

REPORT NUMBER: 201UI-CAL-09-01

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

**GENERAL MOTORS CORP.  
2009 CHEVROLET MALIBU**

NHTSA NUMBER: C90102

CALSPAN TEST NUMBER: 8877-01

CALSPAN  
TRANSPORTATION SCIENCES CENTER  
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BUFFALO, NEW YORK 14225



Test Date: December 19, 2008

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION  
National Highway Traffic Safety Administration  
Enforcement  
Office of Vehicle Safety Compliance  
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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, 2009 Chevrolet Malibu, 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 2009 Chevrolet Malibu, NHTSA No. C90102, 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 2009 Chevrolet Malibu, NHTSA No. C90102, 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:

RP1	URRP	BP4	BP1	SR2B
AP3	AP1	RP2	SR3	BP2
URBP	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:	2009 Chevrolet Malibu
VIN:	1G1ZG57B89F127475
DATE OF MANUFACTURE:	08/08 (SEE CERTIFICATION LABEL)
COLOR:	White

TARGET CODE	Target Coordinates						Approach Angles (degrees)		Velocity (kph)	FMH HIC	HIC(d)
	Driver Side			Passenger Side			Horizontal	Vertical			
	X(mm)	Y(mm)	Z(mm)	X(mm)	Y(mm)	Z(mm)					
AP1	2895.35	-525.85	1206.65	2883.86	531.35	1212.16	113°	16°	18.49	508.0	549.7
AP2	2709.47	-590.41	1117.39	2736.38	599.28	1123.73	224°	47°	18.71	342.2	424.6
AP3	2583.05	-620.63	1060.68	2584.06	627.05	1059.77	145°	46°	18.42	405.1	472.0
BP1	3365.22	-462.82	1278.85	3360.97	469.83	1278.85	90°	26°	18.80	532.0	567.8
BP2	3348.92	-588.84	1040.56	3338.17	592.52	1045.33	270°	10°	23.58	820.3	785.3
BP3	3312.05	-600.56	1089.27	3306.29	605.33	1087.95	-	-	-	-	-
BP4	3397.69	-653.53	994.61	3392.23	655.67	994.70	130°	-10°	23.62	602.4	620.9
FH1	2822.43	-433.53	1250.34	2811.89	437.70	1252.91	Relocated 1 circle		-	-	-
FH1 R1	2802.98	-411.82	1250.61	2805.31	414.43	1254.88	-	-	-	-	-
FH2	2807.70	-286.39	1254.14	2788.42	286.21	1252.42	-	-	-	-	-
RH	4252.92	-310.08	1277.83	4232.57	329.32	1286.77	-	-	-	-	-
RP1	4231.30	-458.53	1246.22	4240.33	478.82	1231.84	71°	10°	18.44	112.8	251.5
RP2	4308.13	-541.94	1094.97	4325.11	540.09	1086.12	Relocated 4 circles		-	-	-
RP2 R4	4299.53	-516.65	1137.67	4270.59	516.26	1153.90	304°	17°	18.37	108.7	248.4
SR1	3042.77	-487.78	1254.34	3031.16	492.54	1258.27	-	-	-	-	-
SR2A	3195.28	-473.40	1267.62	3182.88	477.70	1271.49	-	-	-	-	-
SR2B	3064.81	-484.38	1257.53	3060.12	489.69	1262.33	90°	32°	18.62	274.6	373.6
SR3	3516.53	-469.45	1274.08	3509.99	474.86	1273.65	270°	37°	18.38	326.4	412.6
URAP	3015.78	-373.87	1271.99	3018.22	350.72	1282.74	-	-	-	-	-
URBP	3362.55	-346.19	1335.94	3363.64	341.86	1344.01	270°	42°	23.57	626.8	639.3
URRP	4074.70	-351.40	1307.18	4072.51	350.22	1313.61	90°	50°	23.58	585.8	608.4
URSR	3186.55	-361.16	1319.11	3197.30	338.70	1329.26	-	-	-	-	-

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



**DATA SHEET 2-2**

**GENERAL TEST AND VEHICLE PARAMETER DATA**

<b>TEST VEHICLE INFORMATION:</b>									
Year/Make/Model/Body Style:				2009 Chevrolet Malibu					
VIN:				1G1ZG57B89F127475					
Month & Year of Manufacture:				08/08 (SEE CERTIFICATION LABEL)					
Vehicle Body Color:				White					
Engine Data:	4	Cylinders;	-	CID;	2.4	Liters;	-	cc	
Engine Placement:		X	Longitudinal;	or		-	Lateral		
Transmission:	4	Speed;	-	Manual;	X	Automatic;	-	Overdrive	
Final Drive:	-	Rear Wheel Drive;	X	Front Wheel Drive;	-	Four Wheel Drive			
Odometer Reading:		35	km						
Options:	X	A/C;	X	Power Steering;	X	Pwr.Brakes;	X	Pwr. Windows	
Interior Trim Information :									
1. No grab handles									
2. No sun roof									
3. Adjustable seat belt anchorages on both B-Pillars									

<b>DATA FROM TIRE PLACARD:</b>									
Tire Pressure (at capacity);				210		kPa FRONT			
				210		kPa REAR			
Recommended Tire Size:				P215/55R17					
Tires on Test Vehicle:		P215/55R17		Manufacturer:			Firestone		
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)=				416		kg (A)			
No. of Occupants x 68 kg. =				340		kg (B)			
Rated Cargo/Luggage Weight (RCLW) =				76		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	=	470.5	kg	Left Rear	=	317.0	kg
Right Front	=	469.5	kg	Right Rear	=	303.5	kg
TOTAL FRONT	=	940.0	kg	TOTAL REAR	=	620.5	kg
% of Total Weight	=	60.2%	%	% of Total Weight	=	39.8%	%
TOTAL WEIGHT	=	1560.5				kg	

<b>CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:</b>		
Total Test Vehicle Delivered Weight=	1560.5	kg (A)
+ Rated Cargo/Luggage Weight =	76.0	kg (B)
<b>TEST VEHICLE TARGET WEIGHT =</b>	<b>1636.5</b>	<b>kg (A+B)</b>

<b>WEIGHT OF TEST VEHICLE (FULLY LOADED):</b>							
Left Front	=	472.0	kg	Left Rear	=	354.0	kg
Right Front	=	463.0	kg	Right Rear	=	341.0	kg
TOTAL FRONT	=	935.0	kg	TOTAL REAR	=	695.0	kg
% of Total Weight	=	57.4%	%	% of Total Weight	=	42.6%	%
TOTAL TEST WEIGHT	=	1630.0					
Weight of vehicle secured in test vehicles cargo area	=	69.5				kg	

<b>TEST VEHICLE ATTITUDE (all dimensions in millimeters):</b>				
AS DELIVERED:	Left Front	723	Left Rear	747
	Right Front	725	Right Rear	749
FULLY LOADED:	Left Front	719	Left Rear	732
	Right Front	722	Right Rear	734
Test Vehicle Wheelbase:	2850		millimeters	

<b>TEST VEHICLE PITCH AND ROLL ANGLES:</b>				
AS DELIVERED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↑0.8↓	Front Bumper	0.0
	Right Door Sill	↓0.9↑	Rear Bumper	↓0.3↑
FULLY LOADED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↑0.4↓	Front Bumper	↑0.3↓
	Right Door Sill	↓0.5↑	Rear Bumper	↓0.6↑
AS TESTED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↑0.7↓	Front Bumper	↑0.2↓
	Right Door Sill	↓0.8↑	Rear Bumper	↓0.6↑

DATA SHEET 2-3

APPROACH ANGLE LIMITS

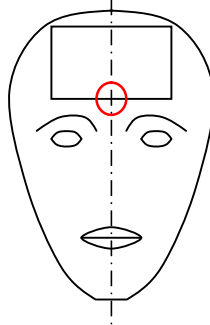
Target Code	Left Side				Target Code	Right Side			
	Horizontal Angles (deg.)		Vertical Angles (deg.)			Horizontal Angles (deg.)		Vertical Angles (deg.)	
	Minimum	Maximum	Minimum	Maximum		Minimum	Maximum	Minimum	Maximum
AP1	207	254	-5	16	AP1	106	153	-5	16
AP2	207	254	-5	47	AP2	106	153	-5	47
AP3	207	254	-5	46	AP3	106	153	-5	46
BP1	203	280	-10	26	BP1	80	157	-10	26
BP2	ANY		0	10	BP2	ANY		0	10
BP3	203	280	-10	-10	BP3	80	157	-10	-10
BP4	203	280	-10	-10	BP4	80	157	-10	-10
RP1	270	345	-10	10	RP1	15	90	-10	10
RP2	270	345	-10	17	RP2	15	90	-10	17
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	35	SR1	90		0	35
SR2A	270		0	35	SR2A	90		0	35
SR2B	270		0	32	SR2B	90		0	32
SR3	270		0	37	SR3	90		0	37
URAP	ANY		0	50	URAP	ANY		0	50
URBP	ANY		0	42	URBP	ANY		0	42
URSR	ANY		0	47	URSR	ANY		0	47
URRP	ANY		0	50	URRP	ANY		0	50

Note : BP2 target location – Seat belt anchorage

**DATA SHEET 2-4**

**SUMMARY TARGET IMPACT LOCATION ON FMH**

VEHICLE YEAR/MAKE/MODEL/STYLE:	2009 Chevrolet Malibu
VIN:	1G1ZG57B89F127475
DATE OF MANUFACTURE:	08/08(SEE CERTIFICATION LABEL)
COLOR:	White



ã RIGHT SIDE OF FACE

TARGET	Distance Above Point 0 (mm)	Distance Over From Pt. O (mm)
RP1	30	10L
URRP	39	10R
BP4	24	8L
BP1	34	0
SR2B	17	0
AP3	14	2R
AP1	10	25R
RP2	15	0
SR3	11	7L
BP2	13	5L
URBP	47	3L
AP2	10	2L

**SECTION 3**

**SUMMARY OF TEST RESULTS AND DATA PLOTS**

VEHICLE YEAR/MAKE/MODEL/STYLE:	2009 Chevrolet Malibu
VIN:	1G1ZG57B89F127475
DATE OF MANUFACTURE:	08/08(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	01
Test Date:	12/18/08
Target Location:	REAR PILLAR
Target Code:	RP1
Horizontal Impact Angle:	71°
Vertical Impact Angle:	10°
Ambient Temperature:	20°C
Relative Humidity:	23
Time of Impact:	10:15
Headform Number:	1140

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	30				mm up



POST-IMPACT RP1 HEADFORM

Free Motion HIC	112.8
HIC(d)	251.5
Impact Velocity (kph)	18.44
HIC T1 (msec)	5.6
HIC T2 (msec)	23.6

# FMVSS 201U 09 Chevy Malibu C90102 - RP1

FMH Headform 1140

Location: RP1

Test Date: December 18, 2008

Work File: RP1

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

Lab Temperature: 20 C

HICd: 251.5

Lab Humidity: 23 %

HIC (36ms): 112.8

Velocity at Impact: 18.44 KPH

t1: 5.6 msec

t2: 23.6 msec

Free Flight Distance: 215.54 mm

Duration: 17.9 msec

Average Acceleration: 6.9 g

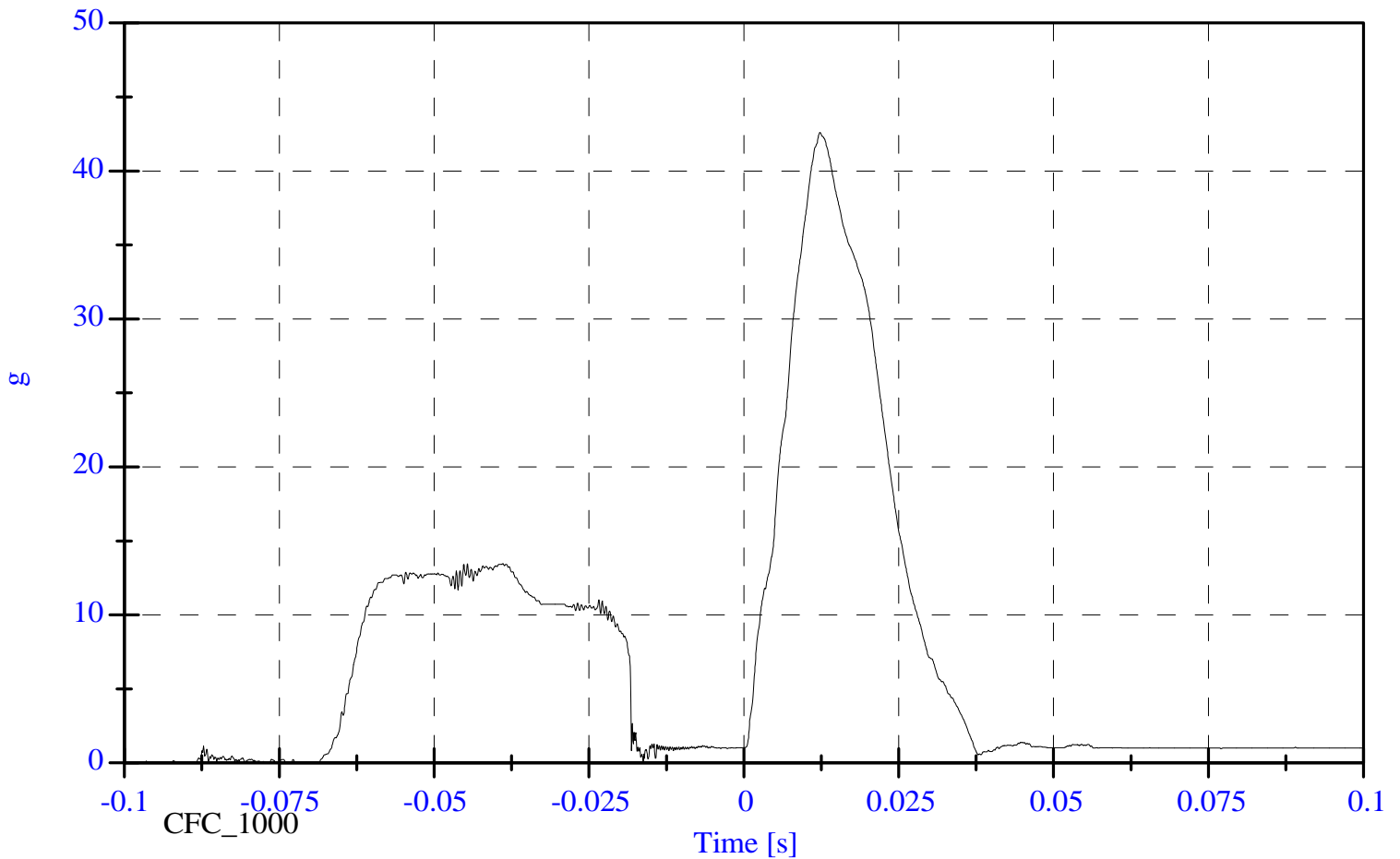
Maximum: 42.6 g

FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 42.6 [g] at 0.012 [s]

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



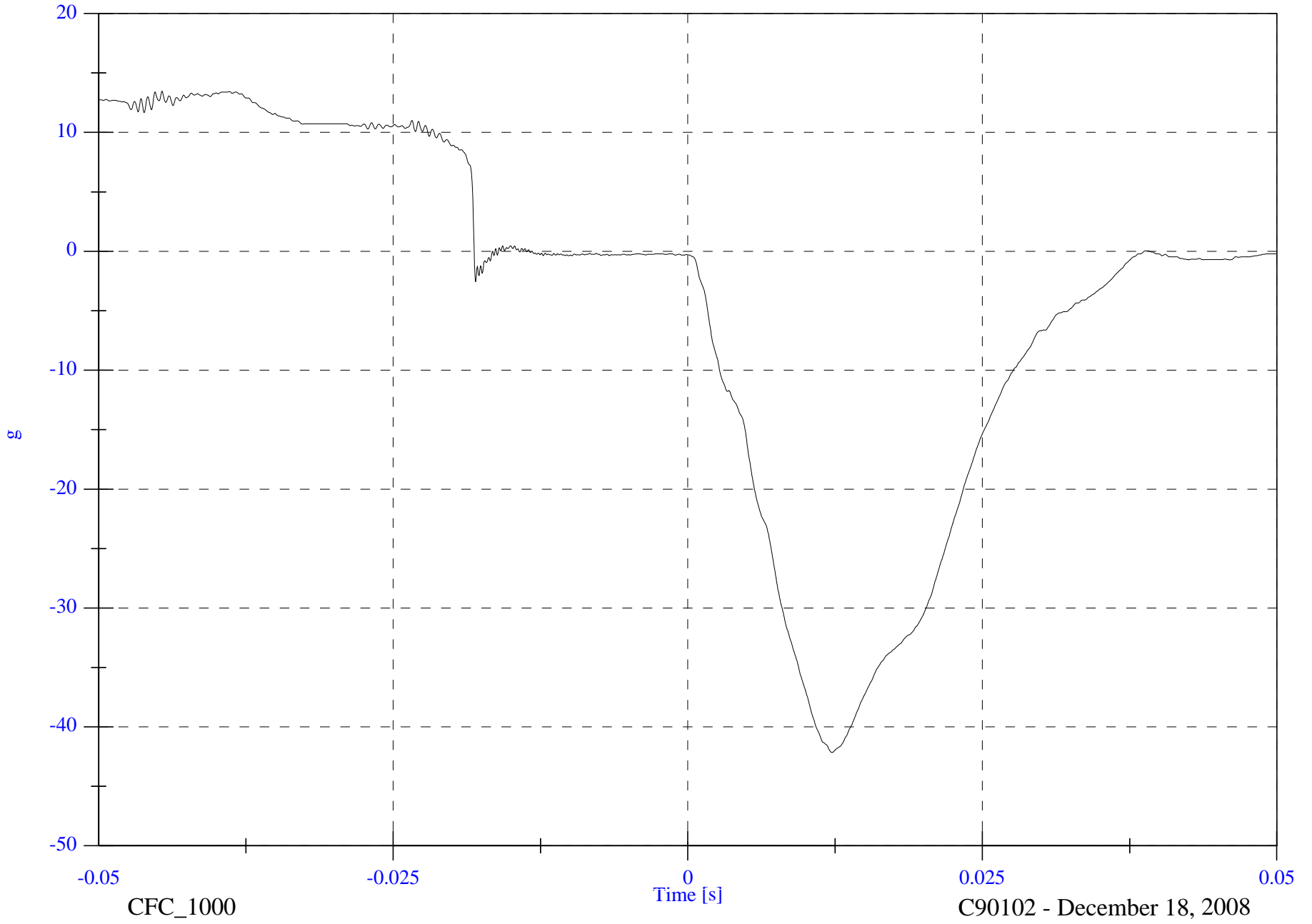
FMVSS 201U 09 Chevy Malibu

Headform X Acceleration

Max: 13.5 [g] at -0.045 [s]

Min: -42.2 [g] at 0.012 [s]

C90102 DRIVER SIDE RP1 IMPACT PLOT #1



CFC\_1000

C90102 - December 18, 2008



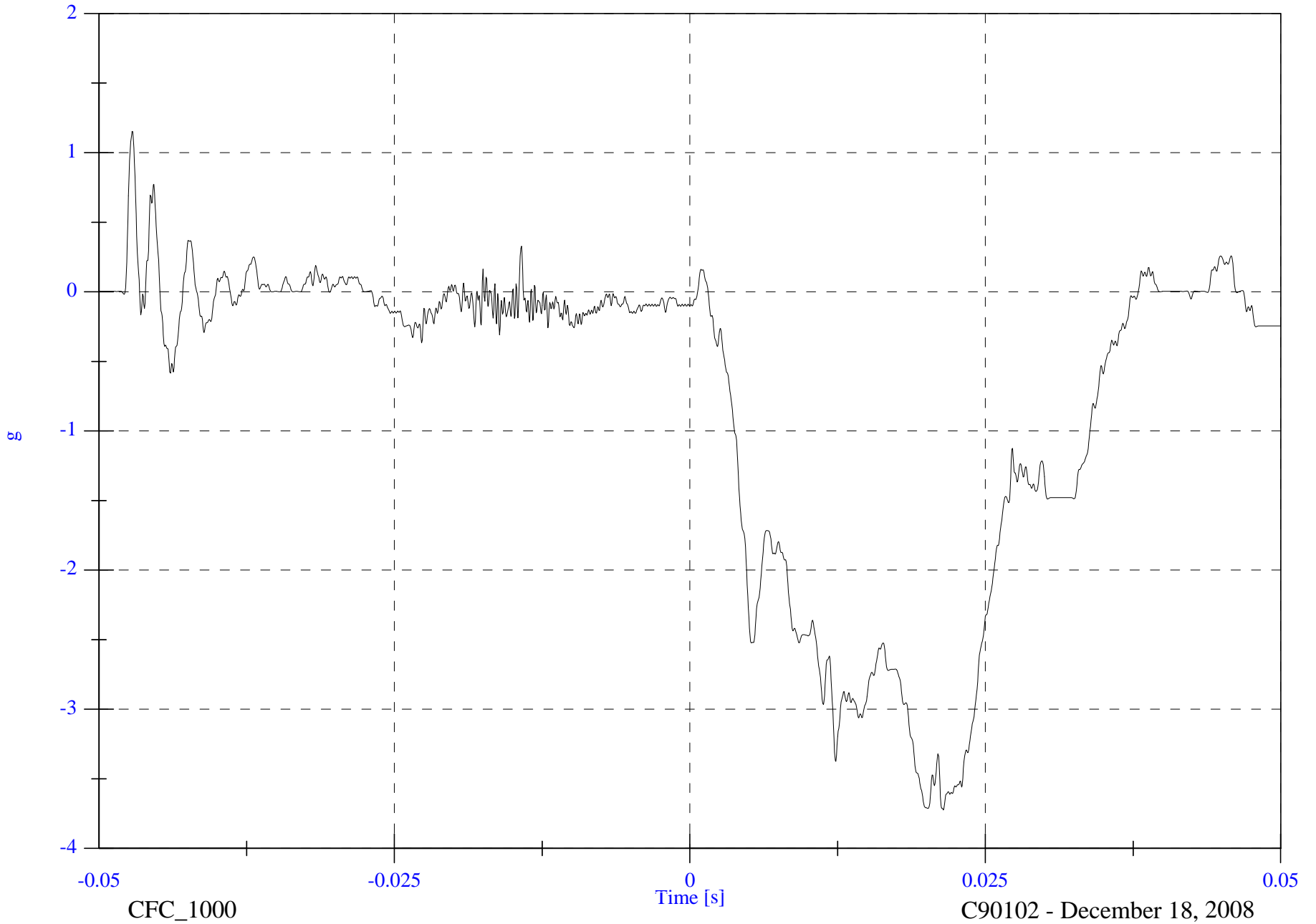
FMVSS 201U 09 Chevy Malibu

Headform Y Acceleration

Max: 1.2 [g] at -0.047 [s]

Min: -3.7 [g] at 0.021 [s]

C90102 DRIVER SIDE RP1 IMPACT PLOT #2



CFC\_1000

C90102 - December 18, 2008

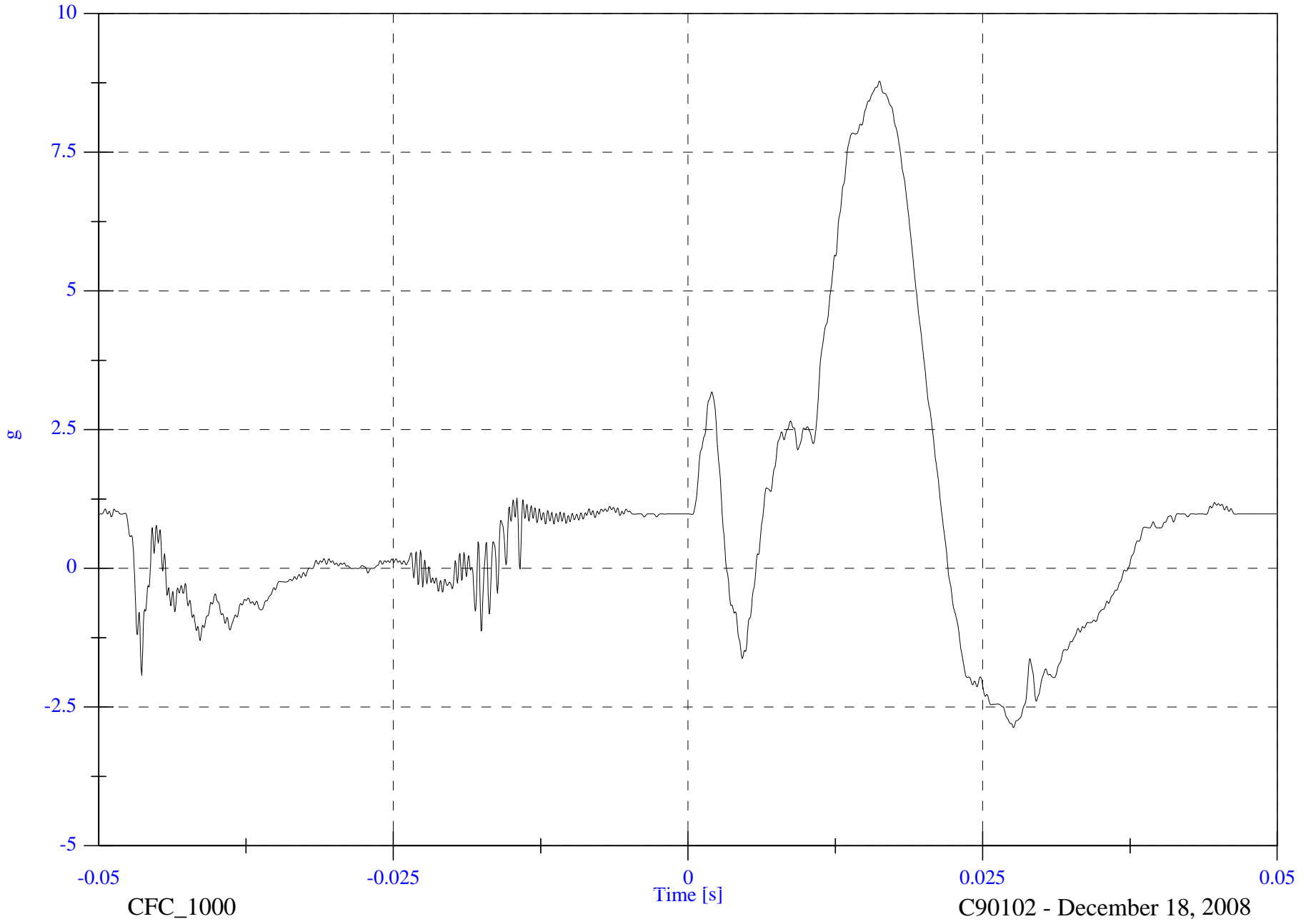
FMVSS 201U 09 Chevy Malibu

Headform Z Acceleration

Max: 8.8 [g] at 0.016 [s]

Min: -2.9 [g] at 0.028 [s]

C90102 DRIVER SIDE RP1 IMPACT PLOT #3



CFC\_1000

C90102 - December 18, 2008

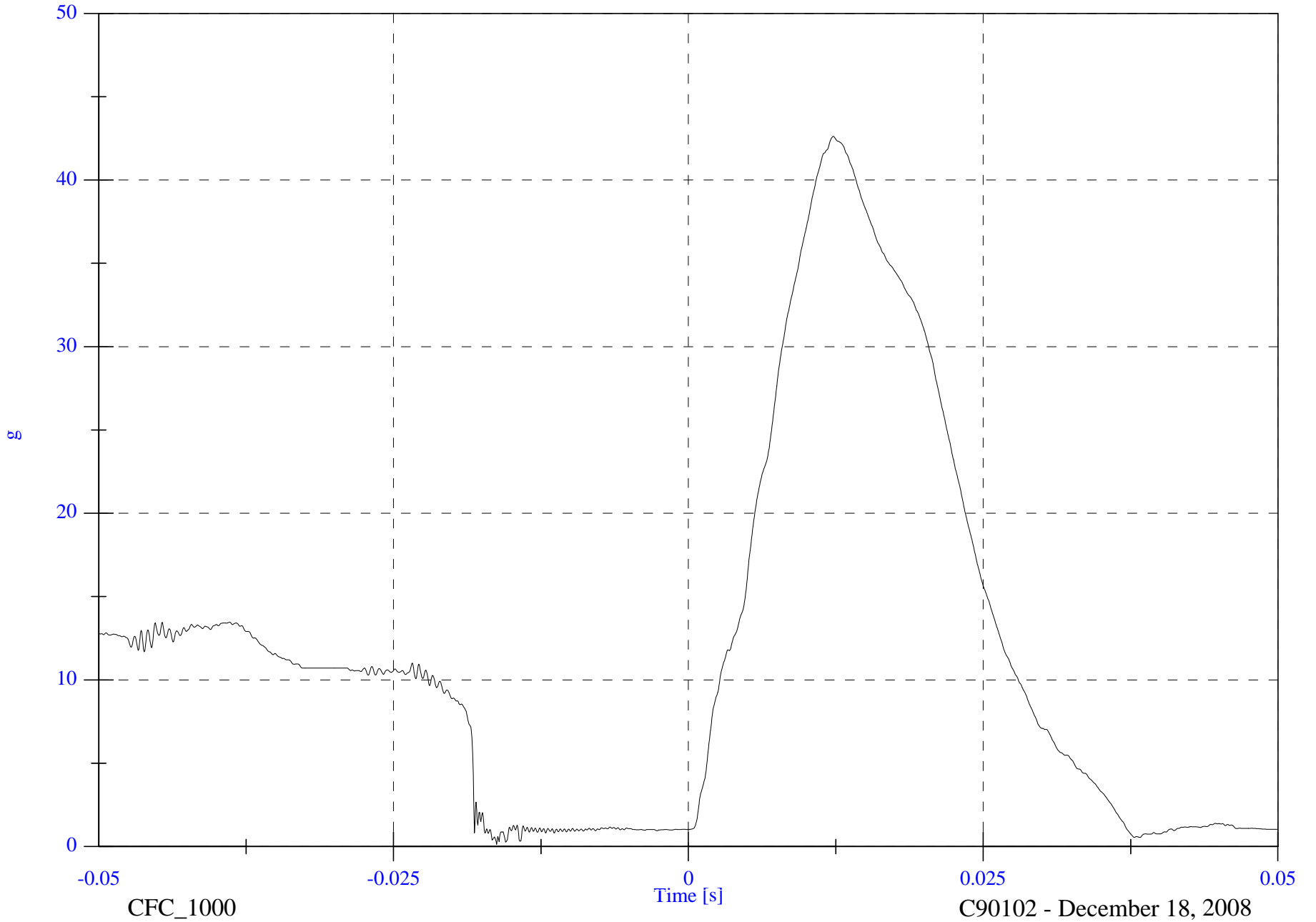
FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 42.6 [g] at 0.012 [s]

Min: 0.1 [g] at -0.016 [s]

C90102 DRIVER SIDE RP1 IMPACT PLOT #4



CFC\_1000

C90102 - December 18, 2008

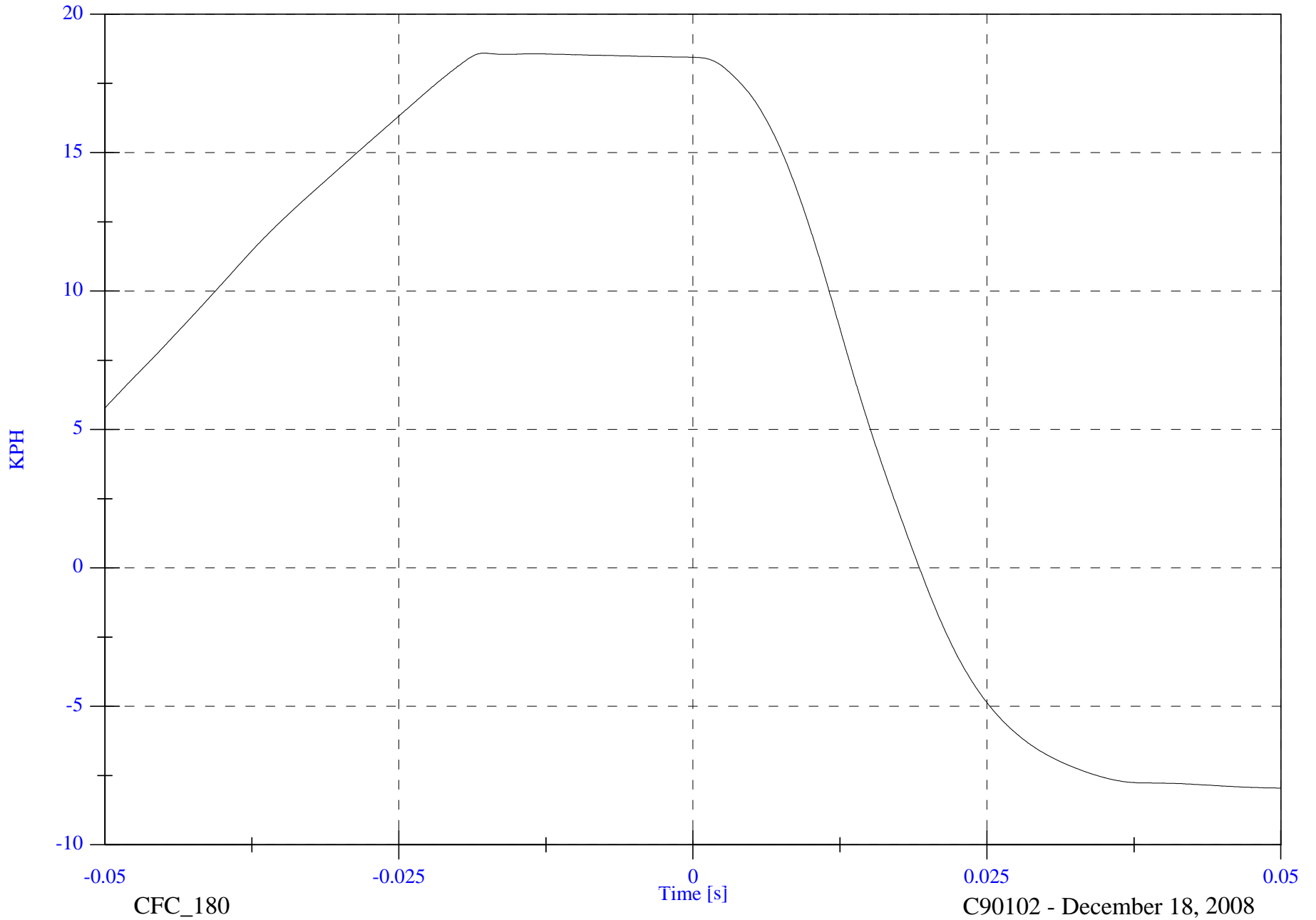
FMVSS 201U 09 Chevy Malibu

### Headform Velocity

Max: 18.6 [KPH] at -0.018 [s]

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

C90102 DRIVER SIDE RP1 IMPACT PLOT #5



CFC\_180

C90102 - December 18, 2008



PRE-IMPACT RPI

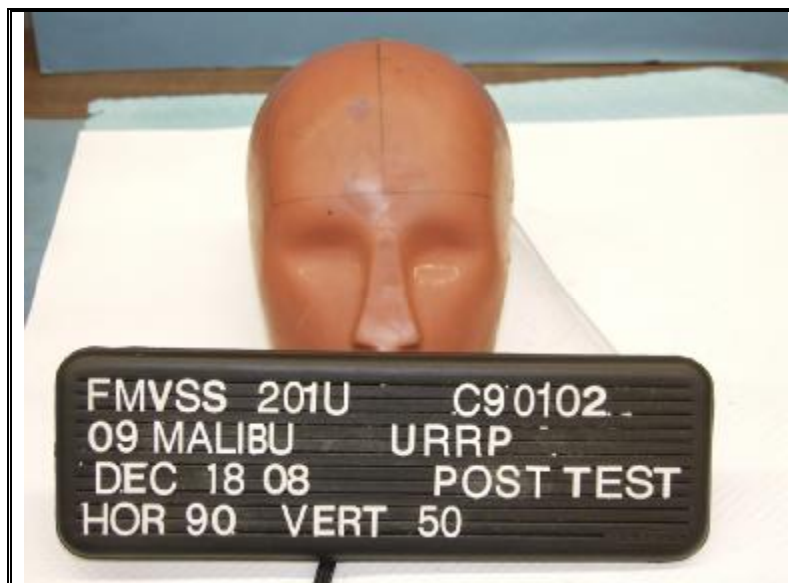


POST-IMPACT RPI

VEHICLE YEAR/MAKE/MODEL/STYLE:	2009 Chevrolet Malibu
VIN:	1G1ZG57B89F127475
DATE OF MANUFACTURE:	08/08(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	02
Test Date:	12/18/08
Target Location:	UPPER ROOF
Target Code:	URRP
Horizontal Impact Angle:	90°
Vertical Impact Angle:	50°
Ambient Temperature:	20°C
Relative Humidity:	23
Time of Impact:	10:55
Headform Number:	0355

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	10	<input checked="" type="checkbox"/>	mm right	<input type="checkbox"/>	mm left
On Centerline	39				mm up



POST-IMPACT URRP HEADFORM

Free Motion HIC	585.8
HIC(d)	608.4
Impact Velocity (kph)	23.58
HIC T1 (msec)	5.8
HIC T2 (msec)	13.6

# FMVSS 201U 09 Chevy Malibu C90102 - URRP

FMH Headform 0355

Location: URRP

Test Date: December 18, 2008

Work File: URRP

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

Lab Temperature: 20 C

HICd: 608.4

Lab Humidity: 23 %

HIC (36ms): 585.8

Velocity at Impact: 23.58 KPH

t1: 5.8 msec

t2: 13.6 msec

Free Flight Distance: 224.53 mm

Duration: 7.8 msec

Average Acceleration: 11.1 g

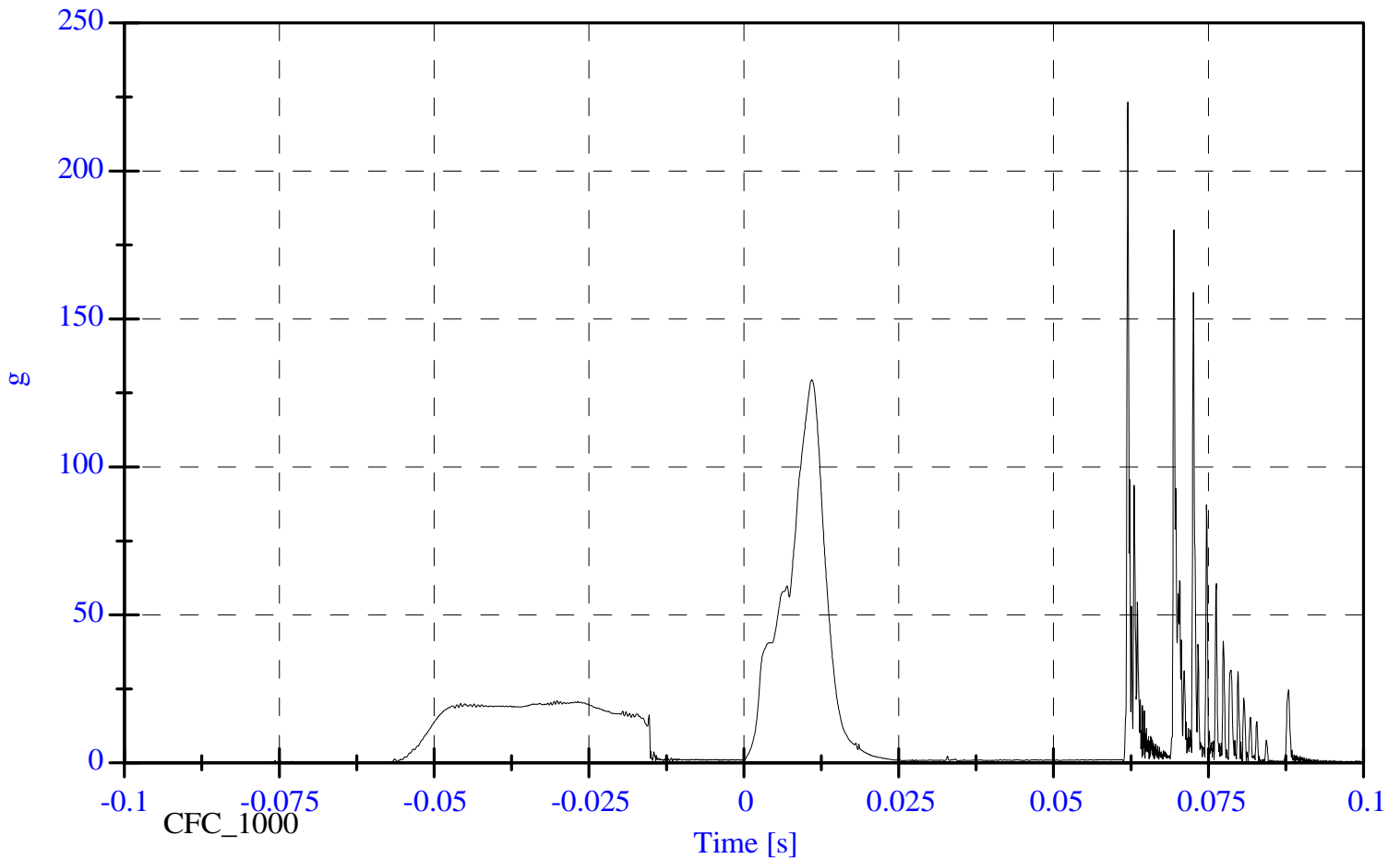
Maximum: 129.4 g

FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 129.4 [g] at 0.011 [s]

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





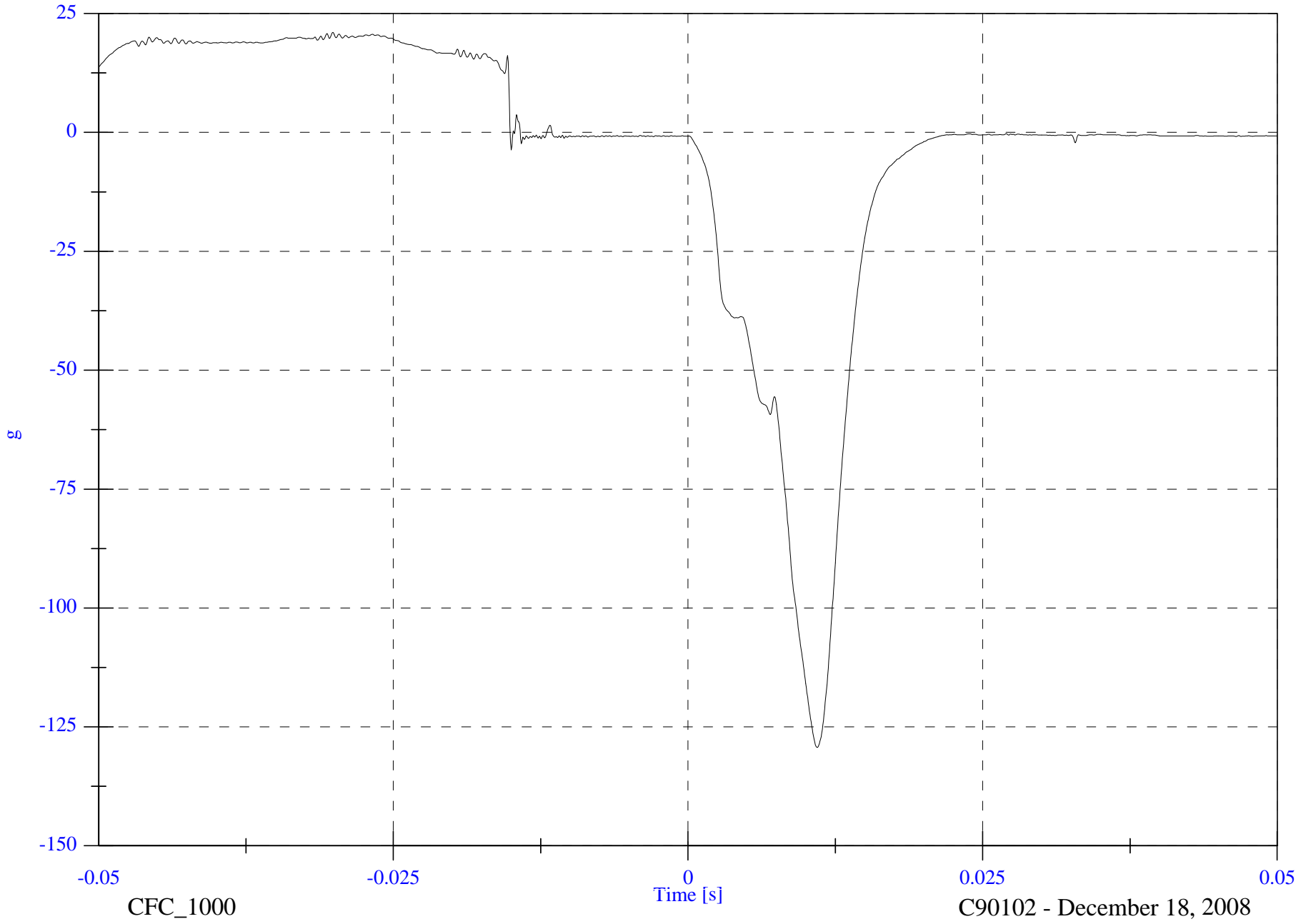
FMVSS 201U 09 Chevy Malibu

Headform X Acceleration

Max: 21.0 [g] at -0.030 [s]

Min: -129.3 [g] at 0.011 [s]

C90102 PASSENGER SIDE URRP IMPACT PLOT #1



CFC\_1000

C90102 - December 18, 2008

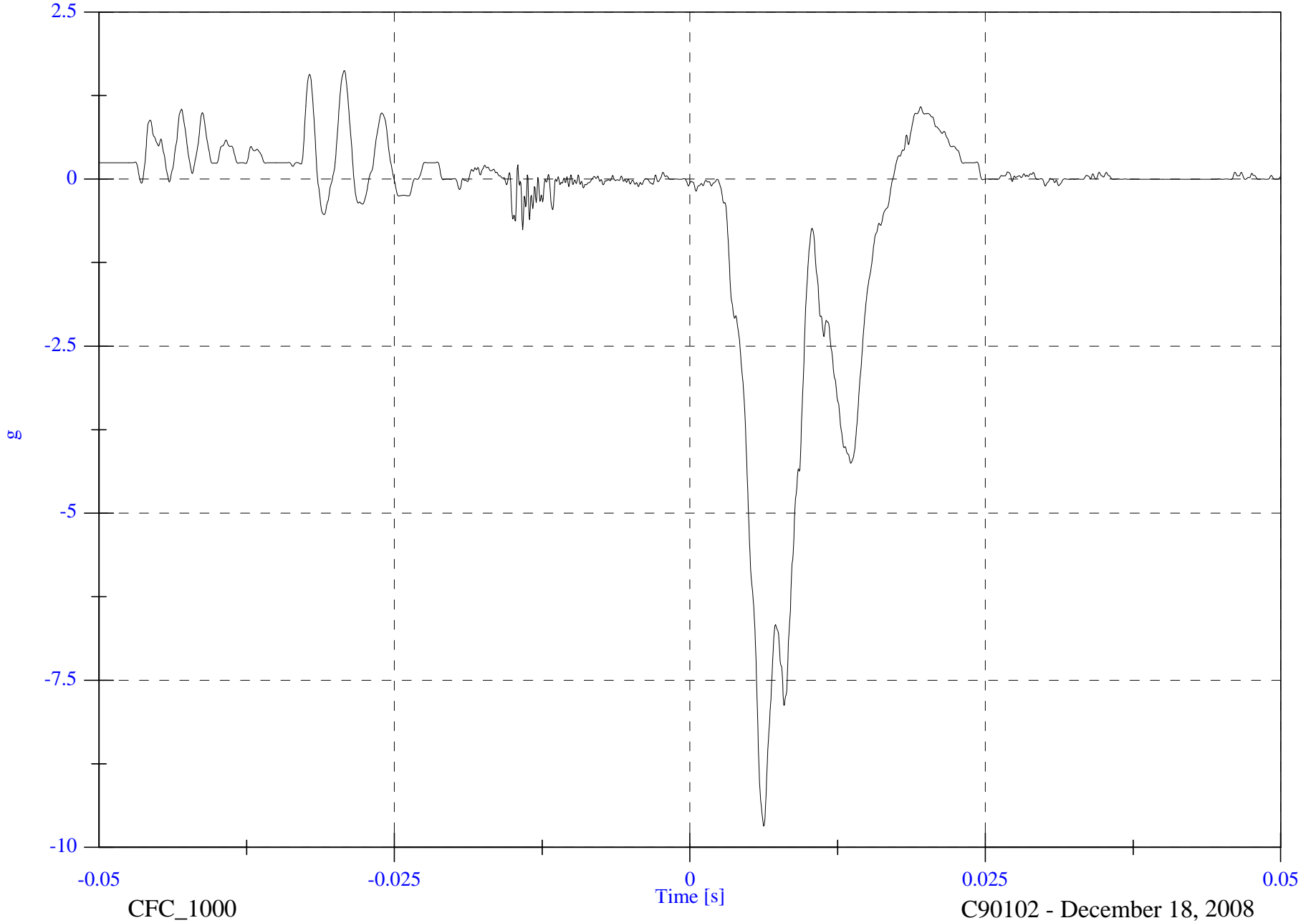
FMVSS 201U 09 Chevy Malibu

Headform Y Acceleration

Max: 1.6 [g] at -0.029 [s]

Min: -9.7 [g] at 0.006 [s]

C90102 PASSENGER SIDE URRP IMPACT PLOT #2



CFC\_1000

C90102 - December 18, 2008

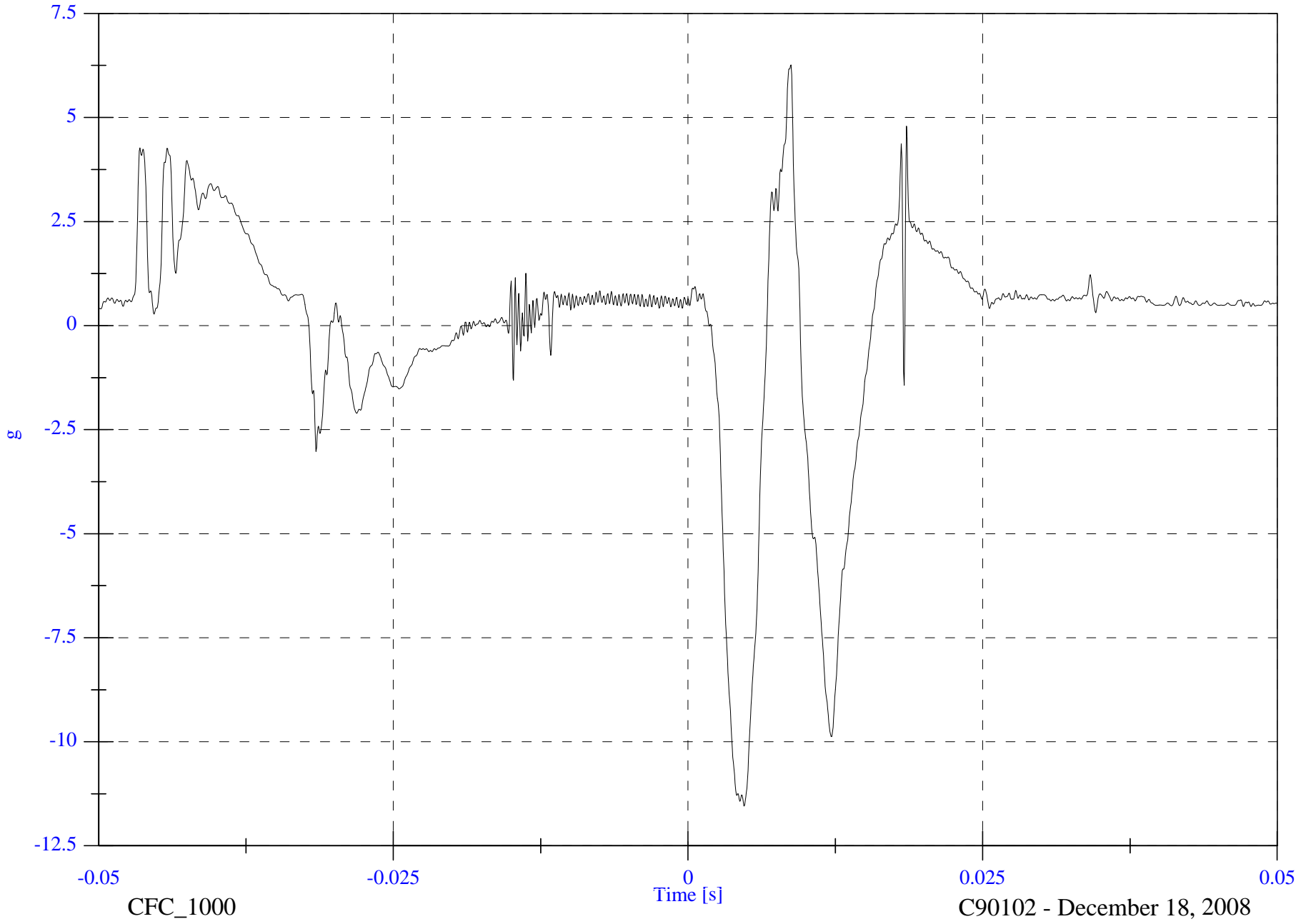
FMVSS 201U 09 Chevy Malibu

Headform Z Acceleration

Max: 6.3 [g] at 0.009 [s]

