

REPORT NUMBER: 201UI-CAL-07-02

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

**KIA MOTOR CORPORATION FOR HYUNDAI MOTOR COMPANY
2007 HYUNDAI ENTOURAGE GLS**

NHTSA NUMBER: C70504

CALSPAN TEST NUMBER: 8826-FMH-02

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



Test Date: May 4, 2007

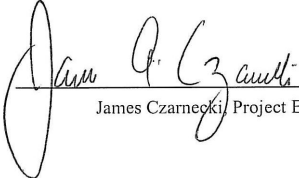
FINAL REPORT

PREPARED FOR:

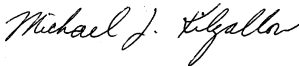
U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
Mail Code: NVS-220, West Building, 4th Floor
1200 New Jersey Ave, SE
Washington, DC 20590

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15. <i>Supplementary Notes</i>																							
16. <i>Abstract</i> Compliance tests were conducted on the subject vehicle, a 2007 Hyundai Entourage GLS, 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 2007 Hyundai Entourage GLS, NHTSA No. C70504, 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 2007 Hyundai Entourage GLS, NHTSA No. C70504 , 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	OP1	SR3R	BP4	BP3
BP1	SR2A	AP3	AP1	AP2
BP2	URBP			

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:	2007 Hyundai Entourage GLS
VIN:	KNDMC233776011787
DATE OF MANUFACTURE:	02/06 (SEE CERTIFICATION LABEL)
COLOR:	Gold

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	2057.181	-619.989	1645.371	2065.569	614.970	1647.030	122°	42°	18.76	491.4	537.2
AP2	1892.505	-669.408	1557.073	1899.551	666.813	1557.464	208°	41°	18.73	363.0	440.0
AP3	1743.704	-702.481	1467.813	1746.750	697.382	1467.428	141°	41°	18.78	304.5	396.1
BP1	2544.507	-518.991	1724.318	2557.865	517.193	1724.211	90°	26°	18.55	508.5	550.0
BP2	2531.155	-670.892	1479.265	2538.271	669.935	1476.799	270°	10°	23.59	650.6	657.2
BP3	2486.578	-688.353	1482.981	2493.103	686.286	1483.990	90°	-5°	23.49	480.4	528.9
BP4	2656.140	-713.542	1361.415	2661.991	711.818	1363.249	150°	2°	23.53	452.8	508.1
FH1	2011.336	-546.070	1699.468	2012.906	537.299	1699.734	Relocated 2 circles		-	-	-
FH1_R2	1981.210	-544.333	1695.098	2005.066	490.616	1704.499	-	-	-	-	-
FH2	1989.452	-401.835	1711.590	1994.061	384.656	1711.964	-	-	-	-	-
OP1_OP2	3578.414	-658.106	1513.472	3586.540	662.207	1511.222	90°	8°	23.45	534.8	569.9
RH	4389.118	-355.804	1714.061	4382.440	354.573	1724.572	-	-	-	-	-
RP1	4383.471	-546.556	1638.225	4390.809	552.863	1632.518	39°	22°	23.59	236.1	344.5
RP2	4559.267	-552.756	1562.724	4603.976	557.301	1550.545	-	-	-	-	-
RSR3_F	3856.739	-502.234	1750.313	3856.739	502.234	1750.313	-	-	-	-	-
RSR3_R	4012.530	-499.434	1740.689	4012.530	499.434	1740.689	-	-	-	-	-
SD	3056.403	-536.207	1735.858	3064.516	527.481	1766.653	Relocated 2 circles		-	-	-
SD R2	3063.315	-540.619	1733.966	3063.315	540.619	1733.966	-	-	-	-	-
SR1	2206.342	-555.276	1744.101	2214.093	553.148	1741.752	Relocated 2 circles		-	-	-
SR1_R2	2176.190	-518.287	1746.877	2213.916	572.965	1706.505	-	-	-	-	-
SR2A	2356.376	-552.557	1759.703	2364.357	546.529	1759.630	Relocated 2 circles		-	-	-

SR2A_R2	2358.077	-568.400	1716.142	2369.682	563.153	1719.684	90°	36°	18.55	430.4	491.1
SR2B	2244.879	-555.421	1748.155	2258.169	549.193	1750.828	Relocated 2 circles		-	-	-
SR2B_R2	2245.226	-518.381	1745.452	2254.713	510.961	1738.168	-	-	-	-	-
SR3_F	3097.258	-485.823	1772.671	3865.050	512.055	1748.063	-	-	-	-	-
SR3_R	3254.261	-489.007	1769.684	4025.277	509.455	1737.700	90°	38°	23.64	444.6	501.8
URAP	2325.311	-423.759	1785.483	2351.041	421.704	1790.441	-	-	-	-	-
URBP	2611.263	-458.904	1739.840	2615.112	457.535	1740.758	270°	34°	23.63	555.4	585.4
UROP	3548.704	-392.433	1817.973	3553.335	415.787	1815.711	-	-	-	-	-
URRP	4158.934	-419.460	1784.007	4182.574	422.165	1779.891	-	-	-	-	-
URRRSR	3854.555	-400.379	1798.950	3885.804	426.628	1796.725	-	-	-	-	-
URRSR	3251.912	-367.038	1822.739	3267.241	371.872	1821.893	-	-	-	-	-

*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:				2007 Hyundai Entourage GLS					
VIN:				KNDMC233776011787					
Month & Year of Manufacture:				02/06 (SEE CERTIFICATION LABEL)					
Vehicle Body Color:				Gold					
Engine Data:	6	Cylinders;	-	CID;	3.8	Liters;	-	cc	
Engine Placement:		x	Longitudinal;	or		-	Lateral		
Transmission:	5	Speed;	-	Manual;	x	Automatic;	-	Overdrive	
Final Drive:	-	Rear Wheel Drive;	x	Front Wheel Drive;	-	Four Wheel Drive			
Odometer Reading:		172	km						
Options:	x	A/C;	x	Power Steering;	x	Pwr.Brakes;	x	Pwr. Windows	
Interior Trim Information :									
1. Adjustable seat belt anchorages on both B-pillar and Other Pillars									
2. Non-adjustable seat belt anchorages on the Rear Pillar									
3. Sunglass holder on driver side rail, grab handles on all other side rail seating positions.									

DATA FROM TIRE PLACARD:									
Tire Pressure (at capacity);				240			kPa FRONT		
				240			kPa REAR		
Recommended Tire Size:				P225/70R16					
Tires on Test Vehicle:		P225/70R16			Manufacturer:		-		
Vehicle Capacity Data:									
Number of Occupants:	2	Front;	2	Rear;	3	3rd Seat;	7	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)=				525			kg (A)		
No. of Occupants x 68 kg. =				476			kg (B)		
Rated Cargo/Luggage Weight (RCLW) =				49			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	=	610.0	kg	Left Rear	=	442.0 kg
Right Front	=	576.5	kg	Right Rear	=	435.0 kg
TOTAL FRONT	=	1186.5	kg	TOTAL REAR	=	877.0 kg
% of Total Weight	=	57.5	%	% of Total Weight	=	42.5 %
TOTAL WEIGHT	=	2063.5		kg		

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:		
Total Test Vehicle Delivered Weight=	2063.5	kg (A)
+ Rated Cargo/Luggage Weight =	49.0	kg (B)
TEST VEHICLE TARGET WEIGHT =	2112.5	kg (A+B)

WEIGHT OF TEST VEHICLE (FULLY LOADED):						
Left Front	=	605.0	kg	Left Rear	=	462.0 kg
Right Front	=	576.0	kg	Right Rear	=	463.5 kg
TOTAL FRONT	=	1181.0	kg	TOTAL REAR	=	925.5 kg
% of Total Weight	=	56.1	%	% of Total Weight	=	43.9 %
TOTAL TEST WEIGHT	=	2106.5				
Weight of vehicle secured in test vehicles cargo area	=	43.0		kg		

TEST VEHICLE ATTITUDE (all dimensions in millimeters):				
AS DELIVERED:	Left Front	802	Left Rear	789
	Right Front	806	Right Rear	782
FULLY LOADED:	Left Front	802	Left Rear	784
	Right Front	806	Right Rear	788
Test Vehicle Wheelbase:	3023		millimeters	

TEST VEHICLE PITCH AND ROLL ANGLES:				
AS DELIVERED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↓0.7↑	Front Bumper	0.0
	Right Door Sill	↑1.0↓	Rear Bumper	↓0.2↑
FULLY LOADED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↓0.6↑	Front Bumper	0.0
	Right Door Sill	↑0.9↓	Rear Bumper	↓0.1↑
AS TESTED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↓0.7↑	Front Bumper	0.0
	Right Door Sill	↑0.9↓	Rear Bumper	↓0.1↑

DATA SHEET 2-3

APPROACH ANGLE LIMITS

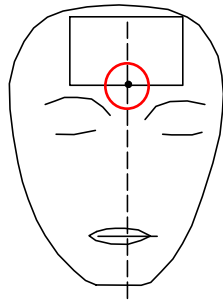
Target Code	Left Side				Target Code	Right Side			
	Horizontal Angles (deg.)		Vertical Angles (deg.)			Horizontal Angles (deg.)		Vertical Angles (deg.)	
	Minimum	Maximum	Minimum	Maximum		Minimum	Maximum	Minimum	Maximum
AP1	202	249	-5	42	AP1	111	158	-5	42
AP2	202	249	-5	41	AP2	111	158	-5	41
AP3	202	249	-5	41	AP3	111	158	-5	41
BP1	198	272	-10	26	BP1	88	162	-10	26
BP2	ANY		0	10	BP2	ANY		0	10
BP3	198	272	-10	-5	BP3	88	162	-10	-5
BP4	198	272	-10	2	BP4	88	162	-10	2
OP1	ANY		0	8	OP1	ANY		0	8
OP2	270		-10	8	OP2	90		-10	8
RP1	270	345	-10	22	RP1	15	90	-10	22
RP2	270	345	-10	2	RP2	15	90	-10	2
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	33	SR1	90		0	33
SR2A	270		0	36	SR2A	90		0	36
SR2B	270		0	38	SR2B	90		0	38
SR3F	270		0	38	SR3	90		0	38
SR3R	270		0	38	SR3GH	90		0	38
URAP	ANY		0	39	URAP	ANY		0	39
URBP	ANY		0	34	URBP	ANY		0	34
URRP	ANY		0	42	URRP	ANY		0	42
SD	ANY		0	35	SD	ANY		0	35

Note : BP2 and OP1 target locations – Adjustable seat belt anchorage
 RP2 target location – Non-adjustable seat belt anchorage treated as a rearmost pillar target with respect to horizontal and vertical angle ranges of Table 1, approach angle limits (S8.13.4)

DATA SHEET 2-4

SUMMARY TARGET IMPACT LOCATION ON FMH

VEHICLE YEAR/MAKE/MODEL/STYLE:	2007 Hyundai Entourage GLS
VIN:	KNDMC233776011787
DATE OF MANUFACTURE:	02/06 (SEE CERTIFICATION LABEL)
COLOR:	Gold



ã RIGHT SIDE OF FACE

TARGET	Distance Above Point O (mm)	Distance Over From Pt. O (mm)
RP1	30	0
OP1	18	10L
SR3R	25	6L
BP4	7	7L
BP3	17	23R
BP1	44	20R
SR2A	12	6R
AP3	1	7L
AP1	9	5R
AP2	10	0
BP2	21	9L
URBP	15	5L

SECTION 3

SUMMARY OF TEST RESULTS AND DATA PLOTS

VEHICLE YEAR/MAKE/MODEL/STYLE:	2007 Hyundai Entourage GLS
VIN:	KNDMC233776011787
DATE OF MANUFACTURE:	02/06 (SEE CERTIFICATION LABEL)
COLOR:	Gold

Test Number:	01
Test Date:	05/03/07
Target Location:	REAR PILLAR
Target Code:	RP1
Horizontal Impact Angle:	39°
Vertical Impact Angle:	22°
Ambient Temperature:	22.3 C°
Relative Humidity:	27.3
Time of Impact:	10:30
Headform Number:	0062

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	0	mm right	mm left
On Centerline	30	mm up	



POST-IMPACT RP1 HEADFORM

Free Motion HIC	236.1
HIC(d)	344.5
Impact Velocity (kph)	23.59
HIC T1 (msec)	3.9
HIC T2 (msec)	21.9

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FMH Headform 0062

Location: RP1

Test Date: May 03, 2007

Work File: RP1

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

Lab Temperature: 22.3 C

HICd: 344.5

Lab Humidity: 27.3 %

HIC (36ms): 236.1

Velocity at Impact: 23.59 KPH

t1: 3.9 msec

t2: 21.9 msec

Free Flight Distance: 226.99 mm

Duration: 18.0 msec

Maximum: 54.6 g

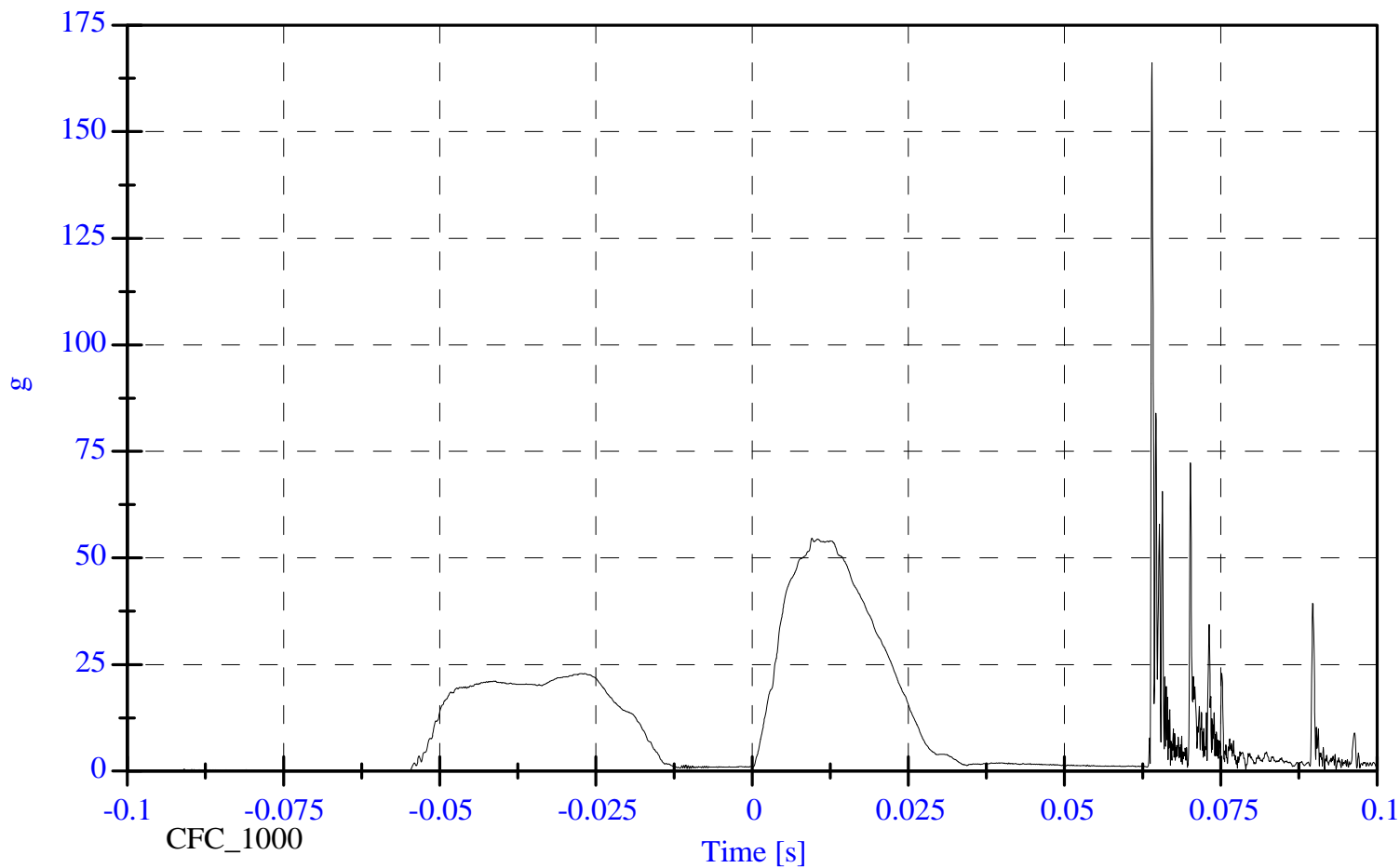
Average Acceleration: 10.2 g

FMVSS 201U 2007 Hyundai Entourage

Headform Resultant

Max: 54.6 [g] at 0.010 [s]

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



FMVSS 201U 2007 Hyundai Entourage

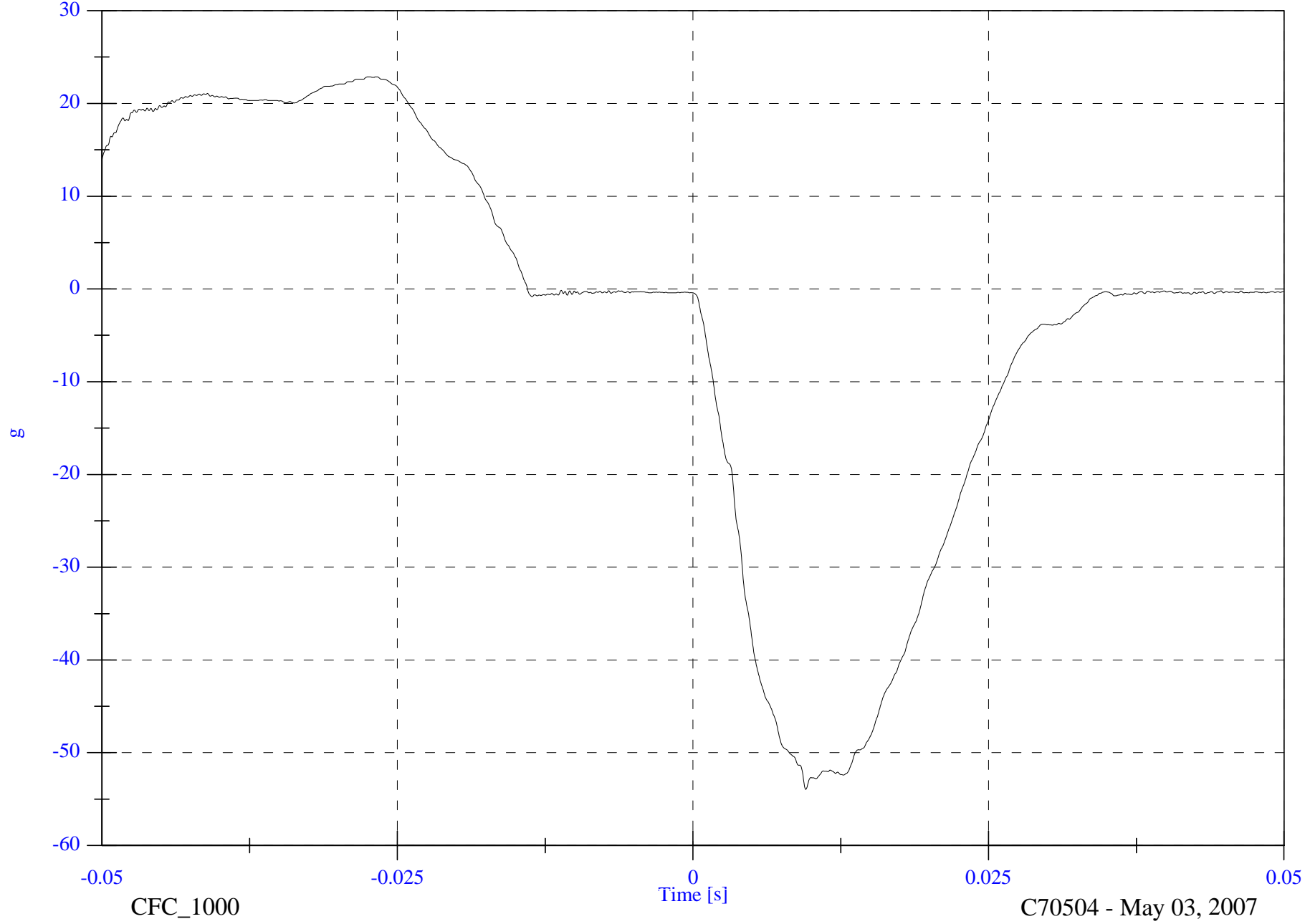
Headform X Acceleration

Max: 22.9 [g] at -0.027 [s]

Min: -54.0 [g] at 0.010 [s]

C70504 RP1 IMPACT PLOT #1

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CFC_1000

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FMVSS 201U 2007 Hyundai Entourage

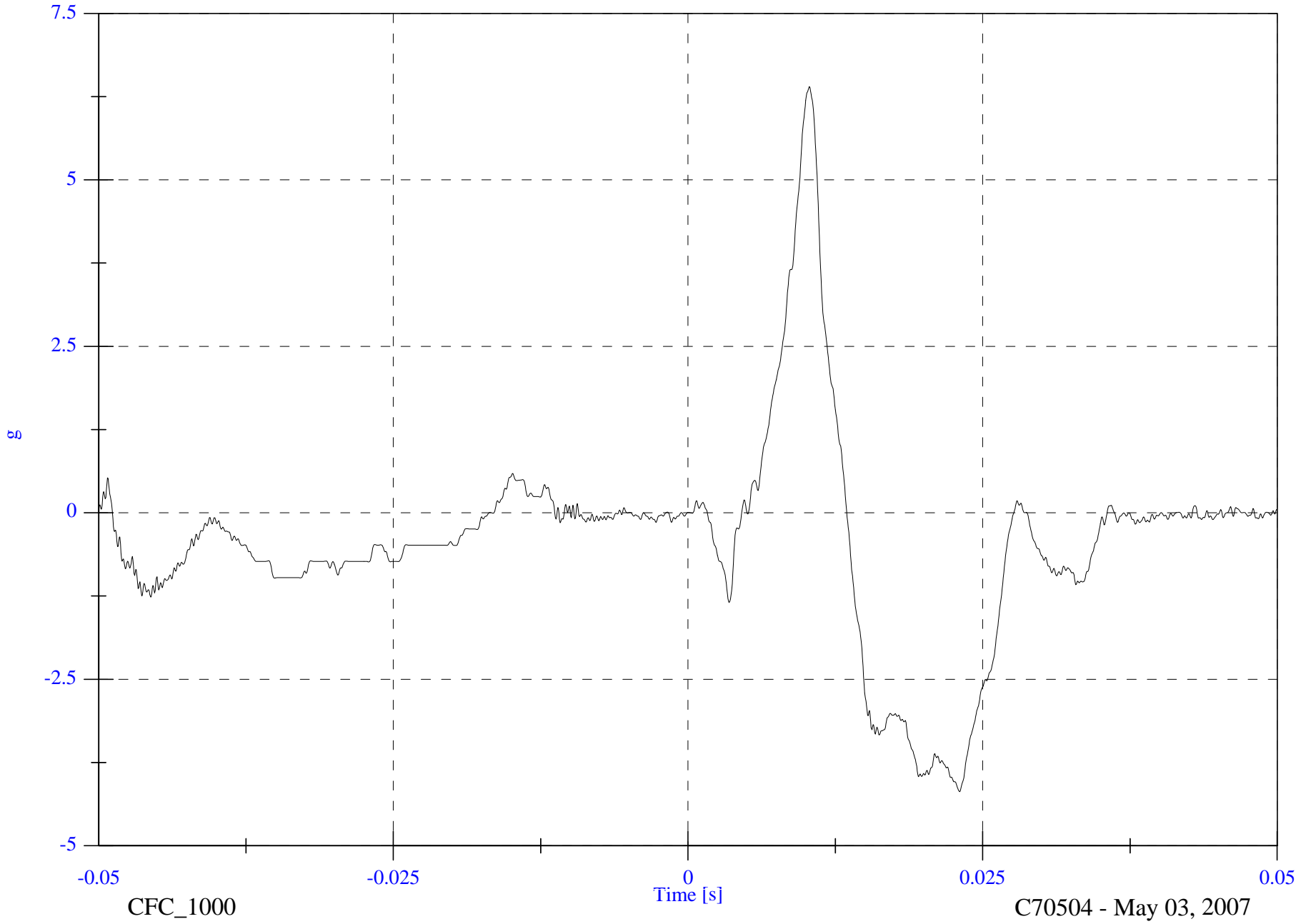
Headform Y Acceleration

Max: 6.4 [g] at 0.010 [s]

Min: -4.2 [g] at 0.023 [s]

C70504 RP1 IMPACT PLOT #2

8826-FMH-02



CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

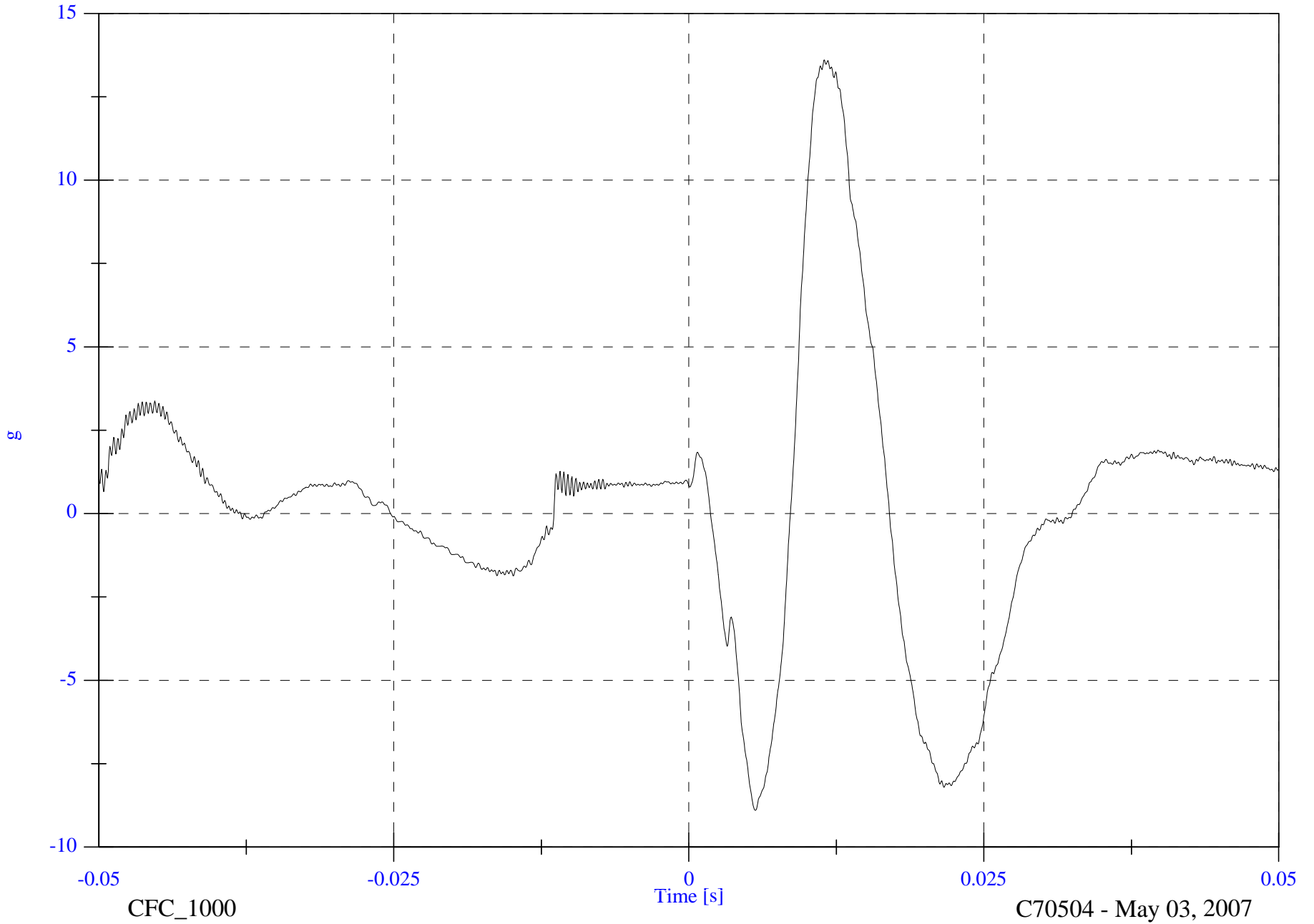
Headform Z Acceleration

Max: 13.6 [g] at 0.011 [s]

Min: -8.9 [g] at 0.006 [s]

C70504 RP1 IMPACT PLOT #3

8826-FMH-02



CFC_1000

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FMVSS 201U 2007 Hyundai Entourage

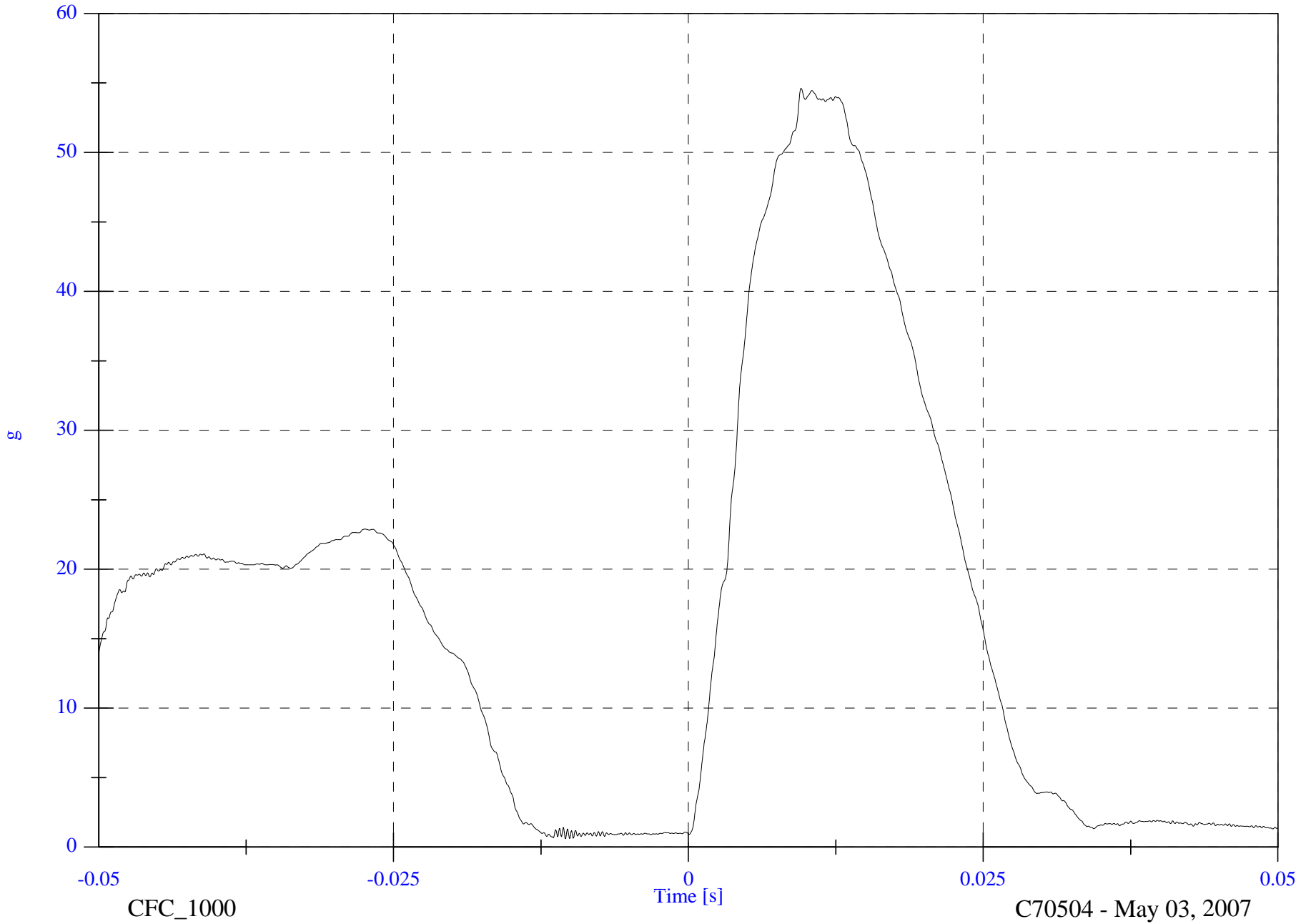
Headform Resultant

Max: 54.6 [g] at 0.010 [s]

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

C70504 RP1 IMPACT PLOT #4

8826-FMH-02



CFC_1000

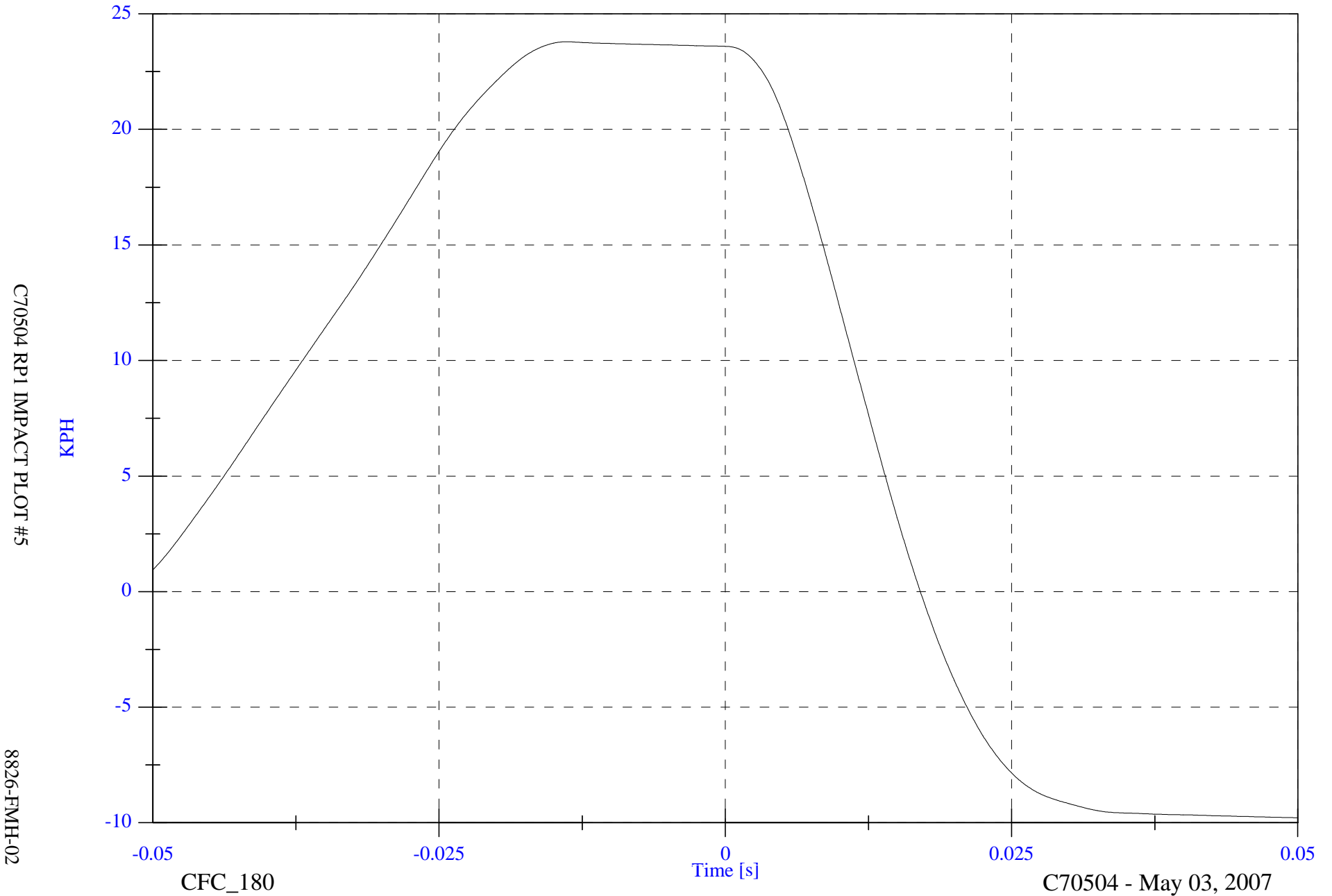
C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

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

Min: -9.8 [KPH] at 0.050 [s]

Headform Velocity

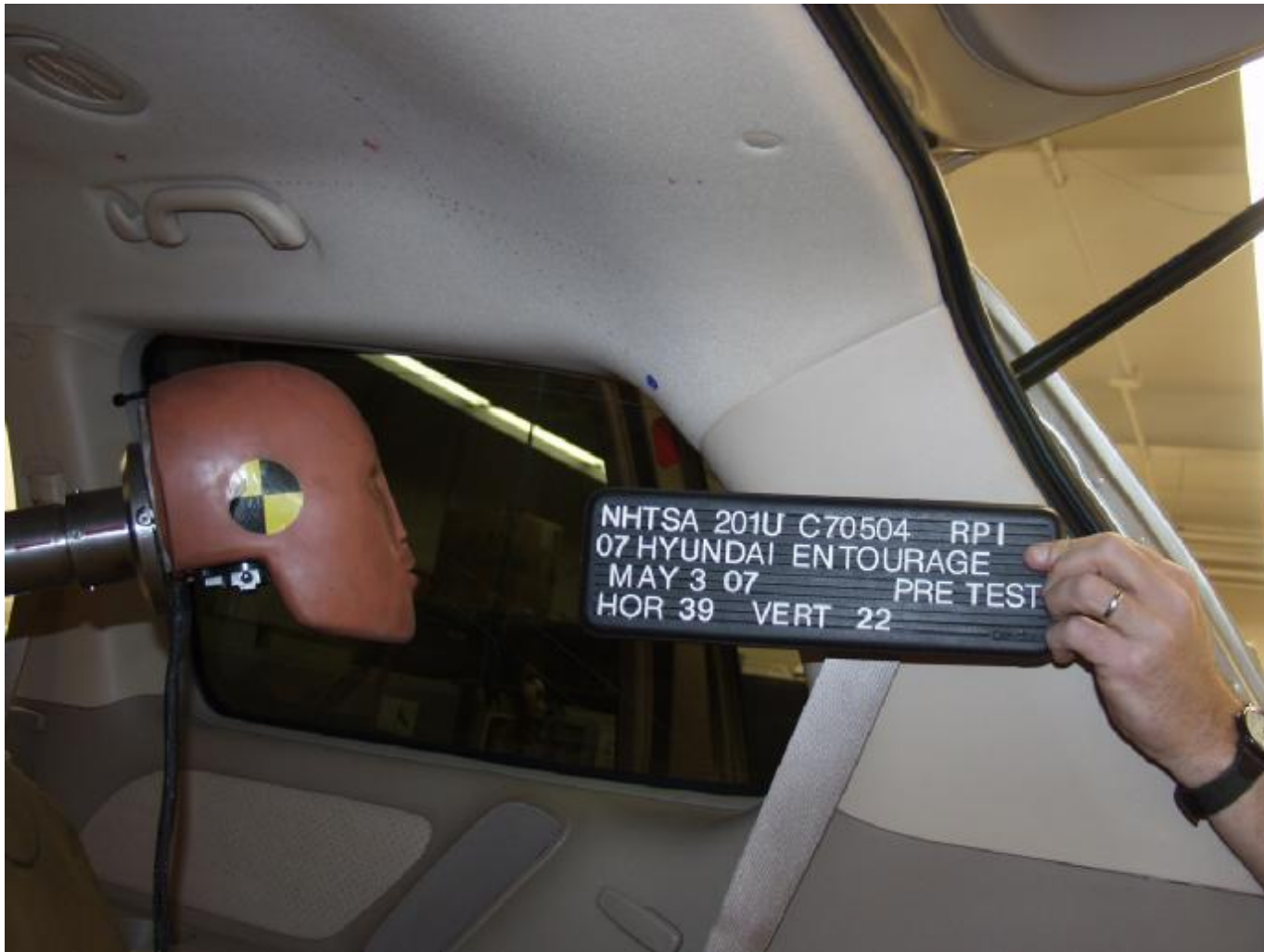


C70504 RP1 IMPACT PLOT #5

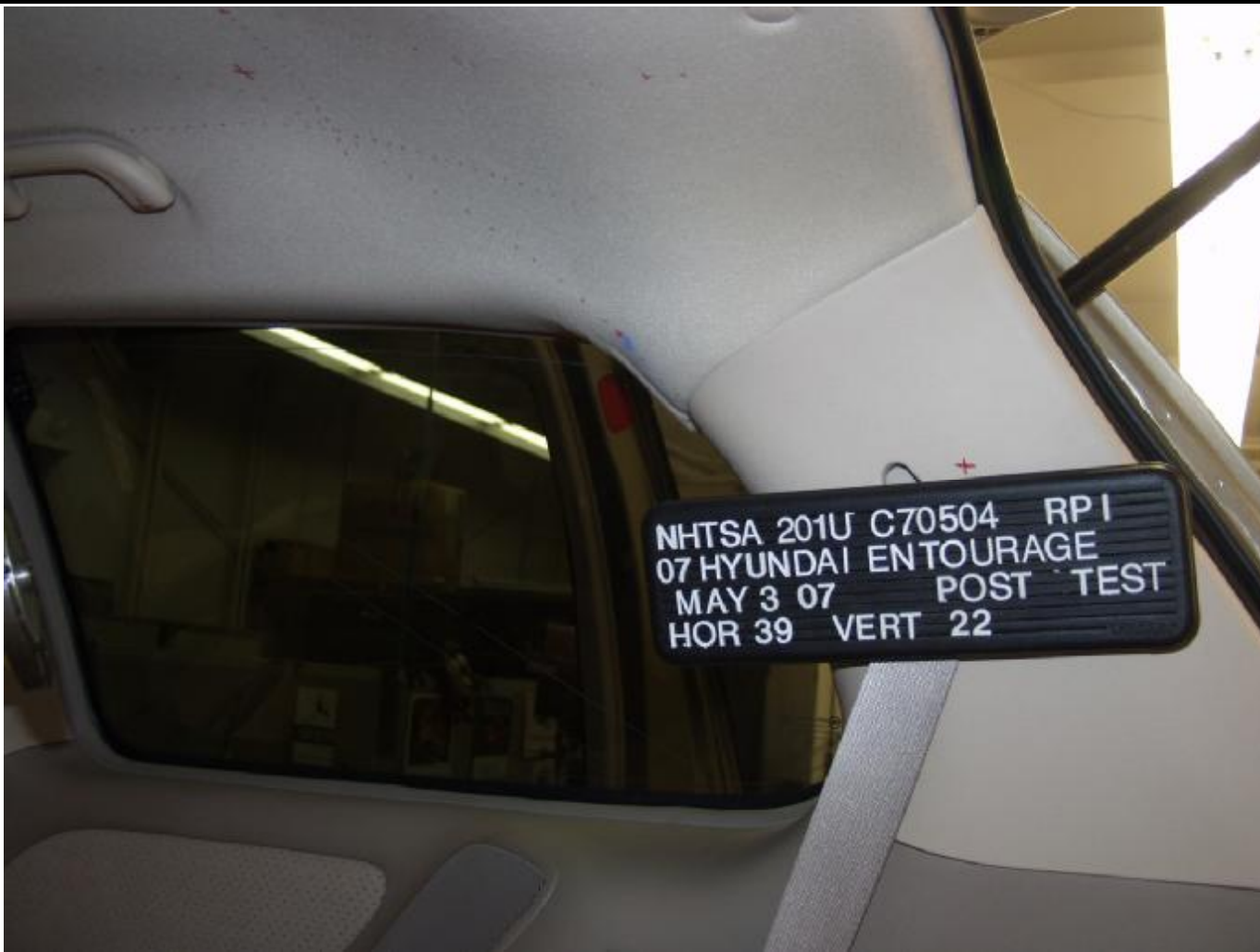
8826-FMH-02

CFC_180

C70504 - May 03, 2007



PRE-IMPACT RP1



POST-IMPACT RPI

VEHICLE YEAR/MAKE/MODEL/STYLE:	2007 Hyundai Entourage GLS
VIN:	KNDMC233776011787
DATE OF MANUFACTURE:	02/06 (SEE CERTIFICATION LABEL)
COLOR:	Gold

Test Number:	02
Test Date:	05/03/07
Target Location:	OTHER PILLAR
Target Code:	OP1
Horizontal Impact Angle:	90°
Vertical Impact Angle:	8°
Ambient Temperature:	22.5 C°
Relative Humidity:	27.3
Time of Impact:	11:10
Headform Number:	0355

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	10	<input type="checkbox"/>	mm right <input checked="" type="checkbox"/> mm left
On Centerline	18		mm up



POST-IMPACT OP1 HEADFORM

Free Motion HIC	534.8
HIC(d)	569.9
Impact Velocity (kph)	23.45
HIC T1 (msec)	5.2
HIC T2 (msec)	14.3

FMVSS 201U 2007 Hyundai Entourage C70504 - OP1

FMH Headform 0355

Location: OP1

Test Date: May 03, 2007

Work File: OP1

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

Lab Temperature: 22.5 C

HICd: 569.9

Lab Humidity: 27.3 %

HIC (36ms): 534.8

Velocity at Impact: 23.45 KPH

t1: 5.2 msec

t2: 14.3 msec

Free Flight Distance: 234.39 mm

Duration: 9.1 msec

Maximum: 101.2 g

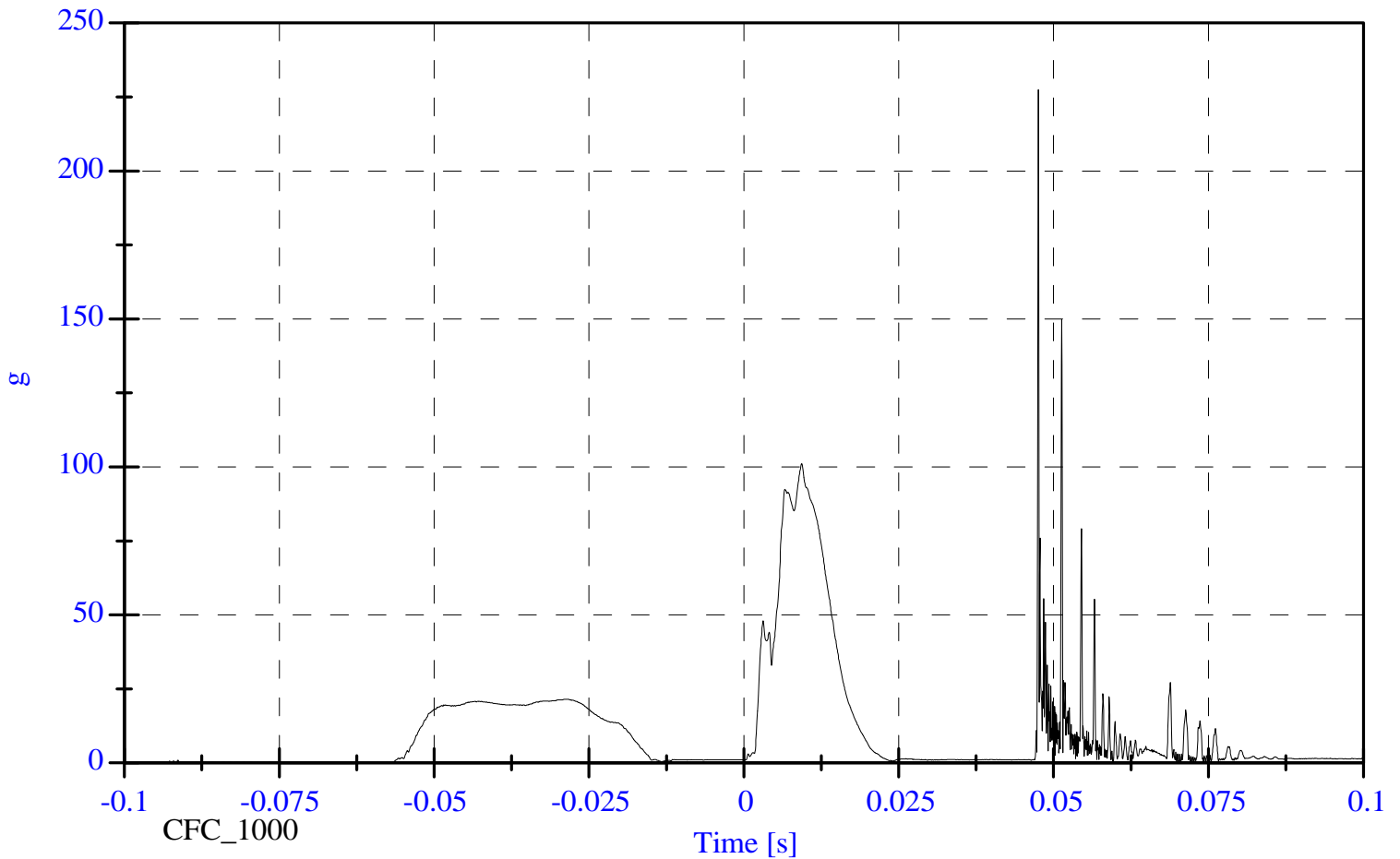
Average Acceleration: 10.5 g

FMVSS 201U 2007 Hyundai Entourage

Headform Resultant

Max: 101.2 [g] at 0.009 [s]

Min: 0.0 [g] at -0.085 [s]



FMVSS 201U 2007 Hyundai Entourage

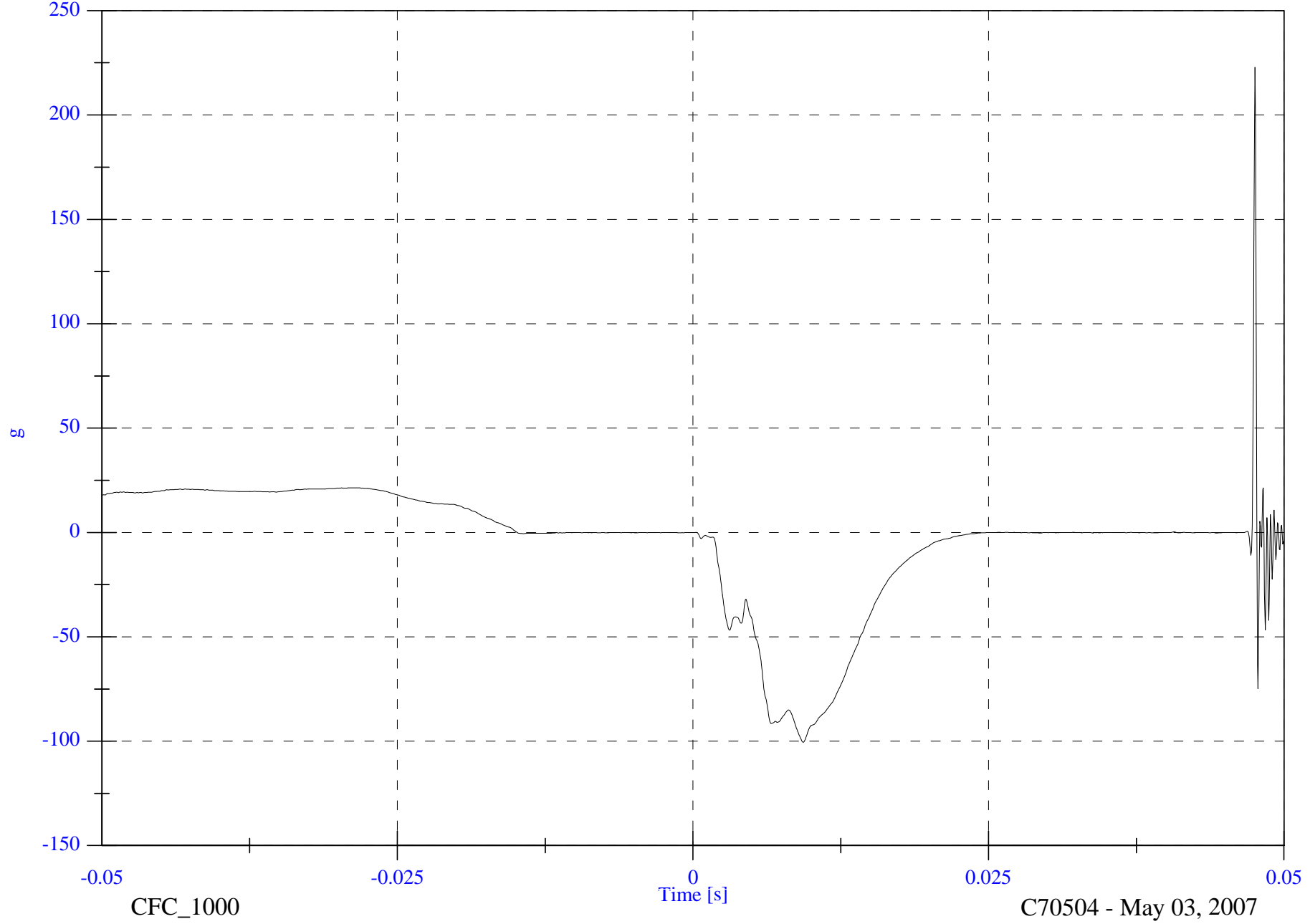
Headform X Acceleration

Max: 222.9 [g] at 0.048 [s]

Min: -100.5 [g] at 0.009 [s]

C70504 OP1 IMPACT PLOT #1

8826-FMH-02



CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

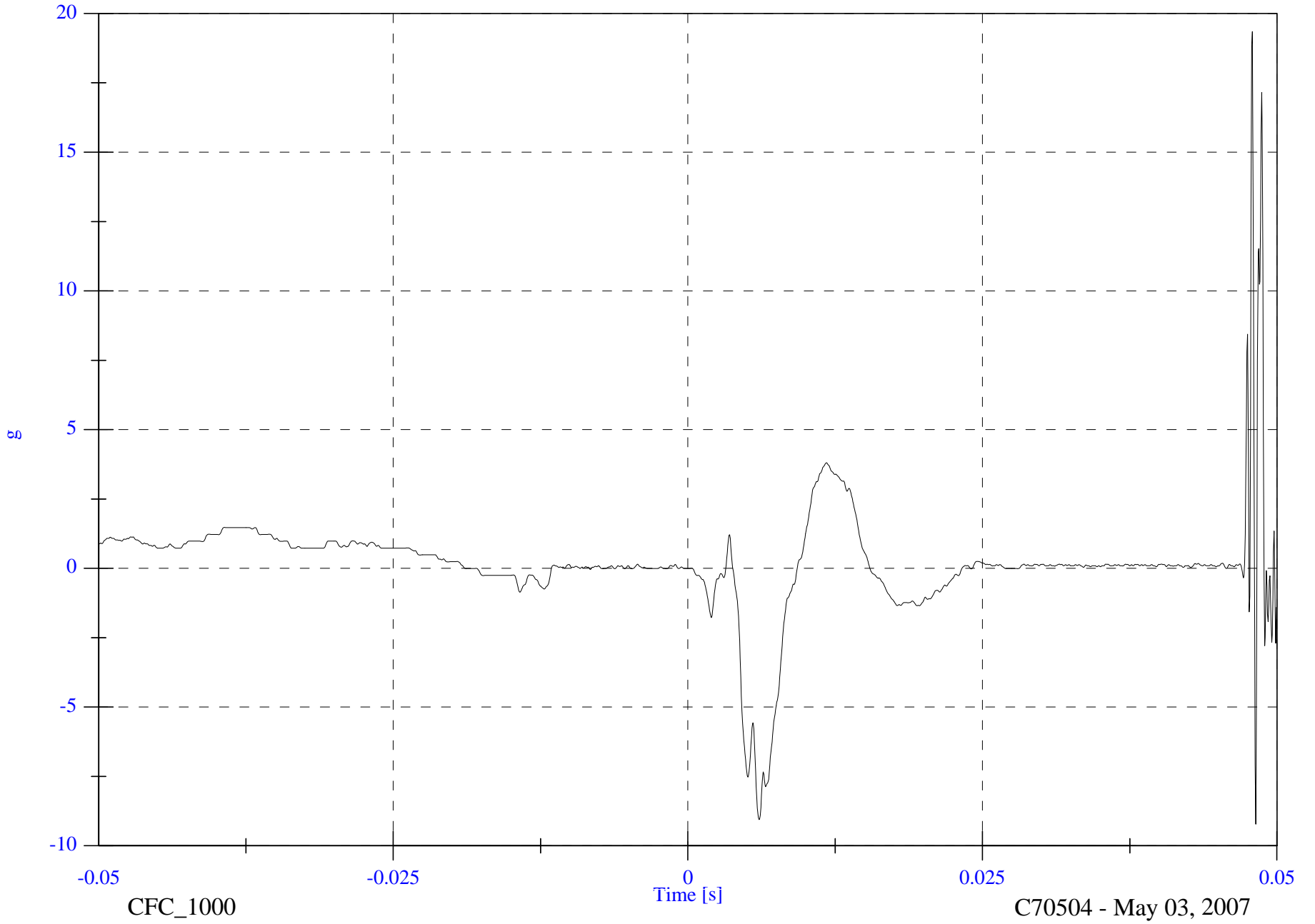
Headform Y Acceleration

Max: 19.4 [g] at 0.048 [s]

