

REPORT NUMBER: 201U-CAL-06-03

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

**HYUNDAI MOTOR COMPANY
2006 HYUNDAI SONATA GL**

NHTSA NUMBER: C60501

CALSPAN TEST NUMBER: 8754-FMH-10

CALSPAN
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Test Date: April 11, 2006

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
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16. <i>Abstract</i> Compliance tests were conducted on the subject vehicle, a 2006 Hyundai Sonata GL 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	-	-	-	-	-																		
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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 2006 Hyundai Sonata GL, NHTSA No. C60501, meets 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 2006 Hyundai Sonata GL, NHTSA No.C60501 , was impacted at various locations throughout its upper interior 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 Officers Technical Representative (COTR). A summary of test results can be found on data sheet 2-1. The twelve (12) areas chosen for testing were:

RP2	URRP	SR3	BP4	BP1
AP3	AP1	RP1	BP2	URBP
AP2	URAP			

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 has an orthogonal tri-axis accelerometer pack mounted at the center of gravity (c.g.).

A total of three (3) channels of data for each target impact test are recorded on a Keyser-Threde data acquisition system. Data plots along with still photographs can be found in Section 3 of this report.

To document each target area impact test, one Weinberger high-speed video camera was placed at various locations to view the headform contact with the selected target area.

DATA SHEET 2-1

SUMMARY OF UPPER INTERIOR HEAD IMPACT TESTS

VEHICLE YEAR/MAKE/MODEL/STYLE:	2006 Hyundai Sonata GL
VIN:	KMHET46C96A109867
DATE OF MANUFACTURE:	June 21, 2005 (SEE CERTIFICATION LABEL)
COLOR:	Silver

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	1201.156	-548.322	979.3038	1197.776	547.8006	981.9309	Relocated 2 circles		-	-	-
AP1_R2	1225.684	-558.845	943.690	1231.335	557.2067	950.7082	123°	31°	18.82	278.3	376.3
AP2	1114.169	-596.397	889.1904	1123.497	595.5693	892.370	213°	45°	18.74	244.8	351.1
AP3	937.5582	-631.633	795.0303	945.3694	632.8818	798.1133	137°	44°	18.44	318.6	406.8
BP1	1680.259	-481.038	1033.708	1681.620	485.4907	1033.461	90°	20°	18.46	510.0	551.2
BP2	1654.258	-609.558	795.0144	1653.401	610.7709	793.9213	270°	10°	23.68	780.2	755.0
BP3	1608.854	-617.647	825.0032	1610.416	618.2522	825.402	-	-	-	-	-
BP4	1712.775	-657.632	725.4932	1713.901	658.8666	724.4897	136°	-5°	23.68	572.2	598.1
FH1	1121.173	-423.315	974.8088	1122.919	424.7666	973.6901	-	-	-	-	-
FH2	1101.439	-275.625	981.444	1100.772	278.9568	980.5146	-	-	-	-	-
RH	2480.189	-347.198	1016.902	2480.624	344.1888	1015.59	-	-	-	-	-
RP1	2475.381	-508.810	982.9938	2475.139	515.2445	976.3131	322°	20°	18.65	351.9	431.9
RP2	2541.290	-601.360	833.8539	2544.364	605.8914	826.3004	Relocated 1 circle		-	-	-
RP2_R1	2523.832	-593.988	847.5257	2526.878	599.2098	838.8215	73°	28°	23.64	420.9	483.9
SR1	1349.100	-494.402	994.9479	1351.634	495.142	995.8913	-	-	-	-	-
SR2A	1499.536	-483.143	1015.143	1499.881	483.7548	1015.910	-	-	-	-	-
SR2B	1381.371	-500.568	1021.490	1384.366	504.7635	1021.080	-	-	-	-	-
SR2B_R2	1382.690	-466.933	1015.178	1391.513	467.510	1017.105	Relocated 2 circles		-	-	-
SR3F	2075.828	-485.495	1009.430	2073.600	487.2409	1007.981	90°	47°	18.70	227.5	338.0
SR3R	2230.729	-497.946	993.339	2231.506	497.7197	992.7332	-	-	-	-	-
URAP	1321.83	-399.160	1020.896	1332.574	401.5937	1023.549	180°	50°	23.65	683.7	682.3
URBP	1679.037	-364.152	1071.807	1680.835	370.9882	1070.418	270°	50°	23.49	868.7	821.8
URFSR	1452.255	-361.205	1066.791	1425.734	369.363	1056.962	-	-	-	-	-
URRP	2341.742	-397.169	1044.596	2336.968	416.4893	1039.755	56°	50°	23.46	671.8	673.2
URRSR	2056.569	-364.876	1071.098	2053.738	371.3722	1069.765	-	-	-	-	-

*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:				2006 Hyundai Sonata GL					
VIN:				KMHET46C96A109867					
Month & Year of Manufacture:				June 21, 2005 (SEE CERTIFICATION LABEL)					
Vehicle Body Color:				Silver					
Engine Data:	4	Cylinders;	-	CID;	2.4	Liters;	-	cc	
Engine Placement:		x	Longitudinal;	or		-	Lateral		
Transmission:	4	Speed;	-	Manual;	x	Automatic;	-	Overdrive	
Final Drive:	-	Rear Wheel Drive;	x	Front Wheel Drive;	-	Four Wheel Drive			
Odometer Reading:		18	km						
Options:	x	A/C;	x	Power Steering;	x	Pwr.Brakes;	x	Pwr. Windows	
Interior Trim Information :									
1. Adjustable seat belt anchorages on the B-Pillars									
2. Grab handles on both front and rear side rails									
3. Side curtain airbag with no sunroof									

DATA FROM TIRE PLACARD:									
Tire Pressure (at capacity);				210		kPa FRONT			
				210		kPa REAR			
Recommended Tire Size:				P215/60R16					
Tires on Test Vehicle:		P215/60R16		Manufacturer:			Michelin		
Vehicle Capacity Data:									
Number of Occupants:	2	Front;	3	Rear;	-	3rd Seat;	5	Total	
Type of Front Seats:	x	Bucket;	-	Bench;	-	Split Bench			
Type of Front Seat Back:	-	Fixed;	x	Adjustable with	x	Lever or	-	Knob	
Vehicle Capacity Weight (VCW)=				390		kg (A)			
No. of Occupants x 68 kg. =				340		kg (B)			
Rated Cargo/Luggage Weight (RCLW) =				50		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	=	462	kg	Left Rear	=	292	kg
Right Front	=	454	kg	Right Rear	=	293	kg
TOTAL FRONT	=	916	kg	TOTAL REAR	=	585	kg
% of Total Weight	=	61.0	%	% of Total Weight	=	39.0	%
TOTAL WEIGHT	=	1501				kg	

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:		
Total Test Vehicle Delivered Weight=	1501	kg (A)
+ Rated Cargo/Luggage Weight =	50	kg (B)
TEST VEHICLE TARGET WEIGHT =	1551	kg (A+B)

WEIGHT OF TEST VEHICLE (FULLY LOADED):							
Left Front	=	456	kg	Left Rear	=	313	kg
Right Front	=	456	kg	Right Rear	=	320	kg
TOTAL FRONT	=	912	kg	TOTAL REAR	=	633	kg
% of Total Weight	=	59.0	%	% of Total Weight	=	41.0	%
TOTAL TEST WEIGHT	=	1545					
Weight of vehicle secured in test vehicles cargo area	=	44				kg	

TEST VEHICLE ATTITUDE (all dimensions in millimeters):				
AS DELIVERED:	Left Front	728	Left Rear	739
	Right Front	734	Right Rear	748
FULLY LOADED:	Left Front	728	Left Rear	726
	Right Front	734	Right Rear	734
Test Vehicle Wheelbase:	2726		Millimeters	

TEST VEHICLE PITCH AND ROLL ANGLES:				
AS DELIVERED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↑1.3↓	Front Bumper	↑0.1↓
	Right Door Sill	↓1.1↑	Rear Bumper	0.0
FULLY LOADED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↑0.9↓	Front Bumper	0.0
	Right Door Sill	↓0.8↑	Rear Bumper	↓0.1↑
AS TESTED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↑0.9↓	Front Bumper	0.0
	Right Door Sill	↓0.8↑	Rear Bumper	↓0.1↑

DATA SHEET 2-3

APPROACH ANGLE LIMITS

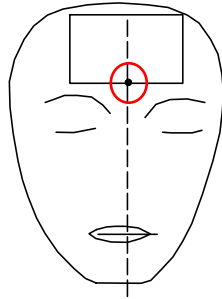
Target Code	Left Side				Target Code	Right Side			
	Horizontal Angles (deg.)		Vertical Angles (deg.)			Horizontal Angles (deg.)		Vertical Angles (deg.)	
	Minimum	Maximum	Minimum	Maximum		Minimum	Maximum	Minimum	Maximum
AP1	205	253	-5	31	AP1	107	155	-5	31
AP2	205	253	-5	45	AP2	107	155	-5	45
AP3	205	253	-5	44	AP3	107	155	-5	44
BP1	201	283	-10	24	BP1	77	159	-10	24
BP2	ANY		0	10	BP2	ANY		0	
BP3	201	283	-10	-10	BP3	77	159	-10	10
BP4	201	283	-10	-5	BP4	77	159	-10	-5
OP1	270		-10	-	OP1	90		-10	-
OP2	270		-10	-	OP2	90		-10	-
RP1	270	345	-10	20	RP1	15	90	-10	20
RP2	270	345	-10	28	RP2	15	90	-10	28
FH1	180		0	50	FH1	180		0	50
FH2	180		0	50	FH2	180		0	50
RH	360		0	50	RH	0		0	50
SR1	270		0	40	SR1	90		0	40
SR2A	270		0	44	SR2A	90		0	44
SR2B	270		0	40	SR2B	90		0	40
SR3	270		0	47	SR3	90		0	47
URAP	ANY		0	50	URAP	ANY		0	50
URBP	ANY		0	50	URBP	ANY		0	50
URRP	ANY		0	50	URRP	ANY		0	50

Note : BP2 target location – Seat belt anchorage

DATA SHEET 2-4

SUMMARY TARGET IMPACT LOCATION ON FMH

VEHICLE YEAR/MAKE/MODEL/STYLE:	2006 Hyundai Sonata GL
VIN:	KMHET46C96A109867
DATE OF MANUFACTURE:	June 21, 2005 (SEE CERTIFICATION LABEL)
COLOR:	Silver



ã RIGHT SIDE OF FACE

TARGET	Distance Above Point O (mm)	Distance Over From Pt. O (mm)
RP2	21	11R
URRP	19	14R
SR3	14	0
BP4	20	4L
BP1	35	7L
AP3	16	2L
AP1	12	25R
RP1	34	5R
BP2	3	3L
URBP	43	8L
AP2	20	8R
URAP	29	0

SECTION 3

SUMMARY OF TEST RESULTS AND DATA PLOTS

VEHICLE YEAR/MAKE/MODEL/STYLE:	2006 Hyundai Sonata GL
VIN:	KMHET46C96A109867
DATE OF MANUFACTURE:	June 21, 2005 (SEE CERTIFICATION LABEL)
COLOR:	Silver

Test Number:	01
Test Date:	04/10/06
Target Location:	REAR PILLAR
Target Code:	RP2
Horizontal Impact Angle:	73°
Vertical Impact Angle:	28°
Ambient Temperature:	22.8 C°
Relative Humidity:	18.2
Time of Impact:	14:33
Headform Number:	1255

Impact Point Description (from lower midpoint on midsagittal line)				
On Centerline	11	x	mm right	mm left
On Centerline	21		mm up	



POST-IMPACT RP2 HEADFORM (Placard Date Mislabeled – 10 Apr 06)

Free Motion HIC	420.9
HIC(d)	483.9
Impact Velocity (kph)	23.64
HIC T1 (msec)	1.6
HIC T2 (msec)	10.8

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA C60501 - RP2

FMH Headform 1255

Location: RP2

Test Date: April 10, 2006

Work File: RP2

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

Lab Temperature: 22.8 C

HICd: 483.9

Lab Humidity: 18.2 %

HIC (36ms): 420.9

Velocity at Impact: 23.64 KPH

t1: 1.6 msec

t2: 10.8 msec

Free Flight Distance: 222.11 mm

Duration: 9.2 msec

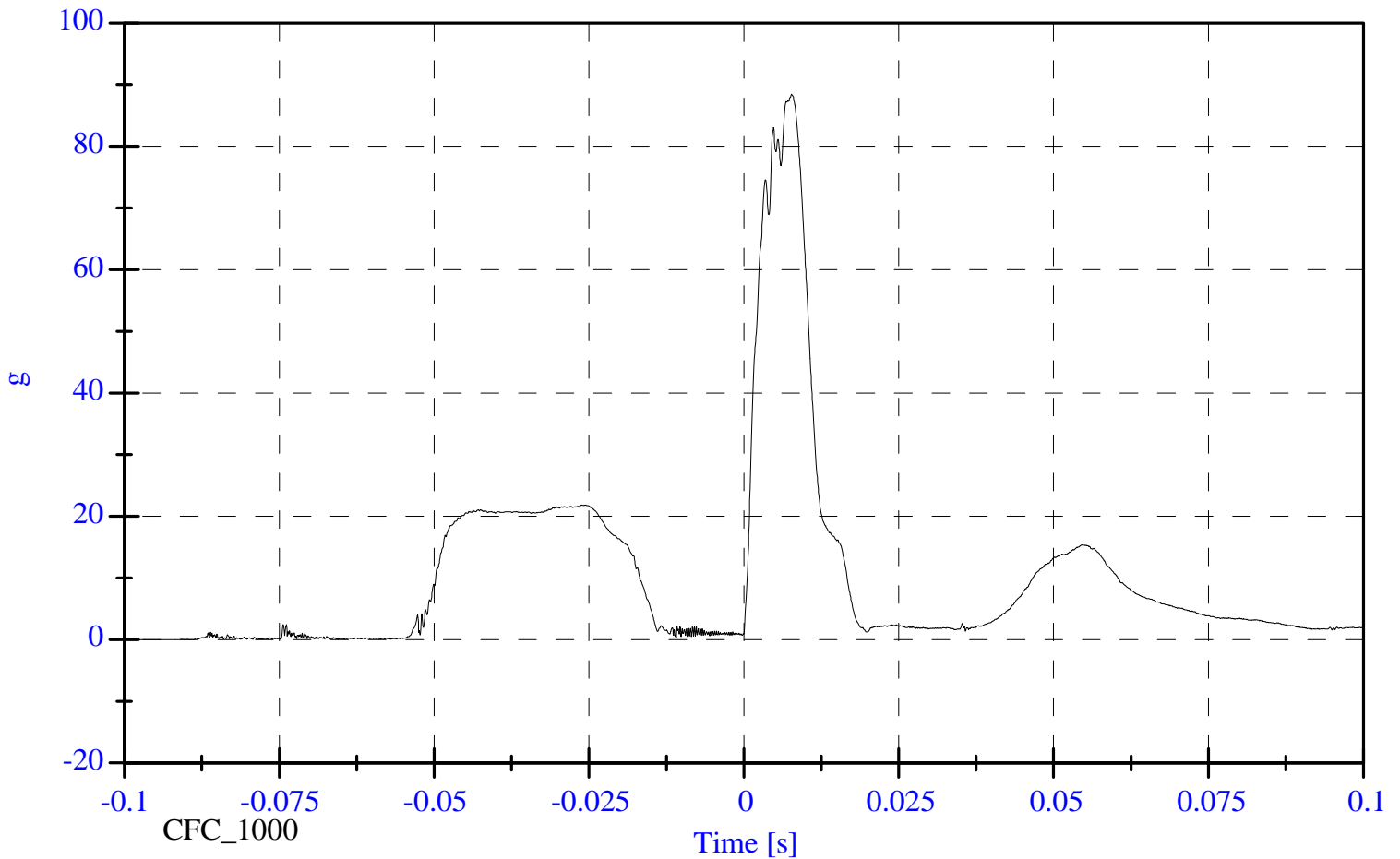
Maximum: 88.4 g

Average Acceleration: 9.8 g

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA
Headform Resultant

Max: 88.4 [g] at 0.008 [s]

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



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

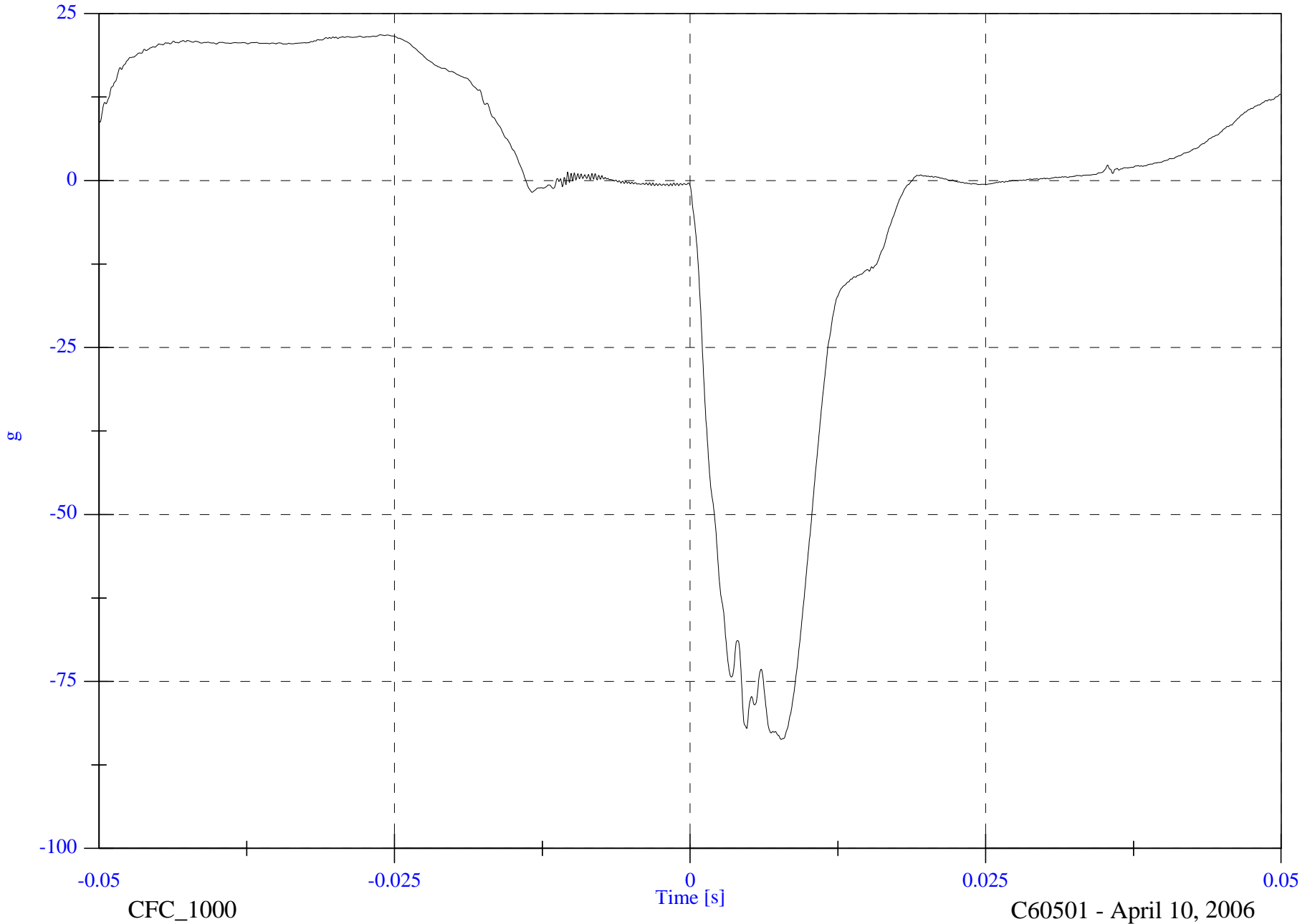
Headform X Acceleration

Max: 21.8 [g] at -0.026 [s]

Min: -83.7 [g] at 0.008 [s]

C60501 PASSENGER SIDE RP2 IMPACT PLOT #1

8754+FMH-10



CFC_1000

C60501 - April 10, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

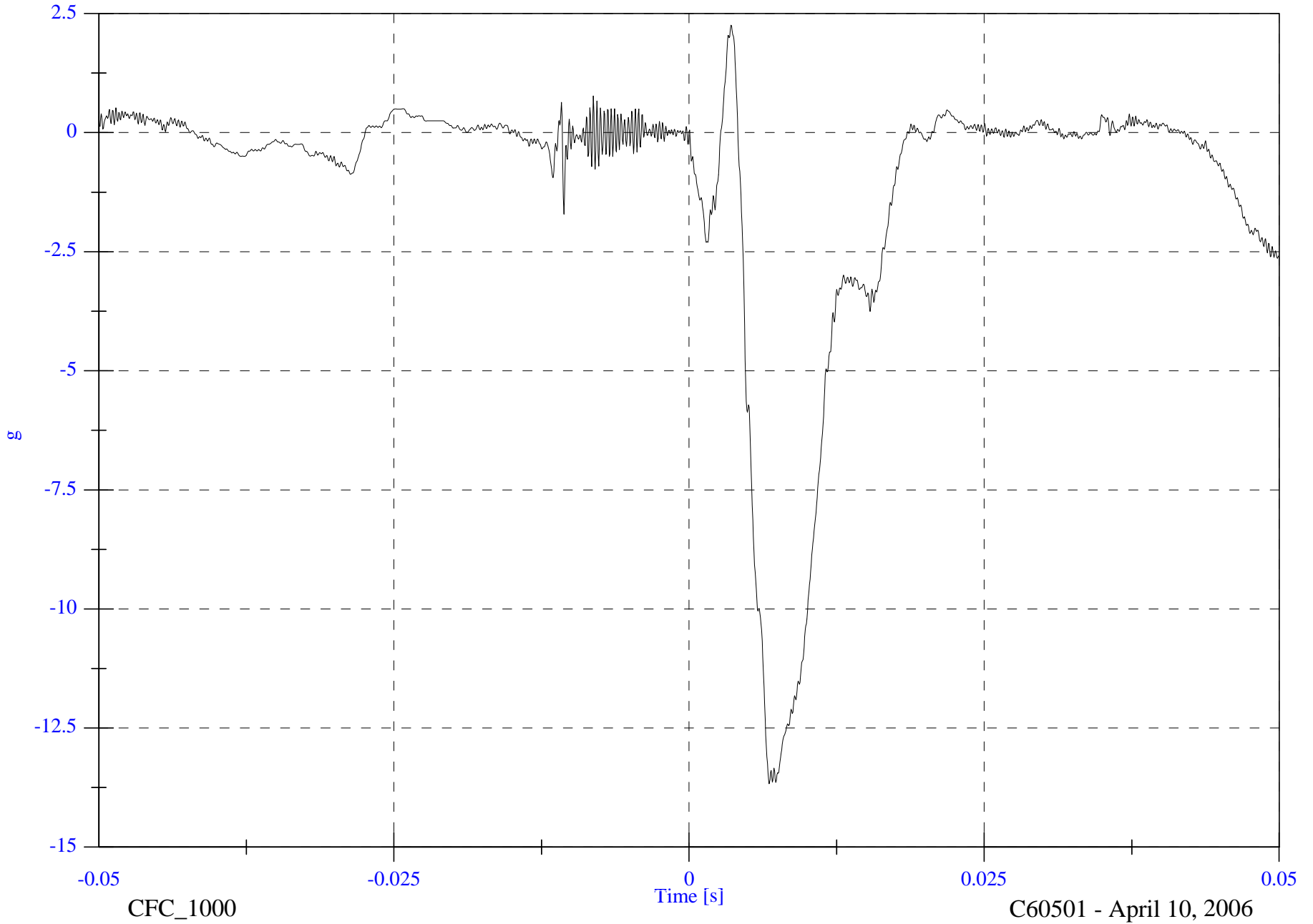
Headform Y Acceleration

Max: 2.3 [g] at 0.004 [s]

Min: -13.7 [g] at 0.007 [s]

C60501 PASSENGER SIDE RP2 IMPACT PLOT #2

8754+FMH-10



CFC_1000

C60501 - April 10, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

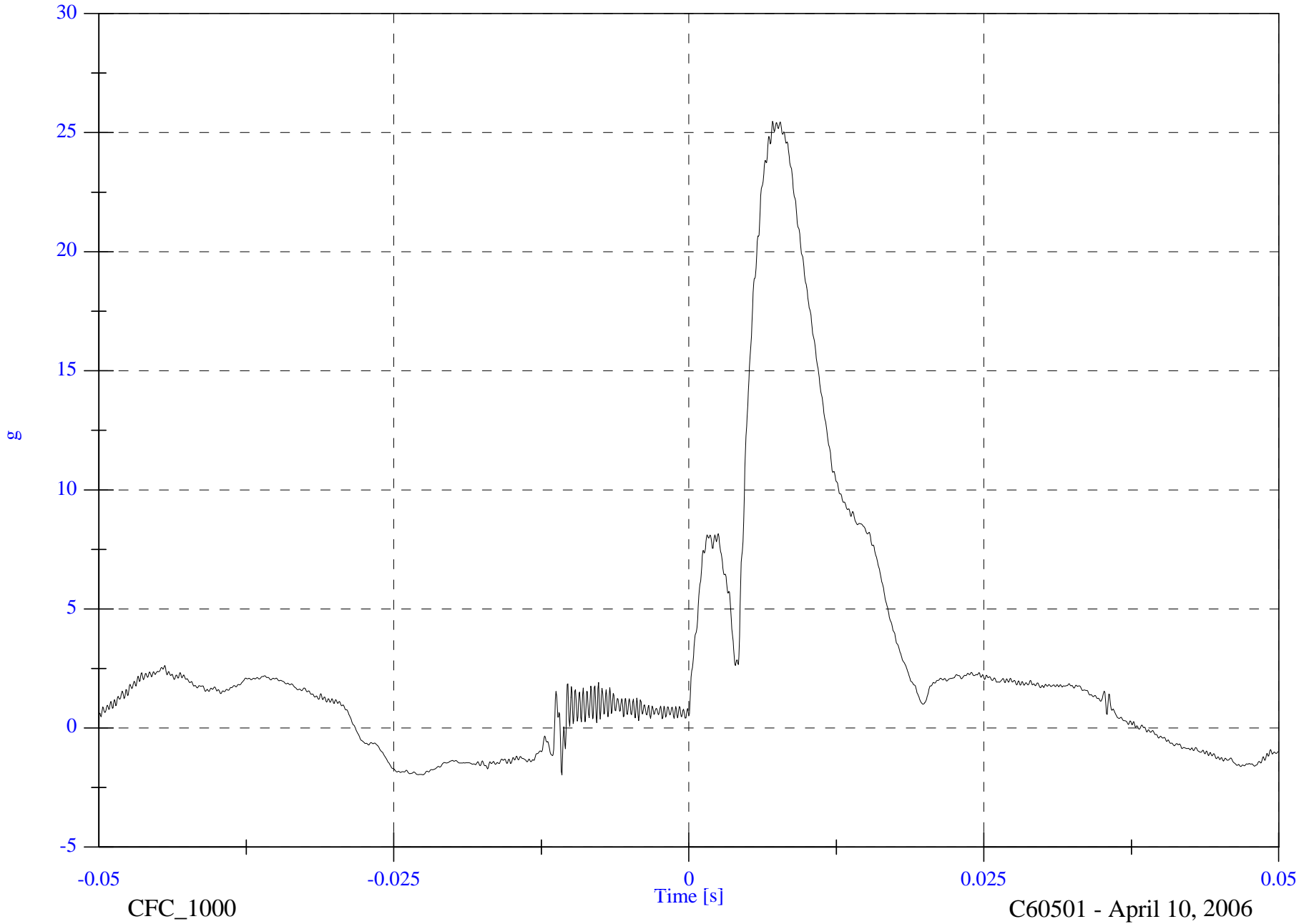
Headform Z Acceleration

Max: 25.5 [g] at 0.007 [s]

Min: -2.0 [g] at -0.011 [s]

C60501 PASSENGER SIDE RP2 IMPACT PLOT #3

8754+FMH-10



CFC_1000

C60501 - April 10, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

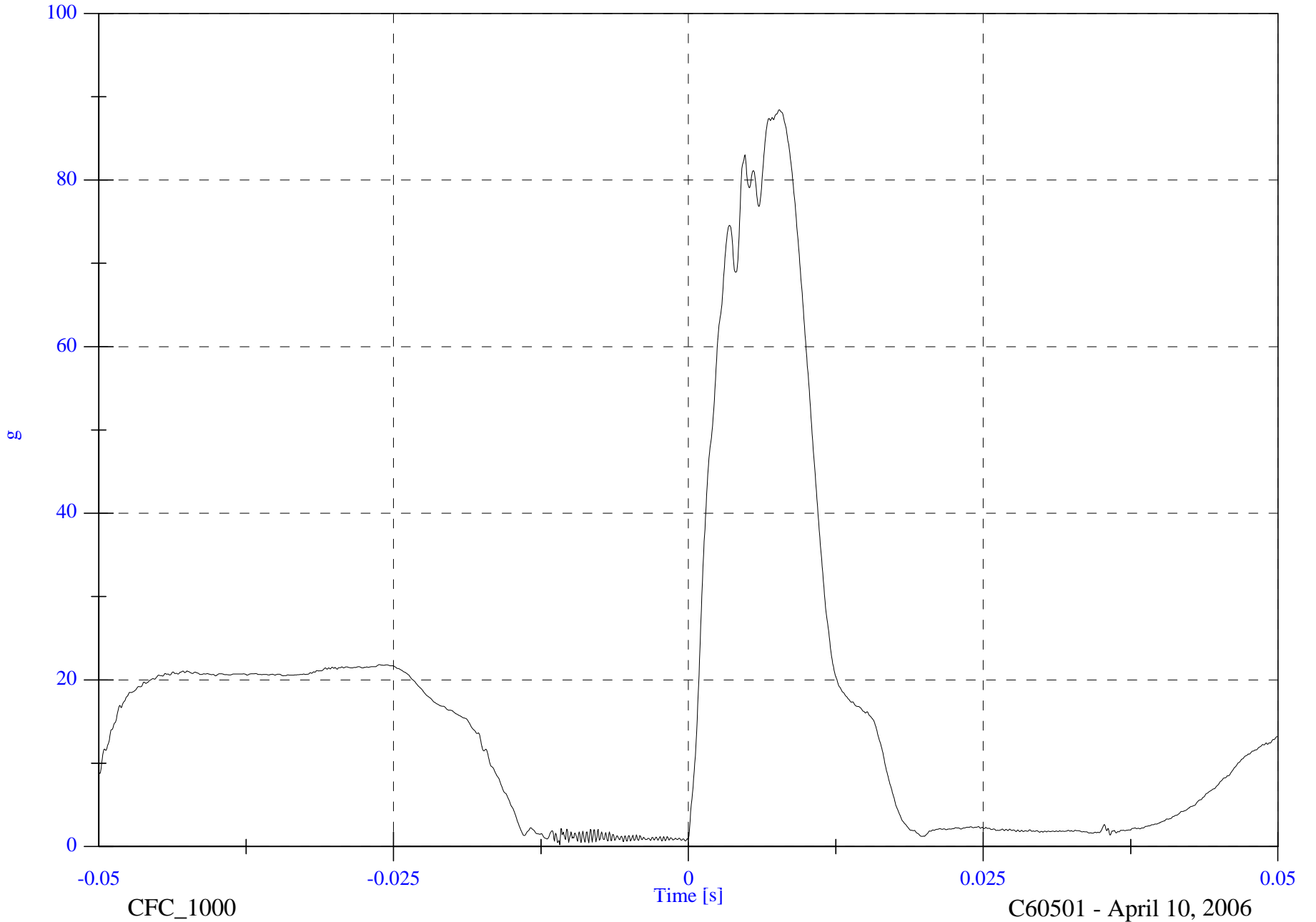
Headform Resultant

Max: 88.4 [g] at 0.008 [s]

Min: 0.2 [g] at -0.011 [s]

C60501 PASSENGER SIDE RP2 IMPACT PLOT #4

8754+FMH-10



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

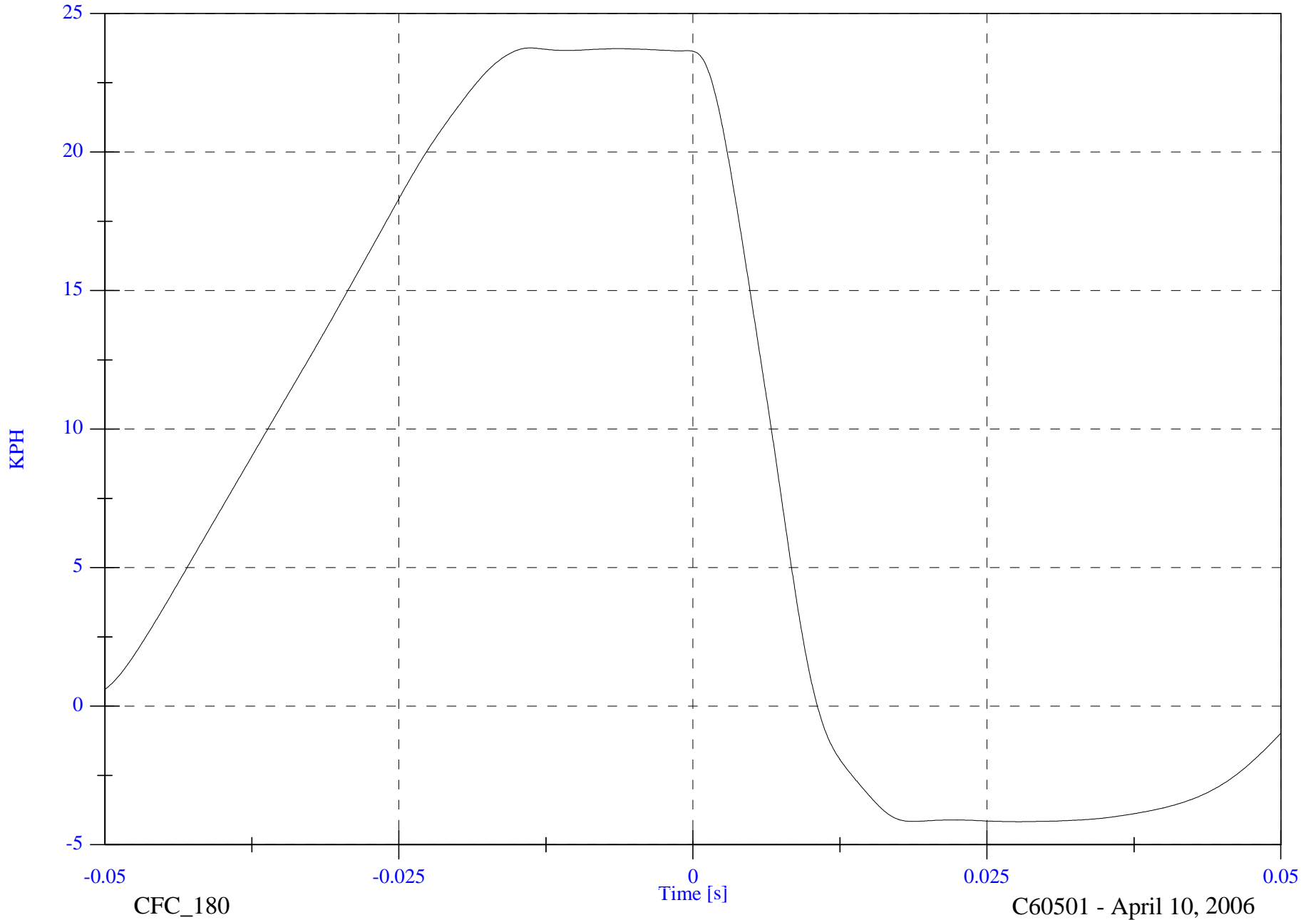
Headform Velocity

Max: 23.8 [KPH] at -0.014 [s]

Min: -4.2 [KPH] at 0.028 [s]

C60501 PASSENGER SIDE RP2 IMPACT PLOT #5

8754+FMH-10



CFC_180

C60501 - April 10, 2006



PRE-IMPACT RP2 (Placard Date Mislabeled – 10 Apr 06)



POST-IMPACT RP2 (Placard Date Mislabeled – 10 Apr 06)

VEHICLE YEAR/MAKE/MODEL/STYLE:	2006 Hyundai Sonata GL
VIN:	KMHET46C96A109867
DATE OF MANUFACTURE:	June 21, 2005 (SEE CERTIFICATION LABEL)
COLOR:	Silver

Test Number:	02
Test Date:	04/10/06
Target Location:	UPPER ROOF
Target Code:	URRP
Horizontal Impact Angle:	56°
Vertical Impact Angle:	50°
Ambient Temperature:	23.0 C°
Relative Humidity:	17.8
Time of Impact:	15:00
Headform Number:	642

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	19				mm up



POST-IMPACT URRP HEADFORM (Placard Date Mislabeled – 10 Apr 06)

Free Motion HIC	671.8
HIC(d)	673.2
Impact Velocity (kph)	23.46
HIC T1 (msec)	2.7
HIC T2 (msec)	11.6

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA C60501 - URRP

FMH Headform 642

Location: URRP

Test Date: April 10, 2006

Work File: URRP

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

Lab Temperature: 23.0 C

HICd: 673.2

Lab Humidity: 17.8 %

HIC (36ms): 671.8

Velocity at Impact: 23.46 KPH

t1: 2.7 msec

t2: 11.6 msec

Free Flight Distance: 222.07 mm

Duration: 8.9 msec

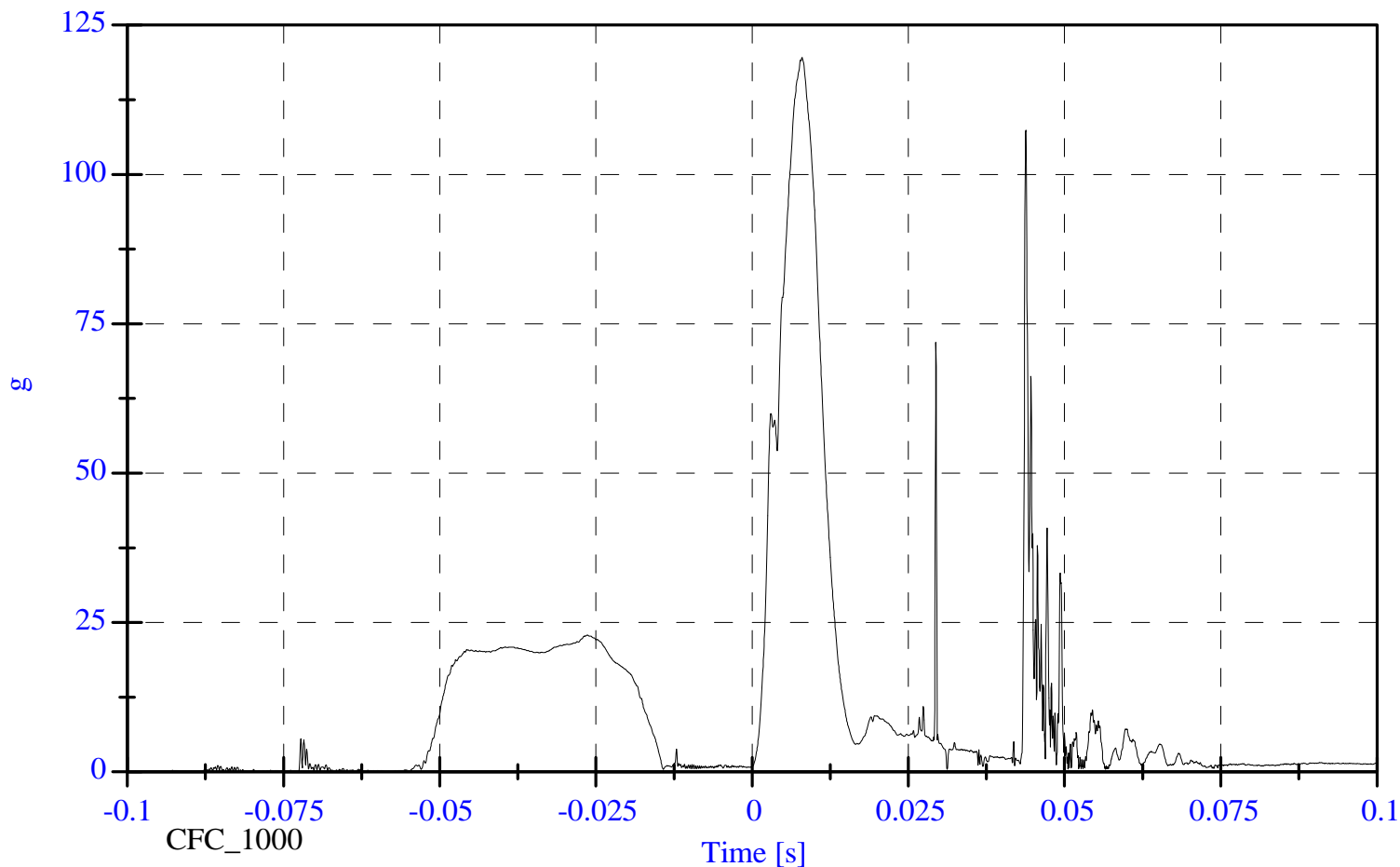
Maximum: 119.6 g

Average Acceleration: 10.3 g

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA
Headform Resultant

Max: 119.6 [g] at 0.008 [s]

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



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

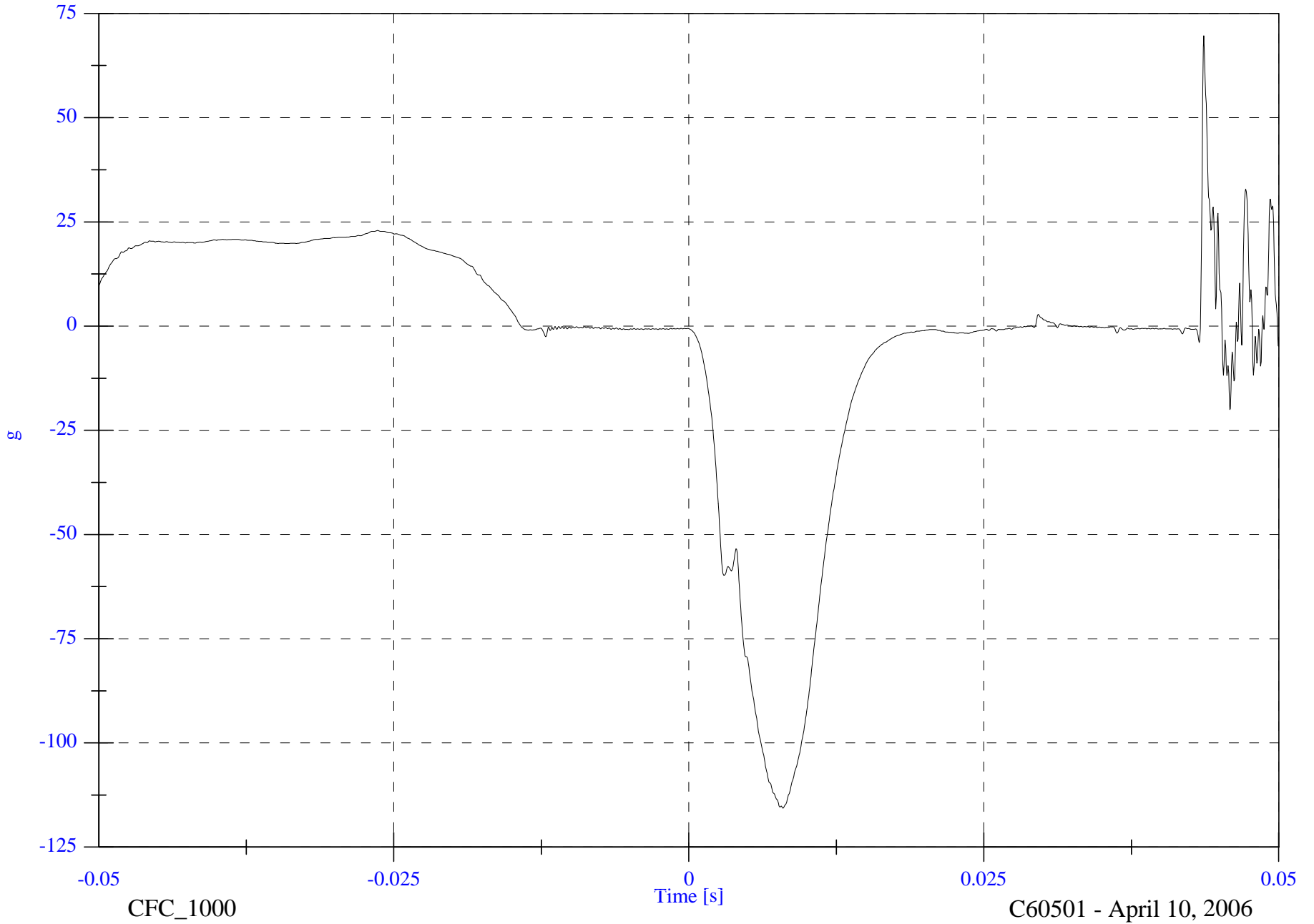
Headform X Acceleration

Max: 69.7 [g] at 0.044 [s]

Min: -115.7 [g] at 0.008 [s]

C60501 PASSENGER SIDE IMPACT PLOT #1

8754+FMH-10



CFC_1000

C60501 - April 10, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

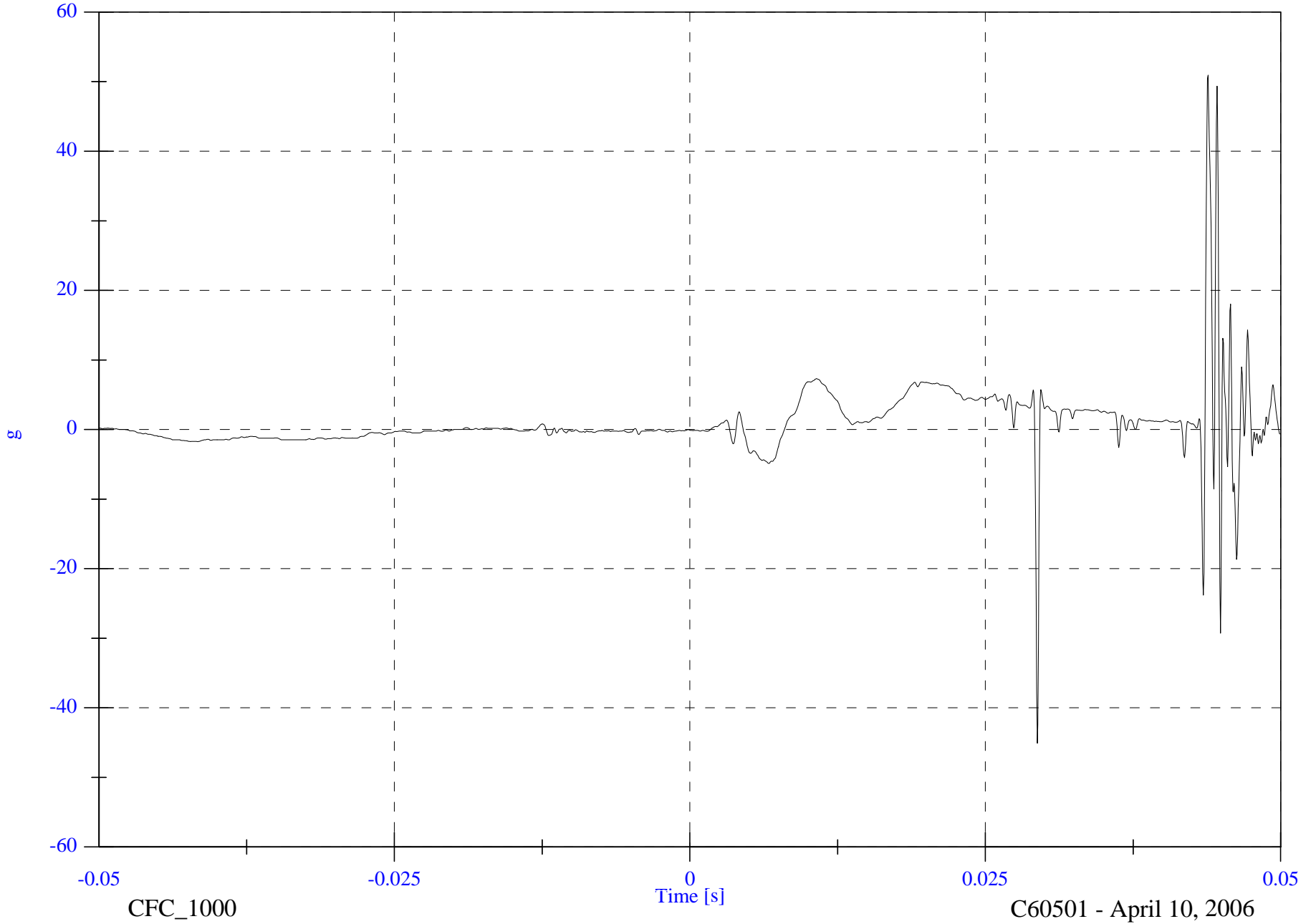
Headform Y Acceleration

Max: 50.9 [g] at 0.044 [s]

Min: -45.1 [g] at 0.029 [s]

