

SAFETY PRE-STANDARD TESTING FOR FMVSS 201U
Occupant Protection In Interior Impact
Upper Interior Head Impact Protection

HONDA OF AMERICA MFG., INC.
1996 Honda Accord 4-Door
NHTSA No. PT5300

MGA RESEARCH CORPORATION
446 Executive Drive
Troy, Michigan 48083



Test Dates: August 26-27, 2004
Report Date: August 30, 2004

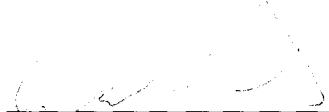
FINAL REPORT

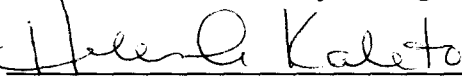
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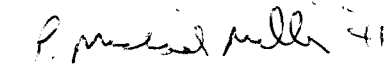
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16. Abstract A pre-standard test series was conducted on the subject 1996 Honda Accord 4-Door, NHTSA No. PT5300, in accordance with the specifications of the Office of Vehicle Safety Compliance Test Procedure No. TP-201U-01 for the determination of FMVSS 201U pre-standard compliance. The testing was conducted at MGA Research Corporation in Troy, Michigan on August 26-27, 2004.			
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1.0 PURPOSE OF COMPLIANCE TEST

The purpose of this head impact pre-standard test series was to measure the performance of the subject vehicle, a 1996 Honda Accord 4-Door, for FMVSS 201U, Occupant Protection in Interior Impact - Upper Interior Head Impact Protection.

Tests were conducted on August 26-27, 2004 on a 1996 Honda Accord 4-Door, manufactured by Honda of America Mfg., Inc.

All tests were conducted in accordance with the U. S. Department of Transportation, National Highway Traffic Safety Administration's Laboratory Test Procedure TP-201U-01 dated April 3, 1998 and the corresponding MGA Research Corporation's FMVSS 201U procedure number MGATP201U_FRAME#2 dated March 20, 2003.

All tests were conducted at MGA Research Corporation in Troy, Michigan and were performed by MGA engineers and technicians. The FMVSS 201U impactor test machine was used to conduct the testing. Target locations were determined by using a Coordinate Measurement Machine in conjunction with the MGA EZ-Target™ program and MGA procedure MGATP201U_Test Series dated March 20, 2003.

2.0 TEST DATA SUMMARY

The 1996 Honda Accord 4-Door was equipped with A, B, and Rear-pillars, an adjustable seat belt anchorage on each B-Pillar, a fixed seat belt anchorage on each rear-pillar, a grab handle above the passenger door and both rear doors, and a light console in the front center and in the center of the upper roof.

Upon completion of targeting the test vehicle, ten (10) targets were chosen to be impacted based upon engineering judgment and discussion with the COTR. Targets were chosen which appeared most likely to give high HIC(d) values. The ten (10) targets chosen were:

AP2	SR1	UR2	UR5
BP2	SR2A	UR3	
RP2	SR3-2	UR4	

TABLE 2-1
SUMMARY TABLE OF TEST RESULTS

VEH. MOD YR/MAKE/MODEL/BODY: 1996 Honda Accord 4-Door

VEH. NHTSA NO.: PT5300 VIN: 1HGCD5632TA COLOR: Tan

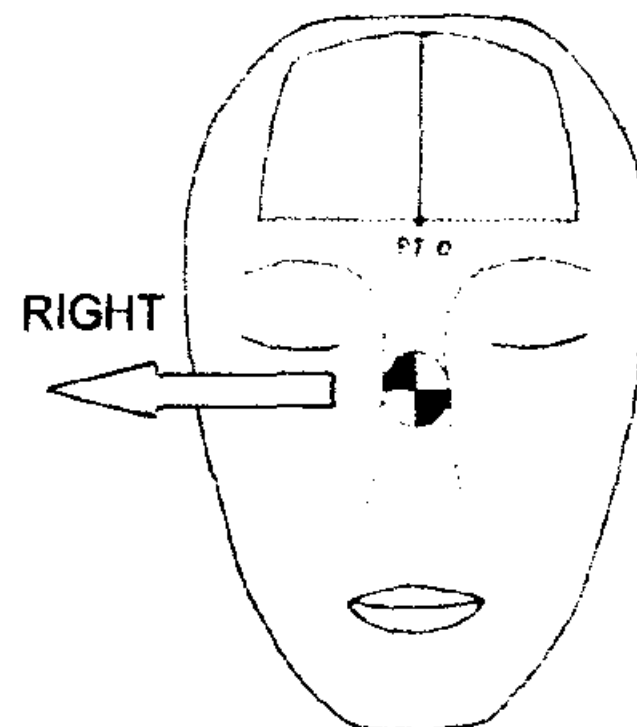
VEH. BUILD DATE: September, 1995 TEST DATES: August 26-27, 2004

TEST LABORATORY: MGA Research Corporation

OBSERVERS: David Gotwals, Nicholas Brzuch, Scott Krieger

TARGET	VEHICLE SIDE	HORIZONTAL ANGLE (deg)	VERTICAL ANGLE (deg)	VELOCITY (kph)	HIC(d)	FMH HIC	IMPACT ON FMH (mm)	
							Above	Left/Right
AP2	Left	206	50	23.9	1036	1152	20	0
BP2	Right	90	20	23.7	804	846	20	6 Left
RP2	Right	80	8	24.0	600	575	28	0
SR1	Left	270	27	23.9	1220	1396	38	0
SR2A	Left	270	29	24.0	1248	1433	25	0
SR3-2	Right	90	32	24.0	711	722	5	0
UR2	Left	270	38	23.8	741	762	50	0
UR3	Left	270	50	23.8	886	954	32	12 Left
UR4	Right	90	46	23.9	832	882	44	3 Left
UR5	Right	90	39	23.9	816	860	55	2 Left

Above and left/right refers to the position relative to reference pt. 0 where the target made contact with the Free Motion Headform. See the diagram below for details.



POST TEST COMMENTS:

The following description lists any post-test damage or other test observations for each target.

SR2A Left: Headliner deformation.

SR3-2 Right: The grab handle broke.

UR2 Left: Headliner deformation.

UR3 Left: Headliner deformation.

UR4 Right: Headliner deformation and the grab handle broke.

UR5 Right: Headliner deformation.

No damage was observed for any other targets.

REMARKS:

The targets listed were impacted in the following order:

Left: AP2, SR1, SR2A, UR2, UR3

Right: UR4, BP2, SR3-2, UR5, RP2

The 150 mm rule was observed for targets horizontal to each other and the 200 mm rule was observed for vertical components.

RECORDED BY: David G. Gotwals

DATE: August 28, 2004

APPROVED BY: Helen A. Kaleto

TABLE 2-2

GENERAL TEST AND VEHICLE PARAMETER DATA

VEH. MOD YR/MAKE/MODEL/BODY: 1996 Honda Accord 4-Door

VEH. NHTSA NO.: PT5300 VIN: 1HGCD5632TA COLOR: Tan

VEH. BUILD DATE: September, 1995 TEST DATES: August 26-27, 2004

TEST LABORATORY: MGA Research Corporation

OBSERVERS: David Gotwals, Nicholas Brzuch, Scott Krieger

INTERIOR TRIM INFORMATION: A, B, and Rear-pillars, an adjustable seat belt anchorage on each B-Pillar, a fixed seat belt anchorage on each rear-pillar, a grab handle above the passenger door and both rear doors, and a light console in the front center and in the center of the upper roof.

SUNROOF INFORMATION:

Installed: Yes X No
 Operation: Electric Manual

ROLL-BAR INFORMATION:

Installed: Yes X No
 Padded: Yes X No
 Braces: Yes X No

GENERAL INFORMATION:

Date Received: 8/24/04; Odometer Reading: 108,593 miles

DATA FROM VEHICLE'S CERTIFICATION LABEL:

Vehicle Manufactured By: Honda of America Mfg., Inc.

Date of Manufacture: September, 1995; VIN: 1HGCD5632TA

GVWR: 1776 kg;

GAWR FRONT: 971 kg

GAWR REAR: 821 kg

DATA FROM TIRE PLACARD:

Tire Pressure with Maximum Capacity Vehicle Load:

FRONT: 220 kpa REAR: 220 kpaRecommended Tire Size: P185/65R15

Recommended Cold Tire Pressure:

FRONT: 220 kpa REAR: 220 kpaSize of Tire on Test Vehicle: P185/65R15Type of Spare Tire: T115/70D14; Space Saver: X; Standard:

VEHICLE CAPACITY DATA:

Type of Front Seats: Bench ; Bucket X; Split Bench Number of Occupants: Front 2; Rear 3; TOTAL 5VEHICLE CAPACITY WEIGHT (VCW) = 385 kgNo. of Occupants x 68 kg = 340 kgRated Cargo/Luggage Weight (RCLW) = 45 kg (difference)

WEIGHT OF TEST VEHICLE AS DELIVERED AT LABORATORY: (with maximum fluids)

Right Front = 416.5 kg Right Rear = 253.0 kgLeft Front = 414.5 kg Left Rear = 264.0 kgTOTAL FRONT = 831.0 kg TOTAL REAR = 517.0 kg% Total Weight = 61.6 % % Total Weight = 38.4 %TOTAL DELIVERED WEIGHT = 1348.0 kg

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Delivered Weight = 1348.0 kgRated Cargo/Luggage Wt. = 45.0 kgTARGET TEST WEIGHT 1393.0 kg

WEIGHT OF TEST VEHICLE:

Right Front =	<u>413.0</u> kg	Right Rear =	<u>271.5</u> kg
Left Front =	<u>414.5</u> kg	Left Rear =	<u>293.0</u> kg
TOTAL FRONT =	<u>827.5</u> kg	TOTAL REAR =	<u>564.5</u> kg
% Total Weight =	<u>59.4</u> %	% Total Weight =	<u>40.6</u> %
TOTAL DELIVERED WEIGHT = <u>1392.0</u> kg			
Weight of ballast secured in vehicle's cargo area = <u>45</u> kg			

TEST VEHICLE ATTITUDE:

AS DELIVERED: Right Front 700.0 mm; Left Front 702.0 mm;
 Right Rear 690.0 mm; Left Rear 691.0 mm
 Pitch Angle at Right Door Sill = 0.1 Rear higher
 Pitch Angle at Left Door Sill = 0.1 Front higher
 Roll Angle at Front Bumper = 0.5 Right side higher
 Roll Angle at Rear Bumper = 0.2 Right side higher

FULLY LOADED: Right Front 705.0 mm; Left Front 710.0 mm;
 Right Rear 676.0 mm; Left Rear 681.0 mm;
 Pitch Angle at Right Door Sill = 0.2 Front higher
 Pitch Angle at Left Door Sill = 0.3 Front higher
 Roll Angle at Front Bumper = 0.2 Right side higher
 Roll Angle at Rear Bumper = 0.1 Right side higher

AS TARGETED: Right Front 881.0 mm; Left Front 879.0 mm;
 Right Rear 877.0 mm; Left Rear 880.0 mm;
 Pitch Angle at Right Door Sill = 0.1 Rear higher
 Pitch Angle at Left Door Sill = 0.1 Front higher
 Roll Angle at Front Bumper = 0.5 Right side higher
 Roll Angle at Rear Bumper = 0.2 Right side higher

AS TESTED ON RIGHT SIDE:

Pitch Angle at Right Door Sill = 0.1 Rear higher
 Pitch Angle at Left Door Sill = 0.1 Front higher
 Roll Angle at Front Bumper = 0.5 Right side higher
 Roll Angle at Rear Bumper = 0.2 Right side higher

AS TESTED ON LEFT SIDE:

Pitch Angle at Right Door Sill = 0.0Pitch Angle at Left Door Sill = 0.1 Front higherRoll Angle at Front Bumper = 0.5 Right side higherRoll Angle at Rear Bumper = 0.2 Right side higherVEHICLE WHEELBASE = 2725 mm

REMARKS: The seat travel distance was measured to be 200 mm for the driver front seat and 205 mm for the passenger front seat.

RECORDED BY: David G. GotwalsDATE: August 24, 2004APPROVED BY: Helen A. Kaleto

TABLE 2-3

HORIZONTAL IMPACT ANGLE RANGE FOR A AND B PILLARS

VEH. MOD YR/MAKE/MODEL/BODY: 1996 Honda Accord 4-DoorVEH. NHTSA NO.: PT5300 VIN: 1HGCD5632TA COLOR: TanVEH. BUILD DATE: September, 1995 TEST DATES: August 26-27, 2004TEST LABORATORY: MGA Research CorporationOBSERVERS: David Gotwals, Nicholas Brzuch, Scott Krieger

HORIZONTAL IMPACT ANGLE RANGE FOR A AND B PILLARS

	HORIZONTAL ANGLE SPECIFIED RANGE	MINIMUM HORIZONTAL ANGLE	MAXIMUM HORIZONTAL ANGLE
A-PILLAR	L 195°-255°	L 205.3°	L 249.2°
	R 105°-165°	R 110.8°	R 154.9°
B-PILLAR	L 195°-345°	L 201.9°	L 282.2°
	R 15°-165°	R 78.3°	R 165.0°

AS DETERMINED USING THE PROCEDURES SPECIFIED IN S8.13.4.1

REMARKS:

RECORDED BY: David G. GotwalsDATE: August 24, 2004APPROVED BY: Helen A. Kaleto

TABLE 2-4

VERTICAL IMPACT ANGLE RANGES

VEH. MOD YR/MAKE/MODEL/BODY: 1996 Honda Accord 4-DoorVEH. NHTSA NO.: PT5300 VIN: 1HGCD5632TA COLOR: TanVEH. BUILD DATE: September, 1995 TEST DATES: August 26-27, 2004TEST LABORATORY: MGA Research CorporationOBSERVERS: David Gotwals, Nicholas Brzuch, Scott Krieger

VERTICAL IMPACT ANGLE RANGES

		VERTICAL ANGLE SPECIFIED RANGE	MINIMUM VERTICAL ANGLE	MAXIMUM VERTICAL ANGLE
FRONT HEADER	FH1	L 0°-50°	L 0°	L 31°
		R 0°-50°	R 0°	R 31°
	FH2	L 0°-50°	L 0°	L 31°
		R 0°-50°	R 0°	R 31°
SIDE RAIL	SR1	L 0°-50°	L 0°	L 27°
		R 0°-50°	R 0°	R 30°
	SR2A	L 0°-50°	L 0°	L 29°
		R 0°-50°	R 0°	R 28°
	SR2B	L 0°-50°	L 0°	L 28°
		R 0°-50°	R 0°	R 32°
	SR3-1	L 0°-50°	L 0°	L 28°
		R 0°-50°	R 0°	R 31°
	SR3-2	L 0°-50°	L 0°	L 29°
		R 0°-50°	R 0°	R 32°
A-PILLAR	AP1	L -5°-50°	L -5°	L 33°
		R -5°-50°	R -5°	R 30°
	AP2	L -5°-50°	L -5°	L 50°
		R -5°-50°	R -5°	R 50°
	AP3	L -5°-50°	L -5°	L 39°
		R -5°-50°	R -5°	R 41°

		VERTICAL ANGLE SPECIFIED RANGE		MINIMUM VERTICAL ANGLE		MAXIMUM VERTICAL ANGLE	
B-PILLAR	BP1	L	-10°-50°	L	-10°	L	13°
		R	-10°-50°	R	-10°	R	11°
	BP2*	L	0°-50°	L	0°	L	20°
		R	0°-50°	R	0°	R	20°
	BP3	L	-10°-50°	L	-10°	L	1°
		R	-10°-50°	R	-10°	R	-2°
	BP4	L	-10°-50°	L	-10°	L	-6°
		R	-10°-50°	R	-10°	R	-5°
REAR PILLAR	RP1	L	-10°-50°	L	-10°	L	13°
		R	-10°-50°	R	-10°	R	14°
	RP2*	L	0°-50°	L	0°	L	8°
		R	0°-50°	R	0°	R	8°
REAR HEADER	RH	L	0°-50°	L	-10°	L	50°
		R	0°-50°	R	-10°	R	50°
UPPER ROOF 1		0°-50°		0°		50°	
UPPER ROOF 2		0°-50°		0°		38°	
UPPER ROOF 3		0°-50°		0°		50°	
UPPER ROOF 4		0°-50°		0°		46°	
UPPER ROOF 5		0°-50°		0°		39°	
UPPER ROOF 6		0°-50°		0°		50°	

As determined using the Procedures specified in S8.13.4.2. *Targets BP2 and RP2 are seat belt anchorage locations.

