

REPORT NUMBER: 201U-CAL-10-07

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

**TOYOTA MOTOR CORPORATION  
2010 Toyota Venza**

NHTSA NUMBER: CA5103

CALSPAN TEST NUMBER: CC2010-07

CALSPAN  
TRANSPORTATION SCIENCES CENTER  
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BUFFALO, NEW YORK 14225



Test Date: June 7, 2010

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 4<sup>th</sup> Floor  
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Date of Report Acceptance

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15. <i>Supplementary Notes</i>																							
16. <i>Abstract</i>  Compliance tests were conducted on the subject vehicle, 2010 Toyota Venza, 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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## TABLE OF CONTENTS

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

## LIST OF DATA SHEETS

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

## **SECTION 1**

### **PURPOSE AND TEST PROCEDURE**

This head impact compliance test is part of the FMVSS 201 Upper Interior Head Impact Protection Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-09-D-00130. The purpose of this head impact compliance test was to determine whether the subject vehicle, a 2010 Toyota Venza, NHTSA No. CA5103, 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 2010 Toyota Venza , NHTSA No. CA5103, was tested at various upper interior locations by a 4.54 kg 50<sup>th</sup> 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:

RP2	OP2	SR3A	BP1
BP2	AP3	AP1	OP1
BP3	URBP	SR2A	AP2

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  $4.54 \pm 0.5$  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:	2010 Toyota Venza
VIN:	4T3ZA3BB3AU022561
DATE OF MANUFACTURE:	12/09 (SEE CERTIFICATION LABEL)
COLOR:	Magnetic Gray

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	2124.96	-571.95	2130.85	2122.56	570.62	2131.33	Relocated 1 circle		-	-	-
AP1 R2	2130.91	-588.68	2100.39	2130.18	587.97	2100.96	125	15	18.68	228.1	338.5
AP2	2018.54	-626.12	2042.90	2018.25	627.09	2042.43	200	50	18.92	169.0	293.9
AP3	1830.67	-661.46	1965.74	1831.27	664.24	1966.19	122	48	18.46	271.2	371.0
FH1	2036.65	-453.56	2132.70	2036.84	445.29	2133.91	-	-	-	-	-
FH2	2021.50	-302.82	2141.23	2023.72	297.91	2141.68	-	-	-	-	-
SR1	2275.97	-531.26	2175.68	2272.77	549.76	2165.03	Relocated 1 circle		-	-	-
SR1 R1	2286.53	-532.48	2157.54	2285.88	545.31	2141.62	-	-	-	-	-
SR2A	2426.57	-543.14	2185.65	2423.34	543.24	2184.91	Relocated 1 circle		-	-	-
SR2A R1	2426.55	-519.78	2173.60	2421.75	518.80	2175.37	270	39	23.75	523.9	561.6
SR2B	2369.62	-544.54	2182.14	2367.33	546.02	2179.88	Relocated 1 circle		-	-	-
SR2B R1	2370.63	-522.27	2168.75	2367.57	518.90	2171.57	-	-	-	-	-
BP1	2668.85	-519.09	2192.93	2668.64	519.55	2191.70	90	10	18.97	185.6	306.5
BP2	2646.45	-635.49	1979.91	2651.15	636.87	1974.75	90	10	23.66	621.1	635.0
BP3	2580.29	-668.27	1977.00	2581.76	667.00	1982.02	302	-10	23.53	914.9	856.7
BP4	2711.07	-690.96	1884.63	2711.87	694.57	1876.86	-	-	-	-	-
URBP	2670.20	-413.44	2214.82	2669.76	416.50	2212.62	270	50	23.30	597.5	617.2
SR3B	3124.66	-539.79	2165.15	3128.36	538.72	2163.75	-	-	-	-	-
SR3A	3319.28	-547.11	2149.19	3319.15	548.80	2145.80	90	38	18.38	159.8	287.0
UROP	3467.19	-410.68	2230.05	3464.68	419.47	2230.53	-	-	-	-	-
OP1	3468.18	-515.11	2202.02	3464.56	515.88	2200.26	270	14	23.98	554.9	585.0
OP2	3523.73	-636.39	2020.56	3526.67	635.78	2021.33	90	8	23.69	668.1	670.4
RP1	3957.66	-528.99	2094.11	3957.76	532.95	2089.84	-	-	-	-	-
RP2	3865.93	-682.62	1943.87	3851.34	696.49	1945.07	Relocated 2 circles		-	-	-
RP2 R2	3847.50	-648.77	1976.04	3847.49	652.56	1970.78	33	10	23.88	644.4	652.6

\*HIC(d)=0.75446(Free Motion Headform HIC)+166.



**DATA SHEET 2-2**

**GENERAL TEST AND VEHICLE PARAMETER DATA**

<b>TEST VEHICLE INFORMATION:</b>									
Year/Make/Model/Body Style:				2010 Toyota Venza					
VIN:				4T3ZA3BB3AU022561					
Month & Year of Manufacture:				12/09 (SEE CERTIFICATION LABEL)					
Vehicle Body Color:				Magnetic Gray					
Engine Data:	4	Cylinders;		CID;	2.7	Liters;	-	cc	
Engine Placement:		X	Longitudinal;	or				Lateral	
Transmission:	6	Speed;		Manual;	X	Automatic;	X	Overdrive	
Final Drive:		Rear Wheel Drive;		Front Wheel Drive;	X	Four Wheel Drive			
Odometer Reading:		20.9	km						
Options:	X	A/C;	X	Power Steering;	X	Pwr.Brakes;	X	Pwr. Windows	
Interior Trim Information :									
1.Tilt / Telescopic Steering wheel									
2.reclining Fold-flat 60/40 Rear Seat w/Armrest									
3.									

<b>DATA FROM TIRE PLACARD:</b>									
Tire Pressure (at capacity);				220		kPa FRONT			
				220		kPa REAR			
Recommended Tire Size:				P245/55R19					
Tires on Test Vehicle:		P245/55R19		Manufacturer:			Bridgestone		
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)=				370.0		kg (A)			
No. of Occupants x 68 kg. =				340		kg (B)			
Rated Cargo/Luggage Weight (RCLW) =				30		kg (A-B) Max. RCLW = 136 kg.			

**DATA SHEET 2-2**

**GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)**

<b>TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:</b>							
Left Front	=	499.5	kg	Left Rear	=	364.0	kg
Right Front	=	472.0	kg	Right Rear	=	366.5	kg
TOTAL FRONT	=	971.5	kg	TOTAL REAR	=	730.5	kg
% of Total Weight	=	57.1	%	% of Total Weight	=	42.9	%
TOTAL WEIGHT	=	1702.0				kg	

<b>CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:</b>		
Total Test Vehicle Delivered Weight=	1702	kg (A)
+ Rated Cargo/Luggage Weight =	30	kg (B)
TEST VEHICLE TARGET WEIGHT =	1732	kg (A+B)

<b>WEIGHT OF TEST VEHICLE (FULLY LOADED):</b>							
Left Front	=	508.5	kg	Left Rear	=	377.5	kg
Right Front	=	465.0	kg	Right Rear	=	373.5	kg
TOTAL FRONT	=	973.5	kg	TOTAL REAR	=	751.0	kg
% of Total Weight	=	56.5	%	% of Total Weight	=	43.5	%
TOTAL TEST WEIGHT	=	1724.5					
Weight of vehicle secured in test vehicles cargo area	=	22				kg	

<b>TEST VEHICLE ATTITUDE (all dimensions in millimeters):</b>				
AS DELIVERED:	Left Front	830	Left Rear	849
	Right Front	840	Right Rear	851
FULLY LOADED:	Left Front	830	Left Rear	845
	Right Front	839	Right Rear	848
Test Vehicle Wheelbase:	2775		millimeters	

<b>TEST VEHICLE PITCH AND ROLL ANGLES:</b>				
AS DELIVERED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↑0.5↓	Front Bumper	↑0.2↓
	Right Door Sill	↓0.4↑	Rear Bumper	↓0.2↑
FULLY LOADED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↑0.4↓	Front Bumper	↑0.1↓
	Right Door Sill	↓0.4↑	Rear Bumper	↓0.2↑
AS TESTED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↑0.4↓	Front Bumper	↑0.1↓
	Right Door Sill	↓0.4↑	Rear Bumper	↓0.2↑

DATA SHEET 2-3

APPROACH ANGLE LIMITS

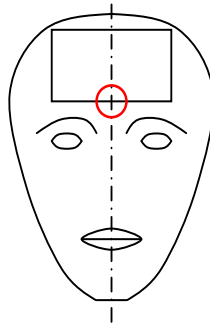
Left Side					Right Side				
Target Code	Horizontal Angles (deg.)		Vertical Angles (deg.)		Target Code	Horizontal Angles (deg.)		Vertical Angles (deg.)	
	Minimum	Maximum	Minimum	Maximum		Minimum	Maximum	Minimum	Maximum
AP1	200*	243*	-5	15	AP1	117*	157*	-5	15
AP2	200*	243*	-5	50	AP2	117*	157*	-5	50
AP3	200*	243*	-5	48	AP3	117*	157*	-5	48
BP1	203*	302*	-10	10	BP1	90*	157*	-10	10
BP2	Any		0	10	BP2	Any		0	10
BP3	203*	302*	-10	N/A	BP3	90*	157*	-10	N/A
BP4	203*	302*	-10	N/A	BP4	90*	157*	-10	N/A
OP1	270		-10	14	OP1	90		-10	14
OP2	270		-10	8	OP2	90		-10	8
RP1	270	345	-10	10	RP1	15	90	-10	10
RP2	270	345	-10	10	RP2	15	90	-10	10
FH1	180		0	N/A	FH1	180		0	N/A
FH2	180		0	N/A	FH2	180		0	N/A
RH	360		0	50	RH	0		0	50
SR1	270		0	N/A	SR1	90		0	N/A
SR2A	270		0	39	SR2A	90		0	39
SR2B	270		0	N/A	SR2B	90		0	N/A
SR3	270		0	N/A	SR3	90		0	N/A
SR3GH	270		0	38	SR3GH	90		0	38
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  
 \* Estimated value based on FARO measurements  
 N/A – Not Available

**DATA SHEET 2-4**

**SUMMARY TARGET IMPACT LOCATION ON FMH**

VEHICLE YEAR/MAKE/MODEL/STYLE:	2010 Toyota Venza
VIN:	4T3ZA3BB3AU022561
DATE OF MANUFACTURE:	12/09 (SEE CERTIFICATION LABEL)
COLOR:	Magnetic Gray



↖ RIGHT SIDE OF FACE

TARGET	Distance Above Point 0 (mm)	Distance Over From Pt. O (mm)
RP2 RH	28	18 L
OP2 RH	12	7 L
SR3A RH	8	1 R
BP1 RH	50	2 L
BP2 RH	7	3 R
AP3 RH	17	10 L
AP1 RH	24	45 R
OP1 LH	38	0
BP3 LH	9	15 L
URBP LH	39	0
SR2A LH	25	2 L
AP2 LH	24	8 R

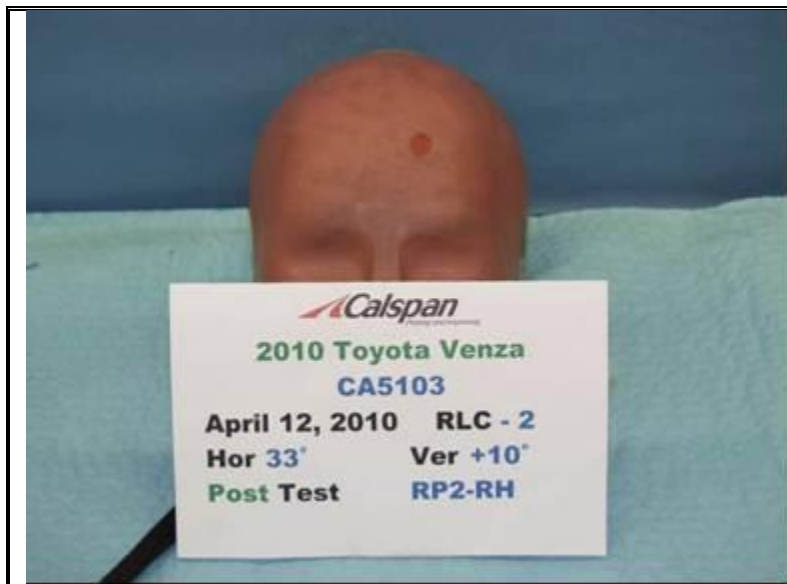
**SECTION 3**

**SUMMARY OF TEST RESULTS AND DATA PLOTS**

VEHICLE YEAR/MAKE/MODEL/STYLE:	2010 Toyota Venza
VIN:	4T3ZA3BB3AU022561
DATE OF MANUFACTURE:	12/09 (SEE CERTIFICATION LABEL)
COLOR:	Magnetic Gray

Test Number:	01
Test Date:	12 April 2010
Target Location:	RP2 RH
Target Code:	RP2 RH
Horizontal Impact Angle:	33
Vertical Impact Angle:	10
Ambient Temperature:	21
Relative Humidity:	22.6%
Time of Impact:	3:15
Headform Number:	1142

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	-18	<input type="checkbox"/>	mm right <input checked="" type="checkbox"/> mm left
On Centerline	28		mm up



POST-IMPACT RP2 HEADFORM

Free Motion HIC	644.4
HIC(d)	652.6
Impact Velocity (kph)	23.88
HIC T1 (msec)	5.0
HIC T2 (msec)	14.1

# RP2 RH Side CA1503 - RP2-RH R2

FMH Headform 1142

Location: RP2-RH R2

Test Date: April 12, 2010

Work File: fmh

## -----TEST RESULTS-----

Lab Temperature: 21 C

HICd: 652.6

Lab Humidity: 22.6 %

HIC (36ms): 644.4

Velocity at Impact: 23.88 KPH

t1: 5.0 msec

t2: 14.1 msec

Free Flight Distance: 221.08 mm

Duration: 9.1 msec

Maximum: 104.1 g

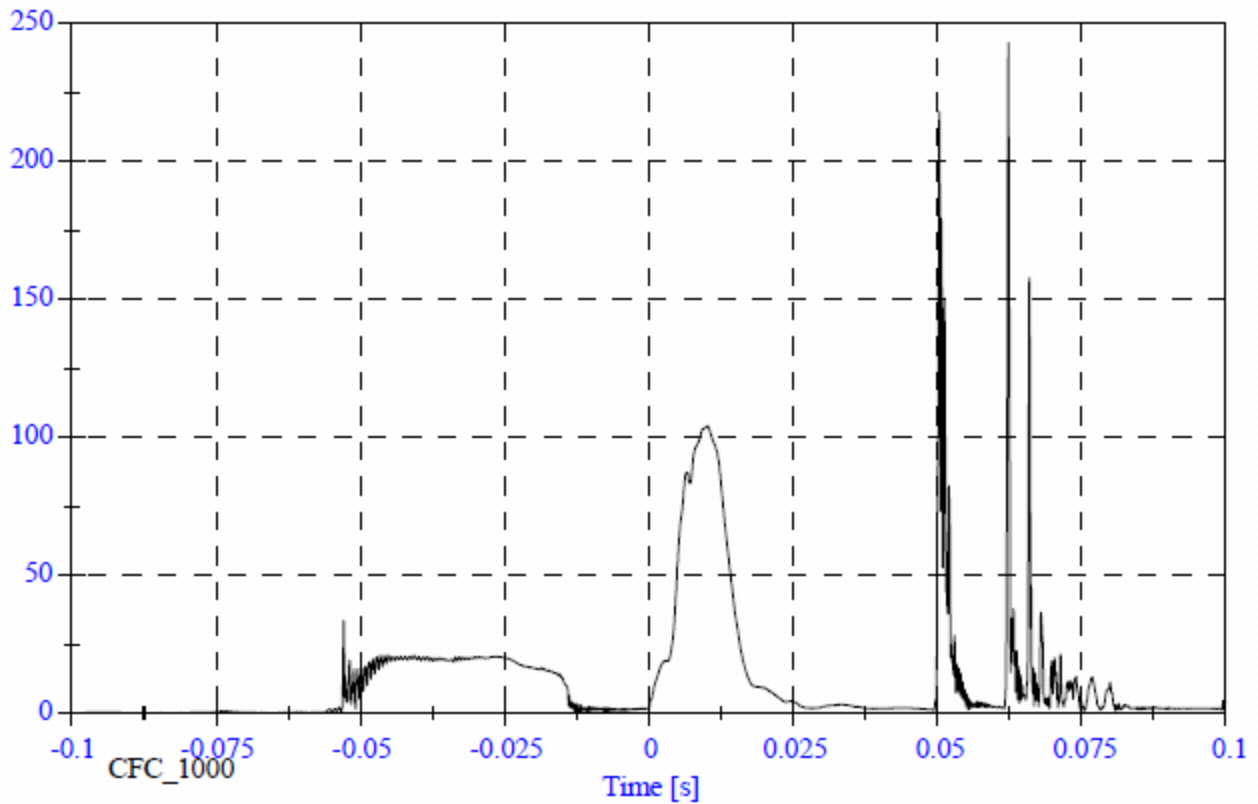
Average Acceleration: 12.1 g

RP2 RH Side

Headform Resultant

Max: 104.1 [g] at 0.010 [s]

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

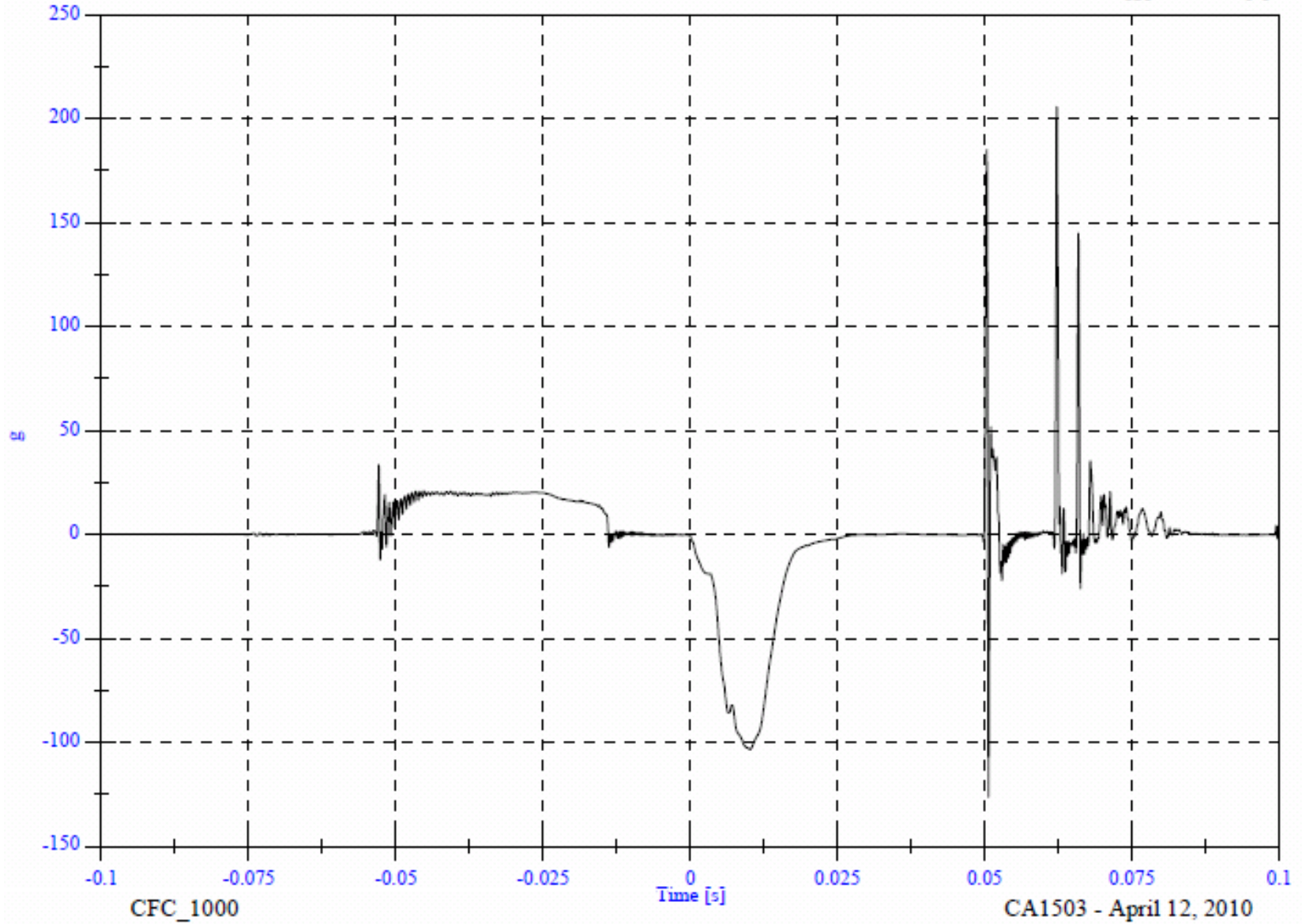


RP2 RH Side

Headform X Acceleration

Max: 205.6 [g] at 0.062 [s]

Min: -126.4 [g] at 0.051 [s]



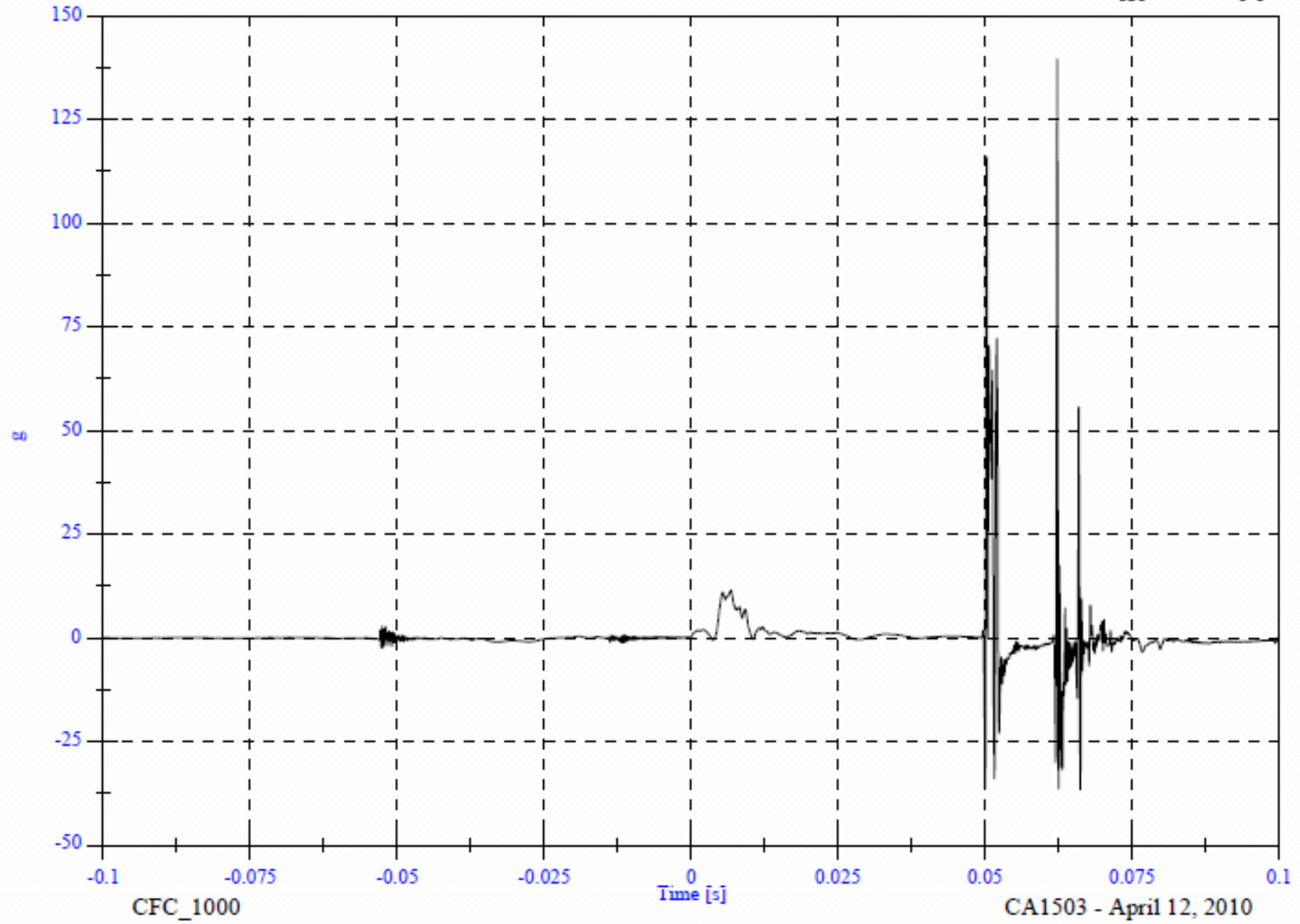


RP2 RH Side

Headform Y Acceleration

Max: 139.5 [g] at 0.062 [s]

Min: -36.5 [g] at 0.066 [s]

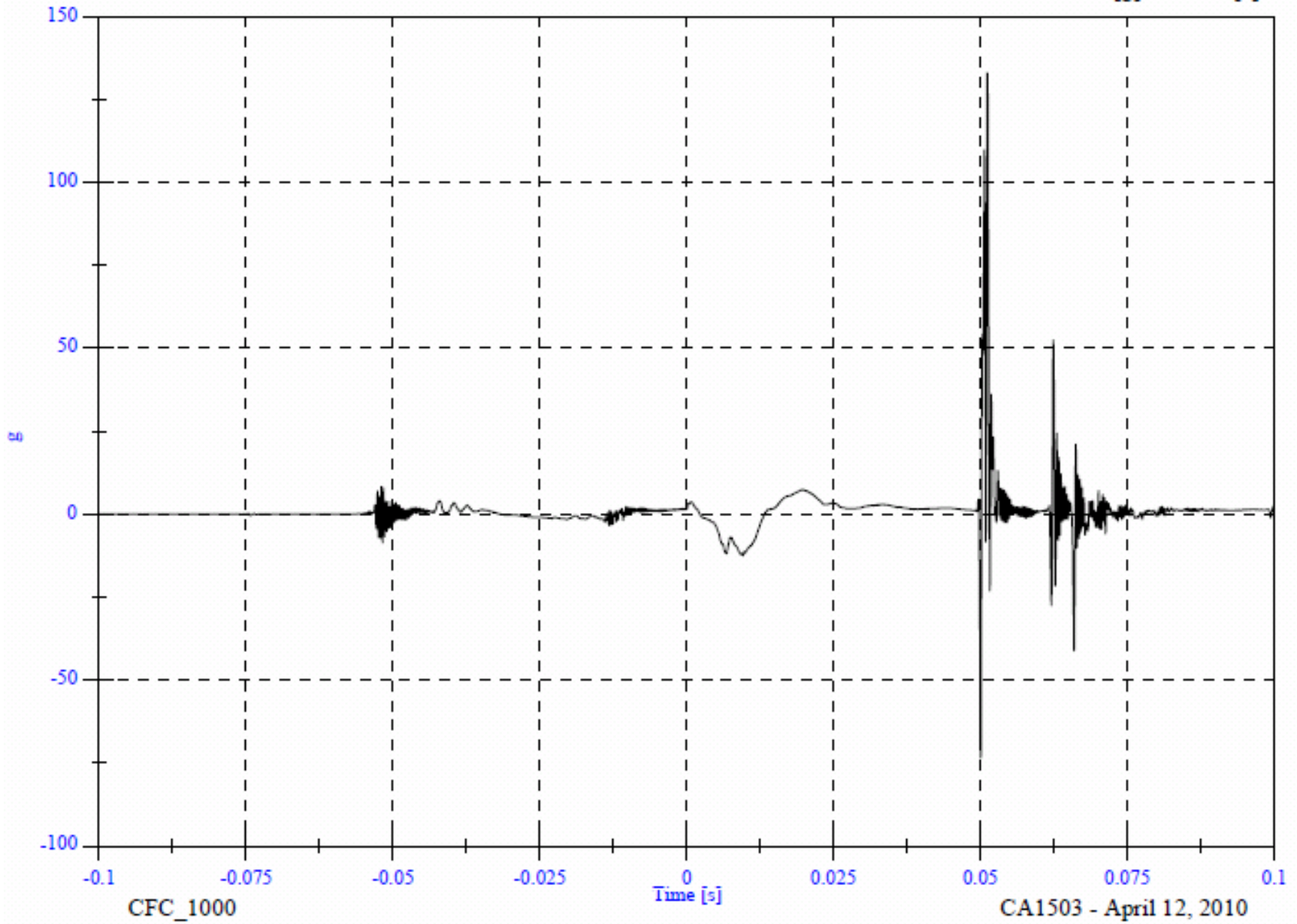


RP2 RH Side

Headform Z Acceleration

Max: 133.0 [g] at 0.051 [s]

Min: -73.4 [g] at 0.050 [s]

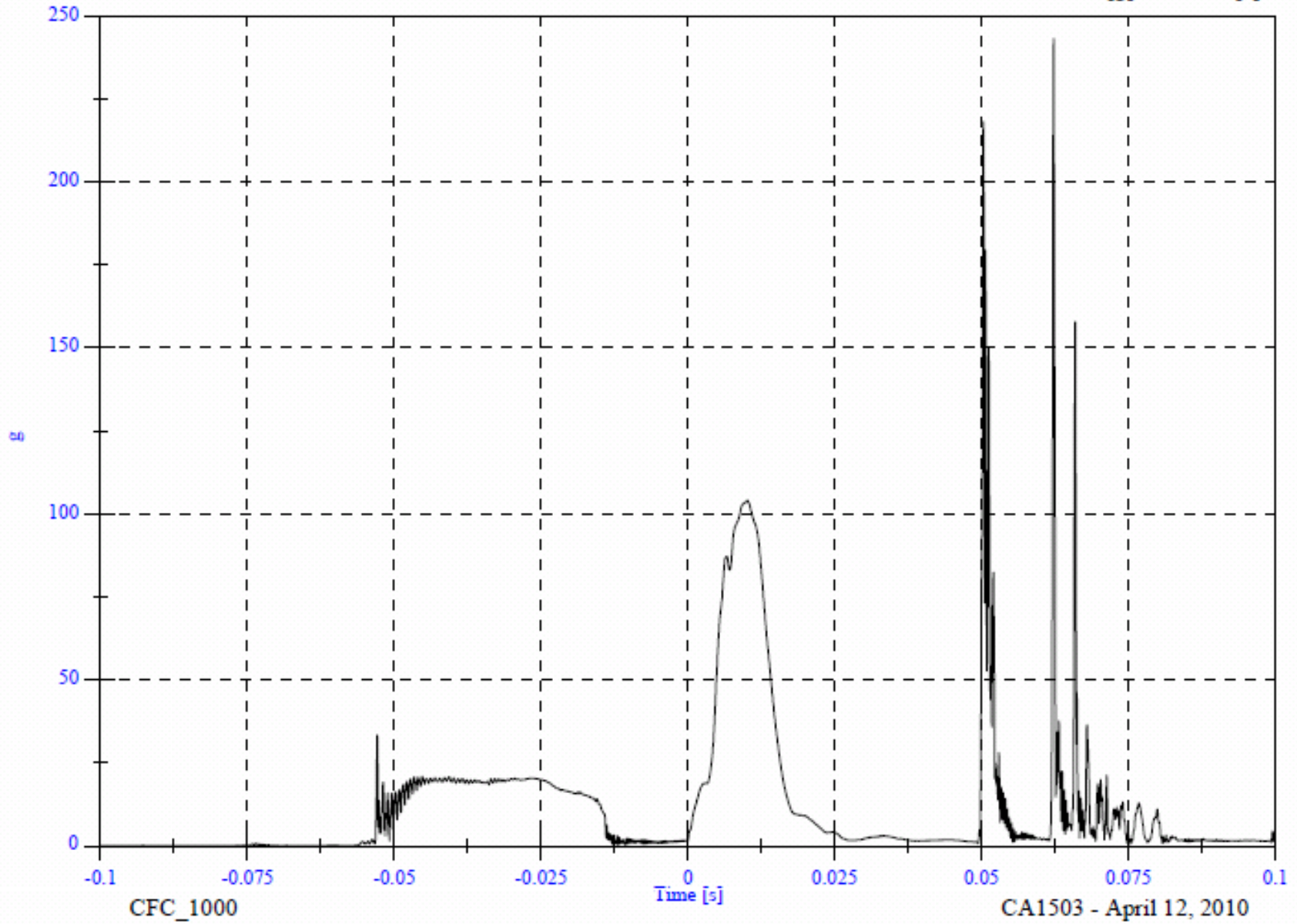


RP2 RH Side

Headform Resultant

Max: 243.1 [g] at 0.062 [s]

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

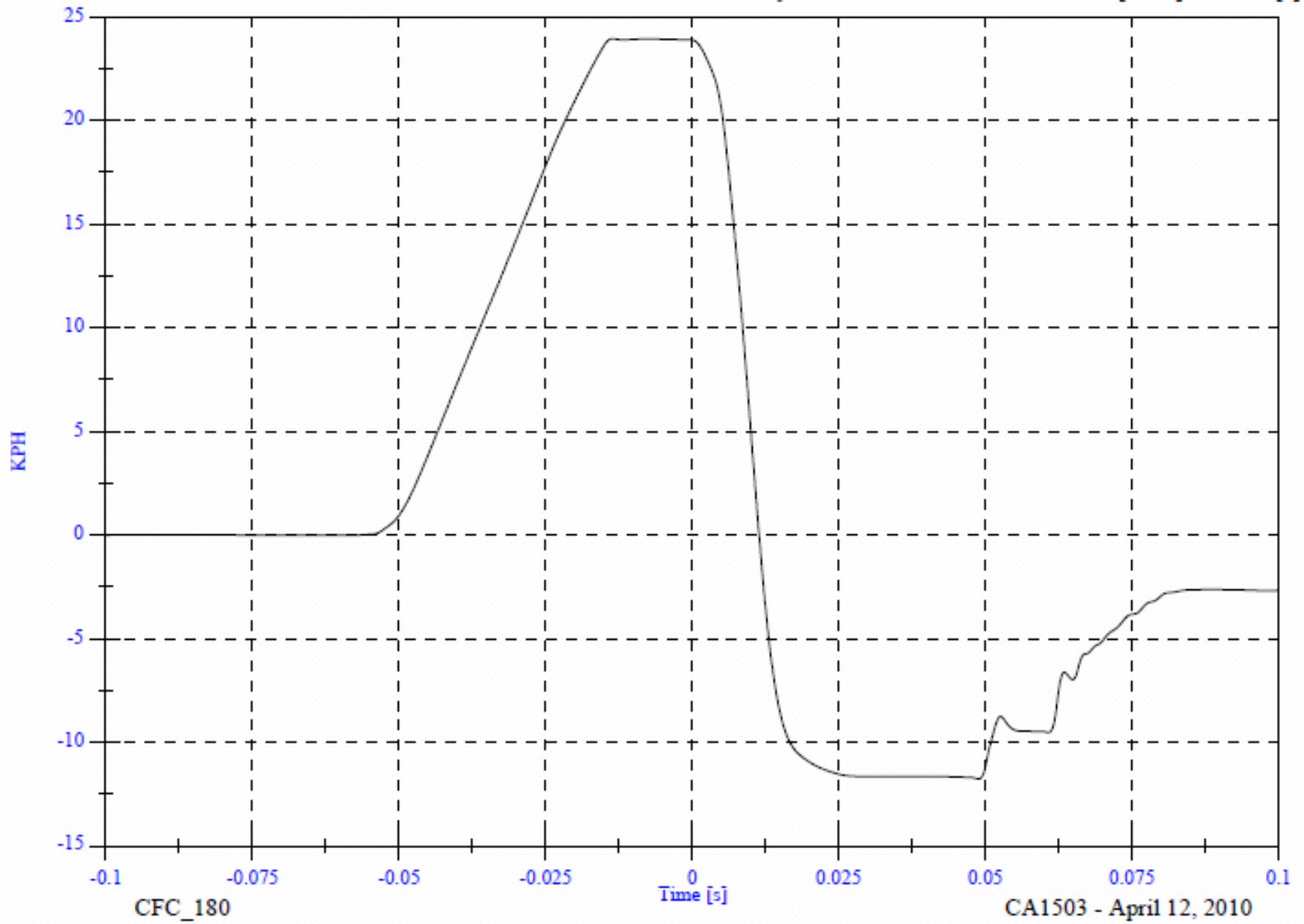


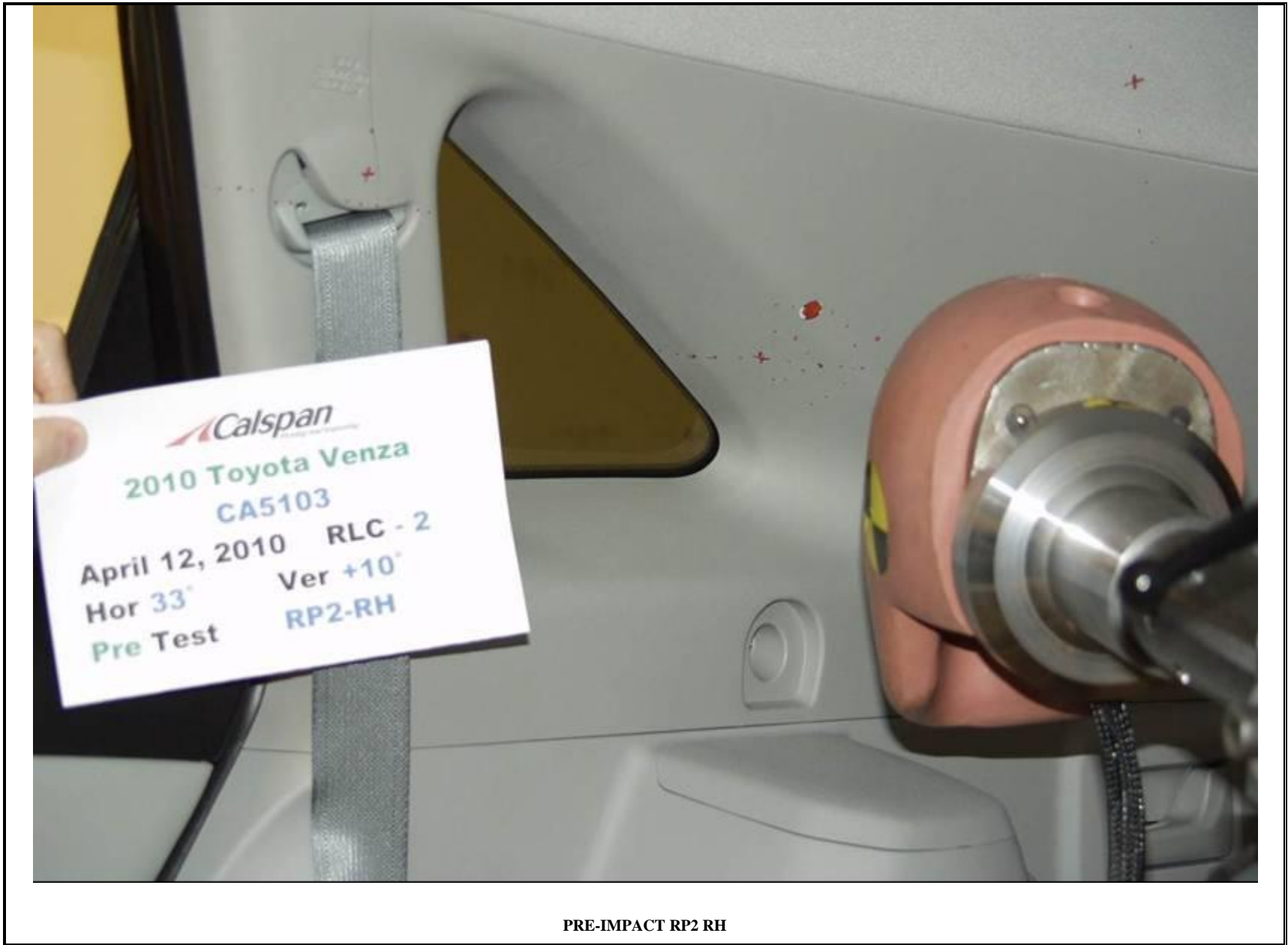
RP2 RH Side

Headform Velocity

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

Min: -11.8 [KPH] at 0.049 [s]





PRE-IMPACT RP2 RH



**POST-IMPACT RP2 RH**

Note: Post Impact picture was not taken. Post test picture clearly shows impact area post impact.

VEHICLE YEAR/MAKE/MODEL/STYLE:	2010 Toyota Venza
VIN:	4T3ZA3BB3AU022561
DATE OF MANUFACTURE:	12/09 (SEE CERTIFICATION LABEL)
COLOR:	Magnetic Gray

Test Number:	02
Test Date:	12 April 2010
Target Location:	OP2 RH
Target Code:	OP2 RH
Horizontal Impact Angle:	90
Vertical Impact Angle:	8
Ambient Temperature:	21
Relative Humidity:	22.6%
Time of Impact:	3:45
Headform Number:	1140

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	12		mm up



POST-IMPACT OP2 RH HEADFORM

Free Motion HIC	668.1
HIC(d)	670.4
Impact Velocity (kph)	23.69
HIC T1 (msec)	1.4
HIC T2 (msec)	9.6

# OP2 RH Side CA5103 - OP2 RH

FMH Headform 1140

Location: OP2 RH

Test Date: April 12, 2010

Work File: fmh

## -----TEST RESULTS-----

Lab Temperature: 21 C

HICd: 670.4

Lab Humidity: 22.6 %

HIC (36ms): 668.1

Velocity at Impact: 23.69 KPH

t1: 1.4 msec

t2: 9.6 msec

Free Flight Distance: 223.37 mm

Duration: 8.1 msec

Average Acceleration: 8.8 g

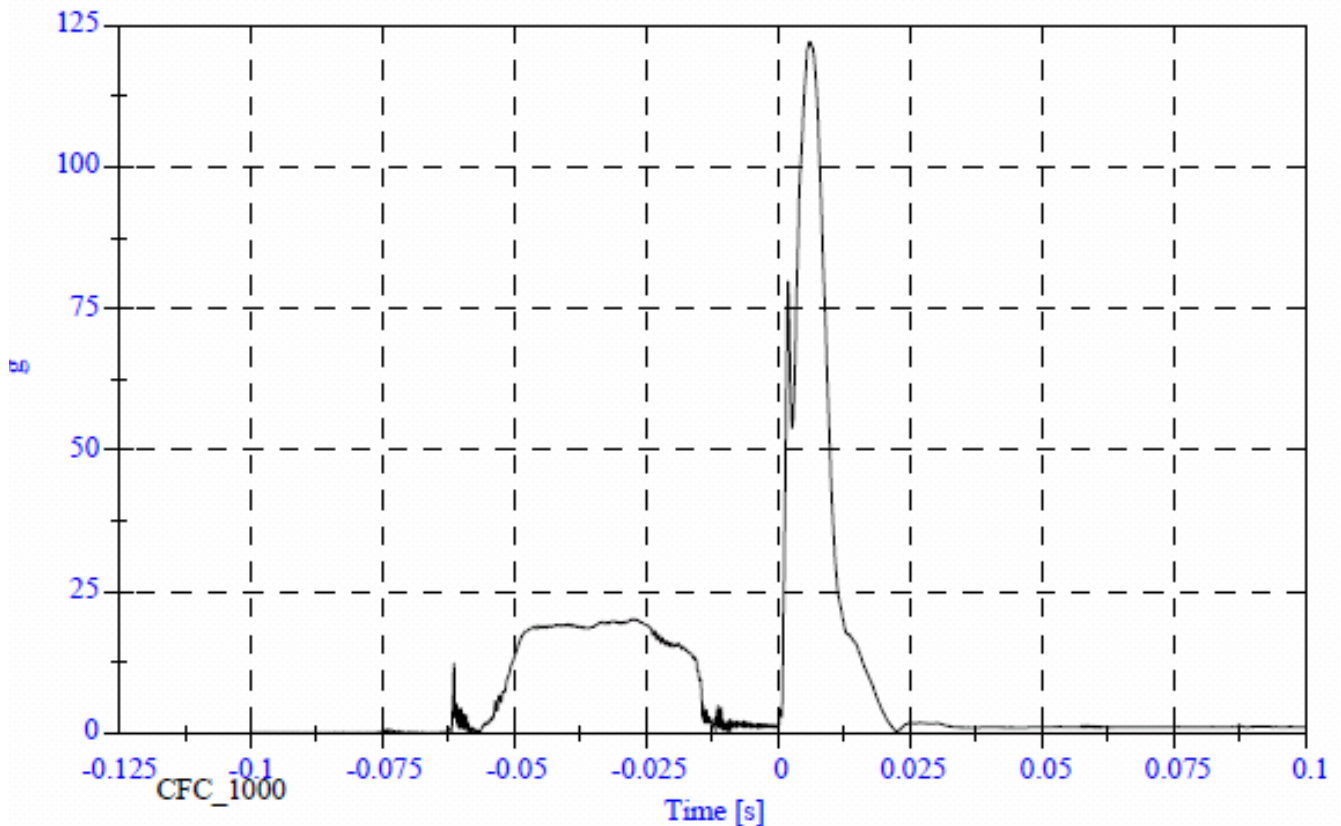
Maximum: 122.1 g

OP2 RH Side

Max: 122.1 [g] at 0.006 [s]

Headform Resultant

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



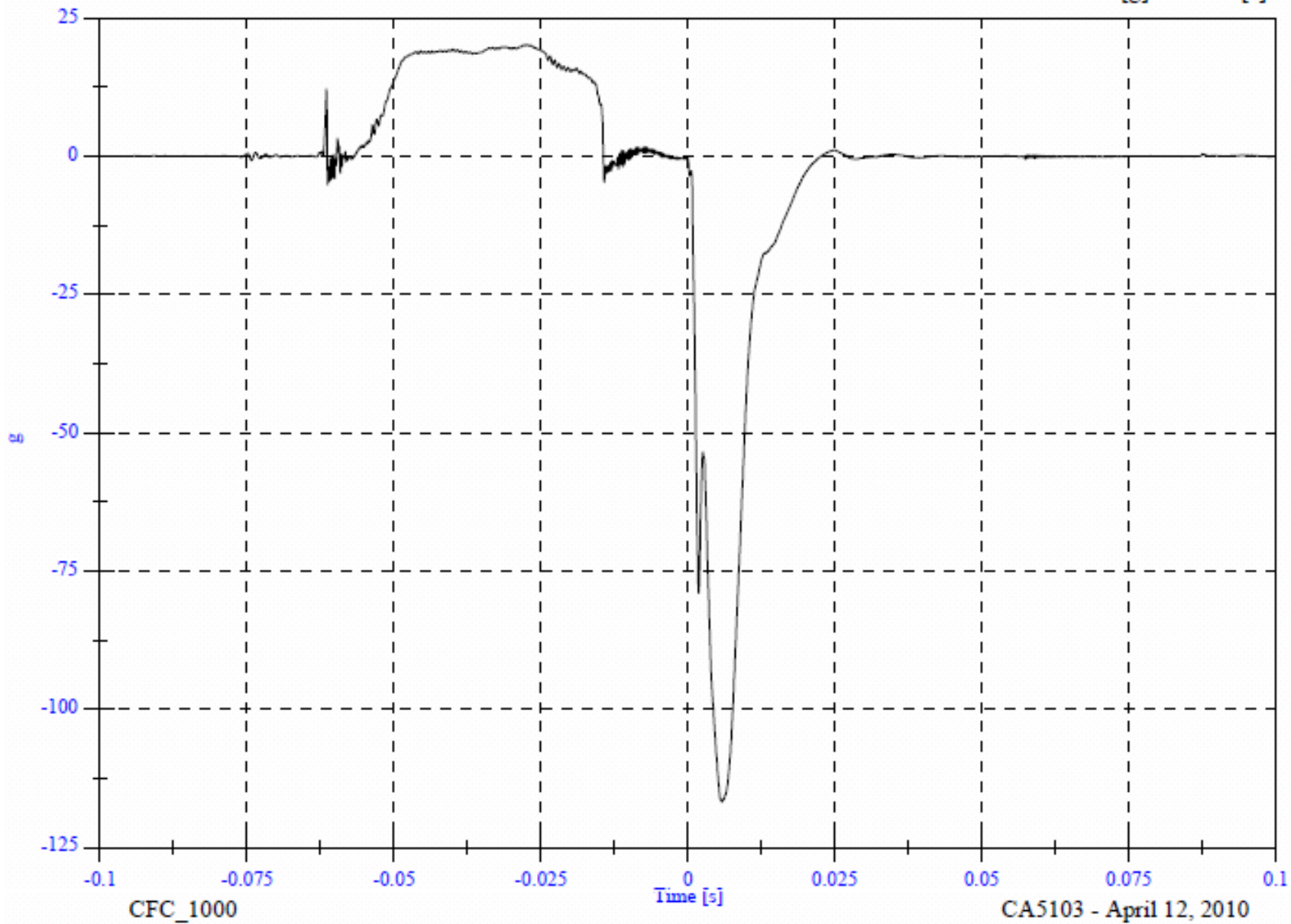


OP2 RH Side

Headform X Acceleration

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

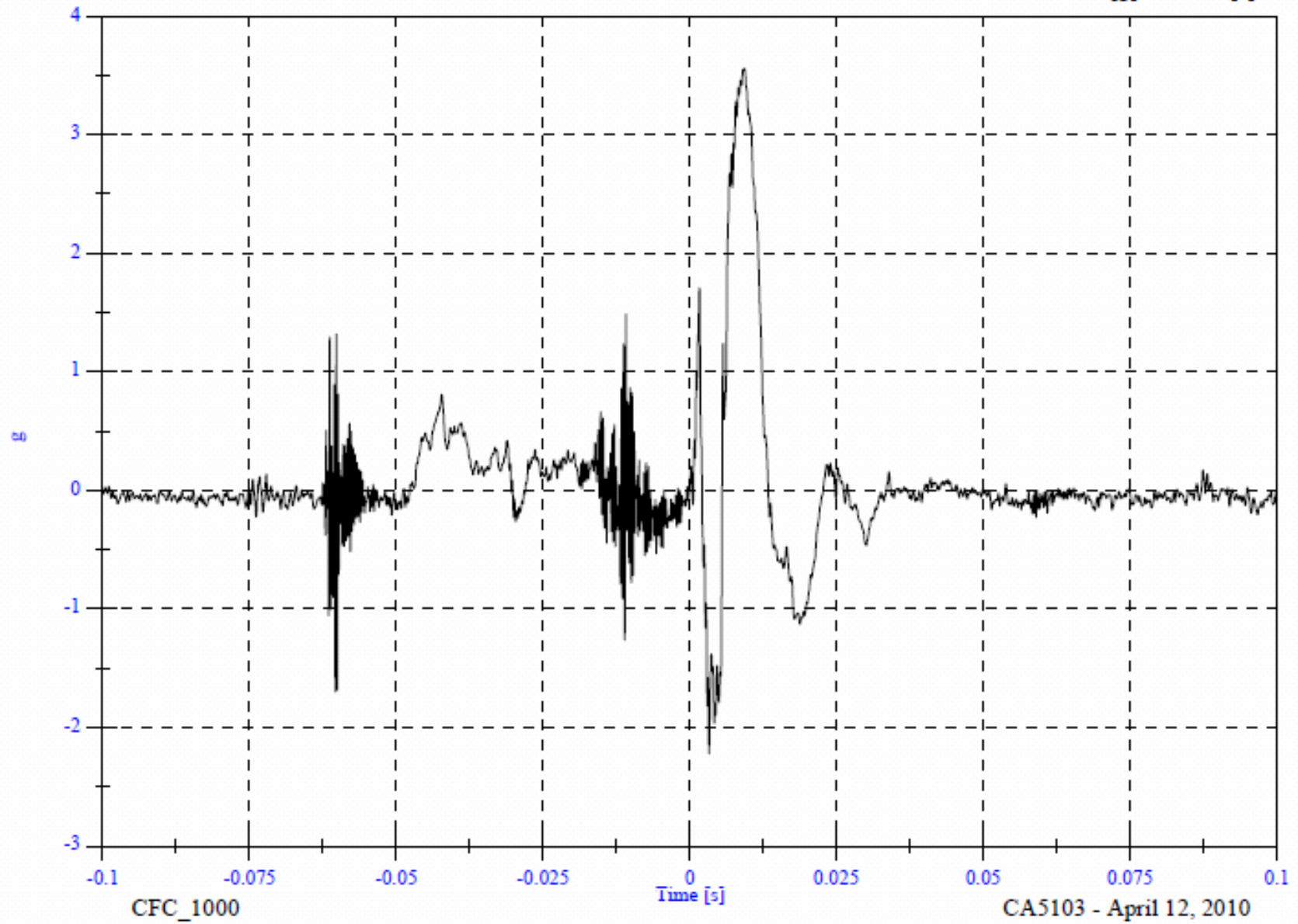
Min: -116.8 [g] at 0.006 [s]



OP2 RH Side

Headform Y Acceleration

Max: 3.6 [g] at 0.009 [s]  
Min: -2.2 [g] at 0.003 [s]

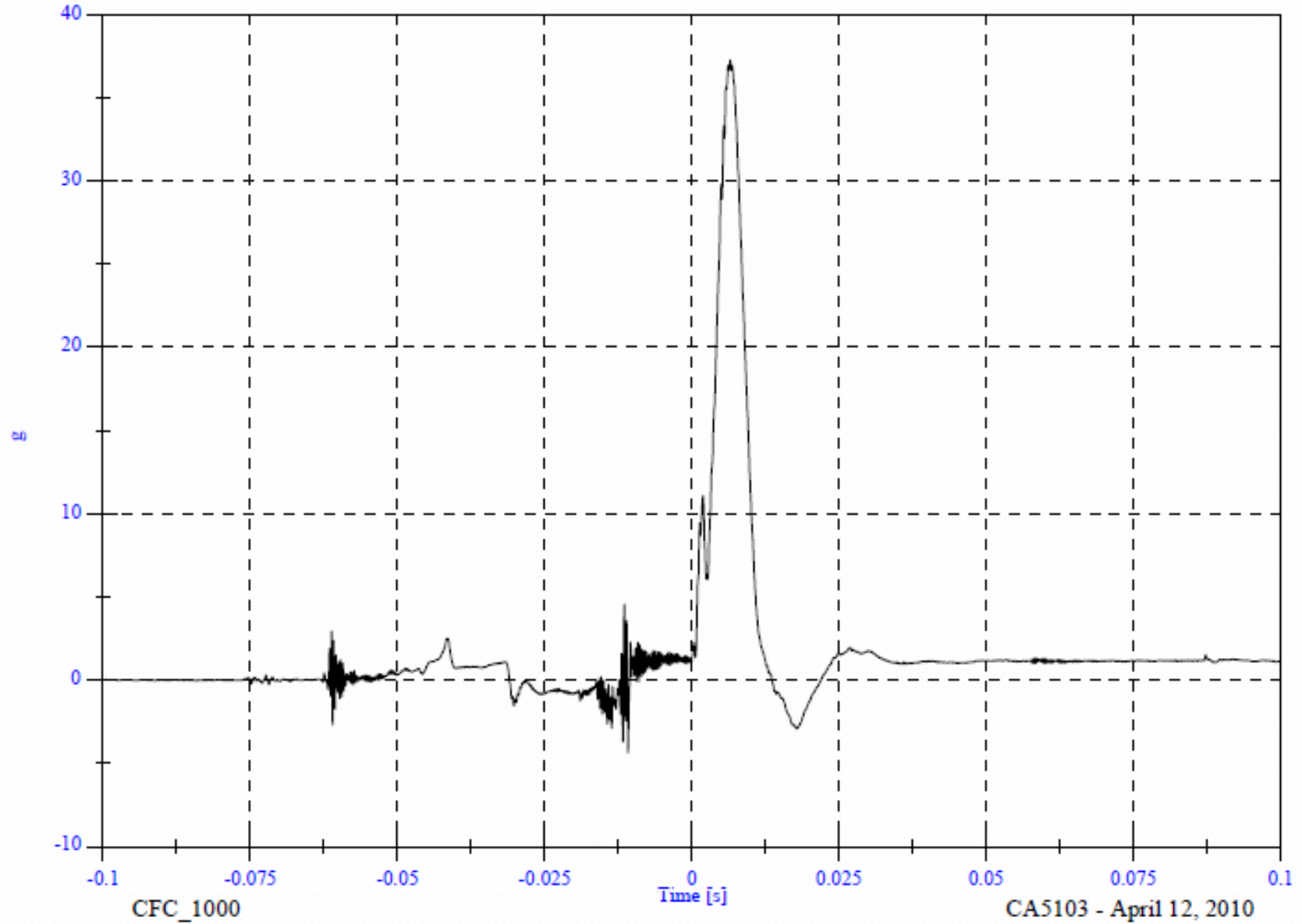


OP2 RH Side

Headform Z Acceleration

Max: 37.3 [g] at 0.007 [s]

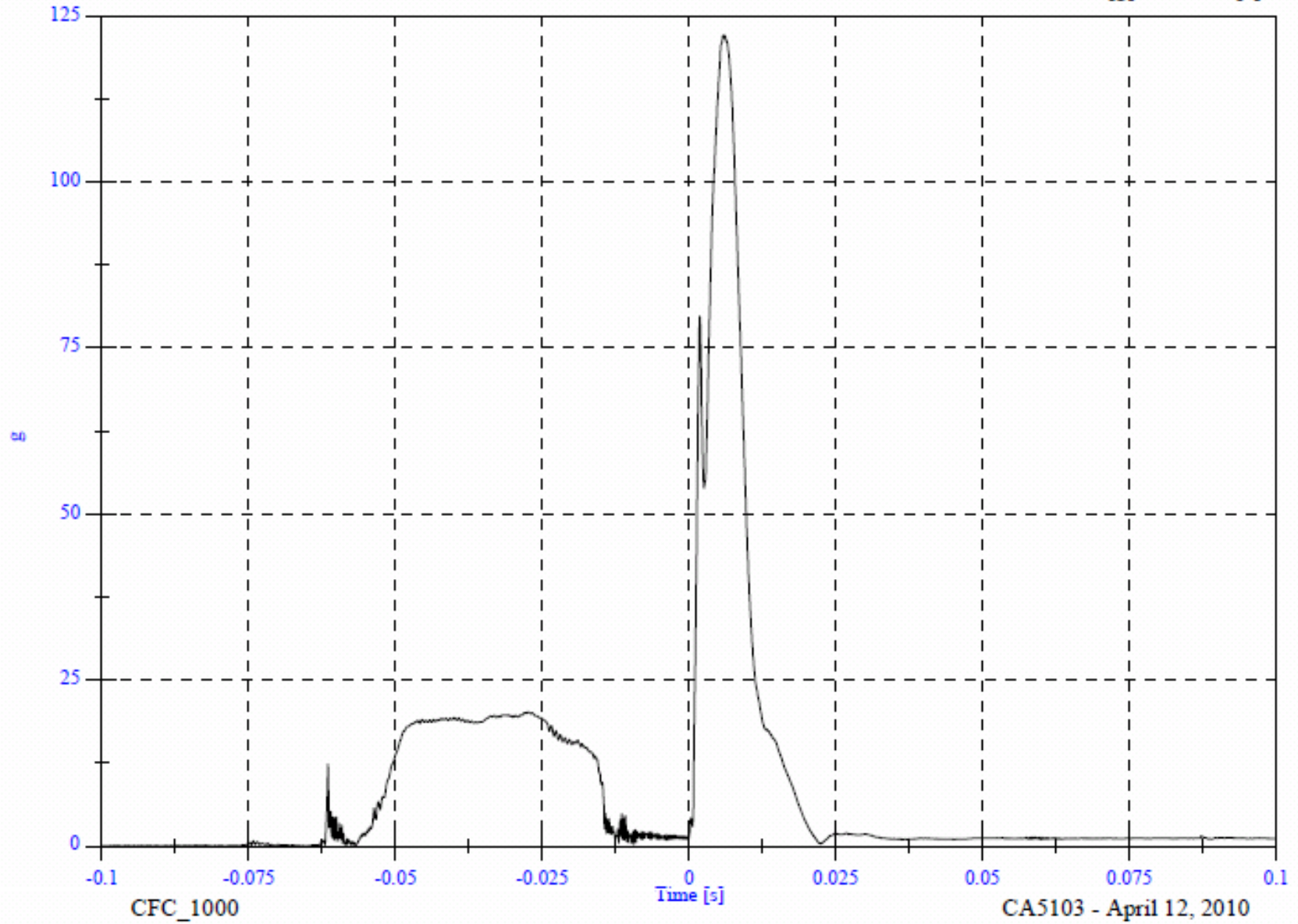
Min: -4.4 [g] at -0.011 [s]

