HS 637579

REPORT NUMBER: 201U-VER-05-02

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

GENERAL MOTORS CORPORATION
2005 CHEVROLET EQUINOX

NHTSA NUMBER: C50101

VERIDIAN TEST NUMBER: 8754-FMH-02

ADVANCED INFORMATION ENGINEERING SERVICES
A GENERAL DYNAMICS COMPANY
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Test Date: November 19,2004

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Assurance
Office of Vehicle Safety Compliance
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16. *Abstract*

Compliance tests were conducted on the subject vehicle a 2005 Chevrolet Equinox 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:

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 2005 Chevrolet Equinox, NHTSA No. C50101, 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 2005 Chevrolet Equinox , NHTSA No.C50101 , was impacted at various locations throughout its upper interior by a 4.54 kg 50th percentile headform. A total of twelve (12) impacts were performed in this test series. The target area impacts were chosen by the NHTSA Contracting Officers Technical Representative (COTR). A summary of test results can be found on data sheet 2-1. The twelve (12) area chosen for testing were:

RP1	URRP	OP1	UROP	URSR3
BP4	BP3	BP1	SR3	AP3
AP1	SR2A			

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 is included in Appendix B. Each FMH weighed 4.54 ± 0.5 kg and has an orthogonal tri-axis accelerometer pack mounted at the center of gravity (c.g.).

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

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

DATA SHEET 2-1

SUMMARY OF UPPER INTERIOR HEAD IMPACT TESTS

VEHICLE YEAR/MAKE/MODEL/STYLE:	2005 Chevrolet Equinox
VIN:	2CNDL73F956070947
DATE OF MANUFACTURE:	08/04(SEE CERTIFICATION LABEL)
COLOR:	Black

TARGET CODE	Target Coordinates						Approach Angles (degrees)		Velocity (kph)	FMH HIC	HIC(d)
	Driver Side			Passenger Side							
	X(mm)	Y(mm)	Z(mm)	X(mm)	Y(mm)	Z(mm)	Horizontal	Vertical			
AP1	2821.68	-566.20	1423.95	2820.64	558.14	1424.72	132	50	18.4	570	596.5
AP2	2607.29	-590.96	1336.72	2611.81	588.22	1338.09	-	-	-	-	-
AP3	2470.98	-621.20	1250.56	2470.98	618.78	1250.03	146	33	23.68	623.6	636.9
BP1	3327.26	-485.38	1511.26	3326.83	482.83	1506.07	90	30	18.4	572.2	598.1
BP2	3319.59	-581.37	1294.23	3317.19	578.87	1304.53	-	-	-	-	-
BP3	3261.48	-622.08	1283.62	3266.80	617.64	1282.81	Relocated 2 circles		-	-	-
BP3_REL2	3272.60	-608.80	1331.96	3272.54	606.54	1330.63	85	-10	23.46	481.2	529.4
BP4	3360.53	-643.99	1171.08	3360.13	641.84	1170.69	149	-10	23.44	856.9	812.9
FH1	2758.16	-466.86	1453.92	2756.36	456.19	1454.05	Relocated 2 circles		-	-	-
FH1_REL2	2749.19	-421.72	1461.54	2768.24	411.16	1465.79	-	-	-	-	-
FH2	2744.41	-315.93	1467.98	2743.96	301.45	1464.99	-	-	-	-	-
OP1_OP2	4287.47	-591.53	1322.90	4287.99	588.73	1327.57	90	8	23.67	472.7	523
RP1	4603.06	-504.47	1461.01	4607.89	503.40	1461.45	56	48	23.66	618.4	632.9
SR1	2972.59	-493.91	1482.92	2970.15	492.55	1479.40	-	-	-	-	-
SR2A	3120.20	-485.36	1504.60	3118.79	481.52	1504.54	90	31	18.54	171.9	296.1
SR2B	3030.65	-490.43	1494.09	3028.28	487.97	1492.32	-	-	-	-	-
SR3	3478.95	-475.45	1528.07	3476.16	474.25	1520.38	90	25	18.75	129.5	264.1
URAP	2976.99	-414.54	1502.11	2981.06	412.75	1501.64	-	-	-	-	-
URBP	3332.68	-410.38	1564.90	3329.26	373.53	1564.82	-	-	-	-	-
UROP	4141.19	-405.75	1595.37	4141.83	388.23	1599.07	90	30	23.75	361.3	439
URRP	4415.13	-396.99	1587.13	4408.43	386.51	1591.67	45	41	23.71	260.8	363.1
URSR3	3707.71	-384.00	1591.41	3711.27	388.04	1595.14	90	30	23.66	292.9	387.3

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

DATA SHEET 2-2

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:								
Year/Make/Model/Body Style:	2005 Chevrolet Equinox							
VIN:	2CNDL73F956070947							
Month & Year of Manufacture:	08/04(SEE CERTIFICATION LABEL)							
Vehicle Body Color:	Black							
Engine Data:	6	Cylinders;	-	CID;	3.4	Liters;	-	cc
Engine Placement:	x	Longitudinal;	or		-	Lateral		
Transmission:	4	Speed;	-	Manual;	x	Automatic;	-	Overdrive
Final Drive:	-	Rear Wheel Drive;	-	Front Wheel Drive;	x	Four Wheel Drive		
Odometer Reading:	299	km						
Options:	x	A/C;	x	Power Steering;	x	Pwr.Brakes;	x	Pwr. Windows
Interior Trim Information :								
1. B-pillars have adjustable seat belt anchorages.								
2. Other pillars have non-adjustable seat belt anchorages.								
3. Normal roof vehicle with side curtain airbags								

DATA FROM TIRE PLACARD:								
Tire Pressure (at capacity);	210	kPa FRONT						
	210	kPa REAR						
Recommended Tire Size:	P235/60R17							
Tires on Test Vehicle:	P235/60R17	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:	x	Fixed;	x	Adjustable with	x	Lever or	-	Knob
Vehicle Capacity Weight (VCW)=	555	kg (A)						
No. of Occupants x 68 kg. =	340	kg (B)						
Rated Cargo/Luggage Weight (RCLW) =	215	kg (A-B) Max. RCLW = 136 kg.						

DATA SHEET 2-2

GENERAL TEST AND VEHICLE PARAMETER DATA (cont.)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:					
Left Front =	495	kg	Left Rear =	377	kg
Right Front =	476	kg	Right Rear =	373	kg
TOTAL FRONT =	971	kg	TOTAL REAR =	750	kg
% of Total Weight =	56.4	%	% of Total Weight =	43.6	%
TOTAL WEIGHT =		1721	kg		

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:		
Total Test Vehicle Delivered Weight=	1721	kg (A)
+ Rated Cargo/Luggage Weight =	136	kg (B)
TEST VEHICLE TARGET WEIGHT =	1857	kg (A+B)

WEIGHT OF TEST VEHICLE (FULLY LOADED):					
Left Front =	480	kg	Left Rear =	453	kg
Right Front =	471	kg	Right Rear =	446	kg
TOTAL FRONT =	951	kg	TOTAL REAR =	899	kg
% of Total Weight =	51.4	%	% of Total Weight =	48.6	%
TOTAL TEST WEIGHT =		1850			
Weight of vehicle secured in test vehicles cargo area =		129	kg		

TEST VEHICLE ATTITUDE (all dimensions in millimeters):				
AS DELIVERED:	Left Front	842	Left Rear	872
	Right Front	847	Right Rear	868
FULLY LOADED:	Left Front	848	Left Rear	844
	Right Front	847	Right Rear	838
Test Vehicle Wheelbase:		2858	millimeters	

TEST VEHICLE PITCH AND ROLL ANGLES:				
AS DELIVERED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	0.0	Front Bumper	↑0.2
	Right Door Sill	↓0.2	Rear Bumper	↑0.1
FULLY LOADED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↓0.5	Front Bumper	↑0.1
	Right Door Sill	↑0.4	Rear Bumper	↑0.1
AS TESTED:	PITCH ANGLES		ROLL ANGLES	
	Left Door Sill	↓0.1	Front Bumper	↑0.2
	Right Door Sill	↓0.2	Rear Bumper	↑0.1

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	203	247	-5	50	AP1	113	157	-5	50
AP2	203	247	-5	42	AP2	113	157	-5	42
AP3	203	247	-5	33	AP3	113	157	-5	33
BP1	199	276	-10	30	BP1	84	161	-10	30
BP2	270		0	2	BP2	90		0	2
BP3	199	276	-10	-10	BP3	84	161	-10	-10
BP4	199	276	-10	-10	BP4	84	161	-10	-10
OP1	270		0	8	OP1	90		0	8
OP2	270		0	8	OP2	90		0	8
RP1	270	345	-10	48	RP1	15	90	-10	48
RP2	270	345	-10	-	RP2	15	90	-10	-
FH1	180		0	50	FH1	180		0	50
FH2	180		0	50	FH2	180		0	50
RH	360		0	-	RH	0		0	-
SR1	270		0	37	SR1	90		0	37
SR2A	270		0	31	SR2A	90		0	31
SR2B	270		0	29	SR2B	90		0	29
SR3	270		0	25	SR3	90		0	25
URAP	ANY		0	50	URAP	ANY		0	50
URBP	ANY		0	44	URBP	ANY		0	44
URRP	ANY		0	41	URRP	ANY		0	41
UROP	ANY		0	35	UROP	ANY		0	35
URSR	ANY		0	31	URSR	ANY		0	31

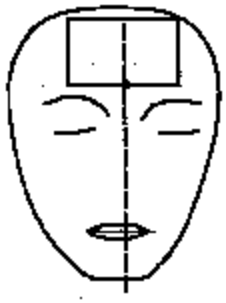
Note : BP2 target location – Seat belt anchorage

OP1 / OP2 target location – Seat belt anchorage

DATA SHEET 2-4

SUMMARY TARGET IMPACT LOCATION ON FMH

VEHICLE YEAR/MAKE/MODEL/STYLE:	2005 Chevrolet Equinox
VIN:	2CNDL73F956070947
DATE OF MANUFACTURE:	08/04(SEE CERTIFICATION LABEL)
COLOR:	Black



R RIGHT SIDE OF FACE

TARGET	Distance Above Point 0 (mm)	Distance Over From Pt. O (mm)
RP1	14	0
URRP	40	9 to the right
OP1	20	4 to the left
UROP	70	3 to the left
URSR3	60	2 to the left
BP4	5	10 to the left
BP3	2	38 to the right
BP1	14	6 to the right
SR3	9	4 to the right
AP3	20	5 to the left
AP1	22	6 to the left
SR2A	15	2 to the right

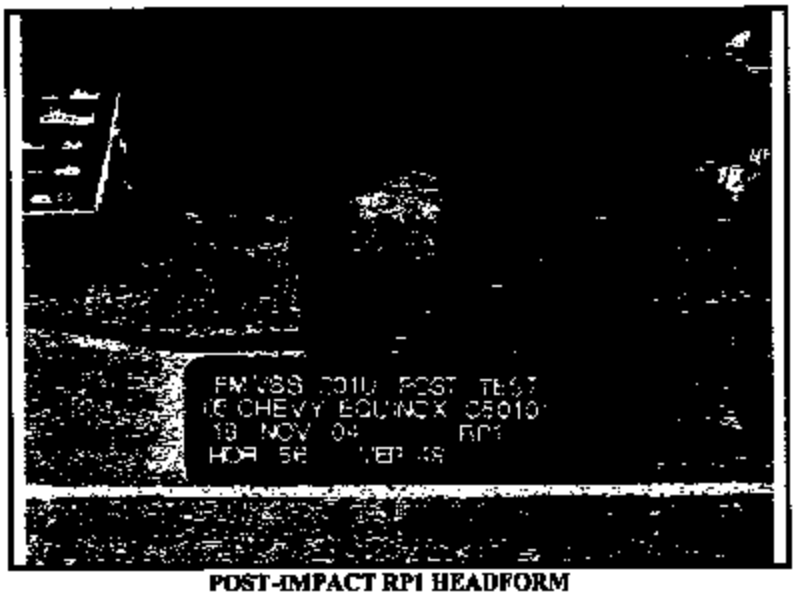
SECTION 3

SUMMARY OF TEST RESULTS AND DATA PLOTS

VEHICLE YEAR/MAKE/MODEL/STYLE:	2005 Chevrolet Equinox
VIN:	2CNDL73F956070947
DATE OF MANUFACTURE:	06/04(SEE CERTIFICATION LABEL)
COLOR:	Black

Test Number:	01
Test Date:	11/18/04
Target Location:	Rear Pillar
Target Code:	RP1
Horizontal Impact Angle:	56°
Vertical Impact Angle:	48°
Ambient Temperature:	25.8°C
Relative Humidity:	38.2
Time of Impact:	10:15
Headform Number:	0642

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	0	☐	mm right	☐	mm left
On Centerline	14		mm up		



POST-IMPACT RP1 HEADFORM

Free Motion HIC	618.4
HIC(d)	632.9
Impact Velocity (kph)	23.66
HIC T1 (msec)	7.6
HIC T2 (msec)	14.2

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX C50101 - RP1

FMH Headform 0642

Test Date: November 18, 2004

Location: RP1

Work File: RP1

TEST RESULTS

Lab Temperature: 25.8 C

Lab Humidity: 38.2 %

Velocity at Impact: 23.66 KPH

Free Flight Distance: 223.35 mm

HICd: 632.9

HIC (36ms): 618.4

t1: 7.6 msec

t2: 14.2 msec

Duration: 6.5 msec

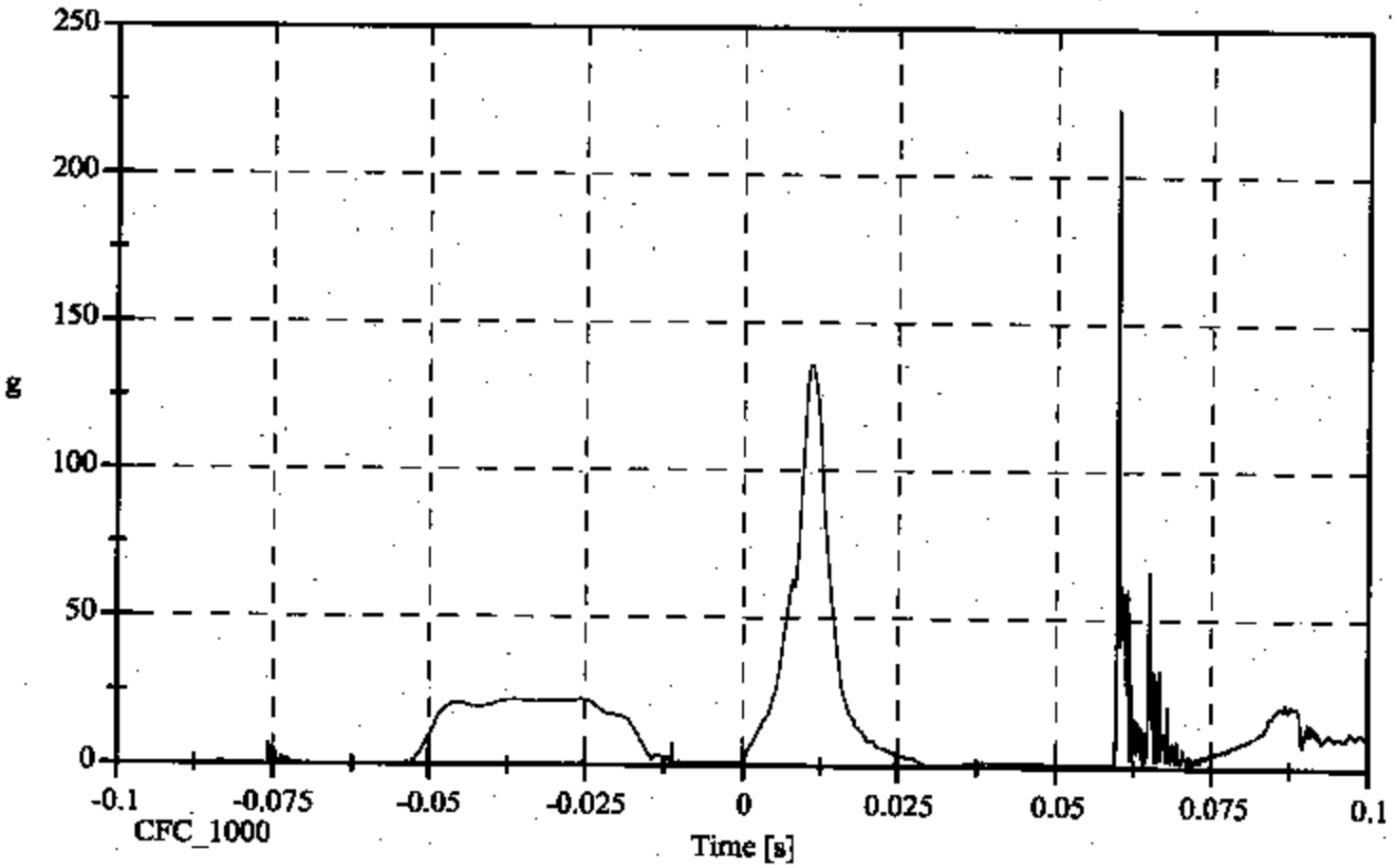
Average Acceleration: 11.5 g

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 222.6 [g] at 0.060 [s]

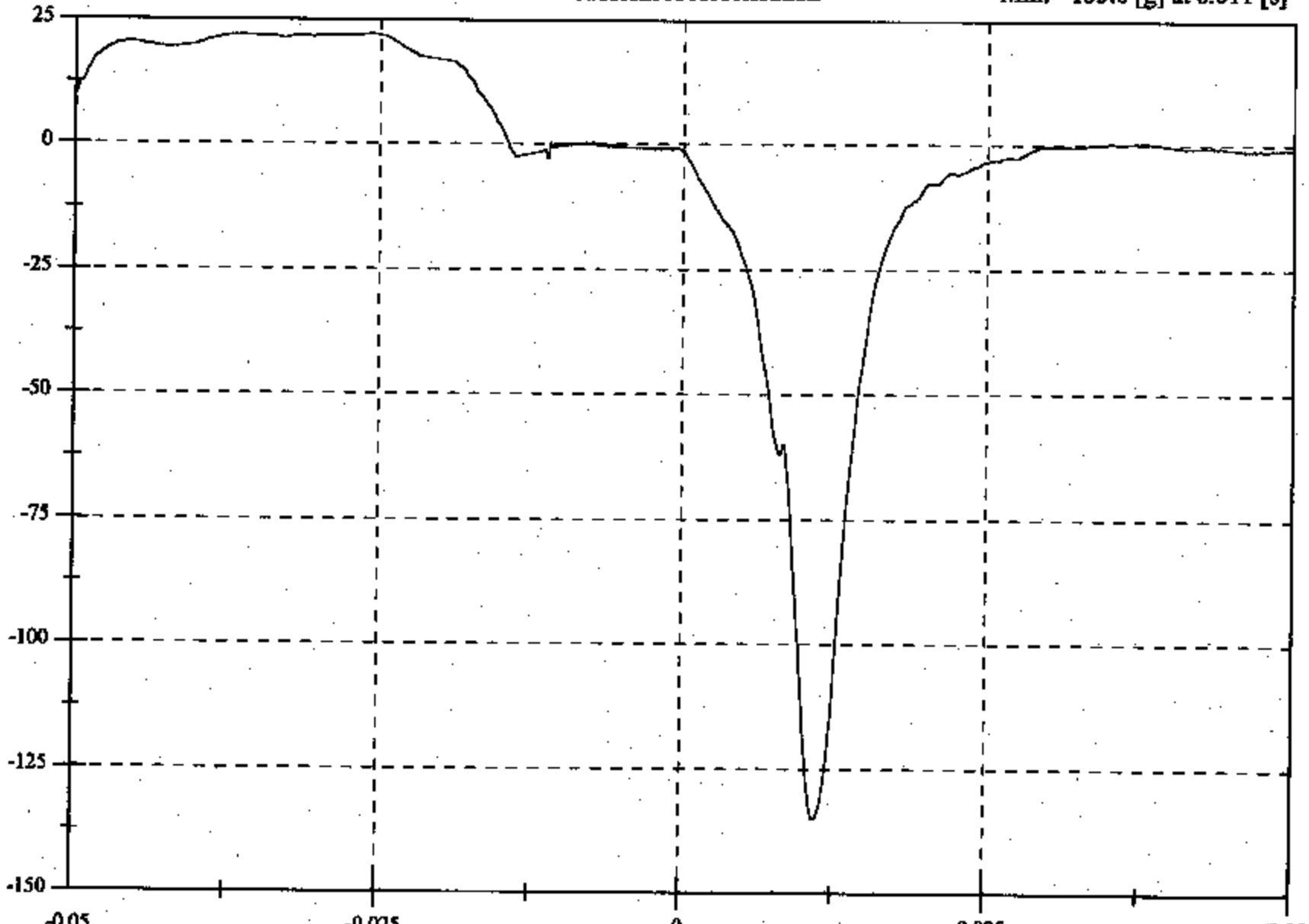
Min: 0.0 [g] at -0.096 [s]



FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform X Acceleration

Max: 22.4 [g] at -0.026 [s]
Min: -135.0 [g] at 0.011 [s]

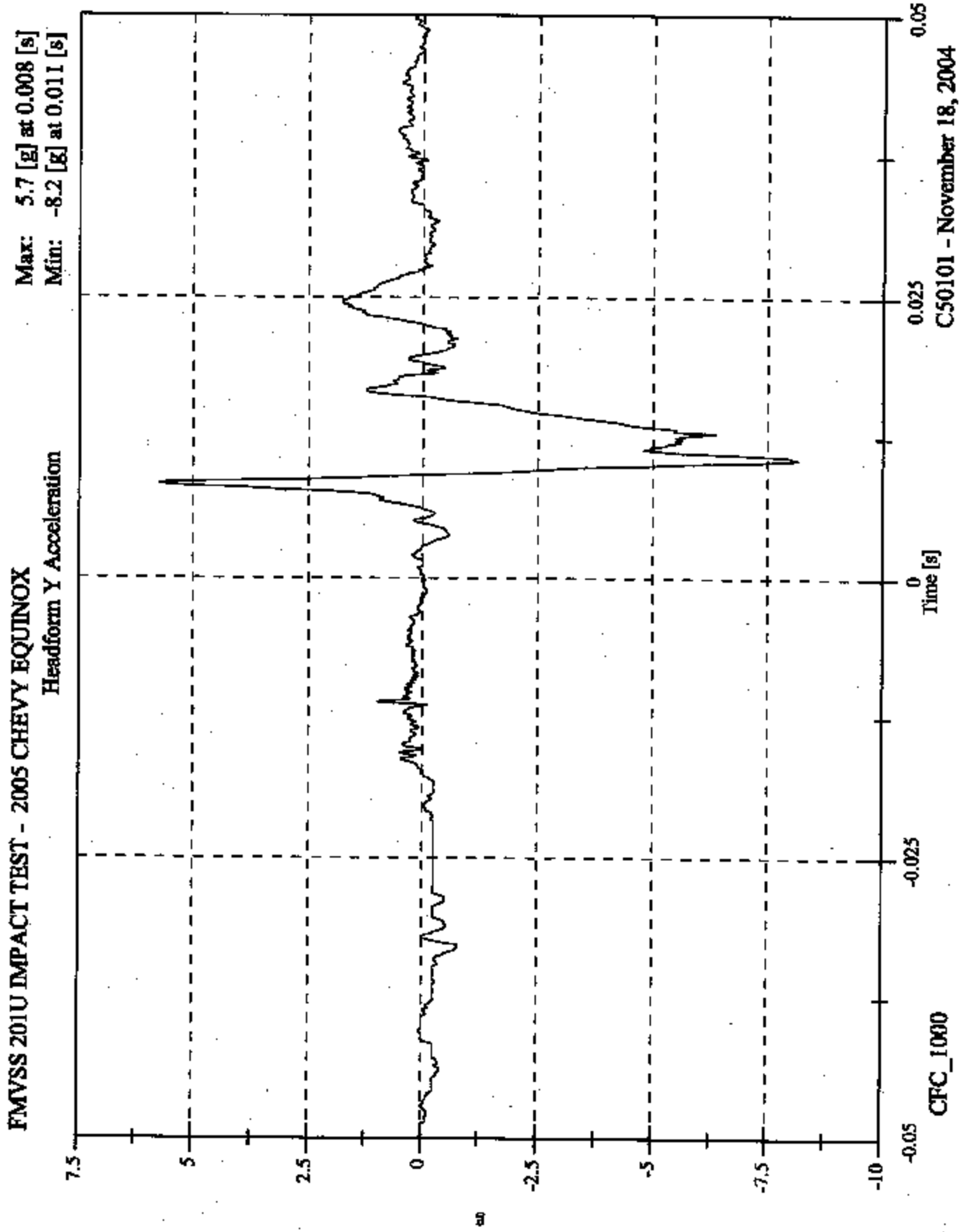


CFC_1000

C50101 - November 18, 2004

C50101 RP1 IMPACT PLOT #1

8754-FMH-02



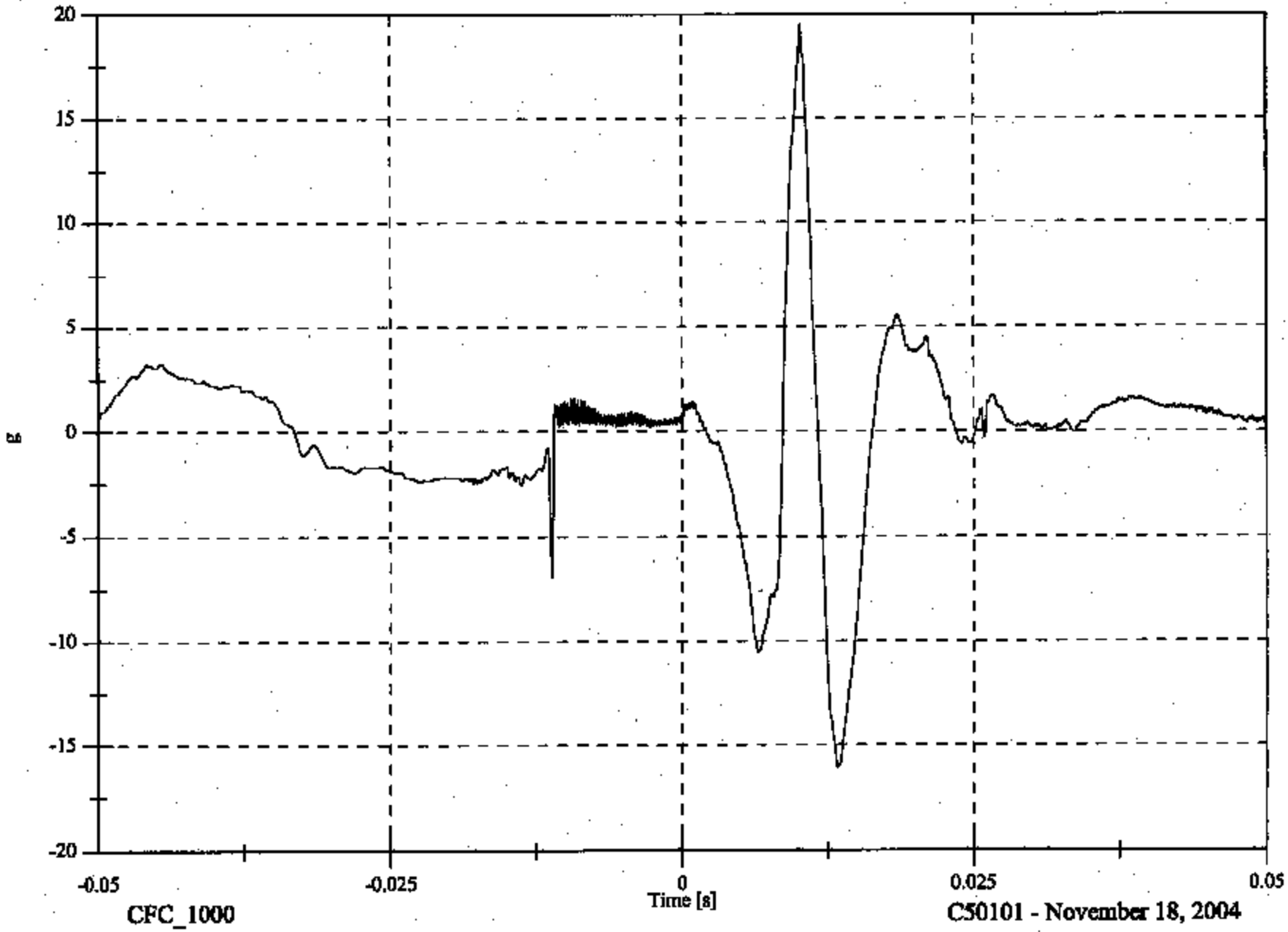
C50101 RP1 IMPACT PLOT #2

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Z Acceleration

Max: 19.5 [g] at 0.010 [s]
Min: -16.1 [g] at 0.013 [s]



CFC_1000

C50101 - November 18, 2004

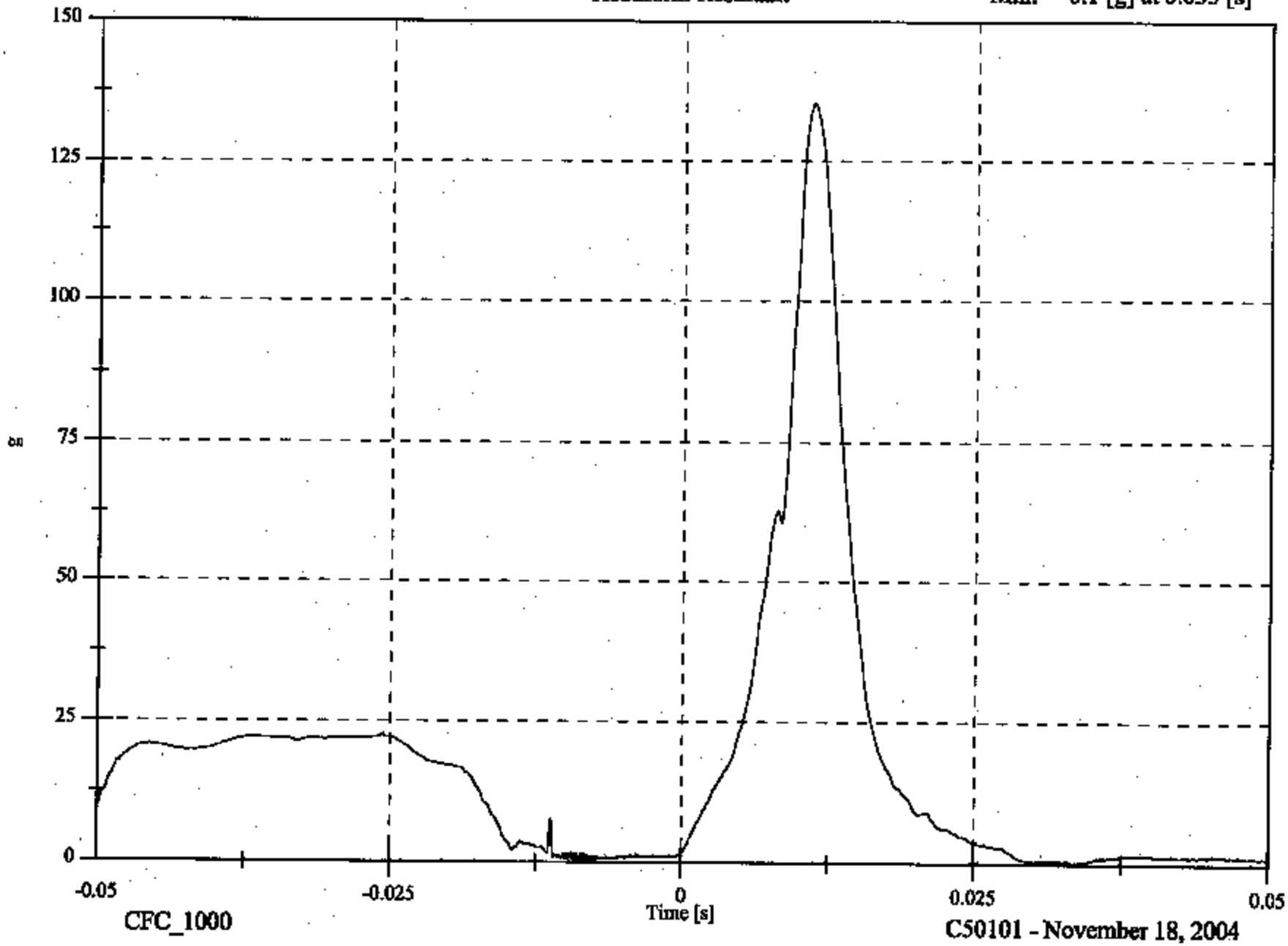
C50101 RP1 IMPACT PLOT #3

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 135.6 [g] at 0.011 [s]
Min: 0.1 [g] at 0.033 [s]



CFC_1000

C50101 - November 18, 2004

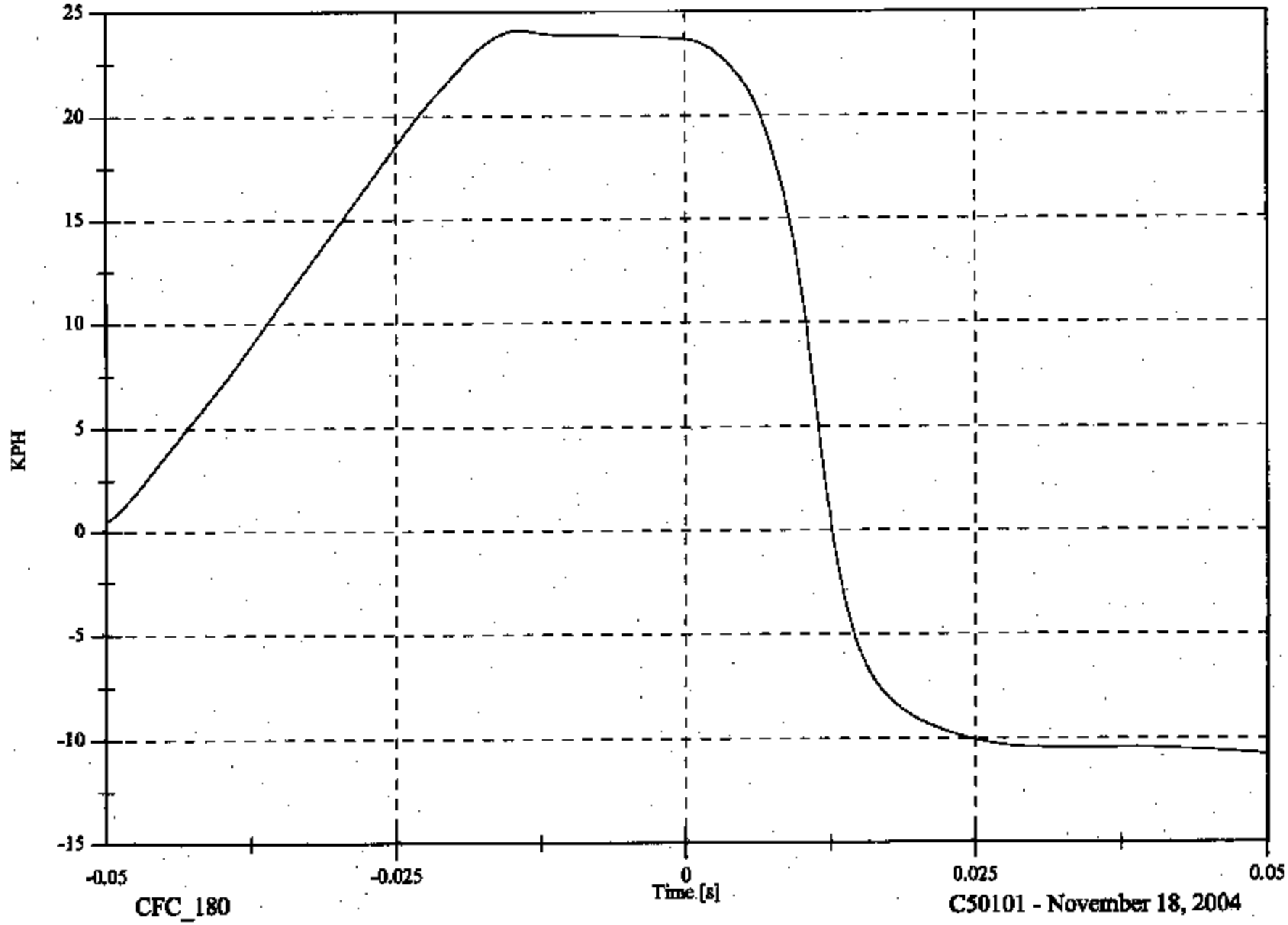
C50101 RP1 IMPACT PLOT #4

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Velocity

Max: 24.1 [KPH] at -0.014 [s]
Min: -10.8 [KPH] at 0.050 [s]

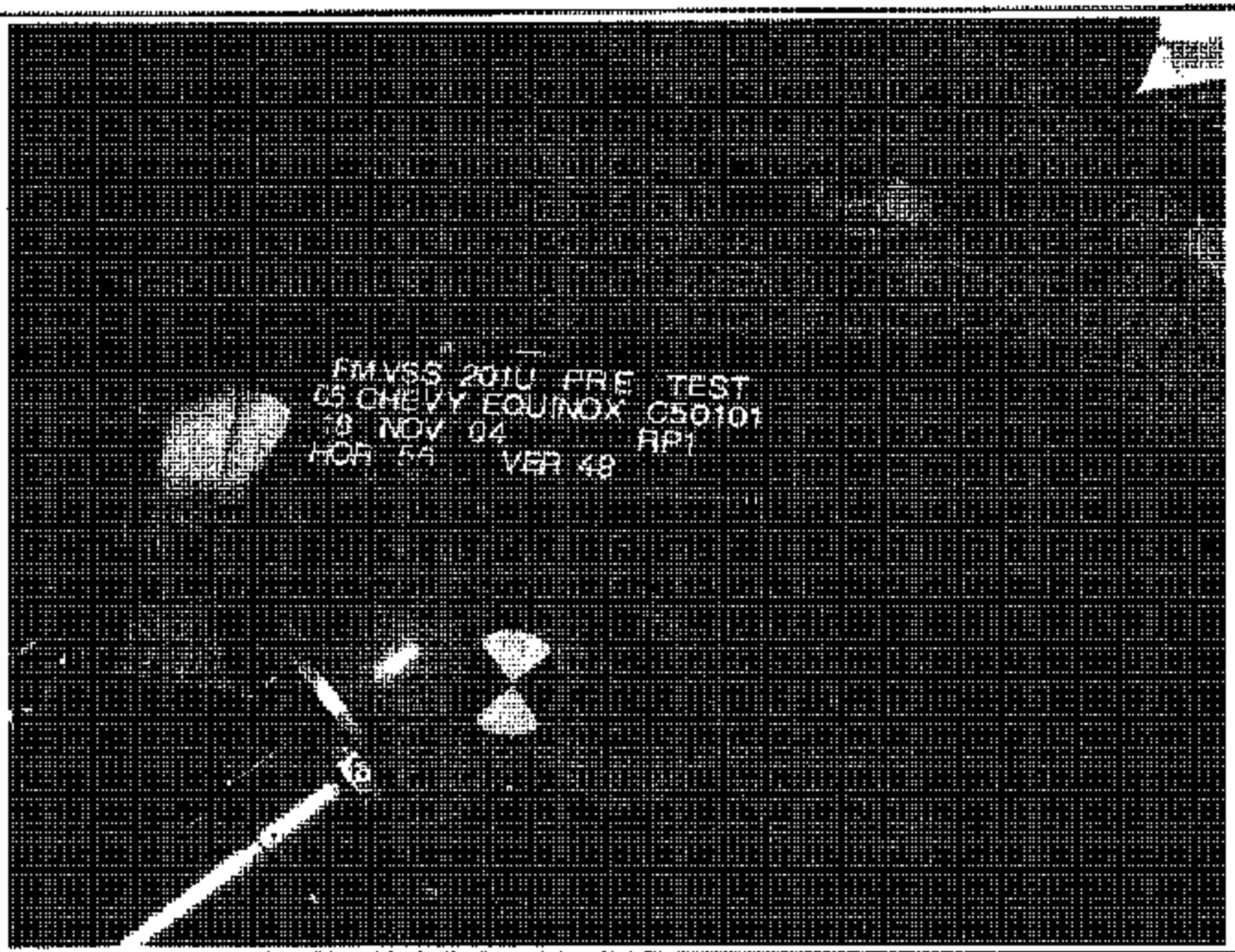


CFC_180

C50101 - November 18, 2004

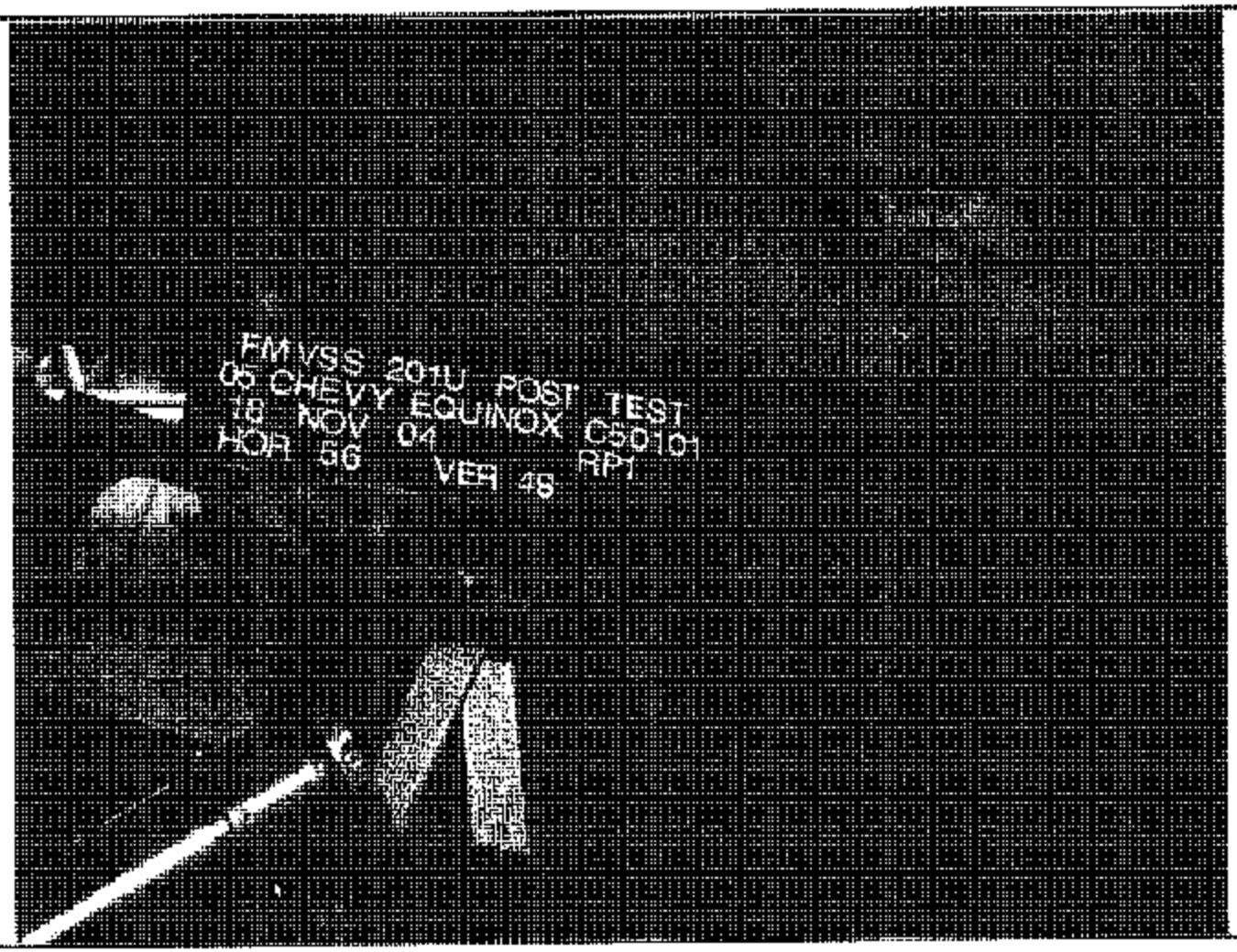
C50101 RP1 IMPACT PLOT #5

8754-FMH-02



PRE-IMPACT RP1

8754-FMH-02



POST-IMPACT RT1

8754-FMH-02

VEHICLE YEAR/MAKE/MODEL/STYLE:	2005 Chevrolet Equinox
VIN:	2CNDL73F956070947
DATE OF MANUFACTURE:	08/04(SEE CERTIFICATION LABEL)
COLOR:	Black

Test Number:	02
Test Date:	11/18.04
Target Location:	Upper Roof
Target Code:	URRP
Horizontal Impact Angle:	45°
Vertical Impact Angle:	41°
Ambient Temperature:	25.5°C
Relative Humidity:	39.9
Time of Impact:	11:00
Headform Number:	0805

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	9	x	mm right		mm left
On Centerline	40		mm up		

POST-IMPACT URRP HEADFORM

Free Motion HIC	260.8
HIC(d)	363.1
Impact Velocity (kph)	23.71
HIC T1 (msec)	1.8
HIC T2 (msec)	21.5

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX C50101 - URRP

FMH Headform 805

Test Date: November 18, 2004

Location: URRP

Work File: URRP

TEST RESULTS

Lab Temperature: 25.5 C

Lab Humidity: 39.9 %

Velocity at Impact: 23.71 KPH

Free Flight Distance: 220.86 mm

HICd: 363.1

HIC (36ms): 260.8

t1: 1.8 msec

t2: 21.5 msec

Duration: 19.6 msec

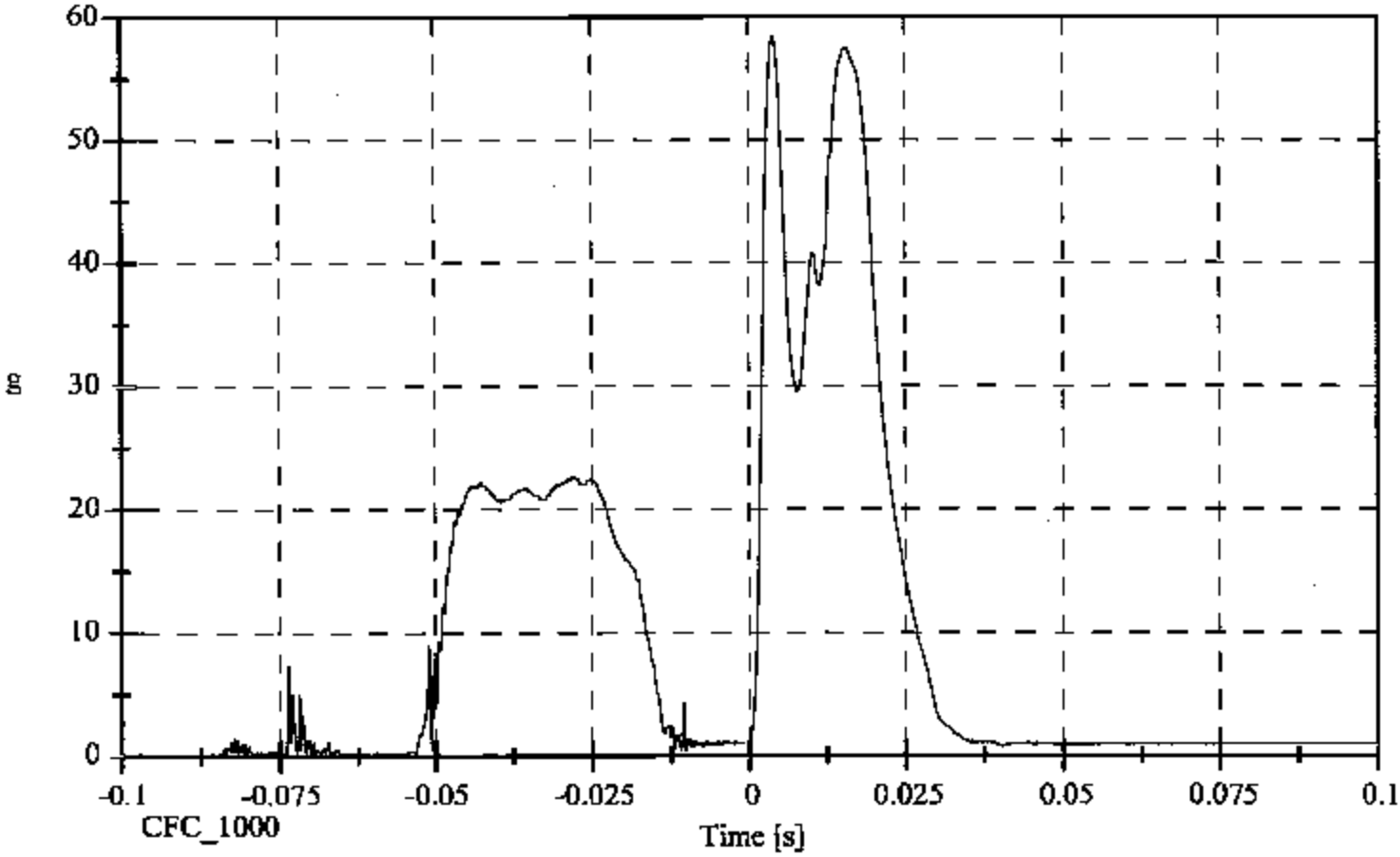
Average Acceleration: 9.0 g

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 58.4 [g] at 0.004 [s]

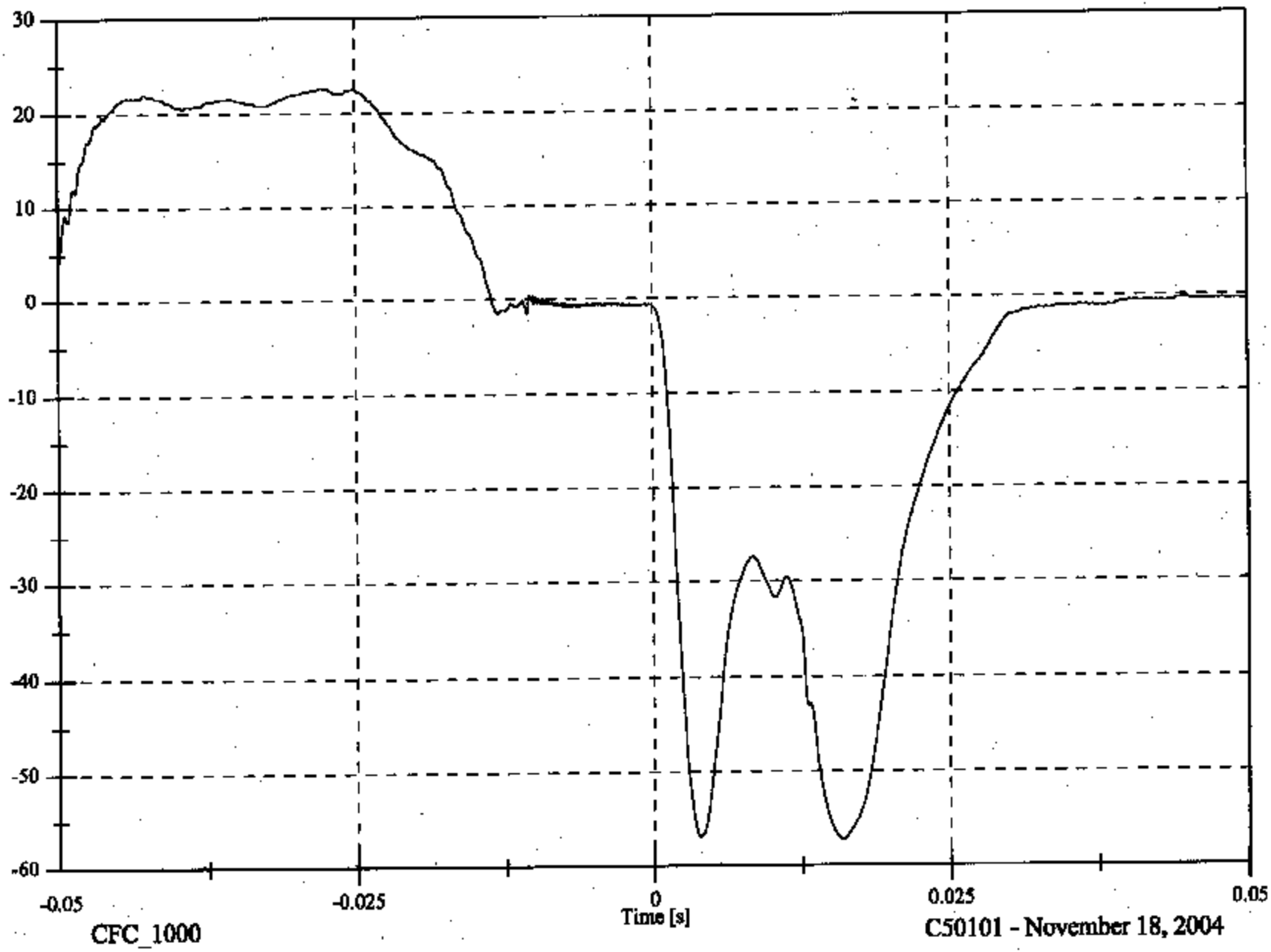
Min: 0.0 [g] at -0.097 [s]



FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform X Acceleration

Max: 22.6 [g] at -0.028 [s]
Min: -57.3 [g] at 0.016 [s]



CFC_1000

C50101 - November 18, 2004

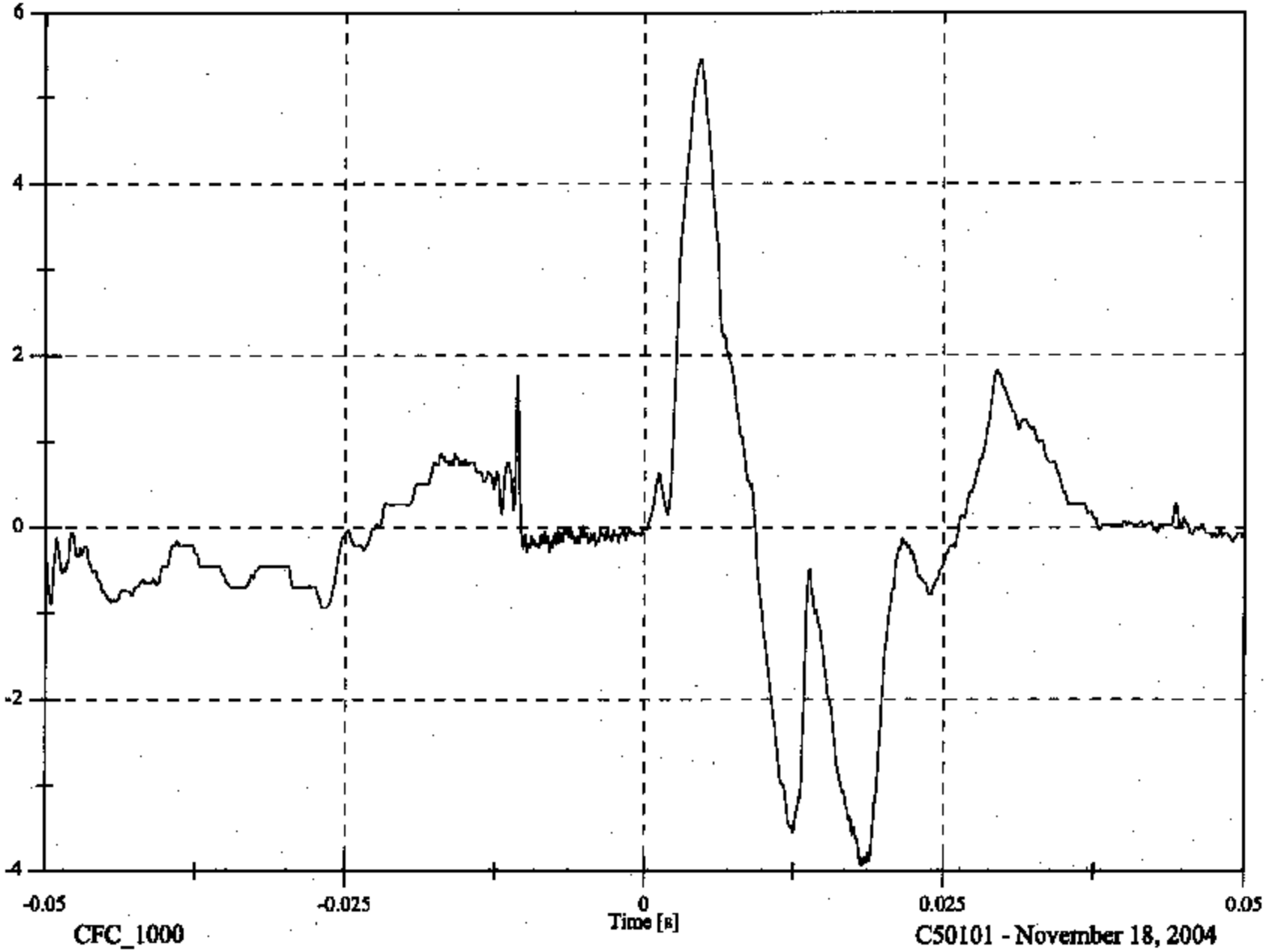
C50101 URRP IMPACT PLOT #1

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Y Acceleration

Max: 5.5 [g] at 0.005 [s]
Min: -3.9 [g] at 0.018 [s]



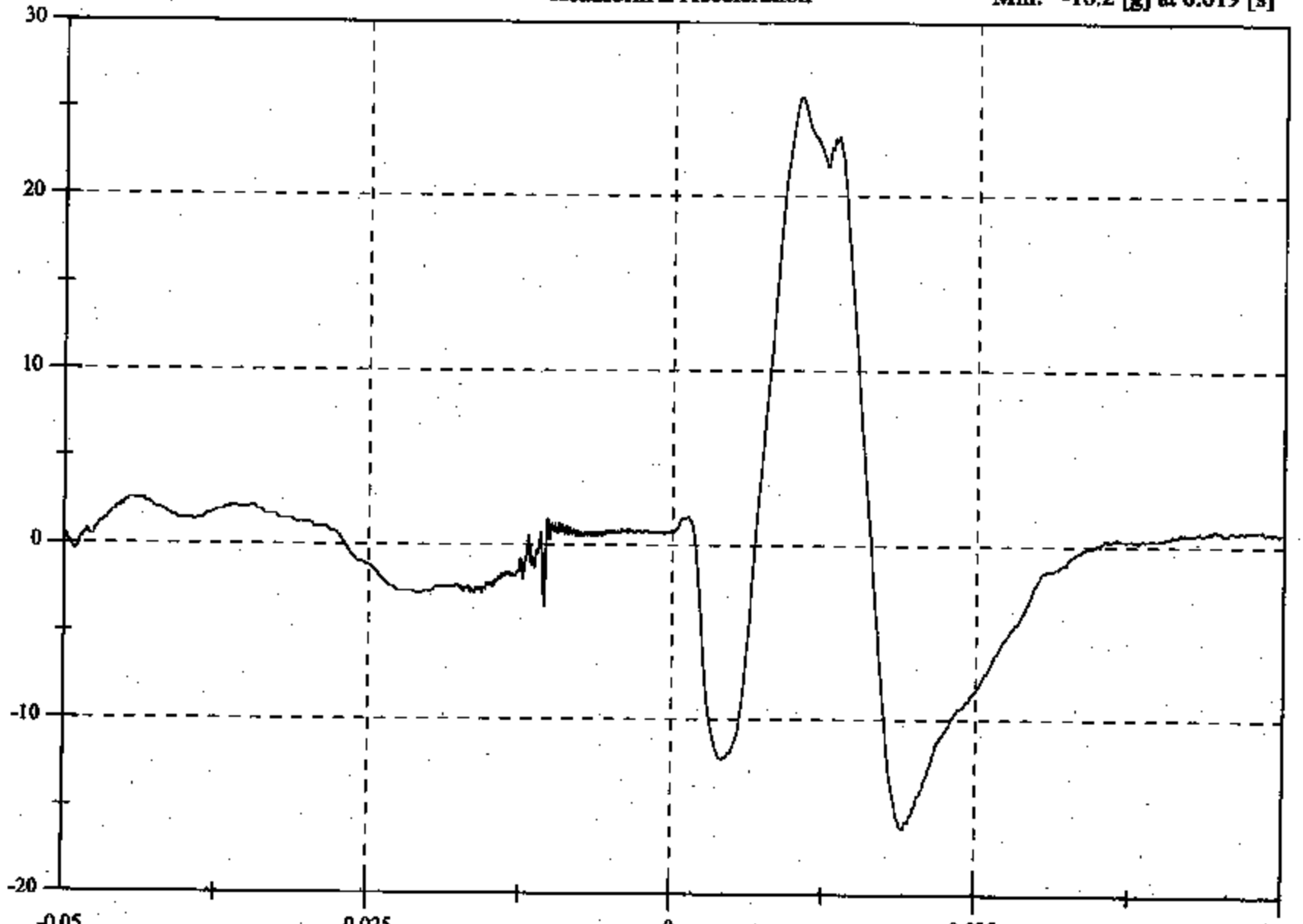
CFC_1000

C50101 - November 18, 2004

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Z Acceleration

Max: 25.7 [g] at 0.010 [s]
Min: -16.2 [g] at 0.019 [s]



CFC_1000

C50101 - November 18, 2004

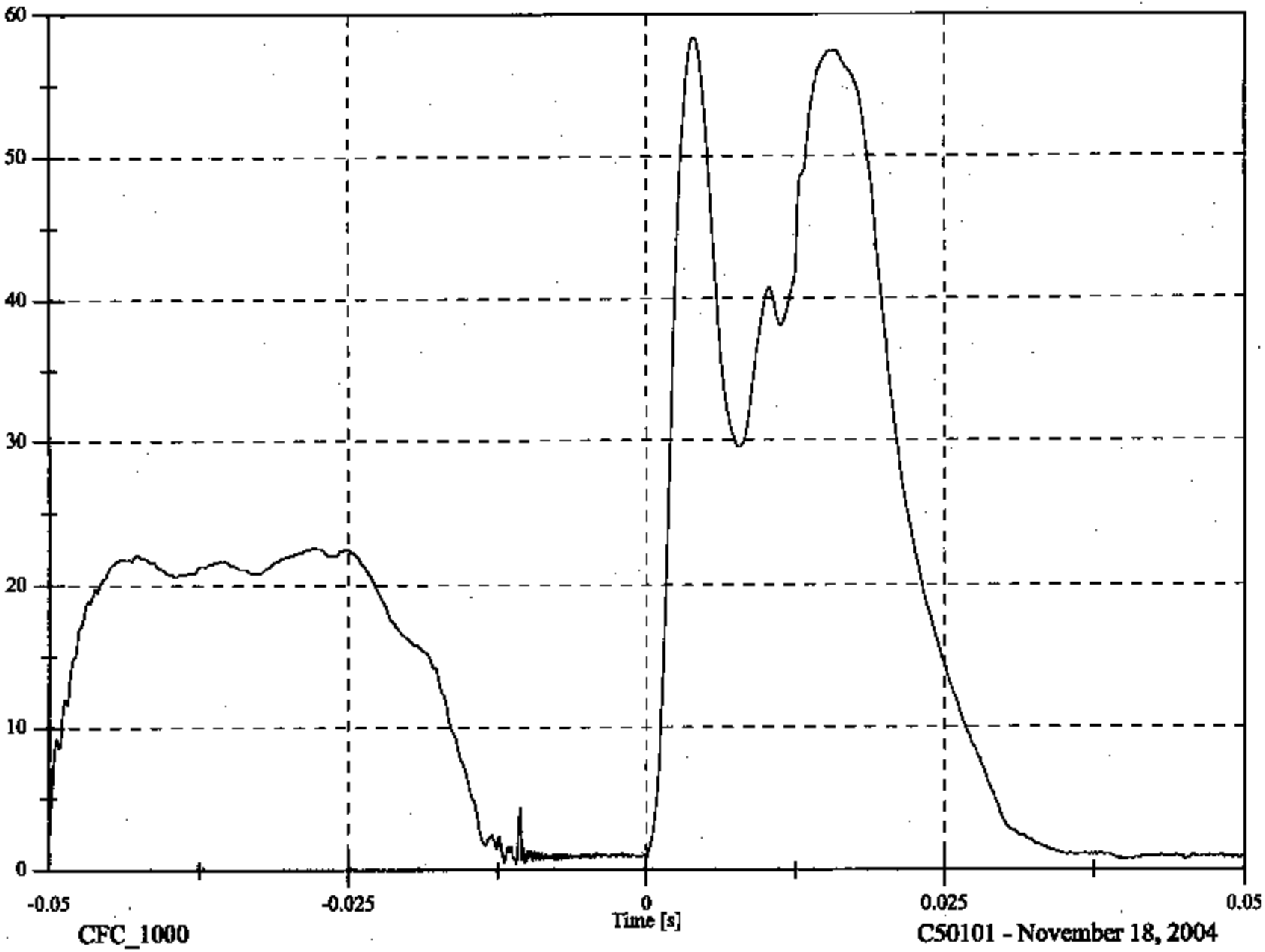
C50101 URRP IMPACT PLOT #3

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 58.4 [g] at 0.004 [s]
Min: 0.4 [g] at -0.011 [s]