Min: -11.5 [g] at 0.005 [s]

C90102 PASSENGER SIDE URRP IMPACT PLOT #3



CFC\_1000

C90102 - December 18, 2008

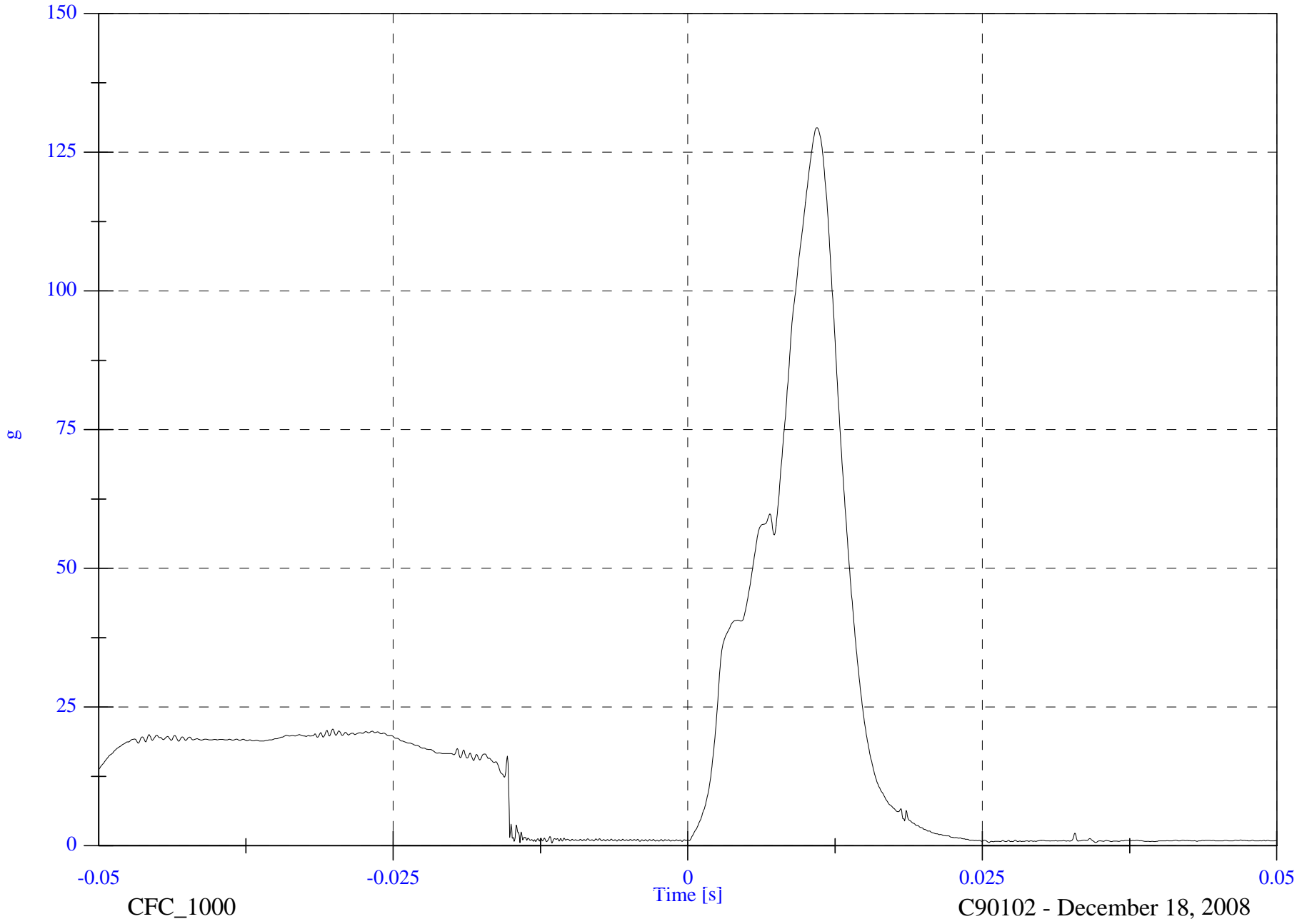
FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 129.4 [g] at 0.011 [s]

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

C90102 PASSENGER SIDE URRP IMPACT PLOT #4



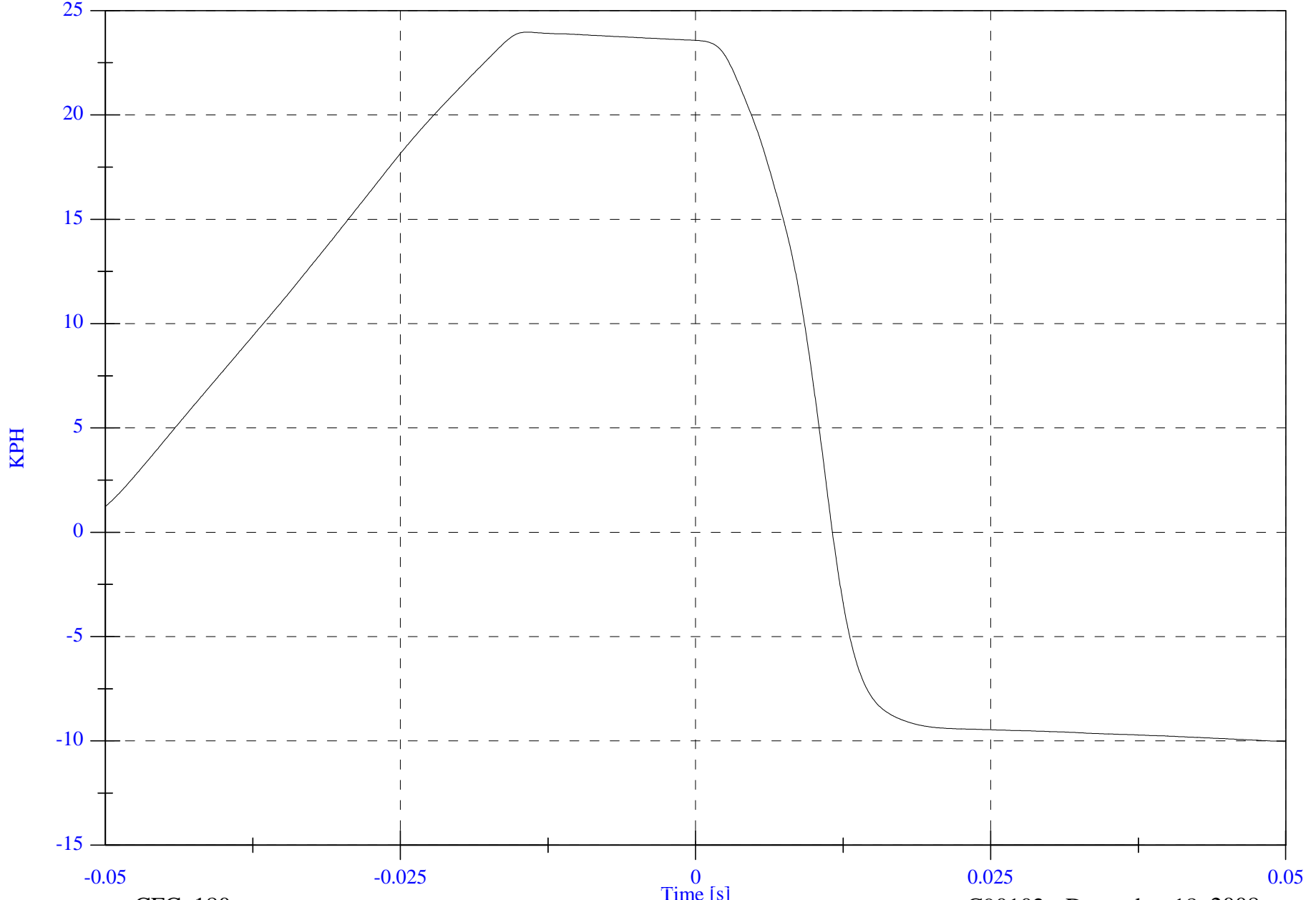
FMVSS 201U 09 Chevy Malibu

### Headform Velocity

Max: 24.0 [KPH] at -0.014 [s]

Min: -10.0 [KPH] at 0.050 [s]

C90102 PASSENGER SIDE URRP IMPACT PLOT #5



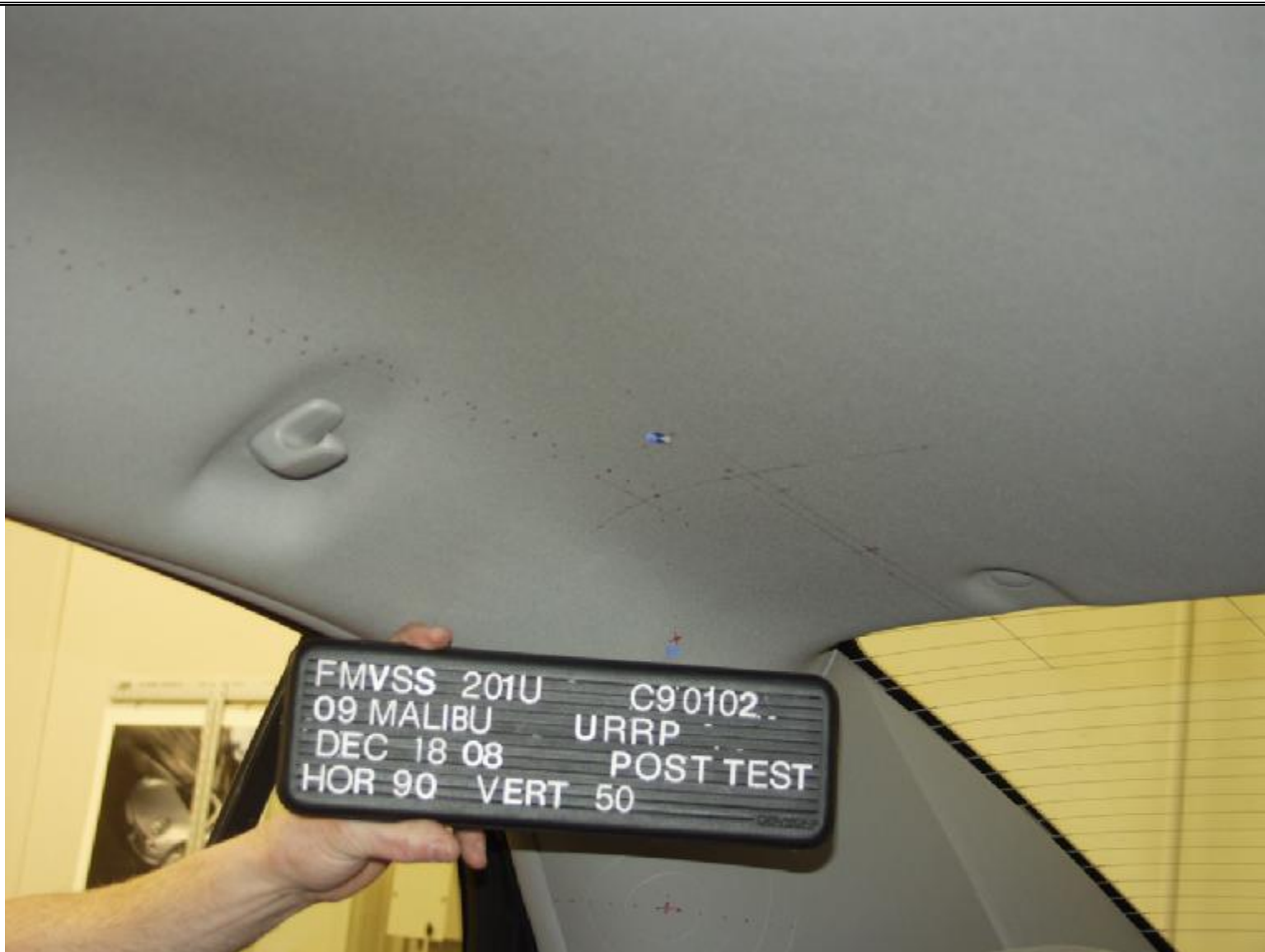
CFC\_180

Time [s]

C90102 - December 18, 2008



PRE-IMPACT URRP

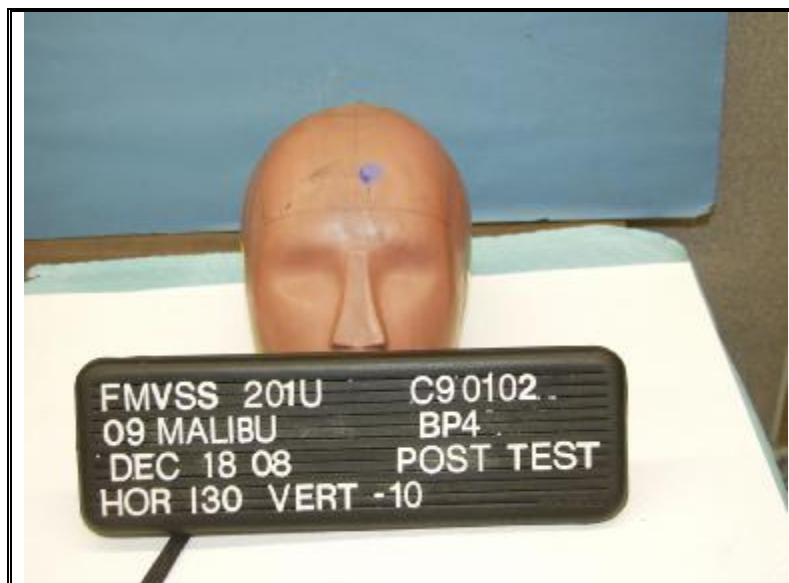


POST-IMPACT URRP

VEHICLE YEAR/MAKE/MODEL/STYLE:	2009 Chevrolet Malibu
VIN:	1G1ZG57B89F127475
DATE OF MANUFACTURE:	08/08(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	03
Test Date:	12/18/08
Target Location:	B-PILLAR
Target Code:	BP4
Horizontal Impact Angle:	130°
Vertical Impact Angle:	-10°
Ambient Temperature:	20°C
Relative Humidity:	23
Time of Impact:	11:30
Headform Number:	0805

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	8	<input type="checkbox"/>	mm right	<input checked="" type="checkbox"/>	mm left
On Centerline	24				mm up



POST-IMPACT BP4 HEADFORM

Free Motion HIC	602.4
HIC(d)	620.9
Impact Velocity (kph)	23.62
HIC T1 (msec)	3.2
HIC T2 (msec)	8.5



# FMVSS 201U 09 Chevy Malibu C90102 - BP4

FMH Headform 805

Location: BP4

Test Date: December 18, 2008

Work File: BP4

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

Lab Temperature: 20 C

HICd: 620.9

Lab Humidity: 23 %

HIC (36ms): 602.4

Velocity at Impact: 23.62 KPH

t1: 3.2 msec

t2: 8.5 msec

Free Flight Distance: 222.22 mm

Duration: 5.3 msec

Average Acceleration: 8.8 g

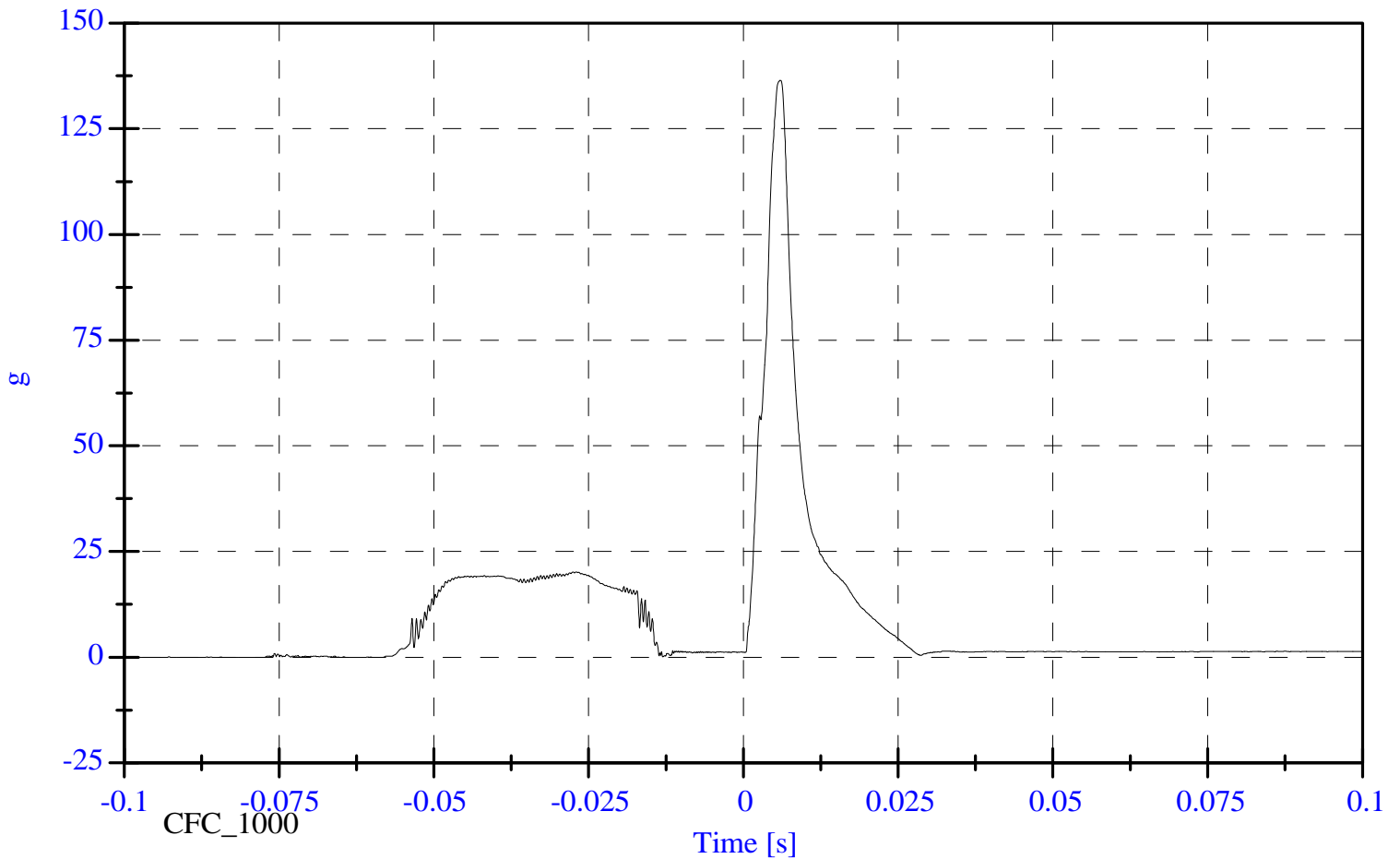
Maximum: 136.5 g

FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 136.5 [g] at 0.006 [s]

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



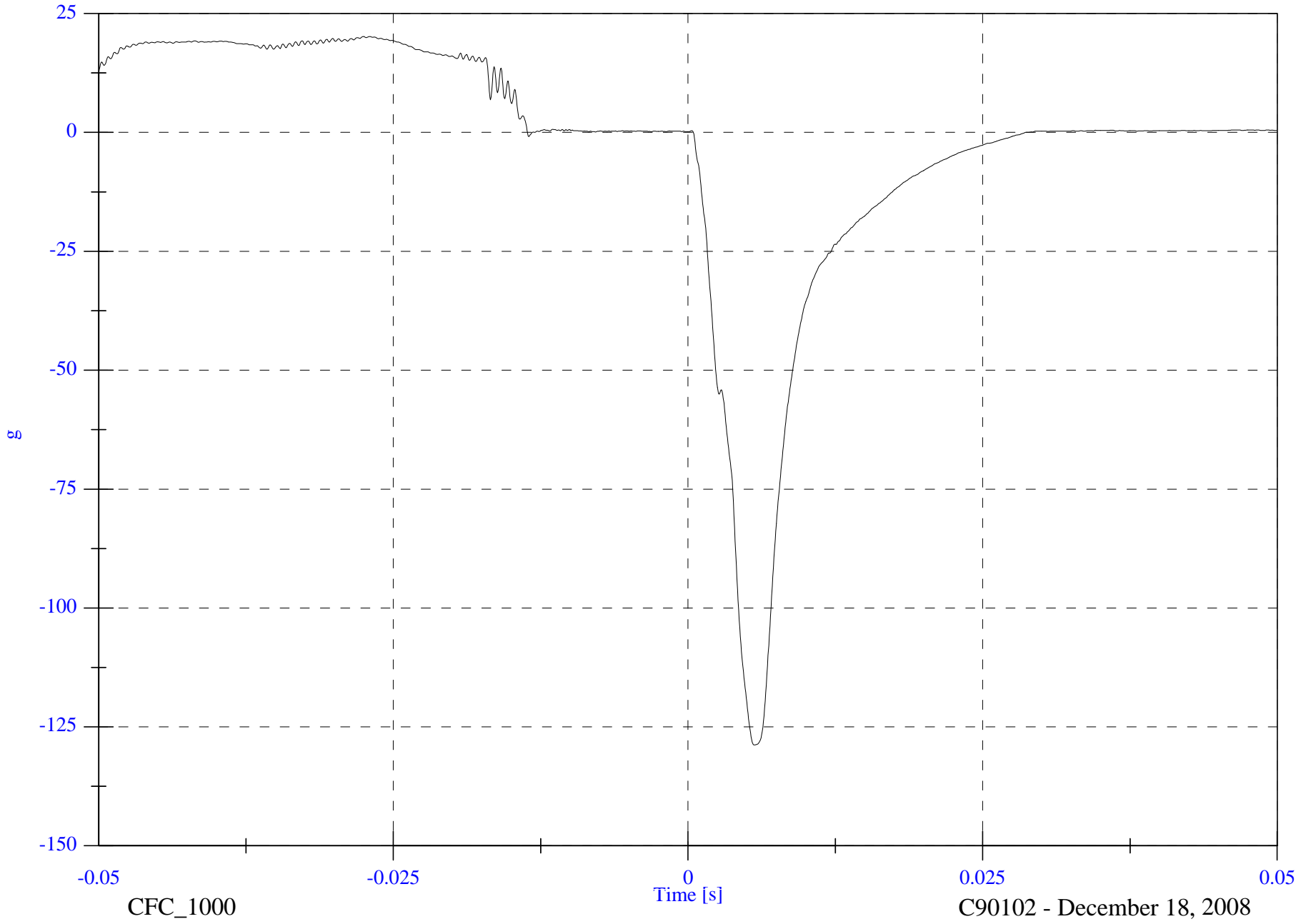
FMVSS 201U 09 Chevy Malibu

Headform X Acceleration

Max: 20.2 [g] at -0.028 [s]

Min: -128.8 [g] at 0.006 [s]

C90102 PASSENGER SIDE BP4 IMPACT PLOT #1



CFC\_1000

C90102 - December 18, 2008

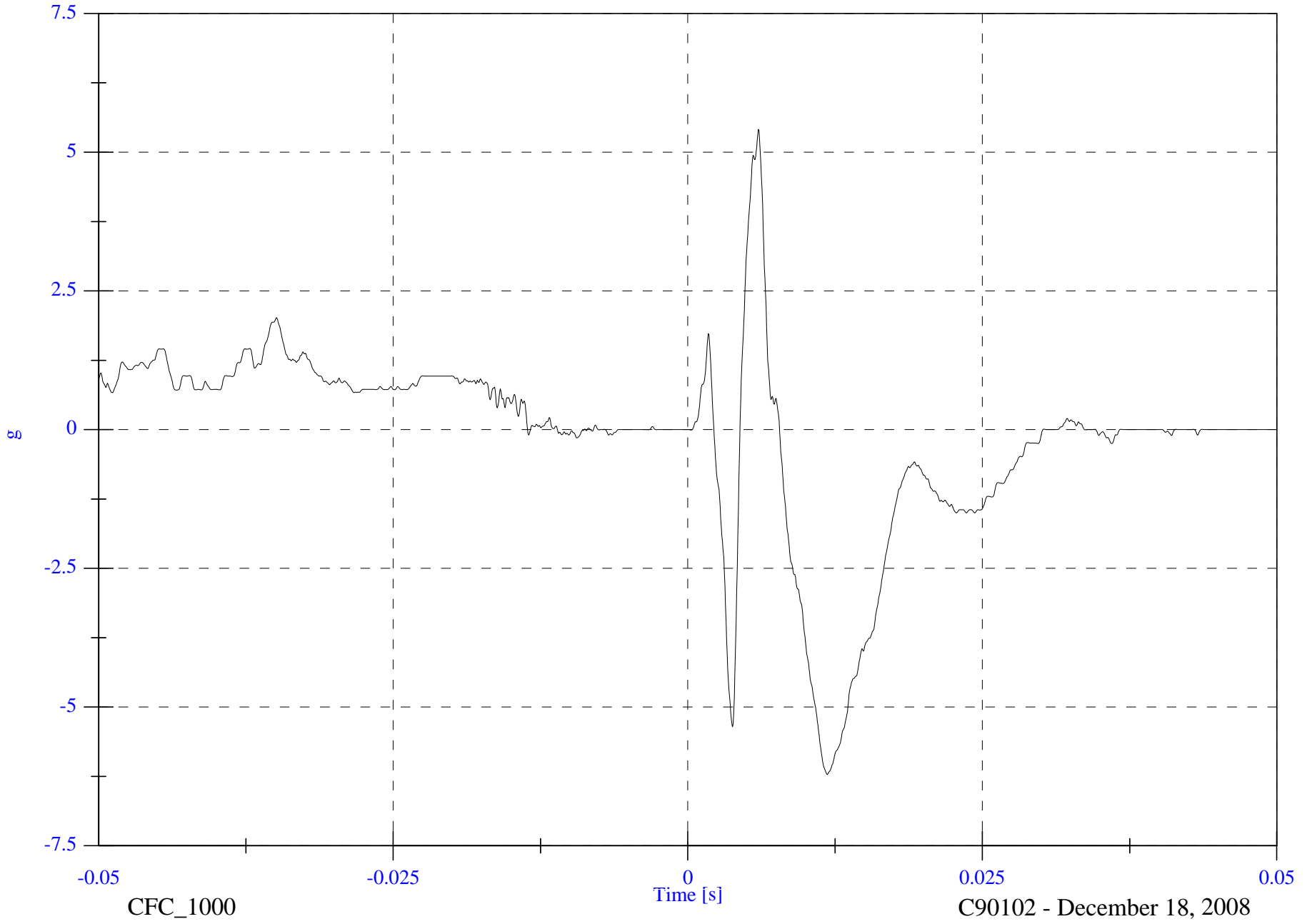
FMVSS 201U 09 Chevy Malibu

Headform Y Acceleration

Max: 5.4 [g] at 0.006 [s]

Min: -6.2 [g] at 0.012 [s]

C90102 PASSENGER SIDE BP4 IMPACT PLOT #2



CFC\_1000

C90102 - December 18, 2008

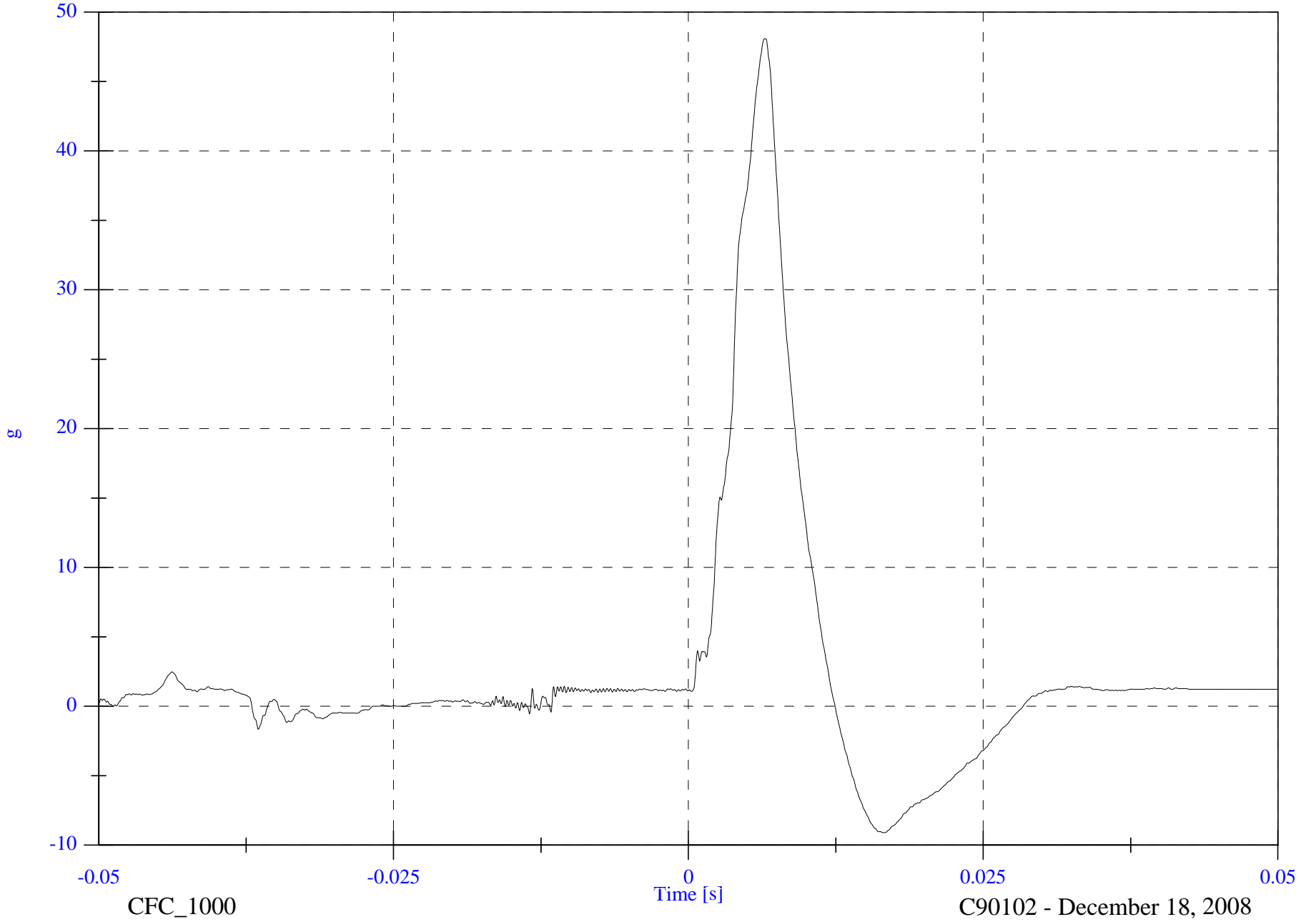
FMVSS 201U 09 Chevy Malibu

Headform Z Acceleration

Max: 48.1 [g] at 0.007 [s]

Min: -9.1 [g] at 0.017 [s]

C90102 PASSENGER SIDE BP4 IMPACT PLOT #3



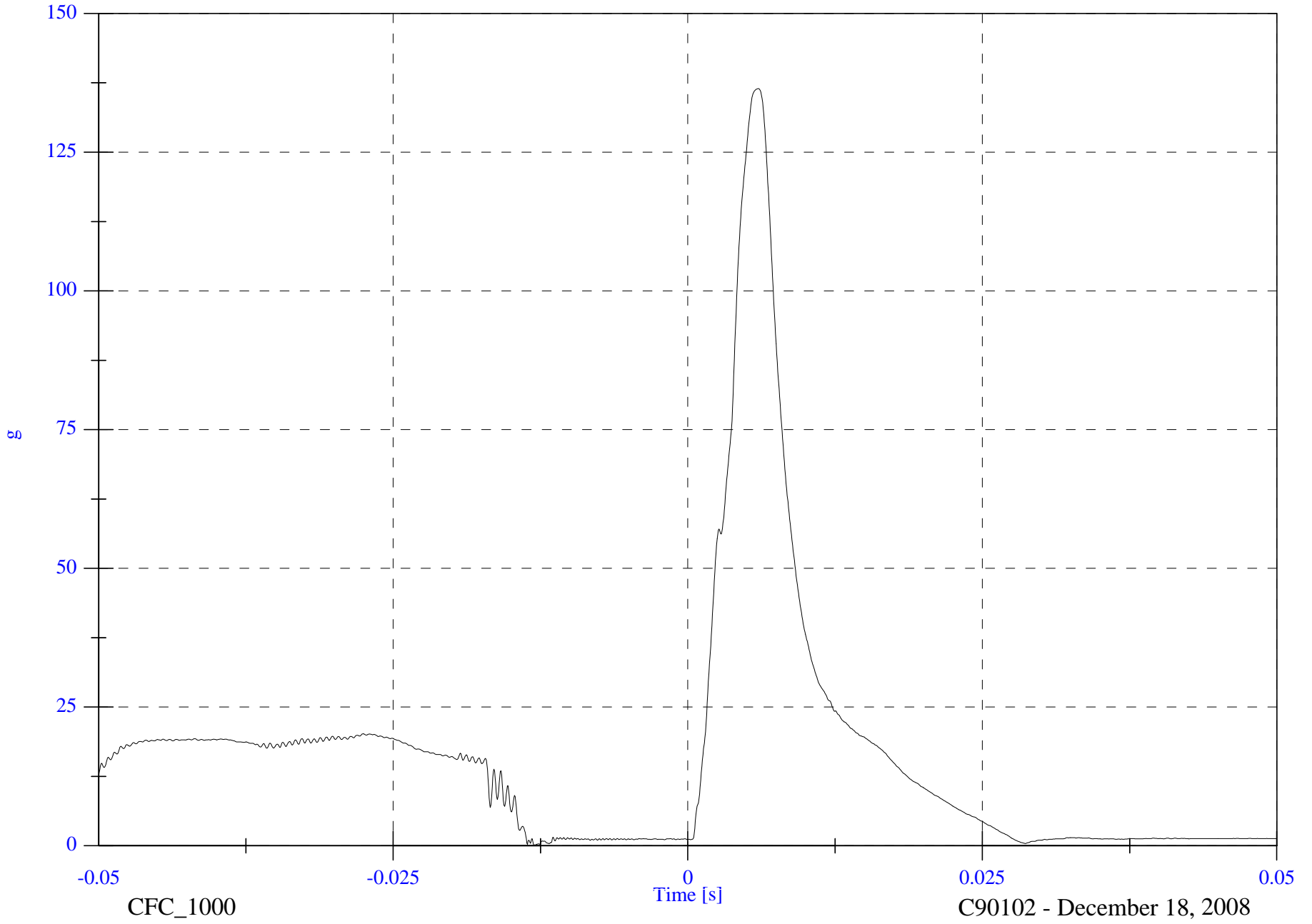
FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 136.5 [g] at 0.006 [s]

Min: 0.1 [g] at -0.013 [s]

C90102 PASSENGER SIDE BP4 IMPACT PLOT #4



CFC\_1000

C90102 - December 18, 2008

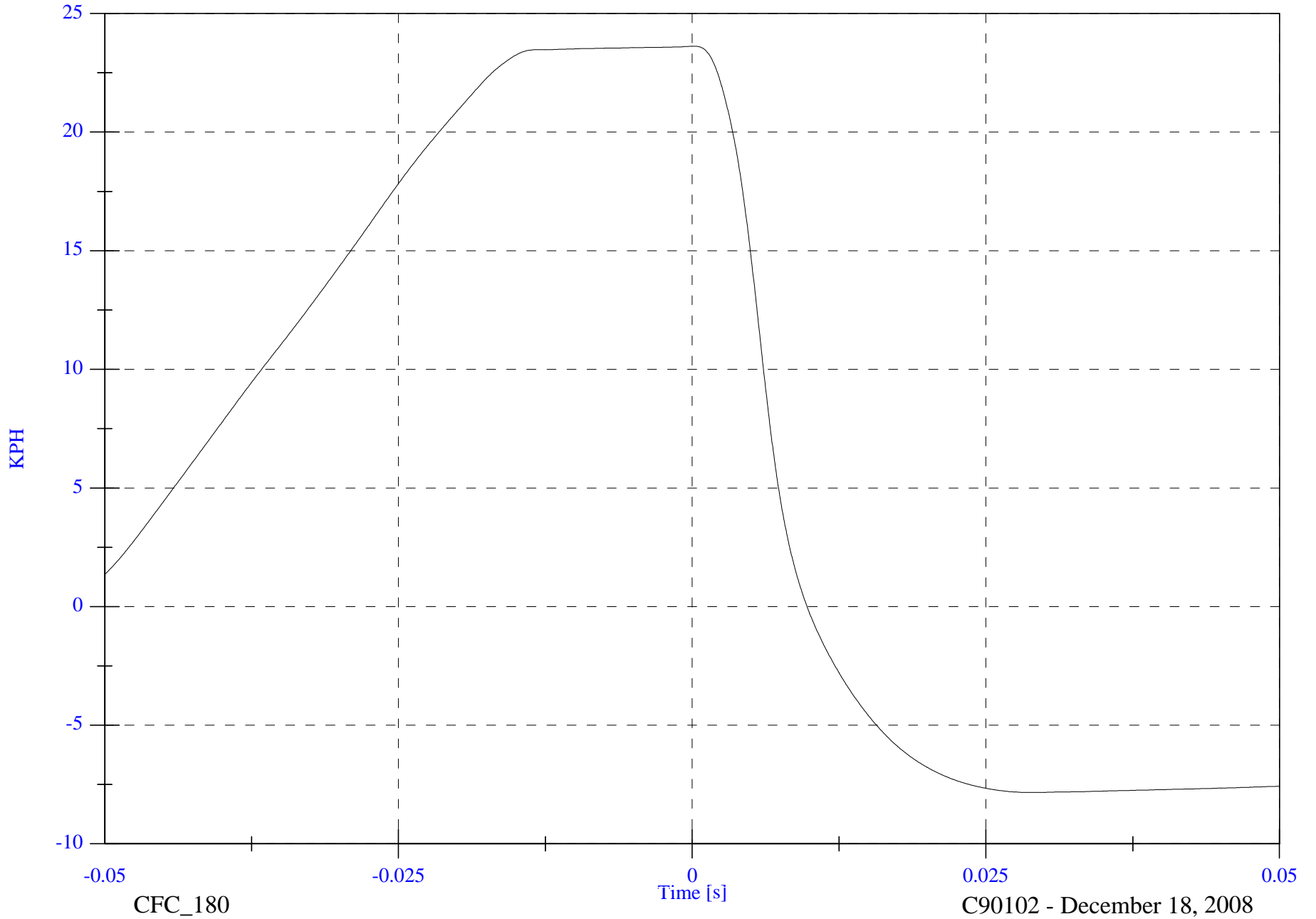
FMVSS 201U 09 Chevy Malibu

### Headform Velocity

Max: 23.6 [KPH] at 0.000 [s]

Min: -7.8 [KPH] at 0.029 [s]

C90102 PASSENGER SIDE BP4 IMPACT PLOT #5



CFC\_180

C90102 - December 18, 2008



PRE-IMPACT BP4



POST-IMPACT BP4



VEHICLE YEAR/MAKE/MODEL/STYLE:	2009 Chevrolet Malibu
VIN:	1G1ZG57B89F127475
DATE OF MANUFACTURE:	08/08(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	04
Test Date:	12/18/08
Target Location:	B-PILLAR
Target Code:	BP1
Horizontal Impact Angle:	90°
Vertical Impact Angle:	26°
Ambient Temperature:	20°C
Relative Humidity:	23
Time of Impact:	13:15
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	34				mm up



POST-IMPACT BP1 HEADFORM

Free Motion HIC	532.0
HIC(d)	567.8
Impact Velocity (kph)	18.8
HIC T1 (msec)	5.1
HIC T2 (msec)	11.8

# FMVSS 201U 09 Chevy Malibu C90102 - BP1

FMH Headform 1142

Location: BP1

Test Date: December 18, 2008

Work File: BP1

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

Lab Temperature: 20 C

HICd: 567.8

Lab Humidity: 23 %

HIC (36ms): 532.0

Velocity at Impact: 18.80 KPH

t1: 5.1 msec

t2: 11.8 msec

Free Flight Distance: 223.81 mm

Duration: 6.7 msec

Average Acceleration: 10.2 g

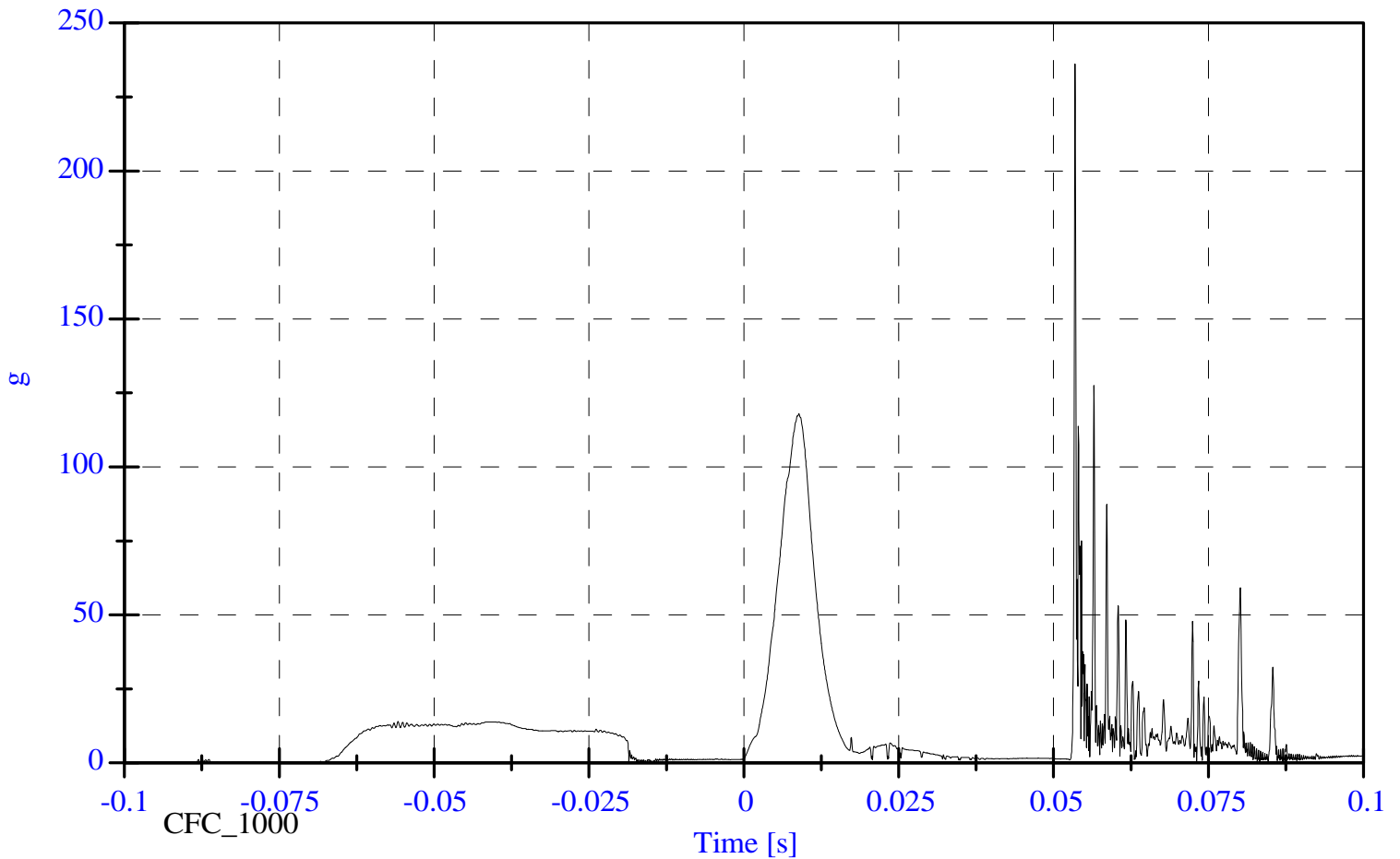
Maximum: 118.0 g

FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 118.0 [g] at 0.009 [s]

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



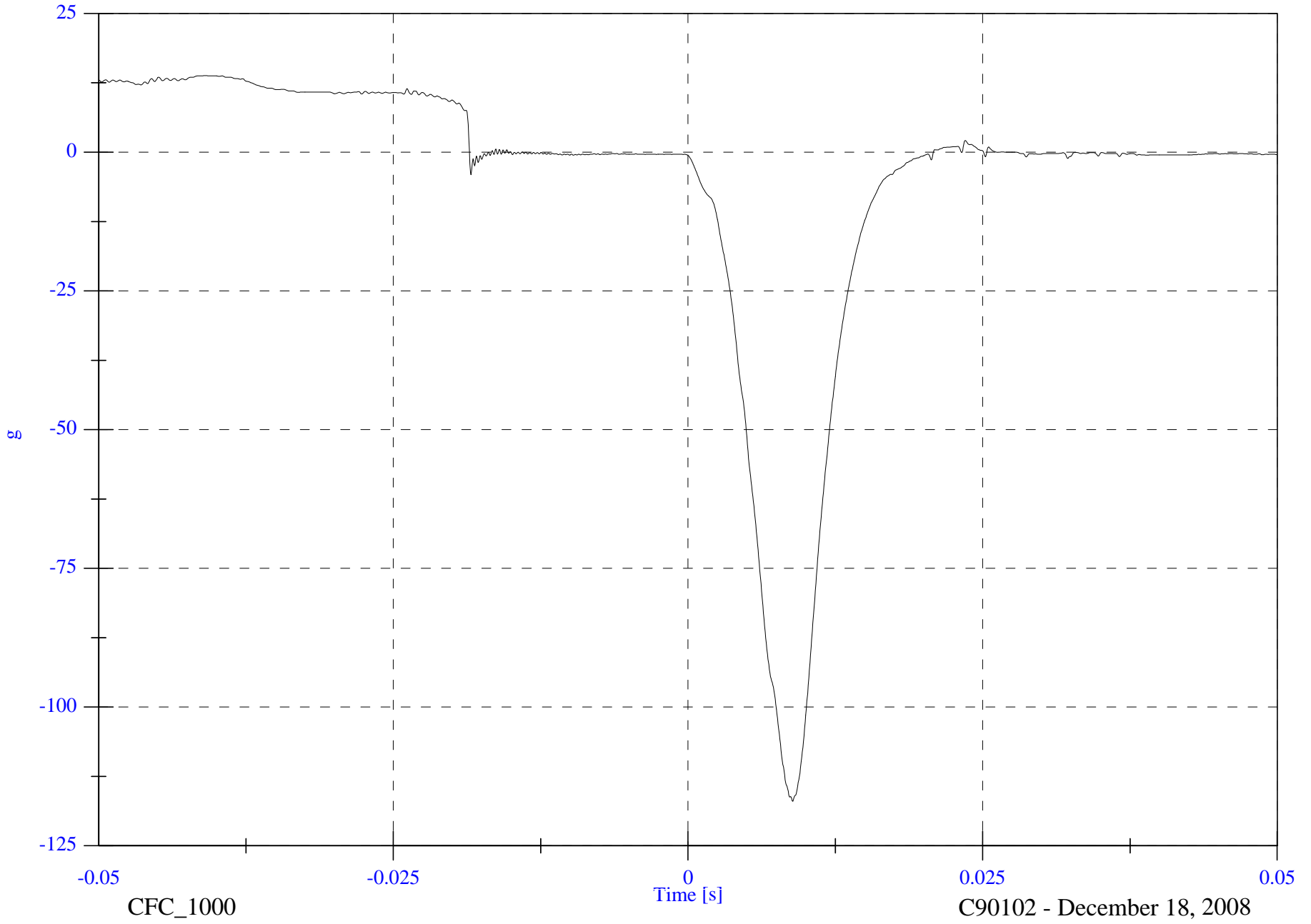
FMVSS 201U 09 Chevy Malibu

### Headform X Acceleration

Max: 13.8 [g] at -0.041 [s]

Min: -117.0 [g] at 0.009 [s]