Min: -9.2 [g] at 0.048 [s]

C70504 OP1 IMPACT PLOT #2

8826-FMH-02



FMVSS 201U 2007 Hyundai Entourage

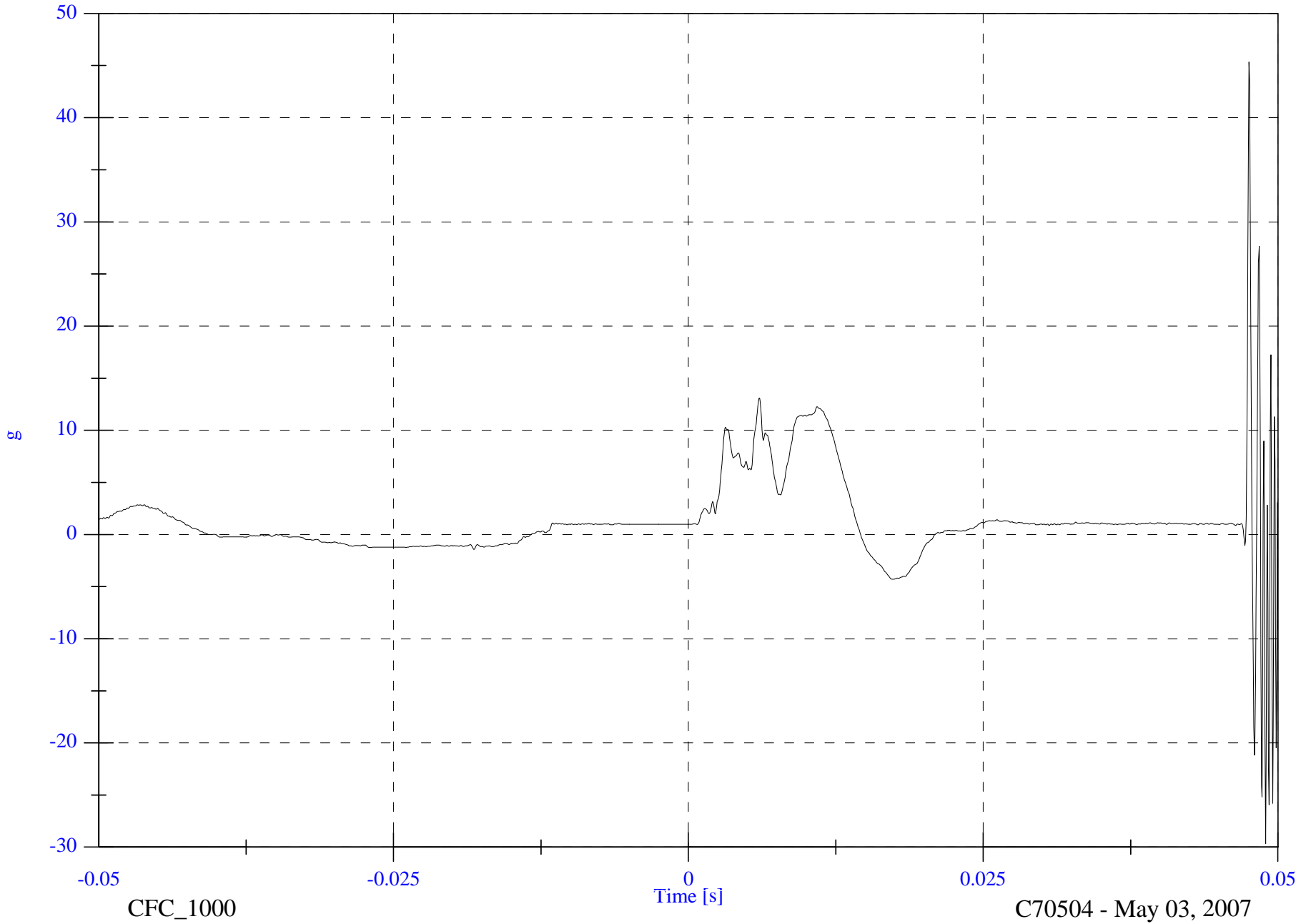
Headform Z Acceleration

Max: 45.3 [g] at 0.048 [s]

Min: -29.7 [g] at 0.049 [s]

C70504 OP1 IMPACT PLOT #3

8826-FMH-02



CFC_1000

Time [s]

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

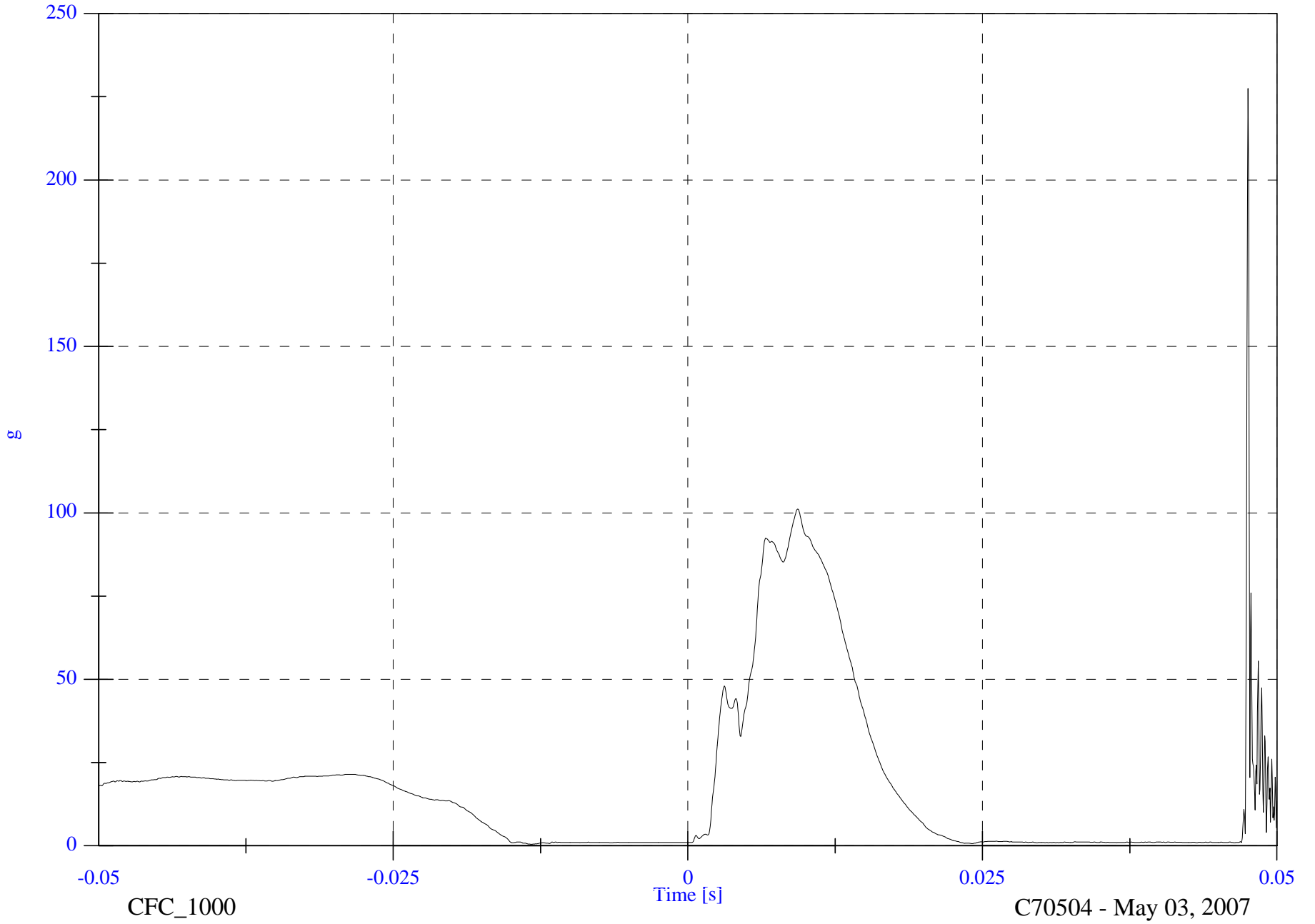
Headform Resultant

Max: 227.5 [g] at 0.048 [s]

Min: 0.5 [g] at -0.013 [s]

C70504 OP1 IMPACT PLOT #4

8826-FMH-02

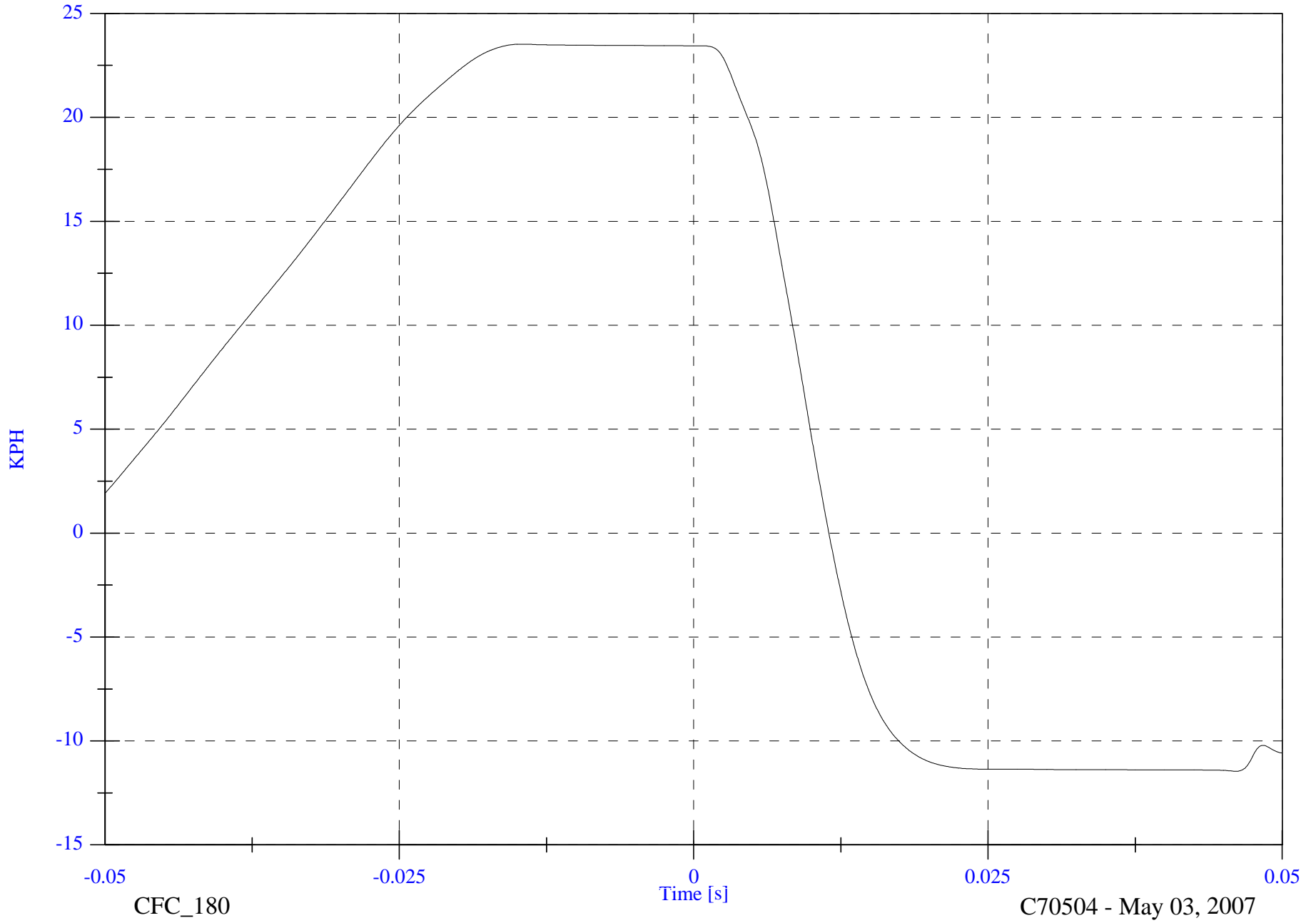


FMVSS 201U 2007 Hyundai Entourage

Max: 23.5 [KPH] at -0.015 [s]

Min: -11.5 [KPH] at 0.046 [s]

Headform Velocity

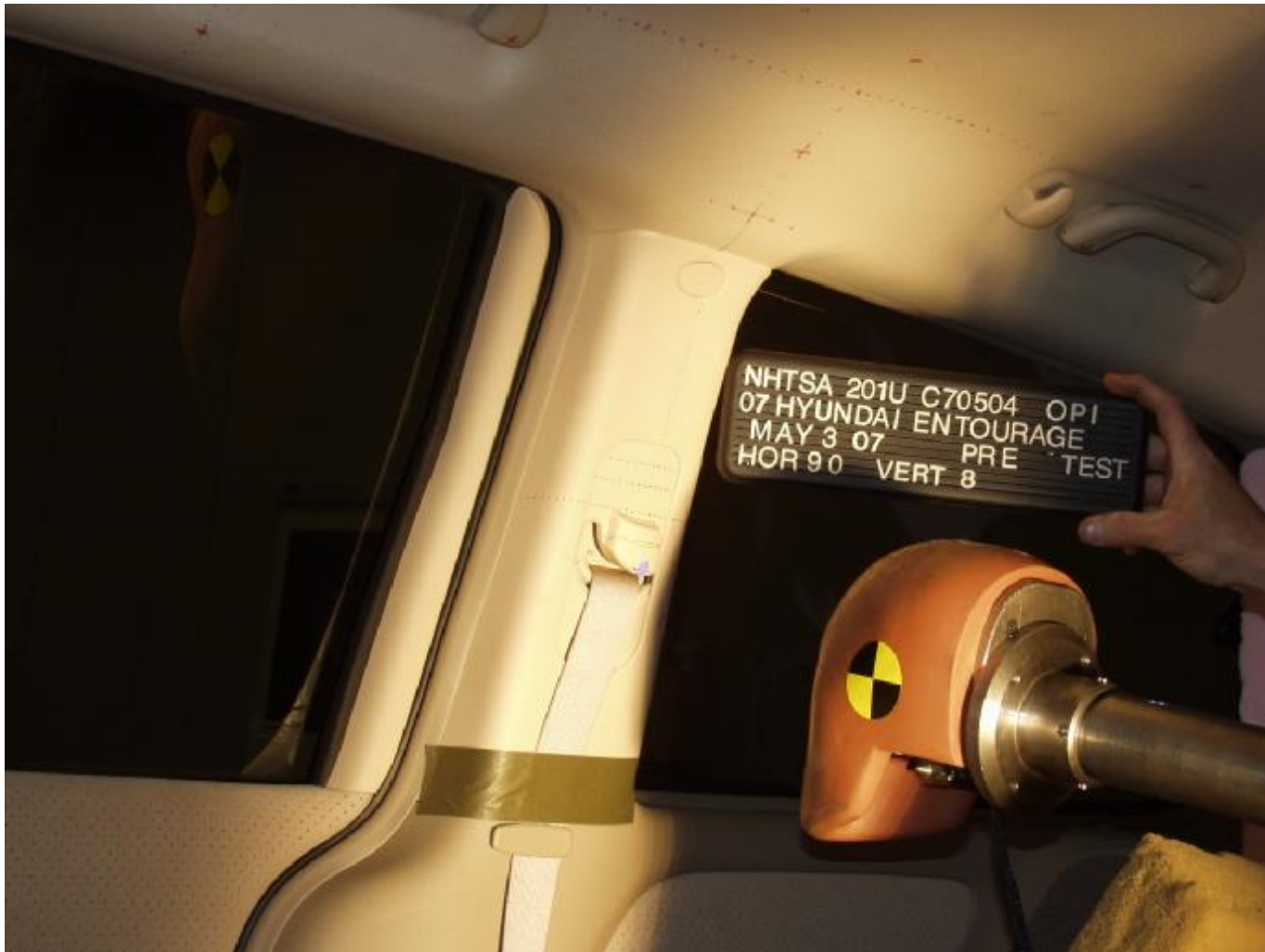


C70504 OP1 IMPACT PLOT #5

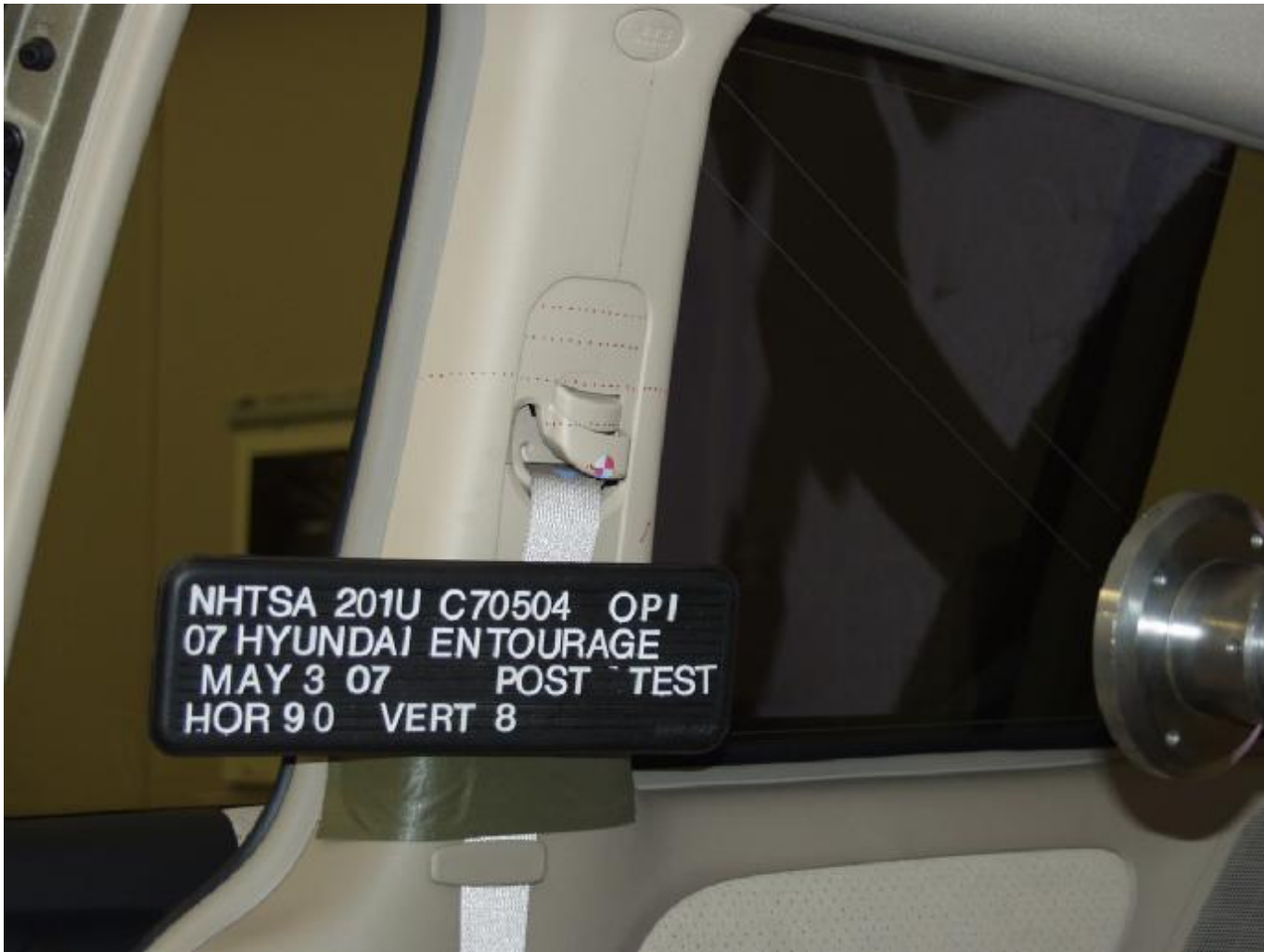
8826-FMH-02

CFC_180

C70504 - May 03, 2007



PRE-IMPACT OPI



POST-IMPACT OPI

VEHICLE YEAR/MAKE/MODEL/STYLE:	2007 Hyundai Entourage GLS
VIN:	KNDMC233776011787
DATE OF MANUFACTURE:	02/06 (SEE CERTIFICATION LABEL)
COLOR:	Gold

Test Number:	03
Test Date:	05/03/07
Target Location:	SIDE RAIL
Target Code:	SR3R
Horizontal Impact Angle:	90°
Vertical Impact Angle:	38°
Ambient Temperature:	21.5 C°
Relative Humidity:	28.6
Time of Impact:	12:00
Headform Number:	0642

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	25		mm up



POST-IMPACT SR3R HEADFORM

Free Motion HIC	444.6
HIC(d)	501.8
Impact Velocity (kph)	23.64
HIC T1 (msec)	2.3
HIC T2 (msec)	11.9

FMVSS 201U 2007 Hyundai Entourage C70504 - SR3R

FMH Headform 0642

Location: SR3R

Test Date: May 03, 2007

Work File: SR3R

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

Lab Temperature: 21.5 C

HICd: 501.8

Lab Humidity: 28.6 %

HIC (36ms): 444.6

Velocity at Impact: 23.64 KPH

t1: 2.3 msec

t2: 11.9 msec

Free Flight Distance: 225.01 mm

Duration: 9.6 msec

Maximum: 93.5 g

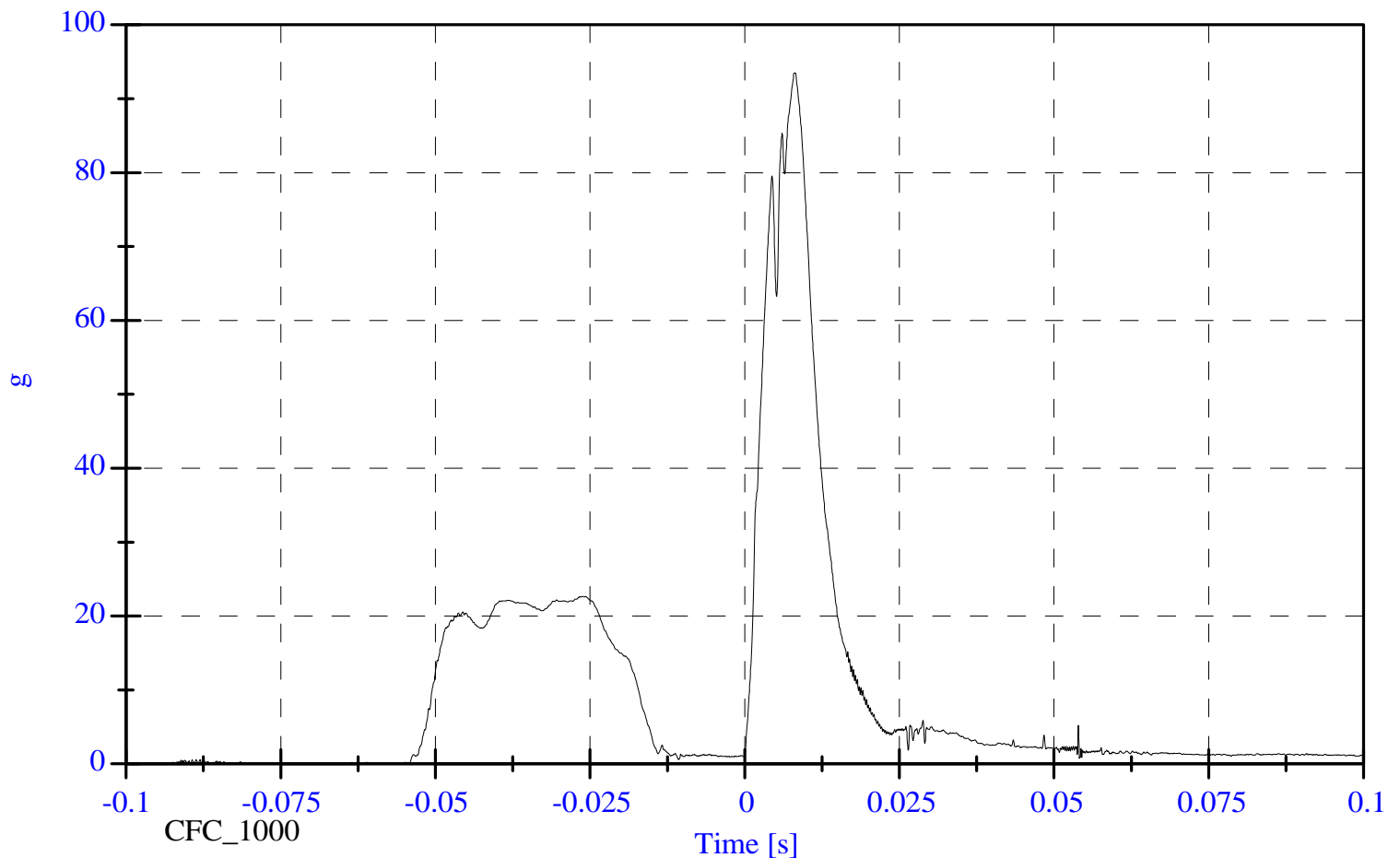
Average Acceleration: 9.0 g

FMVSS 201U 2007 Hyundai Entourage

Headform Resultant

Max: 93.5 [g] at 0.008 [s]

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



FMVSS 201U 2007 Hyundai Entourage

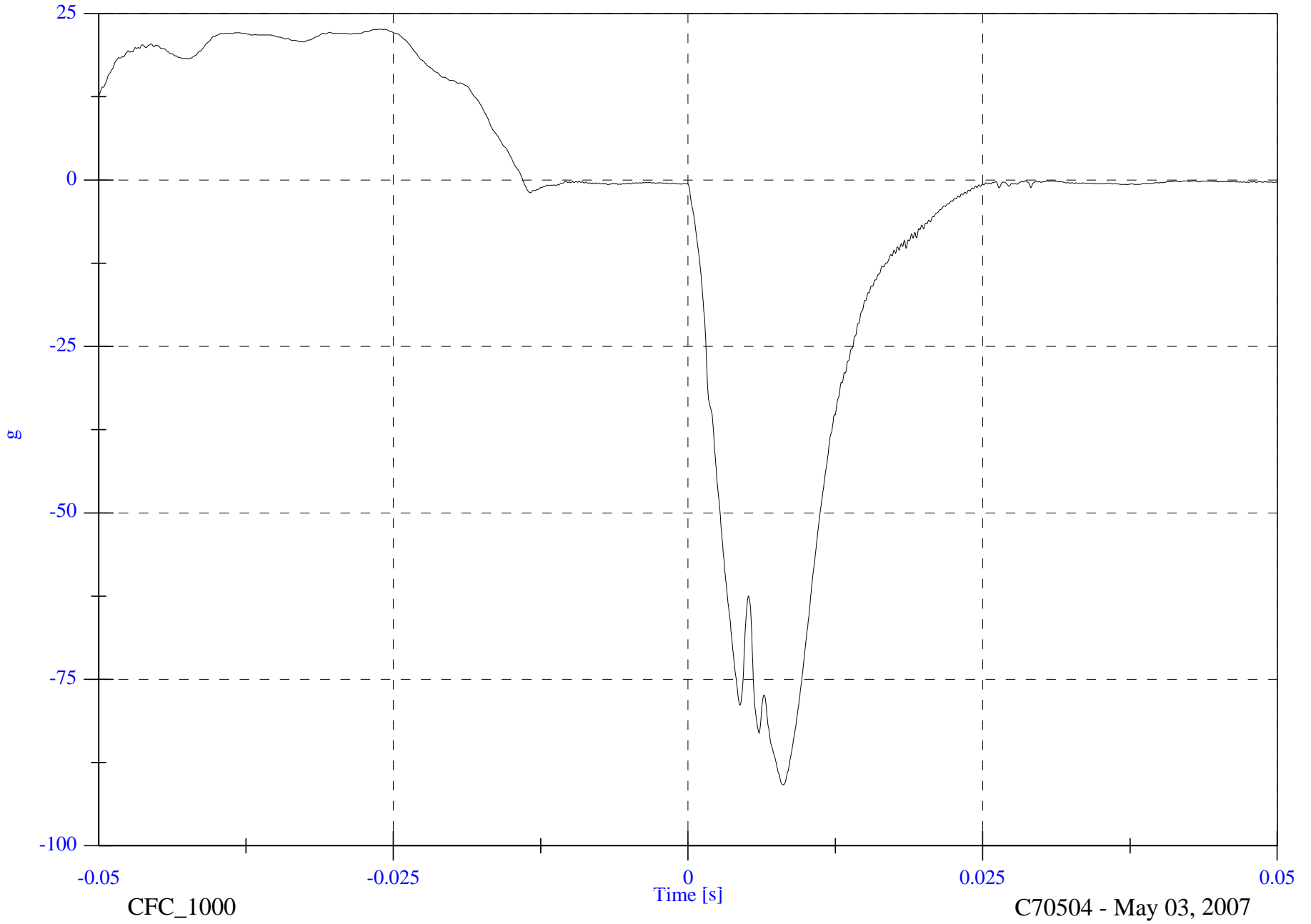
Headform X Acceleration

Max: 22.6 [g] at -0.026 [s]

Min: -90.8 [g] at 0.008 [s]

C70504 SR3R IMPACT PLOT #1

8826-FMH-02



CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

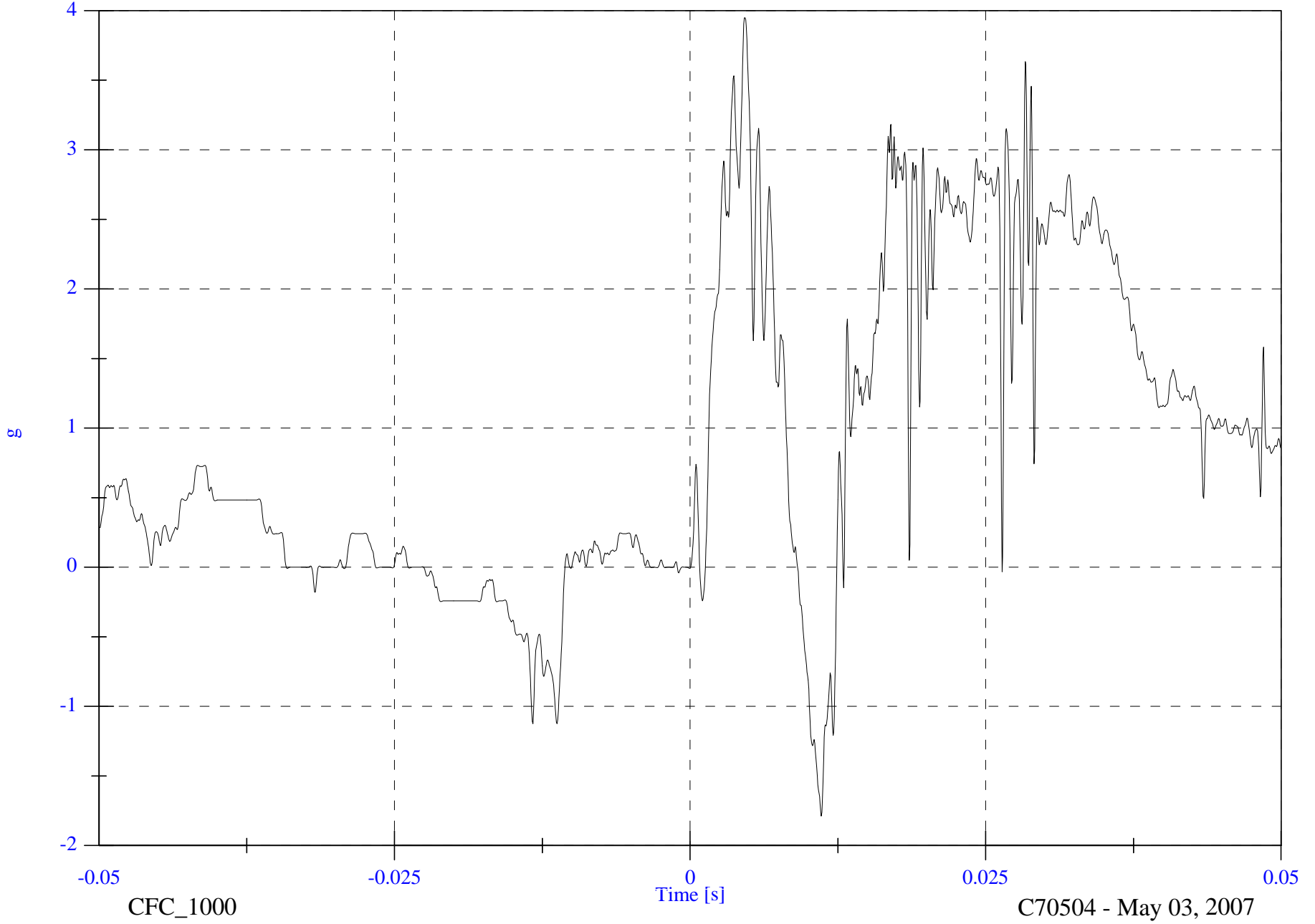
Max: 3.9 [g] at 0.005 [s]

Headform Y Acceleration

Min: -1.8 [g] at 0.011 [s]

C70504 SR3R IMPACT PLOT #2

8826-FMH-02



CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

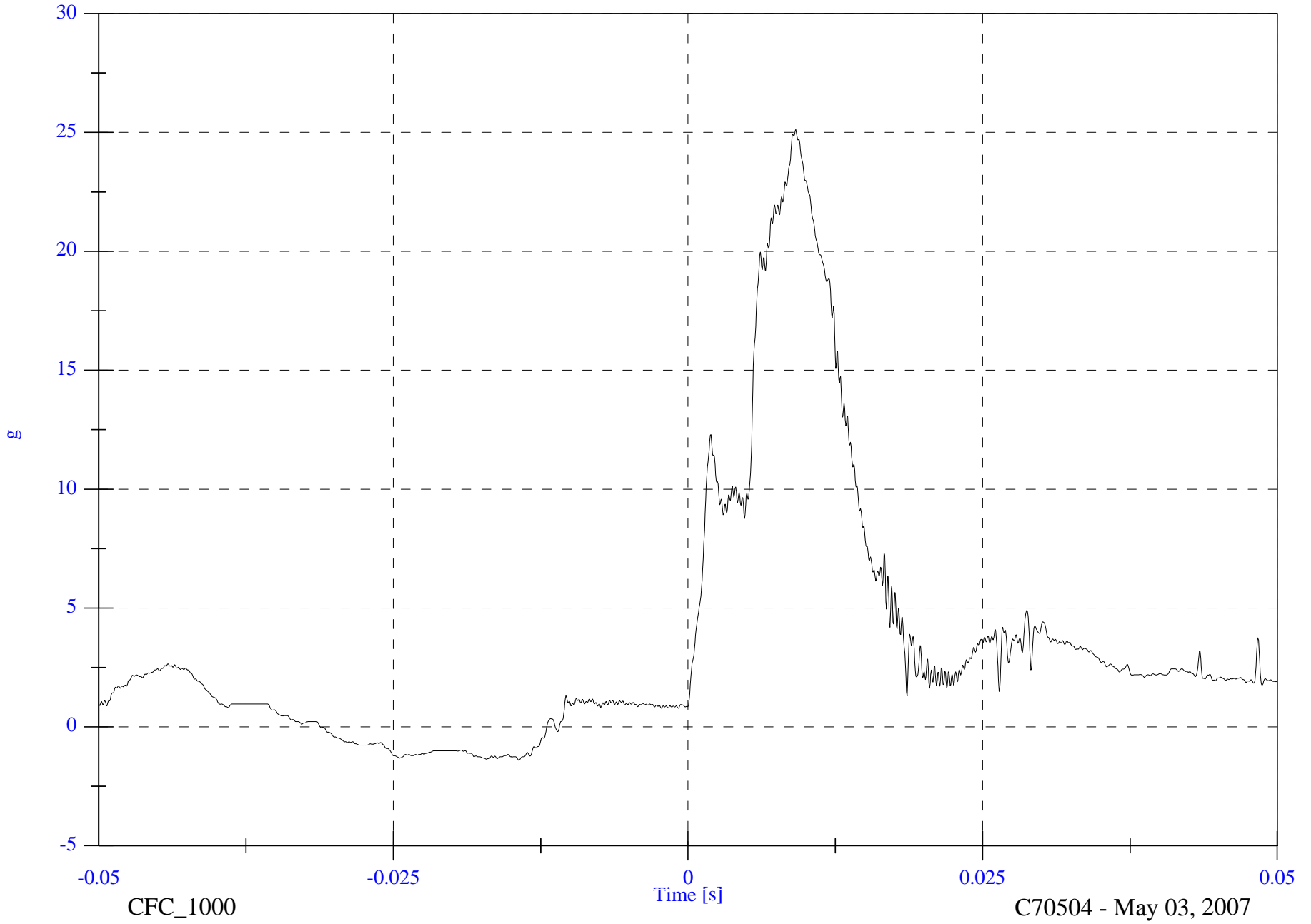
Headform Z Acceleration

Max: 25.1 [g] at 0.009 [s]

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

C70504 SR3R IMPACT PLOT #3

8826-FMH-02



CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

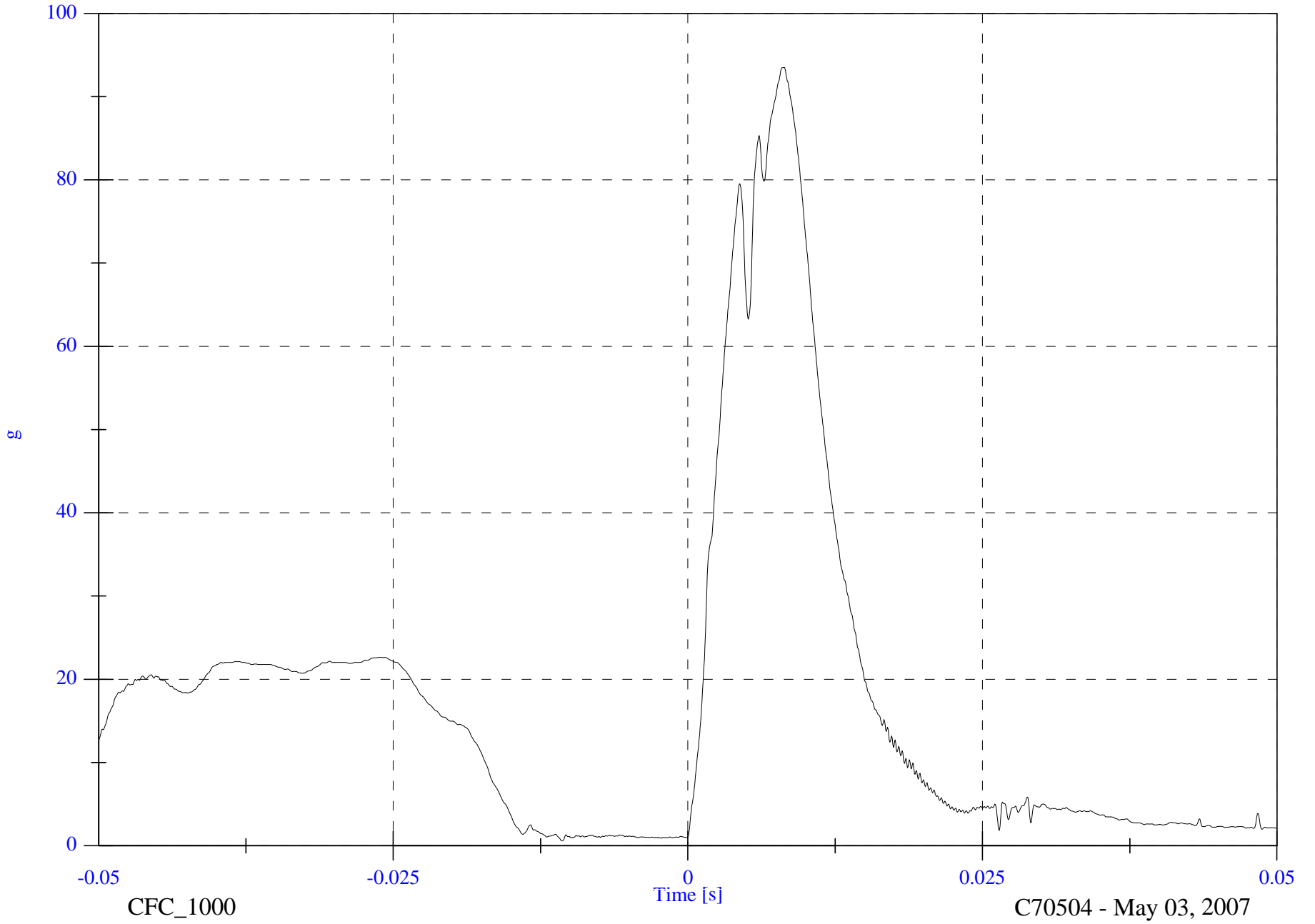
Headform Resultant

Max: 93.5 [g] at 0.008 [s]

Min: 0.6 [g] at -0.011 [s]

C70504 SR3R IMPACT PLOT #4

8826-FMH-02



CFC_1000

Time [s]

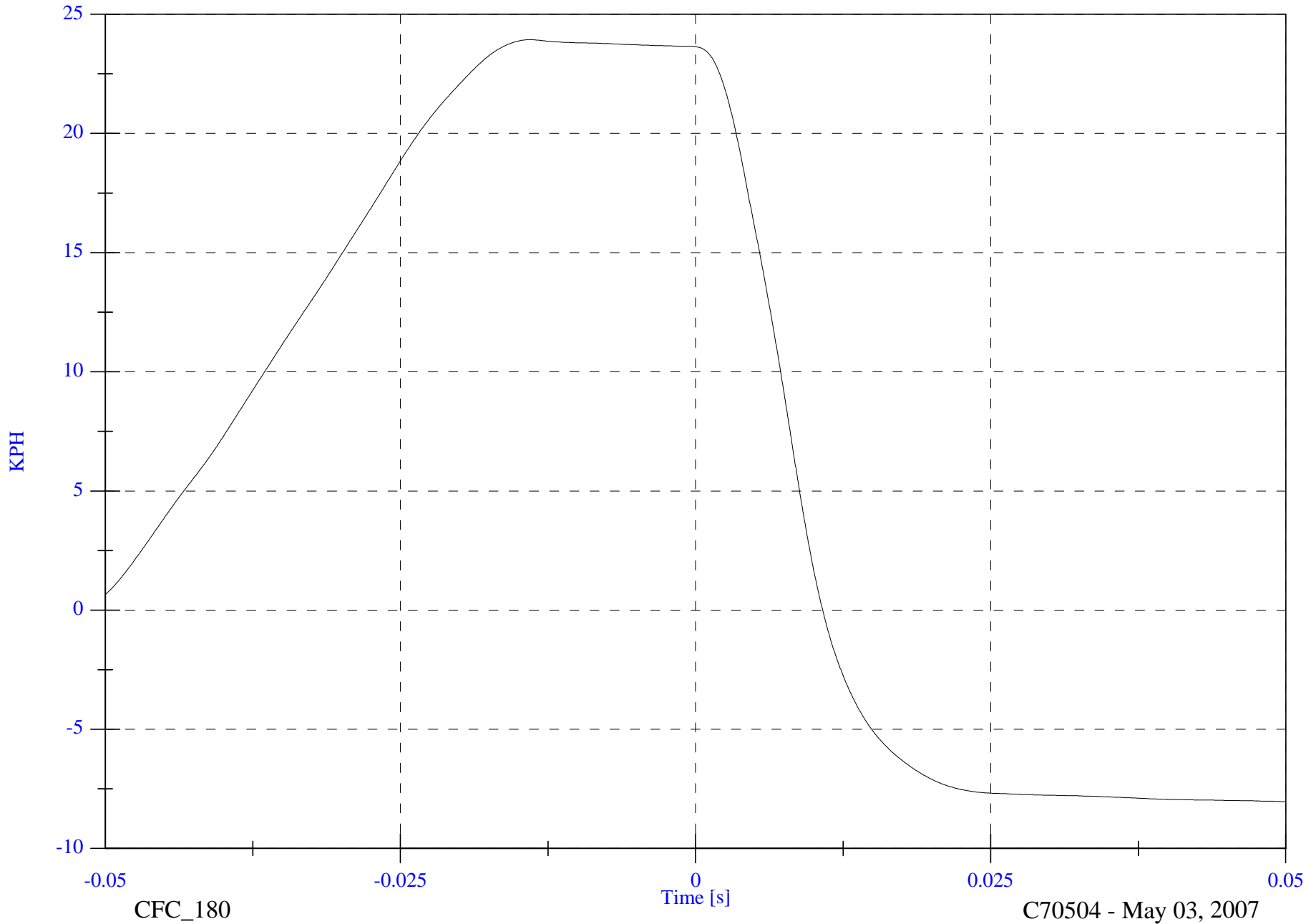
C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

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

Min: -8.0 [KPH] at 0.050 [s]

Headform Velocity



C70504 SR3R IMPACT PLOT #5

8826-FMH-02

CFC_180

C70504 - May 03, 2007



PRE-IMPACT SR3R



POST-IMPACT SR3R

VEHICLE YEAR/MAKE/MODEL/STYLE:	2007 Hyundai Entourage GLS
VIN:	KNDMC233776011787
DATE OF MANUFACTURE:	02/06 (SEE CERTIFICATION LABEL)
COLOR:	Gold

Test Number:	04
Test Date:	05/03/07
Target Location:	B-PILLAR
Target Code:	BP4
Horizontal Impact Angle:	150°
Vertical Impact Angle:	2°
Ambient Temperature:	22.1 C°
Relative Humidity:	26.4
Time of Impact:	13:25
Headform Number:	0805

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	7		mm up



POST-IMPACT BP4 HEADFORM

Free Motion HIC	452.8
HIC(d)	508.1
Impact Velocity (kph)	23.53
HIC T1 (msec)	2.5
HIC T2 (msec)	12.1

FMVSS 201U 2007 Hyundai Entourage C70504 - BP4

FMH Headform 0805

Location: BP4

Test Date: May 03, 2007

Work File: BP4

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

Lab Temperature: 22.1 C

HICd: 508.1

Lab Humidity: 26.4 %

HIC (36ms): 452.8

Velocity at Impact: 23.53 KPH

t1: 2.5 msec

t2: 12.1 msec

Free Flight Distance: 226.85 mm

Duration: 9.6 msec

Maximum: 97.0 g

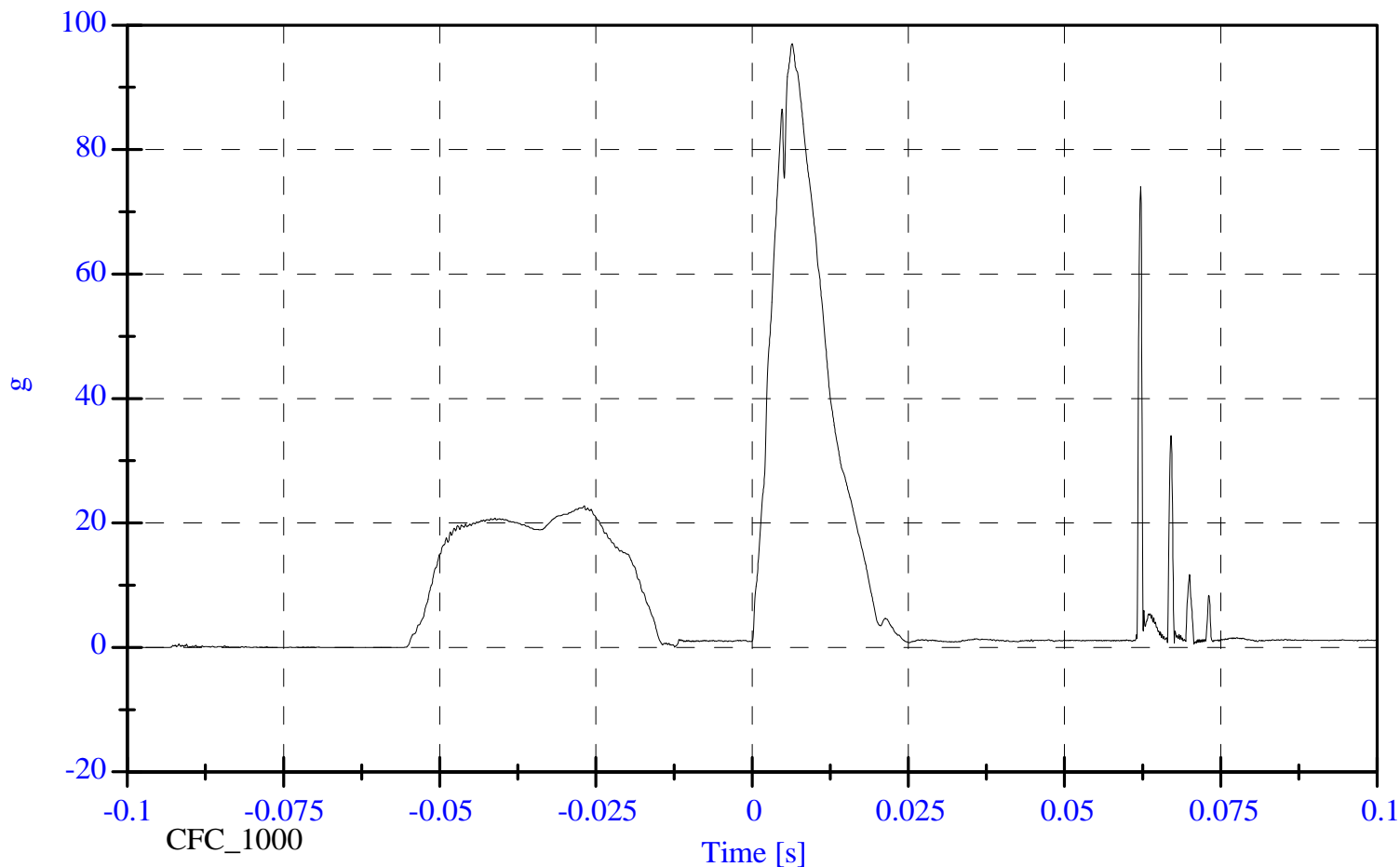
Average Acceleration: 9.0 g

FMVSS 201U 2007 Hyundai Entourage

Headform Resultant

Max: 97.0 [g] at 0.006 [s]

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



FMVSS 201U 2007 Hyundai Entourage

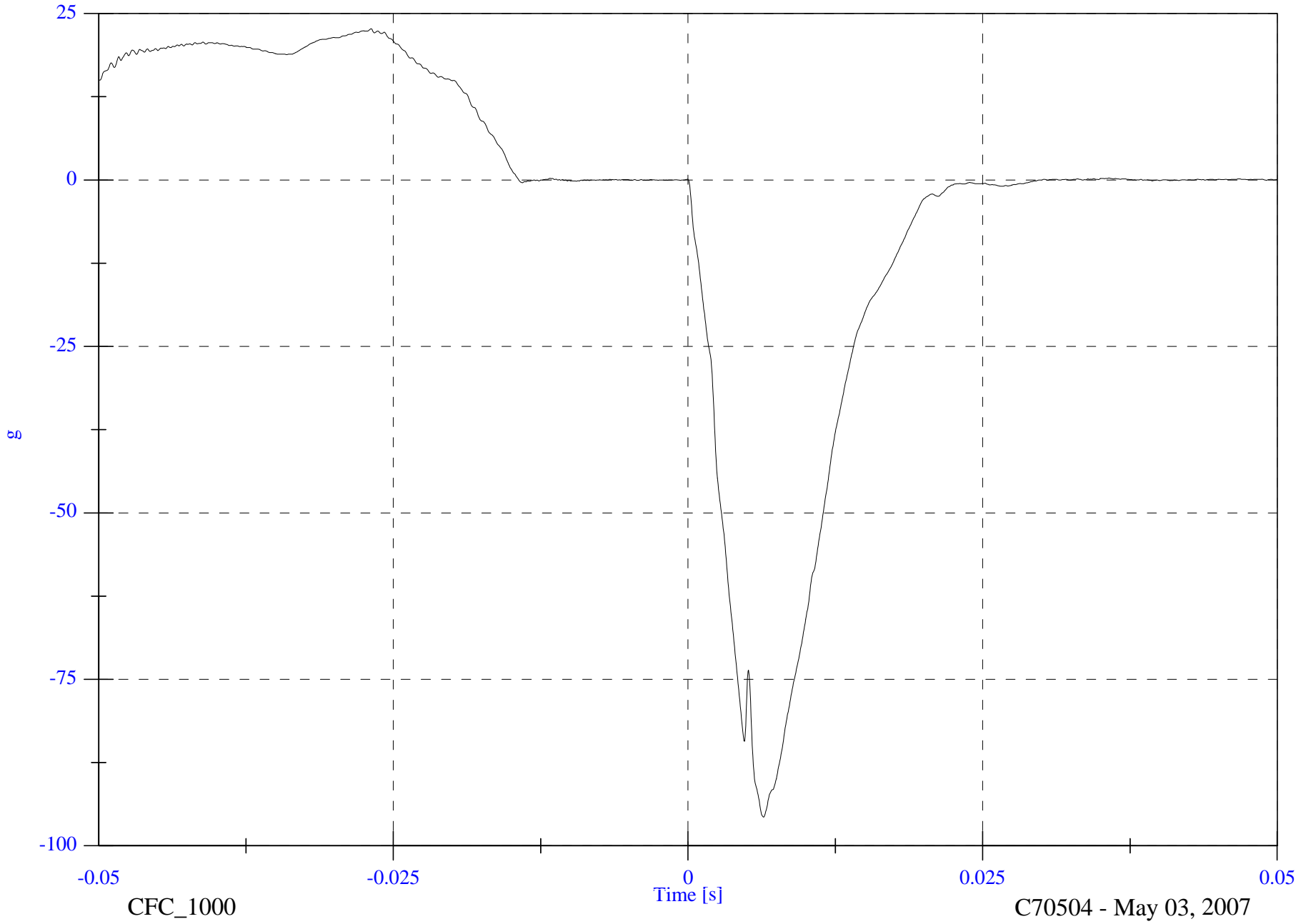
Headform X Acceleration

Max: 22.7 [g] at -0.027 [s]

Min: -95.7 [g] at 0.006 [s]

