

REPORT NUMBER: 201-CAL-09-06

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

**GENERAL MOTORS DE MEXICO
2007 CHEVROLET HHR 4-DOOR**

NHTSA NUMBER: C70107
CALSPAN TEST NUMBER: 8884-01

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Test Date: March 4, 2009

FINAL REPORT

PREPARED FOR:

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16. <i>Abstract</i> Compliance tests were conducted on the subject vehicle, a 2007 Chevrolet HHR 4-door, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure TP-201-02 for determination of FMVSS 201 compliance. Test failures identified were as follows: NONE			
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SECTION 1

PURPOSE AND TEST PROCEDURE

This head impact compliance test is part of the FMVSS 201 Occupant Protection in Interior Impact Test Program sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-06-C-00031. This is a retest of a 2007 Chevrolet HHR 4-door, NHTSA No.C70107, which was tested on April 2, 2008, and the interior compartment door assembly (i.e. storage bin), located in the center of the instrument panel of the vehicle tested, did not remain closed as required by S5.3 of FMVSS 201, when the instrument panel was tested in accordance with S5.1. General Motors recalled and remedied the storage bin by providing a latch reinforcement plate that prevents inadvertent opening upon impact for those bins manufactured before May 8, 2008, (hereafter referenced as “Storage Bin A”) and for those manufactured afterwards redesigned the bin to incorporate the remedy (hereafter referenced as “Storage Bin B”). This test is intended to evaluate whether the subject vehicle conforms to the performance requirements of FMVSS 201, Occupant Protection in Interior Impact, when tested in accordance to the OVSC Laboratory Test Procedure No. TP-201-02 dated March 3, 1989.

SECTION 2

SUMMARY OF OCCUPANT PROTECTION IN INTERIOR IMPACTS

A 2007 Chevrolet HHR 4-door, NHTSA No. C70107, was impacted at various locations throughout its instrument cluster/dash panel and seat back area by a 6.8 kg (15 lb.), 165 mm (6.5 inch) diameter steel headform. A total of two (2) impacts were performed in this test series. The target area impacts were chosen by the NHTSA Contracting Officer's Technical Representative (COTR).

The two (2) chosen impact points were:

INSTRUMENT PANEL STORAGE BIN A WITH REPLACEMENT LATCH PLATE
INSTRUMENT PANEL STORAGE BIN B

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

The 165 mm (6.5 inch) diameter steel headform weighed 6.8 kg (15 lb.) and had an accelerometer mounted along the centerline of the head.

One (1) channel of data for each target impact test was recorded on a Keyser-Threde data acquisition system. Data plots can be found in Appendix B. Still photographs can be found in Appendix A.

To document each target area impact test, one 35mm camera picture was taken pre- and post-test at various locations to view the headform contact with the selected target areas. Real-time video footage was taken during impacting the target locations with the head impact test device.

HEAD FORM IMPACT TEST RESULTS INSTRUMENT PANEL

VEHICLE YEAR/MAKE/MODEL/STYLE:	2007 Chevrolet HHR 4-door
NHTSA NO.:	C70107
VIN:	3GNDA13D97S617345
DATE OF MANUFACTURE:	03/07 (SEE CERTIFICATION LABEL)
COLOR:	RED
ODOMETER READING:	45 km
LABORATORY:	Calspan
TEST DATE:	March 4, 2009

Article A. IMPACT LOCATION AND NUMBER				VELOCITY (kph)	PEAK ACCELERATION (3 ms Clip) Gs
TARGET	X (mm)	Y (mm)	ANGLE (degrees)		
INSTRUMENT PANEL STORAGE BIN A WITH REPLACEMENT LATCH PLATE	635	283	57	18.88	66.40
INSTRUMENT PANEL STORAGE BIN B	635	283	57	18.80	70.13

REFERENCE POINT:

Seating Reference Point (SGRP) on front passenger side is the reference point (x positive forward from SGRP and y positive to the right of the centerline of the vehicle).

REMARKS:

SUMMARY OF RESULTS

VEHICLE YEAR/MAKE/MODEL/STYLE:	2007 Chevrolet HHR 4-door
NHTSA NO.:	C70107
VIN:	3GNDA13D97S617345
DATE OF MANUFACTURE:	03/07 (SEE CERTIFICATION LABEL)
COLOR:	RED
ODOMETER READING:	45 km
LABORATORY:	Calspan
TEST DATE:	March 4, 2009

	NUMBER OF IMPACTS	PASS/FAIL
INSTRUMENT PANEL STORAGE BIN A WITH REPLACEMENT LATCH PLATE	1	PASS
INSTRUMENT PANEL STORAGE BIN B	1	PASS

REMARKS:

The instrument panel cover surrounding the air ducts, A/C and heating controls and radio separated along the upper perimeter.

