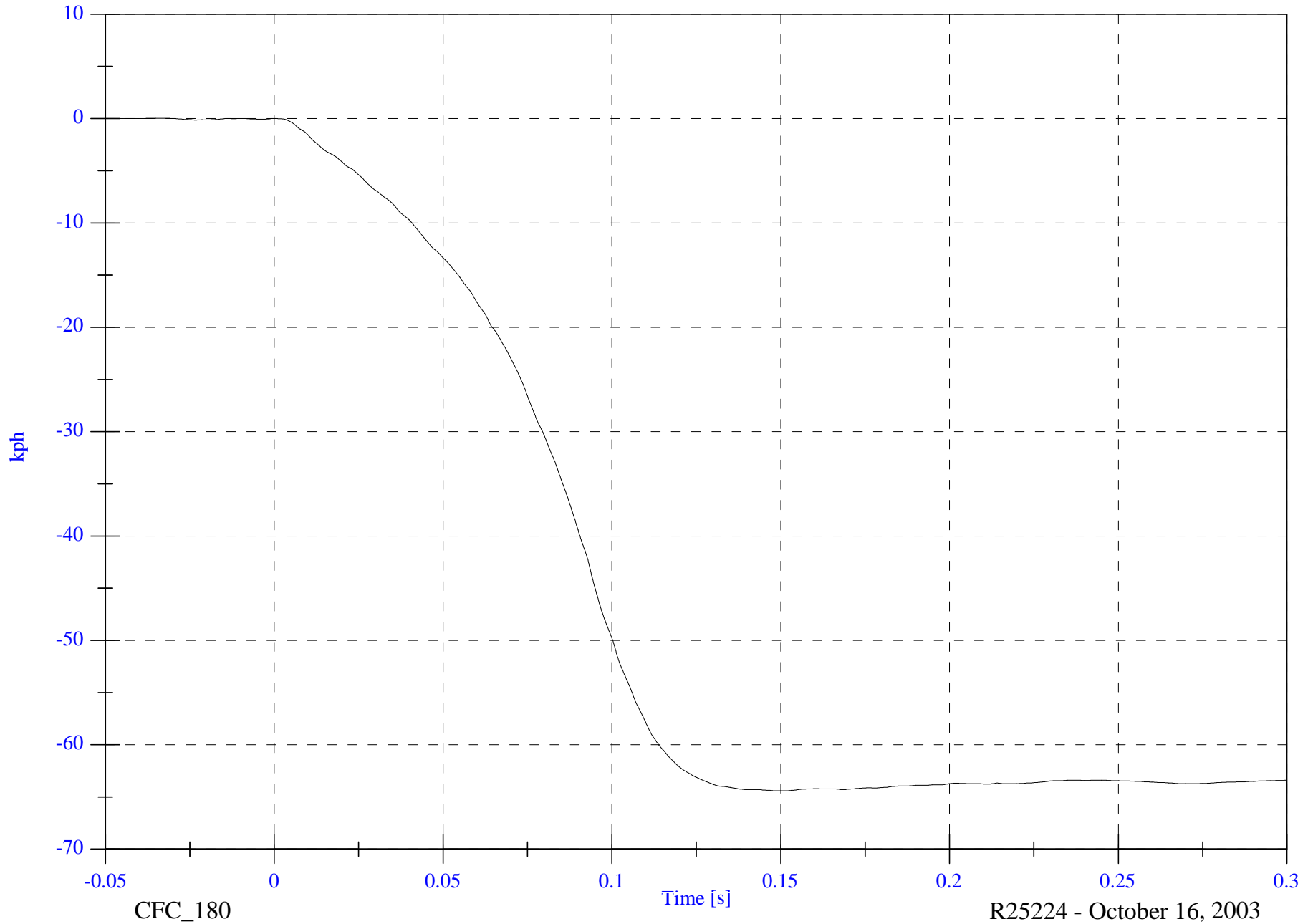
Max: 0.0 [kph] at -0.032 [s]

V1 RR Seat Xmember x Velocity

Min: -64.4 [kph] at 0.151 [s]

B-178

8710-OFST-01



CFC_180

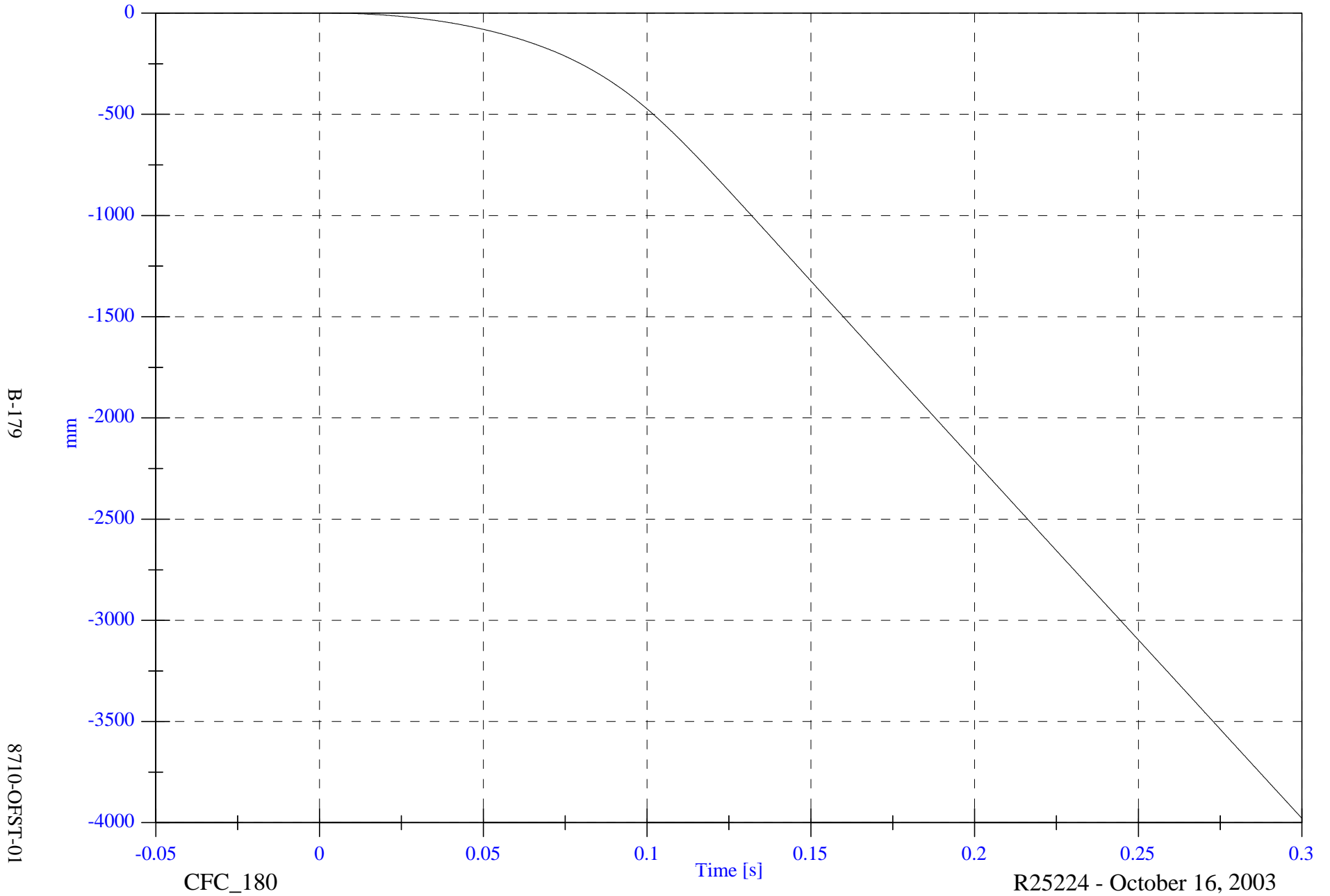
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1 RR Seat Xmember x Displacement

Max: 0.5 [mm] at -0.030 [s]

Min: -3977.5 [mm] at 0.300 [s]



B-179

8710-OFST-01

CFC_180

Time [s]

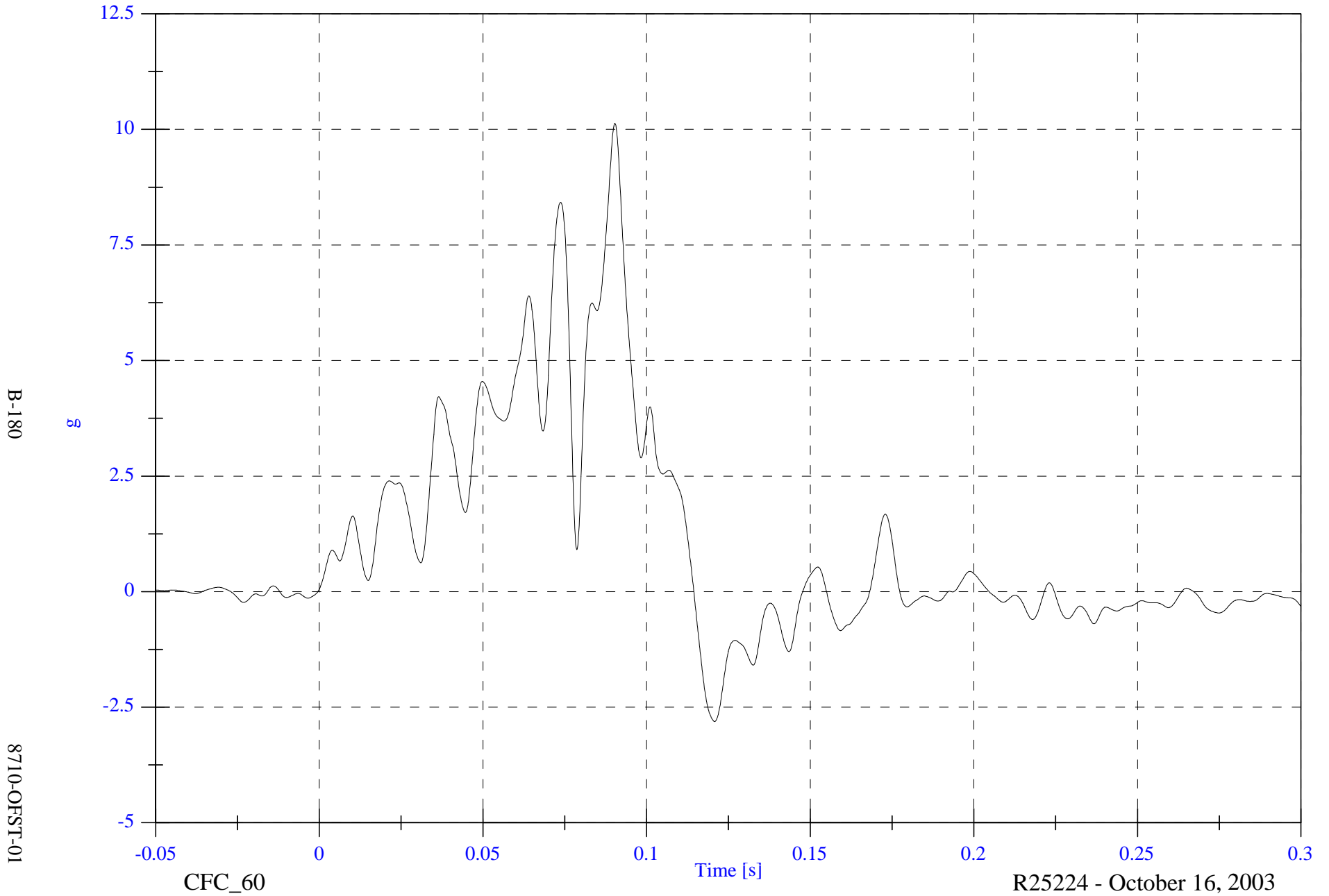
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 10.1 [g] at 0.090 [s]

V1 RR Seat Xmember y

Min: -2.8 [g] at 0.121 [s]

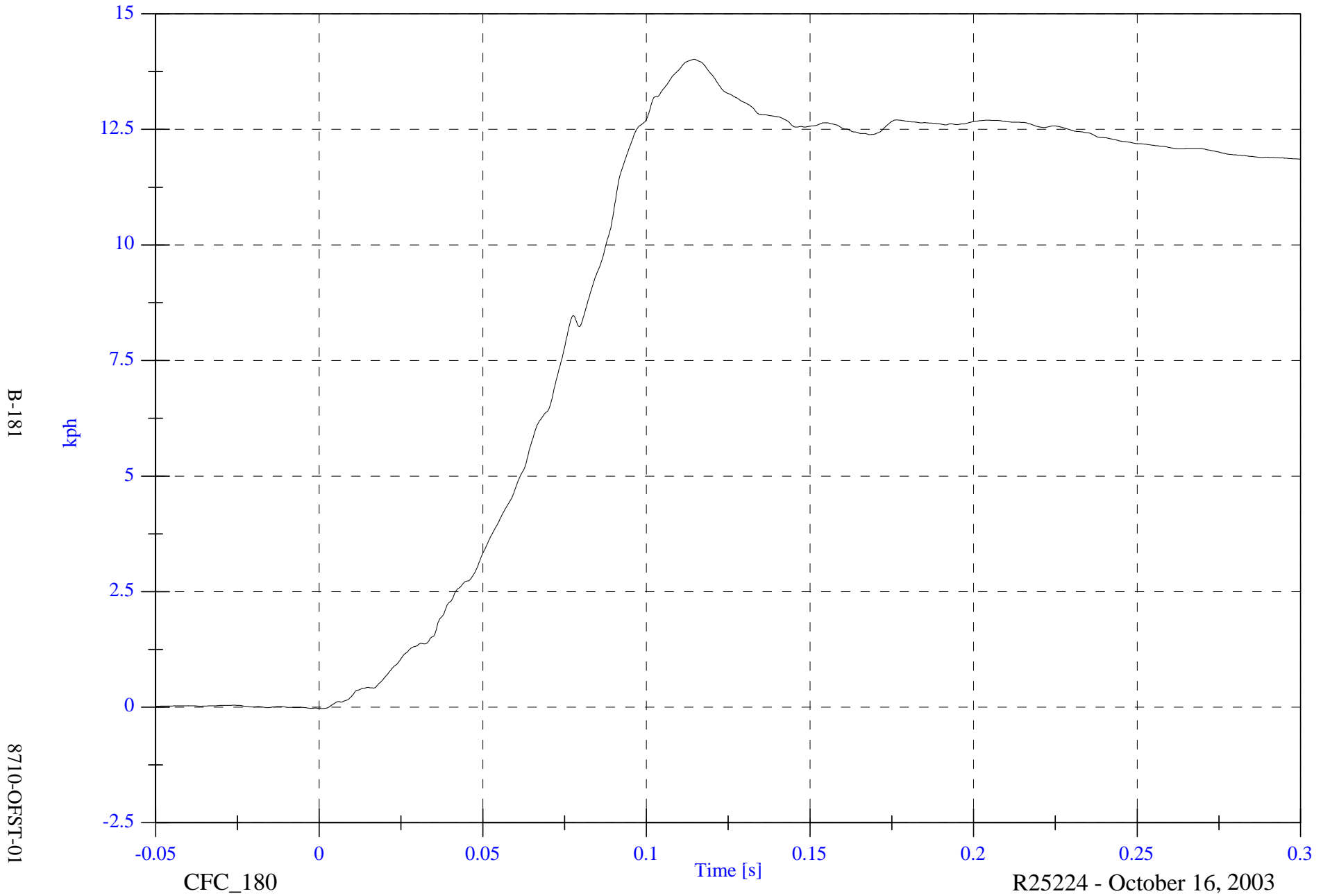


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 14.0 [kph] at 0.115 [s]

V1 RR Seat Xmember y Velocity

Min: -0.0 [kph] at 0.001 [s]



B-181

8710-OFST-01

CFC_180

Time [s]

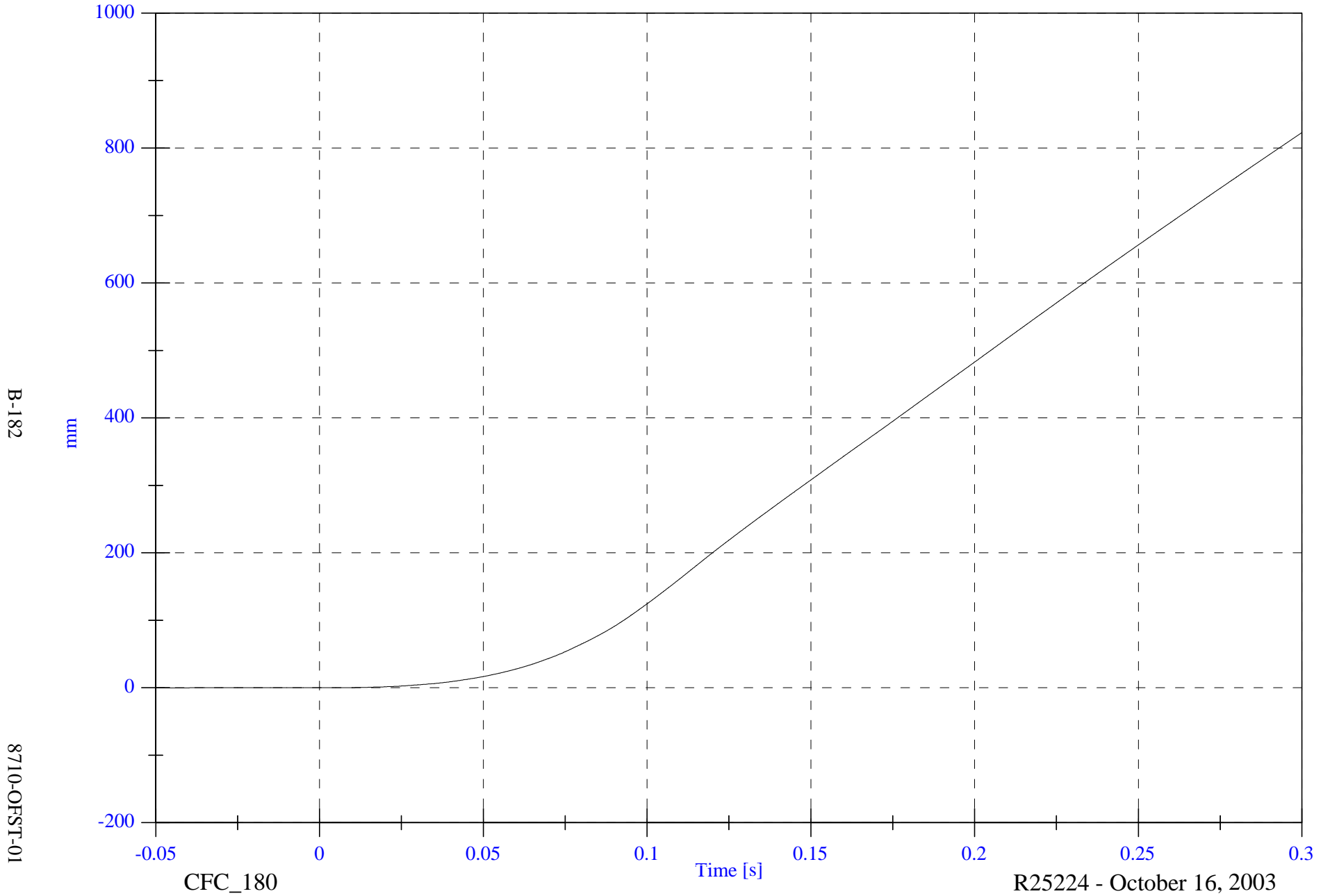
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 822.8 [mm] at 0.300 [s]

V1 RR Seat Xmember y Displacement

Min: -0.2 [mm] at -0.050 [s]



B-182

8710-OFST-01

CFC_180

R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

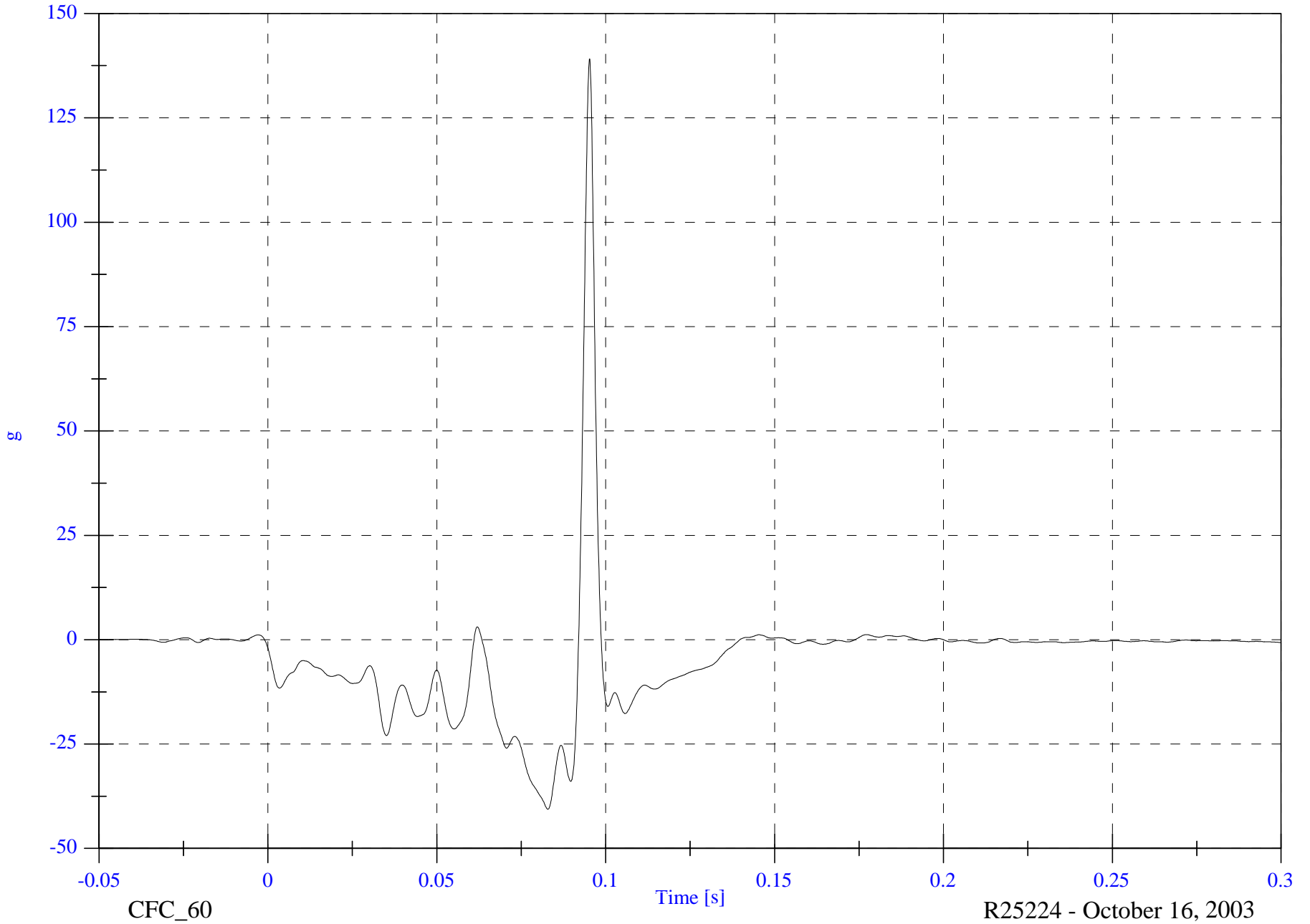
Max: 139.2 [g] at 0.095 [s]

V1 P1 Left Toepan x

Min: -40.6 [g] at 0.083 [s]

B-183

8710-OFST-01



CFC_60

Time [s]

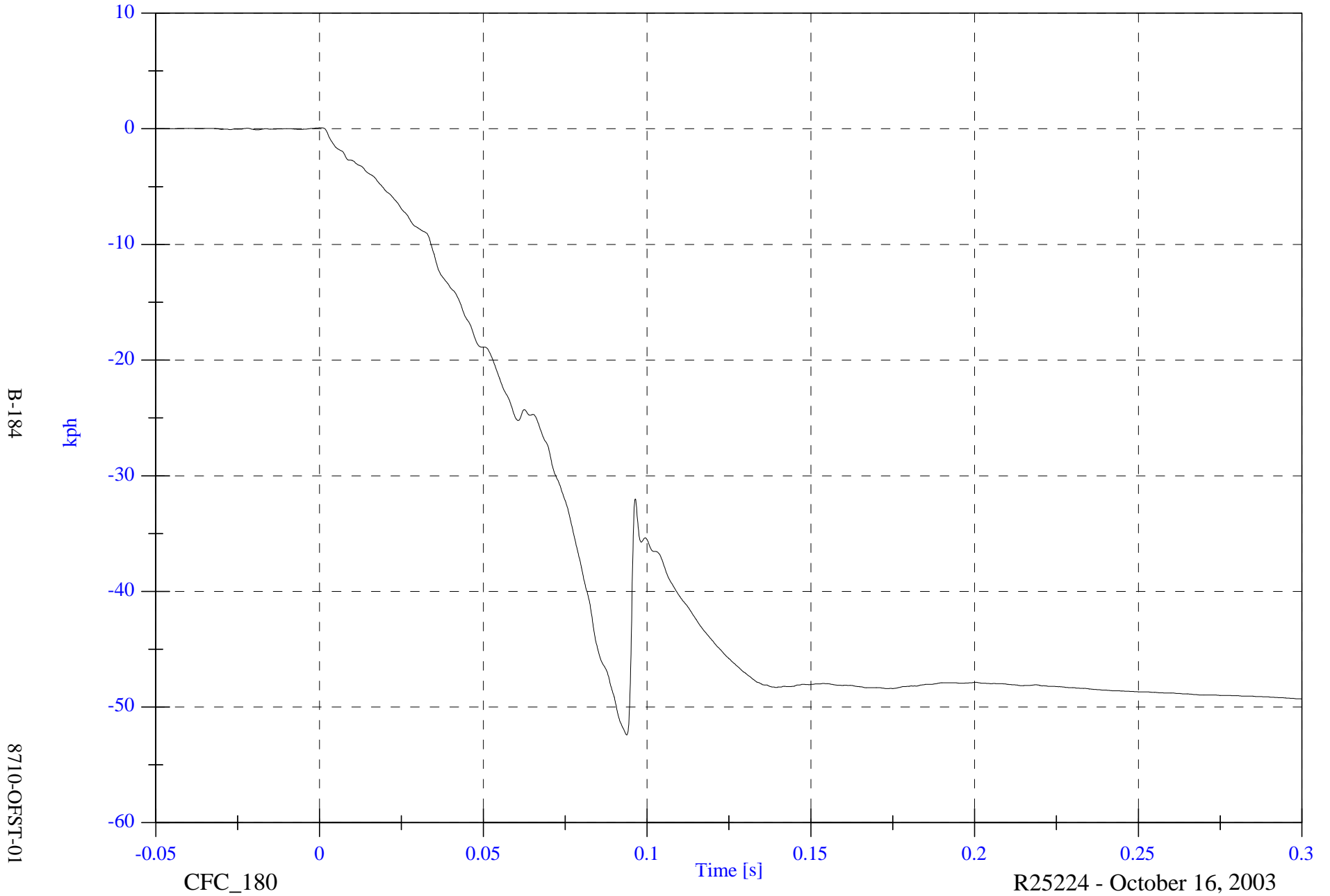
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1 P1 Left Toepan x Velocity

Max: 0.1 [kph] at 0.000 [s]

Min: -52.4 [kph] at 0.094 [s]



B-184

8710-OFST-01

CFC_180

Time [s]

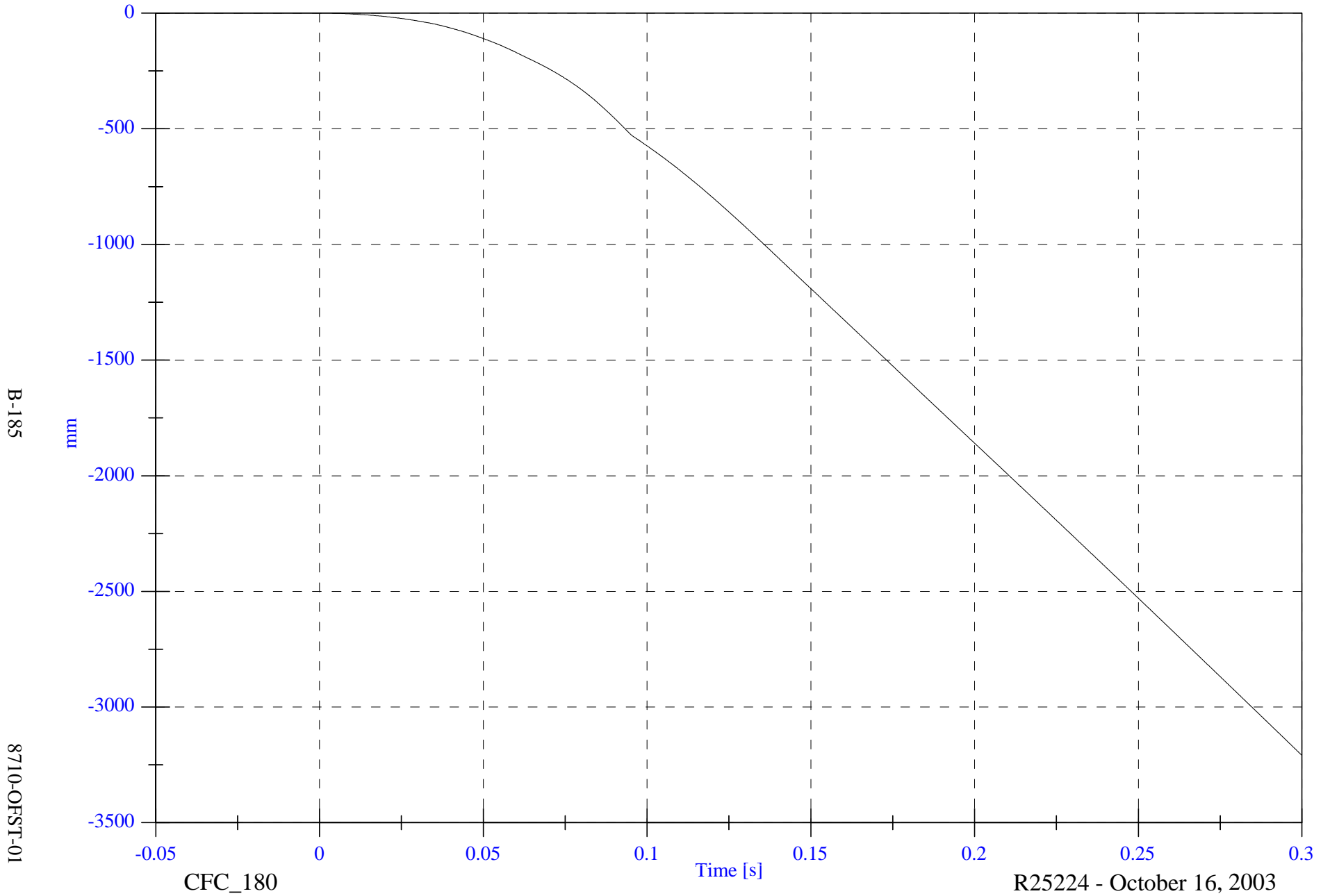
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 0.2 [mm] at -0.031 [s]

V1 P1 Left Toepan x Displacement

Min: -3208.2 [mm] at 0.300 [s]



B-185

8710-OFST-01

CFC_180

Time [s]

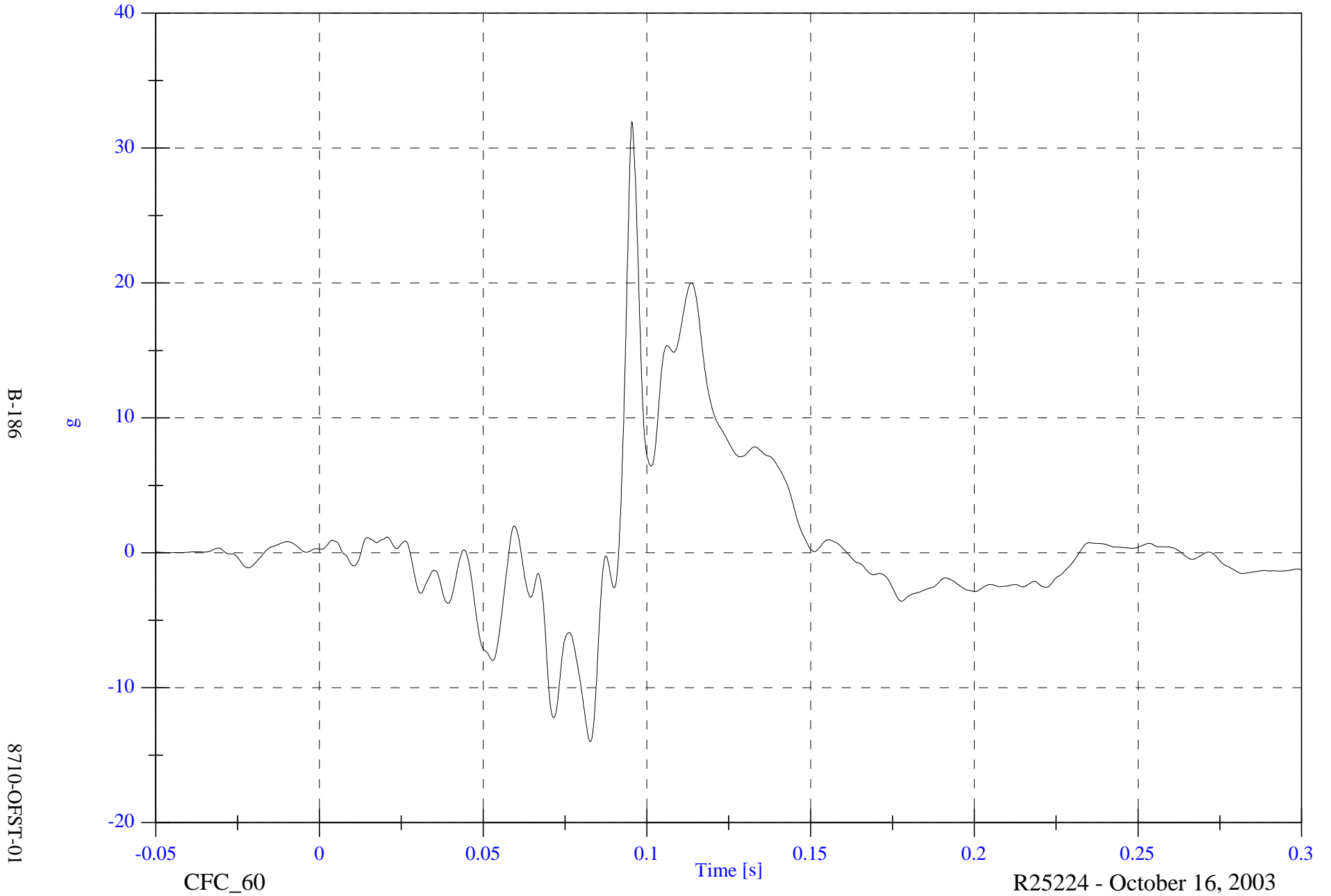
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1 P1 Left Toepan z

Max: 32.0 [g] at 0.095 [s]

Min: -14.0 [g] at 0.083 [s]

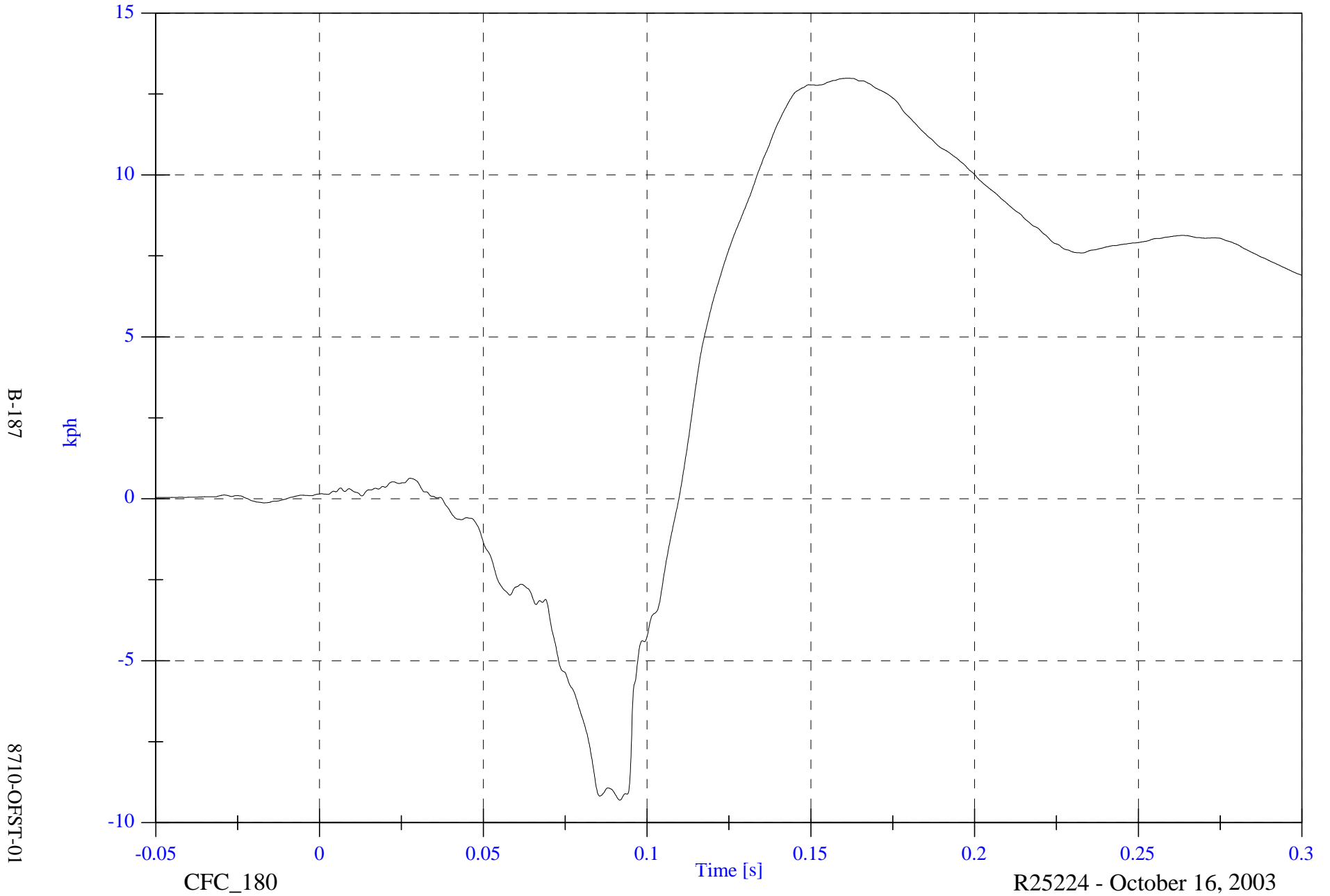


2004 Offset Barrier Test 1 2002 Nissan Altima

V1 P1 Left Toepan z Velocity

Max: 13.0 [kph] at 0.161 [s]