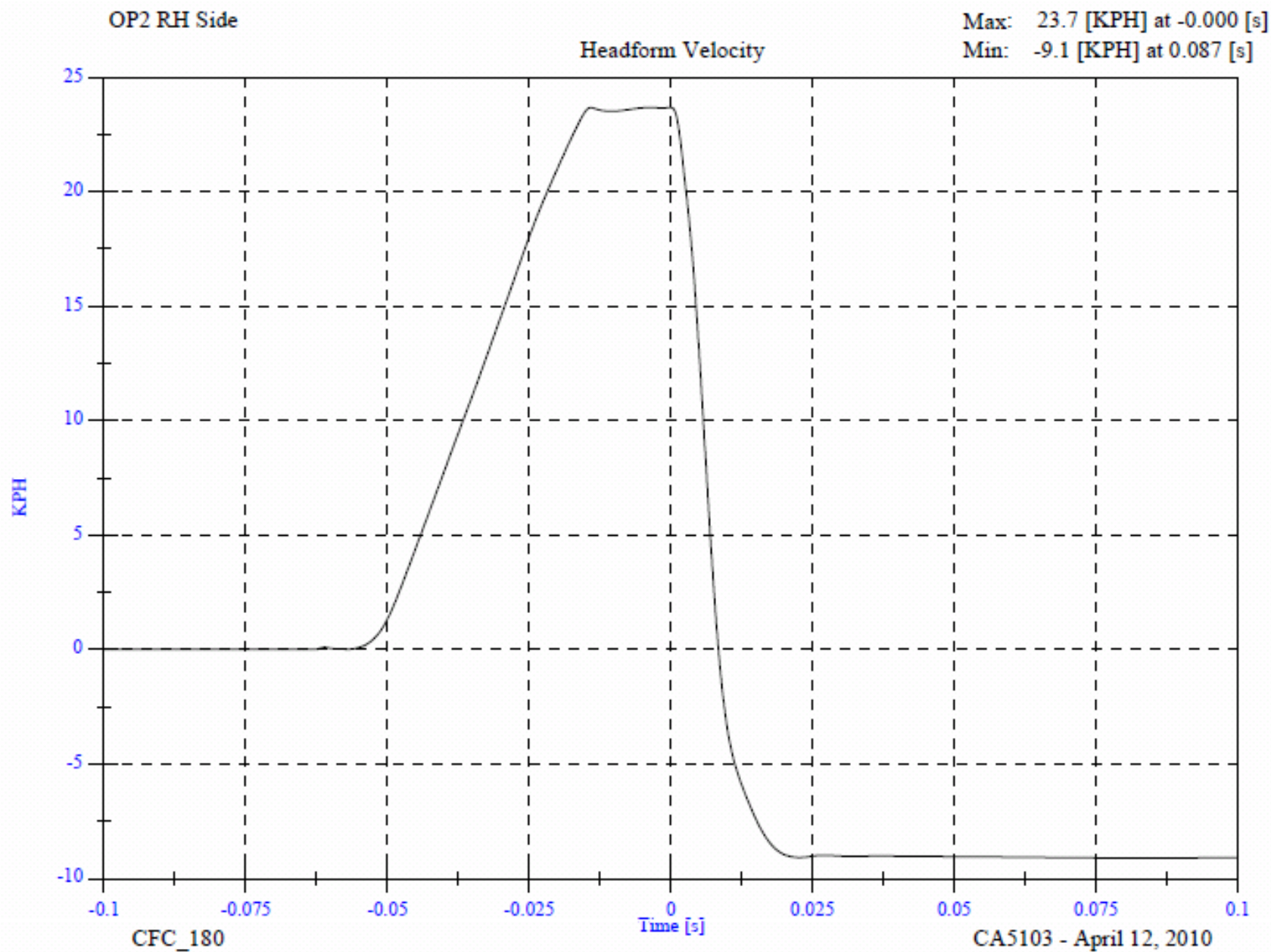


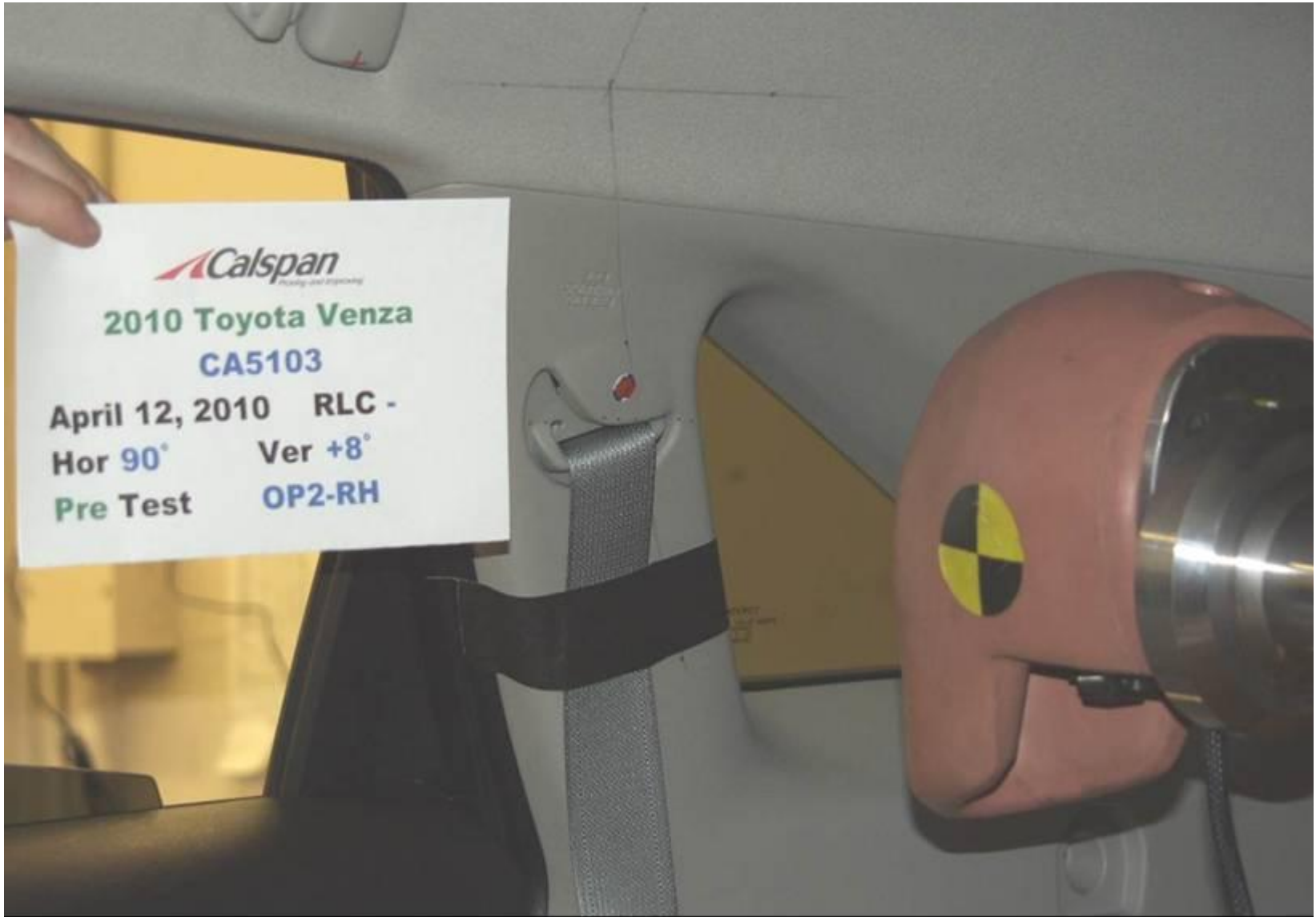
OP2 RH Side

Headform Resultant

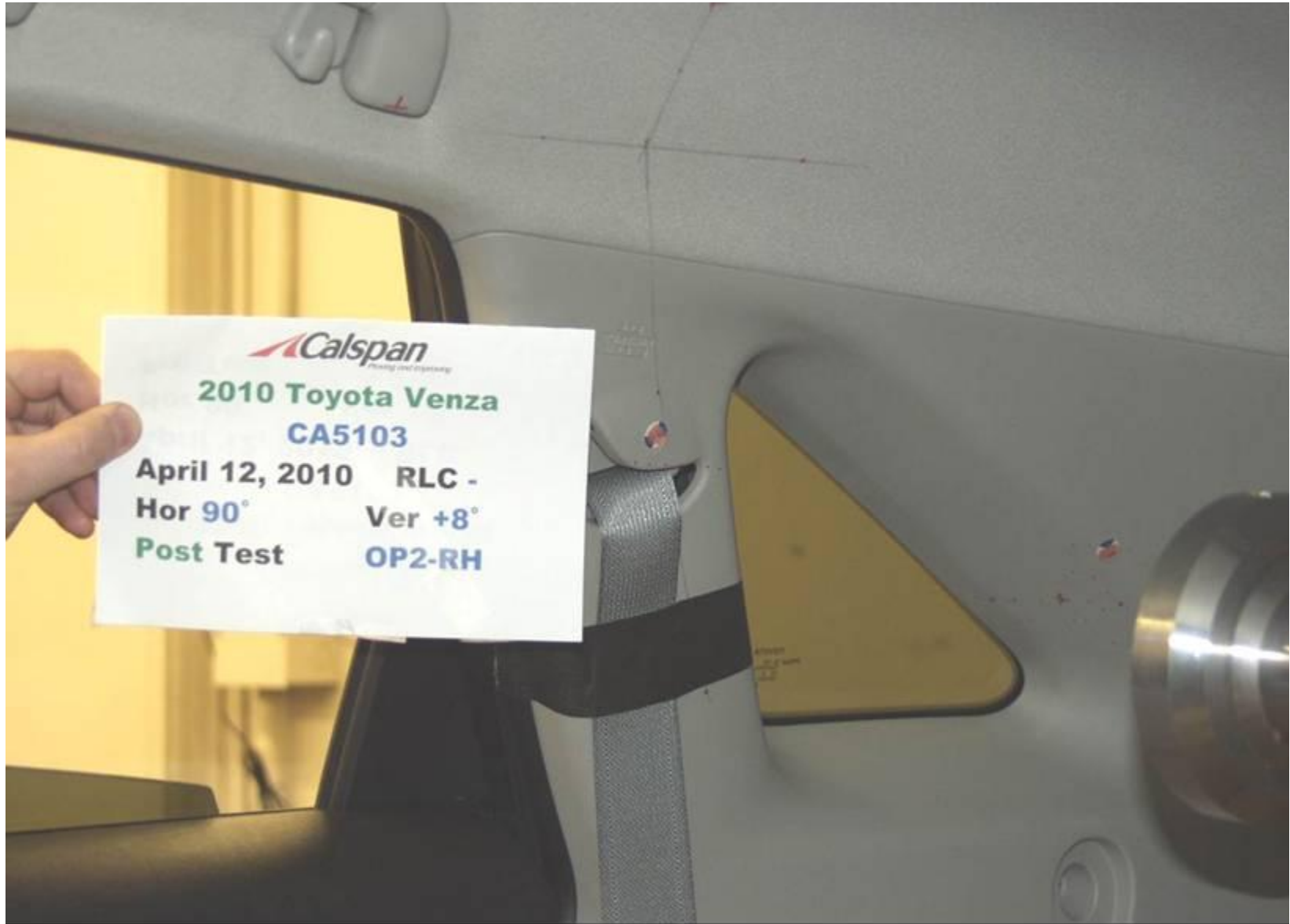
Max: 122.1 [g] at 0.006 [s]  
Min: 0.0 [g] at -0.085 [s]







PRE-IMPACT OP2 RH



POST-IMPACT OP2 RH

VEHICLE YEAR/MAKE/MODEL/STYLE:	2010 Toyota Venza
VIN:	4T3ZA3BB3AU022561
DATE OF MANUFACTURE:	12/09 (SEE CERTIFICATION LABEL)
COLOR:	Magnetic Gray

Test Number:	03
Test Date:	12 April 2010
Target Location:	SR3A RH
Target Code:	SR3A RH
Horizontal Impact Angle:	90
Vertical Impact Angle:	38
Ambient Temperature:	22
Relative Humidity:	21.7 %
Time of Impact:	4:50
Headform Number:	0062

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	1	<input checked="" type="checkbox"/>	mm right <input type="checkbox"/> mm left
On Centerline	8		mm up



POST-IMPACT SR3A RH HEADFORM

Free Motion HIC	159.8
HIC(d)	287.0
Impact Velocity (kph)	18.38
HIC T1 (msec)	1.7
HIC T2 (msec)	13.5



# SR3A RH Side CA5103 - SR3A RH

FMH Headform 0062

Location: SR3A RH

Test Date: April 12, 2010

Work File: fmh

## -----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 287.0

Lab Humidity: 21.7 %

HIC (36ms): 159.8

Velocity at Impact: 18.38 KPH

t1: 1.7 msec

t2: 13.5 msec

Free Flight Distance: 221.99 mm

Duration: 11.8 msec

Maximum: 60.0 g

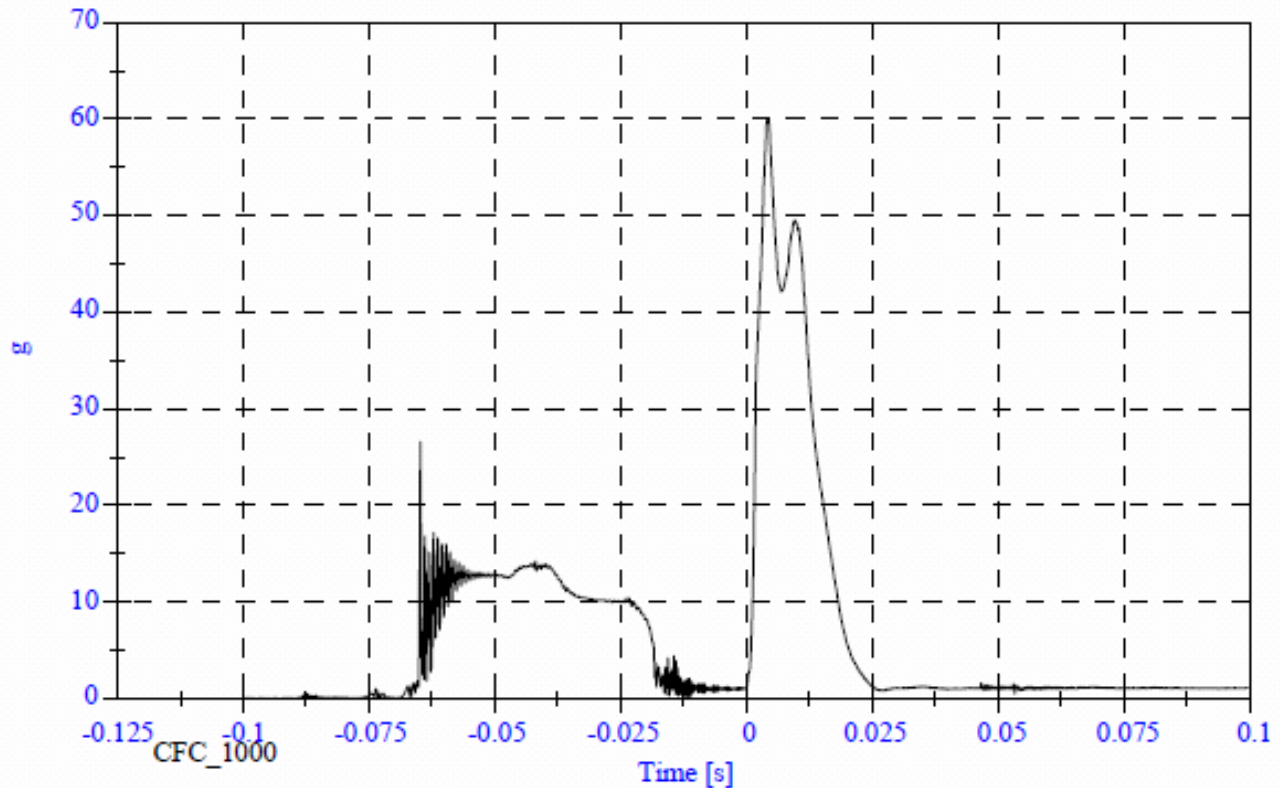
Average Acceleration: 6.6 g

SR3A RH Side

Headform Resultant

Max: 60.0 [g] at 0.004 [s]

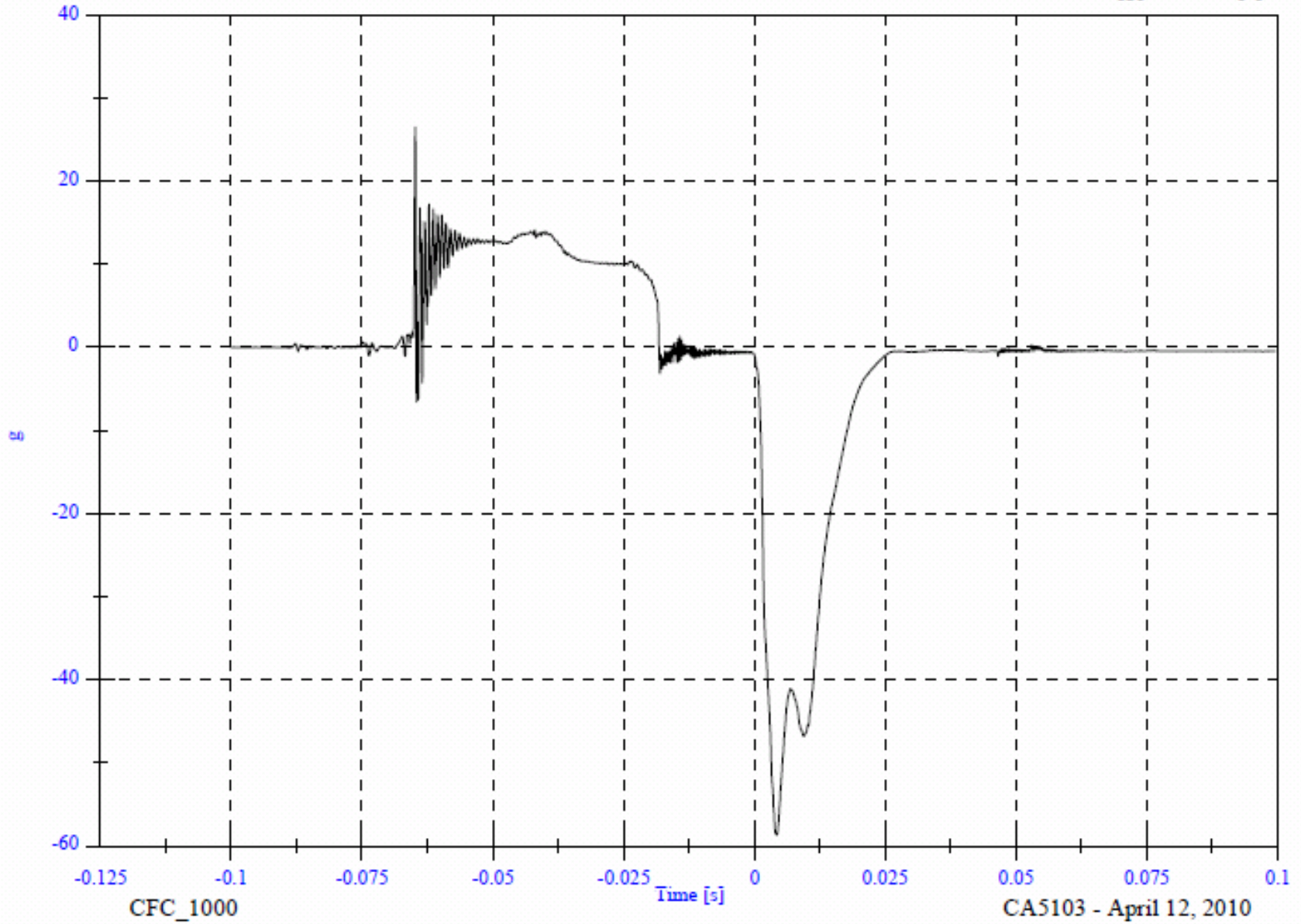
Min: 0.0 [g] at -0.097 [s]



SR3A RH Side

Headform X Acceleration

Max: 26.5 [g] at -0.065 [s]  
Min: -58.7 [g] at 0.004 [s]

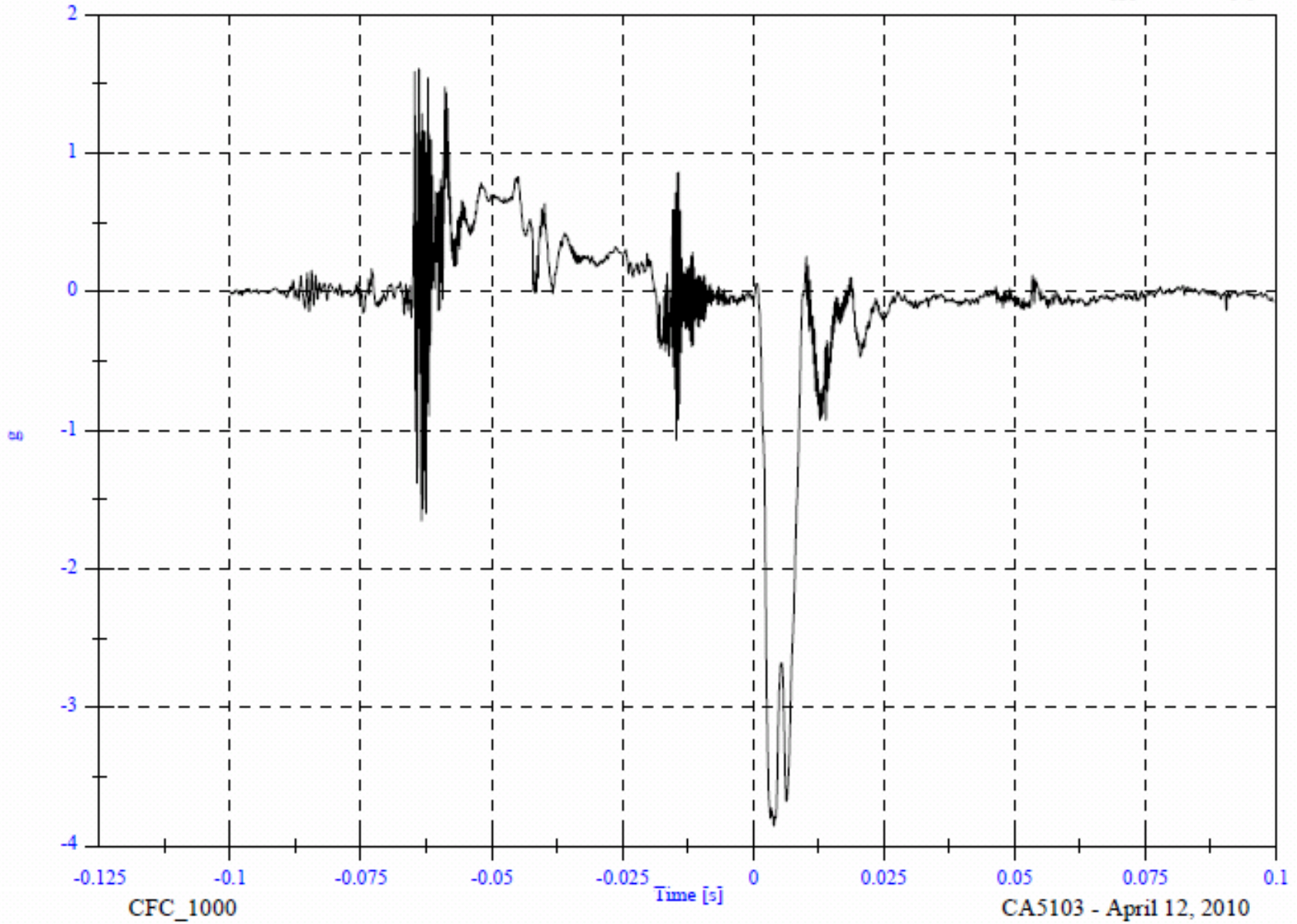


SR3A RH Side

Headform Y Acceleration

Max: 1.6 [g] at -0.064 [s]

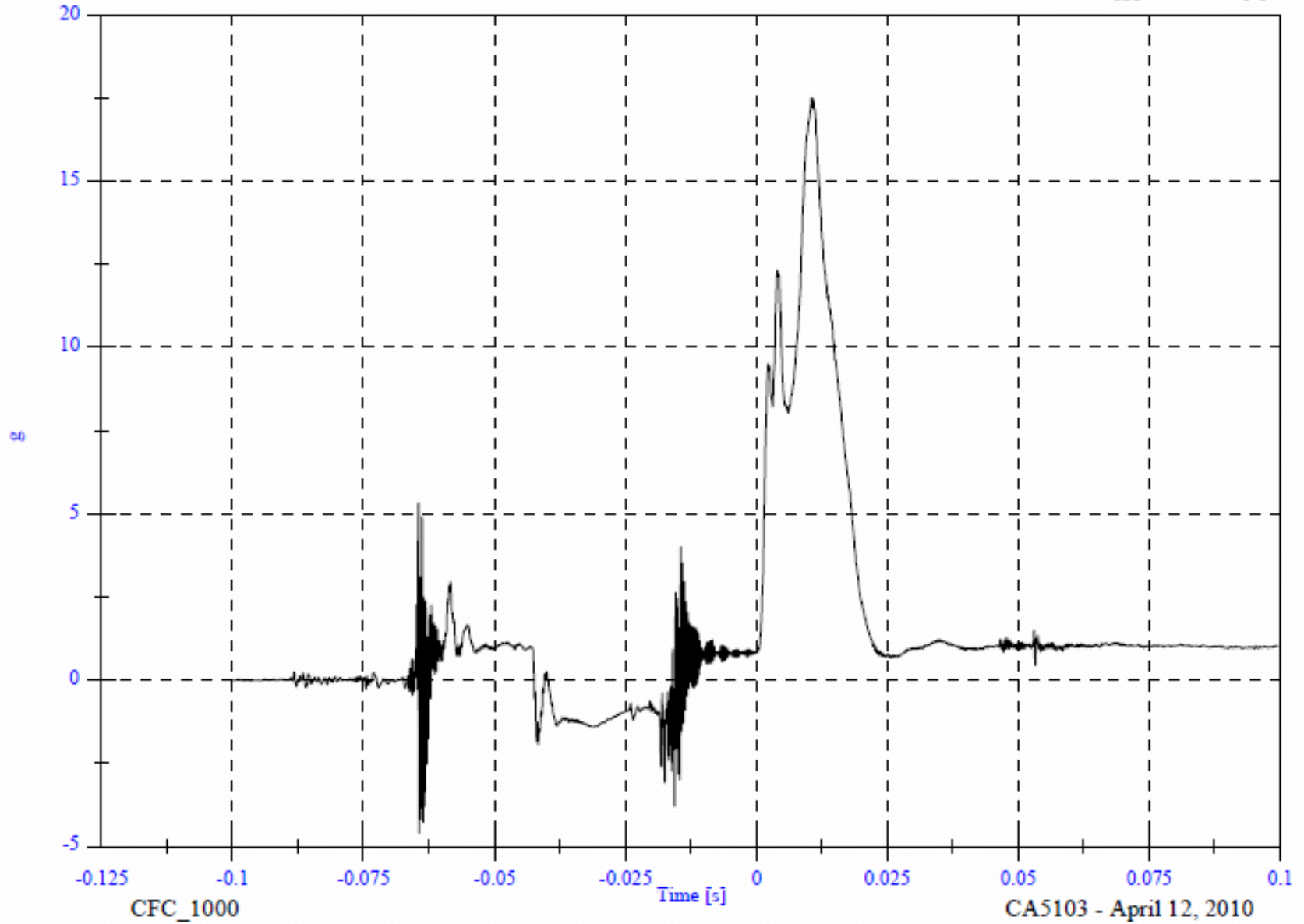
Min: -3.9 [g] at 0.004 [s]



SR3A RH Side

Headform Z Acceleration

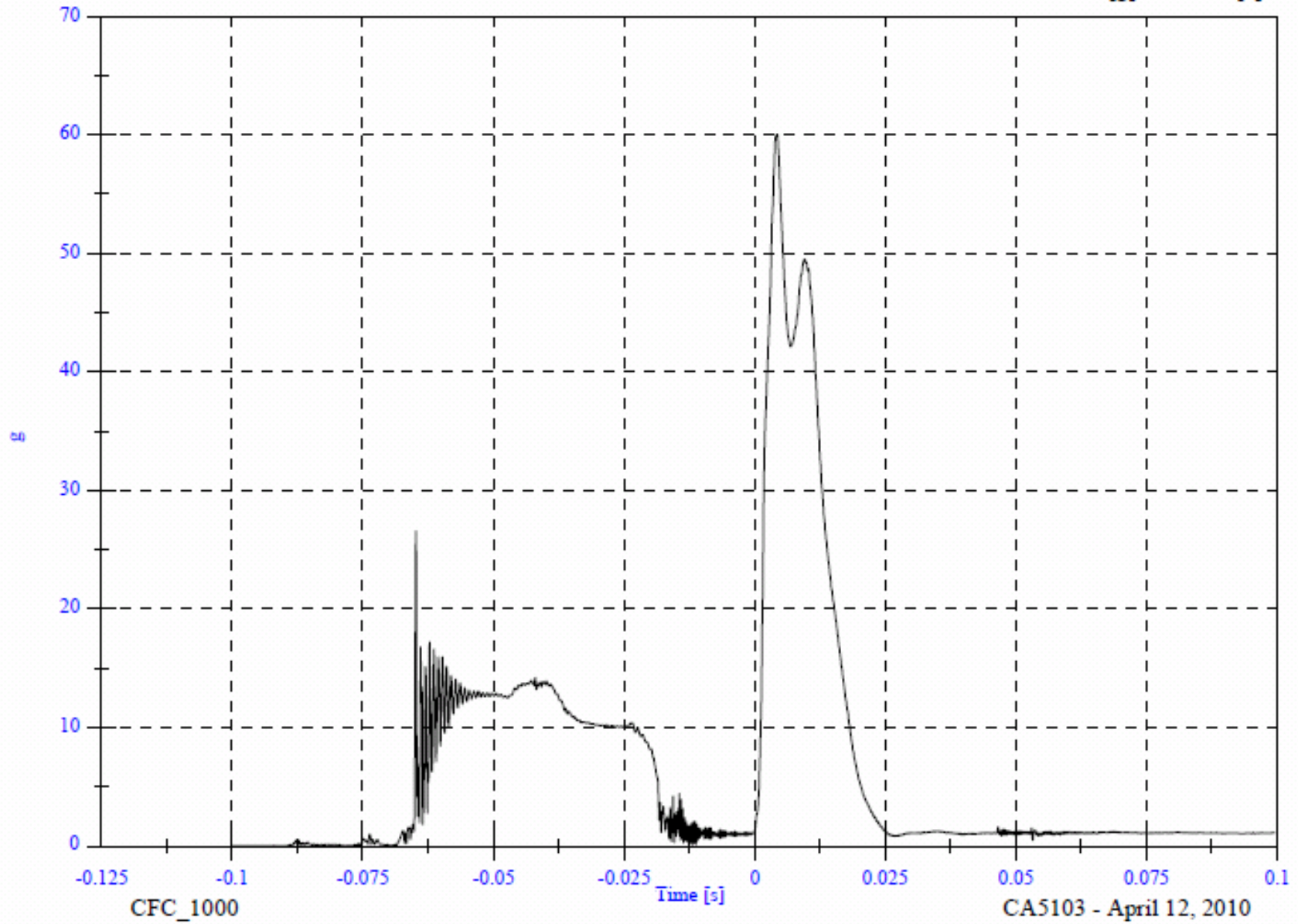
Max: 17.5 [g] at 0.011 [s]  
Min: -4.6 [g] at -0.064 [s]



SR3A RH Side

Headform Resultant

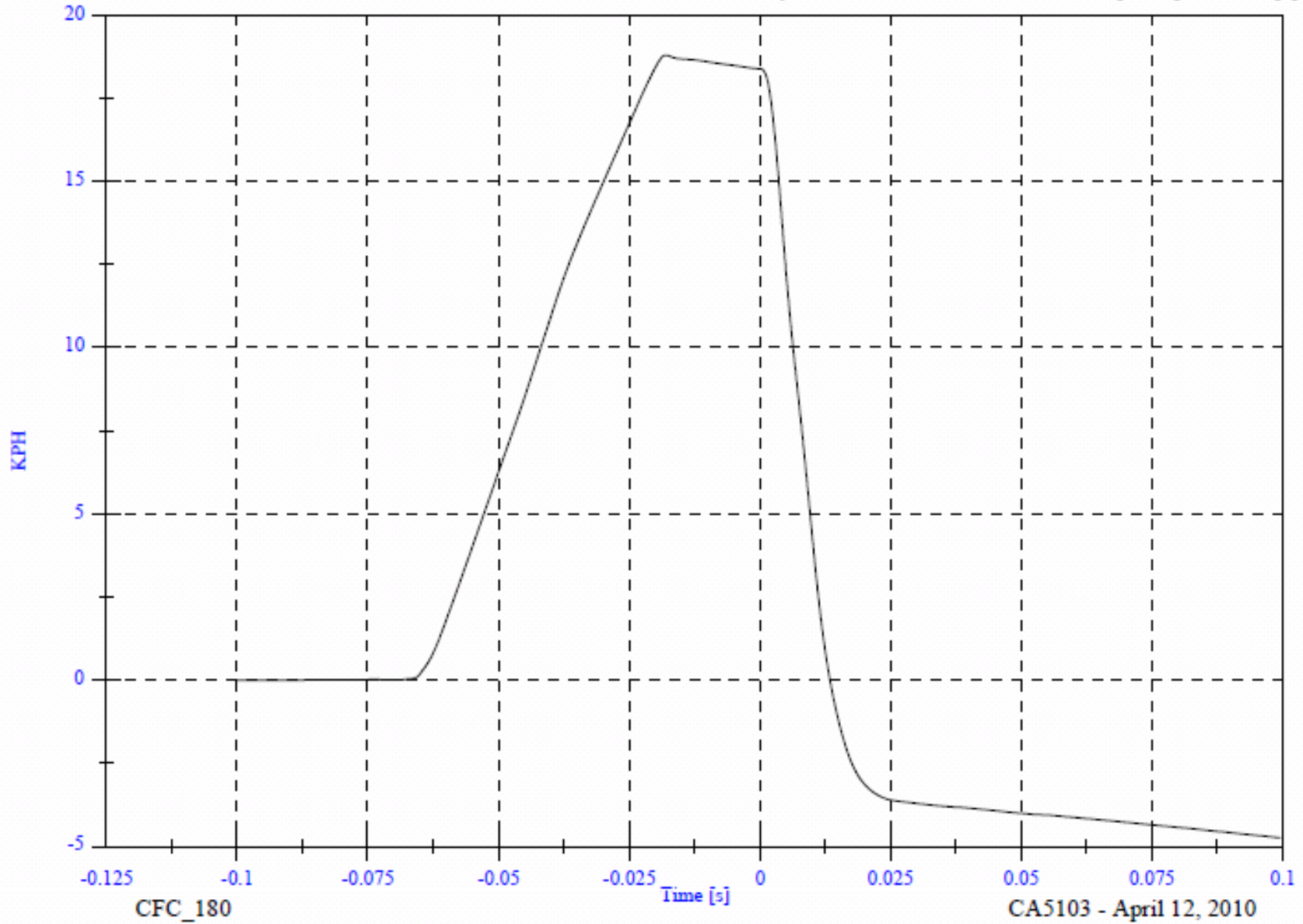
Max: 60.0 [g] at 0.004 [s]  
Min: 0.0 [g] at -0.097 [s]



SR3A RH Side

Headform Velocity

Max: 18.8 [KPH] at -0.018 [s]  
Min: -4.7 [KPH] at 0.100 [s]





PRE-IMPACT SR3A RH



POST-IMPACT SR3A RH



VEHICLE YEAR/MAKE/MODEL/STYLE:	2010 Toyota Venza
VIN:	4T3ZA3BB3AU022561
DATE OF MANUFACTURE:	12/09 (SEE CERTIFICATION LABEL)
COLOR:	Magnetic Gray

Test Number:	04
Test Date:	13 April 2010
Target Location:	BP1 RH
Target Code:	BP1 RH
Horizontal Impact Angle:	90
Vertical Impact Angle:	10
Ambient Temperature:	22
Relative Humidity:	23.2 %
Time of Impact:	8:46
Headform Number:	0062

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	-2	<input type="checkbox"/>	mm right <input checked="" type="checkbox"/> mm left
On Centerline	50		mm up



POST-IMPACT BP1 RH HEADFORM

Free Motion HIC	185.6
HIC(d)	306.5
Impact Velocity (kph)	18.97
HIC T1 (msec)	4.9
HIC T2 (msec)	17.3

## BP1 RH Side CA5103 - BP1 RH

FMH Headform 0062

Location: BP1 RH

Test Date: April 13, 2010

Work File: fmh

### TEST RESULTS

Lab Temperature: 22 C

HICd: 306.5

Lab Humidity: 23.2 %

HIC (36ms): 185.6

Velocity at Impact: 18.97 KPH

t1: 4.9 msec

t2: 17.3 msec

Free Flight Distance: 198.59 mm

Duration: 12.4 msec

Maximum: 62.4 g

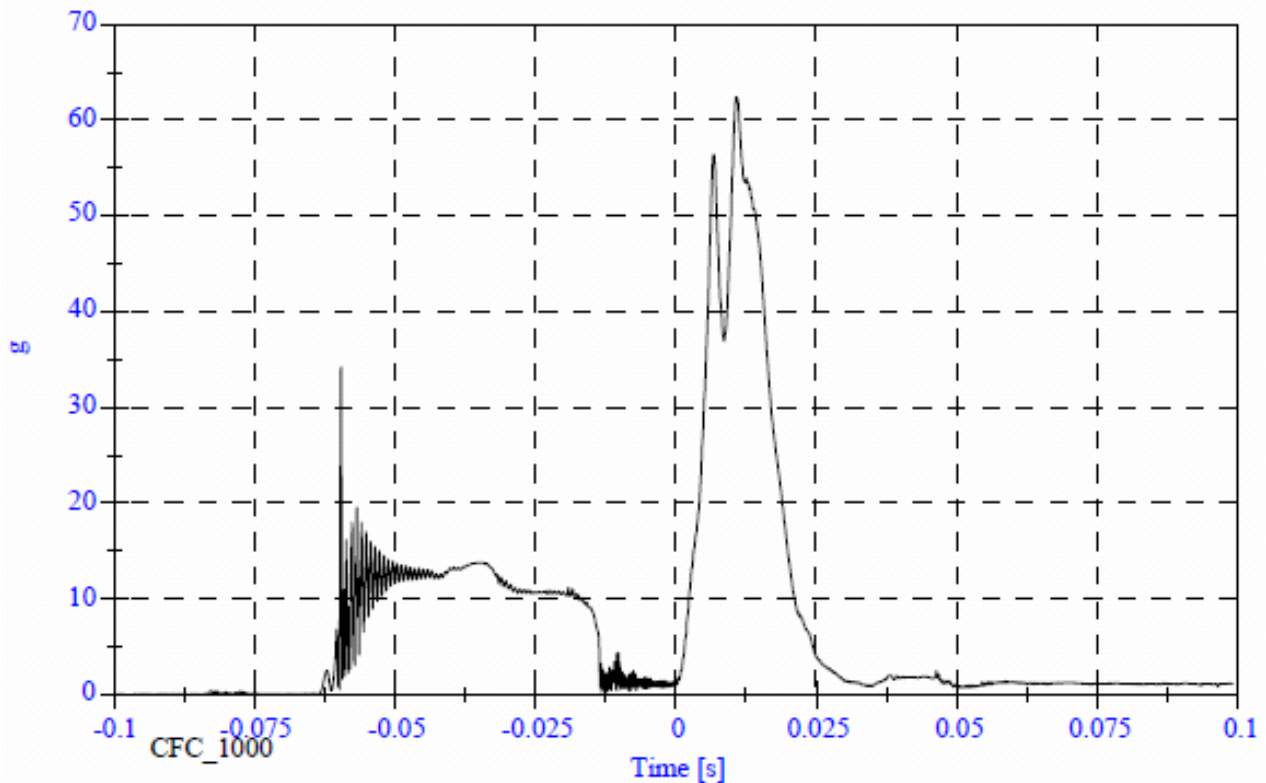
Average Acceleration: 7.1 g

BP1 RH Side

Headform Resultant

Max: 62.4 [g] at 0.011 [s]

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

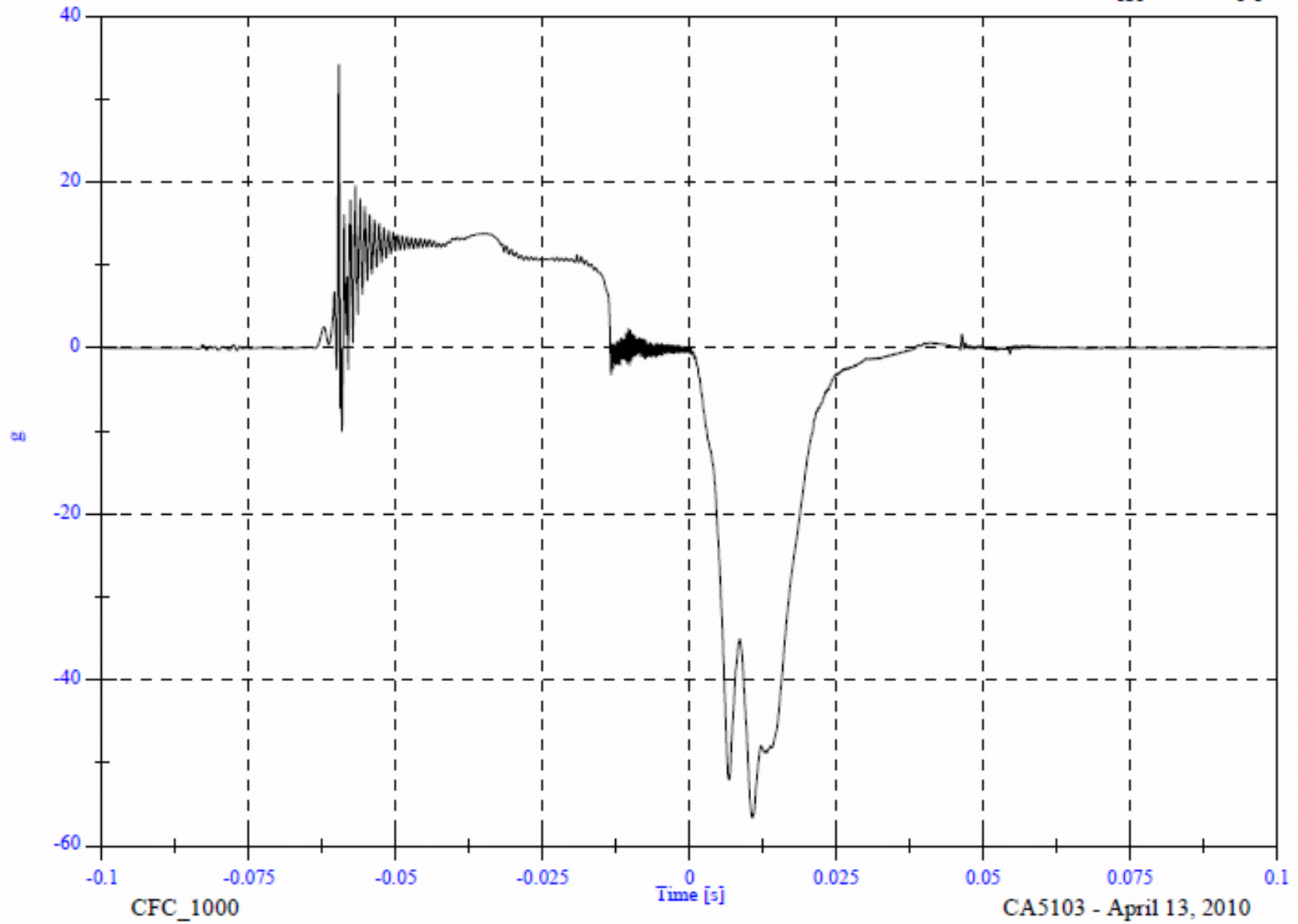


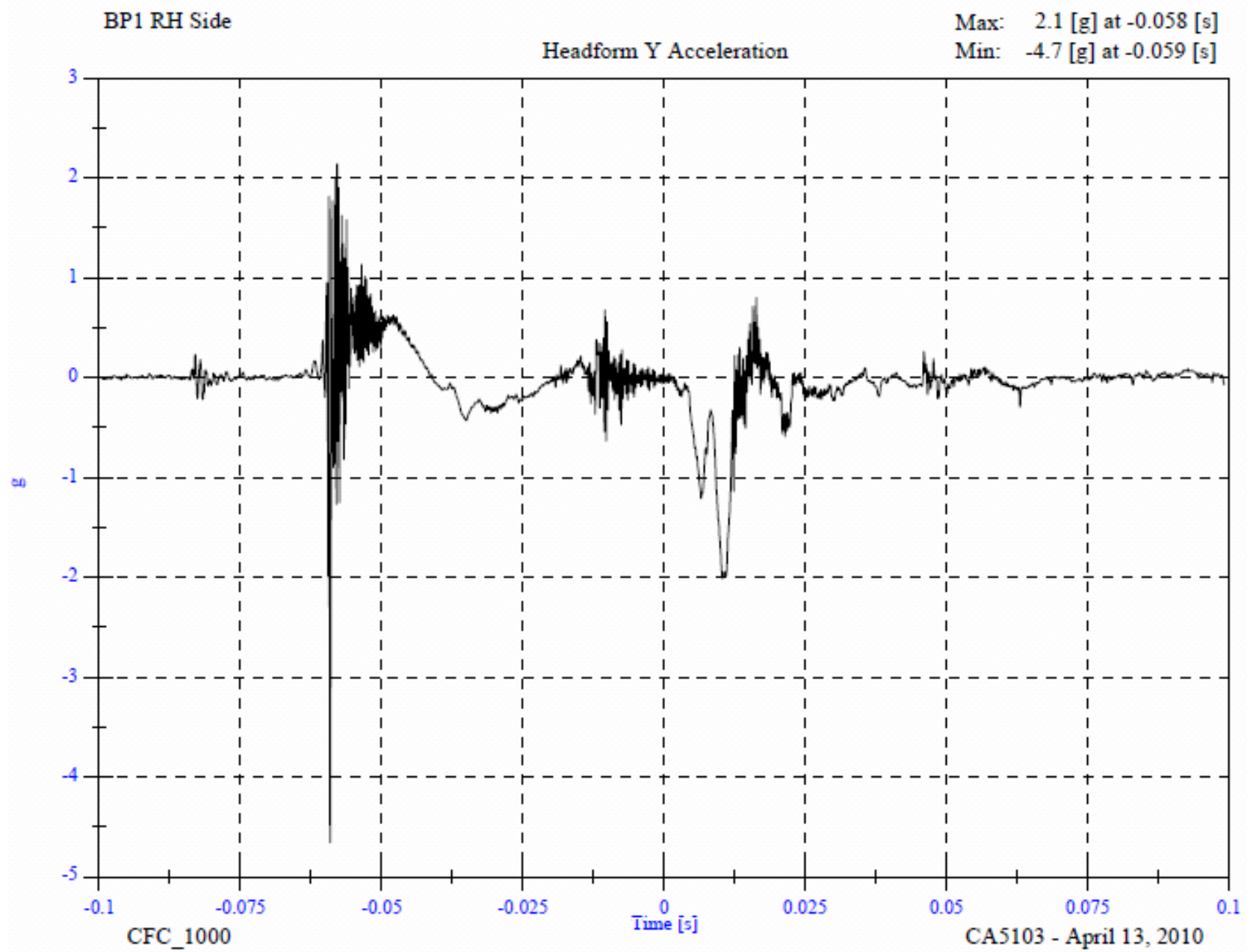
BP1 RH Side

Headform X Acceleration

Max: 34.1 [g] at -0.060 [s]

Min: -56.7 [g] at 0.011 [s]

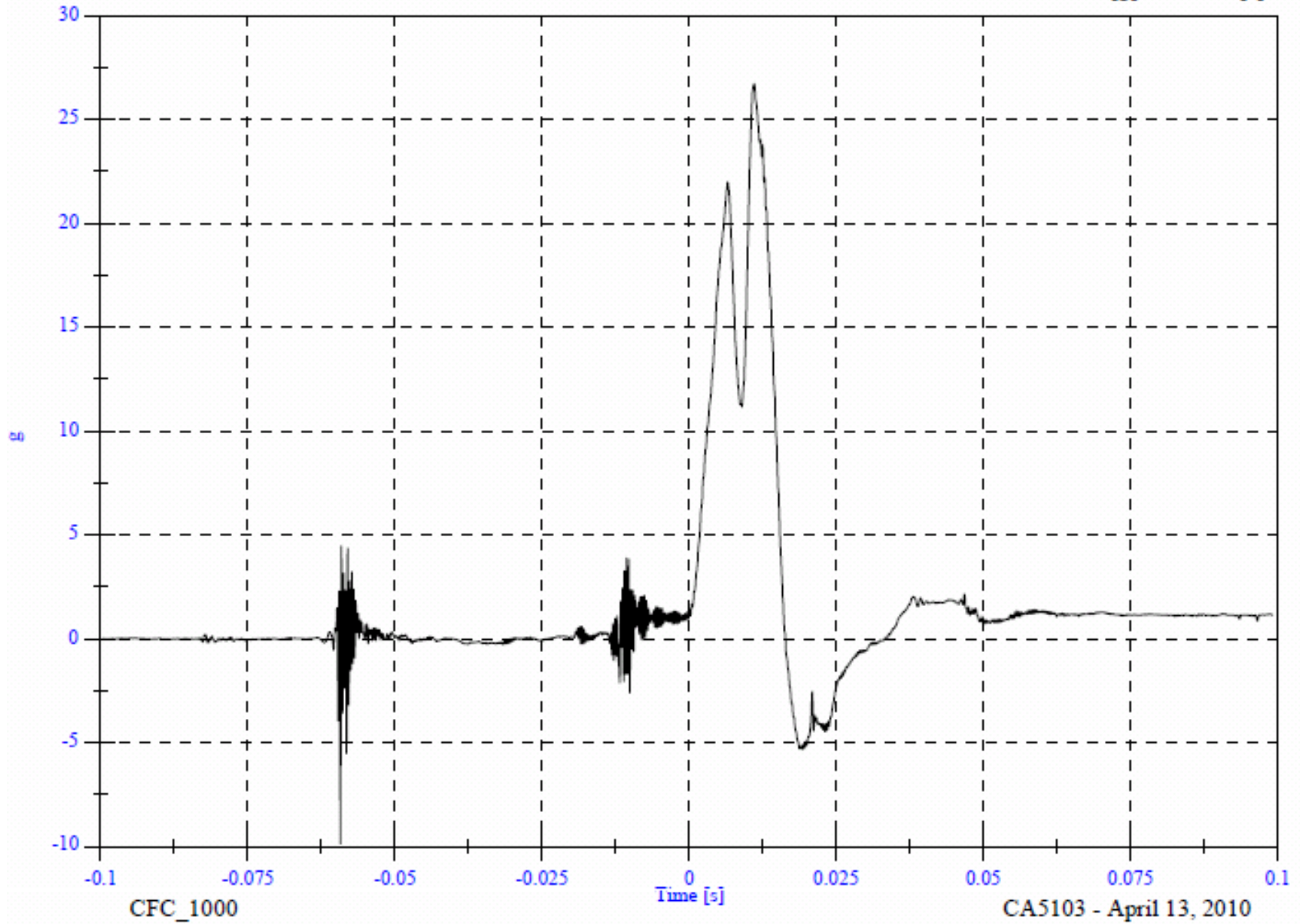




BP1 RH Side

Headform Z Acceleration

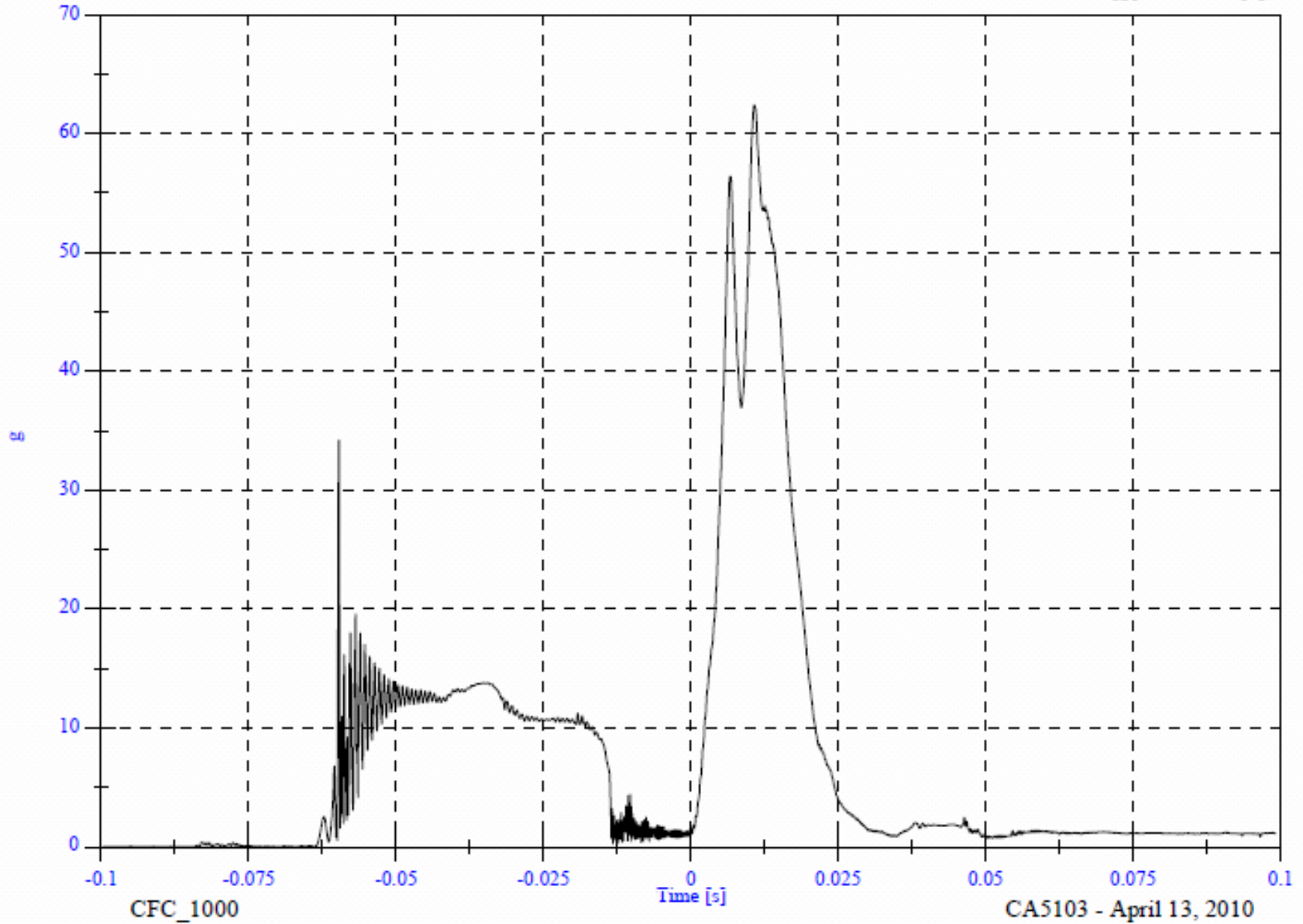
Max: 26.7 [g] at 0.011 [s]  
Min: -9.9 [g] at -0.059 [s]



BP1 RH Side

Headform Resultant

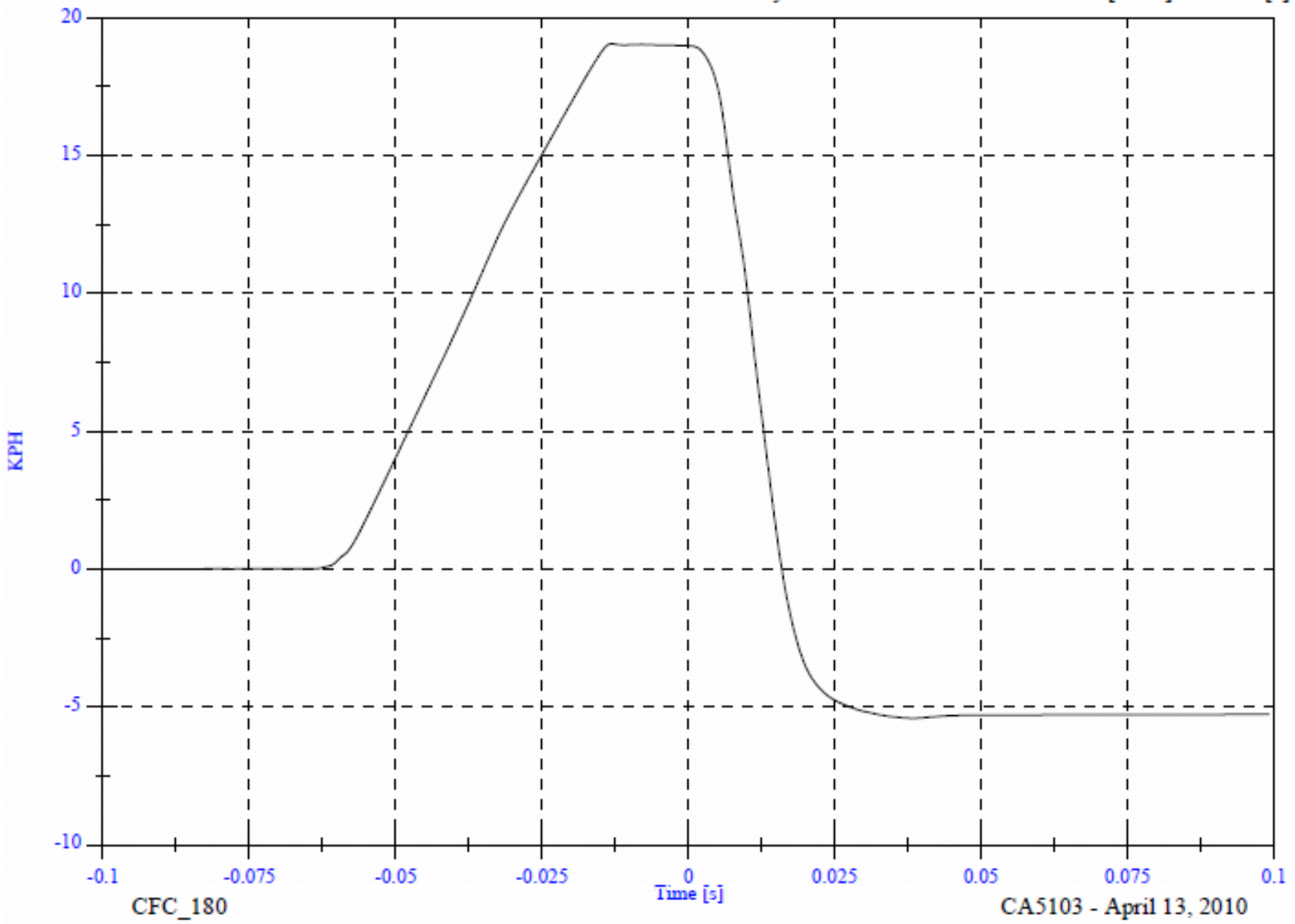
Max: 62.4 [g] at 0.011 [s]  
Min: 0.0 [g] at -0.085 [s]



BP1 RH Side

Max: 19.0 [KPH] at -0.013 [s]  
Min: -5.4 [KPH] at 0.038 [s]

Headform Velocity



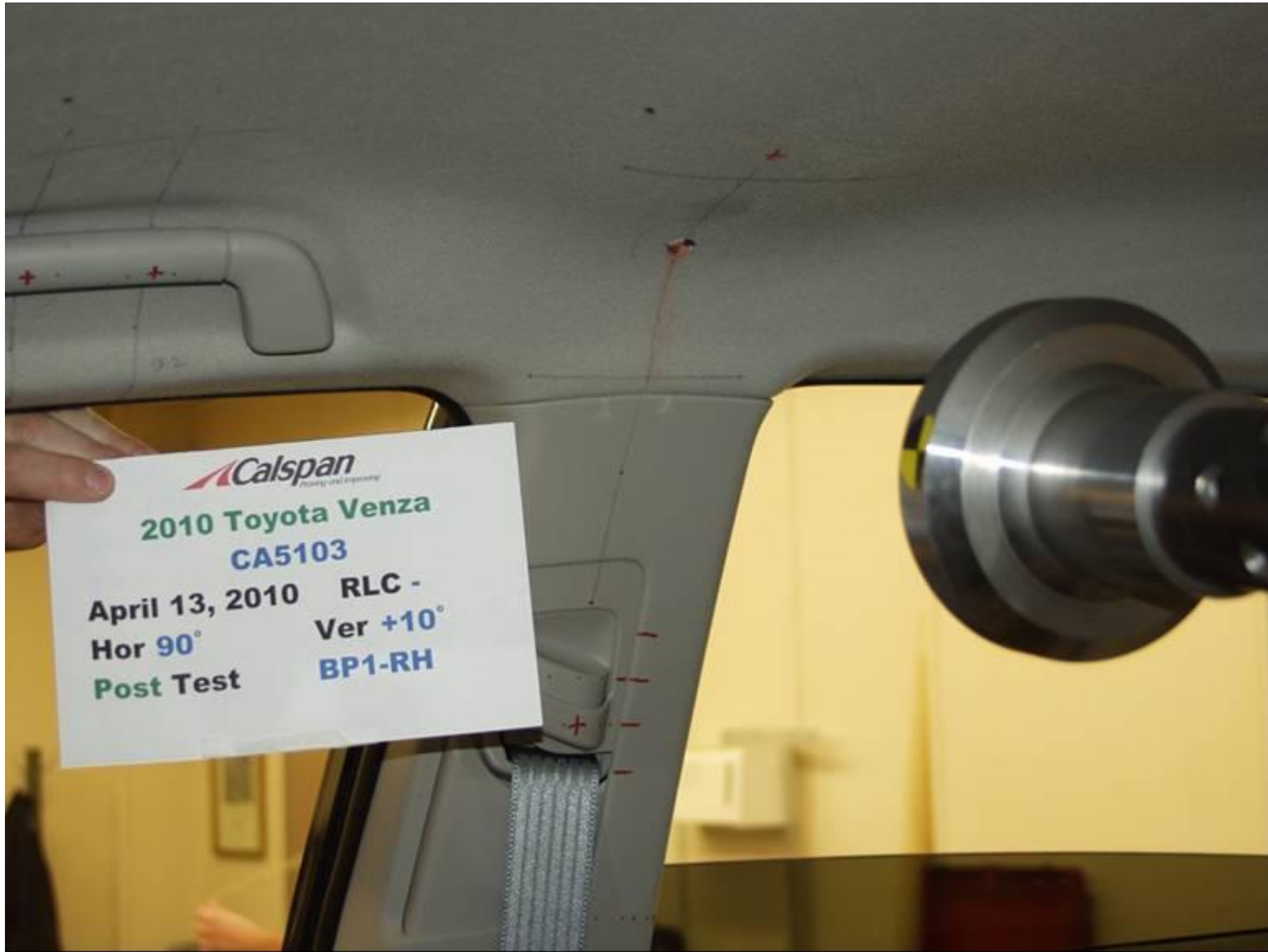
CFC\_180

CA5103 - April 13, 2010



PRE-IMPACT BP1 RH



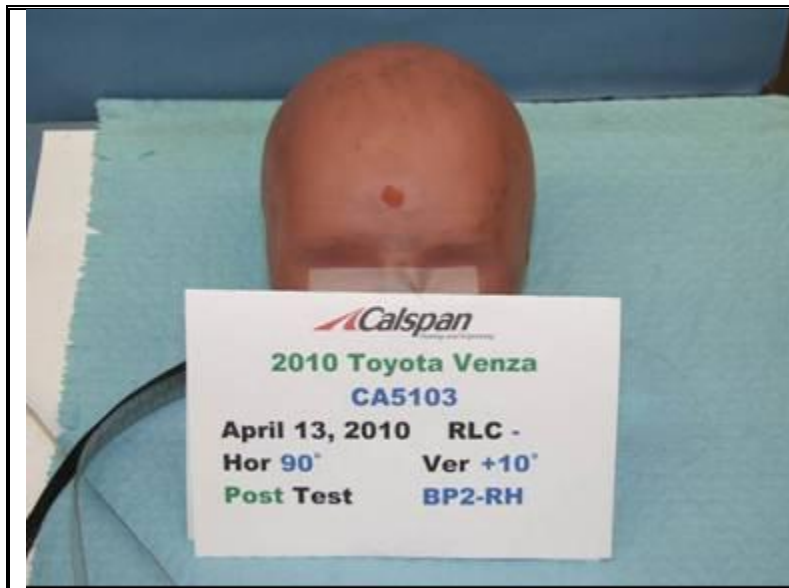


POST-IMPACT BP1 RH

VEHICLE YEAR/MAKE/MODEL/STYLE:	2010 Toyota Venza
VIN:	4T3ZA3BB3AU022561
DATE OF MANUFACTURE:	12/09 (SEE CERTIFICATION LABEL)
COLOR:	Magnetic Gray