C70504 BP4 IMPACT PLOT #1

8826-FMH-02



CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

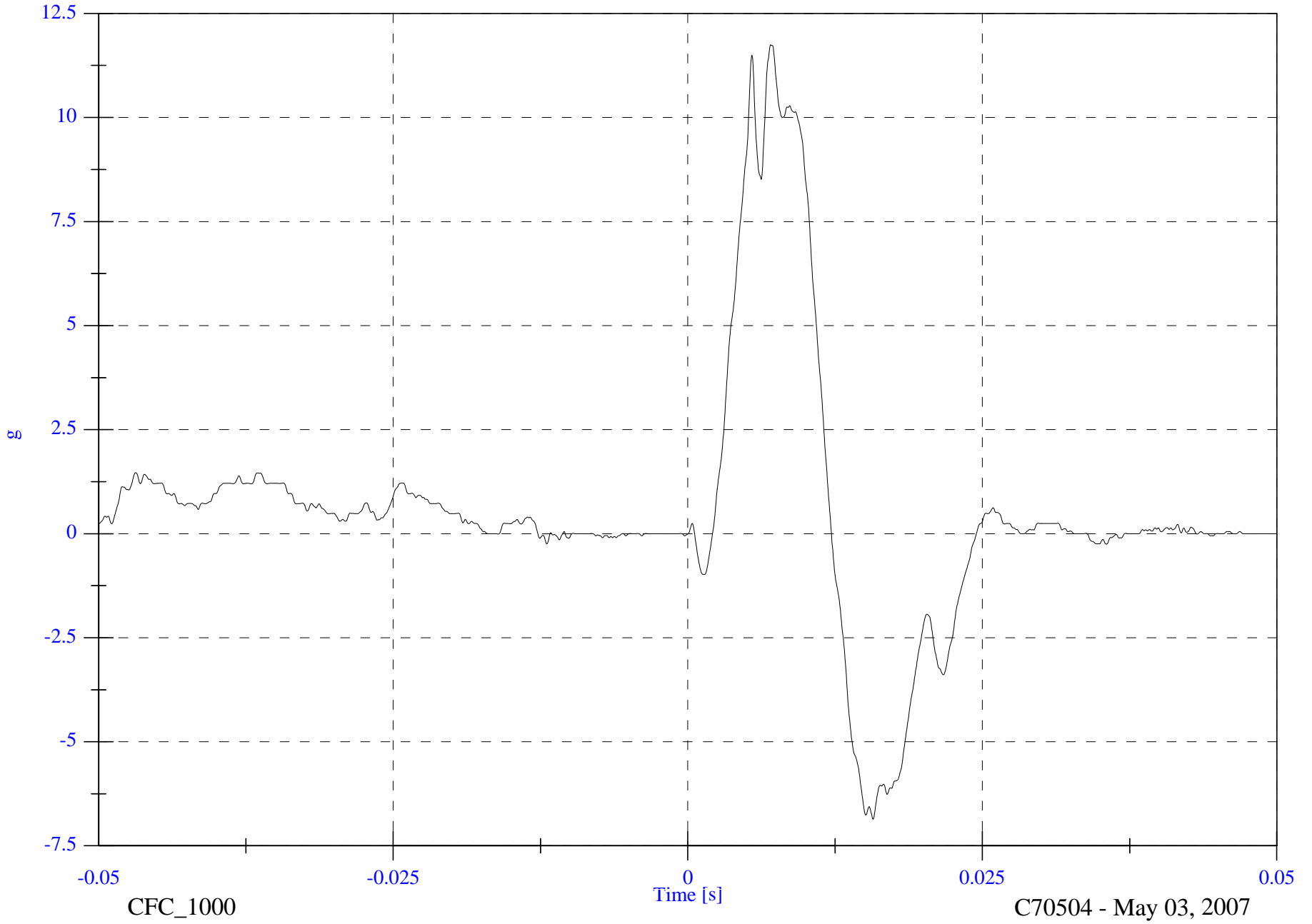
Headform Y Acceleration

Max: 11.7 [g] at 0.007 [s]

Min: -6.9 [g] at 0.016 [s]

C70504 BP4 IMPACT PLOT #2

8826-FMH-02



CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

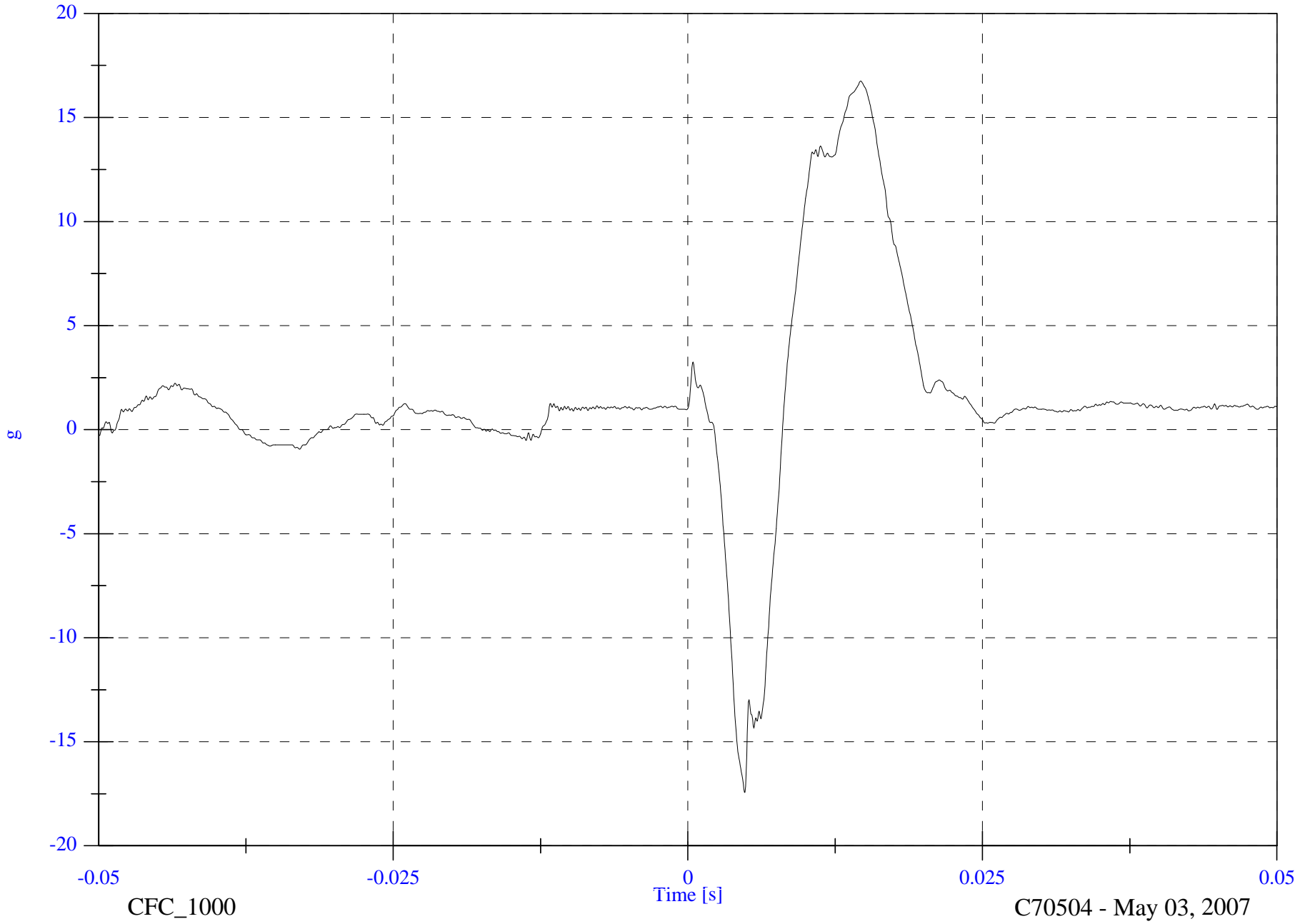
Headform Z Acceleration

Max: 16.7 [g] at 0.015 [s]

Min: -17.4 [g] at 0.005 [s]

C70504 BP4 IMPACT PLOT #3

8826-FMH-02



CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

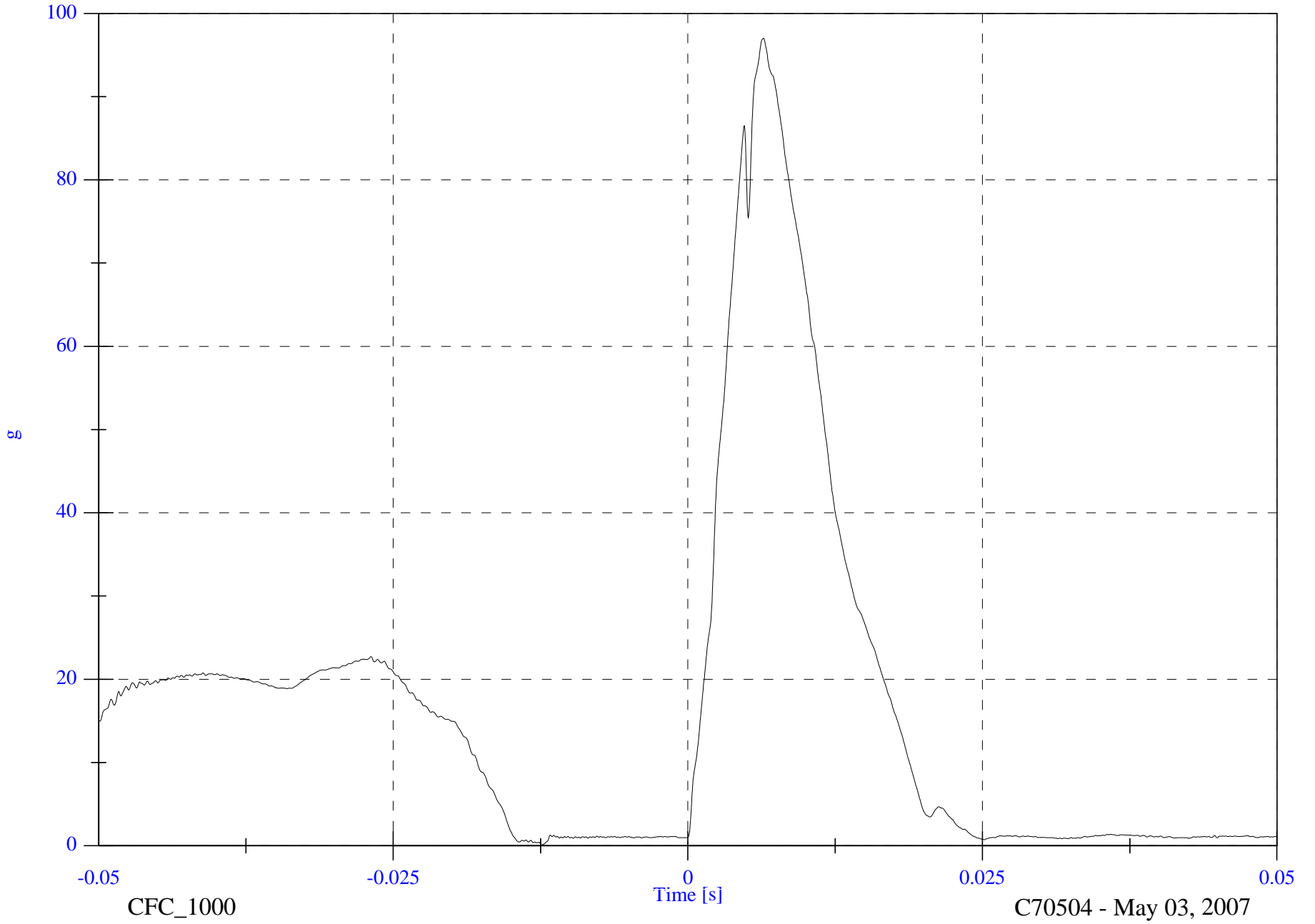
Headform Resultant

Max: 97.0 [g] at 0.006 [s]

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

C70504 BP4 IMPACT PLOT #4

8826-FMH-02



CFC_1000

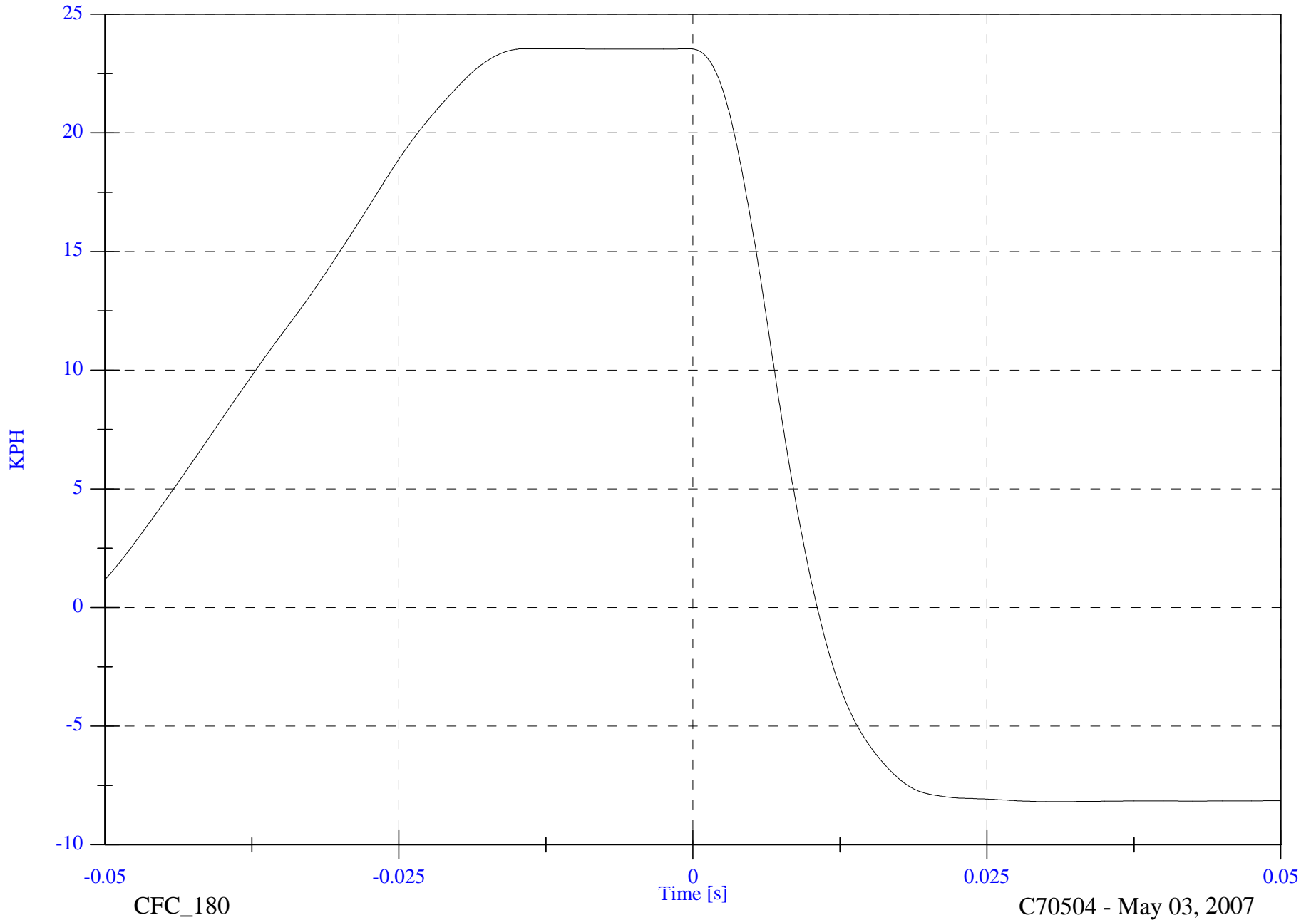
C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

Max: 23.5 [KPH] at -0.014 [s]

Min: -8.2 [KPH] at 0.030 [s]

Headform Velocity



C70504 BP4 IMPACT PLOT #5

8826-FMH-02

CFC_180

C70504 - May 03, 2007



PRE-IMPACT BP4

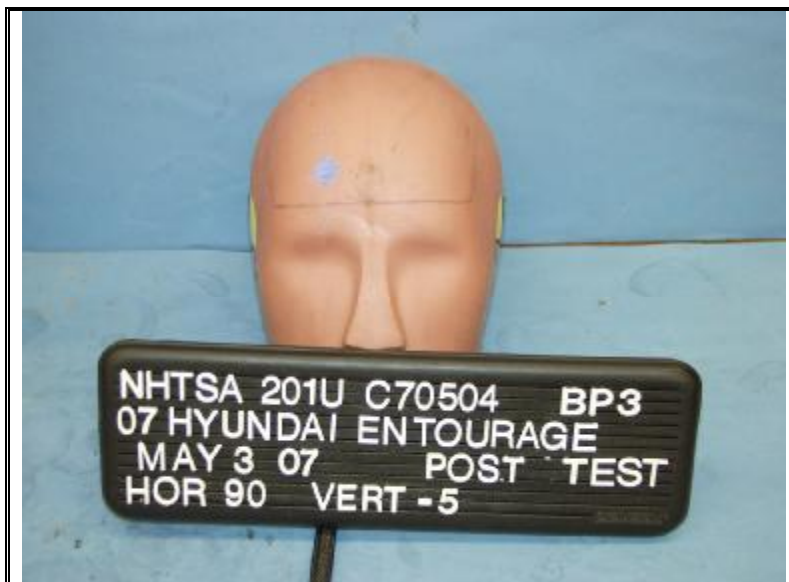


POST-IMPACT BP4

VEHICLE YEAR/MAKE/MODEL/STYLE:	2007 Hyundai Entourage GLS
VIN:	KNDMC233776011787
DATE OF MANUFACTURE:	02/06 (SEE CERTIFICATION LABEL)
COLOR:	Gold

Test Number:	05
Test Date:	05/03/07
Target Location:	B-PILLAR
Target Code:	BP3
Horizontal Impact Angle:	90°
Vertical Impact Angle:	-5°
Ambient Temperature:	22.3 C°
Relative Humidity:	25.8
Time of Impact:	14:00
Headform Number:	1255

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	23	<input checked="" type="checkbox"/>	mm right	<input type="checkbox"/>	mm left
On Centerline	17			<input type="checkbox"/>	mm up



POST-IMPACT BP3 HEADFORM

Free Motion HIC	480.4
HIC(d)	528.9
Impact Velocity (kph)	23.49
HIC T1 (msec)	4.0
HIC T2 (msec)	12.2

FMVSS 201U 2007 Hyundai Entourage C70504 - BP3

FMH Headform 1255

Location: BP3

Test Date: May 03, 2007

Work File: BP3

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

Lab Temperature: 22.3 C

HICd: 528.9

Lab Humidity: 25.8 %

HIC (36ms): 480.4

Velocity at Impact: 23.49 KPH

t1: 4.0 msec

t2: 12.2 msec

Free Flight Distance: 220.11 mm

Duration: 8.1 msec

Maximum: 116.3 g

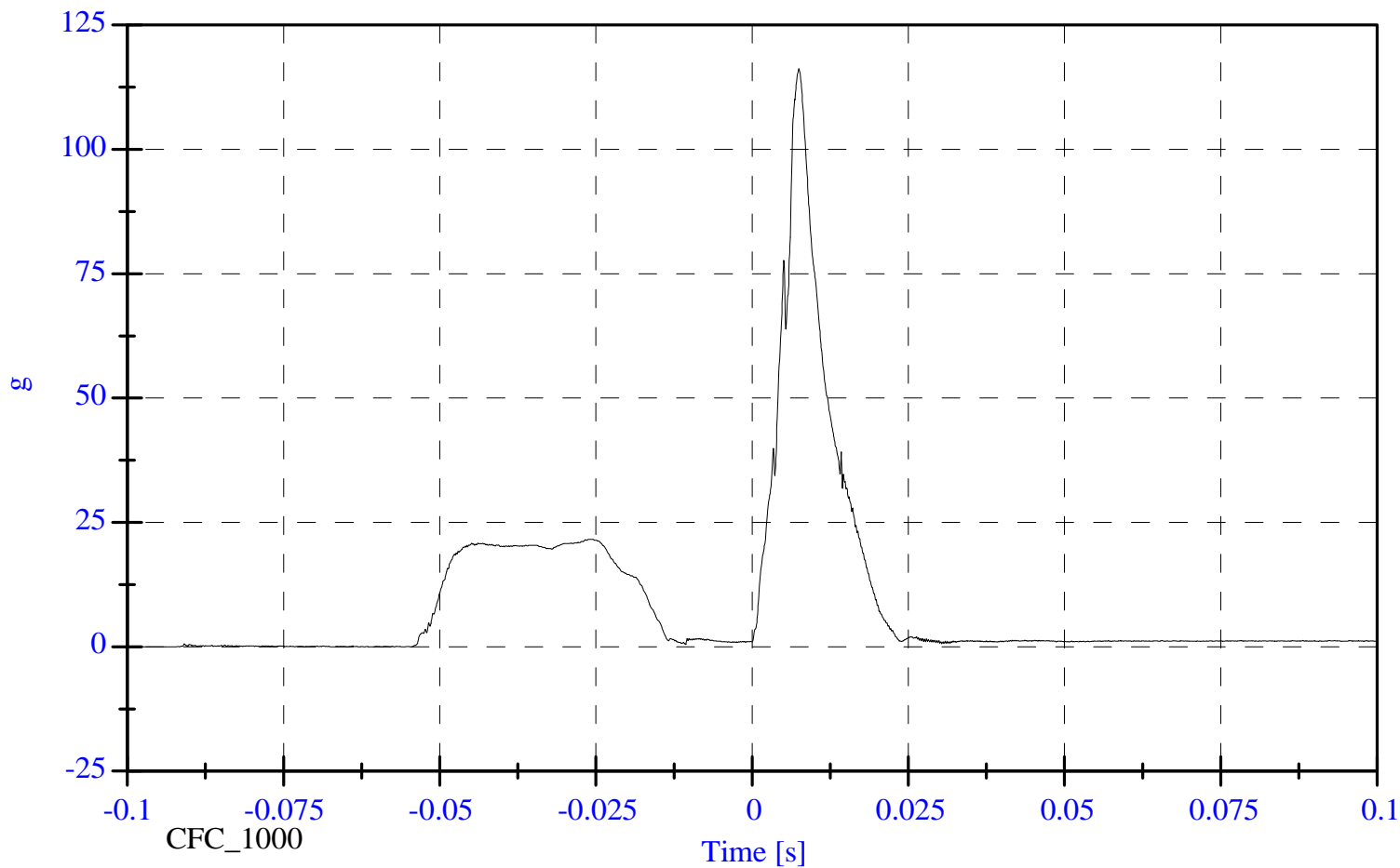
Average Acceleration: 8.8 g

FMVSS 201U 2007 Hyundai Entourage

Headform Resultant

Max: 116.3 [g] at 0.008 [s]

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



FMVSS 201U 2007 Hyundai Entourage

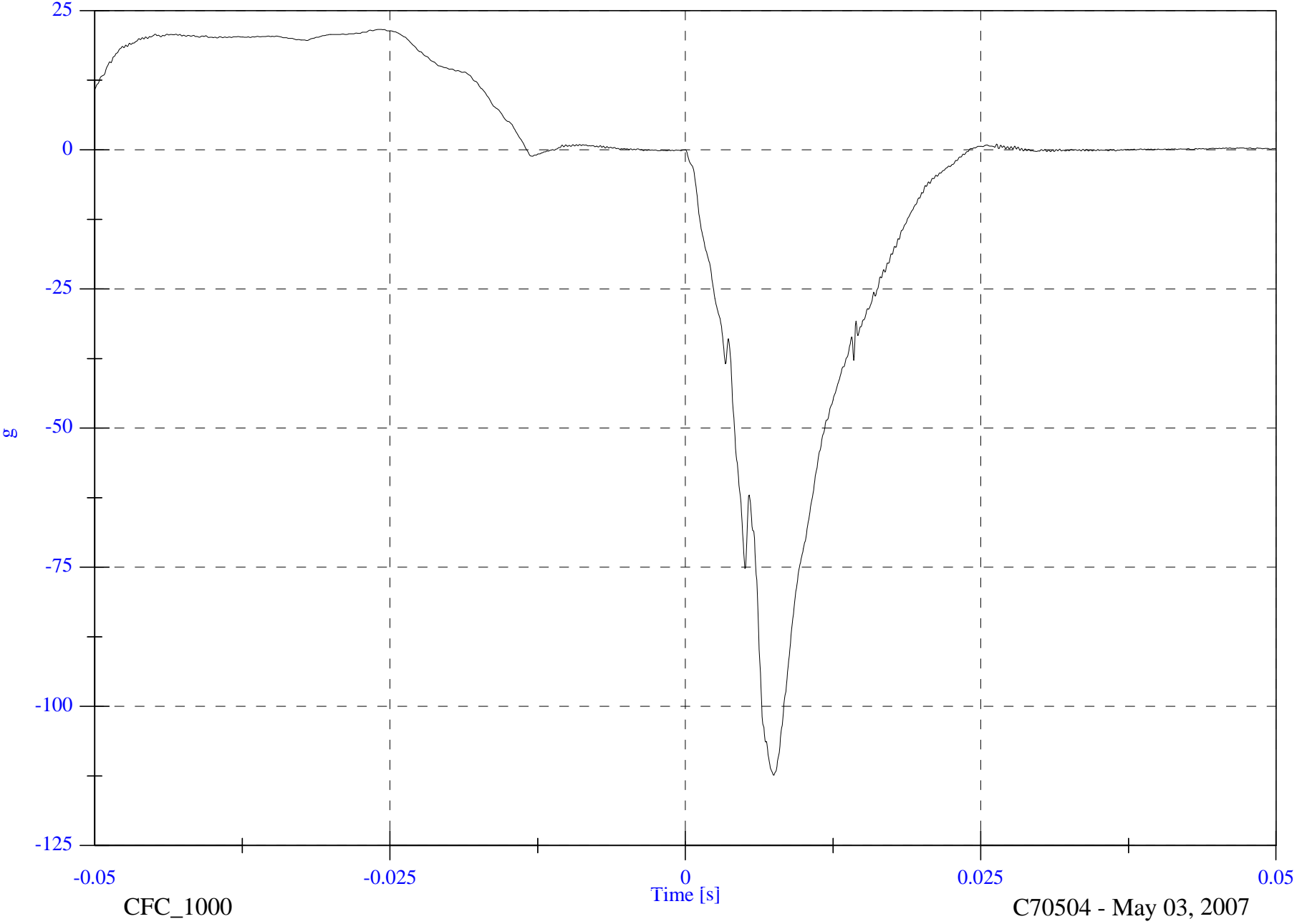
Headform X Acceleration

Max: 21.6 [g] at -0.026 [s]

Min: -112.3 [g] at 0.007 [s]

C70504 BP3 IMPACT PLOT #1

8826-FMH-02



CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

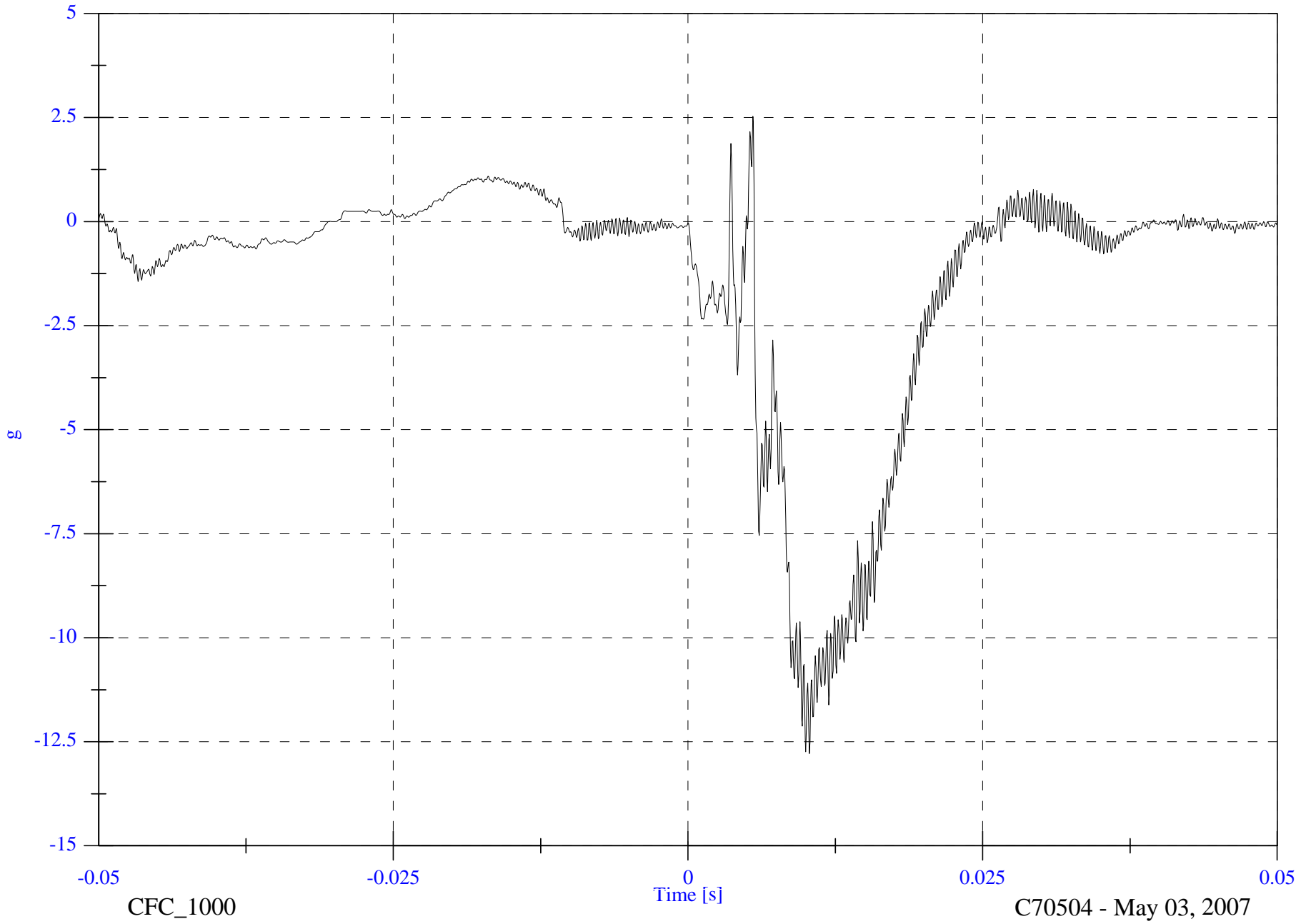
Headform Y Acceleration

Max: 2.5 [g] at 0.006 [s]

Min: -12.8 [g] at 0.010 [s]

C70504 BP3 IMPACT PLOT #2

8826-FMH-02



FMVSS 201U 2007 Hyundai Entourage

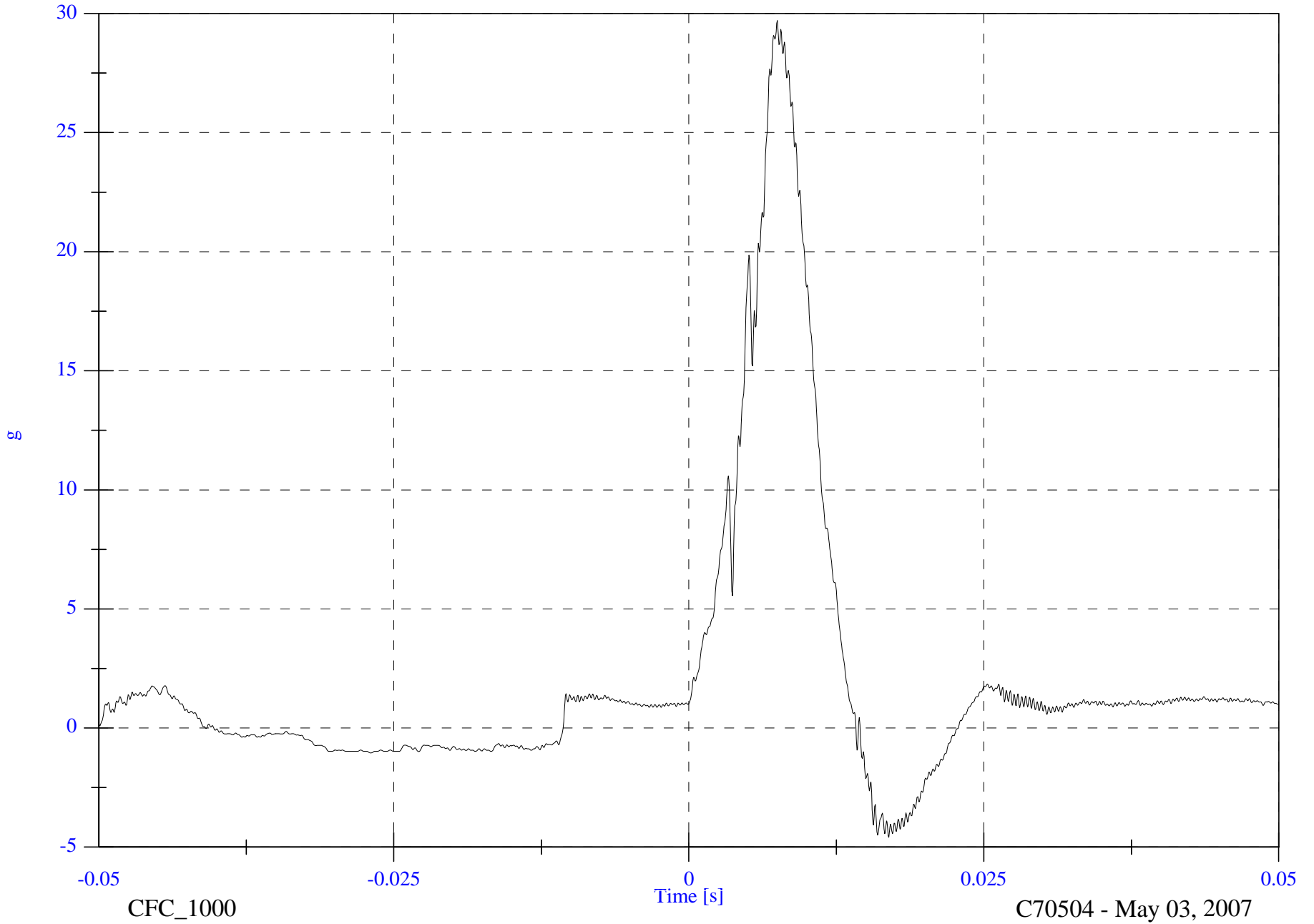
Headform Z Acceleration

Max: 29.7 [g] at 0.008 [s]

Min: -4.6 [g] at 0.017 [s]

C70504 BP3 IMPACT PLOT #3

8826-FMH-02



CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

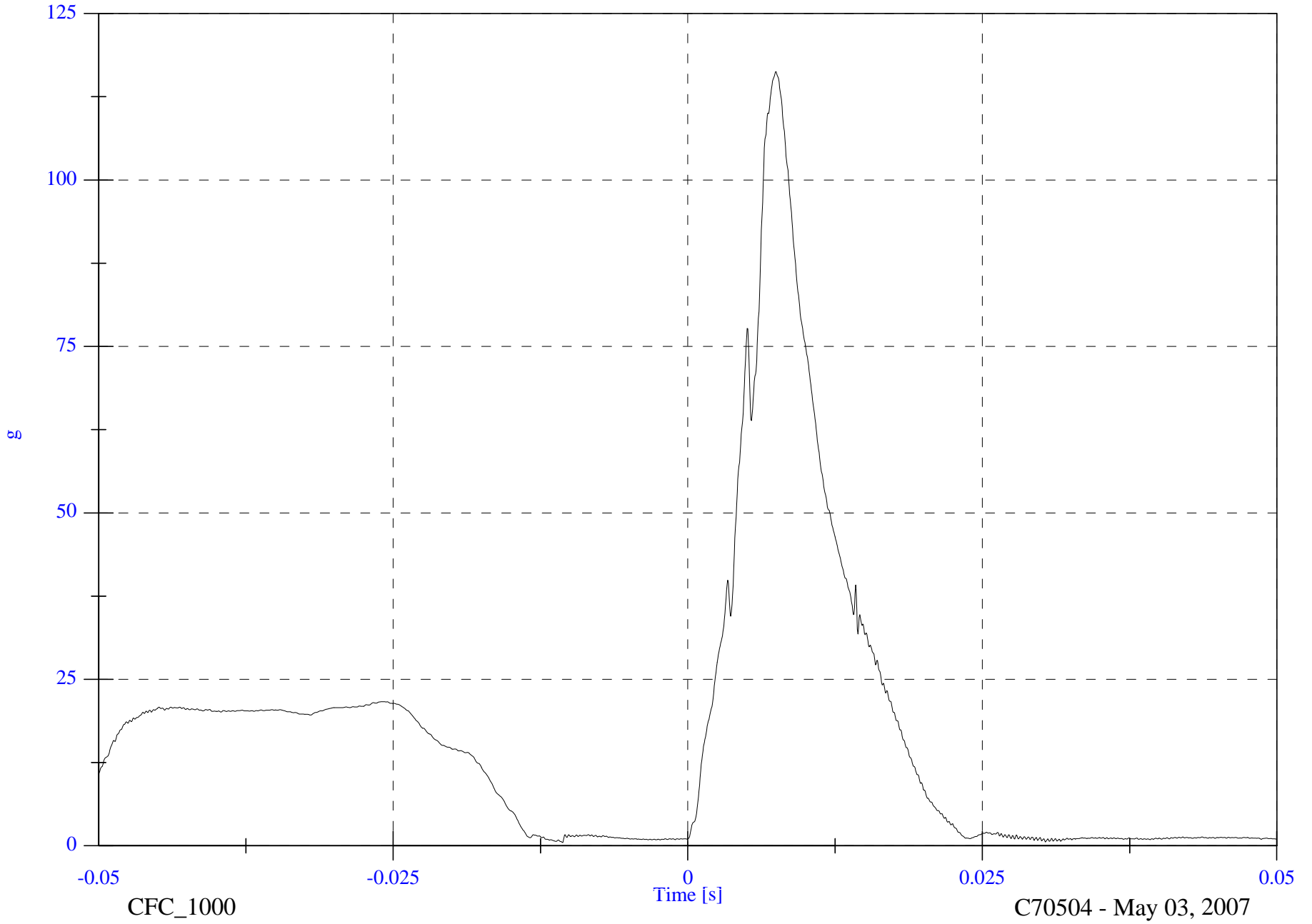
Headform Resultant

Max: 116.3 [g] at 0.008 [s]

Min: 0.5 [g] at -0.011 [s]

C70504 BP3 IMPACT PLOT #4

8826-FMH-02



CFC_1000

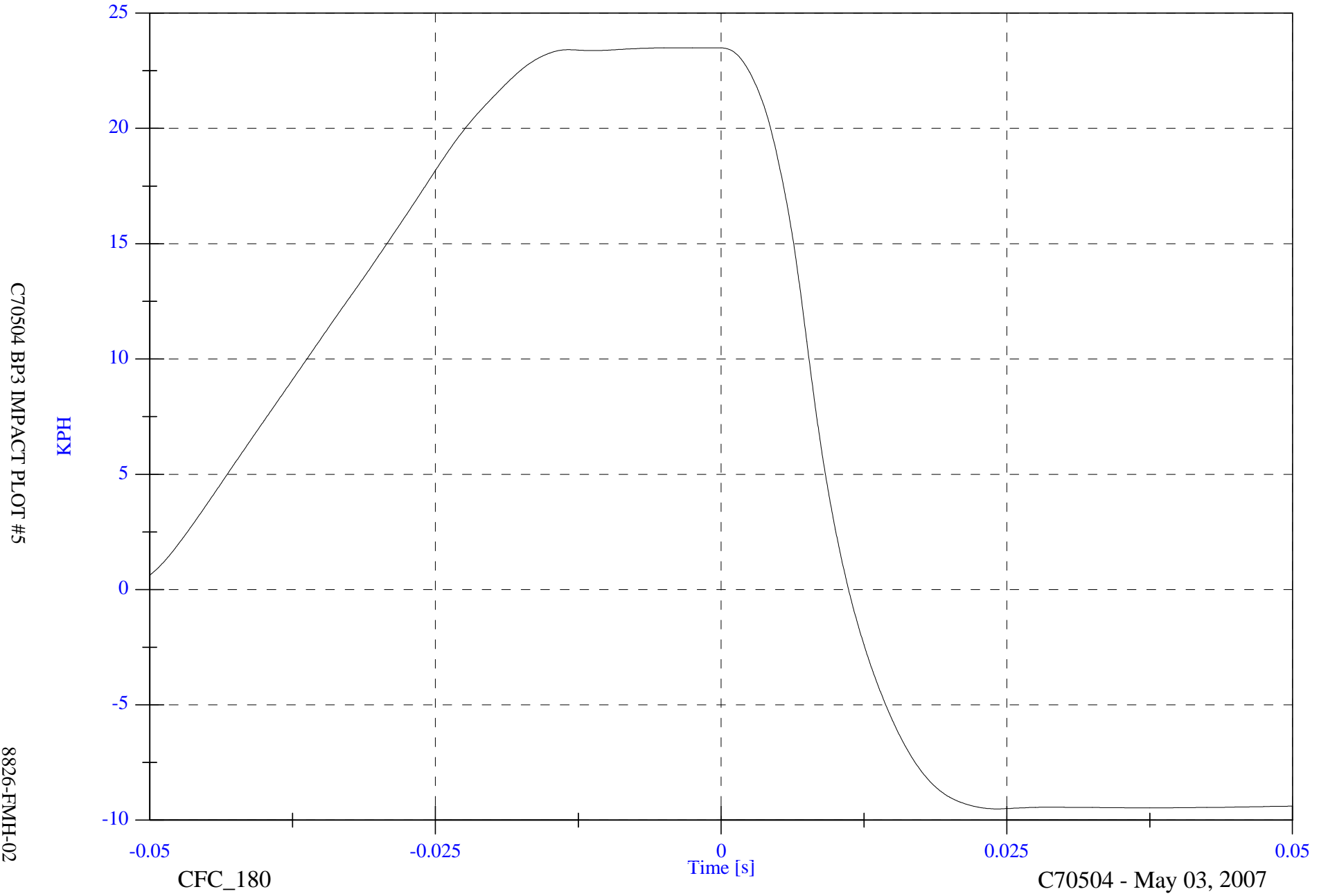
C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

Max: 23.5 [KPH] at -0.000 [s]

Min: -9.5 [KPH] at 0.024 [s]

Headform Velocity



C70504 BP3 IMPACT PLOT #5

8826-FMH-02

CFC_180

C70504 - May 03, 2007



PRE-IMPACT BP3

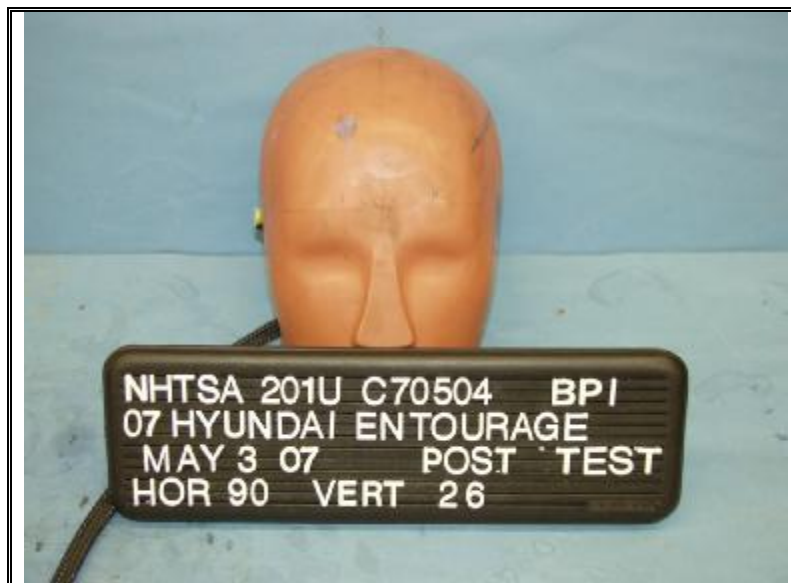


POST-IMPACT BP3

VEHICLE YEAR/MAKE/MODEL/STYLE:	2007 Hyundai Entourage GLS
VIN:	KNDMC233776011787
DATE OF MANUFACTURE:	02/06 (SEE CERTIFICATION LABEL)
COLOR:	Gold

Test Number:	06
Test Date:	05/03/07
Target Location:	B-PILLAR
Target Code:	BP1
Horizontal Impact Angle:	90°
Vertical Impact Angle:	26°
Ambient Temperature:	22.1 C°
Relative Humidity:	24.6
Time of Impact:	14:45
Headform Number:	0062

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	20	<input checked="" type="checkbox"/>	mm right	<input type="checkbox"/>	mm left
On Centerline	44				mm up



POST-IMPACT BP1 HEADFORM

Free Motion HIC	508.5
HIC(d)	550.0
Impact Velocity (kph)	18.55
HIC T1 (msec)	7.6
HIC T2 (msec)	12.7

FMVSS 201U 2007 Hyundai Entourage C70504 - BP1

FMH Headform 0062

Location: BP1

Test Date: May 03, 2007

Work File: BP1

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

Lab Temperature: 22.1 C

HICd: 550.0

Lab Humidity: 24.6 %

HIC (36ms): 508.5

Velocity at Impact: 18.55 KPH

t1: 7.6 msec

t2: 12.7 msec

Free Flight Distance: 223.82 mm

Duration: 5.1 msec

Maximum: 124.0 g

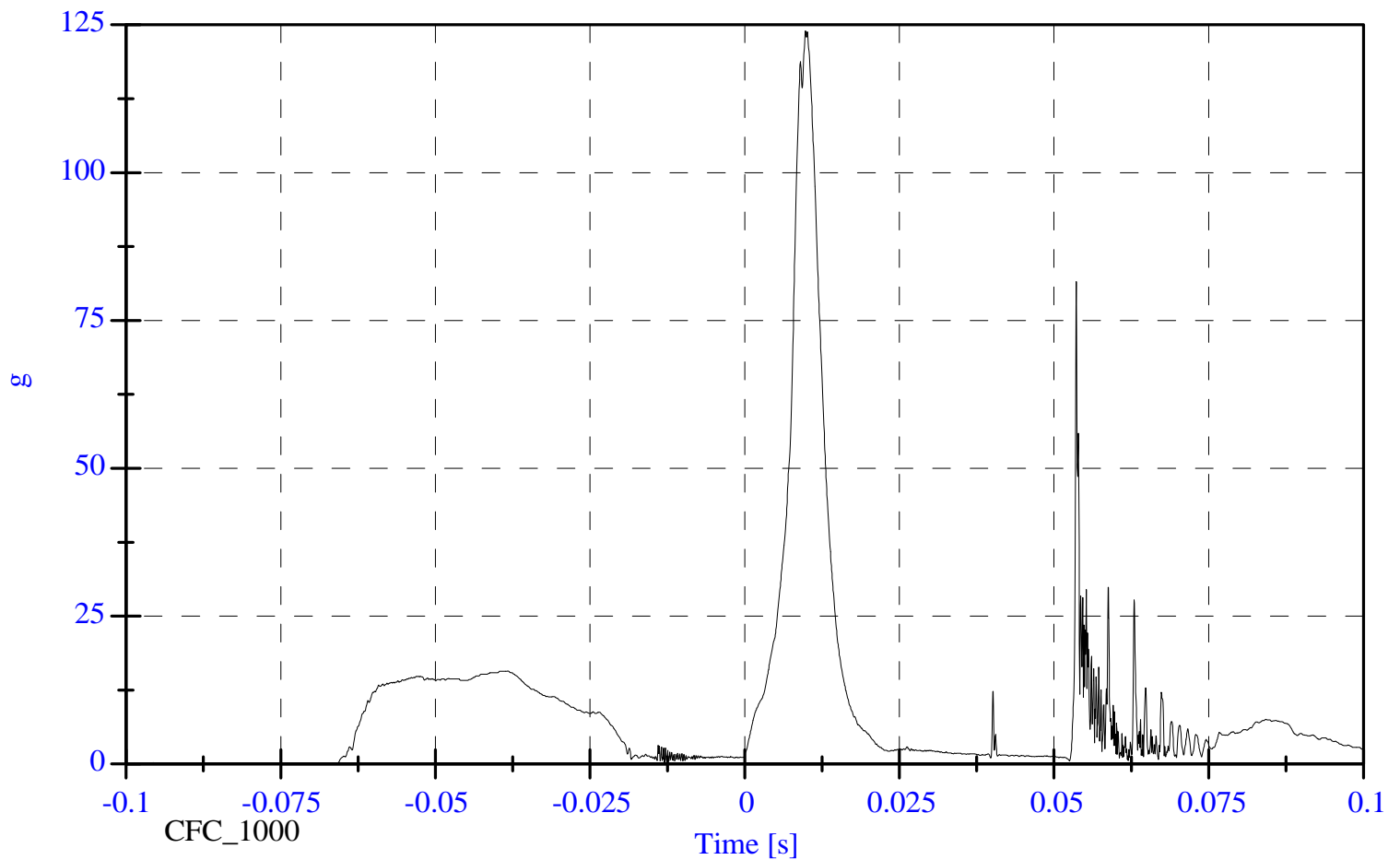
Average Acceleration: 8.8 g

FMVSS 201U 2007 Hyundai Entourage

Headform Resultant

Max: 124.0 [g] at 0.010 [s]

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



FMVSS 201U 2007 Hyundai Entourage

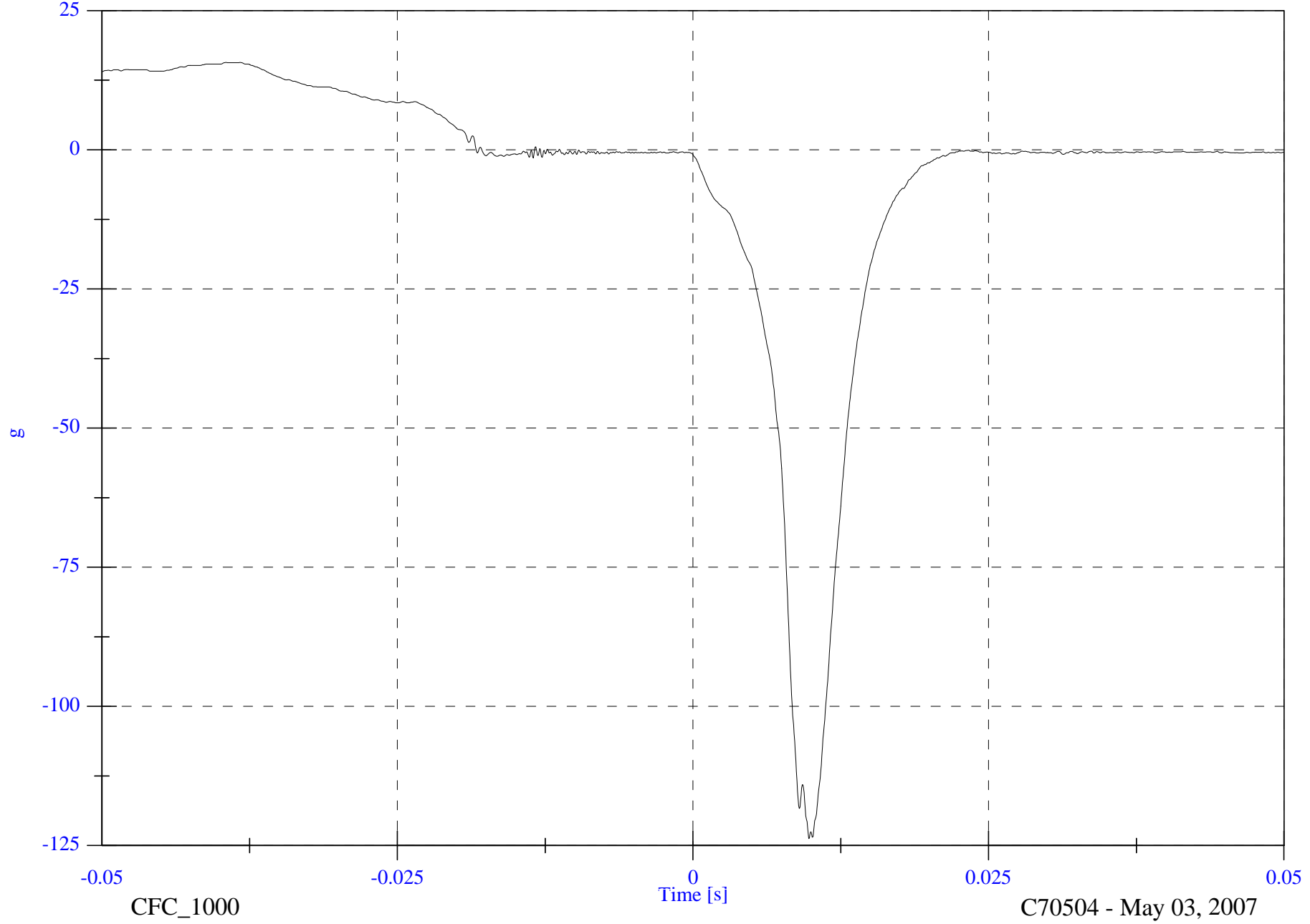
Headform X Acceleration

Max: 15.7 [g] at -0.040 [s]

Min: -123.7 [g] at 0.010 [s]

C70504 BP1 IMPACT PLOT #1

826-FMH-02



CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

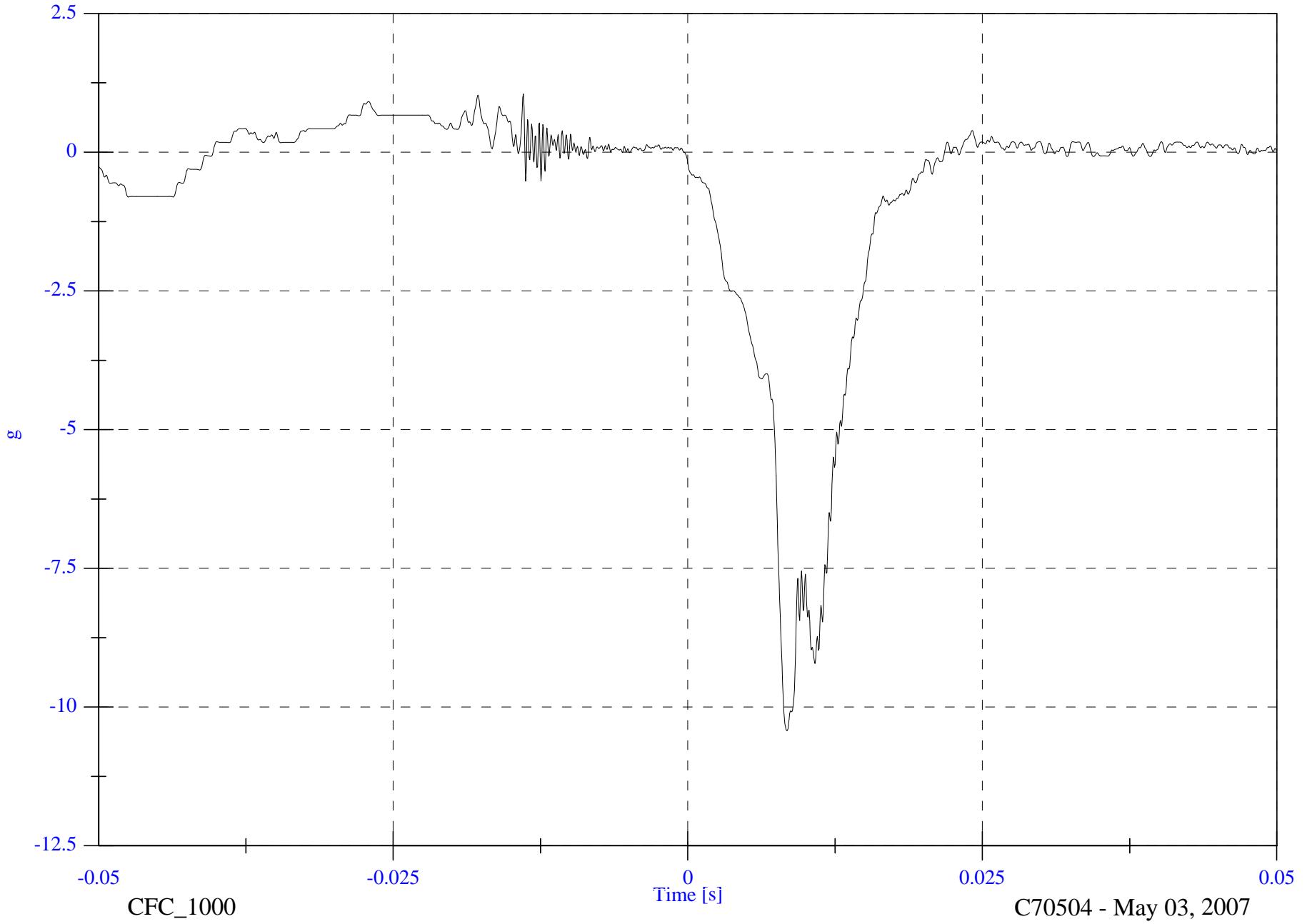
Headform Y Acceleration

Max: 1.1 [g] at -0.014 [s]