C60501 PASSENGER SIDE IMPACT PLOT #2

8754+FMH-10



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

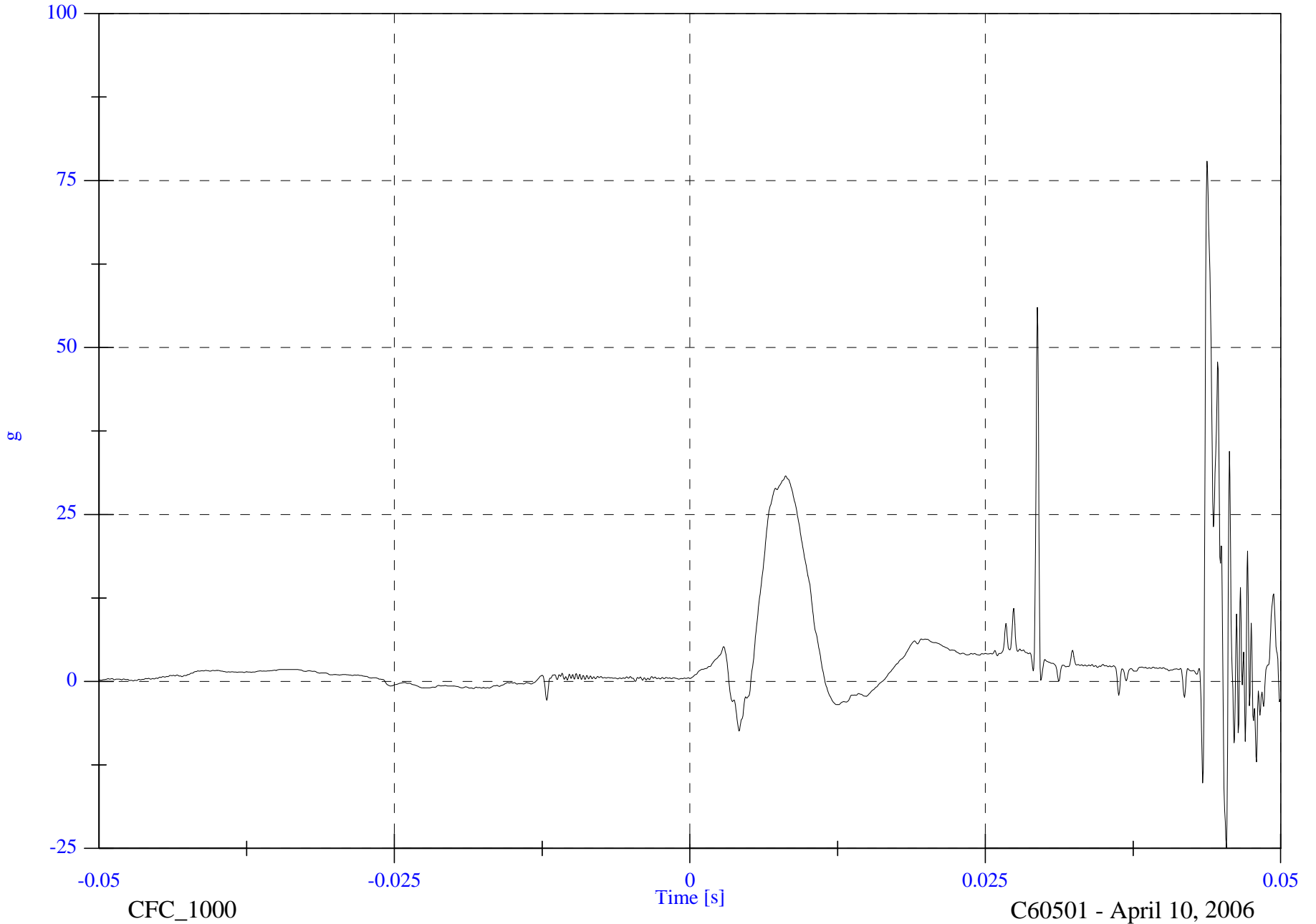
Headform Z Acceleration

Max: 77.9 [g] at 0.044 [s]

Min: -24.9 [g] at 0.045 [s]

C60501 PASSENGER SIDE IMPACT PLOT #3

8754+FMH-10



C60501 - April 10, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

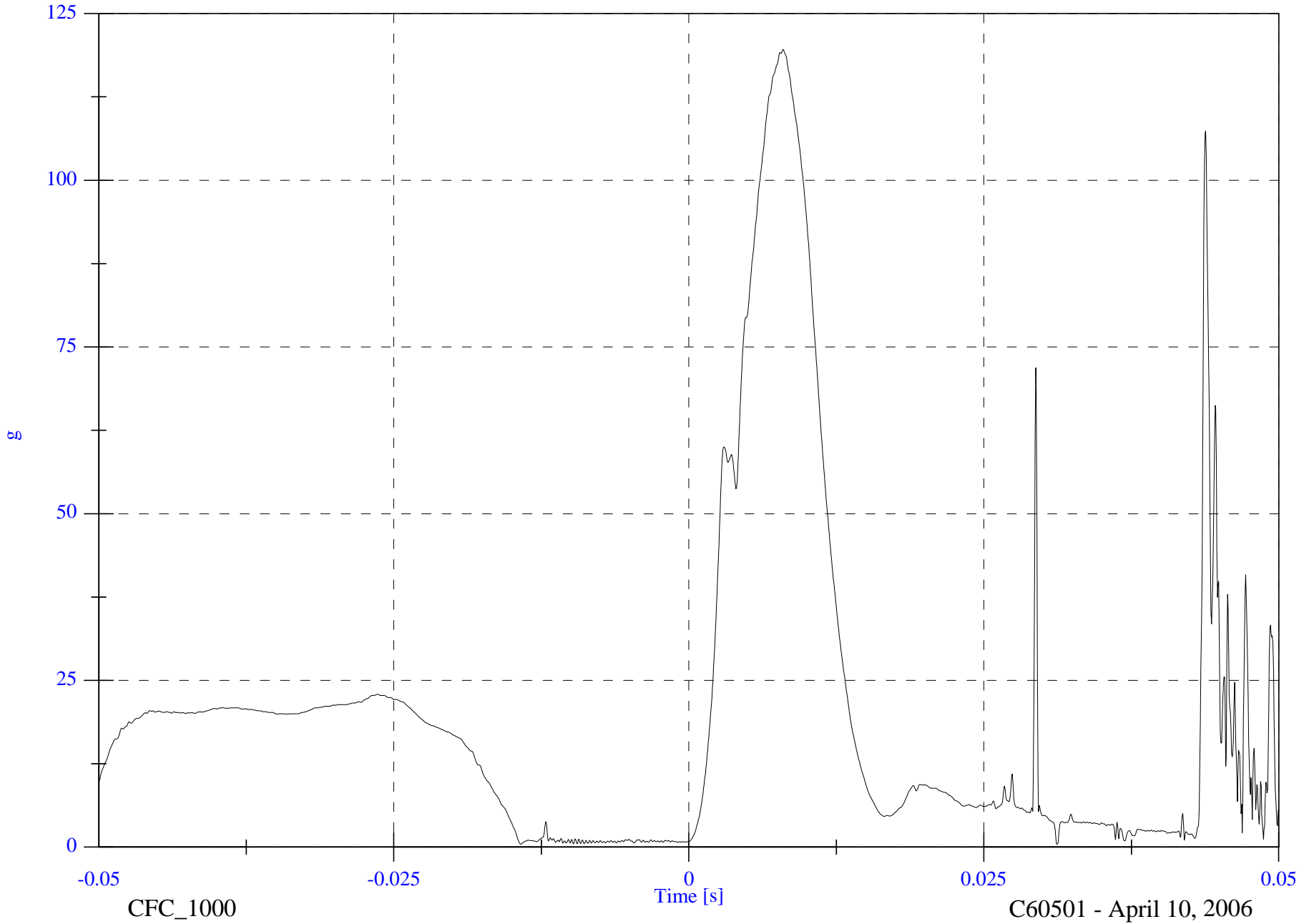
Headform Resultant

Max: 119.6 [g] at 0.008 [s]

Min: 0.4 [g] at -0.014 [s]

C60501 PASSENGER SIDE IMPACT PLOT #4

8754+FMH-10



CFC_1000

C60501 - April 10, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

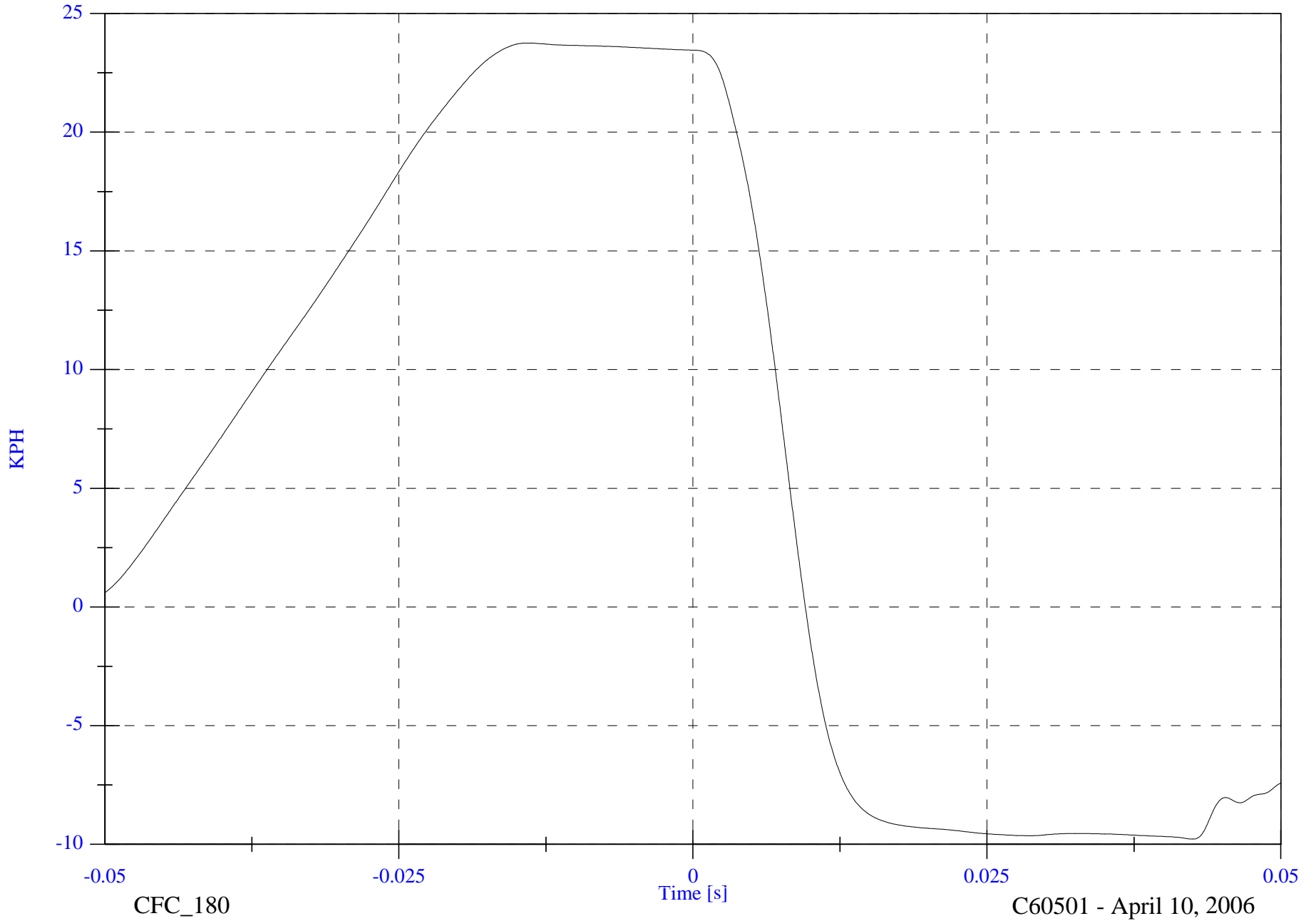
Headform Velocity

Max: 23.8 [KPH] at -0.014 [s]

Min: -9.8 [KPH] at 0.043 [s]

C60501 PASSENGER SIDE IMPACT PLOT #5

8754+FMH-10



CFC_180

C60501 - April 10, 2006



PRE-IMPACT URRP (Placard Date Mislabeled – 10 Apr 06)



POST-IMPACT URRP (Placard Date Mislabeled – 10 Apr 06)

VEHICLE YEAR/MAKE/MODEL/STYLE:	2006 Hyundai Sonata GL
VIN:	KMHET46C96A109867
DATE OF MANUFACTURE:	June 21, 2005 (SEE CERTIFICATION LABEL)
COLOR:	Silver

Test Number:	03
Test Date:	04/10/06
Target Location:	SIDE RAIL
Target Code:	SR3F
Horizontal Impact Angle:	50°
Vertical Impact Angle:	47°
Ambient Temperature:	22.8 C°
Relative Humidity:	17.6
Time of Impact:	15:30
Headform Number:	0062

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	0	<input type="checkbox"/>	mm right	<input type="checkbox"/>	mm left
On Centerline	14				mm up



POST-IMPACT SR3F HEADFORM (Placard Date Mislabeled – 10 Apr 06)

Free Motion HIC	227.5
HIC(d)	338.0
Impact Velocity (kph)	18.70
HIC T1 (msec)	1.9
HIC T2 (msec)	12.6

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA C60501 - SR3

FMH Headform 0062

Location: SR3

Test Date: April 10, 2006

Work File: SR3

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

Lab Temperature: 22.8 C

HICd: 338.0

Lab Humidity: 17.6 %

HIC (36ms): 227.5

Velocity at Impact: 18.70 KPH

t1: 1.9 msec

t2: 12.6 msec

Free Flight Distance: 217.89 mm

Duration: 10.6 msec

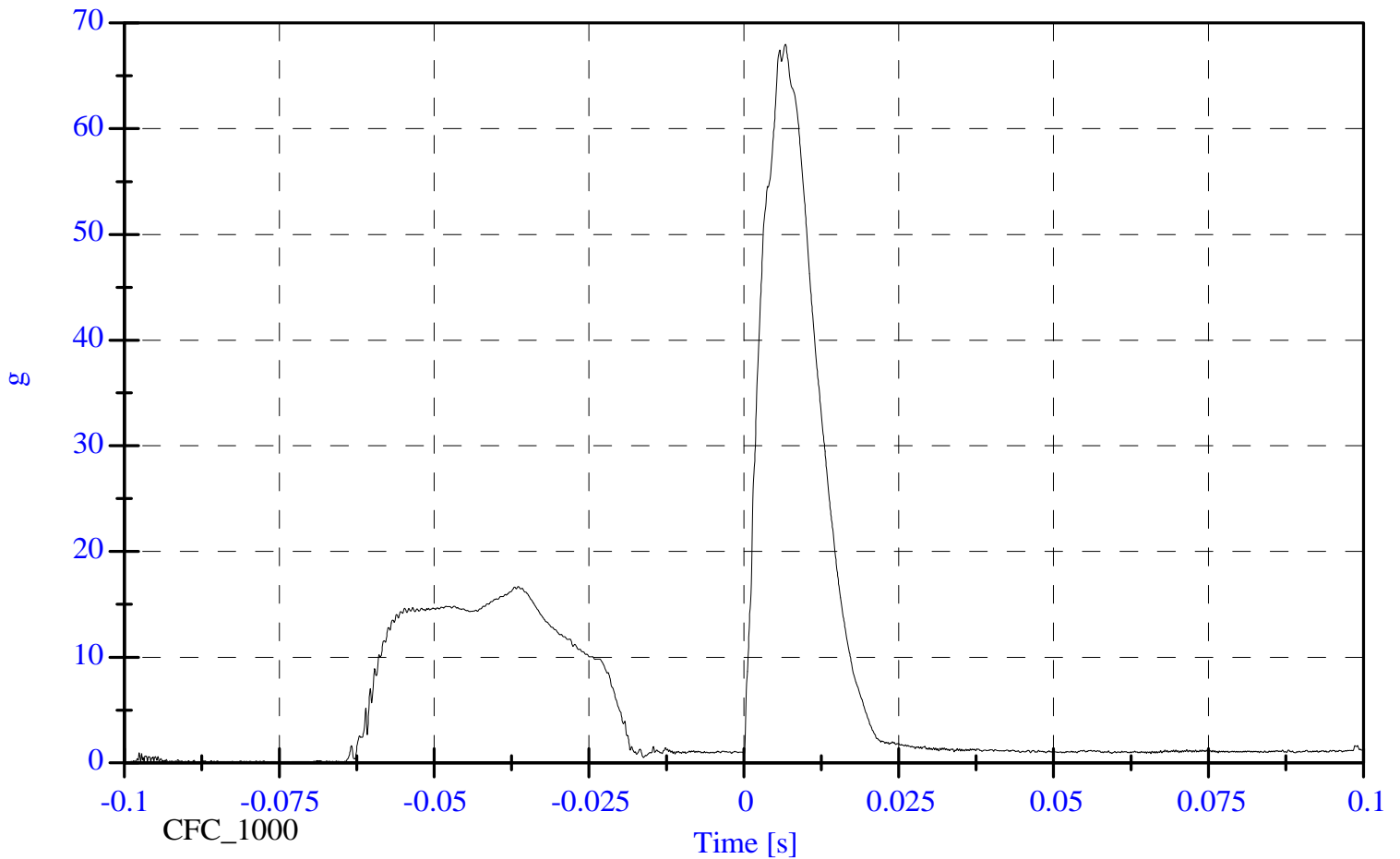
Maximum: 68.0 g

Average Acceleration: 6.9 g

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA
Headform Resultant

Max: 68.0 [g] at 0.007 [s]

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



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

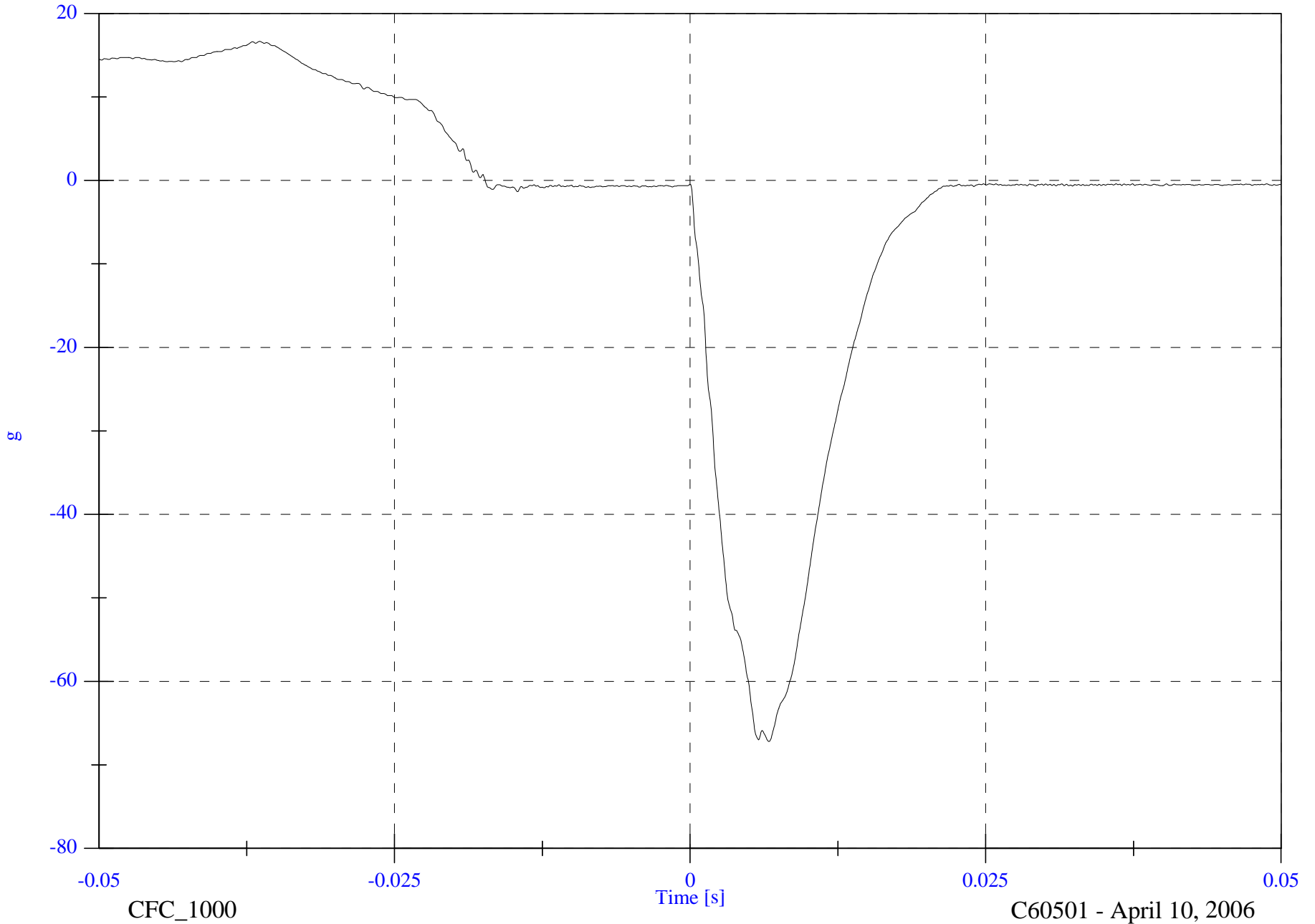
Headform X Acceleration

Max: 16.7 [g] at -0.036 [s]

Min: -67.2 [g] at 0.007 [s]

C60501 PASSENGER SIDE SR3 IMPACT PLOT #1

8754+FMH-10



CFC_1000

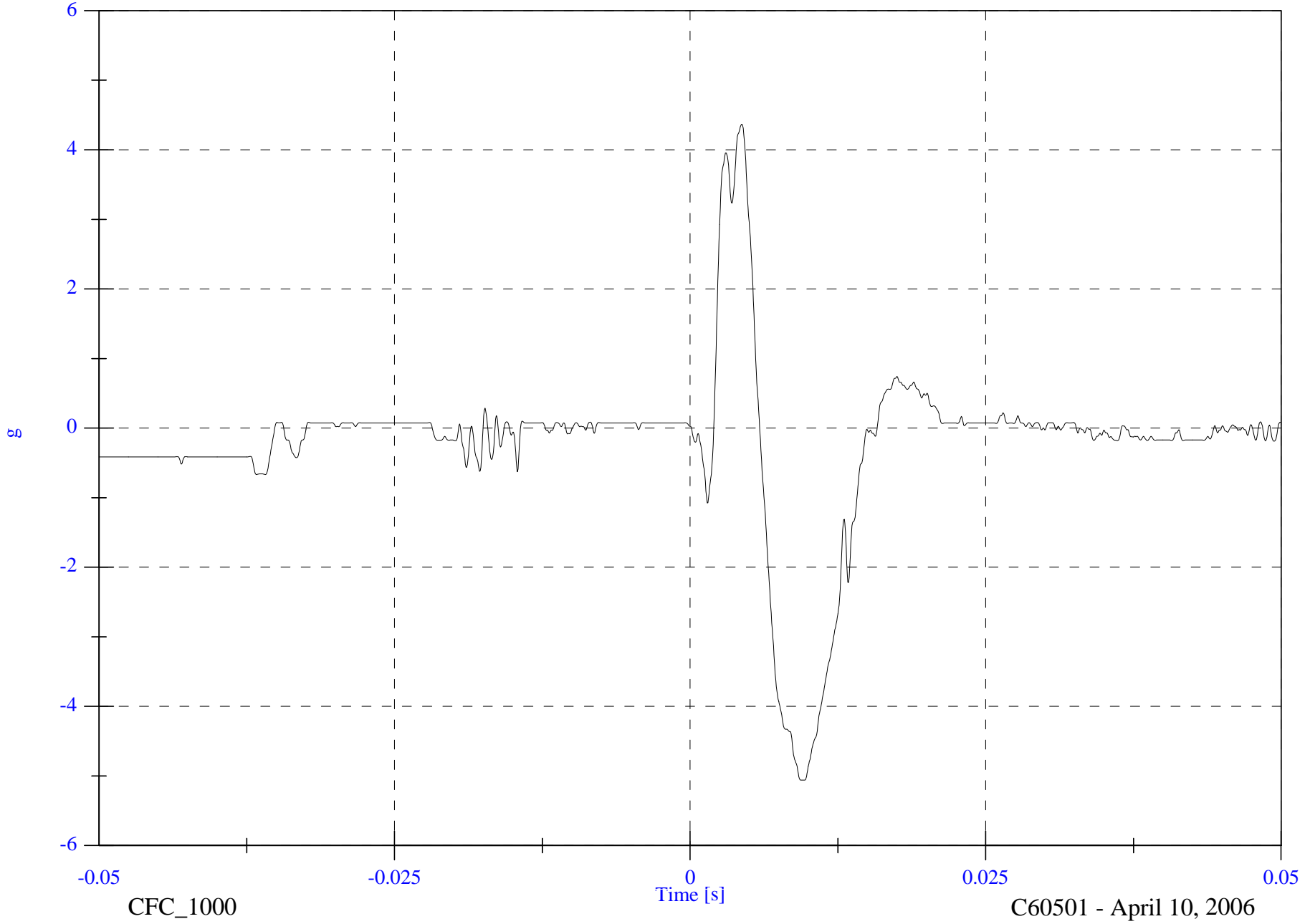
C60501 - April 10, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

Headform Y Acceleration

Max: 4.4 [g] at 0.004 [s]

Min: -5.1 [g] at 0.009 [s]



C60501 PASSENGER SIDE SR3 IMPACT PLOT #2

8754-FMH-10

CFC_1000

C60501 - April 10, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

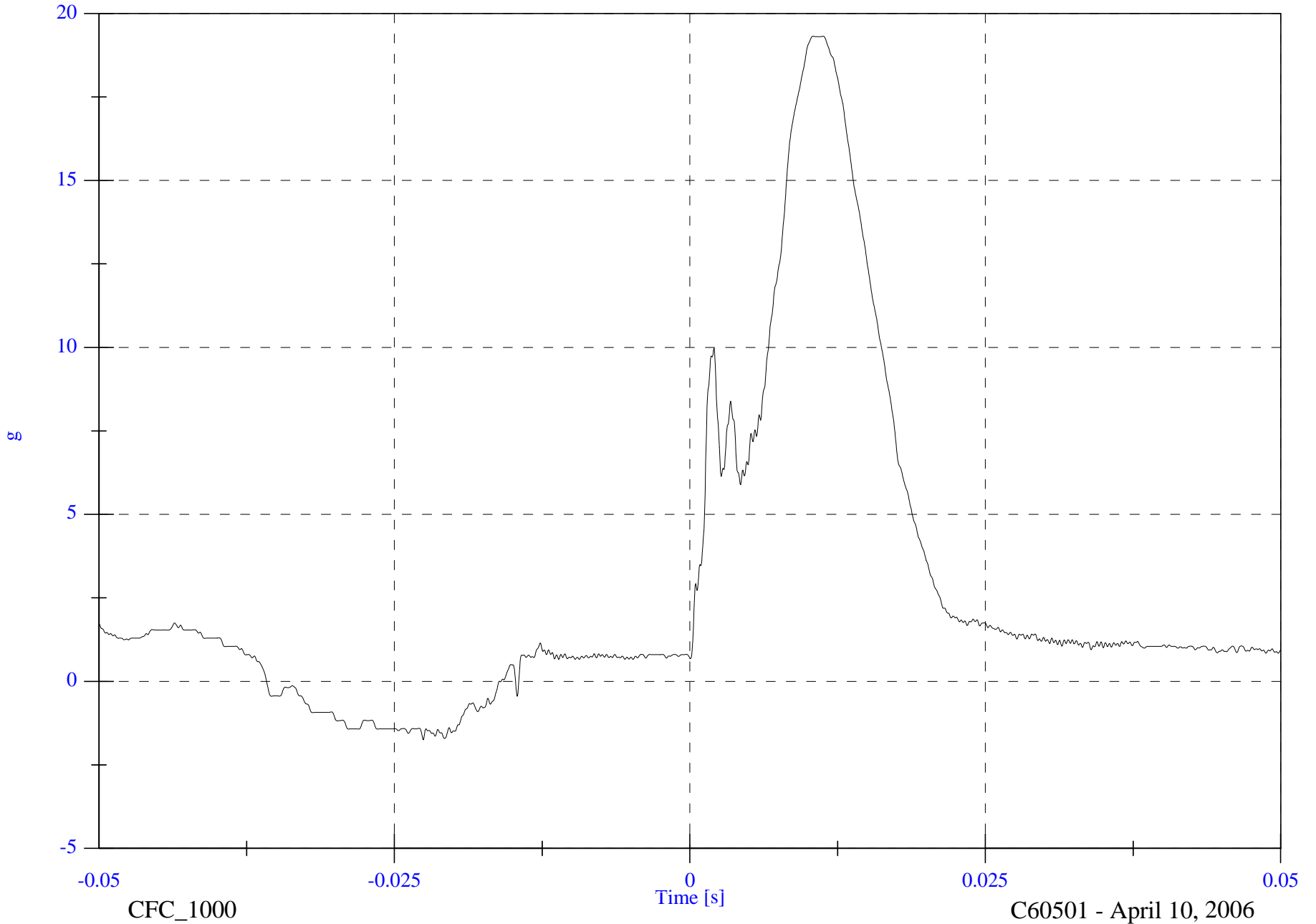
Headform Z Acceleration

Max: 19.3 [g] at 0.011 [s]

Min: -1.7 [g] at -0.023 [s]

C60501 PASSENGER SIDE SR3 IMPACT PLOT #3

8754-FMH-10



CFC_1000

C60501 - April 10, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

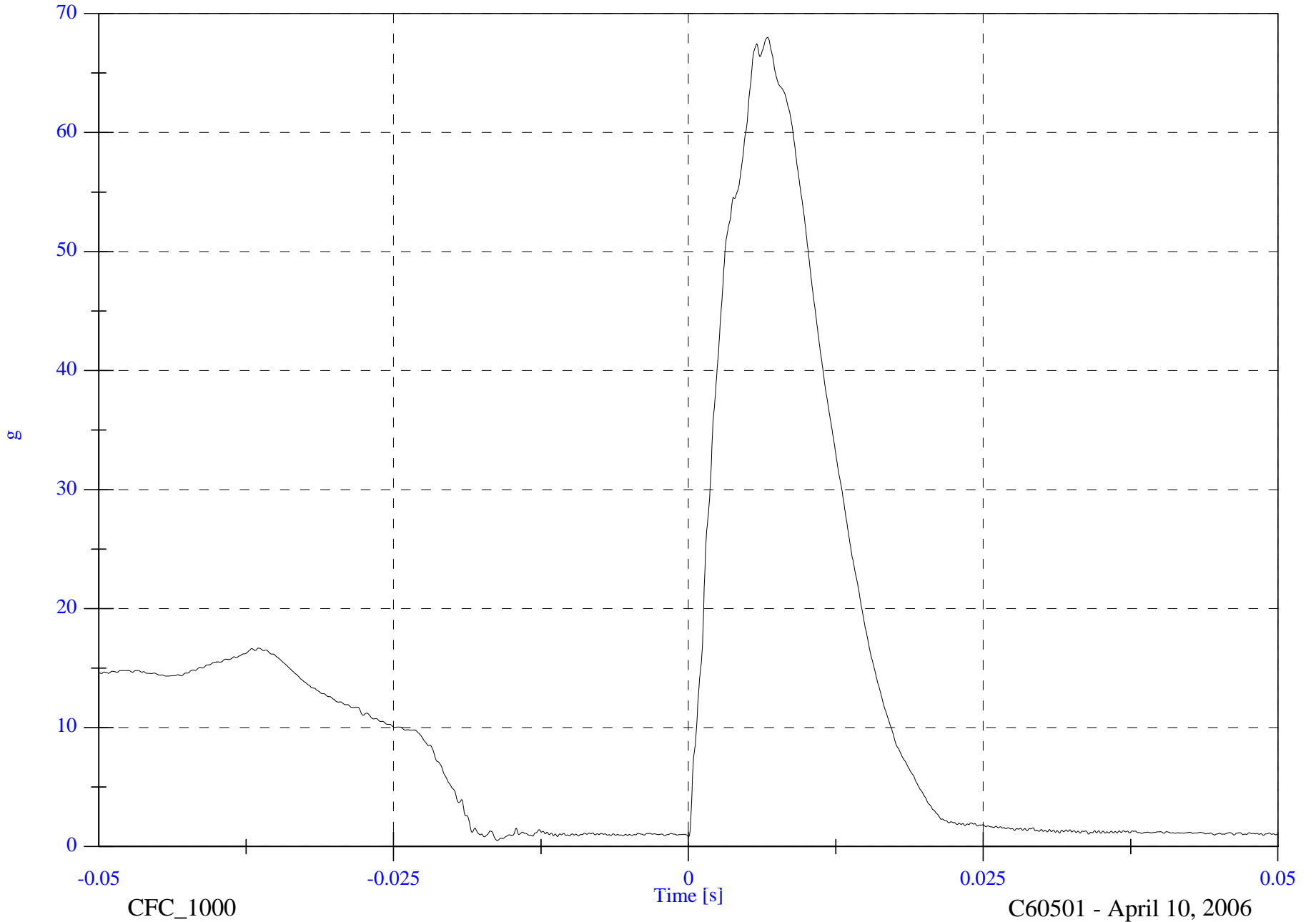
Headform Resultant

Max: 68.0 [g] at 0.007 [s]

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

C60501 PASSENGER SIDE SR3 IMPACT PLOT #4

8754+FMH-10



CFC_1000

C60501 - April 10, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

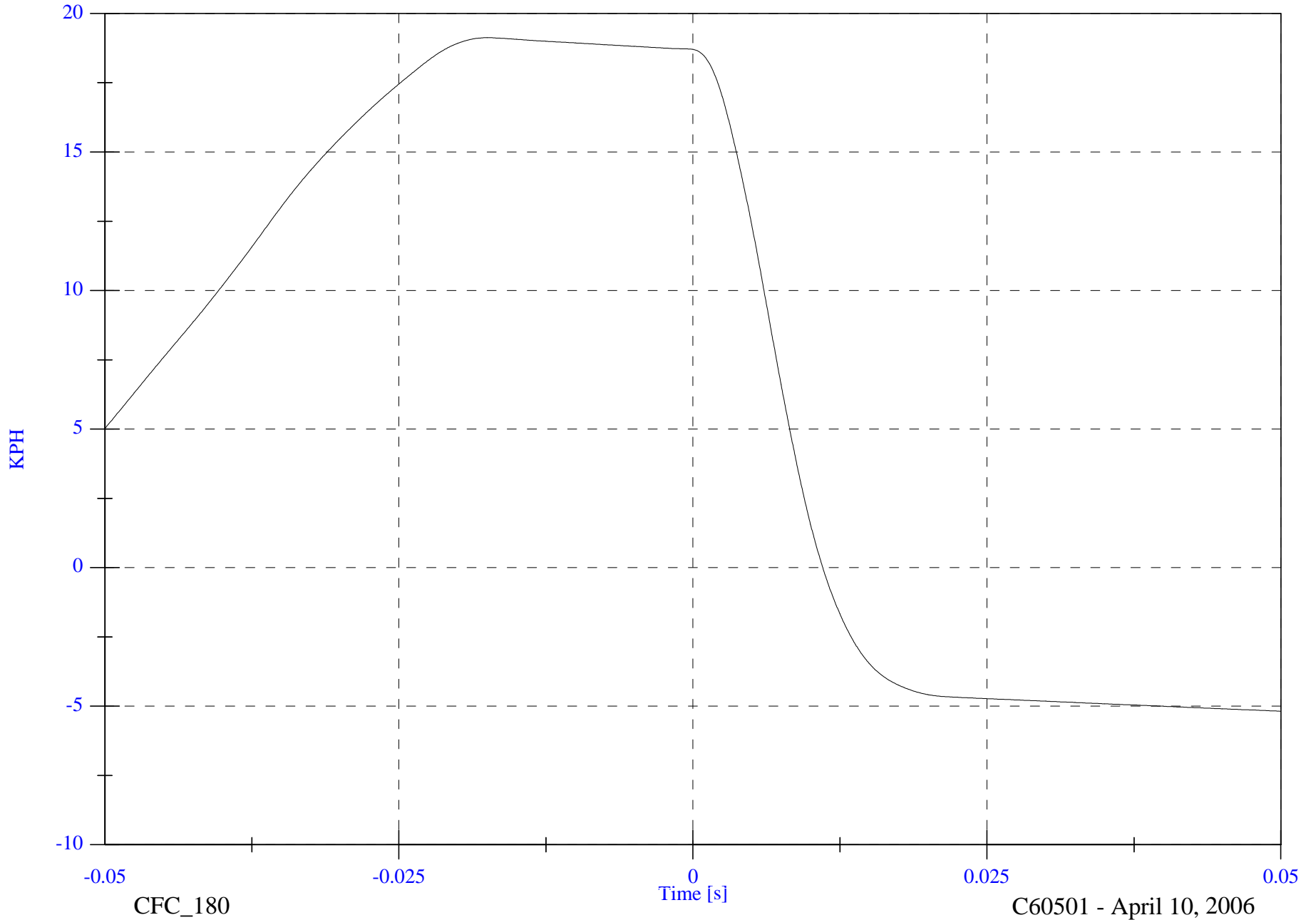
Headform Velocity

Max: 19.1 [KPH] at -0.017 [s]

Min: -5.2 [KPH] at 0.050 [s]

C60501 PASSENGER SIDE SR3 IMPACT PLOT #5

8754+FMH-10



CFC_180

C60501 - April 10, 2006



PRE-IMPACT SR3F (Placard Date Mislabeled – 10 Apr 06)



POST-IMPACT SR3F (Placard Date Mislabeled – 10 Apr 06)

VEHICLE YEAR/MAKE/MODEL/STYLE:	2006 Hyundai Sonata GL
VIN:	KMHET46C96A109867
DATE OF MANUFACTURE:	June 21, 2005 (SEE CERTIFICATION LABEL)
COLOR:	Silver

Test Number:	04
Test Date:	04/11/06
Target Location:	B-PILLAR
Target Code:	BP4
Horizontal Impact Angle:	136°
Vertical Impact Angle:	-5°
Ambient Temperature:	24.0 C°
Relative Humidity:	20.4
Time of Impact:	8:40
Headform Number:	0062

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	4	mm right	x mm left
On Centerline	20	mm up	



POST-IMPACT BP4 HEADFORM

Free Motion HIC	572.2
HIC(d)	598.1
Impact Velocity (kph)	23.68
HIC T1 (msec)	1.1
HIC T2 (msec)	11.3

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA C60501 - BP4

FMH Headform 0062

Location: BP4

Test Date: April 11, 2006

Work File: BP4

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

Lab Temperature: 24.0 C

HICd: 598.1

Lab Humidity: 20.4 %

HIC (36ms): 572.2

Velocity at Impact: 23.68 KPH

t1: 1.0 msec

t2: 11.3 msec

Free Flight Distance: 220.21 mm

Duration: 10.2 msec

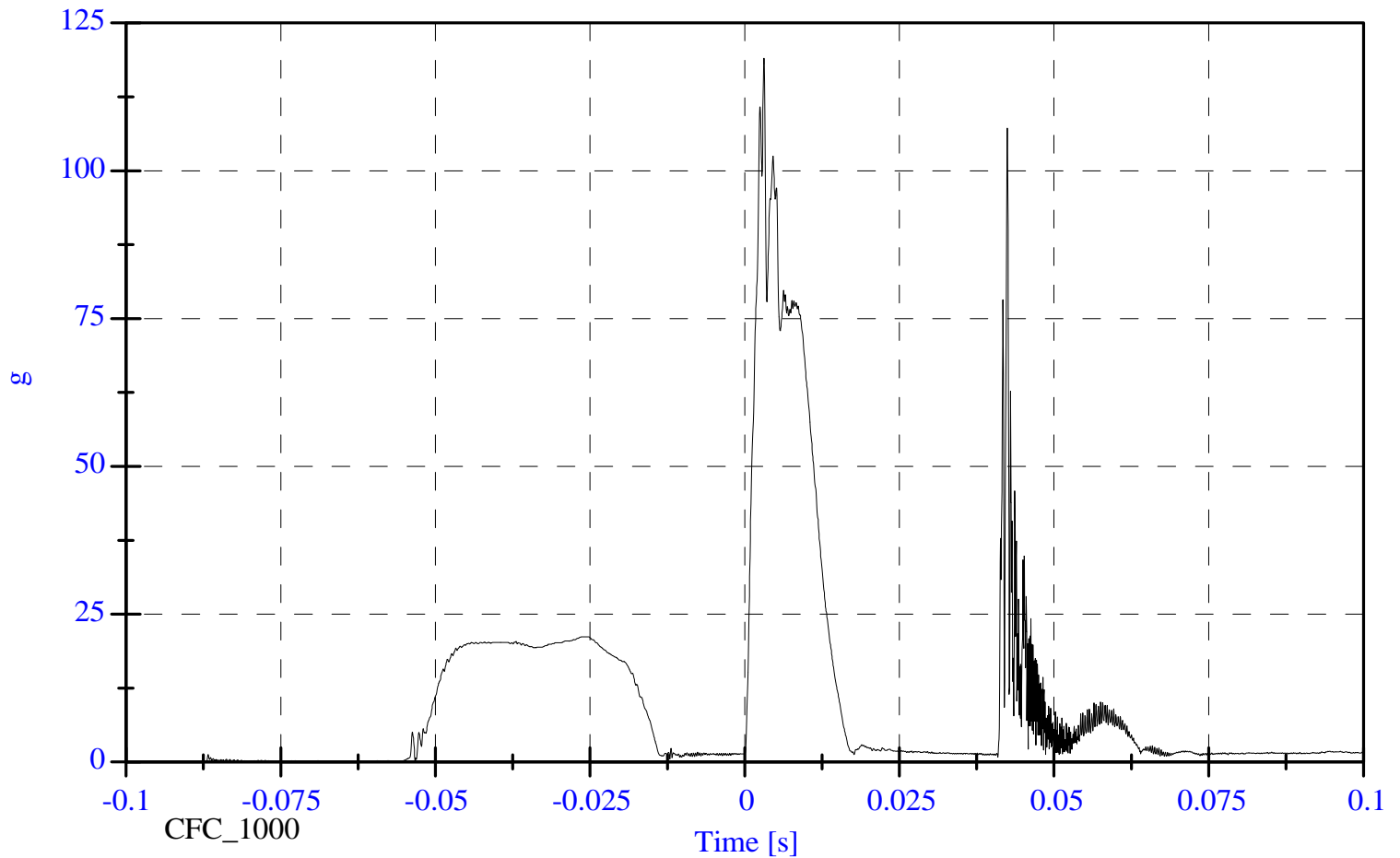
Maximum: 119.0 g

Average Acceleration: 10.1 g

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA
Headform Resultant

Max: 119.0 [g] at 0.003 [s]

Min: 0.0 [g] at -0.057 [s]



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

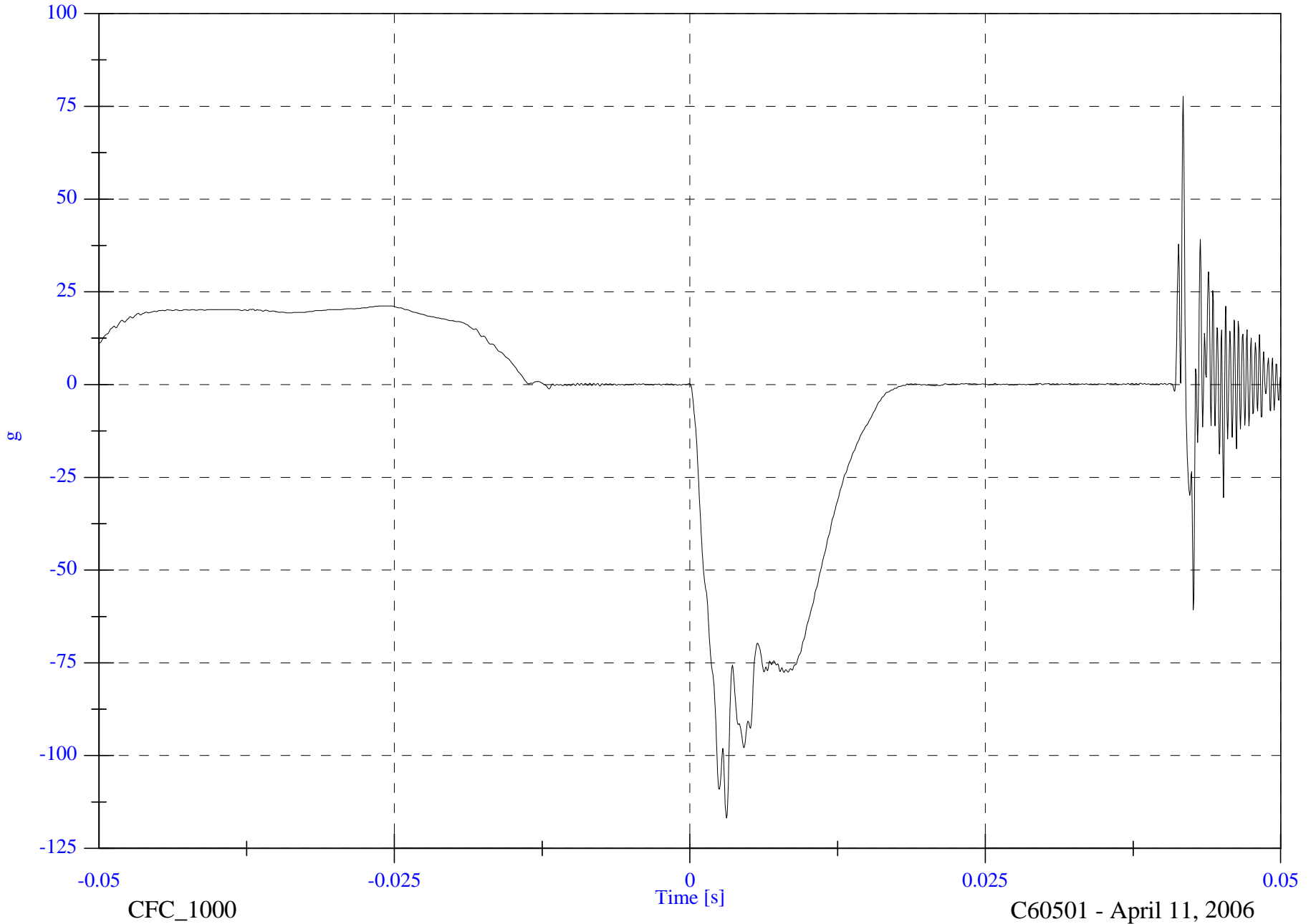
Headform X Acceleration

Max: 77.7 [g] at 0.042 [s]

Min: -116.8 [g] at 0.003 [s]

C60501 PASSENGER SIDE BP4 IMPACT PLOT #1

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

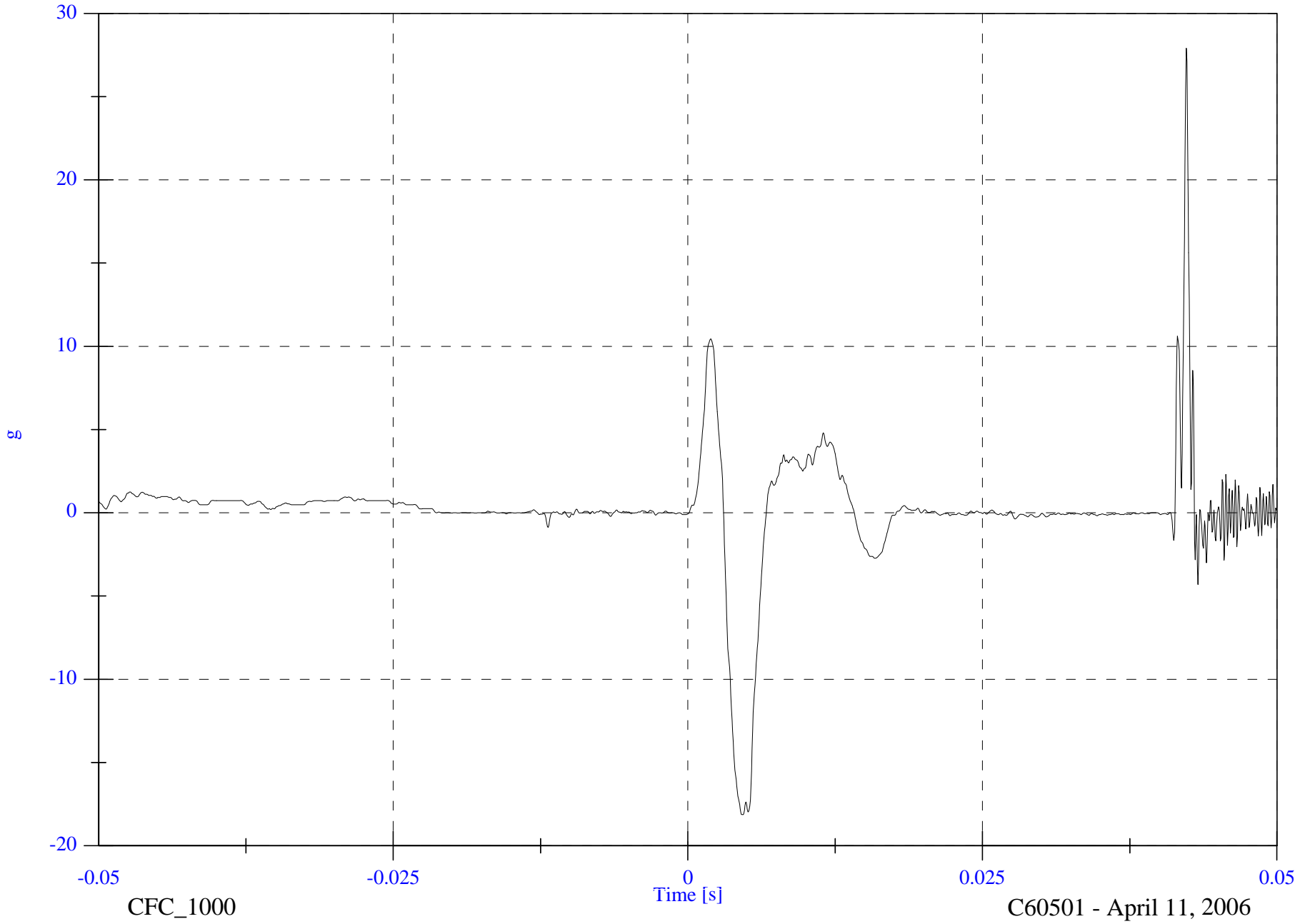
Headform Y Acceleration

Max: 27.9 [g] at 0.042 [s]

Min: -18.1 [g] at 0.005 [s]