APPENDIX A

PHOTOGRAPHS

PHOTOGRAPHS

<u>FIGURE</u>	<u>VIEW</u>
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	HEAD IMPACT LOCATION FIXTURE
A-8	LINEAR IMPACTOR
A-9	IMPACTOR ALIGNMENT
A-10	IMPACTOR ALIGNMENT
A-11	INSTRUMENT PANEL
A-12	DELINEATED INSTRUMENT PANEL IMPACT ZONE PRE-TEST
A-13	INSTRUMENT PANEL STORAGE BIN A PRE-TEST
A-14	INSTRUMENT PANEL STORAGE BIN A PRE-TEST
A-15	INSTRUMENT PANEL STORAGE BIN A PRE-TEST
A-16	INSTRUMENT PANEL STORAGE BIN A POST-TEST
A-17	INSTRUMENT PANEL STORAGE BIN A POST-TEST
A-18	INSTRUMENT PANEL STORAGE BIN A POST-TEST
A-19	INSTRUMENT PANEL STORAGE BIN B PRE-TEST
A-20	INSTRUMENT PANEL STORAGE BIN B PRE-TEST
A-21	INSTRUMENT PANEL STORAGE BIN B PRE-TEST
A-22	INSTRUMENT PANEL STORAGE BIN B POST-TEST
A-23	INSTRUMENT PANEL STORAGE BIN B POST-TEST
A-24	INSTRUMENT PANEL STORAGE BIN B POST-TEST



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: HEAD IMPACT LOCATION FIXTURE