Min: -10.4 [g] at 0.008 [s]

C70504 BP1 IMPACT PLOT #2

826-FMH-02

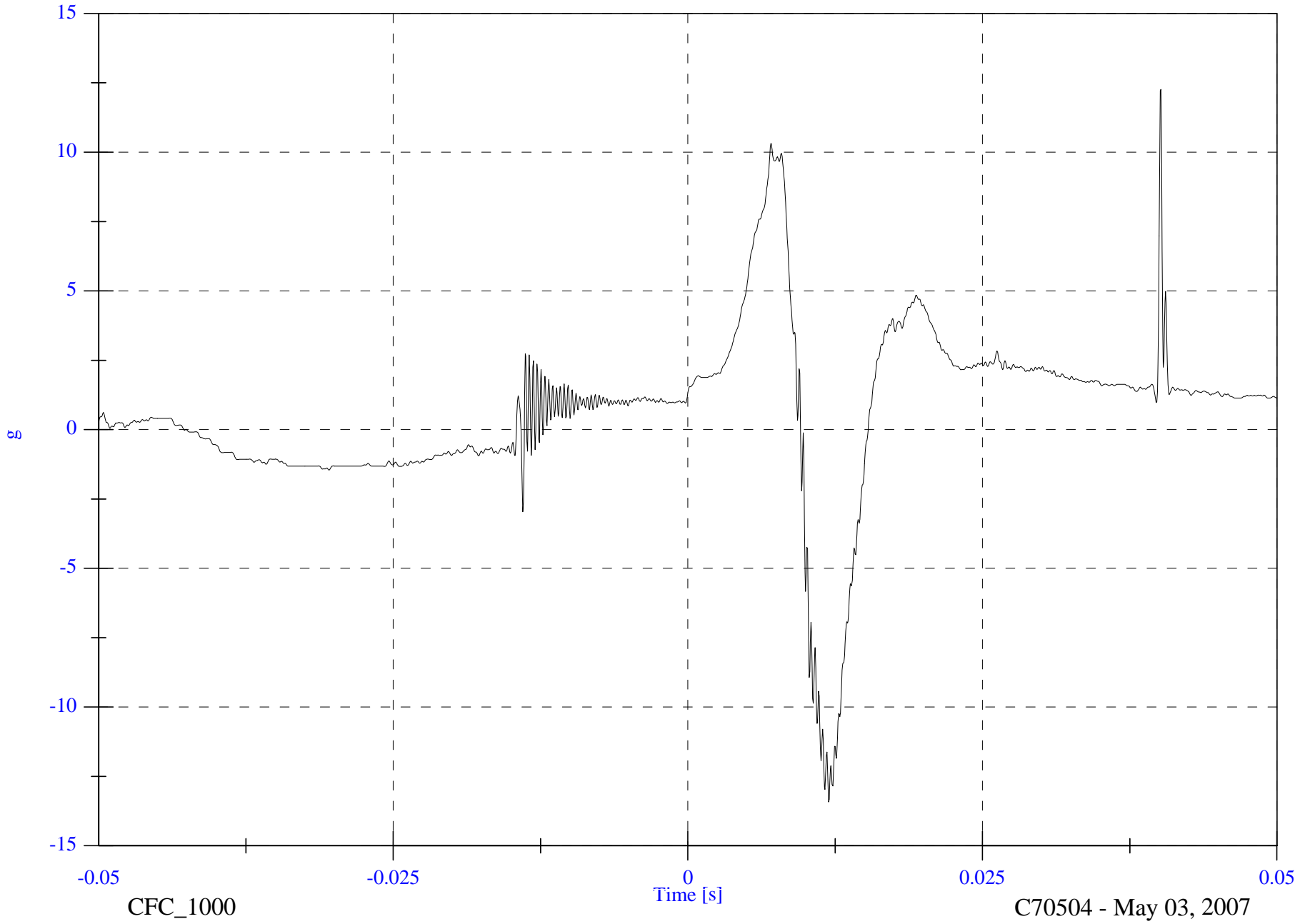


CFC_1000

C70504 - May 03, 2007

C70504 BP1 IMPACT PLOT #3

826-FMH-02



FMVSS 201U 2007 Hyundai Entourage

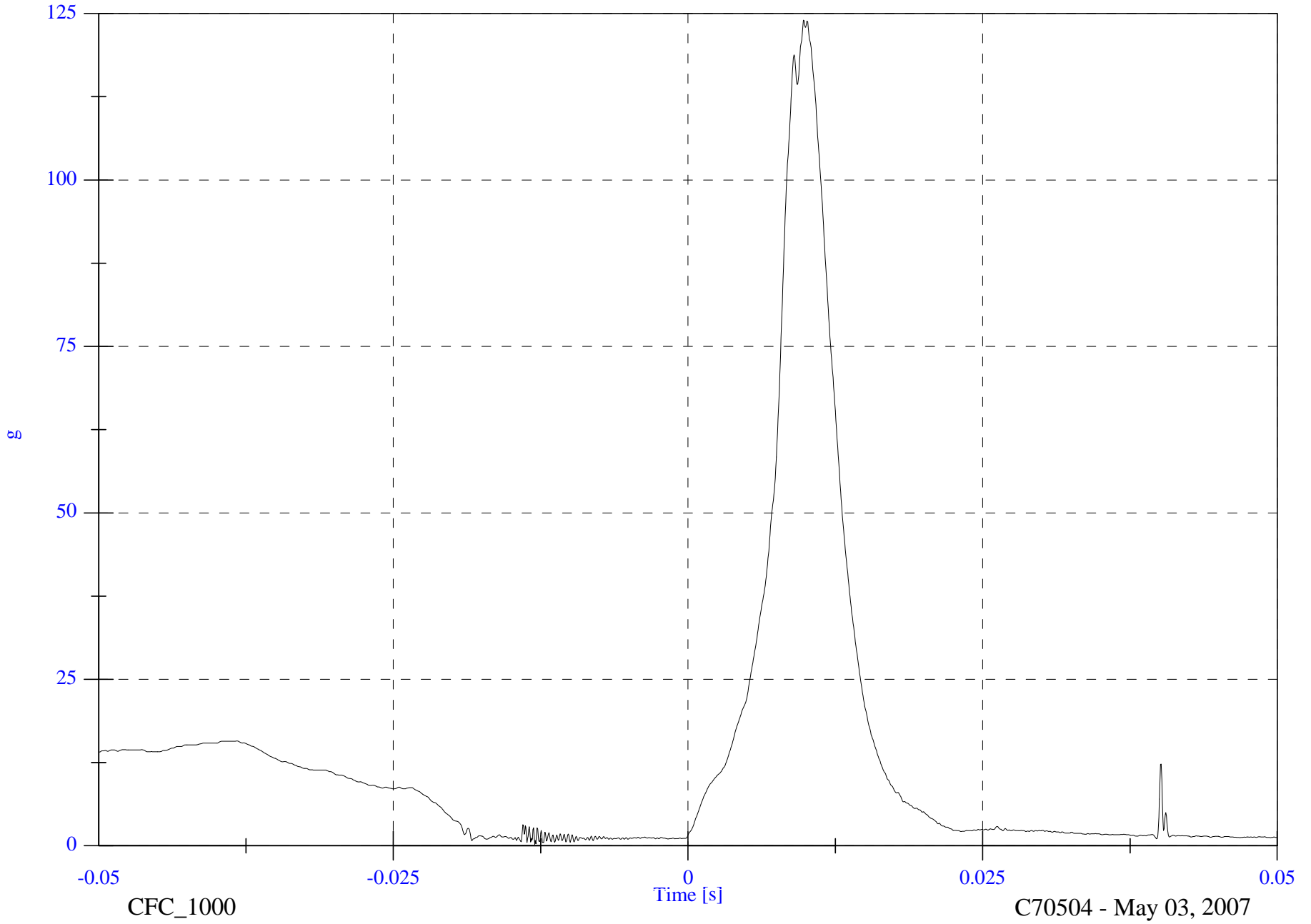
Headform Resultant

Max: 124.0 [g] at 0.010 [s]

Min: 0.2 [g] at -0.013 [s]

C70504 BP1 IMPACT PLOT #4

826-FMH-02



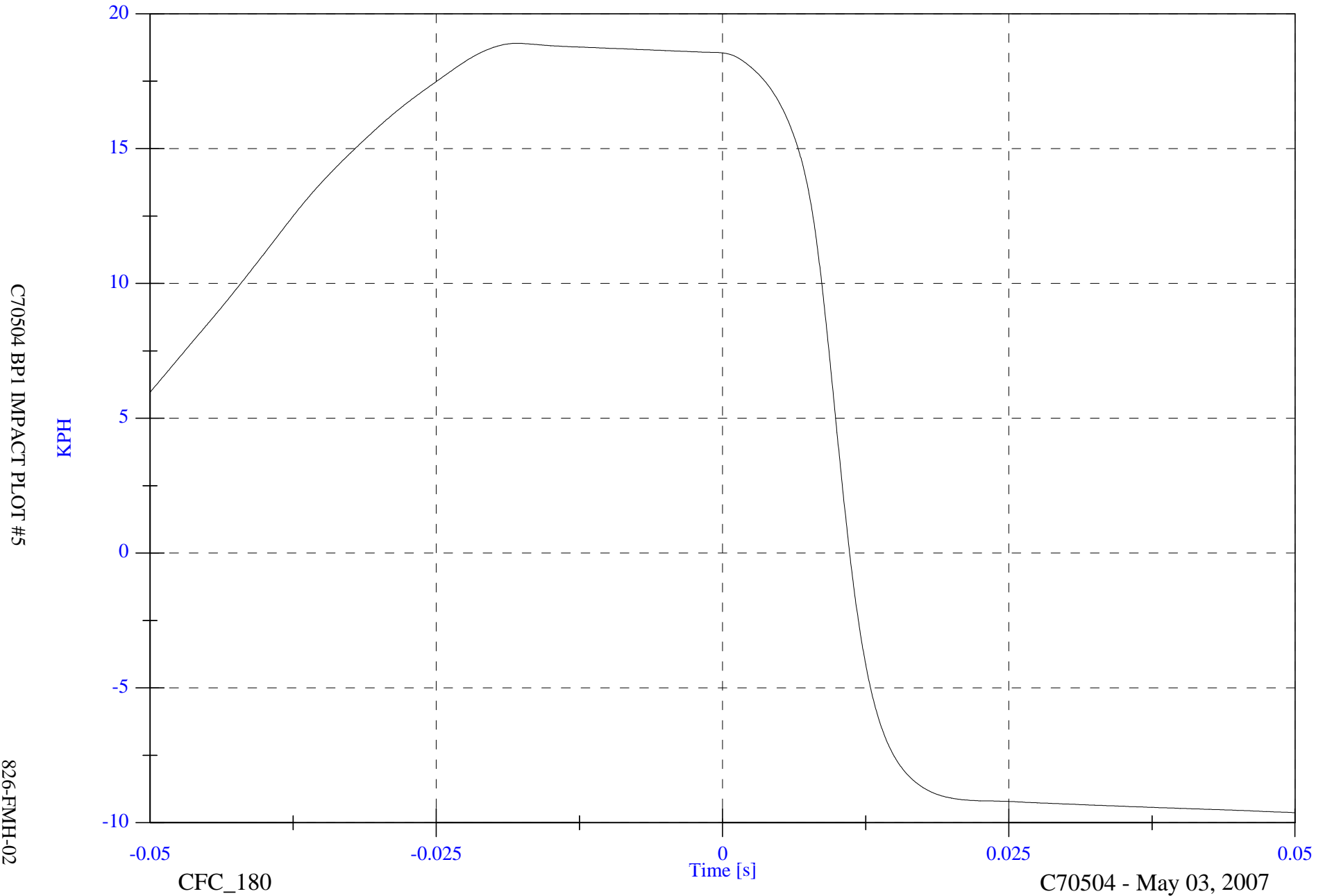
CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

Max: 18.9 [KPH] at -0.018 [s]
Min: -9.6 [KPH] at 0.050 [s]

Headform Velocity



C70504 BP1 IMPACT PLOT #5

826-FMH-02

CFC_180

C70504 - May 03, 2007



PRE-IMPACT BPI



POST-IMPACT BPI

VEHICLE YEAR/MAKE/MODEL/STYLE:	2007 Hyundai Entourage GLS
VIN:	KNDMC233776011787
DATE OF MANUFACTURE:	02/06 (SEE CERTIFICATION LABEL)
COLOR:	Gold

Test Number:	07
Test Date:	05/03/07
Target Location:	SIDE RAIL
Target Code:	SR2A
Horizontal Impact Angle:	90°
Vertical Impact Angle:	36°
Ambient Temperature:	22.1C°
Relative Humidity:	25.1
Time of Impact:	15:20
Headform Number:	0355

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	12				mm up



POST-IMPACT SR2A HEADFORM

Free Motion HIC	430.4
HIC(d)	491.1
Impact Velocity (kph)	18.55
HIC T1 (msec)	7.7
HIC T2 (msec)	12.9

FMVSS 201U 2007 Hyundai Entourage C70504 - SR2A

FMH Headform 0355

Location: SR2A

Test Date: May 03, 2007

Work File: SR2A

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

Lab Temperature: 22.1 C

HICd: 491.1

Lab Humidity: 25.1 %

HIC (36ms): 430.4

Velocity at Impact: 18.55 KPH

t1: 7.7 msec

t2: 12.9 msec

Free Flight Distance: 225.32 mm

Duration: 5.2 msec

Maximum: 113.0 g

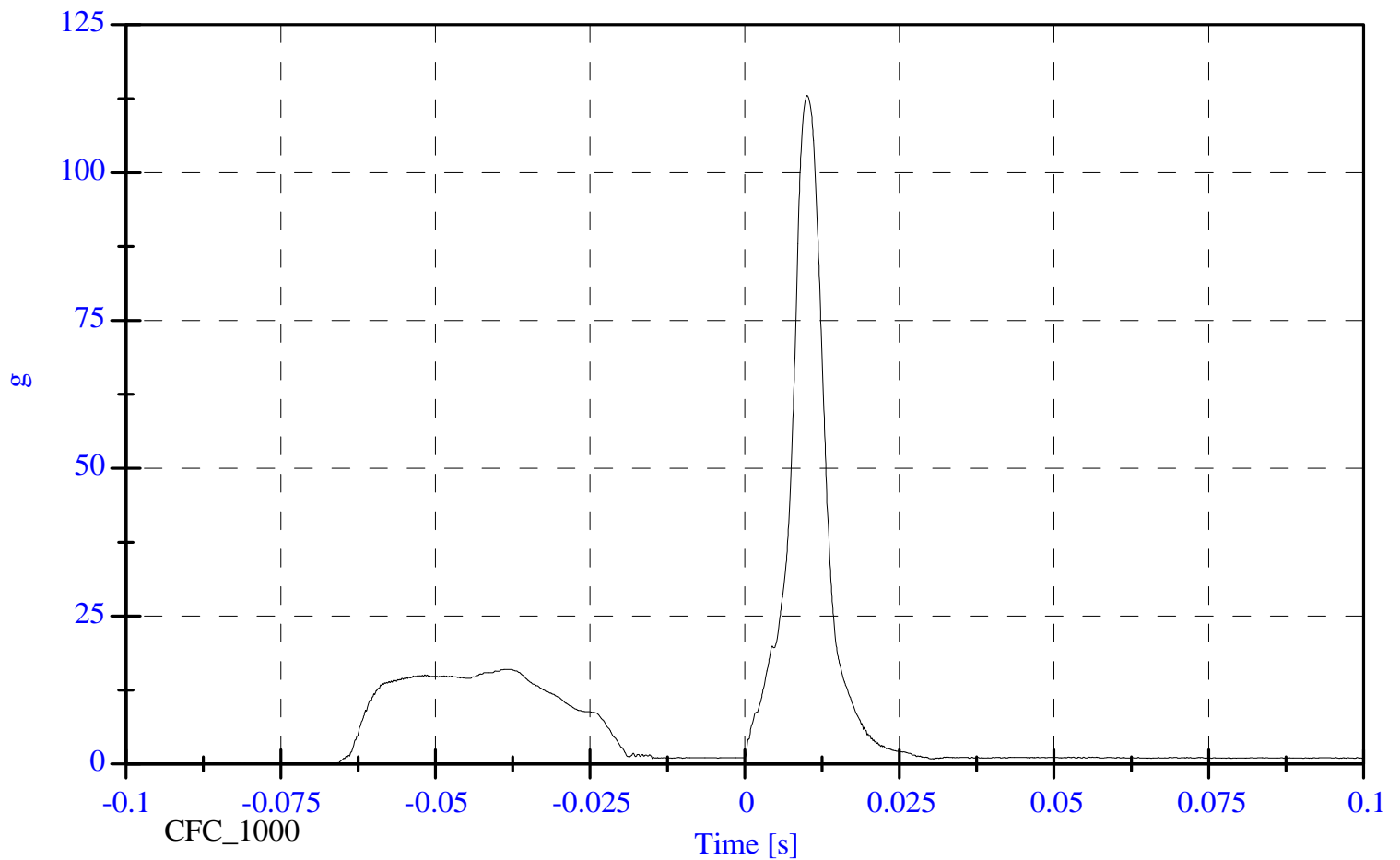
Average Acceleration: 7.1 g

FMVSS 201U 2007 Hyundai Entourage

Headform Resultant

Max: 113.0 [g] at 0.010 [s]

Min: 0.0 [g] at -0.072 [s]



FMVSS 201U 2007 Hyundai Entourage

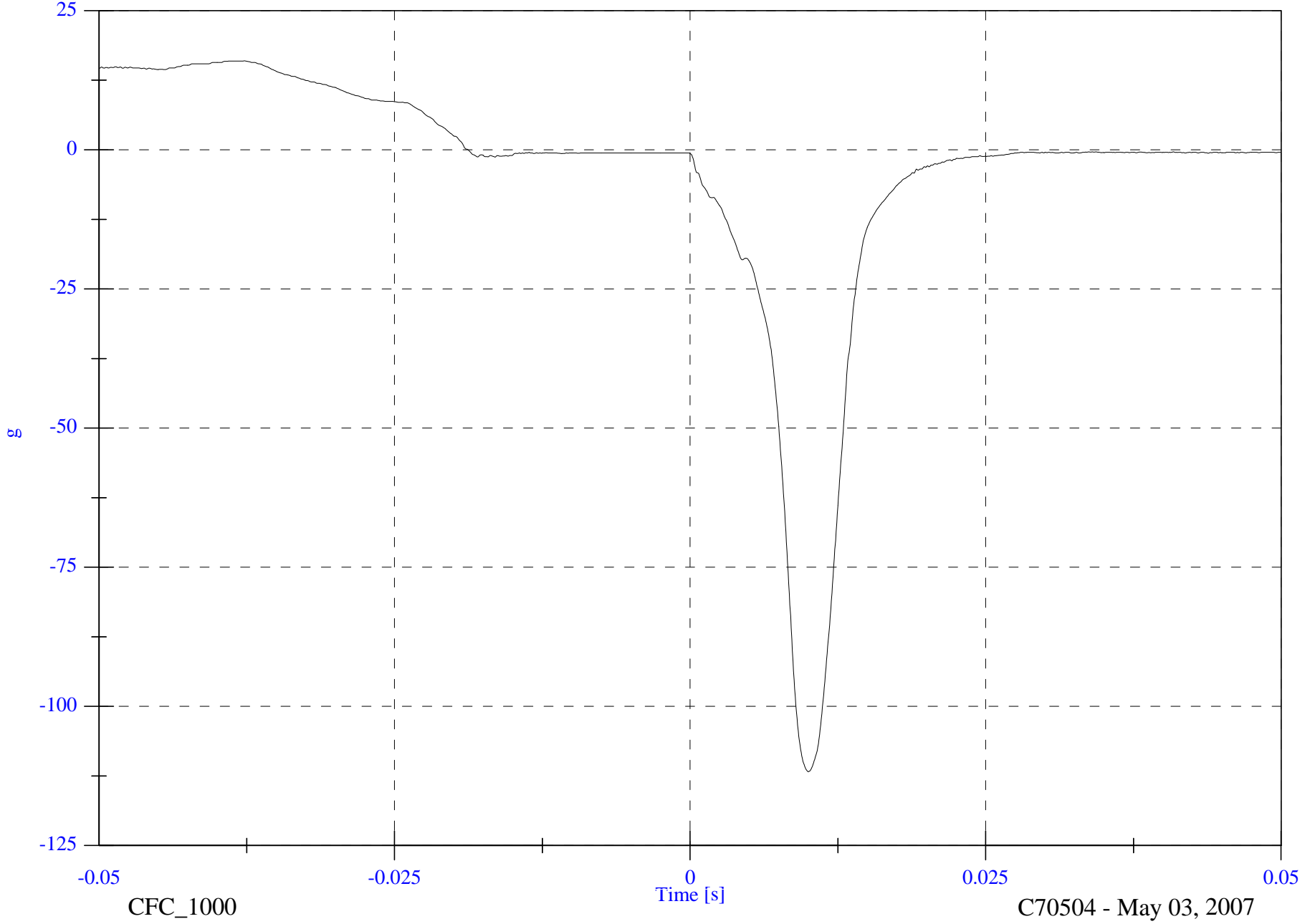
Headform X Acceleration

Max: 16.0 [g] at -0.038 [s]

Min: -111.7 [g] at 0.010 [s]

C70504 SR2A IMPACT PLOT #1

8622-FMH-02



CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

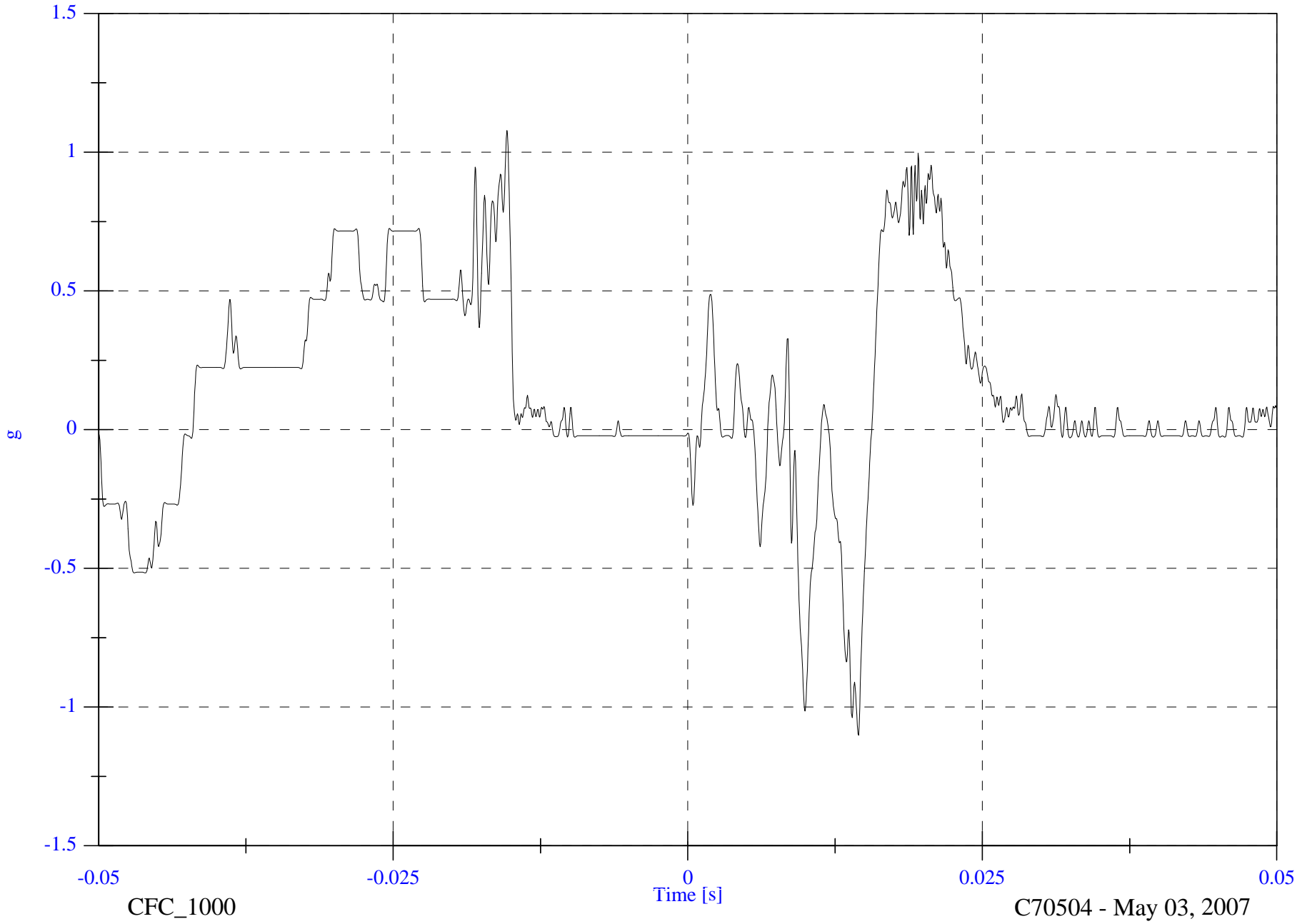
Headform Y Acceleration

Max: 1.1 [g] at -0.015 [s]

Min: -1.1 [g] at 0.014 [s]

C70504 SR2A IMPACT PLOT #2

8622-FMH-02



FMVSS 201U 2007 Hyundai Entourage

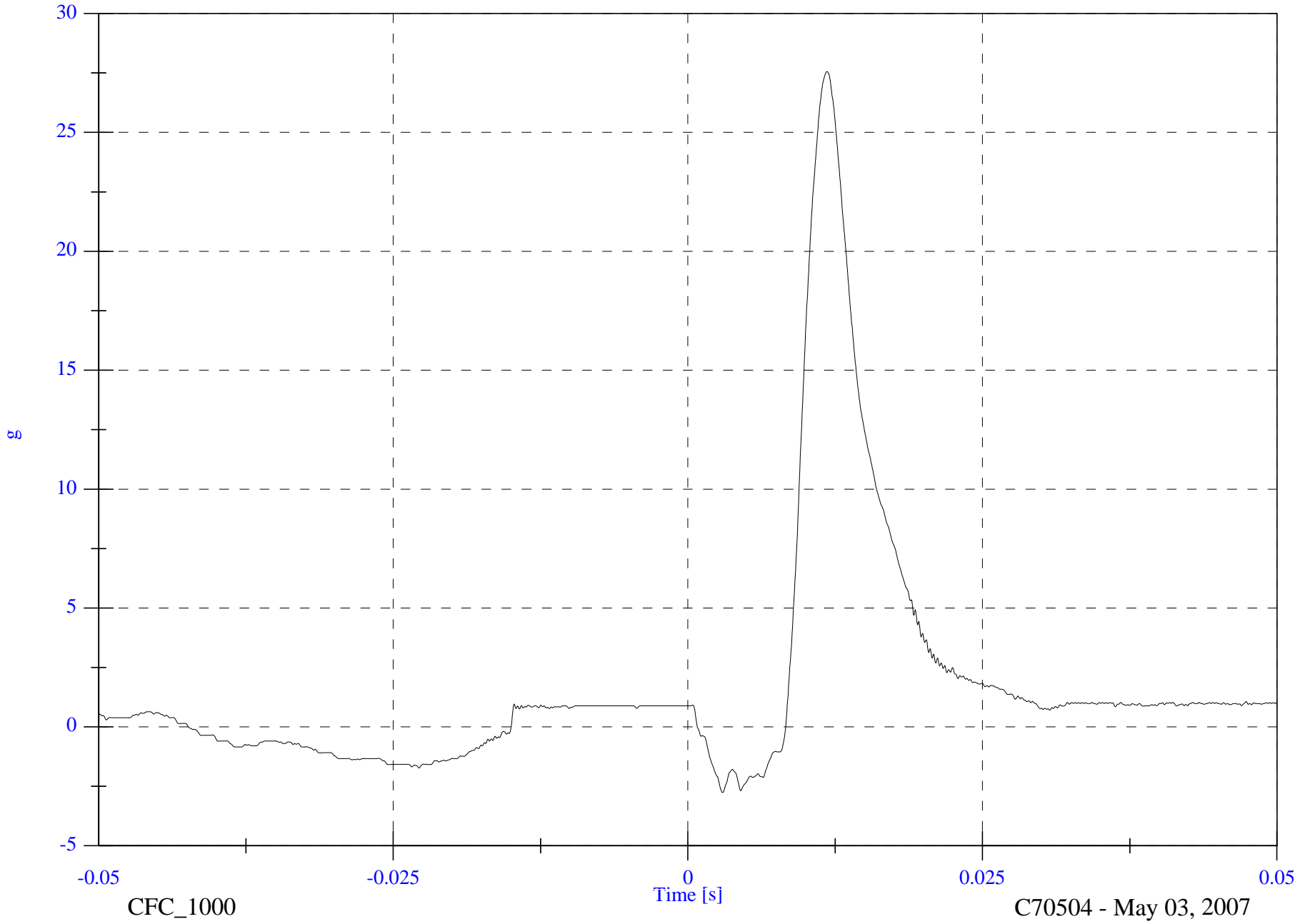
Headform Z Acceleration

Max: 27.6 [g] at 0.012 [s]

Min: -2.8 [g] at 0.003 [s]

C70504 SR2A IMPACT PLOT #3

8622-FMH-02



CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

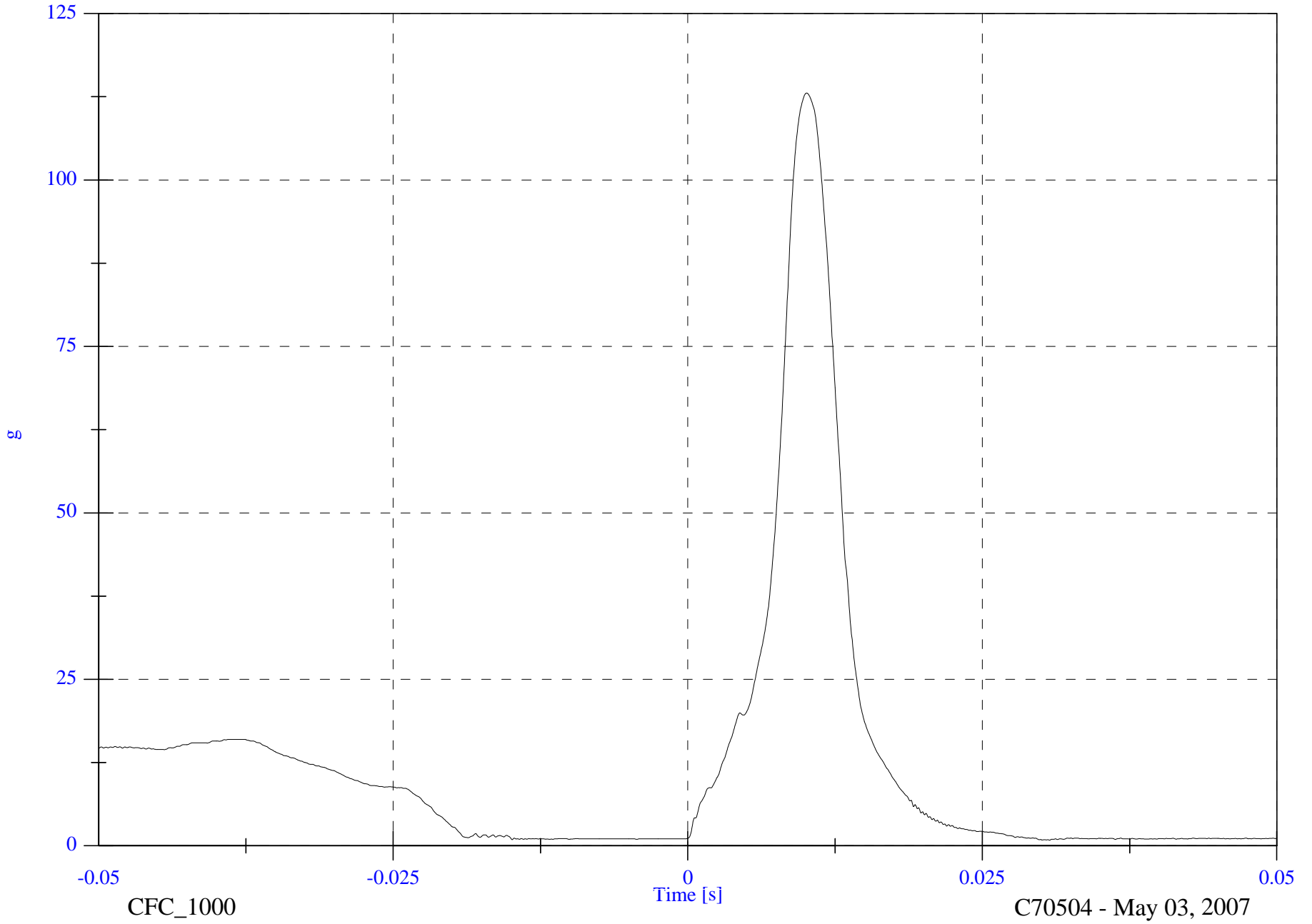
Headform Resultant

Max: 113.0 [g] at 0.010 [s]

Min: 0.9 [g] at 0.031 [s]

C70504 SR2A IMPACT PLOT #4

8622-FMH-02

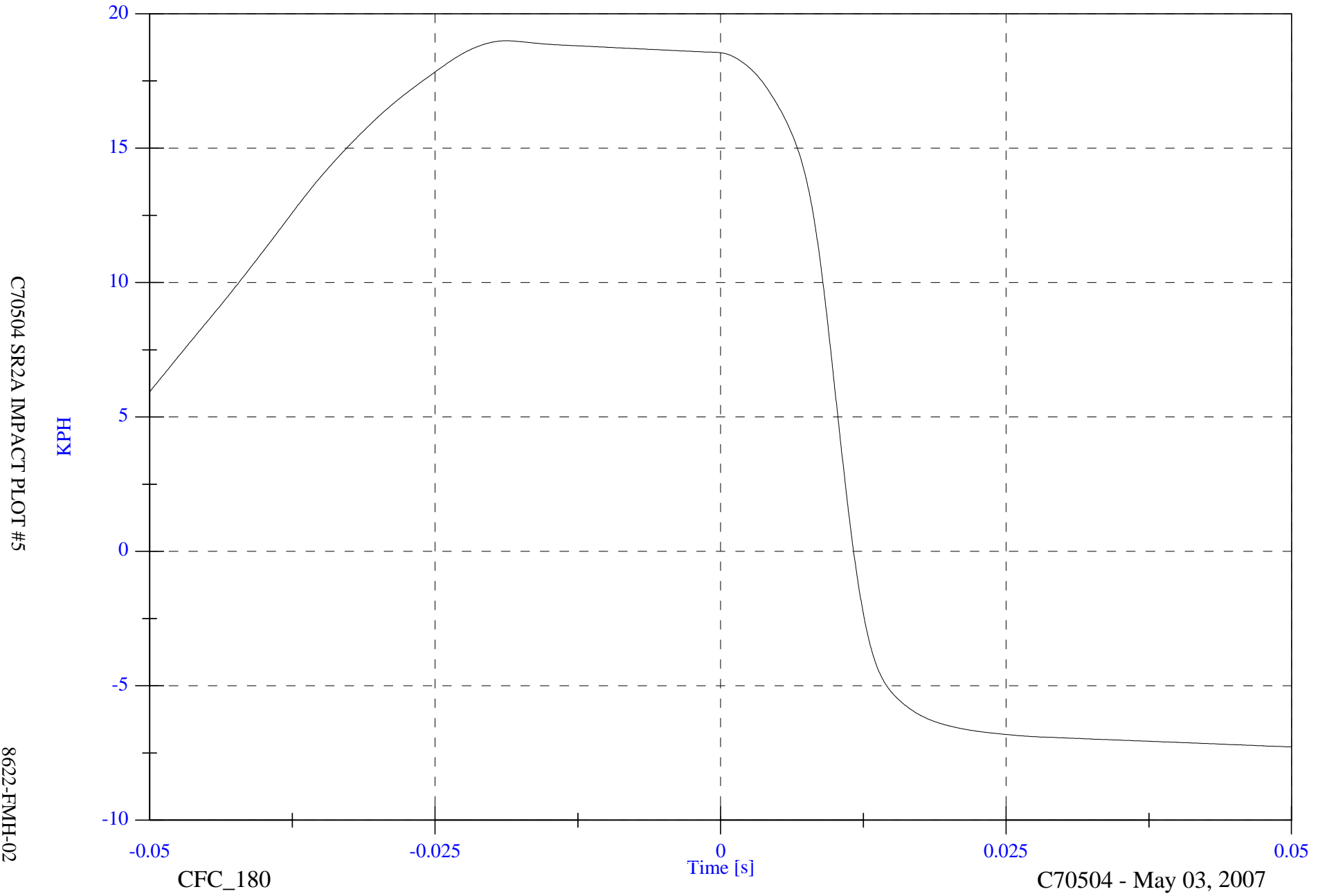


FMVSS 201U 2007 Hyundai Entourage

Max: 19.0 [KPH] at -0.019 [s]

Min: -7.3 [KPH] at 0.050 [s]

Headform Velocity

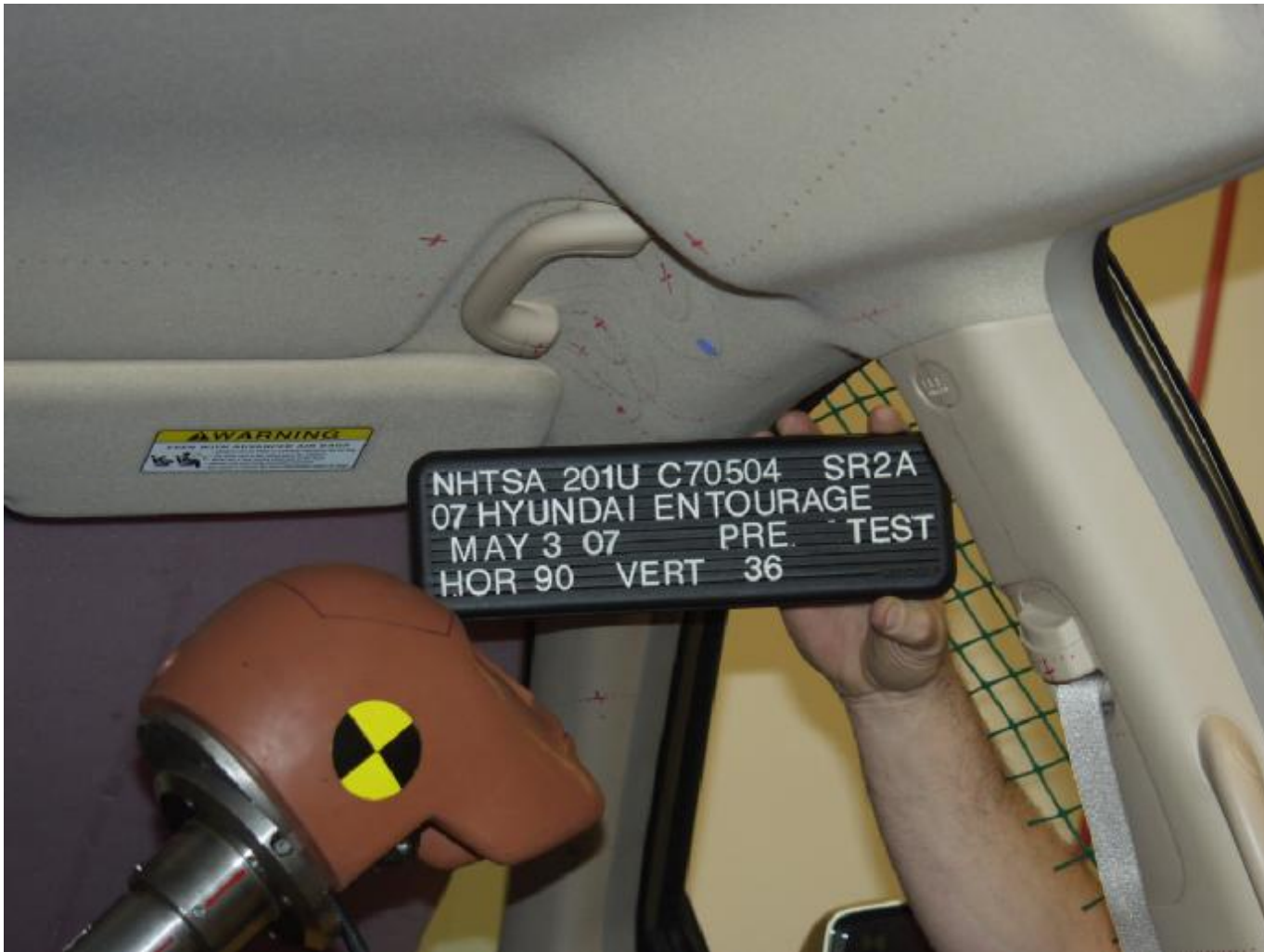


C70504 SR2A IMPACT PLOT #5

8622-FMH-02

CFC_180

C70504 - May 03, 2007



PRE-IMPACT SR2A



POST-IMPACT SR2A

VEHICLE YEAR/MAKE/MODEL/STYLE:	2007 Hyundai Entourage GLS
VIN:	KNDMC233776011787
DATE OF MANUFACTURE:	02/06 (SEE CERTIFICATION LABEL)
COLOR:	Gold

Test Number:	08
Test Date:	05/03/07
Target Location:	A-PILLAR
Target Code:	AP3
Horizontal Impact Angle:	141°
Vertical Impact Angle:	41°
Ambient Temperature:	22.5 C°
Relative Humidity:	26
Time of Impact:	16:10
Headform Number:	0642

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	7	mm right	x mm left
On Centerline	1		mm up



POST-IMPACT AP3 HEADFORM

Free Motion HIC	304.5
HIC(d)	396.1
Impact Velocity (kph)	18.78
HIC T1 (msec)	2.0
HIC T2 (msec)	13.4

FMVSS 201U 2007 Hyundai Entourage C70504 - AP3

FMH Headform 0642

Location: AP3

Test Date: May 03, 2007

Work File: AP3

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

Lab Temperature: 22.5 C

HICd: 396.1

Lab Humidity: 26.0 %

HIC (36ms): 304.5

Velocity at Impact: 18.78 KPH

t1: 2.0 msec

t2: 13.4 msec

Free Flight Distance: 219.84 mm

Duration: 11.3 msec

Maximum: 82.1 g

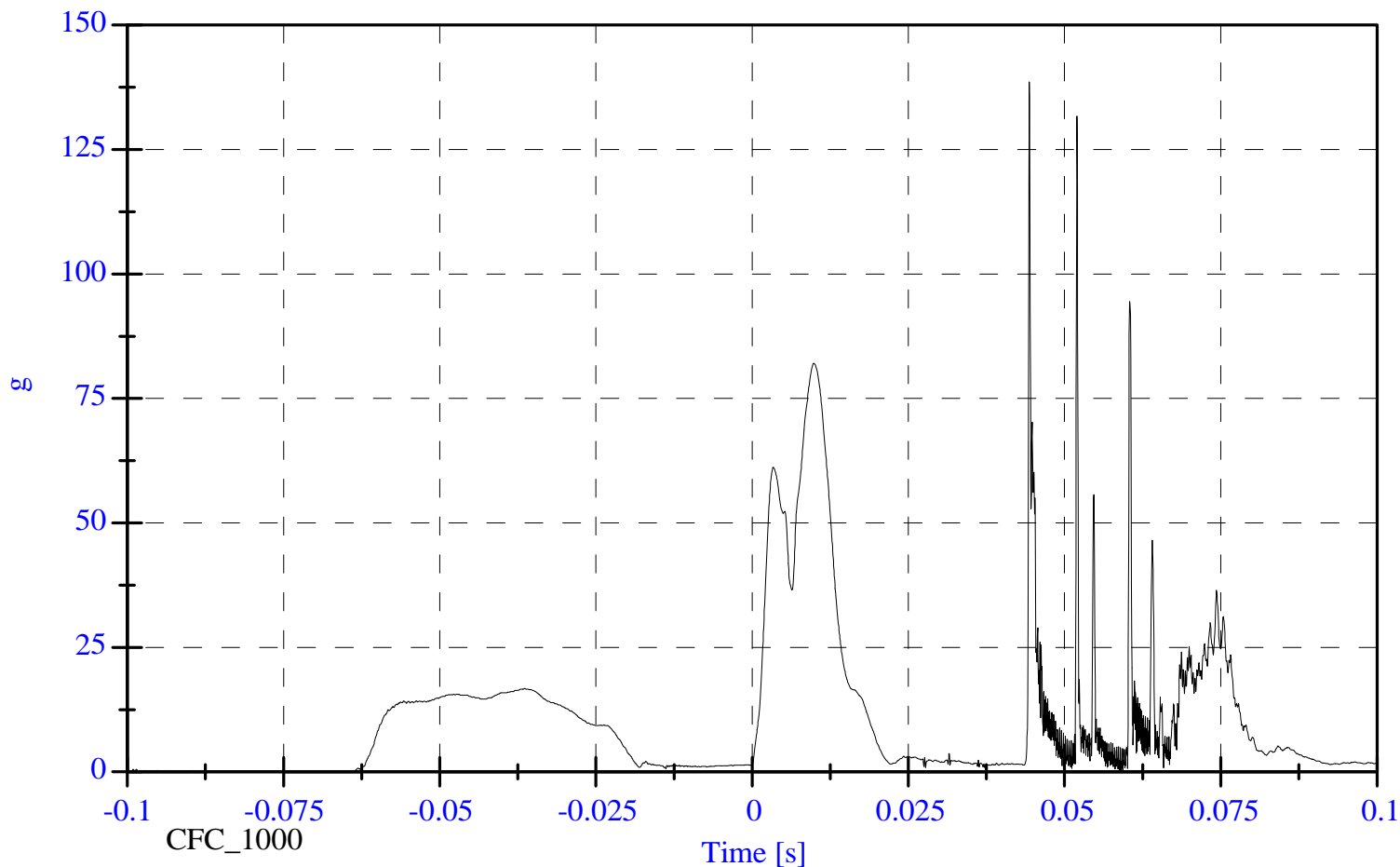
Average Acceleration: 10.5 g

FMVSS 201U 2007 Hyundai Entourage

Headform Resultant

Max: 82.1 [g] at 0.010 [s]

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



FMVSS 201U 2007 Hyundai Entourage

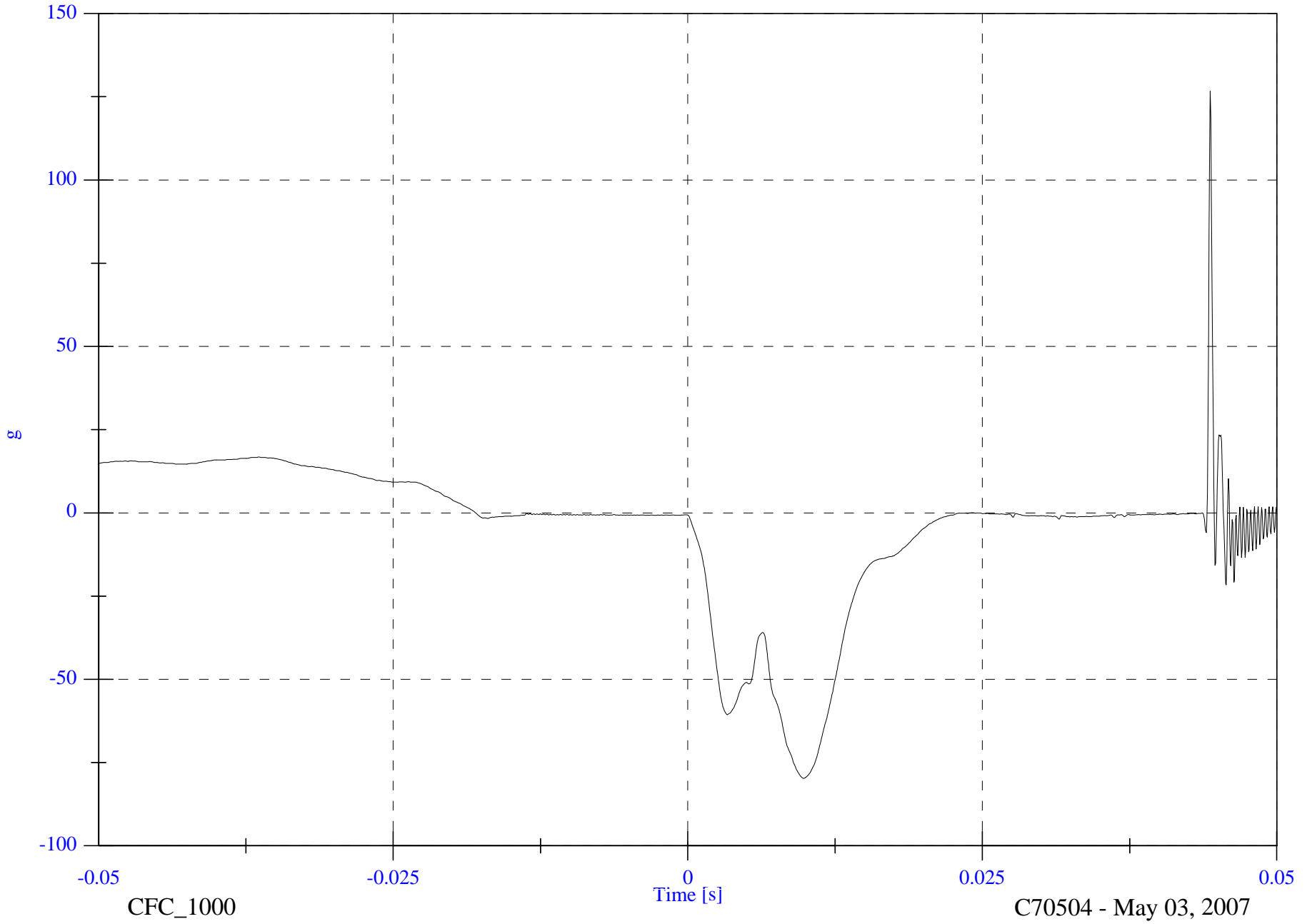
Headform X Acceleration

Max: 126.6 [g] at 0.044 [s]

Min: -79.8 [g] at 0.010 [s]

C70504 AP3 IMPACT PLOT #1

8622-FMH-02



FMVSS 201U 2007 Hyundai Entourage

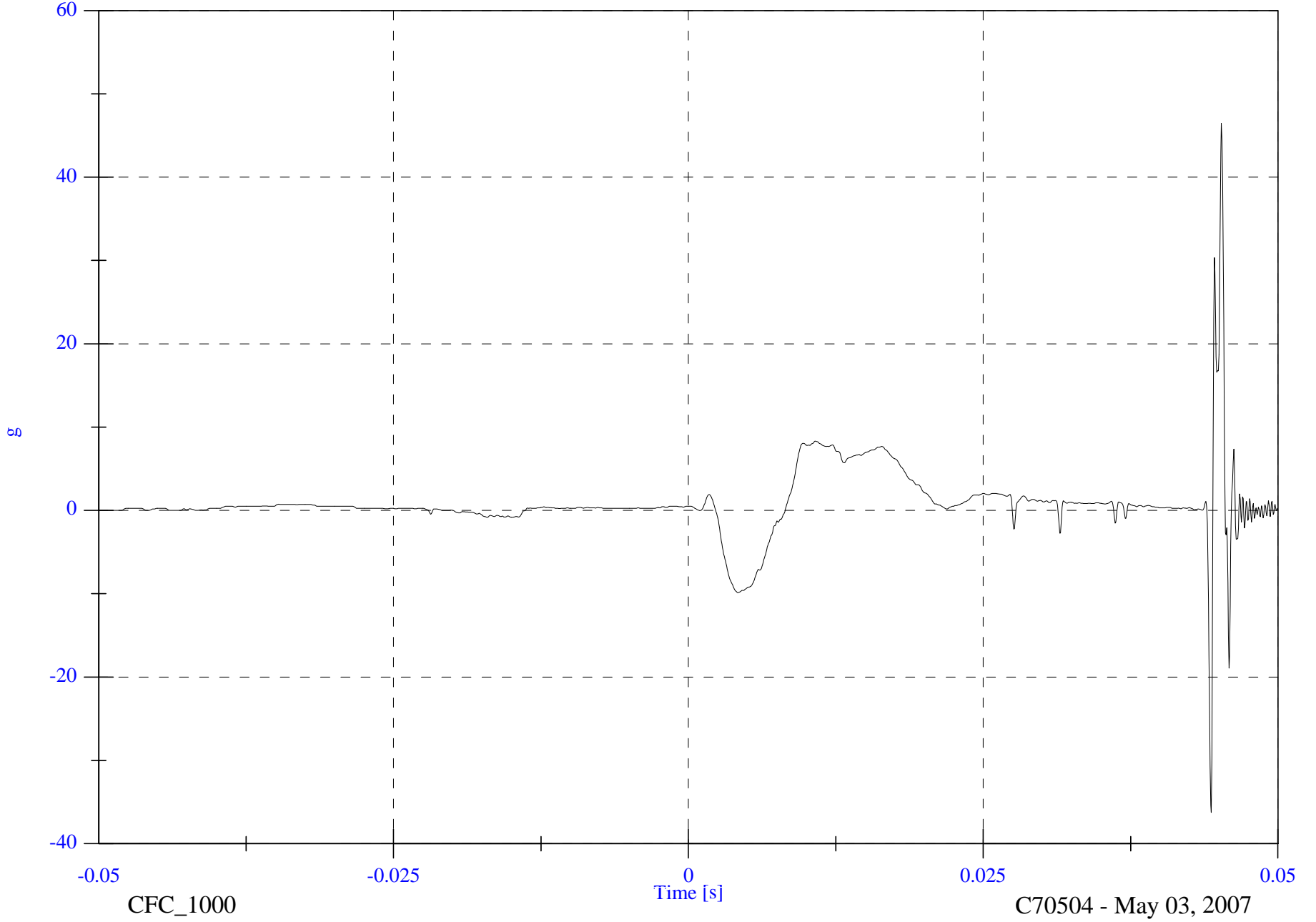
Headform Y Acceleration

Max: 46.5 [g] at 0.045 [s]

