

REPORT NUMBER: 201UI-CAL-08-09

**SAFETY COMPLIANCE TESTING FOR FMVSS 201
OCCUPANT PROTECTION IN INTERIOR IMPACT
UPPER INTERIOR HEAD IMPACT PROTECTION**

**FORD MOTOR COMPANY
2008 FORD RANGER**

NHTSA NUMBER: C80205

CALSPAN TEST NUMBER: 8851-09

CALSPAN
TRANSPORTATION SCIENCES CENTER
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BUFFALO, NEW YORK 14225



Test Date: May 21, 2008

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
Mail Code: NVS-220, West Building 4th Floor
1200 New Jersey Avenue, SE
Washington, DC 20590

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FINAL REPORT ACCEPTANCE BY:

NHTSA, Office of Vehicle Safety Compliance

Date of Report Acceptance

TECHNICAL REPORT STANDARD TITLE PAGE

1. <i>Report No.</i> 201UI-CAL-08-09		2. <i>Government Accession No.</i>		3. <i>Recipient's Catalog No.</i>																			
4. <i>Title and Subtitle</i> Final Report of FMVSS 201 Compliance Testing of a 2008 Ford Ranger NHTSA No. C80205				5. <i>Report Date</i> May 21, 2008																			
				6. <i>Performing Organization Code</i> CAL																			
7. <i>Author(s)</i> James Czarnecki, Program Manager James Czarnecki, Project Engineer				8. <i>Performing Organization Report No.</i> 8851-09																			
9. <i>Performing Organization Name and Address</i> Calspan 4455 Genesee Street Buffalo, New York 14225				10. <i>Work Unit No.</i>																			
				11. <i>Contract or Grant No.</i> DTNH22-04-C-01027																			
12. <i>Sponsoring Agency Name and Address</i> U.S. Department of Transportation National Highway Traffic Safety Administration Office of Vehicle Safety Compliance Mail Code: NVS-220, West building 4 th Floor 1200 New Jersey Avenue, SE Washington, D.C. 20590				13. <i>Type of Report and Period Covered</i> Final Report May 2008																			
				14. <i>Sponsoring Agency Code</i> NVS-220																			
15. <i>Supplementary Notes</i>																							
16. <i>Abstract</i> Compliance tests were conducted on the subject vehicle, a 2008 Ford Ranger, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure TP-201U-01 for determination of FMVSS 201 compliance. Test failures identified were as follows in the table below:																							
<table border="1"> <thead> <tr> <th>Target Point</th> <th>Horizontal</th> <th>Vertical</th> <th>Velocity</th> <th>HIC</th> <th>HICd</th> </tr> </thead> <tbody> <tr> <td>None</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>None</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>						Target Point	Horizontal	Vertical	Velocity	HIC	HICd	None	-	-	-	-	-	None	-	-	-	-	-
Target Point	Horizontal	Vertical	Velocity	HIC	HICd																		
None	-	-	-	-	-																		
None	-	-	-	-	-																		
17. <i>Key Words</i> Compliance Testing Safety Engineering FMVSS 201				18. <i>Distribution Statement</i> <u>Copies of this report are available from:</u> NHTSA Technical Information Services National Highway Traffic Safety Admin. 1200 New Jersey Avenue, SE Washington, DC 20590																			
19. <i>Security Classif. (of this report)</i> UNCLASSIFIED		20. <i>Security Classif. (of this page)</i> UNCLASSIFIED		21. <i>No. of Pages</i>	22. <i>Price</i>																		

Form DOT F1700.7 (8-69)

TABLE OF CONTENTS

SECTION		PAGE NO.
1	PURPOSE AND TEST PROCEDURE	1-1
2	SUMMARY OF UPPER INTERIOR HEAD IMPACTS	2-1
3	SUMMARY OF TEST RESULTS AND DATA PLOTS	3-1
APPENDIX A	PHOTOGRAPHS	A-1
APPENDIX B	PART 572L PERFORMANCE CALIBRATION IN SUPPORT OF VEHICLE SAFETY COMPLIANCE TESTING FOR OCCUPANT PROTECTION IN INTERIOR IMPACT	B-1

LIST OF DATA SHEETS

DATA SHEET	DESCRIPTION	PAGE NO.
2-1	SUMMARY OF UPPER INTERIOR HEAD IMPACT TESTS	2-2
2-2	GENERAL TEST AND VEHICLE PARAMETER DATA	2-3
2-3	APPROACH ANGLE LIMITS	2-5
2-4	SUMMARY TARGET IMPACT LOCATION ON FMH	2-6

SECTION 1

PURPOSE AND TEST PROCEDURE

This head impact compliance test is part of the FMVSS 201 Upper Interior Head Impact Protection Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-04-C-01027. The purpose of this head impact compliance test was to determine whether the subject vehicle, a 2008 Ford Ranger, NHTSA No. C80205, met the performance requirements of FMVSS 201, Occupant Protection in Interior Impact. The compliance test was conducted in accordance with the OVSC Laboratory Test Procedure No. TP-201U-01 dated April 03, 1998.

SECTION 2

SUMMARY OF UPPER INTERIOR HEAD IMPACTS

A 2008 Ford Ranger , NHTSA No. C80205 , was tested at various upper interior locations by a 4.54 kg 50th percentile headform. A total of twelve (12) impacts were performed in this test series. The target area impacts were chosen by the NHTSA Contracting Officer's Technical Representative (COTR). A summary of test results can be found on Data Sheet 2-1, Summary of Upper Interior Head Impact Tests. The twelve (12) area chosen for testing were:

RP1	URRP	SR2R	SR1	URSR2A
AP3	AP1	FH2	RP2	RH
AP2	FH1			

The selected impact areas on the test vehicle appeared to comply with the performance requirements of FMVSS 201.

Five Free Motion Headforms (FMH) were used in this test series. All five FMH's were calibrated prior to and after the test series. Calibration information are included in Appendix B. Each FMH weighed 4.54 ± 0.5 kg and had an orthogonal tri-axis accelerometer pack mounted at the headform's center of gravity (c.g.).

A total of three (3) channels of data for each test were recorded on a Keyser-Threde data acquisition system. Data plots, along with still images, can be found in Section 3, Summary of Test Results and Data Plots.

To document each target area impact test, a Weinberger high-speed video camera was placed at an appropriate location to record the headform contact with the selected target area.

DATA SHEET 2-1

SUMMARY OF UPPER INTERIOR HEAD IMPACT TESTS

VEHICLE YEAR/MAKE/MODEL/STYLE:	2008 Ford Ranger
VIN:	1FTYR10D98PA33826
DATE OF MANUFACTURE:	09/07 (SEE CERTIFICATION LABEL)
COLOR:	White

TARGET CODE	Target Coordinates						Approach Angles (degrees)		Velocity (kph)	FMH HIC	HIC(d)
	Driver Side			Passenger Side			Horizontal	Vertical			
	X(mm)	Y(mm)	Z(mm)	X(mm)	Y(mm)	Z(mm)					
AP1	2612.562	-543.999	1742.420	2610.386	551.145	1739.406	Relocated 2 circles		-	-	-
AP1 R2	2631.299	-576.071	1713.486	2628.775	583.592	1706.438	117°	23°	23.54	666.1	668.9
AP2	2564.753	-589.084	1653.053	2563.760	593.532	1650.442	208°	9°	23.64	323.2	410.3
AP3	2505.058	-612.067	1560.507	2511.332	611.430	1558.611	137°	40°	23.43	431.4	491.9
FH1	2524.293	-423.869	1729.816	2530.828	431.305	1726.826	180°	50°	23.82	653.6	645.7
FH2	2501.380	-274.974	1738.520	2501.644	285.444	1735.773	180°	50°	23.51	580.2	604.2
RH	3270.055	-365.716	1720.853	3270.391	364.924	1714.411	360°	27°	23.39	358.9	437.2
RP1	3270.696	-516.979	1703.255	3274.145	517.262	1692.931	Relocated 1 circle		-	-	-
RP1 R1	3282.616	-500.695	1694.569	3286.904	507.434	1679.278	27°	20°	23.52	310.5	400.6
RP2	3214.191	-581.162	1613.667	3210.803	587.423	1609.187	270°	0°	23.54	789	761.7
SR1	2761.434	-517.540	1765.717	2759.294	521.441	1762.110	90°	31°	23.77	605.3	623.1
SR2A	2910.259	-516.993	1764.244	2908.162	522.188	1760.530	-	-	-	-	-
SR2R	2971.128	-516.952	1764.217	2975.979	521.845	1759.778	90°	32°	23.61	637.8	647.6
URAP	2617.561	-386.435	1774.770	2612.937	384.743	1771.050	-	-	-	-	-
URRP	3167.372	-384.382	1790.861	3170.594	384.834	1783.544	28°	45°	23.64	546.7	578.9
URSR1	2776.486	-380.152	1803.268	2777.439	390.487	1798.817	-	-	-	-	-
URSR2A	2910.564	-389.006	1815.013	2906.551	386.660	1811.990	90°	50°	23.53	667.6	670.1
URSR2R	2969.951	-383.053	1816.112	2972.467	384.935	1812.664	-	-	-	-	-

*HIC(d)=0.75446(Free Motion Headform HIC)+166.4

DATA SHEET 2-2

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:									
Year/Make/Model/Body Style:				2008 Ford Ranger					
VIN:				1FTYR10D98PA33826					
Month & Year of Manufacture:				09/07 (SEE CERTIFICATION LABEL)					
Vehicle Body Color:				White					
Engine Data:	4	Cylinders;	-	CID;	2.3	Liters;	-	cc	
Engine Placement:		x	Longitudinal;	or		-	Lateral		
Transmission:	5	Speed;	-	Manual;	x	Automatic;	x	Overdrive	
Final Drive:	x	Rear Wheel Drive;	-	Front Wheel Drive;	-	Four Wheel Drive			
Odometer Reading:		37	km						
Options:	x	A/C;	x	Power Steering;	x	Pwr.Brakes;	-	Pwr. Windows	
Interior Trim Information :									
1. A-pillar grab handles									
2. Adjustable Rear Pillar seat belt anchorages									
3. Regular cab truck									

DATA FROM TIRE PLACARD:									
Tire Pressure (at capacity);				205		kPa FRONT			
				205		kPa REAR			
Recommended Tire Size:				P225/70R15					
Tires on Test Vehicle:		P225/70R15		Manufacturer:		-			
Vehicle Capacity Data:									
Number of Occupants:	3	Front;	-	Rear;	-	3rd Seat;	3	Total	
Type of Front Seats:	-	Bucket;	x	Bench;	-	Split Bench			
Type of Front Seat Back:	-	Fixed;	x	Adjustable with	x	Lever or	-	Knob	
Vehicle Capacity Weight (VCW)=				554		kg (A)			
No. of Occupants x 68 kg. =				204		kg (B)			
Rated Cargo/Luggage Weight (RCLW) =				350		kg (A-B) Max. RCLW = 136 kg.			

DATA SHEET 2-2

GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:							
Left Front	=	421.0	kg	Left Rear	=	295.5	kg
Right Front	=	408.5	kg	Right Rear	=	283.0	kg
TOTAL FRONT	=	829.5	kg	TOTAL REAR	=	578.5	kg
% of Total Weight	=	58.9%	%	% of Total Weight	=	41.1%	%
TOTAL WEIGHT	=	1408.0				kg	

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:		
Total Test Vehicle Delivered Weight=	1408.0	kg (A)
+ Rated Cargo/Luggage Weight =	136.0	kg (B)
TEST VEHICLE TARGET WEIGHT =	1544.0	kg (A+B)

WEIGHT OF TEST VEHICLE (FULLY LOADED):							
Left Front	=	398.5	kg	Left Rear	=	374.5	kg
Right Front	=	396.0	kg	Right Rear	=	369.0	kg
TOTAL FRONT	=	794.5	kg	TOTAL REAR	=	743.5	kg
% of Total Weight	=	51.7%	%	% of Total Weight	=	48.3%	%
TOTAL TEST WEIGHT	=	1538.0					
Weight of vehicle secured in test vehicles cargo area	=	130.0				kg	

TEST VEHICLE ATTITUDE (all dimensions in millimeters):				
AS DELIVERED:	Left Front	819	Left Rear	864
	Right Front	829	Right Rear	871
FULLY LOADED:	Left Front	821	Left Rear	840
	Right Front	828	Right Rear	851
Test Vehicle Wheelbase:	-			millimeters

TEST VEHICLE PITCH AND ROLL ANGLES:				
AS DELIVERED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↑1.2↓	Front Bumper	↓0.1↑
	Right Door Sill	↓1.1↑	Rear Bumper	↓0.2↑
FULLY LOADED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↑0.5↓	Front Bumper	↓0.3↑
	Right Door Sill	↓0.5↑	Rear Bumper	↓0.6↑
AS TESTED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↑0.5↓	Front Bumper	↓0.3↑
	Right Door Sill	↓0.5↑	Rear Bumper	↓0.3↑

DATA SHEET 2-3

APPROACH ANGLE LIMITS

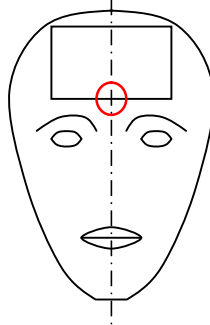
Target Code	Left Side				Target Code	Right Side			
	Horizontal Angles (deg.)		Vertical Angles (deg.)			Horizontal Angles (deg.)		Vertical Angles (deg.)	
	Minimum	Maximum	Minimum	Maximum		Minimum	Maximum	Minimum	Maximum
AP1	202	243	-5	23	AP1	117	258	-5	23
AP2	202	243	-5	9	AP2	117	258	-5	9
AP3	202	243	-5	40	AP3	117	258	-5	40
BP1	-	-	-10	-	BP1	-	-	-10	-
BP2		270	0	-	BP2		90	0	-
BP3	-	-	-10	-	BP3	-	-	-10	-
BP4	-	-	-10	-	BP4	-	-	-10	-
OP1		270	-10	-	OP1		90	-10	-
OP2		270	-10	-	OP2		90	-10	-
RP1	270	345	-10	20	RP1	15	90	-10	20
RP2		ANY	0	0	RP2		ANY	0	0
FH1		180	0	50	FH1		180	0	50
FH2		180	0	50	FH2		180	0	50
RH		360	0	27	RH		0	0	27
SR1		270	0	31	SR1		90	0	31
SR2A		270	0	31	SR2A		90	0	31
SR2R		270	0	32	SR2R		90	0	32
URAP		ANY	0	45	URAP		ANY	0	45
URSR2A		ANY	0	50	URSR2A		ANY	0	50
URRP		ANY	0	45	URRP		ANY	0	45

Note : RP2 target location – Seat belt anchorage

DATA SHEET 2-4

SUMMARY TARGET IMPACT LOCATION ON FMH

VEHICLE YEAR/MAKE/MODEL/STYLE:	2008 Ford Ranger
VIN:	1FTYR10D98PA33826
DATE OF MANUFACTURE:	09/07(SEE CERTIFICATION LABEL)
COLOR:	White



ã RIGHT SIDE OF FACE

TARGET	Distance Above Point 0 (mm)	Distance Over From Pt. O (mm)
RP1	35	14R
URRP	16	24R
SR2R	13	5L
SR1	24	7L
URSR2A	29	2L
AP3	4	15L
AP1	28	6R
FH2	13	5L
RP2	5	3L
RH	17	6L
AP2	10	5R
FH1	17	0

SECTION 3
SUMMARY OF TEST RESULTS AND DATA PLOTS

VEHICLE YEAR/MAKE/MODEL/STYLE:	2008 Ford Ranger
VIN:	1FTYR10D98PA33826
DATE OF MANUFACTURE:	09/07(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	01
Test Date:	05/20/08
Target Location:	REAR PILLAR
Target Code:	RP1
Horizontal Impact Angle:	27°
Vertical Impact Angle:	20°
Ambient Temperature:	22°C
Relative Humidity:	31
Time of Impact:	10:00
Headform Number:	0355

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	14	<input checked="" type="checkbox"/>	mm right	<input type="checkbox"/>	mm left
On Centerline	35				mm up



POST-IMPACT RP1 HEADFORM

Free Motion HIC	310.5
HIC(d)	400.6
Impact Velocity (kph)	23.52
HIC T1 (msec)	5.9
HIC T2 (msec)	16.1

FMVSS 201U 2008 Ford Ranger C80205 - RP1

FMH Headform 0355

Location: RP1

Test Date: May 20, 2008

Work File: RP1

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 400.6

Lab Humidity: 31 %

HIC (36ms): 310.5

Velocity at Impact: 23.52 KPH

t1: 5.9 msec

t2: 16.1 msec

Free Flight Distance: 222.23 mm

Duration: 10.2 msec

Average Acceleration: 8.0 g

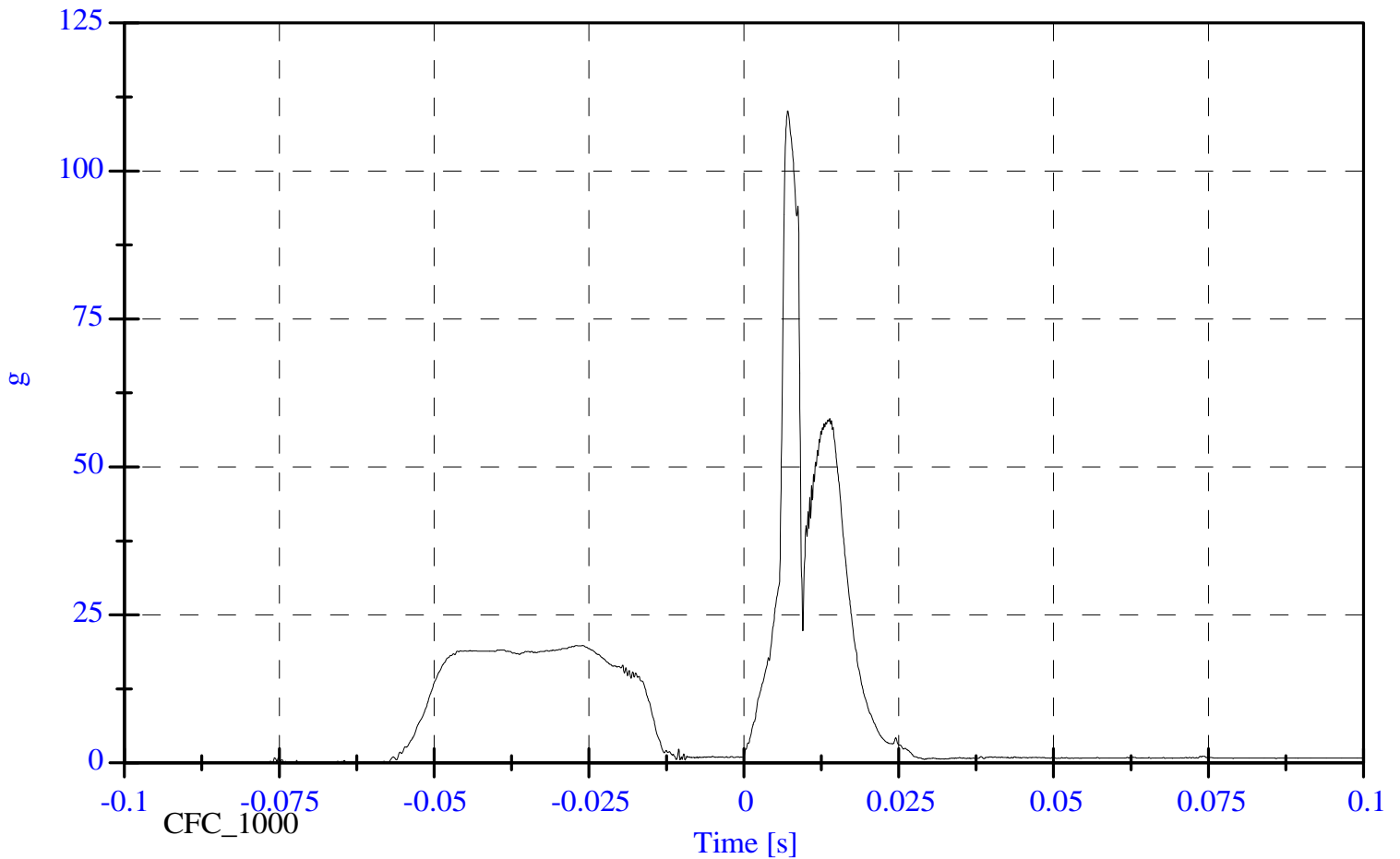
Maximum: 110.2 g

FMVSS 201U 2008 Ford Ranger

Headform Resultant

Max: 110.2 [g] at 0.007 [s]

Min: 0.0 [g] at -0.081 [s]

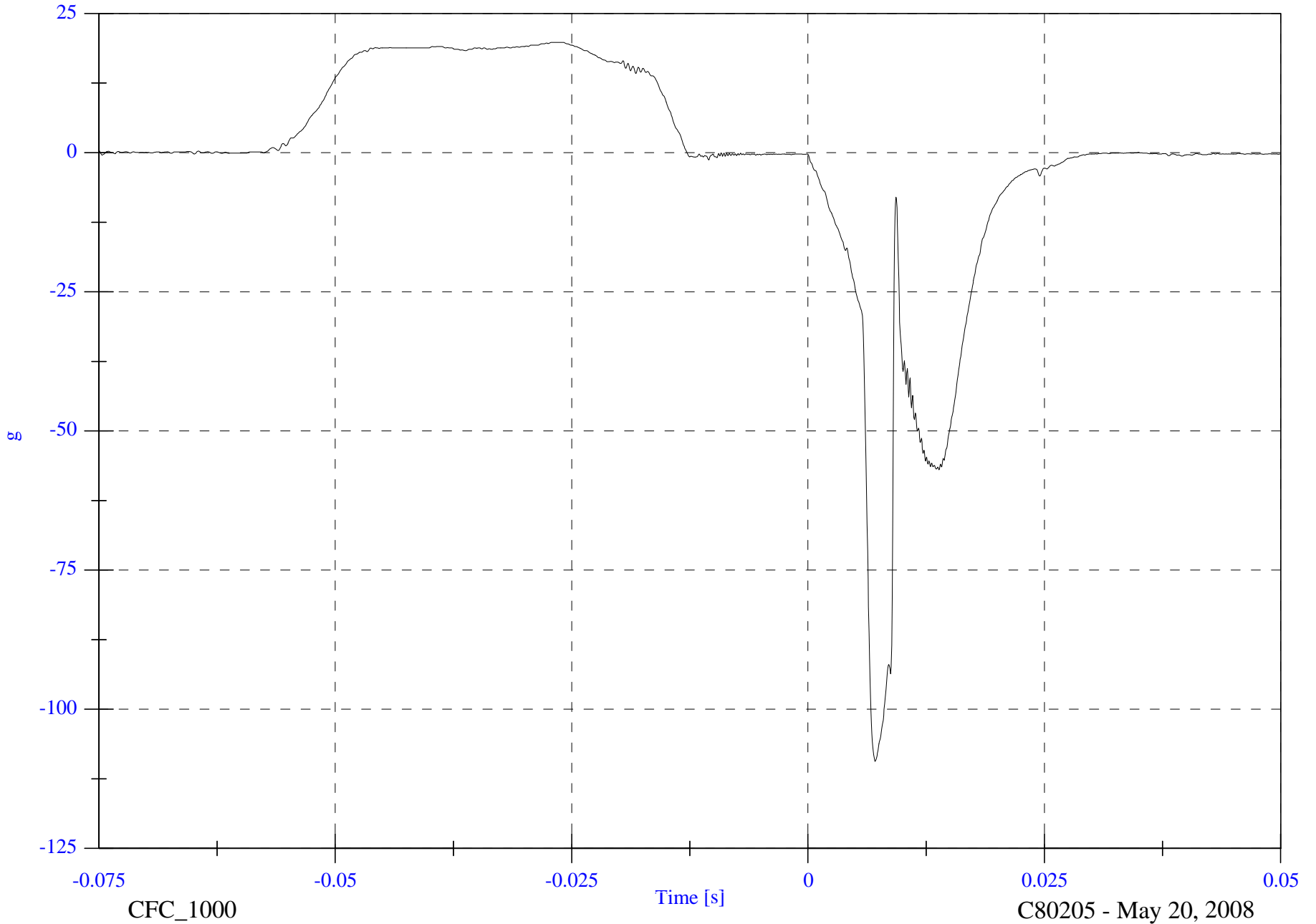


FMVSS 201U 2008 Ford Ranger

Max: 19.8 [g] at -0.026 [s]

Min: -109.4 [g] at 0.007 [s]

Headform X Acceleration



C80205 PASSENGER SIDE RP1 IMPACT PLOT #2

8851-09

CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

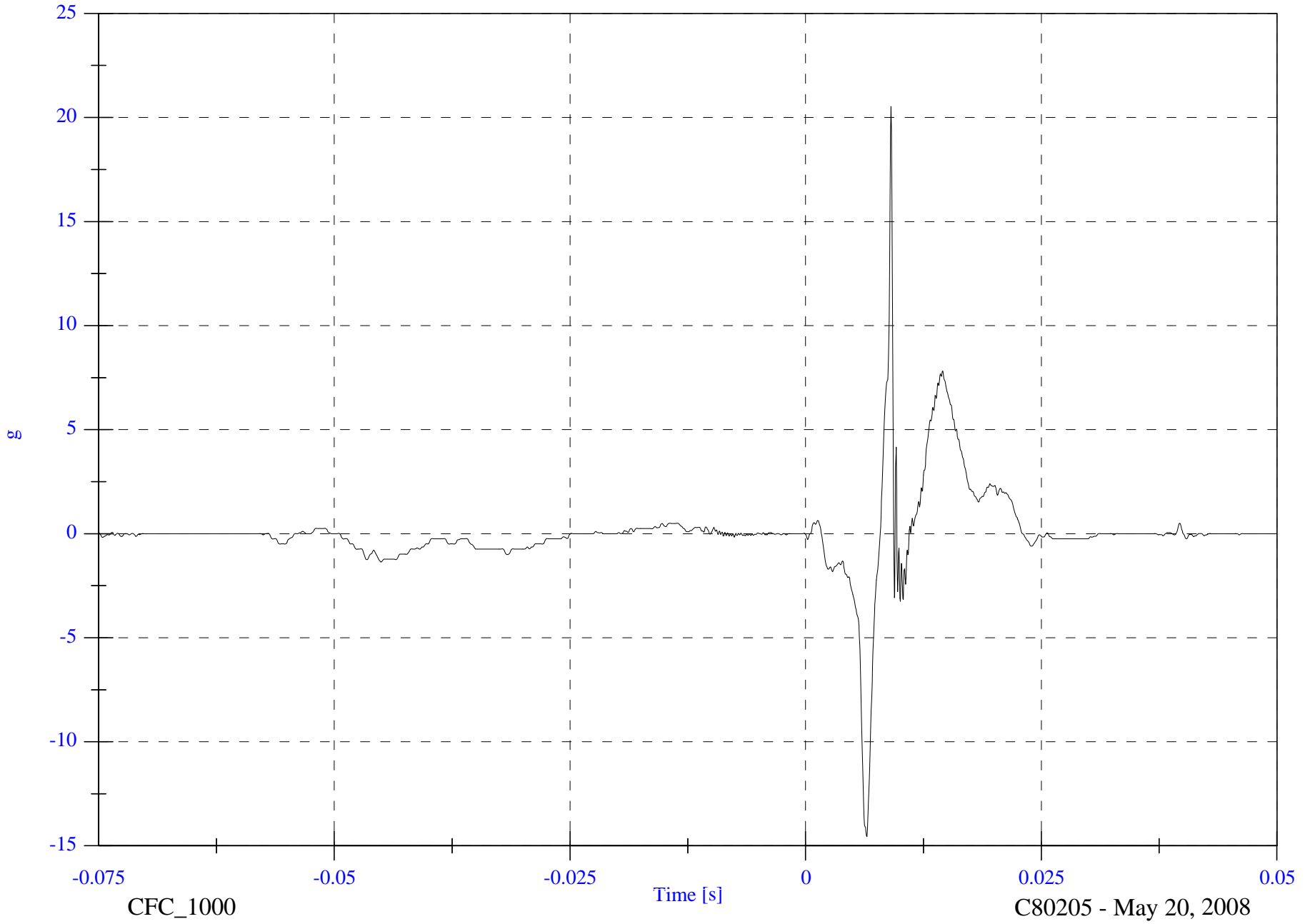
Headform Y Acceleration

Max: 20.5 [g] at 0.009 [s]

Min: -14.6 [g] at 0.007 [s]

C80205 PASSENGER SIDE RP1 IMPACT PLOT #3

8851-09



CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

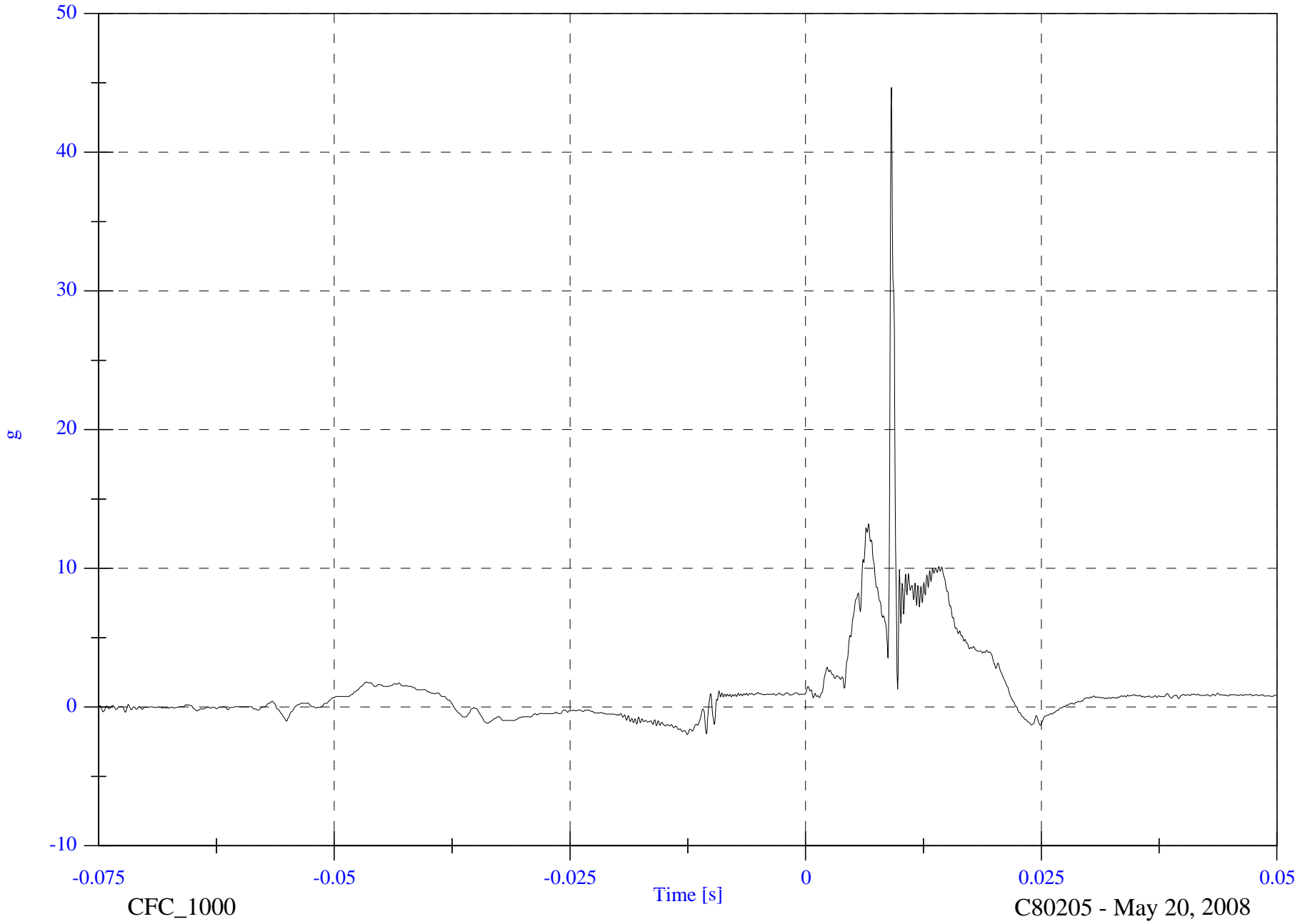
Headform Z Acceleration

Max: 44.7 [g] at 0.009 [s]

Min: -2.0 [g] at -0.013 [s]

C80205 PASSENGER SIDE RPI IMPACT PLOT #4

8851-09



FMVSS 201U 2008 Ford Ranger

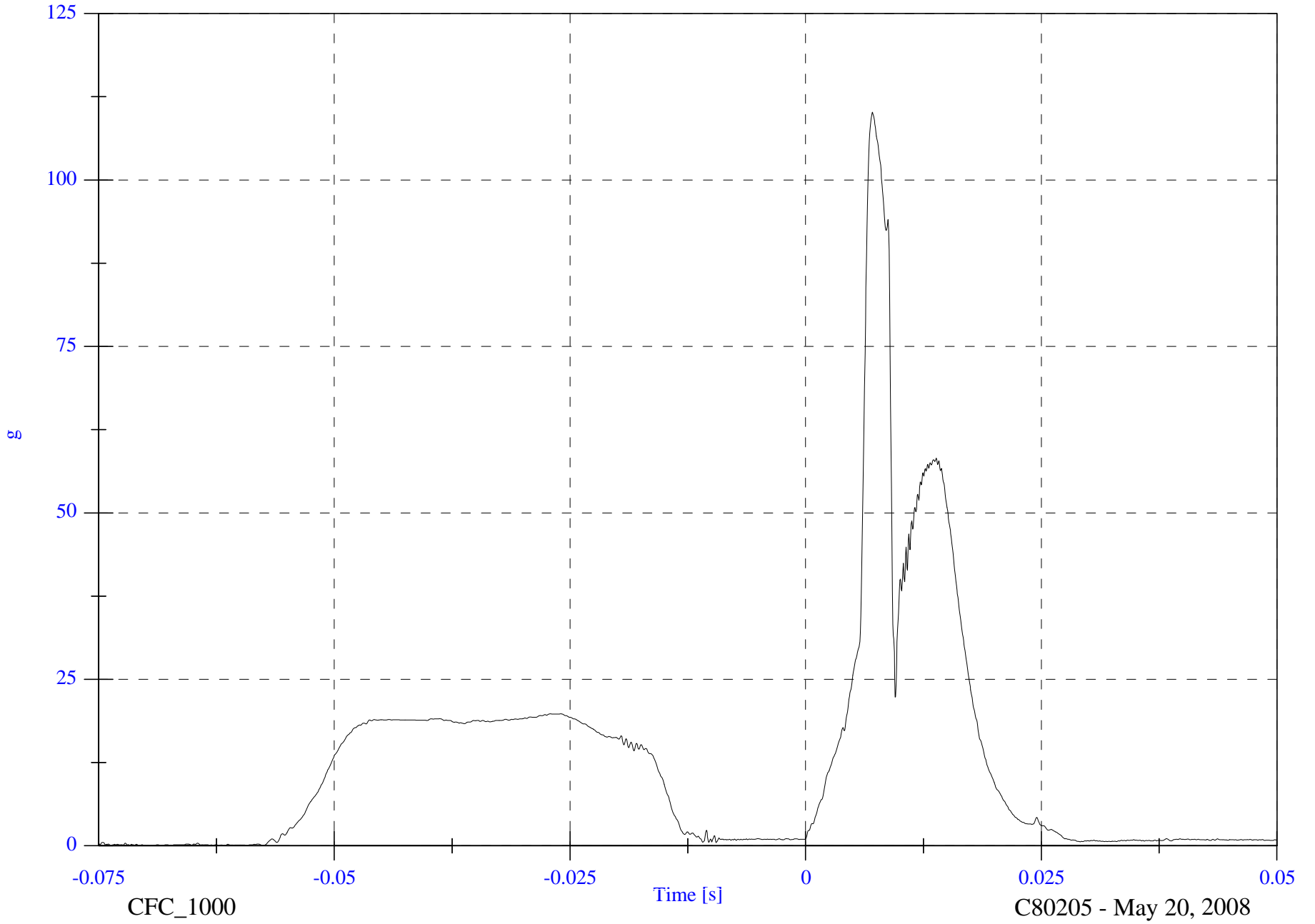
Headform Resultant

Max: 110.2 [g] at 0.007 [s]

Min: 0.0 [g] at -0.069 [s]

C80205 PASSENGER SIDE RPI IMPACT PLOT #5

8851-09



CFC_1000

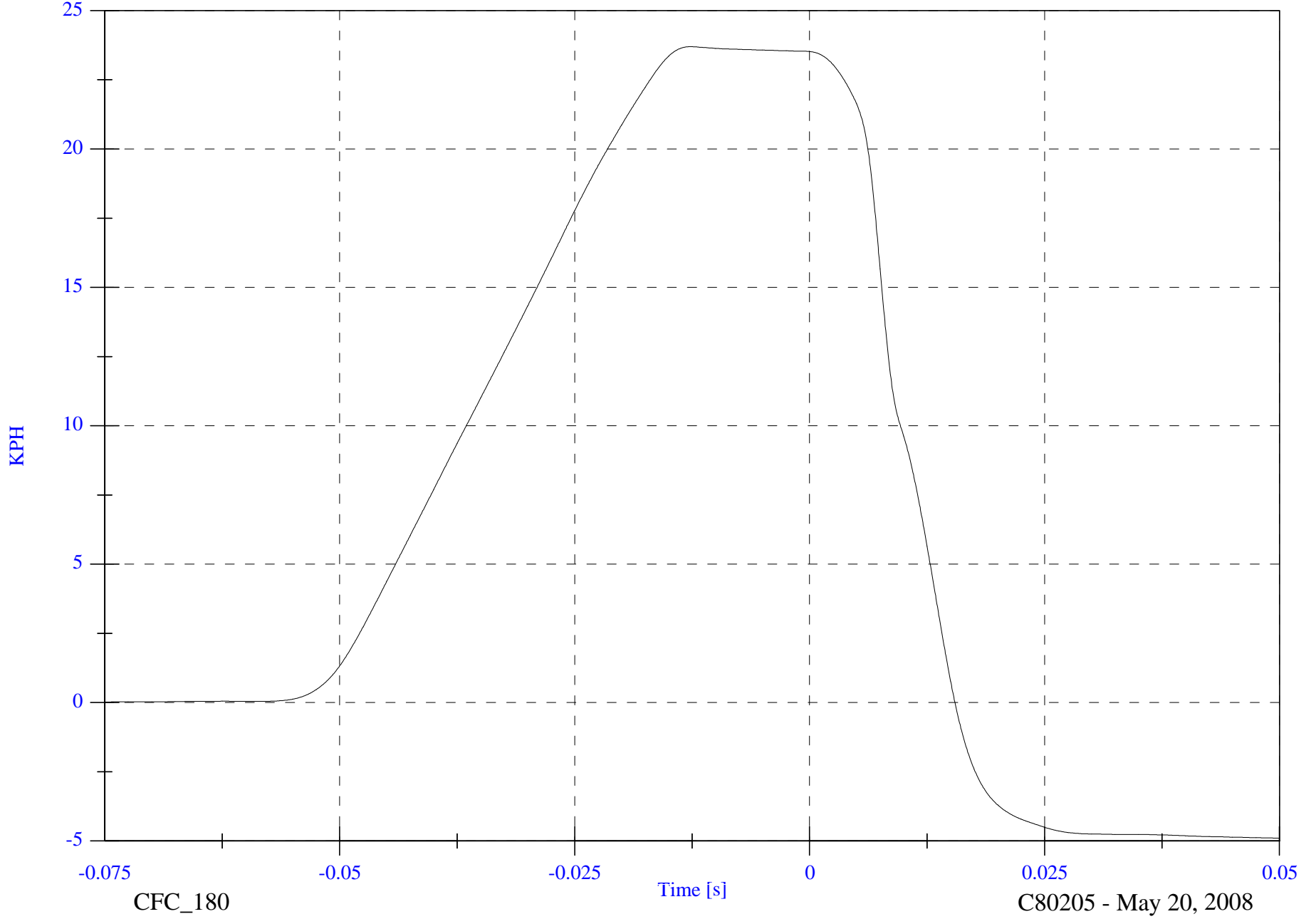
C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

Max: 23.7 [KPH] at -0.013 [s]

Min: -4.9 [KPH] at 0.050 [s]

Headform Velocity



C80205 PASSENGER SIDE RP1 IMPACT PLOT #6

8851-09

CFC_180

C80205 - May 20, 2008



PRE-IMPACT RP1



POST-IMPACT RPI

VEHICLE YEAR/MAKE/MODEL/STYLE:	2008 Ford Ranger
VIN:	1FTYR10D98PA33826
DATE OF MANUFACTURE:	09/07(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	02
Test Date:	05/20/08
Target Location:	UPPER ROOF
Target Code:	URRP
Horizontal Impact Angle:	28°
Vertical Impact Angle:	45°
Ambient Temperature:	22°C
Relative Humidity:	31
Time of Impact:	11:00
Headform Number:	1142

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	24	<input checked="" type="checkbox"/>	mm right	<input type="checkbox"/>	mm left
On Centerline	16				mm up



POST-IMPACT URRP HEADFORM

Free Motion HIC	546.7
HIC(d)	578.9
Impact Velocity (kph)	23.64
HIC T1 (msec)	5.8
HIC T2 (msec)	14.1

FMVSS 201U 2008 Ford Ranger C80205 - URRP

FMH Headform 1142

Location: URRP

Test Date: May 20, 2008

Work File: URRP

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 578.9

Lab Humidity: 31 %

HIC (36ms): 546.7

Velocity at Impact: 23.64 KPH

t1: 5.8 msec

t2: 14.1 msec

Free Flight Distance: 216.02 mm

Duration: 8.2 msec

Average Acceleration: 9.3 g

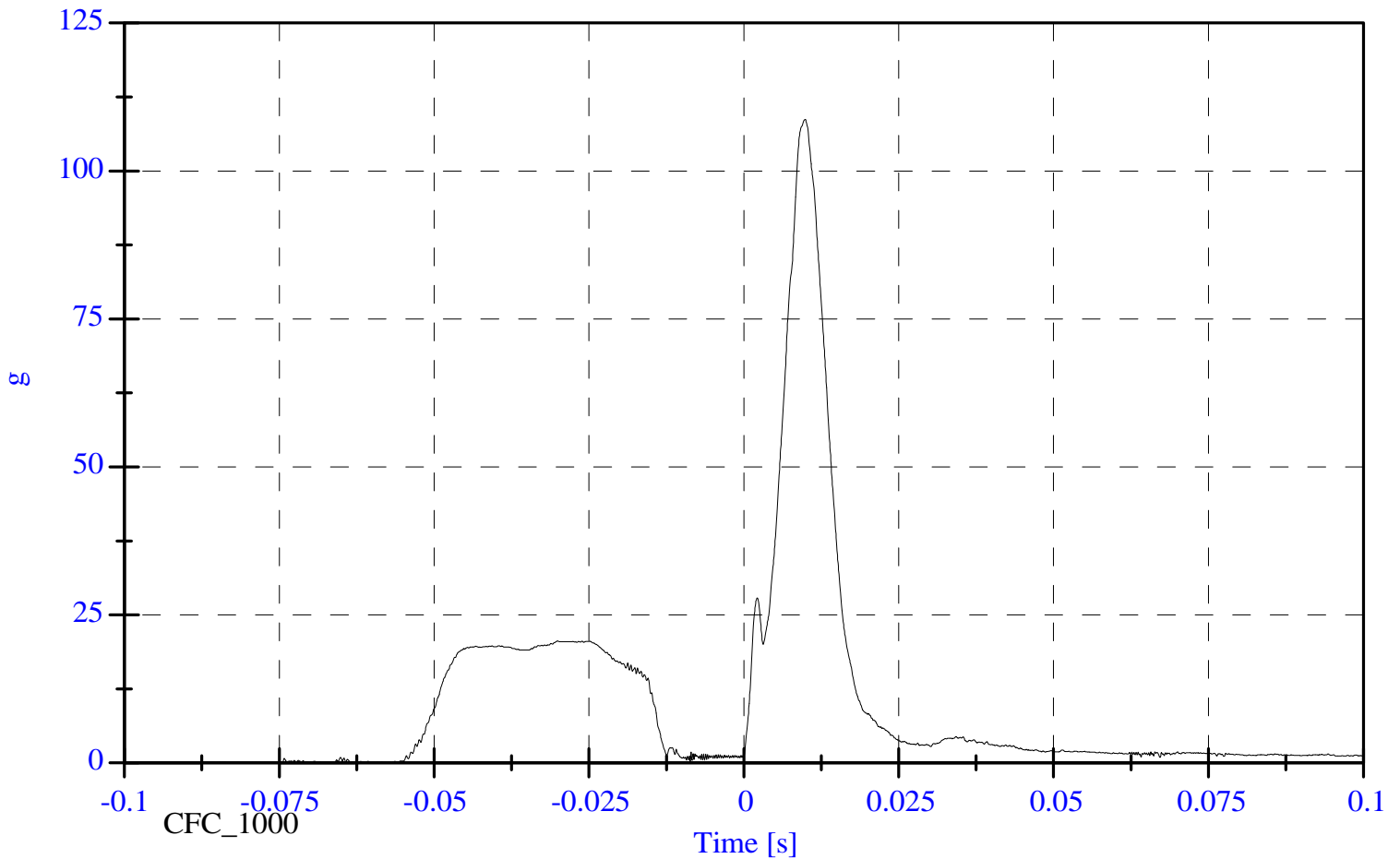
Maximum: 108.7 g

FMVSS 201U 2008 Ford Ranger

Headform Resultant

Max: 108.7 [g] at 0.010 [s]

Min: 0.0 [g] at -0.059 [s]



FMVSS 201U 2008 Ford Ranger

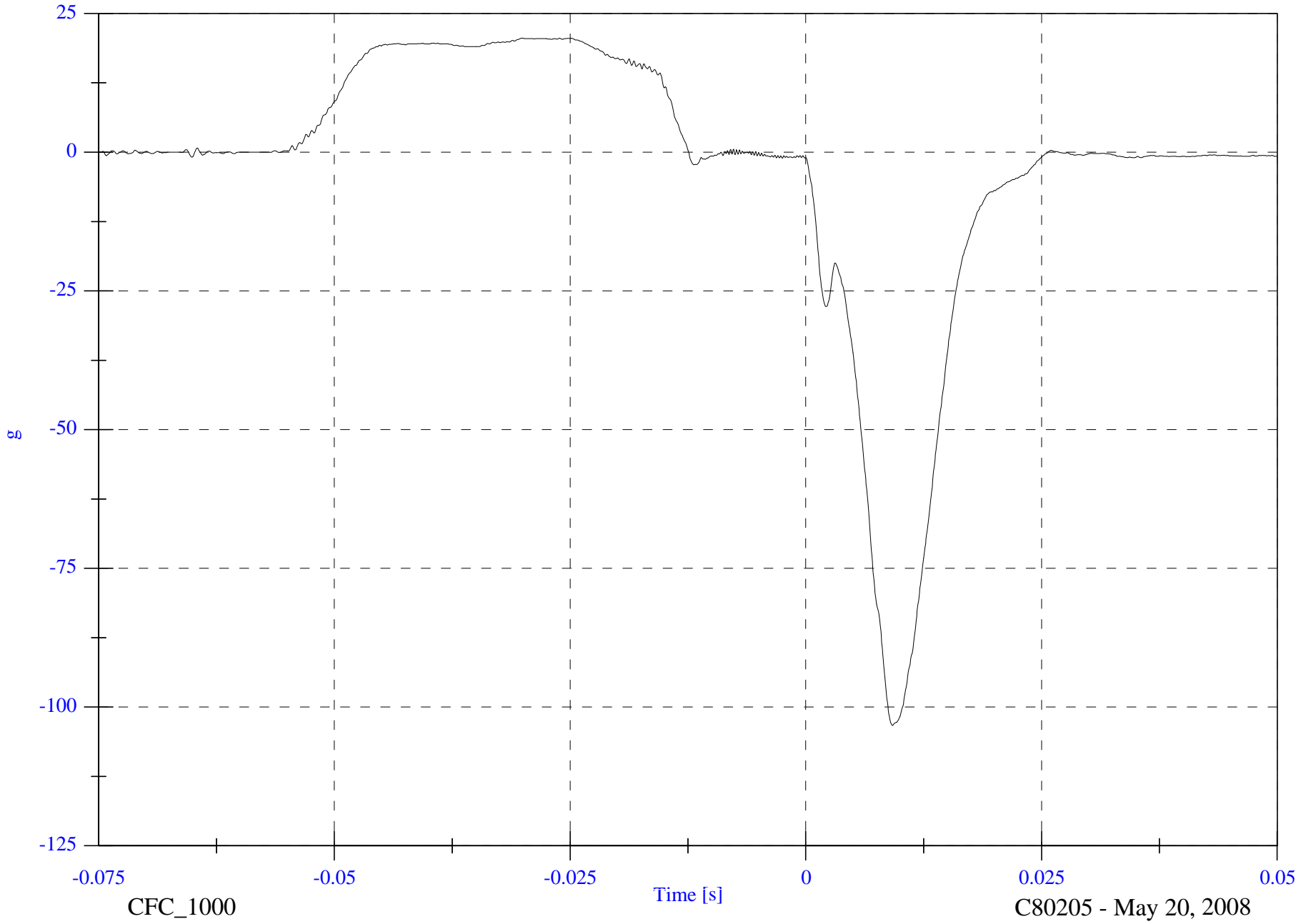
Headform X Acceleration

Max: 20.6 [g] at -0.030 [s]

Min: -103.3 [g] at 0.009 [s]

C80205 PASSENGER SIDE URRP IMPACT PLOT #2

8851-09



CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

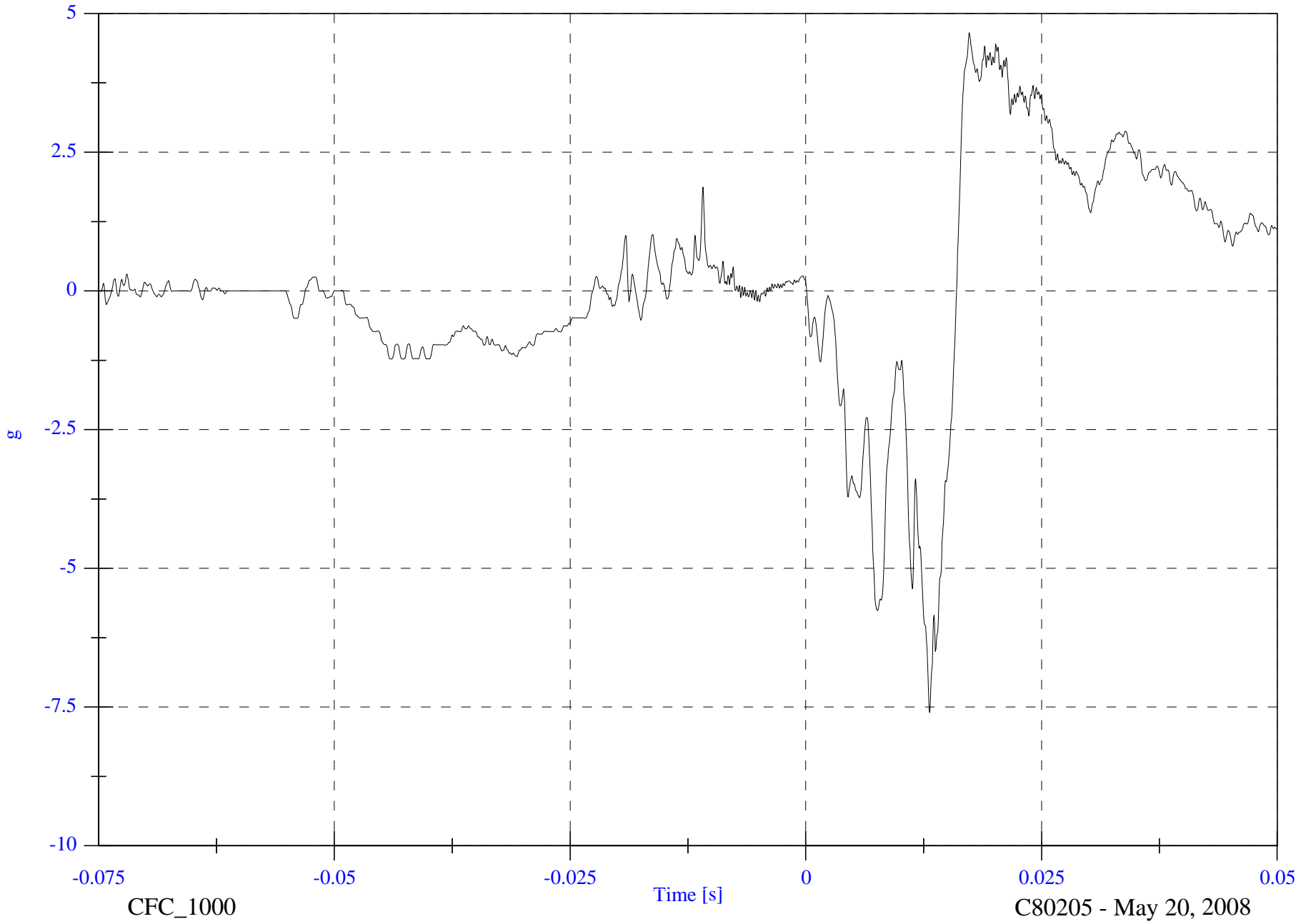
Headform Y Acceleration

Max: 4.7 [g] at 0.017 [s]