Min: -9.3 [kph] at 0.092 [s]



B-187

8710-OFST-01

CFC_180

Time [s]

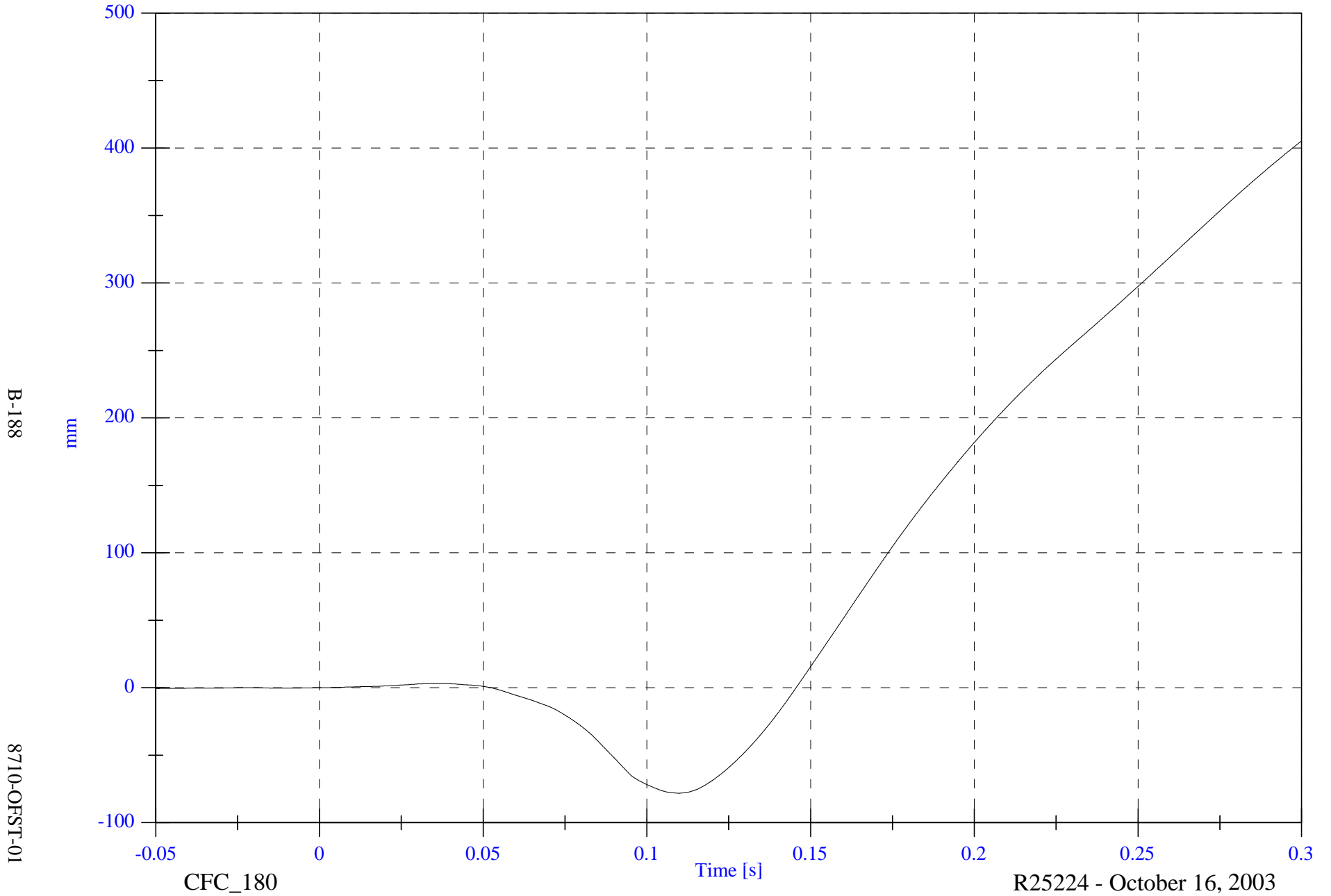
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 405.1 [mm] at 0.300 [s]

V1 P1 Left Toepan z Displacement

Min: -78.1 [mm] at 0.110 [s]



B-188

mm

8710-OFST-01

-0.05

0

0.05

0.1

0.15

0.2

0.25

0.3

CFC_180

Time [s]

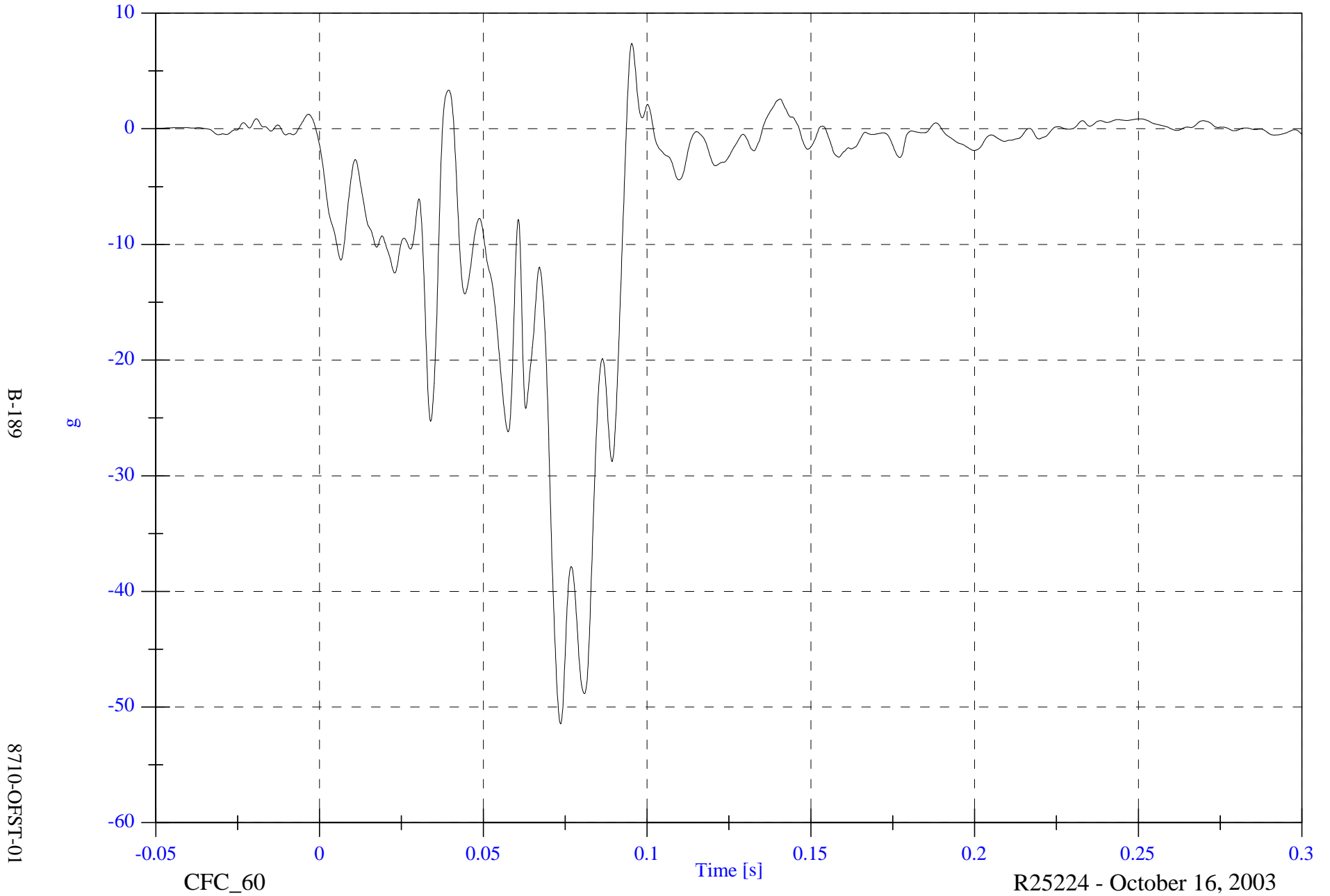
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 7.4 [g] at 0.095 [s]

V1 P1 Right Toepan x

Min: -51.5 [g] at 0.074 [s]



2004 Offset Barrier Test 1 2002 Nissan Altima

V1 P1 Right Toepan x Velocity

Max: 0.2 [kph] at -0.012 [s]

Min: -59.4 [kph] at 0.223 [s]



B-190

8710-OFST-01

CFC_180

Time [s]

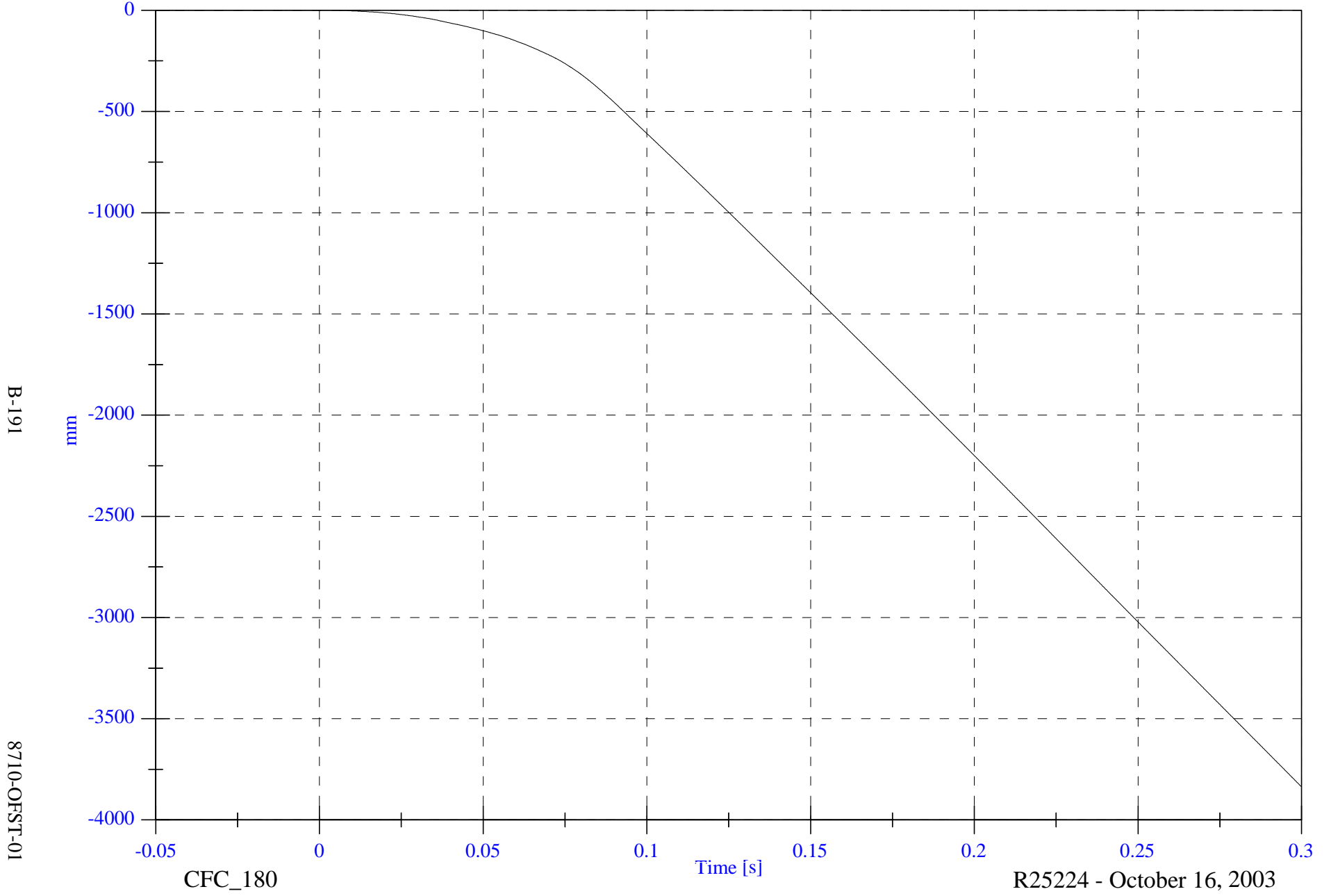
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1 P1 Right Toepan x Displacement

Max: 0.0 [mm] at 0.002 [s]

Min: -3835.8 [mm] at 0.300 [s]



B-191

8710-OFST-01

CFC_180

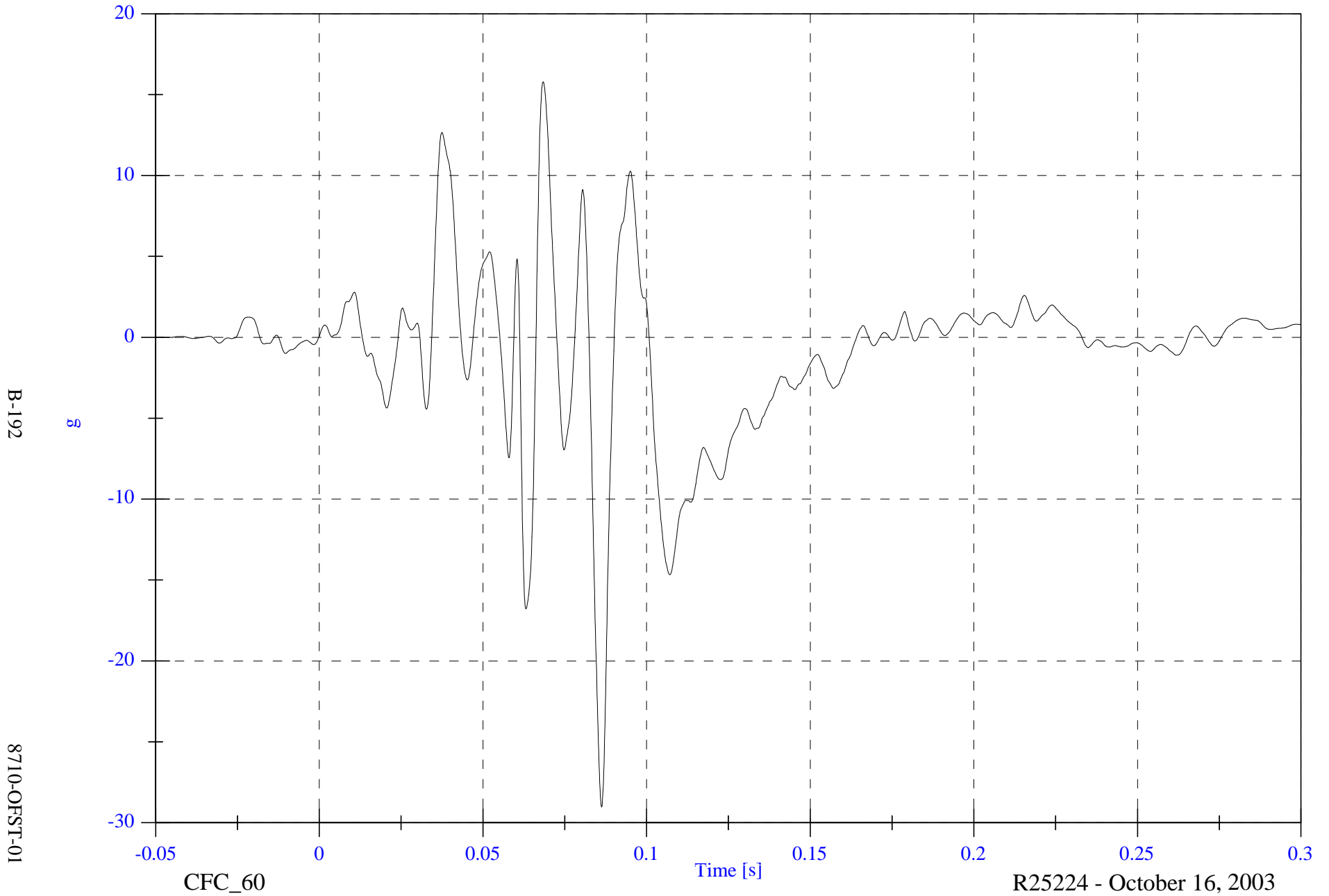
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1 P1 Right Toepan z

Max: 15.8 [g] at 0.068 [s]

Min: -29.0 [g] at 0.086 [s]

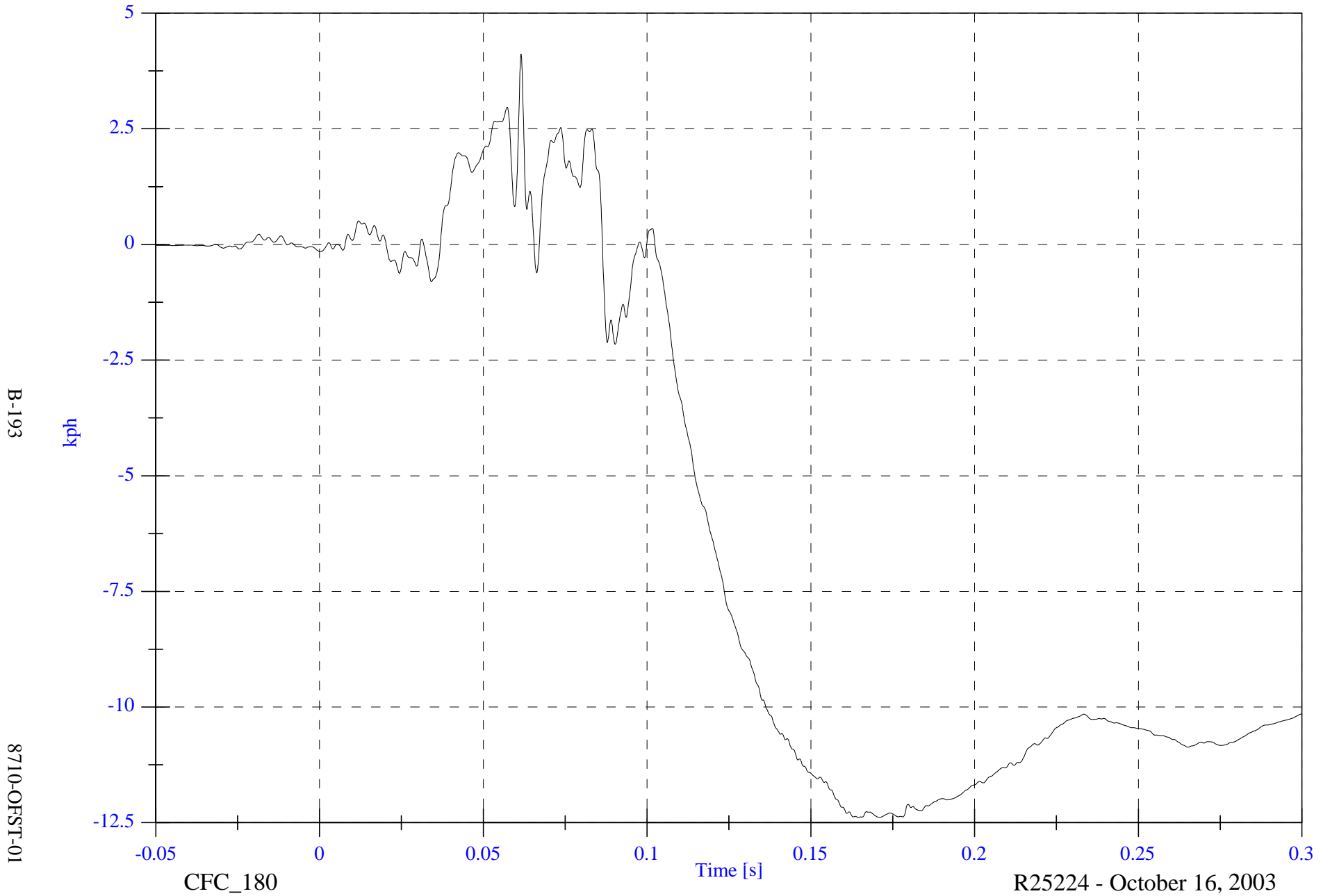


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 4.1 [kph] at 0.062 [s]

V1 P1 Right Toepan z Velocity

Min: -12.4 [kph] at 0.165 [s]



B-193

8710-OFST-01

CFC_180

Time [s]

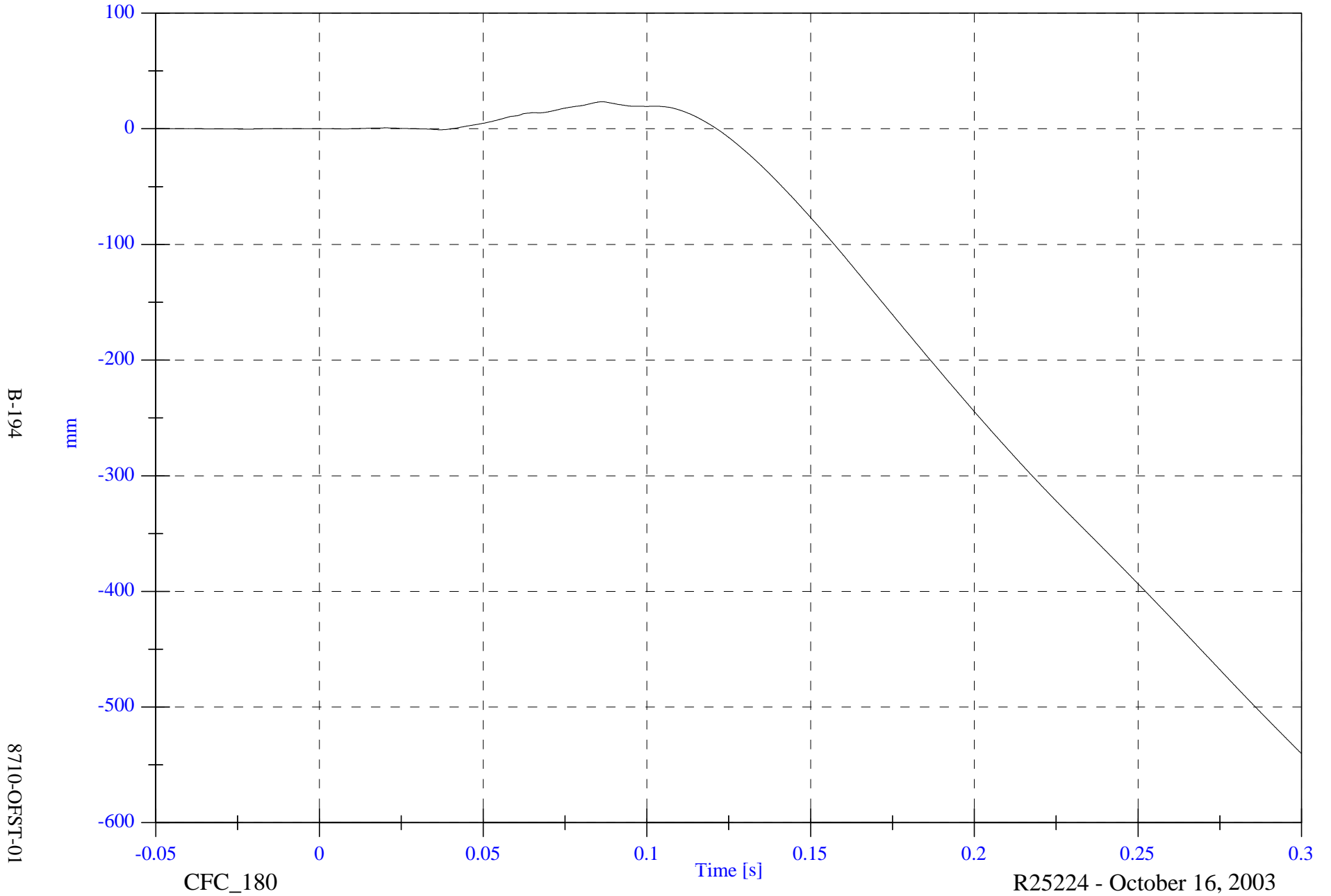
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1 P1 Right Toepan z Displacement

Max: 23.4 [mm] at 0.086 [s]

Min: -540.2 [mm] at 0.300 [s]



B-194

8710-OFST-01

CFC_180

Time [s]

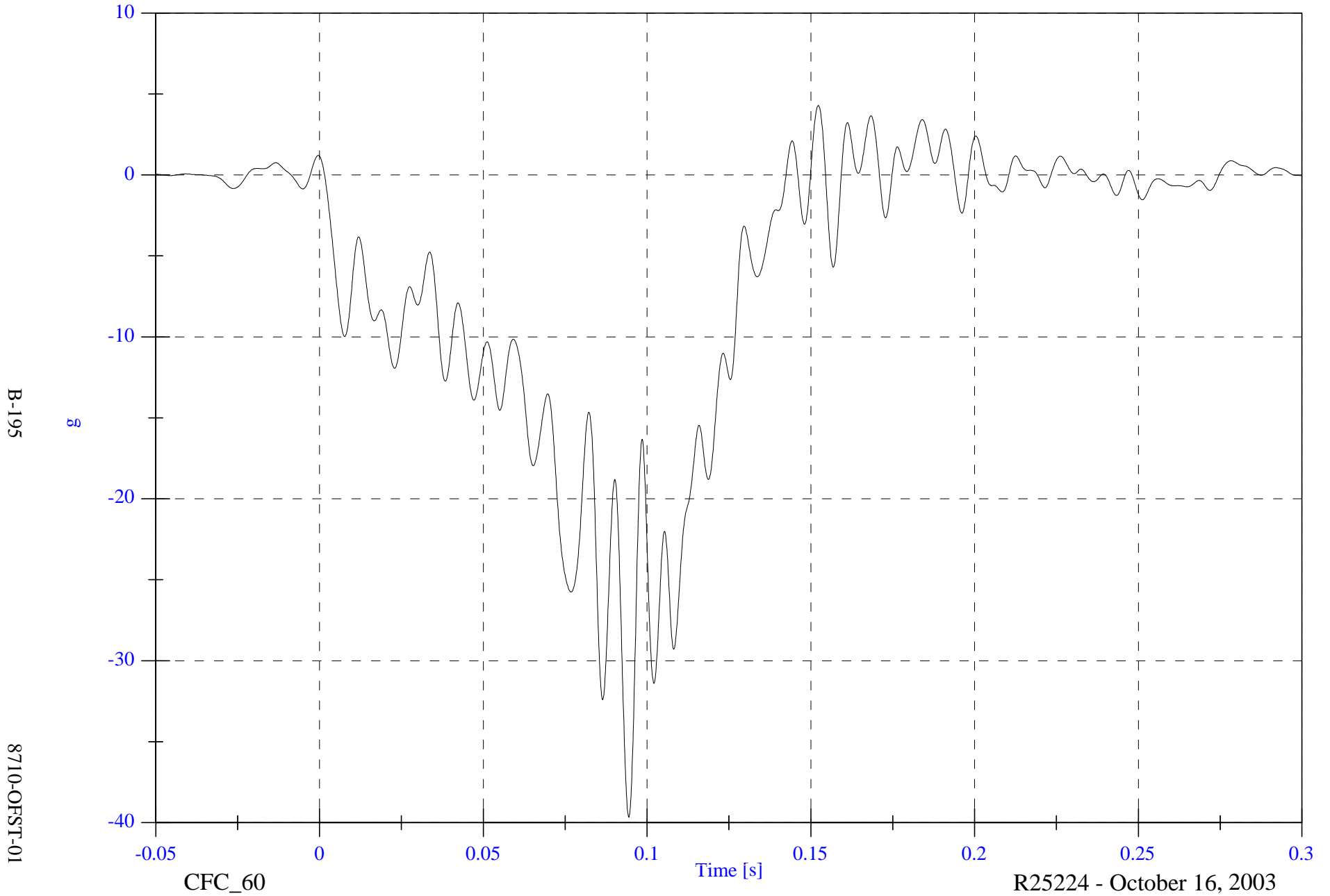
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1 CG x

Max: 4.3 [g] at 0.152 [s]

Min: -39.7 [g] at 0.094 [s]

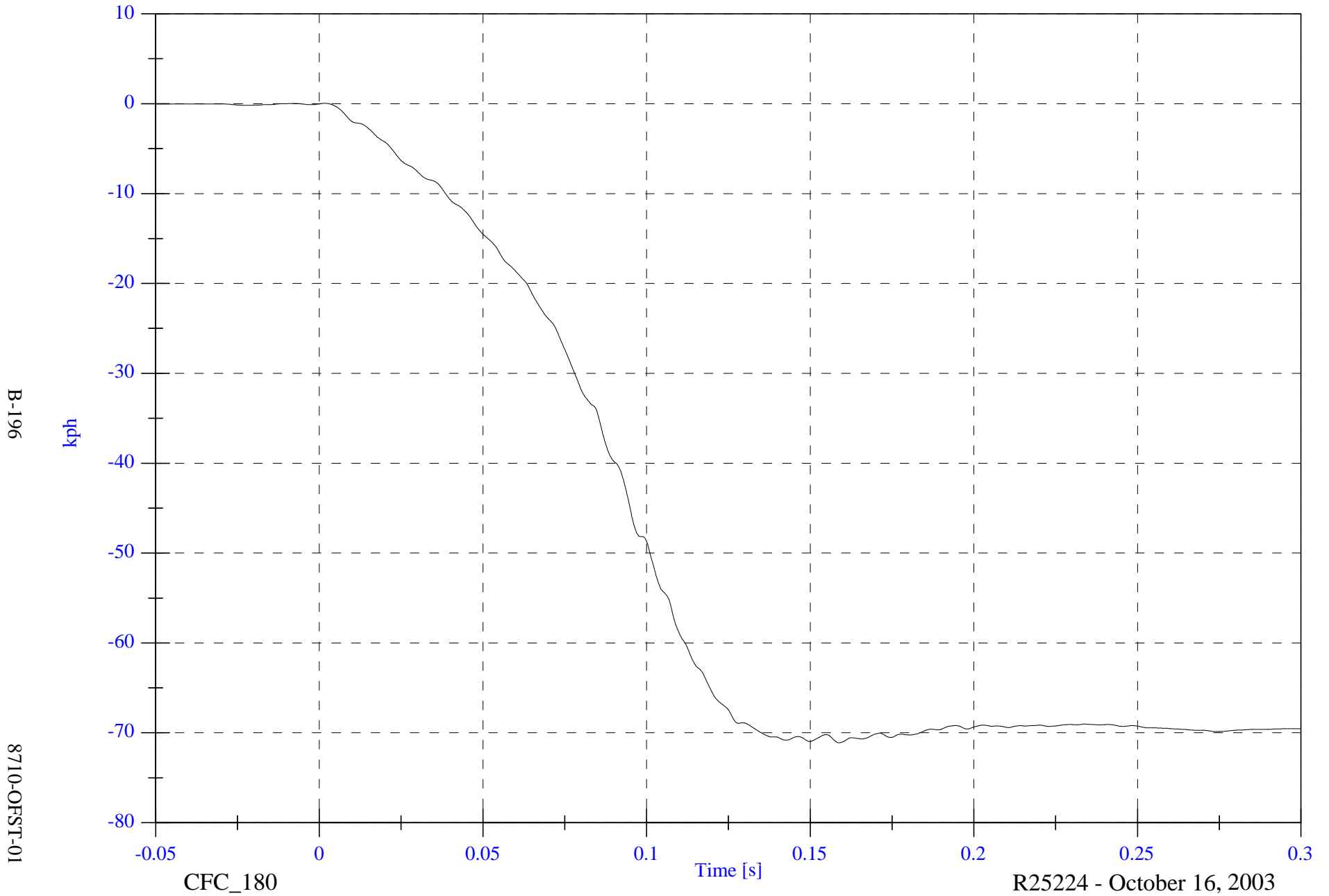


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 0.0 [kph] at 0.002 [s]

Min: -71.1 [kph] at 0.159 [s]

V1 CG x Velocity



B-196

8710-OFST-01

CFC_180

Time [s]

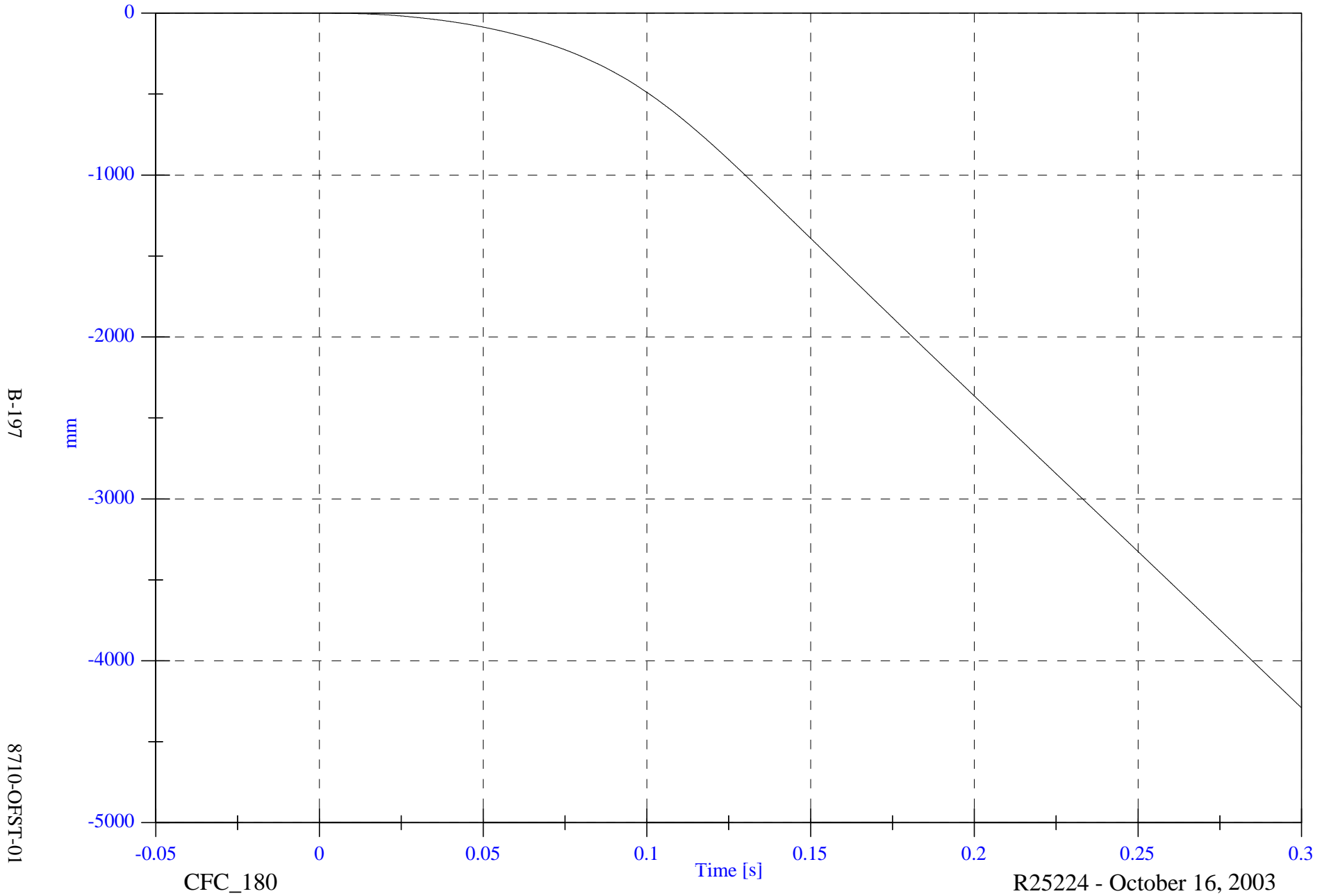
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 0.8 [mm] at -0.050 [s]

V1 CG x Displacement

Min: -4289.6 [mm] at 0.300 [s]



B-197

8710-OFST-01

CFC_180

Time [s]

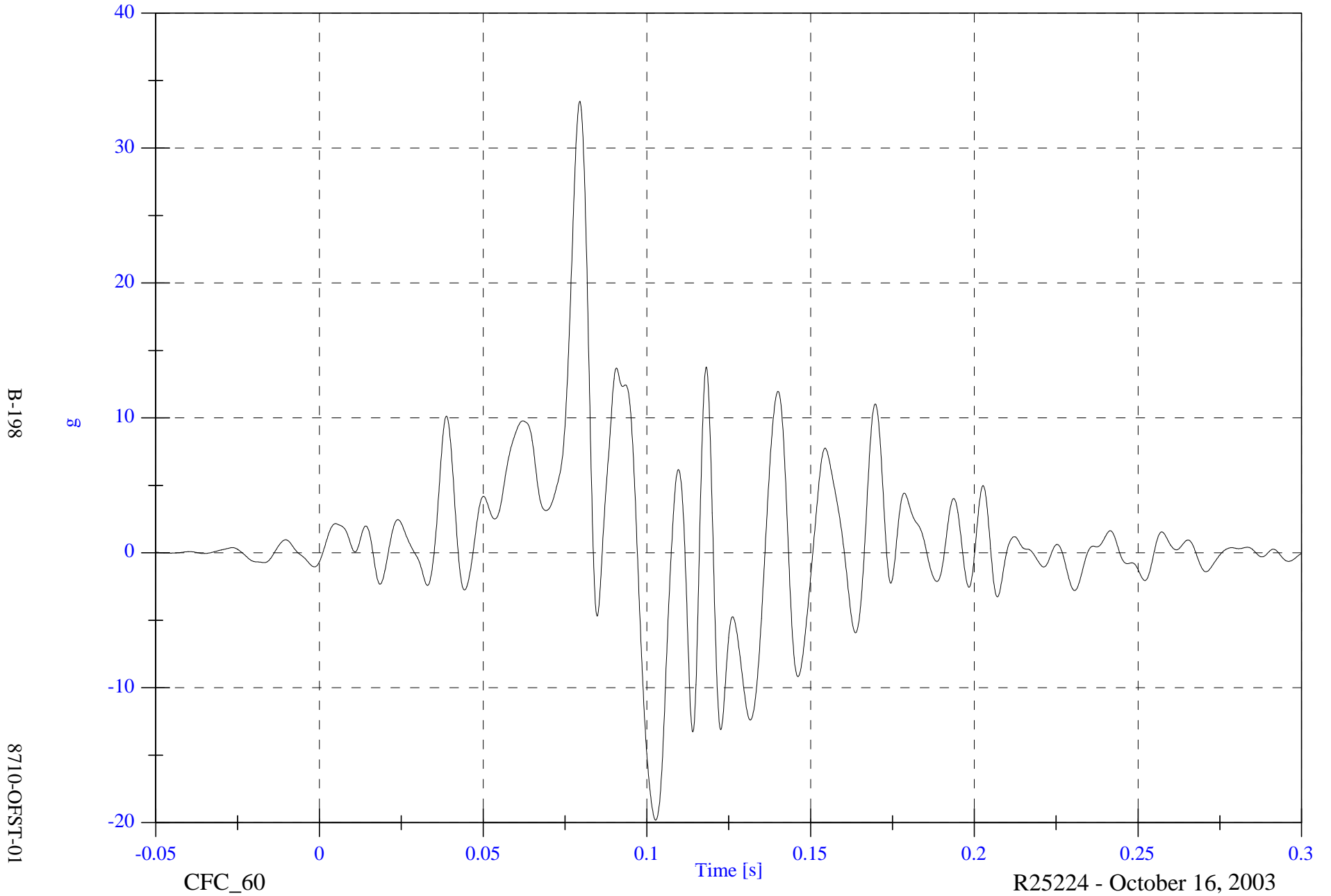
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 33.5 [g] at 0.079 [s]