Min: -36.3 [g] at 0.044 [s]

C70504 AP3 IMPACT PLOT #2

8622-FMH-02



CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

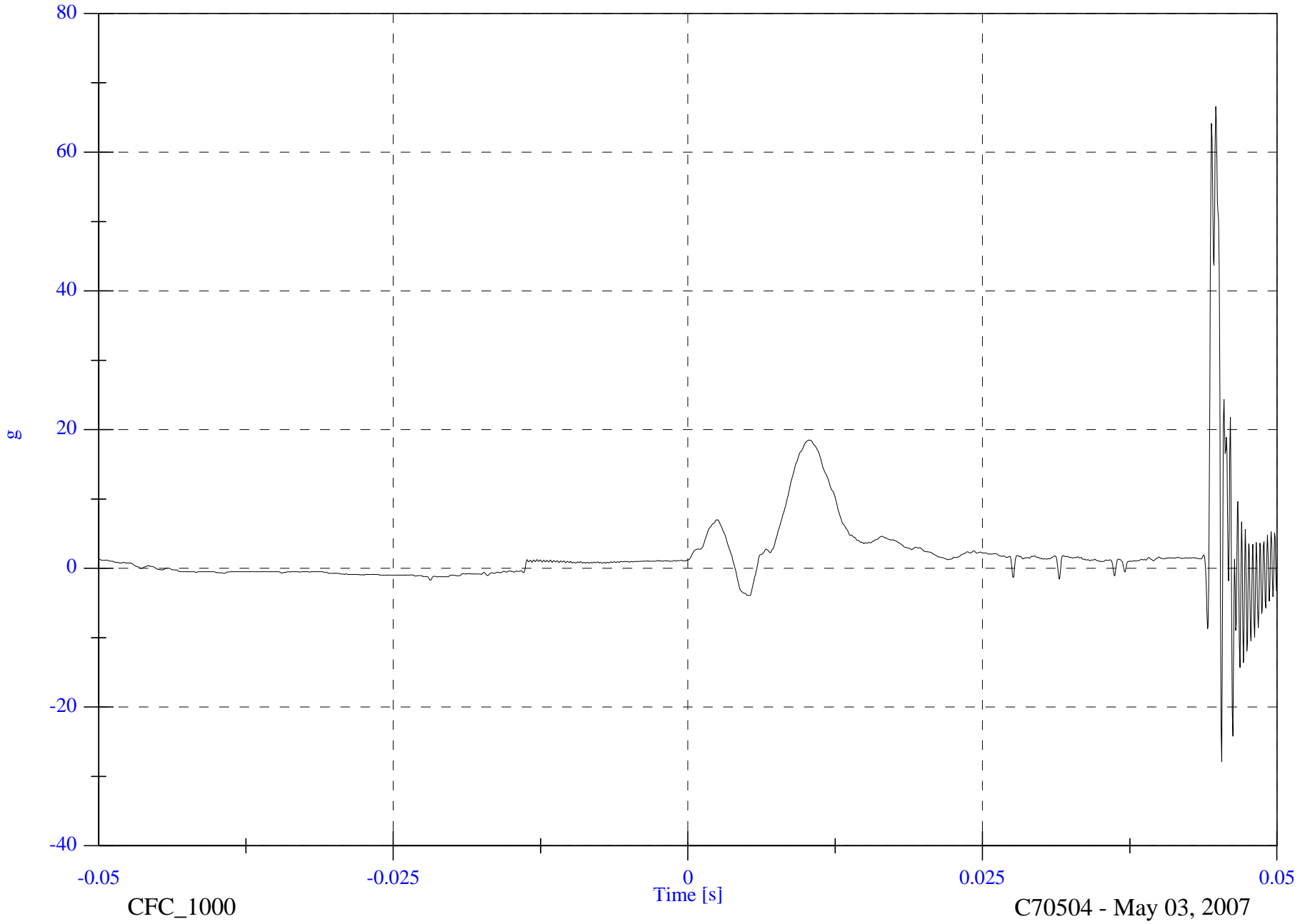
Headform Z Acceleration

Max: 66.6 [g] at 0.045 [s]

Min: -27.9 [g] at 0.045 [s]

C70504 AP3 IMPACT PLOT #3

8622-FMH-02



CFC_1000

C70504 - May 03, 2007

FMVSS 201U 2007 Hyundai Entourage

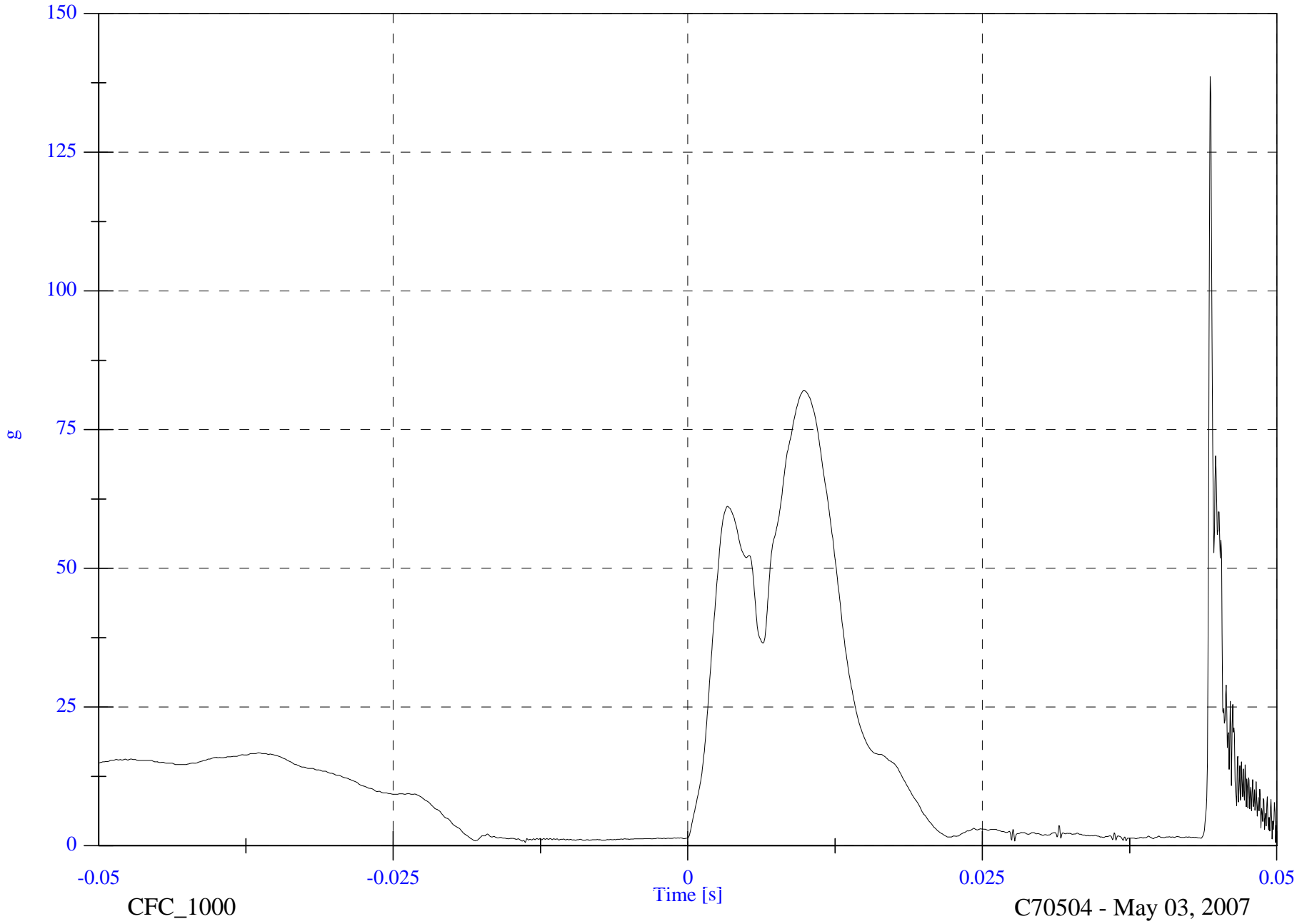
Headform Resultant

Max: 138.6 [g] at 0.044 [s]

Min: 0.6 [g] at 0.050 [s]

C70504 AP3 IMPACT PLOT #4

8622-FMH-02

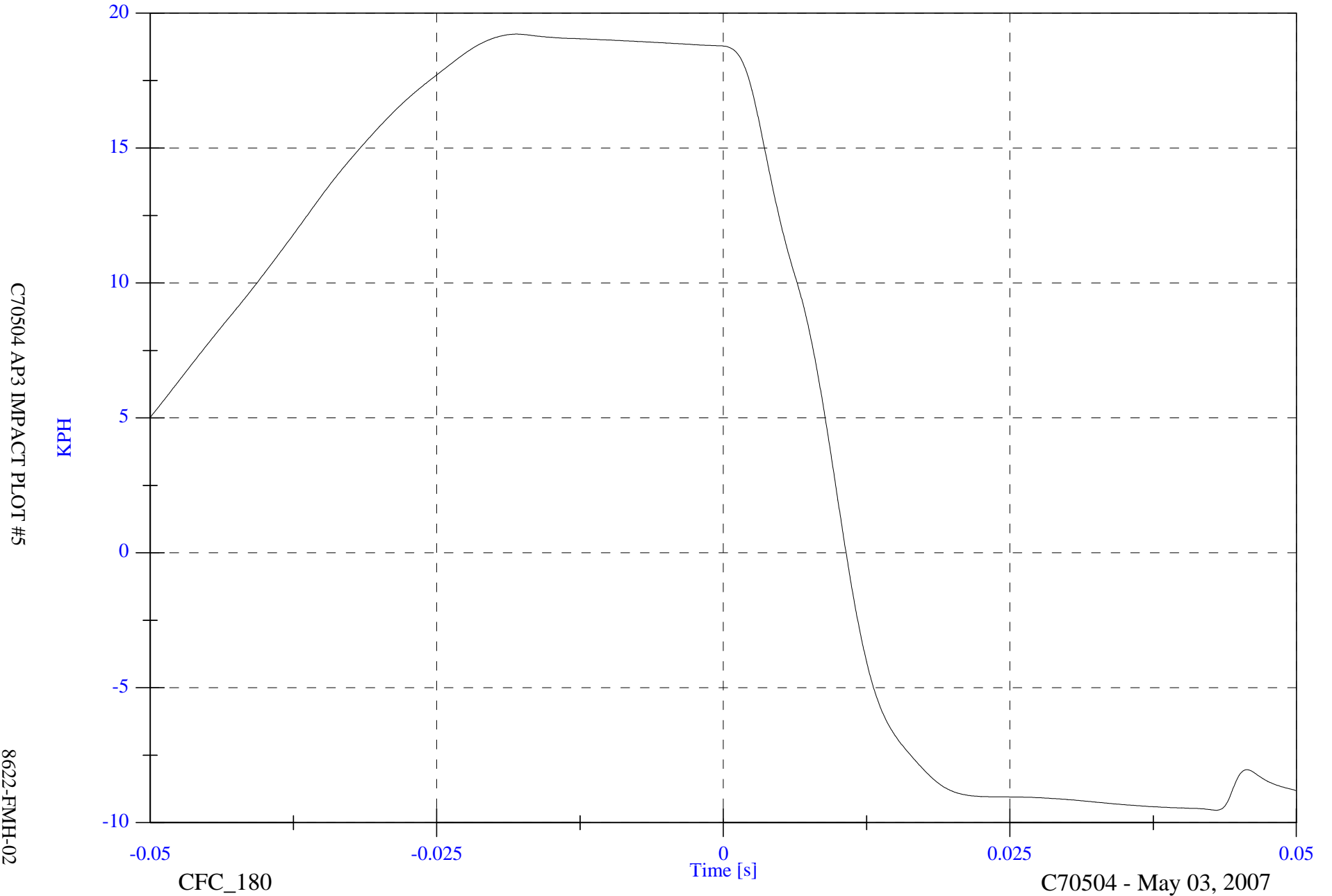


FMVSS 201U 2007 Hyundai Entourage

Max: 19.2 [KPH] at -0.018 [s]

Min: -9.5 [KPH] at 0.043 [s]

Headform Velocity

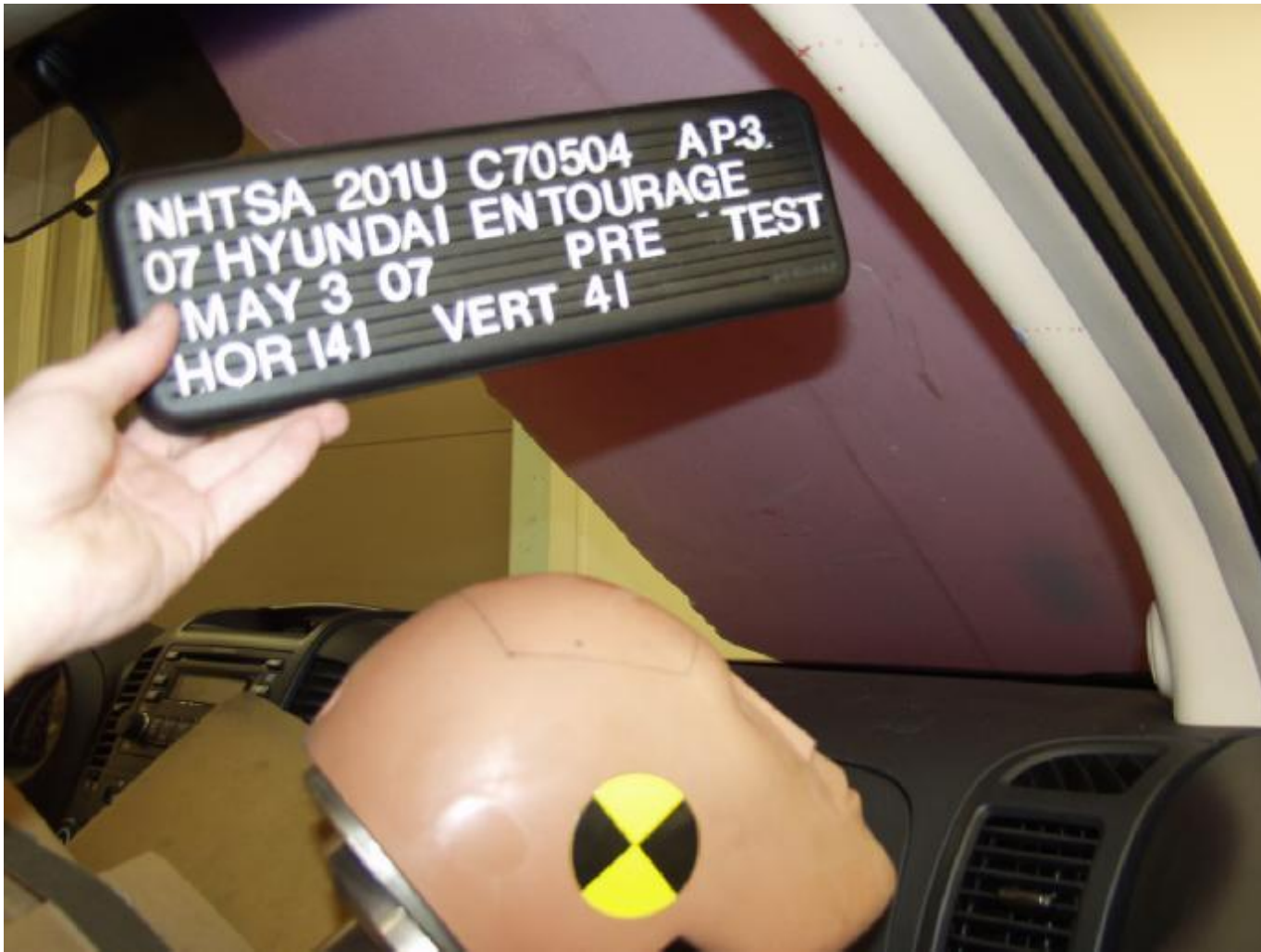


C70504 AP3 IMPACT PLOT #5

8622-FMH-02

CFC_180

C70504 - May 03, 2007



PRE-IMPACT AP3



POST-IMPACT AP3

VEHICLE YEAR/MAKE/MODEL/STYLE:	2007 Hyundai Entourage GLS
VIN:	KNDMC233776011787
DATE OF MANUFACTURE:	02/06 (SEE CERTIFICATION LABEL)
COLOR:	Gold

Test Number:	09
Test Date:	05/04/07
Target Location:	A-PILLAR
Target Code:	AP1
Horizontal Impact Angle:	122°
Vertical Impact Angle:	42°
Ambient Temperature:	22.3 C°
Relative Humidity:	23.4
Time of Impact:	9:00
Headform Number:	0642

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	9				mm up



POST-IMPACT AP1 HEADFORM

Free Motion HIC	491.4
HIC(d)	537.2
Impact Velocity (kph)	18.76
HIC T1 (msec)	6.8
HIC T2 (msec)	12.1

FMVSS 201U 2007 Hyundai Entourage C70504 - AP1

FMH Headform 0642

Location: AP1

Test Date: May 04, 2007

Work File: AP1

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

Lab Temperature: 22.3 C

HICd: 537.2

Lab Humidity: 23.4 %

HIC (36ms): 491.4

Velocity at Impact: 18.76 KPH

t1: 6.8 msec

t2: 12.1 msec

Free Flight Distance: 218.22 mm

Duration: 5.3 msec

Maximum: 125.9 g

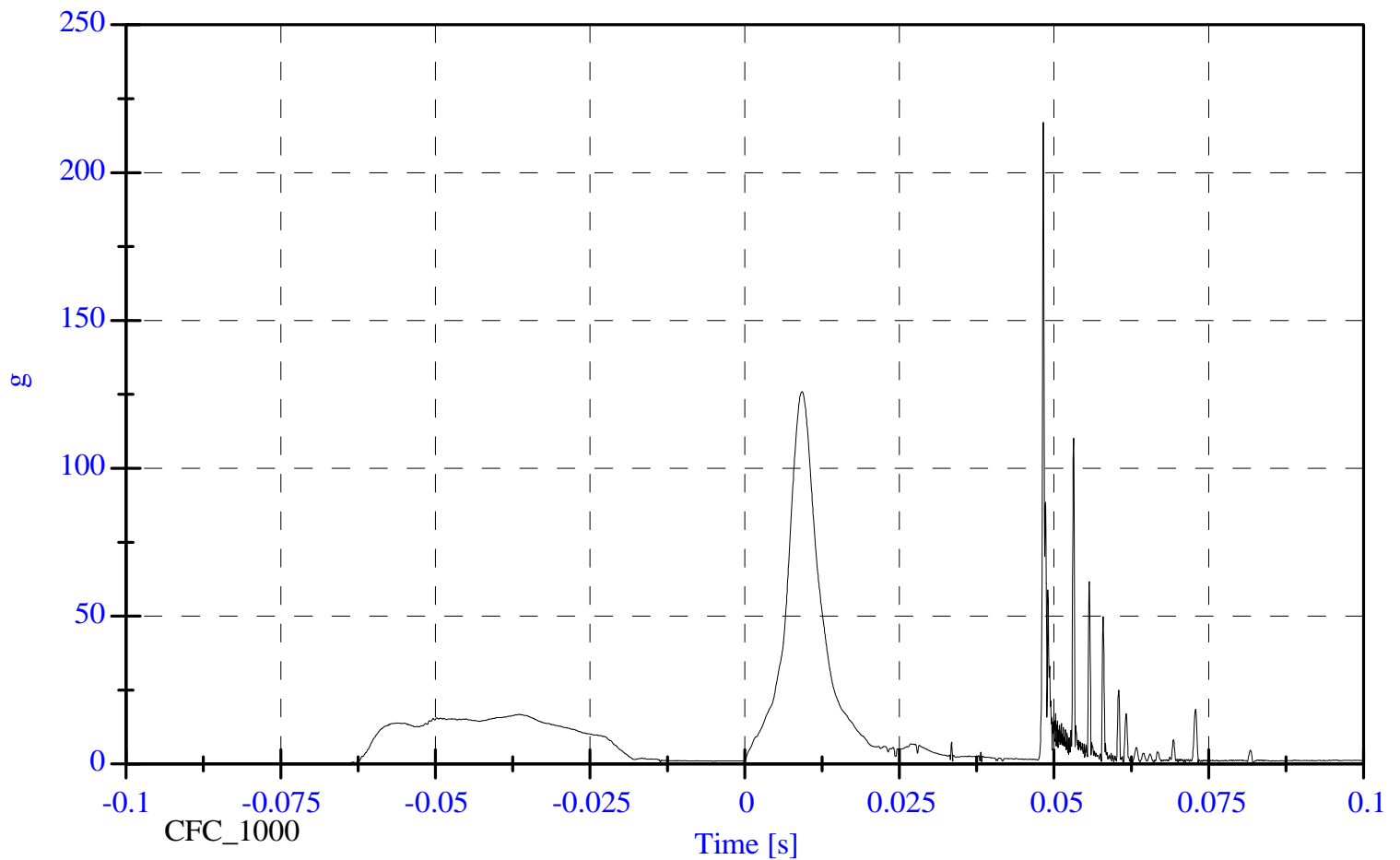
Average Acceleration: 9.1 g

FMVSS 201U 2007 Hyundai Entourage

Headform Resultant

Max: 125.9 [g] at 0.009 [s]

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



FMVSS 201U 2007 Hyundai Entourage

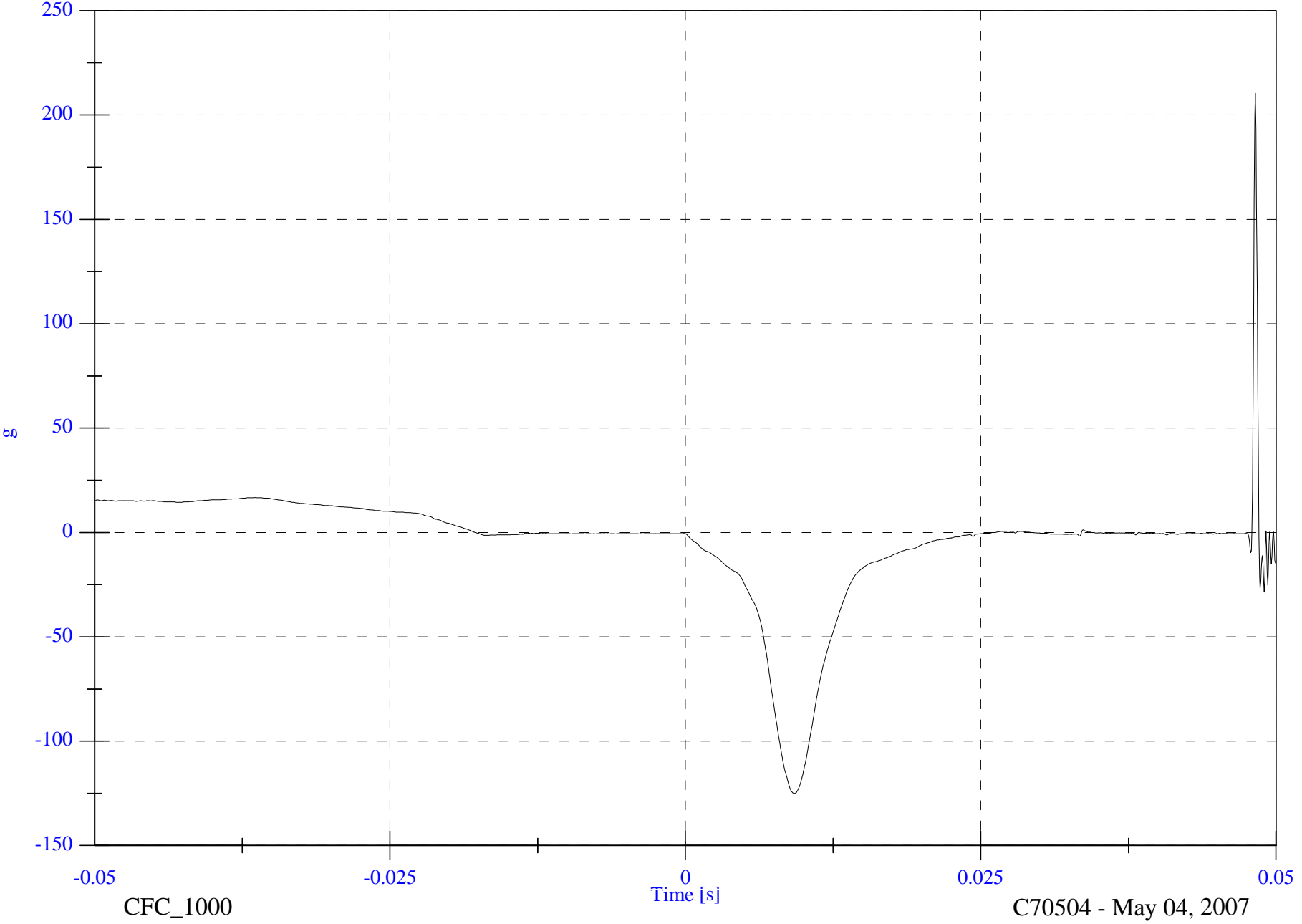
Headform X Acceleration

Max: 210.4 [g] at 0.048 [s]

Min: -125.0 [g] at 0.009 [s]

C70504 AP1 IMPACT PLOT #1

8826-FMH-02



CFC_1000

C70504 - May 04, 2007

FMVSS 201U 2007 Hyundai Entourage

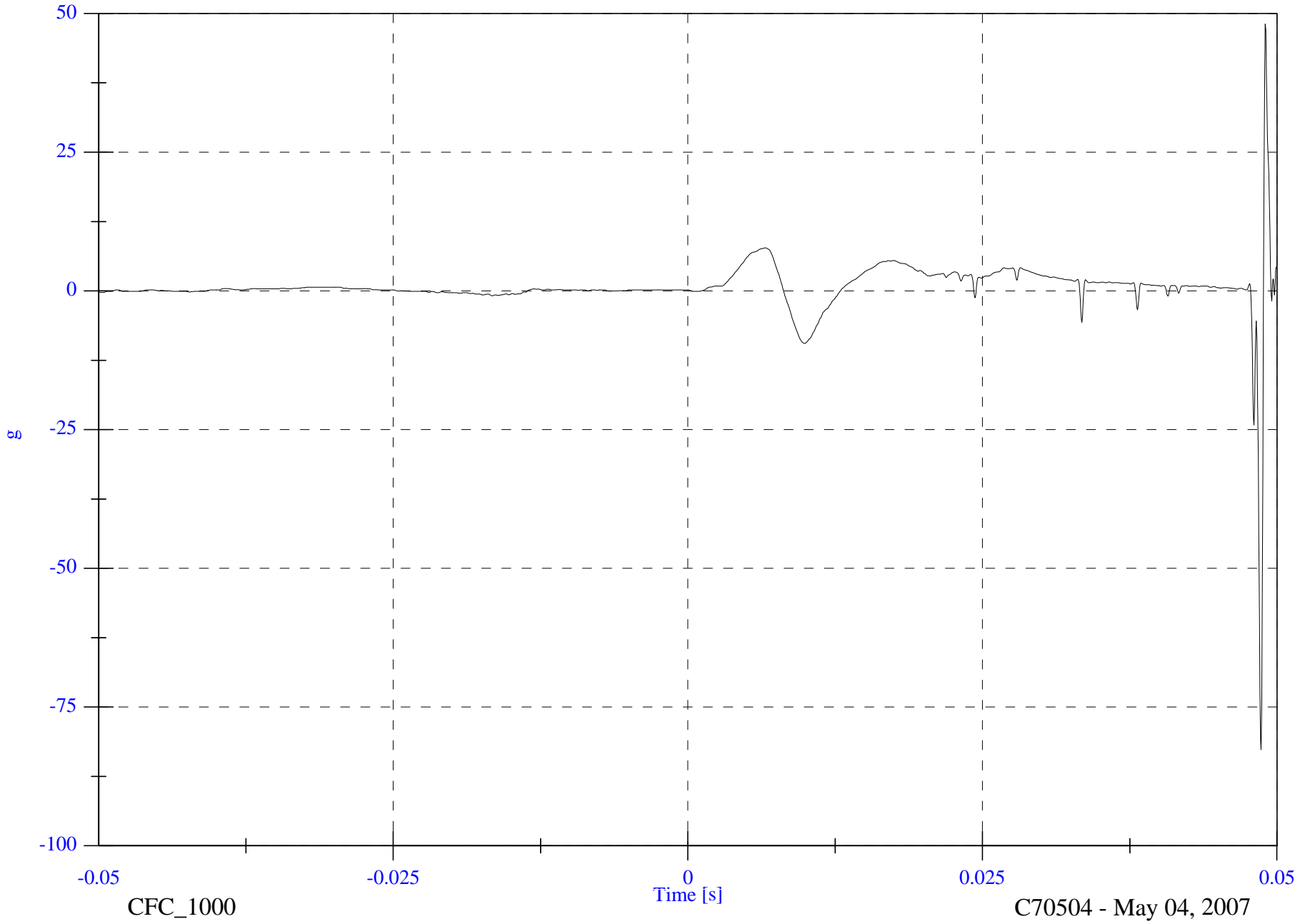
Headform Y Acceleration

Max: 48.1 [g] at 0.049 [s]

Min: -82.7 [g] at 0.049 [s]

C70504 AP1 IMPACT PLOT #2

8826-FMH-02



CFC_1000

C70504 - May 04, 2007

FMVSS 201U 2007 Hyundai Entourage

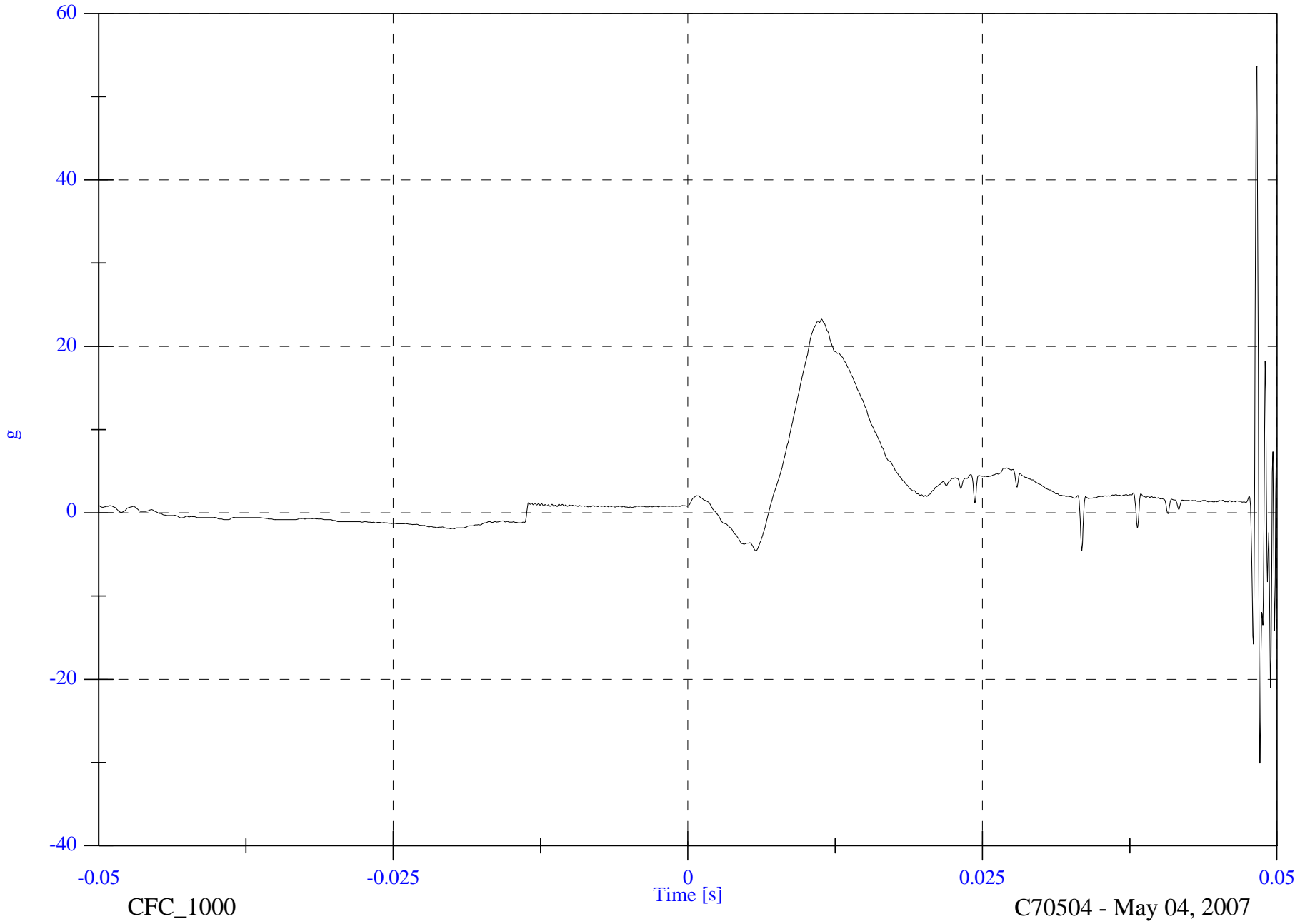
Headform Z Acceleration

Max: 53.7 [g] at 0.048 [s]

Min: -30.1 [g] at 0.049 [s]

C70504 AP1 IMPACT PLOT #3

8826-FMH-02



FMVSS 201U 2007 Hyundai Entourage

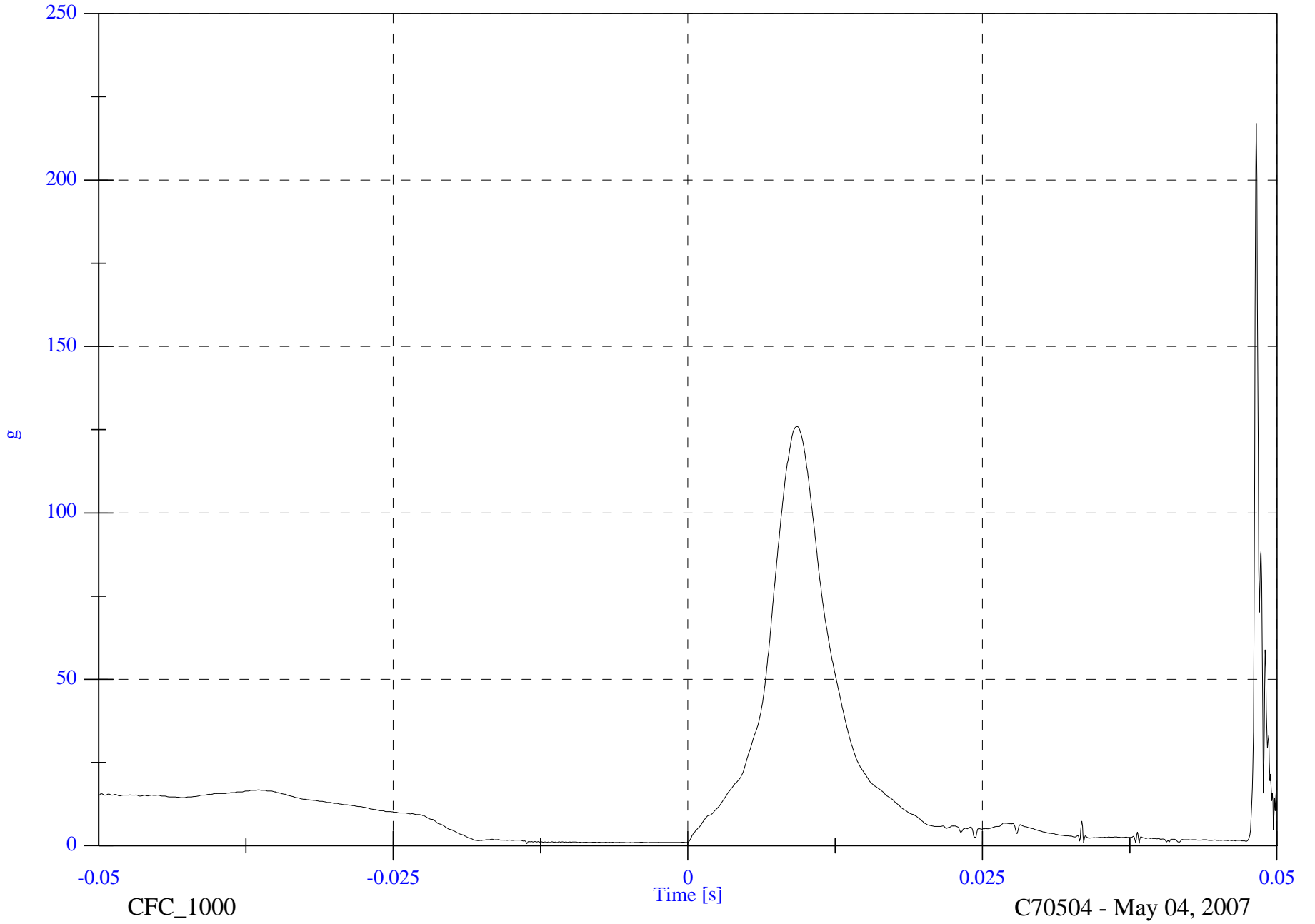
Headform Resultant

Max: 217.0 [g] at 0.048 [s]

Min: 0.6 [g] at -0.014 [s]

C70504 AP1 IMPACT PLOT #4

8826-FMH-02



CFC_1000

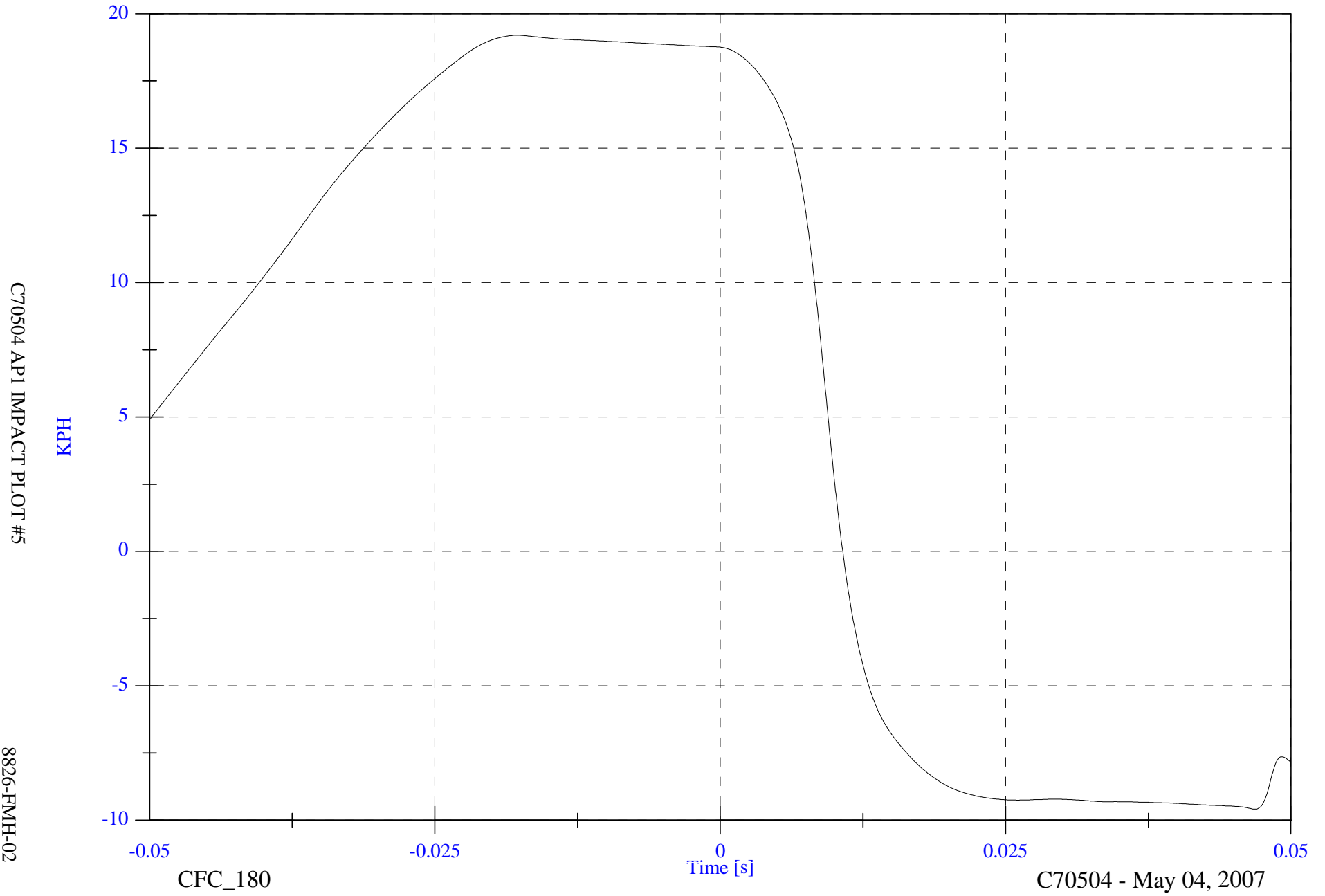
C70504 - May 04, 2007

FMVSS 201U 2007 Hyundai Entourage

Max: 19.2 [KPH] at -0.018 [s]

Min: -9.6 [KPH] at 0.047 [s]

Headform Velocity



C70504 AP1 IMPACT PLOT #5

8826-FMH-02

CFC_180

C70504 - May 04, 2007



PRE-IMPACT API



POST-IMPACT API

VEHICLE YEAR/MAKE/MODEL/STYLE:	2007 Hyundai Entourage GLS
VIN:	KNDMC233776011787
DATE OF MANUFACTURE:	02/06 (SEE CERTIFICATION LABEL)
COLOR:	Gold

Test Number:	10
Test Date:	05/04/07
Target Location:	A-PILLAR
Target Code:	AP2
Horizontal Impact Angle:	208°
Vertical Impact Angle:	41°
Ambient Temperature:	21.0 C°
Relative Humidity:	24.7
Time of Impact:	11:30
Headform Number:	0805

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	0	mm right	mm left
On Centerline	10	mm up	



POST-IMPACT AP2 HEADFORM

Free Motion HIC	363.0
HIC(d)	440.0
Impact Velocity (kph)	18.73
HIC T1 (msec)	6.3
HIC T2 (msec)	11.1

FMVSS 201U 2007 Hyundai Entourage C70504 - AP2

FMH Headform 0805

Location: AP2

Test Date: May 04, 2007

Work File: AP2

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

Lab Temperature: 21.0 C

HICd: 440.3

Lab Humidity: 24.7 %

HIC (36ms): 363.0

Velocity at Impact: 18.73 KPH

t1: 6.3 msec

t2: 11.1 msec

Free Flight Distance: 218.35 mm

Duration: 4.8 msec

Maximum: 116.4 g

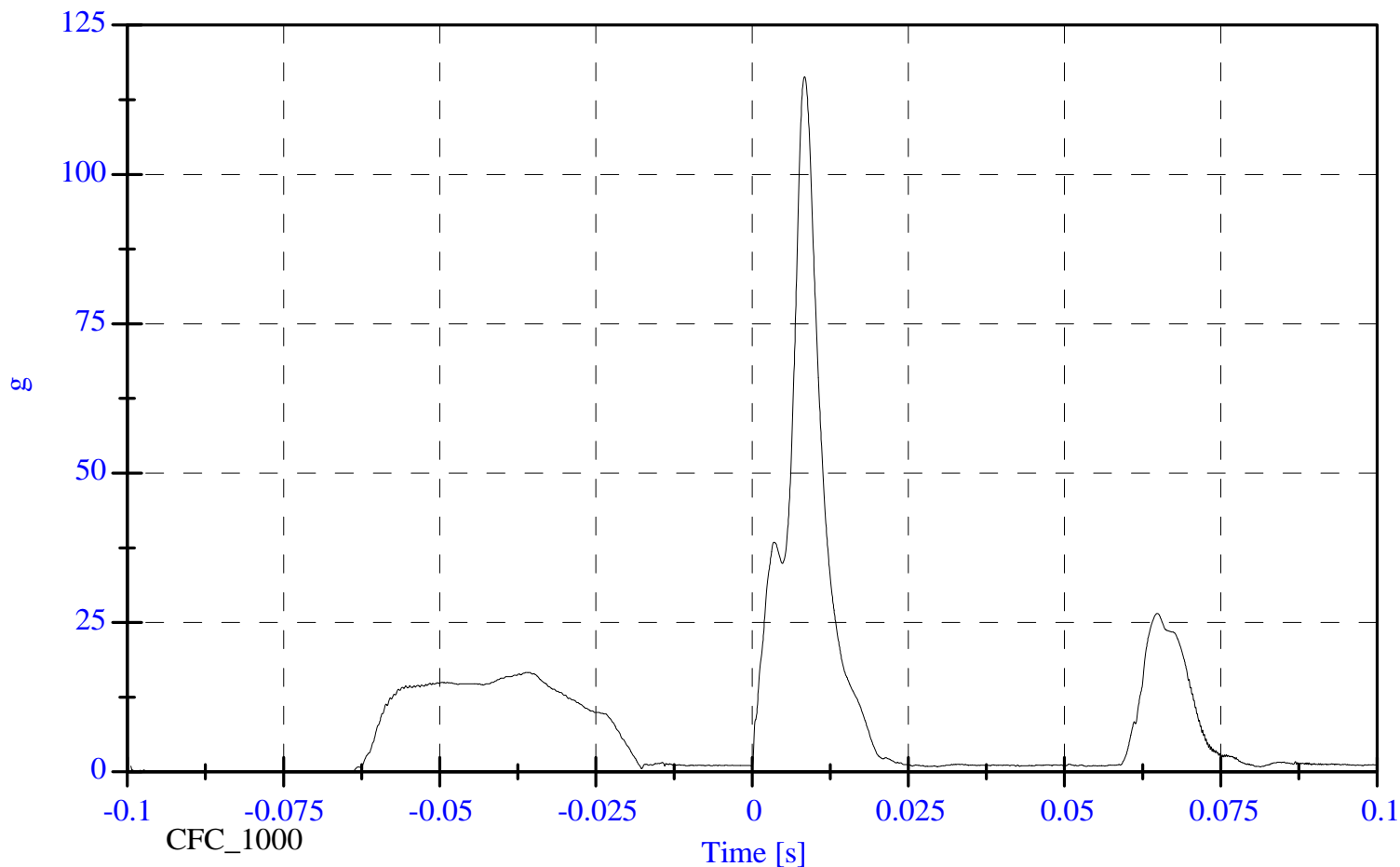
Average Acceleration: 8.3 g

FMVSS 201U 2007 Hyundai Entourage

Headform Resultant

Max: 116.4 [g] at 0.008 [s]

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



FMVSS 201U 2007 Hyundai Entourage

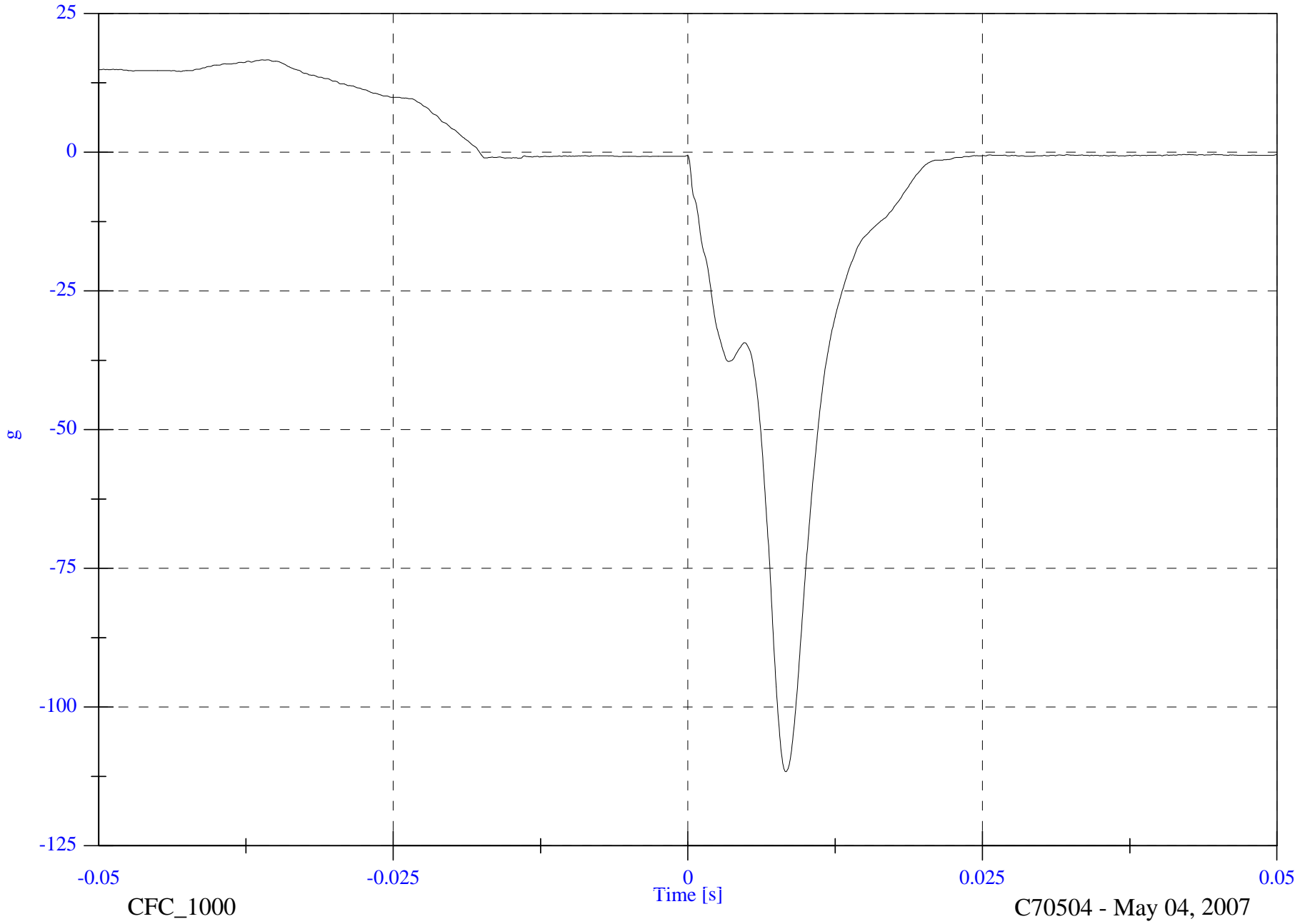
Headform X Acceleration

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

Min: -111.6 [g] at 0.008 [s]

C70504 AP2 IMPACT PLOT #1

8826-FMH-02



CFC_1000

C70504 - May 04, 2007

FMVSS 201U 2007 Hyundai Entourage

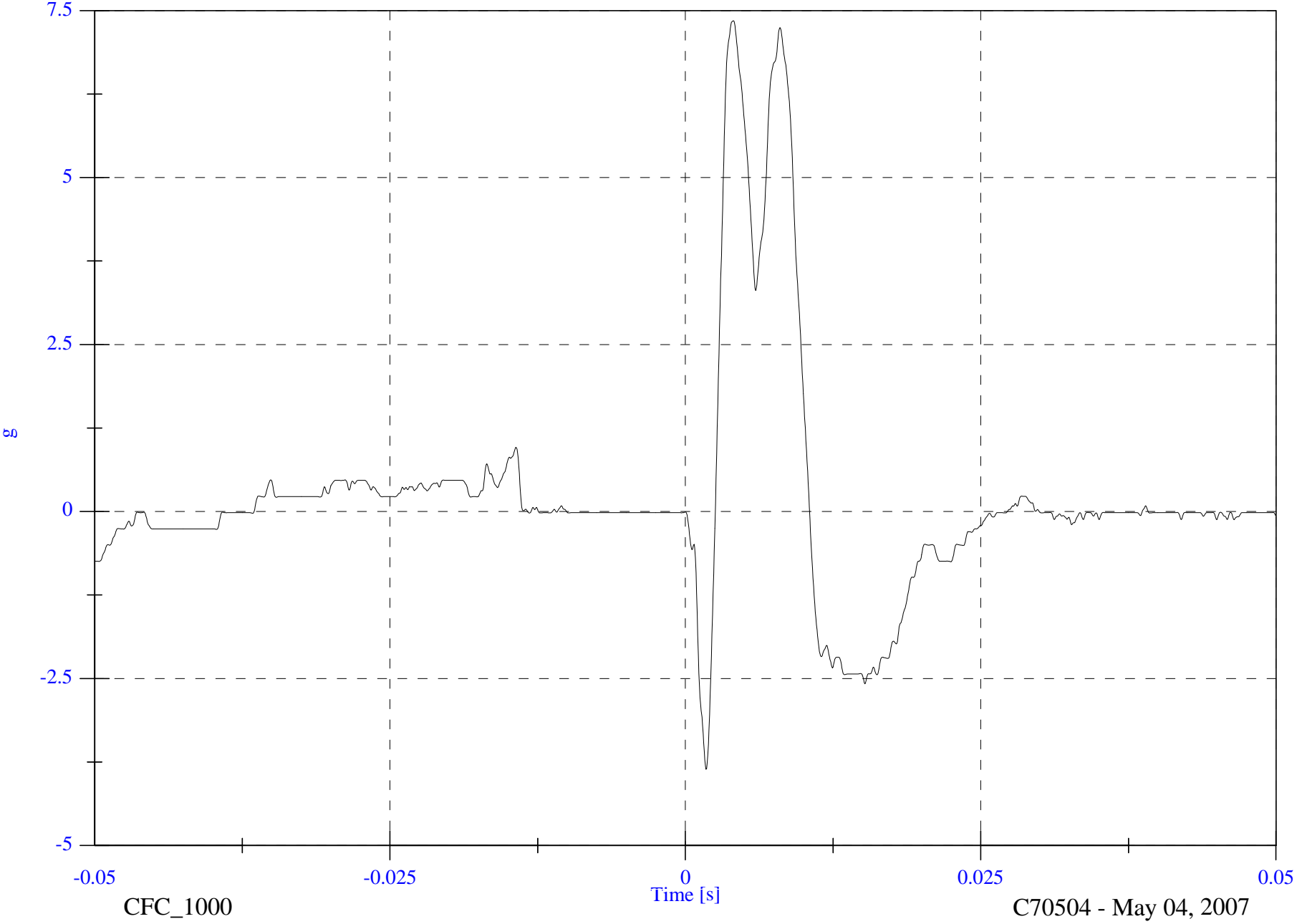
Headform Y Acceleration

Max: 7.3 [g] at 0.004 [s]

Min: -3.9 [g] at 0.002 [s]