C90102 PASSENGER SIDE BP1 IMPACT PLOT #1



CFC\_1000

C90102 - December 18, 2008

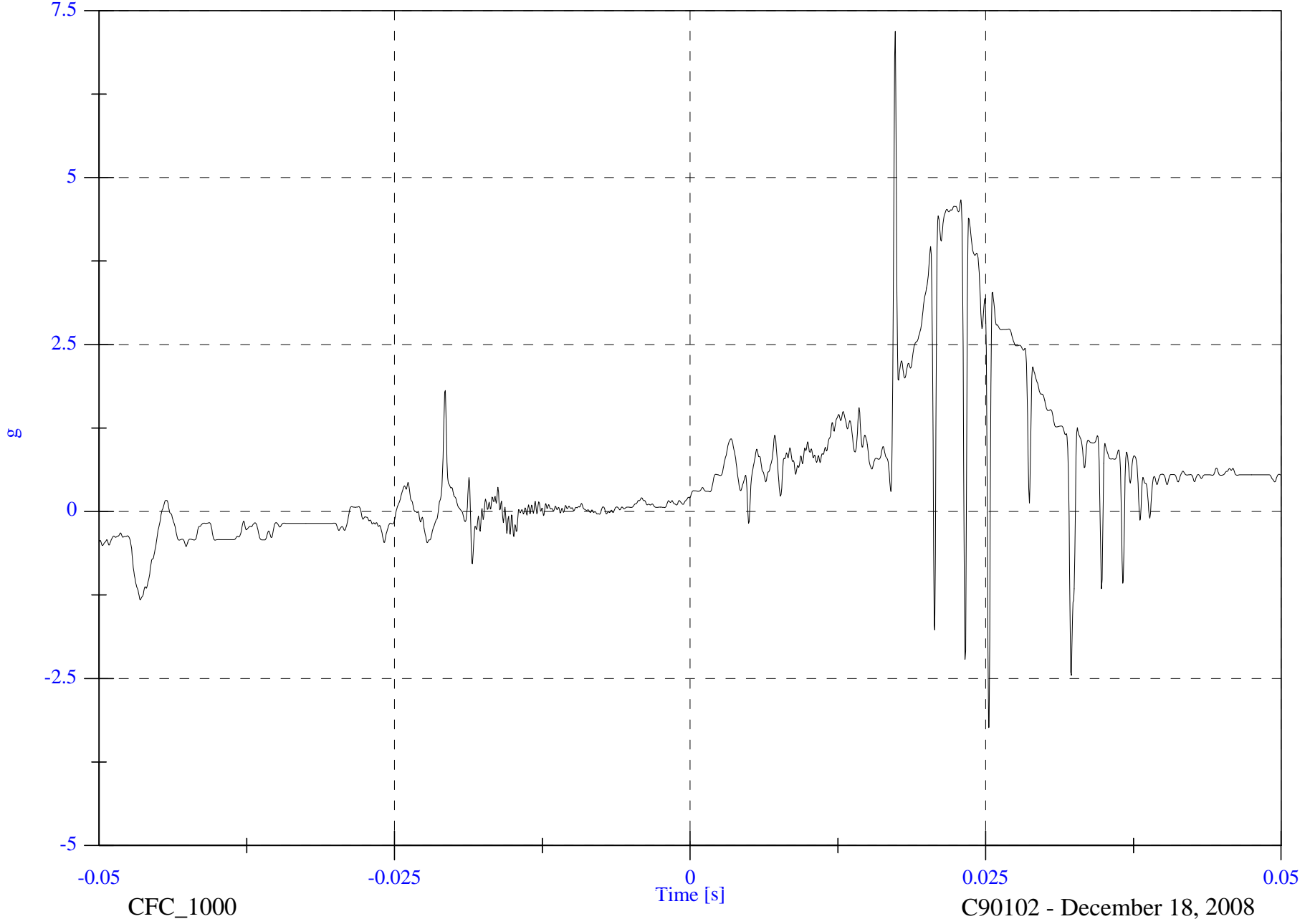
FMVSS 201U 09 Chevy Malibu

Headform Y Acceleration

Max: 7.2 [g] at 0.017 [s]

Min: -3.2 [g] at 0.025 [s]

C90102 PASSENGER SIDE BP1 IMPACT PLOT #2



CFC\_1000

C90102 - December 18, 2008

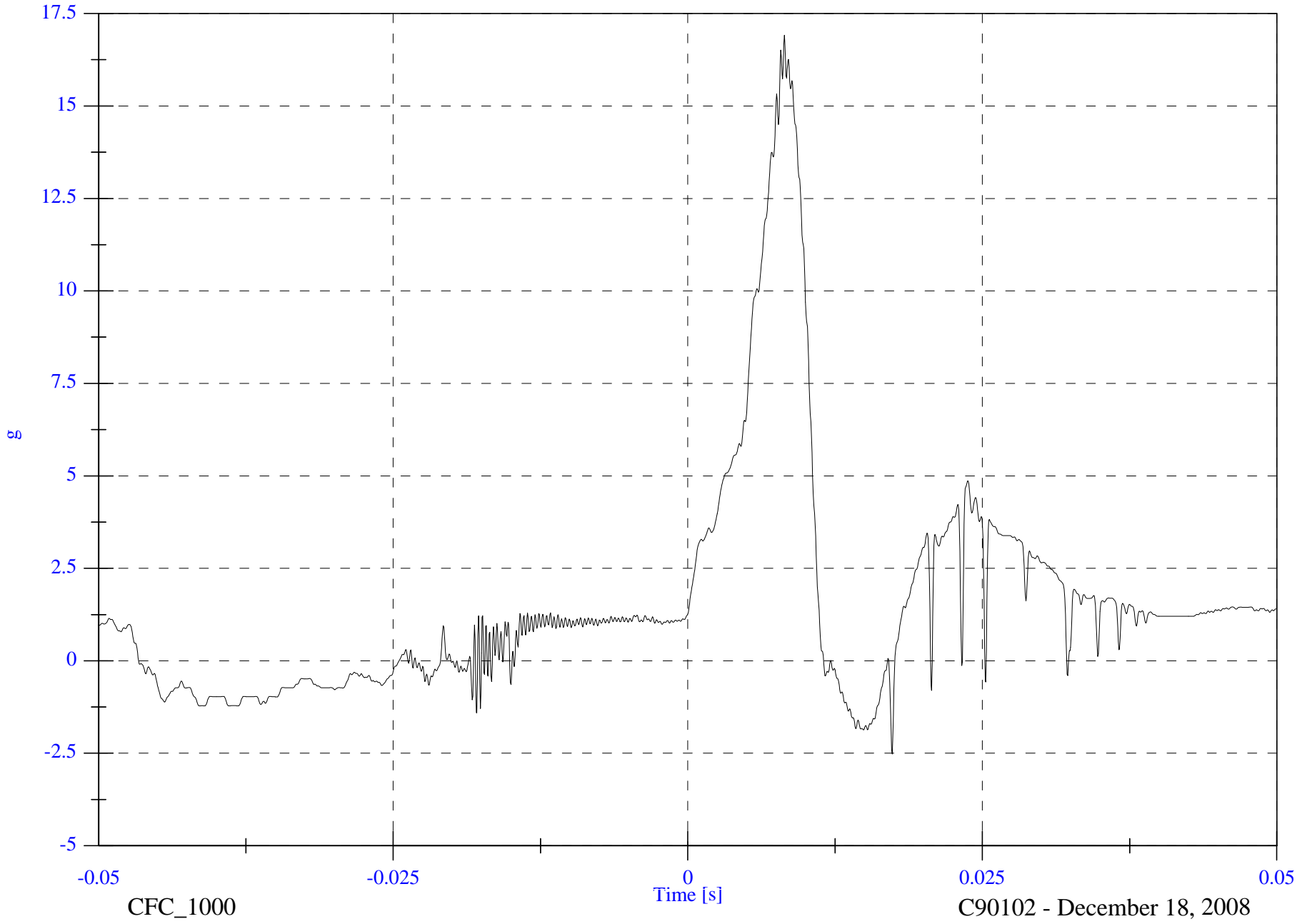
FMVSS 201U 09 Chevy Malibu

Headform Z Acceleration

Max: 16.9 [g] at 0.008 [s]

Min: -2.5 [g] at 0.017 [s]

C90102 PASSENGER SIDE BP1 IMPACT PLOT #3



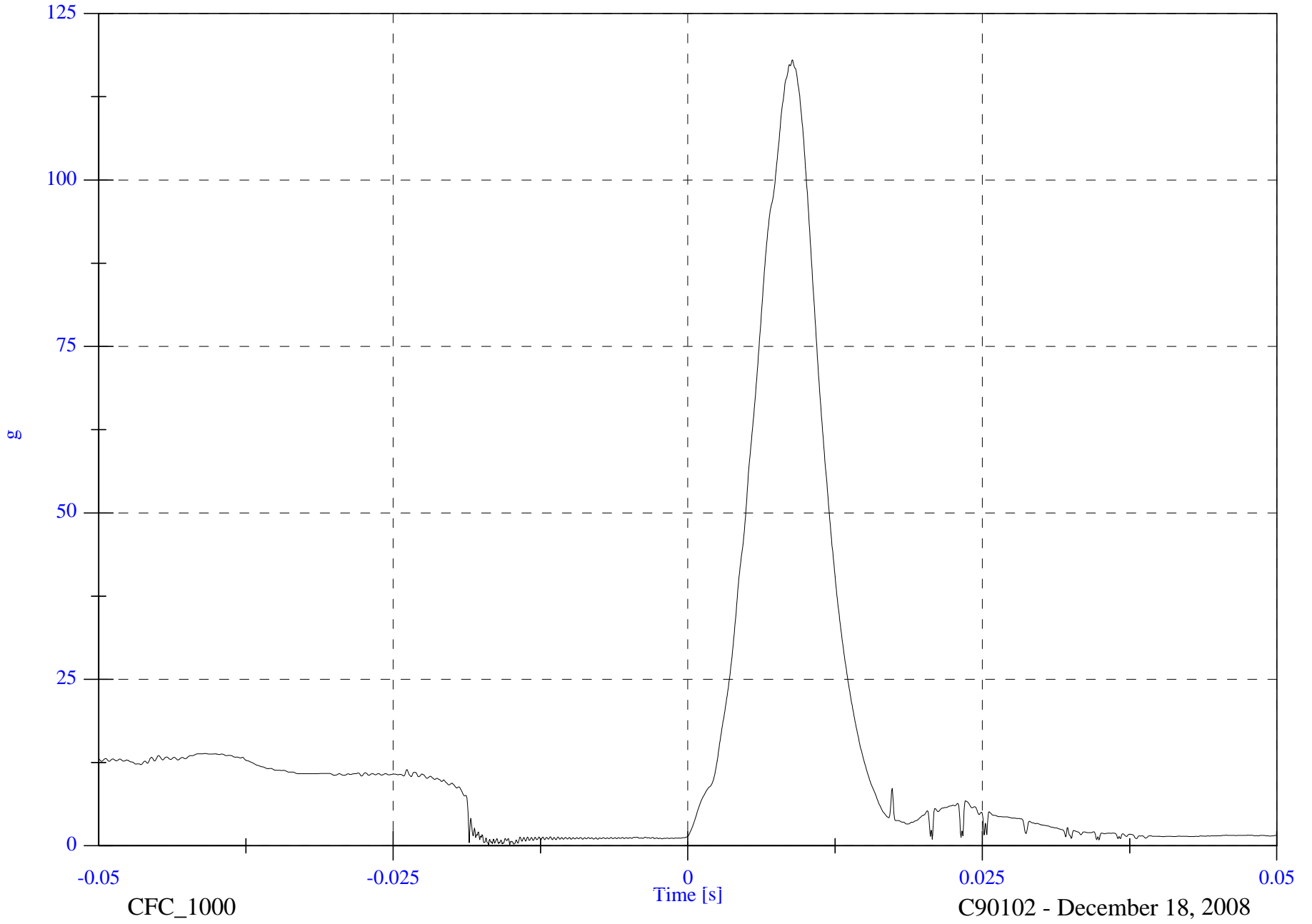
FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 118.0 [g] at 0.009 [s]

Min: 0.1 [g] at -0.015 [s]

C90102 PASSENGER SIDE BPI IMPACT PLOT #4



CFC\_1000

C90102 - December 18, 2008

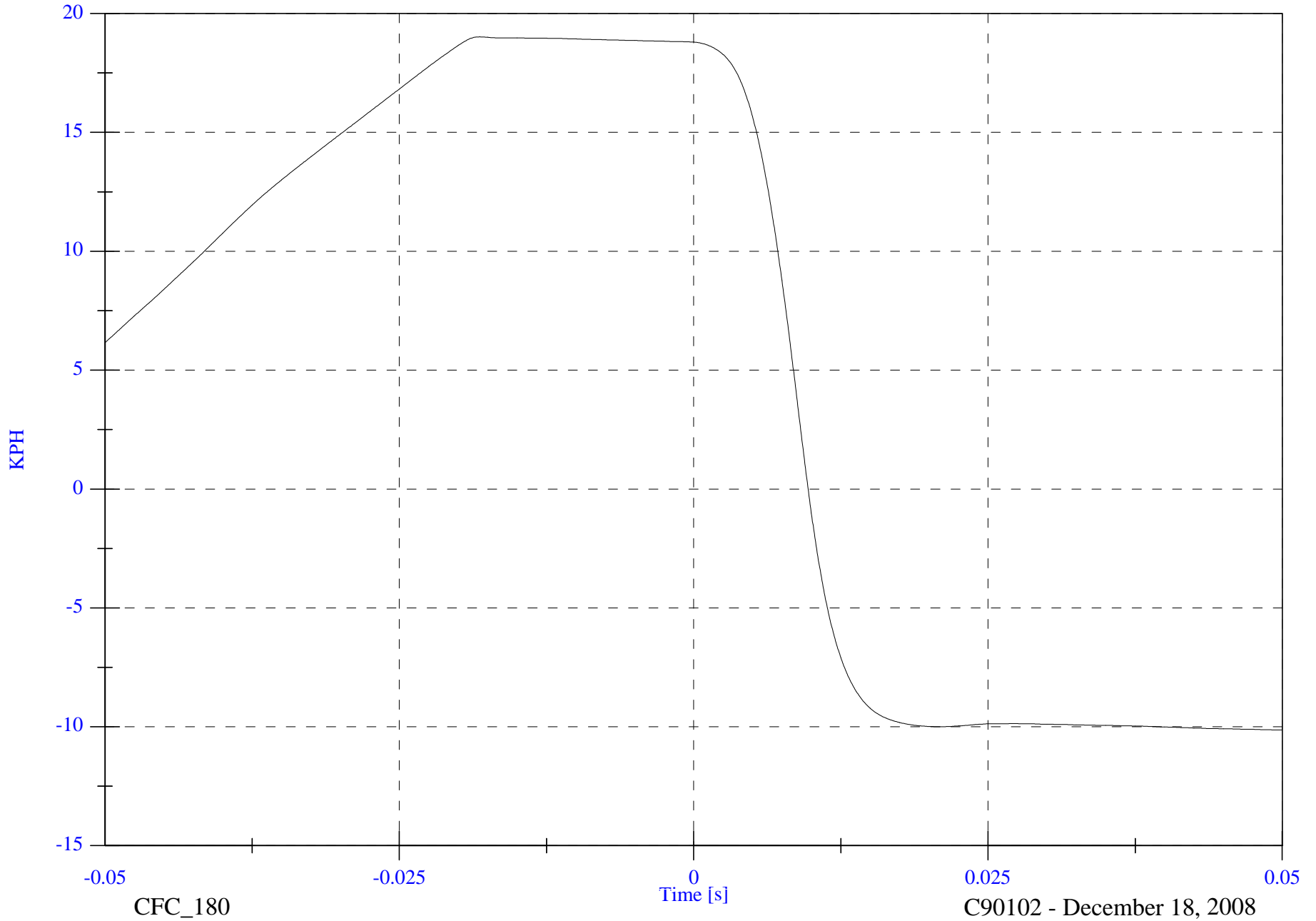
FMVSS 201U 09 Chevy Malibu

### Headform Velocity

Max: 19.0 [KPH] at -0.018 [s]

Min: -10.1 [KPH] at 0.050 [s]

C90102 PASSENGER SIDE BPI IMPACT PLOT #5



CFC\_180

C90102 - December 18, 2008



PRE-IMPACT BP1



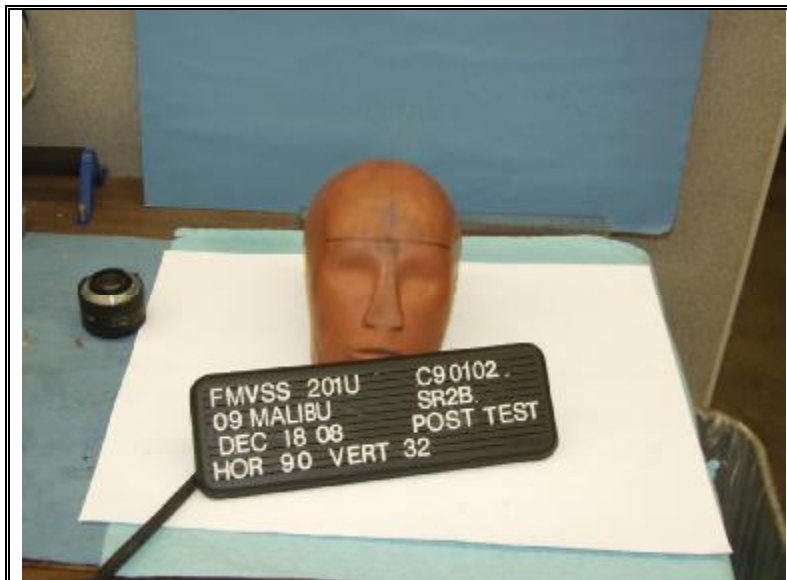


POST-IMPACT BP1

VEHICLE YEAR/MAKE/MODEL/STYLE:	2009 Chevrolet Malibu
VIN:	1G1ZG57B89F127475
DATE OF MANUFACTURE:	08/08(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	05
Test Date:	12/18/08
Target Location:	SIDE RAIL
Target Code:	SR2B
Horizontal Impact Angle:	90°
Vertical Impact Angle:	32°
Ambient Temperature:	20°C
Relative Humidity:	23
Time of Impact:	13:50
Headform Number:	0062

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	0	<input type="checkbox"/>	mm right <input type="checkbox"/> mm left
On Centerline	17		mm up



POST-IMPACT SR2B HEADFORM

Free Motion HIC	274.6
HIC(d)	373.6
Impact Velocity (kph)	18.62
HIC T1 (msec)	4.0
HIC T2 (msec)	14.2

# FMVSS 201U 09 Chevy Malibu C90102 - SR2B

FMH Headform 0062

Location: SR2B

Test Date: December 18, 2008

Work File: SR2B

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

Lab Temperature: 20 C

HICd: 373.6

Lab Humidity: 23 %

HIC (36ms): 274.6

Velocity at Impact: 18.62 KPH

t1: 4.0 msec

t2: 14.2 msec

Free Flight Distance: 224.37 mm

Duration: 10.2 msec

Average Acceleration: 7.2 g

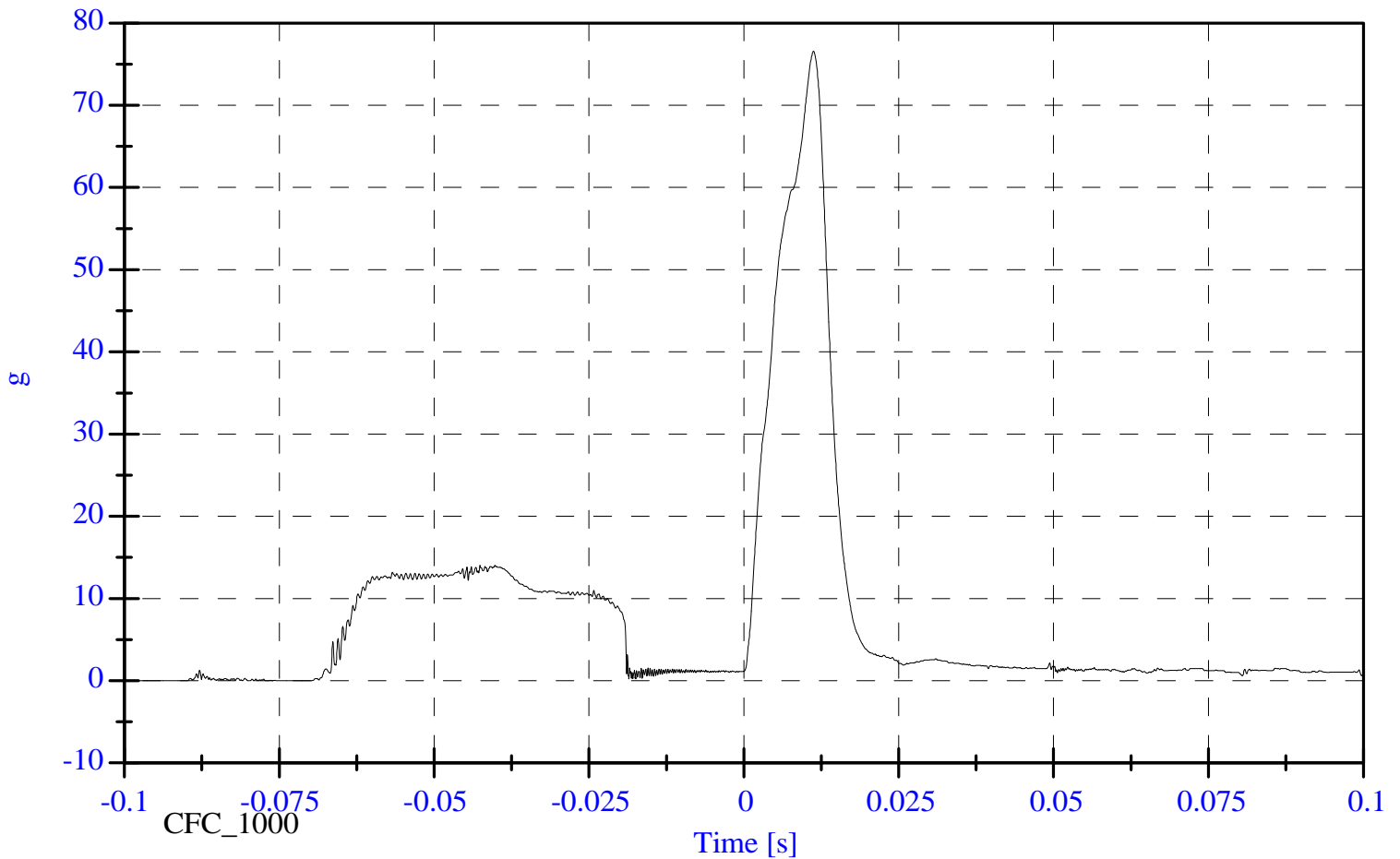
Maximum: 76.6 g

FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 76.6 [g] at 0.011 [s]

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



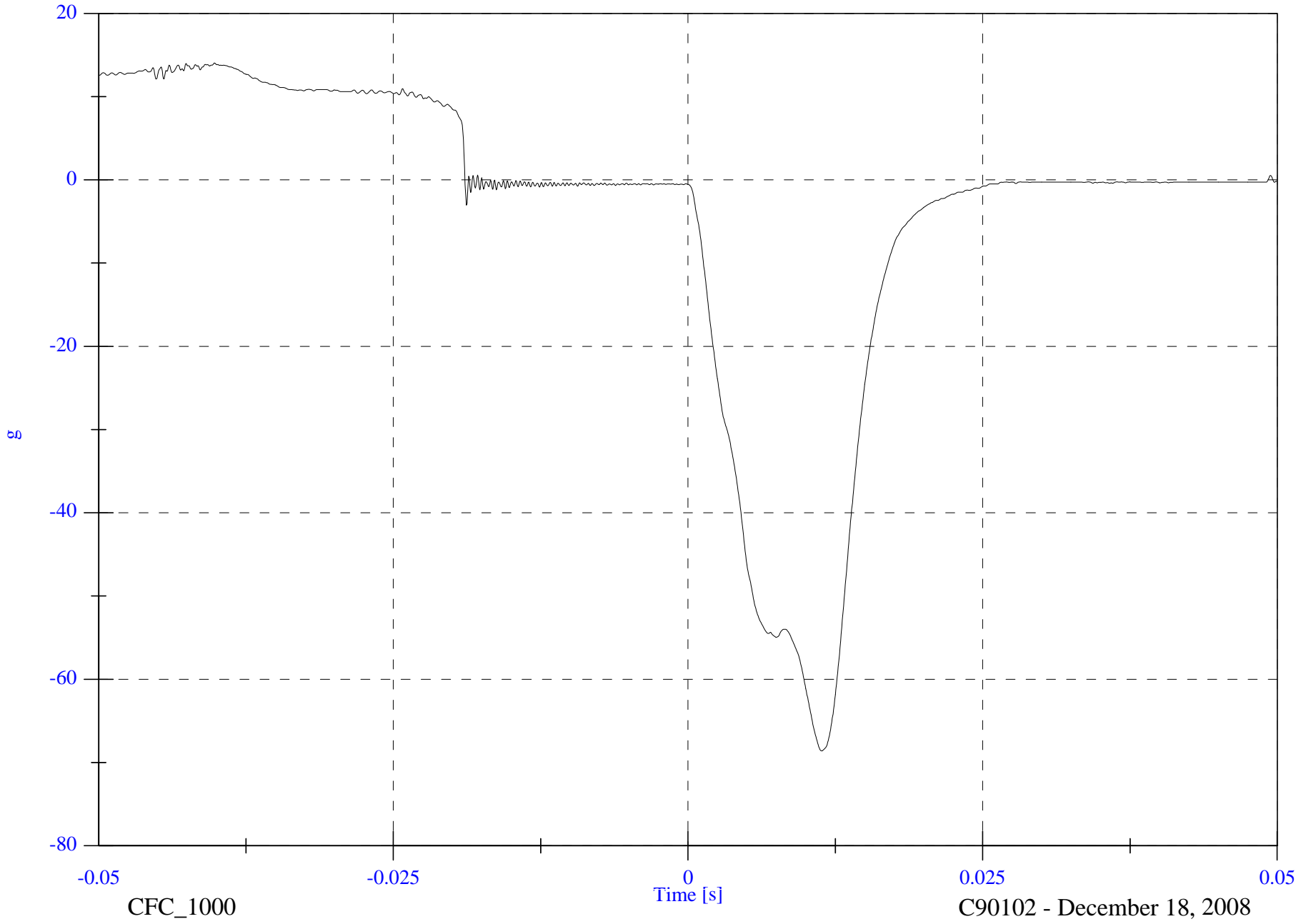
FMVSS 201U 09 Chevy Malibu

Headform X Acceleration

Max: 14.0 [g] at -0.040 [s]

Min: -68.6 [g] at 0.011 [s]

C90102 PASSENGER SIDE SR2B IMPACT PLOT #1



CFC\_1000

C90102 - December 18, 2008

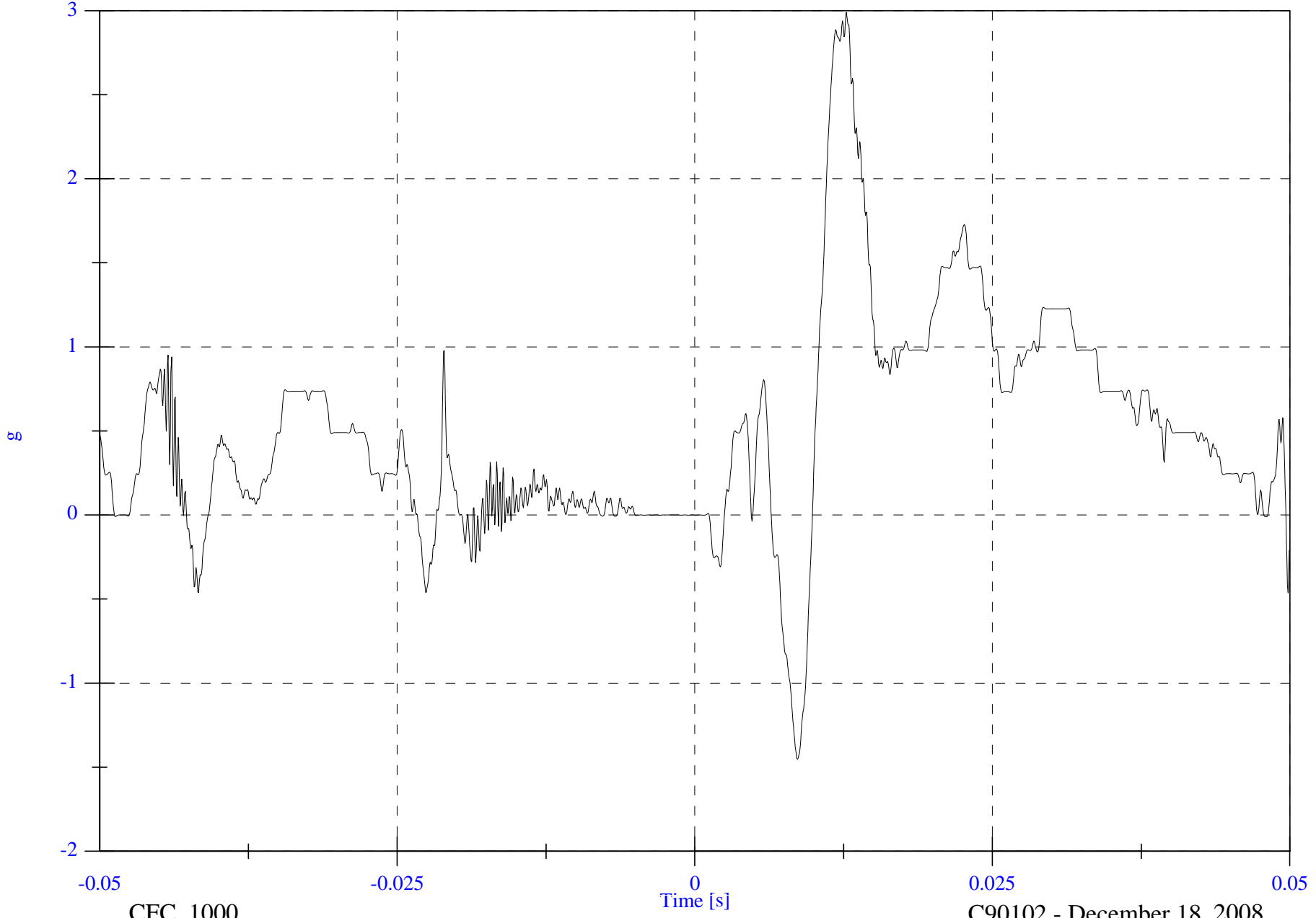
FMVSS 201U 09 Chevy Malibu

Headform Y Acceleration

Max: 3.0 [g] at 0.013 [s]

Min: -1.5 [g] at 0.009 [s]

C90102 PASSENGER SIDE SR2B IMPACT PLOT #2



CFC\_1000

C90102 - December 18, 2008

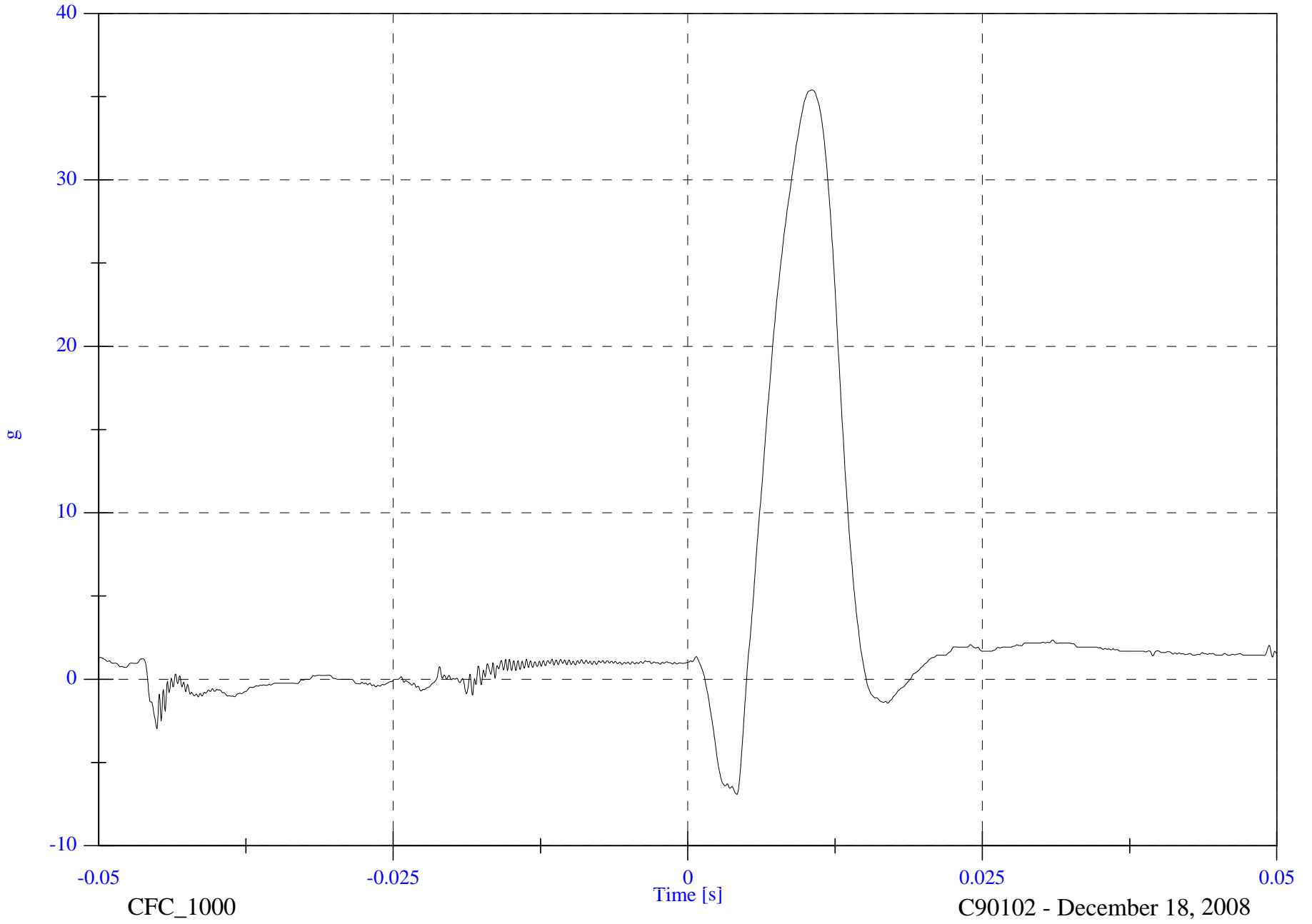
FMVSS 201U 09 Chevy Malibu

Headform Z Acceleration

Max: 35.4 [g] at 0.011 [s]

Min: -6.9 [g] at 0.004 [s]

C90102 PASSENGER SIDE SR2B IMPACT PLOT #3



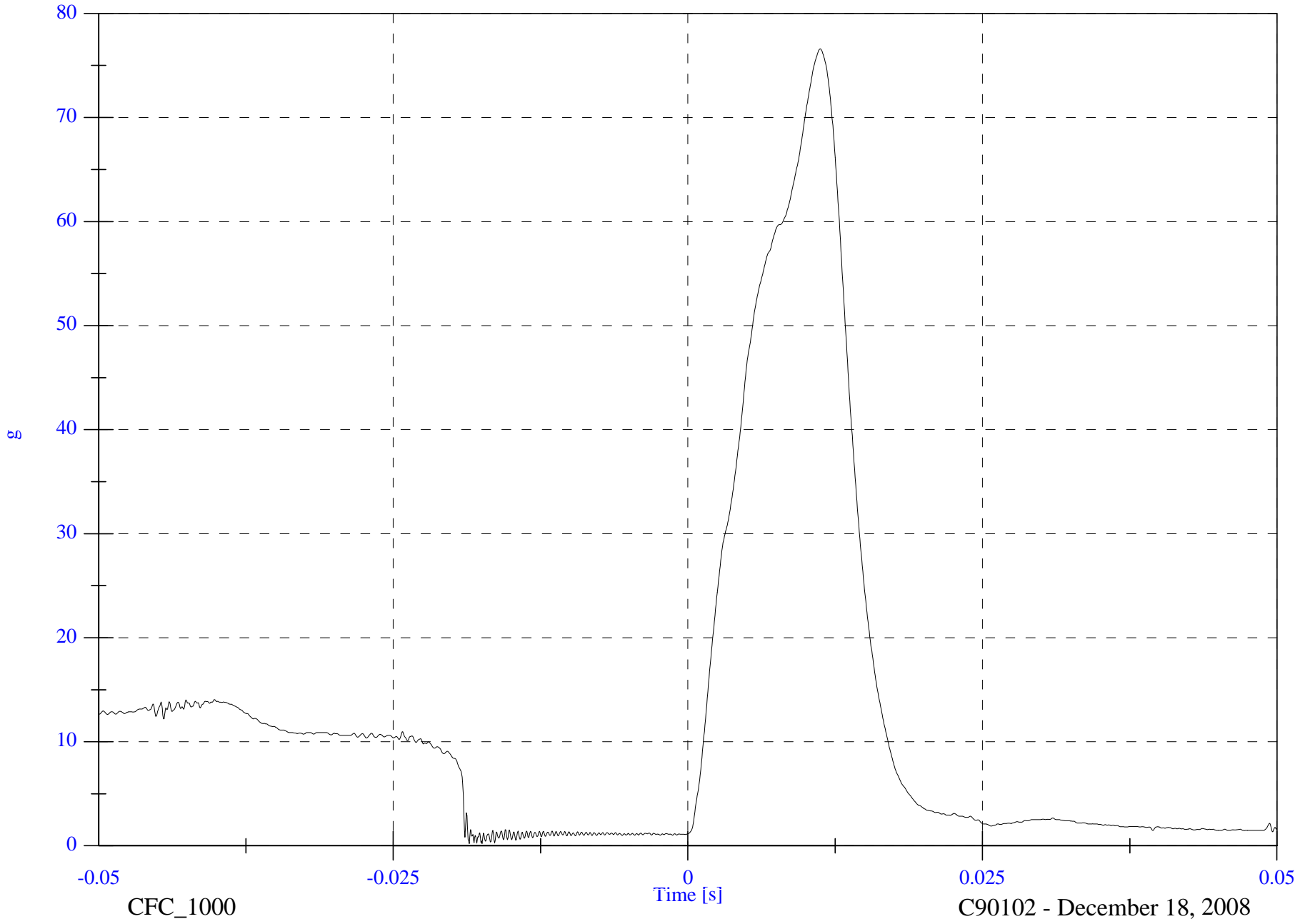
FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 76.6 [g] at 0.011 [s]

Min: 0.2 [g] at -0.017 [s]

C90102 PASSENGER SIDE SR2B IMPACT PLOT #4



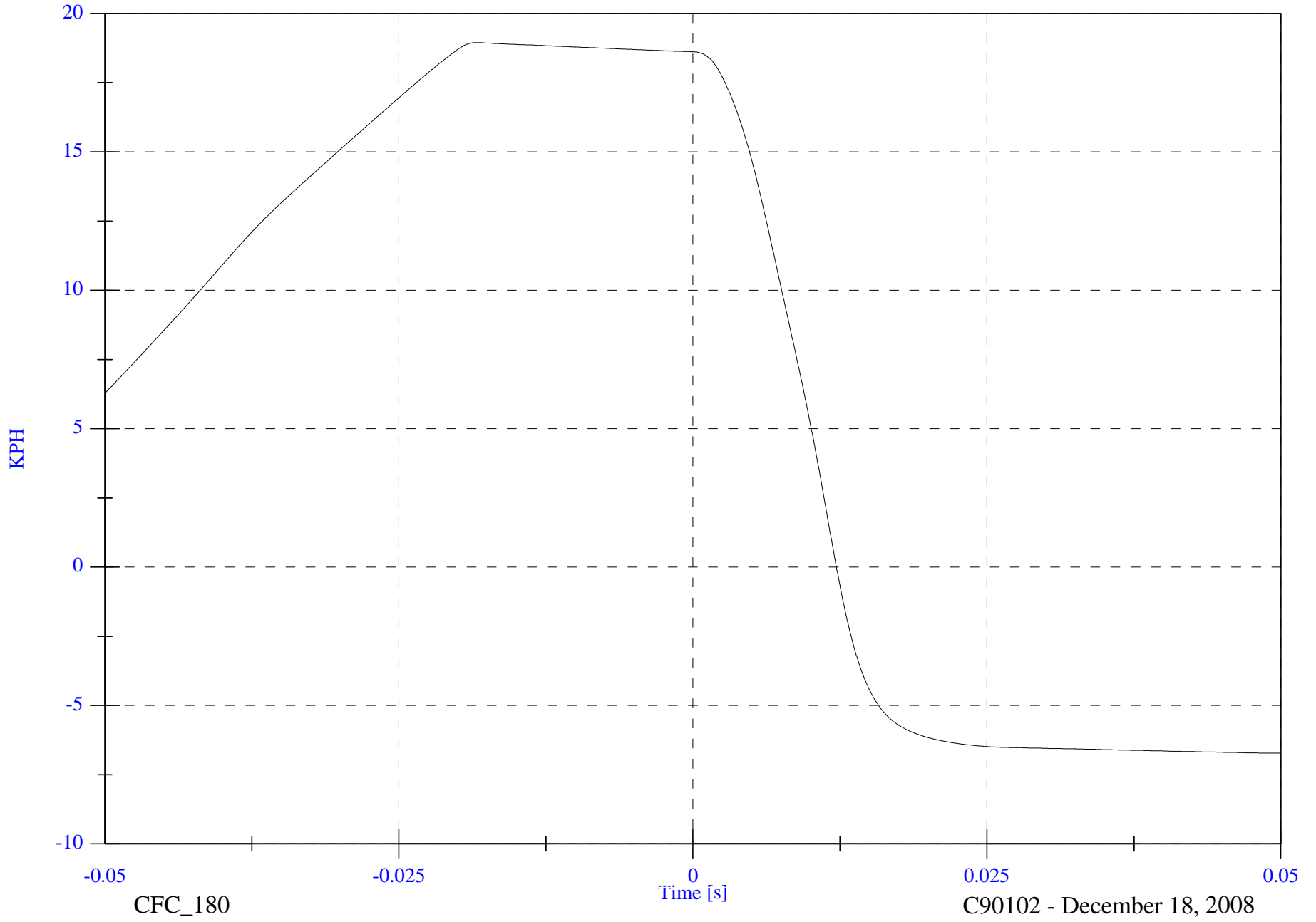
FMVSS 201U 09 Chevy Malibu

### Headform Velocity

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

Min: -6.7 [KPH] at 0.050 [s]

C90102 PASSENGER SIDE SR2B IMPACT PLOT #5







PRE-IMPACT SR2B

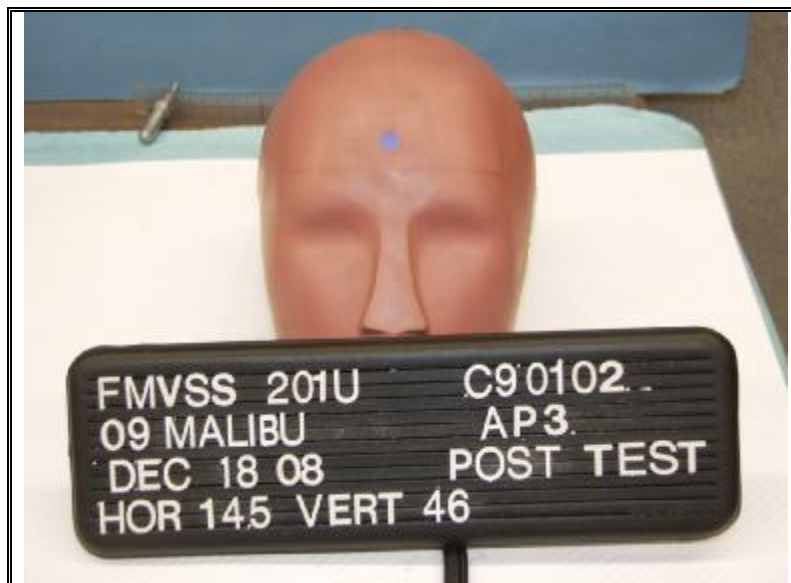


POST-IMPACT SR2B

VEHICLE YEAR/MAKE/MODEL/STYLE:	2009 Chevrolet Malibu
VIN:	1G1ZG57B89F127475
DATE OF MANUFACTURE:	08/08(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	06
Test Date:	12/18/08
Target Location:	A-PILLAR
Target Code:	AP3
Horizontal Impact Angle:	145°
Vertical Impact Angle:	46°
Ambient Temperature:	20°C
Relative Humidity:	23
Time of Impact:	14:40
Headform Number:	1140

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	2	<input checked="" type="checkbox"/>	mm right	<input type="checkbox"/>	mm left
On Centerline	14				mm up



POST-IMPACT AP3 HEADFORM

Free Motion HIC	405.1
HIC(d)	472.0
Impact Velocity (kph)	18.42
HIC T1 (msec)	5.2
HIC T2 (msec)	12.2

# FMVSS 201U 09 Chevy Malibu C90102 - AP3

FMH Headform 1140

Location: AP3

Test Date: December 18, 2008

Work File: AP3

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

Lab Temperature: 20 C

HICd: 472.0

Lab Humidity: 23 %

HIC (36ms): 405.1

Velocity at Impact: 18.42 KPH

t1: 5.2 msec

t2: 12.2 msec

Free Flight Distance: 219.01 mm

Duration: 7.0 msec

Average Acceleration: 9.3 g

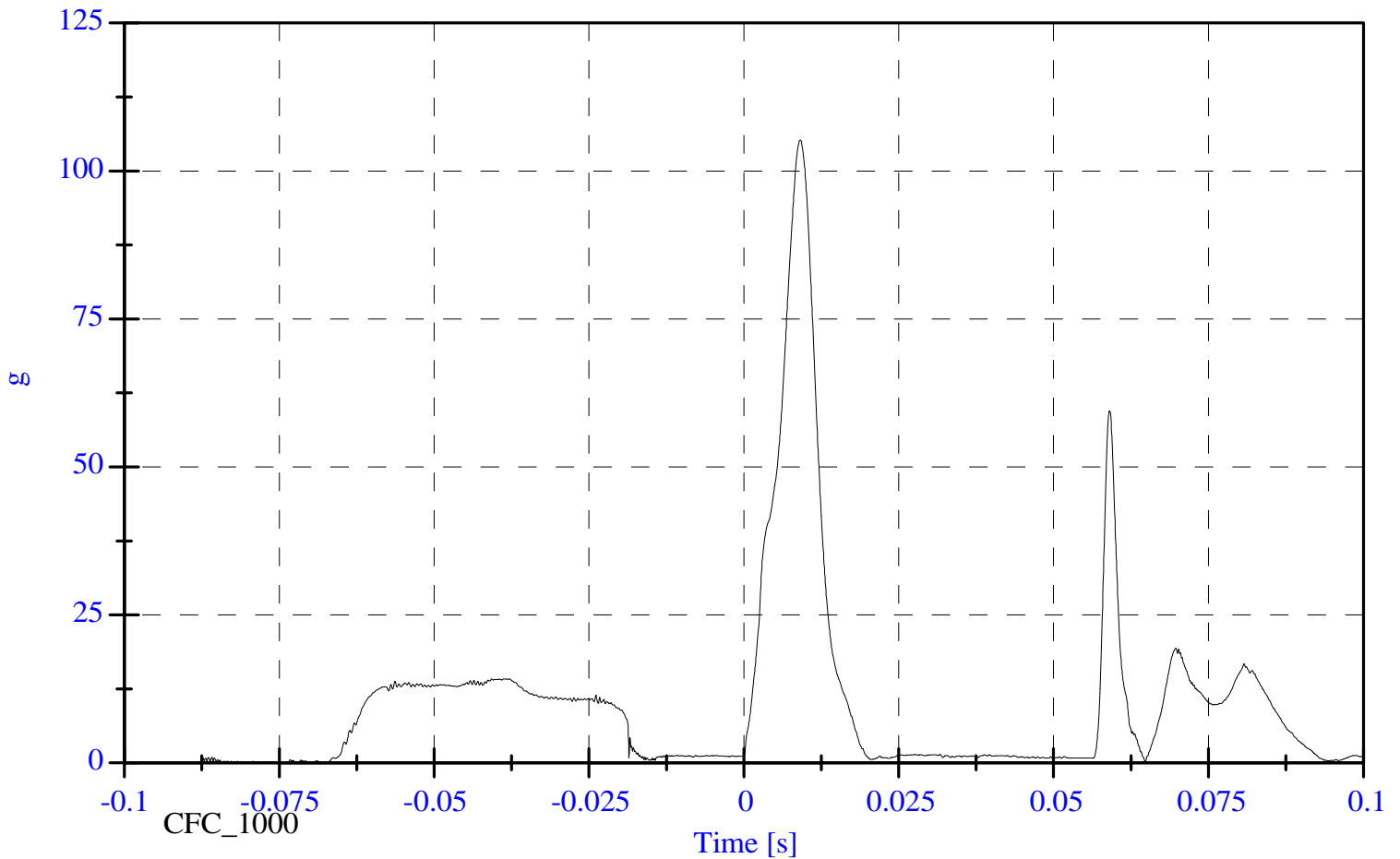
Maximum: 105.3 g

FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 105.3 [g] at 0.009 [s]

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



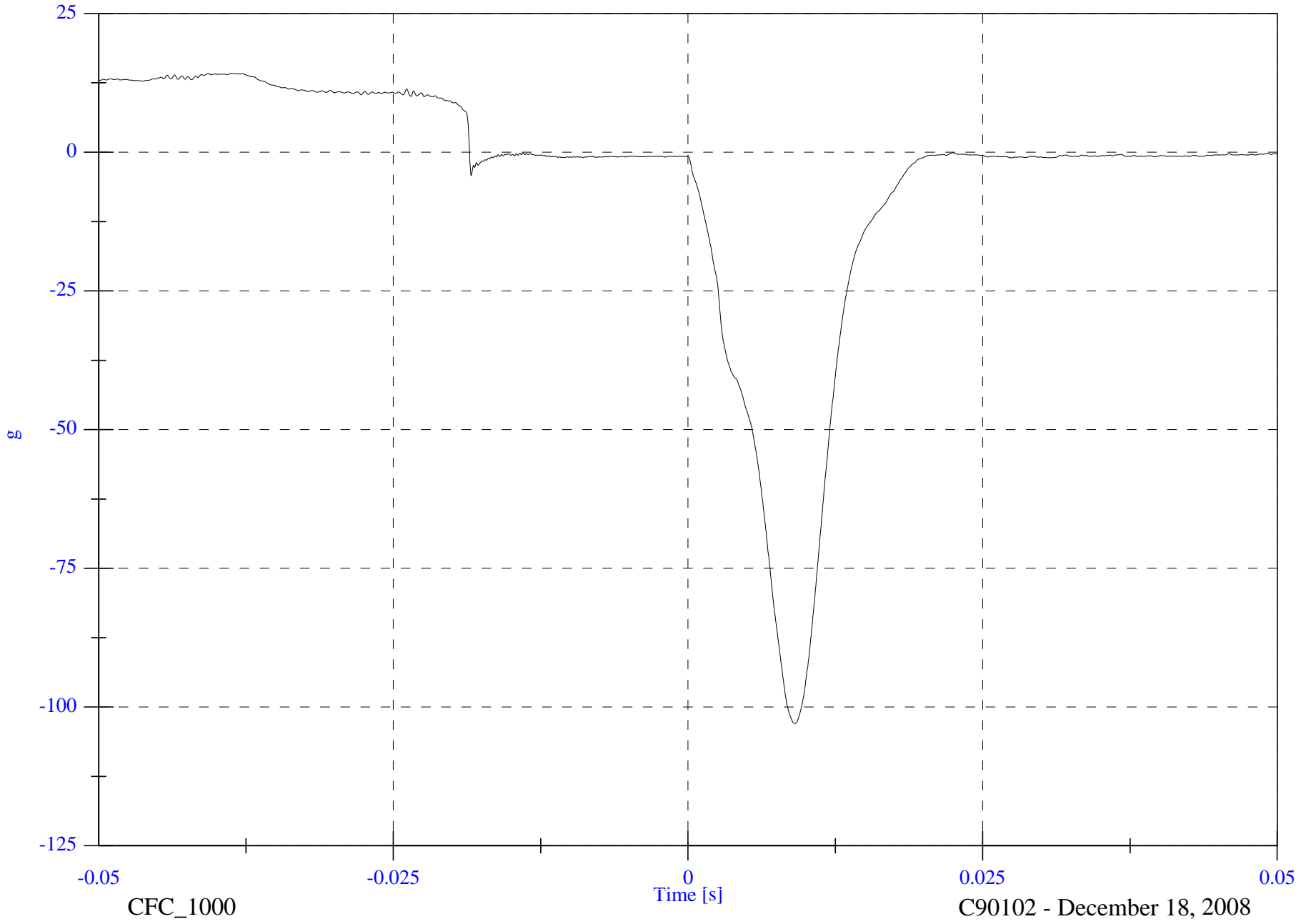
FMVSS 201U 09 Chevy Malibu

Headform X Acceleration

Max: 14.2 [g] at -0.039 [s]

Min: -102.9 [g] at 0.009 [s]

