

REPORT NUMBER: 201U-CAL-10-10

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

**HONDA OF AMERICA MANUFACTURING COMPANY, INC.
2010 Honda Insight**

NHTSA NUMBER: CA5302

CALSPAN TEST NUMBER: CC2010-10

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



Test Date: May 20, 2010

FINAL REPORT

PREPARED FOR:

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Enforcement
Office of Vehicle Safety Compliance
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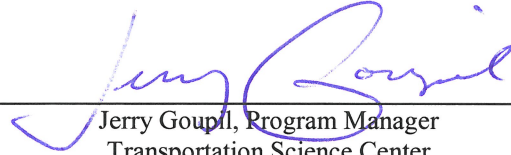
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Approval Date:

12/2/10

FINAL REPORT ACCEPTANCE BY:

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| 4. <i>Title and Subtitle</i> Final Report of FMVSS 201 Compliance Testing of a 2010 Honda Insight NHTSA No. CA5302 | | | | 5. <i>Report Date</i> May 24, 2010 | | | | | | | | | | | | | | | | | | | |
| | | | | 6. <i>Performing Organization Code</i> CAL | | | | | | | | | | | | | | | | | | | |
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| 9. <i>Performing Organization Name and Address</i> Calspan 4455 Genesee Street Buffalo, New York 14225 | | | | 10. <i>Work Unit No.</i> | | | | | | | | | | | | | | | | | | | |
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| | | | | 14. <i>Sponsoring Agency Code</i> NVS-220 | | | | | | | | | | | | | | | | | | | |
| 15. <i>Supplementary Notes</i> | | | | | | | | | | | | | | | | | | | | | | | |
| 16. <i>Abstract</i> Compliance tests were conducted on the subject vehicle, 2010 Honda Insight, 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. DTNH22-09-D-00130. The purpose of this head impact compliance test was to determine whether the subject vehicle, a 2010 Honda Insight, NHTSA No. CA5302, meets the performance requirements of FMVSS 201, Occupant Protection in Interior Impact. The compliance test was conducted in accordance with the OVSC Laboratory Test Procedure No. TP-201U-01 dated April_03, 1998.

SECTION 2

SUMMARY OF UPPER INTERIOR HEAD IMPACTS

A 2010 Honda Insight , NHTSA No. CA5302, was tested at various upper interior locations by a 4.54 kg 50th percentile headform. A total of Twelve (12) impacts were performed in this test series. The target area impacts were chosen by the NHTSA Contracting Officer's Technical Representative (COTR). A summary of test results can be found on Data Sheet 2-1, Summary of Upper Interior Head Impact Tests. The Twelve (12) area chosen for testing were:

| | | | |
|------|------|-----|-----|
| URCG | URBP | API | SR1 |
| SR3 | SR2 | BP4 | AP2 |
| BP2 | AP3 | BP1 | FH1 |

The selected impact areas on the test vehicle appeared to comply with the performance requirements of FMVSS 201.

Five Free Motion Headforms (FMH) were used in this test series. All five FMH's were calibrated prior to and after the test series. Calibration information are included in Appendix B. Each FMH weighed 4.54 ± 0.5 kg and had an orthogonal tri-axis accelerometer pack mounted at the headform's center of gravity (c.g.).

A total of three (3) channels of data for each test were recorded on a Keyser-Threde data acquisition system. Data plots, along with still images, can be found in Section 3, Summary of Test Results and Data Plots.

To document each target area impact test, a Weinberger high-speed video camera was placed at an appropriate location to record the headform contact with the selected target area.

DATA SHEET 2-1

SUMMARY OF UPPER INTERIOR HEAD IMPACT TESTS

| | |
|--------------------------------|--------------------------------|
| VEHICLE YEAR/MAKE/MODEL/STYLE: | 2010 Honda Insight |
| VIN: | JHMZE2H5XAS018594 |
| DATE OF MANUFACTURE: | 7/09 (SEE CERTIFICATION LABEL) |
| COLOR: | Alabaster Silver |

| TARGET CODE | Target Coordinates | | | | | | Approach Angles (degrees) | | Velocity (kph) | FMH HIC | HIC(d) |
|-------------|--------------------|---------|---------|----------------|--------|---------|---------------------------|----------|----------------|---------|--------|
| | Driver Side | | | Passenger Side | | | Horizontal | Vertical | | | |
| | X(mm) | Y(mm) | Z(mm) | X(mm) | Y(mm) | Z(mm) | | | | | |
| AP1 | 1044.10 | -524.77 | 1013.95 | 1044.72 | 523.63 | 1014.12 | Relocated 1 circle | | - | - | - |
| AP1 R1 | 1045.10 | -533.72 | 993.73 | 1050.47 | 532.78 | 994.92 | 105 | 20 | 18.85 | 181.4 | 303.3 |
| AP2 | 910.62 | -575.48 | 925.48 | 901.46 | 574.89 | 924.40 | 230 | 46 | 18.93 | 399.4 | 467.7 |
| AP3 | 774.72 | -598.11 | 875.14 | 771.83 | 599.83 | 875.70 | 134 | 50 | 18.62 | 556.8 | 586.4 |
| FH1 | 969.45 | -428.49 | 1045.01 | 967.56 | 428.02 | 1046.79 | 180 | 50 | 23.69 | 363.0 | 440.2 |
| FH2 | 951.81 | -279.58 | 1048.64 | 947.56 | 278.12 | 1049.37 | - | - | - | - | - |
| SR1 | 1193.10 | -509.23 | 1056.20 | 1194.68 | 506.82 | 1058.54 | Relocated 2 circle | | - | - | - |
| SR1 R2 | 1219.26 | -490.73 | 1043.40 | 1218.70 | 489.02 | 1043.46 | 270 | 32 | 18.25 | 167.5 | 292.7 |
| SR2 | 1342.72 | -505.94 | 1069.97 | 1345.23 | 503.12 | 1069.20 | Relocated 2 circle | | - | - | - |
| SR2 R2 | 1375.06 | -481.62 | 1060.71 | 1371.69 | 478.21 | 1060.21 | 90 | 37 | 18.52 | 196.9 | 315.0 |
| SR2B | 1339.54 | -505.36 | 1070.31 | 1339.37 | 502.86 | 1069.24 | Relocated 2 circle | | - | - | - |
| SR2B R2 | 1340.49 | -459.42 | 1074.23 | 1338.94 | 455.43 | 1073.78 | - | - | - | - | - |
| BP1 | 1641.03 | -472.72 | 1067.43 | 1640.45 | 472.63 | 1066.32 | - | - | - | - | - |
| BP1 R2 | 1640.38 | -431.20 | 1084.45 | 1640.65 | 434.87 | 1083.56 | 270 | 20 | 18.30 | 370.2 | 445.7 |
| BP2 | 1594.75 | -569.46 | 839.50 | 1593.32 | 566.42 | 840.08 | 90 | 5 | 23.61 | 605 | 622.9 |
| BP3 | 1539.78 | -605.32 | 858.92 | 1537.61 | 605.71 | 860.33 | - | - | - | - | - |
| BP4 | 1643.19 | -637.82 | 755.40 | 1642.38 | 632.21 | 758.60 | 210 | -8 | 23.93 | 521.4 | 559.8 |
| URBP | 1628.99 | -304.72 | 1111.76 | 1636.75 | 353.91 | 1103.33 | 87 | 50 | 23.76 | 458.2 | 512.1 |
| SR3 | 1944.68 | -472.23 | 1050.27 | 1944.37 | 466.74 | 1055.26 | 90 | 32 | 18.48 | 153.6 | 282.3 |
| URCG | 2264.80 | -323.93 | 1092.61 | 2264.68 | 324.74 | 1092.22 | 77 | 50 | 23.31 | 398.3 | 466.9 |
| RP1 | 2465.62 | -489.29 | 958.23 | 2465.02 | 489.68 | 955.53 | - | - | - | - | - |
| RP2 | 2638.04 | -611.30 | 811.70 | 2637.22 | 613.89 | 811.53 | Relocated 8 circles | | - | - | - |
| RP2 R8 | 2544.50 | -499.69 | 91168 | 2551.67 | 479.83 | 916.22 | - | - | - | - | - |
| RH | 2488.25 | -324.36 | 997.88 | 2488.88 | 327.33 | 996.90 | - | - | - | - | - |

*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: | | | | 2010 Honda Insight | | | | | |
| VIN: | | | | JHMZE2H5XAS018594 | | | | | |
| Month & Year of Manufacture: | | | | 7/09 (SEE CERTIFICATION LABEL) | | | | | |
| Vehicle Body Color: | | | | Alabaster Silver | | | | | |
| Engine Data: | 4 | Cylinders; | | CID; | 1.3 | Liters; | - | cc | |
| Engine Placement: | | X | Longitudinal; | or | | | | Lateral | |
| Transmission: | CVT | Speed; | | Manual; | X | Automatic; | X | Overdrive | |
| Final Drive: | | Rear Wheel Drive; | X | Front Wheel Drive; | | Four Wheel Drive | | | |
| Odometer Reading: | | 56.3 | km | | | | | | |
| Options: | X | A/C; | X | Power Steering; | X | Pwr.Brakes; | X | Pwr. Windows | |
| Interior Trim Information : | | | | | | | | | |
| 1. | | | | | | | | | |
| 2. | | | | | | | | | |
| 3. | | | | | | | | | |

| | | | | | | | | | |
|-------------------------------------|---|-----------|---|-----------------|---|------------------------------|--------|-------|--|
| DATA FROM TIRE PLACARD: | | | | | | | | | |
| Tire Pressure (at capacity); | | | | 230 | | kPa FRONT | | | |
| | | | | 230 | | kPa REAR | | | |
| Recommended Tire Size: | | | | 175/65R15 84S | | | | | |
| Tires on Test Vehicle: | | 175/65R15 | | Manufacturer: | | | Dunlop | | |
| 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)= | | | | 385 | | kg (A) | | | |
| No. of Occupants x 68 kg. = | | | | 340 | | kg (B) | | | |
| Rated Cargo/Luggage Weight (RCLW) = | | | | 45 | | 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 | = | 370.0 | kg | Left Rear | = | 256.5 | kg |
| Right Front | = | 347.0 | kg | Right Rear | = | 256.0 | kg |
| TOTAL FRONT | = | 717.0 | kg | TOTAL REAR | = | 512.5 | kg |
| % of Total Weight | = | 58.3 | % | % of Total Weight | = | 41.7 | % |
| TOTAL WEIGHT | = | 1229.5 | | | | kg | |

| CALCULATION OF VEHICLE'S TARGET TEST WEIGHT: | | |
|---|--------|----------|
| Total Test Vehicle Delivered Weight= | 1229.5 | kg (A) |
| + Rated Cargo/Luggage Weight = | 45 | kg (B) |
| TEST VEHICLE TARGET WEIGHT = | 1274.5 | kg (A+B) |

| WEIGHT OF TEST VEHICLE (FULLY LOADED): | | | | | | | |
|---|---|--------|----|-------------------|---|-------|----|
| Left Front | = | 369.5 | kg | Left Rear | = | 276.5 | kg |
| Right Front | = | 348.5 | kg | Right Rear | = | 273.5 | kg |
| TOTAL FRONT | = | 718.0 | kg | TOTAL REAR | = | 550.0 | kg |
| % of Total Weight | = | 56.6 | % | % of Total Weight | = | 43.4 | % |
| TOTAL TEST WEIGHT | = | 1268.0 | | | | | |
| Weight of vehicle secured in test vehicles cargo area | = | 38.6 | | | | kg | |

| TEST VEHICLE ATTITUDE (all dimensions in millimeters): | | | | |
|---|-------------|-------|-------------|-------|
| AS DELIVERED: | Left Front | 676.0 | Left Rear | 677.0 |
| | Right Front | 680.0 | Right Rear | 674.0 |
| FULLY LOADED: | Left Front | 673.0 | Left Rear | 671.0 |
| | Right Front | 679.0 | Right Rear | 672.0 |
| Test Vehicle Wheelbase: | 2550.0 | | millimeters | |

| TEST VEHICLE PITCH AND ROLL ANGLES: | | | | |
|--|-----------------|-------|--------------|-------|
| AS DELIVERED: | PITCH ANGLES | | ROLL ANGLES | |
| | Left Door Sill | ↑0.4↓ | Front Bumper | ↑0.1↓ |
| | Right Door Sill | ↓0.4↑ | Rear Bumper | ↓0.1↑ |
| FULLY LOADED: | PITCH ANGLES | | ROLL ANGLES | |
| | Left Door Sill | ↑0.3↓ | Front Bumper | ↑0.2↓ |
| | Right Door Sill | ↓0.2↑ | Rear Bumper | ↓0.2↑ |
| AS TESTED: | PITCH ANGLES | | ROLL ANGLES | |
| | Left Door Sill | ↑0.4↓ | Front Bumper | ↑0.1↓ |
| | Right Door Sill | ↓0.4↑ | Rear Bumper | ↓0.1↑ |

DATA SHEET 2-3

APPROACH ANGLE LIMITS

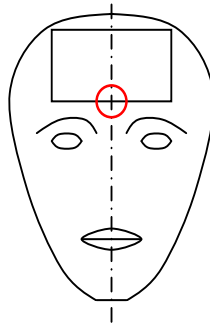
| Left Side | | | | | Right Side | | | | |
|-------------|--------------------------|---------|------------------------|---------|-------------|--------------------------|---------|------------------------|---------|
| Target Code | Horizontal Angles (deg.) | | Vertical Angles (deg.) | | Target Code | Horizontal Angles (deg.) | | Vertical Angles (deg.) | |
| | Minimum | Maximum | Minimum | Maximum | | Minimum | Maximum | Minimum | Maximum |
| AP1 | 203* | 230* | -5 | 20 | AP1 | 105* | 154* | -5 | 20 |
| AP2 | 203* | 230* | -5 | 46 | AP2 | 105* | 154* | -5 | 46 |
| AP3 | 203* | 230* | -5 | 50 | AP3 | 105* | 154* | -5 | 50 |
| BP1 | 207* | 282* | -10 | 20 | BP1 | 72* | 154* | -10 | 20 |
| BP2 | Any | | 0 | 5 | BP2 | Any | | 0 | 5 |
| BP3 | 207* | 282* | -10 | 5 | BP3 | 72* | 154* | -10 | 5 |
| BP4 | 207* | 282* | -10 | -8 | BP4 | 72* | 154* | -10 | -8 |
| OP1 | 270 | | -10 | 20 | OP1 | 90 | | -10 | 20 |
| OP2 | 270 | | -10 | 5 | OP2 | 90 | | -10 | 5 |
| RP1 | 270 | 345 | -10 | N/A | RP1 | 15 | 90 | -10 | N/A |
| RP2 | 270 | 345 | -10 | N/A | RP2 | 15 | 90 | -10 | N/A |
| FH1 | 180 | | 0 | 50 | FH1 | 180 | | 0 | 50 |
| FH2 | 180 | | 0 | N/A | FH2 | 180 | | 0 | N/A |
| RH | 360 | | 0 | N/A | RH | 0 | | 0 | N/A |
| SR1 | 270 | | 0 | 32 | SR1 | 90 | | 0 | 32 |
| SR2A | 270 | | 0 | 37 | SR2A | 90 | | 0 | 37 |
| SR2B | 270 | | 0 | 37 | SR2B | 90 | | 0 | 37 |
| SR3 | 270 | | 0 | 32 | SR3 | 90 | | 0 | 32 |
| SR3GH | 270 | | 0 | 37 | SR3GH | 90 | | 0 | 37 |
| URAP | ANY | | 0 | 50 | URAP | ANY | | 0 | 50 |
| URBP | ANY | | 0 | 50 | URBP | ANY | | 0 | 50 |
| URRP | ANY | | 0 | 50 | URRP | ANY | | 0 | 50 |

Note: BP2 target location – Seat belt anchorage
 * Estimated value based on FARO measurements
 N/A – Not Available

DATA SHEET 2-4

SUMMARY TARGET IMPACT LOCATION ON FMH

| | |
|--------------------------------|--------------------------------|
| VEHICLE YEAR/MAKE/MODEL/STYLE: | 2010 Honda Insight |
| VIN: | JHMZE2H5XAS018594 |
| DATE OF MANUFACTURE: | 7/09 (SEE CERTIFICATION LABEL) |
| COLOR: | Alabaster Silver |



↖ RIGHT SIDE OF FACE

| TARGET | Distance Above Point 0 (mm) | Distance Over From Pt. O (mm) |
|--------|-----------------------------|-------------------------------|
| URCG | 41 | 0 |
| SR3 | 15 | 15R |
| BP2 | 6 | 4R |
| URBP | 35 | 4R |
| SR2a | 11 | -3L |
| AP3 | 19 | -6L |
| AP1 | 8 | 31R |
| BP4 | 25 | 0 |
| BP1 | 78 | -13L |
| SR1 | 20 | -8L |
| AP2 | 20 | -5L |
| FH1 | 31 | 4R |

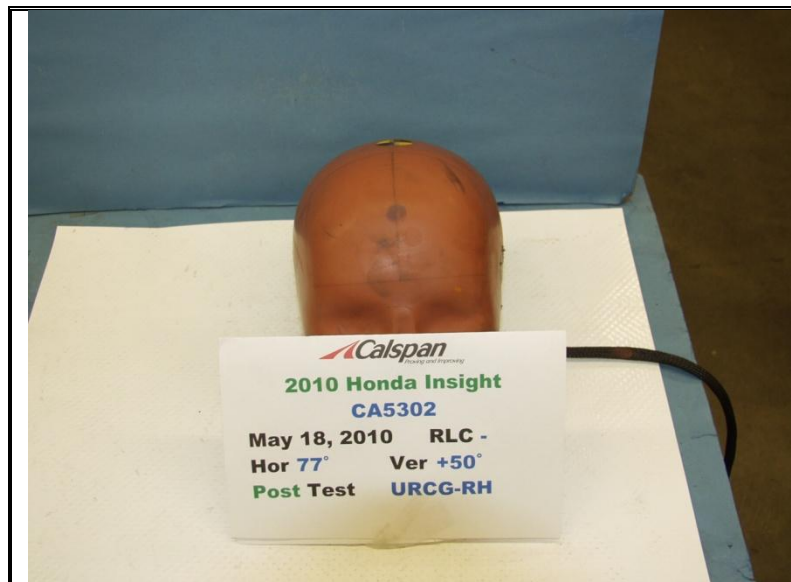
SECTION 3

SUMMARY OF TEST RESULTS AND DATA PLOTS

| | |
|--------------------------------|--------------------------------|
| VEHICLE YEAR/MAKE/MODEL/STYLE: | 2010 Honda Insight |
| VIN: | JHMZE2H5XAS018594 |
| DATE OF MANUFACTURE: | 7/09 (SEE CERTIFICATION LABEL) |
| COLOR: | Alabaster Silver |

| | |
|--------------------------|--|
| Test Number: | 01 |
| Test Date: | 18 May 2010 |
| Target Location: | URCG RH (Rear Seating Reference Point) |
| Target Code: | URCG RH |
| Horizontal Impact Angle: | 77 |
| Vertical Impact Angle: | 50 |
| Ambient Temperature: | 21.4° |
| Relative Humidity: | 37.4% |
| Time of Impact: | 10:30 |
| 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 | 41 | | mm up |



POST-IMPACT URCG HEADFORM

| | |
|-----------------------|-------|
| Free Motion HIC | 398.3 |
| HIC(d) | 466.9 |
| Impact Velocity (kph) | 23.31 |
| HIC T1 (msec) | 4.0 |
| HIC T2 (msec) | 12.4 |

URCG RH Side CA5302 - URCG RH

FMH Headform 355

Location: URCG RH

Test Date: May 18, 2010

Work File: fmh

TEST RESULTS

Lab Temperature: 21.4 C

HICd: 466.9

Lab Humidity: 37.4 %

HIC (36ms): 398.3

Velocity at Impact: 23.31 KPH

t1: 4.0 msec

t2: 12.4 msec

Free Flight Distance: 223.33 mm

Duration: 8.4 msec

Maximum: 97.2 g

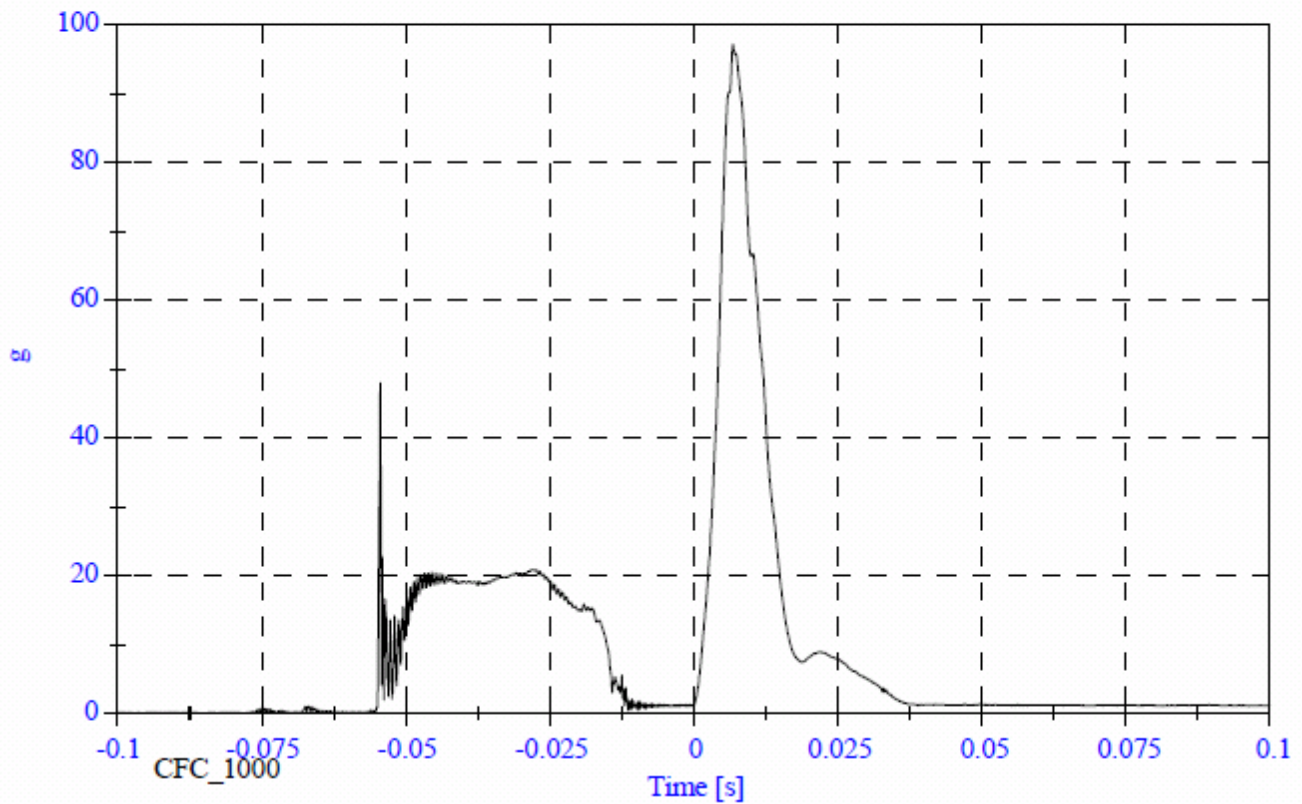
Average Acceleration: 8.6 g

URCG RH Side

Headform Resultant

Max: 97.2 [g] at 0.007 [s]

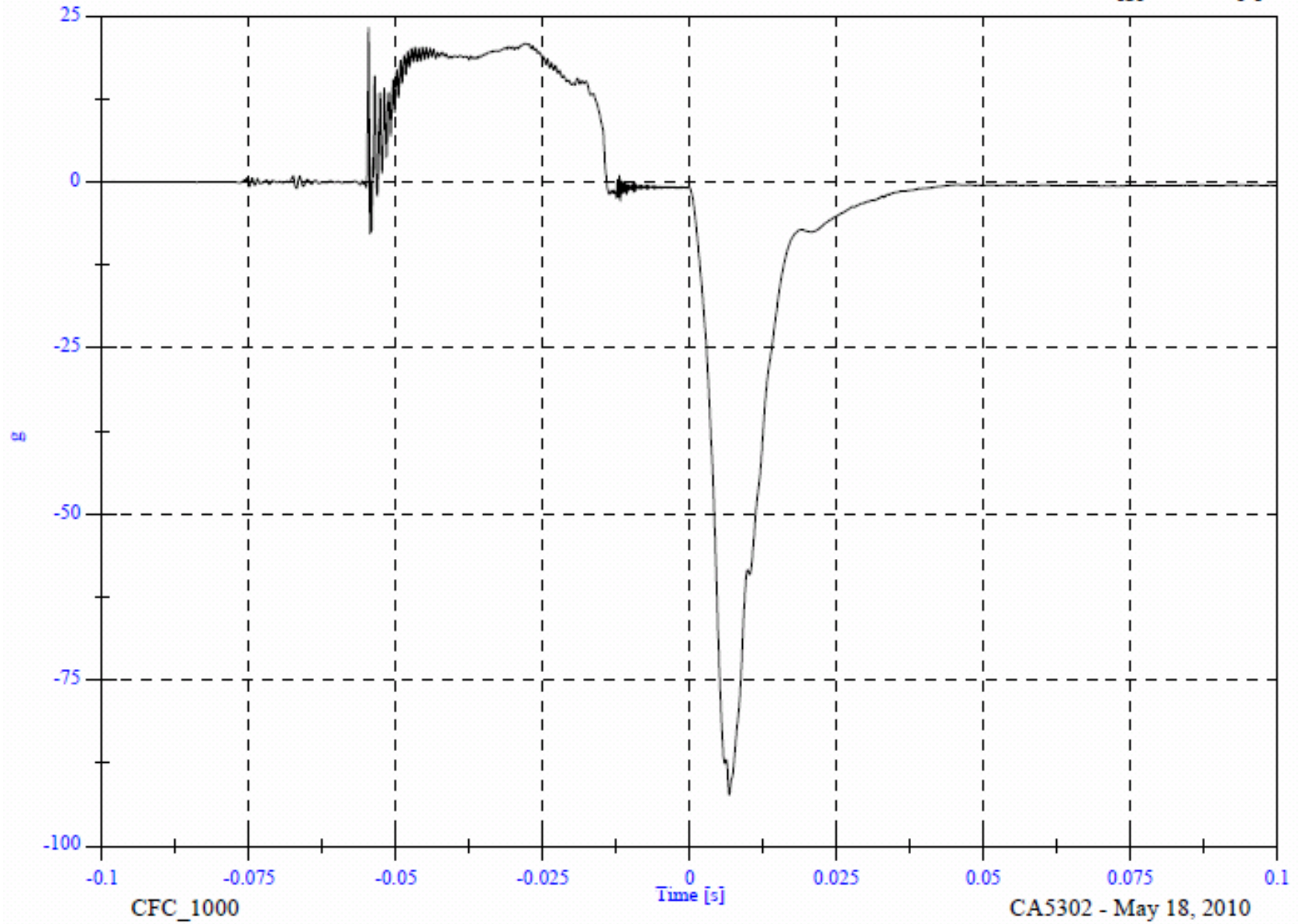
Min: 0.0 [g] at -0.098 [s]

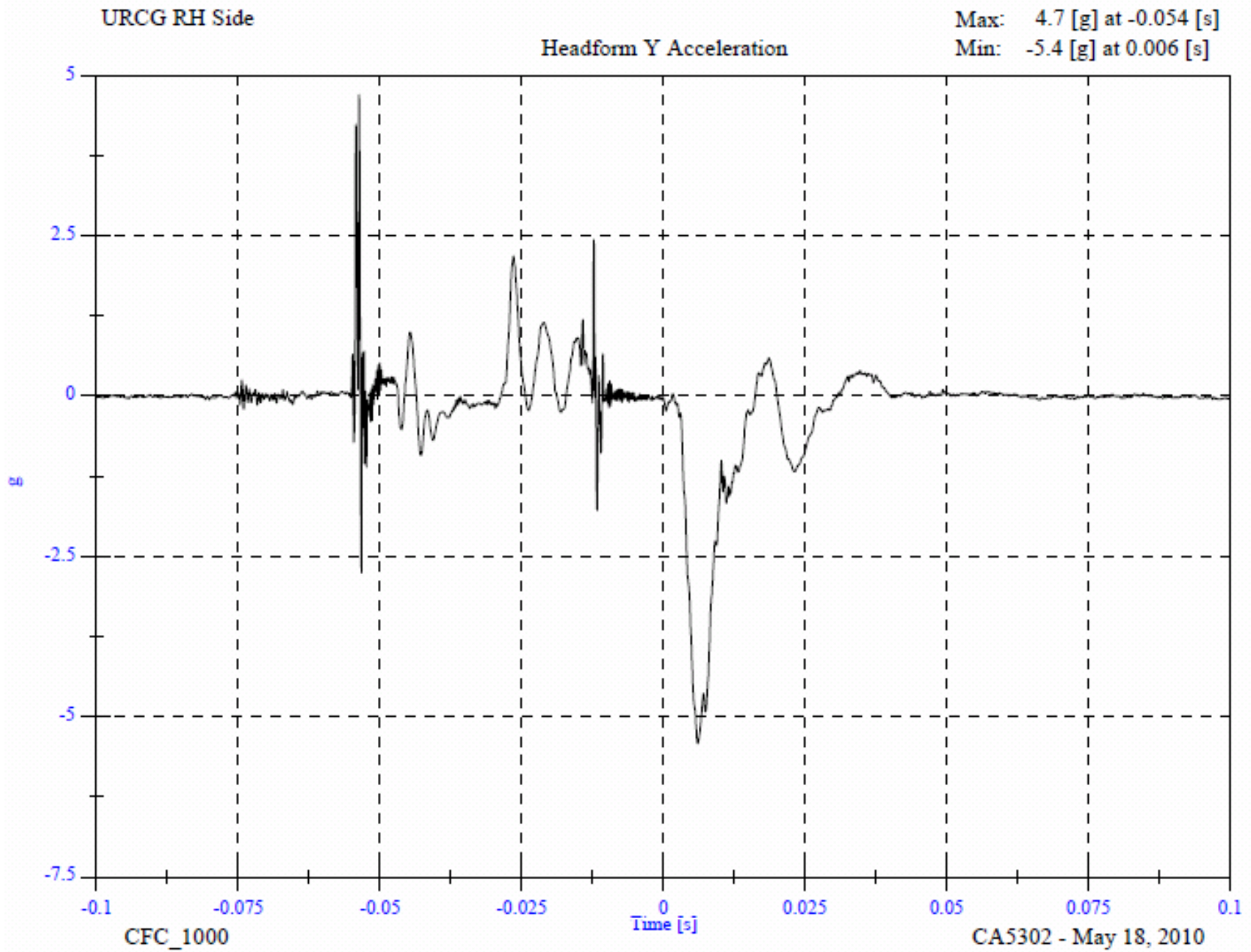


URCG RH Side

Headform X Acceleration

Max: 23.2 [g] at -0.055 [s]
Min: -92.3 [g] at 0.007 [s]

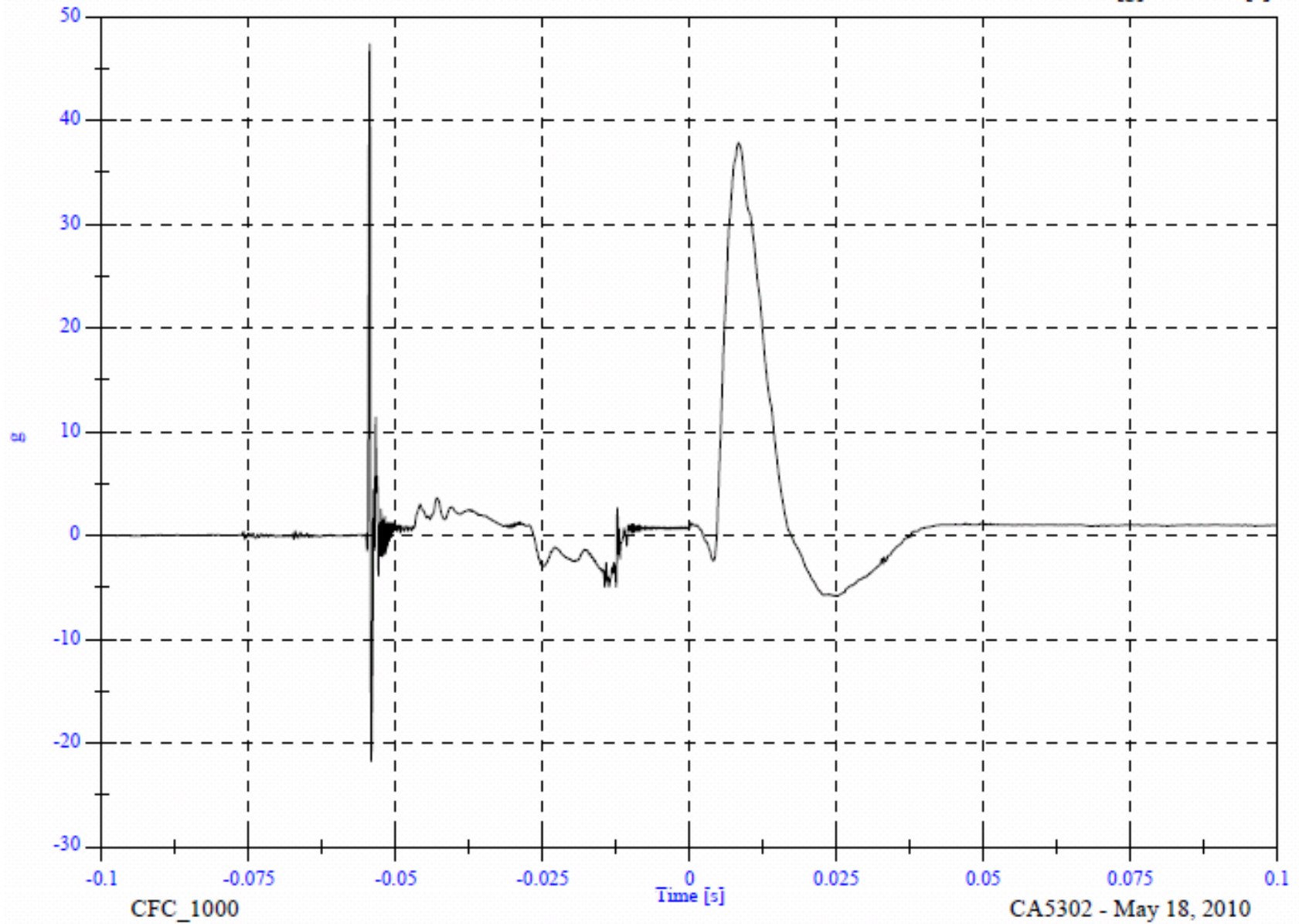




URCG RH Side

Headform Z Acceleration

Max: 47.4 [g] at -0.054 [s]
Min: -21.7 [g] at -0.054 [s]

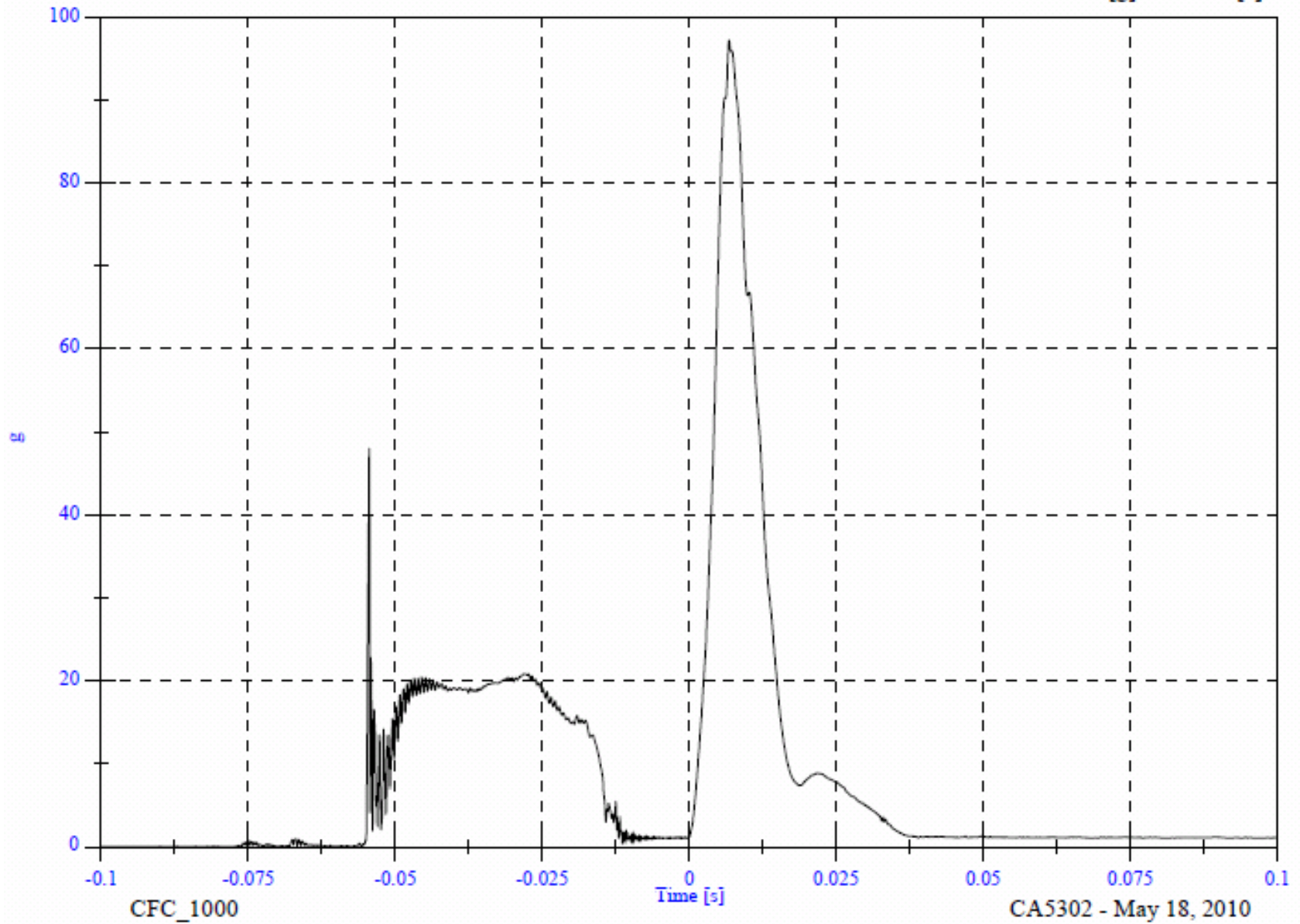


URCG RH Side

Headform Resultant

Max: 97.2 [g] at 0.007 [s]

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

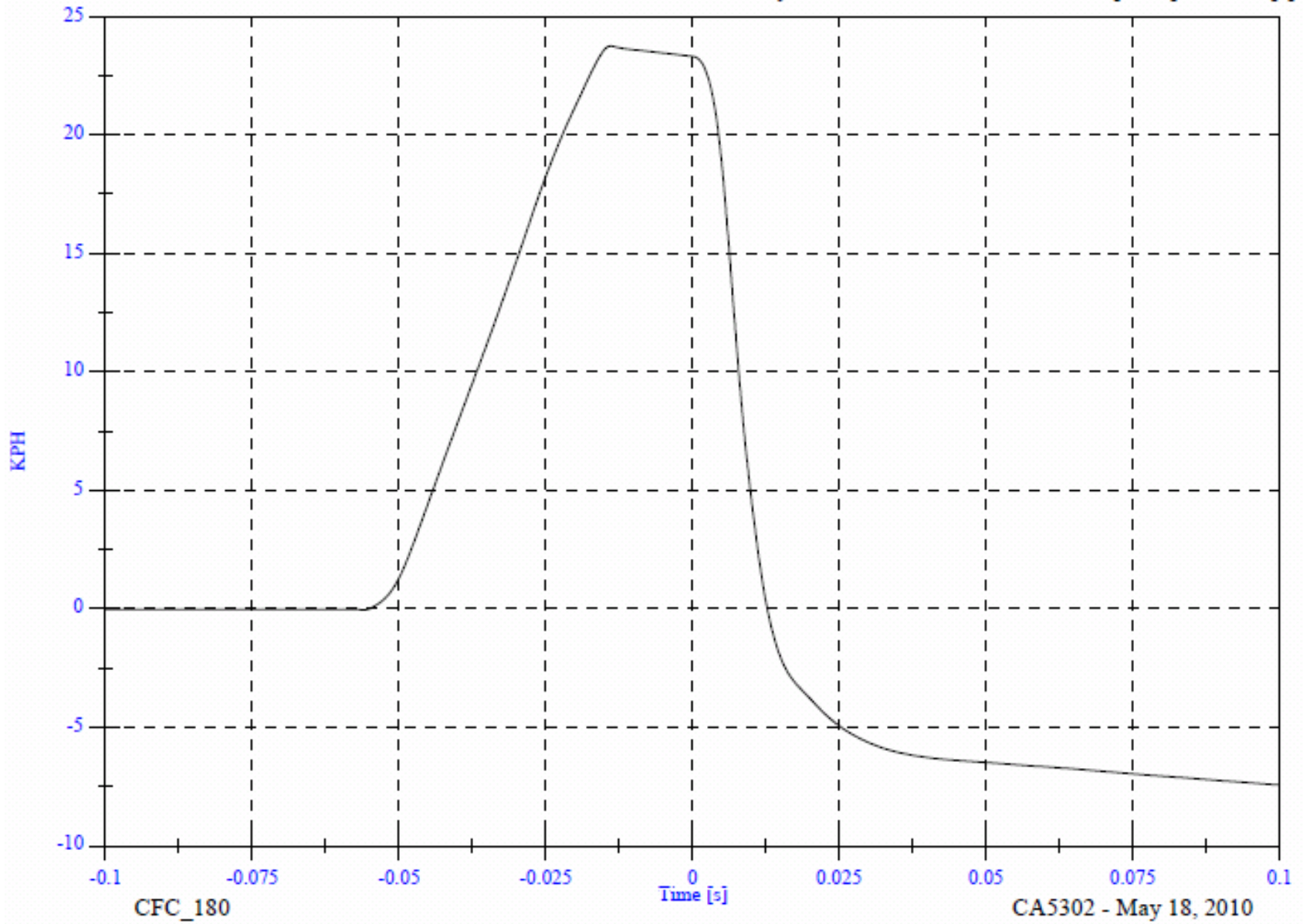


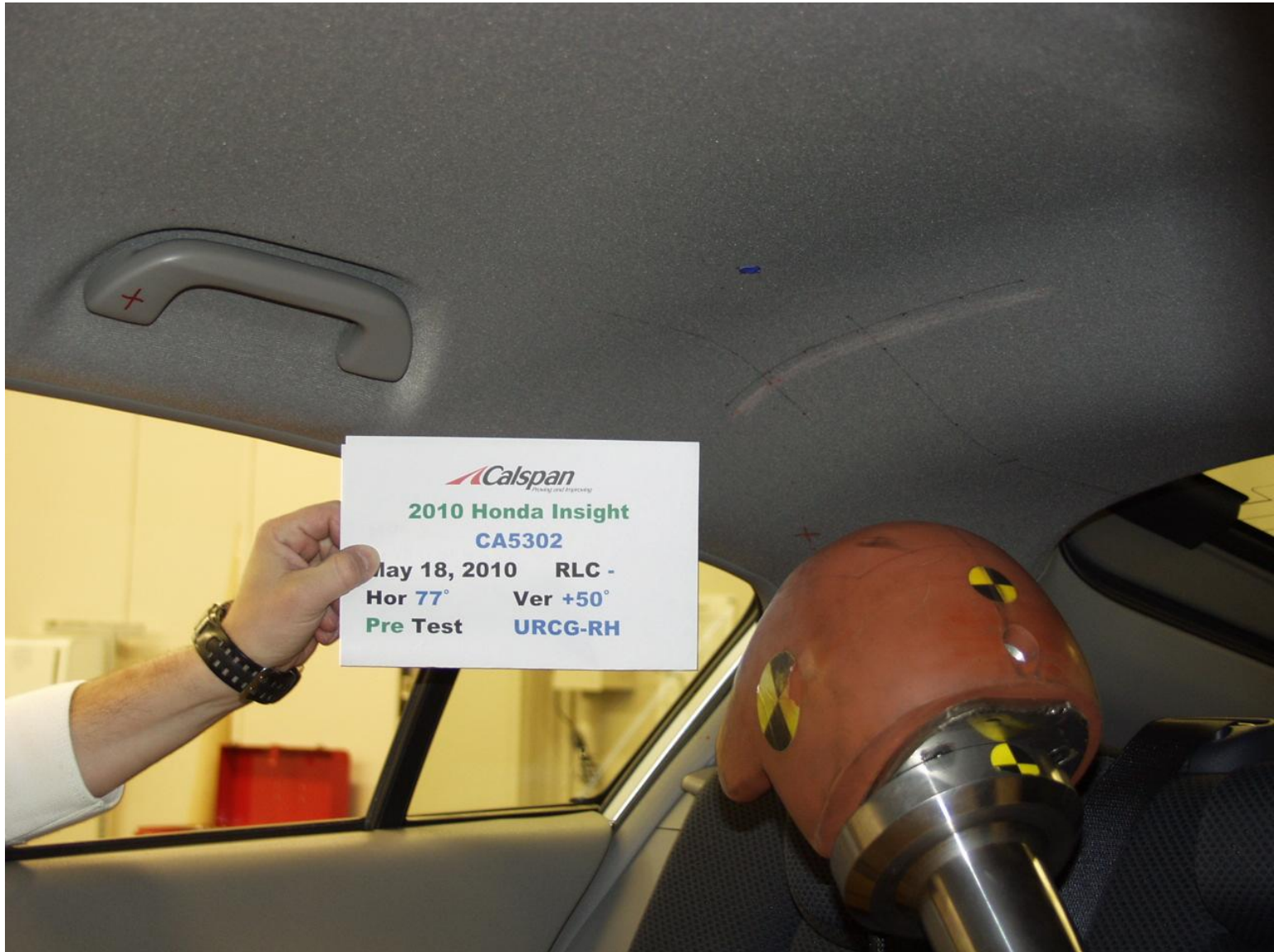
URCG RH Side

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

Min: -7.4 [KPH] at 0.100 [s]

Headform Velocity





PRE-IMPACT URCG RH

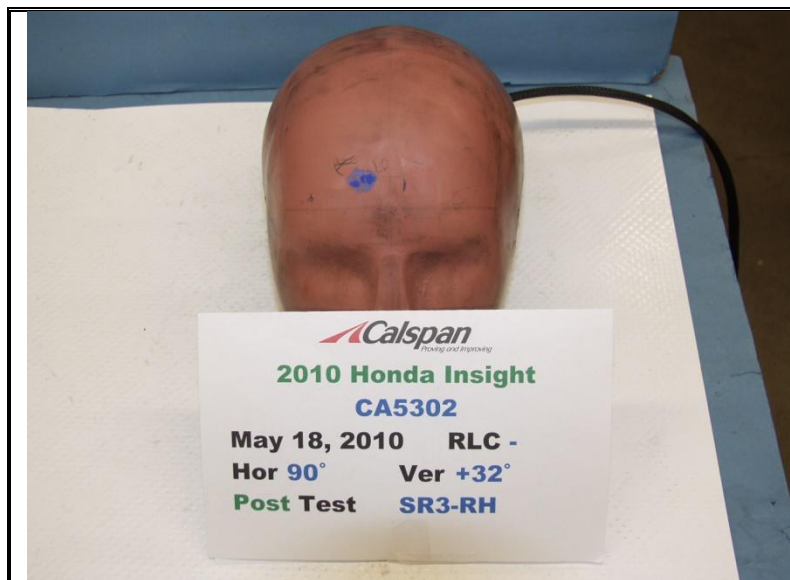


POST-IMPACT URCG RH

| | |
|--------------------------------|--------------------------------|
| VEHICLE YEAR/MAKE/MODEL/STYLE: | 2010 Honda Insight |
| VIN: | JHMZE2H5XAS018594 |
| DATE OF MANUFACTURE: | 7/09 (SEE CERTIFICATION LABEL) |
| COLOR: | Alabaster Silver |

| | |
|--------------------------|-------------|
| Test Number: | 02 |
| Test Date: | 18 May 2010 |
| Target Location: | SR3 RH |
| Target Code: | SR3RH |
| Horizontal Impact Angle: | 90 |
| Vertical Impact Angle: | 32 |
| Ambient Temperature: | 22 |
| Relative Humidity: | 36.1% |
| Time of Impact: | 11.10 |
| Headform Number: | 805 |

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



POST-IMPACT OP2 RH HEADFORM

| | |
|-----------------------|-------|
| Free Motion HIC | 153.6 |
| HIC(d) | 282.3 |
| Impact Velocity (kph) | 18.48 |
| HIC T1 (msec) | 1.9 |
| HIC T2 (msec) | 18.6 |

SR3 RH Side CA5302 - SR3 RH

FMH Headform 805

Location: SR3 RH

Test Date: May 18, 2010

Work File: fmh

TEST RESULTS

Lab Temperature: 22 C

HICd: 282.3

Lab Humidity: 36.1 %

HIC (36ms): 153.6

Velocity at Impact: 18.48 KPH

t1: 1.9 msec

t2: 18.6 msec

Free Flight Distance: 220.32 mm

Duration: 16.8 msec

Maximum: 57.2 g

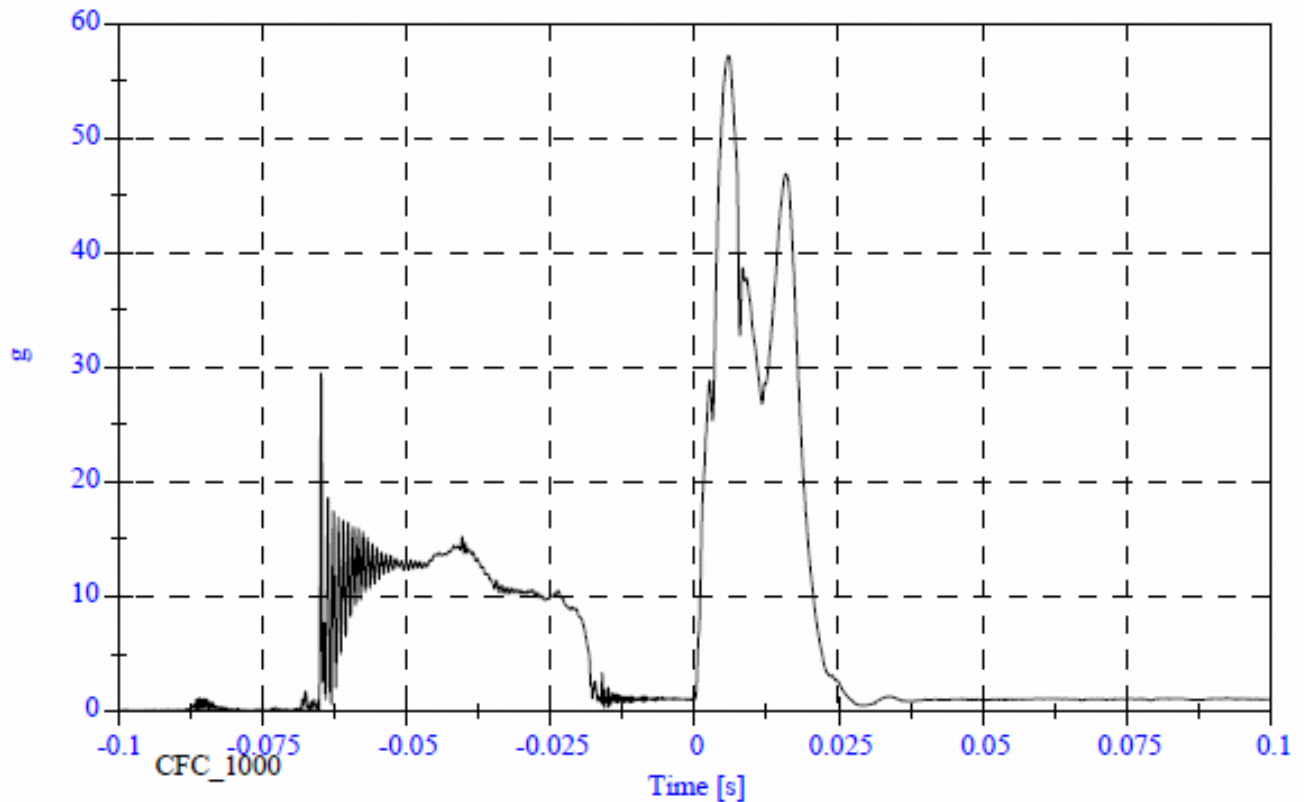
Average Acceleration: 6.8 g

SR3 RH Side

Headform Resultant

Max: 57.2 [g] at 0.006 [s]

Min: 0.0 [g] at -0.077 [s]

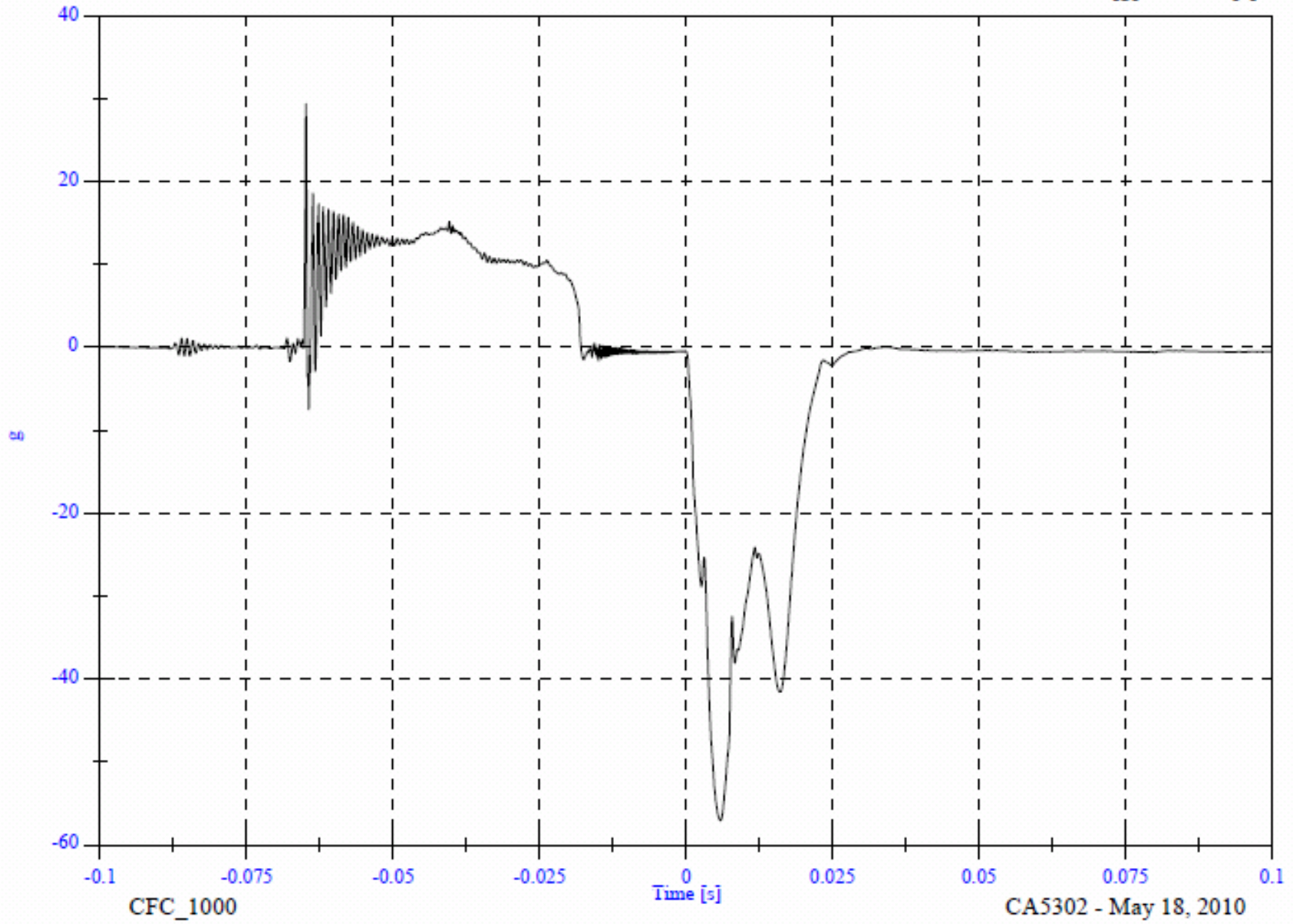


SR3 RH Side

Headform X Acceleration

Max: 29.3 [g] at -0.065 [s]