C70504 AP2 IMPACT PLOT #2

8826-FMH-02



CFC_1000

C70504 - May 04, 2007

FMVSS 201U 2007 Hyundai Entourage

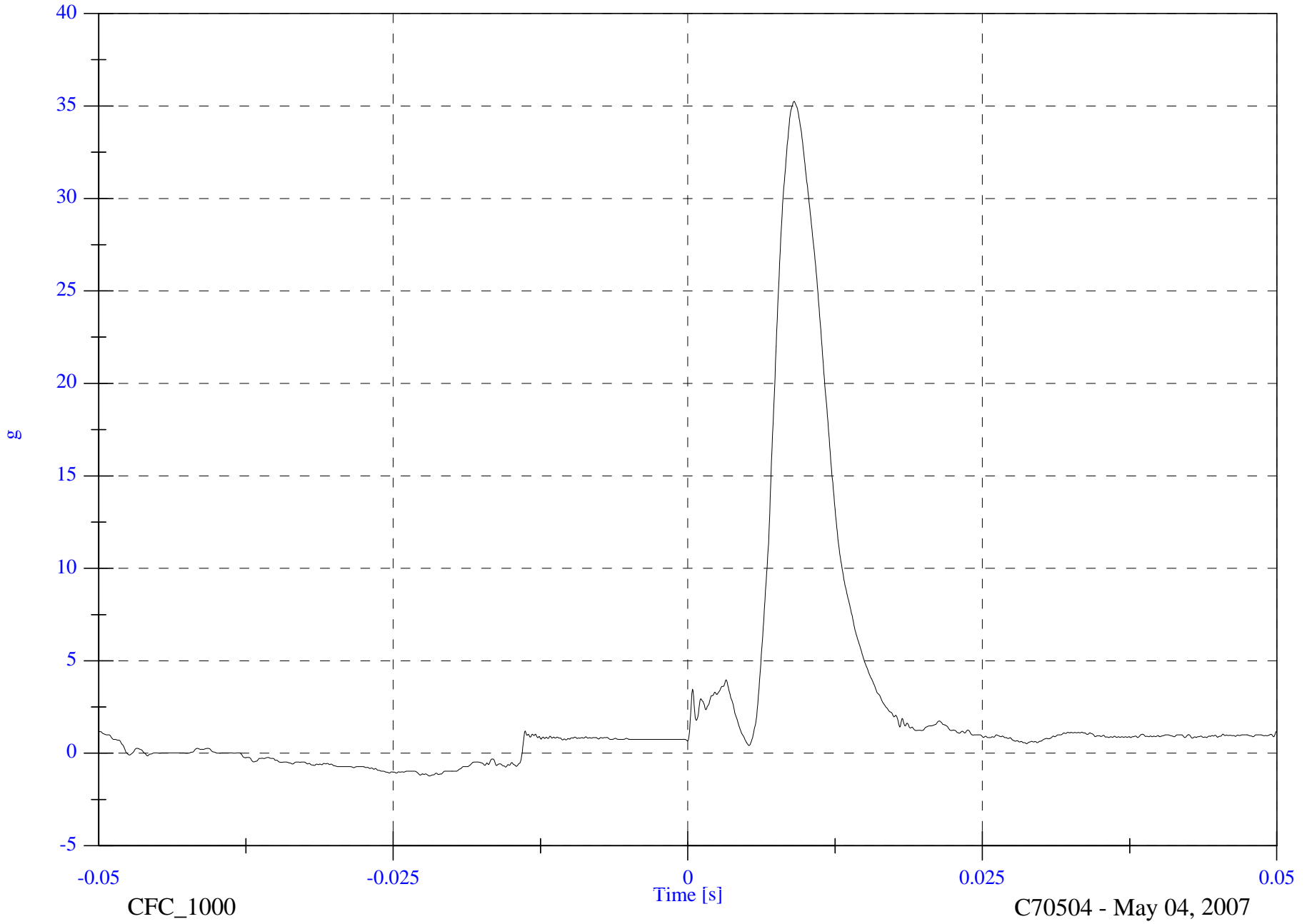
Headform Z Acceleration

Max: 35.2 [g] at 0.009 [s]

Min: -1.2 [g] at -0.022 [s]

C70504 AP2 IMPACT PLOT #3

8826-FMH-02



CFC_1000

C70504 - May 04, 2007

FMVSS 201U 2007 Hyundai Entourage

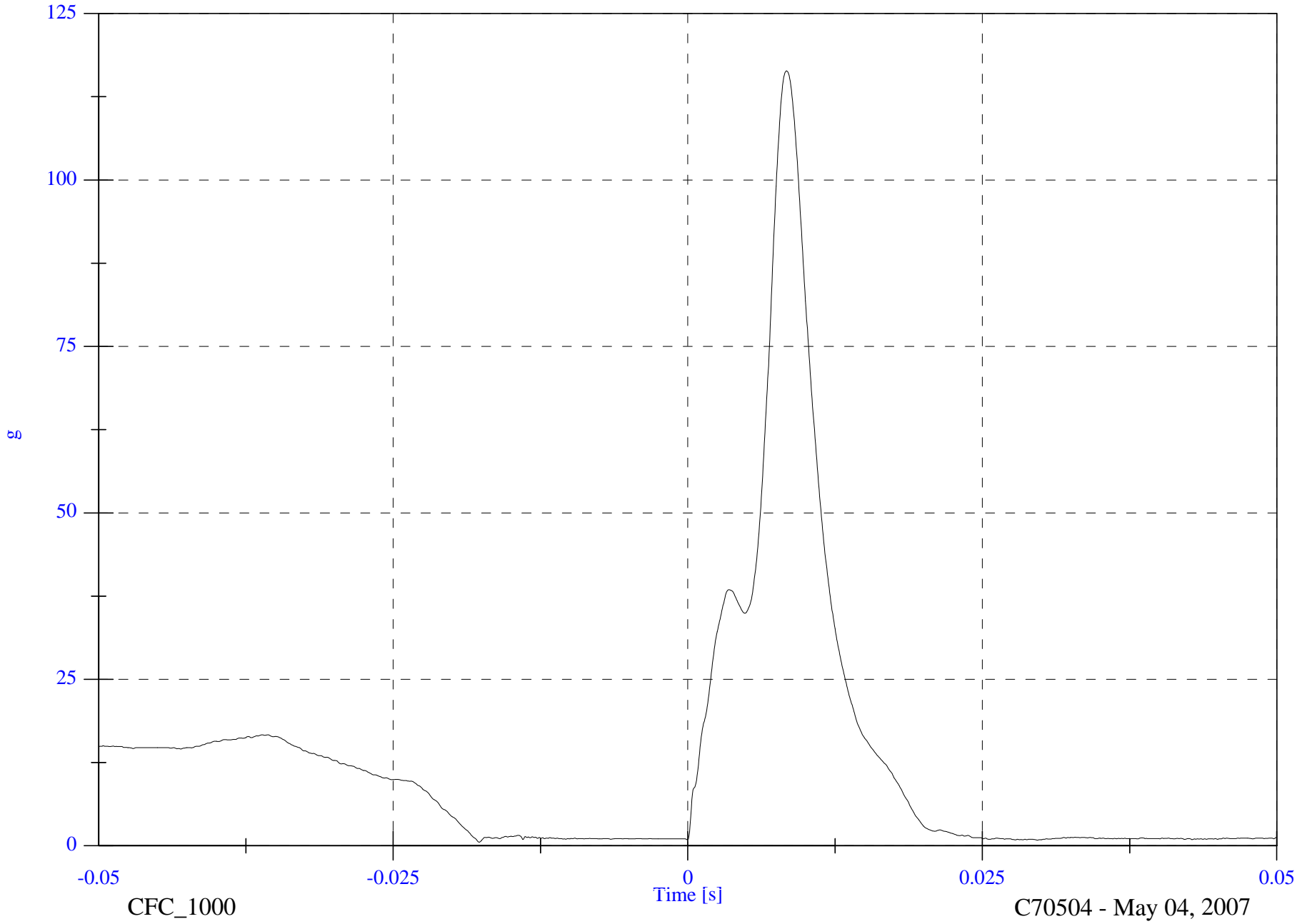
Headform Resultant

Max: 116.4 [g] at 0.008 [s]

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

C70504 AP2 IMPACT PLOT #4

8826-FMH-02



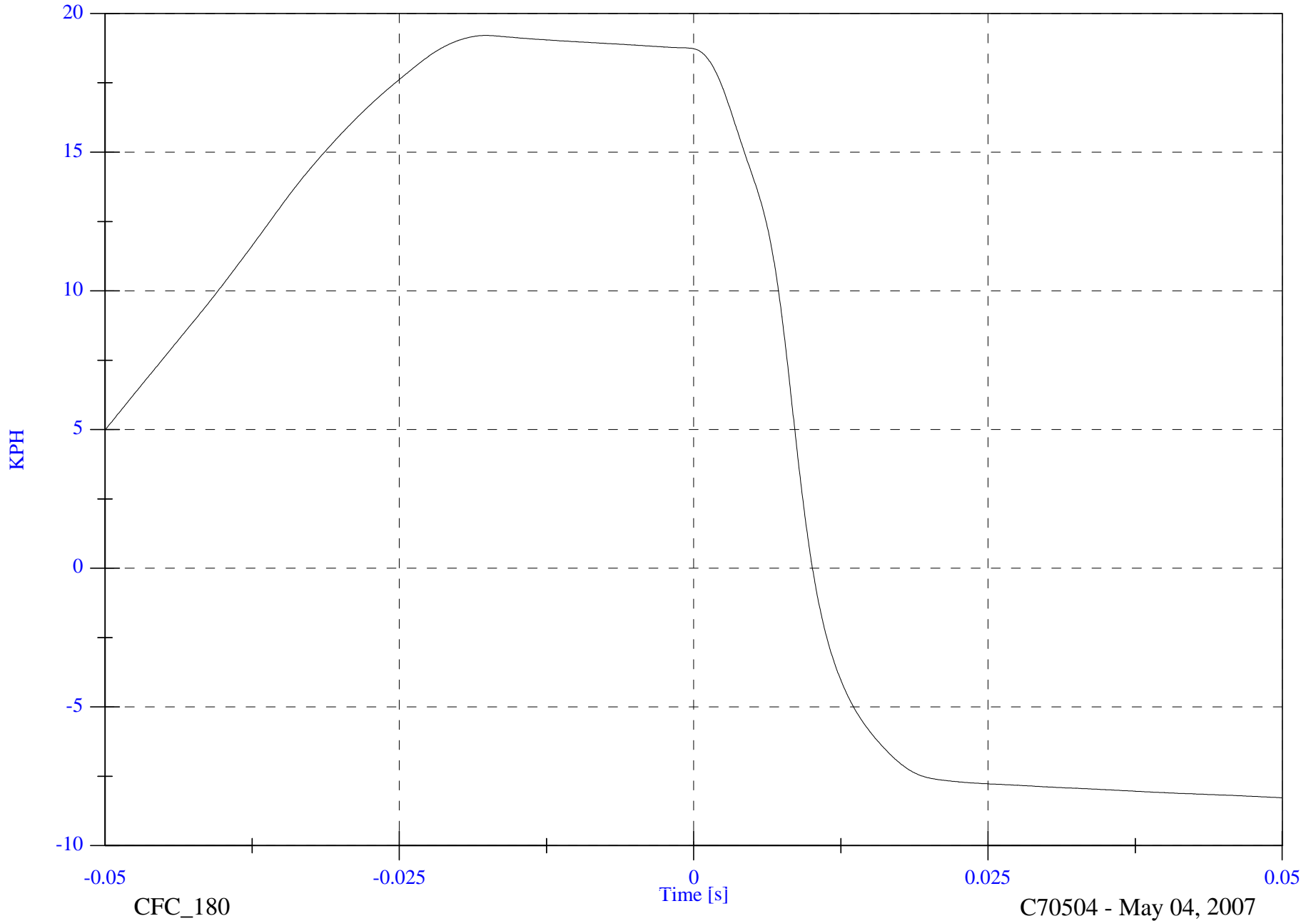
CFC_1000

C70504 - May 04, 2007

FMVSS 201U 2007 Hyundai Entourage

Max: 19.2 [KPH] at -0.018 [s]
Min: -8.3 [KPH] at 0.050 [s]

Headform Velocity



C70504 AP2 IMPACT PLOT #5

8826-FMH-02

CFC_180

C70504 - May 04, 2007



PRE-IMPACT AP2



POST-IMPACT AP2

VEHICLE YEAR/MAKE/MODEL/STYLE:	2007 Hyundai Entourage GLS
VIN:	KNDMC233776011787
DATE OF MANUFACTURE:	02/06 (SEE CERTIFICATION LABEL)
COLOR:	Gold

Test Number:	11
Test Date:	05/04/07
Target Location:	B-PILLAR
Target Code:	BP2
Horizontal Impact Angle:	270°
Vertical Impact Angle:	10°
Ambient Temperature:	21.2 C°
Relative Humidity:	24.9
Time of Impact:	12:00
Headform Number:	1255

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	9	<input type="checkbox"/>	mm right <input checked="" type="checkbox"/> mm left
On Centerline	21		mm up



POST-IMPACT BP2HEADFORM

Free Motion HIC	650.6
HIC(d)	657.2
Impact Velocity (kph)	23.59
HIC T1 (msec)	4.0
HIC T2 (msec)	11.8

FMVSS 201U 2007 Hyundai Entourage C70504 - BP2

FMH Headform 1255

Location: BP2

Test Date: May 04, 2007

Work File: BP2

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

Lab Temperature: 21.2 C

HICd: 657.2

Lab Humidity: 24.9 %

HIC (36ms): 650.6

Velocity at Impact: 23.59 KPH

t1: 4.0 msec

t2: 11.8 msec

Free Flight Distance: 220.88 mm

Duration: 7.8 msec

Maximum: 116.5 g

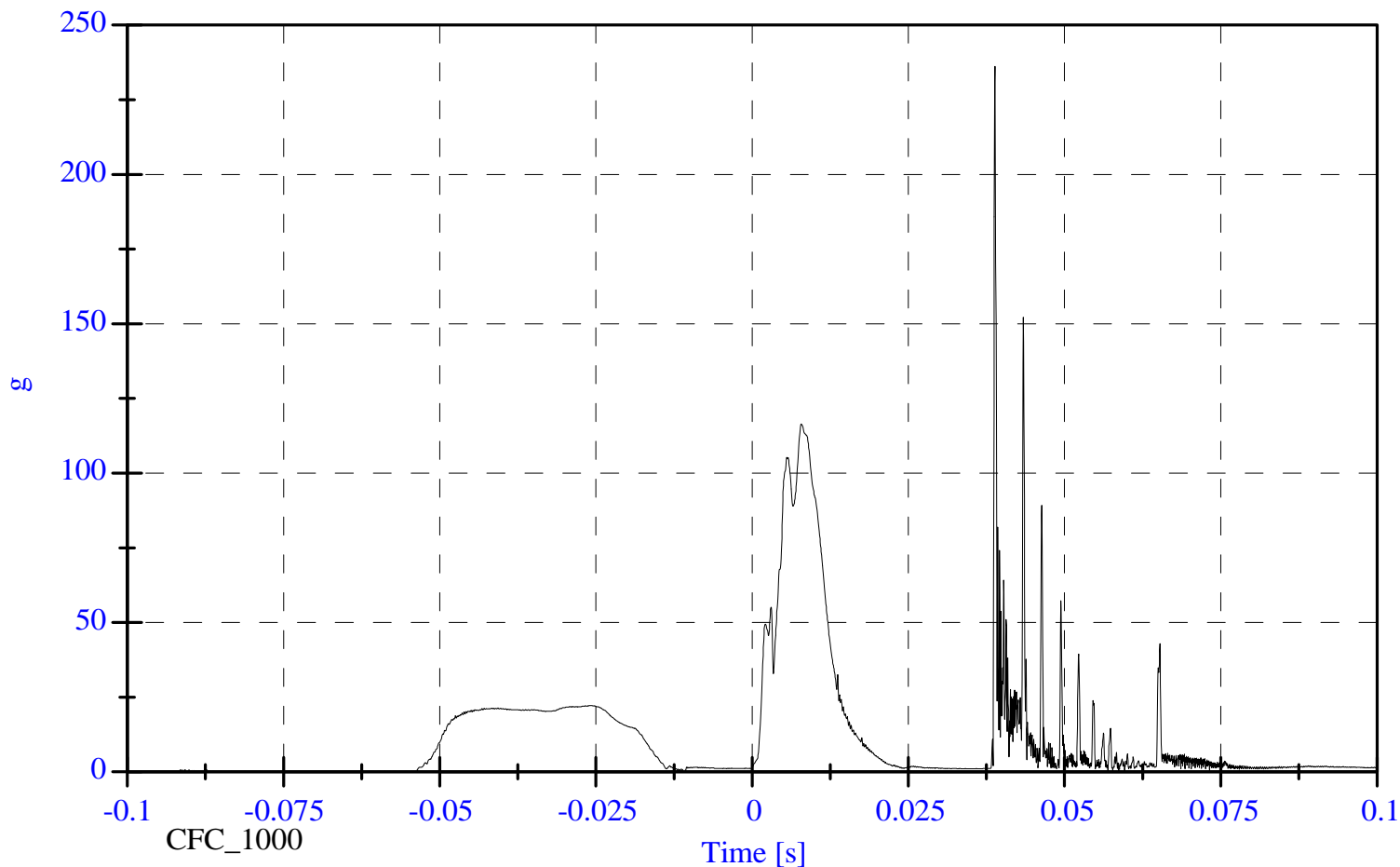
Average Acceleration: 11.2 g

FMVSS 201U 2007 Hyundai Entourage

Headform Resultant

Max: 116.5 [g] at 0.008 [s]

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



FMVSS 201U 2007 Hyundai Entourage

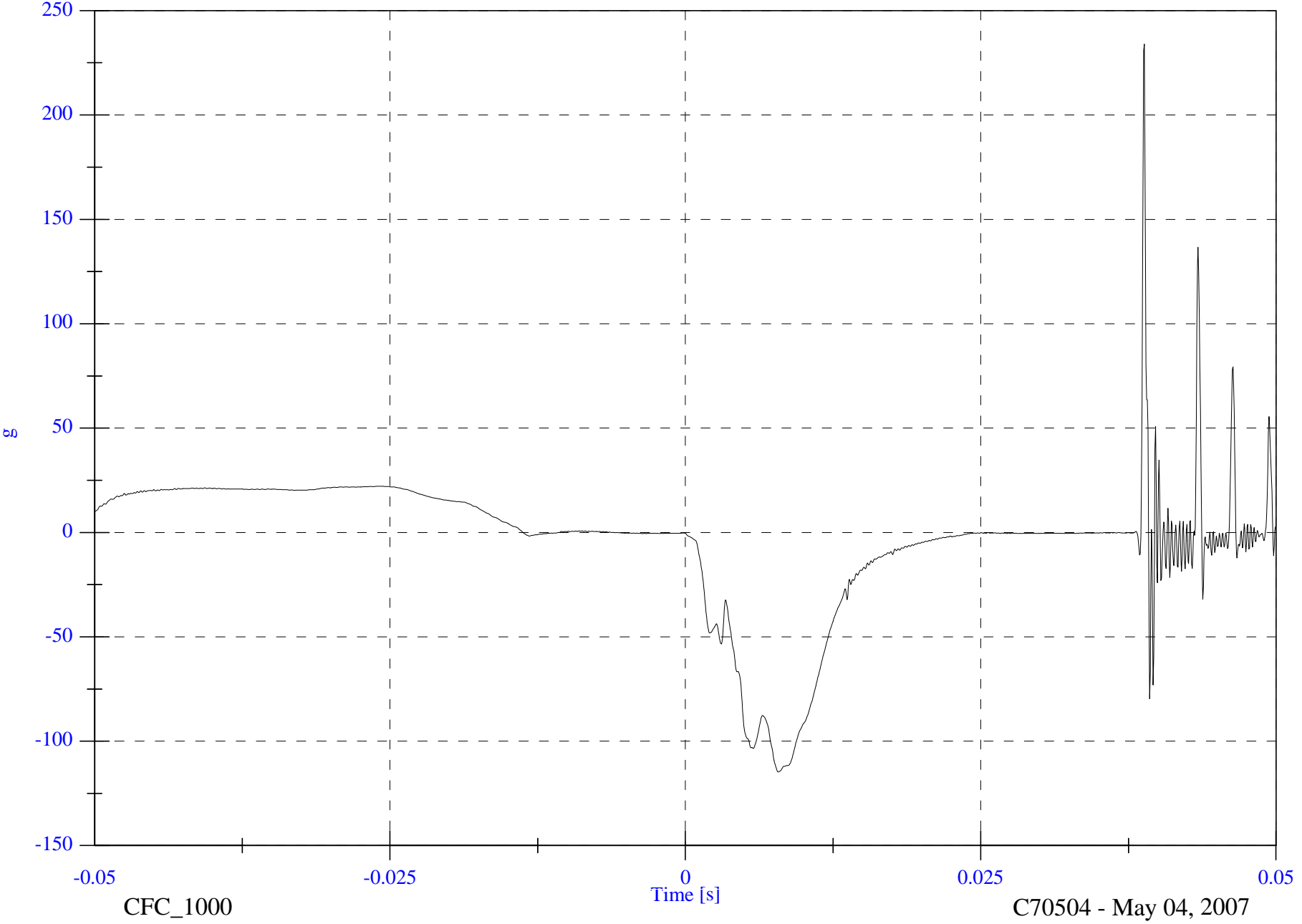
Headform X Acceleration

Max: 234.0 [g] at 0.039 [s]

Min: -114.8 [g] at 0.008 [s]

C70504 BP2 IMPACT PLOT #1

8826-FMH-02



CFC_1000

C70504 - May 04, 2007

FMVSS 201U 2007 Hyundai Entourage

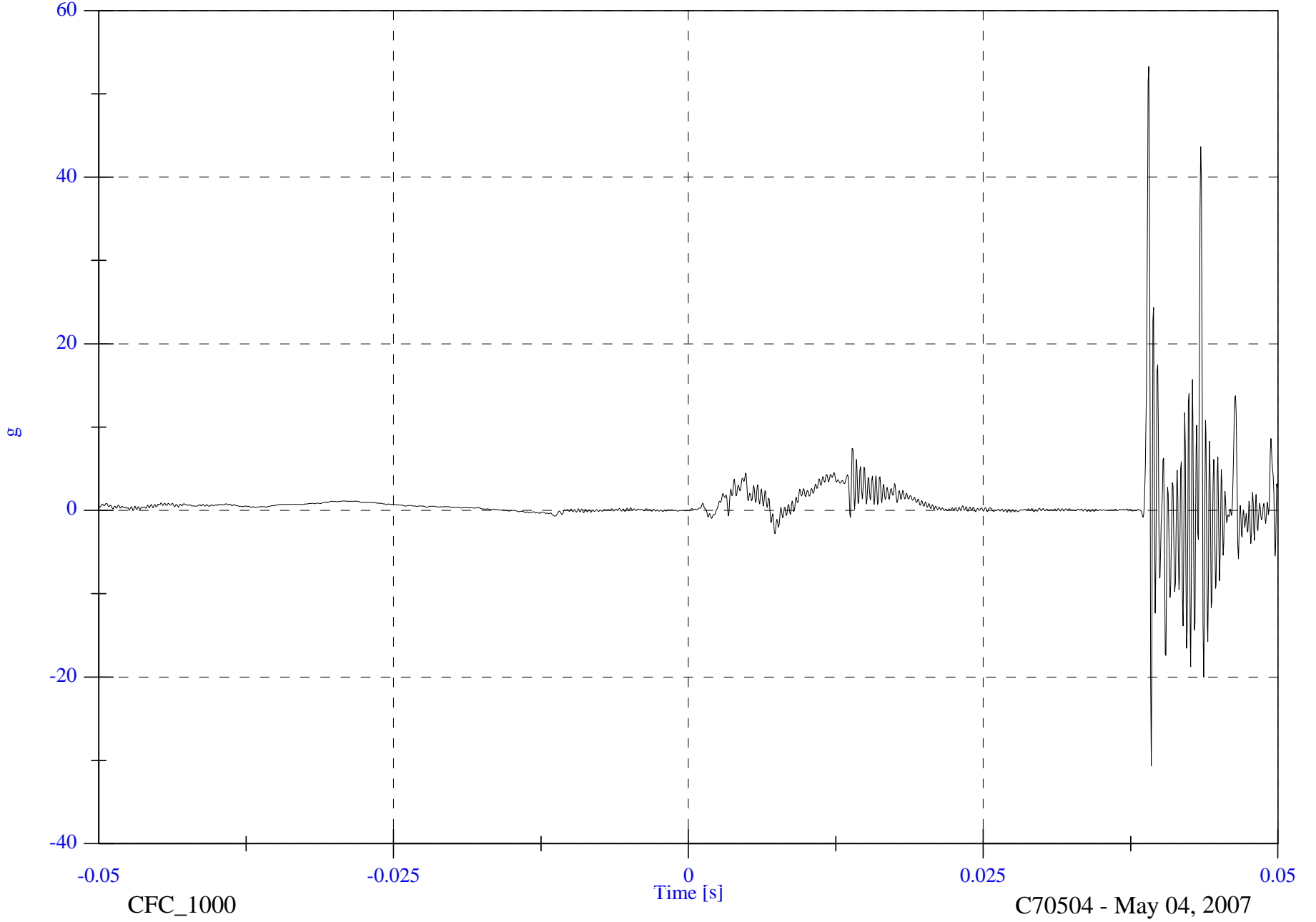
Headform Y Acceleration

Max: 53.3 [g] at 0.039 [s]

Min: -30.7 [g] at 0.039 [s]

C70504 BP2 IMPACT PLOT #2

8826-FMH-02



CFC_1000

C70504 - May 04, 2007

FMVSS 201U 2007 Hyundai Entourage

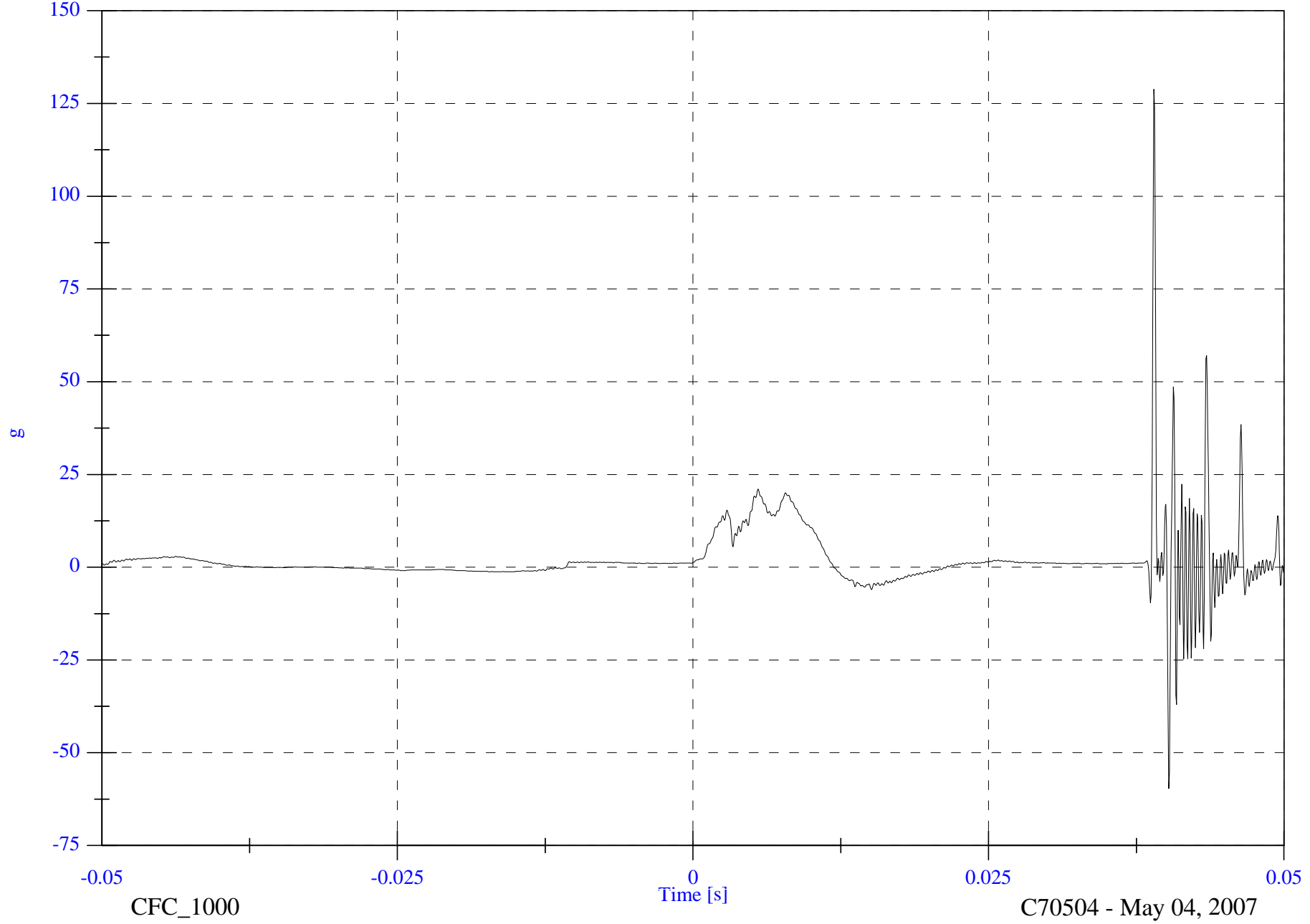
Headform Z Acceleration

Max: 128.8 [g] at 0.039 [s]

Min: -59.7 [g] at 0.040 [s]

C70504 BP2 IMPACT PLOT #3

8826-FMH-02



CFC_1000

C70504 - May 04, 2007

FMVSS 201U 2007 Hyundai Entourage

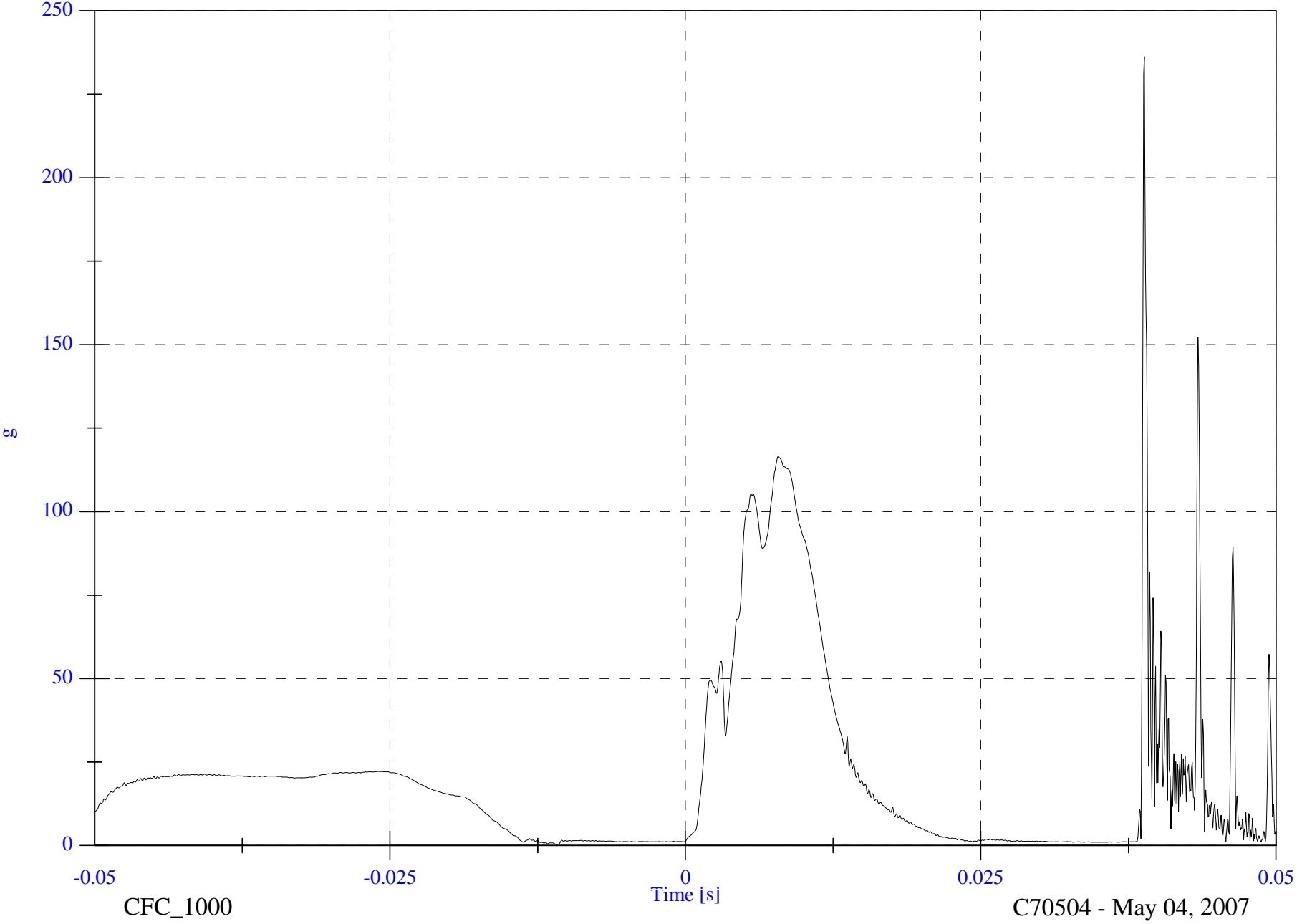
Headform Resultant

Max: 236.2 [g] at 0.039 [s]

Min: 0.3 [g] at -0.011 [s]

C70504 BP2 IMPACT PLOT #4

8826-FMH-02



CFC_1000

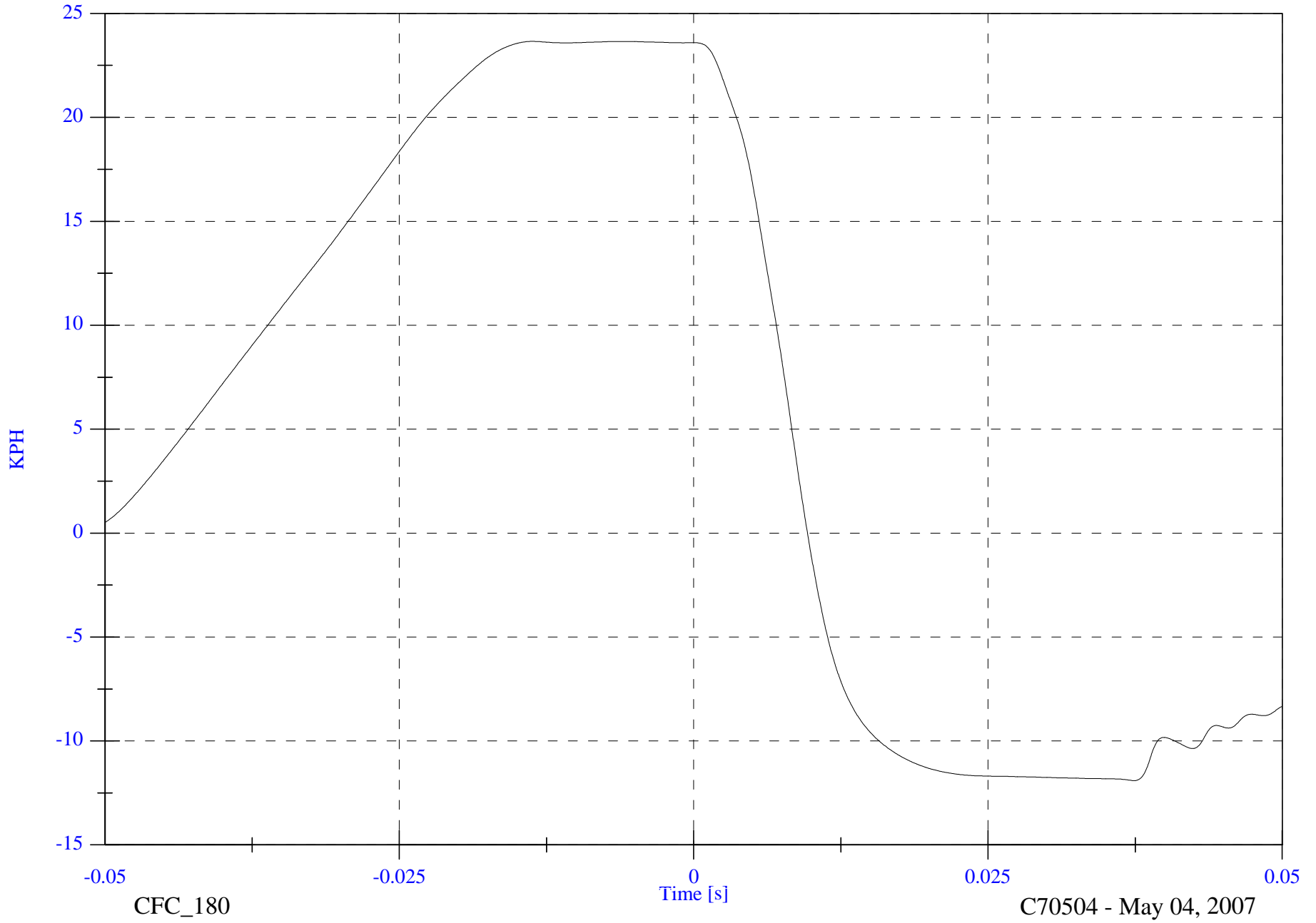
C70504 - May 04, 2007

FMVSS 201U 2007 Hyundai Entourage

Max: 23.7 [KPH] at -0.014 [s]

Min: -11.9 [KPH] at 0.037 [s]

Headform Velocity



C70504 BP2 IMPACT PLOT #5

8826-FMH-02

CFC_180

C70504 - May 04, 2007



PRE-IMPACT BP2



POST-IMPACT BP2

VEHICLE YEAR/MAKE/MODEL/STYLE:	2007 Hyundai Entourage GLS
VIN:	KNDMC233776011787
DATE OF MANUFACTURE:	02/06(SEE CERTIFICATION LABEL)
COLOR:	Gold

Test Number:	12
Test Date:	05/04/07
Target Location:	UPPER ROOF
Target Code:	URBP
Horizontal Impact Angle:	270°
Vertical Impact Angle:	34°
Ambient Temperature:	22.4 C°
Relative Humidity:	25
Time of Impact:	13:30
Headform Number:	0062

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	15				mm up



POST-IMPACT URBP HEADFORM

Free Motion HIC	555.4
HIC(d)	585.4
Impact Velocity (kph)	23.63
HIC T1 (msec)	6.3
HIC T2 (msec)	10.4

FMVSS 201U 2007 Hyundai Entourage C70504 - URBP

FMH Headform 0062

Location: URBP

Test Date: May 04, 2007

Work File: URBP

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

Lab Temperature: 22.4 C

HICd: 585.4

Lab Humidity: 25.0 %

HIC (36ms): 555.4

Velocity at Impact: 23.63 KPH

t1: 6.3 msec

t2: 10.4 msec

Free Flight Distance: 222.69 mm

Duration: 4.1 msec

Maximum: 146.9 g

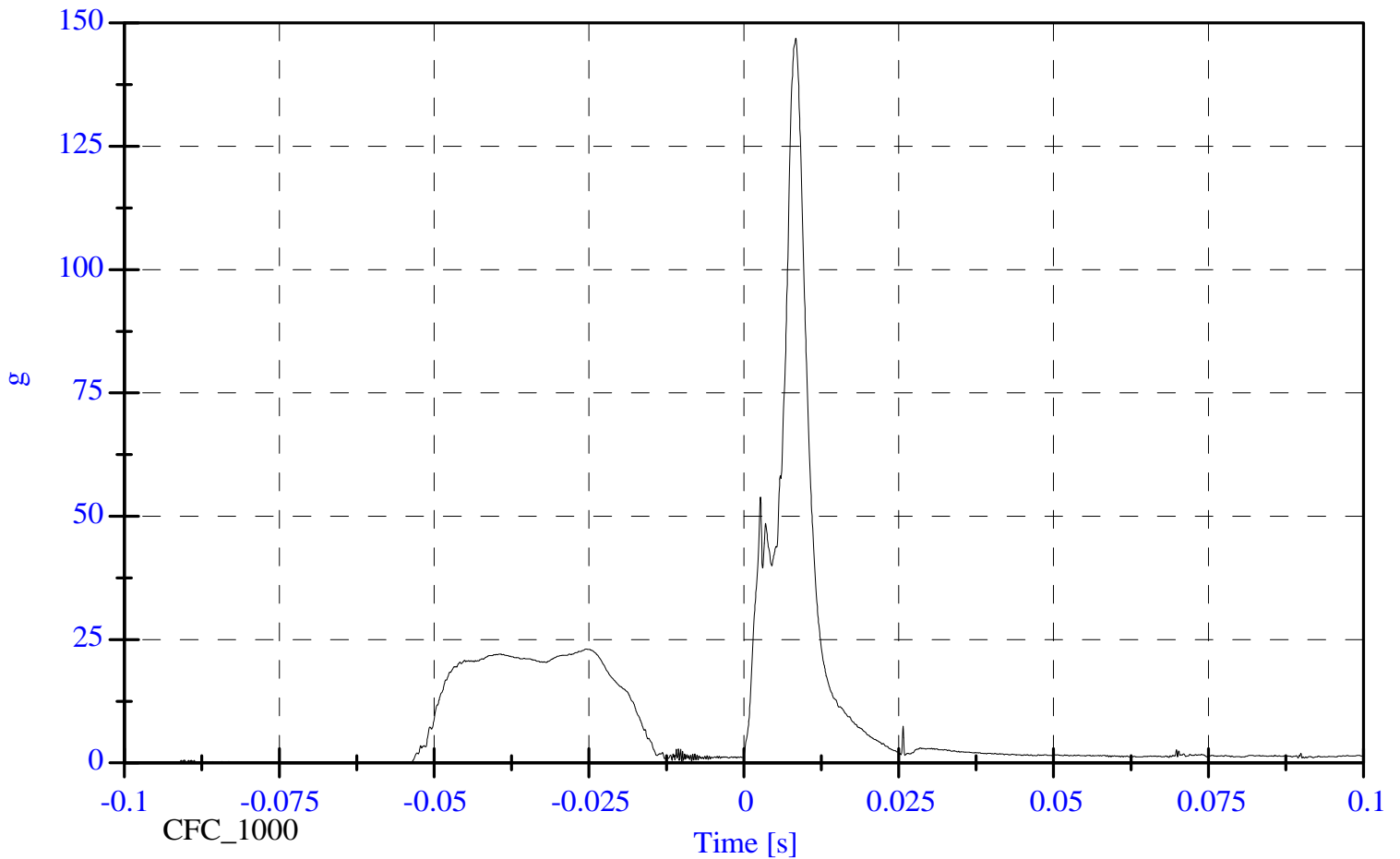
Average Acceleration: 8.6 g

FMVSS 201U 2007 Hyundai Entourage

Headform Resultant

Max: 146.9 [g] at 0.008 [s]

Min: 0.0 [g] at -0.071 [s]

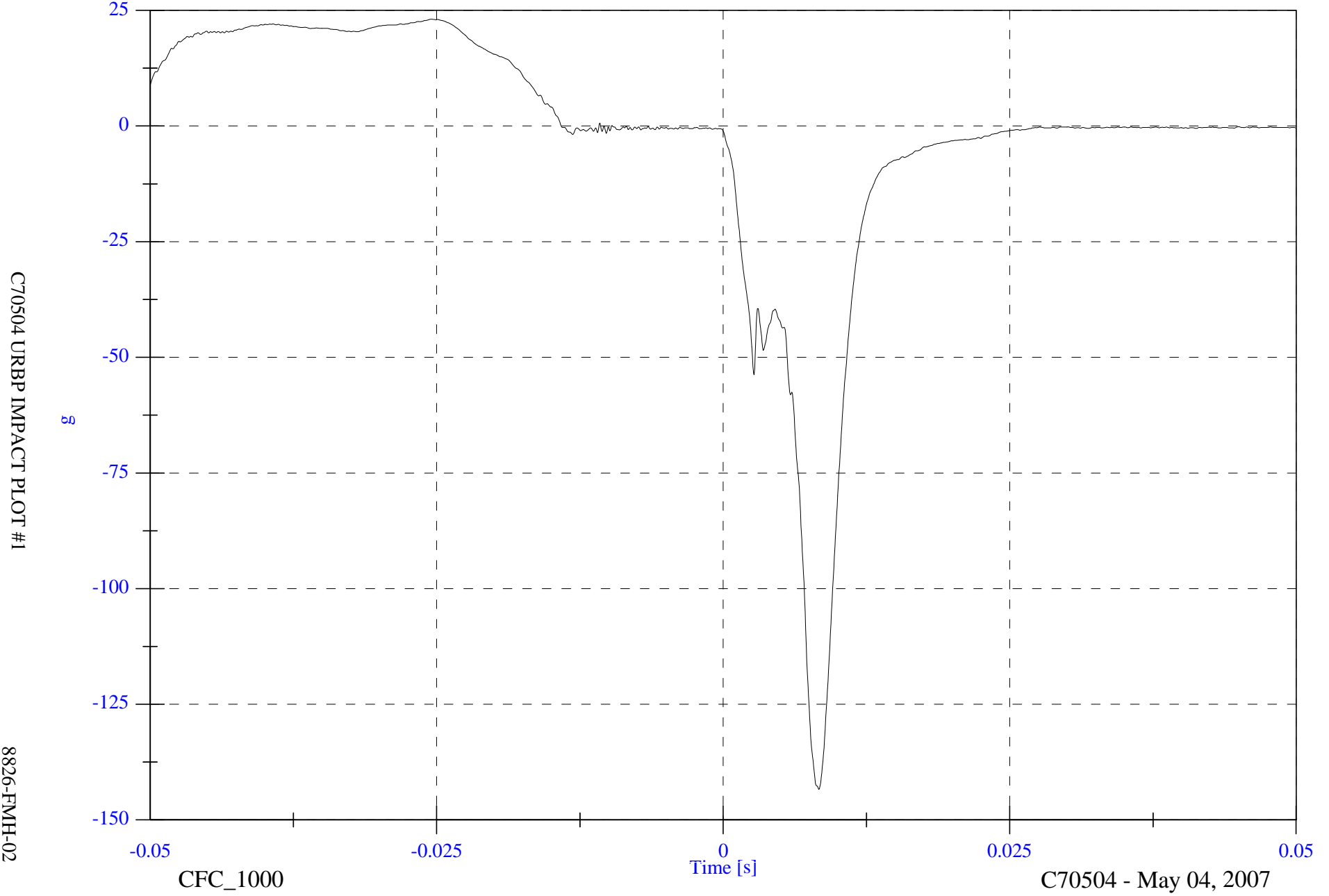


FMVSS 201U 2007 Hyundai Entourage

Headform X Acceleration

Max: 23.1 [g] at -0.025 [s]

Min: -143.4 [g] at 0.008 [s]



C70504 URBP IMPACT PLOT #1

8826-FMH-02

CFC_1000

C70504 - May 04, 2007

FMVSS 201U 2007 Hyundai Entourage

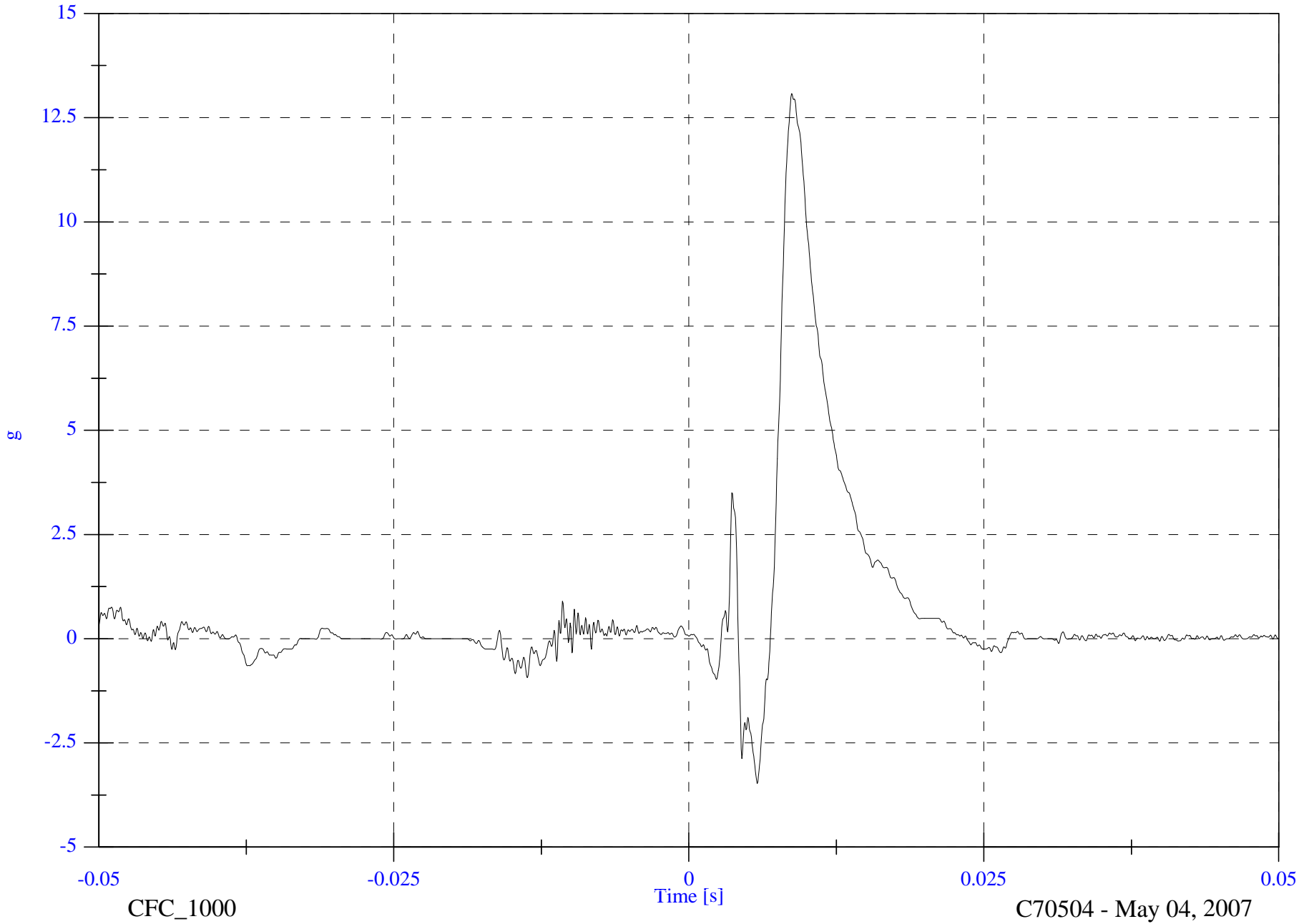
Headform Y Acceleration

Max: 13.1 [g] at 0.009 [s]

Min: -3.5 [g] at 0.006 [s]

C70504 URBP IMPACT PLOT #2

8826-FMH-02



FMVSS 201U 2007 Hyundai Entourage

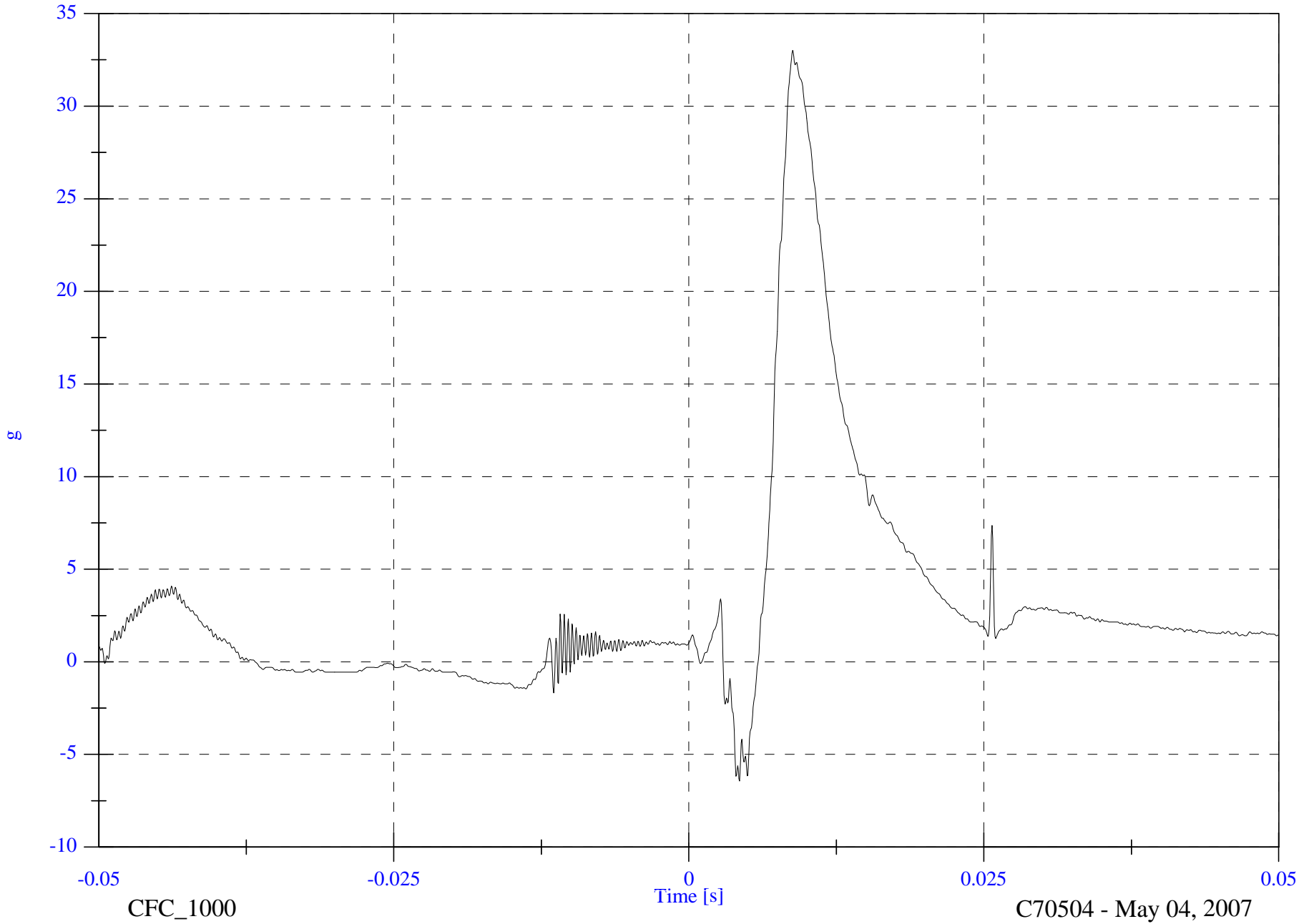
Headform Z Acceleration

Max: 33.0 [g] at 0.009 [s]

Min: -6.4 [g] at 0.004 [s]