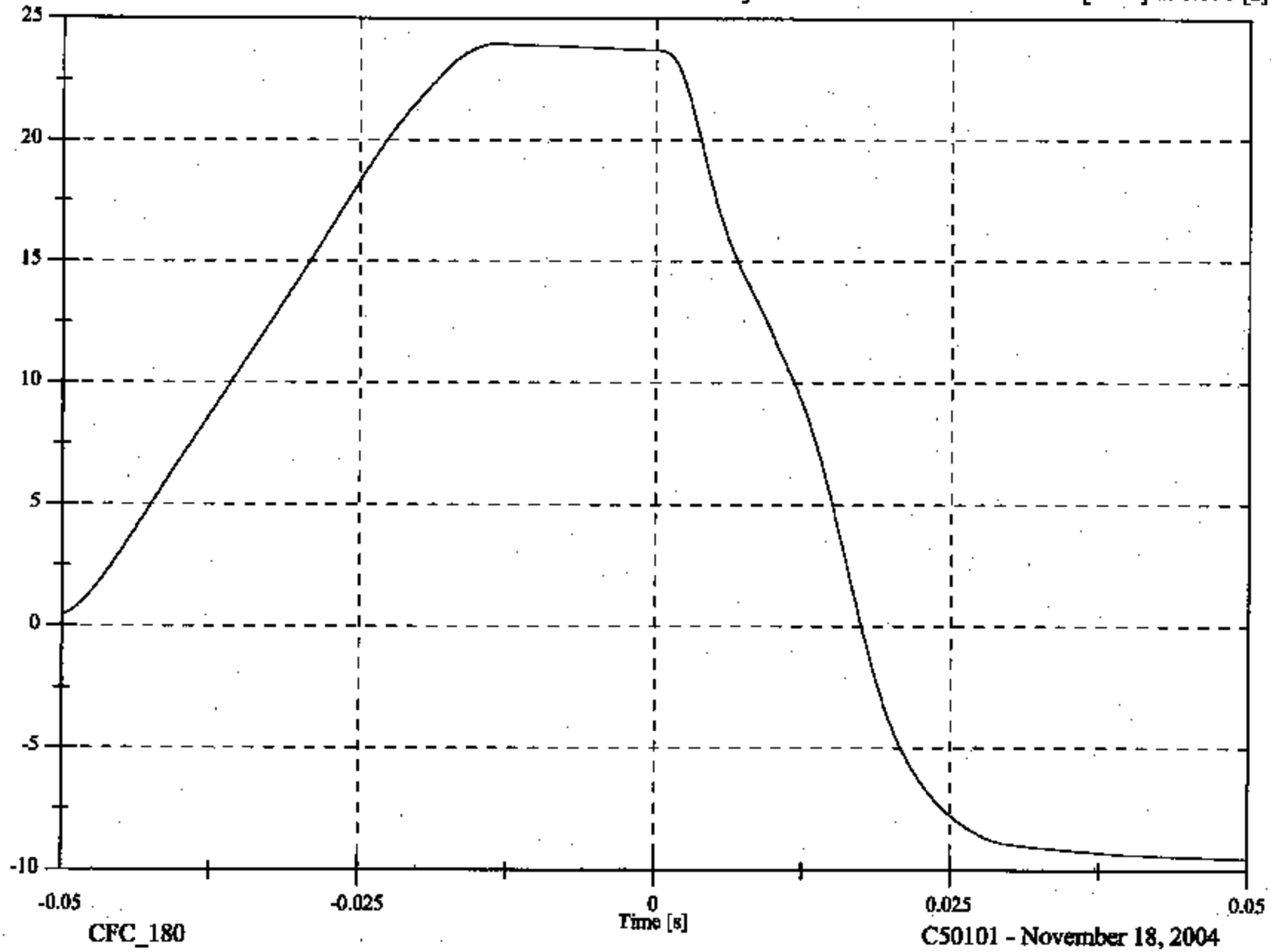
C50101 URRP IMPACT PLOT #4

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Velocity

Max: 24.0 [KPH] at -0.013 [s]
Min: -9.5 [KPH] at 0.050 [s]

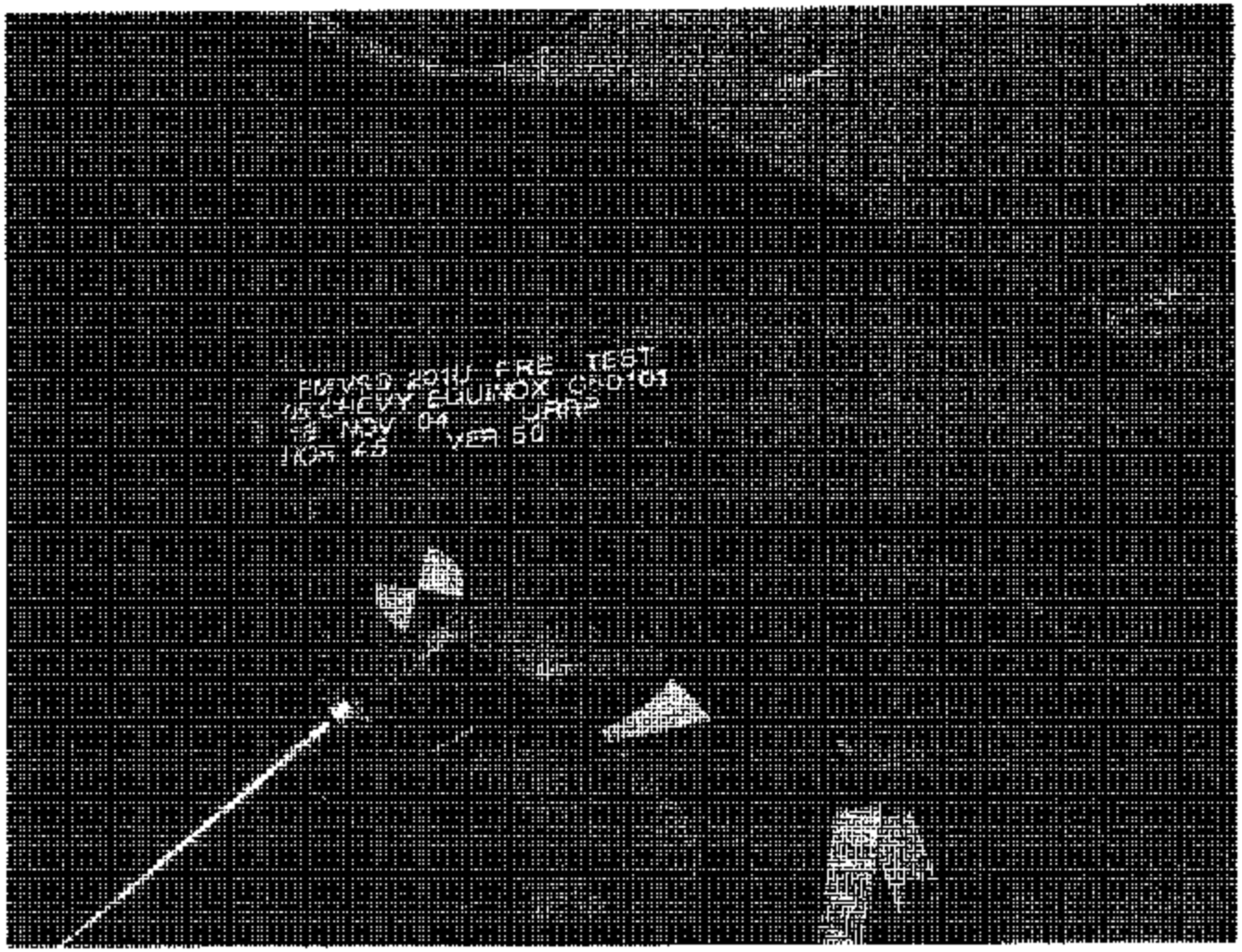


CFC_180

C50101 - November 18, 2004

C50101 URRP IMPACT PLOT #5

8754-FMH-02



PRE-IMPACT URRP

8754-FMEI-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX C50101 - OP1

FMH Headform 0355

Test Date: November 18, 2004

Location: OP1

Work File: OP1

TEST RESULTS

Lab Temperature: 25.0 C

Lab Humidity: 41.0 %

Velocity at Impact: 23.67 KPH

Free Flight Distance: 227.40 mm

HICd: 523.0

HIC (36ms): 472.7

t1: 1.2 msec

t2: 10.9 msec

Duration: 9.6 msec

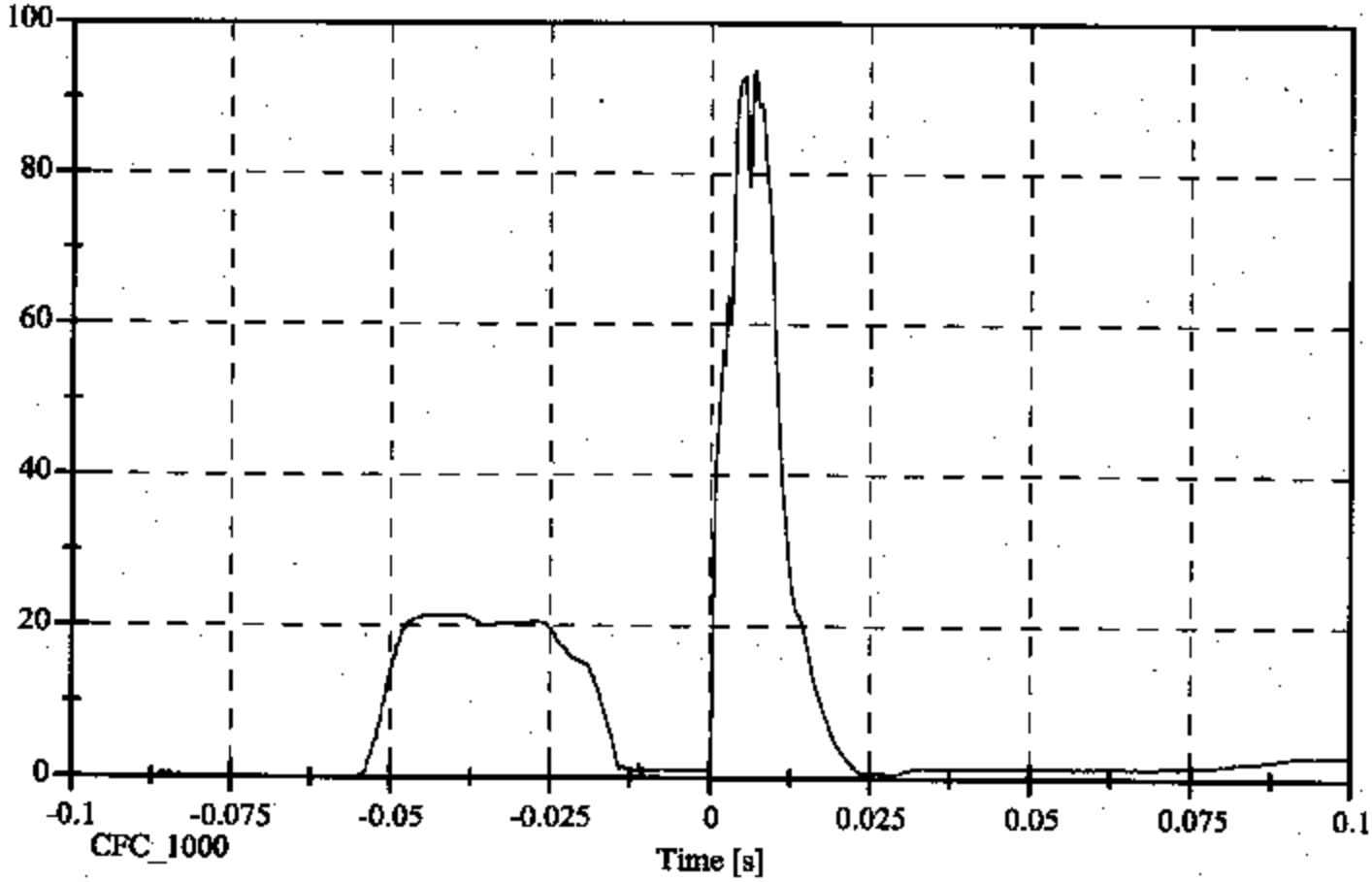
Average Acceleration: 8.7 g

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 93.8 [g] at 0.007 [s]

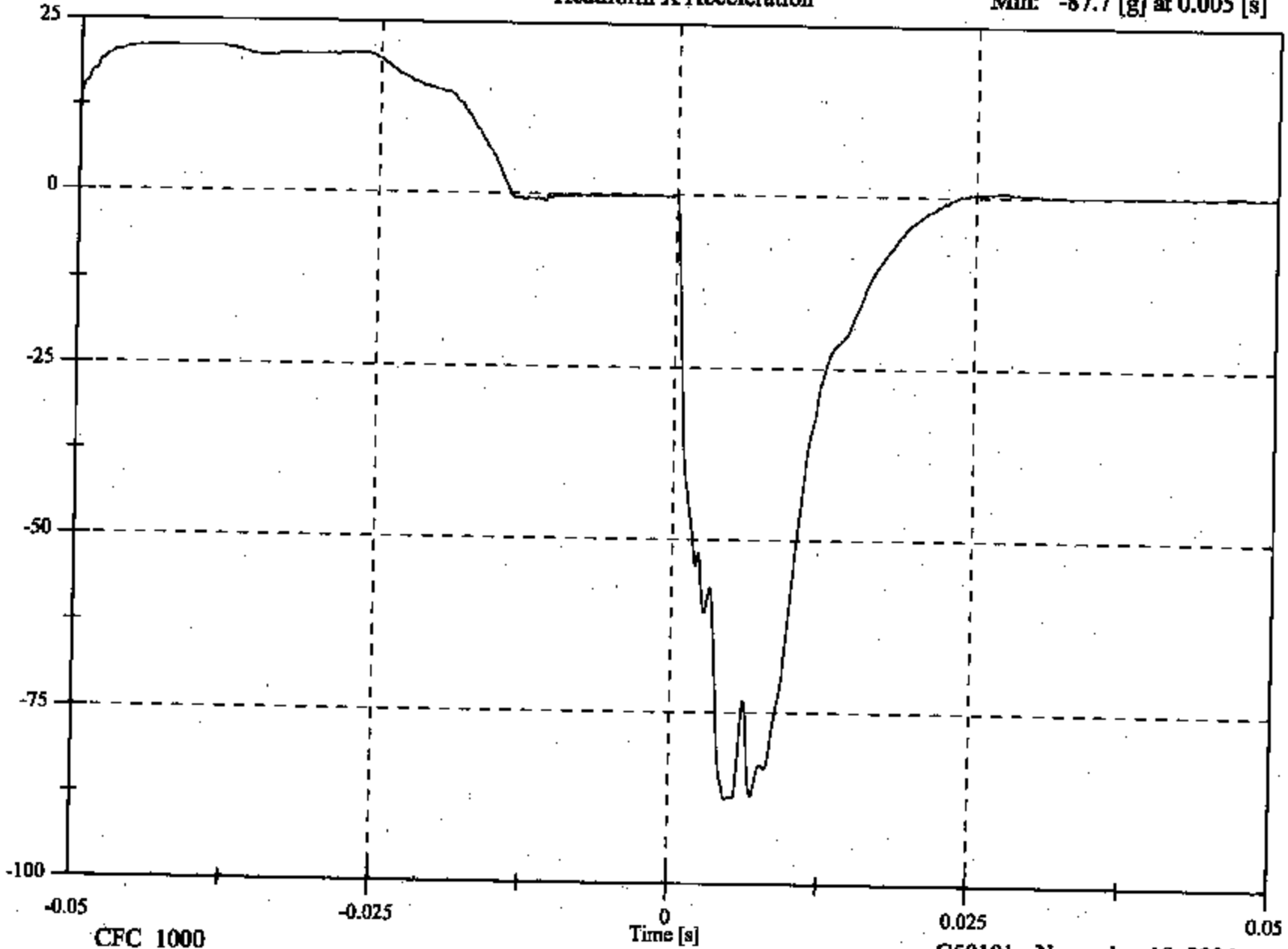
Min: 0.0 [g] at -0.098 [s]



FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform X Acceleration

Max: 21.4 [g] at -0.043 [s]
Min: -87.7 [g] at 0.005 [s]



CFC_1000

C50101 - November 18, 2004

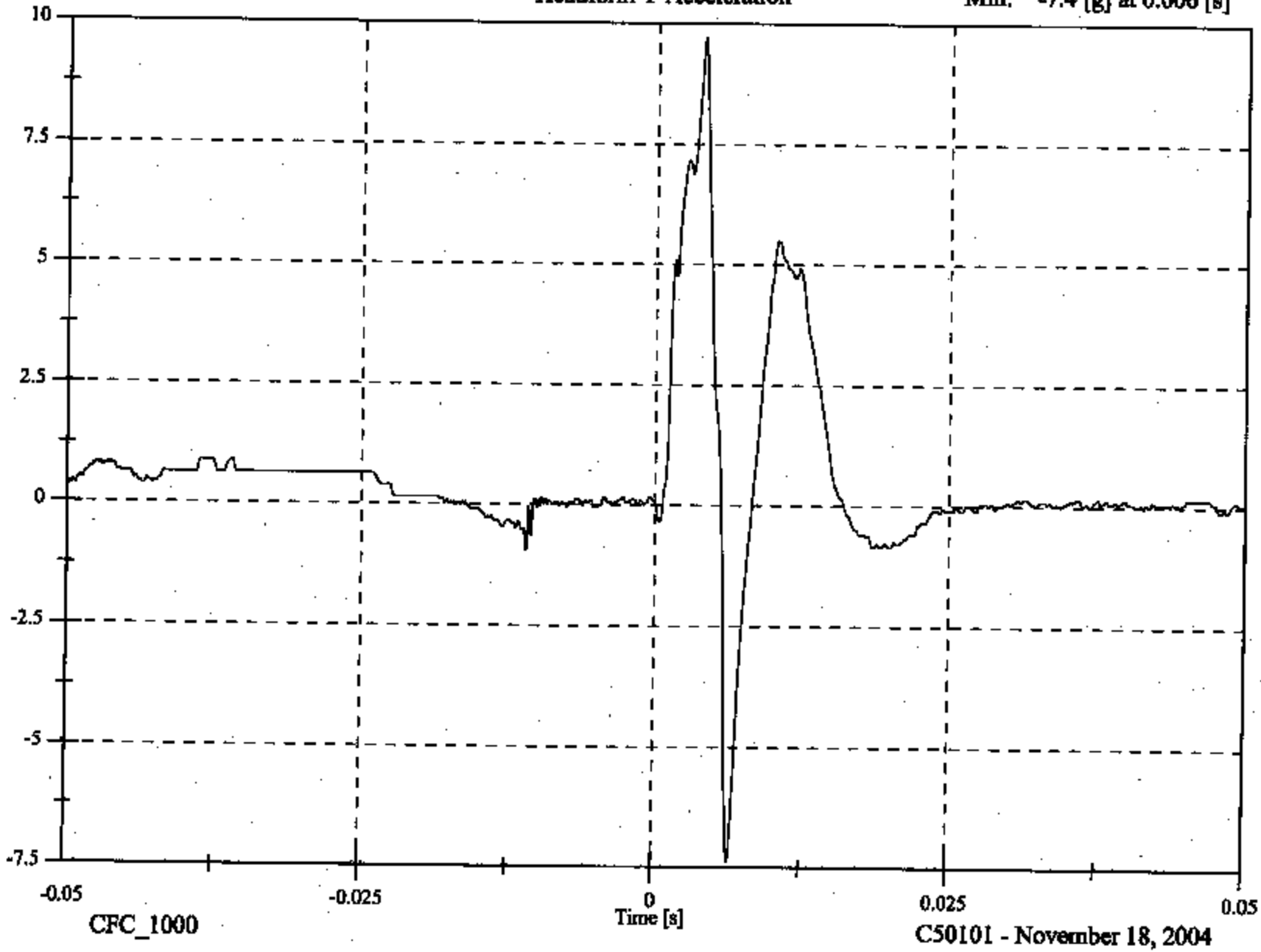
C50101 OP1 IMPACT PLOT #1

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Y Acceleration

Max: 9.7 [g] at 0.004 [s]
Min: -7.4 [g] at 0.006 [s]



C50101 OP1 IMPACT PLOT #2

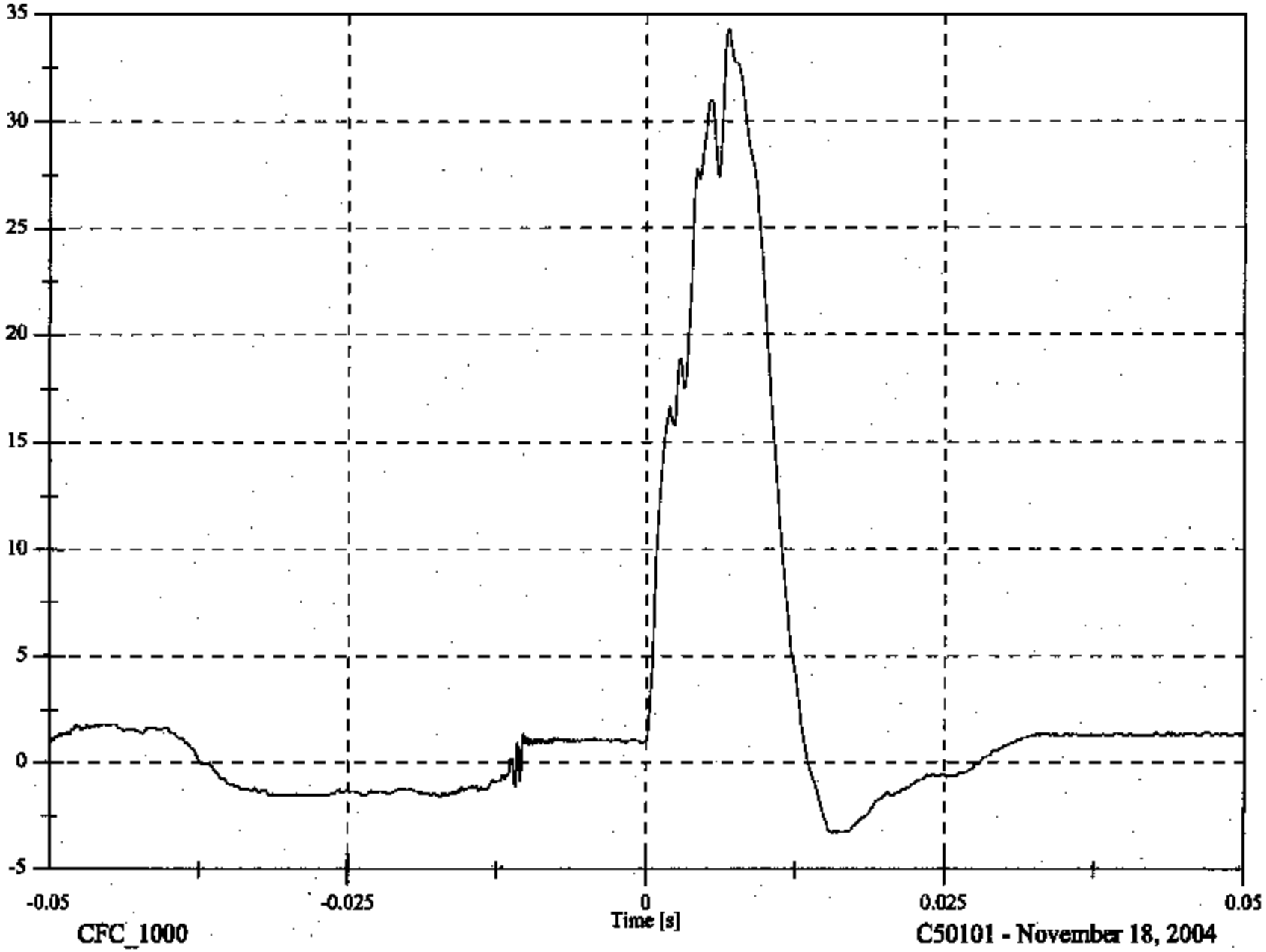
8

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Z Acceleration

Max: 34.3 [g] at 0.007 [s]
Min: -3.3 [g] at 0.016 [s]



CFC_1000

C50101 - November 18, 2004

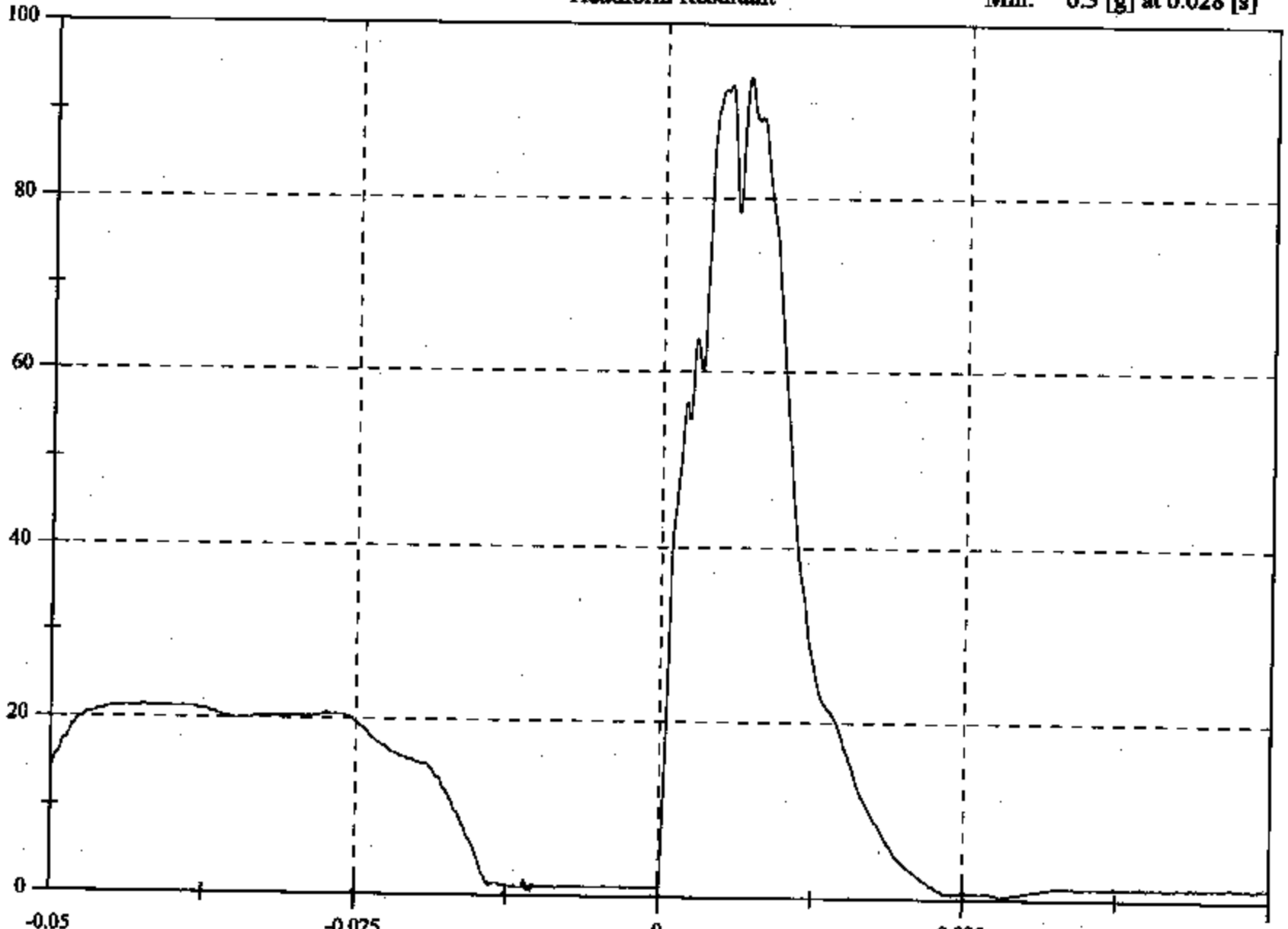
C50101 OP1 IMPACT PLOT #3

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 93.8 [g] at 0.007 [s]
Min: 0.3 [g] at 0.028 [s]



CFC_1000

C50101 - November 18, 2004

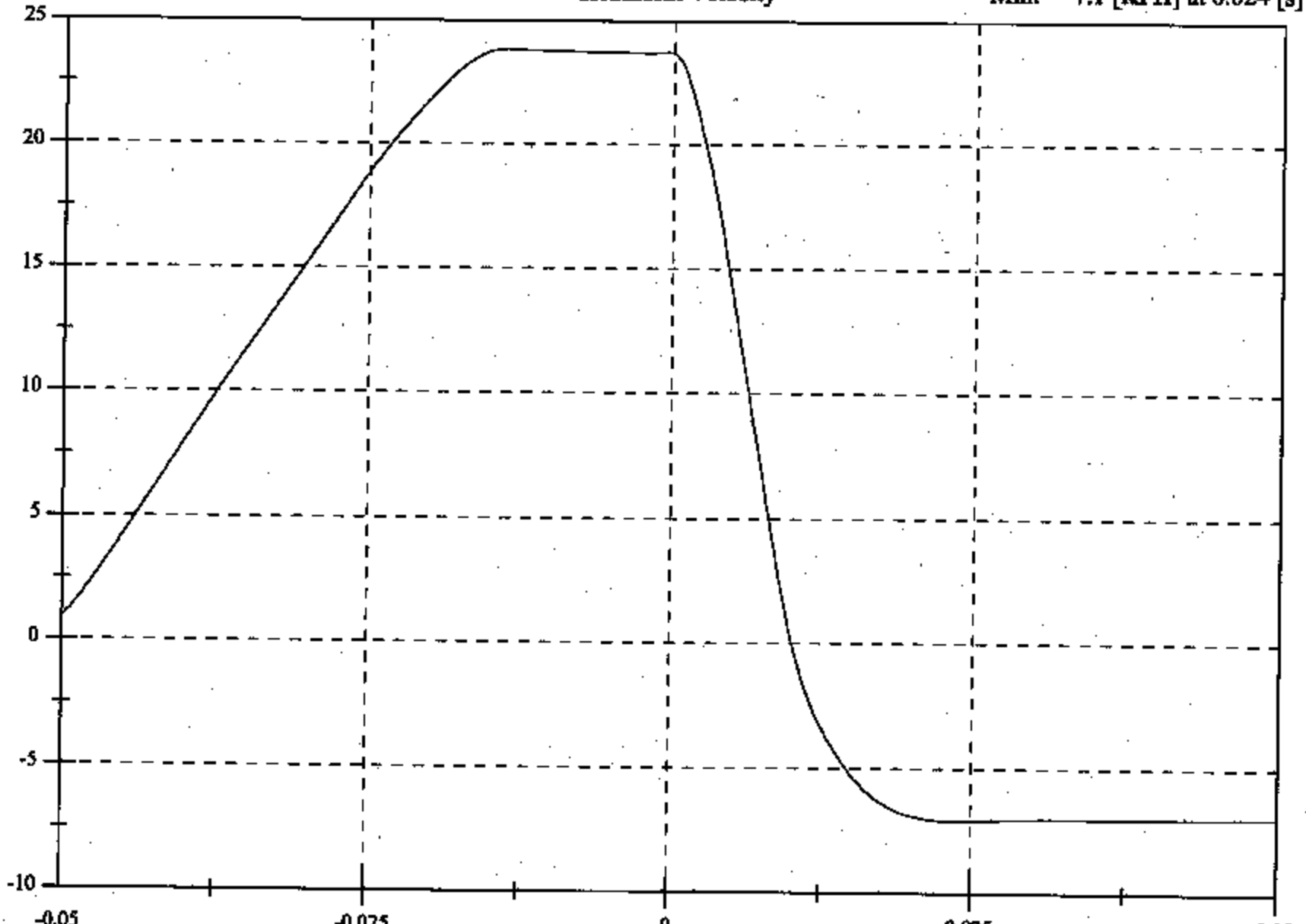
C50101 OP1 IMPACT PLOT #4

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Velocity

Max: 23.8 [KPH] at -0.014 [s]
Min: -7.1 [KPH] at 0.024 [s]



CFC_180

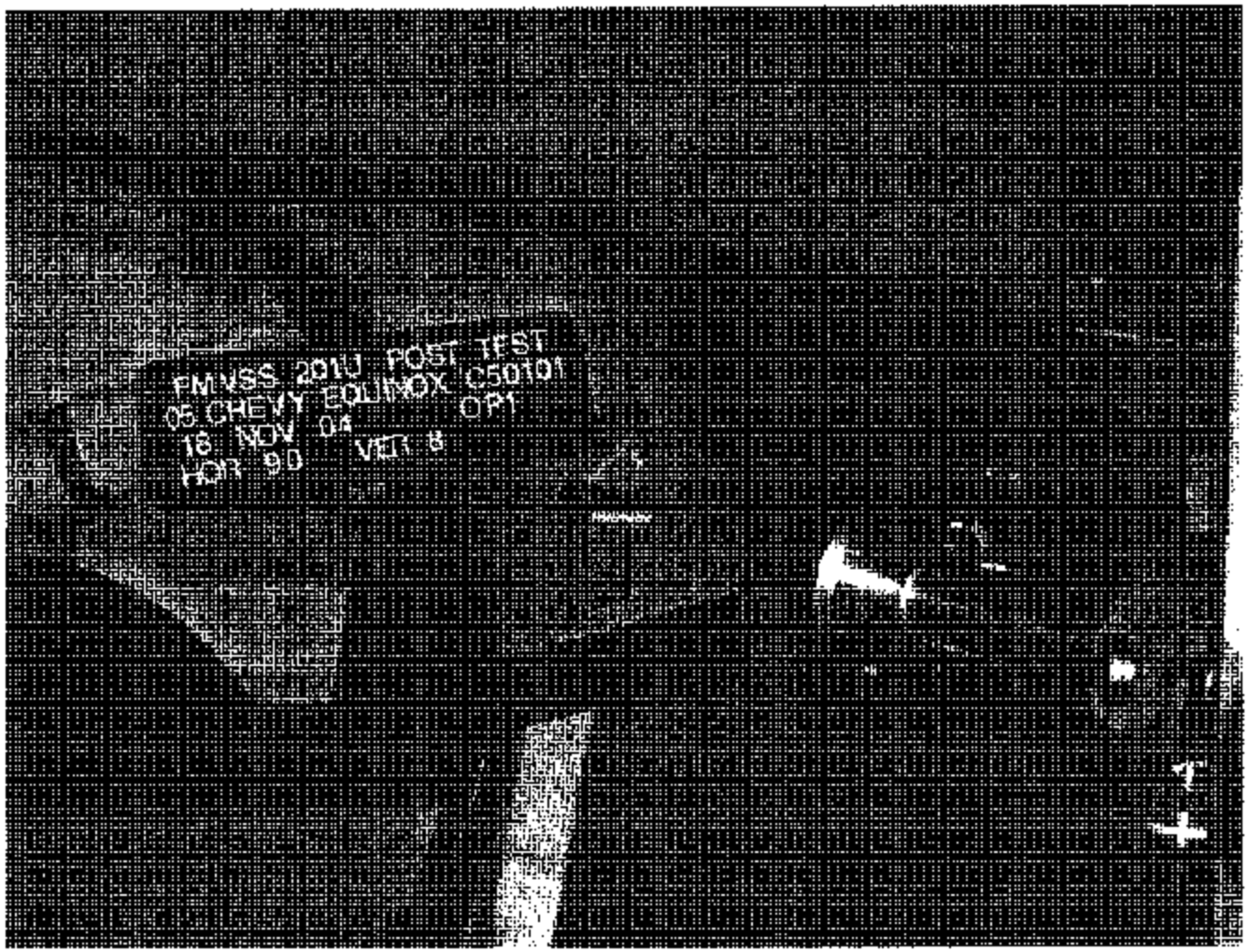
C50101 - November 18, 2004

C50101 OP1 IMPACT PLOT #5

8754-FMH-02

PRE-IMPACT OP1

8754-FM11-02



POST-IMPACT OP1

8734-FMH-02

VEHICLE YEAR/MAKE/MODEL/STYLE:	2005 Chevrolet Equinox
VIN:	2CNDL73F956070947
DATE OF MANUFACTURE:	08/04(SEE CERTIFICATION LABEL)
COLOR:	Black

Test Number:	04
Test Date:	11/18/04
Target Location:	Upper Roof
Target Code:	UROP
Horizontal Impact Angle:	90°
Vertical Impact Angle:	30°
Ambient Temperature:	24.2°C
Relative Humidity:	41.3
Time of Impact:	11:50
Headform Number:	0062

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	3	☐	mm right	x	mm left
On Centerline	70	mm up			

POST-IMPACT UROP HEADFORM

Free Motion HIC	361.3
HIC(d)	439.0
Impact Velocity (kph)	23.75
HIC T1 (msec)	2.9
HIC T2 (msec)	17.3

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX C50101 - UROP

FMH Headform 0062

Test Date: November 18, 2004

Location: UROP

Work File: UROP

TEST RESULTS

Lab Temperature: 24.2 C

Lab Humidity: 41.3 %

Velocity at Impact: 23.75 KPH

Free Flight Distance: 220.84 mm

HICd: 439.0

HIC (36ms): 361.3

t1: 2.9 msec

t2: 17.3 msec

Duration: 14.4 msec

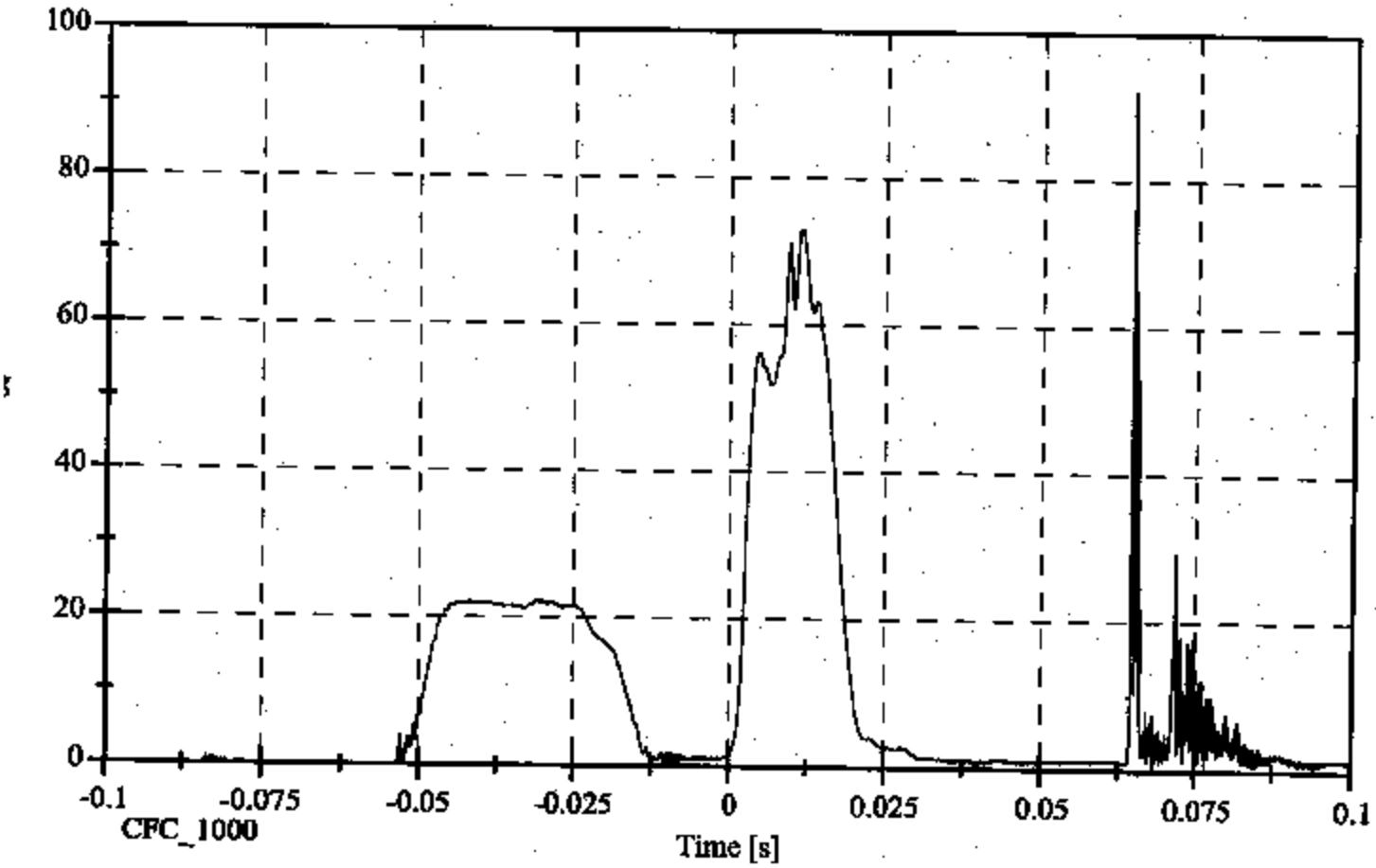
Average Acceleration: 9.5 g

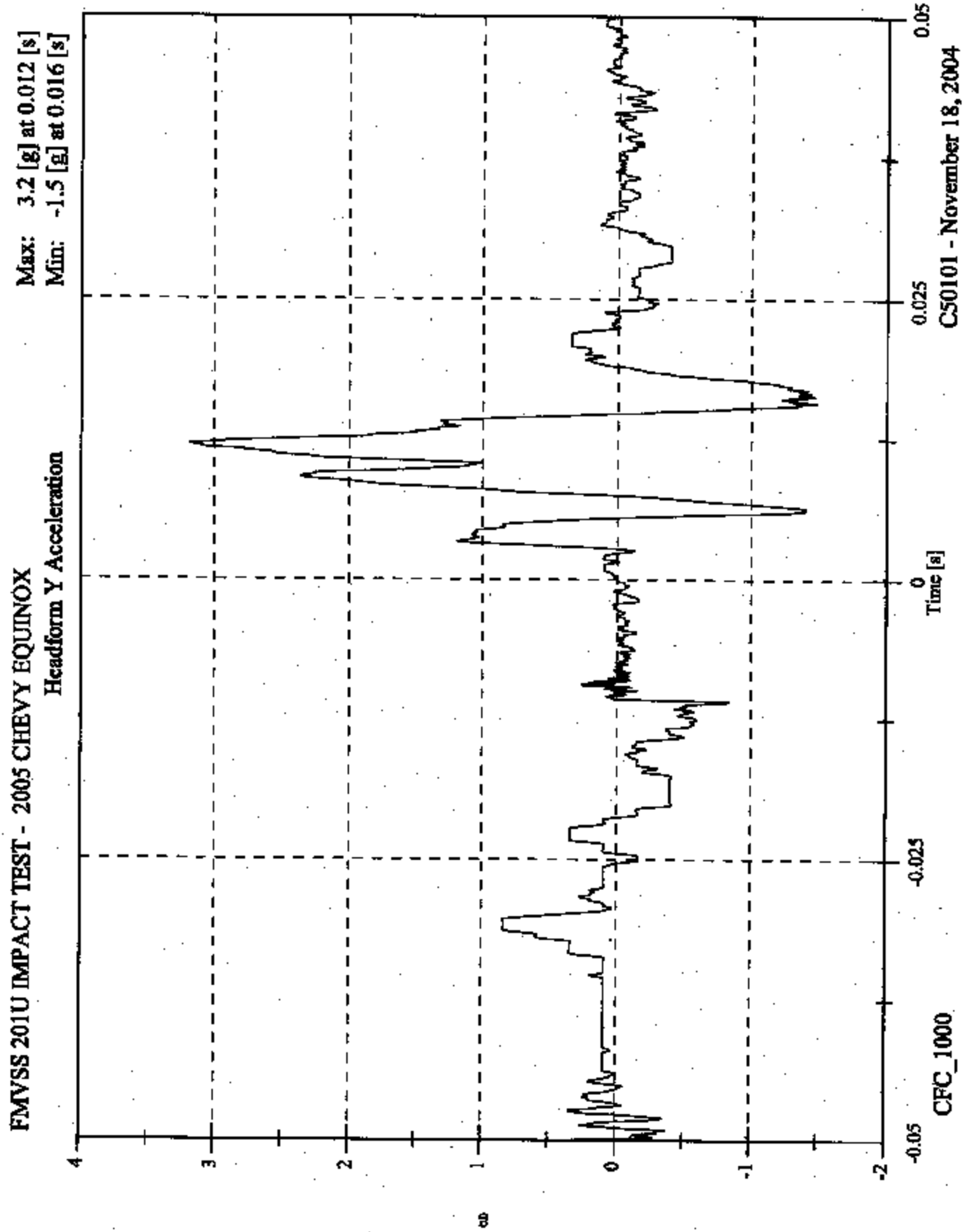
FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 92.1 [g] at 0.065 [s]

Min: 0.0 [g] at -0.087 [s]





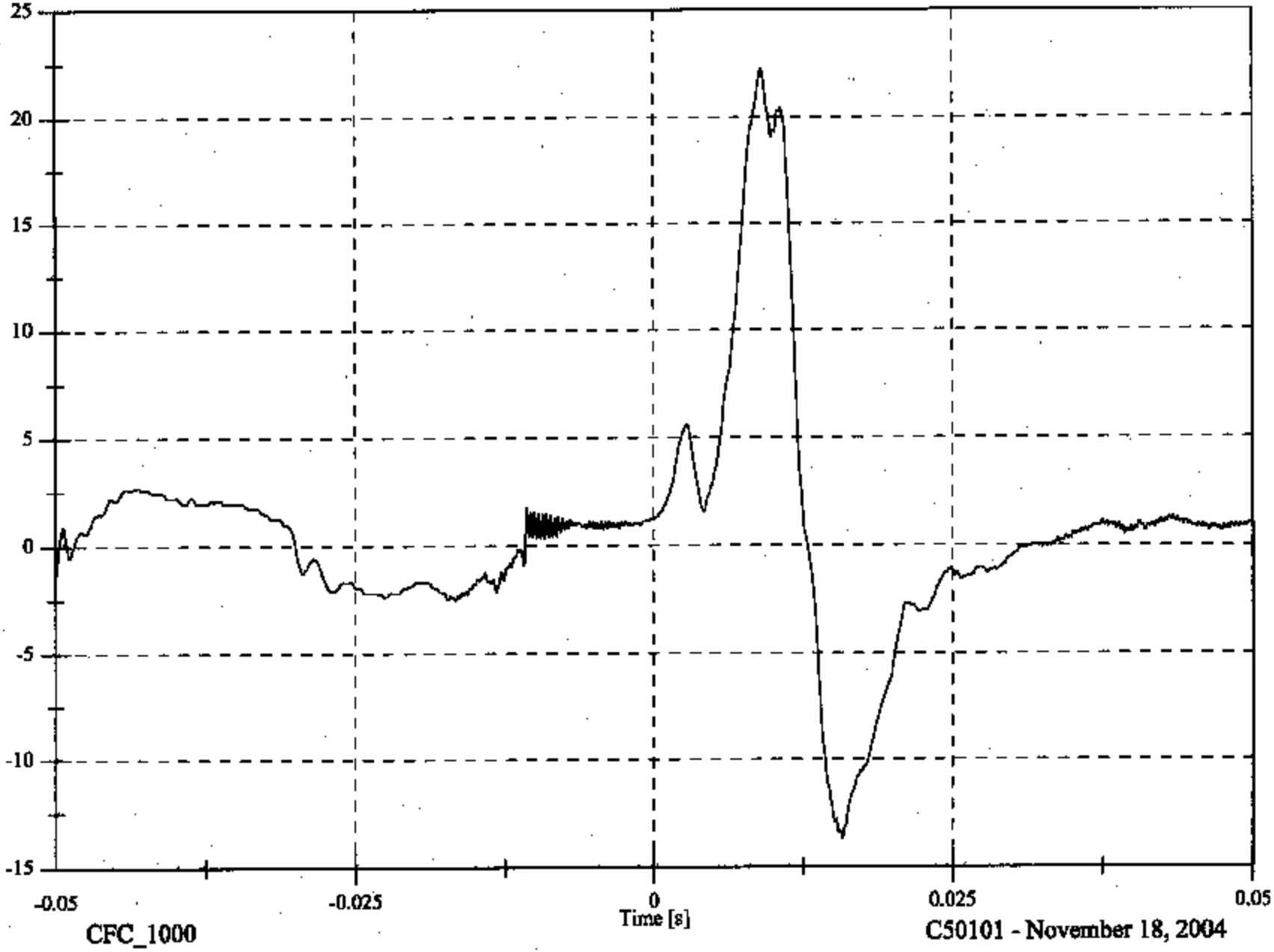
C50101 UROP IMPACT PLOT #2

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Z Acceleration

Max: 22.3 [g] at 0.009 [s]
Min: -13.7 [g] at 0.016 [s]



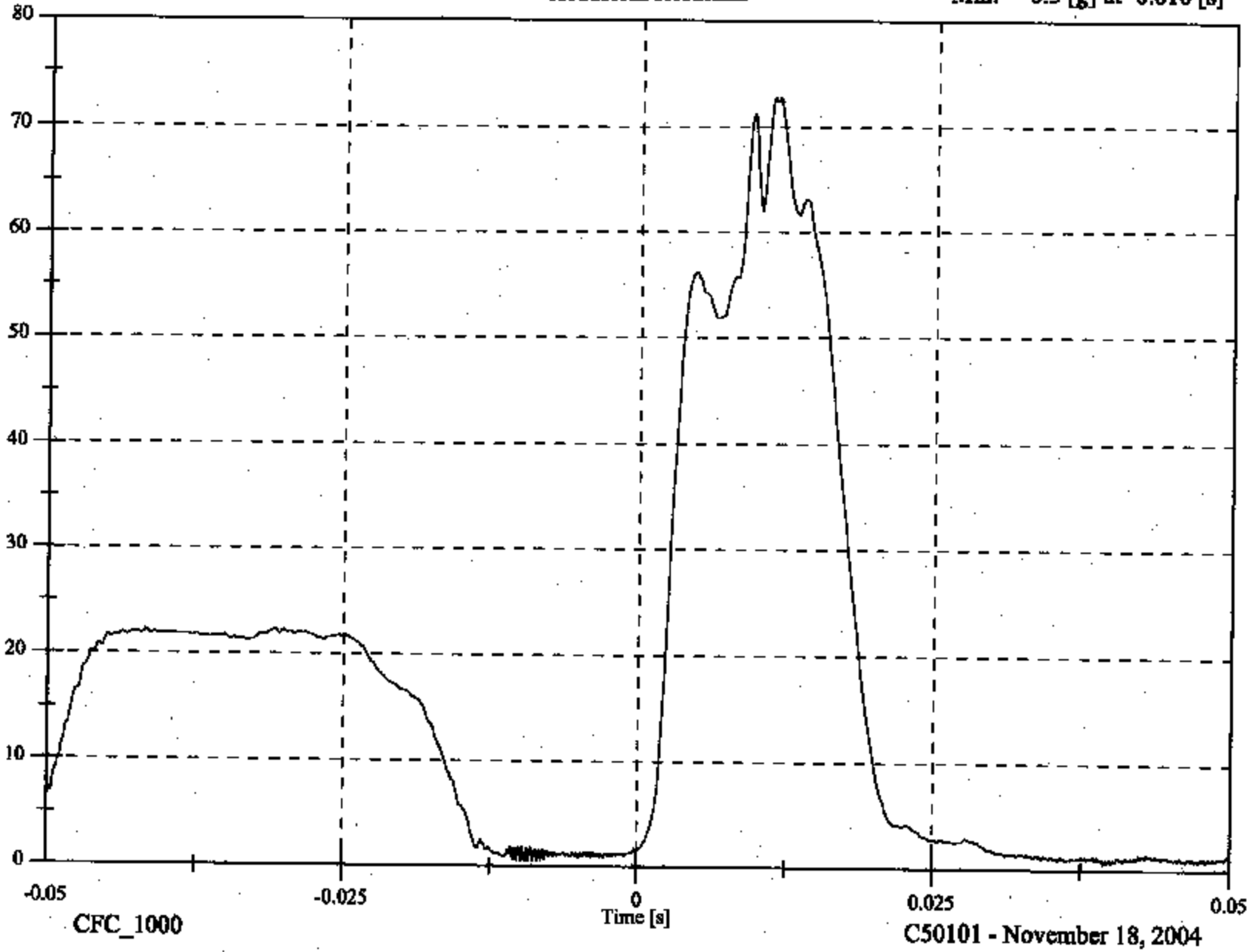
C50101 UROP IMPACT PLOT #3

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 72.8 [g] at 0.012 [s]
Min: 0.5 [g] at -0.010 [s]



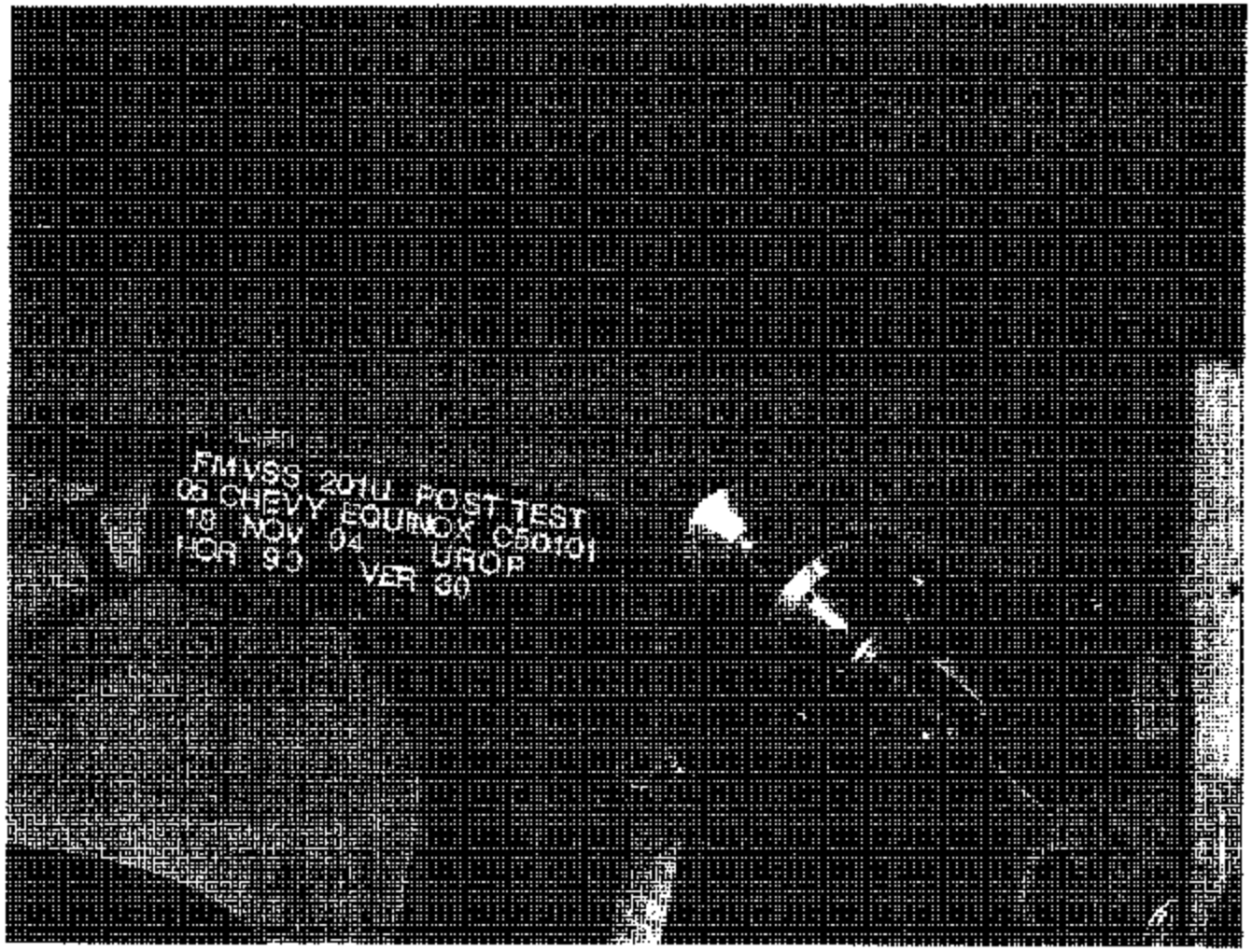
C50101 UROP IMPACT PLOT #4

8

8754-FMH-02

PRE-IMPACT UROP

8754-FMH-02



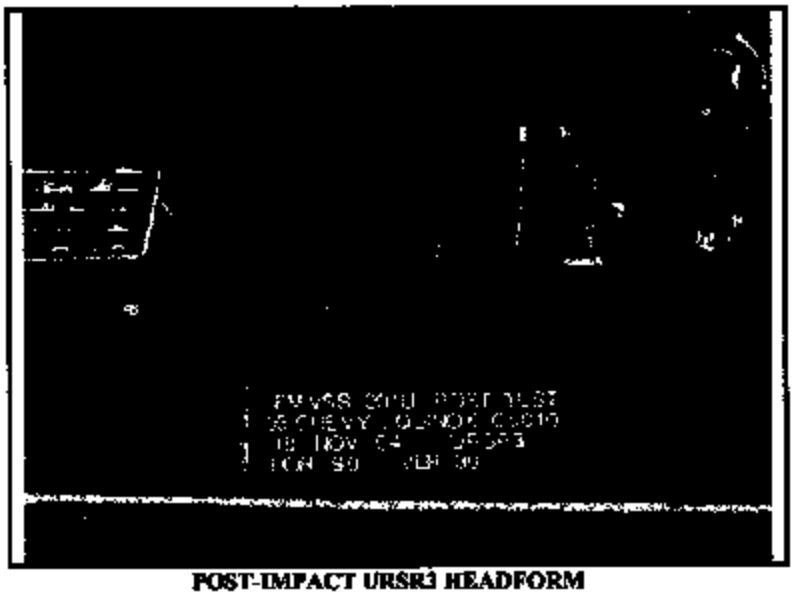
POST-IMPACT UROP

8734-FMH-02

VEHICLE YEAR/MAKE/MODEL/STYLE:	2005 Chevrolet Equinox
VIN:	2CNDL73F956070947
DATE OF MANUFACTURE:	08/04(SEE CERTIFICATION LABEL)
COLOR:	Black

Test Number:	05
Test Date:	11/18/04
Target Location:	Upper Roof
Target Code:	URSR3
Horizontal Impact Angle:	90°
Vertical Impact Angle:	30°
Ambient Temperature:	25.8°C
Relative Humidity:	39.5
Time of Impact:	13:20
Headform Number:	1255

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	2		mm right	x	mm left
On Centerline	60	mm up			



POST-IMPACT URSR3 HEADFORM

Free Motion HIC	292.9
HIC(d)	387.3
Impact Velocity (kph)	23.66
HIC T1 (msec)	2.6
HIC T2 (msec)	17.4

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX C50101 - URSR3

FMH Headform 1255

Test Date: November 18, 2004

Location: URSR3

Work File: URSR3

TEST RESULTS

Lab Temperature: 25.8 C

Lab Humidity: 39.5 %

Velocity at Impact: 23.66 KPH

Free Flight Distance: 215.76 mm

HICd: 387.3

HIC (36ms): 292.9

t1: 2.6 msec

t2: 17.4 msec

Duration: 14.8 msec

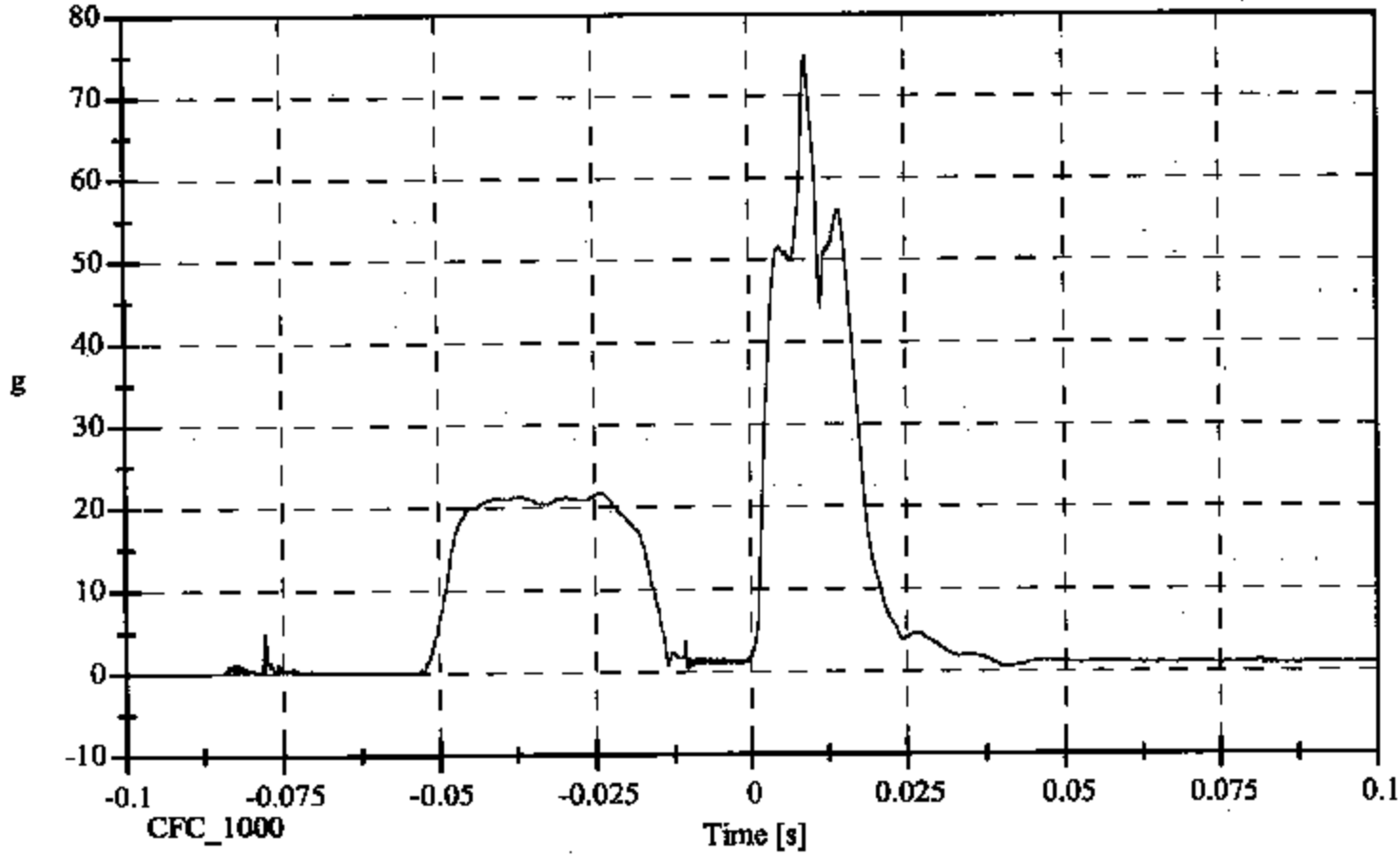
Average Acceleration: 8.5 g

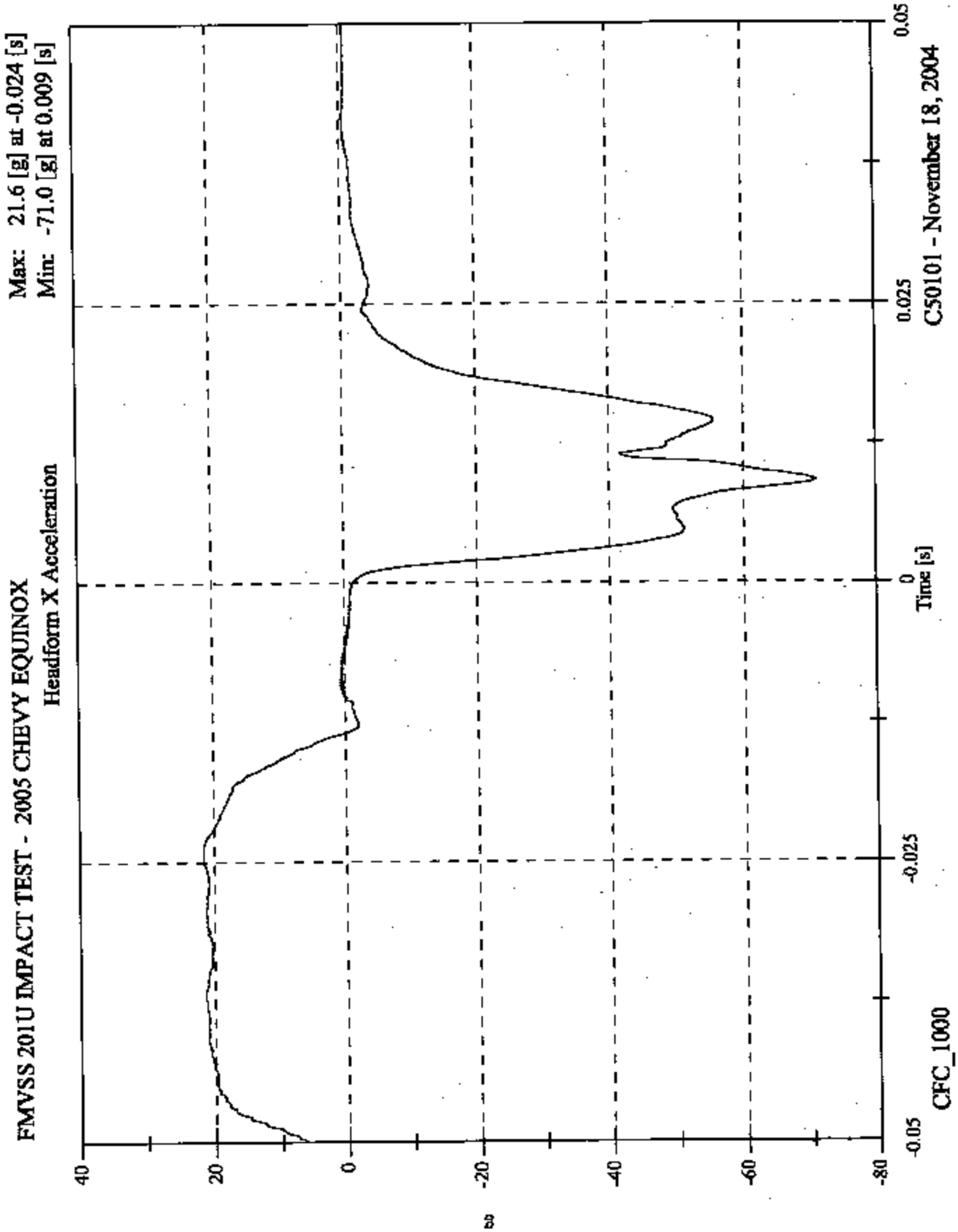
FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 74.9 [g] at 0.009 [s]