RECORDED BY: David G. Gotwals

DATE: August 24, 2004

APPROVED BY: Helen A. Kaleto

TABLE 2-5

TARGET MEASUREMENTS

VEH. MOD YR/MAKE/MODEL/BODY: 1996 Honda Accord 4-DoorVEH. NHTSA NO.: PT5300 VIN: 1HGCD5632TA COLOR: TanVEH. BUILD DATE: September, 1995 TEST DATES: August 26-27, 2004TEST LABORATORY: MGA Research CorporationOBSERVERS: David Gotwals, Nicholas Brzuch, Scott Krieger

Measurement	Description	Left Side	Right Side
M	Seat Fore/Aft Travel (Front seats)	200 mm	205 mm
T°	Horizontal ∠ {CG-F1 (Left Seat) to (Right A-Pillar)}	110.8°	--
A1°	360° - T°	249.2°	--
W°	Horizontal ∠ {CG-2 (Left Seat) to (Left A-Pillar)}	205.3°	--
A2°	A2° = W°	205.3°	--
U°	Horizontal ∠ {CG-2 (Left Seat) to (Left B-Pillar)}	282.2°	--
B1°	B1° = U°	282.2°	--
V°	Horizontal ∠ {CG-R (Left Seat) to (Left B-Pillar)}	201.9°	--
B2°	B2° = V°	201.9°	--
W° (right)	Horizontal ∠ {CG-F2 (Right Seat) to (Right A-Pillar)}	--	154.9°
A1° (right)	A1° (right) = W° (right)	--	154.9°
T° (right)	Horizontal ∠ {CG-F1 (Right Seat) to (Left A-Pillar)}	--	249.2°
A2° (right)	360° - T° (right)	--	110.8°
V° (right)	Horizontal ∠ {CG-R (Right Seat) to (Right B-Pillar)}	--	172.8°
B1° (right)	B1° (right) = V° (right)	--	165.0°
U° (right)	Horizontal ∠ {CG-F2 (Right Seat) to (Right B-Pillar)}	--	78.3°
B2° (right)	B2° (right) = U° (right)	--	78.3°
J	A-Pillar {(Plane 3) - (Plane 5)}	386.2 mm	384.4 mm
J/2	J ÷ 2	193.1 mm	192.2 mm
D1	Upper Roof {(Plane A) - (Plane B)}	1482.0 mm	
D1/2	D1 ÷ 2	741.0 mm	
D2	Upper Roof {(Plane C) - (Plane D)}	1107.5 mm	
D2/2	D2 ÷ 2	553.8 mm	
.35D1	.35 x D1	518.7 mm	

Measurement	Description	Left Side	Right Side
.35D2	.35 x D2	387.6 mm	
N	B-Pillar {(BPR) - (lowest point on daylight opening forward of B-Pillar)}	447.4 mm	451.9 mm
N/2	B-Pillar {(BP3) - (lowest point on daylight opening forward of B-Pillar)}	223.7 mm	226.0 mm
N/4	B-Pillar {(BP4) - (lowest point on daylight opening forward of B-Pillar)}	111.9 mm	113.0 mm
D	R-Pillar (Point 7 - Point M)	644.0 mm	644.0 mm
D/2	D / 2	322.0 mm	322.0 mm
3D/7	3 D / 7	276.0 mm	276.0 mm

As determined using the Procedures specified in S10.1-10.13.

SgRP Locations (vehicle coordinates)						
	Left (mm)			Right (mm)		
	x	y	z	x	y	z
Front	1873.4	-358.2	676.7	1873.4	358.2	676.7
Rear	2653.2	-358.2	676.7	2653.2	358.2	676.7

SgRP Locations (world coordinates)						
	Left (mm)			Right (mm)		
	x	y	z	x	y	z
Front	1873.7	-358.6	676.7	1873.7	357.9	676.7
Rear	2653.7	-359.0	676.2	2653.7	357.6	676.2

CG Locations (world coordinates)						
	Left (mm)			Right (mm)		
	x	y	z	x	y	z
CGF1	1833.7	-358.6	1336.7	1828.7	357.9	1336.7
CGF2	2033.7	-358.6	1336.7	2033.7	357.9	1336.7
CGR	2813.7	-359.0	1336.2	2813.7	357.6	1336.2

REFERENCE FOR VEHICLE COORDINATE SYSTEM:

REMARKS: Left upper door striker (x, y, z) = (1985.0, -769.0, 843.0)

Left outboard seat anchorage (top of bolt) (x, y, z) = (1526.0, -596.0, 472.0)

RECORDED BY: David G. Gotwals DATE: August 24, 2004

APPROVED BY: Helen A. Kalet

TABLE 2-6

SUMMARY OF TARGETING RESULTS

VEH. MOD YR/MAKE/MODEL/BODY: 1996 Honda Accord 4-DoorVEH. NHTSA NO.: PT5300 VIN: 1HGCD5632TA _____ COLOR: TanVEH. BUILD DATE: September, 1995 TEST DATES: August 26-27, 2004TEST LABORATORY: MGA Research CorporationOBSERVERS: David Gotwals, Nicholas Brzuch, Scott Krieger

SUMMARY OF TARGETING RESULTS								
Target	Location (mm)			Horizontal Angle (deg)	Vertical Angle (deg)	Relocation (Yes/No)	Extension (# of 25 mm Spheres)	Impact (Yes/No)
	x	y	z					
A-Pillar Left Side								
AP1	1659.2	-480.7	1493.5	--	--	Yes	--	--
REL	1670.6	-496.8	1472.9	249	33	--	1	No
AP2	1623.7	-573.8	1406.3	206	50	No	--	Yes
AP3	1399.7	-623.5	1299.9	225	39	No	--	No
A-Pillar Right Side								
AP1	1658.9	480.7	1491.7	--	--	Yes	--	--
REL	1667.9	492.3	1476.1	111	30	--	1	No
AP2	1626.7	577.3	1404.4	154	50	No	--	No
AP3	1405.7	621.9	1301.4	135	41	No	--	No
B-Pillar Left Side								
BP1	2132.1	-460.5	1532.7	270	13	No	--	No
BP2	2102.3	-583.1	1303.1	270	20	No	--	No
BP3	2069.1	-611.8	1309.6	--	--	Yes	--	--
REL	2060.1	-617.5	1313.2	282	1	--	1	No
BP4	2138.7	-685.6	1199.0	210	-6	No	--	No
B-Pillar Right Side								
BP1	2136.5	459.7	1532.8	90	11	No	--	No
BP2	2104.7	582.8	1299.9	90	20	No	--	Yes
BP3	2070.6	611.2	1307.4	--	--	Yes	--	--
REL	2060.4	617.1	1311.1	79	-2	--	1	No
BP4	2139.2	689.3	1195.5	160	-5	No	--	No

SUMMARY OF TARGETING RESULTS								
Target	Location (mm)			Horizontal Angle (deg)	Vertical Angle (deg)	Relocation (Yes/No)	Extension (# of 25 mm Spheres)	Impact (Yes/No)
	x	y	z					
Rear Pillar Left Side								
RP1	2864.5	-486.9	1485.8	270	13	No	--	No
RP2	2983.7	-545.4	1374.1	--	--	Yes	--	--
REL	2946.4	-530.6	1406.8	280	8	--	2	No
Rear Pillar Right Side								
RP1	2866.6	465.5	1484.6	90	14	No	--	No
RP2	2990.0	548.6	1374.0	--	--	Yes	--	--
REL	2952.1	534.2	1406.7	80	8	--	2	Yes
Front Header Left Side								
FH1	1576.7	-357.3	1484.3	180	31	No	--	No
FH2	1557.5	-209.2	1488.8	180	31	No	--	No
Front Header Right Side								
FH1	1580.5	358.7	1485.3	180	31	No	--	No
FH2	1560.3	211.1	1488.1	180	31	No	--	No
Side Rail Left Side								
SR1	1810.1	-472.1	1510.7	270	27	No	--	Yes
SR2A	1959.6	-465.2	1522.8	270	29	No	--	Yes
SR2B	1831.5	-471.4	1514.6	270	28	No	--	No
SR3-1	2450.8	-484.5	1477.4	270	28	No	--	No
SR3-2	2678.7	-490.1	1461.4	270	29	No	--	No
Side Rail Right Side								
SR1	1808.6	471.9	1510.9	--	--	Yes	--	--
REL	1788.2	486.1	1468.8	90	30	--	2	No
SR2A	1958.0	466.0	1522.9	--	--	Yes	--	--
REL	1982.1	479.9	1482.6	90	28	--	2	No
SR2B	1835.8	470.8	1513.5	--	--	Yes	--	--
REL	1839.3	484.3	1468.6	90	32	--	2	No
SR3-1	2451.3	482.3	1479.1	90	31	No	--	No
SR3-2	2676.5	491.9	1462.4	90	32	No	--	Yes
Rear Header Left Side								
RH	2848.8	-359.1	1512.8	0	50	No	--	No

SUMMARY OF TARGETING RESULTS								
Target	Location (mm)			Horizontal Angle (deg)	Vertical Angle (deg)	Relocation (Yes/No)	Extension (# of 25 mm Spheres)	Impact (Yes/No)
	x	y	z					
Rear Header Right Side								
RH	2851.2	356.8	1511.5	0	50	No	--	No
Upper Roof Left Side								
UR1	1764.1	-381.8	1516.0	270	50	No	--	No
UR2	2133.3	-380.2	1559.3	270	38	No	--	Yes
UR3	2754.9	-377.9	1531.6	270	50	No	--	Yes
Upper Roof Right Side								
UR4	1766.0	378.5	1516.6	90	46	No	--	Yes
UR5	2139.0	378.0	1560.1	90	39	No	--	Yes
UR6	2751.7	379.1	1532.2	90	50	No	--	No

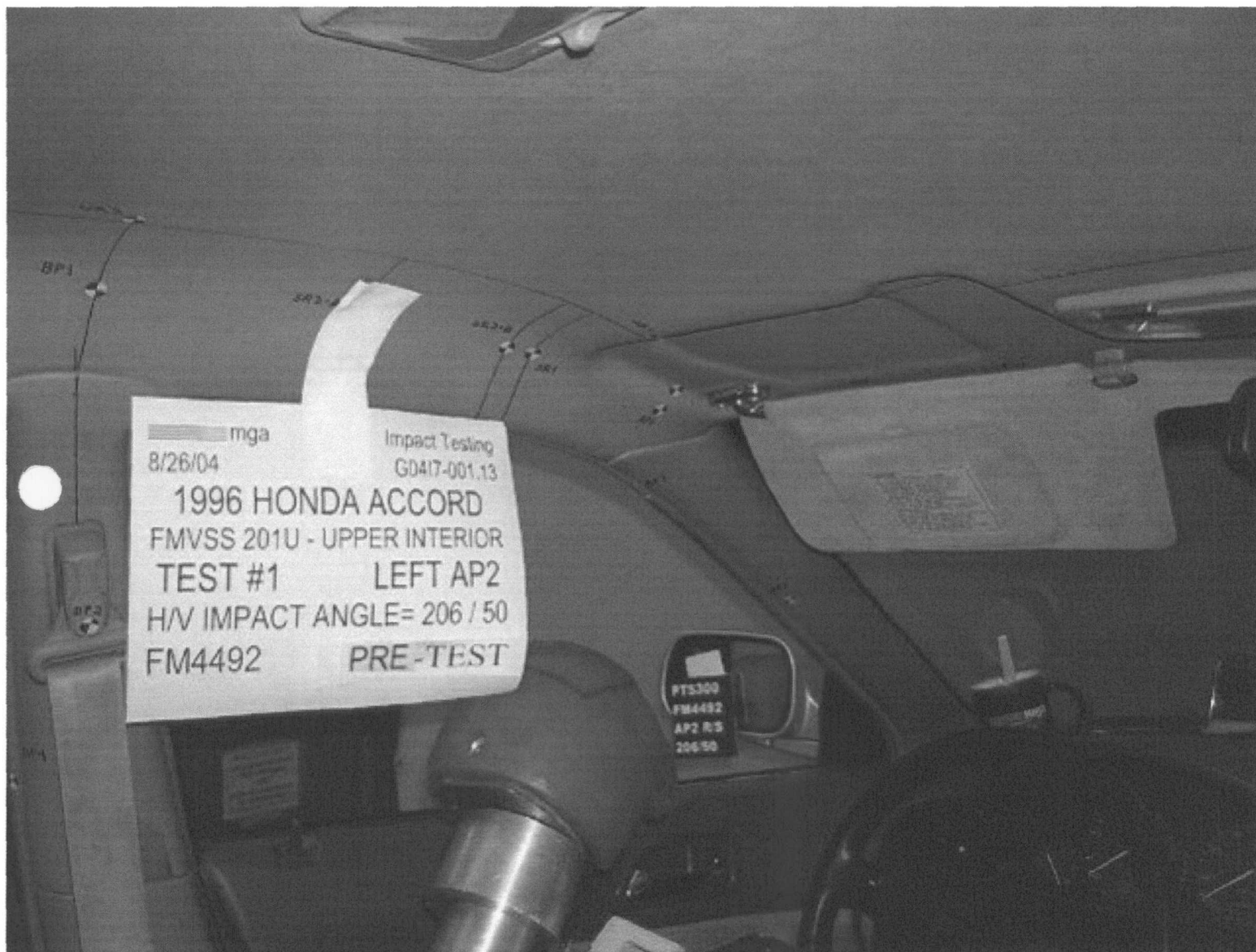
As determined using the Procedures specified in S10.1-10.13.

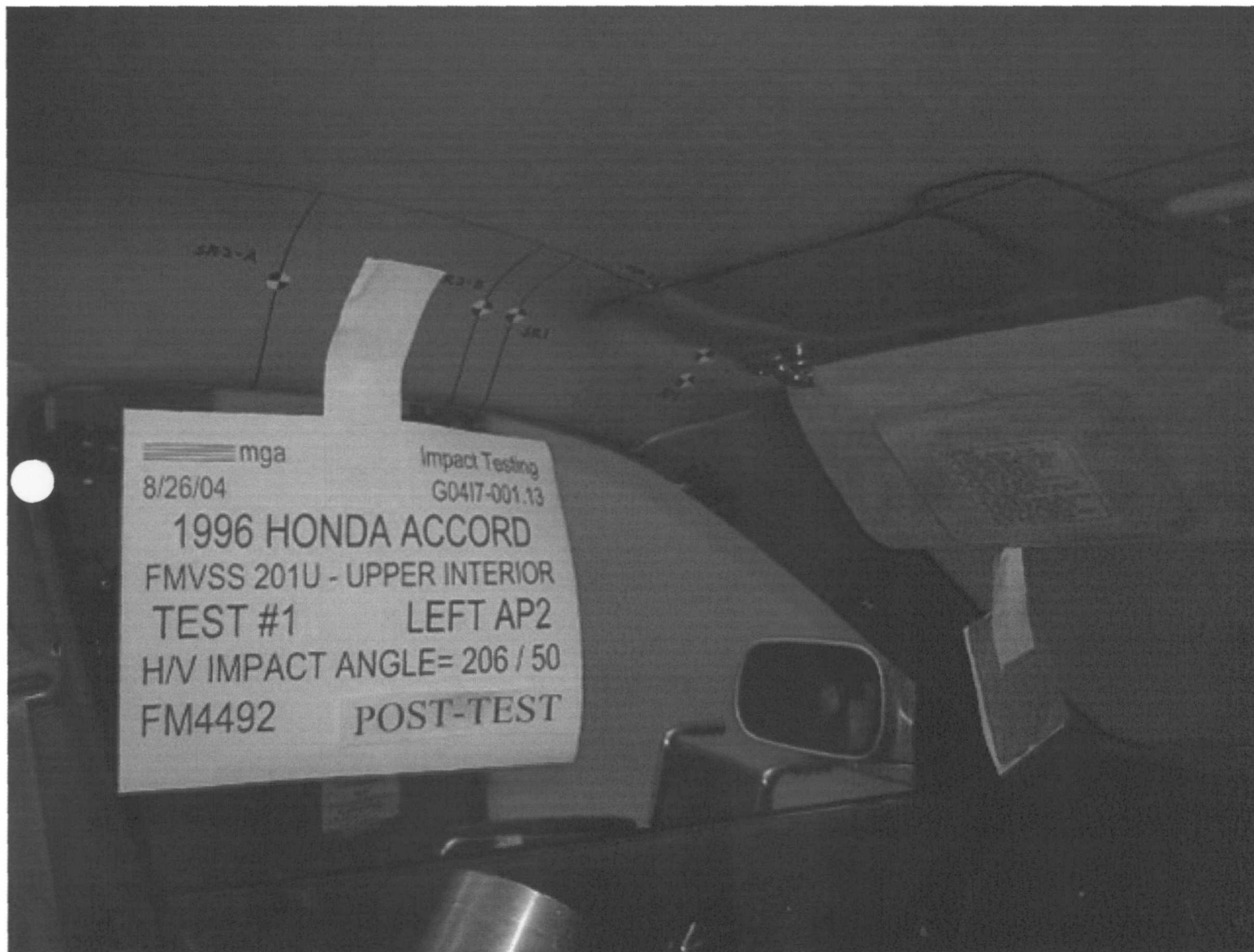
REMARKS:

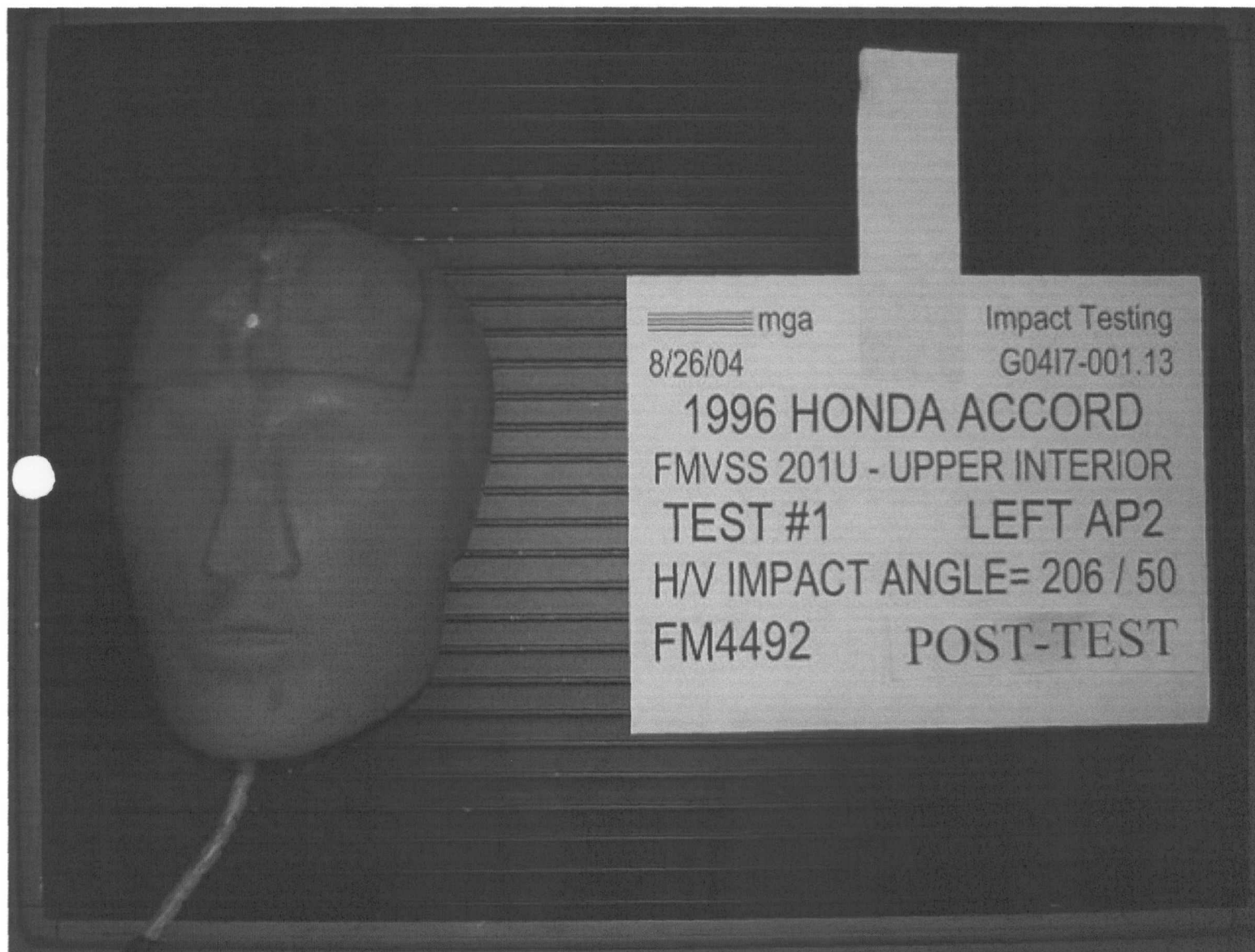
RECORDED BY: David G. Gotwals

DATE: August 24, 2004

APPROVED BY: Helen A. Kaleto







SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0417-001.13 VEHICLE YR/MAKE/MODEL: ACCORD 1996

GENERAL TEST PARAMETERS:

Test Number: #1

Target (Vehicle Side): AP2 Left

Temperature: 22C

MGA Test Reference No.: FM4492

Humidity: 65%

Approach Horizontal Angles: 206°

Time of Test: 5:00 PM

Approach Vertical Angles: 50°

FMH Serial No: 035

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
1036	1152	3.9	23.9	20	0

INSTRUMENTAION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35924	-92.4	1.67	1.67
Y	6	J35919	93.8	1.54	1.53
Z	7	J21969	88.5	1.58	1.59

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

No visible damage

Recorded By: my Approved By*: Helen A. Kato Date: 8-26-01

*Only necessary for NHTSA (Government) Compliance testing.

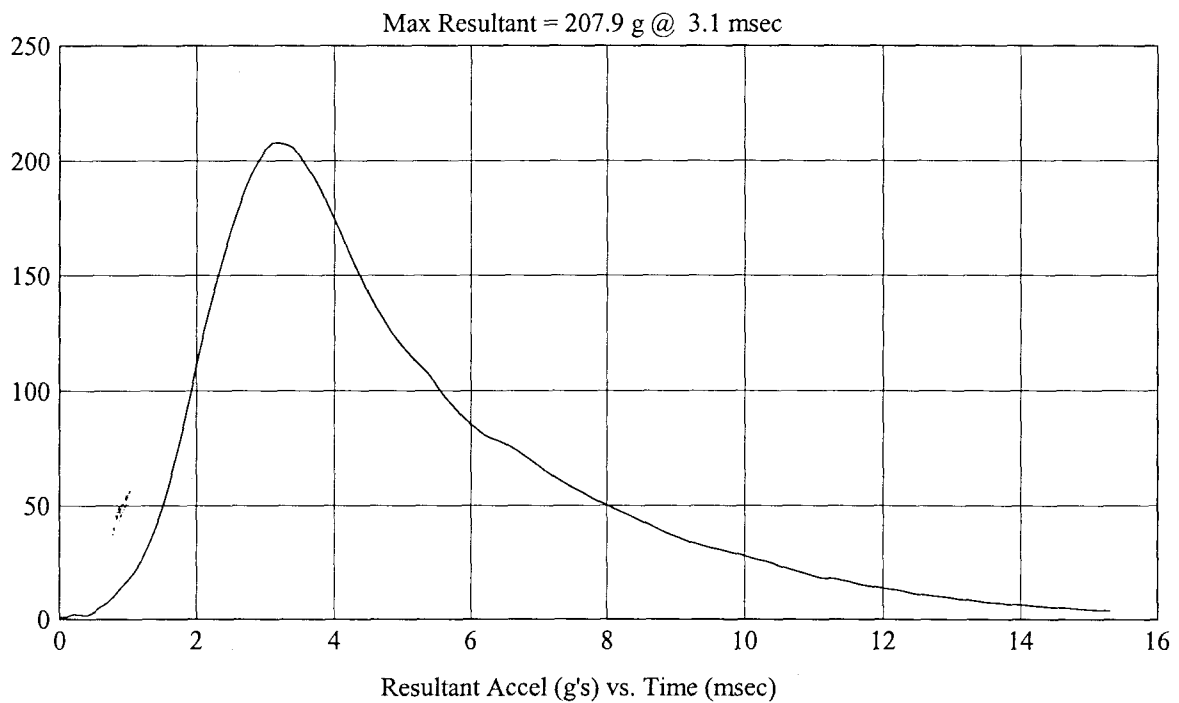
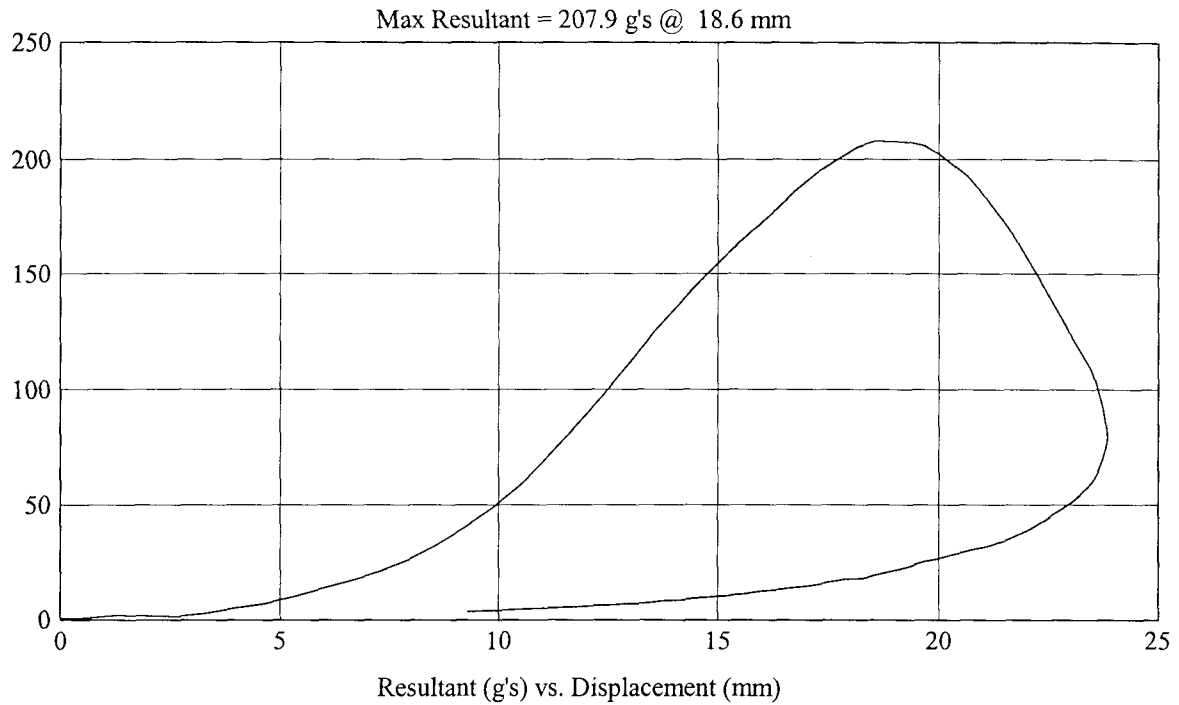
FMH
G04I7-001.13

Customer: HONDA
Test # 1
FM4492
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: AP2
Vehicle Side: Left
Horz/Vert Angle: 206/50

HIC(d) = 1036, HIC = 1152, Delta T = 3.9 msec



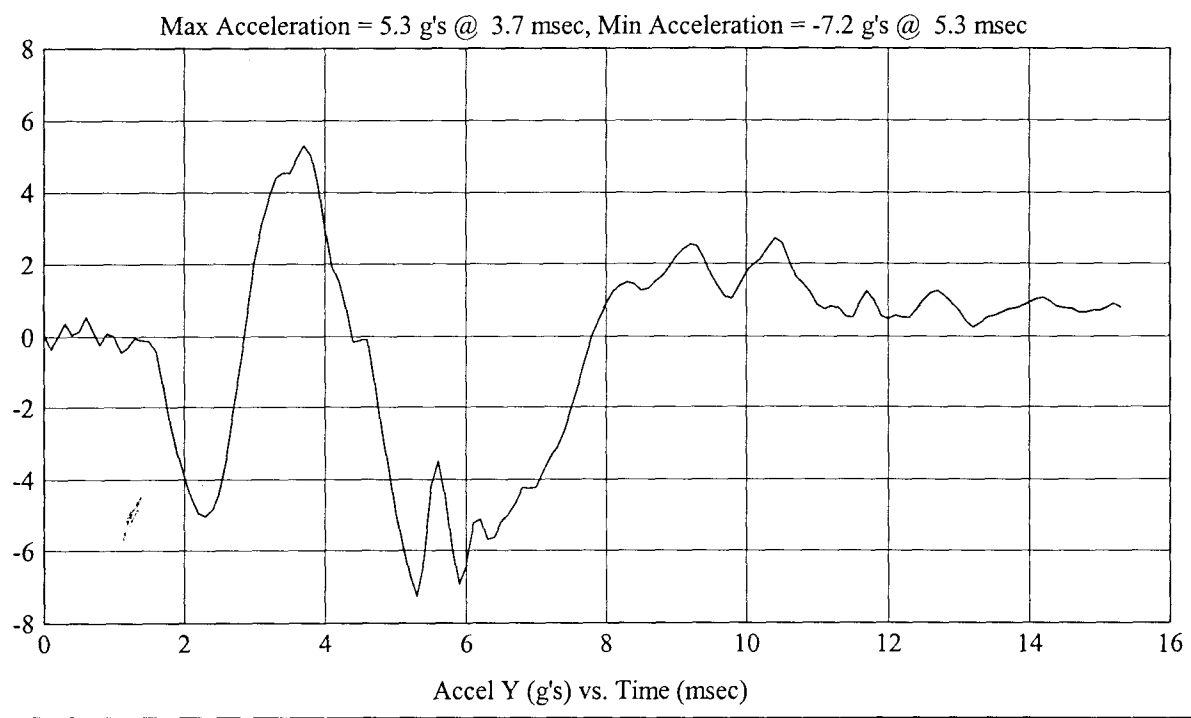
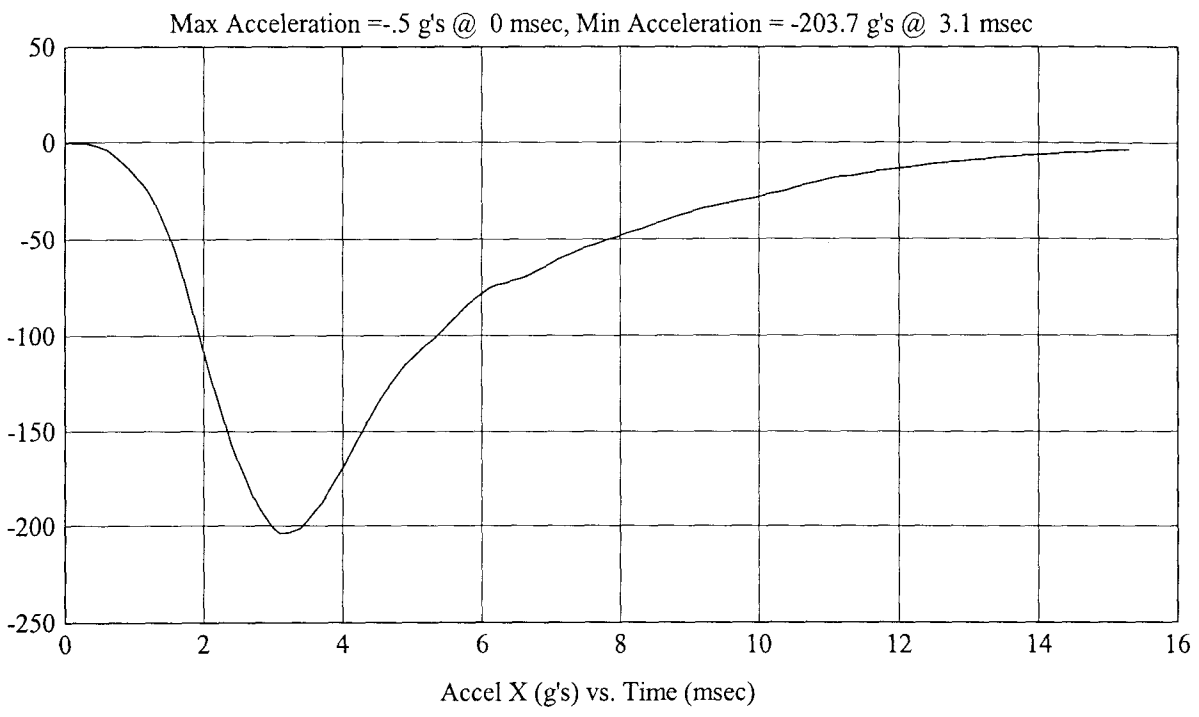
FMH
G04I7-001.13

Customer: HONDA
Test # 1
FM4492
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: AP2
Vehicle Side: Left
Horz/Vert Angle: 206/50