Min: -19.8 [g] at 0.103 [s]

V1 CG y



2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 17.0 [kph] at 0.097 [s]

V1 CG y Velocity

Min: -0.1 [kph] at 0.001 [s]



B-199

8710-OFST-01

CFC_180

Time [s]

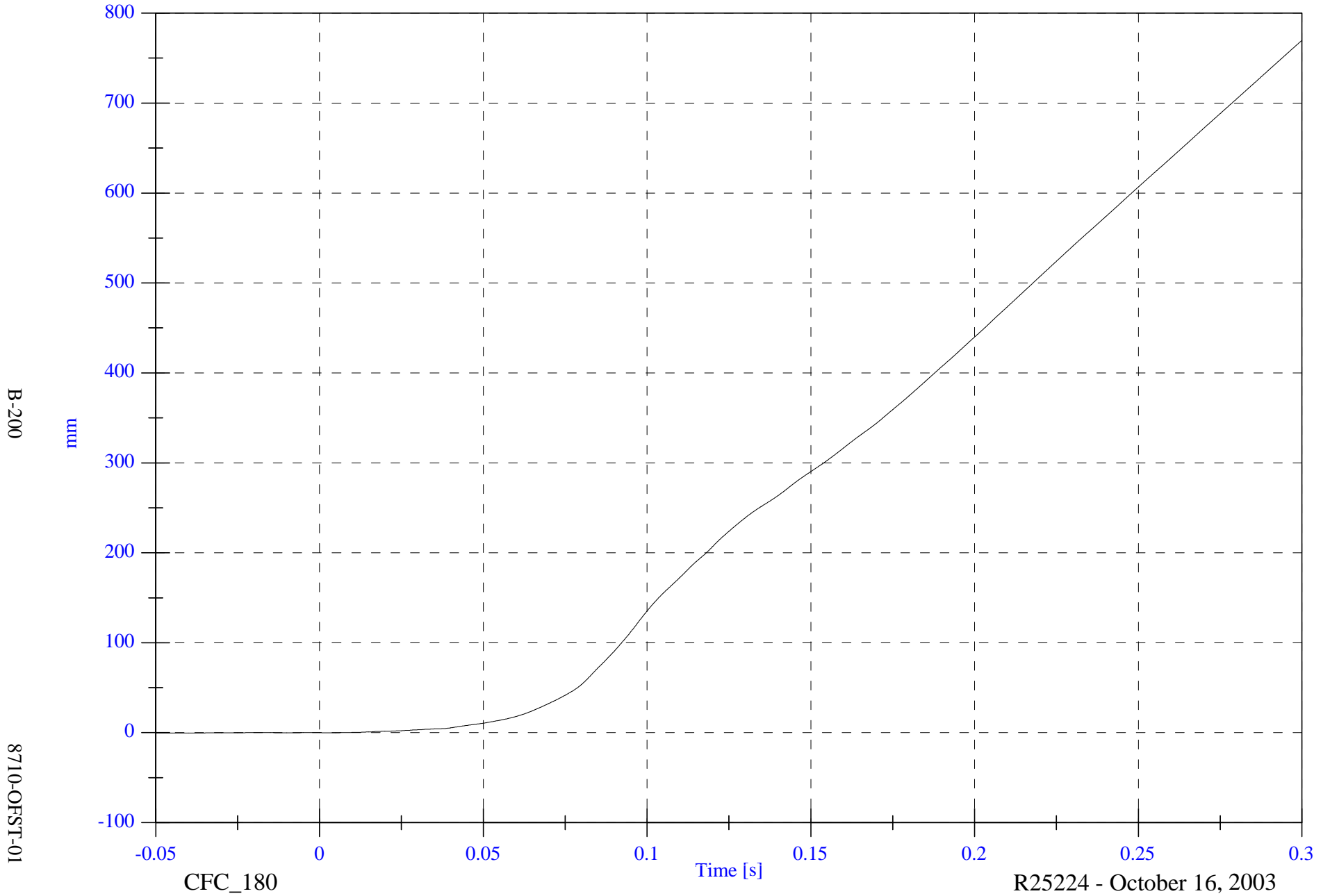
R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 769.6 [mm] at 0.300 [s]

V1 CG y Displacement

Min: -0.2 [mm] at -0.050 [s]



B-200

8710-OFST-01

CFC_180

Time [s]

R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

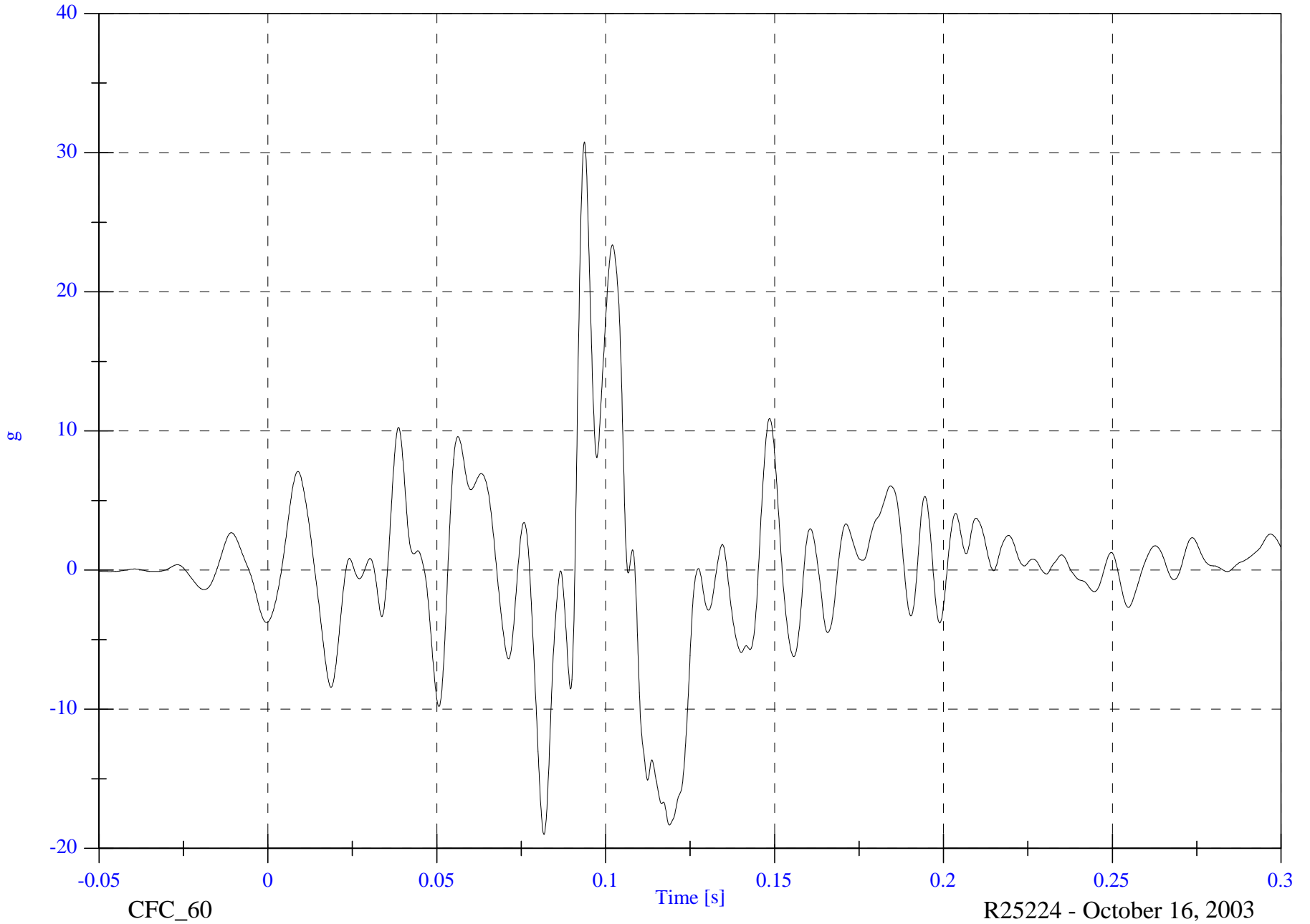
V1 CG z

Max: 30.8 [g] at 0.094 [s]

Min: -19.0 [g] at 0.082 [s]

B-201

8710-OFST-01

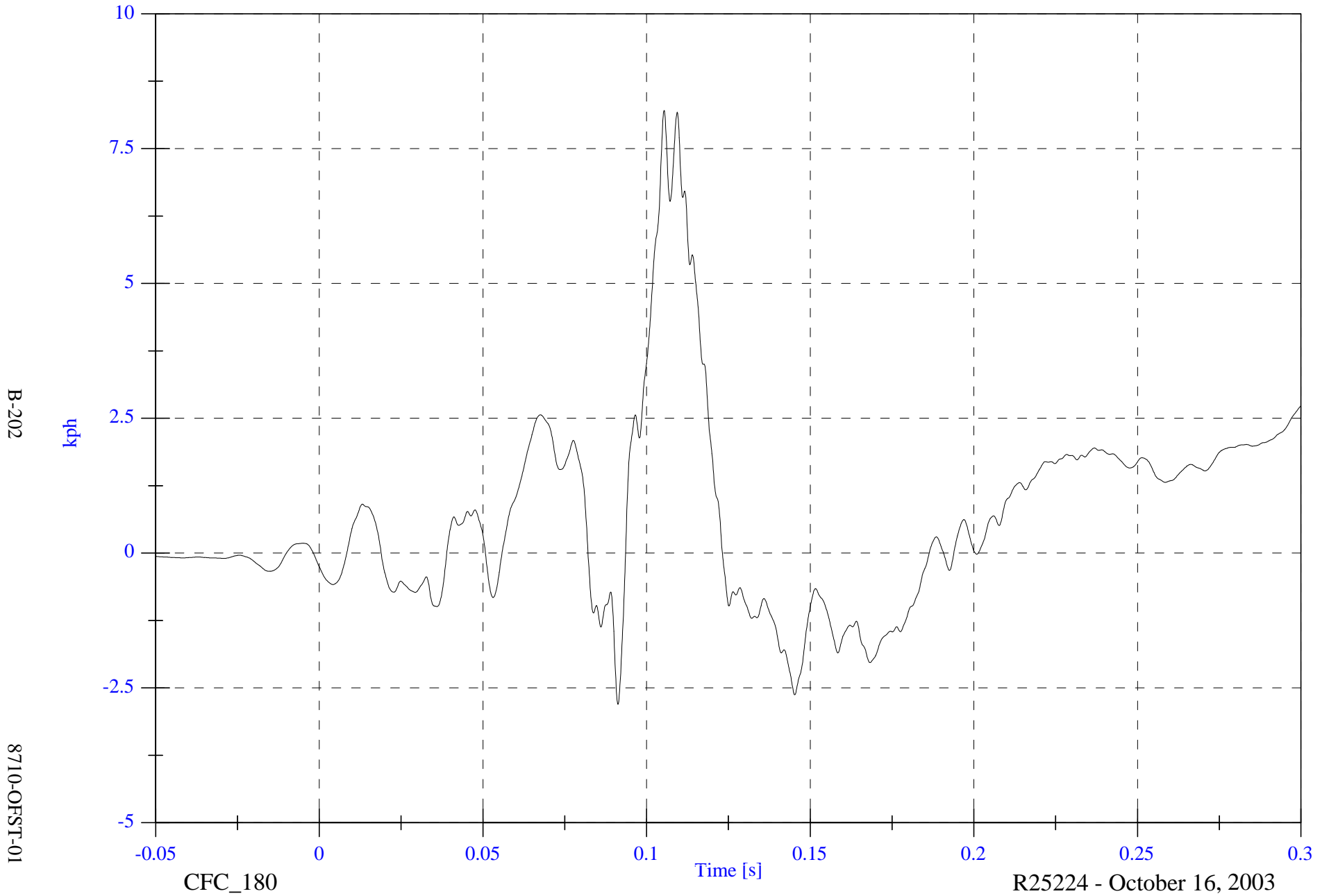


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 8.2 [kph] at 0.105 [s]

Min: -2.8 [kph] at 0.091 [s]

V1 CG z Velocity



B-202

8710-OFST-01

CFC_180

Time [s]

R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

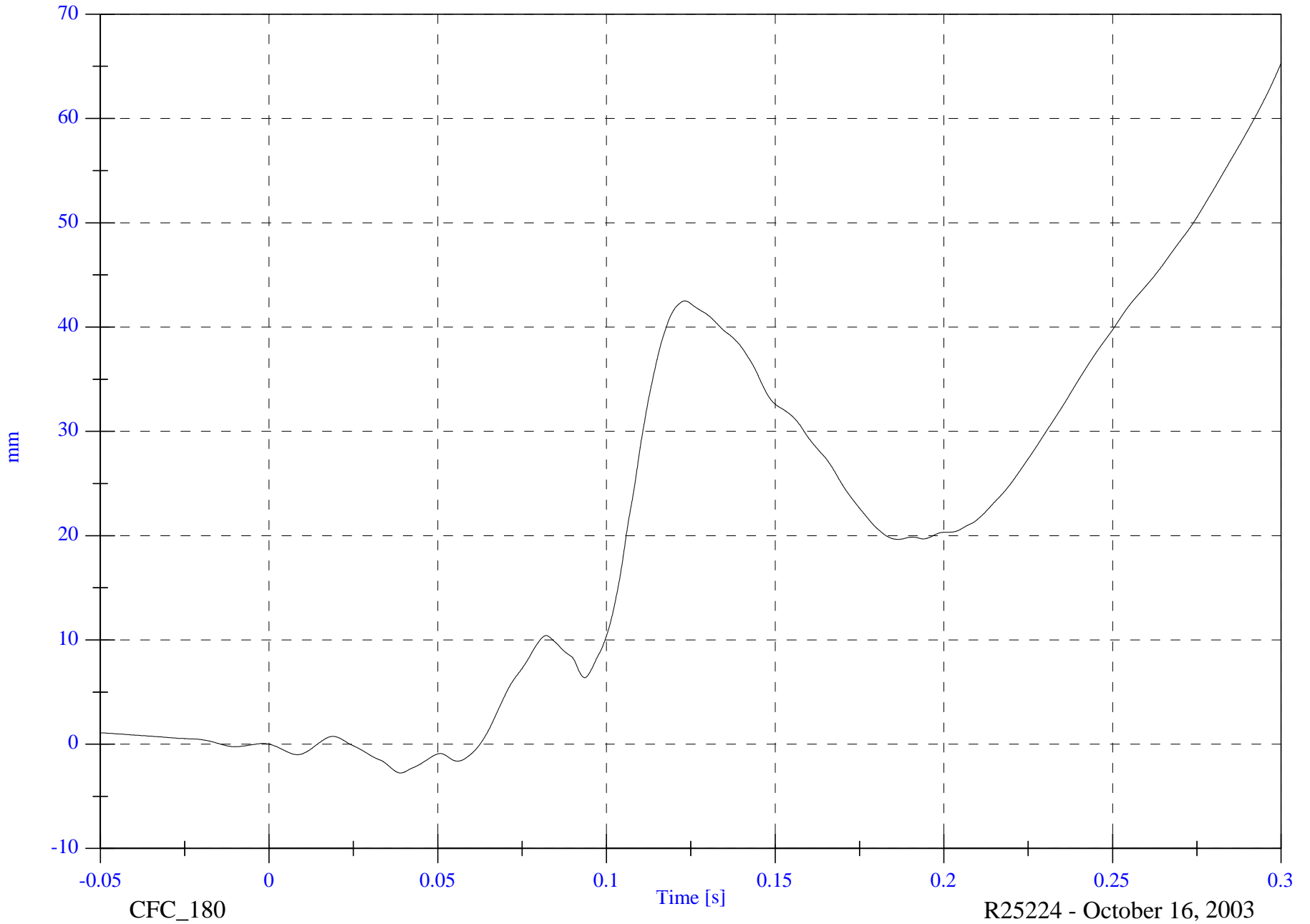
V1 CG z Displacement

Max: 65.3 [mm] at 0.300 [s]

Min: -2.8 [mm] at 0.039 [s]

B-203

8710-OFST-01



CFC_180

Time [s]

R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

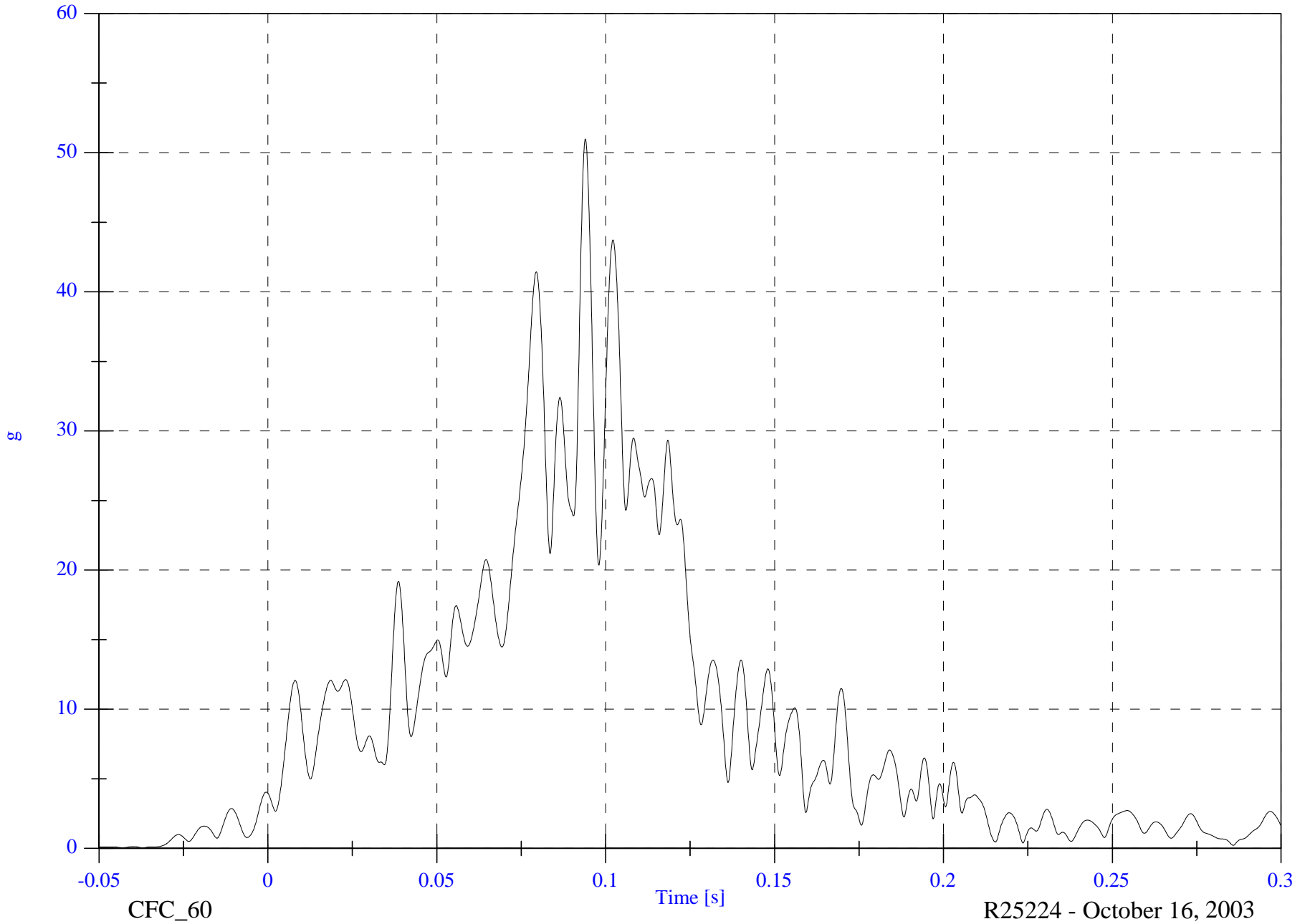
V1 CG Resultant

Max: 51.0 [g] at 0.094 [s]

Min: 0.0 [g] at -0.037 [s]

B-204

8710-OFST-01

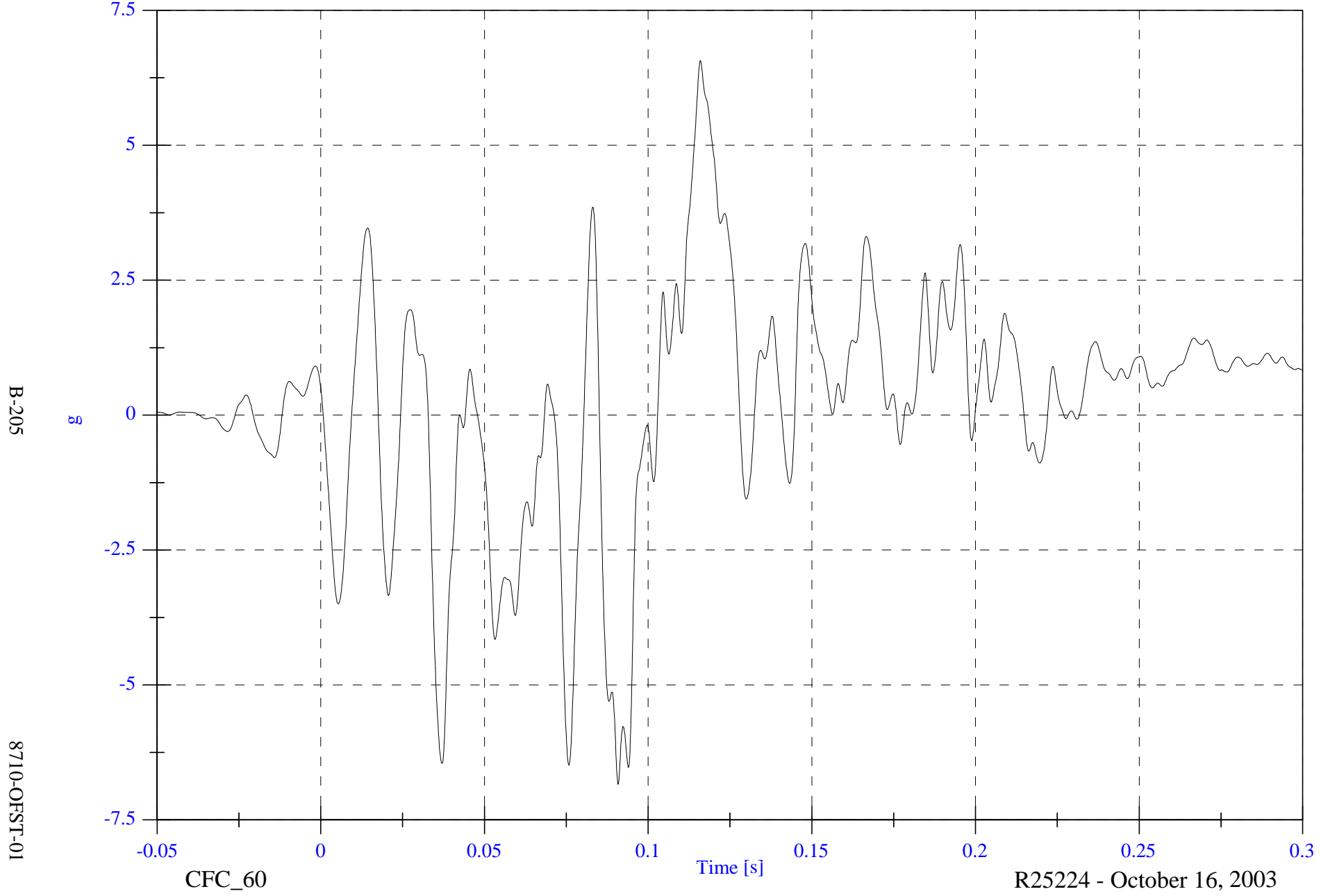


2004 Offset Barrier Test 1 2002 Nissan Altima

Max: 6.6 [g] at 0.116 [s]

V1 Rear Deck z

Min: -6.8 [g] at 0.091 [s]



B-205

8710-OFST-01

CFC_60

Time [s]

R25224 - October 16, 2003

2004 Offset Barrier Test 1 2002 Nissan Altima

V1 Rear Deck z Velocity

Max: 2.9 [kph] at 0.300 [s]

Min: -5.6 [kph] at 0.103 [s]

B-206

8710-OFST-01



2004 Offset Barrier Test 1 2002 Nissan Altima

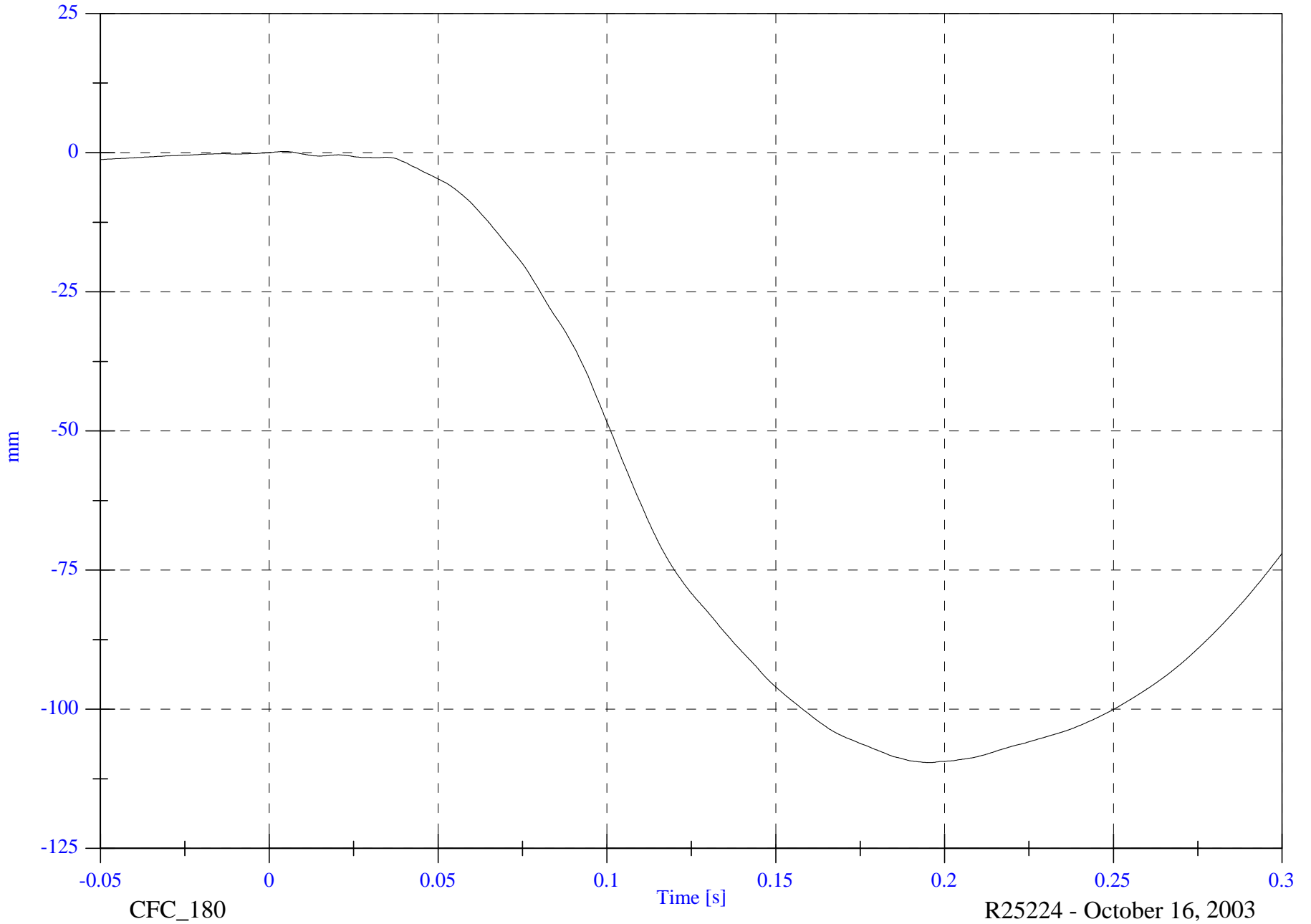
Max: 0.2 [mm] at 0.005 [s]

V1 Rear Deck z Displacement

Min: -109.6 [mm] at 0.195 [s]

B-207

8710-OFST-01



CFC_180

Time [s]

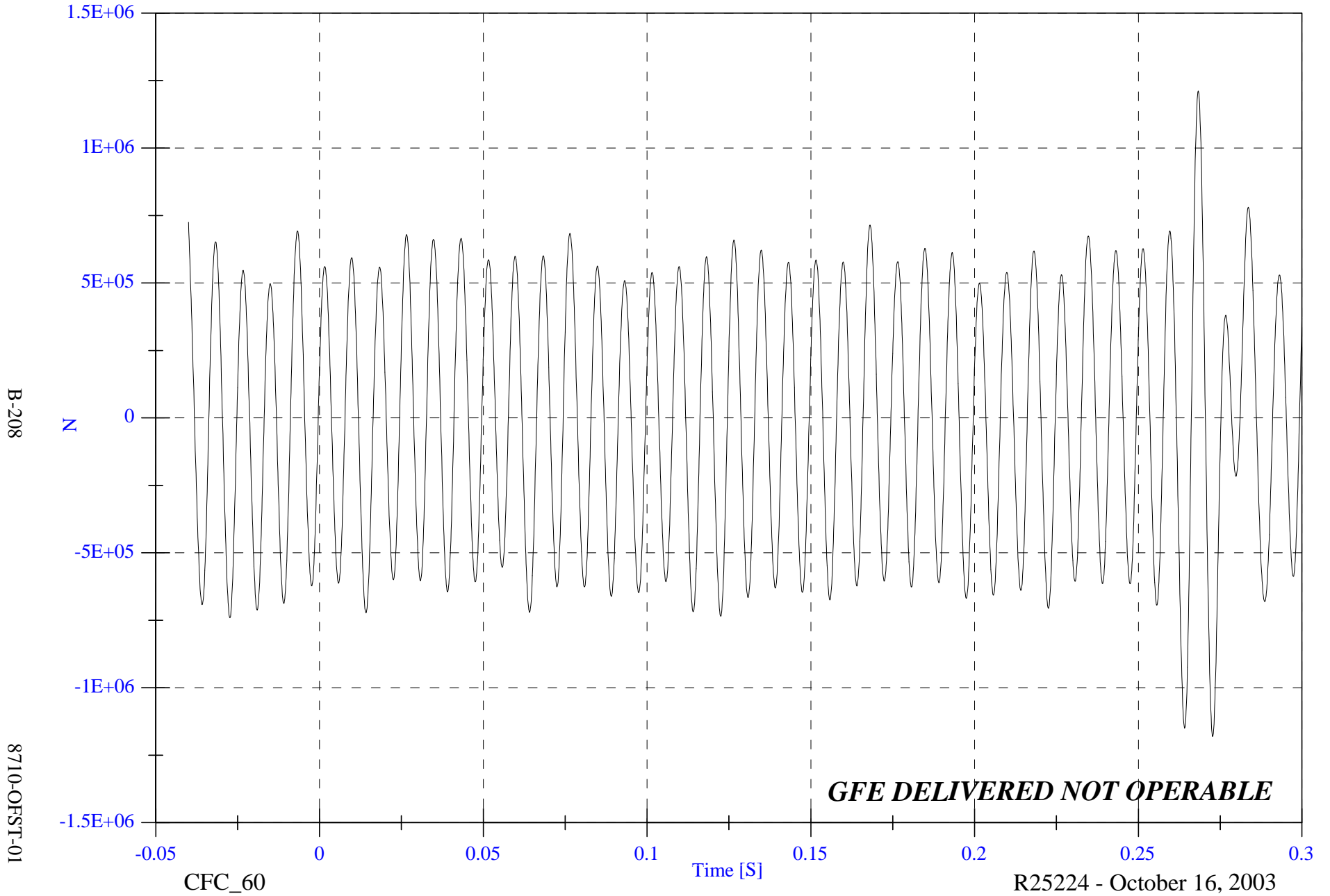
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell H1 FX

Max: 1211450.7 [N] at 0.268 [S]

Min: -1180925.1 [N] at 0.273 [S]

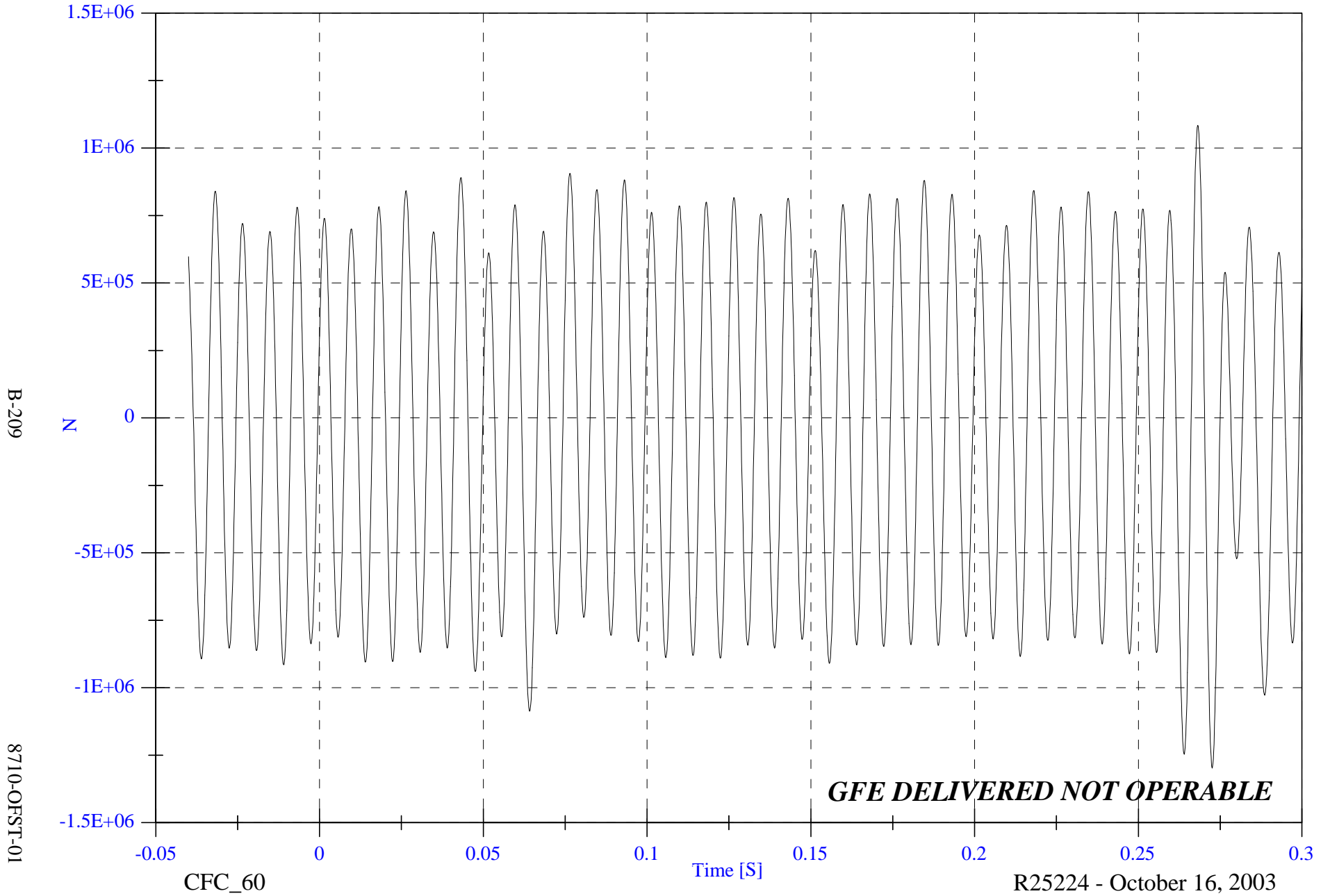


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell H2 FX

Max: 1084172.6 [N] at 0.268 [S]

Min: -1297651.5 [N] at 0.273 [S]