Min: -57.1 [g] at 0.006 [s]

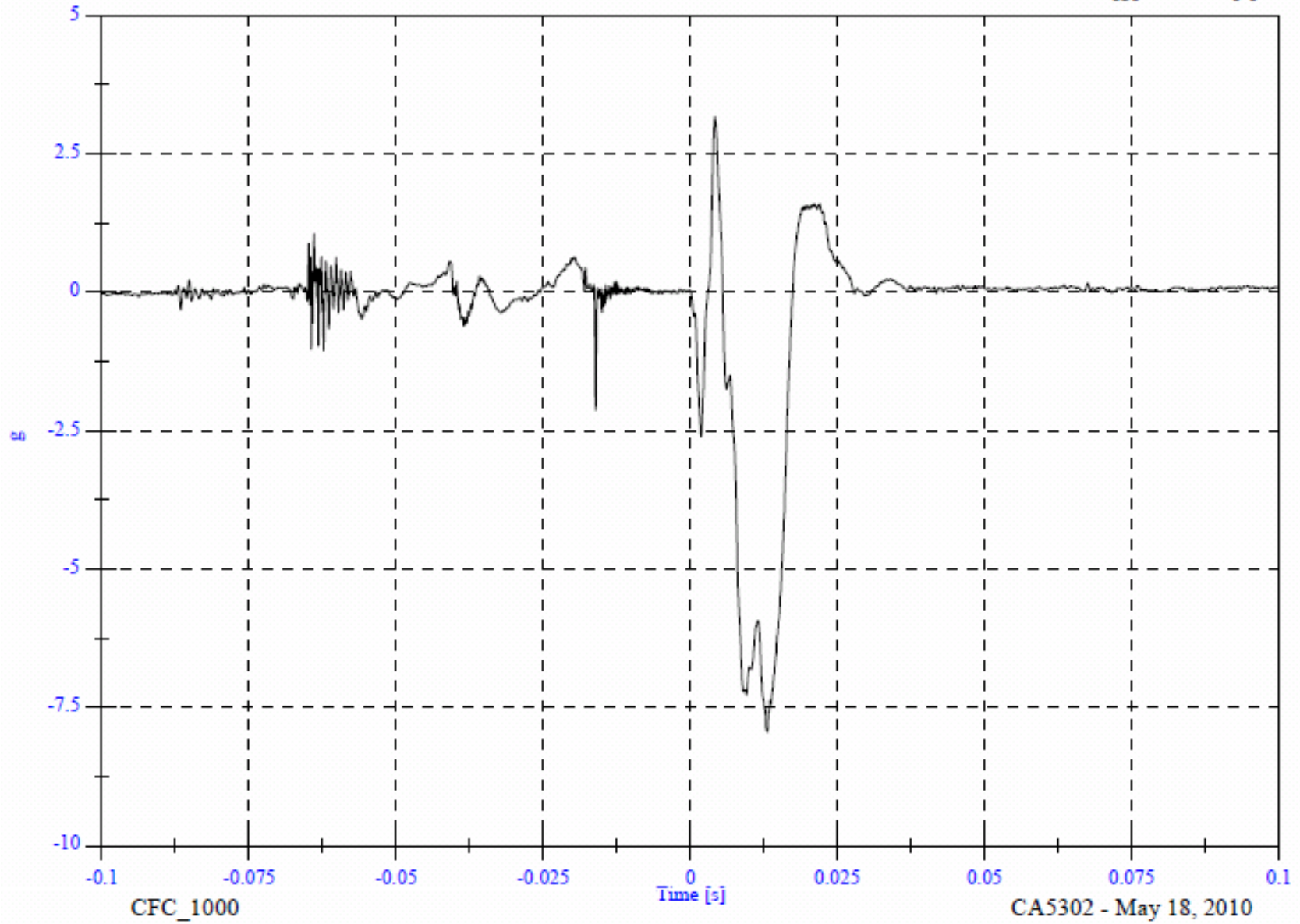


SR3 RH Side

Headform Y Acceleration

Max: 3.2 [g] at 0.004 [s]

Min: -8.0 [g] at 0.013 [s]

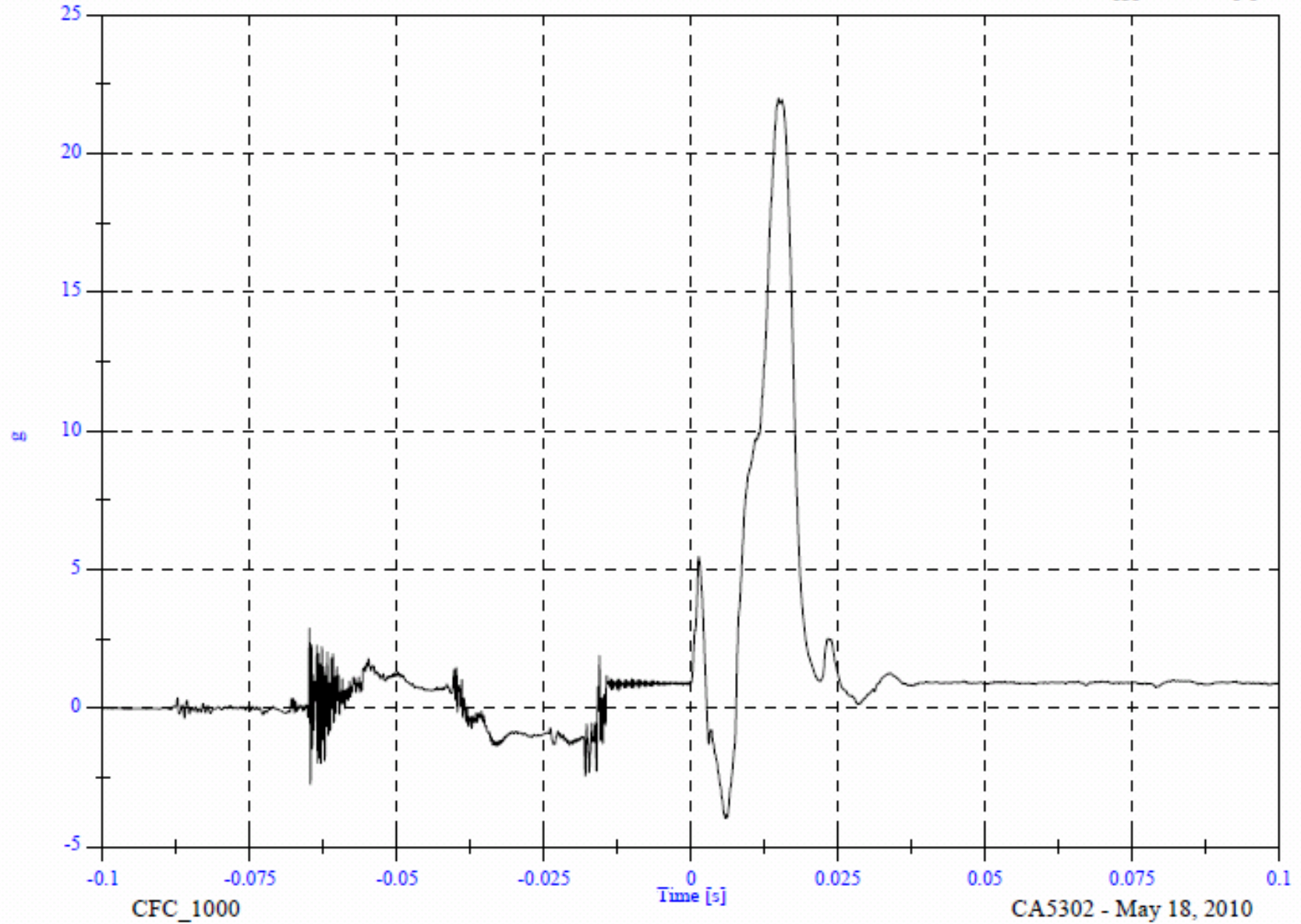


SR3 RH Side

Headform Z Acceleration

Max: 22.0 [g] at 0.015 [s]

Min: -4.0 [g] at 0.006 [s]

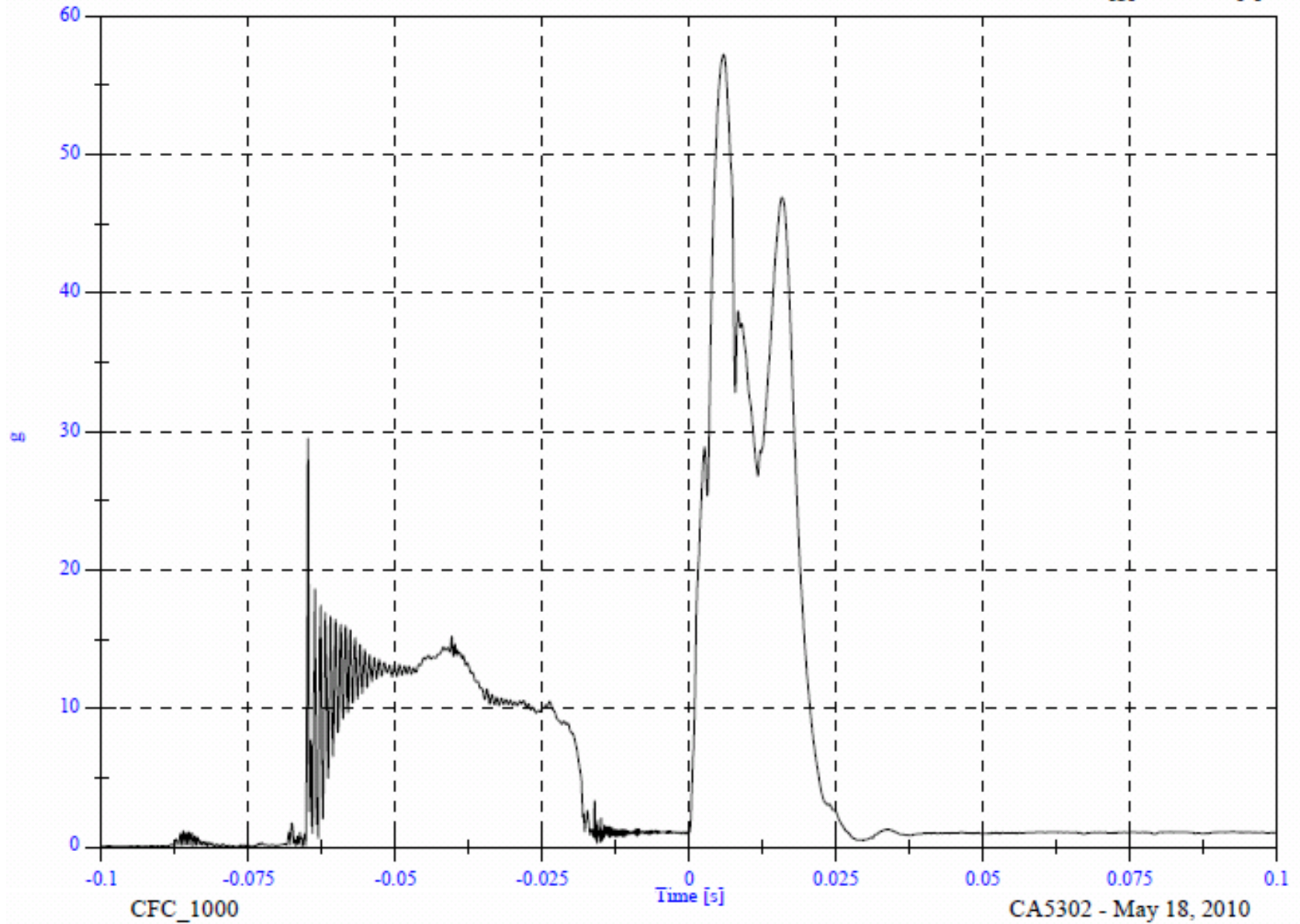


SR3 RH Side

Headform Resultant

Max: 57.2 [g] at 0.006 [s]

Min: 0.0 [g] at -0.077 [s]

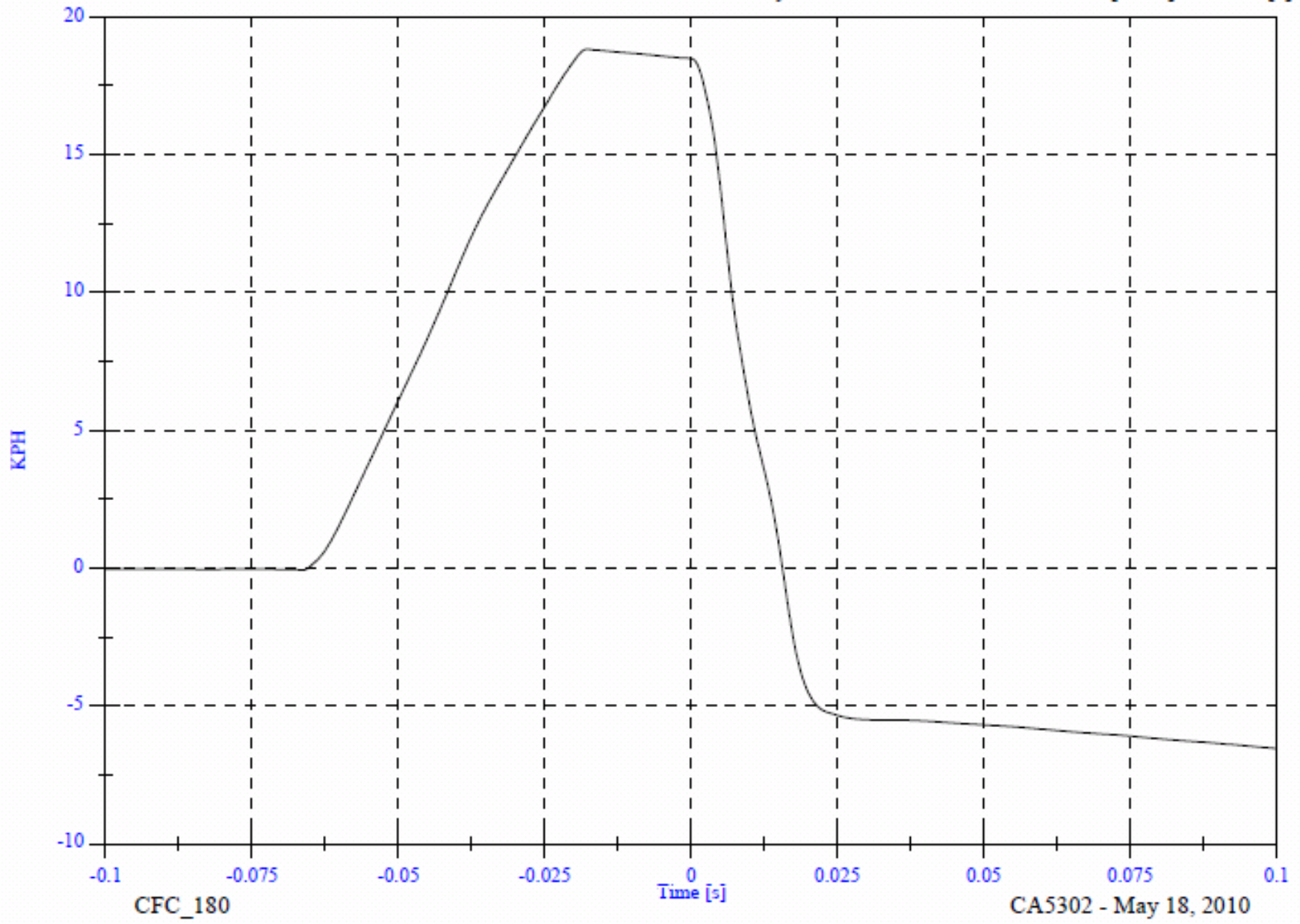


SR3 RH Side

Headform Velocity

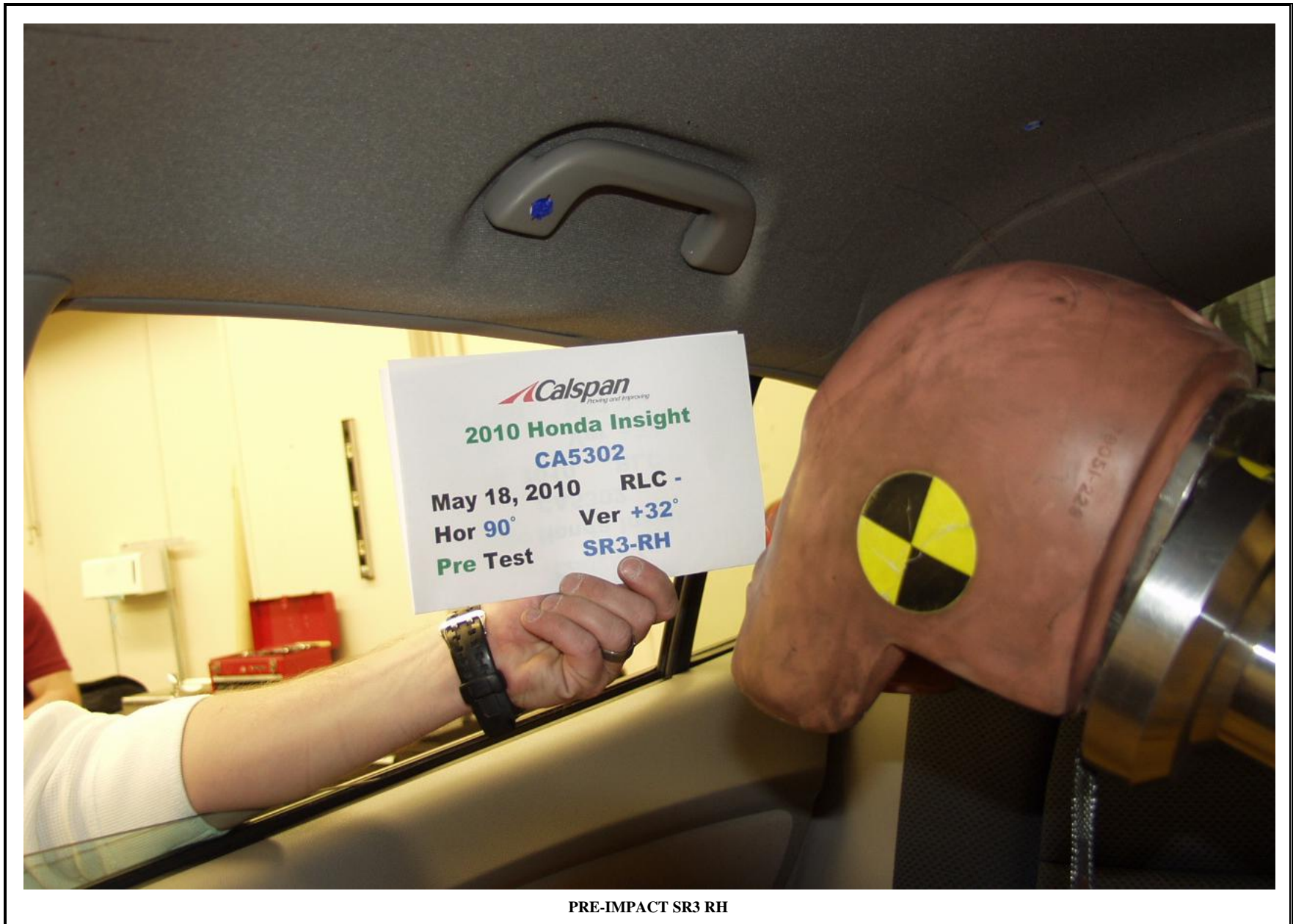
Max: 18.8 [KPH] at -0.018 [s]

Min: -6.5 [KPH] at 0.100 [s]



CFC_180

CA5302 - May 18, 2010



PRE-IMPACT SR3 RH

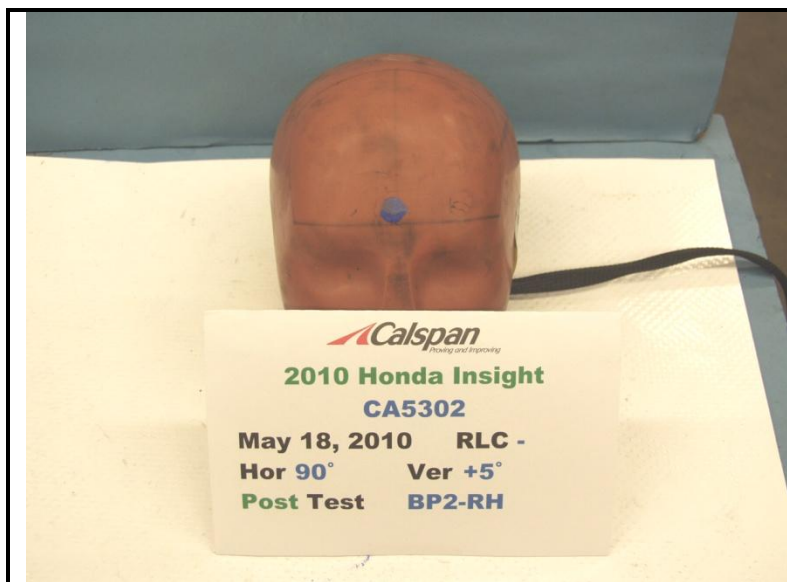


POST-IMPACT SR3 RH

| | |
|--------------------------------|--------------------------------|
| VEHICLE YEAR/MAKE/MODEL/STYLE: | 2010 Honda Insight |
| VIN: | JHMZE2H5XAS018594 |
| DATE OF MANUFACTURE: | 7/09 (SEE CERTIFICATION LABEL) |
| COLOR: | Alabaster Silver |

| | |
|--------------------------|-------------|
| Test Number: | 03 |
| Test Date: | 18 May 2010 |
| Target Location: | BP2 RH |
| Target Code: | BP2 RH |
| Horizontal Impact Angle: | 90 |
| Vertical Impact Angle: | 5 |
| Ambient Temperature: | 21 |
| Relative Humidity: | 41.3 % |
| Time of Impact: | 11:44 |
| Headform Number: | 0062 |

| Impact Point Description (from lower midpoint on midsagittal line) | | | | | |
|--|---|-------------------------------------|----------|--------------------------|---------|
| On Centerline | 4 | <input checked="" type="checkbox"/> | mm right | <input type="checkbox"/> | mm left |
| On Centerline | 6 | | | | mm up |



POST-IMPACT BP2 RH HEADFORM

| | |
|-----------------------|-------|
| Free Motion HIC | 605.0 |
| HIC(d) | 622.9 |
| Impact Velocity (kph) | 23.61 |
| HIC T1 (msec) | 1.2 |
| HIC T2 (msec) | 9.7 |

BP2 RH Side CA5302 - BP2 RH

FMH Headform 62

Location: BP2 RH

Test Date: May 18, 2010

Work File: fmh

TEST RESULTS

Lab Temperature: 21 C

HICd: 622.9

Lab Humidity: 41.3 %

HIC (36ms): 605.0

Velocity at Impact: 23.61 KPH

t1: 1.2 msec

t2: 9.7 msec

Free Flight Distance: 222.50 mm

Duration: 8.5 msec

Maximum: 111.1 g

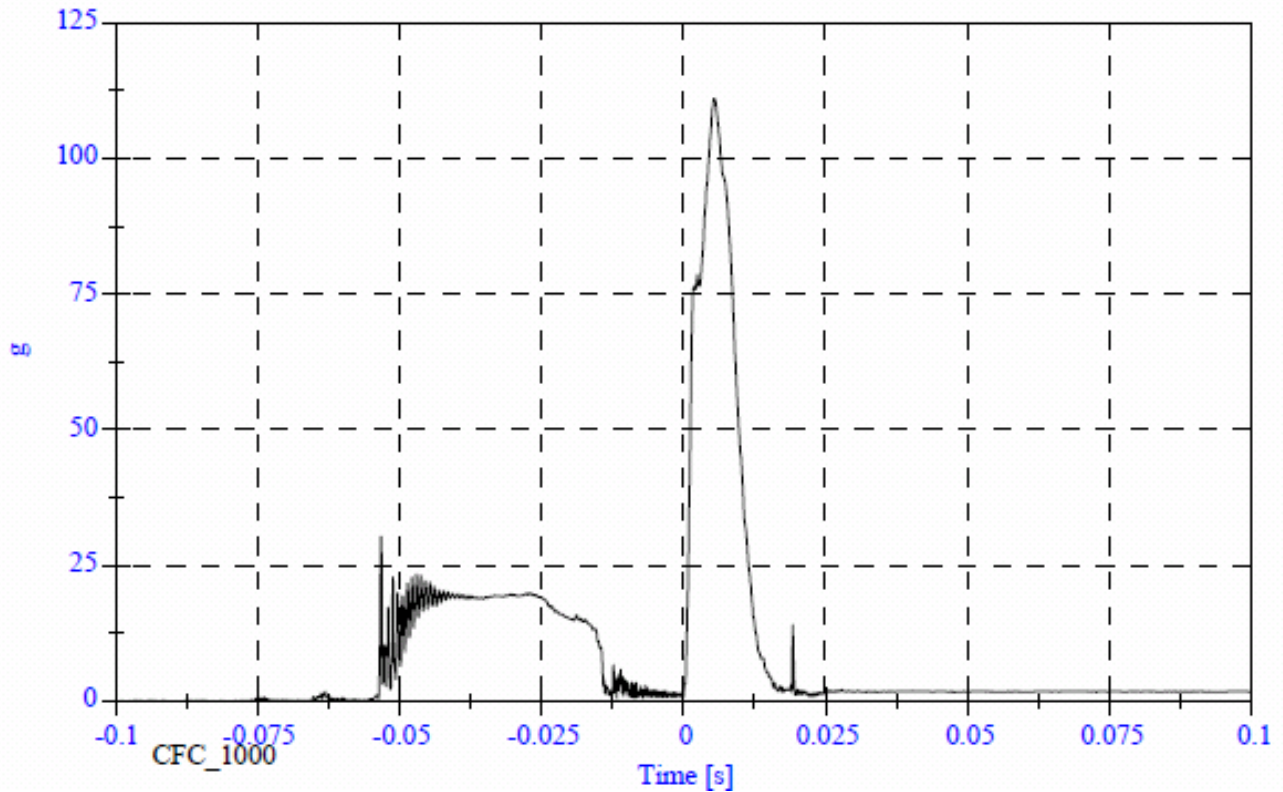
Average Acceleration: 8.7 g

BP2 RH Side

Headform Resultant

Max: 111.1 [g] at 0.005 [s]

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

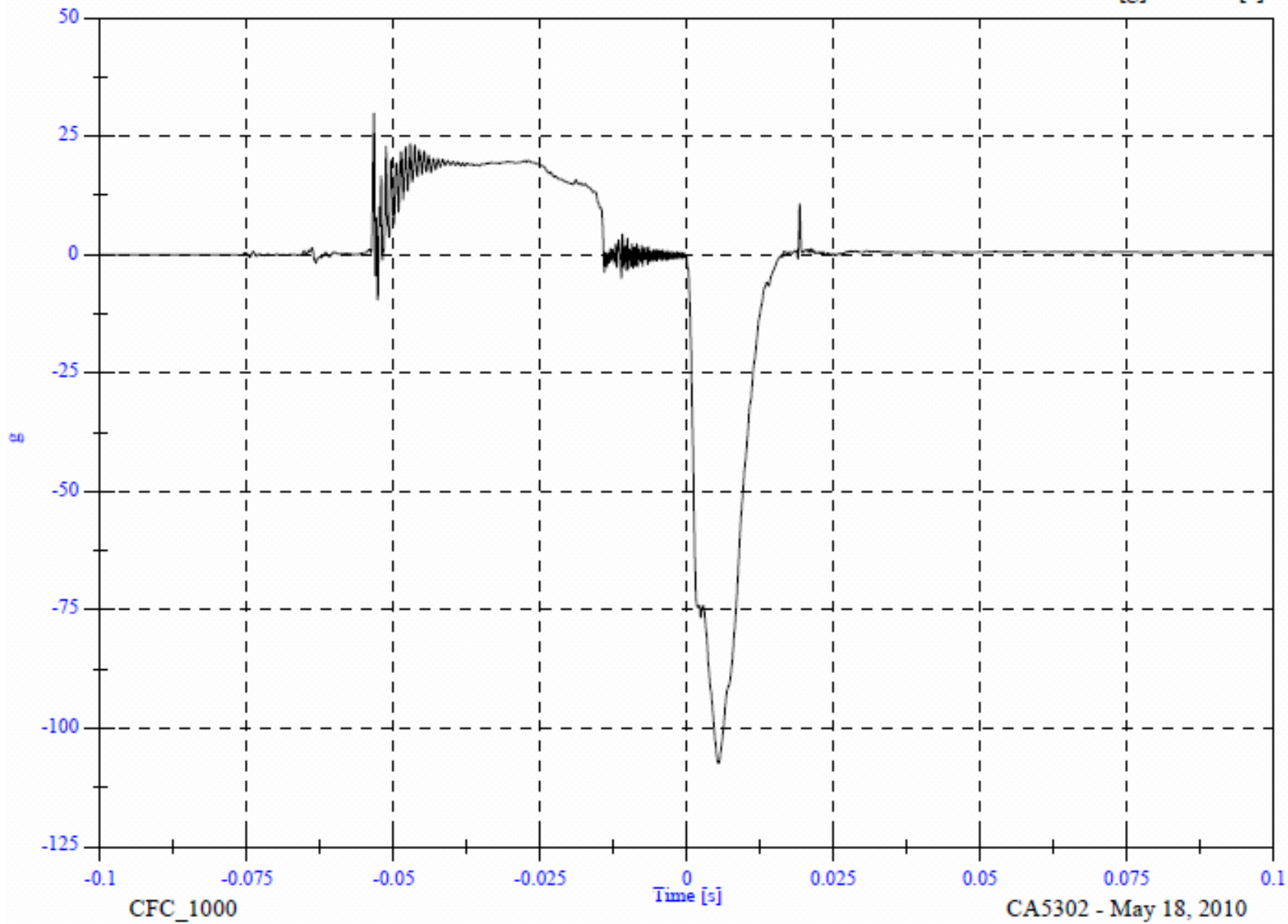


BP2 RH Side

Headform X Acceleration

Max: 29.8 [g] at -0.053 [s]

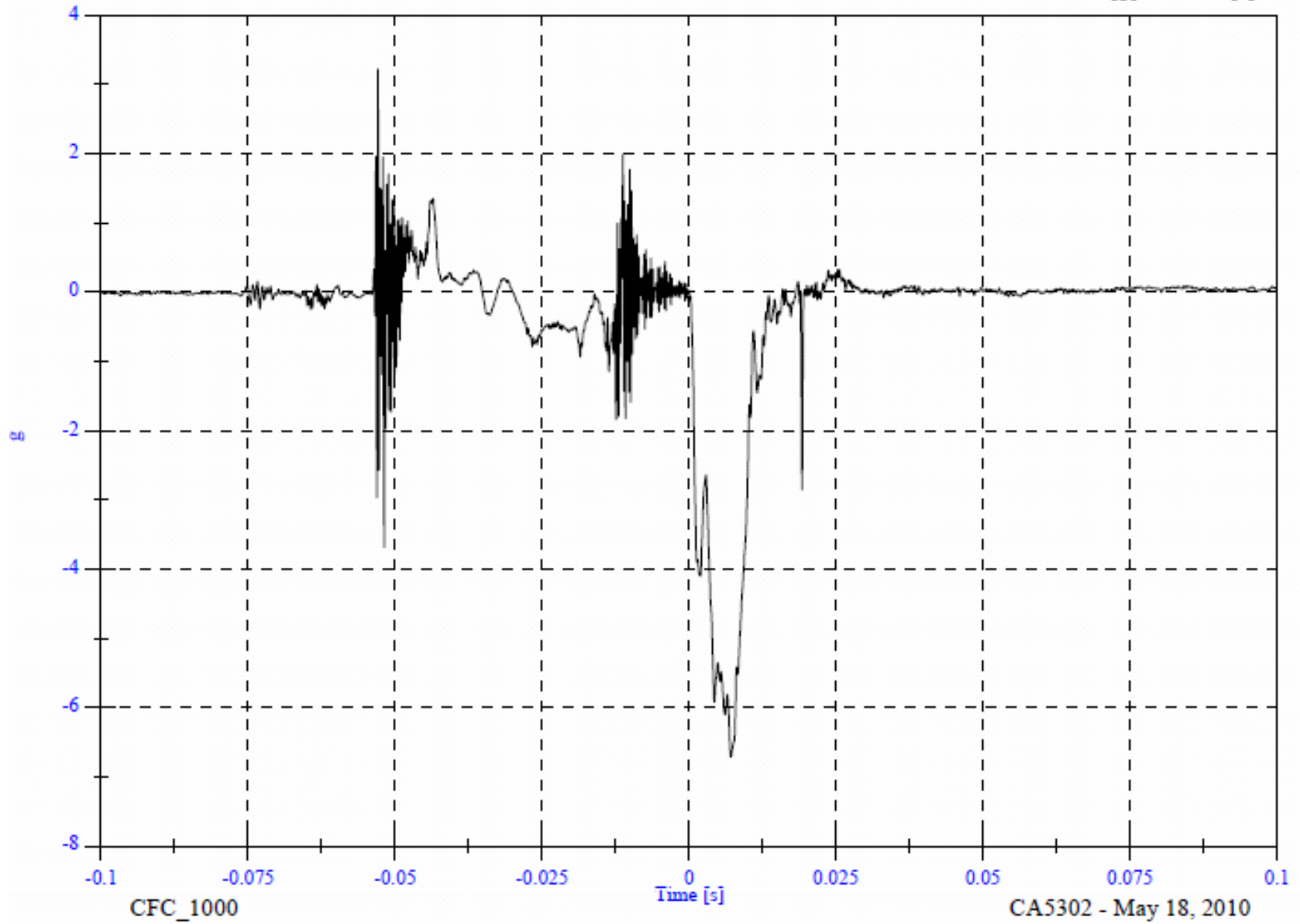
Min: -107.4 [g] at 0.005 [s]



BP2 RH Side

Headform Y Acceleration

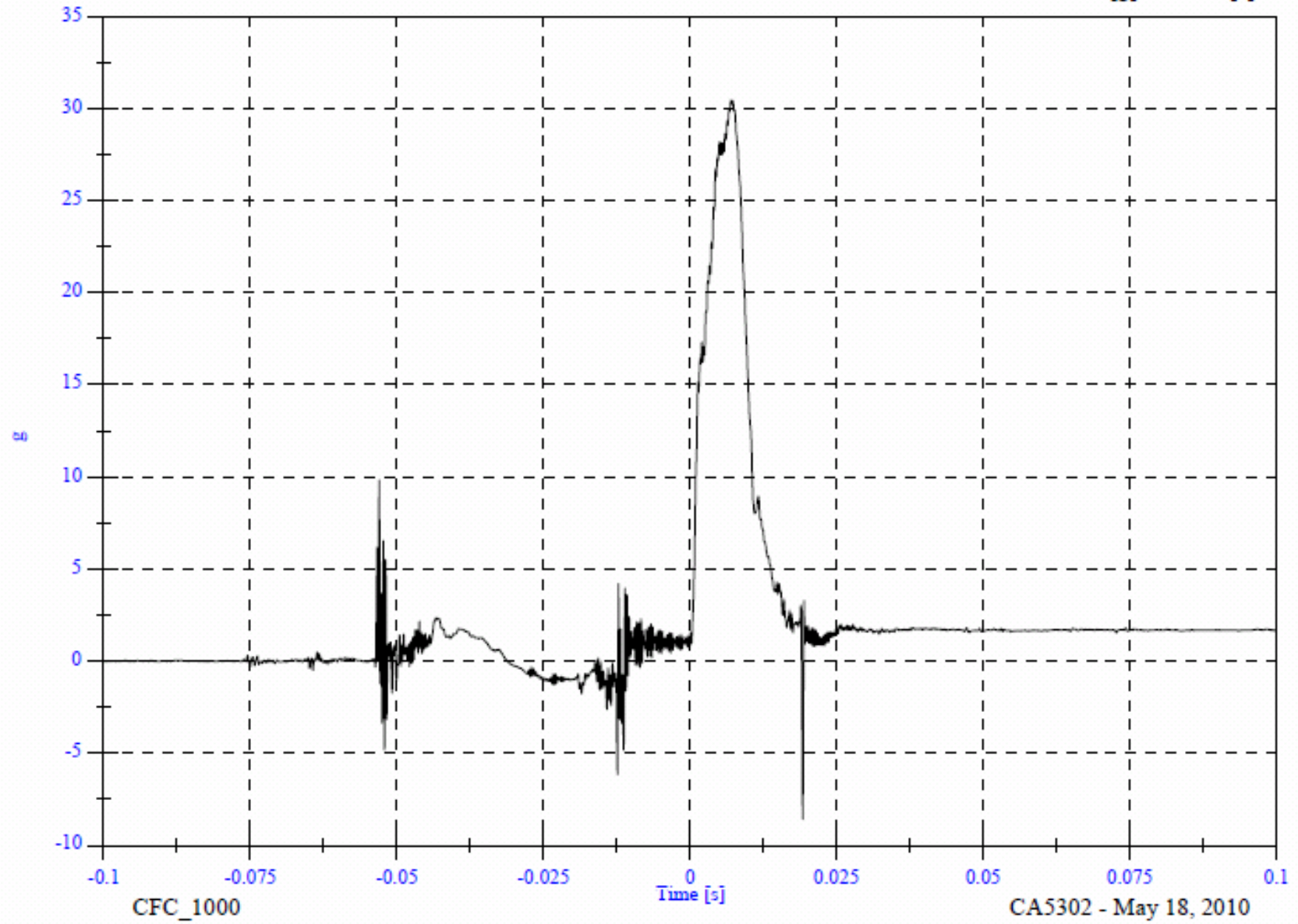
Max: 3.2 [g] at -0.053 [s]
Min: -6.7 [g] at 0.007 [s]



BP2 RH Side

Headform Z Acceleration

Max: 30.4 [g] at 0.007 [s]
Min: -8.6 [g] at 0.019 [s]

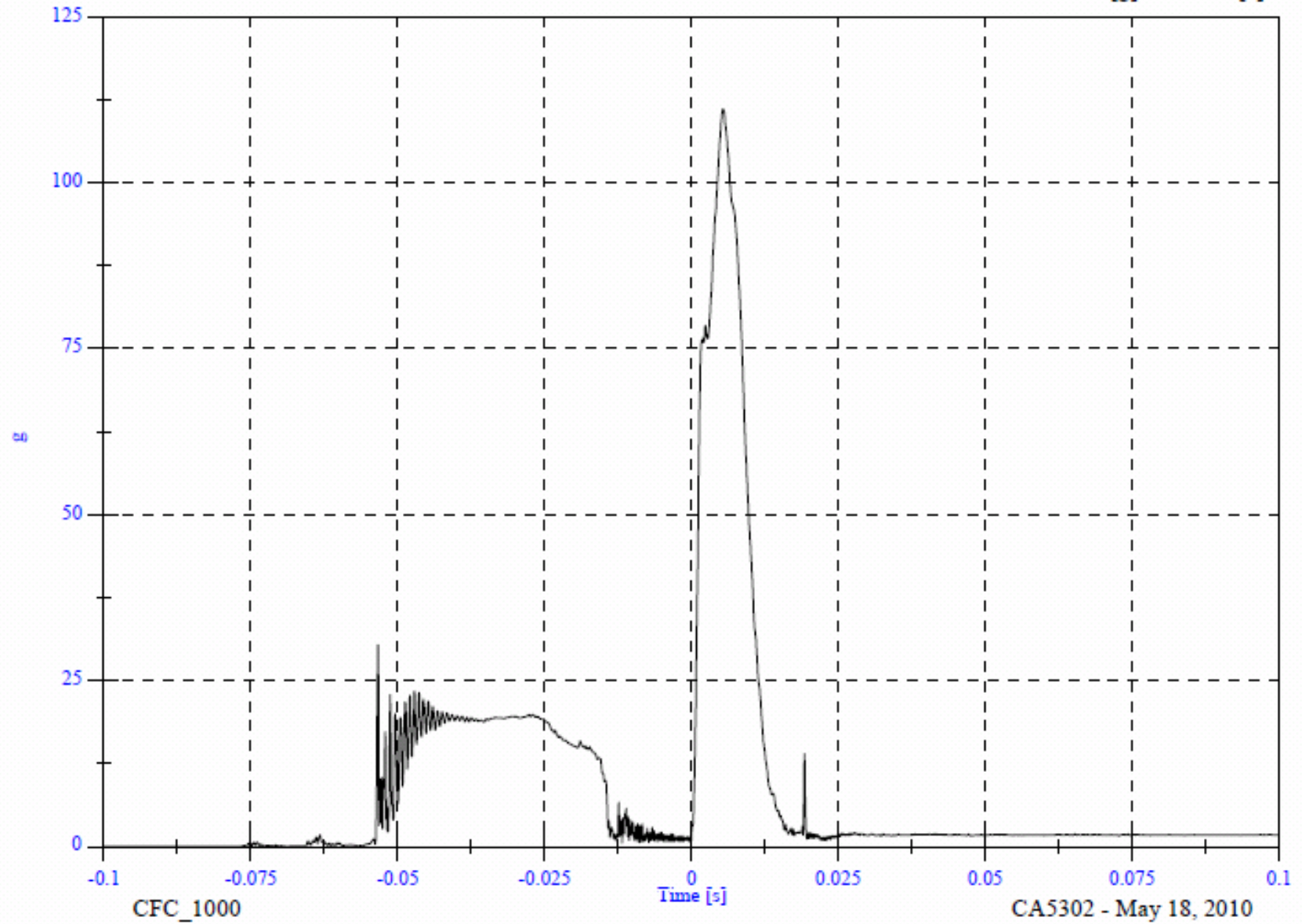


BP2 RH Side

Headform Resultant

Max: 111.1 [g] at 0.005 [s]

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

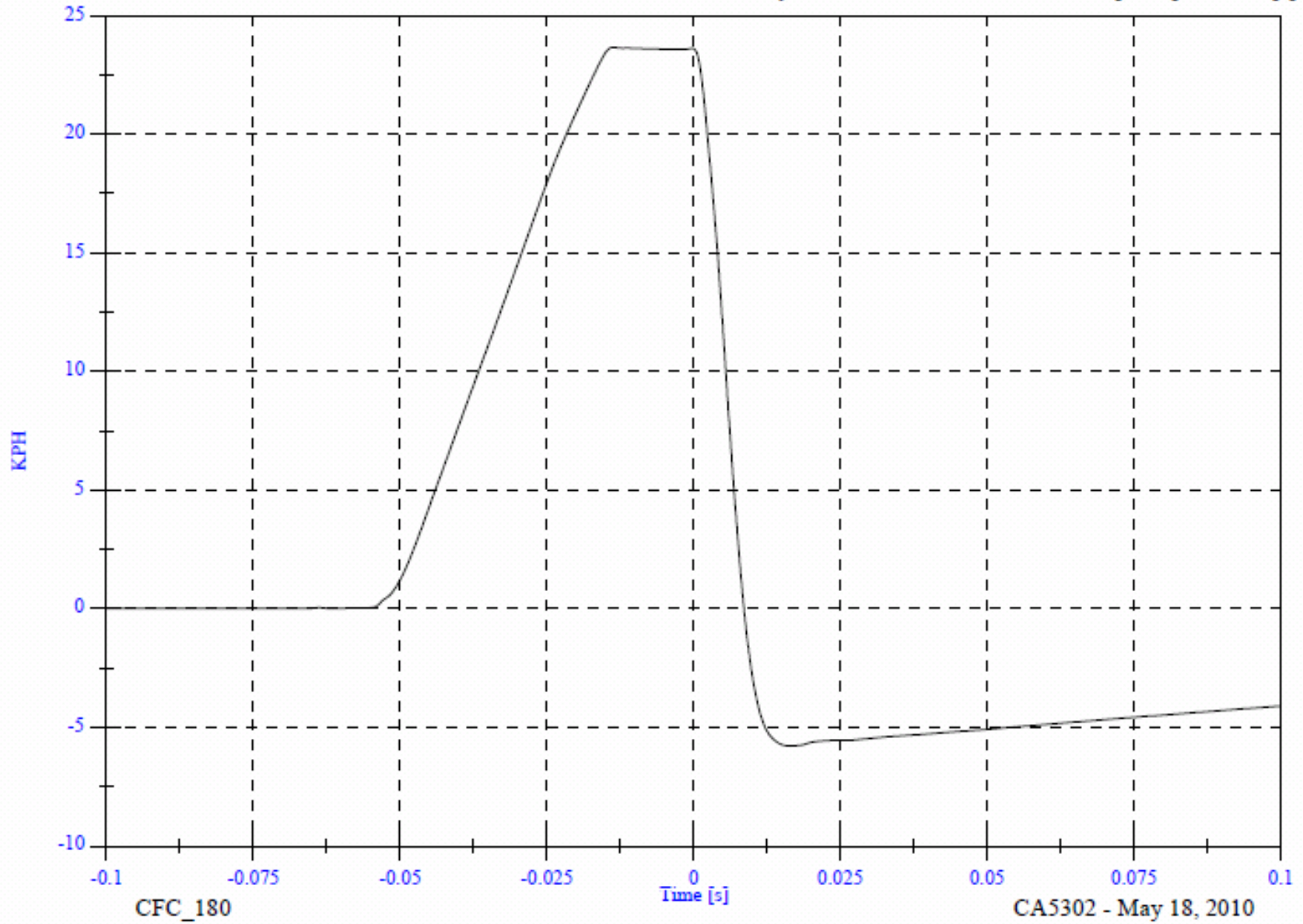


BP2 RH Side

Headform Velocity

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

Min: -5.8 [KPH] at 0.016 [s]





PRE-IMPACT BP2 RH

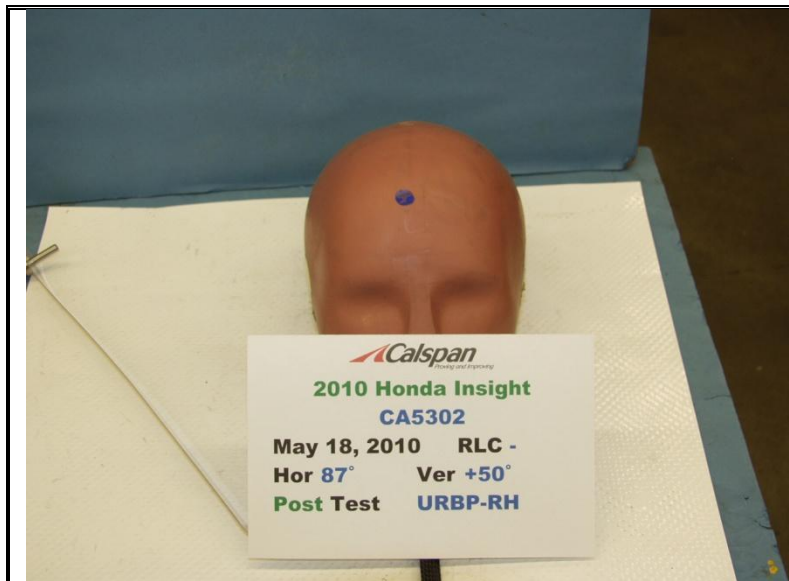


POST-IMPACT BP2 RH

| | |
|--------------------------------|--------------------------------|
| VEHICLE YEAR/MAKE/MODEL/STYLE: | 2010 Honda Insight |
| VIN: | JHMZE2H5XAS018594 |
| DATE OF MANUFACTURE: | 7/09 (SEE CERTIFICATION LABEL) |
| COLOR: | Alabaster Silver |

| | |
|--------------------------|-------------|
| Test Number: | 04 |
| Test Date: | 18 May 2010 |
| Target Location: | URBP RH |
| Target Code: | URBP RH |
| Horizontal Impact Angle: | 87 |
| Vertical Impact Angle: | 50 |
| Ambient Temperature: | 21 |
| Relative Humidity: | 43.5% |
| Time of Impact: | 12:15 |
| Headform Number: | 1142 |

| | | | | | |
|--|----|-------------------------------------|----------|--------------------------|---------|
| Impact Point Description (from lower midpoint on midsagittal line) | | | | | |
| On Centerline | 4 | <input checked="" type="checkbox"/> | mm right | <input type="checkbox"/> | mm left |
| On Centerline | 35 | | | | mm up |



POST-IMPACT URBP RH HEADFORM

| | |
|-----------------------|-------|
| Free Motion HIC | 458.2 |
| HIC(d) | 512.1 |
| Impact Velocity (kph) | 23.76 |
| HIC T1 (msec) | 2.3 |
| HIC T2 (msec) | 13.5 |

URBP RH Side CA5302 - URBP RH

FMH Headform 1142

Location: URBP RH

Test Date: May 18, 2010

Work File: fmh

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

Lab Temperature: 21 C

HICd: 512.1

Lab Humidity: 43.5 %

HIC (36ms): 458.2

Velocity at Impact: 23.76 KPH

t1: 2.3 msec

t2: 13.5 msec

Free Flight Distance: 221.76 mm

Duration: 11.2 msec

Maximum: 90.1 g

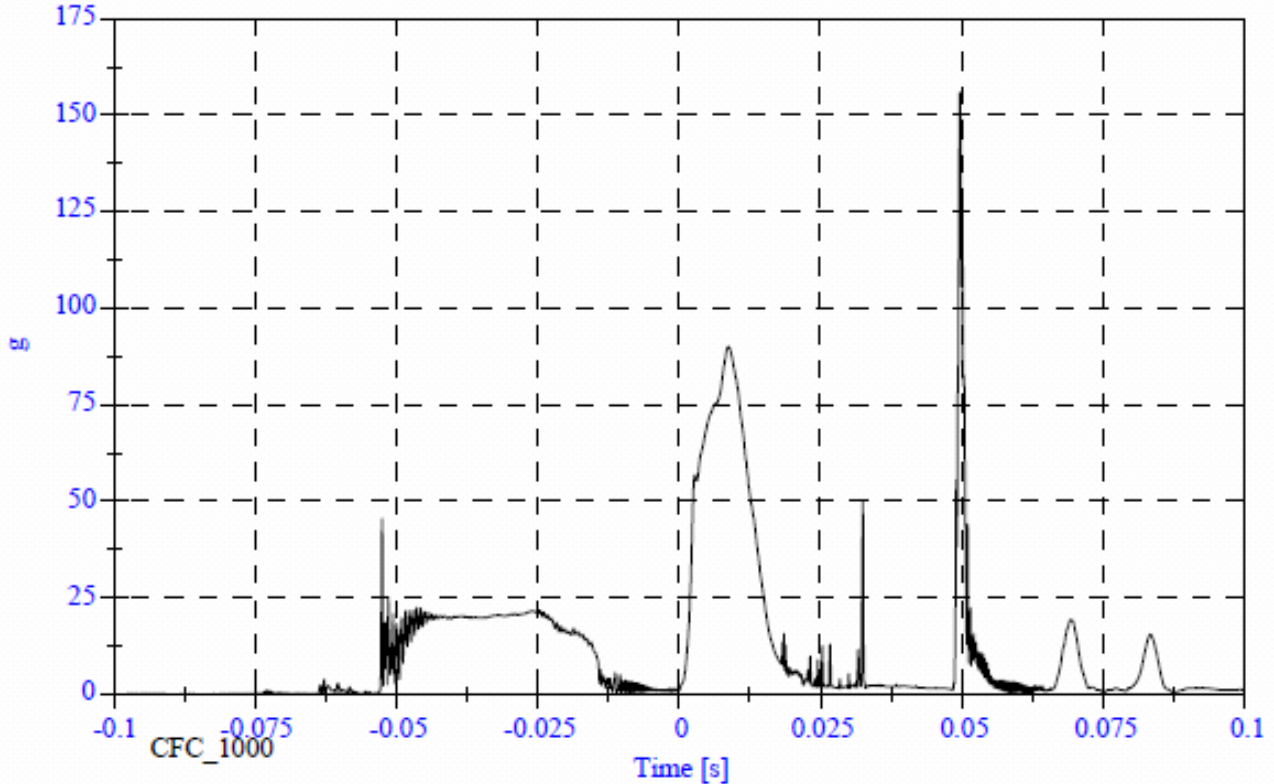
Average Acceleration: 10.6 g

URBP RH Side

Headform Resultant

Max: 90.1 [g] at 0.009 [s]

Min: 0.0 [g] at -0.084 [s]