Min: -7.6 [g] at 0.013 [s]

C80205 PASSENGER SIDE URRP IMPACT PLOT #3

8851-09



CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

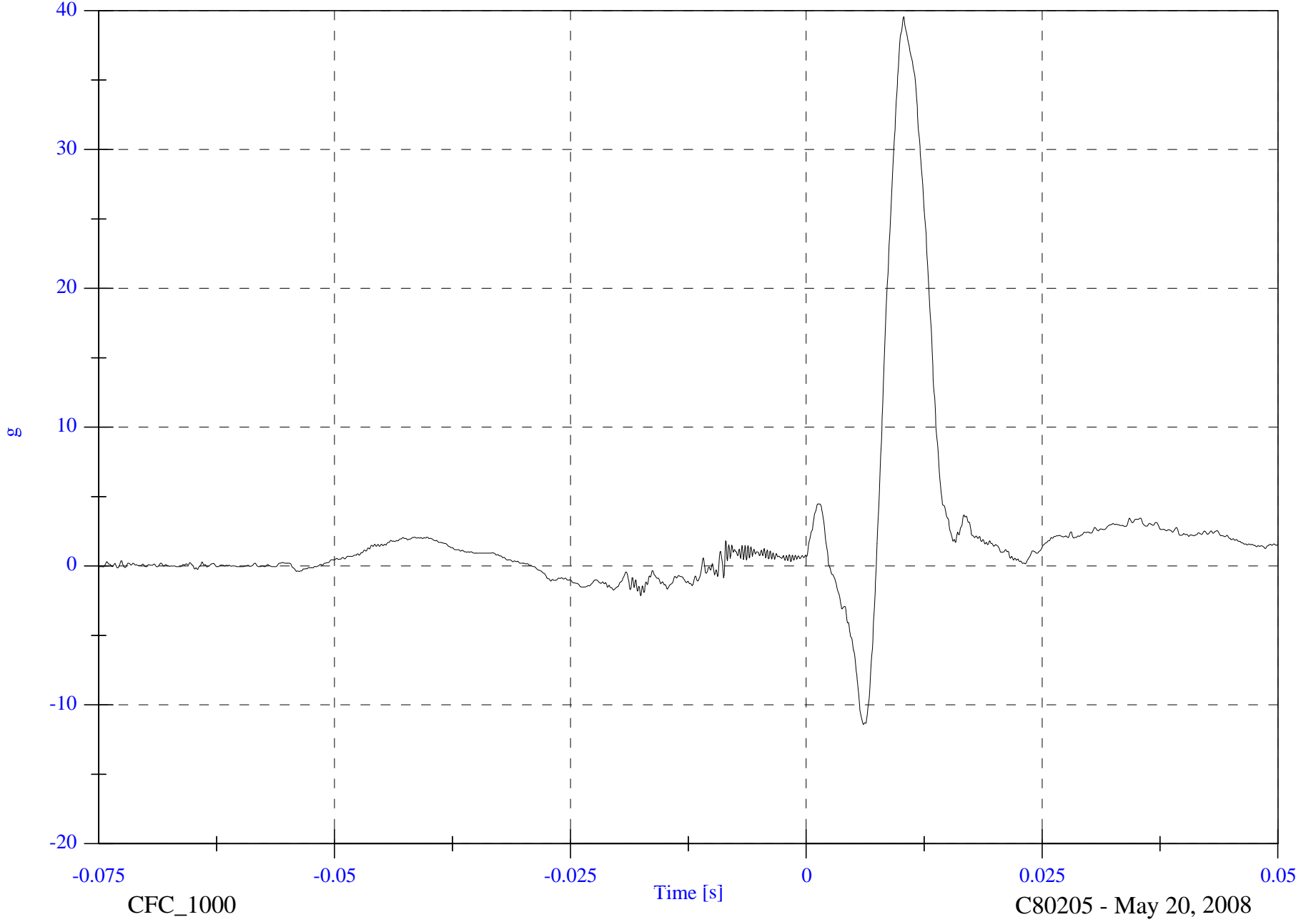
Headform Z Acceleration

Max: 39.5 [g] at 0.010 [s]

Min: -11.4 [g] at 0.006 [s]

C80205 PASSENGER SIDE URRP IMPACT PLOT #4

8851-09



CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

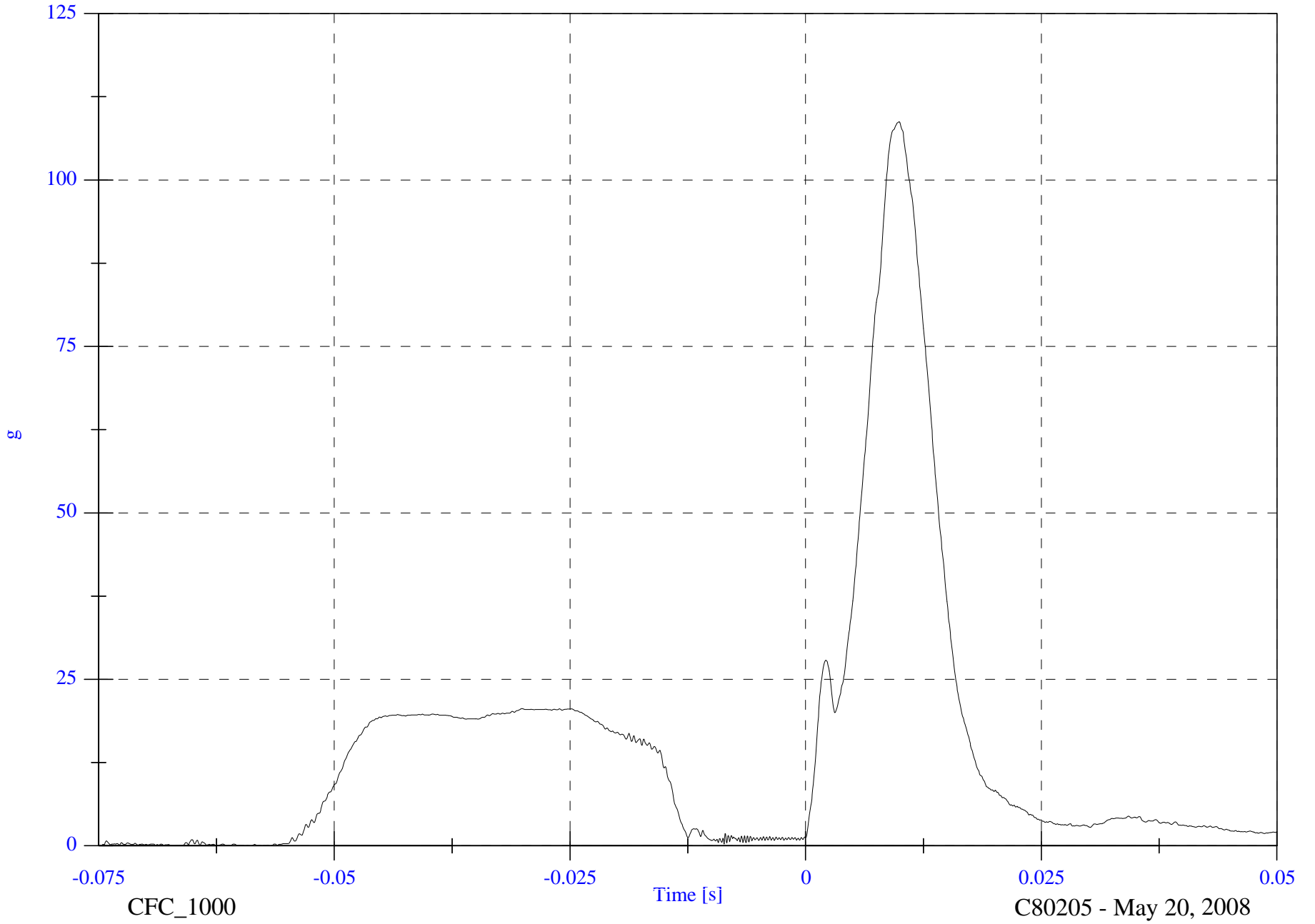
Headform Resultant

Max: 108.7 [g] at 0.010 [s]

Min: 0.0 [g] at -0.059 [s]

C80205 PASSENGER SIDE URRP IMPACT PLOT #5

8851-09



CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

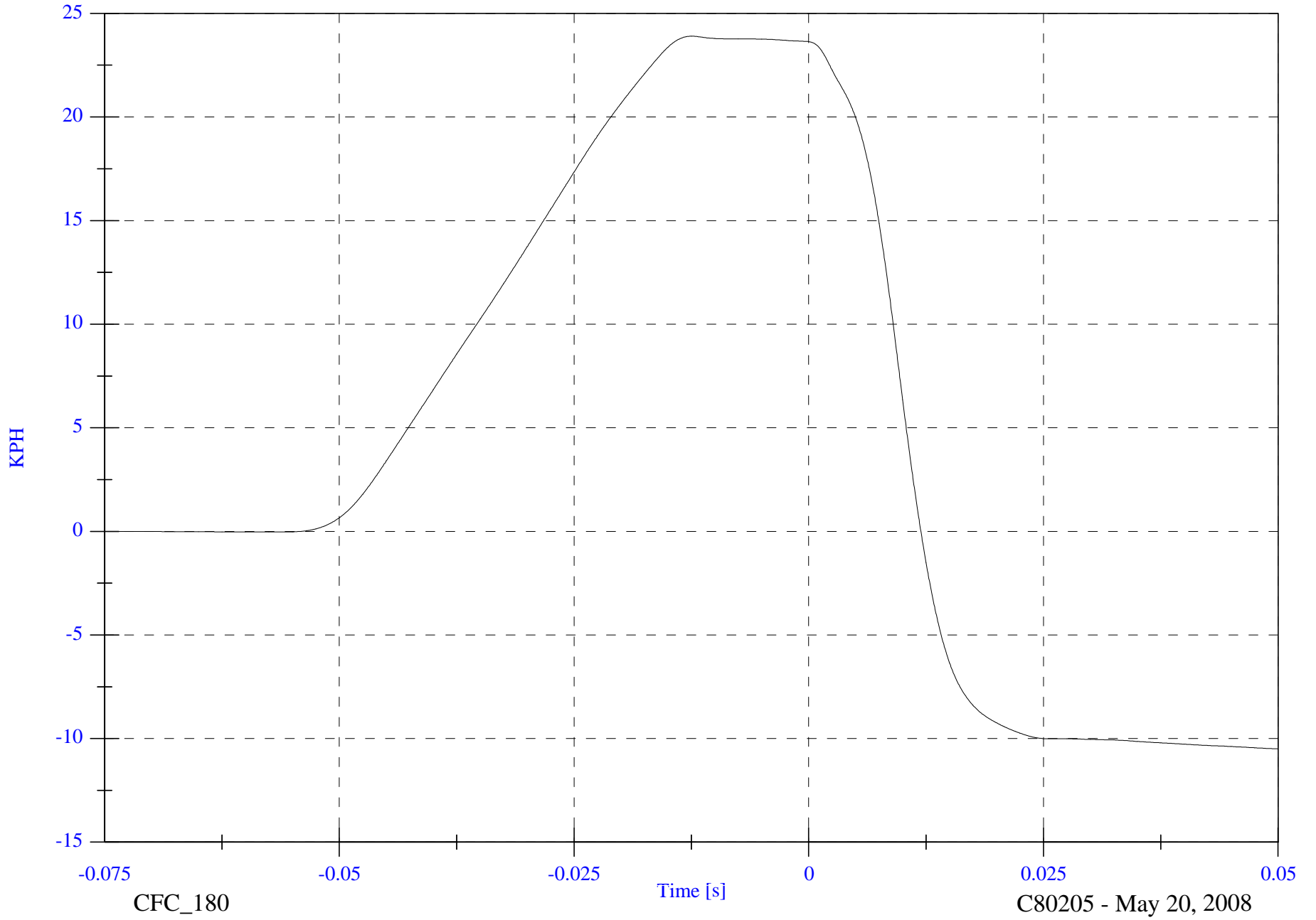
Headform Velocity

Max: 23.9 [KPH] at -0.012 [s]

Min: -10.5 [KPH] at 0.050 [s]

C80205 PASSENGER SIDE URRP IMPACT PLOT #6

8851-09

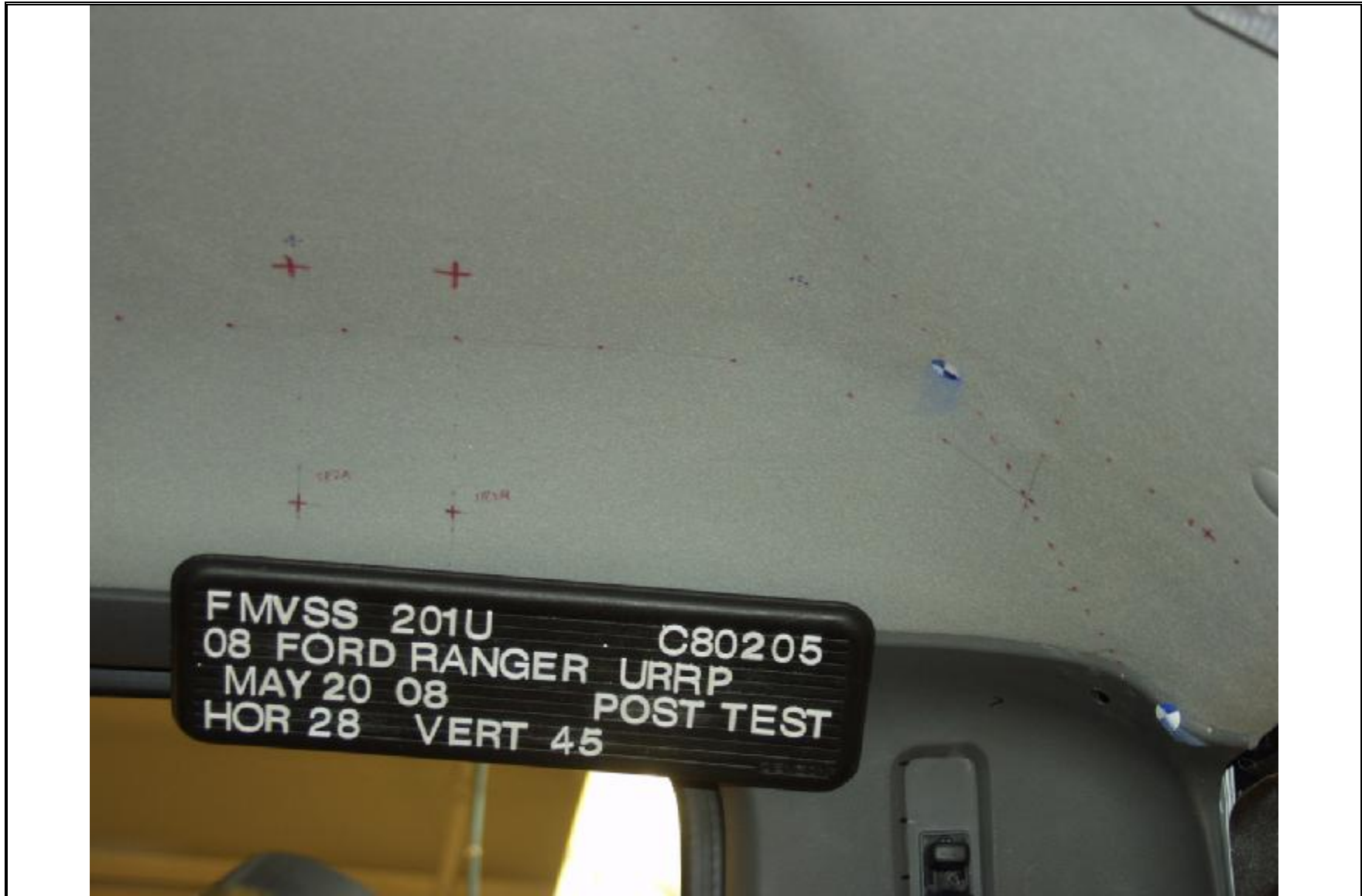


CFC_180

C80205 - May 20, 2008



PRE-IMPACT URRP



POST-IMPACT URRP

VEHICLE YEAR/MAKE/MODEL/STYLE:	2008 Ford Ranger
VIN:	1FTYR10D98PA33826
DATE OF MANUFACTURE:	09/07(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	03
Test Date:	05/20/08
Target Location:	SIDE RAIL
Target Code:	SR2R
Horizontal Impact Angle:	90°
Vertical Impact Angle:	32°
Ambient Temperature:	22°C
Relative Humidity:	31
Time of Impact:	11:35
Headform Number:	1140

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	5	<input type="checkbox"/>	mm right	<input checked="" type="checkbox"/>	mm left
On Centerline	13				mm up



POST-IMPACT SR2R HEADFORM

Free Motion HIC	637.8
HIC(d)	647.6
Impact Velocity (kph)	23.61
HIC T1 (msec)	3.7
HIC T2 (msec)	12.1

FMVSS 201U 2008 Ford Ranger C80205 - SR2R

FMH Headform 1140

Location: SR2R

Test Date: May 20, 2008

Work File: SR2R

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 647.6

Lab Humidity: 31 %

HIC (36ms): 637.8

Velocity at Impact: 23.61 KPH

t1: 3.7 msec

t2: 12.1 msec

Free Flight Distance: 219.23 mm

Duration: 8.3 msec

Average Acceleration: 8.7 g

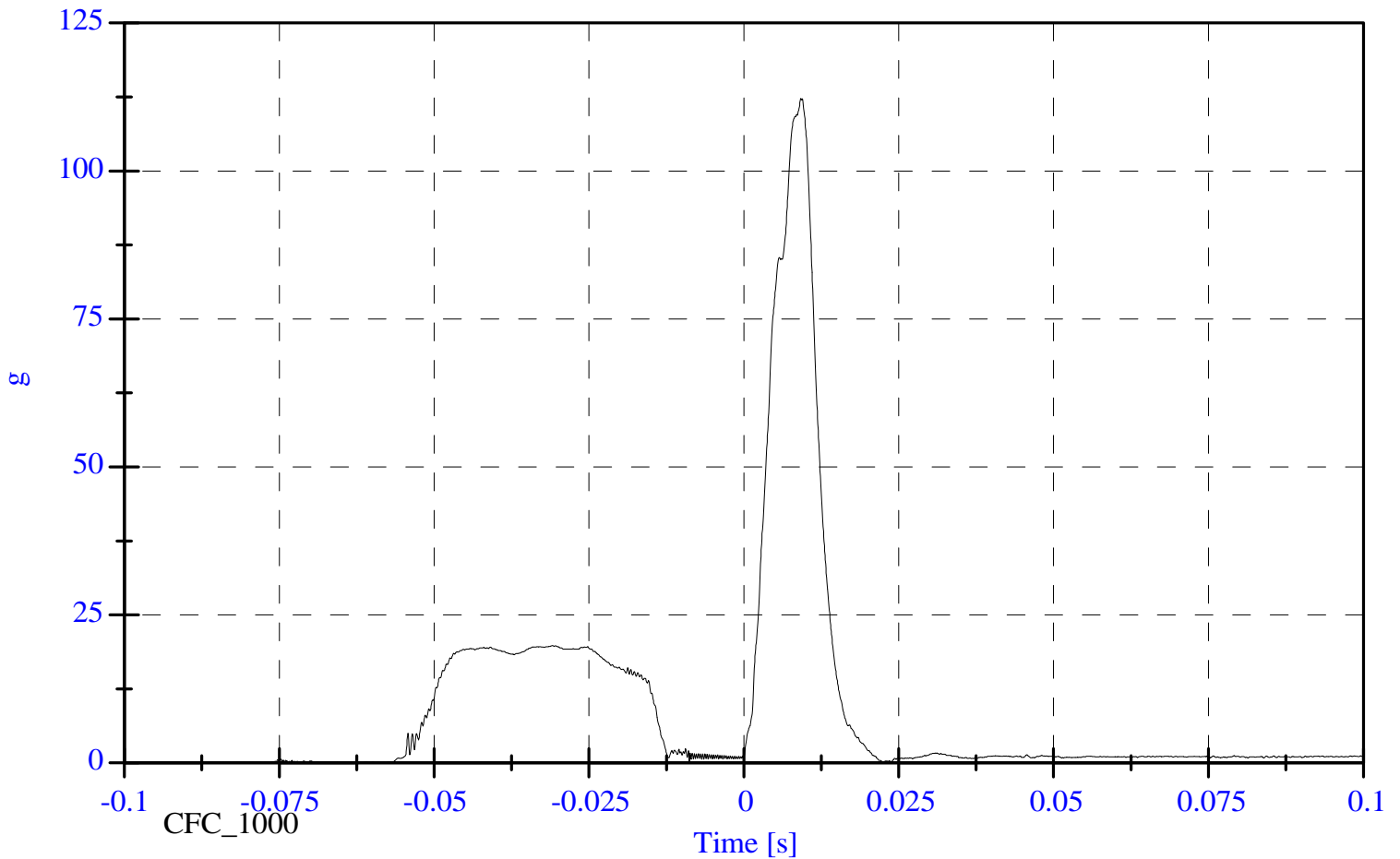
Maximum: 112.3 g

FMVSS 201U 2008 Ford Ranger

Headform Resultant

Max: 112.3 [g] at 0.009 [s]

Min: 0.0 [g] at -0.089 [s]

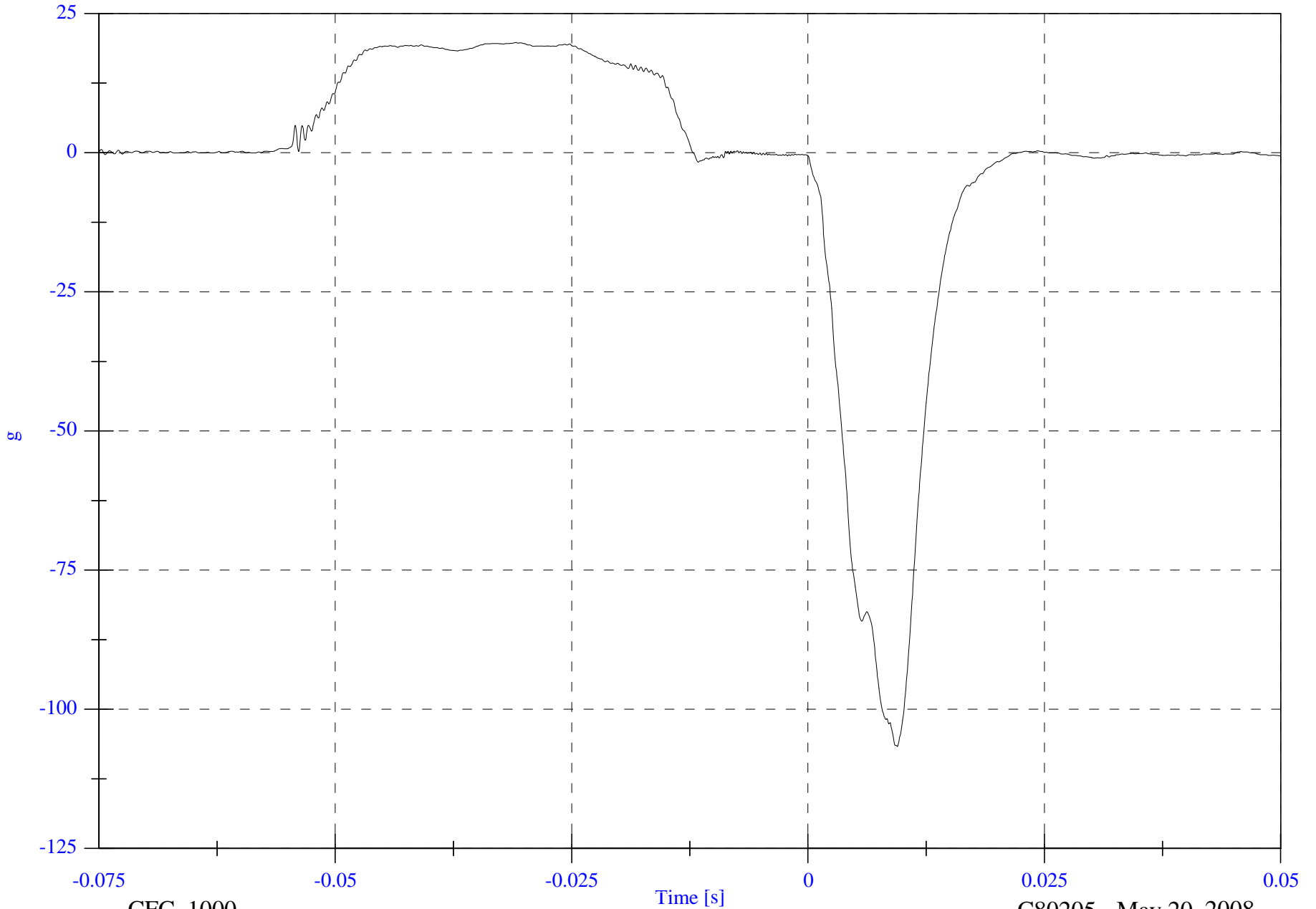


FMVSS 201U 2008 Ford Ranger

Max: 19.8 [g] at -0.031 [s]

Min: -106.7 [g] at 0.009 [s]

Headform X Acceleration



C80205 PASSENGER SIDE SR2R IMPACT PLOT #2

8851-09

CFC_1000

C80205 - May 20, 2008

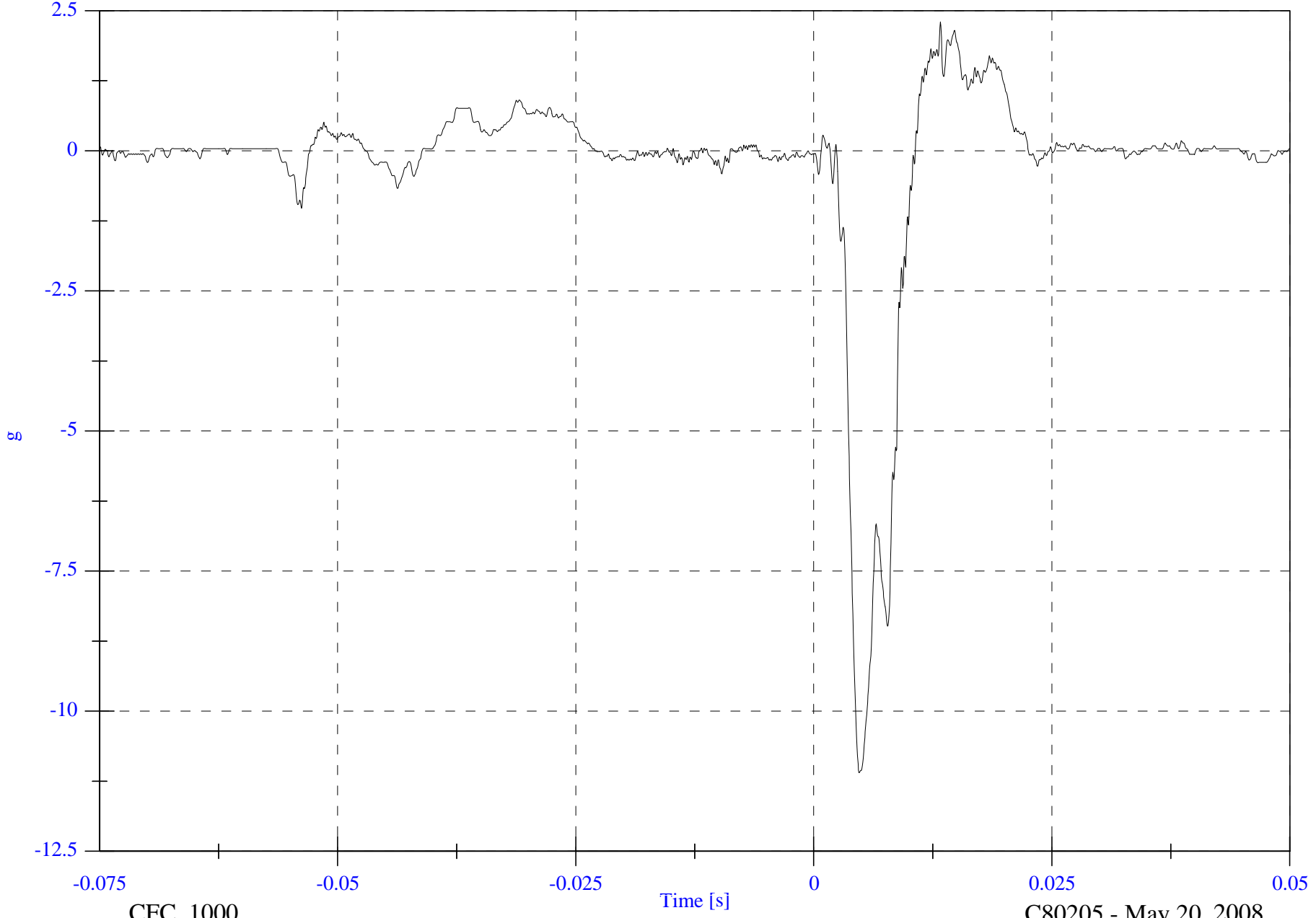
FMVSS 201U 2008 Ford Ranger

Headform Y Acceleration

Max: 2.3 [g] at 0.013 [s]

Min: -11.1 [g] at 0.005 [s]

C80205 PASSENGER SIDE SR2R IMPACT PLOT #3



8851-09

CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

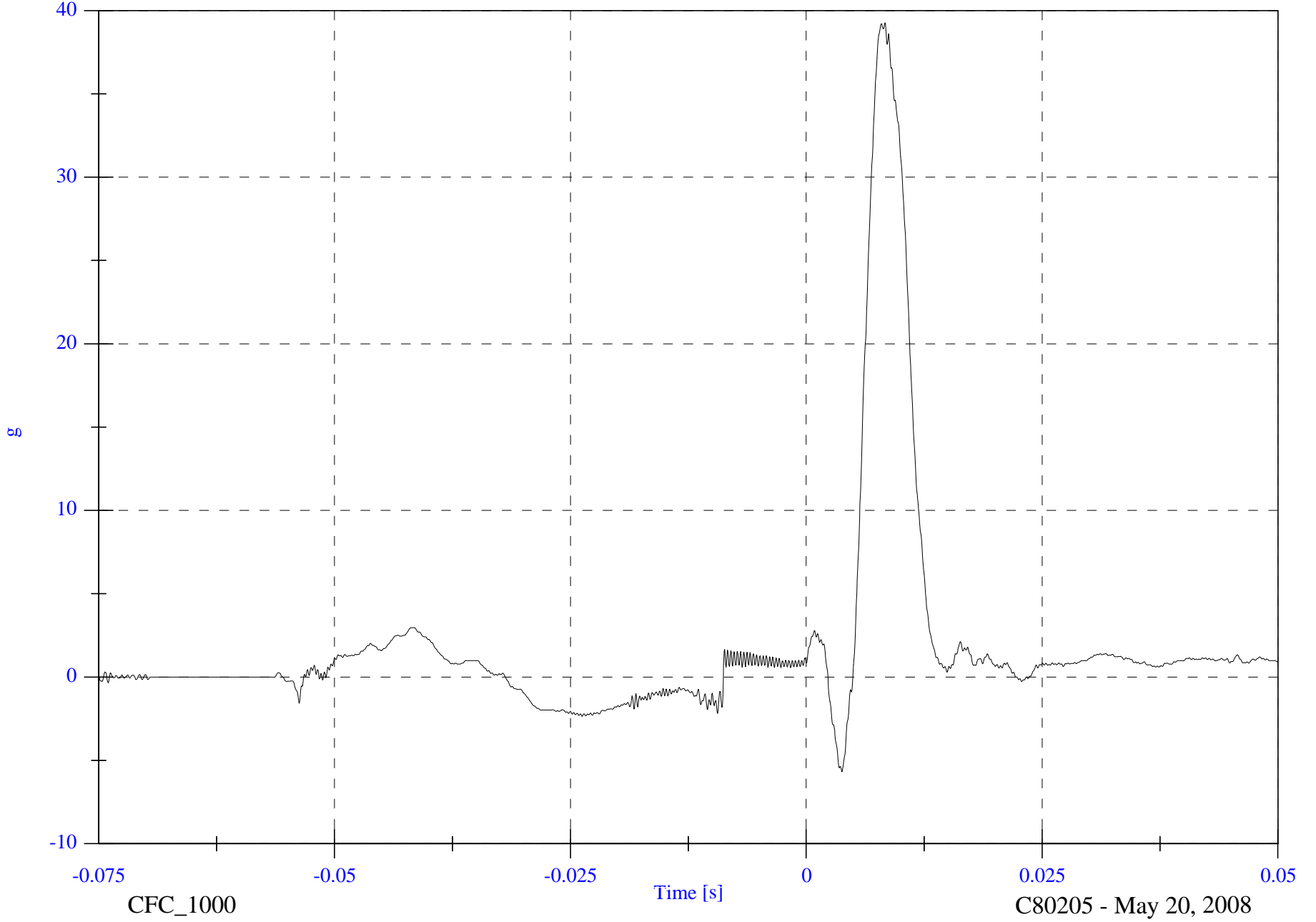
Headform Z Acceleration

Max: 39.3 [g] at 0.008 [s]

Min: -5.7 [g] at 0.004 [s]

C80205 PASSENGER SIDE SR2R IMPACT PLOT #4

8851-09



CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

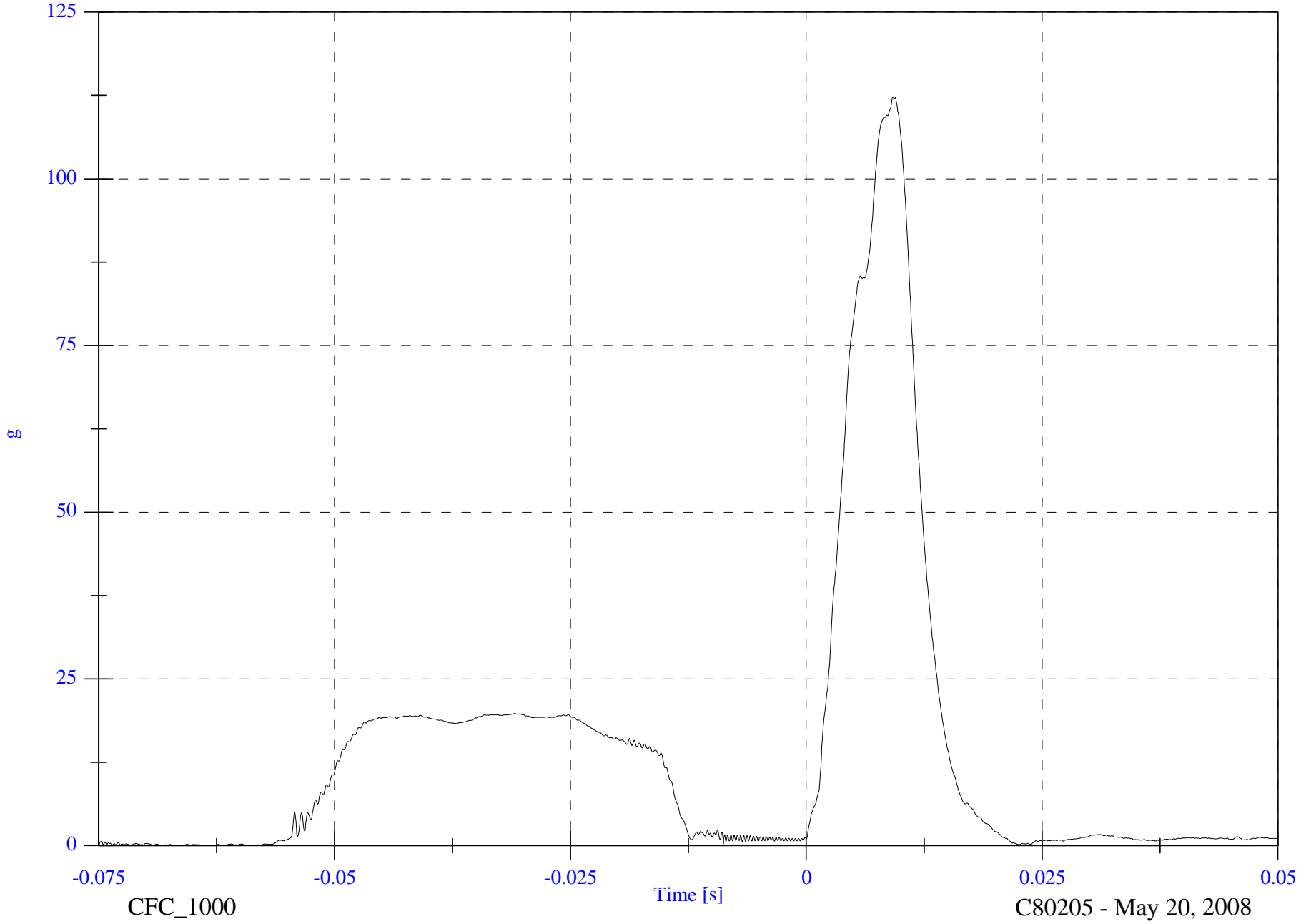
Headform Resultant

Max: 112.3 [g] at 0.009 [s]

Min: 0.0 [g] at -0.065 [s]

C80205 PASSENGER SIDE SR2R IMPACT PLOT #5

8851-09

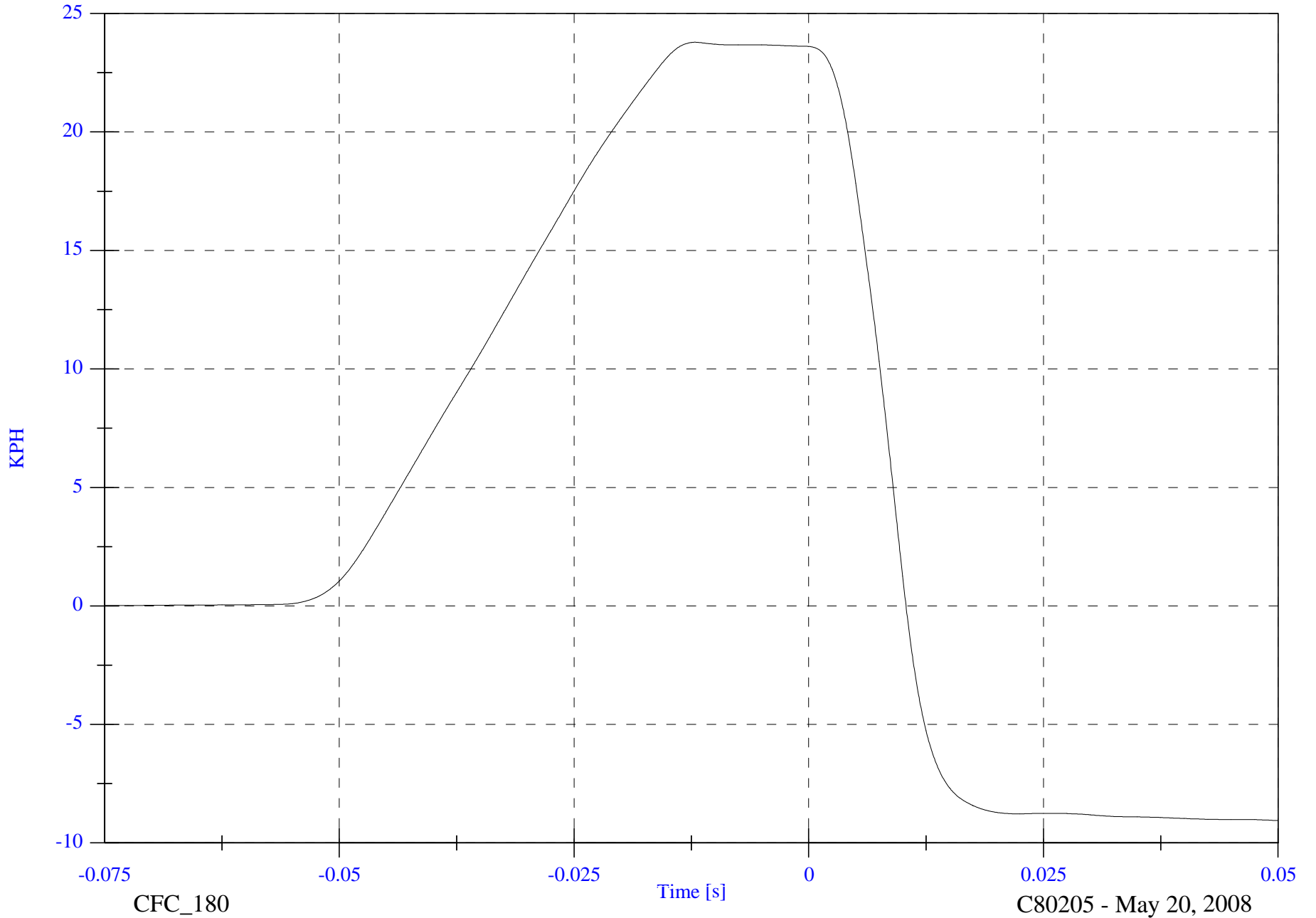


FMVSS 201U 2008 Ford Ranger

Max: 23.8 [KPH] at -0.012 [s]

Min: -9.1 [KPH] at 0.050 [s]

Headform Velocity



C80205 PASSENGER SIDE SR2R IMPACT PLOT #6

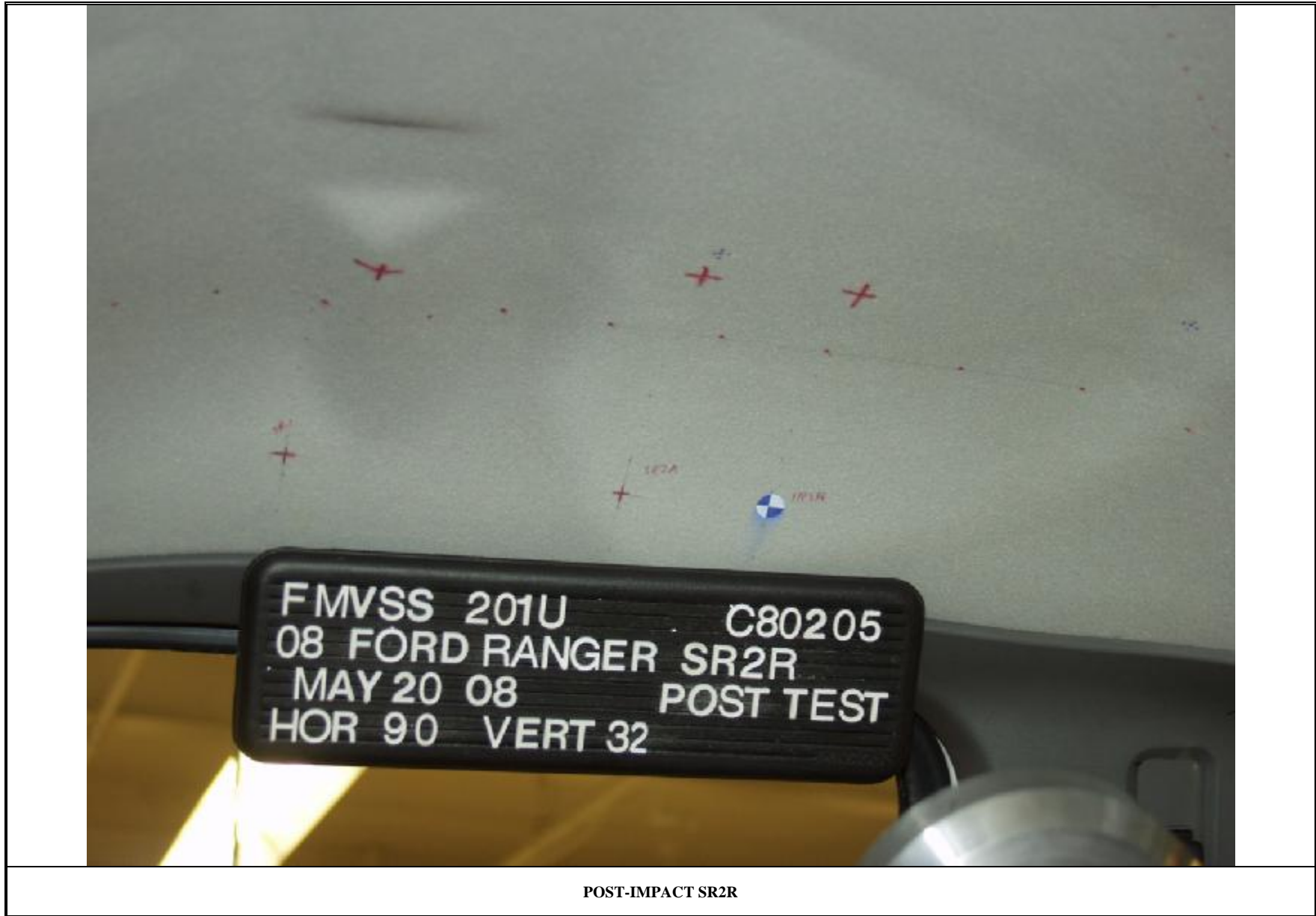
8851-09

CFC_180

C80205 - May 20, 2008



PRE-IMPACT SR2R



POST-IMPACT SR2R

VEHICLE YEAR/MAKE/MODEL/STYLE:	2008 Ford Ranger
VIN:	1FTYR10D98PA33826
DATE OF MANUFACTURE:	09/07(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	04
Test Date:	05/20/08
Target Location:	SIDE RAIL
Target Code:	SR1
Horizontal Impact Angle:	90°
Vertical Impact Angle:	31°
Ambient Temperature:	22°C
Relative Humidity:	31
Time of Impact:	12:05
Headform Number:	805

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	7	<input type="checkbox"/>	mm right	<input checked="" type="checkbox"/>	mm left
On Centerline	24				mm up



POST-IMPACT SR1 HEADFORM

Free Motion HIC	605.3
HIC(d)	623.1
Impact Velocity (kph)	23.77
HIC T1 (msec)	3.1
HIC T2 (msec)	11.6

FMVSS 201U 2008 Ford Ranger C80205 - SR1

FMH Headform 805

Location: SR1

Test Date: May 20, 2008

Work File: SR1

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 623.1

Lab Humidity: 31 %

HIC (36ms): 605.3

Velocity at Impact: 23.77 KPH

t1: 3.1 msec

t2: 11.6 msec

Free Flight Distance: 219.24 mm

Duration: 8.5 msec

Average Acceleration: 8.5 g

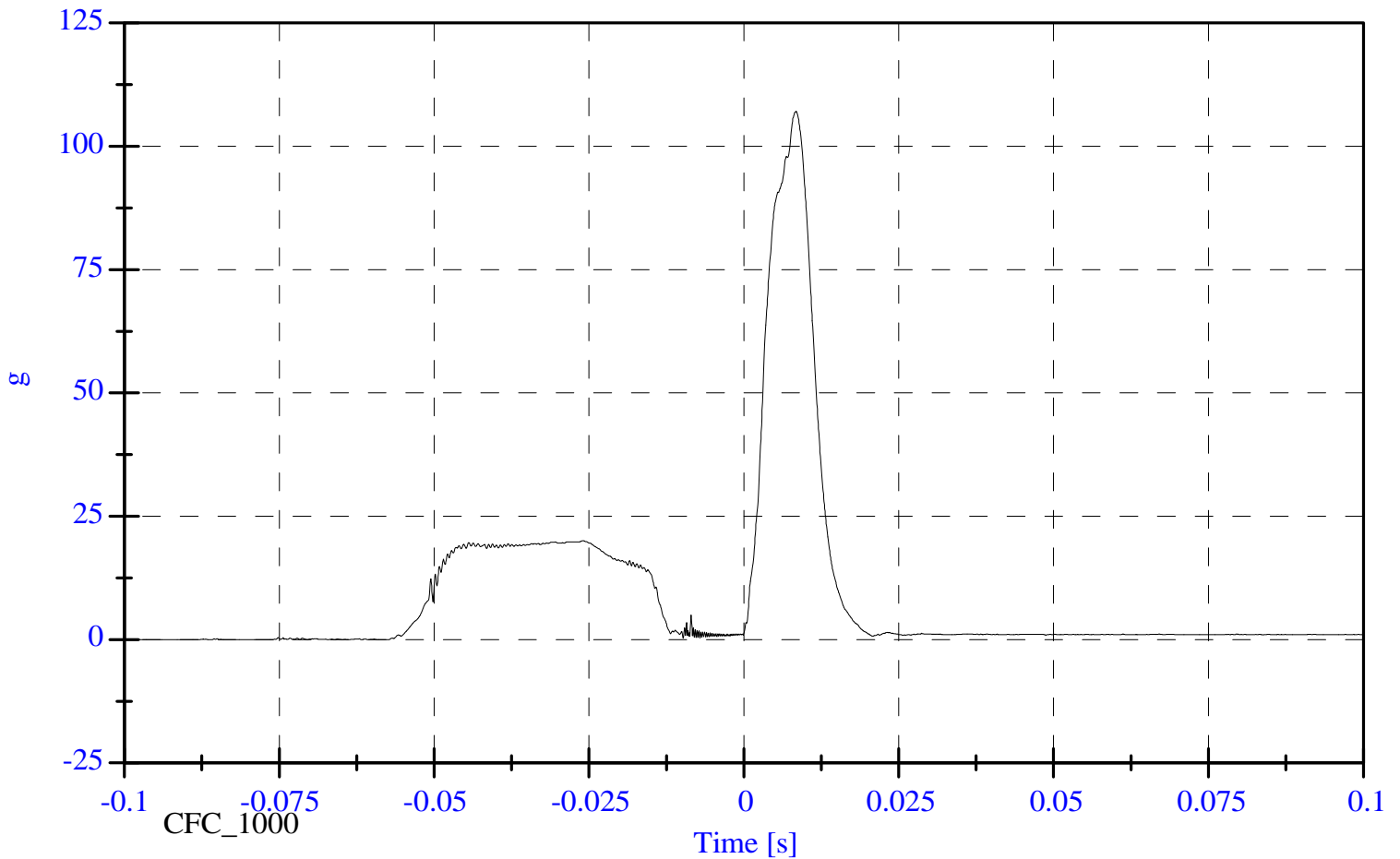
Maximum: 107.1 g

FMVSS 201U 2008 Ford Ranger

Headform Resultant

Max: 107.1 [g] at 0.008 [s]

Min: -0.0 [g] at -0.099 [s]

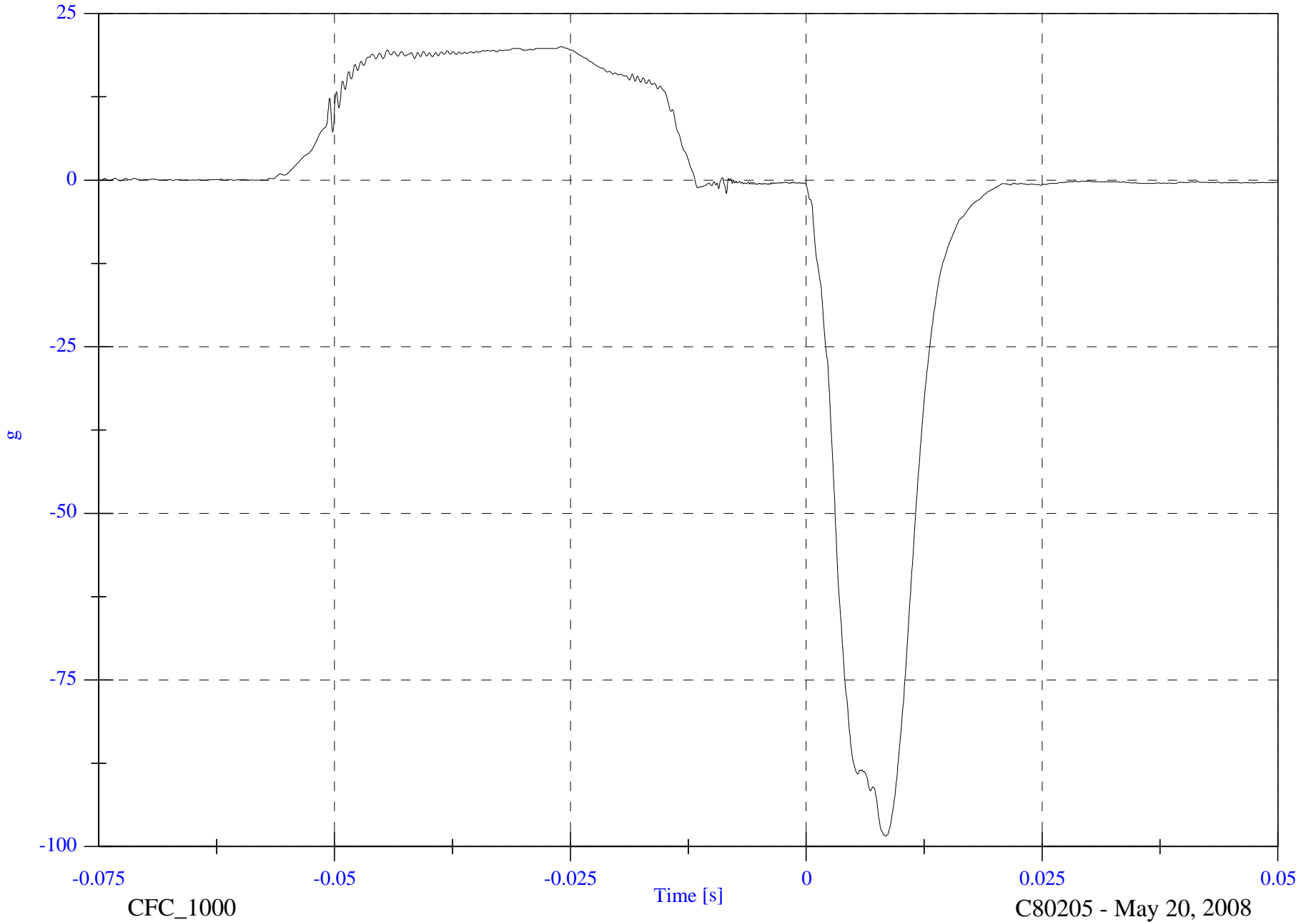


FMVSS 201U 2008 Ford Ranger

Max: 20.0 [g] at -0.026 [s]