C90102 PASSENGER SIDE AP3 IMPACT PLOT #1



CFC\_1000

C90102 - December 18, 2008

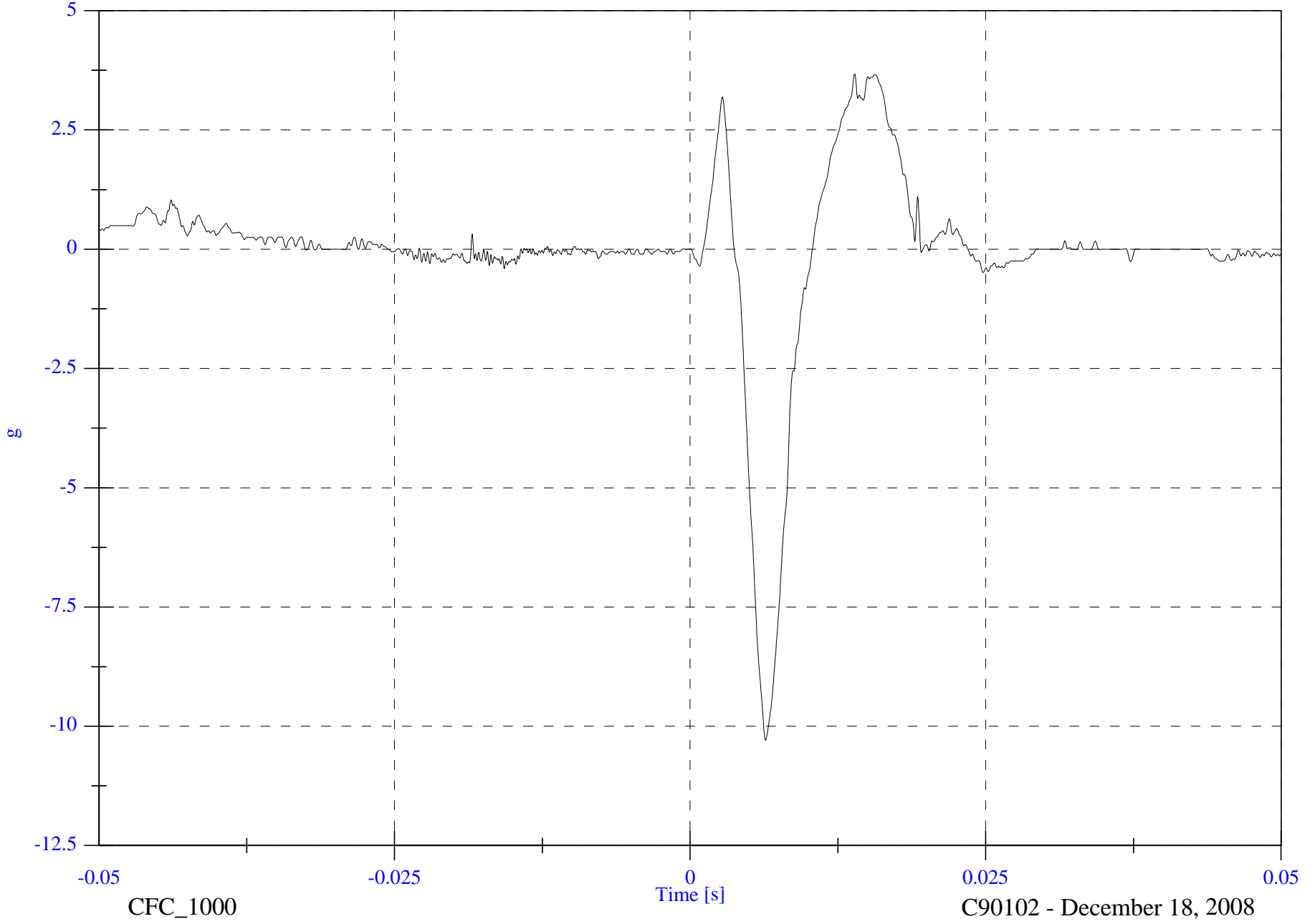
FMVSS 201U 09 Chevy Malibu

Headform Y Acceleration

Max: 3.7 [g] at 0.014 [s]

Min: -10.3 [g] at 0.006 [s]

C90102 PASSENGER SIDE AP3 IMPACT PLOT #2



CFC\_1000

C90102 - December 18, 2008

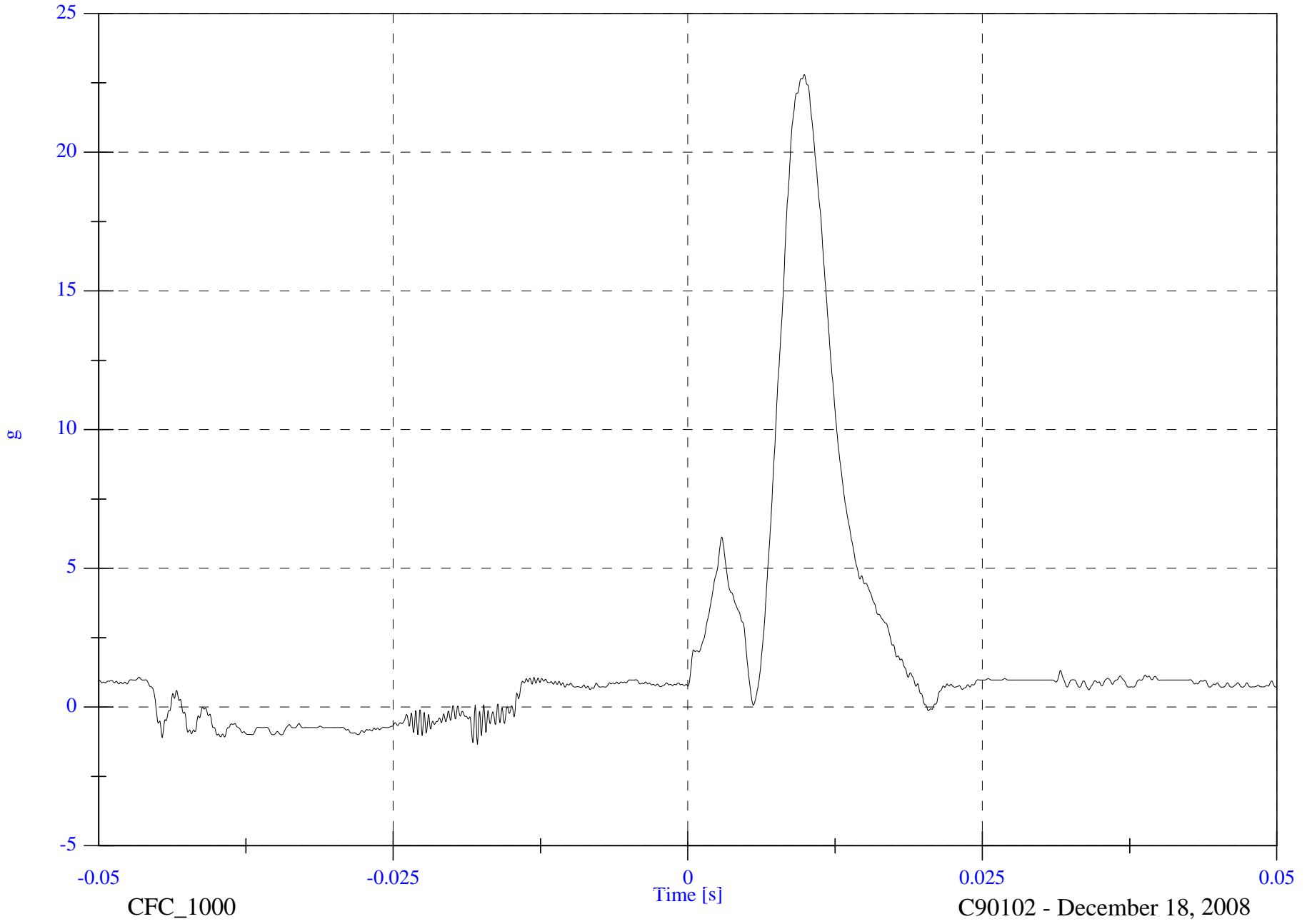
FMVSS 201U 09 Chevy Malibu

Headform Z Acceleration

Max: 22.8 [g] at 0.010 [s]

Min: -1.3 [g] at -0.018 [s]

C90102 PASSENGER SIDE AP3 IMPACT PLOT #3



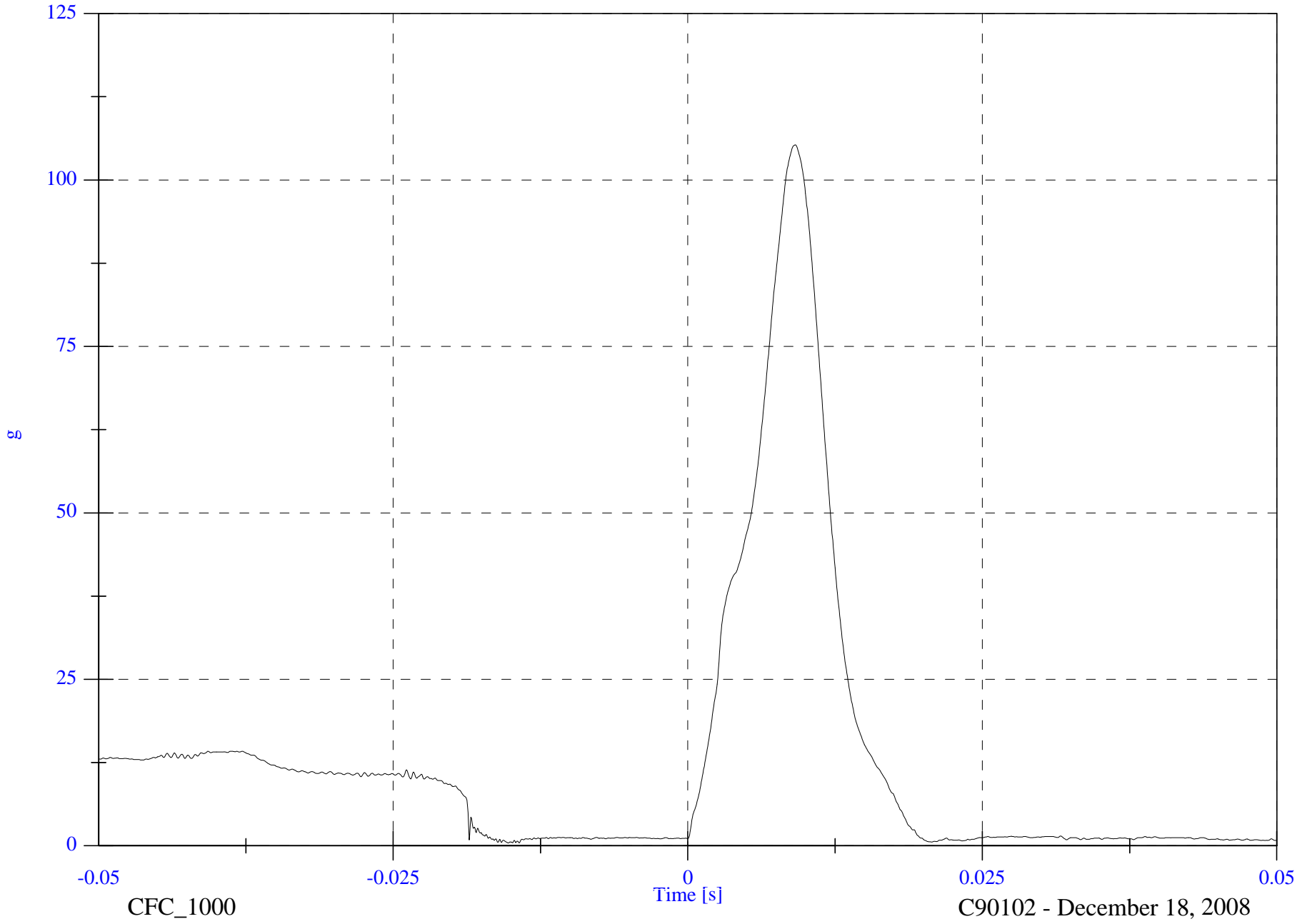
FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 105.3 [g] at 0.009 [s]

Min: 0.4 [g] at -0.015 [s]

C90102 PASSENGER SIDE AP3 IMPACT PLOT #4





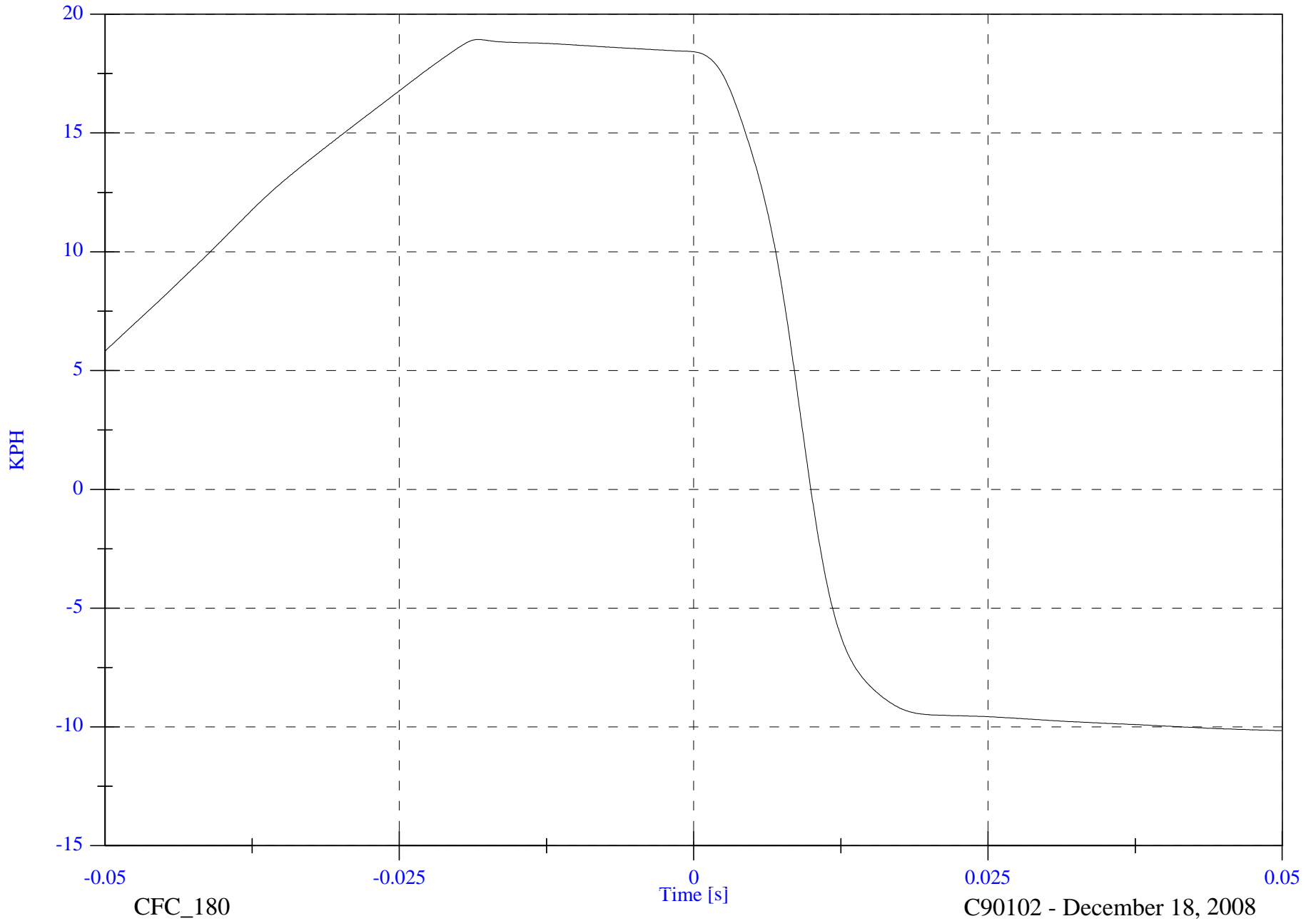
FMVSS 201U 09 Chevy Malibu

### Headform Velocity

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

Min: -10.2 [KPH] at 0.050 [s]

C90102 PASSENGER SIDE AP3 IMPACT PLOT #5

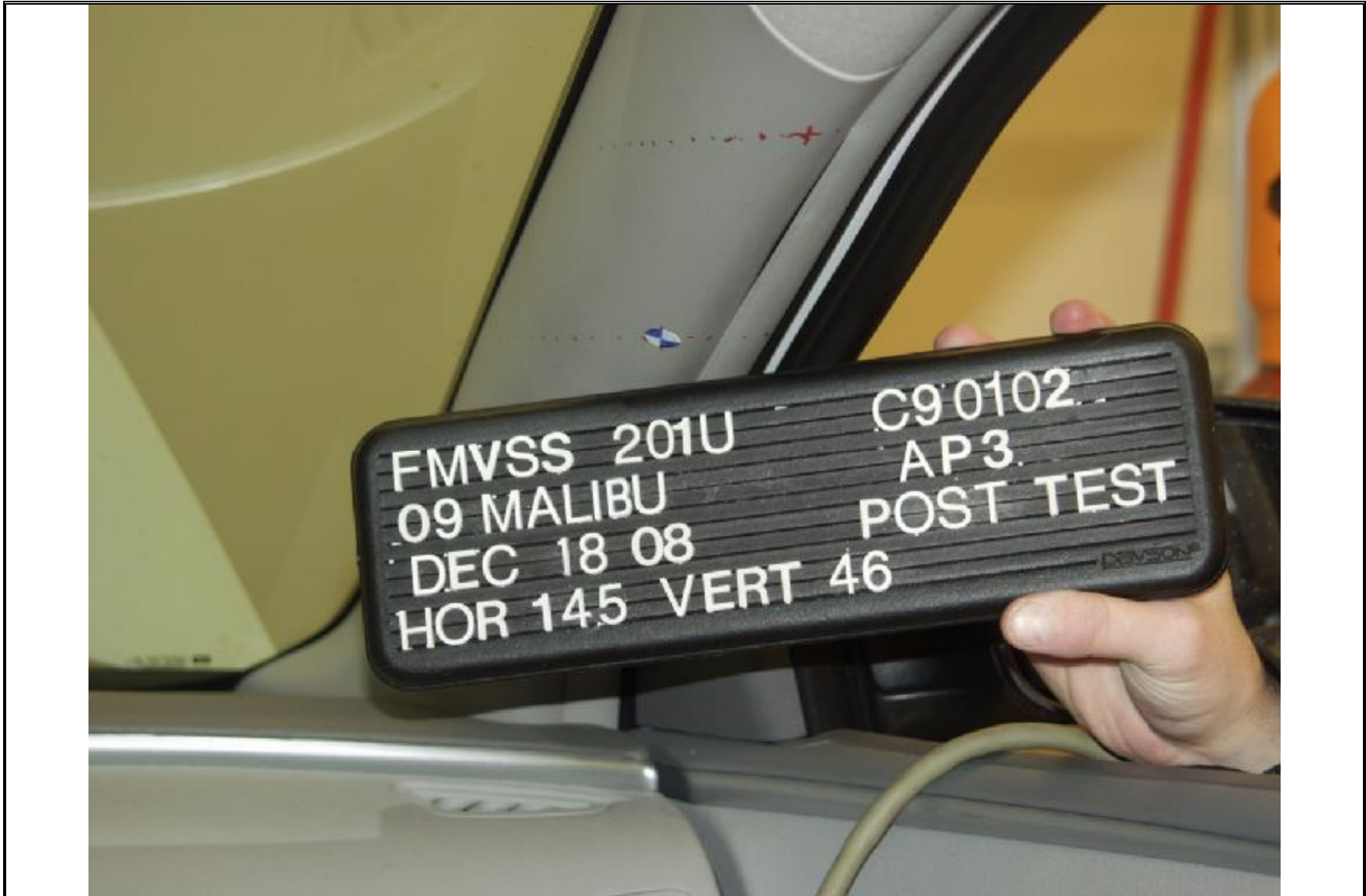


CFC\_180

C90102 - December 18, 2008



PRE-IMPACT AP3

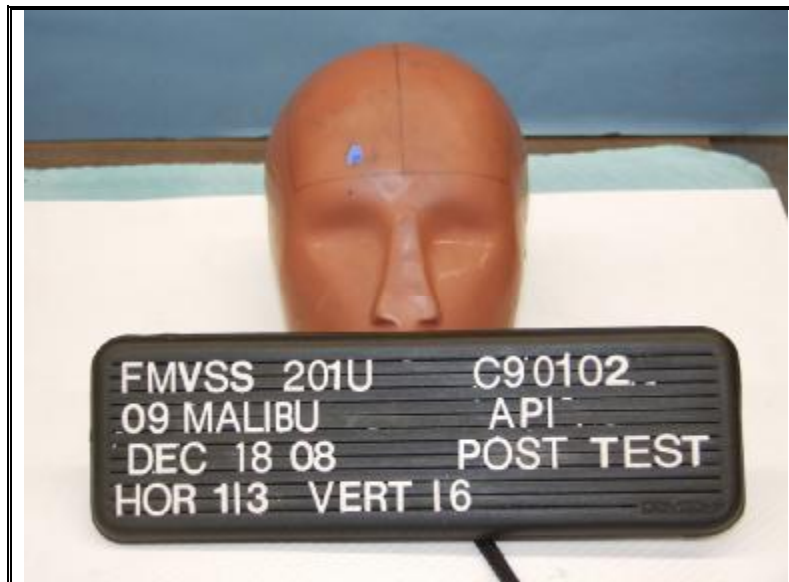


POST-IMPACT AP3

VEHICLE YEAR/MAKE/MODEL/STYLE:	2009 Chevrolet Malibu
VIN:	1G1ZG57B89F127475
DATE OF MANUFACTURE:	08/08(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	07
Test Date:	12/18/08
Target Location:	A-PILLAR
Target Code:	AP1
Horizontal Impact Angle:	113°
Vertical Impact Angle:	16°
Ambient Temperature:	20°C
Relative Humidity:	23
Time of Impact:	15:30
Headform Number:	0355

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	25	<input checked="" type="checkbox"/>	mm right	<input type="checkbox"/>	mm left
On Centerline	10				mm up



POST-IMPACT AP1 HEADFORM

Free Motion HIC	508.0
HIC(d)	549.7
Impact Velocity (kph)	18.49
HIC T1 (msec)	4.7
HIC T2 (msec)	8.5

# FMVSS 201U 09 Chevy Malibu C90102 - AP1

FMH Headform 0355

Location: AP1

Test Date: December 18, 2008

Work File: AP1

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

Lab Temperature: 20 C

HICd: 549.7

Lab Humidity: 23 %

HIC (36ms): 508.0

Velocity at Impact: 18.49 KPH

t1: 4.7 msec

t2: 8.5 msec

Free Flight Distance: 226.38 mm

Duration: 3.8 msec

Average Acceleration: 6.6 g

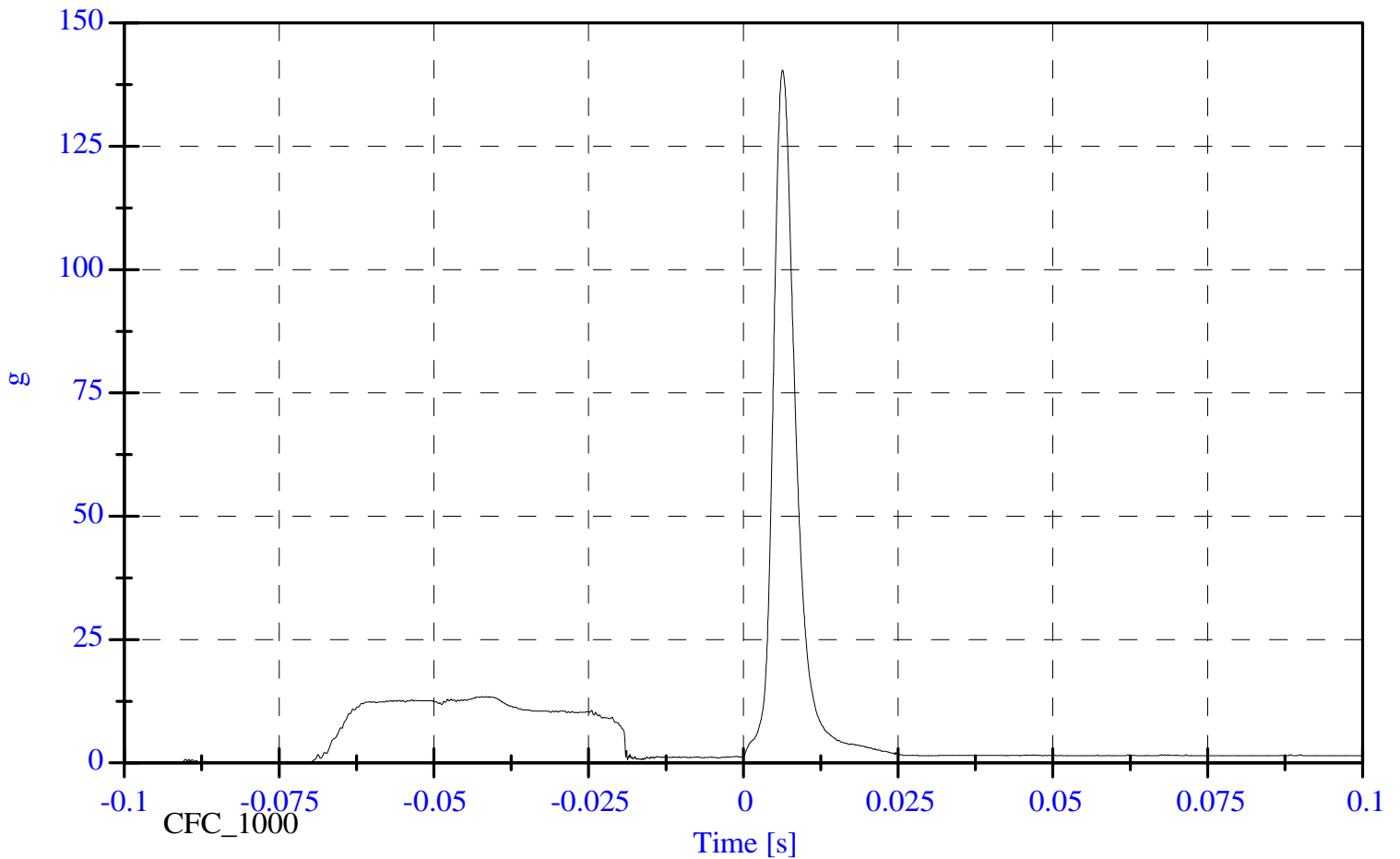
Maximum: 140.5 g

FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 140.5 [g] at 0.006 [s]

Min: 0.0 [g] at -0.080 [s]



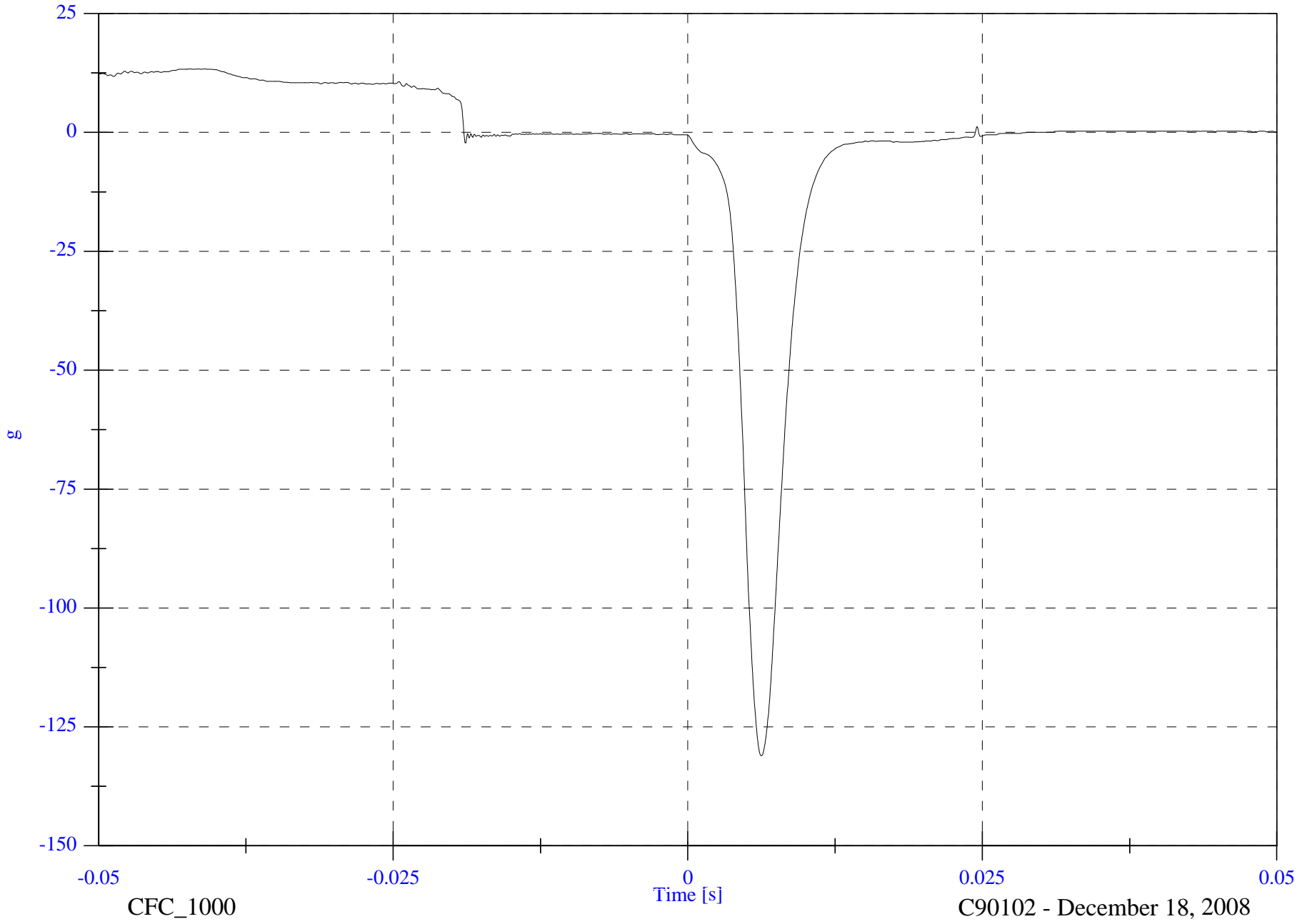
FMVSS 201U 09 Chevy Malibu

Headform X Acceleration

Max: 13.3 [g] at -0.042 [s]

Min: -131.1 [g] at 0.006 [s]

C90102 PASSENGER SIDE AP1 IMPACT PLOT #1



CFC\_1000

C90102 - December 18, 2008

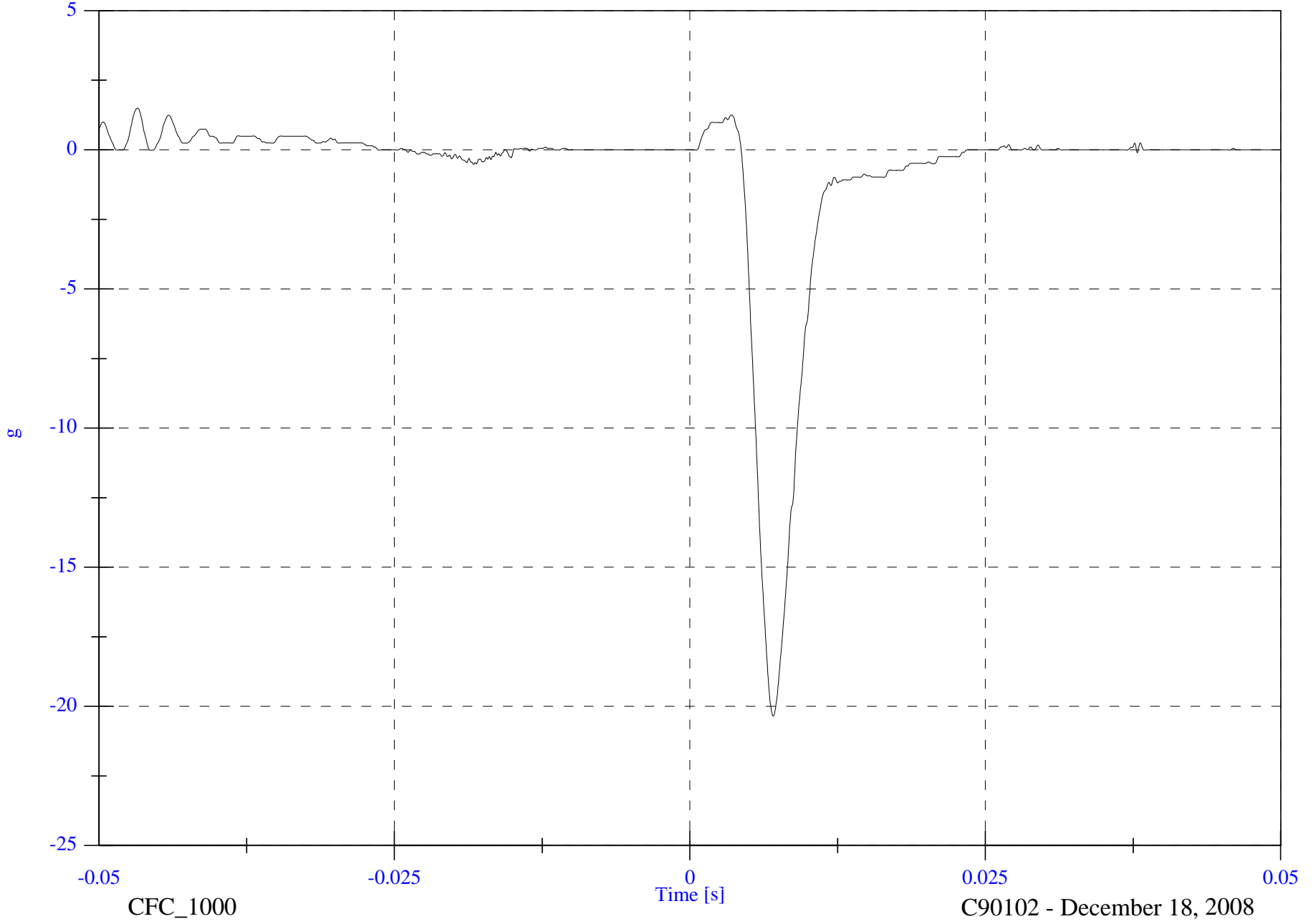
FMVSS 201U 09 Chevy Malibu

Headform Y Acceleration

Max: 1.5 [g] at -0.047 [s]

Min: -20.4 [g] at 0.007 [s]

C90102 PASSENGER SIDE AP1 IMPACT PLOT #2



CFC\_1000

C90102 - December 18, 2008

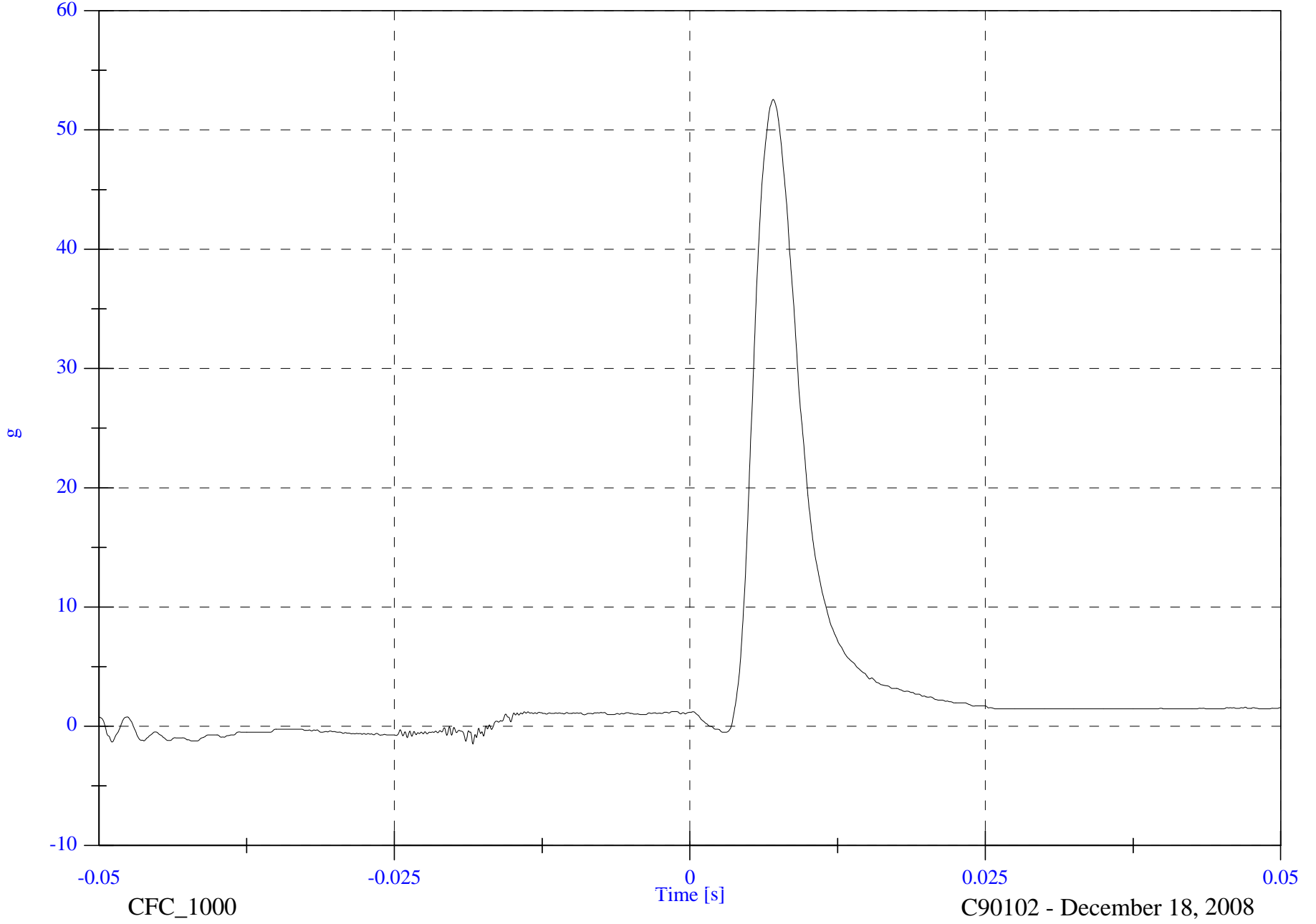
FMVSS 201U 09 Chevy Malibu

Headform Z Acceleration

Max: 52.6 [g] at 0.007 [s]

Min: -1.5 [g] at -0.018 [s]

C90102 PASSENGER SIDE AP1 IMPACT PLOT #3



CFC\_1000

C90102 - December 18, 2008



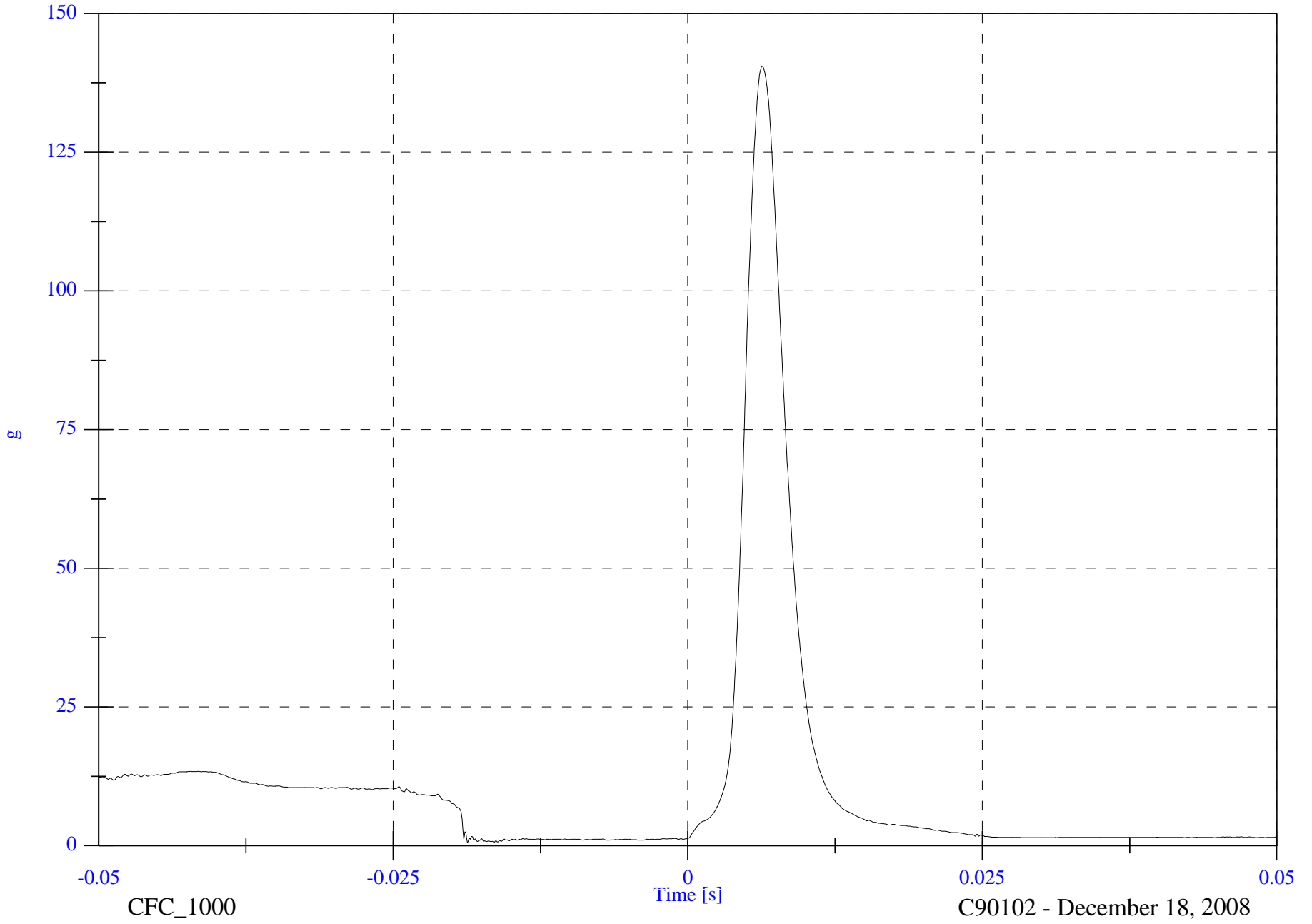
FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 140.5 [g] at 0.006 [s]

Min: 0.6 [g] at -0.019 [s]

C90102 PASSENGER SIDE AP1 IMPACT PLOT #4



CFC\_1000

C90102 - December 18, 2008

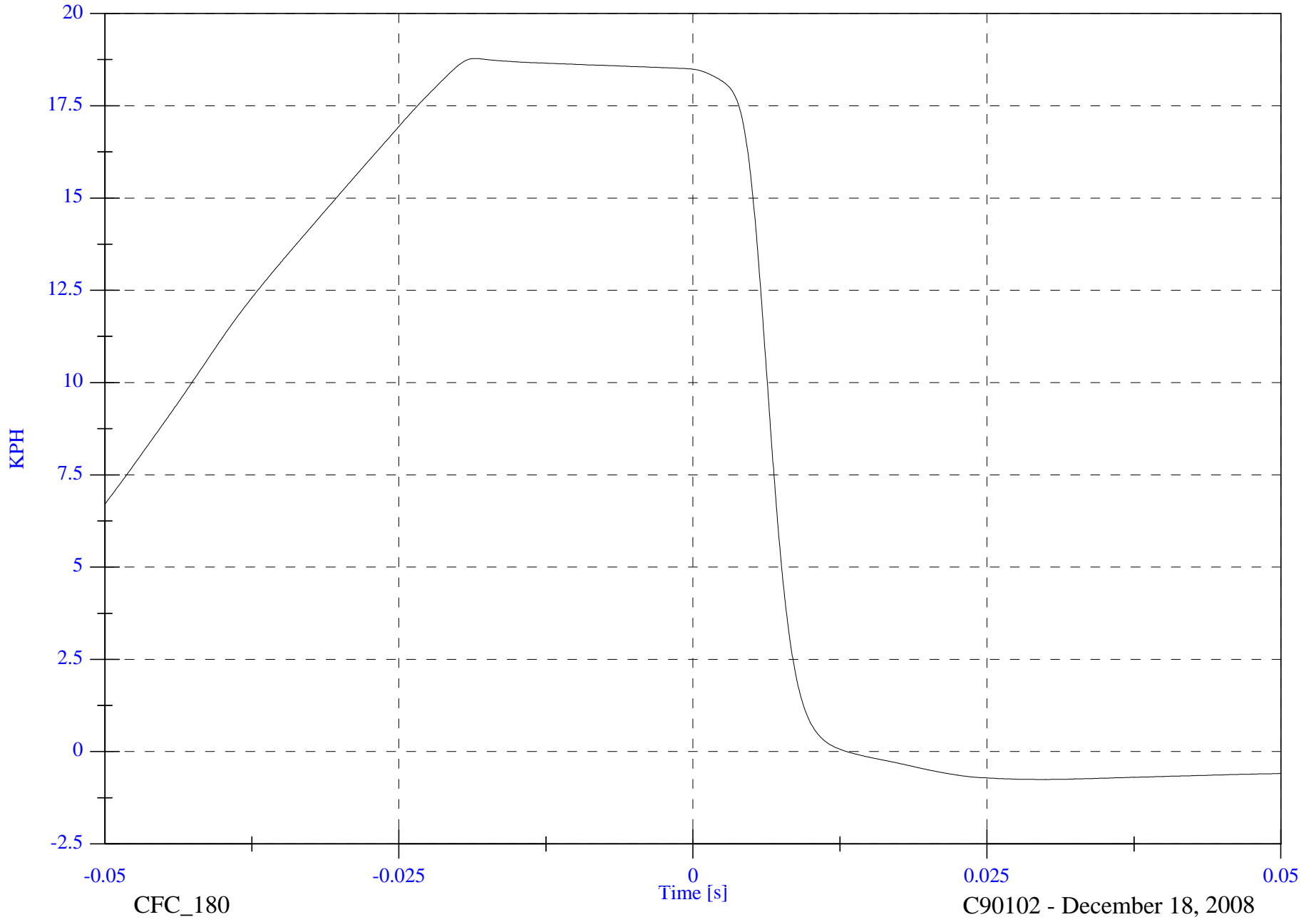
FMVSS 201U 09 Chevy Malibu

### Headform Velocity

Max: 18.8 [KPH] at -0.019 [s]

Min: -0.8 [KPH] at 0.030 [s]

C90102 PASSENGER SIDE AP1 IMPACT PLOT #5



CFC\_180

C90102 - December 18, 2008



PRE-IMPACT API

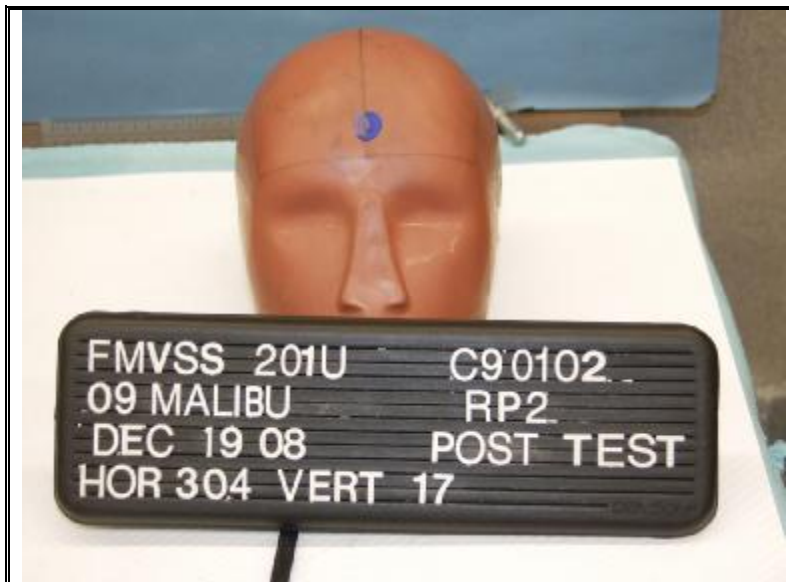


POST-IMPACT API

VEHICLE YEAR/MAKE/MODEL/STYLE:	2009 Chevrolet Malibu
VIN:	1G1ZG57B89F127475
DATE OF MANUFACTURE:	08/08(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	08
Test Date:	12/19/08
Target Location:	REAR PILLAR
Target Code:	RP2
Horizontal Impact Angle:	304°
Vertical Impact Angle:	17°
Ambient Temperature:	20°C
Relative Humidity:	21
Time of Impact:	8:50
Headform Number:	0355

Impact Point Description (from lower midpoint on midsagittal line)			
On Centerline	0	<input type="checkbox"/>	mm right <input type="checkbox"/> mm left
On Centerline	15		mm up



POST-IMPACT RP2 HEADFORM

Free Motion HIC	108.7
HIC(d)	248.4
Impact Velocity (kph)	18.37
HIC T1 (msec)	5.7
HIC T2 (msec)	24.4

# FMVSS 201U 09 Chevy Malibu C90102 - RP2

FMH Headform 0355

Location: RP2

Test Date: December 19, 2008

Work File: RP2

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

Lab Temperature: 20 C

HICd: 248.4

Lab Humidity: 21 %

HIC (36ms): 108.7

Velocity at Impact: 18.37 KPH

t1: 5.7 msec

t2: 24.4 msec

Free Flight Distance: 223.62 mm

Duration: 18.6 msec

Average Acceleration: 7.3 g

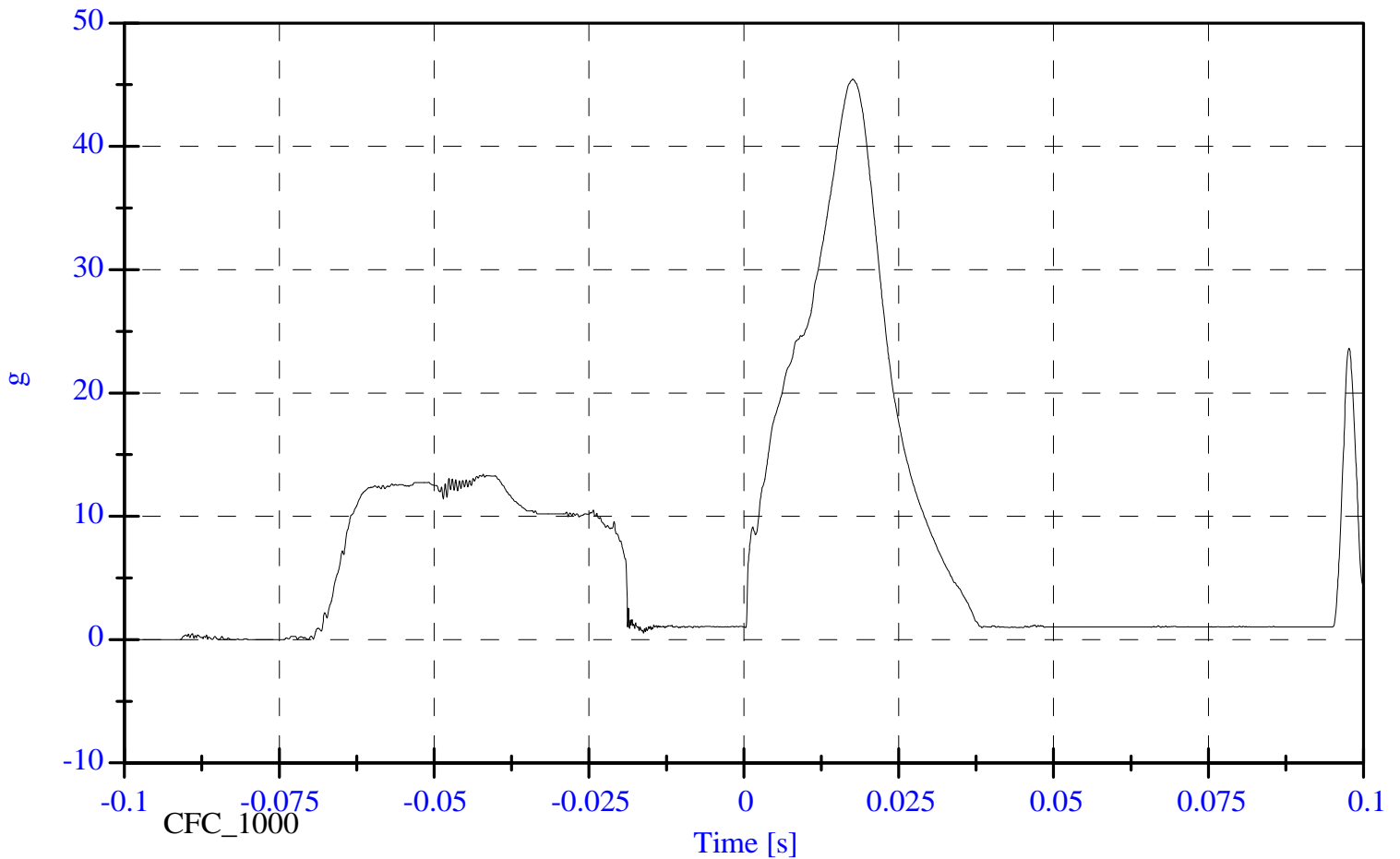
Maximum: 45.5 g

FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 45.5 [g] at 0.018 [s]