Test Number:	05
Test Date:	13 April 2010
Target Location:	BP2 RH
Target Code:	BP2 RH
Horizontal Impact Angle:	90
Vertical Impact Angle:	10
Ambient Temperature:	22
Relative Humidity:	23.6 %
Time of Impact:	9:25
Headform Number:	1140

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	3	<input checked="" type="checkbox"/>	mm right	<input type="checkbox"/>	mm left
On Centerline	7				mm up



POST-IMPACT BP2 RH HEADFORM

Free Motion HIC	621.1
HIC(d)	635.0
Impact Velocity (kph)	23.66
HIC T1 (msec)	2.0
HIC T2 (msec)	9.4

# BP2 RH Side CA5103 - BP2 RH

FMH Headform 1140

Location: BP2 RH

Test Date: April 13, 2010

Work File: fmh

## TEST RESULTS

Lab Temperature: 22 C

HICd: 635.0

Lab Humidity: 23.6 %

HIC (36ms): 621.1

Velocity at Impact: 23.66 KPH

t1: 2.0 msec

t2: 9.4 msec

Free Flight Distance: 222.55 mm

Duration: 7.4 msec

Maximum: 142.7 g

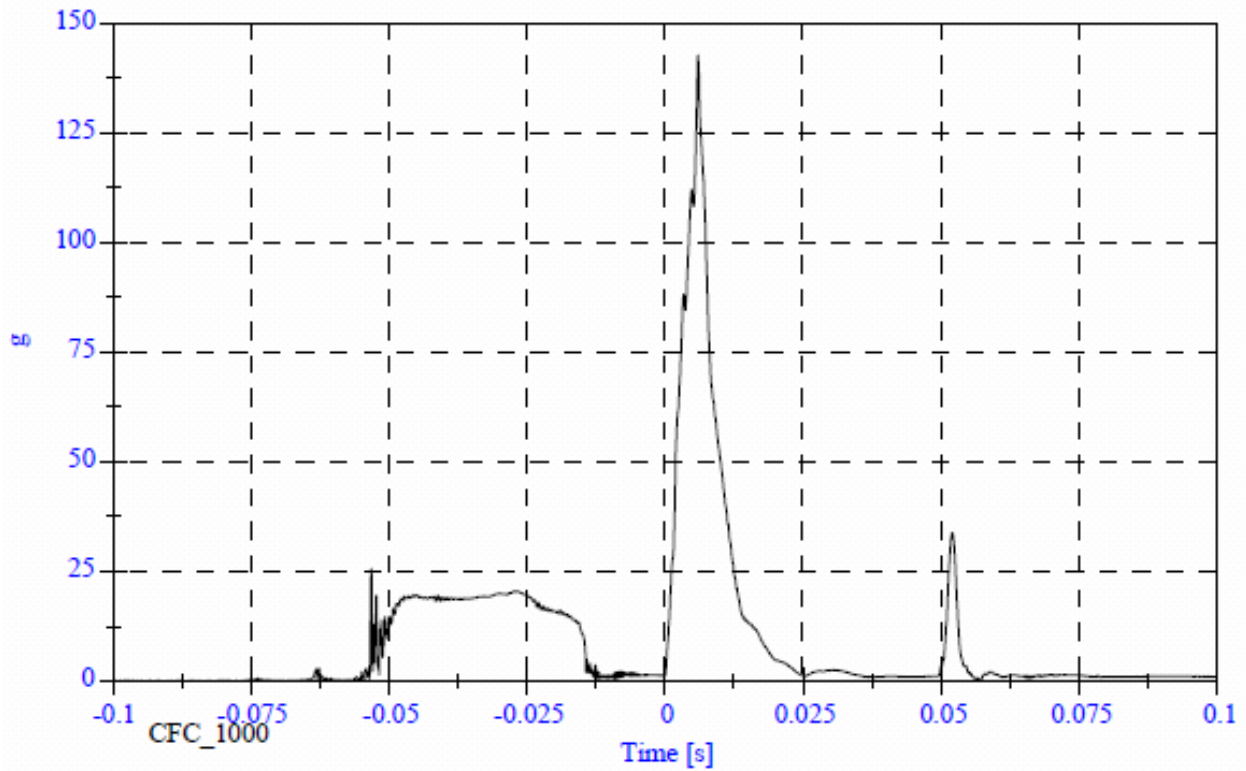
Average Acceleration: 9.1 g

OP2 RH Side

Headform Resultant

Max: 142.7 [g] at 0.006 [s]

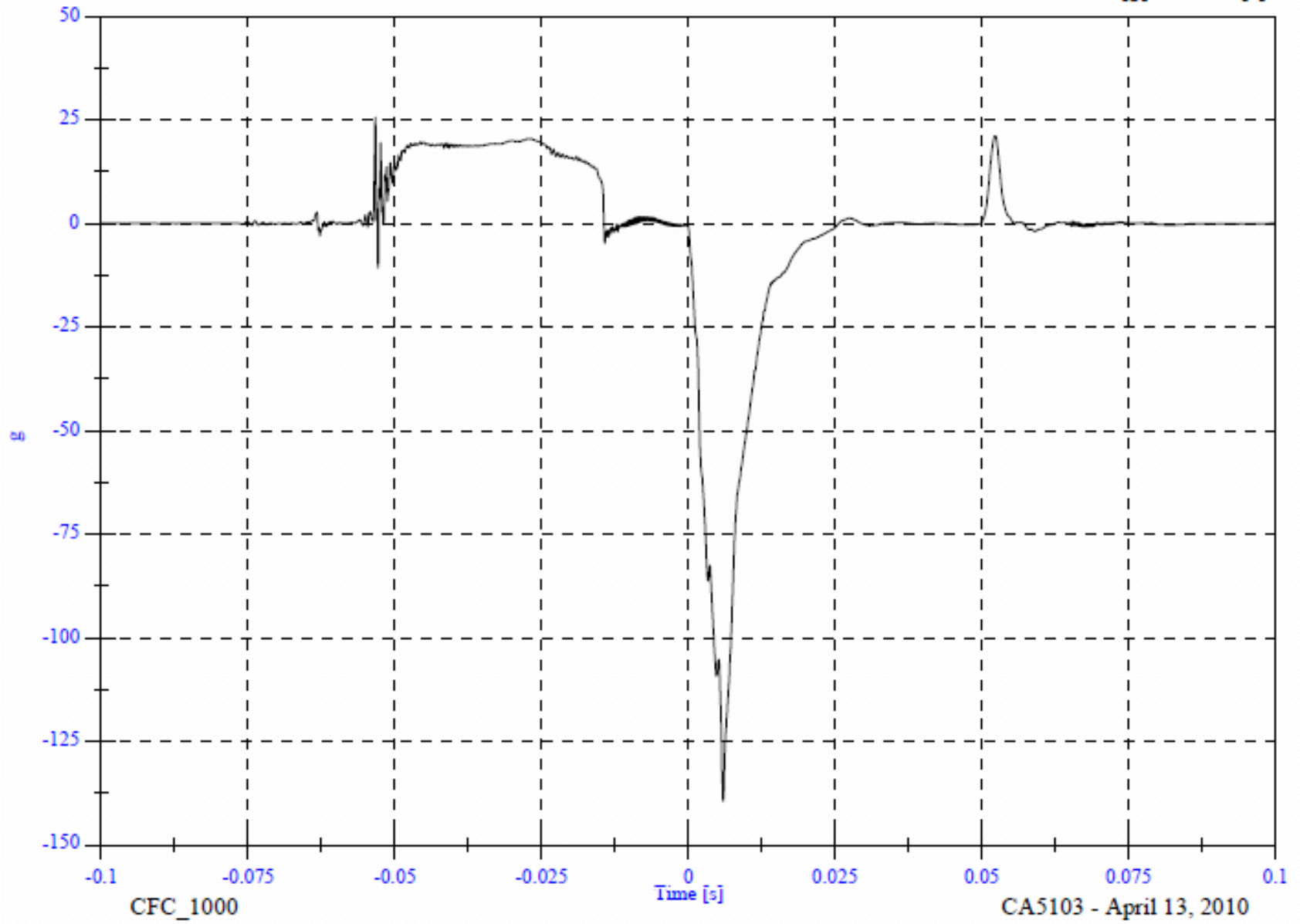
Min: 0.0 [g] at -0.079 [s]



OP2 RH Side

Headform X Acceleration

Max: 25.6 [g] at -0.053 [s]  
Min: -139.4 [g] at 0.006 [s]

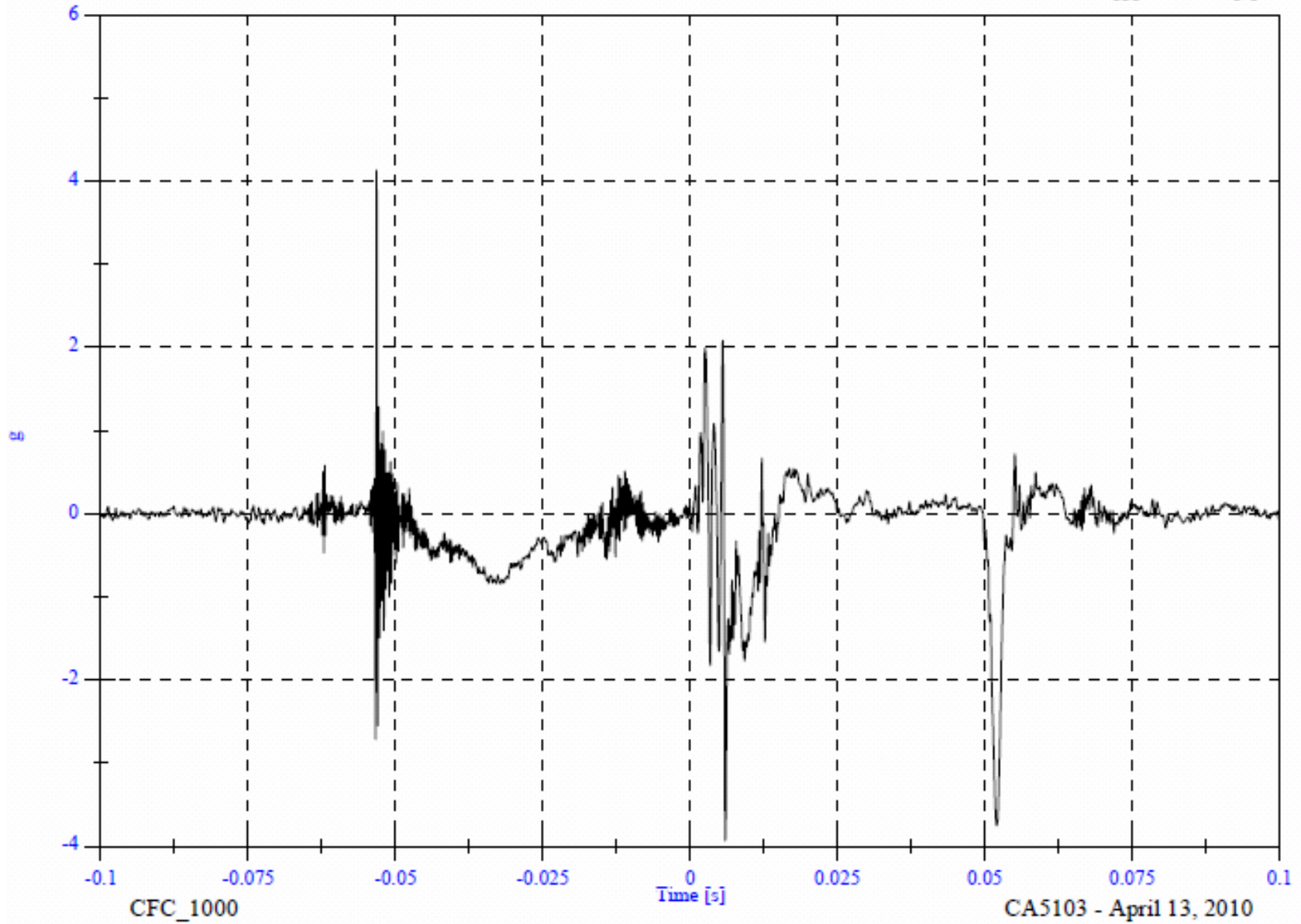


OP2 RH Side

Headform Y Acceleration

Max: 4.1 [g] at -0.053 [s]

Min: -3.9 [g] at 0.006 [s]

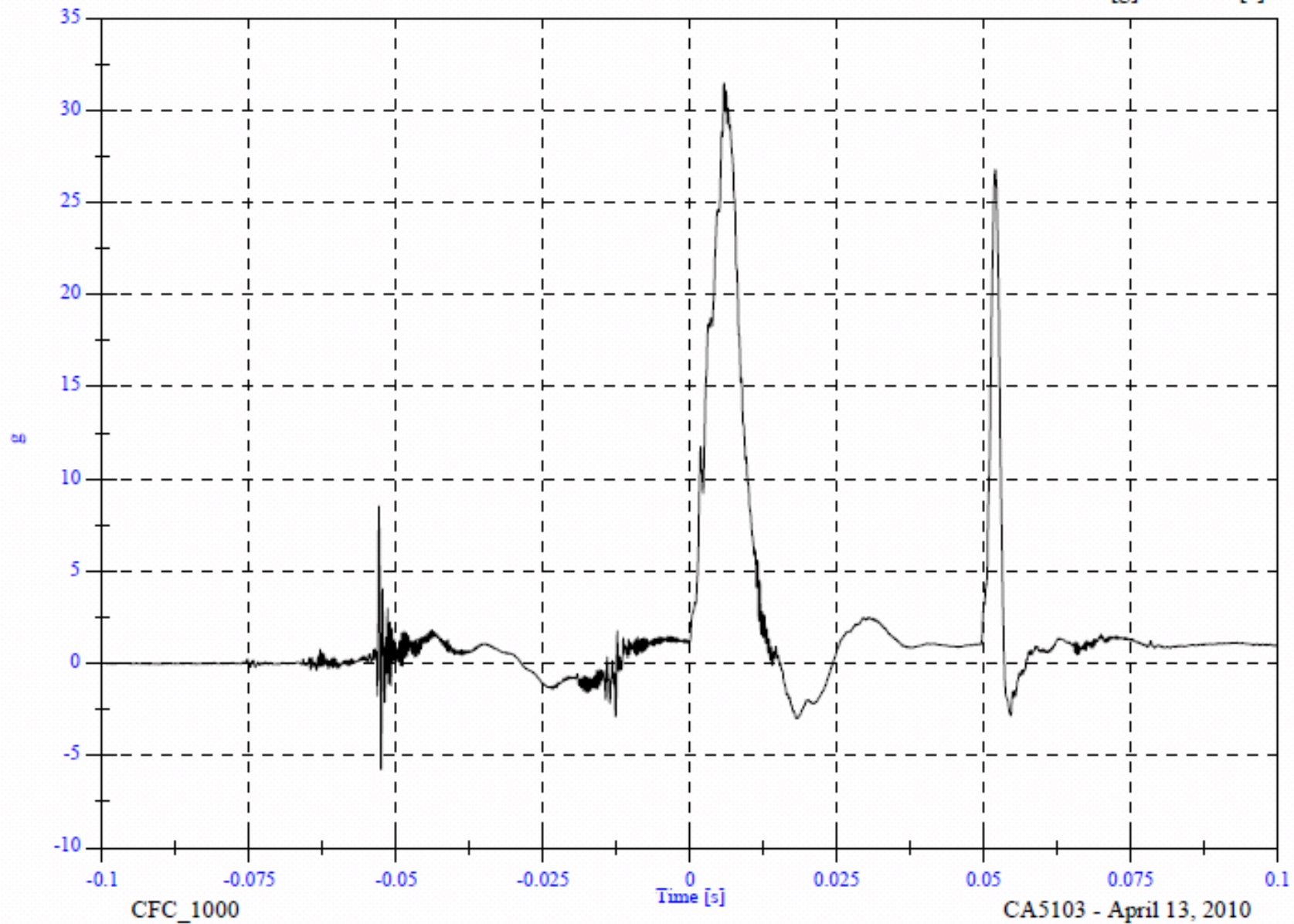


OP2 RH Side

Headform Z Acceleration

Max: 31.5 [g] at 0.006 [s]

Min: -5.8 [g] at -0.053 [s]



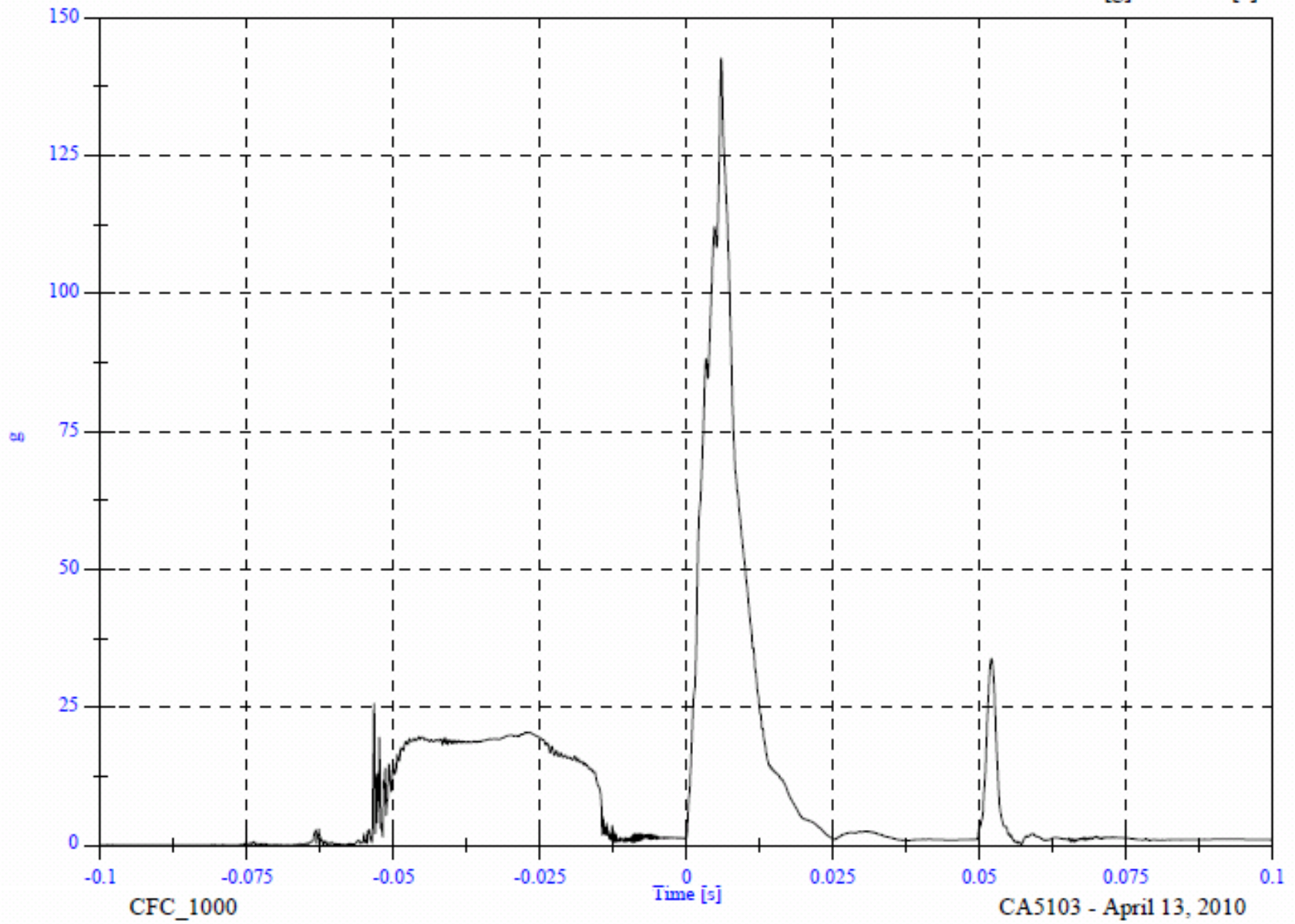
CFC\_1000

CA5103 - April 13, 2010

OP2 RH Side

Headform Resultant

Max: 142.7 [g] at 0.006 [s]  
Min: 0.0 [g] at -0.079 [s]

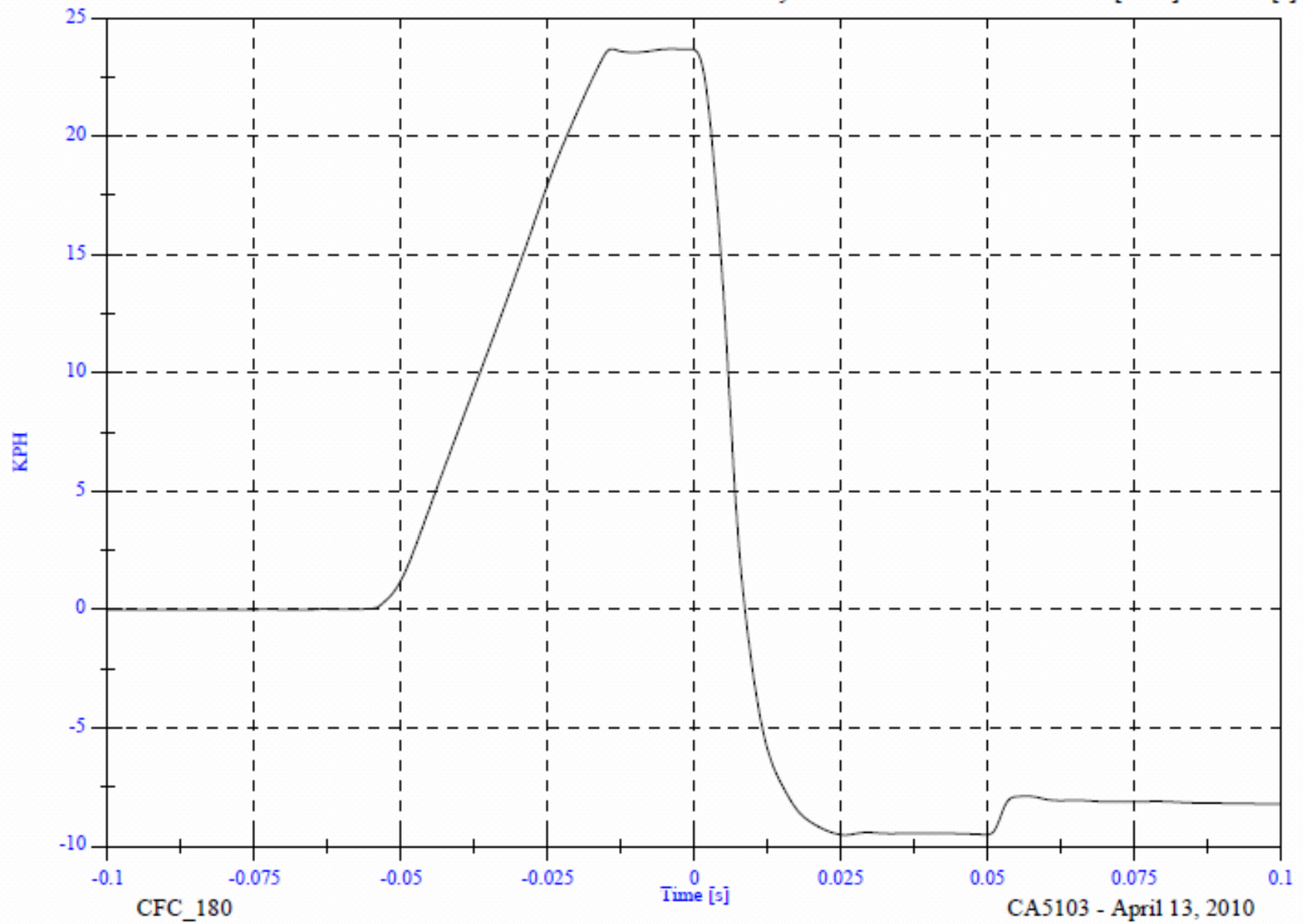


OP2 RH Side

Headform Velocity

Max: 23.7 [KPH] at -0.004 [s]

Min: -9.5 [KPH] at 0.026 [s]

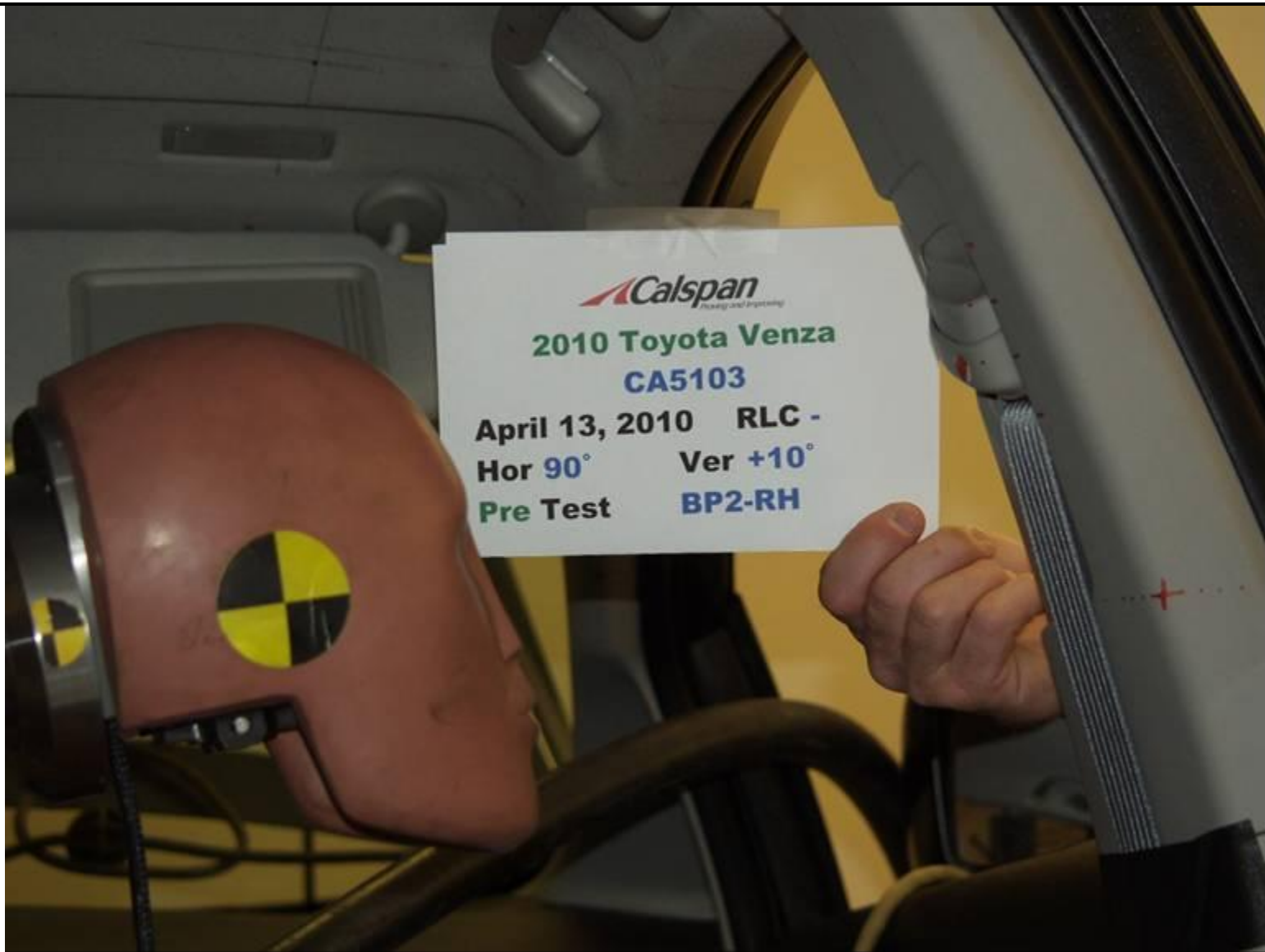


CFC\_180

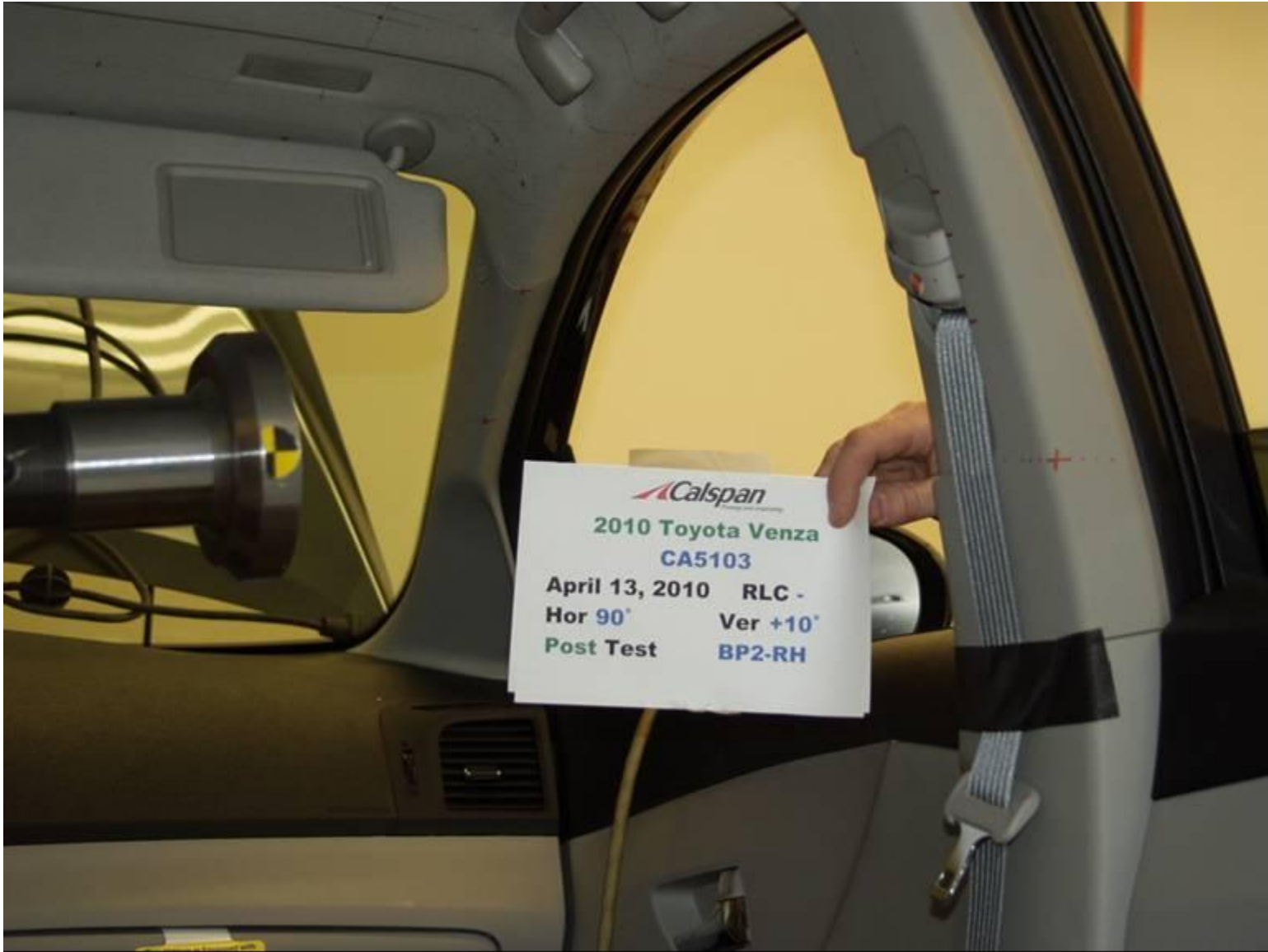
Time [s]

CA5103 - April 13, 2010





PRE-IMPACT BP2 RH



POST-IMPACT BP2 RH

VEHICLE YEAR/MAKE/MODEL/STYLE:	2010 Toyota Venza
VIN:	4T3ZA3BB3AU022561
DATE OF MANUFACTURE:	12/09 (SEE CERTIFICATION LABEL)
COLOR:	Magnetic Gray

Test Number:	06
Test Date:	13 April 2010
Target Location:	AP3 RH
Target Code:	AP3 RH
Horizontal Impact Angle:	122
Vertical Impact Angle:	48
Ambient Temperature:	22
Relative Humidity:	23.8 %
Time of Impact:	10:26
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	17		mm up



POST-IMPACT AP3 RH HEADFORM

Free Motion HIC	271.2
HIC(d)	371.0
Impact Velocity (kph)	18.46
HIC T1 (msec)	8.8
HIC T2 (msec)	13.1

# AP3 RH Side CA5103 - AP3 RH

FMH Headform 0355

Location: AP3 RH

Test Date: April 13, 2010

Work File: fmh

## TEST RESULTS

Lab Temperature: 22 C

HICd: 371.0

Lab Humidity: 23.8 %

HIC (36ms): 271.2

Velocity at Impact: 18.46 KPH

t1: 8.8 msec

t2: 13.1 msec

Free Flight Distance: 227.39 mm

Duration: 4.3 msec

Maximum: 106.5 g

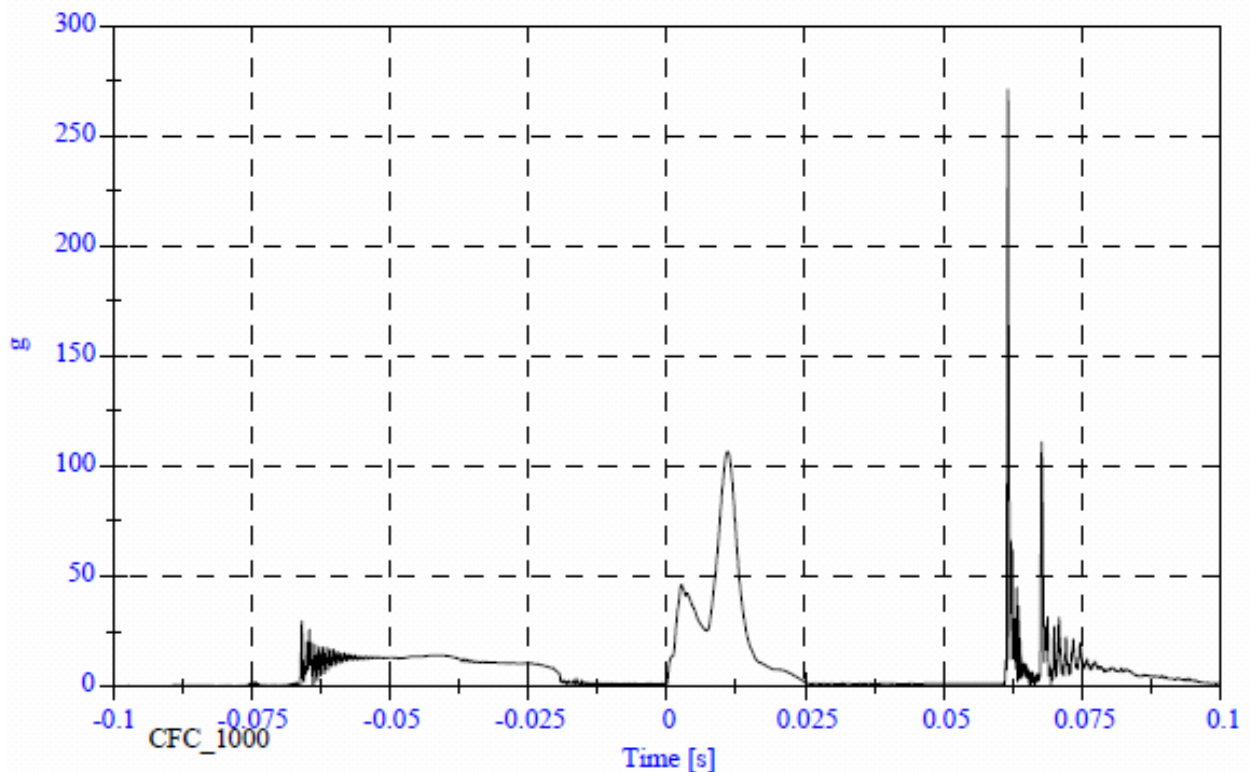
Average Acceleration: 9.1 g

AP3 RH Side

Headform Resultant

Max: 106.5 [g] at 0.011 [s]

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

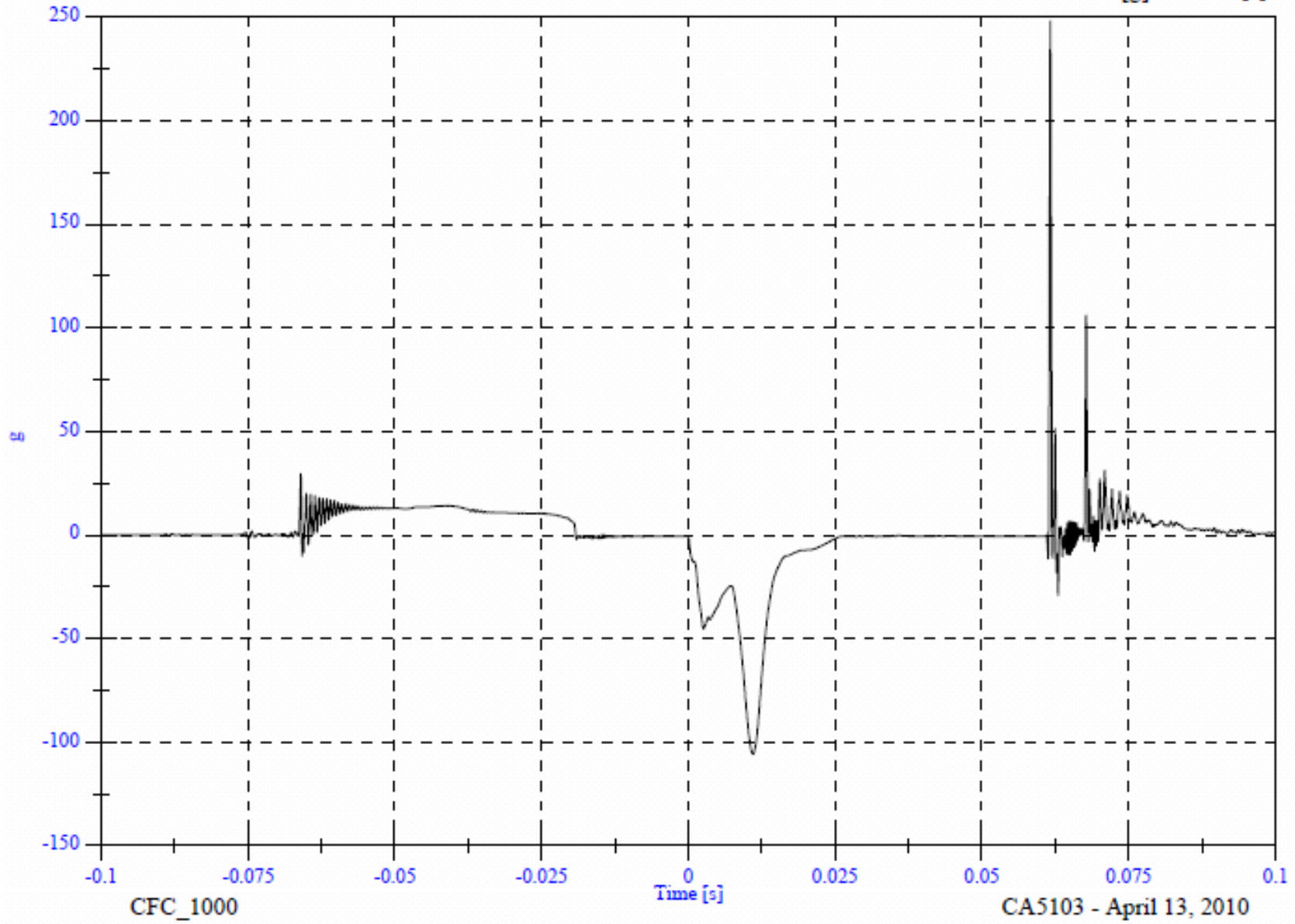


AP3 RH Side

Headform X Acceleration

Max: 248.0 [g] at 0.062 [s]

Min: -105.9 [g] at 0.011 [s]



CFC\_1000

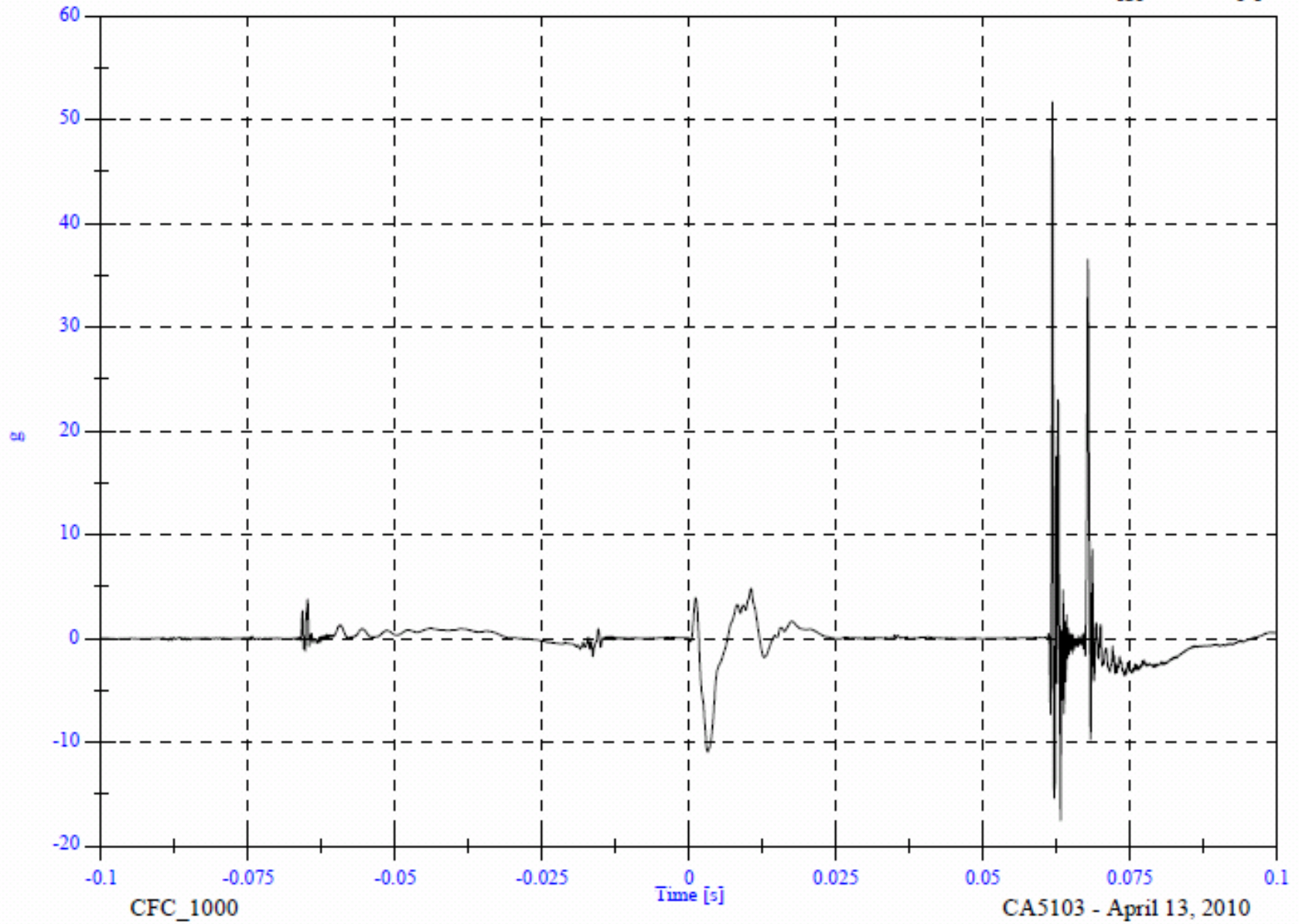
CA5103 - April 13, 2010

AP3 RH Side

Headform Y Acceleration

Max: 51.7 [g] at 0.062 [s]

Min: -17.5 [g] at 0.063 [s]

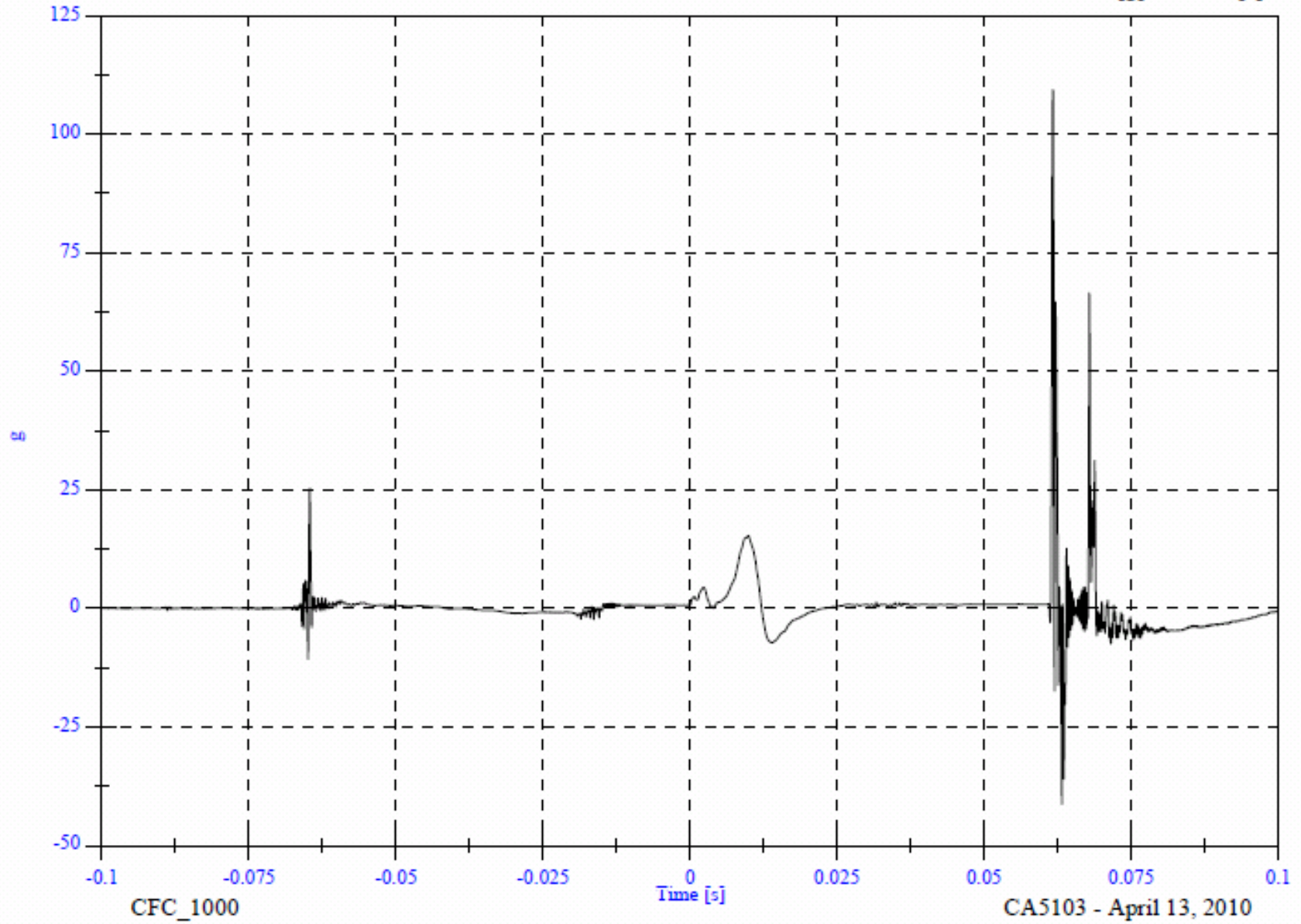


AP3 RH Side

Headform Z Acceleration

Max: 109.4 [g] at 0.062 [s]

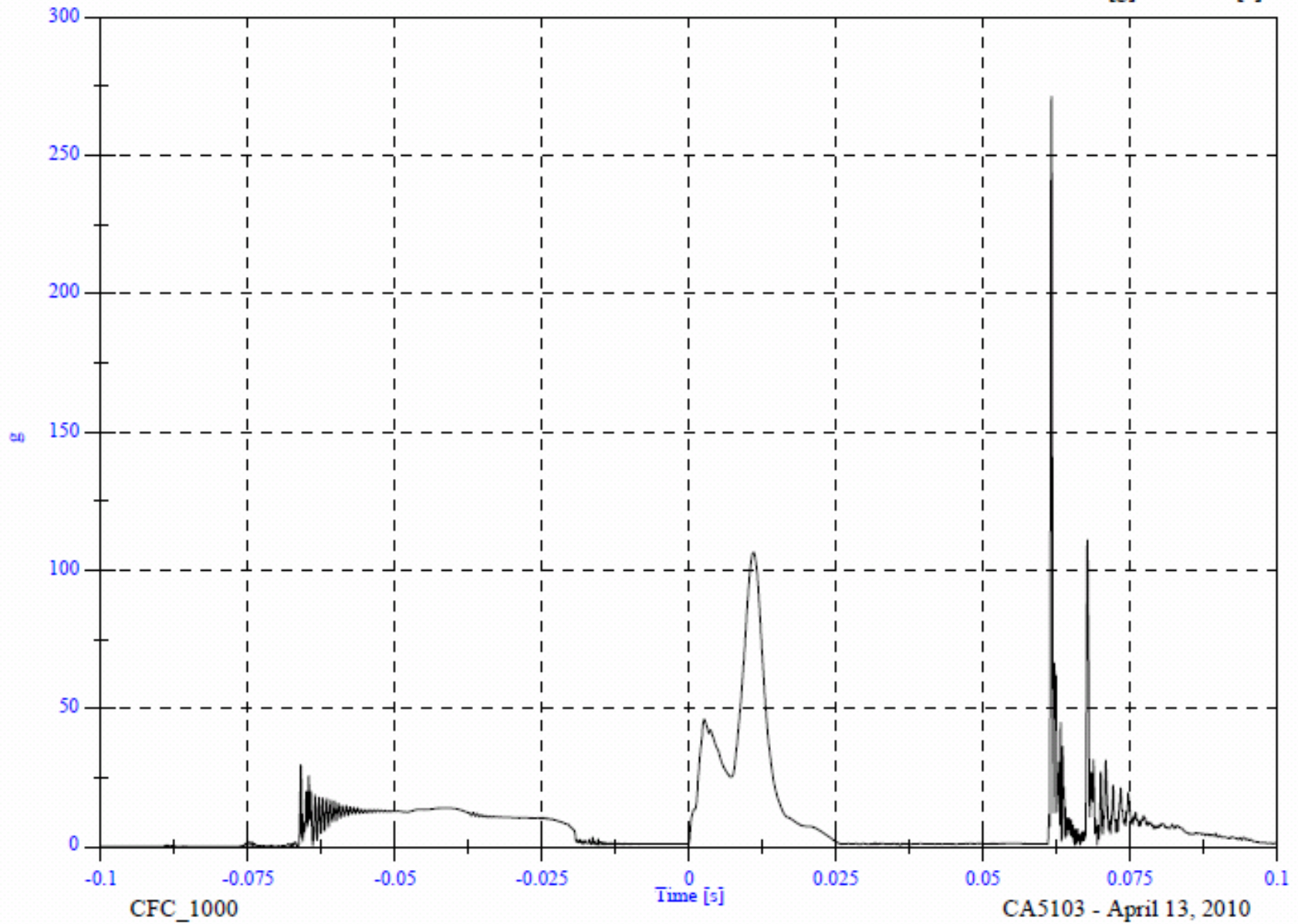
Min: -41.3 [g] at 0.063 [s]



AP3 RH Side

Headform Resultant

Max: 271.2 [g] at 0.062 [s]  
Min: 0.0 [g] at -0.099 [s]



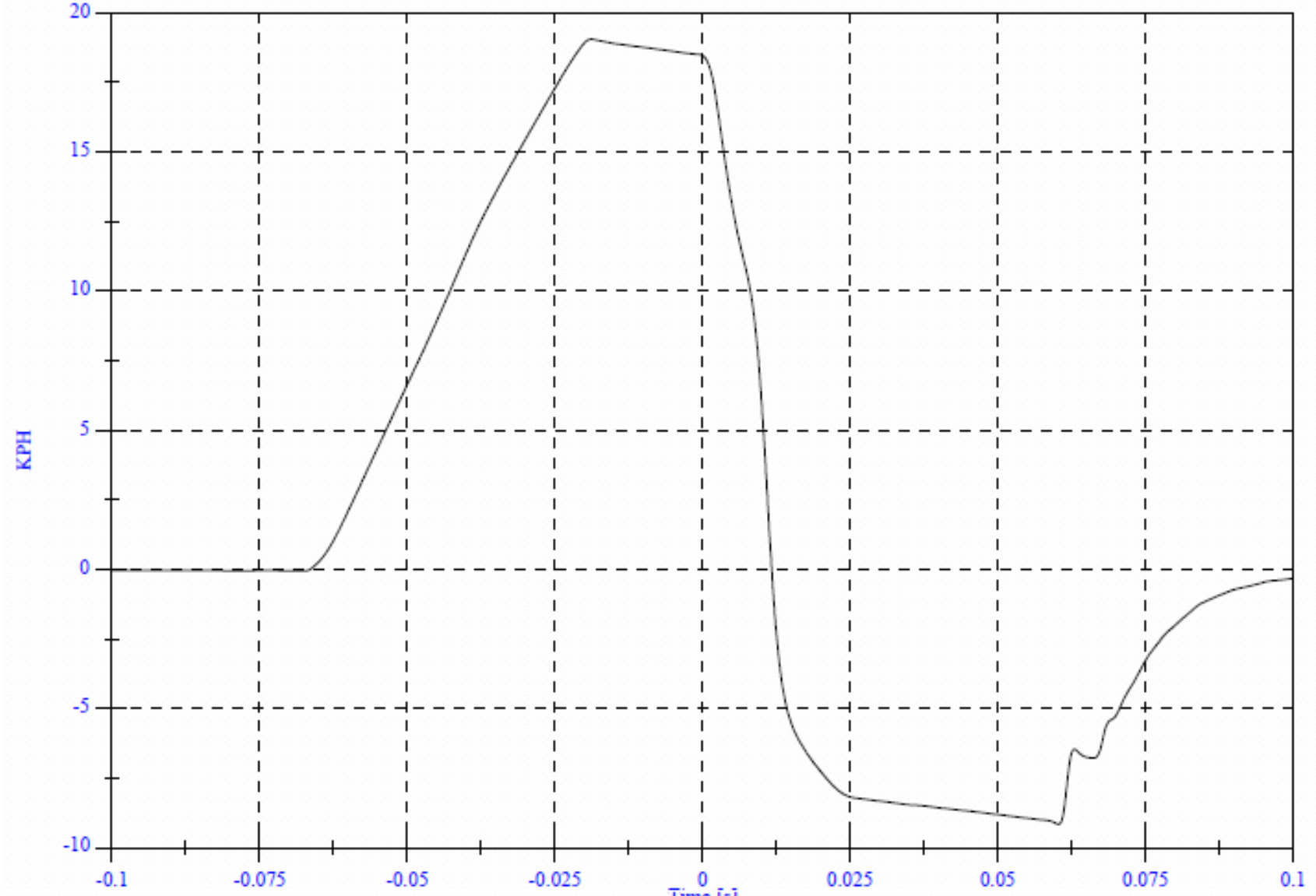


AP3 RH Side

Headform Velocity

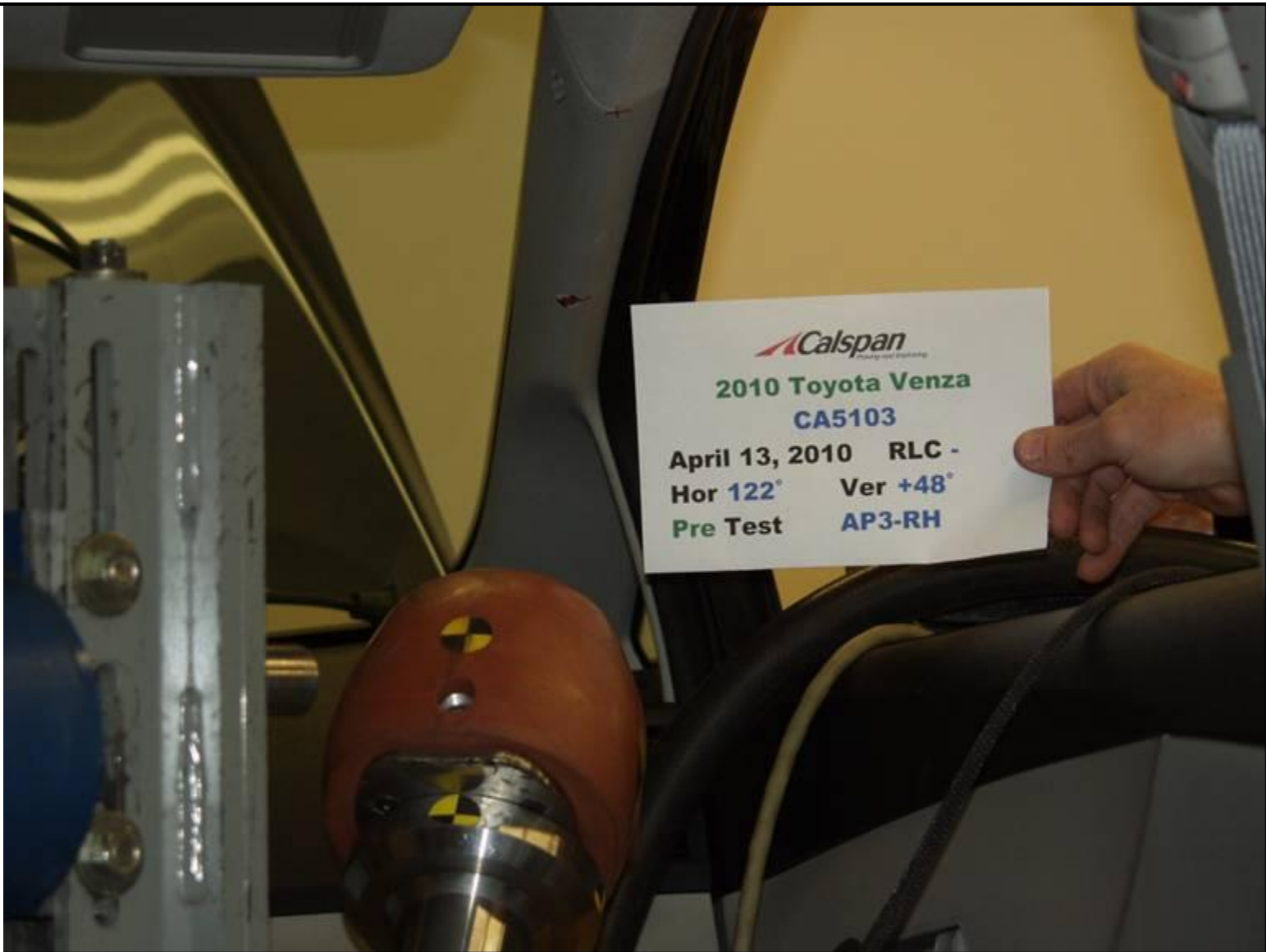
Max: 19.0 [KPH] at -0.019 [s]

Min: -9.2 [KPH] at 0.060 [s]

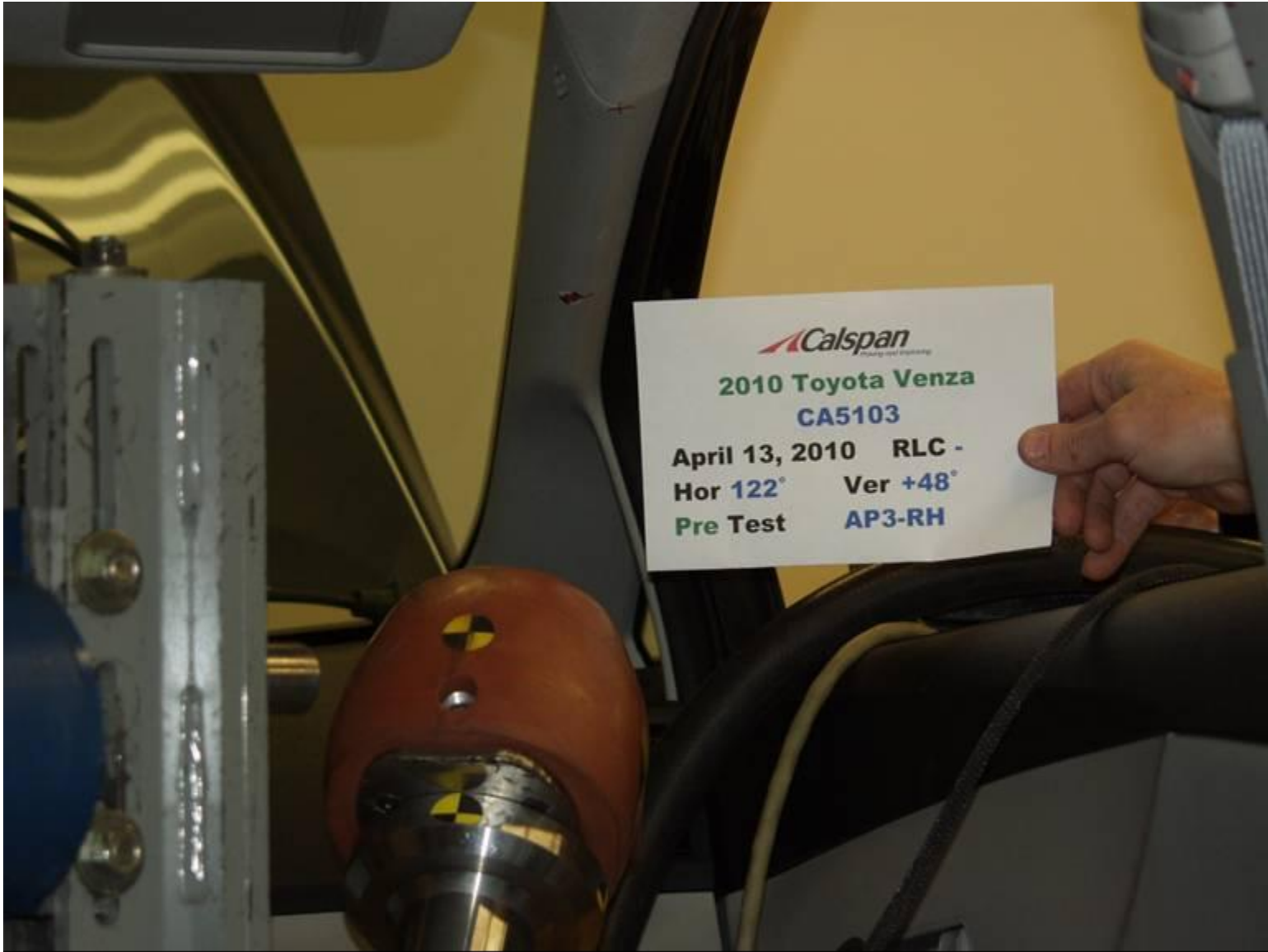


CFC\_180

CA5103 - April 13, 2010



PRE-IMPACT AP3 RH



POST-IMPACT AP3 RH

VEHICLE YEAR/MAKE/MODEL/STYLE:	2010 Toyota Venza
VIN:	4T3ZA3BB3AU022561
DATE OF MANUFACTURE:	12/09 (SEE CERTIFICATION LABEL)
COLOR:	Magnetic Gray