Min: -98.4 [g] at 0.008 [s]

Headform X Acceleration



C80205 PASSENGER SIDE SRI IMPACT PLOT #2

8851-09

CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

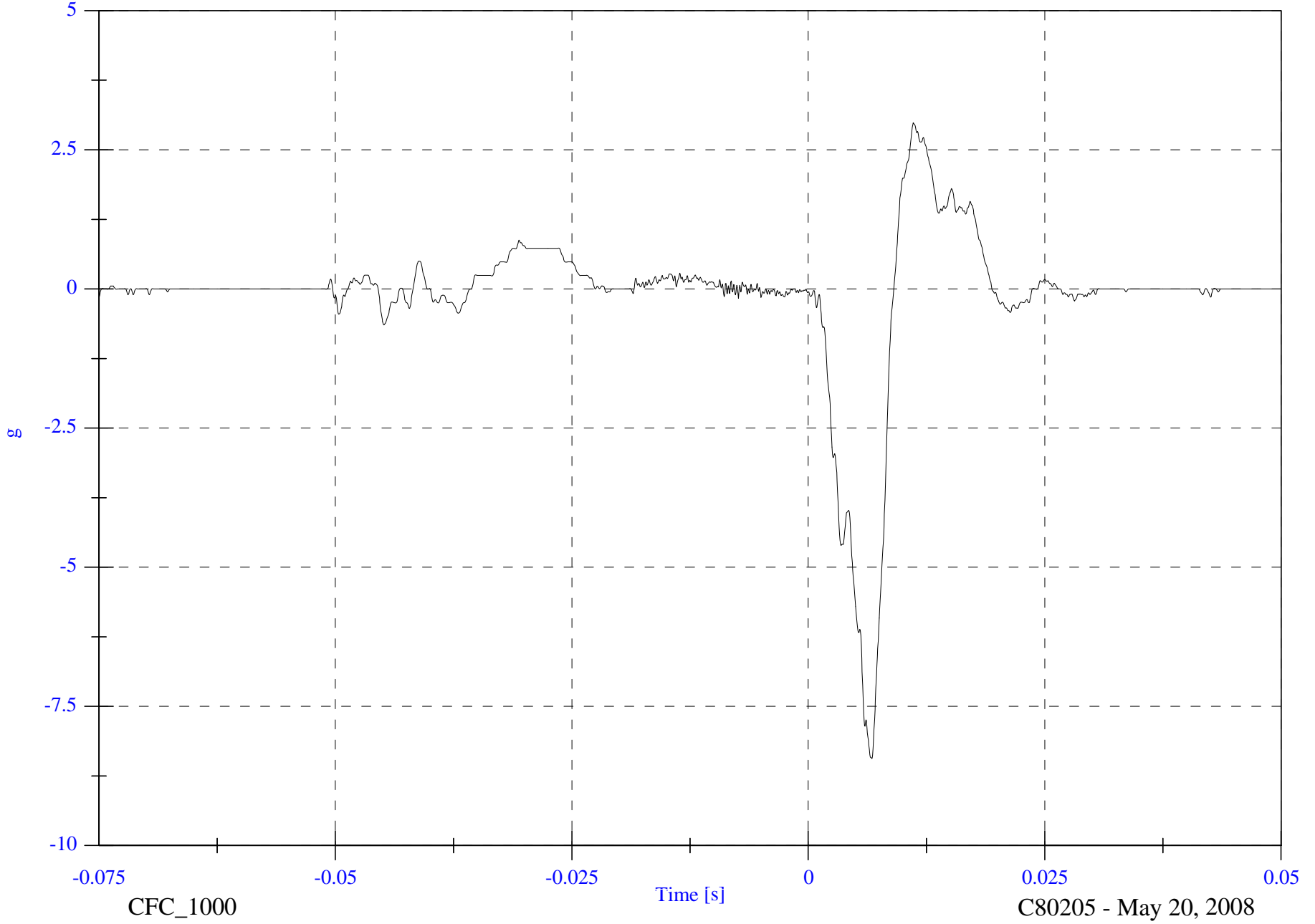
Headform Y Acceleration

Max: 3.0 [g] at 0.011 [s]

Min: -8.4 [g] at 0.007 [s]

C80205 PASSENGER SIDE SRI IMPACT PLOT #3

8851-09



CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

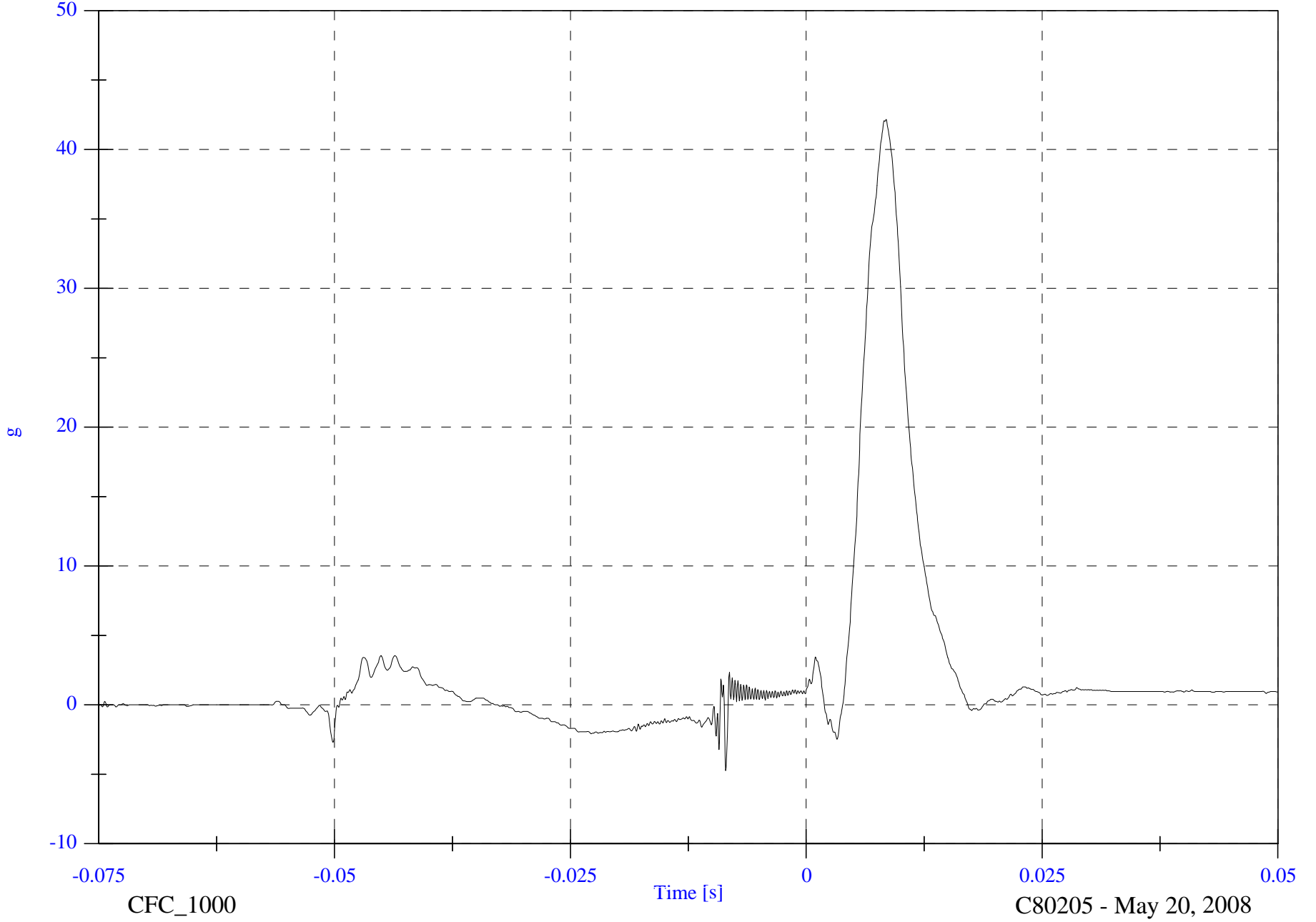
Headform Z Acceleration

Max: 42.2 [g] at 0.008 [s]

Min: -4.7 [g] at -0.009 [s]

C80205 PASSENGER SIDE SRI IMPACT PLOT #4

8851-09



CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

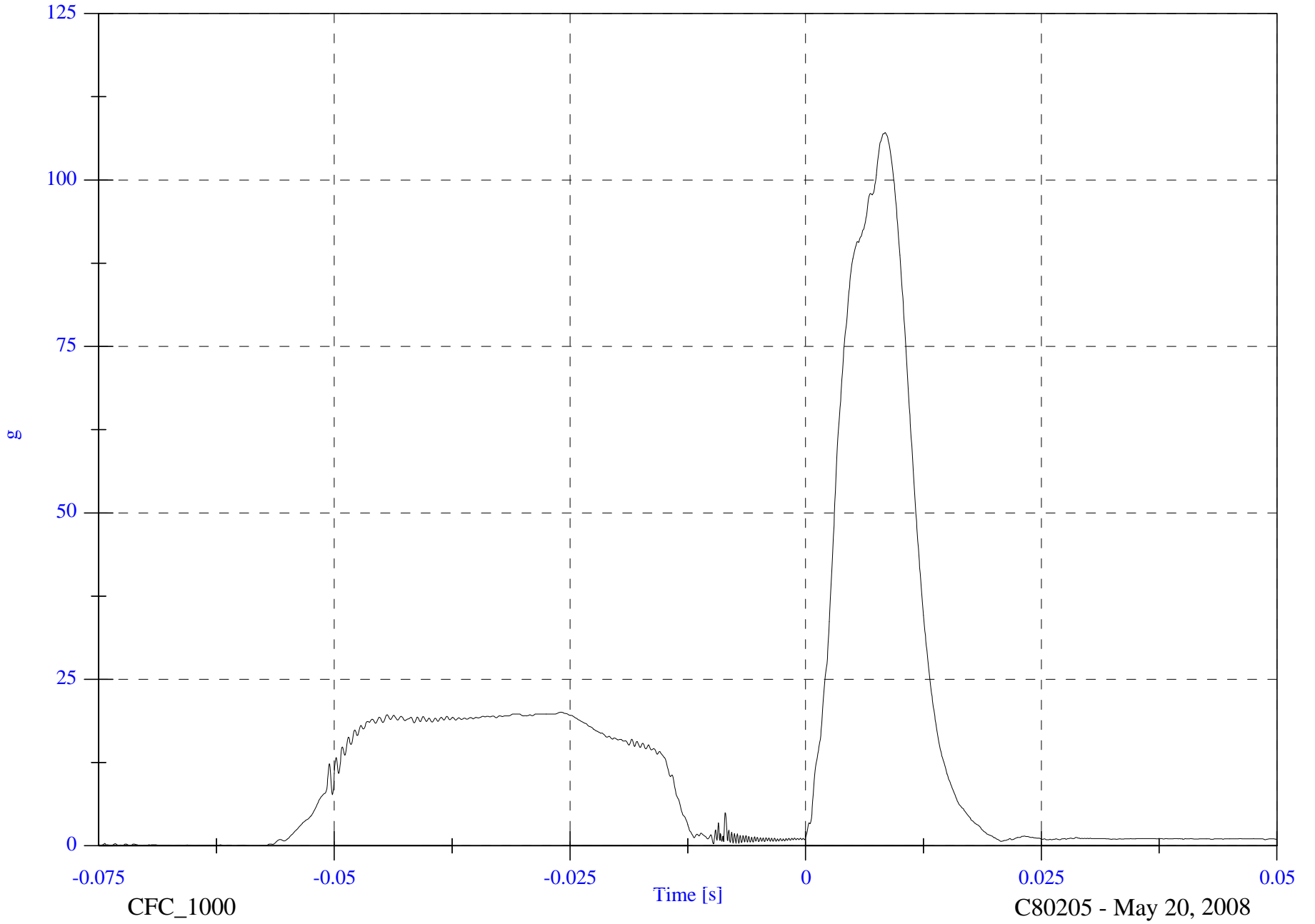
Headform Resultant

Max: 107.1 [g] at 0.008 [s]

Min: 0.0 [g] at -0.058 [s]

C80205 PASSENGER SIDE SRI IMPACT PLOT #5

8851-09



CFC_1000

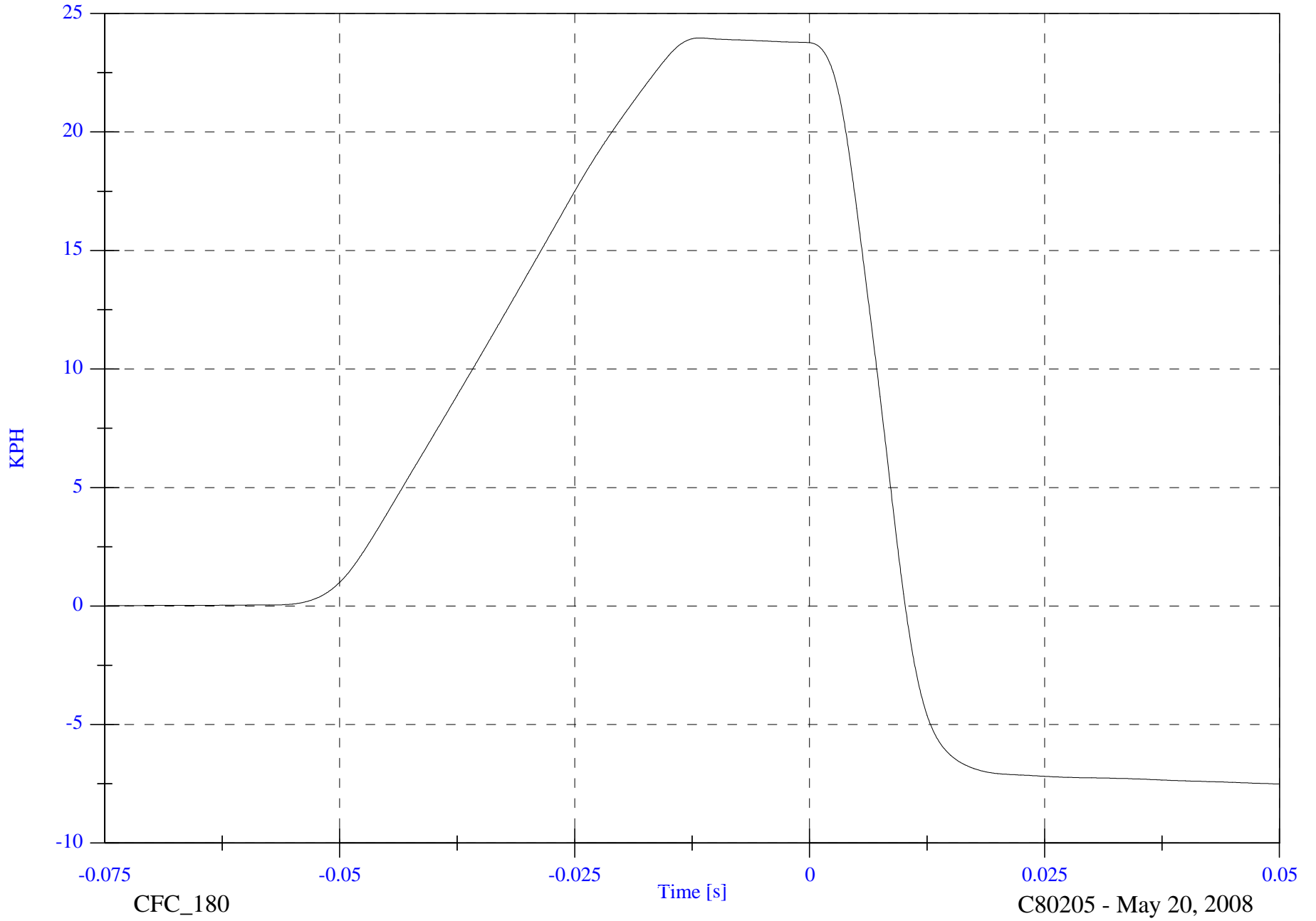
C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

Max: 24.0 [KPH] at -0.012 [s]

Min: -7.5 [KPH] at 0.050 [s]

Headform Velocity



C80205 PASSENGER SIDE SRI IMPACT PLOT #6

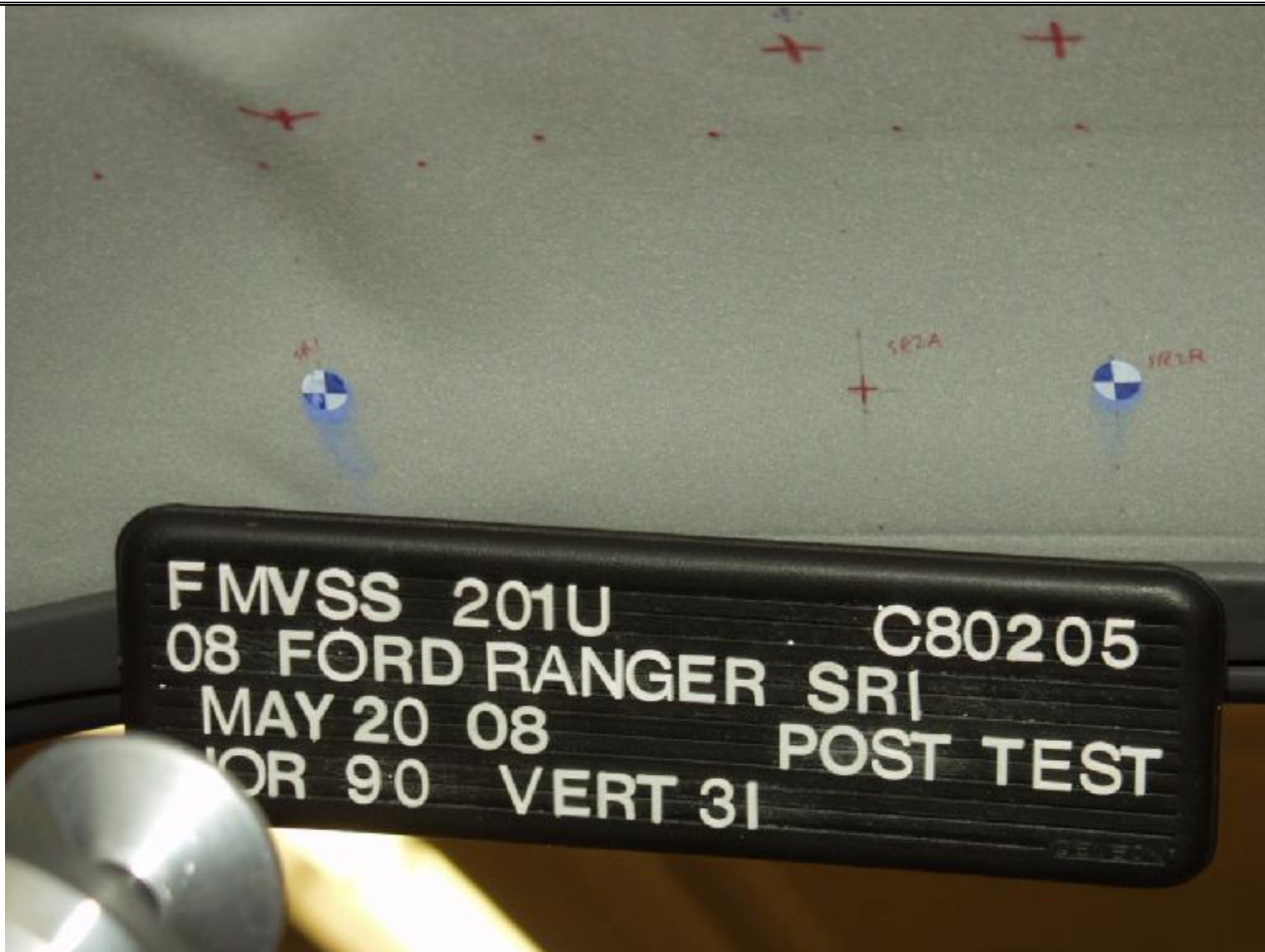
8851-09

CFC_180

C80205 - May 20, 2008



PRE-IMPACT SRI



POST-IMPACT SR1

VEHICLE YEAR/MAKE/MODEL/STYLE:	2008 Ford Ranger
VIN:	1FTYR10D98PA33826
DATE OF MANUFACTURE:	09/07(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	05
Test Date:	05/20/08
Target Location:	UPPER ROOF
Target Code:	URSR2A
Horizontal Impact Angle:	90°
Vertical Impact Angle:	50°
Ambient Temperature:	22°C
Relative Humidity:	31
Time of Impact:	13:49
Headform Number:	0062

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	2	<input type="checkbox"/>	mm right	<input checked="" type="checkbox"/>	mm left
On Centerline	29				mm up



POST-IMPACT URSR2A HEADFORM

Free Motion HIC	667.6
HIC(d)	670.1
Impact Velocity (kph)	23.53
HIC T1 (msec)	3.5
HIC T2 (msec)	11.2

FMVSS 201U 2008 Ford Ranger C80205 - URSR2A

FMH Headform 0062

Location: URSR2A

Test Date: May 20, 2008

Work File: URSR2A

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 670.1

Lab Humidity: 31 %

HIC (36ms): 667.6

Velocity at Impact: 23.53 KPH

t1: 3.5 msec

t2: 11.2 msec

Free Flight Distance: 221.90 mm

Duration: 7.6 msec

Average Acceleration: 8.9 g

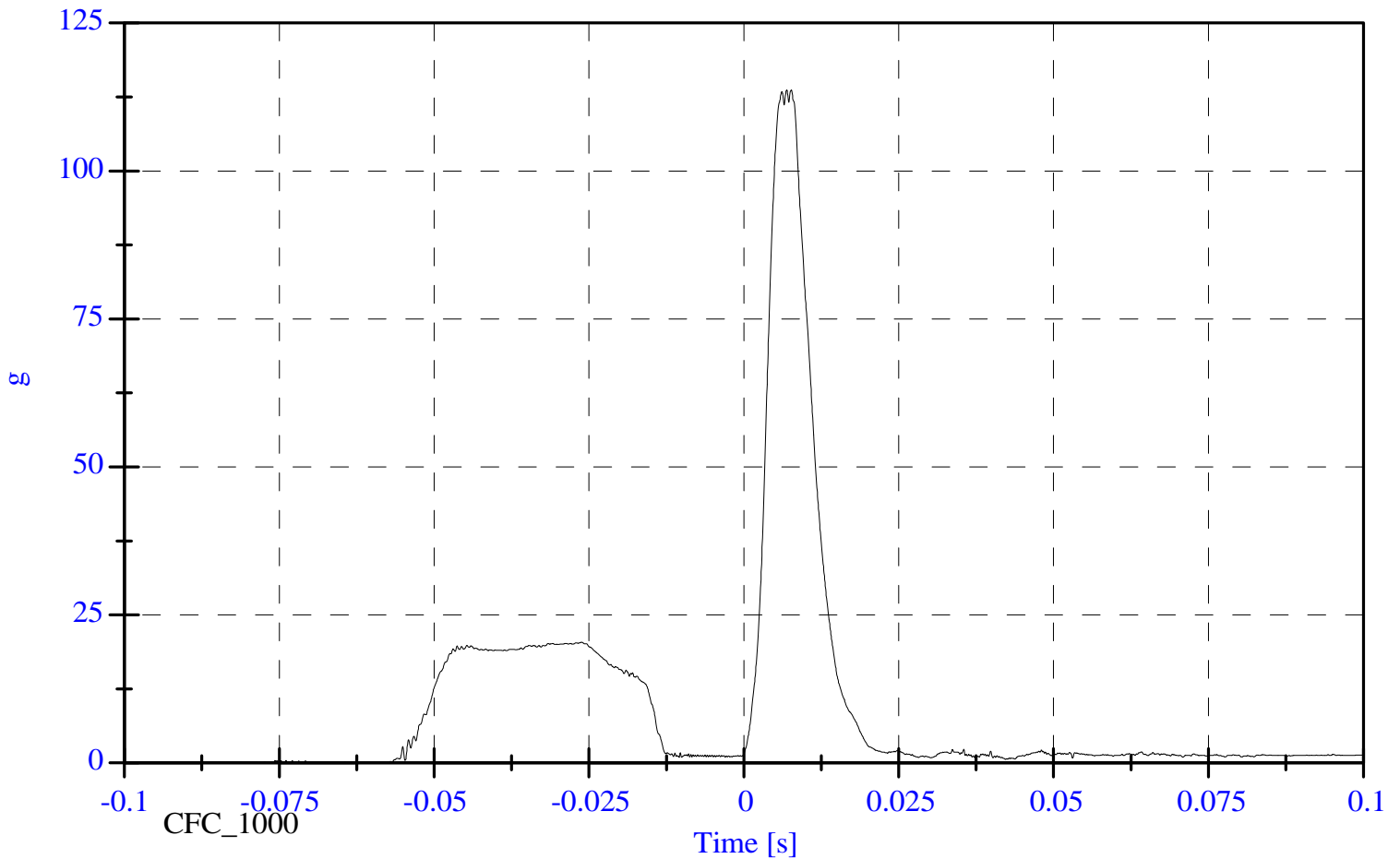
Maximum: 113.7 g

FMVSS 201U 2008 Ford Ranger

Headform Resultant

Max: 113.7 [g] at 0.007 [s]

Min: 0.0 [g] at -0.097 [s]

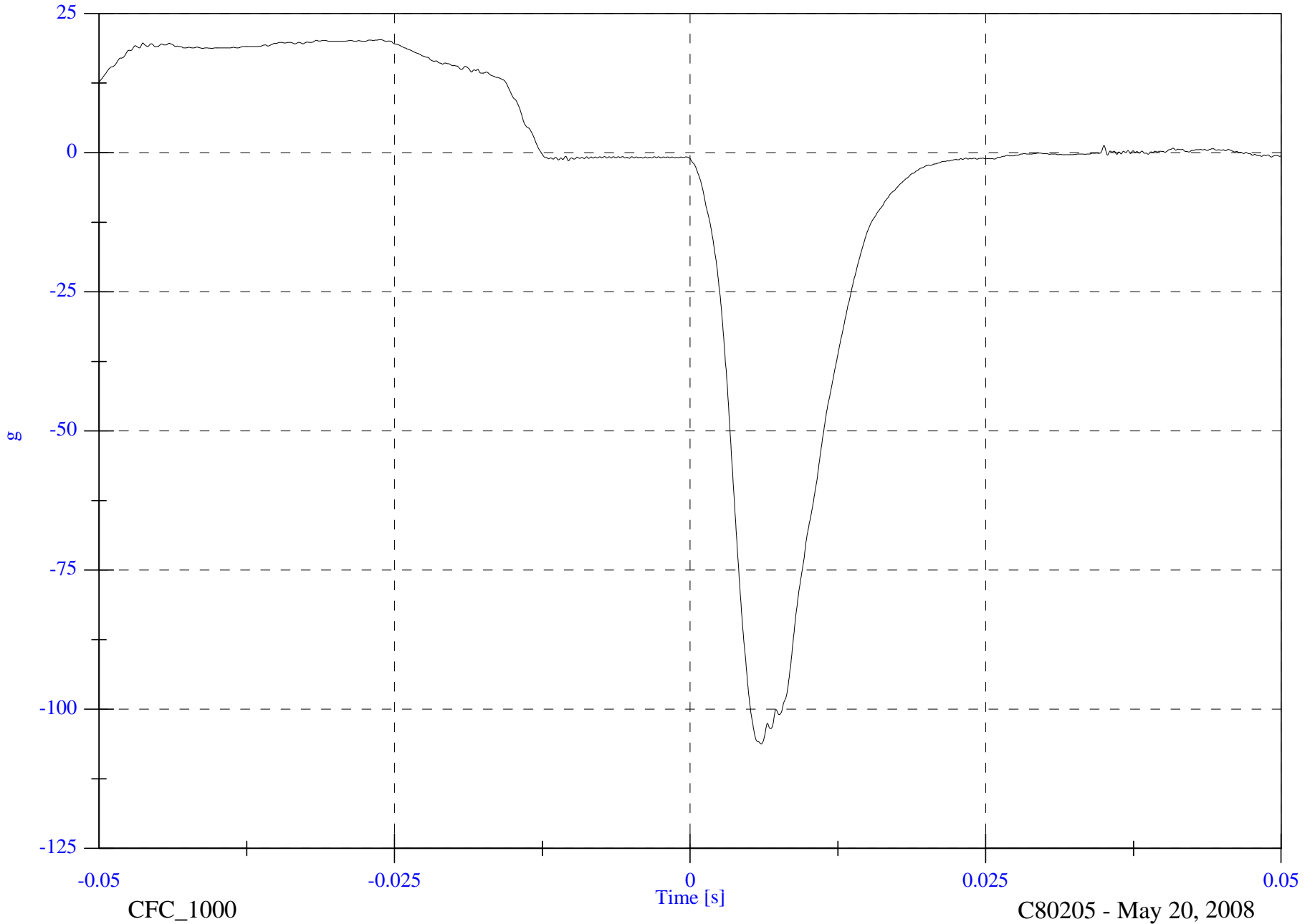


FMVSS 201U 2008 Ford Ranger

Headform X Acceleration

Max: 20.3 [g] at -0.026 [s]

Min: -106.2 [g] at 0.006 [s]



C80205 PASSENGER SIDE URSR2A IMPACT PLOT #2

8851-09

CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

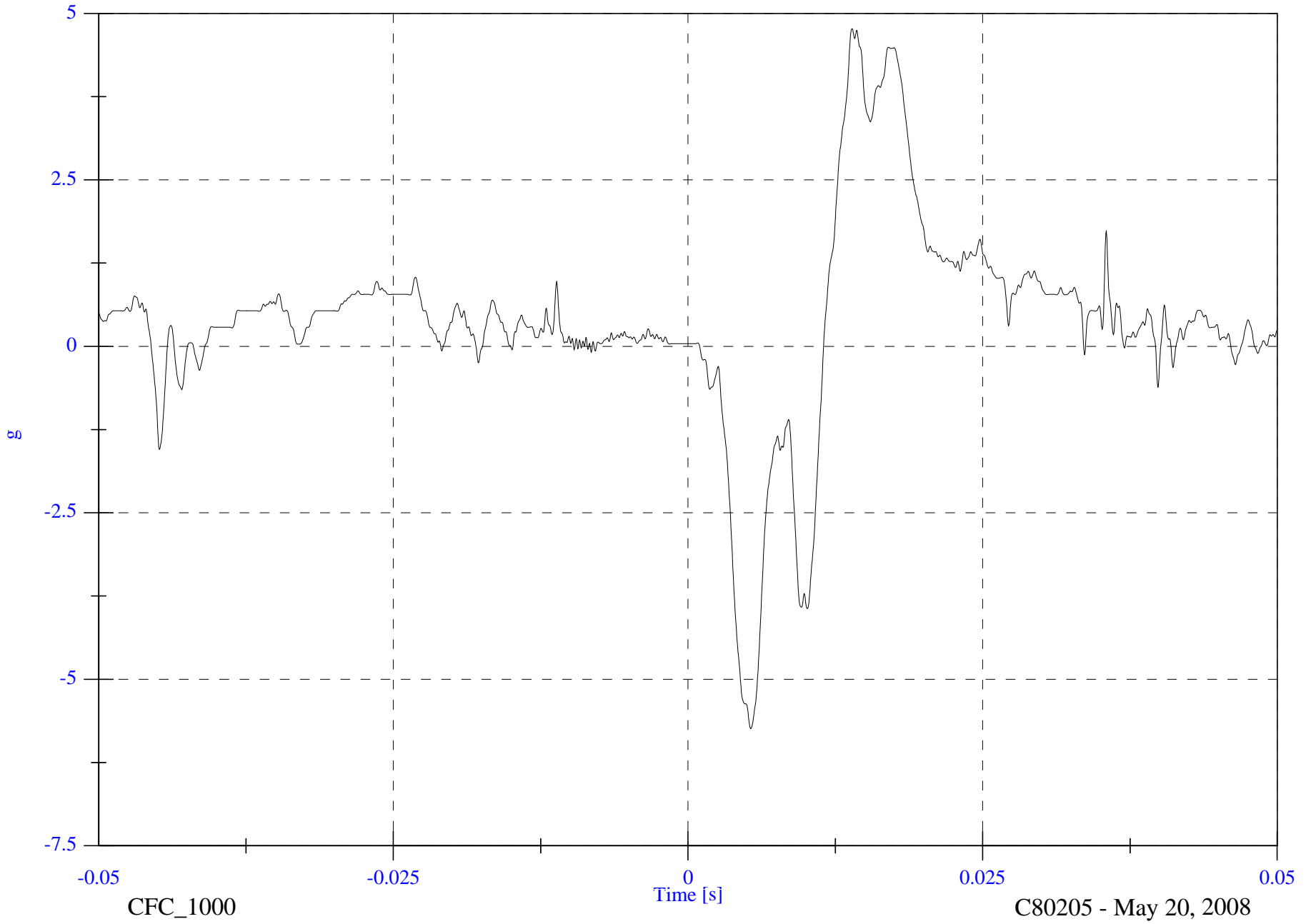
Headform Y Acceleration

Max: 4.8 [g] at 0.014 [s]

Min: -5.7 [g] at 0.005 [s]

C80205 PASSENGER SIDE URSR2A IMPACT PLOT #3

8851-09



CFC_1000

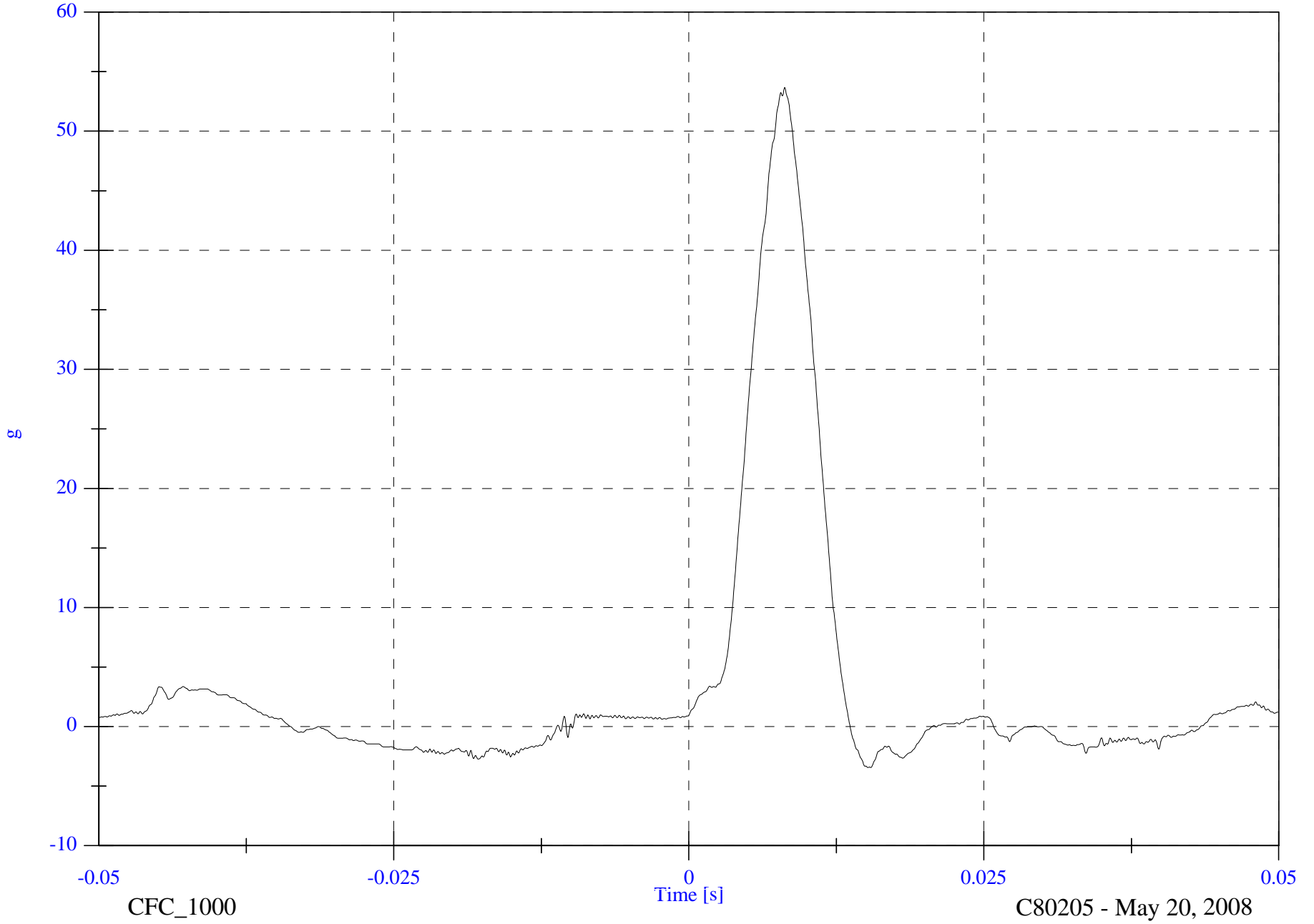
C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

Headform Z Acceleration

Max: 53.7 [g] at 0.008 [s]

Min: -3.4 [g] at 0.015 [s]



C80205 PASSENGER SIDE URSR2A IMPACT PLOT #4

8851-09

CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

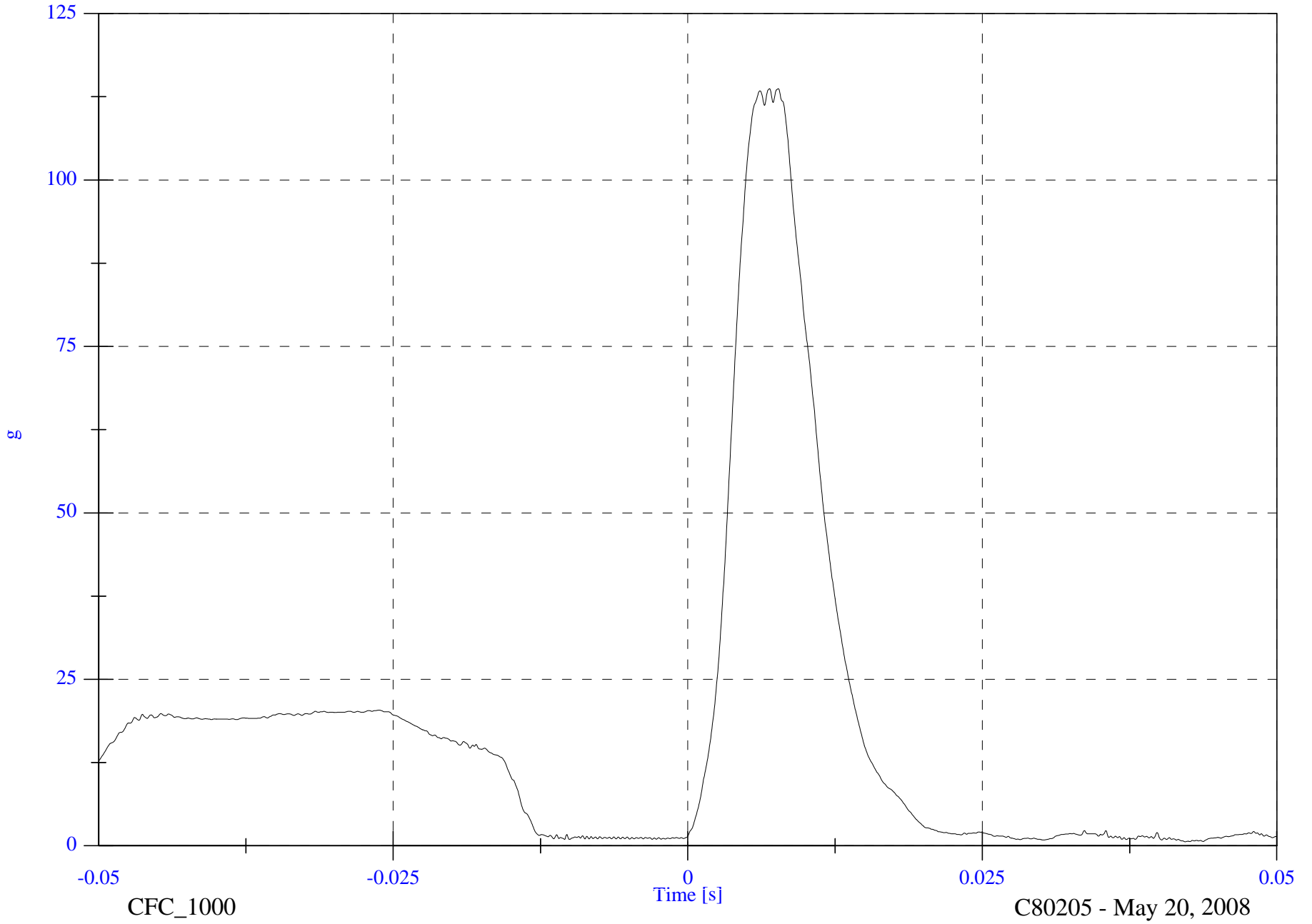
Headform Resultant

Max: 113.7 [g] at 0.007 [s]

Min: 0.6 [g] at 0.042 [s]

C80205 PASSENGER SIDE URSR2A IMPACT PLOT #5

8851-09

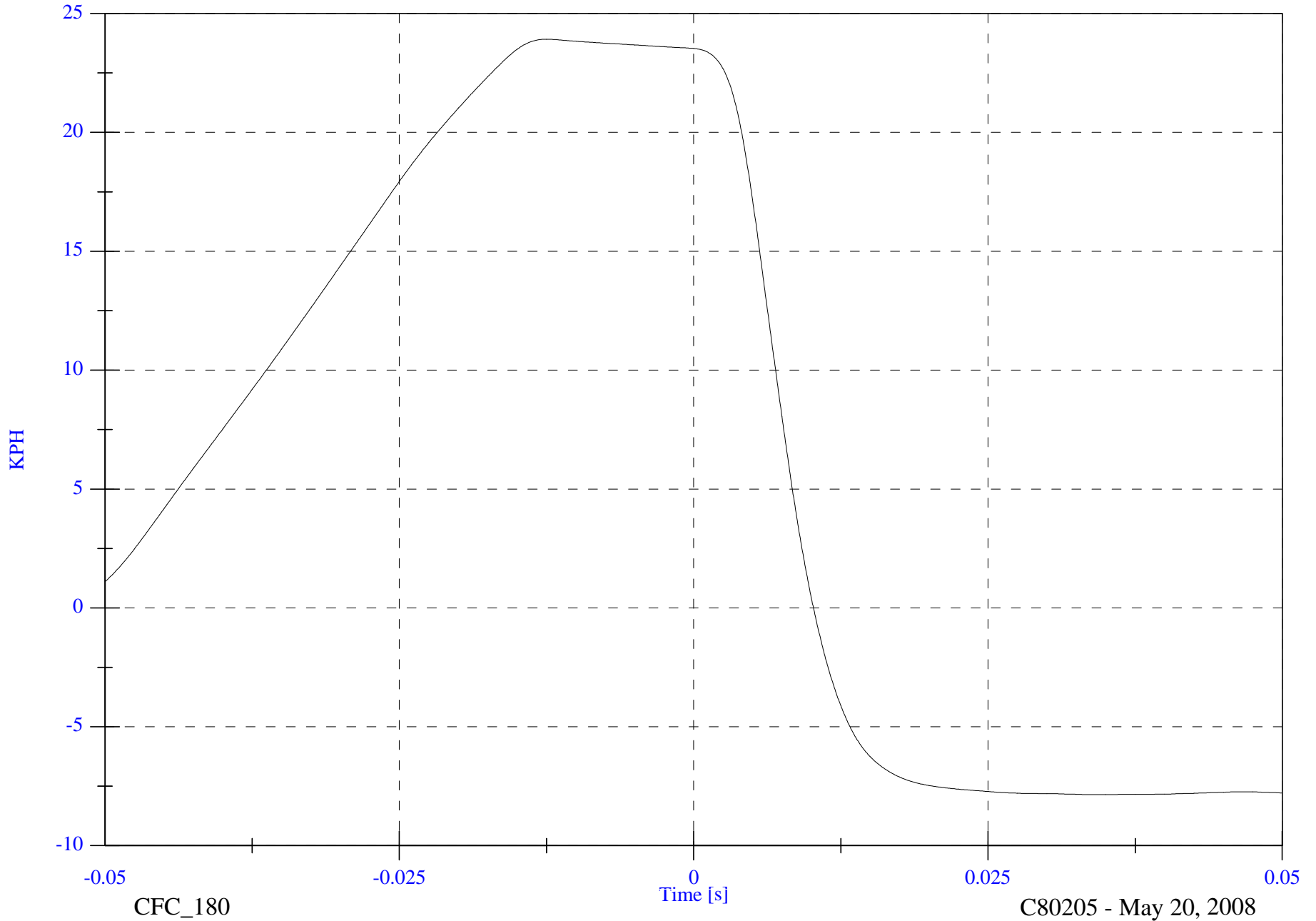


FMVSS 201U 2008 Ford Ranger

Max: 23.9 [KPH] at -0.012 [s]

Min: -7.9 [KPH] at 0.034 [s]

Headform Velocity



C80205 PASSENGER SIDE URSR2A IMPACT PLOT #6

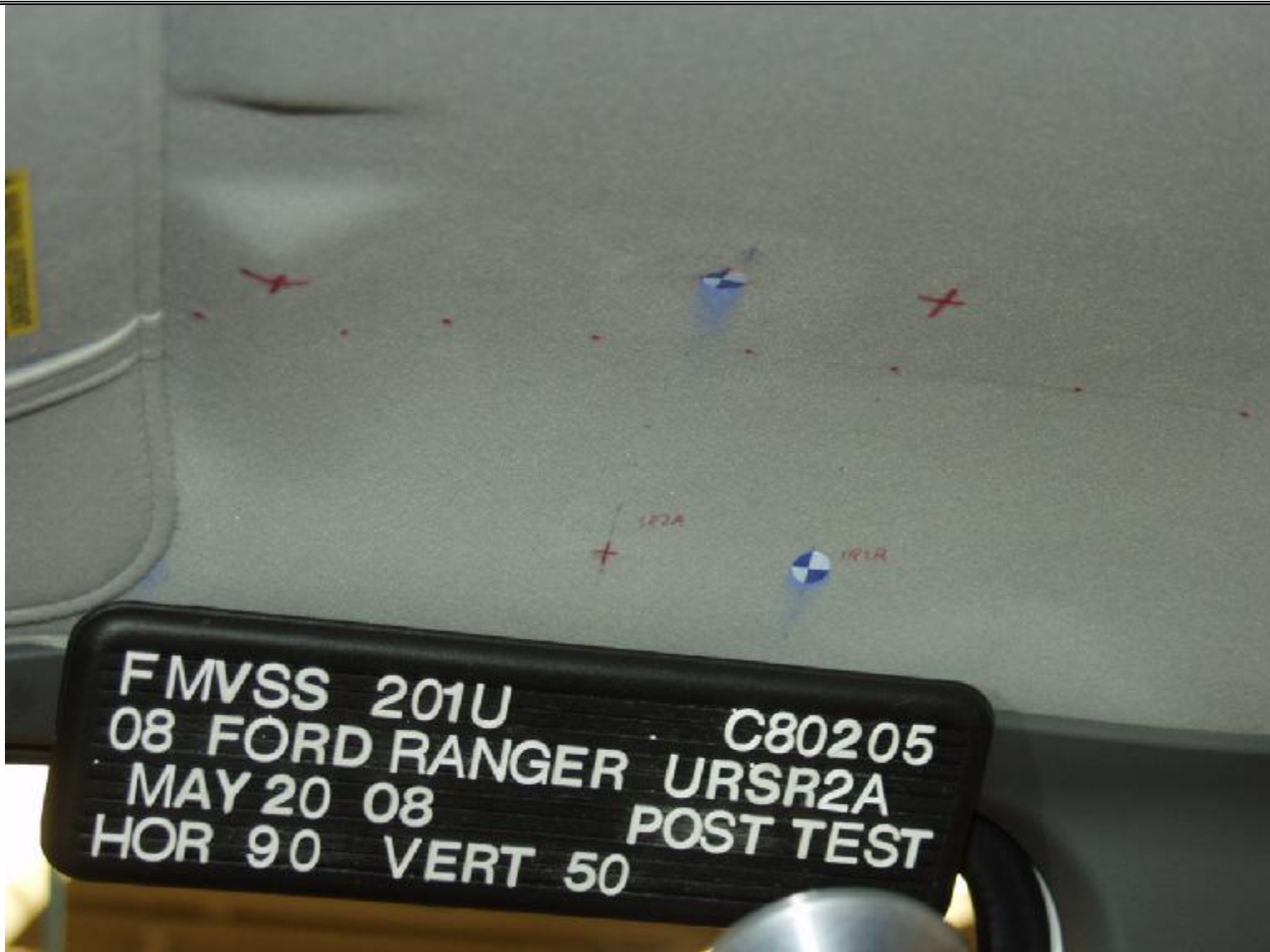
8851-09

CFC_180

C80205 - May 20, 2008



PRE-IMPACT URSR2A



POST-IMPACT URSR2A

VEHICLE YEAR/MAKE/MODEL/STYLE:	2008 Ford Ranger
VIN:	1FTYR10D98PA33826
DATE OF MANUFACTURE:	09/07(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	06
Test Date:	05/20/08
Target Location:	A-PILLAR
Target Code:	AP3
Horizontal Impact Angle:	137°
Vertical Impact Angle:	40°
Ambient Temperature:	22°C
Relative Humidity:	31
Time of Impact:	14:15
Headform Number:	0355

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	15	<input type="checkbox"/>	mm right	<input checked="" type="checkbox"/>	mm left
On Centerline	4				mm up



POST-IMPACT AP3 HEADFORM

Free Motion HIC	431.4
HIC(d)	491.9
Impact Velocity (kph)	23.43
HIC T1 (msec)	6.0
HIC T2 (msec)	14.1