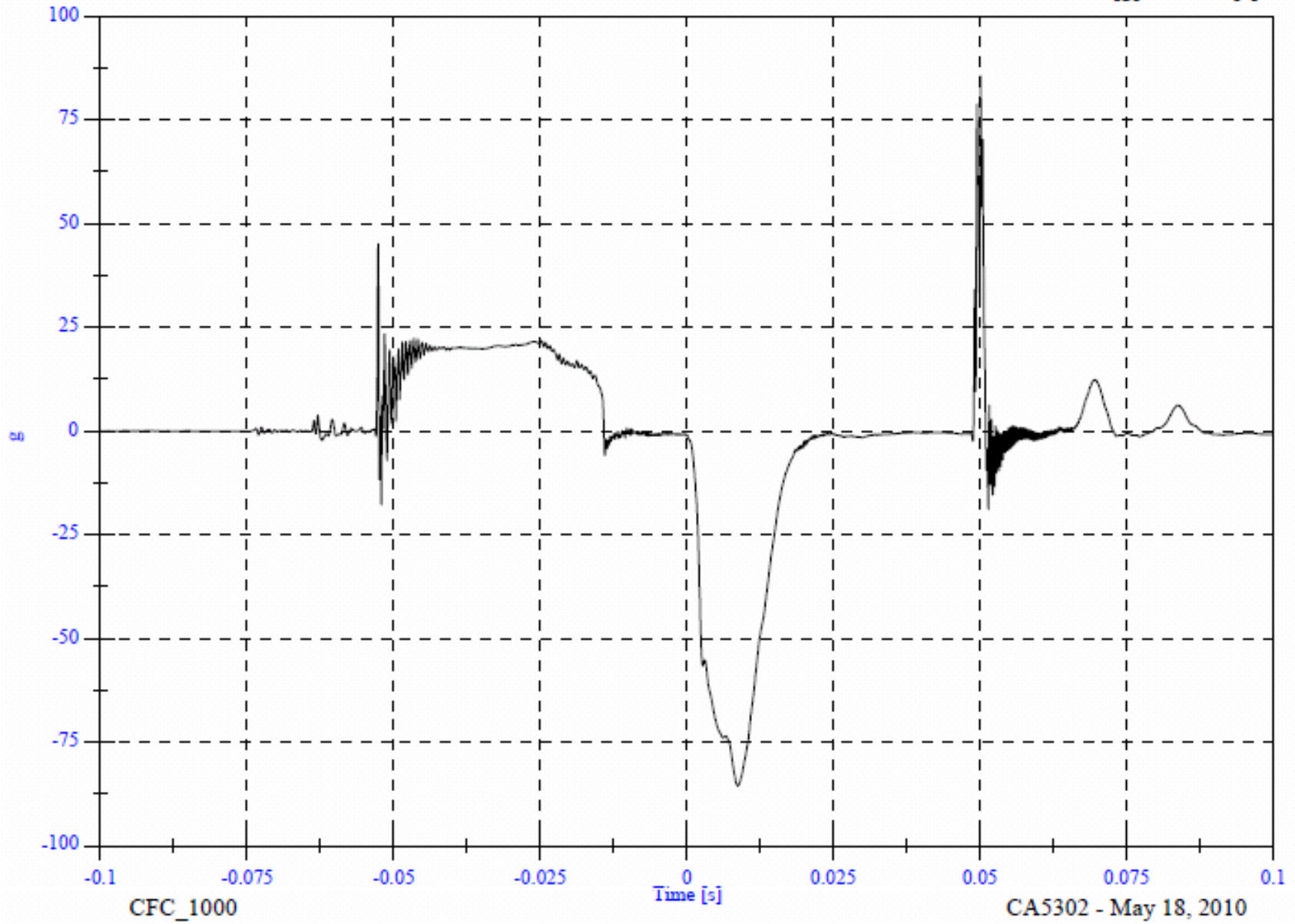


URBP RH Side

Headform X Acceleration

Max: 85.5 [g] at 0.050 [s]

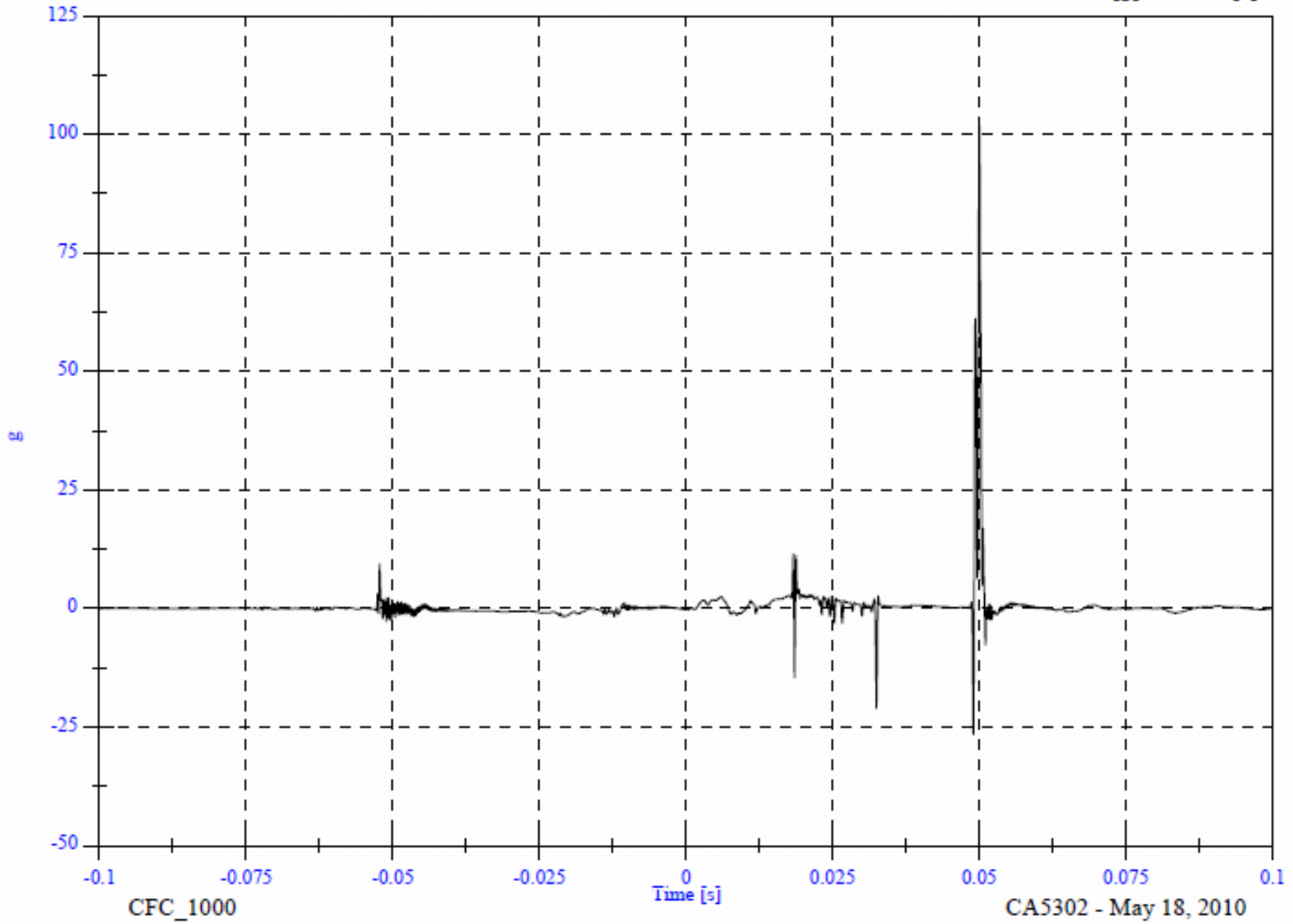
Min: -85.6 [g] at 0.009 [s]



URBP RH Side

Headform Y Acceleration

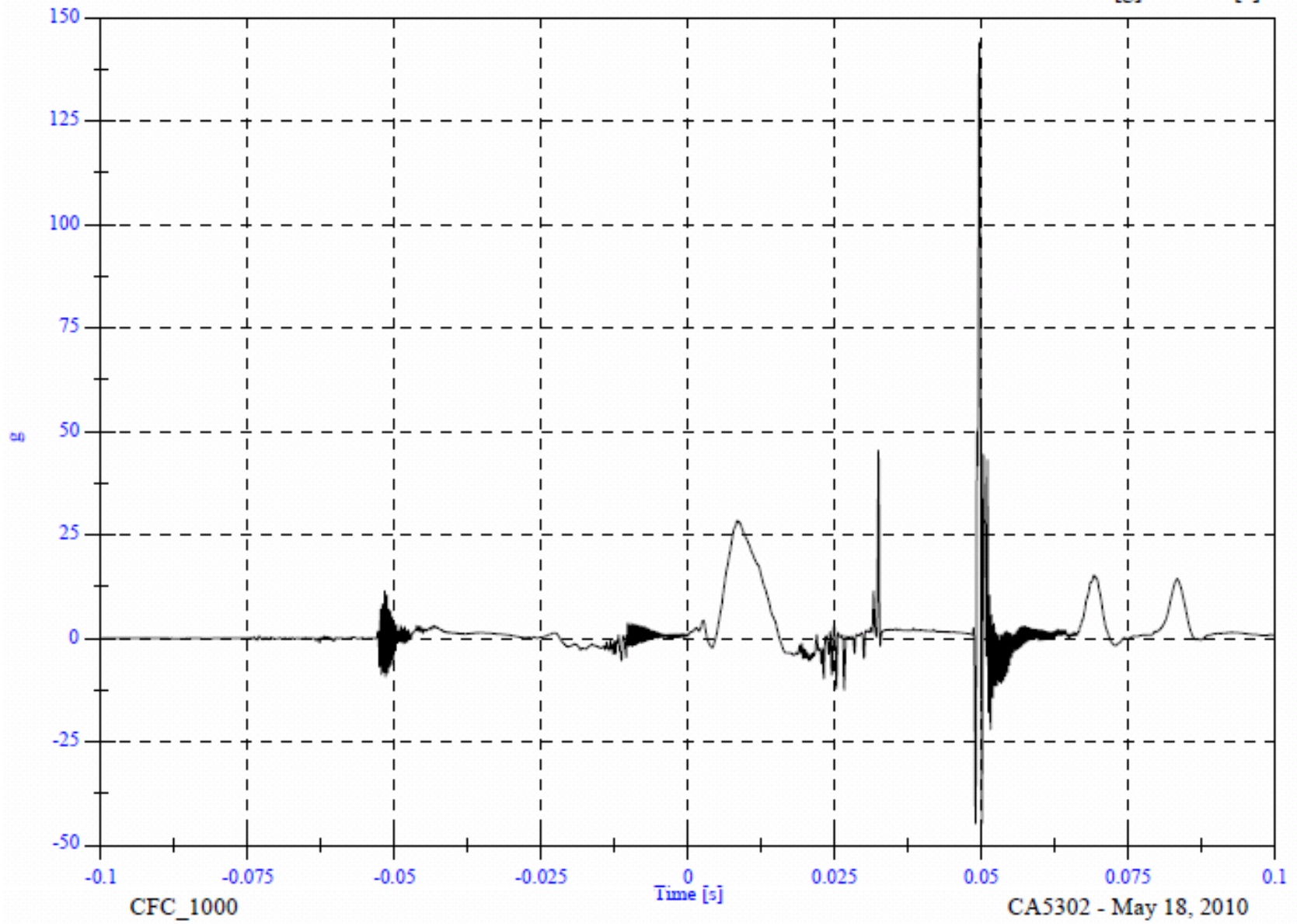
Max: 101.9 [g] at 0.050 [s]
Min: -26.5 [g] at 0.049 [s]



URBP RH Side

Headform Z Acceleration

Max: 144.0 [g] at 0.050 [s]
Min: -44.8 [g] at 0.049 [s]

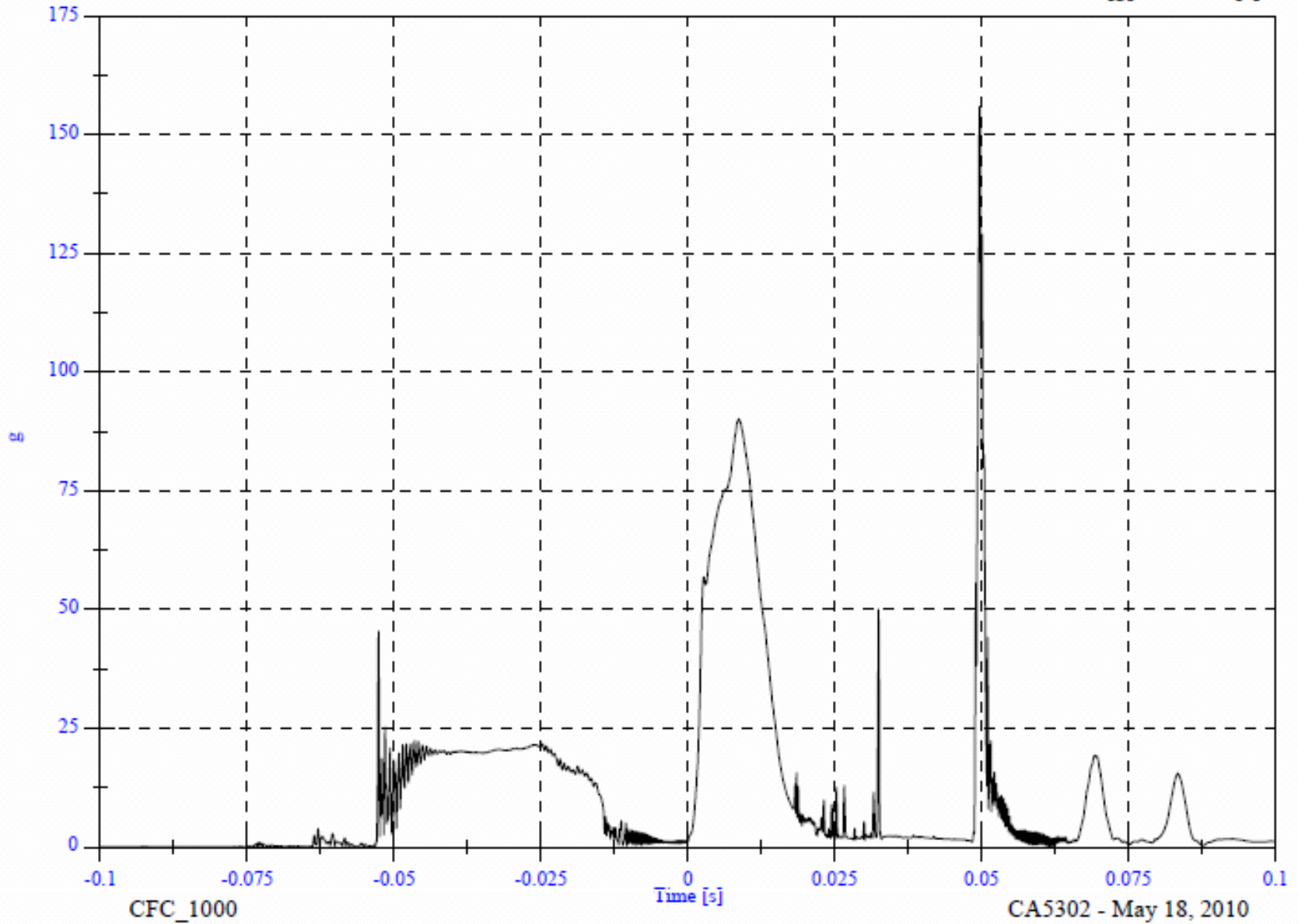


URBP RH Side

Headform Resultant

Max: 155.9 [g] at 0.050 [s]

Min: 0.0 [g] at -0.084 [s]

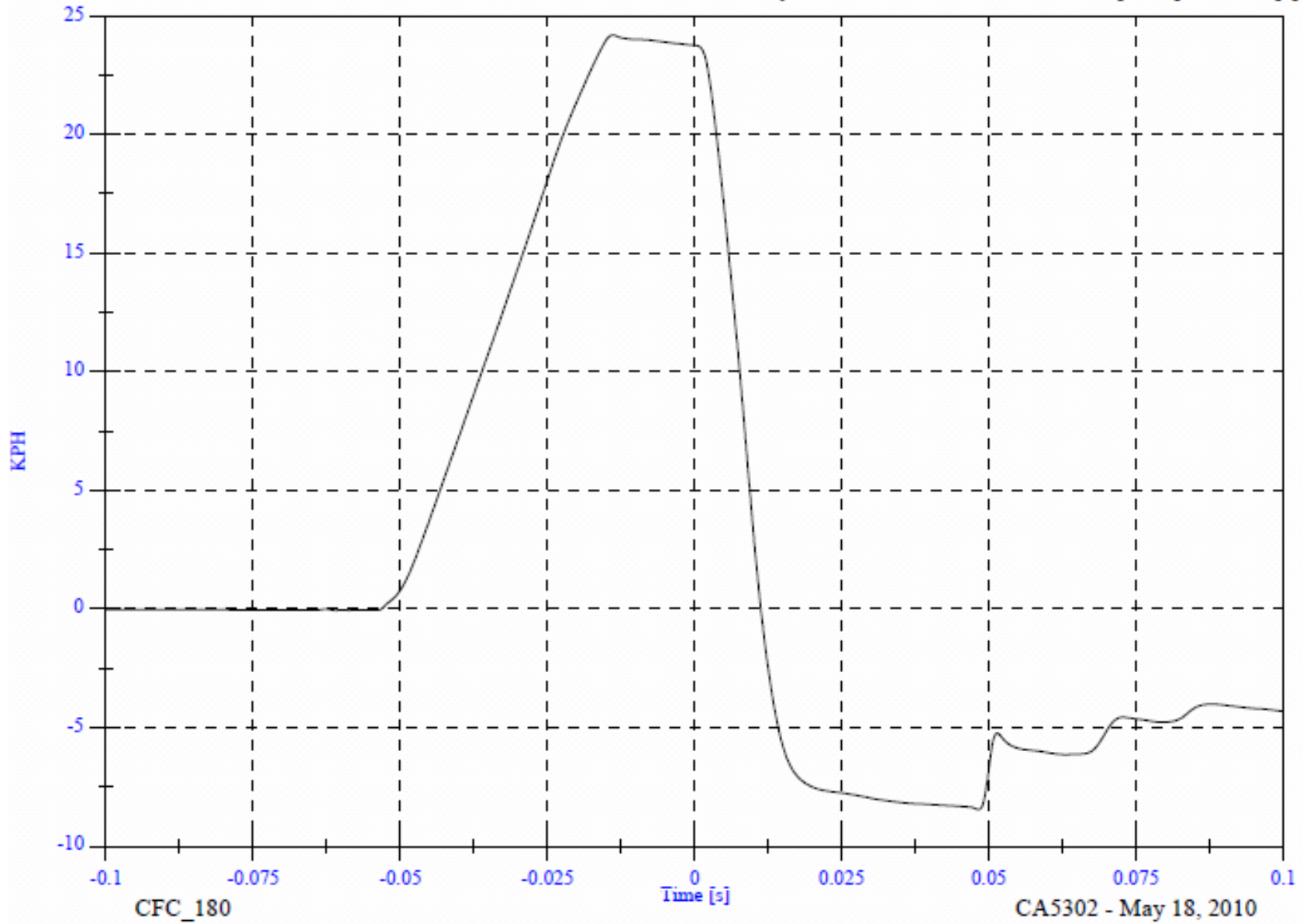


URBP RH Side

Headform Velocity

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

Min: -8.4 [KPH] at 0.048 [s]





PRE-IMPACT URBP RH



POST-IMPACT URBP RH

| | |
|--------------------------------|--------------------------------|
| VEHICLE YEAR/MAKE/MODEL/STYLE: | 2010 Honda Insight |
| VIN: | JHMZE2H5XAS018594 |
| DATE OF MANUFACTURE: | 7/09 (SEE CERTIFICATION LABEL) |
| COLOR: | Alabaster Silver |

| | |
|--------------------------|----------------------|
| Test Number: | 05 |
| Test Date: | 18 May 2010 |
| Target Location: | SR2a RH Relocated x2 |
| Target Code: | SR2a RH |
| Horizontal Impact Angle: | 90 |
| Vertical Impact Angle: | 37 |
| Ambient Temperature: | 21 |
| Relative Humidity: | 43.1% |
| Time of Impact: | 1:55 |
| Headform Number: | 0355 |

| | | | |
|--|----|--------------------------|--|
| 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 | 11 | | mm up |



POST-IMPACT SR2a RH HEADFORM

| | |
|-----------------------|-------|
| Free Motion HIC | 196.9 |
| HIC(d) | 315.0 |
| Impact Velocity (kph) | 18.52 |
| HIC T1 (msec) | 1.7 |
| HIC T2 (msec) | 15.5 |

SR2a RH Side CA5302 - SR2a RH

FMH Headform 355

Location: SR2a RH

Test Date: May 18, 2010

Work File: fmh

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

Lab Temperature: 21 C

HICd: 315.0

Lab Humidity: 43.1 %

HIC (36ms): 196.9

Velocity at Impact: 18.52 KPH

t1: 1.7 msec

t2: 15.5 msec

Free Flight Distance: 229.78 mm

Duration: 13.8 msec

Maximum: 55.3 g

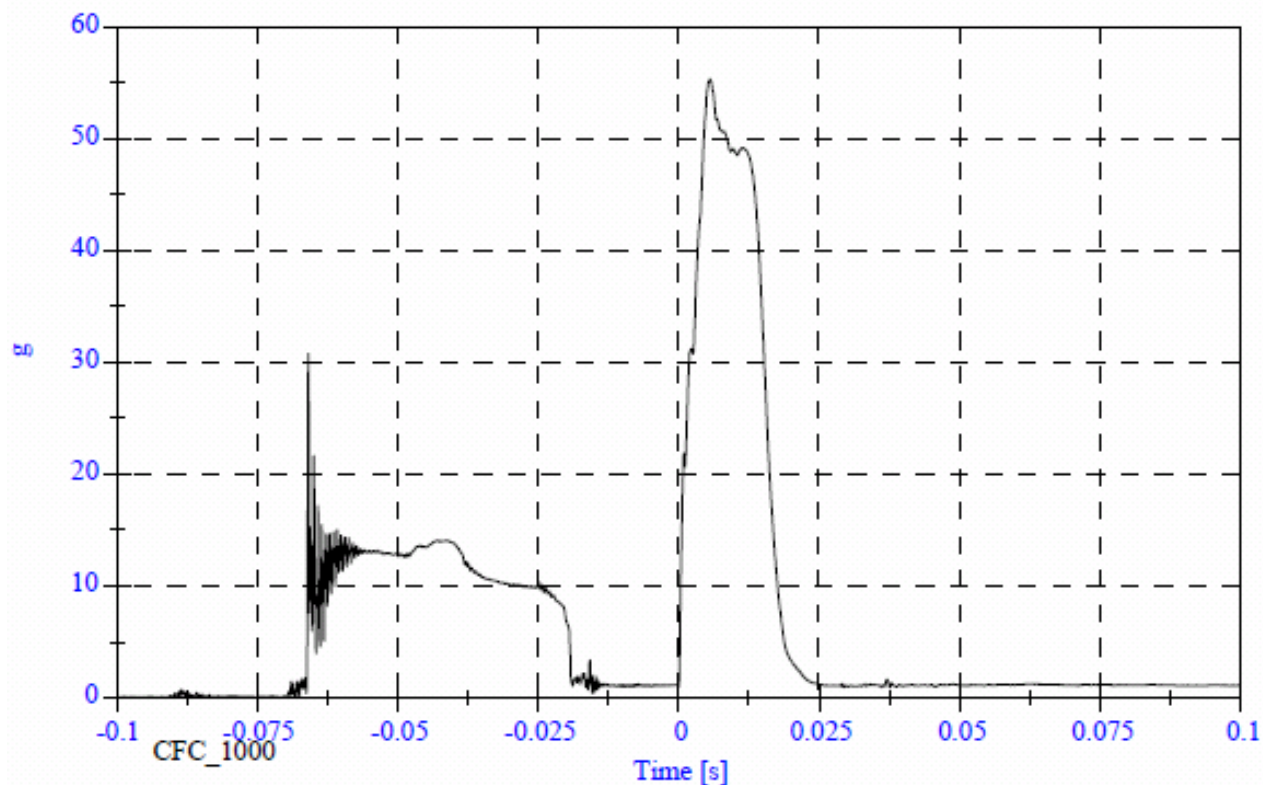
Average Acceleration: 6.9 g

SR2a RH Side

Headform Resultant

Max: 55.3 [g] at 0.006 [s]

Min: 0.0 [g] at -0.094 [s]

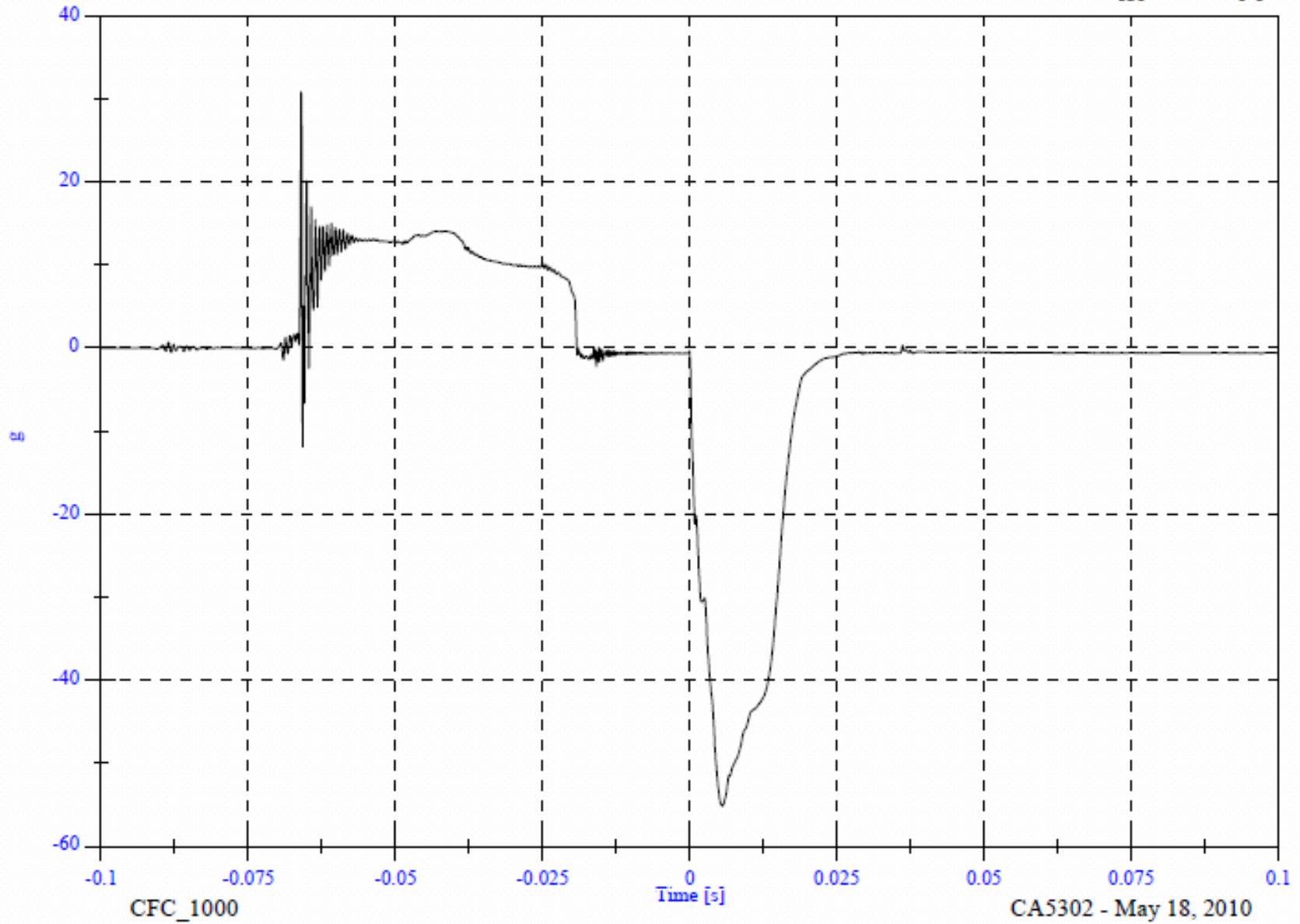


SR2a RH Side

Headform X Acceleration

Max: 30.8 [g] at -0.066 [s]

Min: -55.2 [g] at 0.006 [s]

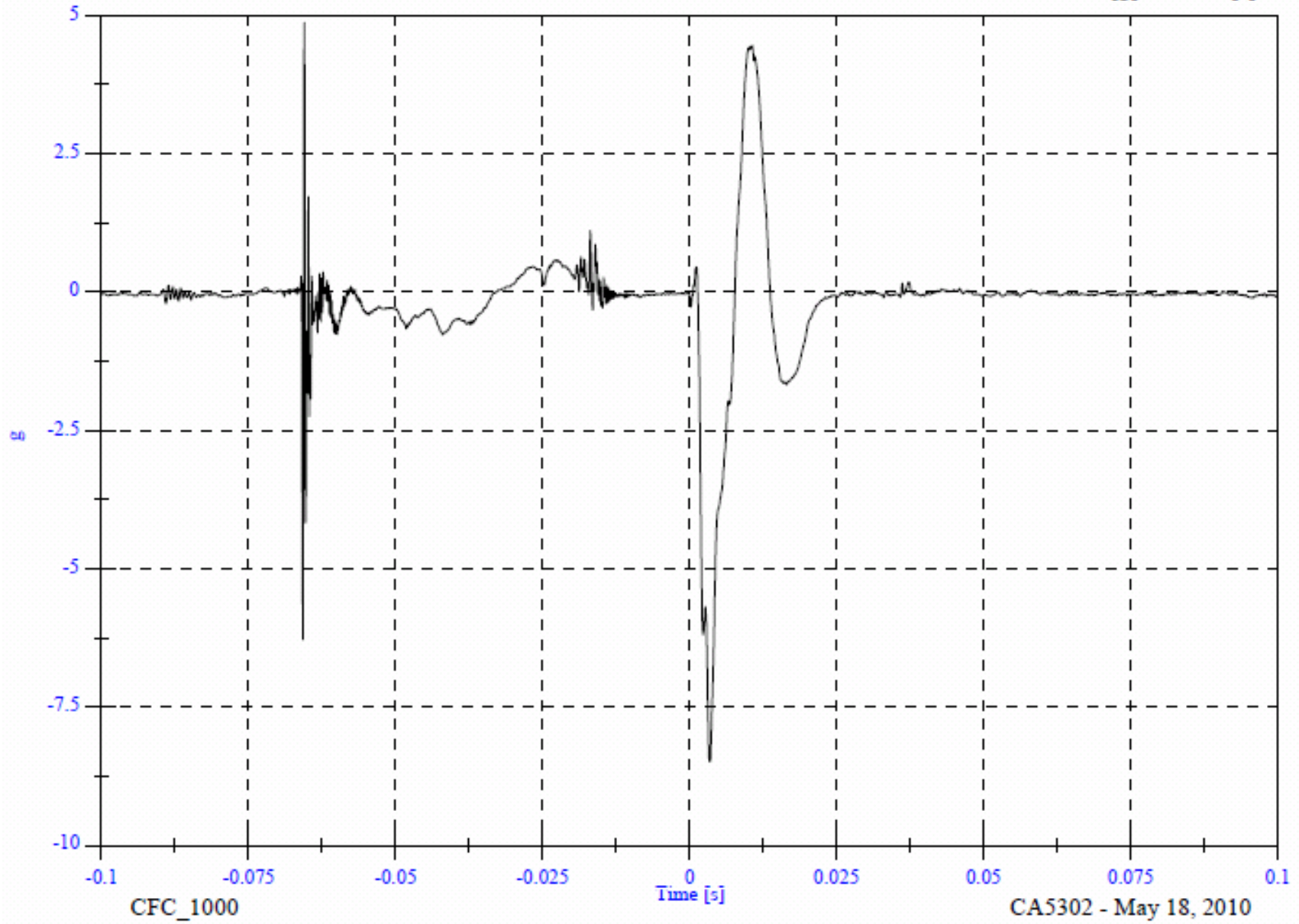


SR2a RH Side

Headform Y Acceleration

Max: 4.9 [g] at -0.066 [s]

Min: -8.5 [g] at 0.003 [s]

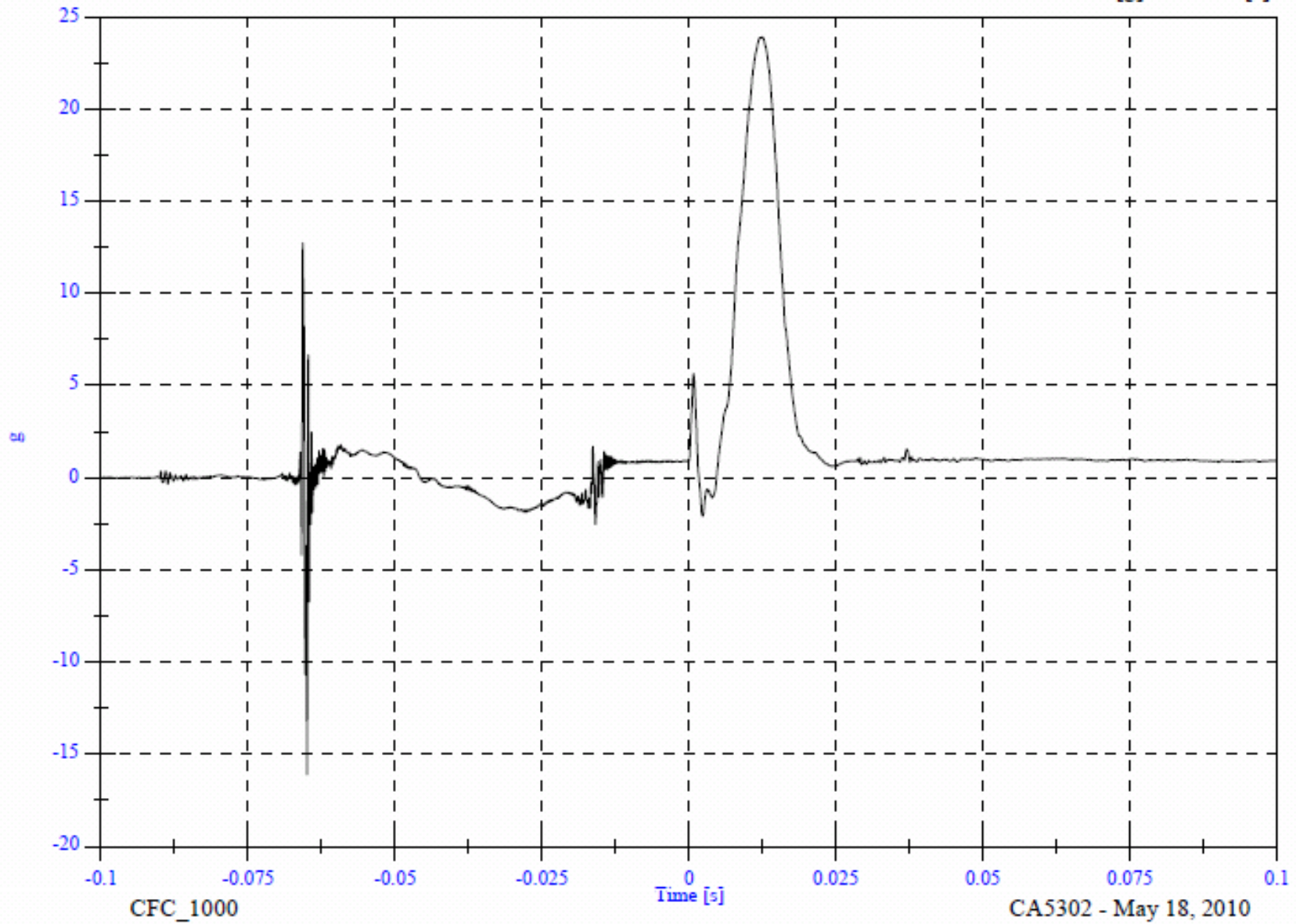


SR2a RH Side

Headform Z Acceleration

Max: 23.9 [g] at 0.013 [s]

Min: -16.1 [g] at -0.065 [s]

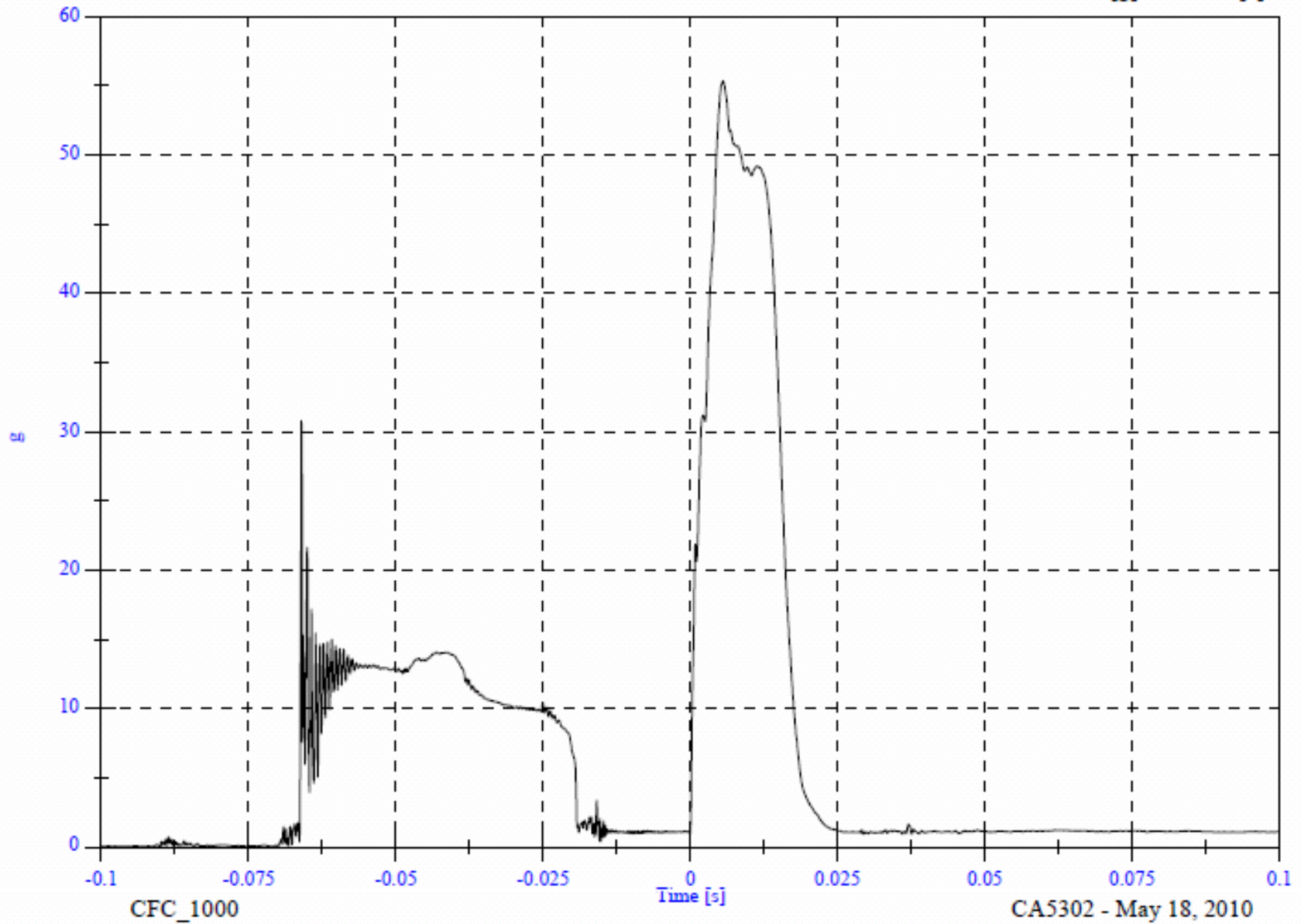


SR2a RH Side

Headform Resultant

Max: 55.3 [g] at 0.006 [s]

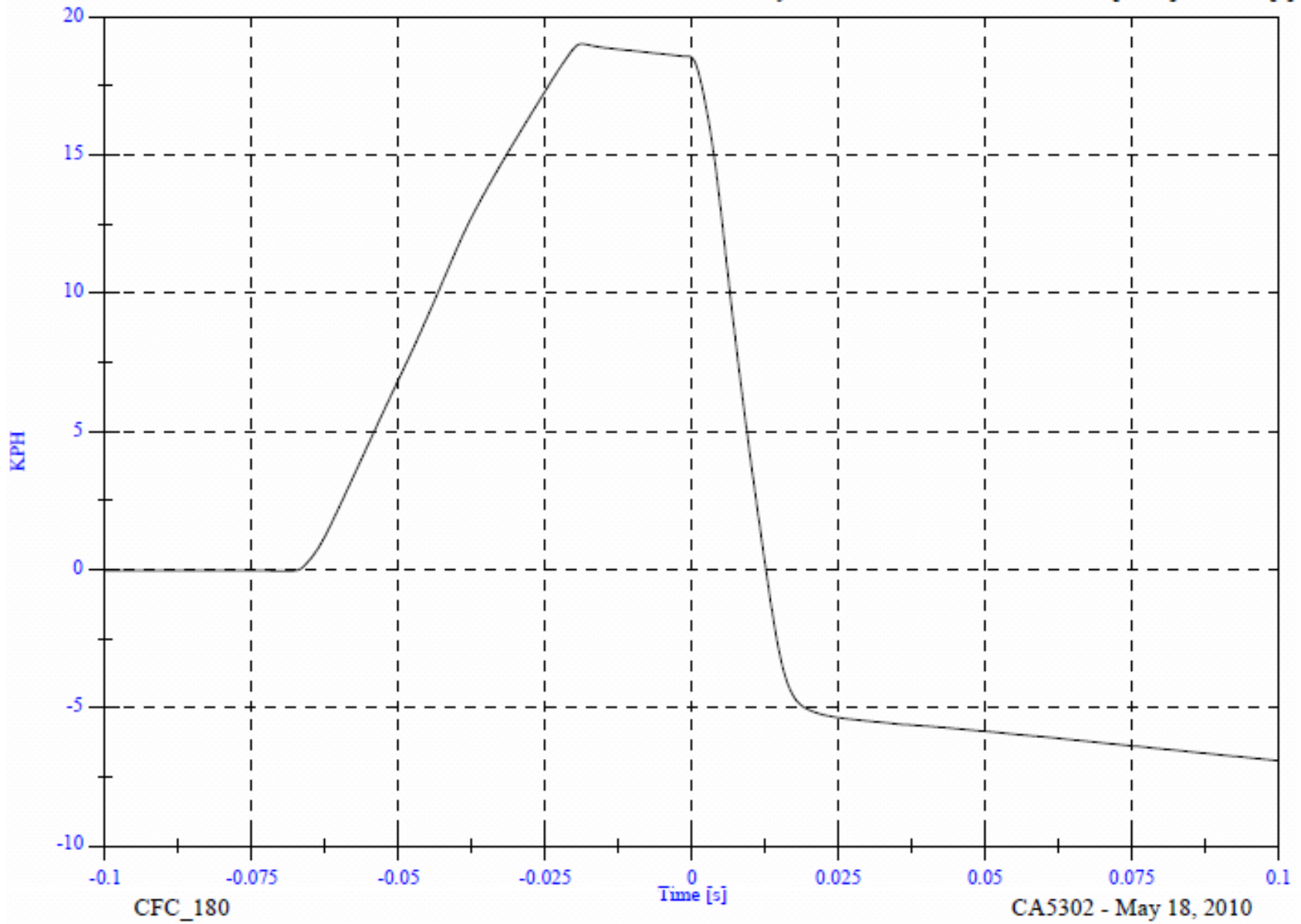
Min: 0.0 [g] at -0.094 [s]



SR2a RH Side

Max: 19.0 [KPH] at -0.019 [s]
Min: -6.9 [KPH] at 0.100 [s]

Headform Velocity





PRE-IMPACT SR2a RH

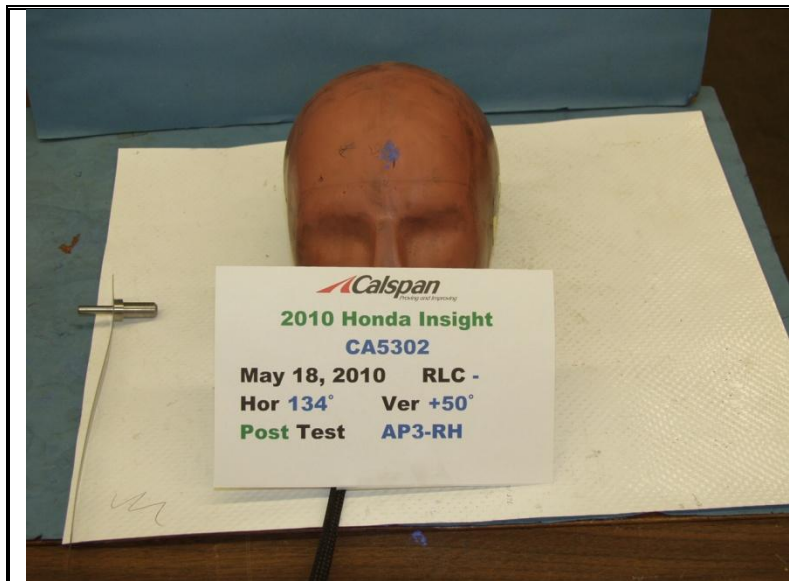


POST-IMPACT SR2a RH

| | |
|--------------------------------|--------------------------------|
| VEHICLE YEAR/MAKE/MODEL/STYLE: | 2010 Honda Insight |
| VIN: | JHMZE2H5XAS018594 |
| DATE OF MANUFACTURE: | 7/09 (SEE CERTIFICATION LABEL) |
| COLOR: | Alabaster Silver |

| | |
|--------------------------|-------------|
| Test Number: | 06 |
| Test Date: | 18 may 2010 |
| Target Location: | AP3 RH |
| Target Code: | AP3 RH |
| Horizontal Impact Angle: | 134 |
| Vertical Impact Angle: | 50 |
| Ambient Temperature: | 21 |
| Relative Humidity: | 41.7% |
| Time of Impact: | 2:33 |
| Headform Number: | 805 |

| | | | |
|--|----|--------------------------|--|
| Impact Point Description (from lower midpoint on midsagittal line) | | | |
| On Centerline | -6 | <input type="checkbox"/> | mm right <input checked="" type="checkbox"/> mm left |
| On Centerline | 19 | | mm up |



POST-IMPACT AP3 RH HEADFORM

| | |
|-----------------------|-------|
| Free Motion HIC | 556.8 |
| HIC(d) | 586.4 |
| Impact Velocity (kph) | 18.62 |
| HIC T1 (msec) | 5.8 |
| HIC T2 (msec) | 11.2 |

AP3 RH Side CA5302 - AP3 RH

FMH Headform 805

Location: AP3 RH

Test Date: May 18, 2010

Work File: fmh

TEST RESULTS

Lab Temperature: 21 C

HICd: 586.4

Lab Humidity: 41.7 %

HIC (36ms): 556.8

Velocity at Impact: 18.62 KPH

t1: 5.8 msec

t2: 11.2 msec

Free Flight Distance: 224.86 mm

Duration: 5.4 msec

Maximum: 129.2 g

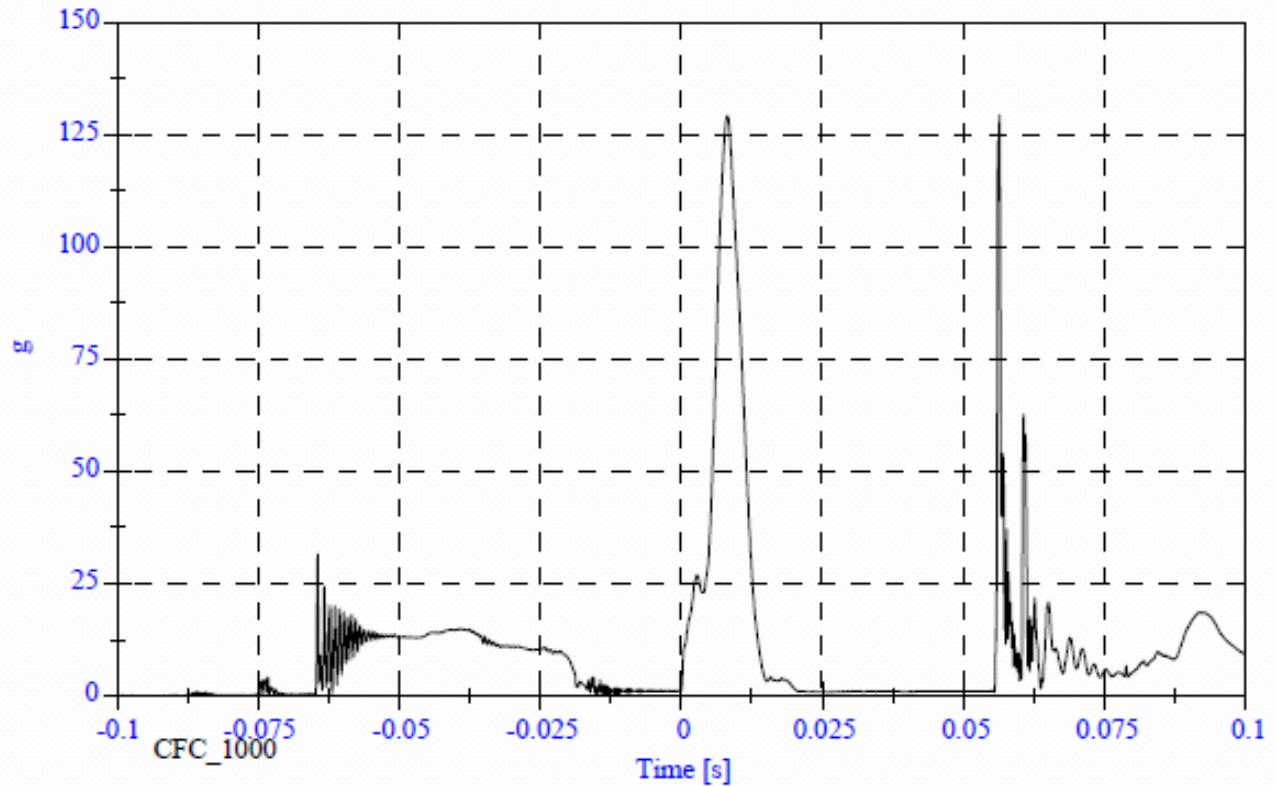
Average Acceleration: 10.0 g

AP3 RH Side

Headform Resultant

Max: 129.2 [g] at 0.008 [s]

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

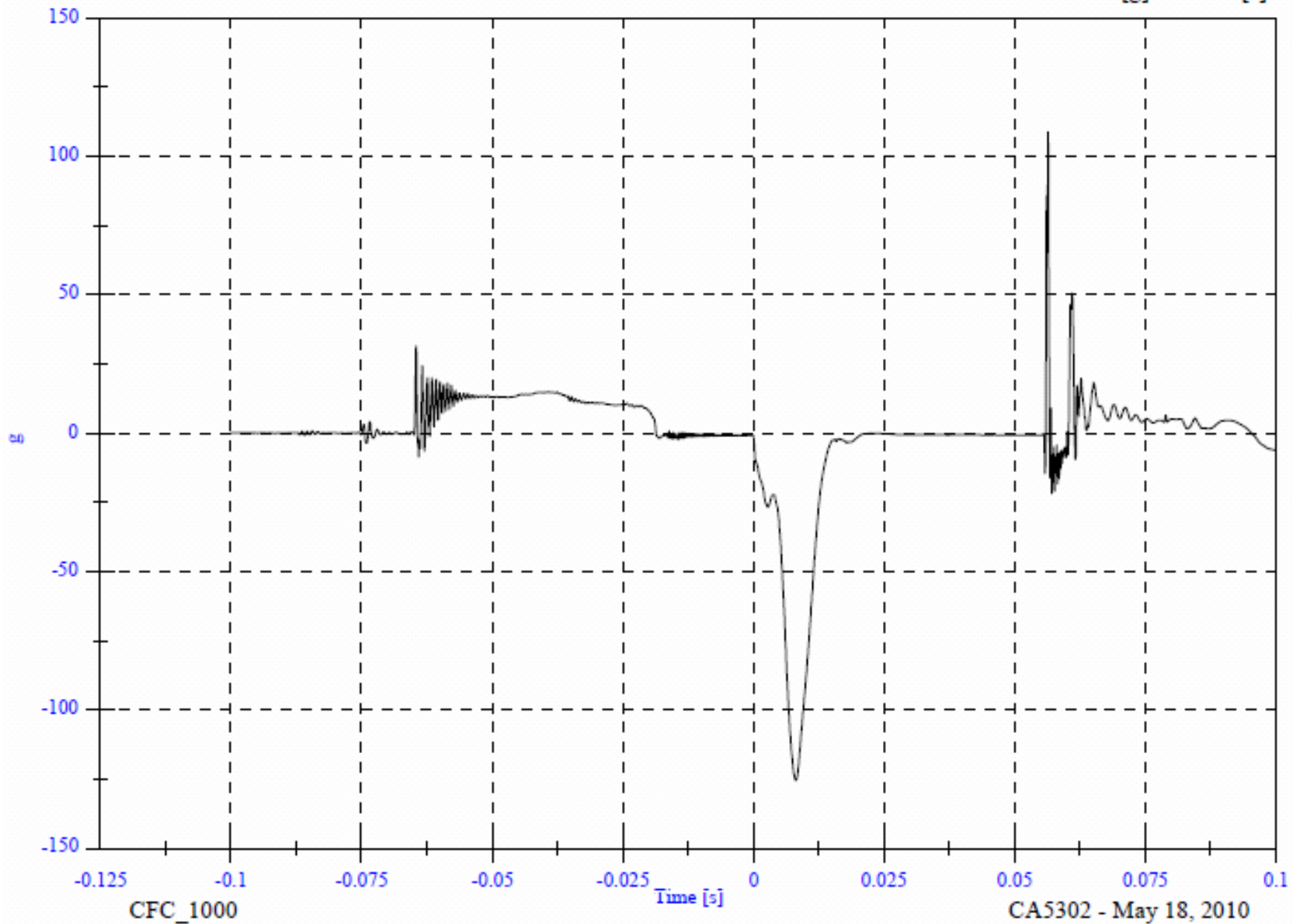


AP3 RH Side

Headform X Acceleration

Max: 108.8 [g] at 0.056 [s]

Min: -125.5 [g] at 0.008 [s]