C60501 PASSENGER SIDE BP4 IMPACT PLOT #2

8754+FMH-10



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

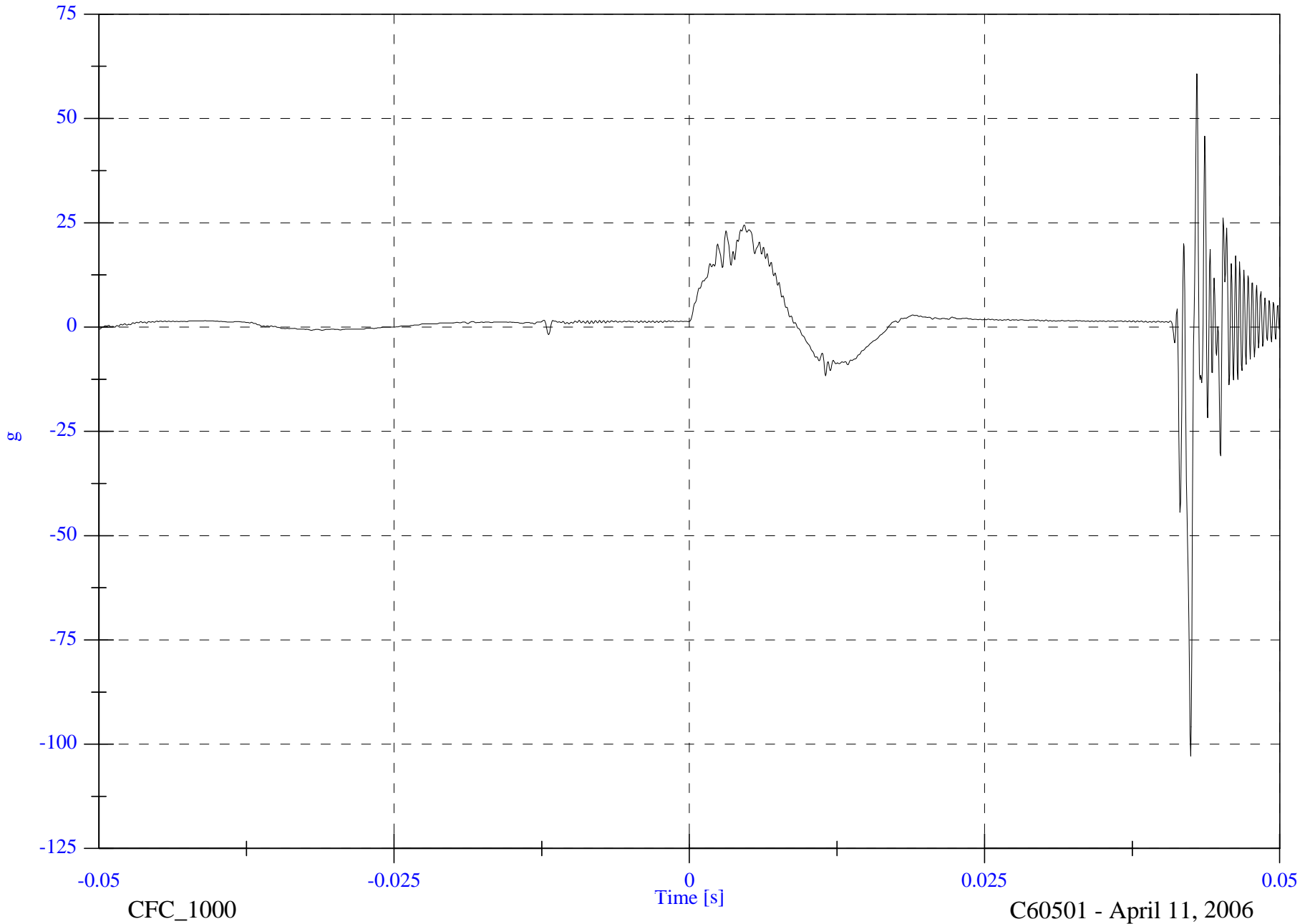
Headform Z Acceleration

Max: 60.7 [g] at 0.043 [s]

Min: -102.9 [g] at 0.042 [s]

C60501 PASSENGER SIDE BP4 IMPACT PLOT #3

8754+FMH-10



C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

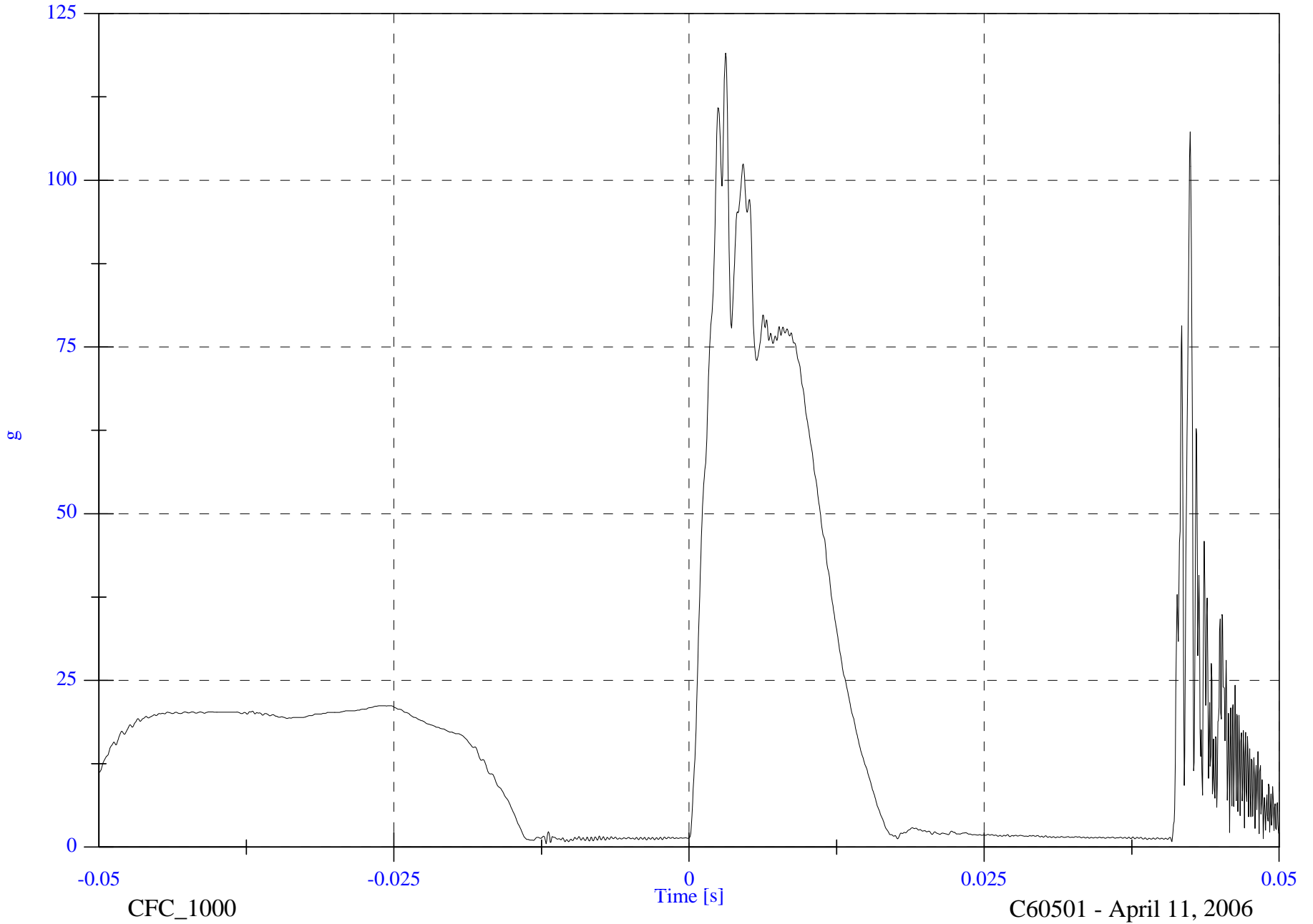
Headform Resultant

Max: 119.0 [g] at 0.003 [s]

Min: 0.5 [g] at -0.012 [s]

C60501 PASSENGER SIDE BP4 IMPACT PLOT #4

8754+FMH-10



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

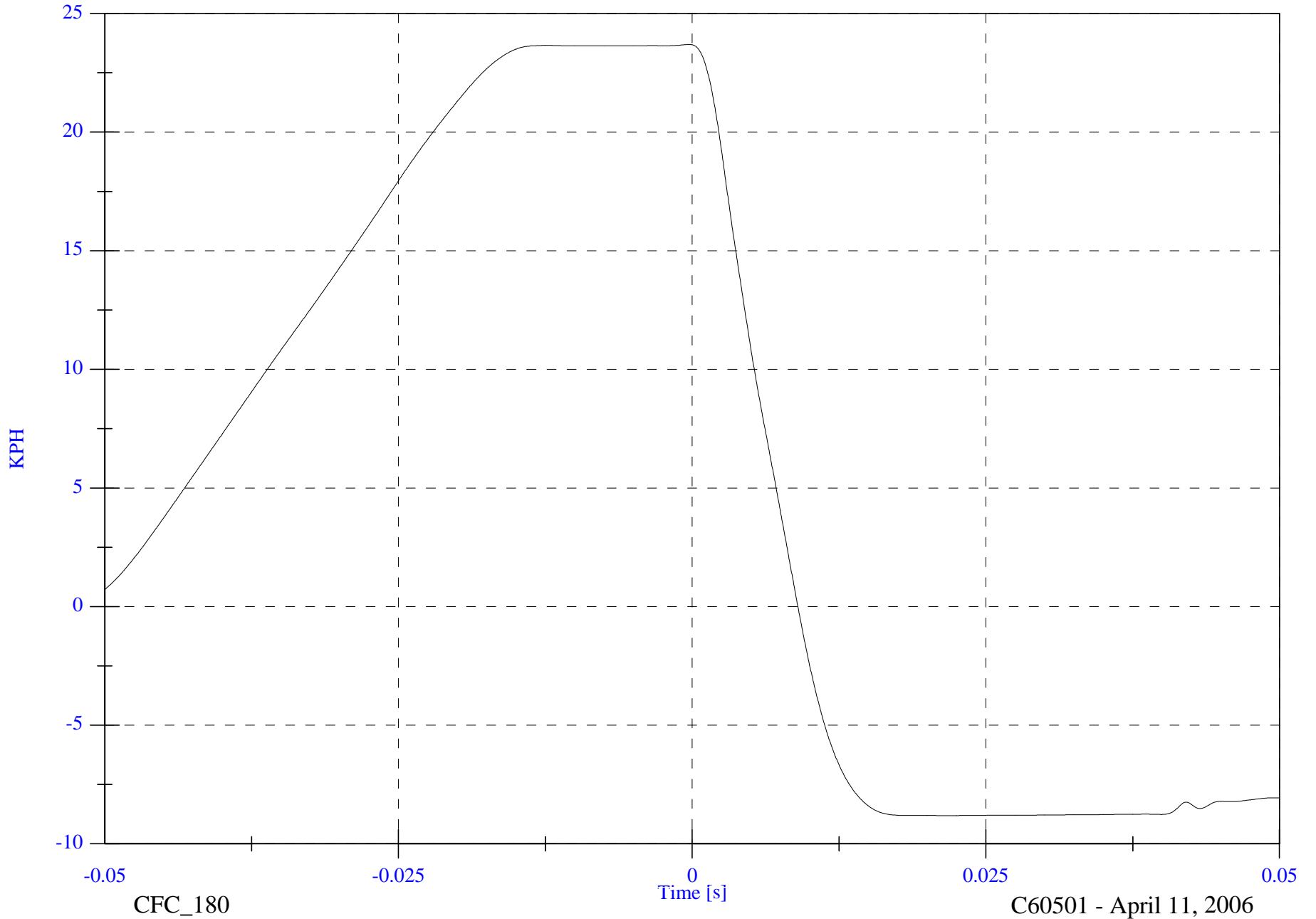
Headform Velocity

Max: 23.7 [KPH] at -0.000 [s]

Min: -8.8 [KPH] at 0.022 [s]

C60501 PASSENGER SIDE BP4 IMPACT PLOT #5

8754+FMH-10



CFC_180

C60501 - April 11, 2006



PRE-IMPACT BP4



POST-IMPACT BP4

VEHICLE YEAR/MAKE/MODEL/STYLE:	2006 Hyundai Sonata GL
VIN:	KMHET46C96A109867
DATE OF MANUFACTURE:	June 21, 2005 (SEE CERTIFICATION LABEL)
COLOR:	Silver

Test Number:	05
Test Date:	04/11/06
Target Location:	B-PILLAR
Target Code:	BP1
Horizontal Impact Angle:	90°
Vertical Impact Angle:	20°
Ambient Temperature:	23.3 C°
Relative Humidity:	21.6
Time of Impact:	9:13
Headform Number:	0805

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	7	mm right	x mm left
On Centerline	35	mm up	



POST-IMPACT BP1 HEADFORM

Free Motion HIC	510.0
HIC(d)	551.2
Impact Velocity (kph)	18.46
HIC T1 (msec)	4.0
HIC T2 (msec)	9.8

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA C60501 - BP1

FMH Headform 805

Location: BP1

Test Date: April 11, 2006

Work File: BP1

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

Lab Temperature: 23.3 C

HICd: 551.2

Lab Humidity: 21.6 %

HIC (36ms): 510.0

Velocity at Impact: 18.46 KPH

t1: 4.0 msec

t2: 9.9 msec

Free Flight Distance: 216.65 mm

Duration: 5.9 msec

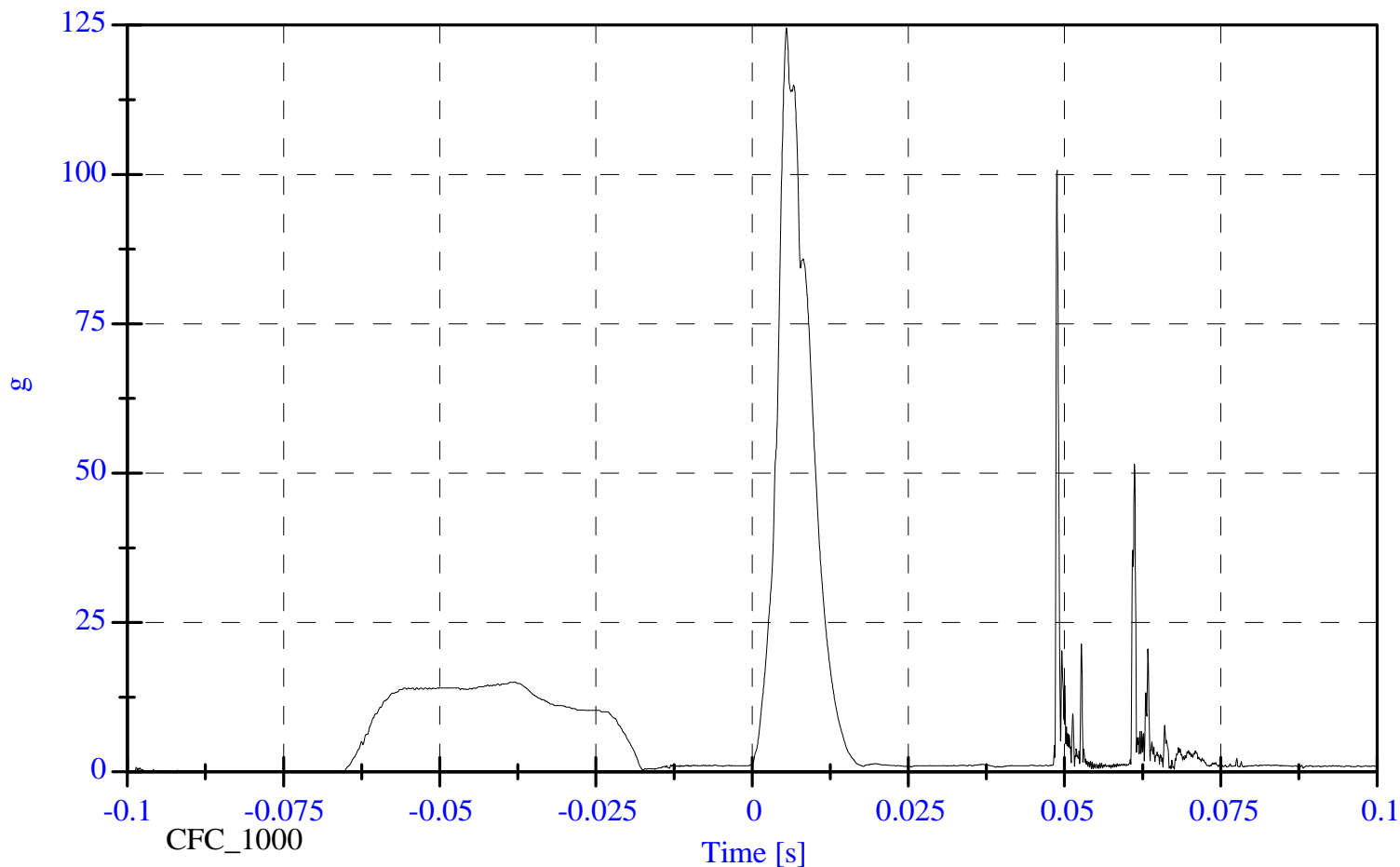
Maximum: 124.5 g

Average Acceleration: 7.6 g

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA
Headform Resultant

Max: 124.5 [g] at 0.006 [s]

Min: 0.0 [g] at -0.091 [s]



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

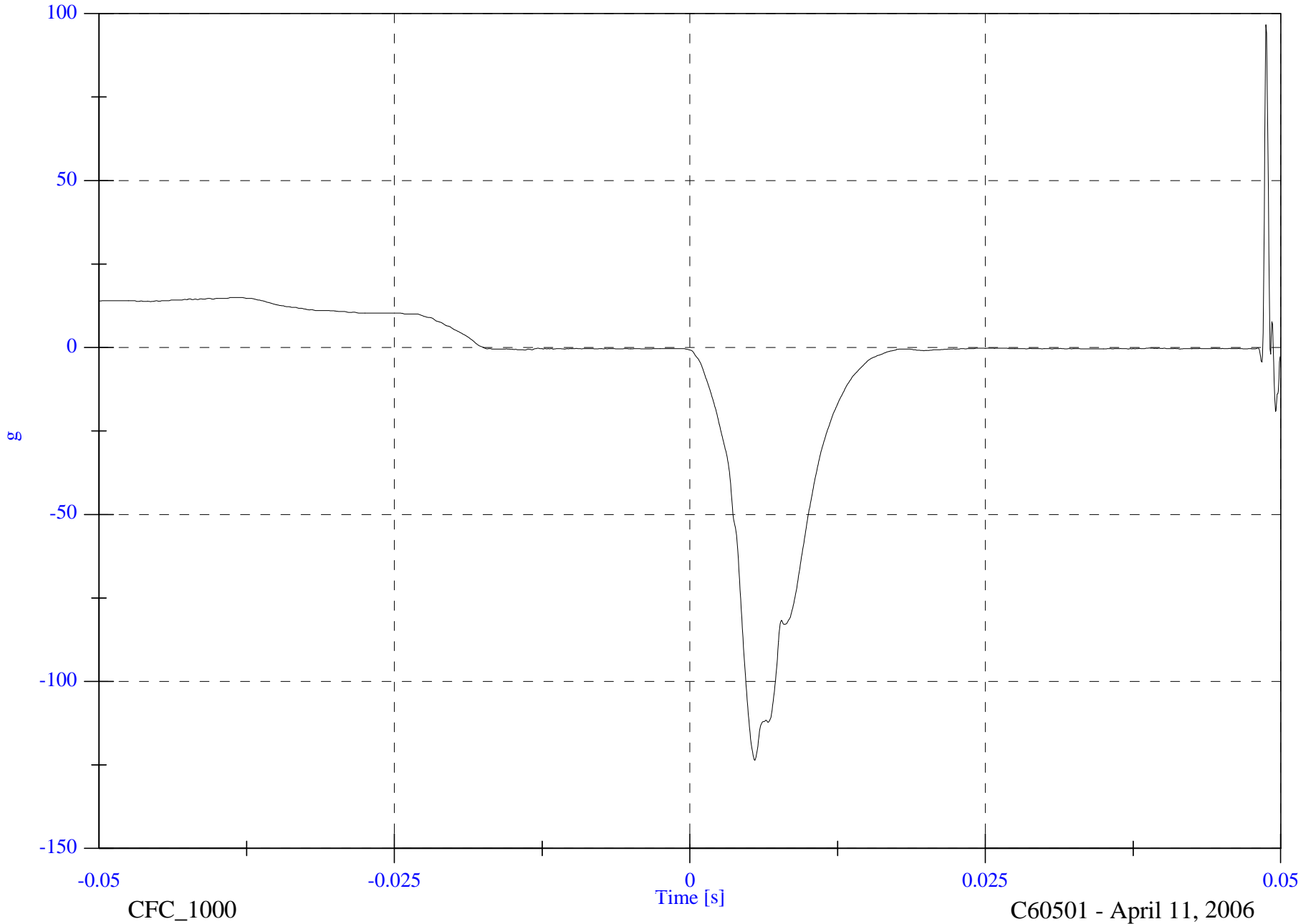
Headform X Acceleration

Max: 96.6 [g] at 0.049 [s]

Min: -123.6 [g] at 0.006 [s]

C60501 PASSENGER SIDE BP1 IMPACT PLOT #1

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

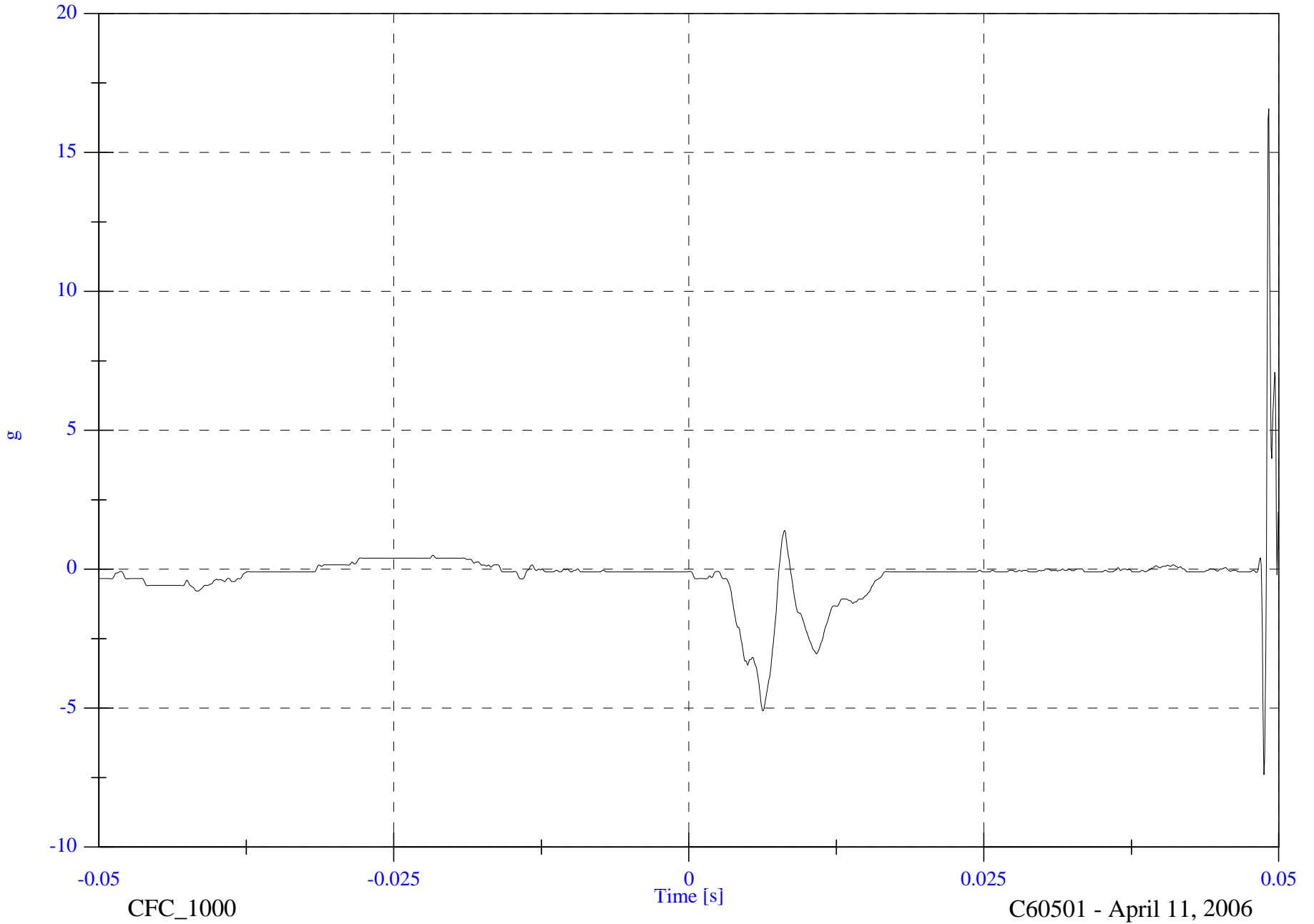
Headform Y Acceleration

Max: 16.6 [g] at 0.049 [s]

Min: -7.4 [g] at 0.049 [s]

C60501 PASSENGER SIDE BP1 IMPACT PLOT #2

8754+FMH-10



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

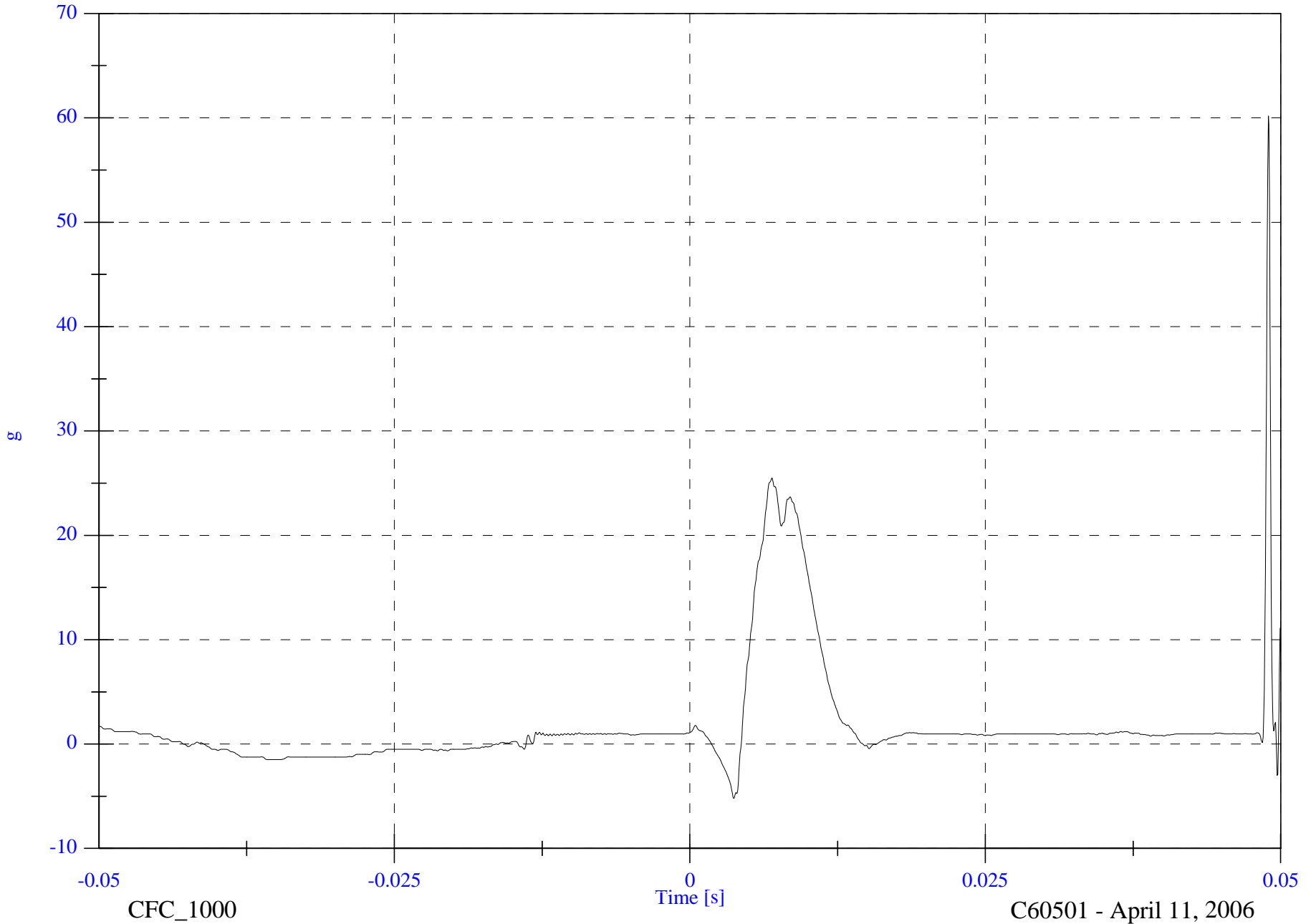
Headform Z Acceleration

Max: 60.2 [g] at 0.049 [s]

Min: -5.2 [g] at 0.004 [s]

C60501 PASSENGER SIDE BP1 IMPACT PLOT #3

8754+FMH-10



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

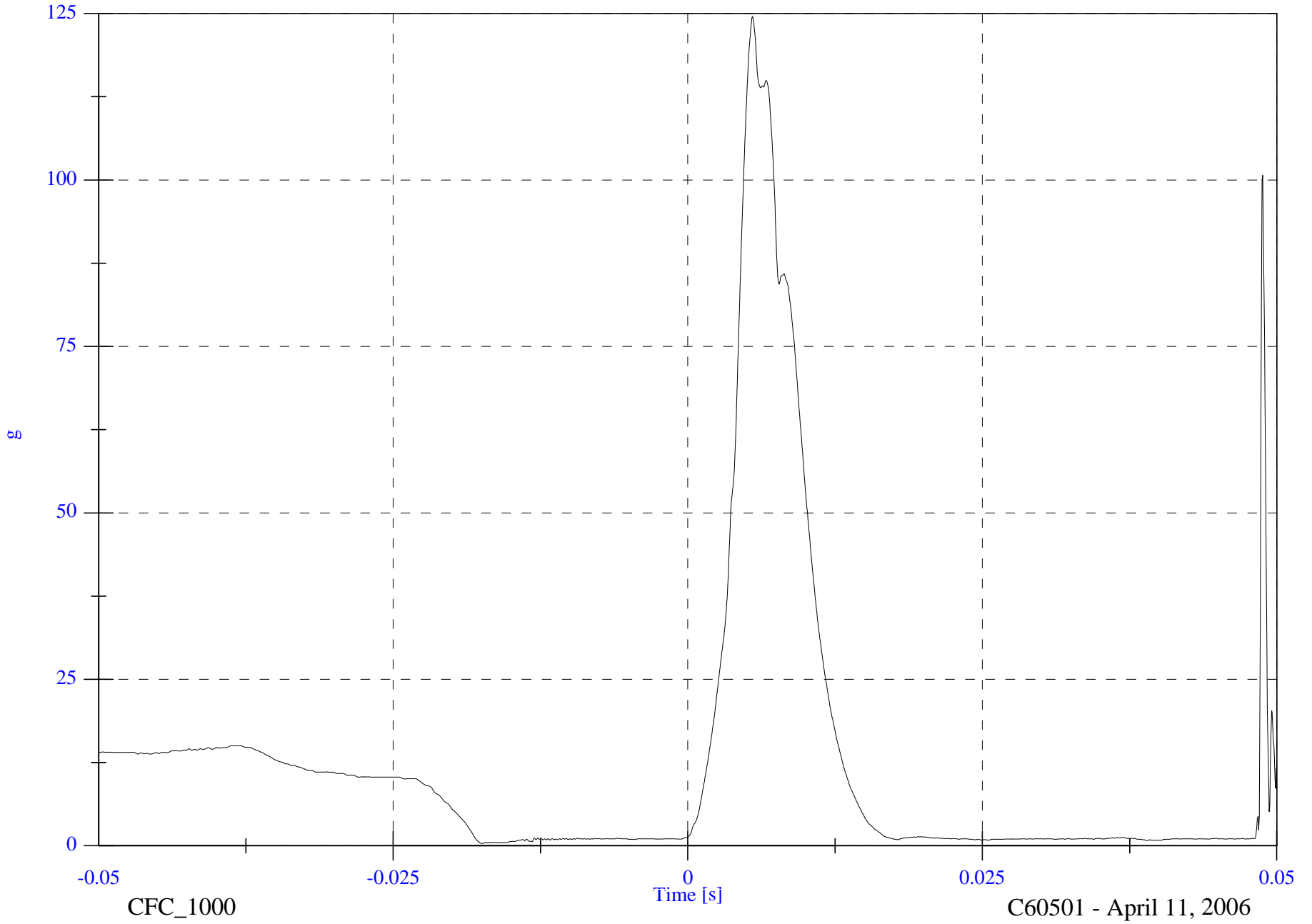
Headform Resultant

Max: 124.5 [g] at 0.006 [s]

Min: 0.3 [g] at -0.018 [s]

C60501 PASSENGER SIDE BP1 IMPACT PLOT #4

8754-FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

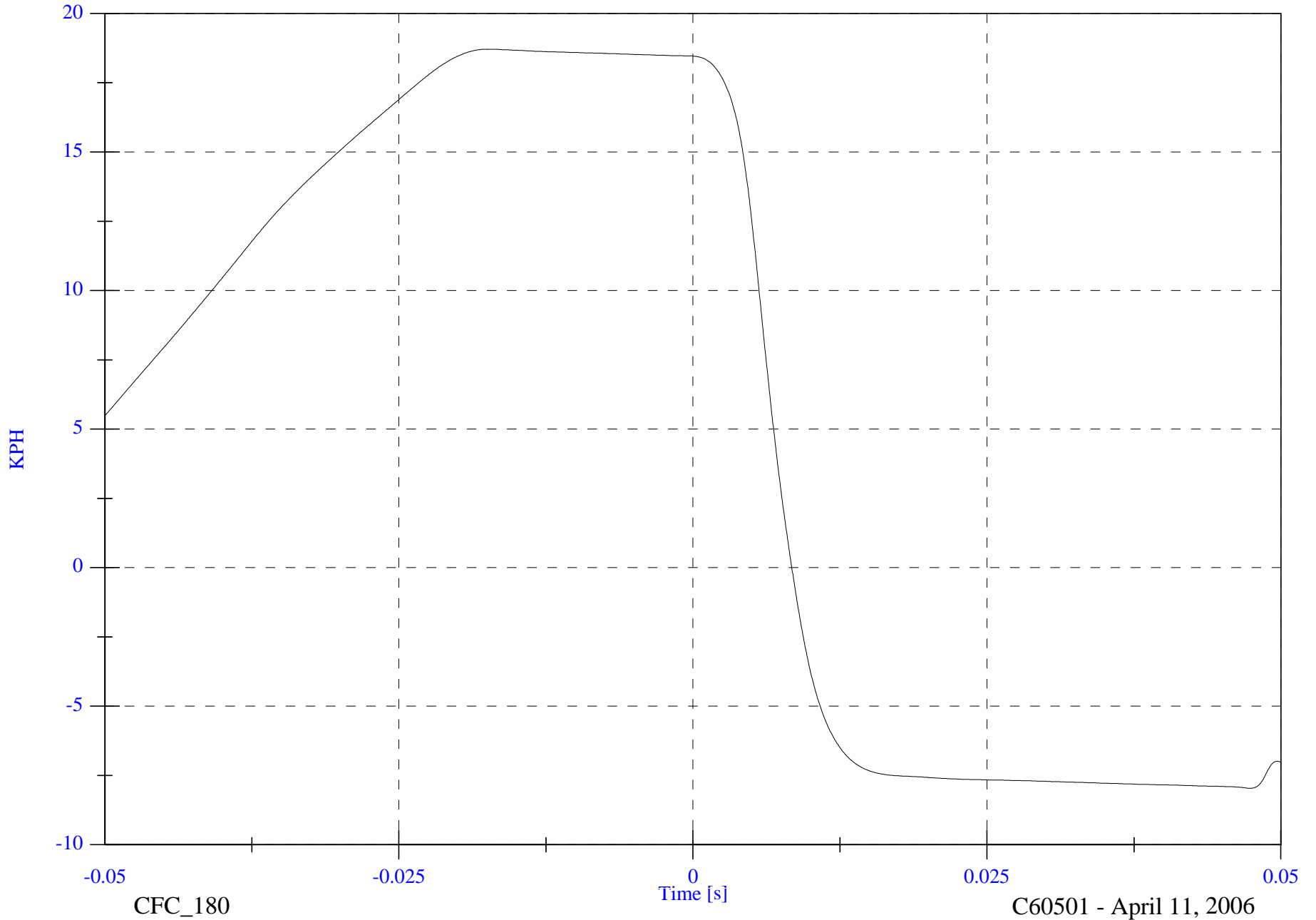
Headform Velocity

Max: 18.7 [KPH] at -0.017 [s]

Min: -8.0 [KPH] at 0.047 [s]

C60501 PASSENGER SIDE BP1 IMPACT PLOT #5

8754+FMH-10



CFC_180

Time [s]

C60501 - April 11, 2006



PRE-IMPACT BP1



VEHICLE YEAR/MAKE/MODEL/STYLE:	2006 Hyundai Sonata GL
VIN:	KMHET46C96A109867
DATE OF MANUFACTURE:	June 21, 2005 (SEE CERTIFICATION LABEL)
COLOR:	Silver

Test Number:	06
Test Date:	04/11/06
Target Location:	A-PILLAR
Target Code:	AP3
Horizontal Impact Angle:	137°
Vertical Impact Angle:	44°
Ambient Temperature:	23.1 C°
Relative Humidity:	22
Time of Impact:	9:50
Headform Number:	0355

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	2	mm right	x mm left
On Centerline	16	mm up	



POST-IMPACT AP3 HEADFORM

Free Motion HIC	318.6
HIC(d)	406.8
Impact Velocity (kph)	18.44
HIC T1 (msec)	1.7
HIC T2 (msec)	11.3

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA C60501 - AP3

FMH Headform 0355

Location: AP3

Test Date: April 11, 2006

Work File: AP3

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

Lab Temperature: 23.1 C

HICd: 406.8

Lab Humidity: 22.0 %

HIC (36ms): 318.6

Velocity at Impact: 18.44 KPH

t1: 1.7 msec

t2: 11.3 msec

Free Flight Distance: 221.45 mm

Duration: 9.6 msec

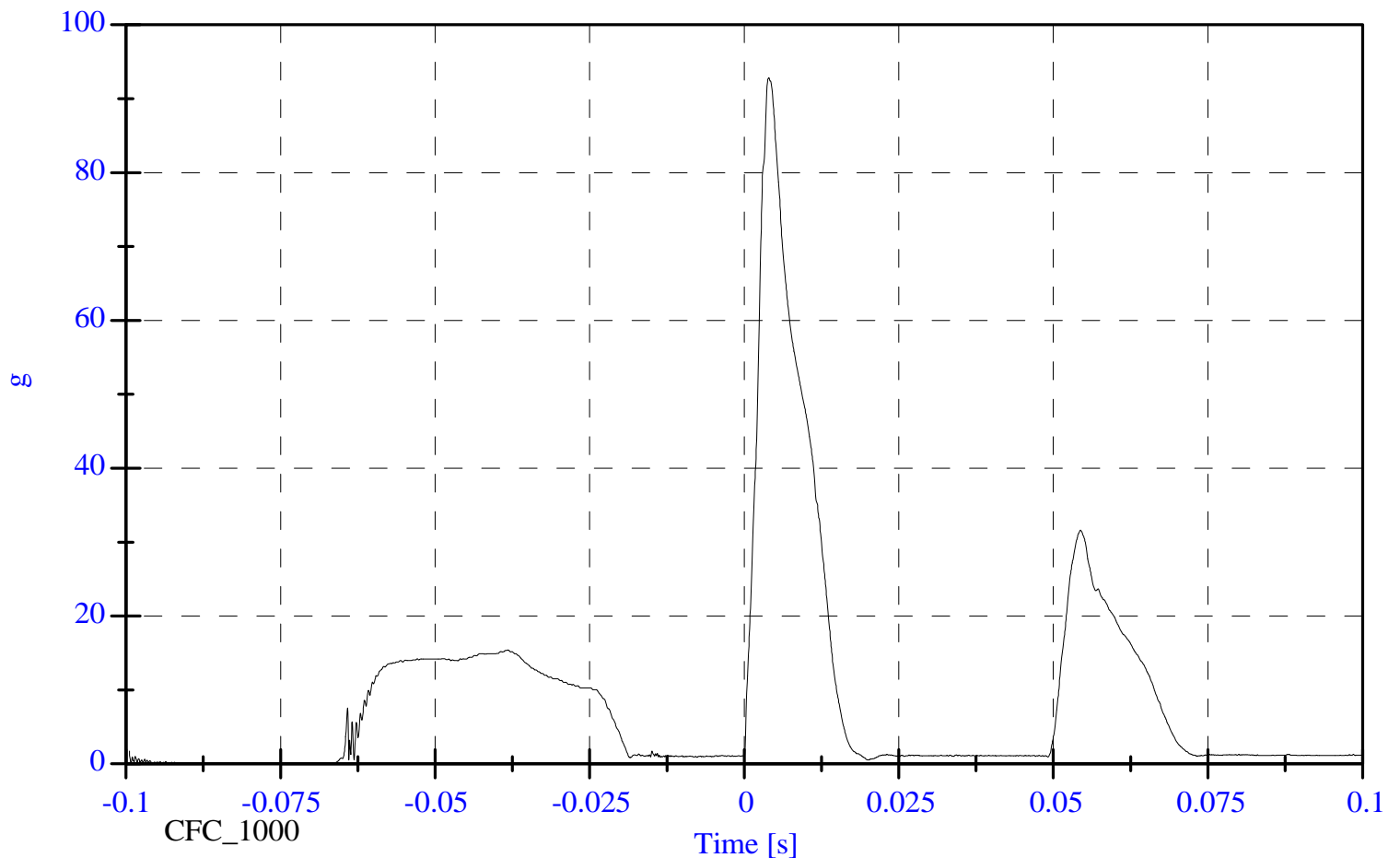
Maximum: 92.8 g

Average Acceleration: 8.7 g

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA
Headform Resultant

Max: 92.8 [g] at 0.004 [s]

Min: 0.0 [g] at -0.090 [s]



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

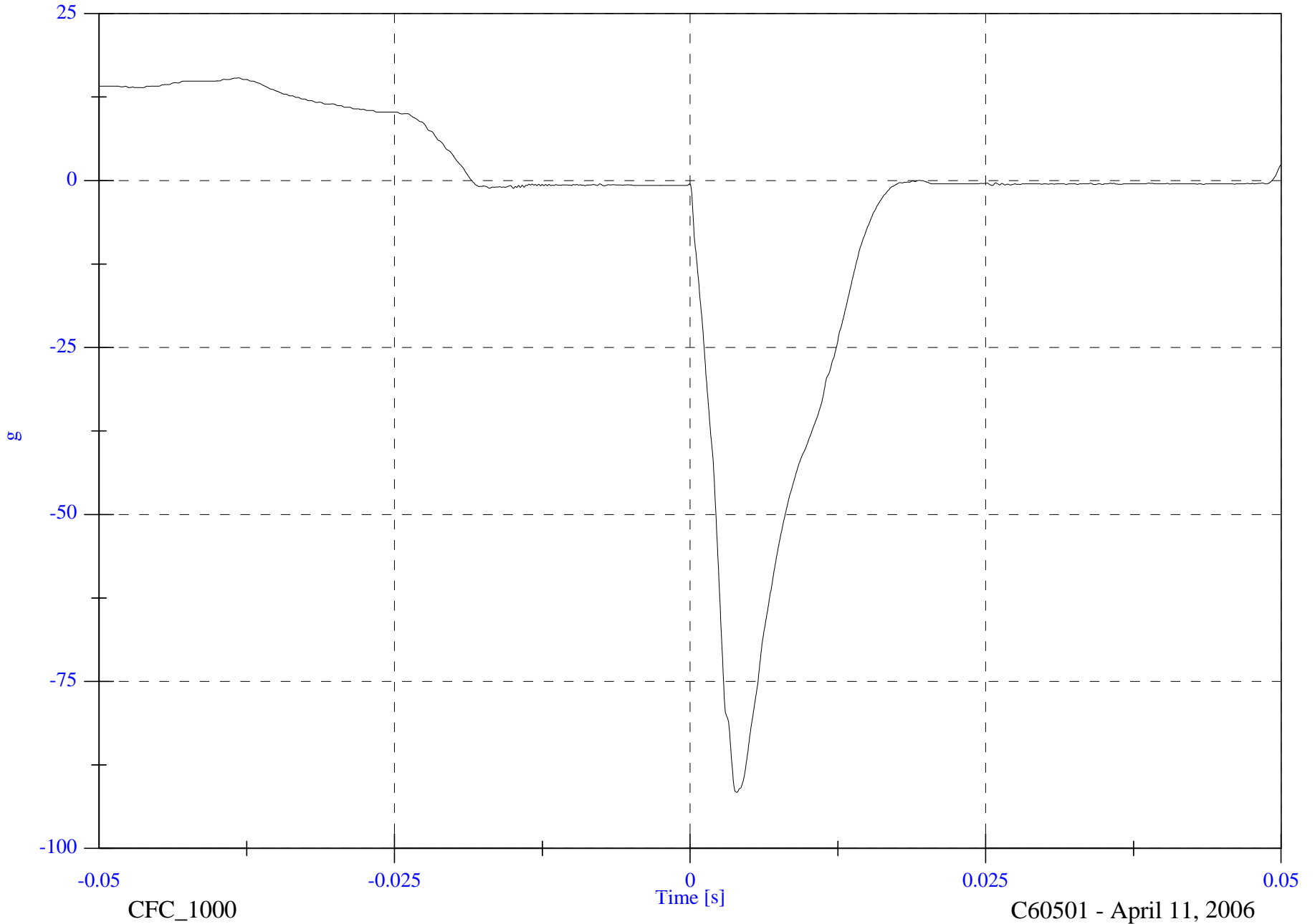
Headform X Acceleration

Max: 15.4 [g] at -0.038 [s]

Min: -91.6 [g] at 0.004 [s]

C60501 PASSENGER SIDE AP3 IMPACT PLOT #1

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

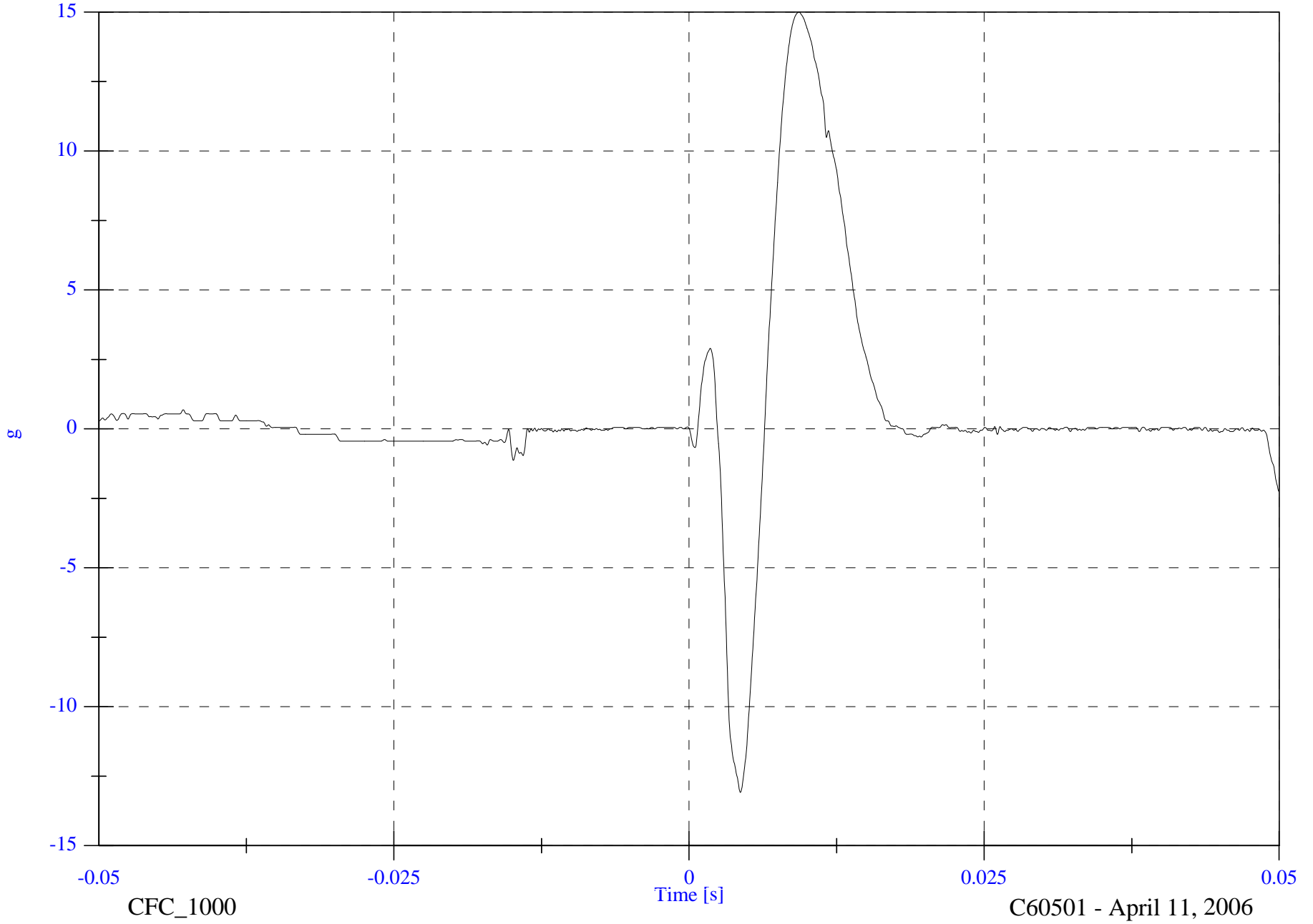
Headform Y Acceleration

Max: 15.0 [g] at 0.009 [s]

Min: -13.1 [g] at 0.004 [s]