FMVSS 201U 2008 Ford Ranger C80205 - AP3

FMH Headform 0355

Location: AP3

Test Date: May 20, 2008

Work File: AP3

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 491.9

Lab Humidity: 31 %

HIC (36ms): 431.4

Velocity at Impact: 23.43 KPH

t1: 6.0 msec

t2: 14.1 msec

Free Flight Distance: 222.58 mm

Duration: 8.1 msec

Average Acceleration: 9.3 g

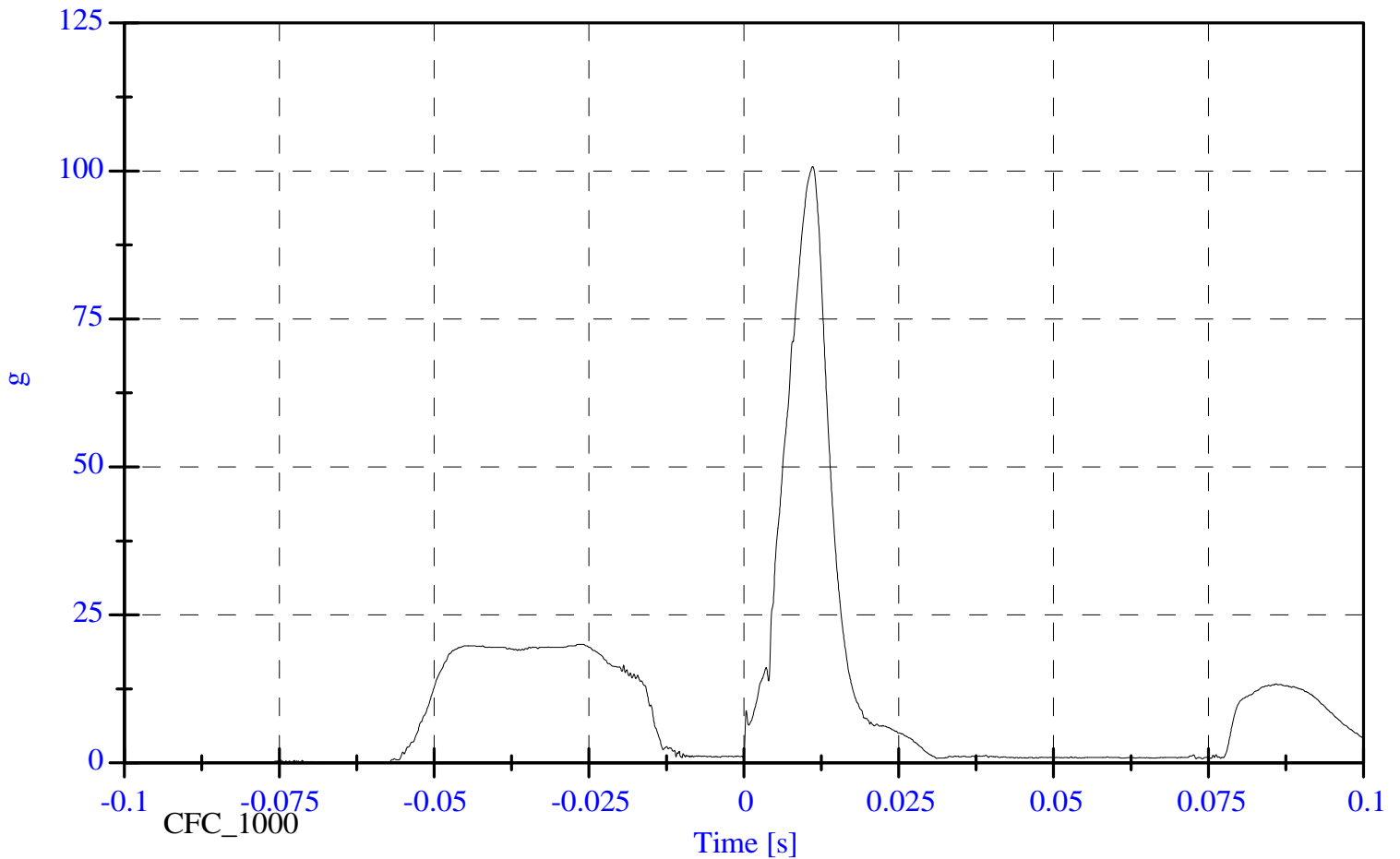
Maximum: 100.7 g

FMVSS 201U 2008 Ford Ranger

Headform Resultant

Max: 100.7 [g] at 0.011 [s]

Min: 0.0 [g] at -0.067 [s]

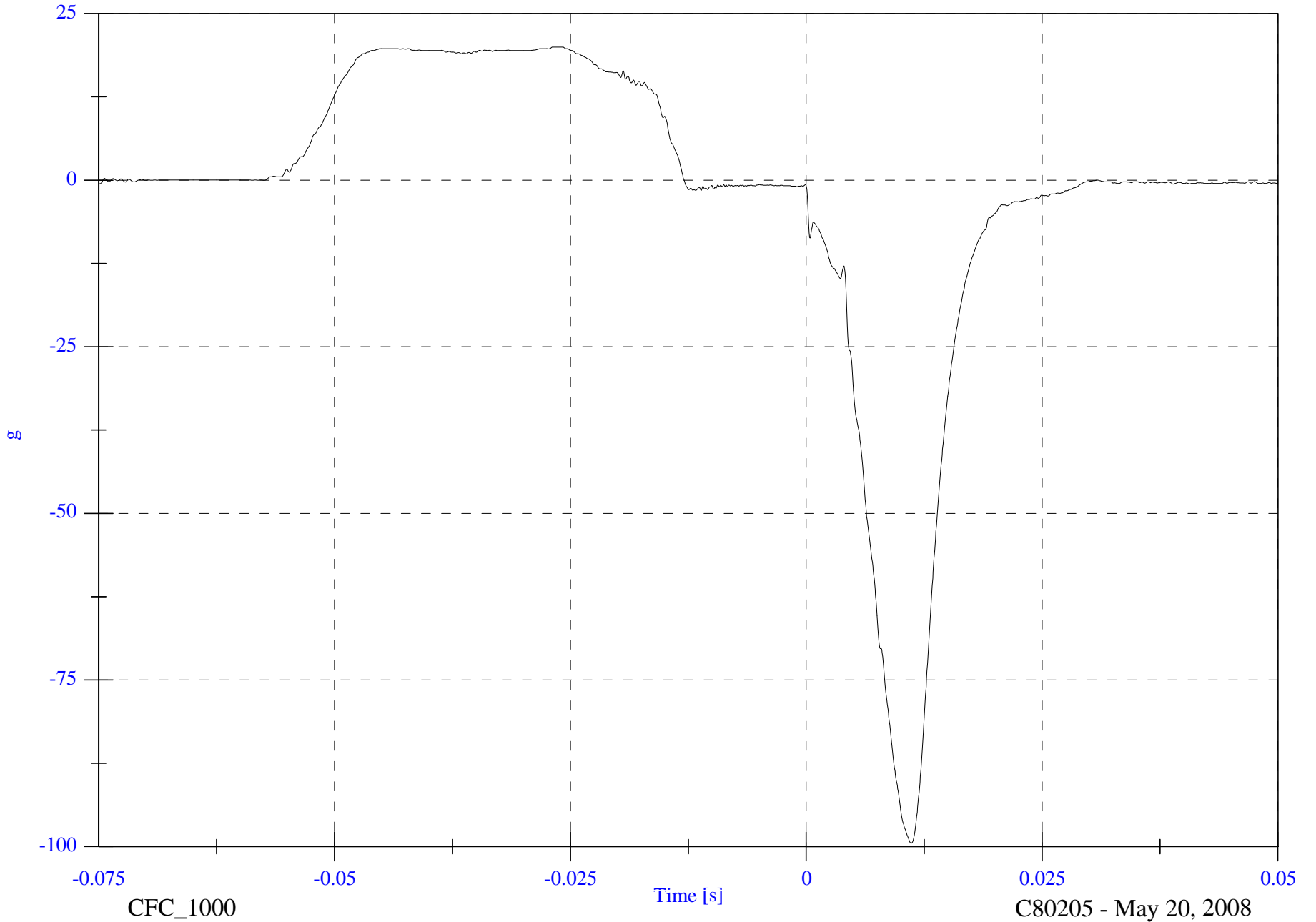


FMVSS 201U 2008 Ford Ranger

Max: 20.0 [g] at -0.027 [s]

Min: -99.5 [g] at 0.011 [s]

Headform X Acceleration



C80205 PASSENGER SIDE AP1 IMPACT PLOT #2

8851-09

CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

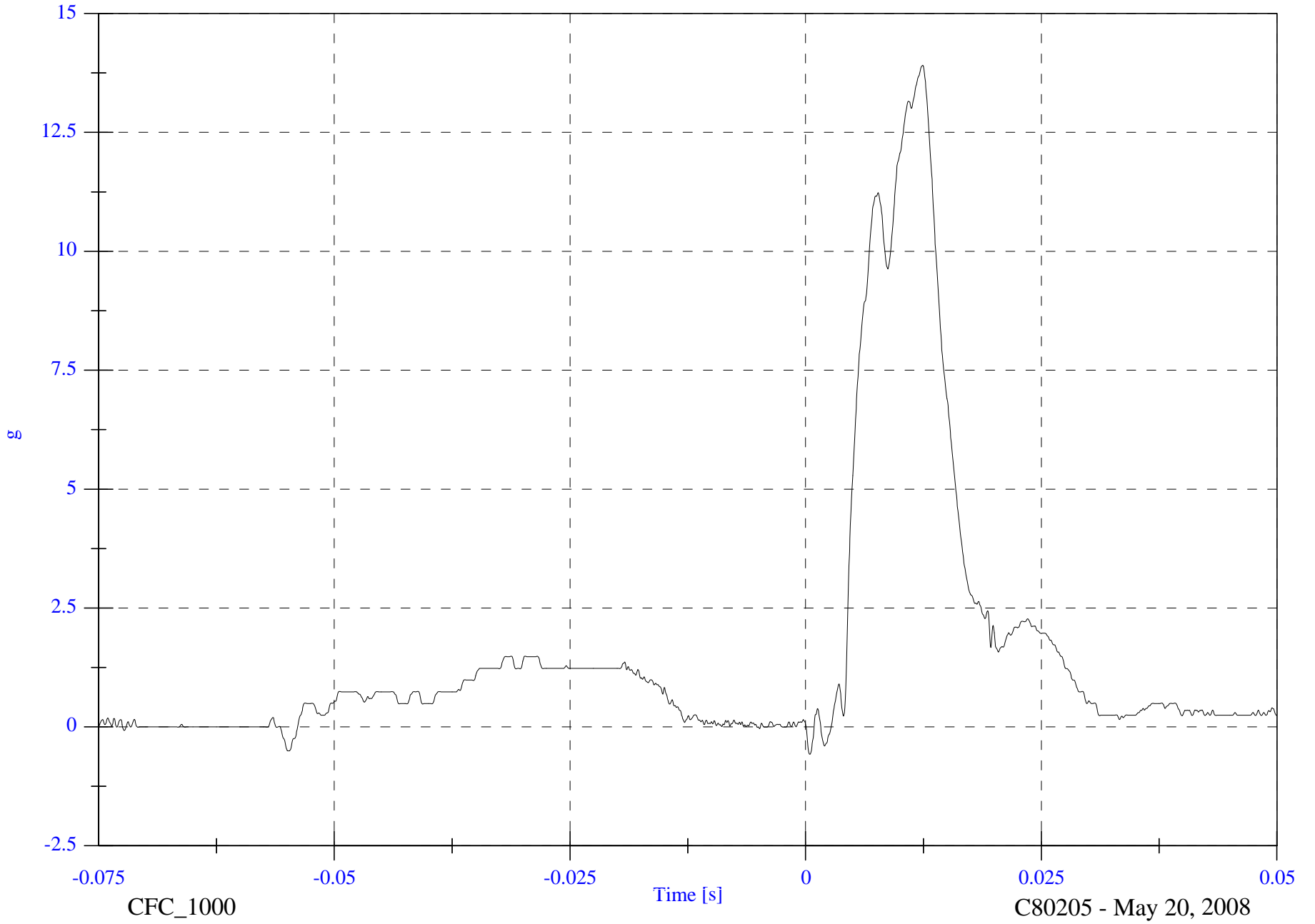
Headform Y Acceleration

Max: 13.9 [g] at 0.012 [s]

Min: -0.6 [g] at 0.000 [s]

C80205 PASSENGER SIDE AP1 IMPACT PLOT #3

8851-09



CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

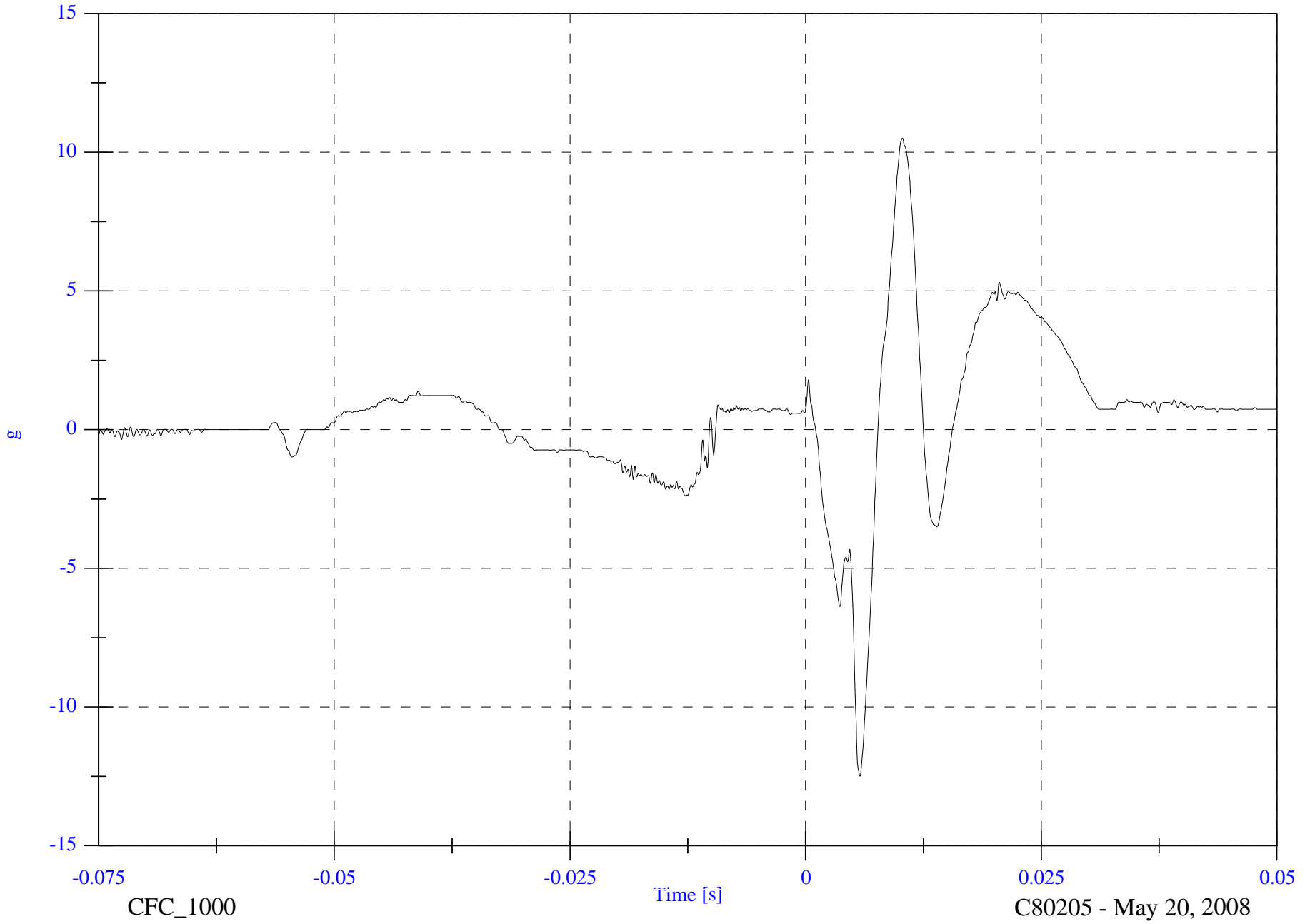
Headform Z Acceleration

Max: 10.5 [g] at 0.010 [s]

Min: -12.5 [g] at 0.006 [s]

C80205 PASSENGER SIDE AP1 IMPACT PLOT #4

8851-09



CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

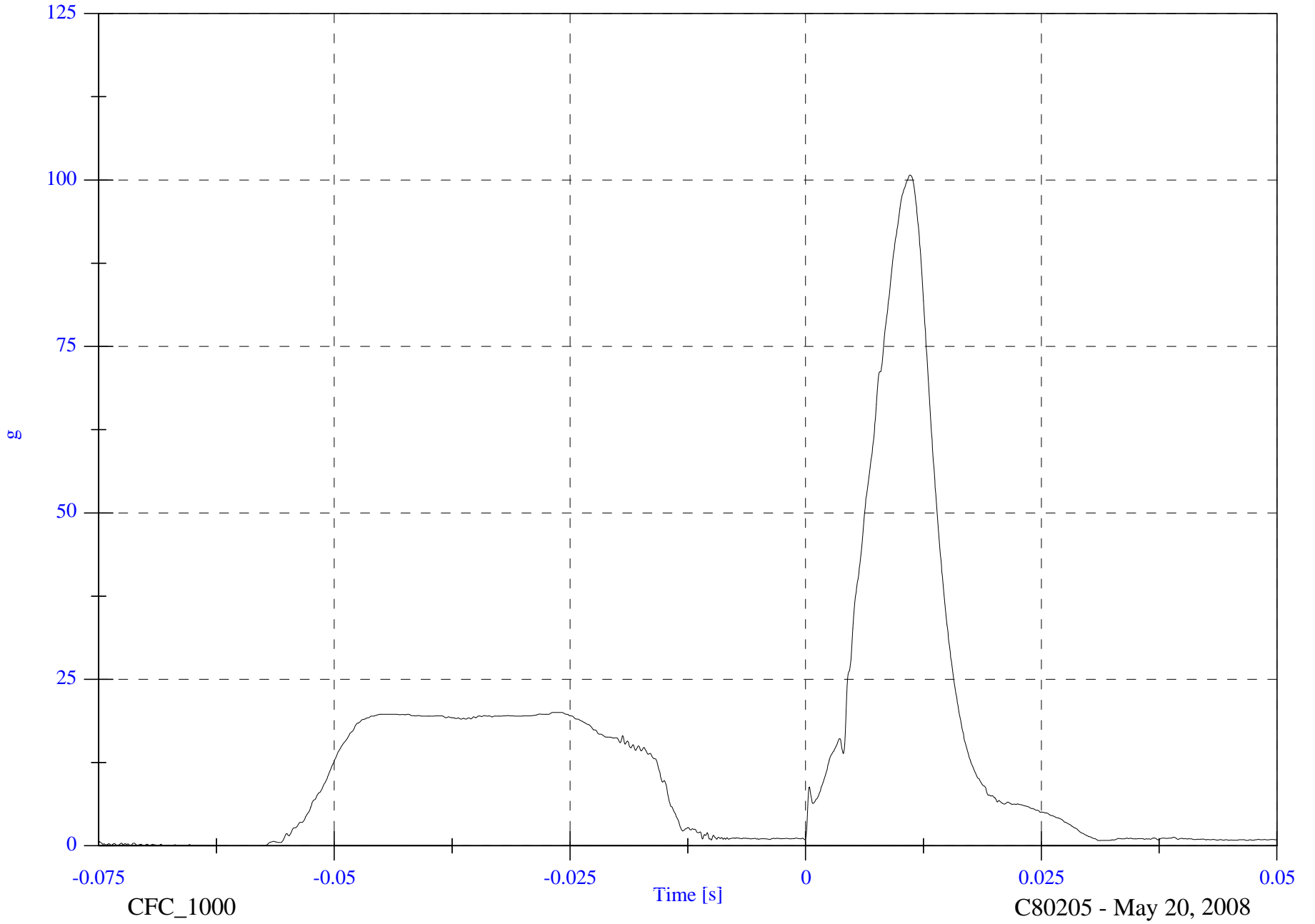
Headform Resultant

Max: 100.7 [g] at 0.011 [s]

Min: 0.0 [g] at -0.067 [s]

C80205 PASSENGER SIDE AP1 IMPACT PLOT #5

8851-09



CFC_1000

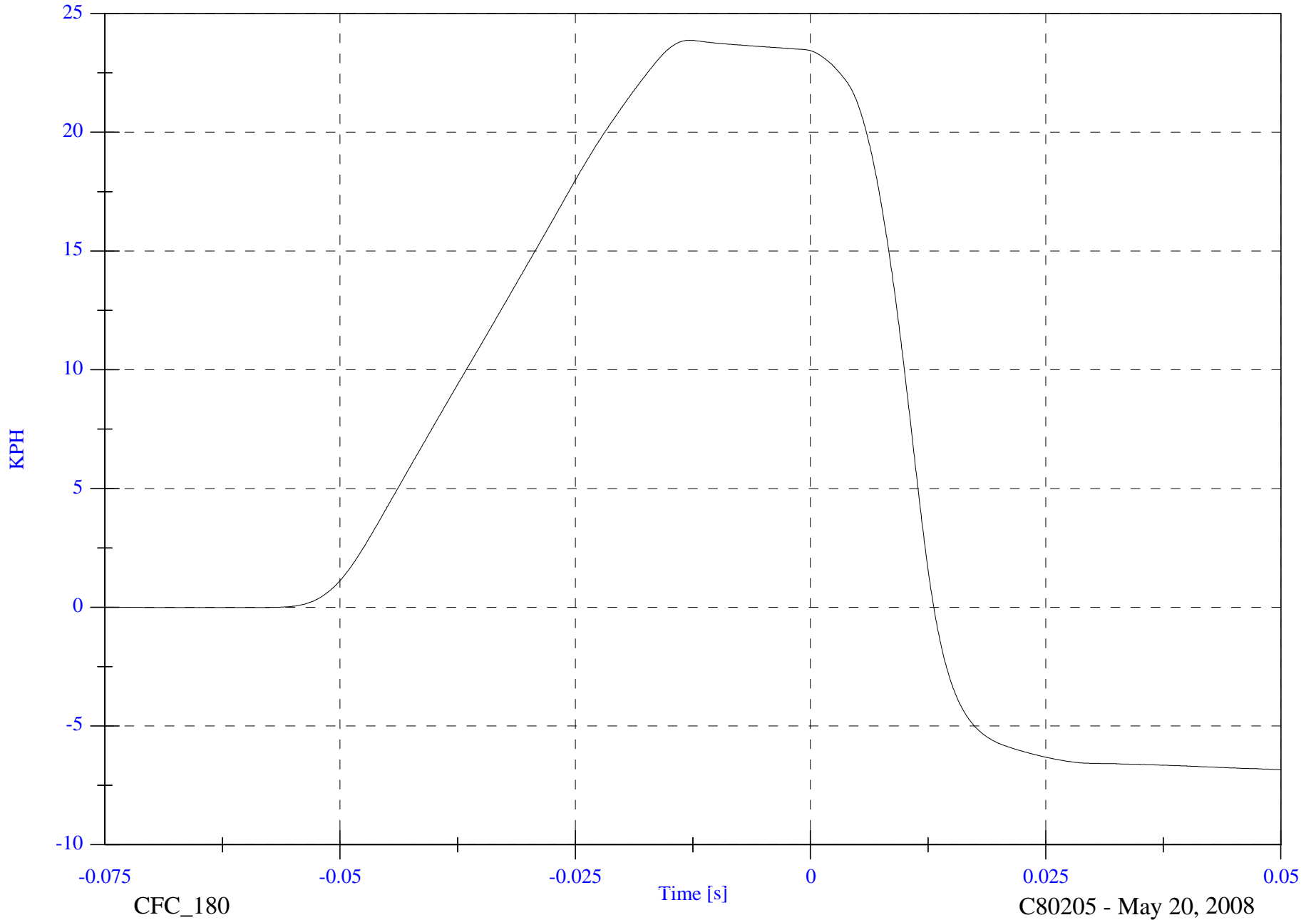
C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

Max: 23.9 [KPH] at -0.013 [s]

Min: -6.8 [KPH] at 0.050 [s]

Headform Velocity



C80205 PASSENGER SIDE AP1 IMPACT PLOT #6

8851-09

CFC_180

C80205 - May 20, 2008



PRE-IMPACT AP3



POST-IMPACT AP3

VEHICLE YEAR/MAKE/MODEL/STYLE:	2008 Ford Ranger
VIN:	1FTYR10D98PA33826
DATE OF MANUFACTURE:	09/07(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	07
Test Date:	05/20/08
Target Location:	A-PILLAR
Target Code:	AP1
Horizontal Impact Angle:	117°
Vertical Impact Angle:	23°
Ambient Temperature:	22°C
Relative Humidity:	33
Time of Impact:	15:00
Headform Number:	1142

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	6	<input checked="" type="checkbox"/>	mm right	<input type="checkbox"/>	mm left
On Centerline	28				mm up



POST-IMPACT AP1 HEADFORM

Free Motion HIC	666.1
HIC(d)	668.9
Impact Velocity (kph)	23.54
HIC T1 (msec)	2.8
HIC T2 (msec)	7.8

FMVSS 201U 2008 Ford Ranger C80205 - AP1

FMH Headform 1142

Location: AP1

Test Date: May 20, 2008

Work File: AP1

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 668.9

Lab Humidity: 33 %

HIC (36ms): 666.1

Velocity at Impact: 23.54 KPH

t1: 2.8 msec

t2: 7.8 msec

Free Flight Distance: 211.71 mm

Duration: 5.1 msec

Average Acceleration: 8.5 g

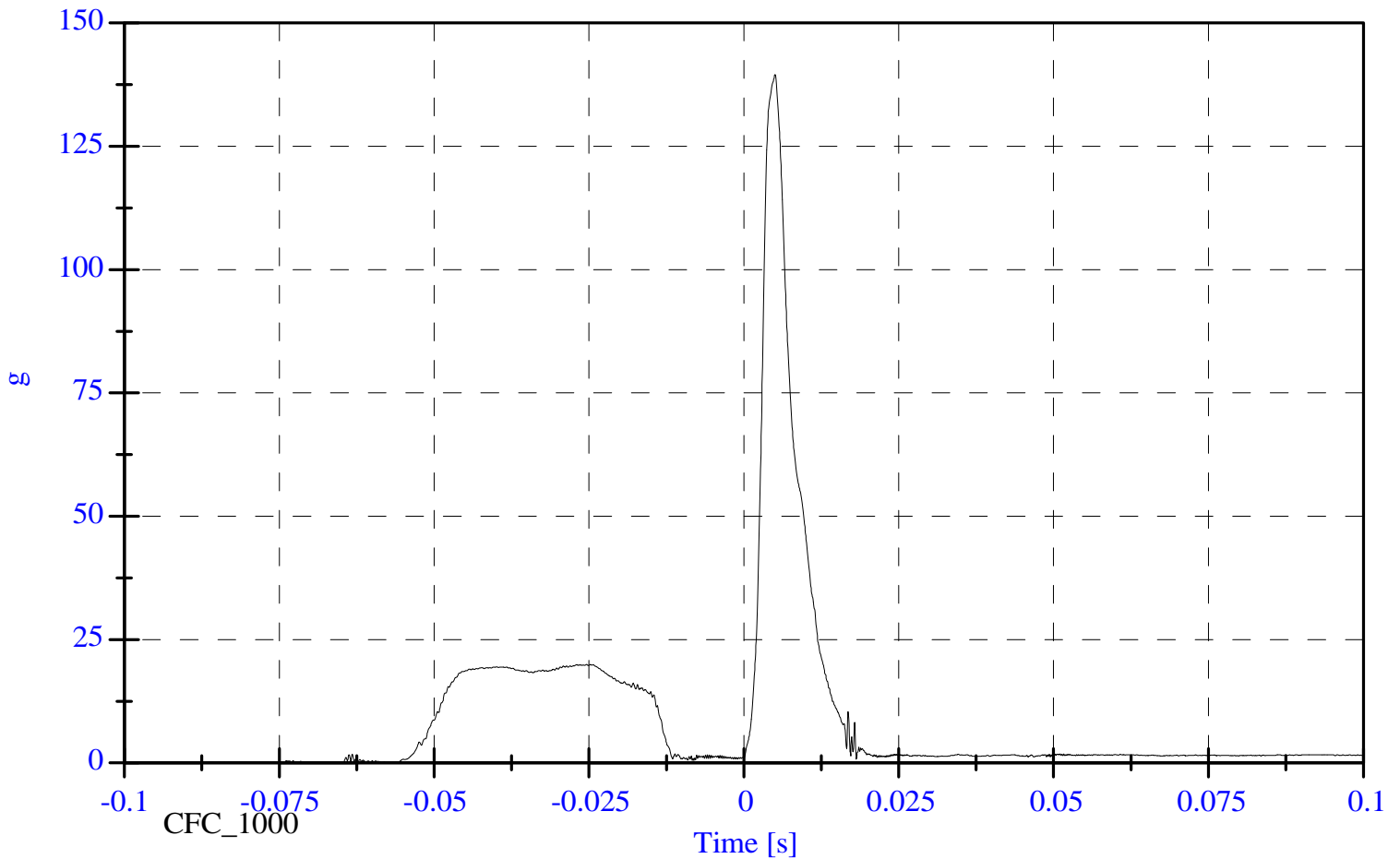
Maximum: 139.6 g

FMVSS 201U 2008 Ford Ranger

Headform Resultant

Max: 139.6 [g] at 0.005 [s]

Min: 0.0 [g] at -0.088 [s]

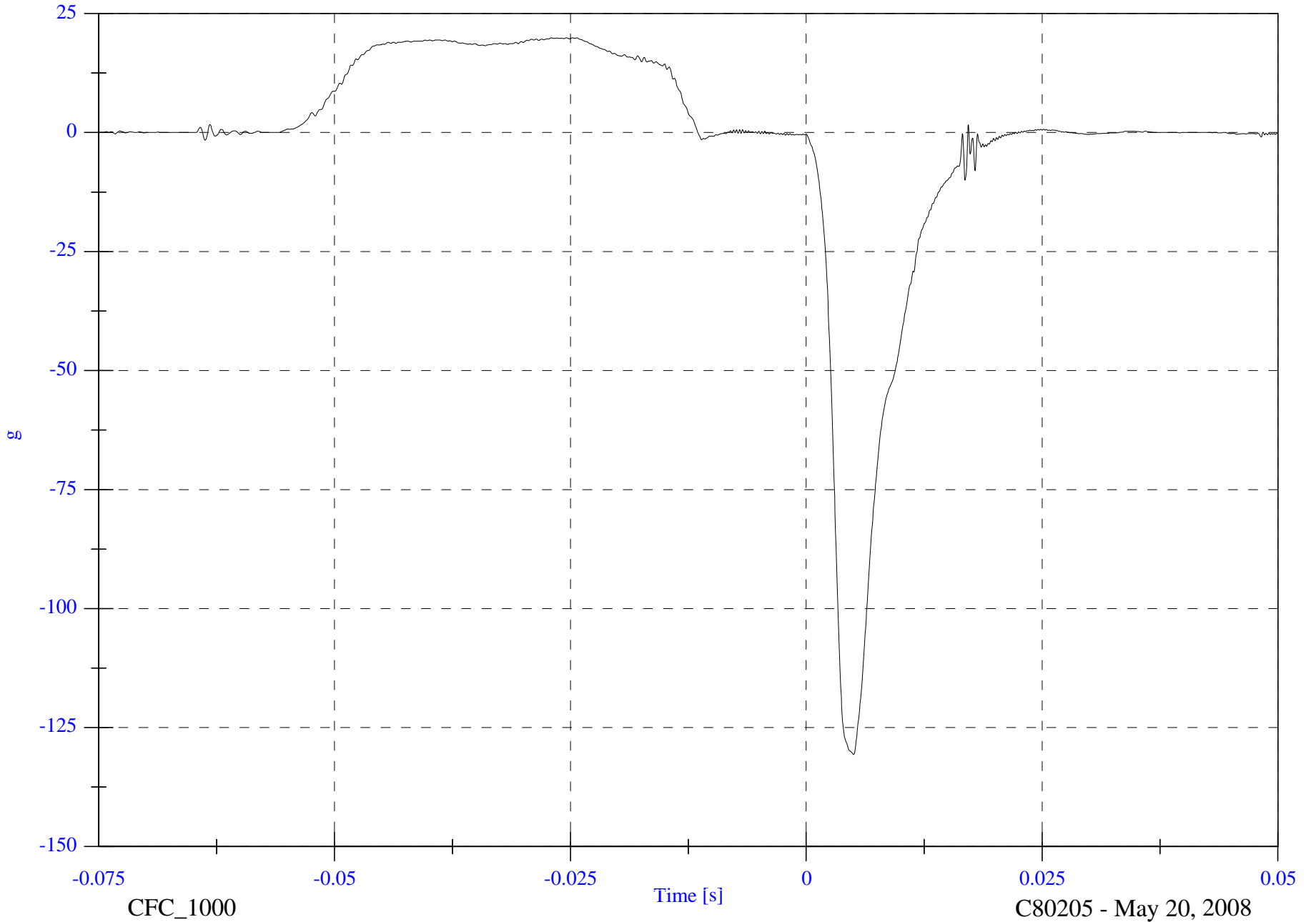


FMVSS 201U 2008 Ford Ranger

Max: 19.9 [g] at -0.025 [s]

Min: -130.7 [g] at 0.005 [s]

Headform X Acceleration



C80205 PASSENGER SIDE AP1 IMPACT PLOT #2

8851-09

CFC_1000

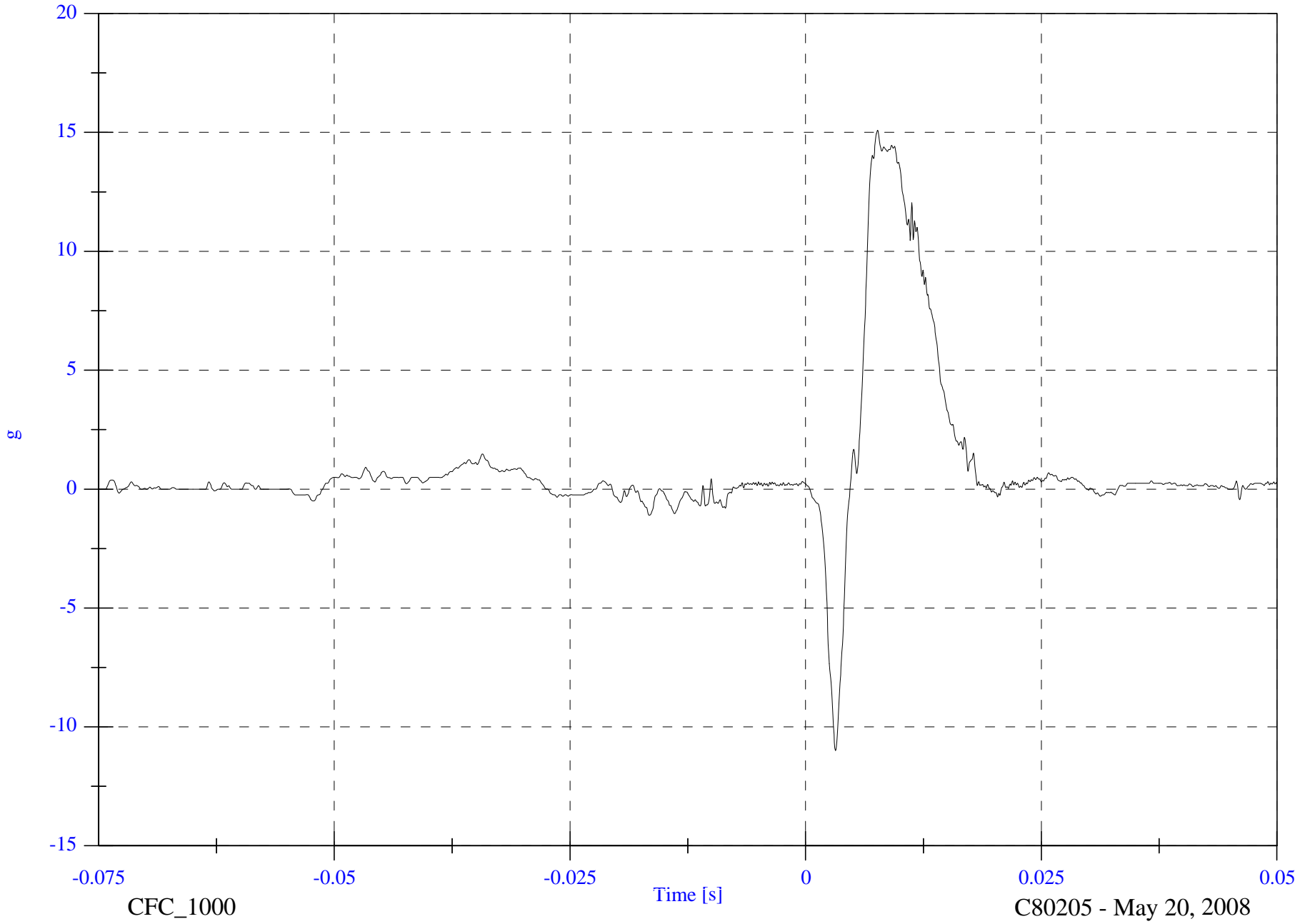
C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

Headform Y Acceleration

Max: 15.1 [g] at 0.008 [s]

Min: -11.0 [g] at 0.003 [s]



C80205 PASSENGER SIDE AP1 IMPACT PLOT #3

8851-09

CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

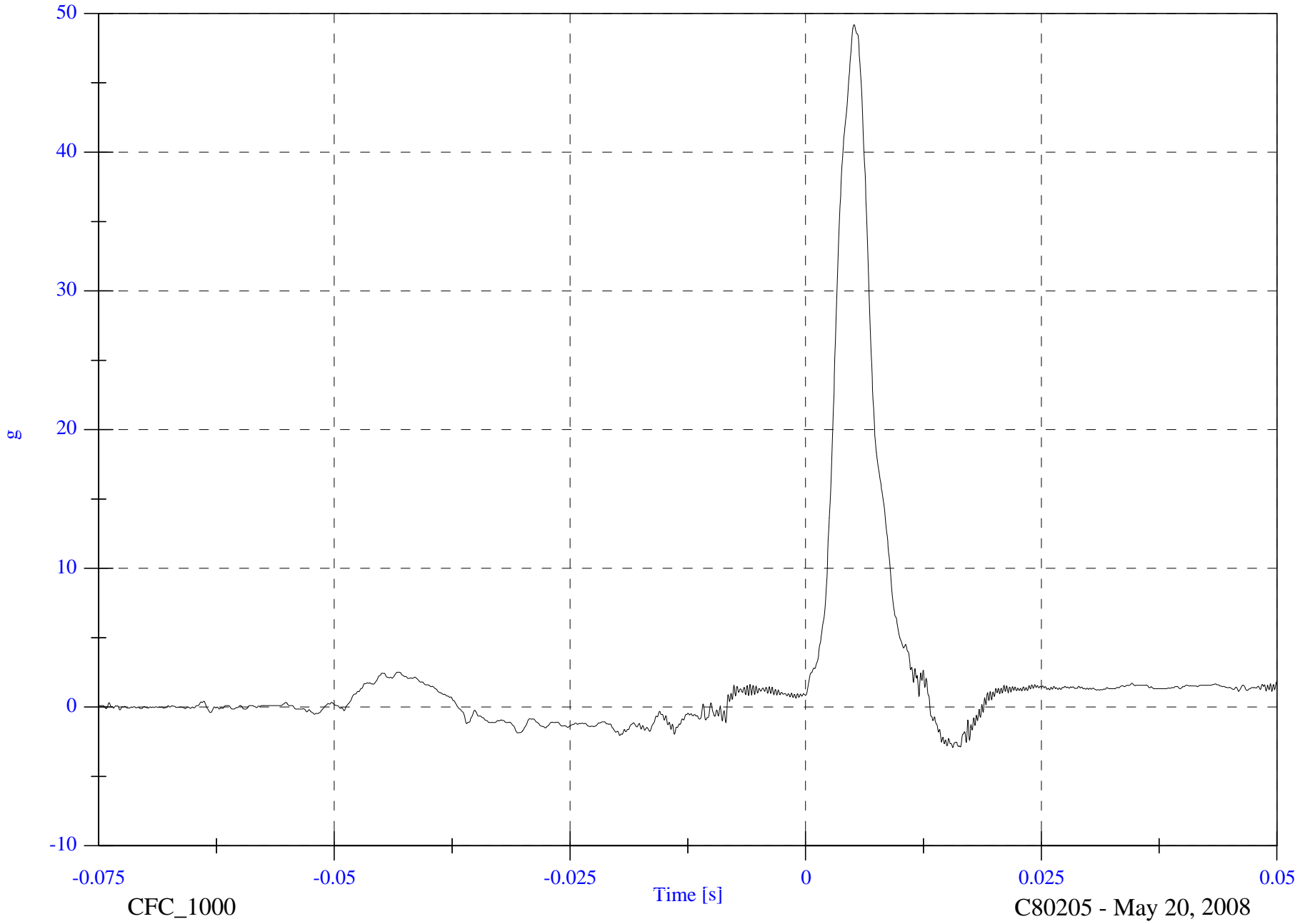
Headform Z Acceleration

Max: 49.2 [g] at 0.005 [s]

Min: -2.9 [g] at 0.016 [s]

C80205 PASSENGER SIDE AP1 IMPACT PLOT #4

8851-09



CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

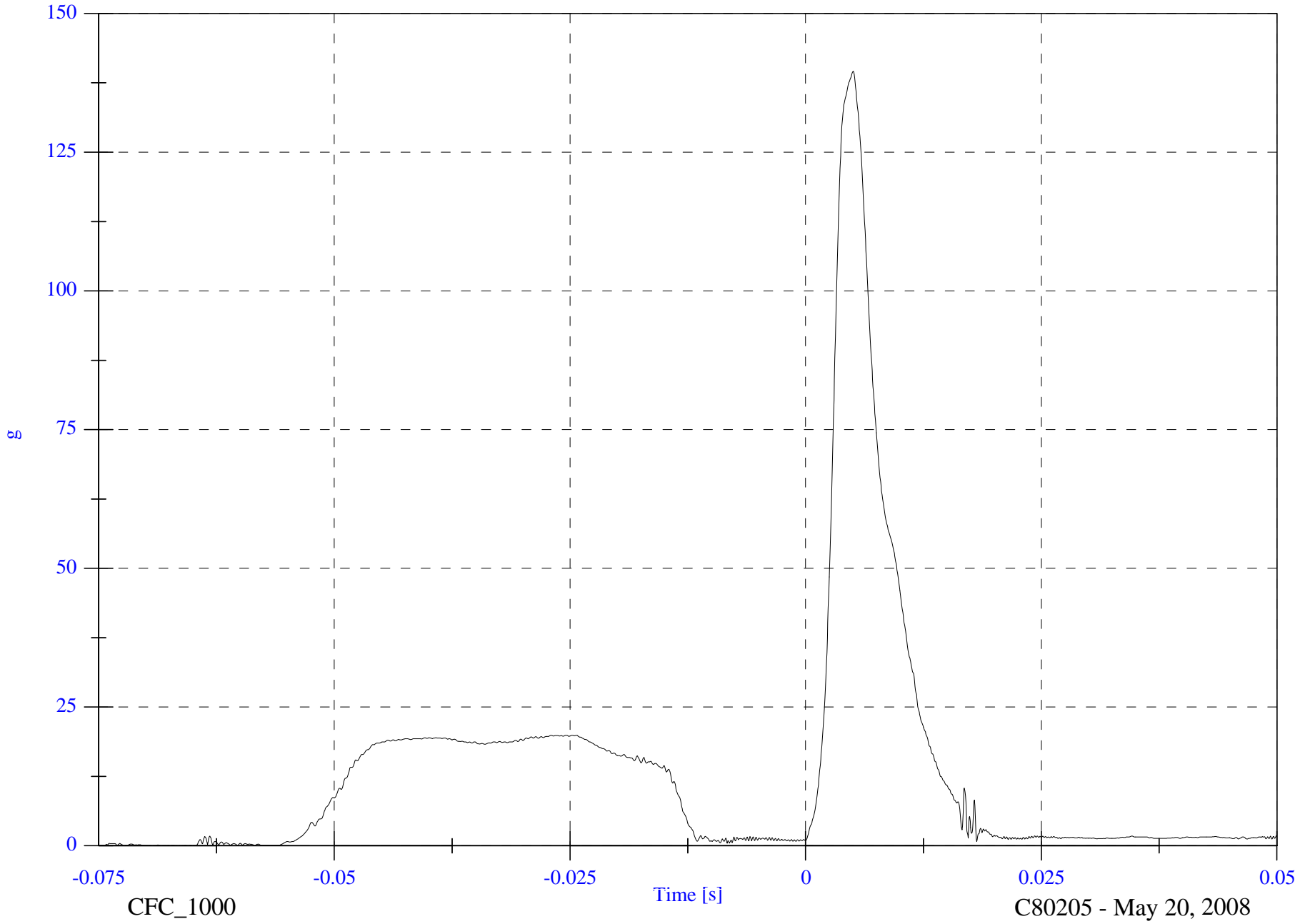
Headform Resultant

Max: 139.6 [g] at 0.005 [s]

Min: 0.0 [g] at -0.065 [s]

C80205 PASSENGER SIDE AP1 IMPACT PLOT #5

8851-09



CFC_1000

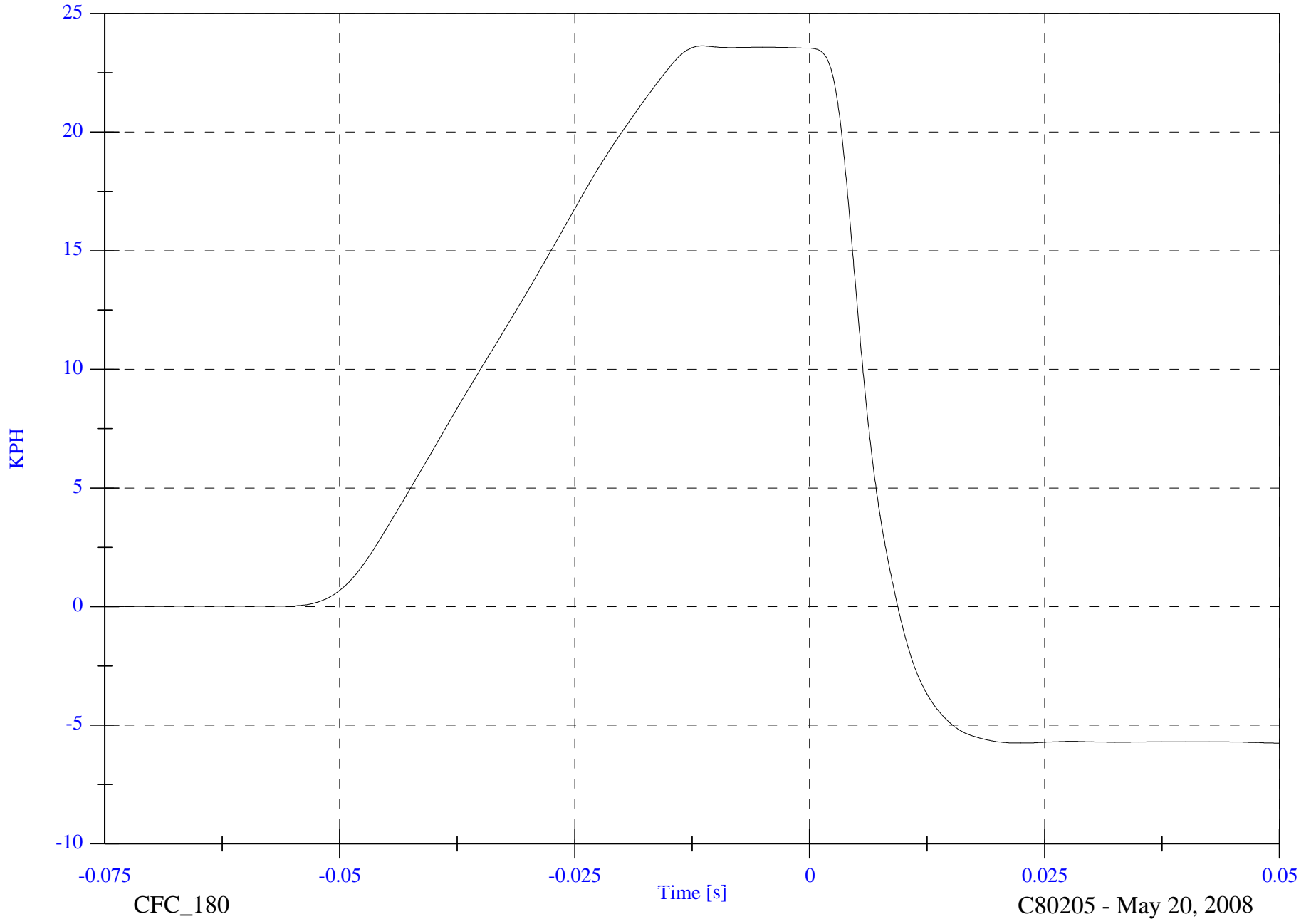
C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

Max: 23.6 [KPH] at -0.011 [s]

Min: -5.8 [KPH] at 0.050 [s]

Headform Velocity



C80205 PASSENGER SIDE AP1 IMPACT PLOT #6

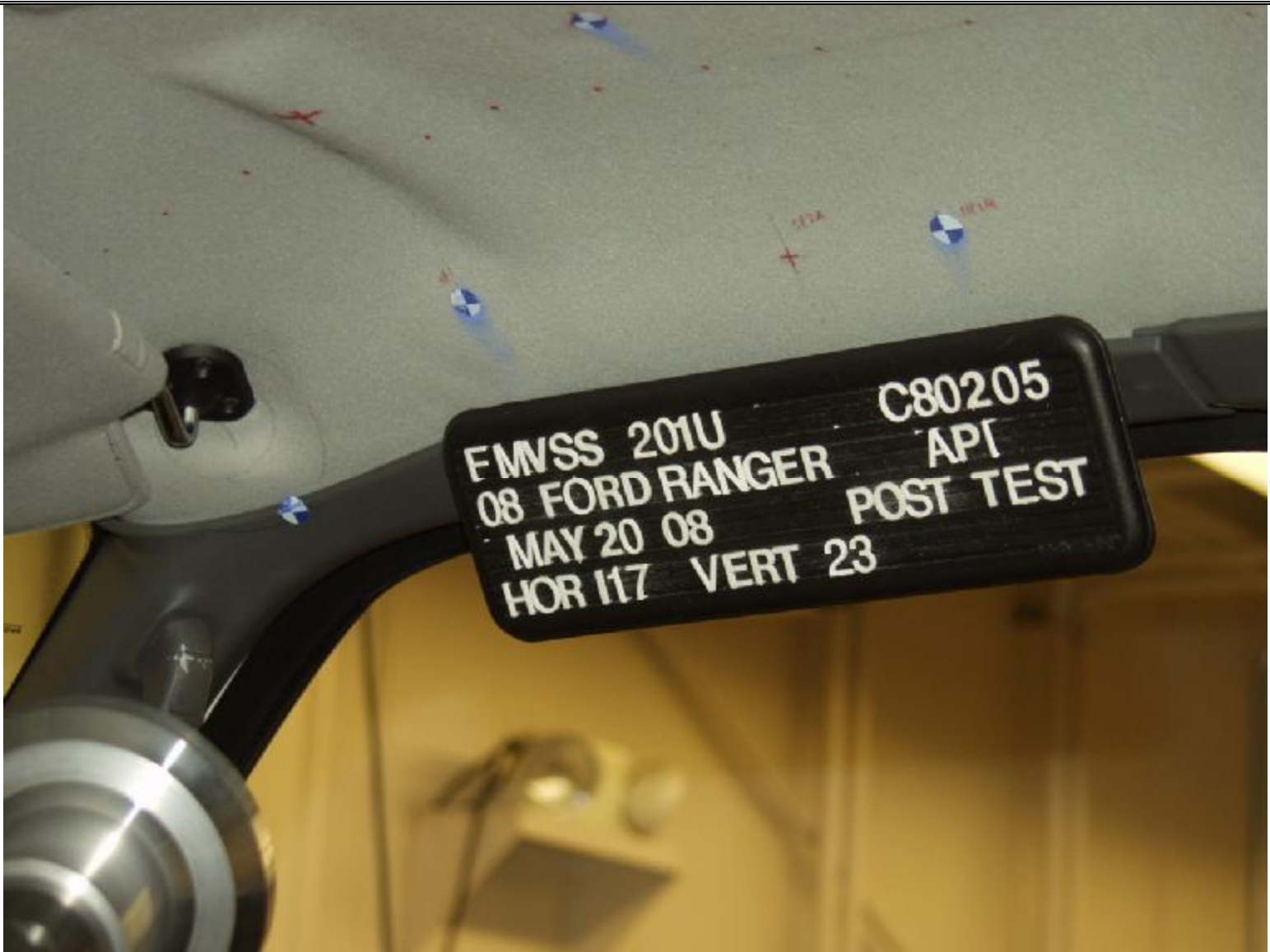
8851-09

CFC_180

C80205 - May 20, 2008



PRE-IMPACT API



POST-IMPACT API

VEHICLE YEAR/MAKE/MODEL/STYLE:	2008 Ford Ranger
VIN:	1FTYR10D98PA33826
DATE OF MANUFACTURE:	09/07(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	08
Test Date:	05/20/08
Target Location:	FRONT HEADER
Target Code:	FH2
Horizontal Impact Angle:	180°
Vertical Impact Angle:	50°
Ambient Temperature:	22°C
Relative Humidity:	33
Time of Impact:	15:30
Headform Number:	1140

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	5	<input type="checkbox"/>	mm right <input checked="" type="checkbox"/> mm left
On Centerline	13		mm up



POST-IMPACT FH2 HEADFORM

Free Motion HIC	580.2
HIC(d)	604.2
Impact Velocity (kph)	23.51
HIC T1 (msec)	2.6
HIC T2 (msec)	12.7