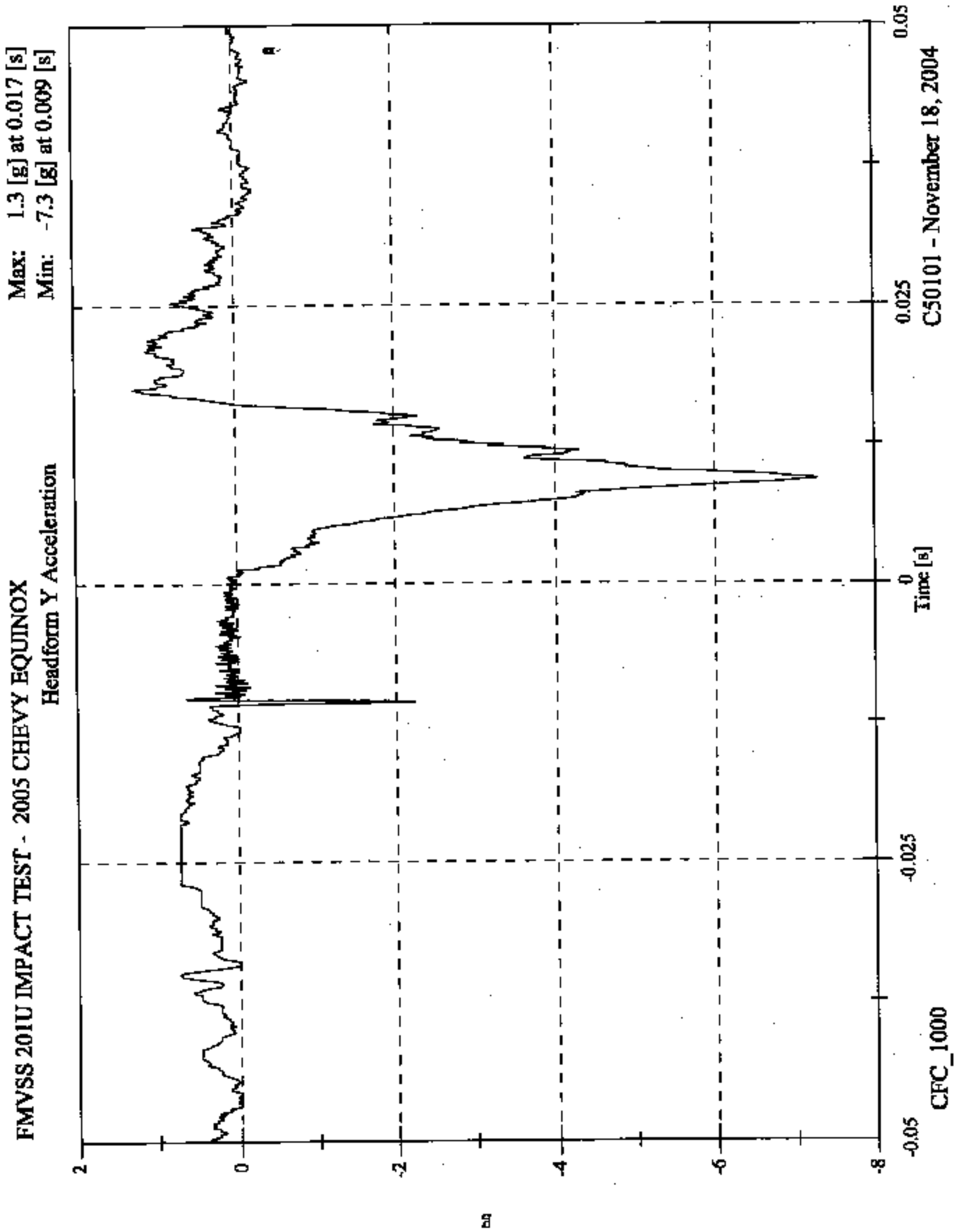
Min: -0.0 [g] at -0.100 [s]





C50101 URSR3 IMPACT PLOT #1

8754-FMH-02



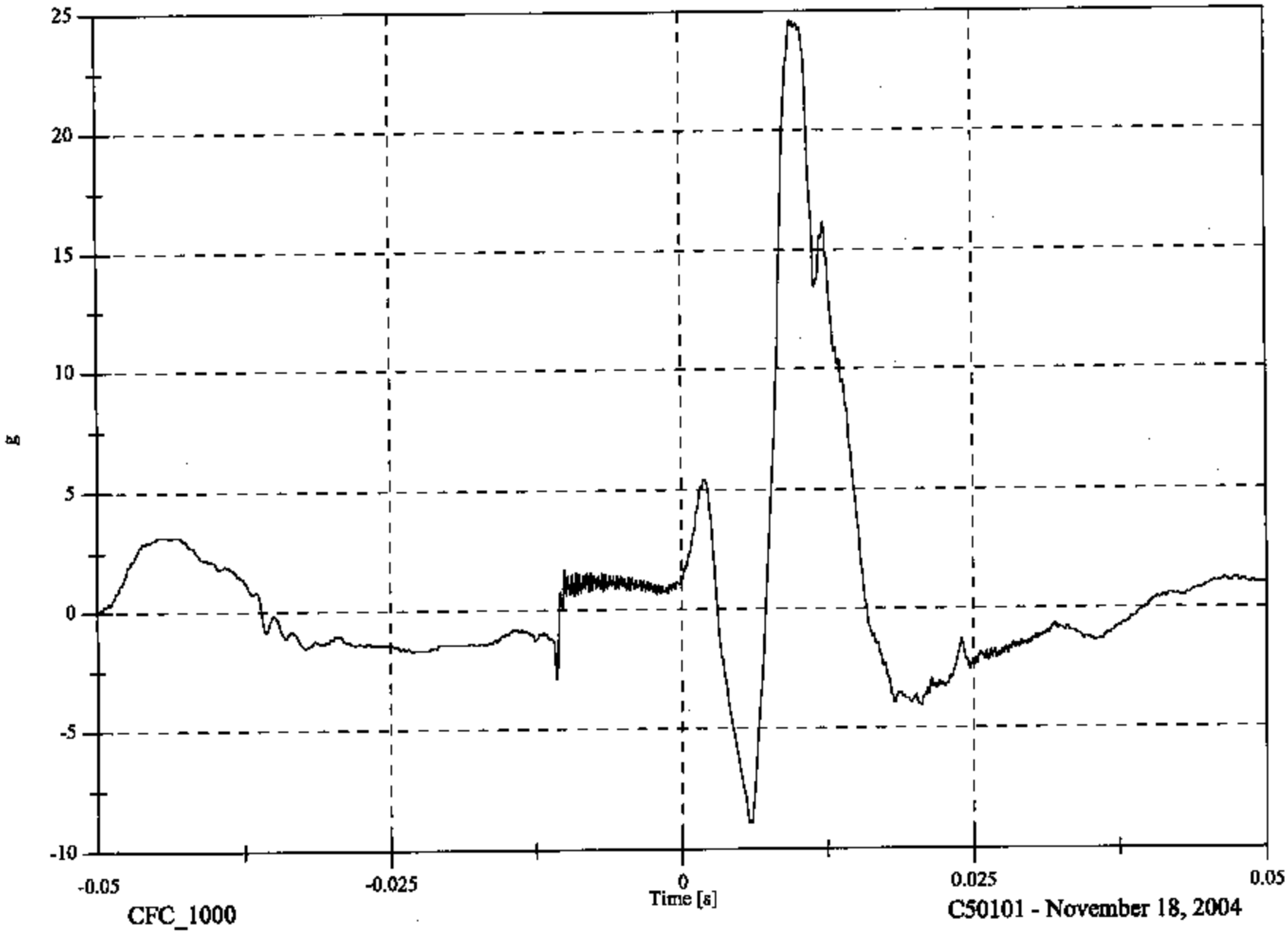
C50101 URSR3 IMPACT PLOT #2

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Z Acceleration

Max: 24.6 [g] at 0.010 [s]
Min: -8.9 [g] at 0.006 [s]



CFC_1000

C50101 - November 18, 2004

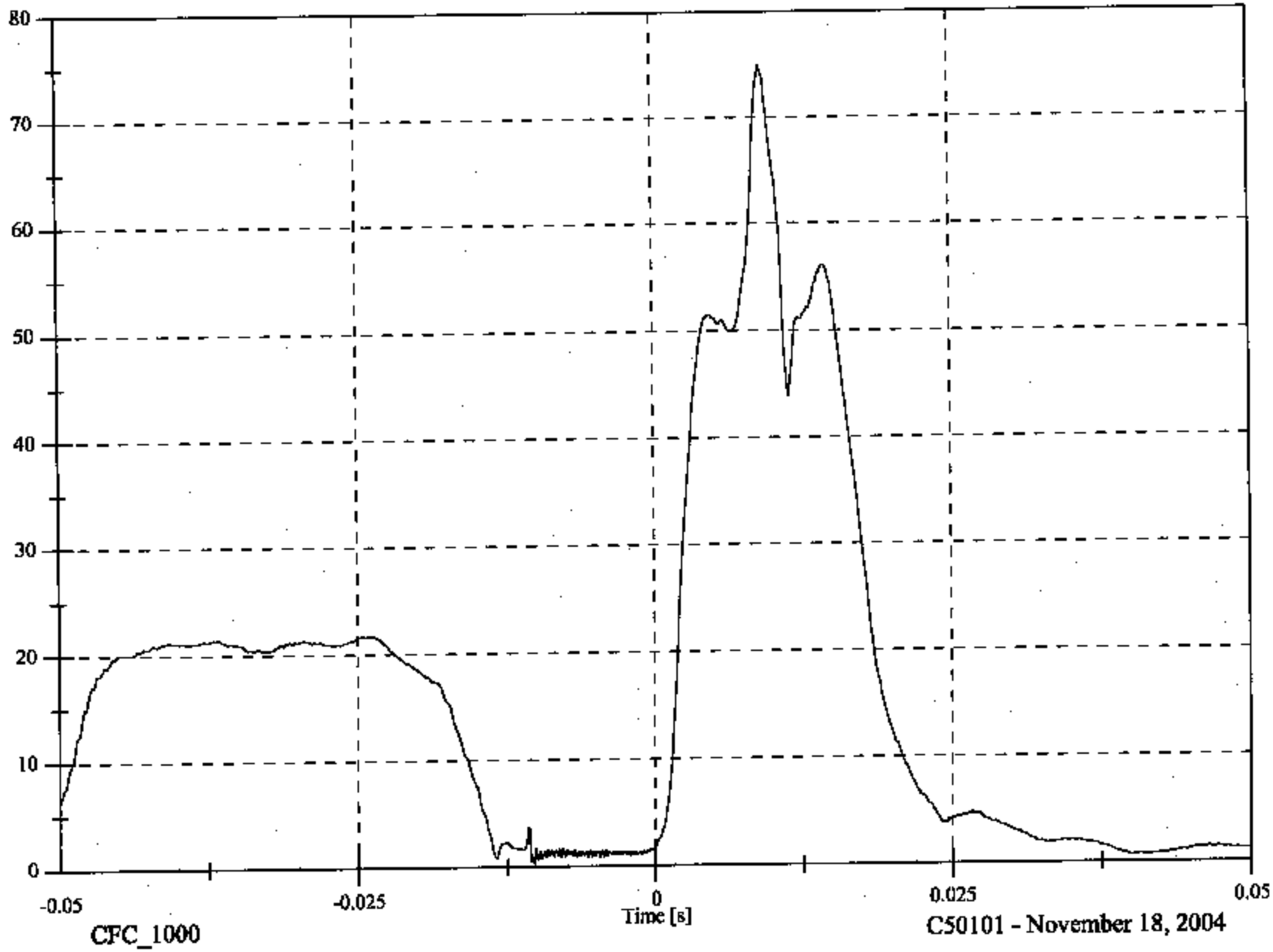
C50101 URSR3 IMPACT PLOT #3

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

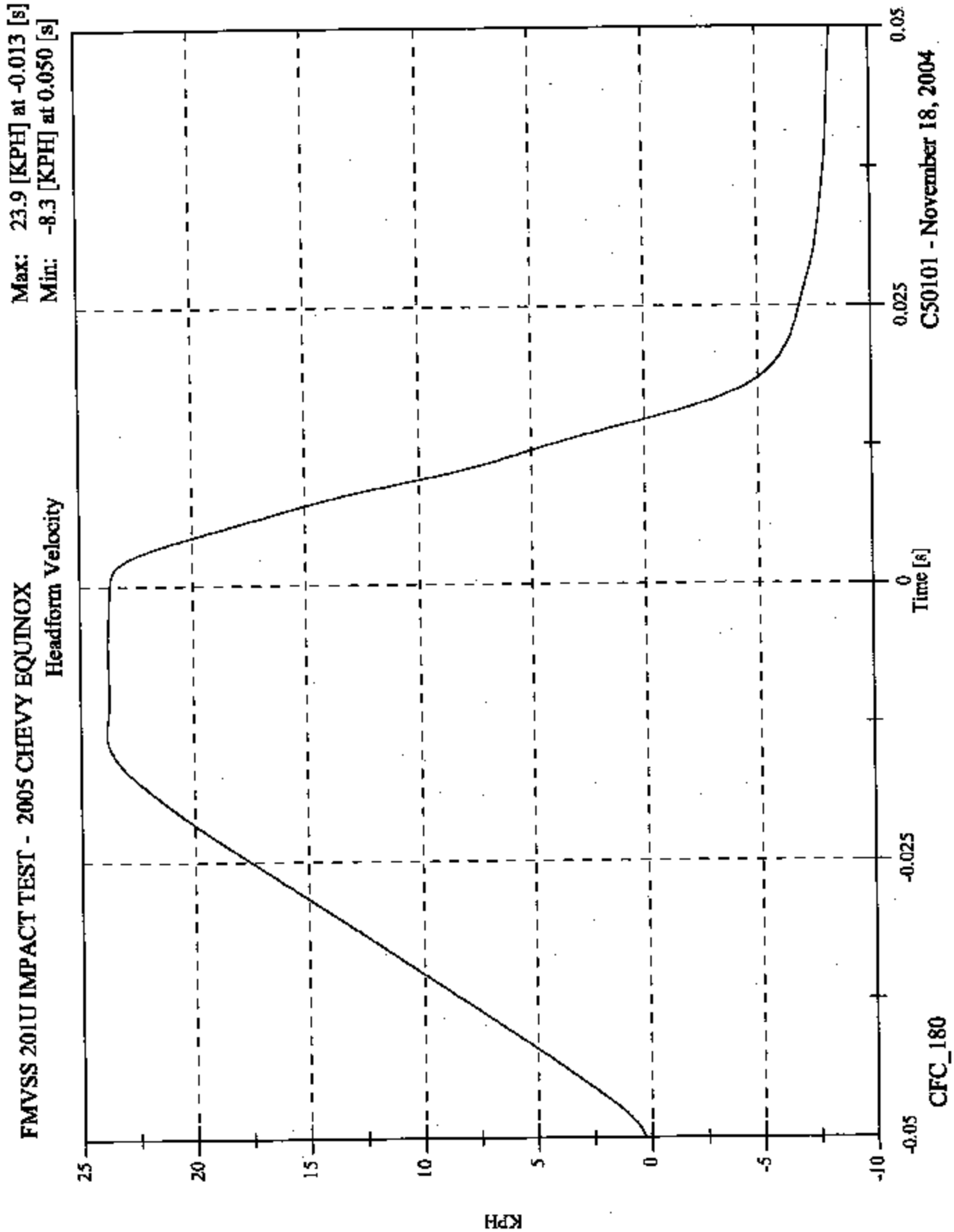
Headform Resultant

Max: 74.9 [g] at 0.009 [s]
Min: 0.3 [g] at -0.010 [s]



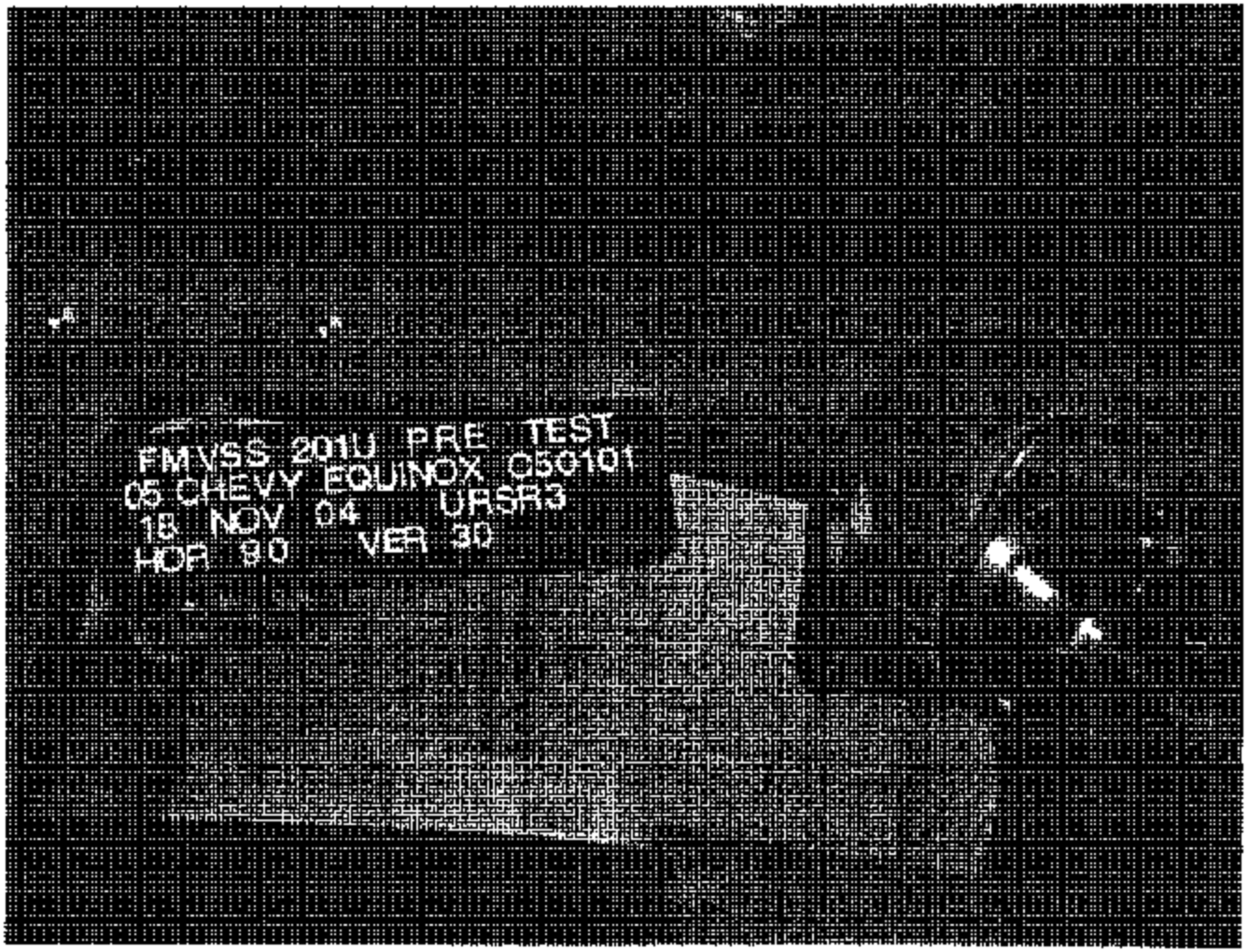
C50101 URSR3 IMPACT PLOT #4

8754-FMH-02



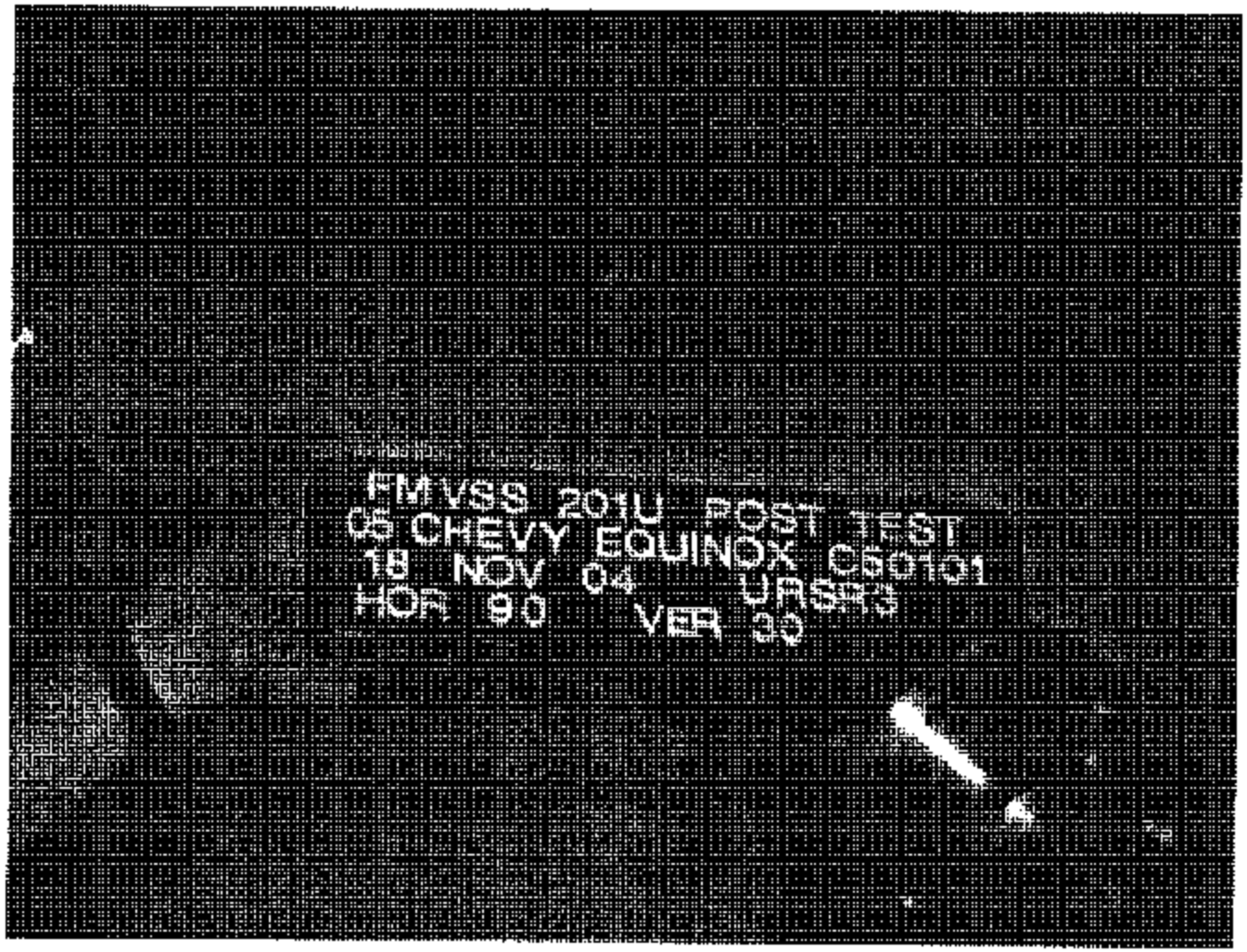
C50101 URSR3 IMPACT PLOT #5

8754-FMH-02



PRE-IMPACT URSR3

8754-FMH-02



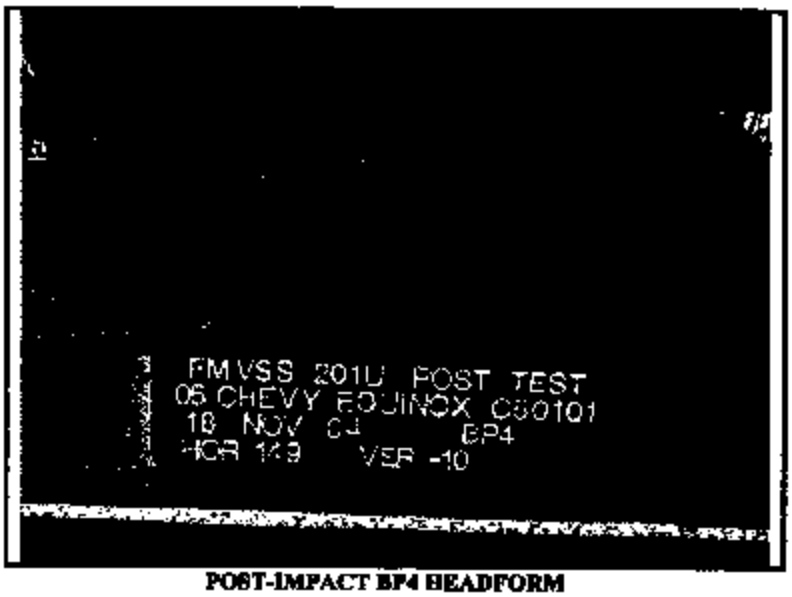
POST-IMPACT UBSR2

8754-FMH-02

VEHICLE YEAR/MAKE/MODEL/STYLE:	2005 Chevrolet Equinox
VIN:	2CNDL73F956070947
DATE OF MANUFACTURE:	08/04(SEE CERTIFICATION LABEL)
COLOR:	Black

Test Number:	06
Test Date:	11/18/04
Target Location:	B-Pillar
Target Code:	BP4
Horizontal Impact Angle:	149°
Vertical Impact Angle:	-10°
Ambient Temperature:	25.7°C
Relative Humidity:	40.6
Time of Impact:	14:00
Headform Number:	0642

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	10		mm right	x	mm left
On Centerline	5	mm up			



POST-IMPACT BP4 HEADFORM

Free Motion HIC	856.9
HIC(d)	812.9
Impact Velocity (kph)	23.44
HIC T1 (msec)	2.9
HIC T2 (msec)	9.6

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX C50101 - BP4

FMH Headform 0642

Test Date: November 18, 2004

Location: BP4

Work File: BP4

TEST RESULTS

Lab Temperature: 25.7 C

Lab Humidity: 40.6 %

Velocity at Impact: 23.44 KPH

Free Flight Distance: 213.64 mm

HICd: 812.9

HIC (36ms): 856.9

t1: 2.9 msec

t2: 9.6 msec

Duration: 6.8 msec

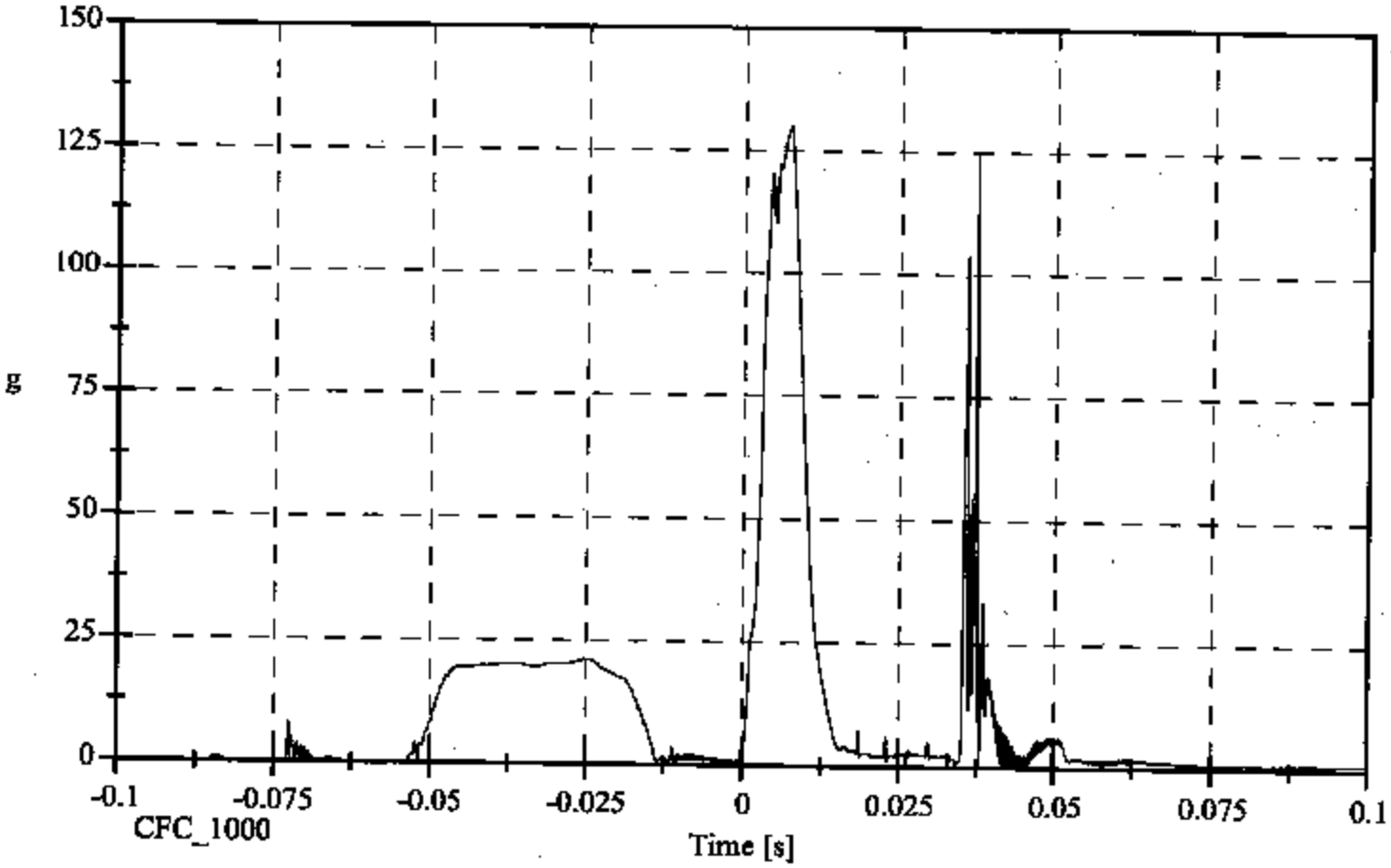
Average Acceleration: 9.9 g

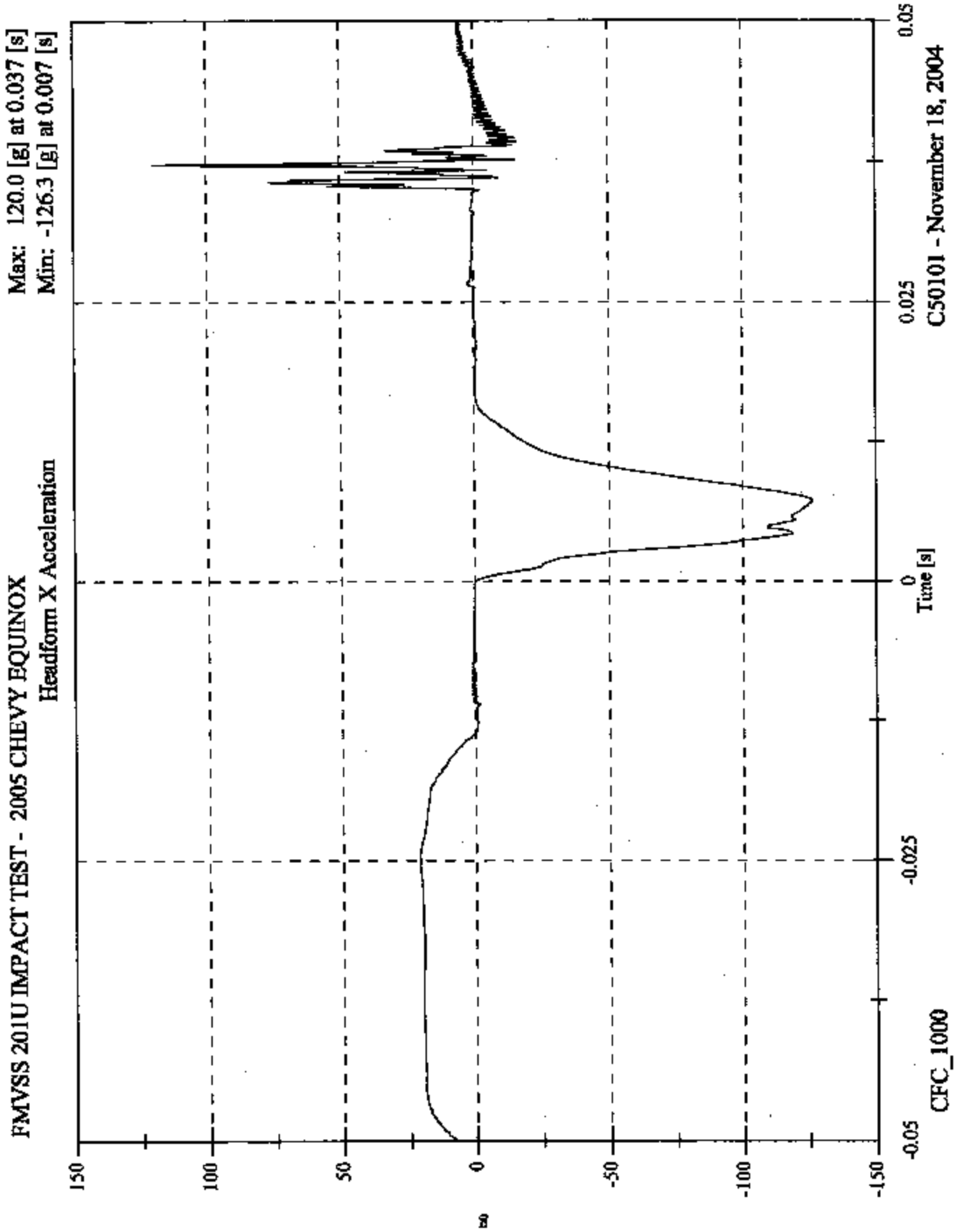
FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 130.1 [g] at 0.007 [s]

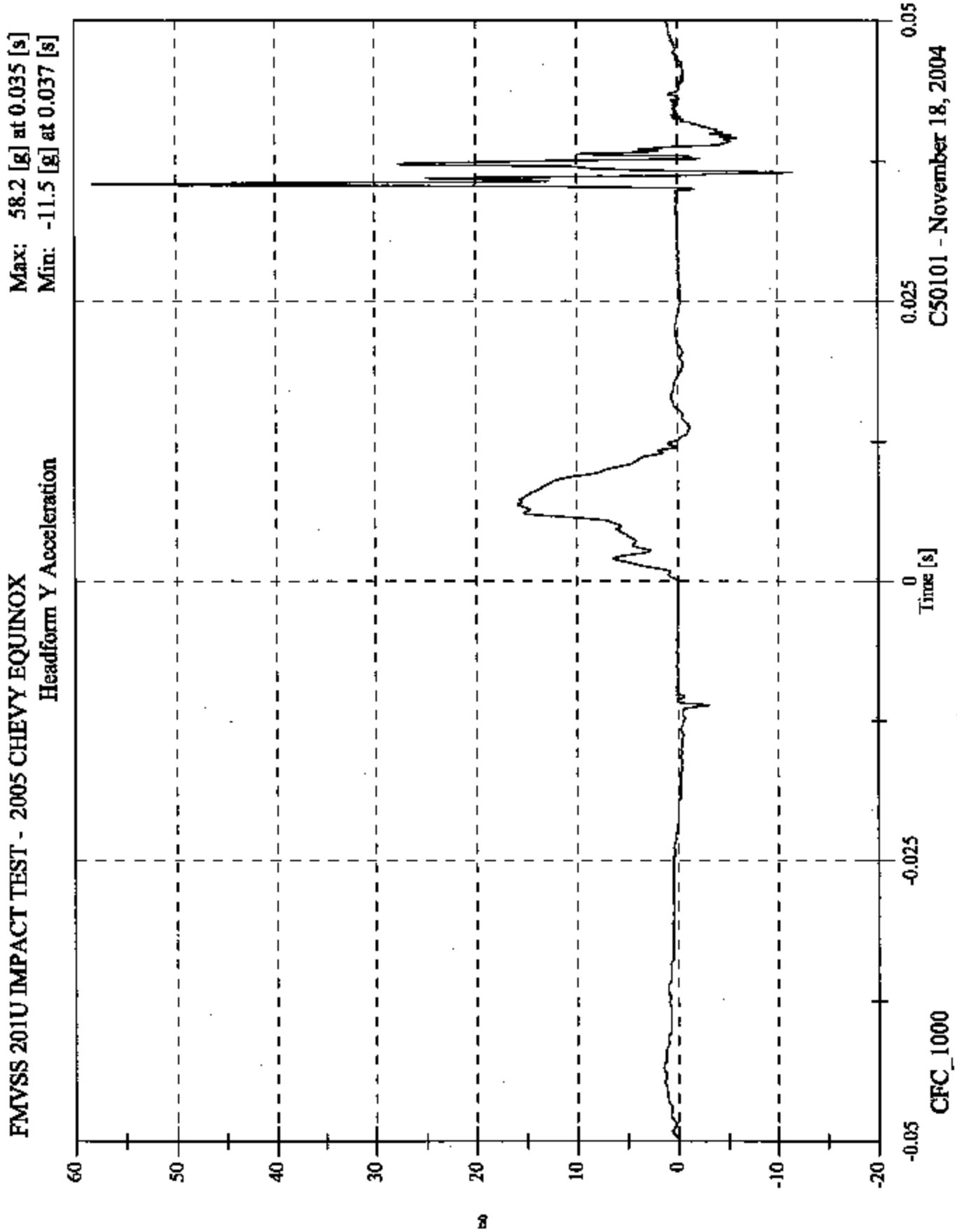
Min: 0.0 [g] at -0.086 [s]





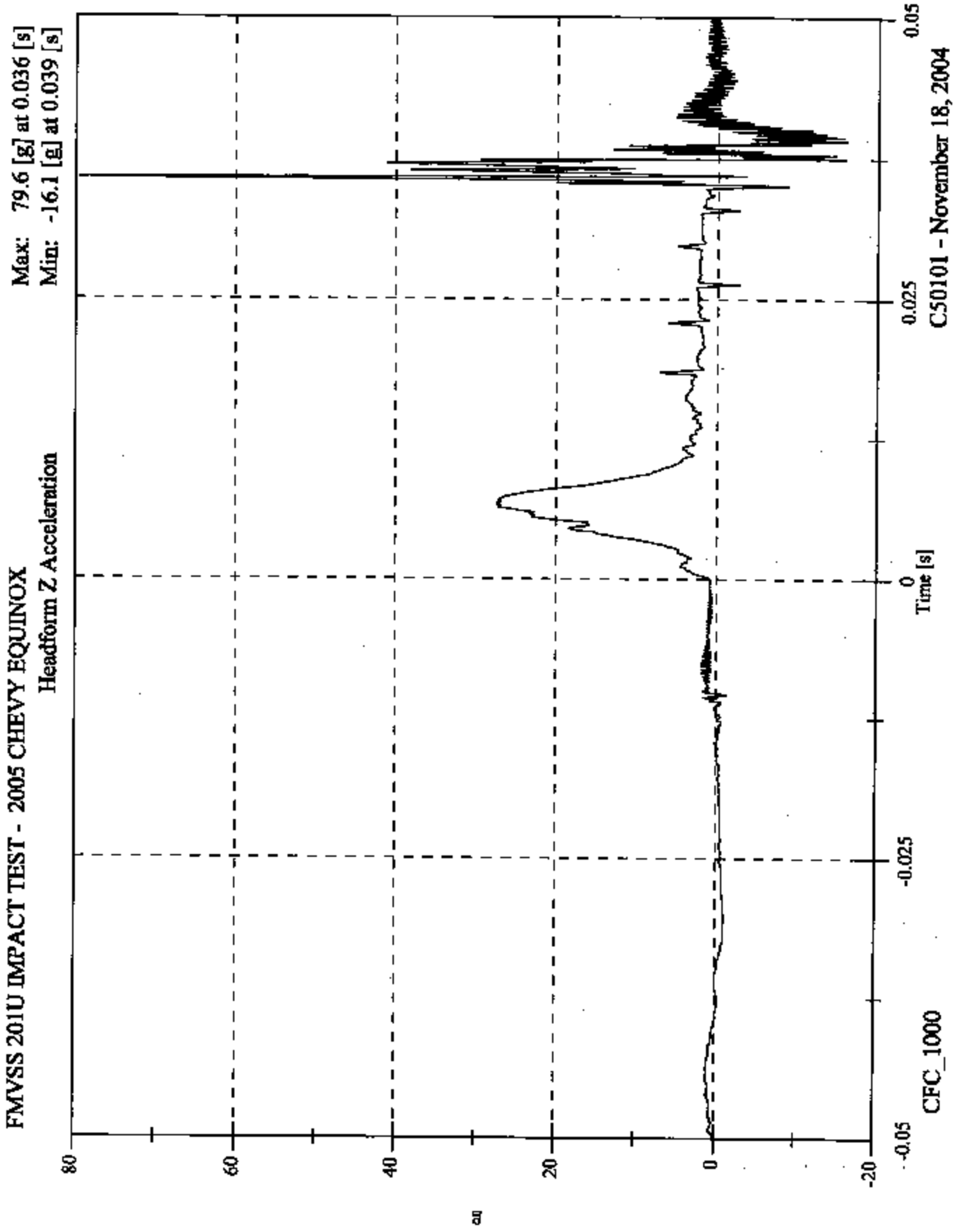
C50101 BP4 IMPACT PLOT #1

8754-FMH-02



C50101 BP4 IMPACT PLOT #2

8754-FMH-02



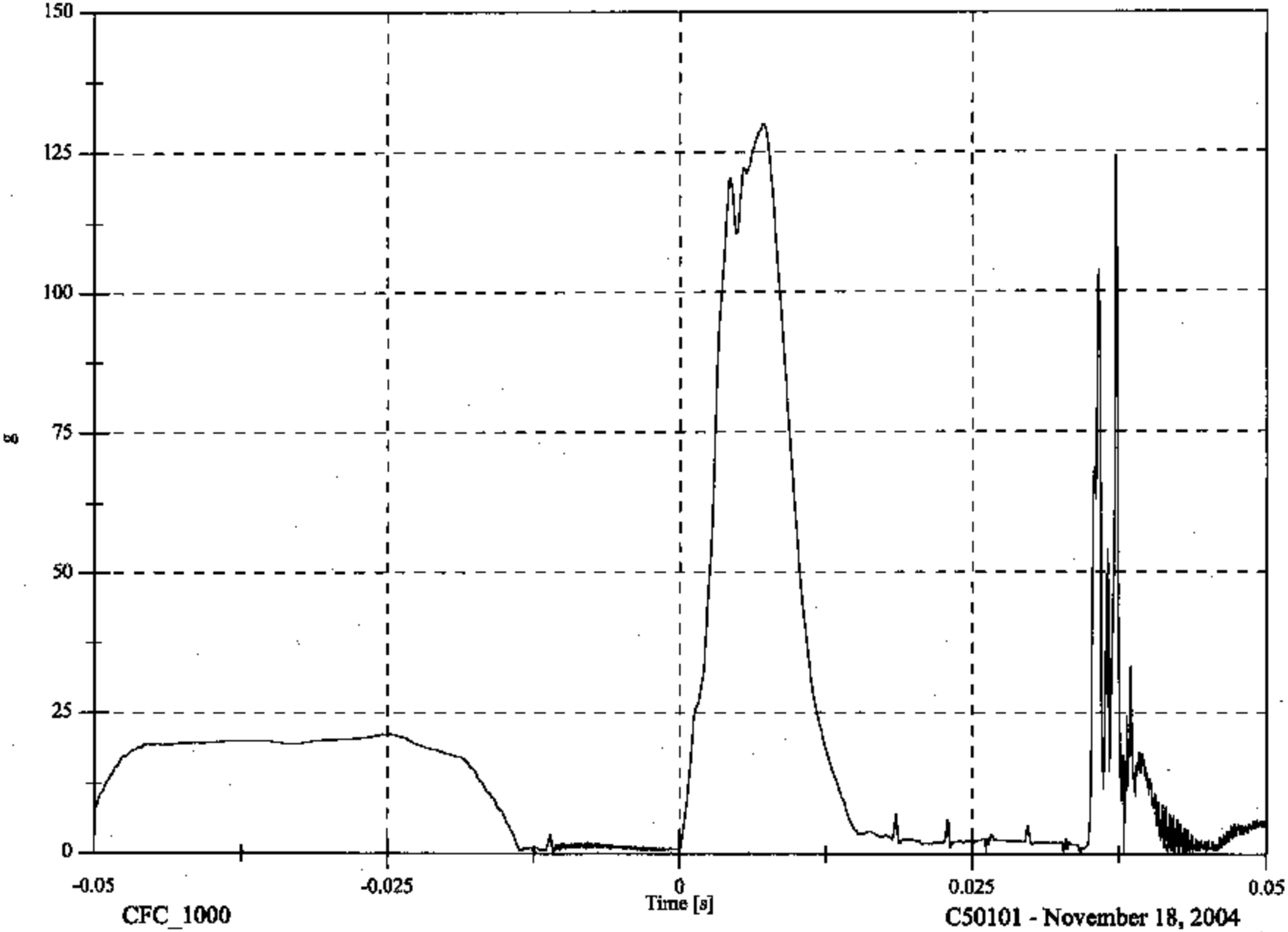
C50101 BP4 IMPACT PLOT #3

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

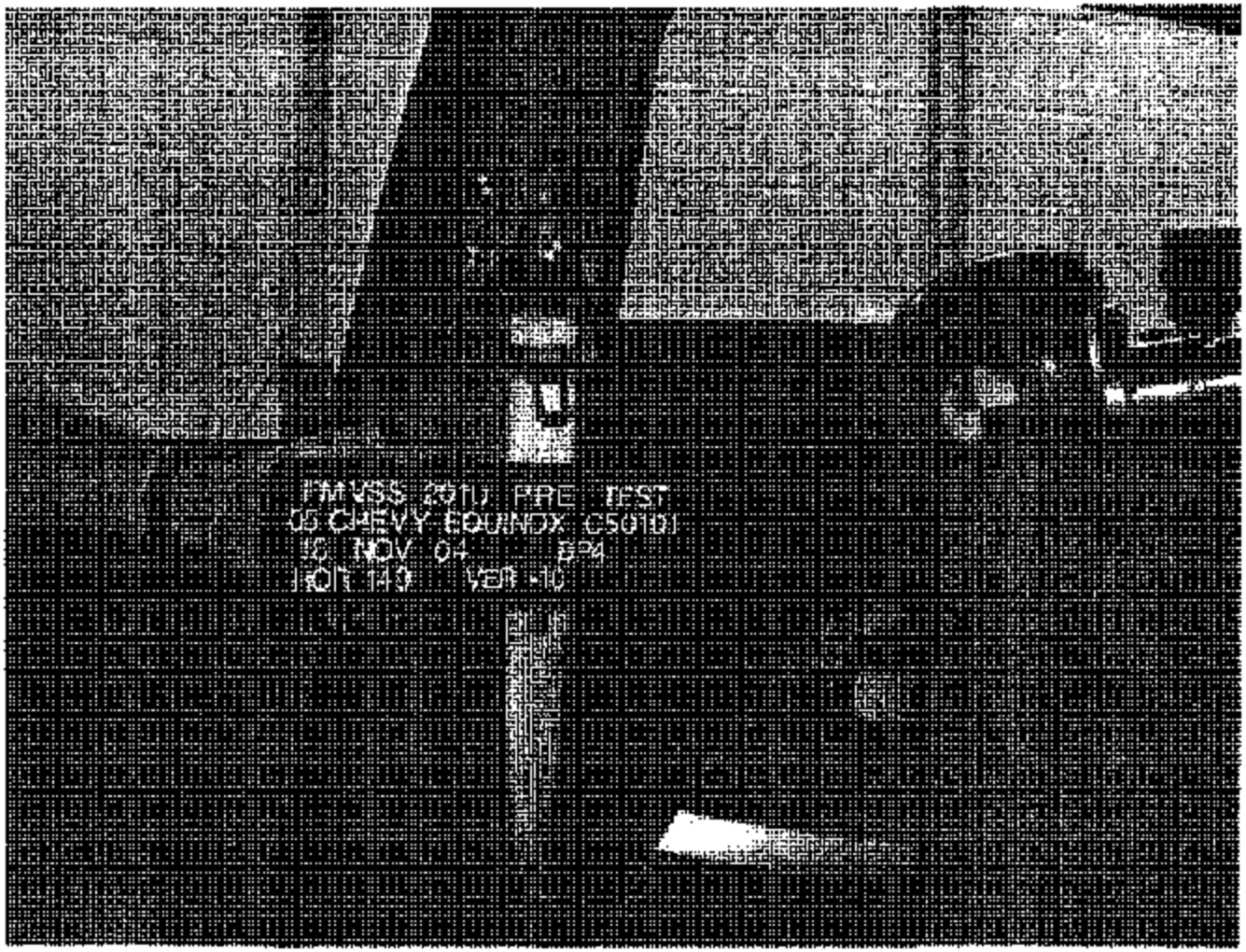
Headform Resultant

Max: 130.1 [g] at 0.007 [s]
Min: 0.1 [g] at 0.043 [s]



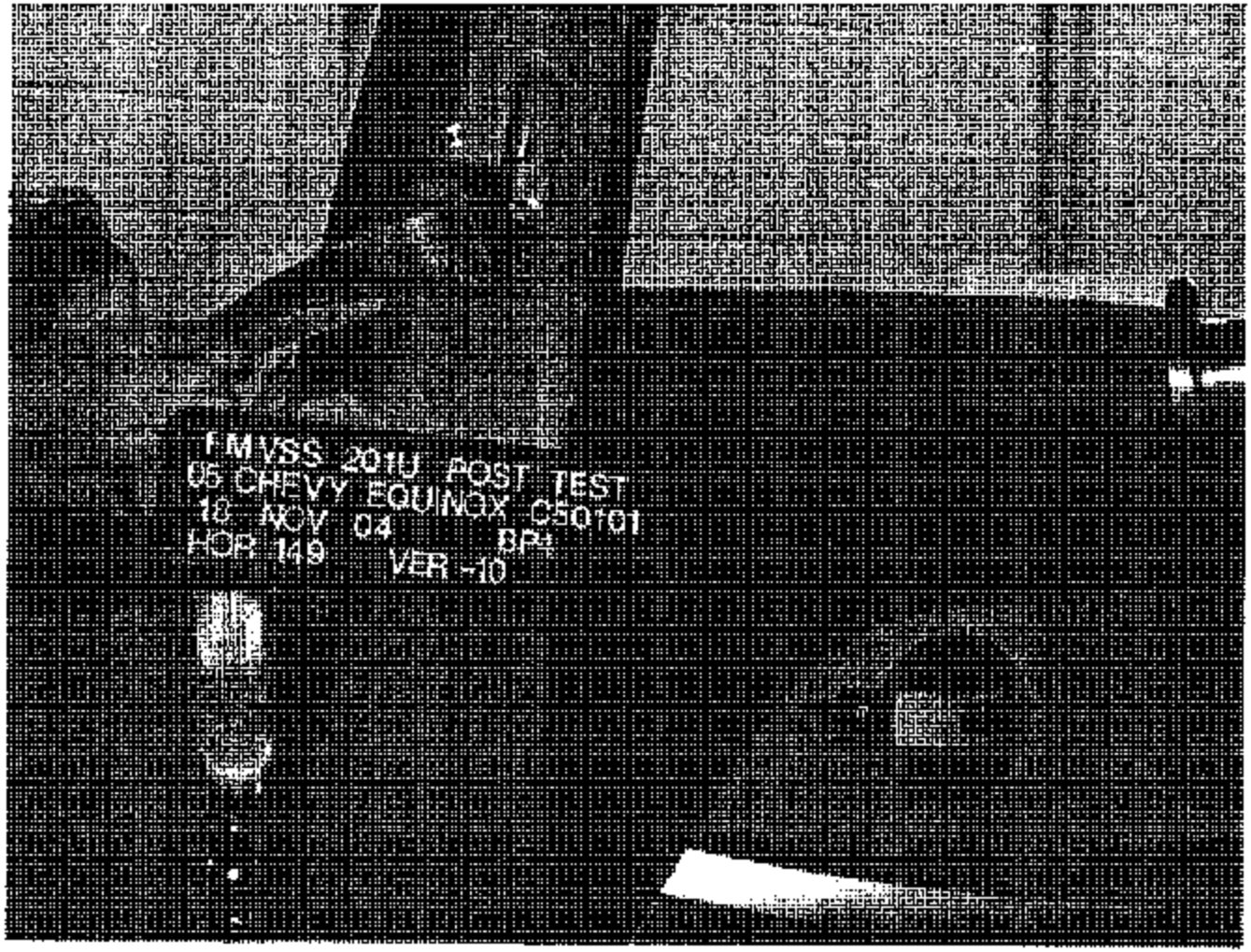
C50101 BP4 IMPACT PLOT #4

8754-FMH-02



PRE-IMPACT BP4

B754-FMH-02



POST-IMPACT BP4

8704-PMH-02

VEHICLE YEAR/MAKE/MODEL/STYLE:	2005 Chevrolet Equinox
VIN:	2CNDL73F956070947
DATE OF MANUFACTURE:	08/04(SEE CERTIFICATION LABEL)
COLOR:	Black

Test Number:	07
Test Date:	11/18/04
Target Location:	B-Pillar
Target Code:	BP3
Horizontal Impact Angle:	85°
Vertical Impact Angle:	-10°
Ambient Temperature:	23.4°C
Relative Humidity:	45.4
Time of Impact:	14:50
Headform Number:	0805

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	38	x	mm right		mm left
On Centerline	2		mm up		

POST-IMPACT BP3 HEADFORM

Free Motion HIC	481.2
HIC(d)	529.4
Impact Velocity (kph)	23.46
HIC T1 (msec)	2.4
HIC T2 (msec)	11.6

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX C50101 - BP3

FMH Headform 805

Test Date: November 18, 2004

Location: BP3

Work File: BP3

TEST RESULTS

Lab Temperature: 23.4 C

Lab Humidity: 45.4 %

Velocity at Impact: 23.46 KPH

Free Flight Distance: 212.14 mm

HICd: 529.4

HIC (36ms): 481.2

t1: 2.4 msec

t2: 11.6 msec

Duration: 9.2 msec

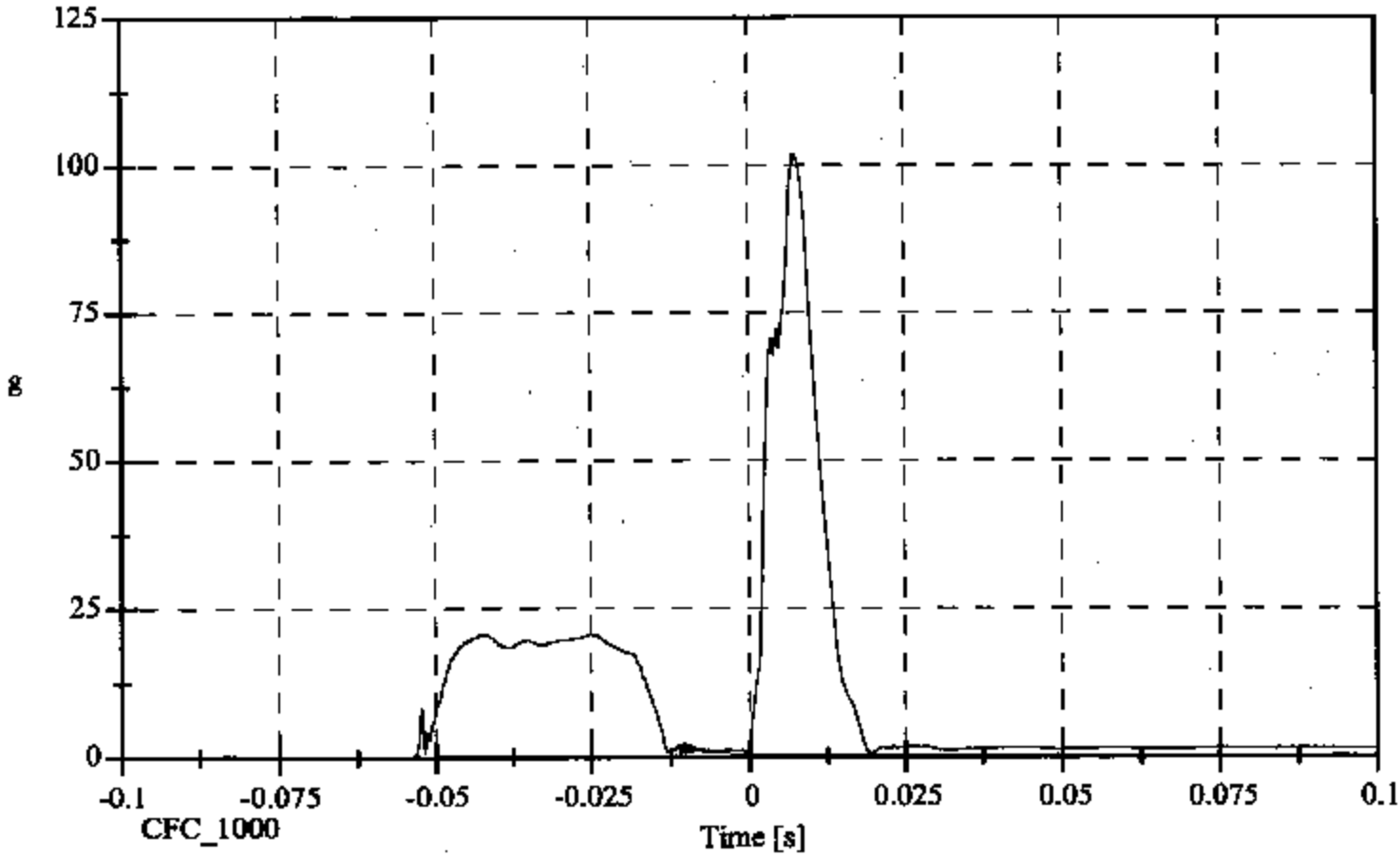
Average Acceleration: 8.3 g

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 101.9 [g] at 0.007 [s]

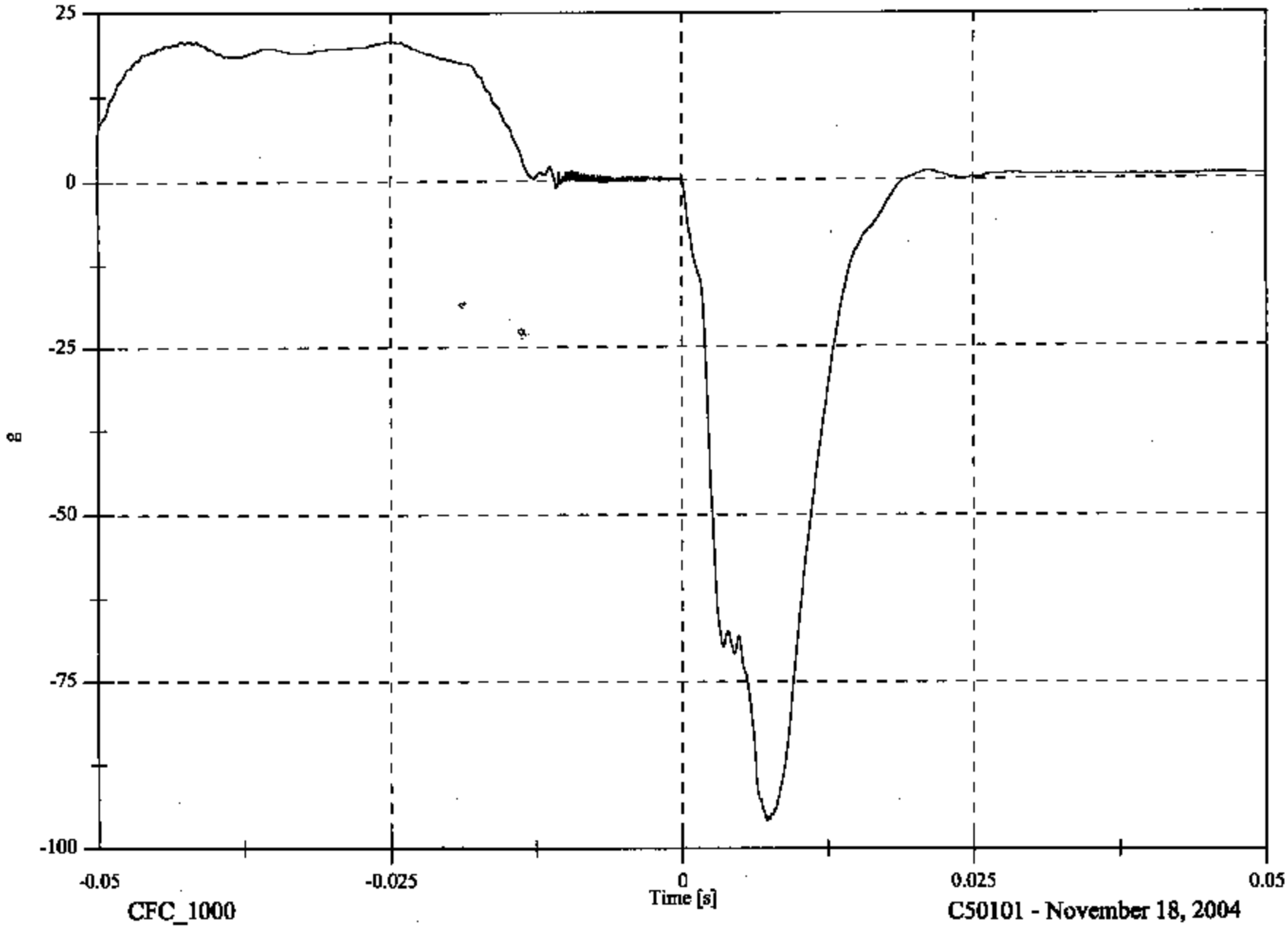
Min: 0.0 [g] at -0.057 [s]



FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform X Acceleration

Max: 20.7 [g] at -0.042 [s]
Min: -95.9 [g] at 0.007 [s]