HIC(d) = 1036, HIC = 1152, Delta T = 3.9 msec



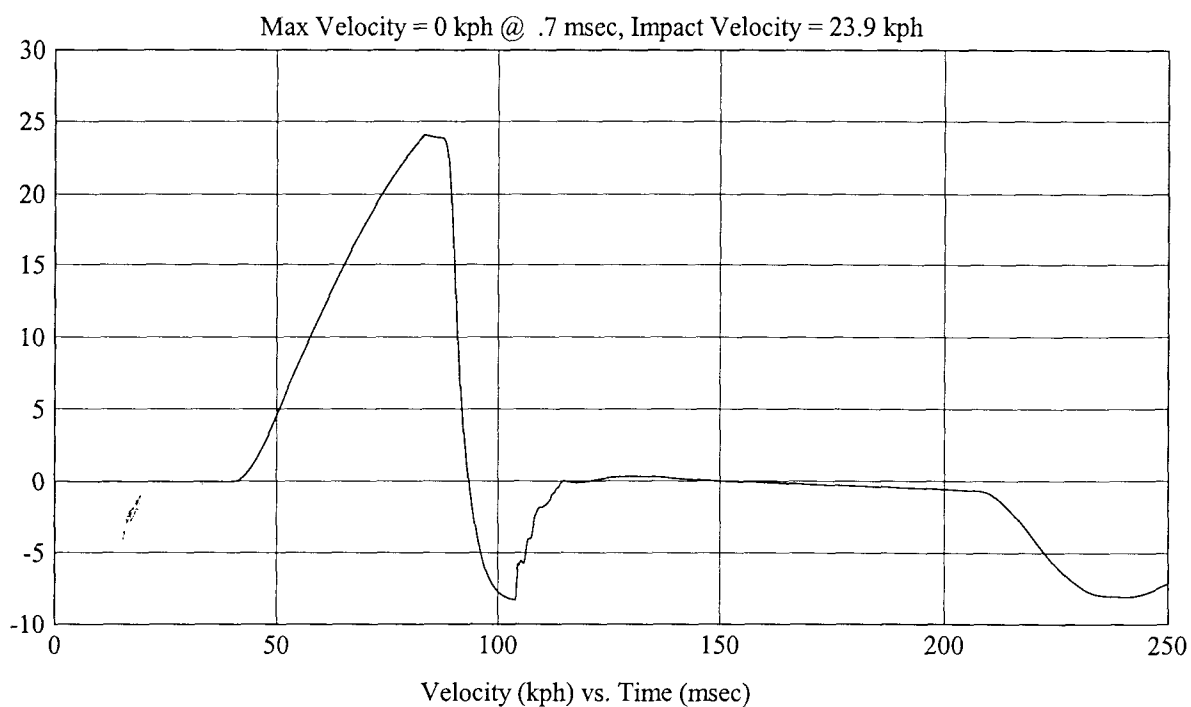
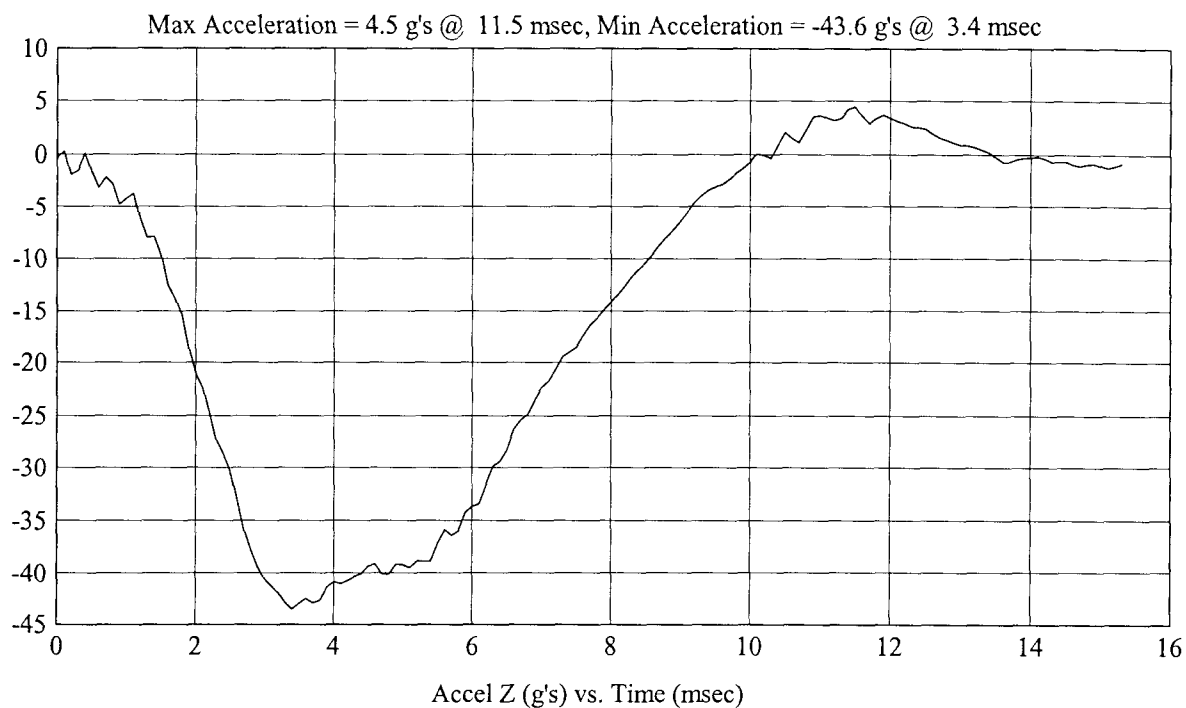
FMH
G04I7-001.13

Customer: HONDA
Test # 1
FM4492
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: AP2
Vehicle Side: Left
Horz/Vert Angle: 206/50

HIC(d) = 1036, HIC = 1152, Delta T = 3.9 msec



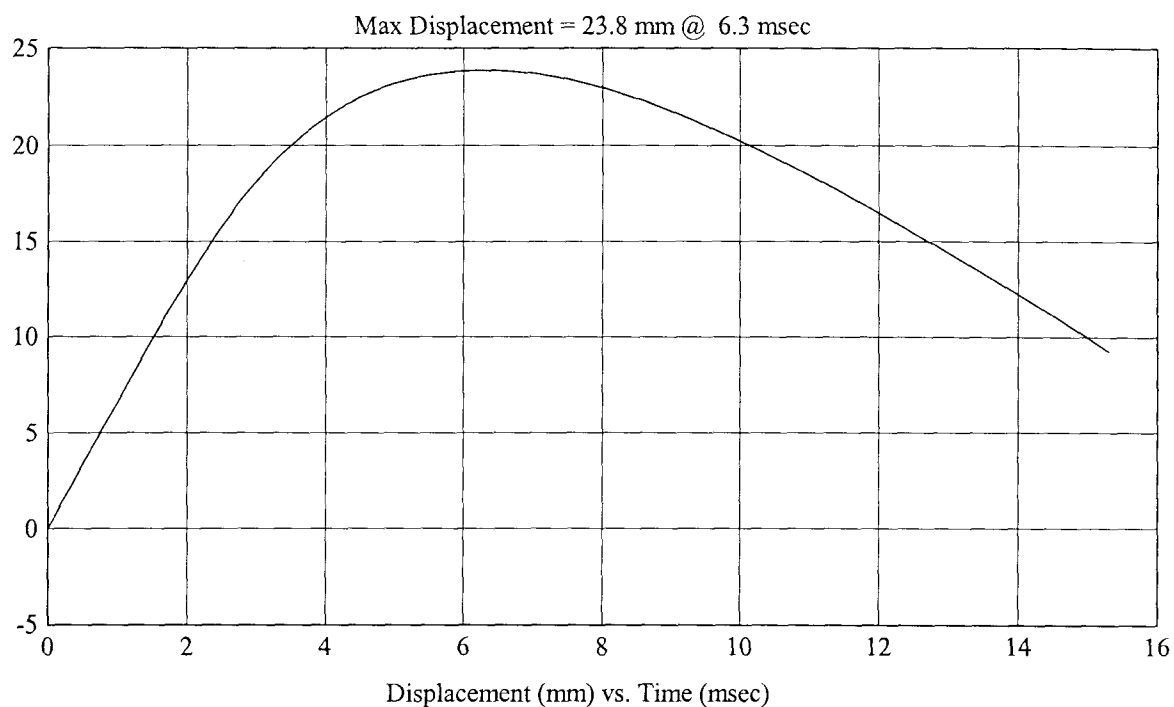
FMH
G04I7-001.13

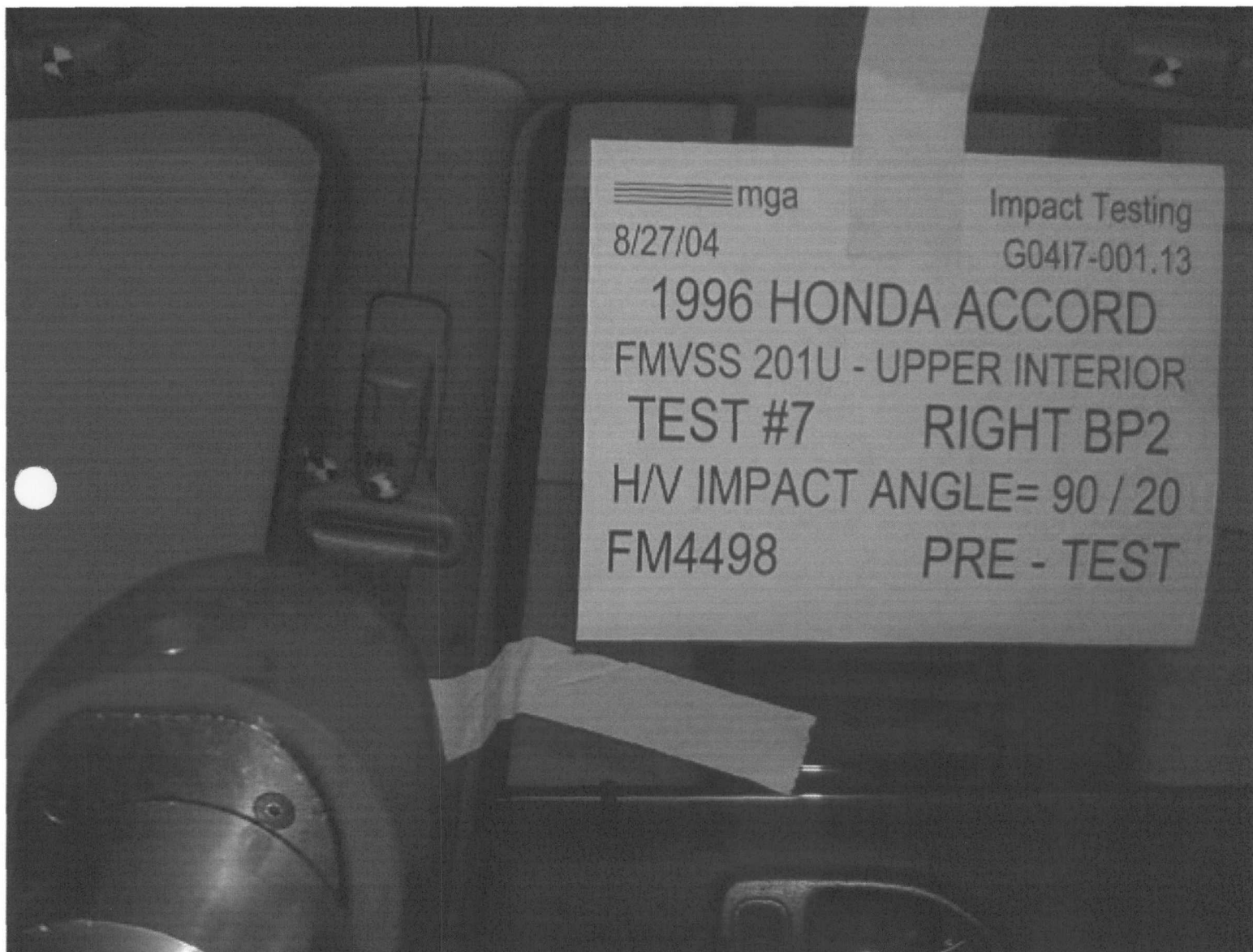
Customer: HONDA
Test # 1
FM4492
Additional Desc: N/A

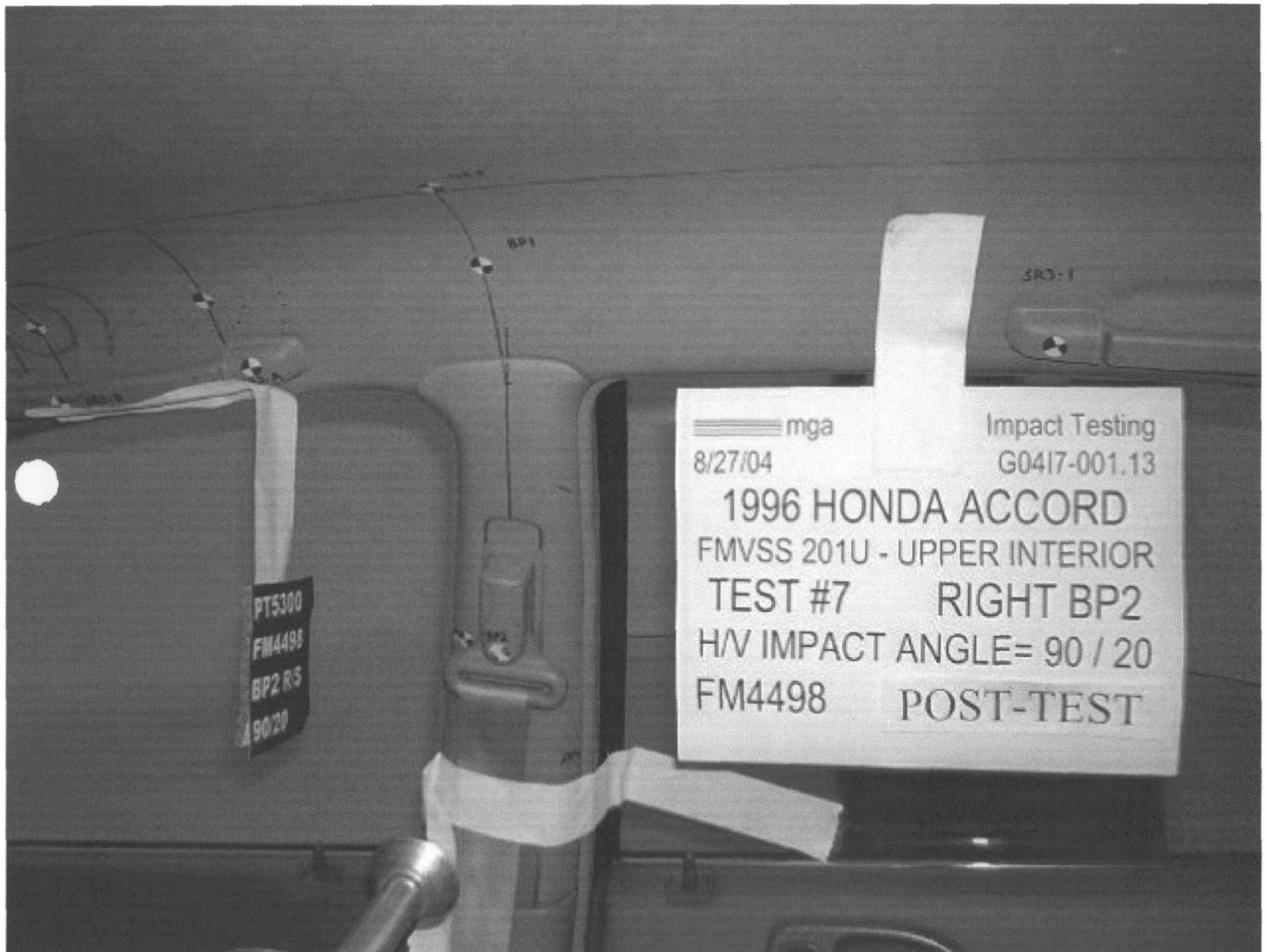
Vehicle Program : ACCORD

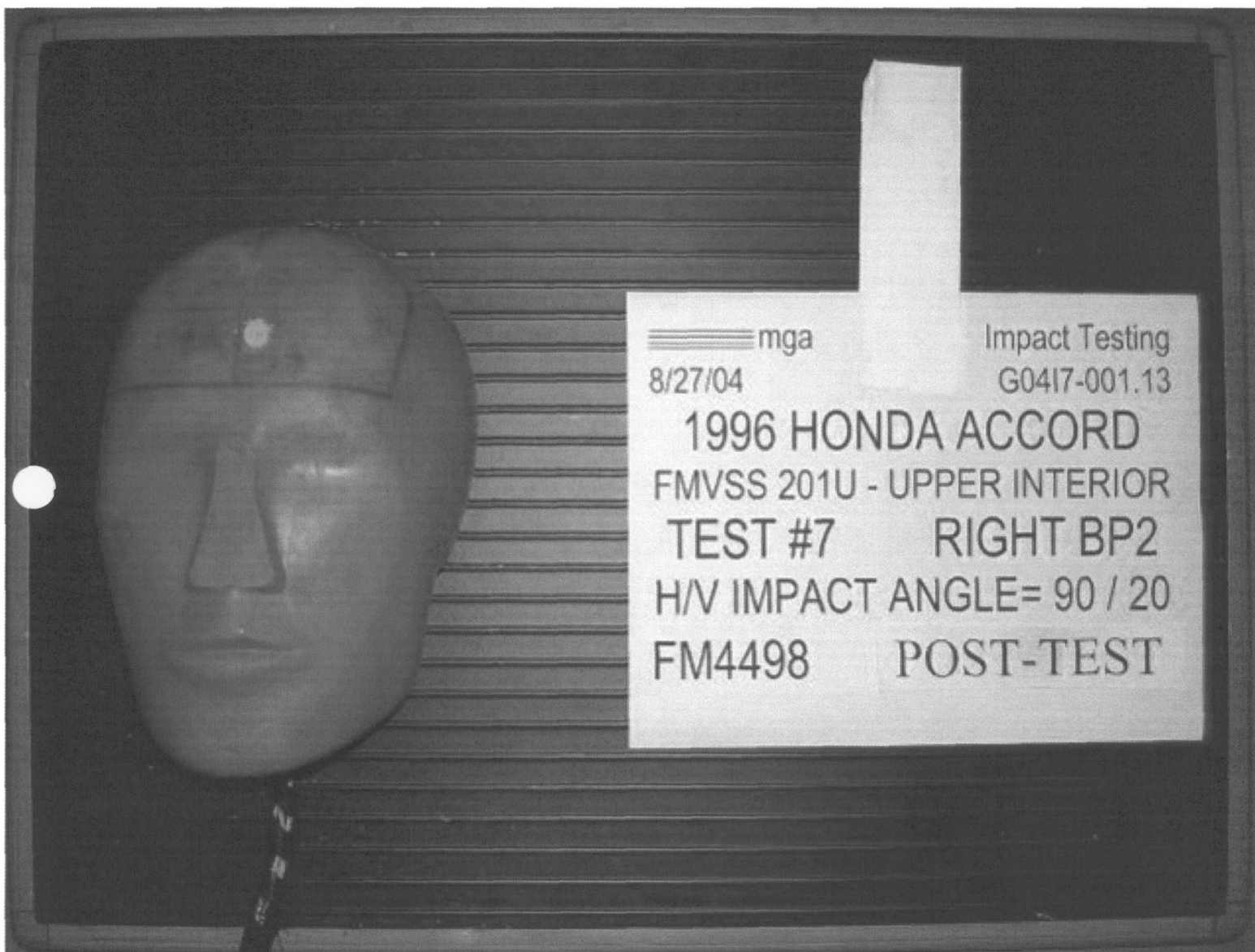
Model Year: 1996
Target: AP2
Vehicle Side: Left
Horz/Vert Angle: 206/50

HIC(d) = 1036, HIC = 1152, Delta T = 3.9 msec









mga

Impact Testing

8/27/04

G04I7-001.13

1996 HONDA ACCORD

FMVSS 201U - UPPER INTERIOR

TEST #7 RIGHT BP2

H/V IMPACT ANGLE= 90 / 20

FM4498 POST-TEST

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G04I7-001.13 VEHICLE YR/MAKE/MODEL: ACCORD 1996

GENERAL TEST PARAMETERS:

Test Number: #7

Target (Vehicle Side): BP2 Right

Temperature: 22C

MGA Test Reference No.: FM4498

Humidity: 69%

Approach Horizontal Angles: 90°

Time of Test: 2:30 PM

Approach Vertical Angles: 20°

FMH Serial No: 038

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
804	846	4.1	23.7	20	6 L

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J36197	-108	1.67	1.67
Y	6	J36193	101.4	1.54	1.54
Z	7	J36353	96.8	1.58	1.58

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

No visible damage

Recorded By: [Signature] Approved By*: Heleen Q. Kalito Date: 8-27-21

*Only necessary for NHTSA (Government) Compliance testing.