FMVSS 201U 2008 Ford Ranger C80205 - FH2

FMH Headform 1140

Location: FH2

Test Date: May 20, 2008

Work File: FH2

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 604.2

Lab Humidity: 33 %

HIC (36ms): 580.2

Velocity at Impact: 23.51 KPH

t1: 2.6 msec

t2: 12.7 msec

Free Flight Distance: 218.67 mm

Duration: 10.0 msec

Average Acceleration: 10.6 g

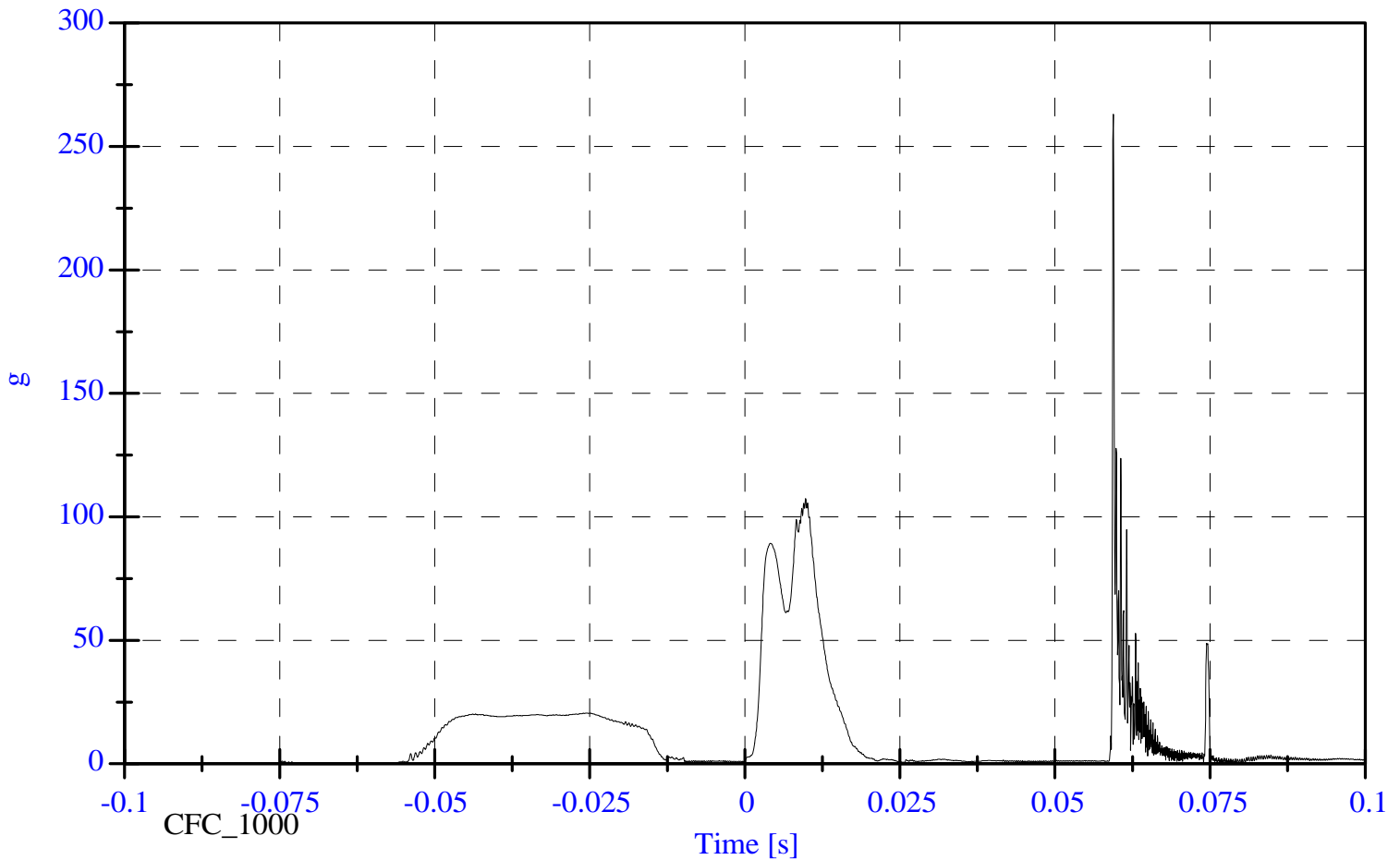
Maximum: 107.5 g

FMVSS 201U 2008 Ford Ranger

Headform Resultant

Max: 107.5 [g] at 0.010 [s]

Min: 0.0 [g] at -0.082 [s]

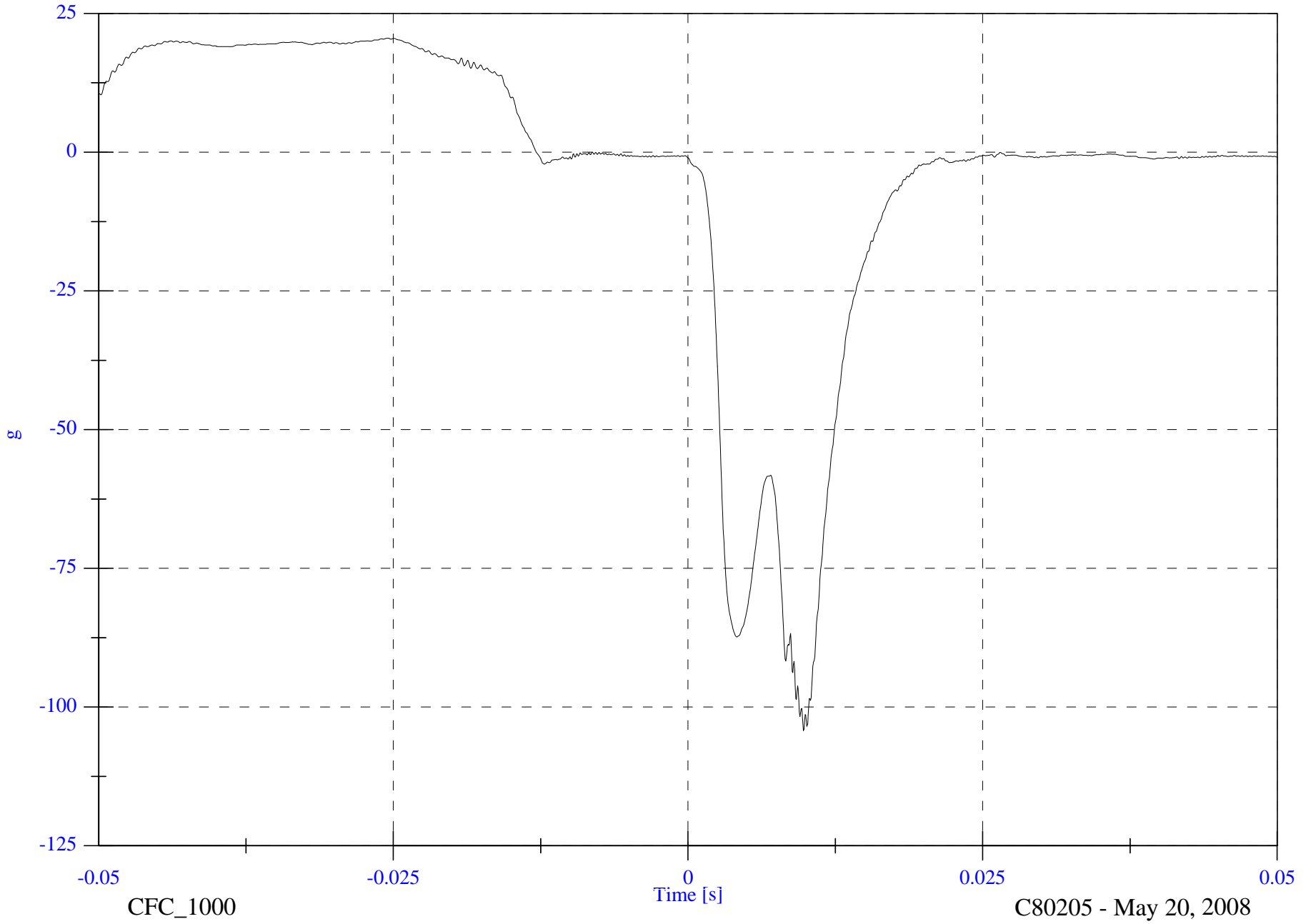


FMVSS 201U 2008 Ford Ranger

Headform X Acceleration

Max: 20.6 [g] at -0.025 [s]

Min: -104.3 [g] at 0.010 [s]



C80205 PASSENGER SIDE FH2 IMPACT PLOT #2

8851-09

CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

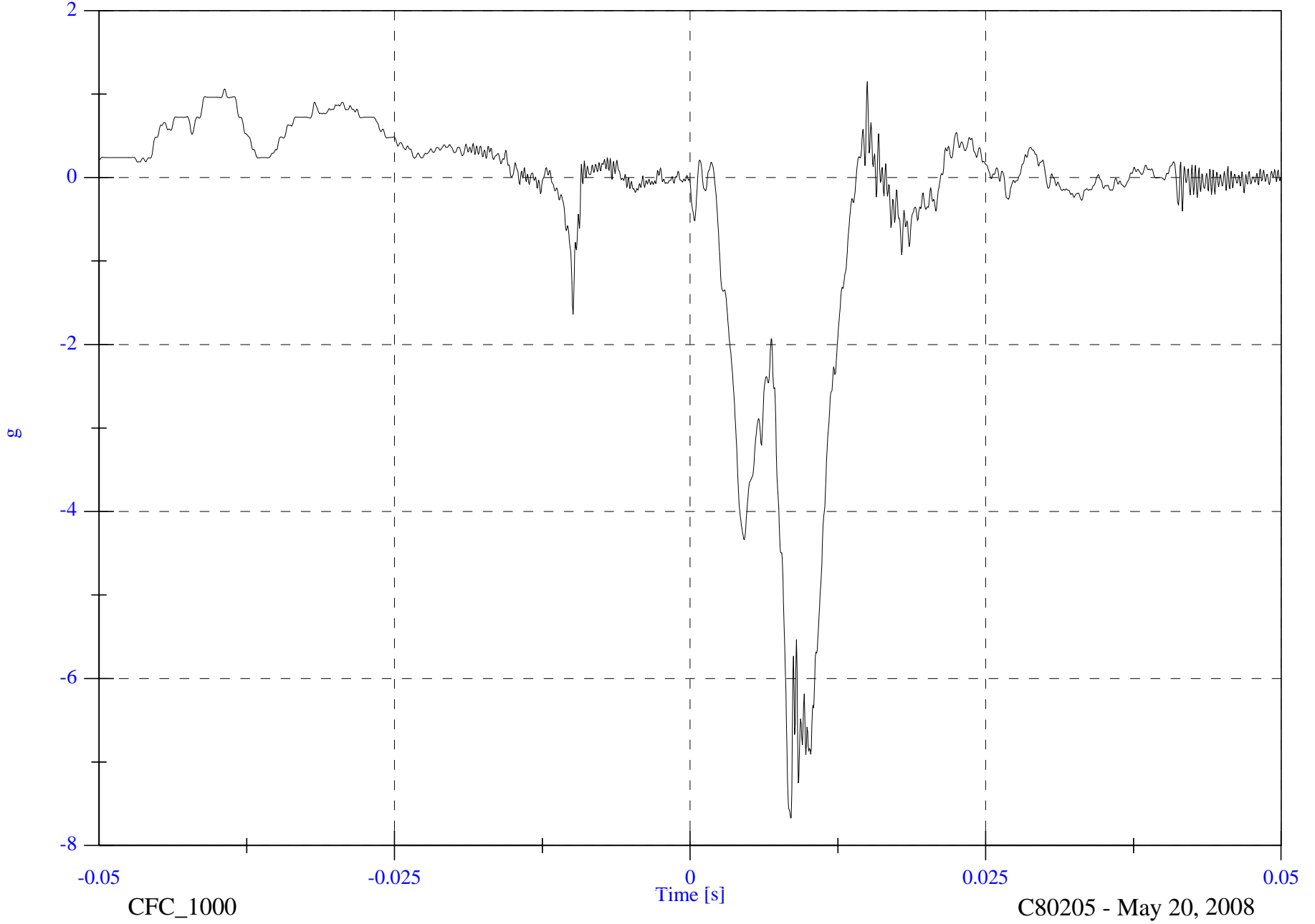
Headform Y Acceleration

Max: 1.2 [g] at 0.015 [s]

Min: -7.7 [g] at 0.009 [s]

C80205 PASSENGER SIDE FH2 IMPACT PLOT #3

8851-09



CFC_1000

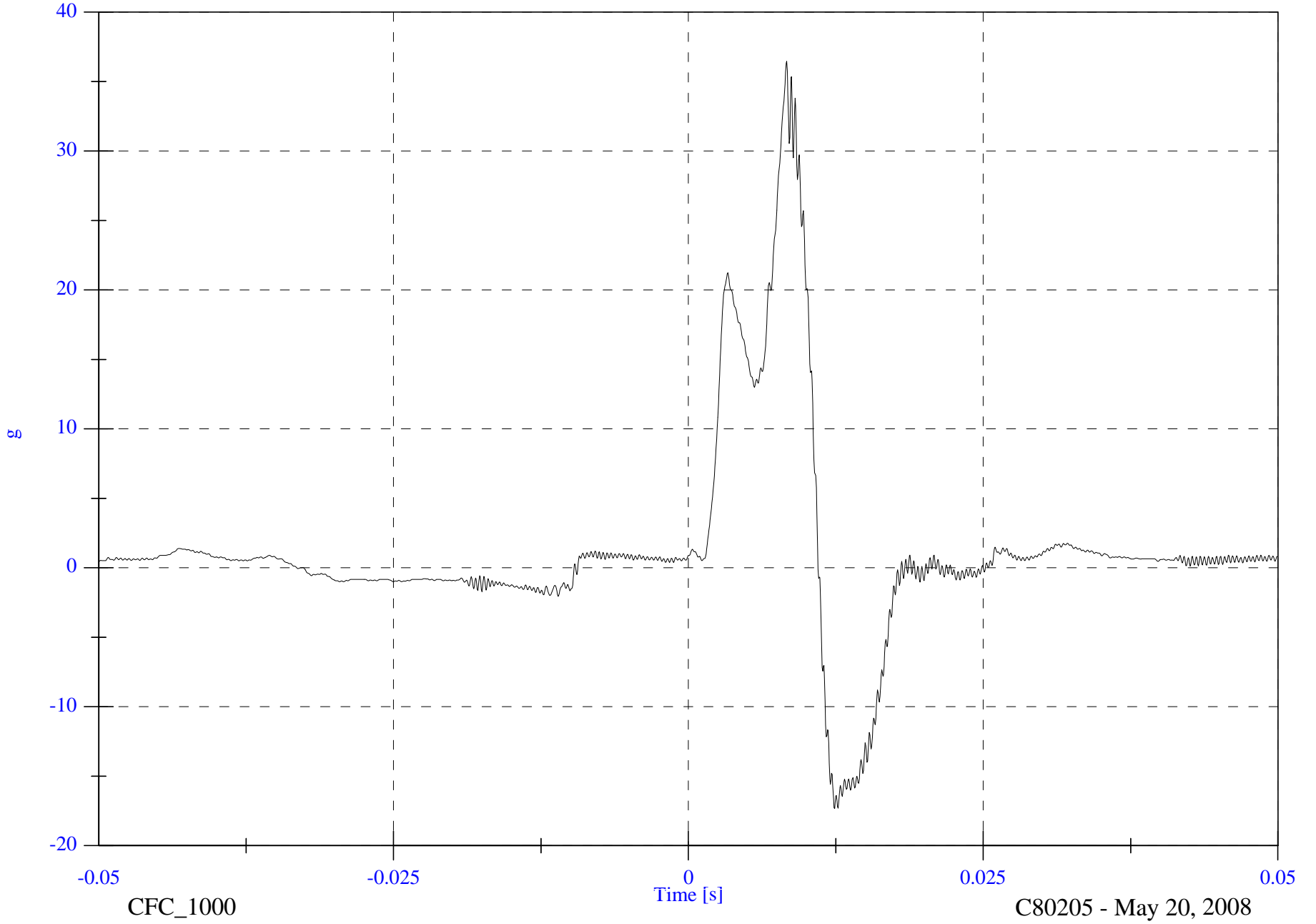
C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

Headform Z Acceleration

Max: 36.5 [g] at 0.008 [s]

Min: -17.3 [g] at 0.012 [s]



C80205 PASSENGER SIDE FH2 IMPACT PLOT #4

8851-09

CFC_1000

C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

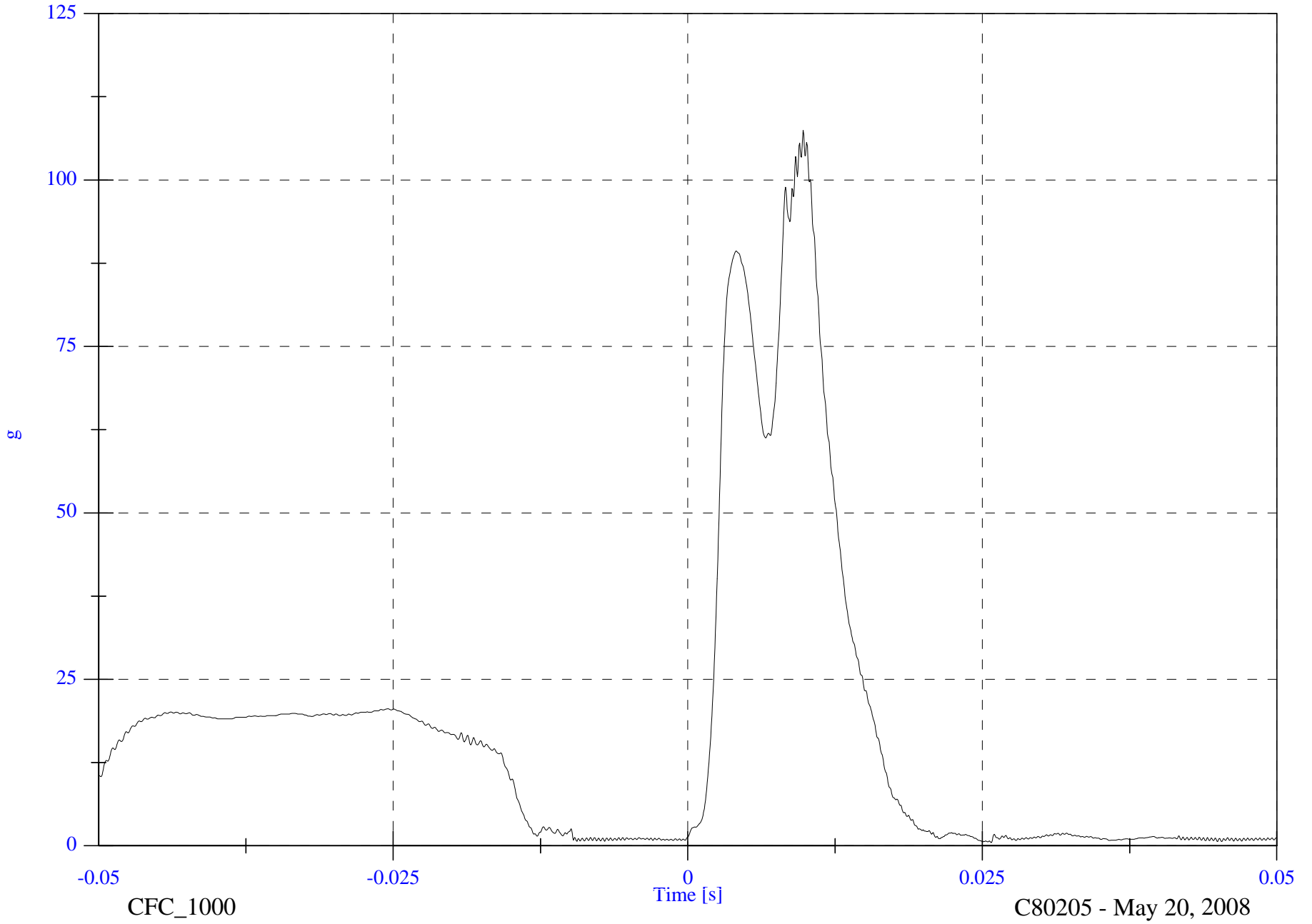
Headform Resultant

Max: 107.5 [g] at 0.010 [s]

Min: 0.5 [g] at 0.026 [s]

C80205 PASSENGER SIDE FH2 IMPACT PLOT #5

8851-09



CFC_1000

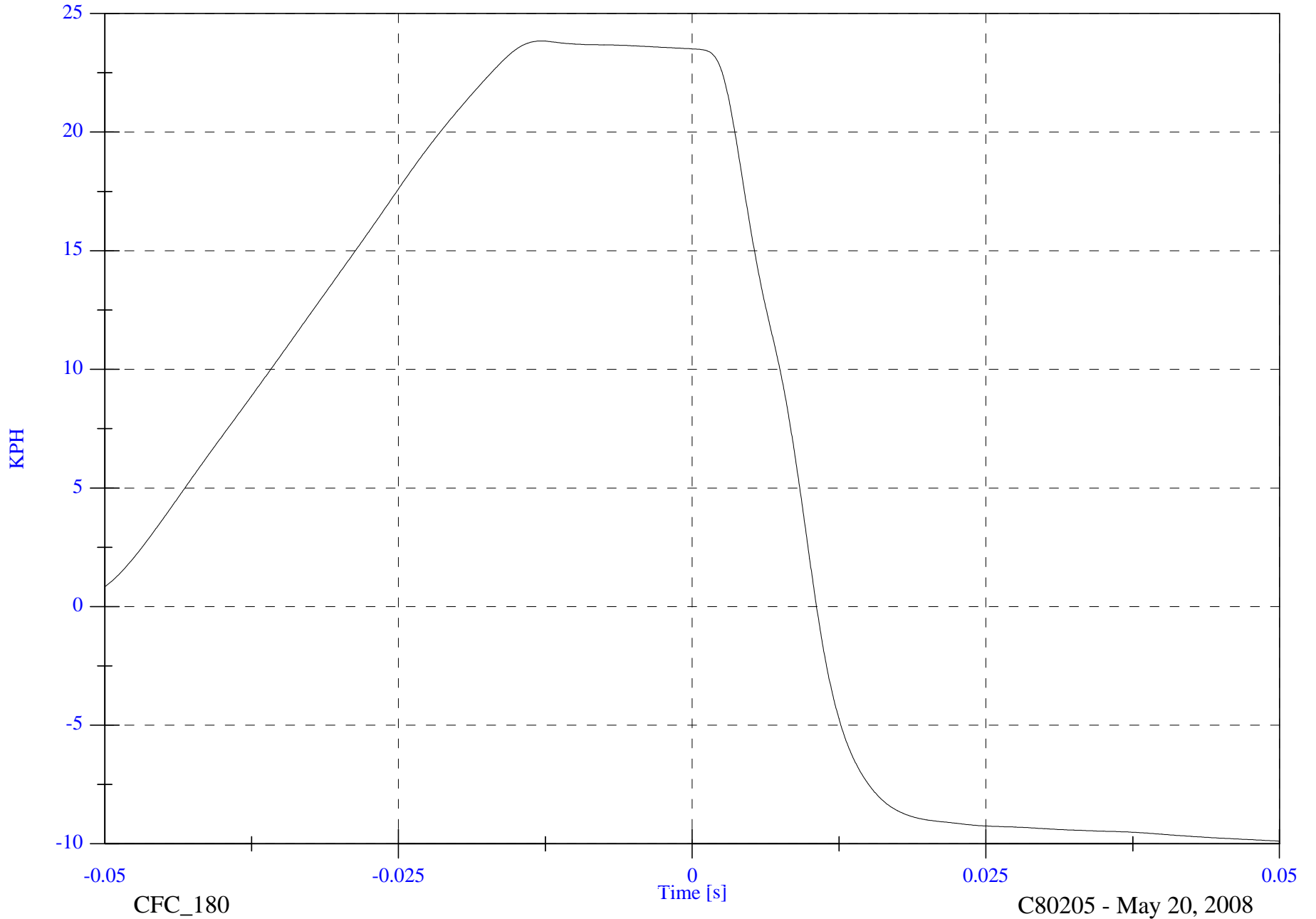
C80205 - May 20, 2008

FMVSS 201U 2008 Ford Ranger

Max: 23.8 [KPH] at -0.013 [s]

Min: -9.9 [KPH] at 0.050 [s]

Headform Velocity



C80205 PASSENGER SIDE FH2 IMPACT PLOT #6

8851-09

CFC_180

C80205 - May 20, 2008

Photo not Available

PRE-IMPACT FH2



POST-IMPACT FH2

VEHICLE YEAR/MAKE/MODEL/STYLE:	2008 Ford Ranger
VIN:	1FTYR10D98PA33826
DATE OF MANUFACTURE:	09/07(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	09
Test Date:	05/21/08
Target Location:	REAR PILLAR
Target Code:	RP2
Horizontal Impact Angle:	270°
Vertical Impact Angle:	0°
Ambient Temperature:	22°C
Relative Humidity:	29
Time of Impact:	9:00
Headform Number:	1140

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	3	<input type="checkbox"/>	mm right	<input checked="" type="checkbox"/>	mm left
On Centerline	5				mm up



POST-IMPACT RP2 HEADFORM

Free Motion HIC	789.0
HIC(d)	761.7
Impact Velocity (kph)	23.54
HIC T1 (msec)	1.9
HIC T2 (msec)	8.9

FMVSS 201U 2008 Ford Ranger C80205 - RP2

FMH Headform 1140

Location: RP2

Test Date: May 21, 2008

Work File: RP2

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 761.7

Lab Humidity: 29 %

HIC (36ms): 789.0

Velocity at Impact: 23.54 KPH

t1: 1.9 msec

t2: 8.9 msec

Free Flight Distance: 217.65 mm

Duration: 7.0 msec

Average Acceleration: 9.3 g

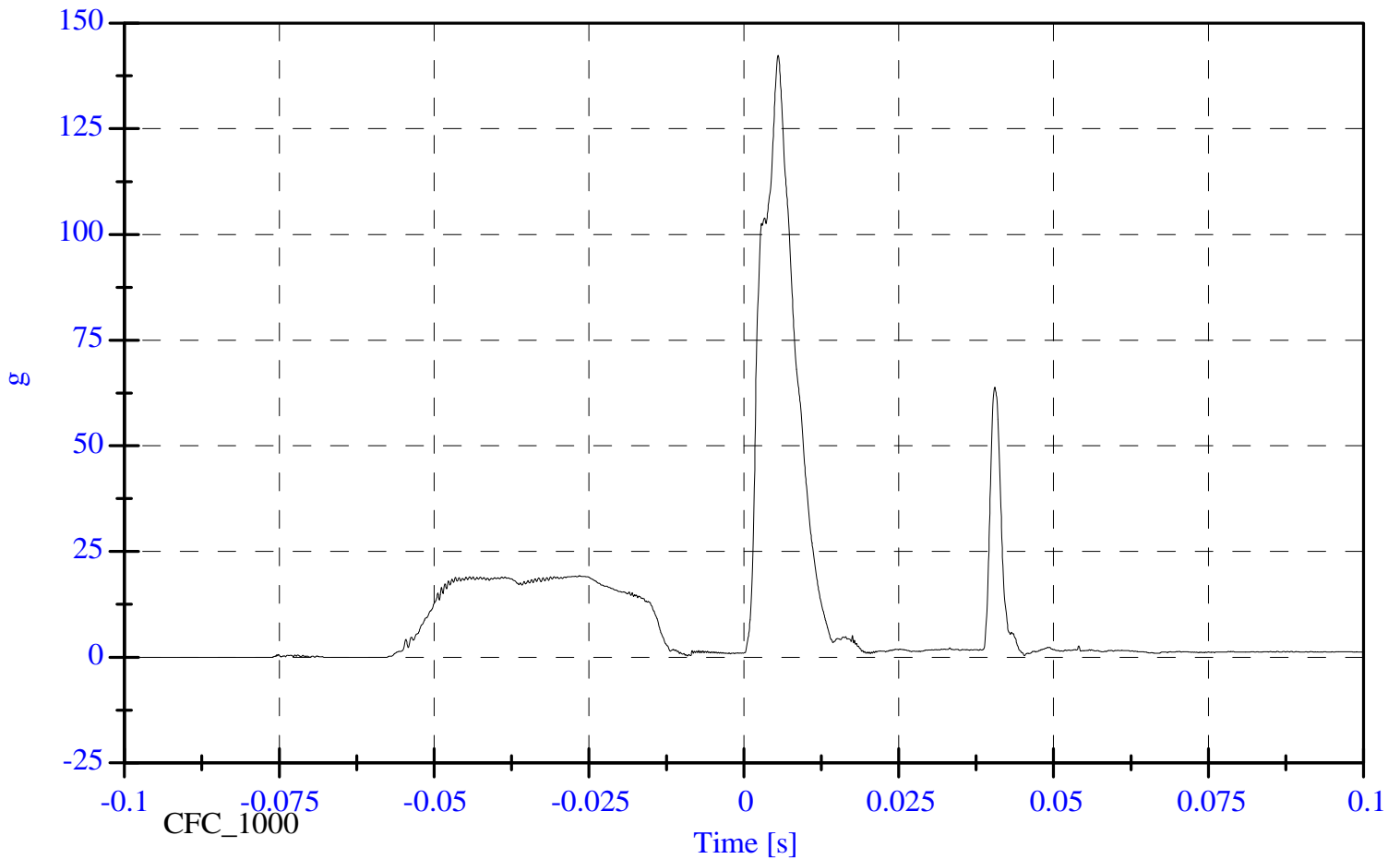
Maximum: 142.3 g

FMVSS 201U 2008 Ford Ranger

Headform Resultant

Max: 142.3 [g] at 0.006 [s]

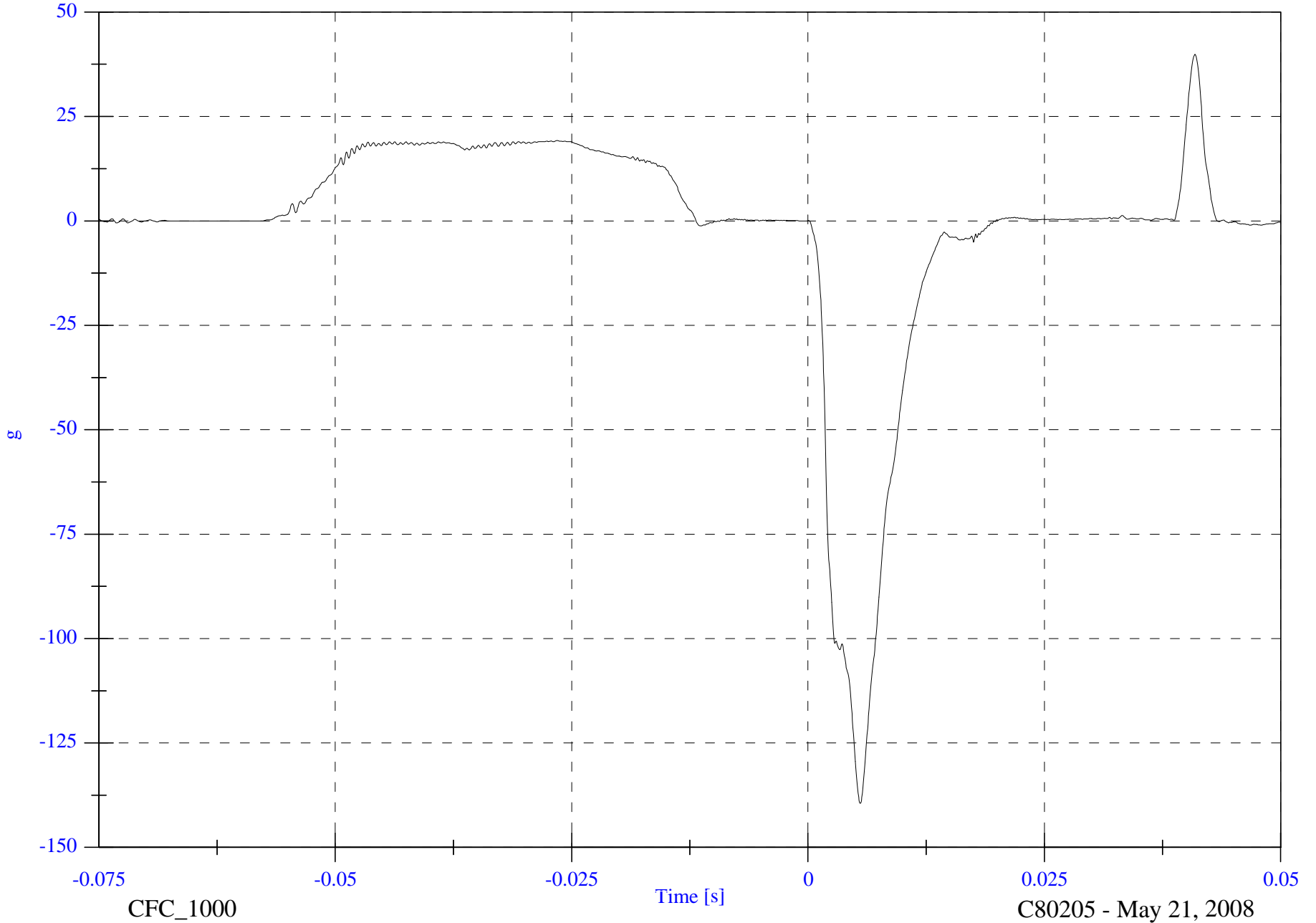
Min: -0.0 [g] at -0.099 [s]



FMVSS 201U 2008 Ford Ranger

Headform X Acceleration

Max: 39.9 [g] at 0.041 [s]
Min: -139.5 [g] at 0.006 [s]



C80205 DRIVER SIDE RP2 IMPACT PLOT #2

8851-09

CFC_1000

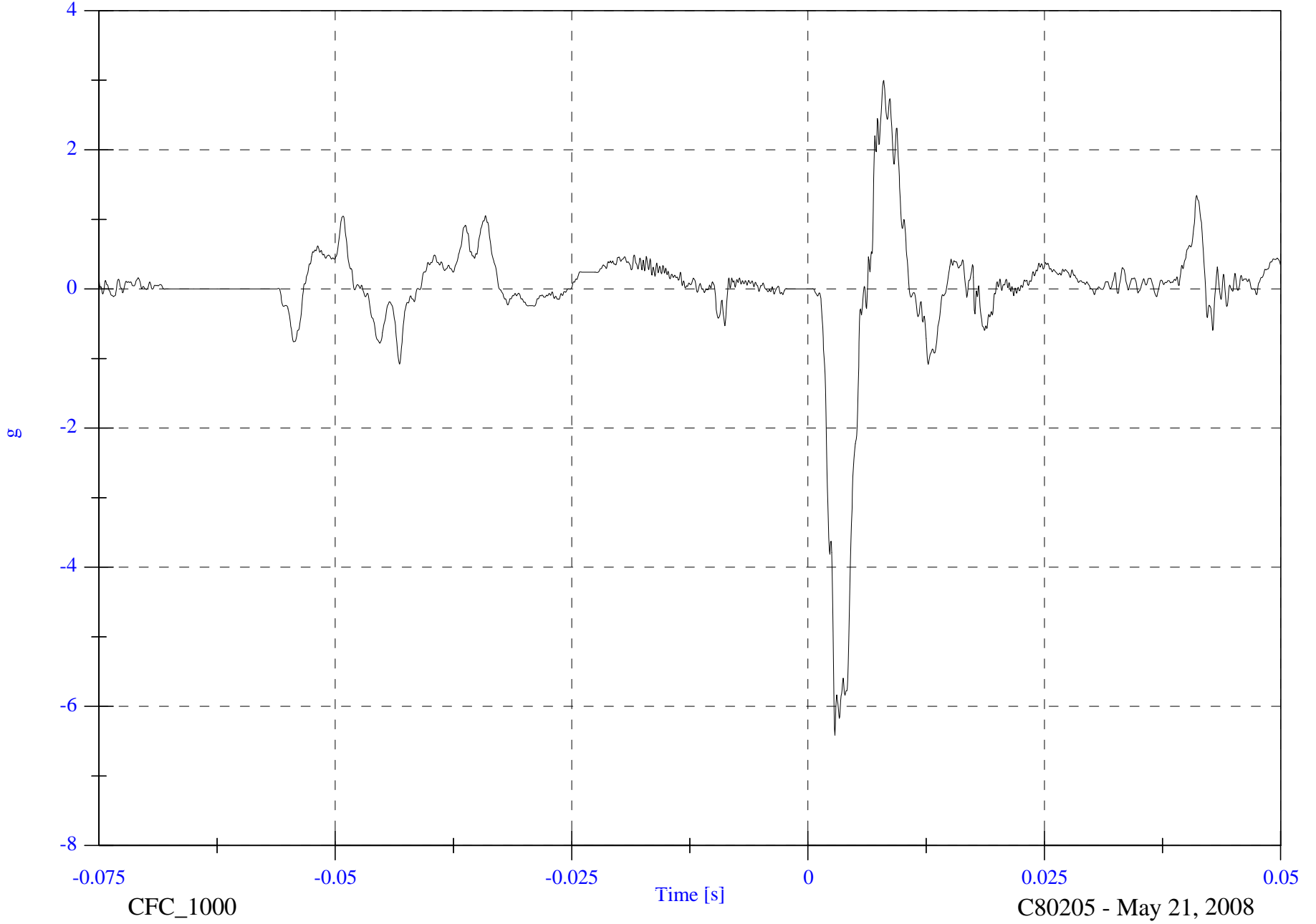
C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

Max: 3.0 [g] at 0.008 [s]

Headform Y Acceleration

Min: -6.4 [g] at 0.003 [s]



C80205 DRIVER SIDE RP2 IMPACT PLOT #3

8851-09

CFC_1000

C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

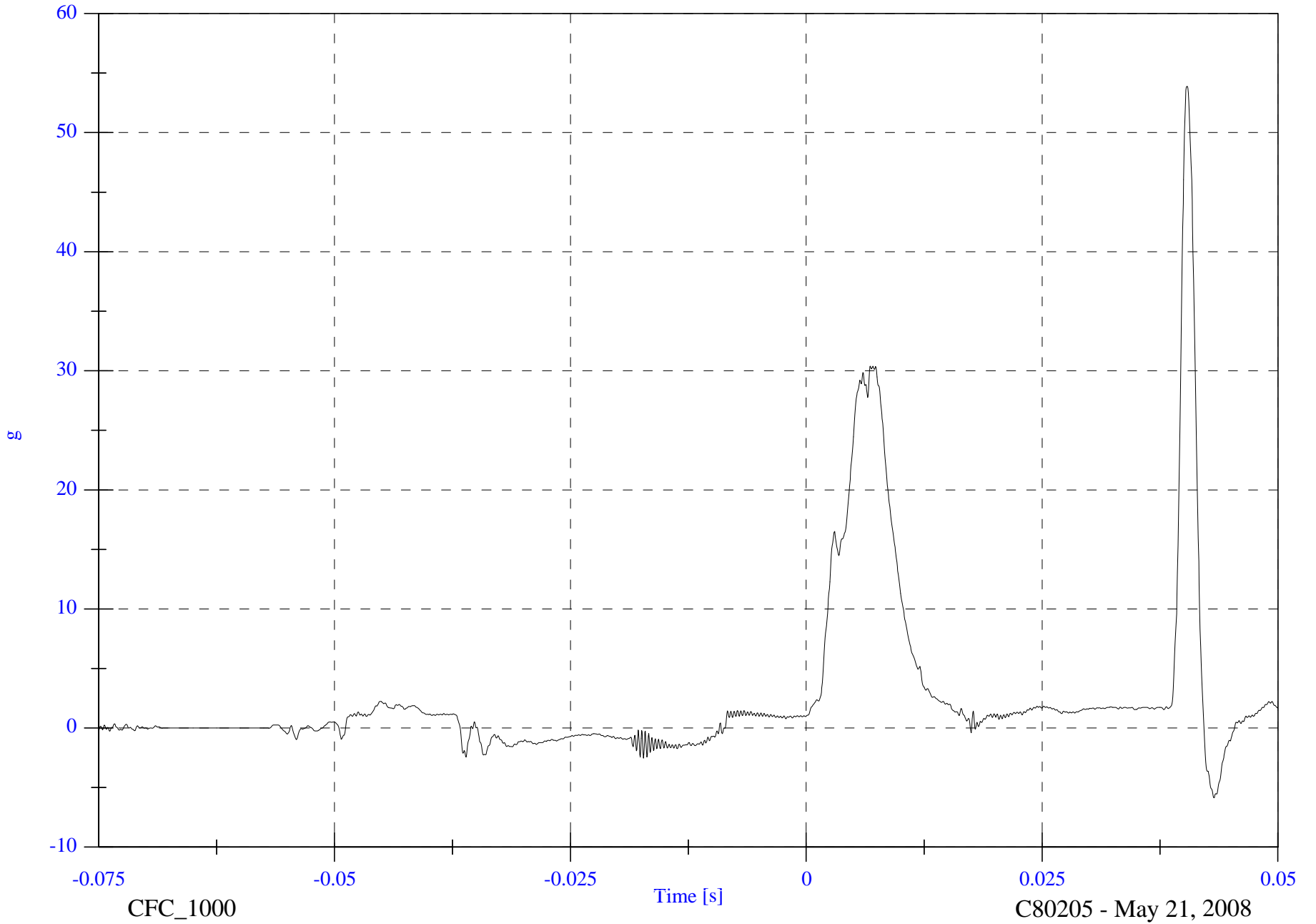
Headform Z Acceleration

Max: 53.9 [g] at 0.040 [s]

Min: -5.9 [g] at 0.043 [s]

C80205 DRIVER SIDE RP2 IMPACT PLOT #4

8851-09



CFC_1000

C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

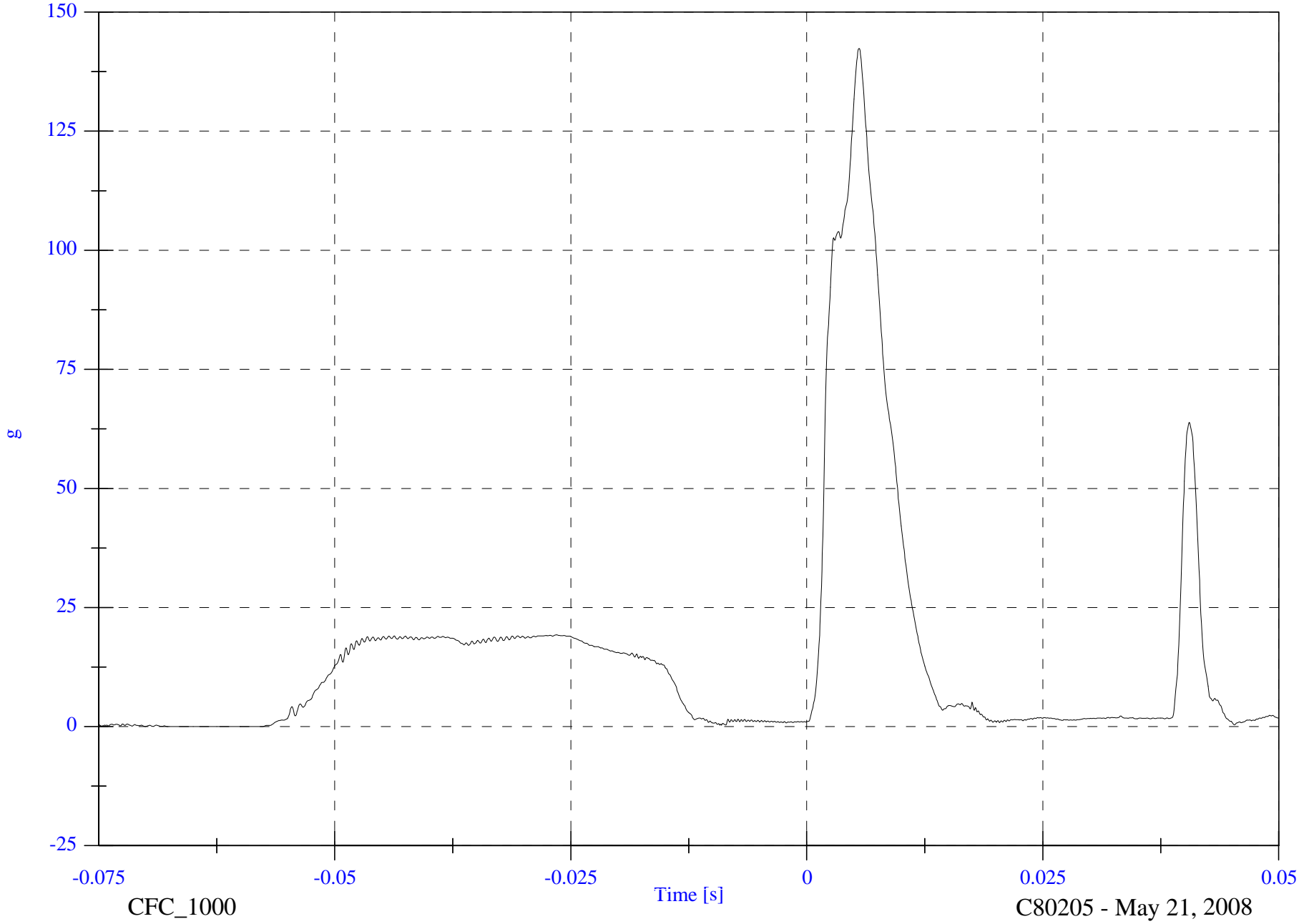
Headform Resultant

Max: 142.3 [g] at 0.006 [s]

Min: -0.0 [g] at -0.066 [s]

C80205 DRIVER SIDE RP2 IMPACT PLOT #5

8851-09



CFC_1000

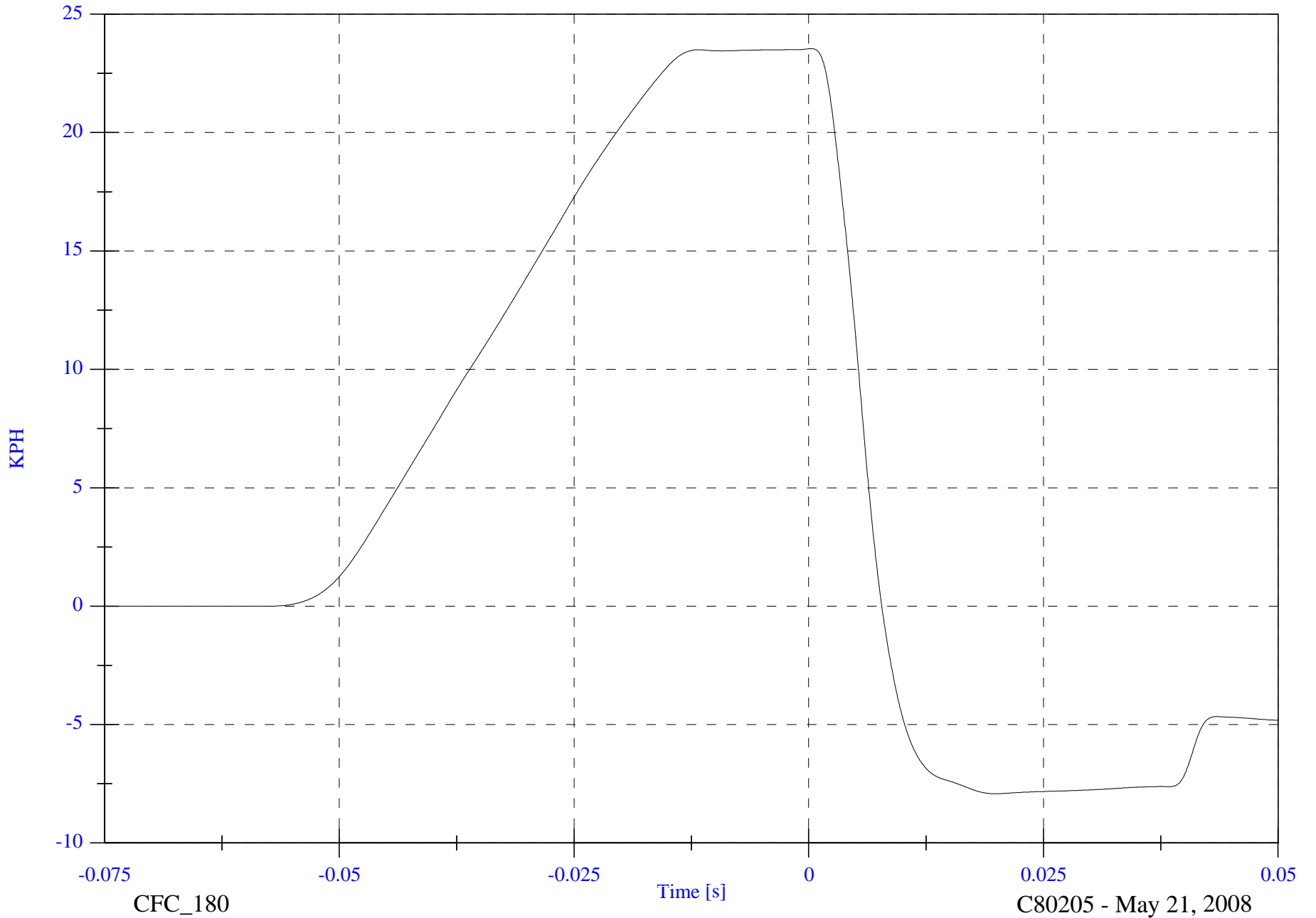
C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

Max: 23.5 [KPH] at 0.000 [s]

Min: -7.9 [KPH] at 0.020 [s]

Headform Velocity



C80205 DRIVER SIDE RP2 IMPACT PLOT #6

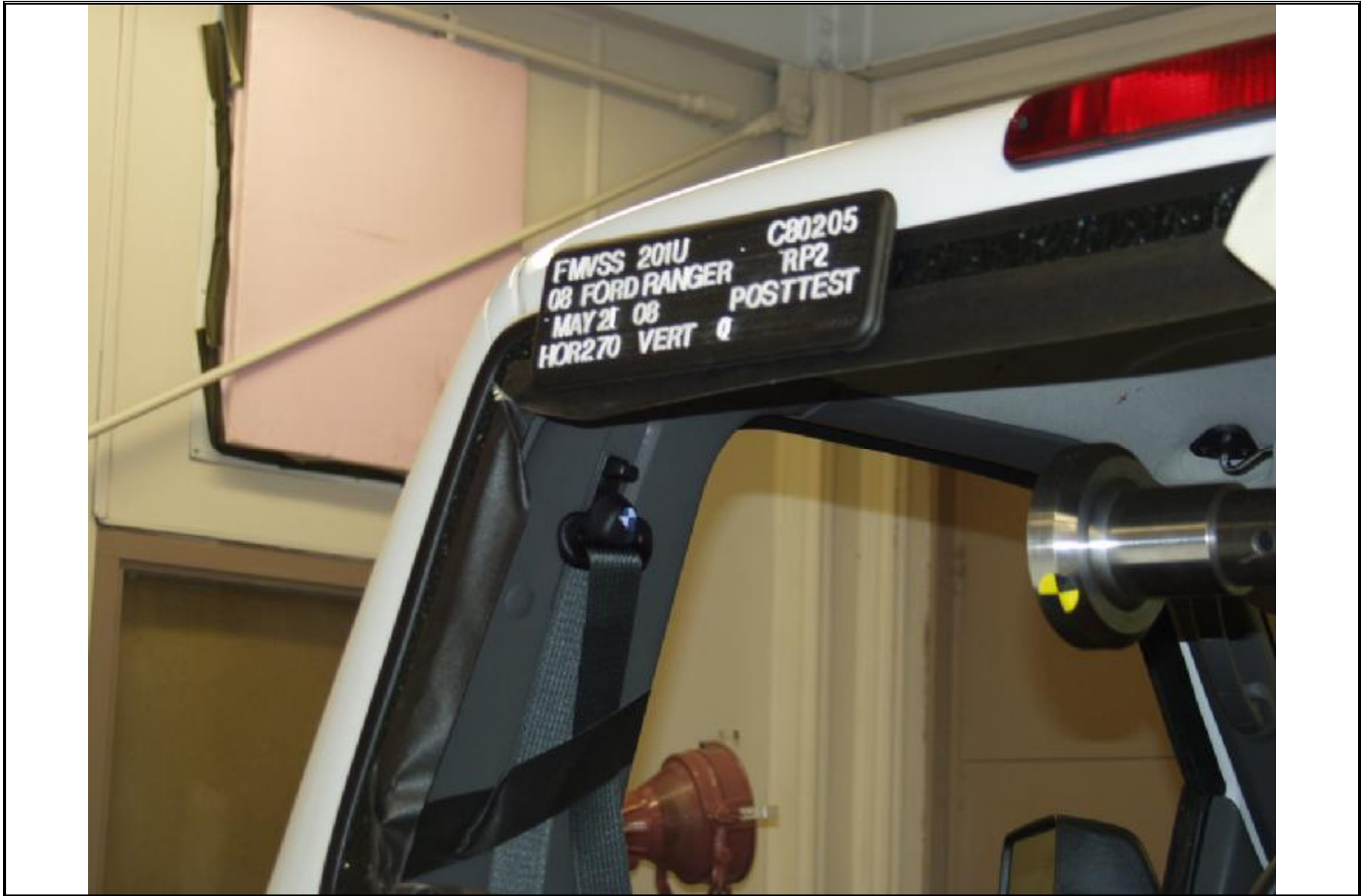
8851-09

CFC_180

C80205 - May 21, 2008



PRE-IMPACT RP2



POST-IMPACT RP2

VEHICLE YEAR/MAKE/MODEL/STYLE:	2008 Ford Ranger
VIN:	1FTYR10D98PA33826
DATE OF MANUFACTURE:	09/07(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	10
Test Date:	05/21/08
Target Location:	REAR HEADER
Target Code:	RH
Horizontal Impact Angle:	360°
Vertical Impact Angle:	27°
Ambient Temperature:	22°C
Relative Humidity:	28
Time of Impact:	11:15
Headform Number:	0355