B-209

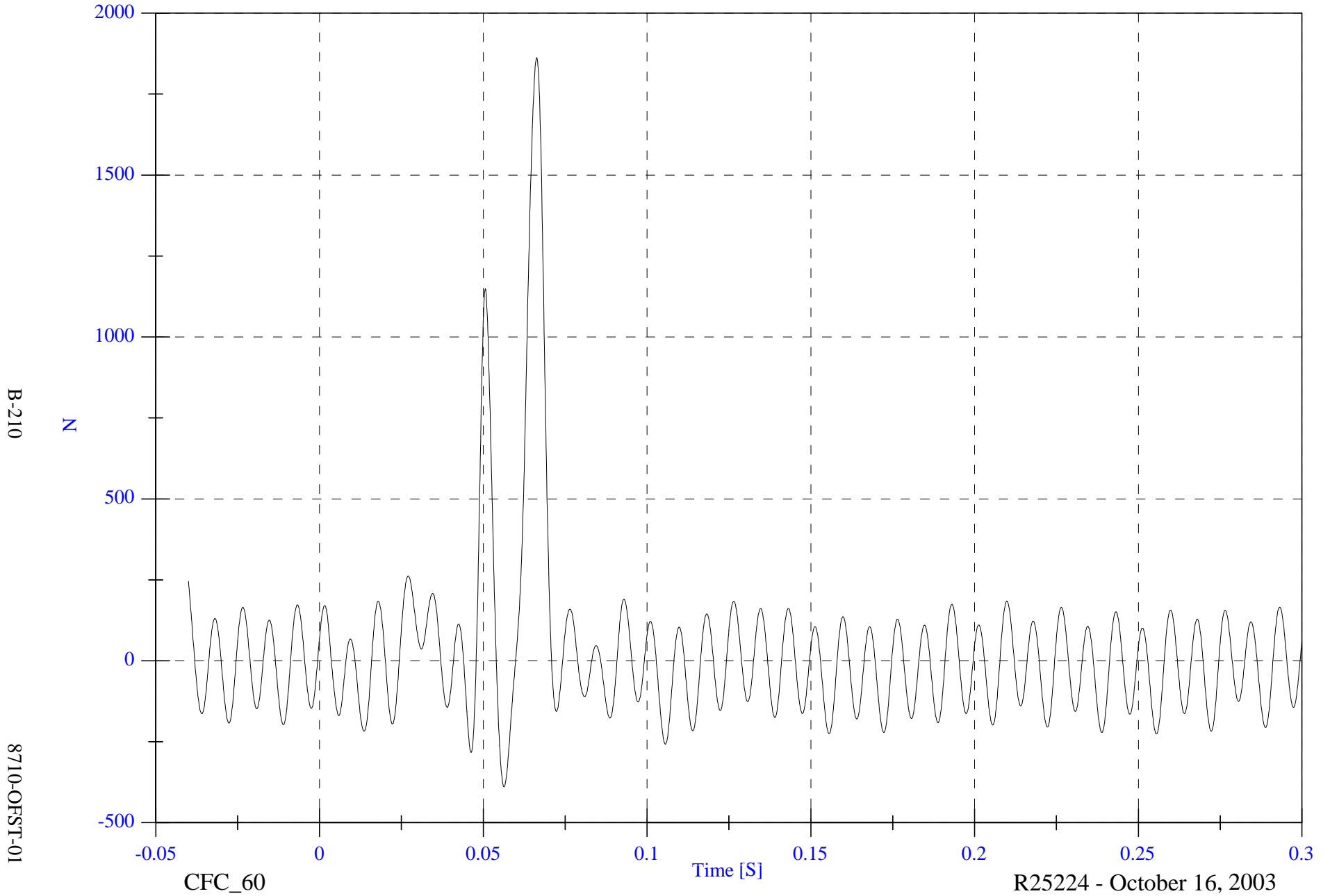
8710-OFST-01

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell H3 FX

Max: 1862.8 [N] at 0.066 [S]

Min: -389.3 [N] at 0.056 [S]

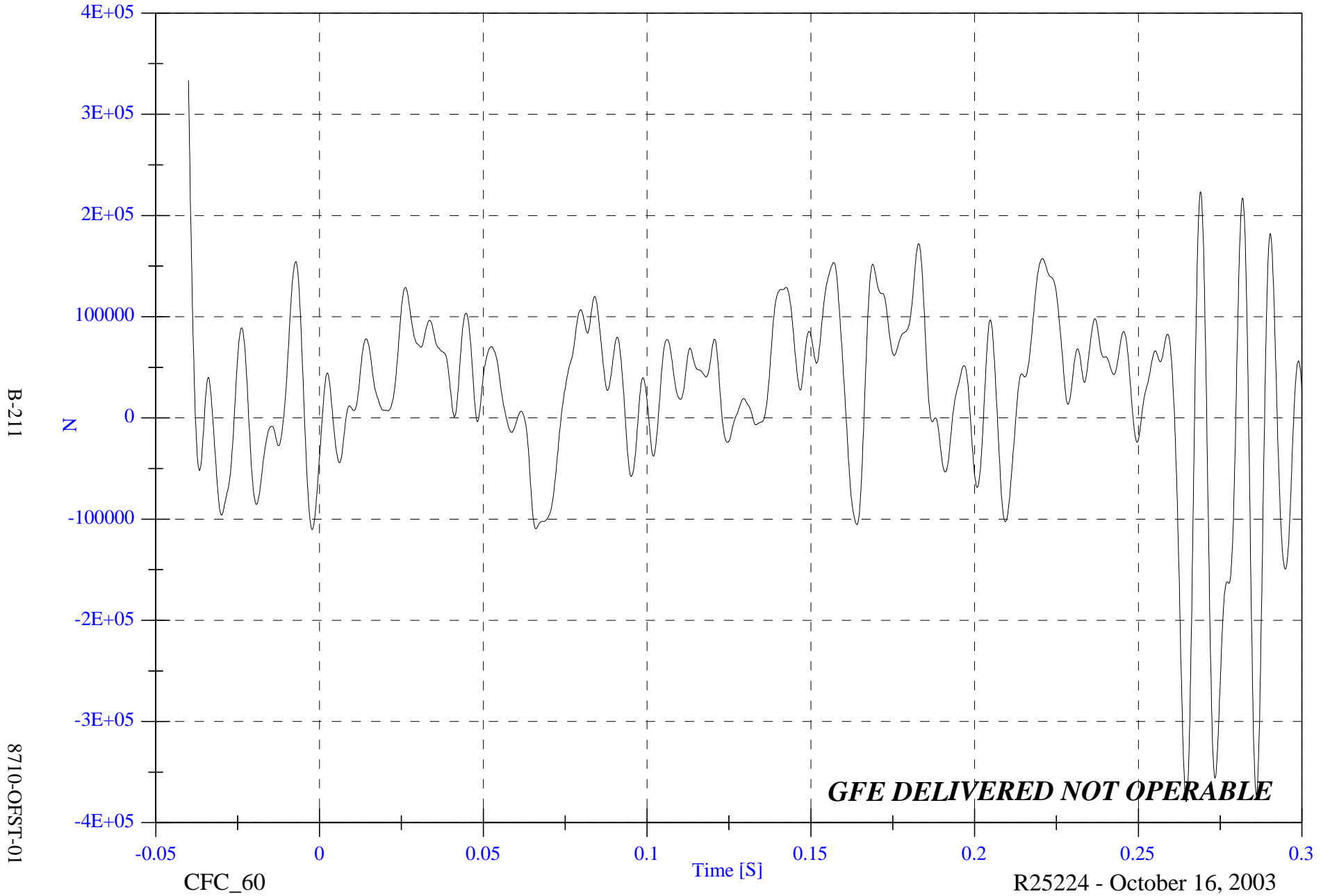


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Max: 333462.1 [N] at -0.040 [S]

Barrier Load Cell H4 FX

Min: -379227.6 [N] at 0.265 [S]



B-211

8710-OFST-01

CFC_60

Time [S]

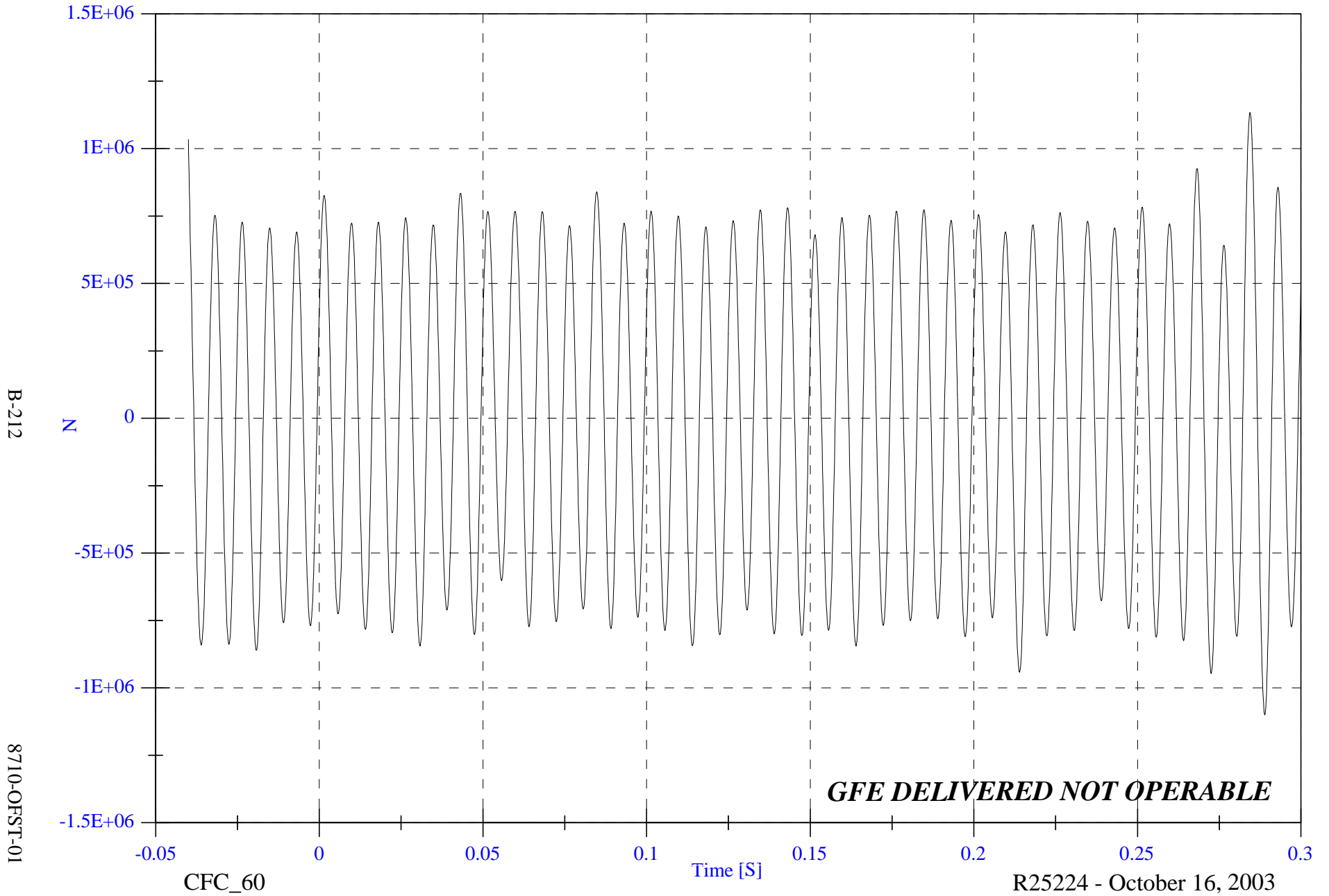
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell G1 FX

Max: 1134016.7 [N] at 0.284 [S]

Min: -1099916.8 [N] at 0.289 [S]

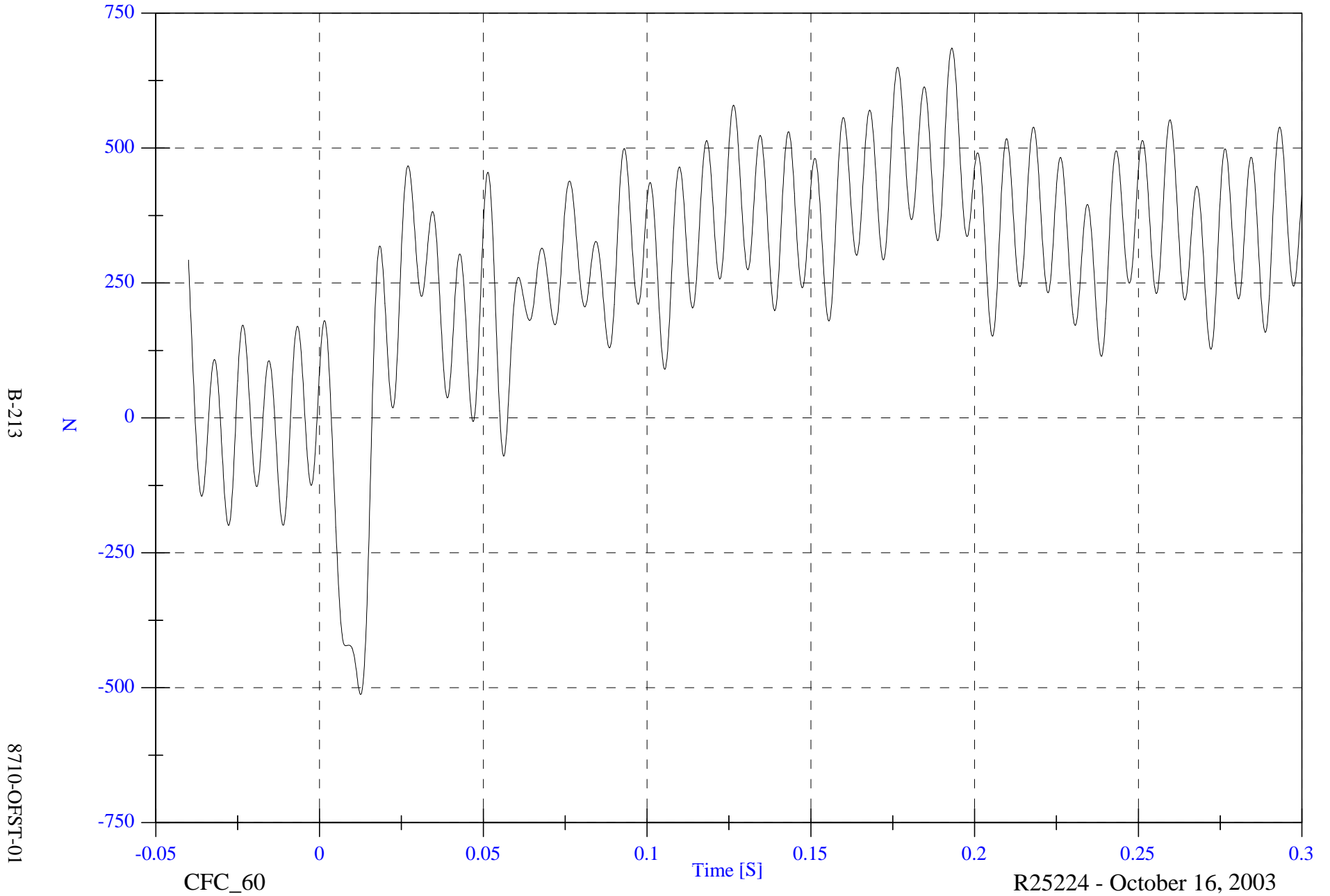


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Max: 685.1 [N] at 0.193 [S]

Barrier Load Cell G2 FX

Min: -512.4 [N] at 0.013 [S]



B-213

8710-OFFST-01

CFC_60

Time [S]

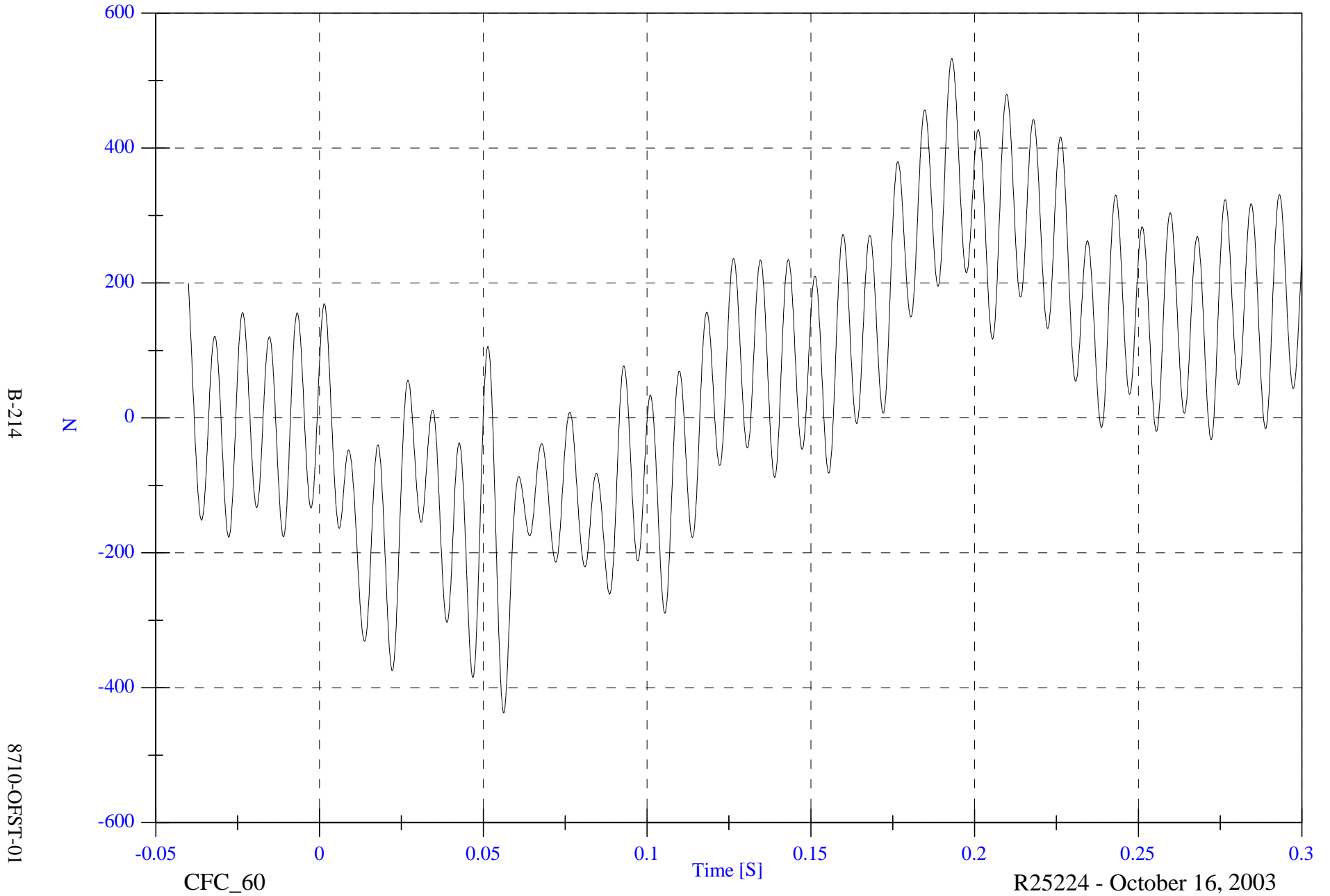
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell G3 FX

Max: 532.6 [N] at 0.193 [S]

Min: -437.4 [N] at 0.056 [S]



B-214

8710-OFST-01

CFC_60

Time [S]

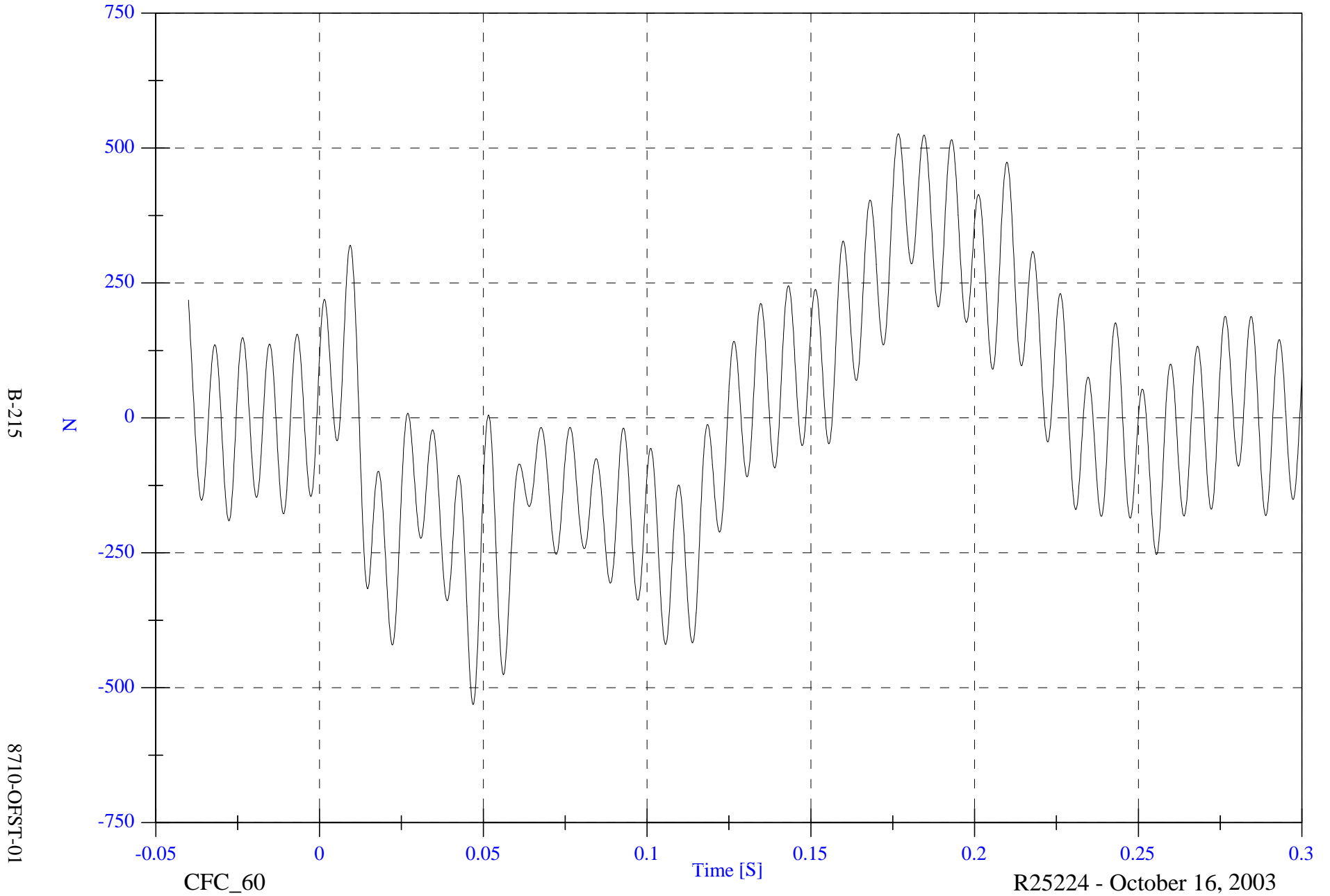
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell G4 FX

Max: 526.6 [N] at 0.177 [S]

Min: -531.0 [N] at 0.047 [S]

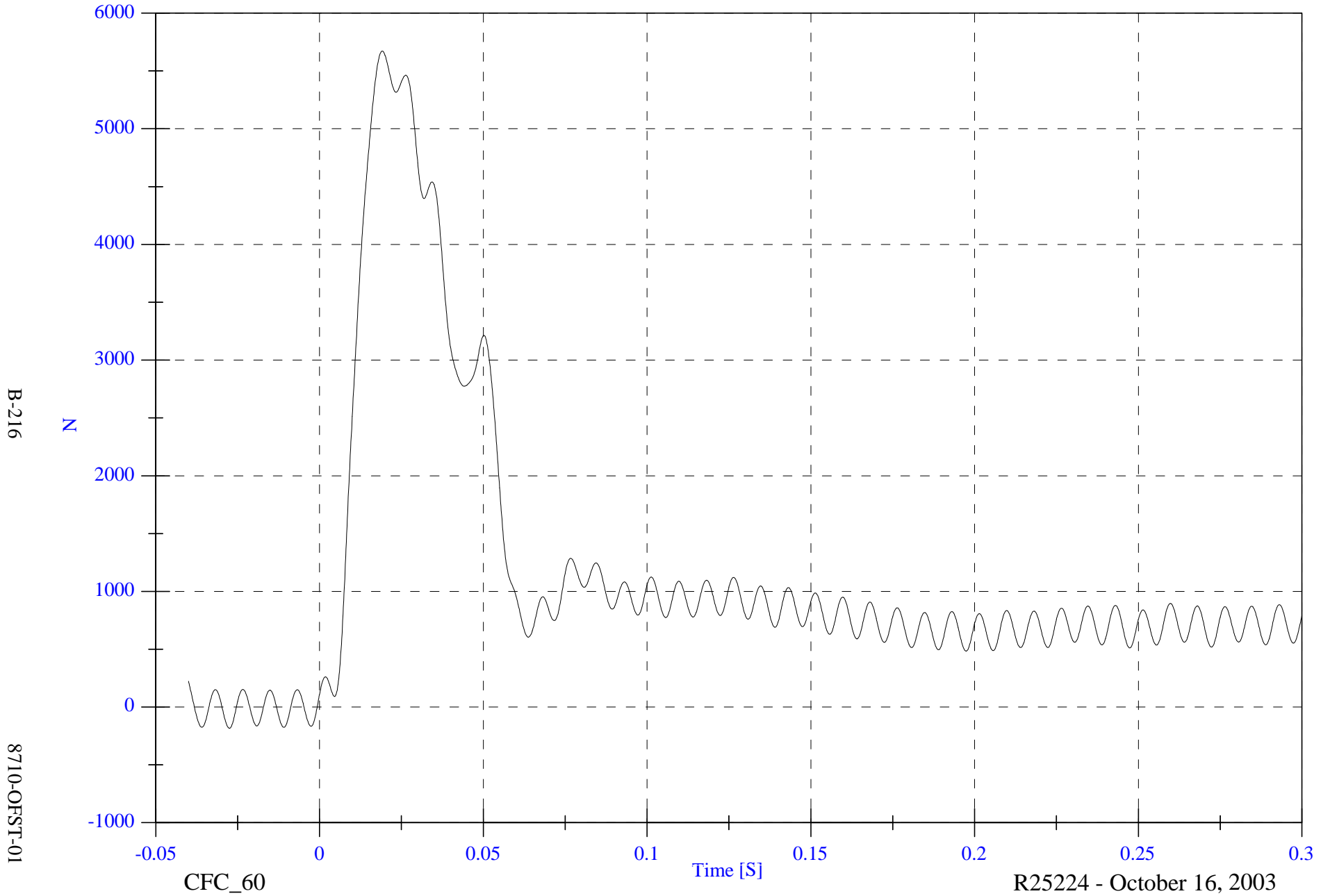


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell F1 FX

Max: 5672.1 [N] at 0.019 [S]

Min: -183.8 [N] at -0.028 [S]



B-216

8710-OFFST-01

CFC_60

Time [S]

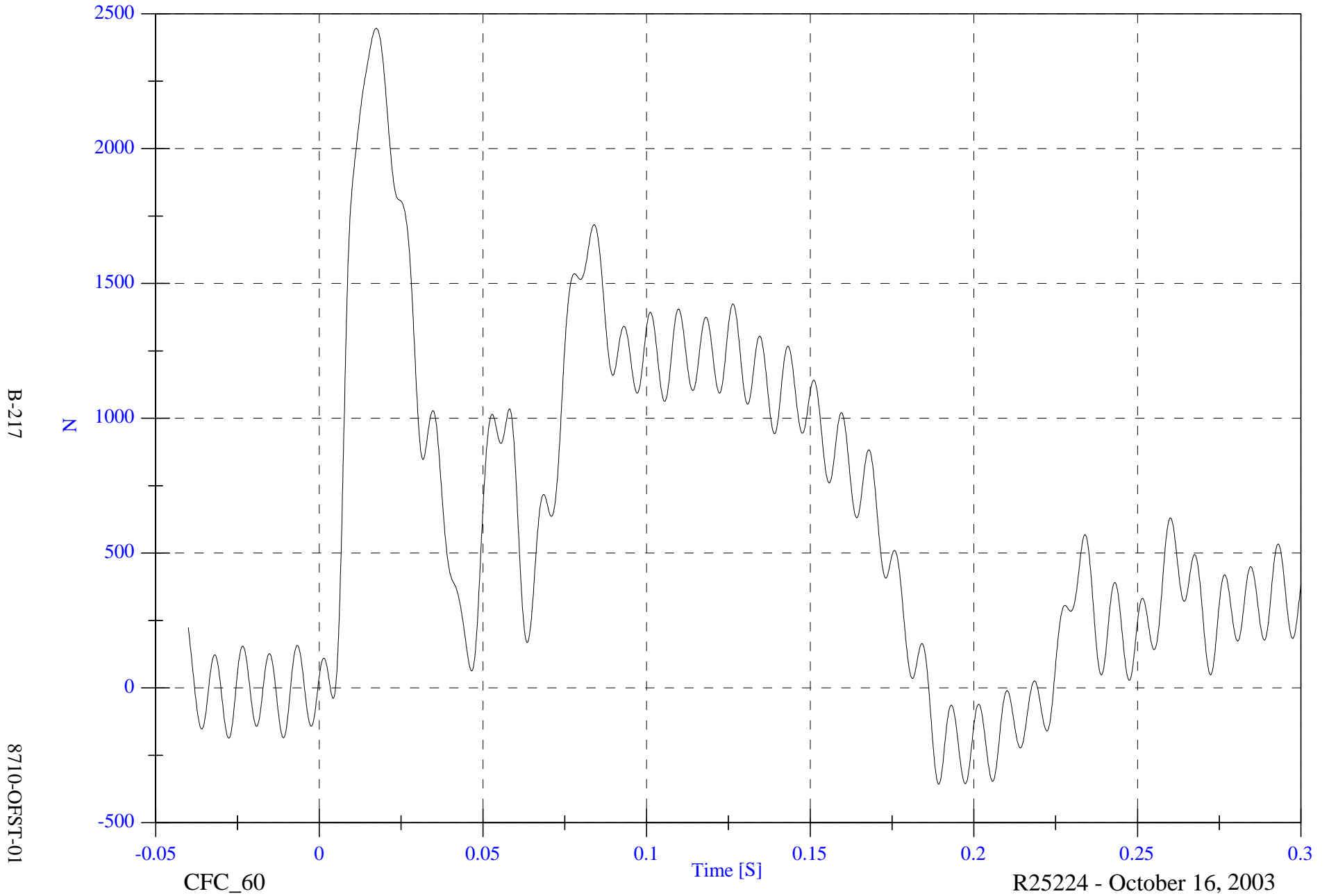
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell F2 FX

Max: 2446.1 [N] at 0.017 [S]

Min: -356.9 [N] at 0.189 [S]

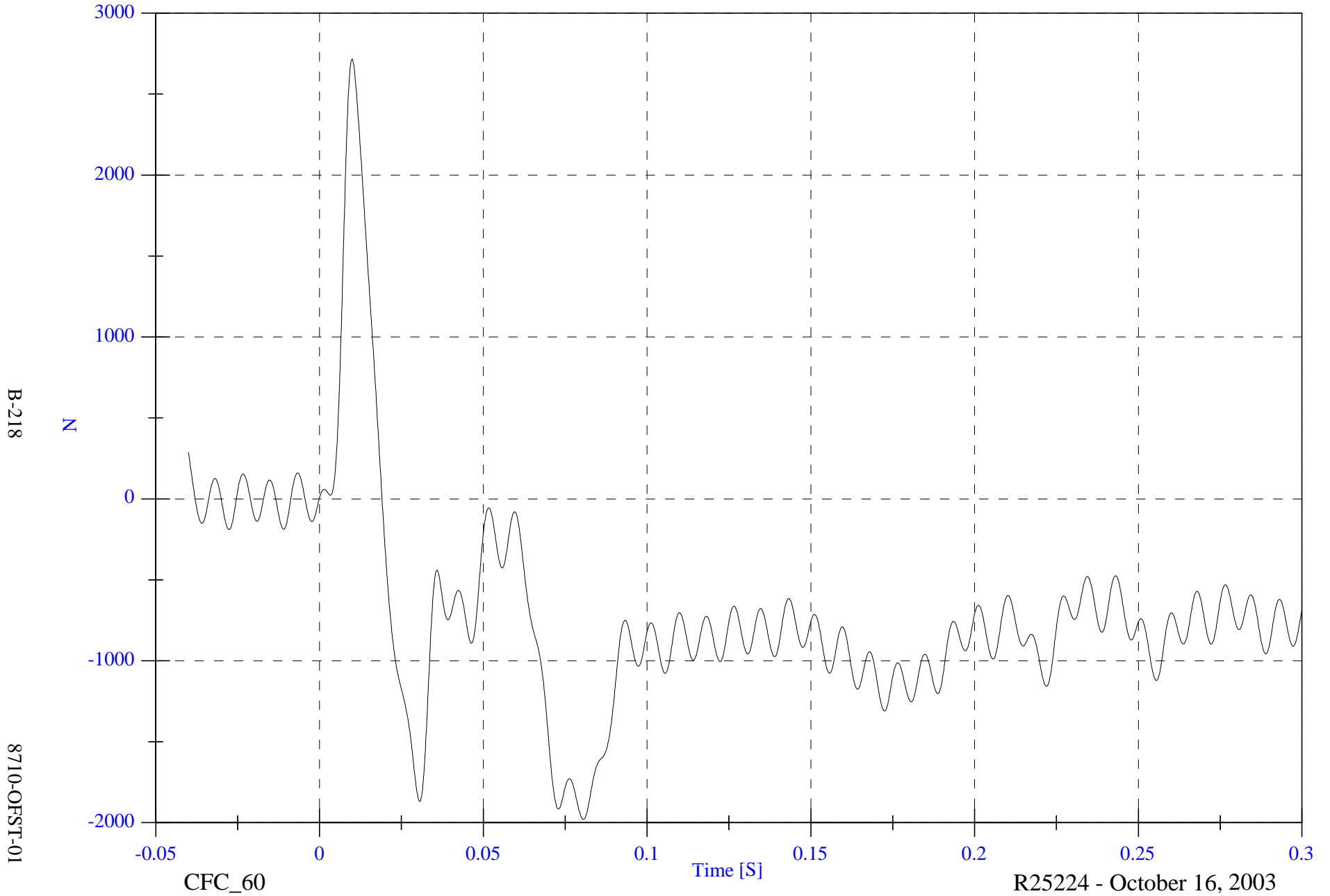


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell F3 FX

Max: 2716.5 [N] at 0.010 [S]

Min: -1979.6 [N] at 0.081 [S]

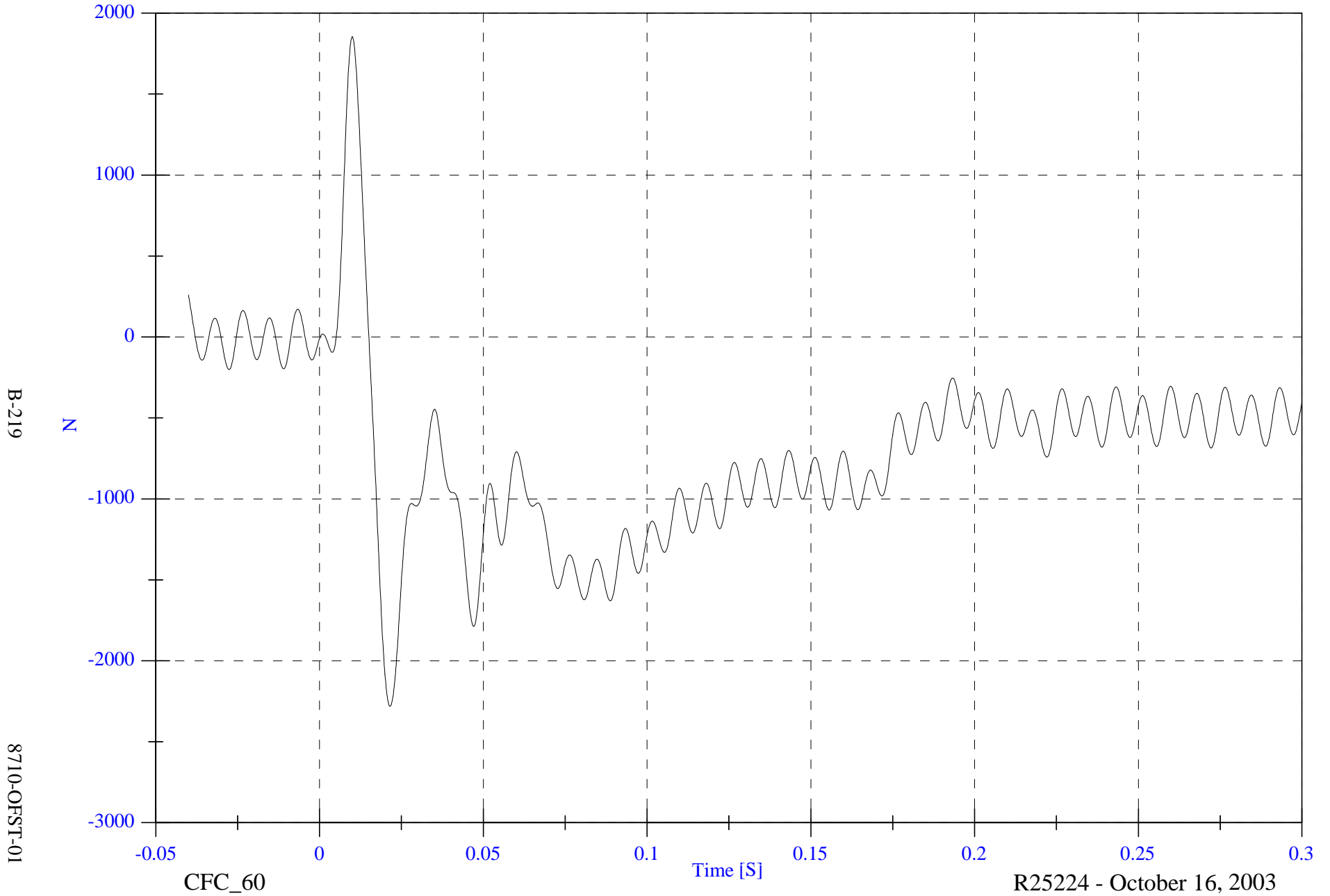


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell F4 FX

Max: 1854.4 [N] at 0.010 [S]

Min: -2280.8 [N] at 0.021 [S]