C60501 PASSENGER SIDE AP3 IMPACT PLOT #2

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

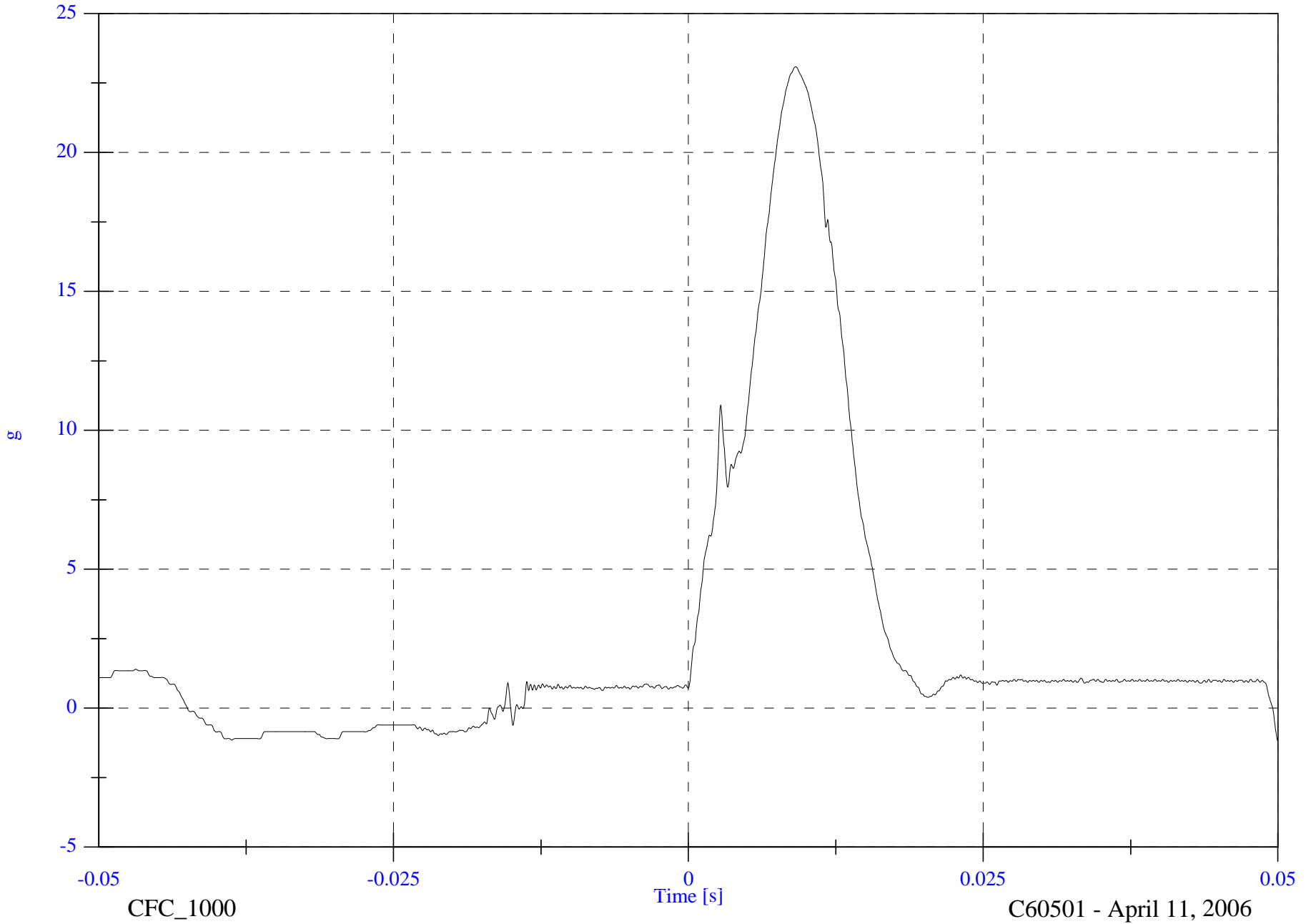
Headform Z Acceleration

Max: 23.1 [g] at 0.009 [s]

Min: -1.2 [g] at 0.050 [s]

C60501 PASSENGER SIDE AP3 IMPACT PLOT #3

8754+FMH-10



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

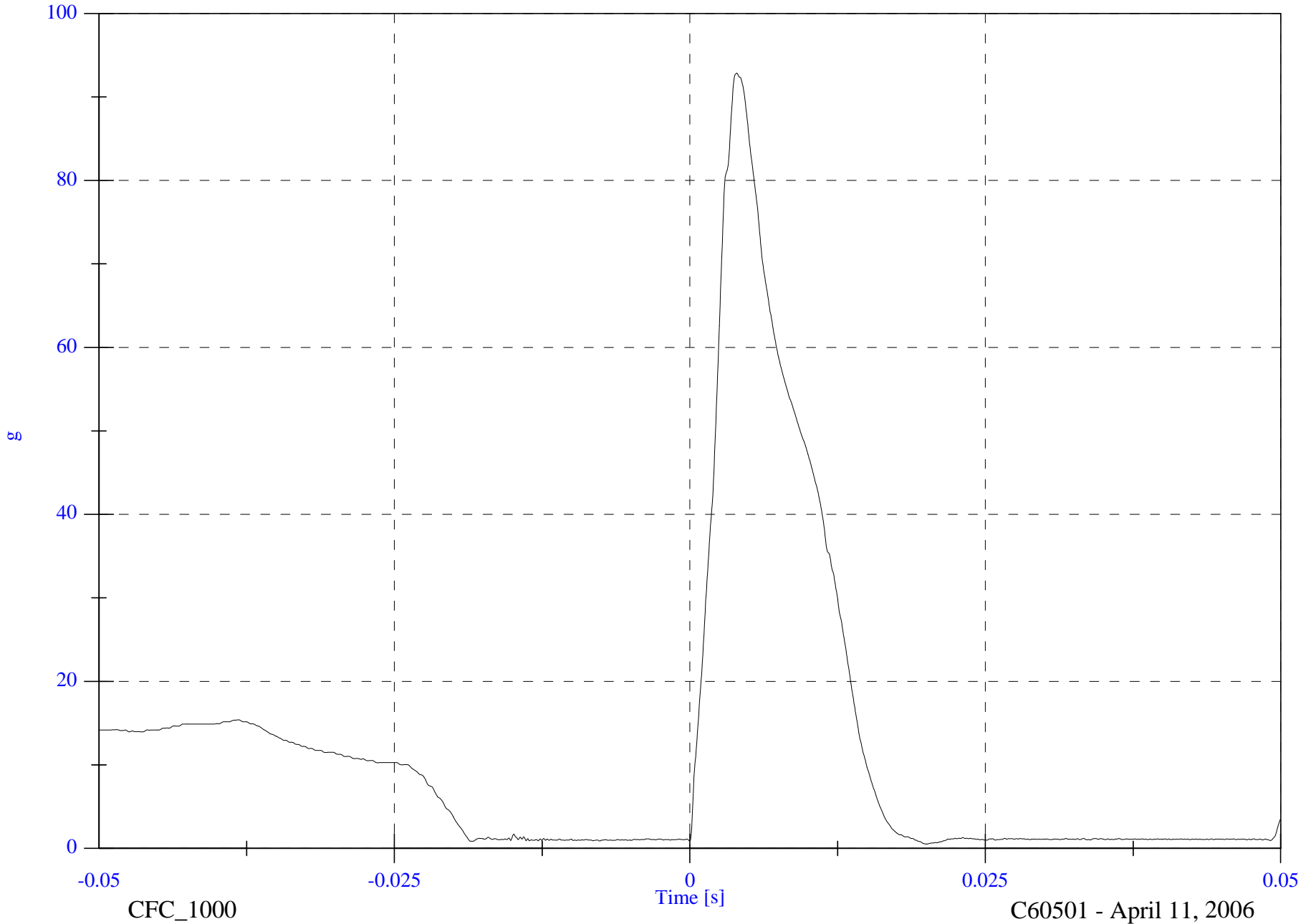
Headform Resultant

Max: 92.8 [g] at 0.004 [s]

Min: 0.5 [g] at 0.020 [s]

C60501 PASSENGER SIDE AP3 IMPACT PLOT #4

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

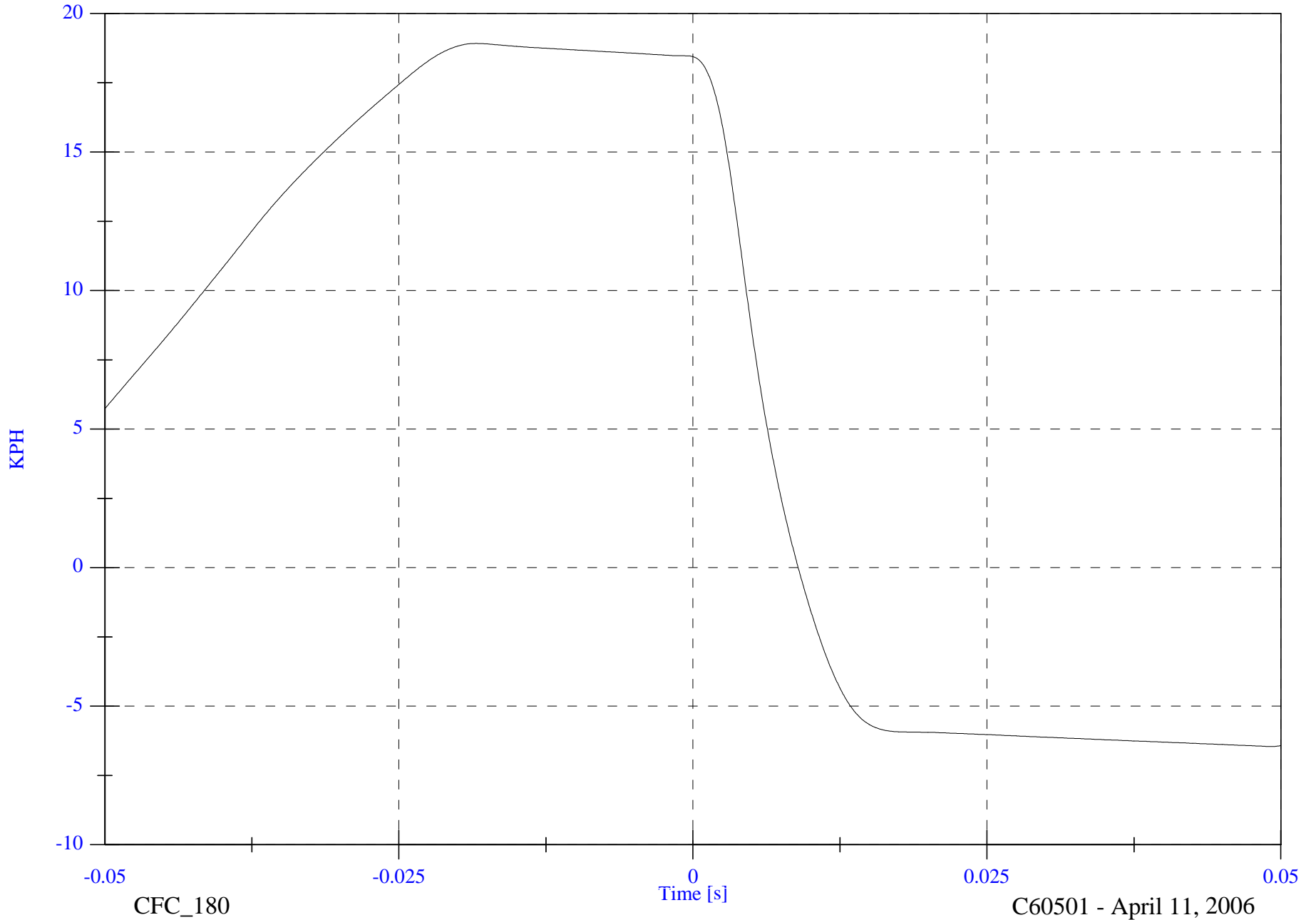
Headform Velocity

Max: 18.9 [KPH] at -0.018 [s]

Min: -6.5 [KPH] at 0.049 [s]

C60501 PASSENGER SIDE AP3 IMPACT PLOT #5

8754+FMH-10



CFC_180

C60501 - April 11, 2006



PRE-IMPACT AP3

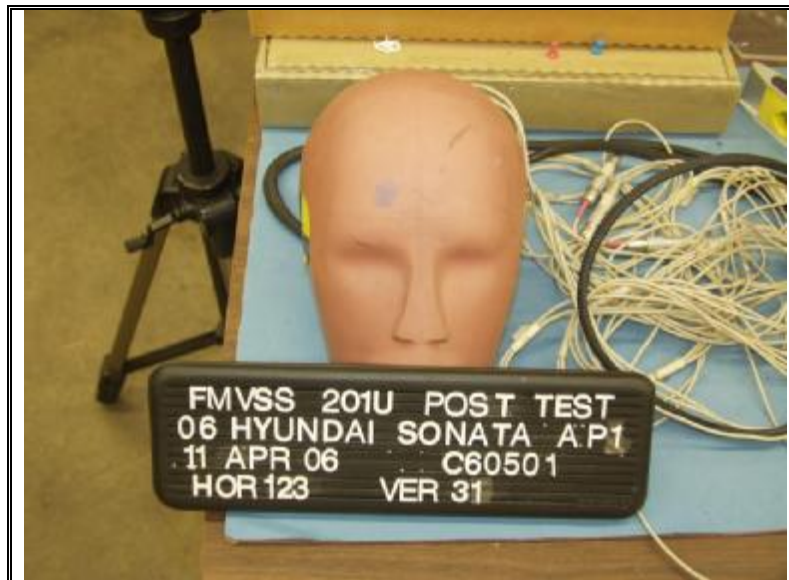


POST-IMPACT AP3

VEHICLE YEAR/MAKE/MODEL/STYLE:	2006 Hyundai Sonata GL
VIN:	KMHET46C96A109867
DATE OF MANUFACTURE:	June 21, 2005 (SEE CERTIFICATION LABEL)
COLOR:	Silver

Test Number:	07
Test Date:	04/11/06
Target Location:	A-PILLAR
Target Code:	AP1
Horizontal Impact Angle:	123°
Vertical Impact Angle:	31°
Ambient Temperature:	23.1 C°
Relative Humidity:	22.2
Time of Impact:	10:25
Headform Number:	1255

Impact Point Description (from lower midpoint on midsagittal line)				
On Centerline	25	x	mm right	mm left
On Centerline	12		mm up	



POST-IMPACT AP1 HEADFORM

Free Motion HIC	278.3
HIC(d)	376.3
Impact Velocity (kph)	18.82
HIC T1 (msec)	3.5
HIC T2 (msec)	12.1

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA C60501 - AP1

FMH Headform 1255

Location: AP1

Test Date: April 11, 2006

Work File: AP1

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

Lab Temperature: 23.1 C

HICd: 376.3

Lab Humidity: 22.2 %

HIC (36ms): 278.3

Velocity at Impact: 18.82 KPH

t1: 3.5 msec

t2: 12.1 msec

Free Flight Distance: 216.08 mm

Duration: 8.7 msec

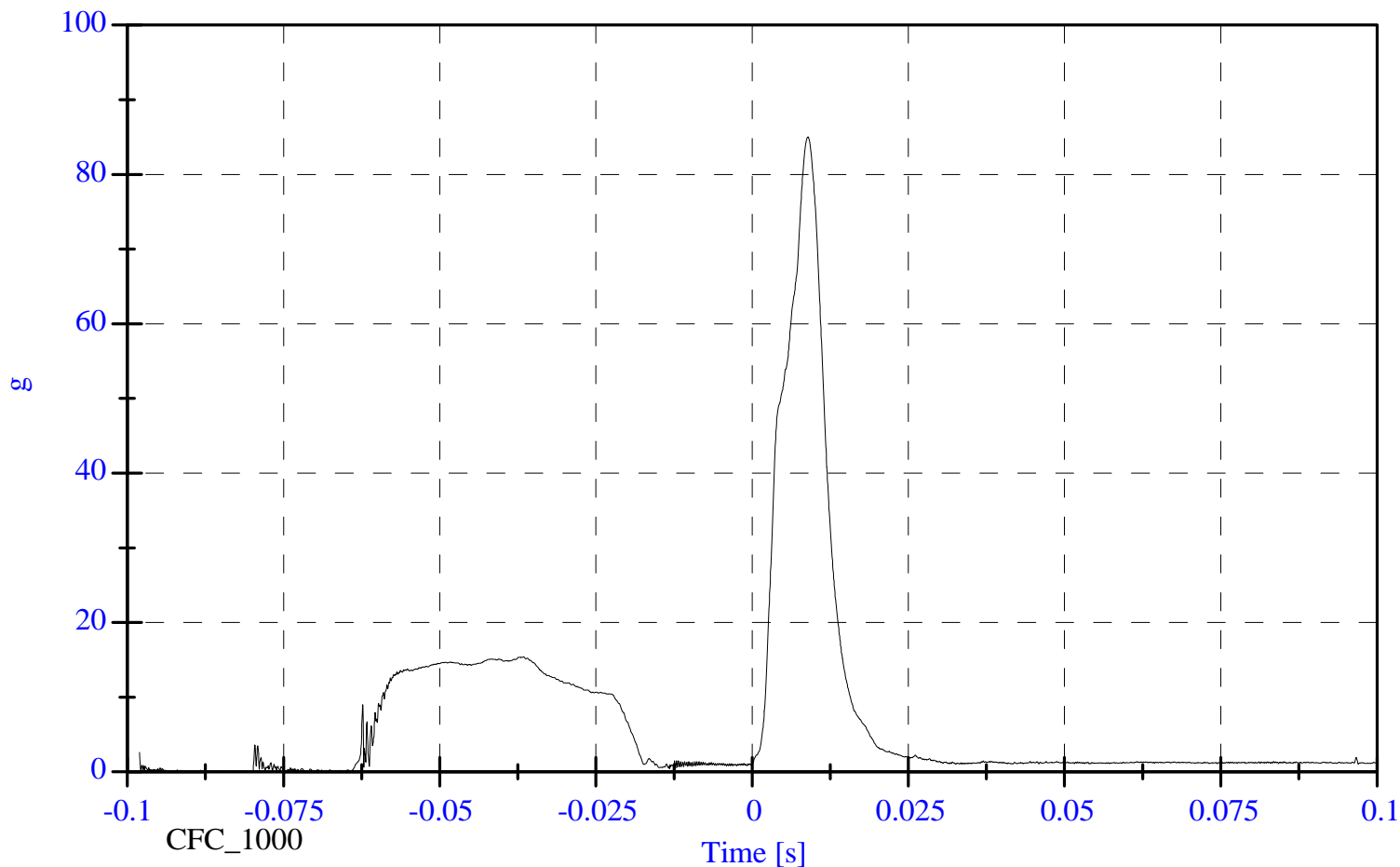
Maximum: 85.0 g

Average Acceleration: 6.9 g

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA
Headform Resultant

Max: 85.0 [g] at 0.009 [s]

Min: 0.0 [g] at -0.091 [s]



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

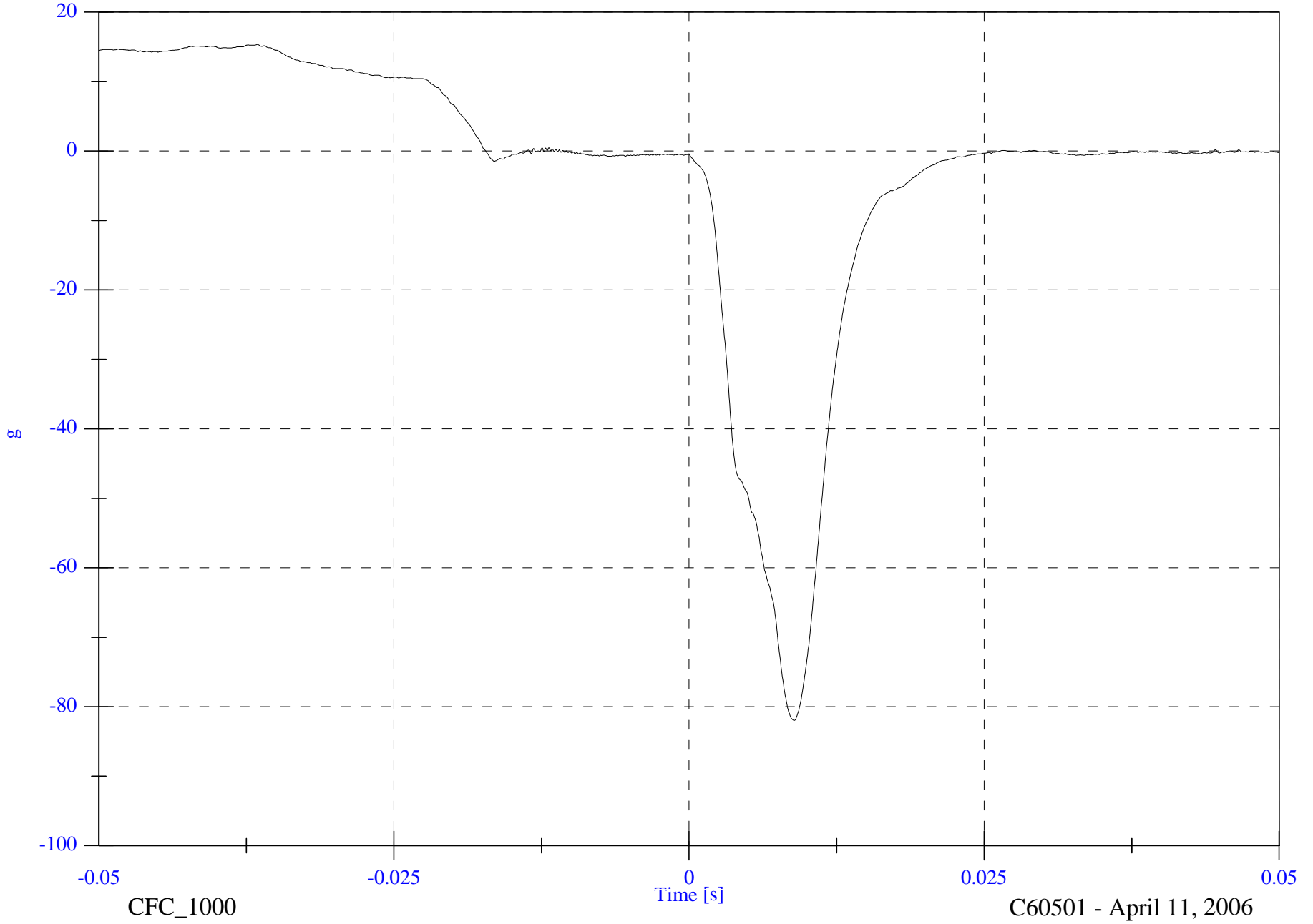
Headform X Acceleration

Max: 15.3 [g] at -0.037 [s]

Min: -82.0 [g] at 0.009 [s]

C60501 PASSENGER SIDE AP1 IMPACT PLOT #1

8754+FMH-10



CFC_1000

Time [s]

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

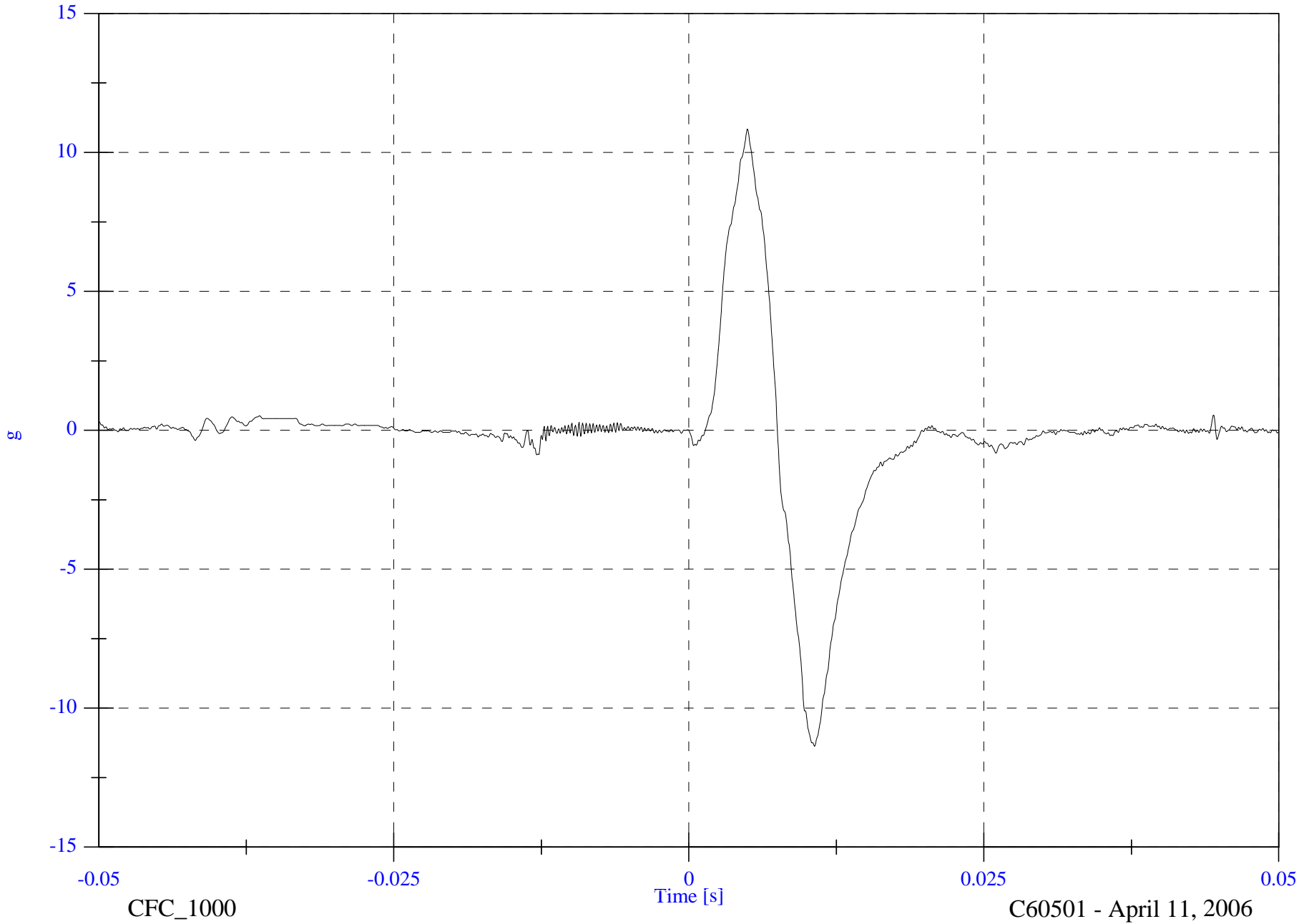
Headform Y Acceleration

Max: 10.8 [g] at 0.005 [s]

Min: -11.4 [g] at 0.011 [s]

C60501 PASSENGER SIDE AP1 IMPACT PLOT #2

8754+FMH-10



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

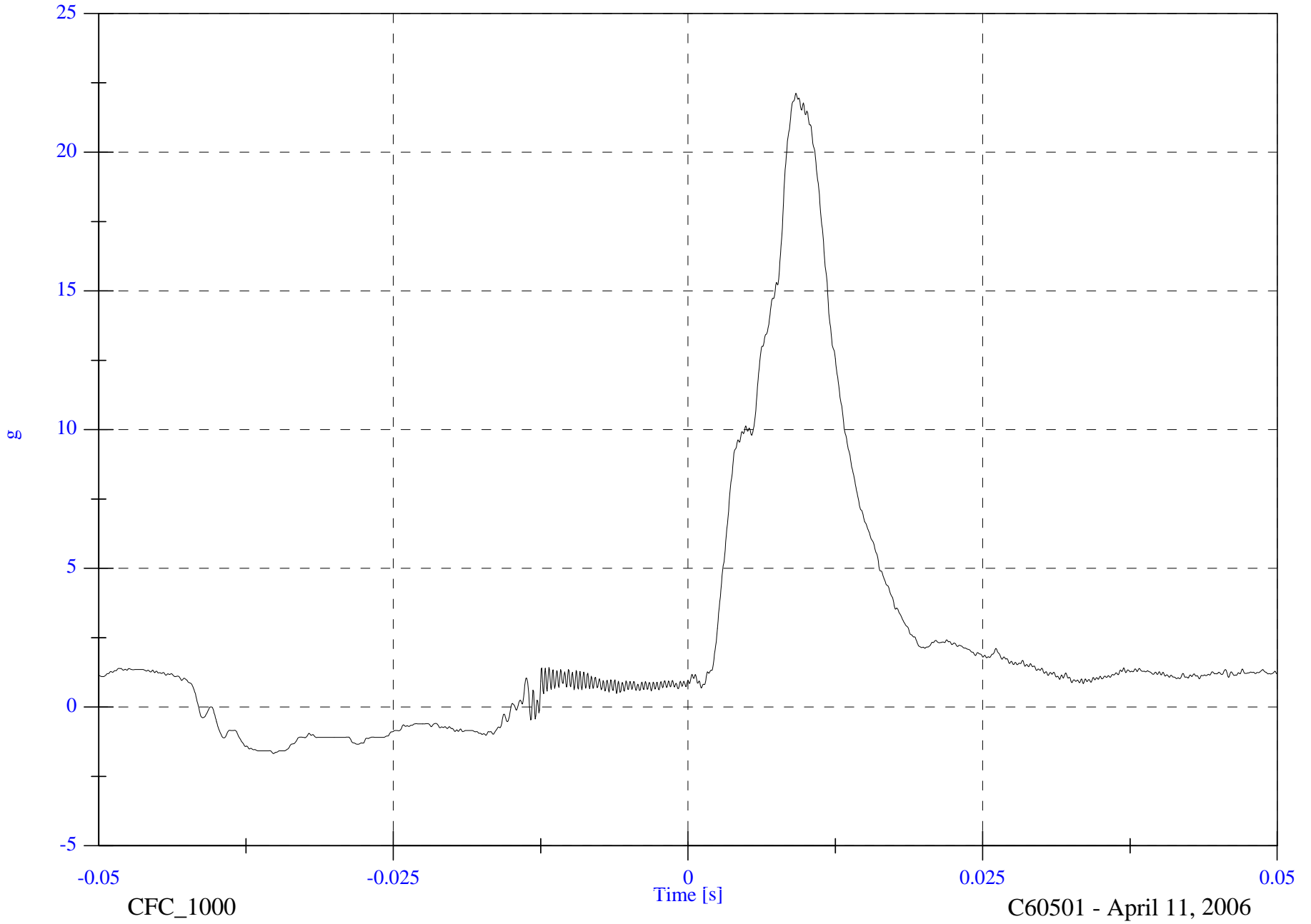
Headform Z Acceleration

Max: 22.1 [g] at 0.009 [s]

Min: -1.7 [g] at -0.035 [s]

C60501 PASSENGER SIDE AP1 IMPACT PLOT #3

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

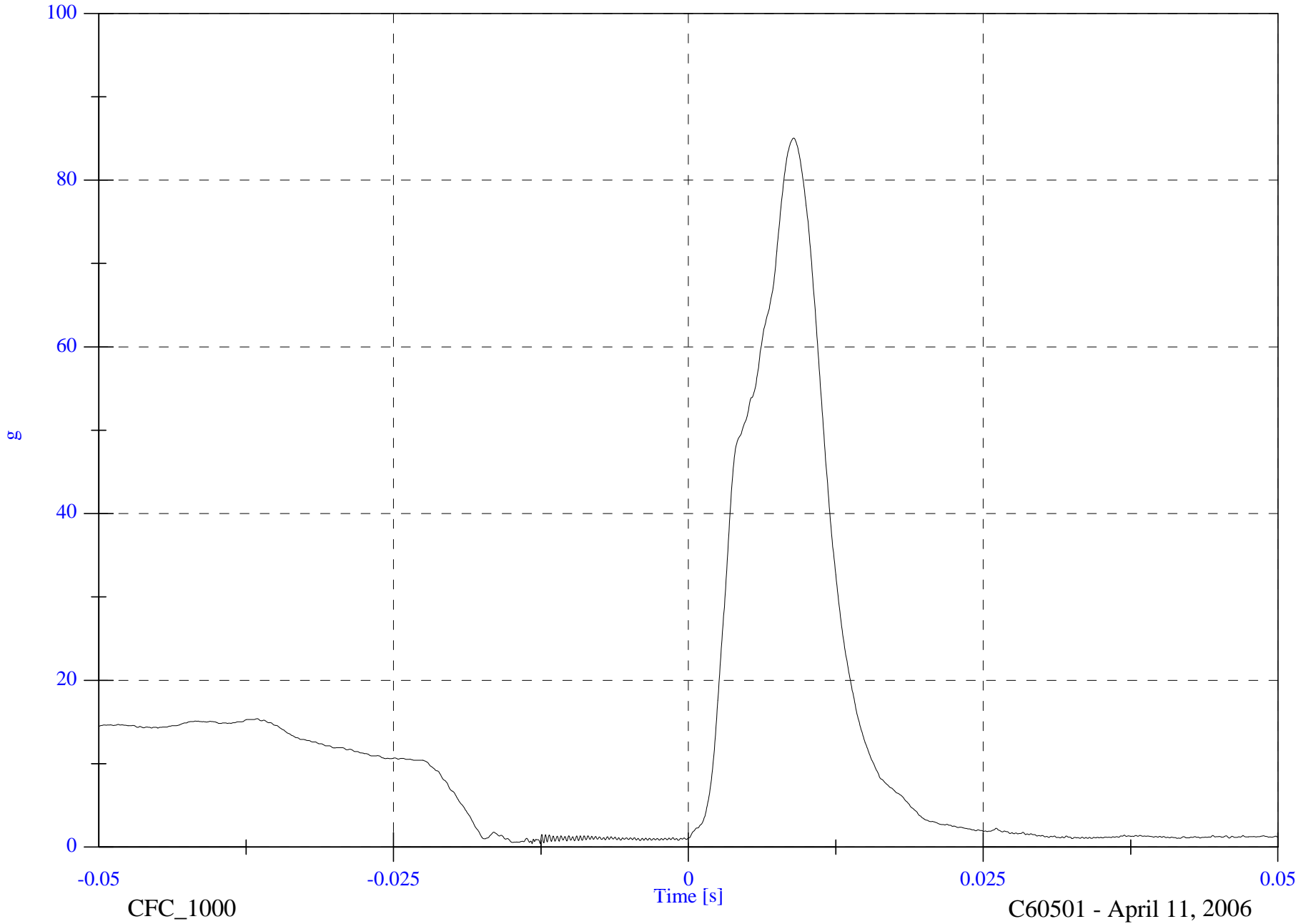
Headform Resultant

Max: 85.0 [g] at 0.009 [s]

Min: 0.4 [g] at -0.013 [s]

C60501 PASSENGER SIDE AP1 IMPACT PLOT #4

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

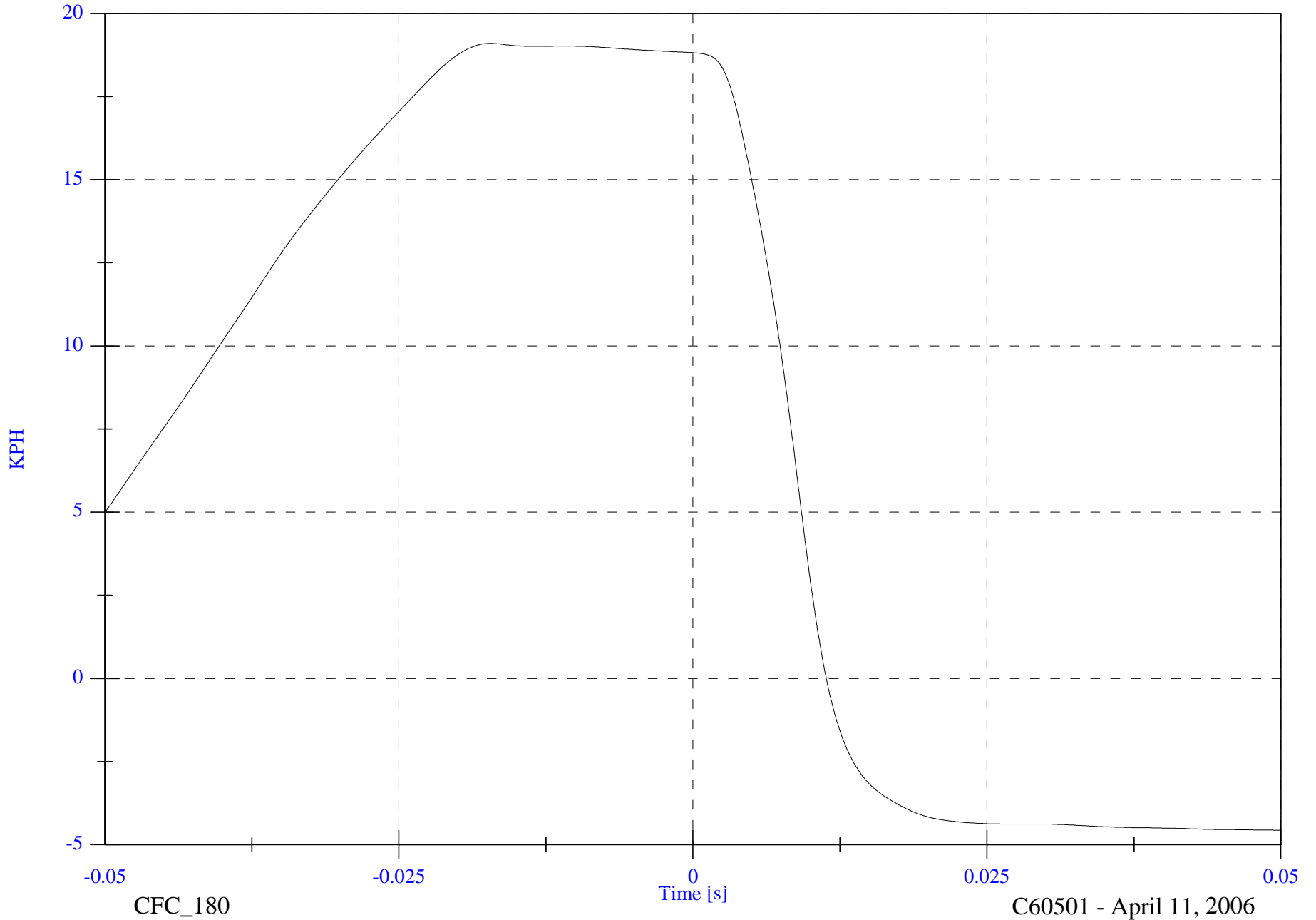
Headform Velocity

Max: 19.1 [KPH] at -0.017 [s]

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

C60501 PASSENGER SIDE AP1 IMPACT PLOT #5

8754+FMH-10



CFC_180

C60501 - April 11, 2006



PRE-IMPACT AP1



POST-IMPACT API

VEHICLE YEAR/MAKE/MODEL/STYLE:	2006 Hyundai Sonata GL
VIN:	KMHET46C96A109867
DATE OF MANUFACTURE:	June 21, 2005 (SEE CERTIFICATION LABEL)
COLOR:	Silver

Test Number:	08
Test Date:	04/11/06
Target Location:	REAR PILLAR
Target Code:	RP1
Horizontal Impact Angle:	322°
Vertical Impact Angle:	20°
Ambient Temperature:	21.6 C°
Relative Humidity:	20.8
Time of Impact:	11:34
Headform Number:	0642

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	5	x	mm right		mm left
On Centerline	34				mm up



POST-IMPACT RP1 HEADFORM

Free Motion HIC	351.9
HIC(d)	431.9
Impact Velocity (kph)	18.65
HIC T1 (msec)	3.7
HIC T2 (msec)	11.2

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA C60501 - RP1

FMH Headform 0642

Location: RP1

Test Date: April 11, 2006

Work File: RP1

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

Lab Temperature: 21.6 C

HICd: 431.9

Lab Humidity: 20.8 %

HIC (36ms): 351.9

Velocity at Impact: 18.65 KPH

t1: 3.7 msec

t2: 11.2 msec

Free Flight Distance: 208.75 mm

Duration: 7.5 msec

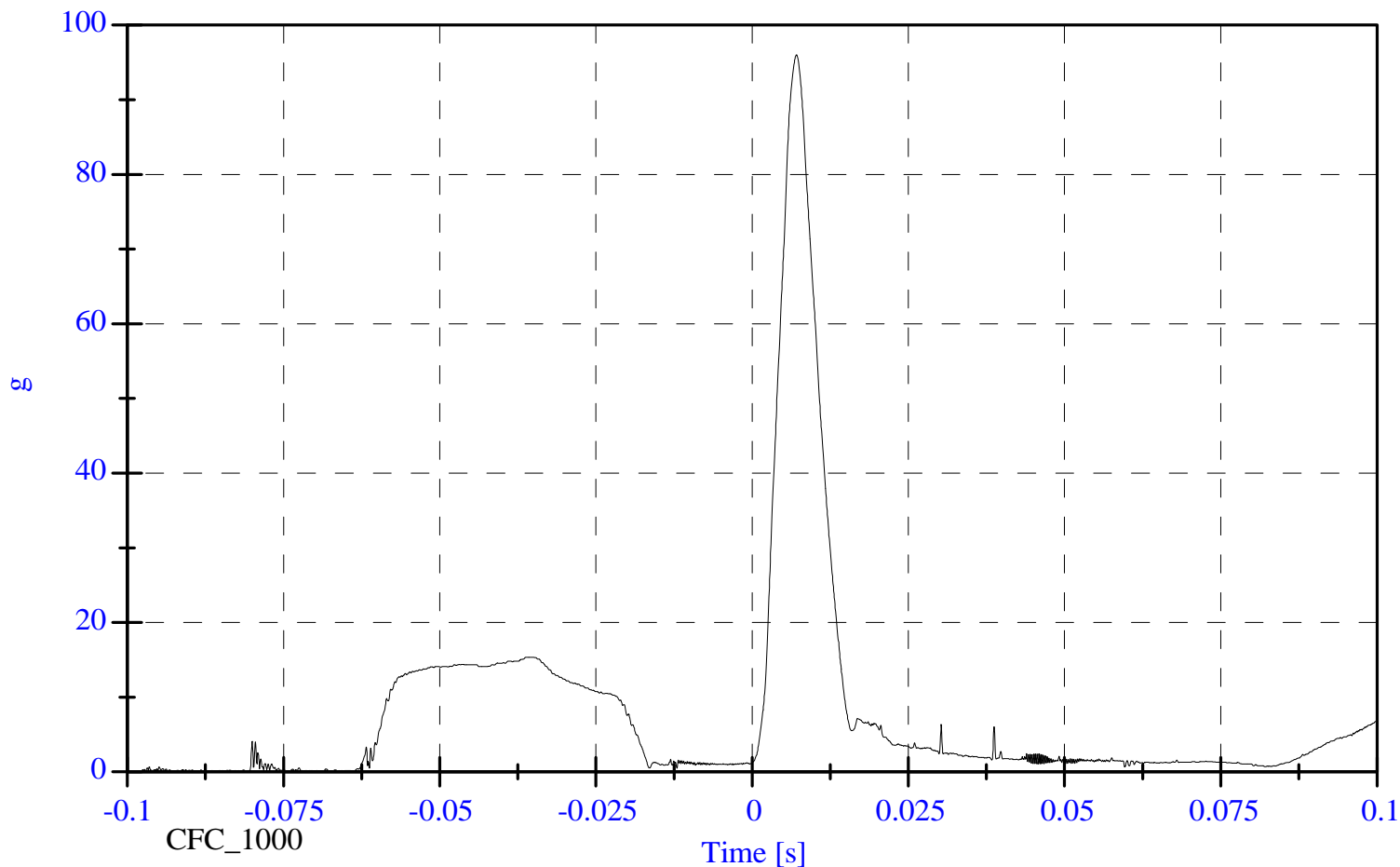
Maximum: 96.0 g

Average Acceleration: 7.5 g

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA
Headform Resultant

Max: 96.0 [g] at 0.007 [s]

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



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

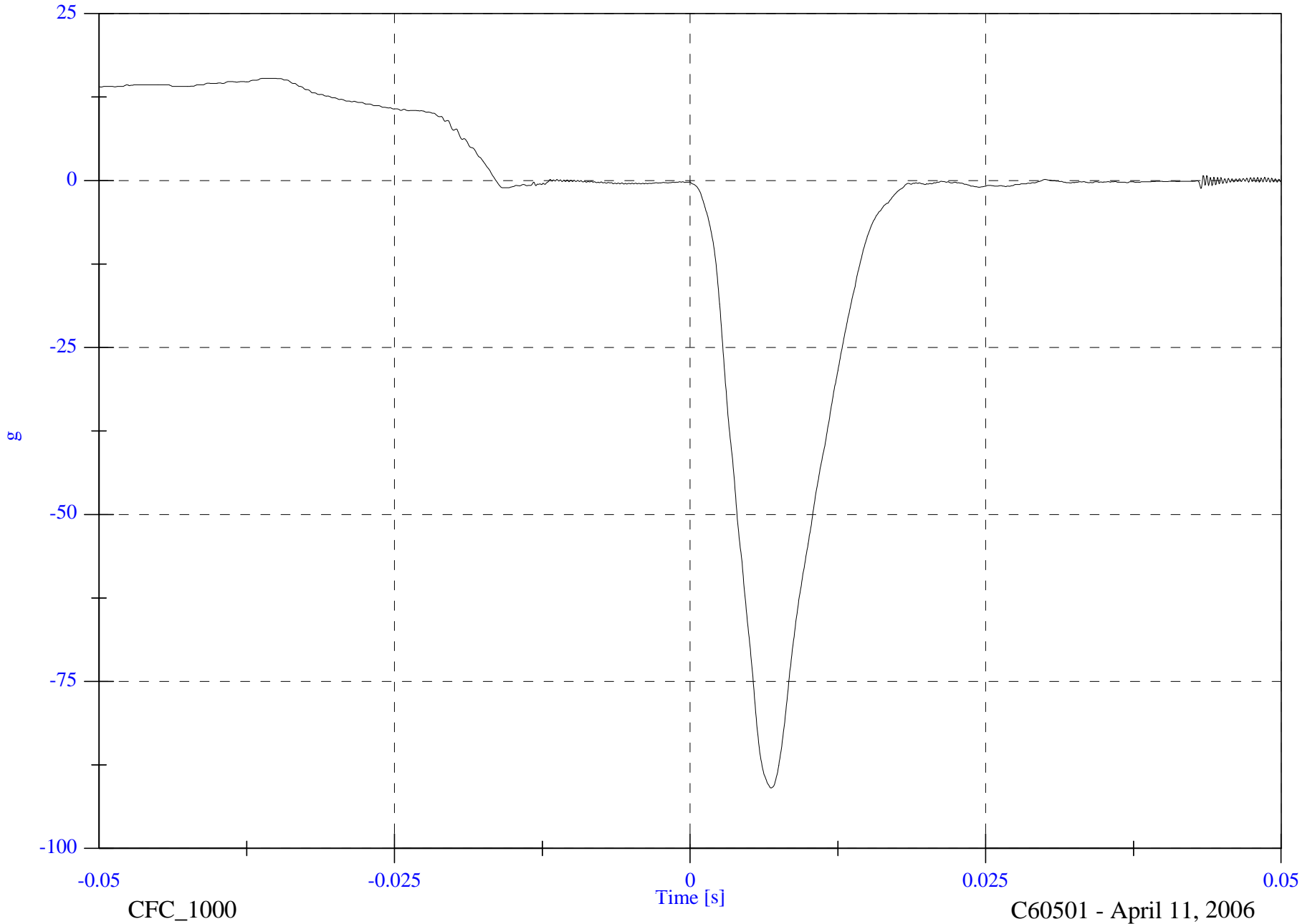
Headform X Acceleration

Max: 15.3 [g] at -0.036 [s]

Min: -91.0 [g] at 0.007 [s]

C60501 DRIVER SIDE RP1 IMPACT PLOT #1

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

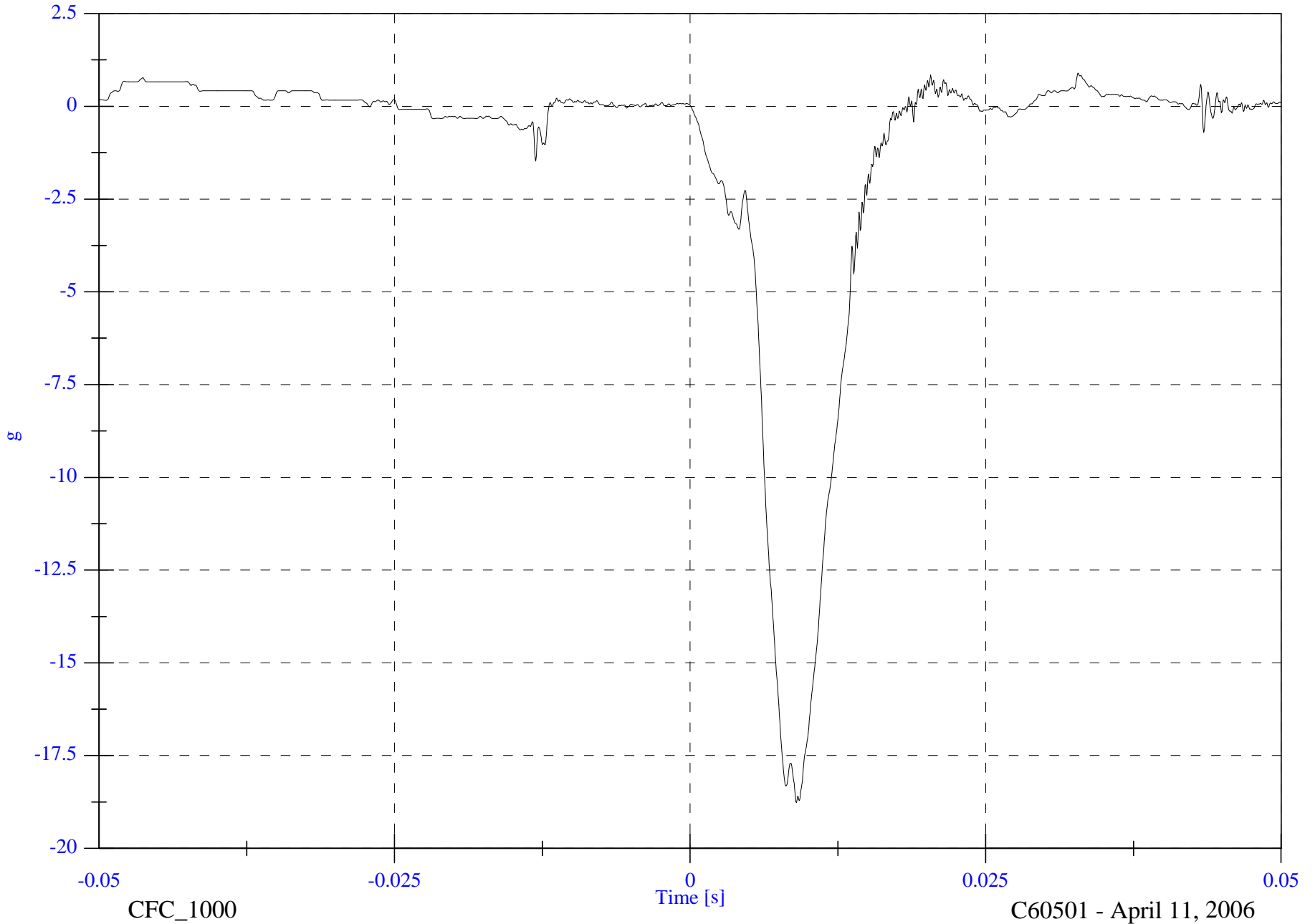
Headform Y Acceleration

Max: 0.9 [g] at 0.033 [s]