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	6	<input type="checkbox"/>	mm right	<input checked="" type="checkbox"/>	mm left
On Centerline	17				mm up



POST-IMPACT RH HEADFORM

Free Motion HIC	358.9
HIC(d)	437.2
Impact Velocity (kph)	23.39
HIC T1 (msec)	4.3
HIC T2 (msec)	15.6

FMVSS 201U 2008 Ford Ranger C80205 - RH

FMH Headform 0355

Location: RH

Test Date: May 21, 2008

Work File: RH

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 437.2

Lab Humidity: 28 %

HIC (36ms): 358.9

Velocity at Impact: 23.39 KPH

t1: 4.3 msec

t2: 15.6 msec

Free Flight Distance: 222.75 mm

Duration: 11.3 msec

Average Acceleration: 8.5 g

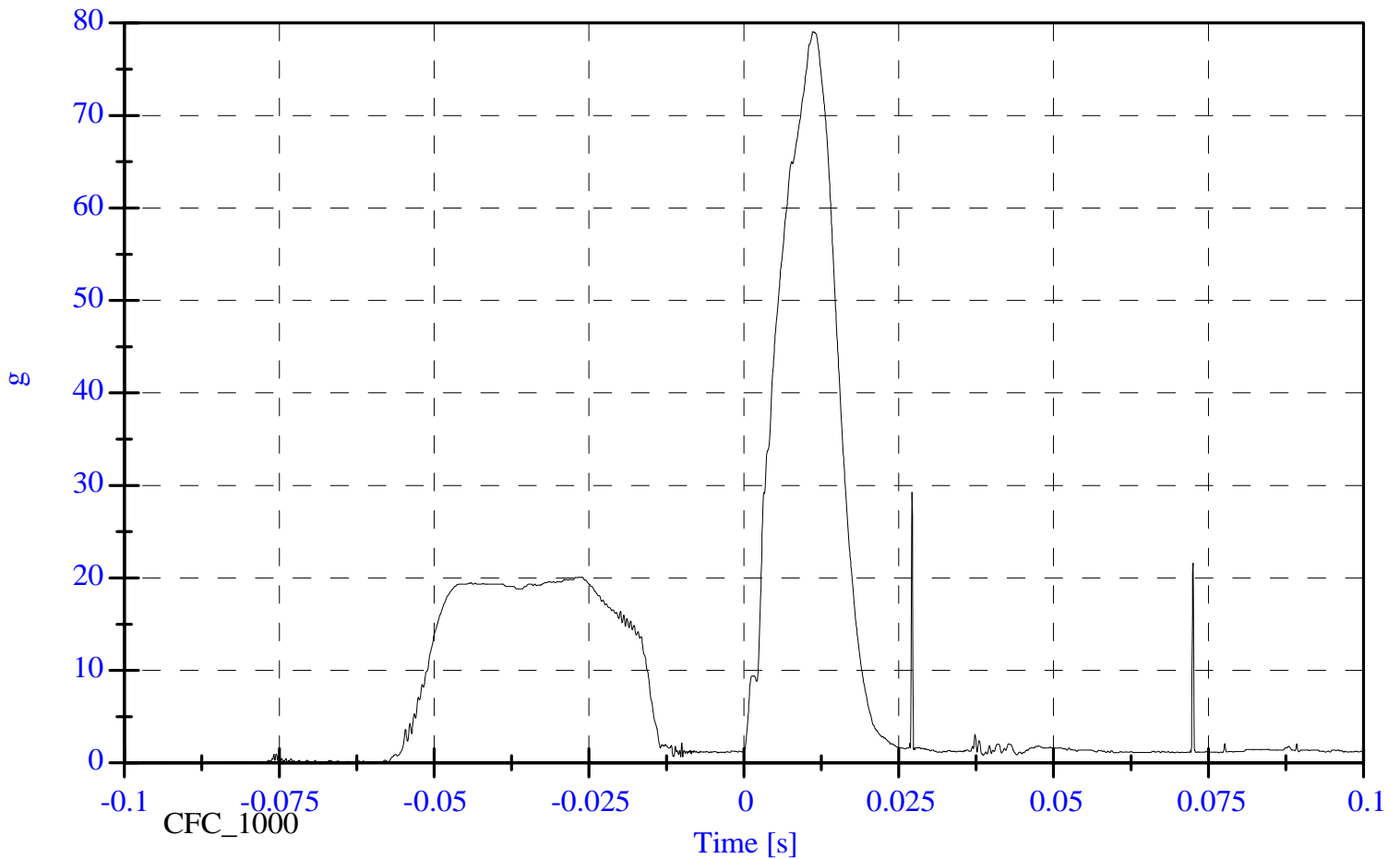
Maximum: 79.1 g

FMVSS 201U 2008 Ford Ranger

Headform Resultant

Max: 79.1 [g] at 0.011 [s]

Min: 0.0 [g] at -0.096 [s]

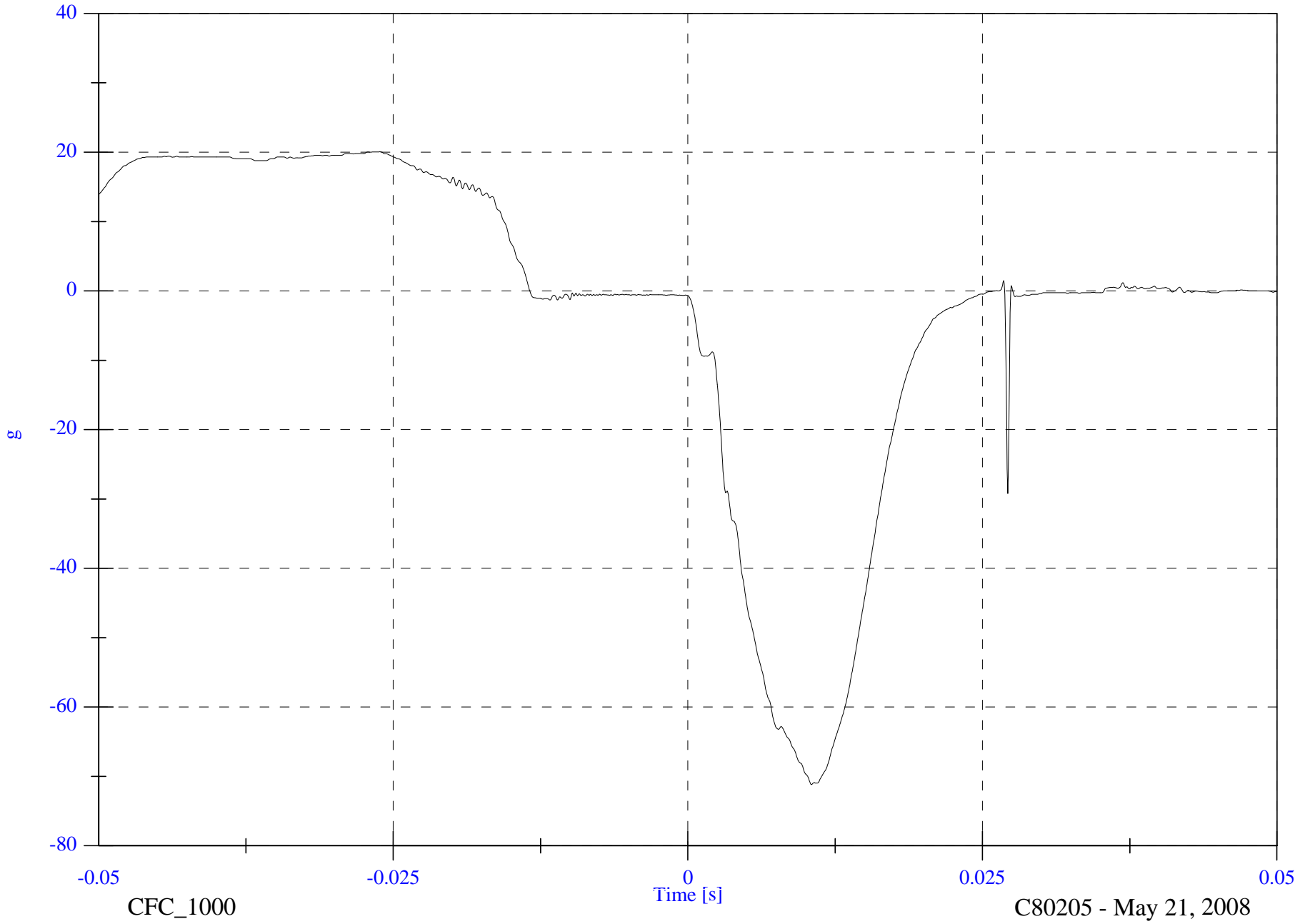


FMVSS 201U 2008 Ford Ranger

Headform X Acceleration

Max: 20.1 [g] at -0.026 [s]

Min: -71.2 [g] at 0.010 [s]



C80205 DRIVER SIDE RH IMPACT PLOT #2

8851-09

CFC_1000

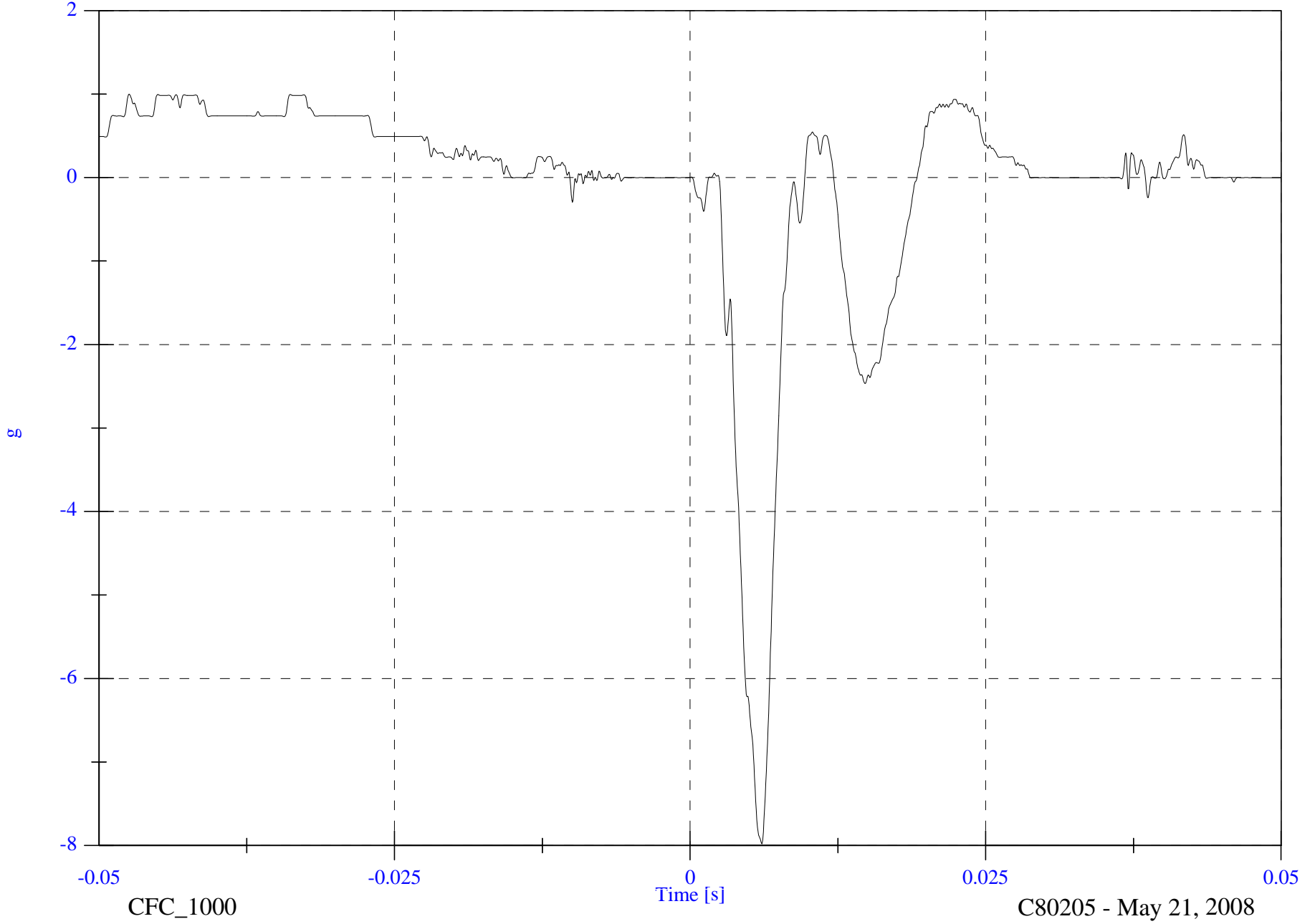
C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

Headform Y Acceleration

Max: 1.0 [g] at -0.047 [s]

Min: -8.0 [g] at 0.006 [s]



C80205 DRIVER SIDE RH IMPACT PLOT #3

8851-09

CFC_1000

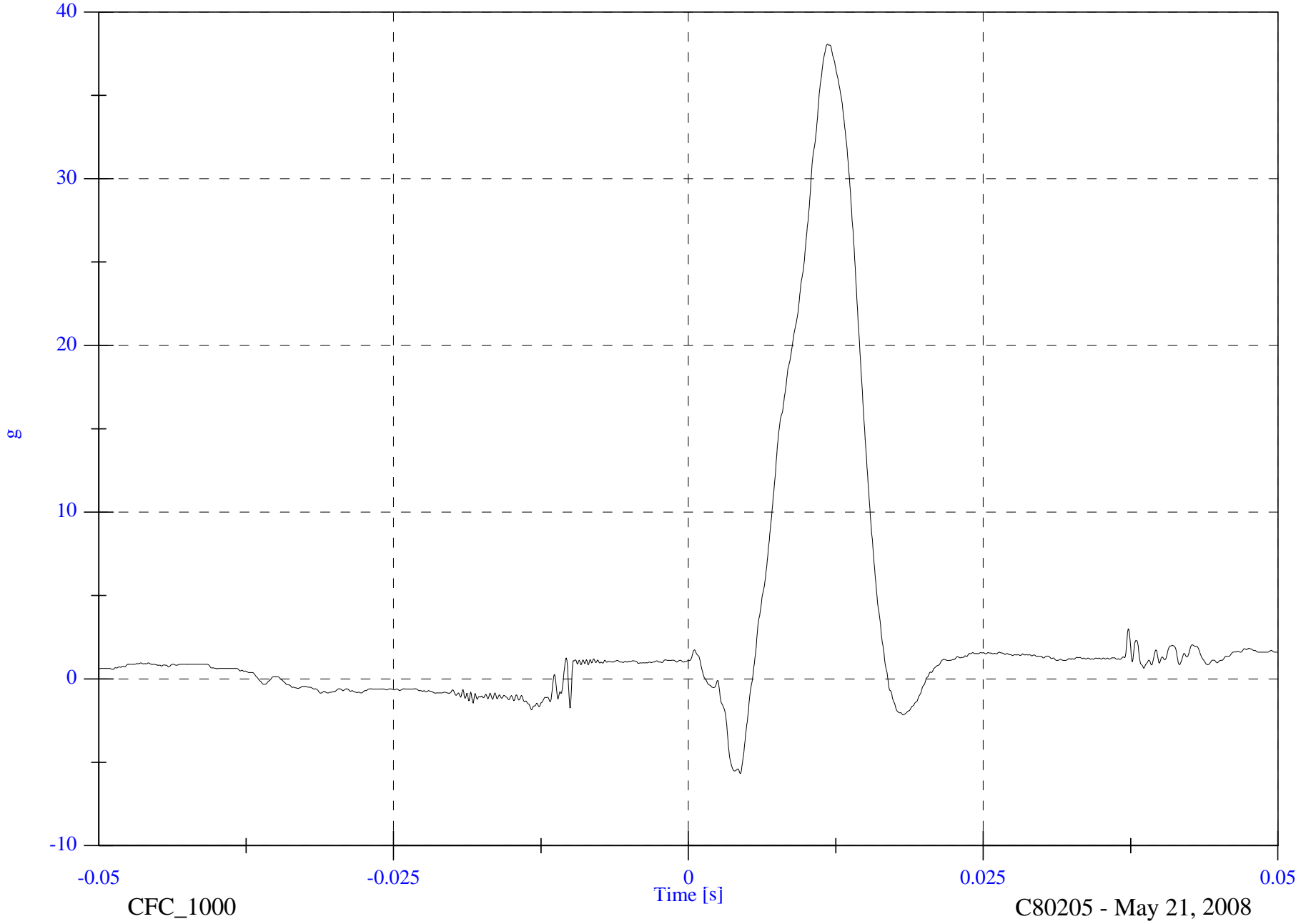
C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

Headform Z Acceleration

Max: 38.1 [g] at 0.012 [s]

Min: -5.7 [g] at 0.004 [s]



C80205 DRIVER SIDE RH IMPACT PLOT #4

8851-09

CFC_1000

C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

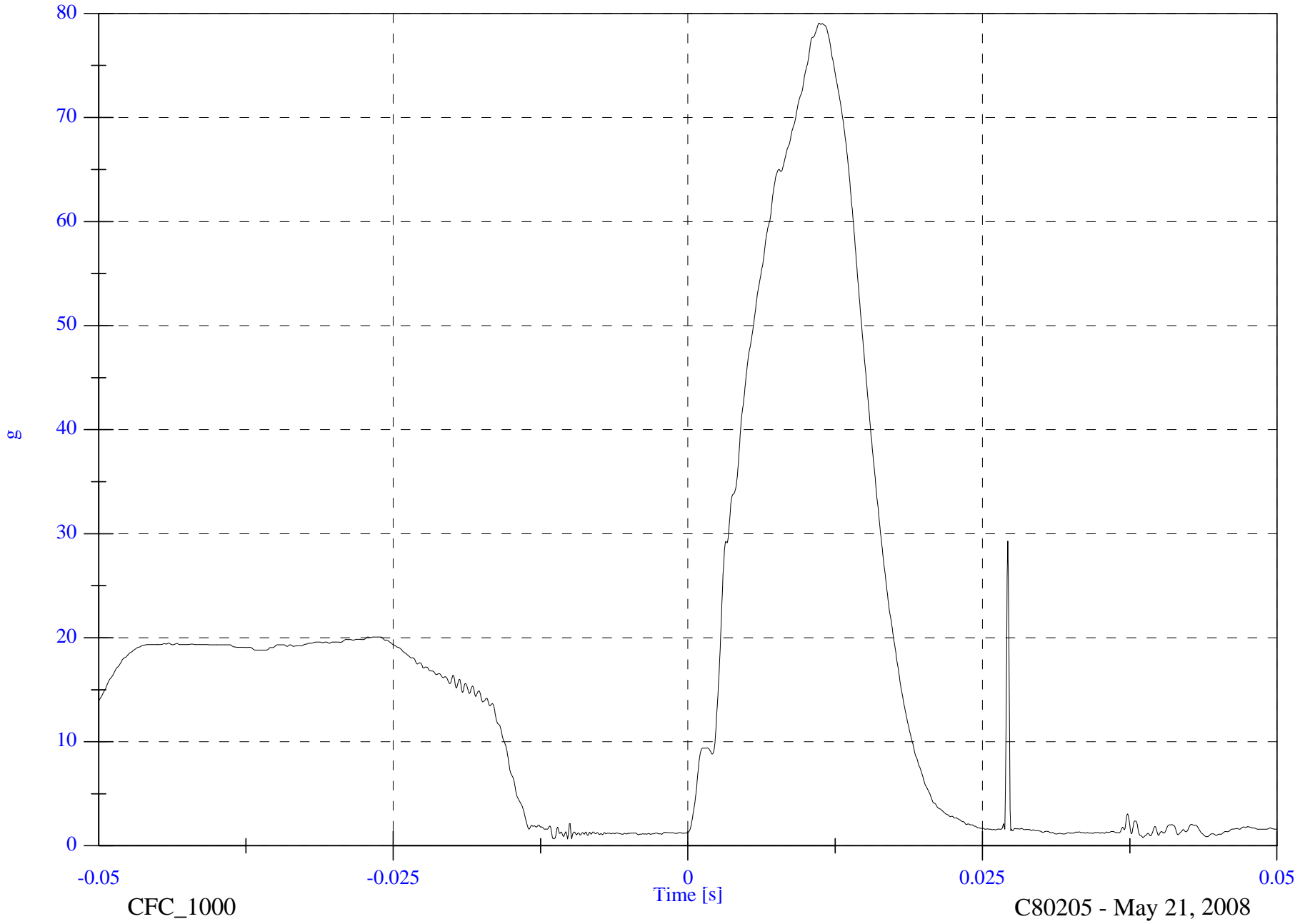
Headform Resultant

Max: 79.1 [g] at 0.011 [s]

Min: 0.6 [g] at -0.010 [s]

C80205 DRIVER SIDE RH IMPACT PLOT #5

8851-09



CFC_1000

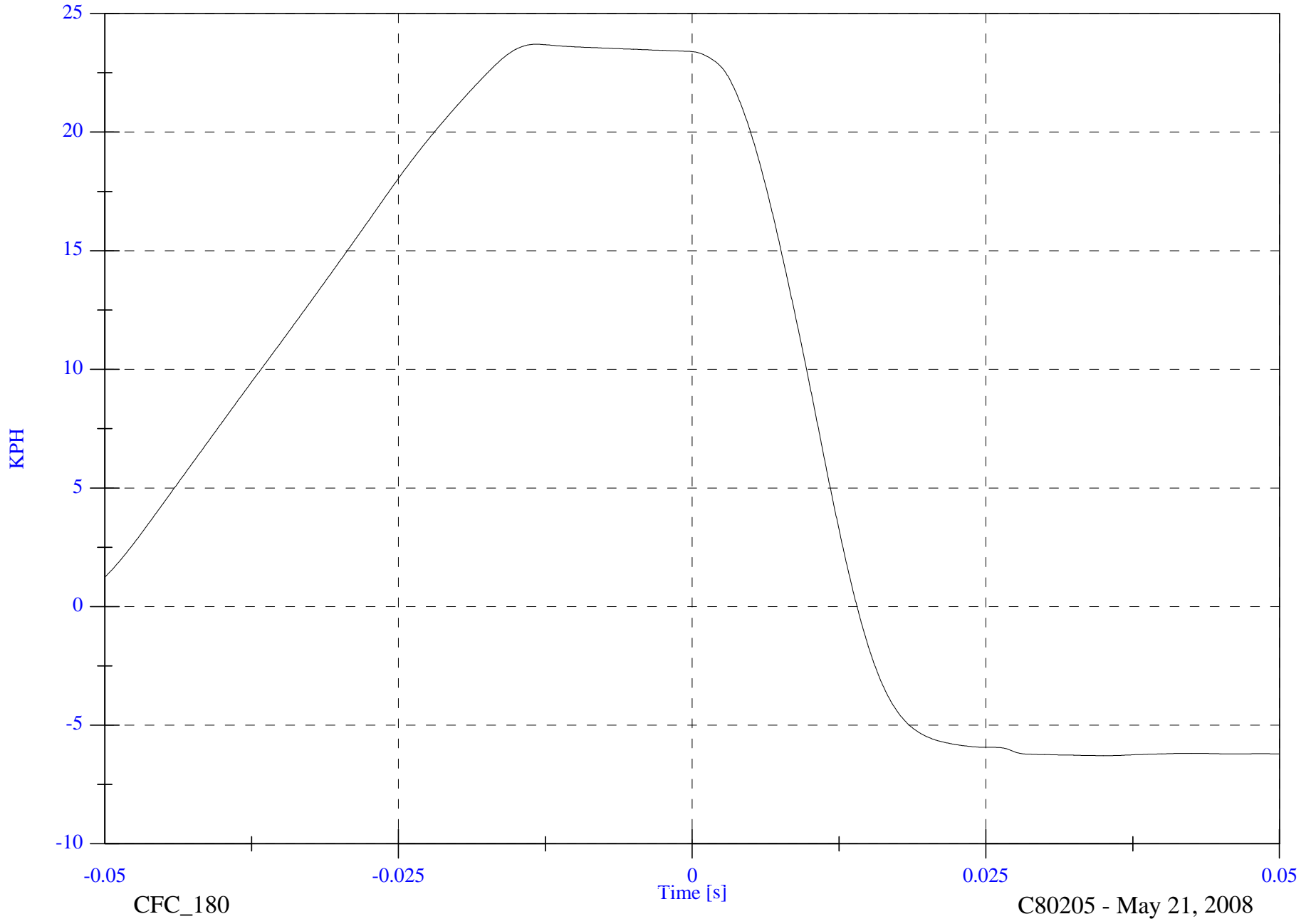
C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

Headform Velocity

Max: 23.7 [KPH] at -0.013 [s]

Min: -6.3 [KPH] at 0.035 [s]



C80205 DRIVER SIDE RH IMPACT PLOT #6

8851-09

CFC_180

C80205 - May 21, 2008



PRE-IMPACT RH



POST-IMPACT RH

VEHICLE YEAR/MAKE/MODEL/STYLE:	2008 Ford Ranger
VIN:	1FTYR10D98PA33826
DATE OF MANUFACTURE:	09/07(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	11
Test Date:	05/21/08
Target Location:	A-PILLAR
Target Code:	AP2
Horizontal Impact Angle:	208°
Vertical Impact Angle:	9°
Ambient Temperature:	22°C
Relative Humidity:	28
Time of Impact:	13:00
Headform Number:	0805

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	5	<input checked="" type="checkbox"/>	mm right	<input type="checkbox"/>	mm left
On Centerline	10				mm up



POST-IMPACT AP2HEADFORM

Free Motion HIC	323.2
HIC(d)	410.3
Impact Velocity (kph)	23.64
HIC T1 (msec)	2.7
HIC T2 (msec)	10.6

FMVSS 201U 2008 Ford Ranger C80205 - AP2

FMH Headform 0805

Location: AP2

Test Date: May 21, 2008

Work File: AP2

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 410.3

Lab Humidity: 28 %

HIC (36ms): 323.2

Velocity at Impact: 23.64 KPH

t1: 2.7 msec

t2: 10.6 msec

Free Flight Distance: 223.14 mm

Duration: 7.9 msec

Average Acceleration: 8.2 g

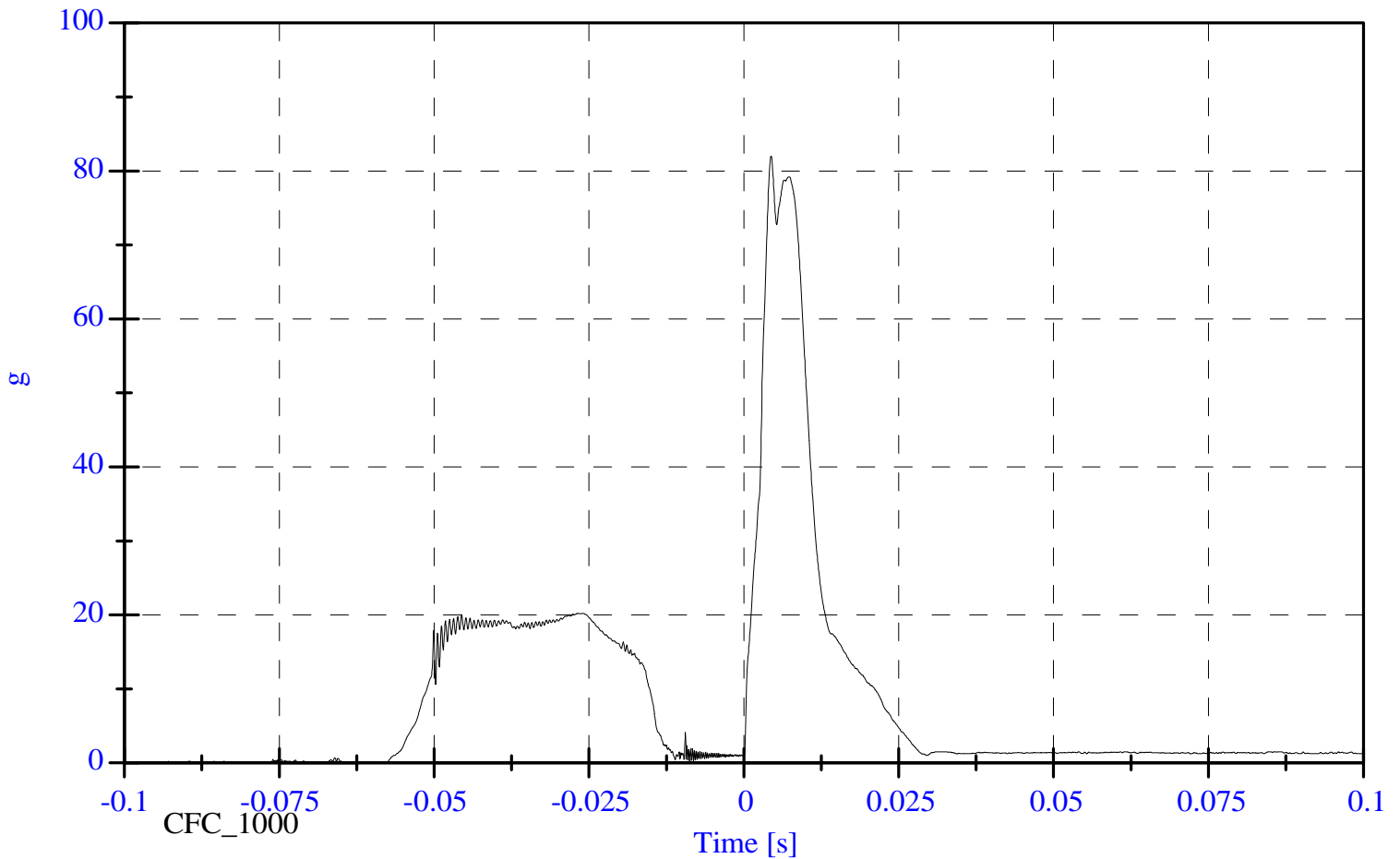
Maximum: 82.0 g

FMVSS 201U 2008 Ford Ranger

Headform Resultant

Max: 82.0 [g] at 0.004 [s]

Min: 0.0 [g] at -0.094 [s]

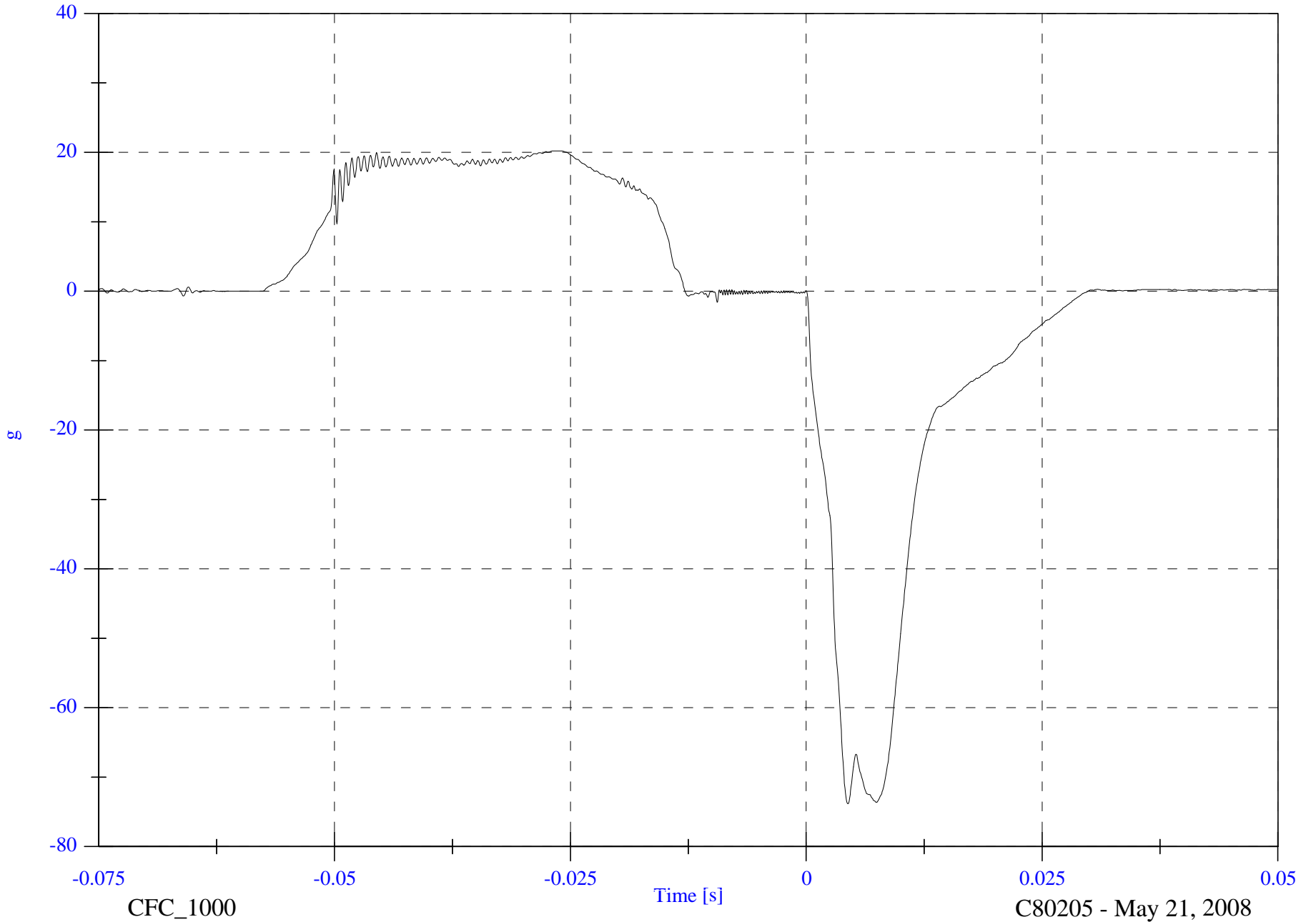


FMVSS 201U 2008 Ford Ranger

Max: 20.2 [g] at -0.027 [s]

Min: -73.8 [g] at 0.004 [s]

Headform X Acceleration



C80205 DRIVER SIDE AP2 IMPACT PLOT #2

8851-09

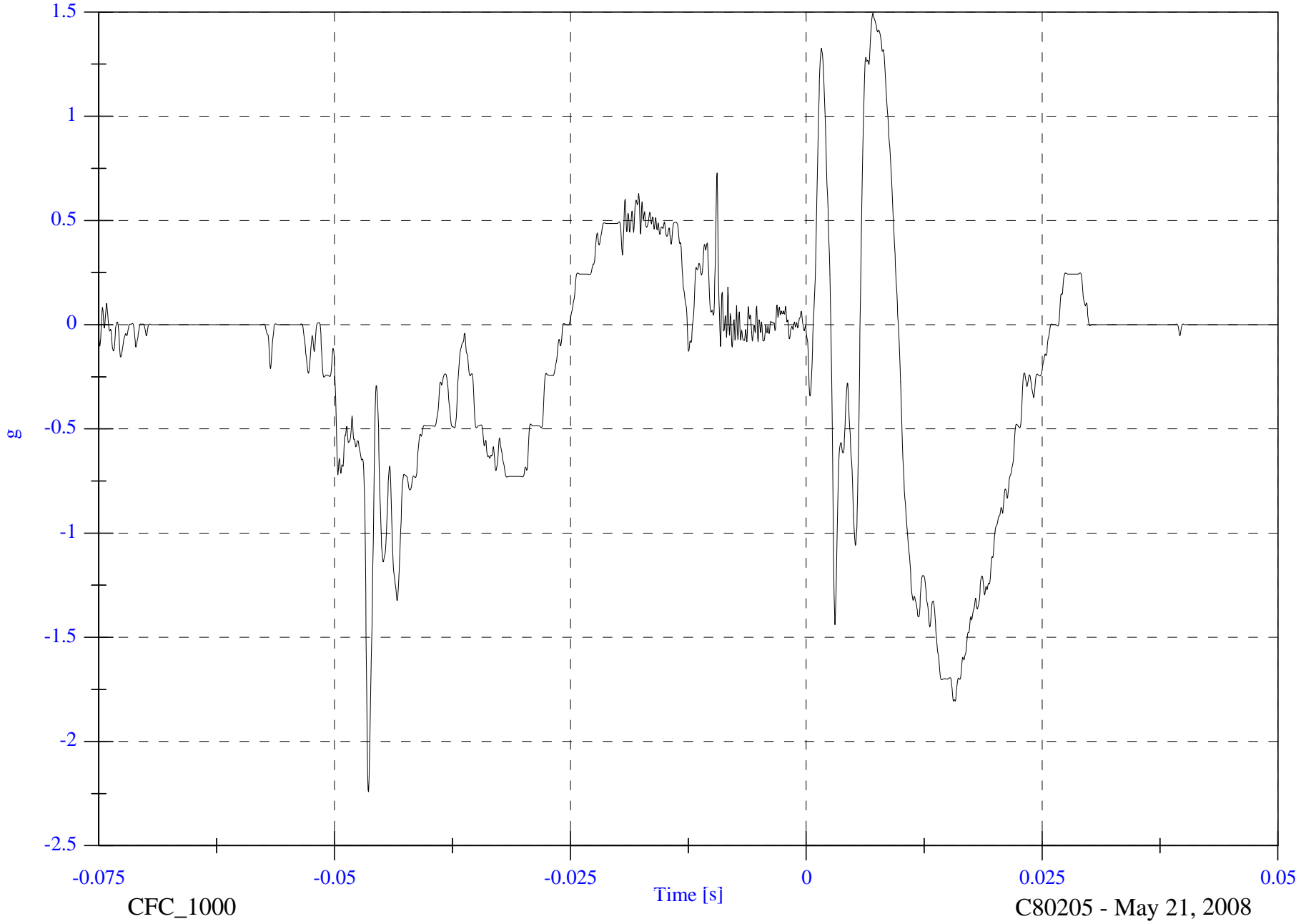
CFC_1000

C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

Headform Y Acceleration

Max: 1.5 [g] at 0.007 [s]
Min: -2.2 [g] at -0.046 [s]



C80205 DRIVER SIDE AP2 IMPACT PLOT #3

8851-09

CFC_1000

C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

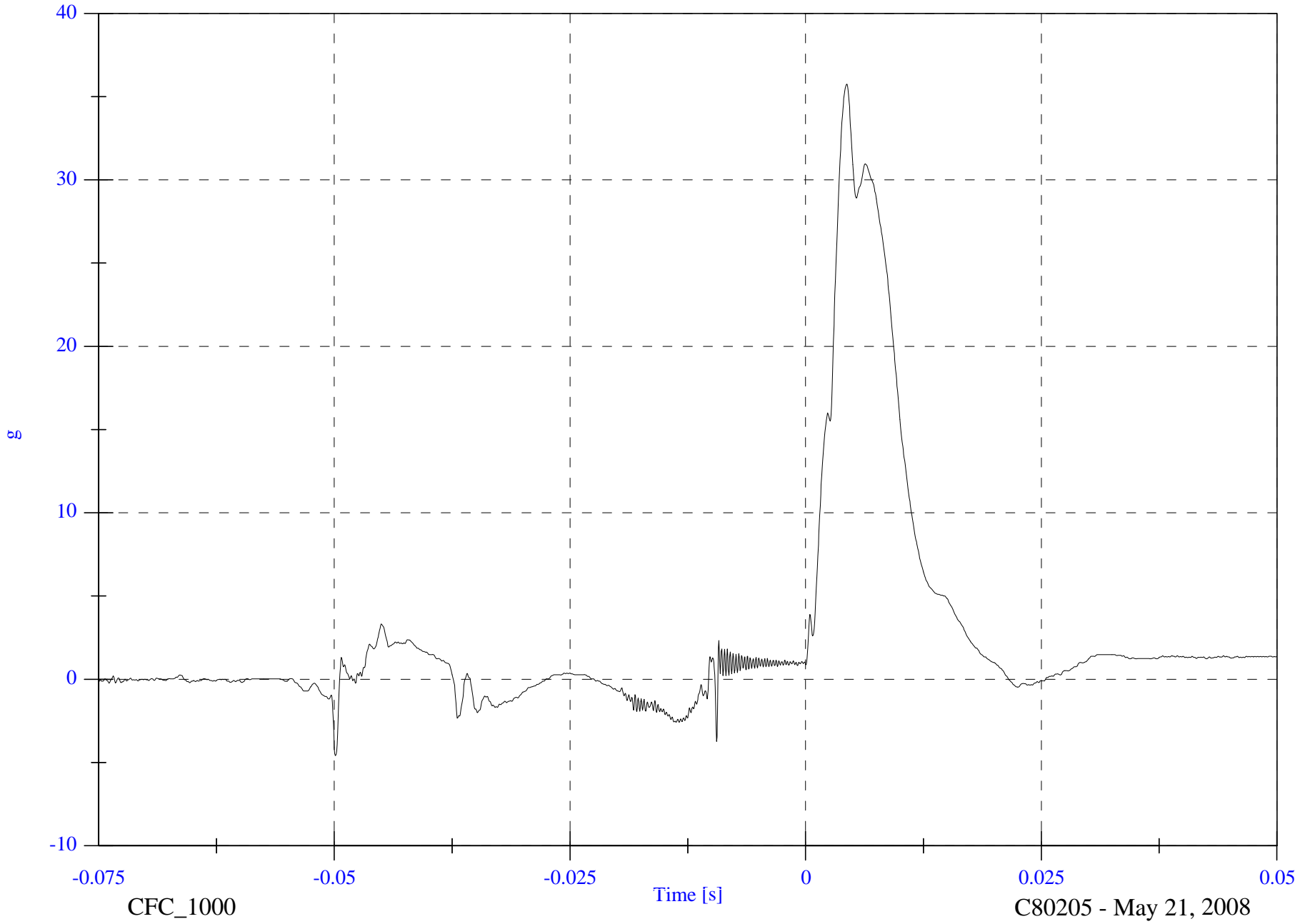
Headform Z Acceleration

Max: 35.8 [g] at 0.004 [s]

Min: -4.6 [g] at -0.050 [s]

C80205 DRIVER SIDE AP2 IMPACT PLOT #4

8851-09



CFC_1000

C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

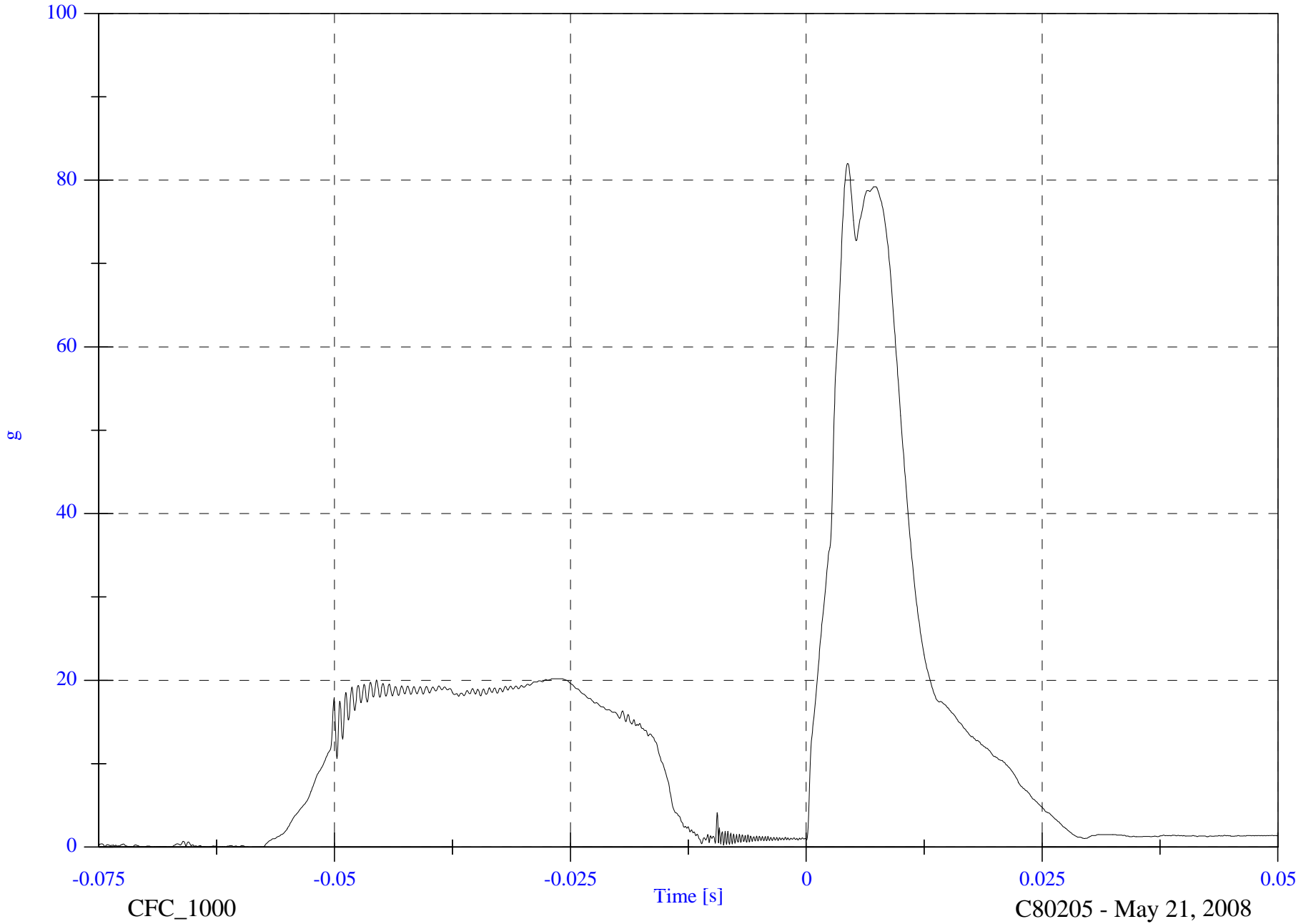
Headform Resultant

Max: 82.0 [g] at 0.004 [s]

Min: 0.0 [g] at -0.059 [s]

C80205 DRIVER SIDE AP2 IMPACT PLOT #5

8851-09



CFC_1000

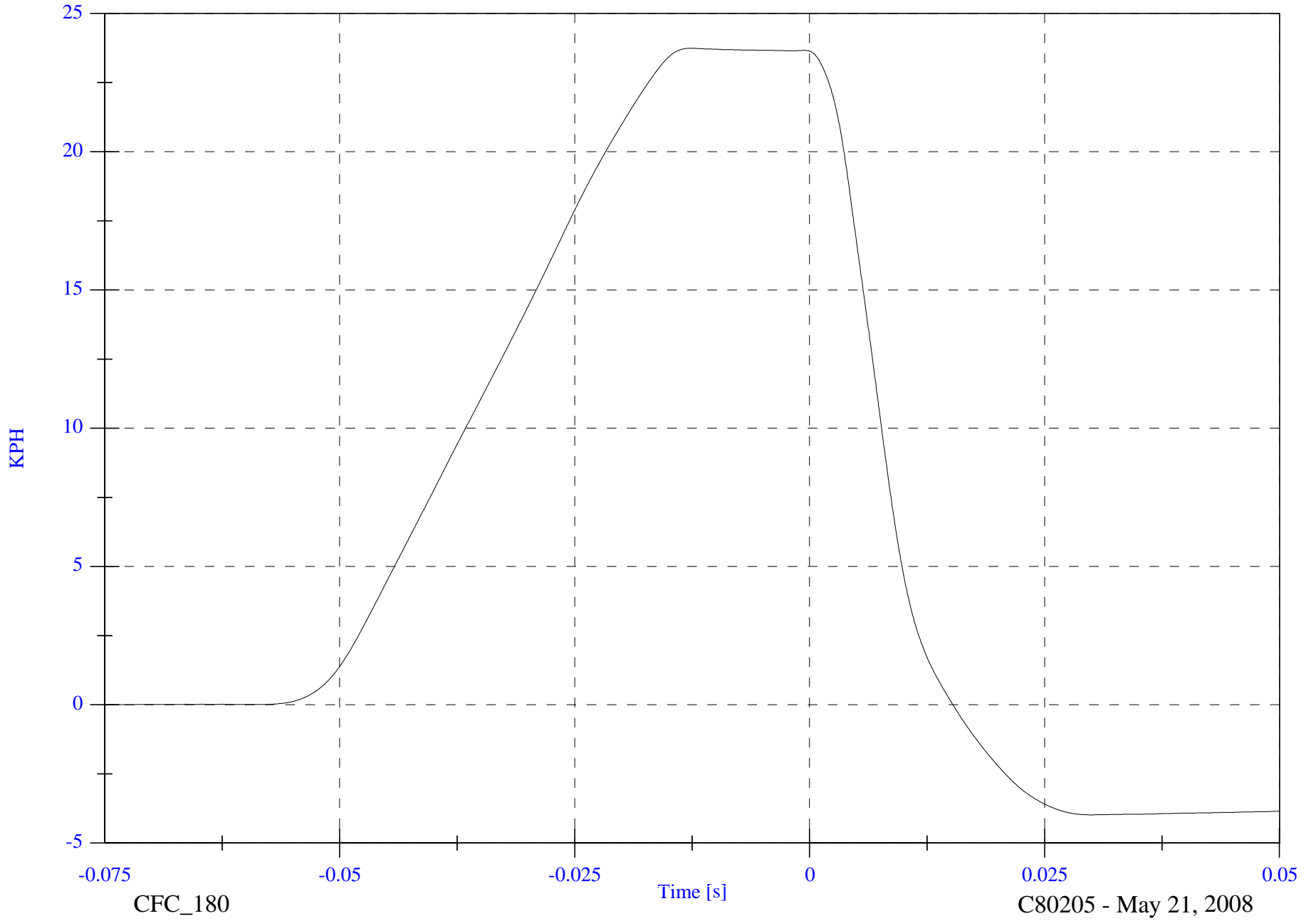
C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

Max: 23.7 [KPH] at -0.013 [s]

Min: -4.0 [KPH] at 0.030 [s]

Headform Velocity



C80205 DRIVER SIDE AP2 IMPACT PLOT #6

8851-09

CFC_180

C80205 - May 21, 2008



PRE-IMPACT AP2

FMVSS 201U C80205
08 FORD RANGER AP2
MAY 21 08 POST TEST
HOR 208 VERT 9

POST-IMPACT AP2

VEHICLE YEAR/MAKE/MODEL/STYLE:	2008 Ford Ranger
VIN:	1FTYR10D98PA33826
DATE OF MANUFACTURE:	09/07(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	12
Test Date:	05/21/08
Target Location:	FRONT HEADER
Target Code:	FH1
Horizontal Impact Angle:	180°
Vertical Impact Angle:	50°
Ambient Temperature:	22°C
Relative Humidity:	28
Time of Impact:	13:45
Headform Number:	0062

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	0	mm right	mm left
On Centerline	17		mm up



POST-IMPACT FH1 HEADFORM

Free Motion HIC	653.6
HIC(d)	645.7
Impact Velocity (kph)	23.82
HIC T1 (msec)	3.1
HIC T2 (msec)	11.8