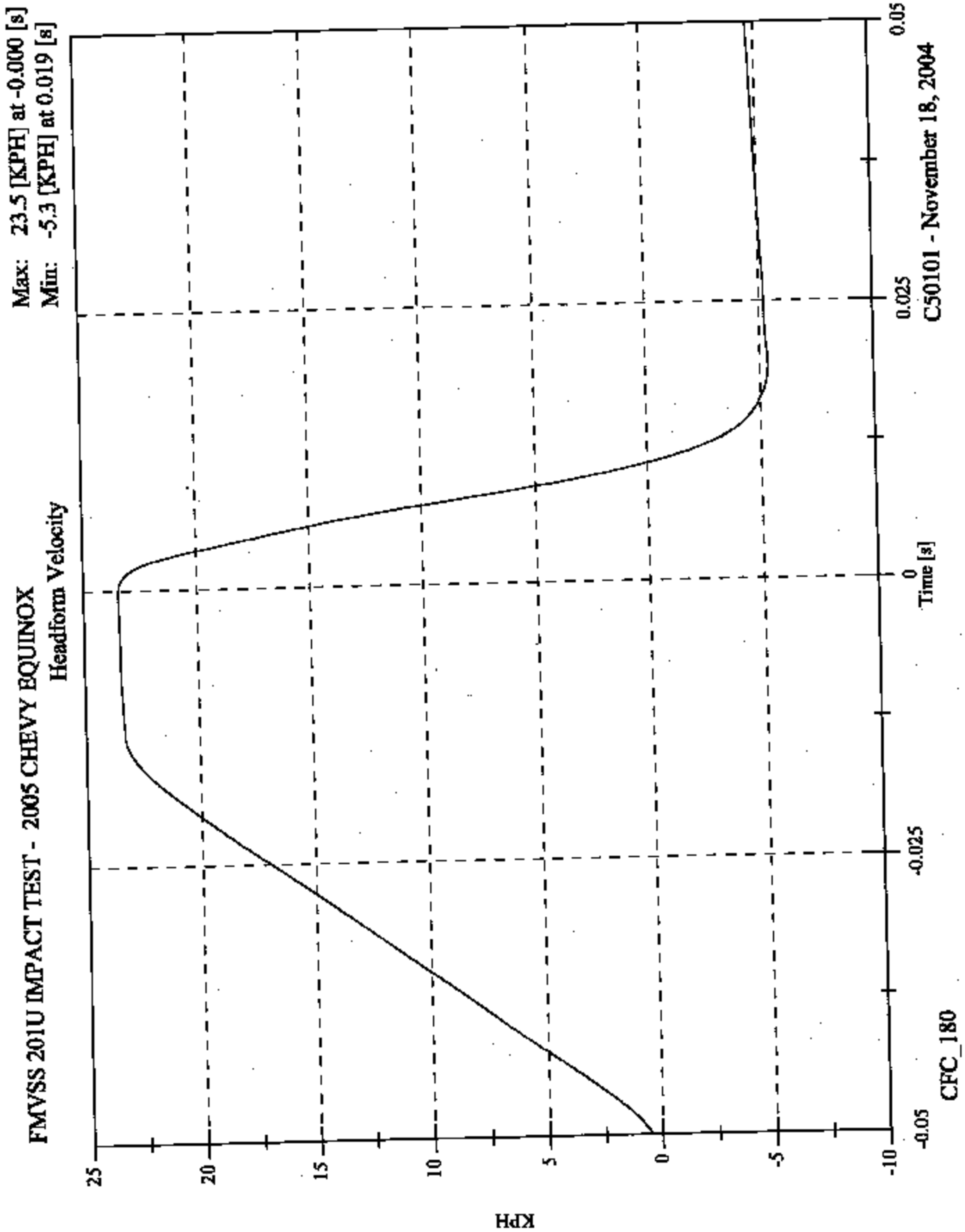


CFC_1000

C50101 - November 18, 2004

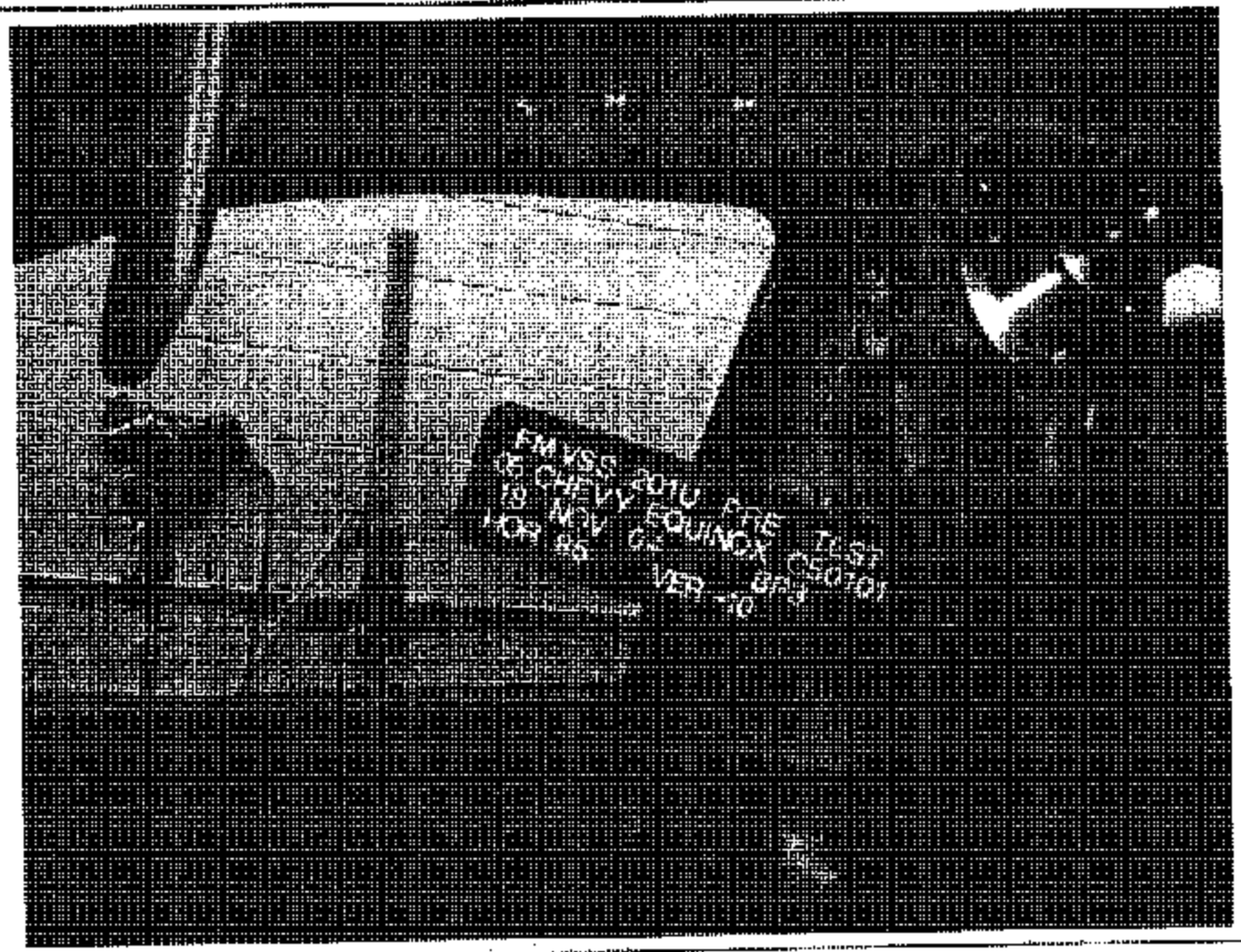
C50101 BP3 IMPACT PLOT #1

8754-FMH-02



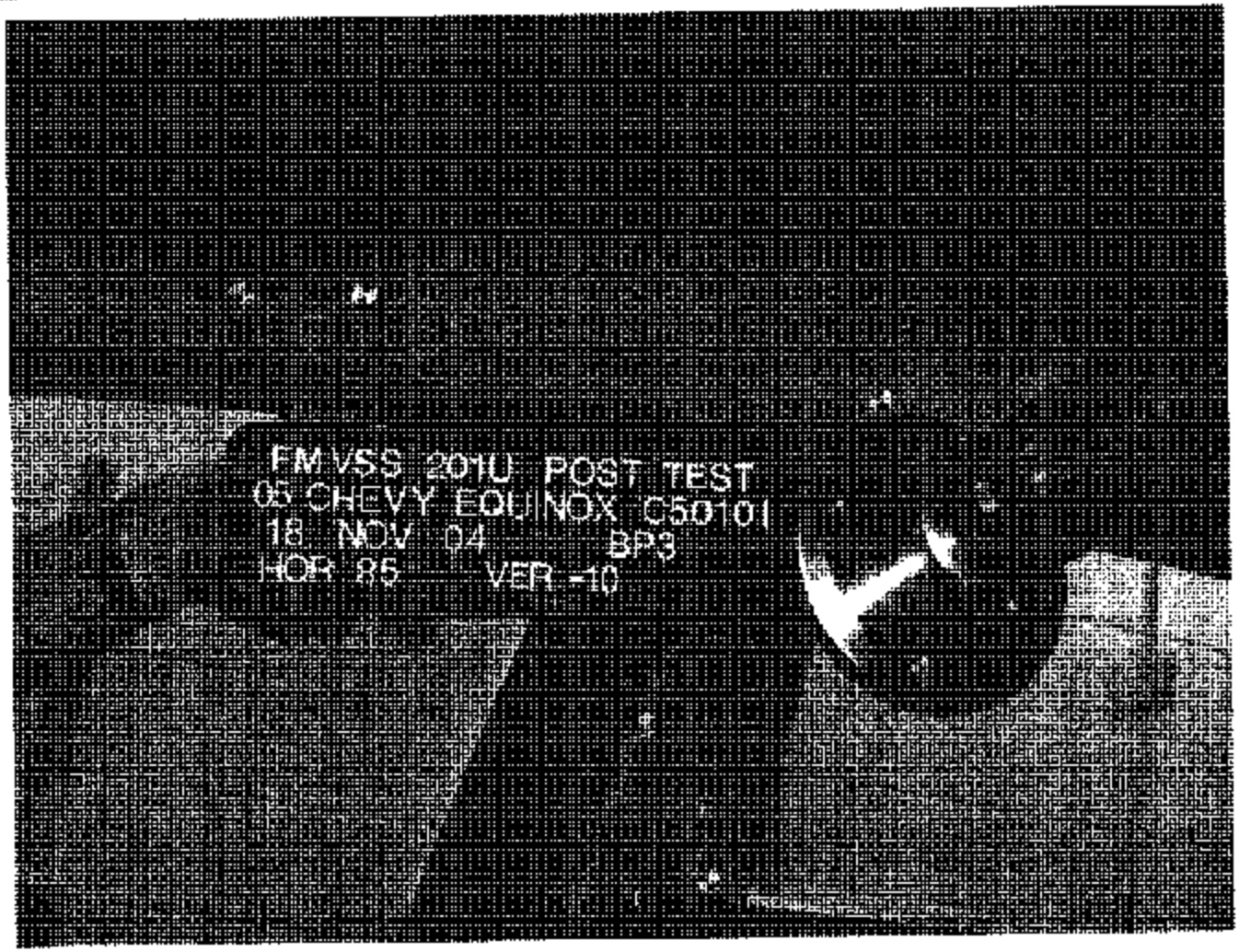
C50101 BP3 IMPACT PLOT #5

8754-FMH-02



PRE-IMPACT BIB

B754-FMH-02



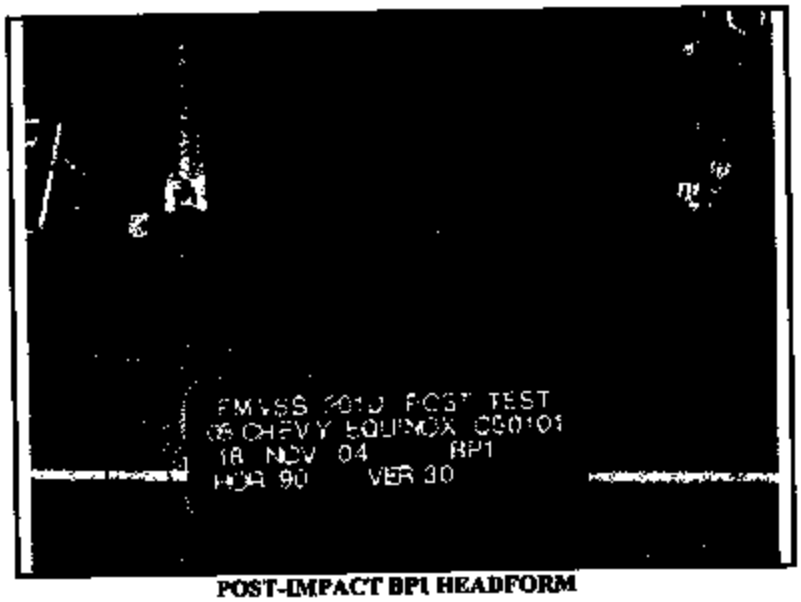
POST-IMPACT BP3

8754-FMEI-02

VEHICLE YEAR/MAKE/MODEL/STYLE:	2005 Chevrolet Equinox
VIN:	2CNDL73F956070947
DATE OF MANUFACTURE:	08/04(SEE CERTIFICATION LABEL)
COLOR:	Black

Test Number:	08
Test Date:	11/18/04
Target Location:	B-Pillar
Target Code:	BP1
Horizontal Impact Angle:	90°
Vertical Impact Angle:	30°
Ambient Temperature:	22.8°C
Relative Humidity:	47.8
Time of Impact:	15:15
Headform Number:	0355

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	6	x	mm right		mm left
On Centerline	14		mm up		



POST-IMPACT BP1 HEADFORM

Free Motion HIC	572.2
HIC(d)	598.1
Impact Velocity (kph)	18.40
HIC T1 (msec)	7.9
HIC T2 (msec)	13.0

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX C50101 - BP1

FMH Headform 355

Test Date: November 18, 2004

Location: BP1

Work File: BP1

TEST RESULTS

Lab Temperature: 22.8 C

Lab Humidity: 47.8 %

Velocity at Impact: 18.40 KPH

Free Flight Distance: 219.82 mm

HICd: 598.1

HIC (36ms): 572.2

t1: 7.9 msec

t2: 13.0 msec

Duration: 5.1 msec

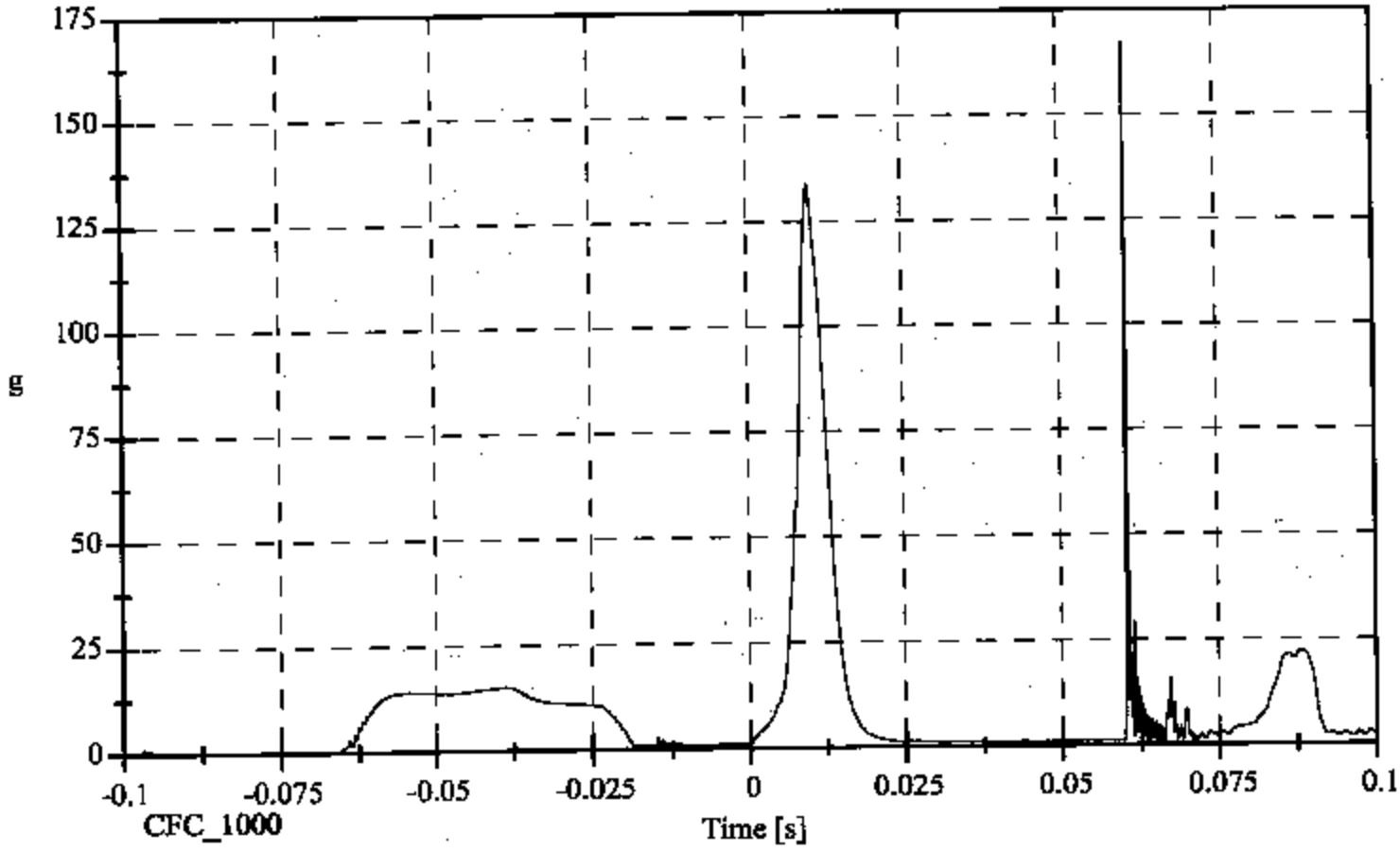
Average Acceleration: 8.6 g

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 167.1 [g] at 0.060 [s]

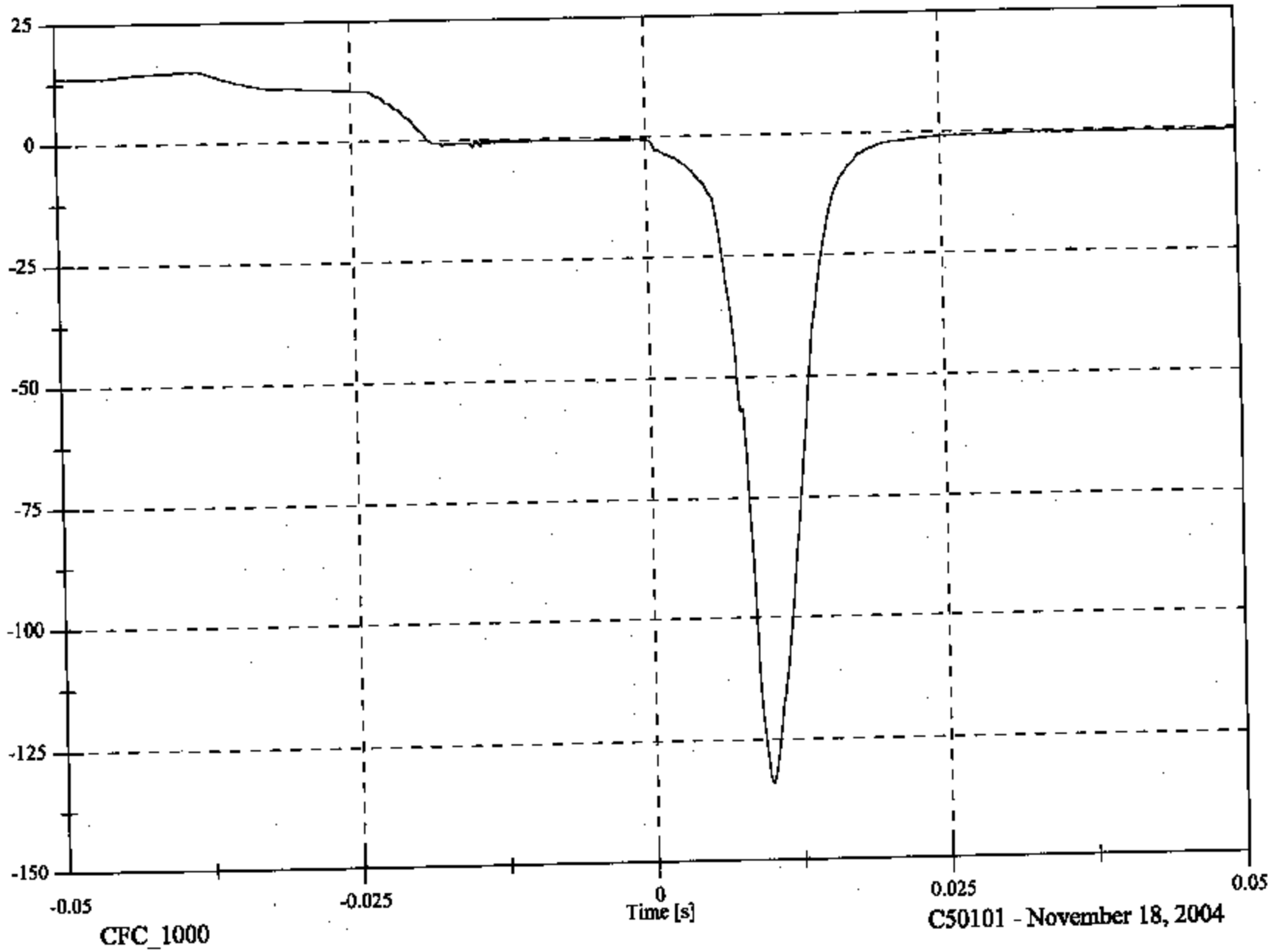
Min: 0.0 [g] at -0.086 [s]



FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

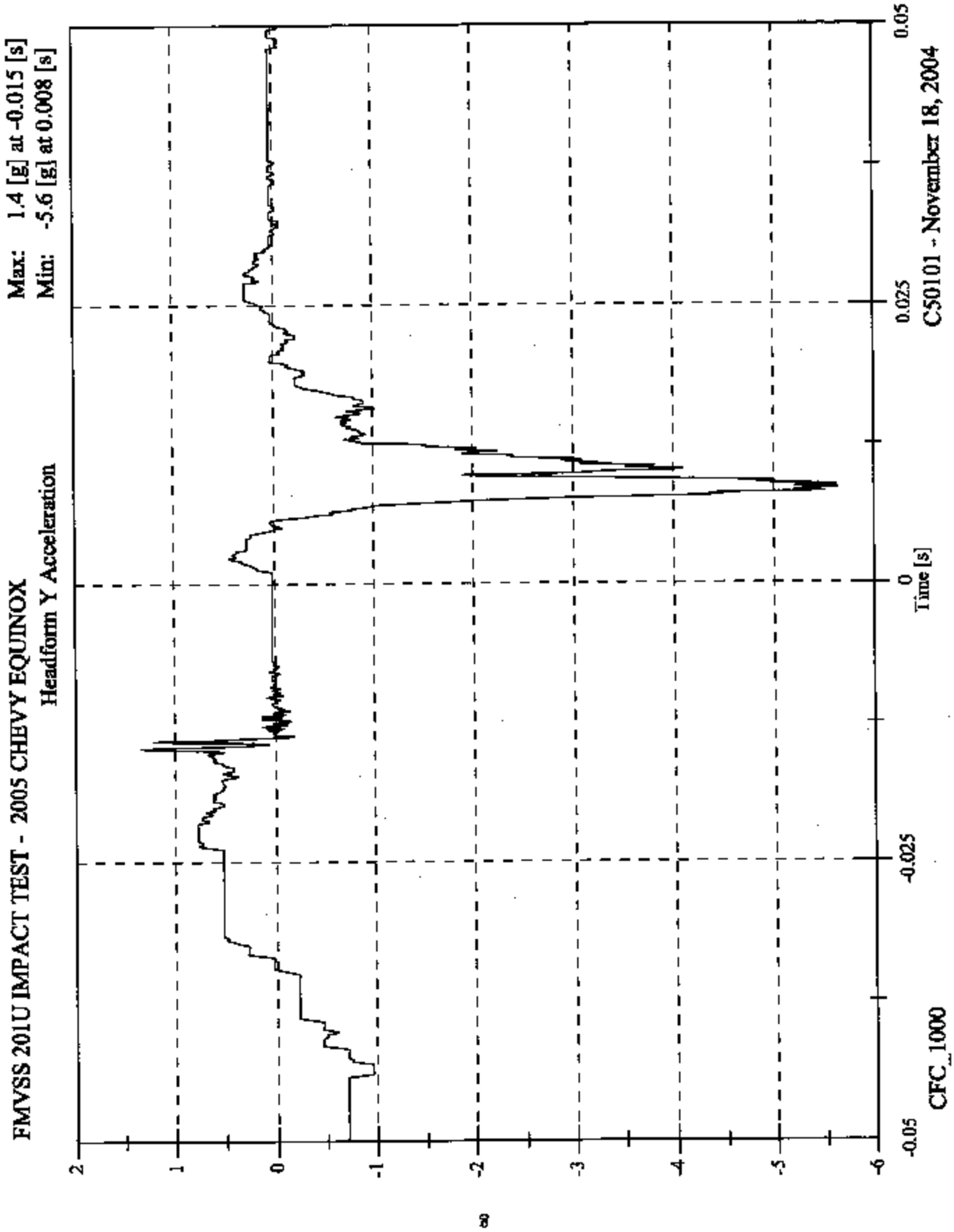
Headform X Acceleration

Max: 15.1 [g] at -0.039 [s]
Min: -134.0 [g] at 0.010 [s]



C50101 BP1 IMPACT PLOT #1

8754-FMH-02



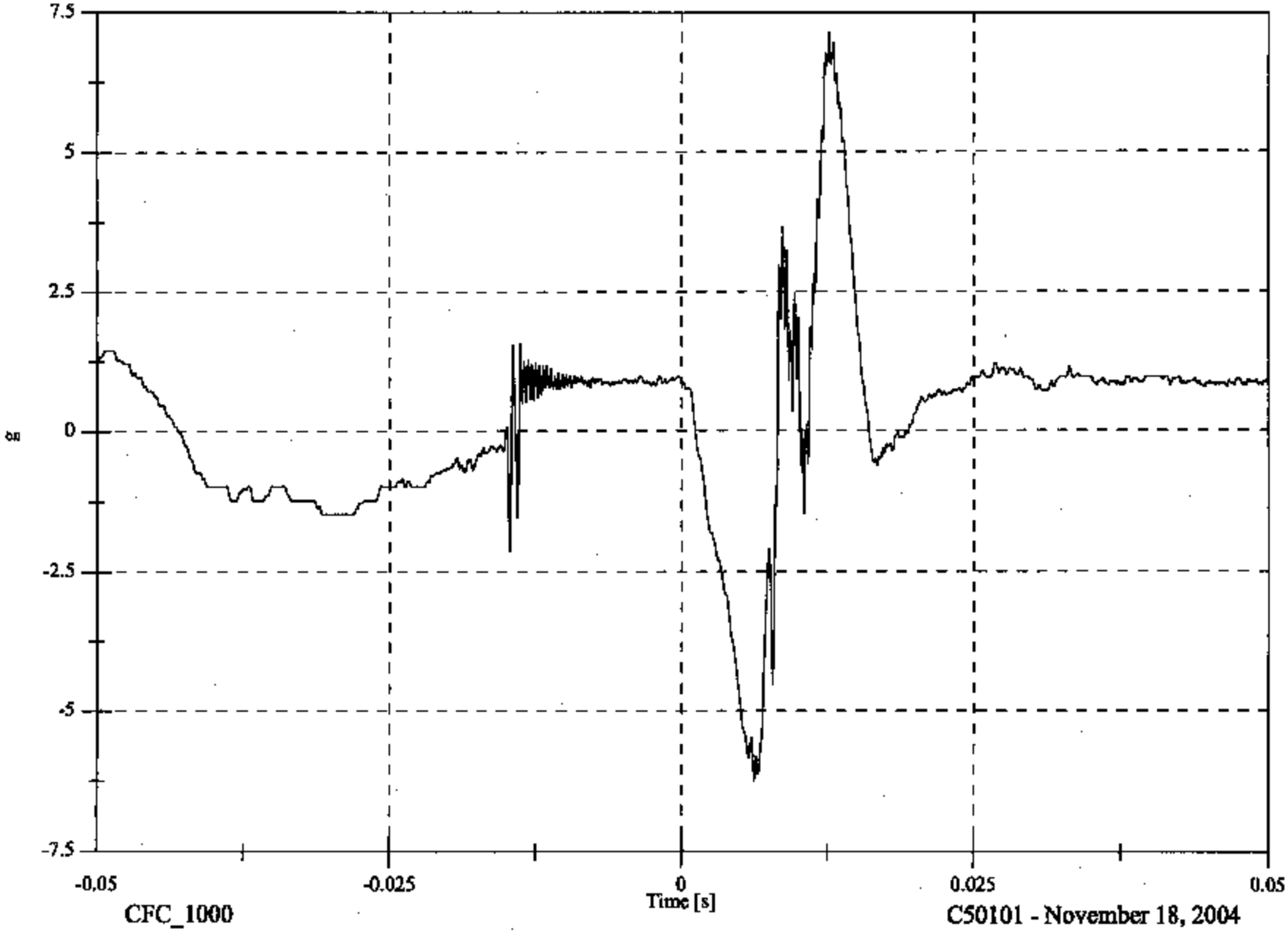
C50101 BP1 IMPACT PLOT #2

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Z Acceleration

Max: 7.2 [g] at 0.013 [s]
Min: -6.2 [g] at 0.006 [s]



CFC_1000

C50101 - November 18, 2004

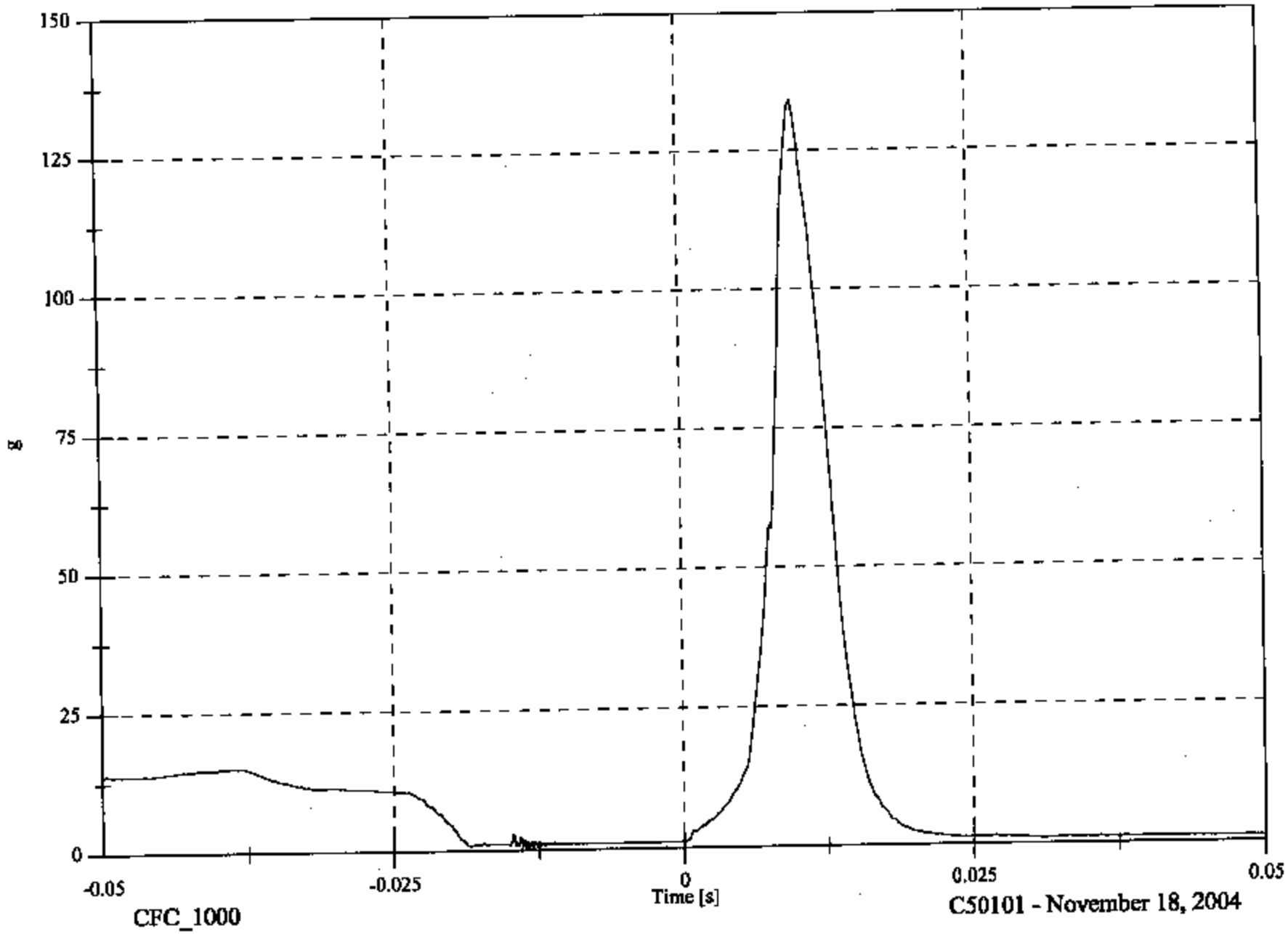
C50101 BP1 IMPACT PLOT #3

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 134.1 [g] at 0.010 [s]
Min: 0.5 [g] at -0.014 [s]



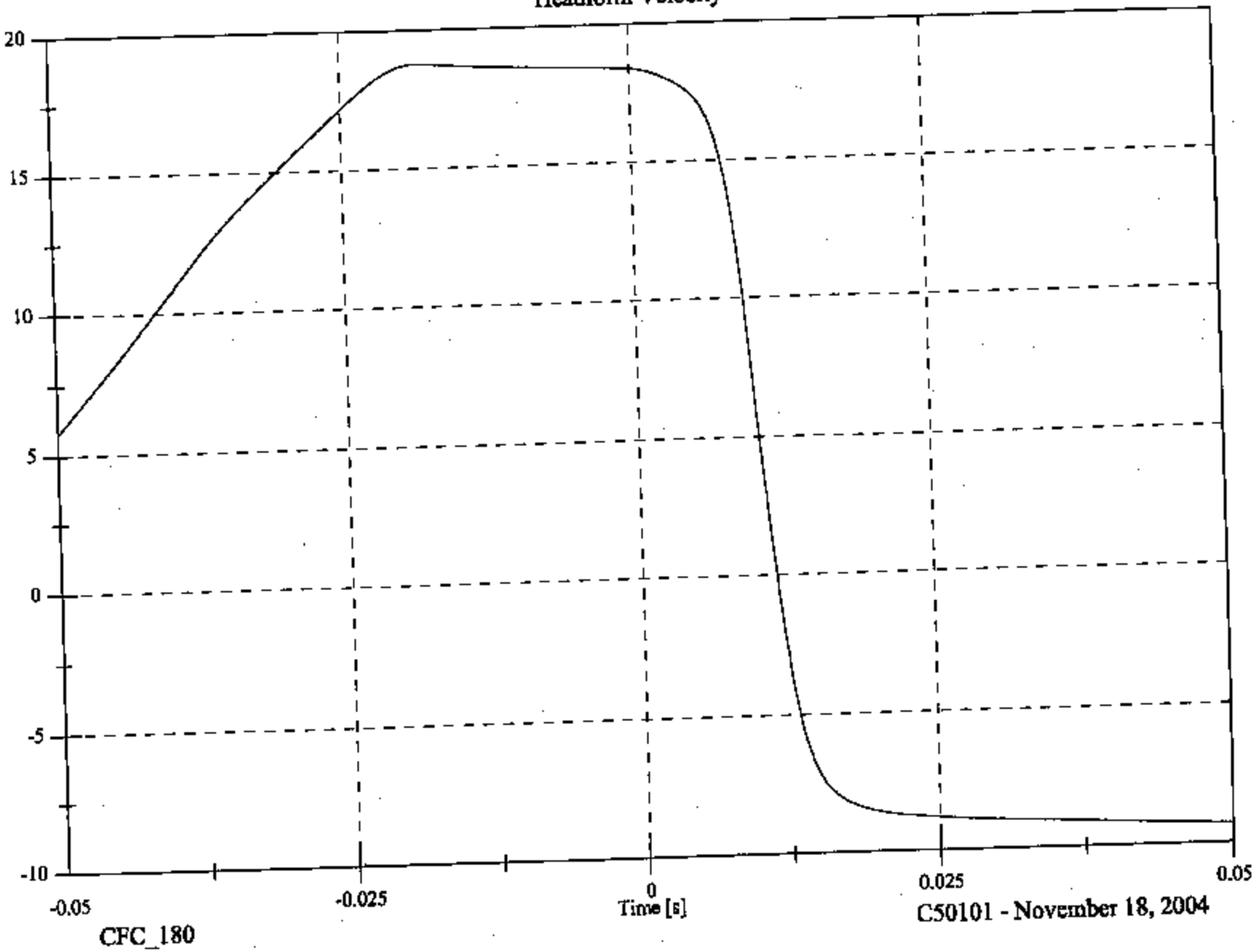
C50101 BP1 IMPACT PLOT #4

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

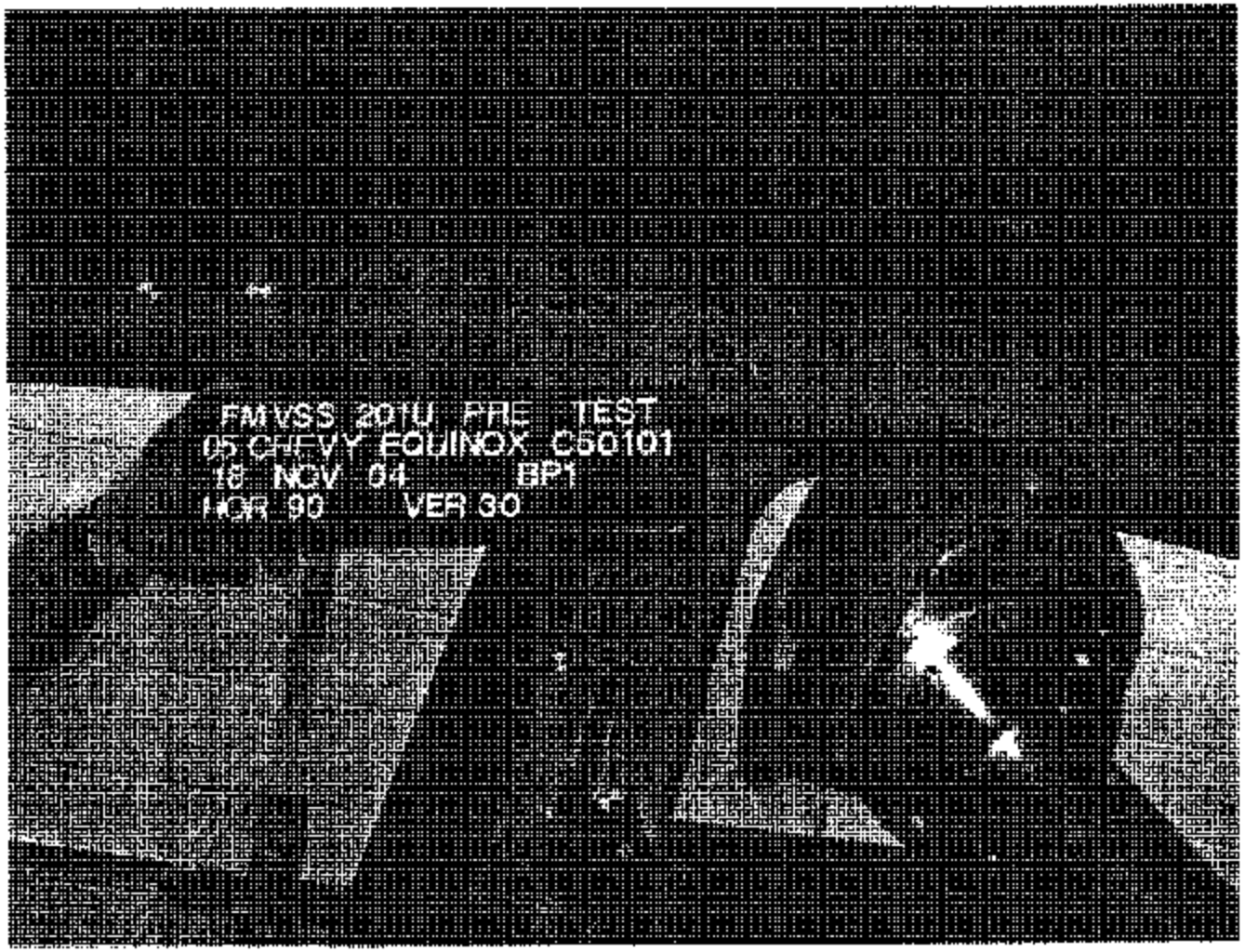
Headform Velocity

Max: 18.8 [KPH] at -0.018 [s]
Min: -9.3 [KPH] at 0.050 [s]



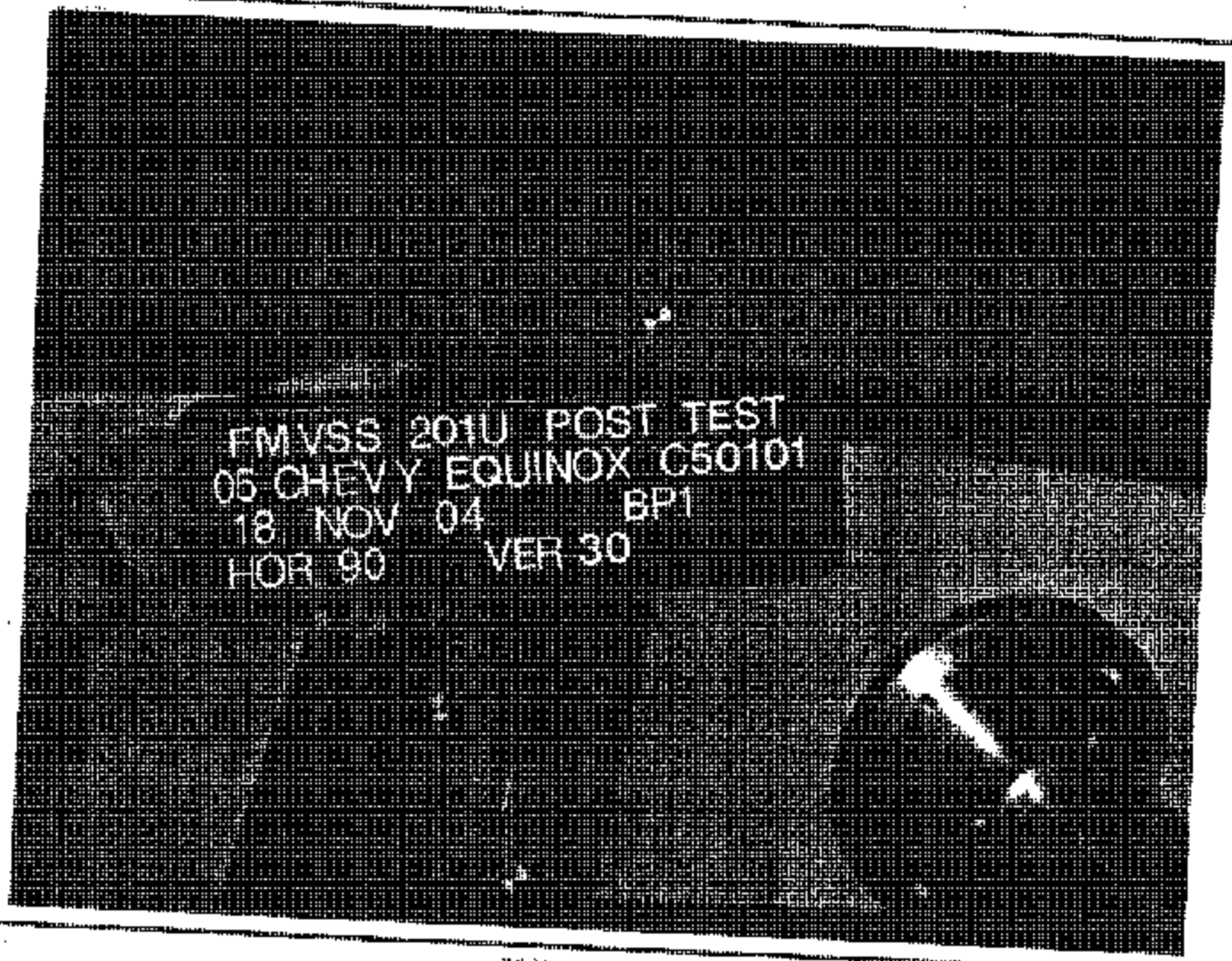
C50101 BP1 IMPACT PLOT #5

8754-FMH-02



PRE-IMPACT BP1

8754-FMH-02



POST-IMPACT BP1

8754-FMH-02

VEHICLE YEAR/MAKE/MODEL/STYLE:	2005 Chevrolet Equinox
VIN:	2CNDL73F956070947
DATE OF MANUFACTURE:	08/04(SEE CERTIFICATION LABEL)
COLOR:	Black

Test Number:	09
Test Date:	11/18/04
Target Location:	Side Rail
Target Code:	SR3
Horizontal Impact Angle:	90°
Vertical Impact Angle:	25°
Ambient Temperature:	23.4°C
Relative Humidity:	45.5
Time of Impact:	15:40
Headform Number:	0062

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	4	[x]	mm right	[ ]	mm left
On Centerline	9		mm up		

POST-IMPACT SR3 HEADFORM

Free Motion HIC	129.5
HIC(d)	264.1
Impact Velocity (kph)	18.75
HIC T1 (msec)	5.2
HIC T2 (msec)	24.3

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX C50101 - SR3

FMH Headform 0062

Test Date: November 18, 2004

Location: SR3

Work File: SR3

TEST RESULTS

Lab Temperature: 23.4 C

Lab Humidity: 45.5 %

Velocity at Impact: 18.75 KPH

Free Flight Distance: 211.58 mm

HICd: 264.1

HIC (36ms): 129.5

t1: 5.2 msec

t2: 24.3 msec

Duration: 19.1 msec

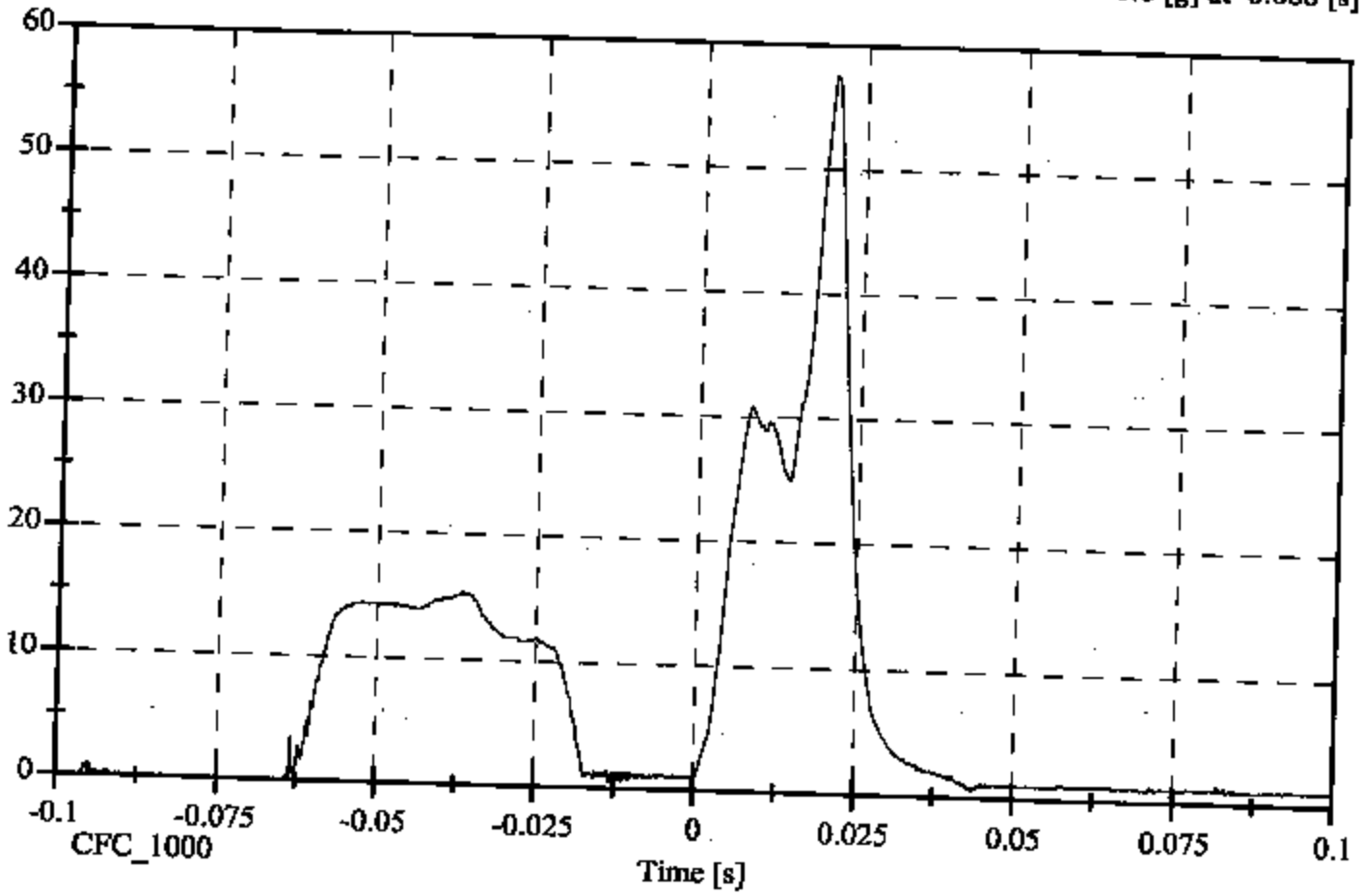
Average Acceleration: 7.1 g

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 57.5 [g] at 0.020 [s]

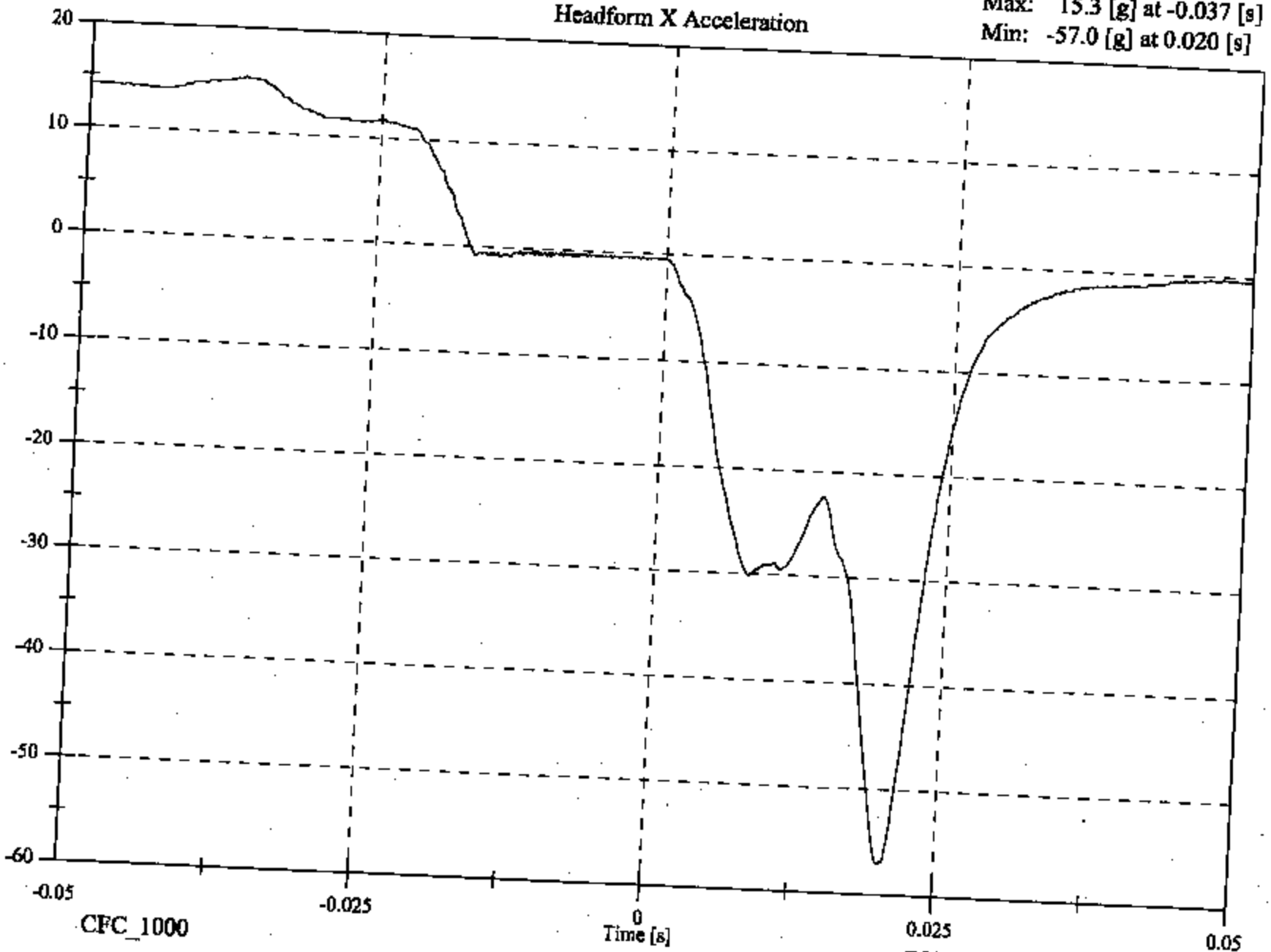
Min: 0.0 [g] at -0.088 [s]



FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform X Acceleration

Max: 15.3 [g] at -0.037 [s]
Min: -57.0 [g] at 0.020 [s]



CFC_1000

C50101 - November 18, 2004

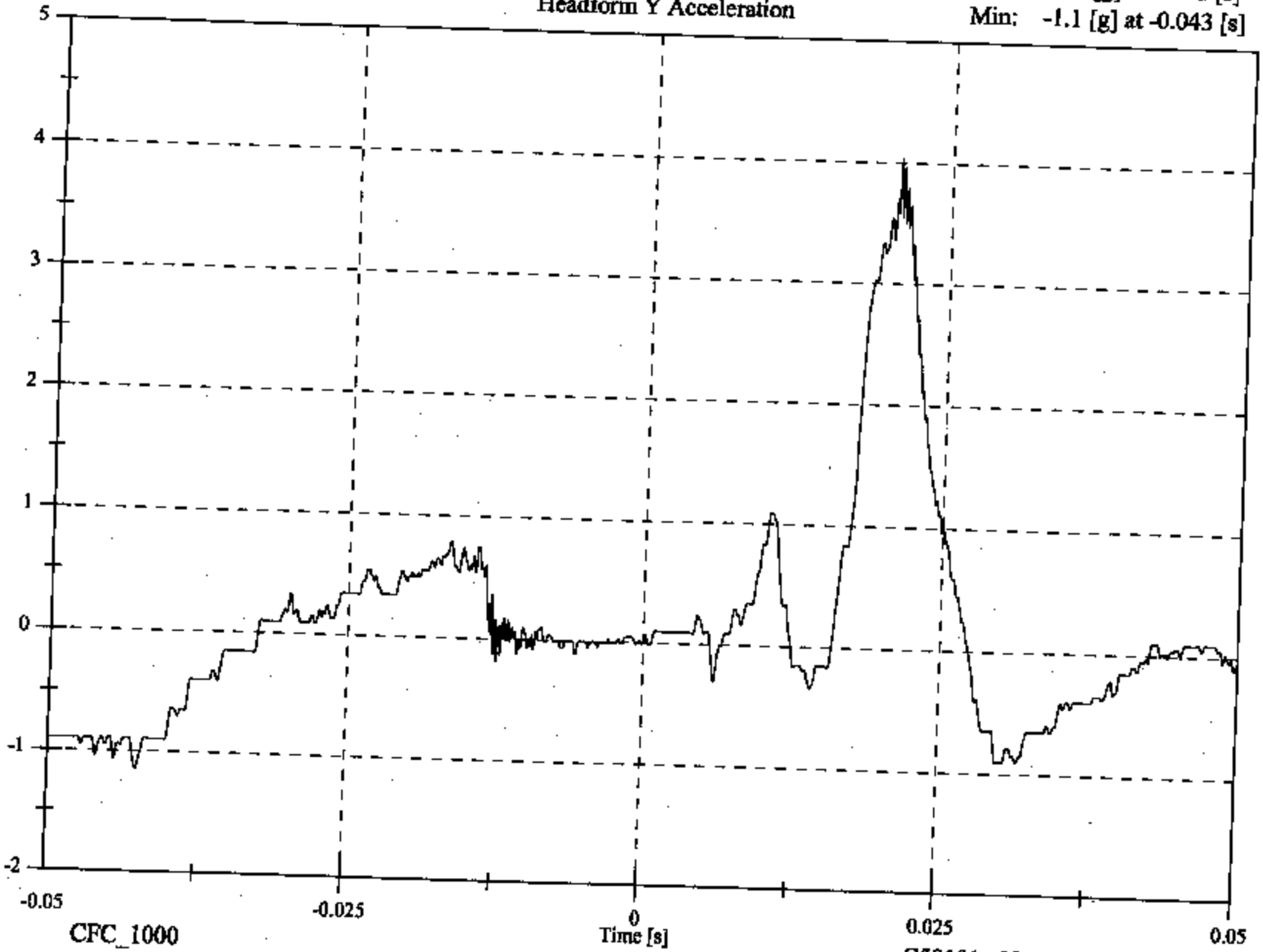
C50101 SR3 IMPACT PLOT #1

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Y Acceleration

Max: 4.0 [g] at 0.021 [s]
Min: -1.1 [g] at -0.043 [s]



CFC_1000

C50101 - November 18, 2004

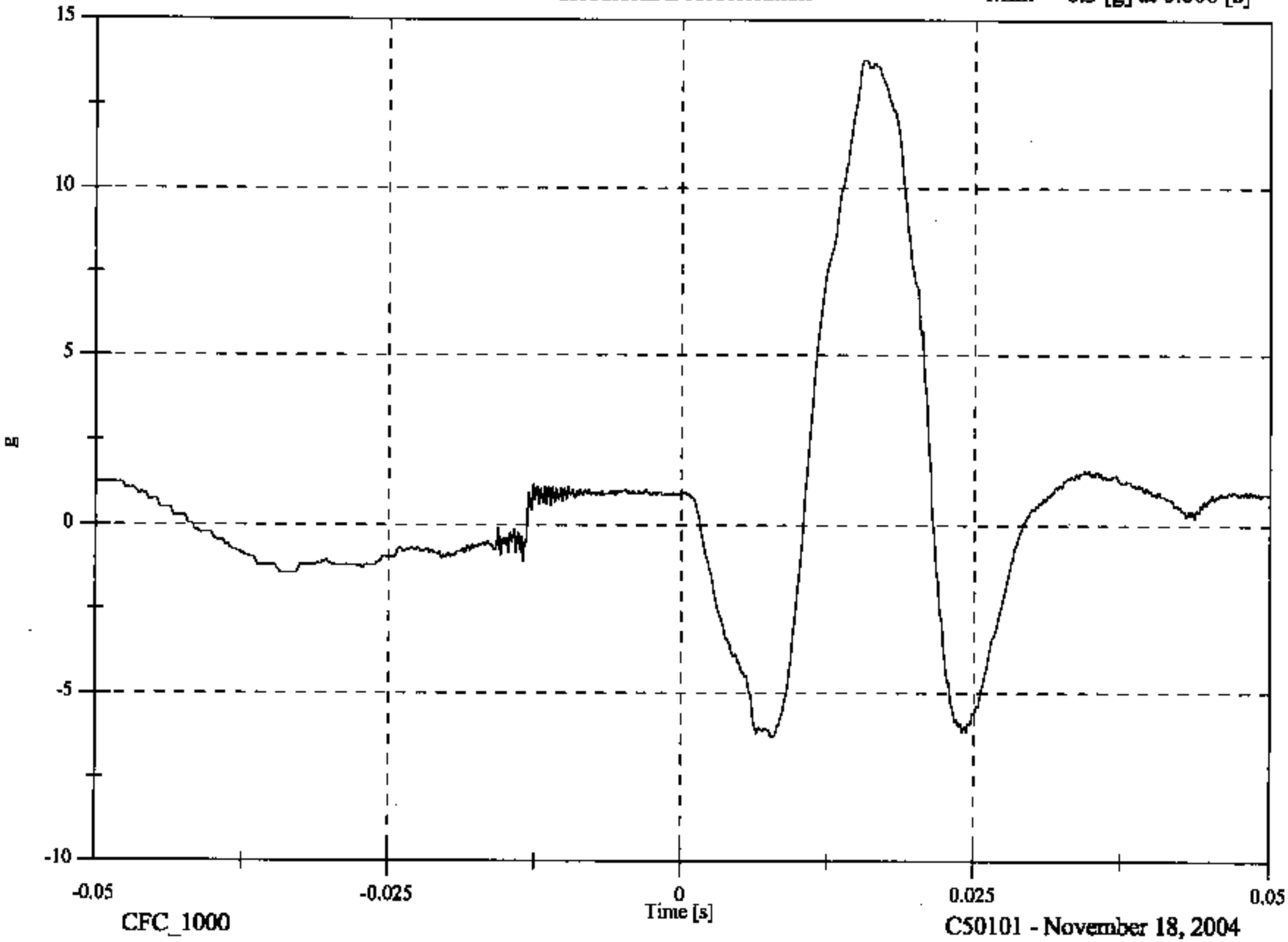
C50101 SR3 IMPACT PLOT #2

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Z Acceleration

Max: 13.8 [g] at 0.016 [s]
Min: -6.3 [g] at 0.008 [s]



CFC_1000

C50101 - November 18, 2004

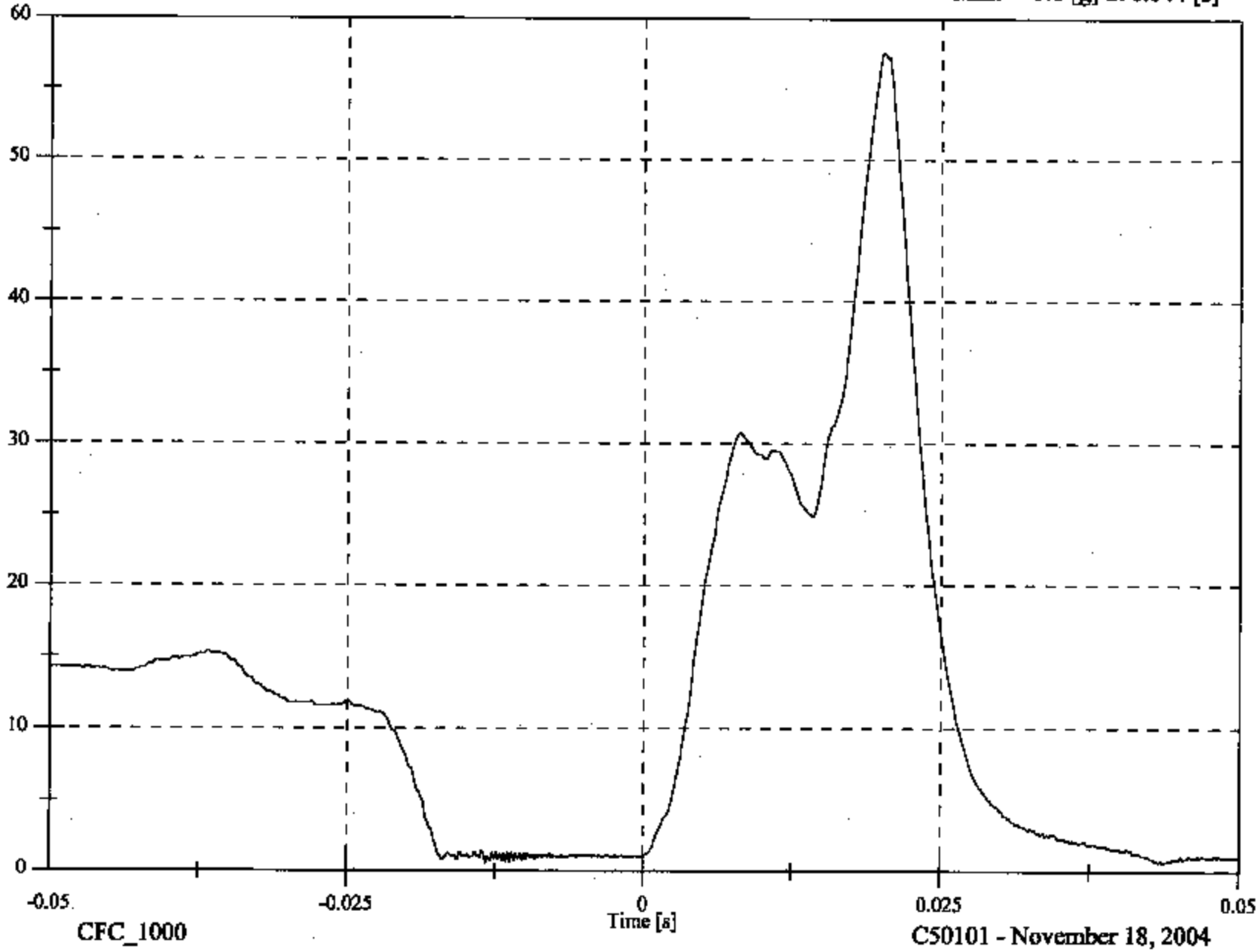
C50101 SR3 IMPACT PLOT #3

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 57.5 [g] at 0.020 [s]
Min: 0.6 [g] at 0.044 [s]



CFC_1000

C50101 - November 18, 2004

C50101 SR3 IMPACT PLOT #4

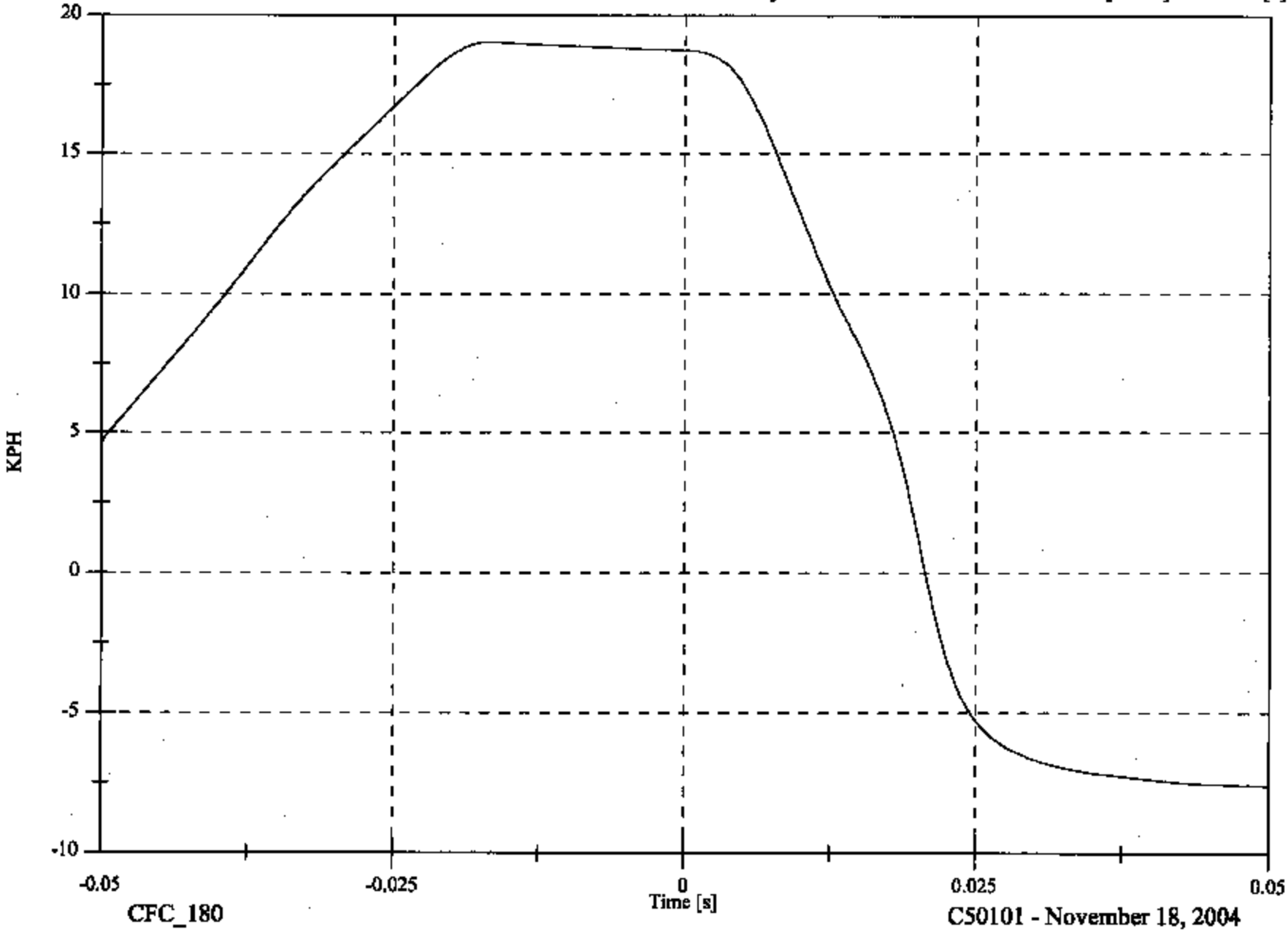
8

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Velocity

Max: 19.0 [KPH] at -0.017 [s]
Min: -7.6 [KPH] at 0.050 [s]