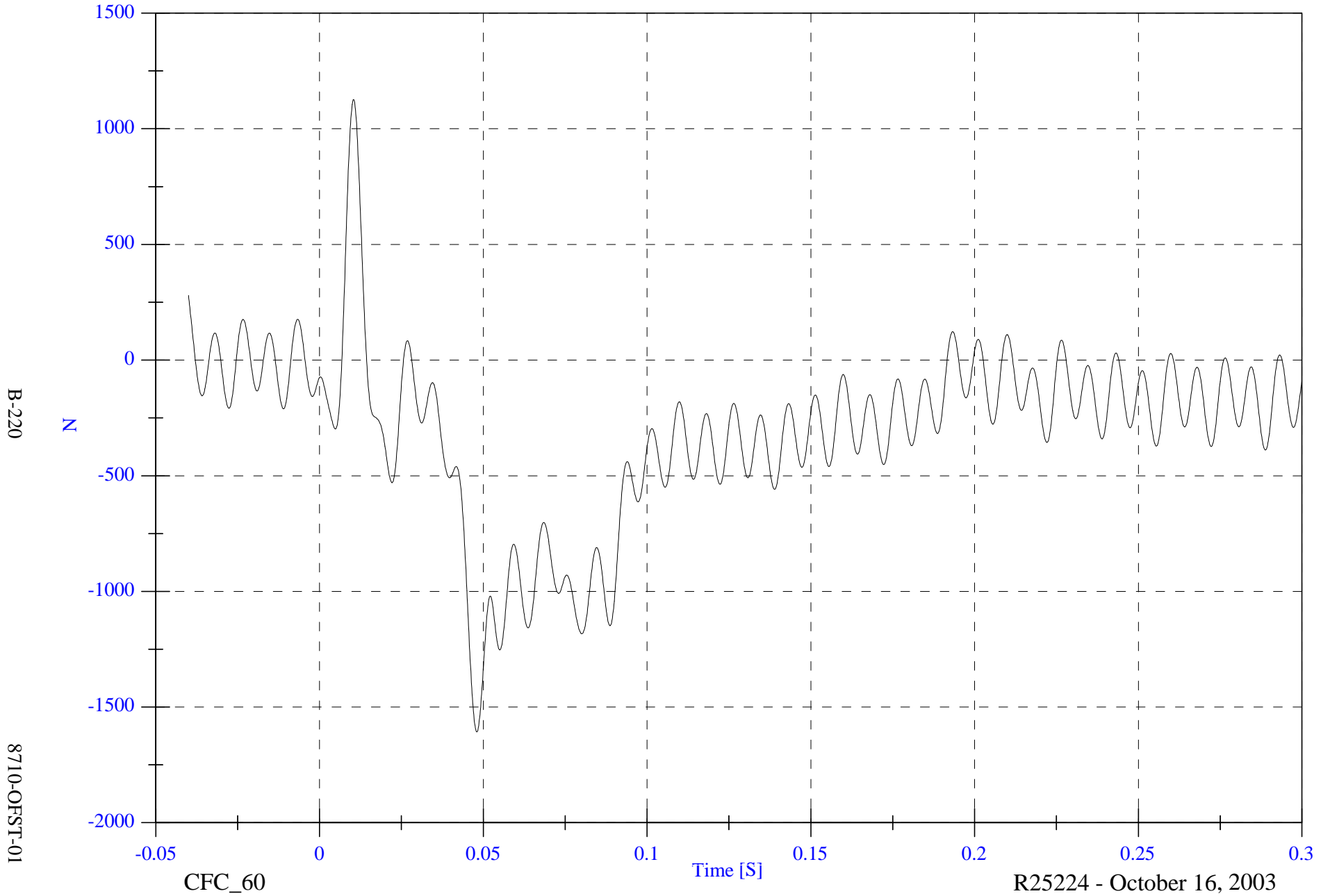


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell F5 FX

Max: 1126.1 [N] at 0.010 [S]

Min: -1607.1 [N] at 0.048 [S]

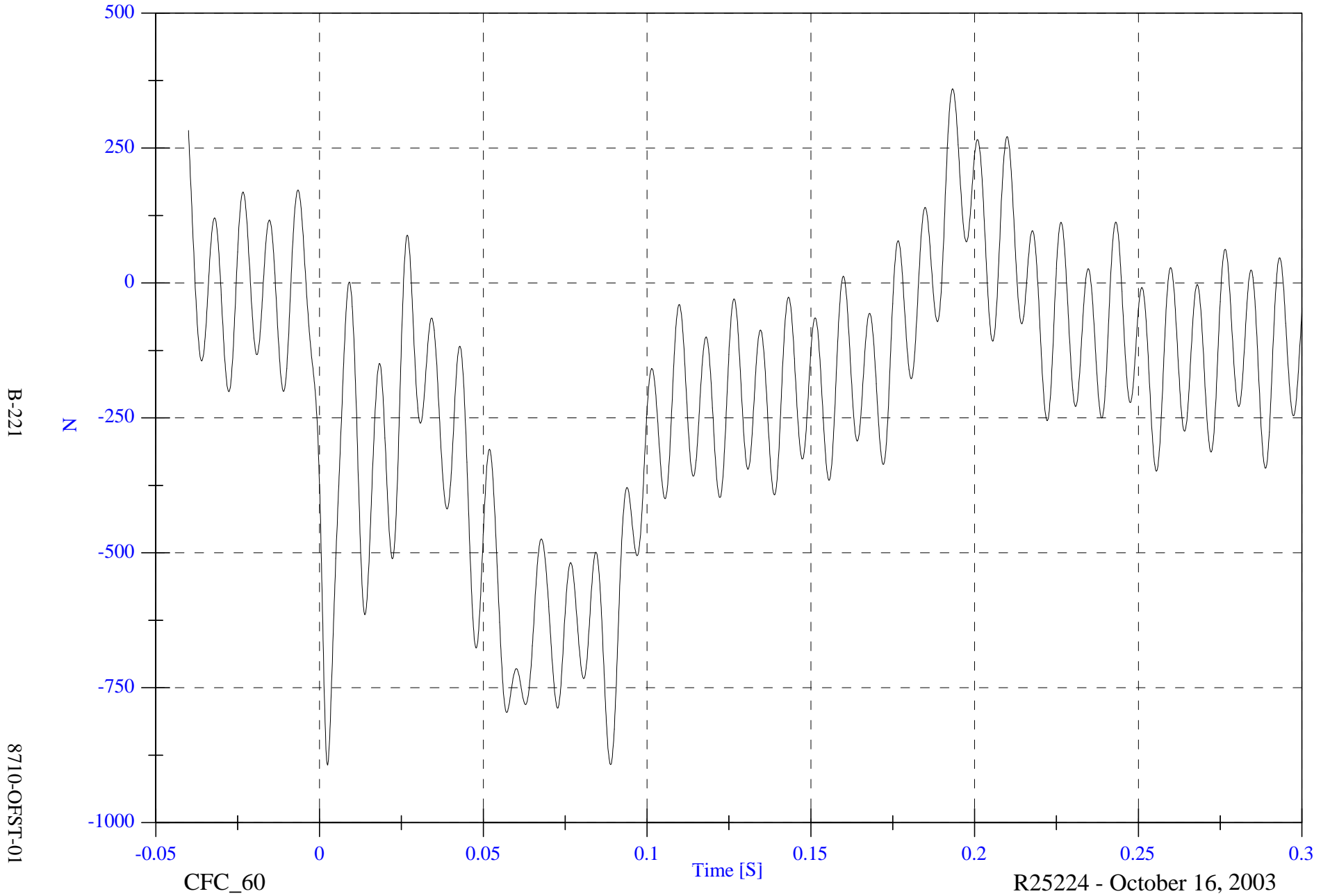


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell F6 FX

Max: 359.7 [N] at 0.193 [S]

Min: -893.0 [N] at 0.002 [S]

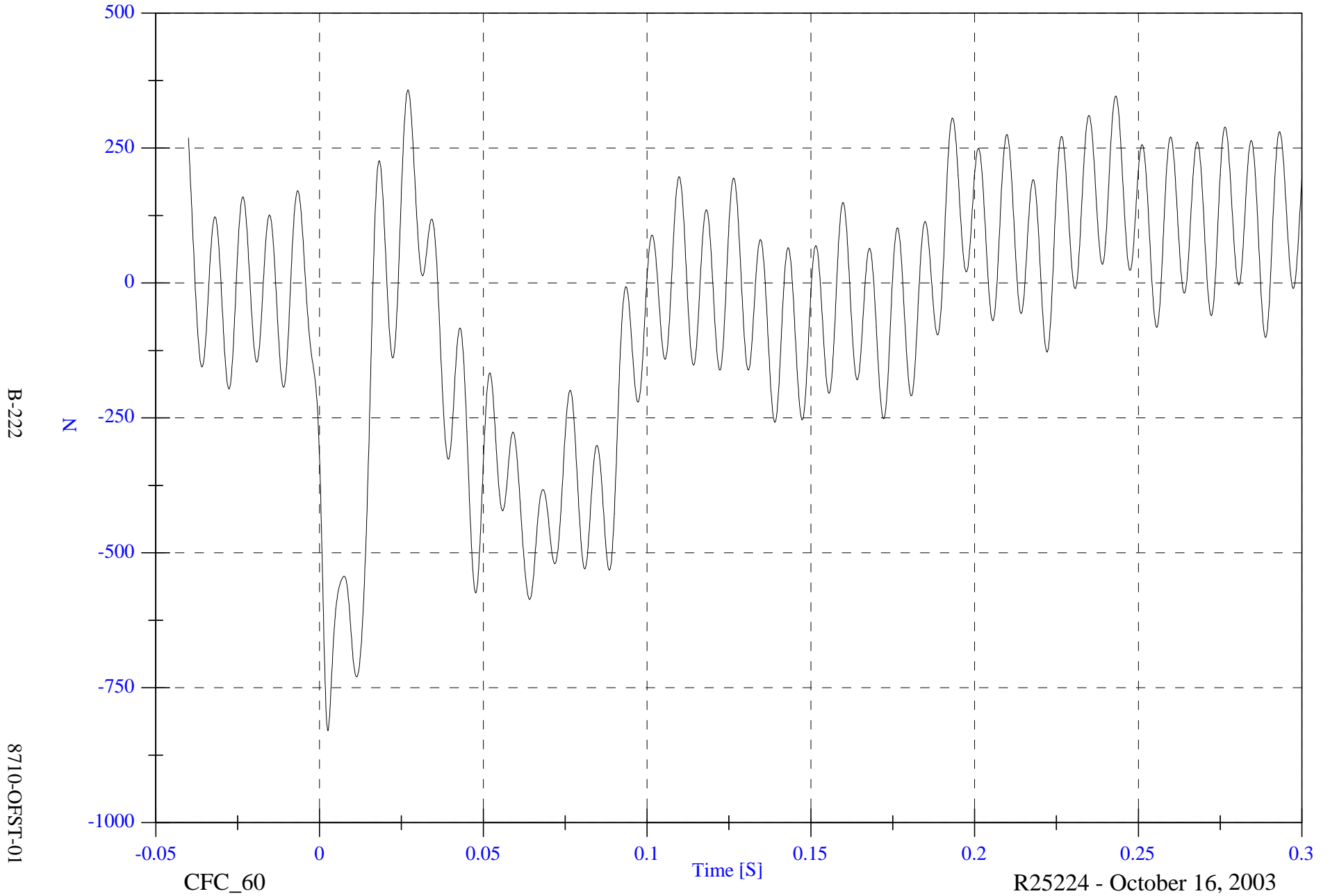


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell F7 FX

Max: 357.7 [N] at 0.027 [S]

Min: -829.5 [N] at 0.003 [S]

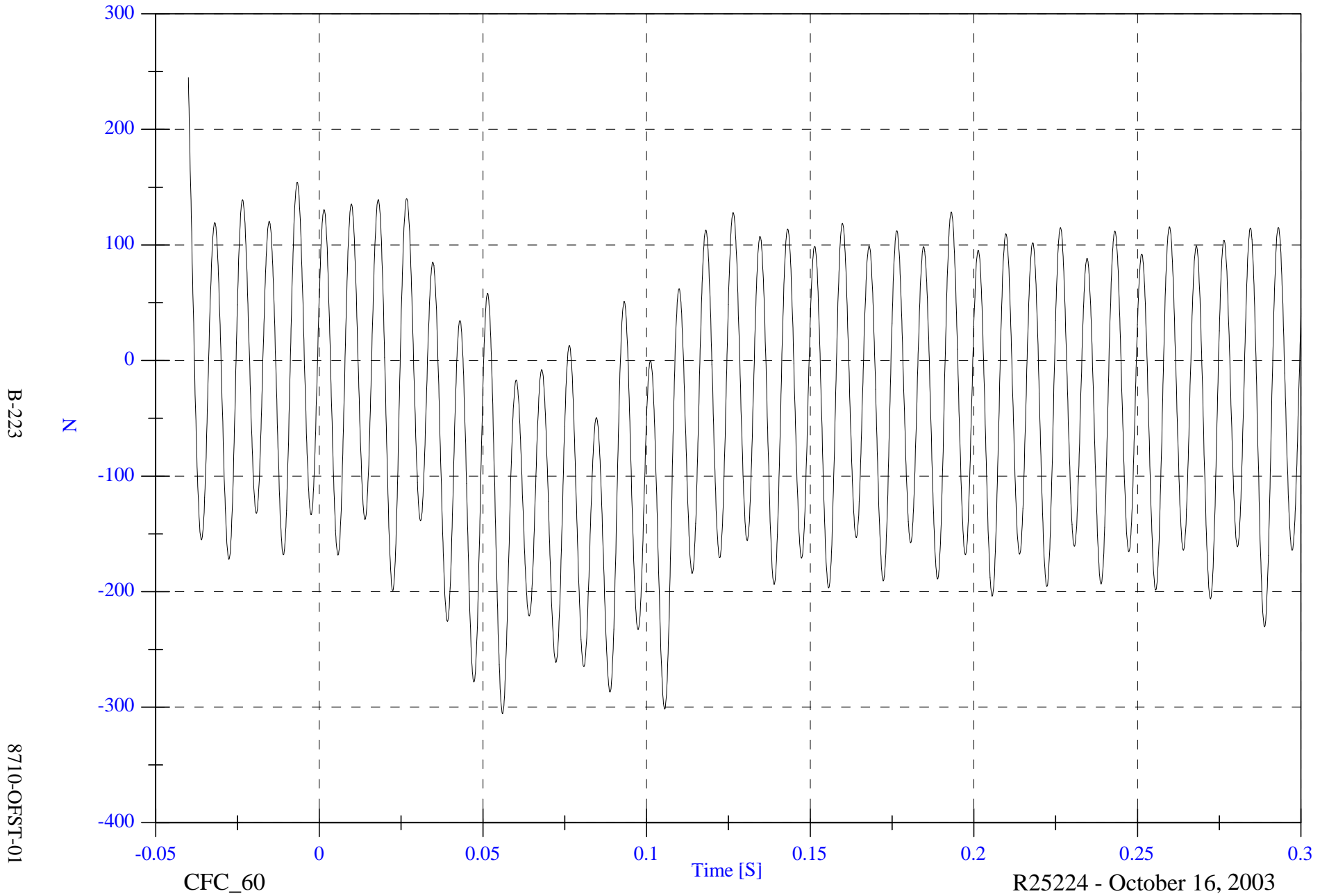


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Max: 244.7 [N] at -0.040 [S]

Barrier Load Cell E1 FX

Min: -305.7 [N] at 0.056 [S]



B-223

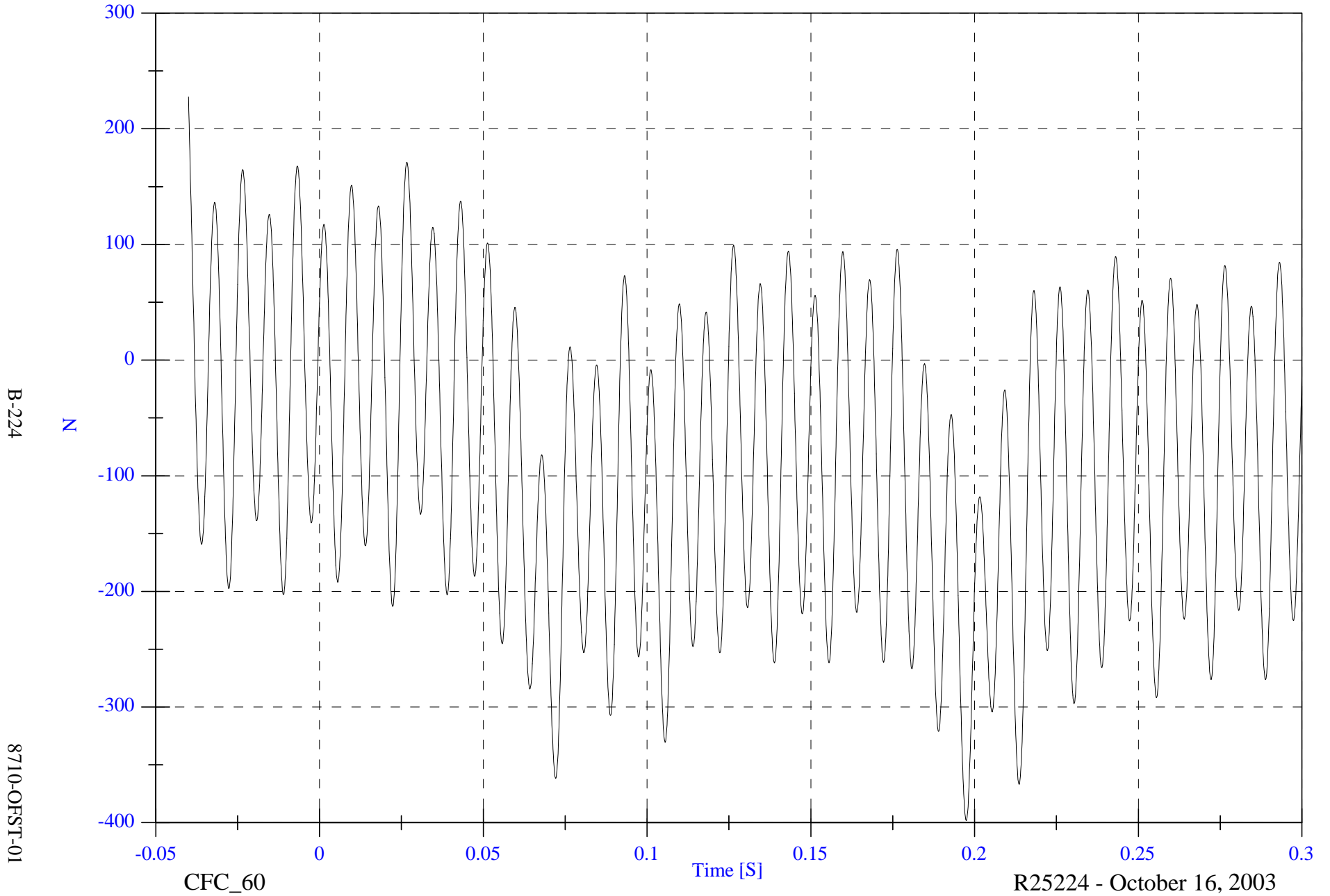
8710-OFST-01

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell E2 FX

Max: 227.6 [N] at -0.040 [S]

Min: -398.2 [N] at 0.197 [S]



B-224

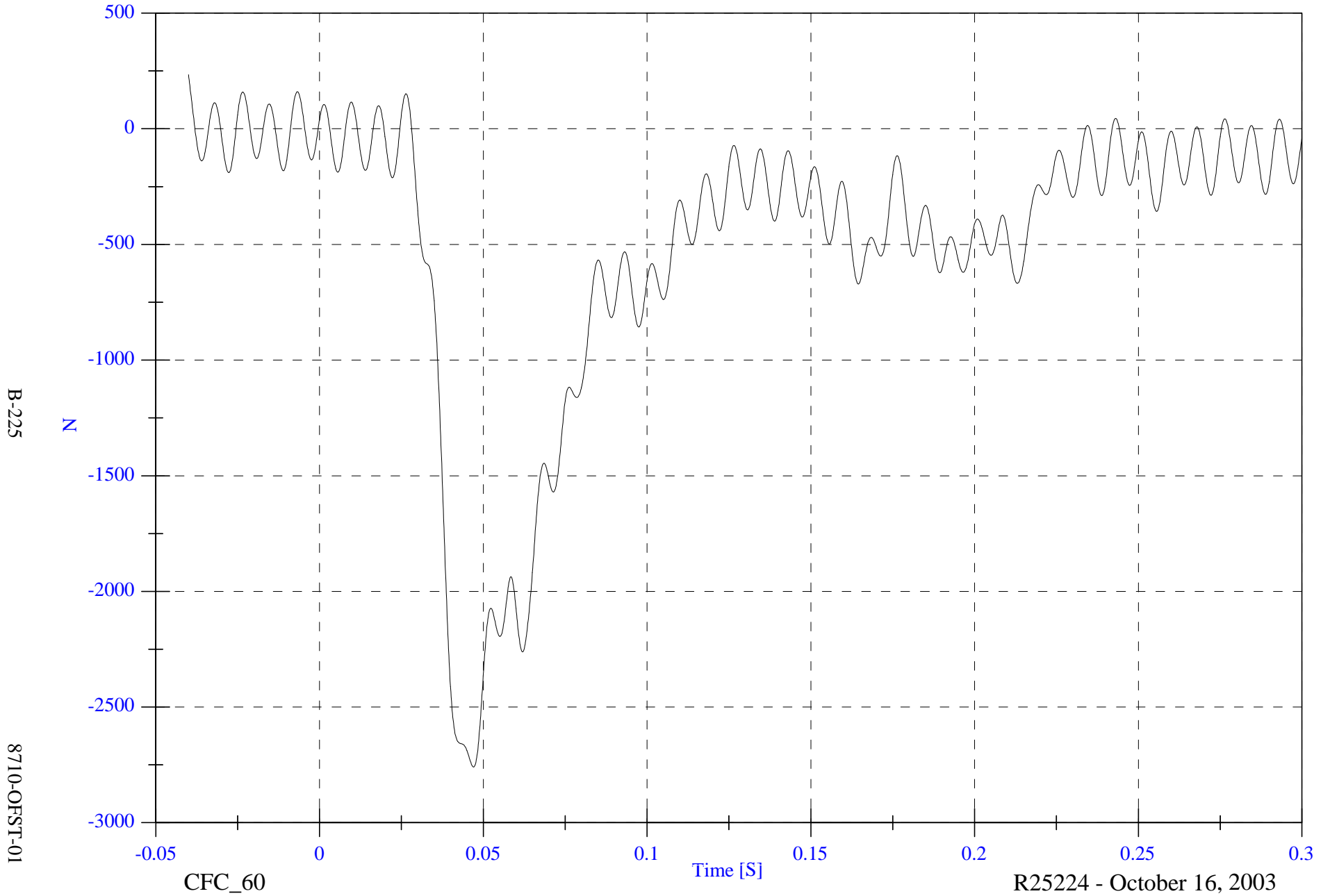
8710-OFST-01

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell E3 FX

Max: 233.6 [N] at -0.040 [S]

Min: -2759.3 [N] at 0.047 [S]

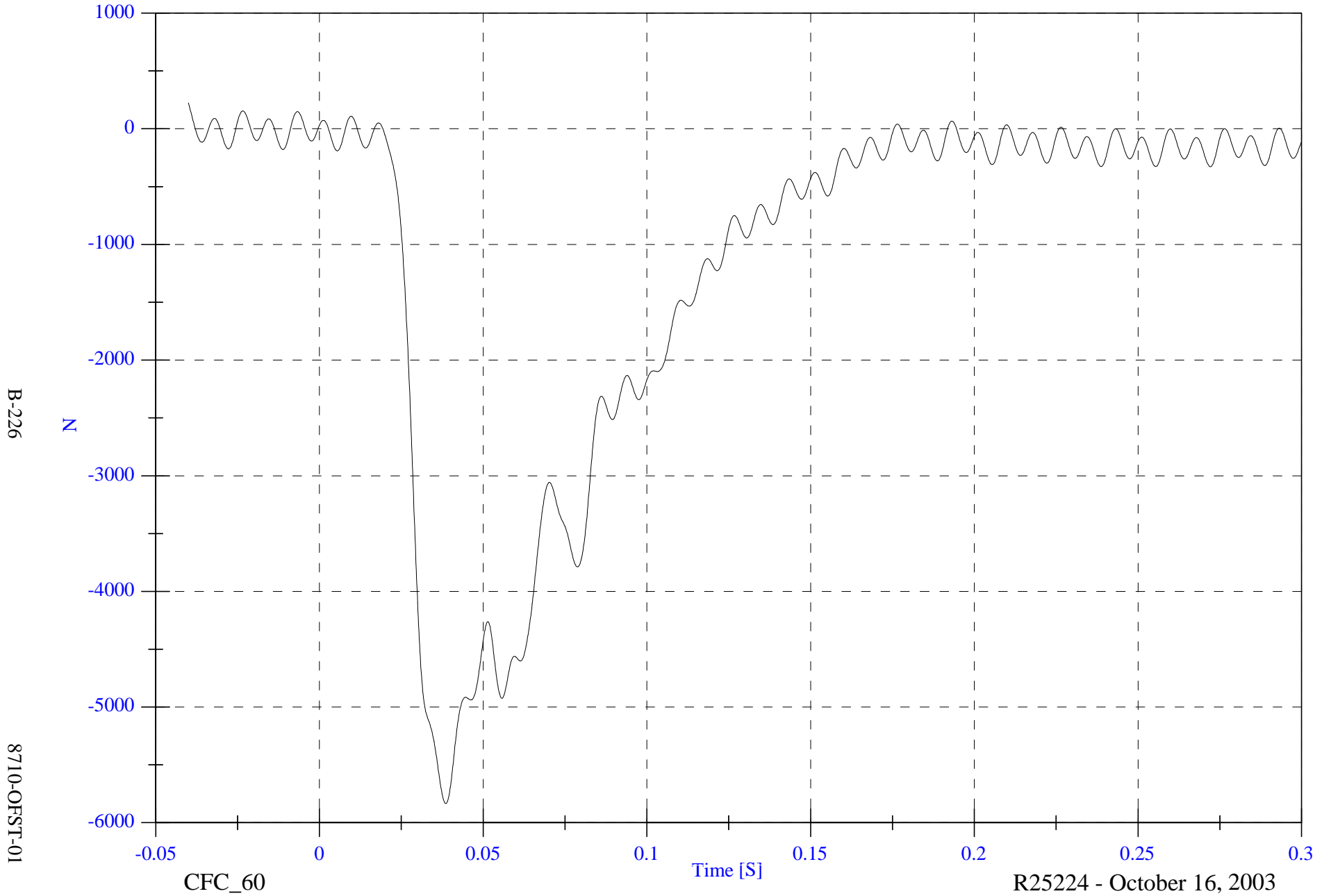


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell E4 FX

Max: 223.2 [N] at -0.040 [S]

Min: -5834.4 [N] at 0.039 [S]



B-226

8710-OFST-01

CFC_60

Time [S]

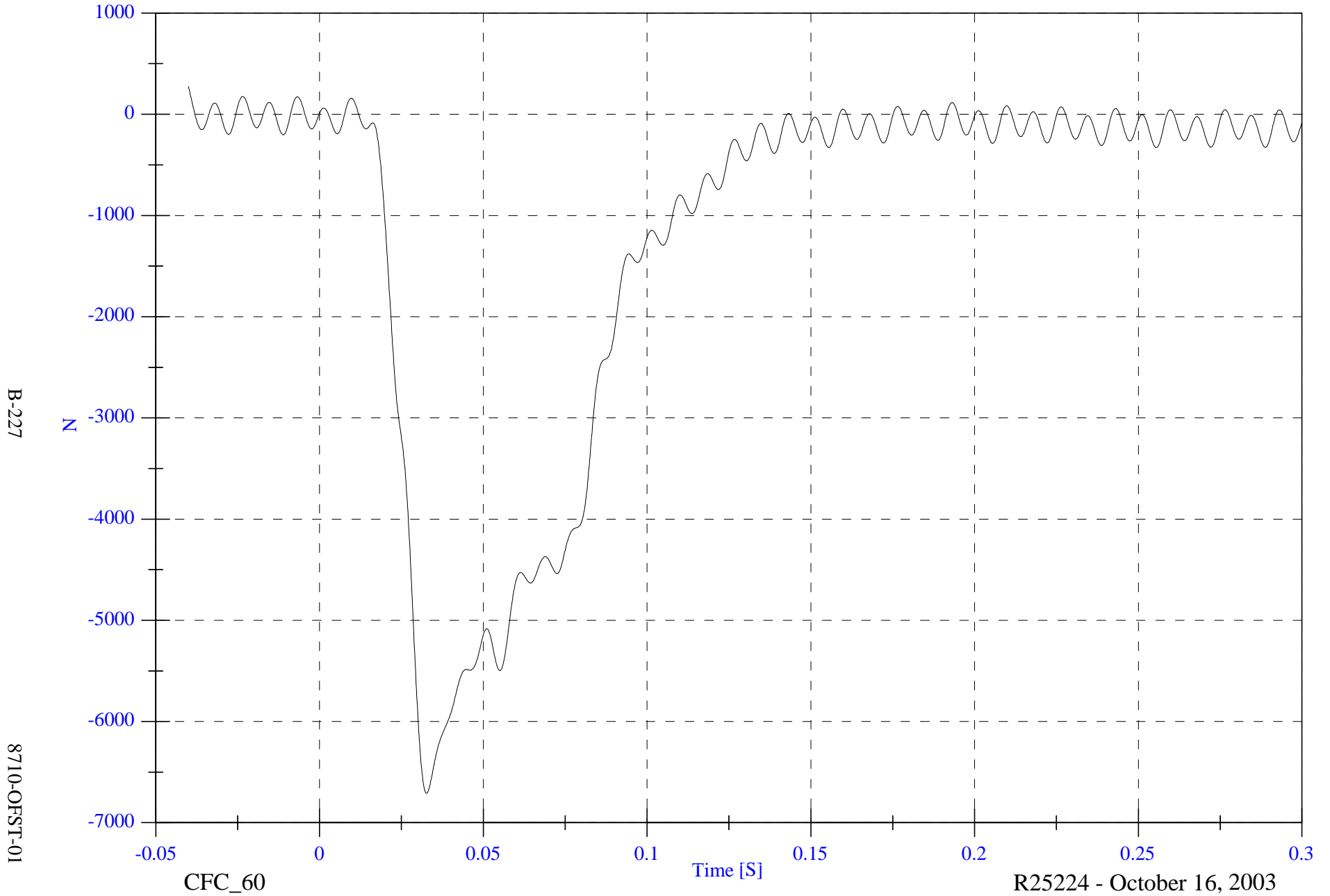
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell E5 FX

Max: 274.6 [N] at -0.040 [S]

Min: -6710.1 [N] at 0.033 [S]

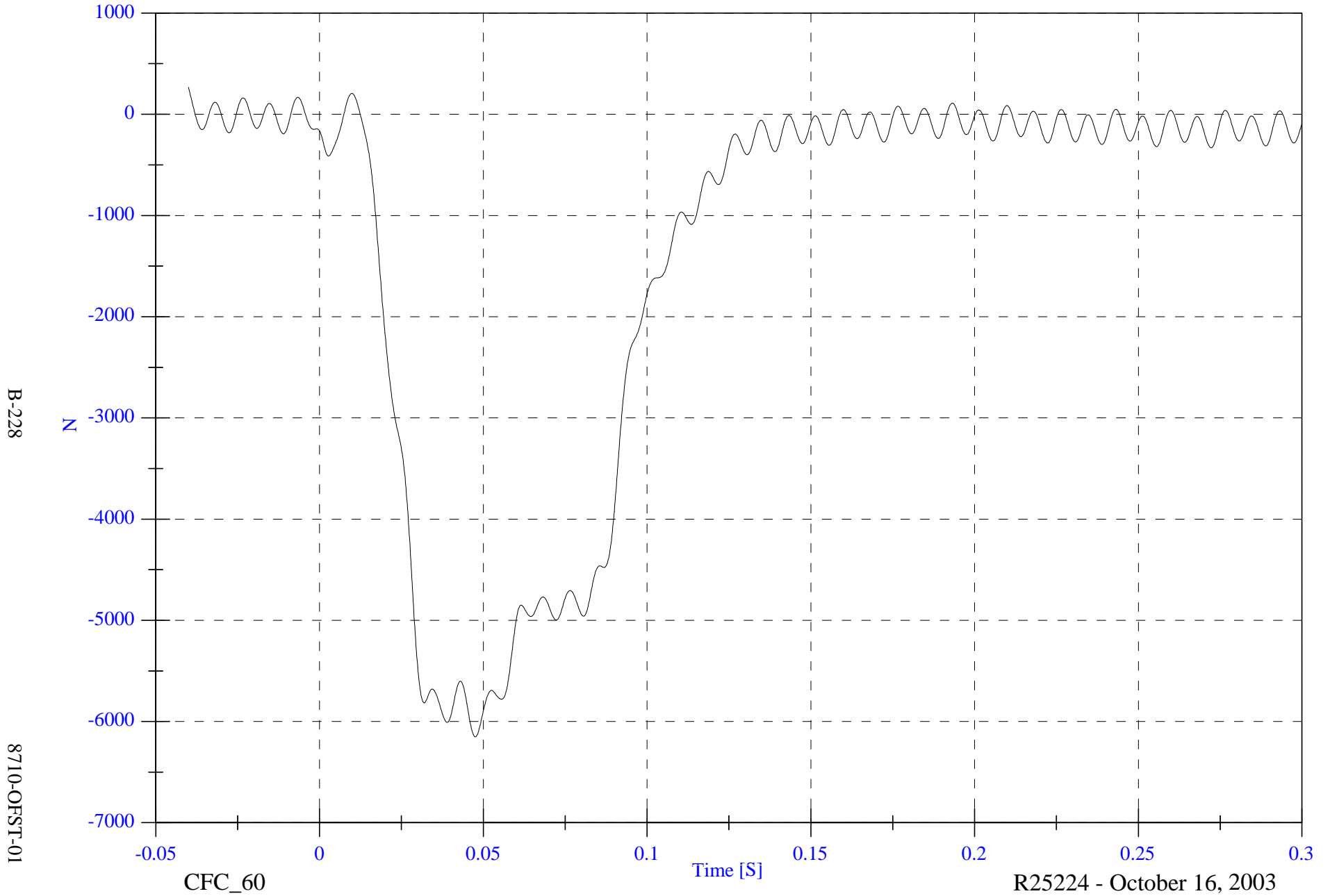


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell E6 FX

Max: 265.3 [N] at -0.040 [S]

Min: -6151.2 [N] at 0.048 [S]

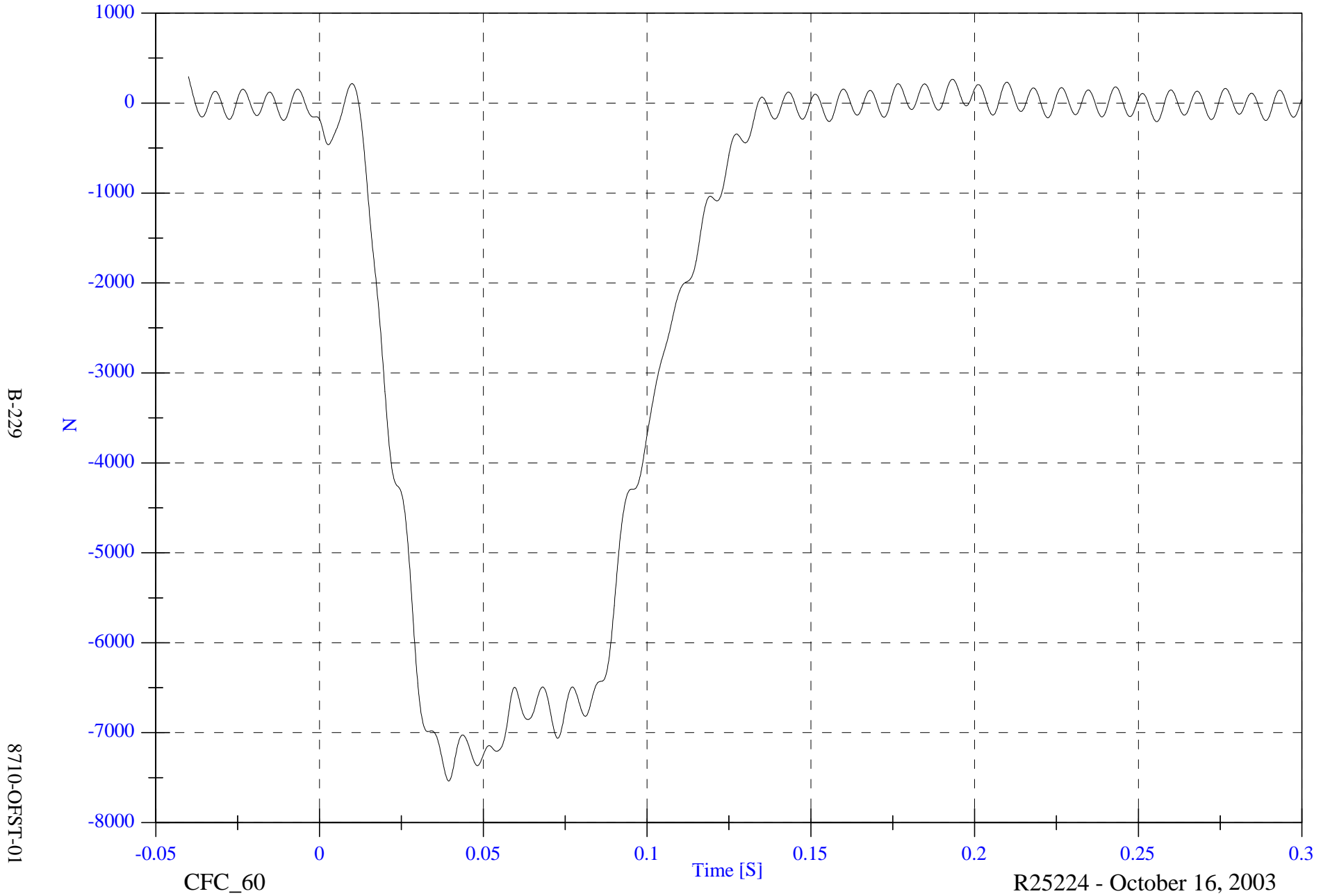


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell E7 FX

Max: 293.5 [N] at -0.040 [S]

Min: -7535.9 [N] at 0.039 [S]