Figure A-8: LINEAR IMPACTOR



Figure A-9: IMPACTOR ALIGNMENT

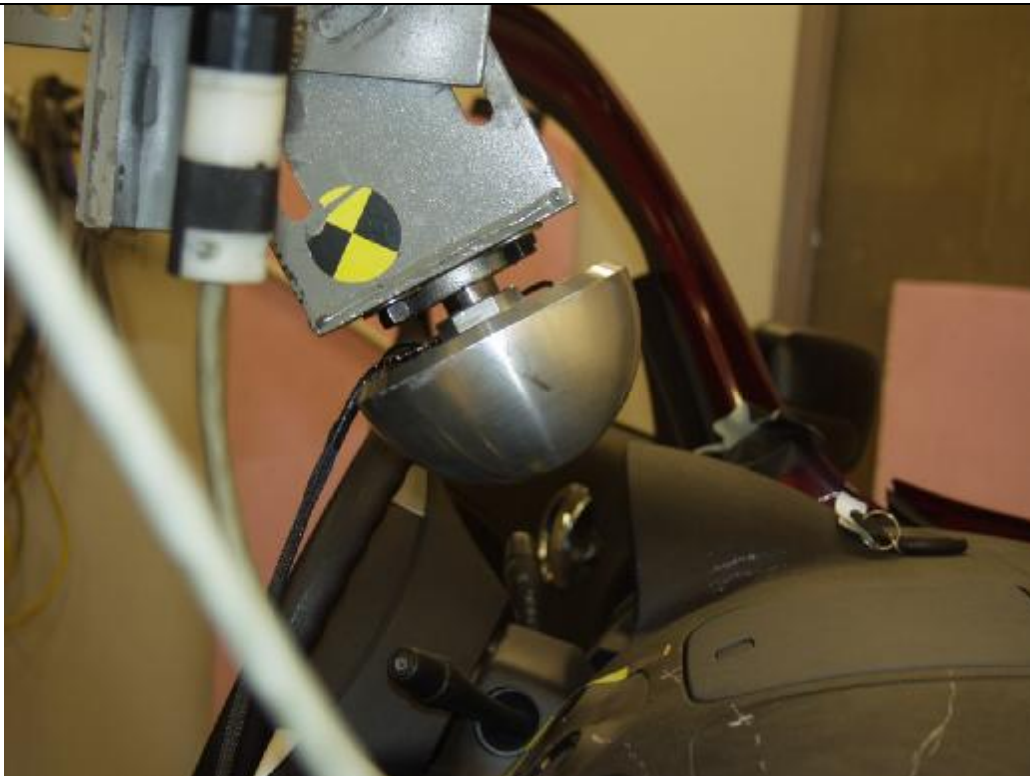


Figure A-10: IMPACTOR ALIGNMENT



Figure A-11: INSTRUMENT PANEL



Figure A-12: DELINEATED INSTRUMENT PANEL IMPACT ZONE PRE-TEST

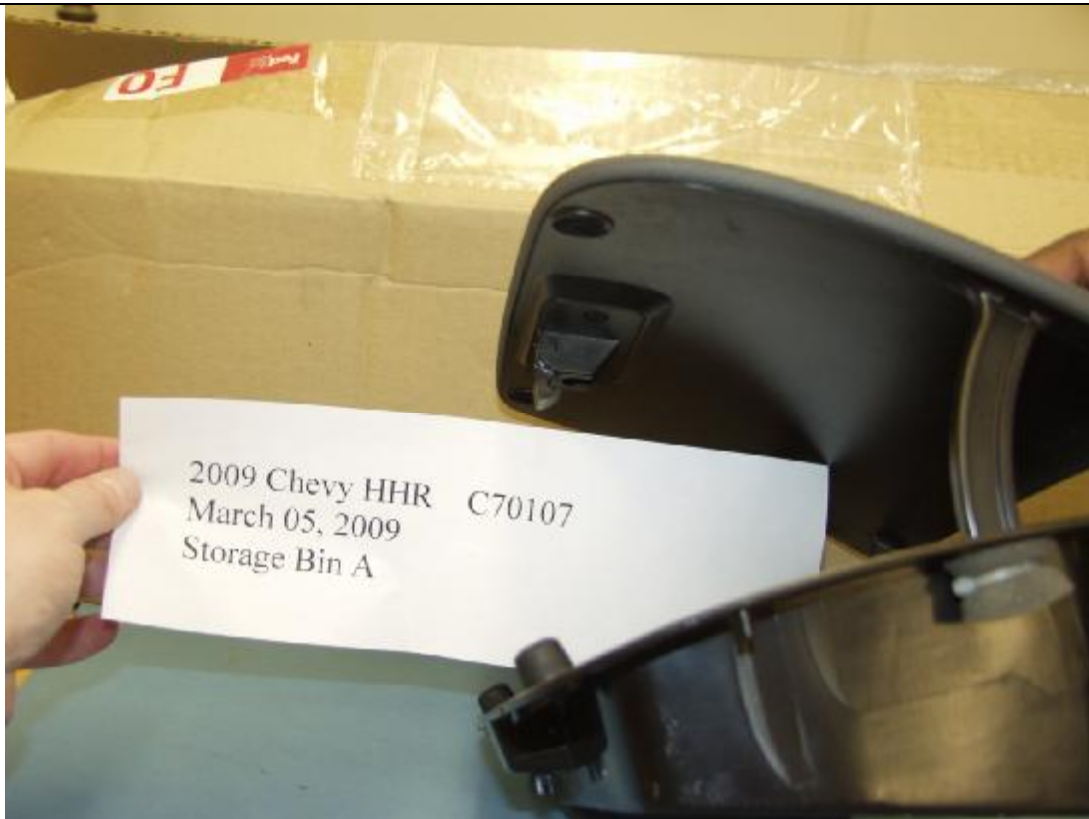


Figure A-13: INSTRUMENT PANEL STORAGE BIN A PRE-TEST