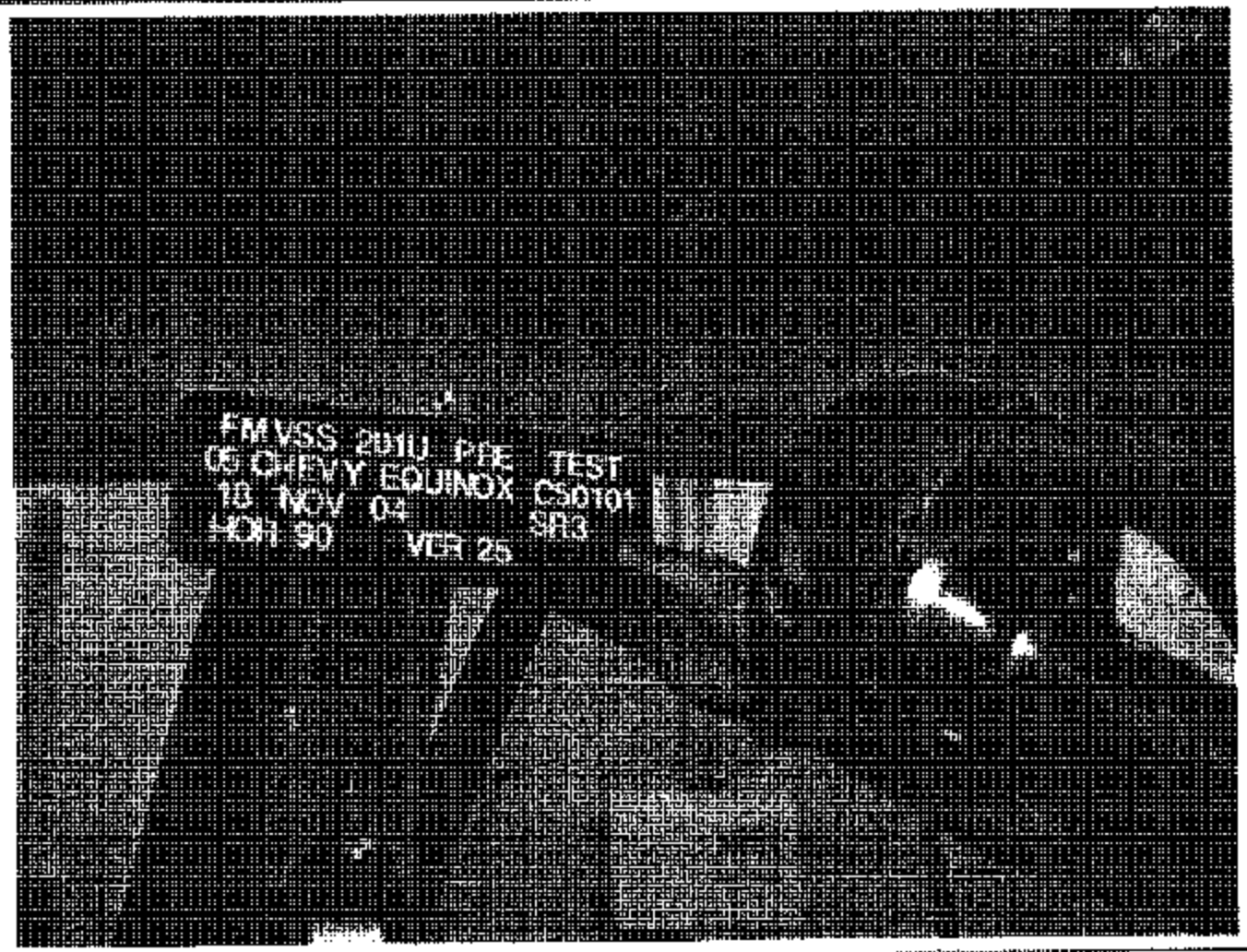


CFC_180

C50101 - November 18, 2004

C50101 SR3 IMPACT PLOT #5

8754-FMH-02



PRE-IMPACT SR3

8754-P3H402

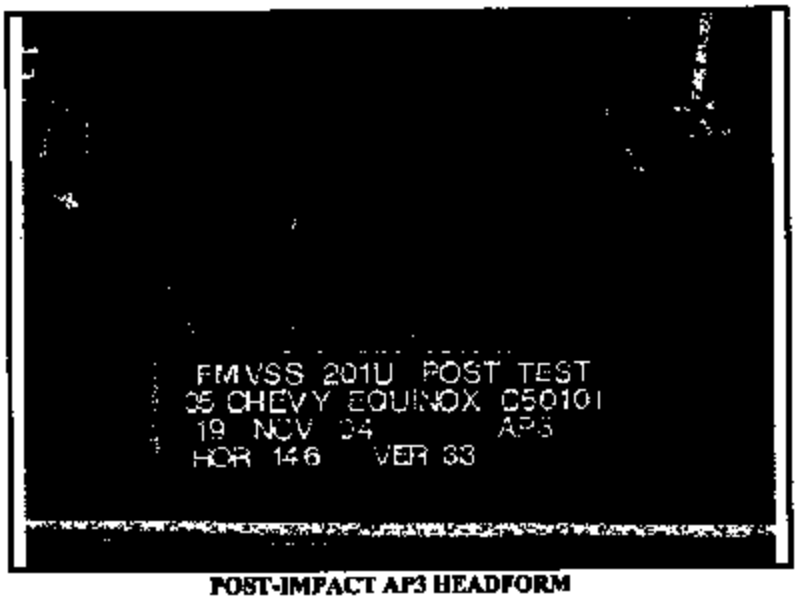
POST-IMPACT SR3

8754-FMH-02

VEHICLE YEAR/MAKE/MODEL/STYLE:	2005 Chevrolet Equinox
VIN:	2CNDL73F956070947
DATE OF MANUFACTURE:	08/04(SEE CERTIFICATION LABEL)
COLOR:	Black

Test Number:	10
Test Date:	11/19/04
Target Location:	A-Pillar
Target Code:	AP3
Horizontal Impact Angle:	146°
Vertical Impact Angle:	33°
Ambient Temperature:	24.2°C
Relative Humidity:	32.8
Time of Impact:	9:15
Headform Number:	0062

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	5		mm right	x	mm left
On Centerline	20		mm up		



POST-IMPACT AP3 HEADFORM

Free Motion HIC	623.6
HIC(d)	636.9
Impact Velocity (kph)	23.68
HIC T1 (msec)	1.1
HIC T2 (msec)	10.7

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX C50101 - AP3

FMH Headform 0062

Test Date: November 19, 2004

Location: AP3

Work File: AP3

TEST RESULTS

Lab Temperature: 24.2 C

Lab Humidity: 32.8 %

Velocity at Impact: 23.68 KPH

Free Flight Distance: 214.92 mm

HICd: 636.9

HIC (36ms): 623.6

t1: 1.1 msec

t2: 10.7 msec

Duration: 9.5 msec

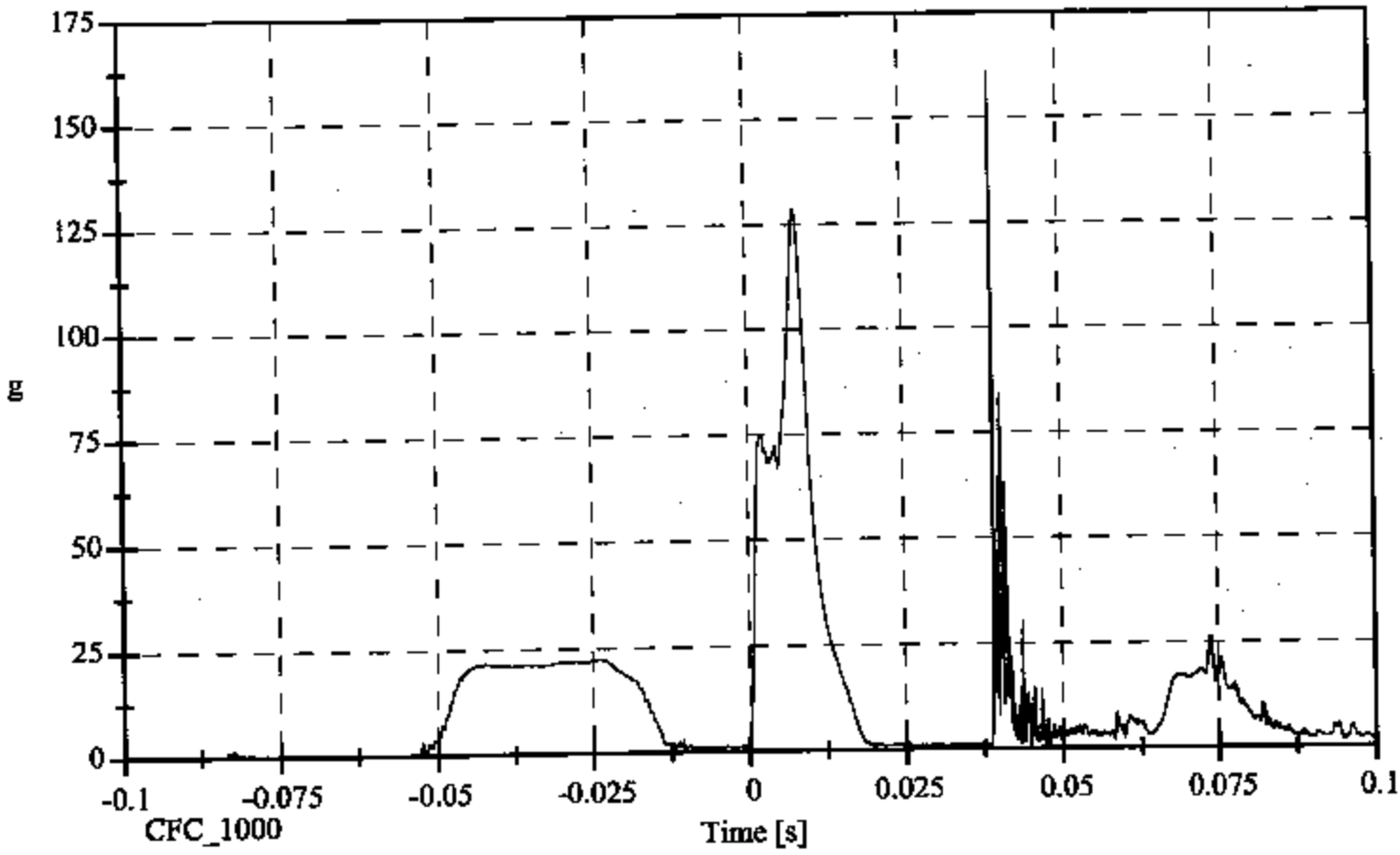
Average Acceleration: 11.3 g

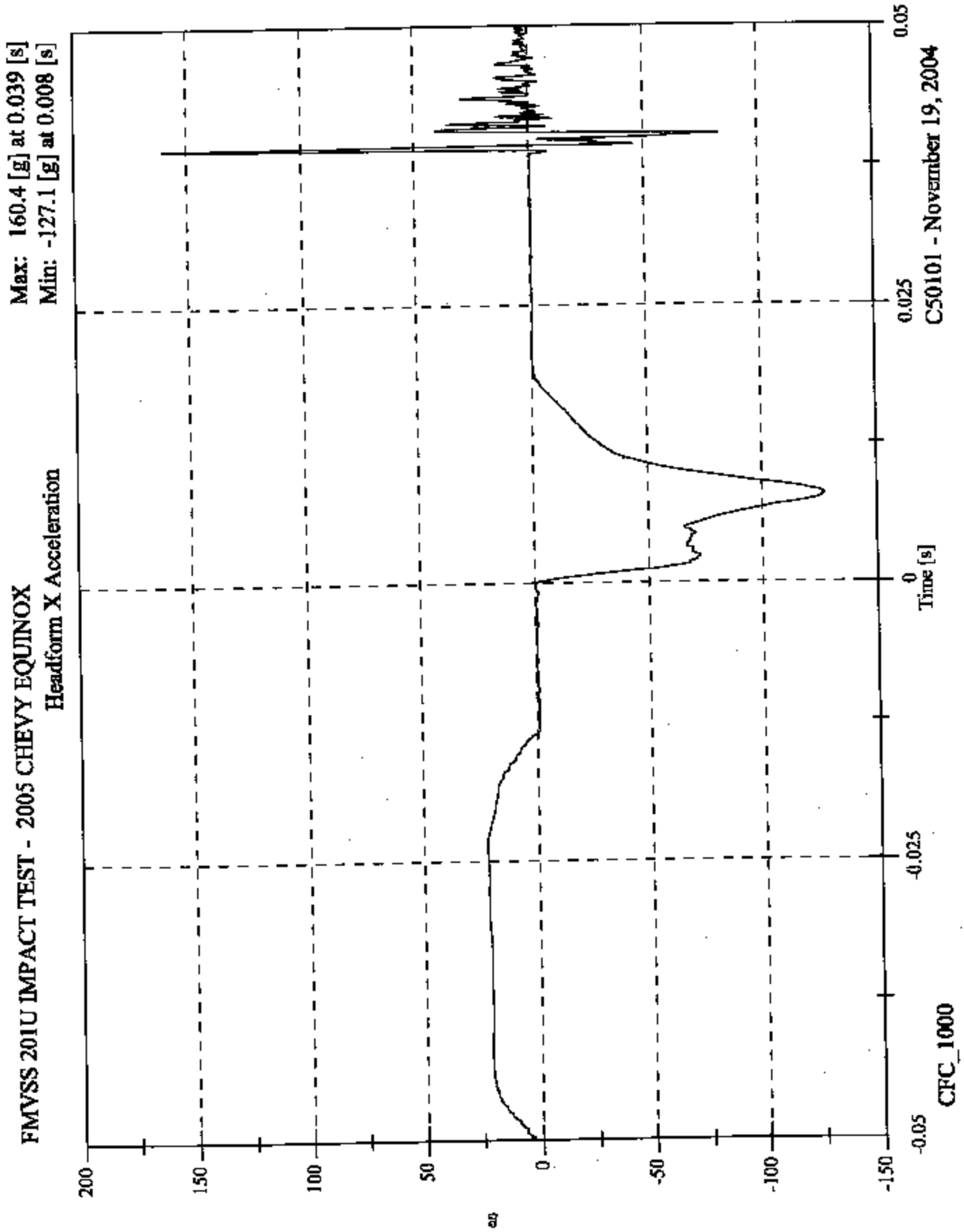
FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 160.7 [g] at 0.039 [s]

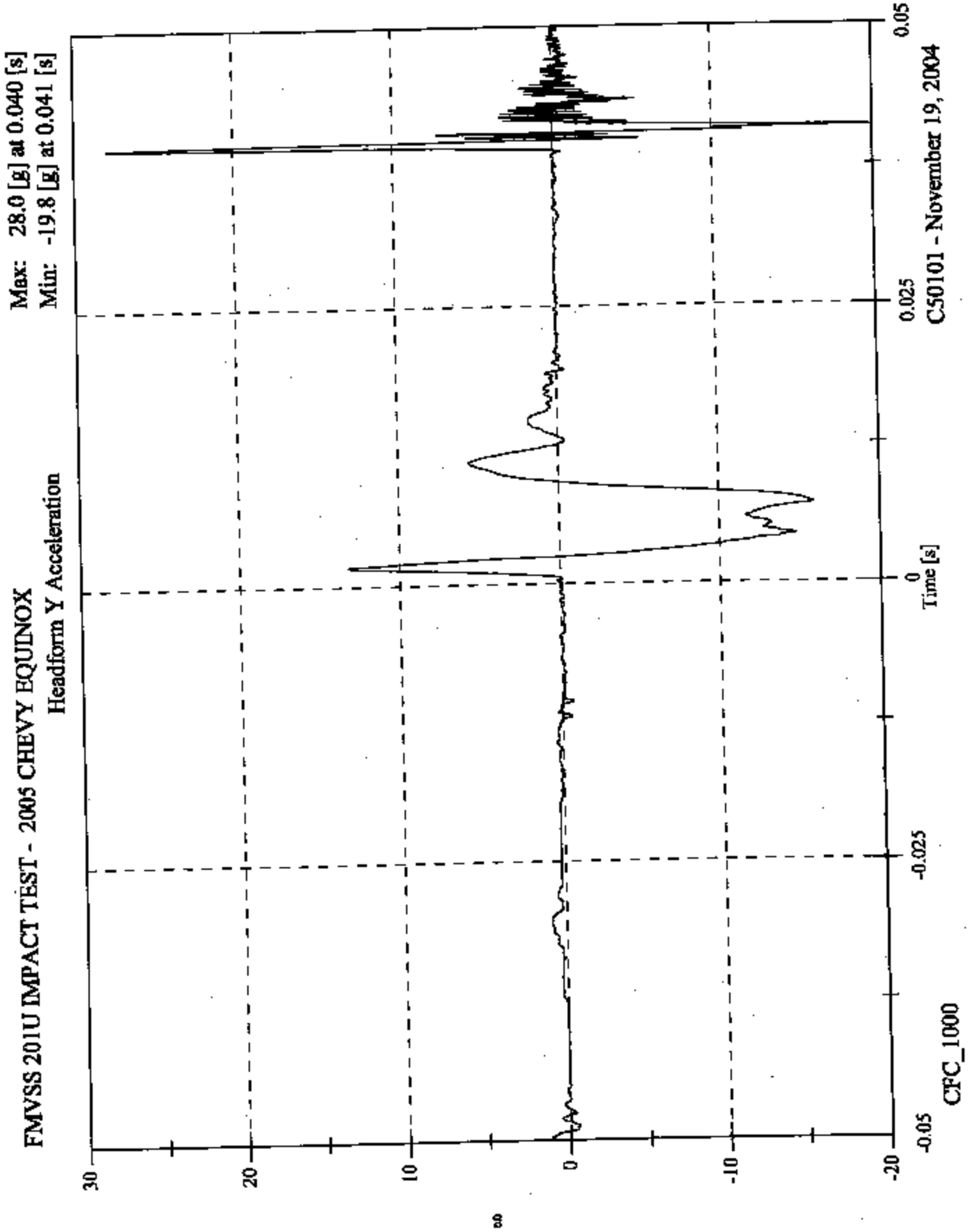
Min: 0.0 [g] at -0.086 [s]





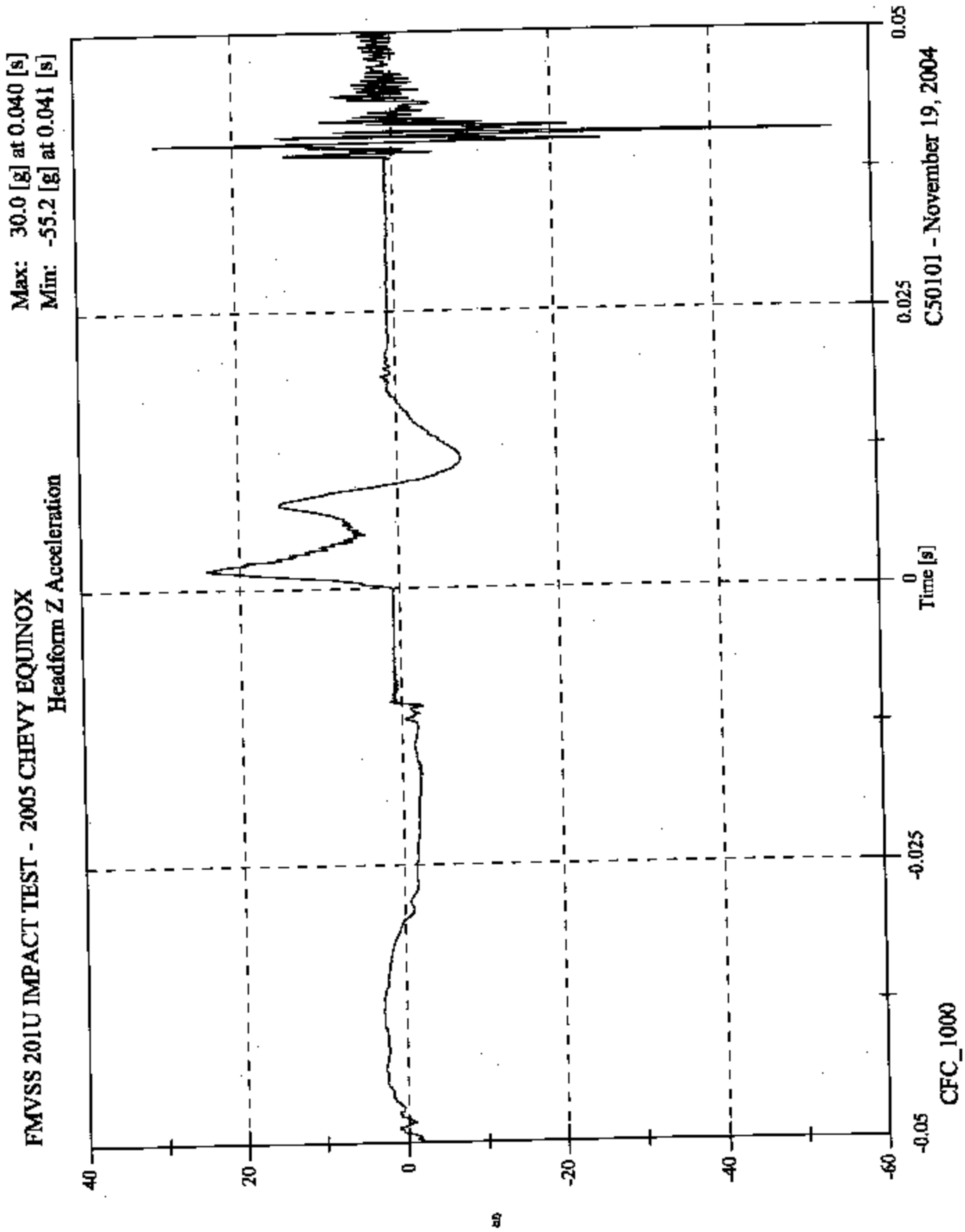
C50101 AP3 IMPACT PLOT #1

8754-FMH-02



C50101 AP3 IMPACT PLOT #2

8754-FMH-02



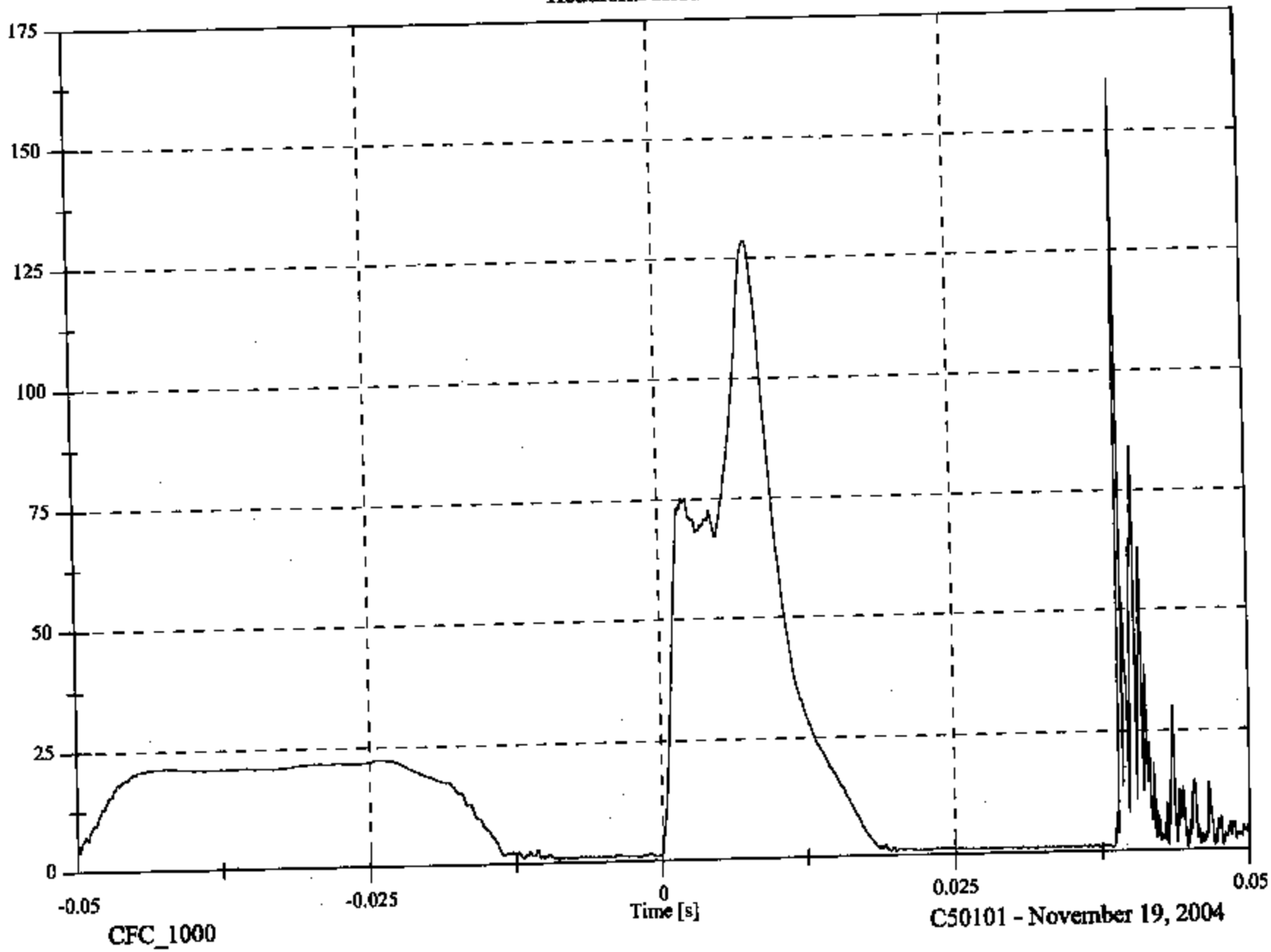
C50101 AP3 IMPACT PLOT #3

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 160.7 [g] at 0.039 [s]
Min: 0.4 [g] at 0.045 [s]



CFC_1000

C50101 - November 19, 2004

C50101 AP3 IMPACT PLOT #4

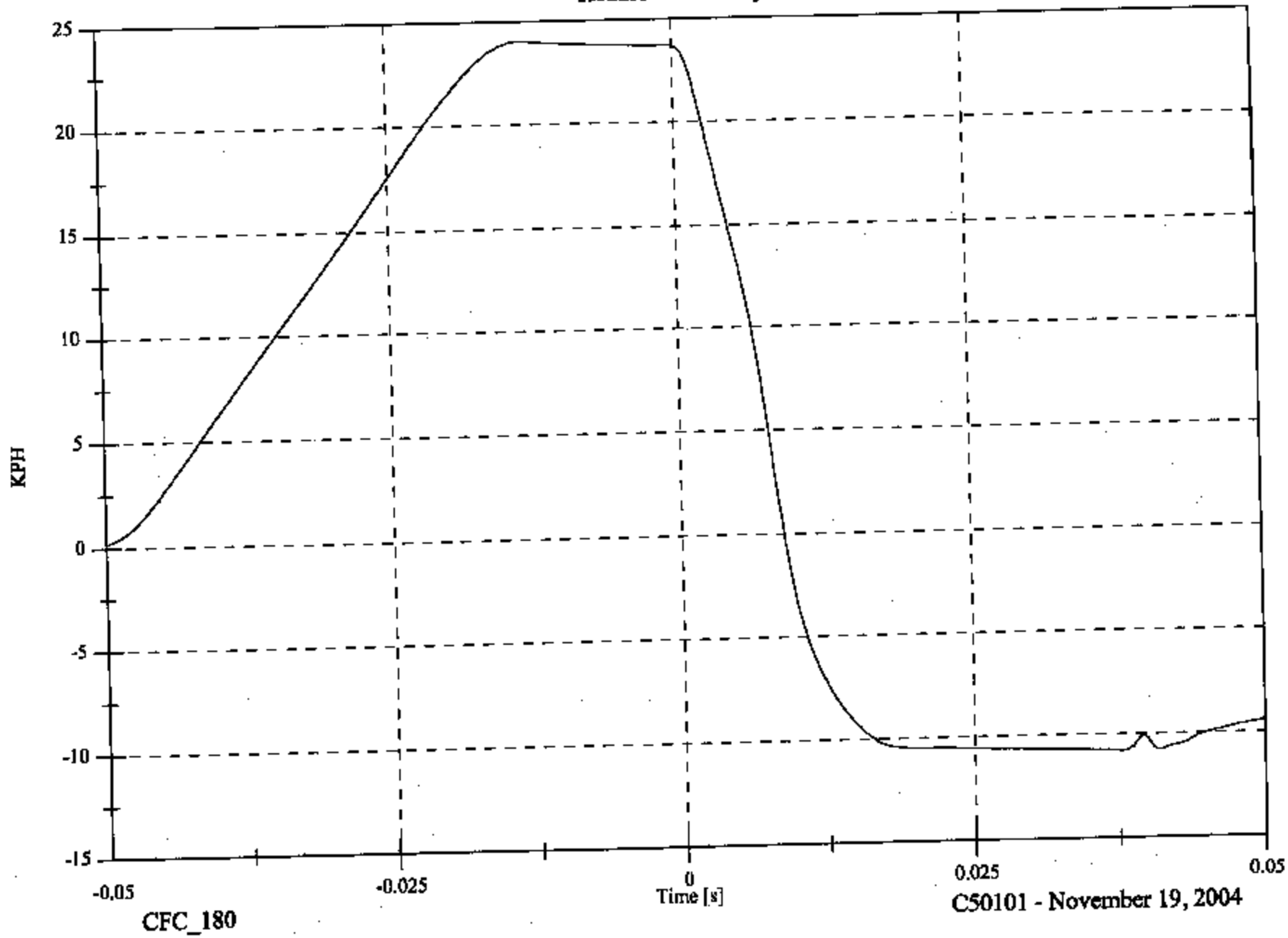
8

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

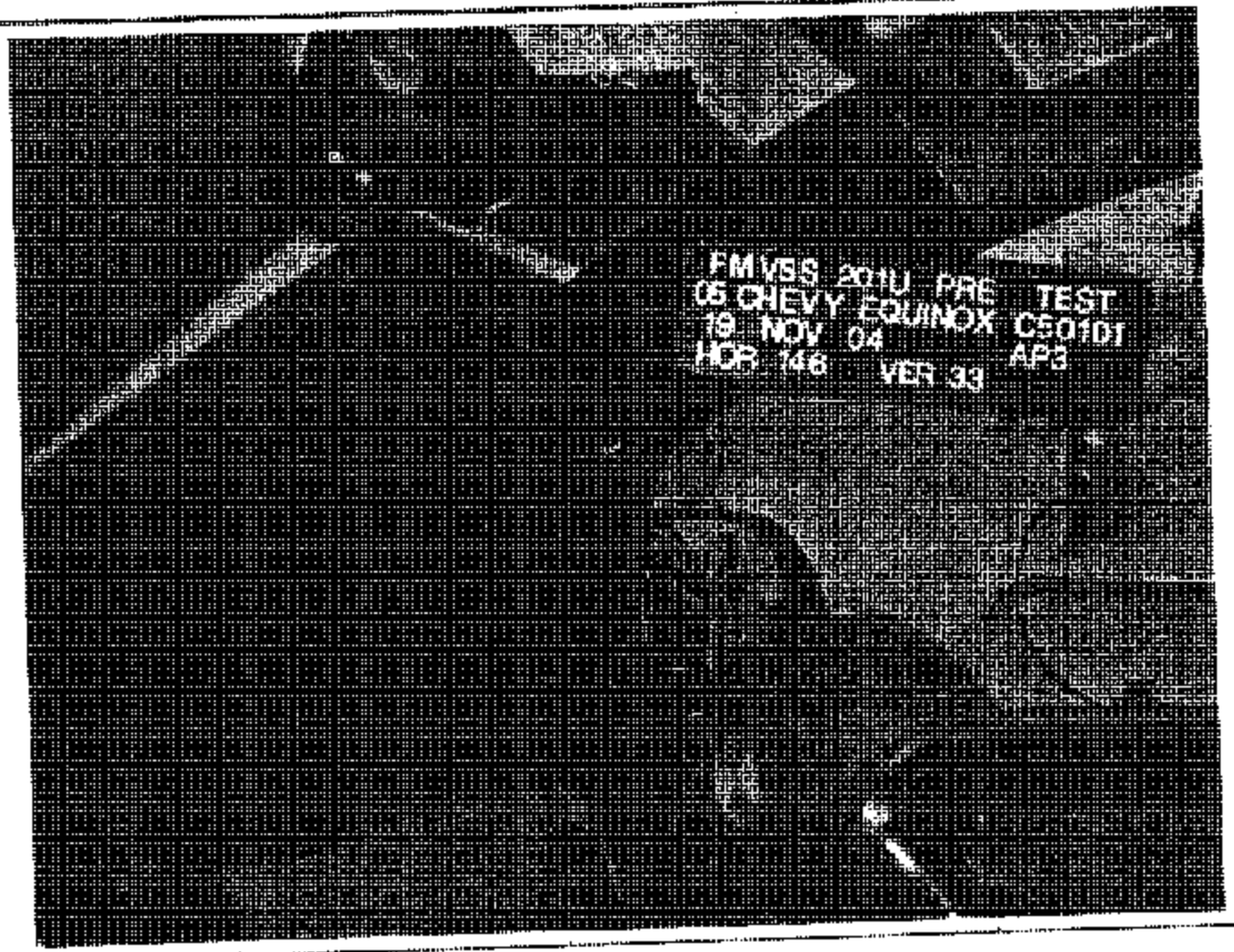
Headform Velocity

Max: 24.0 [KPH] at -0.013 [s]
Min: -10.8 [KPH] at 0.038 [s]



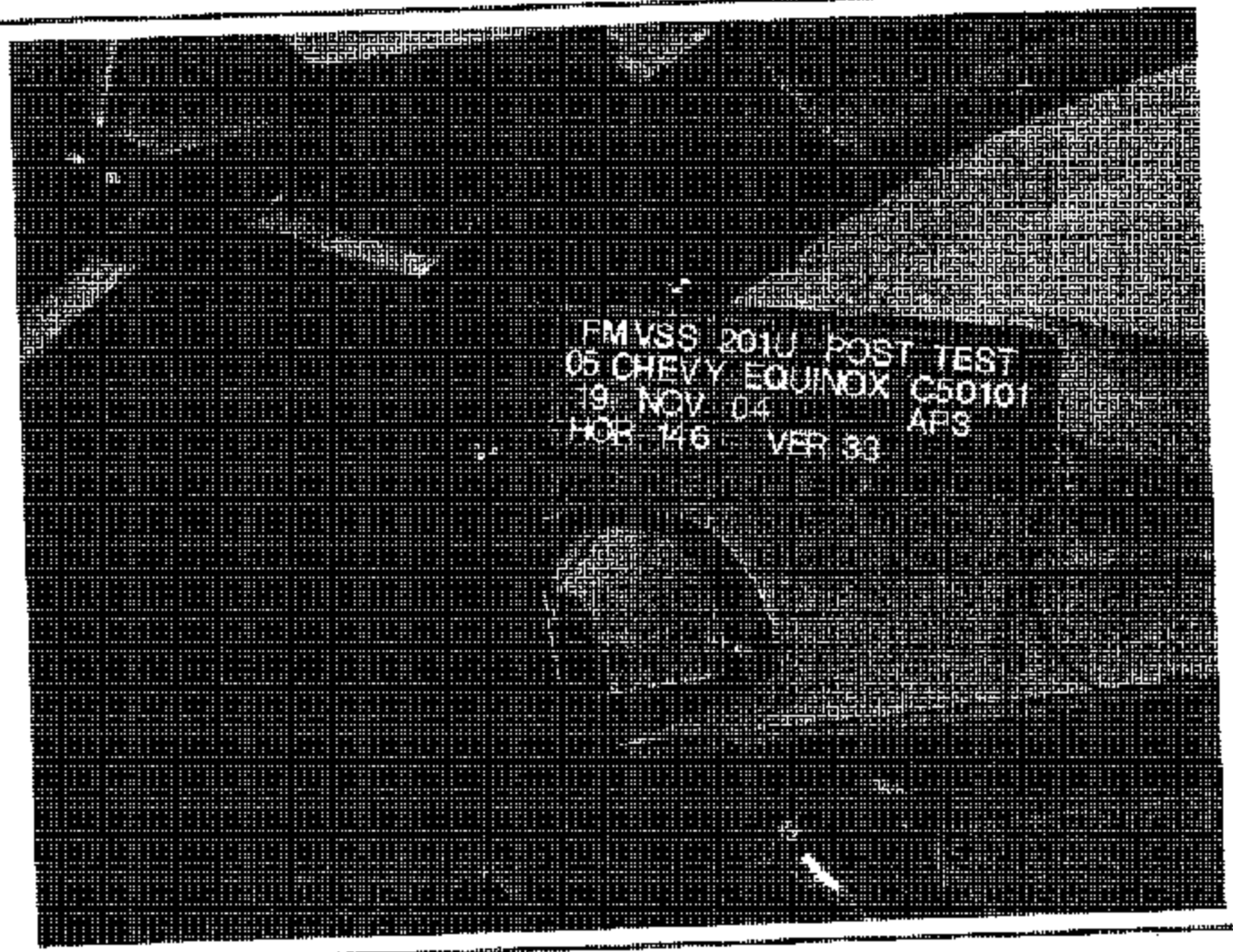
C50101 AP3 IMPACT PLOT #5

8754-FMH-02



PRE-IMPACT AP3

8754-FMII-02



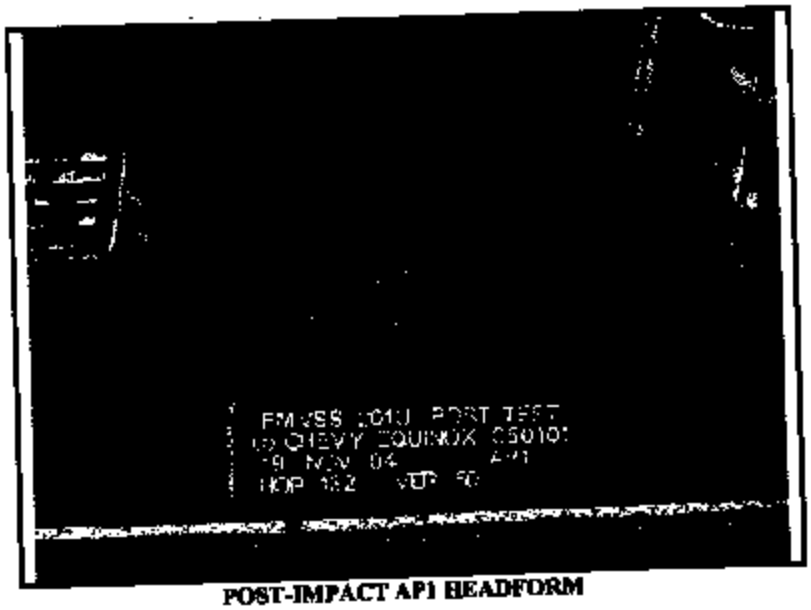
POST-IMPACT APS

8754-FMH-02

VEHICLE YEAR/MAKE/MODEL/STYLE:	2005 Chevrolet Equinox
VIN:	2CNDL73F956070947
DATE OF MANUFACTURE:	08/04(SEE CERTIFICATION LABEL)
COLOR:	Black

Test Number:	11
Test Date:	11/19/04
Target Location:	A-Pillar
Target Code:	AP1
Horizontal Impact Angle:	132°
Vertical Impact Angle:	50°
Ambient Temperature:	24.2°C
Relative Humidity:	32.6
Time of Impact:	9:45
Headform Number:	1255

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	6		mm right	x	mm left
On Centerline	22		mm up		



POST-IMPACT AP1 HEADFORM

Free Motion HIC	570.0
HIC(d)	596.5
Impact Velocity (kph)	18.40
HIC T1 (msec)	5.7
HIC T2 (msec)	9.8

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX C50101 - AP1

FMH Headform 1255

Test Date: November 19, 2004

Location: AP1

Work File: AP1

TEST RESULTS

Lab Temperature: 24.2 C

Lab Humidity: 32.6 %

Velocity at Impact: 18.40 KPH

Free Flight Distance: 214.29 mm

HICd: 596.5

HIC (36ms): 570.0

t1: 5.7 msec

t2: 9.8 msec

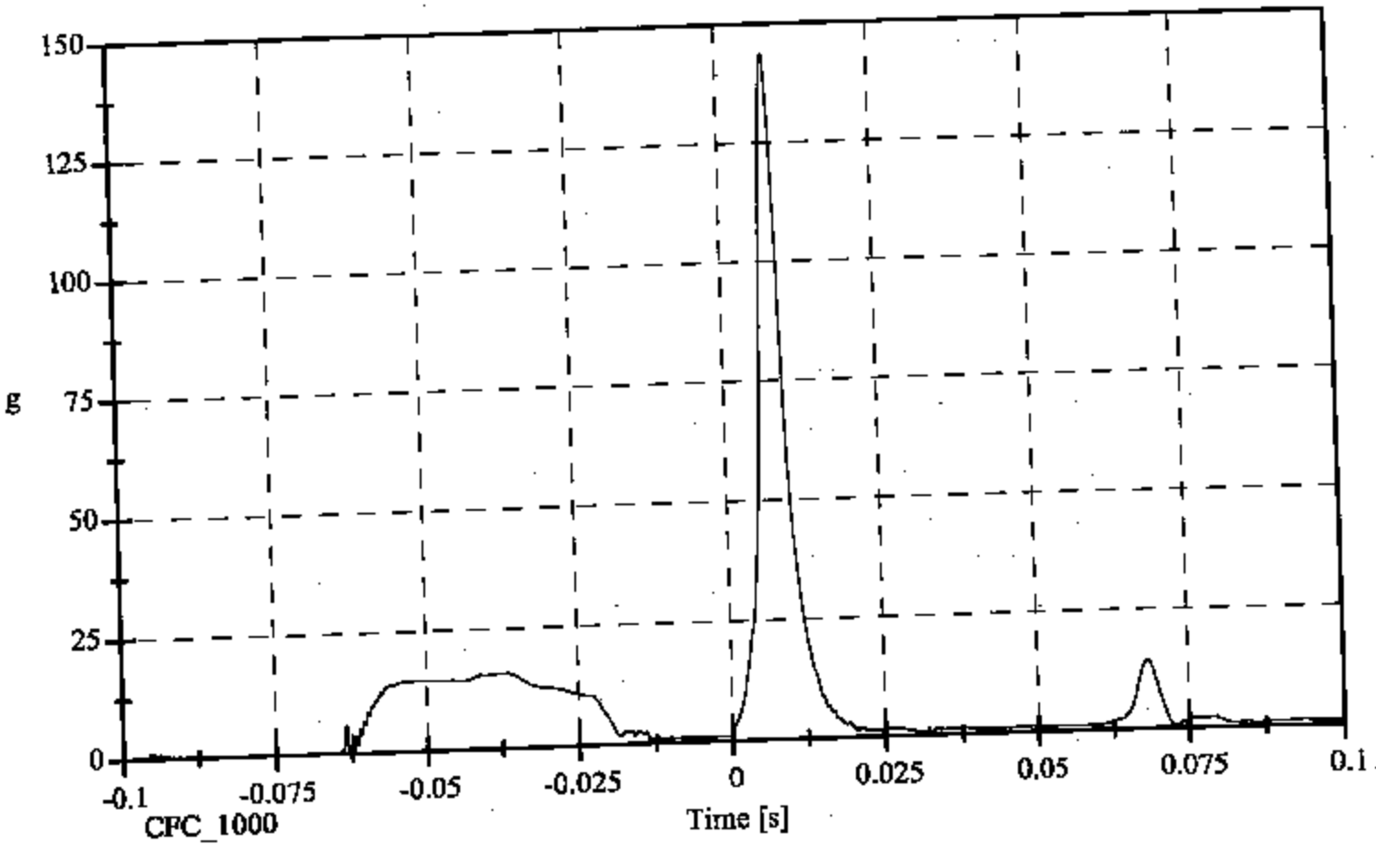
Duration: 4.1 msec

Average Acceleration: 7.4 g

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX
Headform Resultant

Max: 143.6 [g] at 0.008 [s]

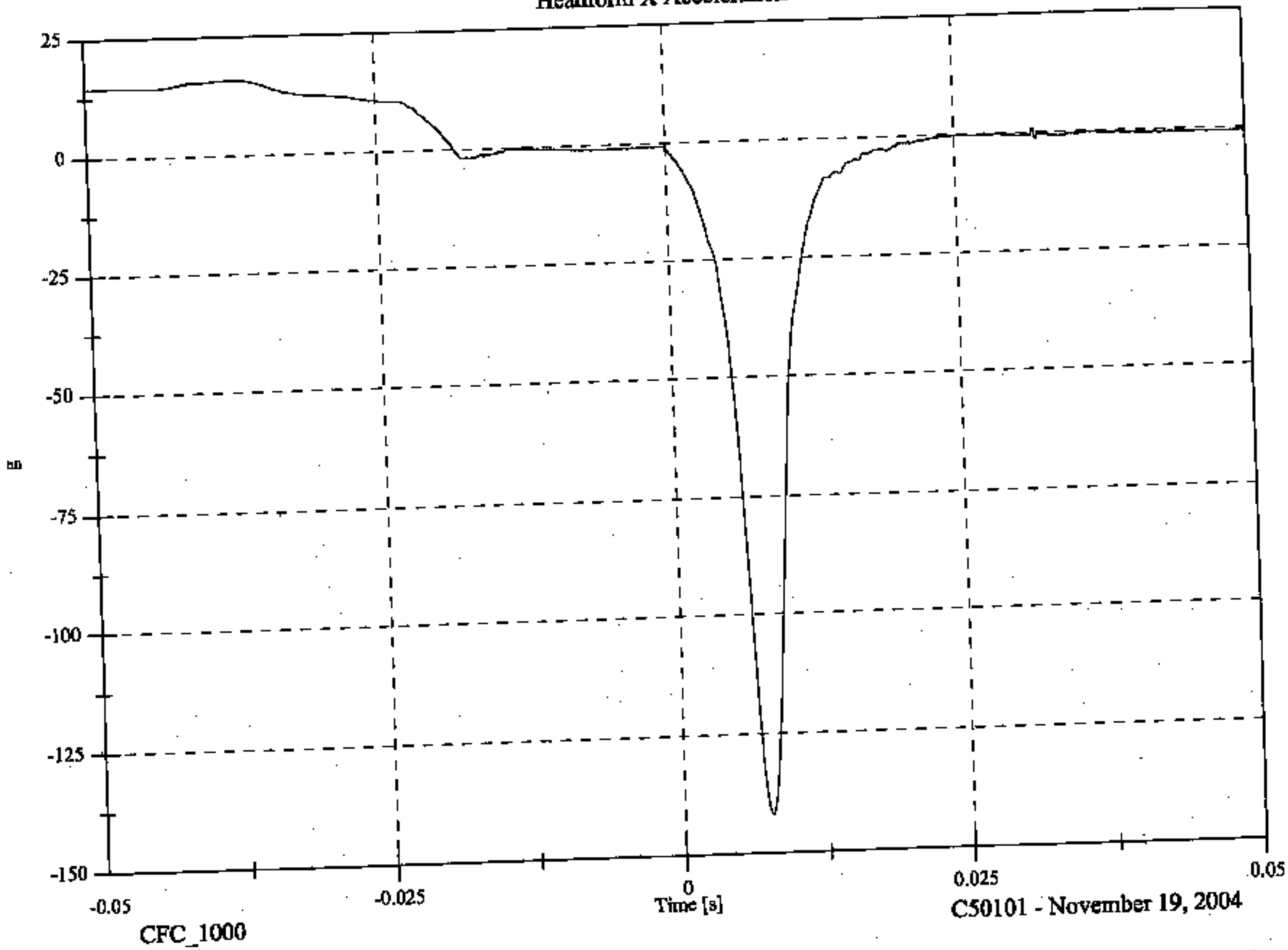
Min: 0.0 [g] at -0.082 [s]



FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform X Acceleration

Max: 15.7 [g] at -0.036 [s]
Min: -141.9 [g] at 0.008 [s]



C50101 - November 19, 2004

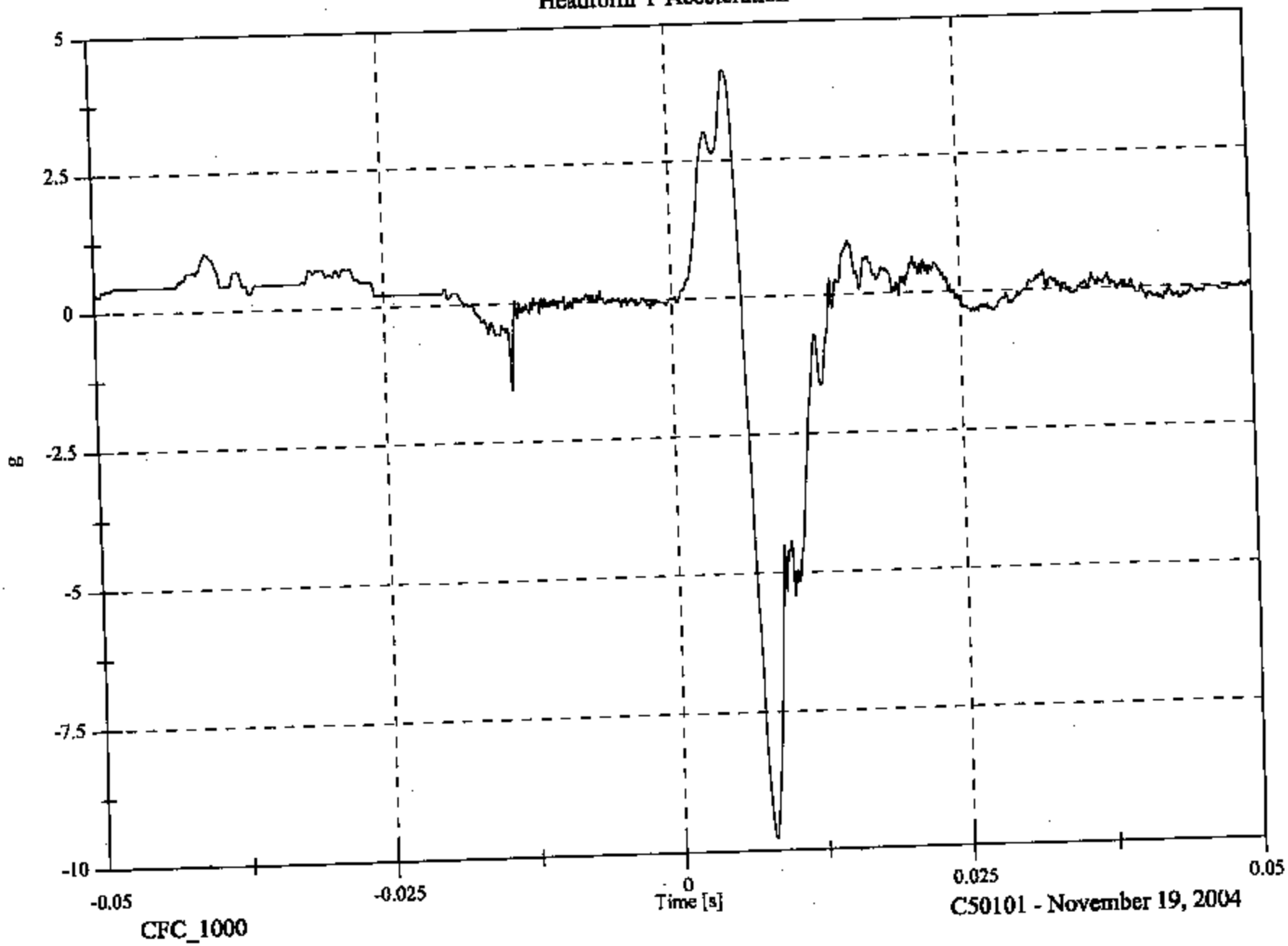
C50101 AP1 IMPACT PLOT #1

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Y Acceleration

Max: 4.1 [g] at 0.005 [s]
Min: -9.8 [g] at 0.008 [s]



CFC_1000

C50101 - November 19, 2004

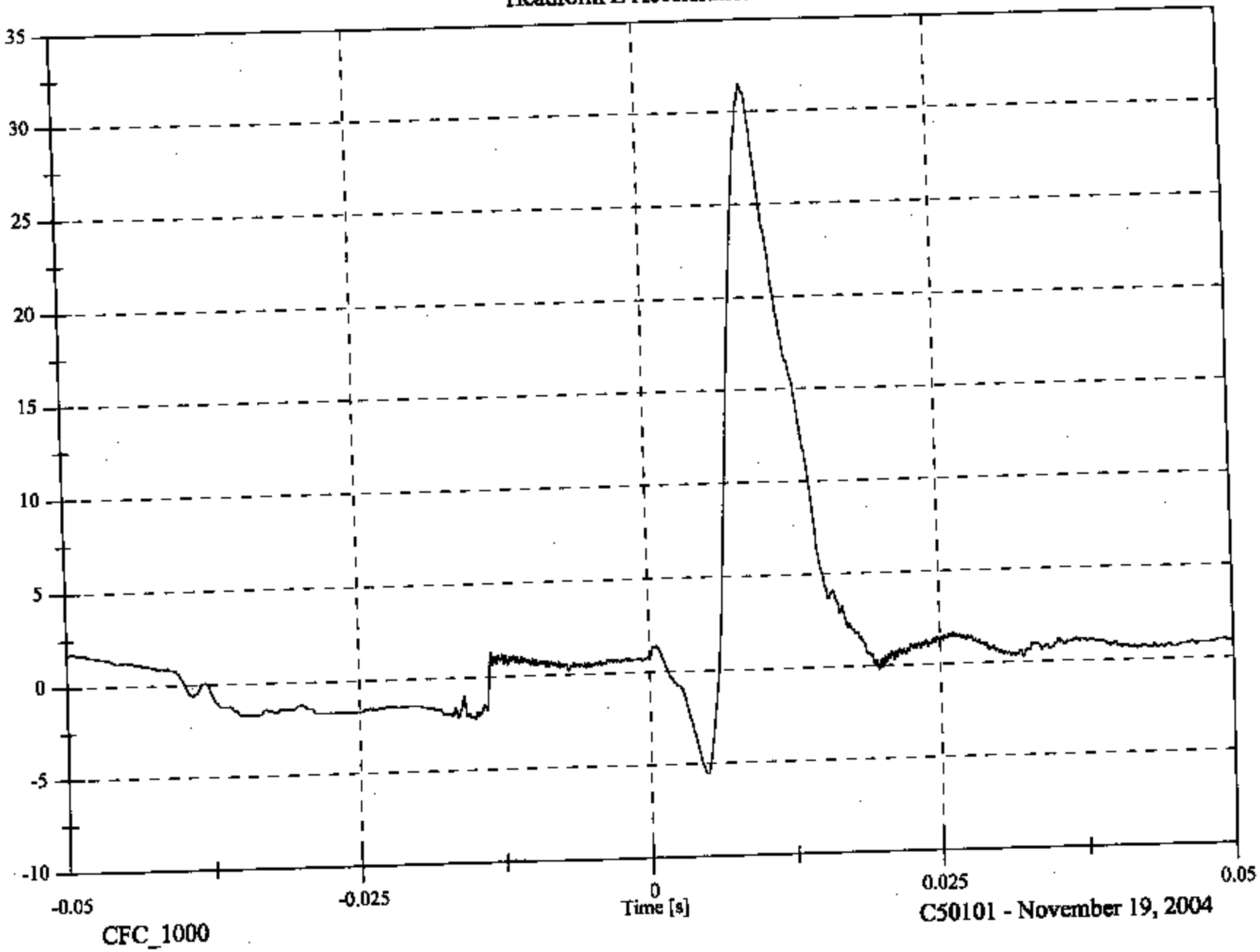
C50101 AP1 IMPACT PLOT #2

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Z Acceleration

Max: 31.5 [g] at 0.009 [s]
Min: -5.5 [g] at 0.005 [s]



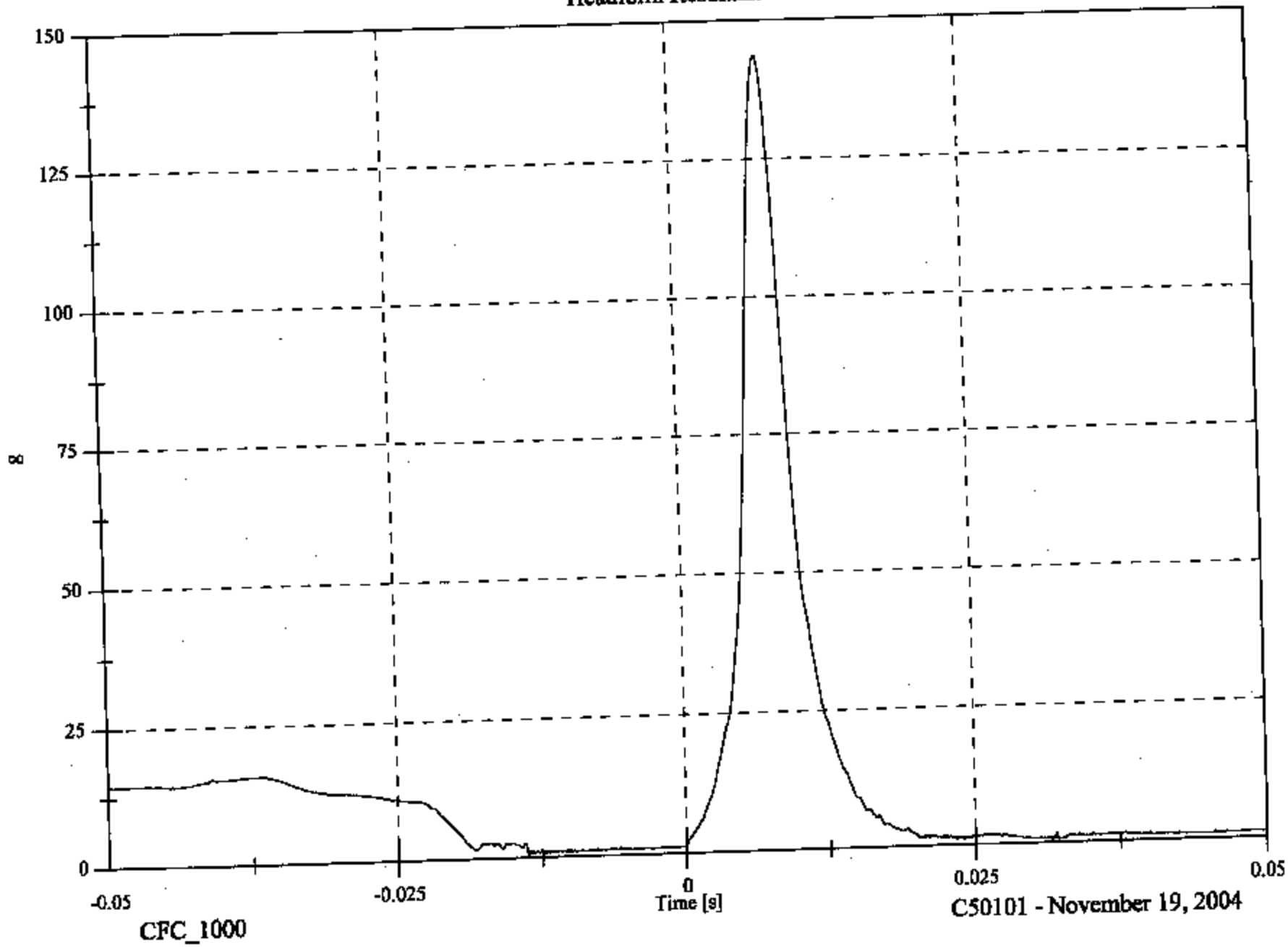
C50101 AP1 IMPACT PLOT #3

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 143.6 [g] at 0.008 [s]
Min: 0.5 [g] at -0.014 [s]



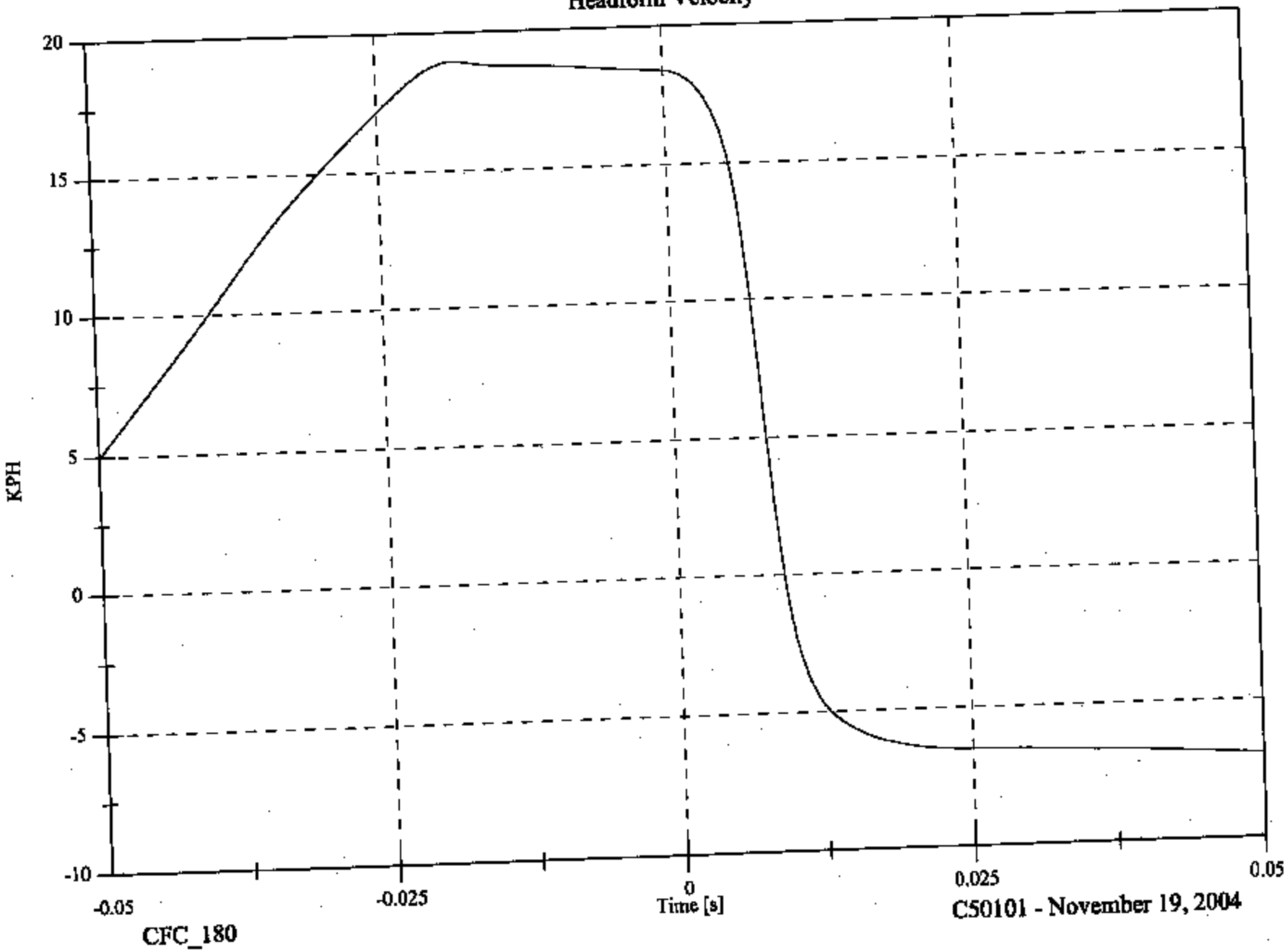
C50101 AP1 IMPACT PLOT #4

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Velocity

Max: 18.9 [KPH] at -0.018 [s]
Min: -7.0 [KPH] at 0.050 [s]