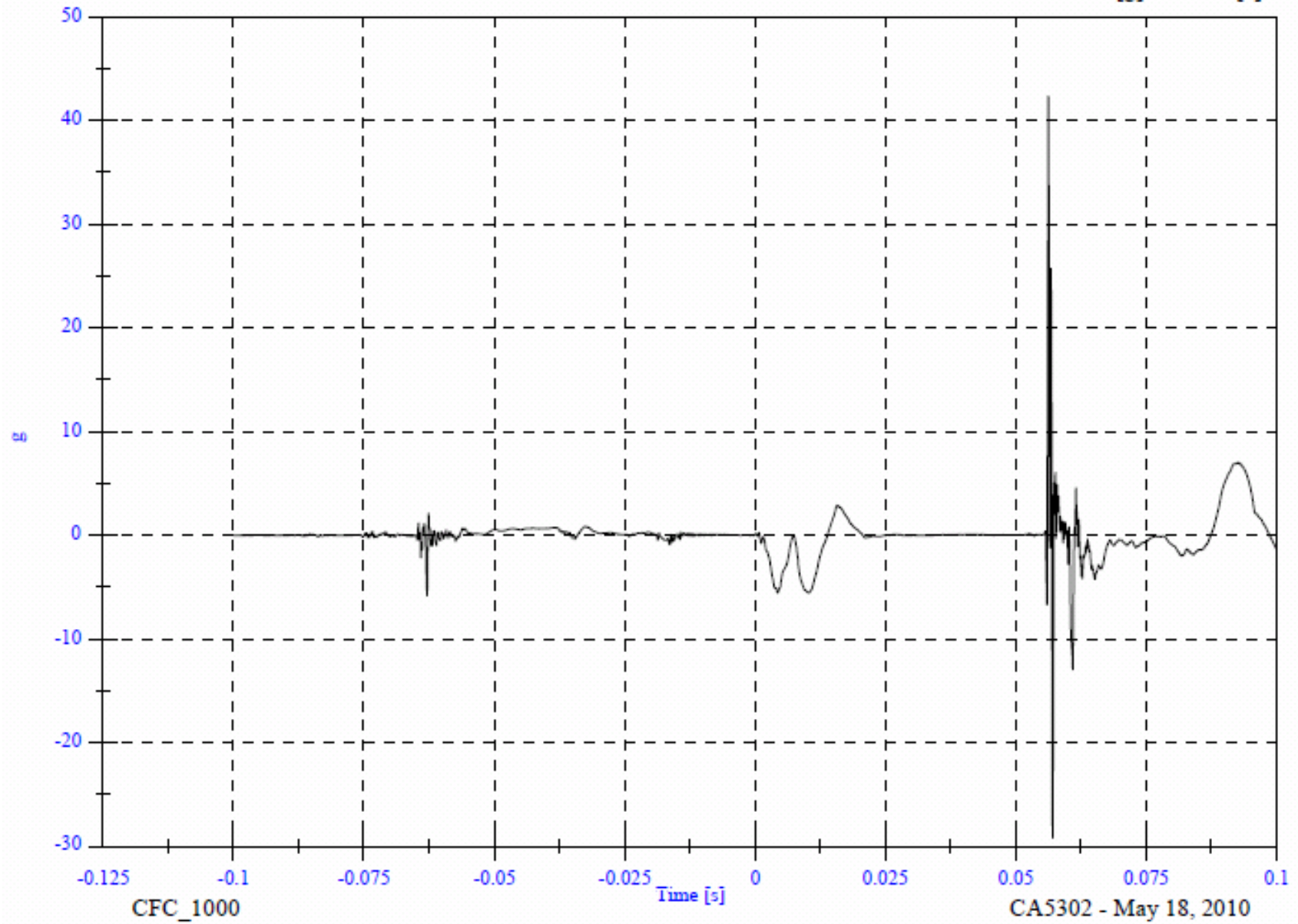


AP3 RH Side

Headform Y Acceleration

Max: 42.3 [g] at 0.056 [s]

Min: -29.2 [g] at 0.057 [s]



CFC_1000

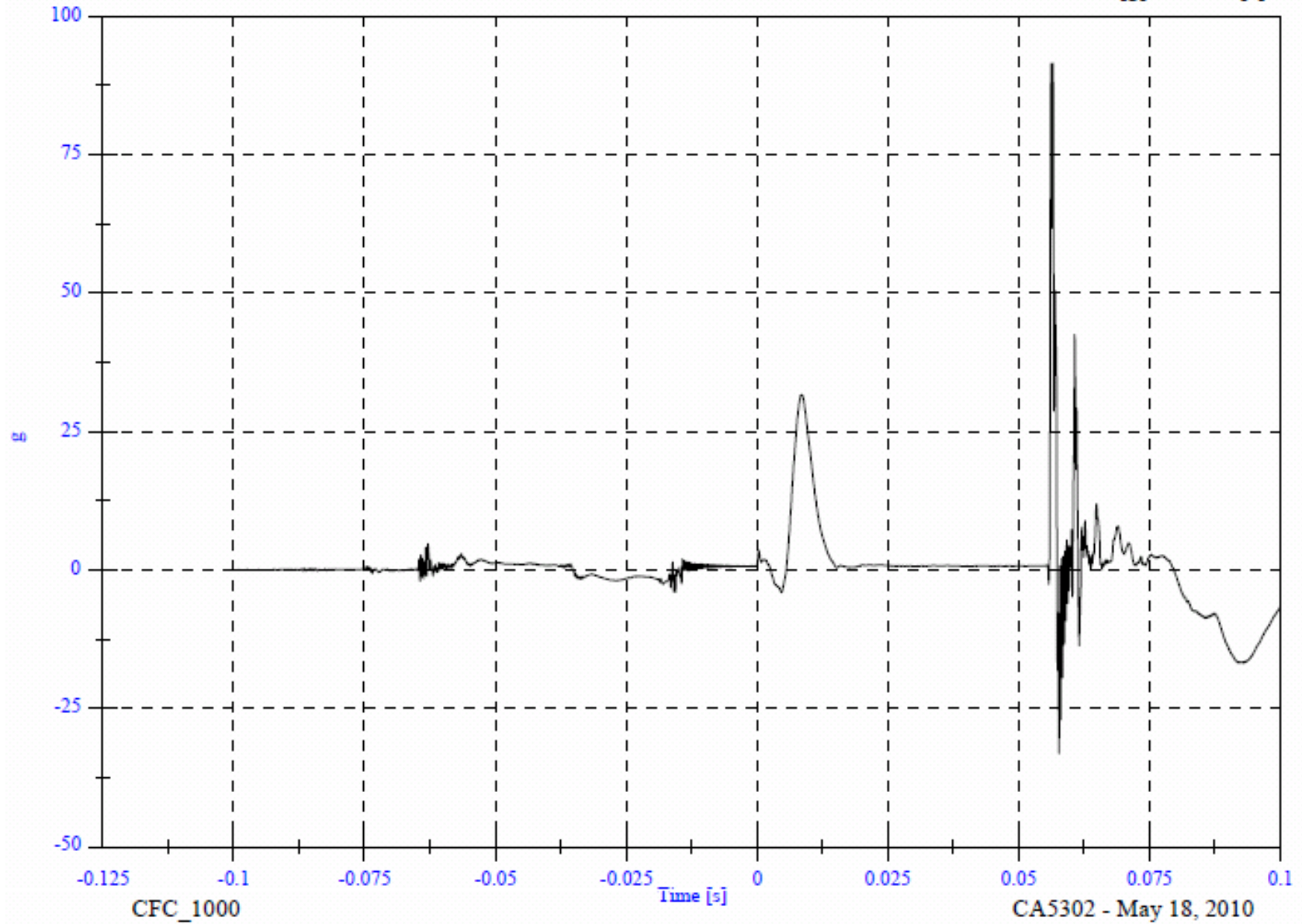
CA5302 - May 18, 2010

AP3 RH Side

Headform Z Acceleration

Max: 91.4 [g] at 0.057 [s]

Min: -33.1 [g] at 0.058 [s]

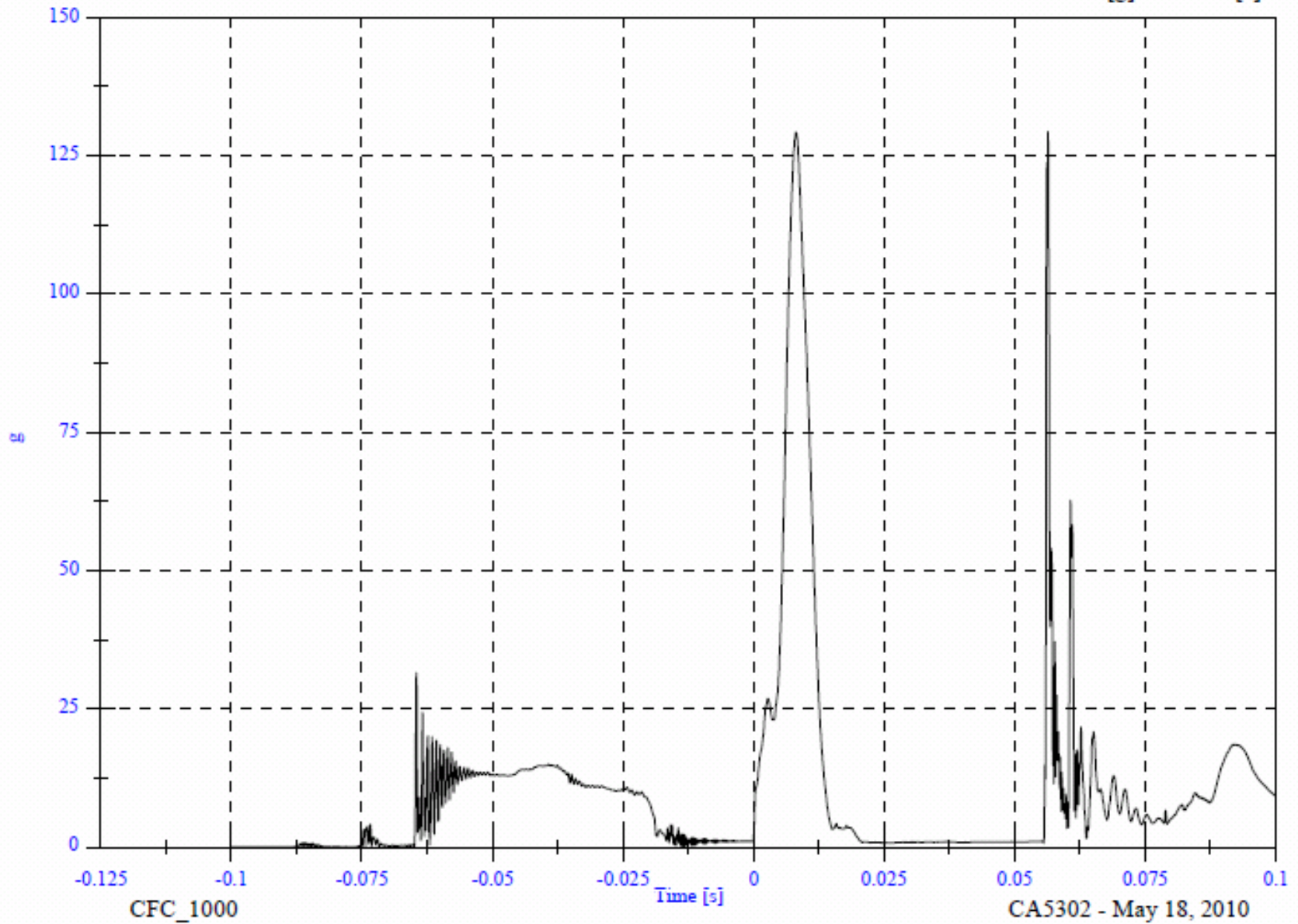


AP3 RH Side

Headform Resultant

Max: 129.3 [g] at 0.056 [s]

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

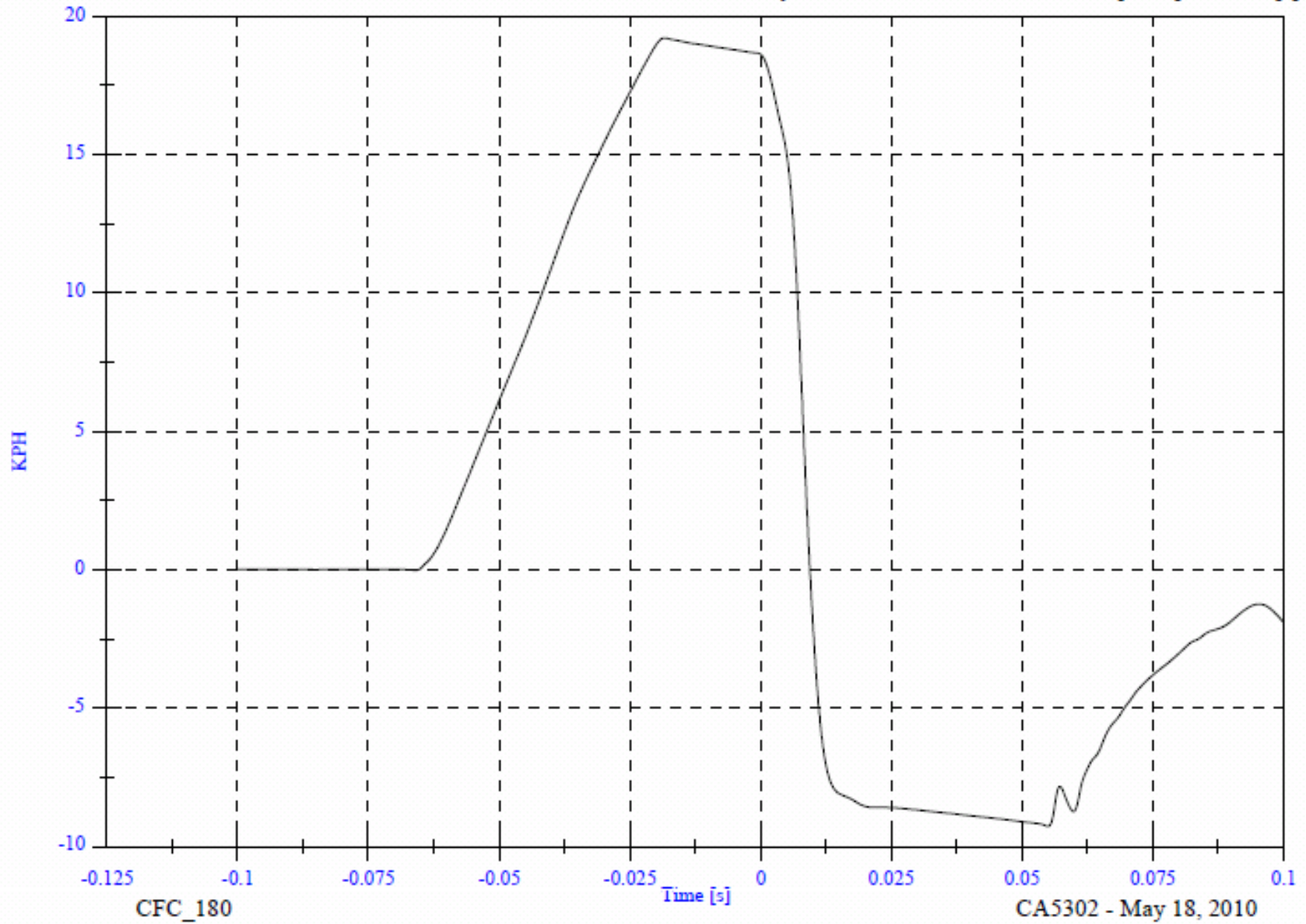


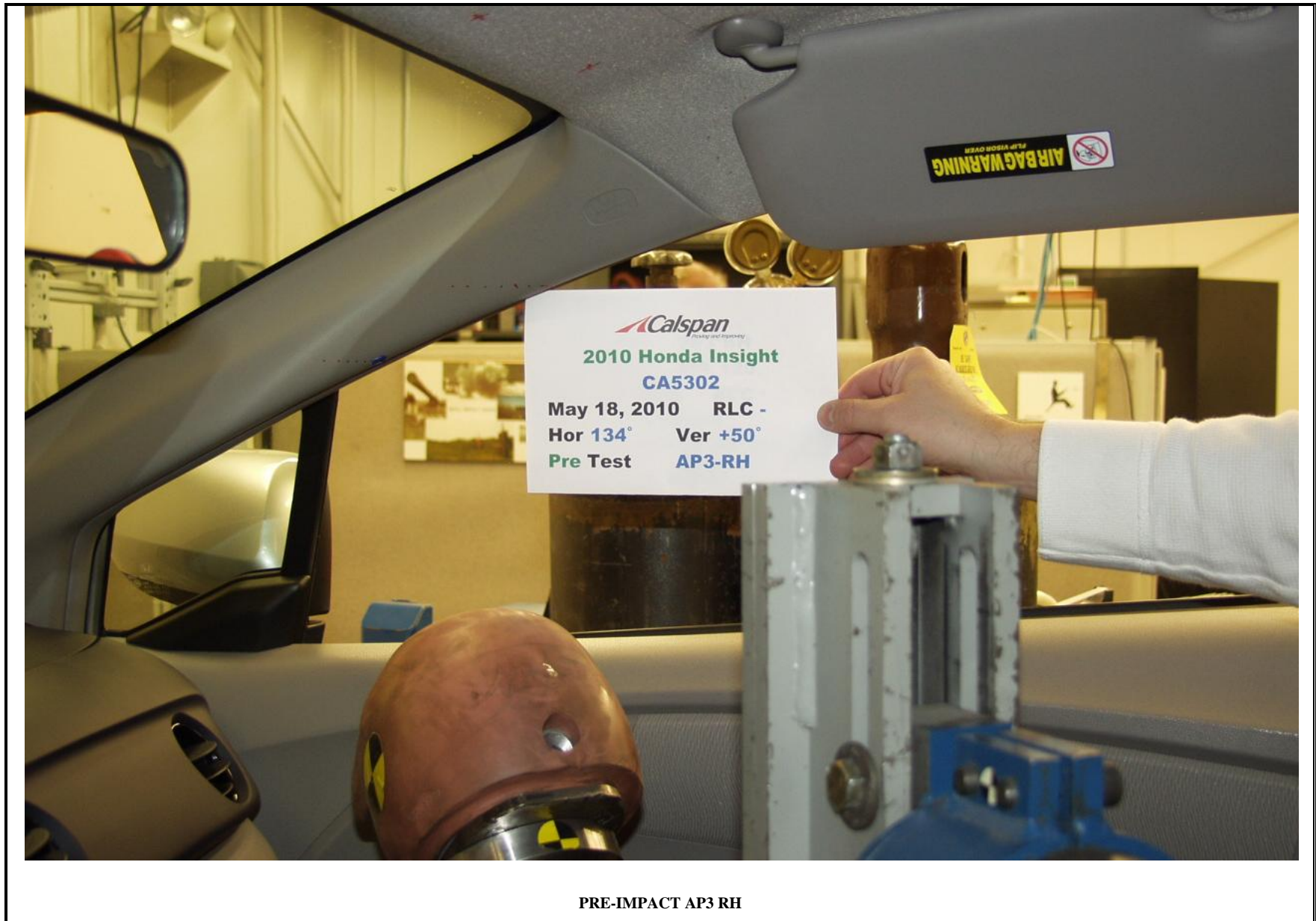
AP3 RH Side

Headform Velocity

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

Min: -9.3 [KPH] at 0.055 [s]





PRE-IMPACT AP3 RH

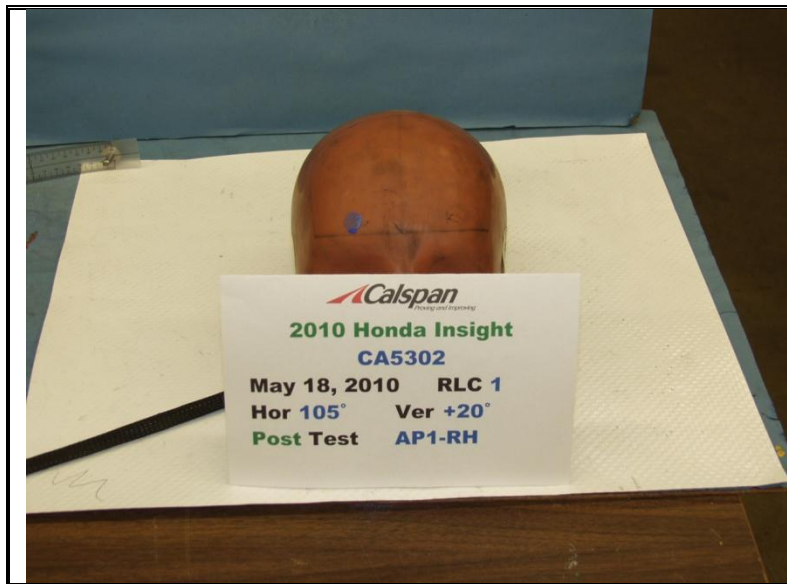


POST-IMPACT AP3 RH

| | |
|--------------------------------|--------------------------------|
| VEHICLE YEAR/MAKE/MODEL/STYLE: | 2010 Honda Insight |
| VIN: | JHMZE2H5XAS018594 |
| DATE OF MANUFACTURE: | 7/09 (SEE CERTIFICATION LABEL) |
| COLOR: | Alabaster Silver |

| | |
|--------------------------|---------------------|
| Test Number: | 07 |
| Test Date: | 18 May 2010 |
| Target Location: | AP1 RH Relocated x1 |
| Target Code: | AP1 RH |
| Horizontal Impact Angle: | 105 |
| Vertical Impact Angle: | 20 |
| Ambient Temperature: | 22 |
| Relative Humidity: | 41.1% |
| Time of Impact: | 3:05 |
| Headform Number: | 0062 |

| | | | |
|--|----|-------------------------------------|---|
| Impact Point Description (from lower midpoint on midsagittal line) | | | |
| On Centerline | 31 | <input checked="" type="checkbox"/> | mm right <input type="checkbox"/> mm left |
| On Centerline | 8 | | mm up |



POST-IMPACT AP1 RH HEADFORM

| | |
|-----------------------|-------|
| Free Motion HIC | 181.4 |
| HIC(d) | 303.3 |
| Impact Velocity (kph) | 18.85 |
| HIC T1 (msec) | 5.3 |
| HIC T2 (msec) | 18.1 |

AP1 RH Side CA5302 - AP1 RH

FMH Headform 62

Location: AP1 RH

Test Date: May 18, 2010

Work File: fmh

TEST RESULTS

Lab Temperature: 22 C

HICd: 303.3

Lab Humidity: 41.1 %

HIC (36ms): 181.4

Velocity at Impact: 18.85 KPH

t1: 5.3 msec

t2: 18.1 msec

Free Flight Distance: 215.25 mm

Duration: 12.8 msec

Maximum: 58.0 g

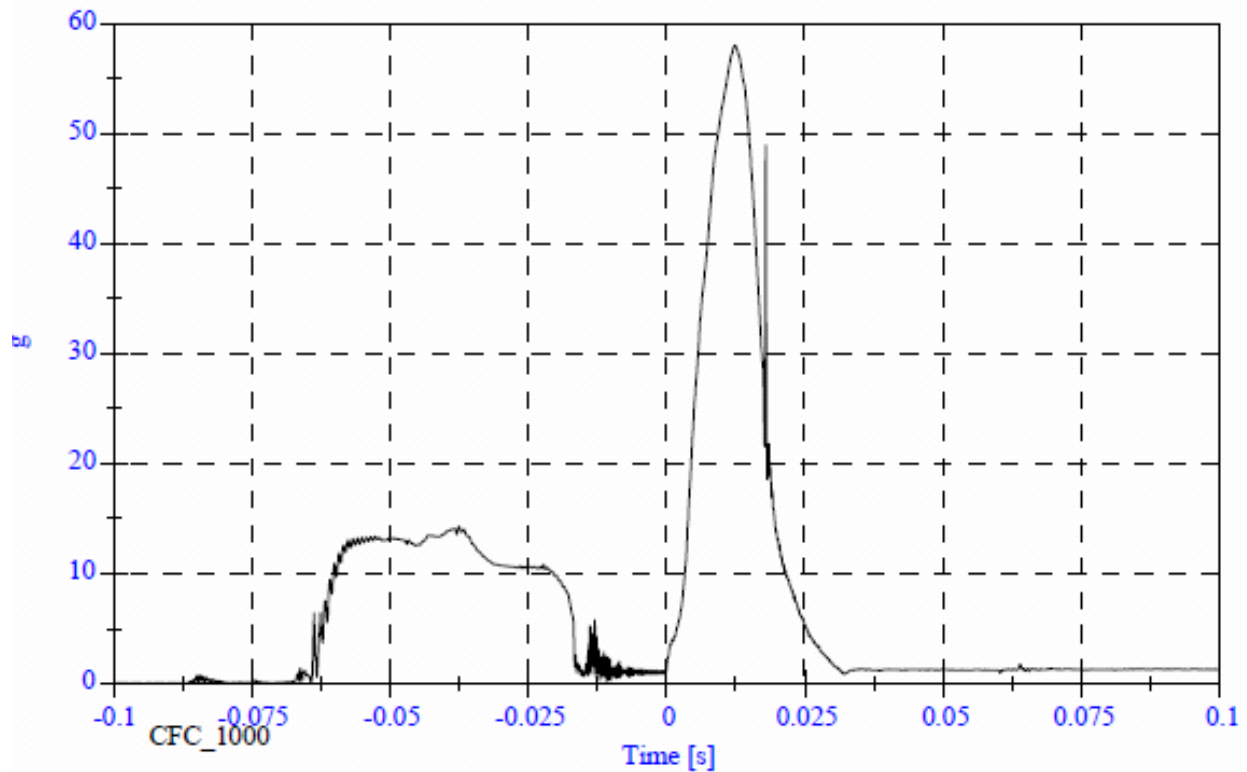
Average Acceleration: 7.0 g

AP1 RH Side

Headform Resultant

Max: 58.0 [g] at 0.012 [s]

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

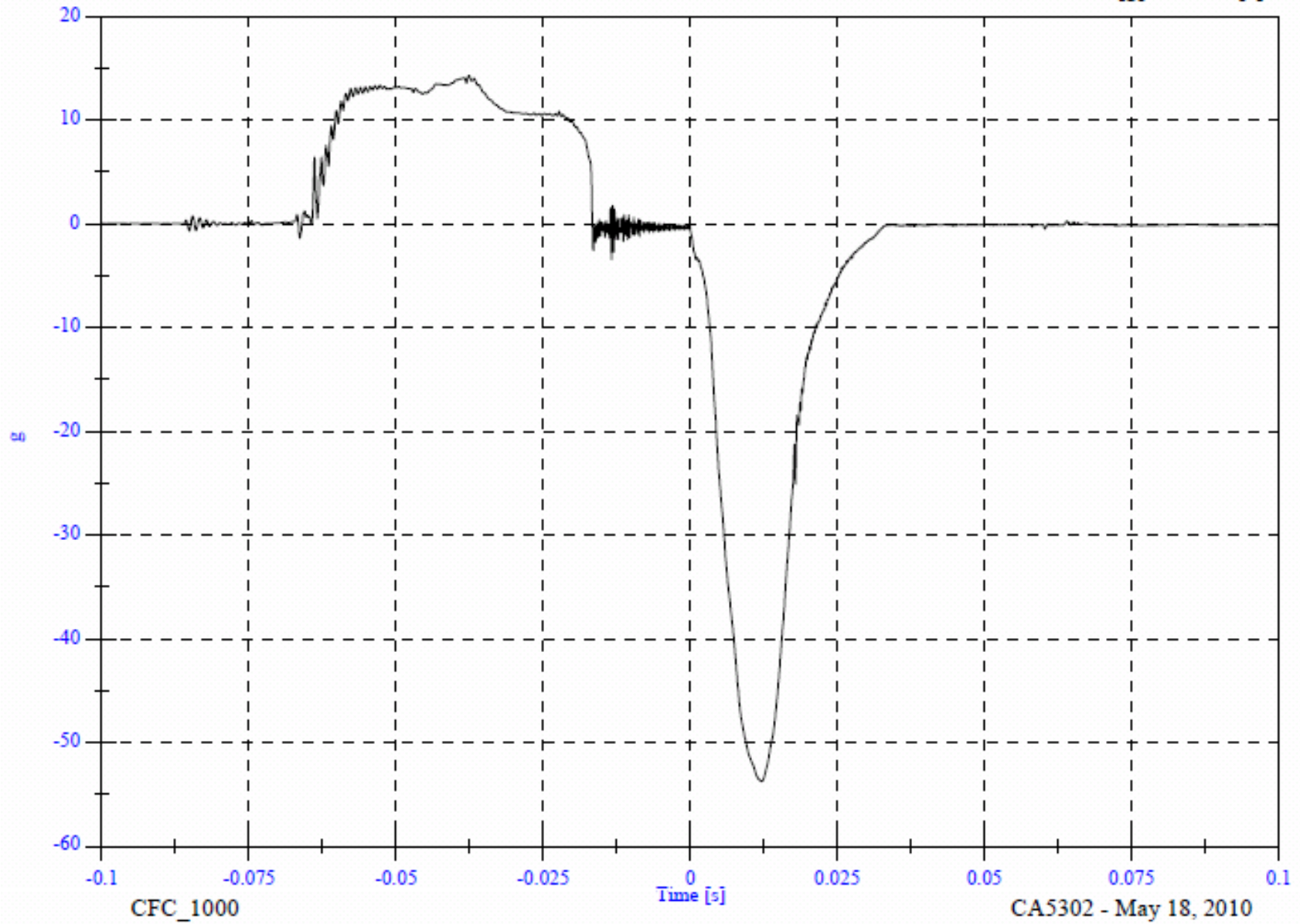


AP1 RH Side

Headform X Acceleration

Max: 14.3 [g] at -0.038 [s]

Min: -53.7 [g] at 0.012 [s]

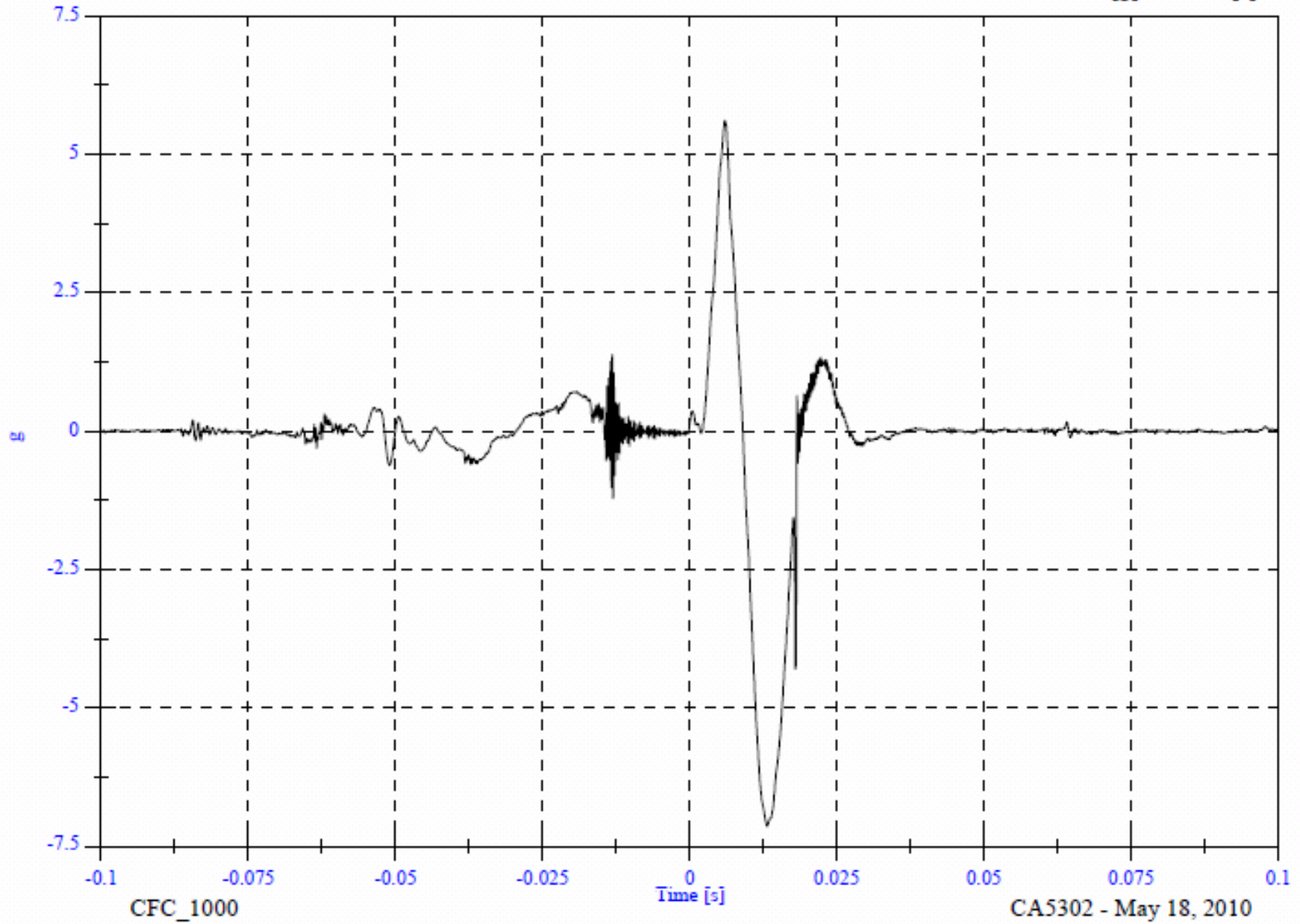


AP1 RH Side

Headform Y Acceleration

Max: 5.6 [g] at 0.006 [s]

Min: -7.1 [g] at 0.013 [s]

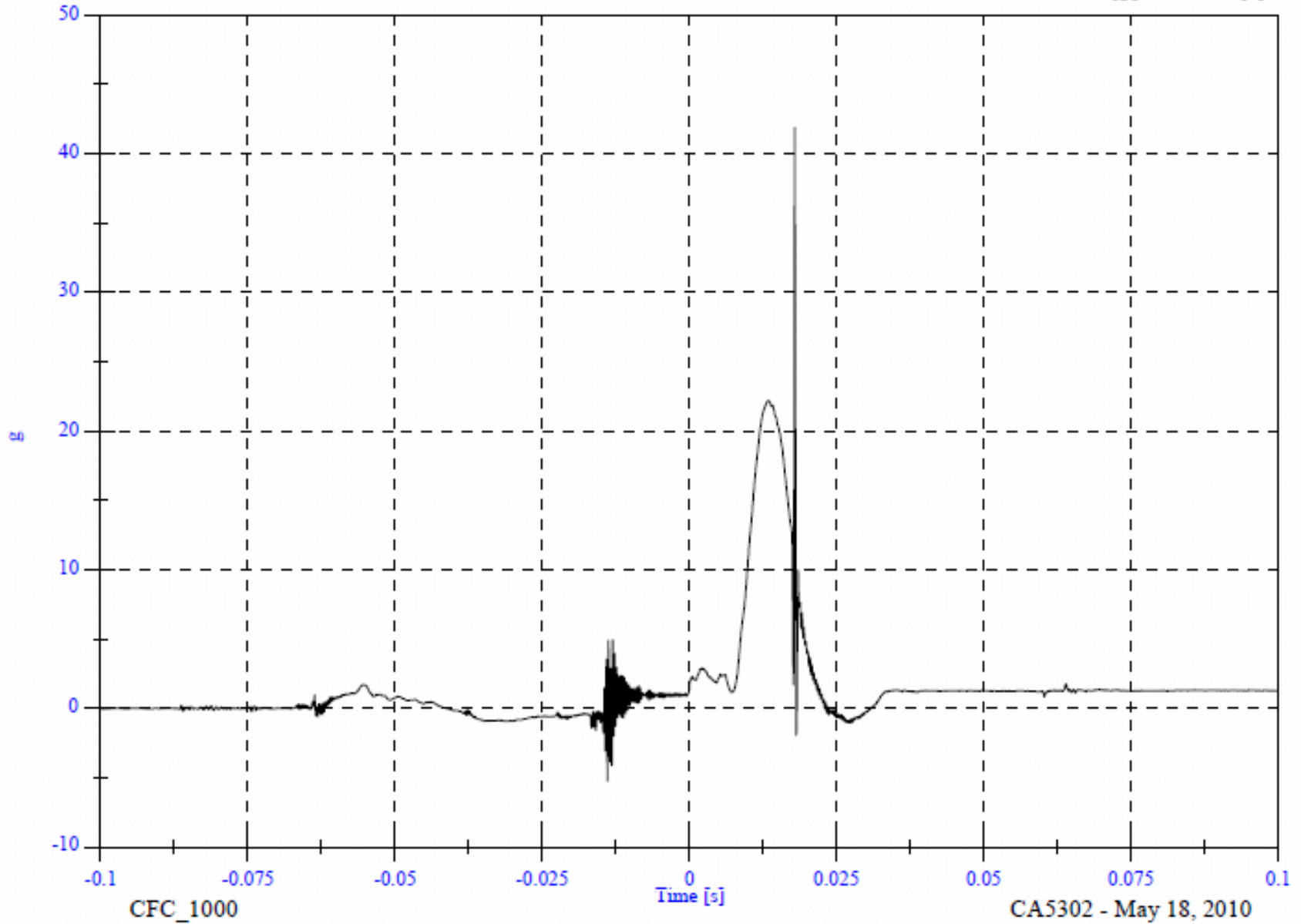


AP1 RH Side

Headform Z Acceleration

Max: 41.9 [g] at 0.018 [s]

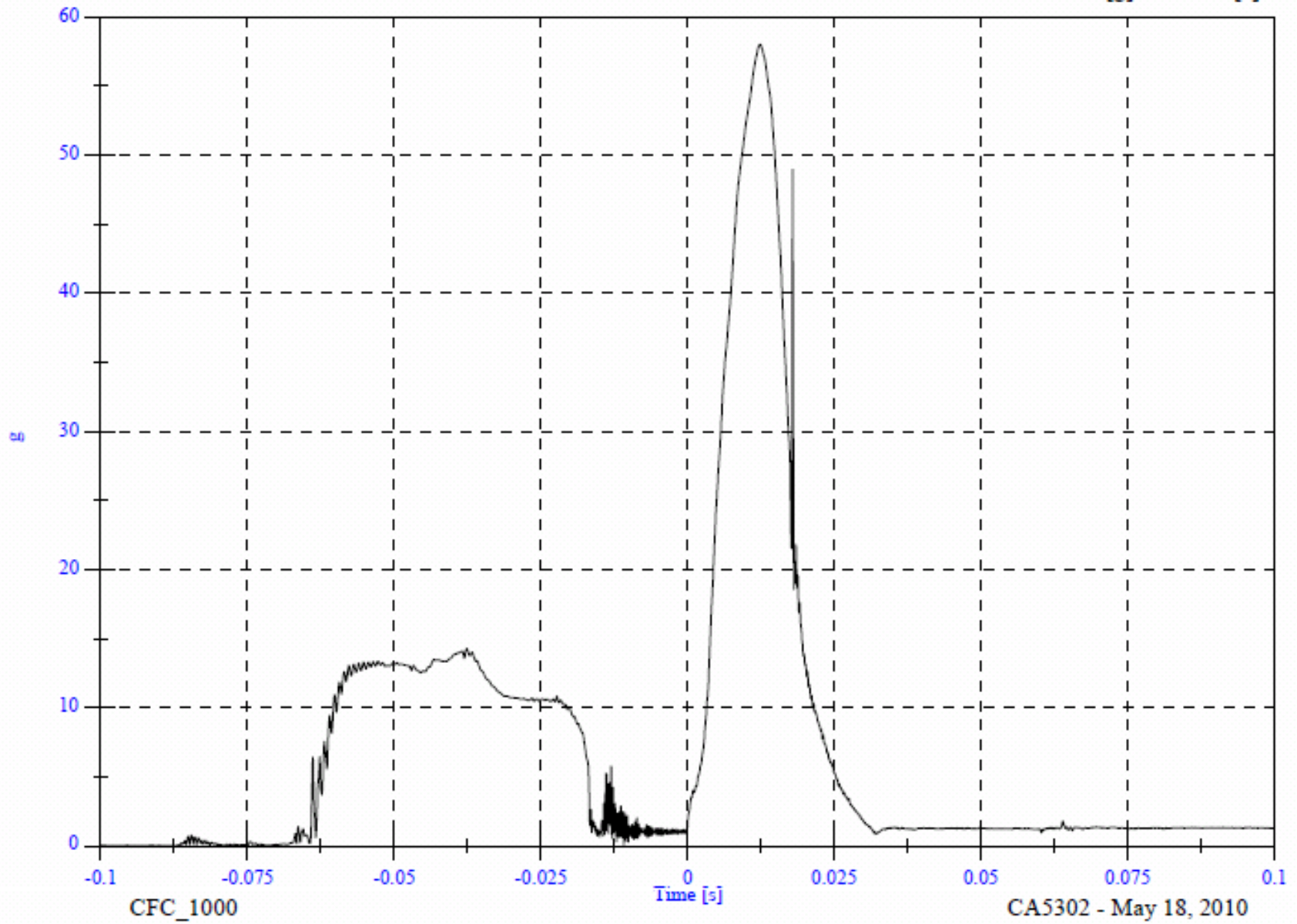
Min: -5.2 [g] at -0.014 [s]



API RH Side

Headform Resultant

Max: 58.0 [g] at 0.012 [s]
Min: 0.0 [g] at -0.095 [s]

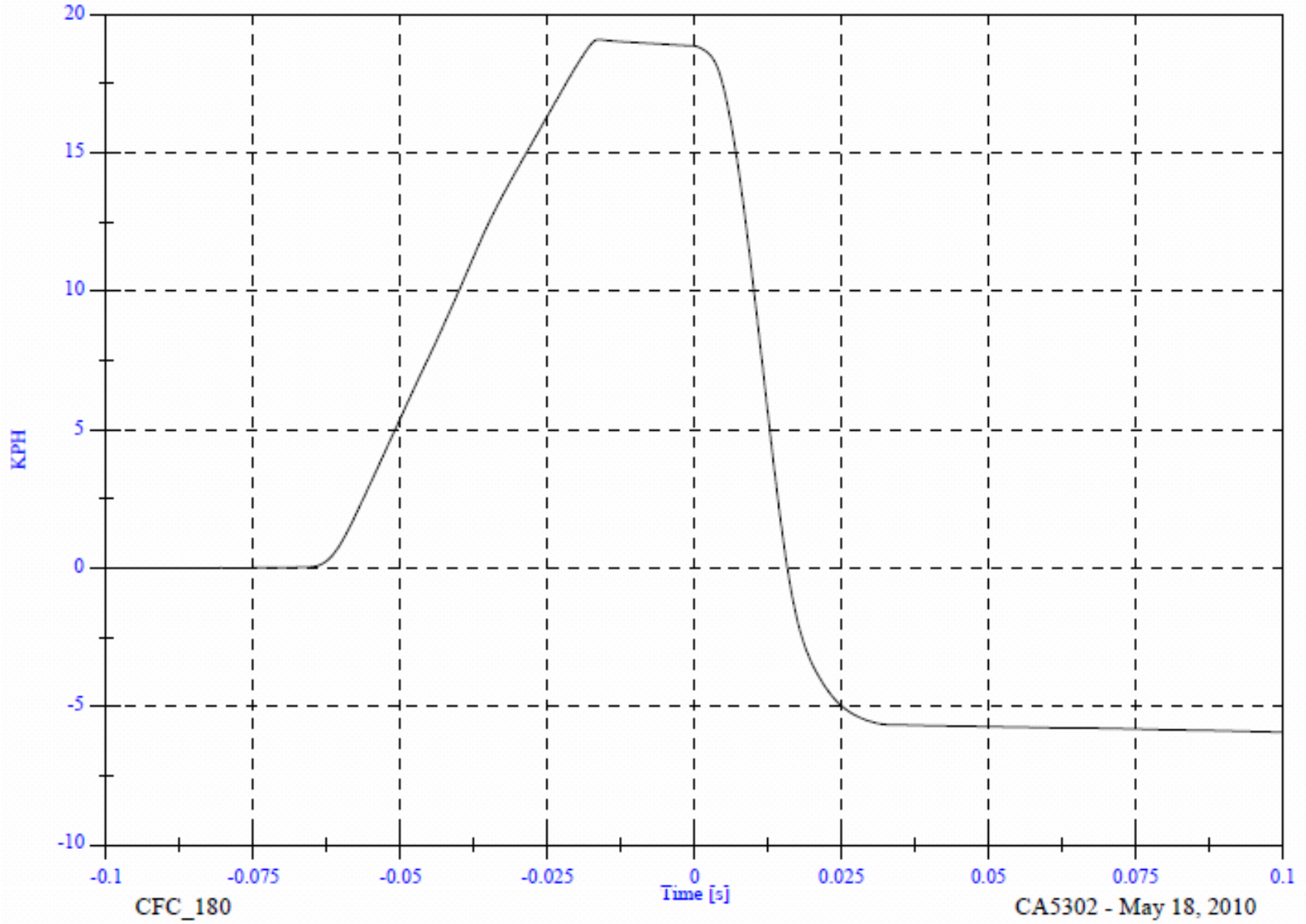


API RH Side

Headform Velocity

Max: 19.1 [KPH] at -0.016 [s]

Min: -5.9 [KPH] at 0.100 [s]





PRE-IMPACT AP1 RH

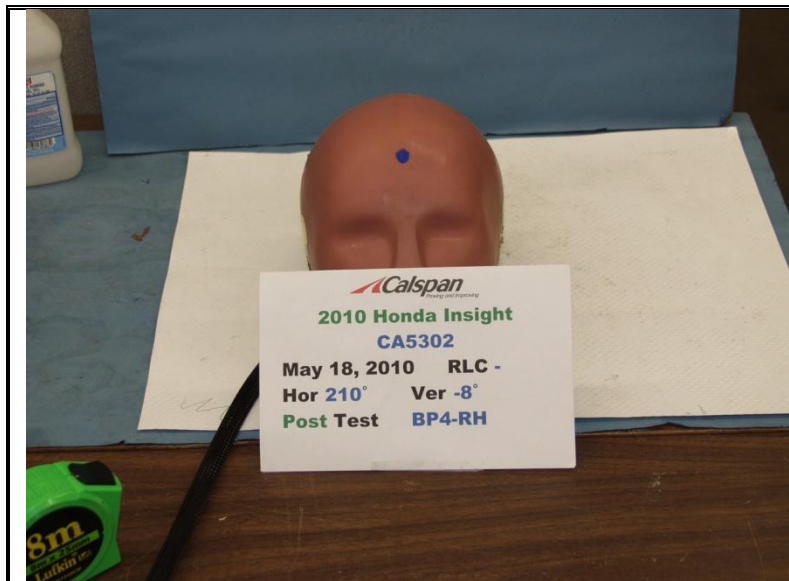


POST-IMPACT AP1 RH

| | |
|--------------------------------|--------------------------------|
| VEHICLE YEAR/MAKE/MODEL/STYLE: | 2010 Honda Insight |
| VIN: | JHMZE2H5XAS018594 |
| DATE OF MANUFACTURE: | 7/09 (SEE CERTIFICATION LABEL) |
| COLOR: | Alabaster Silver |

| | |
|--------------------------|-------------|
| Test Number: | 08 |
| Test Date: | 18 May 2010 |
| Target Location: | BP4 LH |
| Target Code: | BP4 LH |
| Horizontal Impact Angle: | 210 |
| Vertical Impact Angle: | -8 |
| Ambient Temperature: | 22 |
| Relative Humidity: | 41.8% |
| Time of Impact: | 4:30 |
| 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 | 25 | | mm up |



POST-IMPACT BP4 RH HEADFORM
 Note: Post Test label should read "BP4-LH".

| | |
|-----------------------|-------|
| Free Motion HIC | 521.4 |
| HIC(d) | 559.8 |
| Impact Velocity (kph) | 23.93 |
| HIC T1 (msec) | 1.4 |
| HIC T2 (msec) | 12.9 |

BP4 LH Side CA5302 - BP4 LH

FMH Headform 1142

Location: BP4 LH

Test Date: May 18, 2010

Work File: fmh

TEST RESULTS

Lab Temperature: 22 C

HICd: 559.8

Lab Humidity: 41.8 %

HIC (36ms): 521.4

Velocity at Impact: 23.93 KPH

t1: 1.4 msec

t2: 12.9 msec

Free Flight Distance: 220.22 mm

Duration: 11.5 msec

Maximum: 109.9 g

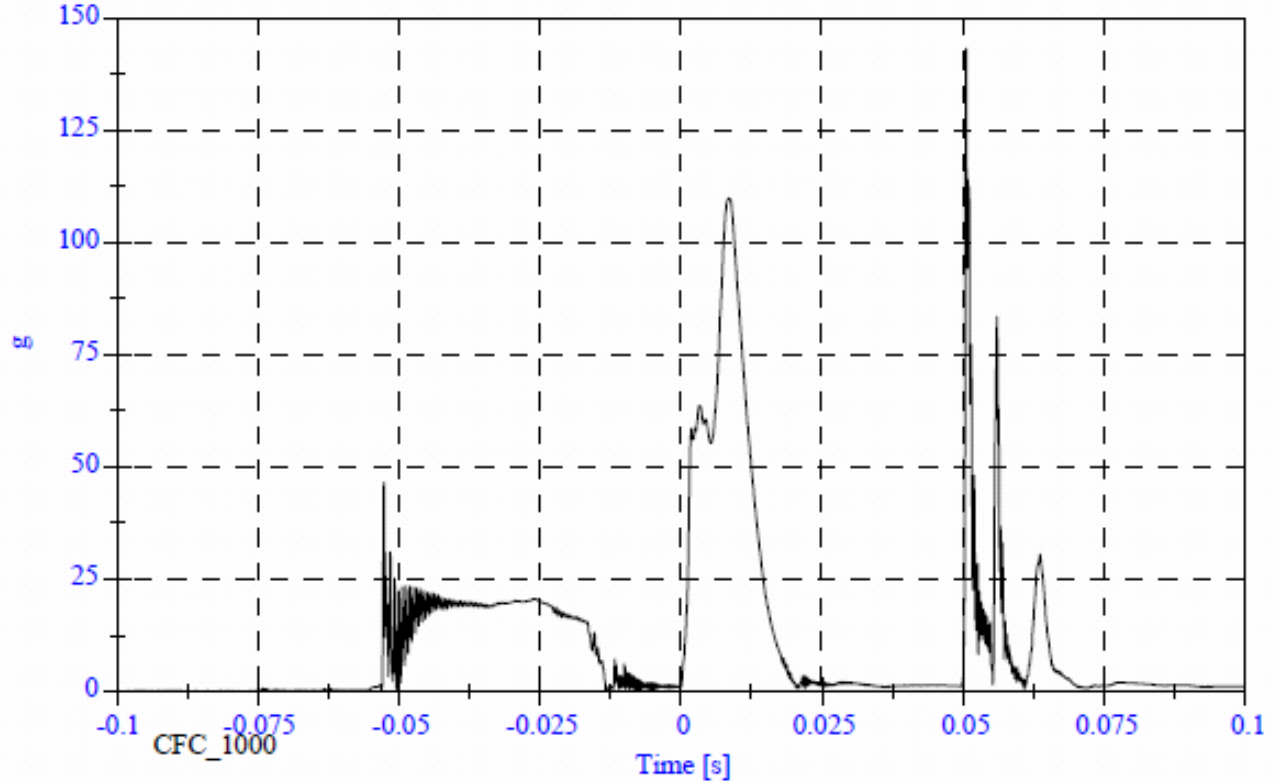
Average Acceleration: 10.8 g

BP4 LH Side

Max: 109.9 [g] at 0.008 [s]

Headform Resultant

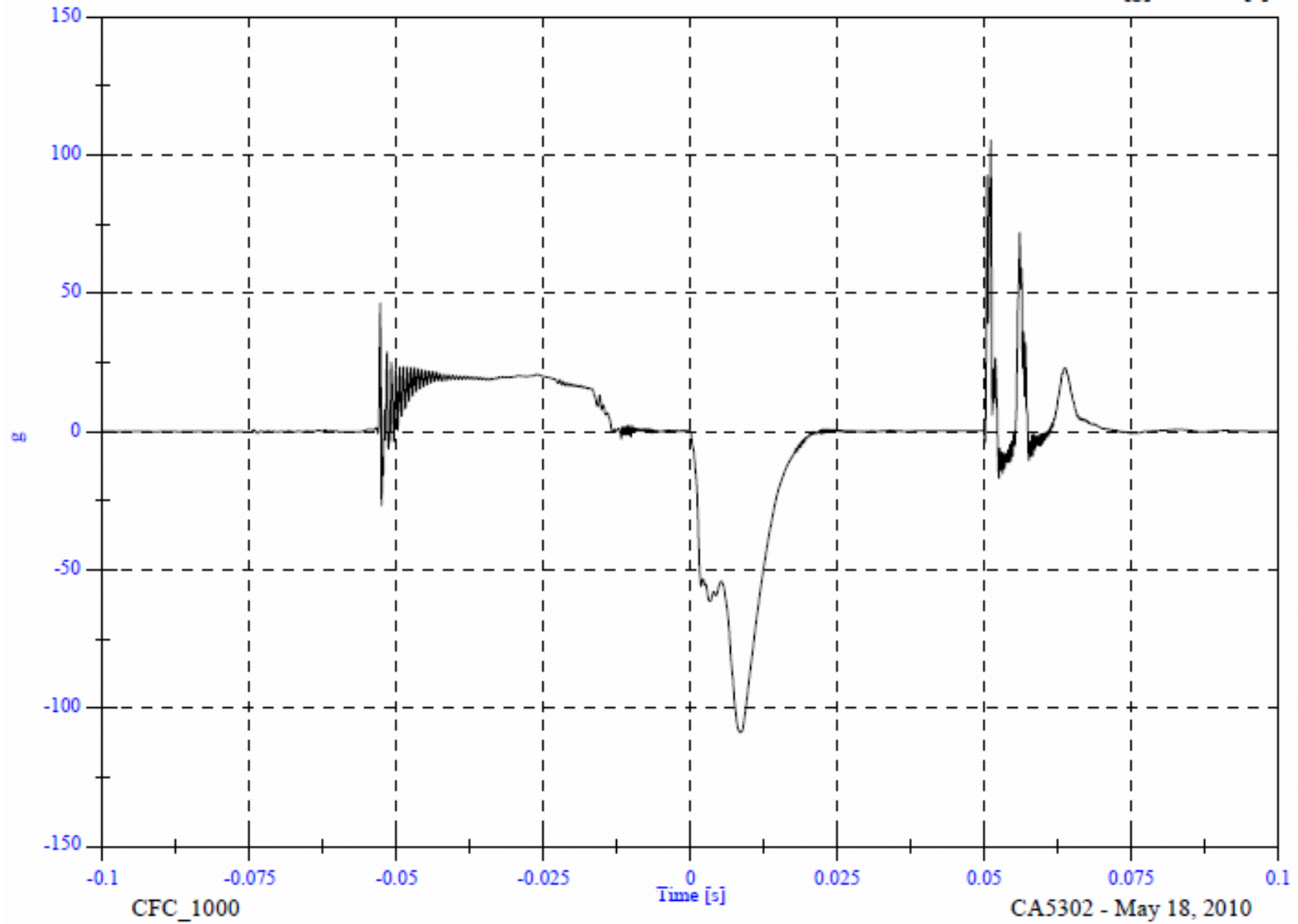
Min: 0.0 [g] at -0.086 [s]