Min: -18.8 [g] at 0.009 [s]

C60501 DRIVER SIDE RP1 IMPACT PLOT #2

8754+FMH-10



CFC_1000

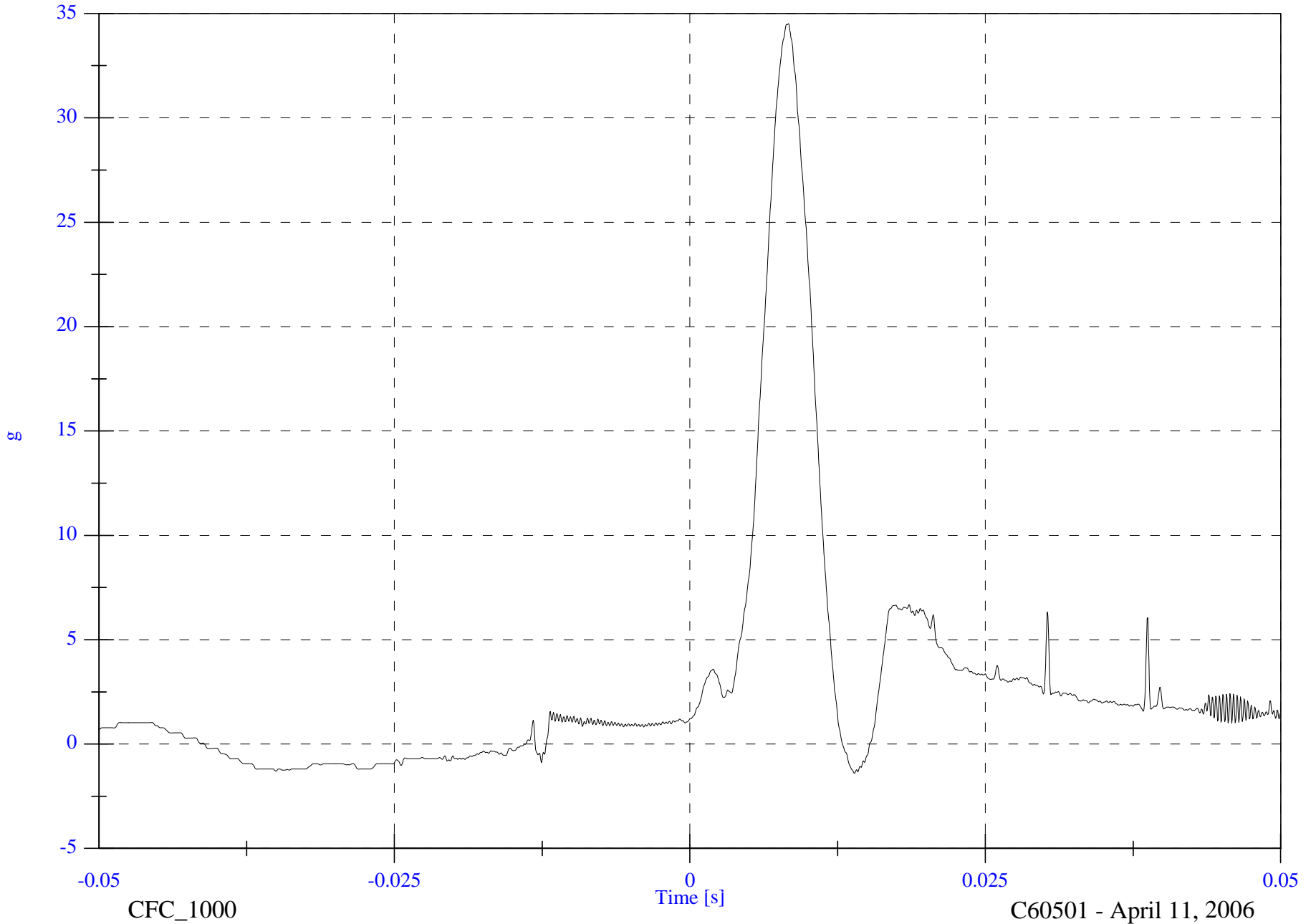
C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

Headform Z Acceleration

Max: 34.5 [g] at 0.008 [s]

Min: -1.4 [g] at 0.014 [s]



C60501 DRIVER SIDE RP1 IMPACT PLOT #3

8754+FMH-10

CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

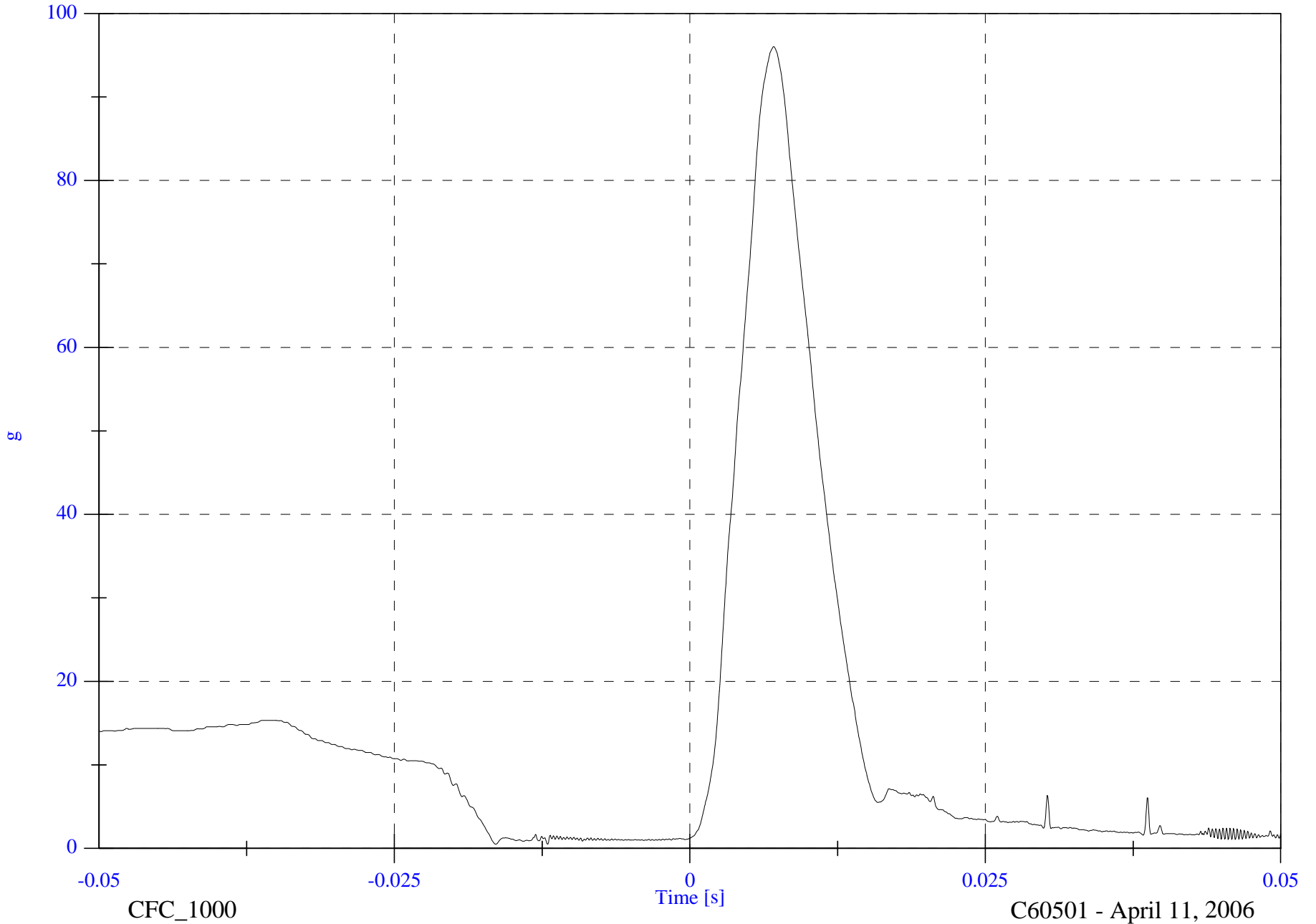
Headform Resultant

Max: 96.0 [g] at 0.007 [s]

Min: 0.5 [g] at -0.012 [s]

C60501 DRIVER SIDE RP1 IMPACT PLOT #4

8754+FMH-10



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

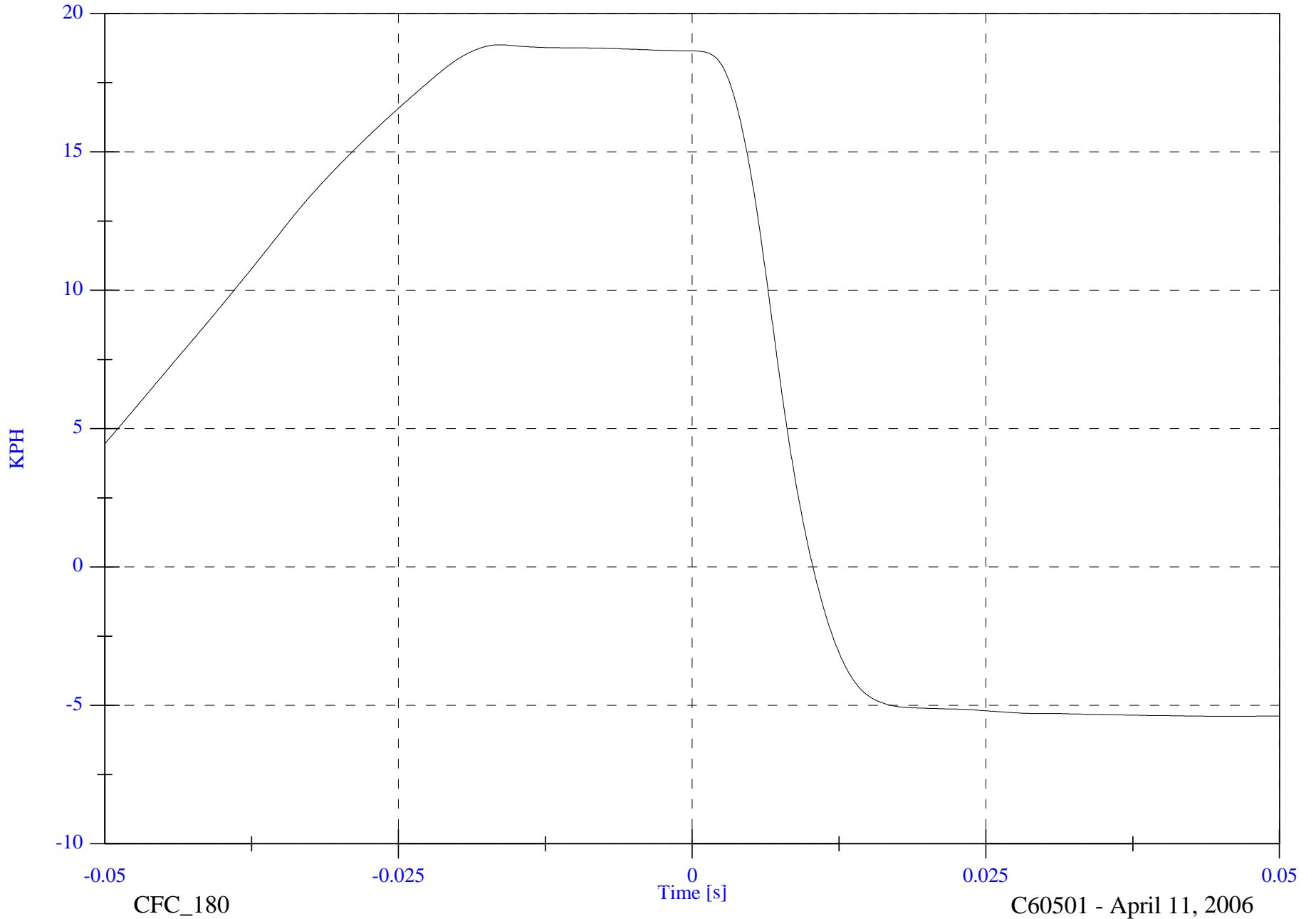
Headform Velocity

Max: 18.9 [KPH] at -0.016 [s]

Min: -5.4 [KPH] at 0.046 [s]

C60501 DRIVER SIDE RP1 IMPACT PLOT #5

8754+FMH-10





PRE-IMPACT RP1



POST-IMPACT RP1

VEHICLE YEAR/MAKE/MODEL/STYLE:	2006 Hyundai Sonata GL
VIN:	KMHET46C96A109867
DATE OF MANUFACTURE:	June 21, 2005 (SEE CERTIFICATION LABEL)
COLOR:	Silver

Test Number:	09
Test Date:	04/11/06
Target Location:	B-PILLAR
Target Code:	BP2
Horizontal Impact Angle:	270°
Vertical Impact Angle:	10°
Ambient Temperature:	21.9 C°
Relative Humidity:	21.1
Time of Impact:	11:55
Headform Number:	0062

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	3	mm right	x mm left
On Centerline	3	mm up	



POST-IMPACT BP2 HEADFORM

Free Motion HIC	780.2
HIC(d)	755.0
Impact Velocity (kph)	23.68
HIC T1 (msec)	2.9
HIC T2 (msec)	8.0

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA C60501 - BP2

FMH Headform 0062

Location: BP2

Test Date: April 11, 2006

Work File: BP2

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

Lab Temperature: 21.9 C

HICd: 755.0

Lab Humidity: 21.1 %

HIC (36ms): 780.2

Velocity at Impact: 23.68 KPH

t1: 2.9 msec

t2: 8.0 msec

Free Flight Distance: 217.72 mm

Duration: 5.0 msec

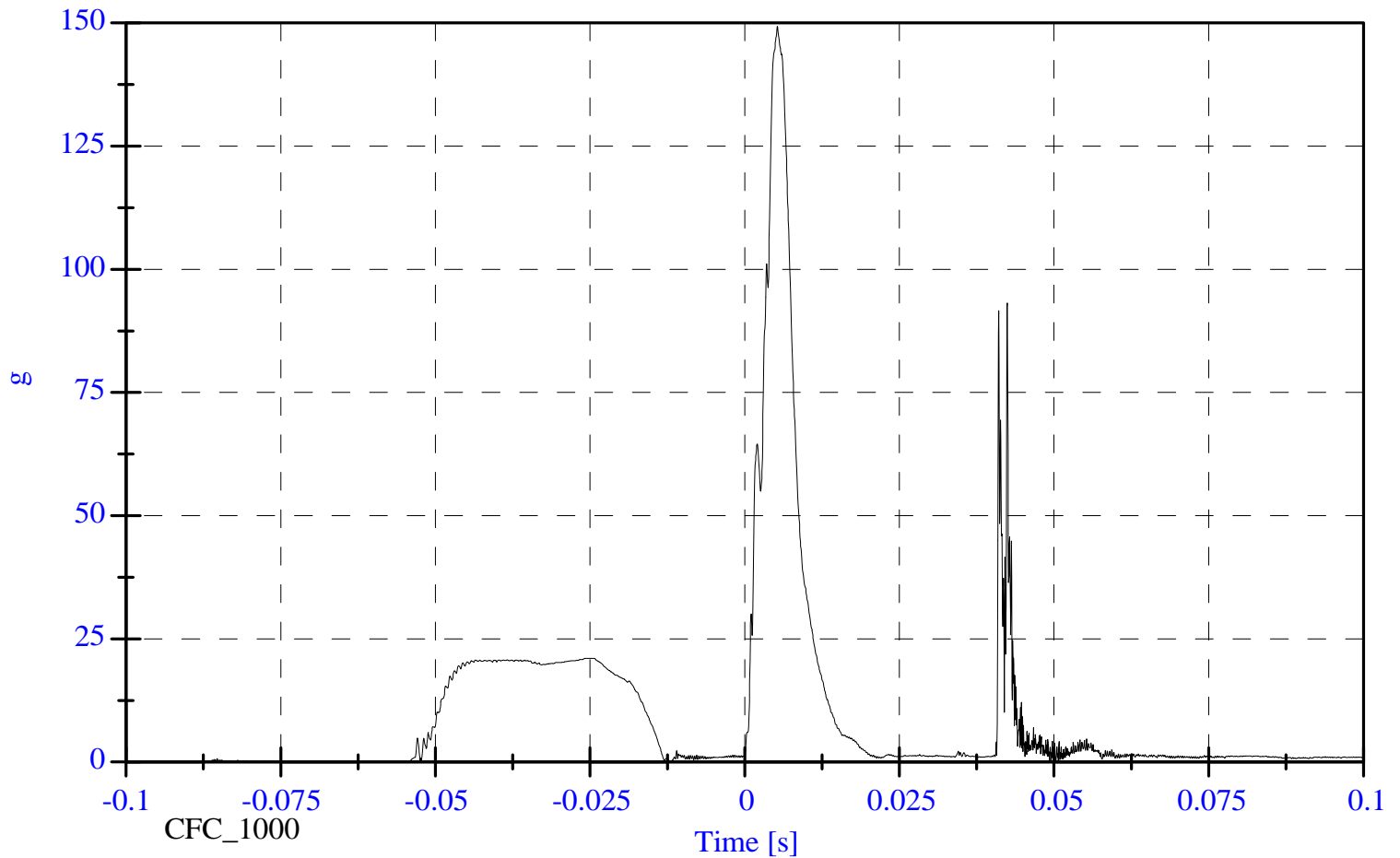
Maximum: 149.3 g

Average Acceleration: 9.3 g

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA
Headform Resultant

Max: 149.3 [g] at 0.005 [s]

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



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

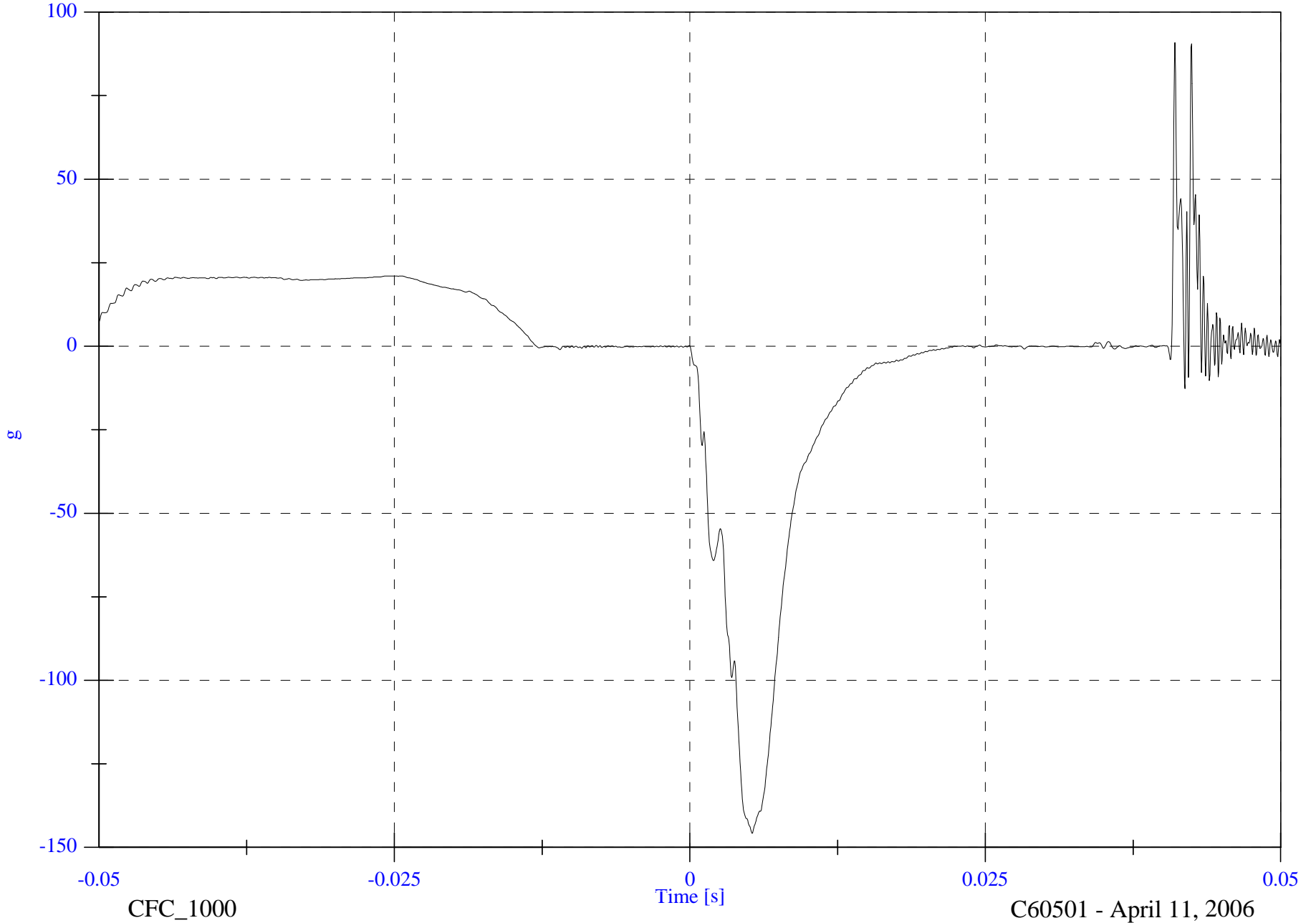
Headform X Acceleration

Max: 90.8 [g] at 0.041 [s]

Min: -145.8 [g] at 0.005 [s]

C60501 DRIVER SIDE BP2 IMPACT PLOT #1

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

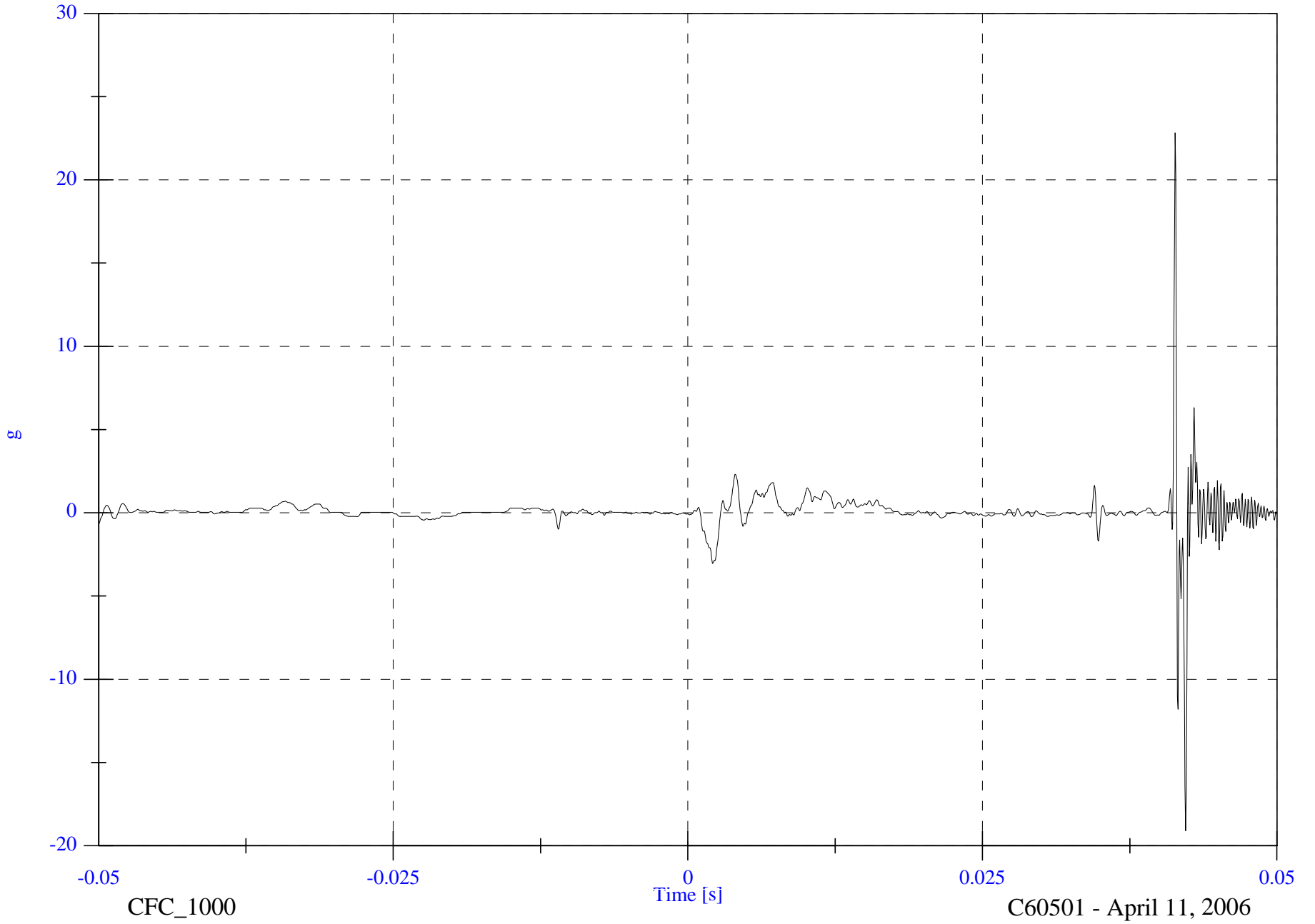
Headform Y Acceleration

Max: 22.8 [g] at 0.041 [s]

Min: -19.1 [g] at 0.042 [s]

C60501 DRIVER SIDE BP2 IMPACT PLOT #2

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

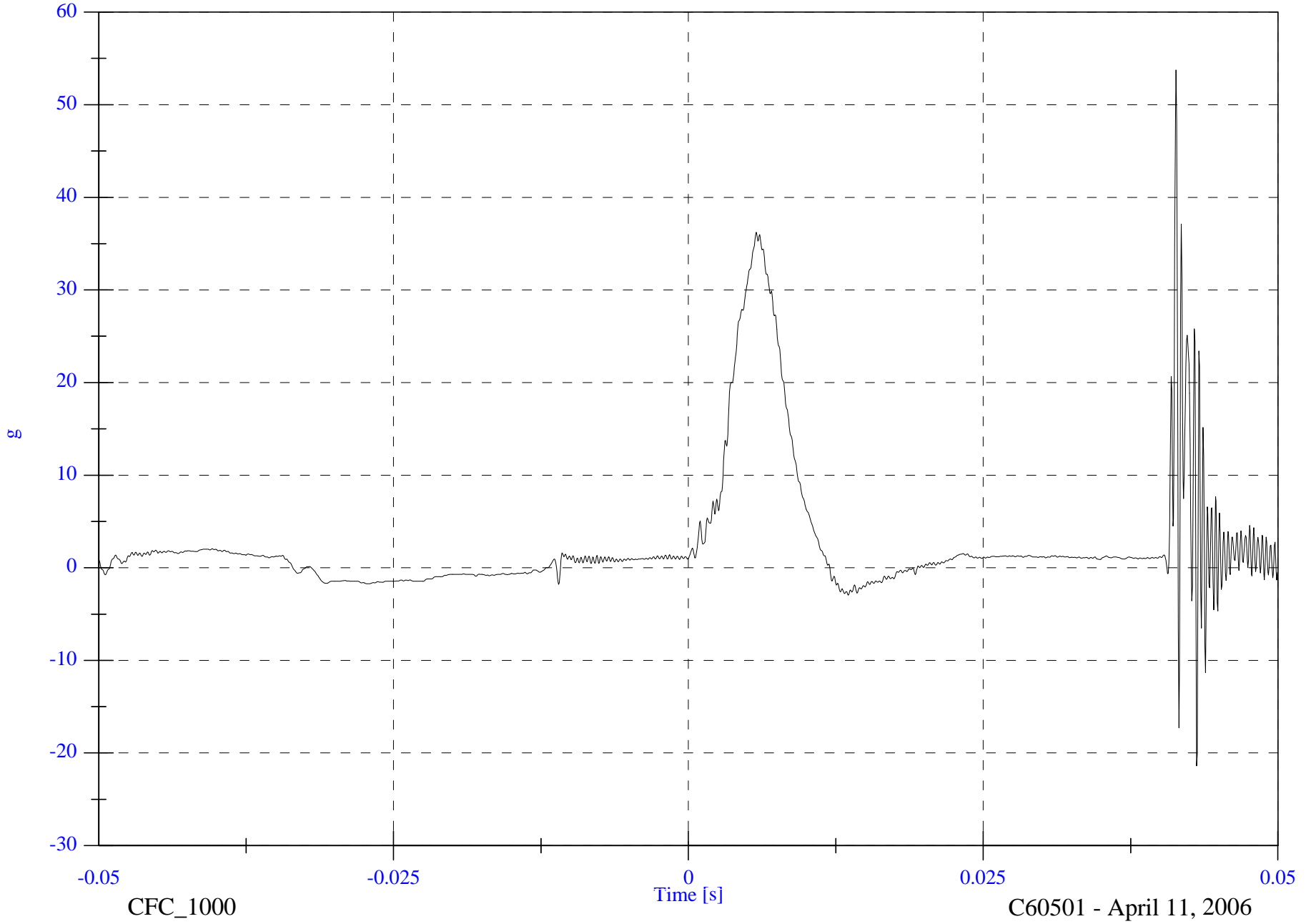
Headform Z Acceleration

Max: 53.8 [g] at 0.041 [s]

Min: -21.4 [g] at 0.043 [s]

C60501 DRIVER SIDE BP2 IMPACT PLOT #3

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

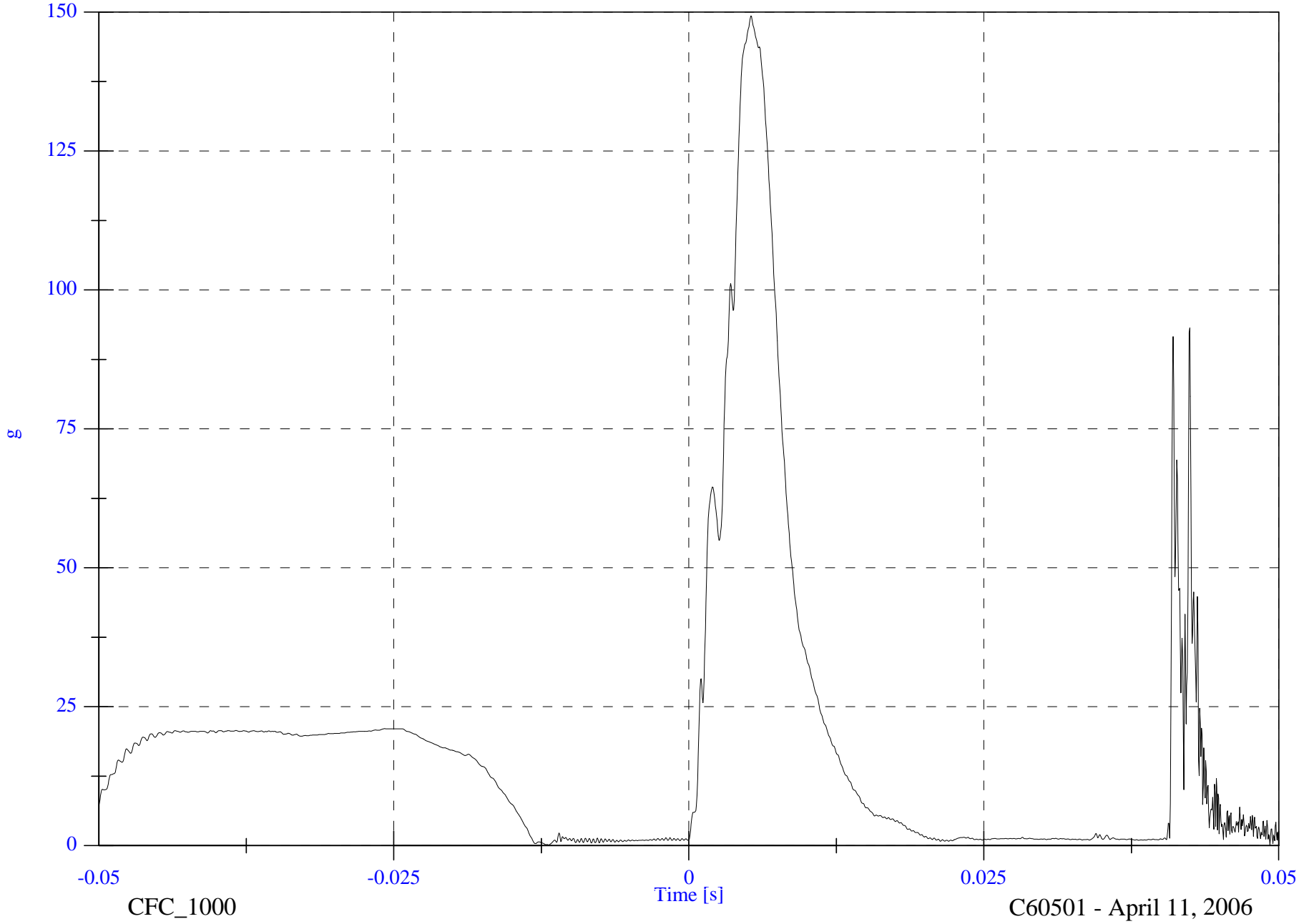
Headform Resultant

Max: 149.3 [g] at 0.005 [s]

Min: 0.1 [g] at -0.012 [s]

C60501 DRIVER SIDE BP2 IMPACT PLOT #4

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

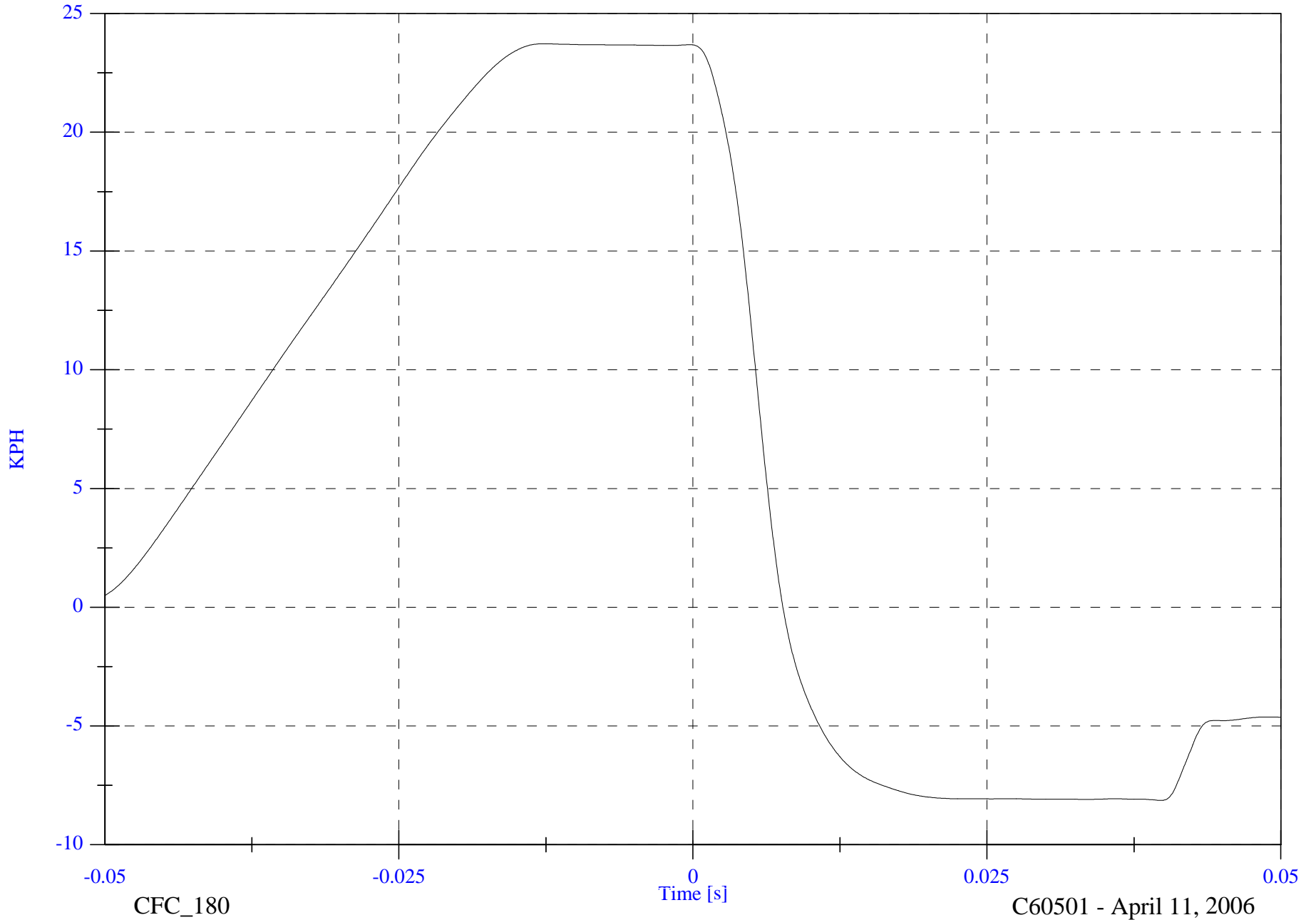
Headform Velocity

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

Min: -8.1 [KPH] at 0.040 [s]

C60501 DRIVER SIDE BP2 IMPACT PLOT #5

8754+FMH-10



CFC_180

C60501 - April 11, 2006



PRE-IMPACT BP2



POST-IMPACT BP2

VEHICLE YEAR/MAKE/MODEL/STYLE:	2006 Hyundai Sonata GL
VIN:	KMHET46C96A109867
DATE OF MANUFACTURE:	June 21, 2005 (SEE CERTIFICATION LABEL)
COLOR:	Silver

Test Number:	10
Test Date:	04/11/06
Target Location:	UPPER ROOF
Target Code:	URBP
Horizontal Impact Angle:	270°
Vertical Impact Angle:	50°
Ambient Temperature:	22.0 C°
Relative Humidity:	20.7
Time of Impact:	13:16
Headform Number:	0805

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	8	mm right	x mm left
On Centerline	43	mm up	



POST-IMPACT URBP HEADFORM

Free Motion HIC	868.7
HIC(d)	821.8
Impact Velocity (kph)	23.49
HIC T1 (msec)	4.0
HIC T2 (msec)	10.8

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA C60501 - URBP

FMH Headform 0805

Location: URBP

Test Date: April 11, 2006

Work File: URBP

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

Lab Temperature: 22.0 C

HICd: 821.8

Lab Humidity: 20.7 %

HIC (36ms): 868.7

Velocity at Impact: 23.49 KPH

t1: 4.0 msec

t2: 10.8 msec

Free Flight Distance: 225.16 mm

Duration: 6.8 msec

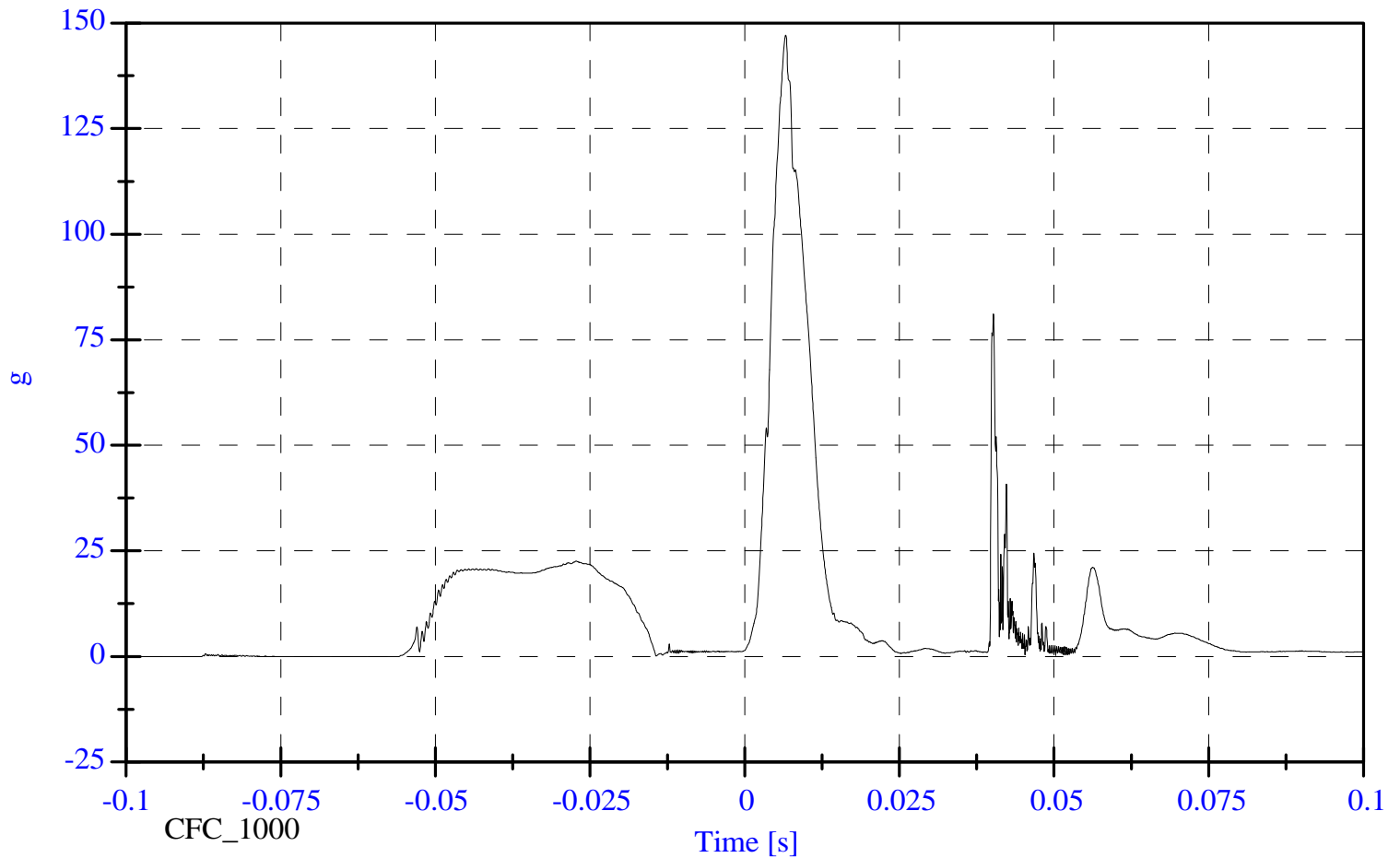
Maximum: 147.1 g

Average Acceleration: 10.3 g

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA
Headform Resultant

Max: 147.1 [g] at 0.007 [s]

Min: -0.0 [g] at -0.098 [s]



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

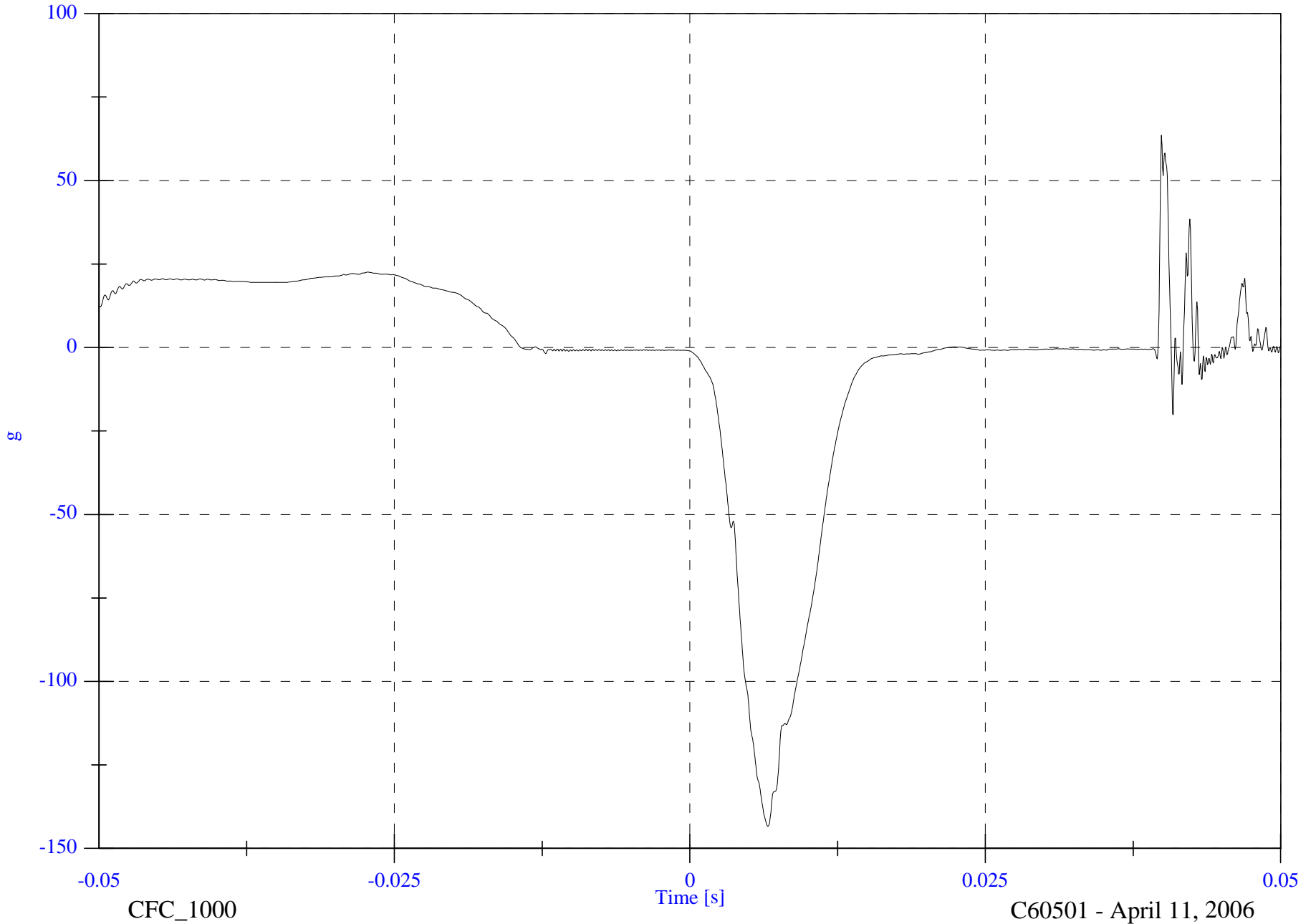
Headform X Acceleration

Max: 63.5 [g] at 0.040 [s]

Min: -143.3 [g] at 0.007 [s]

C60501 DRIVER SIDE URBP IMPACT PLOT #1

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

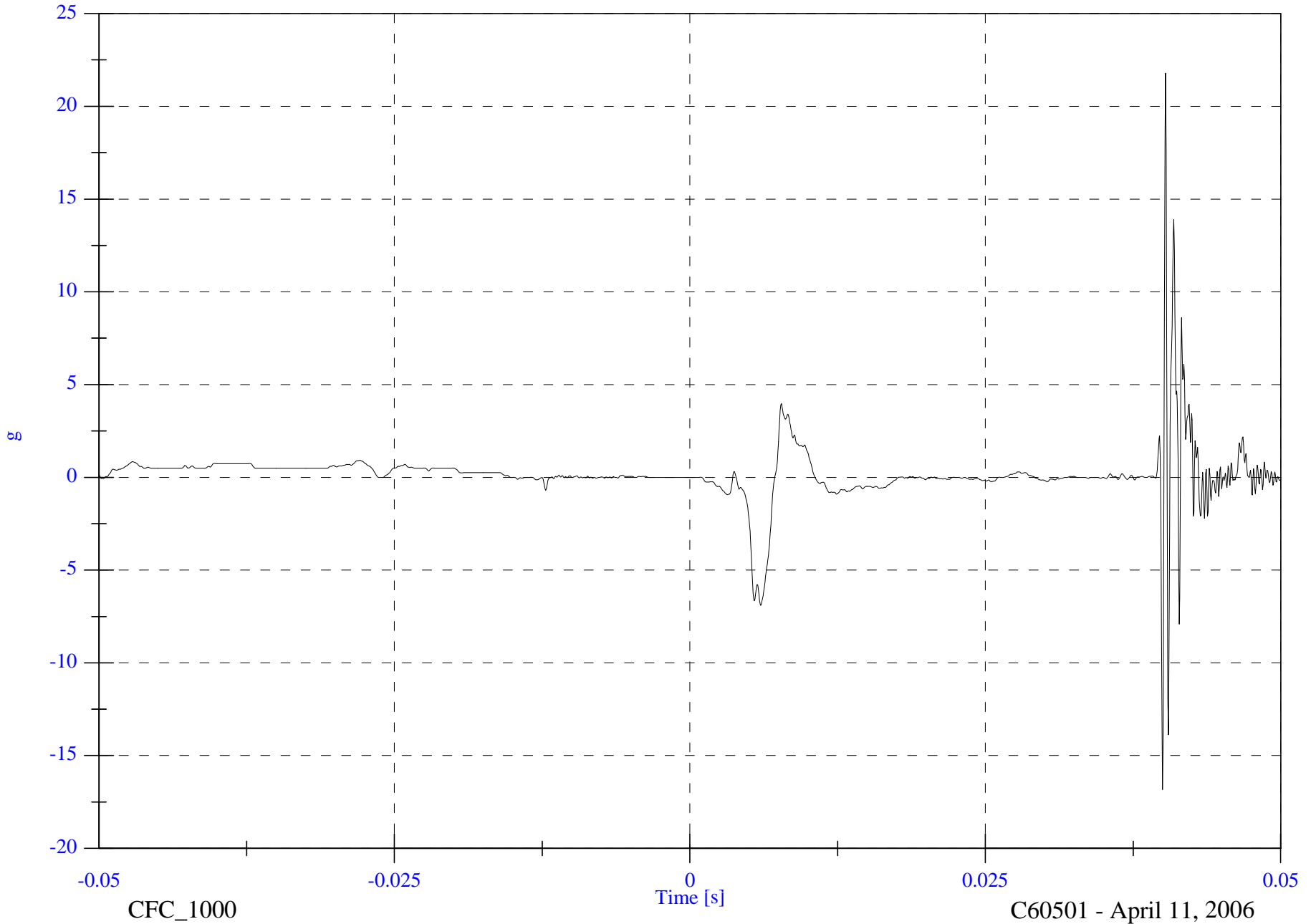
Headform Y Acceleration

Max: 21.8 [g] at 0.040 [s]