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



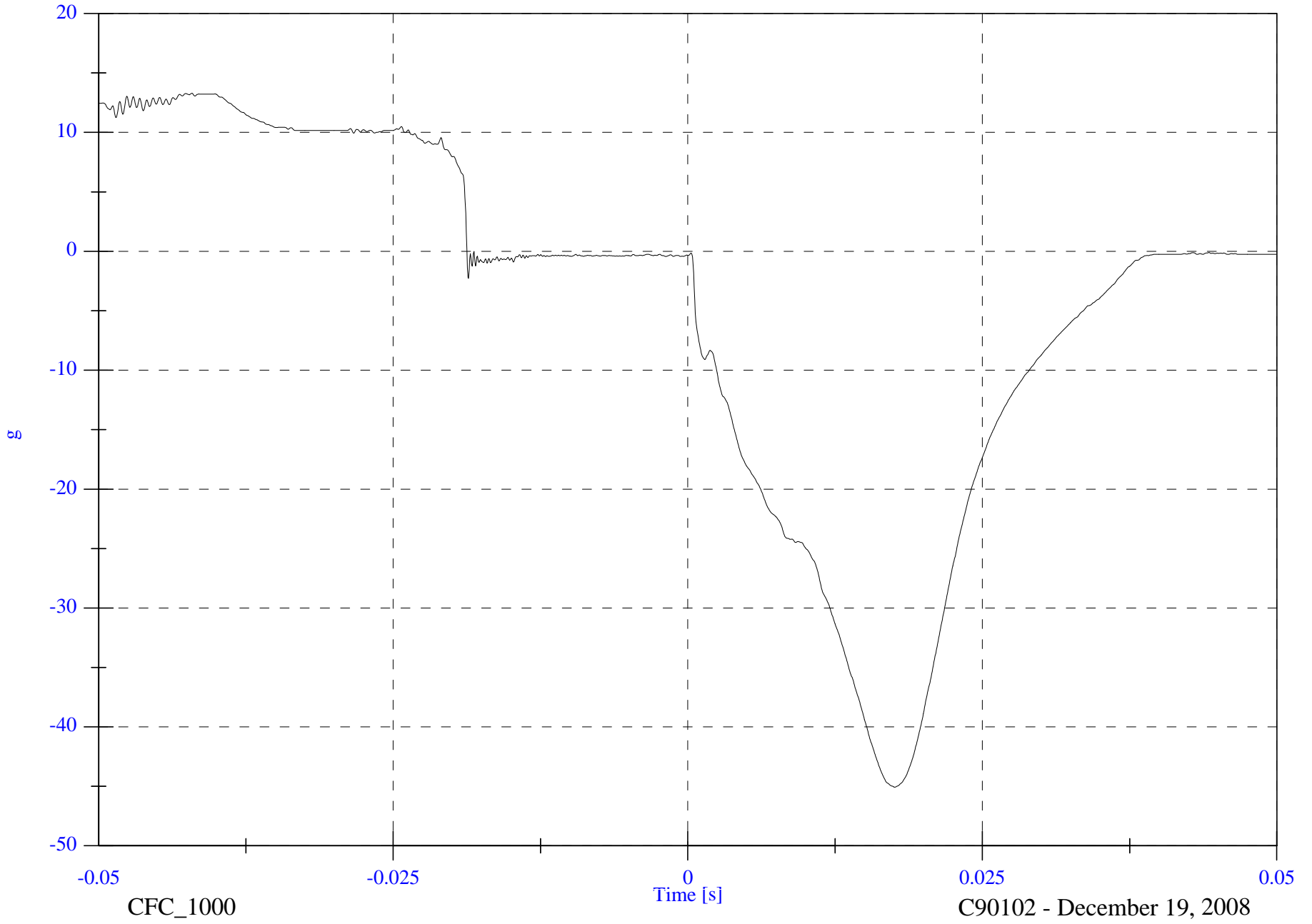
FMVSS 201U 09 Chevy Malibu

Headform X Acceleration

Max: 13.3 [g] at -0.042 [s]

Min: -45.1 [g] at 0.018 [s]

C90102 DRIVER SIDE RP2 IMPACT PLOT #1



CFC\_1000

C90102 - December 19, 2008

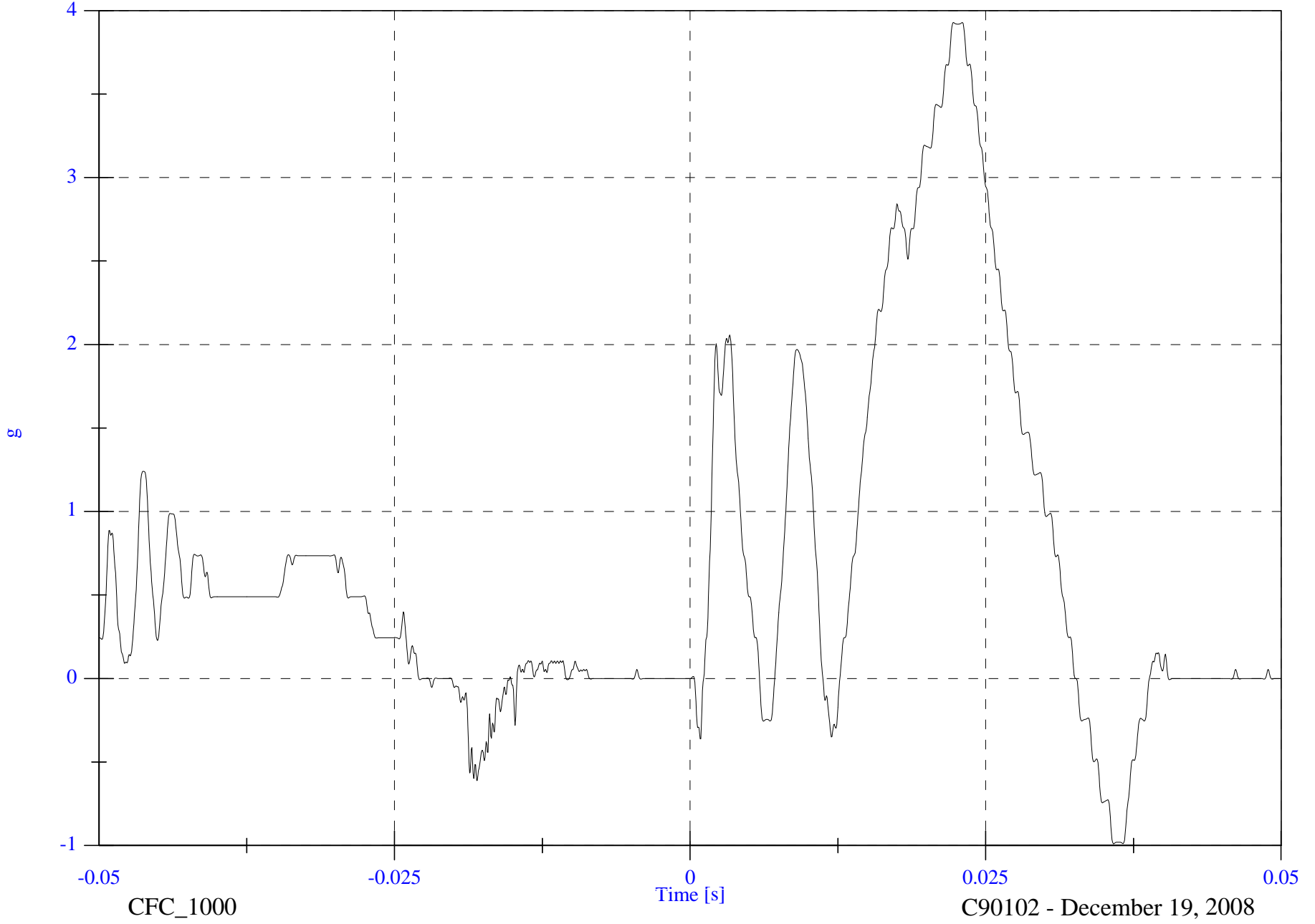
FMVSS 201U 09 Chevy Malibu

Headform Y Acceleration

Max: 3.9 [g] at 0.023 [s]

Min: -1.0 [g] at 0.036 [s]

C90102 DRIVER SIDE RP2 IMPACT PLOT #2





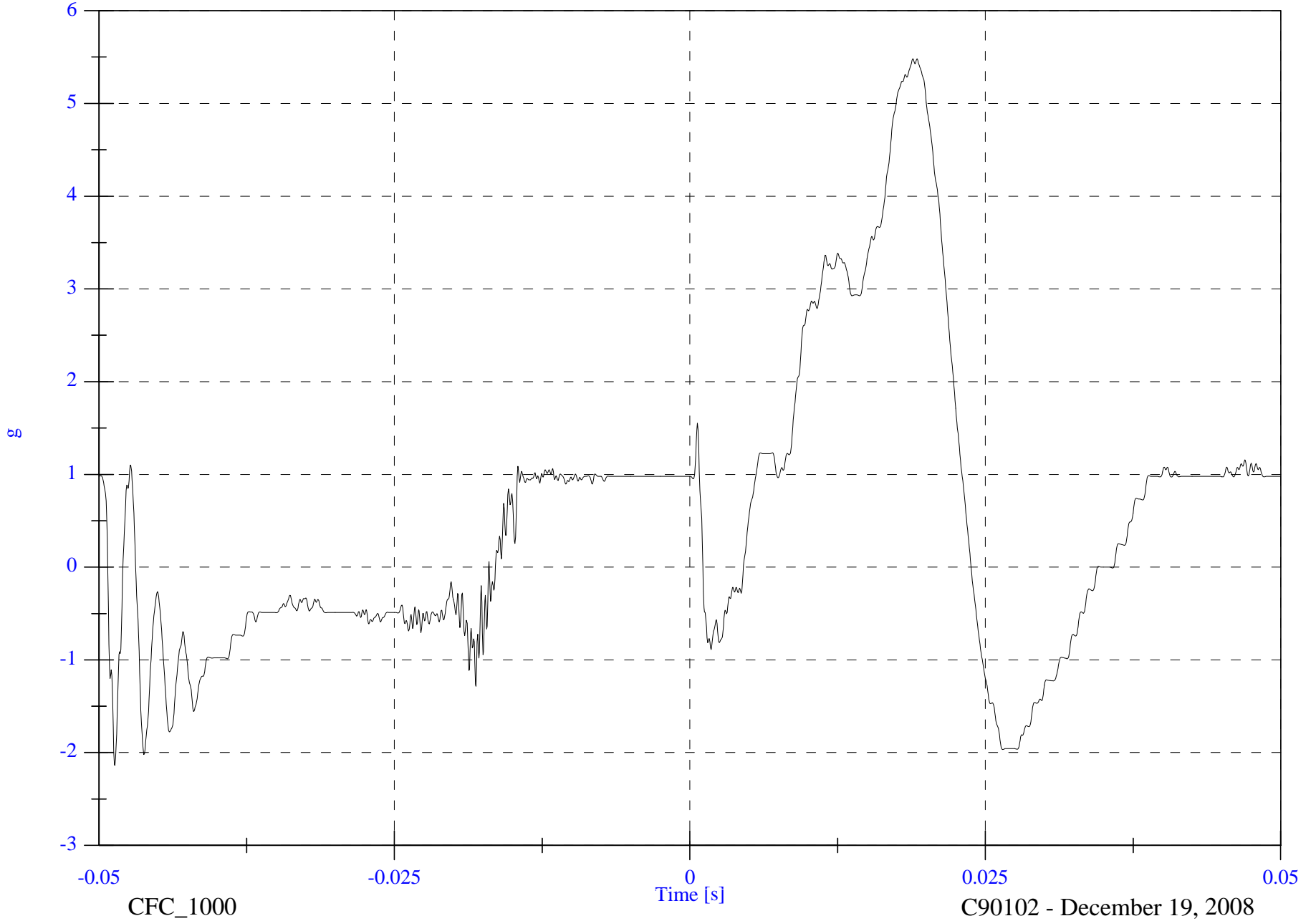
FMVSS 201U 09 Chevy Malibu

Headform Z Acceleration

Max: 5.5 [g] at 0.019 [s]

Min: -2.1 [g] at -0.049 [s]

C90102 DRIVER SIDE RP2 IMPACT PLOT #3



CFC\_1000

C90102 - December 19, 2008

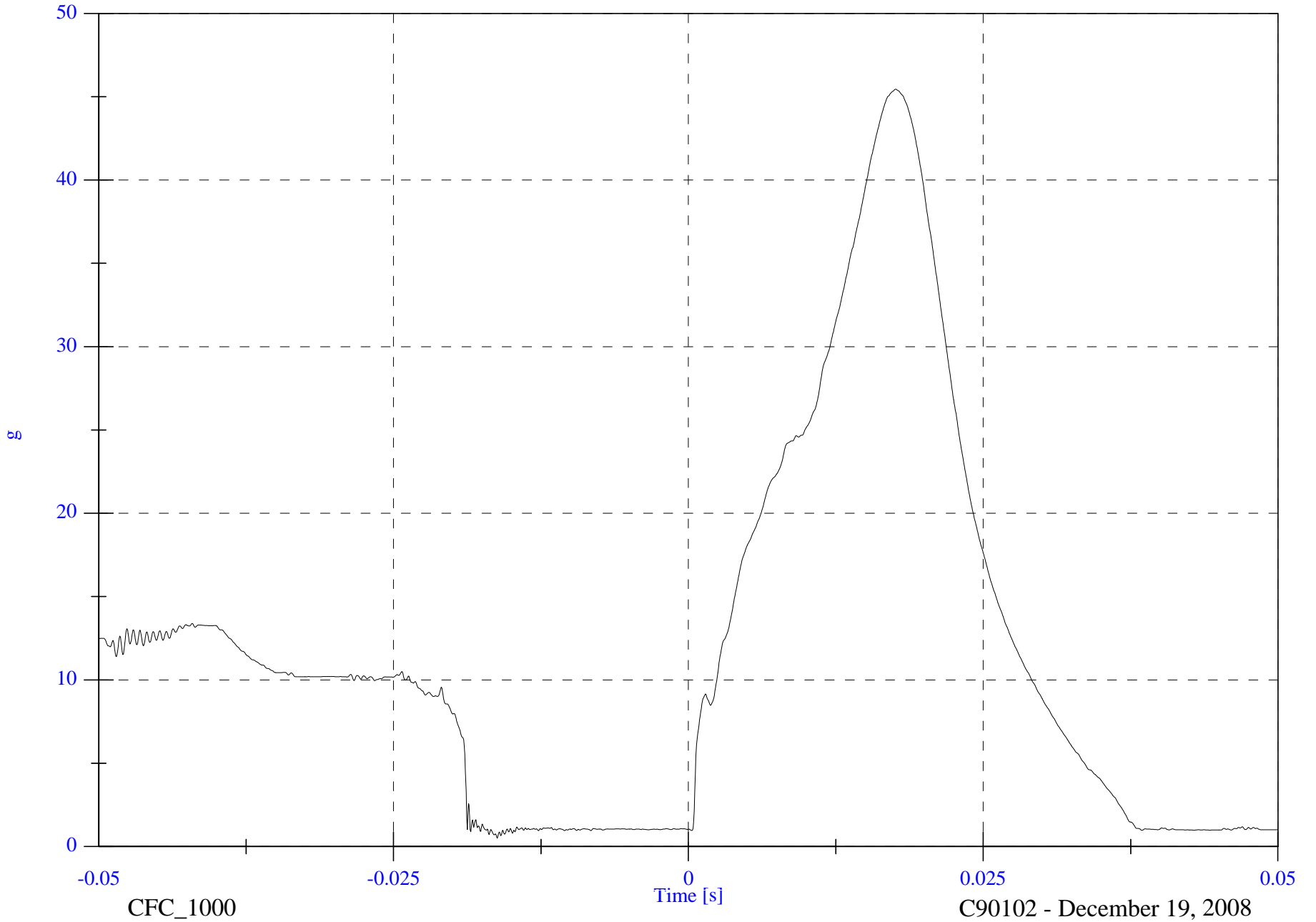
FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 45.5 [g] at 0.018 [s]

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

C90102 DRIVER SIDE RP2 IMPACT PLOT #4



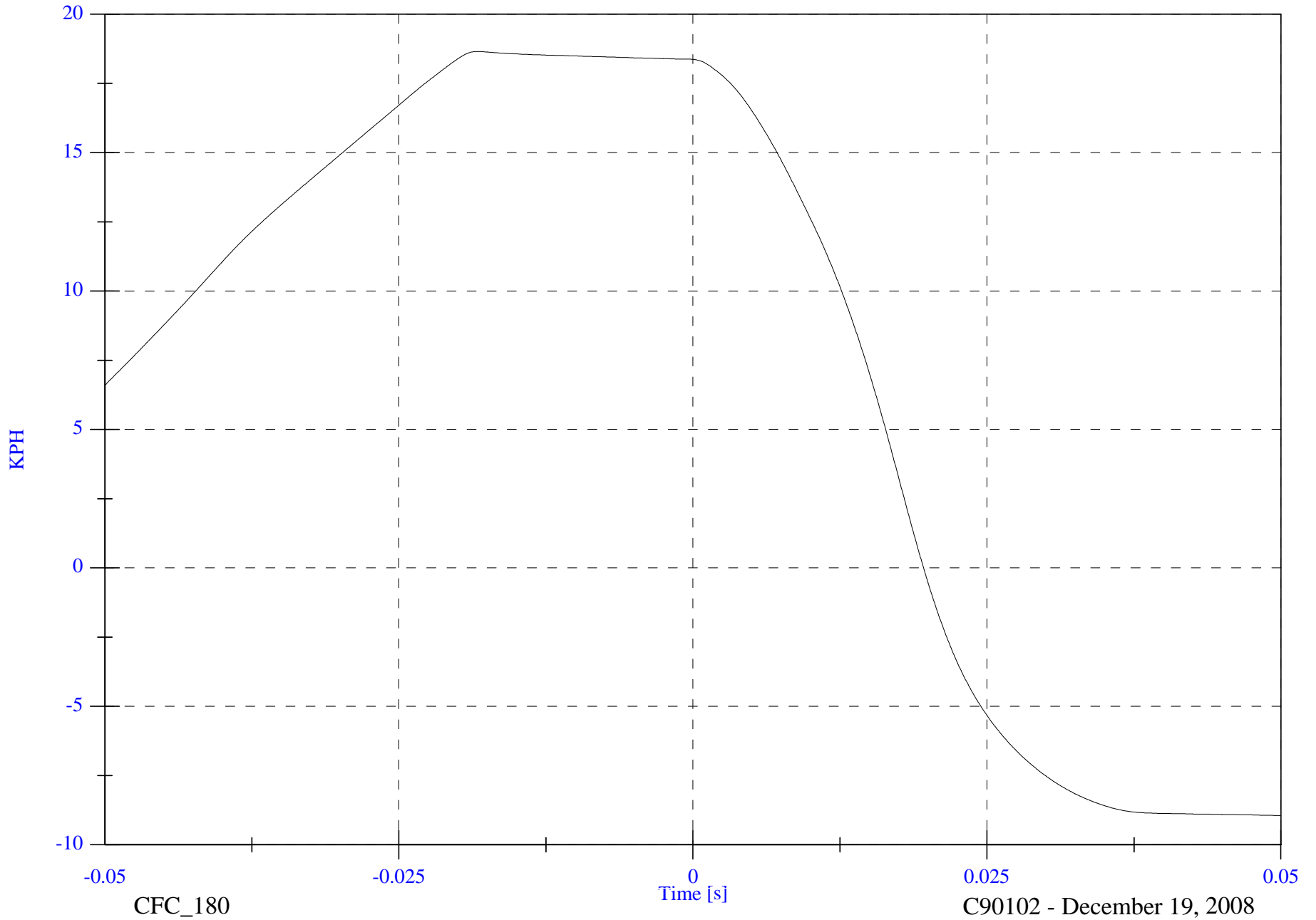
FMVSS 201U 09 Chevy Malibu

### Headform Velocity

Max: 18.7 [KPH] at -0.018 [s]

Min: -8.9 [KPH] at 0.050 [s]

C90102 DRIVER SIDE RP2 IMPACT PLOT #5



CFC\_180

C90102 - December 19, 2008



PRE-IMPACT RP2

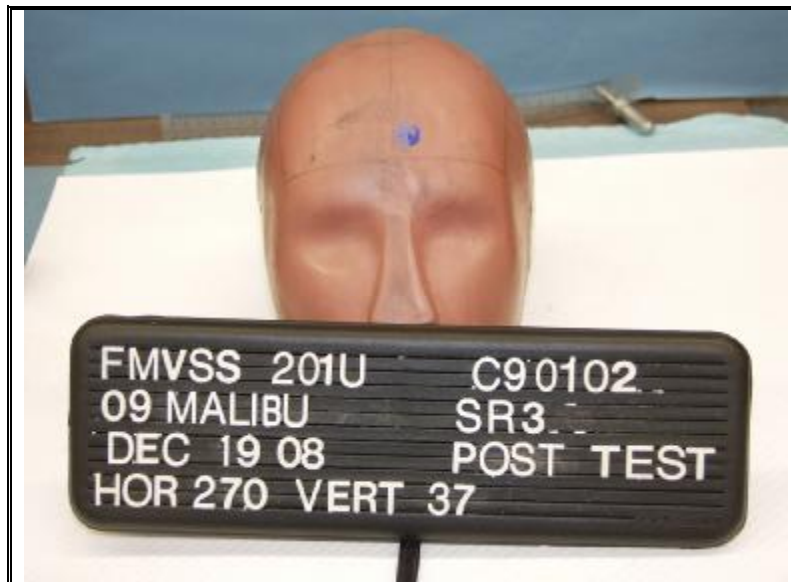


POST-IMPACT RP2

VEHICLE YEAR/MAKE/MODEL/STYLE:	2009 Chevrolet Malibu
VIN:	1G1ZG57B89F127475
DATE OF MANUFACTURE:	08/08(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	09
Test Date:	12/19/08
Target Location:	SIDE RAIL
Target Code:	SR3
Horizontal Impact Angle:	270°
Vertical Impact Angle:	37°
Ambient Temperature:	20°C
Relative Humidity:	21
Time of Impact:	9:25
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	11		mm up



POST-IMPACT SR3 HEADFORM

Free Motion HIC	326.4
HIC(d)	412.6
Impact Velocity (kph)	18.38
HIC T1 (msec)	5.2
HIC T2 (msec)	13.7

# FMVSS 201U 09 Chevy Malibu C90102 - SR3

FMH Headform 0805

Location: SR3

Test Date: December 19, 2008

Work File: SR3

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

Lab Temperature: 20 C

HICd: 412.6

Lab Humidity: 21 %

HIC (36ms): 326.4

Velocity at Impact: 18.38 KPH

t1: 5.2 msec

t2: 13.7 msec

Free Flight Distance: 220.19 mm

Duration: 8.4 msec

Average Acceleration: 7.2 g

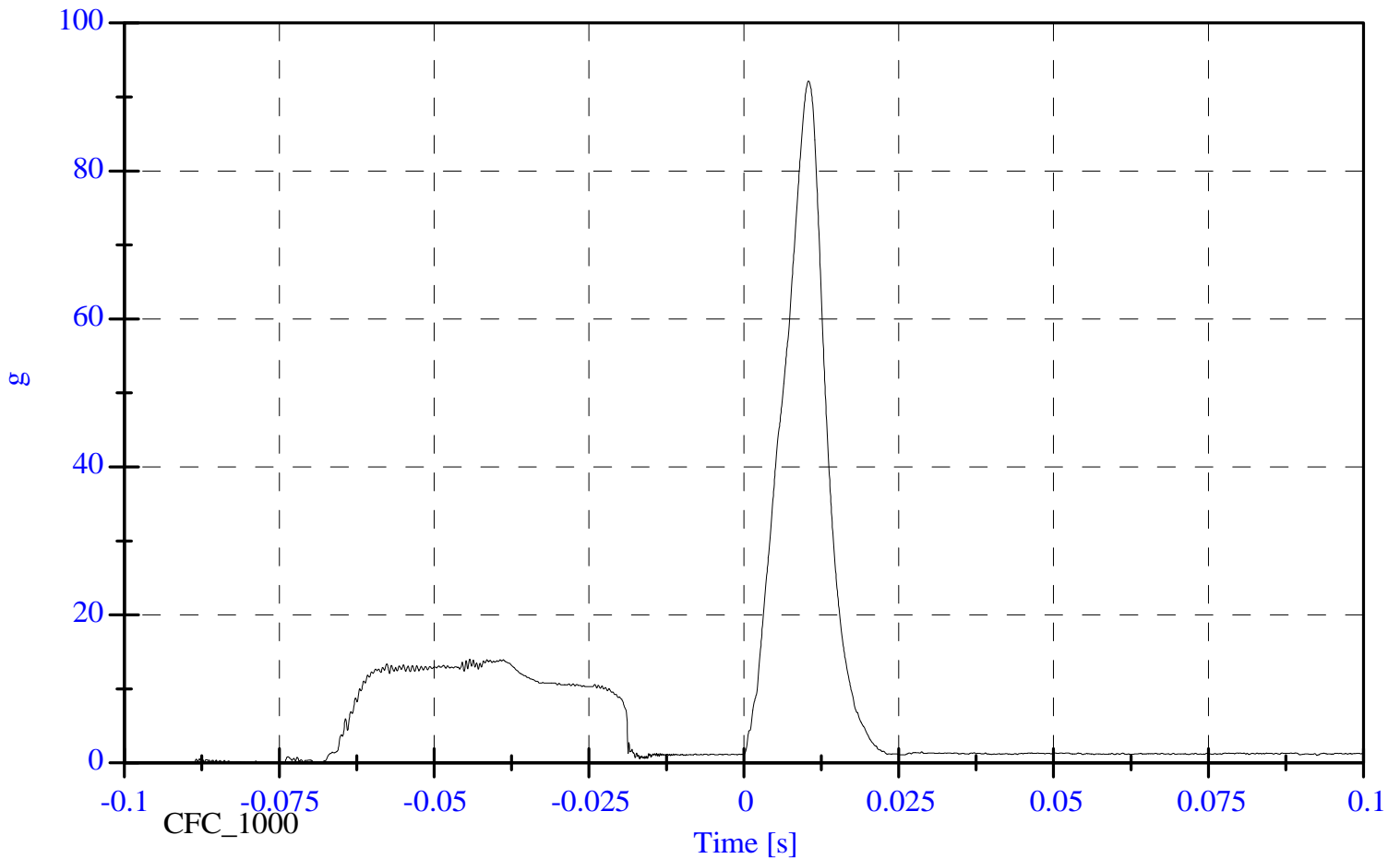
Maximum: 92.2 g

FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 92.2 [g] at 0.010 [s]

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



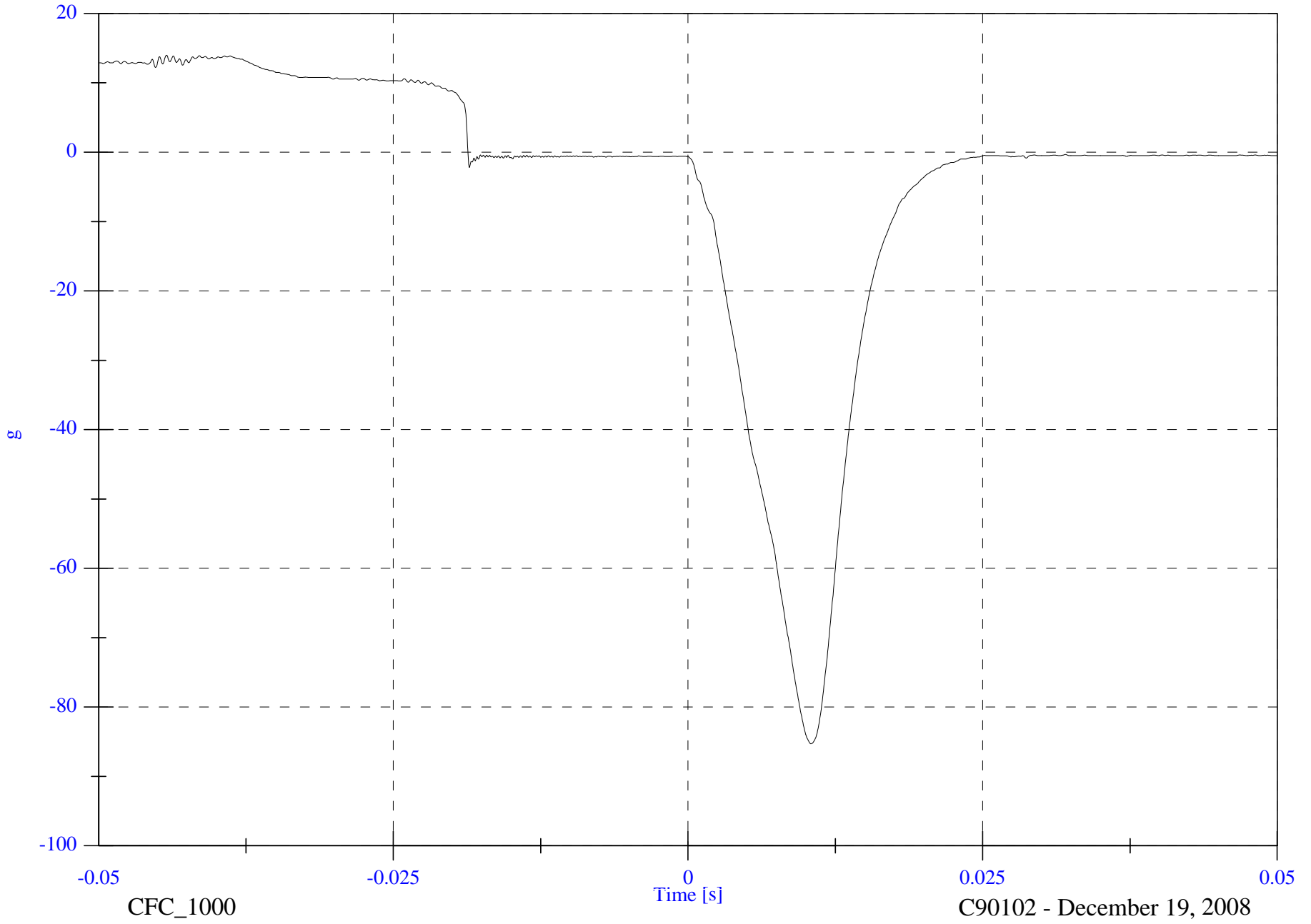
FMVSS 201U 09 Chevy Malibu

Headform X Acceleration

Max: 14.0 [g] at -0.044 [s]

Min: -85.3 [g] at 0.010 [s]

C90102 DRIVER SIDE SR3 IMPACT PLOT #1



CFC\_1000

C90102 - December 19, 2008



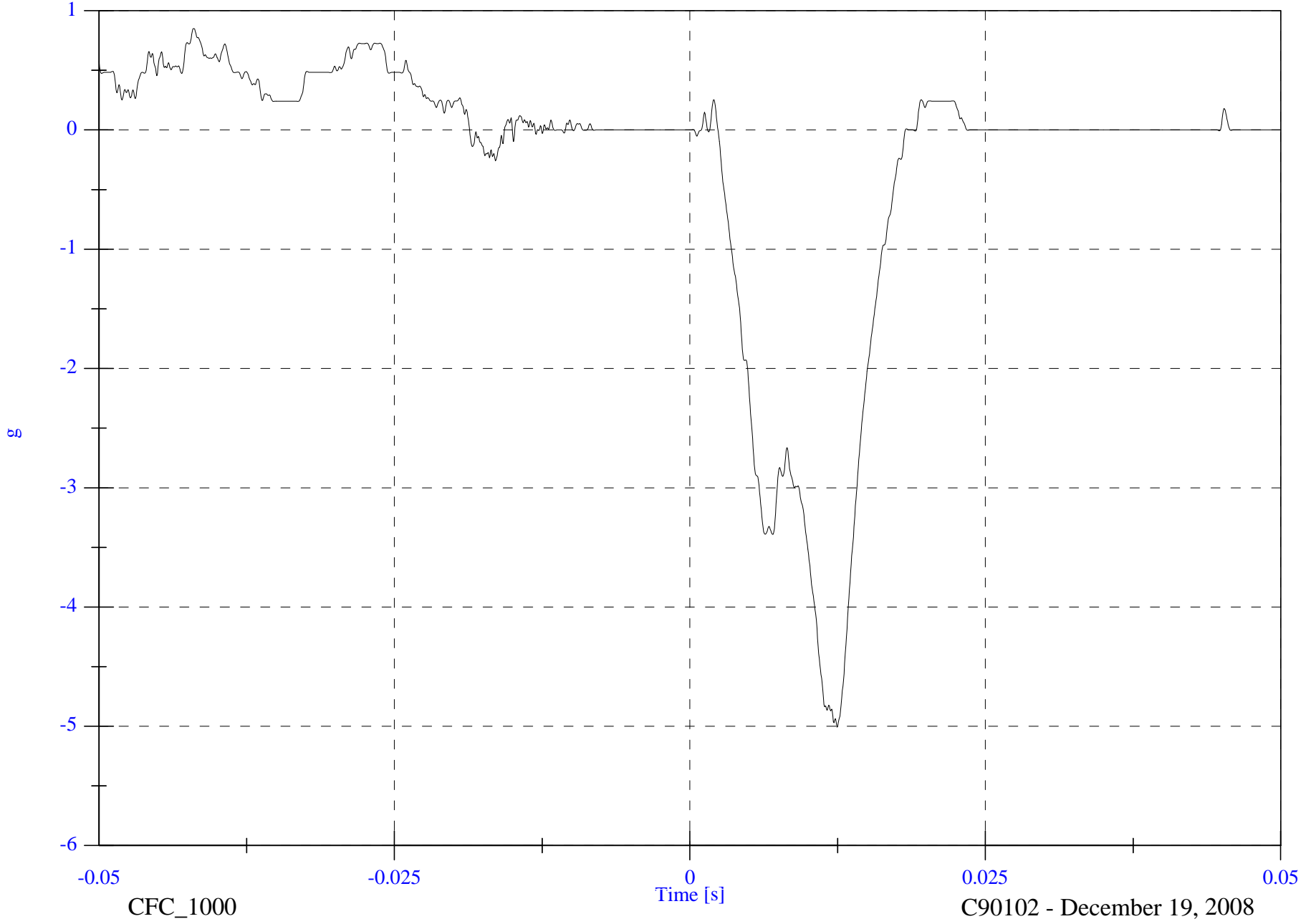
FMVSS 201U 09 Chevy Malibu

Headform Y Acceleration

Max: 0.9 [g] at -0.042 [s]

Min: -5.0 [g] at 0.012 [s]

C90102 DRIVER SIDE SR3 IMPACT PLOT #2



CFC\_1000

C90102 - December 19, 2008

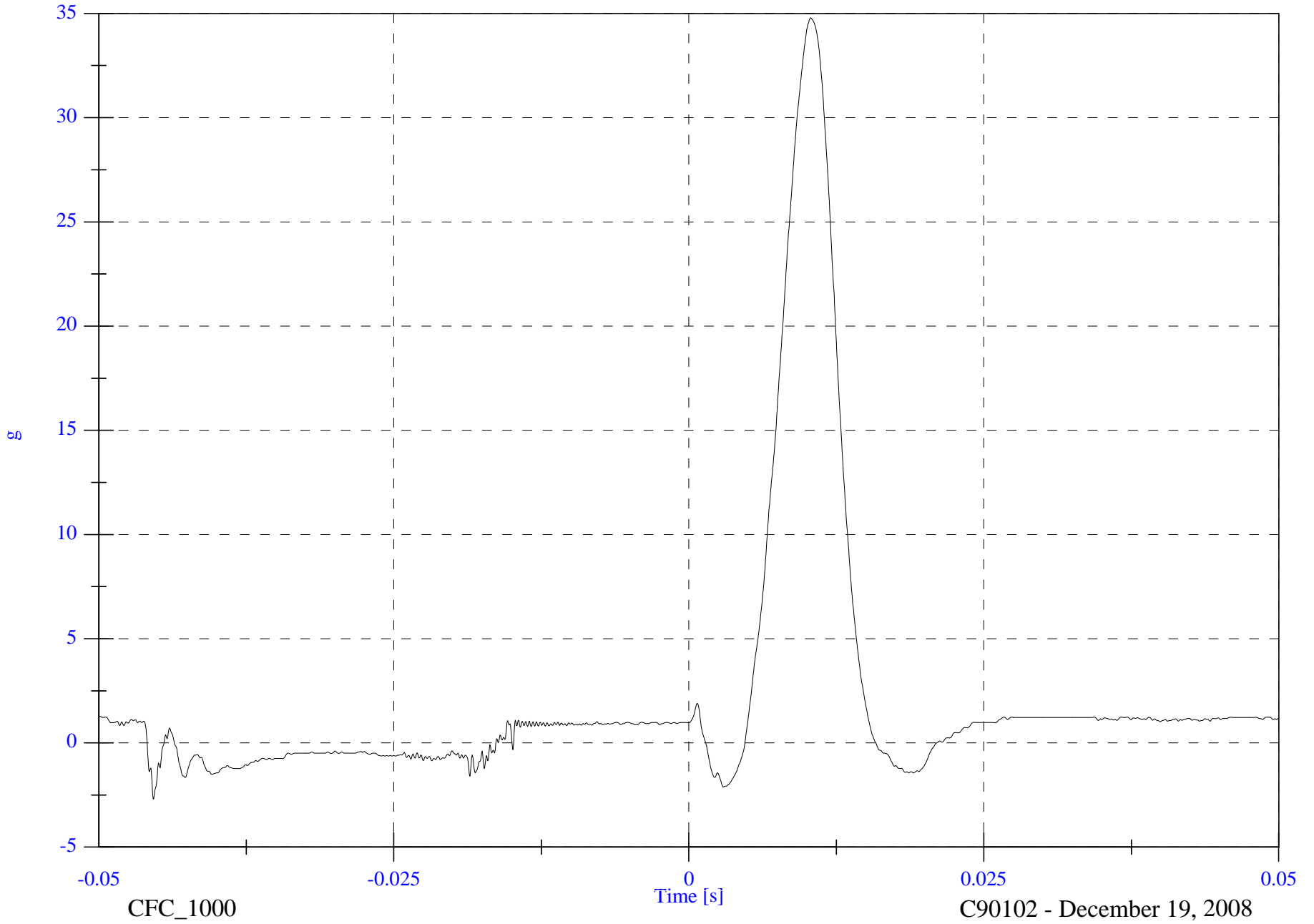
FMVSS 201U 09 Chevy Malibu

Headform Z Acceleration

Max: 34.8 [g] at 0.010 [s]

Min: -2.7 [g] at -0.045 [s]

C90102 DRIVER SIDE SR3 IMPACT PLOT #3



CFC\_1000

C90102 - December 19, 2008

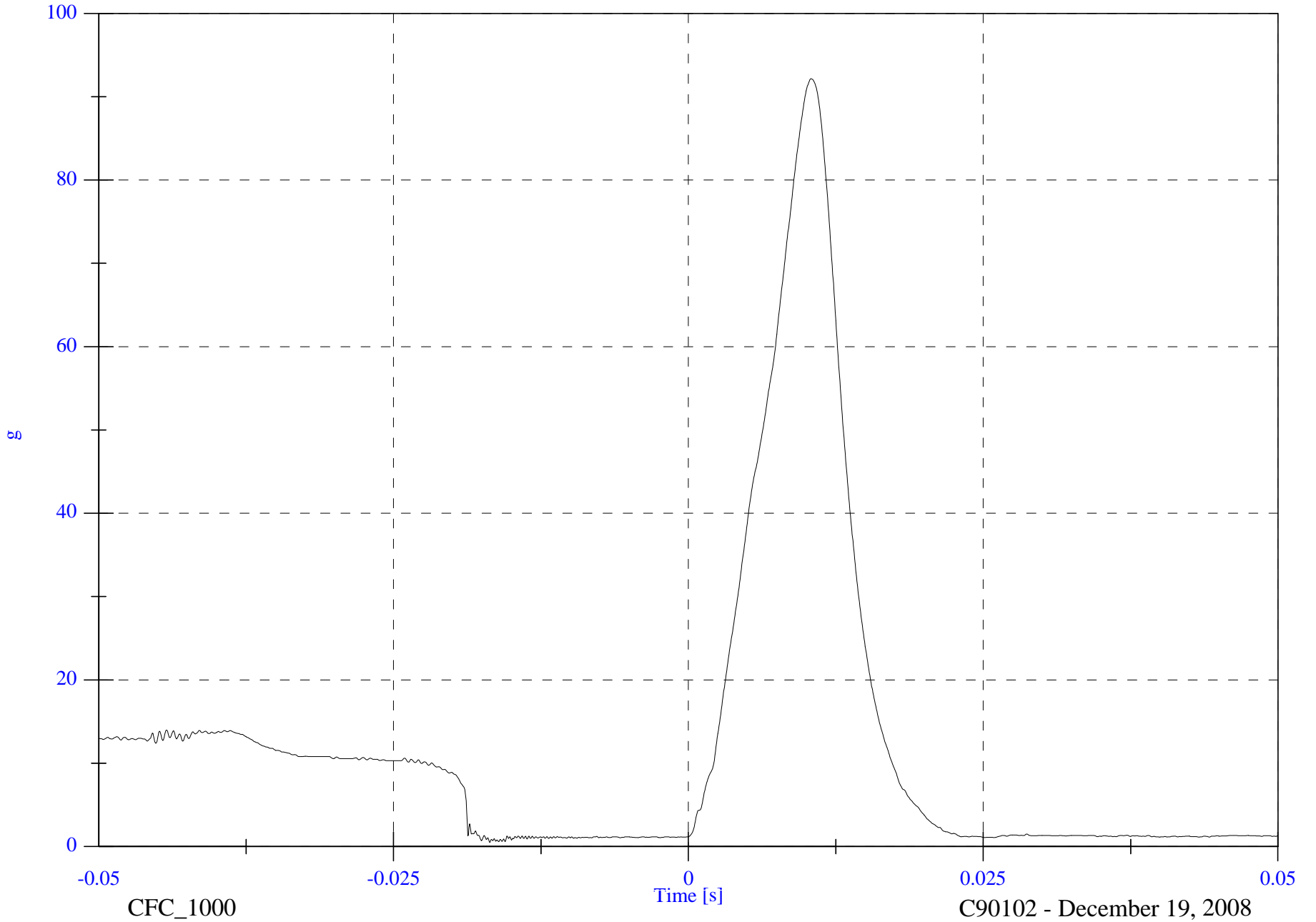
FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 92.2 [g] at 0.010 [s]

Min: 0.5 [g] at -0.017 [s]

C90102 DRIVER SIDE SR3 IMPACT PLOT #4



CFC\_1000

C90102 - December 19, 2008

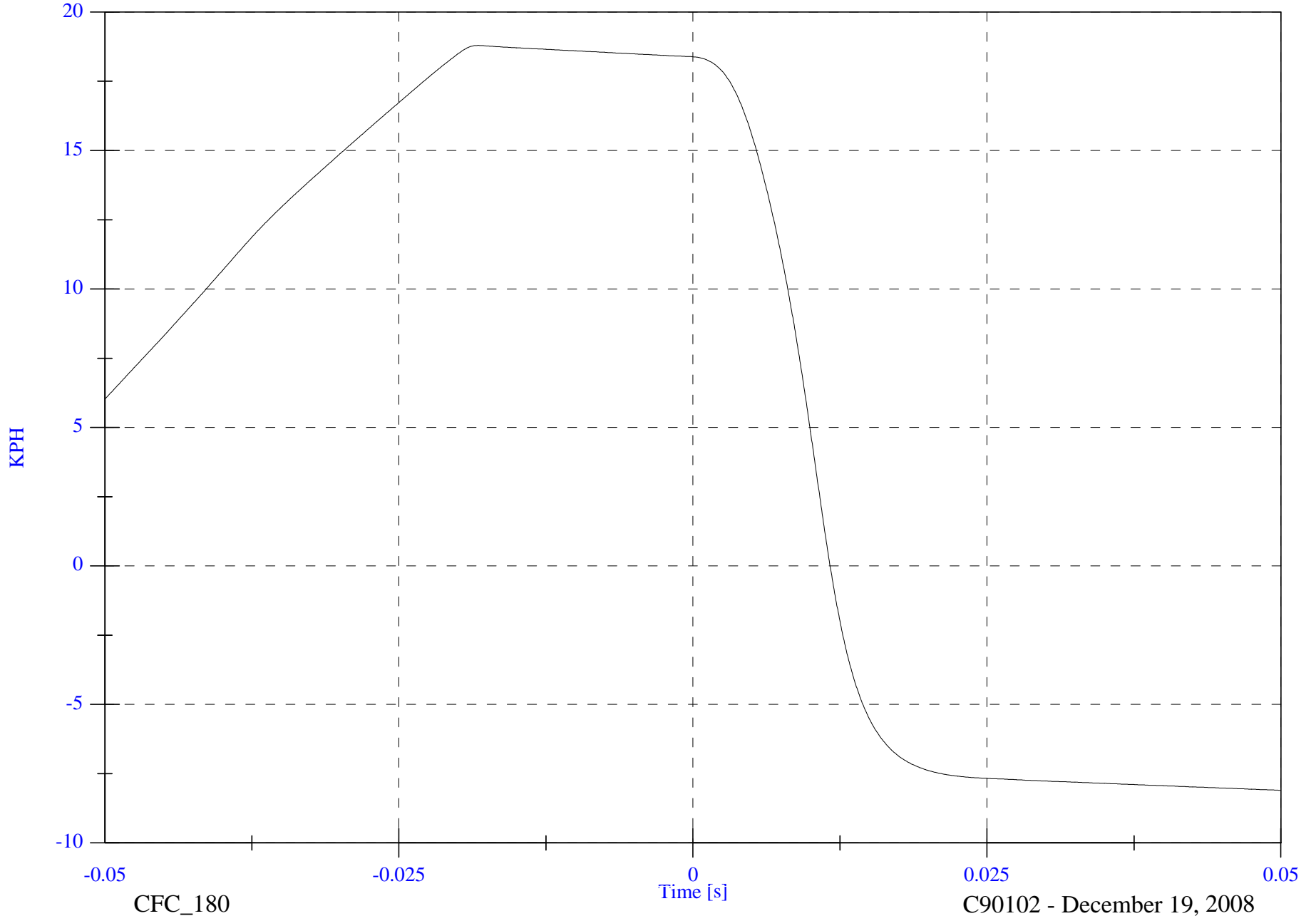
FMVSS 201U 09 Chevy Malibu

### Headform Velocity

Max: 18.8 [KPH] at -0.018 [s]

Min: -8.1 [KPH] at 0.050 [s]

C90102 DRIVER SIDE SR3 IMPACT PLOT #5



CFC\_180

Time [s]

C90102 - December 19, 2008



PRE-IMPACT SR3



POST-IMPACT SR3

VEHICLE YEAR/MAKE/MODEL/STYLE:	2009 Chevrolet Malibu
VIN:	1G1ZG57B89F127475
DATE OF MANUFACTURE:	08/08(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	10
Test Date:	12/19/08
Target Location:	B-PILLAR
Target Code:	BP2
Horizontal Impact Angle:	270°
Vertical Impact Angle:	10°
Ambient Temperature:	20°C
Relative Humidity:	21
Time of Impact:	9:55
Headform Number:	1142

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



POST-IMPACT BP2 HEADFORM

Free Motion HIC	820.3
HIC(d)	785.3
Impact Velocity (kph)	23.58
HIC T1 (msec)	2.4
HIC T2 (msec)	6.9

# FMVSS 201U 09 Chevy Malibu C90102 - BP2

FMH Headform 1142

Location: BP2

Test Date: December 19, 2008

Work File: BP2

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

Lab Temperature: 20 C

HICd: 785.3

Lab Humidity: 21 %

HIC (36ms): 820.3

Velocity at Impact: 23.58 KPH

t1: 2.4 msec

t2: 6.9 msec

Free Flight Distance: 225.07 mm

Duration: 4.5 msec

Average Acceleration: 8.4 g

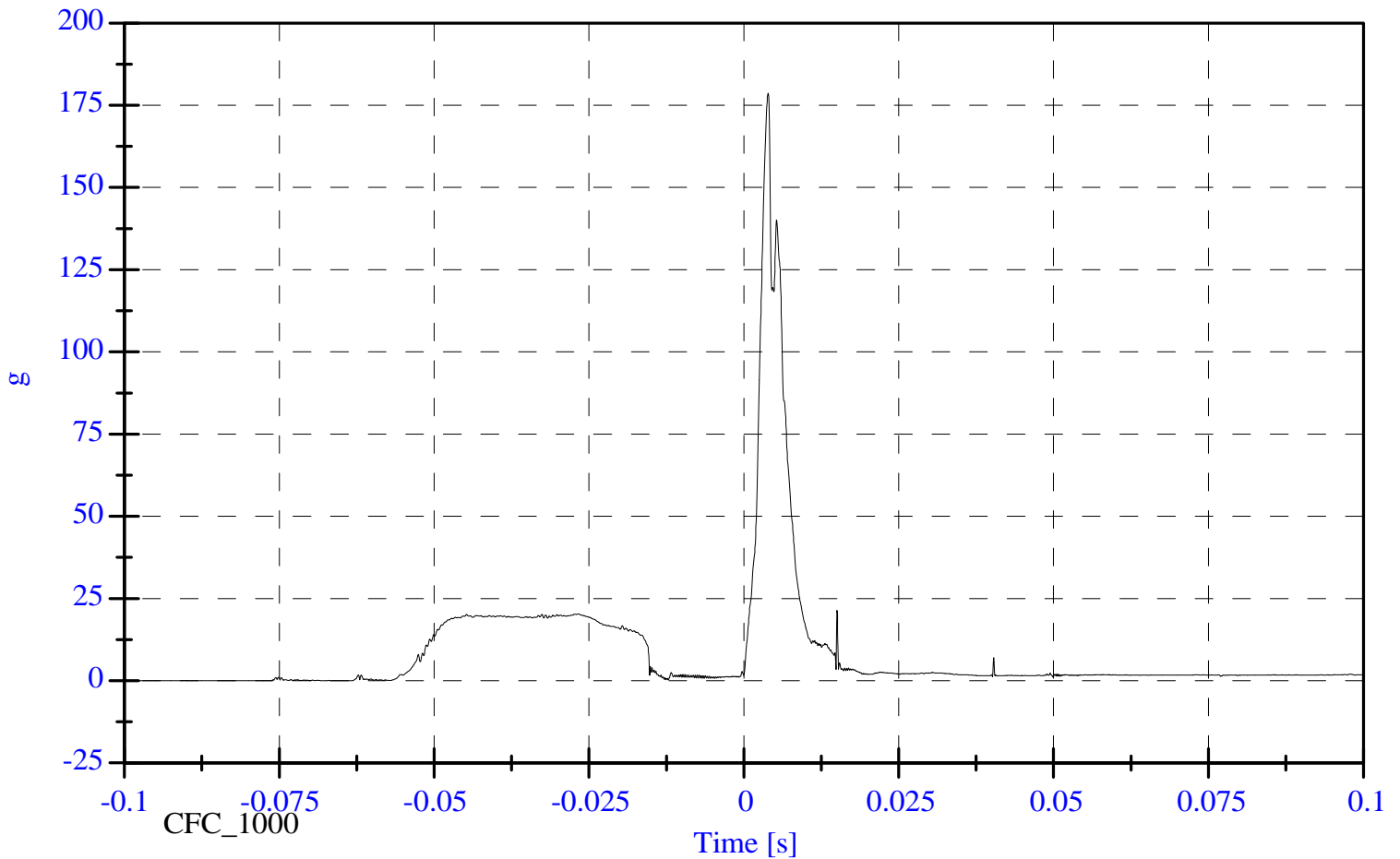
Maximum: 178.7 g

FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 178.7 [g] at 0.004 [s]