Test Number:	07
Test Date:	13 April 2010
Target Location:	AP1 RH
Target Code:	AP1 RH
Horizontal Impact Angle:	125
Vertical Impact Angle:	15
Ambient Temperature:	22
Relative Humidity:	23.2 %
Time of Impact:	11:02
Headform Number:	0805

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	45	<input checked="" type="checkbox"/>	mm right	<input type="checkbox"/>	mm left
On Centerline	24				mm up



POST-IMPACT AP1 RH HEADFORM

Free Motion HIC	228.1
HIC(d)	338.5
Impact Velocity (kph)	18.68
HIC T1 (msec)	8.1
HIC T2 (msec)	12.6

# AP1 RH Side CA5103 - AP1 RH

FMH Headform 0805

Location: AP1 RH

Test Date: April 13, 2010

Work File: fmh

## -----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 338.5

Lab Humidity: 23.2 %

HIC (36ms): 228.1

Velocity at Impact: 18.68 KPH

t1: 8.1 msec

t2: 12.6 msec

Free Flight Distance: 221.36 mm

Duration: 4.5 msec

Maximum: 99.3 g

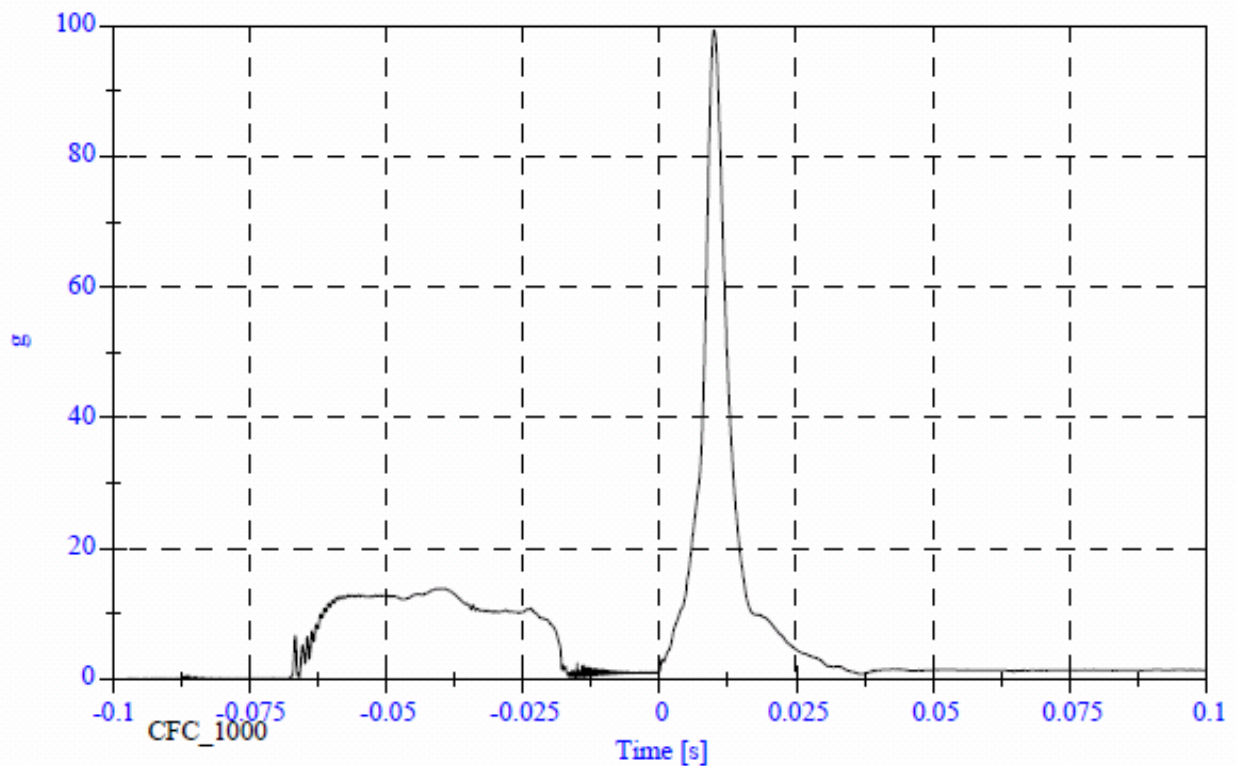
Average Acceleration: 6.5 g

AP1 RH Side

Headform Resultant

Max: 99.3 [g] at 0.010 [s]

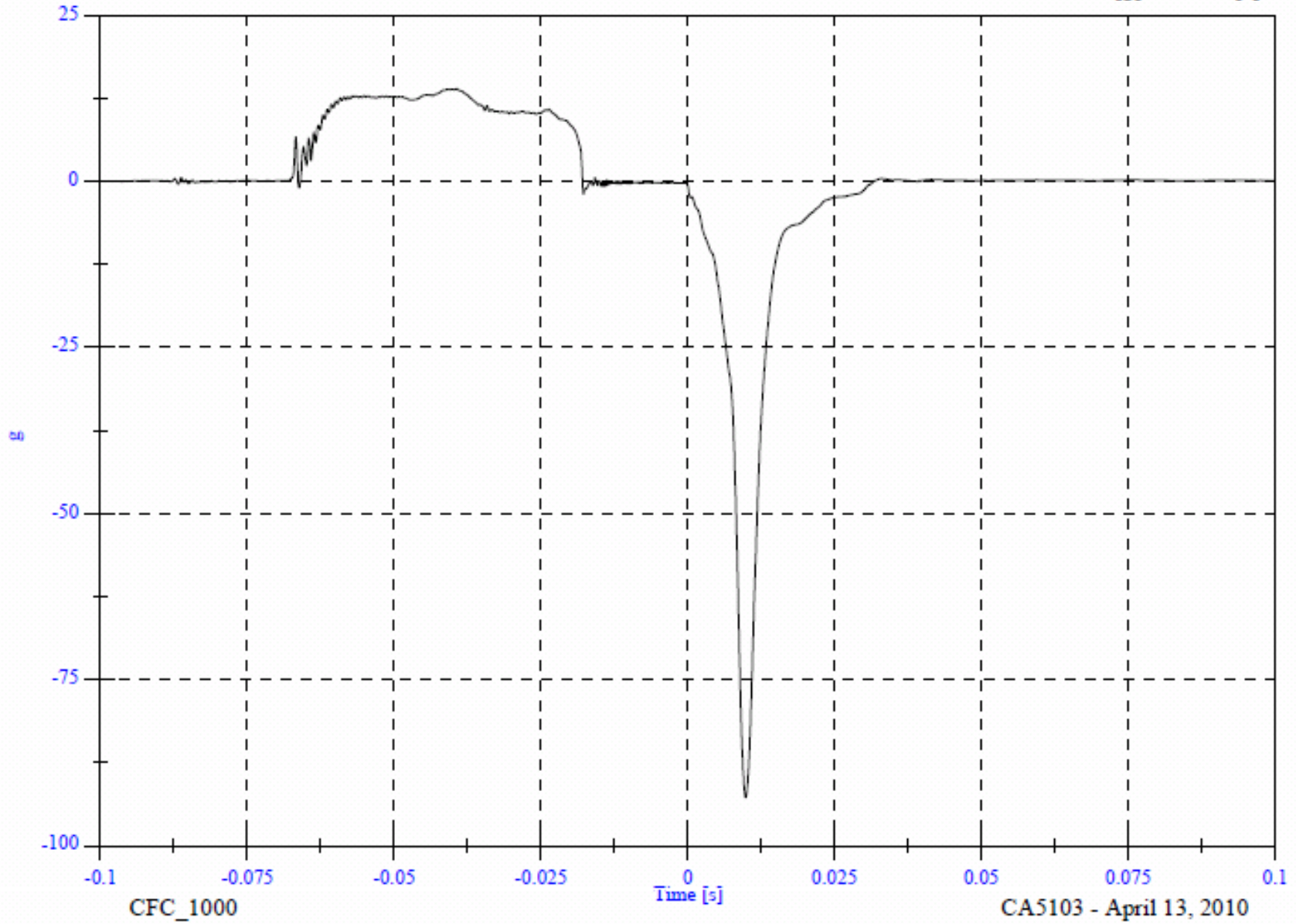
Min: 0.0 [g] at -0.095 [s]



API RH Side

Headform X Acceleration

Max: 13.9 [g] at -0.039 [s]  
Min: -92.7 [g] at 0.010 [s]

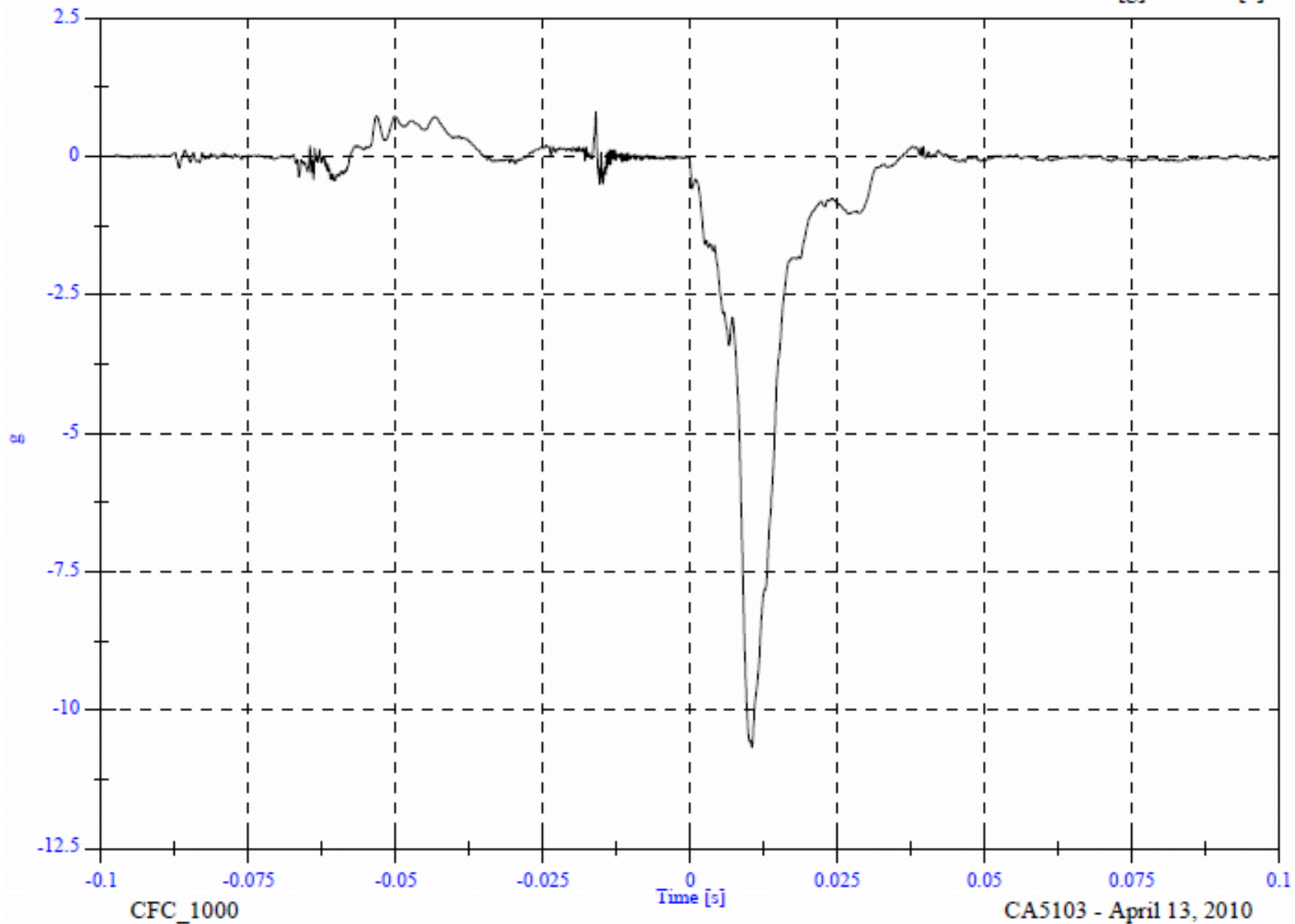


AP1 RH Side

Headform Y Acceleration

Max: 0.8 [g] at -0.016 [s]

Min: -10.7 [g] at 0.011 [s]

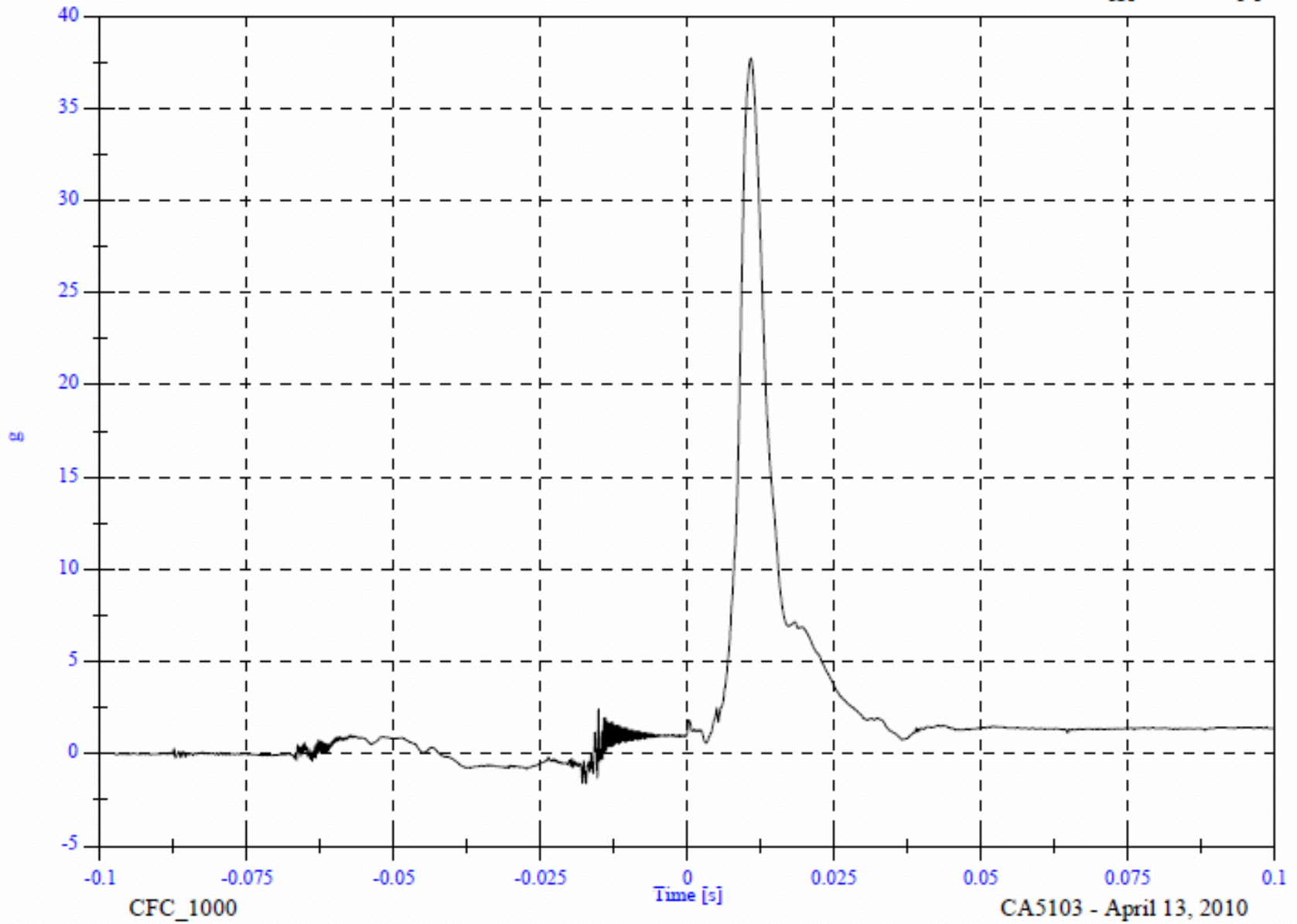


AP1 RH Side

Headform Z Acceleration

Max: 37.7 [g] at 0.011 [s]

Min: -1.6 [g] at -0.017 [s]

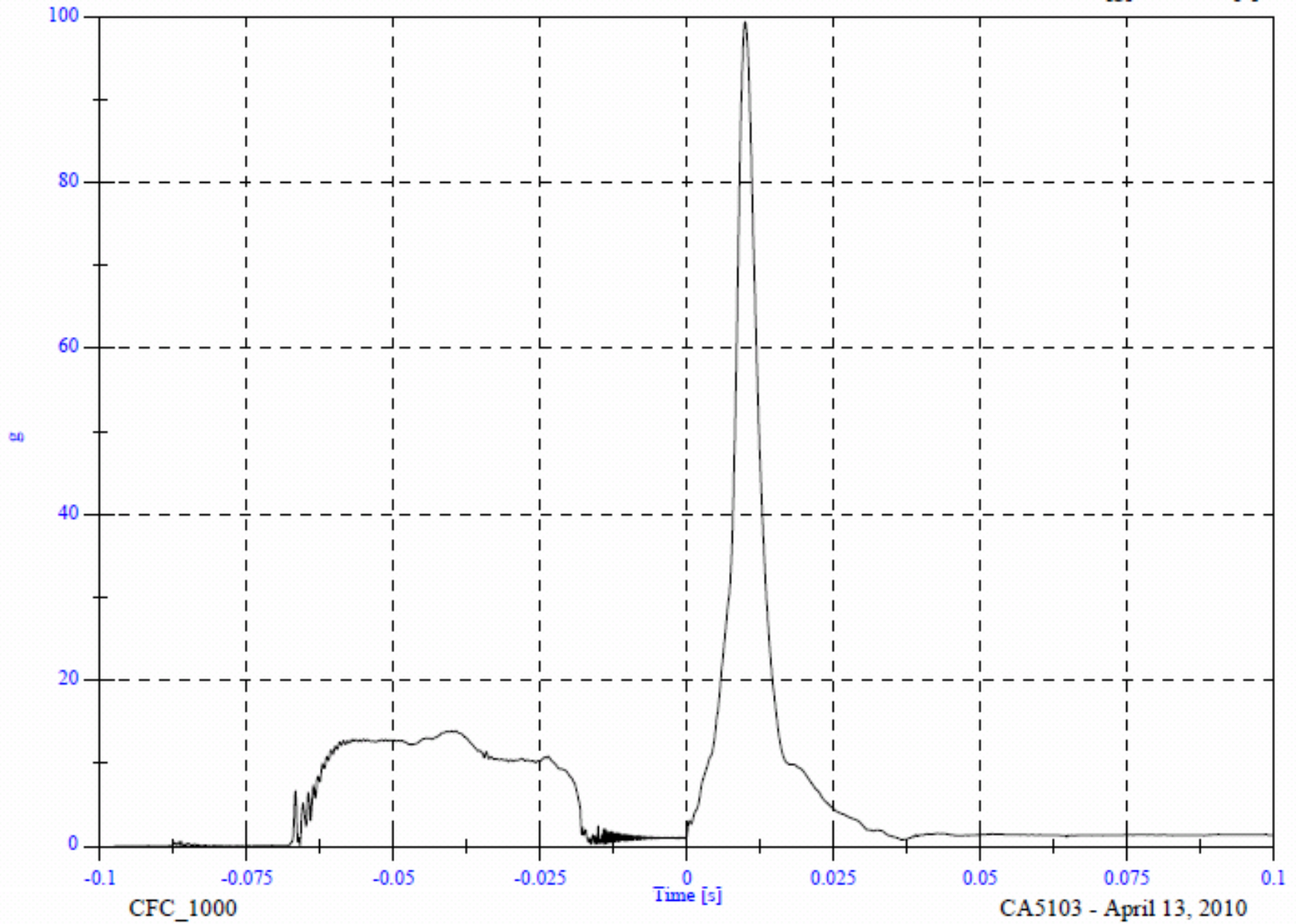




AP1 RH Side

Headform Resultant

Max: 99.3 [g] at 0.010 [s]  
Min: 0.0 [g] at -0.095 [s]

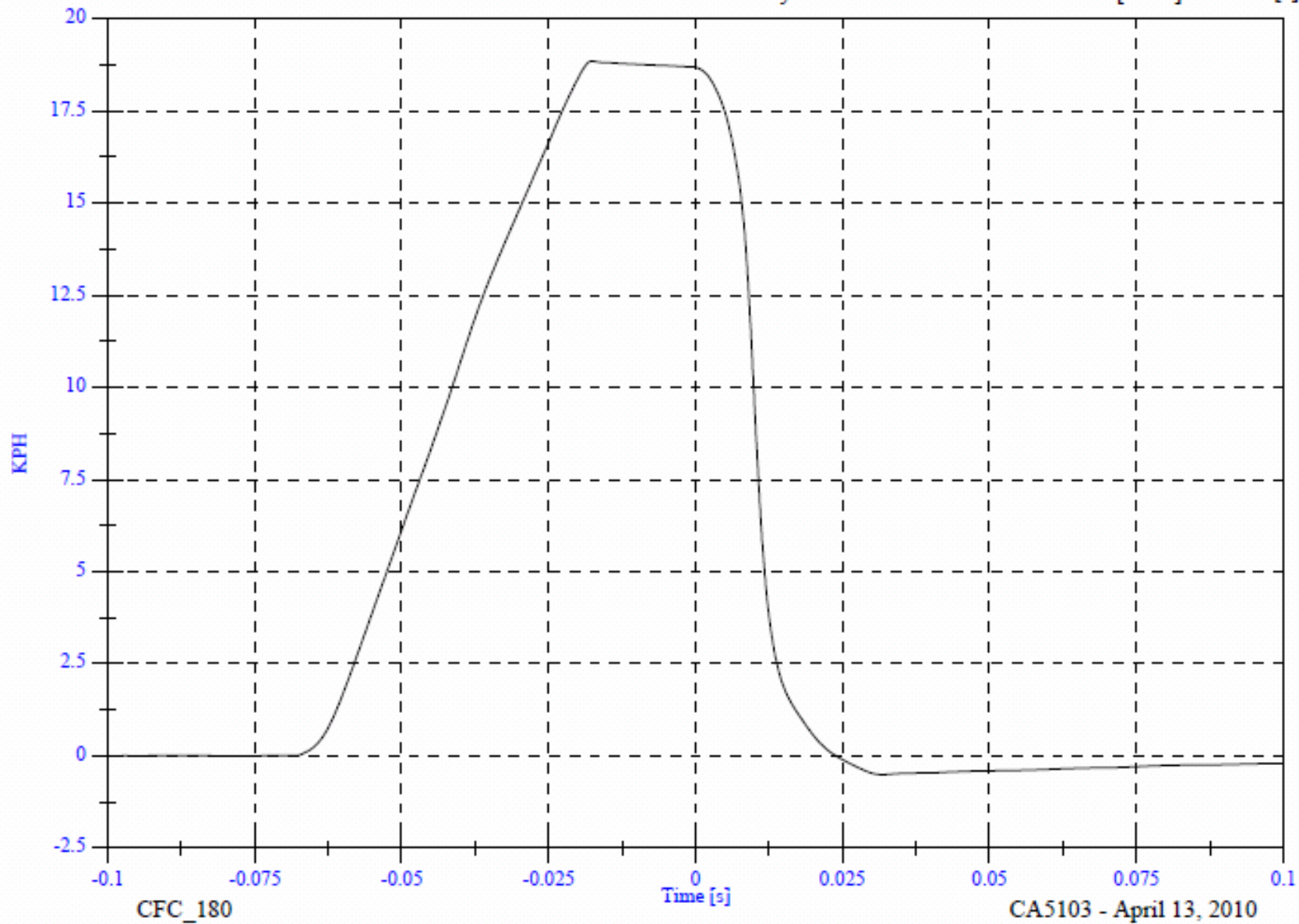


AP1 RH Side

Headform Velocity

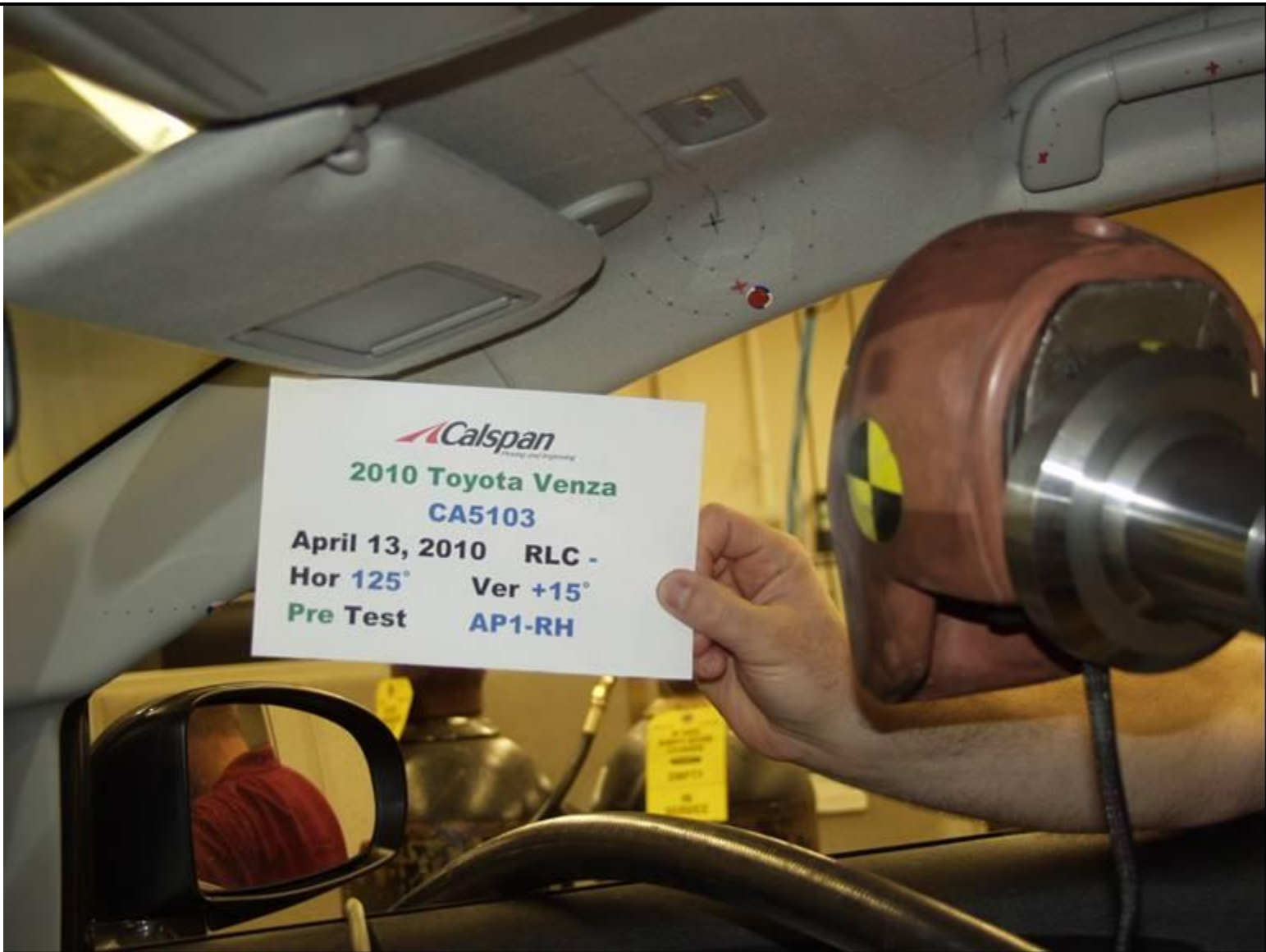
Max: 18.9 [KPH] at -0.018 [s]

Min: -0.5 [KPH] at 0.032 [s]

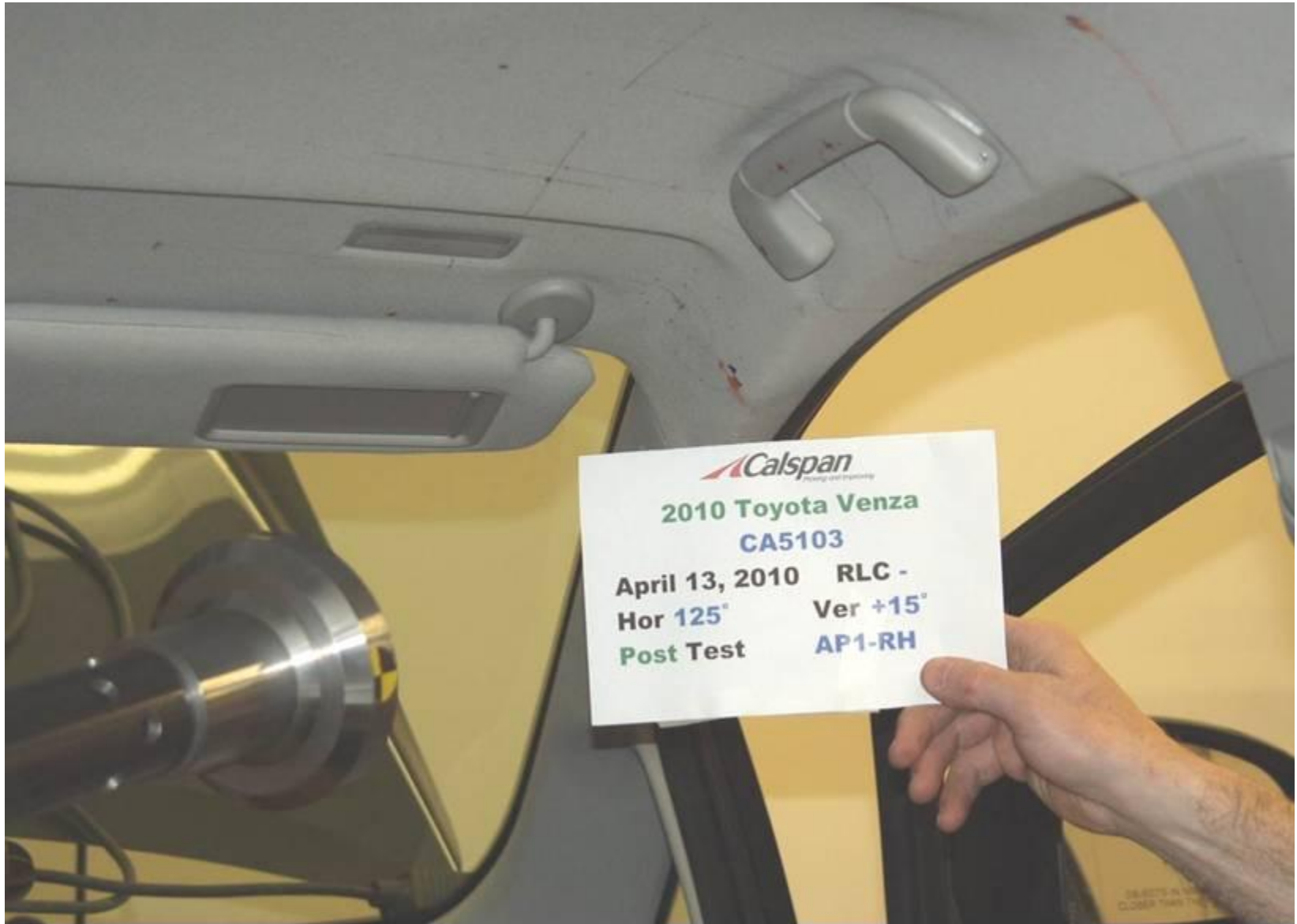


CFC\_180

CA5103 - April 13, 2010



PRE-IMPACT AP1 RH



POST-IMPACT API RH

VEHICLE YEAR/MAKE/MODEL/STYLE:	2010 Toyota Venza
VIN:	4T3ZA3BB3AU022561
DATE OF MANUFACTURE:	12/09 (SEE CERTIFICATION LABEL)
COLOR:	Magnetic Gray

Test Number:	08
Test Date:	13 April 2010
Target Location:	OP1 LH
Target Code:	OP1 LH
Horizontal Impact Angle:	270
Vertical Impact Angle:	14
Ambient Temperature:	22
Relative Humidity:	23 %
Time of Impact:	1:40
Headform Number:	1142

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	0	<input type="checkbox"/>	mm right <input type="checkbox"/> mm left
On Centerline	38		mm up



POST-IMPACT OP1 RH HEADFORM

Free Motion HIC	554.9
HIC(d)	585.0
Impact Velocity (kph)	2.98
HIC T1 (msec)	5.3
HIC T2 (msec)	1.7

# OP1 LH Side CA5103 - OP1 LH

FMH Headform 1142

Location: OP1 LH

Test Date: April 13, 2010

Work File: fmh

## TEST RESULTS

Lab Temperature: 22 C

HICd: 585.0

Lab Humidity: 23 %

HIC (36ms): 554.9

Velocity at Impact: 23.98 KPH

t1: 5.3 msec

t2: 13.7 msec

Free Flight Distance: 222.36 mm

Duration: 8.3 msec

Maximum: 113.0 g

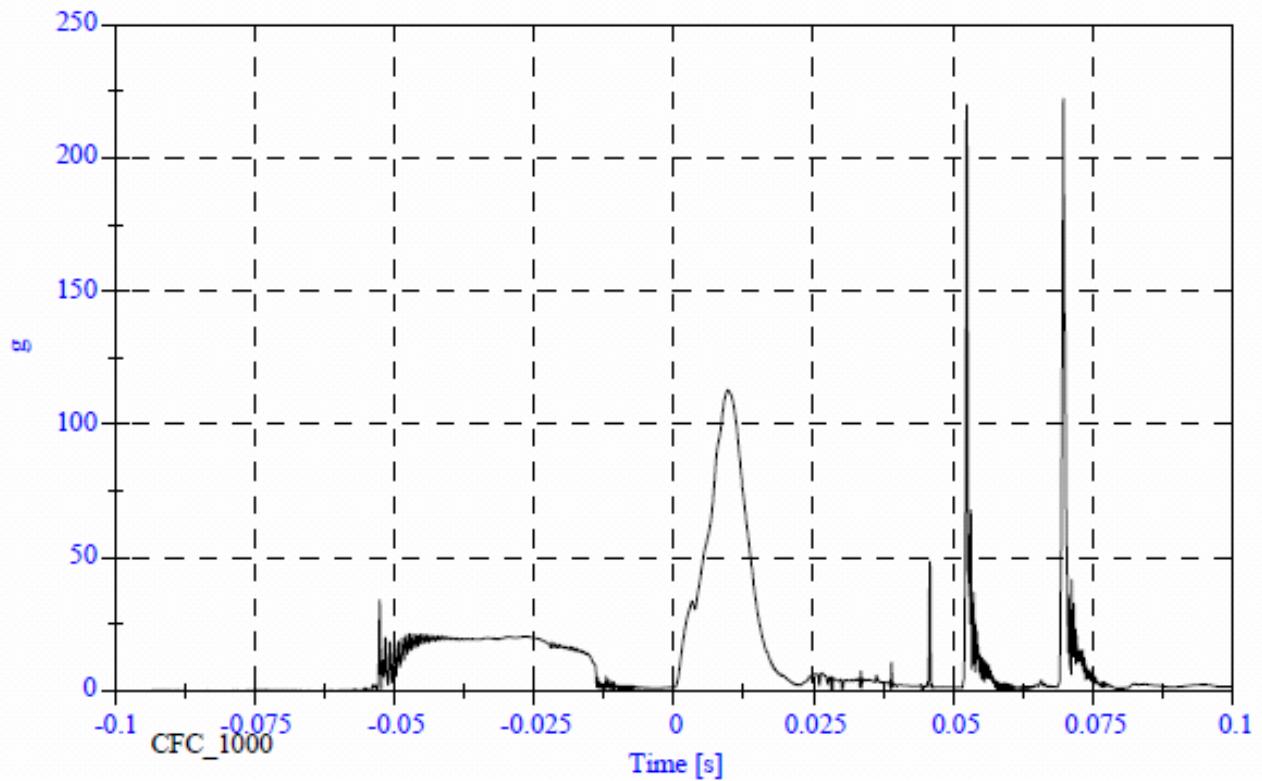
Average Acceleration: 11.1 g

OP1 LH Side

Headform Resultant

Max: 113.0 [g] at 0.010 [s]

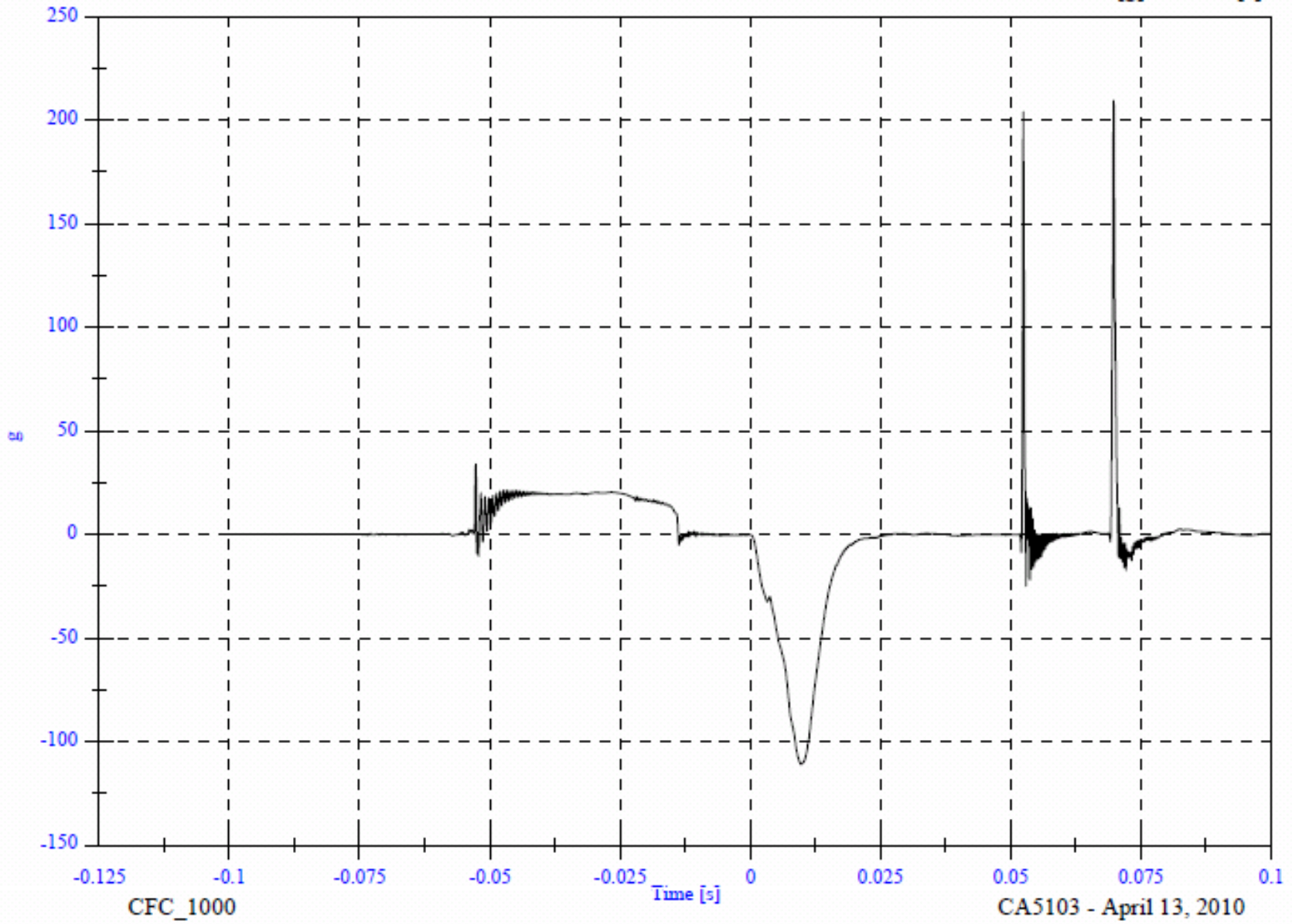
Min: 0.0 [g] at -0.095 [s]



OP1 LH Side

Headform X Acceleration

Max: 209.4 [g] at 0.070 [s]  
Min: -110.9 [g] at 0.010 [s]

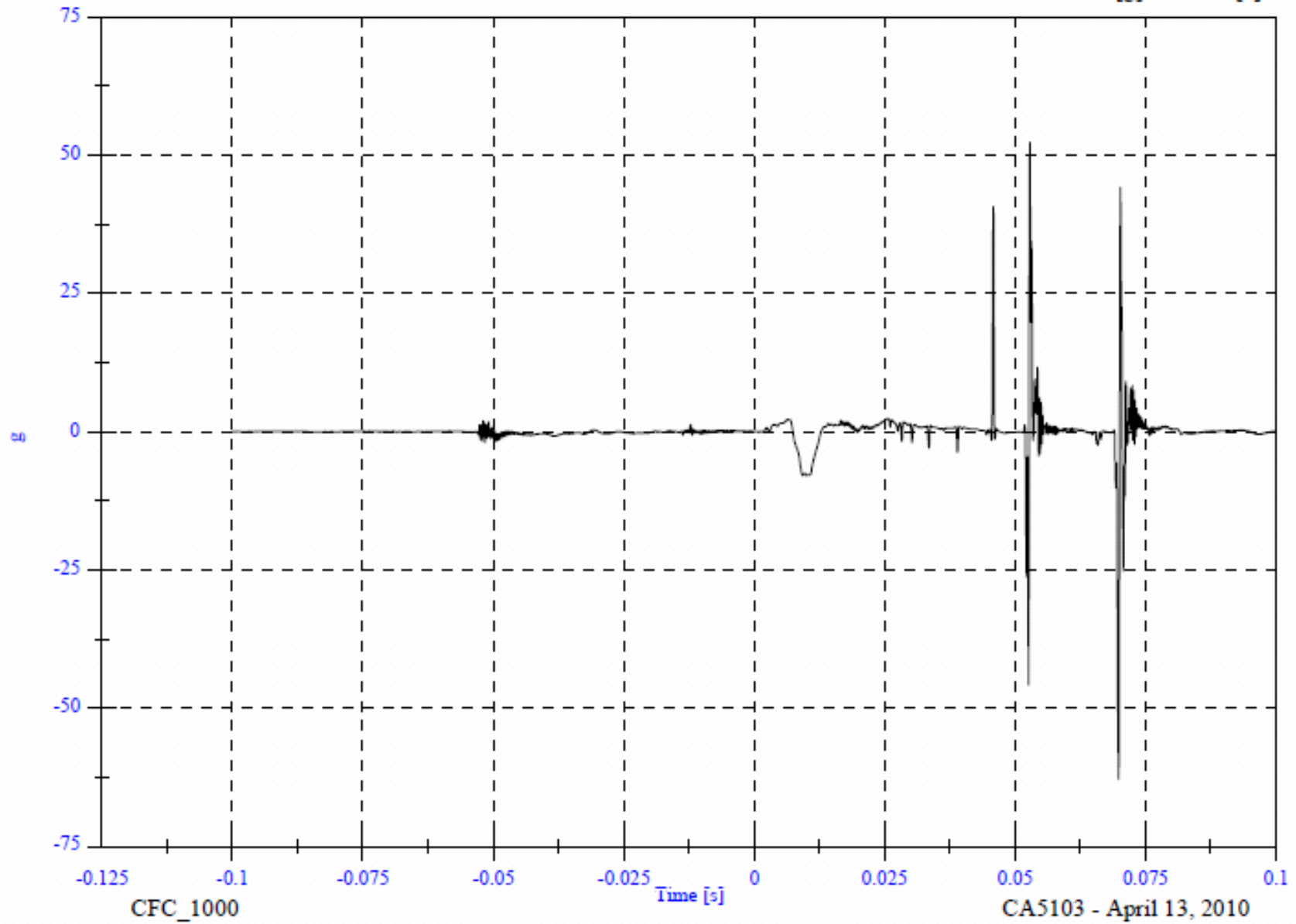


OPI LH Side

Headform Y Acceleration

Max: 52.3 [g] at 0.053 [s]

Min: -62.8 [g] at 0.070 [s]

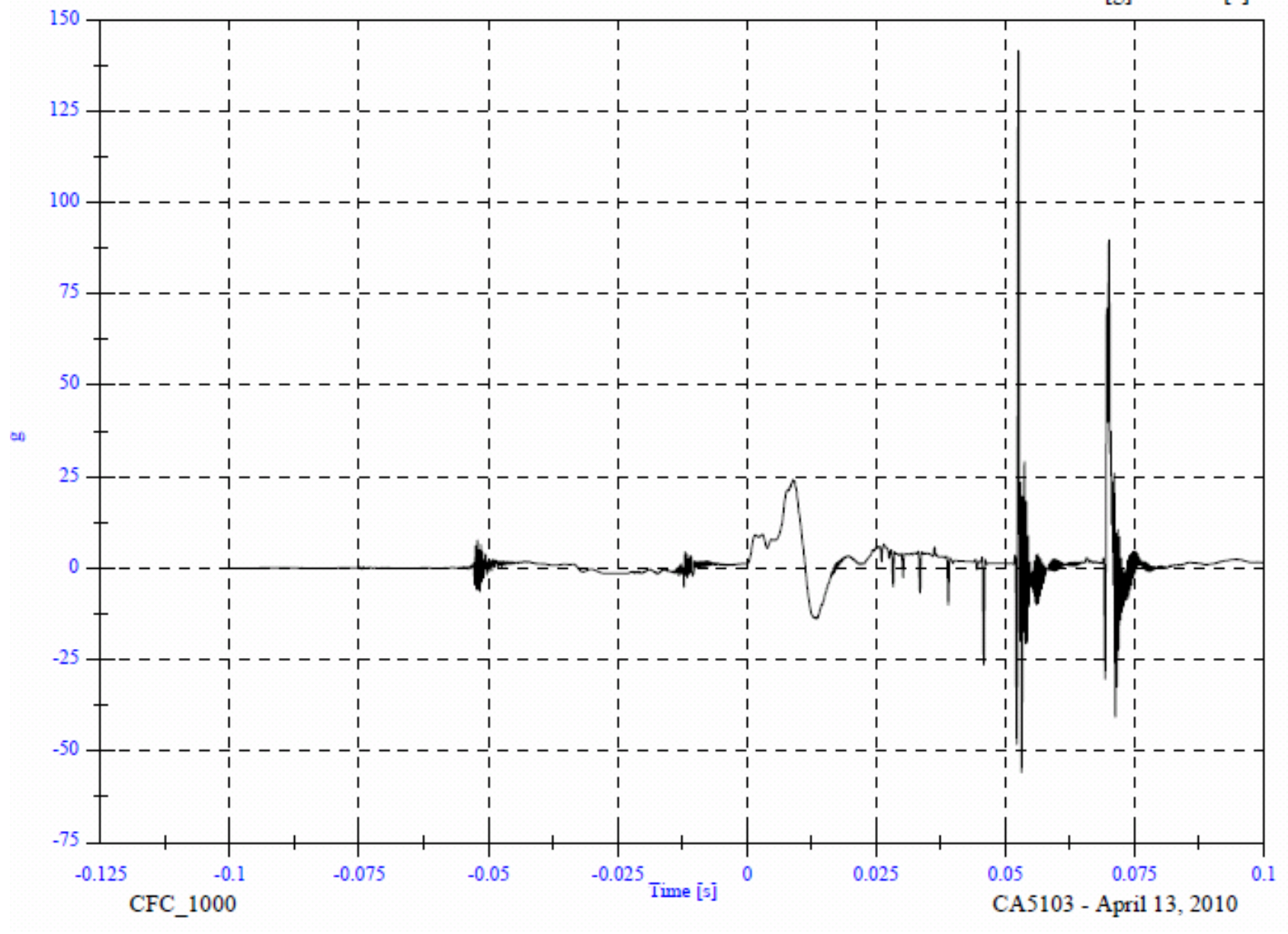




OP1 LH Side

Headform Z Acceleration

Max: 141.5 [g] at 0.053 [s]  
Min: -55.8 [g] at 0.053 [s]

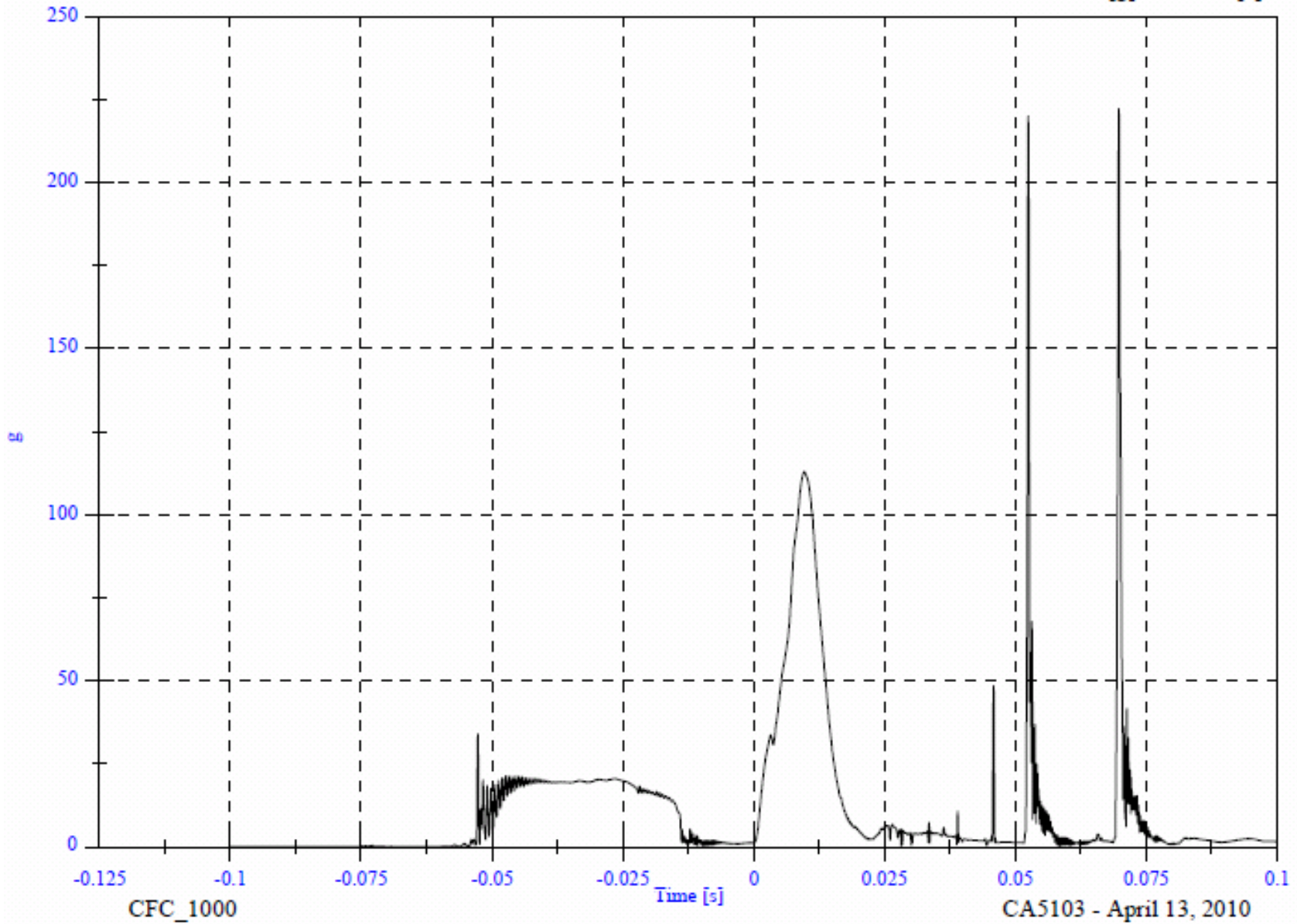


OP1 LH Side

Headform Resultant

Max: 222.3 [g] at 0.070 [s]

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

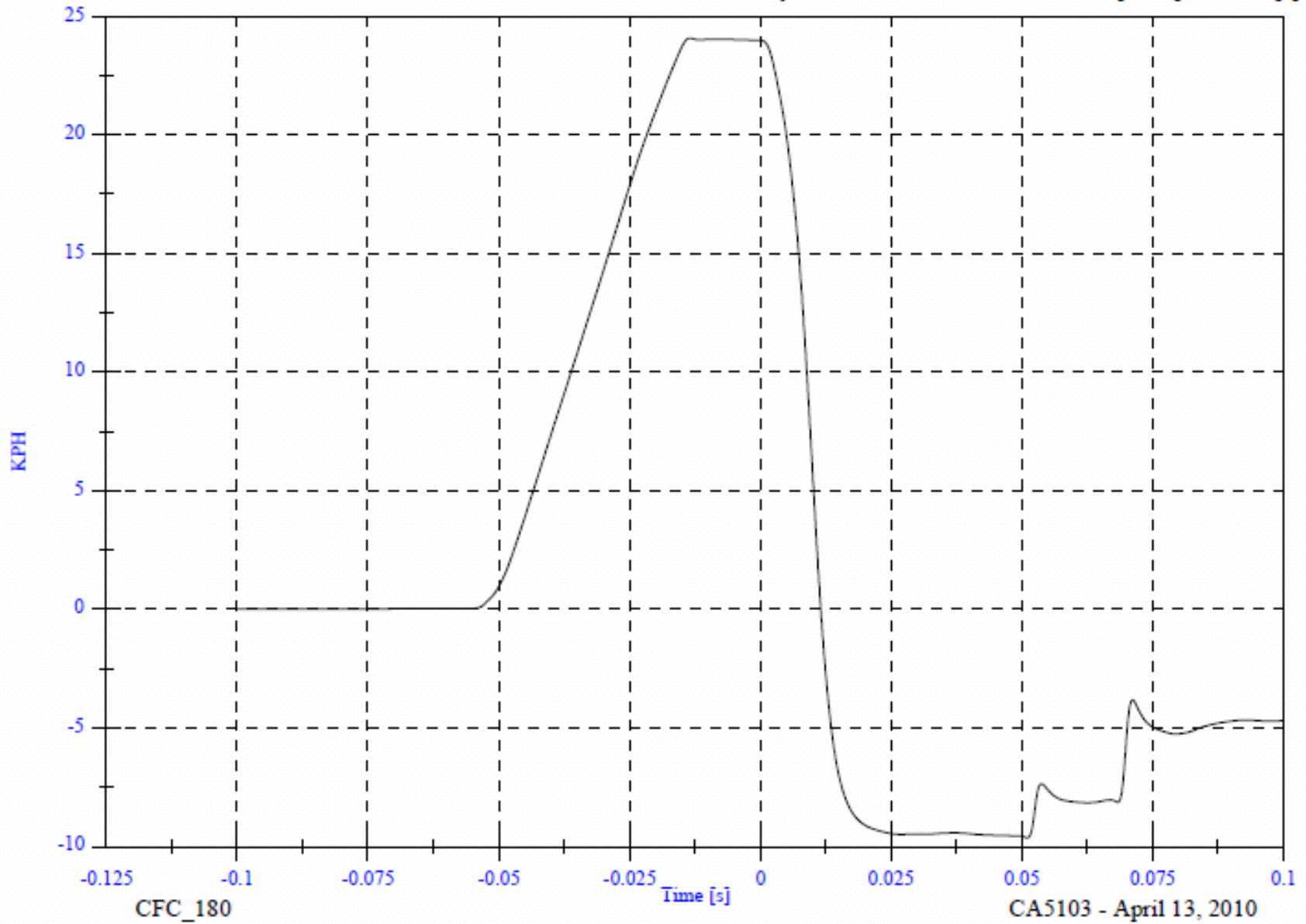


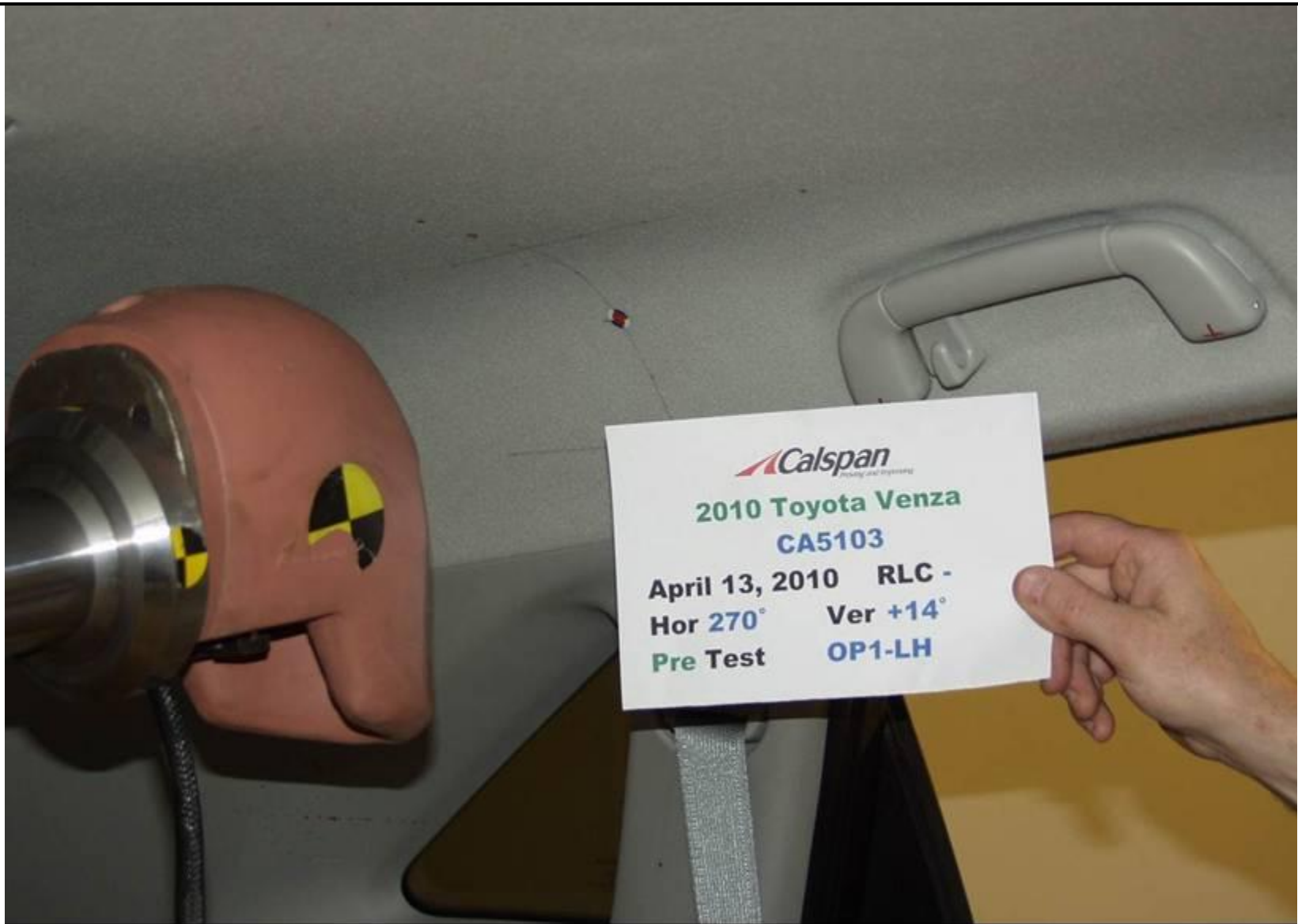
OP1 LH Side

Headform Velocity

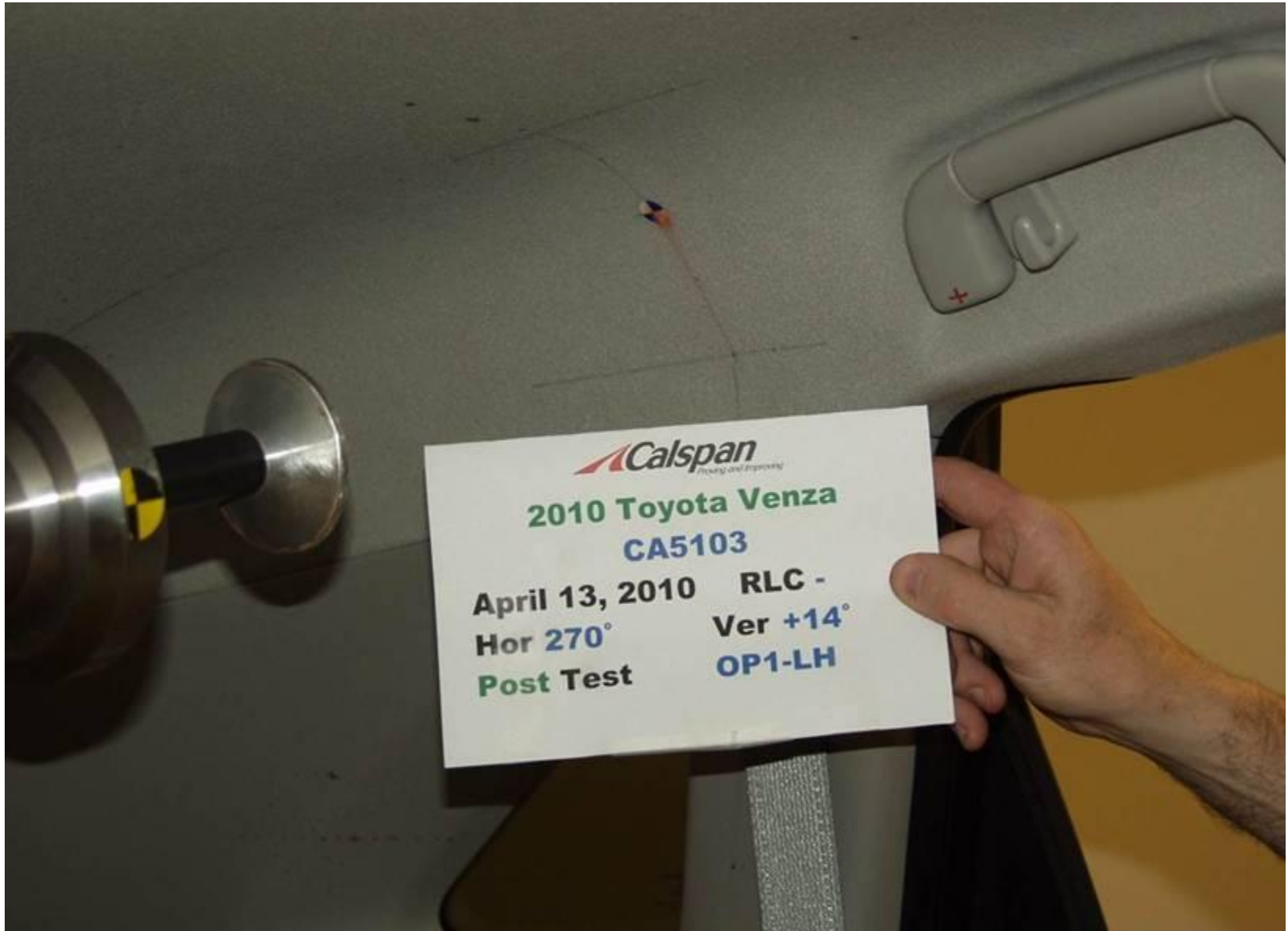
Max: 24.1 [KPH] at -0.013 [s]

Min: -9.6 [KPH] at 0.051 [s]





PRE-IMPACT OPI RH

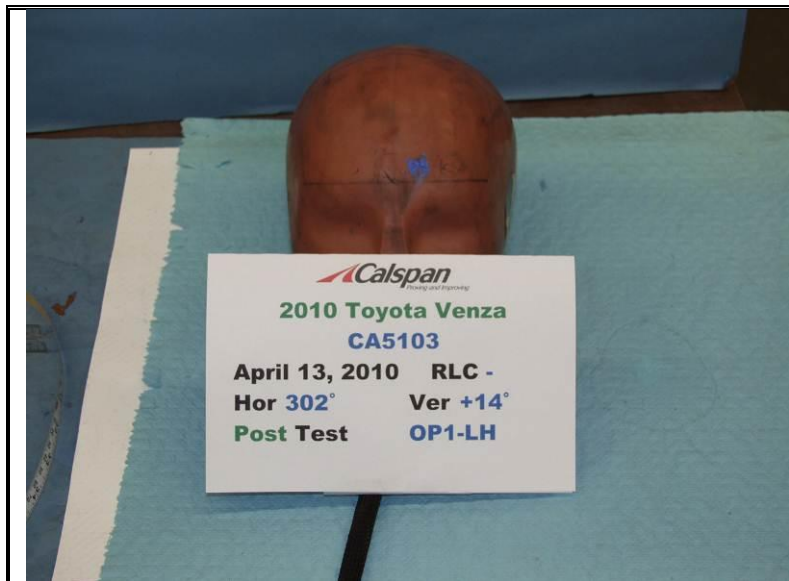


POST-IMPACT OPI RH

VEHICLE YEAR/MAKE/MODEL/STYLE:	2010 Toyota Venza
VIN:	4T3ZA3BB3AU022561
DATE OF MANUFACTURE:	12/09 (SEE CERTIFICATION LABEL)
COLOR:	Magnetic Gray

Test Number:	09
Test Date:	13 April 2010
Target Location:	BP3 LH
Target Code:	BP3 LH
Horizontal Impact Angle:	302
Vertical Impact Angle:	-10
Ambient Temperature:	22
Relative Humidity:	22.2 %
Time of Impact:	2:18
Headform Number:	0062

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	-15	<input type="checkbox"/>	mm right <input checked="" type="checkbox"/> mm left
On Centerline	9		mm up



POST-IMPACT BP3 LH HEADFORM

Note: Label was not fully updated after OP1 test. Label should read BP3 Hor 302 Ver -10.