Min: -16.8 [g] at 0.040 [s]

C60501 DRIVER SIDE URBP IMPACT PLOT #2

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

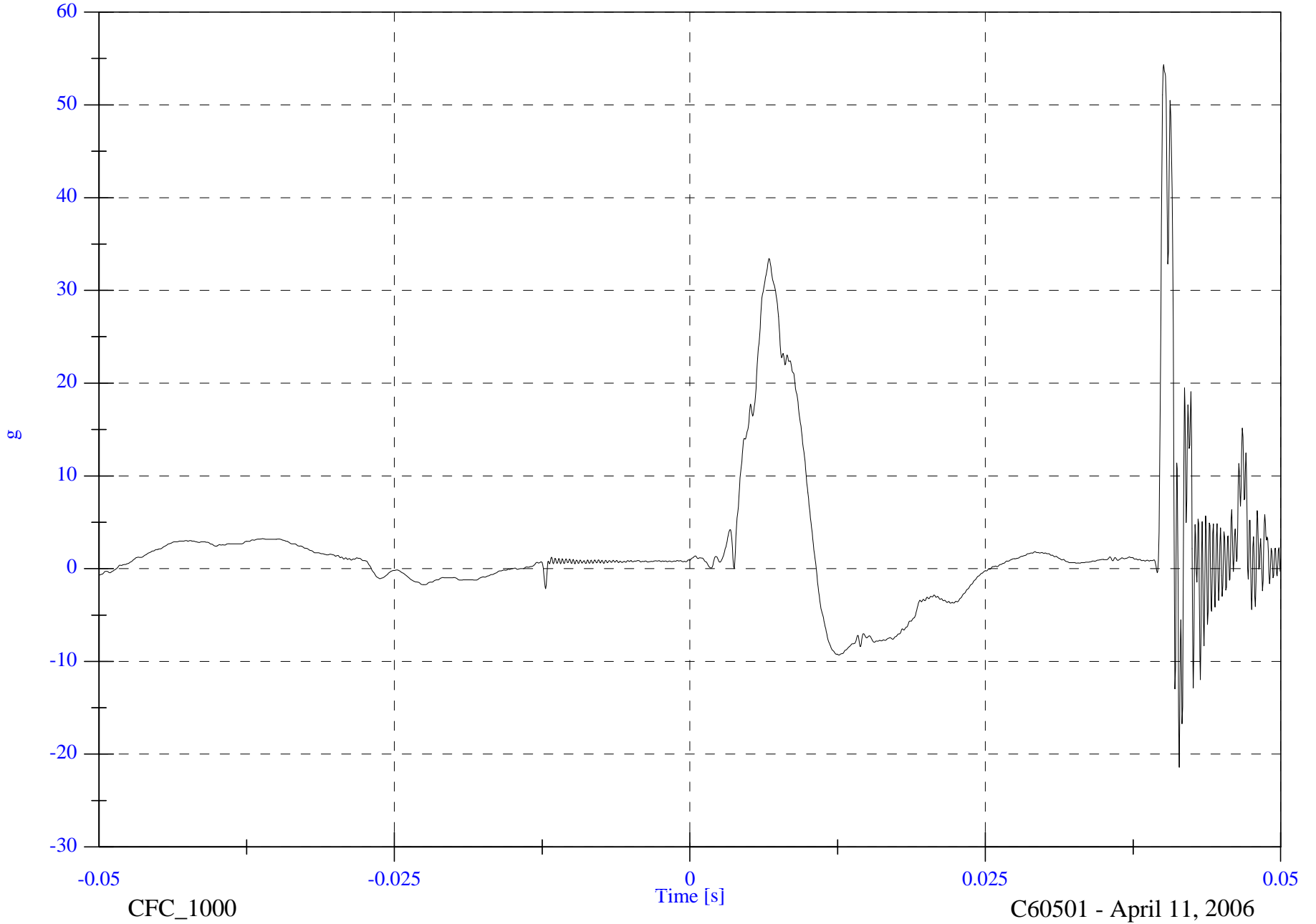
Headform Z Acceleration

Max: 54.3 [g] at 0.040 [s]

Min: -21.4 [g] at 0.041 [s]

C60501 DRIVER SIDE URBP IMPACT PLOT #3

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

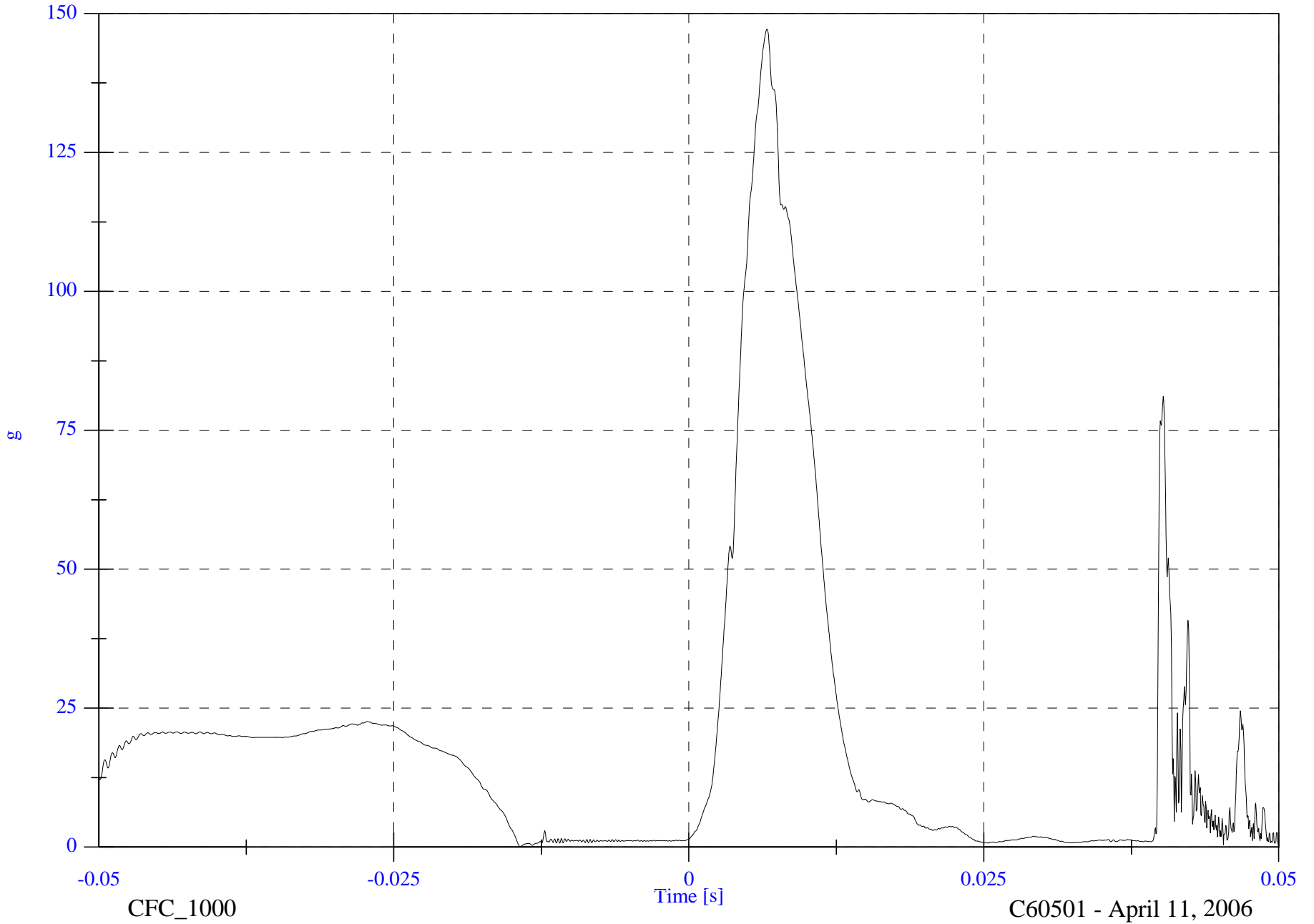
Headform Resultant

Max: 147.1 [g] at 0.007 [s]

Min: 0.1 [g] at -0.014 [s]

C60501 DRIVER SIDE URBP IMPACT PLOT #4

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

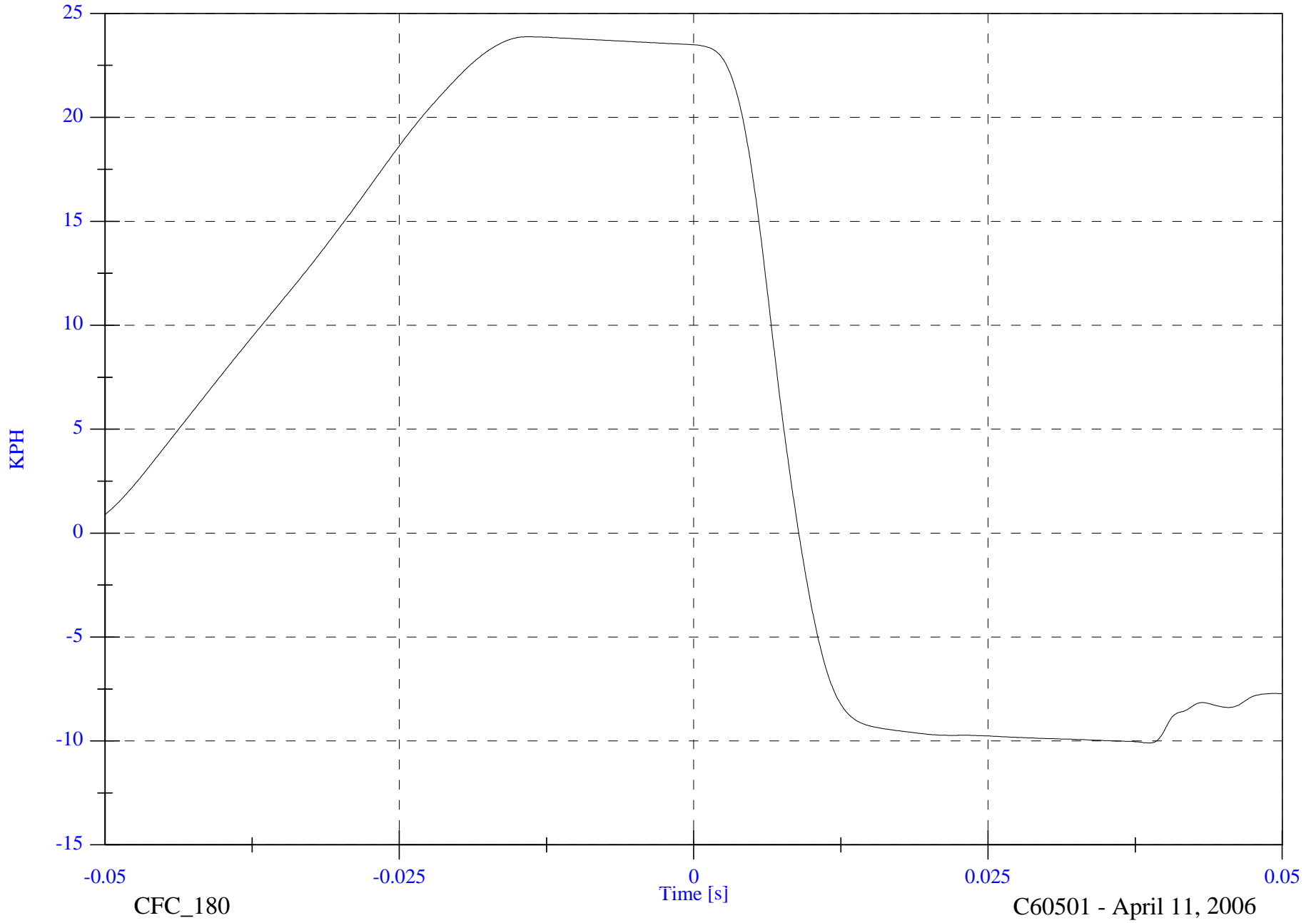
Headform Velocity

Max: 23.9 [KPH] at -0.014 [s]

Min: -10.1 [KPH] at 0.039 [s]

C60501 DRIVER SIDE URBP IMPACT PLOT #5

8754+FMH-10





PRE-IMPACT URBP



POST-IMPACT URBP

VEHICLE YEAR/MAKE/MODEL/STYLE:	2006 Hyundai Sonata GL
VIN:	KMHET46C96A109867
DATE OF MANUFACTURE:	June 21, 2005 (SEE CERTIFICATION LABEL)
COLOR:	Silver

Test Number:	11
Test Date:	04/11/06
Target Location:	A-PILLAR
Target Code:	AP2
Horizontal Impact Angle:	213°
Vertical Impact Angle:	45°
Ambient Temperature:	23.1 C°
Relative Humidity:	20.7
Time of Impact:	13:45
Headform Number:	0355

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	8	<input checked="" type="checkbox"/>	mm right	<input type="checkbox"/>	mm left
On Centerline	20				mm up



POST-IMPACT AP2 HEADFORM

Free Motion HIC	244.8
HIC(d)	351.1
Impact Velocity (kph)	18.74
HIC T1 (msec)	1.6
HIC T2 (msec)	11.1

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA C60501 - AP2

FMH Headform 0355

Location: AP2

Test Date: April 11, 2006

Work File: AP2

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

Lab Temperature: 23.1 C

HICd: 351.1

Lab Humidity: 20.7 %

HIC (36ms): 244.8

Velocity at Impact: 18.74 KPH

t1: 1.6 msec

t2: 11.1 msec

Free Flight Distance: 220.21 mm

Duration: 9.4 msec

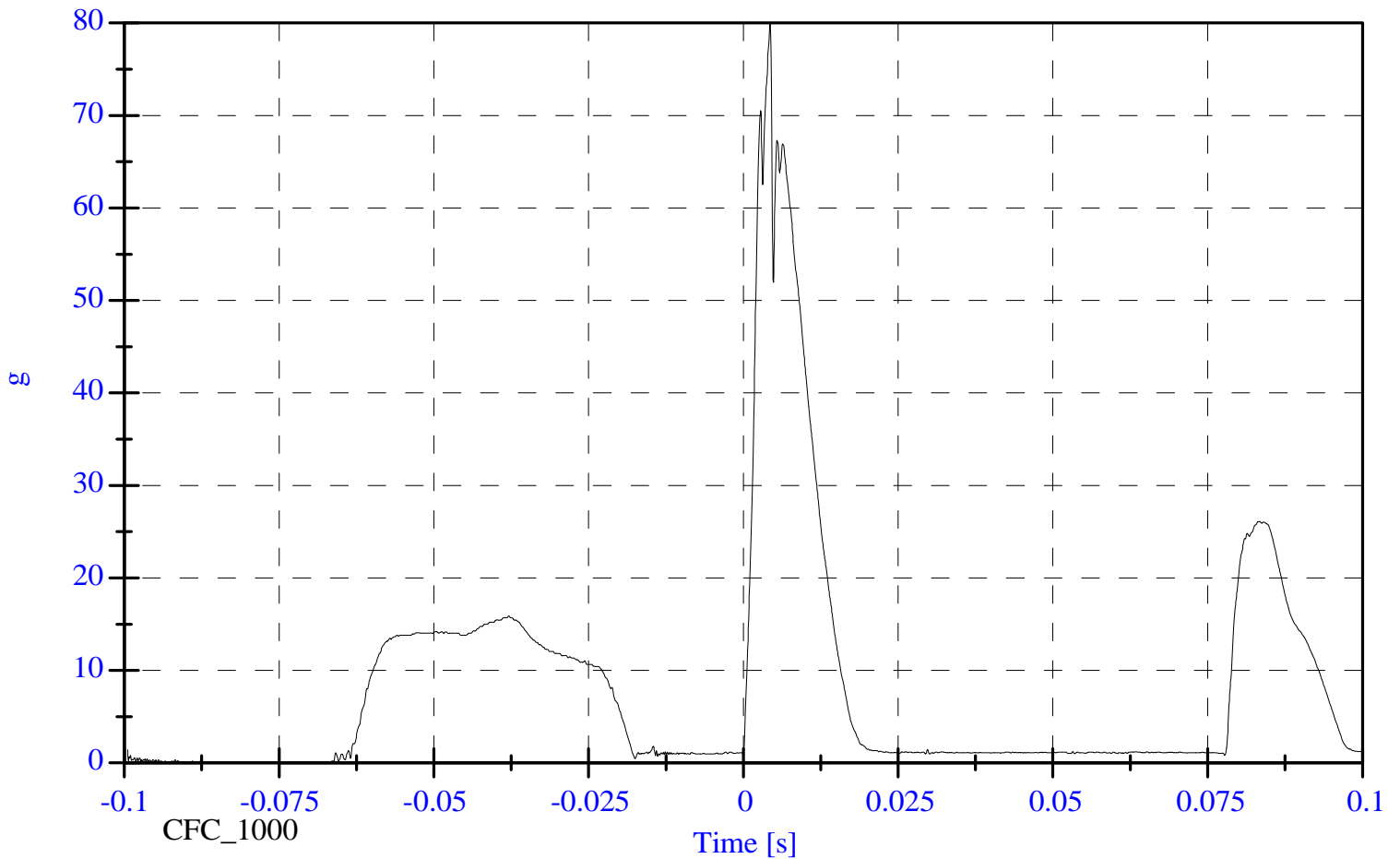
Maximum: 79.9 g

Average Acceleration: 8.2 g

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA
Headform Resultant

Max: 79.9 [g] at 0.004 [s]

Min: 0.0 [g] at -0.095 [s]

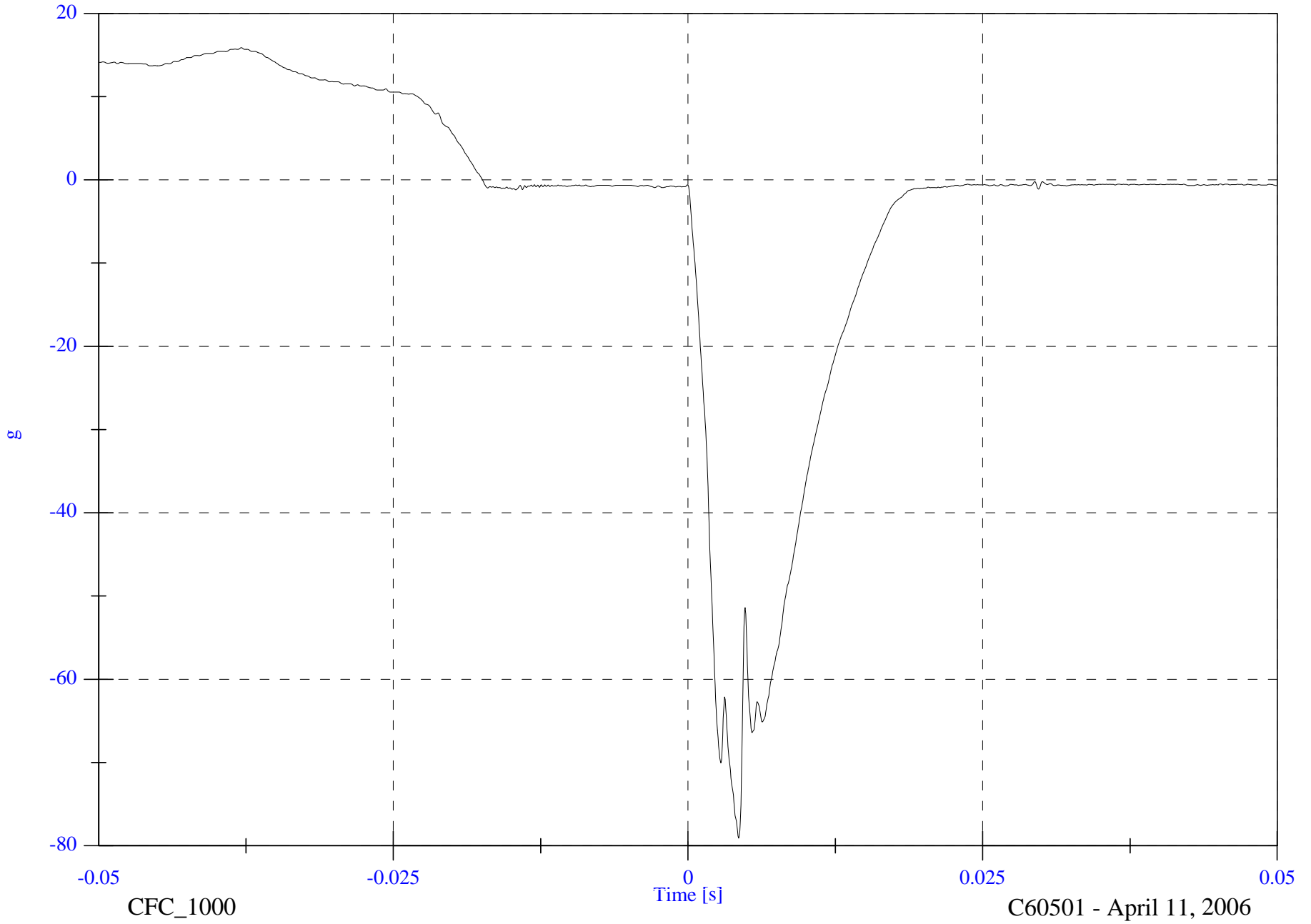


FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

Headform X Acceleration

Max: 15.9 [g] at -0.038 [s]

Min: -79.1 [g] at 0.004 [s]



C60501 DRIVER SIDE AP2 IMPACT PLOT #1

8754+FMH-10

CFC_1000

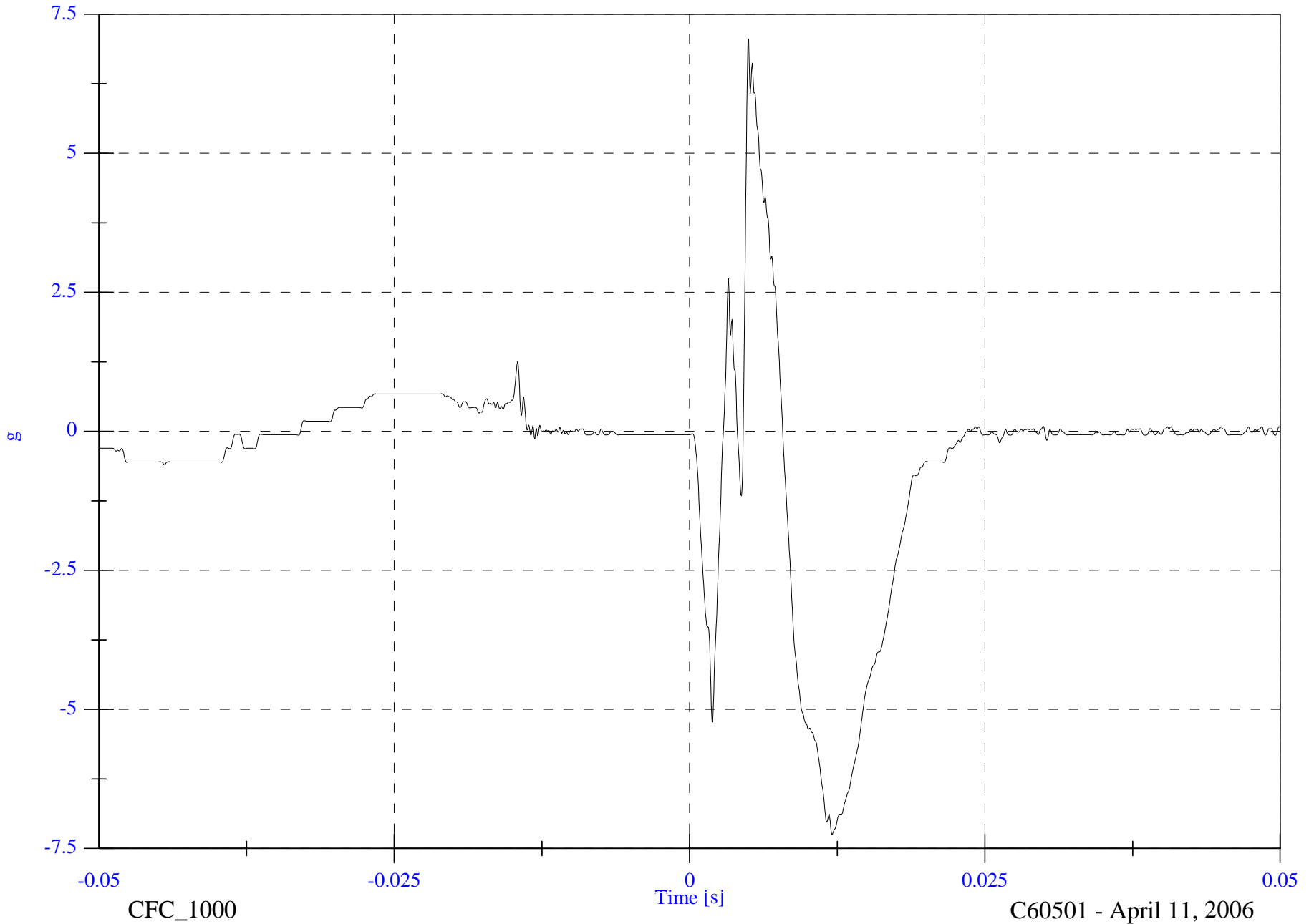
C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

Headform Y Acceleration

Max: 7.1 [g] at 0.005 [s]

Min: -7.2 [g] at 0.012 [s]



C60501 DRIVER SIDE AP2 IMPACT PLOT #2

8754+FMH-10

CFC_1000

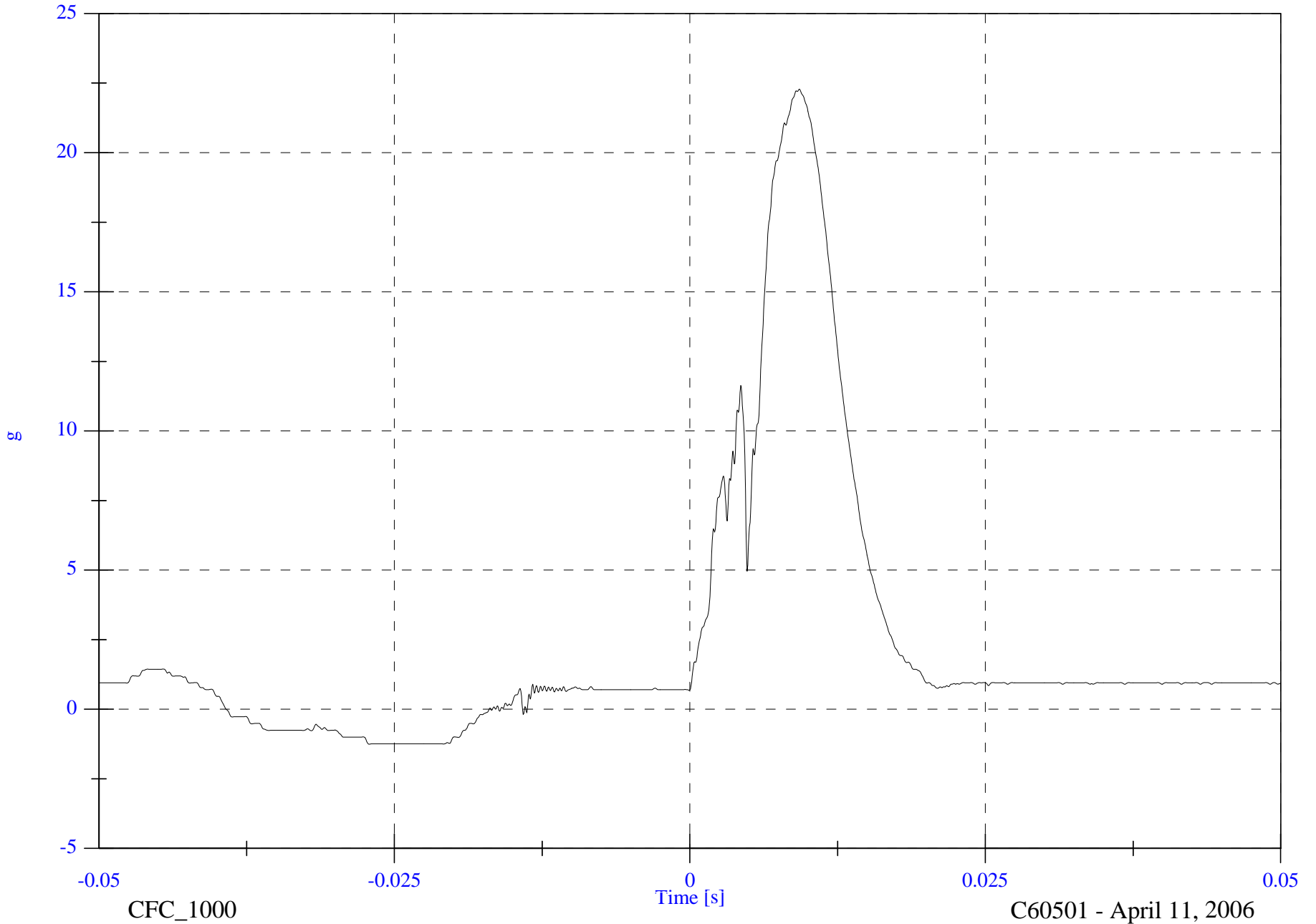
C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

Headform Z Acceleration

Max: 22.3 [g] at 0.009 [s]

Min: -1.3 [g] at -0.027 [s]



C60501 DRIVER SIDE AP2 IMPACT PLOT #3

8754+FMH-10

CFC_1000

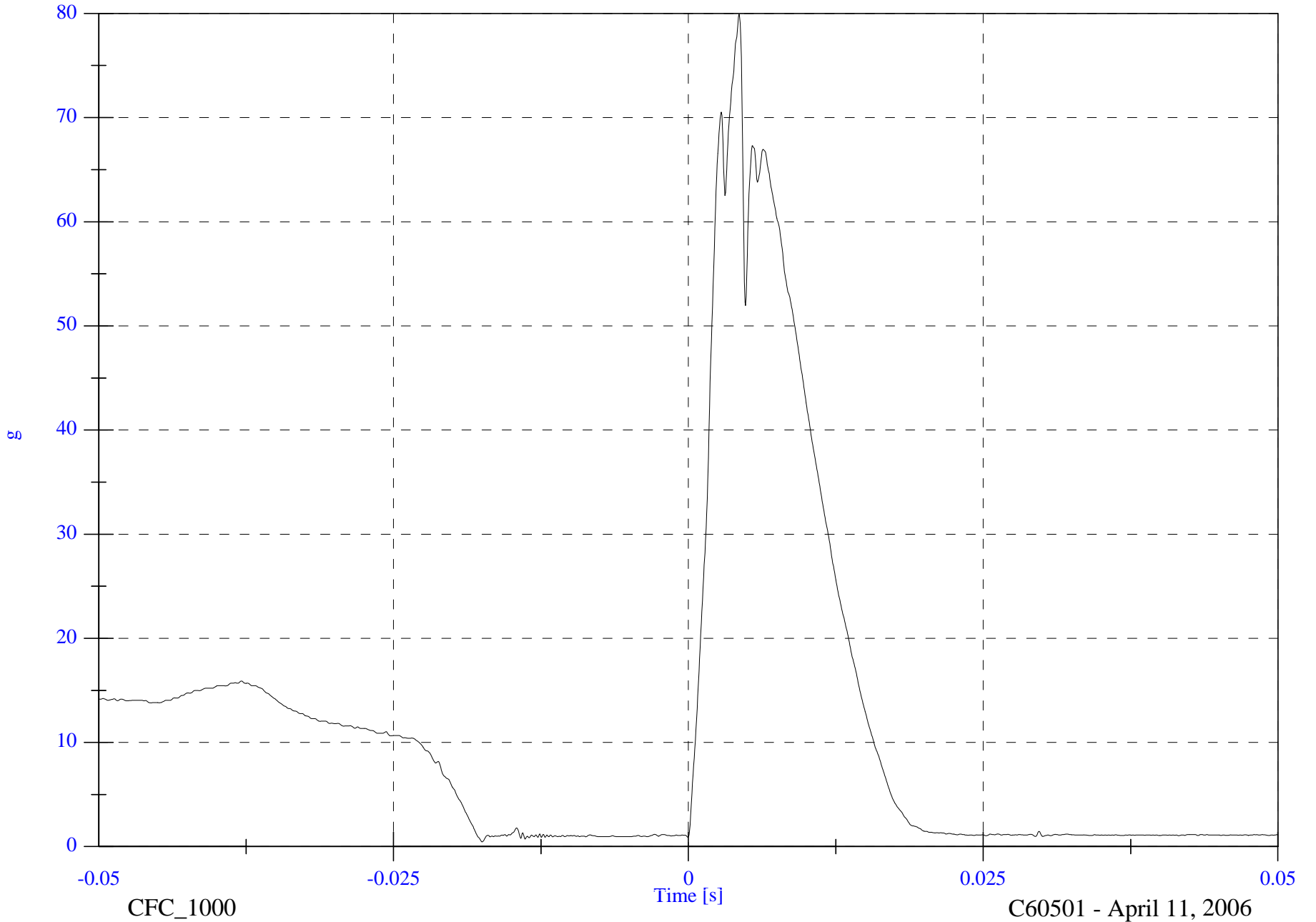
C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

Headform Resultant

Max: 79.9 [g] at 0.004 [s]

Min: 0.5 [g] at -0.018 [s]



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

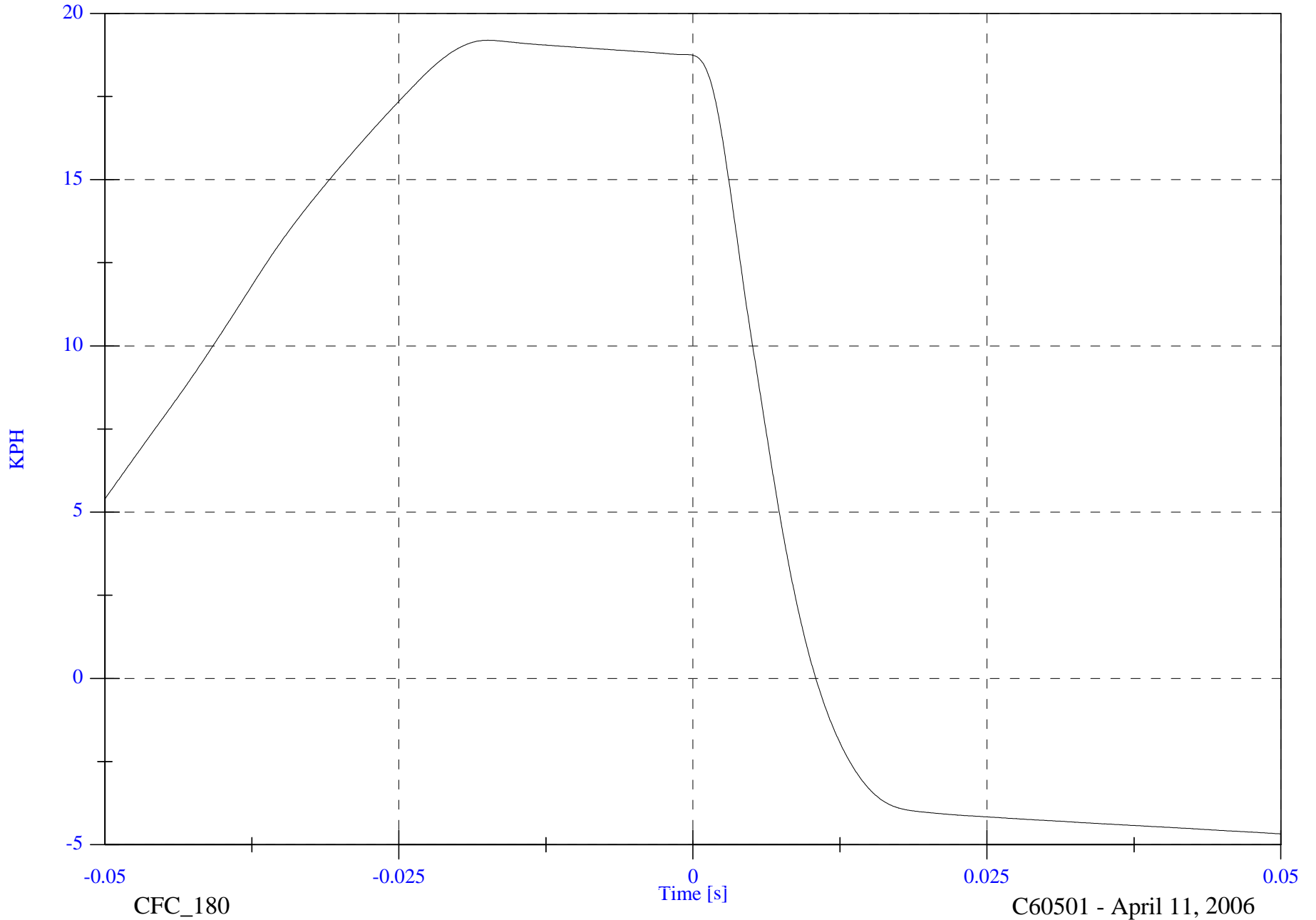
Headform Velocity

Max: 19.2 [KPH] at -0.017 [s]

Min: -4.7 [KPH] at 0.050 [s]

C60501 DRIVER SIDE AP2 IMPACT PLOT #5

8754+FMH-10

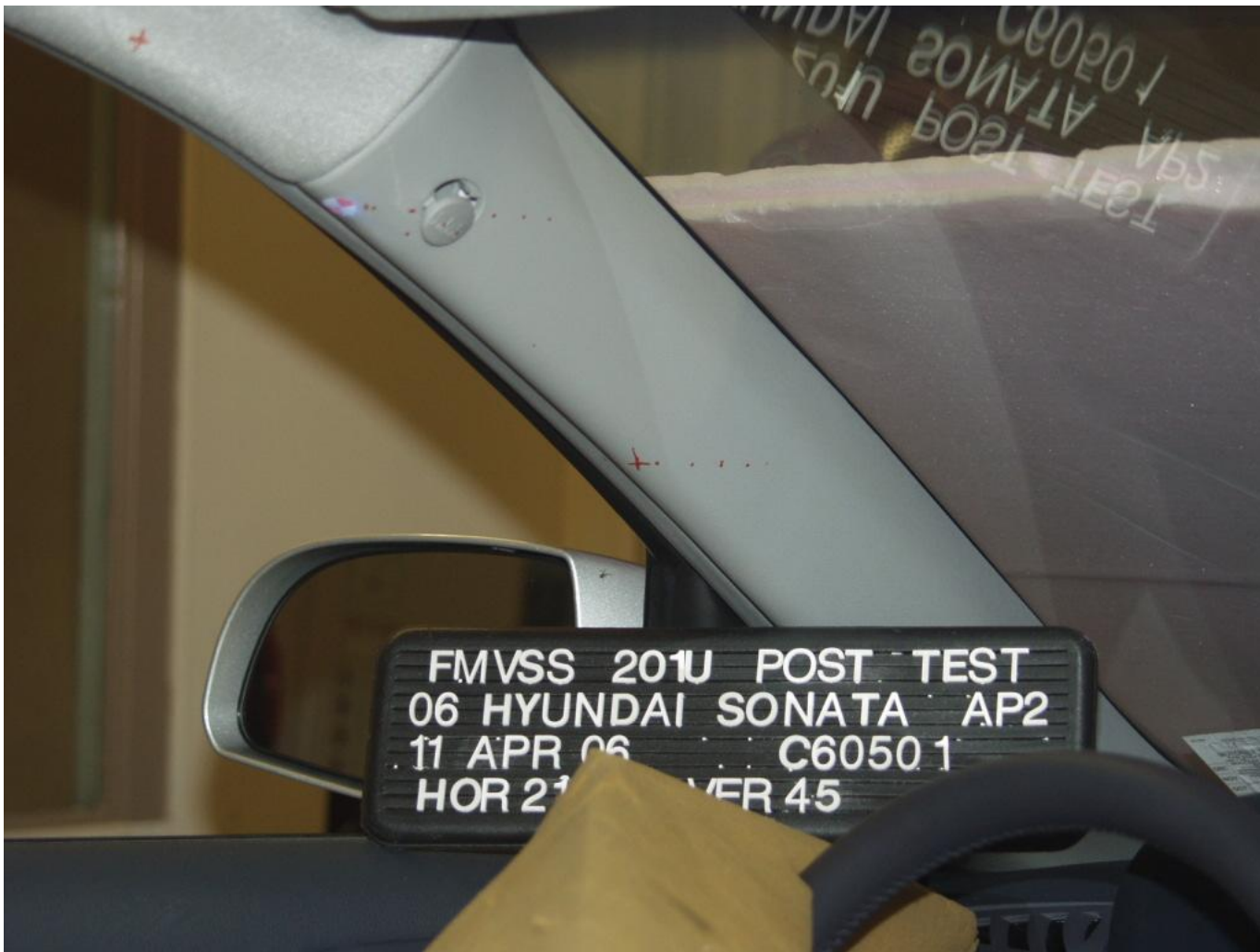


CFC_180

C60501 - April 11, 2006



PRE-IMPACT AP2



POST-IMPACT AP2

VEHICLE YEAR/MAKE/MODEL/STYLE:	2006 Hyundai Sonata GL
VIN:	KMHET46C96A109867
DATE OF MANUFACTURE:	June 21, 2005 (SEE CERTIFICATION LABEL)
COLOR:	Silver

Test Number:	12
Test Date:	04/11/06
Target Location:	UPPER ROOF
Target Code:	URAP
Horizontal Impact Angle:	180°
Vertical Impact Angle:	50°
Ambient Temperature:	22.1 C°
Relative Humidity:	21.1
Time of Impact:	14:15
Headform Number:	1255

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	0	mm right	mm left
On Centerline	29	mm up	



POST-IMPACT URAP HEADFORM

Free Motion HIC	683.7
HIC(d)	682.3
Impact Velocity (kph)	23.65
HIC T1 (msec)	9.8
HIC T2 (msec)	15.7

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA C60501 - URAP

FMH Headform 1255

Location: URAP

Test Date: April 11, 2006

Work File: URAP

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

Lab Temperature: 22.1 C

HICd: 682.3

Lab Humidity: 21.1 %

HIC (36ms): 683.7

Velocity at Impact: 23.65 KPH

t1: 9.8 msec

t2: 15.7 msec

Free Flight Distance: 215.37 mm

Duration: 5.9 msec

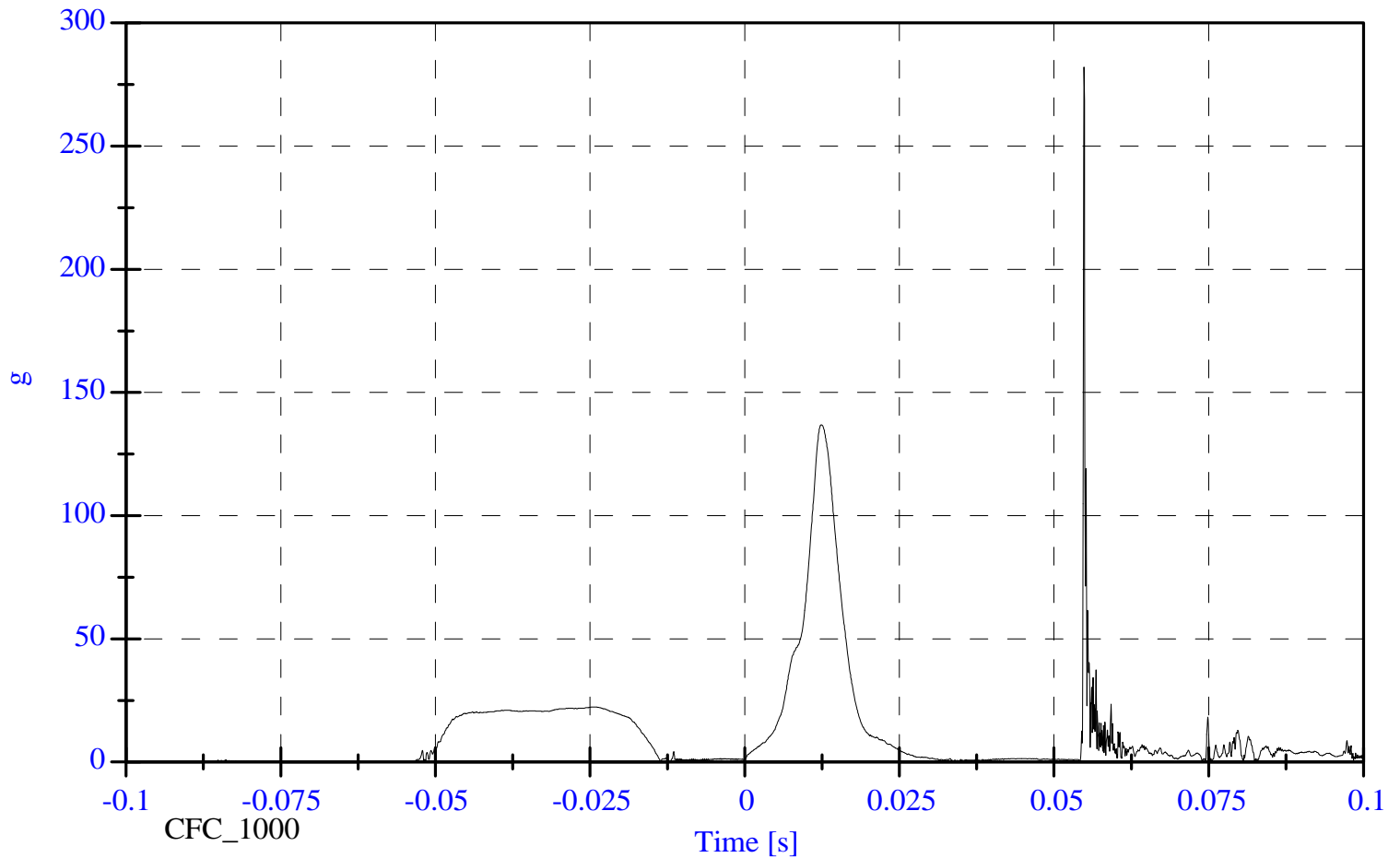
Maximum: 136.9 g

Average Acceleration: 10.5 g

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA
Headform Resultant

Max: 136.9 [g] at 0.012 [s]

Min: 0.0 [g] at -0.068 [s]



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

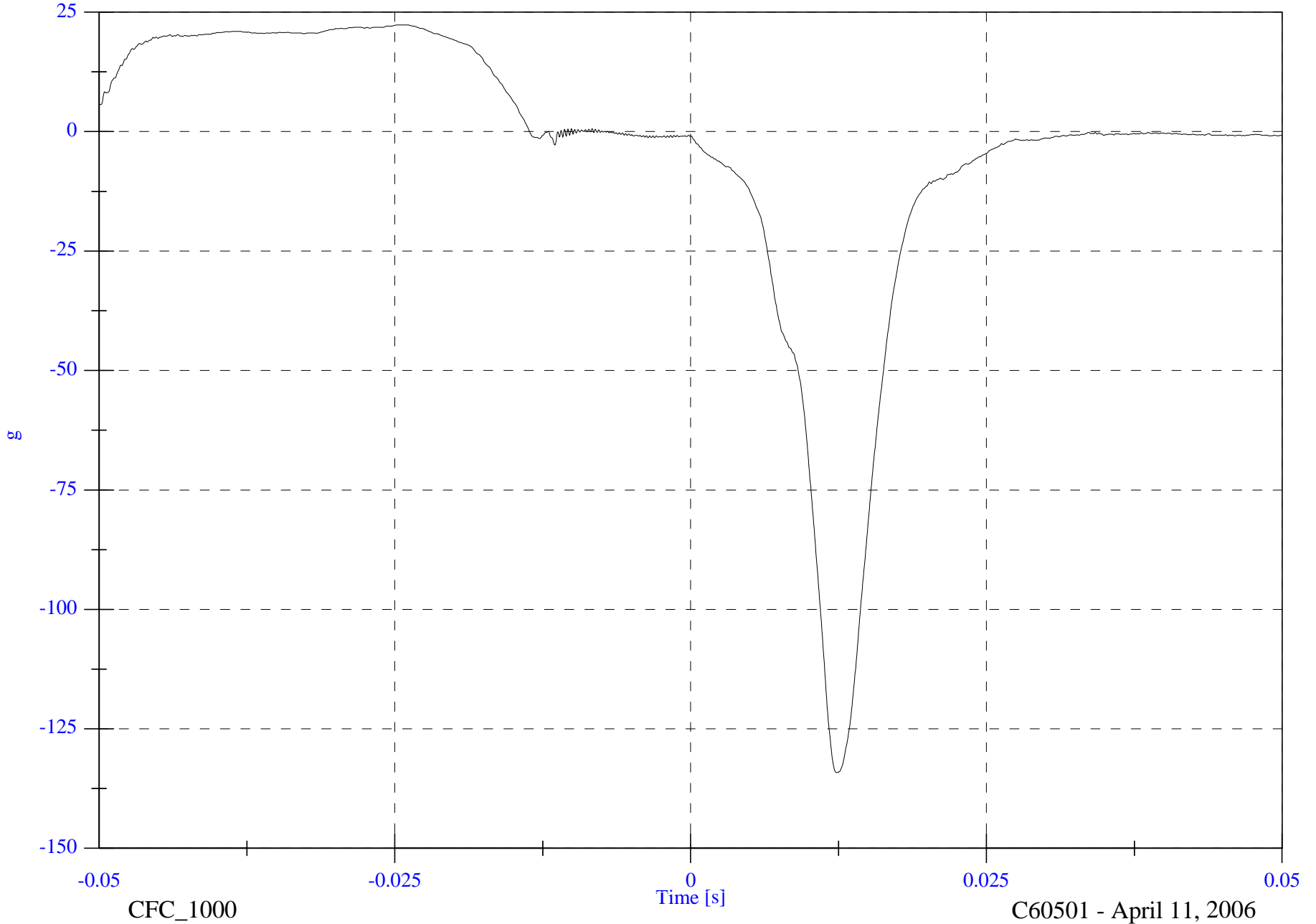
Headform X Acceleration

Max: 22.3 [g] at -0.025 [s]