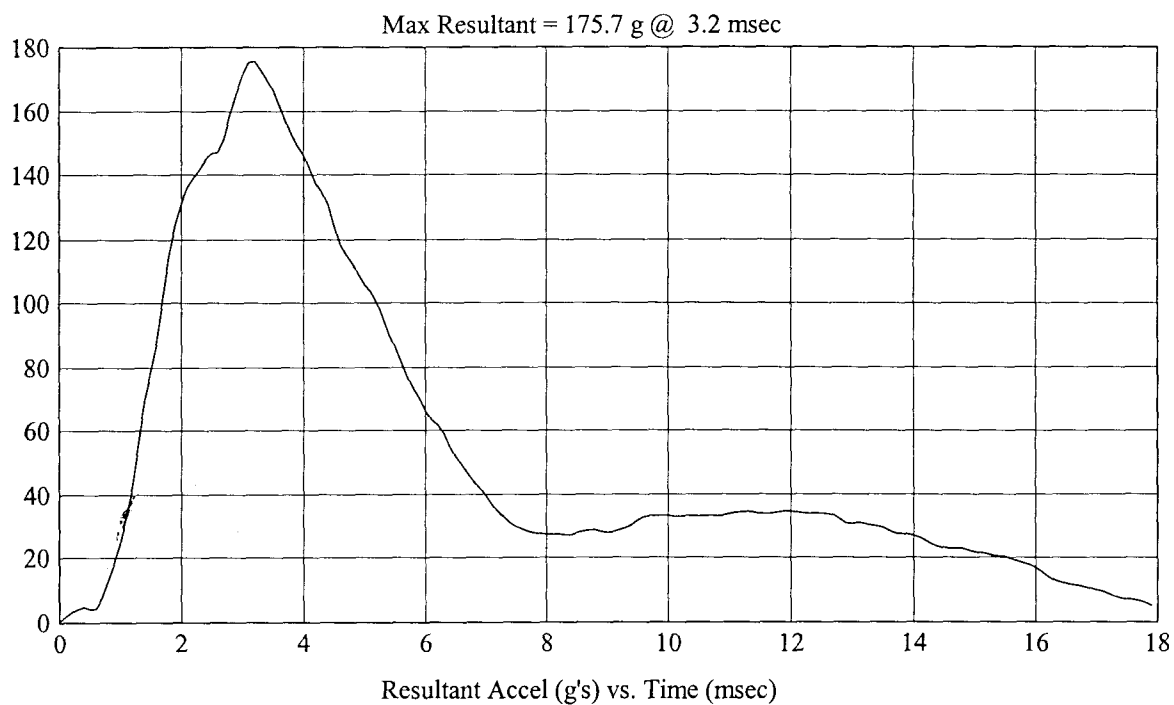
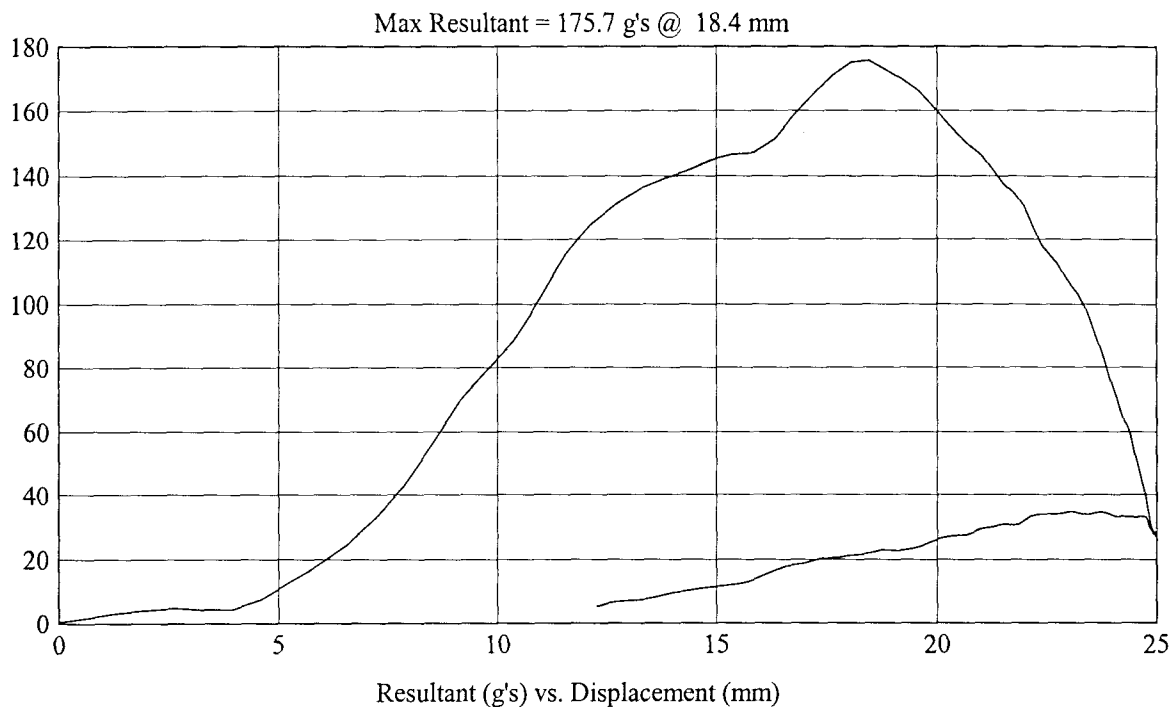
FMH
G04I7-001.13

Customer: HONDA
Test # 7
FM4498
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: BP2
Vehicle Side: Right
Horz/Vert Angle: 90/20

HIC(d) = 804, HIC = 846, Delta T = 4.1 msec



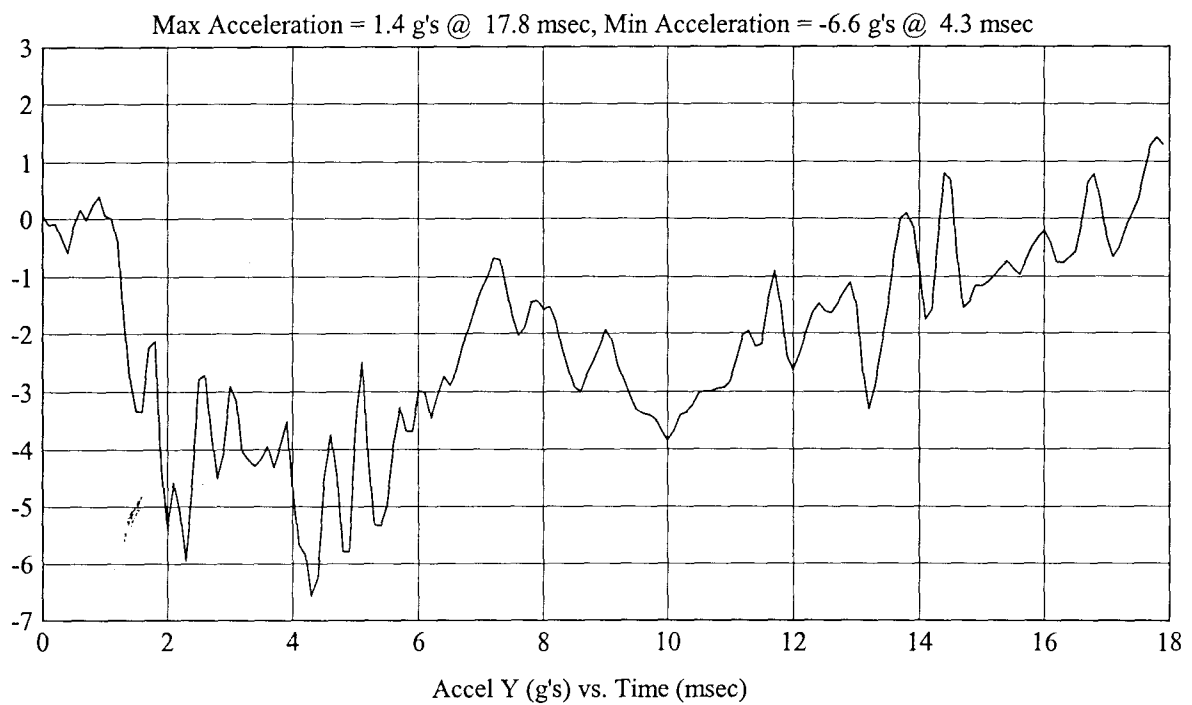
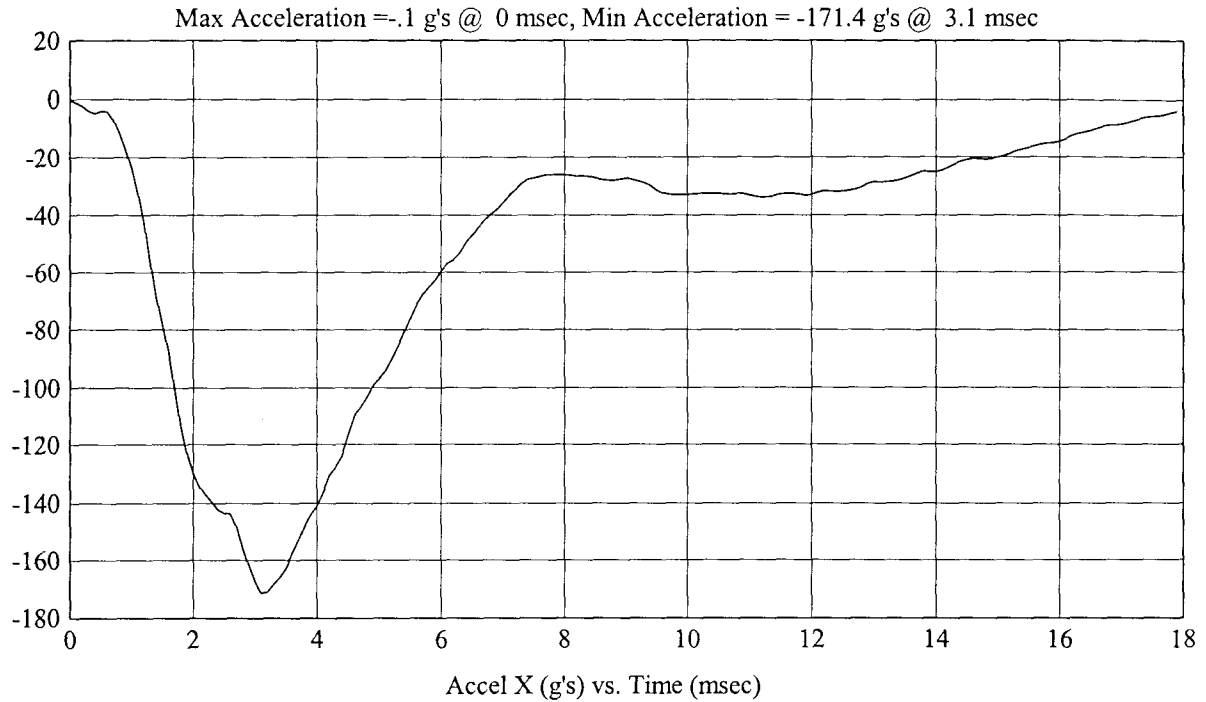
FMH
G0417-001.13

Customer: HONDA
Test # 7
FM4498
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: BP2
Vehicle Side: Right
Horz/Vert Angle: 90/20

HIC(d) = 804, HIC = 846, Delta T = 4.1 msec



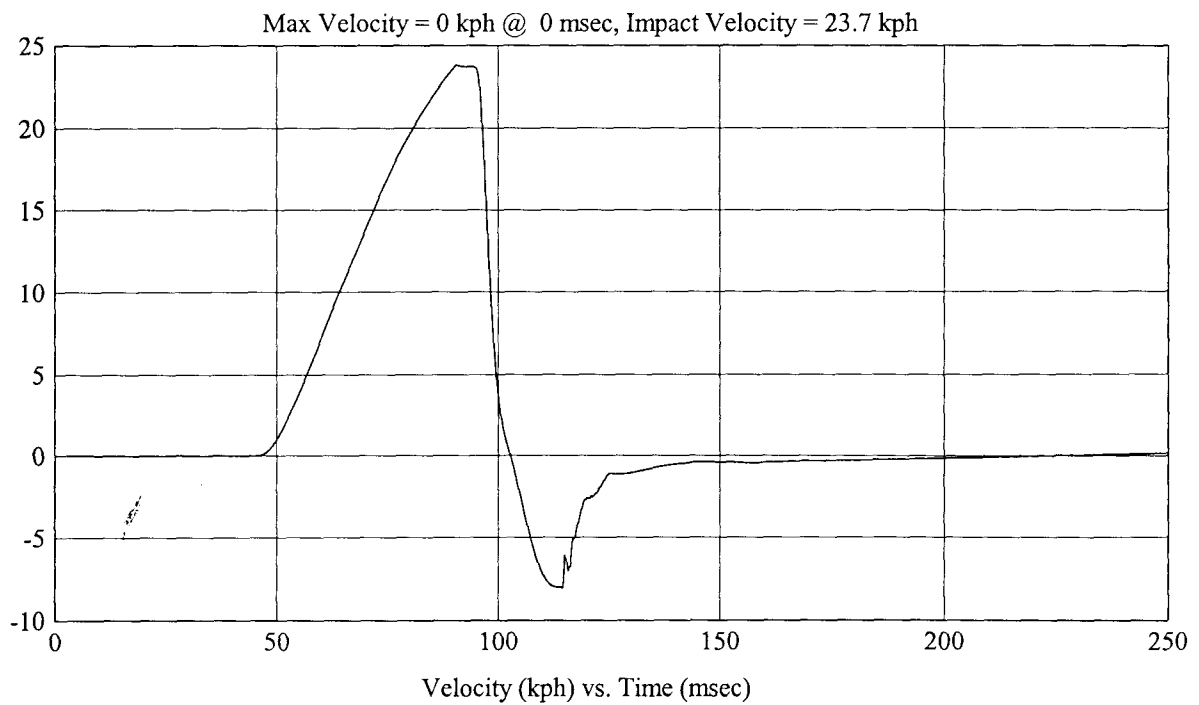
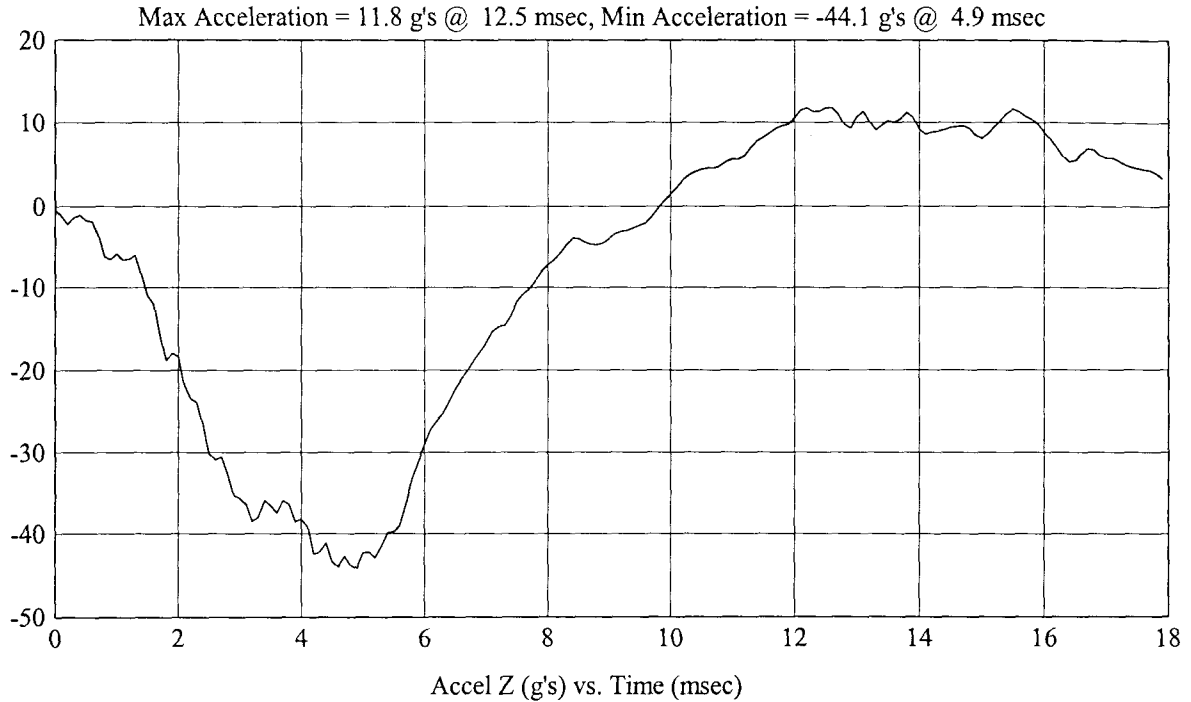
FMH
G04I7-001.13