Free Motion HIC	914.9
HIC(d)	856.7
Impact Velocity (kph)	23.53
HIC T1 (msec)	4.8
HIC T2 (msec)	7.7

## BP3 LH Side CA5103 - BP3 LH

FMH Headform 0062

Location: BP3 LH

Test Date: April 13, 2010

Work File: fmh

### TEST RESULTS

Lab Temperature: 22 C

HICd: 856.7

Lab Humidity: 22.2 %

HIC (36ms): 914.9

Velocity at Impact: 23.53 KPH

t1: 4.8 msec

t2: 7.7 msec

Free Flight Distance: 220.79 mm

Duration: 2.9 msec

Maximum: 205.2 g

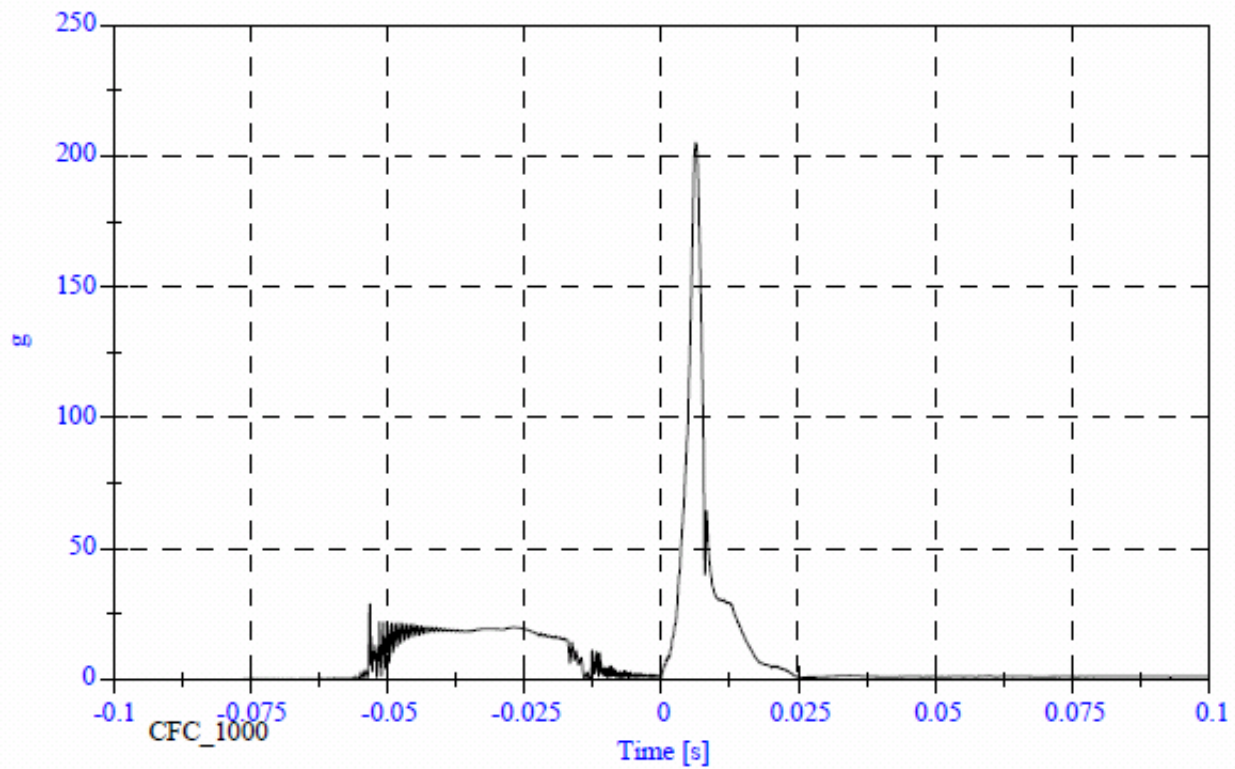
Average Acceleration: 8.5 g

BP3 LH Side

Headform Resultant

Max: 205.2 [g] at 0.006 [s]

Min: 0.0 [g] at -0.092 [s]

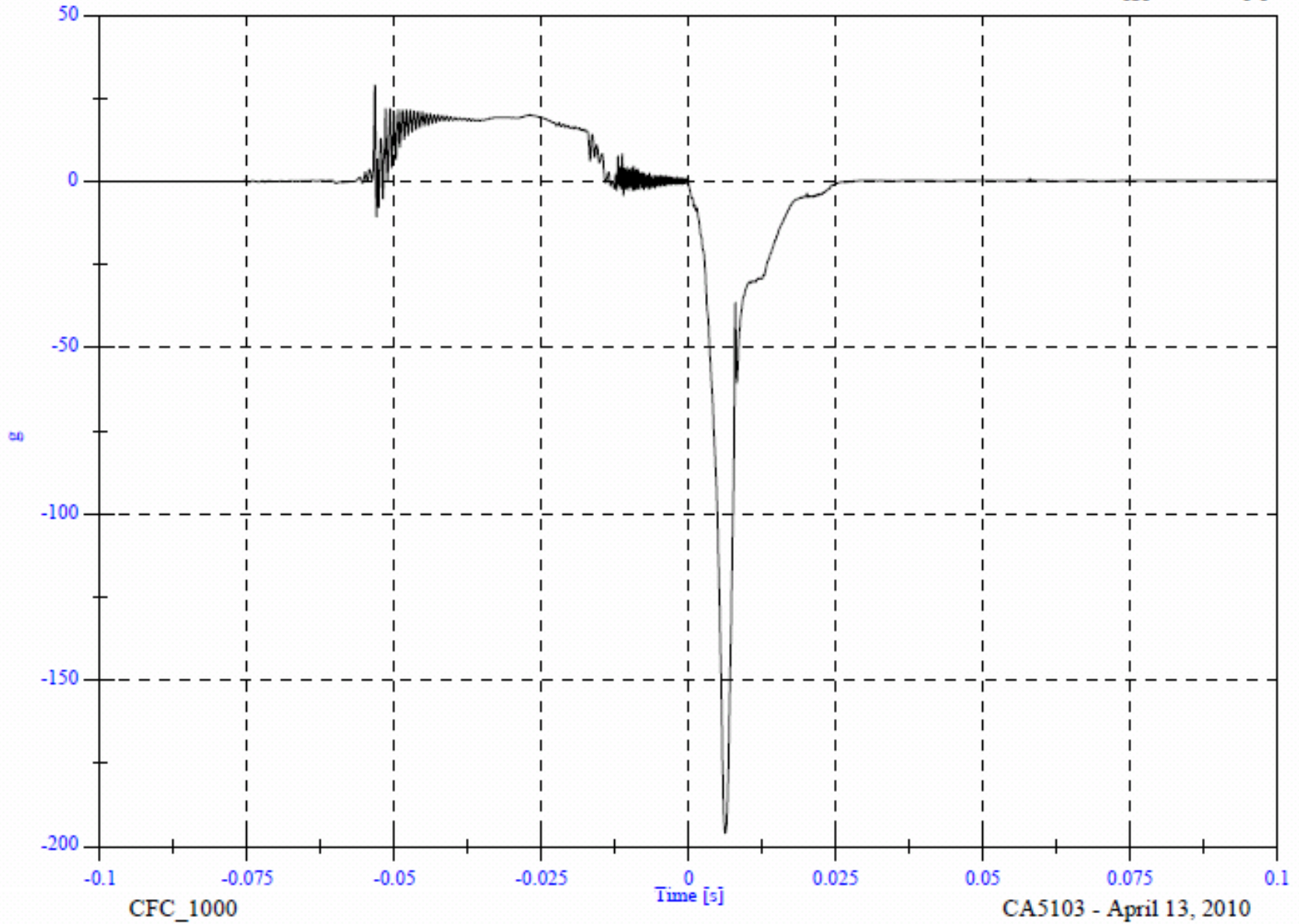


BP3 LH Side

Headform X Acceleration

Max: 28.9 [g] at -0.053 [s]

Min: -195.9 [g] at 0.006 [s]



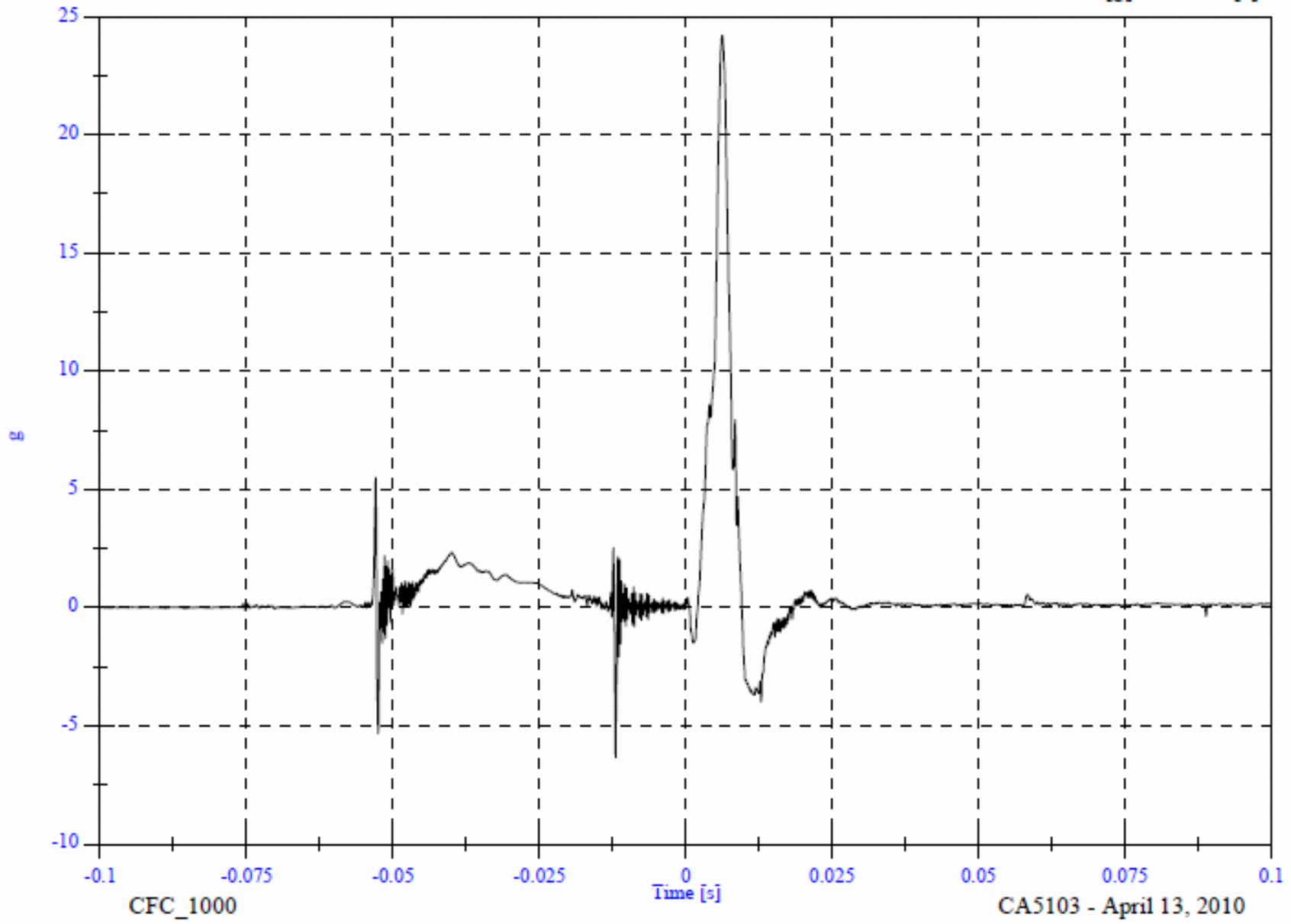


BP3 LH Side

Headform Y Acceleration

Max: 24.2 [g] at 0.006 [s]

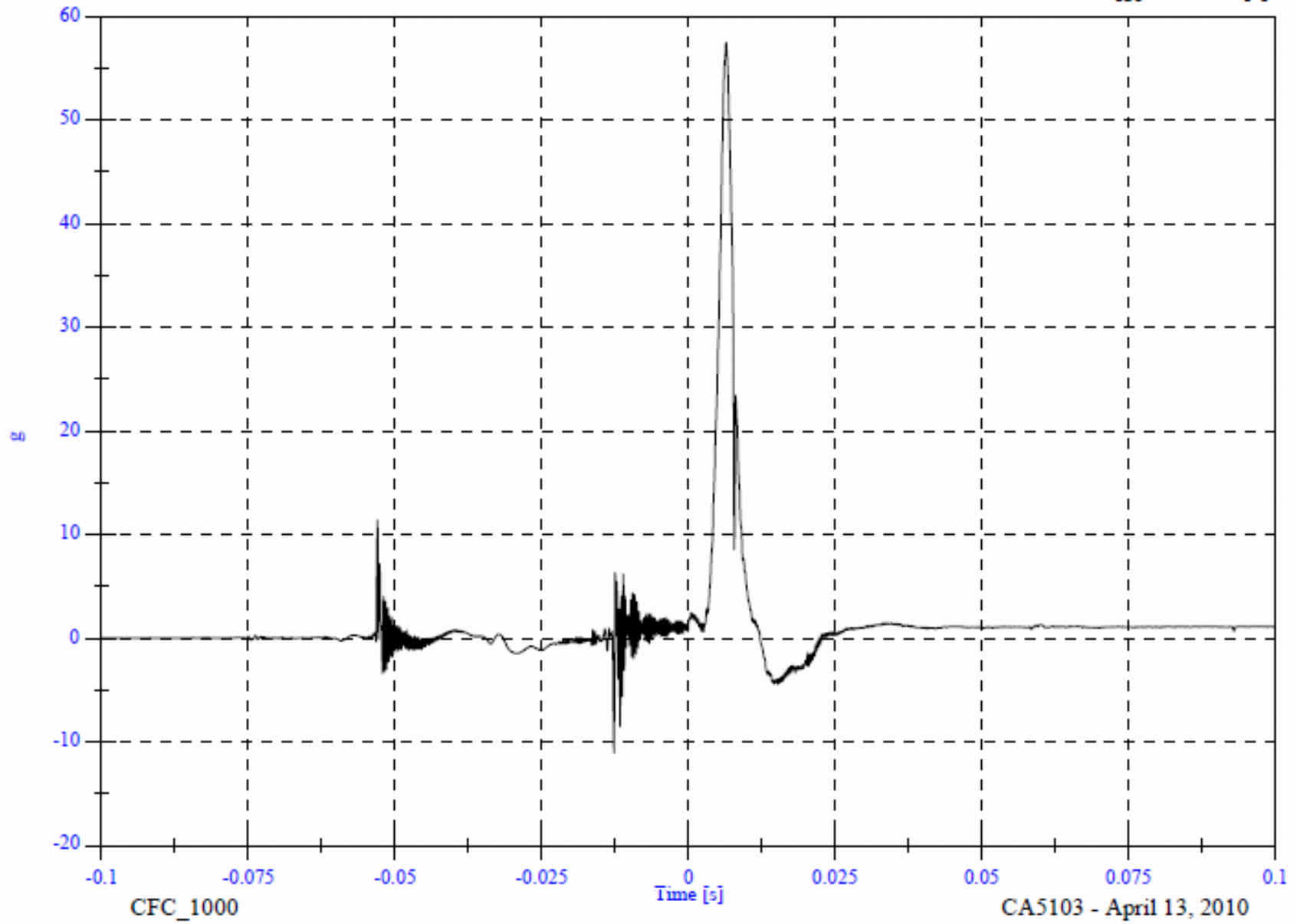
Min: -6.3 [g] at -0.012 [s]



BP3 LH Side

Headform Z Acceleration

Max: 57.5 [g] at 0.006 [s]  
Min: -11.1 [g] at -0.013 [s]

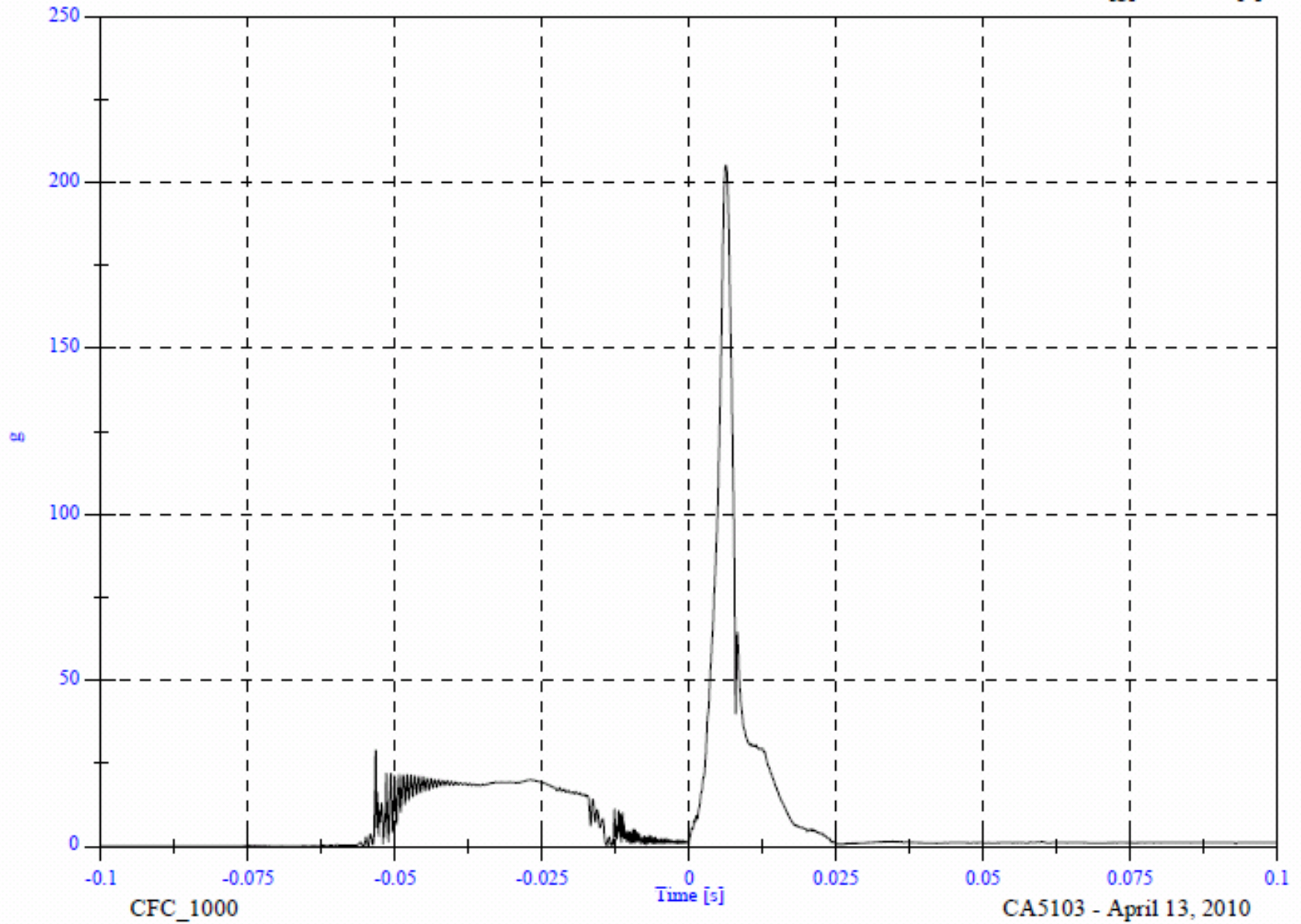


BP3 LH Side

Headform Resultant

Max: 205.2 [g] at 0.006 [s]

Min: 0.0 [g] at -0.092 [s]



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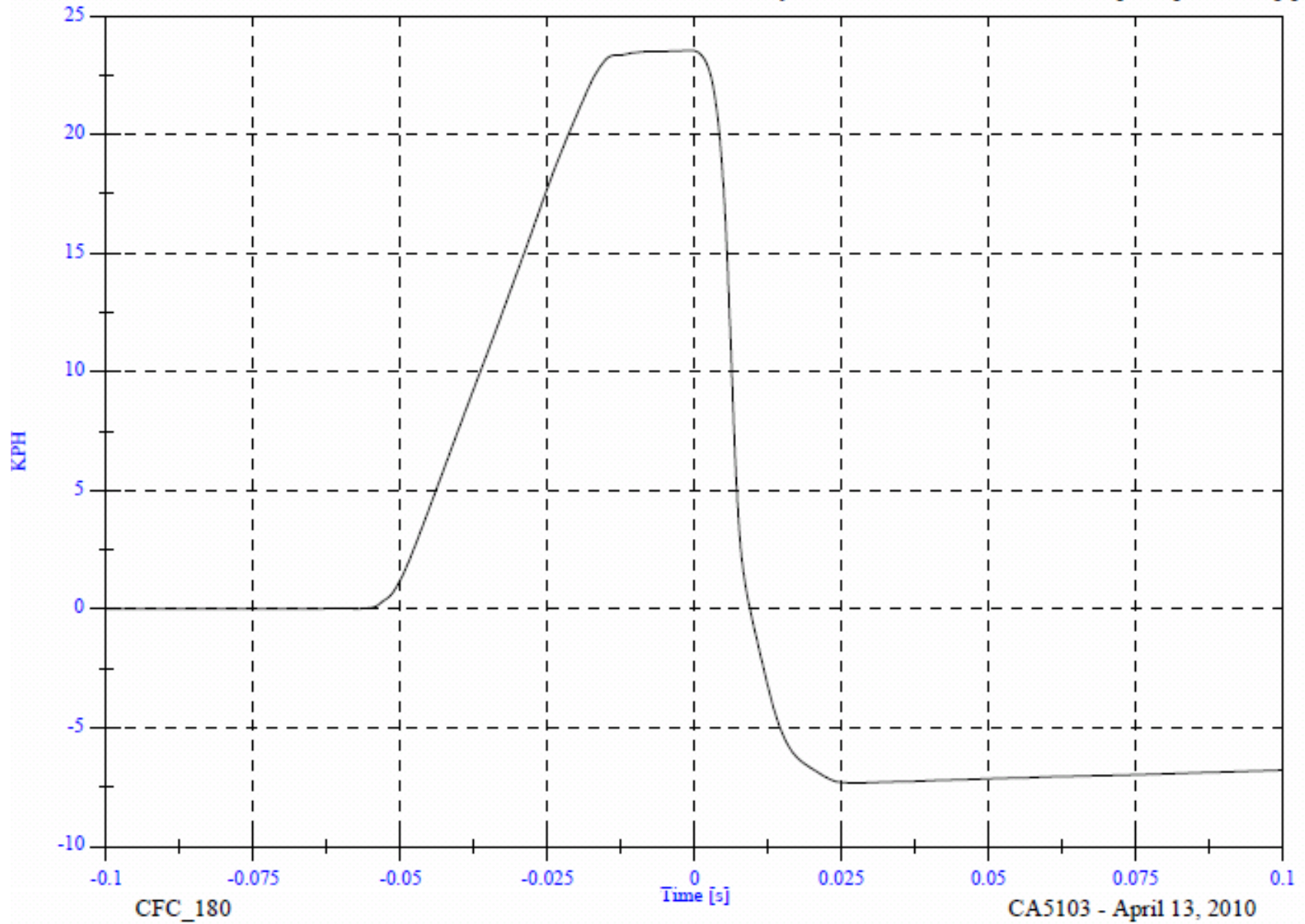
CA5103 - April 13, 2010

BP3 LH Side

Headform Velocity

Max: 23.5 [KPH] at -0.001 [s]

Min: -7.3 [KPH] at 0.028 [s]





**PRE-IMPACT BP3 LH**

Note: Label was not fully updated after OP1 test. Label should read BP3 Hor 302 Ver -10.



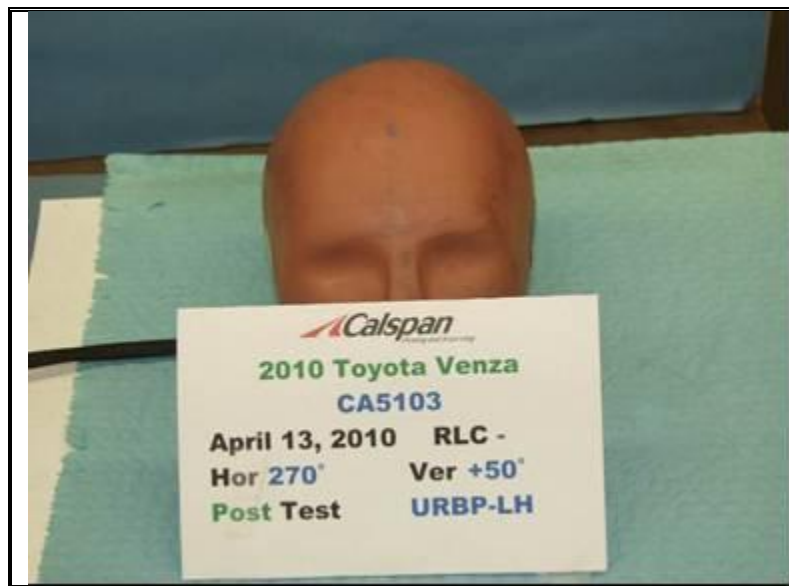
**POST-IMPACT BP3 LH**

Note: Label was not fully updated after OP1 test. Label should read BP3 Hor 302 Ver -10.

VEHICLE YEAR/MAKE/MODEL/STYLE:	2010 Toyota Venza
VIN:	4T3ZA3BB3AU022561
DATE OF MANUFACTURE:	12/09 (SEE CERTIFICATION LABEL)
COLOR:	Magnetic Gray

Test Number:	10
Test Date:	13 April 2010
Target Location:	URBP LH
Target Code:	URBP LH
Horizontal Impact Angle:	270
Vertical Impact Angle:	50
Ambient Temperature:	22
Relative Humidity:	23 %
Time of Impact:	2:43
Headform Number:	1140

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	0	<input type="checkbox"/>	mm right <input type="checkbox"/> mm left
On Centerline	39		mm up



POST-IMPACT URBP LH HEADFORM

Free Motion HIC	597.5
HIC(d)	617.2
Impact Velocity (kph)	23.30
HIC T1 (msec)	1.8
HIC T2 (msec)	11.1

## URBP LH Side CA5103 - URBP LH

FMH Headform 1140

Location: URBP LH

Test Date: April 13, 2010

Work File: fmh

### -----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 617.2

Lab Humidity: 23 %

HIC (36ms): 597.5

Velocity at Impact: 23.30 KPH

t1: 1.8 msec

t2: 11.1 msec

Free Flight Distance: 226.66 mm

Duration: 9.3 msec

Average Acceleration: 9.8 g

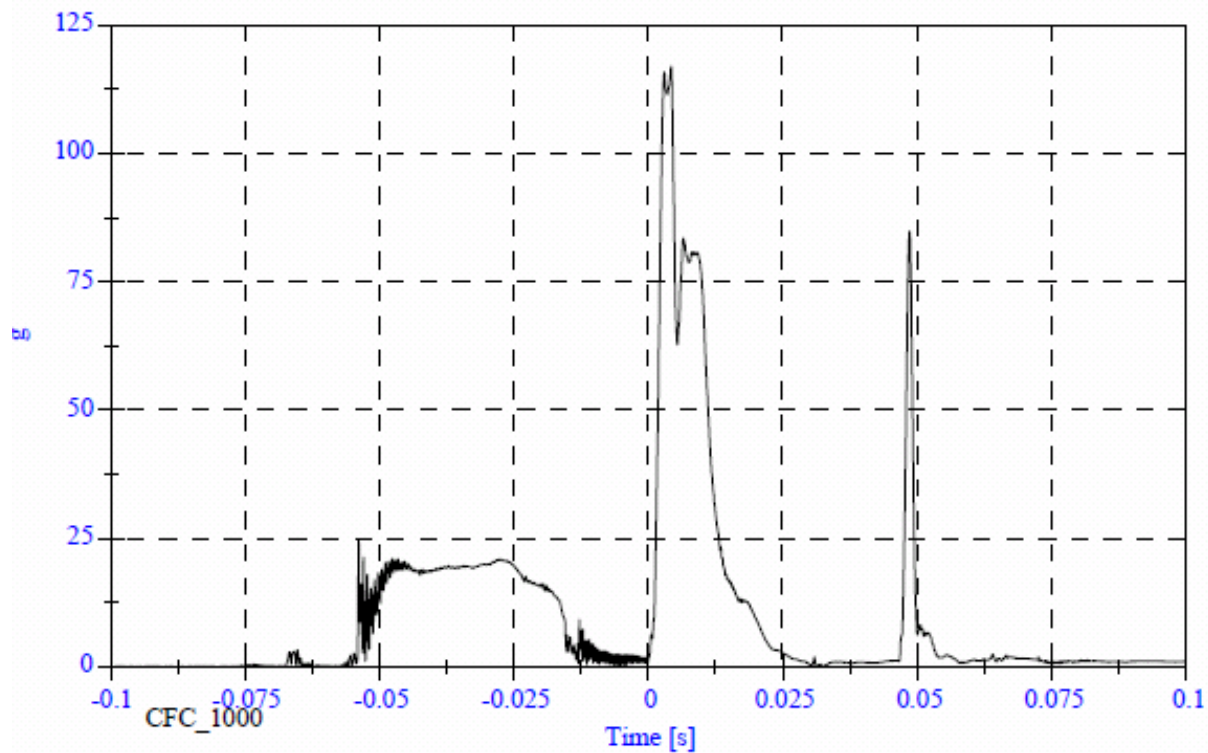
Maximum: 117.0 g

URBP LH Side

Max: 117.0 [g] at 0.004 [s]

Headform Resultant

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



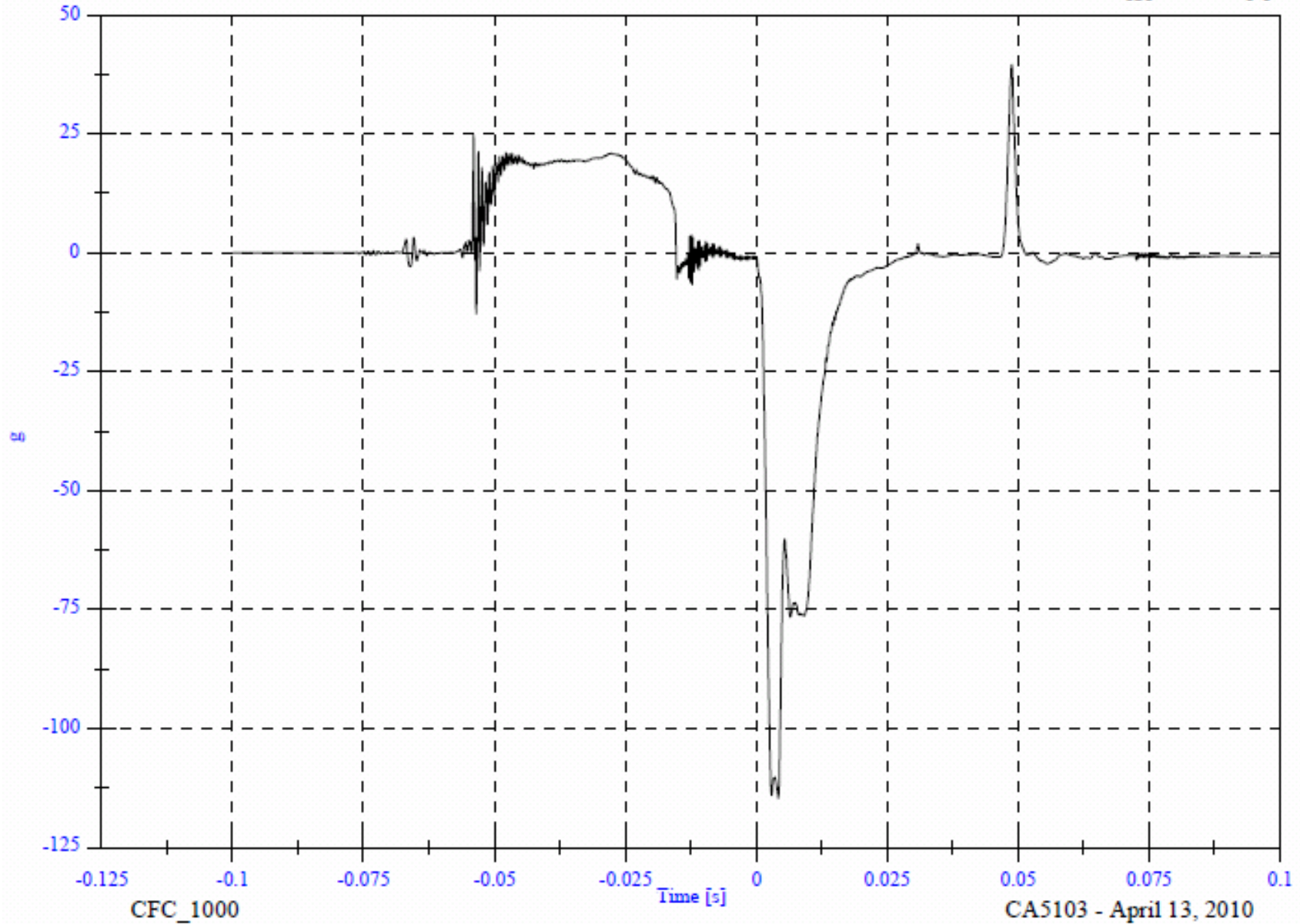


URBP LH Side

Headform X Acceleration

Max: 39.5 [g] at 0.049 [s]

Min: -114.7 [g] at 0.004 [s]

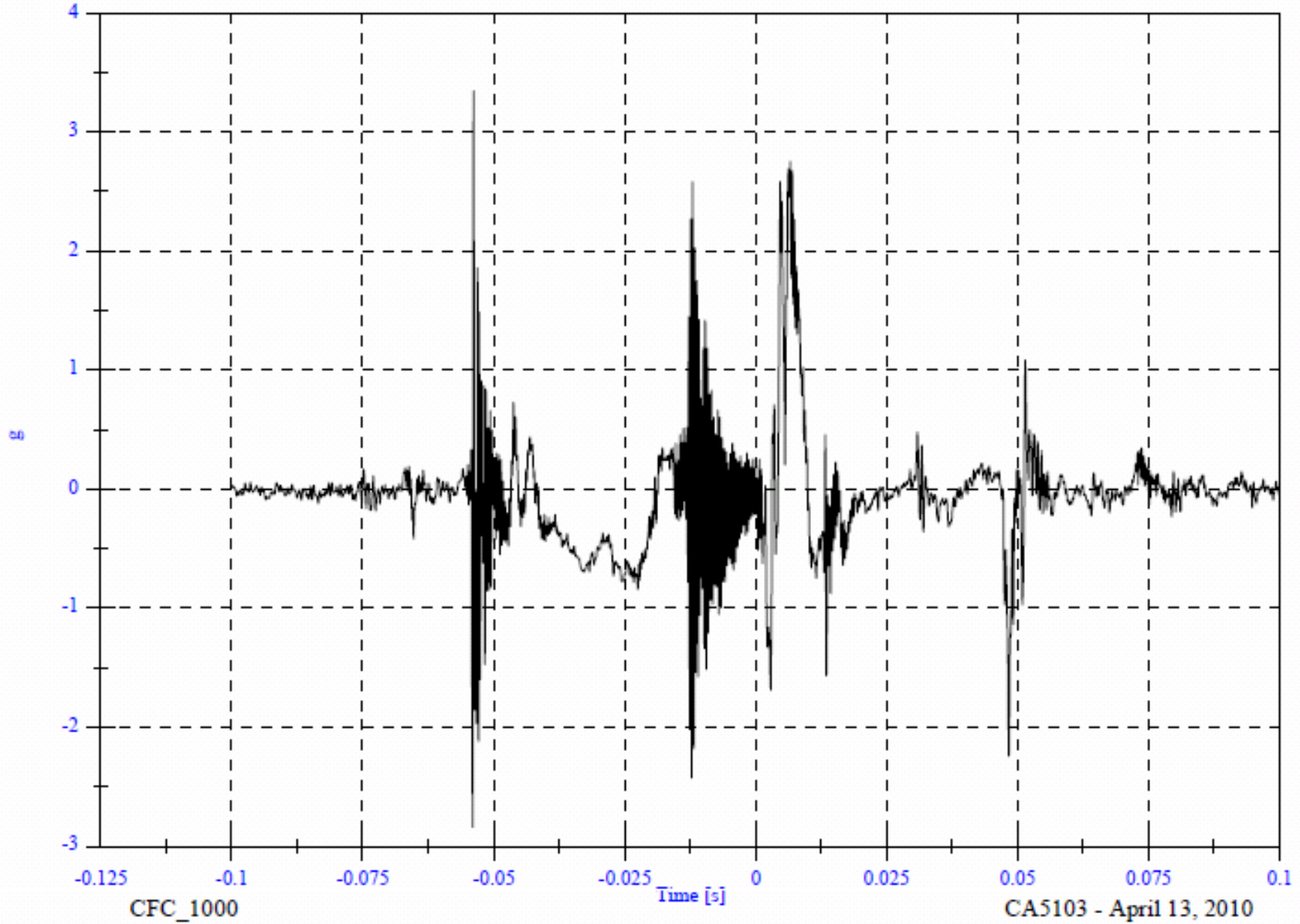


URBP LH Side

Headform Y Acceleration

Max: 3.3 [g] at -0.054 [s]

Min: -2.8 [g] at -0.054 [s]

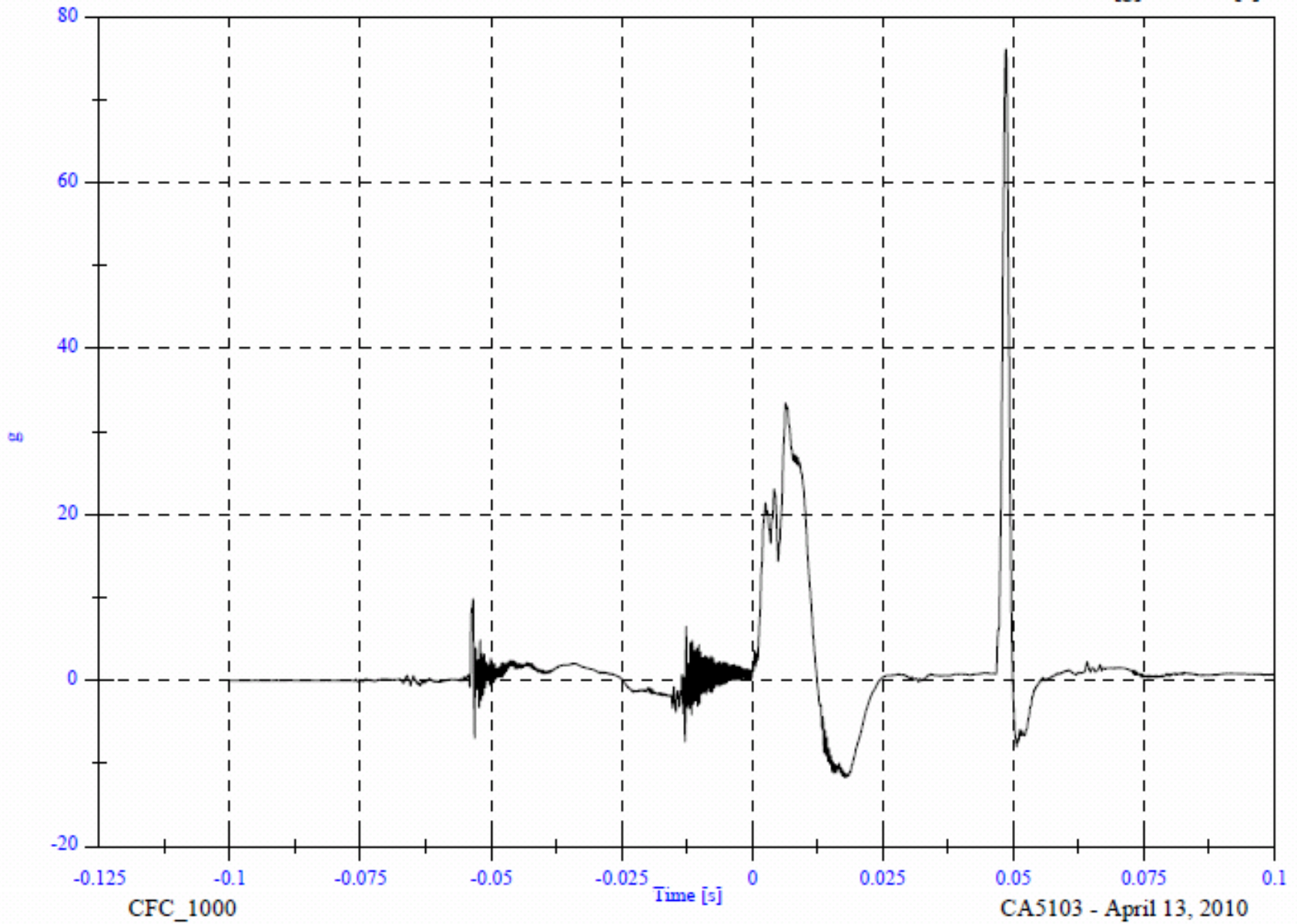


URBP LH Side

Headform Z Acceleration

Max: 76.0 [g] at 0.049 [s]

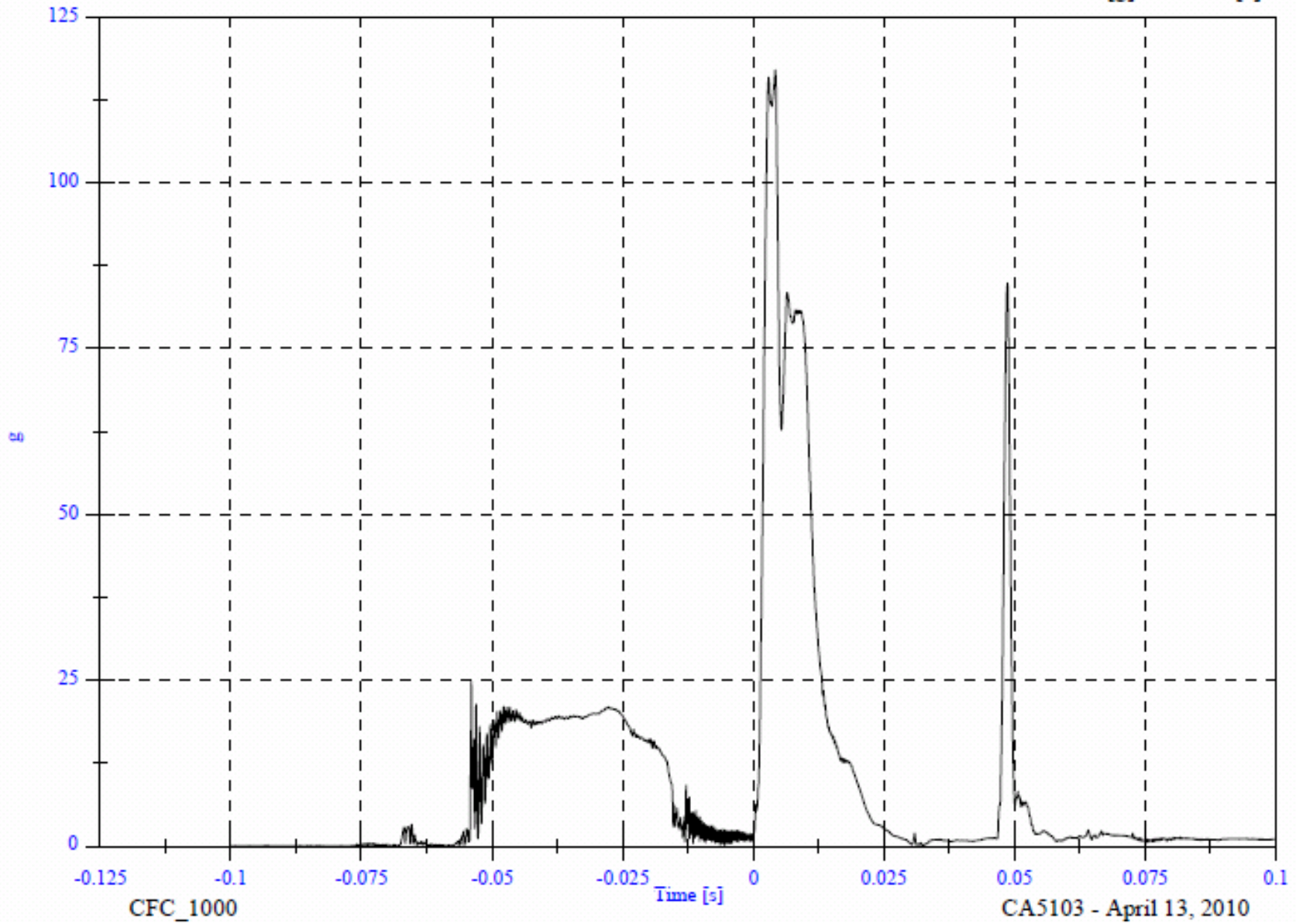
Min: -11.7 [g] at 0.018 [s]



URBP LH Side

Headform Resultant

Max: 117.0 [g] at 0.004 [s]  
Min: 0.0 [g] at -0.095 [s]

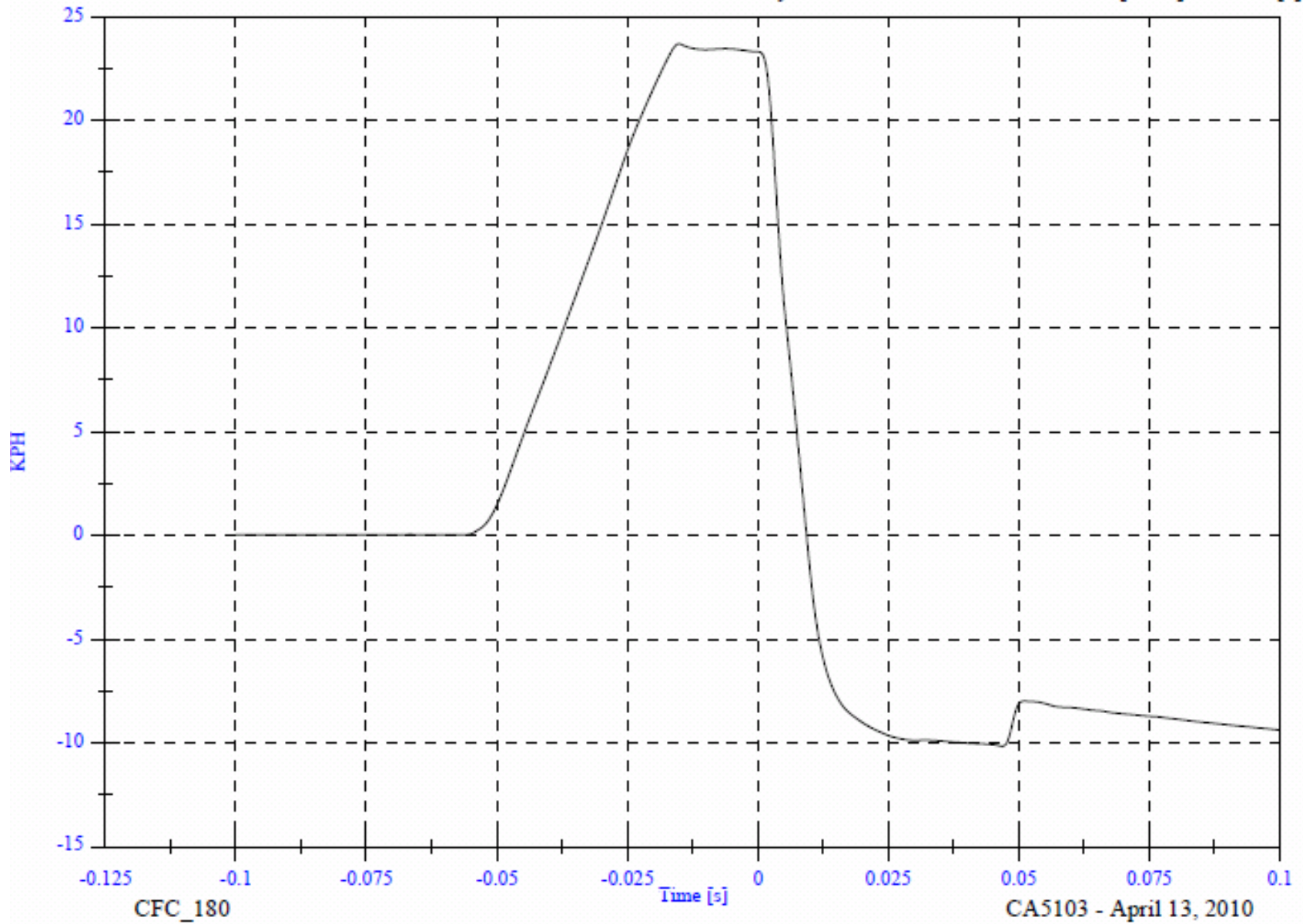


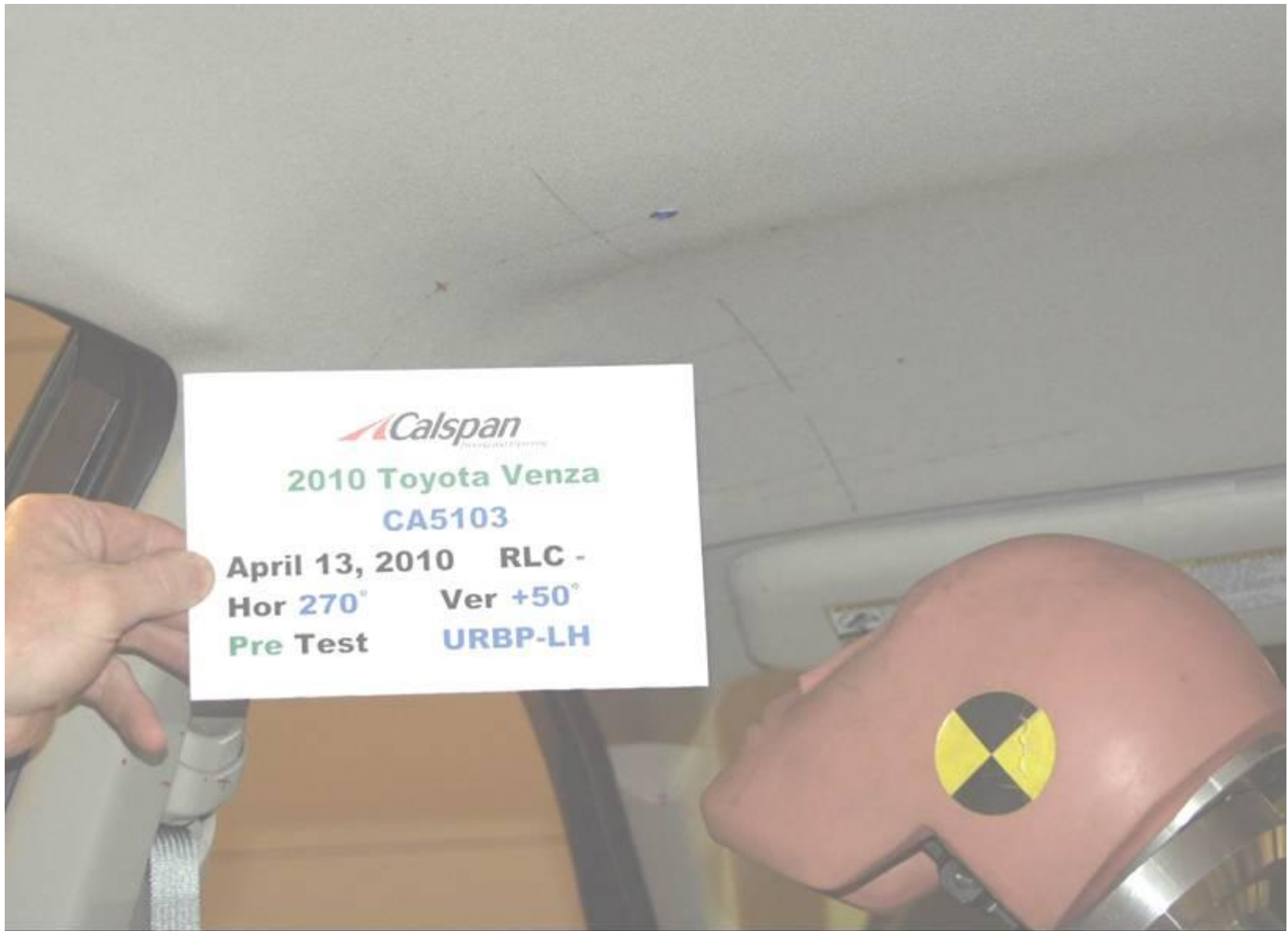
URBP LH Side

Headform Velocity

Max: 23.7 [KPH] at -0.015 [s]

Min: -10.2 [KPH] at 0.047 [s]





PRE-IMPACT URBP LH



POST-IMPACT URBP LH

VEHICLE YEAR/MAKE/MODEL/STYLE:	2010 Toyota Venza
VIN:	4T3ZA3BB3AU022561
DATE OF MANUFACTURE:	12/09 (SEE CERTIFICATION LABEL)
COLOR:	Magnetic Gray

Test Number:	11
Test Date:	13 April 2010
Target Location:	SR2A LH
Target Code:	SR2A LH
Horizontal Impact Angle:	270
Vertical Impact Angle:	39
Ambient Temperature:	22
Relative Humidity:	22.7 %
Time of Impact:	3:30
Headform Number:	0355

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	-2	<input type="checkbox"/>	mm right <input checked="" type="checkbox"/> mm left
On Centerline	25		mm up



POST-IMPACT SR2A LH HEADFORM

Free Motion HIC	523.9
HIC(d)	561.6
Impact Velocity (kph)	23.75
HIC T1 (msec)	2.7
HIC T2 (msec)	13.1



## SR2a LH Side CA5103 - SR2A LH

FMH Headform 0355

Location: SR2A LH

Test Date: April 13, 2010

Work File: fmh

### TEST RESULTS

Lab Temperature: 22 C

HICd: 561.6

Lab Humidity: 22.7 %

HIC (36ms): 523.9

Velocity at Impact: 23.75 KPH

t1: 2.7 msec

t2: 13.1 msec

Free Flight Distance: 228.84 mm

Duration: 10.4 msec

Maximum: 109.7 g

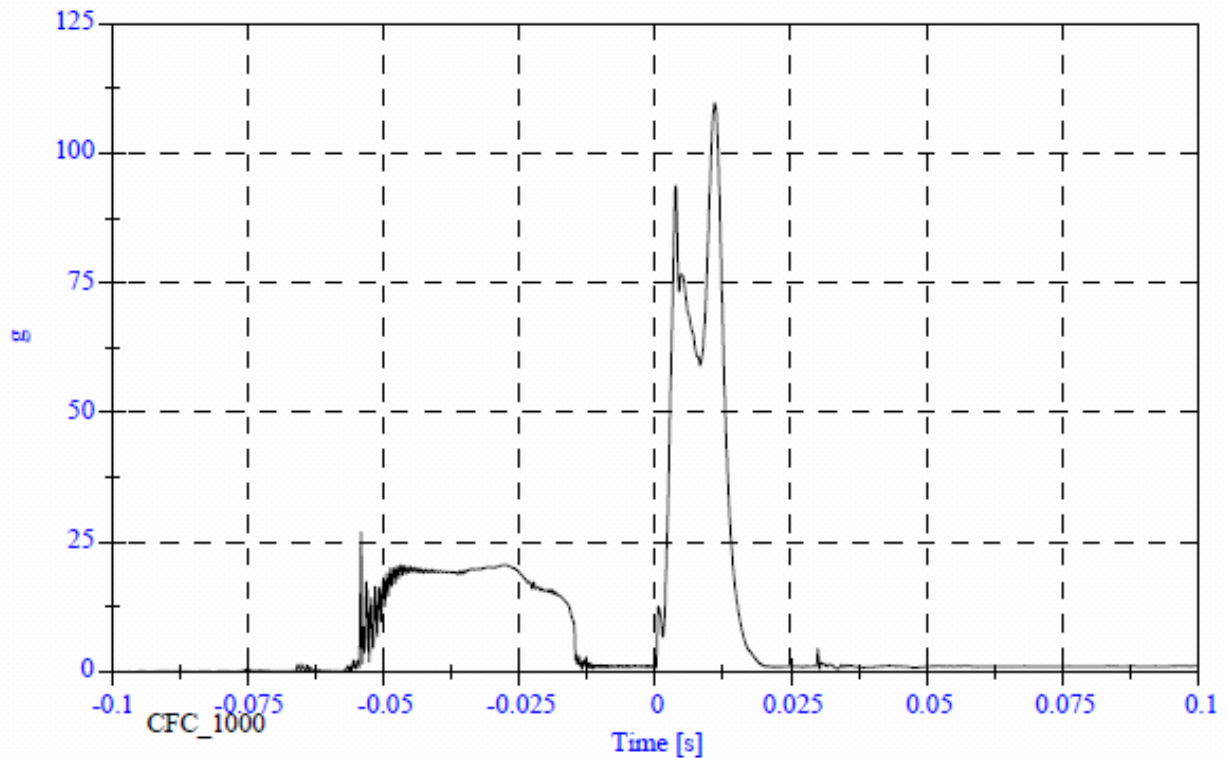
Average Acceleration: 8.5 g

SR2a LH Side

Headform Resultant

Max: 109.7 [g] at 0.011 [s]