FMVSS 201U 2008 Ford Ranger C80205 - FH1

FMH Headform 0062

Location: FH1

Test Date: May 21, 2008

Work File: FH1

-----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 653.6

Lab Humidity: 28 %

HIC (36ms): 645.7

Velocity at Impact: 23.82 KPH

t1: 3.1 msec

t2: 11.8 msec

Free Flight Distance: 220.65 mm

Duration: 8.7 msec

Average Acceleration: 10.2 g

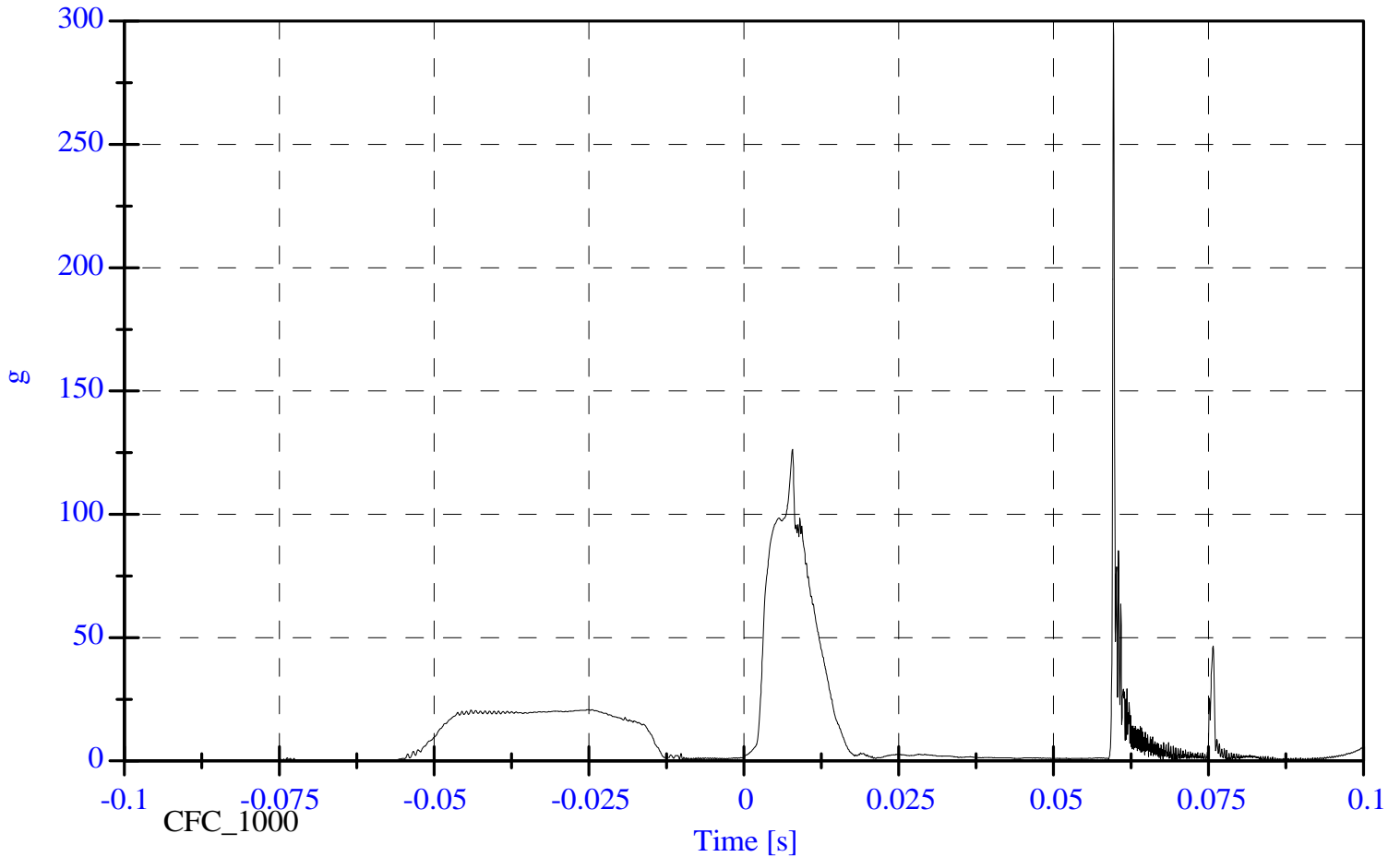
Maximum: 126.3 g

FMVSS 201U 2008 Ford Ranger

Headform Resultant

Max: 126.3 [g] at 0.008 [s]

Min: 0.0 [g] at -0.093 [s]

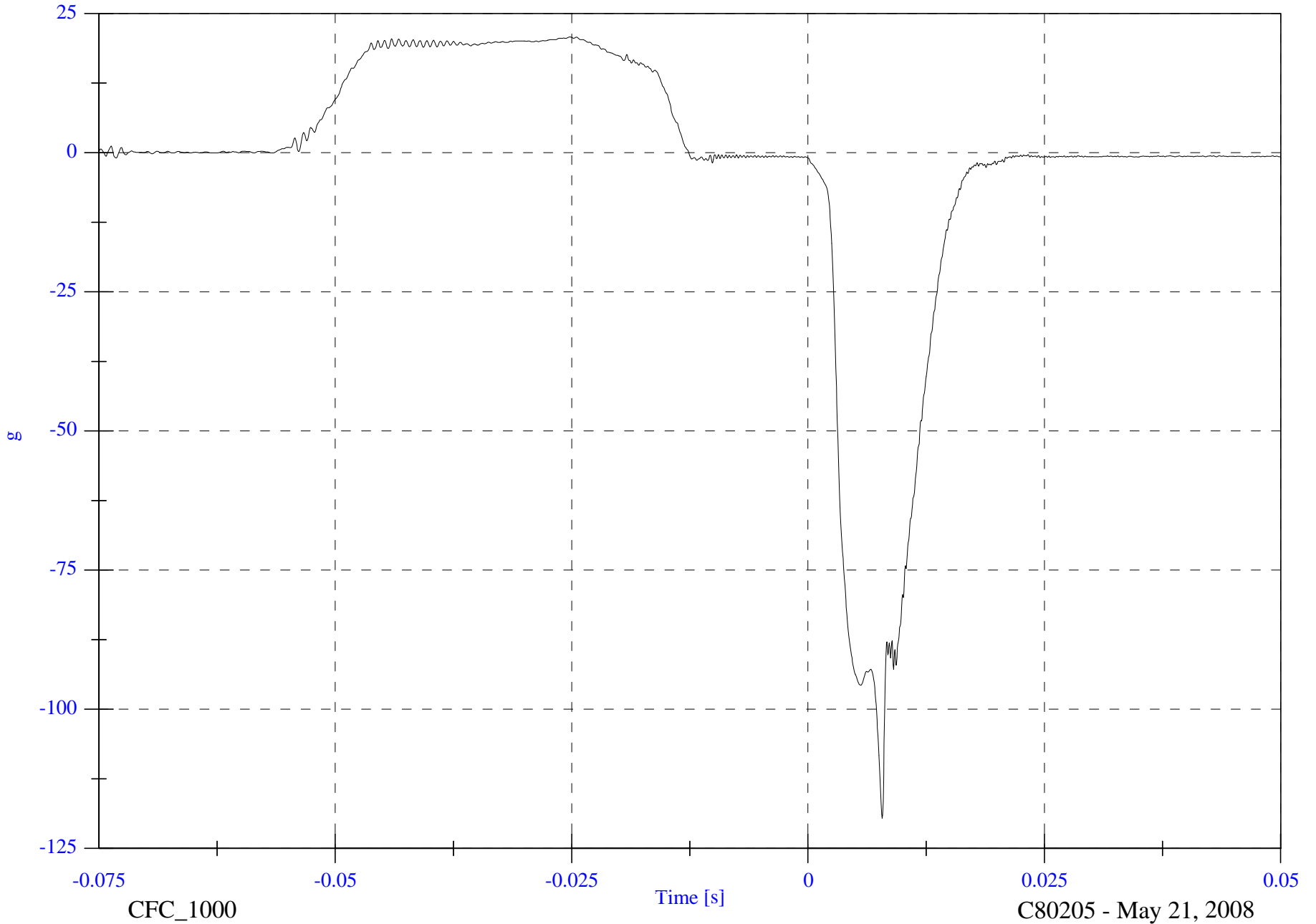


FMVSS 201U 2008 Ford Ranger

Max: 20.8 [g] at -0.025 [s]

Min: -119.6 [g] at 0.008 [s]

Headform X Acceleration



C80205 DRIVER SIDE FH1 IMPACT PLOT #2

8851-09

CFC_1000

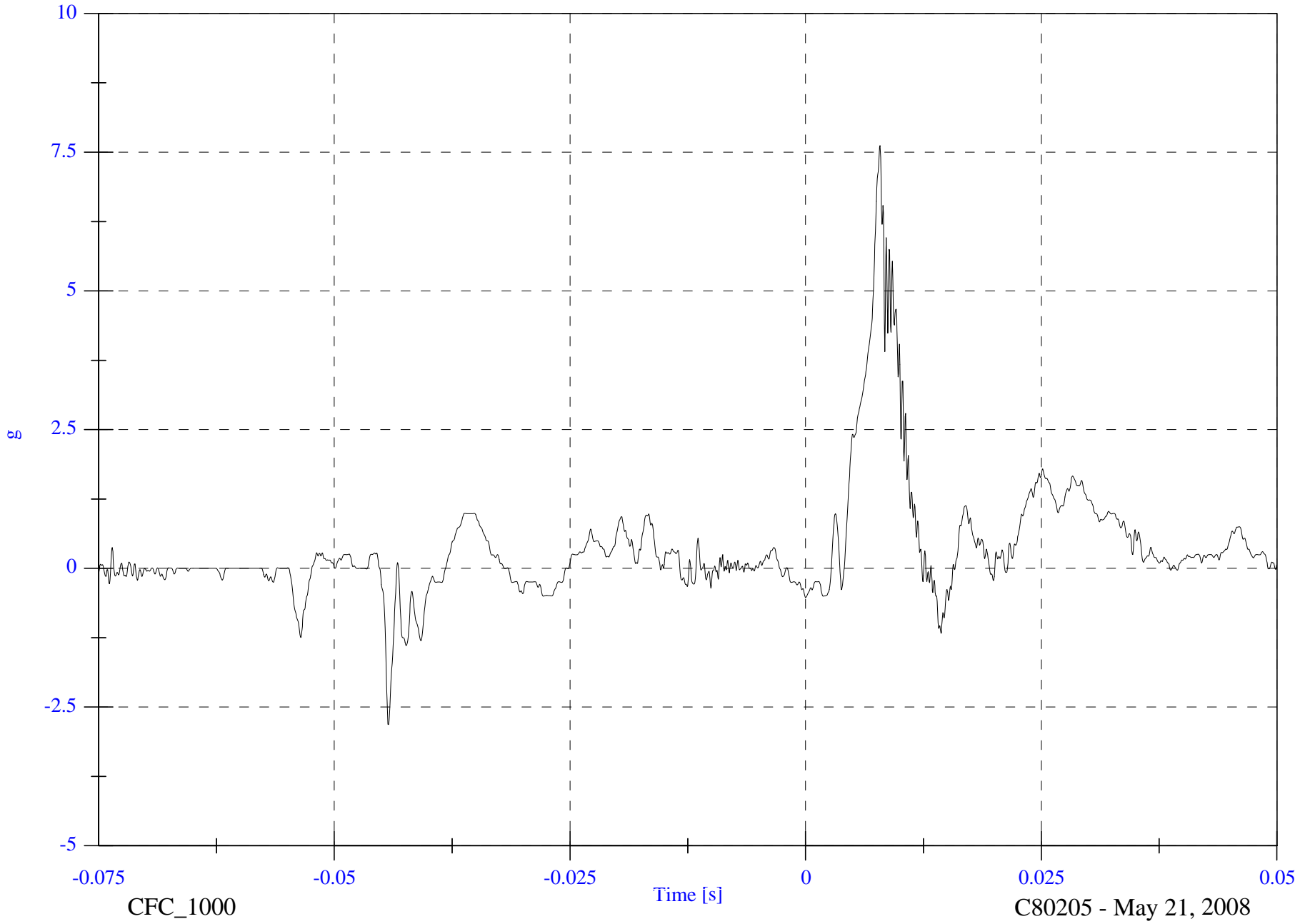
C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

Headform Y Acceleration

Max: 7.6 [g] at 0.008 [s]

Min: -2.8 [g] at -0.044 [s]



C80205 DRIVER SIDE FHI IMPACT PLOT #3

8851-09

CFC_1000

C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

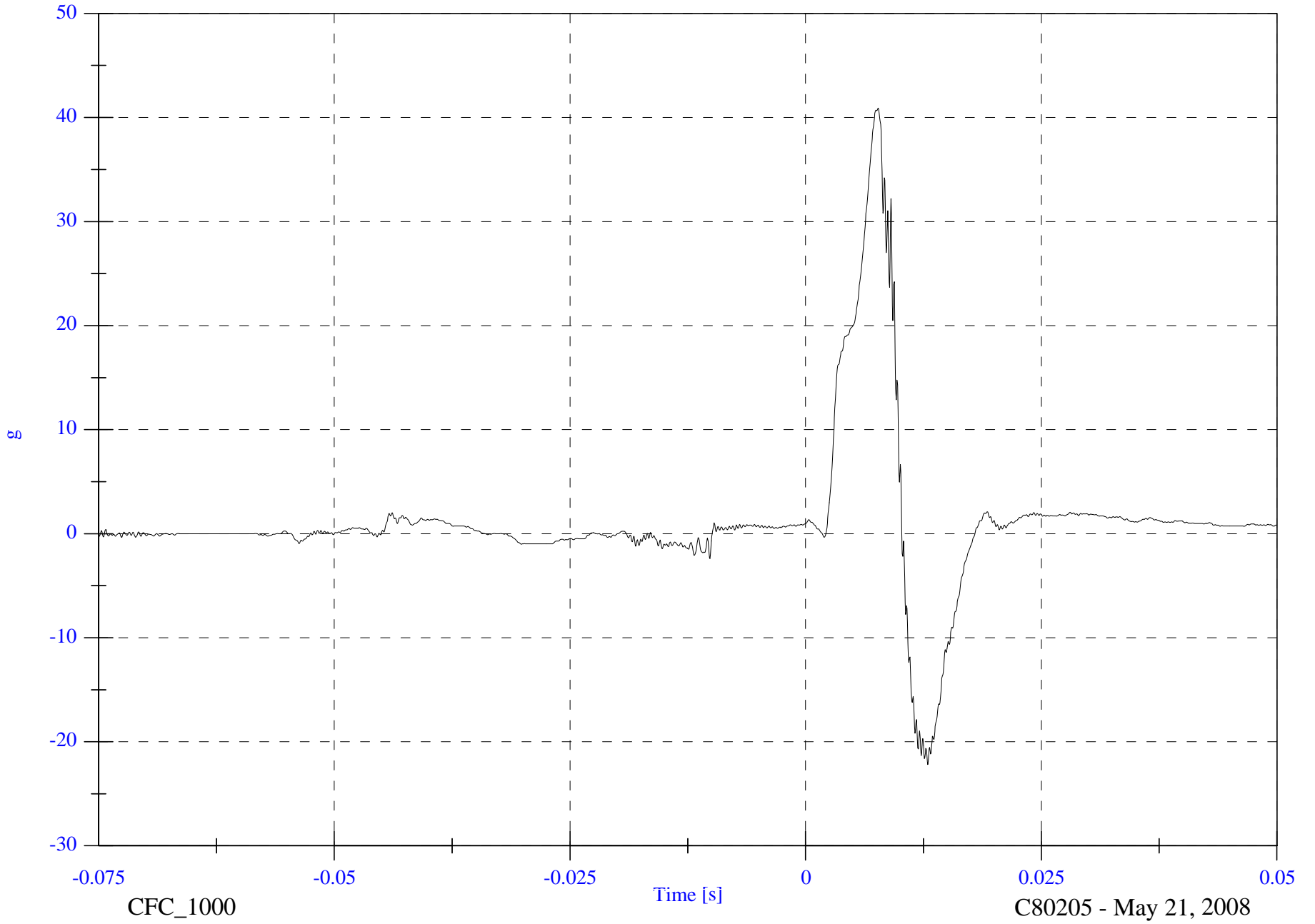
Headform Z Acceleration

Max: 40.9 [g] at 0.008 [s]

Min: -22.2 [g] at 0.013 [s]

C80205 DRIVER SIDE FH1 IMPACT PLOT #4

8851-09



CFC_1000

C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

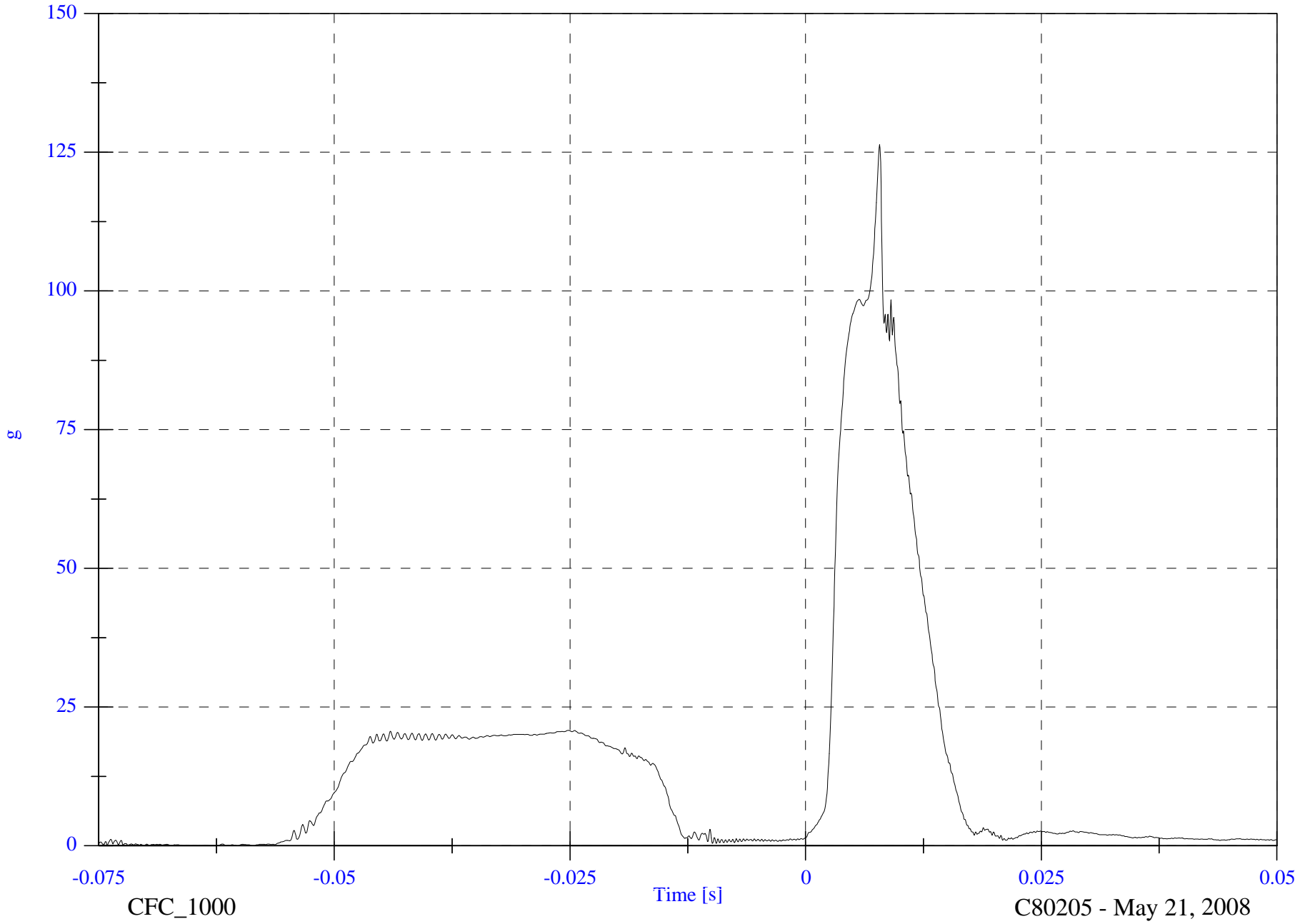
Headform Resultant

Max: 126.3 [g] at 0.008 [s]

Min: 0.0 [g] at -0.060 [s]

C80205 DRIVER SIDE FH1 IMPACT PLOT #5

8851-09



CFC_1000

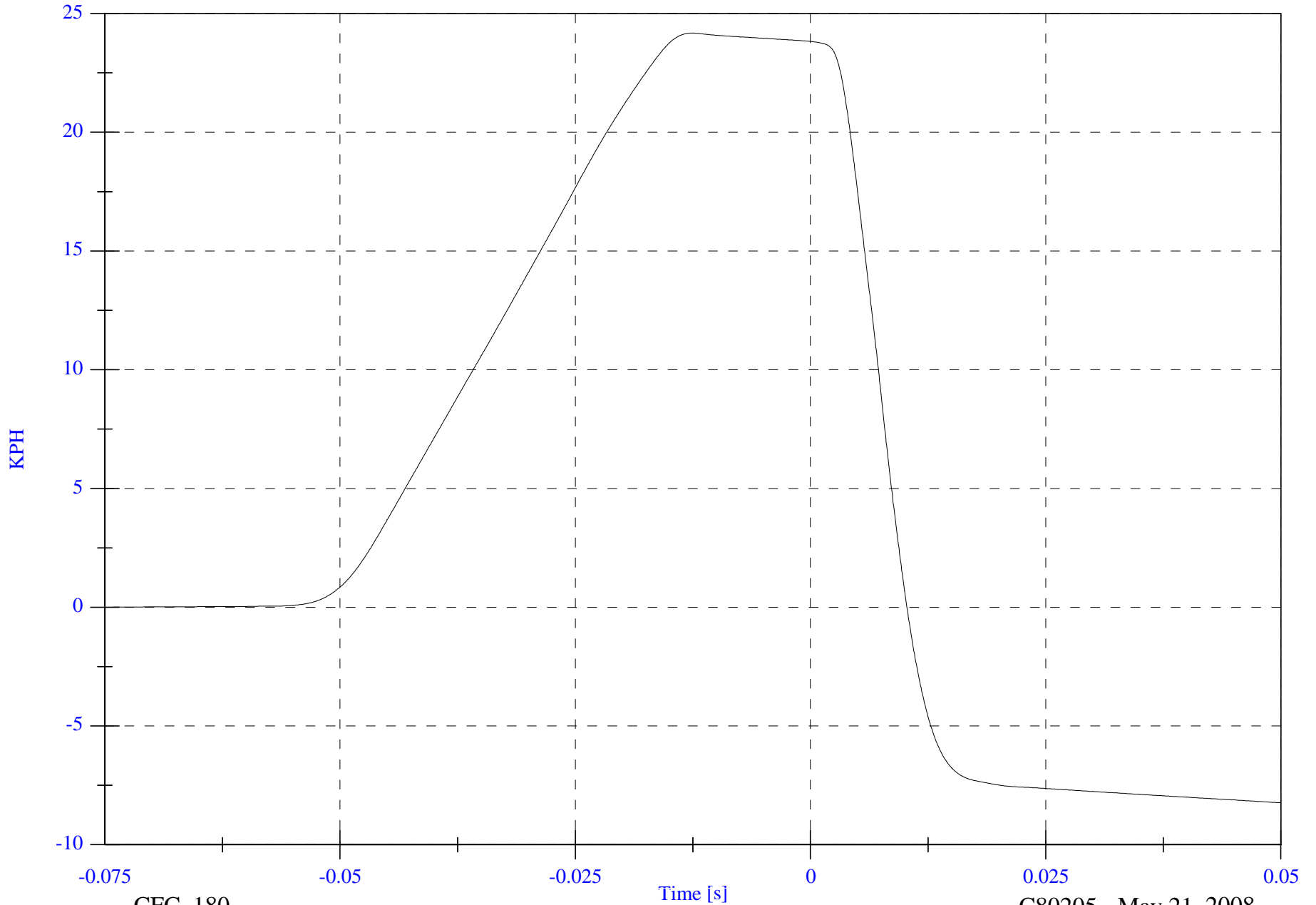
C80205 - May 21, 2008

FMVSS 201U 2008 Ford Ranger

Max: 24.2 [KPH] at -0.013 [s]

Min: -8.2 [KPH] at 0.050 [s]

Headform Velocity



C80205 DRIVER SIDE FH1 IMPACT PLOT #6

8851-09

CFC_180

C80205 - May 21, 2008



PRE-IMPACT FH1 (Horizontal angle should be 180 degrees)



POST-IMPACT FH1(Horizontal angle should be 180 degrees)

APPENDIX A

PHOTOGRAPHS

PHOTOGRAPHS

FIGURE	VIEW	PAGE
A-1	LEFT SIDE VIEW OF VEHICLE	A-3
A-2	RIGHT SIDE VIEW OF VEHICLE	A-4
A-3	3/4 FRONTAL VIEW FROM LEFT SIDE OF VEHICLE	A-5
A-4	3/4 REAR VIEW FROM RIGHT SIDE OF VEHICLE	A-6
A-5	VEHICLE'S CERTIFICATION LABEL	A-7
A-6	VEHICLE'S TIRE INFORMATION LABEL	A-8
A-7	PRE-TEST DRIVER SIDE A-PILLAR	A-9
A-8	PRE-TEST DRIVER SIDE FRONT HEADER	A-10
A-9	PRE-TEST DRIVER SIDE SIDE RAIL	A-11
A-10	PRE-TEST DRIVER SIDE REAR PILLAR	A-12
A-11	PRE-TEST PASSENGER SIDE A-PILLAR	A-13
A-12	PRE-TEST PASSENGER SIDE FRONT HEADER	A-14
A-13	PRE-TEST PASSENGER SIDE SIDE RAIL	A-15
A-14	PRE-TEST PASSENGER SIDE REAR PILLAR	A-16
A-15	POST-TEST DRIVER SIDE A-PILLAR	A-17
A-16	POST-TEST DRIVER SIDE FRONT HEADER	A-18
A-17	POST-TEST DRIVER SIDE SIDE RAIL	A-19
A-18	POST-TEST DRIVER SIDE REAR PILLAR	A-20
A-19	POST-TEST PASSENGER SIDE A-PILLAR	A-21
A-20	POST-TEST PASSENGER SIDE FRONT HEADER	A-22
A-21	POST-TEST PASSENGER SIDE SIDE RAIL	A-23
A-22	POST-TEST PASSENGER SIDE REAR PILLAR	A-24



Figure A-1 : LEFT SIDE VIEW OF VEHICLE



Figure A-2 : RIGHT SIDE VIEW OF VEHICLE



Figure A-3 : 3/4 FRONTAL VIEW FROM LEFT SIDE OF VEHICLE



Figure A-4 : 3/4 REAR VIEW FROM RIGHT SIDE OF VEHICLE



Figure A-5 : VEHICLE'S CERTIFICATION LABEL



Figure A-6 : VEHICLE'S TIRE INFORMATION LABEL



Figure A-7 : PRE-TEST DRIVER SIDE A-PILLAR



Figure A-8 : PRE-TEST DRIVER SIDE FRONT HEADER



Figure A-9 : PRE-TEST DRIVER SIDE SIDE RAIL



Figure A-10 : PRE-TEST DRIVER SIDE REAR PILLAR



Figure A-11 : PRE-TEST PASSENGER SIDE A-PILLAR



Figure A-12 : PRE-TEST PASSENGER SIDE FRONT HEADER



Figure A-13 : PRE-TEST PASSENGER SIDE SIDE RAIL



Figure A-14 : PRE-TEST PASSENGER SIDE REAR PILLAR



Figure A-15 : POST-TEST DRIVER SIDE A-PILLAR



Figure A-16 : POST-TEST DRIVER SIDE FRONT HEADER



Figure A-17 : POST-TEST DRIVER SIDE SIDE RAIL



Figure A-18 : POST-TEST DRIVER SIDE REAR PILLAR



Figure A-19 : POST-TEST PASSENGER SIDE A-PILLAR



Figure A-20 : POST-TEST PASSENGER SIDE FRONT HEADER



Figure A-21 : POST-TEST PASSENGER SIDE SIDE RAIL



Figure A-22 : POST-TEST PASSENGER SIDE REAR PILLAR

APPENDIX B

PART 572L PERFORMANCE CALIBRATION IN SUPPORT OF VEHICLE SAFETY COMPLIANCE TESTING FOR OCCUPANT PROTECTION IN INTERIOR IMPACT

Appendix B contains the results from certification tests performed on the Free Motion Headforms utilized in this test program. The results indicate that the headforms meet all of the performance specifications given in 49 CFR Part 572 Subpart L.

The tests were conducted at the Dummy Certification Test Facility of Calspan Corporation. A summary of the test results are included in this Appendix.

**PART 572L
HEAD DROP PRE-TEST**

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		1140	
CALIBRATION DATE:		May 19, 2008	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	21	
RELATIVE HUMIDITY	10% to 70%	36	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	273.4	
PEAK LATERAL ACCELERATION	15 Gs Maximum	9.5	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

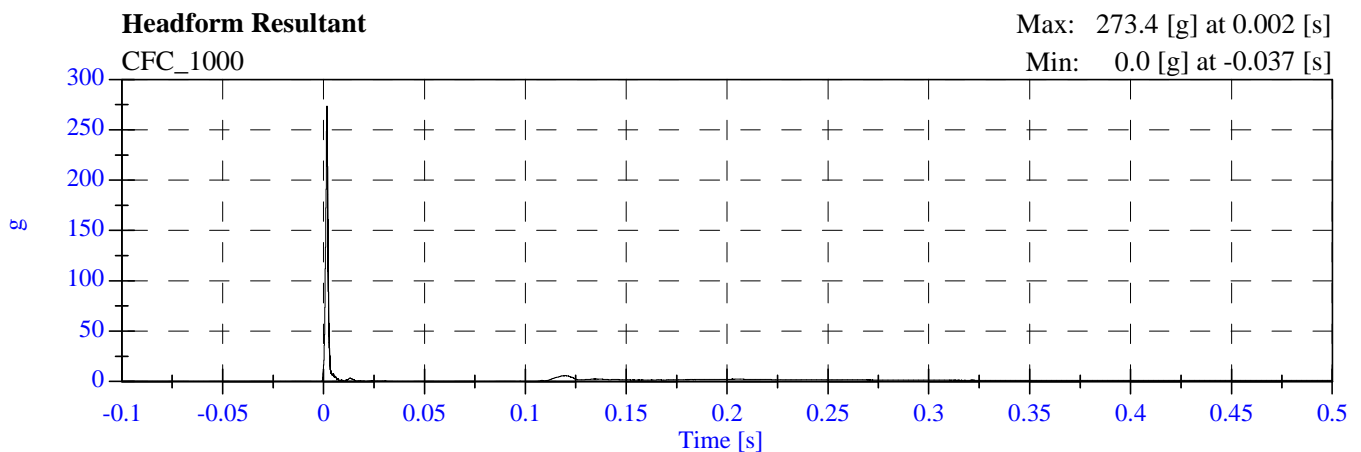
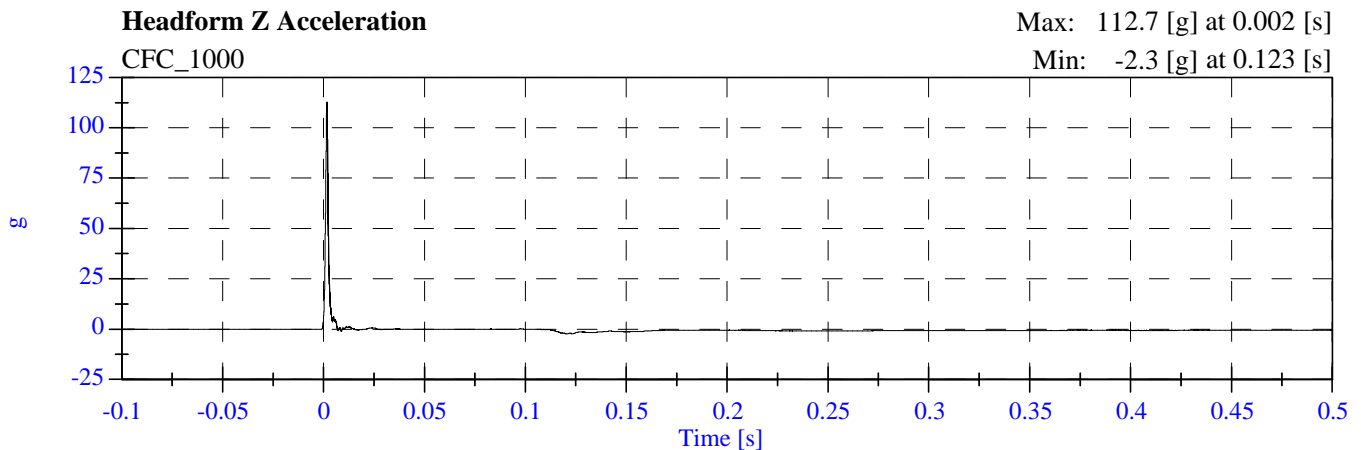
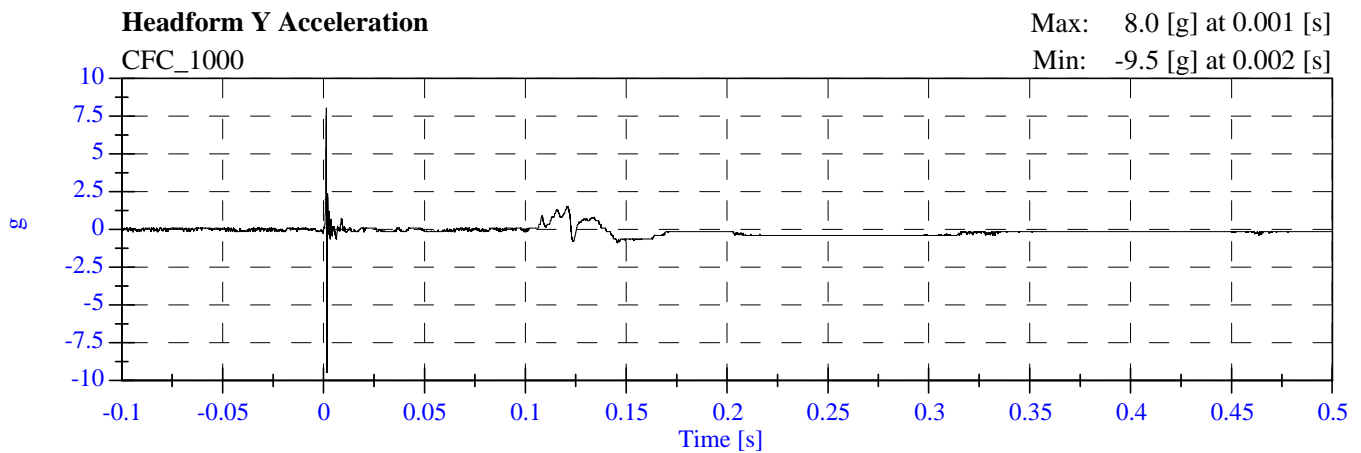
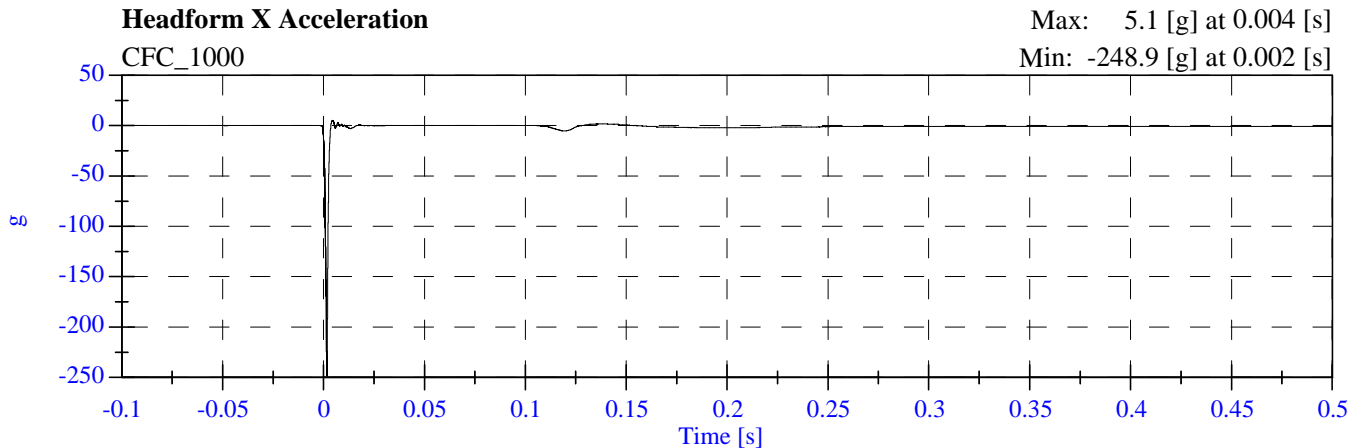
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J24876	Jan. 18, 2008	June 18, 2008
2 - LATERAL	ENDEVCO	7264-2000T	J33030	Jan. 18, 2008	June 18, 2008
3 - VERTICAL	ENDEVCO	7264-2000T	J31009	Jan. 18, 2008	June 18, 2008

REMARKS:

FMVSS 201U - Headform Calibration Drops

C80205 - May 19, 2008



**PART 572L
HEAD DROP PRE-TEST**

MANUFACTURER:		DENTON ATD INC.	
SERIAL NUMBER:		0062	
CALIBRATION DATE:		May 19, 2008	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	21	
RELATIVE HUMIDITY	10% to 70%	36	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	273.3	
PEAK LATERAL ACCELERATION	15 Gs Maximum	7.5	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

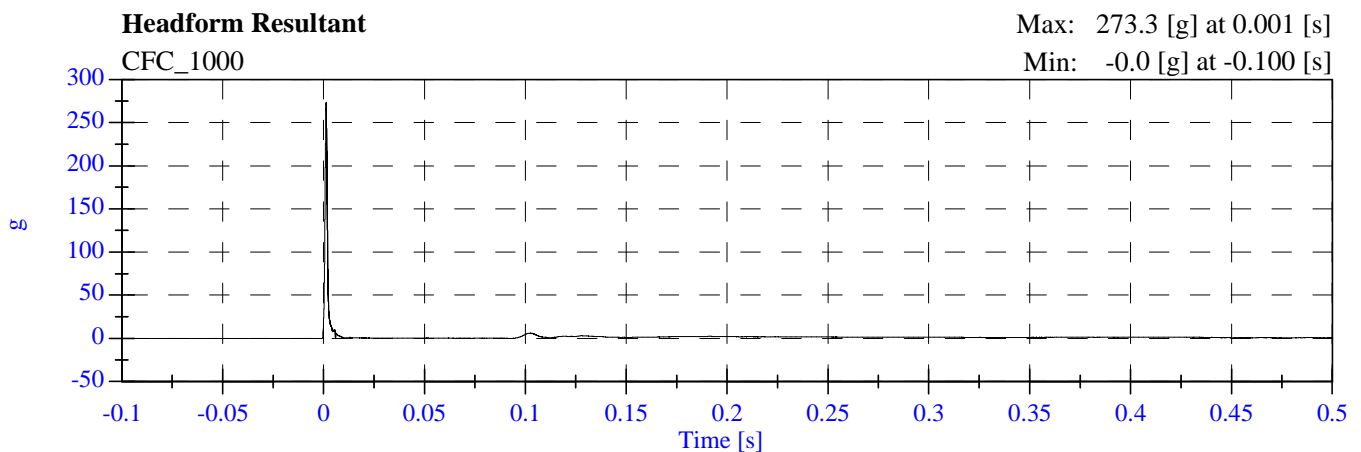
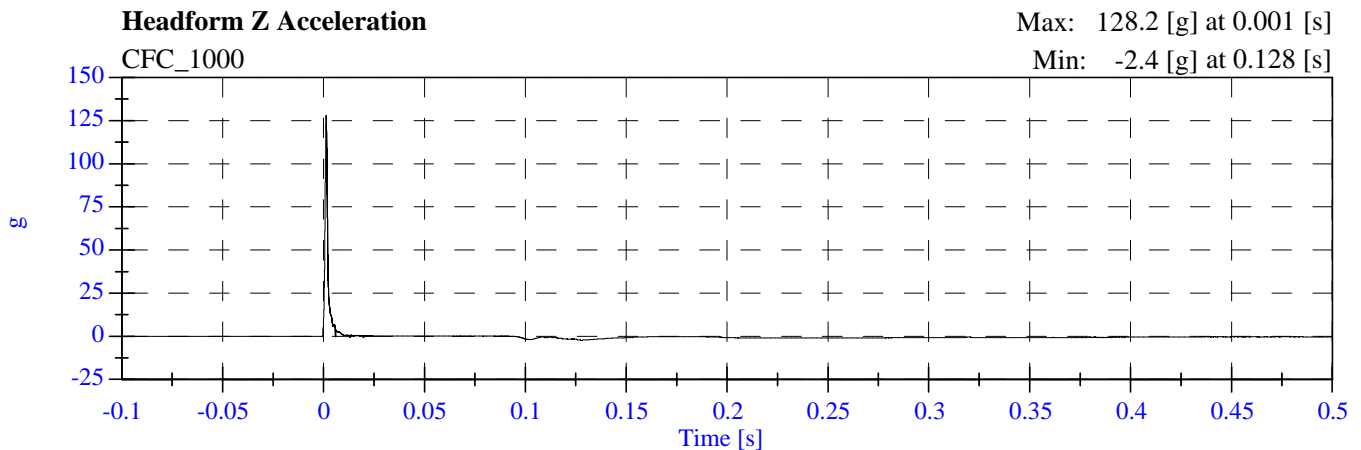
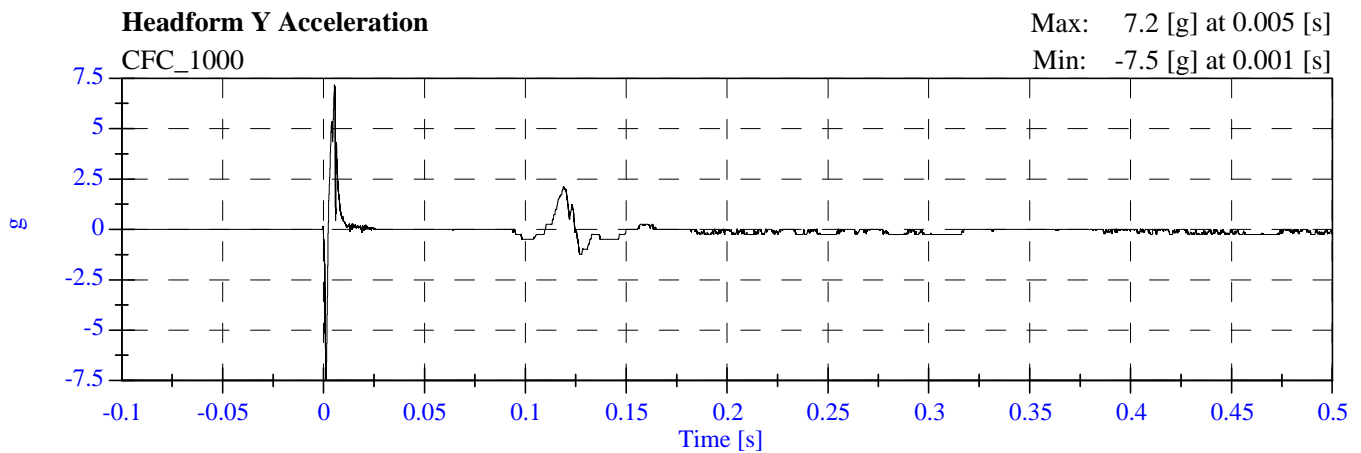
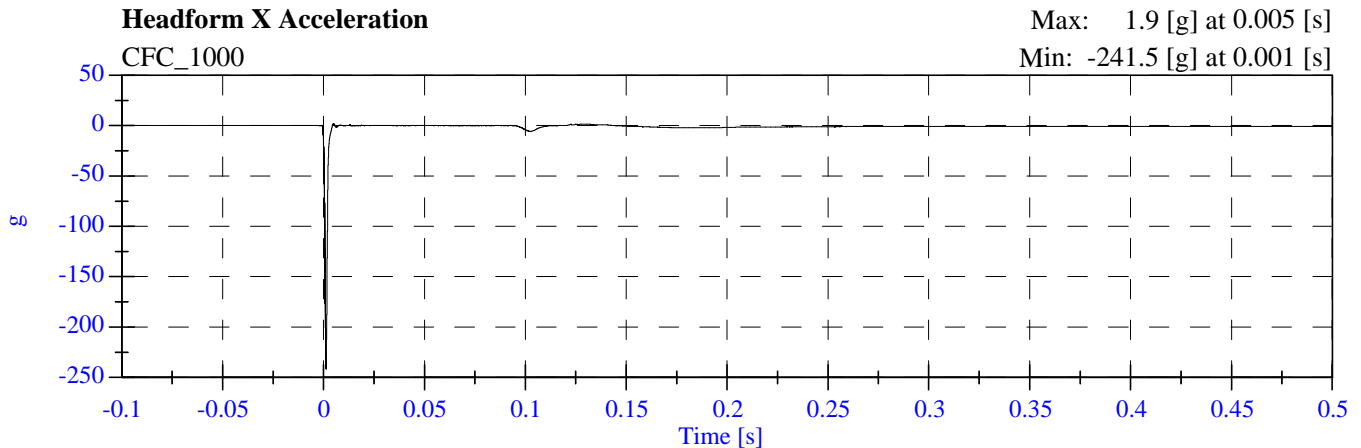
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J33127	Jan. 18, 2008	June 18, 2008
2 - LATERAL	ENDEVCO	7264-2000T	J33019	Jan. 18, 2008	June 18, 2008
3 - VERTICAL	ENDEVCO	7264-2000T	J32782	Jan. 18, 2008	June 18, 2008

REMARKS:

FMVSS 201U - Headform Calibration Drops

C80205 - May 19, 2008



**PART 572L
HEAD DROP PRE-TEST**

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		805	
CALIBRATION DATE:		May 19, 2008	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	21	
RELATIVE HUMIDITY	10% to 70%	36	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	271.8	
PEAK LATERAL ACCELERATION	15 Gs Maximum	3.1	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

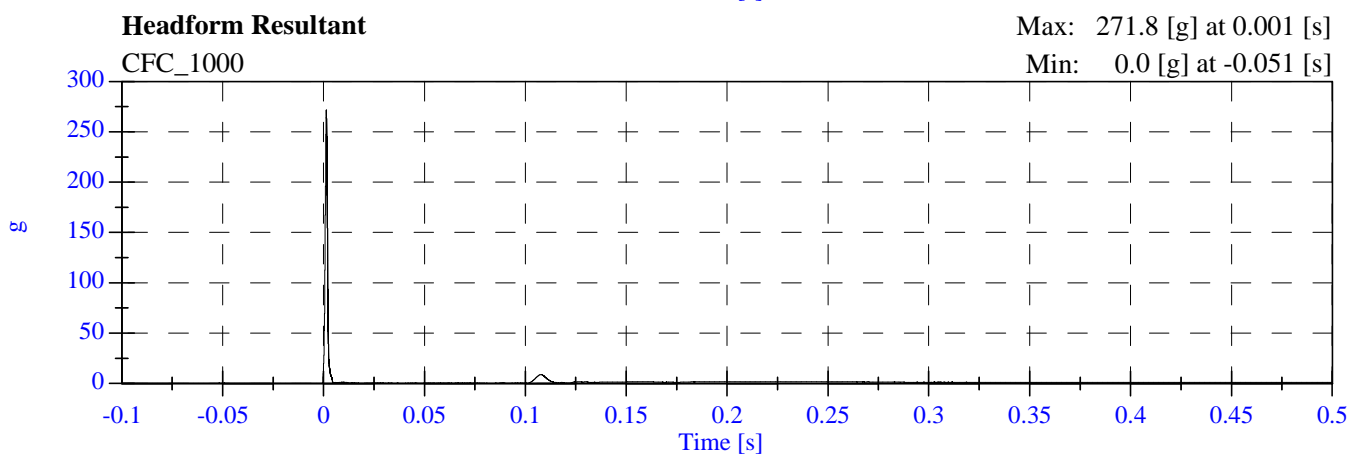
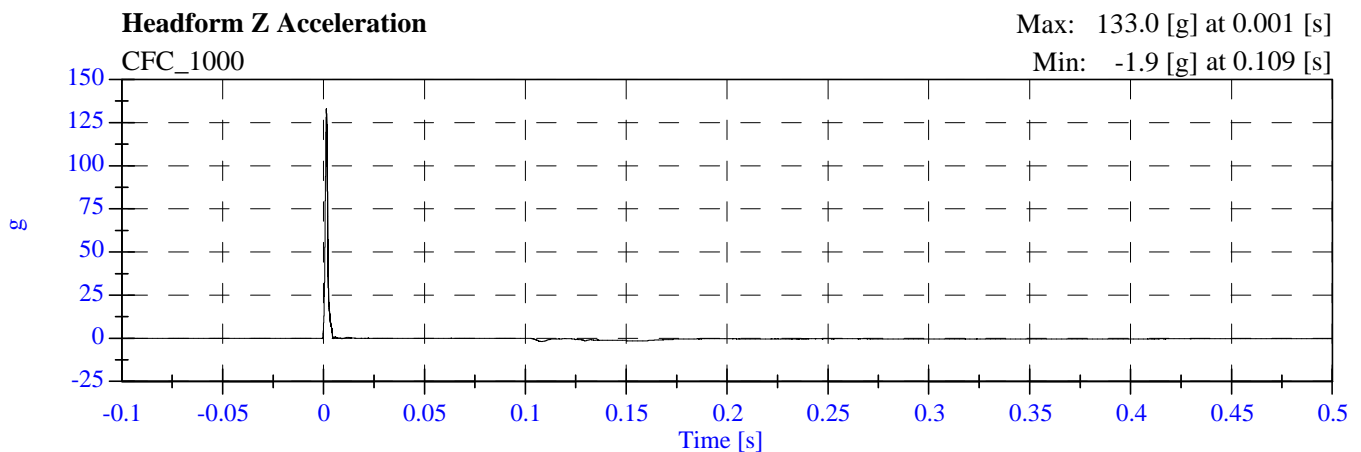
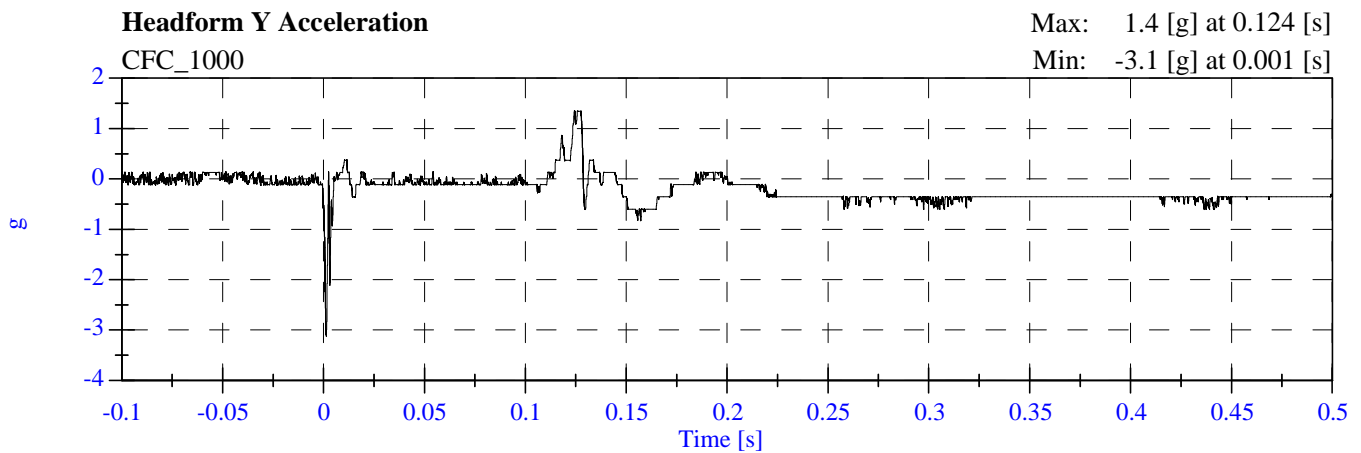
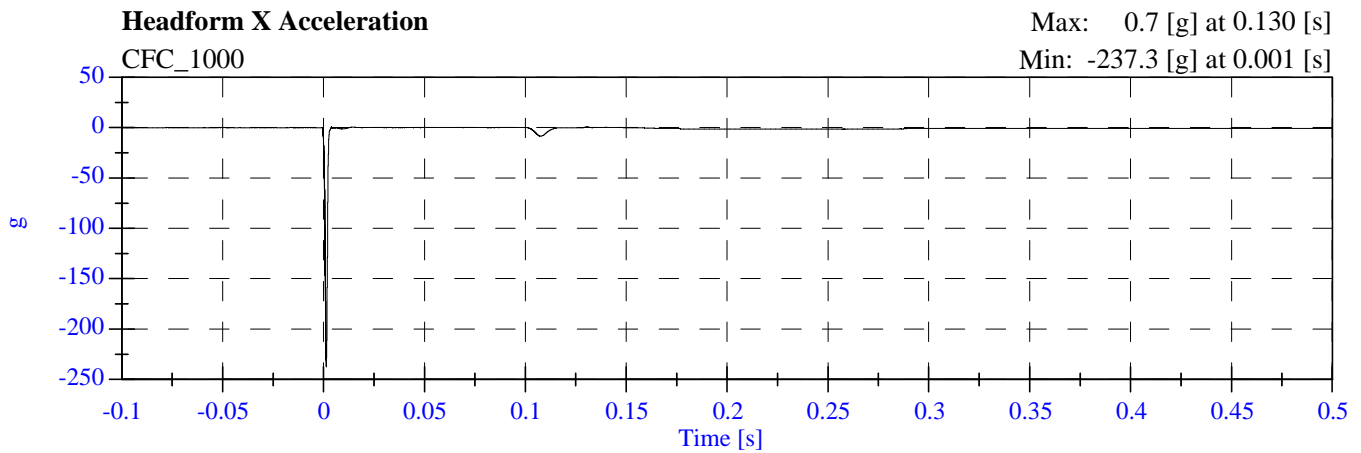
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J41004	Jan. 18, 2008	June 18, 2008
2 - LATERAL	ENDEVCO	7264-2000T	J37496	Jan. 18, 2008	June 18, 2008
3 - VERTICAL	ENDEVCO	7264-2000T	J41016	Jan. 18, 2008	June 18, 2008

REMARKS:

FMVSS 201U - Headform Calibration Drops

C80205 - May 19, 2008



**PART 572L
HEAD DROP PRE-TEST**

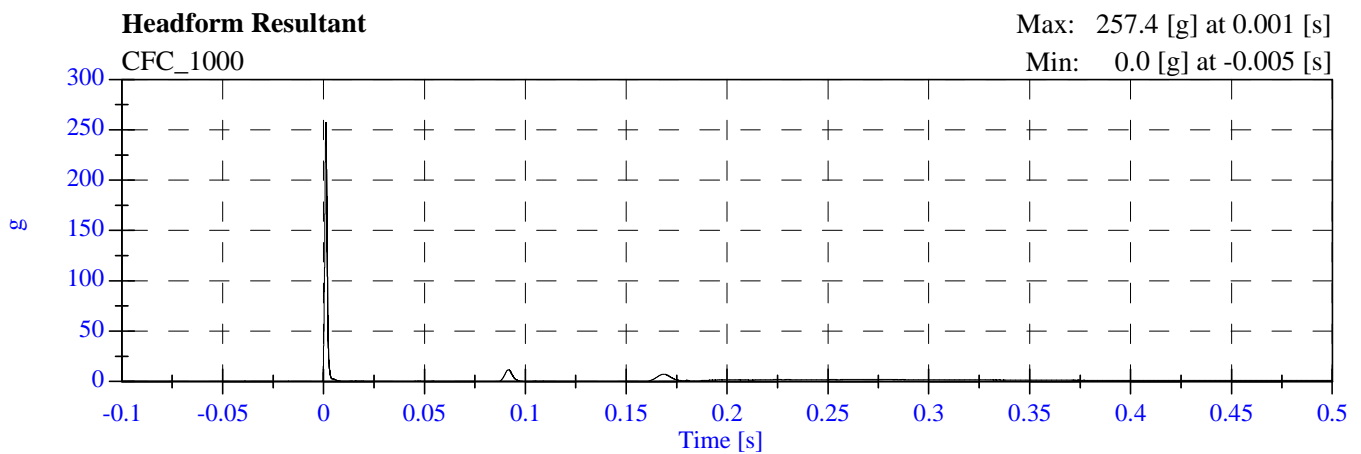
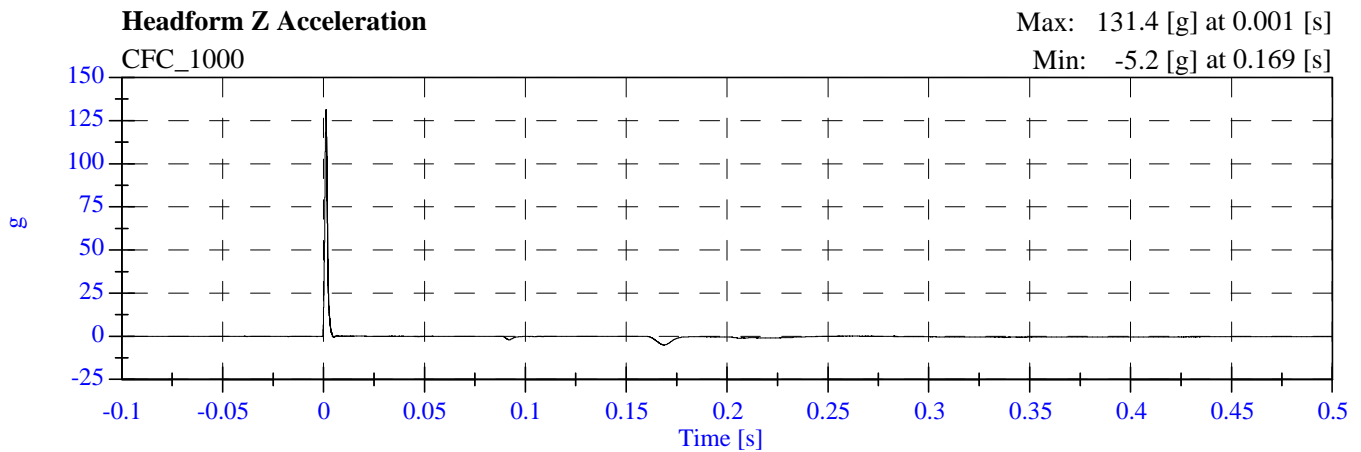
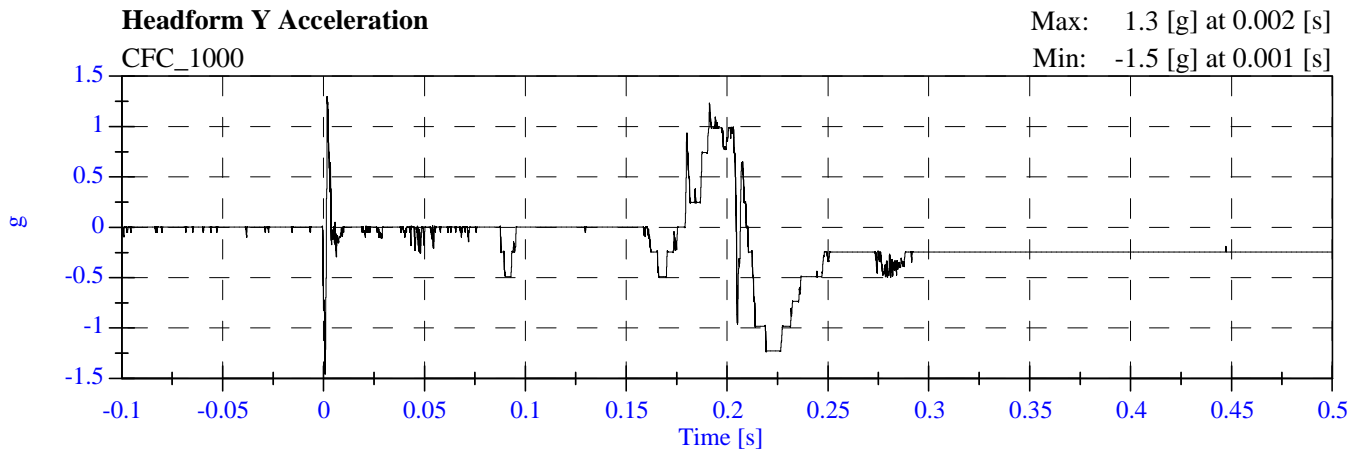
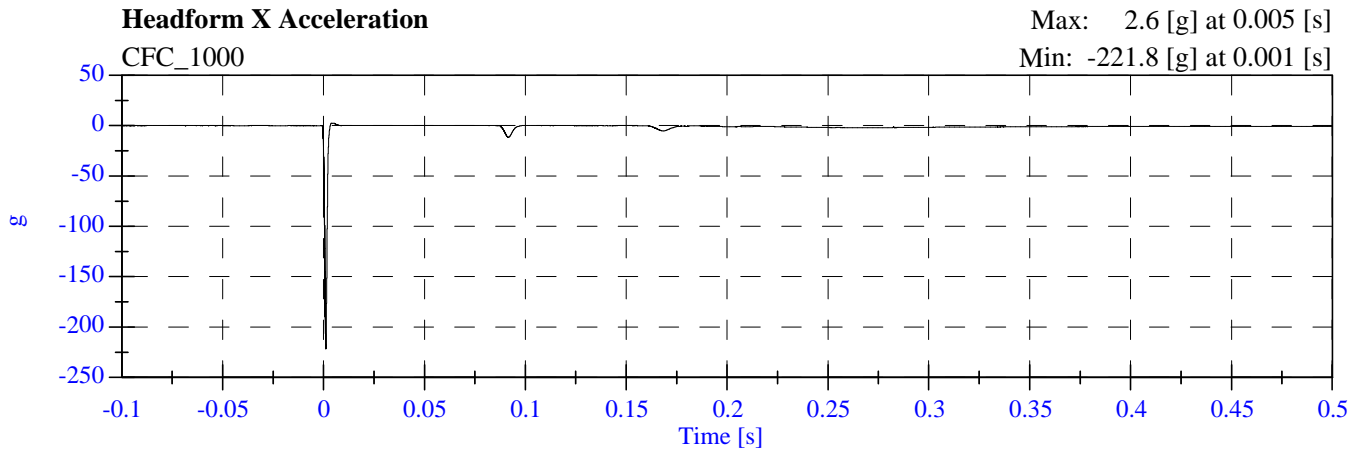
MANUFACTURER:		DENTON ATD INC.	
SERIAL NUMBER:		0355	
CALIBRATION DATE:		May 19, 2008	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	21	
RELATIVE HUMIDITY	10% to 70%	36	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	257.4	
PEAK LATERAL ACCELERATION	15 Gs Maximum	1.5	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J28671	Jan. 18, 2008	June 18, 2008
2 - LATERAL	ENDEVCO	7264-2000T	J32779	Jan. 18, 2008	June 18, 2008
3 - VERTICAL	ENDEVCO	7264-2000T	J25854	Jan. 18, 2008	June 18, 2008

REMARKS:

FMVSS 201U - Headform Calibration Drops C80205 - May 19, 2008



**PART 572L
HEAD DROP PRE-TEST**

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		1142	
CALIBRATION DATE:		May 19, 2008	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	21	
RELATIVE HUMIDITY	10% to 70%	36	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	255.5	
PEAK LATERAL ACCELERATION	15 Gs Maximum	3.6	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

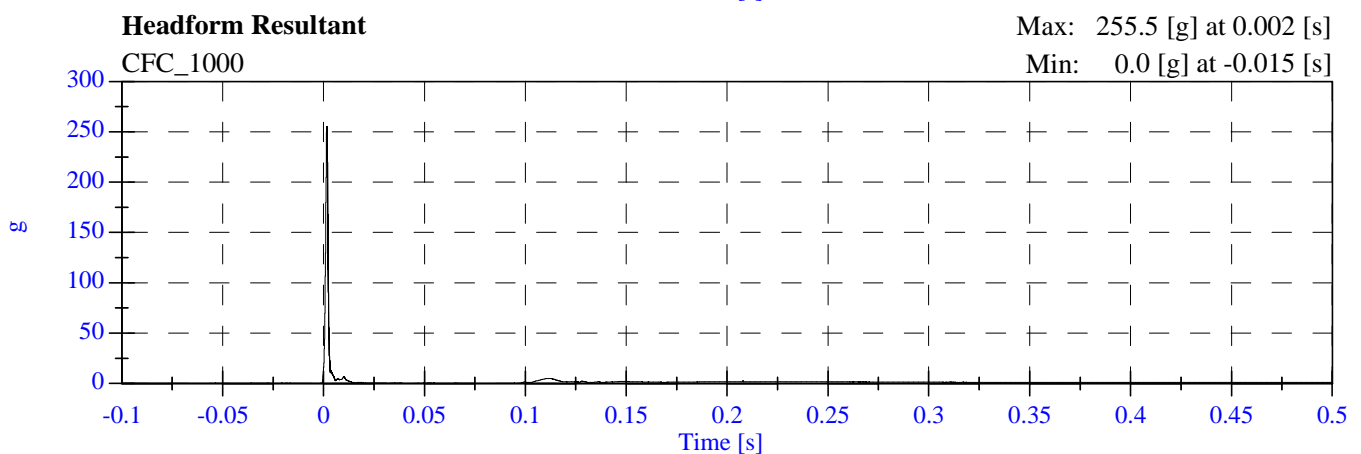
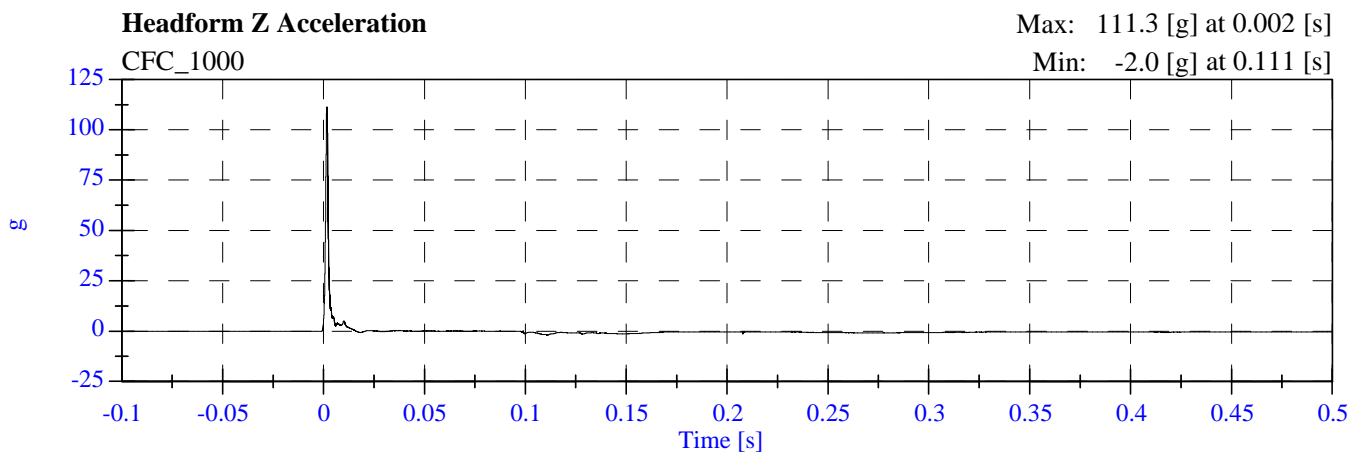
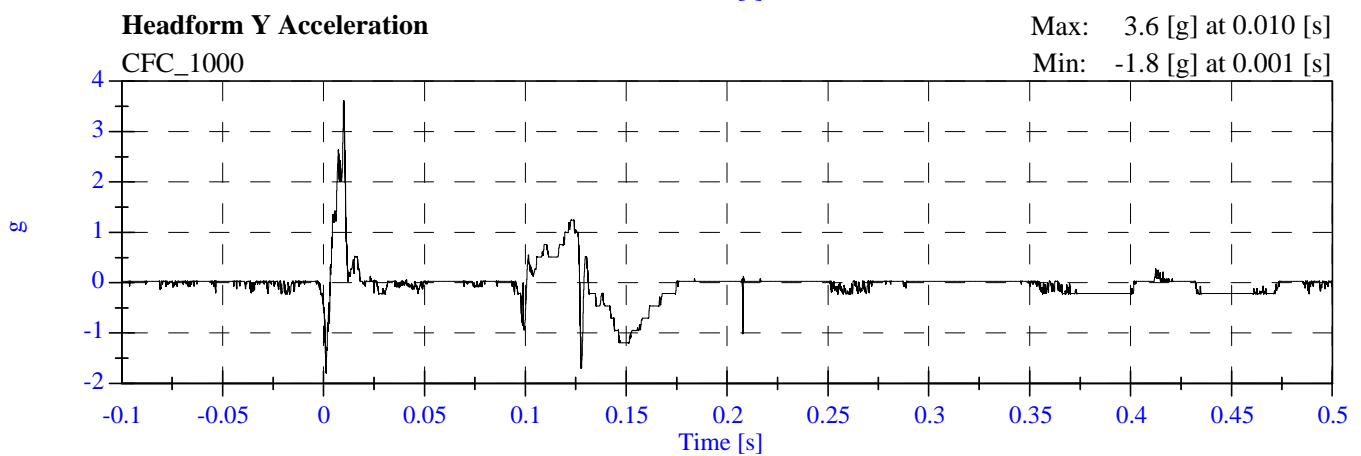
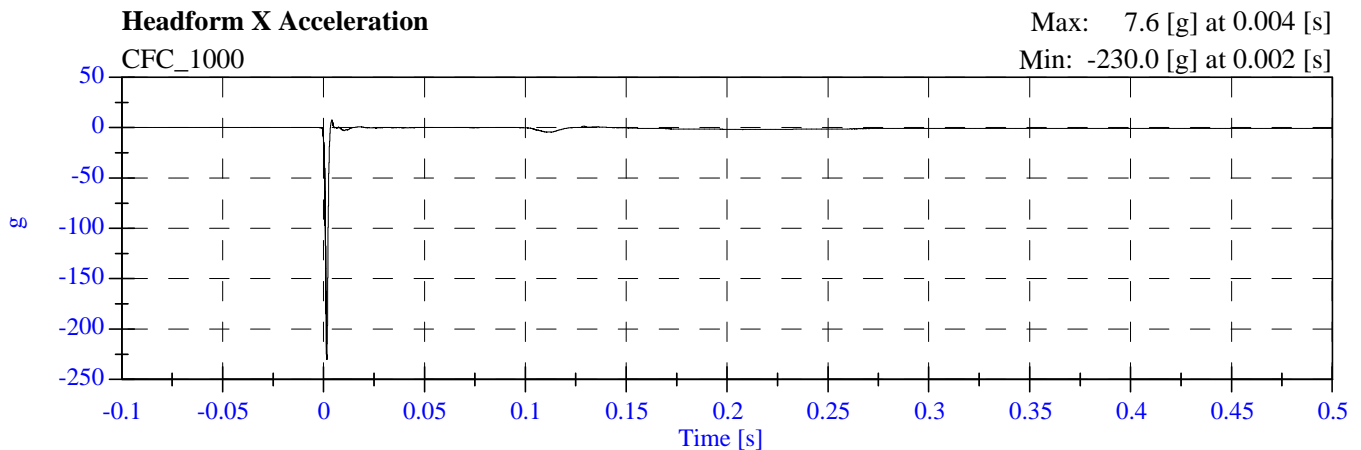
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J41006	Jan. 18, 2008	June 18, 2008
2 - LATERAL	ENDEVCO	7264-2000T	J40994	Jan. 18, 2008	June 18, 2008
3 - VERTICAL	ENDEVCO	7264-2000T	J41007	Jan. 18, 2008	June 18, 2008

REMARKS:

FMVSS 201U - Headform Calibration Drops

C80205 - May 19, 2008



**PART 572L
HEAD DROP POST-TEST**

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		1140	
CALIBRATION DATE:		MAY 23, 2008	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	22	
RELATIVE HUMIDITY	10% to 70%	36	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	274.4	
PEAK LATERAL ACCELERATION	15 Gs Maximum	10.0	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

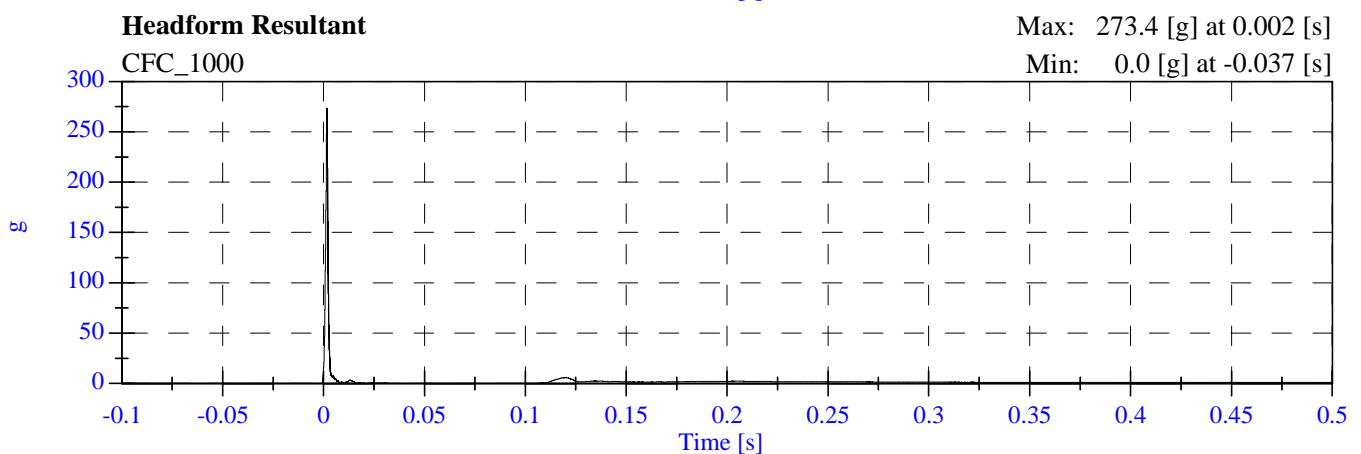
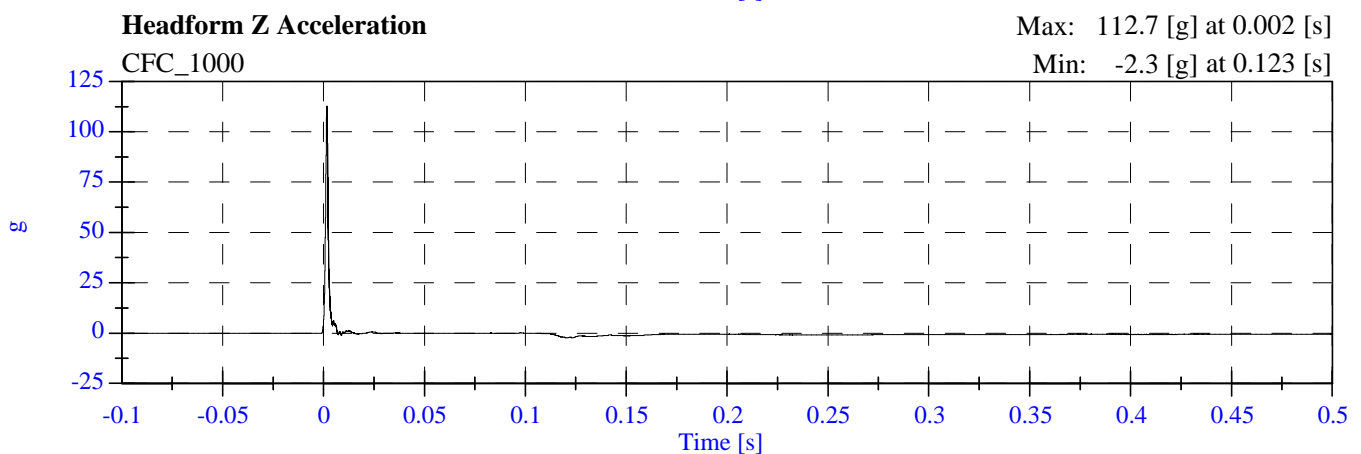
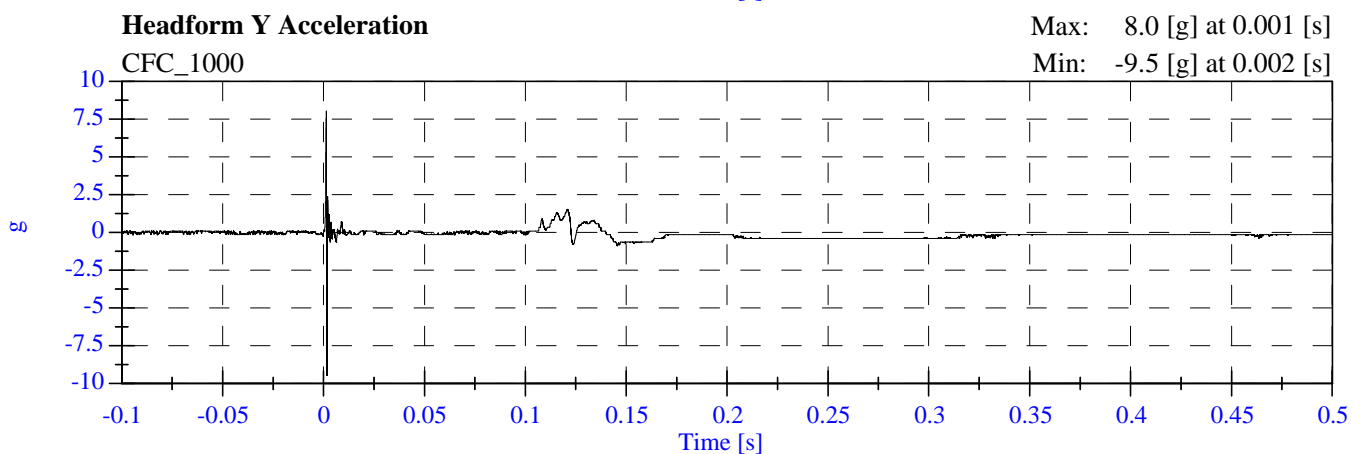
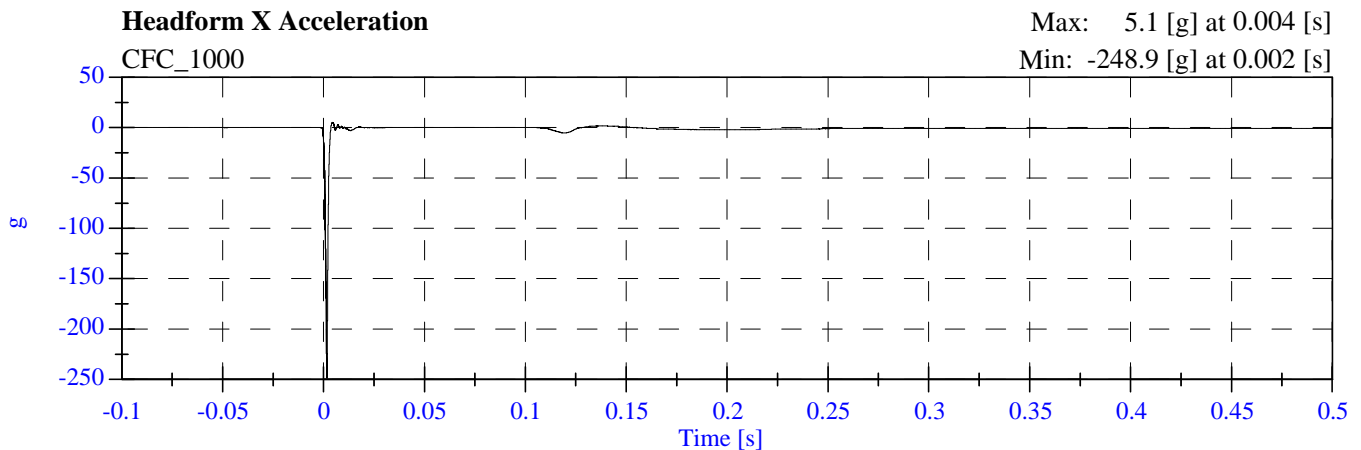
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J24876	Jan. 18, 2008	June 18, 2008
2 - LATERAL	ENDEVCO	7264-2000T	J33030	Jan. 18, 2008	June 18, 2008
3 - VERTICAL	ENDEVCO	7264-2000T	J31009	Jan. 18, 2008	June 18, 2008

REMARKS:

FMVSS 201U - Headform Calibration Drops

C80205 - May 19, 2008



**PART 572L
HEAD DROP POST-TEST**

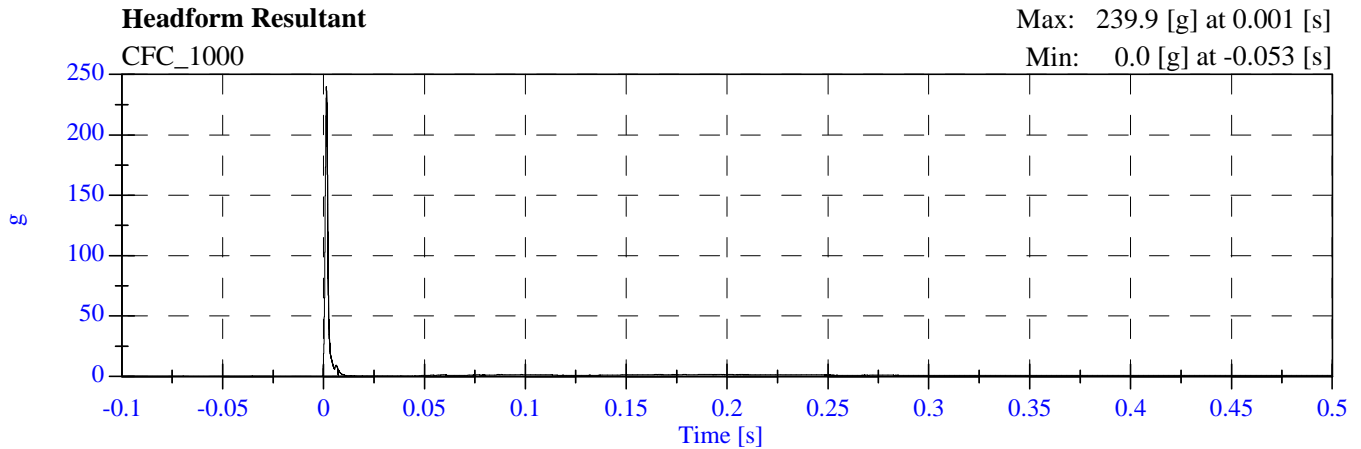
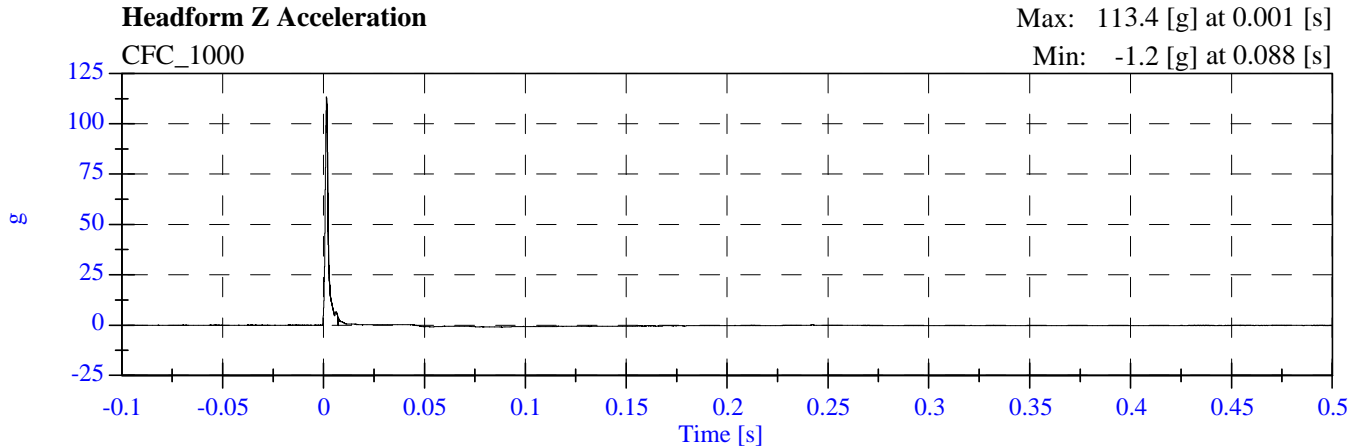
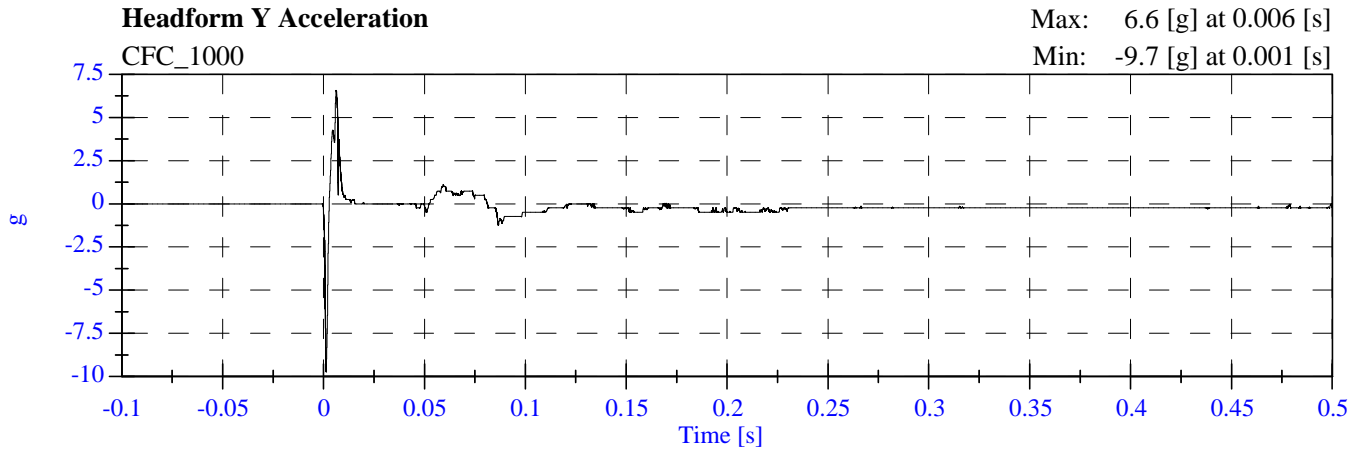
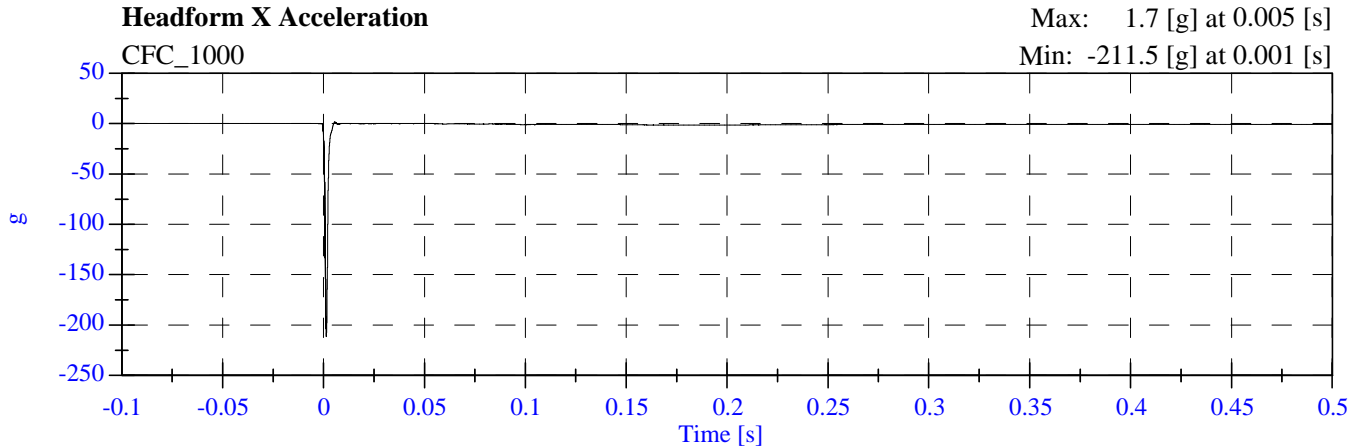
MANUFACTURER:		DENTON ATD INC.	
SERIAL NUMBER:		0062	
CALIBRATION DATE:		MAY 23, 2008	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	22	
RELATIVE HUMIDITY	10% to 70%	36	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	239.9	
PEAK LATERAL ACCELERATION	15 Gs Maximum	9.7	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J33127	Jan. 18, 2008	June 18, 2008
2 - LATERAL	ENDEVCO	7264-2000T	J33019	Jan. 18, 2008	June 18, 2008
3 - VERTICAL	ENDEVCO	7264-2000T	J32782	Jan. 18, 2008	June 18, 2008

REMARKS:

FMVSS 201U - Headform Calibration Drops C80205 - May 23, 2008



**PART 572L
HEAD DROP POST-TEST**

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		805	
CALIBRATION DATE:		MAY 23, 2008	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	22	
RELATIVE HUMIDITY	10% to 70%	36	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	263.4	
PEAK LATERAL ACCELERATION	15 Gs Maximum	9.2	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

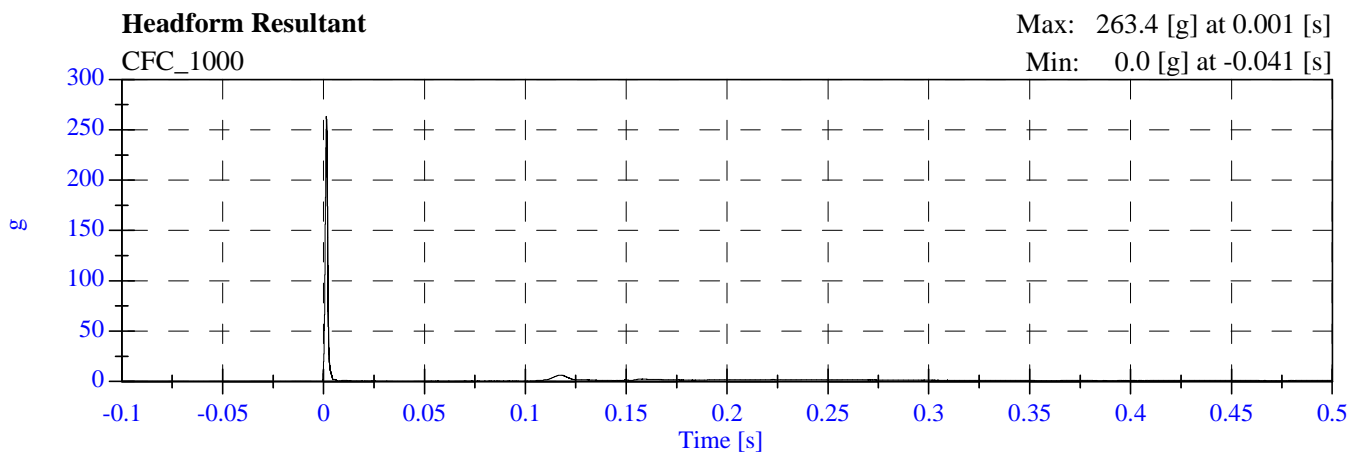
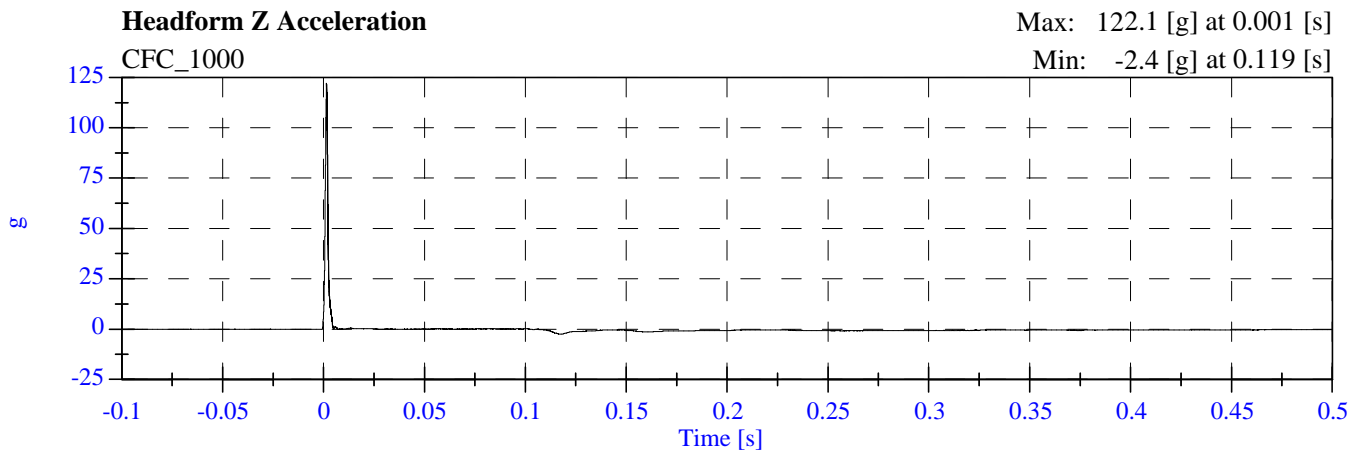
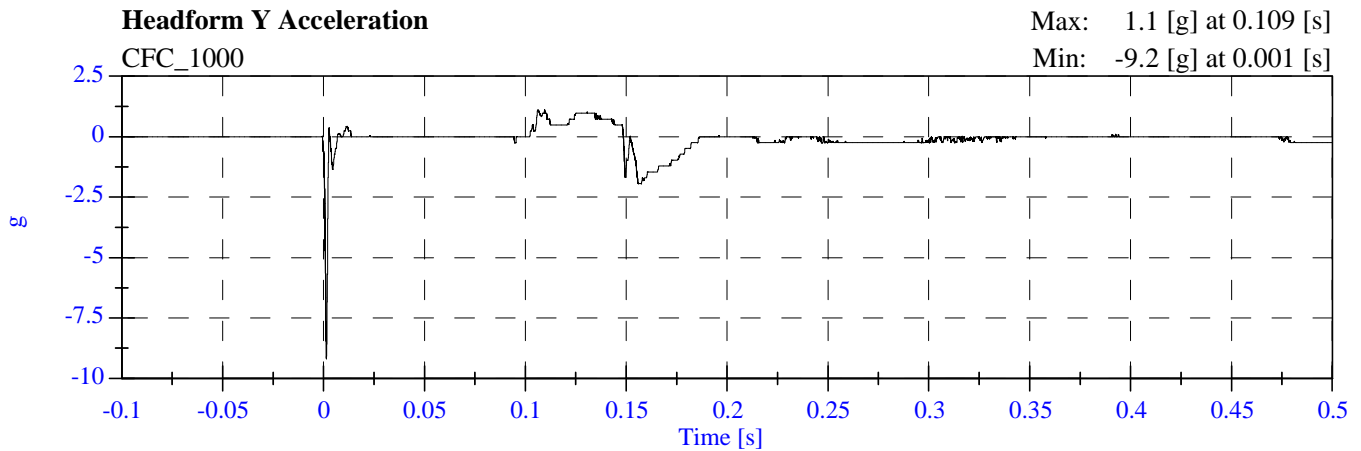
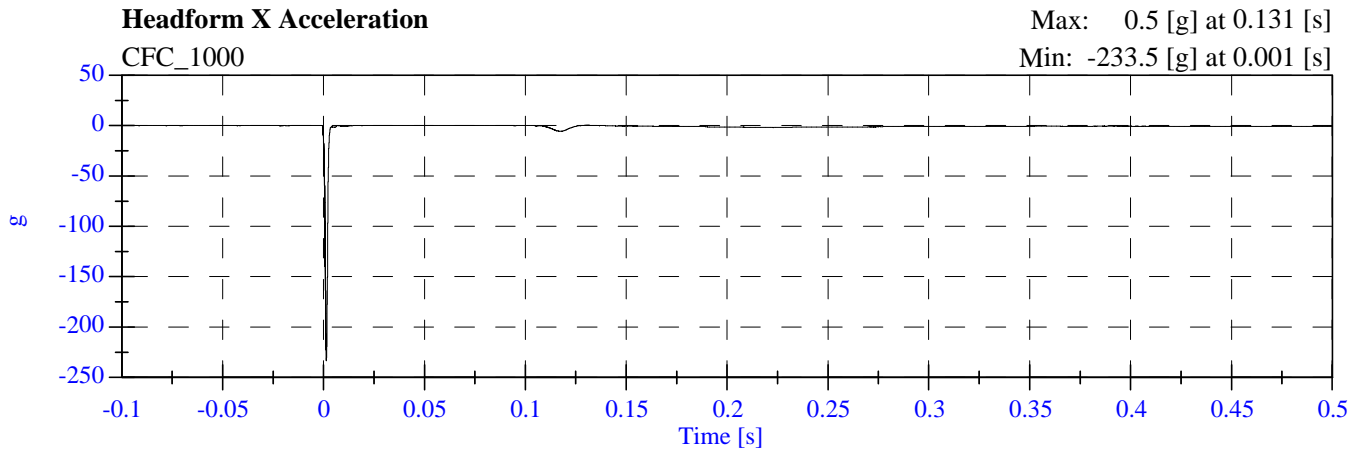
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J41004	Jan. 18, 2008	June 18, 2008
2 - LATERAL	ENDEVCO	7264-2000T	J37496	Jan. 18, 2008	June 18, 2008
3 - VERTICAL	ENDEVCO	7264-2000T	J41016	Jan. 18, 2008	June 18, 2008

REMARKS:

FMVSS 201U - Headform Calibration Drops

C80205 - May 23, 2008



**PART 572L
HEAD DROP POST-TEST**

MANUFACTURER:		DENTON ATD INC.	
SERIAL NUMBER:		0355	
CALIBRATION DATE:		MAY 23, 2008	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	22	
RELATIVE HUMIDITY	10% to 70%	36	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	255.7	
PEAK LATERAL ACCELERATION	15 Gs Maximum	7.0	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

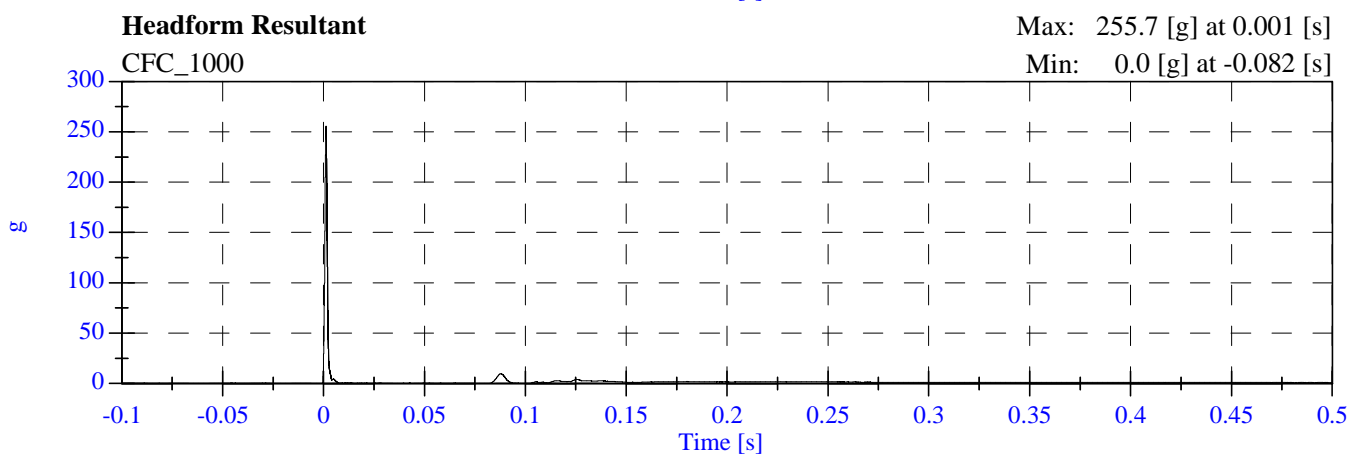
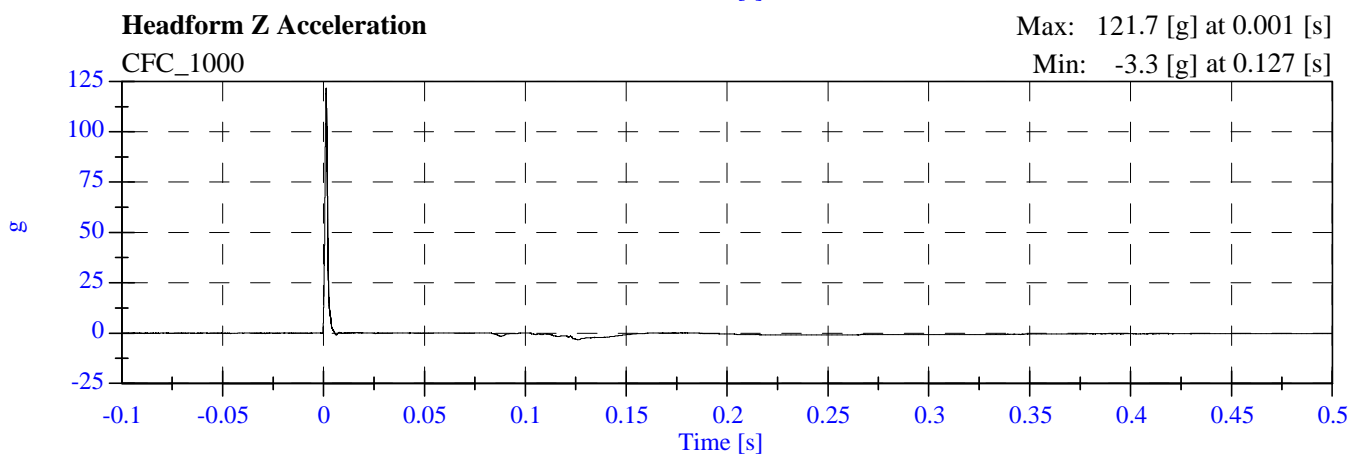
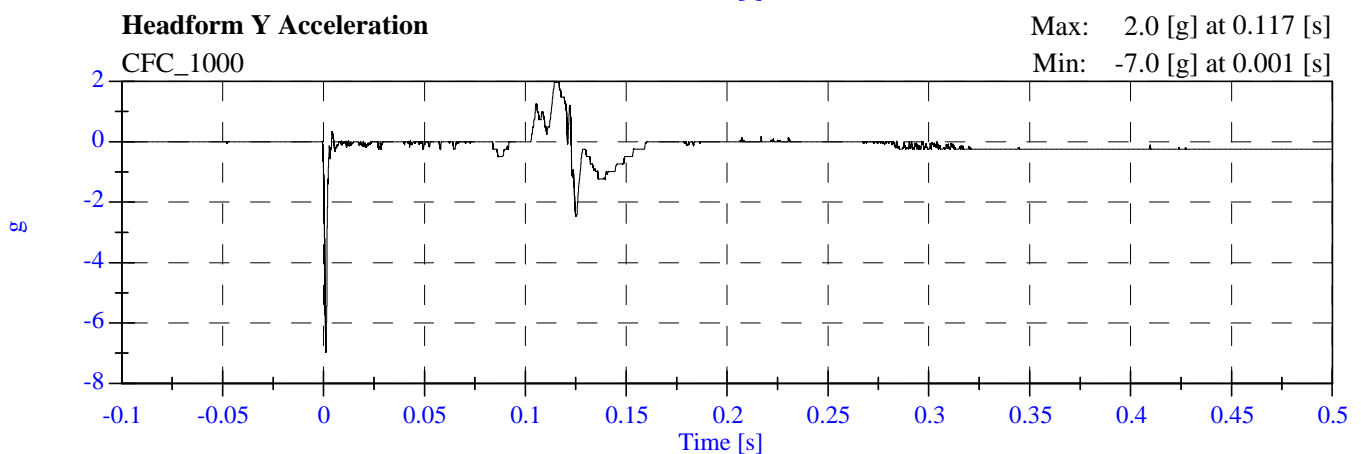
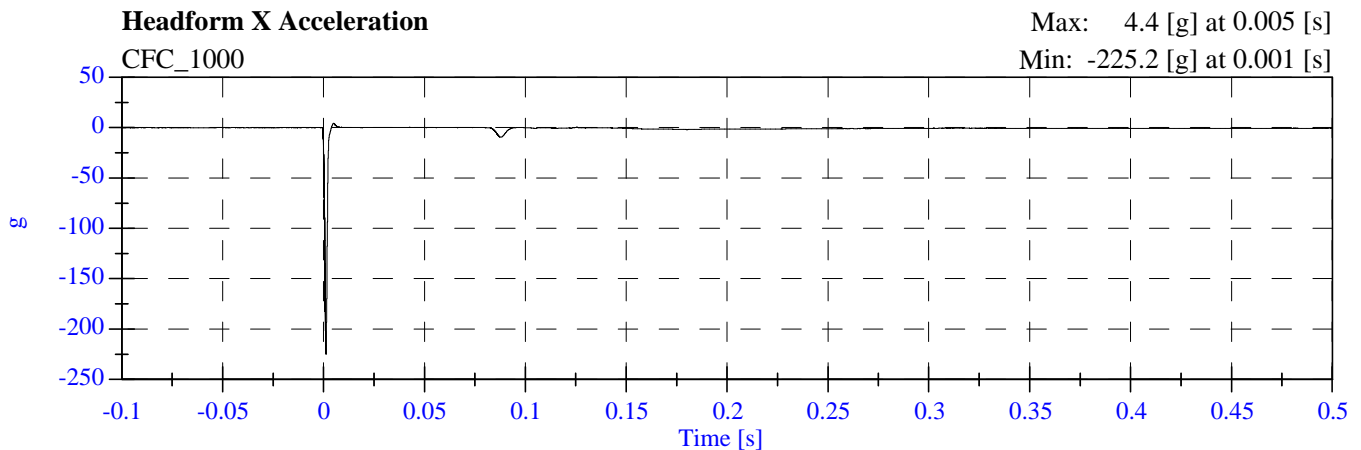
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J28671	Jan. 18, 2008	June 18, 2008
2 - LATERAL	ENDEVCO	7264-2000T	J32779	Jan. 18, 2008	June 18, 2008
3 - VERTICAL	ENDEVCO	7264-2000T	J25854	Jan. 18, 2008	June 18, 2008

REMARKS:

FMVSS 201U - Headform Calibration Drops

C80205 - May 23, 2008



**PART 572L
HEAD DROP POST-TEST**

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		1142	
CALIBRATION DATE:		MAY 23, 2008	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	22	
RELATIVE HUMIDITY	10% to 70%	36	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	260.3	
PEAK LATERAL ACCELERATION	15 Gs Maximum	1.4	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J41006	Jan. 18, 2008	June 18, 2008
2 - LATERAL	ENDEVCO	7264-2000T	J40994	Jan. 18, 2008	June 18, 2008
3 - VERTICAL	ENDEVCO	7264-2000T	J41007	Jan. 18, 2008	June 18, 2008

REMARKS:

FMVSS 201U - Headform Calibration Drops

C80205 - May 23, 2008