Min: -0.0 [g] at -0.100 [s]



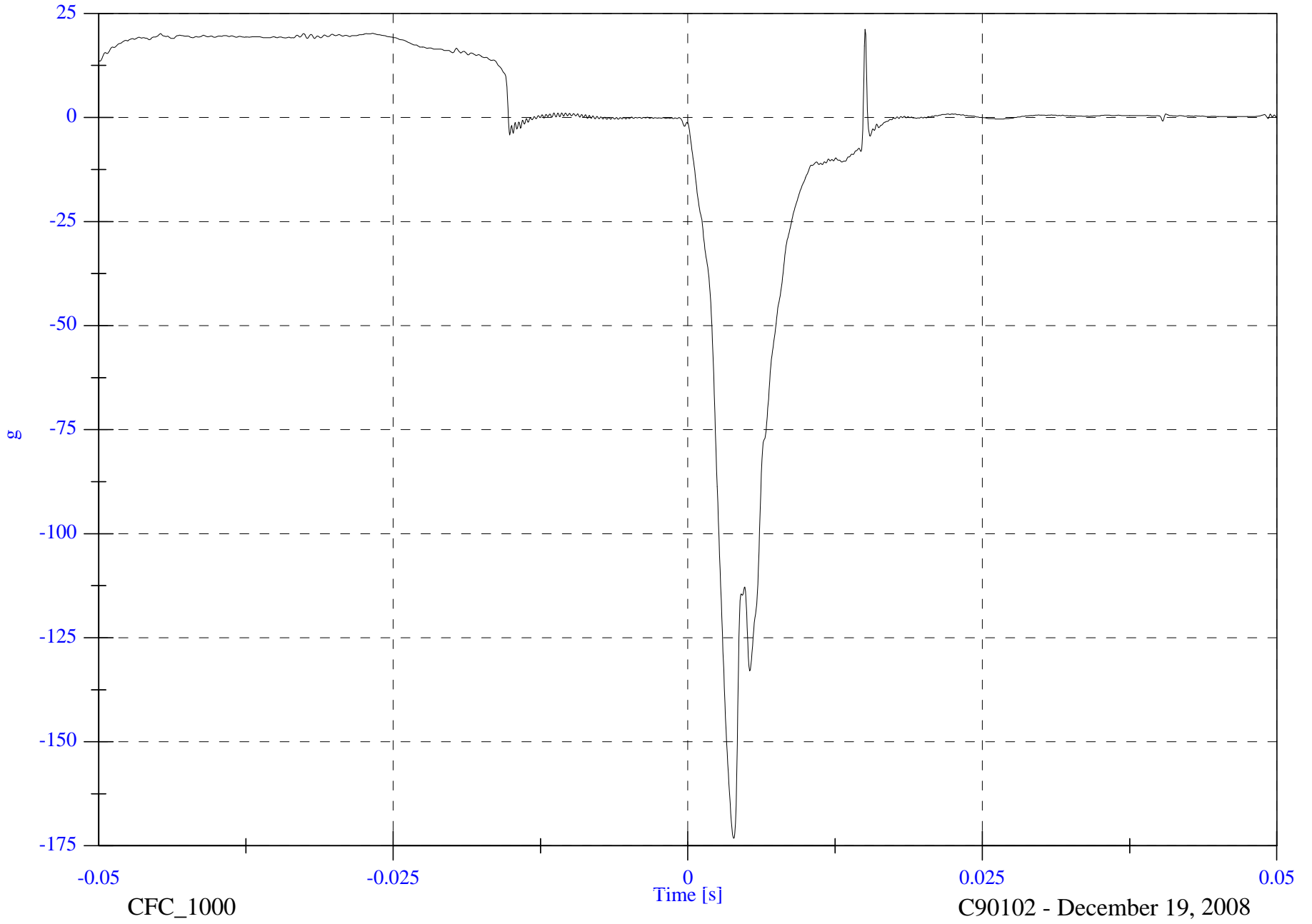


FMVSS 201U 09 Chevy Malibu

Headform X Acceleration

Max: 21.2 [g] at 0.015 [s]  
Min: -173.2 [g] at 0.004 [s]

C90102 DRIVER SIDE BP2 IMPACT PLOT #1



CFC\_1000

C90102 - December 19, 2008

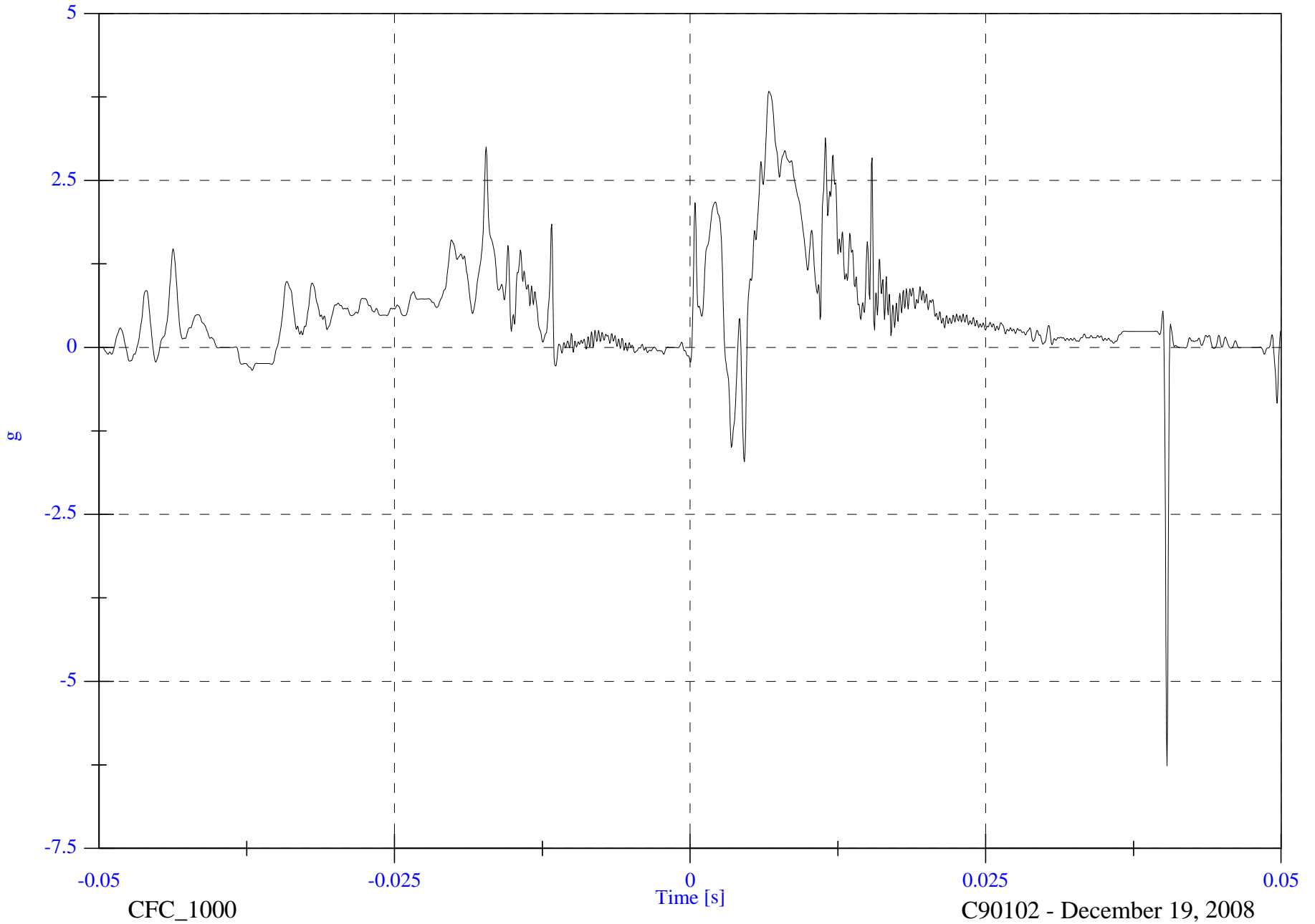
FMVSS 201U 09 Chevy Malibu

Headform Y Acceleration

Max: 3.8 [g] at 0.007 [s]

Min: -6.3 [g] at 0.040 [s]

C90102 DRIVER SIDE BP2 IMPACT PLOT #2



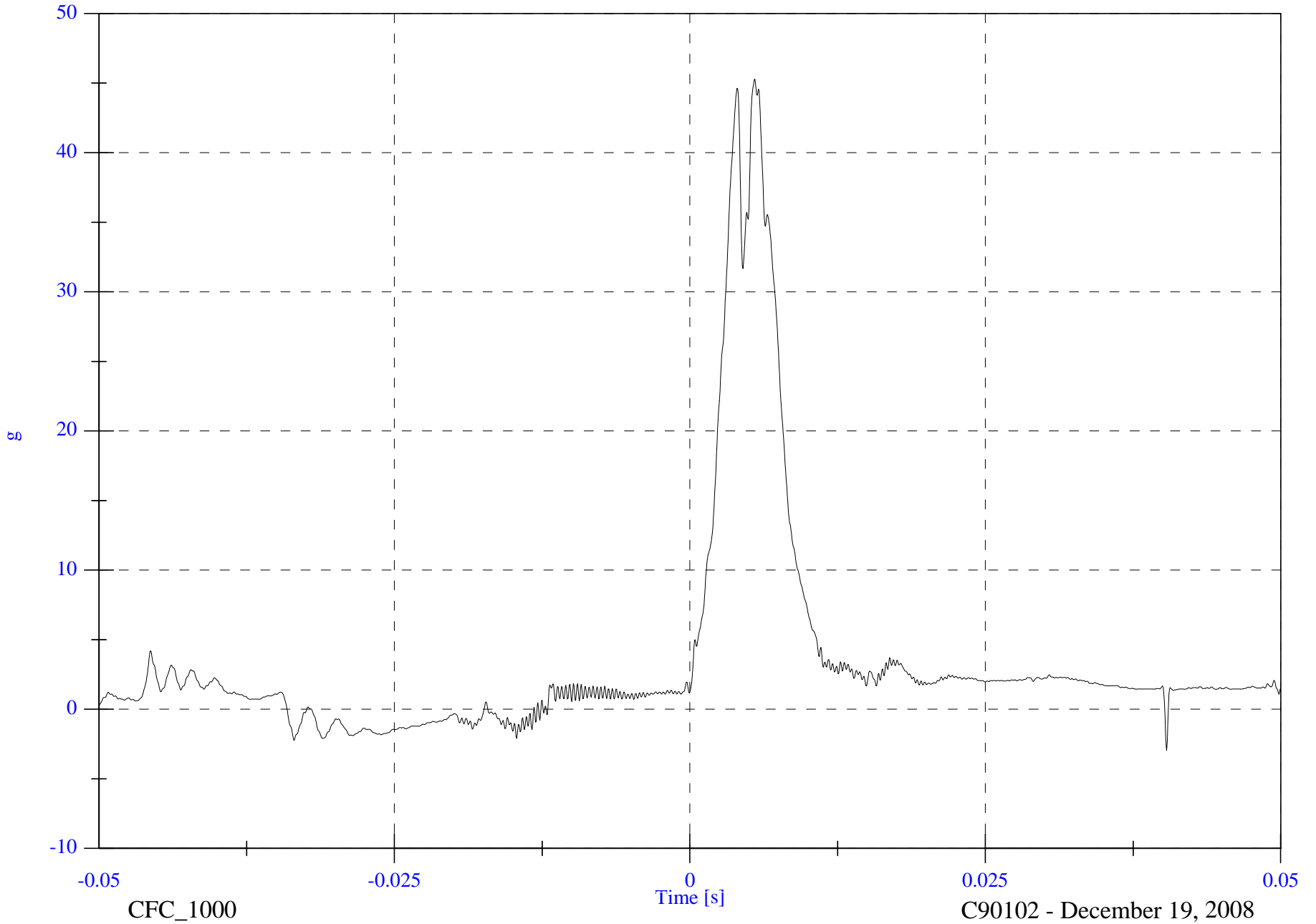
FMVSS 201U 09 Chevy Malibu

Headform Z Acceleration

Max: 45.3 [g] at 0.005 [s]

Min: -2.9 [g] at 0.040 [s]

C90102 DRIVER SIDE BP2 IMPACT PLOT #3



CFC\_1000

C90102 - December 19, 2008

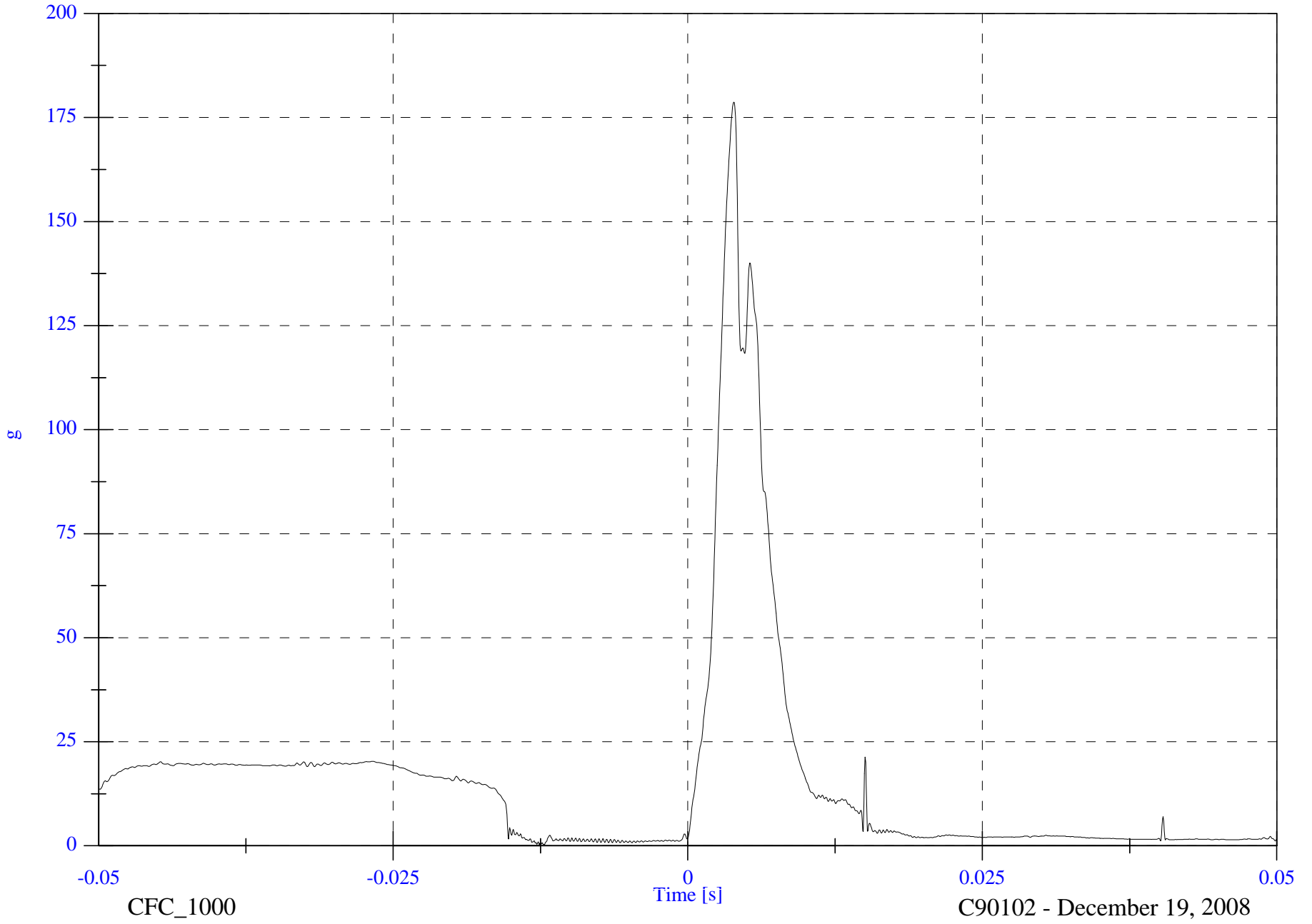
FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 178.7 [g] at 0.004 [s]

Min: 0.2 [g] at -0.012 [s]

C90102 DRIVER SIDE BP2 IMPACT PLOT #4



CFC\_1000

C90102 - December 19, 2008

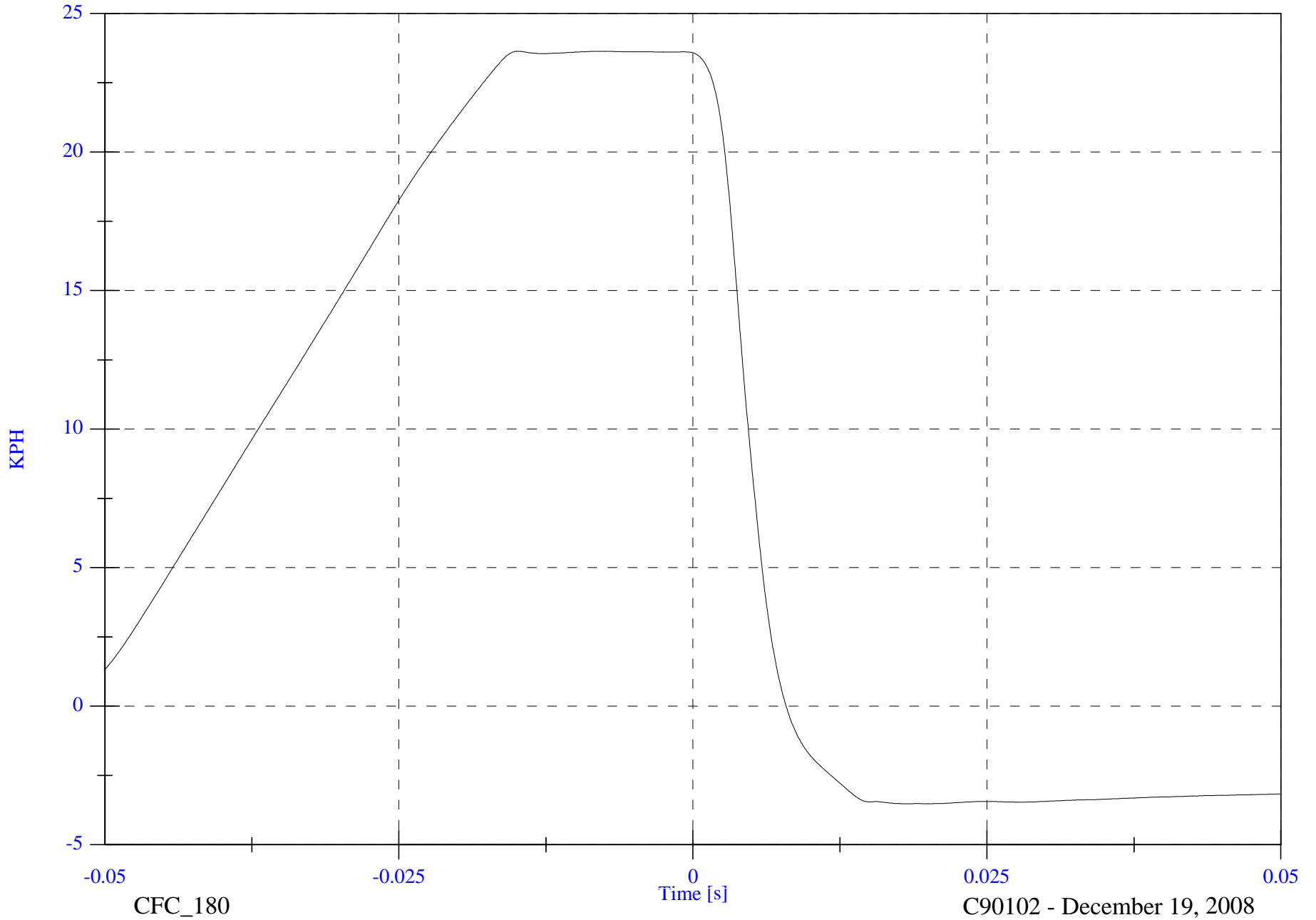
FMVSS 201U 09 Chevy Malibu

### Headform Velocity

Max: 23.6 [KPH] at -0.015 [s]

Min: -3.5 [KPH] at 0.018 [s]

C90102 DRIVER SIDE BP2 IMPACT PLOT #5



CFC\_180

C90102 - December 19, 2008



PRE-IMPACT BP2



POST-IMPACT BP2

VEHICLE YEAR/MAKE/MODEL/STYLE:	2009 Chevrolet Malibu
VIN:	1G1ZG57B89F127475
DATE OF MANUFACTURE:	08/08(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	11
Test Date:	12/19/08
Target Location:	UPPER ROOF
Target Code:	URBP
Horizontal Impact Angle:	270°
Vertical Impact Angle:	42°
Ambient Temperature:	20°C
Relative Humidity:	21
Time of Impact:	10:20
Headform Number:	0062

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	3	<input type="checkbox"/>	mm right	<input checked="" type="checkbox"/>	mm left
On Centerline	47				mm up



POST-IMPACT URBPHHEADFORM

Free Motion HIC	626.8
HIC(d)	639.3
Impact Velocity (kph)	23.57
HIC T1 (msec)	2.8
HIC T2 (msec)	12.4



# FMVSS 201U 09 Chevy Malibu C90102 - URBP

FMH Headform 0062

Location: URBP

Test Date: December 19, 2008

Work File: URBP

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

Lab Temperature: 20 C

HICd: 639.3

Lab Humidity: 21 %

HIC (36ms): 626.8

Velocity at Impact: 23.57 KPH

t1: 2.8 msec

t2: 12.4 msec

Free Flight Distance: 222.96 mm

Duration: 9.6 msec

Average Acceleration: 9.9 g

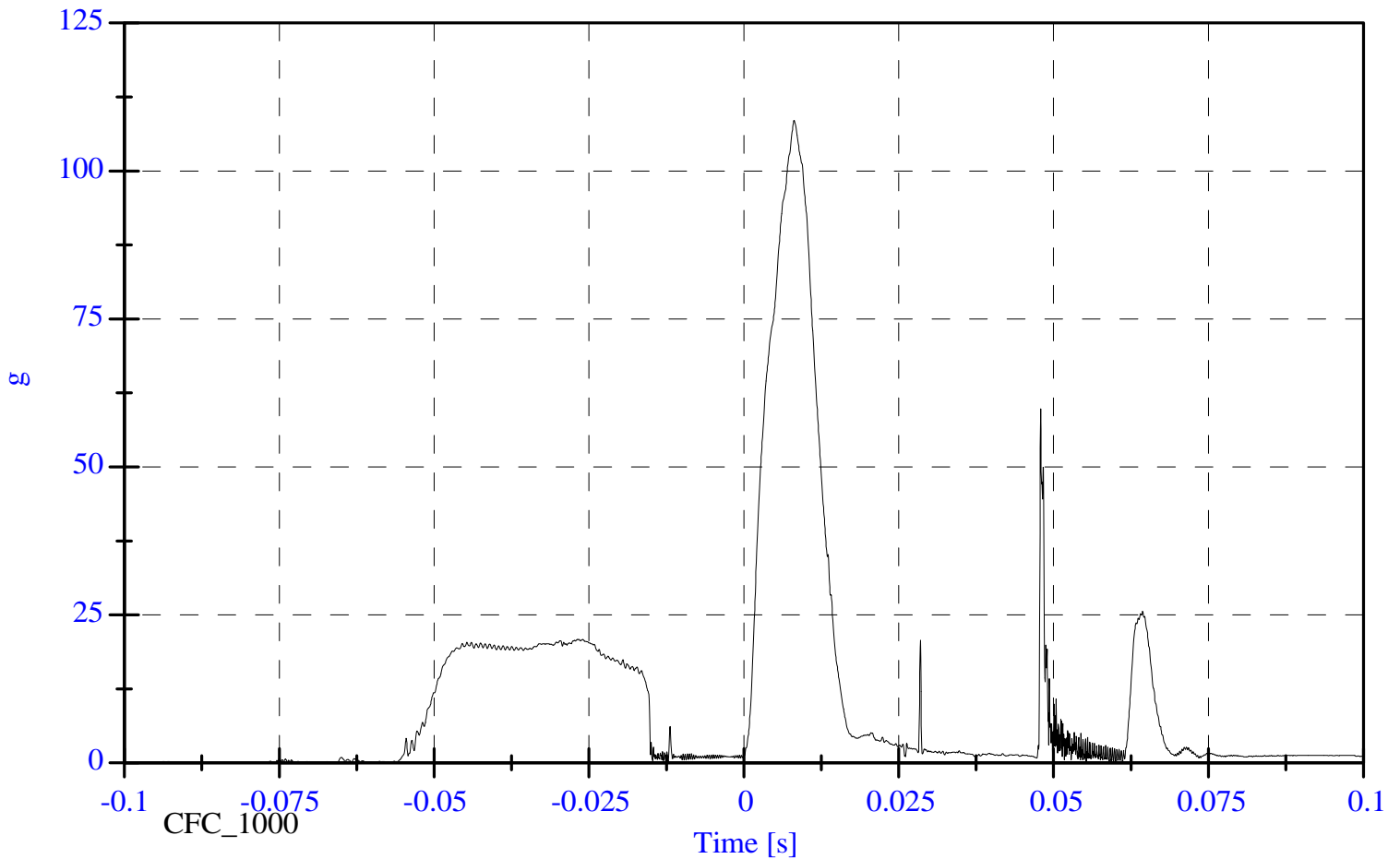
Maximum: 108.6 g

FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 108.6 [g] at 0.008 [s]

Min: 0.0 [g] at -0.086 [s]



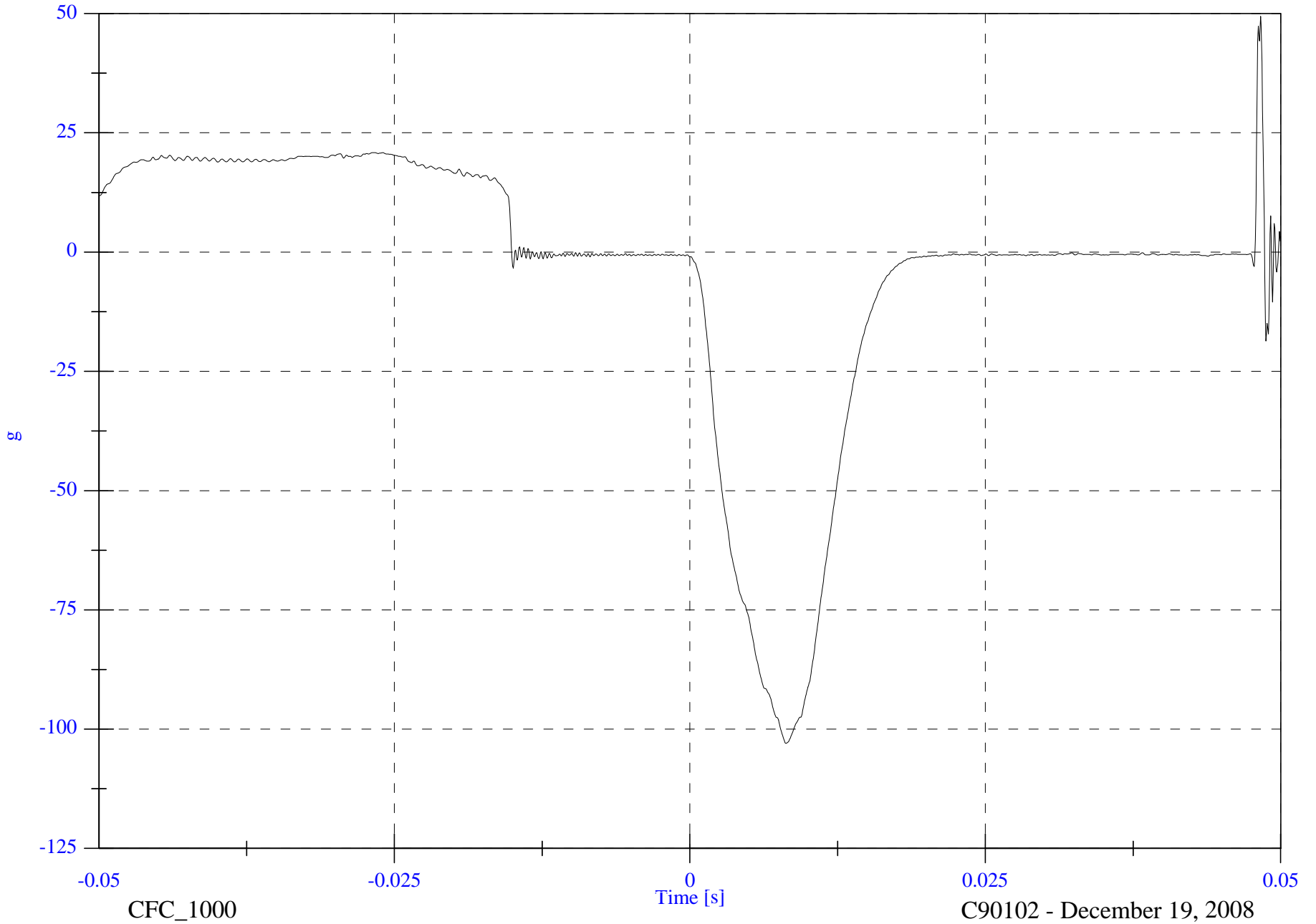
FMVSS 201U 09 Chevy Malibu

Headform X Acceleration

Max: 49.4 [g] at 0.048 [s]

Min: -103.0 [g] at 0.008 [s]

C90102 DRIVER SIDE URBP IMPACT PLOT # 1



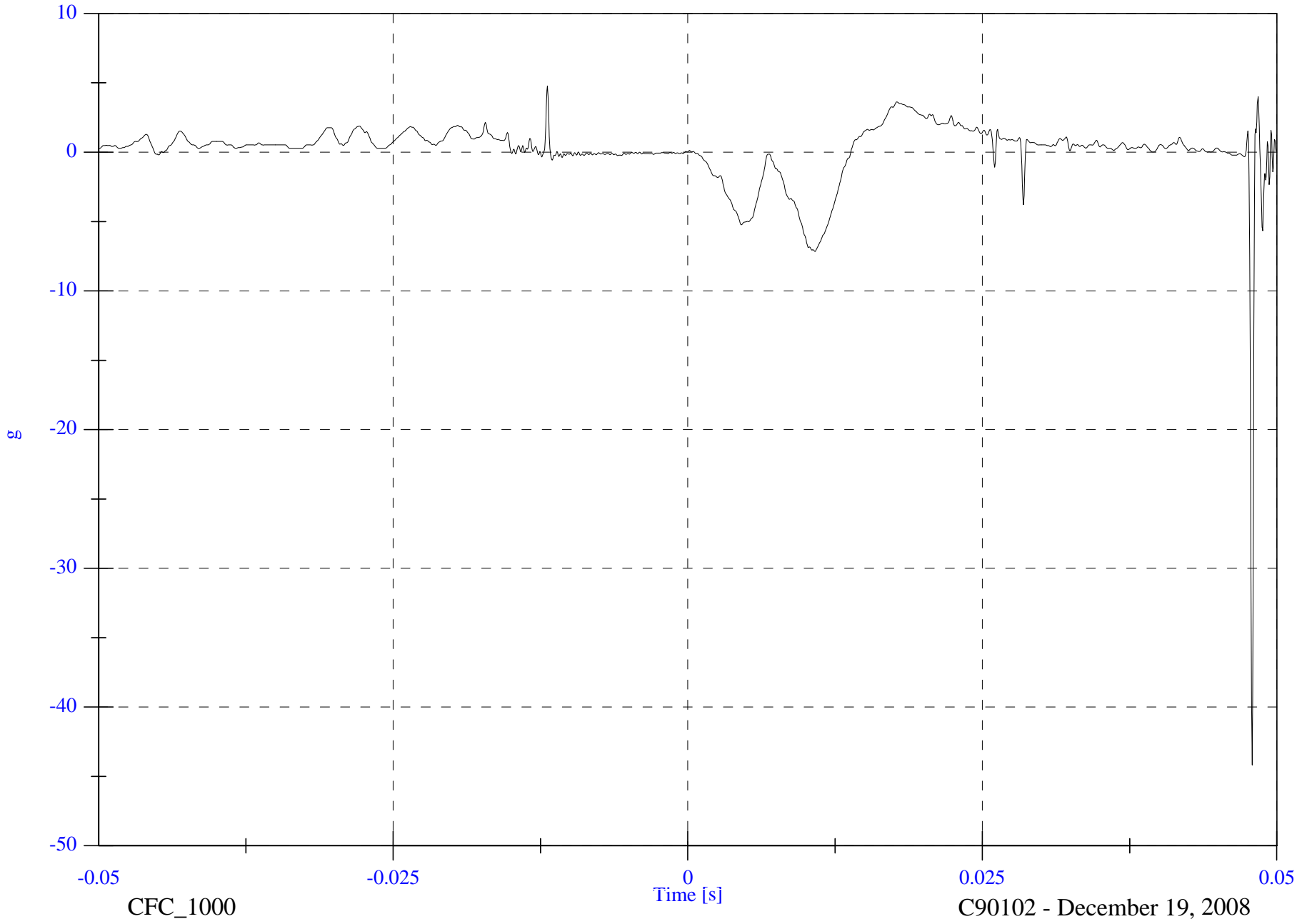
FMVSS 201U 09 Chevy Malibu

Headform Y Acceleration

Max: 4.8 [g] at -0.012 [s]

Min: -44.2 [g] at 0.048 [s]

C90102 DRIVER SIDE URBP IMPACT PLOT # 2



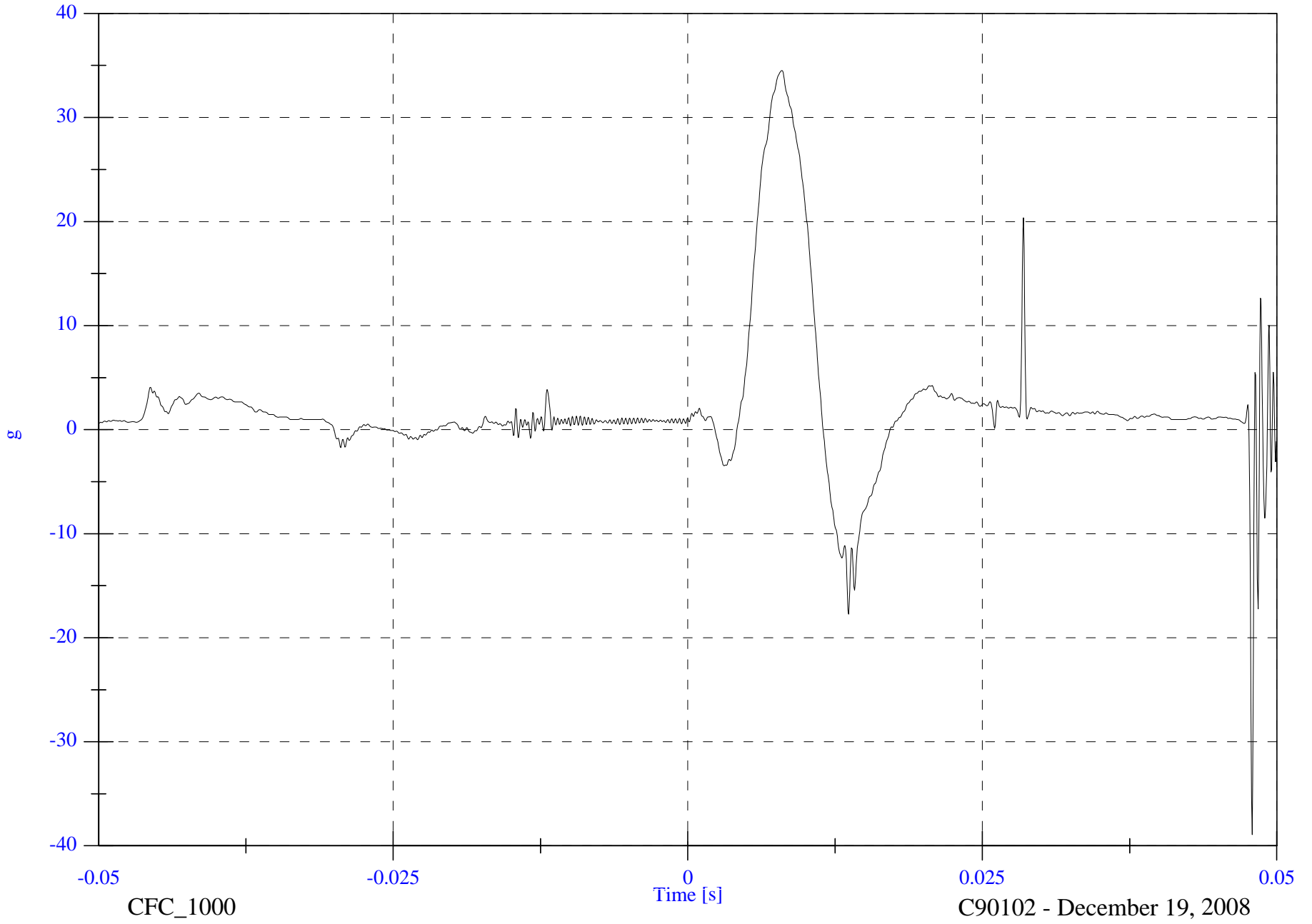
FMVSS 201U 09 Chevy Malibu

Headform Z Acceleration

Max: 34.5 [g] at 0.008 [s]

Min: -38.9 [g] at 0.048 [s]

C90102 DRIVER SIDE URBP IMPACT PLOT # 3



CFC\_1000

C90102 - December 19, 2008

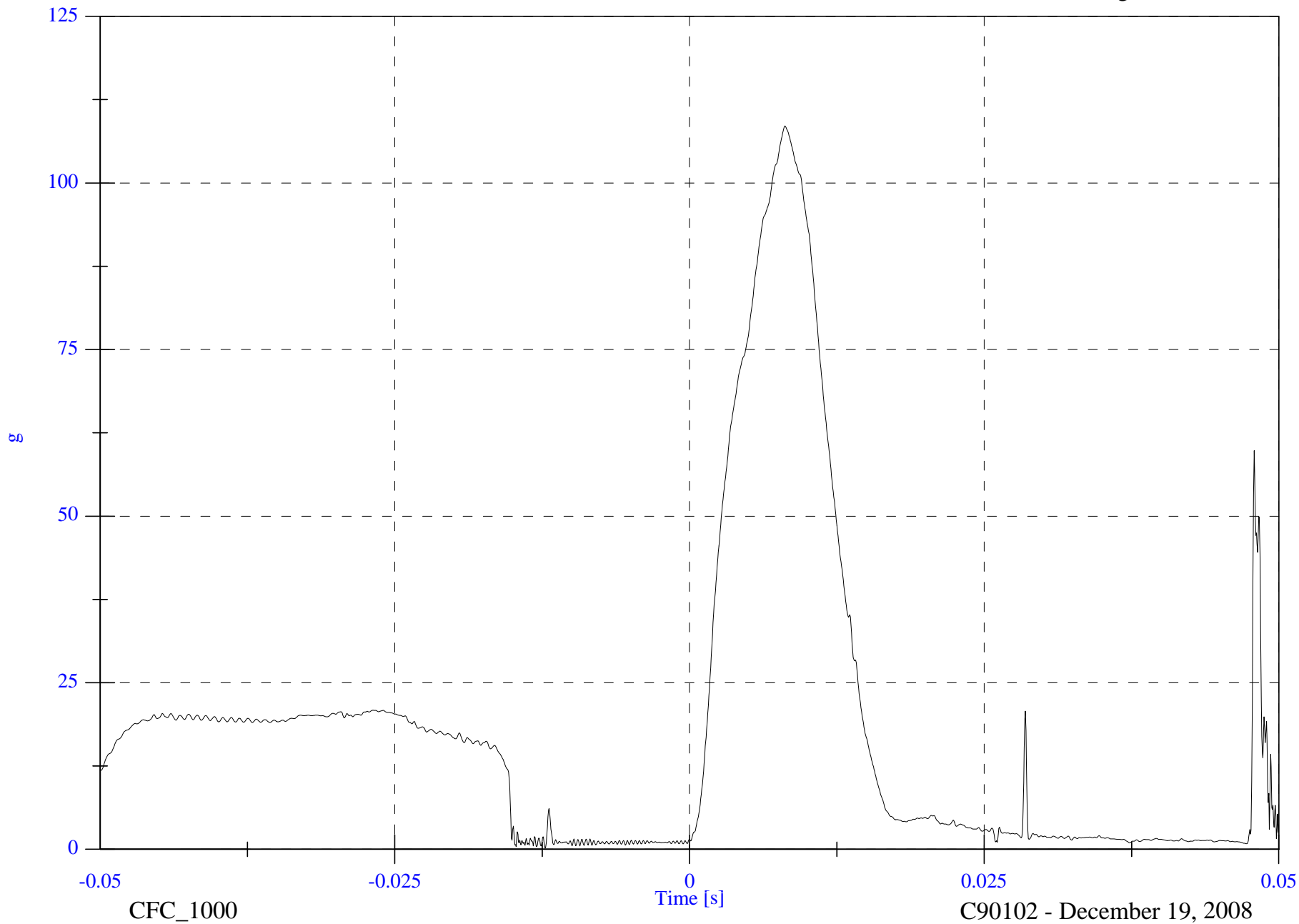
FMVSS 201U 09 Chevy Malibu

### Headform Resultant

Max: 108.6 [g] at 0.008 [s]

Min: 0.2 [g] at -0.012 [s]

C90102 DRIVER SIDE URBP IMPACT PLOT # 4



CFC\_1000

C90102 - December 19, 2008

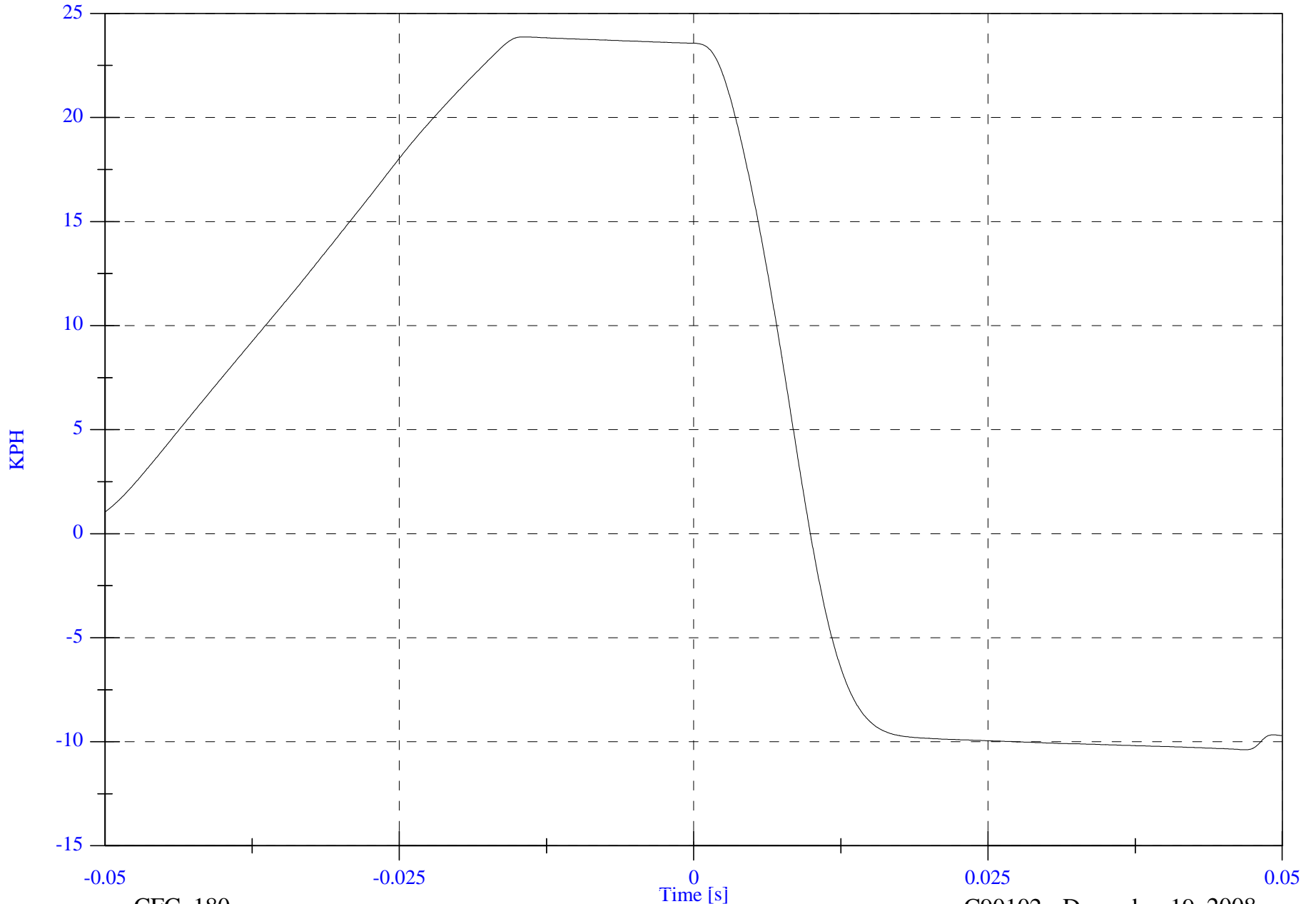
FMVSS 201U 09 Chevy Malibu

### Headform Velocity

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

Min: -10.4 [KPH] at 0.047 [s]

C90102 DRIVER SIDE URBP IMPACT PLOT # 5



CFC\_180

C90102 - December 19, 2008



PRE-IMPACT URBP



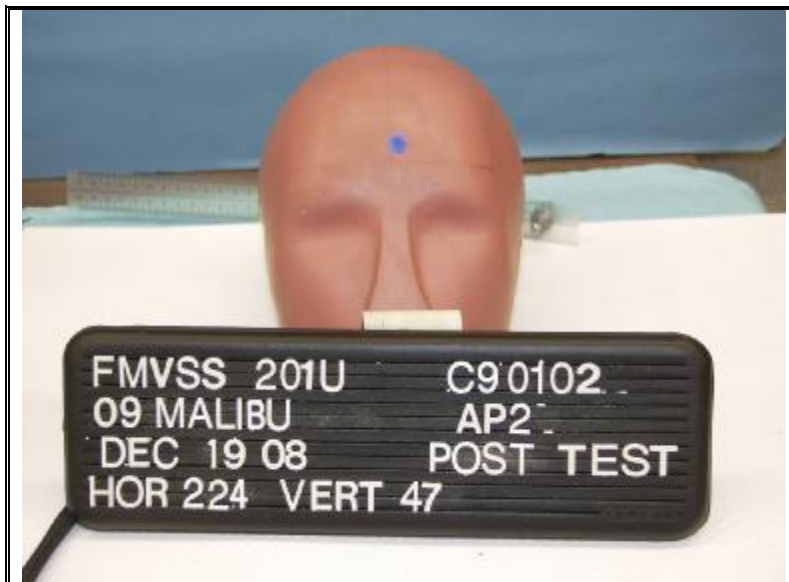
POST-IMPACT URBP



VEHICLE YEAR/MAKE/MODEL/STYLE:	2009 Chevrolet Malibu
VIN:	1G1ZG57B89F127475
DATE OF MANUFACTURE:	08/08(SEE CERTIFICATION LABEL)
COLOR:	White

Test Number:	12
Test Date:	12/19/08
Target Location:	A-PILLAR
Target Code:	AP2
Horizontal Impact Angle:	224°
Vertical Impact Angle:	47°
Ambient Temperature:	20°C
Relative Humidity:	21
Time of Impact:	11:05
Headform Number:	1140

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	10				mm up



POST-IMPACT AP2 HEADFORM

Free Motion HIC	342.2
HIC(d)	424.6
Impact Velocity (kph)	18.71
HIC T1 (msec)	3.3
HIC T2 (msec)	12.1