Customer: HONDA
Test # 7
FM4498
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: BP2
Vehicle Side: Right
Horz/Vert Angle: 90/20

HIC(d) = 804, HIC = 846, Delta T = 4.1 msec



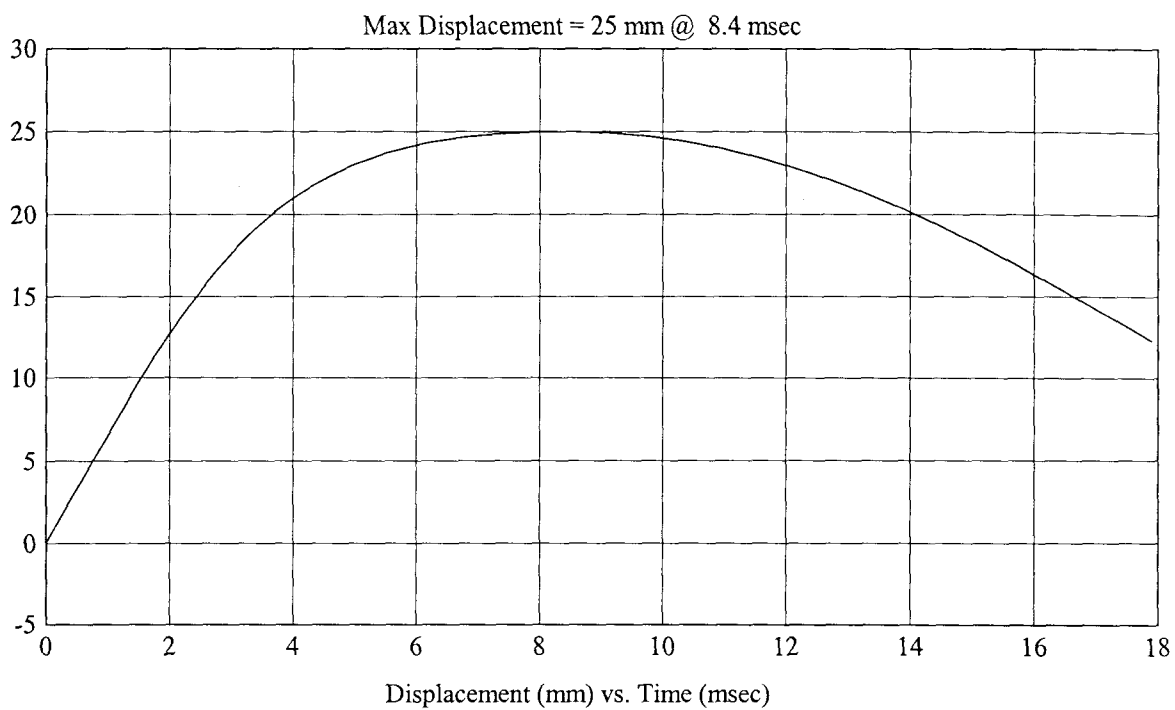
FMH
G04I7-001.13

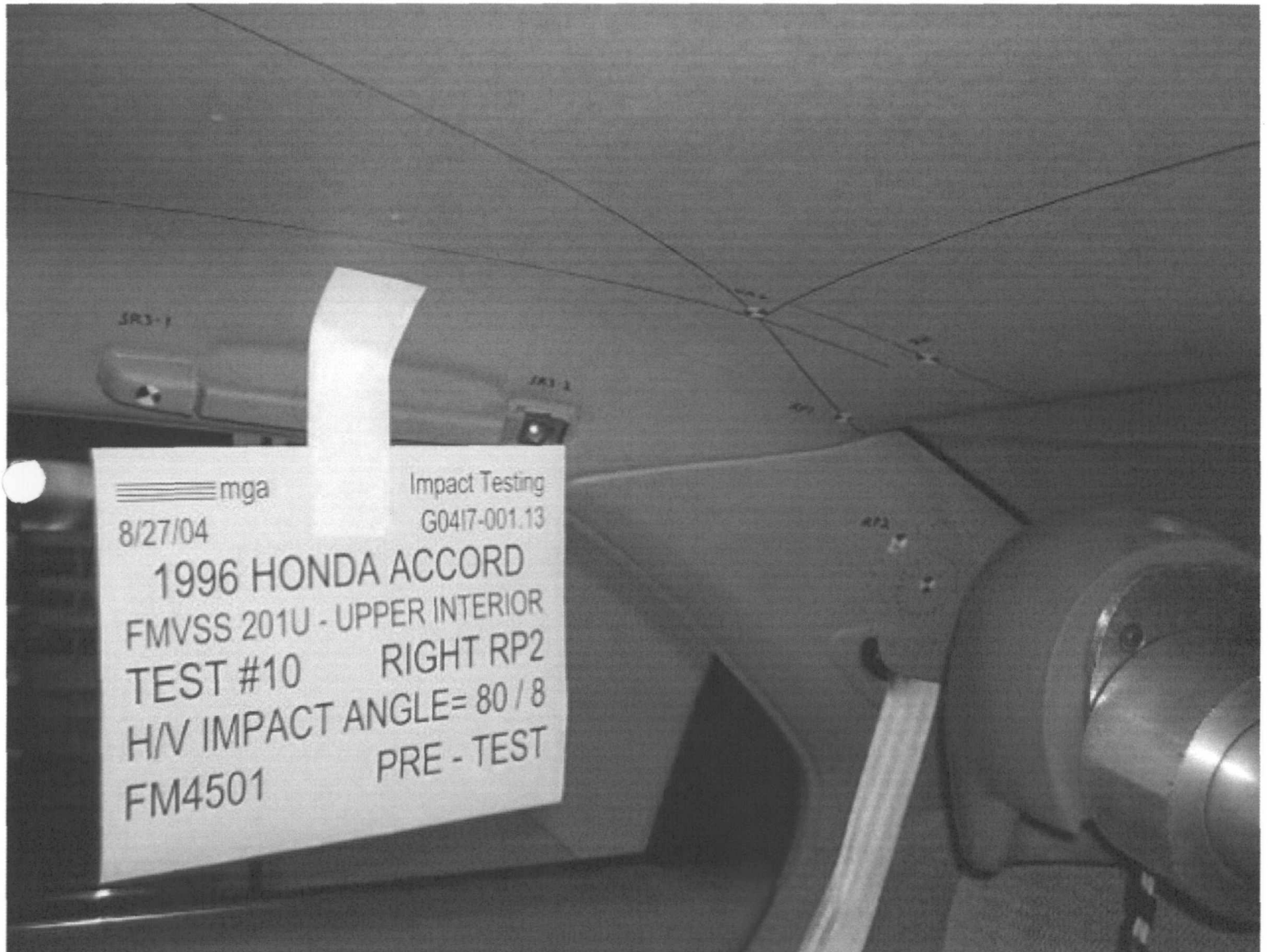
Customer: HONDA
Test # 7
FM4498
Additional Desc: N/A

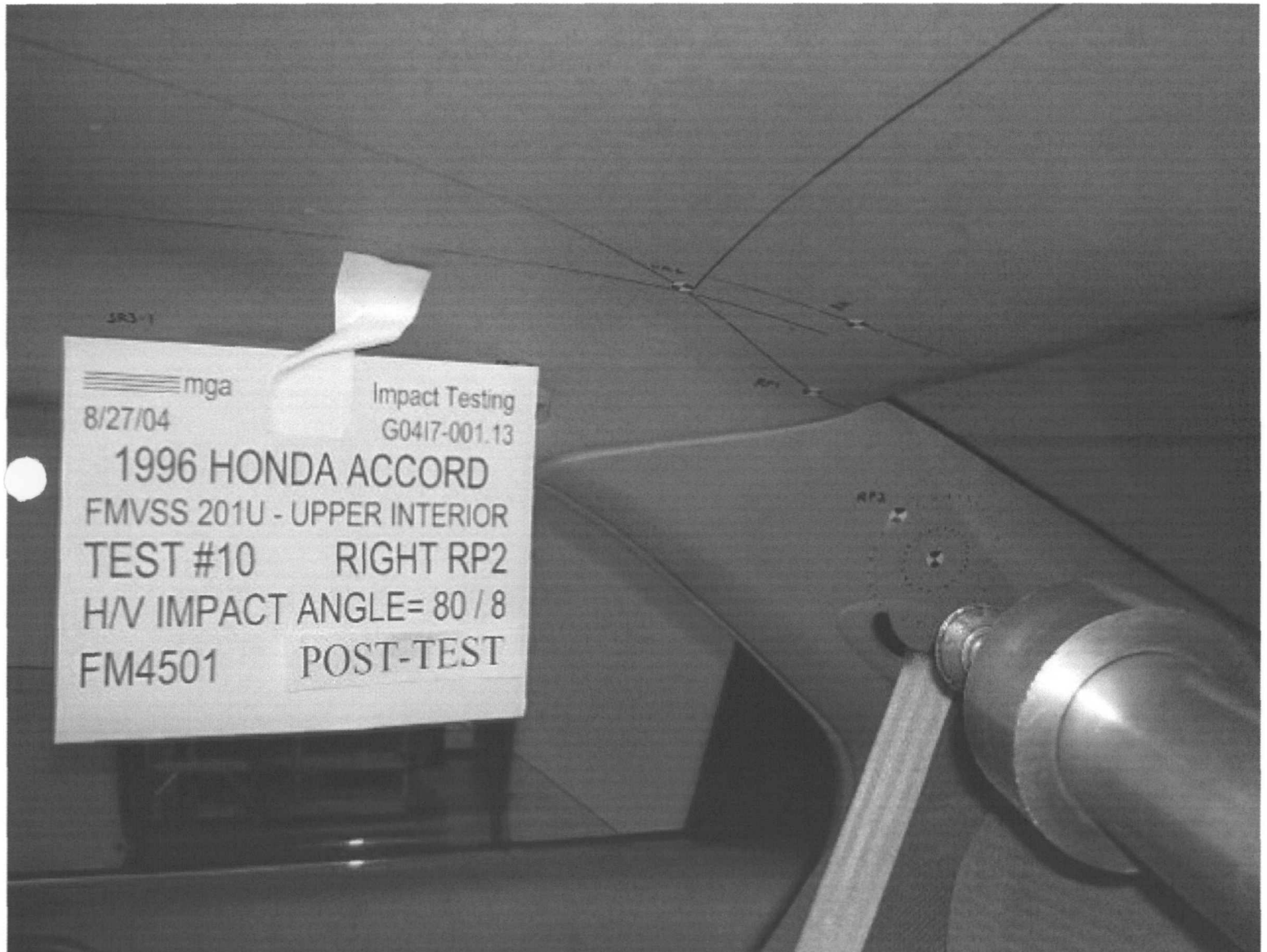
Vehicle Program : ACCORD

Model Year: 1996
Target: BP2
Vehicle Side: Right
Horz/Vert Angle: 90/20

HIC(d) = 804, HIC = 846, Delta T = 4.1 msec









mga

8/27/04

Impact Testing

G0417-001.13

1996 HONDA ACCORD

FMVSS 201U - UPPER INTERIOR

TEST #10 RIGHT RP2

H/V IMPACT ANGLE= 80 / 8

FM4501 POST-TEST

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G04I7-001.13 VEHICLE YR/MAKE/MODEL: ACCORD 1996

GENERAL TEST PARAMETERS:

Test Number: #10

Target (Vehicle Side): RP2 Right

Temperature: 22C

MGA Test Reference No.: FM4501

Humidity: 69%

Approach Horizontal Angles: 80°

Time of Test: 5:45 PM

Approach Vertical Angles: 8°

FMH Serial No: 038

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
600	575	6.5	24.0	28	0

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J36197	-108	1.67	1.67
Y	6	J36193	101.4	1.54	1.54
Z	7	J36353	96.8	1.58	1.58

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

No visible damage

Recorded By: [Signature] Approved By: Helen Q. Kalish Date: 8-27-01

*Only necessary for NHTSA (Government) Compliance testing.

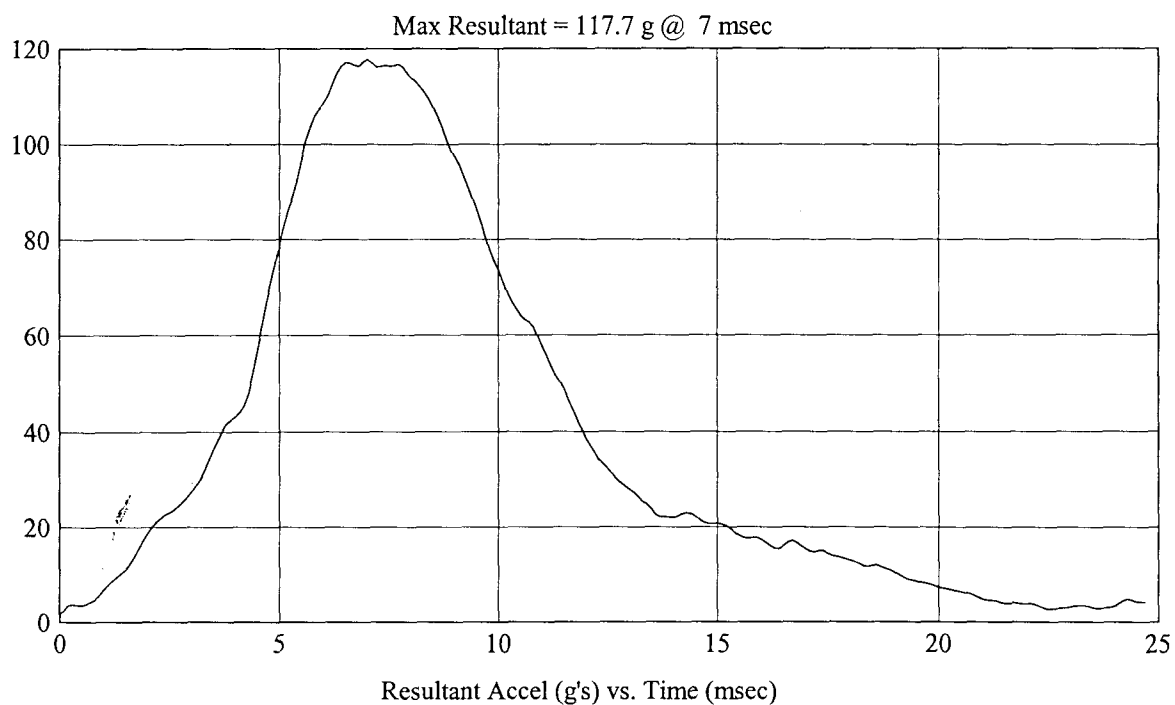
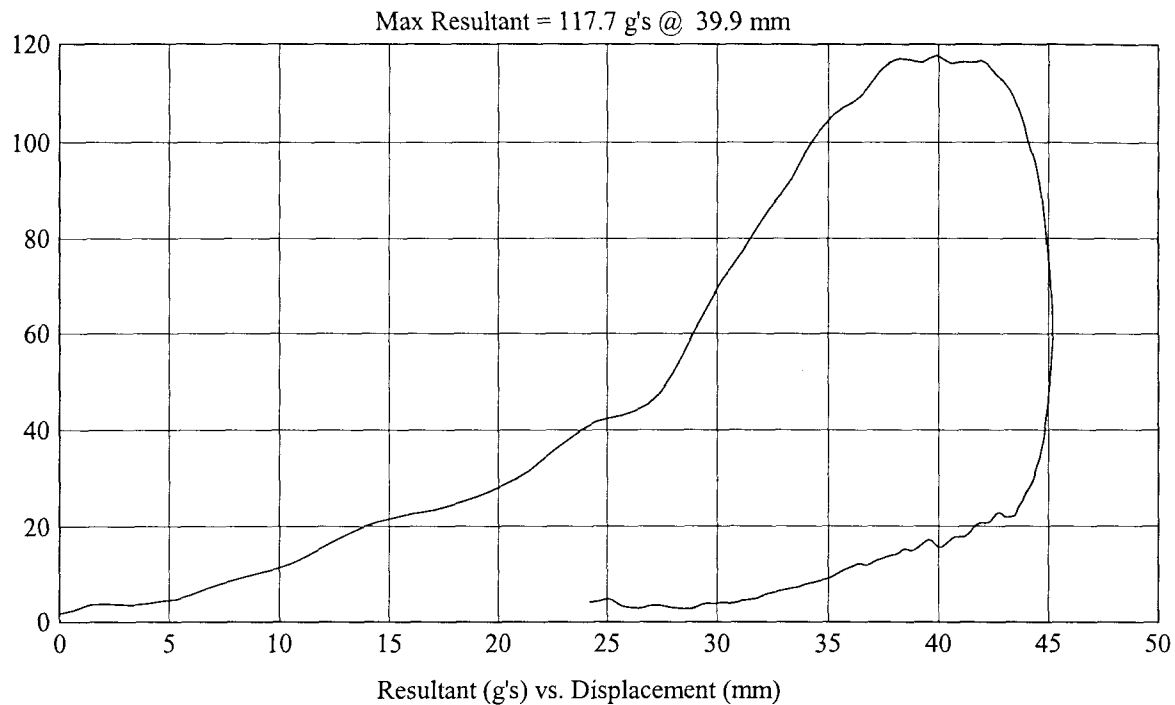
FMH
G04I7-001.13