Figure A-14: INSTRUMENT PANEL STORAGE BIN A PRE-TEST

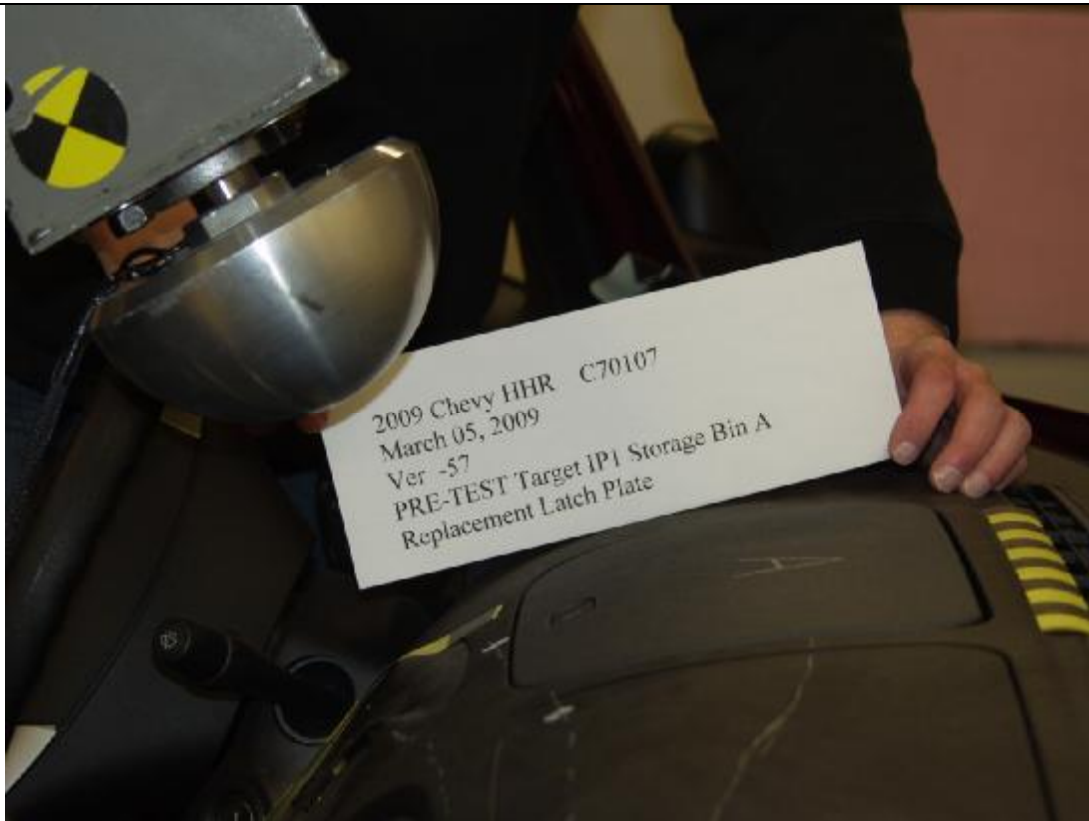


Figure A-15: INSTRUMENT PANEL STORAGE BIN A PRE-TEST

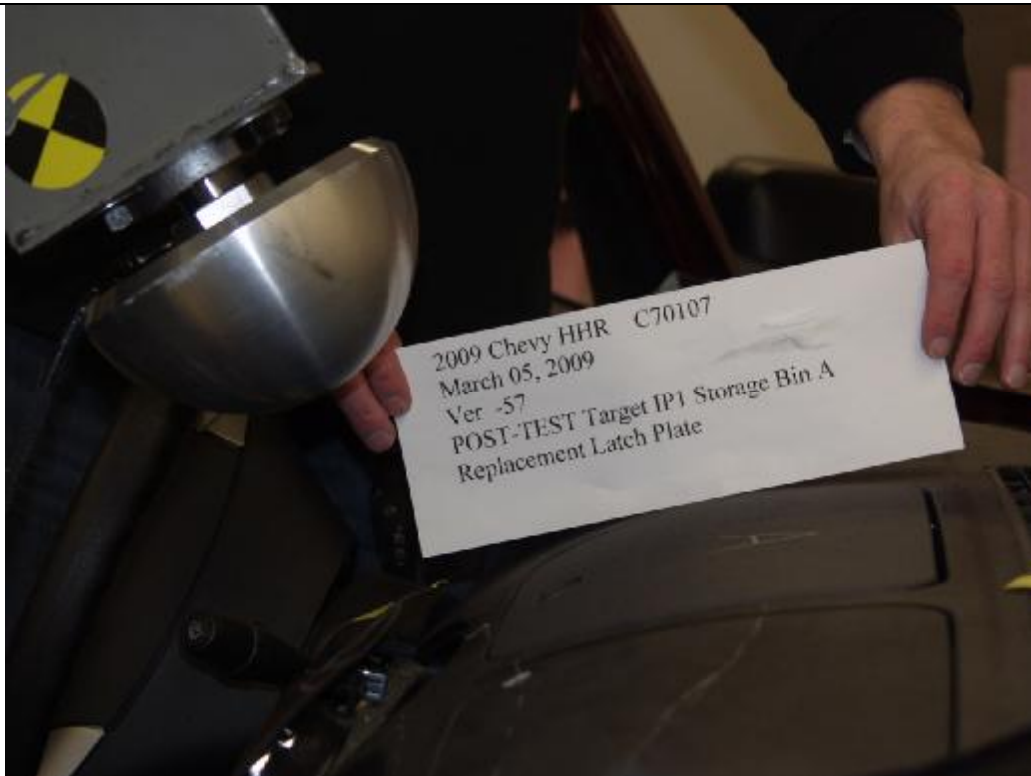


Figure A-16: INSTRUMENT PANEL STORAGE BIN A POST-TEST



Figure A-17: INSTRUMENT PANEL STORAGE BIN A POST-TEST