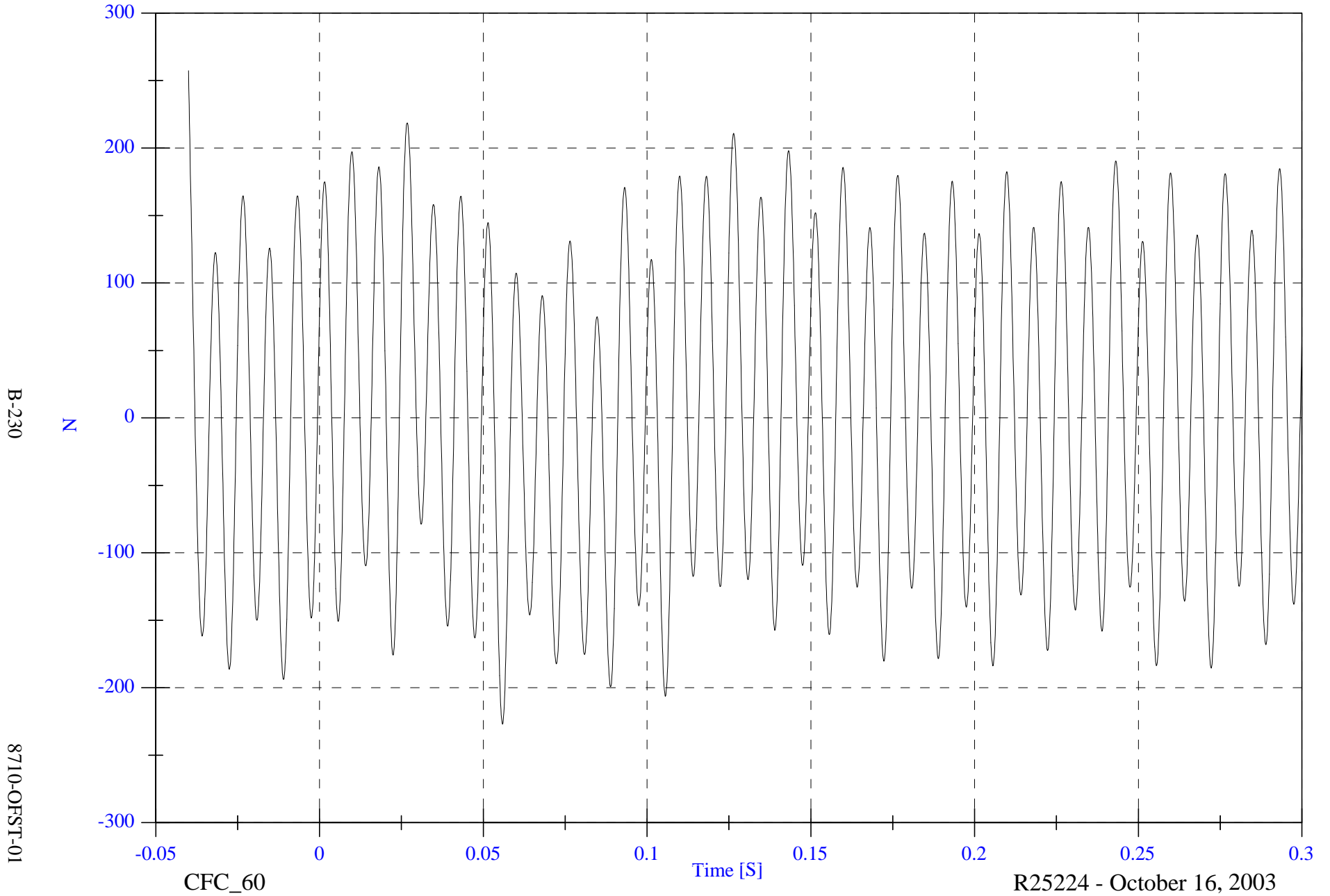


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Max: 257.3 [N] at -0.040 [S]

Barrier Load Cell D1 FX

Min: -227.0 [N] at 0.056 [S]

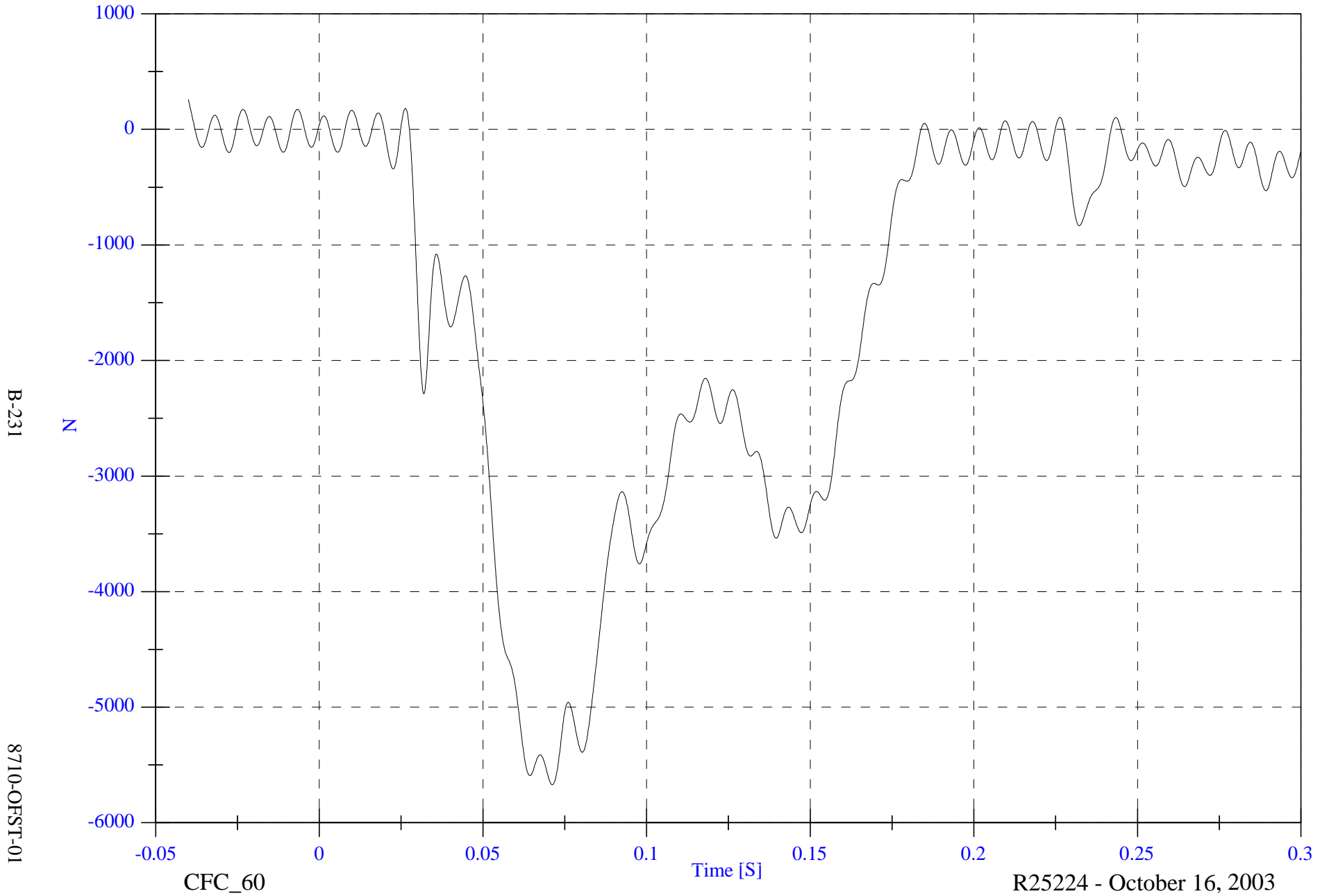


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Max: 258.7 [N] at -0.040 [S]

Barrier Load Cell D2 FX

Min: -5670.7 [N] at 0.071 [S]



2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell D3 FX

Max: 261.6 [N] at -0.040 [S]

Min: -7115.0 [N] at 0.040 [S]



B-232

8710-OFFST-01

CFC_60

Time [S]

R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell D4 FX

Max: 302.6 [N] at -0.040 [S]

Min: -14493.4 [N] at 0.025 [S]



B-233

8710-OFST-01

CFC_60

Time [S]

R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell D5 FX

Max: 356.0 [N] at -0.040 [S]

Min: -17036.4 [N] at 0.021 [S]



B-234

8710-OFST-01

CFC_60

Time [S]

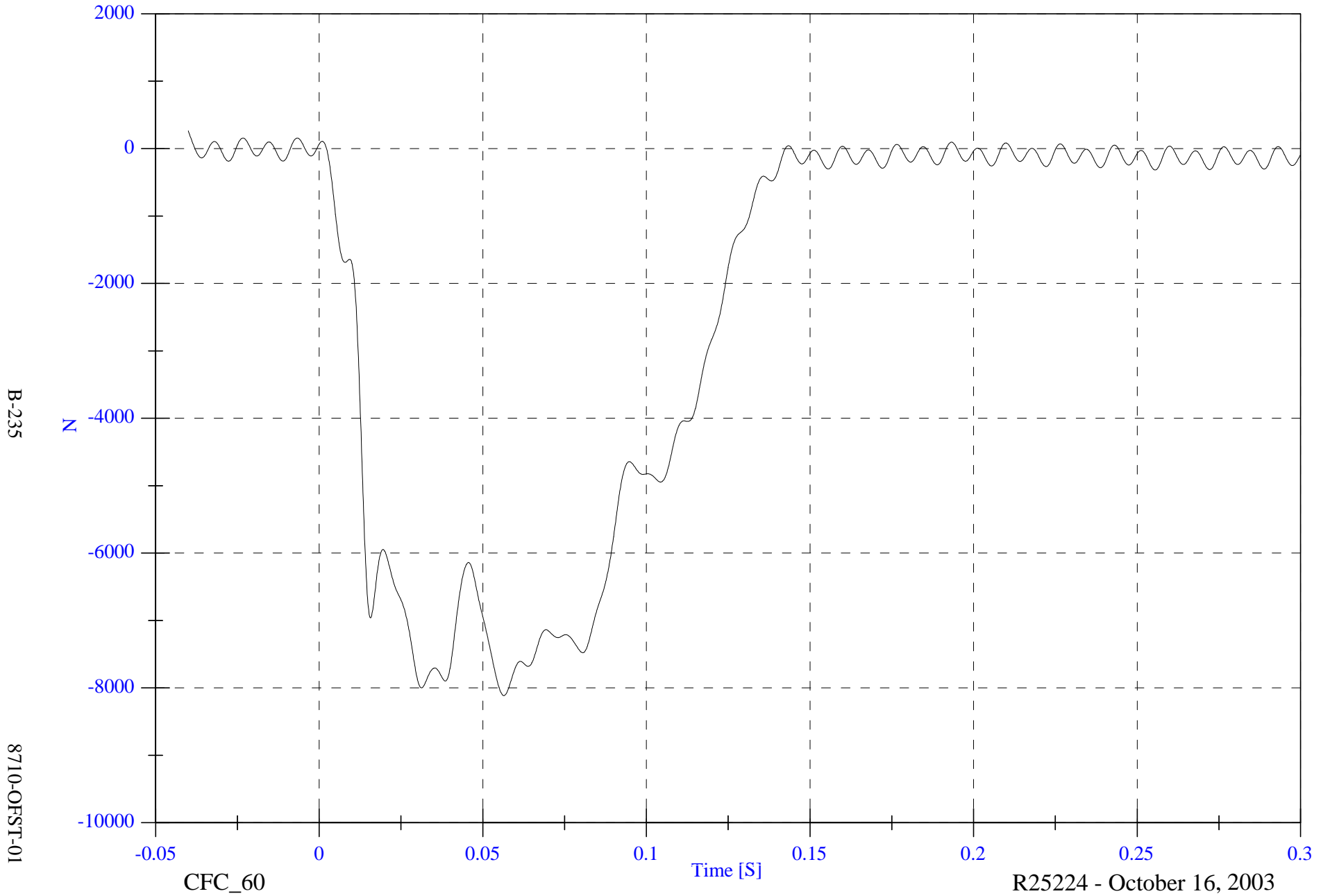
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Max: 261.5 [N] at -0.040 [S]

Barrier Load Cell D6 FX

Min: -8113.2 [N] at 0.056 [S]

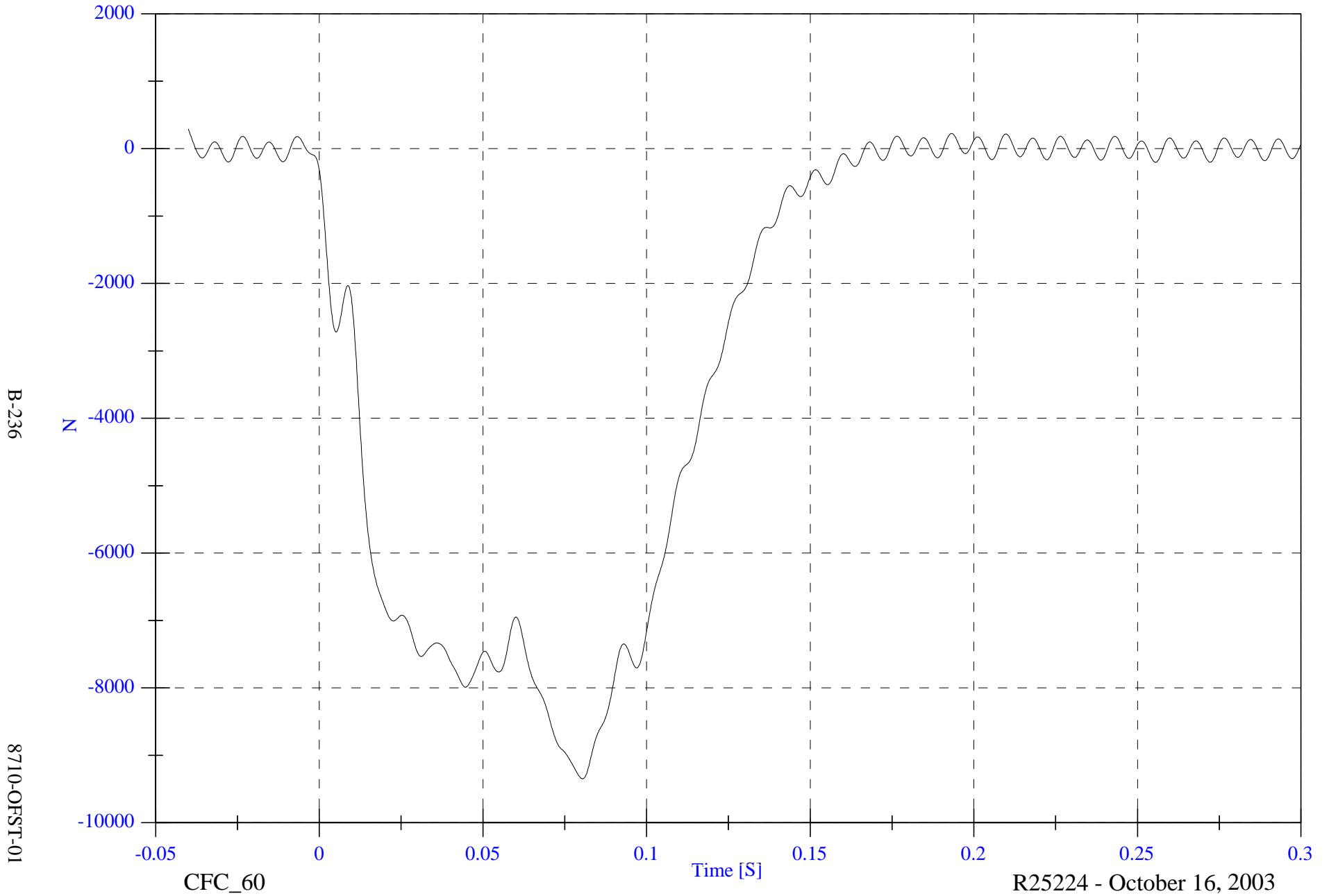


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Max: 288.9 [N] at -0.040 [S]

Barrier Load Cell D7 FX

Min: -9347.1 [N] at 0.080 [S]



B-236

8710-OFST-01

CFC_60

Time [S]

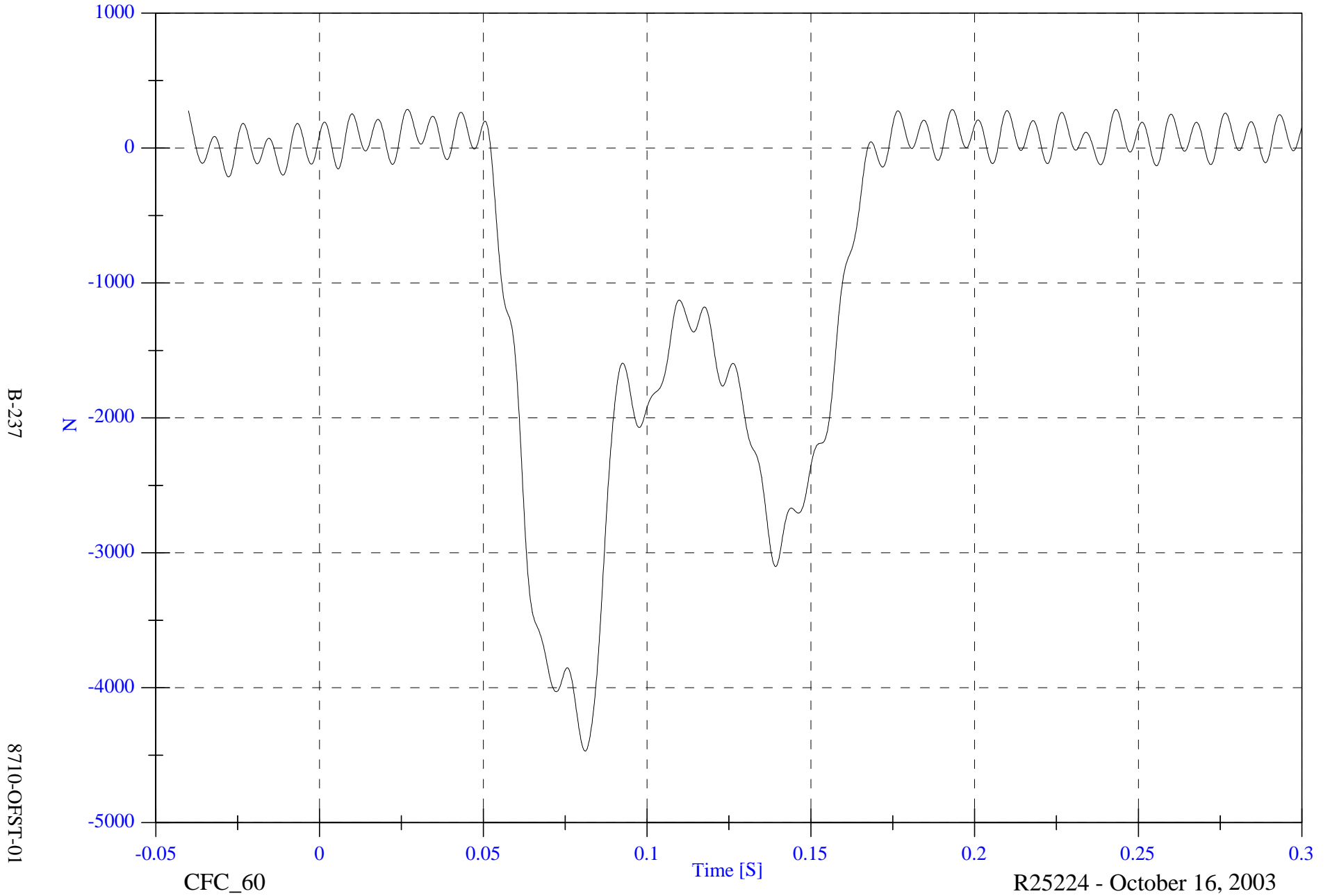
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Max: 286.4 [N] at 0.027 [S]

Barrier Load Cell C1 FX

Min: -4469.1 [N] at 0.081 [S]

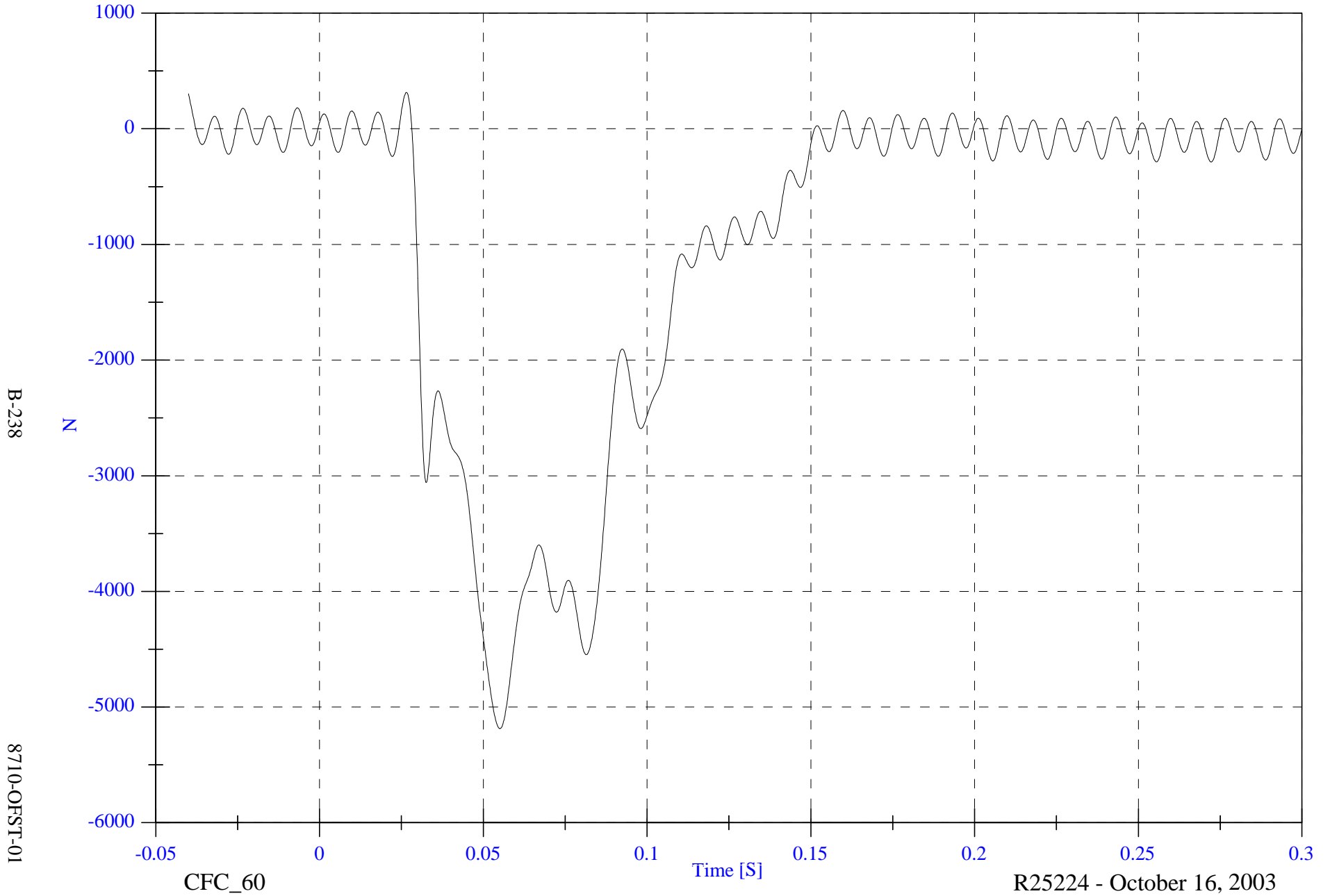


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell C2 FX

Max: 313.9 [N] at 0.027 [S]

Min: -5186.3 [N] at 0.055 [S]

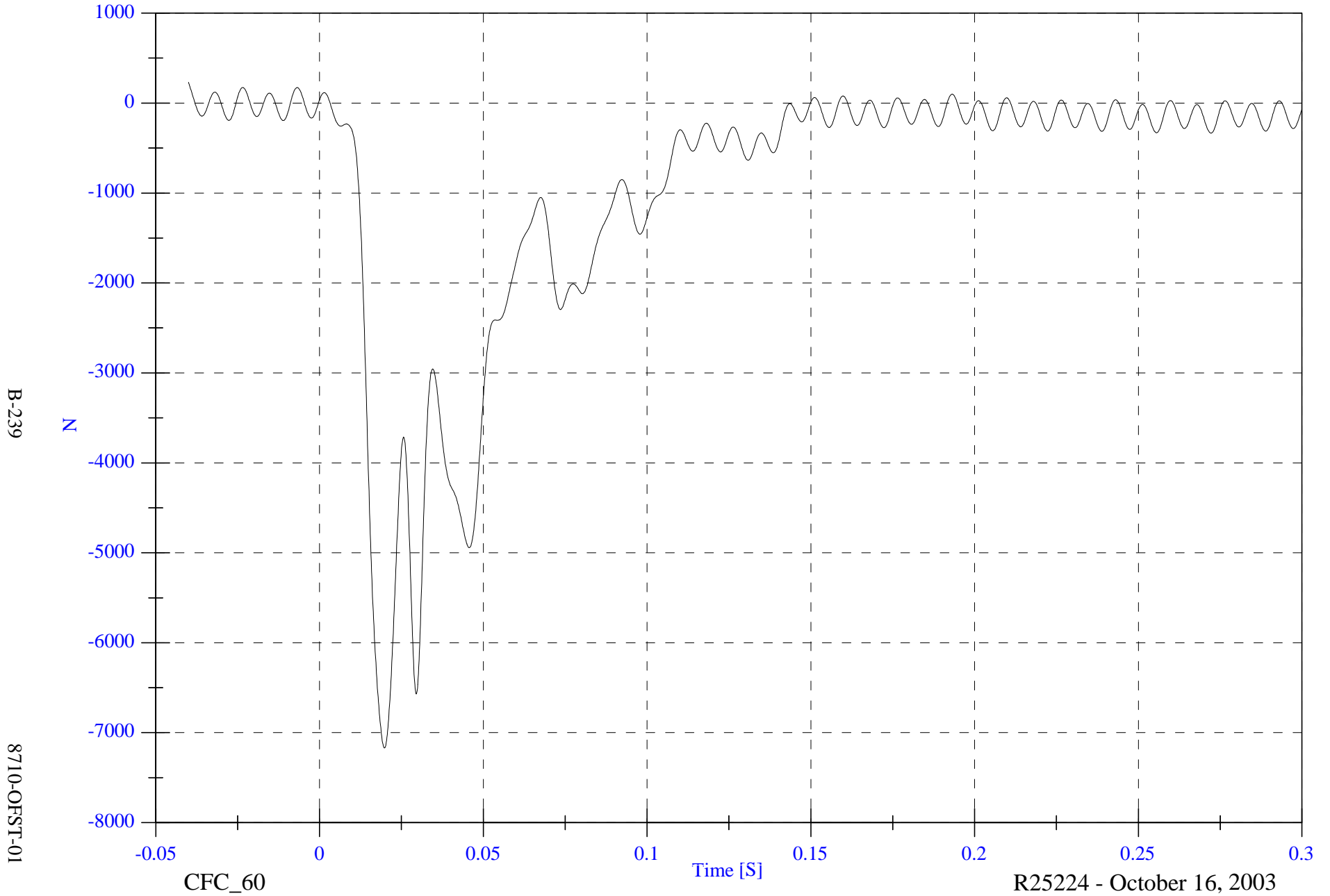


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell C3 FX

Max: 229.8 [N] at -0.040 [S]

Min: -7170.1 [N] at 0.020 [S]



B-239

8710-OFST-01

CFC_60

Time [S]

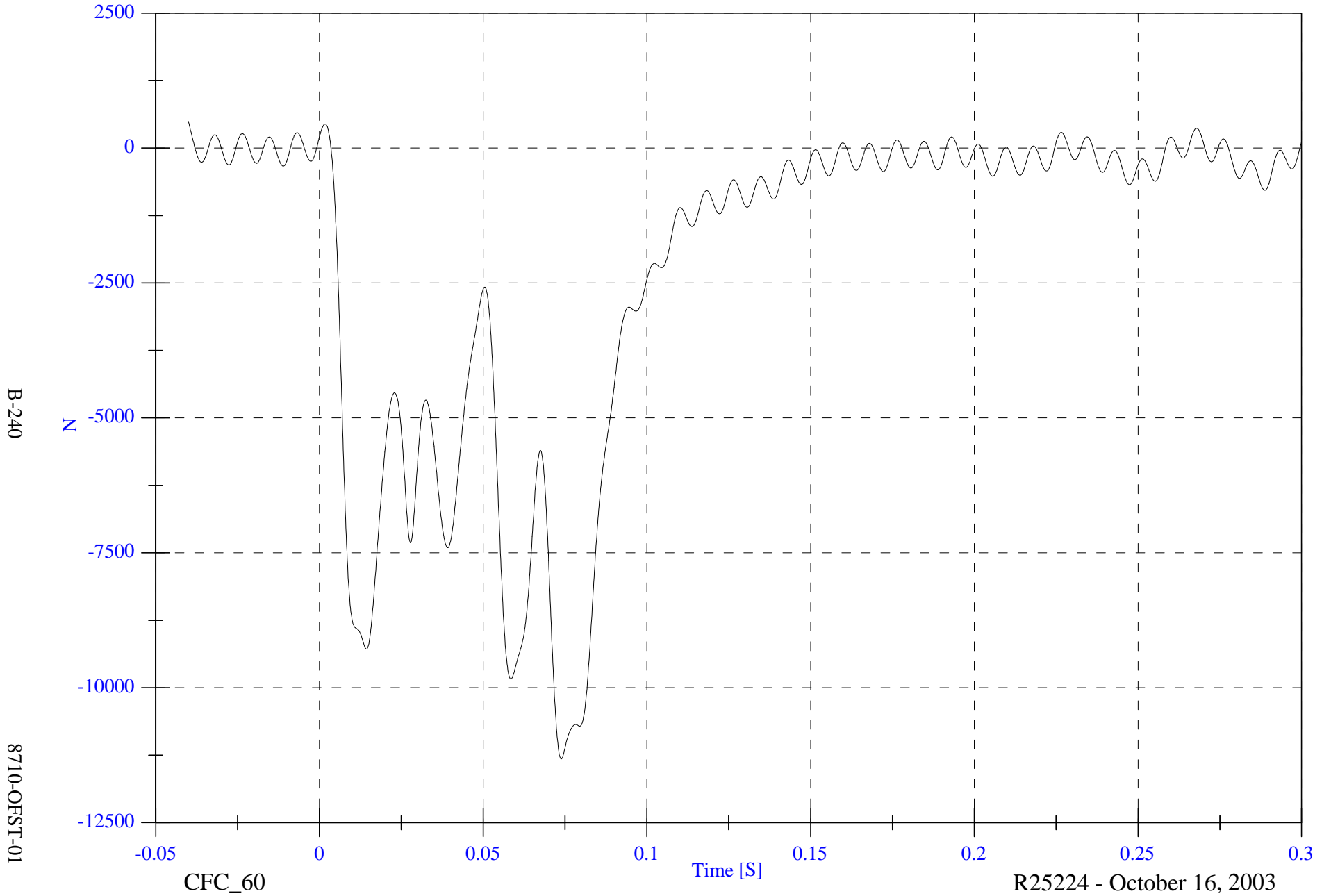
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell C4 FX

Max: 494.8 [N] at -0.040 [S]

Min: -11319.6 [N] at 0.074 [S]



B-240

8710-OFST-01

CFC_60

Time [S]

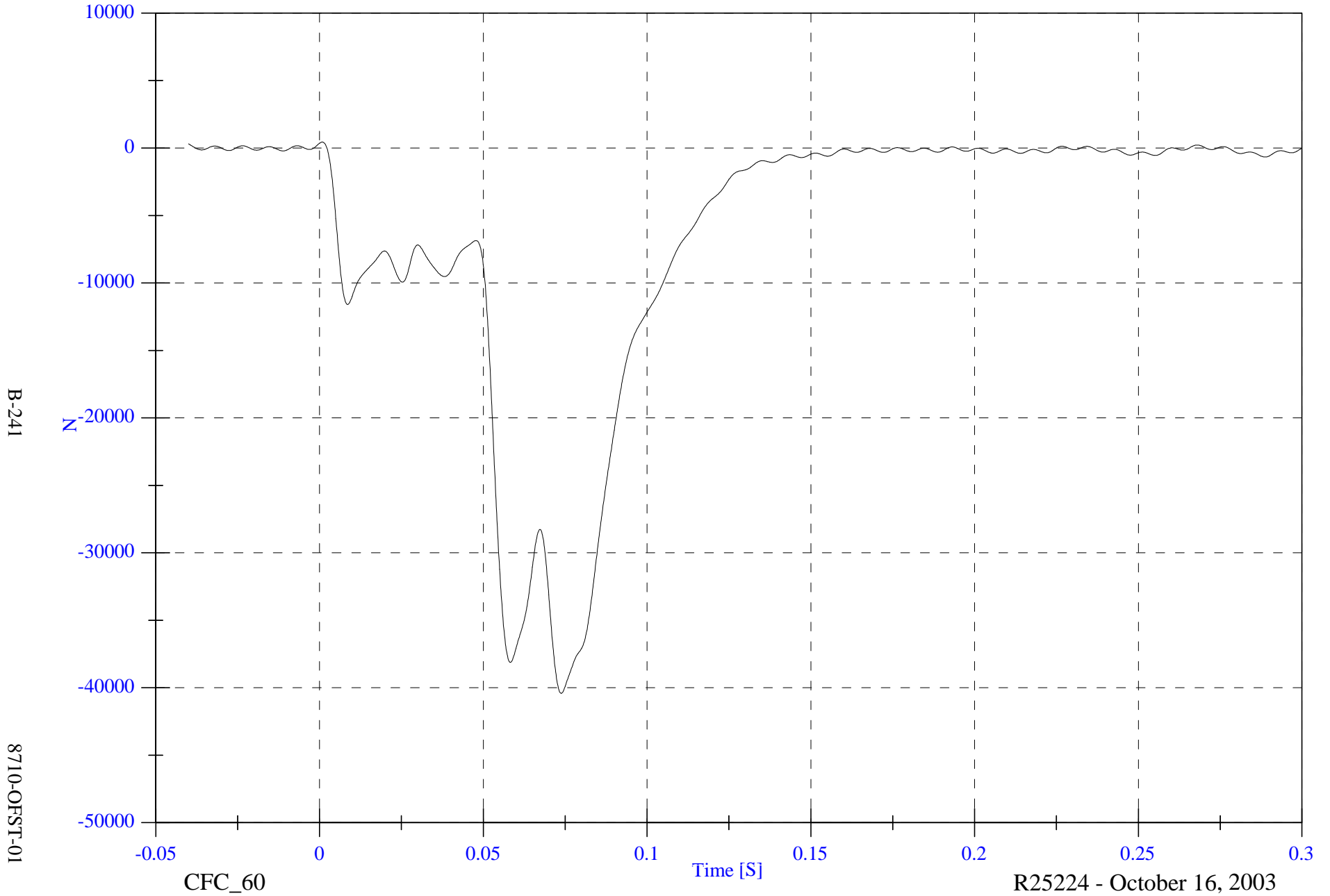
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell C5 FX

Max: 439.5 [N] at 0.001 [S]

Min: -40417.0 [N] at 0.074 [S]

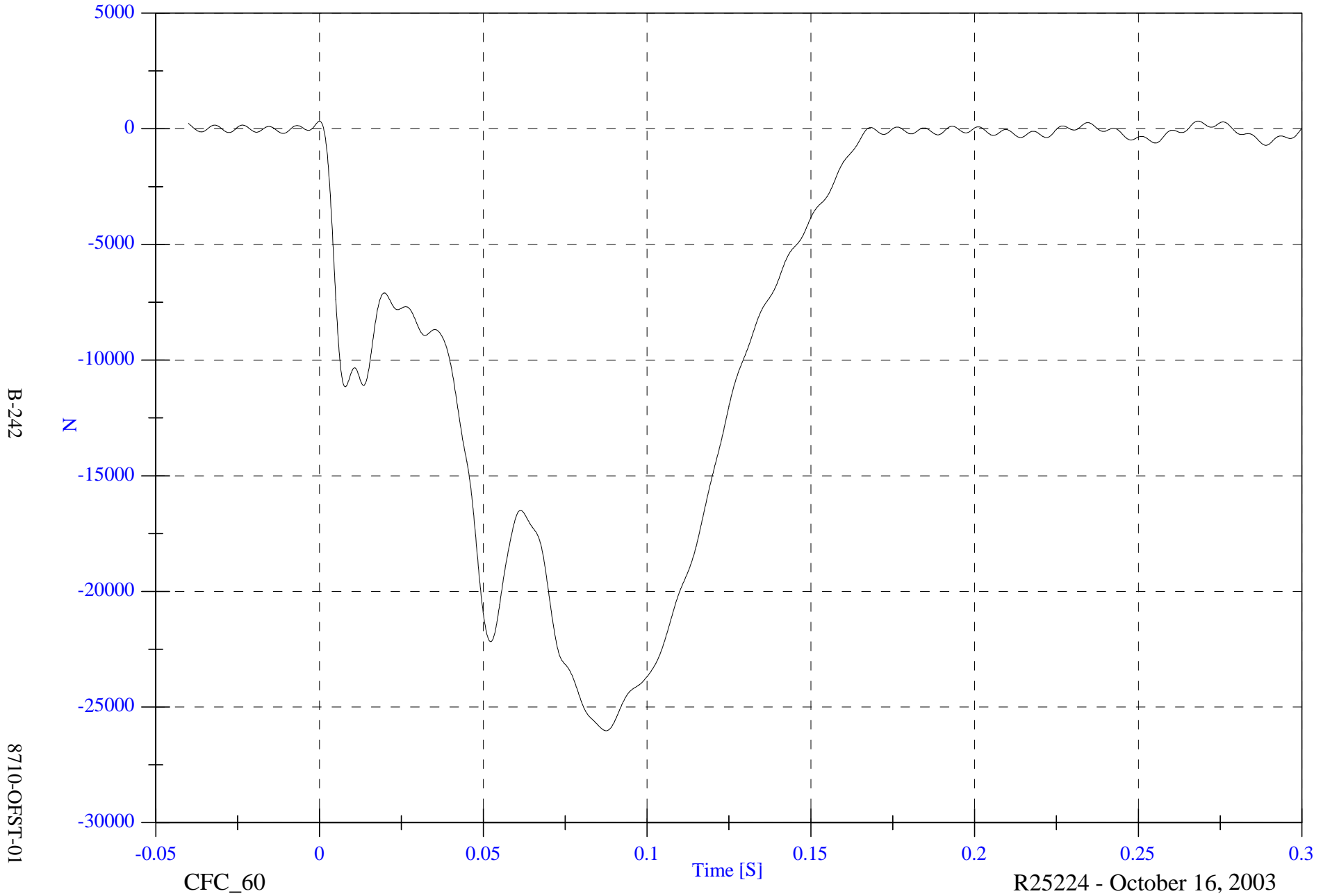


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell C6 FX

Max: 332.8 [N] at 0.268 [S]