Customer: HONDA
Test # 10
FM4501
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: RP2
Vehicle Side: Right
Horz/Vert Angle: 80/8

HIC(d) = 600, HIC = 575, Delta T = 6.5 msec



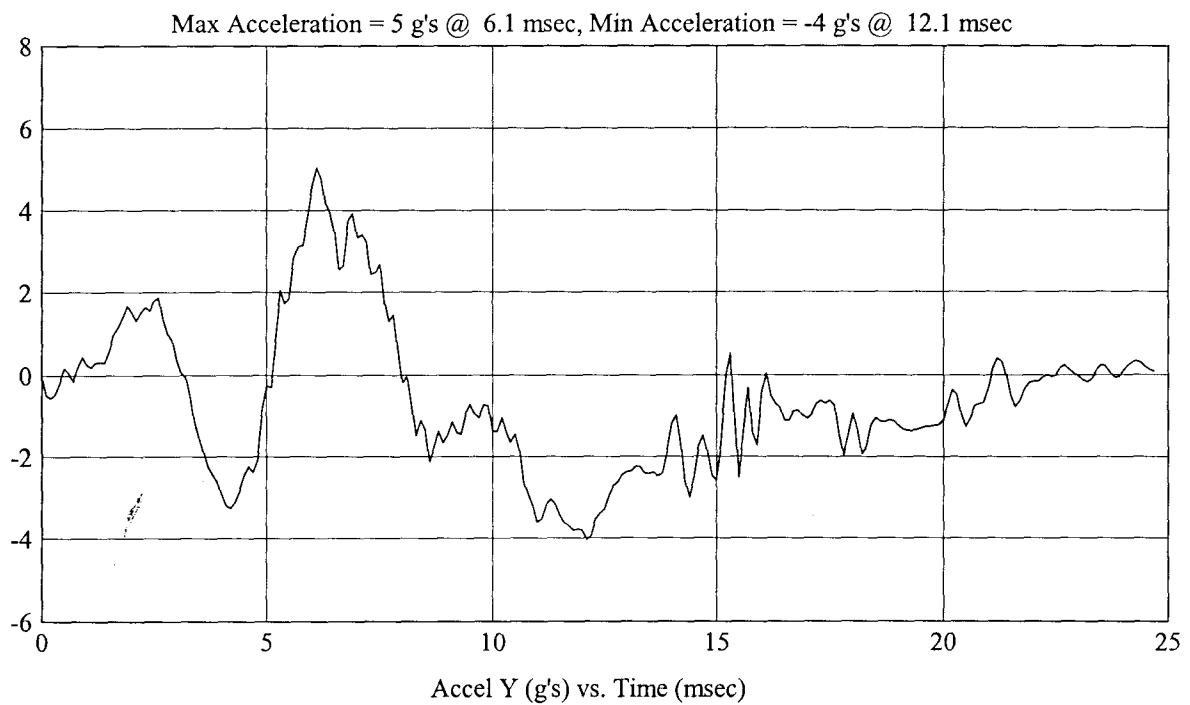
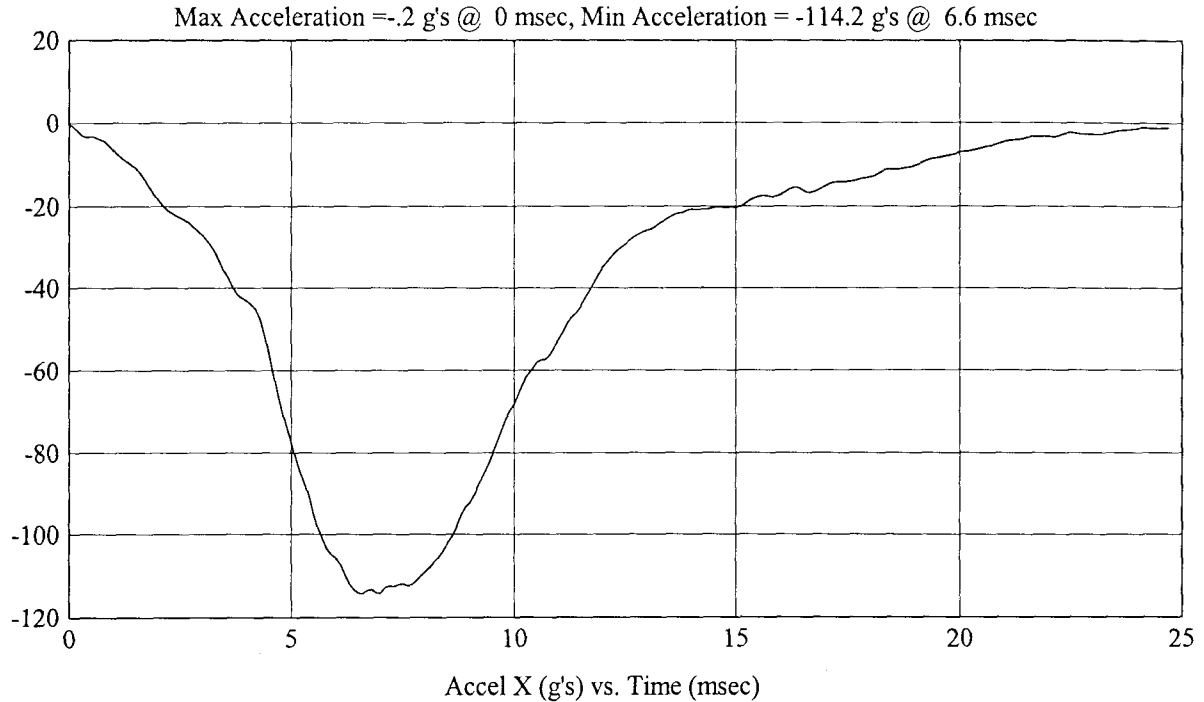
FMH
G04I7-001.13

Customer: HONDA
Test # 10
FM4501
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: RP2
Vehicle Side: Right
Horz/Vert Angle: 80/8

HIC(d) = 600, HIC = 575, Delta T = 6.5 msec



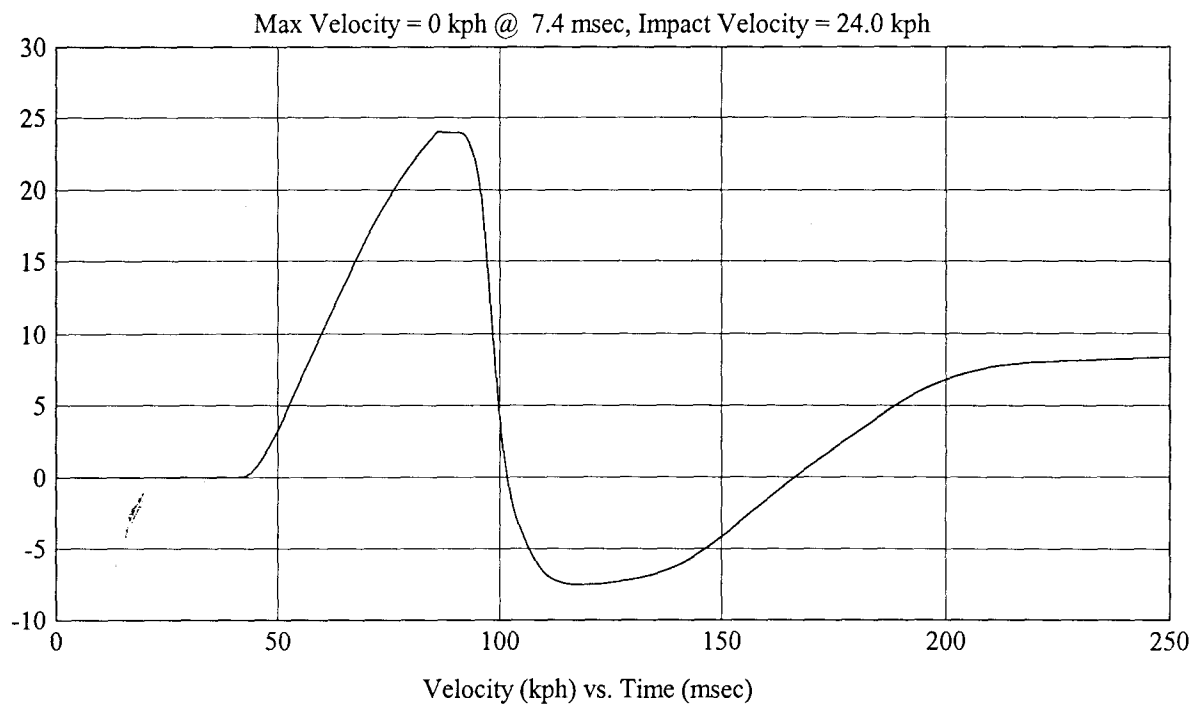
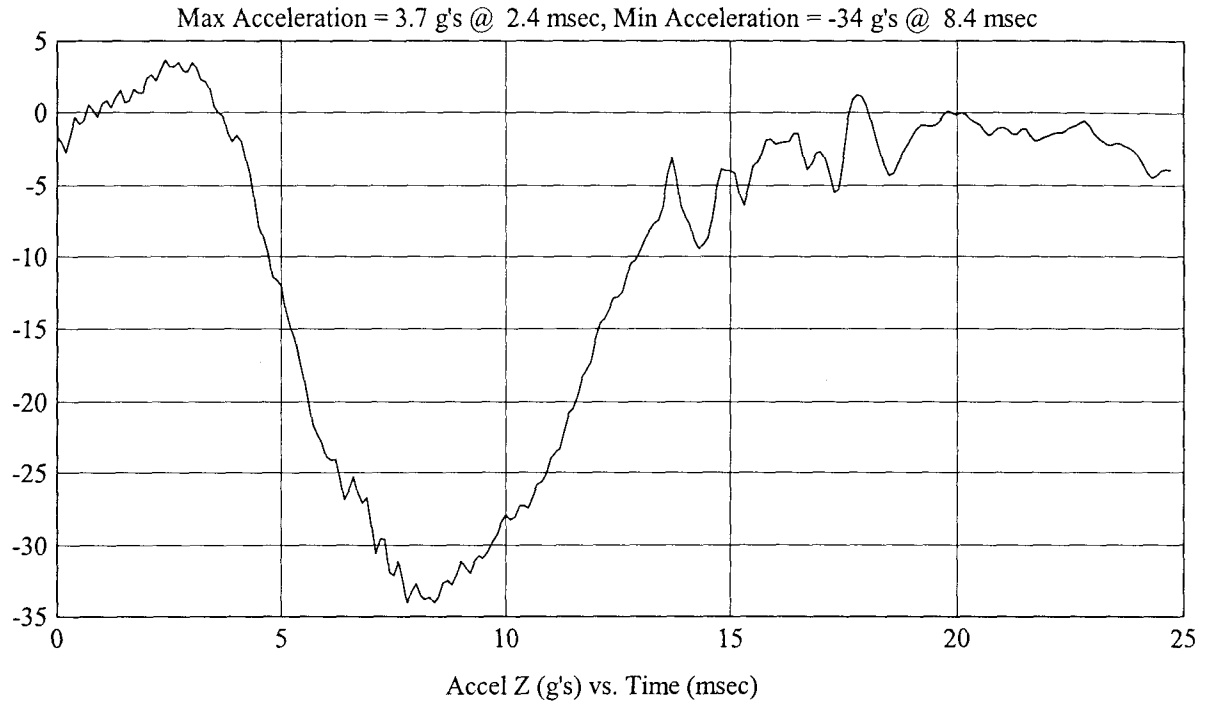
FMH
G04I7-001.13

Customer: HONDA
Test # 10
FM4501
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: RP2
Vehicle Side: Right
Horz/Vert Angle: 80/8

HIC(d) = 600, HIC = 575, Delta T = 6.5 msec



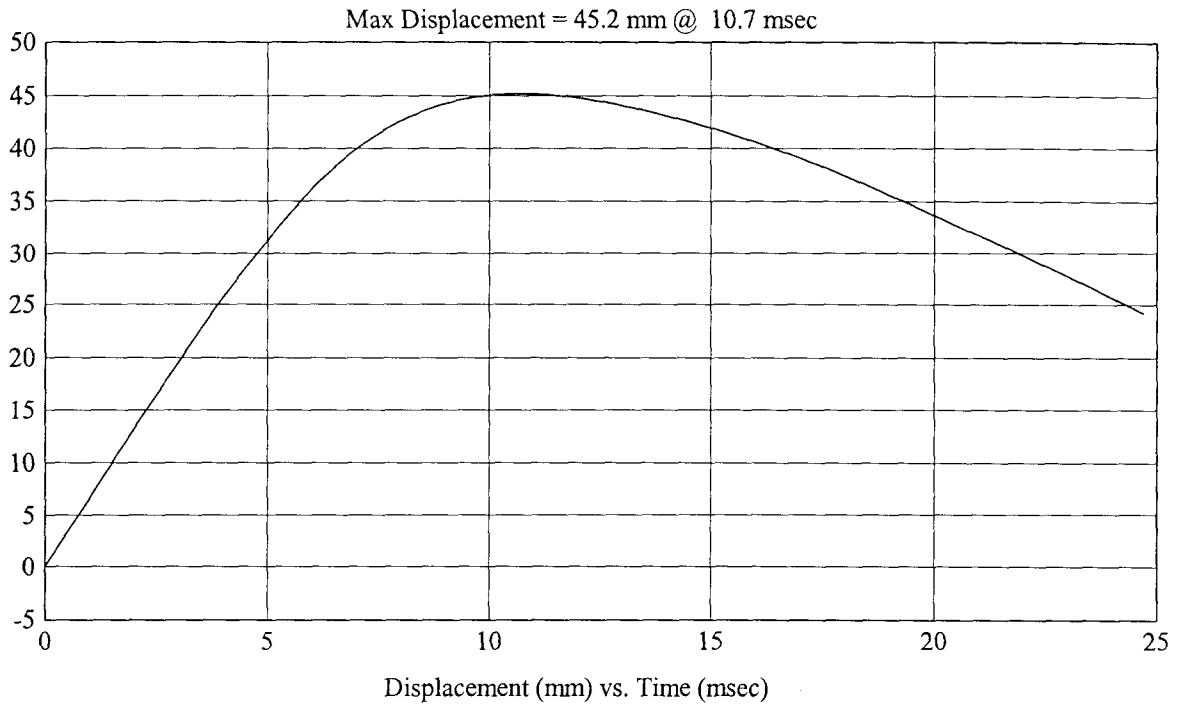
FMH
G04I7-001.13

Customer: HONDA
Test # 10
FM4501
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: RP2
Vehicle Side: Right
Horz/Vert Angle: 80/8