Figure A-18: INSTRUMENT PANEL STORAGE BIN A POST-TEST



Figure A-19: INSTRUMENT PANEL STORAGE BIN B PRE-TEST

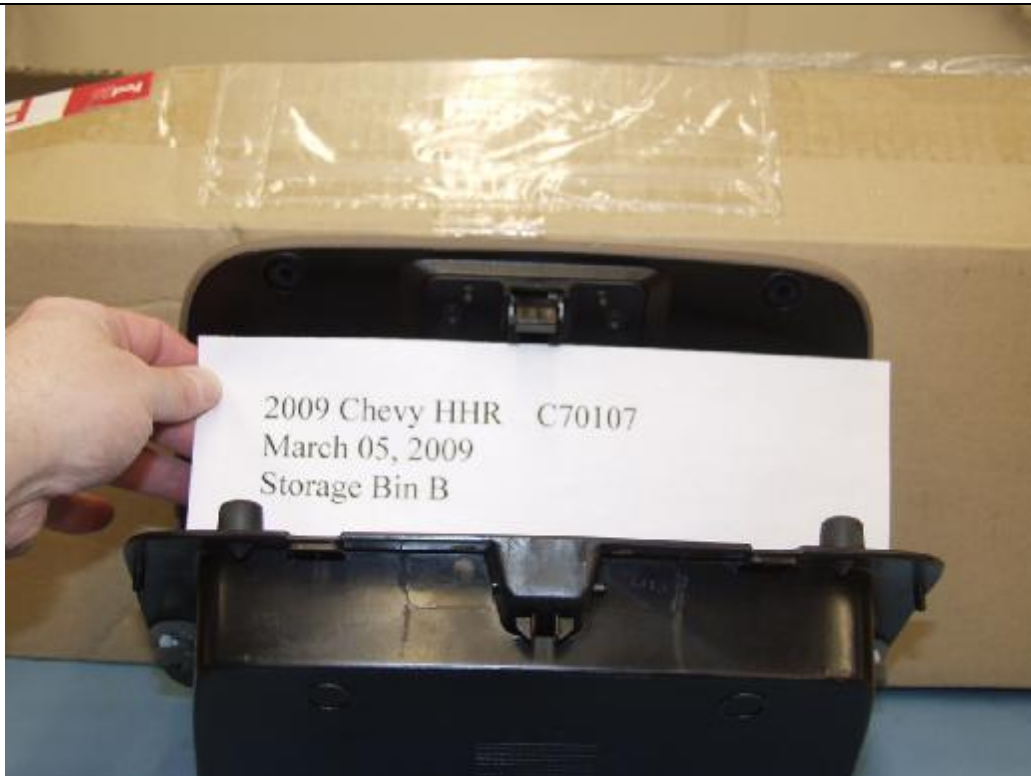


Figure A-20: INSTRUMENT PANEL STORAGE BIN B PRE-TEST

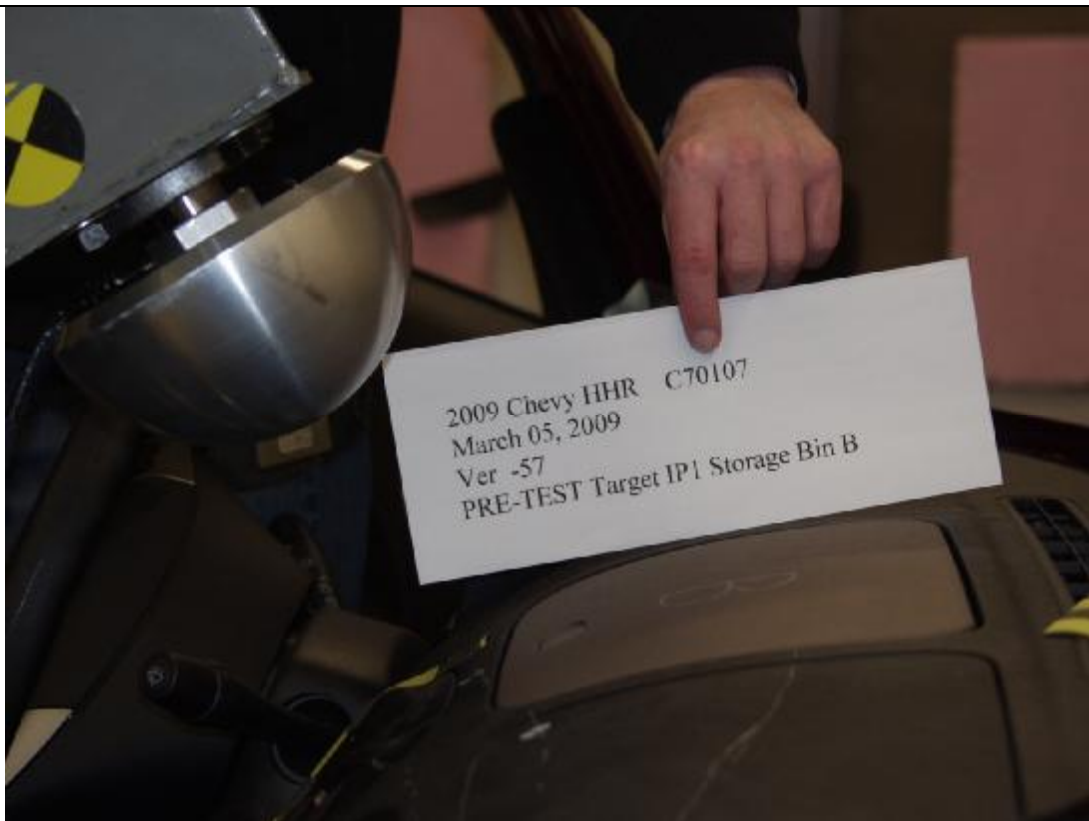


Figure A-21: INSTRUMENT PANEL STORAGE BIN B PRE-TEST