Min: -26022.9 [N] at 0.087 [S]



B-242

8710-OFFST-01

CFC_60

Time [S]

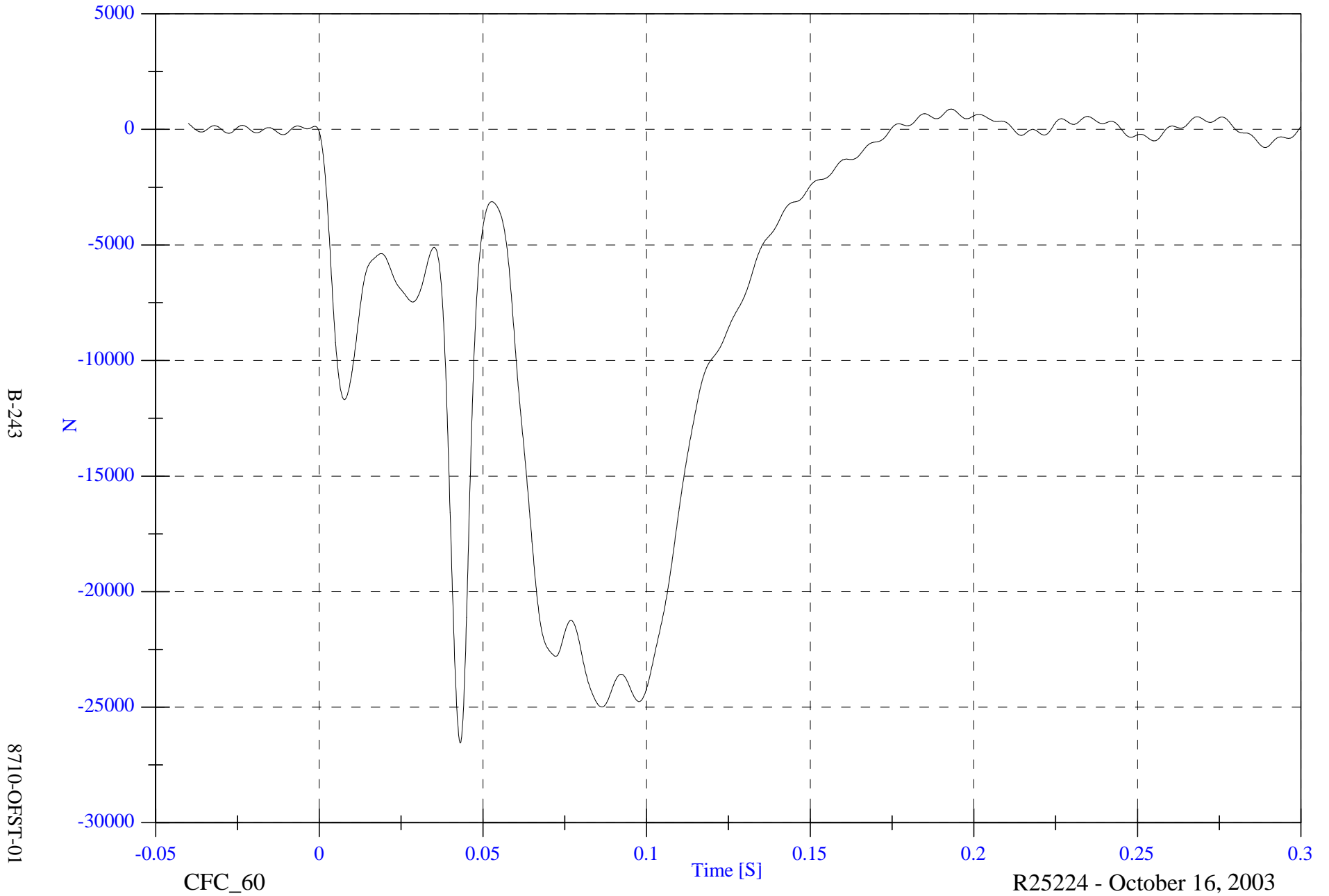
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell C7 FX

Max: 878.0 [N] at 0.193 [S]

Min: -26545.6 [N] at 0.043 [S]



B-243

8710-OFFST-01

CFC_60

Time [S]

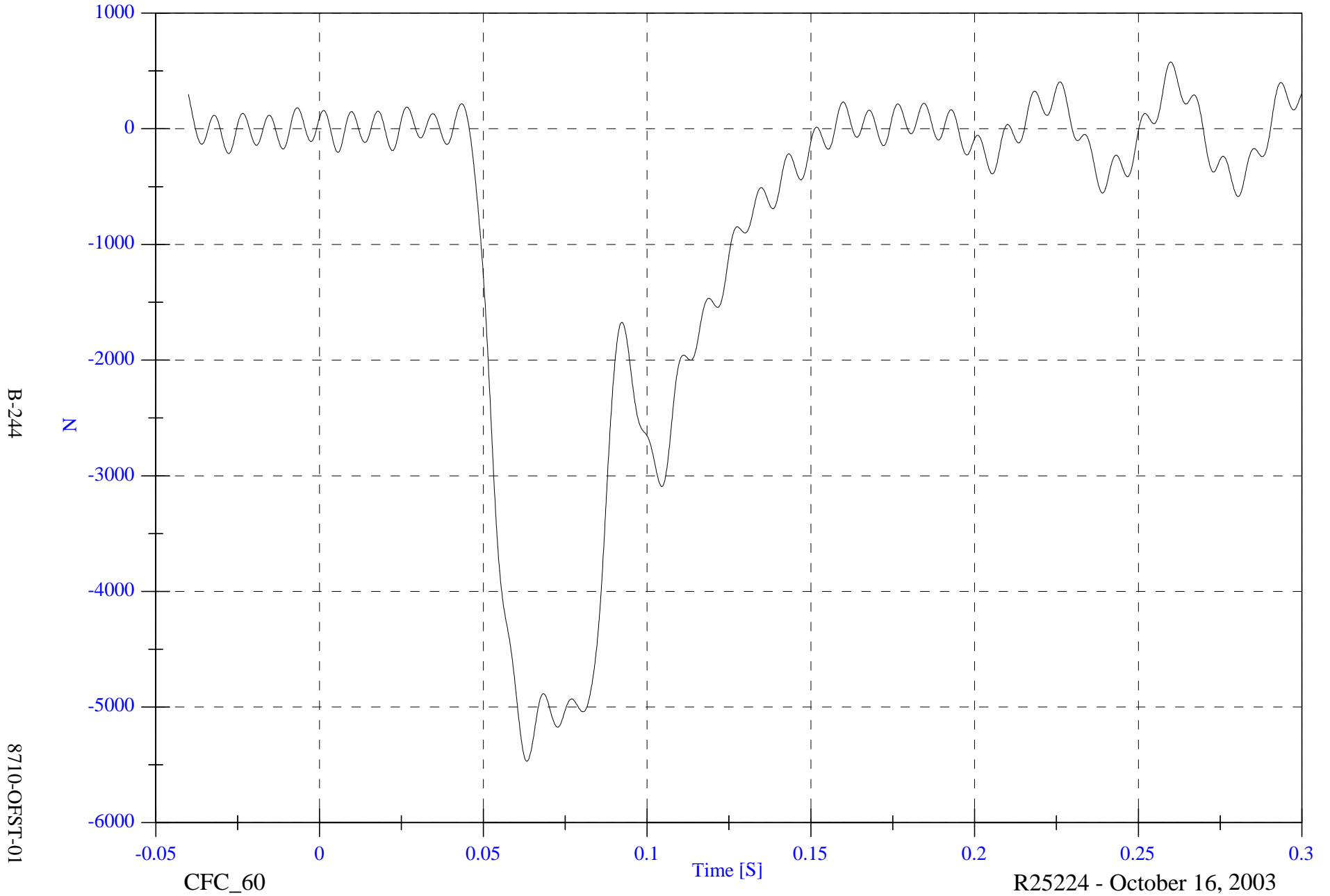
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell B1 FX

Max: 577.1 [N] at 0.260 [S]

Min: -5468.7 [N] at 0.063 [S]

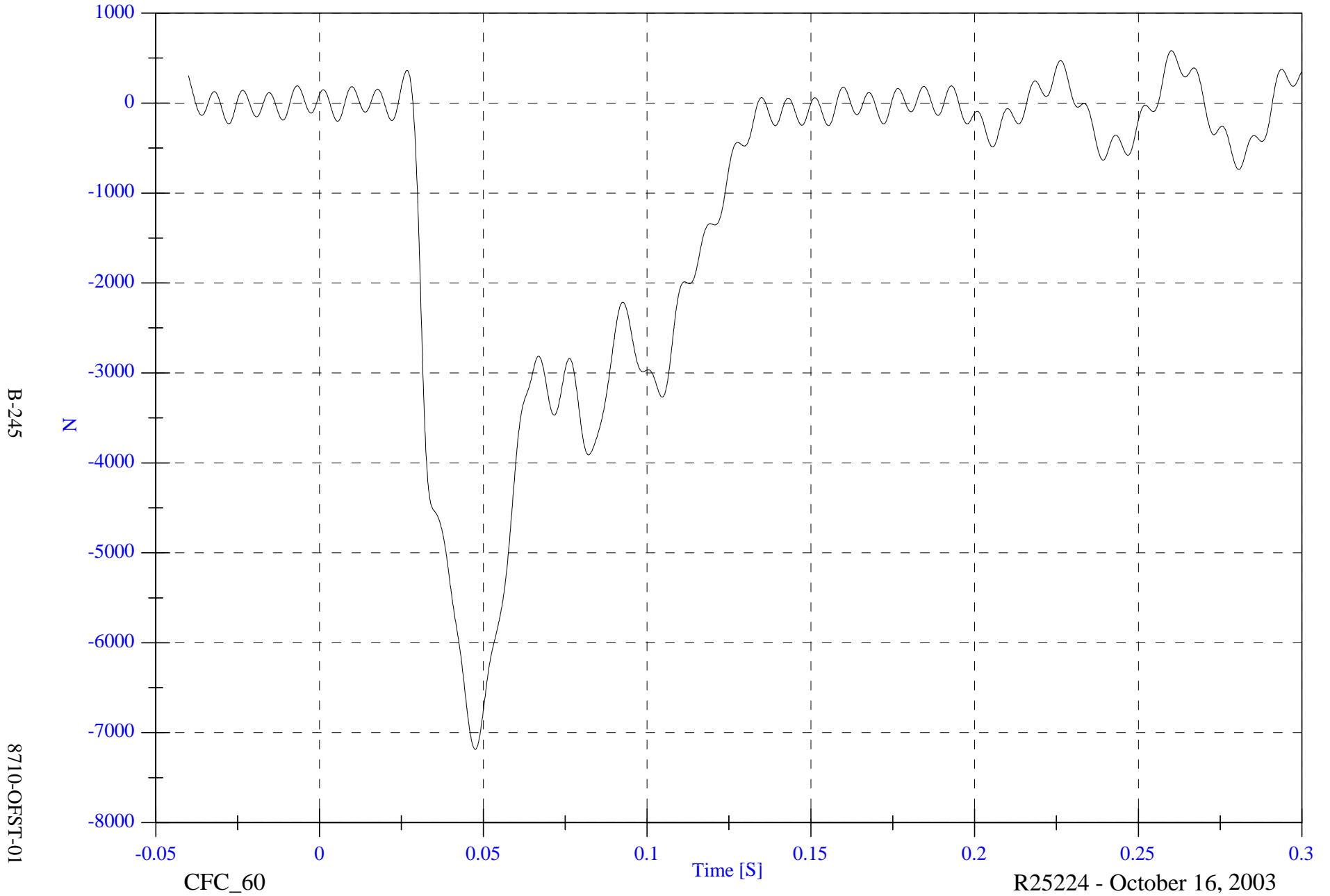


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell B2 FX

Max: 581.5 [N] at 0.260 [S]

Min: -7184.4 [N] at 0.048 [S]

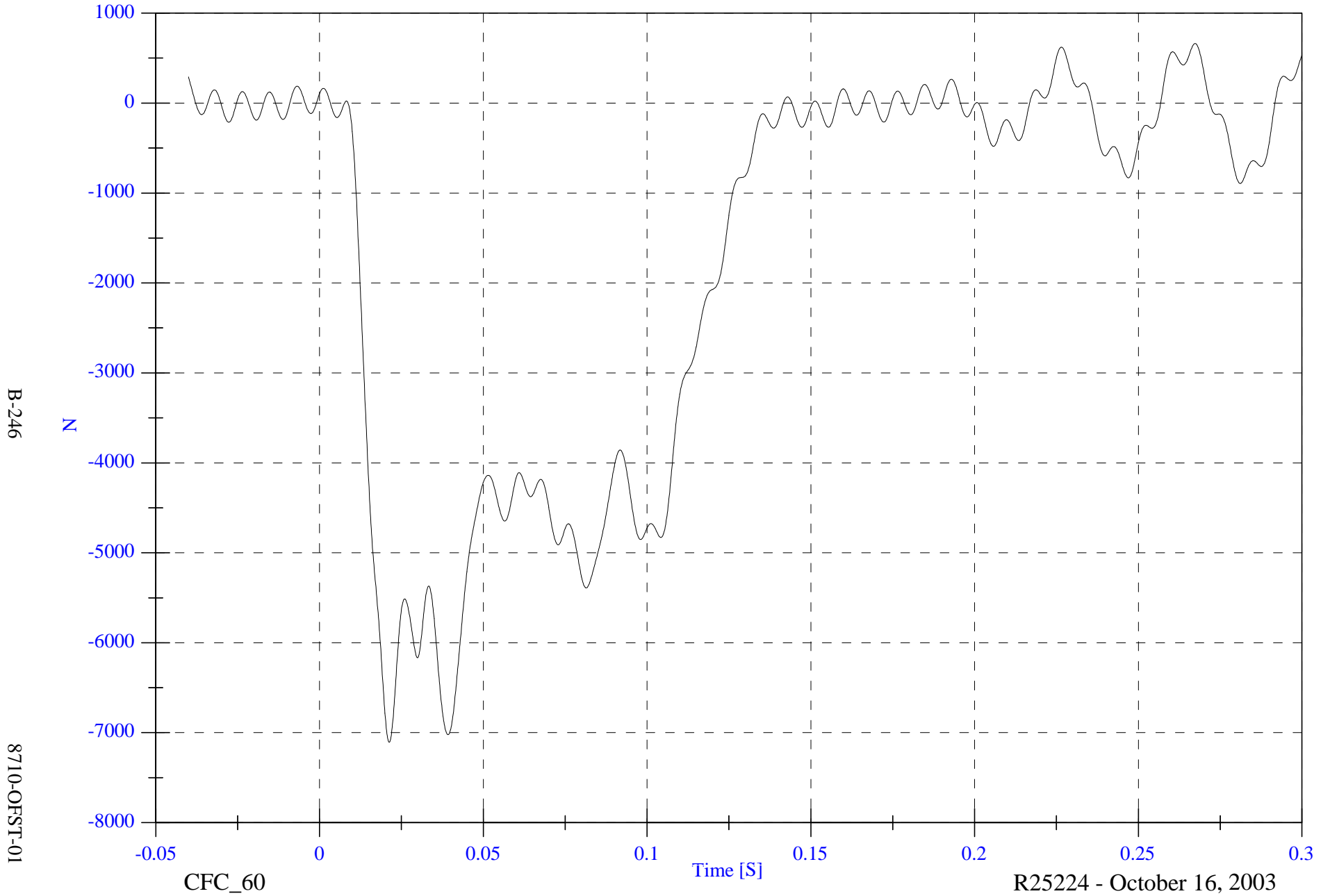


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell B3 FX

Max: 661.1 [N] at 0.267 [S]

Min: -7105.8 [N] at 0.021 [S]



2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell B4 FX

Max: 879.4 [N] at 0.267 [S]

Min: -13063.7 [N] at 0.015 [S]

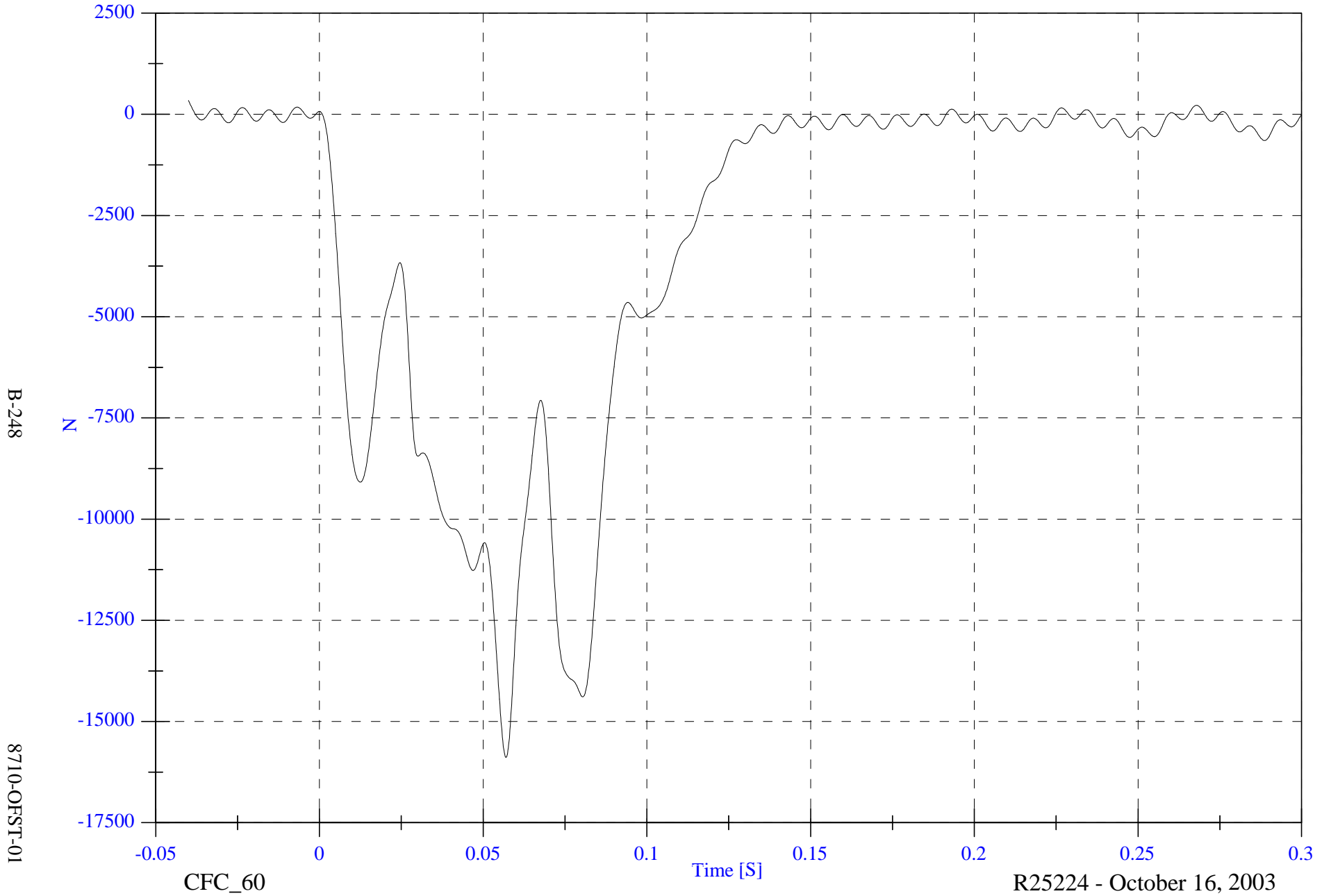


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell B5 FX

Max: 341.6 [N] at -0.040 [S]

Min: -15885.4 [N] at 0.057 [S]



B-248

8710-OFST-01

CFC_60

Time [S]

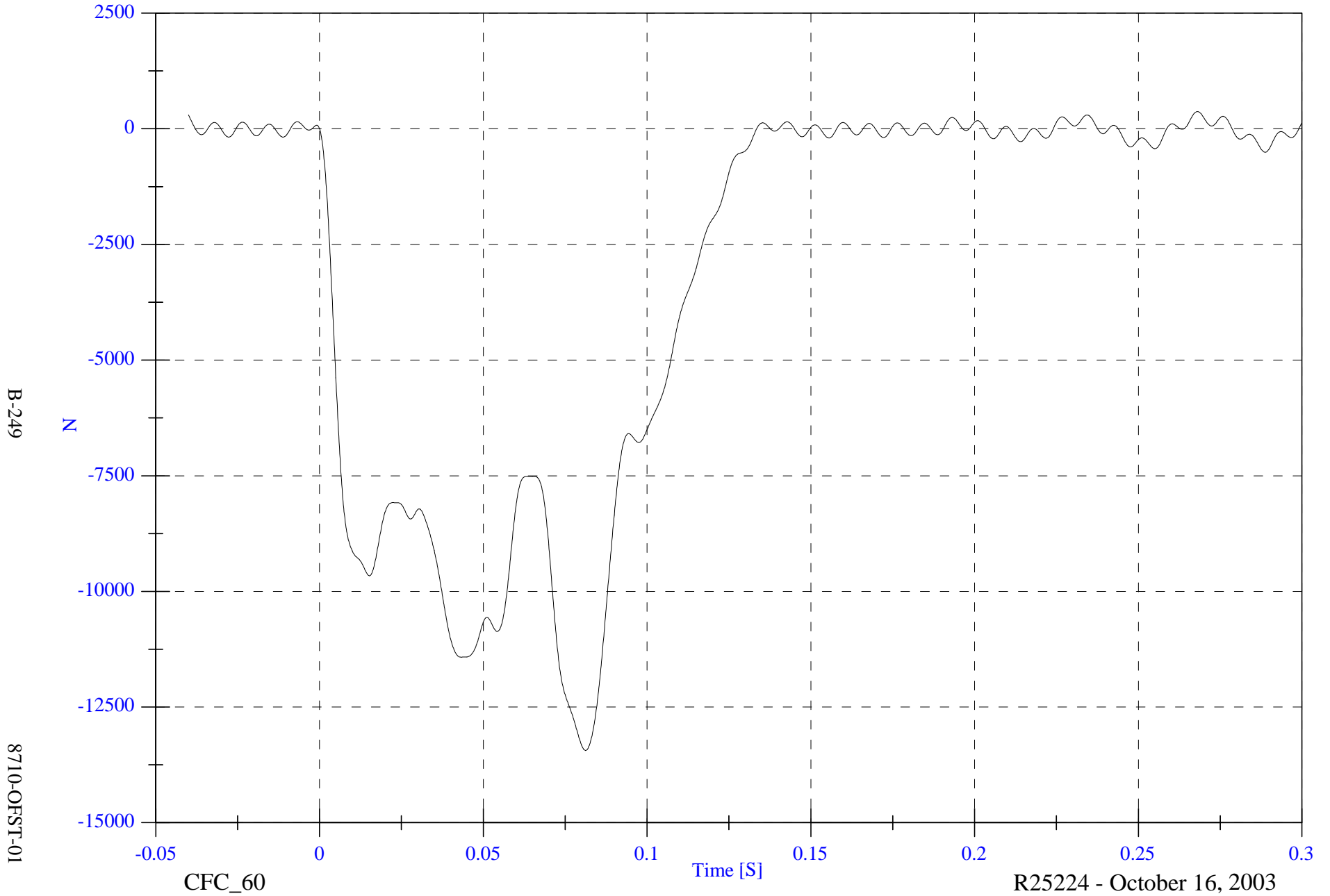
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell B6 FX

Max: 371.0 [N] at 0.268 [S]

Min: -13438.2 [N] at 0.081 [S]



B-249

8710-OFFST-01

CFC_60

Time [S]

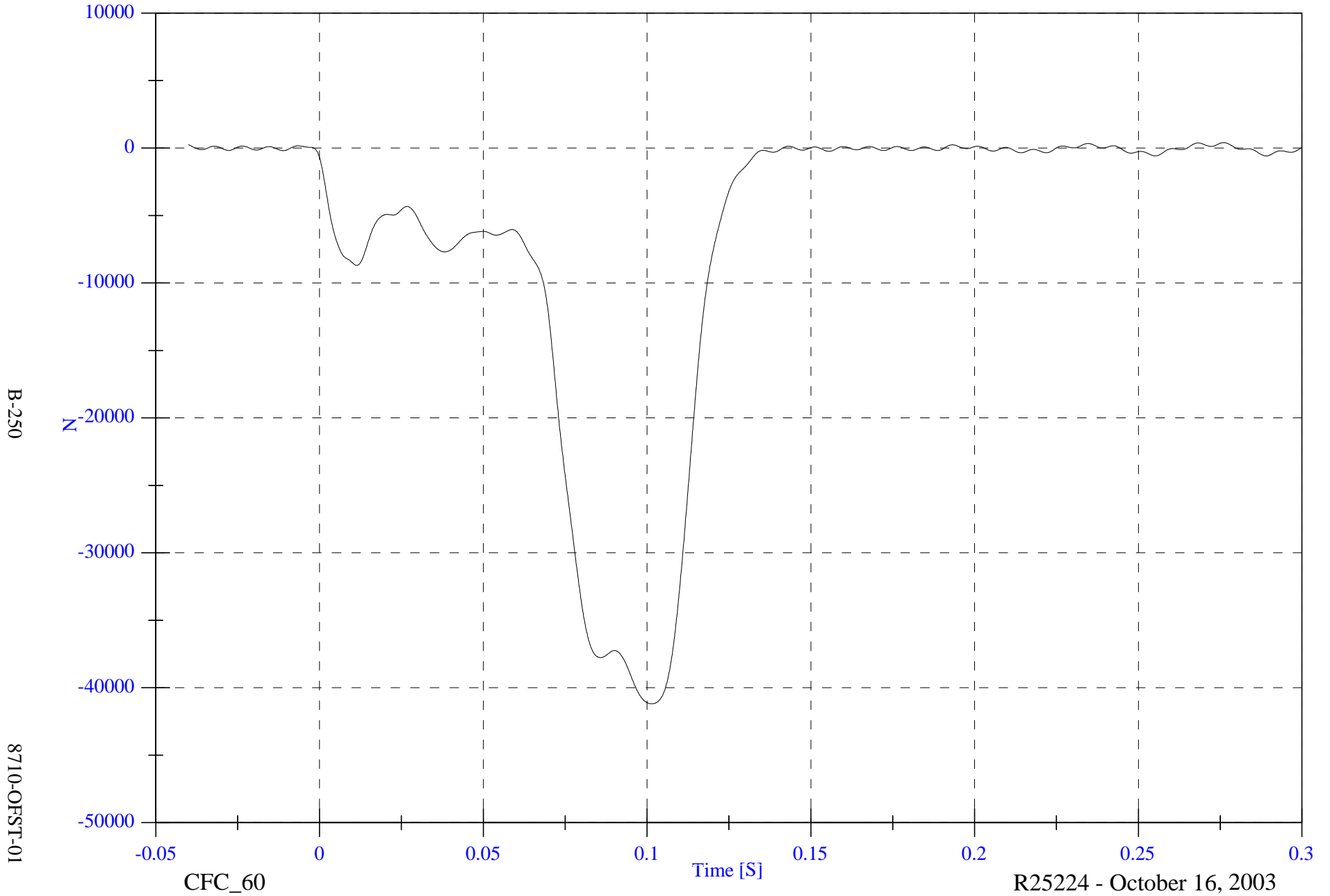
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell B7 FX

Max: 399.9 [N] at 0.276 [S]

Min: -41190.8 [N] at 0.101 [S]



B-250

8710-OFFST-01

CFC_60

Time [S]

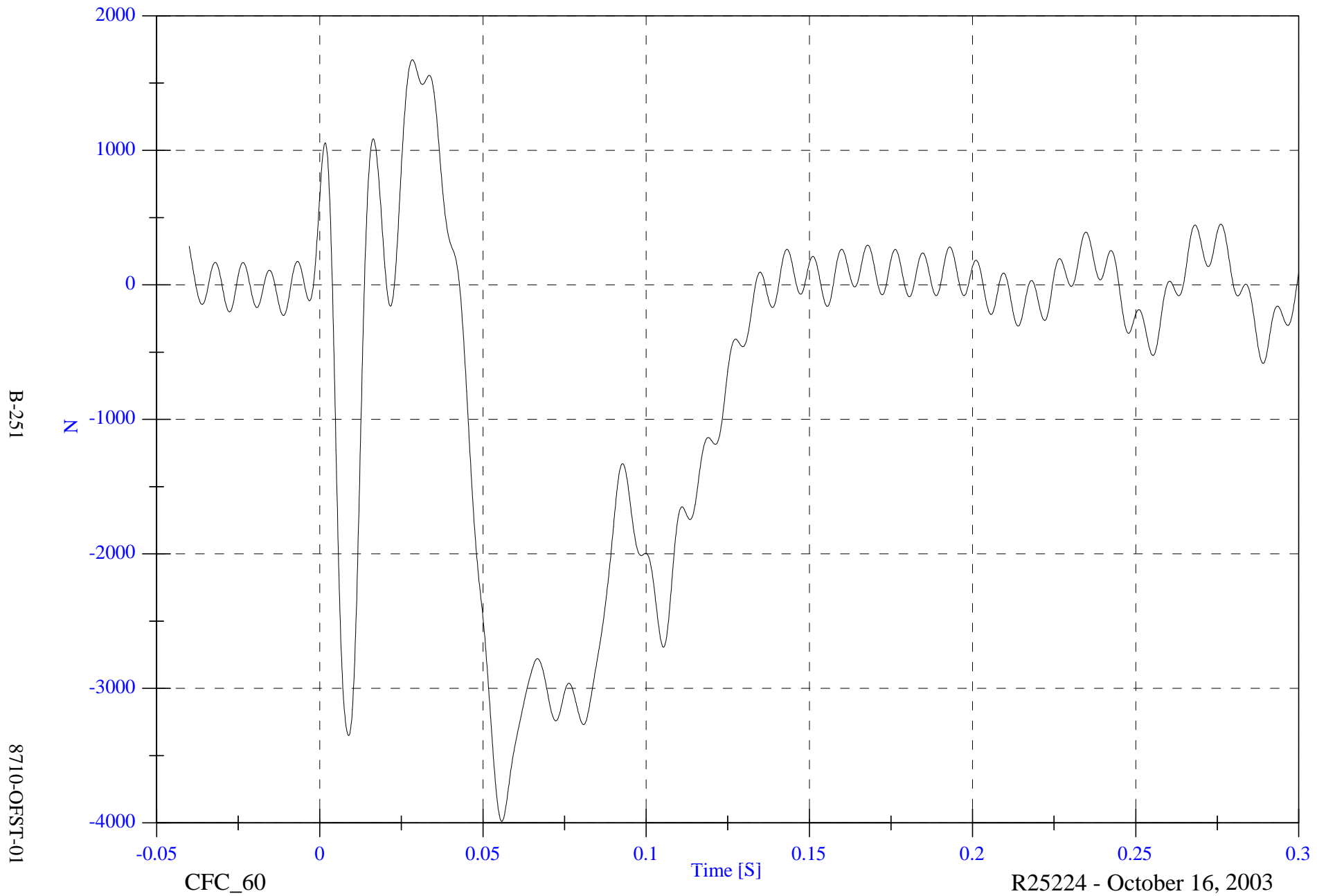
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell A1 FX

Max: 1672.8 [N] at 0.028 [S]

Min: -3988.9 [N] at 0.056 [S]

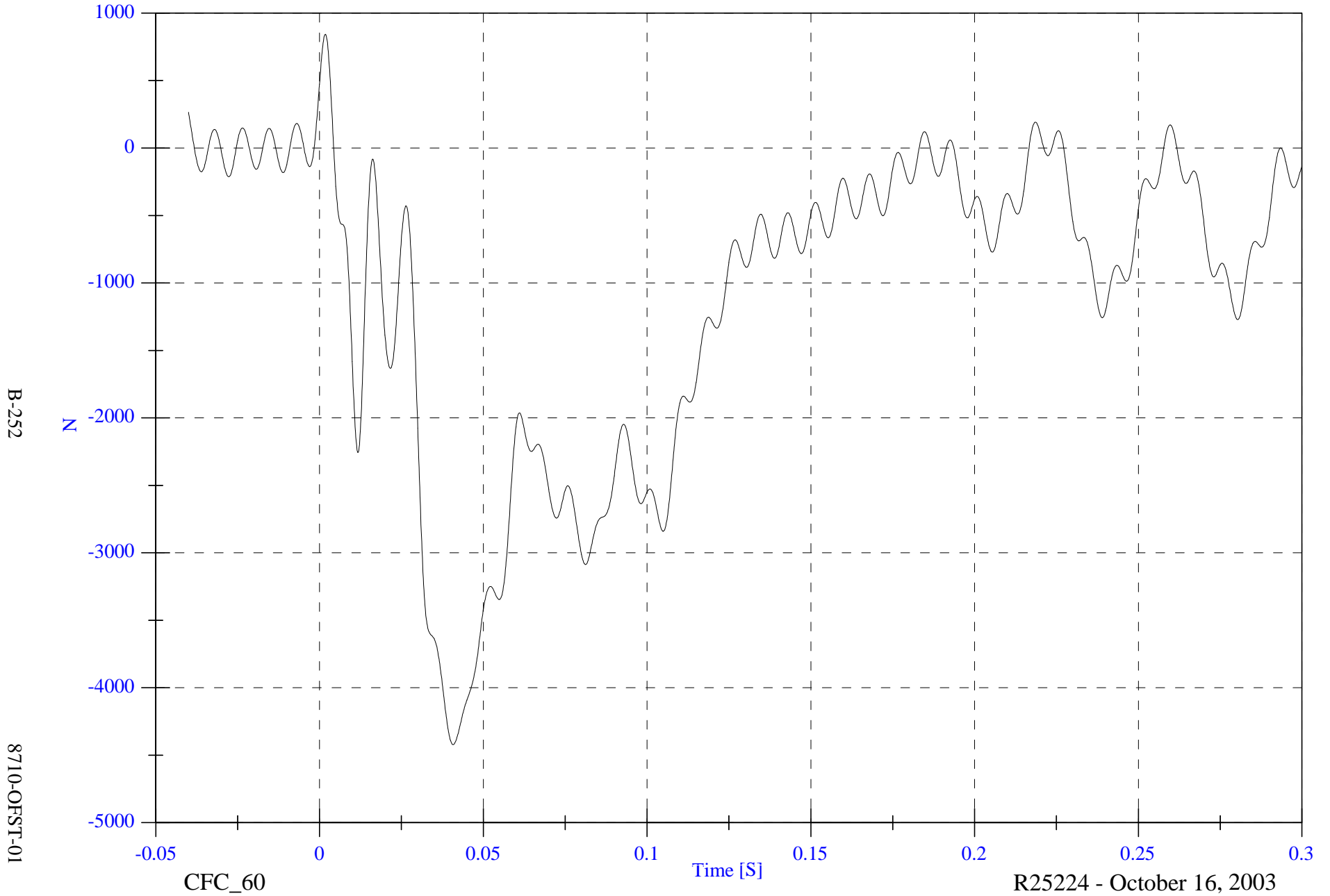


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell A2 FX

Max: 843.6 [N] at 0.002 [S]

Min: -4421.4 [N] at 0.041 [S]



2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell A3 FX

Max: 575.5 [N] at 0.002 [S]

Min: -5124.9 [N] at 0.023 [S]



B-253

8710-OFST-01

CFC_60

Time [S]

R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell A4 FX

Max: 1953.3 [N] at 0.193 [S]

Min: -7422.6 [N] at 0.023 [S]

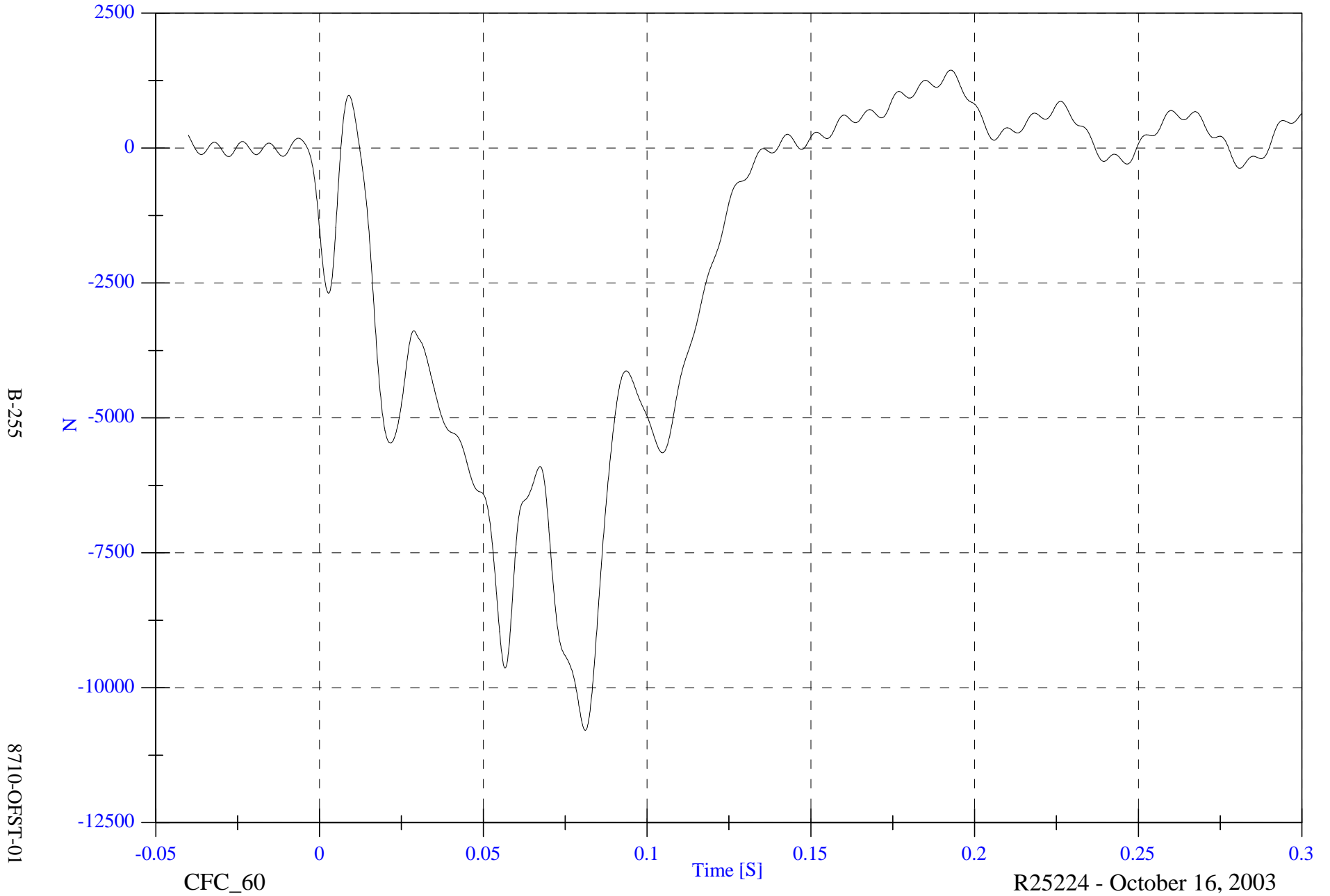


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell A5 FX

Max: 1443.4 [N] at 0.193 [S]