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

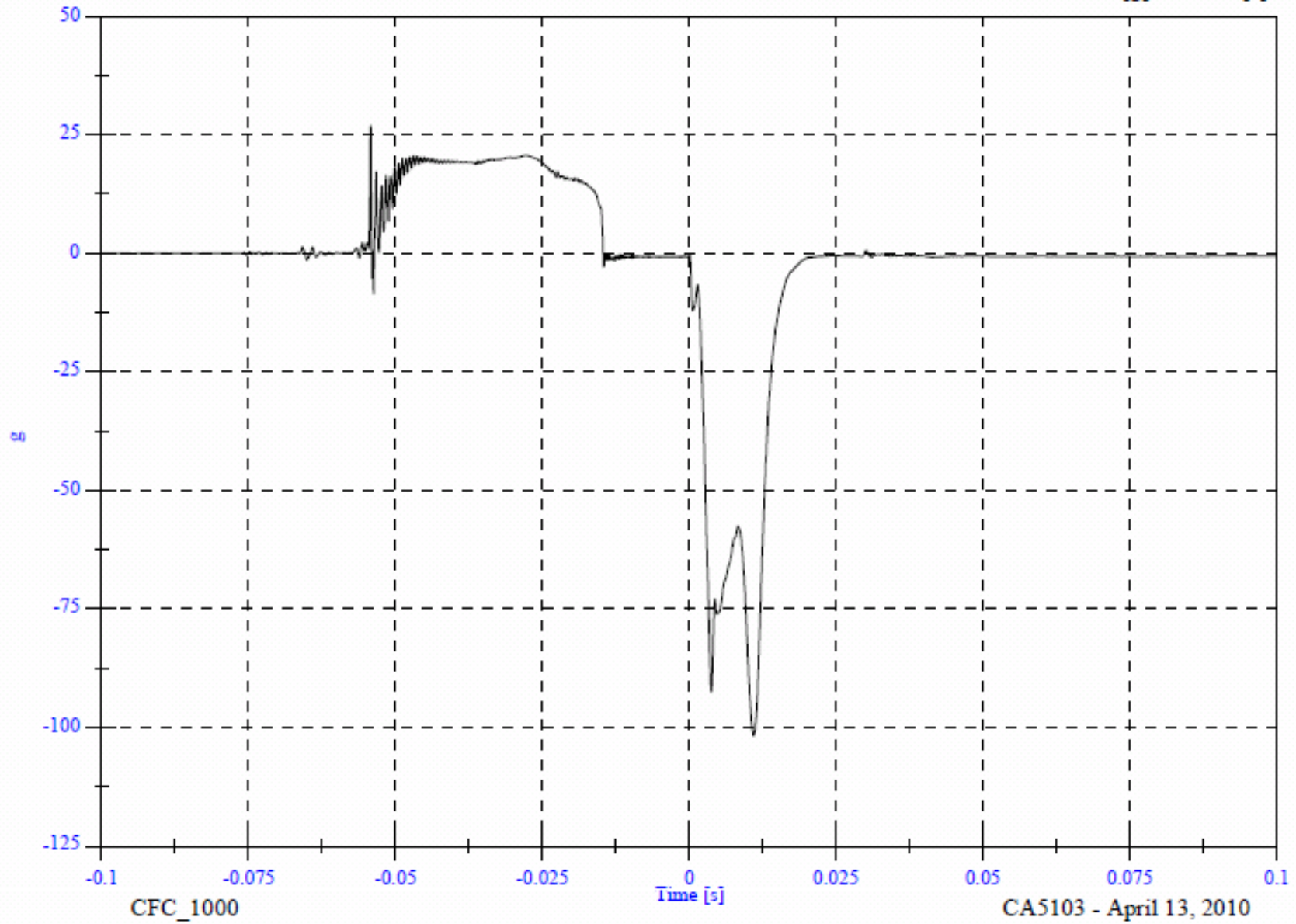


SR2a LH Side

Headform X Acceleration

Max: 26.9 [g] at -0.054 [s]

Min: -101.8 [g] at 0.011 [s]

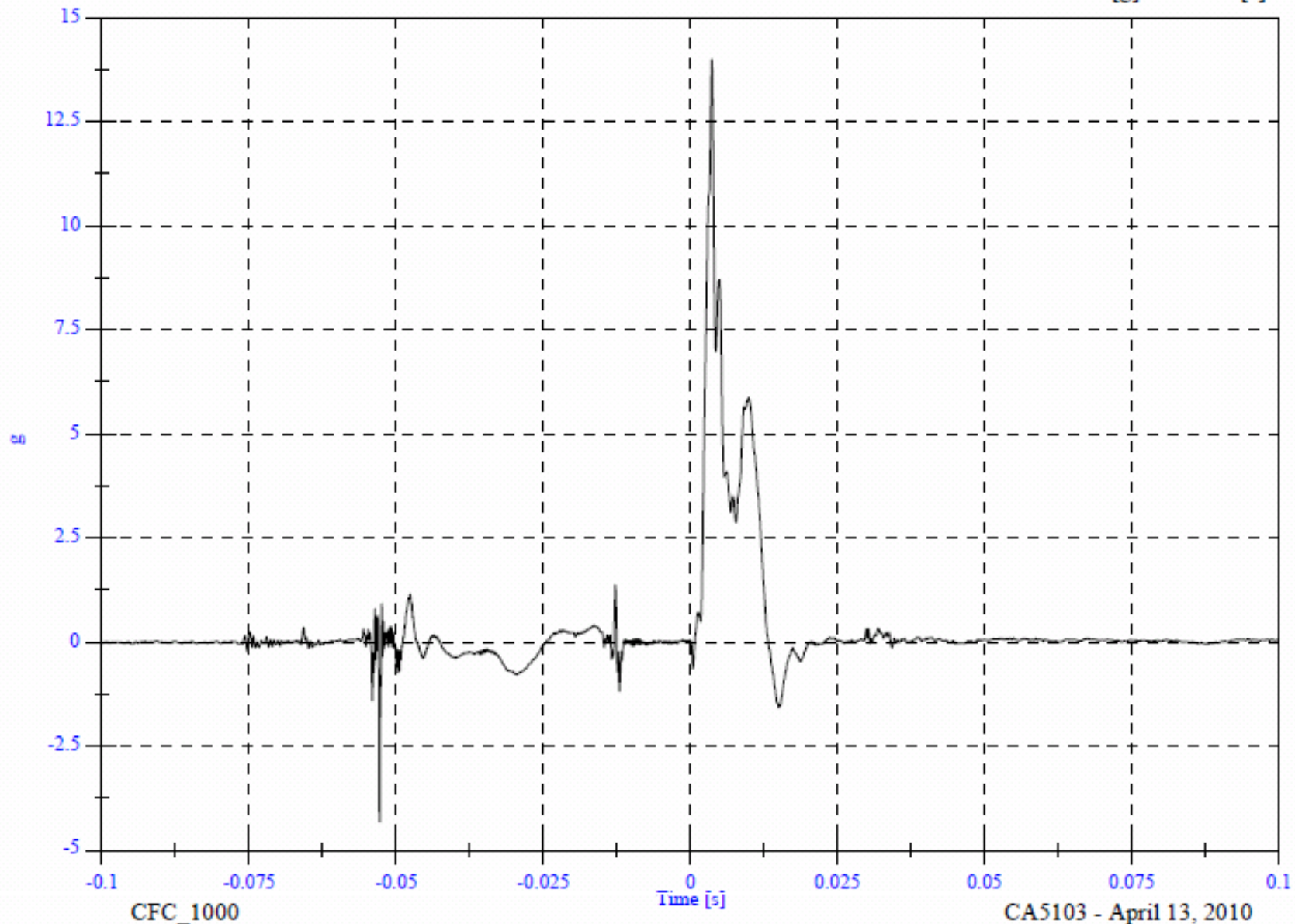


SR2a LH Side

Headform Y Acceleration

Max: 14.0 [g] at 0.004 [s]

Min: -4.3 [g] at -0.053 [s]



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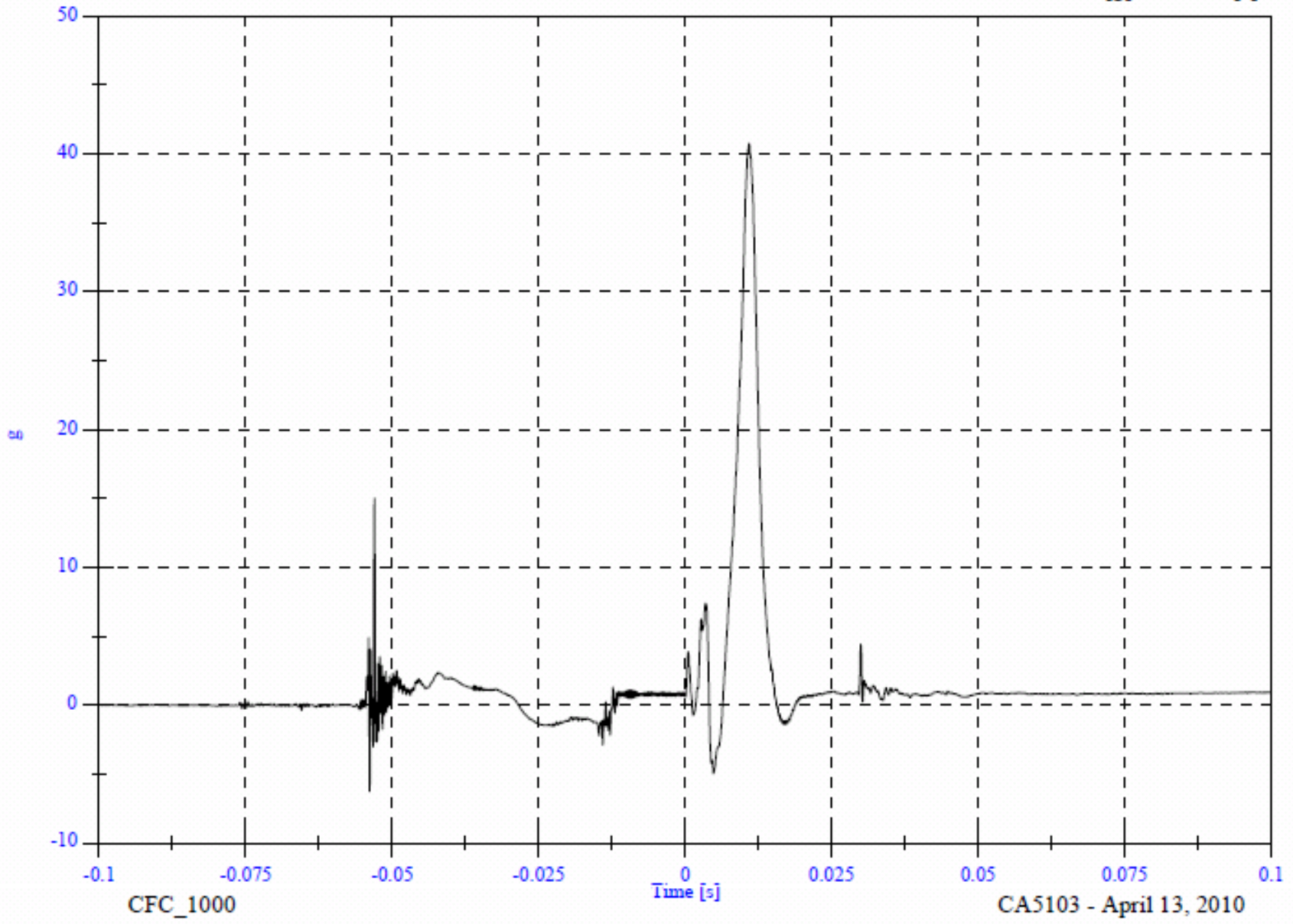
CA5103 - April 13, 2010

SR2a LH Side

Headform Z Acceleration

Max: 40.7 [g] at 0.011 [s]

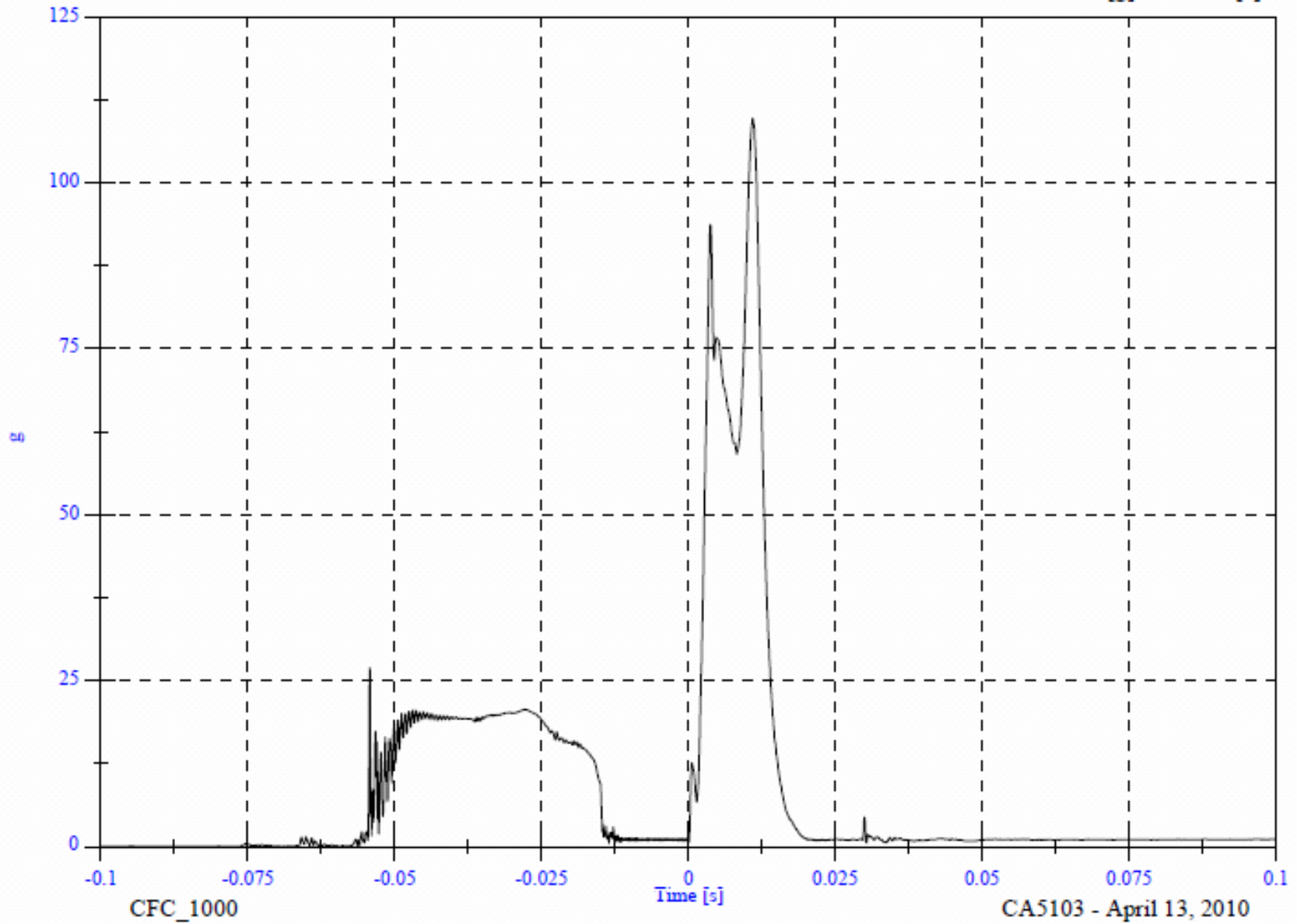
Min: -6.3 [g] at -0.054 [s]



SR2a LH Side

Headform Resultant

Max: 109.7 [g] at 0.011 [s]  
Min: 0.0 [g] at -0.085 [s]

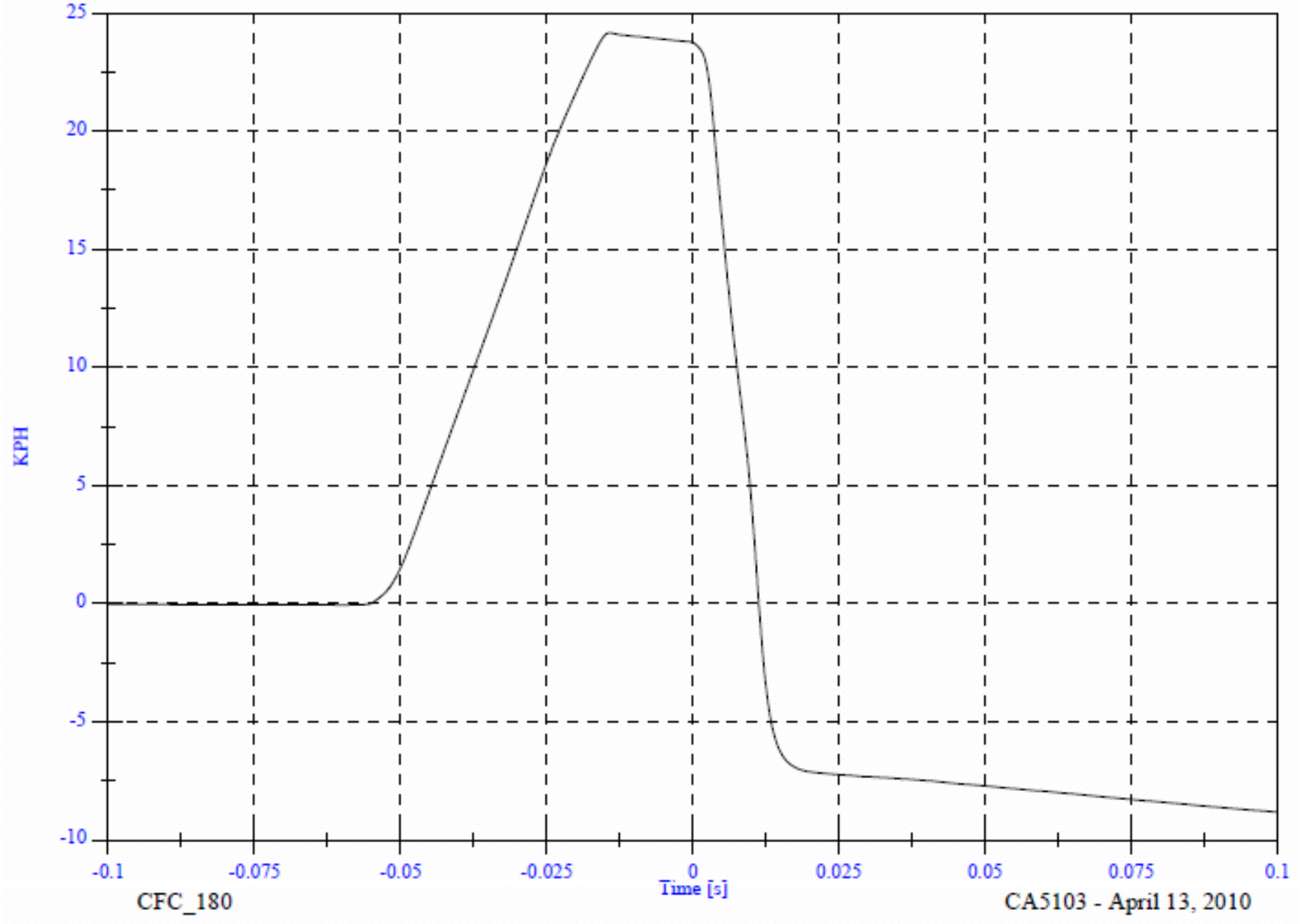


SR2a LH Side

Headform Velocity

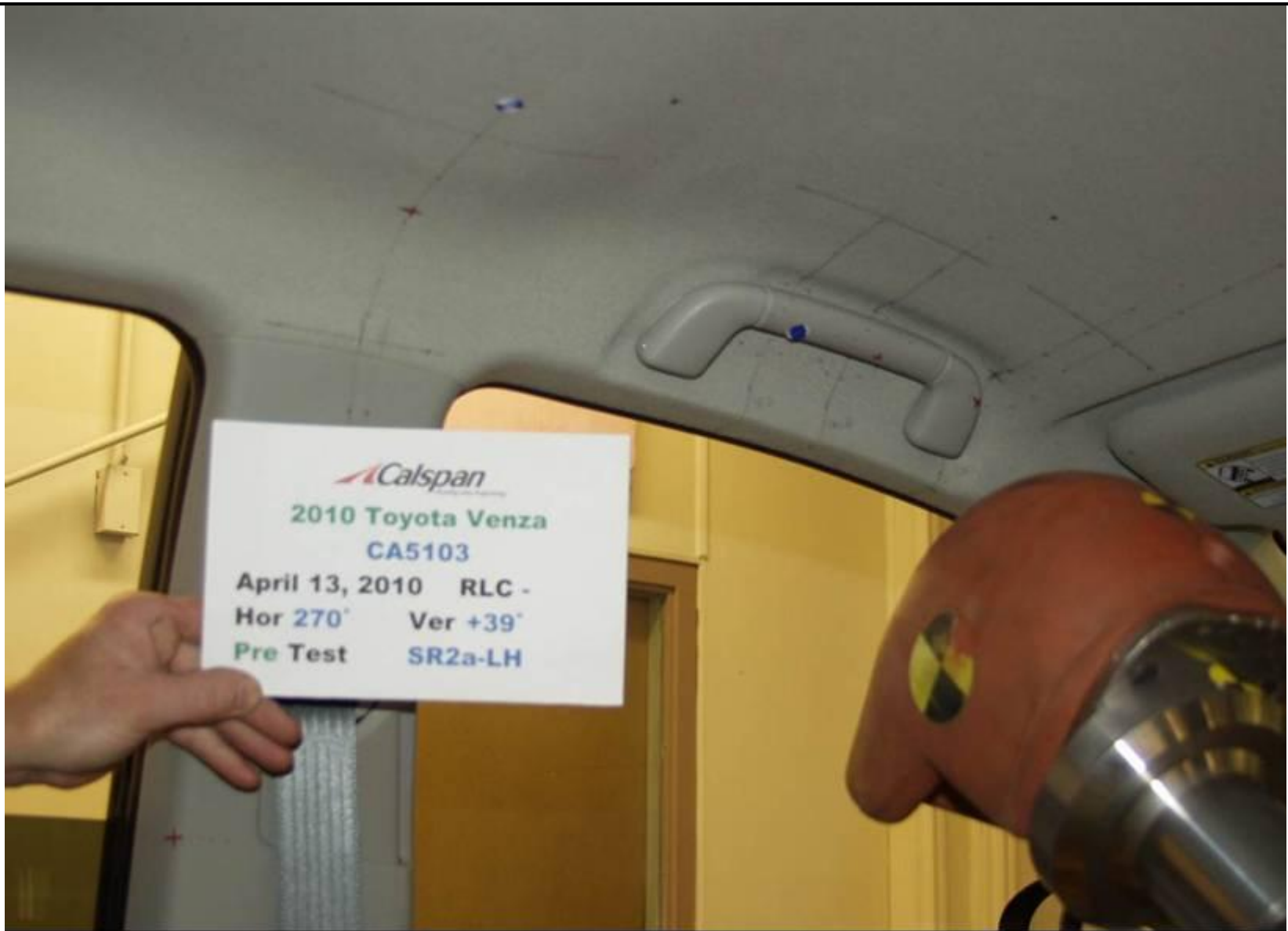
Max: 24.2 [KPH] at -0.014 [s]

Min: -8.8 [KPH] at 0.100 [s]

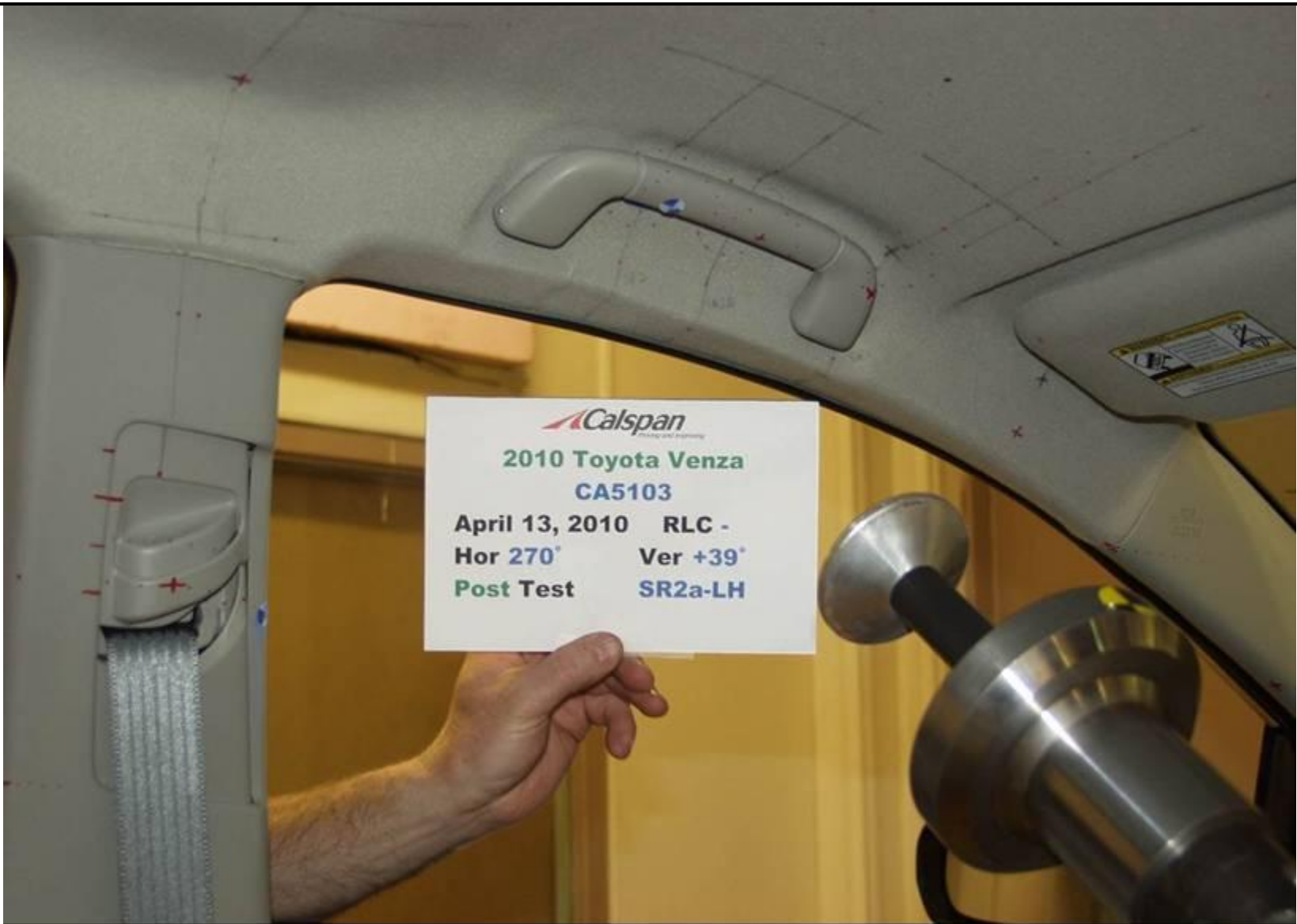


CFC\_180

CA5103 - April 13, 2010



PRE-IMPACT SR2A LH



POST-IMPACT SR2A LH



VEHICLE YEAR/MAKE/MODEL/STYLE:	2010 Toyota Venza
VIN:	4T3ZA3BB3AU022561
DATE OF MANUFACTURE:	12/09 (SEE CERTIFICATION LABEL)
COLOR:	Magnetic Gray

Test Number:	12
Test Date:	13 April 2010
Target Location:	AP2 LH
Target Code:	AP2 LH
Horizontal Impact Angle:	200
Vertical Impact Angle:	50
Ambient Temperature:	22
Relative Humidity:	22.6 %
Time of Impact:	4:02
Headform Number:	0805

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	24				mm up



POST-IMPACT AP2 LH HEADFORM

Free Motion HIC	169.0
HIC(d)	293.9
Impact Velocity (kph)	18.92
HIC T1 (msec)	2.0
HIC T2 (msec)	13.4

## AP2 LH Side CA5103 - AP2 LH

FMH Headform 805

Location: AP2 LH

Test Date: April 13, 2010

Work File: fmh

### -----TEST RESULTS-----

Lab Temperature: 22 C

HICd: 293.9

Lab Humidity: 22.6 %

HIC (36ms): 169.0

Velocity at Impact: 18.92 KPH

t1: 2.0 msec

t2: 13.4 msec

Free Flight Distance: 234.59 mm

Duration: 11.4 msec

Maximum: 61.5 g

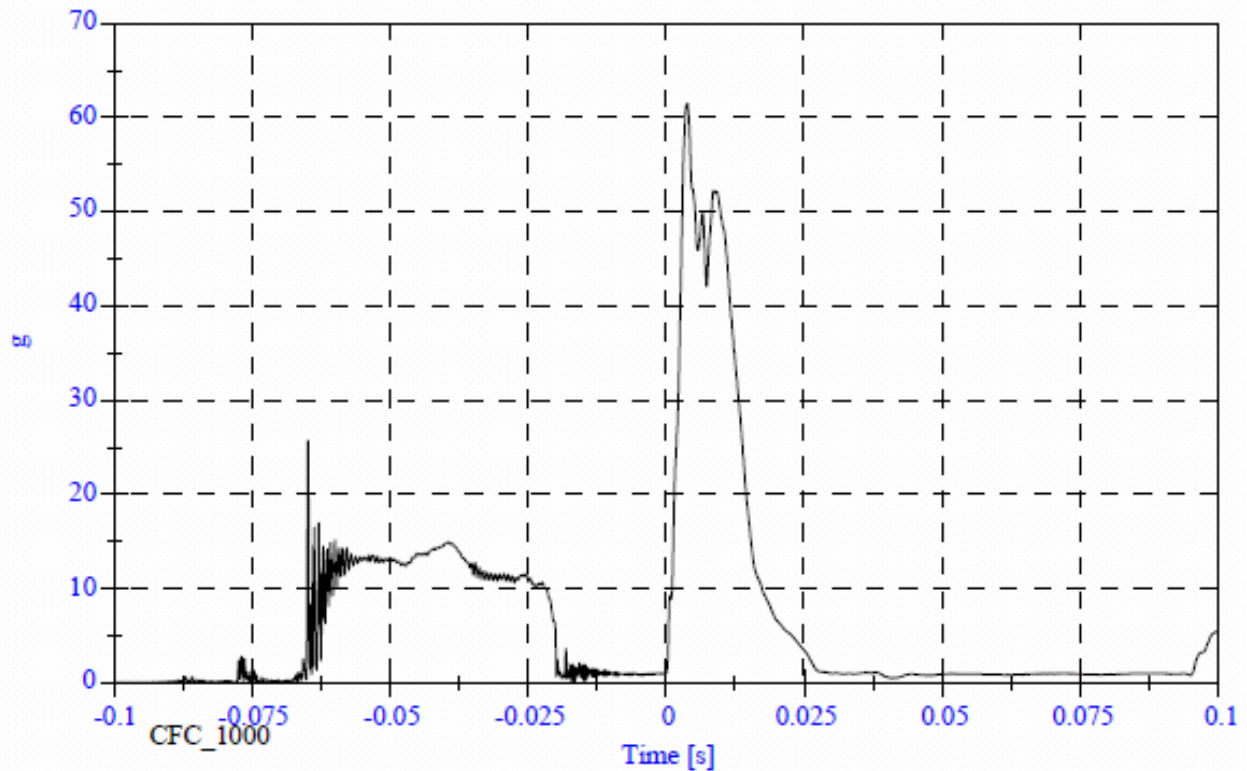
Average Acceleration: 6.7 g

AP2 LH Side

Headform Resultant

Max: 61.5 [g] at 0.004 [s]

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

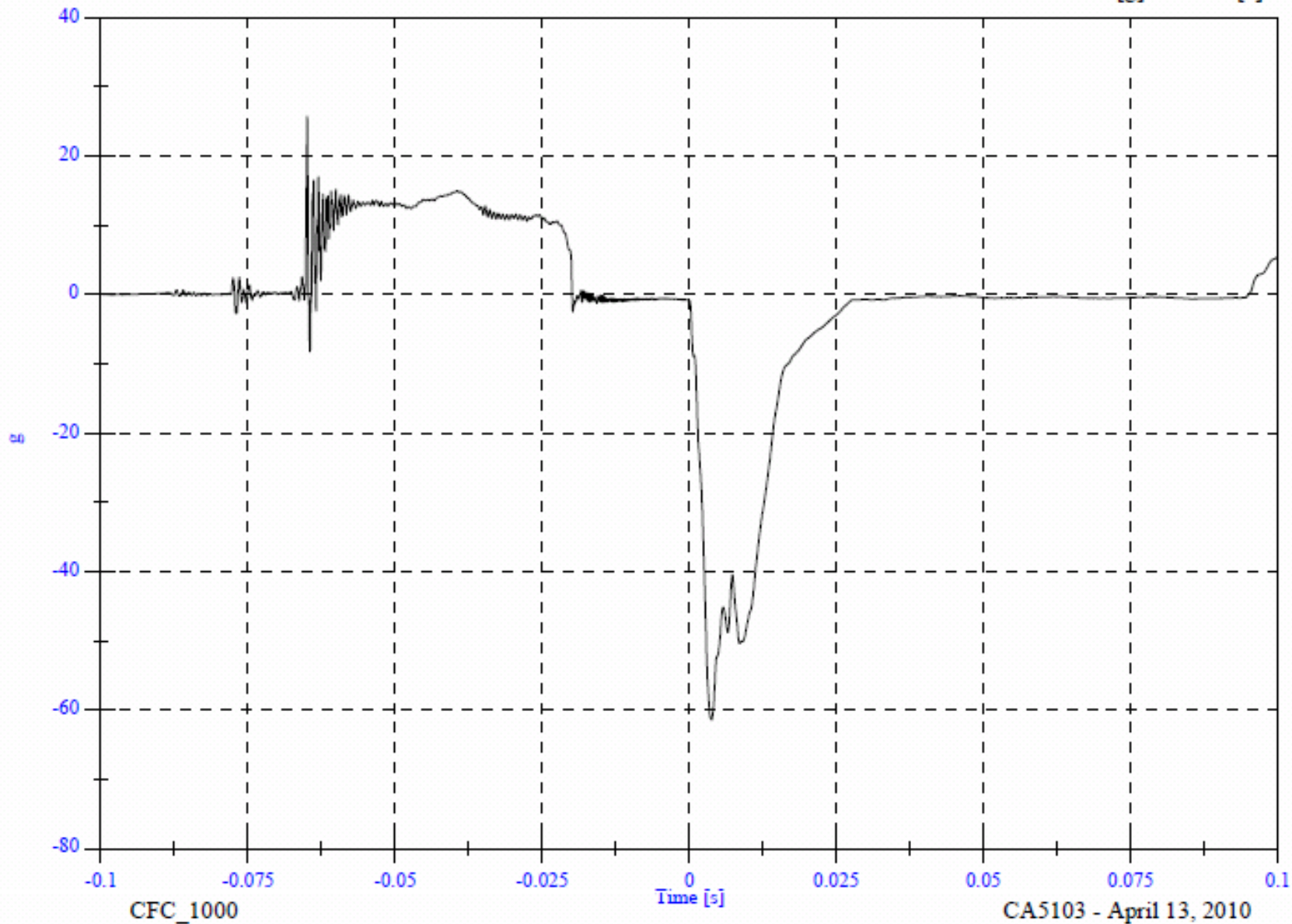


AP2 LH Side

Headform X Acceleration

Max: 25.7 [g] at -0.065 [s]

Min: -61.4 [g] at 0.004 [s]

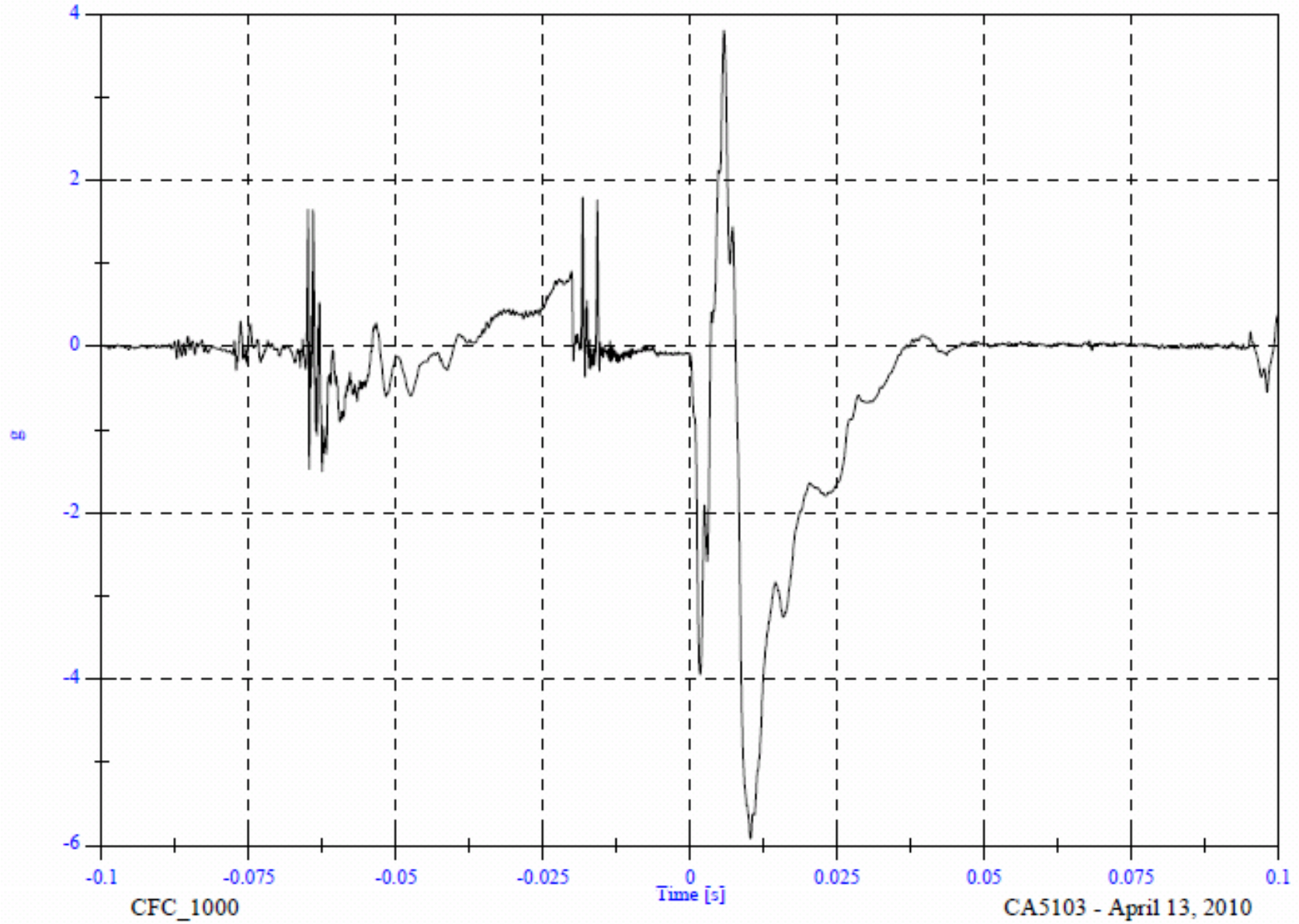


AP2 LH Side

Headform Y Acceleration

Max: 3.8 [g] at 0.006 [s]

Min: -5.9 [g] at 0.010 [s]

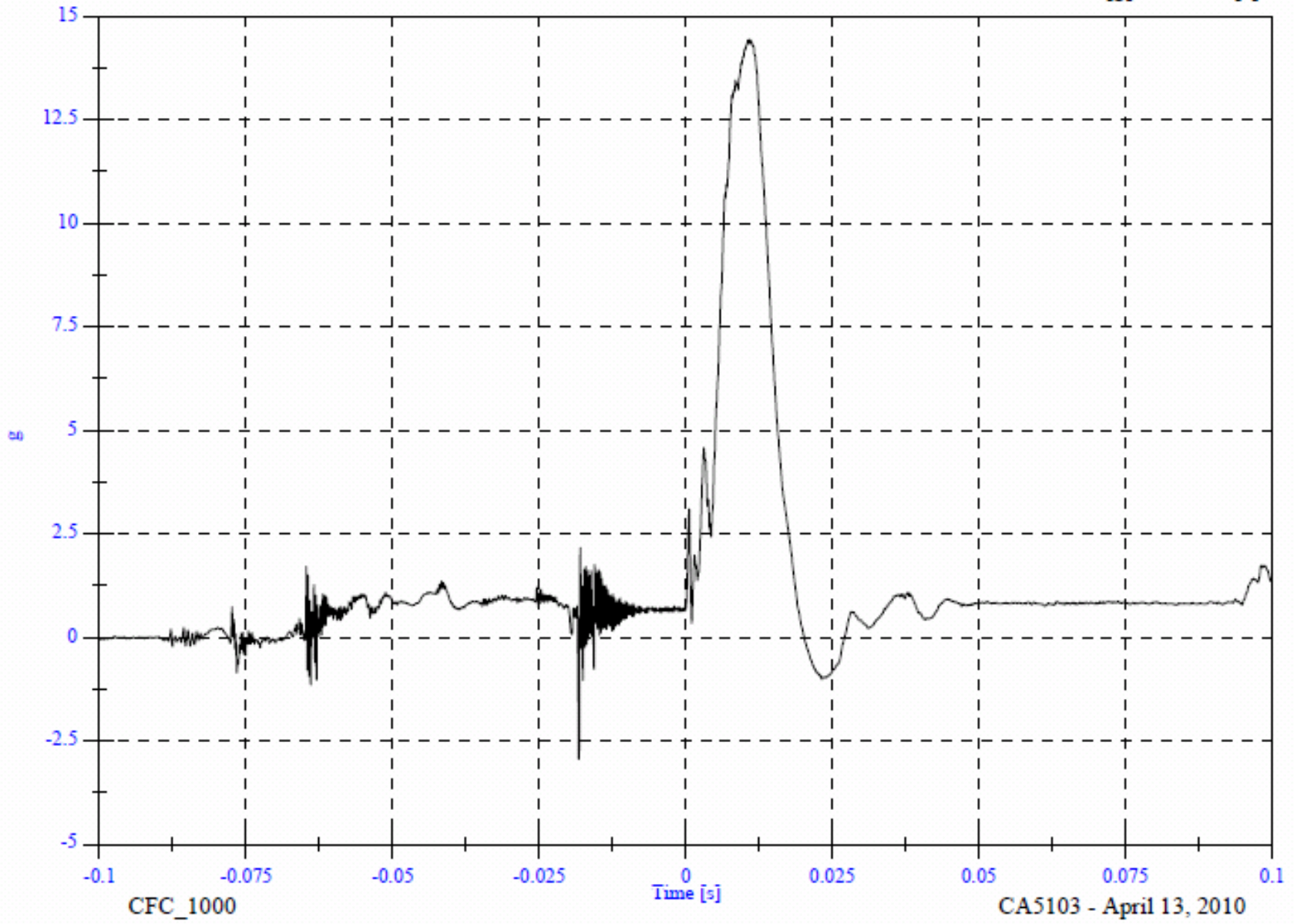


AP2 LH Side

Headform Z Acceleration

Max: 14.4 [g] at 0.011 [s]

Min: -3.0 [g] at -0.018 [s]

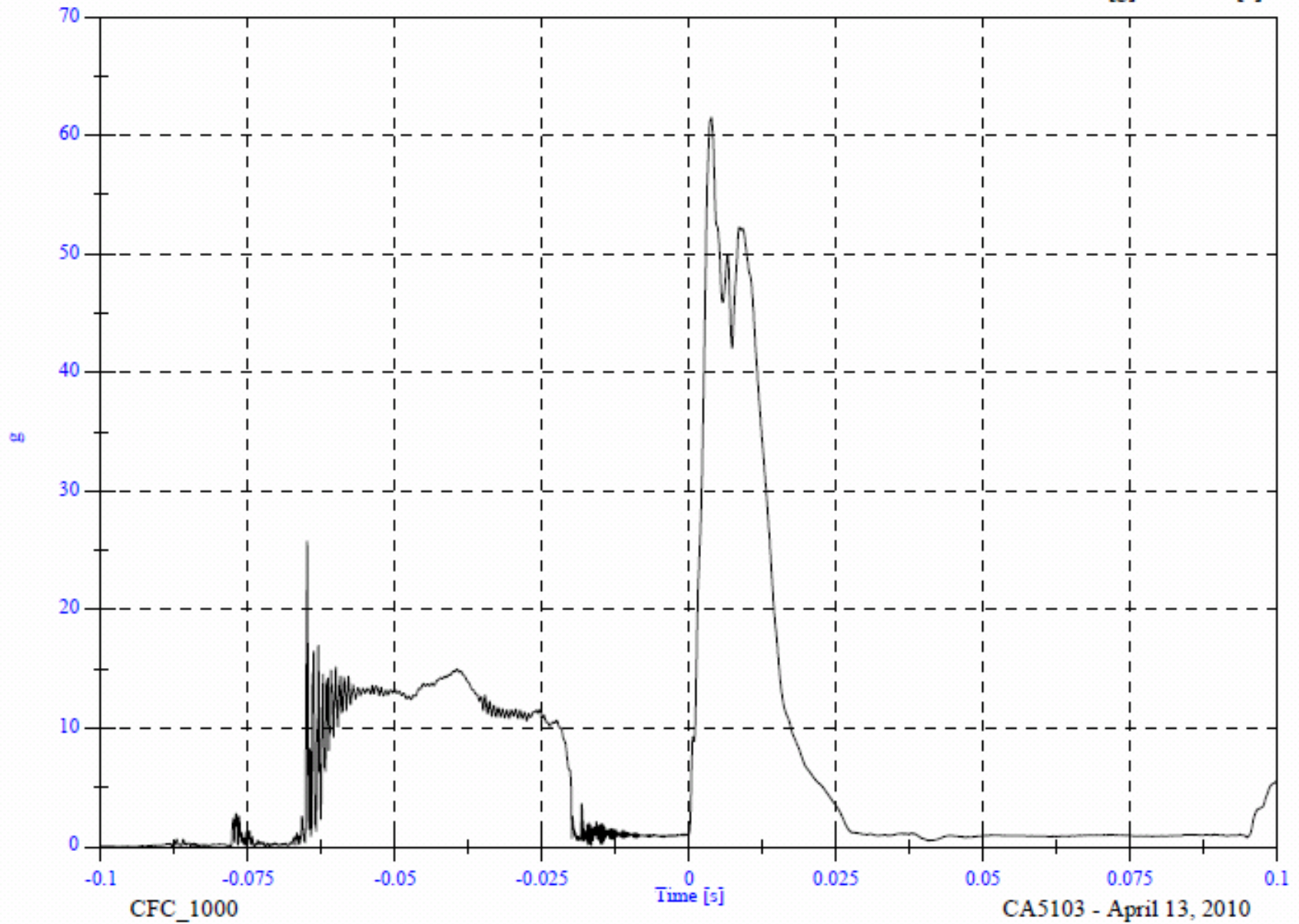


AP2 LH Side

Headform Resultant

Max: 61.5 [g] at 0.004 [s]

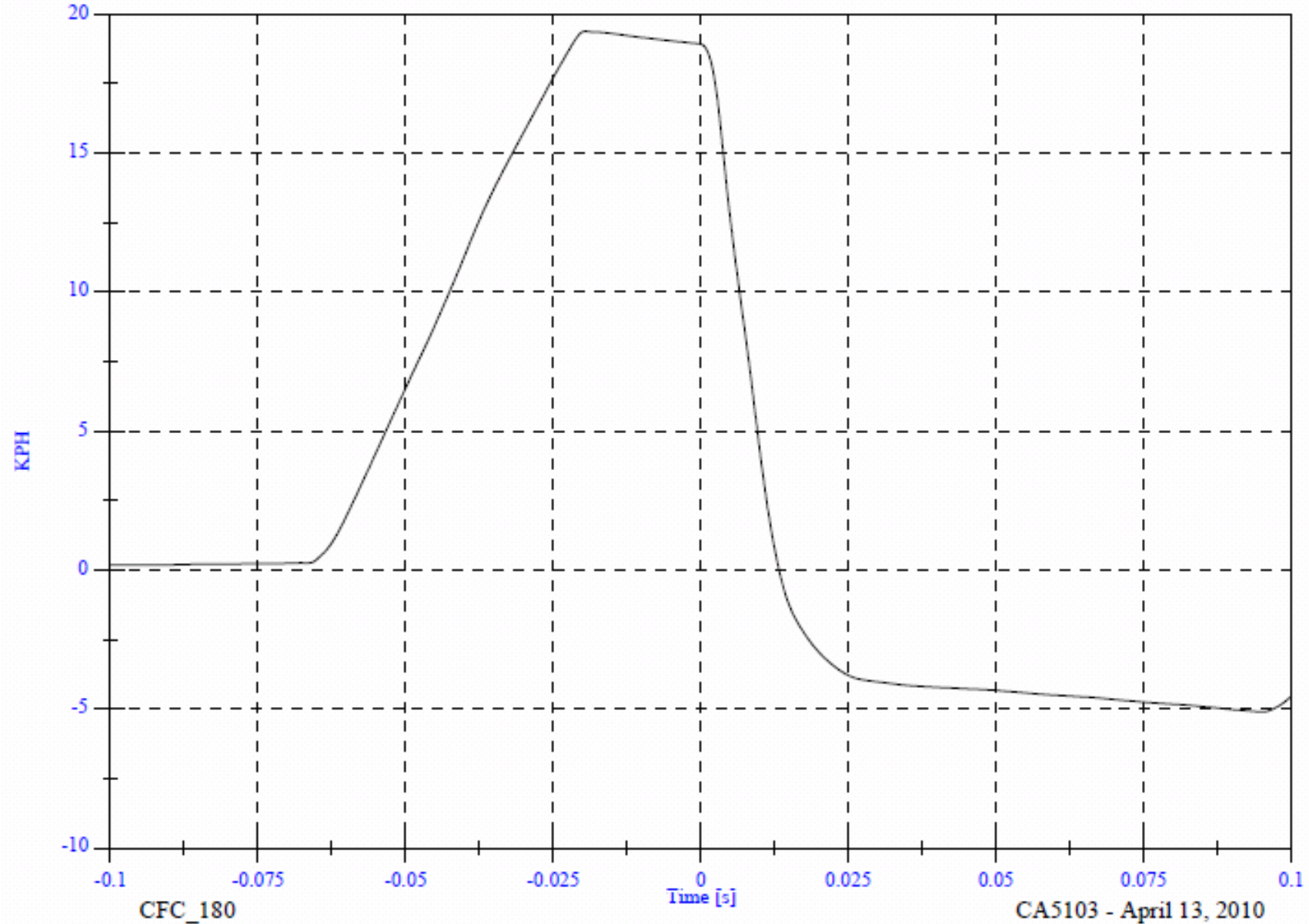
Min: 0.0 [g] at -0.097 [s]



AP2 LH Side

Headform Velocity

Max: 19.4 [KPH] at -0.019 [s]  
Min: -5.1 [KPH] at 0.095 [s]



CFC\_180

CA5103 - April 13, 2010



PRE-IMPACT AP2 LH





POST-IMPACT AP2 LH

**APPENDIX A**

**PHOTOGRAPHS**

## PHOTOGRAPHS

<b>FIGURE</b>	<b>VIEW</b>	<b>PAGE</b>
A-1	LEFT SIDE VIEW OF VEHICLE	A-3
A-2	RIGHT SIDE VIEW OF VEHICLE	A-4
A-3	3/4 FRONTAL VIEW FROM LEFT SIDE OF VEHICLE	A-5
A-4	3/4 REAR VIEW FROM RIGHT SIDE OF VEHICLE	A-6
A-5	VEHICLE'S CERTIFICATION LABEL	A-7
A-6	VEHICLE'S TIRE INFORMATION LABEL	A-8
A-7	PRE-TEST DRIVER SIDE A-PILLAR	A-9
A-8	PRE-TEST DRIVER SIDE FRONT HEADER	A-10
A-9	PRE-TEST DRIVER SIDE SIDE RAIL	A-11
A-10	PRE-TEST DRIVER SIDE B-PILLAR	A-12
A-11	PRE-TEST DRIVER SIDE OTHER PILLAR	A-13
A-12	PRE-TEST DRIVER SIDE REAR PILLAR	A-14
A-13	PRE-TEST PASSENGER SIDE A-PILLAR	A-15
A-14	PRE-TEST PASSENGER SIDE FRONT HEADER	A-16
A-15	PRE-TEST PASSENGER SIDE SIDE RAIL	A-17
A-16	PRE-TEST PASSENGER SIDE B-PILLAR	A-18
A-17	PRE-TEST PASSENGER SIDE OTHER PILLAR	A-19
A-18	PRE-TEST PASSENGER SIDE REAR PILLAR	A-20
A-19	POST-TEST DRIVER SIDE A-PILLAR	A-21
A-20	POST-TEST DRIVER SIDE FRONT HEADER	A-22
A-21	POST-TEST DRIVER SIDE SIDE RAIL	A-23
A-22	POST-TEST DRIVER SIDE B-PILLAR	A-24
A-23	POST-TEST DRIVER SIDE OTHER PILLAR	A-25
A-24	POST-TEST DRIVER SIDE REAR PILLAR	A-26
A-25	POST-TEST PASSENGER SIDE A-PILLAR	A-27
A-26	POST-TEST PASSENGER SIDE FRONT HEADER	A-28
A-27	POST-TEST PASSENGER SIDE SIDE RAIL	A-29
A-28	POST-TEST PASSENGER SIDE B-PILLAR	A-30
A-29	POST-TEST PASSENGER SIDE OTHER PILLAR	A-31
A-30	POST-TEST PASSENGER SIDE REAR PILLAR	A-32



Figure A-1 : LEFT SIDE VIEW OF VEHICLE



Figure A-2 : RIGHT SIDE VIEW OF VEHICLE



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



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

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825 lb.  
OWNER'S  
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RATION  
MANUEL  
SAGER  
PLUS DE  
NEMENTS  
V4  
42661-0T021

MFD BY: TOYOTA MOTOR MANUFACTURING, KENTUCKY, INC. 12/09  
GVWR: 2245KG (4960LB)  
GAWR: FRT. 1400 KG (3090LB) WITH P245/55R19 TIRES  
19X7.5J RIMS AT 220KPA (32PSI) COLD.  
RR. 1230 KG (2715LB) WITH P245/55R19 TIRES  
19X7.5J RIMS AT 220KPA (32PSI) COLD.  
THIS VEHICLE CONFORMS TO ALL APPLICABLE FEDERAL MOTOR  
VEHICLE SAFETY AND THEFT PREVENTION STANDARDS IN EFFECT ON  
THE DATE OF MANUFACTURE SHOWN ABOVE.  
4T3ZA38B3AU022561 NPV  
C/TR: 163/FA12 A6V10L-AVT6KA  
A/TM: -01A/U760E MADE IN U.S.A. 50302 A

Figure A-5: VEHICLE'S CERTIFICATION LABEL





**TIRE AND LOADING INFORMATION**  
**RENSEIGNEMENTS SUR LES PNEUS ET LE CHARGEMENT**

SEATING CAPACITY | TOTAL | FRONT | REAR  
 NOMBRE DE PLACES | TOTAL: 5 | AVANT: 2 | ARRIÈRE: 3

The combined weight of occupants and cargo should never exceed 370 kg or 825 lbs.  
 Le poids total des occupants et du chargement ne doit jamais dépasser 370 kg ou 825 lb.