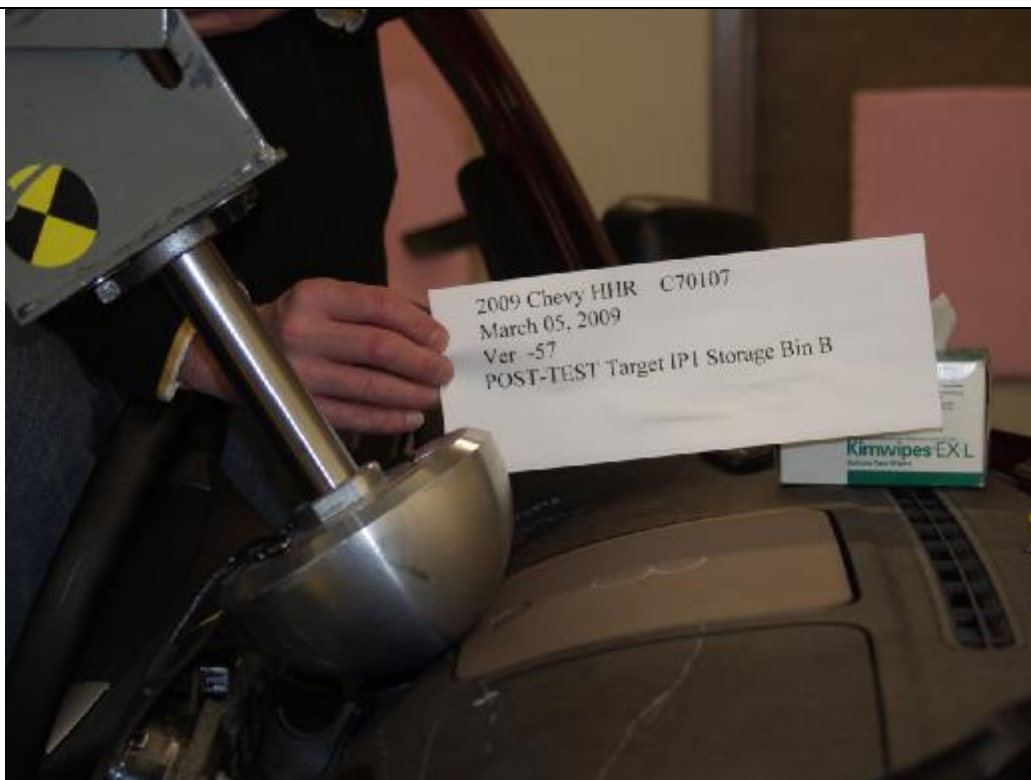


Figure A-22: INSTRUMENT PANEL STORAGE BIN B POST-TEST



Figure A-23: INSTRUMENT PANEL STORAGE BIN B POST-TEST



Figure A-24: INSTRUMENT PANEL STORAGE BIN B POST-TEST

APPENDIX B

DATA PLOTS

FMVSS 201 Linear Impact - 2007 Chevrolet HHR -SB A

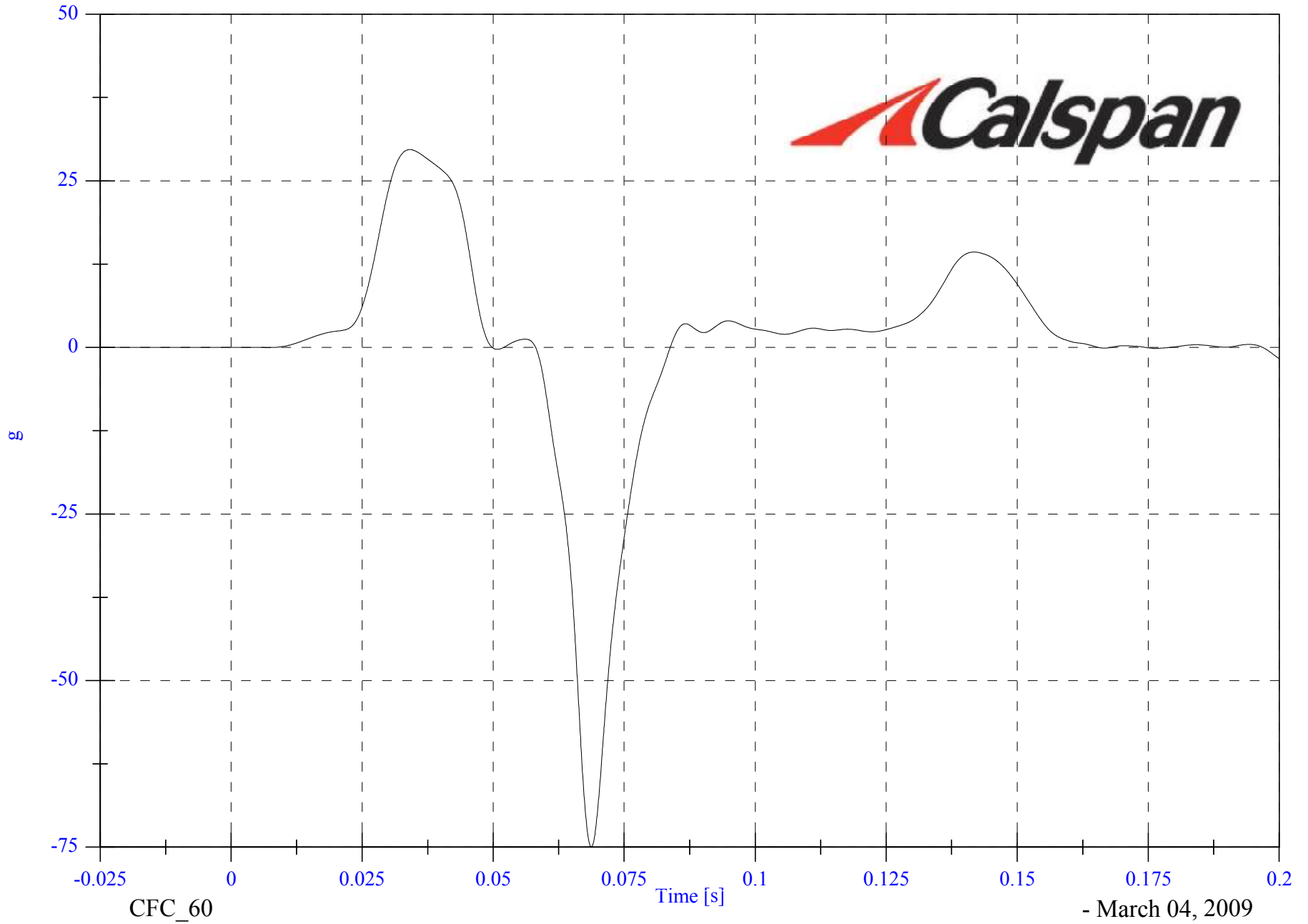