C70504 URBP IMPACT PLOT #3

8826-FMH-02



CFC_1000

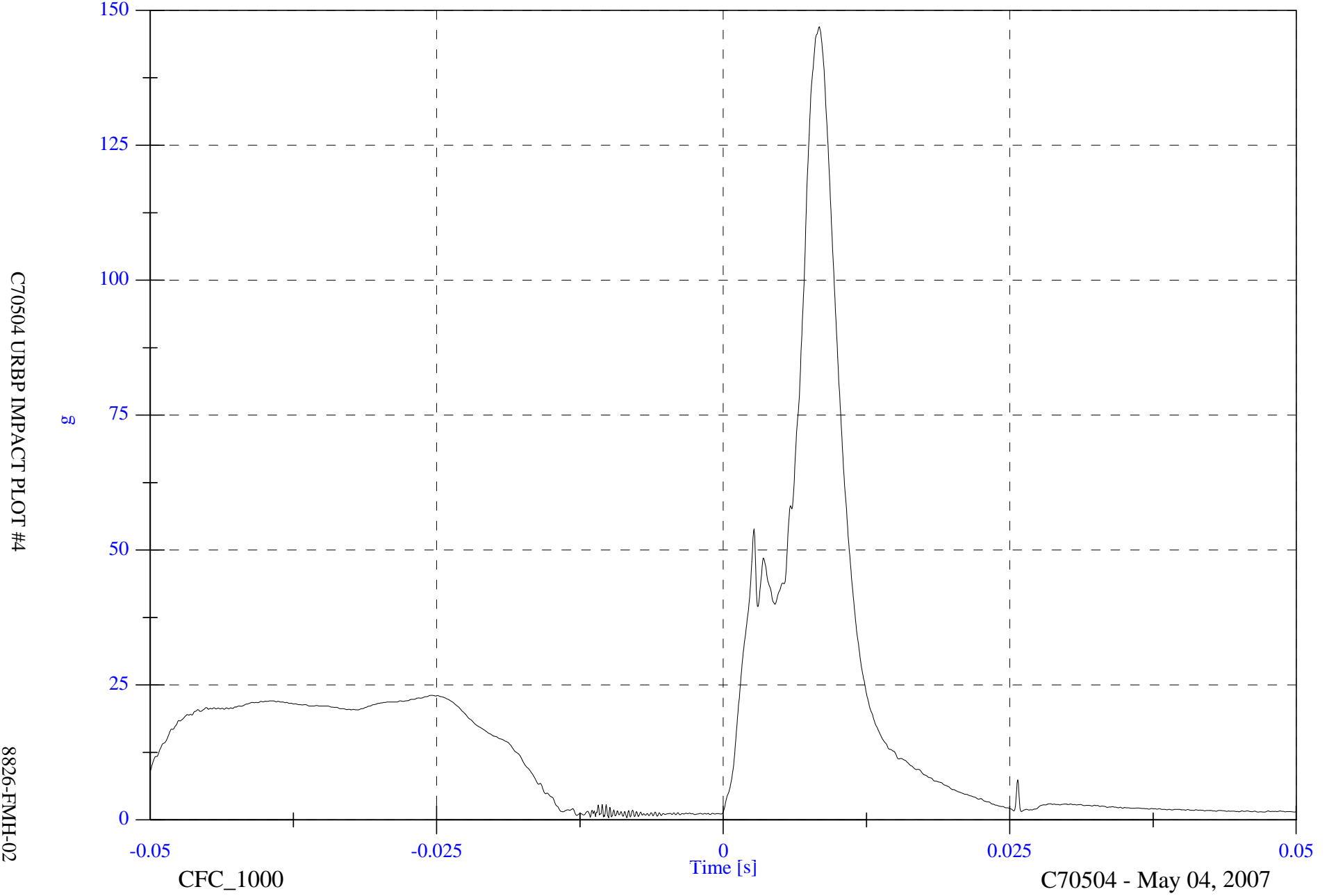
C70504 - May 04, 2007

FMVSS 201U 2007 Hyundai Entourage

Max: 146.9 [g] at 0.008 [s]

Min: 0.4 [g] at -0.010 [s]

Headform Resultant

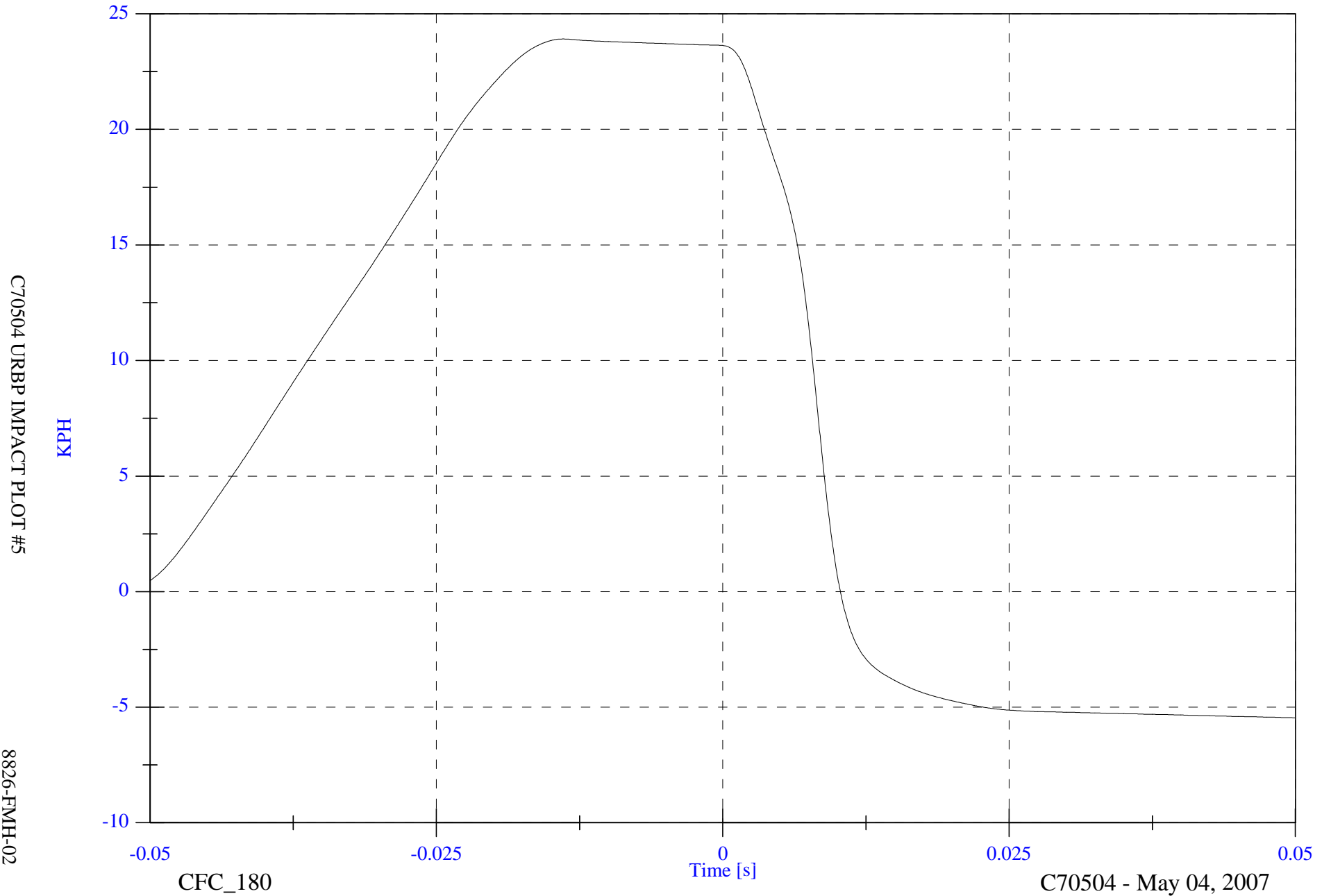


FMVSS 201U 2007 Hyundai Entourage

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

Min: -5.5 [KPH] at 0.050 [s]

Headform Velocity



C70504 URBP IMPACT PLOT #5

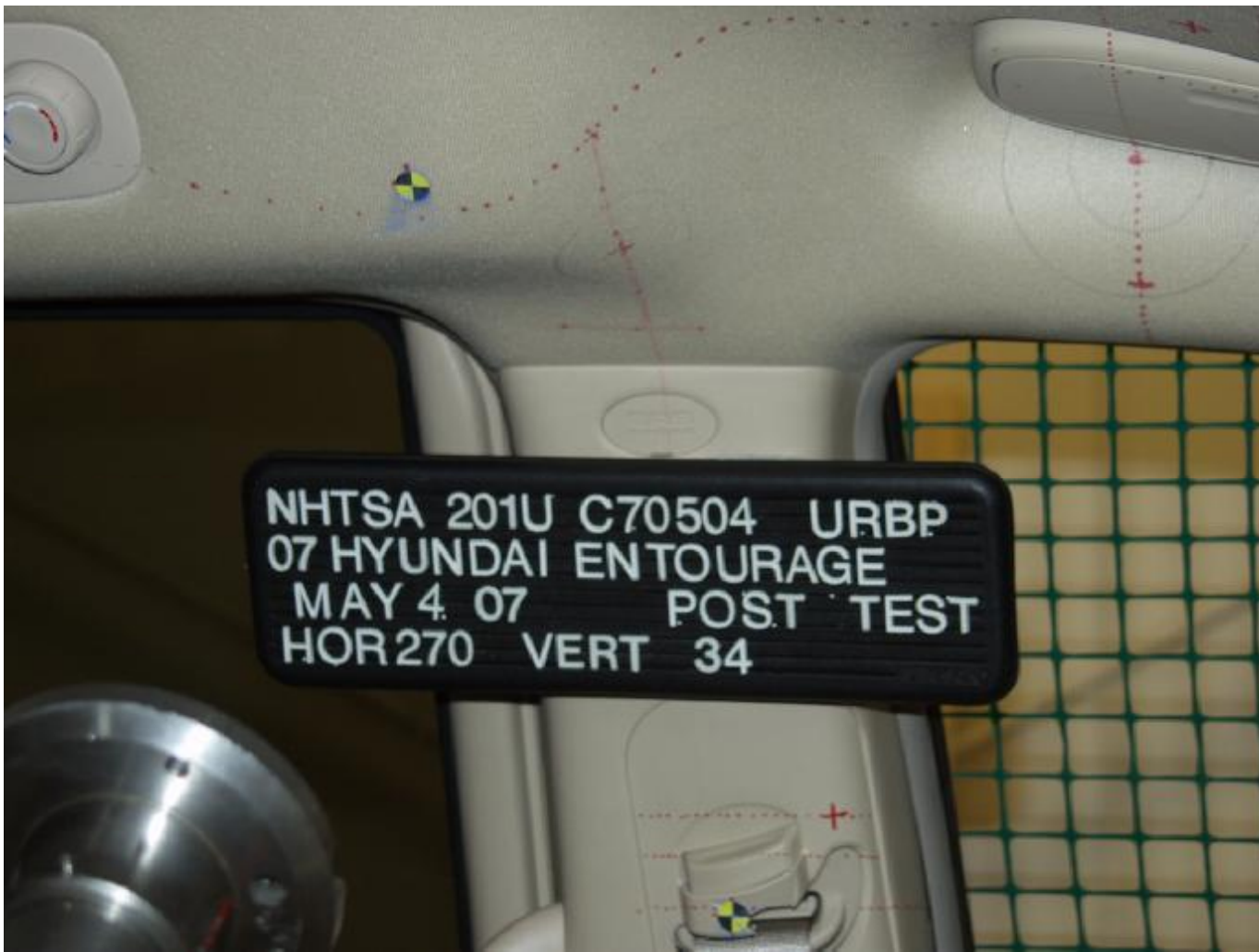
8826-FMH-02

CFC_180

C70504 - May 04, 2007



PRE-IMPACT URBP



POST-IMPACT URBP

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 SLIDING DOOR
A-12	PRE-TEST DRIVER SIDE OTHER PILLAR
A-13	PRE-TEST DRIVER SIDE REAR PILLAR
A-14	PRE-TEST PASSENGER SIDE A-PILLAR
A-15	PRE-TEST PASSENGER SIDE FRONT HEADER
A-16	PRE-TEST PASSENGER SIDE SIDE RAIL
A-17	PRE-TEST PASSENGER SIDE B-PILLAR
A-18	PRE-TEST PASSENGER SIDE SLIDING DOOR
A-19	PRE-TEST PASSENGER SIDE OTHER PILLAR
A-20	PRE-TEST PASSENGER SIDE REAR PILLAR
A-21	POST-TEST DRIVER SIDE A-PILLAR
A-22	POST-TEST DRIVER SIDE FRONT HEADER
A-23	POST-TEST DRIVER SIDE SIDE RAIL
A-24	POST-TEST DRIVER SIDE B-PILLAR
A-25	POST-TEST DRIVER SIDE SLIDING DOOR
A-26	POST-TEST DRIVER SIDE OTHER PILLAR
A-27	POST-TEST DRIVER SIDE REAR PILLAR
A-28	POST-TEST PASSENGER SIDE A-PILLAR
A-29	POST-TEST PASSENGER SIDE FRONT HEADER
A-30	POST-TEST PASSENGER SIDE SIDE RAIL
A-31	POST-TEST PASSENGER SIDE B-PILLAR
A-32	POST-TEST PASSENGER SIDE SLIDING DOOR
A-33	POST-TEST PASSENGER SIDE OTHER PILLAR
A-34	POST-TEST PASSENGER SIDE REAR PILLAR



Figure A-1 : LEFT SIDE VIEW OF VEHICLE



A-4

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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



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

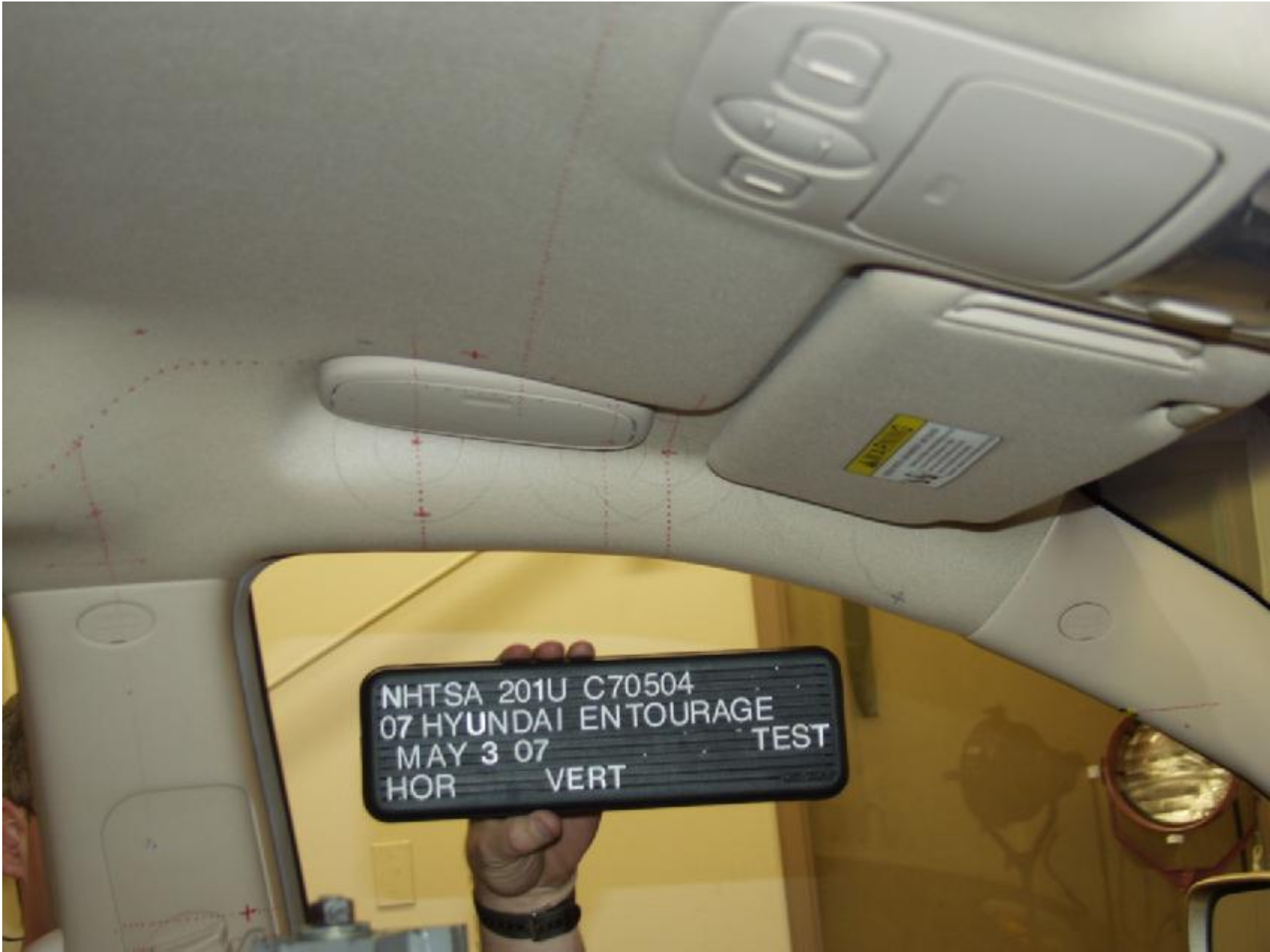


Figure A-9 : PRE-TEST DRIVER SIDE SIDE RAIL



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



Figure A-11 : PRE-TEST DRIVER SIDE SLIDING DOOR



Figure A-12 : PRE-TEST DRIVER SIDE OTHER PILLAR



Figure A-13 : PRE-TEST DRIVER SIDE REAR PILLAR



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



Figure A-15 : PRE-TEST PASSENGER SIDE FRONT HEADER

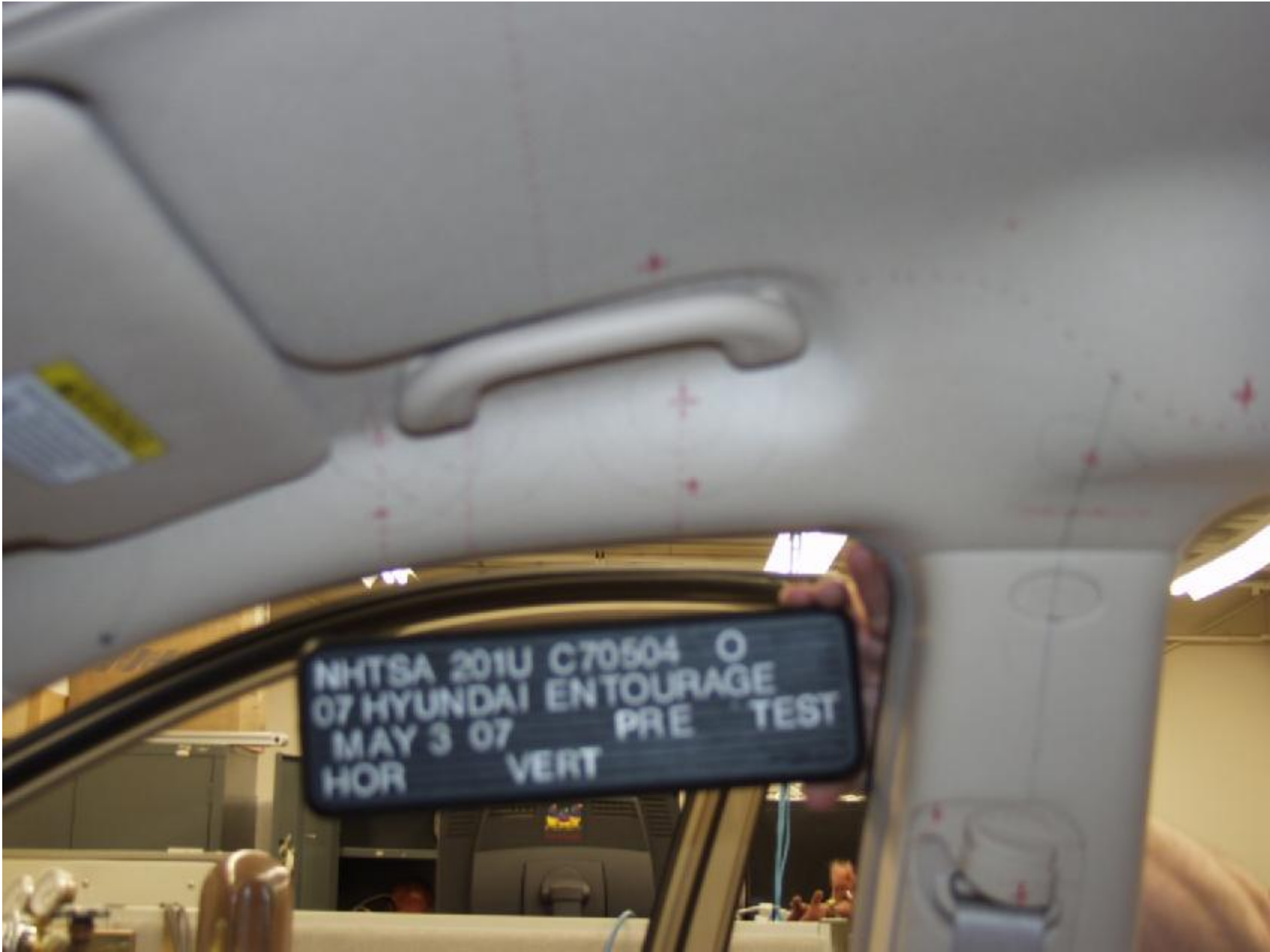


Figure A-16 : PRE-TEST PASSENGER SIDE SIDE RAIL

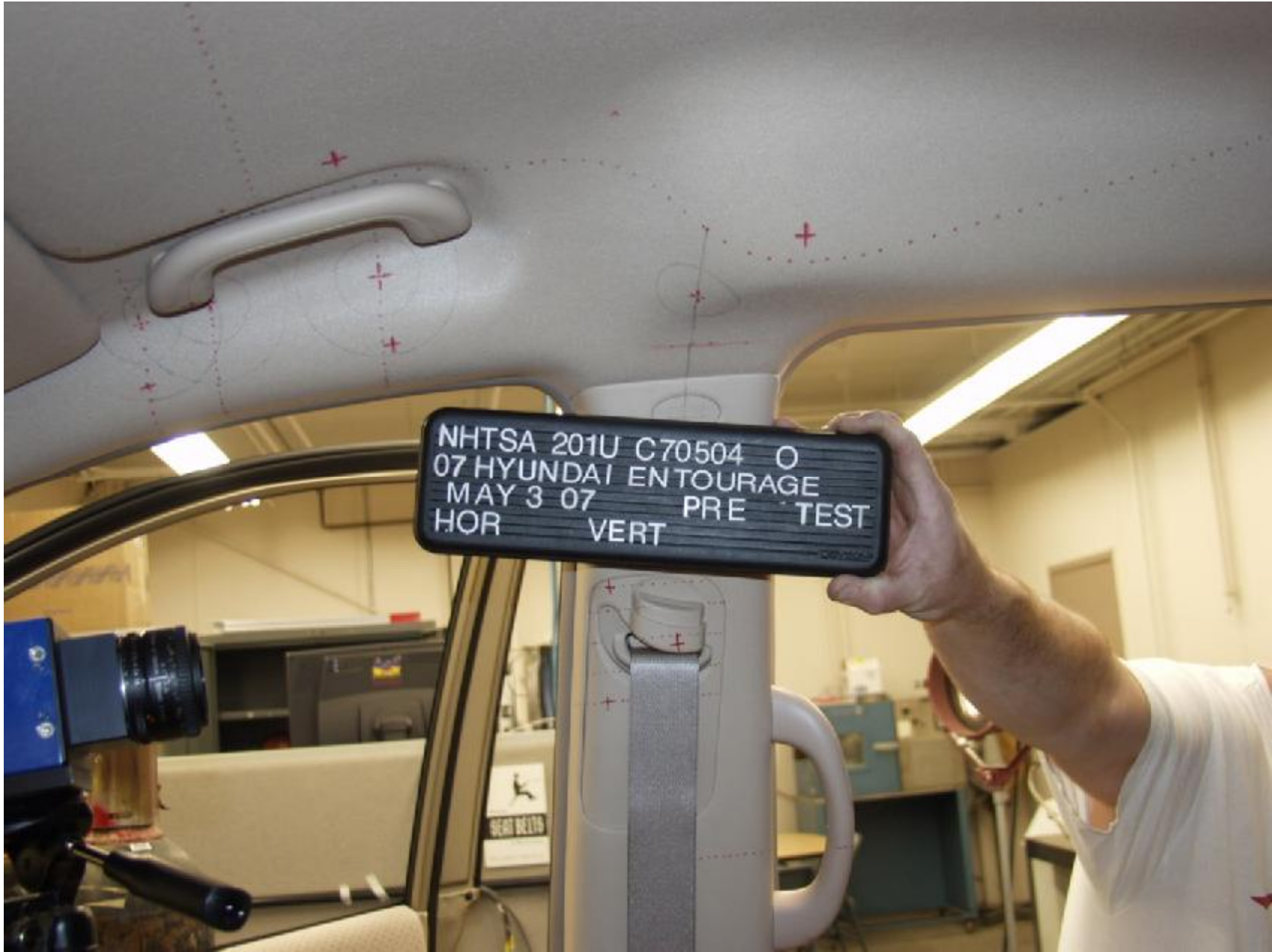


Figure A-17 : PRE-TEST PASSENGER SIDE B-PILLAR



Figure A-18 : PRE-TEST PASSENGER SIDE SLIDING DOOR



Figure A-19 : PRE-TEST PASSENGER SIDE OTHER PILLAR



Figure A-20 : PRE-TEST PASSENGER SIDE REAR PILLAR



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



Figure A-22 : POST-TEST DRIVER SIDE FRONT HEADER



Figure A-23 : POST-TEST DRIVER SIDE SIDE RAIL

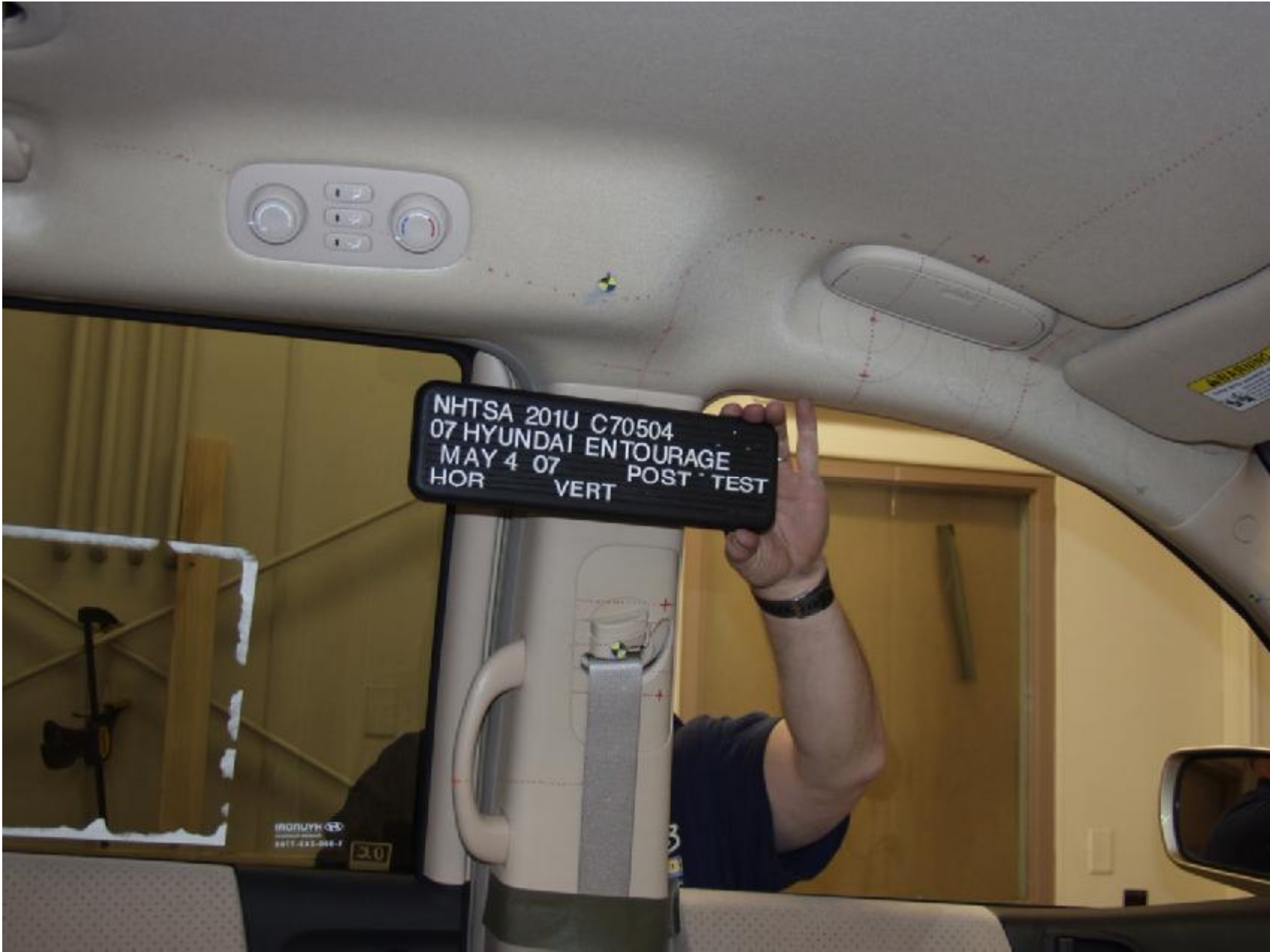


Figure A-24 : POST-TEST DRIVER SIDE B-PILLAR



Figure A-25 : POST-TEST DRIVER SIDE SLIDING DOOR



Figure A-26 : POST-TEST DRIVER SIDE OTHER PILLAR



Figure A-27 : POST-TEST DRIVER SIDE REAR PILLAR



Figure A-28 : POST-TEST PASSENGER SIDE A-PILLAR



Figure A-29 : POST-TEST PASSENGER SIDE FRONT HEADER

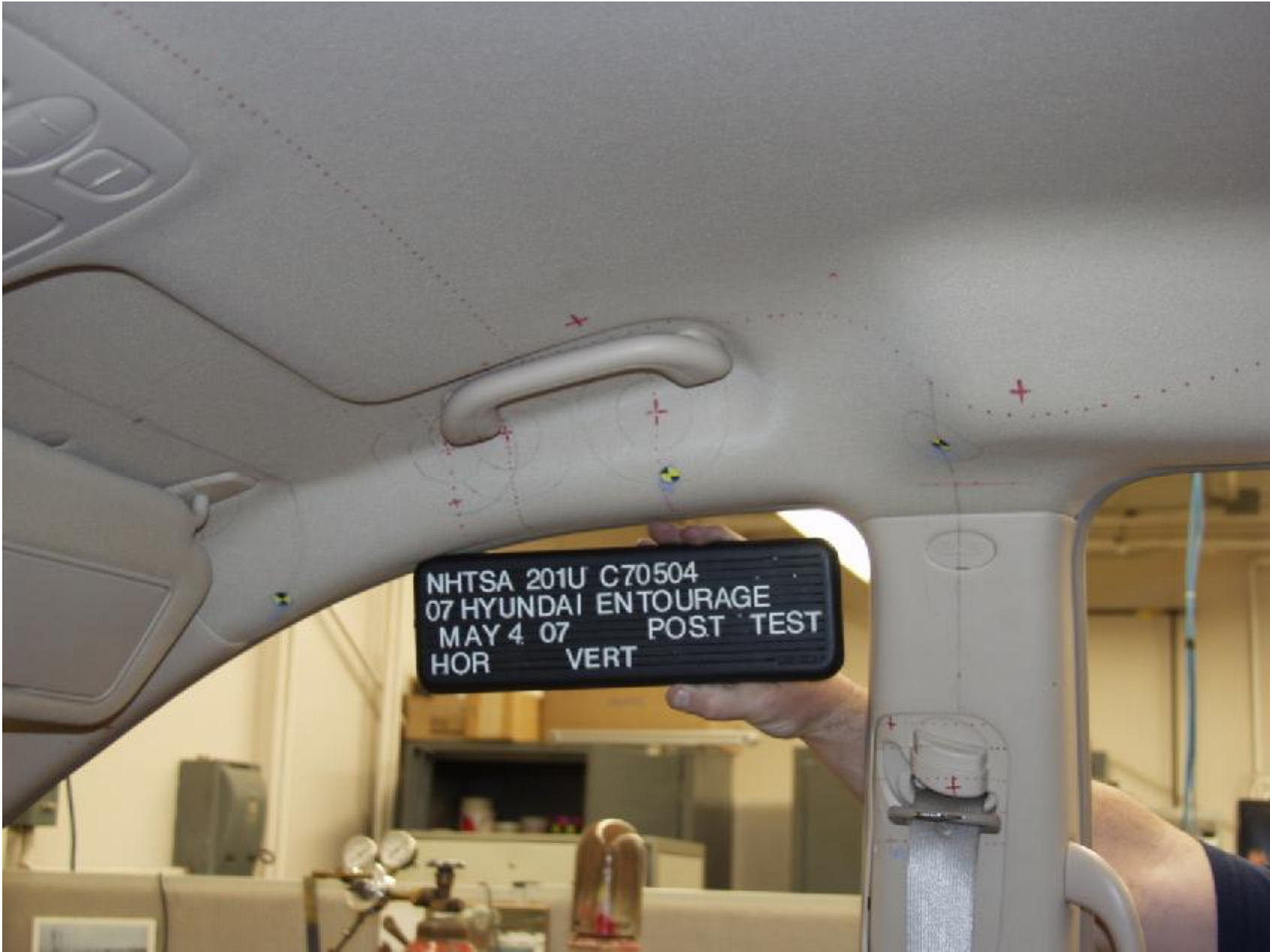


Figure A-30 : POST-TEST PASSENGER SIDE SIDE RAIL



Figure A-31 : POST-TEST PASSENGER SIDE B-PILLAR



Figure A-32 : POST-TEST PASSENGER SIDE SLIDING DOOR



Figure A-33 : POST-TEST PASSENGER SIDE OTHER PILLAR



Figure A-34 : 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:		March 16, 2007	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	23.3	
RELATIVE HUMIDITY	10% to 70%	17	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	253.1	
PEAK LATERAL ACCELERATION	15 Gs Maximum	10.6	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

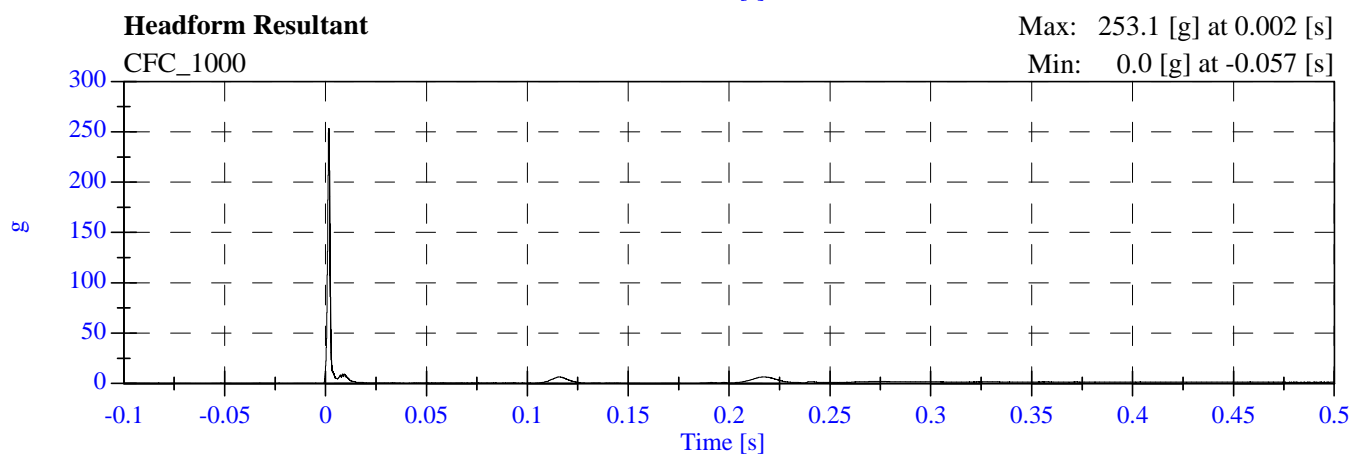
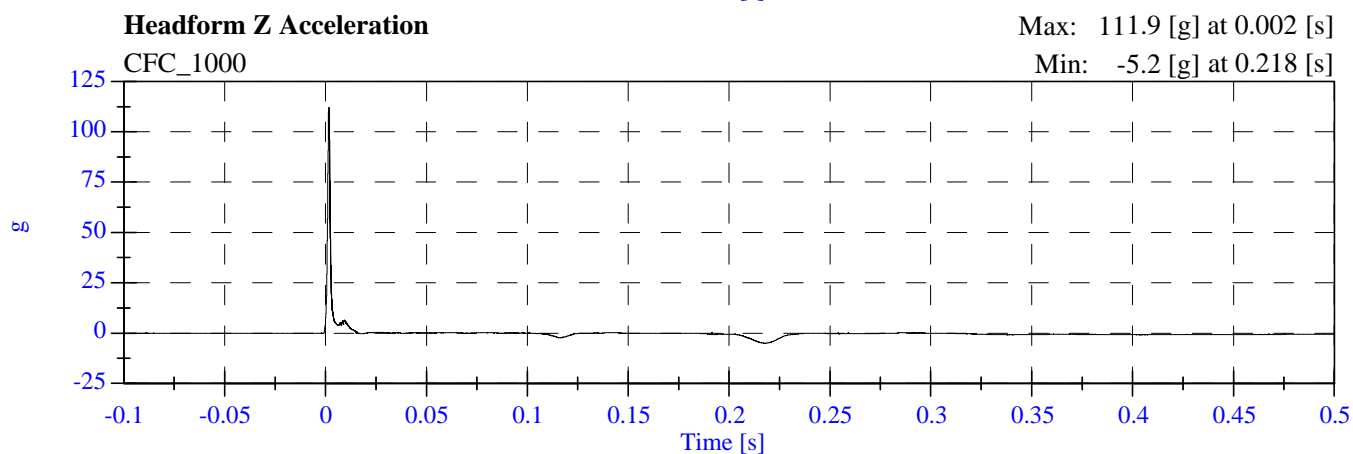
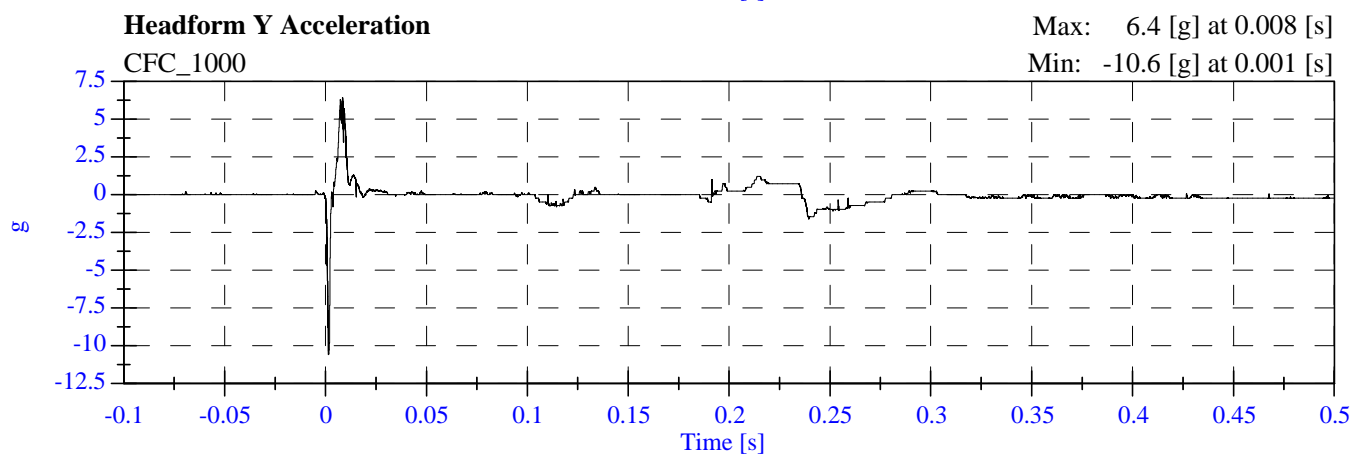
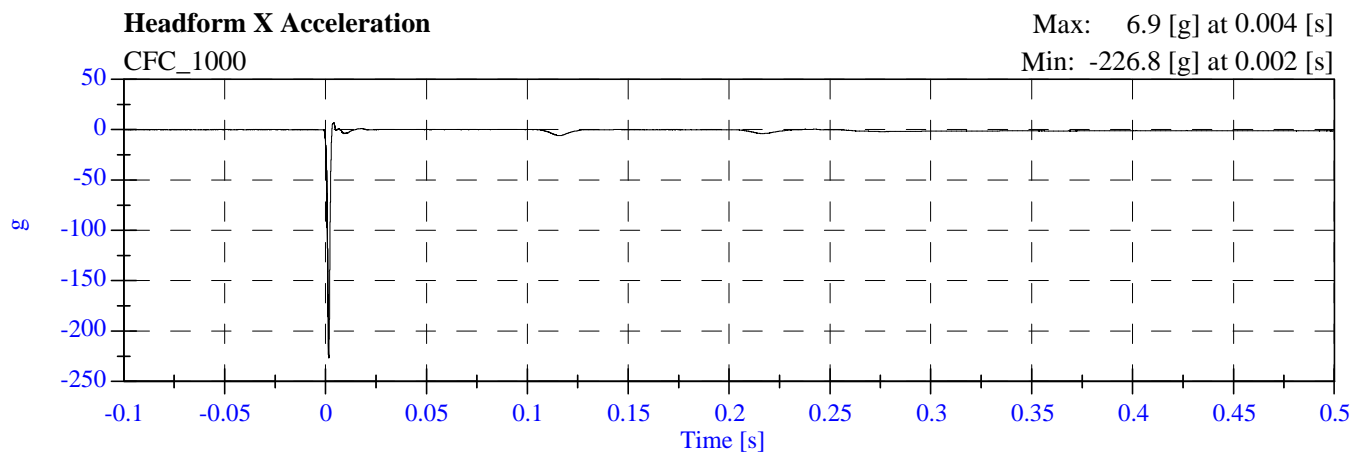
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J24876	3/12/07	9/13/07
2 - LATERAL	ENDEVCO	7264-2000T	J33030	3/12/07	9/13/07
3 - VERTICAL	ENDEVCO	7264-2000T	J31009	3/12/07	9/13/07

REMARKS:

FMVSS 201U - Headform Calibration Drops

C70504 - March 16, 2007



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

MANUFACTURER:		DENTON ATD INC.	
SERIAL NUMBER:		0062	
CALIBRATION DATE:		March 16, 2007	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	23.3	
RELATIVE HUMIDITY	10% to 70%	17	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	257.5	
PEAK LATERAL ACCELERATION	15 Gs Maximum	5.1	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

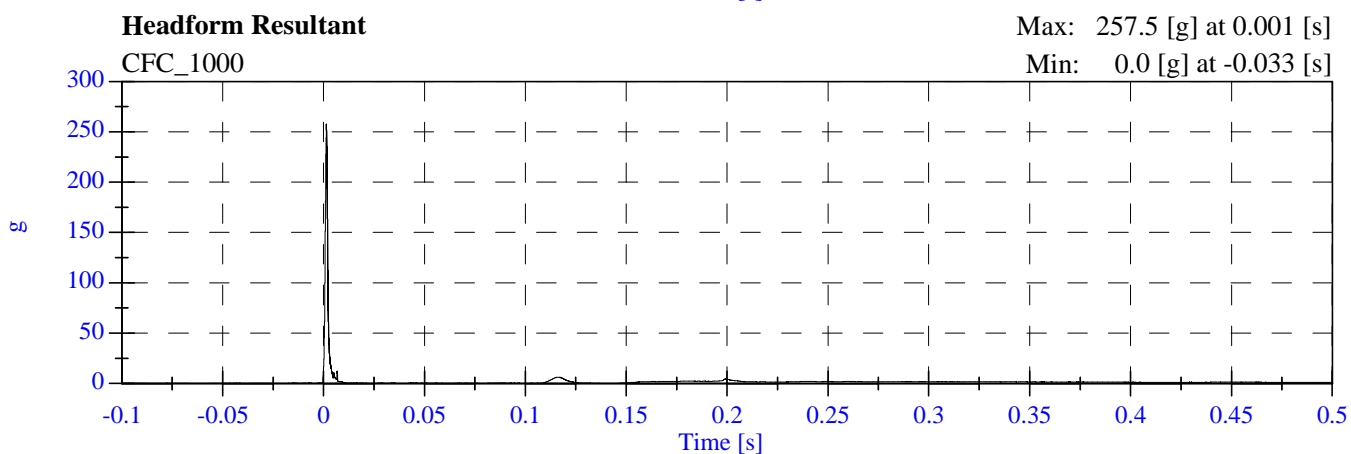
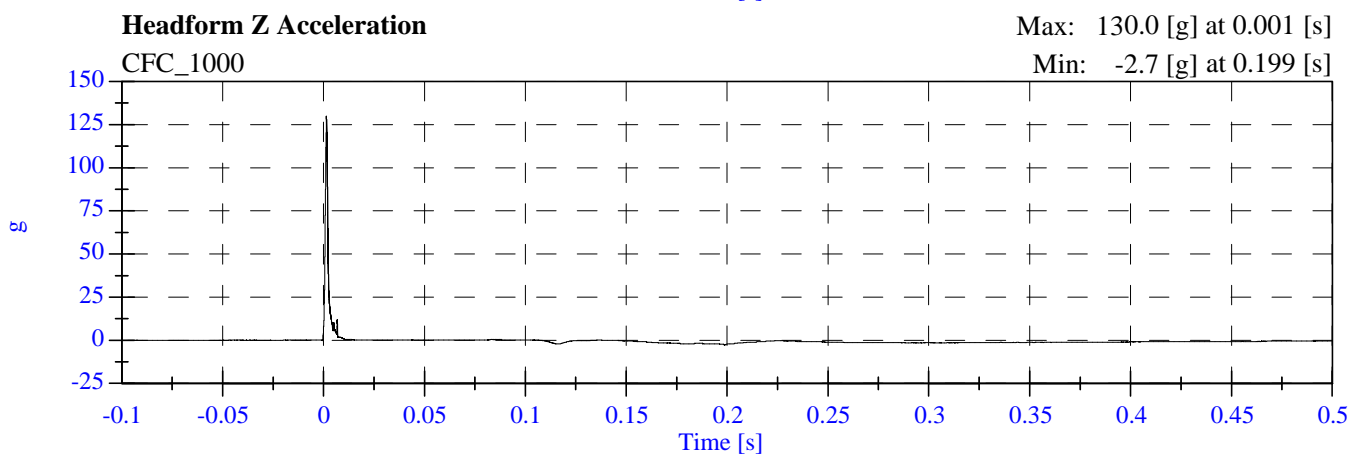
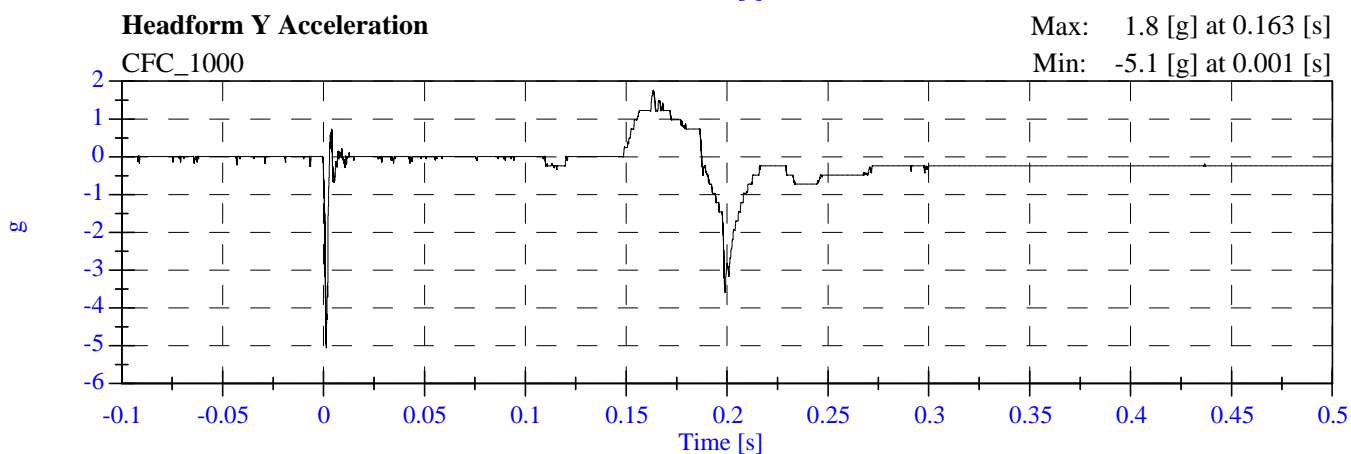
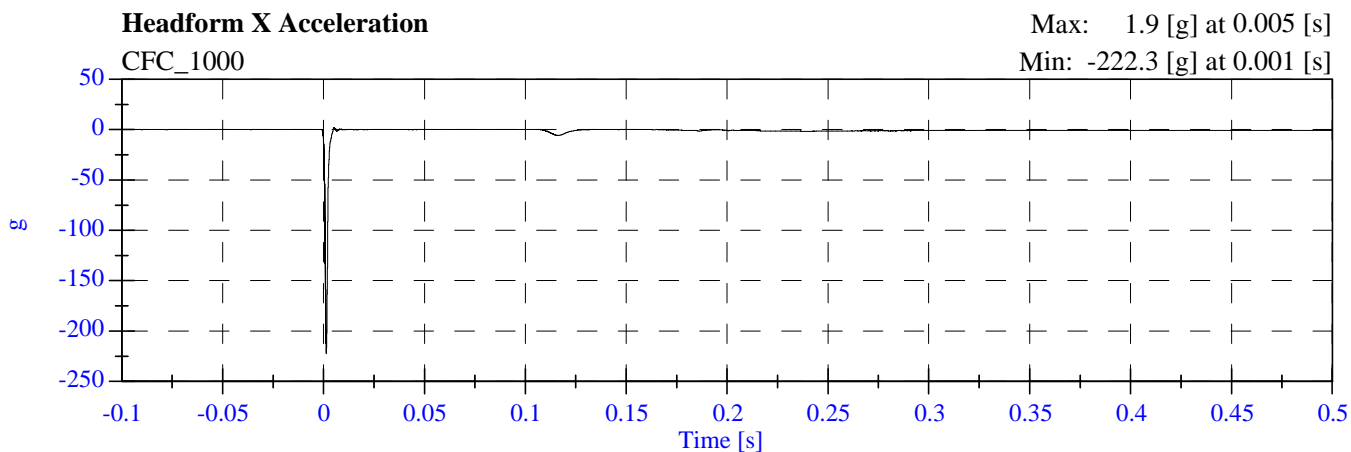
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J33127	3/12/07	9/13/07
2 - LATERAL	ENDEVCO	7264-2000T	J33019	3/12/07	9/13/07
3 - VERTICAL	ENDEVCO	7264-2000T	J32782	3/12/07	9/13/07

REMARKS:

FMVSS 201U - Headform Calibration Drops

C70504 - March 16, 2007



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

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		805	
CALIBRATION DATE:		March 16, 2007	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	23.3	
RELATIVE HUMIDITY	10% to 70%	17	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	253.3	
PEAK LATERAL ACCELERATION	15 Gs Maximum	2.2	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

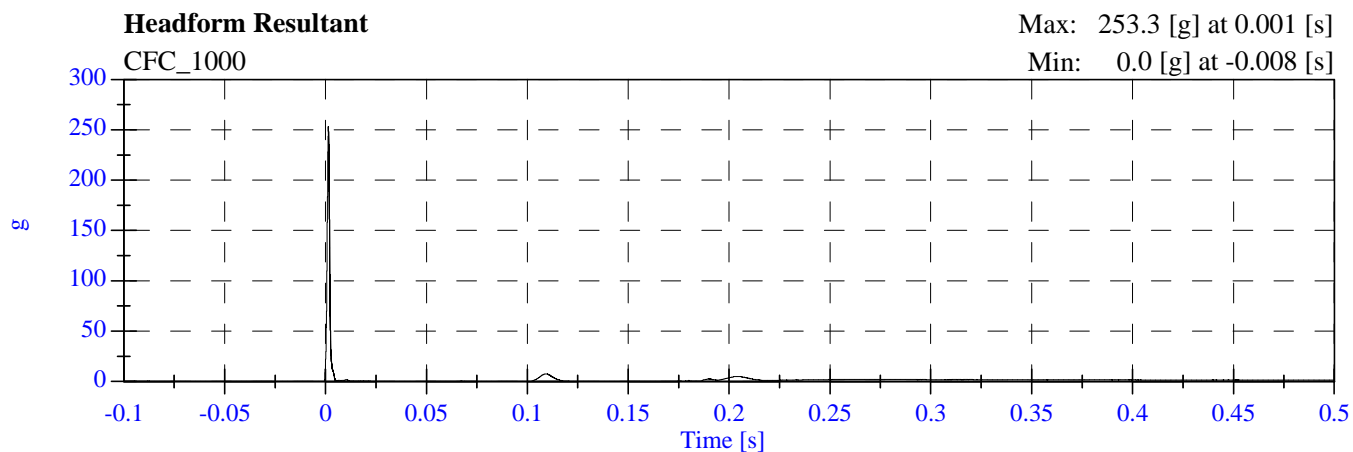
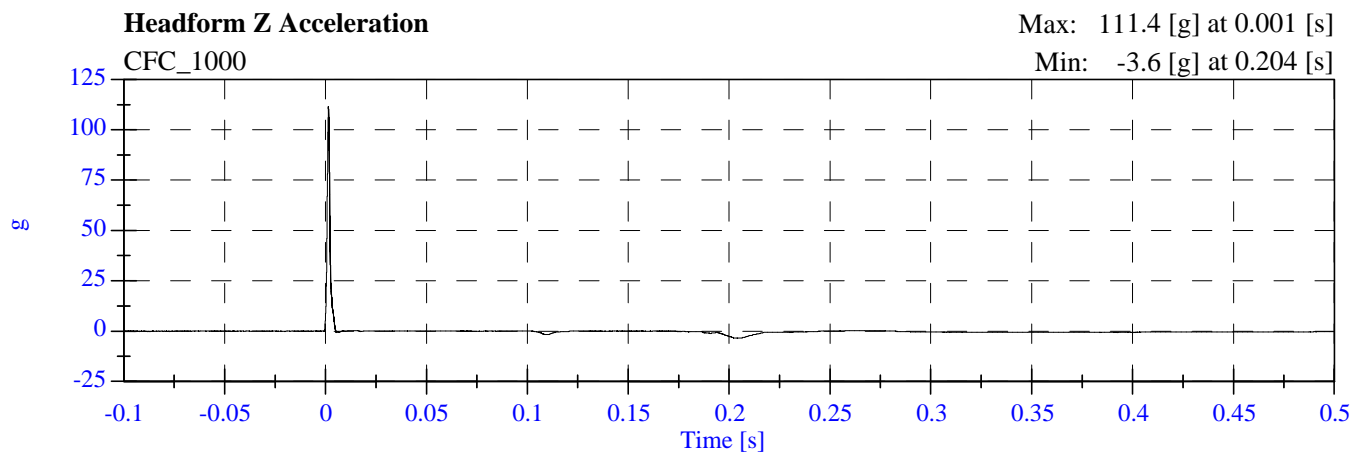
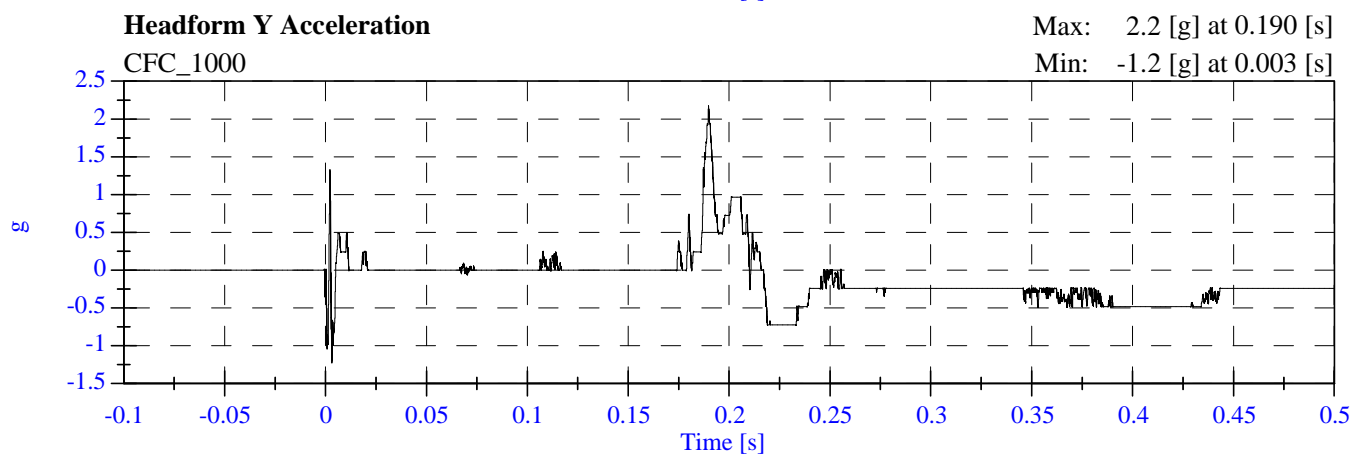
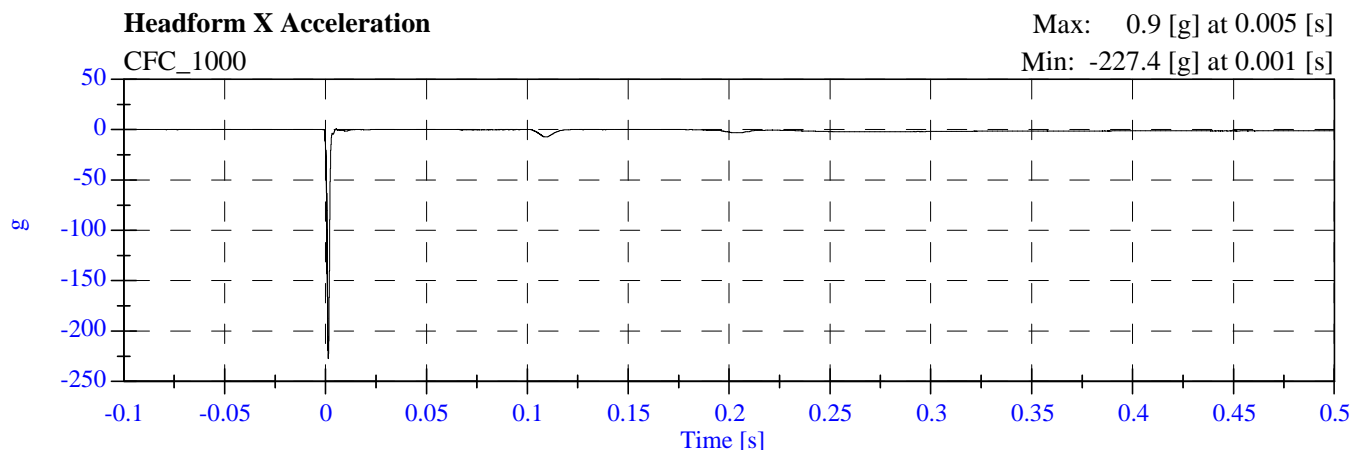
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J38127	3/12/07	9/13/07
2 - LATERAL	ENDEVCO	7264-2000T	J37980	3/12/07	9/13/07
3 - VERTICAL	ENDEVCO	7264-2000T	J37854	3/12/07	9/13/07