TIRE PNEU	SIZE DIMENSIONS	COLD TIRE PRESSURE PRESSION DES PNEUS À FROID
FRONT AVANT	P245/55R19	220 kPa, 32 PSI
REAR ARRIÈRE	P245/55R19	220 kPa, 32 PSI
SPARE DE SECOURS	T165/90D18	420 kPa, 60 PSI

**SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION**  
**VOIR LE MANUEL DE L'USAGER POUR PLUS DE RENSEIGNEMENTS**

**V4**

42661-0T021

MFD BY: TOYOTA  
 GVWR: 2245KG (4950 LBS)  
 GAWR: FRT. 1400 (3080 LBS)  
 RR. 1230 (2710 LBS)  
 THIS VEHICLE CANNOT BE USED AS A MOTORHOME.  
 VEHICLE SAFETY INFORMATION  
 THE DATE OF MANUFACTURE IS 4T3ZA38



C/TR: 163/FA12  
 A/TM: -01A/U76

Figure A-6 : VEHICLE'S TIRE INFORMATION LABEL

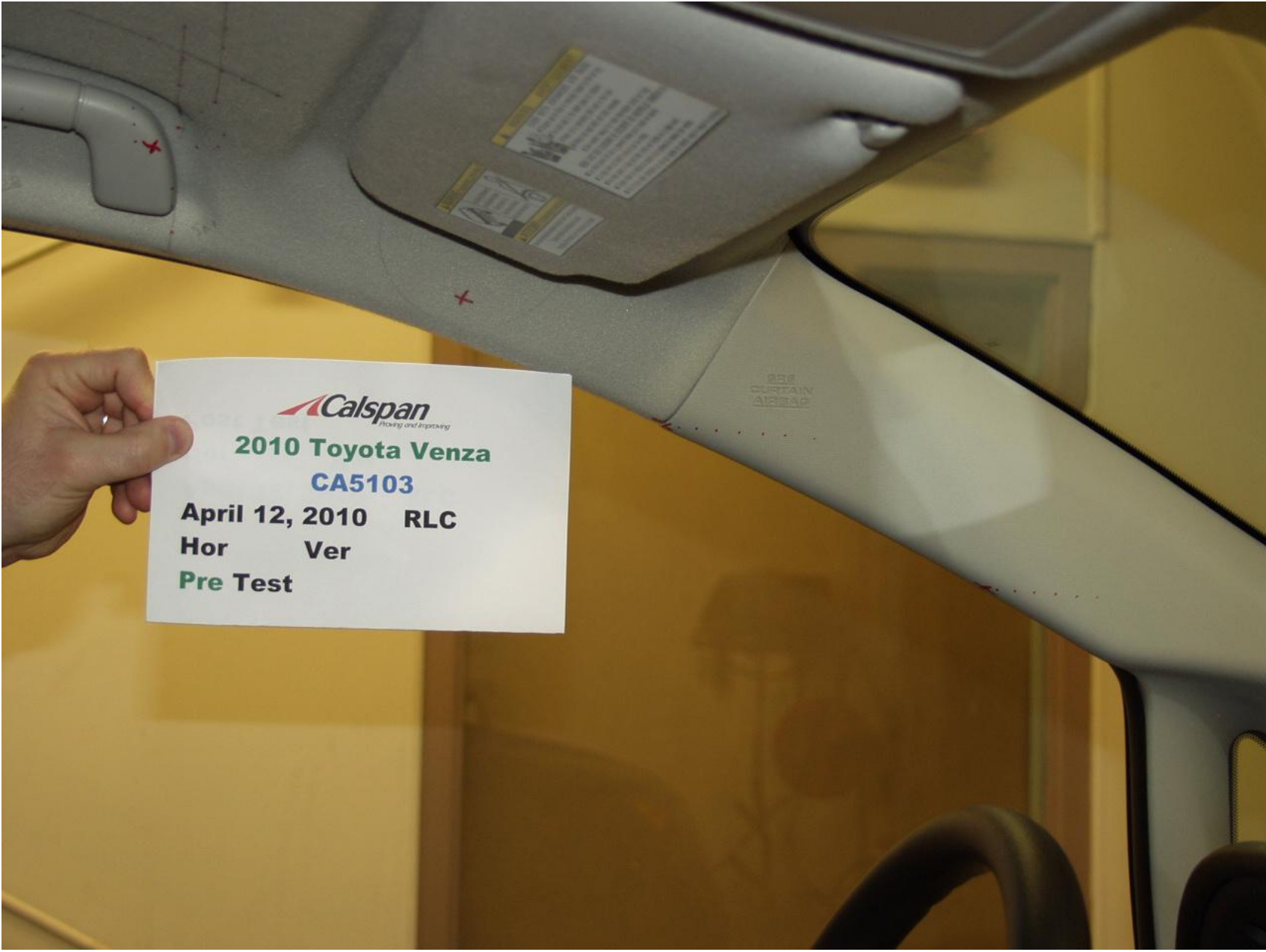


Figure A-7 : PRE-TEST DRIVER SIDE A-PILLAR

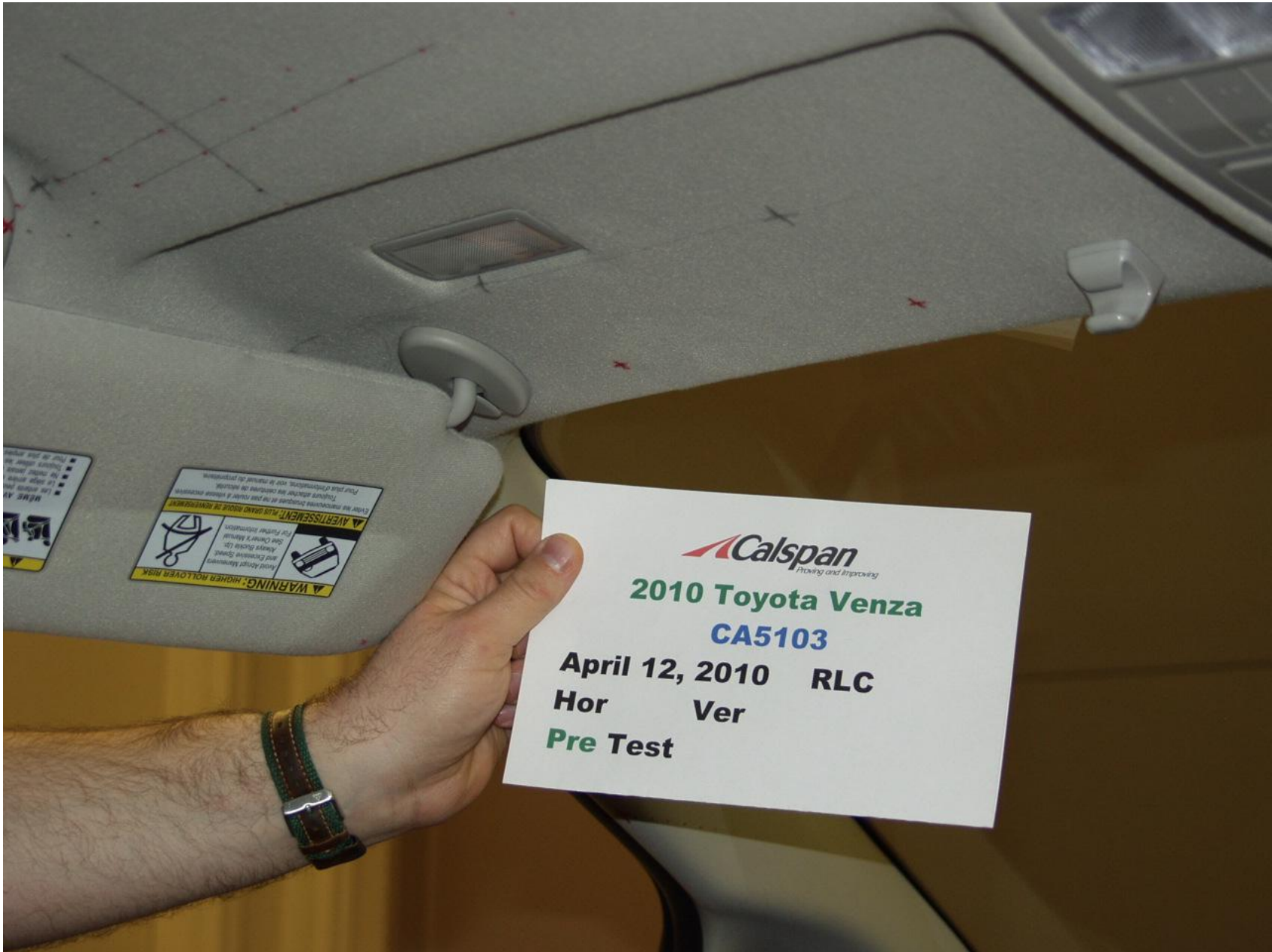


Figure A-8 : PRE-TEST DRIVER SIDE FRONT HEADER

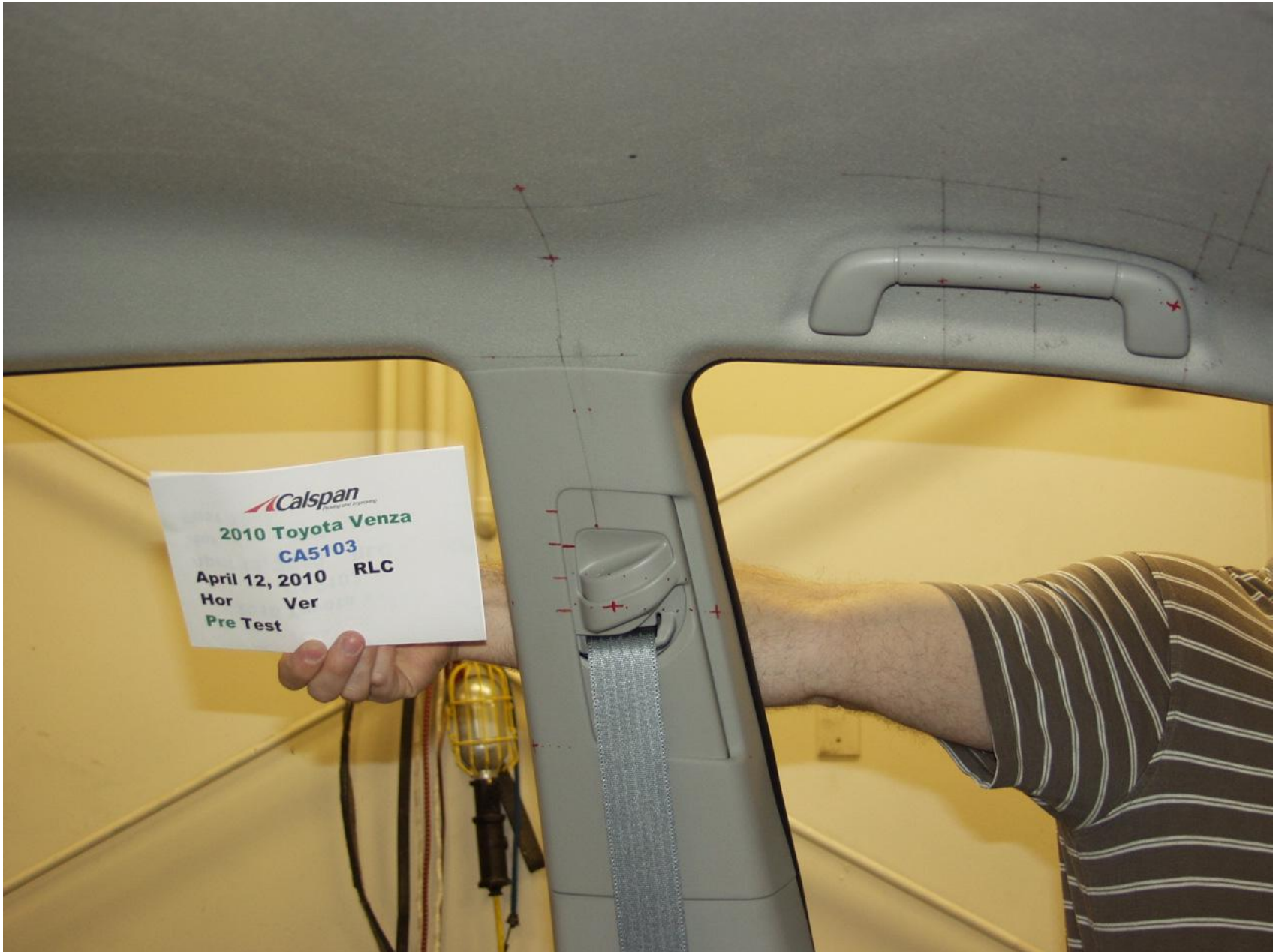


Figure A-9 : PRE-TEST DRIVER SIDE SIDE RAIL

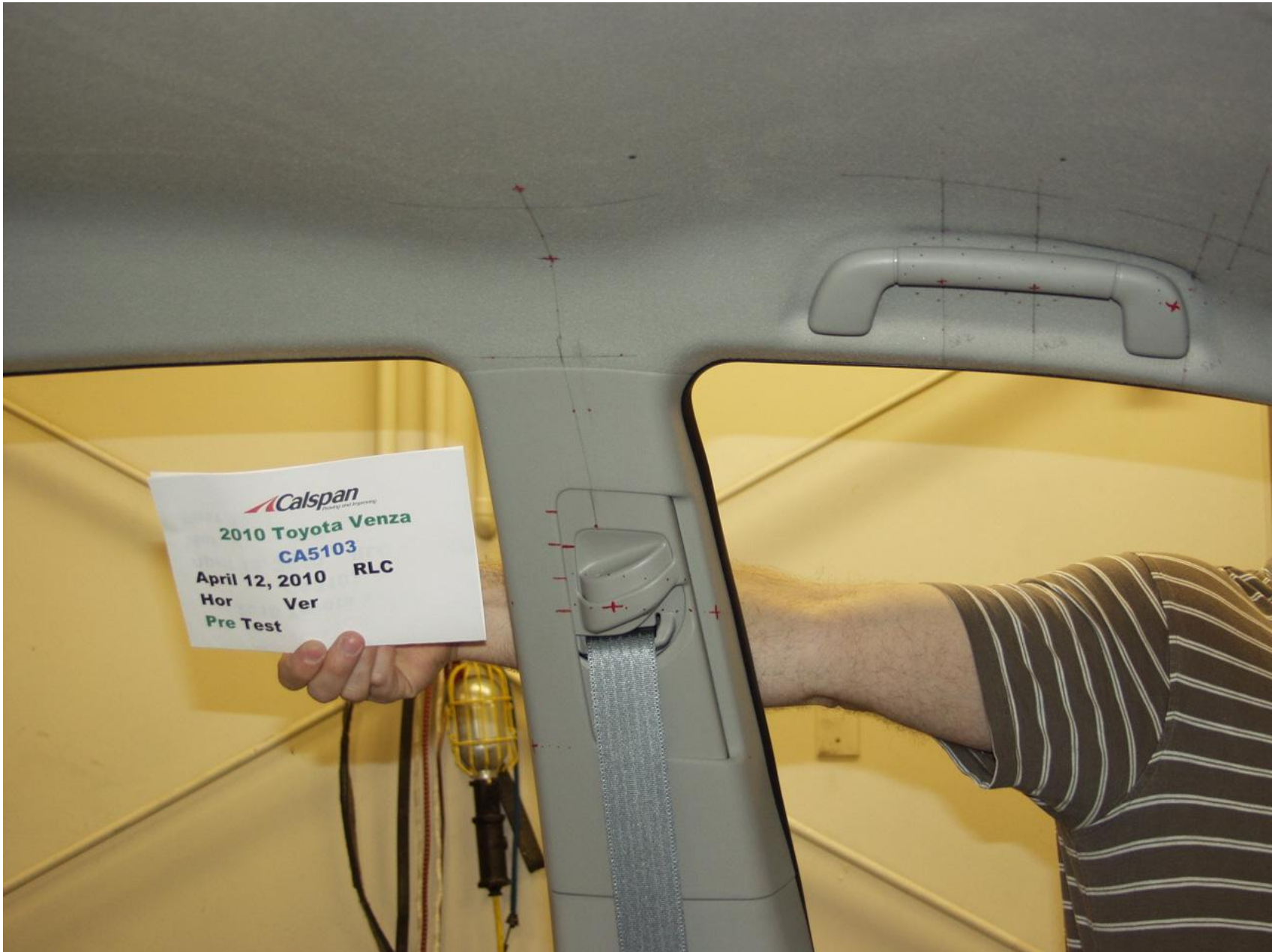


Figure A-10 : PRE-TEST DRIVER SIDE B-PILLAR



Figure A-11 : PRE-TEST DRIVER SIDE OTHER SIDE RAIL



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



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





Figure A-14 : PRE-TEST PASSENGER SIDE FRONT HEADER



Figure A-15 : PRE-TEST PASSENGER SIDE SIDE RAIL

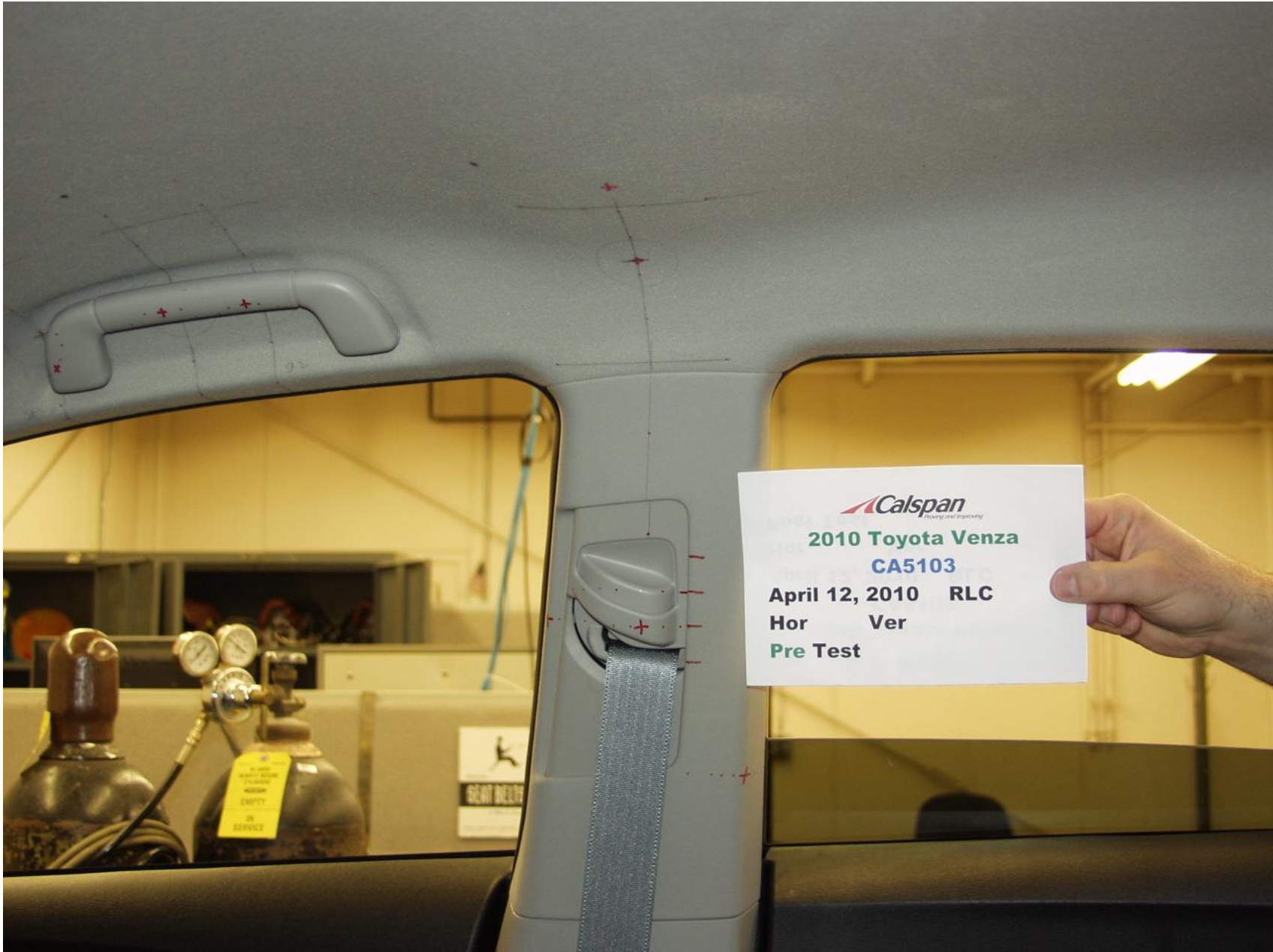


Figure A-16 : PRE-TEST PASSENGER SIDE B-PILLAR



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



Figure A-18 : PRE-TEST PASSENGER SIDE REAR PILLAR

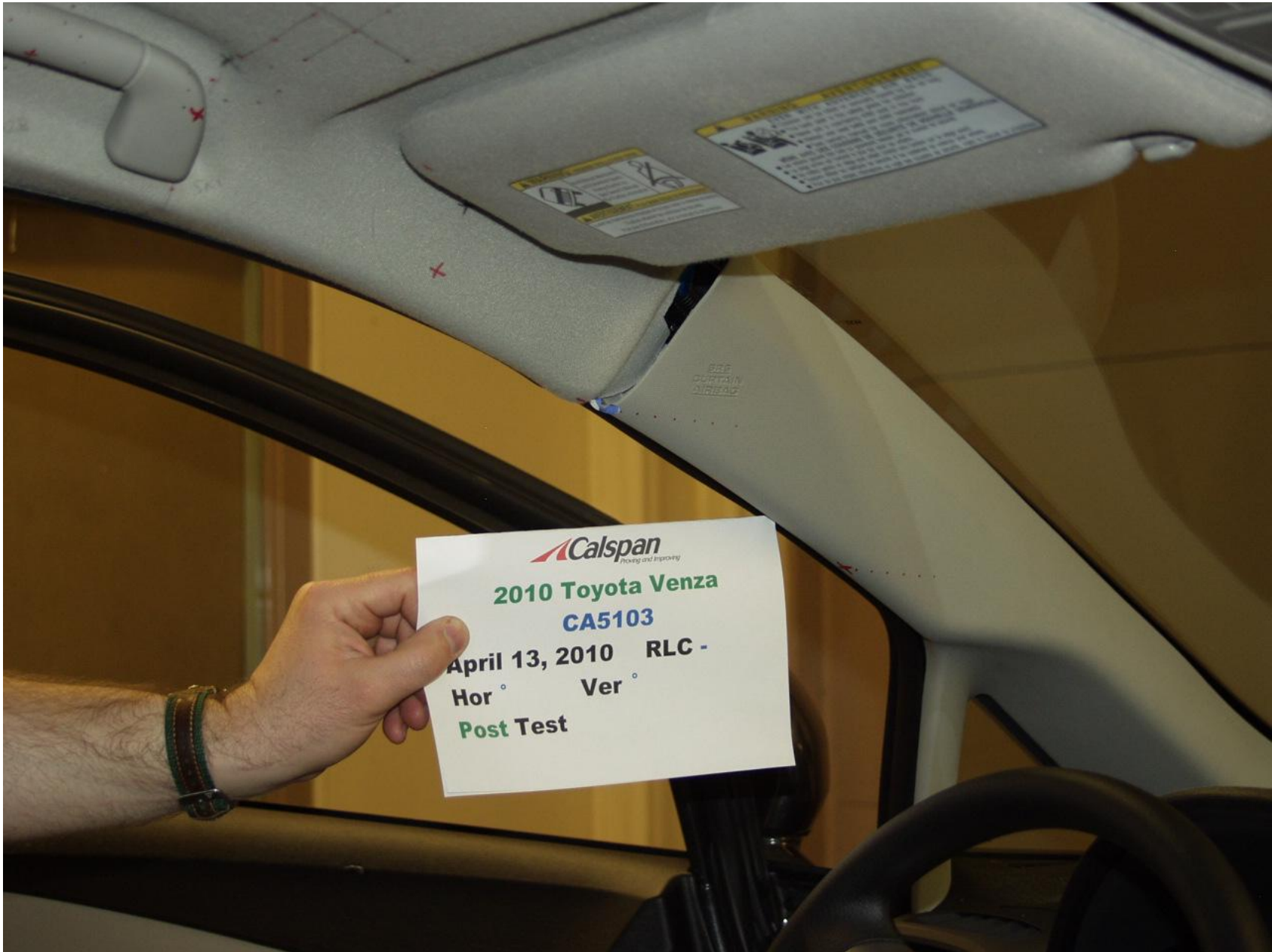


Figure A-19 : POST-TEST DRIVER SIDE A-PILLAR

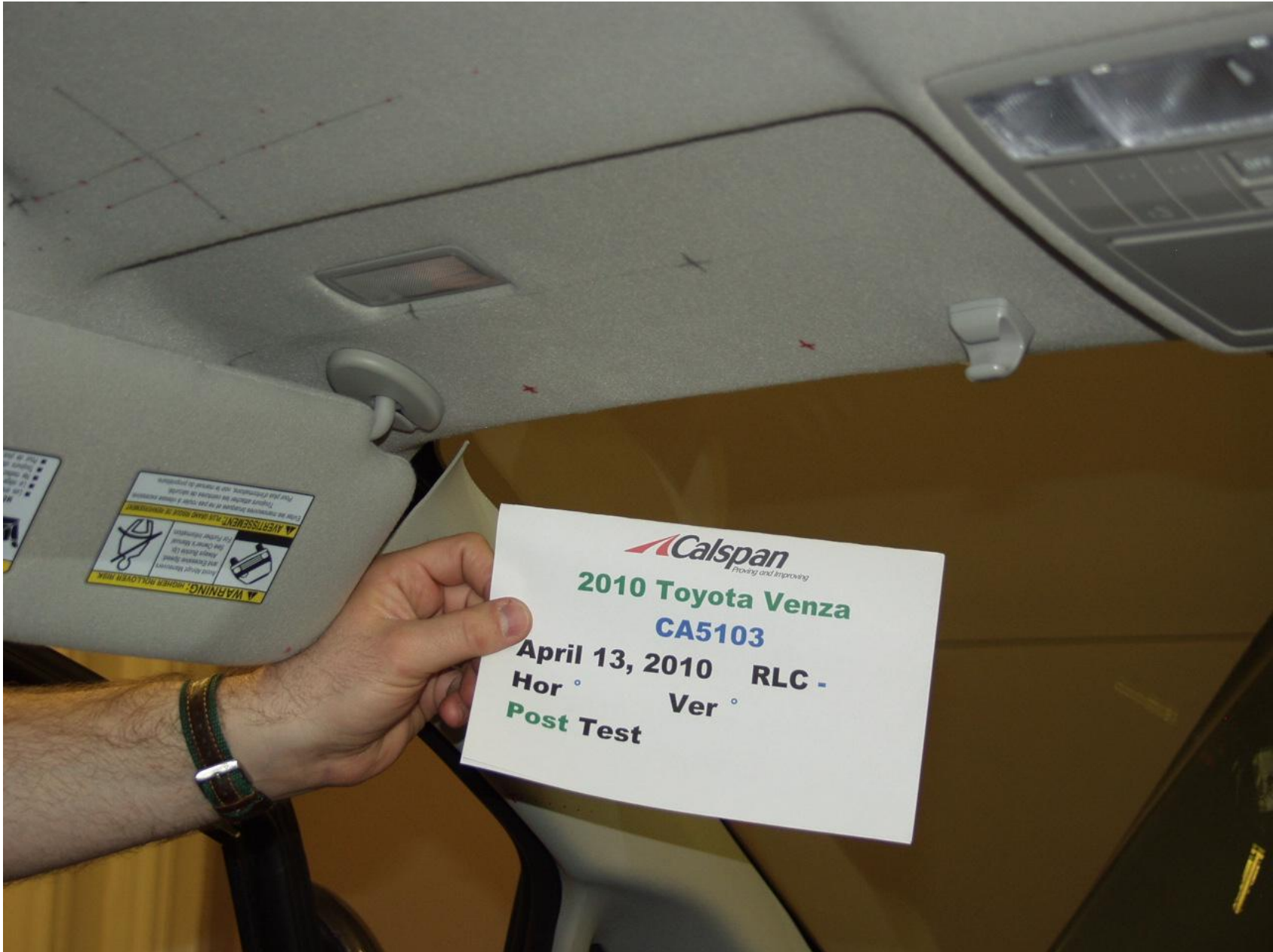


Figure A-20 : POST-TEST DRIVER SIDE FRONT HEADER

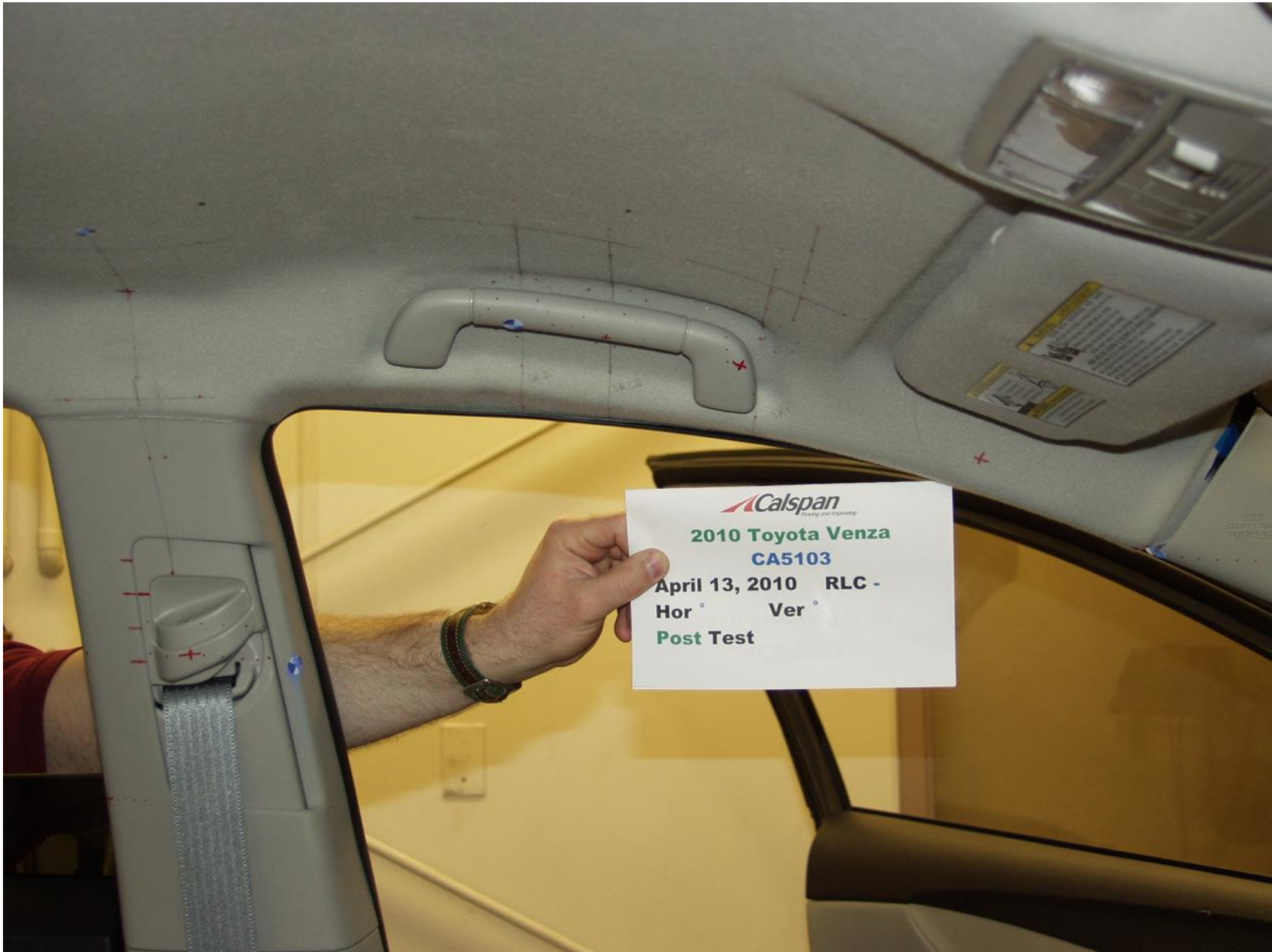


Figure A-21 : POST-TEST DRIVER SIDE SIDE RAIL



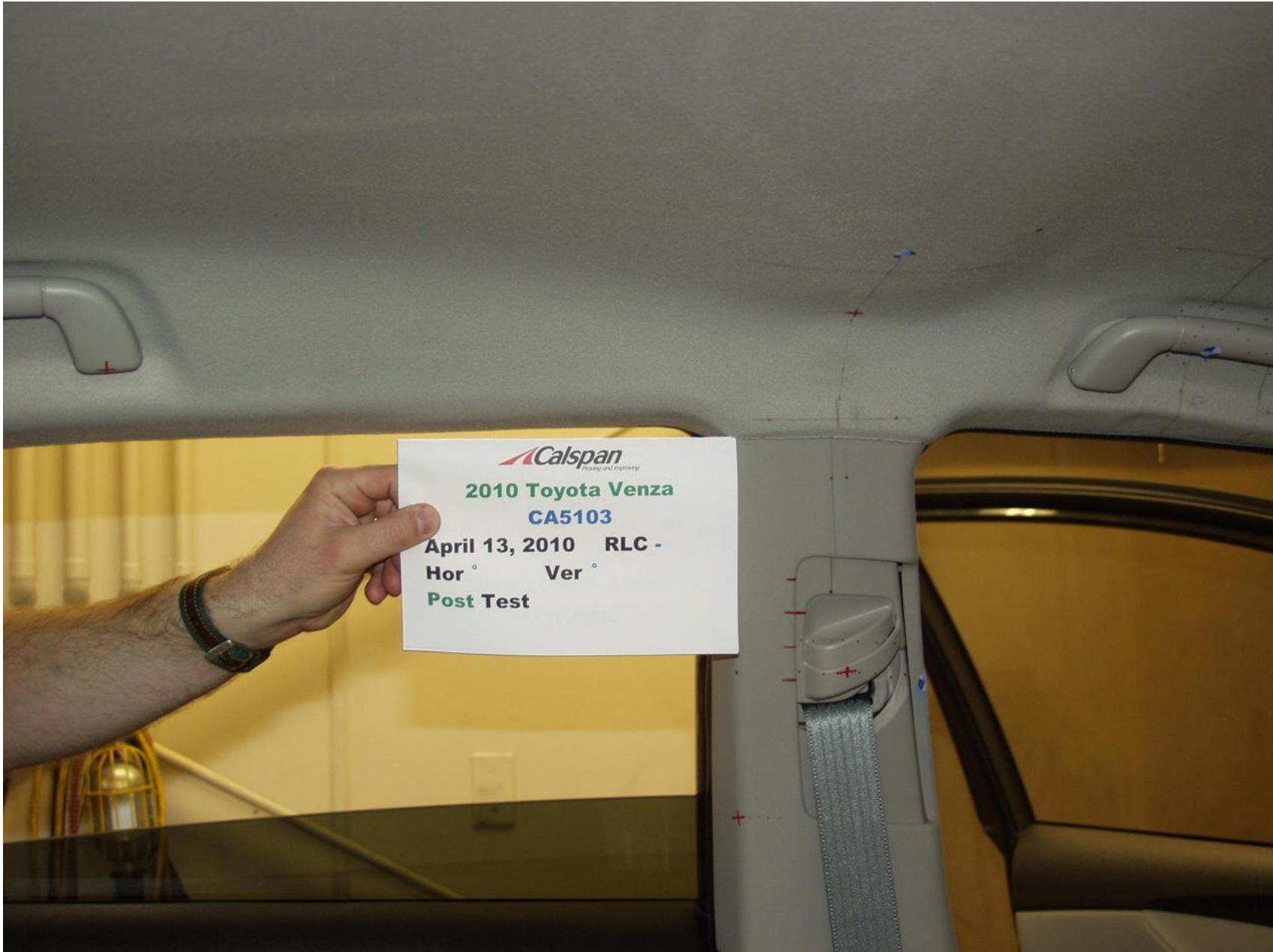


Figure A-22 : POST-TEST DRIVER SIDE B-PILLAR



Figure A-23 : POST-TEST DRIVER SIDE OTHER PILLAR

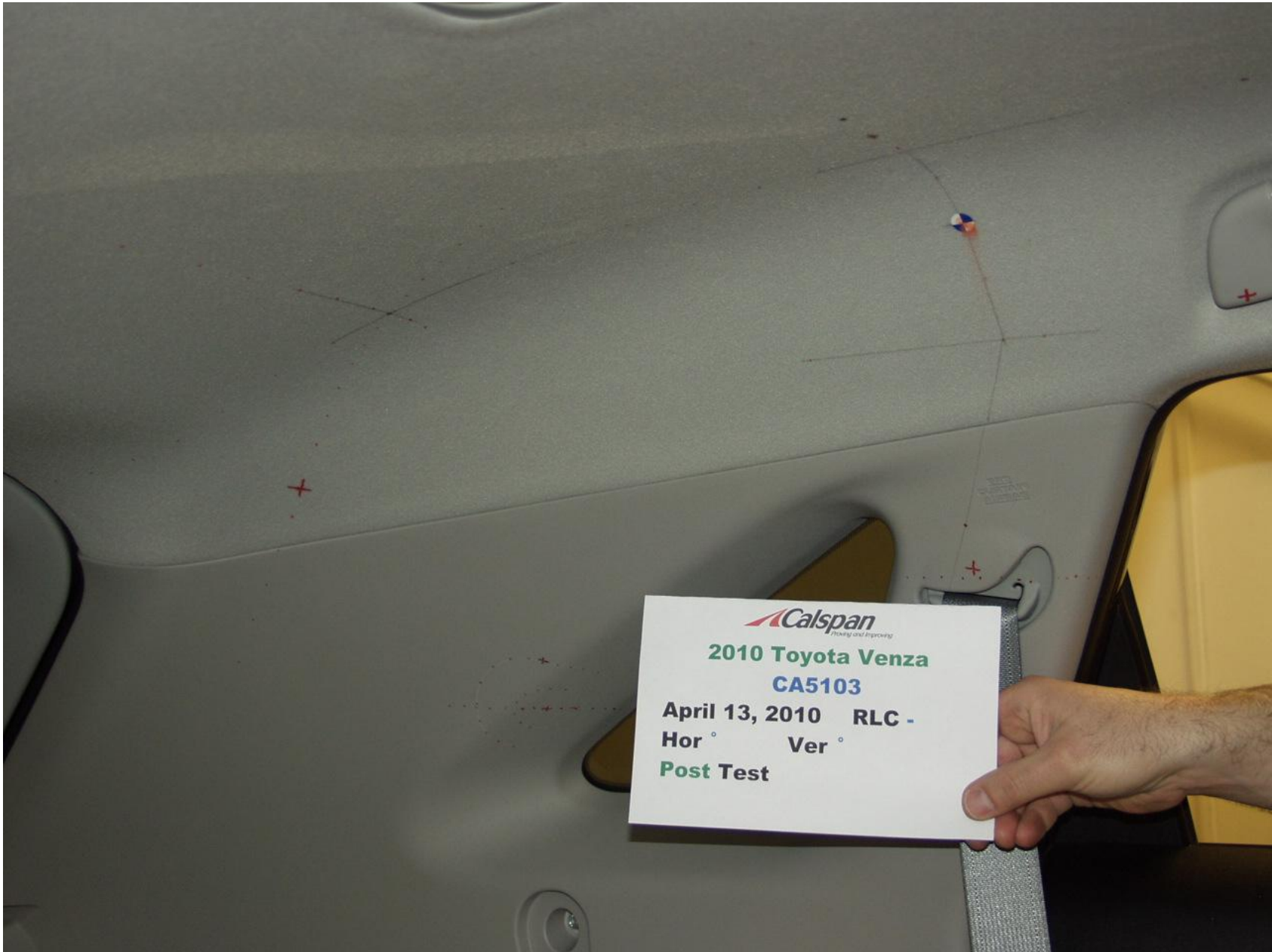


Figure A-24 : POST-TEST DRIVER SIDE REAR PILLAR

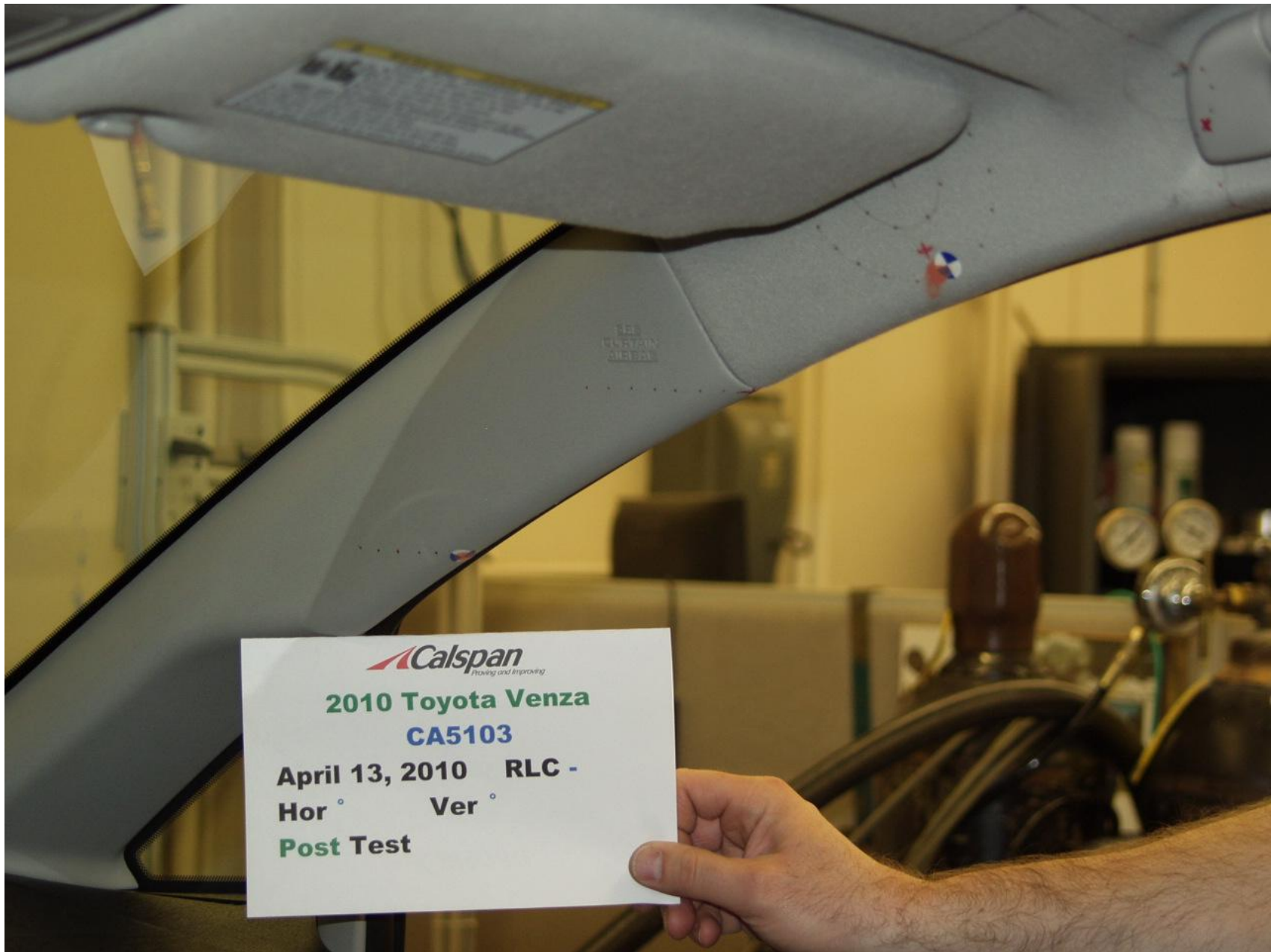


Figure A-25 : POST-TEST PASSENGER SIDE A-PILLAR



Figure A-26 : POST-TEST PASSENGER SIDE FRONT HEADER



Figure A-27 : POST-TEST PASSENGER SIDE SIDE RAIL

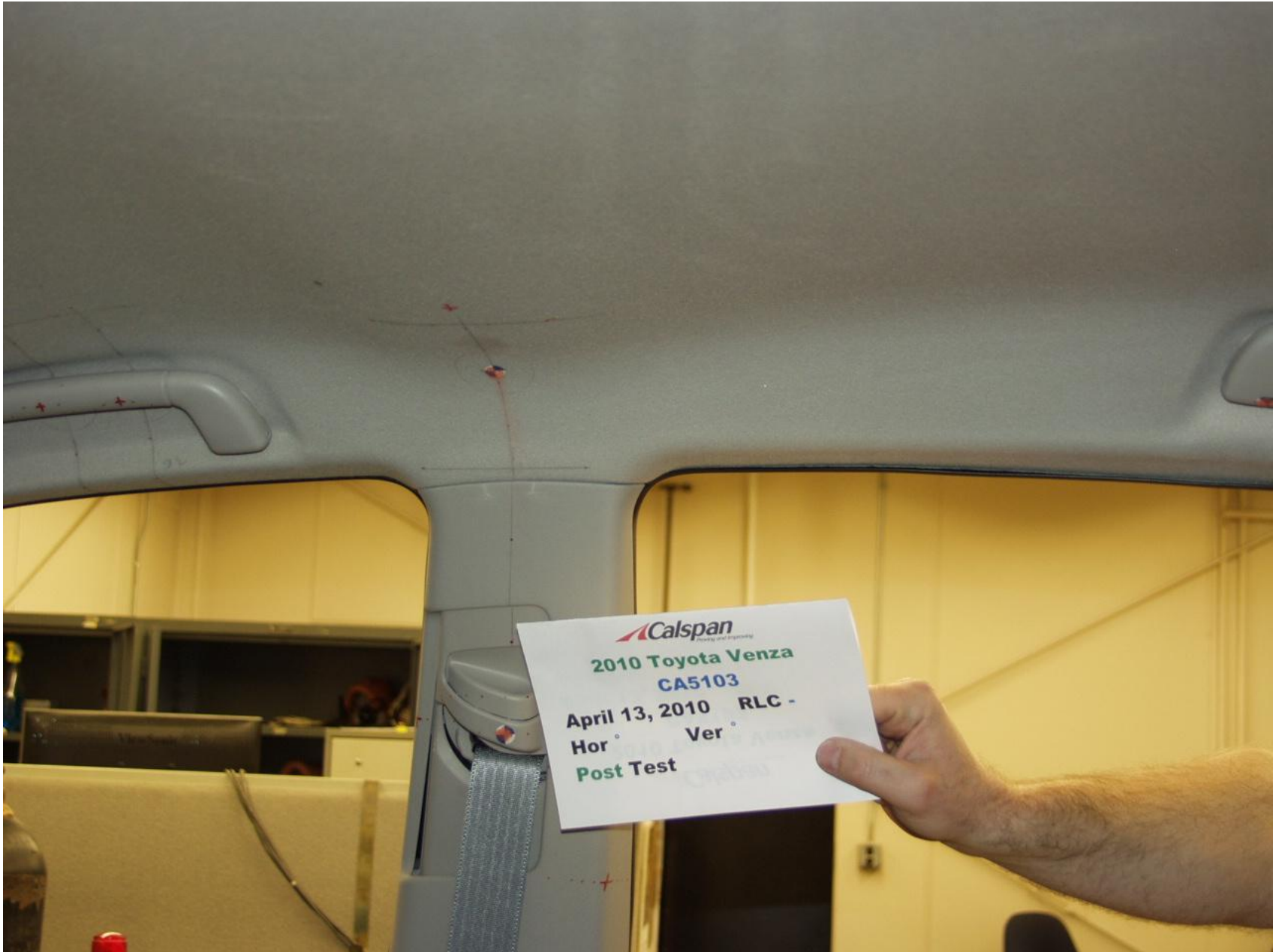


Figure A-28 : POST-TEST PASSENGER SIDE B-PILLAR



Figure A-29 : POST-TEST PASSENGER SIDE OTHER PILLAR





Figure A-30 : 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**

<b>MANUFACTURER:</b>		<b>FIRST TECHNOLOGY SAFETY SYSTEMS</b>	
<b>SERIAL NUMBER:</b>		<b>0062</b>	
<b>CALIBRATION DATE:</b>		<b>April 7, 2010</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>23.3 °C</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>42.0%</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>248.22Gs</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>3.45Gs</b>	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	<b>YES</b>	<b>YES</b>	

**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<b>I.D. NUMBER</b>	<b>MANUFACTURER</b>	<b>MODEL NUMBER</b>	<b>SERIAL NUMBER</b>	<b>DATE OF LAST CALIBRATION</b>	<b>DATE OF NEXT CALIBRATION</b>
<b>1 - LONGITUDINAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J45546</b>	<b>3/30/2010</b>	<b>9/30/2010</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J45485</b>	<b>3/30/2010</b>	<b>9/30/2010</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J45406</b>	<b>3/30/2010</b>	<b>9/30/2010</b>

**REMARKS:**

## FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: April 07, 2010

Serial No: 0062

Work File: fmh

### -----TEST RESULTS-----

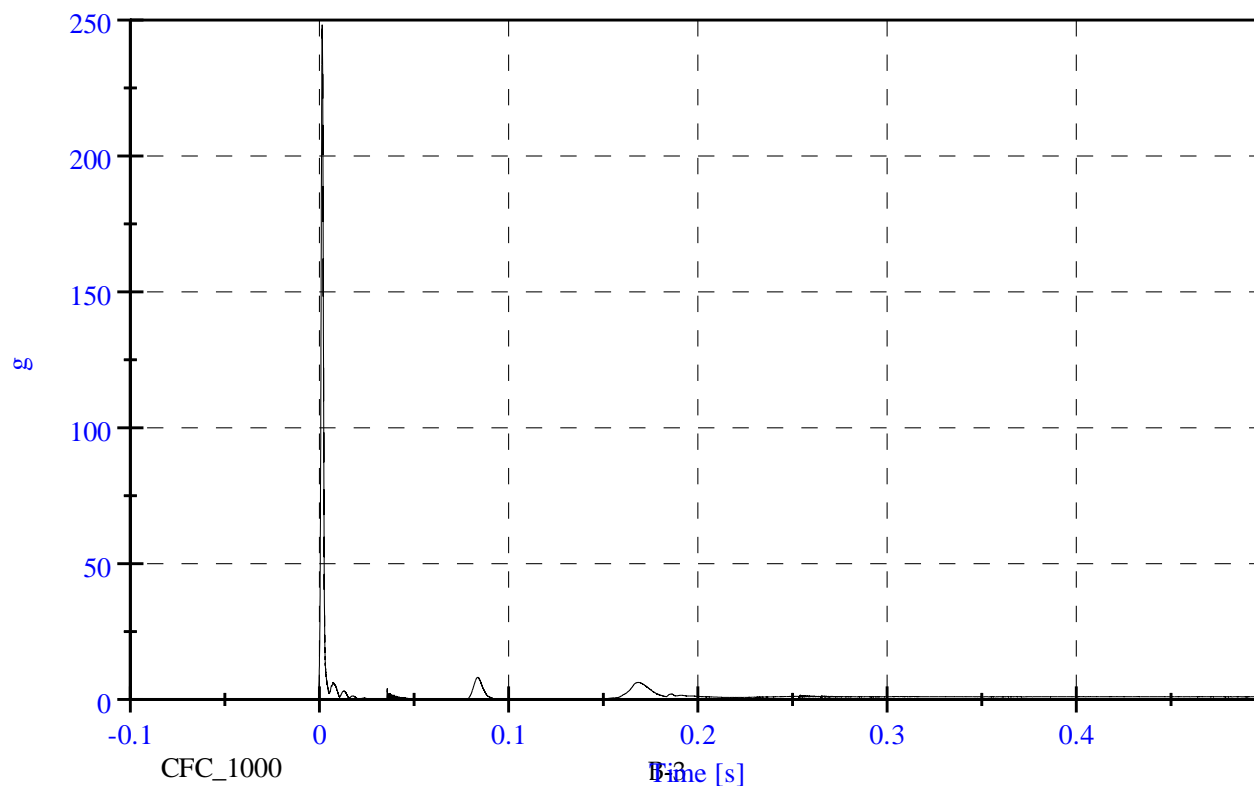
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	19-26 C	23.3	Passed
Lab Humidity	10-70 %	42.00 %	Passed
Peak Resultant Accel.:	225-275 Gs	248.22 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	3.45 Gs	Passed
Curve Percent NonModal:	< 10%	3.28 %	Passed

FMVSS 201U - Headform Calibration Drops

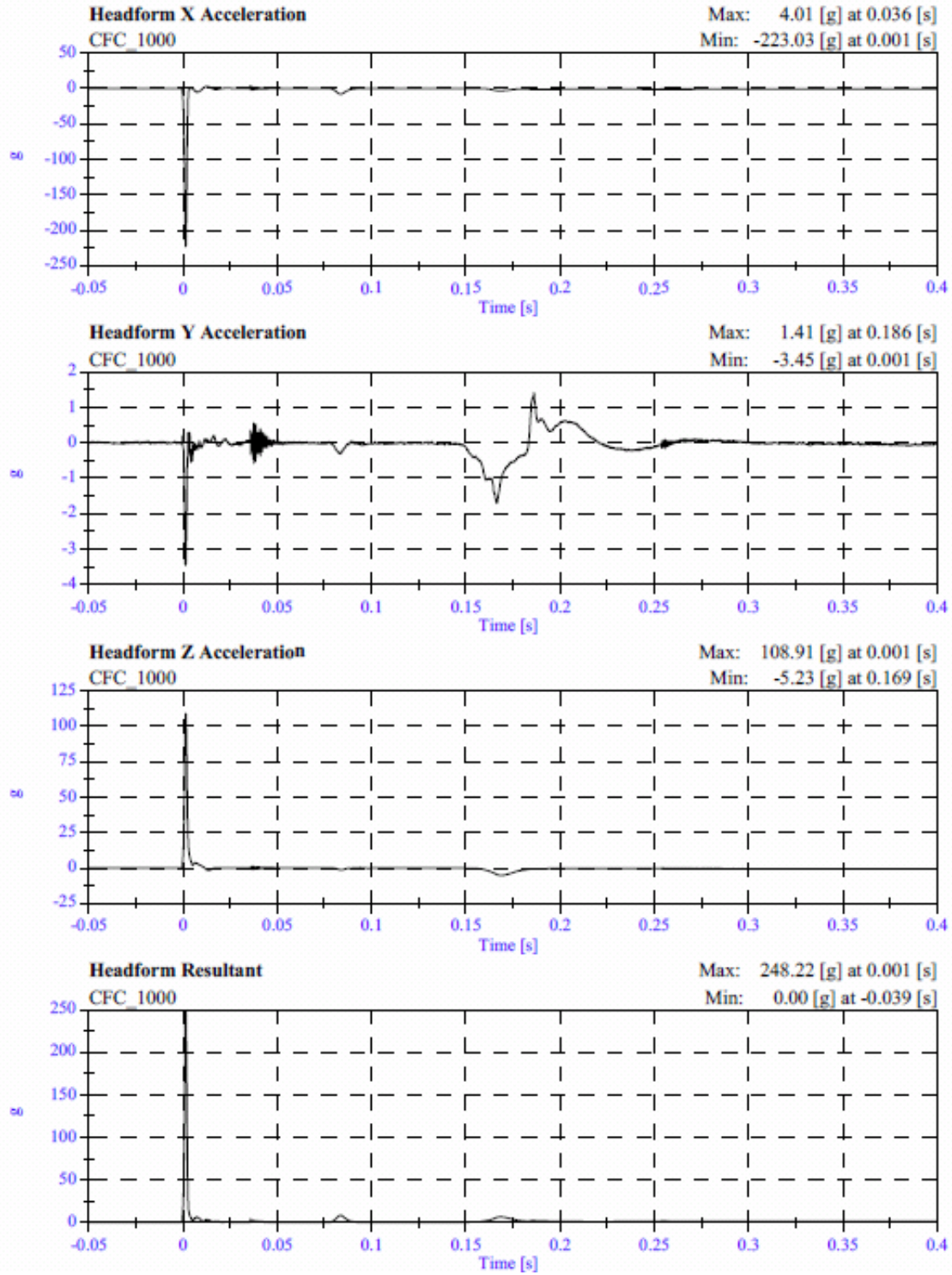
Headform Resultant

Max: 248.2 [g] at 0.001 [s]

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



# FMVSS 201U - Headform Calibration Drops CA5103 - April 07, 2010



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

<b>MANUFACTURER:</b>		<b>FIRST TECHNOLOGY SAFETY SYSTEMS</b>	
<b>SERIAL NUMBER:</b>		<b>805</b>	
<b>CALIBRATION DATE:</b>		<b>April 7, 2010</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>23.3 °C</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>44.0%</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>225.84 Gs</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>3.44 Gs</b>	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	<b>YES</b>	<b>YES</b>	

**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<b>I.D. NUMBER</b>	<b>MANUFACTURER</b>	<b>MODEL NUMBER</b>	<b>SERIAL NUMBER</b>	<b>DATE OF LAST CALIBRATION</b>	<b>DATE OF NEXT CALIBRATION</b>
<b>1 - LONGITUDINAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J25854</b>	<b>3/2/2010</b>	<b>9/2/2010</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J37496</b>	<b>3/2/2010</b>	<b>9/2/2010</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J41016</b>	<b>3/2/2010</b>	<b>9/2/2010</b>

**REMARKS:**

## FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: April 07, 2010

Serial No: 0805

Work File: fmh

### -----TEST RESULTS-----

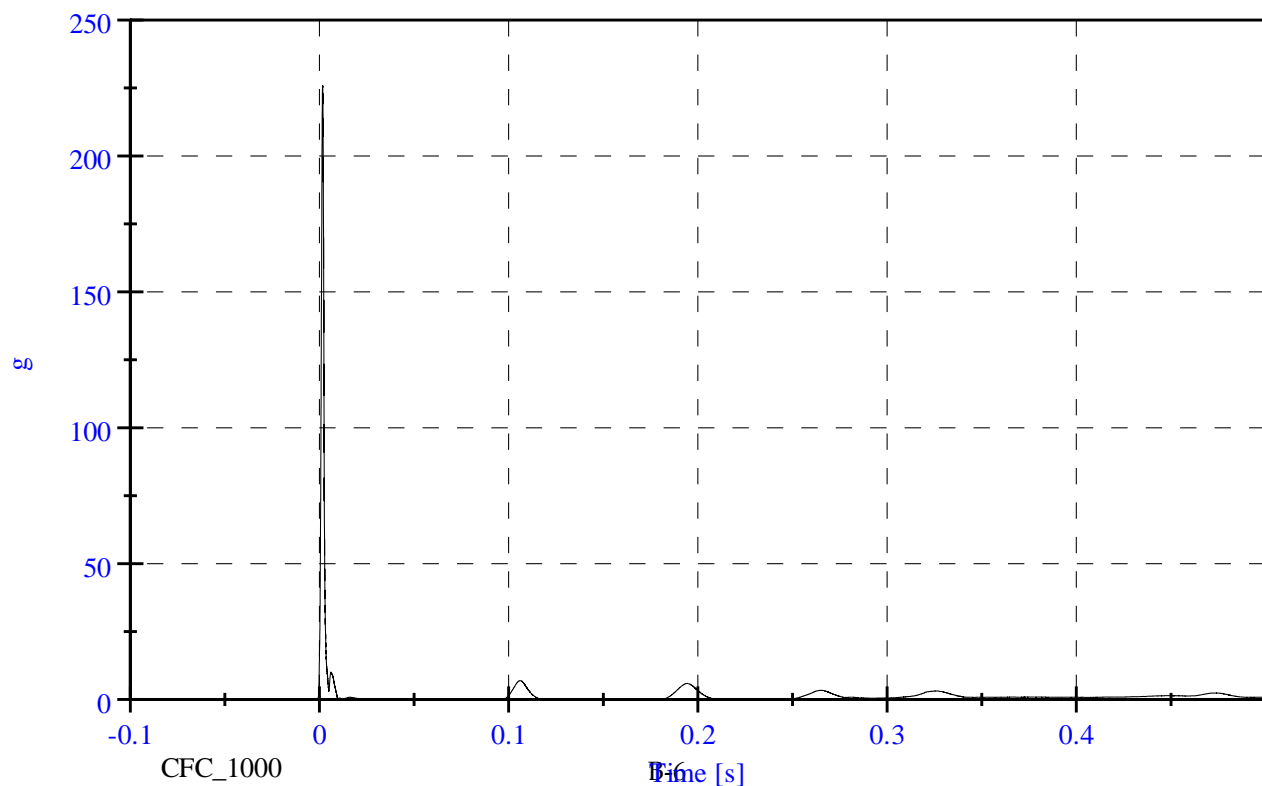
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	19-26 C	23.3	Passed
Lab Humidity	10-70 %	44.00 %	Passed
Peak Resultant Accel.:	225-275 Gs	225.84 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	3.44 Gs	Passed
Curve Percent NonModal:	< 10%	4.46 %	Passed

FMVSS 201U - Headform Calibration Drops

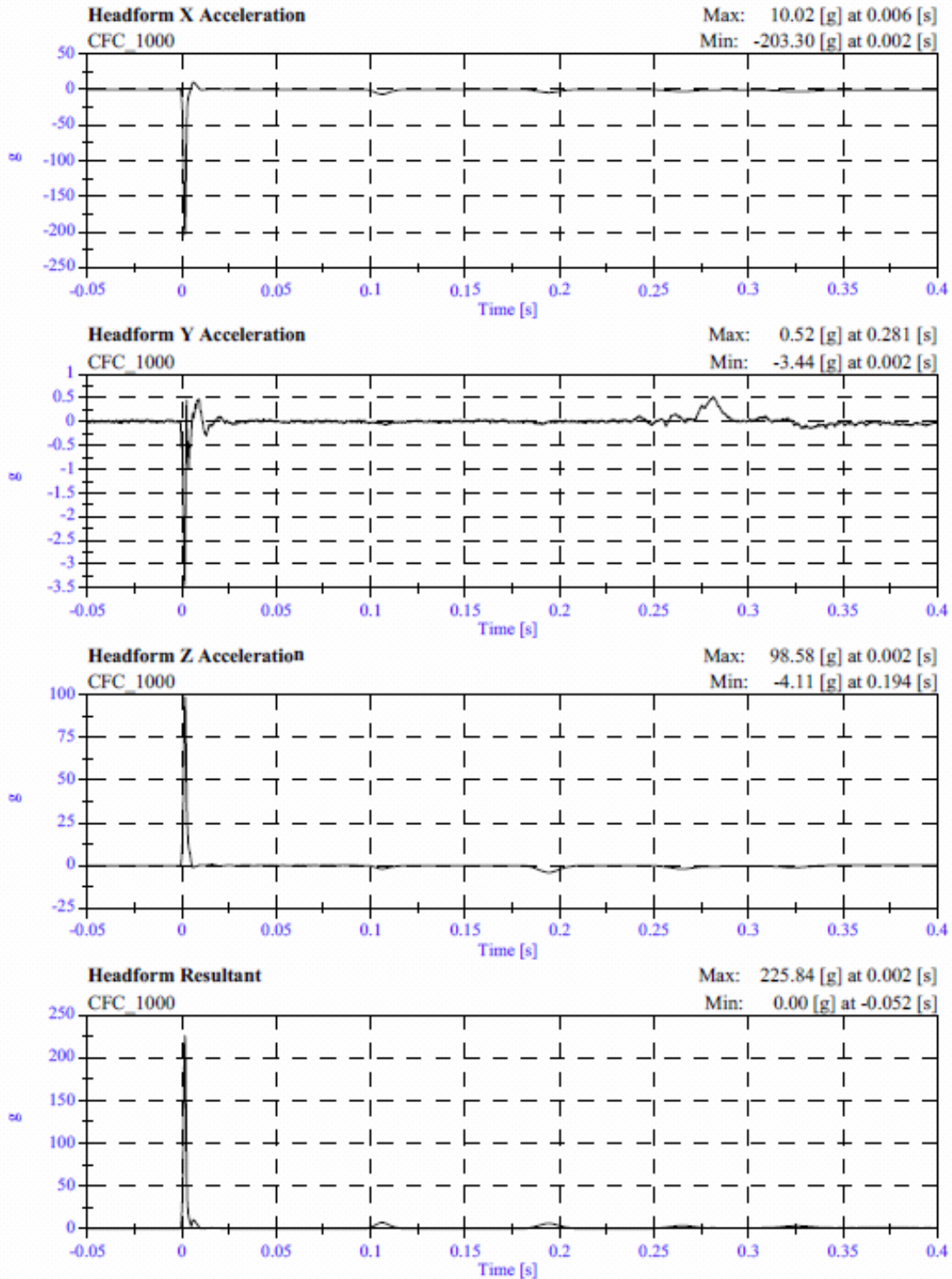
Headform Resultant

Max: 225.8 [g] at 0.002 [s]

Min: 0.0 [g] at -0.052 [s]



# FMVSS 201U - Headform Calibration Drops CA5103 - April 07, 2010





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

<b>MANUFACTURER:</b>		<b>DENTON ATD INC.</b>	
<b>SERIAL NUMBER:</b>		<b>0355</b>	
<b>CALIBRATION DATE:</b>		<b>April 7, 2010</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>23.3 °C</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>43.0%</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>265.34 Gs</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>9.02 Gs</b>	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	<b>YES</b>	<b>YES</b>	

**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<b>I.D. NUMBER</b>	<b>MANUFACTURER</b>	<b>MODEL NUMBER</b>	<b>SERIAL NUMBER</b>	<b>DATE OF LAST CALIBRATION</b>	<b>DATE OF NEXT CALIBRATION</b>
<b>1 - LONGITUDINAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J28671</b>	<b>3/2/2010</b>	<b>9/2/2010</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J32779</b>	<b>3/2/2010</b>	<b>9/2/2010</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J31020</b>	<b>3/2/2010</b>	<b>9/2/2010</b>

**REMARKS:**

## FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: April 07, 2010

Serial No: 0355

Work File: fmh

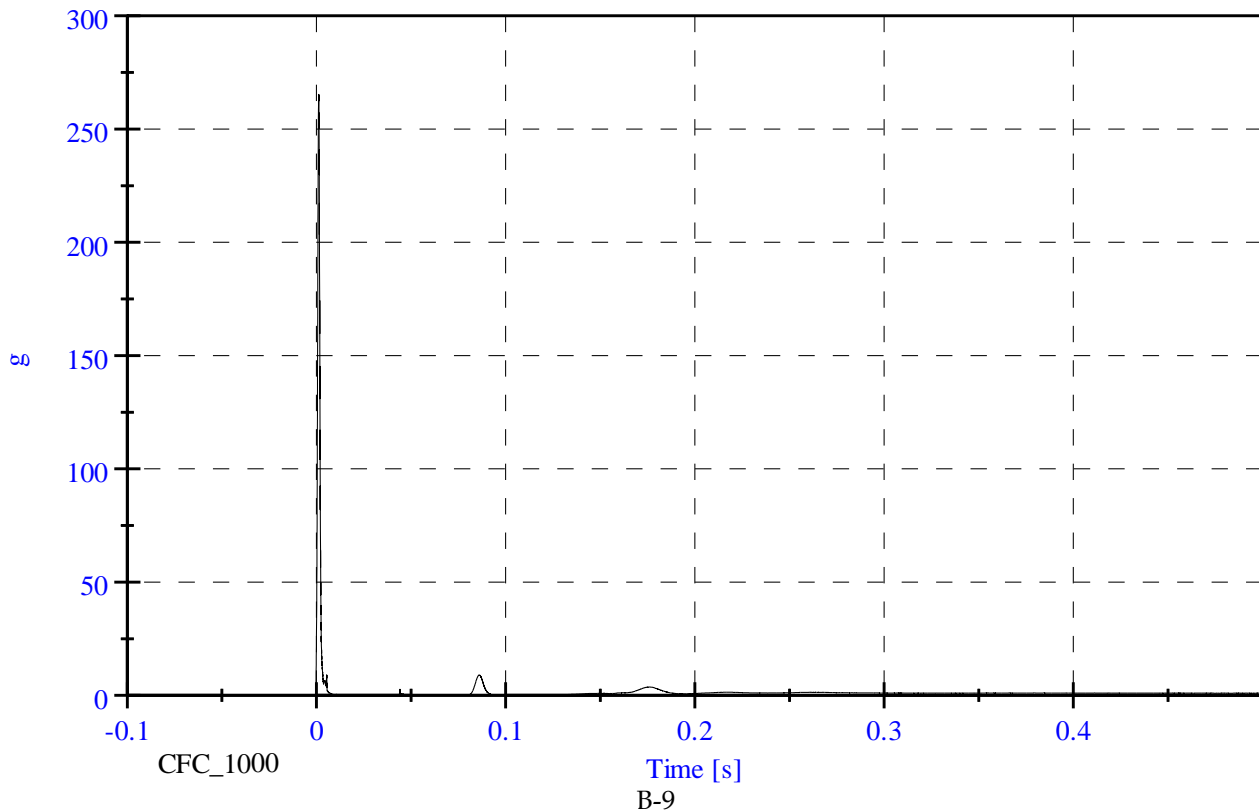
### -----TEST RESULTS-----

<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	19-26 C	23.3	Passed
Lab Humidity	10-70 %	43.00 %	Passed
Peak Resultant Accel.:	225-275 Gs	265.34 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	9.02 Gs	Passed
Curve Percent NonModal:	< 10%	3.41 %	Passed

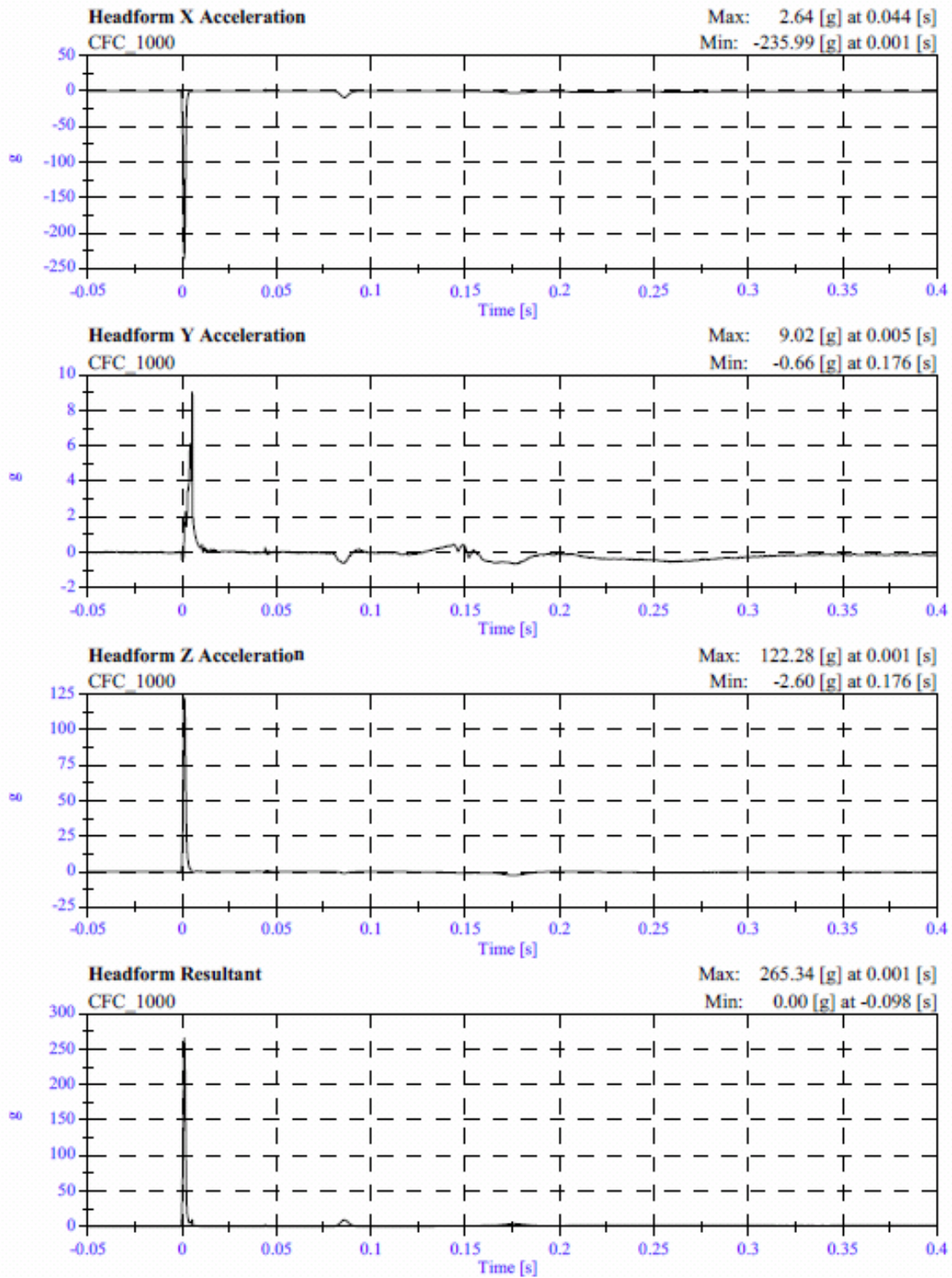
FMVSS 201U - Headform Calibration Drops      Headform Resultant