Min: -134.2 [g] at 0.012 [s]

C60501 DRIVER SIDE URAP IMPACT PLOT #1

8754+FMH-10



CFC_1000

Time [s]

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

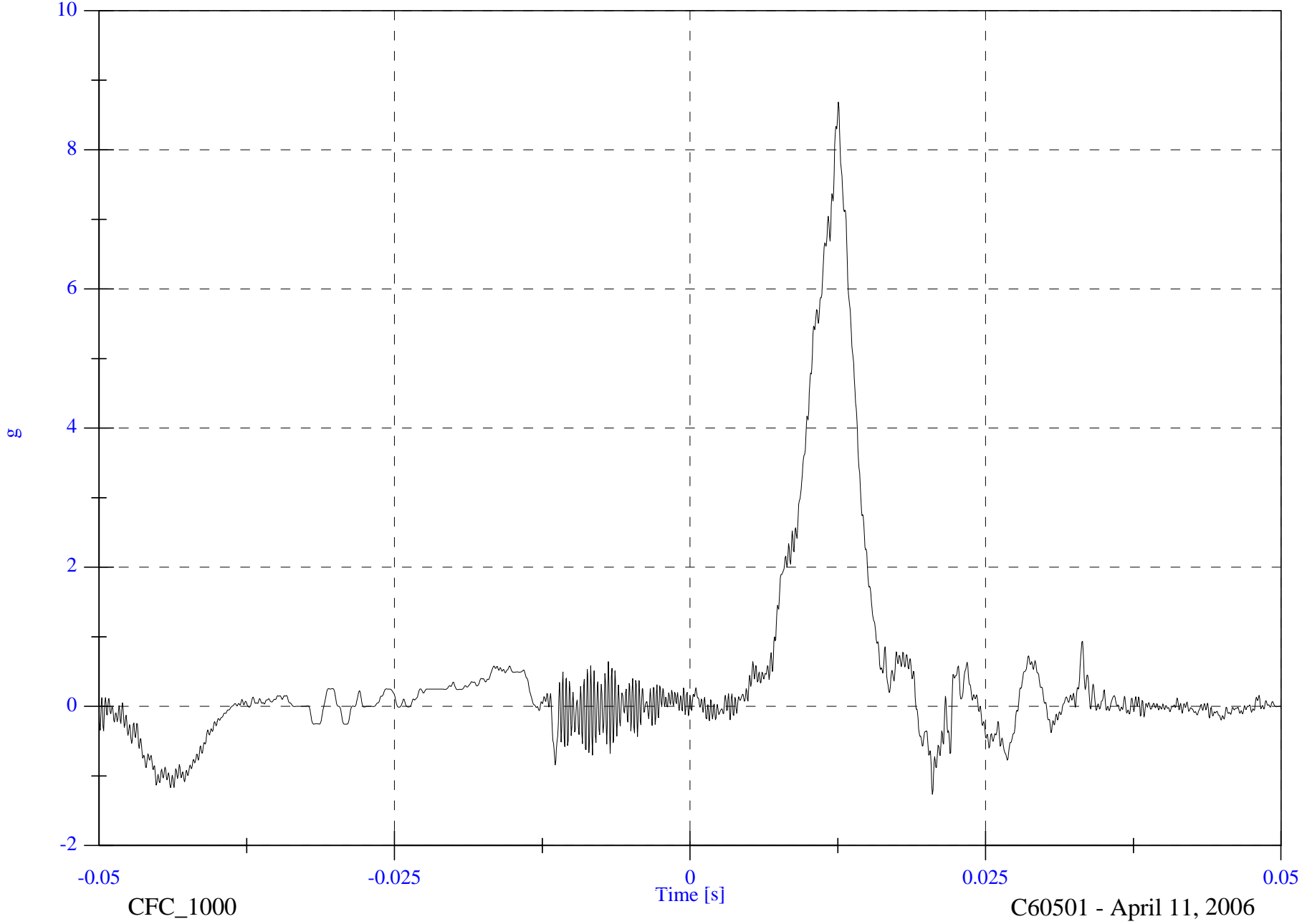
Headform Y Acceleration

Max: 8.7 [g] at 0.013 [s]

Min: -1.3 [g] at 0.021 [s]

C60501 DRIVER SIDE URAP IMPACT PLOT #2

8754-FMH-10



FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

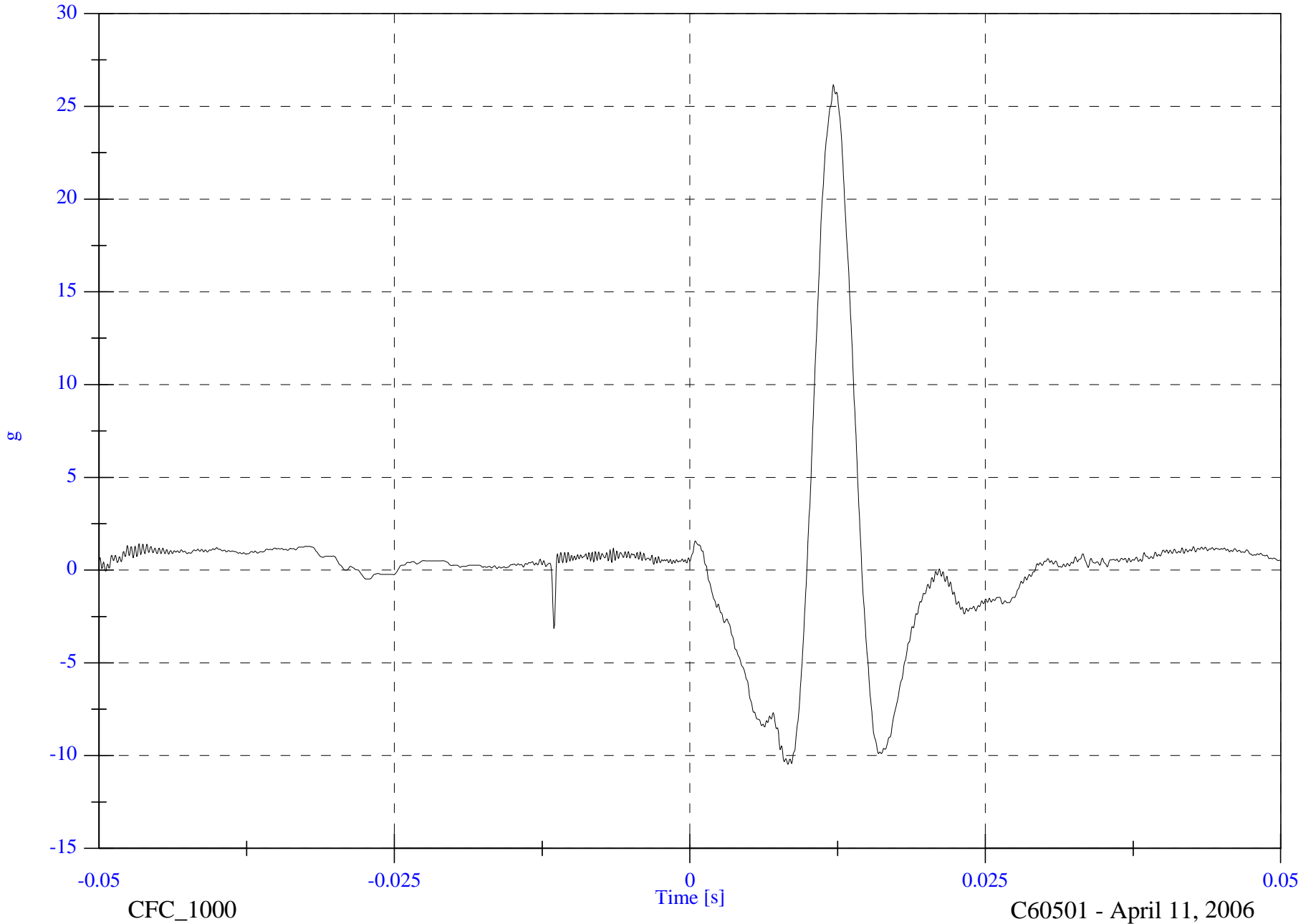
Headform Z Acceleration

Max: 26.2 [g] at 0.012 [s]

Min: -10.5 [g] at 0.008 [s]

C60501 DRIVER SIDE URAP IMPACT PLOT #3

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

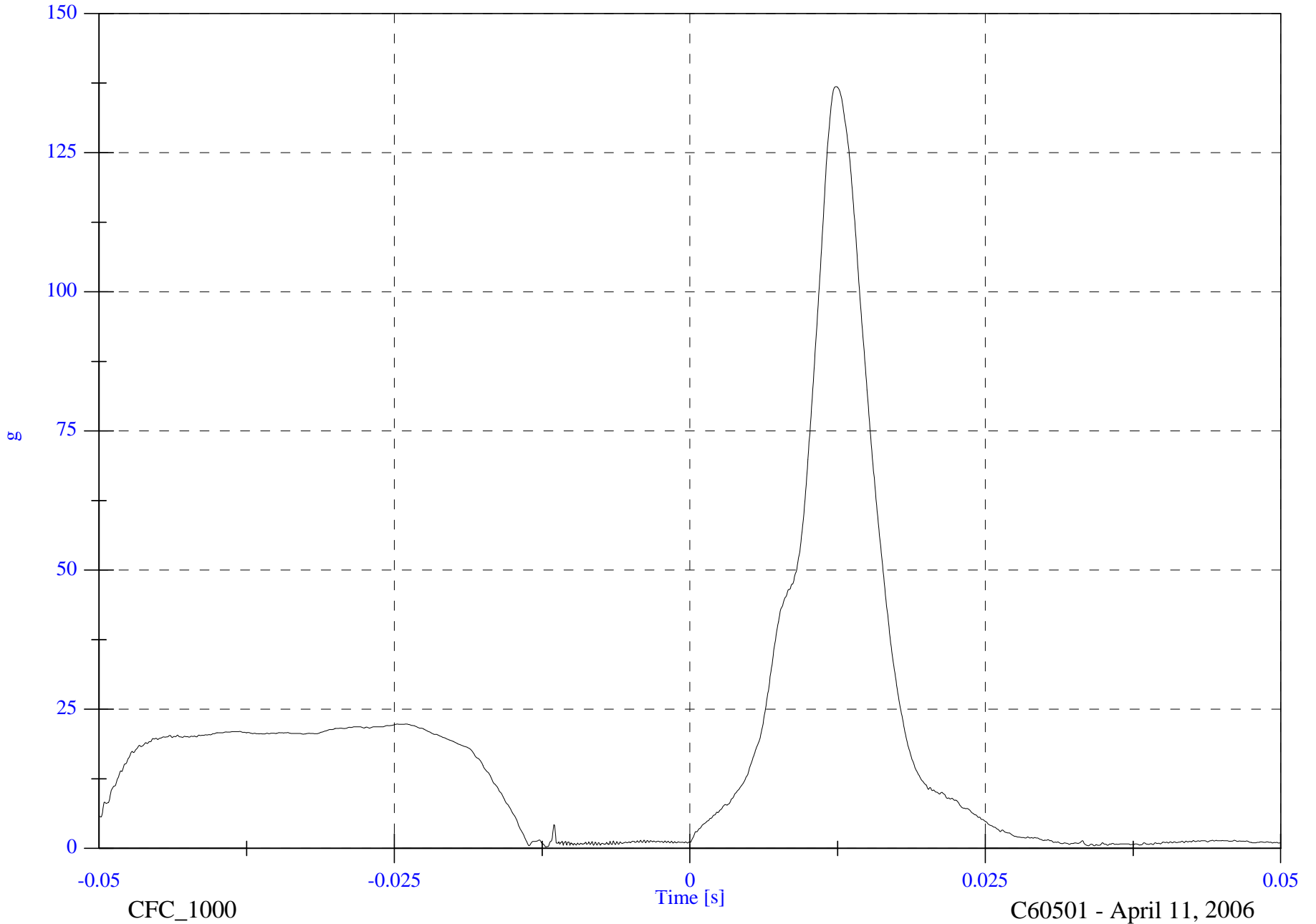
Headform Resultant

Max: 136.9 [g] at 0.012 [s]

Min: 0.3 [g] at -0.012 [s]

C60501 DRIVER SIDE URAP IMPACT PLOT #4

8754+FMH-10



CFC_1000

C60501 - April 11, 2006

FMVSS 201U IMPACT TEST - 2006 HYUNDAI SONATA

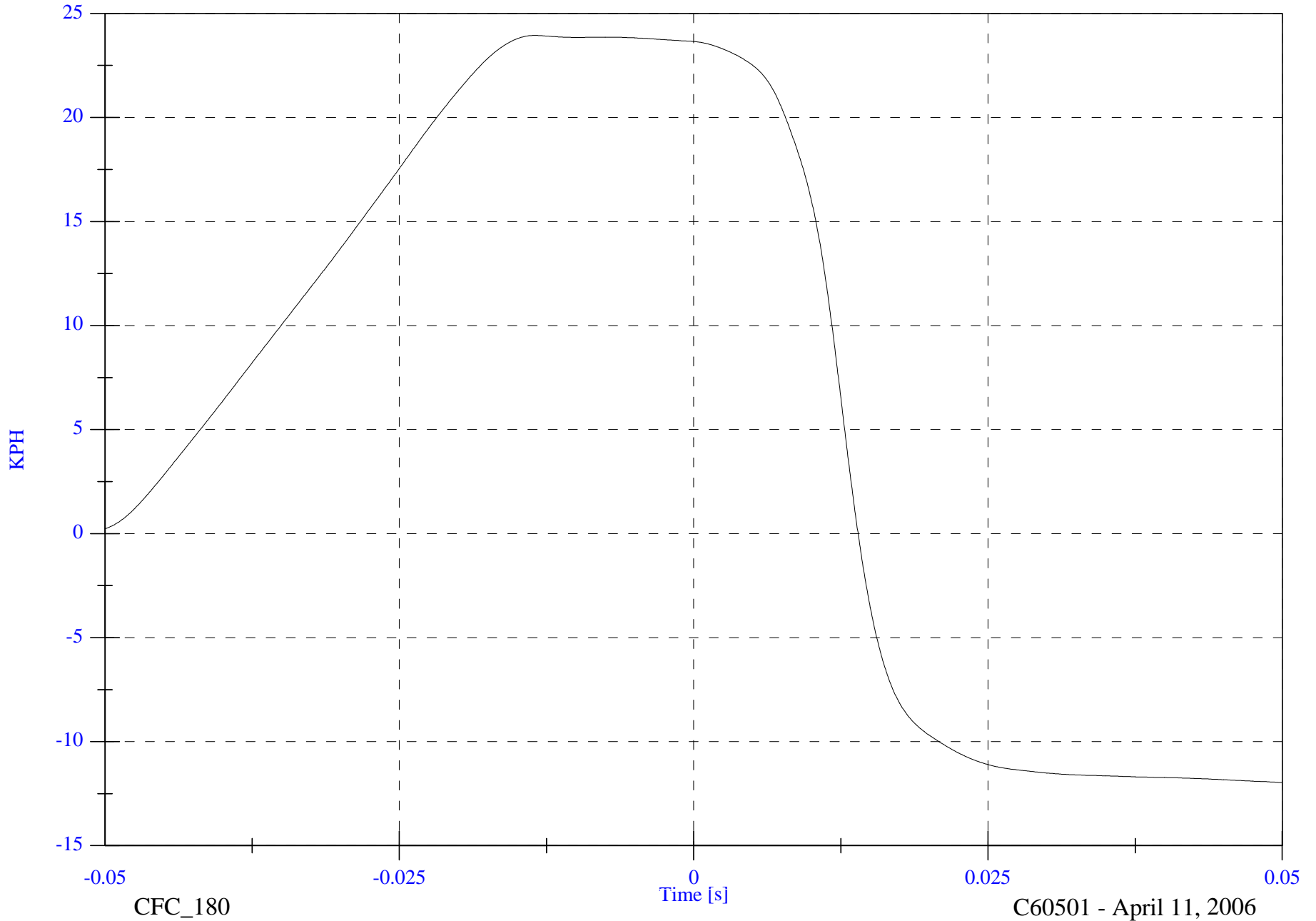
Headform Velocity

Max: 23.9 [KPH] at -0.014 [s]

Min: -12.0 [KPH] at 0.050 [s]

C60501 DRIVER SIDE URAP IMPACT PLOT #5

8754+FMH-10



CFC_180

C60501 - April 11, 2006



PRE-IMPACT URAP



POST-IMPACT URAP

APPENDIX A

PHOTOGRAPHS

PHOTOGRAPHS

FIGURE	VIEW
A-1	LEFT SIDE VIEW OF VEHICLE
A-2	RIGHT SIDE VIEW OF VEHICLE
A-3	3/4 FRONTAL VIEW FROM RIGHT SIDE OF VEHICLE
A-4	3/4 REAR VIEW FROM LEFT SIDE OF VEHICLE
A-5	VEHICLE'S CERTIFICATION LABEL
A-6	VEHICLE'S TIRE INFORMATION LABEL
A-7	PRE-TEST DRIVER SIDE A-PILLAR
A-8	PRE-TEST DRIVER SIDE FRONT HEADER
A-9	PRE-TEST DRIVER SIDE SIDE RAIL
A-10	PRE-TEST DRIVER SIDE B-PILLAR
A-11	PRE-TEST DRIVER SIDE REAR PILLAR
A-12	PRE-TEST PASSENGER SIDE A-PILLAR
A-13	PRE-TEST PASSENGER SIDE FRONT HEADER
A-14	PRE-TEST PASSENGER SIDE SIDE RAIL
A-15	PRE-TEST PASSENGER SIDE B-PILLAR
A-16	PRE-TEST PASSENGER SIDE REAR PILLAR
A-17	POST-TEST DRIVER SIDE A-PILLAR
A-18	POST-TEST DRIVER FRONT HEADER
A-19	POST-TEST DRIVER SIDE SIDE RAIL
A-20	POST-TEST DRIVER SIDE B-PILLAR
A-21	POST-TEST DRIVER SIDE REAR PILLAR
A-22	POST-TEST PASSENGER SIDE A-PILLAR
A-23	POST-TEST PASSENGER FRONT HEADER
A-24	POST-TEST PASSENGER SIDE SIDE RAIL
A-25	POST-TEST PASSENGER SIDE B-PILLAR
A-26	POST-TEST PASSENGER SIDE REAR PILLAR



Figure A-1 : LEFT SIDE VIEW OF VEHICLE



Figure A-2 : RIGHT SIDE VIEW OF VEHICLE



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



Figure A-4 : 3/4 REAR VIEW FROM LEFT 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 (Placard Mislabeled – 10 APR 06)



Figure A-8 : PRE-TEST DRIVER SIDE FRONT HEADER (Placard Mislabeled – 10 APR 06)



Figure A-9 : PRE-TEST DRIVER SIDE SIDE RAIL (Placard Mislabeled – 10 APR 06)



Figure A-10 : PRE-TEST DRIVER SIDE B-PILLAR (Placard Mislabeled – 10 APR 06)



Figure A-11 : PRE-TEST DRIVER SIDE REAR PILLAR (Placard Mislabeled – 10 APR 06)



Figure A-12 : PRE-TEST PASSENGER SIDE A-PILLAR (Placard Mislabeled – 10 APR 06)



Figure A-13 : PRE-TEST PASSENGER SIDE FRONT HEADER (Placard Mislabeled – 10 APR 06)



Figure A-14 : PRE-TEST PASSENGER SIDE SIDE RAIL (Placard Mislabeled – 10 APR 06)



Figure A-15 : PRE-TEST PASSENGER SIDE B-PILLAR (Placard Mislabeled – 10 APR 06)



Figure A-16 : PRE-TEST PASSENGER SIDE REAR PILLAR (Placard Mislabeled – 10 APR 06)



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



Figure A-18 : POST-TEST DRIVER SIDE FRONT HEADER



Figure A-19 : POST-TEST DRIVER SIDE SIDE RAIL



Figure A-20 : POST-TEST DRIVER SIDE B-PILLAR



Figure A-21 : POST-TEST DRIVER SIDE REAR PILLAR



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



Figure A-23 : POST-TEST PASSENGER SIDE FRONT HEADER



Figure A-24 : POST-TEST PASSENGER SIDE SIDE RAIL



Figure A-25 : POST-TEST PASSENGER SIDE B-PILLAR



Figure A-26 : 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:		0642	
CALIBRATION DATE:		April 6, 2006	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	22	
RELATIVE HUMIDITY	10% to 70%	25	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	269.9	
PEAK LATERAL ACCELERATION	15 Gs Maximum	7.9	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

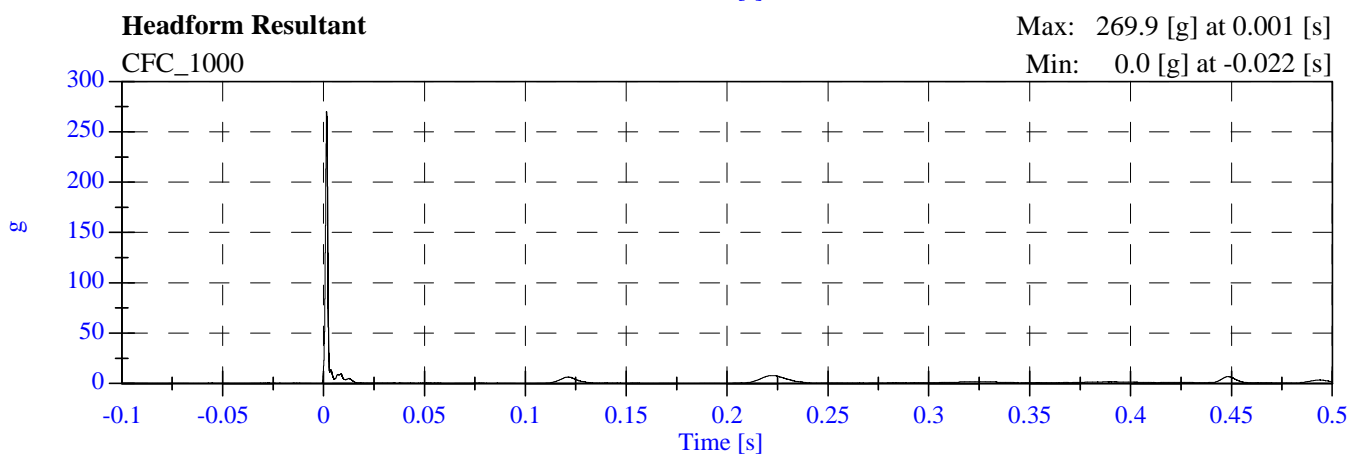
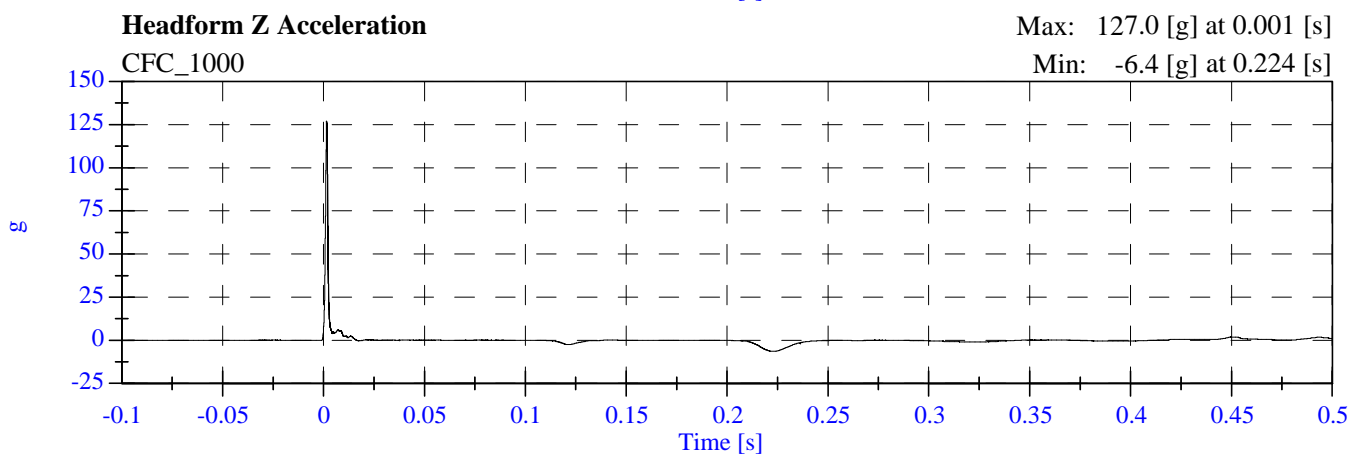
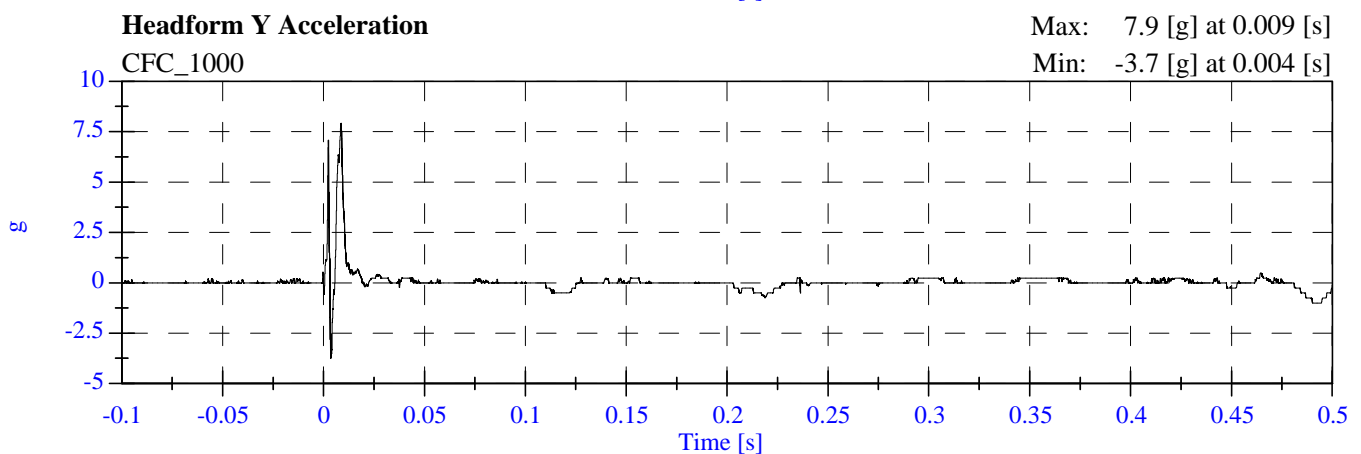
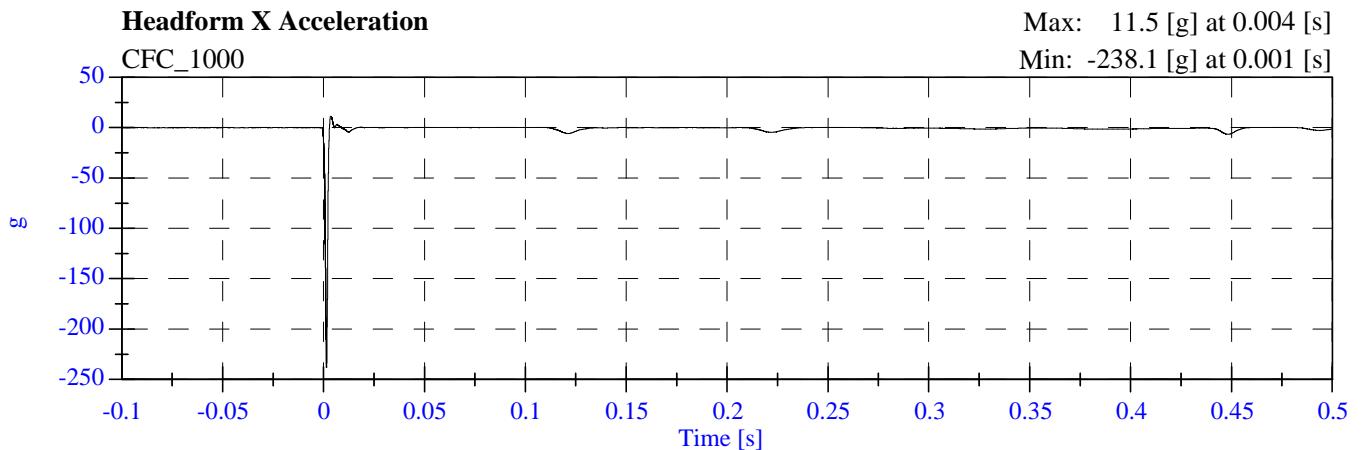
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J24876	3/9/2006	9/9/2006
2 - LATERAL	ENDEVCO	7264-2000T	J33030	3/9/2006	9/9/2006
3 - VERTICAL	ENDEVCO	7264-2000T	J31009	3/9/2006	9/9/2006

REMARKS:

FMVSS 201U - Headform Calibration Drops

FMH 0642 - April 06, 2006



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

MANUFACTURER:		DENTON ATD INC	
SERIAL NUMBER:		0062	
CALIBRATION DATE:		April 6, 2006	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	22	
RELATIVE HUMIDITY	10% to 70%	25	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	267.0	
PEAK LATERAL ACCELERATION	15 Gs Maximum	7.4	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

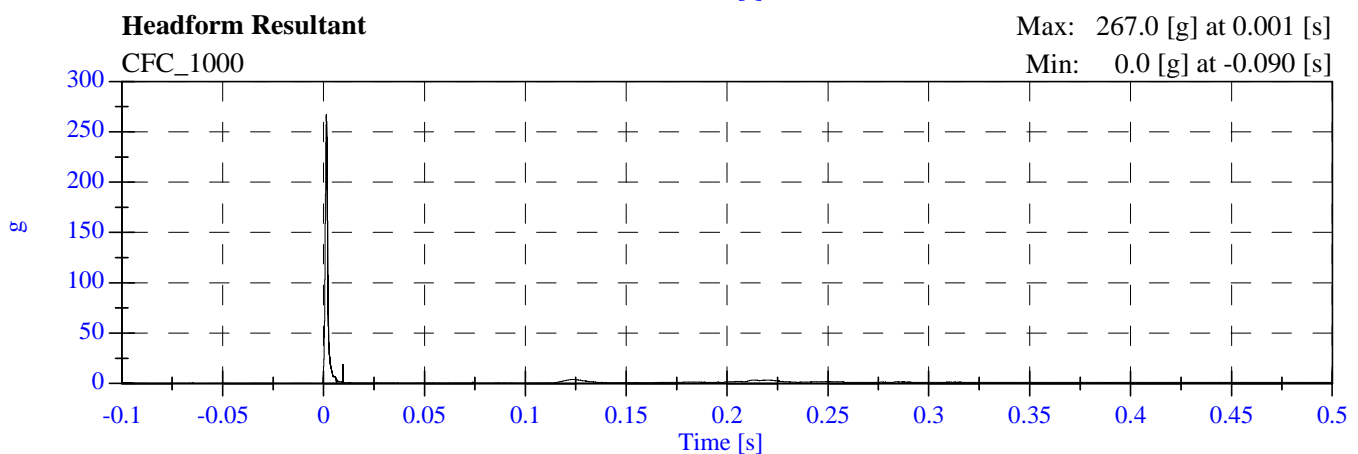
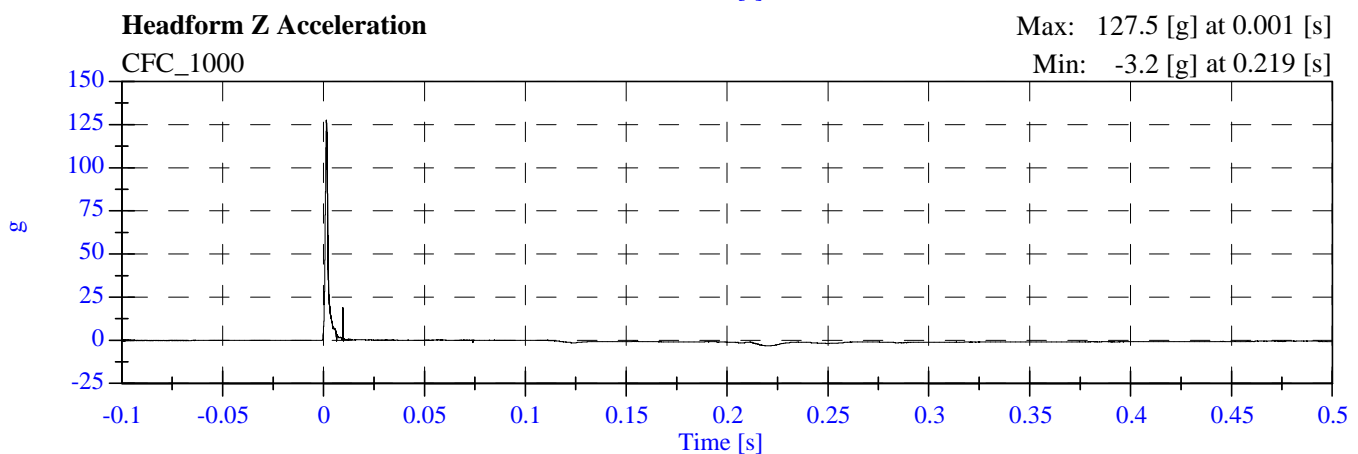
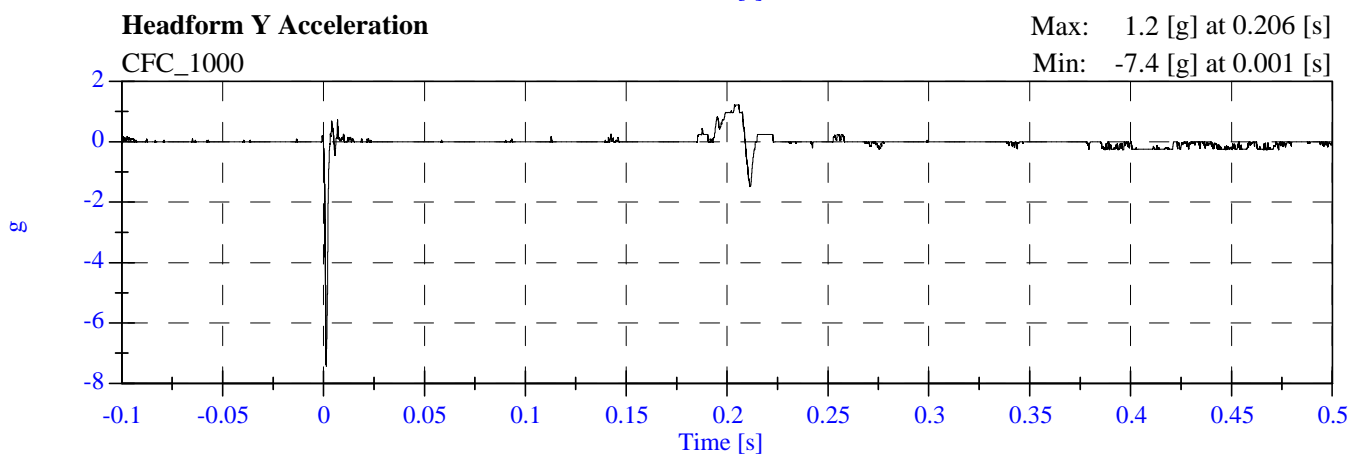
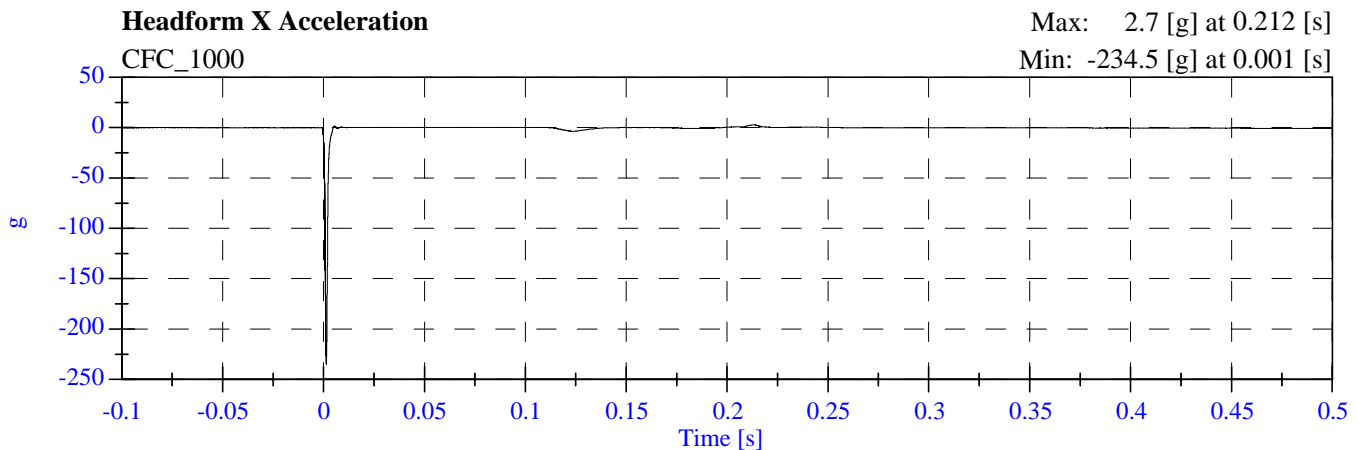
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J33127	3/9/2006	9/9/2006
2 - LATERAL	ENDEVCO	7264-2000T	J33019	3/9/2006	9/9/2006
3 - VERTICAL	ENDEVCO	7264-2000T	J32782	3/9/2006	9/9/2006

REMARKS:

FMVSS 201U - Headform Calibration Drops

FMH 0062 - April 06, 2006



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

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		805	
CALIBRATION DATE:		April 6, 2006	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	22	
RELATIVE HUMIDITY	10% to 70%	25	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	266.3	
PEAK LATERAL ACCELERATION	15 Gs Maximum	6.4	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

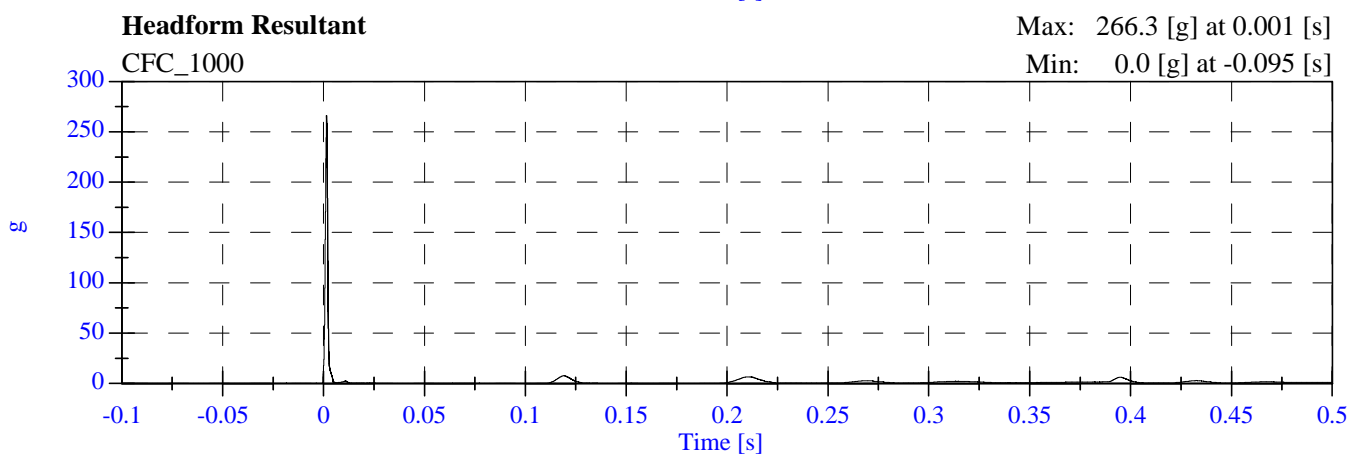
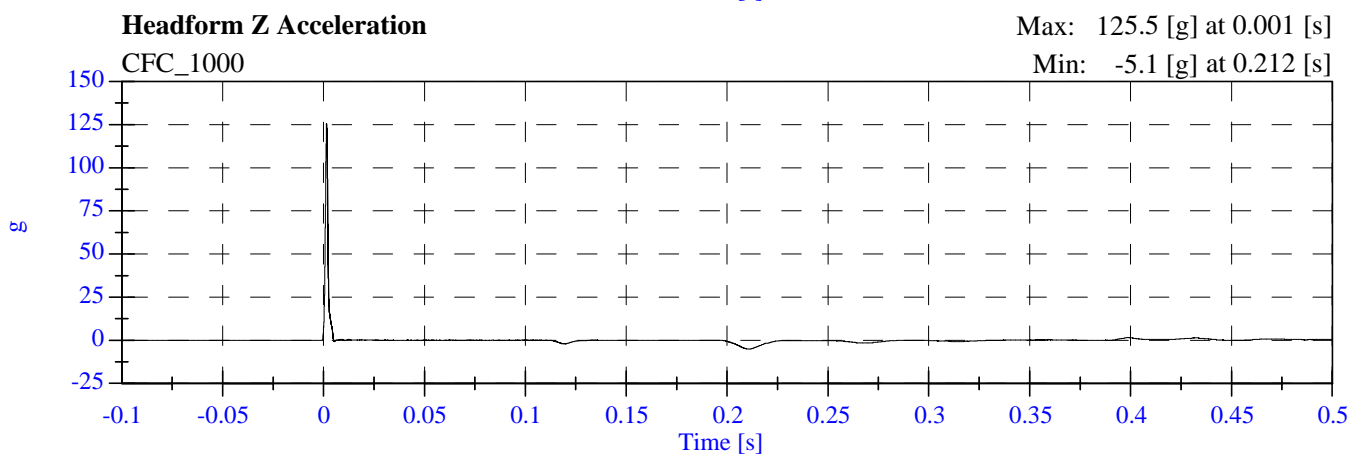
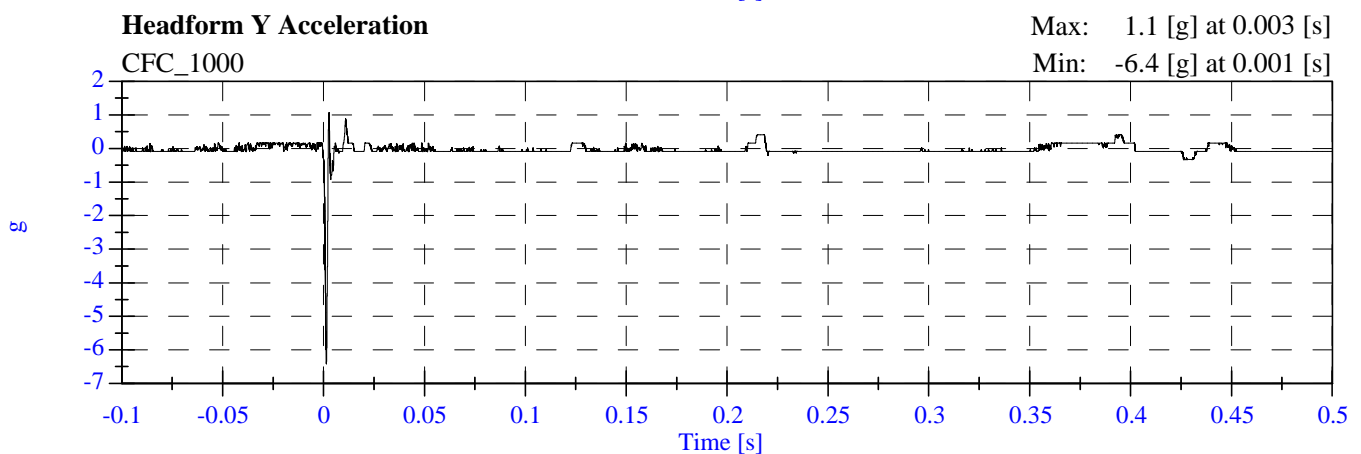
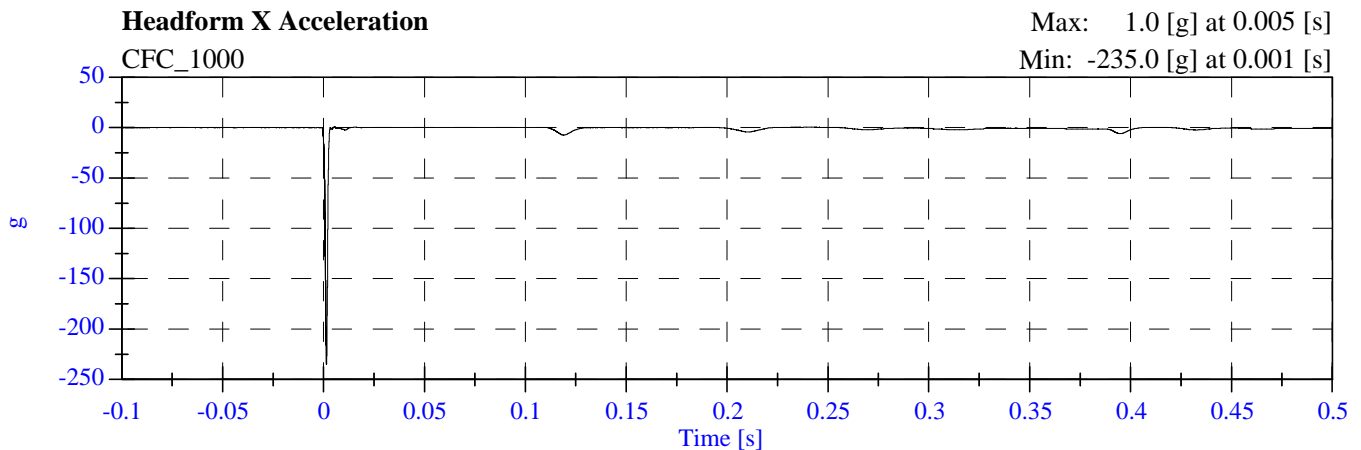
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J38127	3/9/2006	9/9/2006
2 - LATERAL	ENDEVCO	7264-2000T	J37980	3/9/2006	9/9/2006
3 - VERTICAL	ENDEVCO	7264-2000T	J37854	3/9/2006	9/9/2006

REMARKS:

FMVSS 201U - Headform Calibration Drops

FMH 0805 - April 06, 2006



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

MANUFACTURER:		DENTON ATD INC	
SERIAL NUMBER:		0355	
CALIBRATION DATE:		April 6, 2006	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	22	
RELATIVE HUMIDITY	10% to 70%	25	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	250.1	
PEAK LATERAL ACCELERATION	15 Gs Maximum	1.2	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