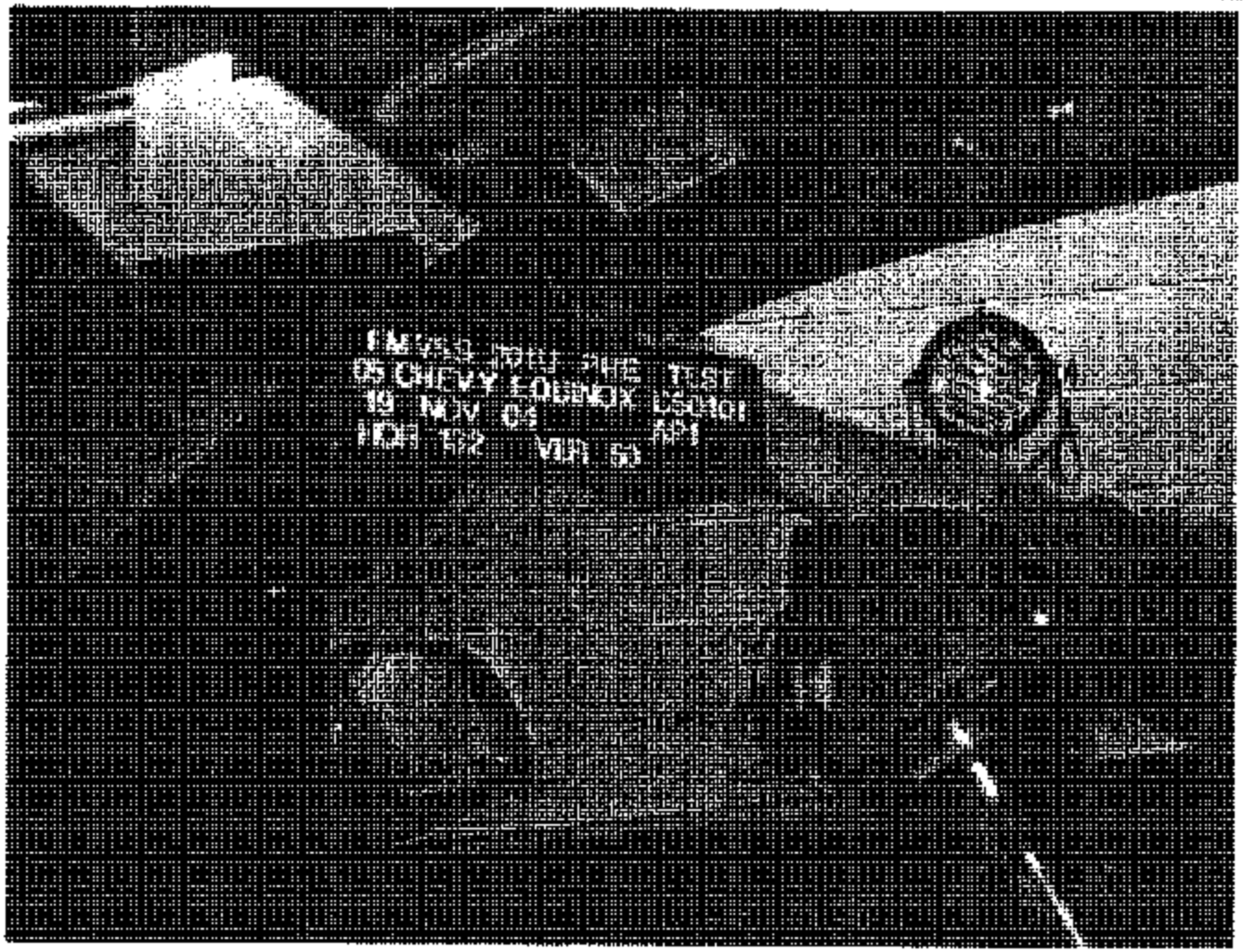


CFC_180

C50101 - November 19, 2004

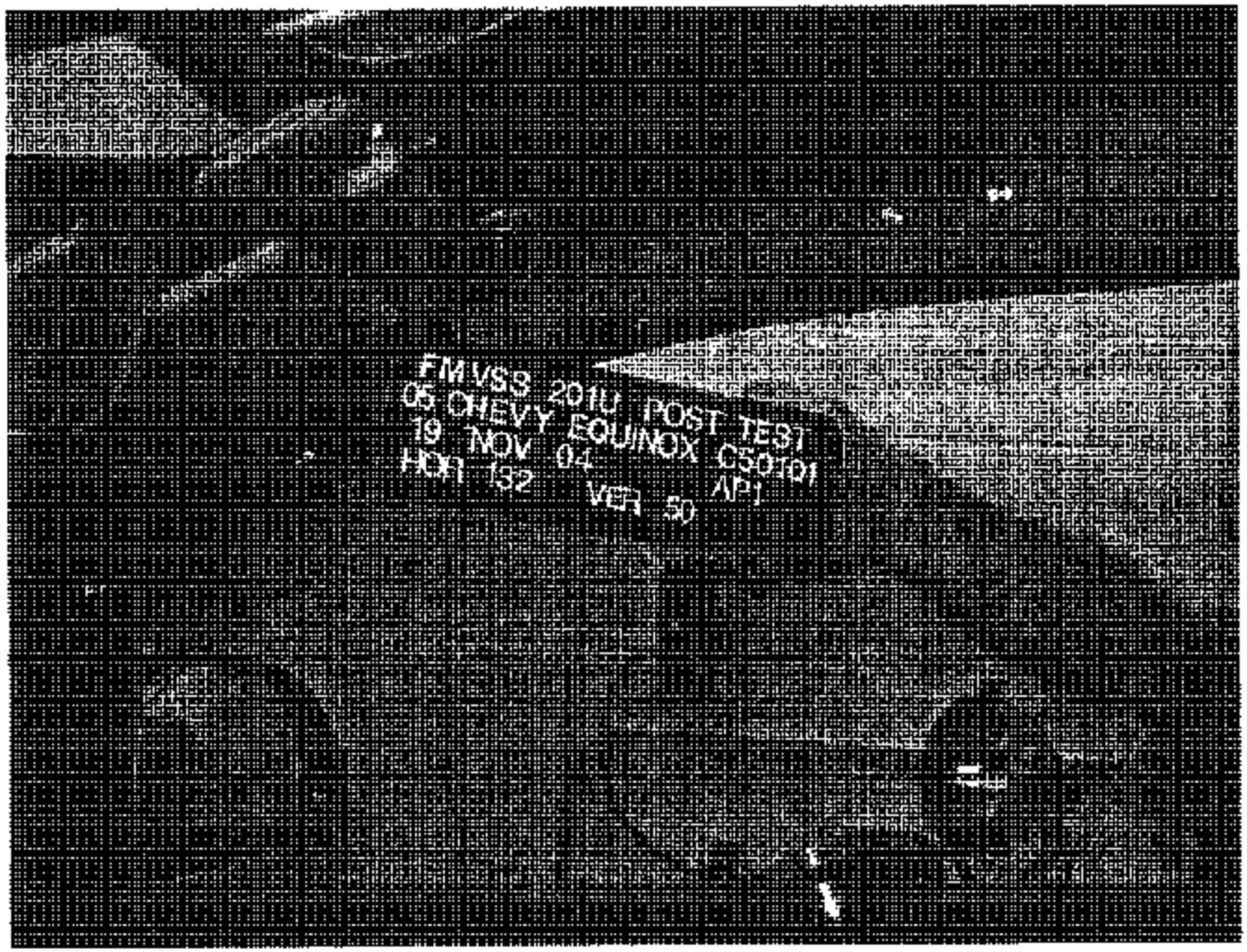
C50101 AP1 IMPACT PLOT #5

8754-FMH-02



PRE-IMPACT AP1

8754-FMH-02



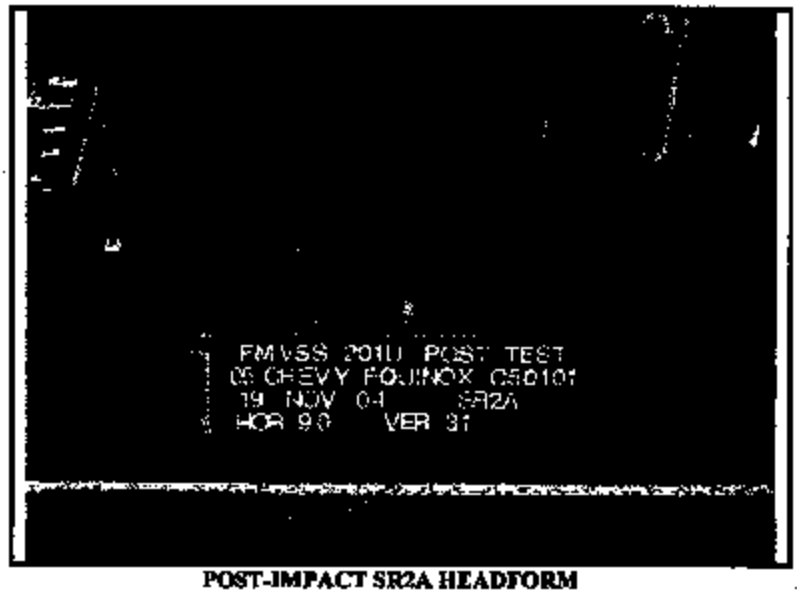
POST-IMPACT AP1

E754-FMH-02

VEHICLE YEAR/MAKE/MODEL/STYLE:	2005 Chevrolet Equinox
VIN:	2CNDL73F956070947
DATE OF MANUFACTURE:	08/04(SEE CERTIFICATION LABEL)
COLOR:	Black

Test Number:	12
Test Date:	11/19/04
Target Location:	Side Rail
Target Code:	SR2A
Horizontal Impact Angle:	90°
Vertical Impact Angle:	31°
Ambient Temperature:	23.0°C
Relative Humidity:	33.6
Time of Impact:	10:10
Headform Number:	0355

Impact Point Description (from lower midpoint on midsagittal line)					
On Centerline	2	x	mm right		mm left
On Centerline	15		mm up		



POST-IMPACT SR2A HEADFORM

Free Motion HIC	171.9
HIC(d)	296.1
Impact Velocity (kph)	18.54
HIC T1 (msec)	5.9
HIC T2 (msec)	22.0

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX C50101 - SR2A

FMH Headform 0355

Test Date: November 19, 2004

Location: SR2A

Work File: SR2A

TEST RESULTS

Lab Temperature: 23.0 C

Lab Humidity: 33.6 %

Velocity at Impact: 18.54 KPH

Free Flight Distance: 217.37 mm

HICd: 296.1

HIC (36ms): 171.9

t1: 5.9 msec

t2: 22.0 msec

Duration: 16.1 msec

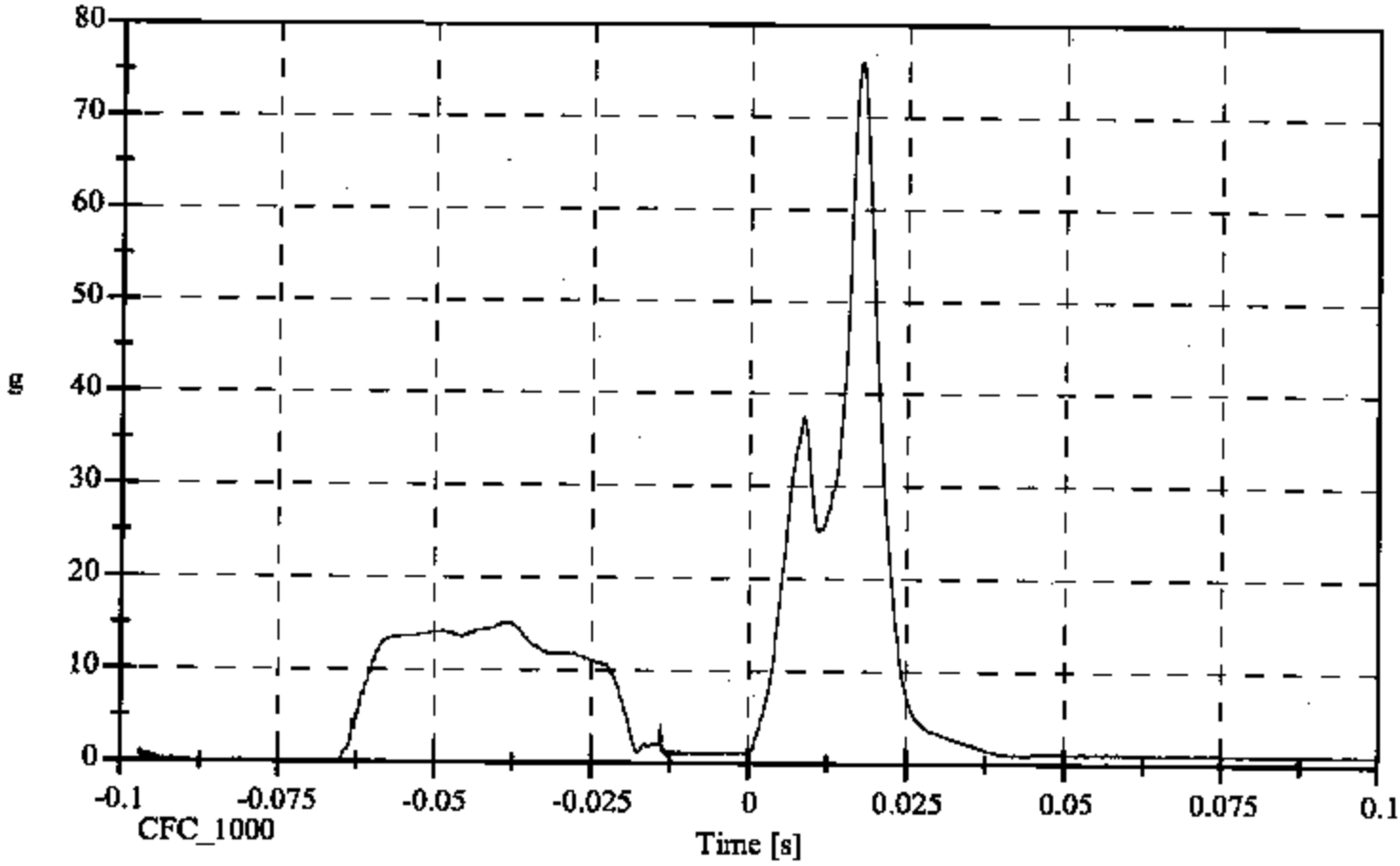
Average Acceleration: 7.3 g

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 76.1 [g] at 0.018 [s]

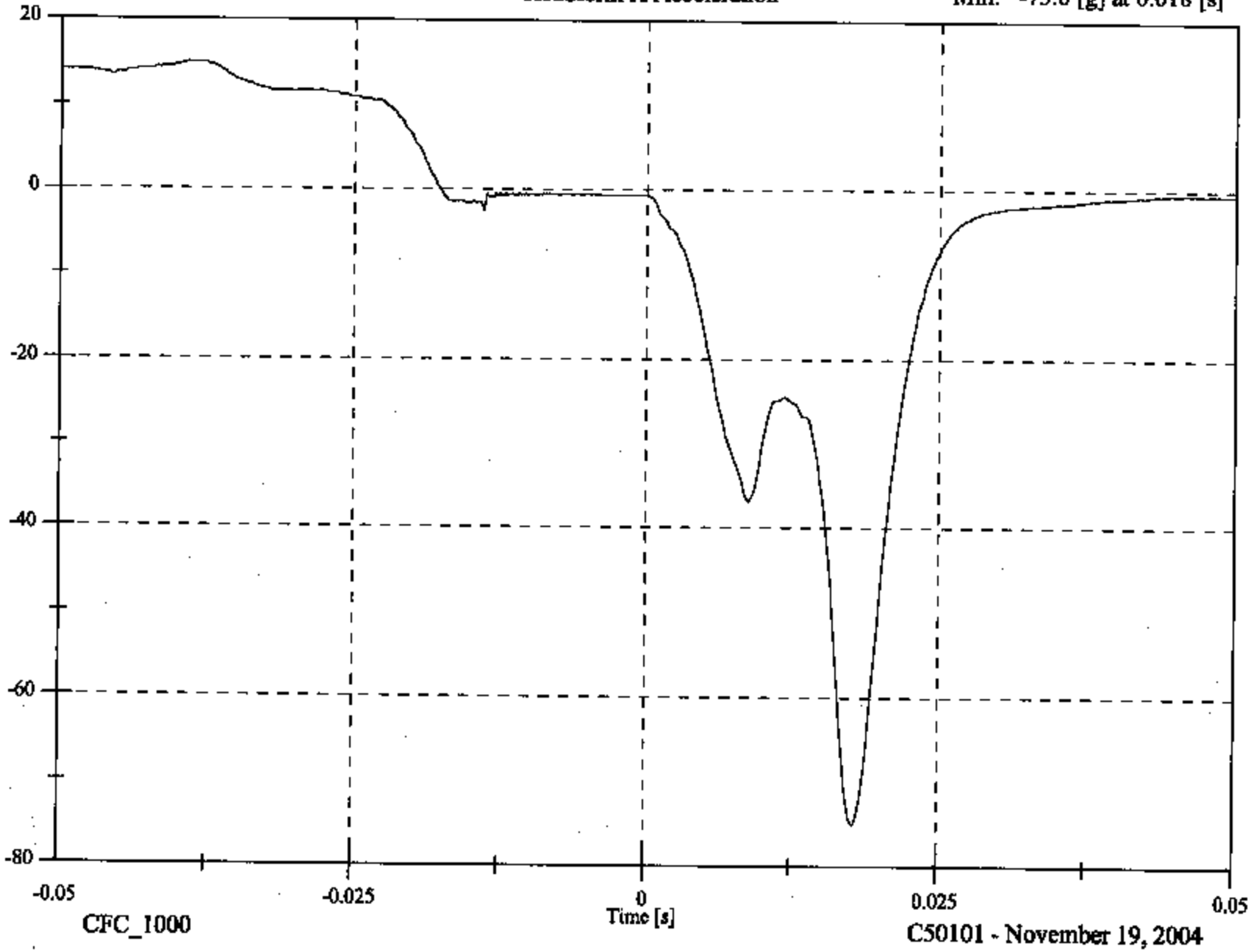
Min: 0.0 [g] at -0.089 [s]



FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform X Acceleration

Max: 15.0 [g] at -0.038 [s]
Min: -75.0 [g] at 0.018 [s]



CFC_1000

C50101 - November 19, 2004

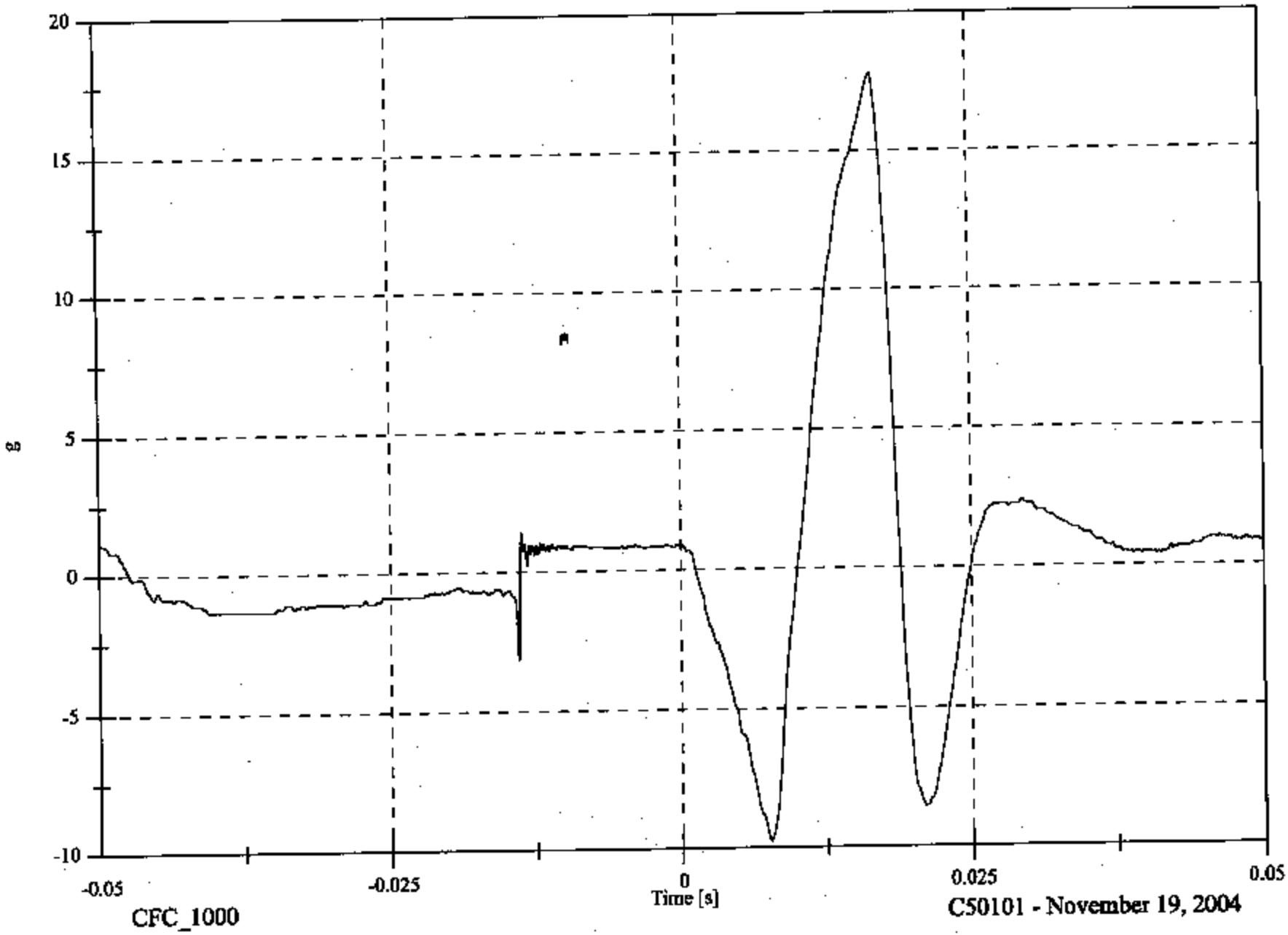
C50101 SR2A IMPACT PLOT #1

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Z Acceleration

Max: 17.8 [g] at 0.017 [s]
Min: -9.8 [g] at 0.008 [s]



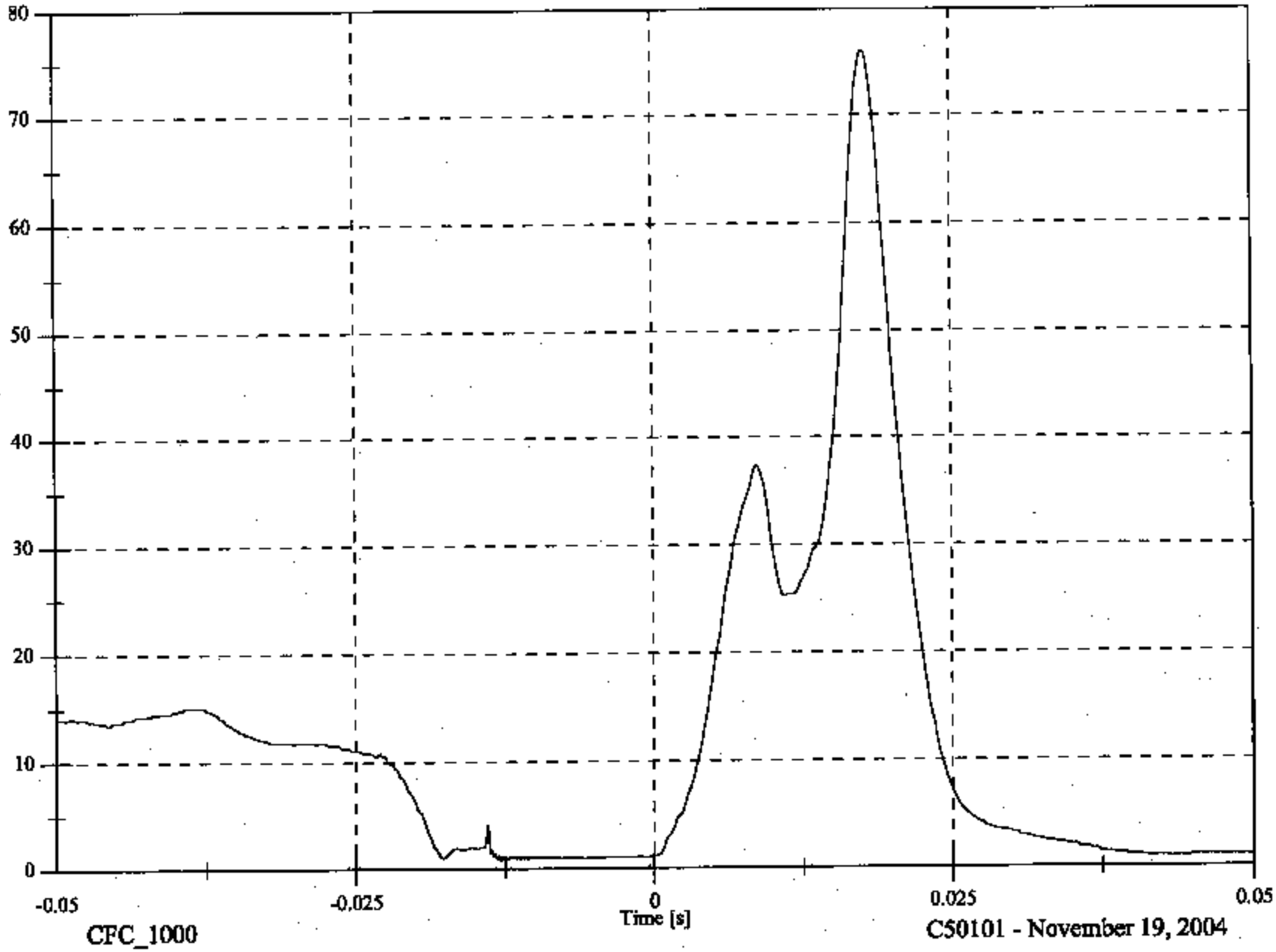
C50101 SR2A IMPACT PLOT #3

8754-FMH-02

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

Headform Resultant

Max: 76.1 [g] at 0.018 [s]
Min: 0.8 [g] at -0.013 [s]



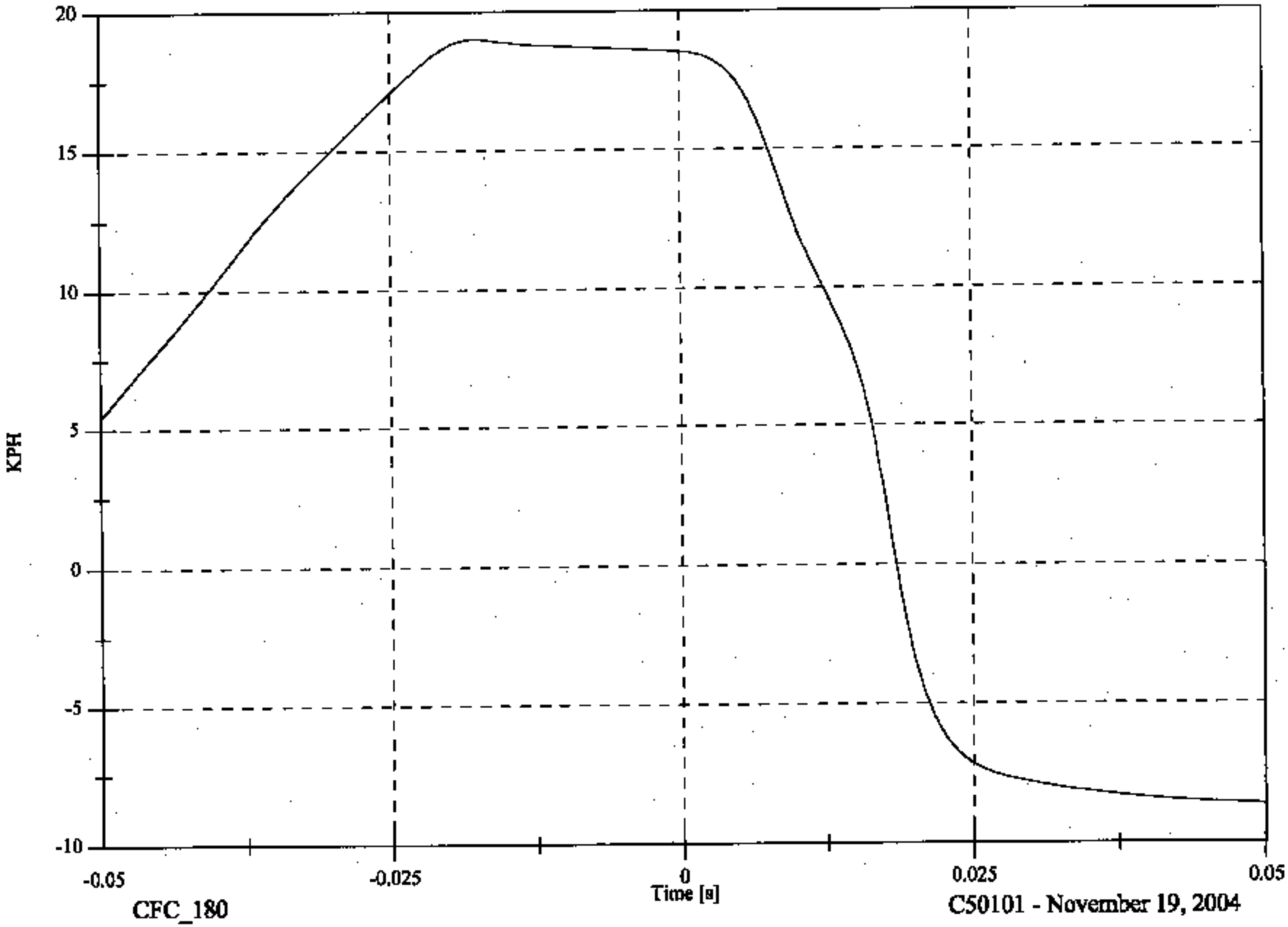
CFC_1000

C50101 - November 19, 2004

FMVSS 201U IMPACT TEST - 2005 CHEVY EQUINOX

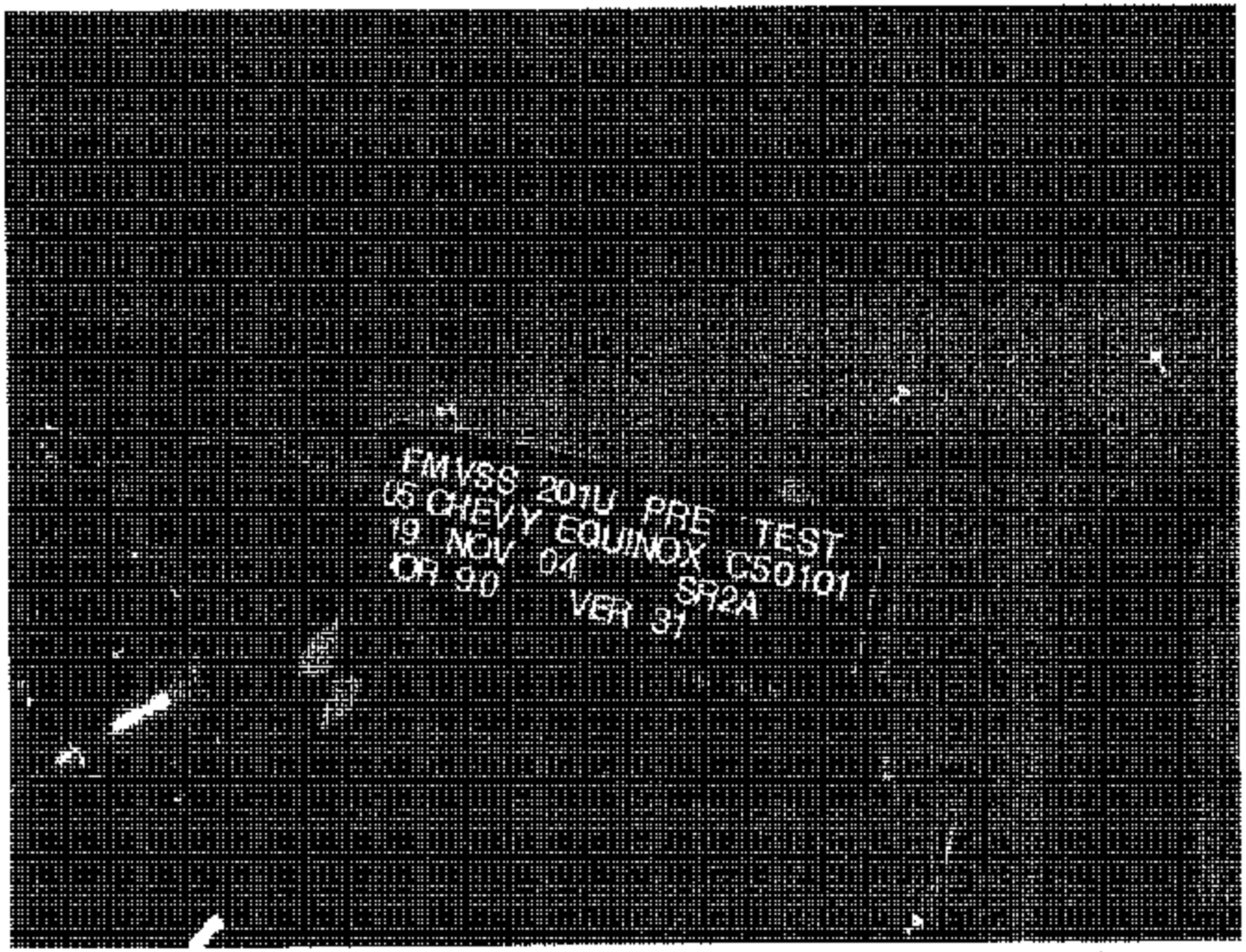
Headform Velocity

Max: 19.0 [KPH] at -0.018 [s]
Min: -8.7 [KPH] at 0.050 [s]



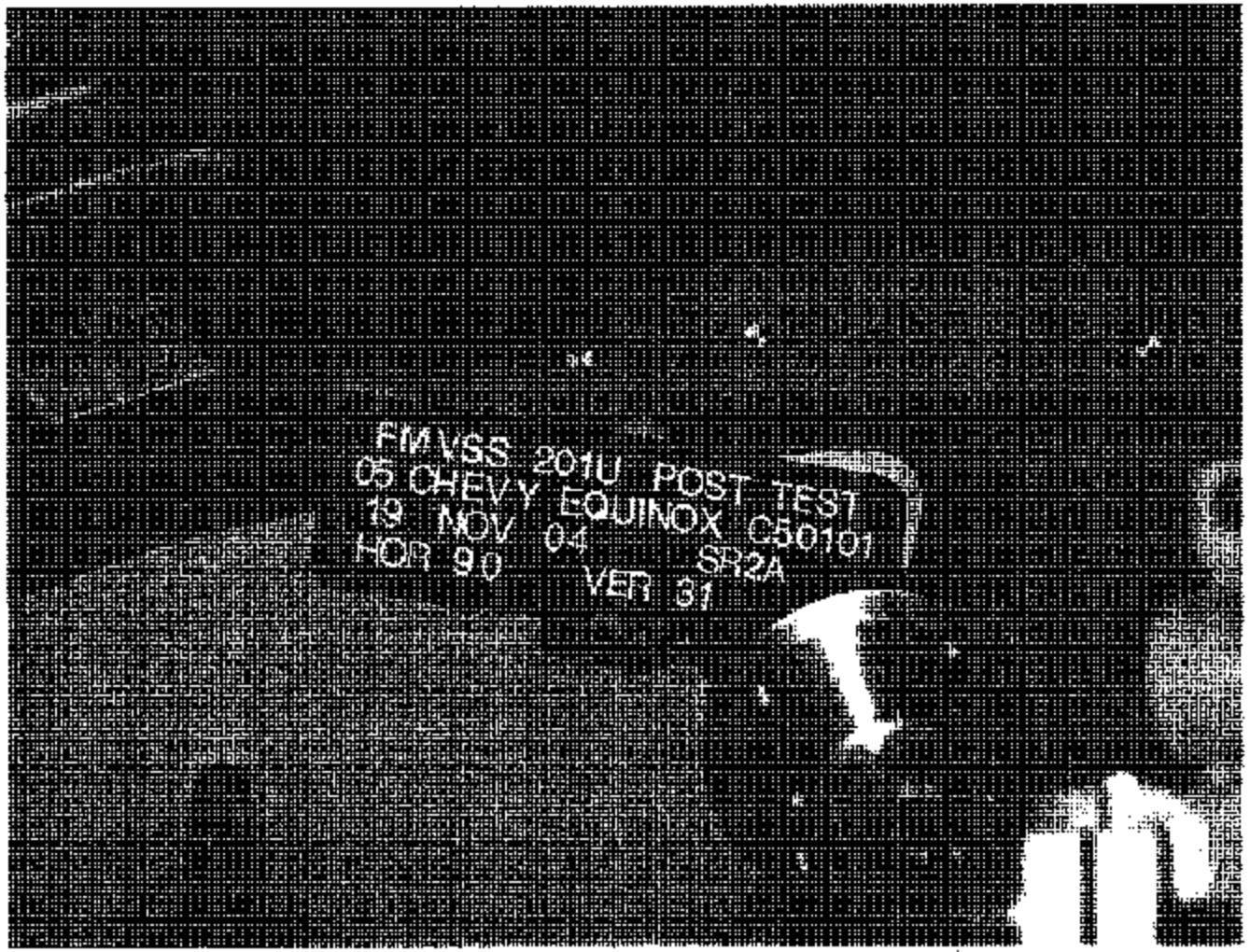
C50101 SR2A IMPACT PLOT #5

8754-FMH-02



PRE-IMPACT SP2A

8754-FMH-02



POST-IMPACT SR2A

8754-FMH-02

APPENDIX A

PHOTOGRAPHS

PHOTOGRAPHS

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

Figure A-1 : LEFT SIDE VIEW OF VEHICLE

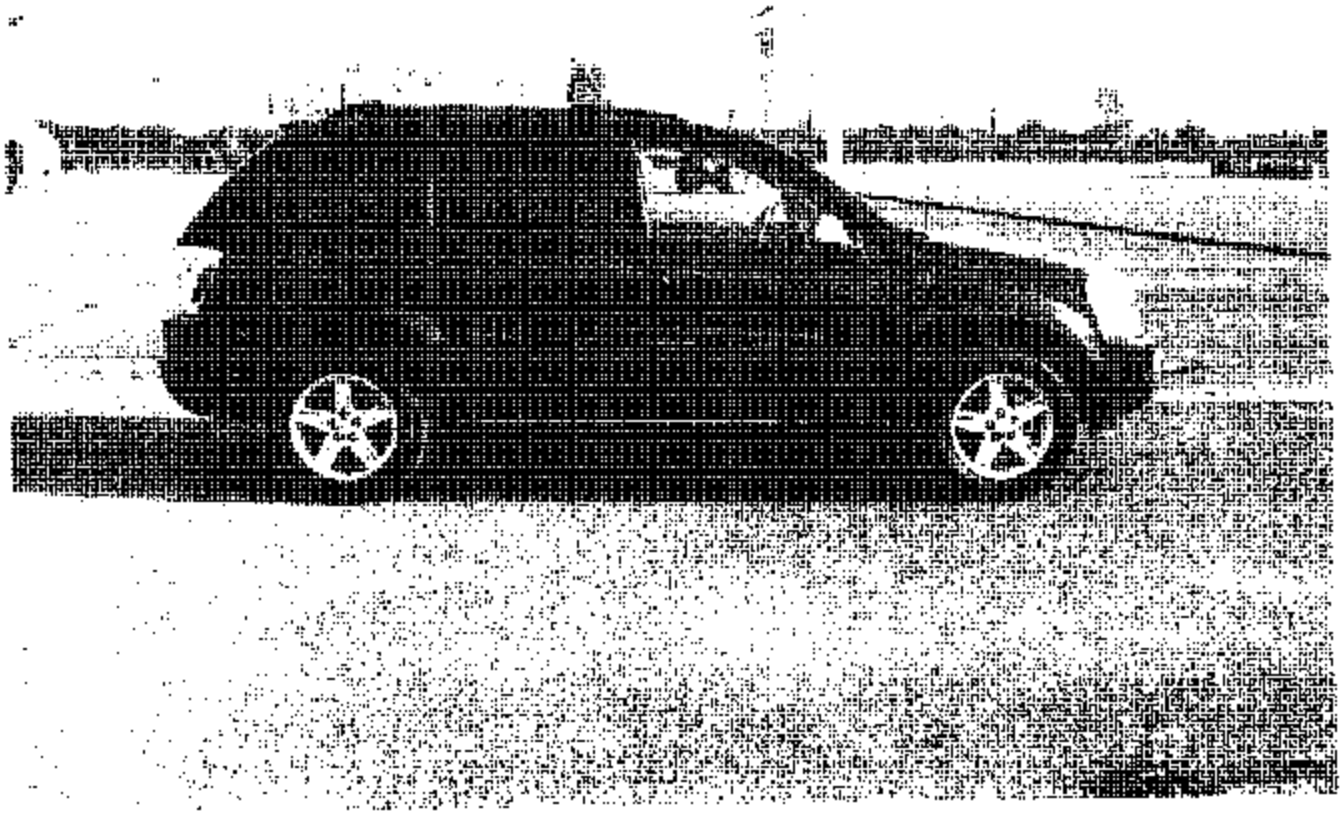


Figure A-2 : RIGHT SIDE VIEW OF VEHICLE

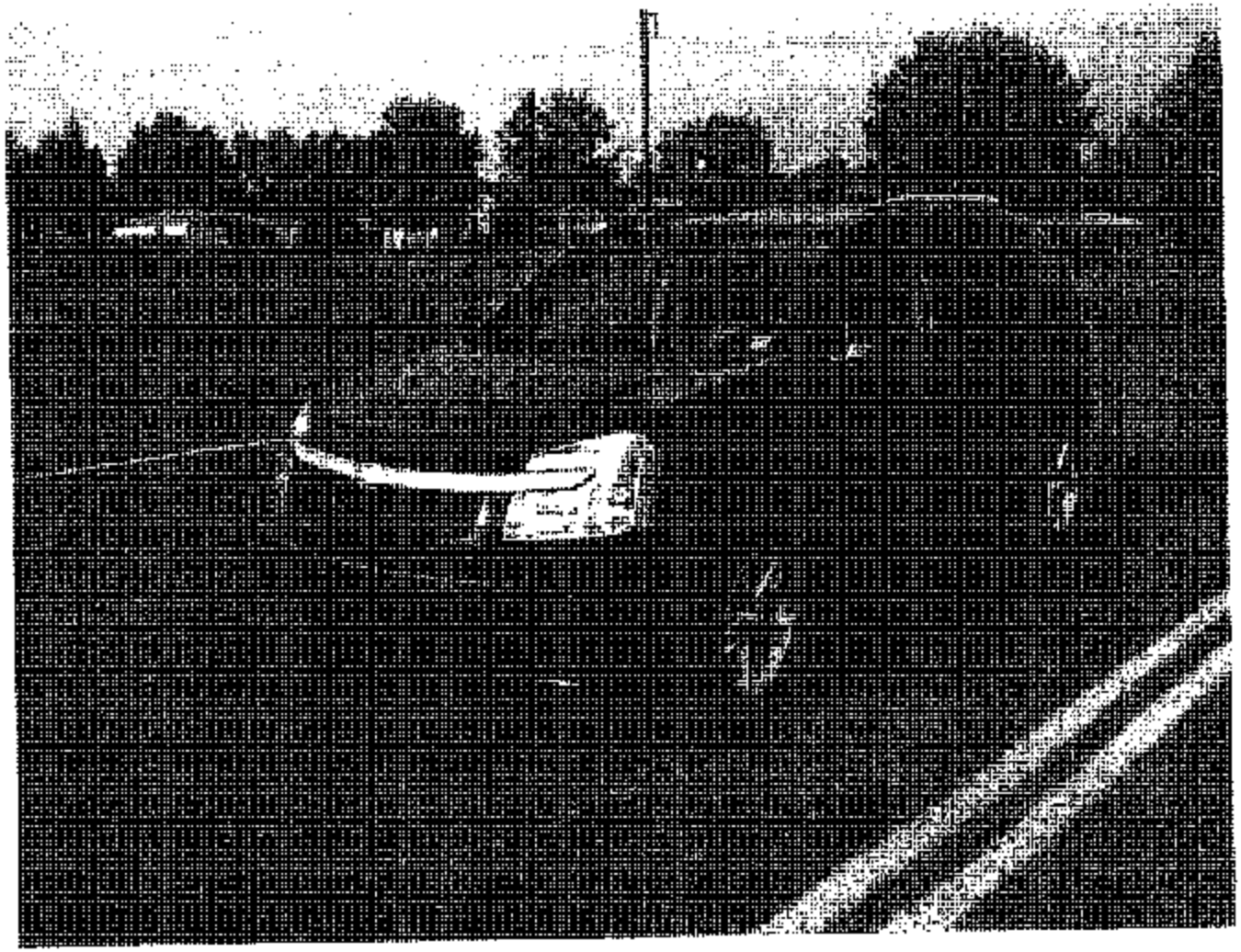


Figure A-3 : 3/4 FRONTAL VIEW FROM LEFT SIDE OF VEHICLE

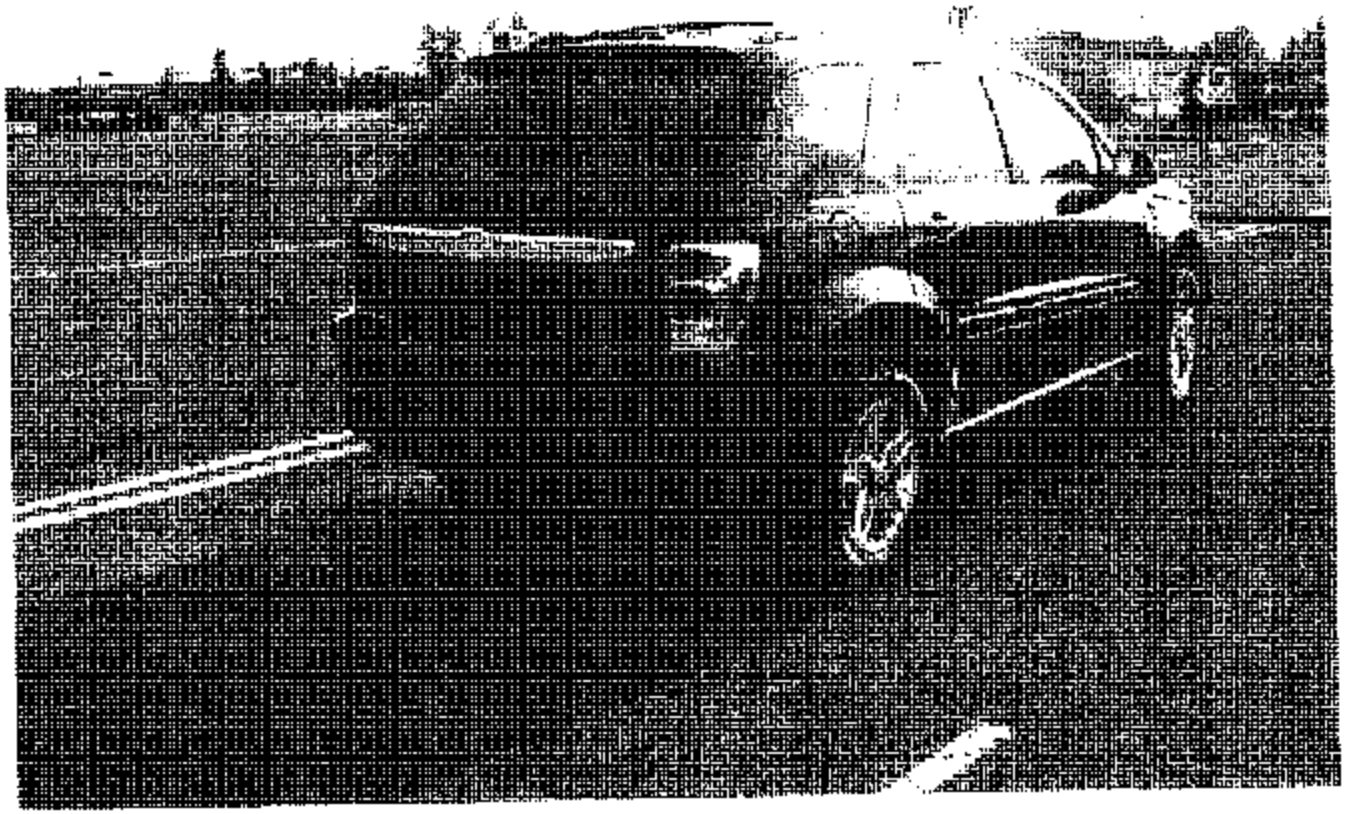


Figure A-4 : 3/4 REAR VIEW FROM RIGHT SIDE OF VEHICLE

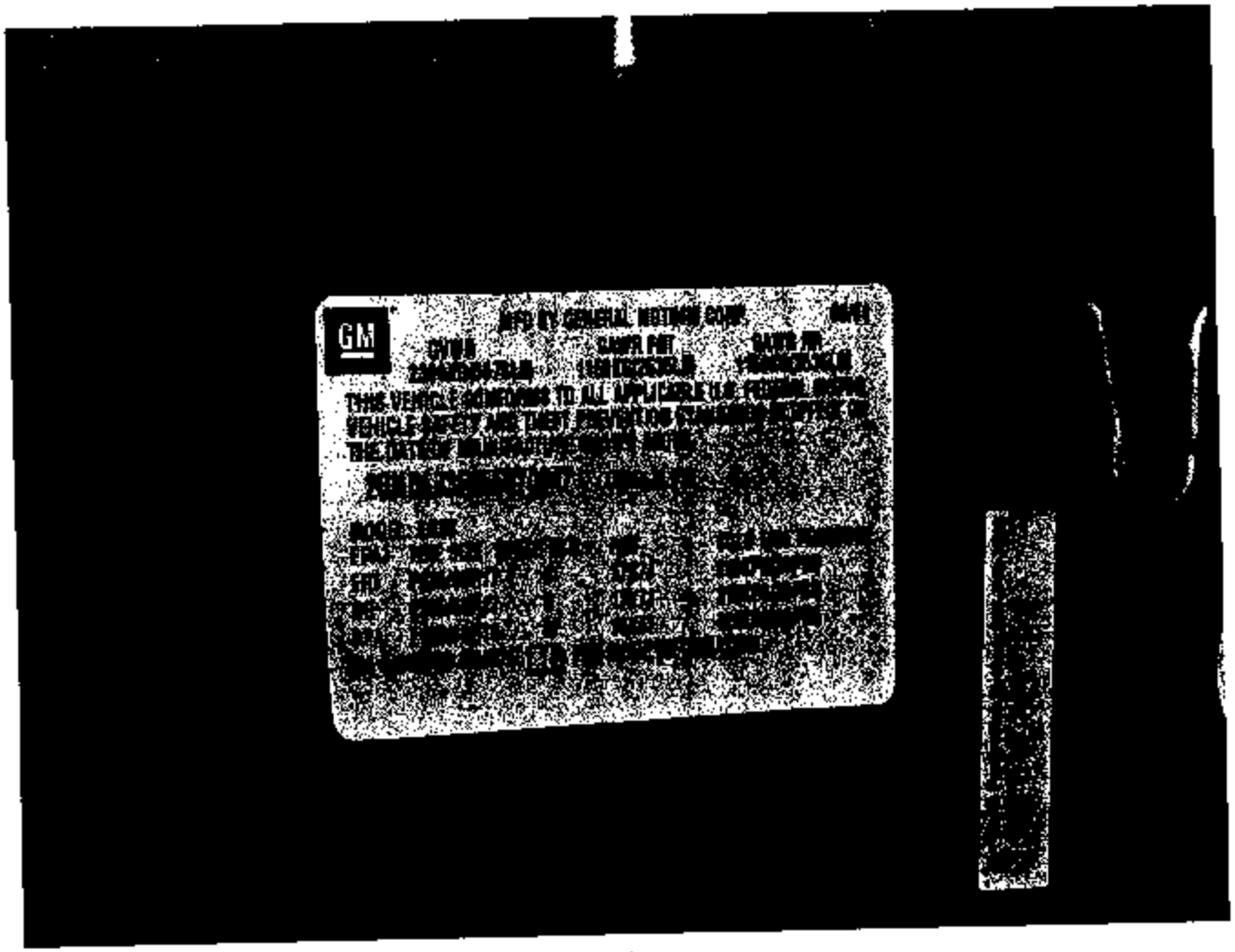


Figure A-5 : VEHICLE'S CERTIFICATION LABEL

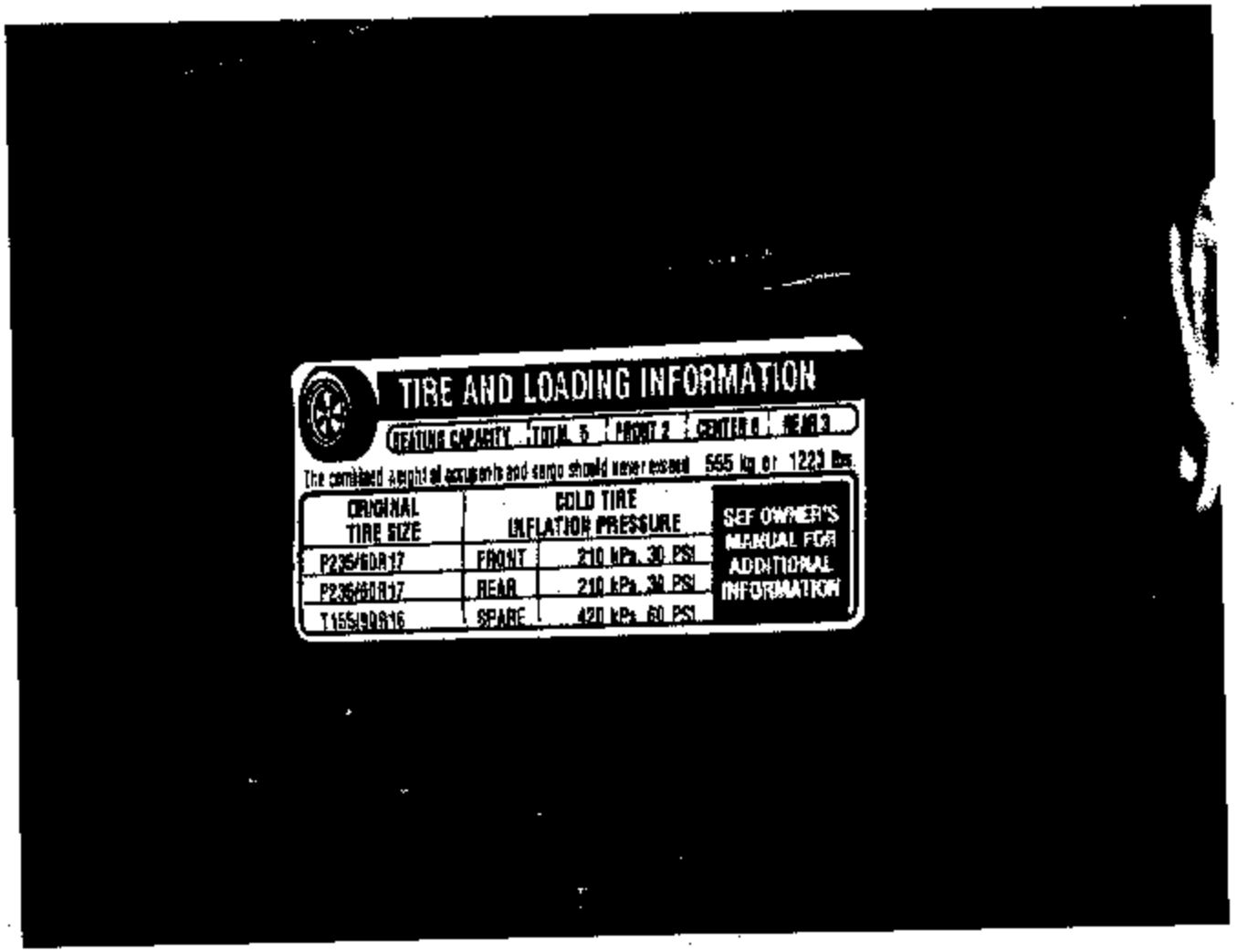


Figure A-6 : VEHICLE'S TIRE INFORMATION LABEL

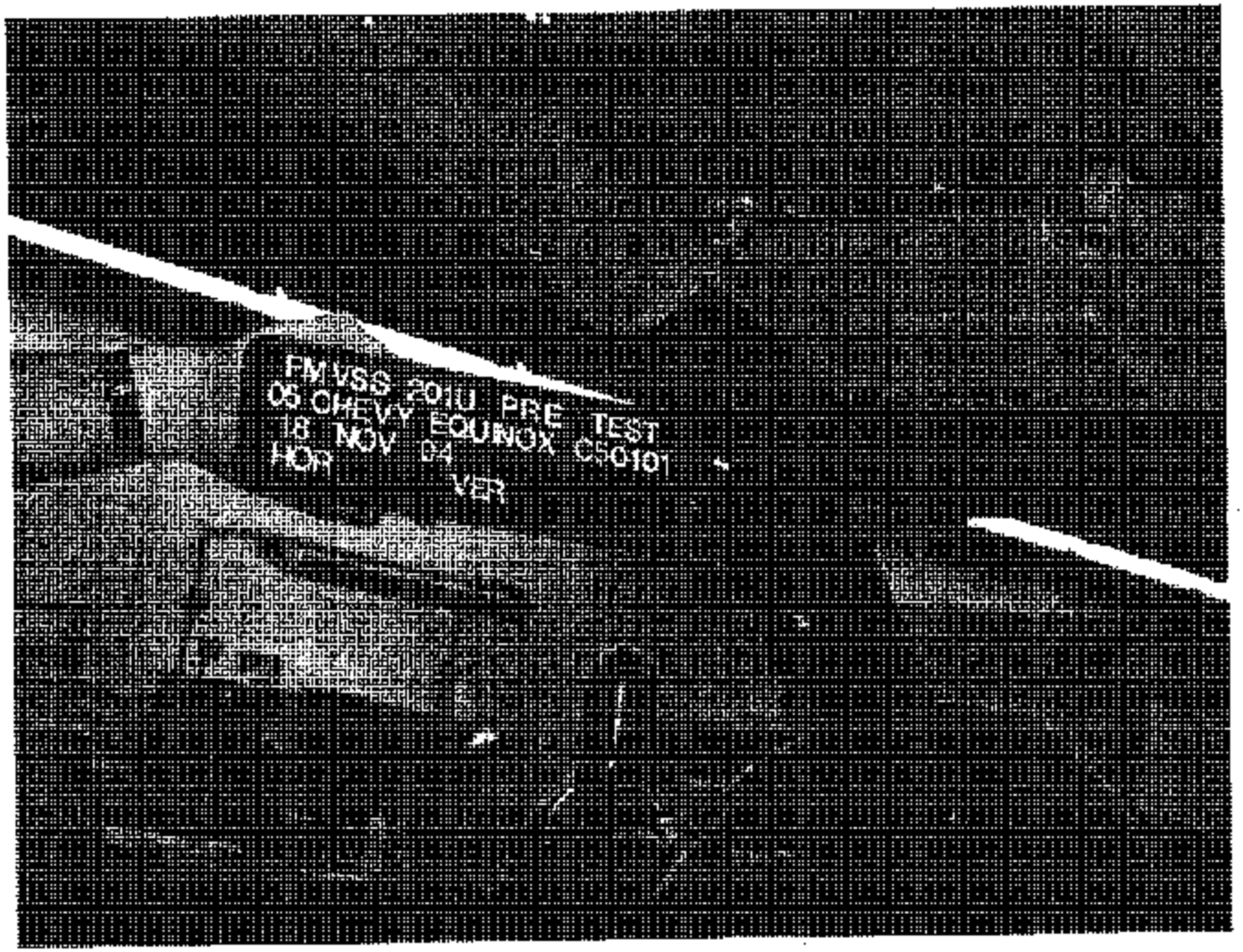


Figure A-7 : PRE-TEST DRIVER SIDE A-PILLAR

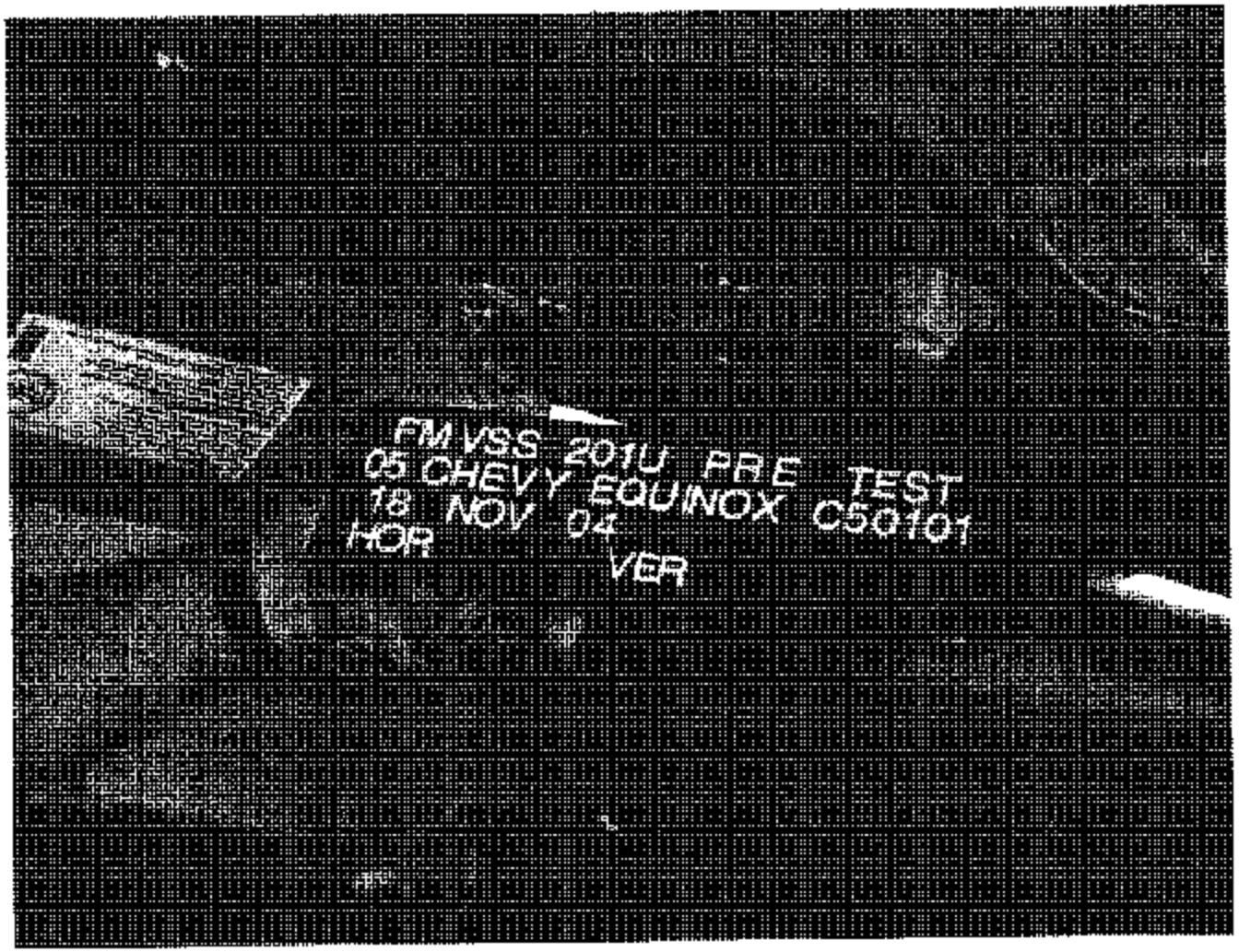


Figure A-8 : PRE-TEST DRIVER SIDE FRONT HEADER.

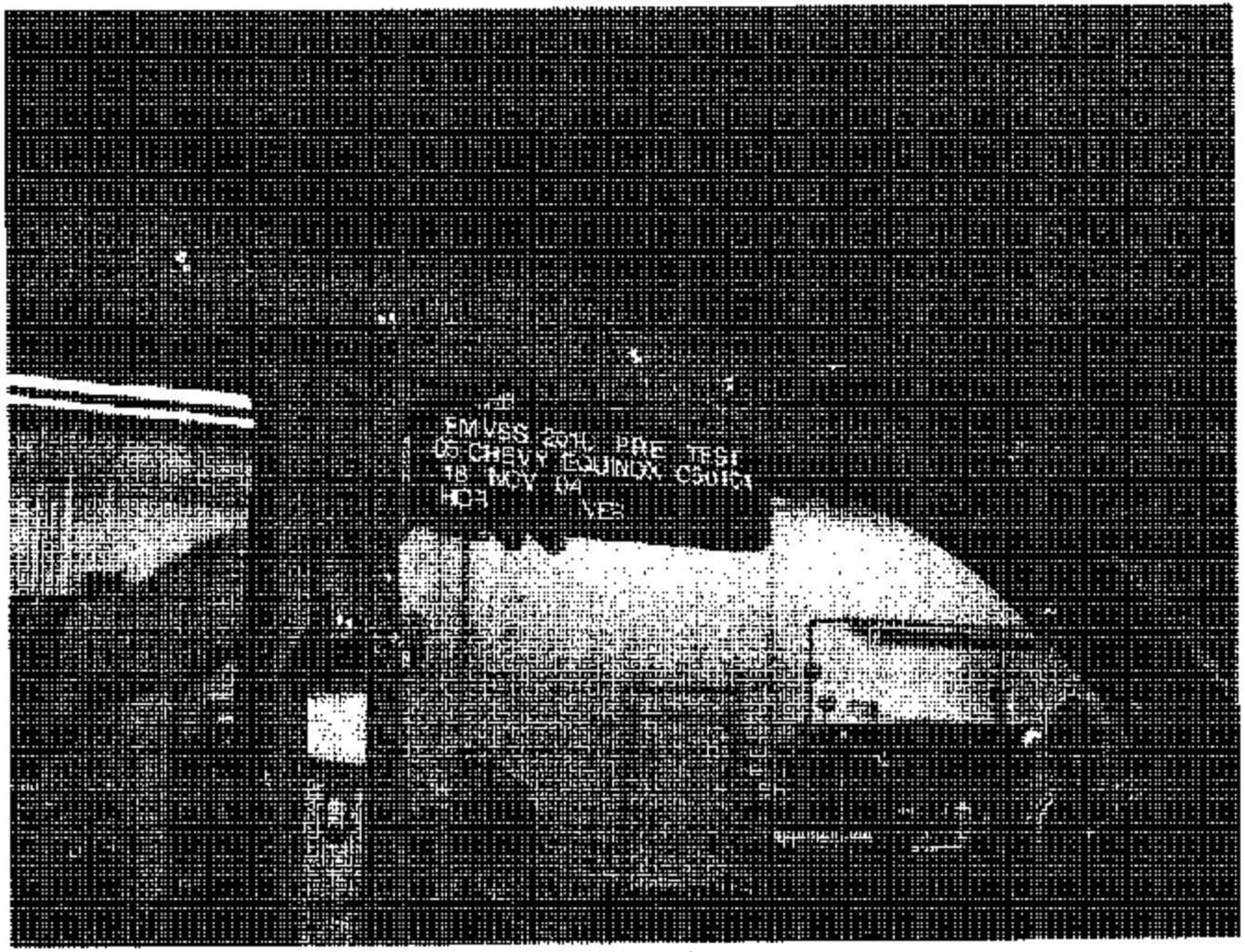


Figure A-9 : PRE-TEST DRIVER SIDE SIDE RAIL.