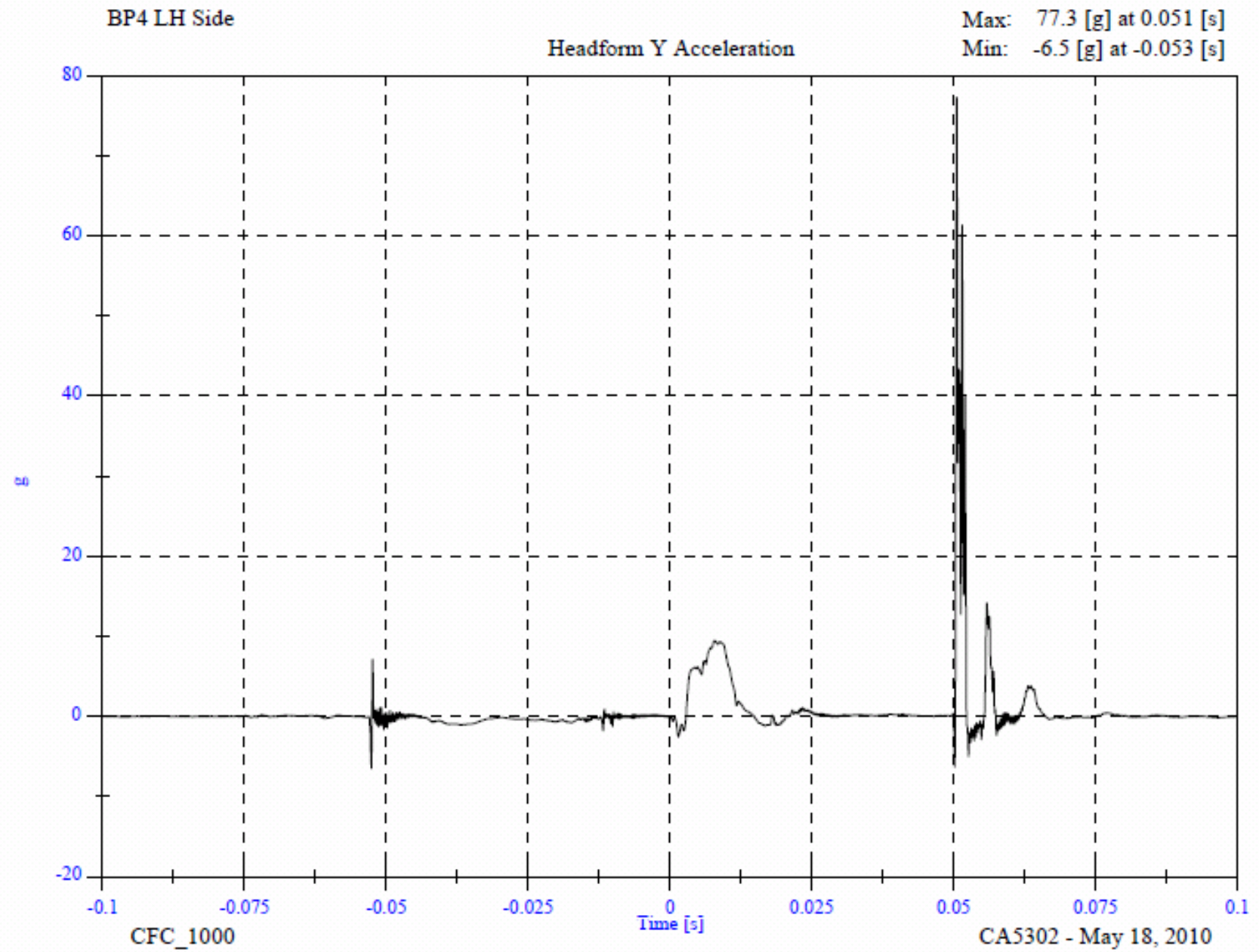


BP4 LH Side

Headform X Acceleration

Max: 105.4 [g] at 0.051 [s]
Min: -108.7 [g] at 0.008 [s]



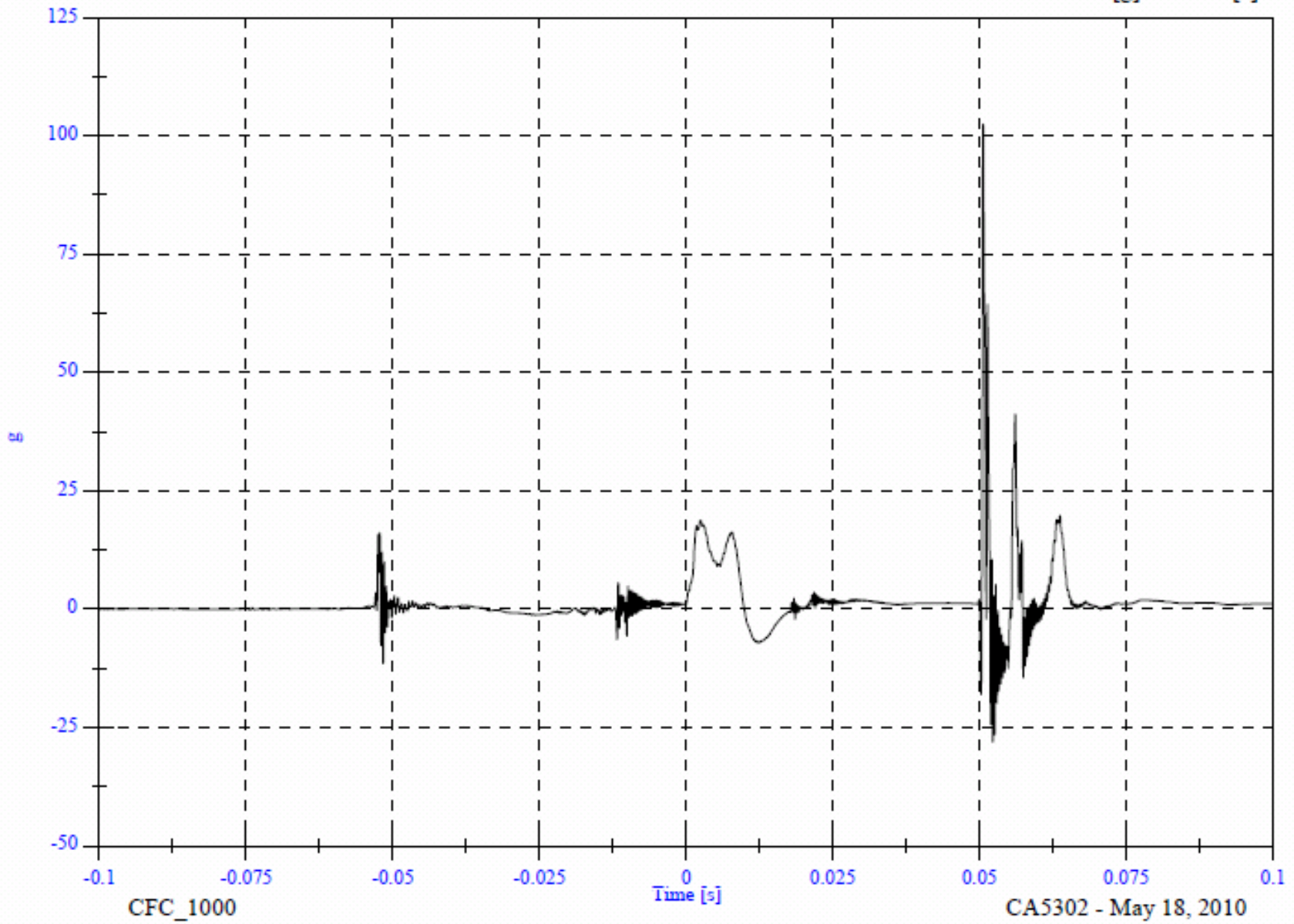


BP4 LH Side

Headform Z Acceleration

Max: 102.5 [g] at 0.051 [s]

Min: -28.1 [g] at 0.052 [s]

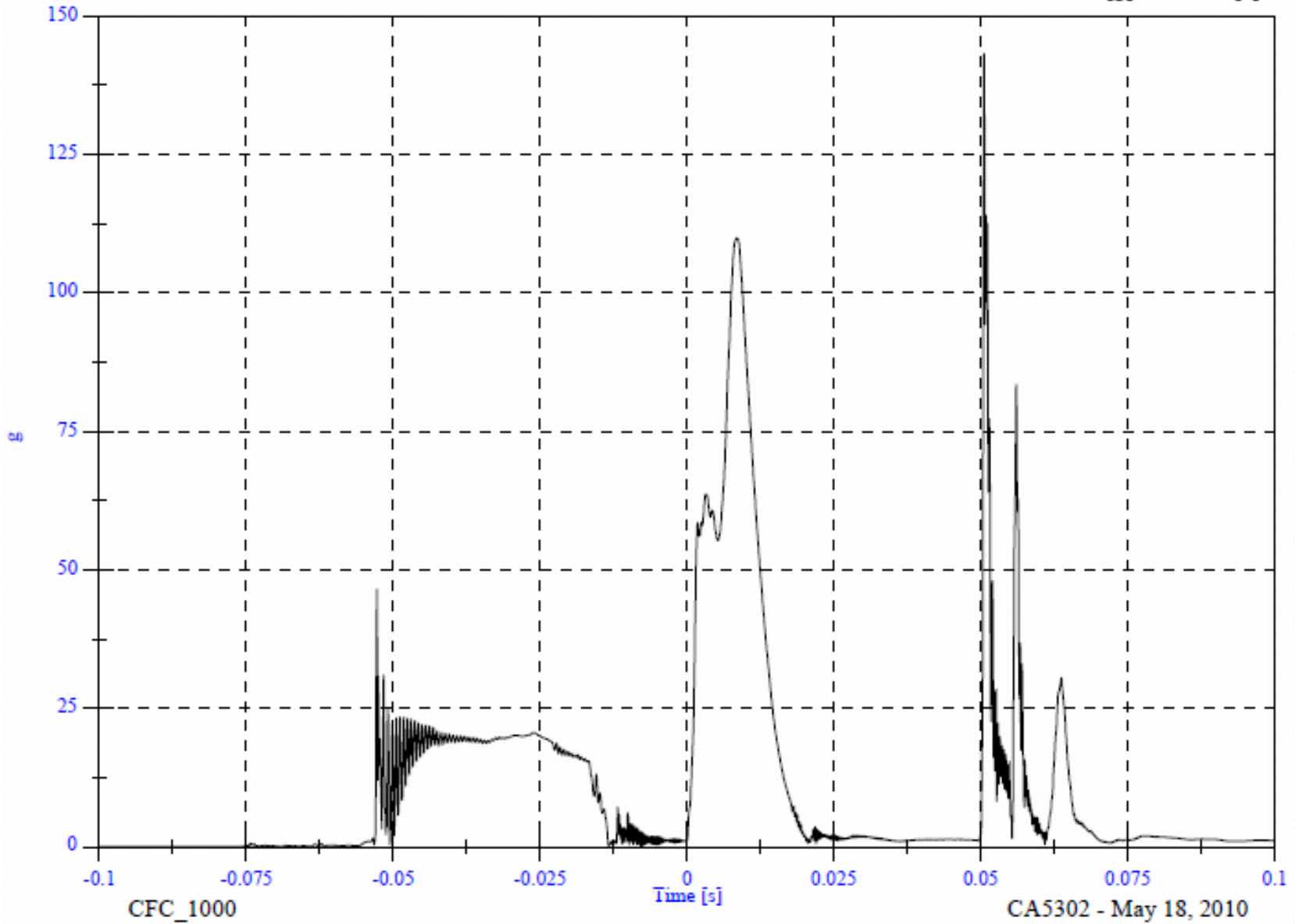


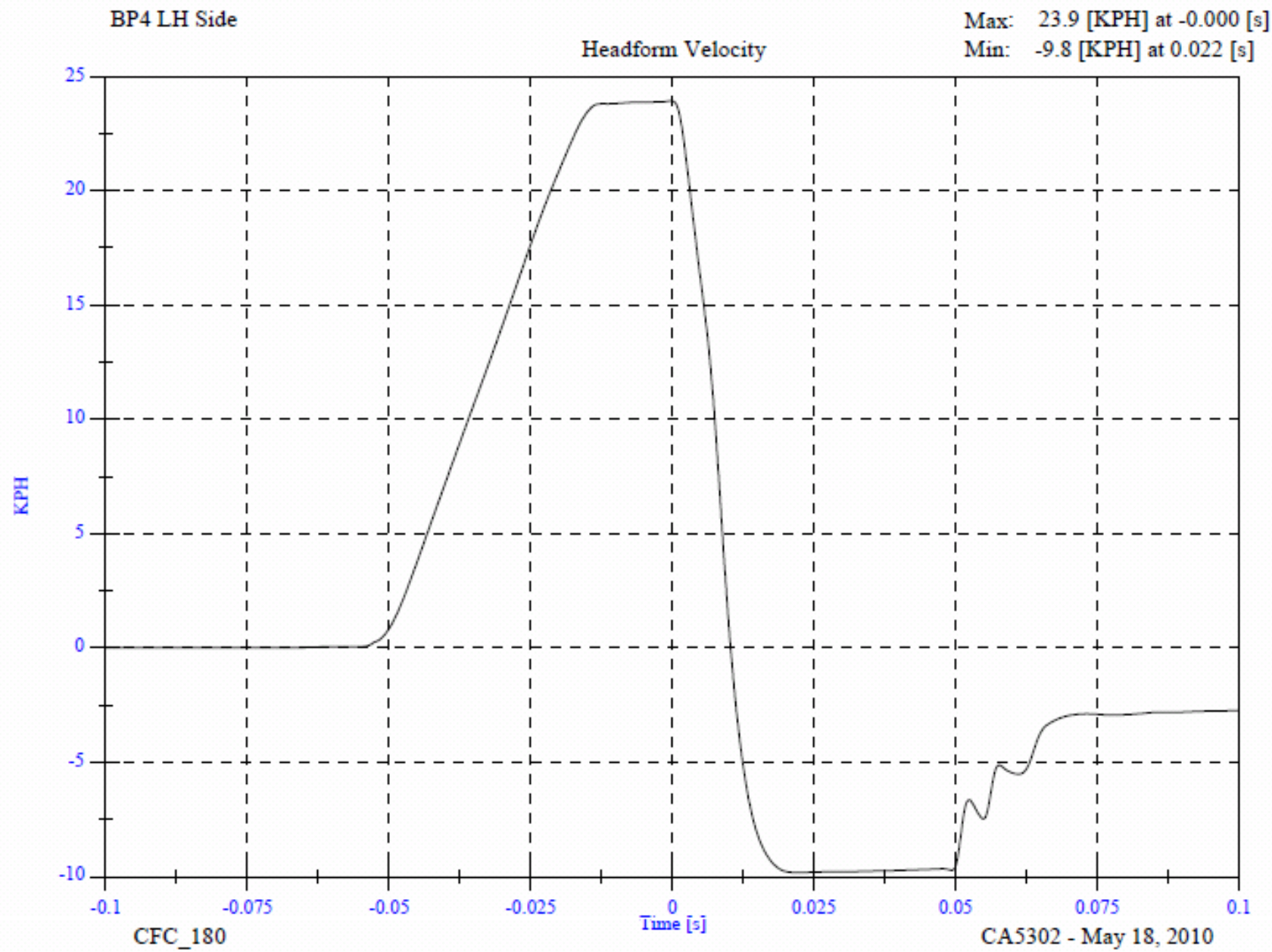
BP4 LH Side

Headform Resultant

Max: 143.2 [g] at 0.051 [s]

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







PRE-IMPACT BP4 LH

Note: Pre Test label should read "BP4-LH".



POST-IMPACT BP4 LH

Note: Post Test label should read "BP4-LH".

| | |
|--------------------------------|--------------------------------|
| VEHICLE YEAR/MAKE/MODEL/STYLE: | 2010 Honda Insight |
| VIN: | JHMZE2H5XAS018594 |
| DATE OF MANUFACTURE: | 7/09 (SEE CERTIFICATION LABEL) |
| COLOR: | Alabaster Silver |

| | |
|--------------------------|---------------------|
| Test Number: | 09 |
| Test Date: | 18 May 2010 |
| Target Location: | BP1 LH Relocated x2 |
| Target Code: | BP1 LH |
| Horizontal Impact Angle: | 270 |
| Vertical Impact Angle: | 20 |
| Ambient Temperature: | 21.5 |
| Relative Humidity: | 41.9% |
| Time of Impact: | 5:00 |
| Headform Number: | 0355 |

| | | | |
|--|-----|--------------------------|--|
| Impact Point Description (from lower midpoint on midsagittal line) | | | |
| On Centerline | -13 | <input type="checkbox"/> | mm right <input checked="" type="checkbox"/> mm left |
| On Centerline | 78 | | mm up |



POST-IMPACT BP1 LH HEADFORM
Note: Post Test label should read "BP1-LH".

| | |
|-----------------------|-------|
| Free Motion HIC | 370.2 |
| HIC(d) | 445.7 |
| Impact Velocity (kph) | 18.30 |
| HIC T1 (msec) | 8.6 |
| HIC T2 (msec) | 15.3 |

BP1 LH Side CA5302 - BP1 LH

FMH Headform 355

Location: BP1 LH

Test Date: May 18, 2010

Work File: fmh

TEST RESULTS

Lab Temperature: 21.5 C

HICd: 445.7

Lab Humidity: 41.9 %

HIC (36ms): 370.2

Velocity at Impact: 18.30 KPH

t1: 8.6 msec

t2: 15.3 msec

Free Flight Distance: 216.19 mm

Duration: 6.7 msec

Maximum: 98.4 g

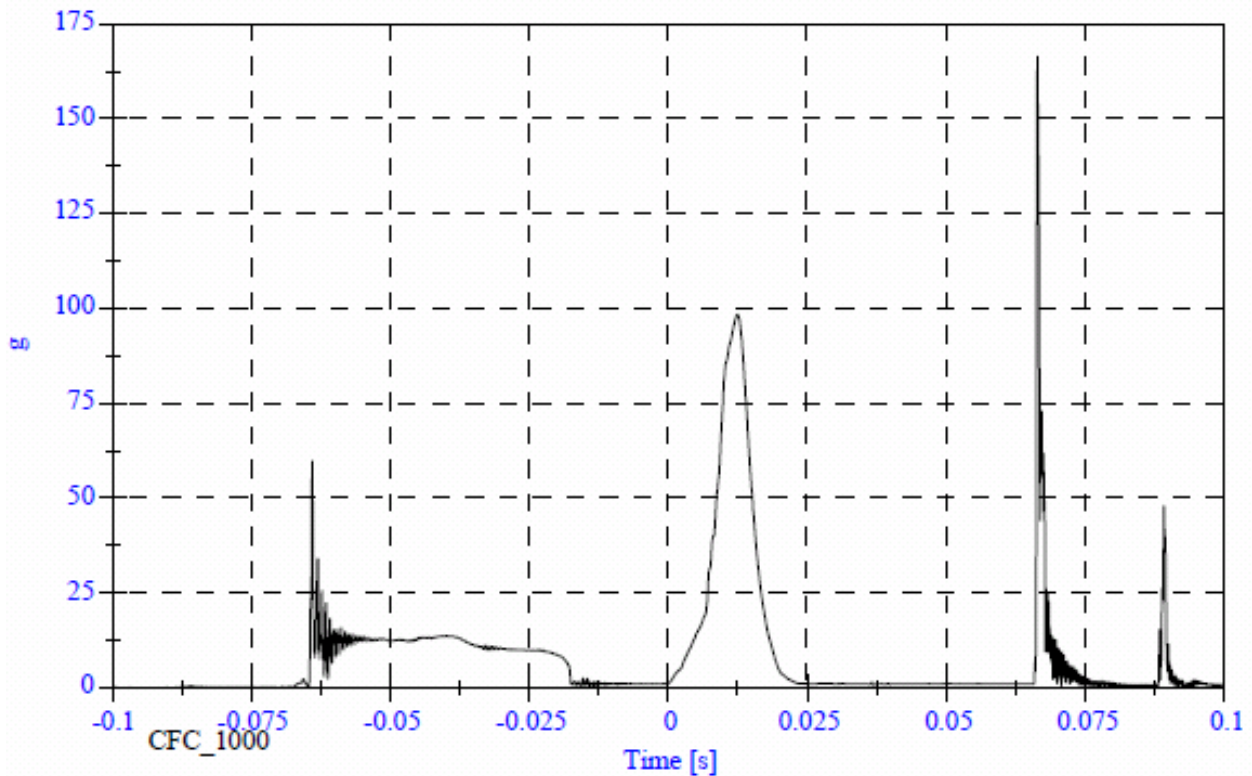
Average Acceleration: 8.1 g

BP1 LH Side

Headform Resultant

Max: 98.4 [g] at 0.012 [s]

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

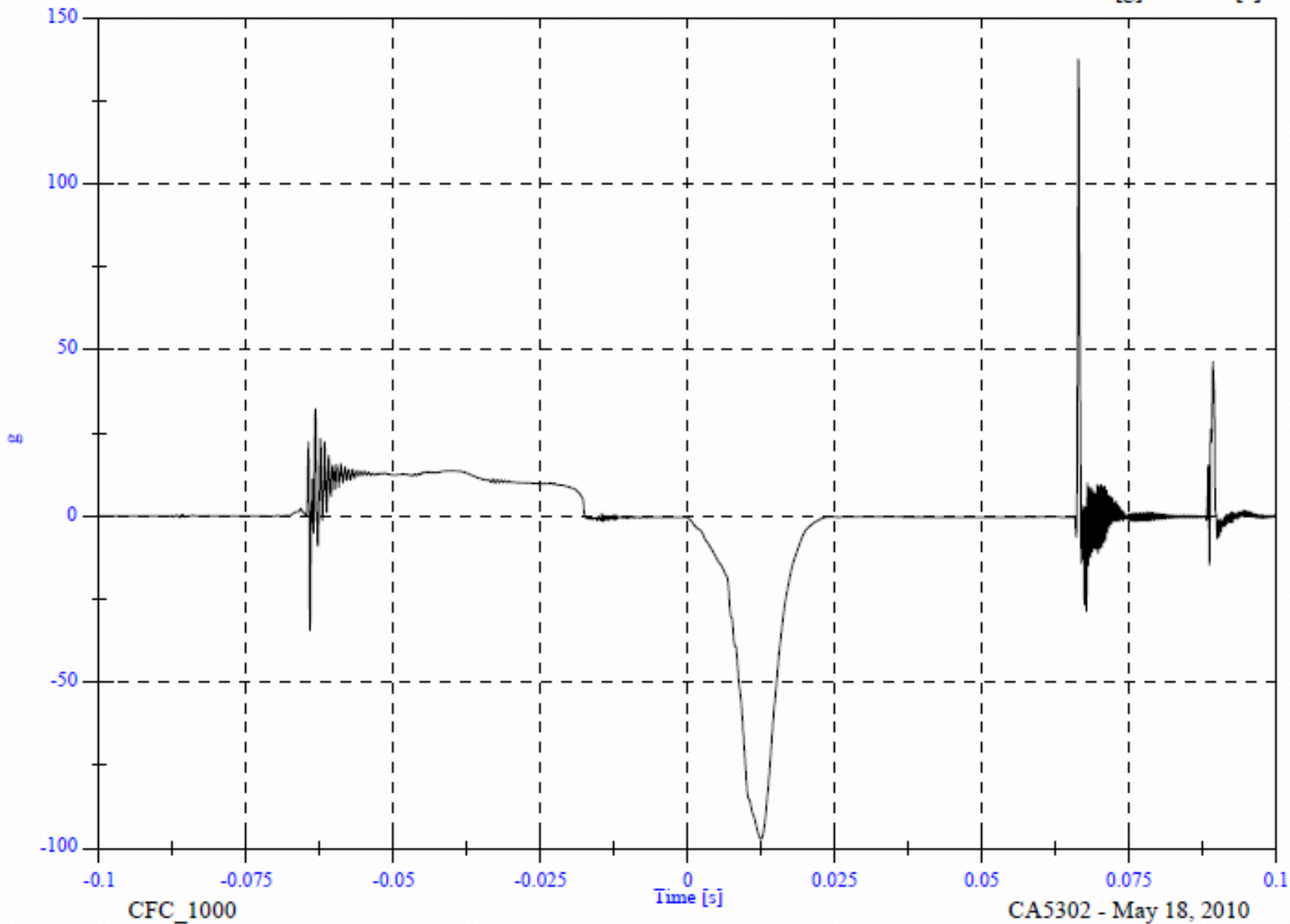


BP1 LH Side

Headform X Acceleration

Max: 137.5 [g] at 0.066 [s]

Min: -97.2 [g] at 0.013 [s]

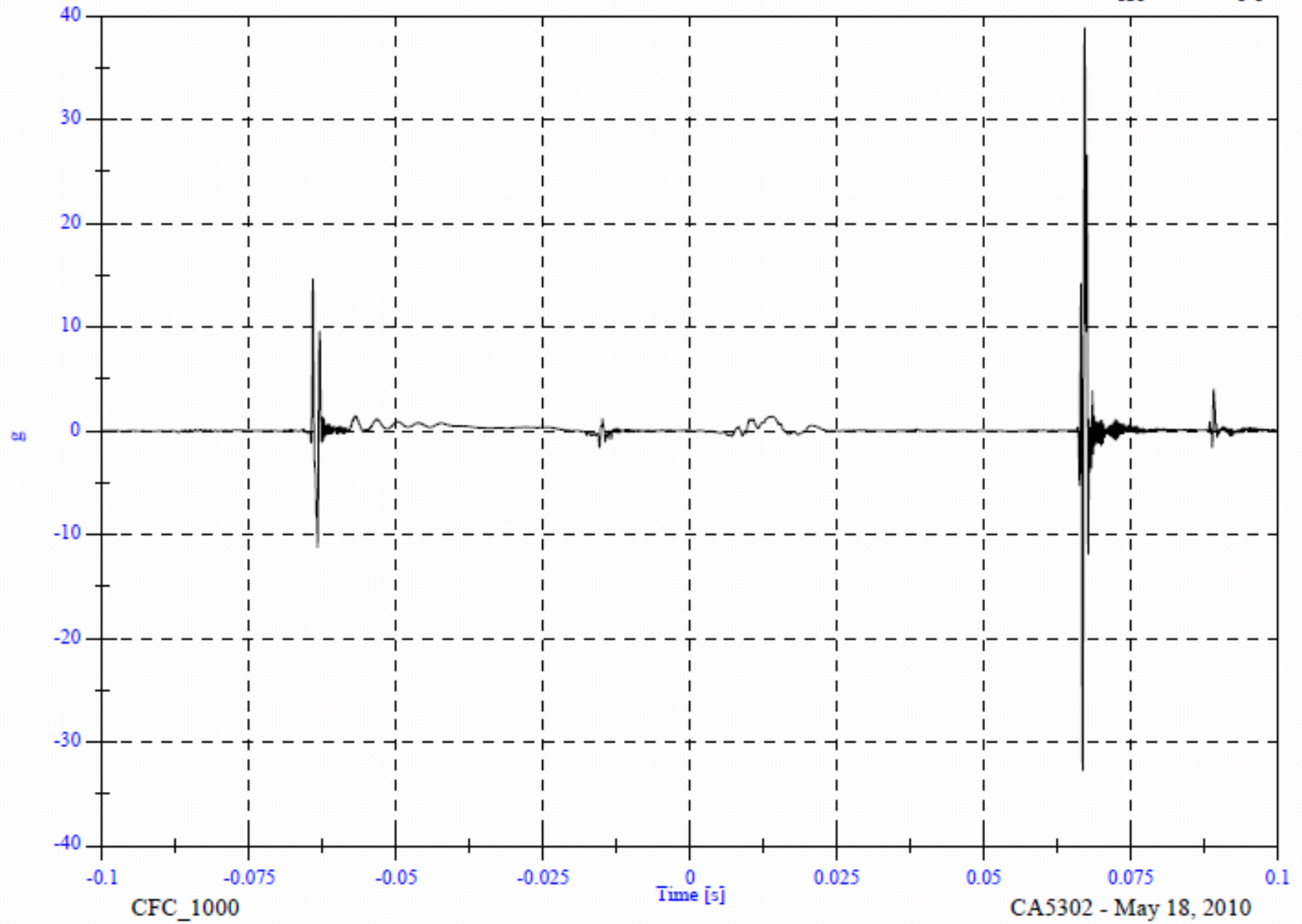


BP1 LH Side

Headform Y Acceleration

Max: 38.8 [g] at 0.067 [s]

Min: -32.7 [g] at 0.067 [s]

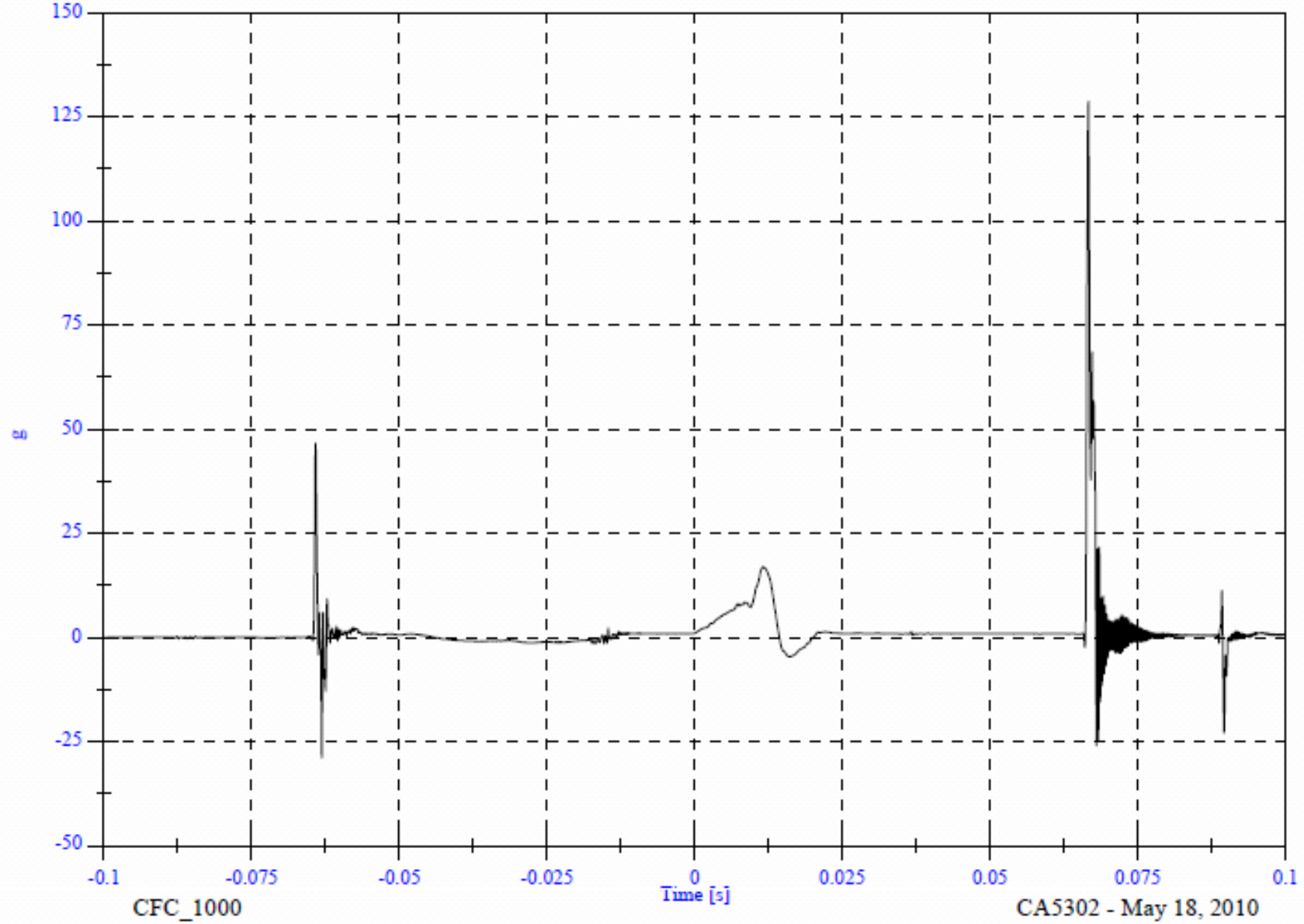


BP1 LH Side

Headform Z Acceleration

Max: 128.7 [g] at 0.067 [s]

Min: -28.9 [g] at -0.063 [s]

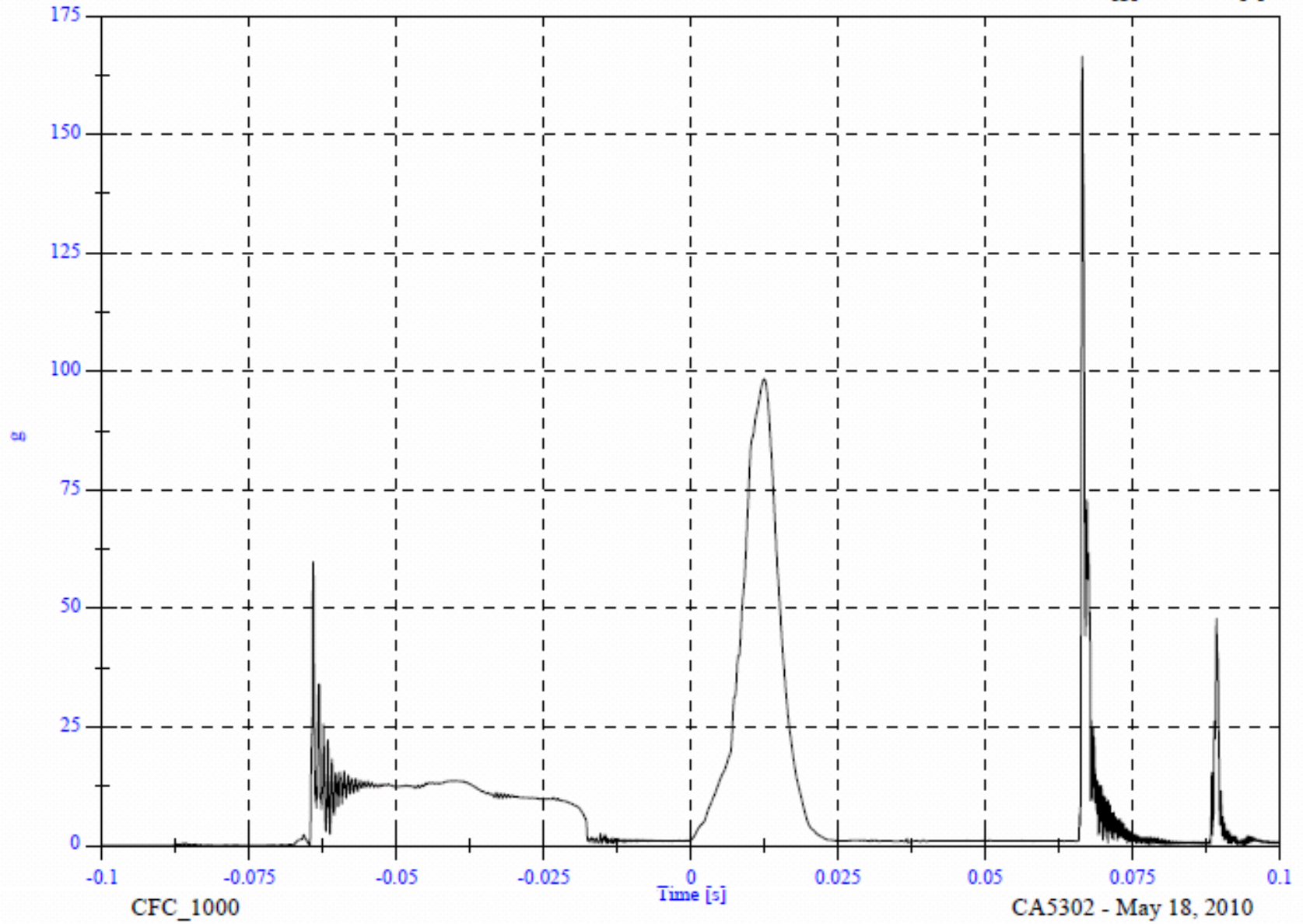


BP1 LH Side

Headform Resultant

Max: 166.5 [g] at 0.066 [s]

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

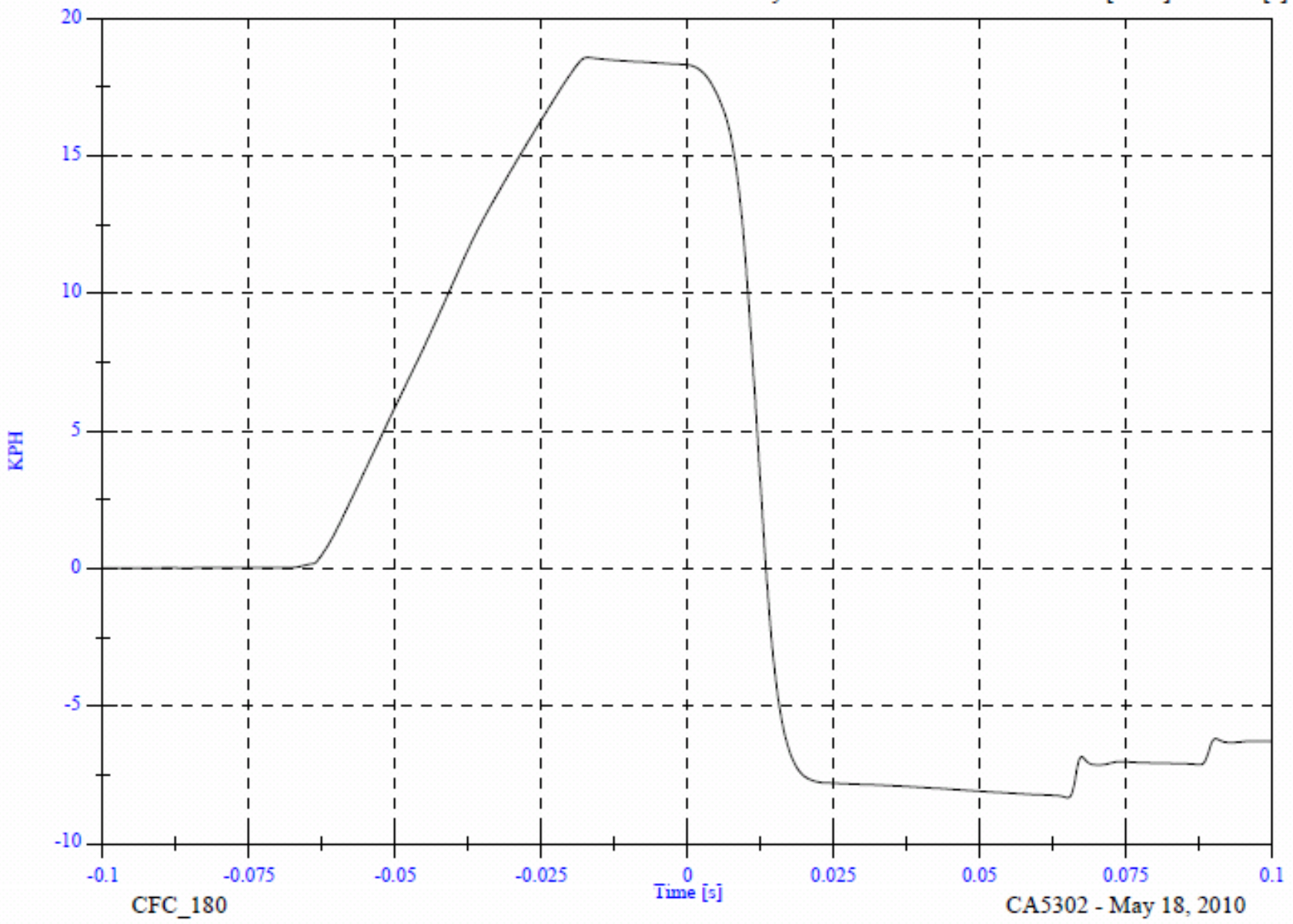


BP1 LH Side

Headform Velocity

Max: 18.6 [KPH] at -0.017 [s]

Min: -8.3 [KPH] at 0.065 [s]



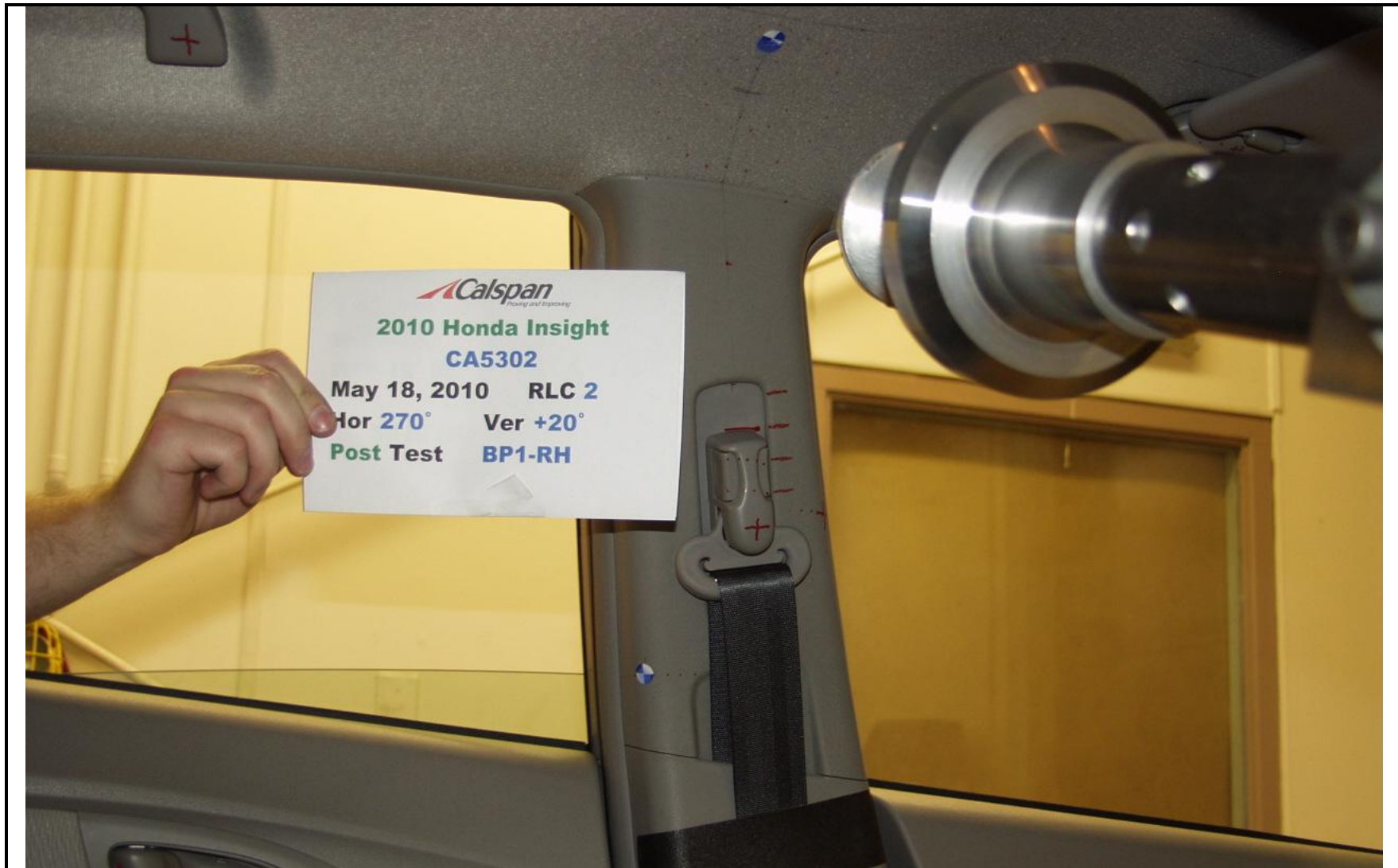
CFC_180

CA5302 - May 18, 2010



PRE-IMPACT BP1 LH

Note: Pre Test label should read "BP1-LH".



POST-IMPACT BP1 LH

Note: Post Test label should read "BP1-LH".

| | |
|--------------------------------|--------------------------------|
| VEHICLE YEAR/MAKE/MODEL/STYLE: | 2010 Honda Insight |
| VIN: | JHMZE2H5XAS018594 |
| DATE OF MANUFACTURE: | 7/09 (SEE CERTIFICATION LABEL) |
| COLOR: | Alabaster Silver |

| | |
|--------------------------|---------------------|
| Test Number: | 10 |
| Test Date: | 19 May 2010 |
| Target Location: | SR1 LH Relocated x2 |
| Target Code: | SR1 LH |
| Horizontal Impact Angle: | 270 |
| Vertical Impact Angle: | 32 |
| Ambient Temperature: | 22 |
| Relative Humidity: | 41.9% |
| Time of Impact: | 9:15 |
| Headform Number: | 0355 |

| | | | |
|--|----|--------------------------|--|
| 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 | 20 | | mm up |



POST-IMPACT SR1 LH HEADFORM
 Note: Post Test label should read "SR1-LH".

| | |
|-----------------------|-------|
| Free Motion HIC | 167.5 |
| HIC(d) | 292.7 |
| Impact Velocity (kph) | 18.25 |
| HIC T1 (msec) | 1.4 |
| HIC T2 (msec) | 16.4 |

SR1 LH Side CA5302 - SR1 LH

FMH Headform 355

Location: SR1 LH

Test Date: May 19, 2010

Work File: fmh

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

Lab Temperature: 22 C

HICd: 292.7

Lab Humidity: 41.9 %

HIC (36ms): 167.5

Velocity at Impact: 18.25 KPH

t1: 1.4 msec

t2: 16.4 msec

Free Flight Distance: 225.34 mm

Duration: 15.0 msec

Maximum: 58.0 g

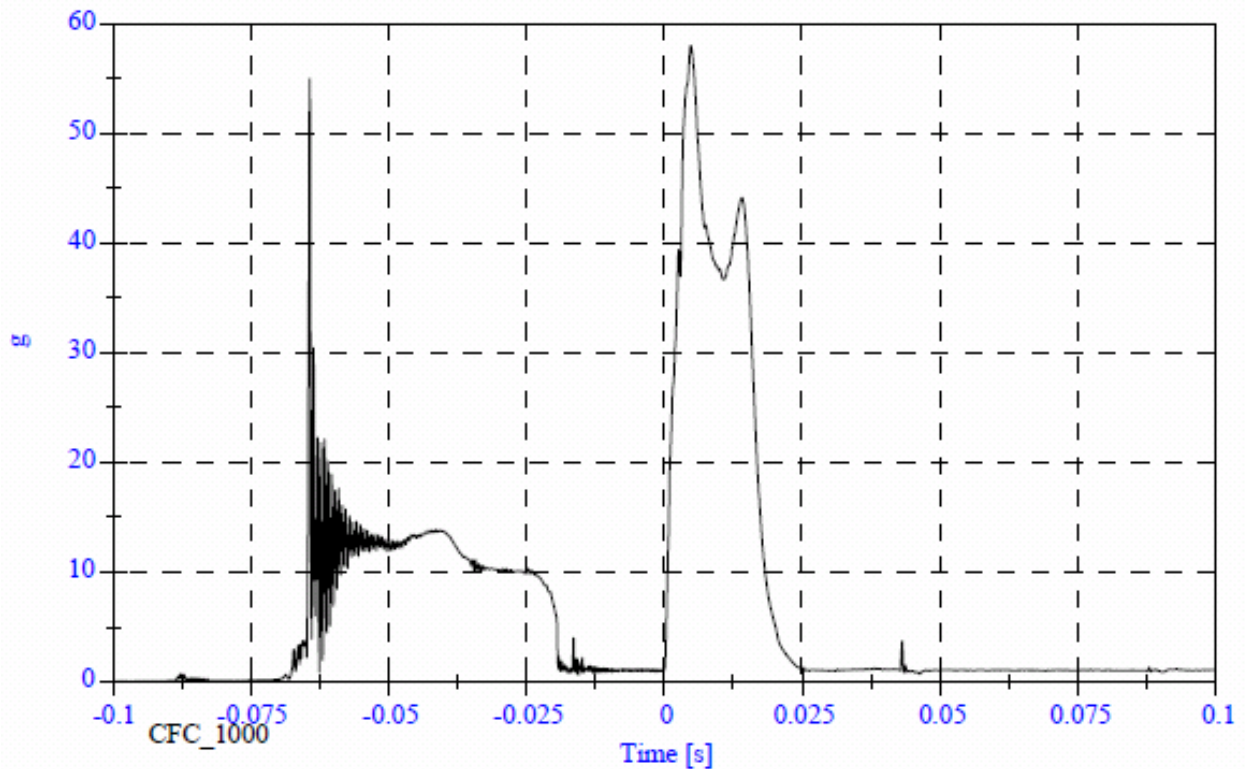
Average Acceleration: 6.8 g

SR1 LH Side

Headform Resultant

Max: 58.0 [g] at 0.005 [s]

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

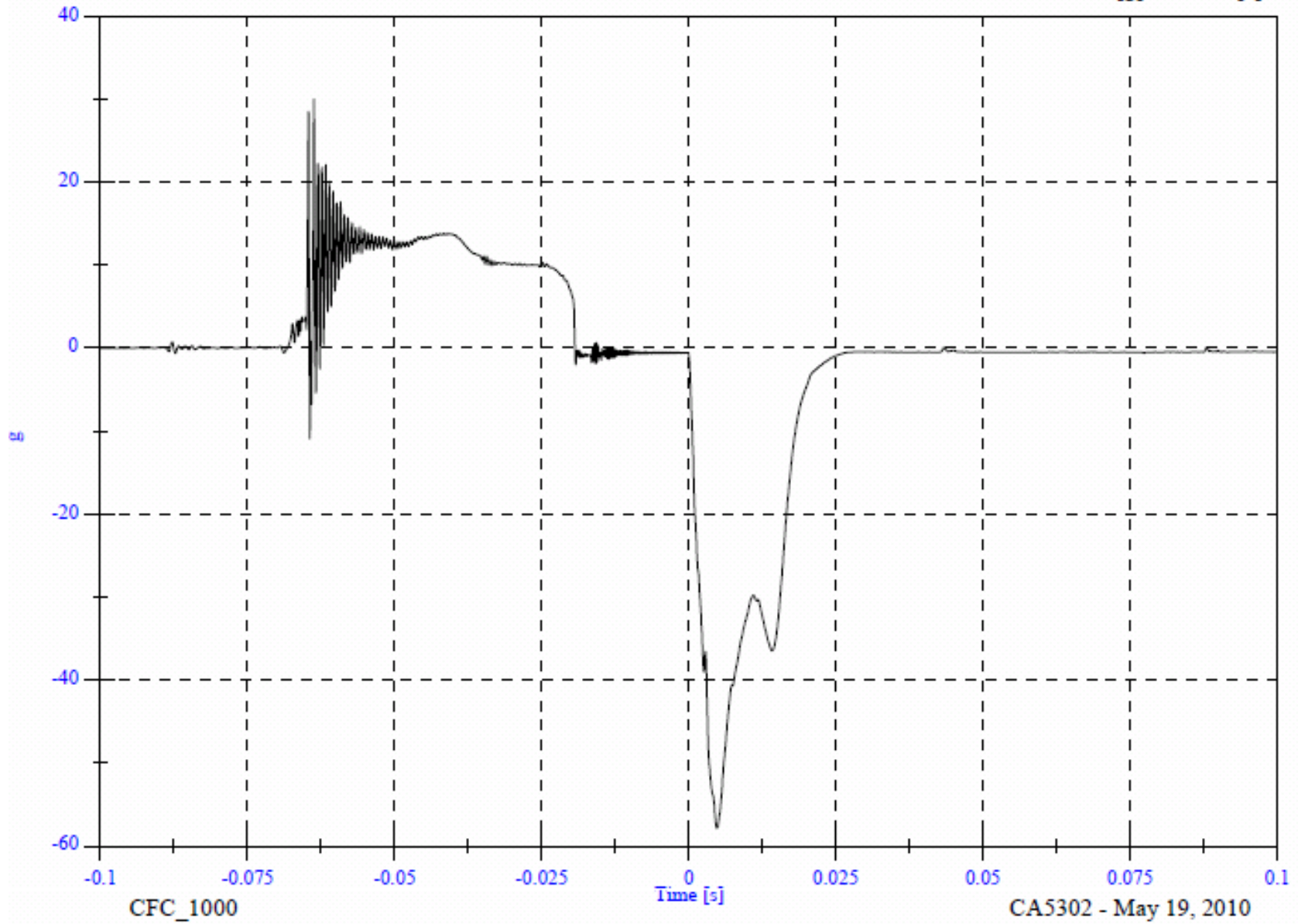


SR1 LH Side

Headform X Acceleration

Max: 30.0 [g] at -0.064 [s]

Min: -57.8 [g] at 0.005 [s]

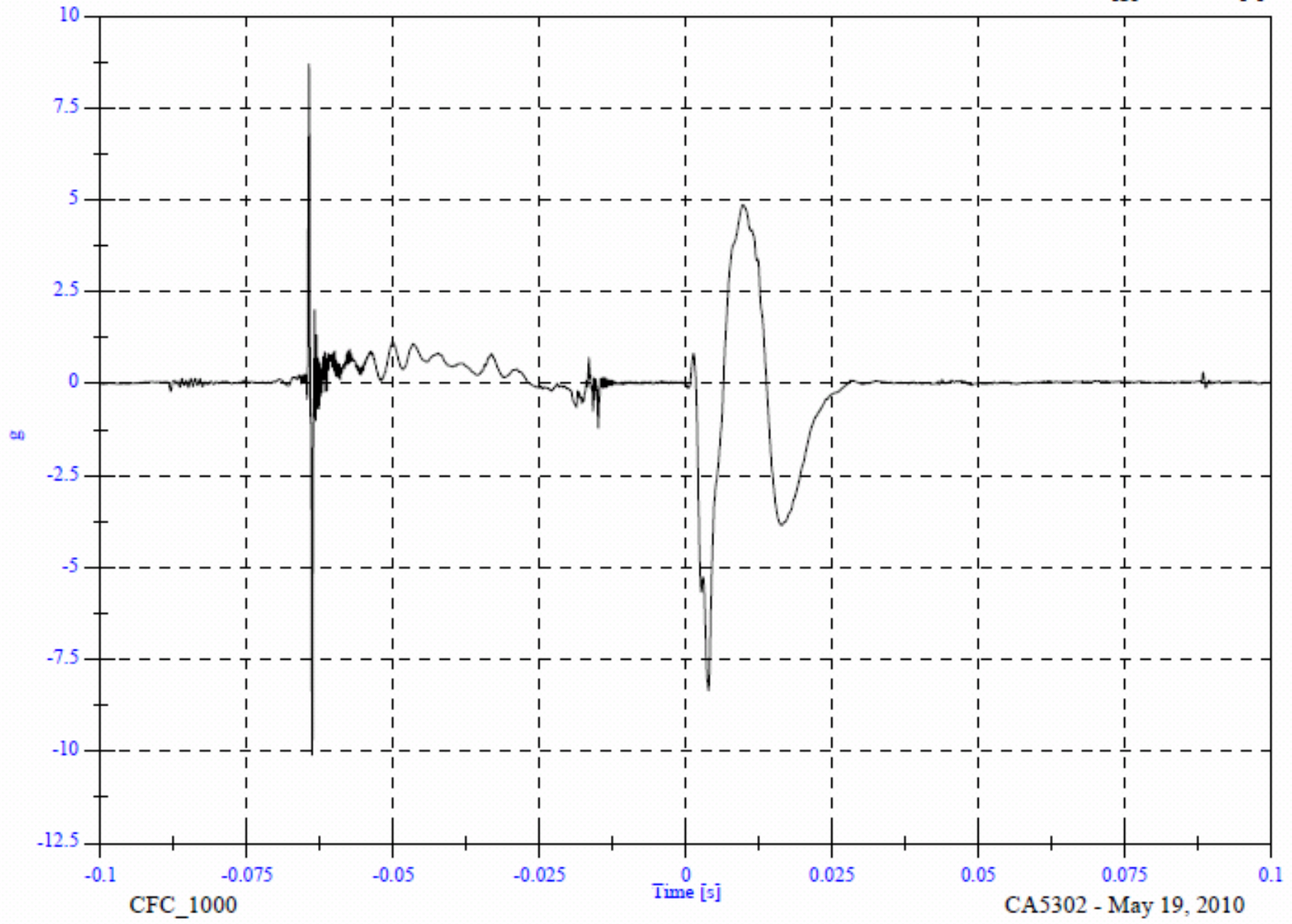


SR1 LH Side

Headform Y Acceleration

Max: 8.7 [g] at -0.064 [s]