Max: 265.3 [g] at 0.001 [s]

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



# FMVSS 201U - Headform Calibration Drops CA5103 - April 07, 2010



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

<b>MANUFACTURER:</b>		<b>DENTON ATD INC.</b>	
<b>SERIAL NUMBER:</b>		<b>1140</b>	
<b>CALIBRATION DATE:</b>		<b>April 7, 2010</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>23.3 °C</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>42.0%</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>274.17 Gs</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>10.34 Gs</b>	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	<b>YES</b>	<b>YES</b>	

**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<b>I.D. NUMBER</b>	<b>MANUFACTURER</b>	<b>MODEL NUMBER</b>	<b>SERIAL NUMBER</b>	<b>DATE OF LAST CALIBRATION</b>	<b>DATE OF NEXT CALIBRATION</b>
<b>1 - LONGITUDINAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J40994</b>	<b>3/3/2010</b>	<b>9/3/2010</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J45450</b>	<b>3/3/2010</b>	<b>9/3/2010</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J41007</b>	<b>3/3/2010</b>	<b>9/3/2010</b>

**REMARKS:**

# FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: April 07, 2010

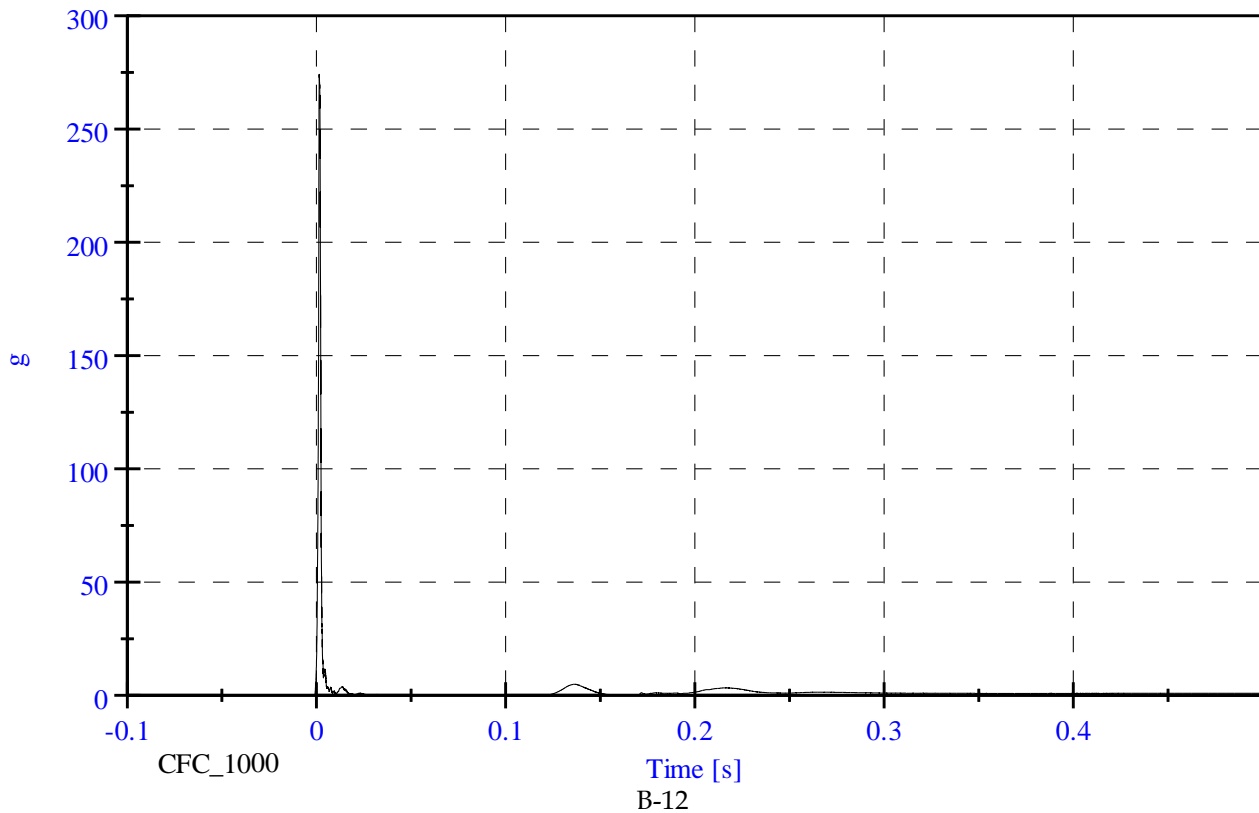
Serial No: 1140

Work File: fmh

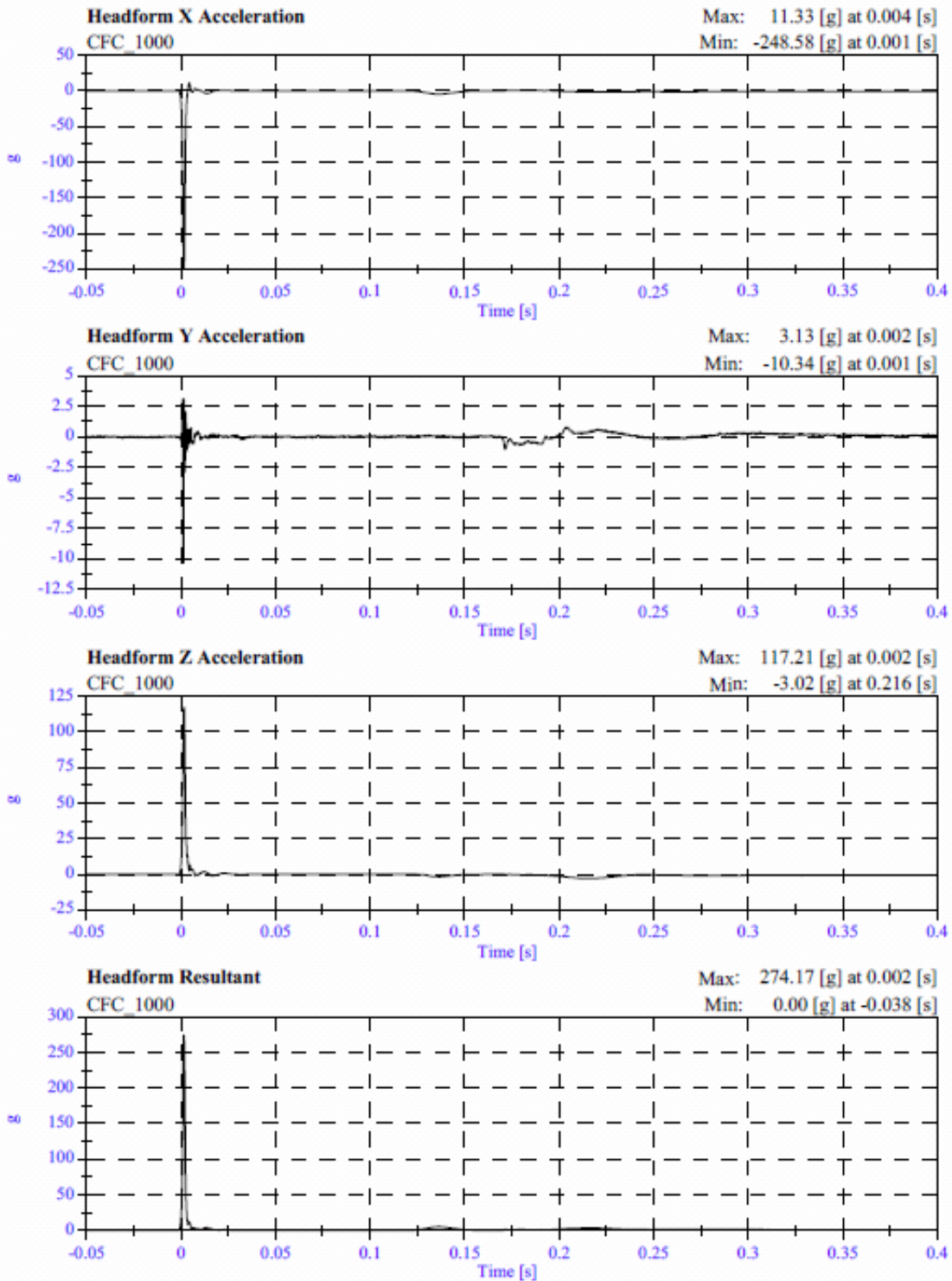
## -----TEST RESULTS-----

<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	19-26 C	23.3	Passed
Lab Humidity	10-70 %	42.00 %	Passed
Peak Resultant Accel.:	225-275 Gs	274.17 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	10.34 Gs	Passed
Curve Percent NonModal:	< 10%	5.57 %	Passed

FMVSS 201U - Headform Calibration Drops      Headform Resultant      Max: 274.2 [g] at 0.002 [s]  
Min: 0.0 [g] at -0.038 [s]



# FMVSS 201U - Headform Calibration Drops CA5103 - April 07, 2010



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

<b>MANUFACTURER:</b>		<b>FIRST TECHNOLOGY SAFETY SYSTEMS</b>	
<b>SERIAL NUMBER:</b>		1142	
<b>CALIBRATION DATE:</b>		March 31, 2010	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
TEMPERATURE	19°C to 26°C	20.6 °C	
RELATIVE HUMIDITY	10% to 70%	30.0%	
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	260.92 Gs	
PEAK LATERAL ACCELERATION	15 Gs Maximum	8.55 Gs	
IS ACCELERATION CURVE UNIMODAL?	YES	YES	

**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<b>I.D. NUMBER</b>	<b>MANUFACTURER</b>	<b>MODEL NUMBER</b>	<b>SERIAL NUMBER</b>	<b>DATE OF LAST CALIBRATION</b>	<b>DATE OF NEXT CALIBRATION</b>
1 - LONGITUDINAL	ENDEVCO	7264-2000T	J41006	3/2/2010	9/2/2010
2 - LATERAL	ENDEVCO	7264-2000T	J33030	3/2/2010	9/2/2010
3 - VERTICAL	ENDEVCO	7264-2000T	J31009	3/2/2010	9/2/2010

**REMARKS:**

# FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: March 31, 2010

Serial No: 1142

Work File: fmh

## -----TEST RESULTS-----

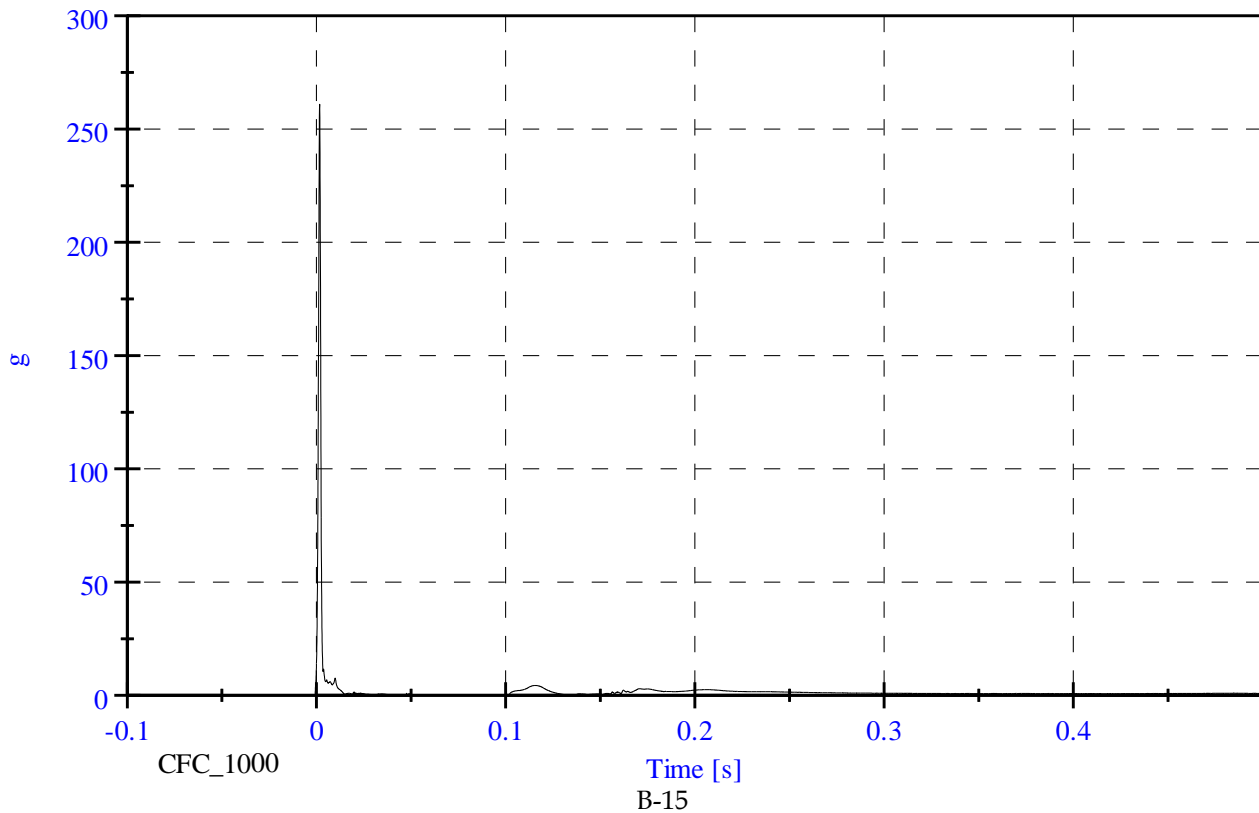
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	19-26 C	20.6 C	Passed
Lab Humidity	10-70 %	30.00 %	Passed
Peak Resultant Accel.:	225-275 Gs	260.92 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	8.55 Gs	Passed
Curve Percent NonModal:	< 10%	4.46 %	Passed

FMVSS 201U - Headform Calibration Drops

Headform Resultant

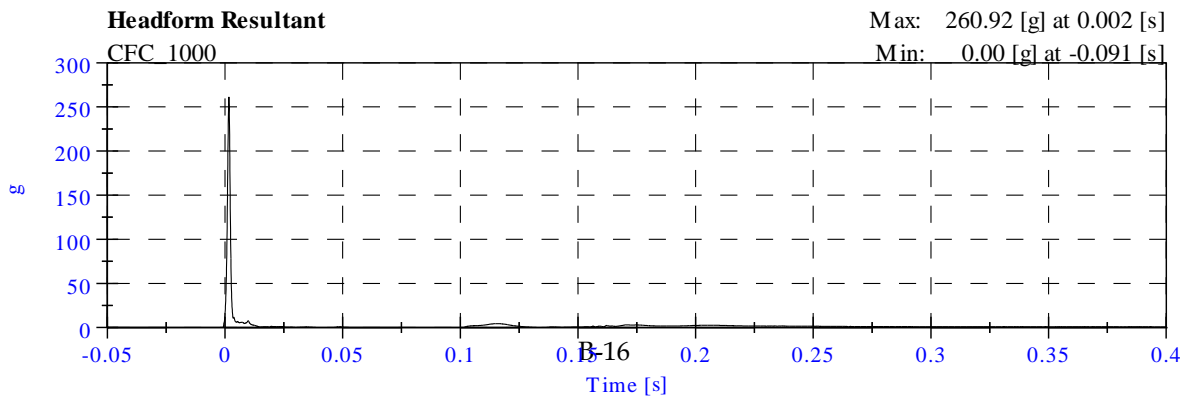
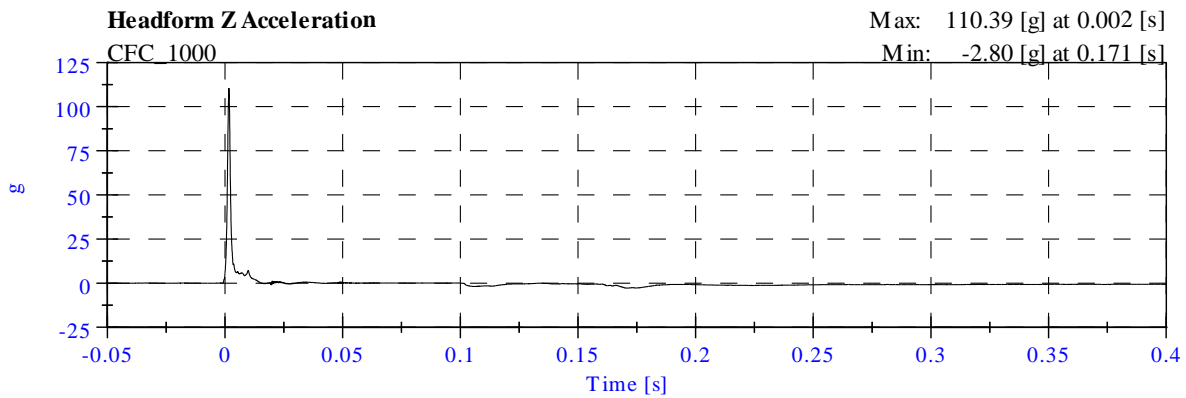
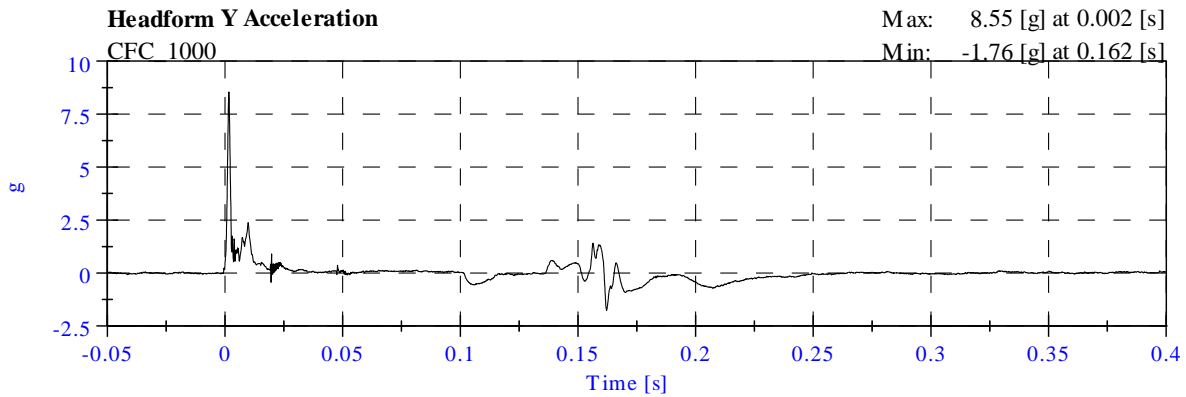
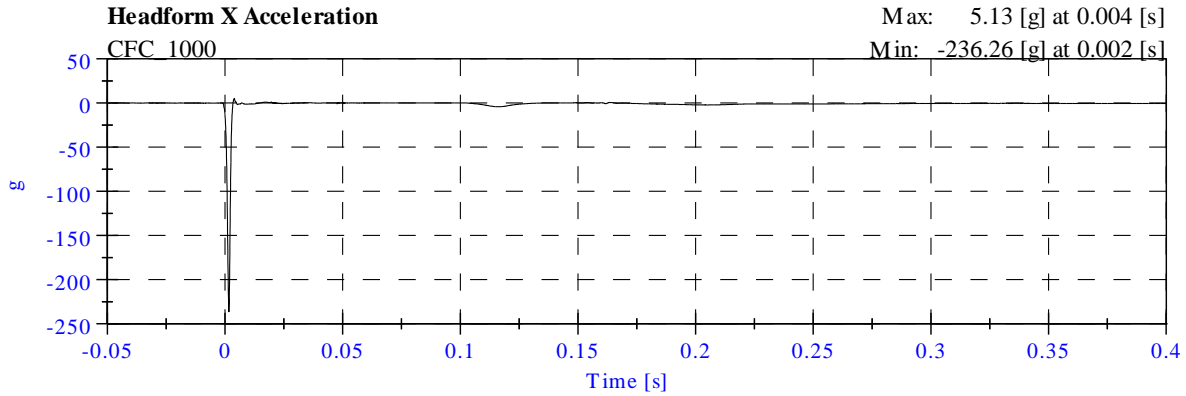
Max: 260.9 [g] at 0.002 [s]

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





# FMVSS 210U - Headform Calibration Drops CA5103 - March 31, 2010



B-16

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

<b>MANUFACTURER:</b>		<b>DENTON ATD INC.</b>	
<b>SERIAL NUMBER:</b>		<b>0062</b>	
<b>CALIBRATION DATE:</b>		<b>April 14, 2010</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>23.9 °C</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>19.0%</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>227.34 Gs</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>12.74 Gs</b>	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	<b>YES</b>	<b>YES</b>	

**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<b>I.D. NUMBER</b>	<b>MANUFACTURER</b>	<b>MODEL NUMBER</b>	<b>SERIAL NUMBER</b>	<b>DATE OF LAST CALIBRATION</b>	<b>DATE OF NEXT CALIBRATION</b>
<b>1 - LONGITUDINAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J45546</b>	<b>3/30/2010</b>	<b>9/30/2010</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J45485</b>	<b>3/30/2010</b>	<b>9/30/2010</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J45406</b>	<b>3/30/2010</b>	<b>9/30/2010</b>

**REMARKS:**

# FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: April 14, 2010

Serial No: 0062

Work File: fmh

## -----TEST RESULTS-----

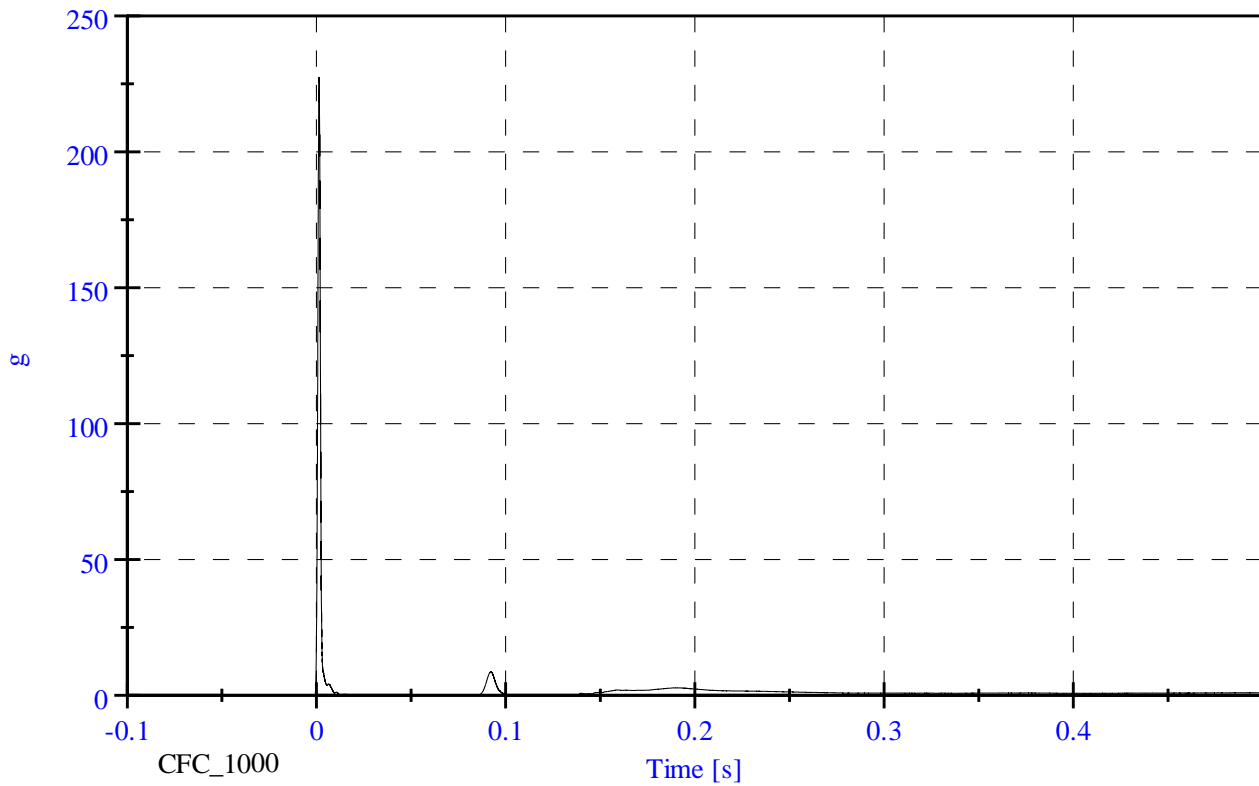
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	19-26 C	23.9 C	Passed
Lab Humidity	10-70 %	19.00 %	Passed
Peak Resultant Accel.:	225-275 Gs	227.34 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	12.74 Gs	Passed
Curve Percent NonModal:	< 10%	3.83 %	Passed

FMVSS 201U - Headform Calibration Drops

Headform Resultant

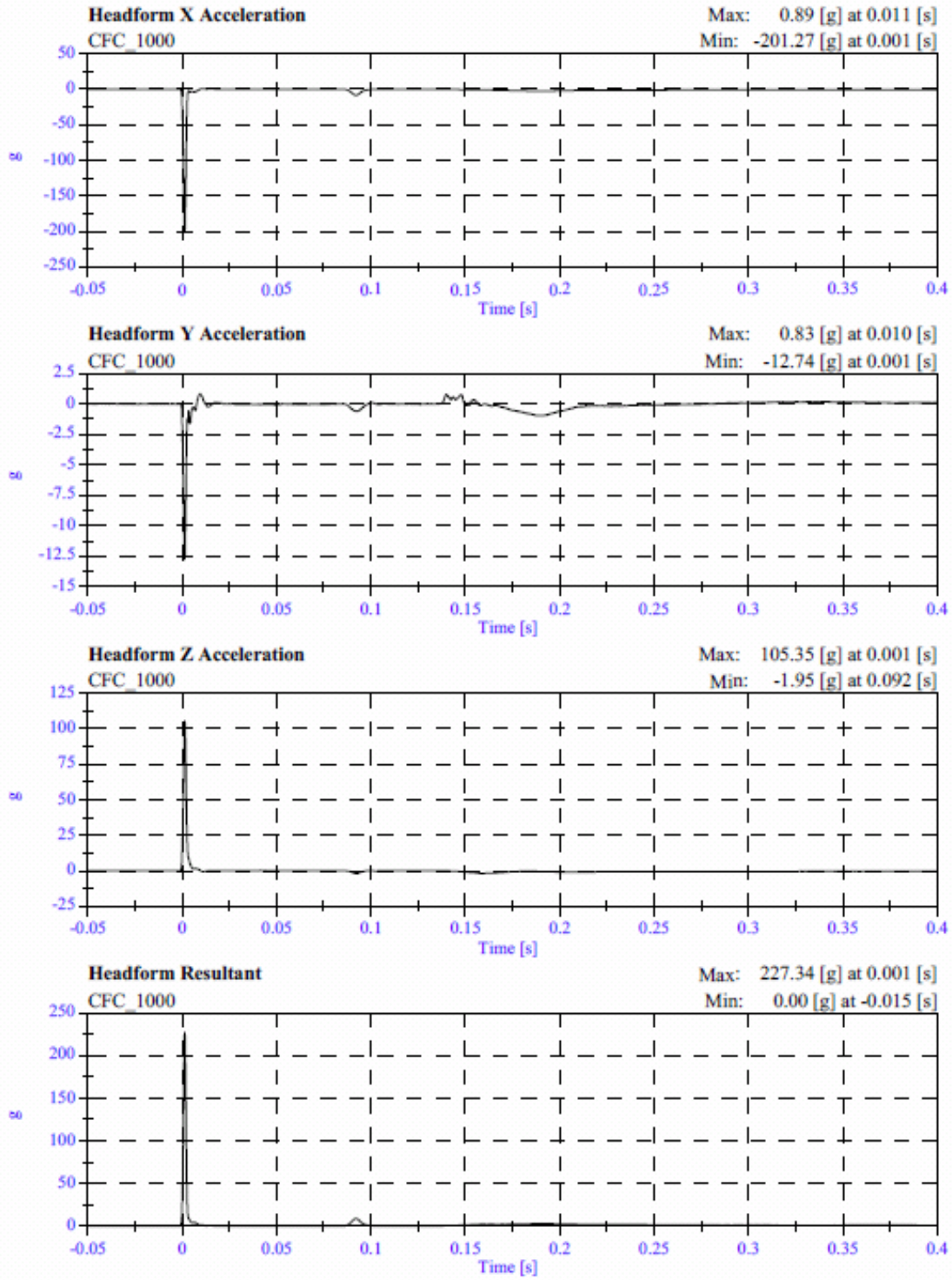
Max: 227.3 [g] at 0.001 [s]

Min: 0.0 [g] at -0.015 [s]



B-18

# FMVSS 201U - Headform Calibration Drops CA5103 - April 14, 2010



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

<b>MANUFACTURER:</b>		<b>FIRST TECHNOLOGY SAFETY SYSTEMS</b>	
<b>SERIAL NUMBER:</b>		<b>805</b>	
<b>CALIBRATION DATE:</b>		<b>April 14, 2010</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>23.3 °C</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>21.0%</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>233.04 Gs</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>4.67 Gs</b>	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	<b>YES</b>	<b>YES</b>	

**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<b>I.D. NUMBER</b>	<b>MANUFACTURER</b>	<b>MODEL NUMBER</b>	<b>SERIAL NUMBER</b>	<b>DATE OF LAST CALIBRATION</b>	<b>DATE OF NEXT CALIBRATION</b>
<b>1 - LONGITUDINAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J25854</b>	<b>3/2/2010</b>	<b>9/2/2010</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J37496</b>	<b>3/2/2010</b>	<b>9/2/2010</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J41016</b>	<b>3/2/2010</b>	<b>9/2/2010</b>

**REMARKS:**

## FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: April 14, 2010

Serial No: 0805

Work File: fmh

### -----TEST RESULTS-----

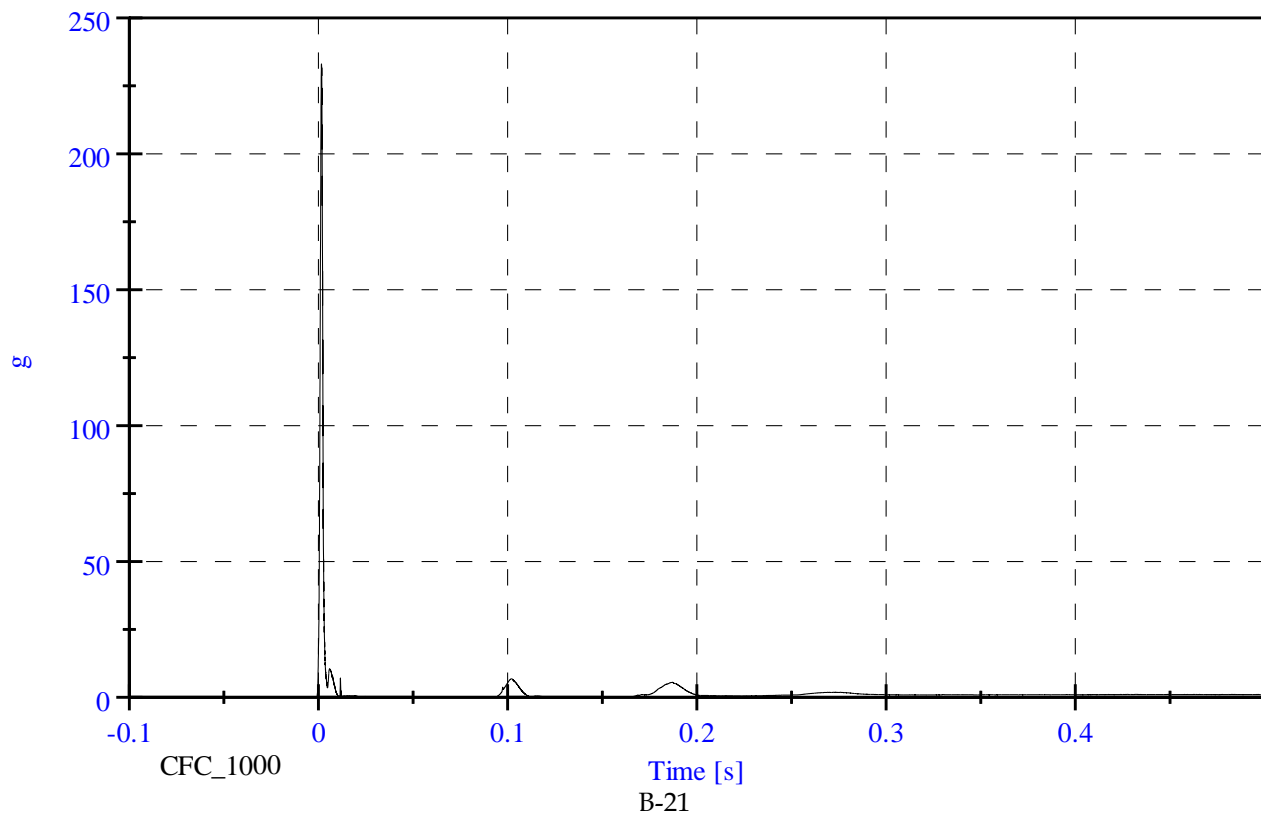
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	19-26 C	23.3 C	Passed
Lab Humidity	10-70 %	21.00 %	Passed
Peak Resultant Accel.:	225-275 Gs	233.04 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	4.67 Gs	Passed
Curve Percent NonModal:	< 10%	4.50 %	Passed

FMVSS 201U - Headform Calibration Drops

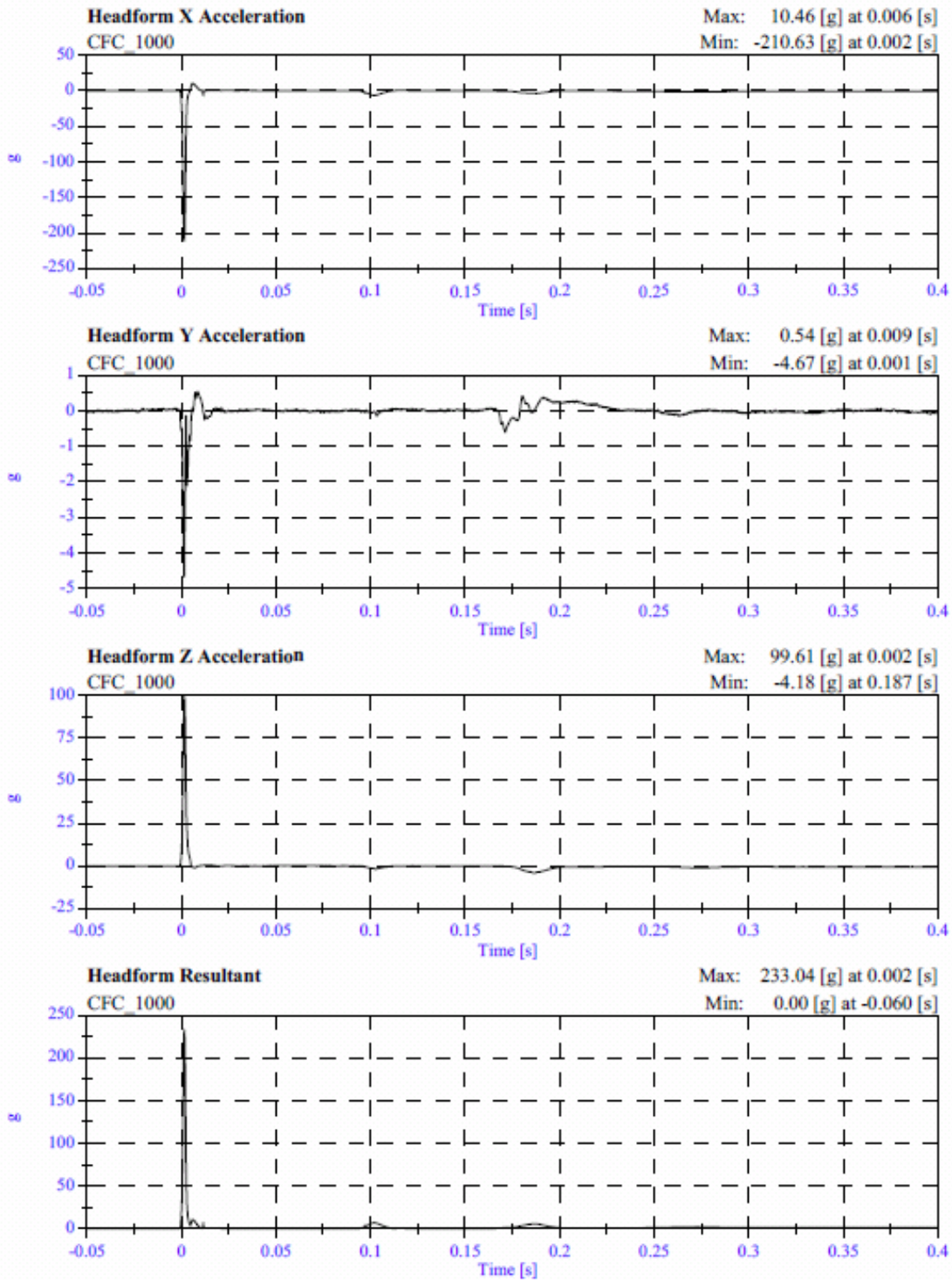
Headform Resultant

Max: 233.0 [g] at 0.002 [s]

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



# FMVSS 201U - Headform Calibration Drops CA5103 - April 14, 2010



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

<b>MANUFACTURER:</b>		<b>DENTON ATD INC.</b>	
<b>SERIAL NUMBER:</b>		<b>0355</b>	
<b>CALIBRATION DATE:</b>		<b>April 14, 2010</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>23.3 °C</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>21.0%</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>237.0 Gs</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>6.1 Gs</b>	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	<b>YES</b>	<b>YES</b>	

**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<b>I.D. NUMBER</b>	<b>MANUFACTURER</b>	<b>MODEL NUMBER</b>	<b>SERIAL NUMBER</b>	<b>DATE OF LAST CALIBRATION</b>	<b>DATE OF NEXT CALIBRATION</b>
<b>1 - LONGITUDINAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J28671</b>	<b>3/2/2010</b>	<b>9/2/2010</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J32779</b>	<b>3/2/2010</b>	<b>9/2/2010</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J31020</b>	<b>3/2/2010</b>	<b>9/2/2010</b>

**REMARKS:**



# FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: April 14, 2010

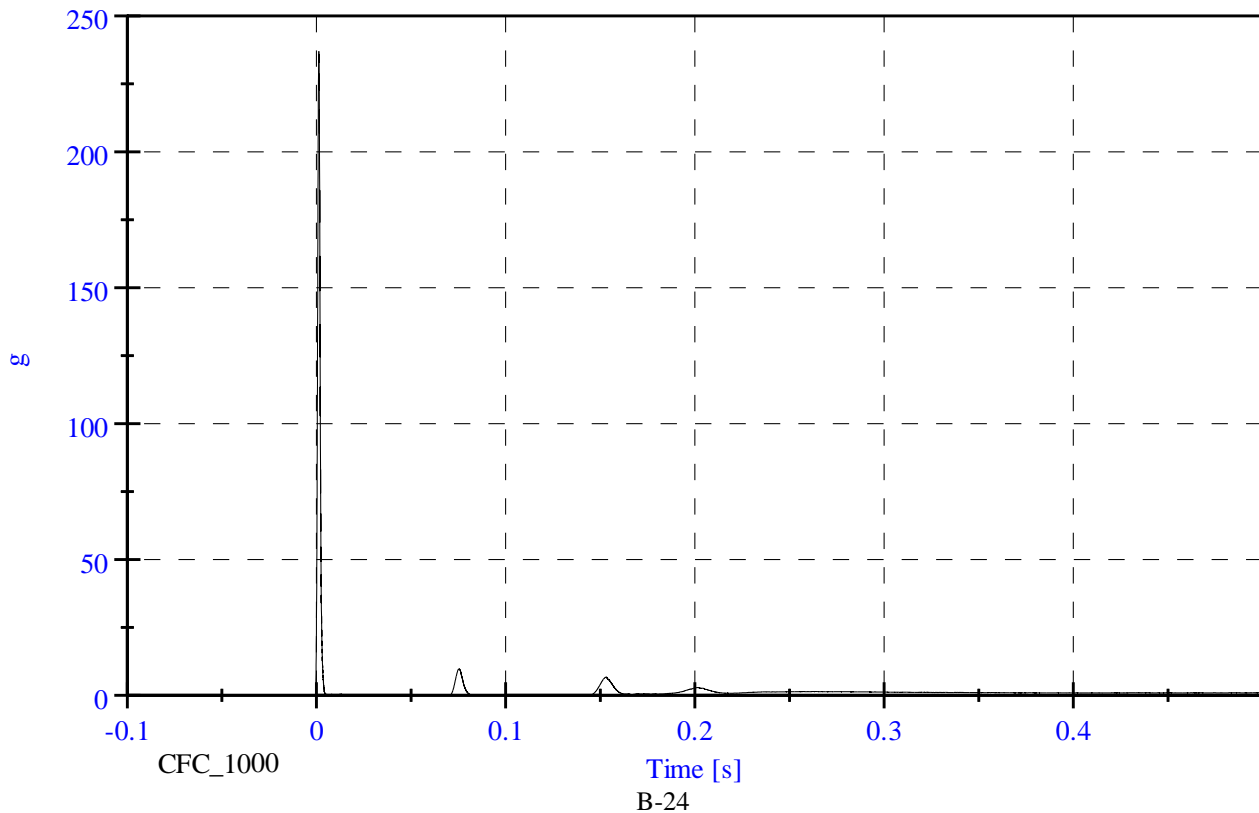
Serial No: 0355

Work File: fmh

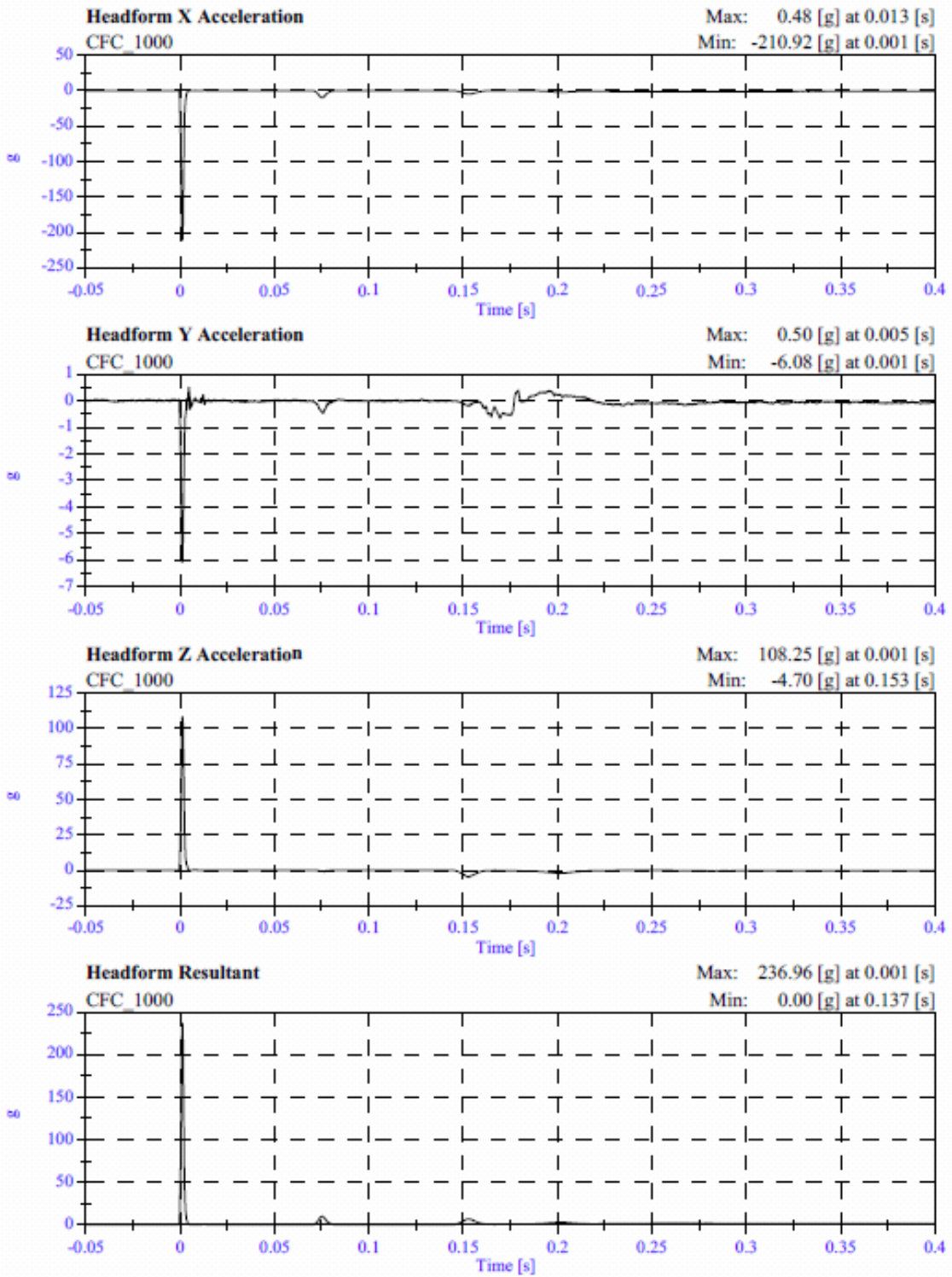
## -----TEST RESULTS-----

<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	19-26 C	23.3 C	Passed
Lab Humidity	10-70 %	21.00 %	Passed
Peak Resultant Accel.:	225-275 Gs	236.96 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	6.08 Gs	Passed
Curve Percent NonModal:	< 10%	4.11 %	Passed

FMVSS 201U - Headform Calibration Drops      Headform Resultant      Max: 237.0 [g] at 0.001 [s]  
Min: 0.0 [g] at 0.137 [s]



# FMVSS 201U - Headform Calibration Drops CA5103 - April 14, 2010



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

<b>MANUFACTURER:</b>		<b>FIRST TECHNOLOGY SAFETY SYSTEMS</b>	
<b>SERIAL NUMBER:</b>		<b>1140</b>	
<b>CALIBRATION DATE:</b>		<b>April 14, 2010</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>23.3 °C</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>21.0%</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>226.5 Gs</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>10.8 Gs</b>	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	<b>YES</b>	<b>YES</b>	

**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<b>I.D. NUMBER</b>	<b>MANUFACTURER</b>	<b>MODEL NUMBER</b>	<b>SERIAL NUMBER</b>	<b>DATE OF LAST CALIBRATION</b>	<b>DATE OF NEXT CALIBRATION</b>
<b>1 - LONGITUDINAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J40994</b>	<b>3/3/2010</b>	<b>9/3/2010</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J45450</b>	<b>3/3/2010</b>	<b>9/3/2010</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J41007</b>	<b>3/3/2010</b>	<b>9/3/2010</b>

**REMARKS:**

## FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: April 14, 2010

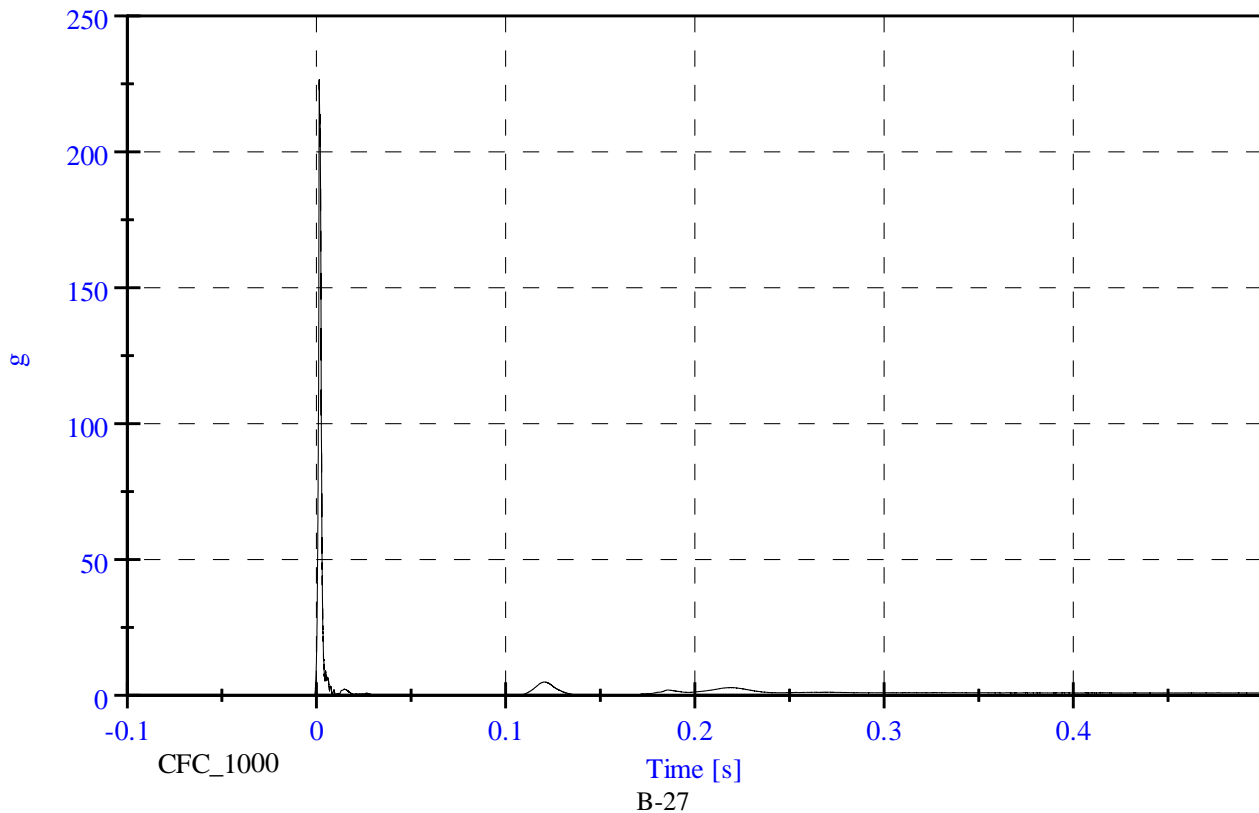
Serial No: 1140

Work File: fmh

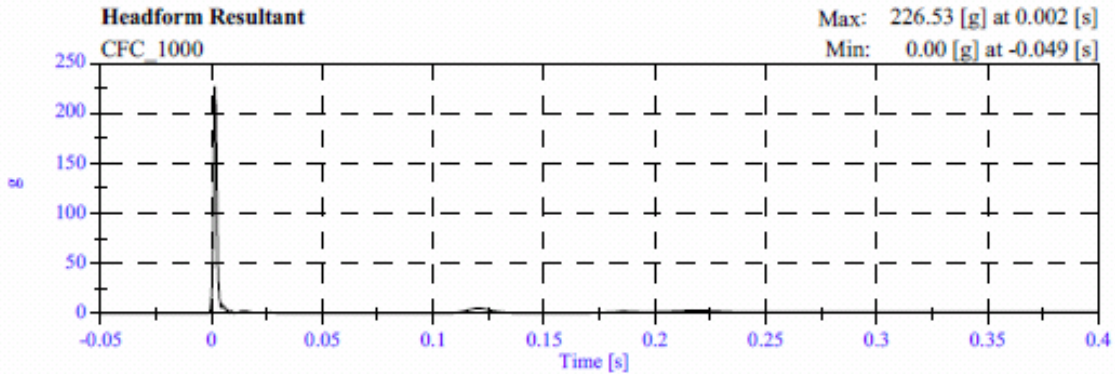
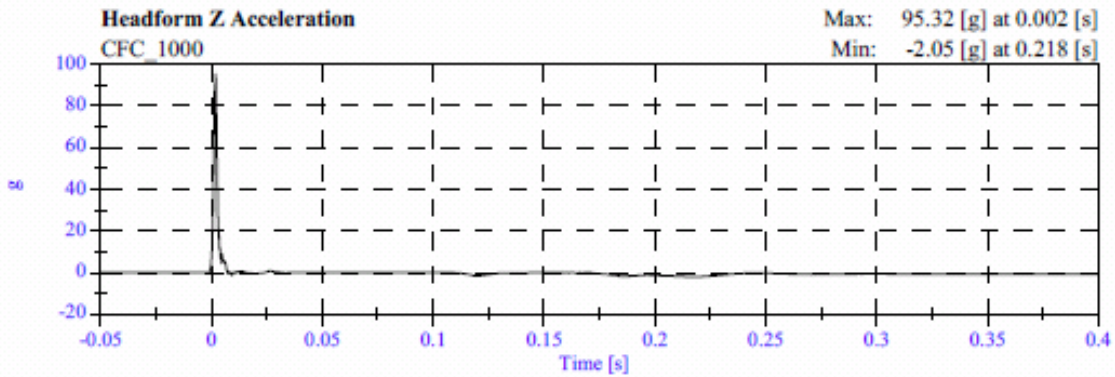
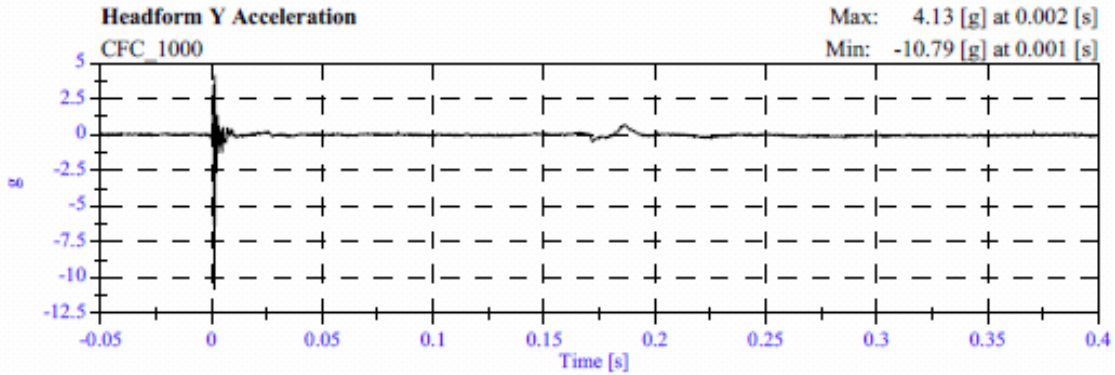
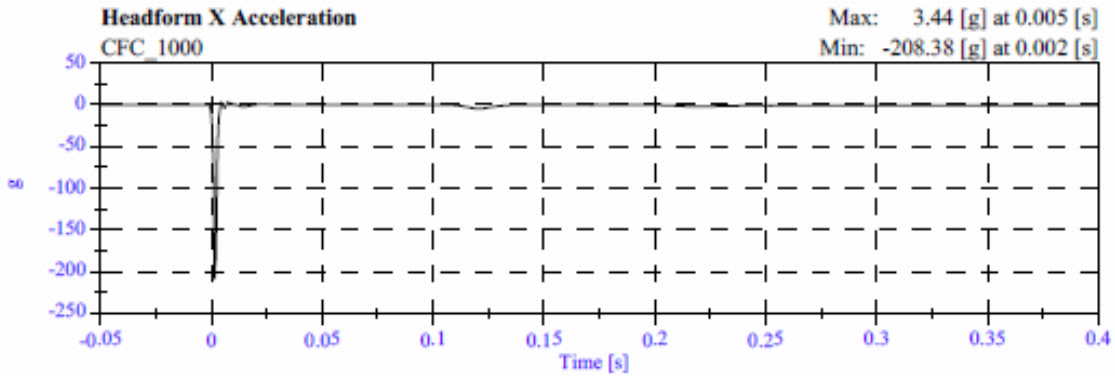
### -----TEST RESULTS-----

<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	19-26 C	23.3 C	Passed
Lab Humidity	10-70 %	21.00 %	Passed
Peak Resultant Accel.:	225-275 Gs	226.53 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	10.79 Gs	Passed
Curve Percent NonModal:	< 10%	5.84 %	Passed

FMVSS 201U - Headform Calibration Drops      Headform Resultant      Max: 226.5 [g] at 0.002 [s]  
 Min: 0.0 [g] at -0.049 [s]



# FMVSS 201U - Headform Calibration Drops CA5103 - April 14, 2010



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

<b>MANUFACTURER:</b>		<b>FIRST TECHNOLOGY SAFETY SYSTEMS</b>	
<b>SERIAL NUMBER:</b>		<b>1142</b>	
<b>CALIBRATION DATE:</b>		<b>April 14, 2010</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>23.3 °C</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>19.0%</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>259.6 Gs</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>10.7 Gs</b>	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	<b>YES</b>	<b>YES</b>	

**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<b>I.D. NUMBER</b>	<b>MANUFACTURER</b>	<b>MODEL NUMBER</b>	<b>SERIAL NUMBER</b>	<b>DATE OF LAST CALIBRATION</b>	<b>DATE OF NEXT CALIBRATION</b>
<b>1 - LONGITUDINAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J41006</b>	<b>4/8/2010</b>	<b>10/8/2010</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J33030</b>	<b>4/8/2010</b>	<b>10/8/2010</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J31009</b>	<b>4/8/2010</b>	<b>10/8/2010</b>

**REMARKS:**

## FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: April 14, 2010

Serial No: 1142

Work File: fmh

### -----TEST RESULTS-----

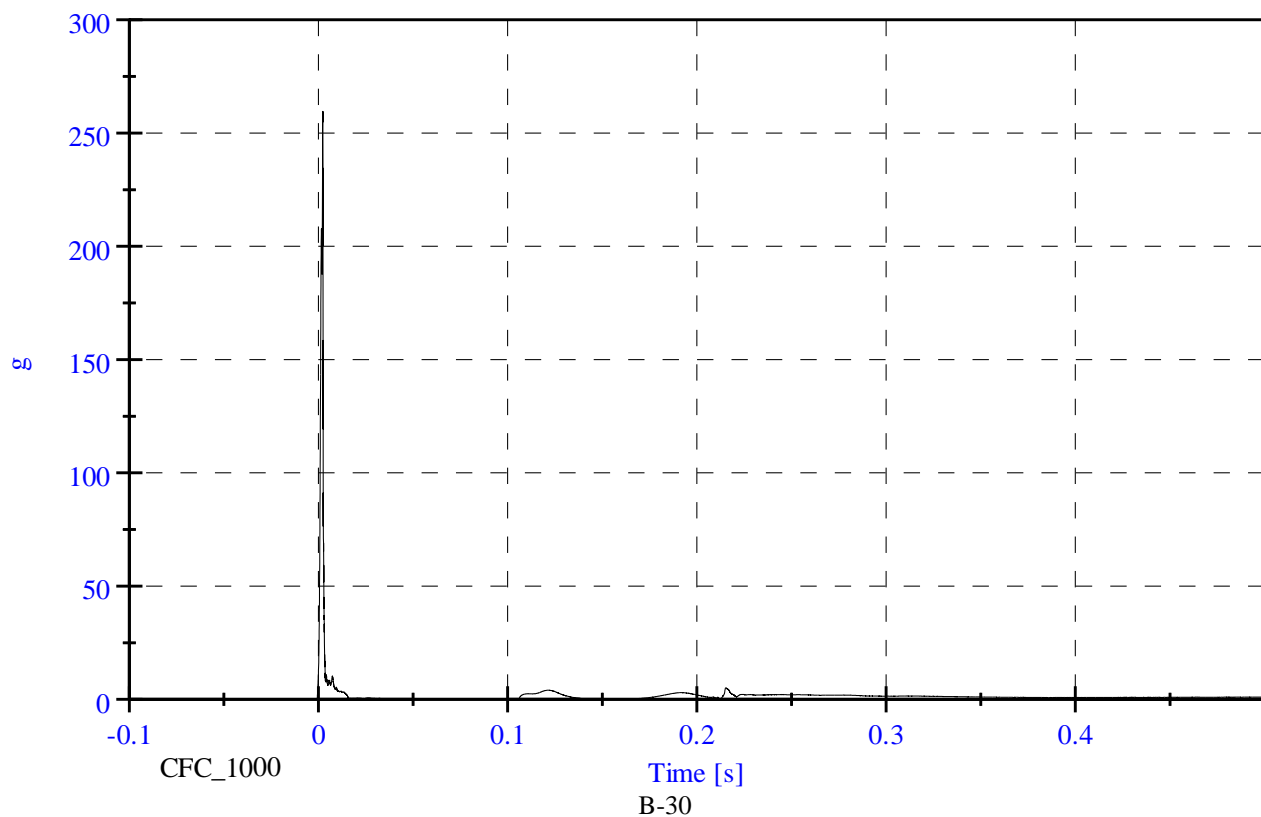
<u>TEST CONDITION</u>	<u>PARAMETERS</u>	<u>RESULTS</u>	<u>STATUS</u>
Lab Temperature:	19-26 C	23.3 C	Passed
Lab Humidity	10-70 %	19.00 %	Passed
Peak Resultant Accel.:	225-275 Gs	259.59 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	10.68 Gs	Passed
Curve Percent NonModal:	< 10%	6.52 %	Passed

FMVSS 201U - Headform Calibration Drops

Headform Resultant

Max: 259.6 [g] at 0.002 [s]

Min: 0.0 [g] at -0.027 [s]



# FMVSS 201U - Headform Calibration Drops CA5103 - April 14, 2010