# FMVSS 201U 09 Chevy Malibu C90102 - AP2

FMH Headform 1140

Location: AP2

Test Date: December 19, 2008

Work File: AP2

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

Lab Temperature: 20 C

HICd: 424.6

Lab Humidity: 21 %

HIC (36ms): 342.2

Velocity at Impact: 18.71 KPH

t1: 3.3 msec

t2: 12.1 msec

Free Flight Distance: 220.91 mm

Duration: 8.7 msec

Average Acceleration: 8.2 g

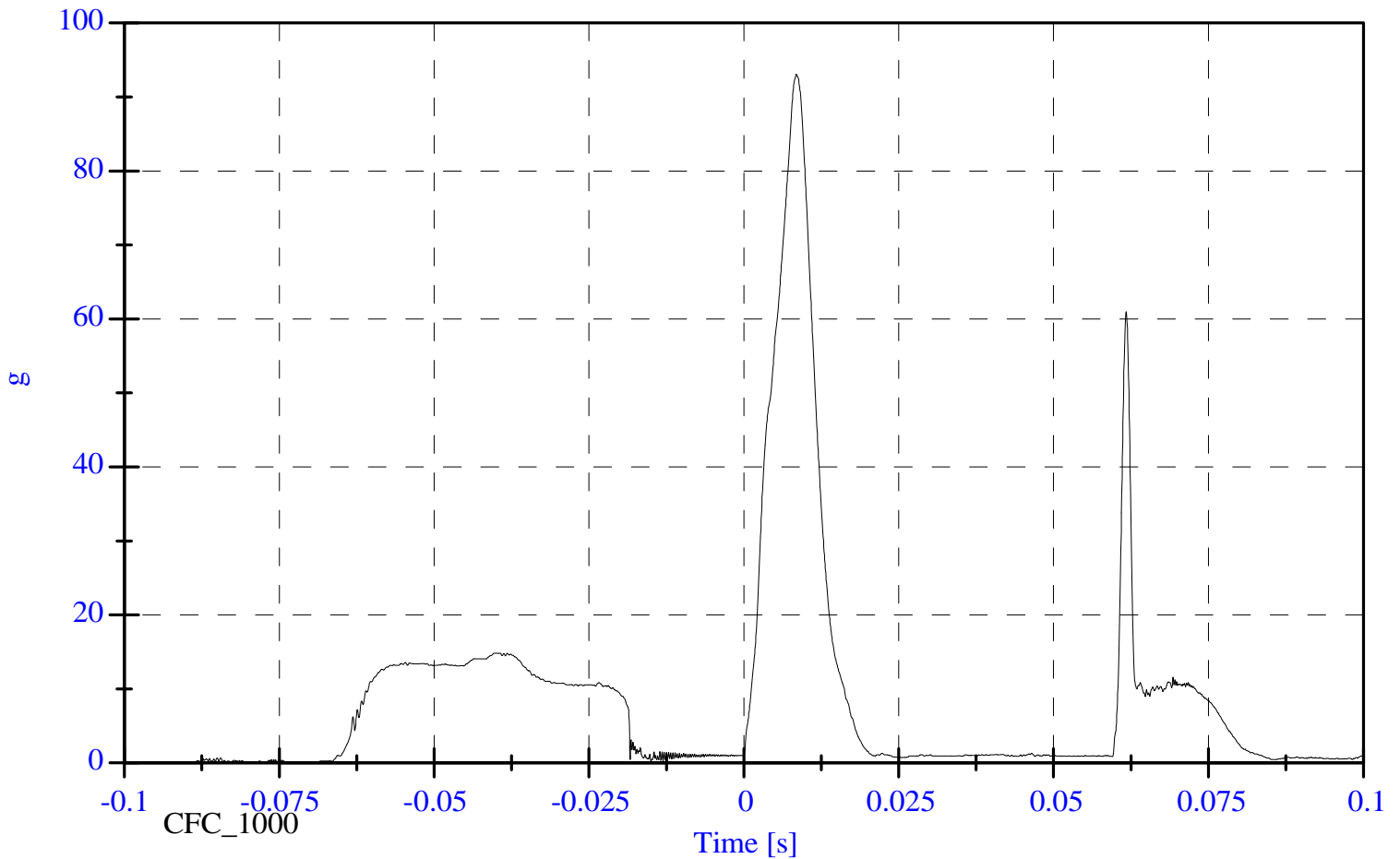
Maximum: 93.1 g

FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 93.1 [g] at 0.008 [s]

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



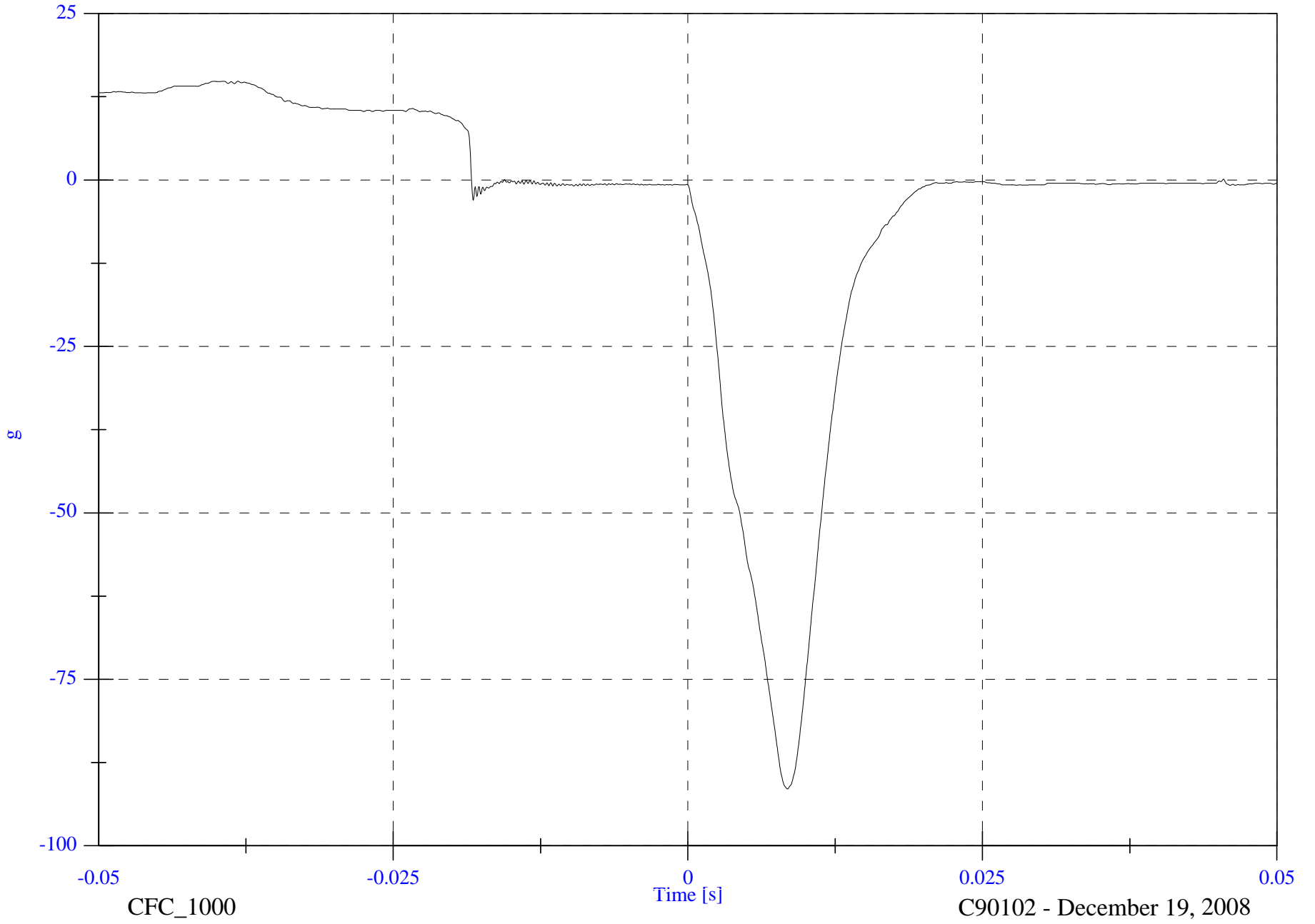
FMVSS 201U 09 Chevy Malibu

Headform X Acceleration

Max: 14.8 [g] at -0.038 [s]

Min: -91.5 [g] at 0.008 [s]

C90102 DRIVER SIDE AP2 IMPACT PLOT #1



CFC\_1000

C90102 - December 19, 2008

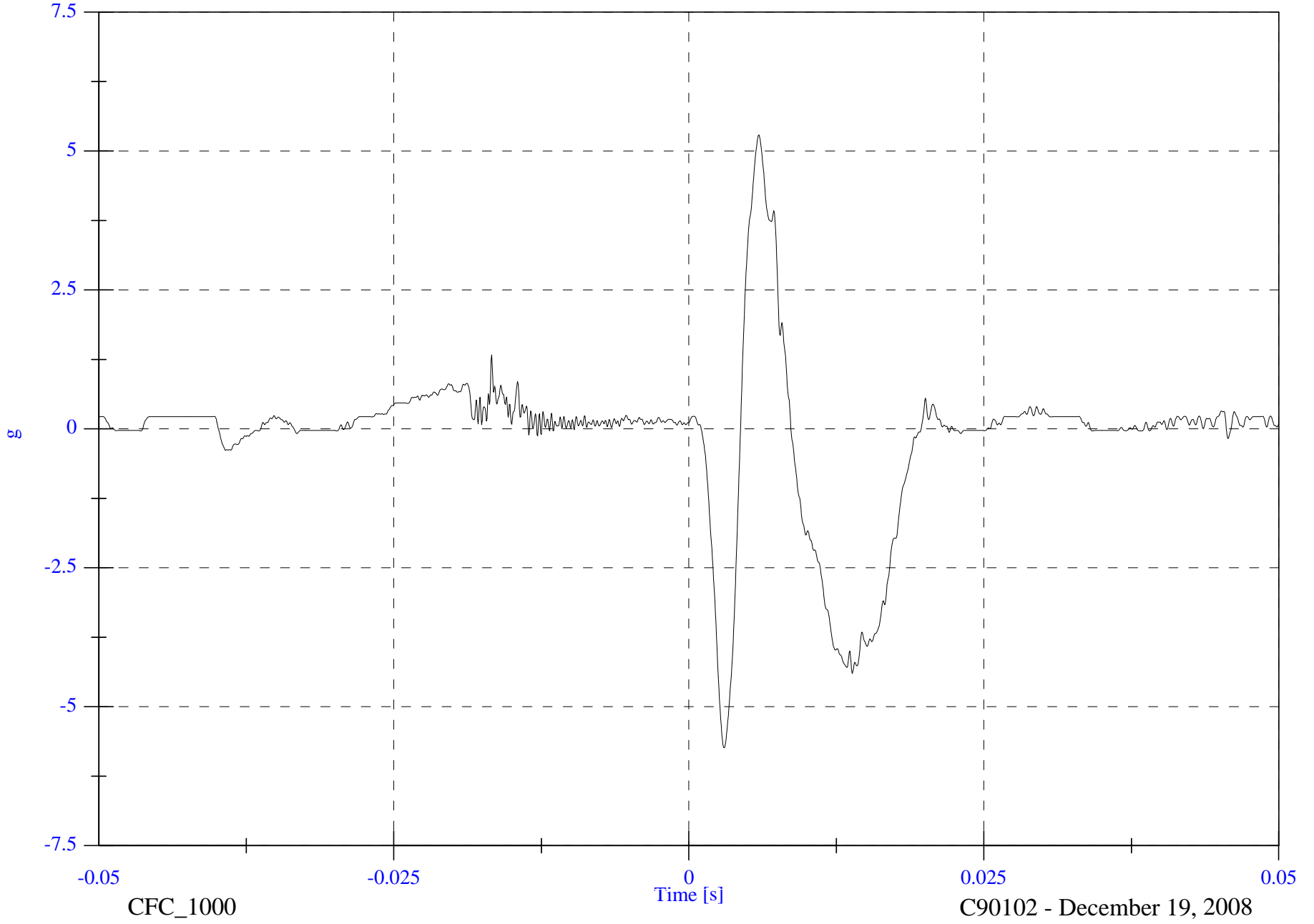
FMVSS 201U 09 Chevy Malibu

Headform Y Acceleration

Max: 5.3 [g] at 0.006 [s]

Min: -5.7 [g] at 0.003 [s]

C90102 DRIVER SIDE AP2 IMPACT PLOT #2



CFC\_1000

C90102 - December 19, 2008

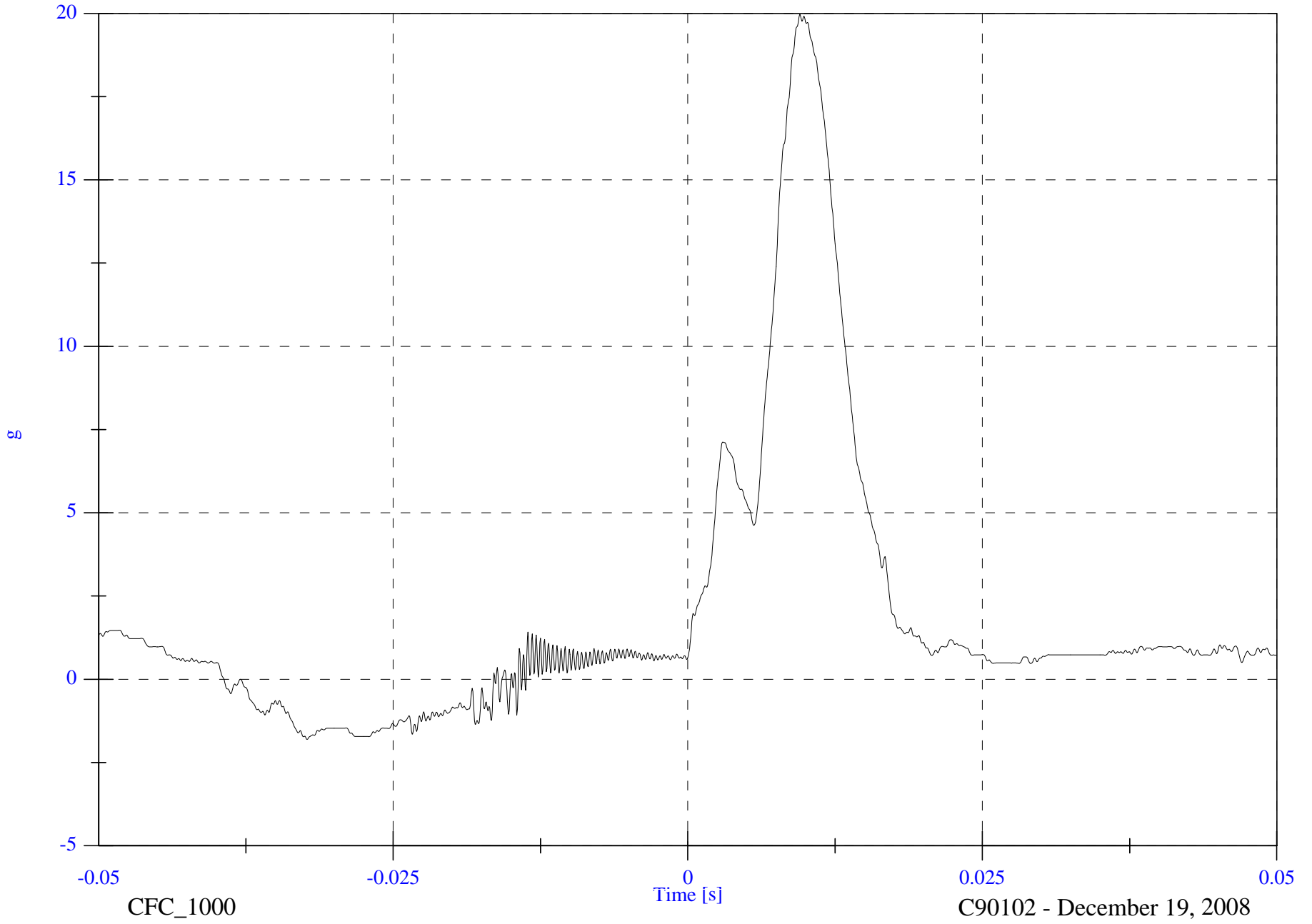
FMVSS 201U 09 Chevy Malibu

Headform Z Acceleration

Max: 20.0 [g] at 0.010 [s]

Min: -1.8 [g] at -0.032 [s]

C90102 DRIVER SIDE AP2 IMPACT PLOT #3



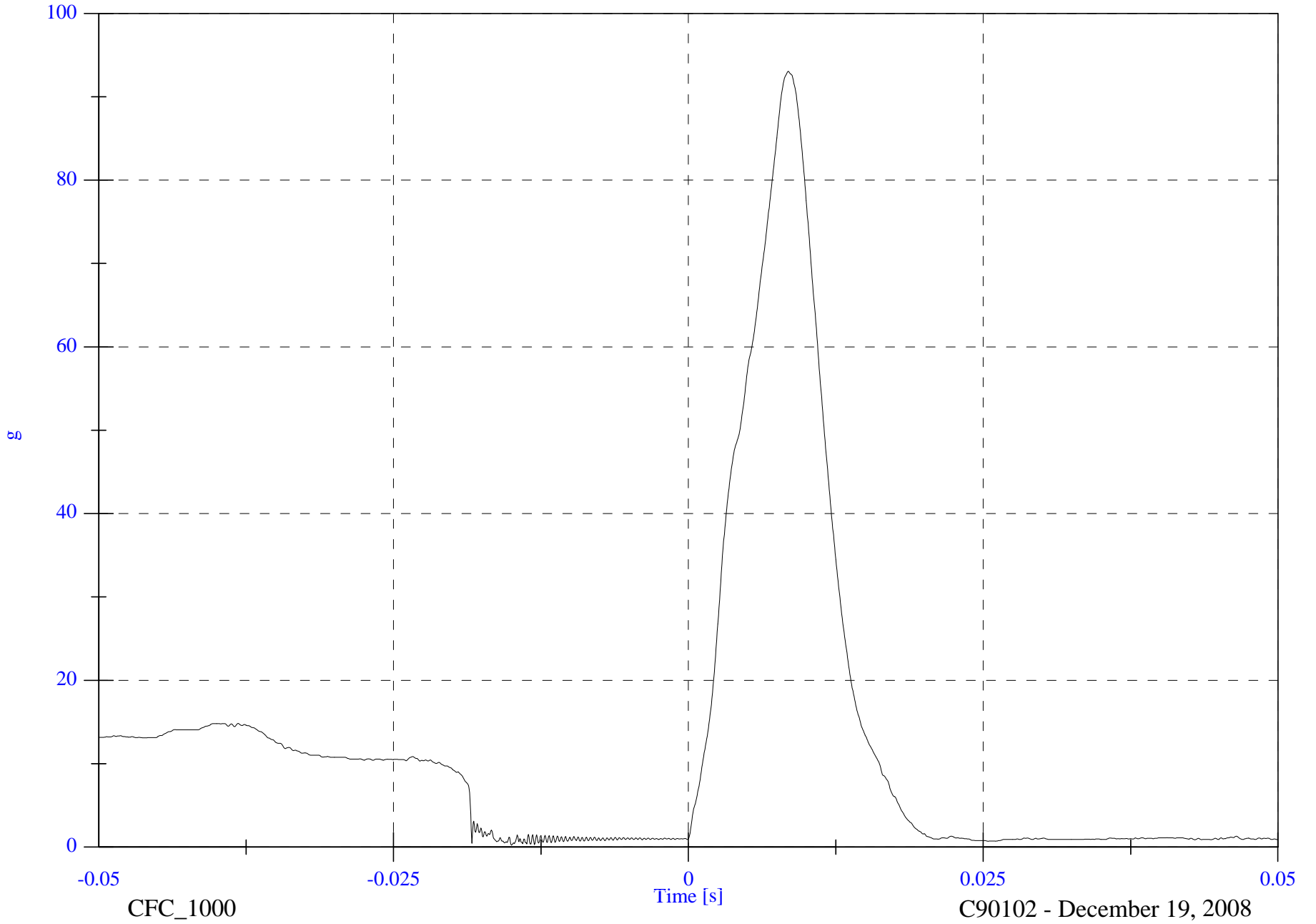
FMVSS 201U 09 Chevy Malibu

Headform Resultant

Max: 93.1 [g] at 0.008 [s]

Min: 0.2 [g] at -0.015 [s]

C90102 DRIVER SIDE AP2 IMPACT PLOT #4



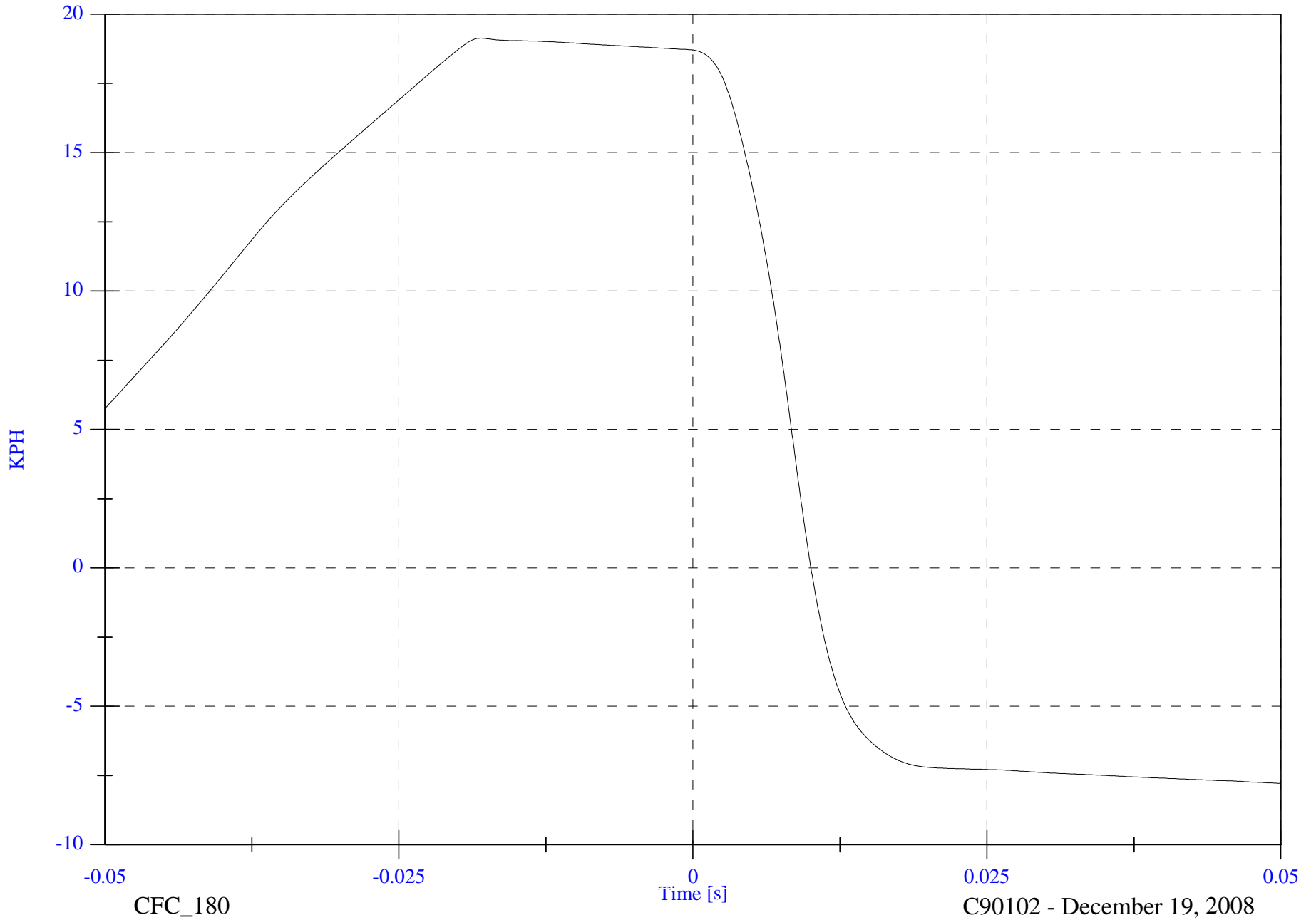
FMVSS 201U 09 Chevy Malibu

### Headform Velocity

Max: 19.1 [KPH] at -0.018 [s]

Min: -7.8 [KPH] at 0.050 [s]

C90102 DRIVER SIDE AP2 IMPACT PLOT #5



CFC\_180

C90102 - December 19, 2008



PRE-IMPACT AP2





POST-IMPACT AP2

**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
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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 REAR PILLAR	A-13
A-12	PRE-TEST PASSENGER SIDE A-PILLAR	A-14
A-13	PRE-TEST PASSENGER SIDE FRONT HEADER	A-15
A-14	PRE-TEST PASSENGER SIDE SIDE RAIL	A-16
A-15	PRE-TEST PASSENGER SIDE B-PILLAR	A-17
A-16	PRE-TEST PASSENGER SIDE REAR PILLAR	A-18
A-17	POST-TEST DRIVER SIDE A-PILLAR	A-19
A-18	POST-TEST DRIVER SIDE FRONT HEADER	A-20
A-19	POST-TEST DRIVER SIDE SIDE RAIL	A-21
A-20	POST-TEST DRIVER SIDE B-PILLAR	A-22
A-21	POST-TEST DRIVER SIDE REAR PILLAR	A-23
A-22	POST-TEST PASSENGER SIDE A-PILLAR	A-24
A-23	POST-TEST PASSENGER SIDE FRONT HEADER	A-25
A-24	POST-TEST PASSENGER SIDE SIDE RAIL	A-26
A-25	POST-TEST PASSENGER SIDE B-PILLAR	A-27
A-26	POST-TEST PASSENGER SIDE REAR PILLAR	A-28



Figure A-1 : LEFT SIDE VIEW OF VEHICLE



A-4

8877-01

Figure A-2 : RIGHT SIDE VIEW OF VEHICLE



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





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



Figure A-5 : VEHICLE'S CERTIFICATION LABEL





Figure A-6 : VEHICLE'S TIRE INFORMATION LABEL



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



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



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





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



Figure A-11 : PRE-TEST DRIVER SIDE REAR PILLAR



Figure A-12 : PRE-TEST PASSENGER SIDE A-PILLAR





Figure A-13 : PRE-TEST PASSENGER SIDE FRONT HEADER





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



Figure A-15 : PRE-TEST PASSENGER SIDE B-PILLAR



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





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



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



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





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



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





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



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



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





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



Figure A-26 : POST-TEST PASSENGER SIDE REAR PILLAR

## **APPENDIX B**

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

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

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

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

<b>MANUFACTURER:</b>		<b>FIRST TECHNOLOGY SAFETY SYSTEMS</b>	
<b>SERIAL NUMBER:</b>		1142	
<b>CALIBRATION DATE:</b>		October 6, 2008	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	19°C to 26°C	22	
<b>RELATIVE HUMIDITY</b>	10% to 70%	24	
<b>PEAK RESULTANT ACCELERATION</b>	225 Gs to 275 Gs	259.8	
<b>PEAK LATERAL ACCELERATION</b>	15 Gs Maximum	7.6	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	YES	YES	

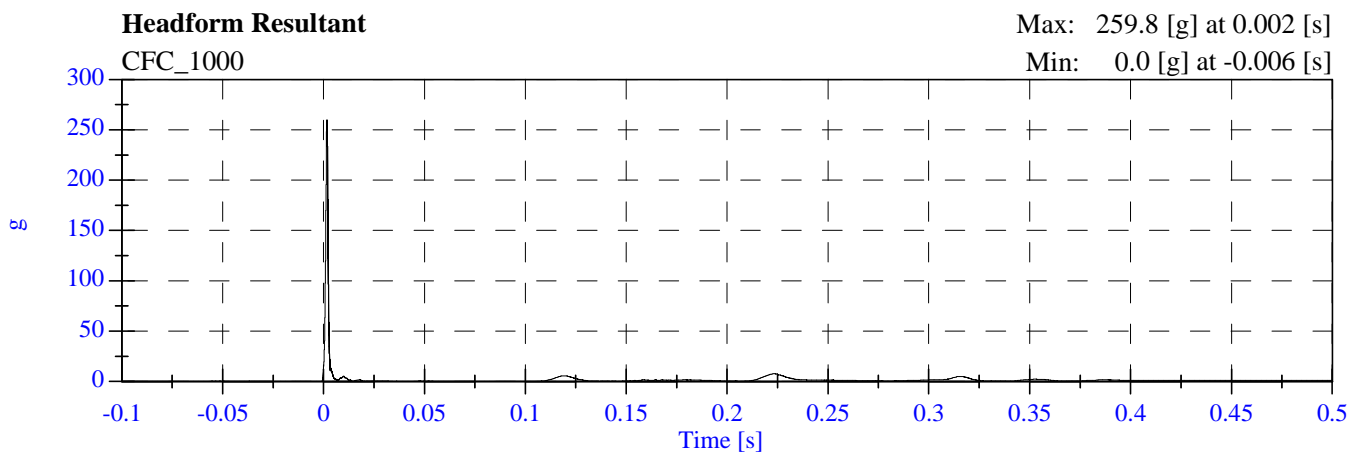
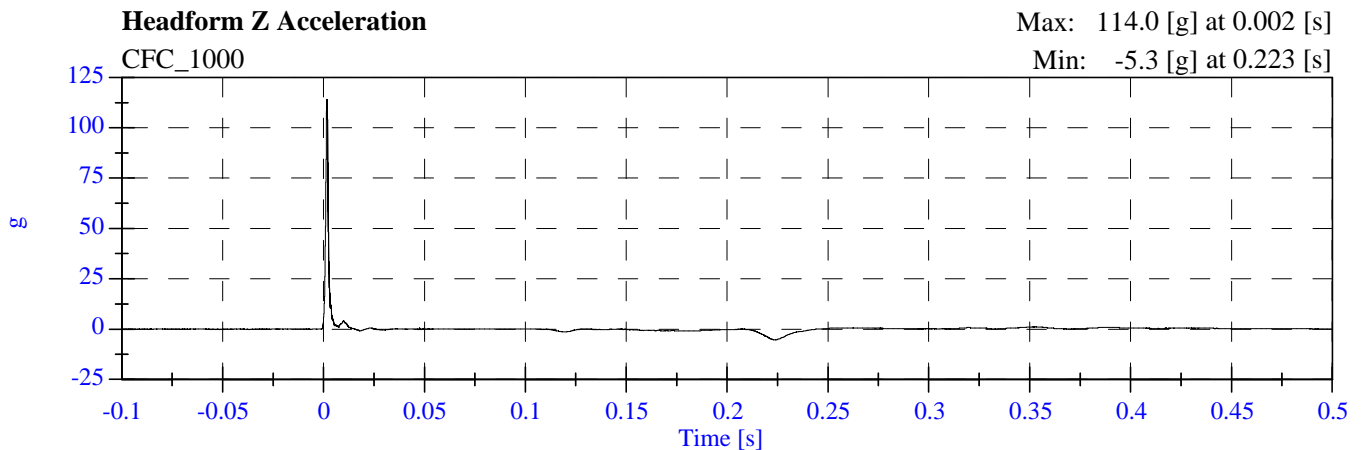
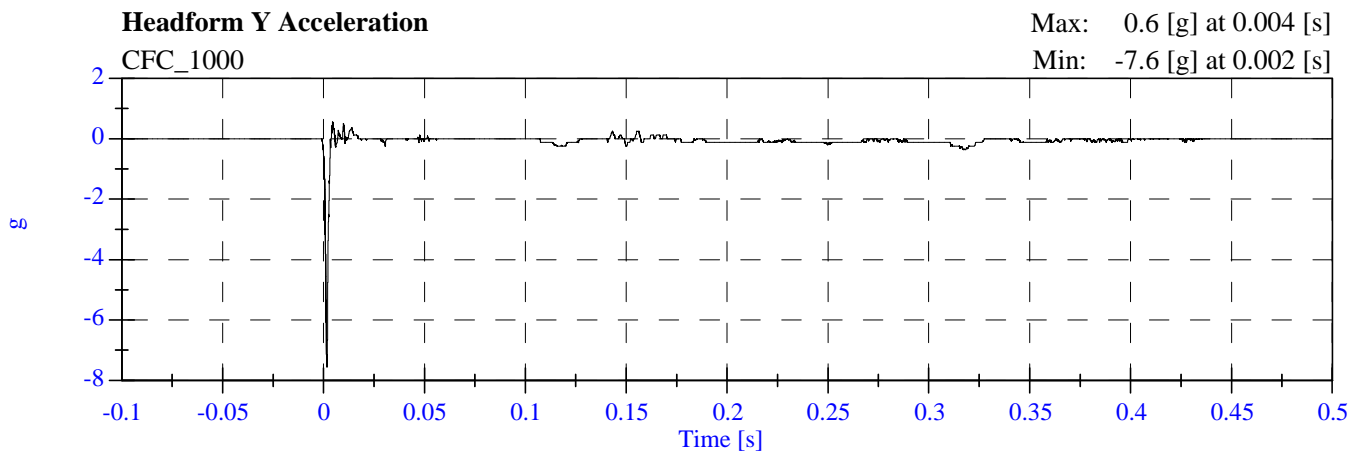
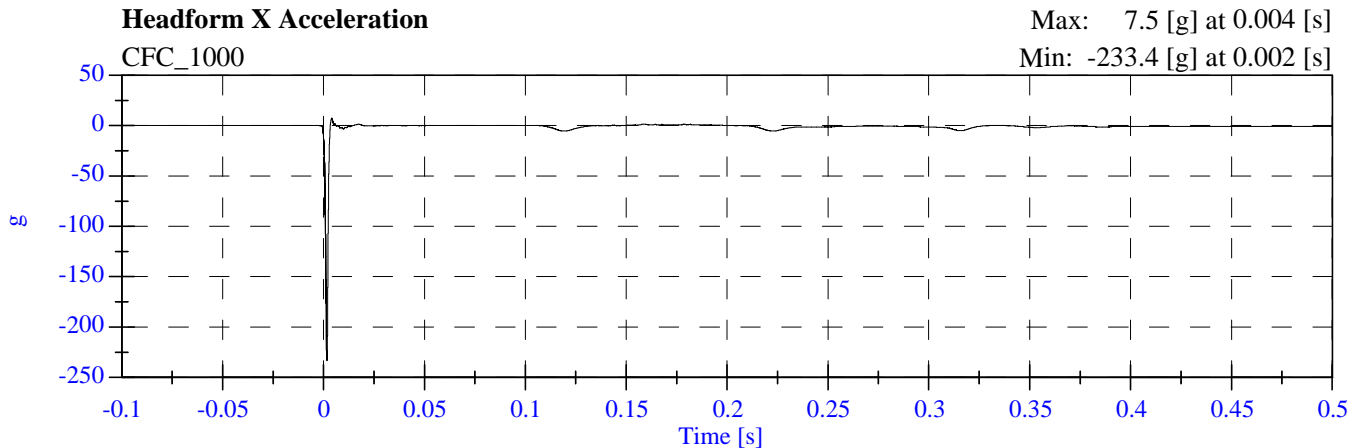
**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<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>
<b>1 - LONGITUDINAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J24876</b>	<b>9/2/2008</b>	<b>3/2/2009</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J33030</b>	<b>9/2/2008</b>	<b>3/2/2009</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J31009</b>	<b>9/2/2008</b>	<b>3/2/2009</b>

**REMARKS:**

# FMVSS 201U - Headform Calibration Drops

## - October 06, 2008





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

<b>MANUFACTURER:</b>		<b>DENTON ATD INC.</b>	
<b>SERIAL NUMBER:</b>		<b>0062</b>	
<b>CALIBRATION DATE:</b>		<b>October 6, 2008</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>22</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>24</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>272.9</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>8.4</b>	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	<b>YES</b>	<b>YES</b>	

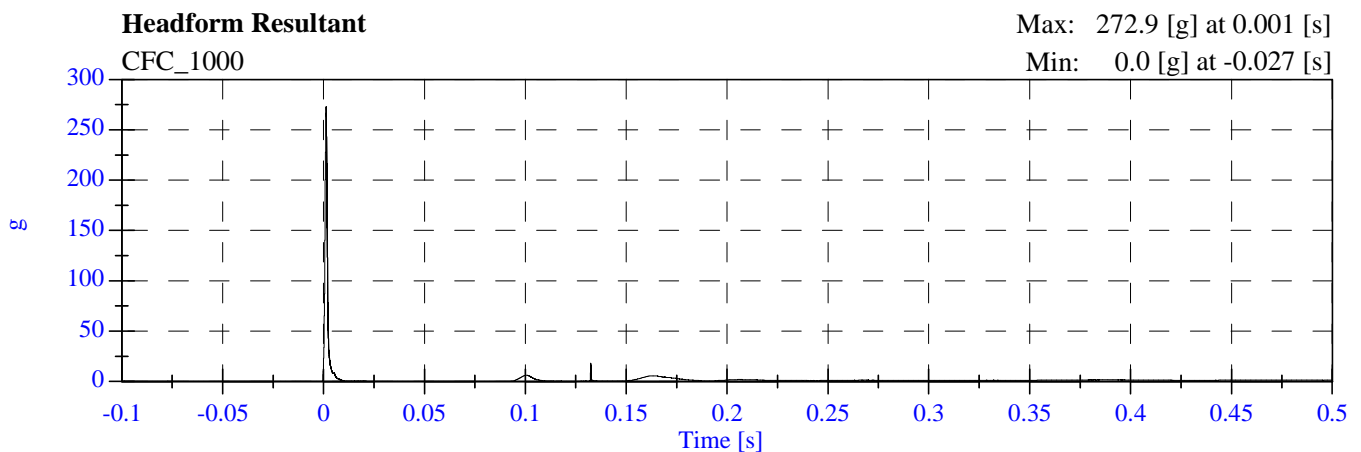
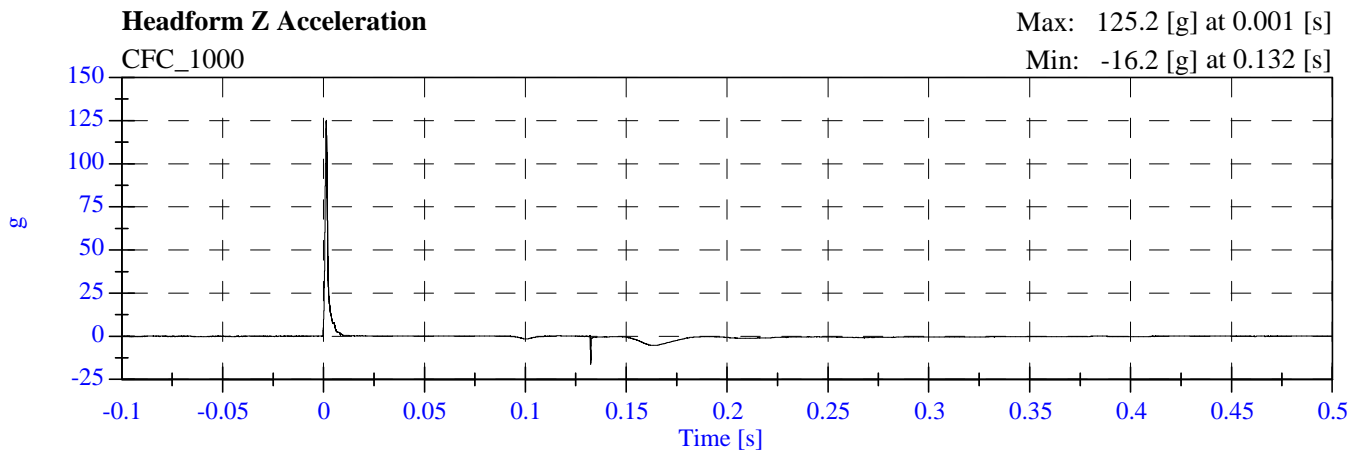
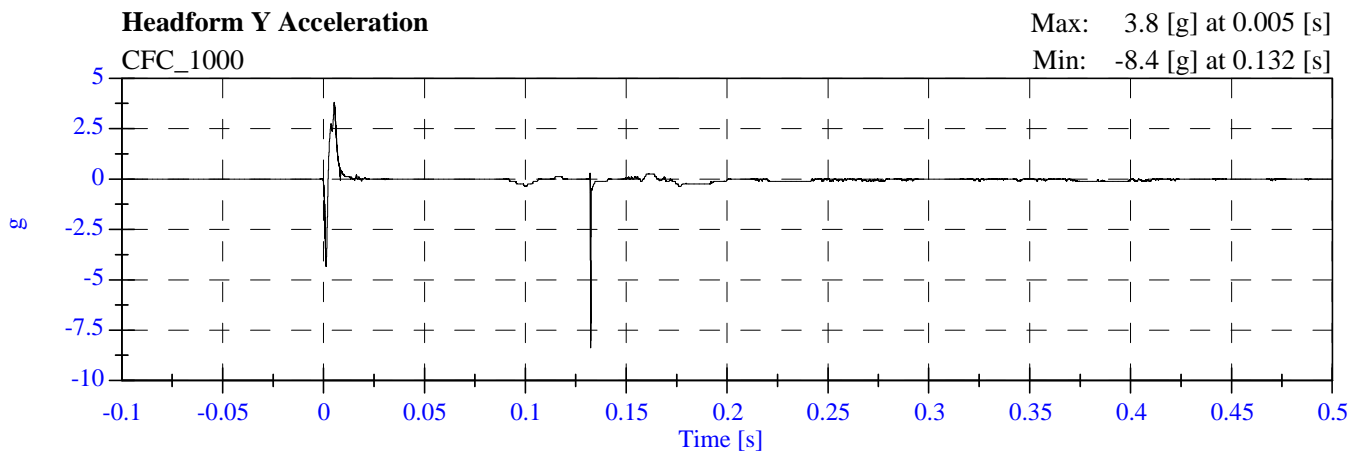
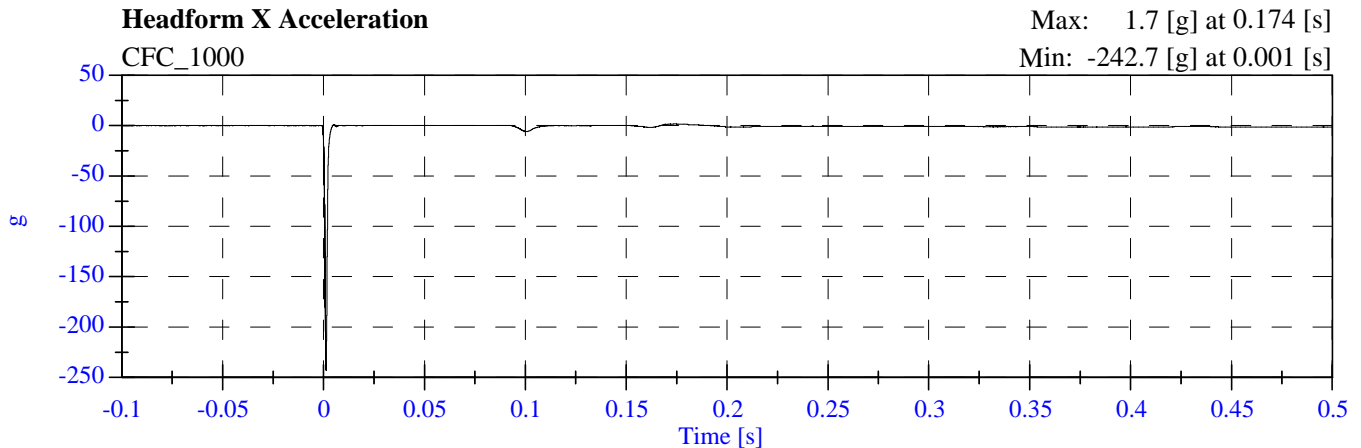
**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<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>J33127</b>	<b>9/2/2008</b>	<b>3/2/2009</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J33019</b>	<b>9/2/2008</b>	<b>3/2/2009</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J32782</b>	<b>9/2/2008</b>	<b>3/2/2009</b>

**REMARKS:**

# FMVSS 201U - Headform Calibration Drops

## - October 06, 2008



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

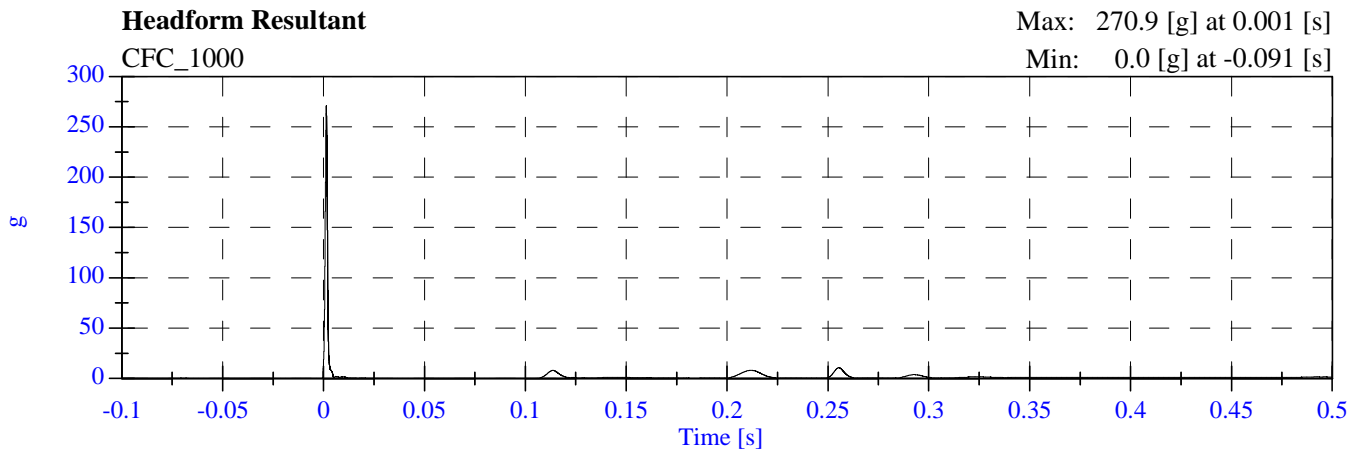
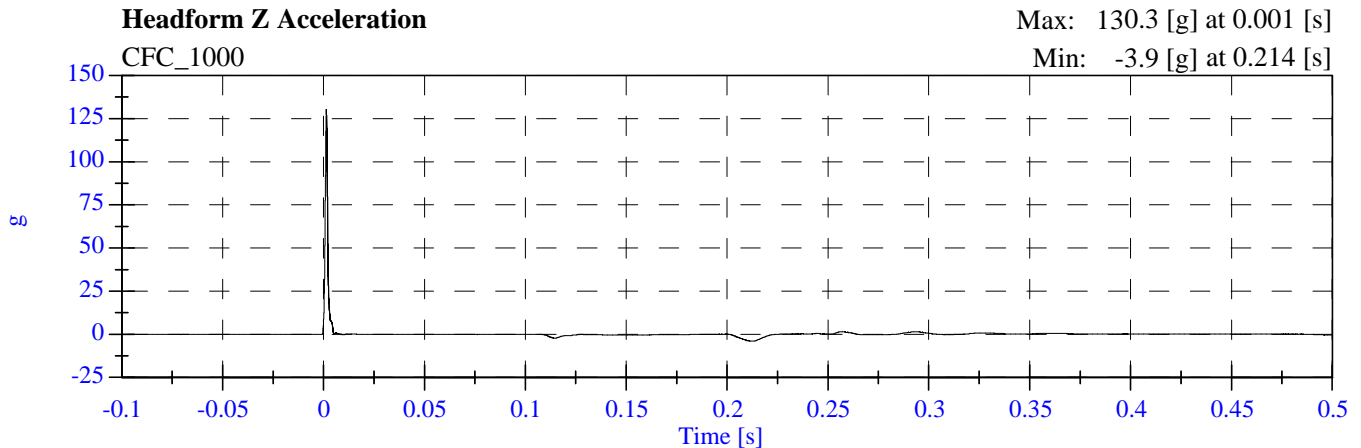
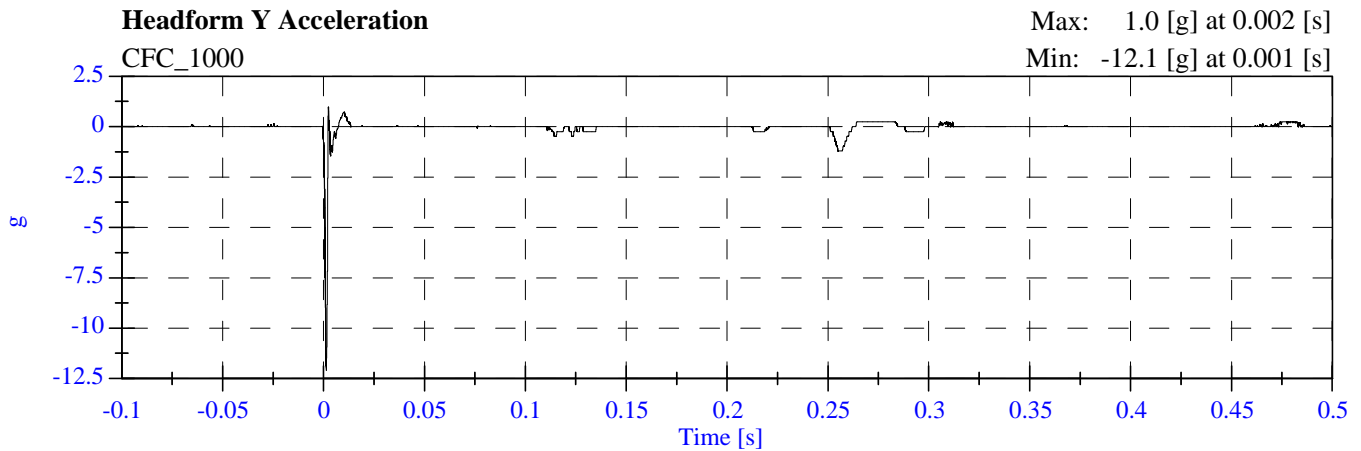
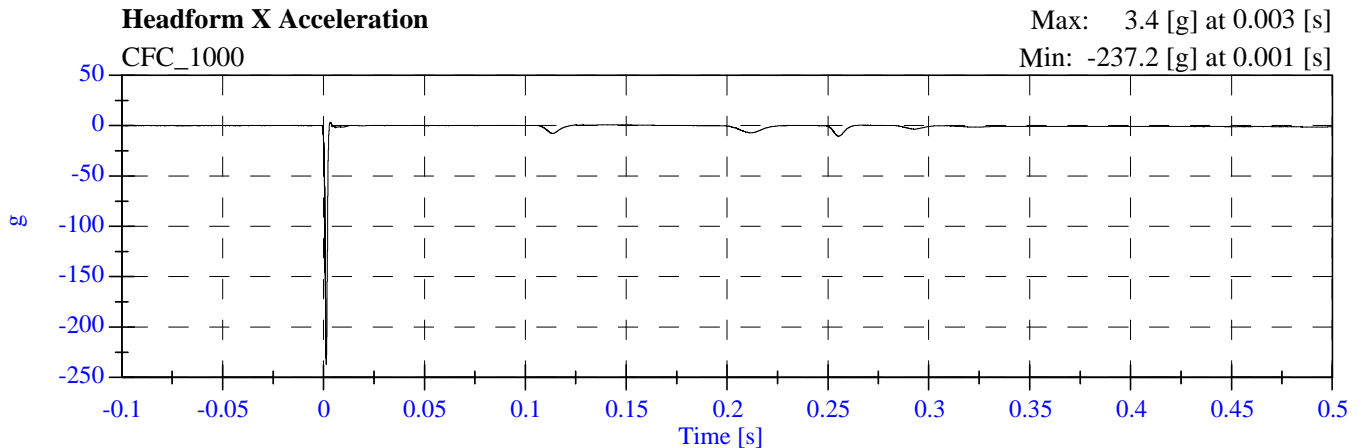
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<b>SERIAL NUMBER:</b>		<b>805</b>	
<b>CALIBRATION DATE:</b>		<b>October 6, 2008</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>22</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>24</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>270.9</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>12.1</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>J41004</b>	<b>9/2/2008</b>	<b>3/2/2009</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J37496</b>	<b>9/2/2008</b>	<b>3/2/2009</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J41016</b>	<b>9/2/2008</b>	<b>3/2/2009</b>