Min: -10788.1 [N] at 0.081 [S]

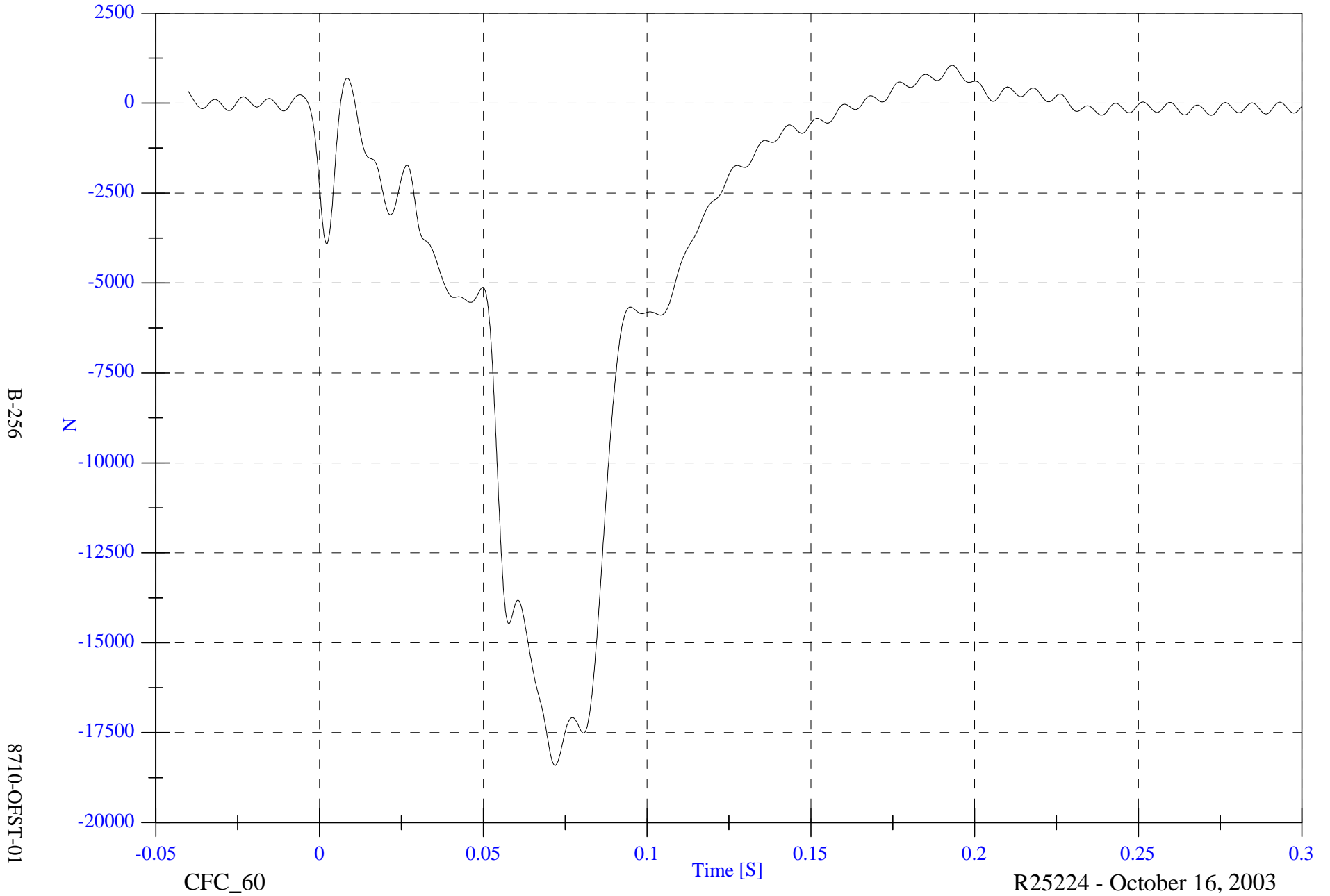


2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell A6 FX

Max: 1048.0 [N] at 0.193 [S]

Min: -18406.4 [N] at 0.072 [S]



B-256

8710-OFFST-01

CFC_60

Time [S]

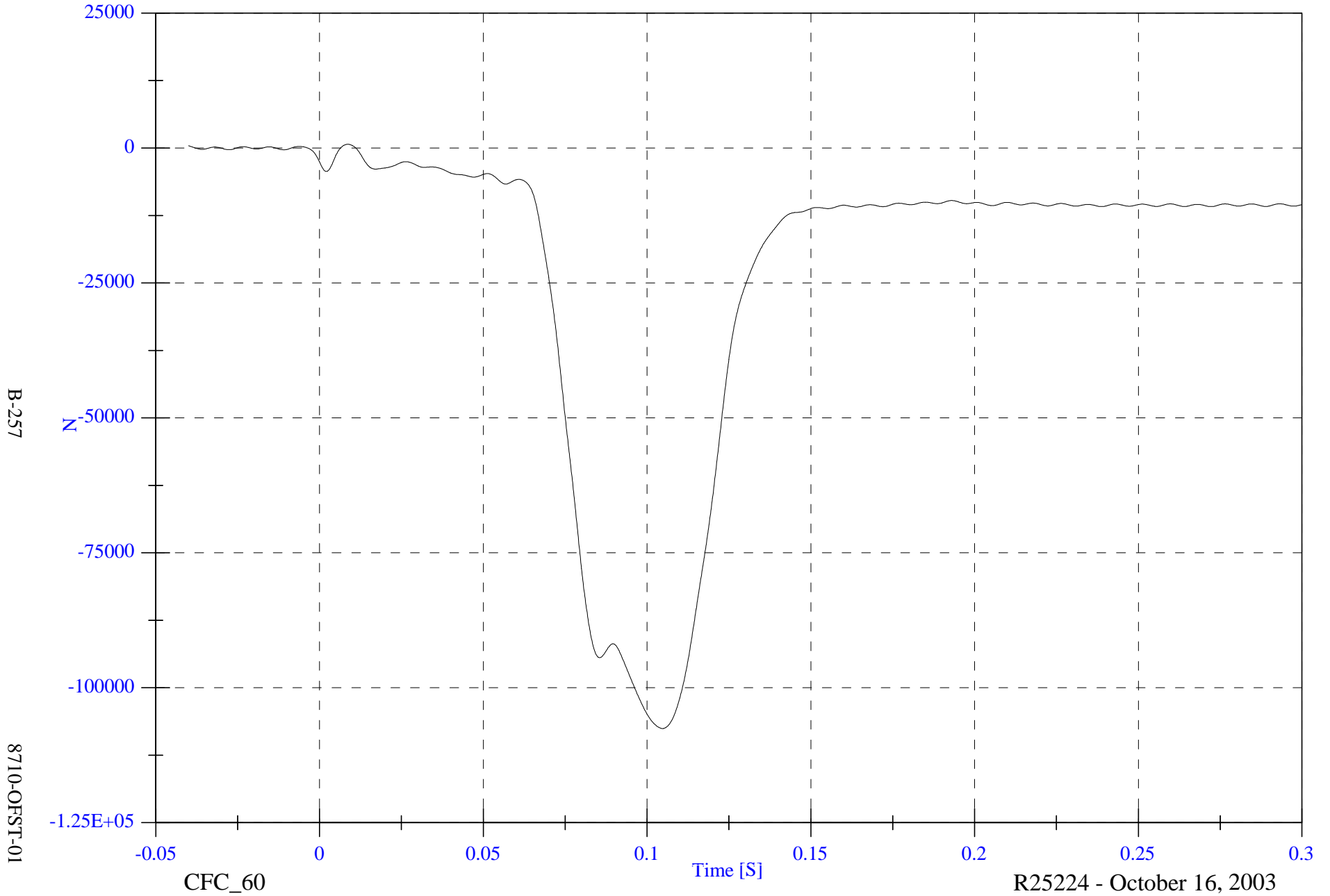
R25224 - October 16, 2003

2004 OFFSET BARRIER TEST #1 - 2002 Nissan Altima

Barrier Load Cell A7 FX

Max: 689.4 [N] at 0.009 [S]

Min: -107542.0 [N] at 0.105 [S]



APPENDIX C

**PART 572B/E DUMMY CONFIGURATION
AND PERFORMANCE VERIFICATION DATA SHEETS**

Appendix C contains the results from certification tests performed on the 50th percentile male anthropomorphic test devices utilized for this crash test. The results indicate that the dummies meet all of the performance requirements of the six standard tests as specified in 49 CFR Part 572, Federal Register, Volume 42, No. 25, dated February 7, 1977.

The tests were conducted at the Dummy Certification Test Facility of Veridian Engineering. A summary of the test results, and Part 572 specifications are included in this Appendix.

Dummy serial numbers and certification dates are:

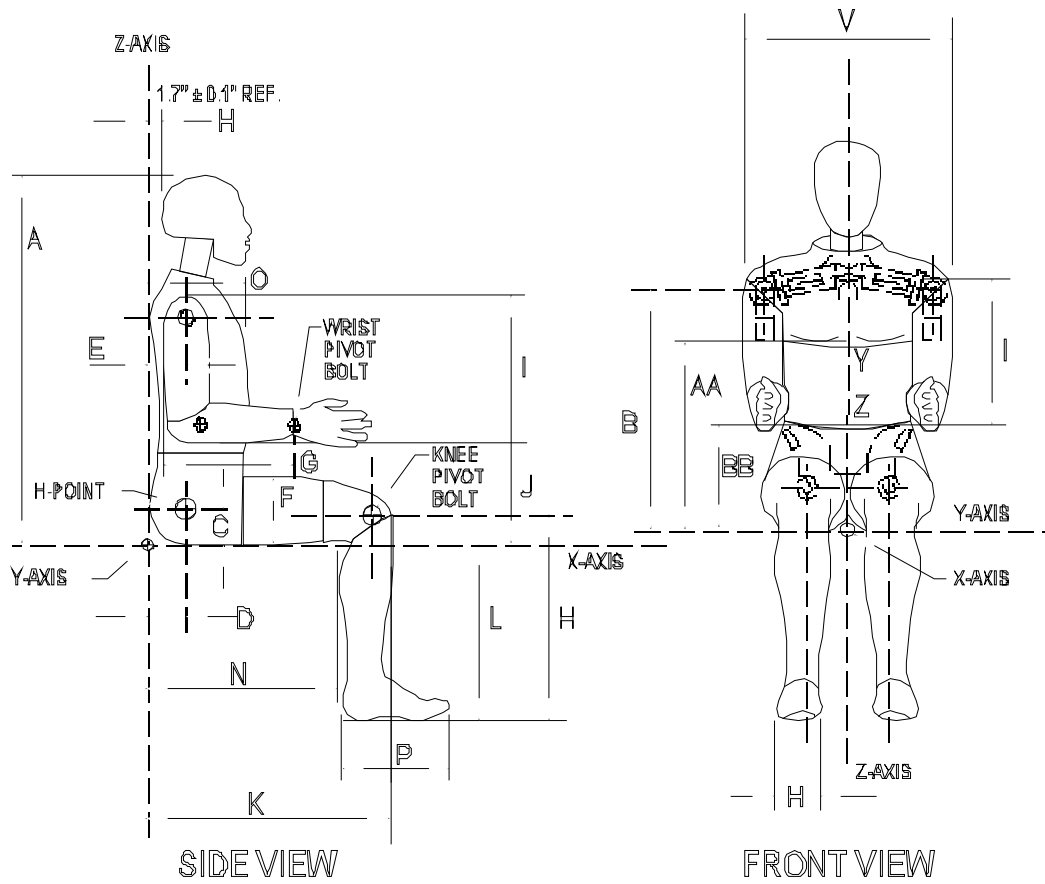
<u>Position No./Location</u>	<u>Serial No.</u>	<u>Completion Date</u>
#1/Driver	090	10/21/03
#2/Right Front Passenger	055	10/21/03

Electronic Test Equipment

The complement of signal conditioning, recording and display equipment, in conjunction with dummy certification testing, can be found in New Car Assessment and Standards Indicant Testing Final Report No. 6525-V-1.

DUMMY CONFIGURATION DIMENSIONS

EXTERNAL DIMENSIONS SPECIFICATIONS



NOTE: Figure is referenced to the erect seated position. The curved lumbar does not allow the Hybrid III to be positioned in a perfect erect attitude.
(REF: S572.31(A)(6))

PART 572E
HEAD DROP TEST

Dummy Serial Number 090
Sequential Test Number 090-01
Date 10/01/03
Workfile 090H 10-01-03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	47
Peak Resultant Acceleration	225-275 G's	269.75
Peak Lateral Acceleration	15 G's Max	2.74
Is Acceleration Curve Unimodal?	YES	YES

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	090	
Sequential Test Number	090-01	
Date	10/02/03	6 Axis Neck Transducer
Workfile	090NF 10-02-03	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	29
Impact Velocity		22.60 - 23.40 Ft/s	23.17
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	22.55
	20 ms	17.60 - 22.60 G's	21.22
	30 ms	12.50 - 18.50 G's	15.84
Max Pendulum G's Above 30 ms		29 G's Max	15.84
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	40.00
D Plane Rotation	Max	64 - 78 Deg	66.27
	Time	57 - 64 ms	61.60
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	79.25
	Time	47 - 58 ms	53.50
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	122.30
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	110.70

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	090	
Sequential Test Number	090-01	
Date	10/02/03	6 Axis Neck Transducer
Workfile	090NE 10-02-03	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70.00
Relative Humidity		10% - 70%	28.0
Impact Velocity		19.50 - 20.30 Ft/s	19.75
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	17.29
	20 ms	14.00 - 19.00 G's	16.40
	30 ms	11.00 - 16.00 G's	13.46
Max Pendulum G's Above 30 ms		22 G's Max	13.46
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	45.10
D Plane Rotation	Max	81 - 106 Deg	94.69
	Time	72 - 82 ms	80.80
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-53.64
	Time	65 - 79 ms	75.80
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	164.50
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	142.30

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 090
Sequential Test Number 090-01
Date 10/06/03
Workfile 090T 10-06-03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.5
Relative Humidity	10% - 70%	27.0
Pendulum Velocity	21.6 - 22.4 Ft/s	22.15
Maximum Deflection	2.50 - 2.86 in	2.60
Maximum Resistive Force	1160 - 1325 Lbs	1254.2
Internal Hysteresis	69 - 85 %	73.71

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 090
Sequential Test Number 090-01
Date 10/6/03

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70.5
Relative Humidity			27
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.9
Waist Circumference	Z	32.9 - 34.1 in	33.6
Chest Depth	O	8.4 - 9.0 in	8.7
H-Point Height	C	3.3 - 3.5 in	3.5
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.9
Thigh Clearance	F	5.5 - 6.1 in	5.8
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.6
Foot Length	P	9.9 - 10.5 in	10.2
Foot Breadth	W	3.6 - 4.2 in	3.9
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Shoulder Pivot Height	B	19.9 - 20.5 in	20.3
Elbow Rest Height	J	7.5 - 8.3 in	7.9
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.4
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.8

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 055
Sequential Test Number 055-01
Date 10/01/03
Workfile 055H 10-01-03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	48
Peak Resultant Acceleration	225-275 G's	274.44
Peak Lateral Acceleration	15 G's Max	5.28
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	055	
Sequential Test Number	055-01	
Date	10/02/03	6 Axis Neck Transducer
Workfile	055NF 10-02-03	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	28
Impact Velocity		22.60 - 23.40 Ft/s	22.65
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	22.59
	20 ms	17.60 - 22.60 G's	21.15
	30 ms	12.50 - 18.50 G's	14.54
Max Pendulum G's Above 30 ms		29 G's Max	14.54
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.30
D Plane Rotation	Max	64 - 78 Deg	75.79
	Time	57 - 64 ms	60.00
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	70.52
	Time	47 - 58 ms	52.80
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	119.60
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	106.6

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	055	
Sequential Test Number	055-01	
Date	10/02/03	6 Axis Neck Transducer
Workfile	055NE 10-02-03	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	28
Impact Velocity		19.50 - 20.30 Ft/s	19.70
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	20.72
	20 ms	14.00 - 19.00 G's	16.52
	30 ms	11.00 - 16.00 G's	11.17
Max Pendulum G's Above 30 ms		22 G's Max	11.17
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	44.30
D Plane Rotation	Max	81 - 106 Deg	98.44
	Time	72 - 82 ms	78.00
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-51.96
	Time	65 - 79 ms	74.80
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	163.10
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	140.70

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 055
Sequential Test Number 055-01
Date 10/06/03
Workfile 055T 10-06-03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	38
Pendulum Velocity	21.6 - 22.4 Ft/s	22.05
Maximum Deflection	2.50 - 2.86 in	2.52
Maximum Resistive Force	1160 - 1325 Lbs	1232.08
Internal Hysteresis	69 - 85 %	76.97

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 055
Sequential Test Number 055-01
Date 10/6/03

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70.5
Relative Humidity			27
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.9
Waist Circumference	Z	32.9 - 34.1 in	33.8
Chest Depth	O	8.4 - 9.0 in	8.9
H-Point Height	C	3.3 - 3.5 in	3.5
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.9
Thigh Clearance	F	5.5 - 6.1 in	5.9
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Buttock Popliteal Length	N	17.8 - 18.8 in	18.7
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.6
Foot Length	P	9.9 - 10.5 in	10.3
Foot Breadth	W	3.6 - 4.2 in	3.9
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	7.9
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.5
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.9

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 090
Sequential Test Number 090-02
Date 10/20/03
Workfile 090H 10-20-03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	31
Peak Resultant Acceleration	225-275 G's	236.42
Peak Lateral Acceleration	15 G's Max	3.68
Is Acceleration Curve Unimodal?	YES	YES

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	090	
Sequential Test Number	090-02	
Date	10/20/03	6 Axis Neck Transducer
Workfile	090NF 10-20-03	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	35
Impact Velocity		22.60 - 23.40 Ft/s	22.65
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	23.40
	20 ms	17.60 - 22.60 G's	20.16
	30 ms	12.50 - 18.50 G's	13.96
Max Pendulum G's Above 30 ms		29 G's Max	13.96
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	39.00
D Plane Rotation	Max	64 - 78 Deg	72.92
	Time	57 - 64 ms	60.70
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	72.82
	Time	47 - 58 ms	58.00
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	123.30
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	100.60

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	090	
Sequential Test Number	090-02	
Date	10/20/03	6 Axis Neck Transducer
Workfile	090NE 10-20-03	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70.00
Relative Humidity		10% - 70%	35.00
Impact Velocity		19.50 - 20.30 Ft/s	19.62
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	17.31
	20 ms	14.00 - 19.00 G's	15.83
	30 ms	11.00 - 16.00 G's	11.95
Max Pendulum G's Above 30 ms		22 G's Max	11.95
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	44.40
D Plane Rotation	Max	81 - 106 Deg	92.34
	Time	72 - 82 ms	78.90
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-51.43
	Time	65 - 79 ms	74.60
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	161.80
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	142.40

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 090
Sequential Test Number 090-02
Date 10/20/03
Workfile 090T 10-20-03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70.0
Relative Humidity	10% - 70%	35.0
Pendulum Velocity	21.6 - 22.4 Ft/s	22.28
Maximum Deflection	2.50 - 2.86 in	2.70
Maximum Resistive Force	1160 - 1325 Lbs	1236.68
Internal Hysteresis	69 - 85 %	70.86

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 090
 Sequential Test Number 090-01
 Date 10/21/03
 Workfile 090TK 10-21-03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70.0
Relative Humidity	10% - 70%	28.0
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1118.79
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	28
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1172.84

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 090
Sequential Test Number 090-02
Date 10/21/03

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			28
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.9
Waist Circumference	Z	32.9 - 34.1 in	33.6
Chest Depth	O	8.4 - 9.0 in	8.7
H-Point Height	C	3.3 - 3.5 in	3.5
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.9
Thigh Clearance	F	5.5 - 6.1 in	5.8
Buttock Knee Length	K	22.8 - 23.8 in	23.4
Buttock Popliteal Length	N	17.8 - 18.8 in	18.4
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.6
Foot Length	P	9.9 - 10.5 in	10.2
Foot Breadth	W	3.6 - 4.2 in	3.9
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
Shoulder Breadth	V	16.6 - 17.2 in	16.9
Shoulder Pivot Height	B	19.9 - 20.5 in	20.3
Elbow Rest Height	J	7.5 - 8.3 in	7.9
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.4
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.8

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
HEAD DROP TEST

Dummy Serial Number 055
Sequential Test Number 055-02
Date 10/17/03
Workfile 055H 10-17-03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	66-78 Deg F	70
Relative Humidity	10% - 70%	38
Peak Resultant Acceleration	225-275 G's	252.83
Peak Lateral Acceleration	15 G's Max	5.61
Is Acceleration Curve Unimodal?	YES	YES

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK FLEXION TEST

Dummy Serial Number	055	
Sequential Test Number	055-02	
Date	10/17/03	6 Axis Neck Transducer
Workfile	055NF 10-17-03	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	35
Impact Velocity		22.60 - 23.40 Ft/s	22.74
Pendulum Deceleration	10 ms	22.50 - 27.50 G's	22.75
	20 ms	17.60 - 22.60 G's	21.24
	30 ms	12.50 - 18.50 G's	14.53
Max Pendulum G's Above 30 ms		29 G's Max	14.53
Deceleration - Time Curve Decay Time to 5 G's		34 - 42 ms	36.80
D Plane Rotation	Max	64 - 78 Deg	77.97
	Time	57 - 64 ms	59.90
Moment About Occipital Condyle	Max	65 - 80 Ft-Lbs	68.32
	Time	47 - 58 ms	47.70
Rotation Angle - Time Curve Decay Time to Zero		113 - 128 ms	120.80
Positive Moment - Time Curve Decay Time to Zero		97 - 107 ms	106.70

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
NECK EXTENSION TEST

Dummy Serial Number	055	
Sequential Test Number	055-02	
Date	10/17/03	6 Axis Neck Transducer
Workfile	055NE 10-17-03	

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature		69-72 Deg F	70
Relative Humidity		10% - 70%	35
Impact Velocity		19.50 - 20.30 Ft/s	19.55
Pendulum Deceleration	10 ms	17.20 - 21.20 G's	17.30
	20 ms	14.00 - 19.00 G's	15.90
	30 ms	11.00 - 16.00 G's	12.83
Max Pendulum G's Above 30 ms		22 G's Max	12.83
Deceleration - Time Curve Decay Time to 5 G's		38 - 46 ms	44.30
D Plane Rotation	Max	81 - 106 Deg	101.64
	Time	72 - 82 ms	79.50
Moment About Occipital Condyle	Max	-59.0 - -39.0 Ft-Lbs	-58.71
	Time	65 - 79 ms	76.50
Rotation Angle - Time Curve Decay Time to Zero		147 - 174 ms	164.80
Positive Moment - Time Curve Decay Time to Zero		120 - 148 ms	144.70

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
THORAX IMPACT TEST

Dummy Serial Number 055
Sequential Test Number 055-02
Date 10/20/03
Workfile 055T 10-20-03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
Temperature	69-72 Deg F	70
Relative Humidity	10% - 70%	35
Pendulum Velocity	21.6 - 22.4 Ft/s	22.25
Maximum Deflection	2.50 - 2.86 in	2.55
Maximum Resistive Force	1160 - 1325 Lbs	1230.31
Internal Hysteresis	69 - 85 %	75.80

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
KNEE IMPACT TEST

Dummy Serial Number 055
 Sequential Test Number 055-01
 Date 10/21/03
 Workfile 055TK 10-21-03

TEST PARAMETER	SPECIFICATION	TEST RESULTS
LEFT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	28
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1193.39
RIGHT KNEE		
Temperature	66 - 78 Deg F	70
Relative Humidity	10% - 70%	28
Probe Velocity	6.8 - 7.0 Ft/s	7.00
Peak Knee Impact Force	1060 - 1300 Lbs	1110.98

Remarks:

Laboratory Technician:

B. Swiecicki

PART 572E
EXTERNAL DIMENSIONS

Dummy Serial Number 055
Sequential Test Number 055-02
Date 10/21/03

TEST PARAMETER		SPECIFICATION	TEST RESULTS
Temperature			70
Relative Humidity			28
Location for Chest Circumference	AA	16.9 - 17.1 in	17.0
Location for Waist Circumference	BB	8.9 - 9.1 in	9.0
Chest Circumference (With Jacket)	Y	38.2 - 39.4 in	38.9
Waist Circumference	Z	32.9 - 34.1 in	33.8
Chest Depth	O	8.4 - 9.0 in	8.9
H-Point Height	C	3.3 - 3.5 in	3.5
H-Point from Backline	D	5.3 - 5.5 in	5.4
Skull Cap to Backline	H	1.6 - 1.8 in	1.7
Total Sitting Height	A	34.6 - 35.0 in	34.9
Thigh Clearance	F	5.5 - 6.1 in	5.9
Buttock Knee Length	K	22.8 - 23.8 in	23.6
Buttock Popliteal Length	N	17.8 - 18.8 in	18.7
Popliteal Height	L	16.9 - 17.9 in	17.8
Knee Pivot Height	M	19.1 - 19.7 in	19.6
Foot Length	P	9.9 - 10.5 in	10.3
Foot Breadth	W	3.6 - 4.2 in	3.9
Shoulder Pivot from Backline	E	3.3 - 3.7 in	3.7
Shoulder Breadth	V	16.6 - 17.2 in	16.8
Shoulder Pivot Height	B	19.9 - 20.5 in	20.2
Elbow Rest Height	J	7.5 - 8.3 in	7.9
Shoulder - Elbow Length	I	13.0 - 13.6 in	13.5
Back of Elbow to Wrist Pivot	G	11.4 - 12.0 in	11.9

Remarks:

Laboratory Technician:

B. Swiecicki

APPENDIX D

DUMMY, VEHICLE AND LABORATORY INSTRUMENT CALIBRATION

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 090)		Manufacturer	Serial #	Calibration	
				Last	Next
Head X Arm	Y	ENDEVCO	ACCP9	9/11/2003	3/11/04
	Z	ENDEVCO	J29006	9/11/2003	3/11/04
Head Y Arm	X	ENDEVCO	J27523	9/11/2003	3/11/04
	Z	ENDEVCO	J27457	9/11/2003	3/11/04
Head Z Arm	X	ENDEVCO	J27466	9/11/2003	3/11/04
	Y	ENDEVCO	J27470	9/11/2003	3/11/04
Head CG	X	ENDEVCO	J14660	9/11/2003	3/11/04
	Y	ENDEVCO	J19873	9/11/2003	3/11/04
	Z	ENDEVCO	J36744	9/11/2003	3/11/04
Head CG	X (R)	ENTRAN	03E03D30-N01	9/19/2003	3/19/04
	Y (R)	ENTRAN	03F03E29-N04	9/19/2003	3/19/04
	Z (R)	ENTRAN	03F03E30-M02	9/19/2003	3/19/04
Upper Neck Load Cell	X	DENTON	810Fx	9/9/2003	3/9/04
	Y	DENTON	810Fy	9/9/2003	3/9/04
	Z	DENTON	810Fz	9/9/2003	3/9/04
Upper Neck Moment	X	DENTON	810Mx	9/9/2003	3/9/04
	Y	DENTON	810My	9/9/2003	3/9/04
	Z	DENTON	810Mz	9/9/2003	3/9/04
Lower Neck Load Cell	X	DENTON	215-Fx	9/9/2003	3/9/04
	Y	DENTON	215-Fy	9/9/2003	3/9/04
	Z	DENTON	215-Fz	9/9/2003	3/9/04
Lower Neck Moment	X	DENTON	215-Mx	9/9/2003	3/9/04
	Y	DENTON	215-My	9/9/2003	3/9/04
	Z	DENTON	215-Mz	9/9/2003	3/9/04
Chest	X	ENDEVCO	AAKE2	9/11/2003	3/11/04
	Y	ENDEVCO	AAJY4	9/11/2003	3/11/04
	Z	ENDEVCO	AF973	9/11/2003	3/11/04
Chest	X (R)	ENDEVCO	J14666	9/11/2003	3/11/04
	Y (R)	ENDEVCO	AAKA2	9/11/2003	3/11/04
	Z (R)	ENDEVCO	AF9Y5	9/11/2003	3/11/04
Chest Deflection Gauge		SERVO	90	9/17/2003	3/11/04

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 090)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load	X	DENTON	729	9/8/2003	3/8/04
Right Femur Load	X	DENTON	726	9/8/2003	3/8/04
Left Knee Shear	Dx	DENTON	13739	10/12/2003	4/12/04
Right Knee Shear	Dx	DENTON	13723	10/12/2003	4/12/04
Left Upper Tibia	Fx	DENTON	076Fx	8/20/2003	2/20/04
	Fz	DENTON	076Fz	8/20/2003	2/20/04
	Mx	DENTON	076Mx	8/20/2003	2/20/04
	My	DENTON	076My	8/20/2003	2/20/04
Left Lower Tibia	Fx	DENTON	077Fx	8/22/2003	2/22/04
	Fy	DENTON	077Fy	8/22/2003	2/22/04
	Fz	DENTON	077Fz	8/22/2003	2/22/04
	Mx	DENTON	077Mx	8/22/2003	2/22/04
	My	DENTON	077My	8/22/2003	2/22/04
Right Upper Tibia	Fx	DENTON	075Fx	8/20/2003	2/20/04
	Fz	DENTON	075Fz	8/20/2003	2/20/04
	Mx	DENTON	075Mx	8/20/2003	2/20/04
	My	DENTON	075My	8/20/2003	2/20/04

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

DRIVER DUMMY (S/N 090)		Manufacturer	Serial #	Calibration	
				Last	Next
Right Lower Tibia	Fx	DENTON	076Fx	8/22/2003	2/22/04
	Fy	DENTON	076Fy	8/22/2003	2/22/04
	Fz	DENTON	076Fz	8/22/2003	2/22/04
	Mx	DENTON	076Mx	8/22/2003	2/22/04
	My	DENTON	076My	8/22/2003	2/22/04
Left Tibia	X	ENTRAN	03F03F09-M10	7/21/2003	1/21/04
	Y	ENTRAN	03F03F09-N11	7/21/2003	1/21/04
Right Tibia	X	ENTRAN	03F03E29-N08	7/21/2003	1/21/04
	Y	ENTRAN	03E03E21-M12	7/21/2003	1/21/04
Left Ankle	Rx	Contelec	118	9/9/2003	3/9/04
	Ry	Contelec	229	9/9/2003	3/9/04
	Rz	Contelec	224	9/9/2003	3/9/04
Right Ankle	Rx	Contelec	37	9/9/2003	3/9/04
	Ry	Contelec	225	9/9/2003	3/9/04
	Rz	Contelec	39	9/9/2003	3/9/04
Left Foot	Ax	ENTRAN	03F03F09-N21	7/21/2003	1/21/04
	Ay	ENTRAN	03F03F09-N08	7/21/2003	1/21/04
	Az	ENTRAN	03F03F09-N19	7/21/2003	1/21/04
Right Foot	Ax	ENTRAN	03E03E18-F14	7/21/2003	1/21/04
	Ay	ENTRAN	03E03E21-M05	7/21/2003	1/21/04
	Az	ENTRAN	03E03E21-M10	7/21/2003	1/21/04

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 055)		Manufacturer	Serial #	Calibration	
				Last	Next
Head X Arm	Y	ENDEVCO	J36611	9/10/2003	3/10/04
	Z	ENDEVCO	J17705	9/10/2003	3/10/04
Head Y Arm	X	ENDEVCO	AJ4NL	9/10/2003	3/10/04
	Z	ENDEVCO	J20004	9/10/2003	3/10/04
Head Z Arm	X	ENDEVCO	AALD5	9/10/2003	3/10/04
	Y	ENDEVCO	J20209	9/10/2003	3/10/04
Head CG	X	ENDEVCO	AAKB1	9/10/2003	3/10/04
	Y	ENDEVCO	J27467	9/10/2003	3/10/04
	Z	ENDEVCO	J19865	9/10/2003	3/10/04
Head CG	X (R)	ENDEVCO	AAMP6	9/10/2003	3/10/04
	Y (R)	ENDEVCO	ACC59	9/10/2003	3/10/04
	Z (R)	ENDEVCO	J35987	9/10/2003	3/10/04
Neck Load Cell	X	DENTON	499Fx	9/9/2003	3/09/04
	Y	DENTON	499Fy	9/9/2003	3/09/04
	Z	DENTON	499Fz	9/9/2003	3/09/04
Neck Moment	X	DENTON	499Mx	9/9/2003	3/09/04
	Y	DENTON	499My	9/9/2003	3/09/04
	Z	DENTON	499Mz	9/9/2003	3/09/04
Chest	X	ENDEVCO	FJ66J	9/10/2003	3/10/04
	Y	ENDEVCO	BE68J	9/10/2003	3/10/04
	Z	ENDEVCO	AL40	9/10/2003	3/10/04
Chest	X (R)	ENDEVCO	DC73J	9/23/2003	3/23/04
	Y (R)	ENDEVCO	BG37J	9/23/2003	3/23/04
	Z (R)	ENTRAN	99H30-Z10	9/23/2003	3/23/04
Chest Deflection Gauge		SERVO	55	9/25/2003	3/25/04

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 055)		Manufacturer	Serial #	Calibration	
				Last	Next
Left Femur Load	X	DENTON	741	9/8/2003	3/8/04
Right Femur Load	X	DENTON	631	9/8/2003	3/8/04
Left Knee Shear	Dx	DENTON	13727	10/12/2003	4/12/04
Right Knee Shear	Dx	SpaceAge Control	18127	10/12/2003	4/12/04
Left Upper Tibia	Fx	DENTON	097Fx	8/21/2003	2/21/04
	Fz	DENTON	097Fz	8/21/2003	2/21/04
	Mx	DENTON	097Mx	8/21/2003	2/21/04
	My	DENTON	097My	8/21/2003	2/21/04
Left Lower Tibia	Fx	DENTON	080Fx	8/22/2003	2/22/04
	Fy	DENTON	080Fy	8/22/2003	2/22/04
	Fz	DENTON	080Fz	8/22/2003	2/22/04
	Mx	DENTON	080Mx	8/22/2003	2/22/04
	My	DENTON	080My	8/22/2003	2/22/04
Right Upper Tibia	Fx	DENTON	079UFx	8/21/2003	2/21/04
	Fz	DENTON	079Fz	8/21/2003	2/21/04
	Mx	DENTON	079UMx	8/21/2003	2/21/04
	My	DENTON	079UMy	8/21/2003	2/21/04

INSTRUMENT CALIBRATION FOR PASSENGER DUMMY
(6 Month Calibration Minimum)

PASSENGER DUMMY (S/N 055)		Manufacturer	Serial #	Calibration	
				Last	Next
Right Lower Tibia	Fx	DENTON	079Fx	8/22/2003	2/22/04
	Fy	DENTON	079Fy	8/22/2003	2/22/04
	Fz	DENTON	079Fz	8/22/2003	2/22/04
	Mx	DENTON	079Mx	8/22/2003	2/22/04
	My	DENTON	079My	8/22/2003	2/22/04
Left Tibia	X	ENTRAN	03E03E21-M13	7/21/2003	1/21/04
	Y	ENTRAN	03F03E29-N11	7/21/2003	1/21/04
Right Tibia	X	ENTRAN	03F03F09-N09	7/22/2003	1/22/04
	Y	ENTRAN	03F03F09-N14	7/21/2003	1/21/04
Left Ankle	Rx	Contelec	60	9/9/2003	3/9/04
	Ry	Contelec	61	9/9/2003	3/9/04
	Rz	Contelec	62	9/9/2003	3/9/04
Right Ankle	Rx	Contelec	338	9/9/2003	3/9/04
	Ry	Contelec	58	9/9/2003	3/9/04
	Rz	Contelec	59	9/9/2003	3/9/04
Left Foot	Ax	ENTRAN	03E03E18-F06	7/21/2003	1/21/04
	Ay	ENTRAN	03F03F09-N12	7/21/2003	1/21/04
	Az	ENTRAN	03E03E21-M01	7/21/2003	1/21/04
Right Foot	Ax	ENTRAN	03E03E18-F10	7/22/2003	1/21/04
	Ay	ENTRAN	03F03E29-N13	7/21/2003	1/21/04
	Az	ENTRAN	03E03E18-F21	7/21/2003	1/21/04

INSTRUMENT CALIBRATION FOR VEHICLE ACCELEROMETERS

(6 Month Calibration Minimum)

	Manufacturer	Serial #	Calibration	
			Last	Next
Left Seat Rear Crossmember X	ENDEVCO	P18578	9/10/2003	3/10/04
Left Seat Rear Crossmember Y	ENDEVCO	P19227	9/10/2003	3/10/04
Right Seat Rear Crossmember X	ENDEVCO	P21392	9/10/2003	3/10/04
Right Rear Seat Crossmember Y	ENDEVCO	P19253	9/10/2003	3/10/04
Driver Left Side Toepan X	ENDEVCO	J33843	6/25/2003	12/25/03
Driver Left Side Toepan Z	ENDEVCO	BB14	6/25/2003	12/25/03
Driver Right Side Toepan X	ENDEVCO	J33071	9/24/2003	3/24/04
Driver Right Side Toepan Z	ENDEVCO	J32787	9/24/2003	3/24/04
Vehicle CG X	ENDEVCO	P16585	9/24/2003	3/24/04
Vehicle CG Y	ENDEVCO	P15747	9/24/2003	3/24/04
Vehicle CG Z	ENDEVCO	P14438	9/24/2003	3/24/04
Trunk Z	ICS	8084-020	5/23/2003	11/23/03
Driver Toepan X	PATRIOT	M11	9/2/2003	3/2/04