Min: -10.1 [g] at -0.064 [s]

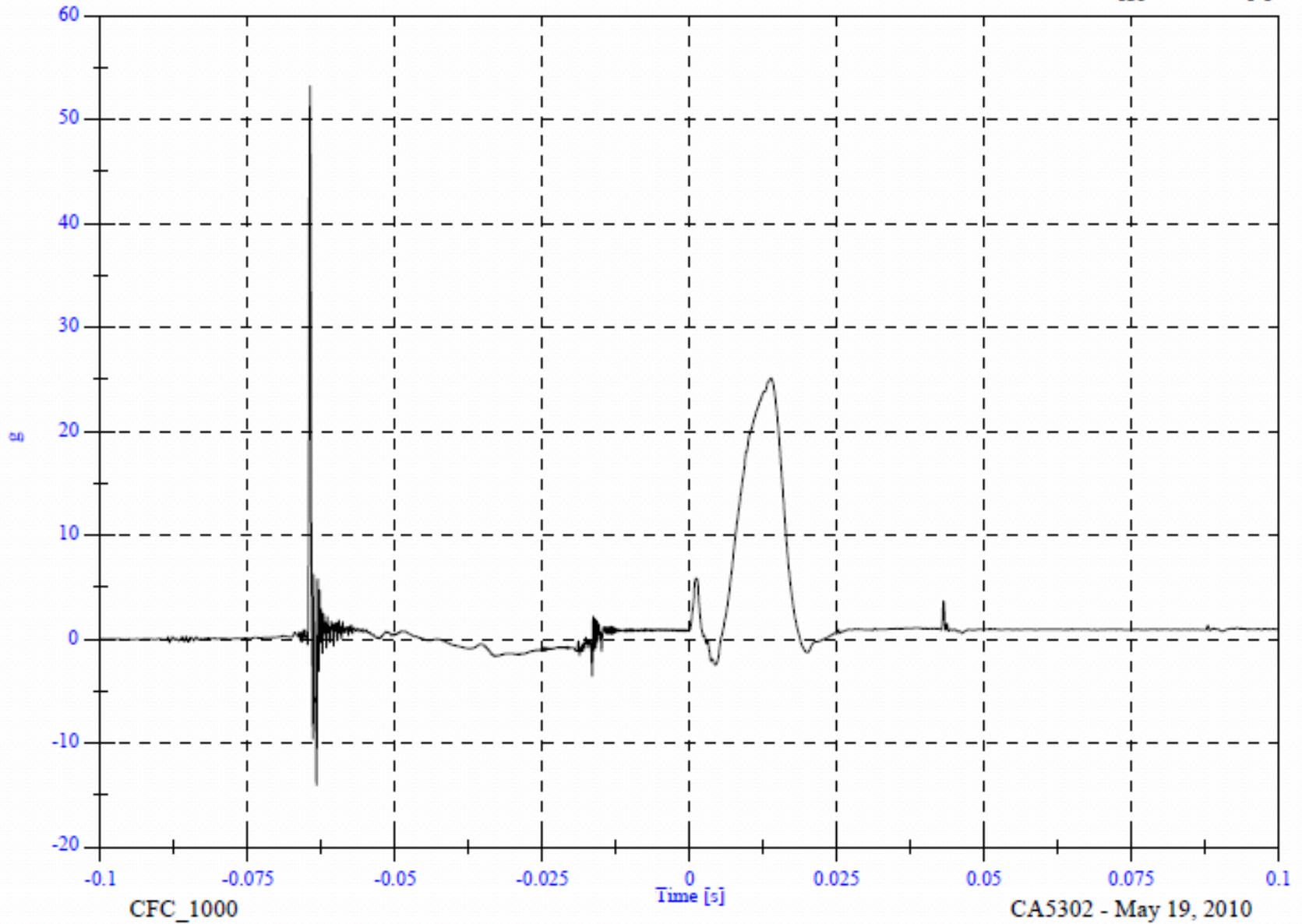


SR1 LH Side

Headform Z Acceleration

Max: 53.2 [g] at -0.064 [s]

Min: -14.0 [g] at -0.063 [s]

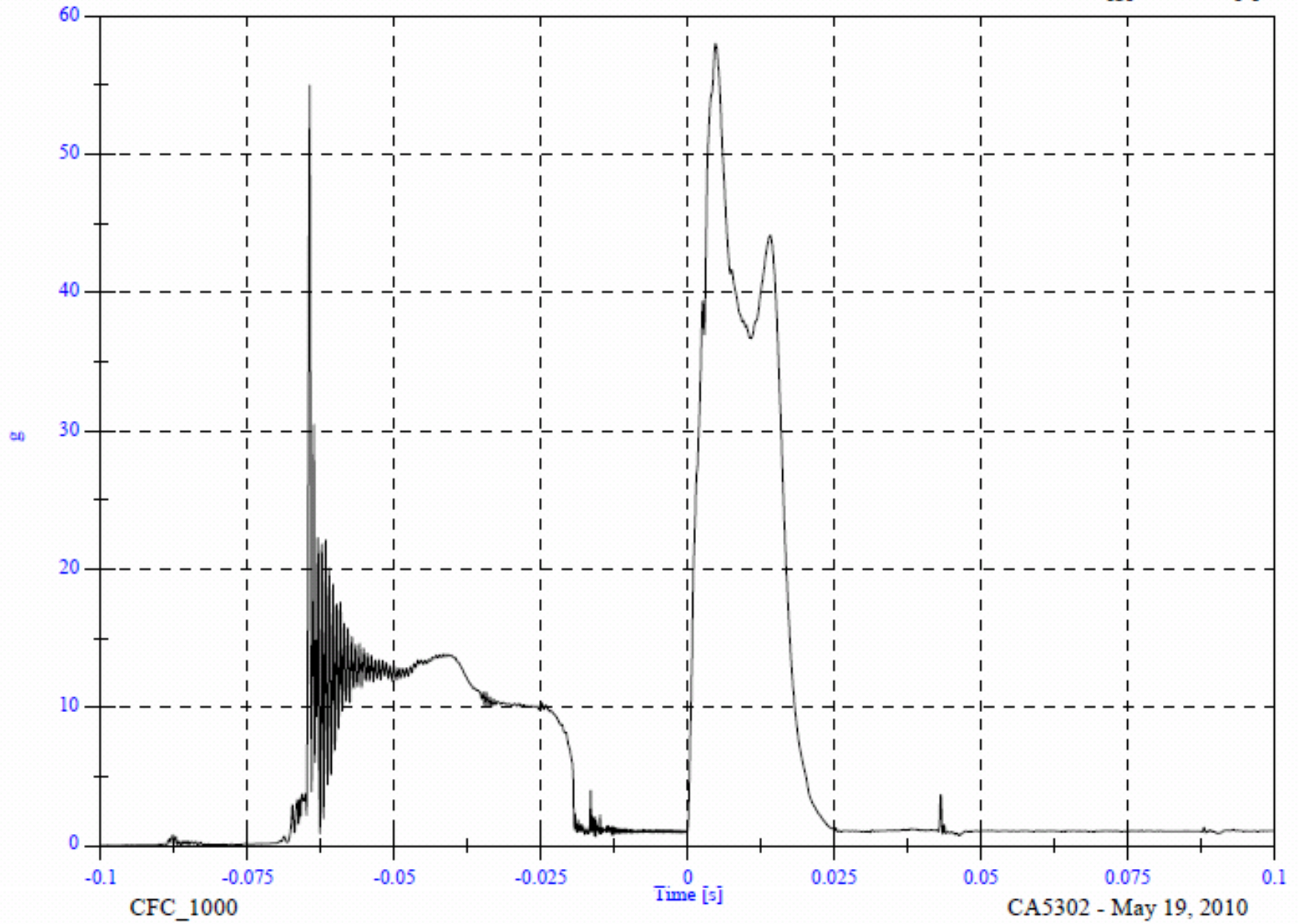


SR1 LH Side

Headform Resultant

Max: 58.0 [g] at 0.005 [s]

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

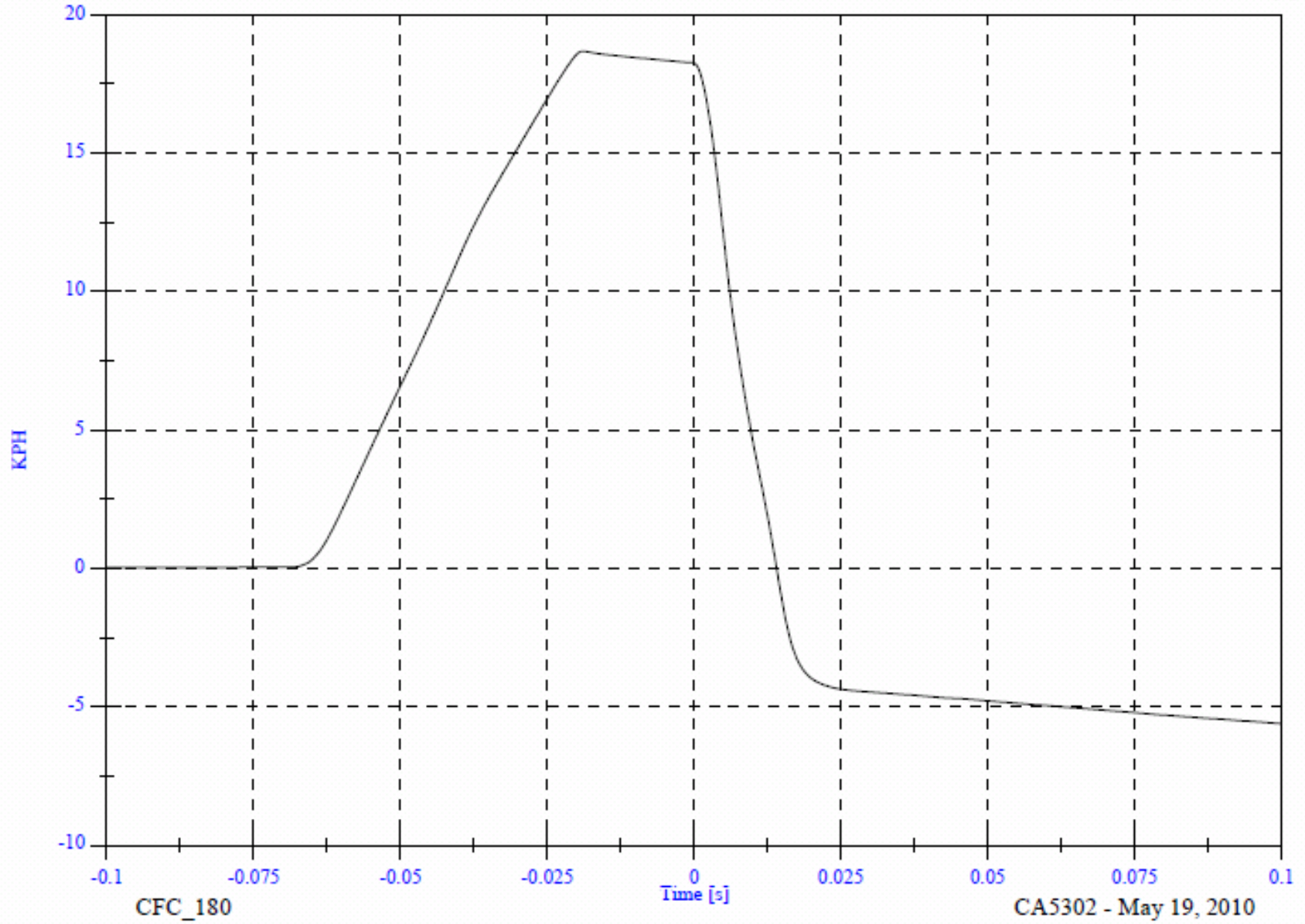


SR1 LH Side

Headform Velocity

Max: 18.7 [KPH] at -0.019 [s]

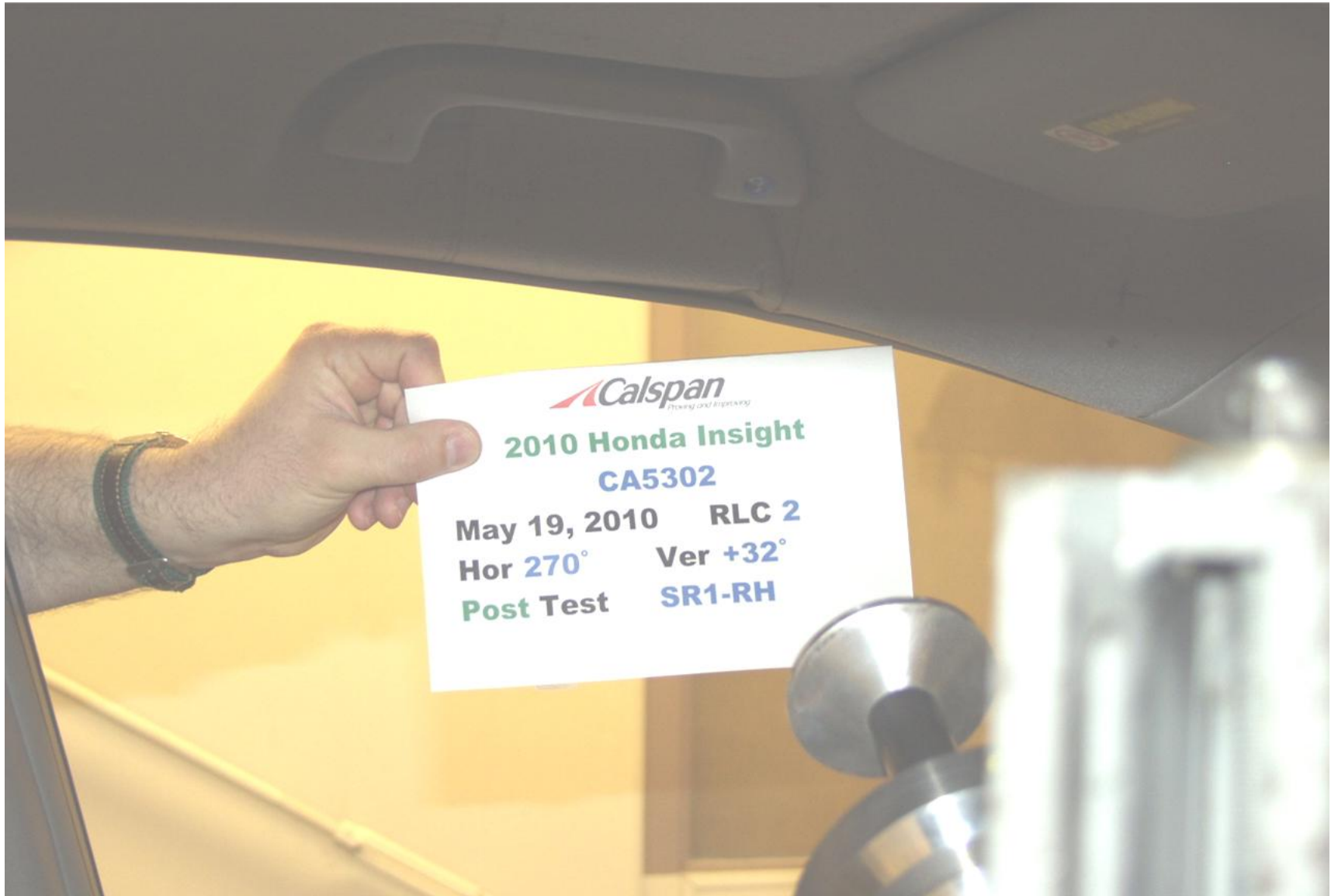
Min: -5.6 [KPH] at 0.100 [s]





PRE-IMPACT SR1 LH

Note: Pre Test label should read "SR1-LH".



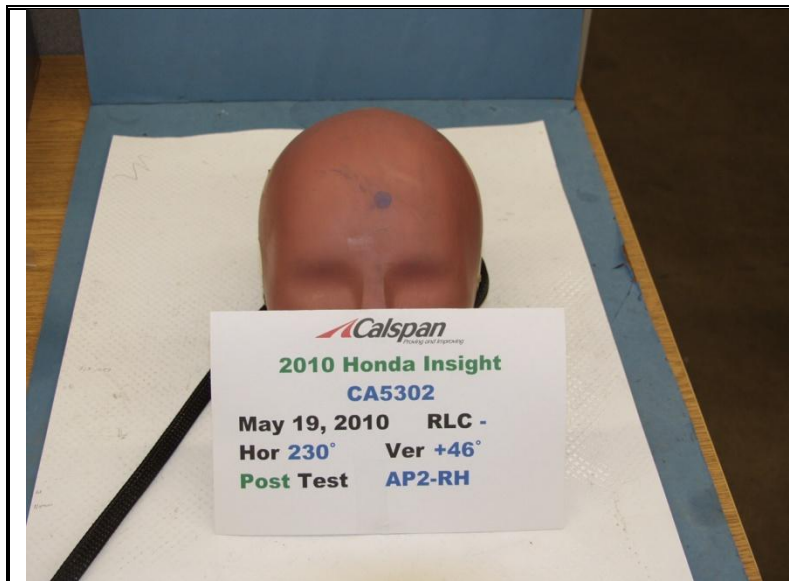
POST-IMPACT SR1 LH

Note: Post Test label should read "SR1-LH".

| | |
|--------------------------------|--------------------------------|
| VEHICLE YEAR/MAKE/MODEL/STYLE: | 2010 Honda Insight |
| VIN: | JHMZE2H5XAS018594 |
| DATE OF MANUFACTURE: | 7/09 (SEE CERTIFICATION LABEL) |
| COLOR: | Alabaster Silver |

| | |
|--------------------------|-------------|
| Test Number: | 11 |
| Test Date: | 19 May 2010 |
| Target Location: | AP2 LH |
| Target Code: | AP2 LH |
| Horizontal Impact Angle: | 230 |
| Vertical Impact Angle: | 46 |
| Ambient Temperature: | 22 |
| Relative Humidity: | 41.6% |
| 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 | 20 | | mm up |



POST-IMPACT AP2 LH HEADFORM
 Note: Post Test label should read "AP2-LH".

| | |
|-----------------------|-------|
| Free Motion HIC | 399.4 |
| HIC(d) | 467.7 |
| Impact Velocity (kph) | 18.93 |
| HIC T1 (msec) | 6.3 |
| HIC T2 (msec) | 11.6 |

AP2 LH Side CA5302 - AP2 LH

FMH Headform 1142

Location: AP2 LH

Test Date: May 19, 2010

Work File: fmh

TEST RESULTS

Lab Temperature: 22 C

HICd: 467.7

Lab Humidity: 41.6 %

HIC (36ms): 399.4

Velocity at Impact: 18.93 KPH

t1: 6.3 msec

t2: 11.6 msec

Free Flight Distance: 224.70 mm

Duration: 5.3 msec

Maximum: 121.9 g

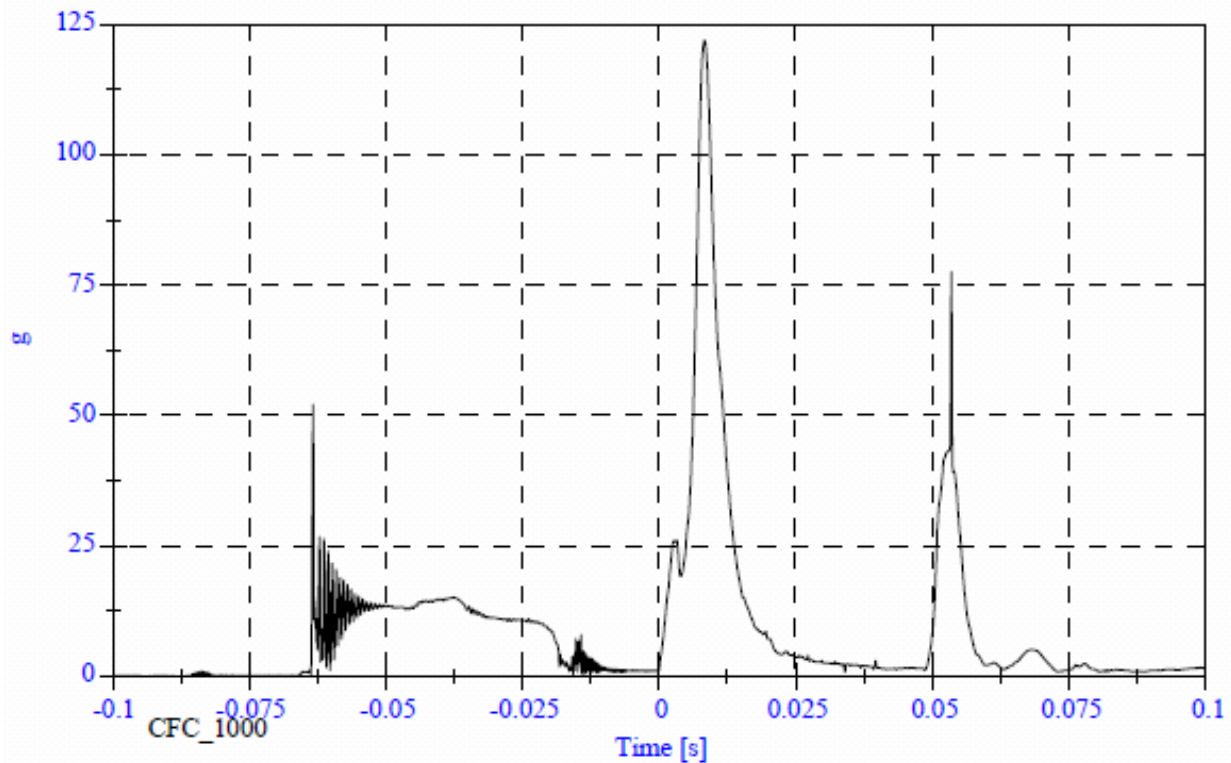
Average Acceleration: 8.8 g

AP2 LH Side

Headform Resultant

Max: 121.9 [g] at 0.008 [s]

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

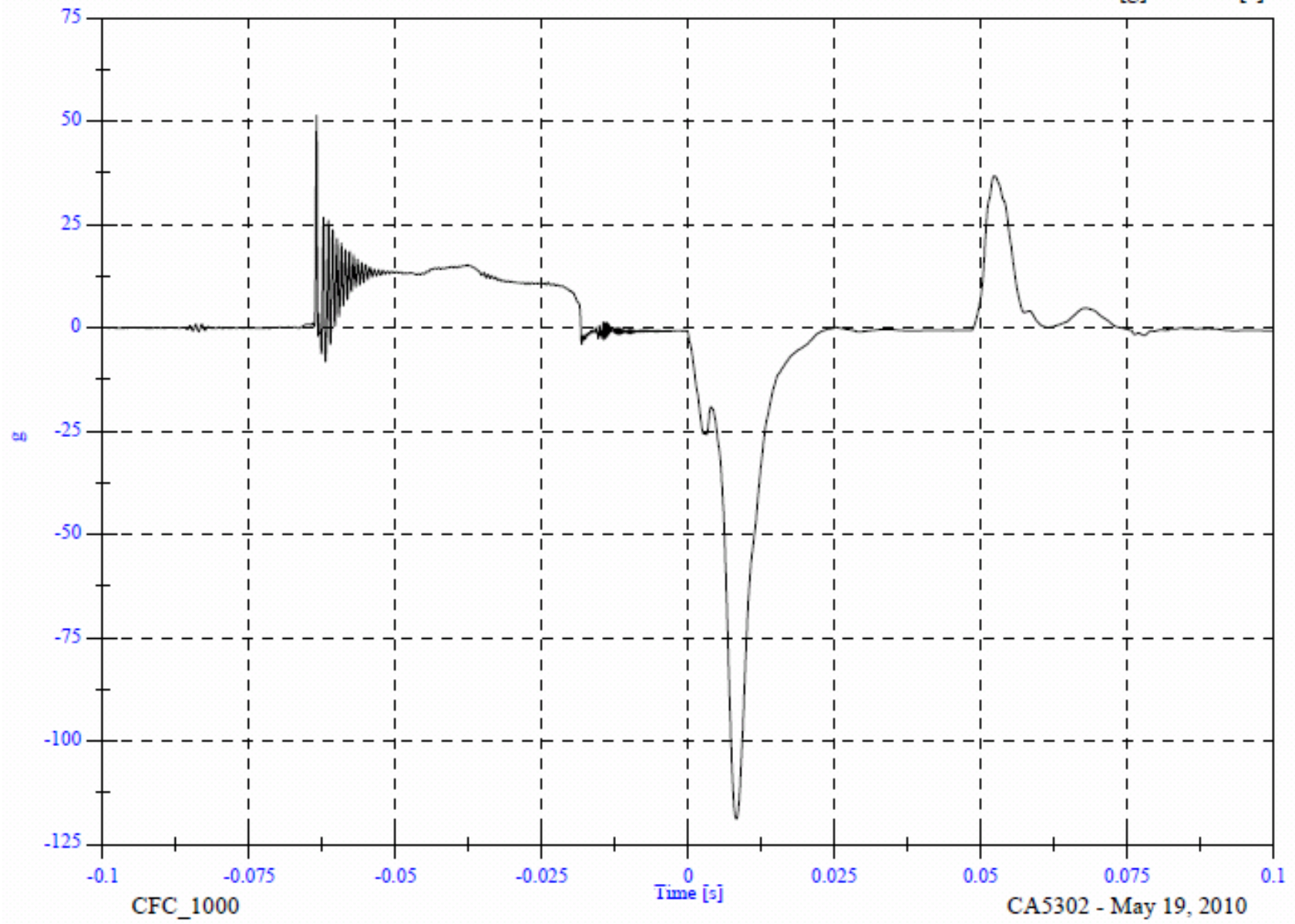


AP2 LH Side

Headform X Acceleration

Max: 51.4 [g] at -0.063 [s]

Min: -118.9 [g] at 0.008 [s]

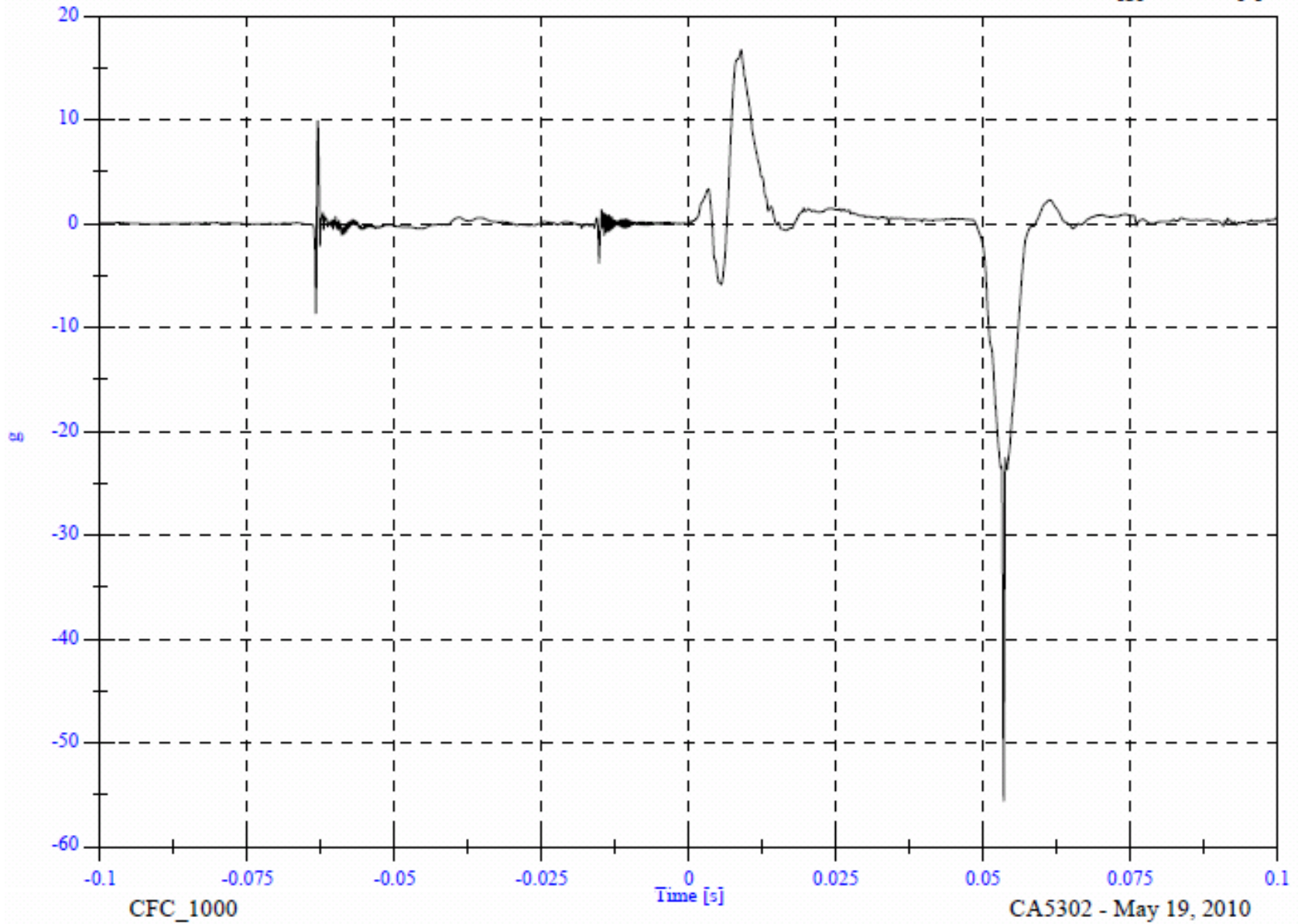


AP2 LH Side

Headform Y Acceleration

Max: 16.7 [g] at 0.009 [s]

Min: -55.6 [g] at 0.054 [s]

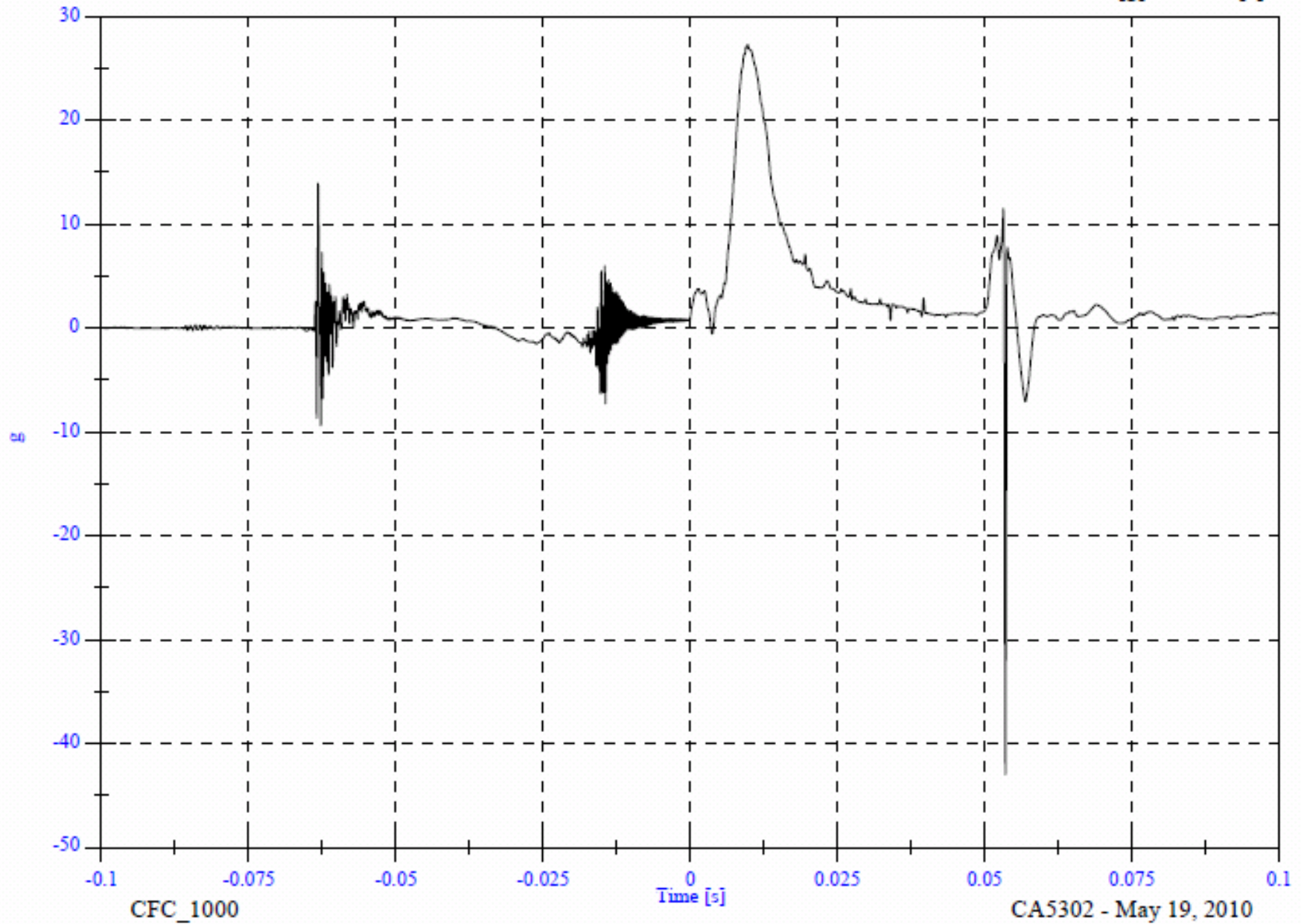


AP2 LH Side

Headform Z Acceleration

Max: 27.3 [g] at 0.010 [s]

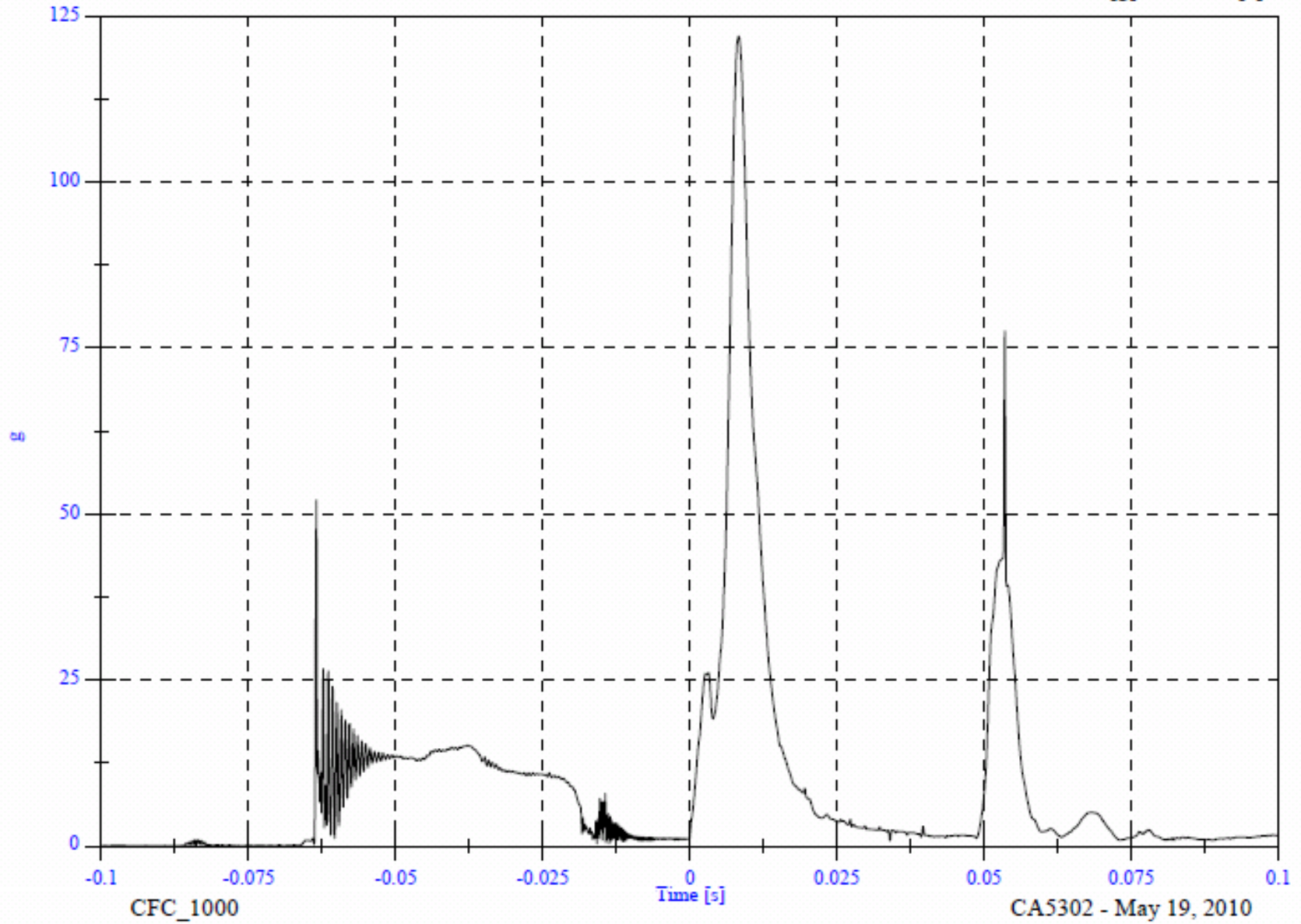
Min: -43.0 [g] at 0.054 [s]



AP2 LH Side

Headform Resultant

Max: 121.9 [g] at 0.008 [s]
Min: 0.0 [g] at -0.088 [s]

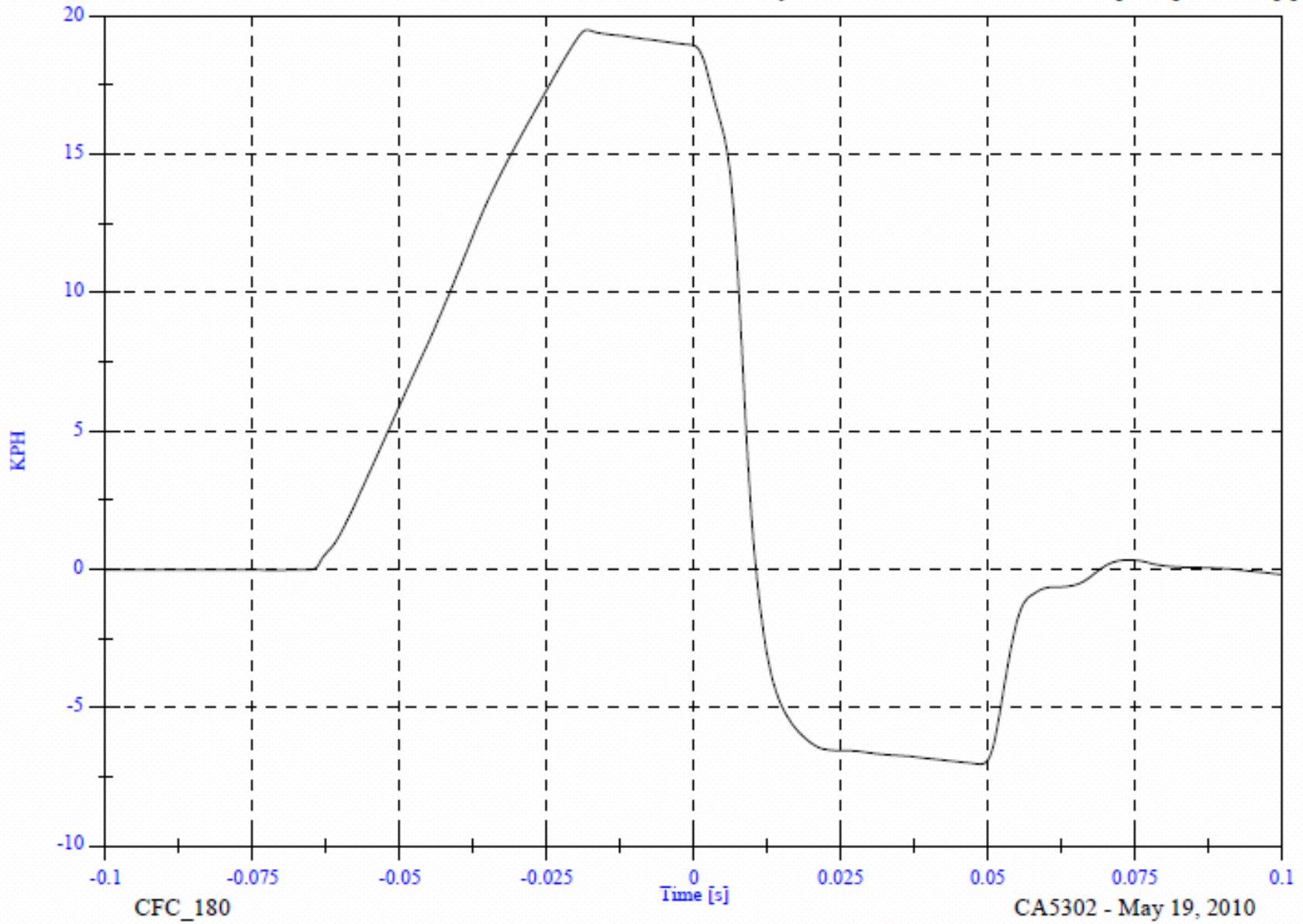


AP2 LH Side

Headform Velocity

Max: 19.5 [KPH] at -0.018 [s]

Min: -7.0 [KPH] at 0.049 [s]





PRE-IMPACT AP2 LH

Note: Pre Test label should read "AP2-LH".

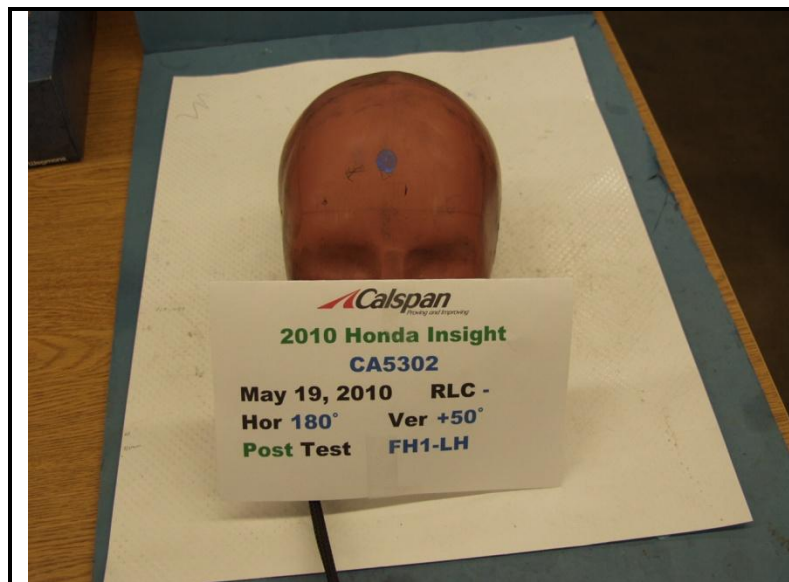


POST-IMPACT AP2 LH
Note: Post Test label should read "AP2-LH".

| | |
|--------------------------------|--------------------------------|
| VEHICLE YEAR/MAKE/MODEL/STYLE: | 2010 Honda Insight |
| VIN: | JHMZE2H5XAS018594 |
| DATE OF MANUFACTURE: | 7/09 (SEE CERTIFICATION LABEL) |
| COLOR: | Alabaster Silver |

| | |
|--------------------------|-------------|
| Test Number: | 12 |
| Test Date: | 19 May 2010 |
| Target Location: | FH1 LH |
| Target Code: | FH1 LH |
| Horizontal Impact Angle: | 180 |
| Vertical Impact Angle: | 50 |
| Ambient Temperature: | 22 |
| Relative Humidity: | 41.5% |
| Time of Impact: | 10:24 |
| Headform Number: | 0805 |

| | | | | | |
|--|----|-------------------------------------|----------|--------------------------|---------|
| Impact Point Description (from lower midpoint on midsagittal line) | | | | | |
| On Centerline | 4 | <input checked="" type="checkbox"/> | mm right | <input type="checkbox"/> | mm left |
| On Centerline | 31 | | | | mm up |



POST-IMPACT FH1 LH HEADFORM

| | |
|-----------------------|-------|
| Free Motion HIC | 363.0 |
| HIC(d) | 440.2 |
| Impact Velocity (kph) | 23.69 |
| HIC T1 (msec) | 2.0 |
| HIC T2 (msec) | 12.1 |

FH1 LH Side CA5302 - FH1 LH

FMH Headform 805

Location: FH1 LH

Test Date: May 19, 2010

Work File: fmh

TEST RESULTS

Lab Temperature: 22 C

HICd: 440.2

Lab Humidity: 41.5 %

HIC (36ms): 363.0

Velocity at Impact: 23.69 KPH

t1: 2.0 msec

t2: 12.1 msec

Free Flight Distance: 228.30 mm

Duration: 10.1 msec

Maximum: 82.8 g

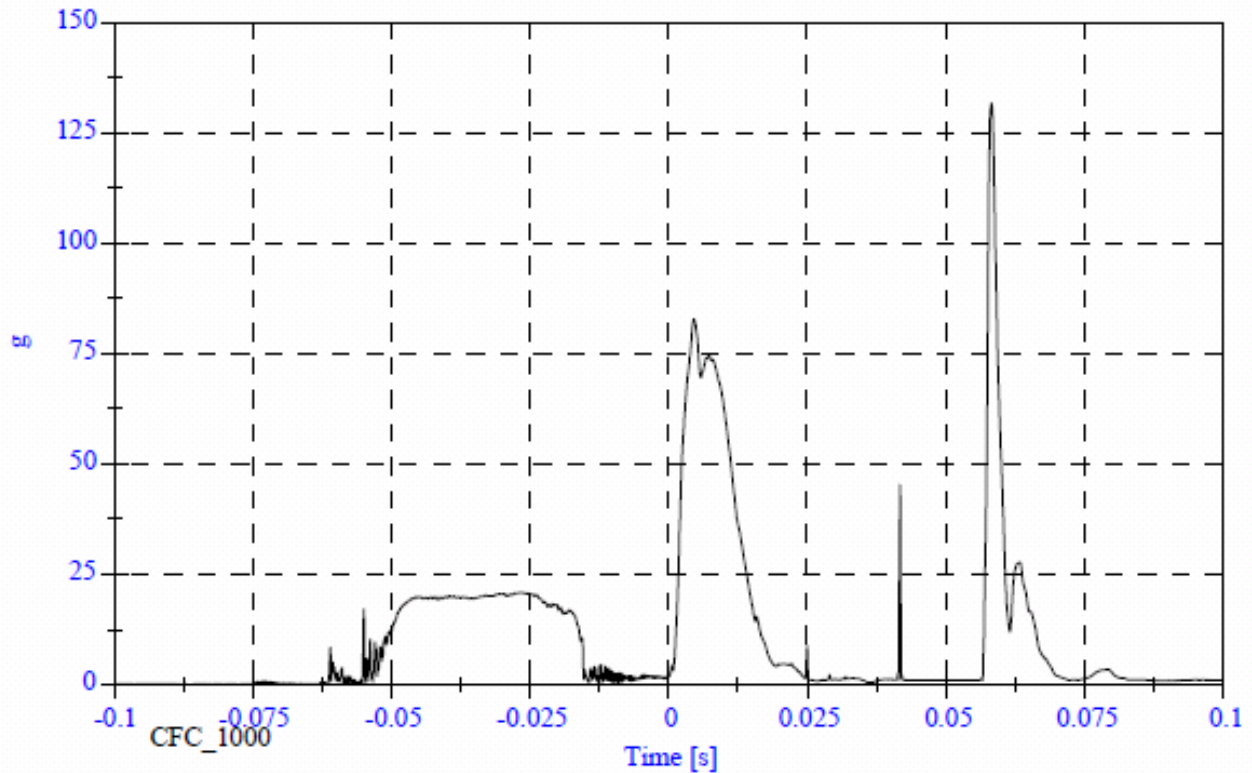
Average Acceleration: 10.4 g

FH1 LH Side

Headform Resultant

Max: 82.8 [g] at 0.005 [s]

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

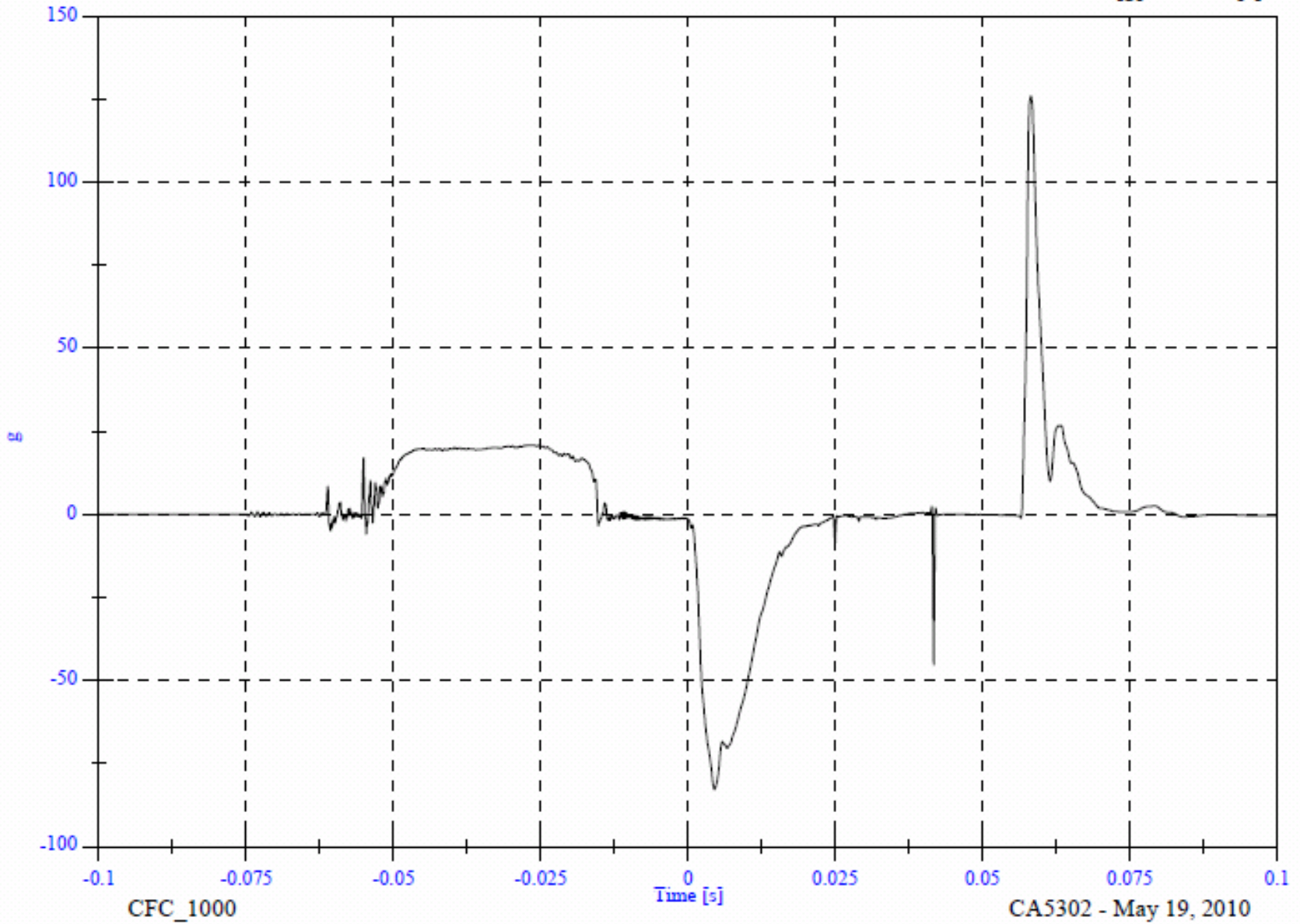


FH1 LH Side

Headform X Acceleration

Max: 125.9 [g] at 0.058 [s]

Min: -82.8 [g] at 0.005 [s]