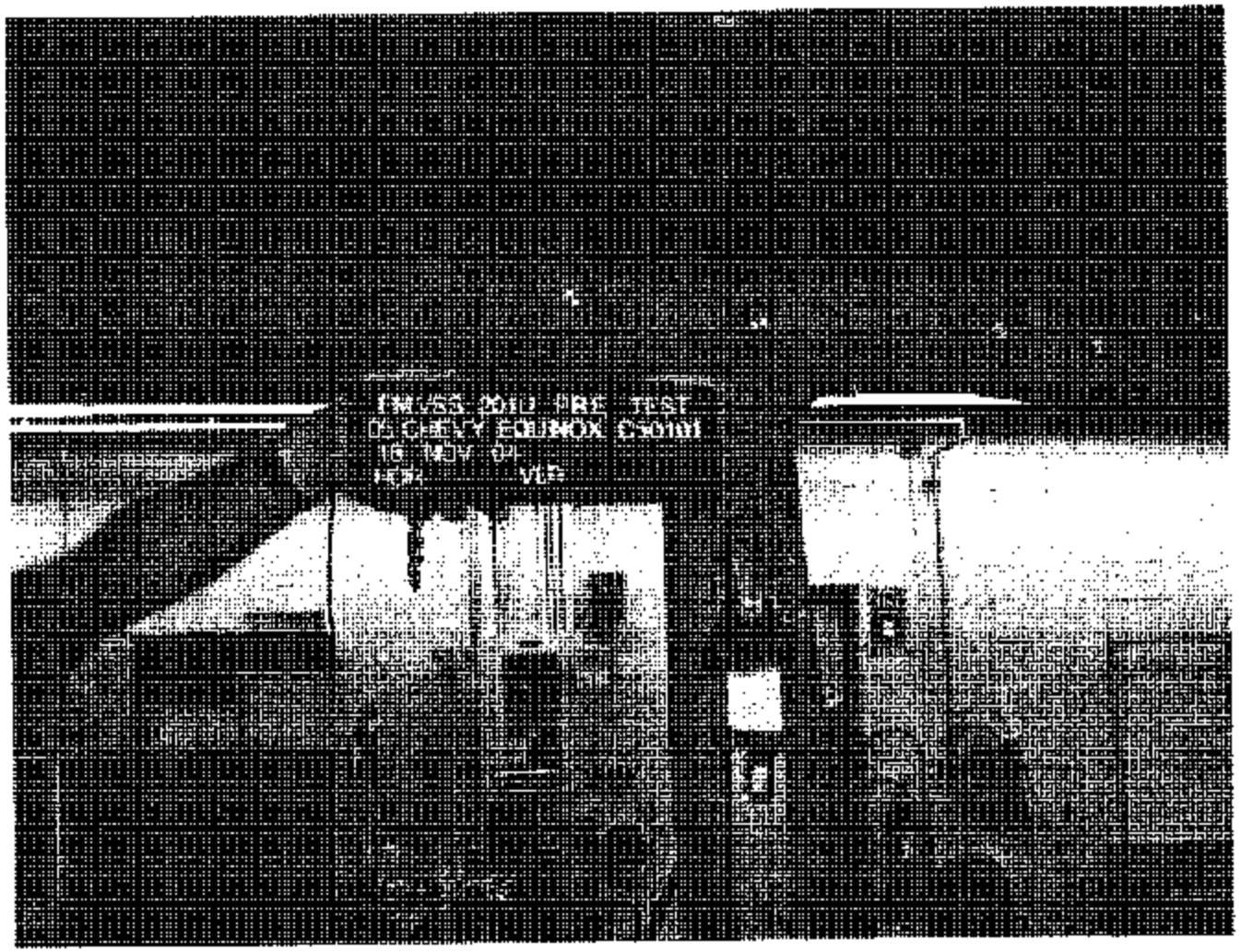


Figure A-10 : PRE-TEST DRIVER SIDE B-PILLAR

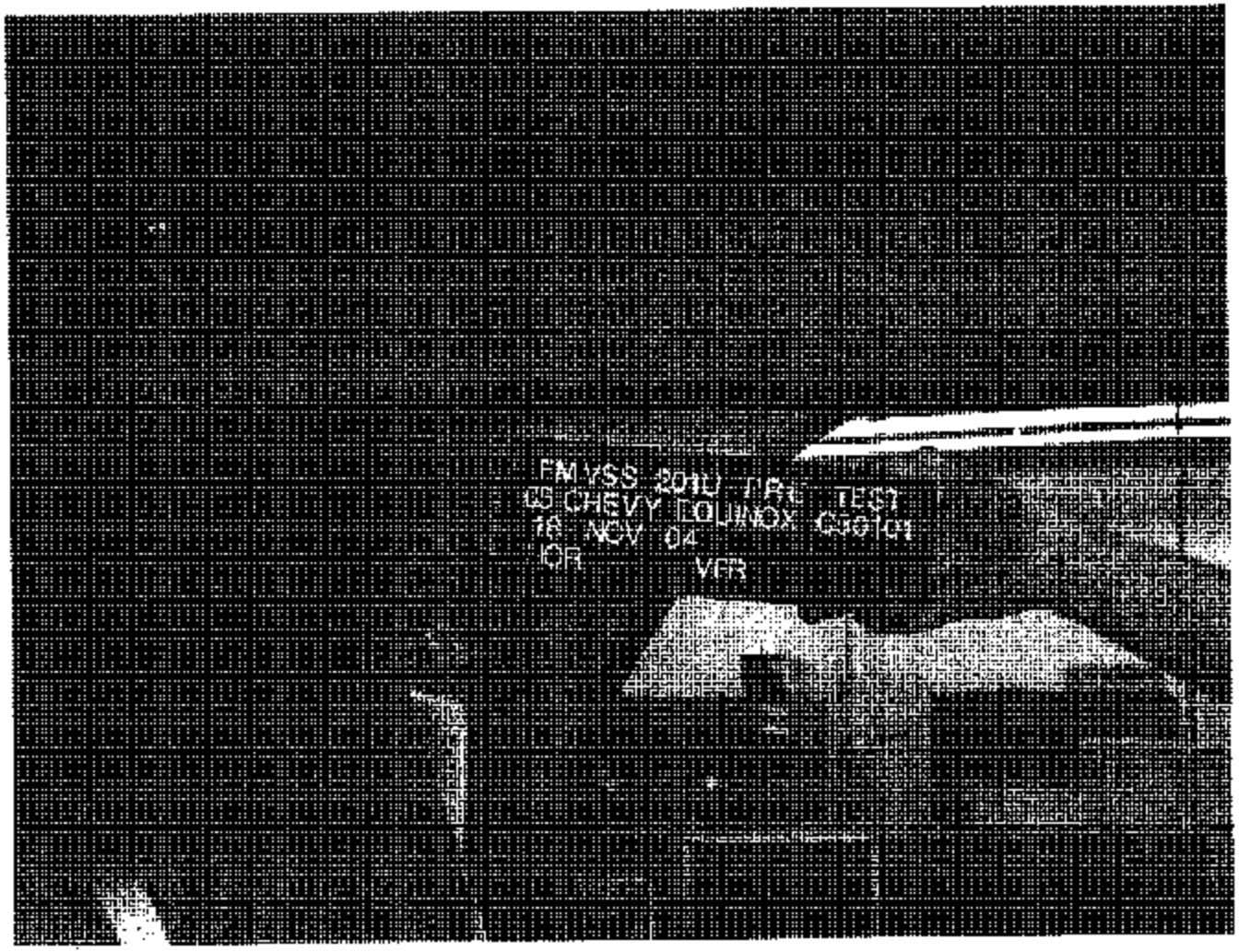


Figure A-11 : PRE-TEST DRIVER SIDE OTHER PILLER

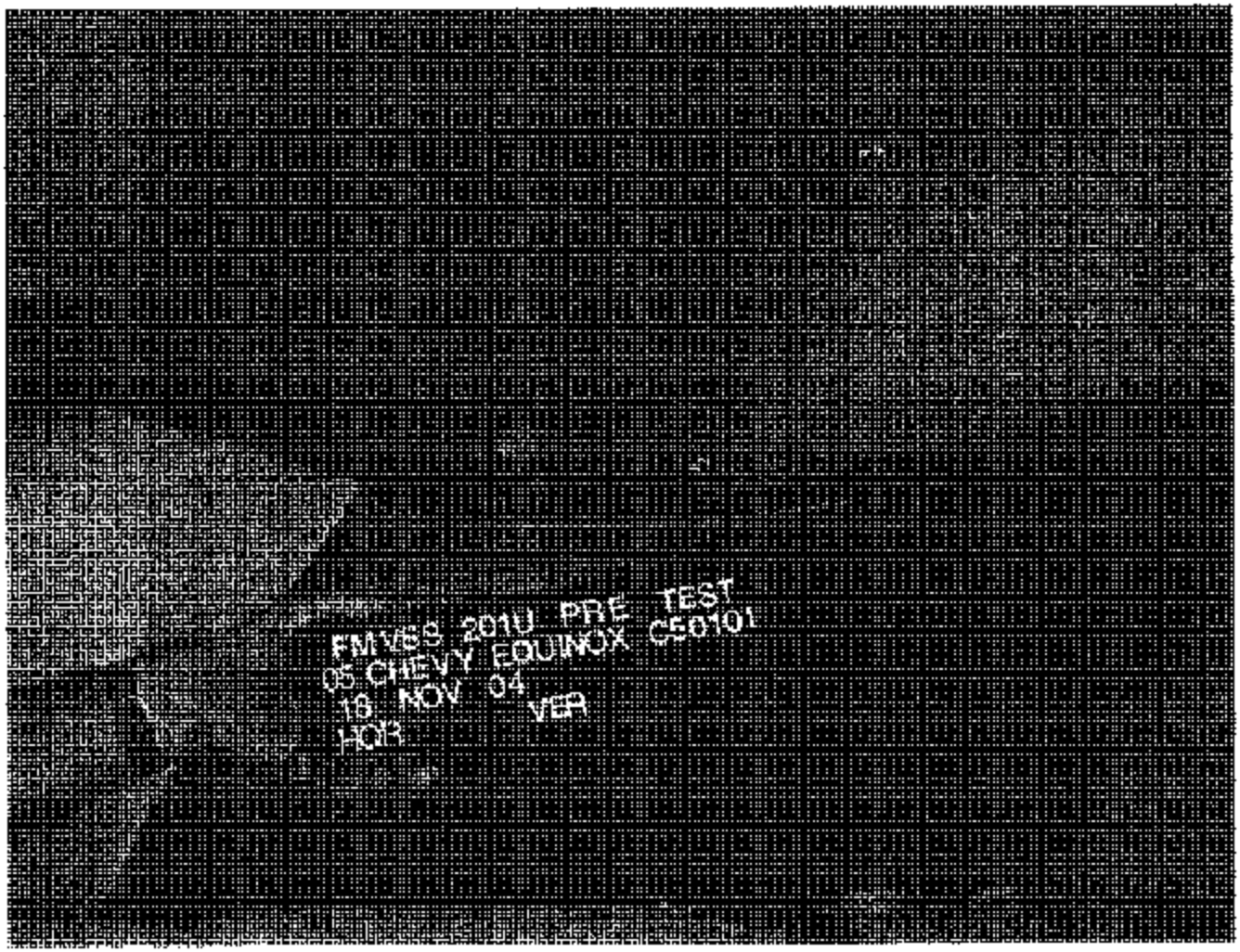


Figure A-12 PRE-TEST DRIVER SIDE REAR PILLAR

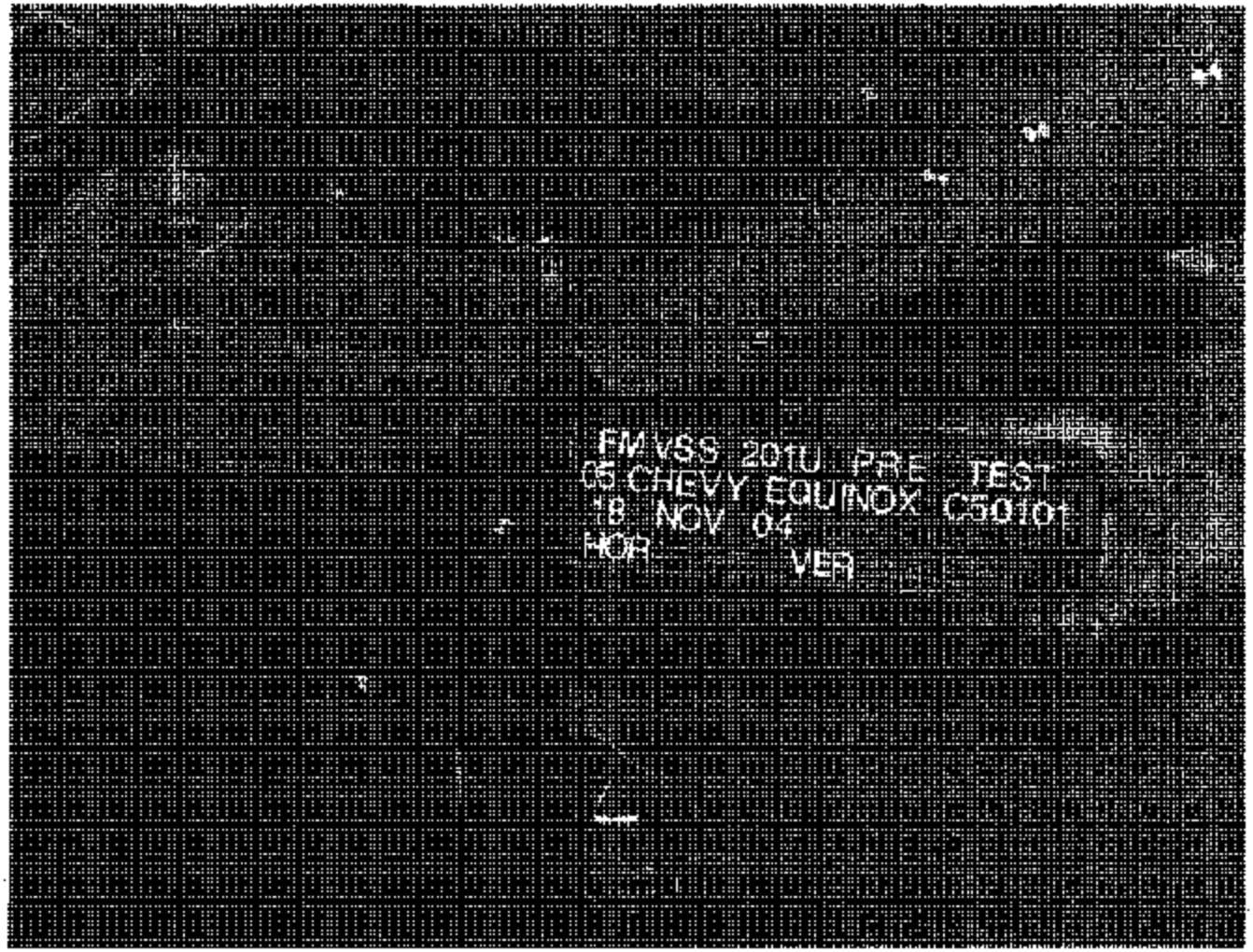


Figure A-13 : PRE-TEST PASSENGER SIDE A-PILLAR

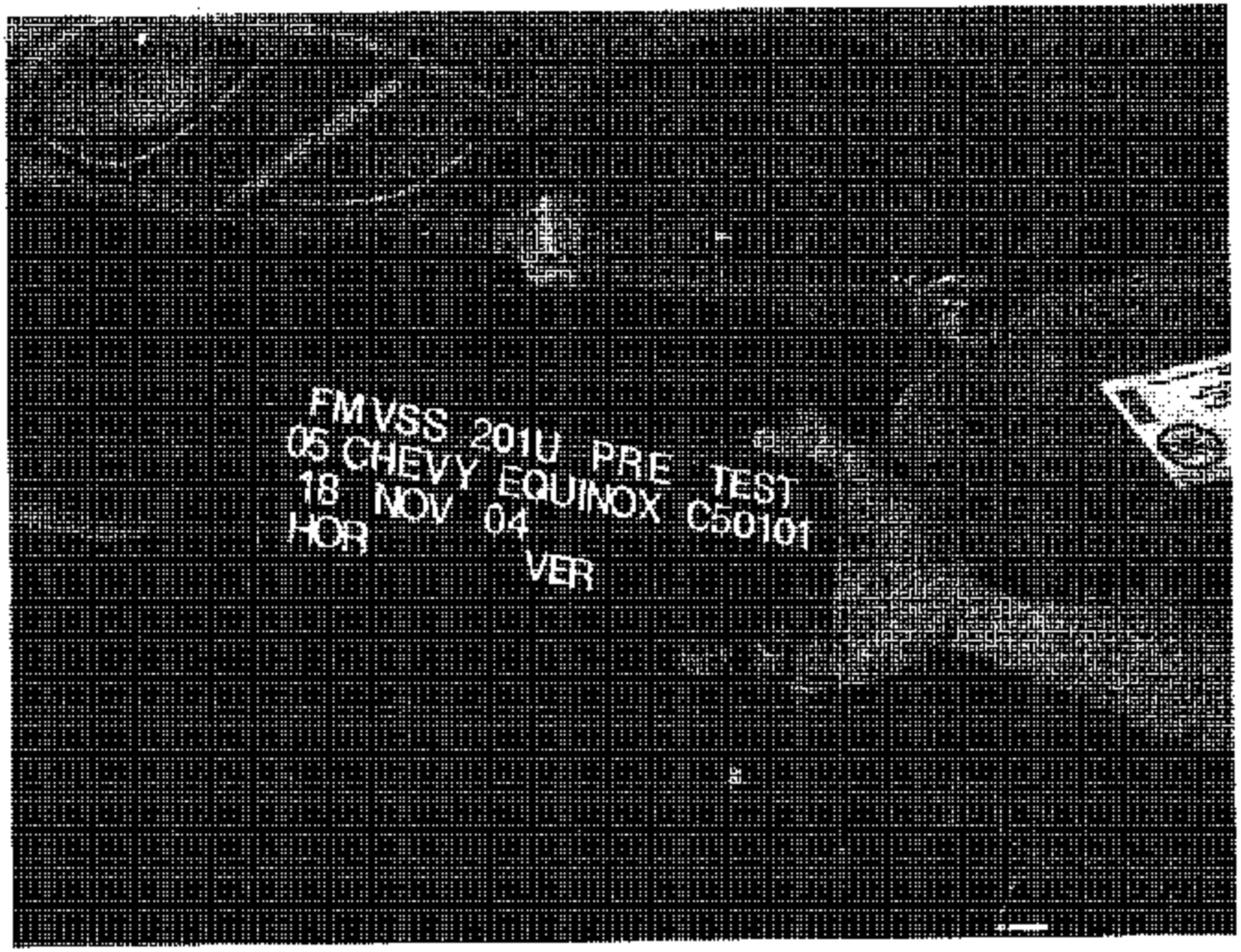


Figure A-14 : PRE-TEST PASSENGER SIDE FRONT HEADER

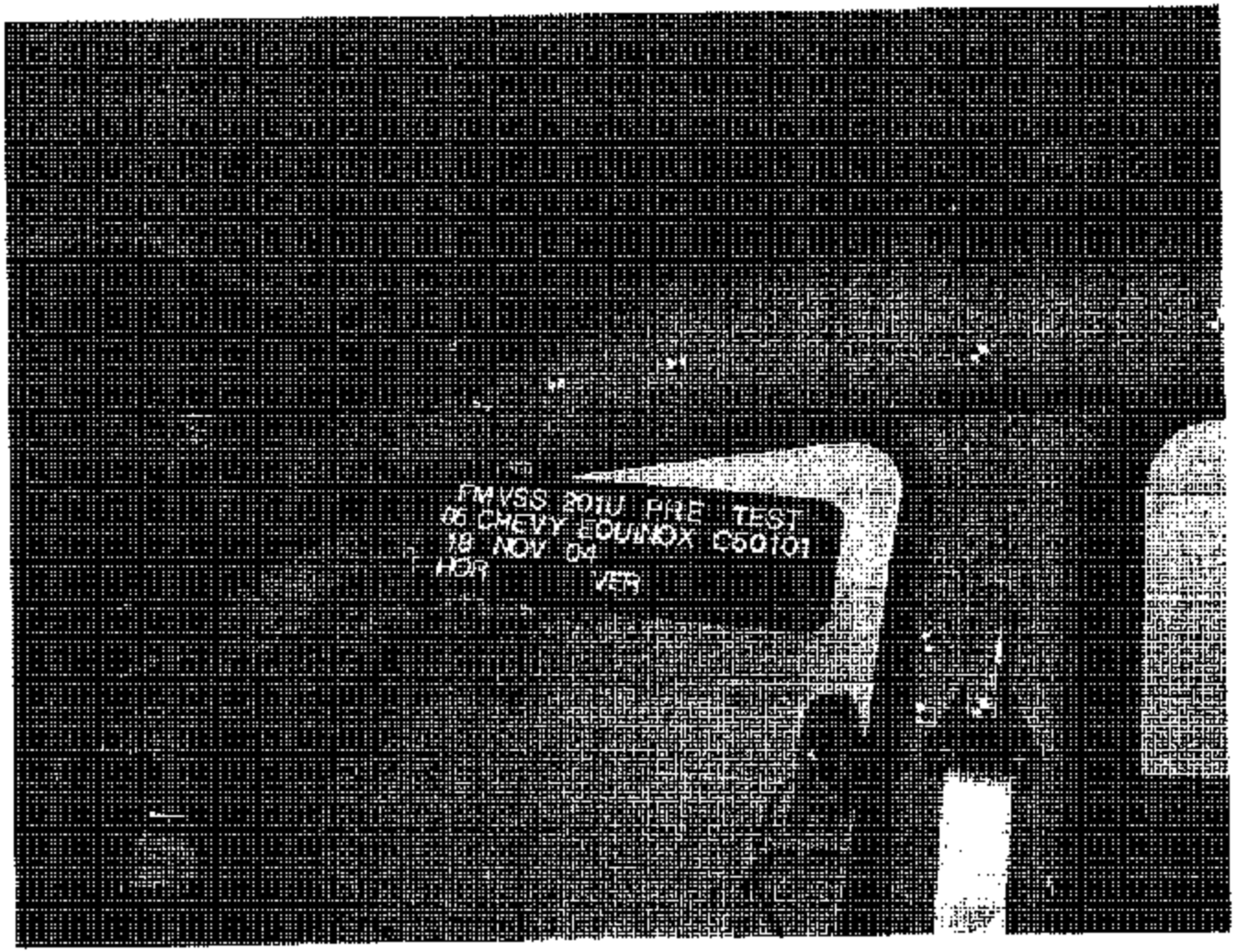


Figure A-15 : PRE-TEST PASSENGER SIDE SIDE RAIL

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

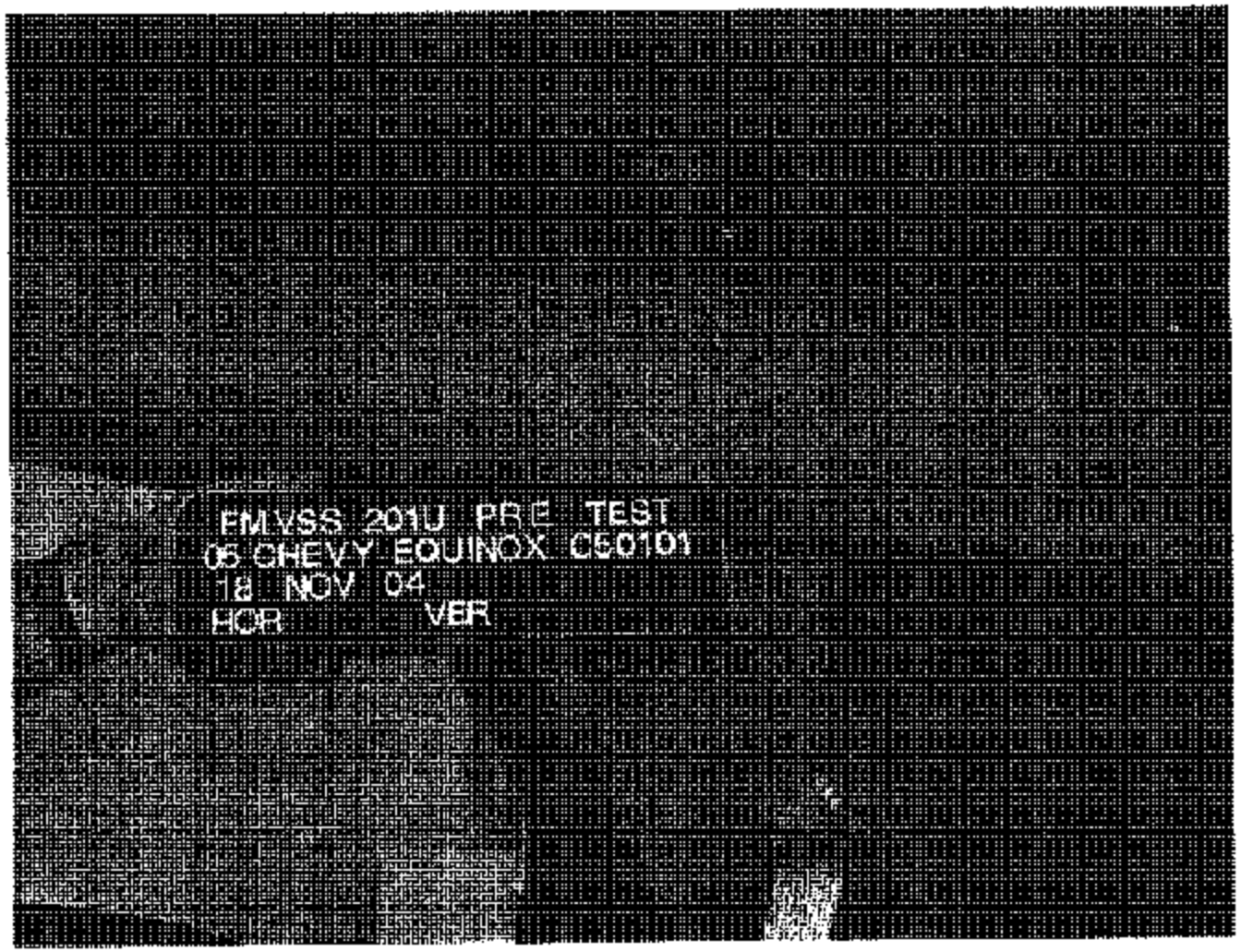


Figure A-17 : PRE-TEST PASSNGER SIDE OTHER PILLAR

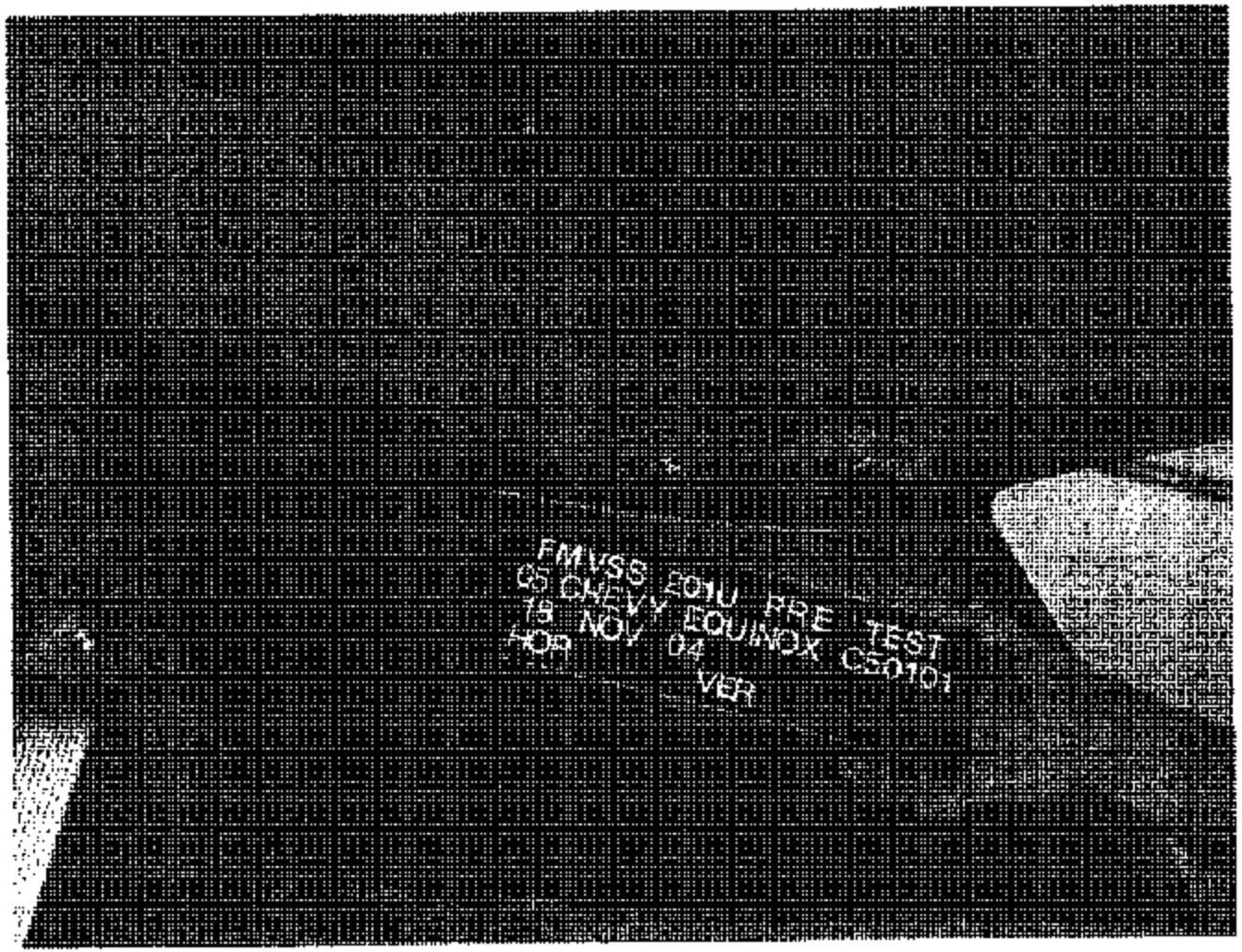


Figure A-18 . PRE-TEST PASSENGER SIDE REAR PILLAR

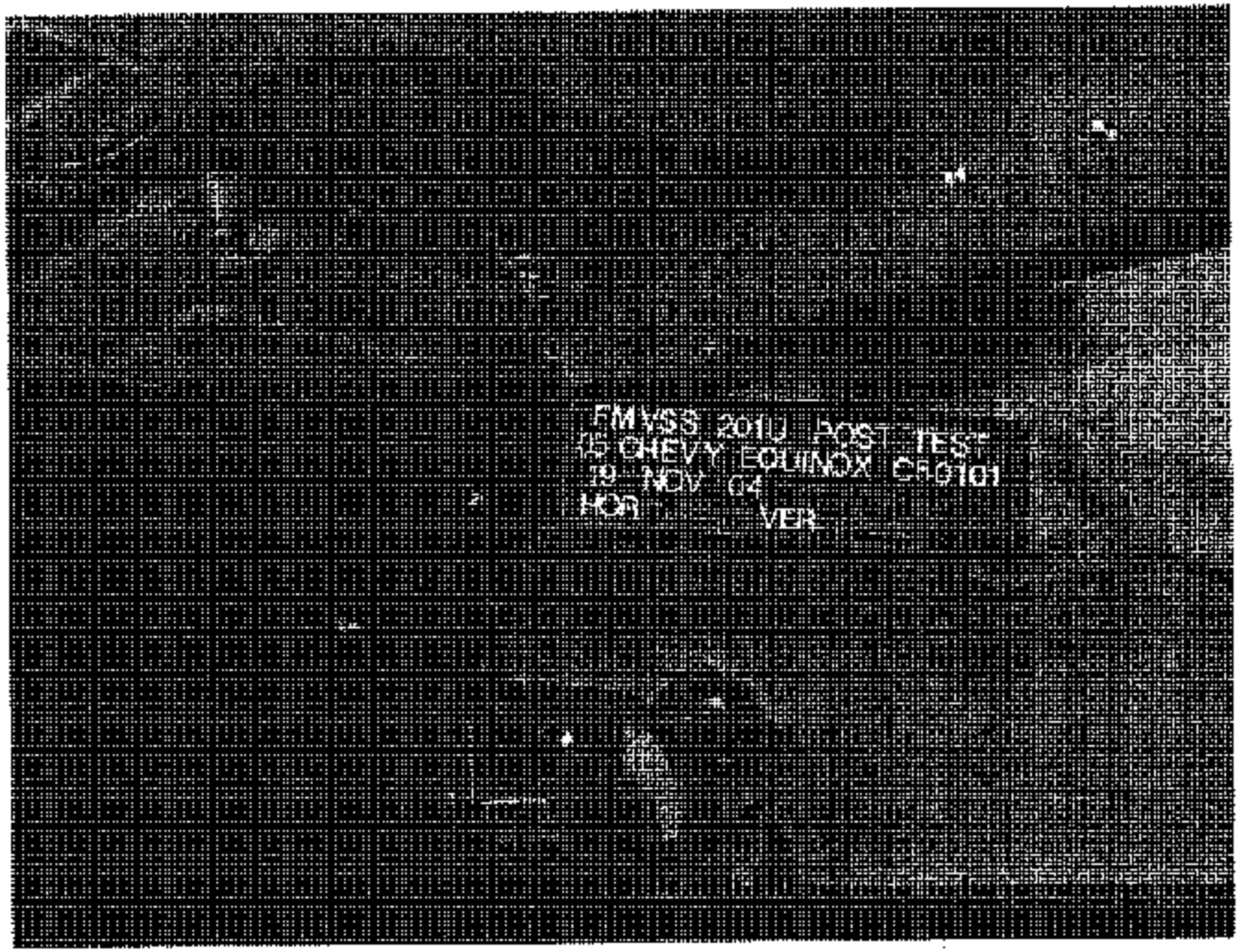


Figure A-19 : POST-TEST PASSENGER SIDE A-PILLAR

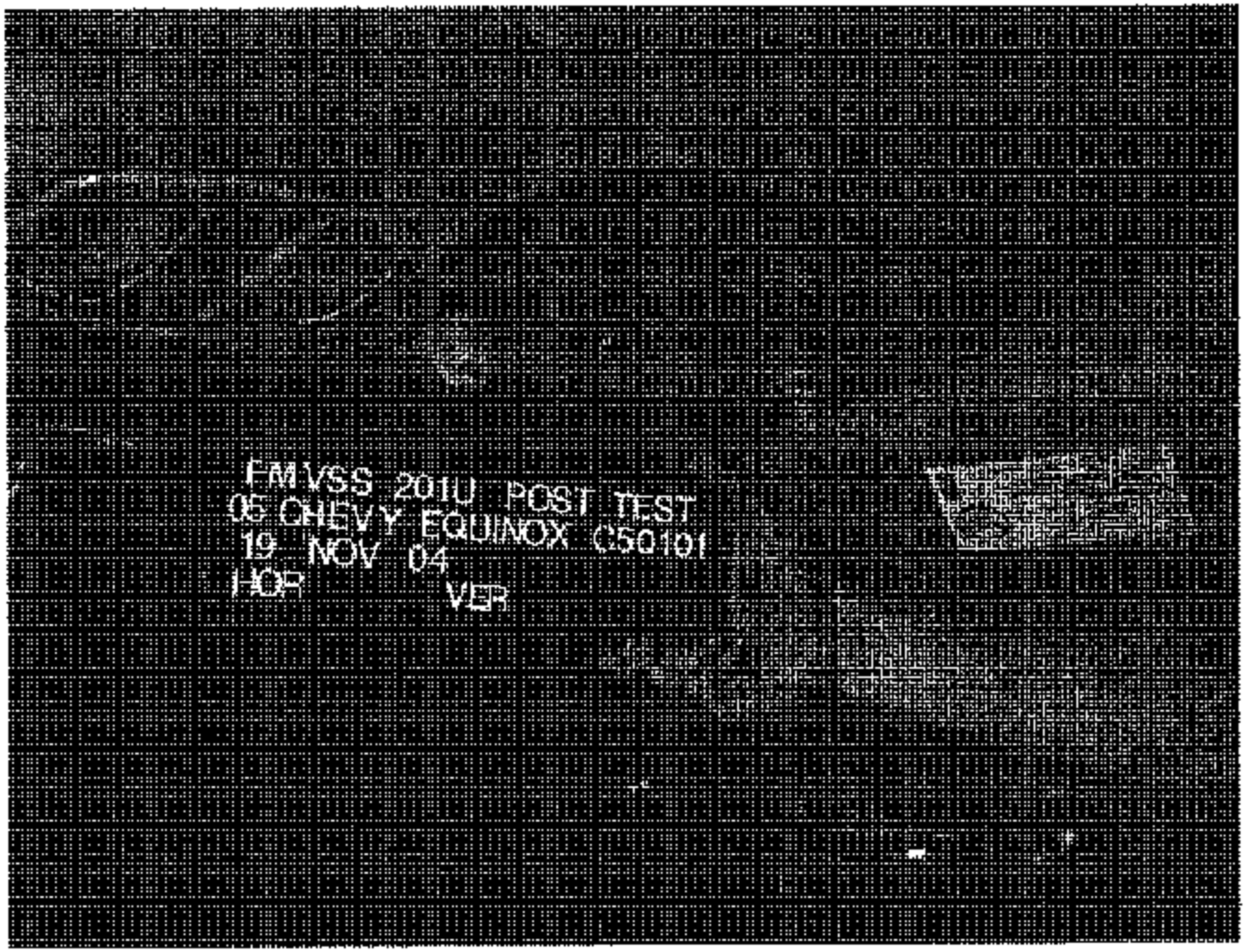


Figure A-20 - POST-TEST PASSENGER SIDE FRONT HEADER

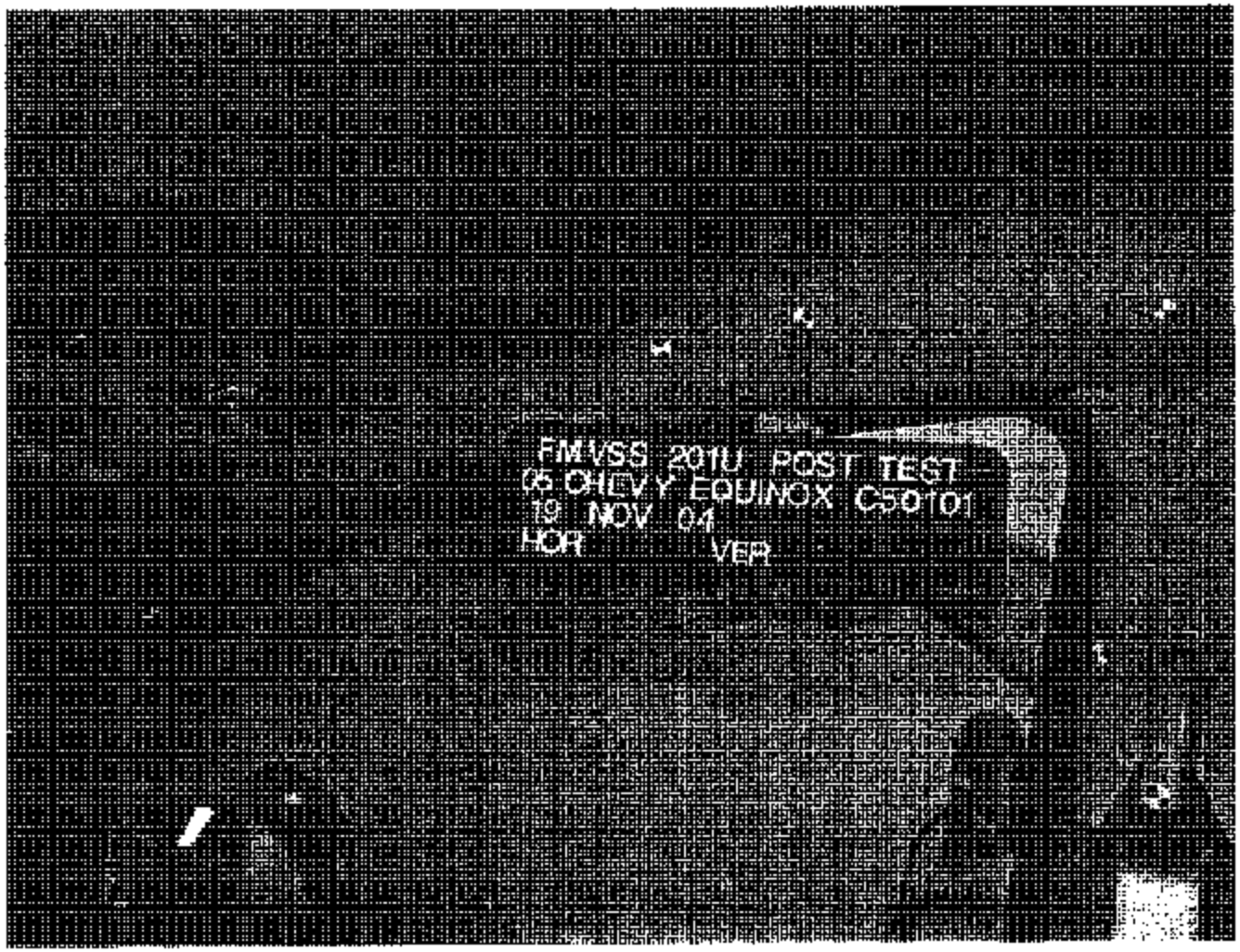


Figure A-21 : POST-TEST PASSENGER SIDE SIDE RAIL

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

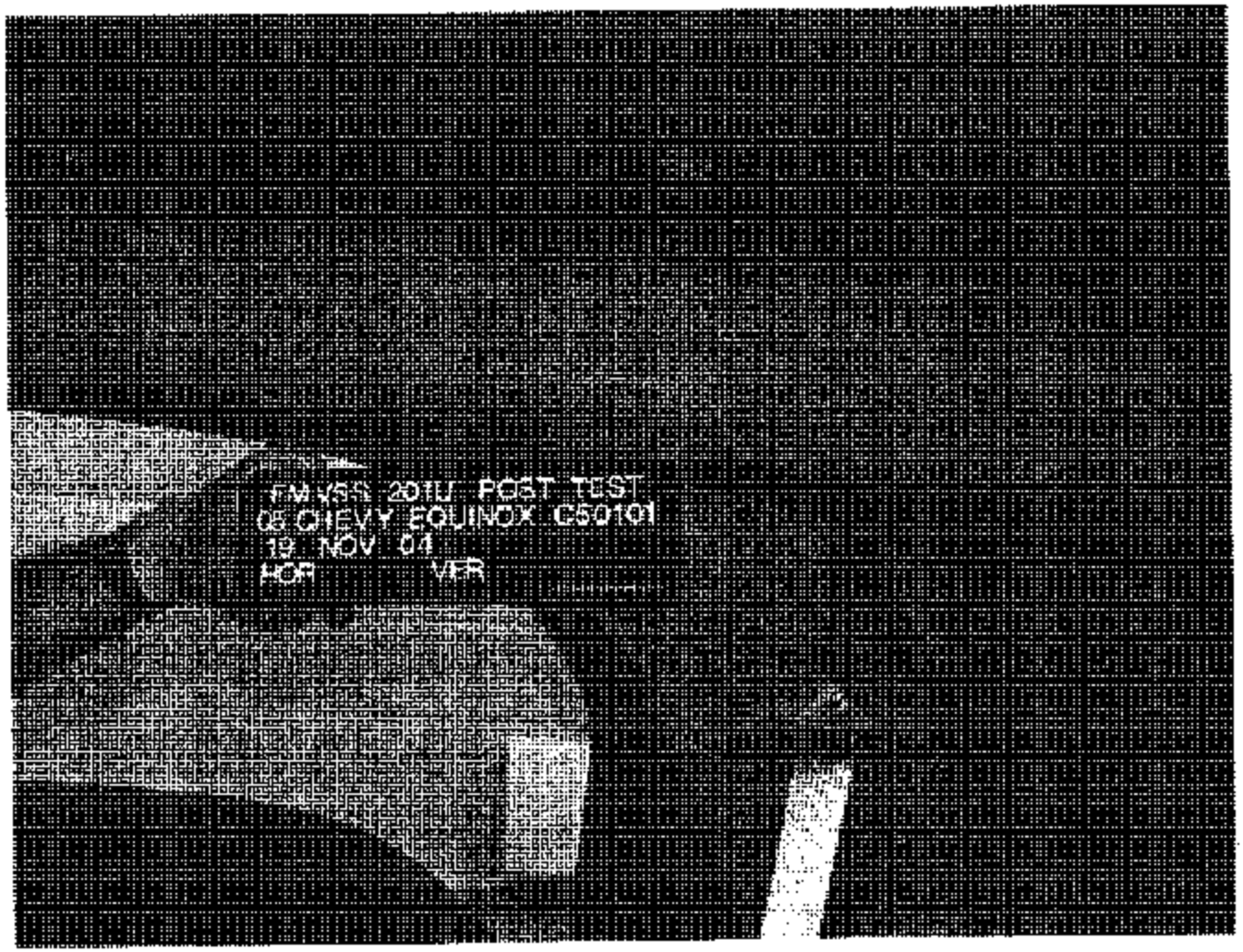


Figure A-23 : POST-TEST PASSENGER SIDE OTHER PILLAR

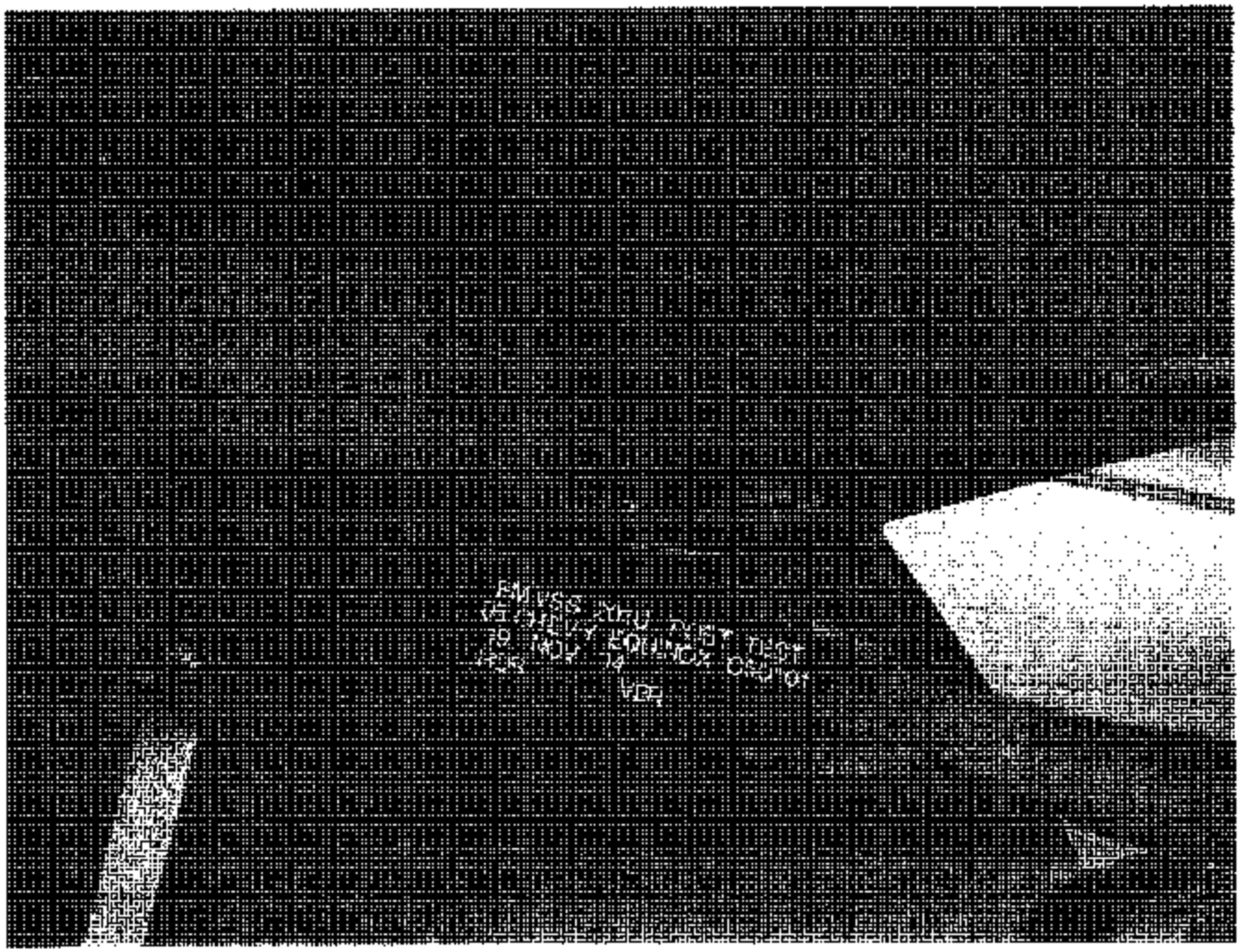


Figure A-24 : POST-TEST PASSENGER SIDE REAR PILLAR

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 General Dynamics. A summary of the test results are included in this Appendix.

PART 572L
HEAD DROP PRE-TEST

MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS
SERIAL NUMBER:	0642
CALIBRATION DATE:	November 17,2004

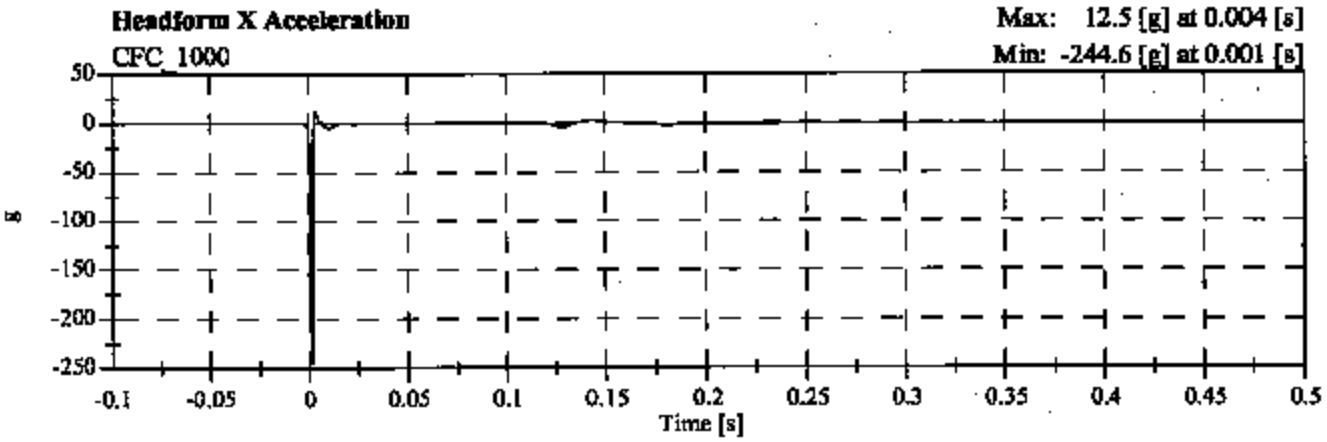
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	22.6
RELATIVE HUMIDITY	10% to 70%	38.1
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	274.1
PEAK LATERAL ACCELERATION	15 Gs Maximum	13.8
IS ACCELERATION CURVE UNIMODAL?	YES	YES

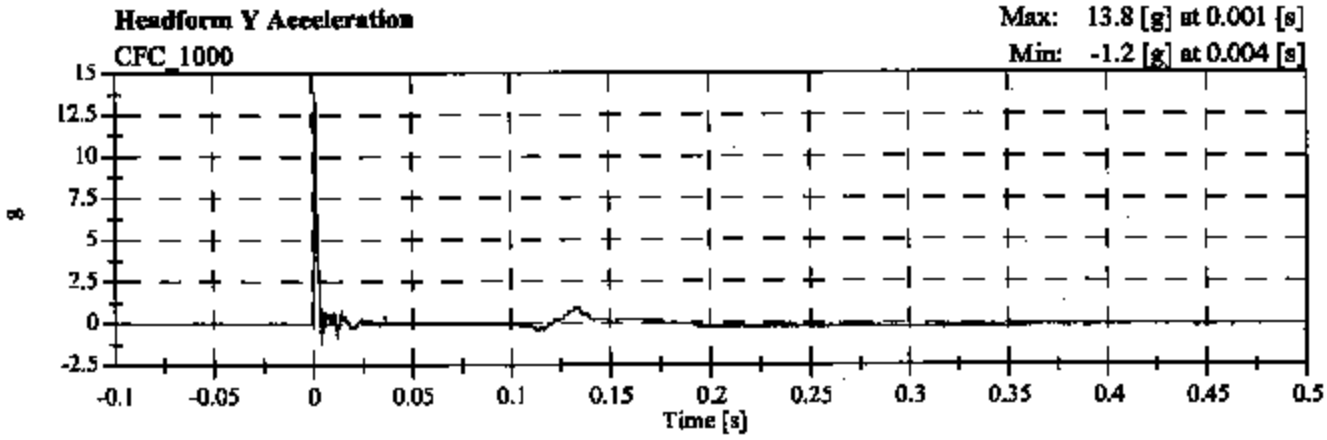
HEAD ACCELEROMETER CALIBRATION INFORMATION

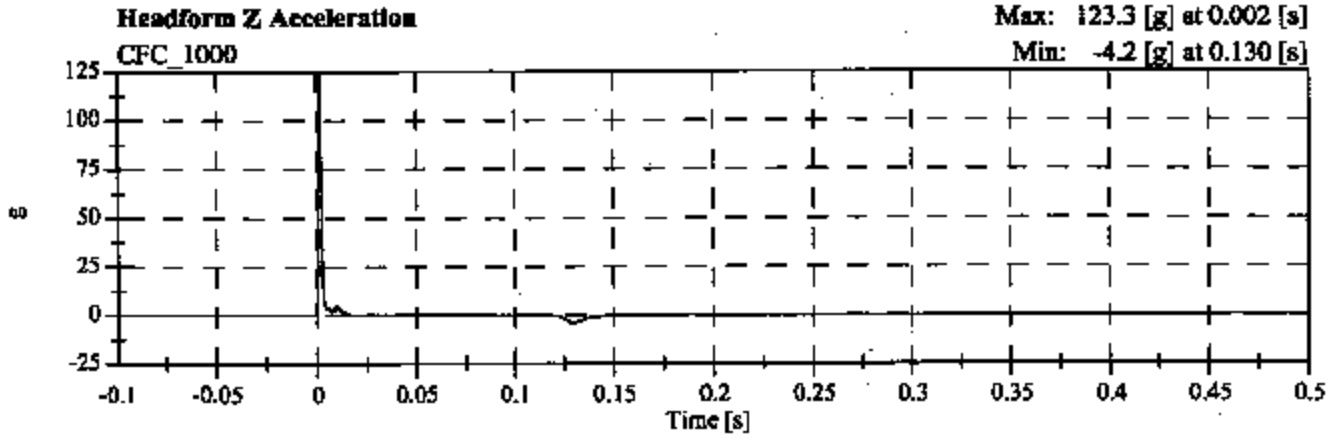
I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 -LONGITUDINAL	ENDEVCO	7264-2000T	J24876	10/06/2004	04/06/2005
2 - LATERAL	ENDEVCO	7264-2000T	J33030	10/06/2004	04/06/2005
3 - VERTICAL	ENDEVCO	7264-2000T	J31009	10/06/2004	04/06/2005

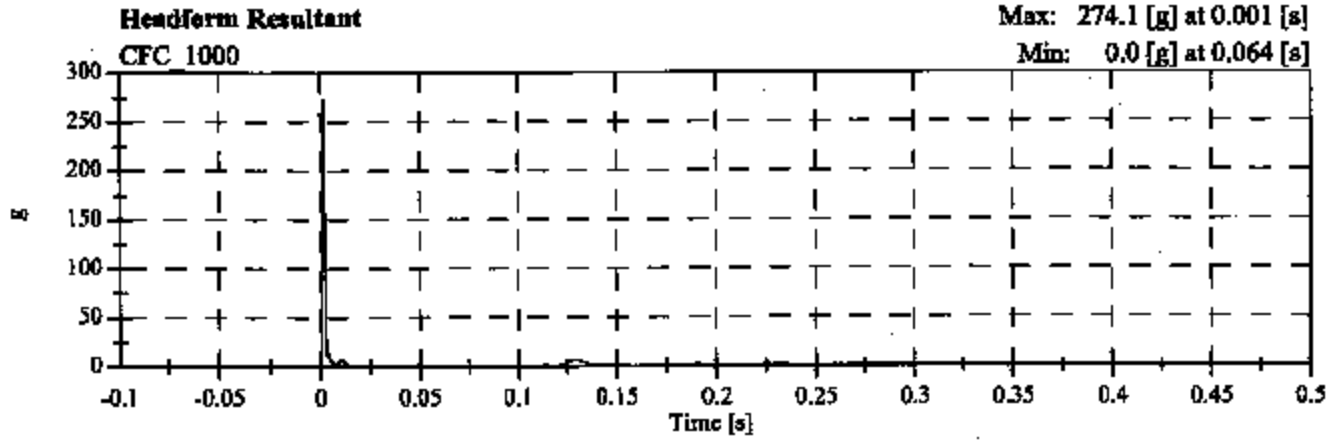
REMARKS:

FMVSS 201U - HeadForm Calibration Drops
FMH0642 - November 17, 2004









C50101 PRE-TEST HEADFORM 0642 IMPACT PLOT #1 8754-FMH-02

PART 572L
HEAD DROP PRE-TEST

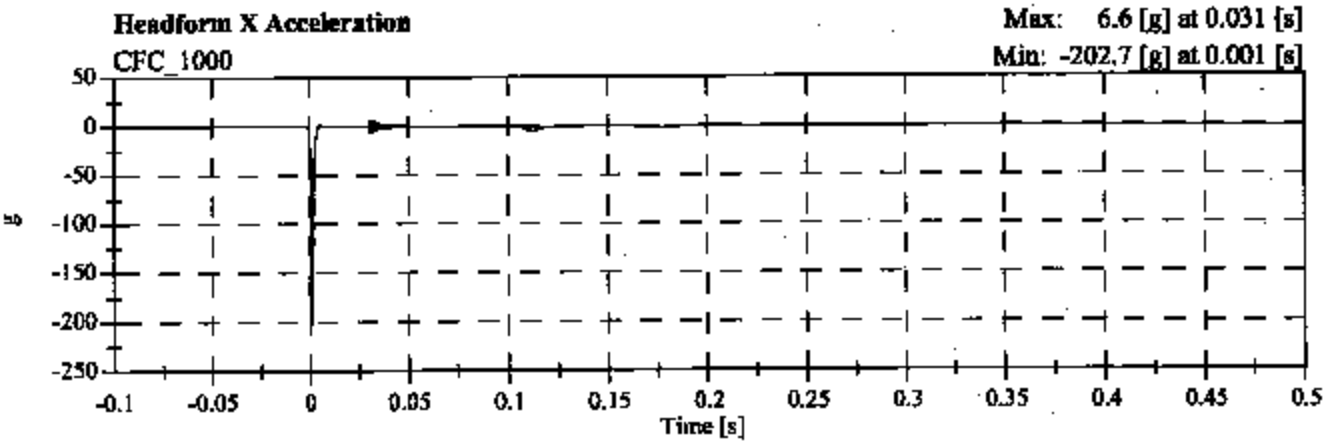
MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS	
SERIAL NUMBER:	0062	
CALIBRATION DATE:	November 11,2004	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	23.4
RELATIVE HUMIDITY	10% to 70%	44.4
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	231.2
PEAK LATERAL ACCELERATION	15 Gs Maximum	1.0
IS ACCELERATION CURVE UNIMODAL?	YES	YES

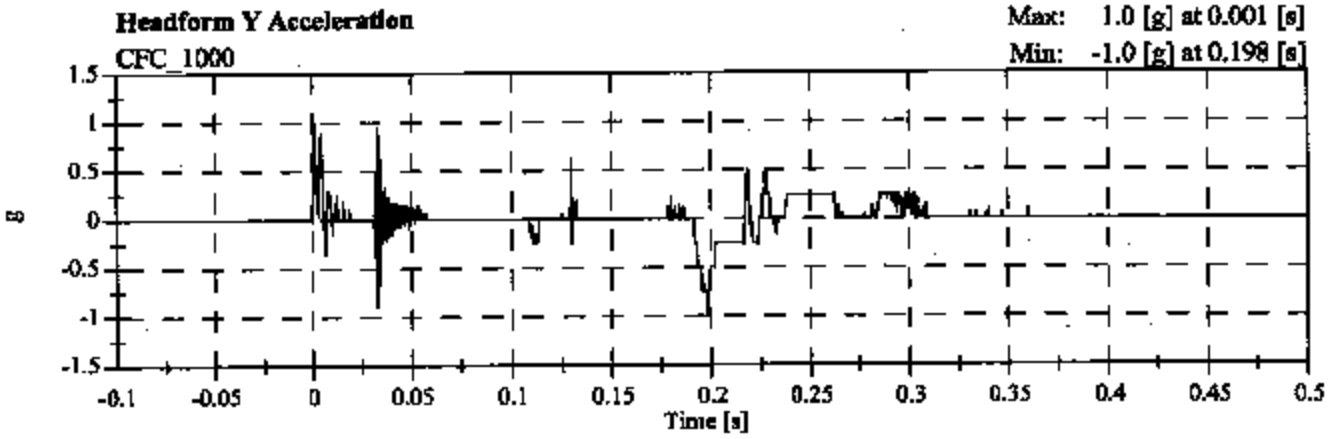
HEAD ACCELEROMETER CALIBRATION INFORMATION

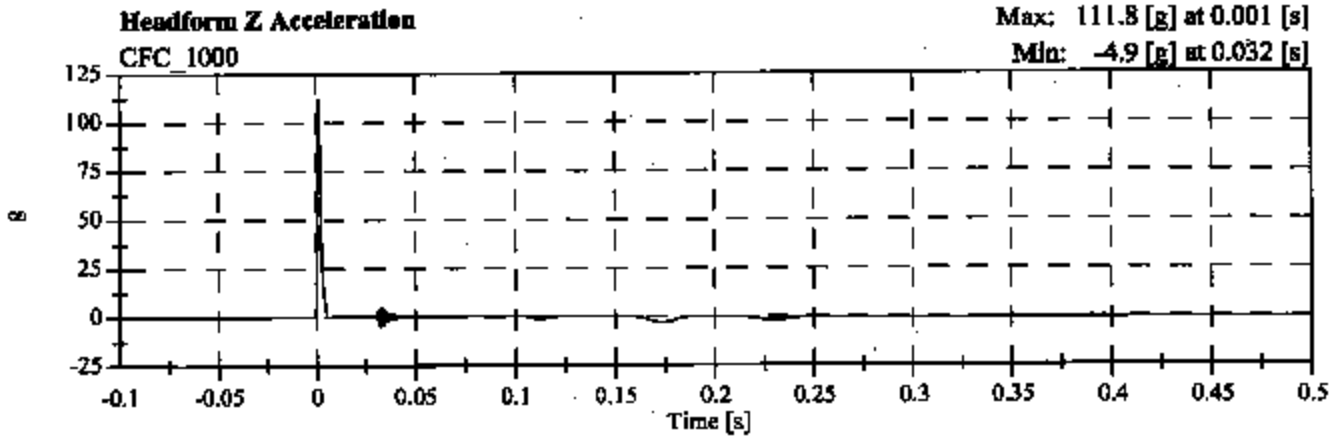
I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 -LONGITUDINAL	ENDEVCO	7264-2000T	J33127	10/06/2004	04/06/2005
2 - LATERAL	ENDEVCO	7264-2000T	J33019	10/06/2004	04/06/2005
3 - VERTICAL	ENDEVCO	7264-2000T	J32782	10/06/2004	04/06/2005

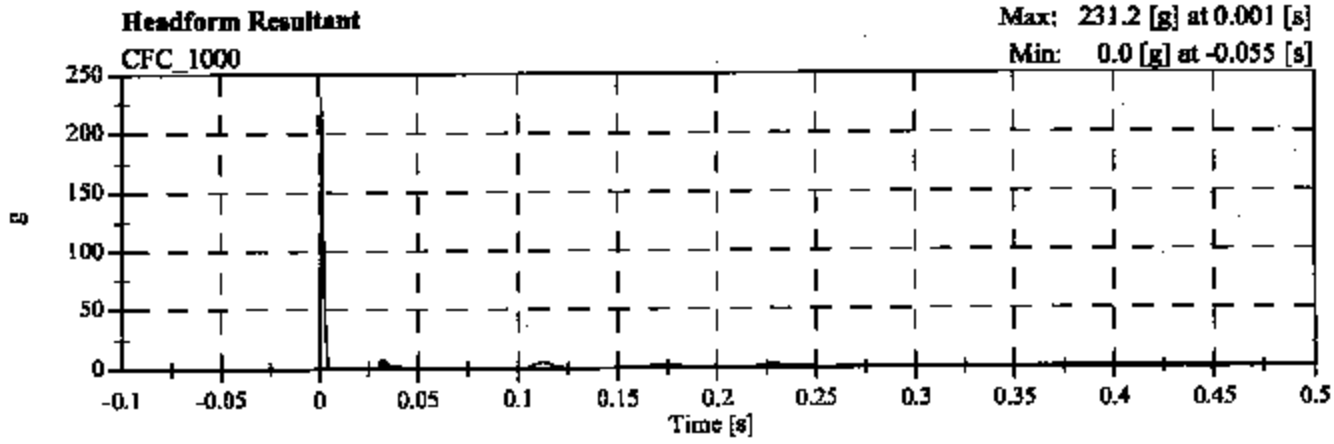
REMARKS:

FMVSS 201U - HeadForm Calibration Drops
FMH 0062 - November 11, 2004









PART 572L
HEAD DROP PRE-TEST

MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS	
SERIAL NUMBER:	805	
CALIBRATION DATE:	November 17,2004	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	22.6
RELATIVE HUMIDITY	10% to 70%	38.1
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	262.5
PEAK LATERAL ACCELERATION	15 Gs Maximum	1.7
IS ACCELERATION CURVE UNIMODAL?	YES	YES

HEAD ACCELEROMETER CALIBRATION INFORMATION

I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 -LONGITUDINAL	ENDEVCO	7264-2000T	J38127	10/07/2004	04/07/2005
2 - LATERAL	ENDEVCO	7264-2000T	J37980	10/07/2004	04/07/2005
3 - VERTICAL	ENDEVCO	7264-2000T	J37854	10/07/2004	04/07/2005

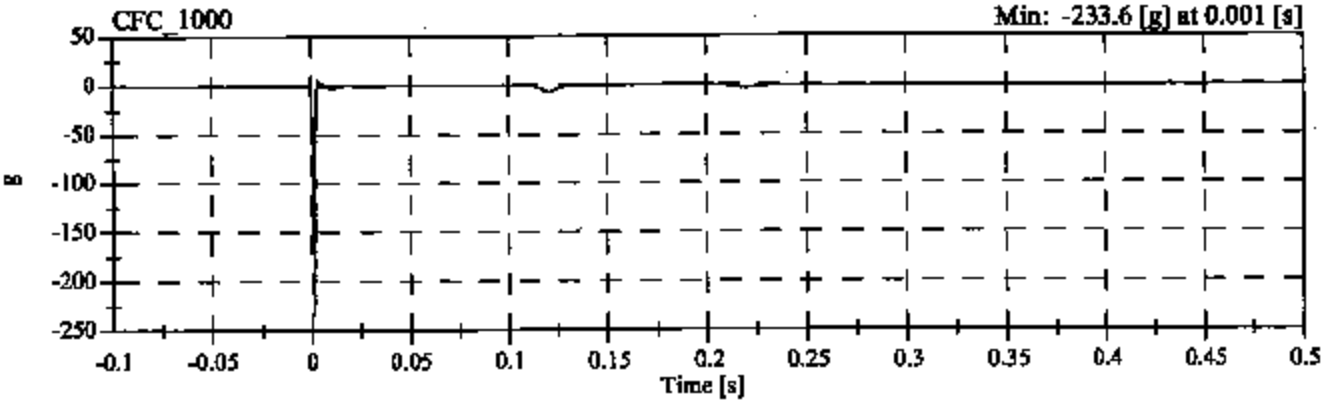
REMARKS:

FMVSS 201U - HeadForm Calibration Drops
FMH 0805 - November 17, 2004

Headform X Acceleration

CFC_1000

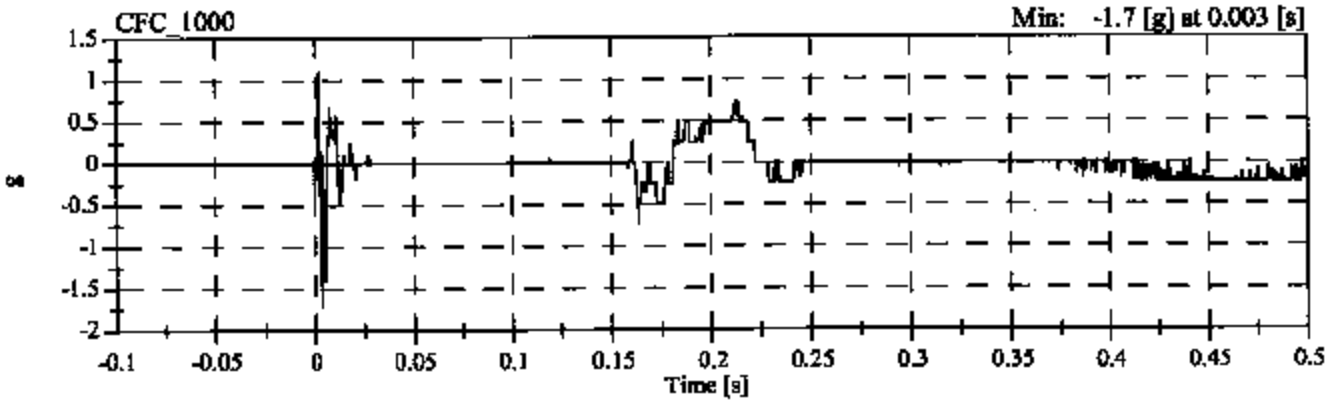
Max: 5.9 [g] at 0.004 [s]
Min: -233.6 [g] at 0.001 [s]



Headform Y Acceleration

CFC_1000

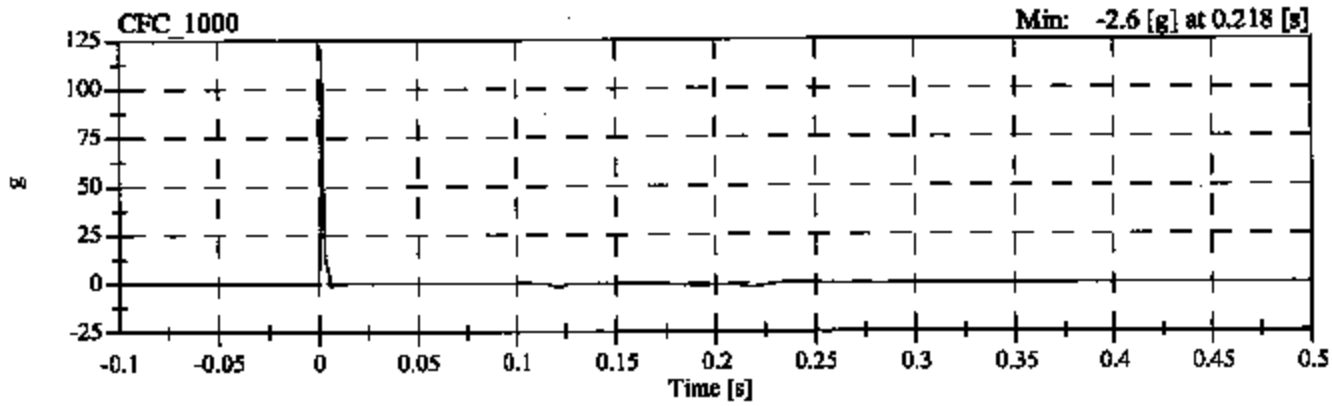
Max: 1.1 [g] at 0.002 [s]
Min: -1.7 [g] at 0.003 [s]



Headform Z Acceleration

CFC_1000

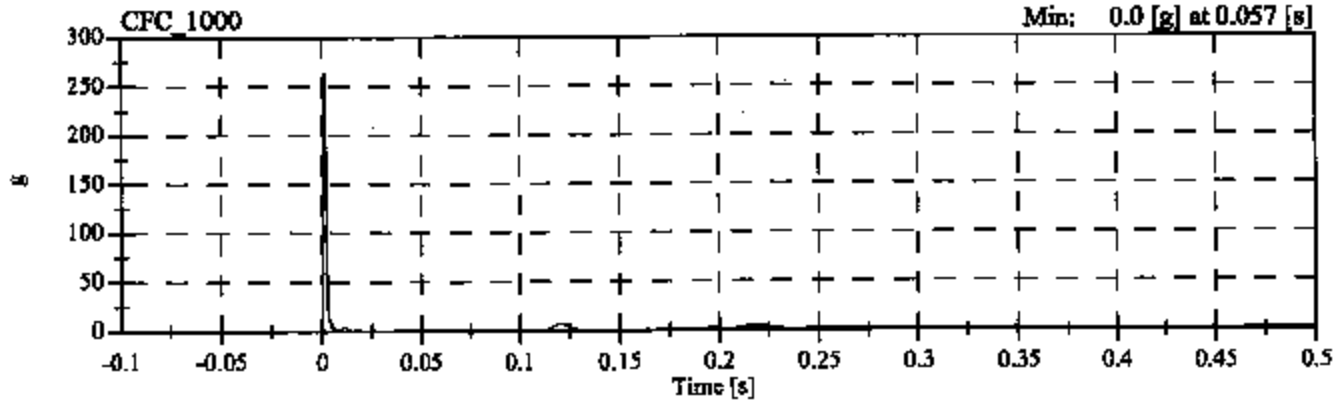
Max: 120.0 [g] at 0.001 [s]
Min: -2.6 [g] at 0.218 [s]



Headform Resultant

CFC_1000

Max: 262.5 [g] at 0.001 [s]
Min: 0.0 [g] at 0.057 [s]



C50101 PRE-TEST HEADFORM 0805 IMPACT PLOT #1 8754-FMH-02

PART 572L
HEAD DROP PRE-TEST

MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS
SERIAL NUMBER:	0355
CALIBRATION DATE:	November 17,2004

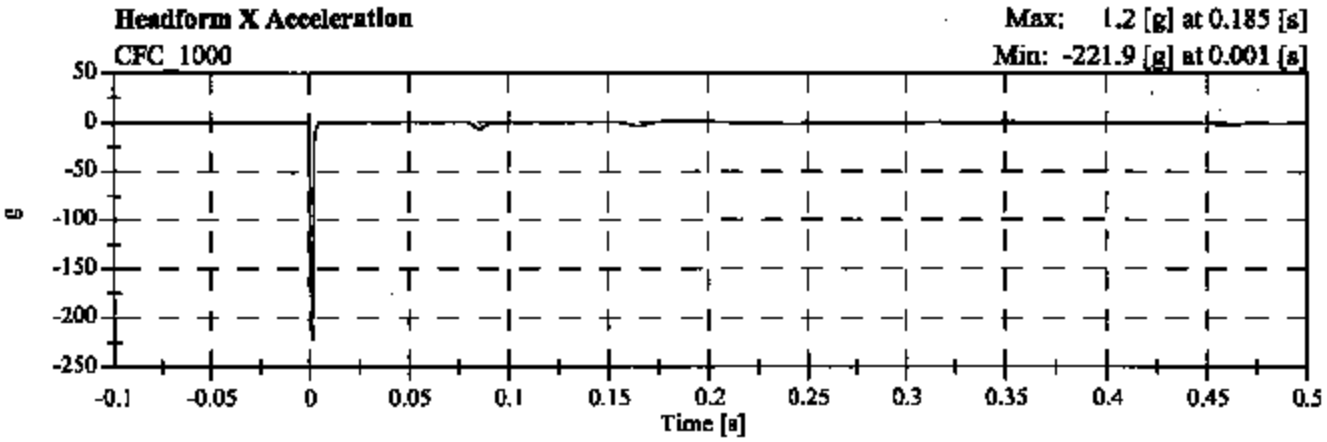
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	22.6
RELATIVE HUMIDITY	10% to 70%	38.1
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	246.9
PEAK LATERAL ACCELERATION	15 Gs Maximum	3.7
IS ACCELERATION CURVE UNIMODAL?	YES	YES

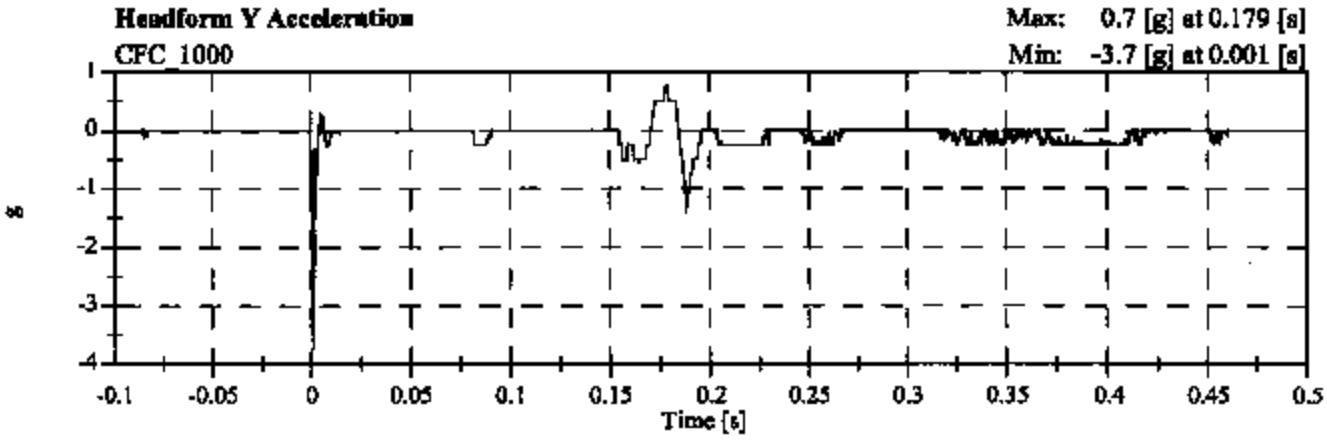
HEAD ACCELEROMETER CALIBRATION INFORMATION

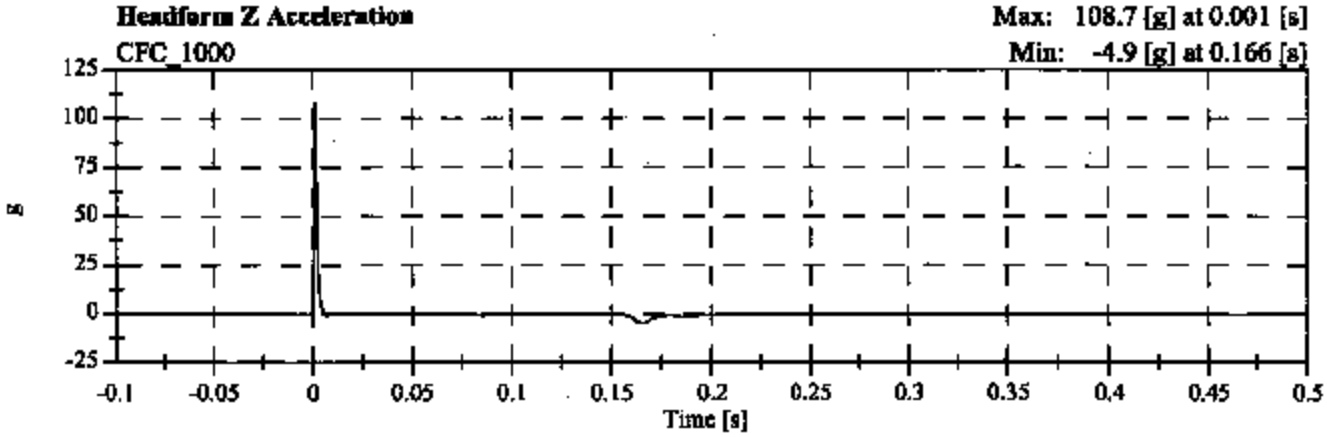
I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 -LONGITUDINAL	ENDEVCO	7264-2000T	J28671	10/07/2004	04/07/2005
2 - LATERAL	ENDEVCO	7264-2000T	J32779	10/07/2004	04/07/2005
3 - VERTICAL	ENDEVCO	7264-2000T	J25854	10/07/2004	04/07/2005

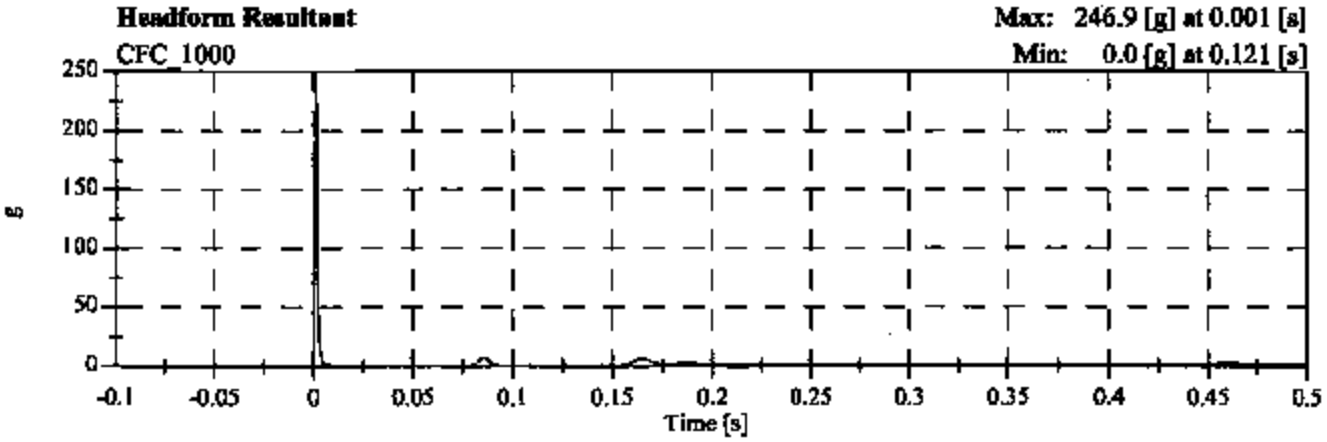
REMARKS:

FMVSS 201U - HeadForm Calibration Drops
FMH 0355 - November 17, 2004









C50101 PRE-TEST HEADFORM 0355 IMPACT PLOT #1 8754-FMH-02

PART 572L
HEAD DROP PRE-TEST

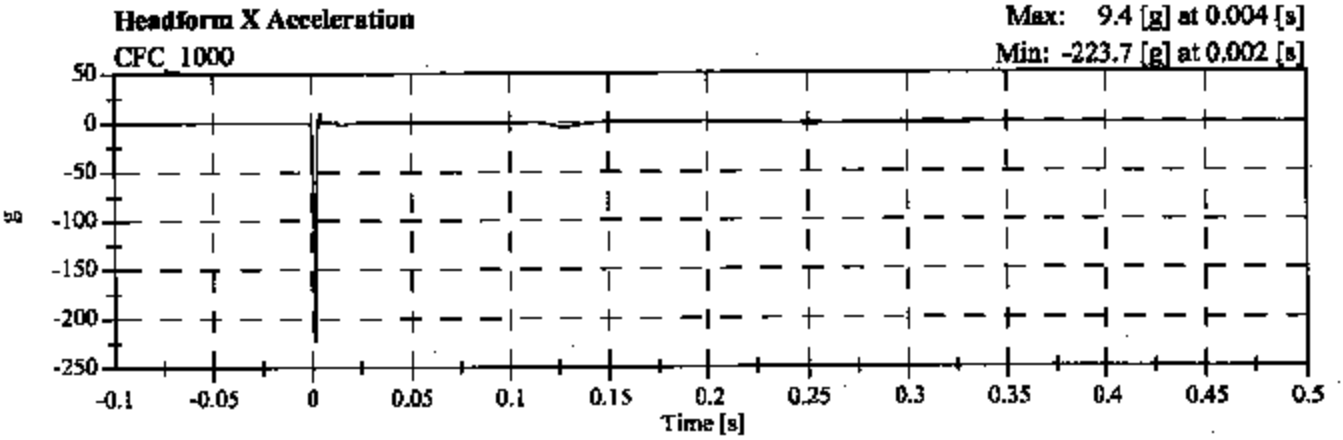
MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS	
SERIAL NUMBER:	1255	
CALIBRATION DATE:	November 17,2004	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	22.6
RELATIVE HUMIDITY	10% to 70%	38.1
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	249.6
PEAK LATERAL ACCELERATION	15 Gs Maximum	6.1
IS ACCELERATION CURVE UNIMODAL?	YES	YES

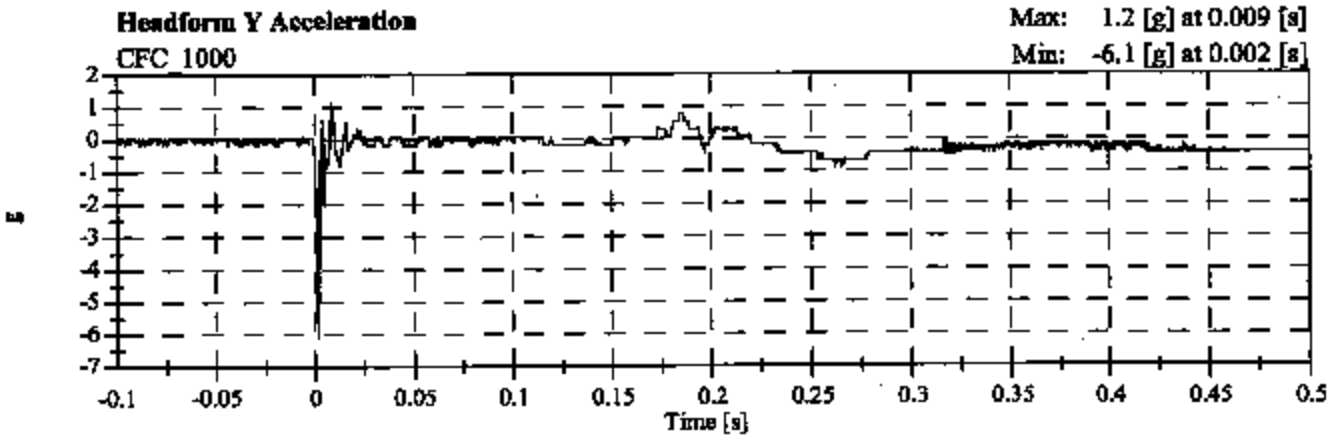
HEAD ACCELEROMETER CALIBRATION INFORMATION

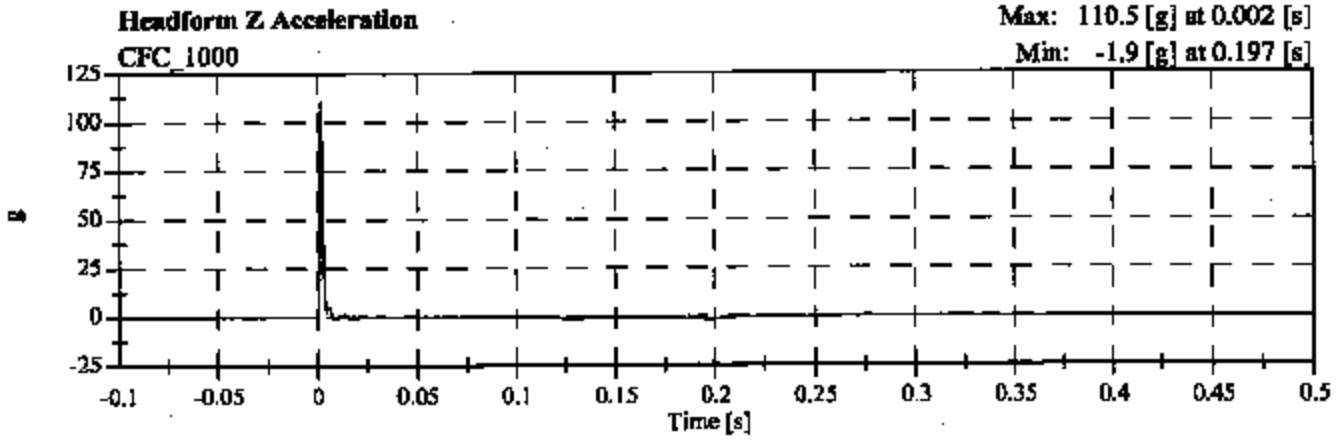
I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 -LONGITUDINAL	ENDEVCO	7264-2000T	J41006	10/06/2004	04/06/2005
2 - LATERAL	ENDEVCO	7264-2000T	J40994	10/06/2004	04/06/2005
3 - VERTICAL	ENDEVCO	7264-2000T	J41007	10/06/2004	04/06/2005

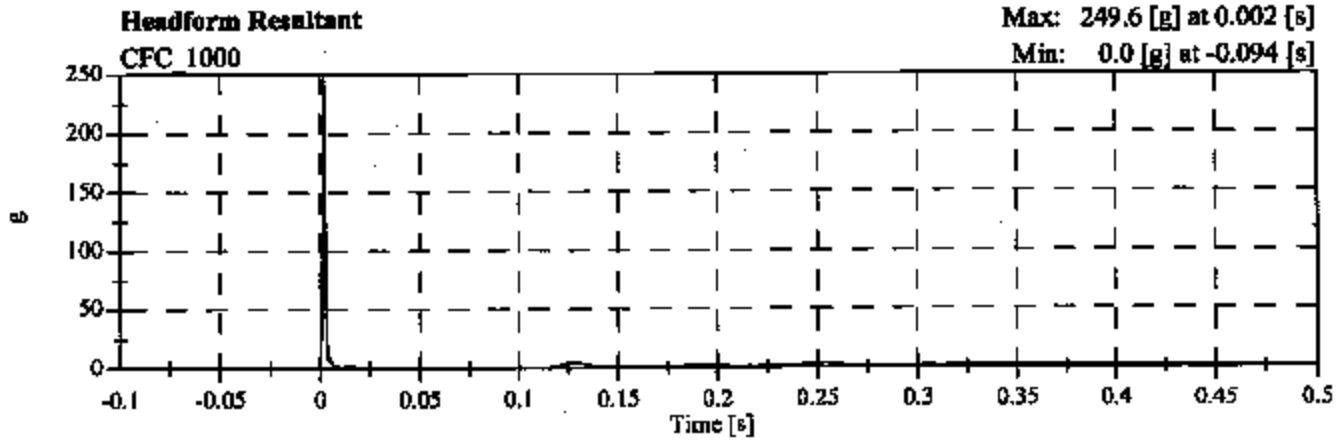
REMARKS:

FMVSS 201U - HeadForm Calibration Drops
FMH 1255 - November 17, 2004









C5010I PRE-TEST HEADFORM 1255 IMPACT PLOT #1 8754-FMH-02

PART 5721
HEAD DROP POST-TEST

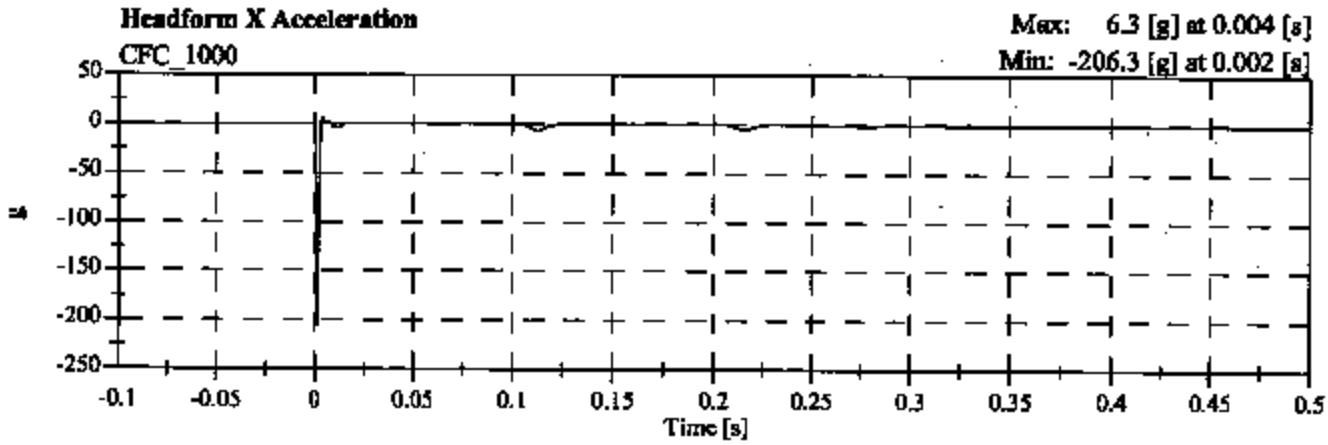
MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS	
SERIAL NUMBER:	0642	
CALIBRATION DATE:	December 1, 2004	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	24.2
RELATIVE HUMIDITY	10% to 70%	38.6
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	239.7
PEAK LATERAL ACCELERATION	15 Gs Maximum	2.0
IS ACCELERATION CURVE UNIMODAL?	YES	YES

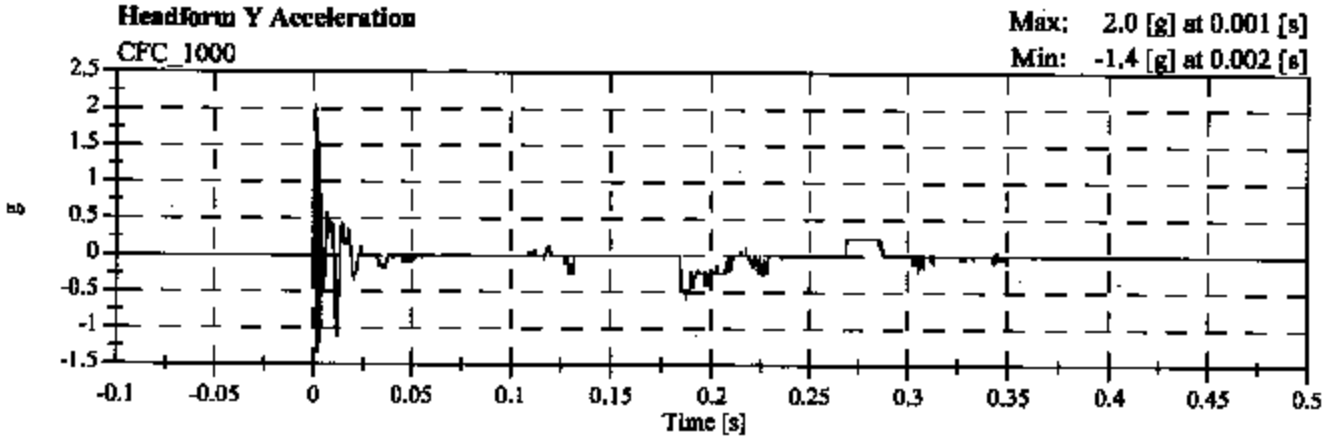
HEAD ACCELEROMETER CALIBRATION INFORMATION

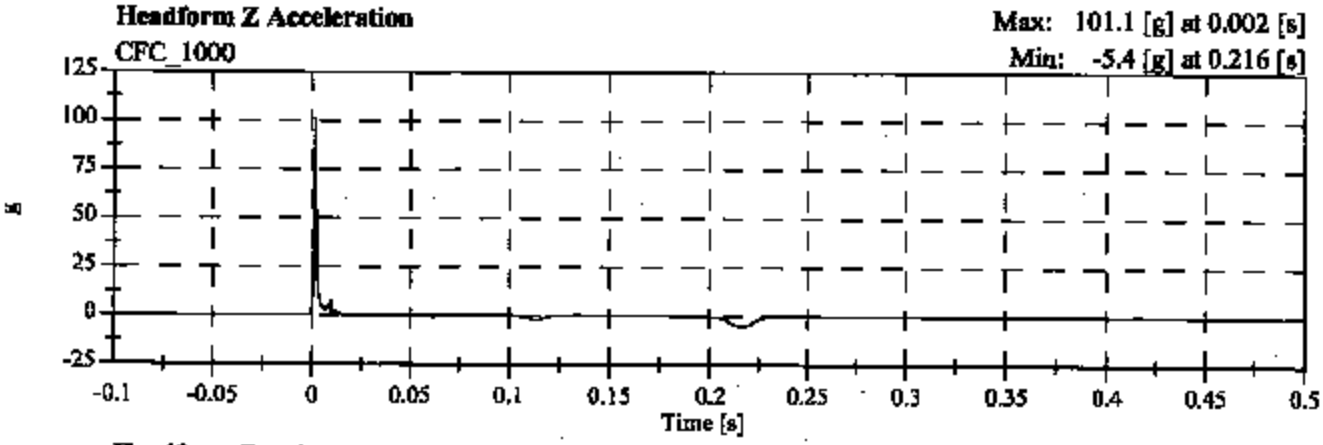
I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 -LONGITUDINAL	ENDEVCO	7264-2000T	J24876	10/06/2004	04/06/2005
2 - LATERAL	ENDEVCO	7264-2000T	J33030	10/06/2004	04/06/2005
3 - VERTICAL	ENDEVCO	7264-2000T	J31009	10/06/2004	04/06/2005

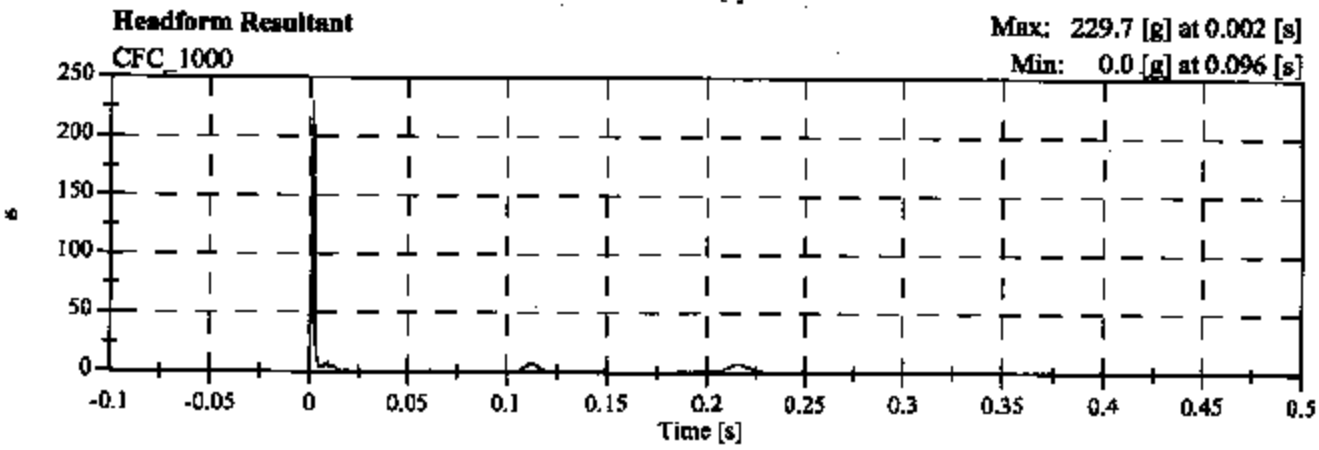
REMARKS:

FMVSS 201U - HeadForm Calibration Drops
FMH 0642 - December 01, 2004









C50101 POST-TEST HEADFORM 0642 IMPACT PLOT #1

8754-FMH-02

PART 572L
HEAD DROP POST-TEST

MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS
SERIAL NUMBER:	0062
CALIBRATION DATE:	November 29, 2004

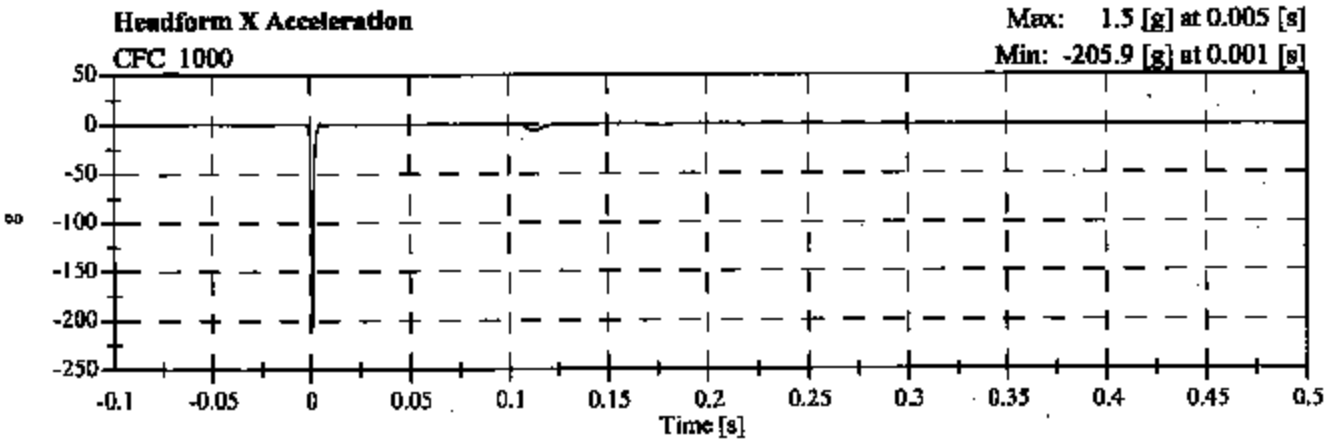
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	23.9
RELATIVE HUMIDITY	10% to 70%	41.2
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	239.1
PEAK LATERAL ACCELERATION	15 Gs Maximum	8.5
IS ACCELERATION CURVE UNIMODAL?	YES	YES

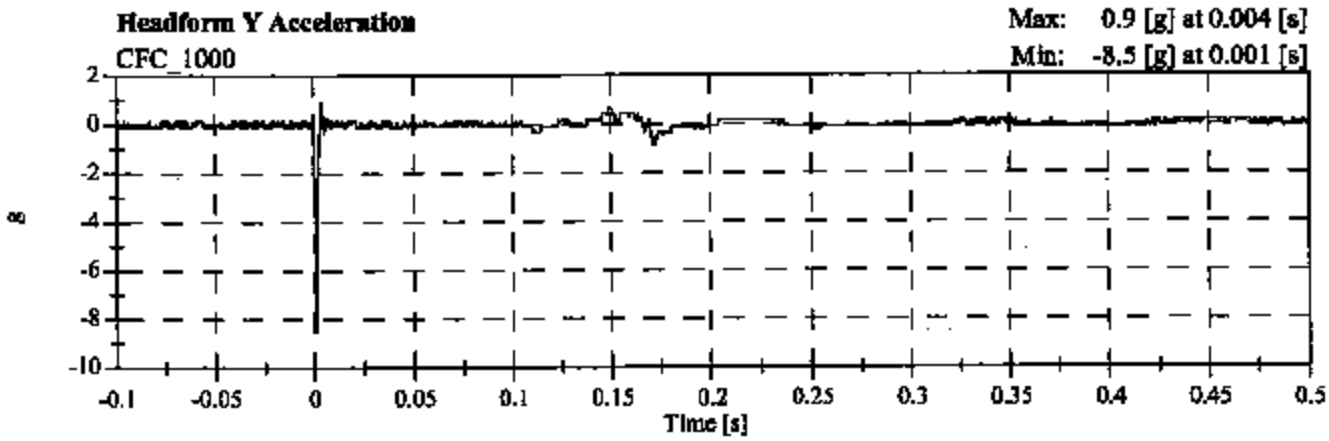
HEAD ACCELEROMETER CALIBRATION INFORMATION

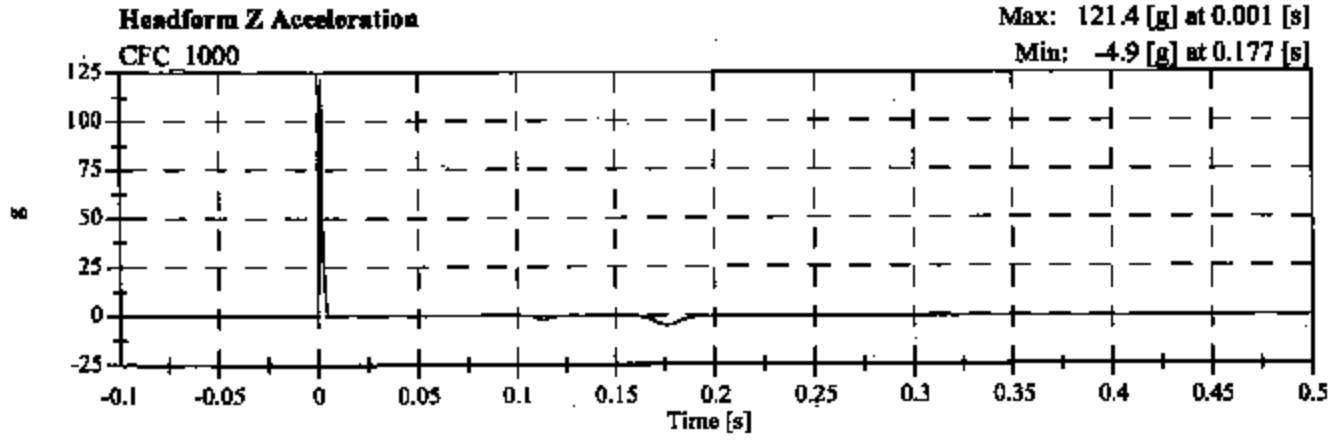
I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 -LONGITUDINAL	ENDEVCO	7264-2000T	J33127	10/06/2004	04/06/2005
2 - LATERAL	ENDEVCO	7264-2000T	J33019	10/06/2004	04/06/2005
3 - VERTICAL	ENDEVCO	7264-2000T	J32782	10/06/2004	04/06/2005

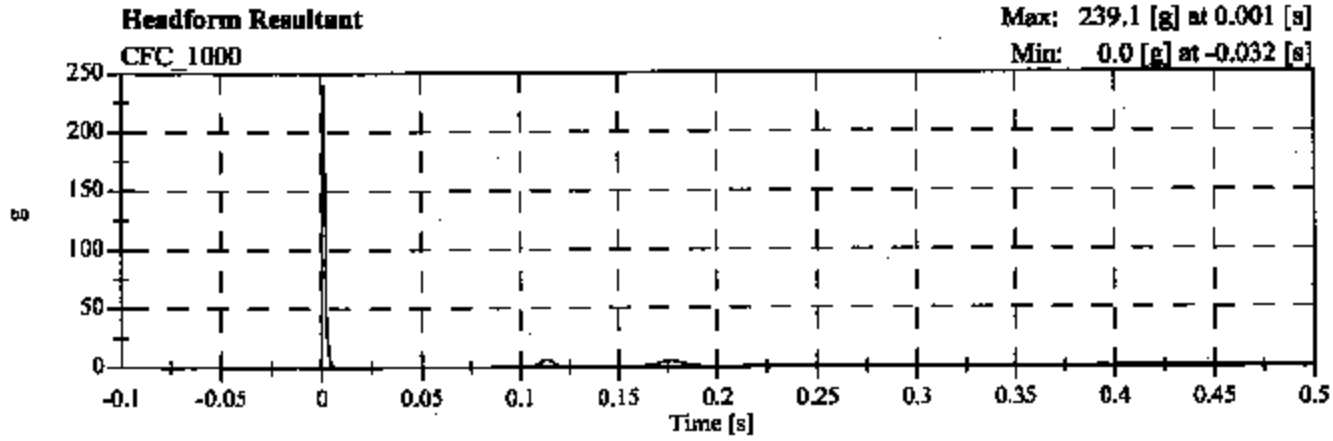
REMARKS:

FMVSS 201U - HeadForm Calibration Drops
FMH 0062 - November 29, 2004









C50101 POST-TEST HEADFORM 0062 IMPACT PLOT #1 8754-FMH-02

PART 572L
HEAD DROP POST-TEST

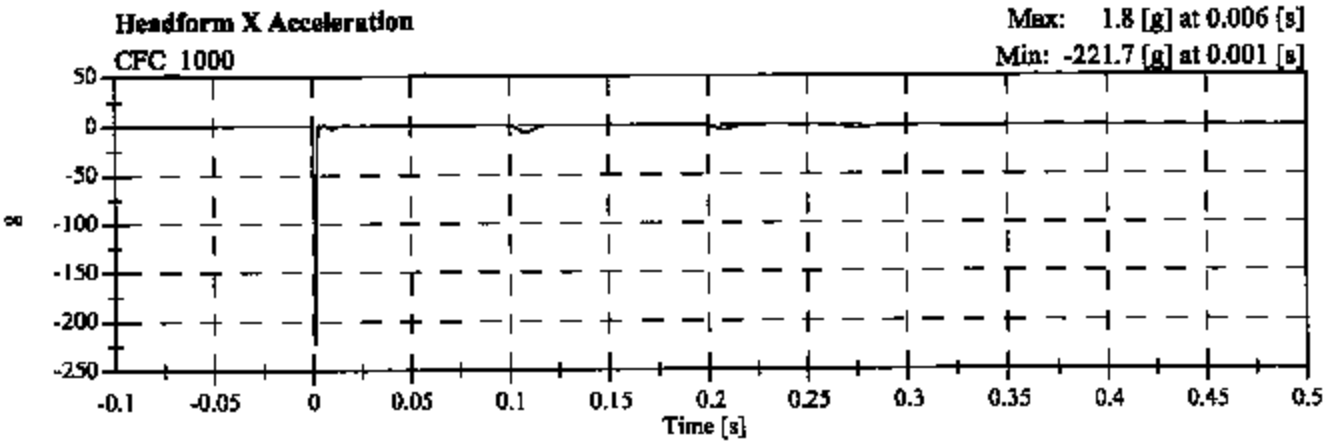
MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS	
SERIAL NUMBER:	805	
CALIBRATION DATE:	December 1, 2004	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	24.2
RELATIVE HUMIDITY	10% to 70%	38.6
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	248.0
PEAK LATERAL ACCELERATION	15 Gs Maximum	3.7
IS ACCELERATION CURVE UNIMODAL?	YES	YES

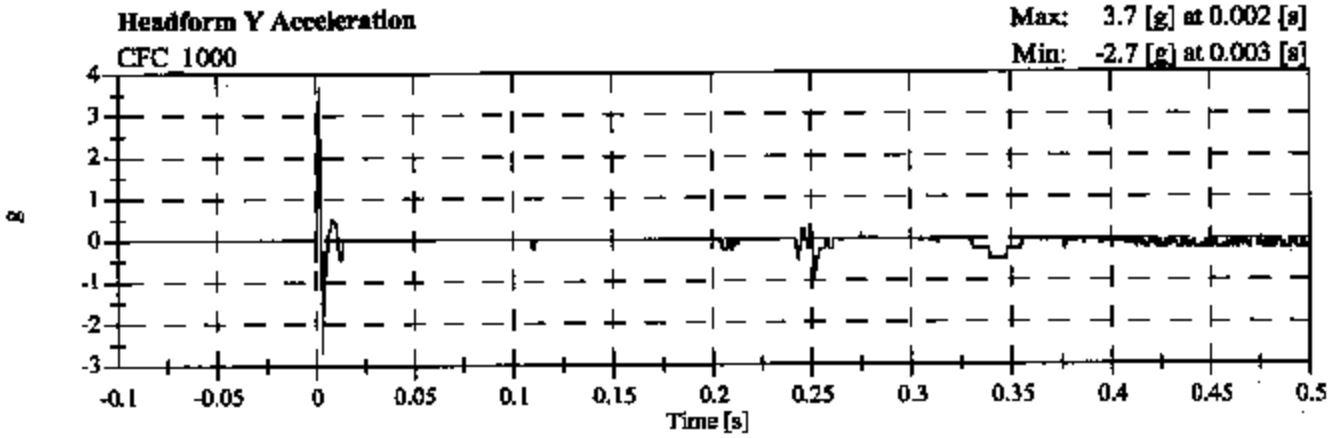
HEAD ACCELEROMETER CALIBRATION INFORMATION

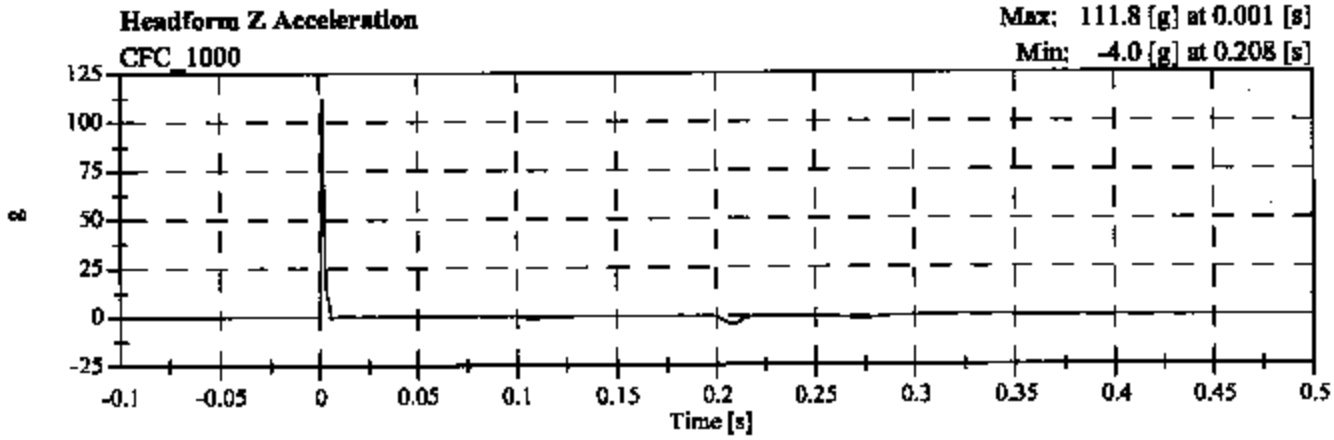
I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 -LONGITUDINAL	ENDEVCO	7264-2000T	J38127	10/07/2004	04/07/2005
2 - LATERAL	ENDEVCO	7264-2000T	J37960	10/07/2004	04/07/2005
3 - VERTICAL	ENDEVCO	7264-2000T	J37854	10/07/2004	04/07/2005

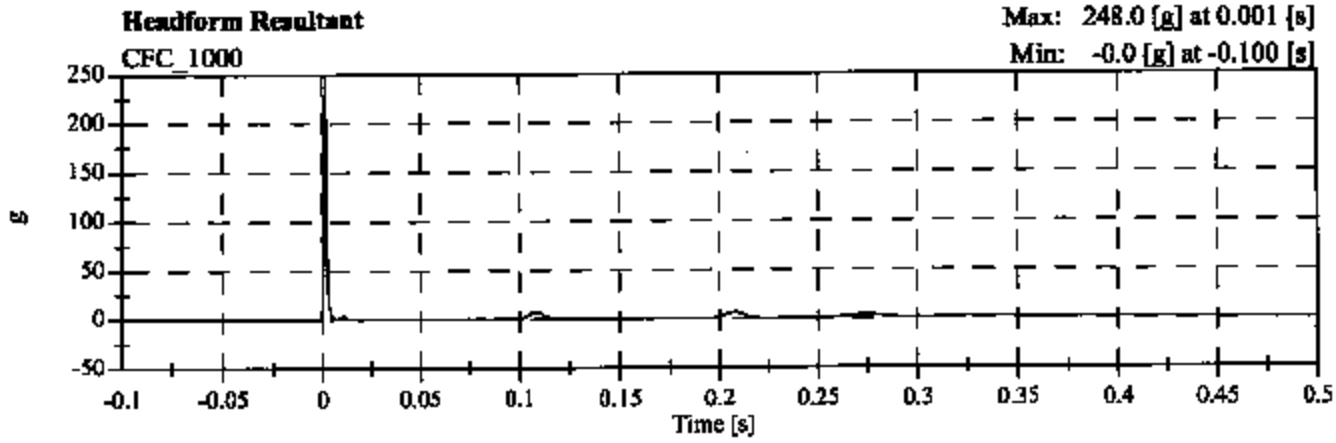
REMARKS:

FMVSS 201U - HeadForm Calibration Drops
FMH 0805 - December 01, 2004









C50101 POST-TEST HEADFORM 0805 IMPACT PLOT #1 8754-FMH-02

PART 572L
HEAD DROP POST-TEST

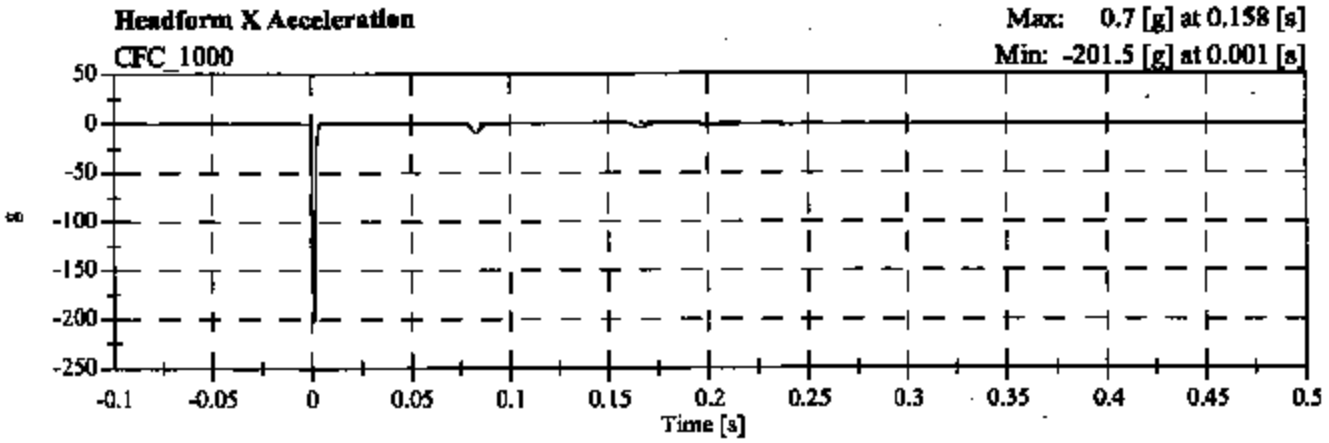
MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS	
SERIAL NUMBER:	0355	
CALIBRATION DATE:	November 29, 2004	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	23.9
RELATIVE HUMIDITY	10% to 70%	41.2
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	228.2
PEAK LATERAL ACCELERATION	15 Gs Maximum	2.5
IS ACCELERATION CURVE UNIMODAL?	YES	YES

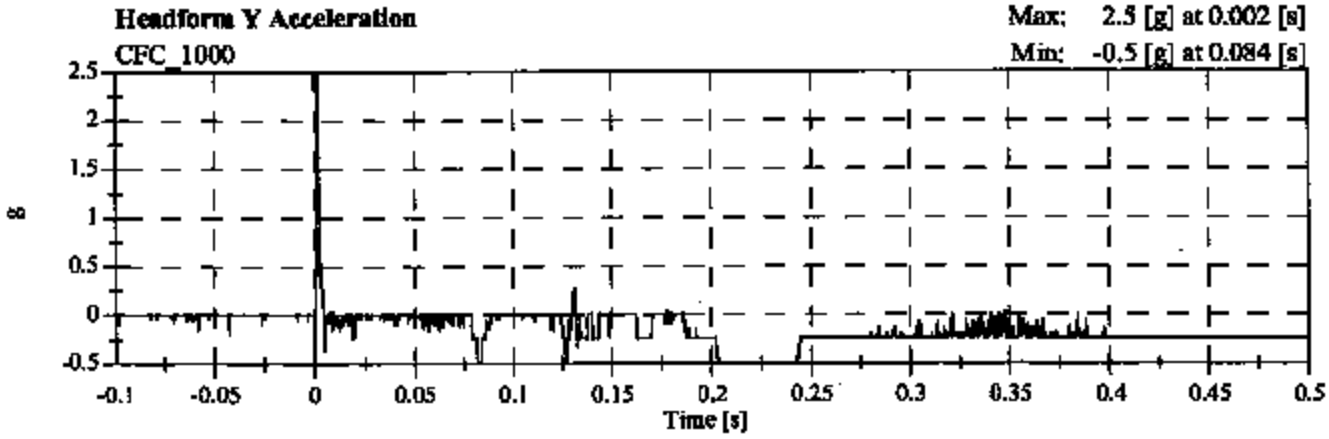
HEAD ACCELEROMETER CALIBRATION INFORMATION

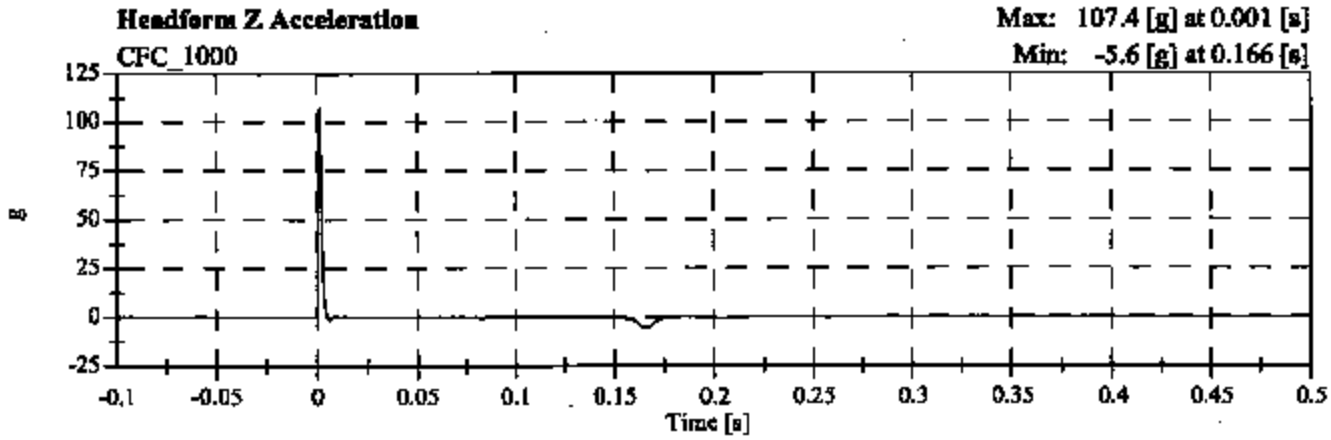
I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 -LONGITUDINAL	ENDEVCO	7264-2000T	J28671	10/07/2004	04/07/2005
2 - LATERAL	ENDEVCO	7264-2000T	J32779	10/07/2004	04/07/2005
3 - VERTICAL	ENDEVCO	7264-2000T	J25854	10/07/2004	04/07/2005

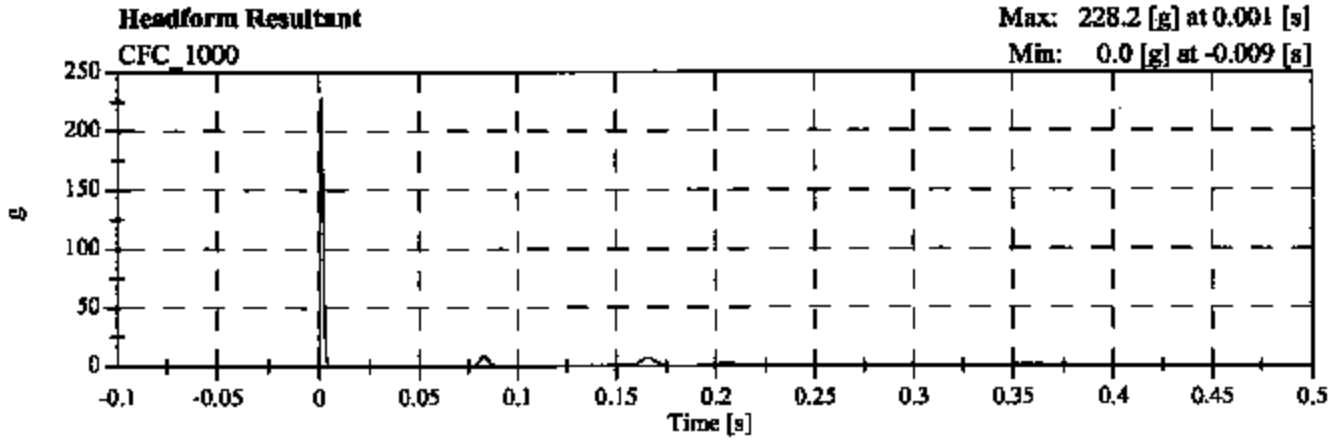
REMARKS:

FMVSS 201U - HeadForm Calibration Drops
FMH 0355 - November 29, 2004









C50101 POST-TEST HEADFORM 0355 IMPACT PLOT #1 8754-FMH-02

PART 5721
HEAD DROP POST-TEST

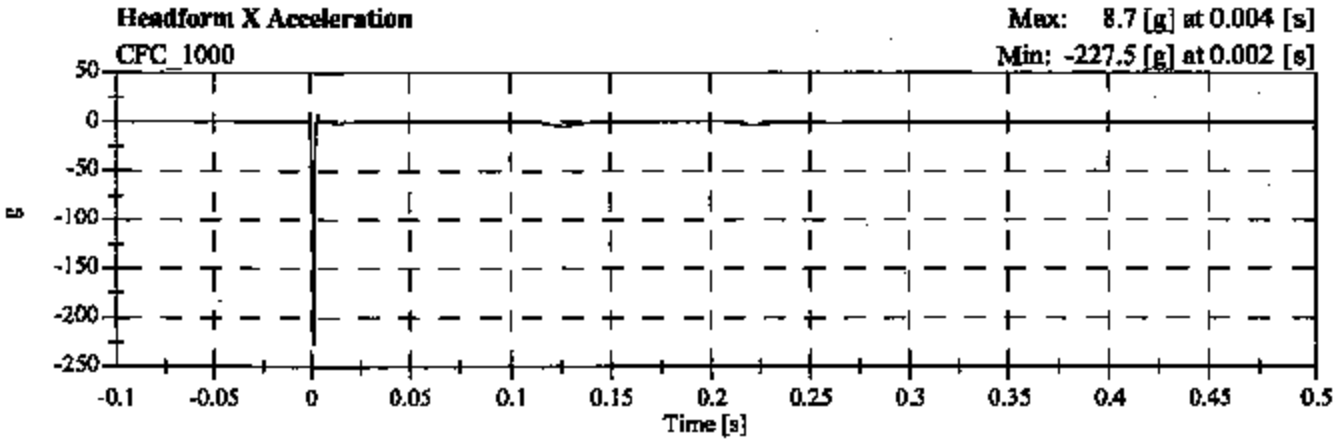
MANUFACTURER:	FIRST TECHNOLOGIES SAFETY SYSTEMS	
SERIAL NUMBER:	1255	
CALIBRATION DATE:	November 29, 2004	
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE	19°C to 26°C	23.9
RELATIVE HUMIDITY	10% to 70%	41.2
PEAK RESULTANT ACCELERATION	225 Gs to 275 Gs	255.5
PEAK LATERAL ACCELERATION	15 Gs Maximum	1.9
IS ACCELERATION CURVE UNIMODAL?	YES	YES

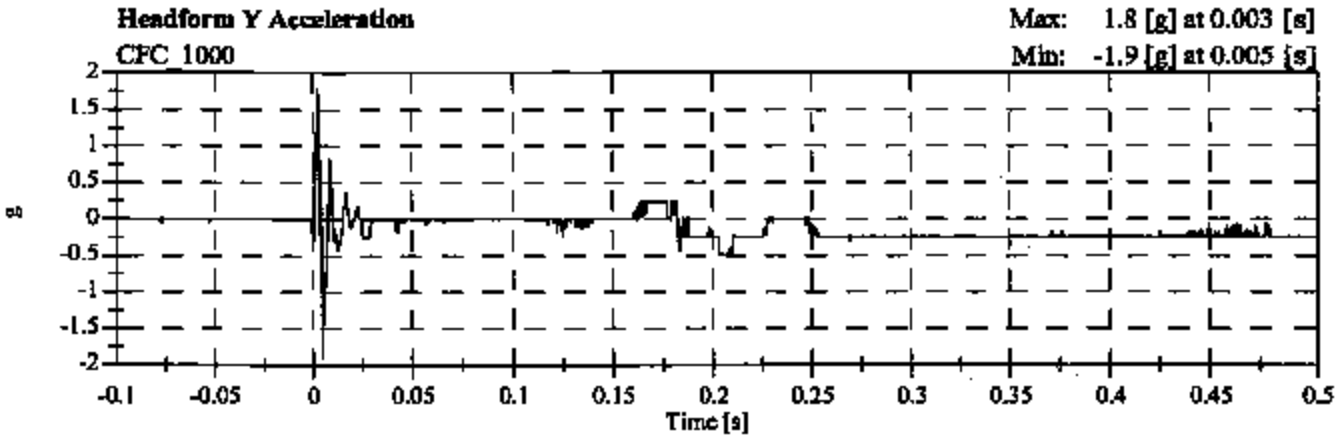
HEAD ACCELEROMETER CALIBRATION INFORMATION

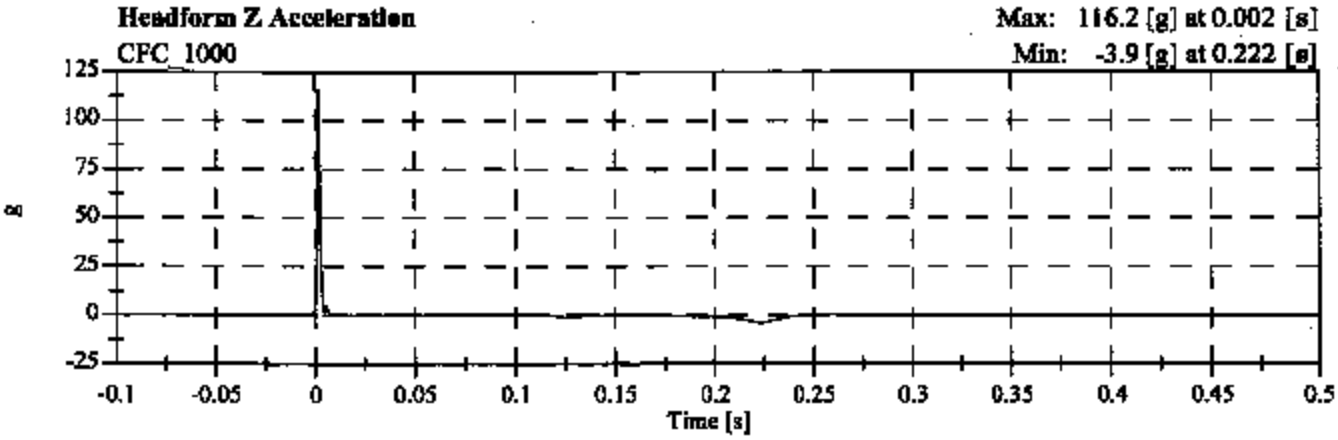
I.D. NUMBER	MANUFACTURER	MODEL NUMBER	SERIAL NUMBER	DATE OF LAST CALIBRATION	DATE OF NEXT CALIBRATION
1 -LONGITUDINAL	ENDEVCO	7264-2000T	J41006	10/06/2004	04/06/2005
2 - LATERAL	ENDEVCO	7264-2000T	J40994	10/06/2004	04/06/2005
3 - VERTICAL	ENDEVCO	7264-2000T	J41007	10/06/2004	04/06/2005

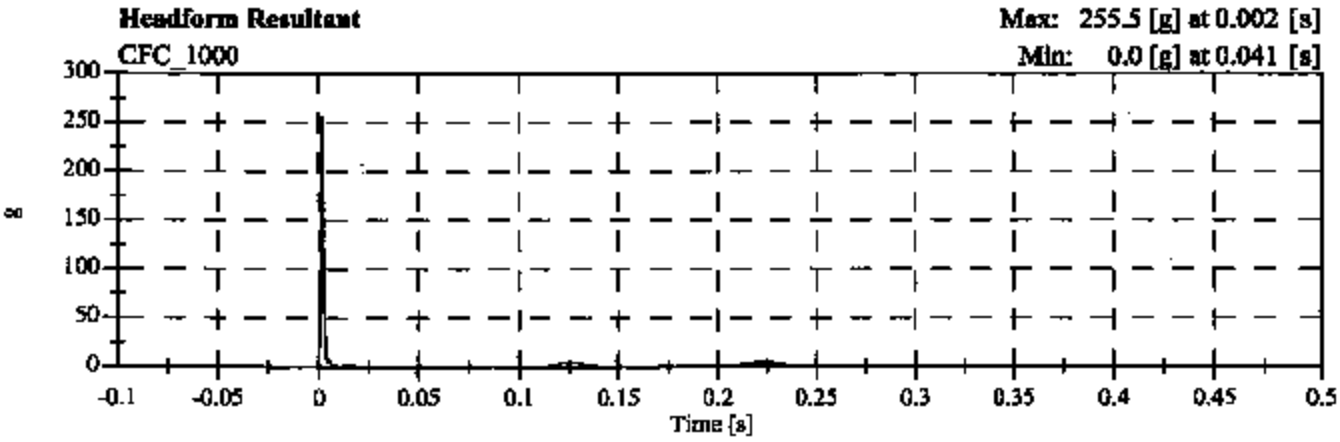
REMARKS:

FMVSS 201U - HeadForm Calibration Drops
FMH 1255 - November 29, 2004









C50101 POST-TEST HEADFORM 1255 IMPACT PLOT #1 8754-FMH-02