**REMARKS:**

# FMVSS 201U - Headform Calibration Drops - October 06, 2008



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

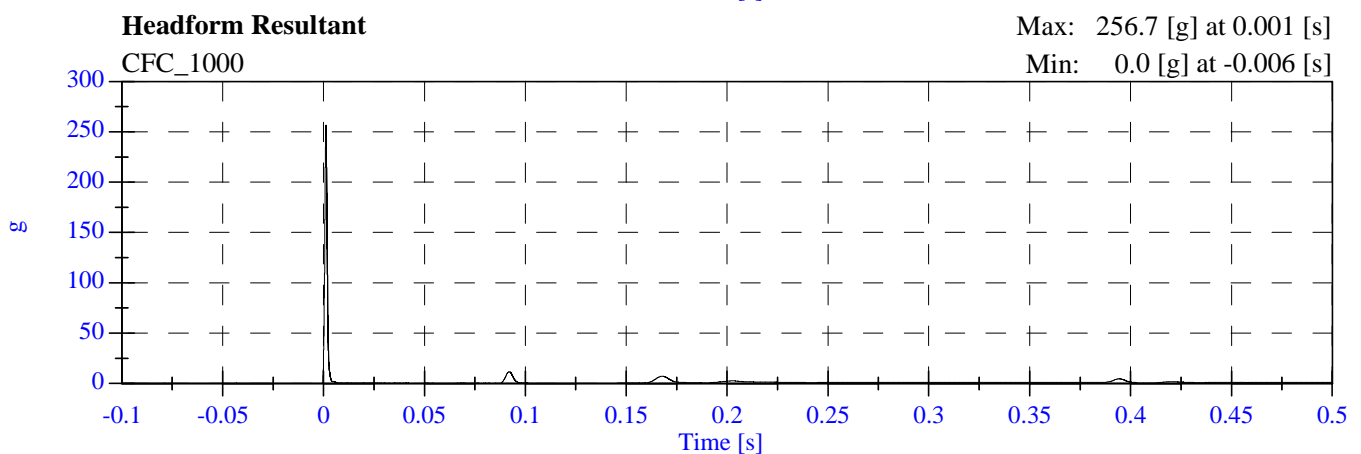
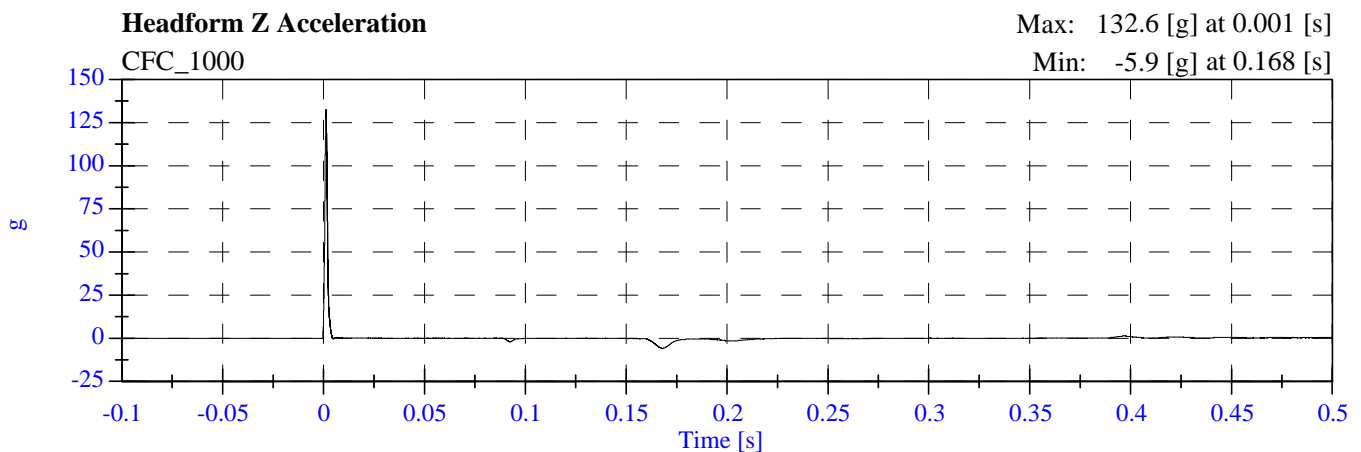
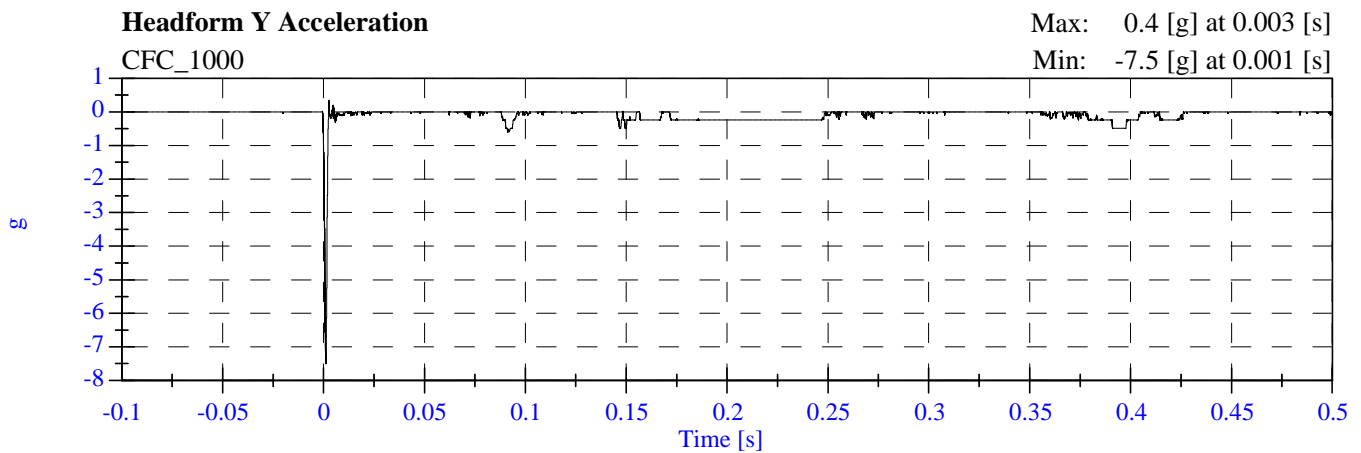
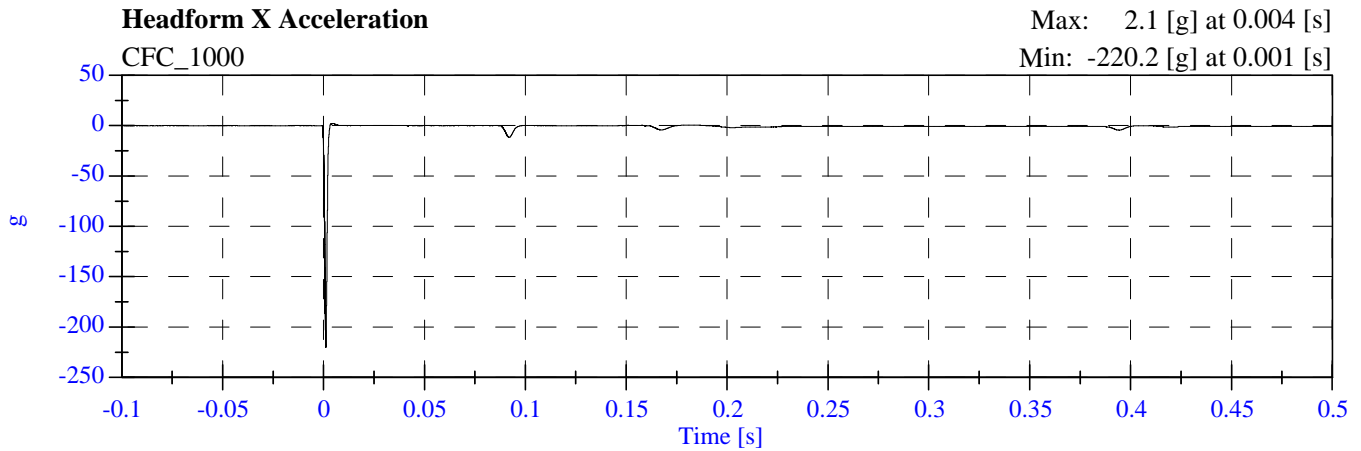
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<b>SERIAL NUMBER:</b>		<b>0355</b>	
<b>CALIBRATION DATE:</b>		<b>October 6, 2008</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>22</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>24</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>256.7</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>7.5</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>9/2/2008</b>	<b>3/2/2009</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J32779</b>	<b>9/2/2008</b>	<b>3/2/2009</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J25854</b>	<b>9/2/2008</b>	<b>3/2/2009</b>

**REMARKS:**

# FMVSS 201U - Headform Calibration Drops - October 06, 2008



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

<b>MANUFACTURER:</b>		<b>FIRST TECHNOLOGY SAFETY SYSTEMS</b>	
<b>SERIAL NUMBER:</b>		<b>1140</b>	
<b>CALIBRATION DATE:</b>		<b>October 6, 2008</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>22</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>24</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>273.7</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>9.2</b>	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	<b>YES</b>	<b>YES</b>	

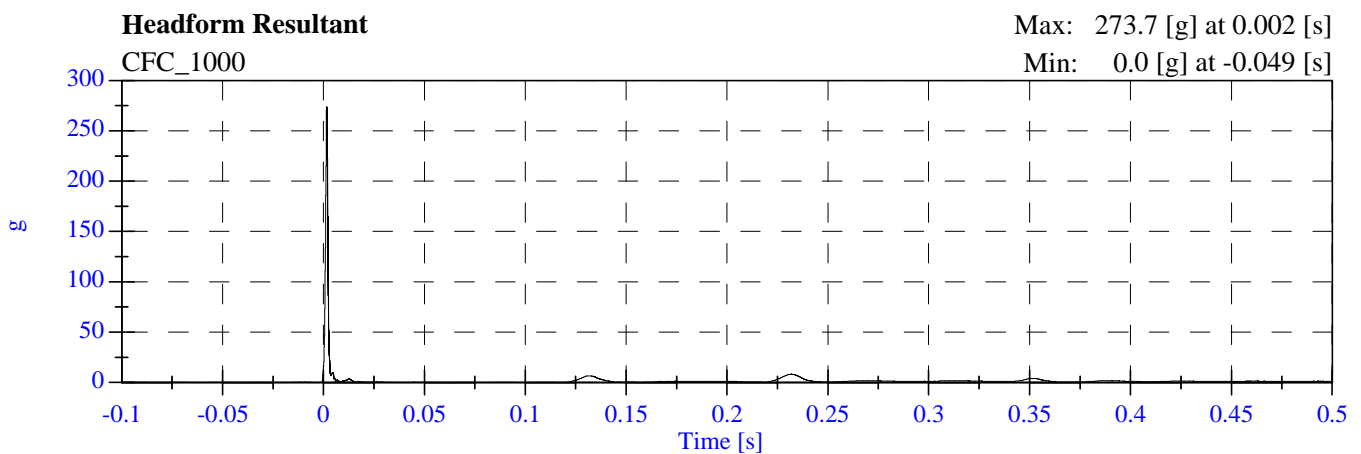
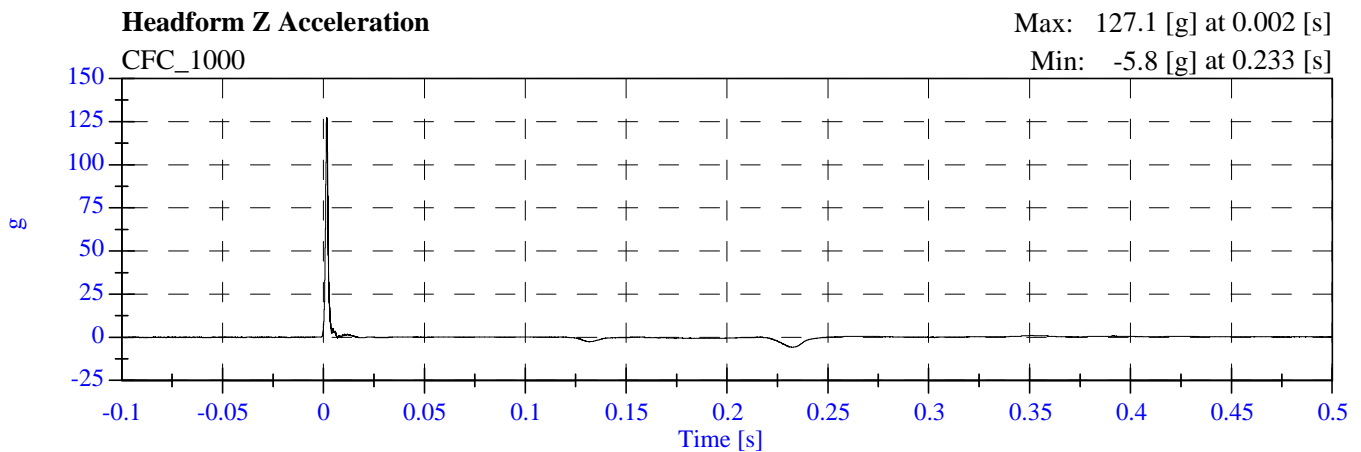
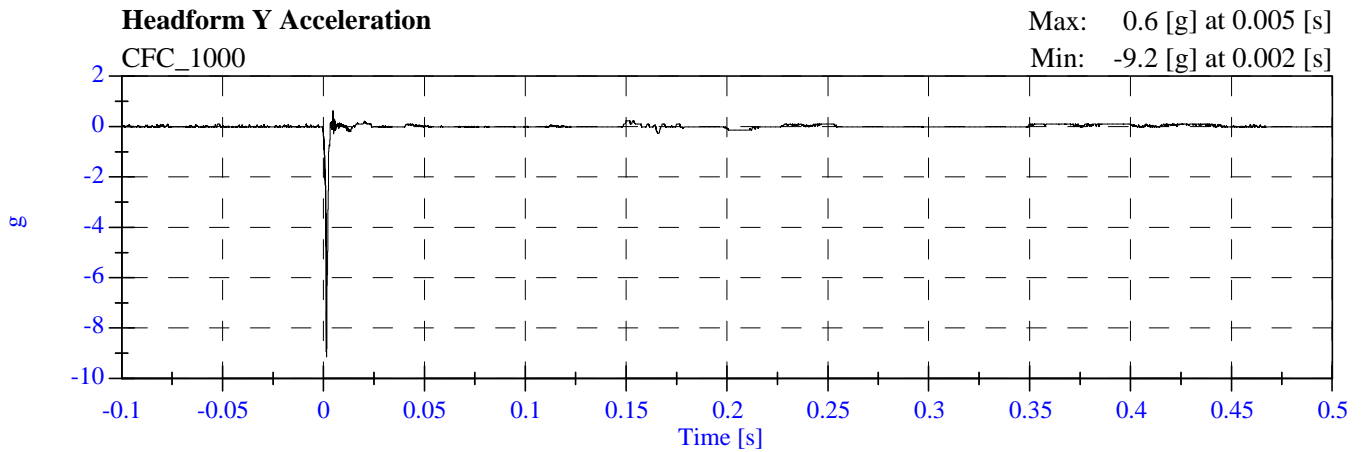
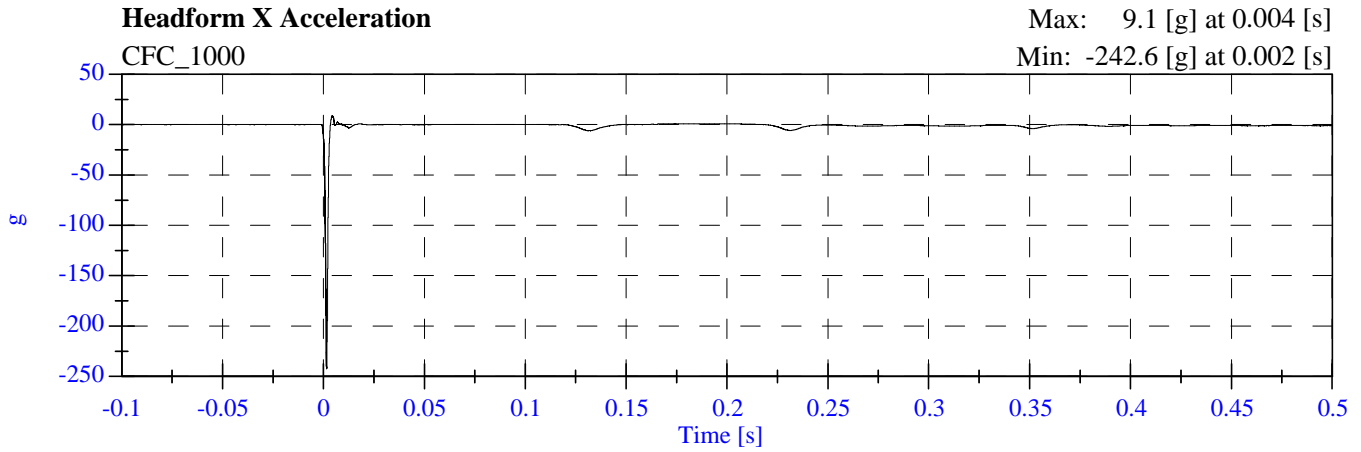
**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<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>9/2/2008</b>	<b>3/2/2009</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J40994</b>	<b>9/2/2008</b>	<b>3/2/2009</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J41007</b>	<b>9/2/2008</b>	<b>3/2/2009</b>

**REMARKS:**

# FMVSS 201U - Headform Calibration Drops

## - October 06, 2008





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

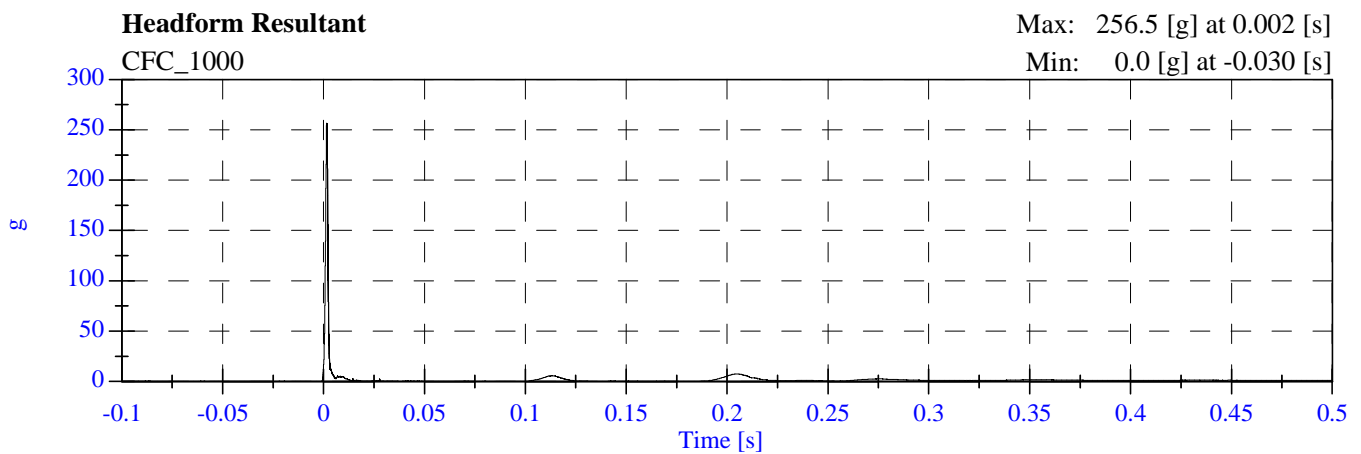
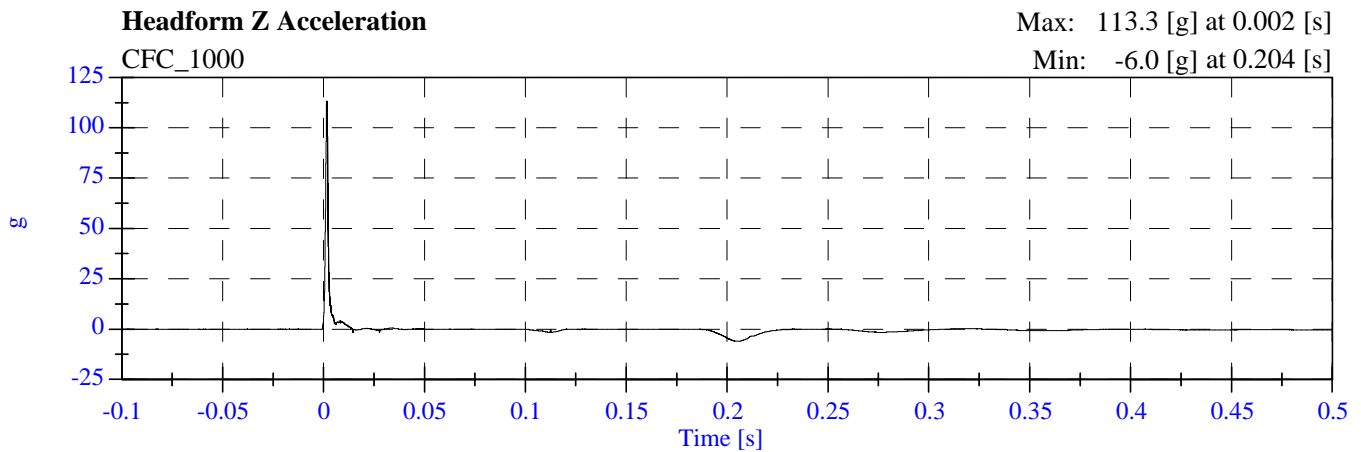
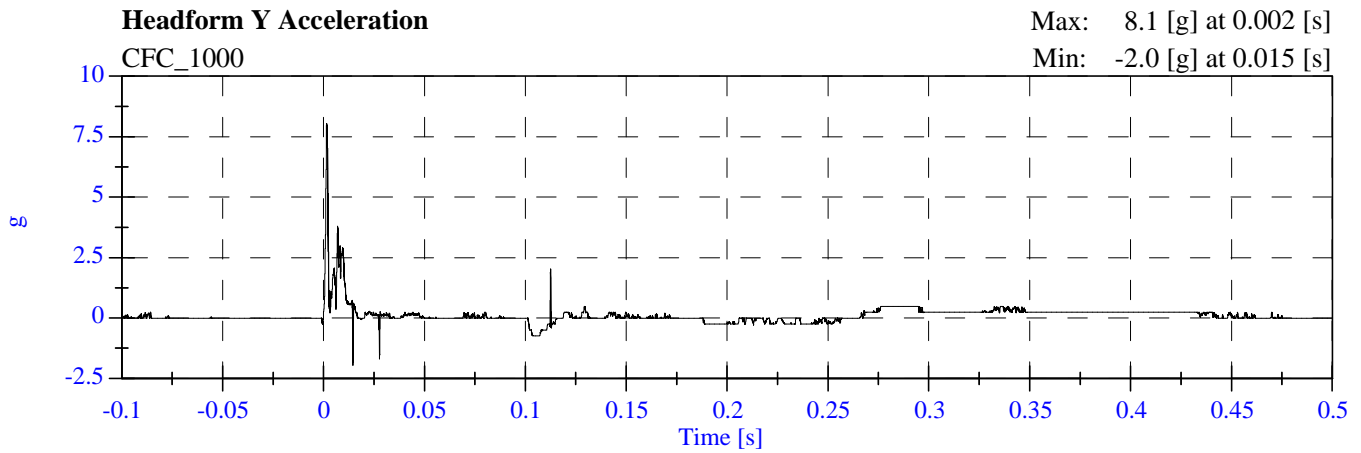
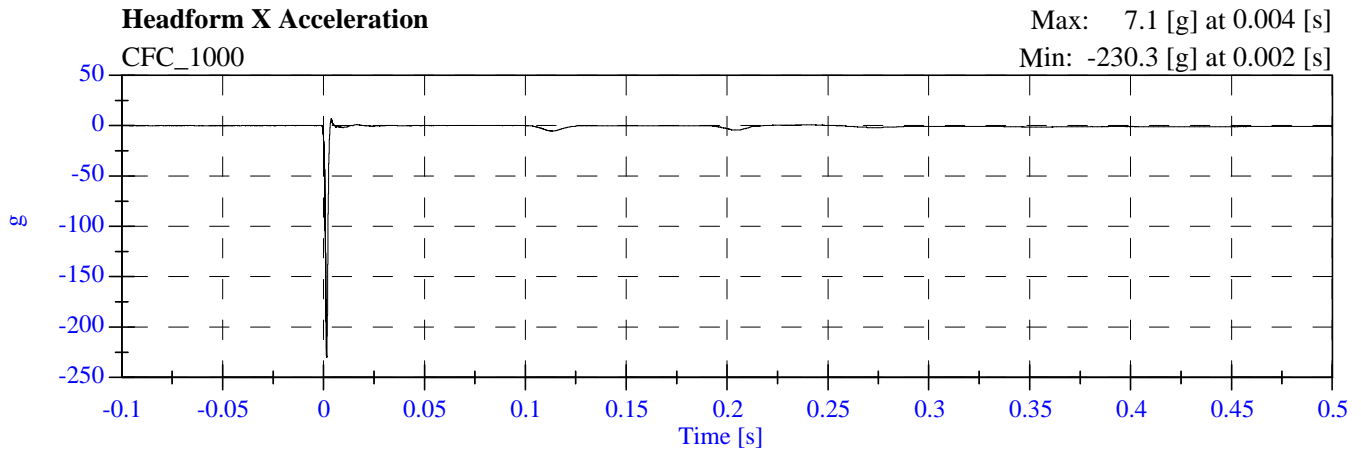
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<b>SERIAL NUMBER:</b>		1142	
<b>CALIBRATION DATE:</b>		December 23, 2008	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	19°C to 26°C	20	
<b>RELATIVE HUMIDITY</b>	10% to 70%	17	
<b>PEAK RESULTANT ACCELERATION</b>	225 Gs to 275 Gs	256.5	
<b>PEAK LATERAL ACCELERATION</b>	15 Gs Maximum	8.1	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	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	J24876	9/2/2008	3/2/2009
2 - LATERAL	ENDEVCO	7264-2000T	J33030	9/2/2008	3/2/2009
3 - VERTICAL	ENDEVCO	7264-2000T	J31009	9/2/2008	3/2/2009

**REMARKS:**

# FMVSS 201U - Headform Calibration Drops - December 23, 2008



**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>December 23, 2008</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>20</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>17</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>262.3</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>9.5</b>	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	<b>YES</b>	<b>YES</b>	

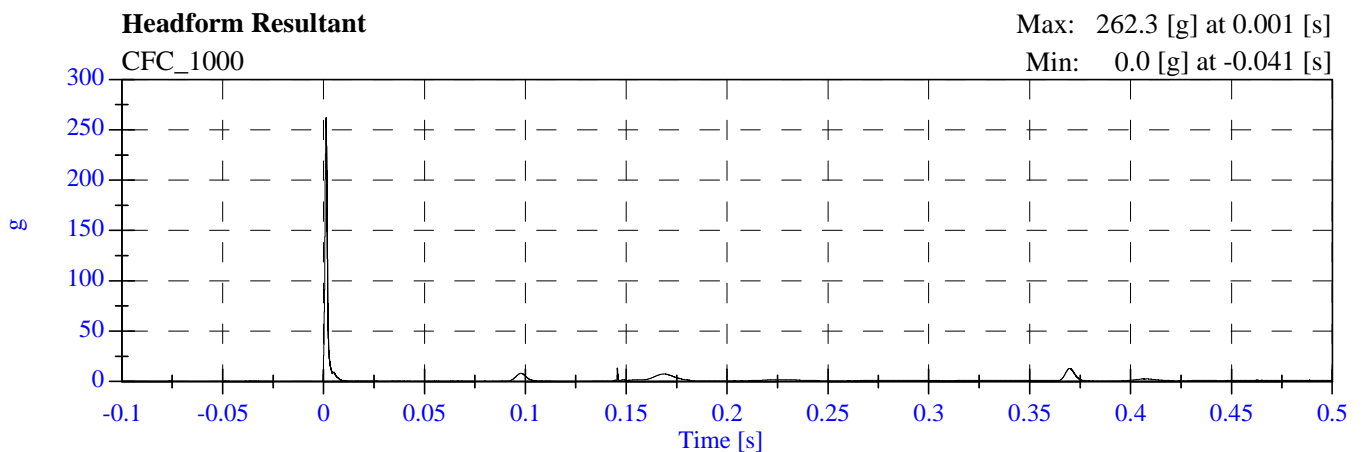
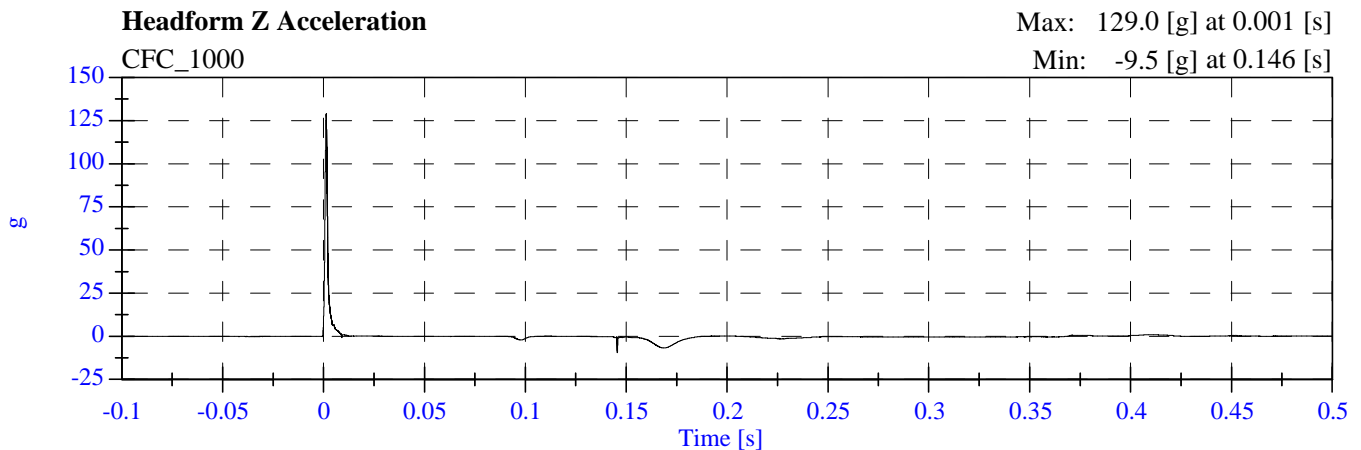
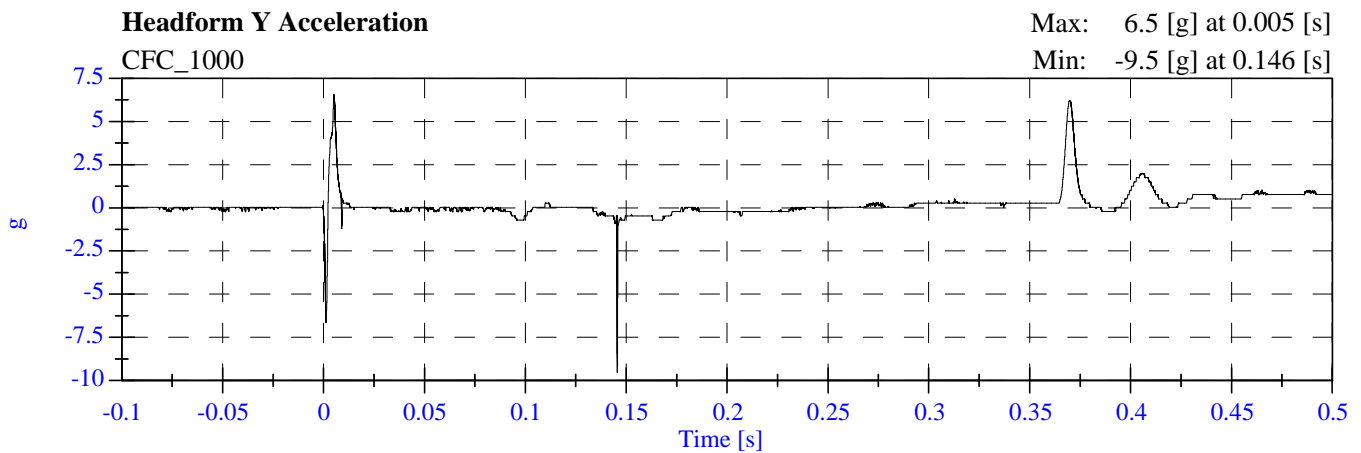
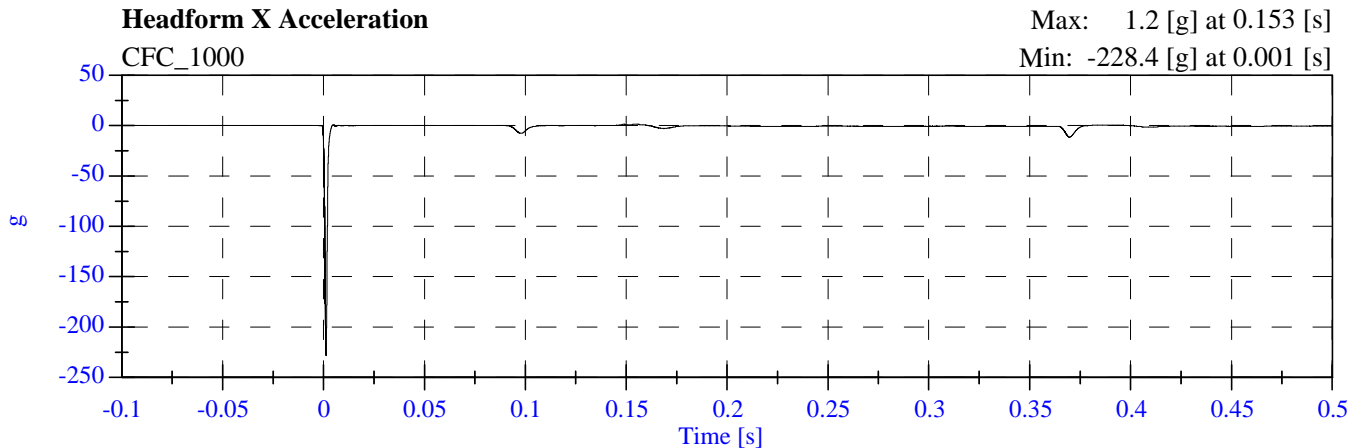
**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<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>J33127</b>	<b>9/2/2008</b>	<b>3/2/2009</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J33019</b>	<b>9/2/2008</b>	<b>3/2/2009</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J32782</b>	<b>9/2/2008</b>	<b>3/2/2009</b>

**REMARKS:**

# FMVSS 201U - Headform Calibration Drops

## - December 23, 2008



**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>December 23, 2008</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>20</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>17</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>265.1</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>5.7</b>	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	<b>YES</b>	<b>YES</b>	

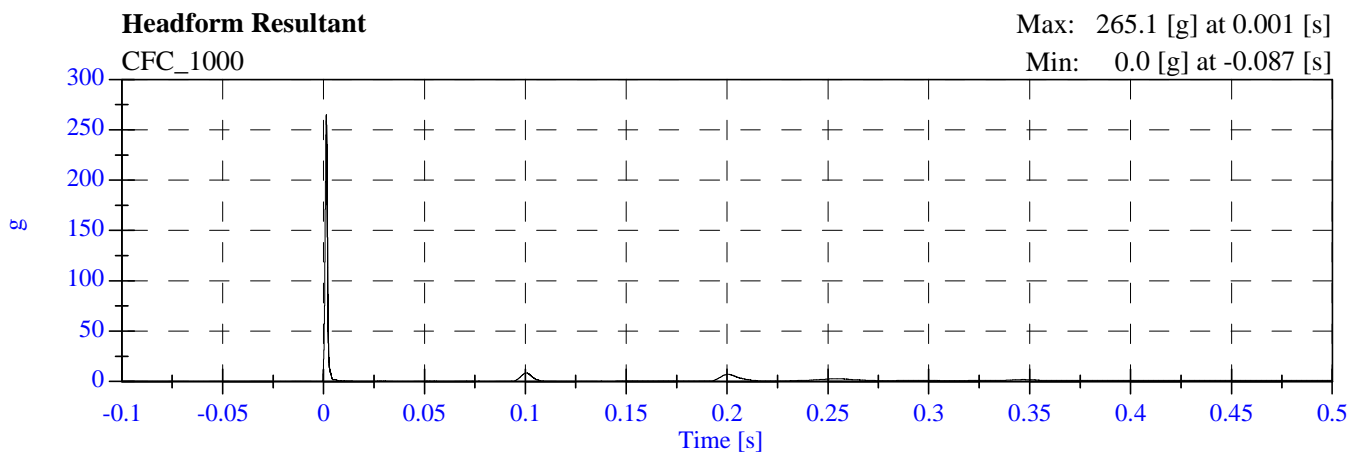
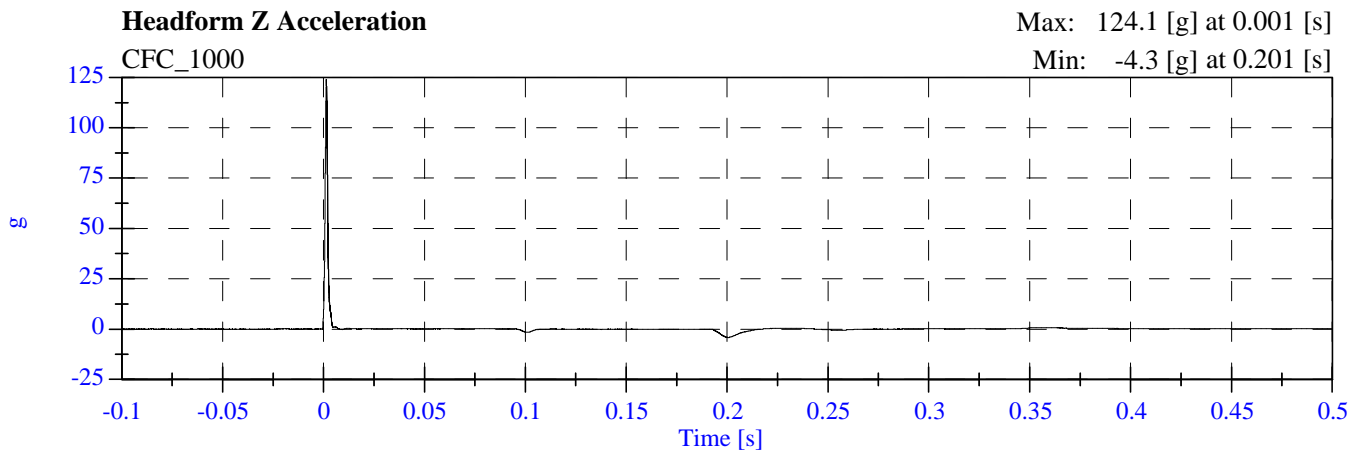
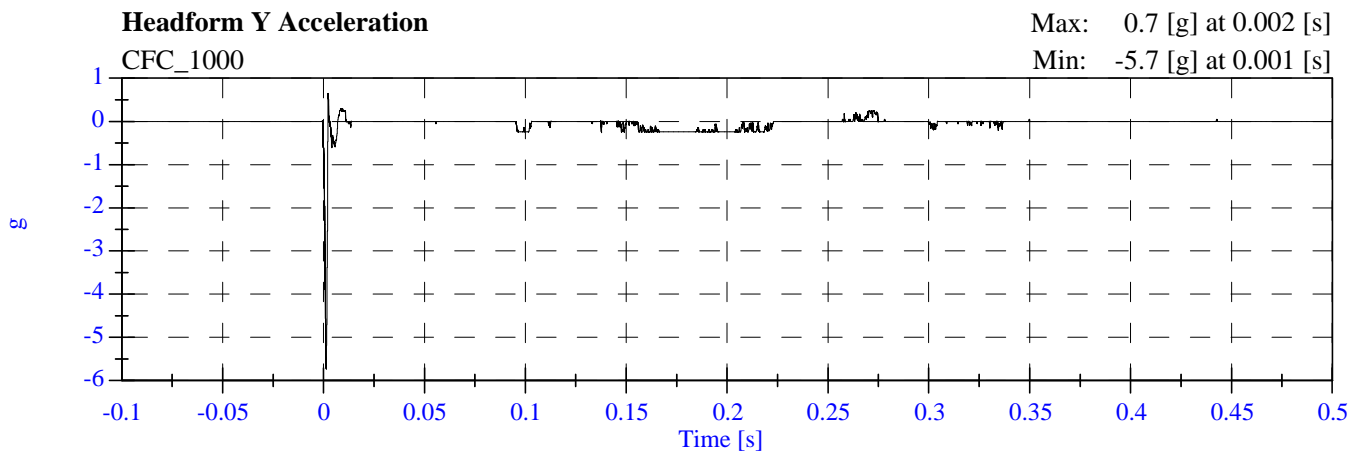
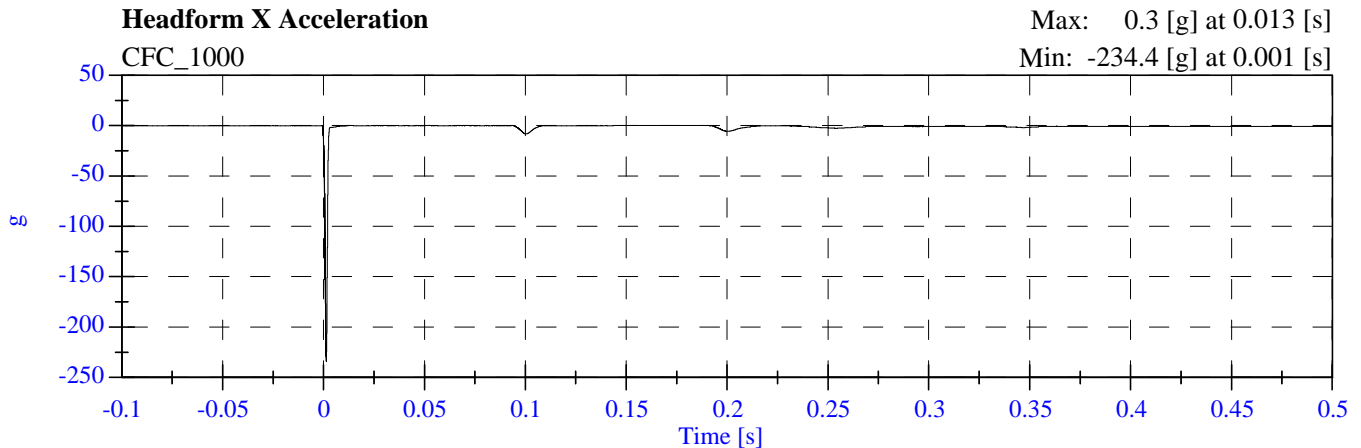
**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<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>J41004</b>	<b>9/2/2008</b>	<b>3/2/2009</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J37496</b>	<b>9/2/2008</b>	<b>3/2/2009</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J41016</b>	<b>9/2/2008</b>	<b>3/2/2009</b>

**REMARKS:**

# FMVSS 201U - Headform Calibration Drops

## - December 23, 2008



**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>December 23, 2008</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>20</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>17</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>237.2</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>5.6</b>	
<b>IS ACCELERATION CURVE UNIMODAL?</b>	<b>YES</b>	<b>YES</b>	

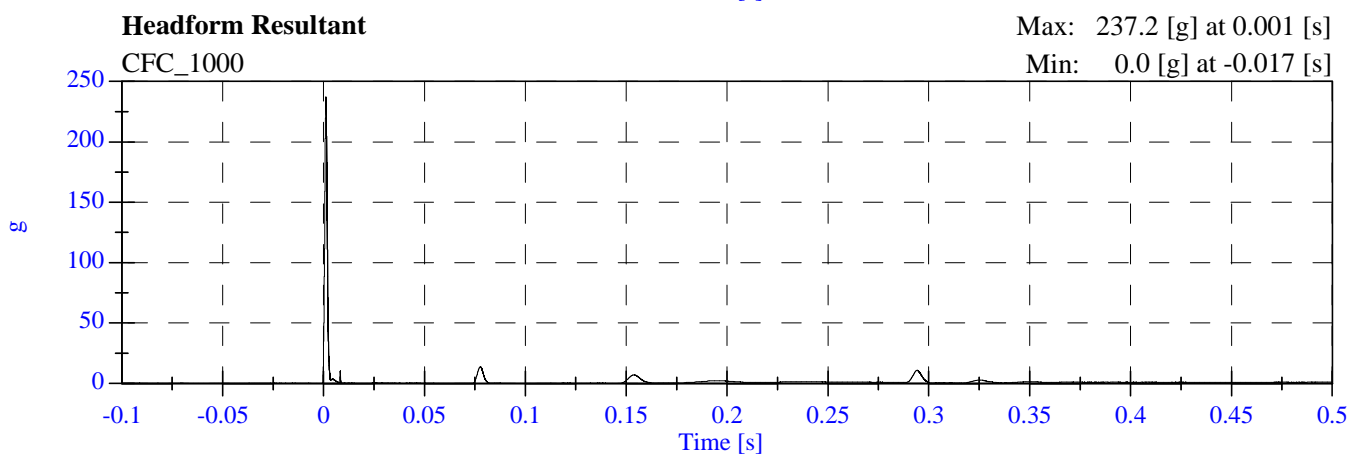
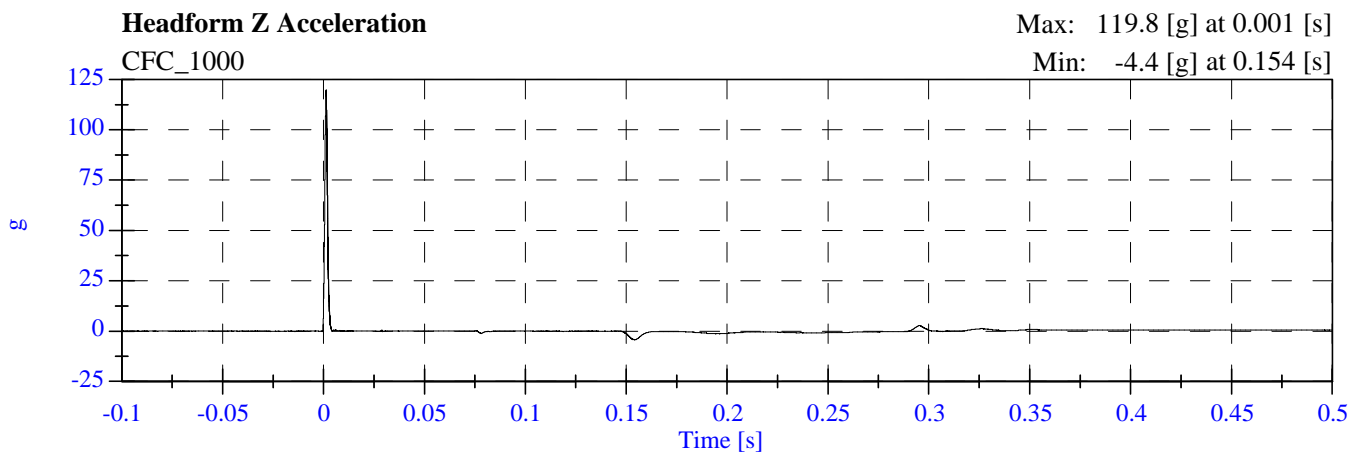
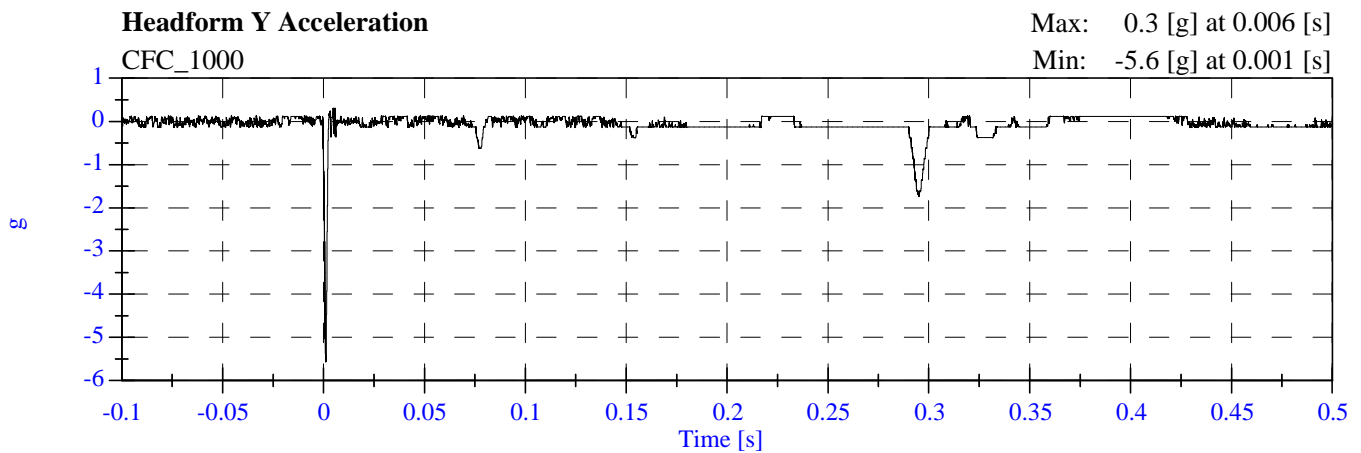
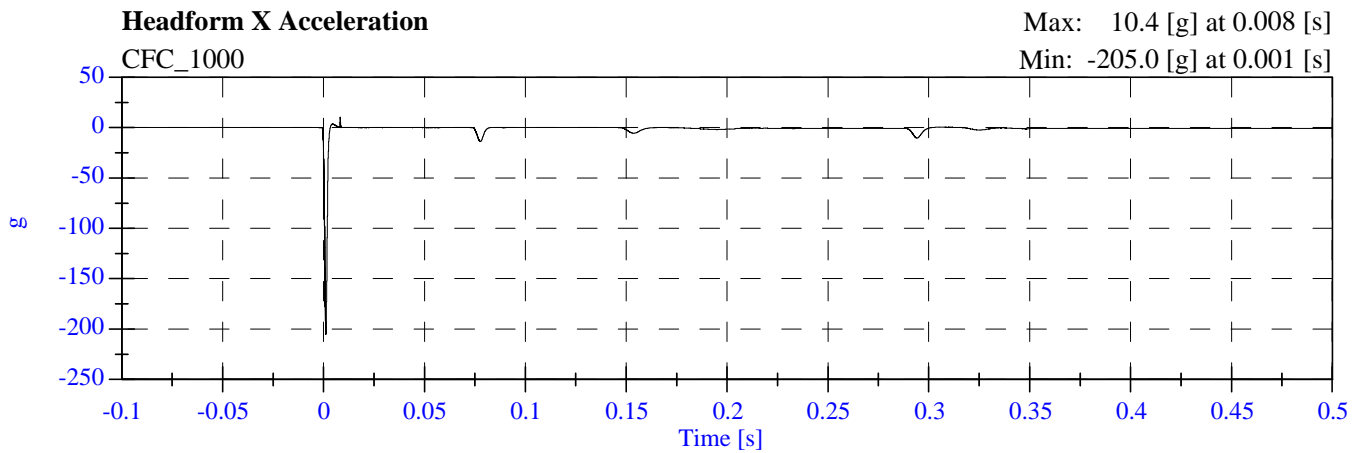
**HEAD ACCELEROMETER CALIBRATION INFORMATION**

<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>9/2/2008</b>	<b>3/2/2009</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J32779</b>	<b>9/2/2008</b>	<b>3/2/2009</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J25854</b>	<b>9/2/2008</b>	<b>3/2/2009</b>

**REMARKS:**

# FMVSS 201U - Headform Calibration Drops

## - December 23, 2008





**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>December 23, 2008</b>	
<b>TEST PARAMETER</b>	<b>SPECIFICATION</b>	<b>TEST RESULTS</b>	
<b>TEMPERATURE</b>	<b>19°C to 26°C</b>	<b>20</b>	
<b>RELATIVE HUMIDITY</b>	<b>10% to 70%</b>	<b>17</b>	
<b>PEAK RESULTANT ACCELERATION</b>	<b>225 Gs to 275 Gs</b>	<b>264.1</b>	
<b>PEAK LATERAL ACCELERATION</b>	<b>15 Gs Maximum</b>	<b>4.0</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>9/2/2008</b>	<b>3/2/2009</b>
<b>2 - LATERAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J40994</b>	<b>9/2/2008</b>	<b>3/2/2009</b>
<b>3 - VERTICAL</b>	<b>ENDEVCO</b>	<b>7264-2000T</b>	<b>J41007</b>	<b>9/2/2008</b>	<b>3/2/2009</b>

**REMARKS:**

# FMVSS 201U - Headform Calibration Drops

## - December 23, 2008