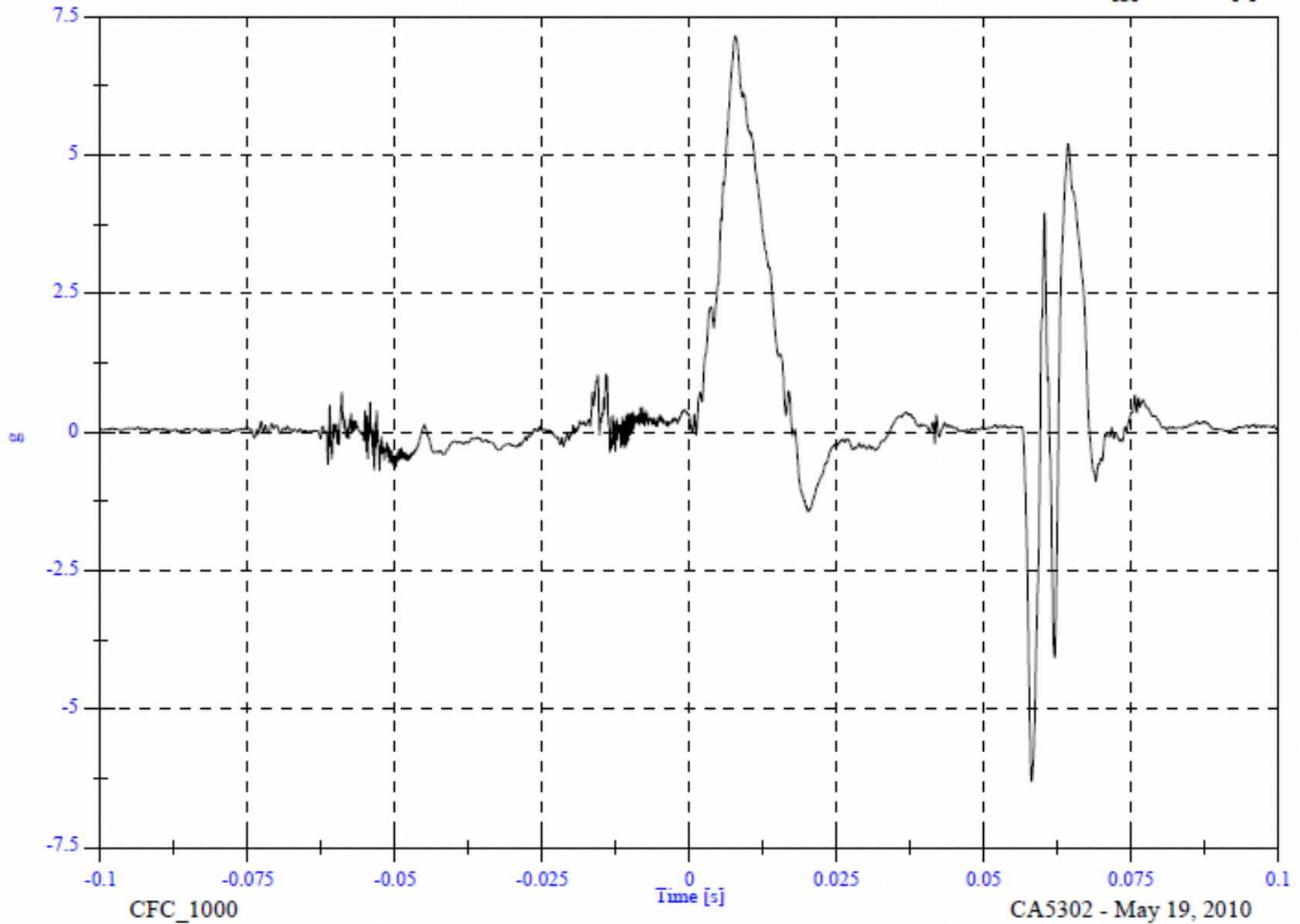


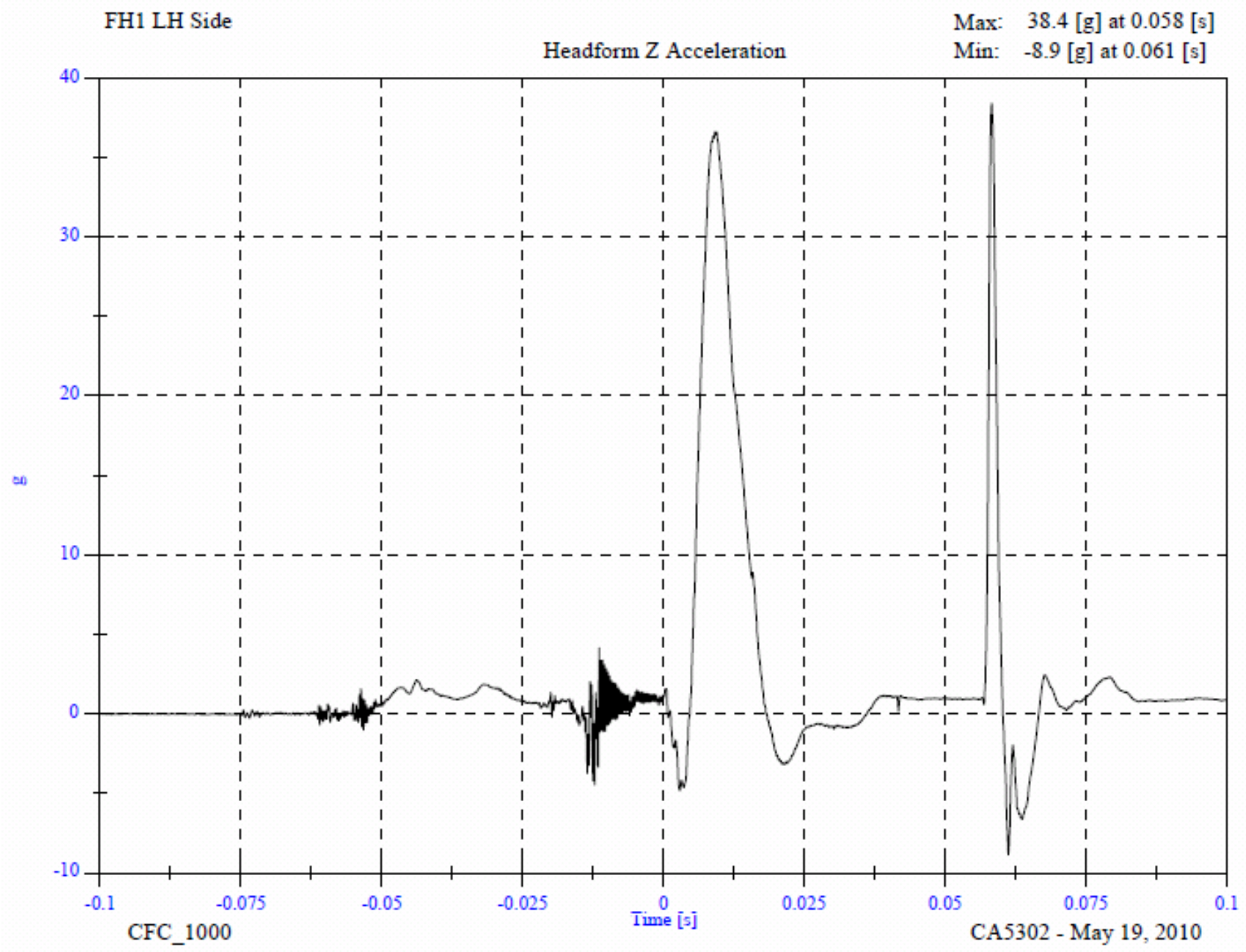
FH1 LH Side

Headform Y Acceleration

Max: 7.2 [g] at 0.008 [s]

Min: -6.3 [g] at 0.058 [s]



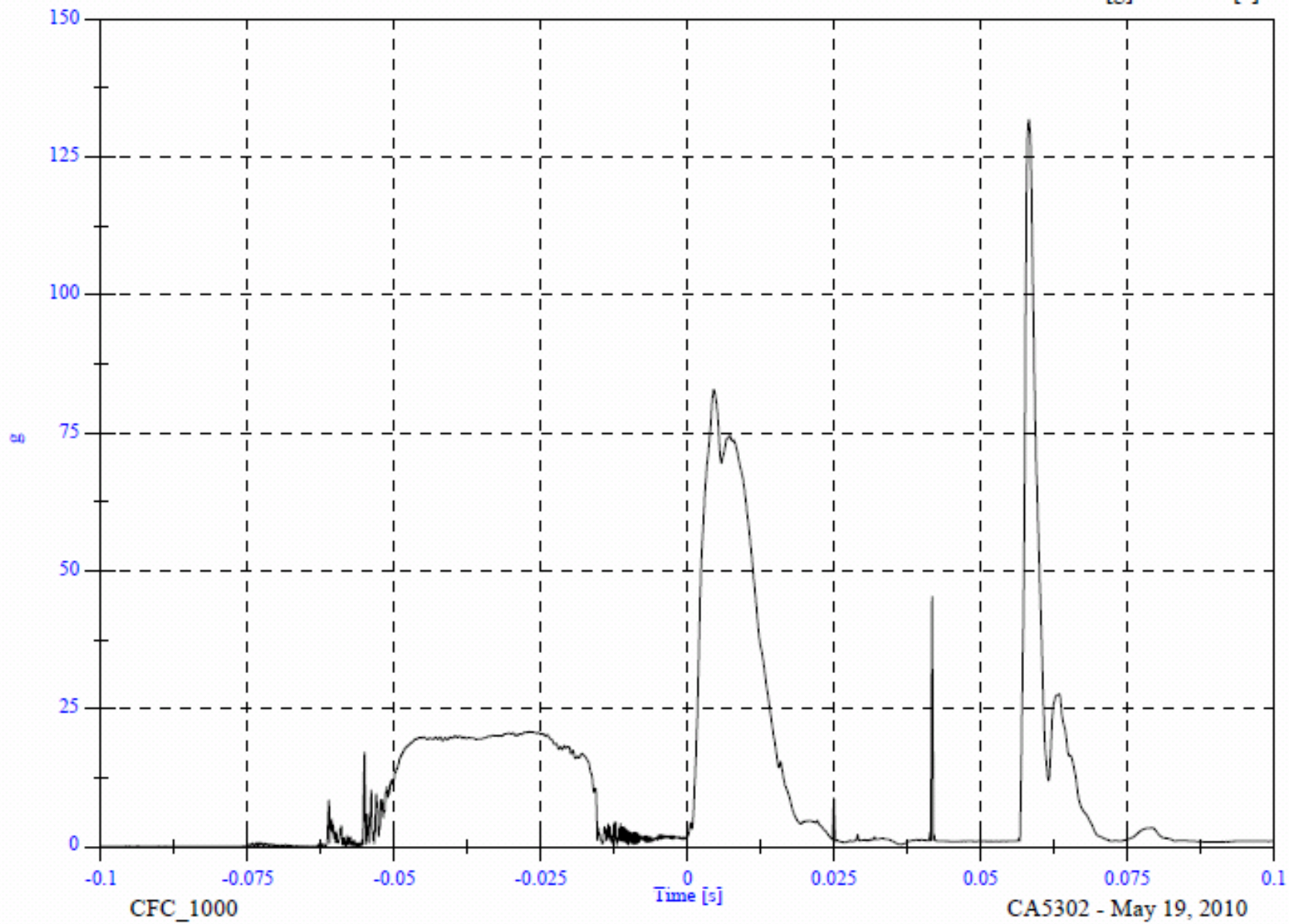


FH1 LH Side

Headform Resultant

Max: 131.7 [g] at 0.058 [s]

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

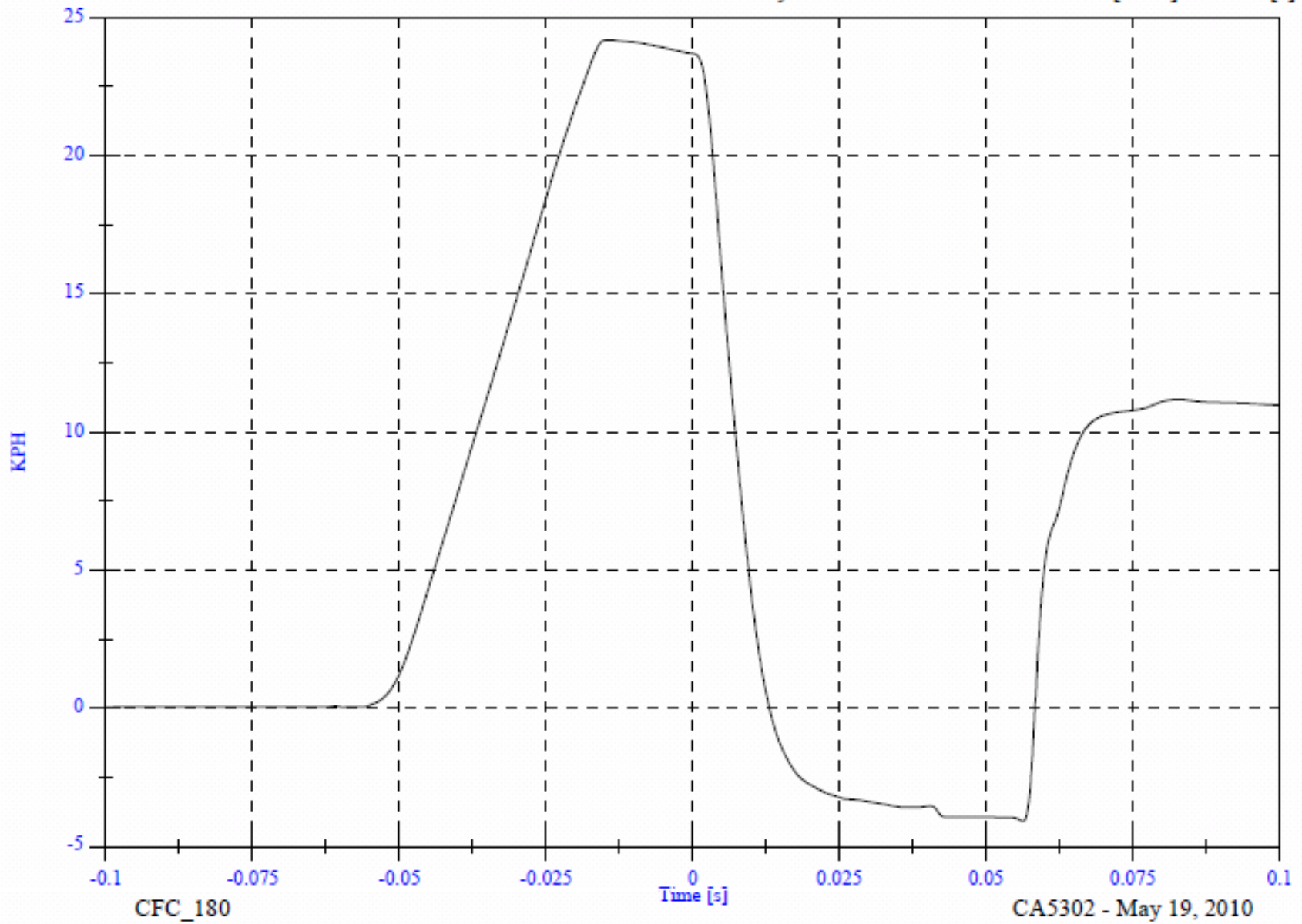


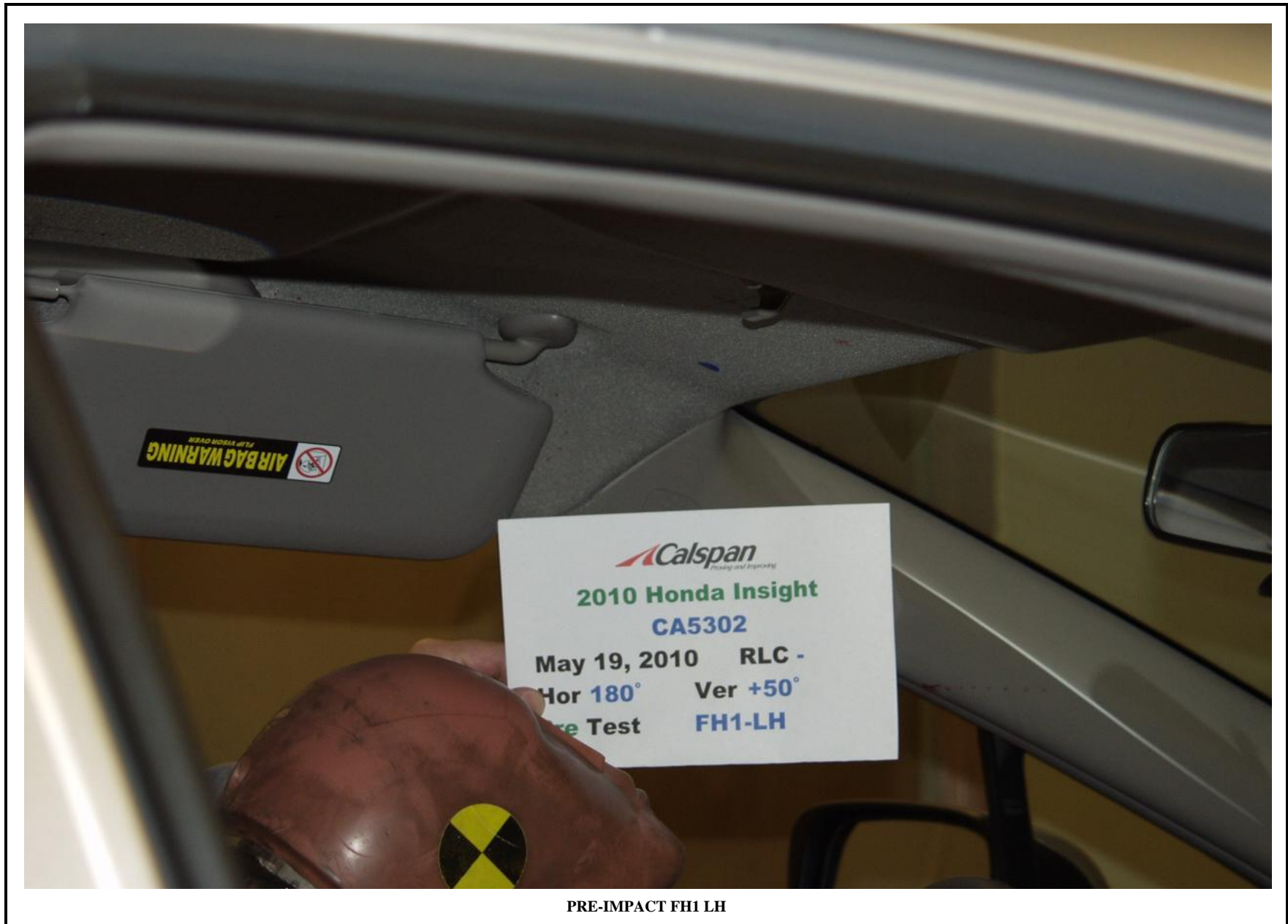
FH1 LH Side

Headform Velocity

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

Min: -4.1 [KPH] at 0.056 [s]





PRE-IMPACT FH1 LH



POST-IMPACT FH1 LH

APPENDIX A

PHOTOGRAPHS

PHOTOGRAPHS

| FIGURE | VIEW | PAGE |
|---------------|--|-------------|
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| A-21 | POST-TEST DRIVER SIDE SIDE RAIL | A-23 |
| A-22 | POST-TEST DRIVER SIDE B-PILLAR | A-24 |
| A-23 | POST-TEST DRIVER SIDE OTHER PILLAR | A-25 |
| A-24 | POST-TEST DRIVER SIDE REAR PILLAR | A-26 |
| A-25 | POST-TEST PASSENGER SIDE A-PILLAR | A-27 |
| A-26 | POST-TEST PASSENGER SIDE FRONT HEADER | A-28 |
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| A-28 | POST-TEST PASSENGER SIDE B-PILLAR | A-30 |
| A-29 | POST-TEST PASSENGER SIDE OTHER PILLAR | A-31 |
| A-30 | POST-TEST PASSENGER SIDE REAR PILLAR | A-32 |



Figure A-1 : LEFT SIDE VIEW OF VEHICLE



Figure A-2 : RIGHT SIDE VIEW OF VEHICLE



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



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



Figure A-5: VEHICLE'S CERTIFICATION LABEL



Figure A-6 : VEHICLE'S TIRE INFORMATION LABEL



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

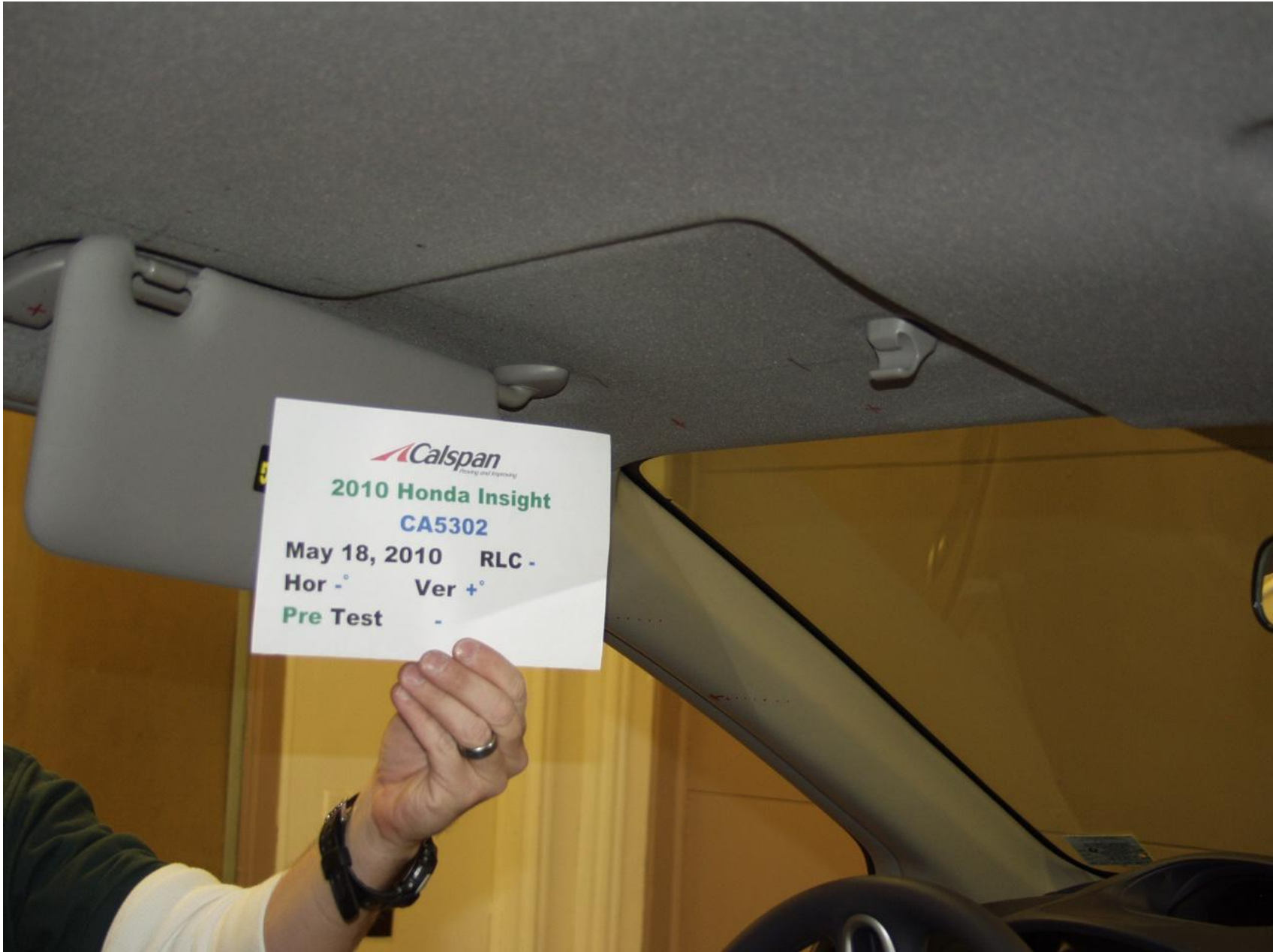


Figure A-8 : PRE-TEST DRIVER SIDE FRONT HEADER



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



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

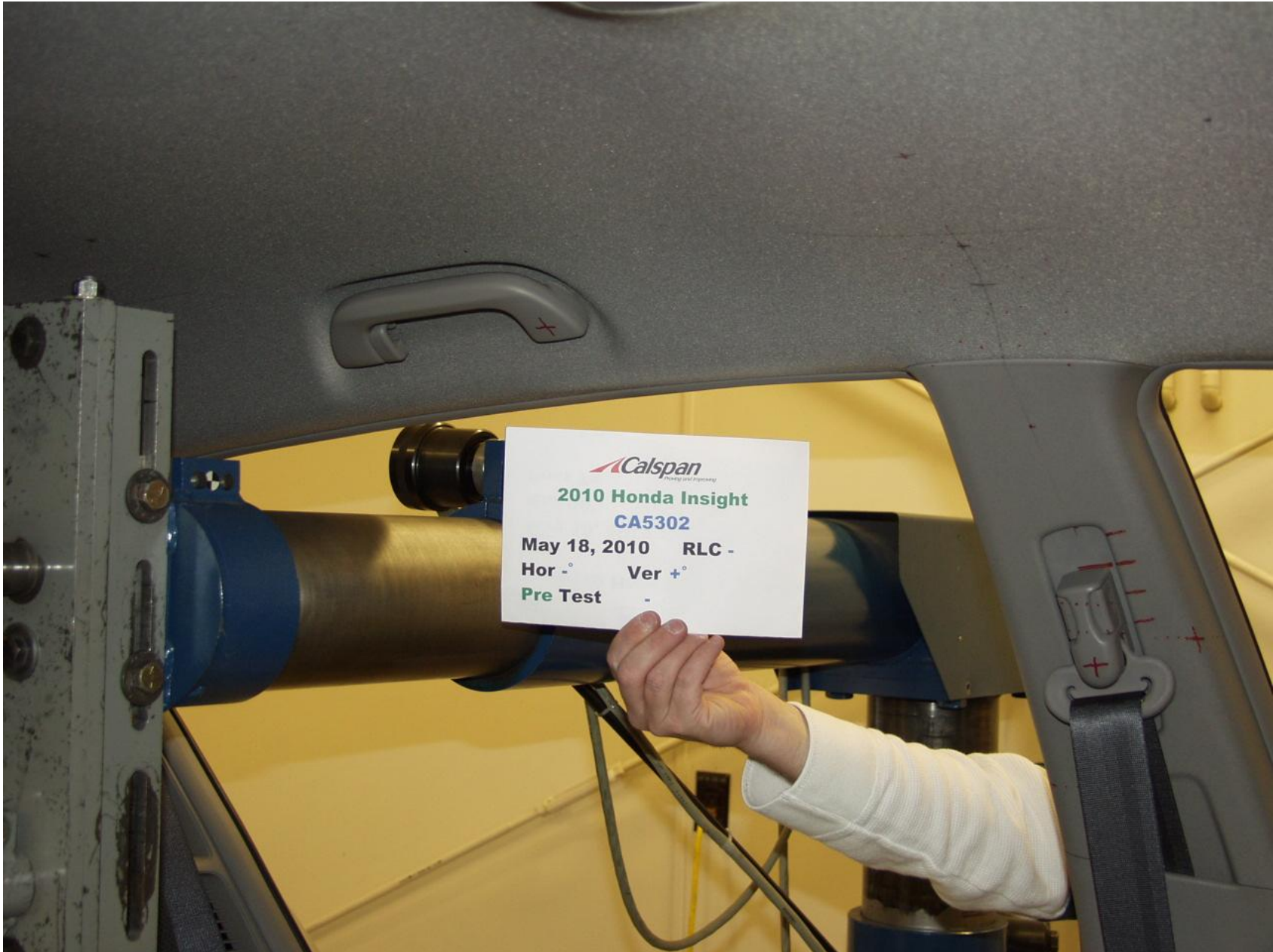


Figure A-11 : PRE-TEST DRIVER SIDE OTHER SIDE RAIL



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



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



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



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



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



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



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



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

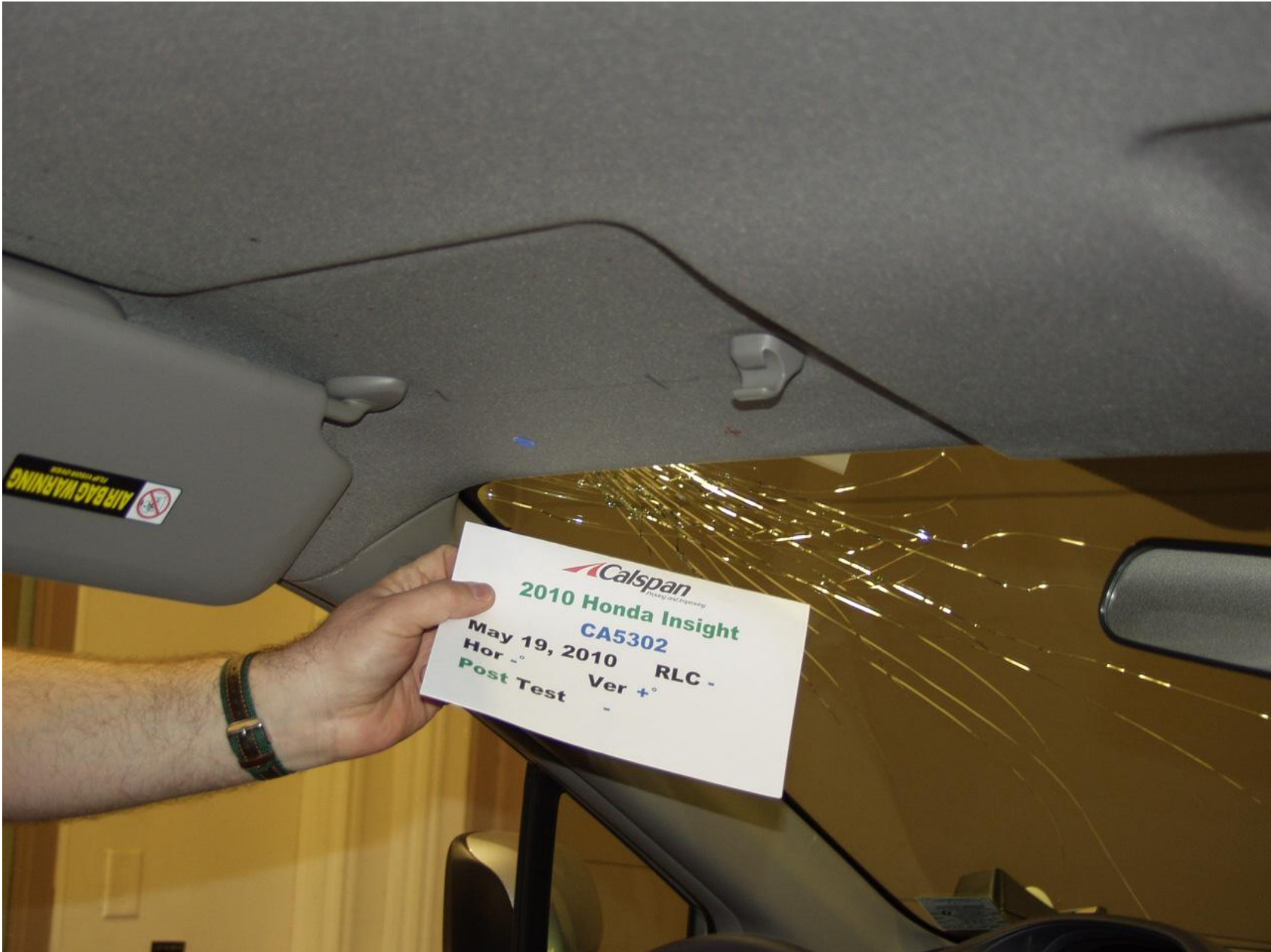


Figure A-20 : POST-TEST DRIVER SIDE FRONT HEADER

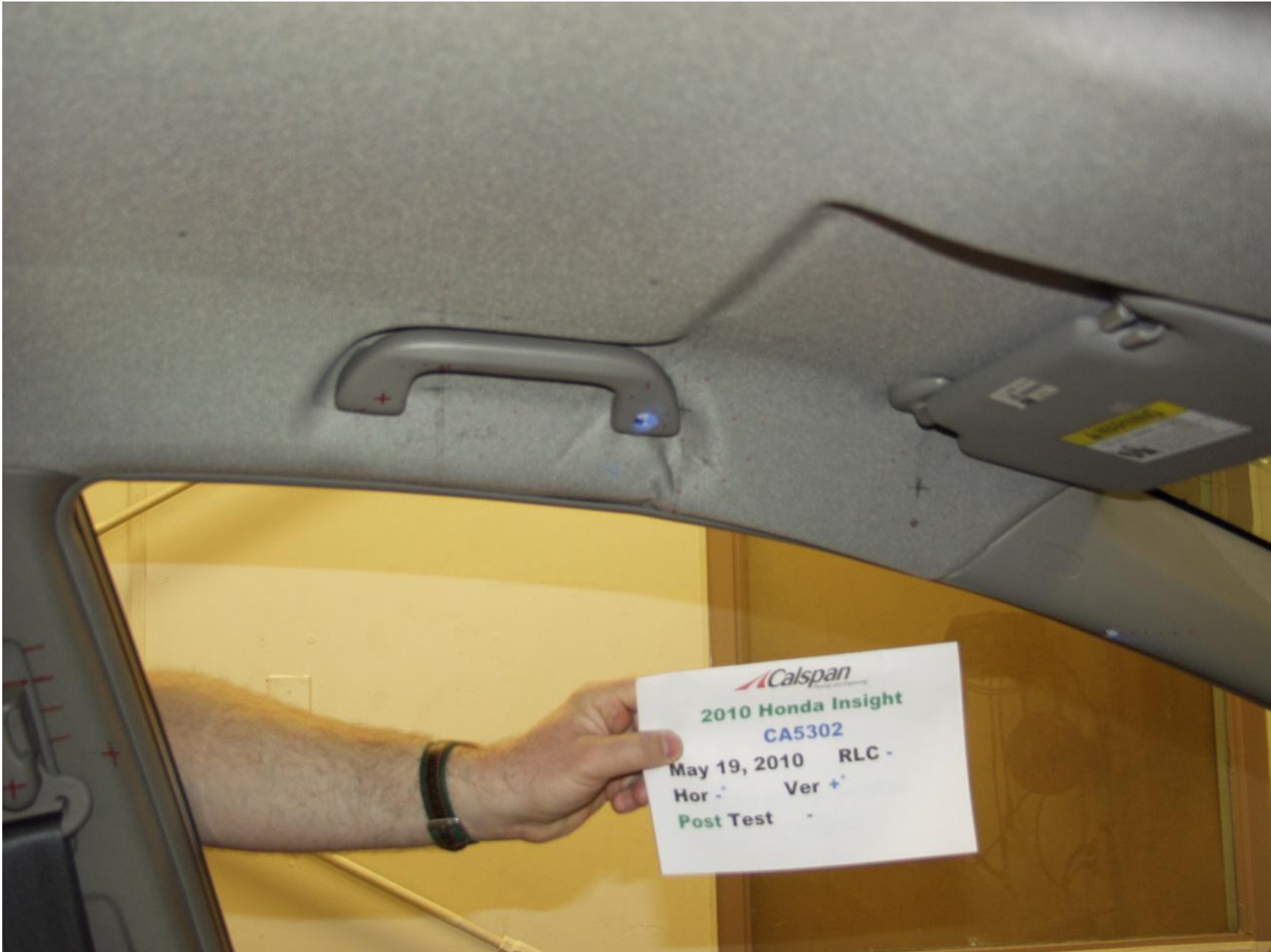


Figure A-21 : POST-TEST DRIVER SIDE SIDE RAIL



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



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



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



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



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

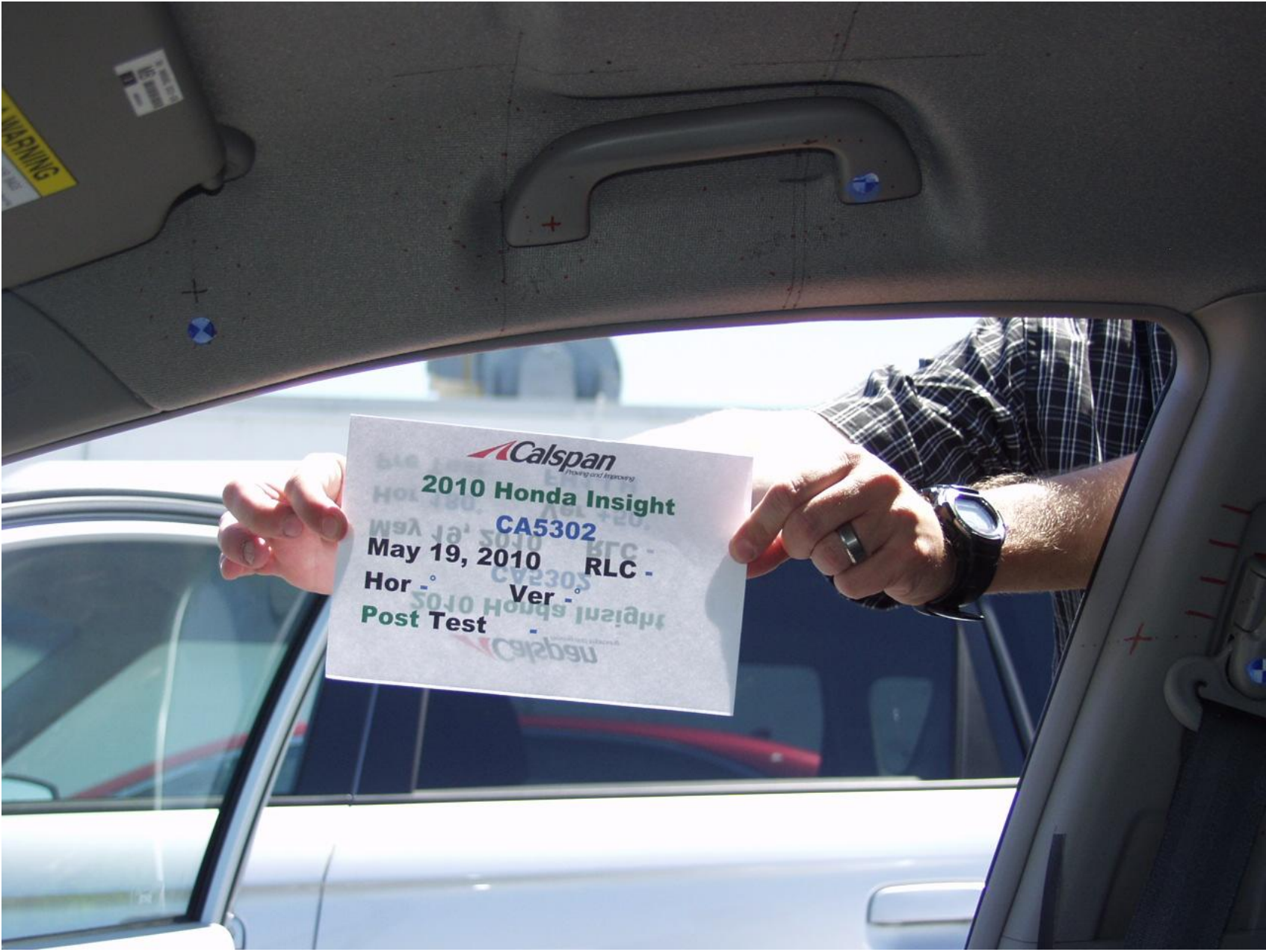


Figure A-27 : POST-TEST PASSENGER SIDE SIDE RAIL

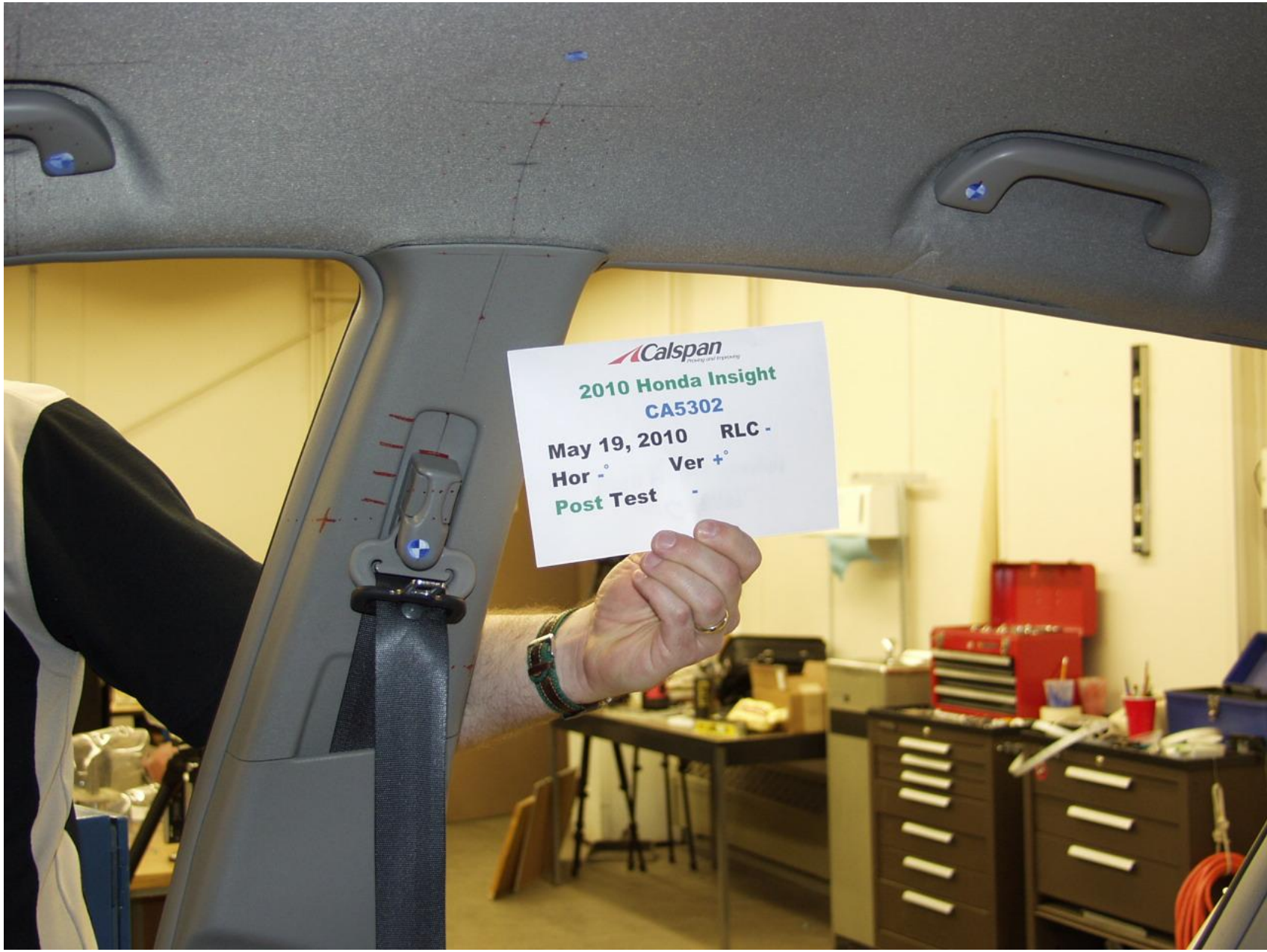


Figure A-28 : POST-TEST PASSENGER SIDE B-PILLAR



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



Figure A-30 : POST-TEST PASSENGER SIDE REAR PILLAR

APPENDIX B

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

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

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

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

| | | | |
|--|-------------------------|--|--|
| MANUFACTURER: | | FIRST TECHNOLOGY SAFETY SYSTEMS | |
| SERIAL NUMBER: | | 0062 | |
| CALIBRATION DATE: | | May 13, 2010 | |
| TEST PARAMETER | SPECIFICATION | TEST RESULTS | |
| TEMPERATURE | 19°C to 26°C | 23 °C | |
| RELATIVE HUMIDITY | 10% to 70% | 35% | |
| PEAK RESULTANT ACCELERATION | 225 Gs to 275 Gs | 252.3 Gs | |
| PEAK LATERAL ACCELERATION | 15 Gs Maximum | 2.3 Gs | |
| 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 | J45546 | 3/30/2010 | 9/30/2010 |
| 2 - LATERAL | ENDEVCO | 7264-2000T | J45485 | 3/30/2010 | 9/30/2010 |
| 3 - VERTICAL | ENDEVCO | 7264-2000T | J45406 | 3/30/2010 | 9/30/2010 |

REMARKS:

FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: May 13, 2010

Serial No: 0062

Work File: fmh

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

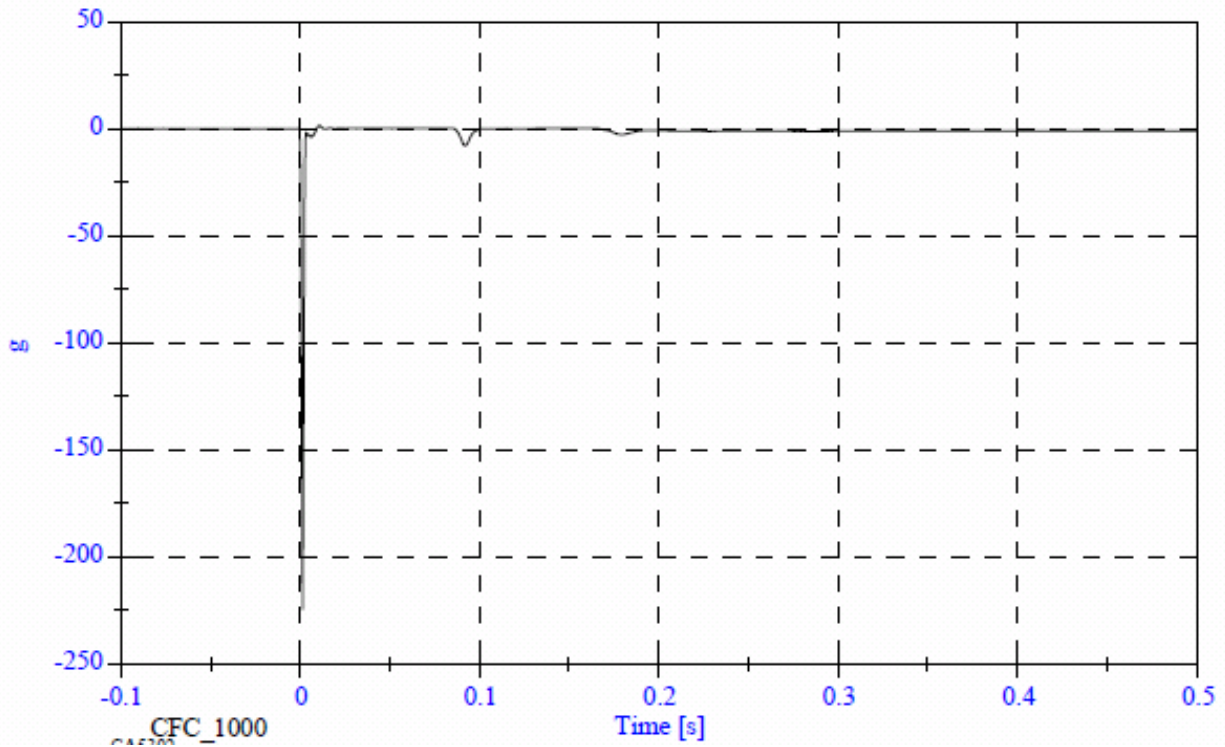
| <u>TEST CONDITION</u> | <u>PARAMETERS</u> | <u>RESULTS</u> | <u>STATUS</u> |
|-------------------------|-------------------|----------------|---------------|
| Lab Temperature: | 18.9-25.6 C | 22.8 C | Passed |
| Lab Humidity: | 10-70 % | 35.00 % | Passed |
| Peak Resultant Accel.: | 225-275 Gs | 252.28 Gs | Passed |
| Peak Lateral Accel.: | 15 Gs Max | 2.31 Gs | Passed |
| Curve PerCent NonModal: | < 10% | 3.23 % | Passed |

FMVSS 201U - Headform Calibration Drops

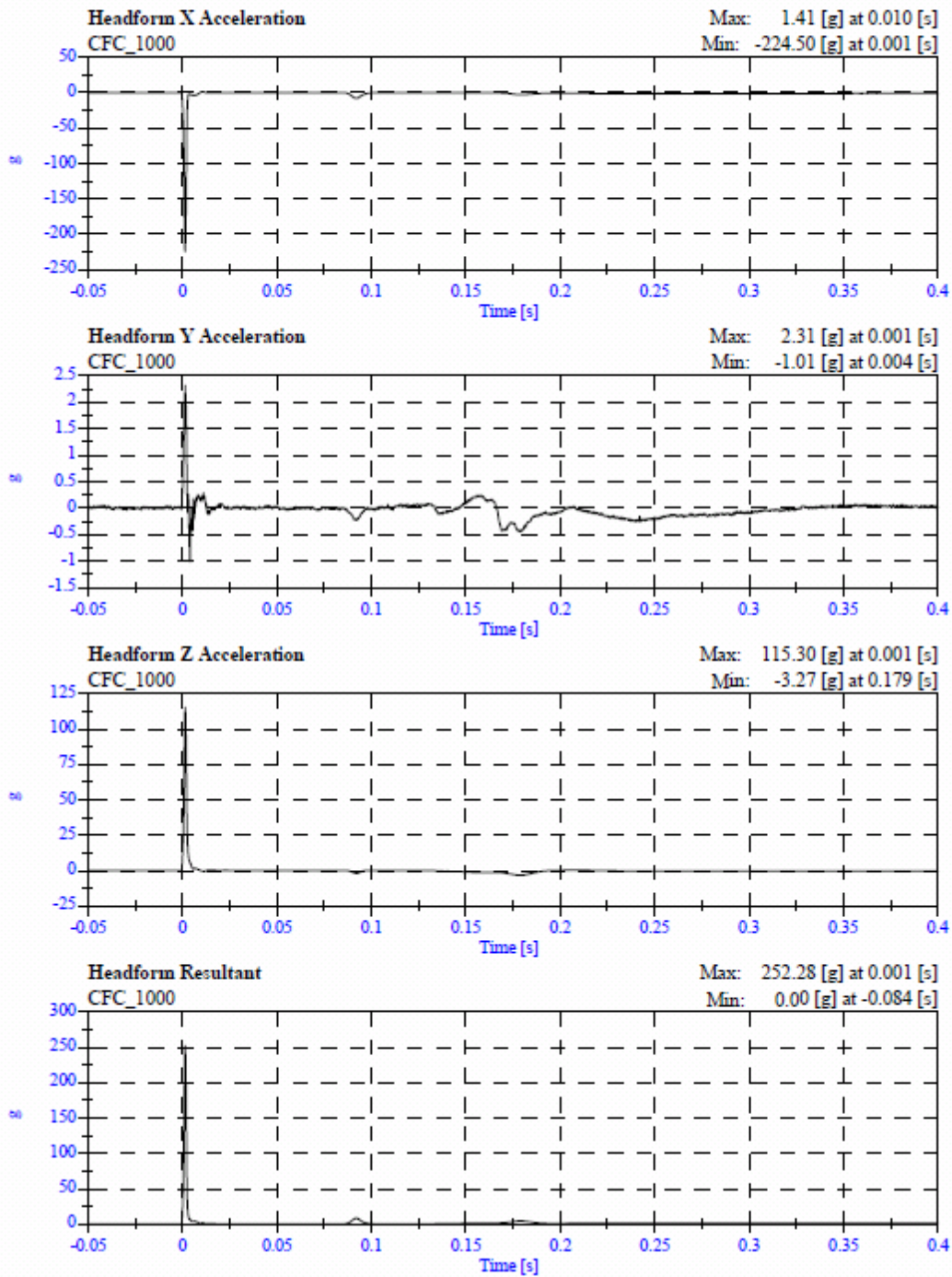
Headform Resultant

Max: 252.3 [g] at 0.001 [s]

Min: 0.0 [g] at -0.084 [s]



FMVSS 201U - Headform Calibration Drops CA5302 - May 13, 2010



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

| | | | |
|--|-------------------------|--|--|
| MANUFACTURER: | | FIRST TECHNOLOGY SAFETY SYSTEMS | |
| SERIAL NUMBER: | | 805 | |
| CALIBRATION DATE: | | May 13, 2010 | |
| TEST PARAMETER | SPECIFICATION | TEST RESULTS | |
| TEMPERATURE | 19°C to 26°C | 23 °C | |
| RELATIVE HUMIDITY | 10% to 70% | 35% | |
| PEAK RESULTANT ACCELERATION | 225 Gs to 275 Gs | 271.8 Gs | |
| PEAK LATERAL ACCELERATION | 15 Gs Maximum | 4.4 Gs | |
| 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 | J25854 | 3/2/2010 | 9/2/2010 |
| 2 - LATERAL | ENDEVCO | 7264-2000T | J37496 | 3/2/2010 | 9/2/2010 |
| 3 - VERTICAL | ENDEVCO | 7264-2000T | J41016 | 3/2/2010 | 9/2/2010 |

REMARKS:

FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: May 13, 2010

Serial No: 0805

Work File: fmh

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

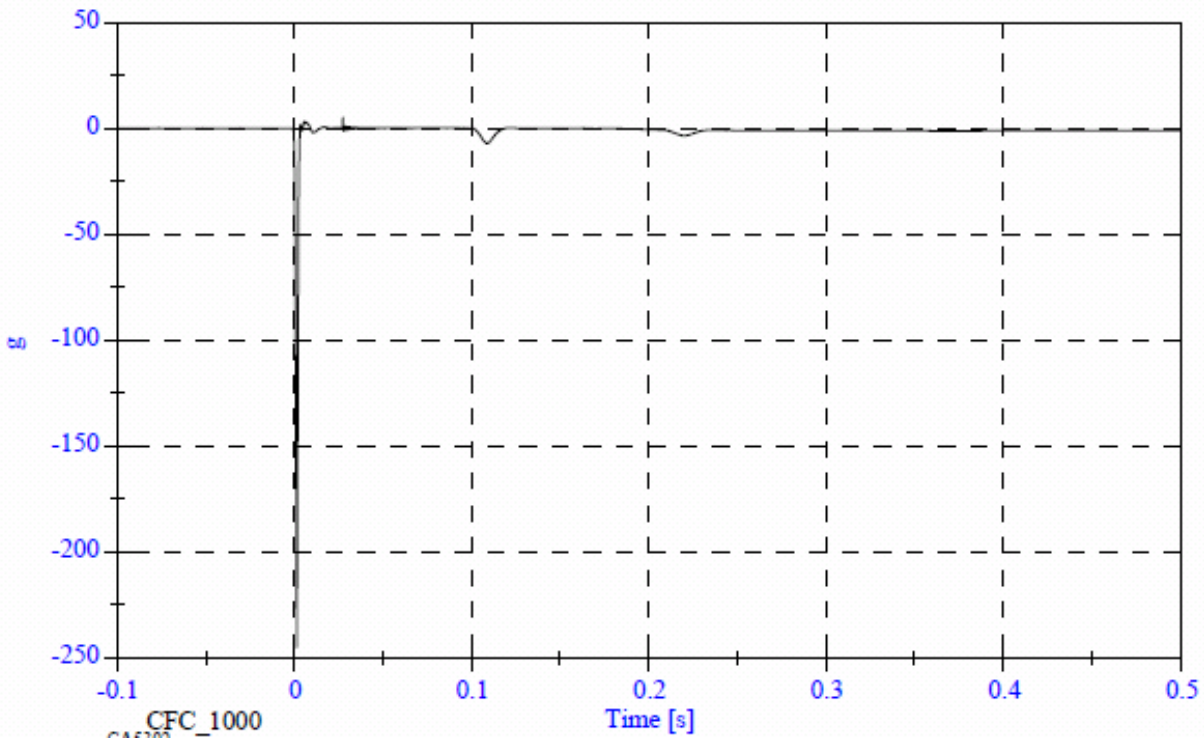
| <u>TEST CONDITION</u> | <u>PARAMETERS</u> | <u>RESULTS</u> | <u>STATUS</u> |
|-------------------------|-------------------|----------------|---------------|
| Lab Temperature: | 18.9-25.6 C | 22.8 C | Passed |
| Lab Humidity: | 10-70 % | 35.00 % | Passed |
| Peak Resultant Accel.: | 225-275 Gs | 271.78 Gs | Passed |
| Peak Lateral Accel.: | 15 Gs Max | 4.36 Gs | Passed |
| Curve PerCent NonModal: | < 10% | 2.71 % | Passed |