Impactor Headform Ax

Max: 29.7 [g] at 0.034 [s]

Min: -75.0 [g] at 0.069 [s]



C70107 STORAGE BIN A WITH REPLACEMENT LATCH IMPACT PLOT #1

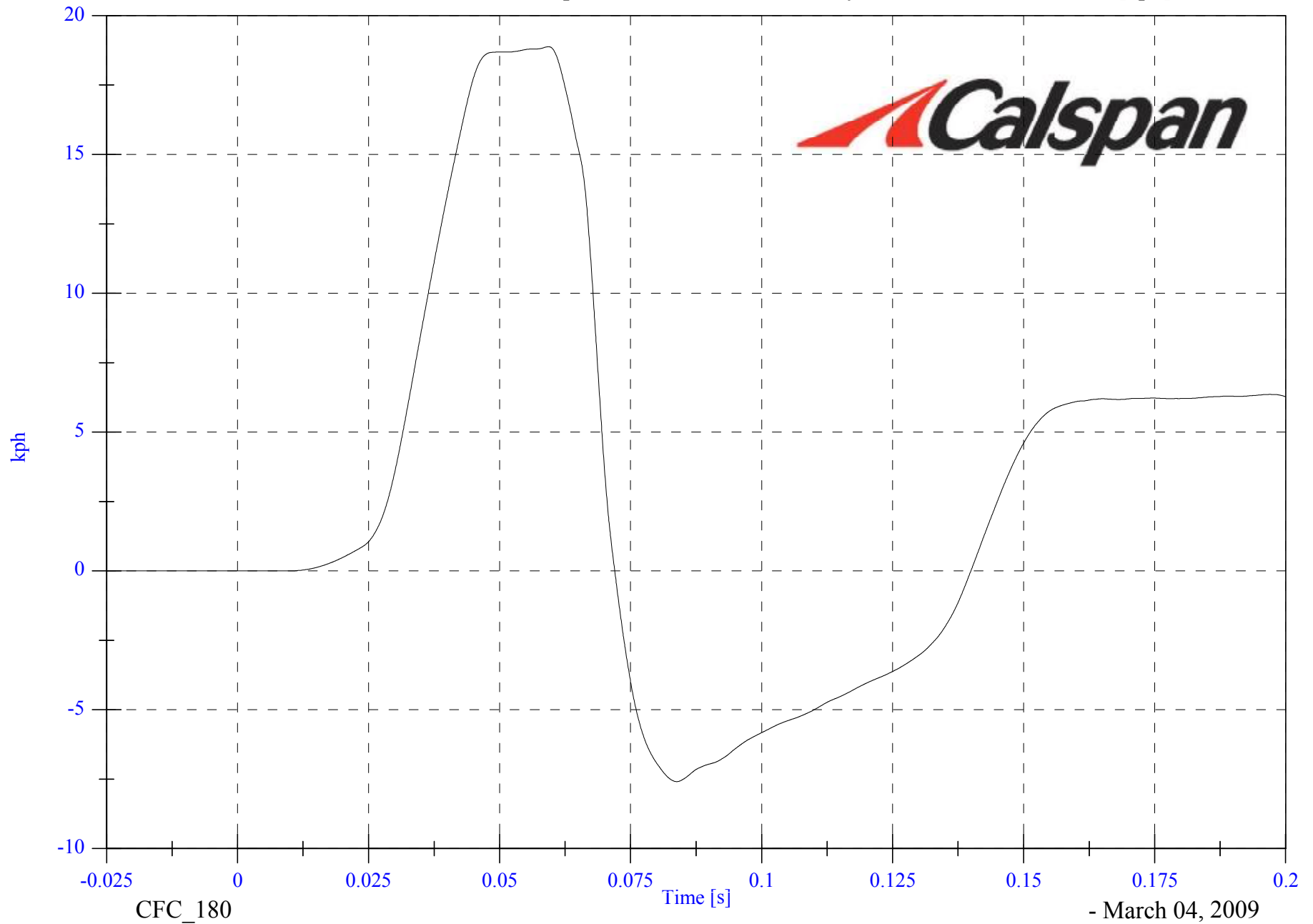


FMVSS 201 Linear Impact - 2007 Chevrolet HHR -SB A

Impactor Headform Ax Velocity

Max: 18.9 [kph] at 0.059 [s]