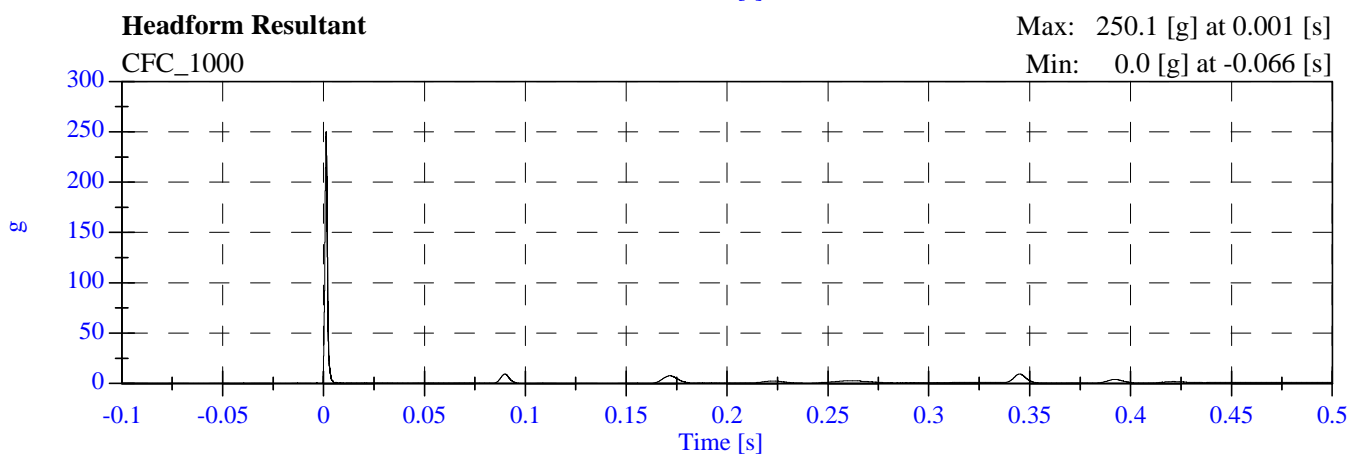
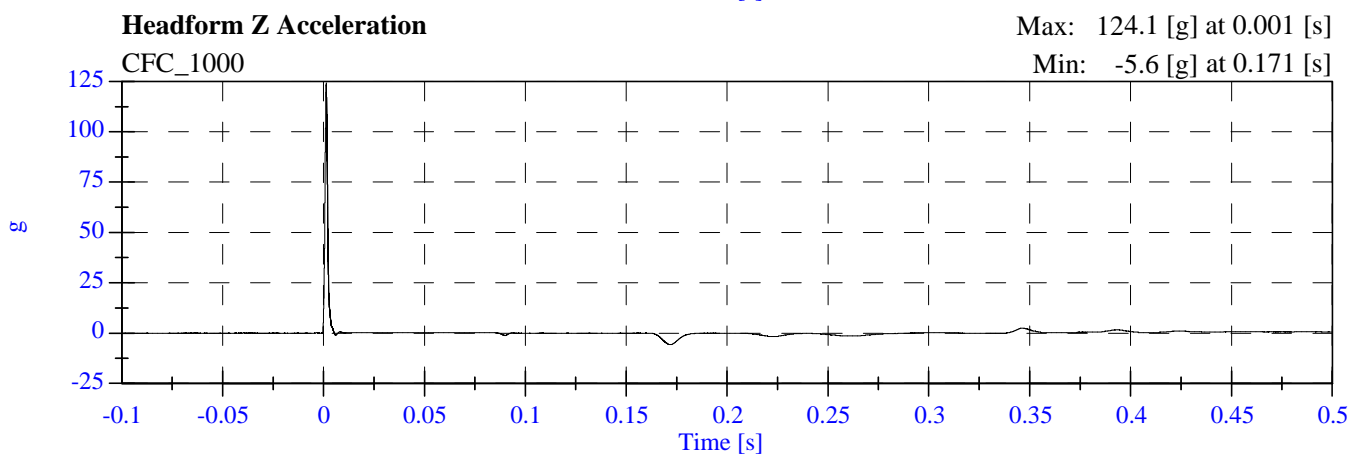
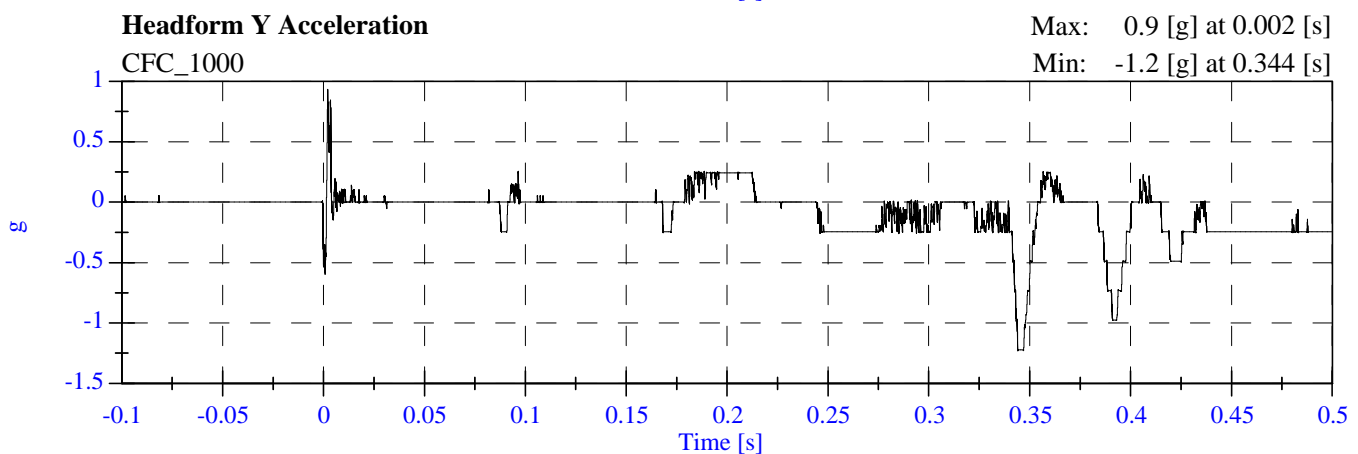
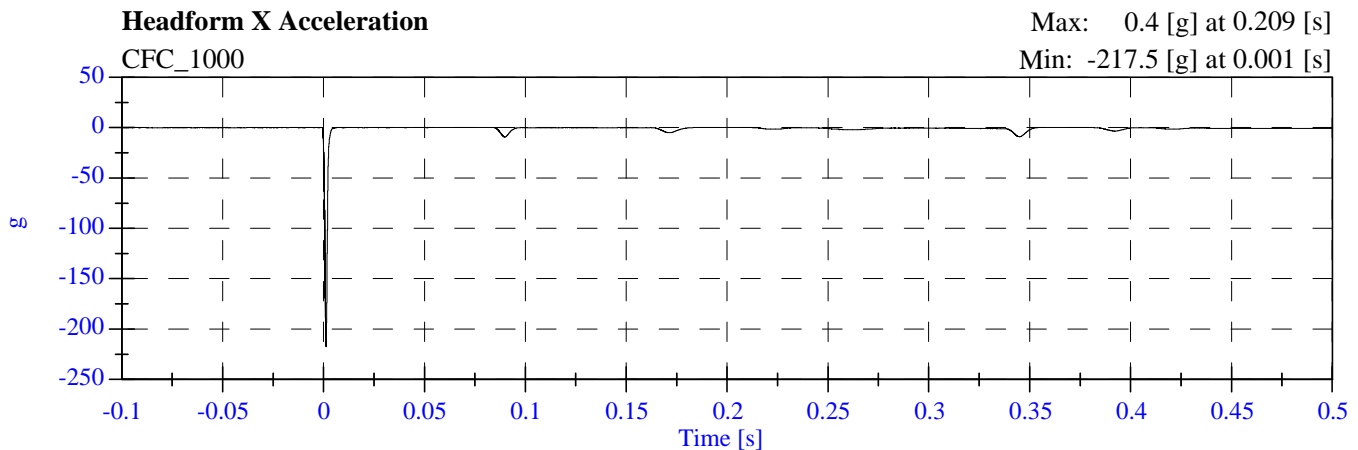
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J28671	3/9/2006	9/9/2006
2 - LATERAL	ENDEVCO	7264-2000T	J32779	3/9/2006	9/9/2006
3 - VERTICAL	ENDEVCO	7264-2000T	J25854	3/9/2006	9/9/2006

REMARKS:

FMVSS 201U - Headform Calibration Drops

FMH 0355 - April 06, 2006



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

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		1255	
CALIBRATION DATE:		April 6, 2006	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	22	
RELATIVE HUMIDITY	10% to 70%	25	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	265.0	
PEAK LATERAL ACCELERATION	15 Gs Maximum	6.7	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

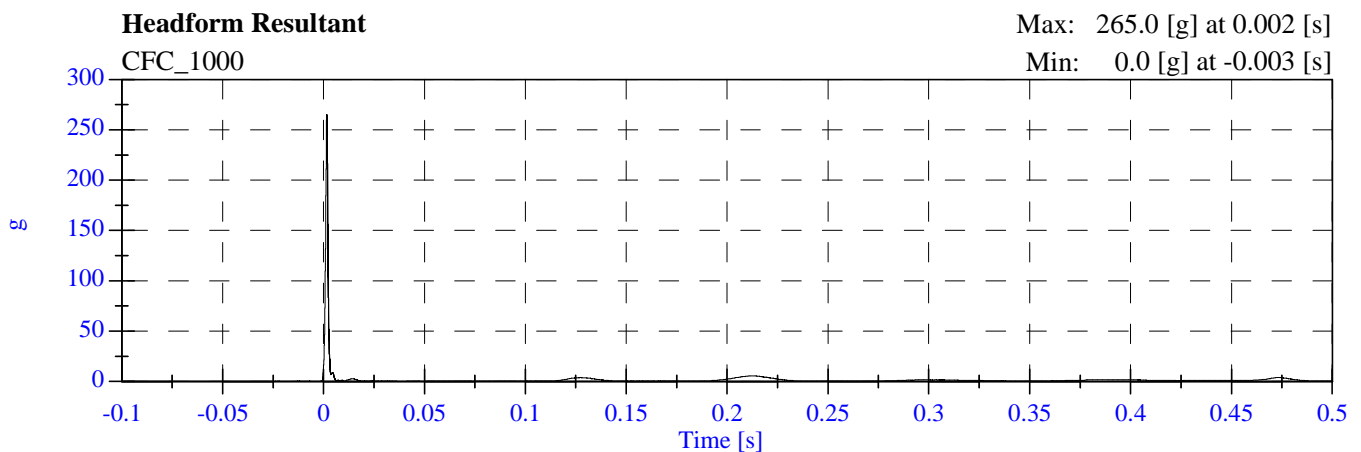
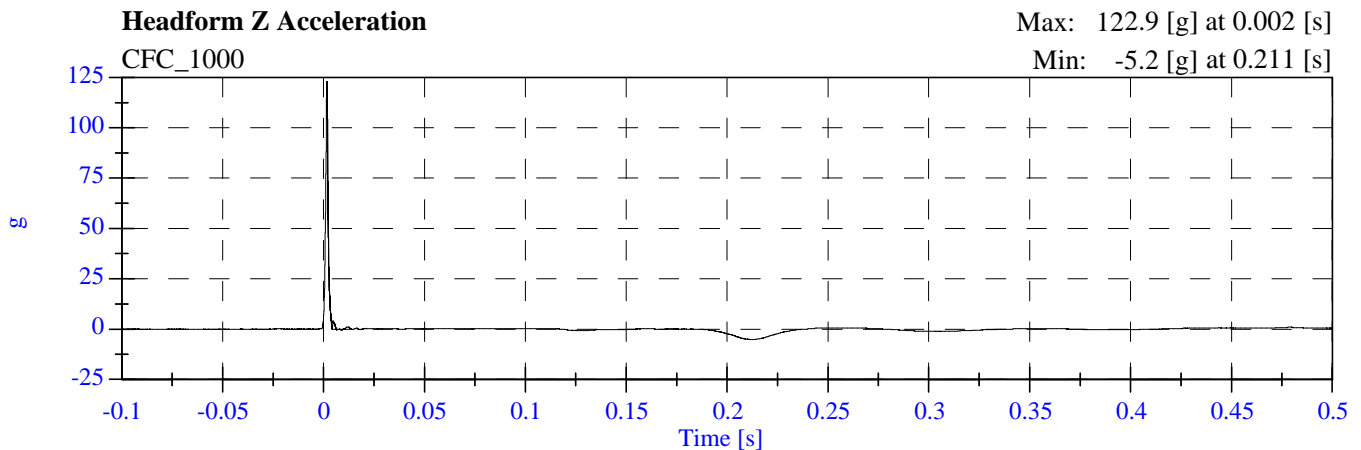
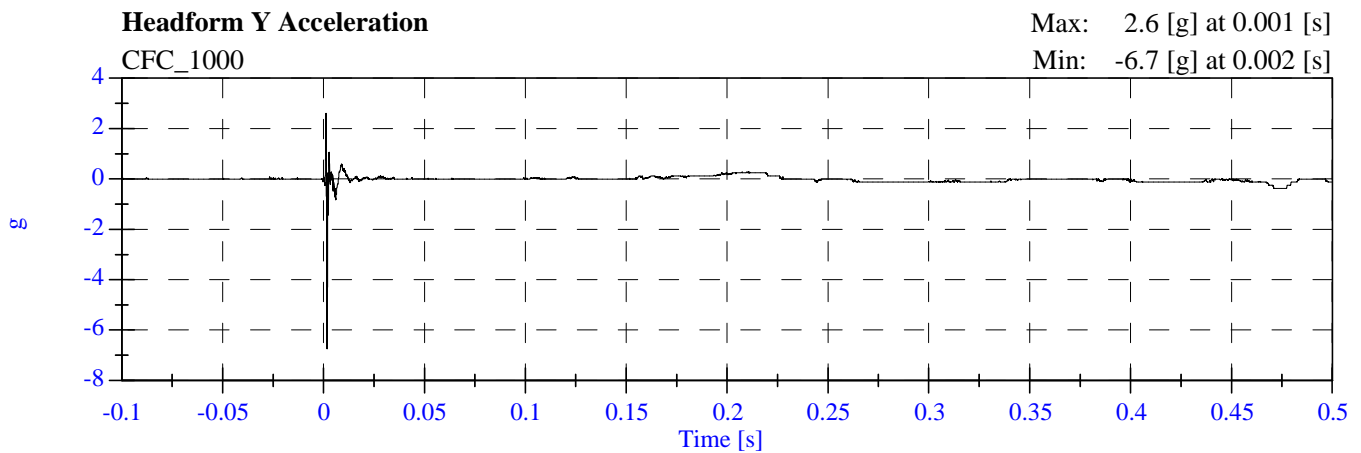
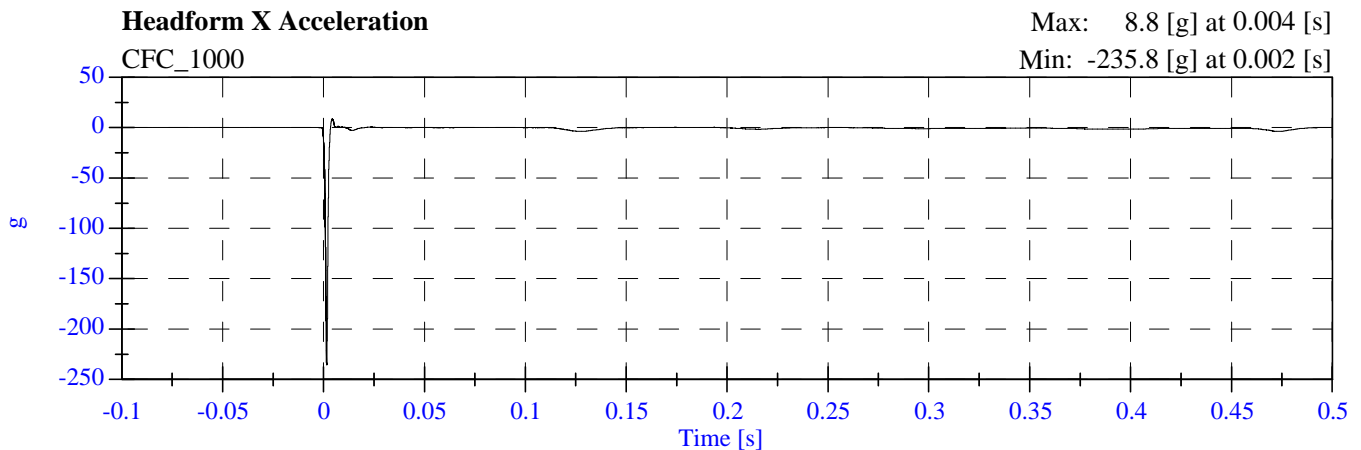
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J41006	3/9/2006	9/9/2006
2 - LATERAL	ENDEVCO	7264-2000T	J40994	3/9/2006	9/9/2006
3 - VERTICAL	ENDEVCO	7264-2000T	J41007	3/9/2006	9/9/2006

REMARKS:

FMVSS 201U - Headform Calibration Drops

FMH 1255 - April 06, 2006



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

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		0642	
CALIBRATION DATE:		April 13, 2006	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	23	
RELATIVE HUMIDITY	10% to 70%	36	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	267.5	
PEAK LATERAL ACCELERATION	15 Gs Maximum	8.4	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

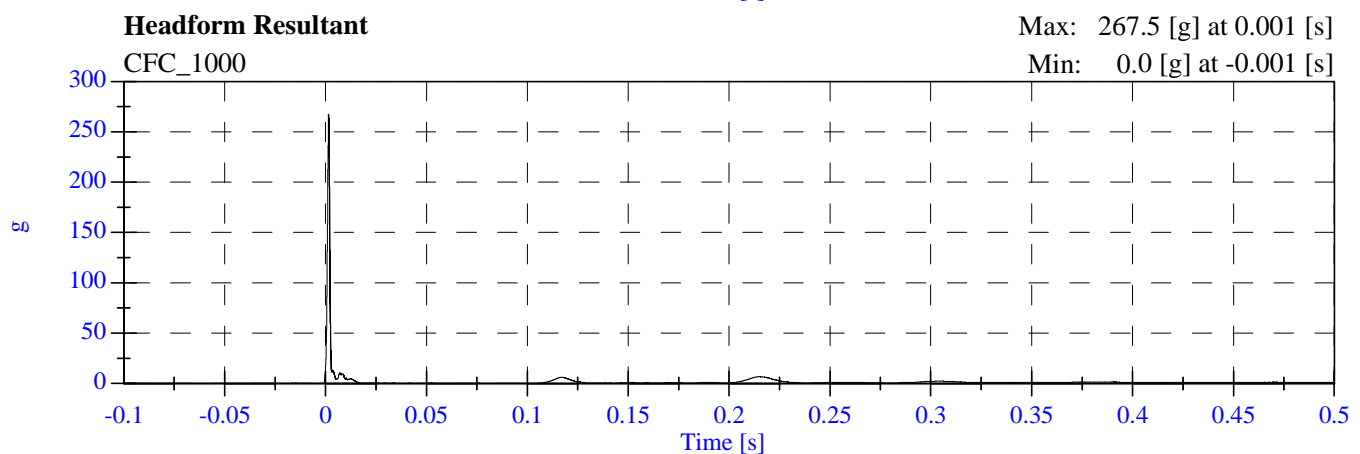
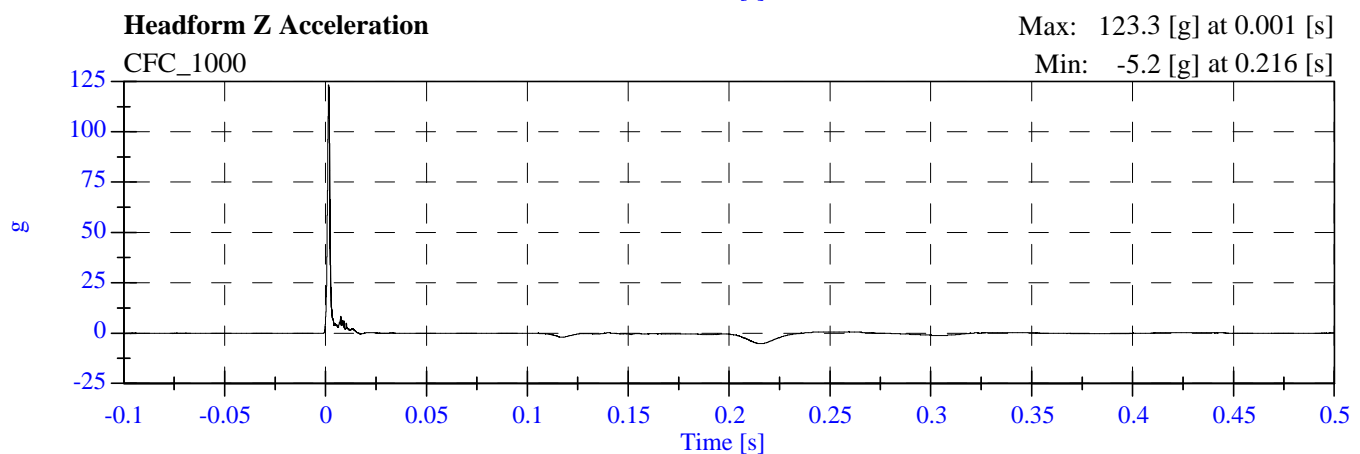
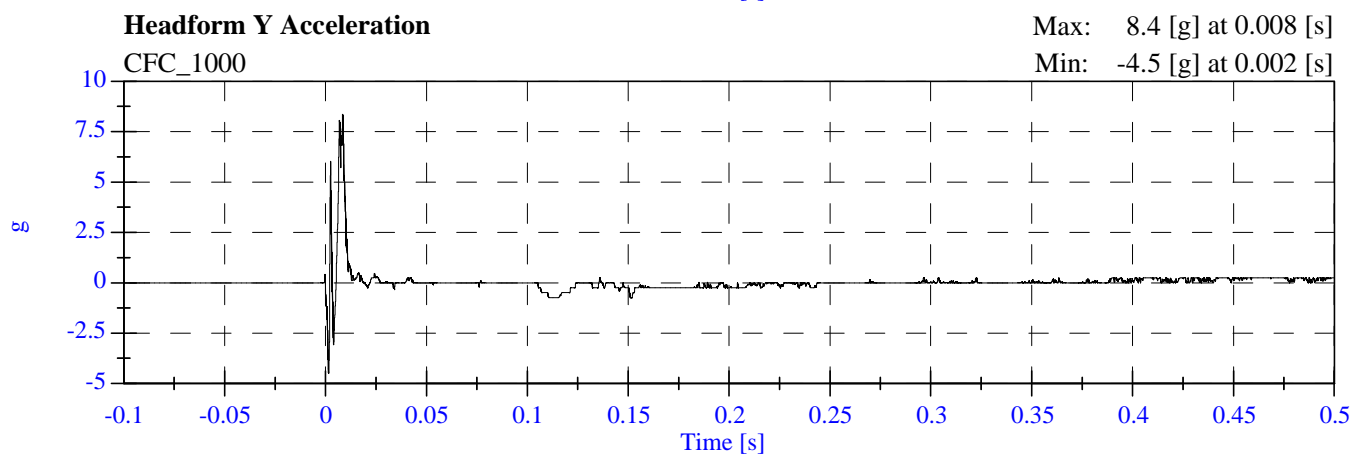
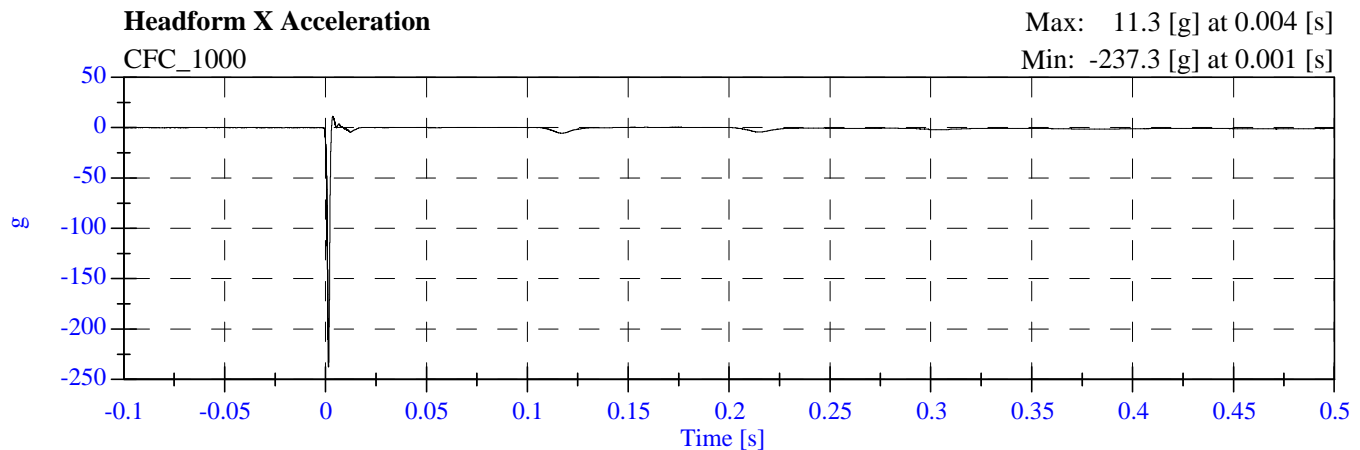
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J24876	3/9/2006	9/9/2006
2 - LATERAL	ENDEVCO	7264-2000T	J33030	3/9/2006	9/9/2006
3 - VERTICAL	ENDEVCO	7264-2000T	J31009	3/9/2006	9/9/2006

REMARKS:

FMVSS 201U - Headform Calibration Drops

FMH 0642 - April 13, 2006



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

MANUFACTURER:		DENTON ATD INC	
SERIAL NUMBER:		0062	
CALIBRATION DATE:		April 13, 2006	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	23	
RELATIVE HUMIDITY	10% to 70%	36	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	261.2	
PEAK LATERAL ACCELERATION	15 Gs Maximum	10.1	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

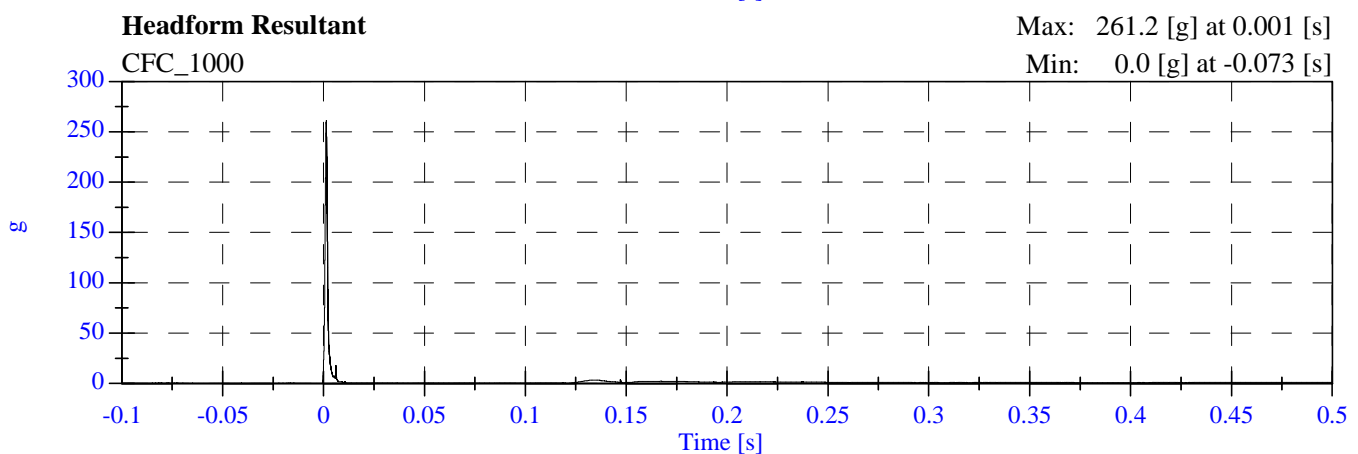
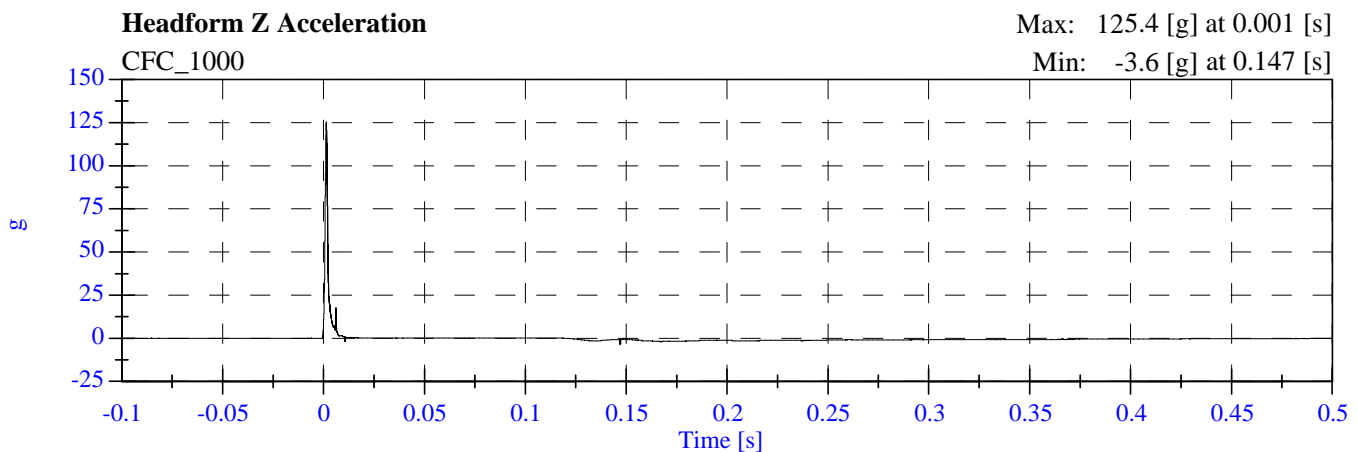
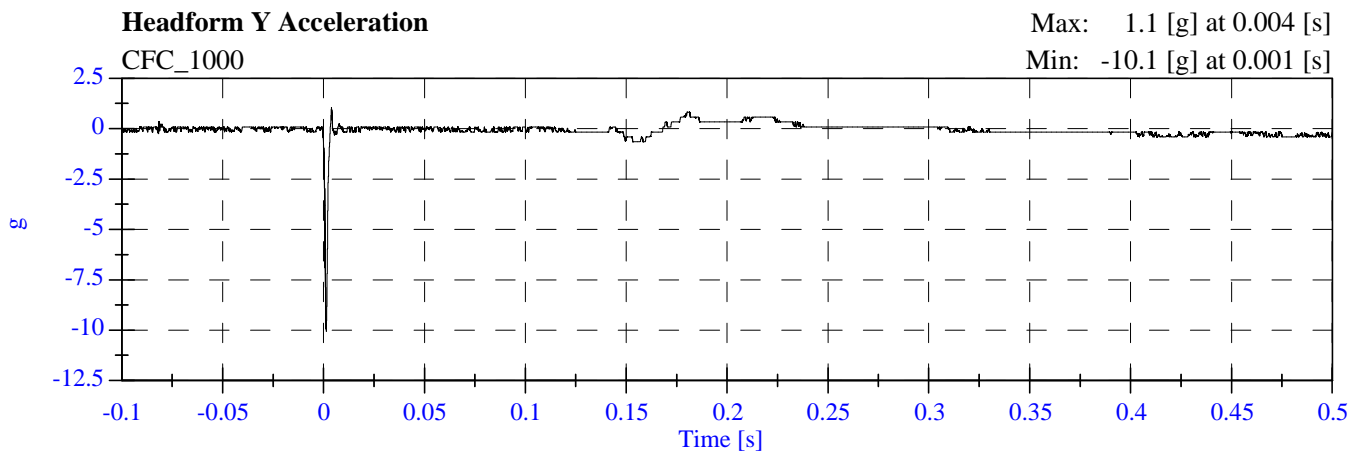
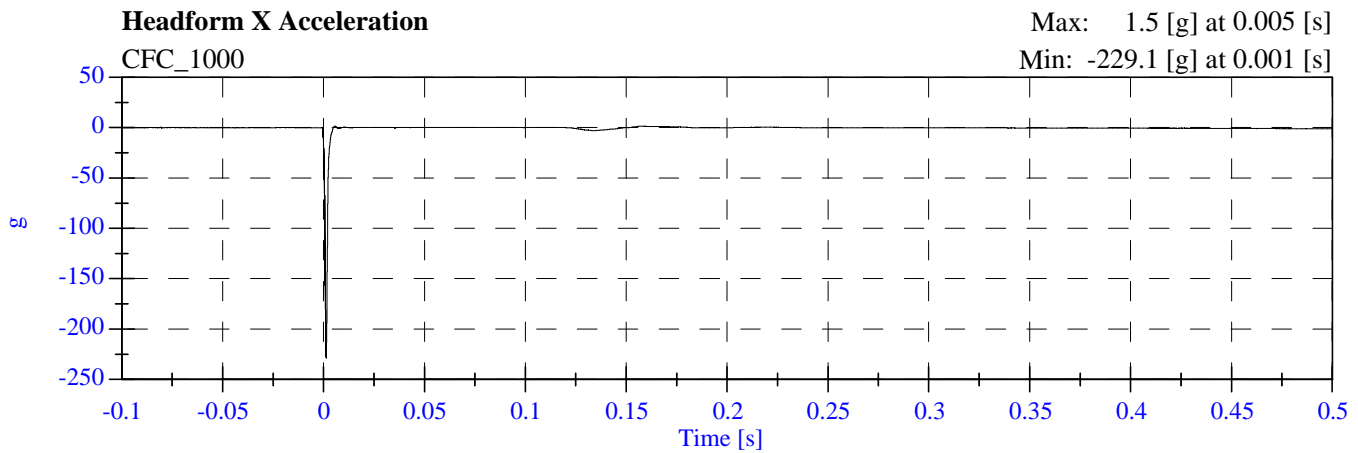
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J33127	3/9/2006	9/9/2006
2 - LATERAL	ENDEVCO	7264-2000T	J33019	3/9/2006	9/9/2006
3 - VERTICAL	ENDEVCO	7264-2000T	J32782	3/9/2006	9/9/2006

REMARKS:

FMVSS 201U - Headform Calibration Drops

FMH 0062 - April 13, 2006



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

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		805	
CALIBRATION DATE:		April 13, 2006	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	23	
RELATIVE HUMIDITY	10% to 70%	36	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	255.2	
PEAK LATERAL ACCELERATION	15 Gs Maximum	7.6	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

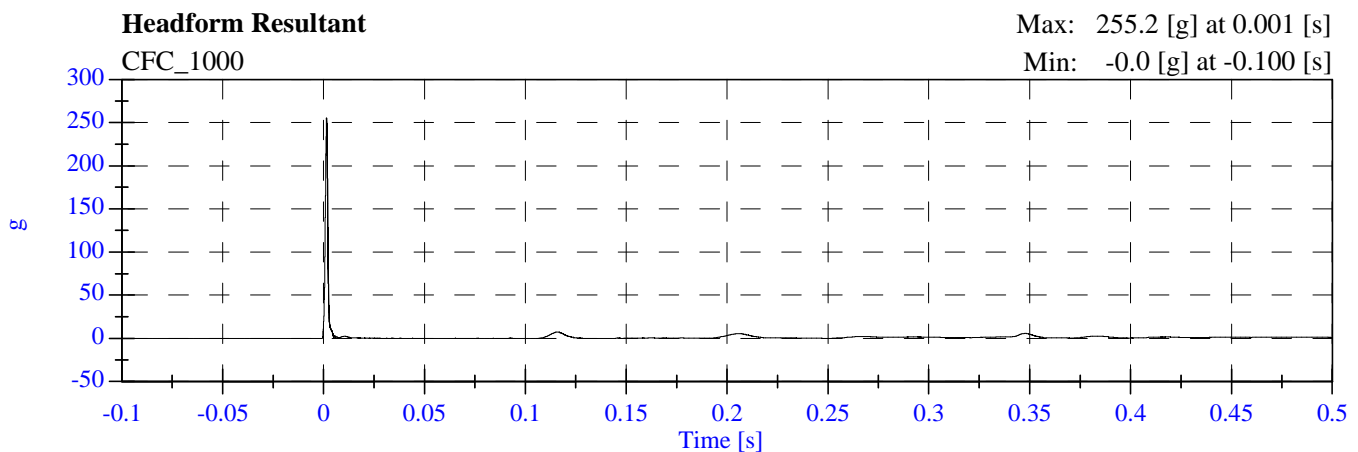
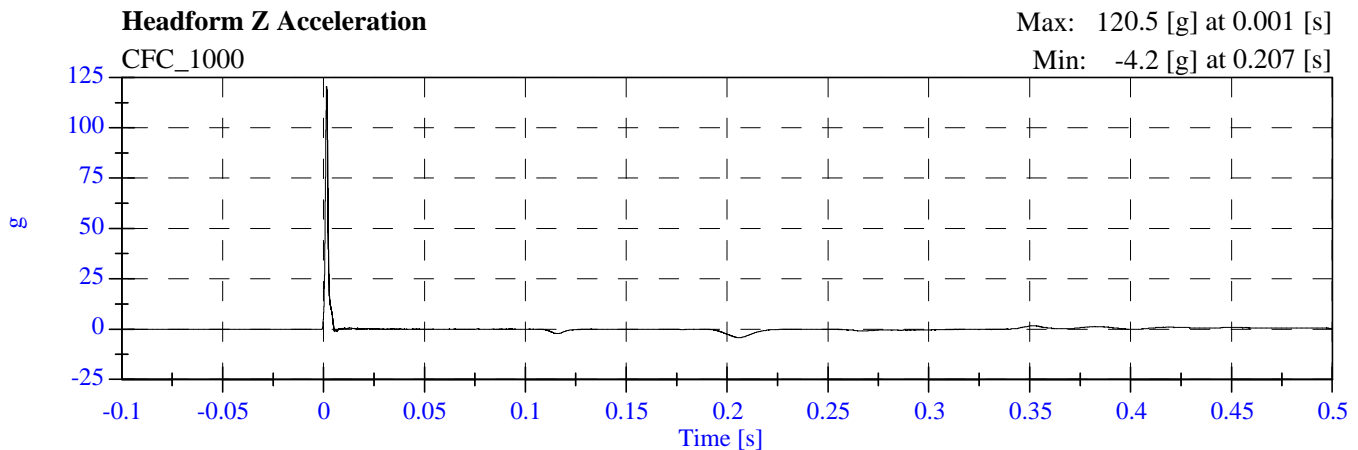
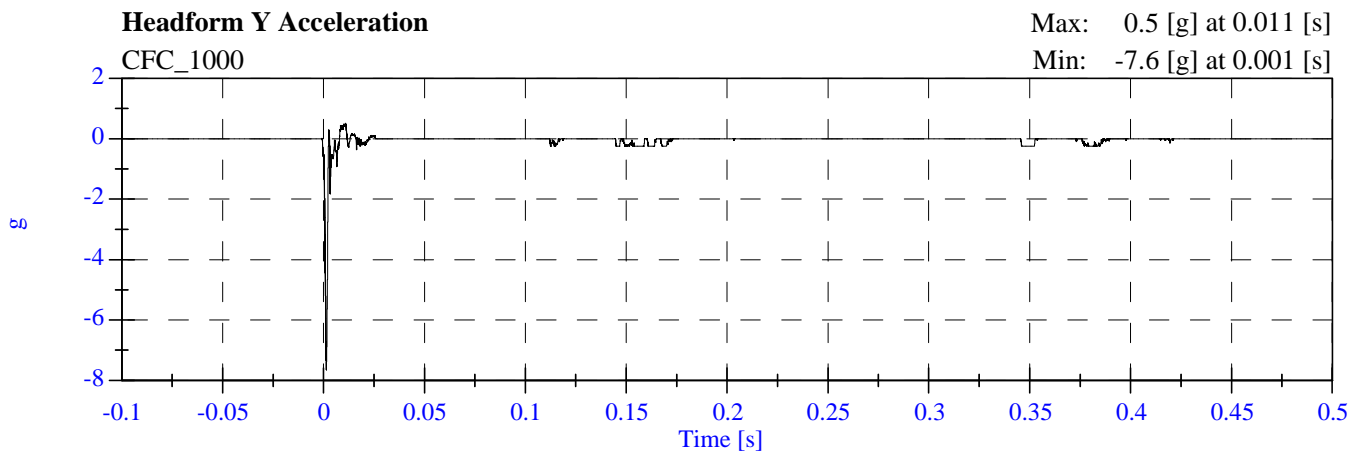
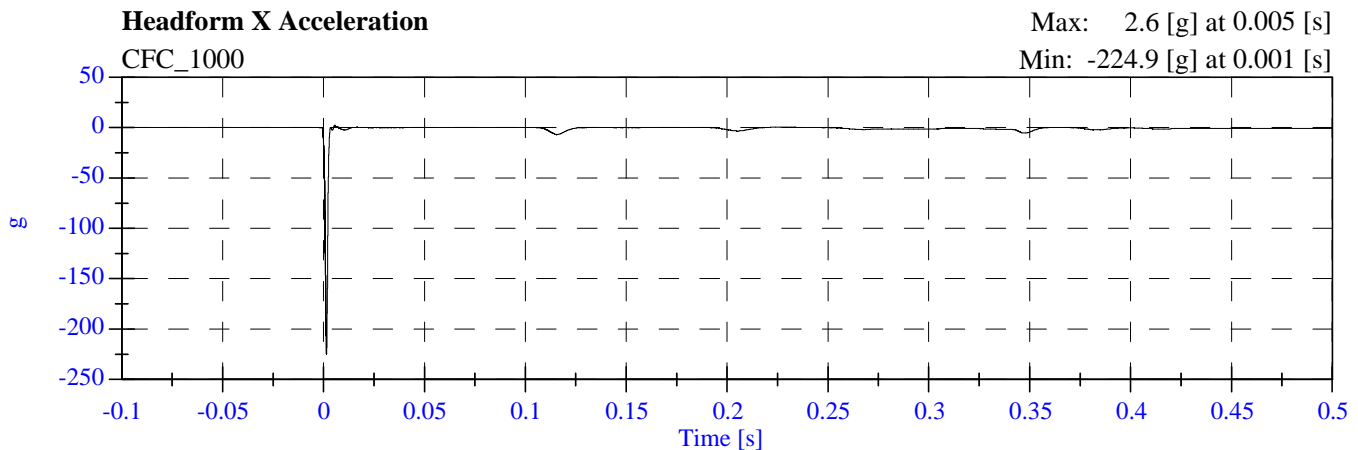
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J38127	3/9/2006	9/9/2006
2 - LATERAL	ENDEVCO	7264-2000T	J37980	3/9/2006	9/9/2006
3 - VERTICAL	ENDEVCO	7264-2000T	J37854	3/9/2006	9/9/2006

REMARKS:

FMVSS 201U - Headform Calibration Drops

FMH 0805 - April 13, 2006



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

MANUFACTURER:		DENTON ATD INC	
SERIAL NUMBER:		0355	
CALIBRATION DATE:		April 13, 2006	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	23	
RELATIVE HUMIDITY	10% to 70%	36	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	249.9	
PEAK LATERAL ACCELERATION	15 Gs Maximum	3.0	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

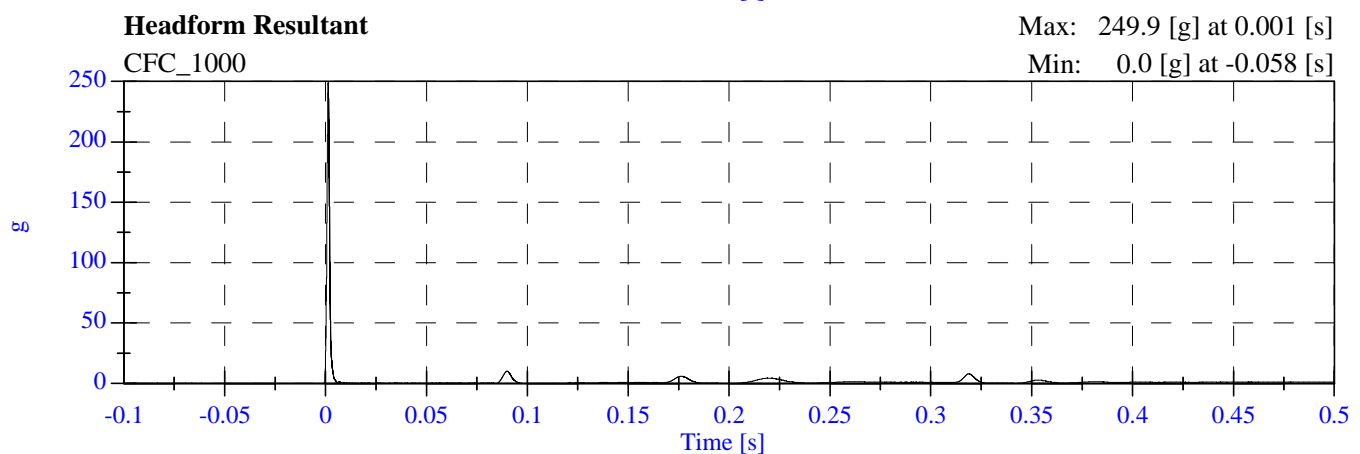
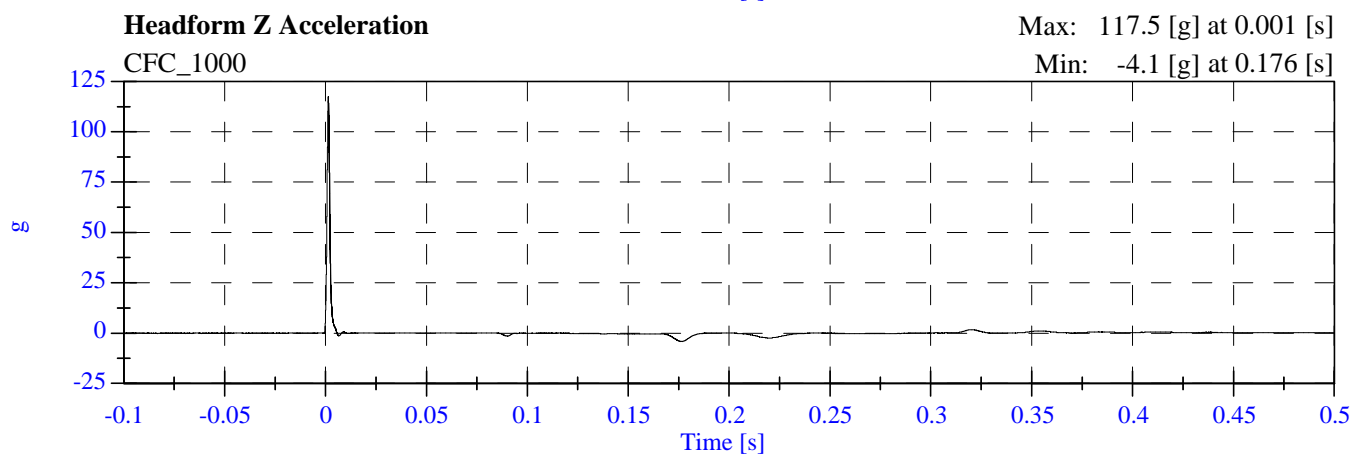
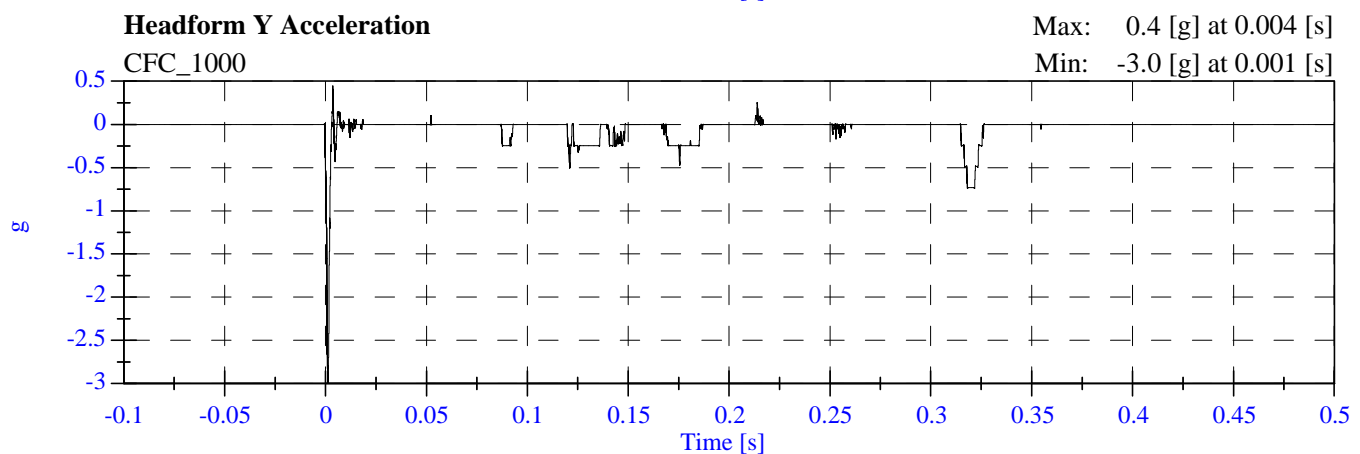
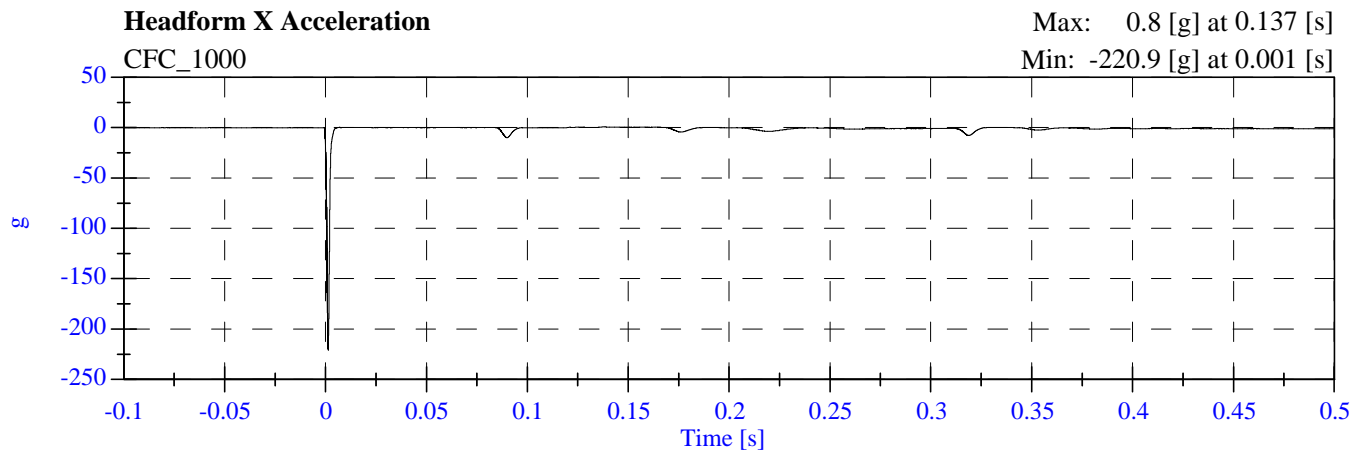
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J28671	3/9/2006	9/9/2006
2 - LATERAL	ENDEVCO	7264-2000T	J32779	3/9/2006	9/9/2006
3 - VERTICAL	ENDEVCO	7264-2000T	J25854	3/9/2006	9/9/2006

REMARKS:

FMVSS 201U - Headform Calibration Drops

FMH 0355 - April 13, 2006



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

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		1255	
CALIBRATION DATE:		April 13, 2006	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	23	
RELATIVE HUMIDITY	10% to 70%	36	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	247.4	
PEAK LATERAL ACCELERATION	15 Gs Maximum	8.6	
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	3/9/2006	9/9/2006
2 - LATERAL	ENDEVCO	7264-2000T	J40994	3/9/2006	9/9/2006
3 - VERTICAL	ENDEVCO	7264-2000T	J41007	3/9/2006	9/9/2006

REMARKS:

FMVSS 201U - Headform Calibration Drops

FMH 1255 - April 13, 2006