FMVSS 201U - Headform Calibration Drops

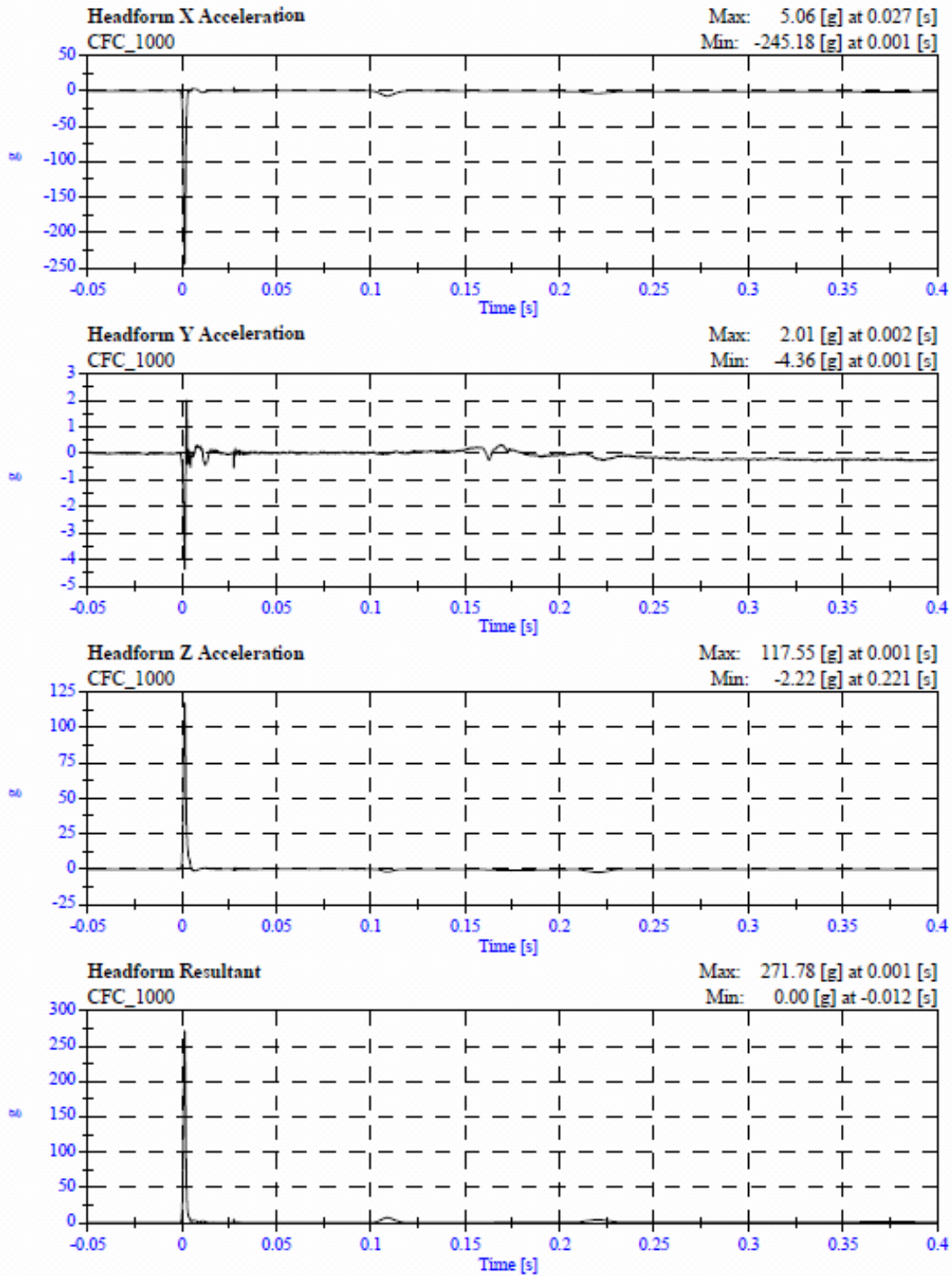
Headform Resultant

Max: 271.8 [g] at 0.001 [s]

Min: 0.0 [g] at -0.012 [s]



FMVSS 201U - Headform Calibration Drops CA5302 - May 13, 2010



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

| | | | |
|--|-------------------------|------------------------|--|
| MANUFACTURER: | | DENTON ATD INC. | |
| SERIAL NUMBER: | | 0355 | |
| CALIBRATION DATE: | | May 13, 2010 | |
| TEST PARAMETER | SPECIFICATION | TEST RESULTS | |
| TEMPERATURE | 19°C to 26°C | 23 °C | |
| RELATIVE HUMIDITY | 10% to 70% | 36% | |
| PEAK RESULTANT ACCELERATION | 225 Gs to 275 Gs | 235.7 Gs | |
| PEAK LATERAL ACCELERATION | 15 Gs Maximum | 4.7 Gs | |
| IS ACCELERATION CURVE UNIMODAL? | YES | YES | |

HEAD ACCELEROMETER CALIBRATION INFORMATION

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

REMARKS:

FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: May 13, 2010

Serial No: 0355

Work File: fmh

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

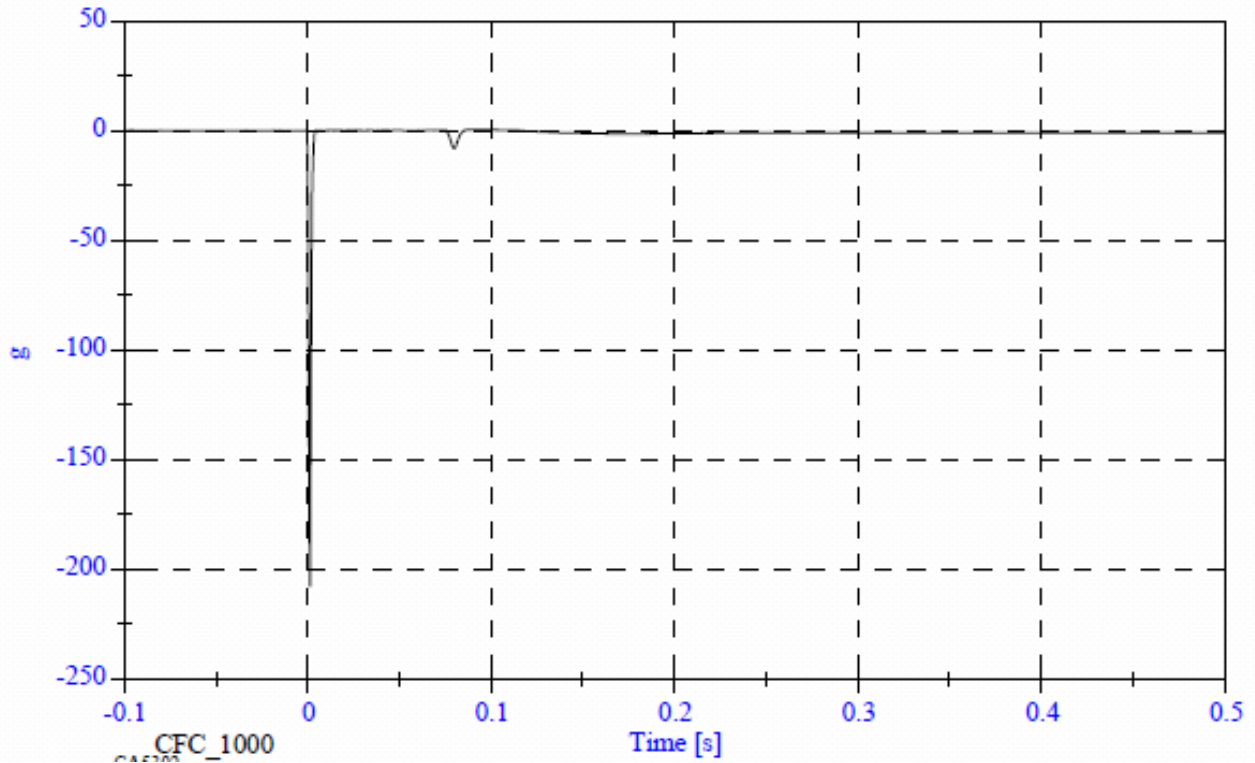
| <u>TEST CONDITION</u> | <u>PARAMETERS</u> | <u>RESULTS</u> | <u>STATUS</u> |
|-------------------------|-------------------|----------------|---------------|
| Lab Temperature: | 18.9-25.6 C | 23.3 C | Passed |
| Lab Humidity: | 10-70 % | 36.00 % | Passed |
| Peak Resultant Accel.: | 225-275 Gs | 235.65 Gs | Passed |
| Peak Lateral Accel.: | 15 Gs Max | 4.67 Gs | Passed |
| Curve PerCent NonModal: | < 10% | 3.49 % | Passed |

FMVSS 201U - Headform Calibration Drops

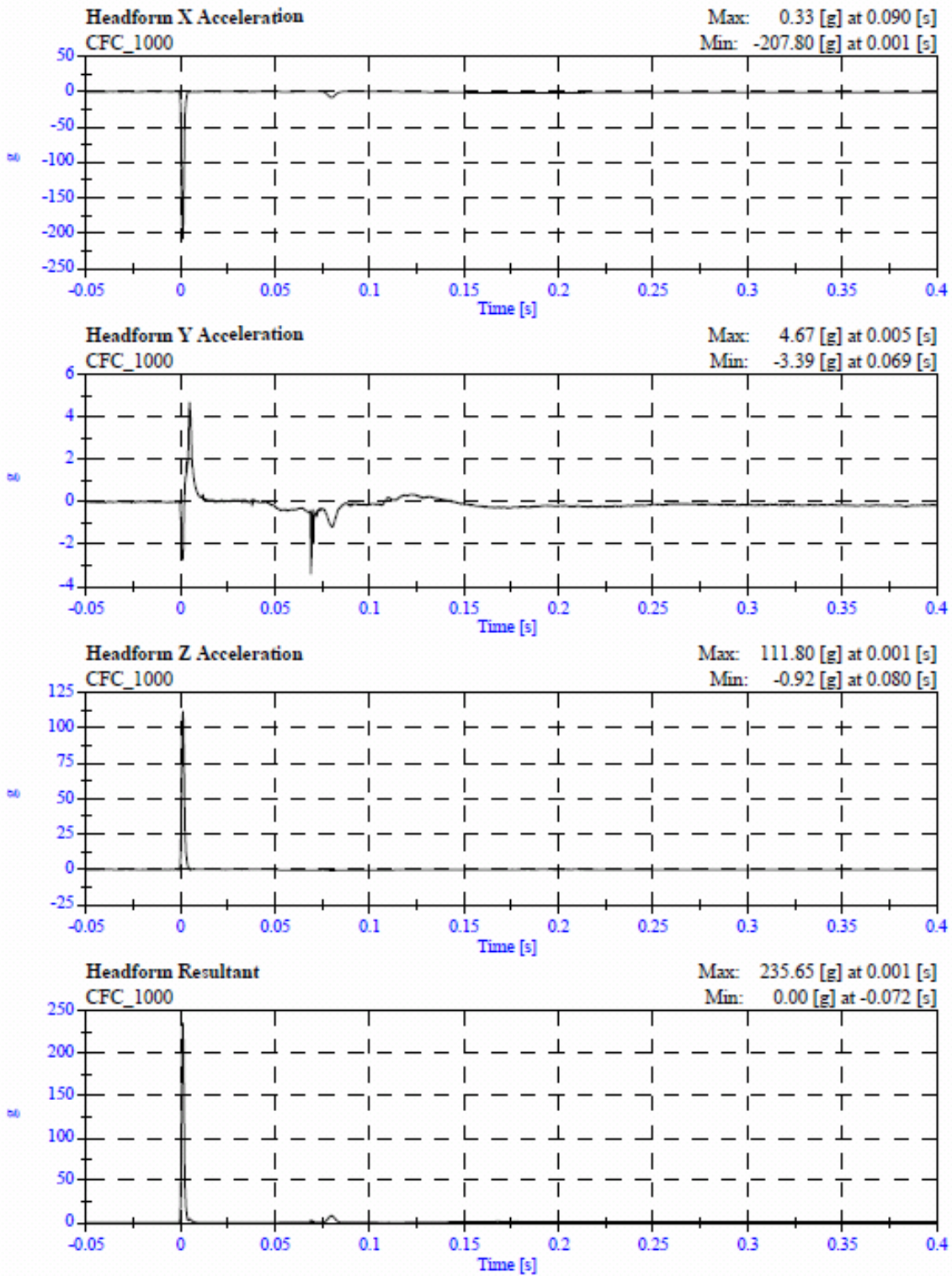
Headform Resultant

Max: 235.7 [g] at 0.001 [s]

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



FMVSS 201U - Headform Calibration Drops CA5302 - May 13, 2010



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

| | | | |
|--|-------------------------|--|--|
| MANUFACTURER: | | FIRST TECHNOLOGY SAFETY SYSTEMS | |
| SERIAL NUMBER: | | 1142 | |
| CALIBRATION DATE: | | May 13, 2010 | |
| TEST PARAMETER | SPECIFICATION | TEST RESULTS | |
| TEMPERATURE | 19°C to 26°C | 23 °C | |
| RELATIVE HUMIDITY | 10% to 70% | 35% | |
| PEAK RESULTANT ACCELERATION | 225 Gs to 275 Gs | 271.0 Gs | |
| PEAK LATERAL ACCELERATION | 15 Gs Maximum | 4.7 Gs | |
| 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 | 4/8/2010 | 10/8/2010 |
| 2 - LATERAL | ENDEVCO | 7264-2000T | J33030 | 4/8/2010 | 10/8/2010 |
| 3 - VERTICAL | ENDEVCO | 7264-2000T | J31009 | 4/8/2010 | 10/8/2010 |

REMARKS:

FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: May 13, 2010

Serial No: 1142

Work File: fmh

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

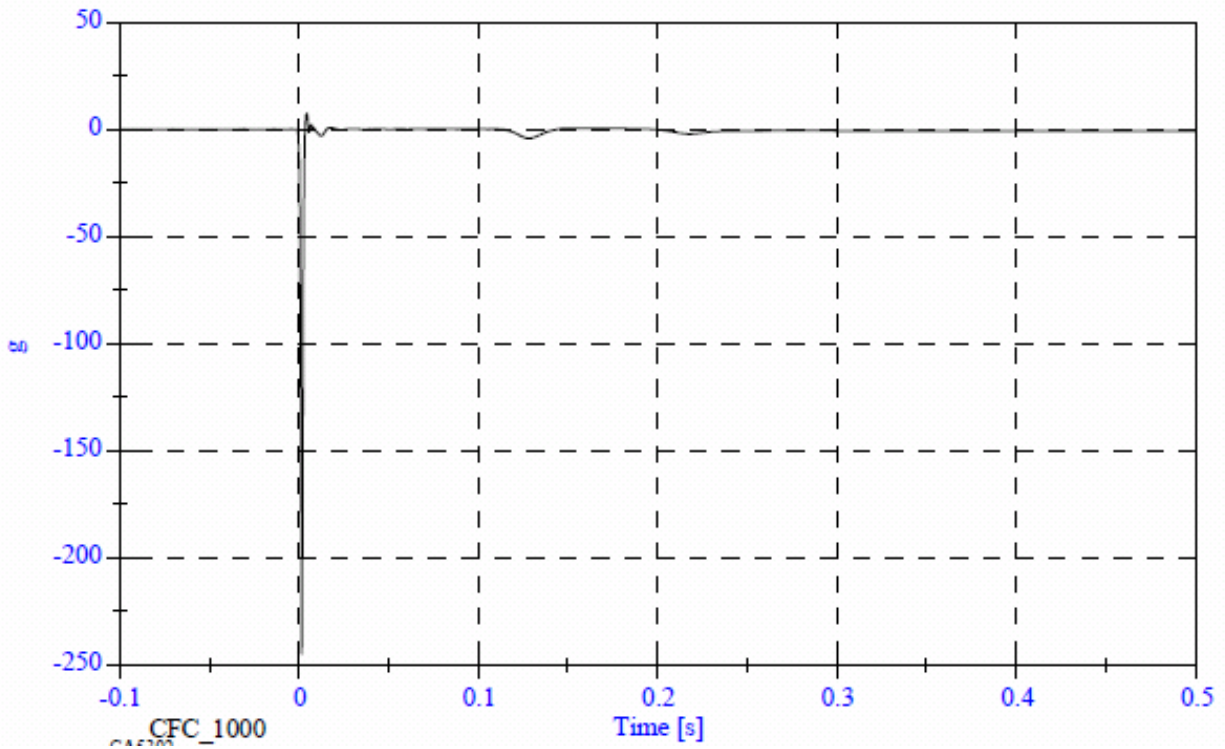
| <u>TEST CONDITION</u> | <u>PARAMETERS</u> | <u>RESULTS</u> | <u>STATUS</u> |
|-------------------------|-------------------|----------------|---------------|
| Lab Temperature: | 18.9-25.6 C | 22.8 C | Passed |
| Lab Humidity: | 10-70 % | 35.00 % | Passed |
| Peak Resultant Accel.: | 225-275 Gs | 270.95 Gs | Passed |
| Peak Lateral Accel.: | 15 Gs Max | 4.72 Gs | Passed |
| Curve PerCent NonModal: | < 10% | 3.68 % | Passed |

FMVSS 201U - Headform Calibration Drops

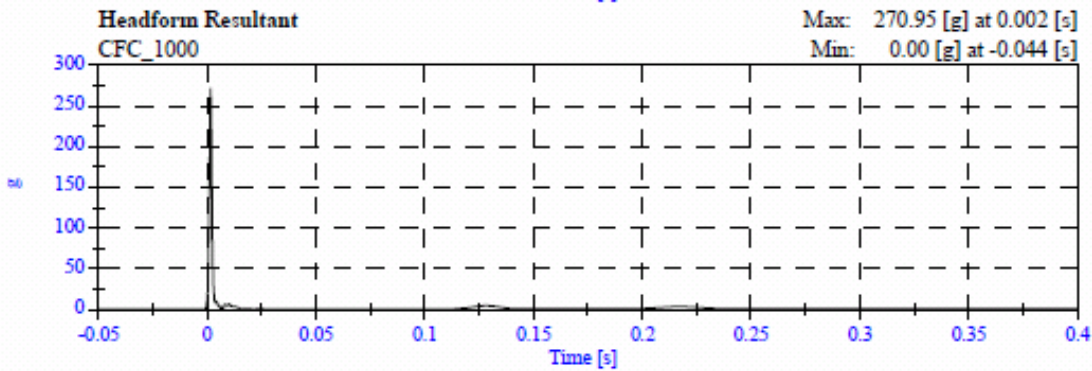
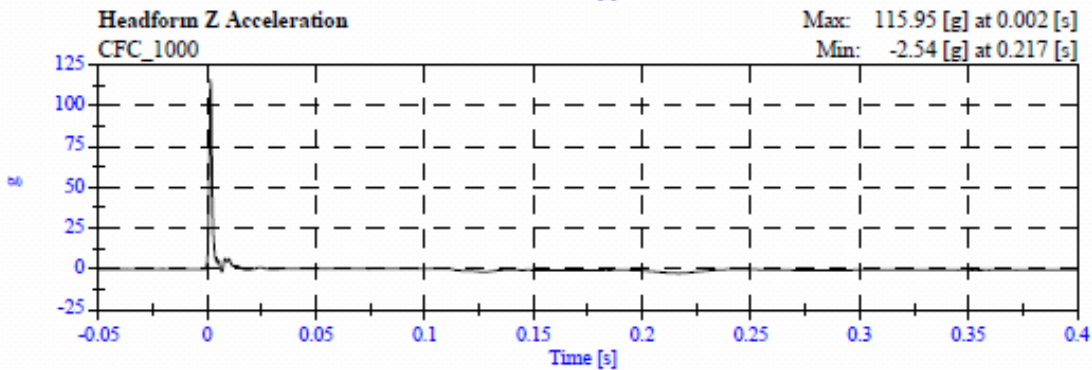
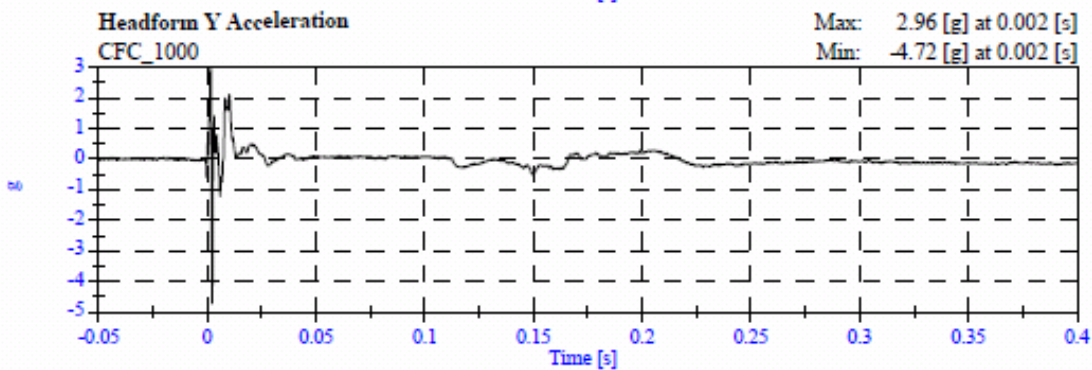
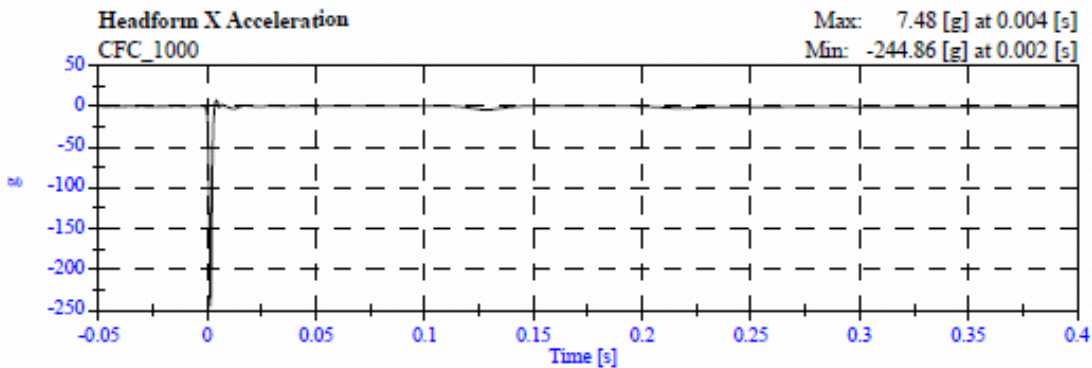
Headform Resultant

Max: 270.9 [g] at 0.002 [s]

Min: 0.0 [g] at -0.044 [s]



FMVSS 201U - Headform Calibration Drops CA5302 - May 13, 2010



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

| | | | |
|--|-------------------------|------------------------|--|
| MANUFACTURER: | | DENTON ATD INC. | |
| SERIAL NUMBER: | | 0062 | |
| CALIBRATION DATE: | | May 24, 2010 | |
| TEST PARAMETER | SPECIFICATION | TEST RESULTS | |
| TEMPERATURE | 19°C to 26°C | 26 °C | |
| RELATIVE HUMIDITY | 10% to 70% | 47% | |
| PEAK RESULTANT ACCELERATION | 225 Gs to 275 Gs | 243.3 Gs | |
| PEAK LATERAL ACCELERATION | 15 Gs Maximum | 1.7 Gs | |
| 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 | J45546 | 3/30/2010 | 9/30/2010 |
| 2 - LATERAL | ENDEVCO | 7264-2000T | J45485 | 3/30/2010 | 9/30/2010 |
| 3 - VERTICAL | ENDEVCO | 7264-2000T | J45406 | 3/30/2010 | 9/30/2010 |

REMARKS:

FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: May 24, 2010

Serial No: 0062

Work File: fmh

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

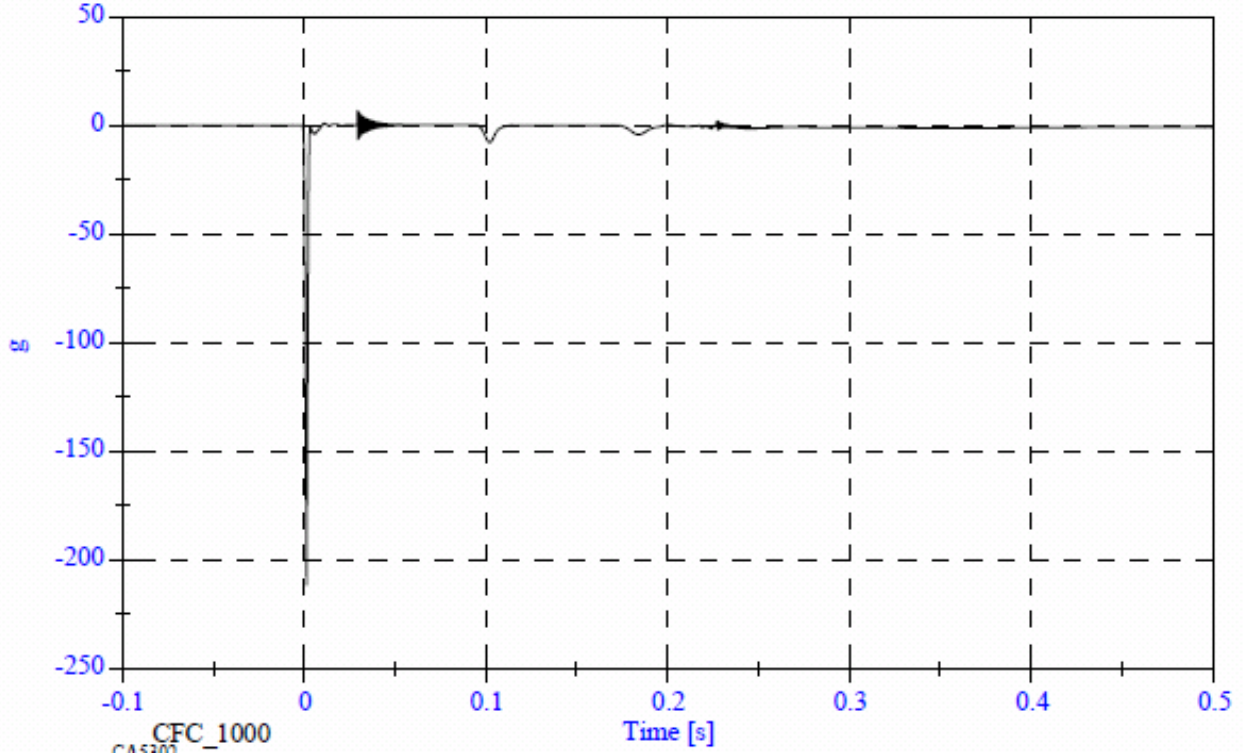
| <u>TEST CONDITION</u> | <u>PARAMETERS</u> | <u>RESULTS</u> | <u>STATUS</u> |
|-------------------------|-------------------|----------------|---------------|
| Lab Temperature: | 18.9-25.6 C | 25.6 C | Passed |
| Lab Humidity: | 10-70 % | 47.00 % | Passed |
| Peak Resultant Accel.: | 225-275 Gs | 243.27 Gs | Passed |
| Peak Lateral Accel.: | 15 Gs Max | 1.66 Gs | Passed |
| Curve PerCent NonModal: | < 10% | 3.38 % | Passed |

FMVSS 201U - Headform Calibration Drops

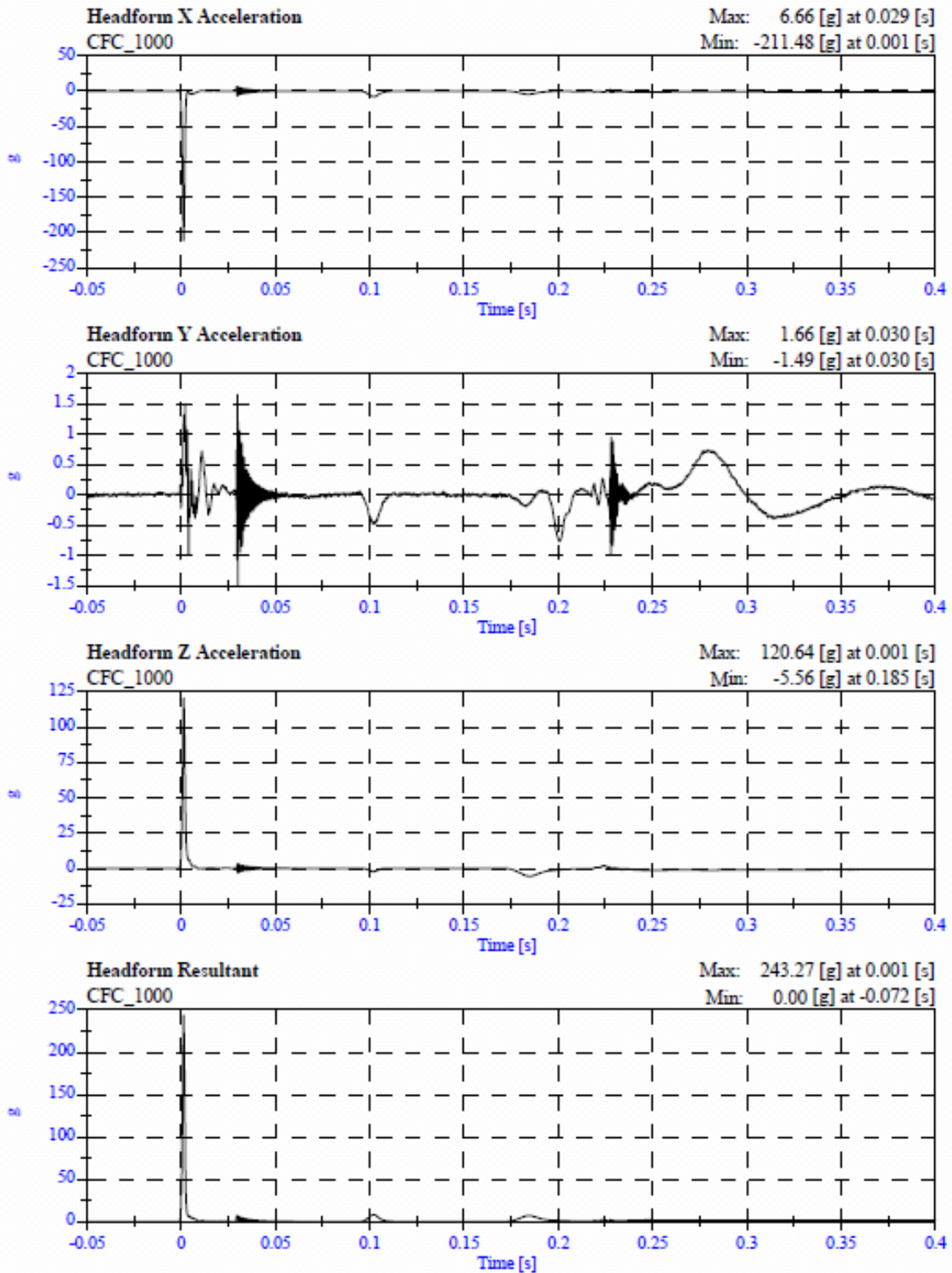
Headform Resultant

Max: 243.3 [g] at 0.001 [s]

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



FMVSS 201U - Headform Calibration Drops CA5302 - May 24, 2010



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

| | | | |
|--|-------------------------|--|--|
| MANUFACTURER: | | FIRST TECHNOLOGY SAFETY SYSTEMS | |
| SERIAL NUMBER: | | 805 | |
| CALIBRATION DATE: | | May 24, 2010 | |
| TEST PARAMETER | SPECIFICATION | TEST RESULTS | |
| TEMPERATURE | 19°C to 26°C | 26 °C | |
| RELATIVE HUMIDITY | 10% to 70% | 52% | |
| PEAK RESULTANT ACCELERATION | 225 Gs to 275 Gs | 271.9 Gs | |
| PEAK LATERAL ACCELERATION | 15 Gs Maximum | 13.9 Gs | |
| 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 | J25854 | 3/2/2010 | 9/2/2010 |
| 2 - LATERAL | ENDEVCO | 7264-2000T | J37496 | 3/2/2010 | 9/2/2010 |
| 3 - VERTICAL | ENDEVCO | 7264-2000T | J41016 | 3/2/2010 | 9/2/2010 |

REMARKS:

FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: May 24, 2010

Serial No: 0805

Work File: fmh

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

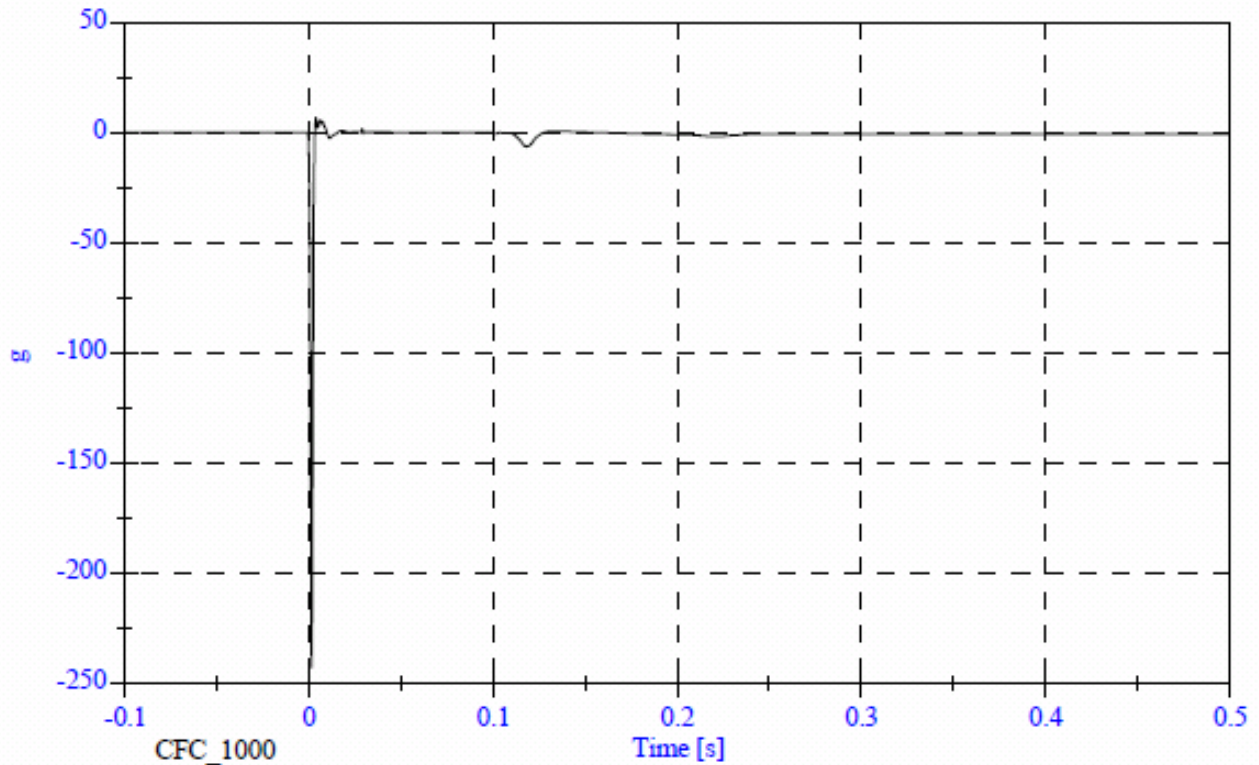
| <u>TEST CONDITION</u> | <u>PARAMETERS</u> | <u>RESULTS</u> | <u>STATUS</u> |
|-------------------------|-------------------|----------------|---------------|
| Lab Temperature: | 18.9-25.6 C | 25.6 C | Passed |
| Lab Humidity: | 10-70 % | 52.00 % | Passed |
| Peak Resultant Accel.: | 225-275 Gs | 271.98 Gs | Passed |
| Peak Lateral Accel.: | 15 Gs Max | 13.91 Gs | Passed |
| Curve PerCent NonModal: | < 10% | 4.03 % | Passed |

FMVSS 201U - Headform Calibration Drops

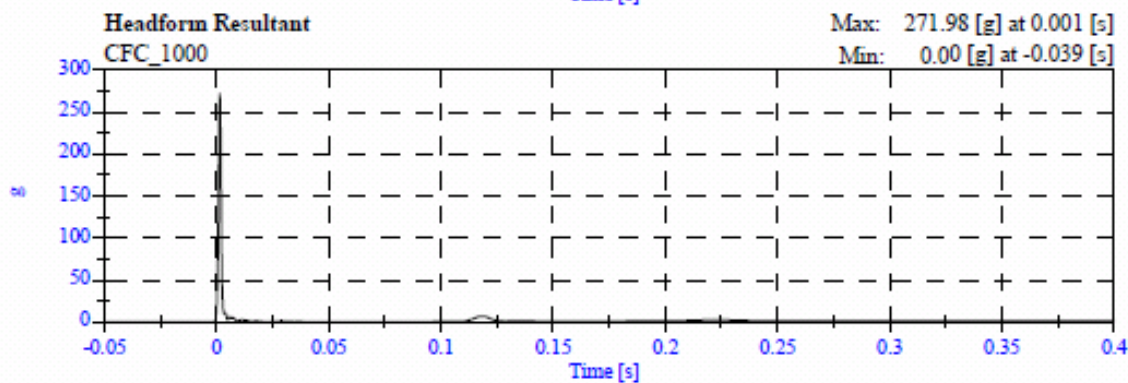
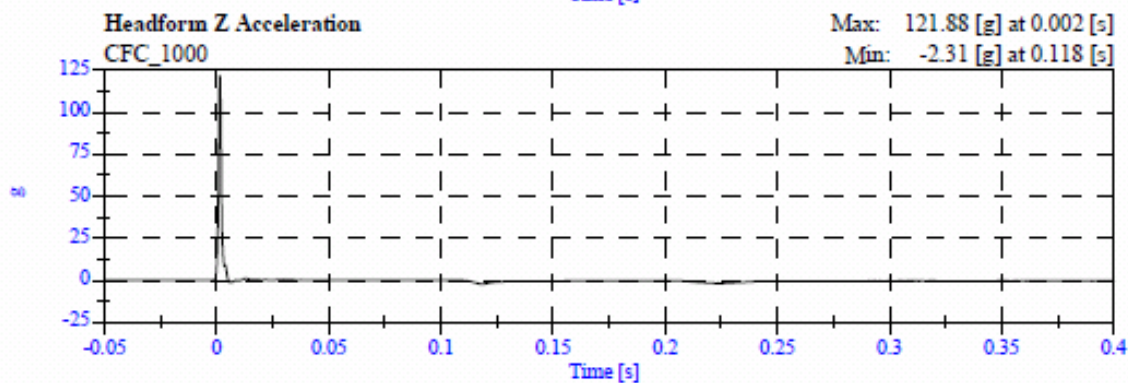
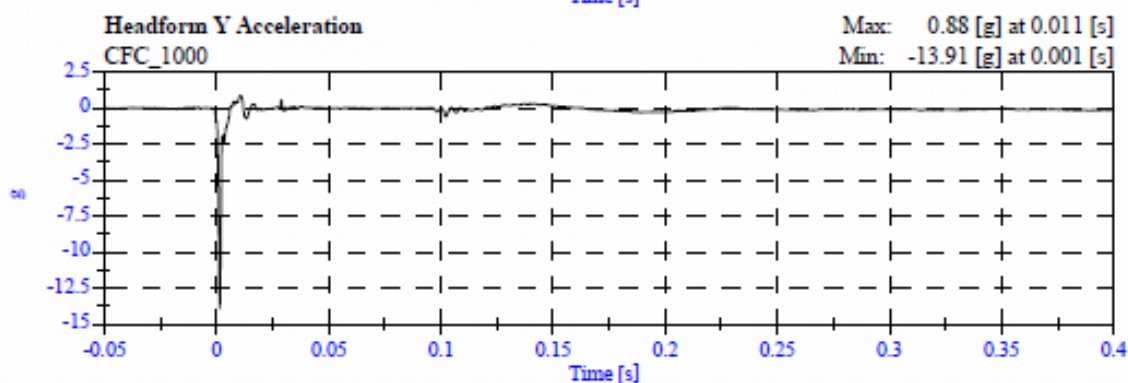
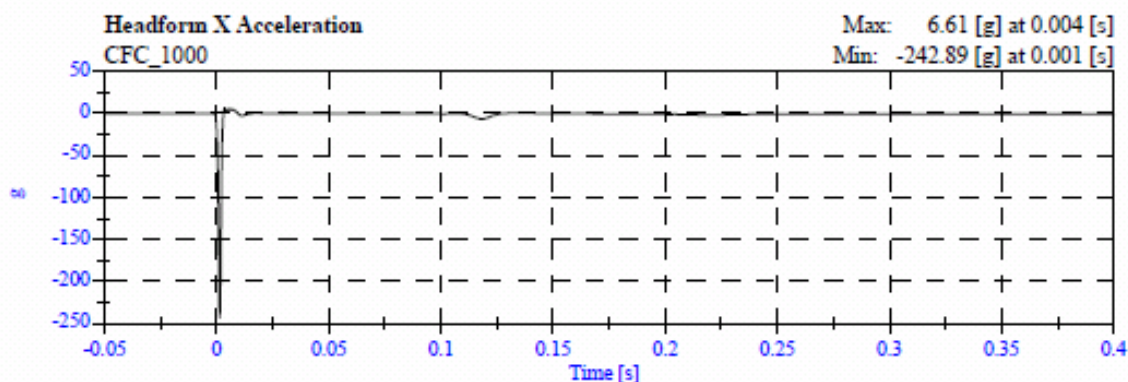
Headform Resultant

Max: 272.0 [g] at 0.001 [s]

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



FMVSS 201U - Headform Calibration Drops CA5302 - May 24, 2010



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

| | | | |
|--|-------------------------|------------------------|--|
| MANUFACTURER: | | DENTON ATD INC. | |
| SERIAL NUMBER: | | 0355 | |
| CALIBRATION DATE: | | May 24, 2010 | |
| TEST PARAMETER | SPECIFICATION | TEST RESULTS | |
| TEMPERATURE | 19°C to 26°C | 24 °C | |
| RELATIVE HUMIDITY | 10% to 70% | 38% | |
| PEAK RESULTANT ACCELERATION | 225 Gs to 275 Gs | 248.2 Gs | |
| PEAK LATERAL ACCELERATION | 15 Gs Maximum | 1.7 Gs | |
| IS ACCELERATION CURVE UNIMODAL? | YES | YES | |

HEAD ACCELEROMETER CALIBRATION INFORMATION

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

REMARKS:

FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: May 24, 2010

Serial No: 0355

Work File: fmh

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

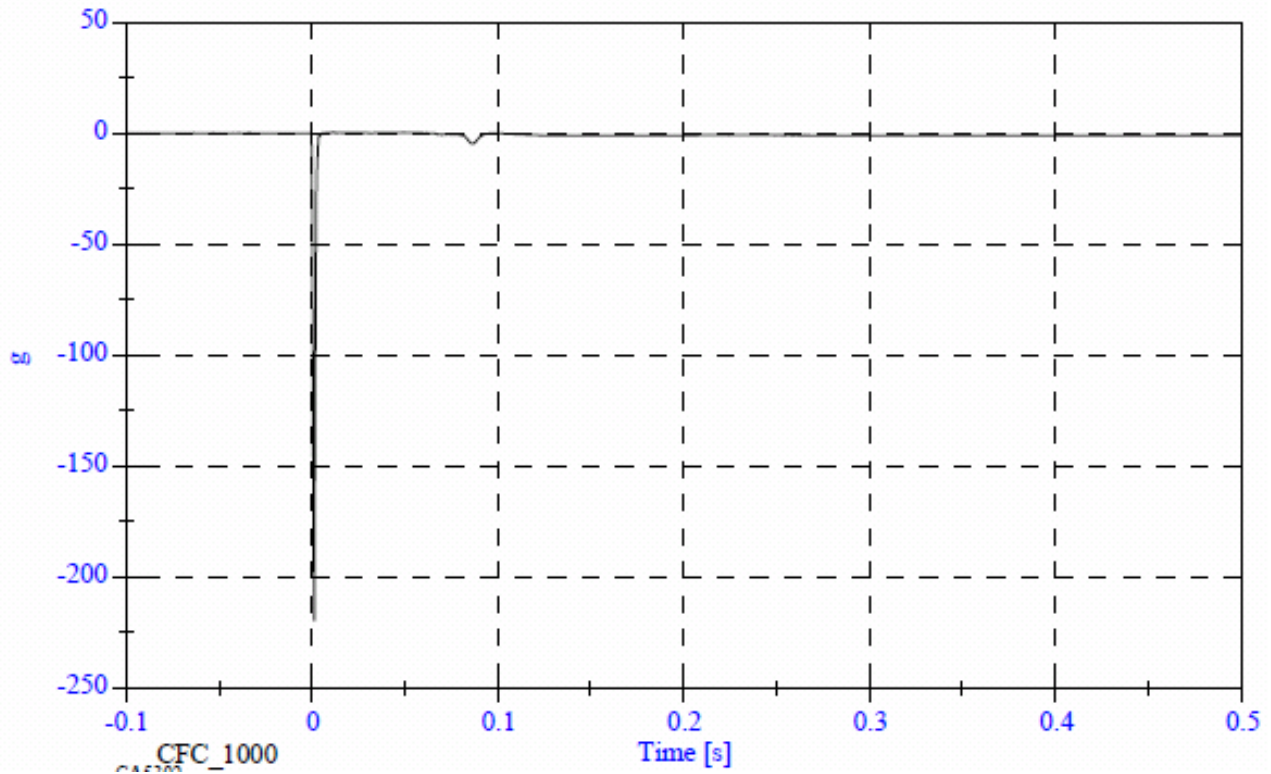
| <u>TEST CONDITION</u> | <u>PARAMETERS</u> | <u>RESULTS</u> | <u>STATUS</u> |
|-------------------------|-------------------|----------------|---------------|
| Lab Temperature: | 18.9-25.6 C | 23.9 C | Passed |
| Lab Humidity: | 10-70 % | 38.00 % | Passed |
| Peak Resultant Accel.: | 225-275 Gs | 248.23 Gs | Passed |
| Peak Lateral Accel.: | 15 Gs Max | 1.66 Gs | Passed |
| Curve PerCent NonModal: | < 10% | 1.97 % | Passed |

FMVSS 201U - Headform Calibration Drops

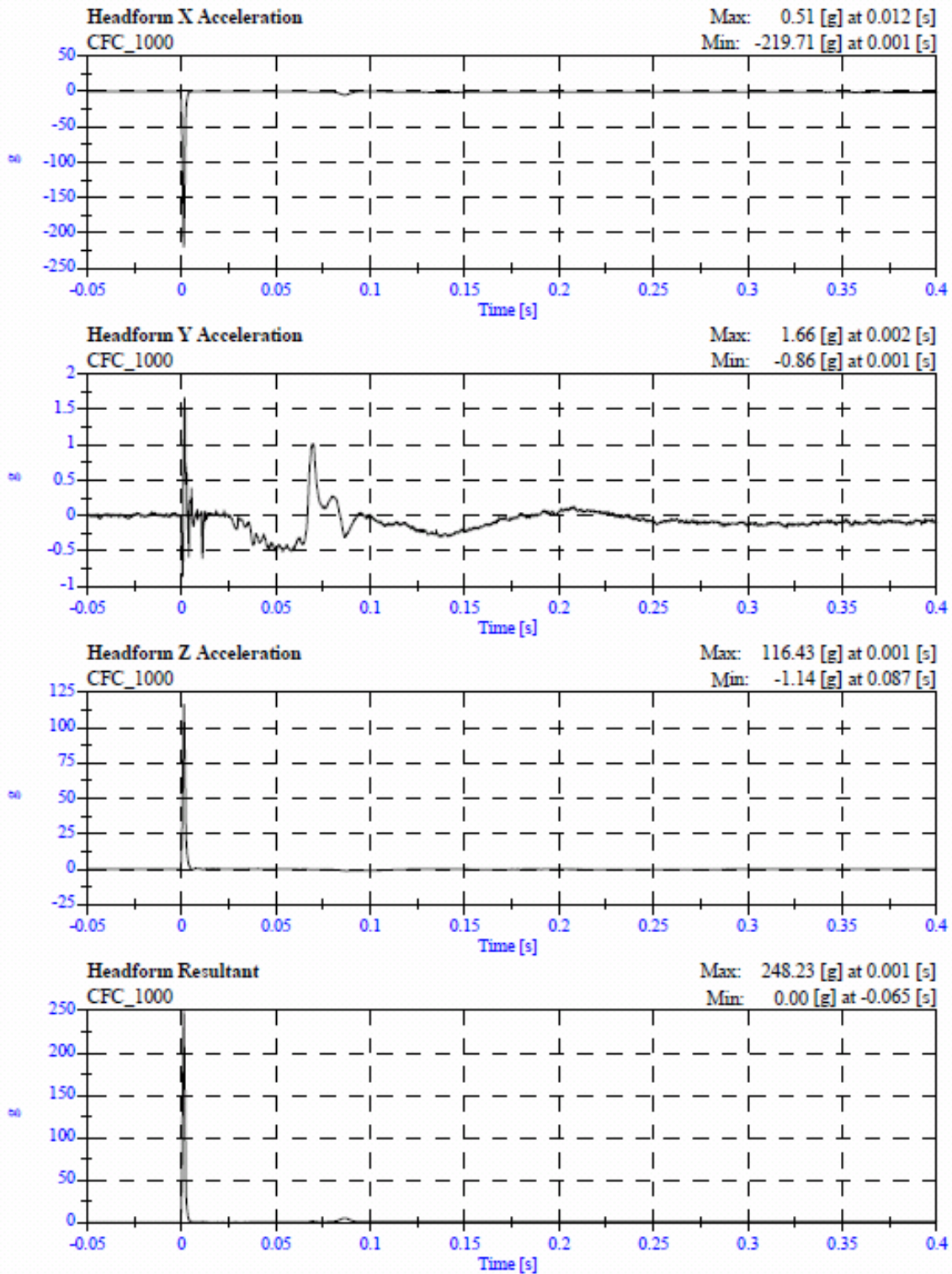
Headform Resultant

Max: 248.2 [g] at 0.001 [s]

Min: 0.0 [g] at -0.065 [s]



FMVSS 201U - Headform Calibration Drops CA5302 - May 24, 2010



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

| | | |
|--|-------------------------|--|
| MANUFACTURER: | | FIRST TECHNOLOGY SAFETY SYSTEMS |
| SERIAL NUMBER: | | 1142 |
| CALIBRATION DATE: | | May 24, 2010 |
| TEST PARAMETER | SPECIFICATION | TEST RESULTS |
| TEMPERATURE | 19°C to 26°C | 24 °C |
| RELATIVE HUMIDITY | 10% to 70% | 38% |
| PEAK RESULTANT ACCELERATION | 225 Gs to 275 Gs | 244.9 Gs |
| PEAK LATERAL ACCELERATION | 15 Gs Maximum | 8.9 Gs |
| 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 | 4/8/2010 | 10/8/2010 |
| 2 - LATERAL | ENDEVCO | 7264-2000T | J33030 | 4/8/2010 | 10/8/2010 |
| 3 - VERTICAL | ENDEVCO | 7264-2000T | J31009 | 4/8/2010 | 10/8/2010 |

REMARKS:

FMVSS 201U - Headform Calibration Drops

Part 572E Head Drop

Calibration Date: May 24, 2010

Serial No: 1142

Work File: fnh

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

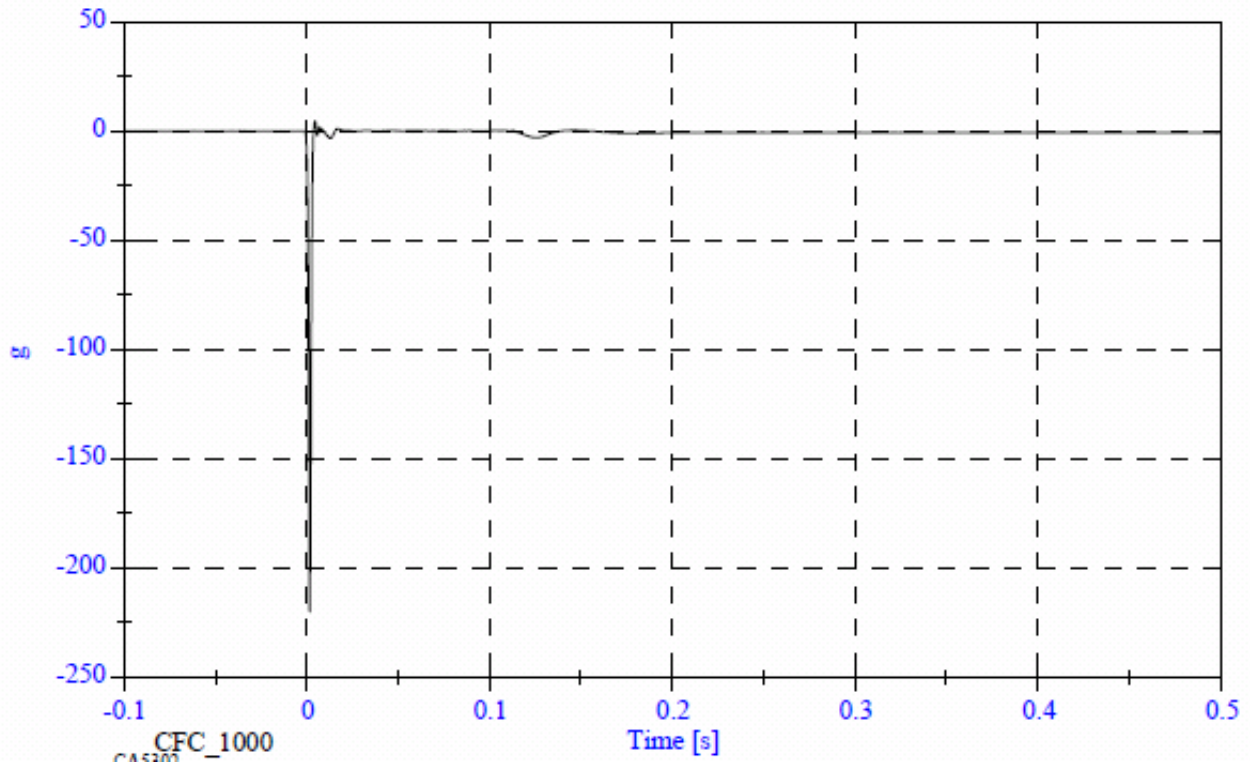
| <u>TEST CONDITION</u> | <u>PARAMETERS</u> | <u>RESULTS</u> | <u>STATUS</u> |
|-------------------------|-------------------|----------------|---------------|
| Lab Temperature: | 18.9-25.6 C | 23.9 C | Passed |
| Lab Humidity: | 10-70 % | 38.00 % | Passed |
| Peak Resultant Accel.: | 225-275 Gs | 244.88 Gs | Passed |
| Peak Lateral Accel.: | 15 Gs Max | 8.93 Gs | Passed |
| Curve PerCent NonModal: | < 10% | 3.75 % | Passed |

FMVSS 201U - Headform Calibration Drops

Headform Resultant

Max: 244.9 [g] at 0.002 [s]

Min: 0.0 [g] at -0.023 [s]



FMVSS 201U - Headform Calibration Drops CA5302 - May 24, 2010