Min: -7.6 [kph] at 0.084 [s]



C70107 STORAGE BIN A WITH REPLACEMENT LATCH IMPACT PLOT #2

FMVSS 201 Linear Impact - 2007 Chevrolet HHR -SB B

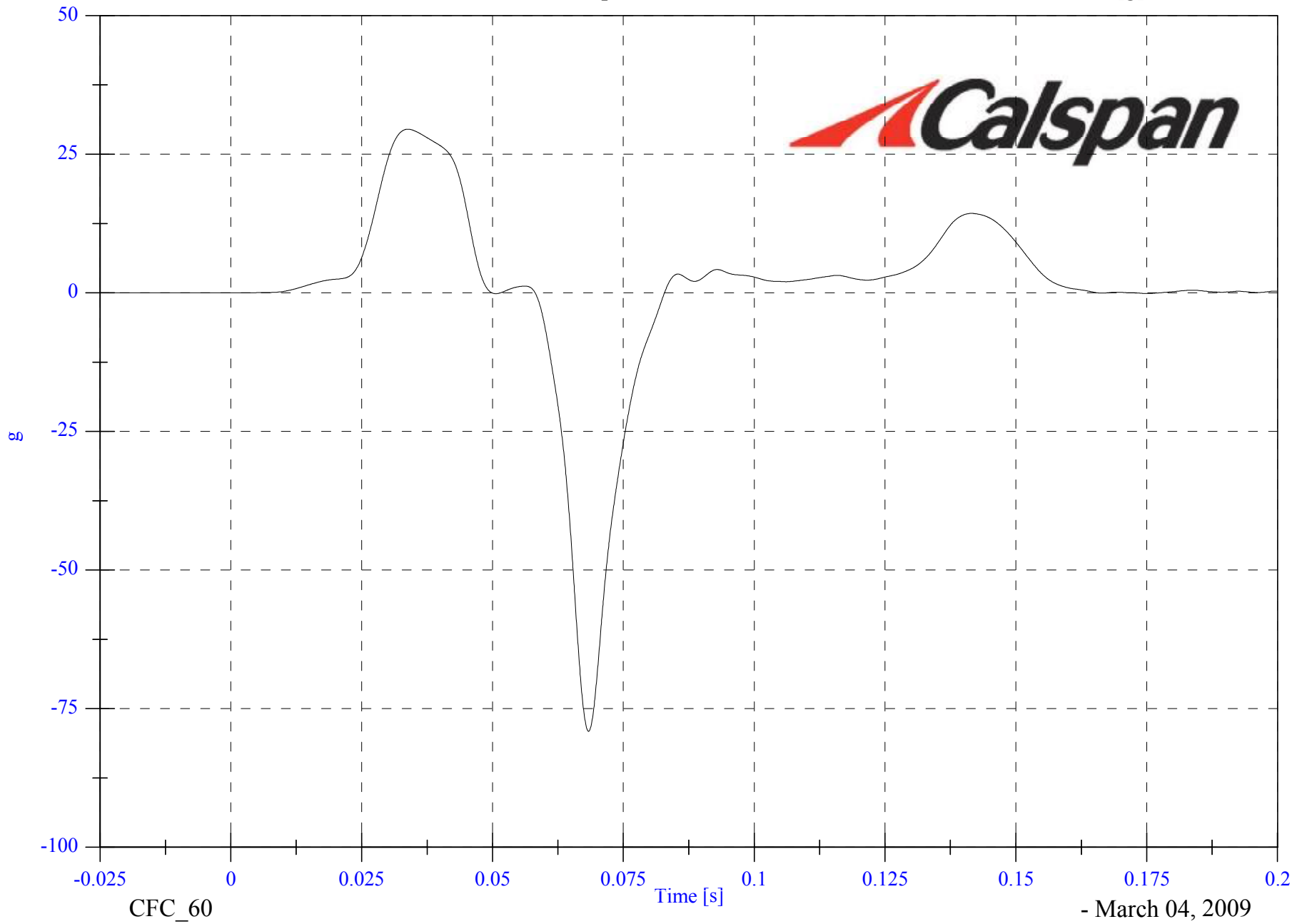
Impactor Headform Ax

Max: 29.5 [g] at 0.034 [s]

Min: -79.1 [g] at 0.068 [s]



C70107 STORAGE BIN B IMPACT PLOT #1



FMVSS 201 Linear Impact - 2007 Chevrolet HHR -SB B

Impactor Headform Ax Velocity

Max: 18.8 [kph] at 0.059 [s]

Min: -8.5 [kph] at 0.083 [s]



C70107 STORAGE BIN B IMPACT PLOT #2