REMARKS:

FMVSS 201U - Headform Calibration Drops

C70504 - March 16, 2007



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

MANUFACTURER:		DENTON ATD INC.	
SERIAL NUMBER:		0355	
CALIBRATION DATE:		March 16, 2007	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	23.3	
RELATIVE HUMIDITY	10% to 70%	17	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	256.0	
PEAK LATERAL ACCELERATION	15 Gs Maximum	1.9	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

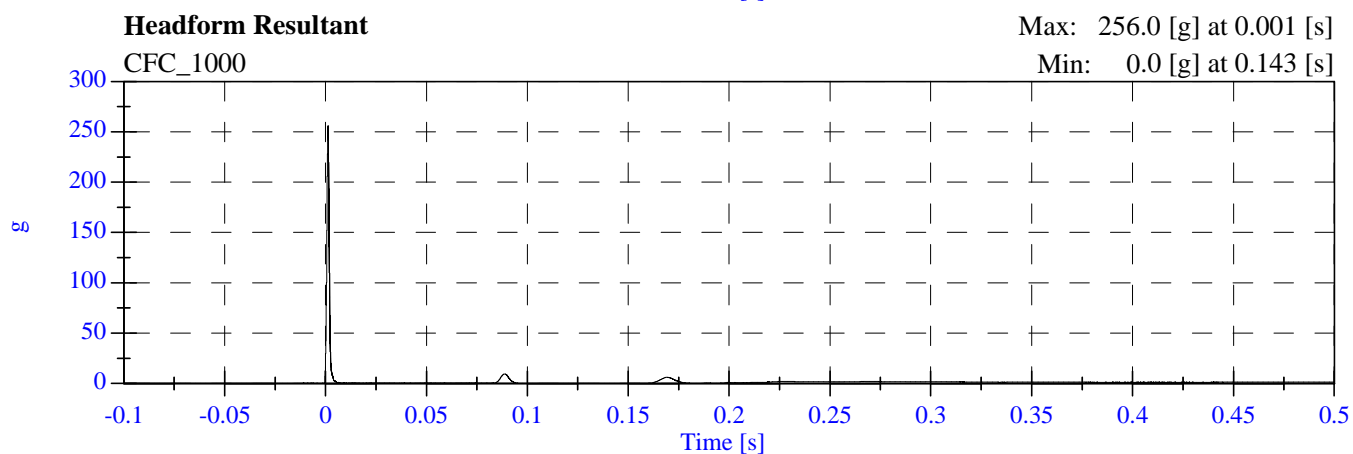
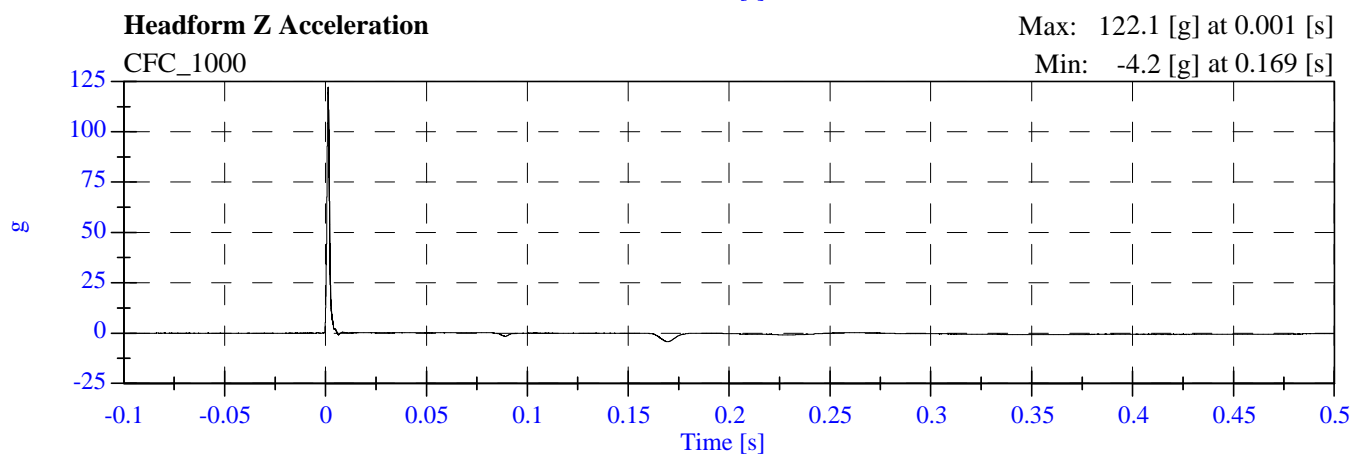
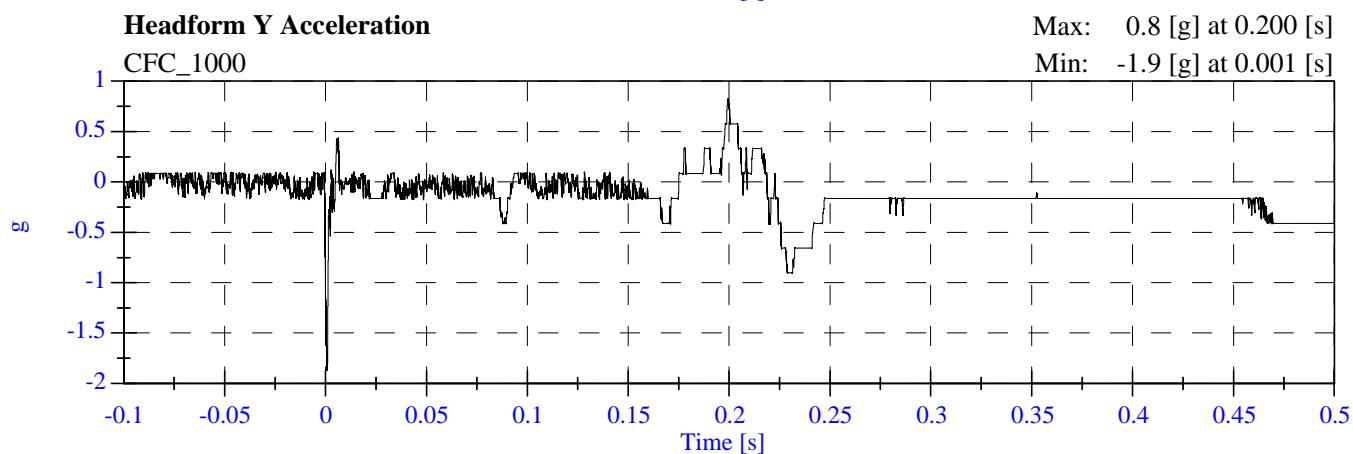
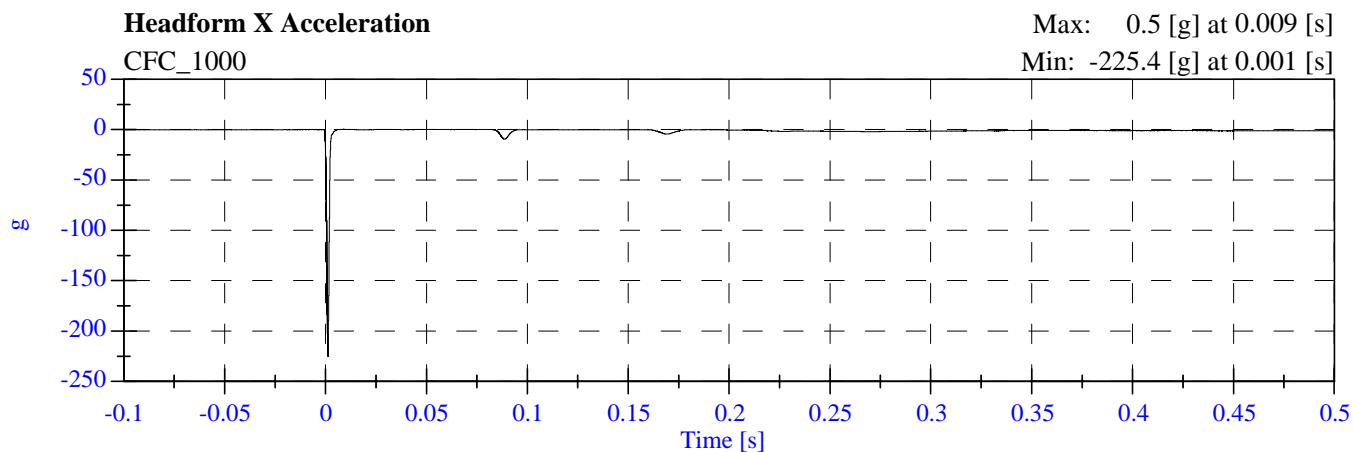
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
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2 - LATERAL	ENDEVCO	7264-2000T	J32779	3/12/07	9/13/07
3 - VERTICAL	ENDEVCO	7264-2000T	J25854	3/12/07	9/13/07

REMARKS:

FMVSS 201U - Headform Calibration Drops

C70504 - March 16, 2007



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

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		1255	
CALIBRATION DATE:		March 16, 2007	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	23.3	
RELATIVE HUMIDITY	10% to 70%	17	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	272.3	
PEAK LATERAL ACCELERATION	15 Gs Maximum	8.3	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

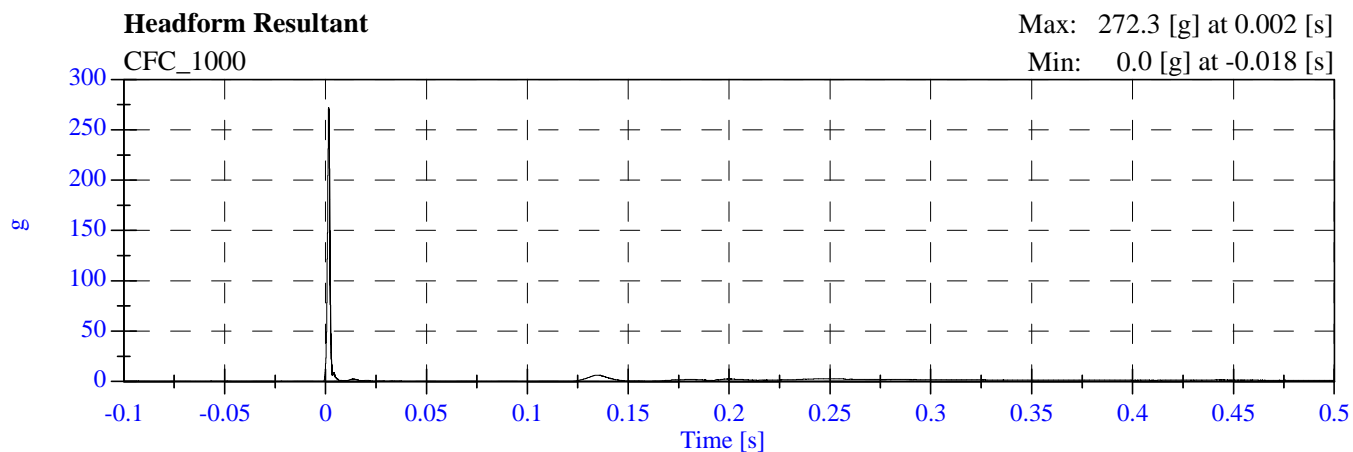
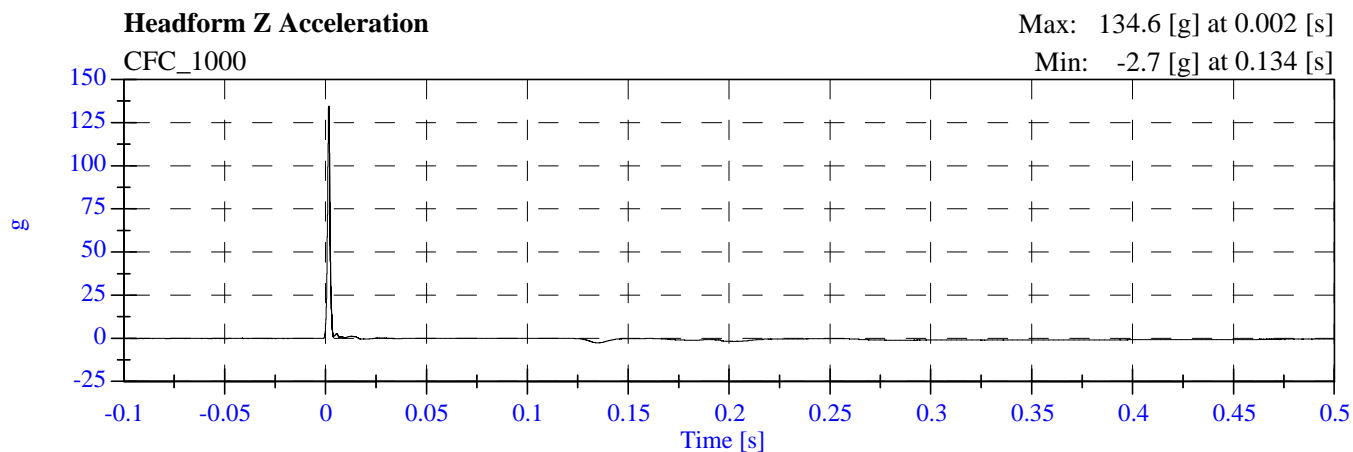
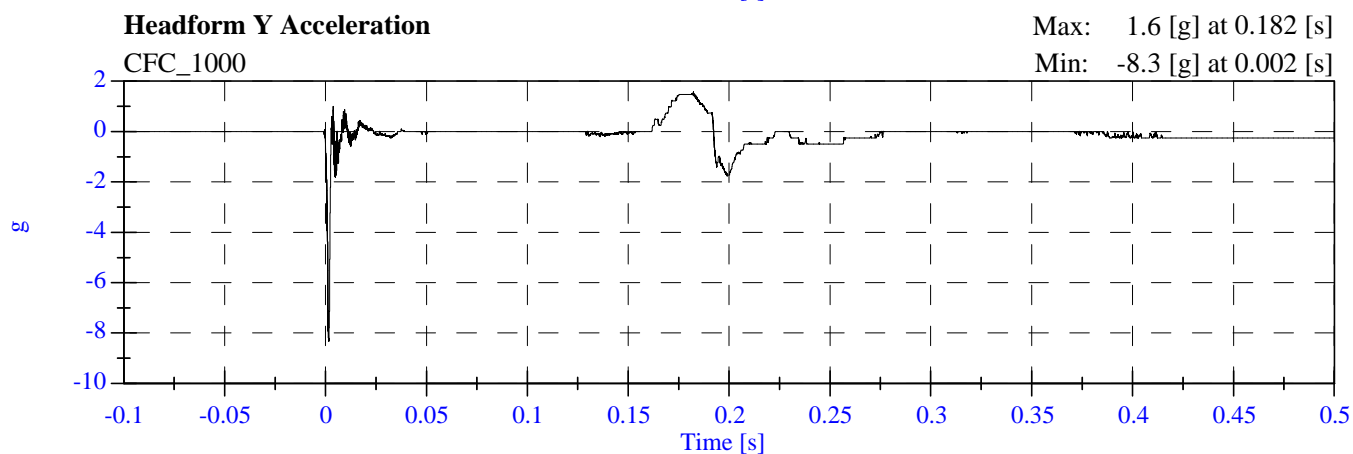
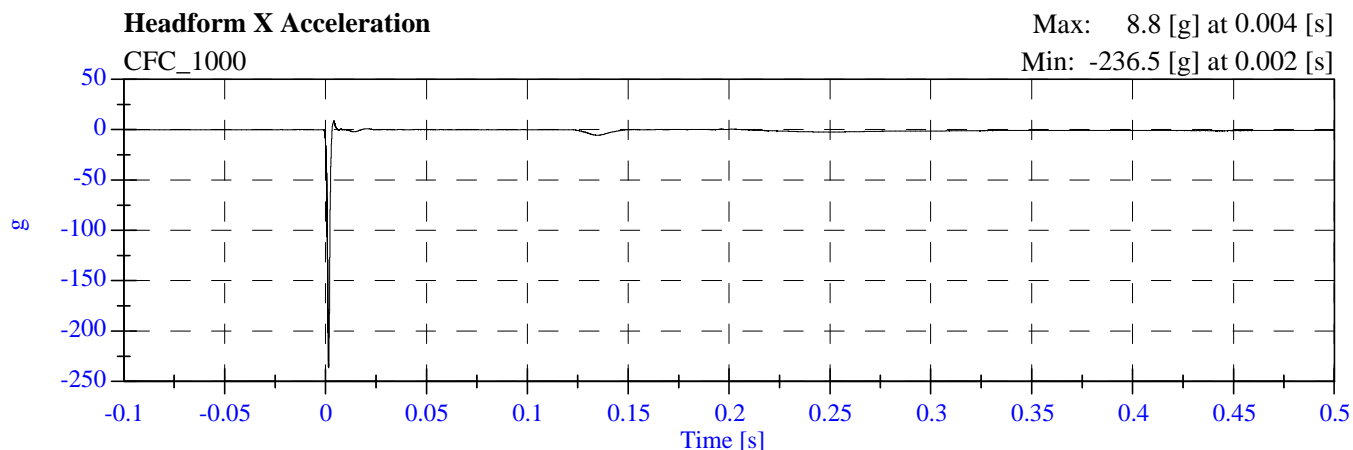
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J41006	3/12/07	9/13/07
2 - LATERAL	ENDEVCO	7264-2000T	J40994	3/12/07	9/13/07
3 - VERTICAL	ENDEVCO	7264-2000T	J41007	3/12/07	9/13/07

REMARKS:

FMVSS 201U - Headform Calibration Drops

C70504 - March 16, 2007



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

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		0642	
CALIBRATION DATE:		May 8, 2007	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	22.2	
RELATIVE HUMIDITY	10% to 70%	24	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	233.8	
PEAK LATERAL ACCELERATION	15 Gs Maximum	8.1	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

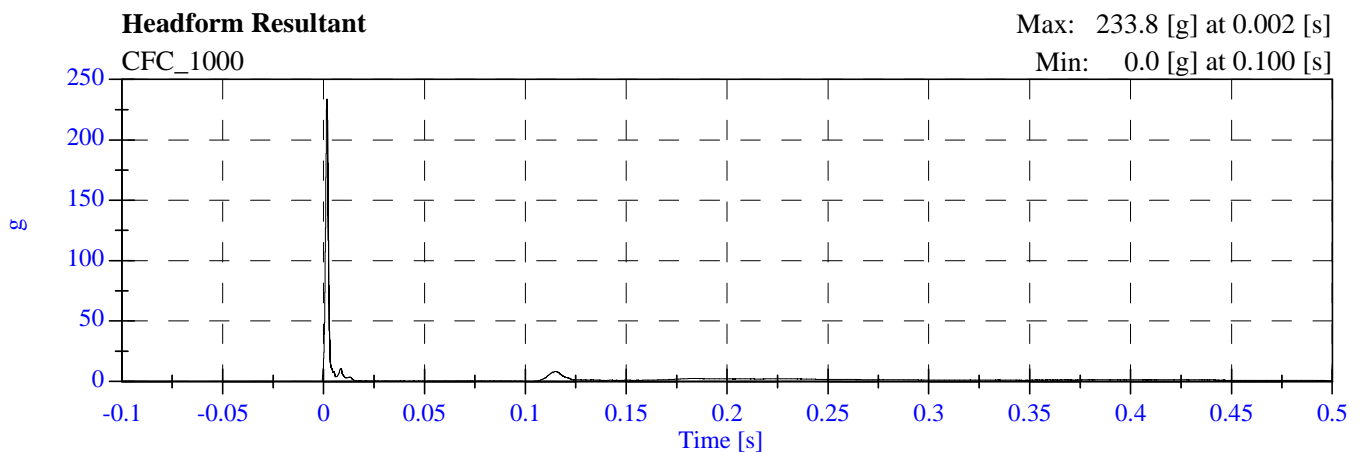
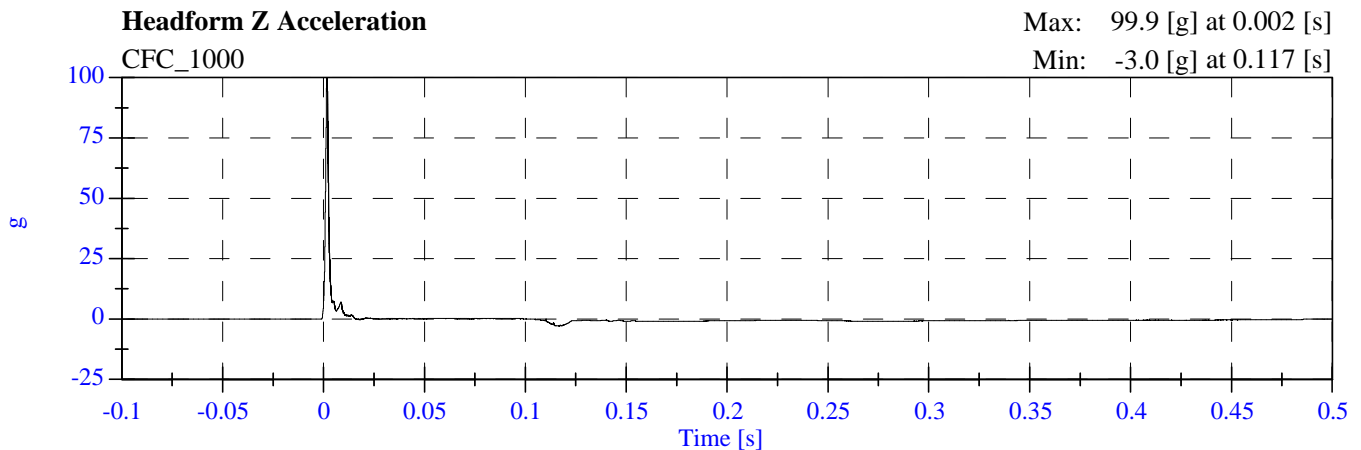
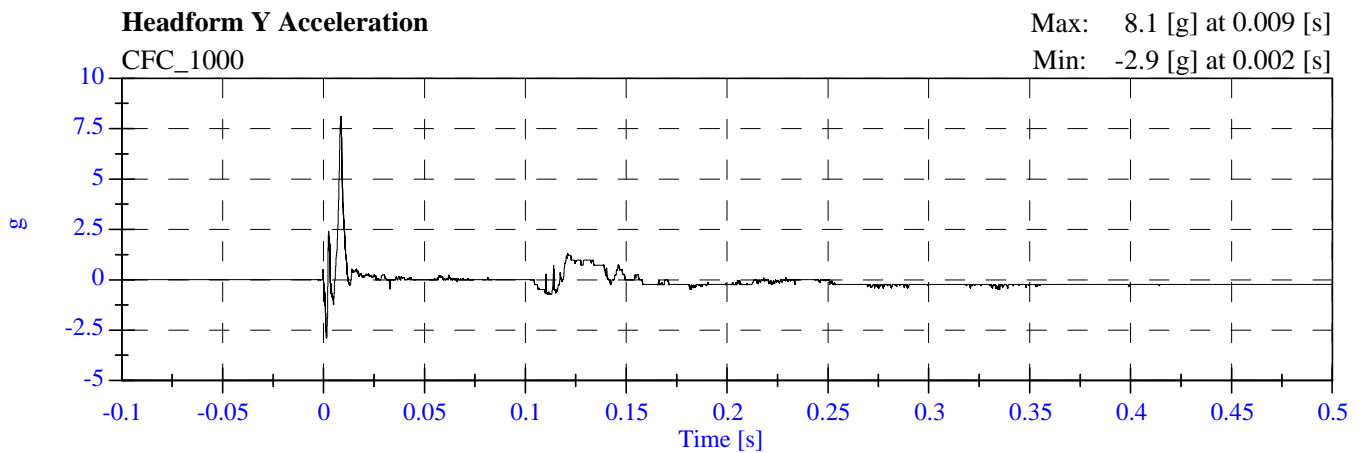
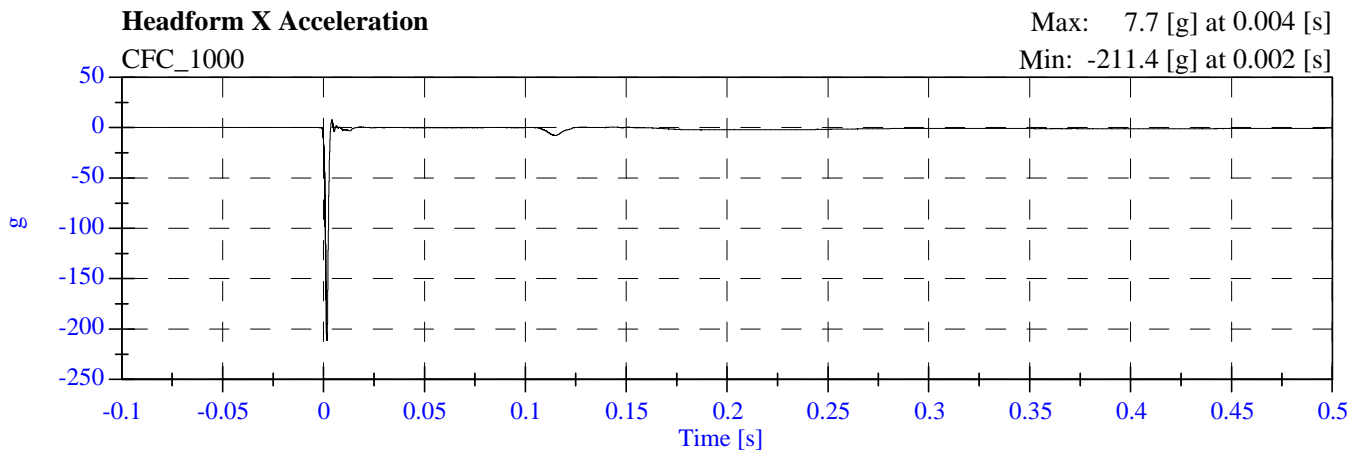
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J24876	3/12/07	9/13/07
2 - LATERAL	ENDEVCO	7264-2000T	J33030	3/12/07	9/13/07
3 - VERTICAL	ENDEVCO	7264-2000T	J31009	3/12/07	9/13/07

REMARKS:

FMVSS 201U - Headform Calibration Drops

C70504 - May 08, 2007



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

MANUFACTURER:		DENTON ATD INC.	
SERIAL NUMBER:		0062	
CALIBRATION DATE:		May 8, 2007	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	22.2	
RELATIVE HUMIDITY	10% to 70%	24	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	239.5	
PEAK LATERAL ACCELERATION	15 Gs Maximum	11.1	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

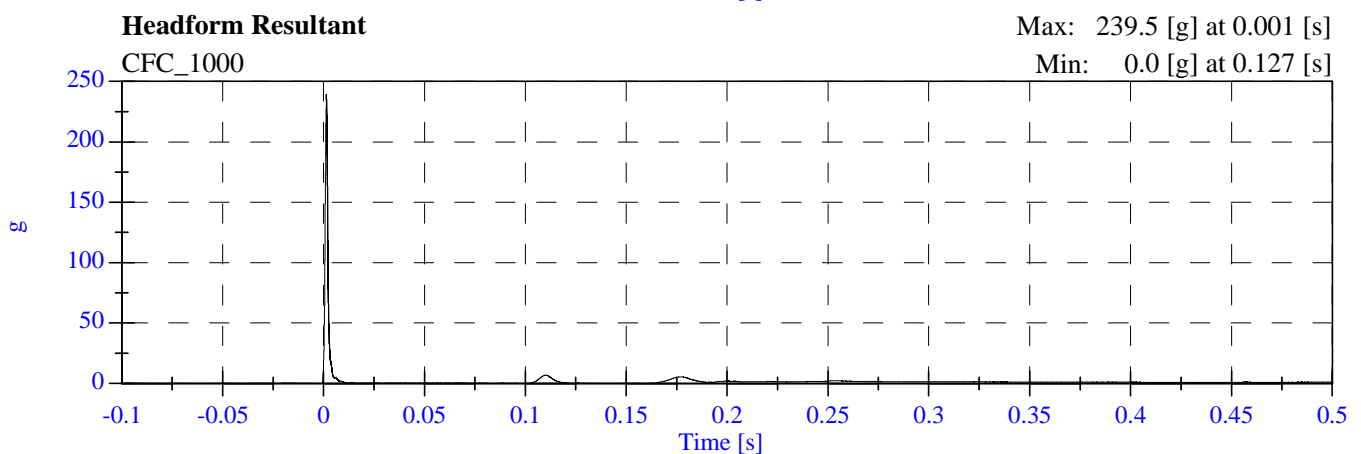
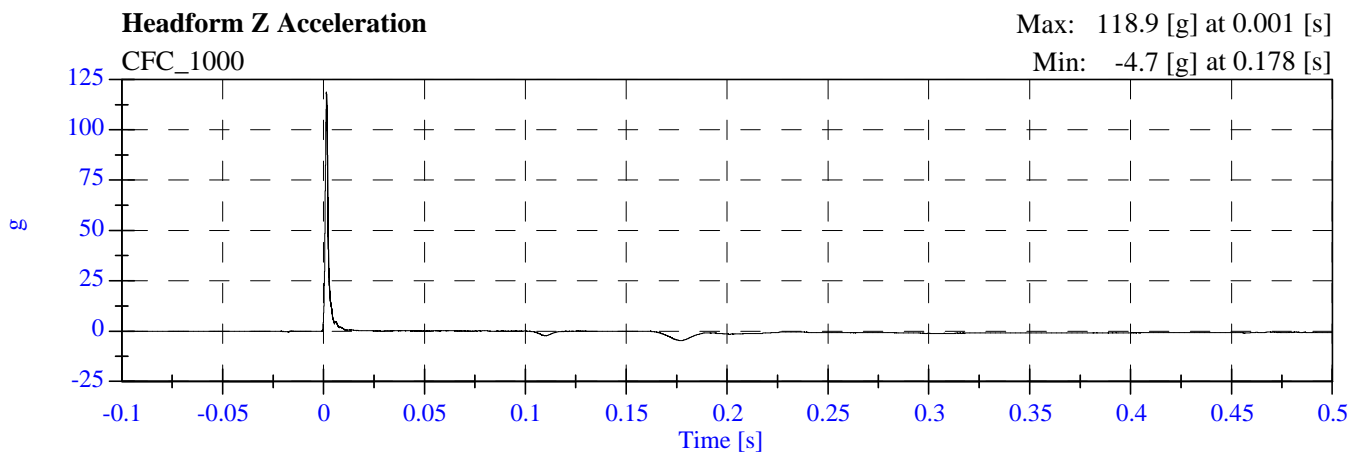
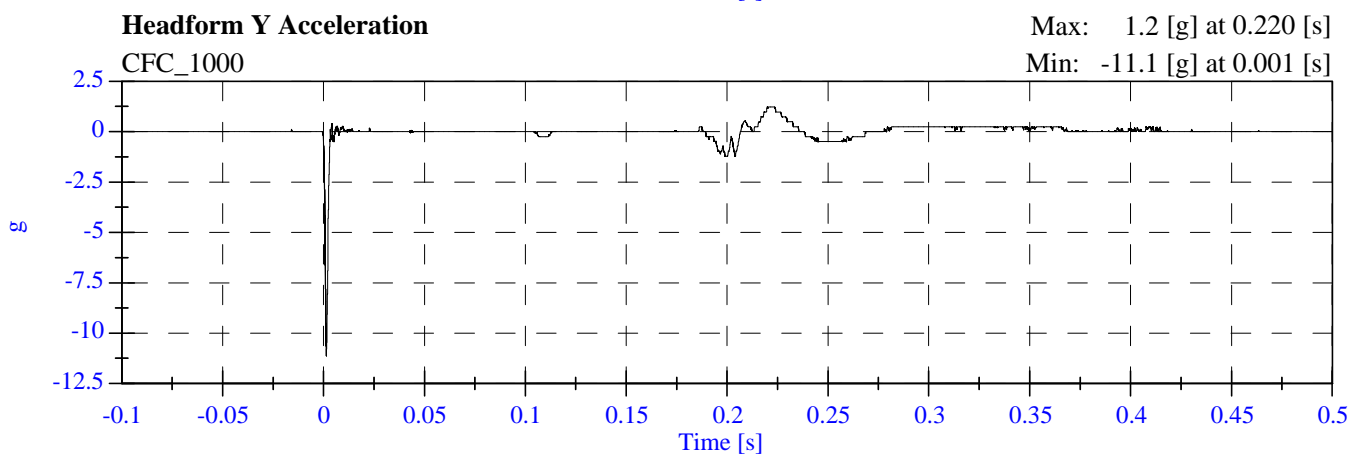
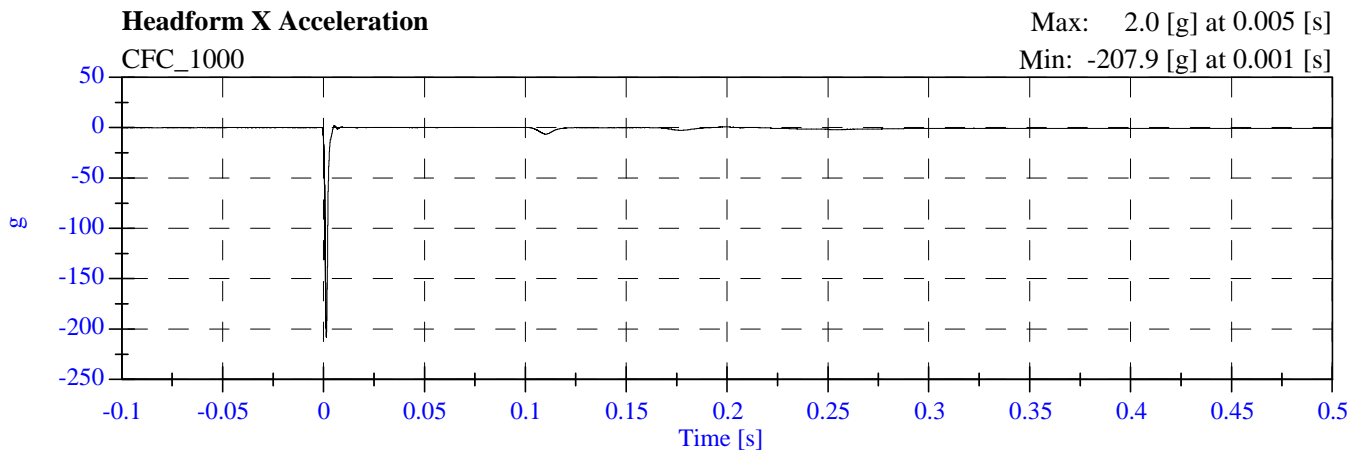
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J33127	3/12/07	9/13/07
2 - LATERAL	ENDEVCO	7264-2000T	J33019	3/12/07	9/13/07
3 - VERTICAL	ENDEVCO	7264-2000T	J32782	3/12/07	9/13/07

REMARKS:

FMVSS 201U - Headform Calibration Drops

C70504 - May 08, 2007



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

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		805	
CALIBRATION DATE:		May 8, 2007	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	22.2	
RELATIVE HUMIDITY	10% to 70%	24	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	234.1	
PEAK LATERAL ACCELERATION	15 Gs Maximum	12.7	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

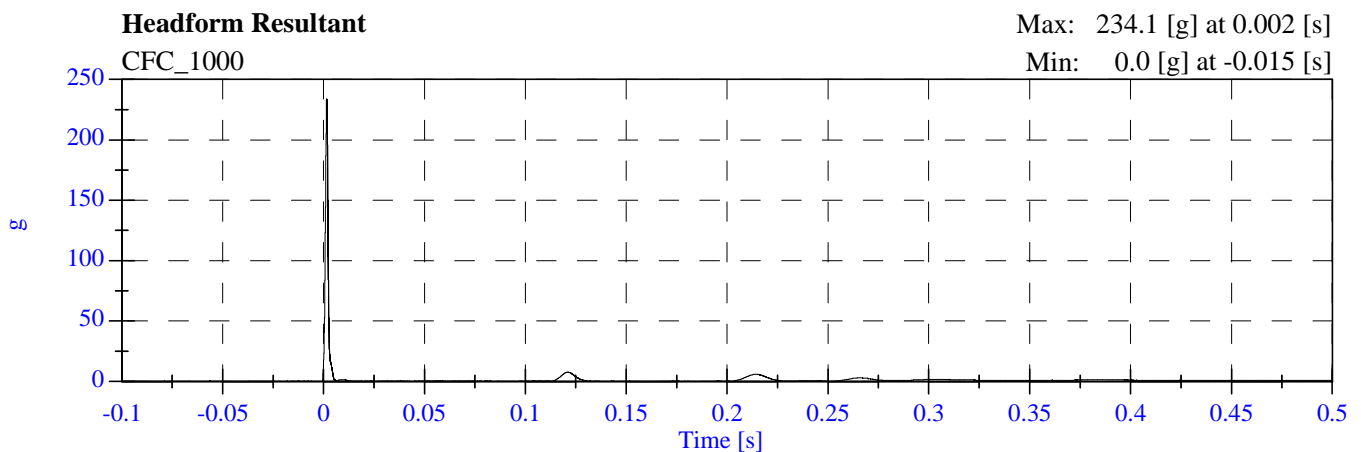
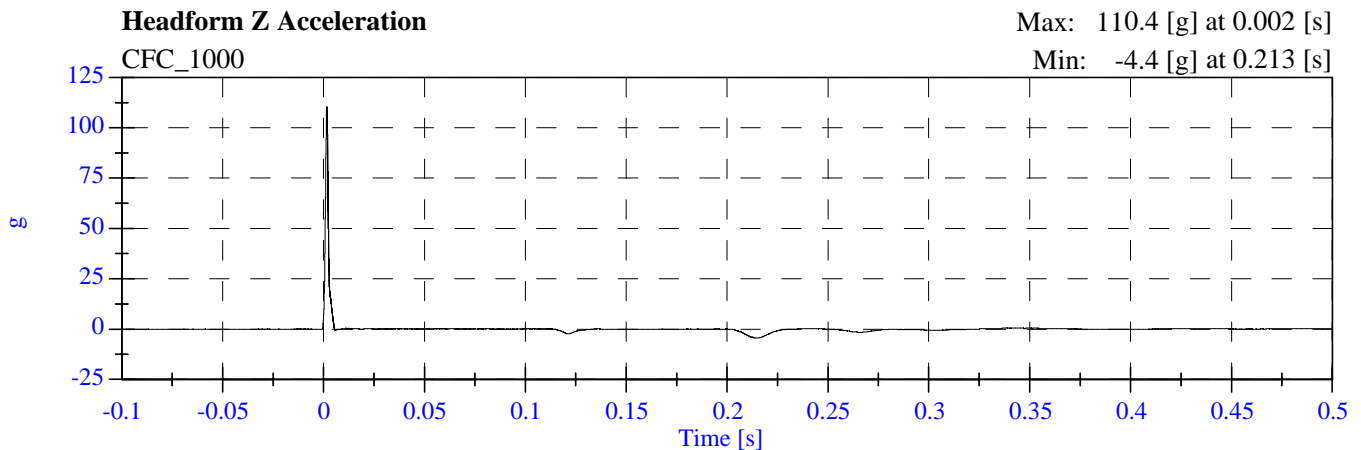
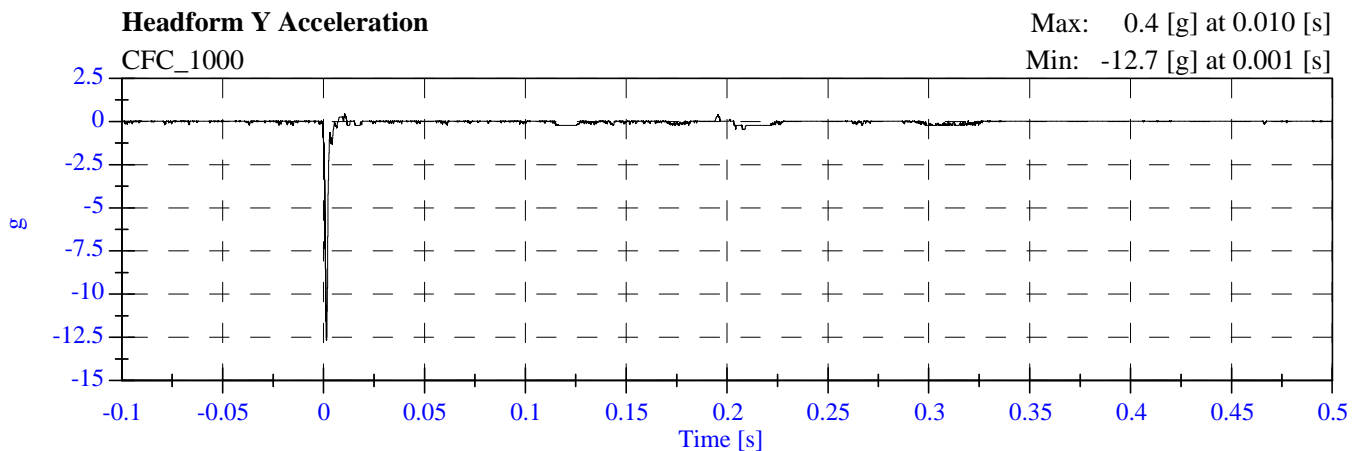
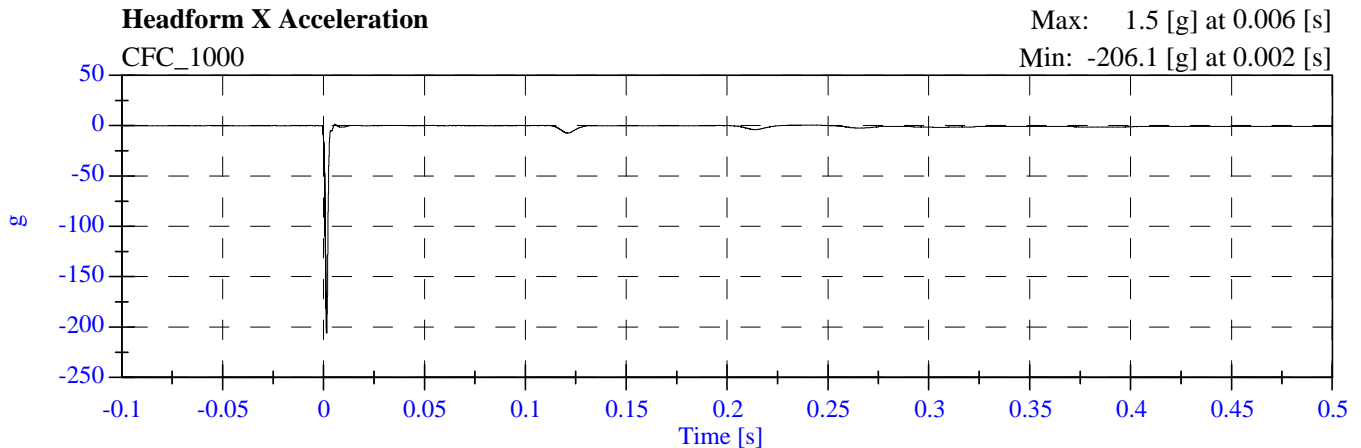
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J38127	3/12/07	9/13/07
2 - LATERAL	ENDEVCO	7264-2000T	J37980	3/12/07	9/13/07
3 - VERTICAL	ENDEVCO	7264-2000T	J37854	3/12/07	9/13/07

REMARKS:

FMVSS 201U - Headform Calibration Drops

C70504 - May 08, 2007



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

MANUFACTURER:		DENTON ATD INC.	
SERIAL NUMBER:		0355	
CALIBRATION DATE:		May 8, 2007	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	22.2	
RELATIVE HUMIDITY	10% to 70%	24	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	261.0	
PEAK LATERAL ACCELERATION	15 Gs Maximum	13.4	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

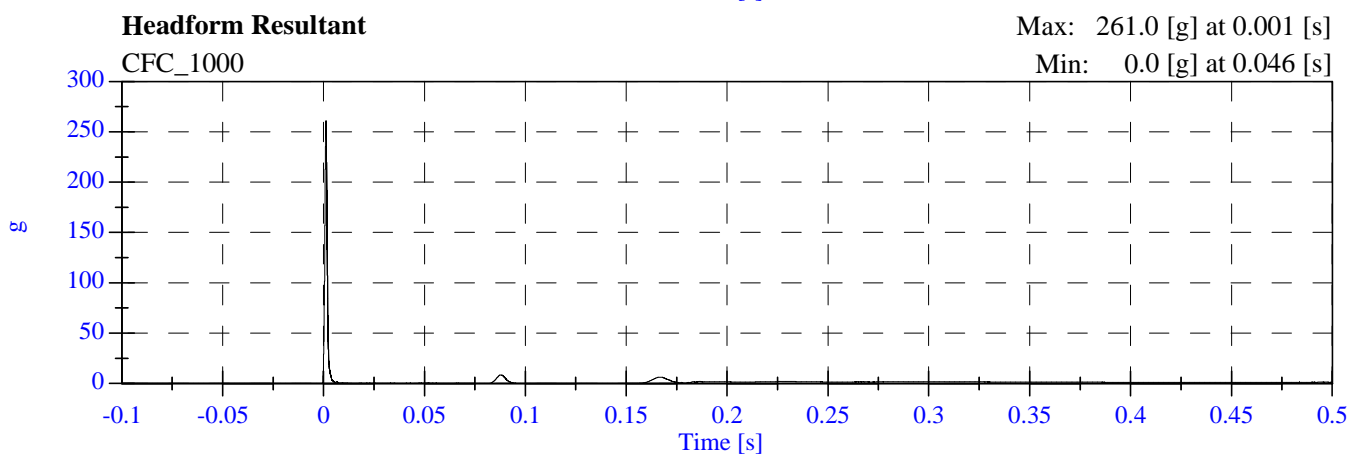
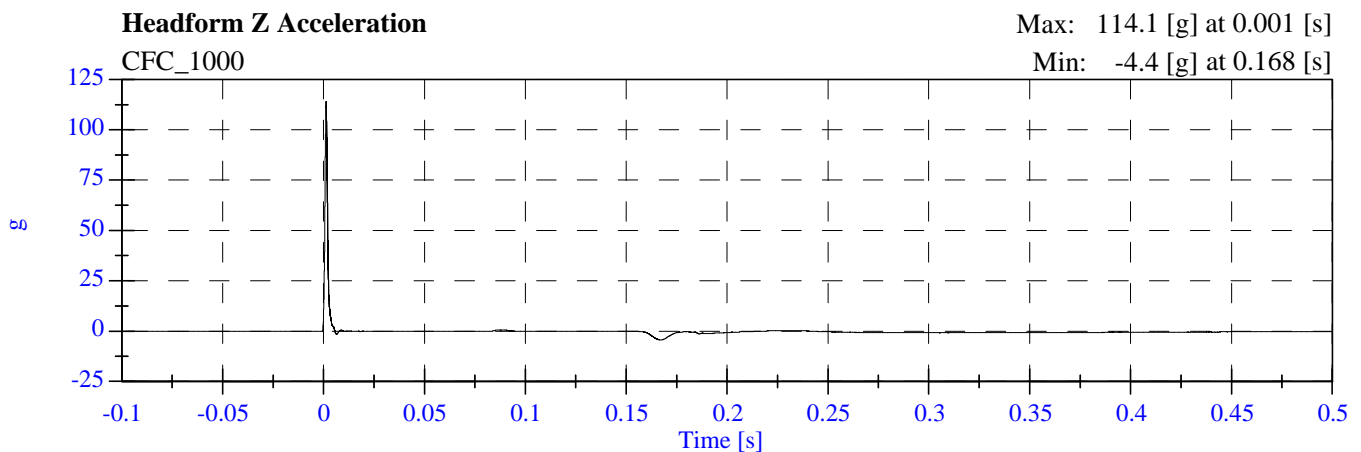
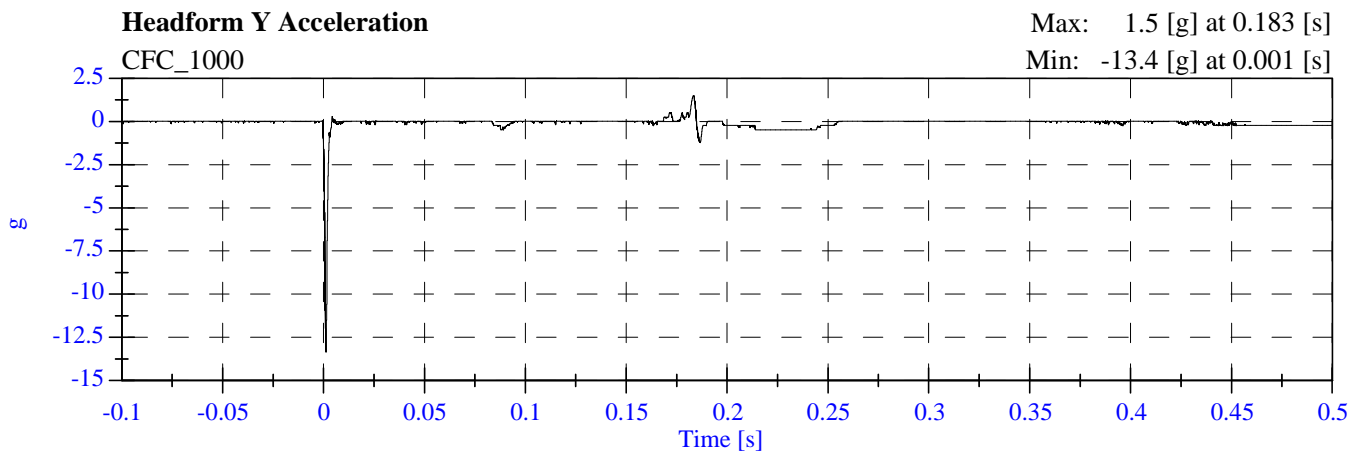
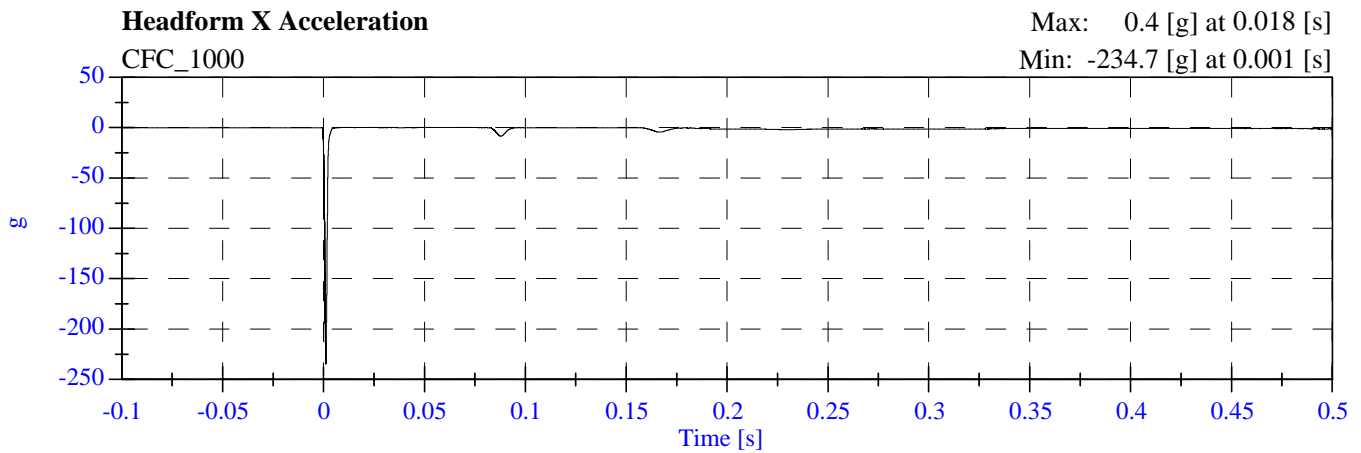
HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J28671	3/12/07	9/13/07
2 - LATERAL	ENDEVCO	7264-2000T	J32779	3/12/07	9/13/07
3 - VERTICAL	ENDEVCO	7264-2000T	J25854	3/12/07	9/13/07

REMARKS:

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

MANUFACTURER:		FIRST TECHNOLOGY SAFETY SYSTEMS	
SERIAL NUMBER:		1255	
CALIBRATION DATE:		May 8, 2007	
TEST PARAMETER	SPECIFICATION	TEST RESULTS	
TEMPERATURE	19°C to 26°C	22.2	
RELATIVE HUMIDITY	10% to 70%	24	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	231.2	
PEAK LATERAL ACCELERATION	15 Gs Maximum	12.9	
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	J41006	3/12/07	9/13/07
2 - LATERAL	ENDEVCO	7264-2000T	J40994	3/12/07	9/13/07
3 - VERTICAL	ENDEVCO	7264-2000T	J41007	3/12/07	9/13/07

REMARKS:

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