HIC(d) = 600, HIC = 575, Delta T = 6.5 msec



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8/27/04

Impact Testing
G0417-001.13

1996 HONDA ACCORD

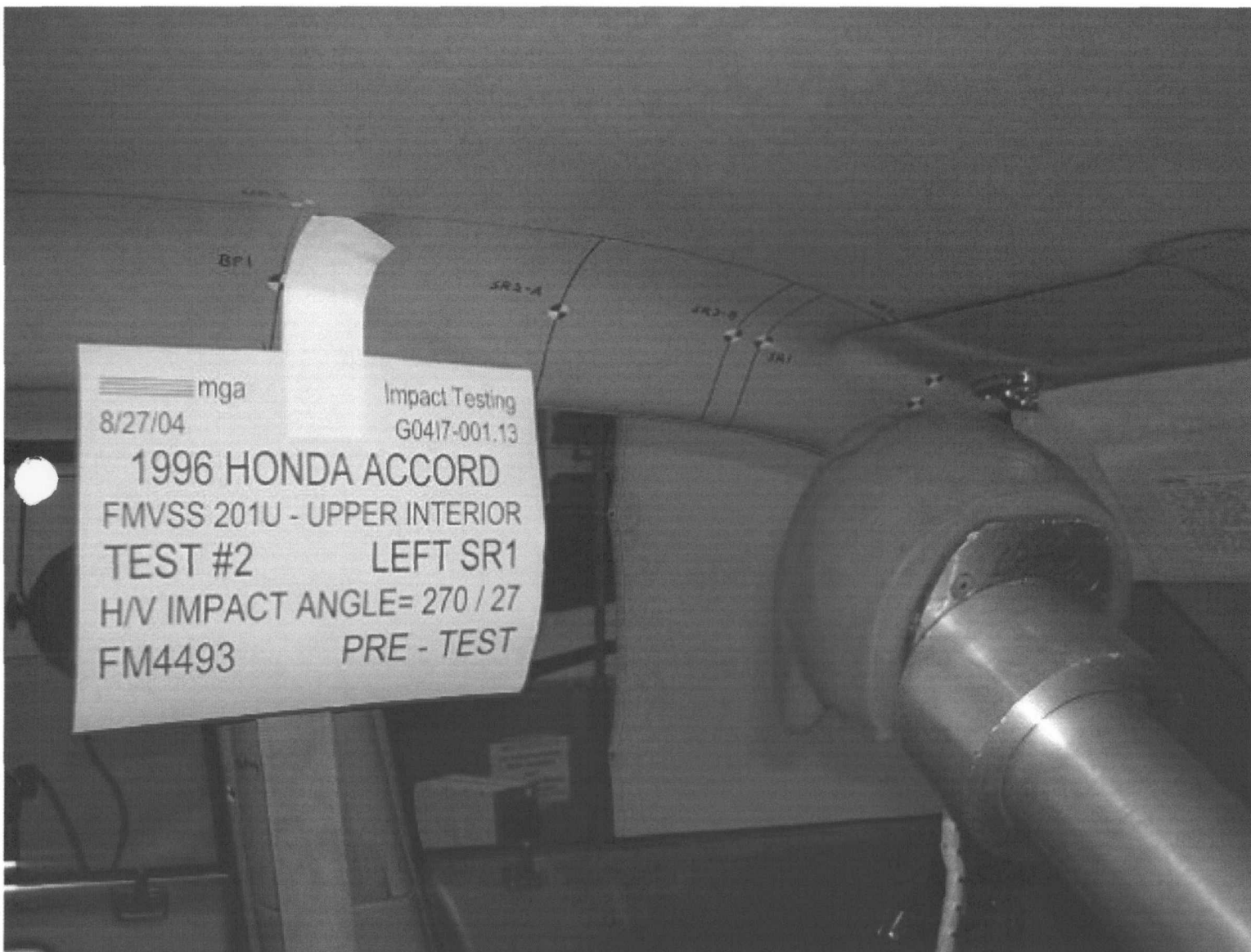
FMVSS 201U - UPPER INTERIOR

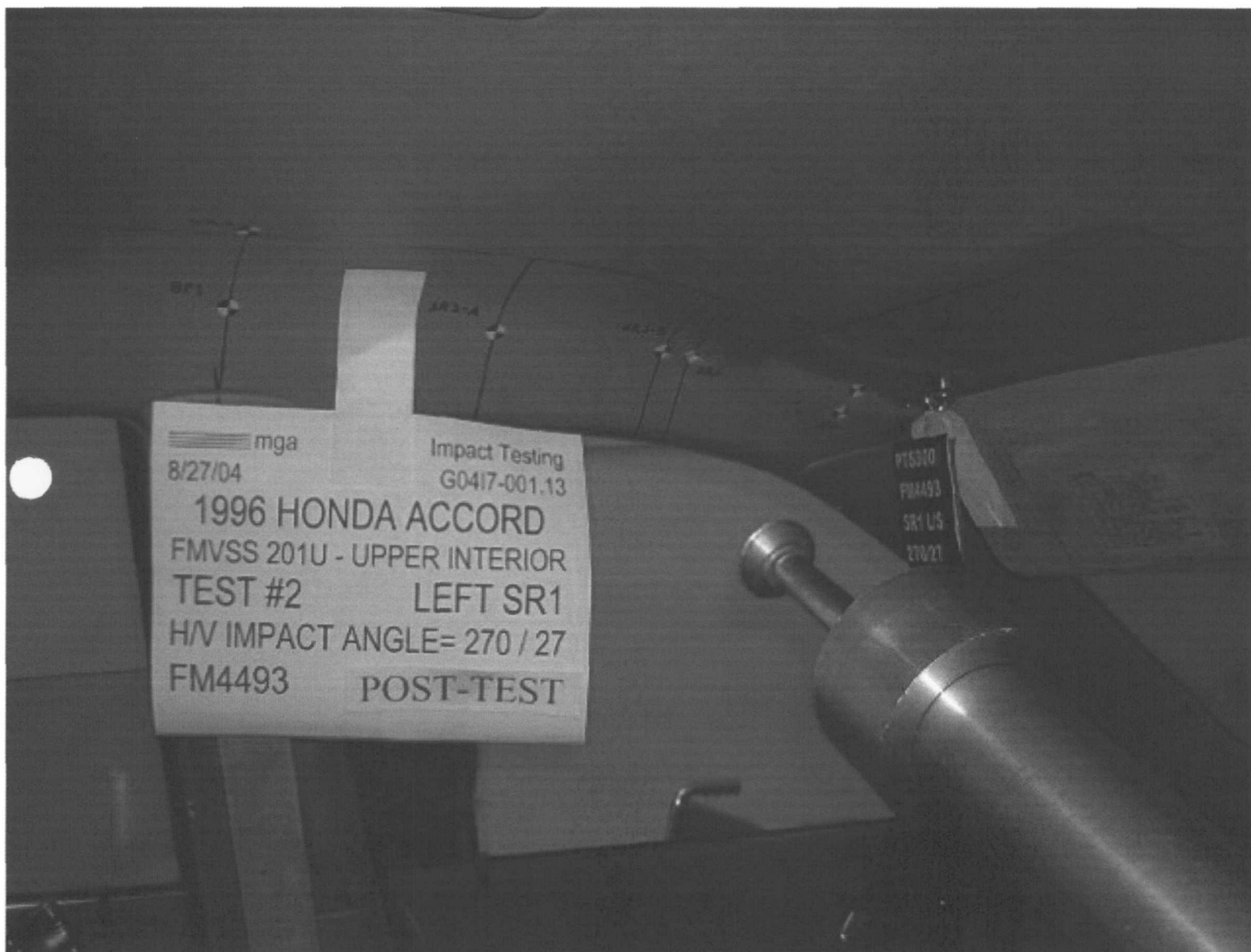
TEST #2 LEFT SR1

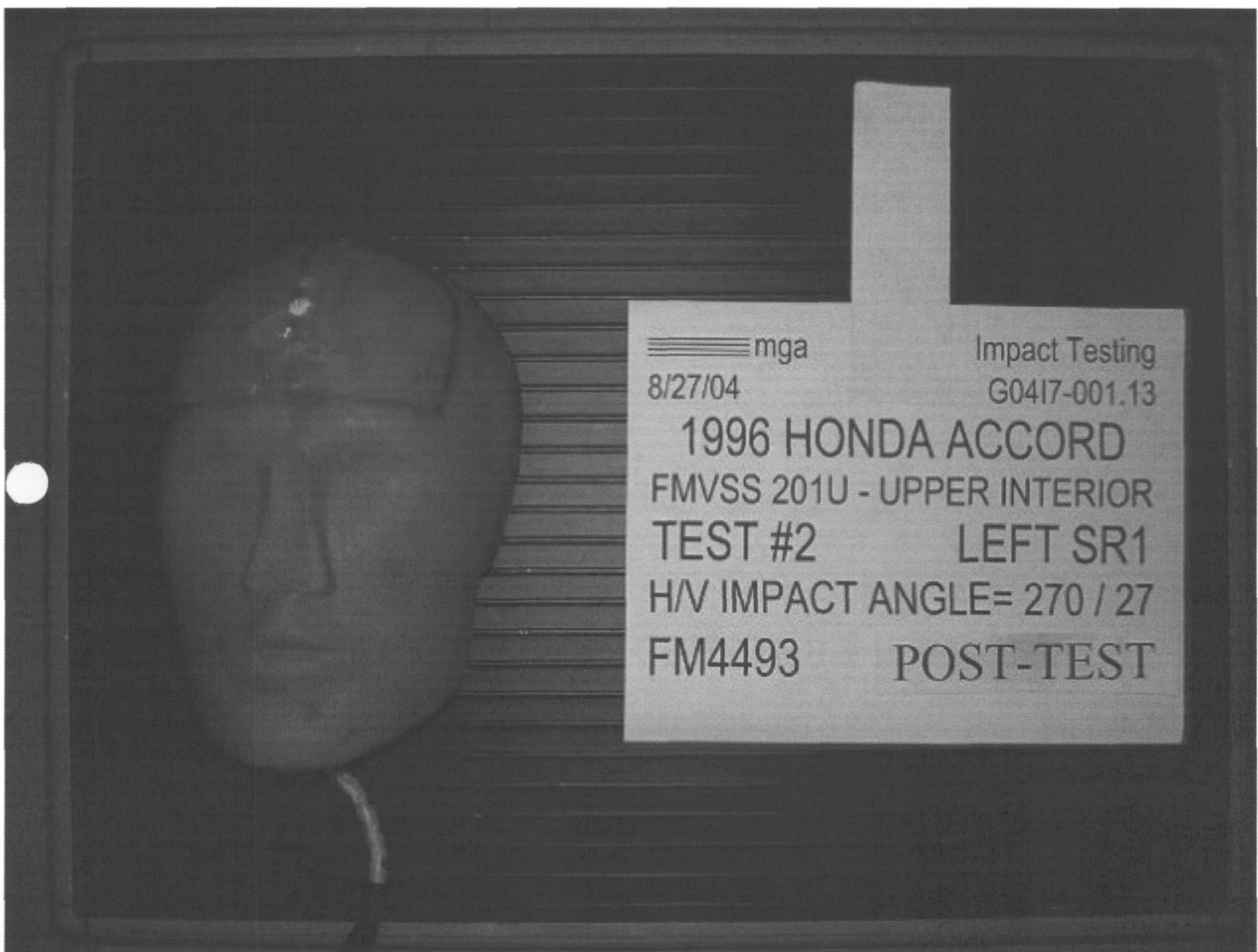
H/V IMPACT ANGLE= 270 / 27

FM4493

PRE - TEST







==== mga

Impact Testing

8/27/04

G04I7-001.13

1996 HONDA ACCORD

FMVSS 201U - UPPER INTERIOR

TEST #2

LEFT SR1

H/V IMPACT ANGLE= 270 / 27

FM4493

POST-TEST

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G04I7-001.13 VEHICLE YR/MAKE/MODEL: ACCORD 1996

GENERAL TEST PARAMETERS:

Test Number: #2

Target (Vehicle Side): SR1 Left

Temperature: 22C

MGA Test Reference No.: FM4493

Humidity: 68%

Approach Horizontal Angles: 270°

Time of Test: 8:50 AM

Approach Vertical Angles: 27°

FMH Serial No: 035

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
1220	1396	3.8	23.9	38	0

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35924	-92.4	1.67	1.67
Y	6	J35919	93.8	1.54	1.54
Z	7	J21969	88.5	1.58	1.58

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

No visible damage

Recorded By: [Signature] Approved By*: [Signature] Date: 8-27-04

*Only necessary for NHTSA (Government) Compliance testing.

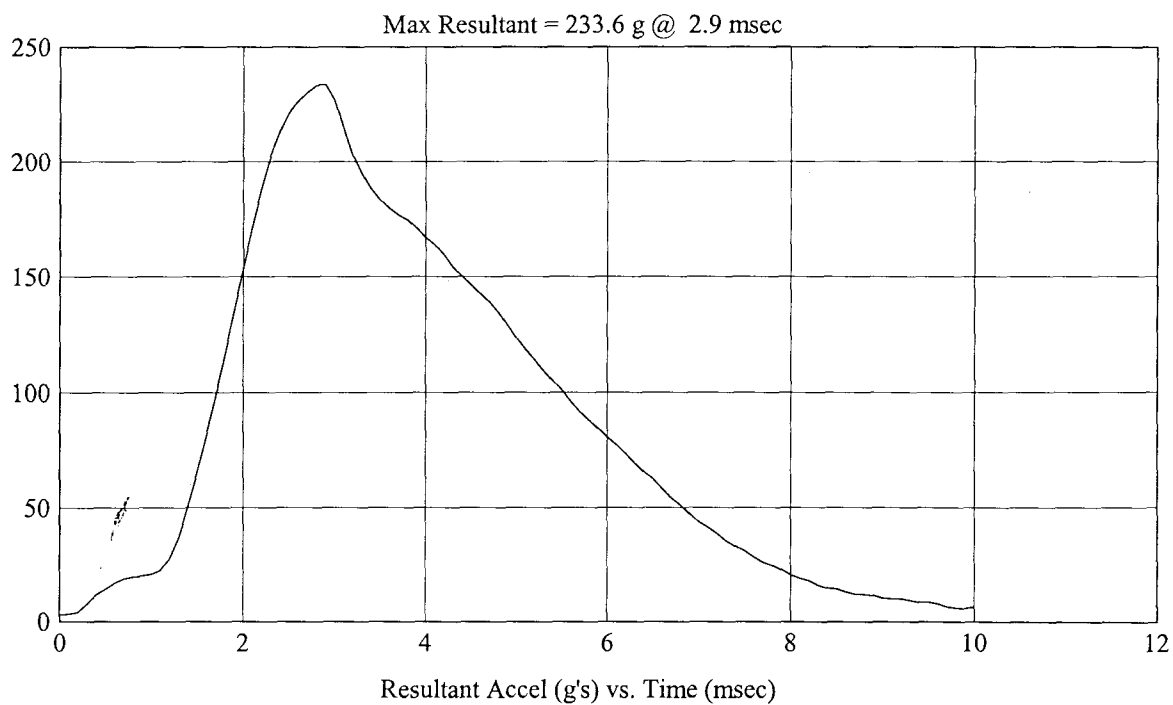
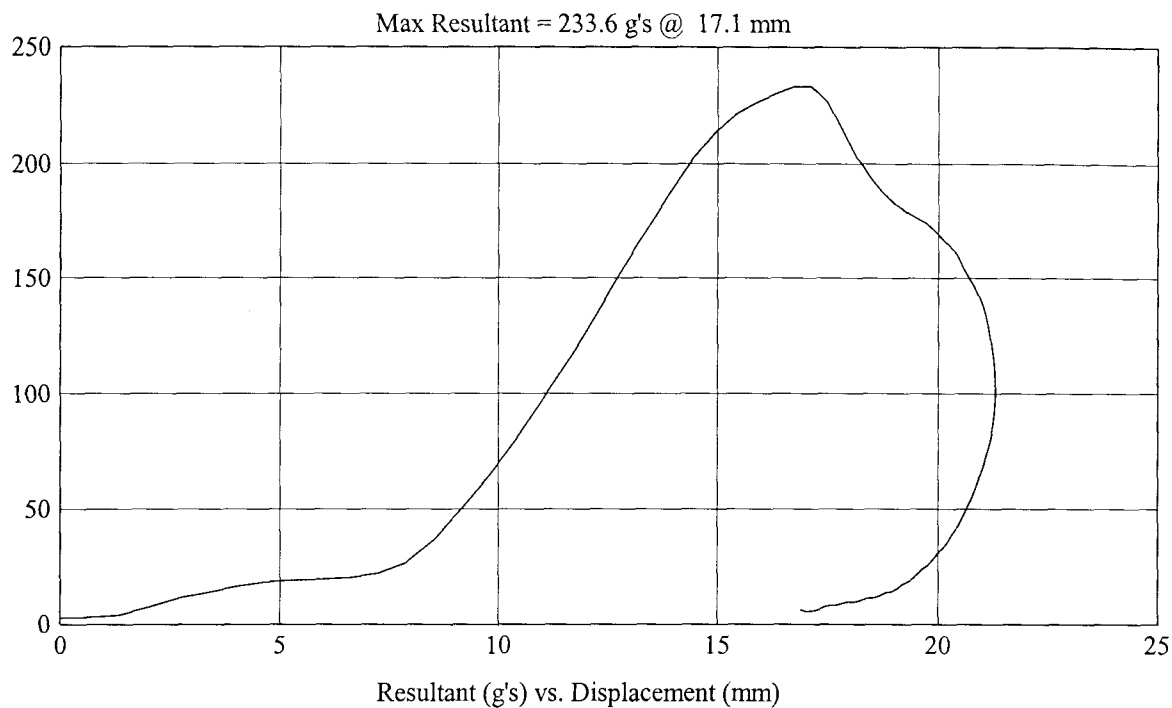
FMH
G04I7-001.13

Customer: HONDA
Test # 2
FM4493
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: SR1
Vehicle Side: Left
Horz/Vert Angle: 270/27

HIC(d) = 1220, HIC = 1396, Delta T = 3.8 msec



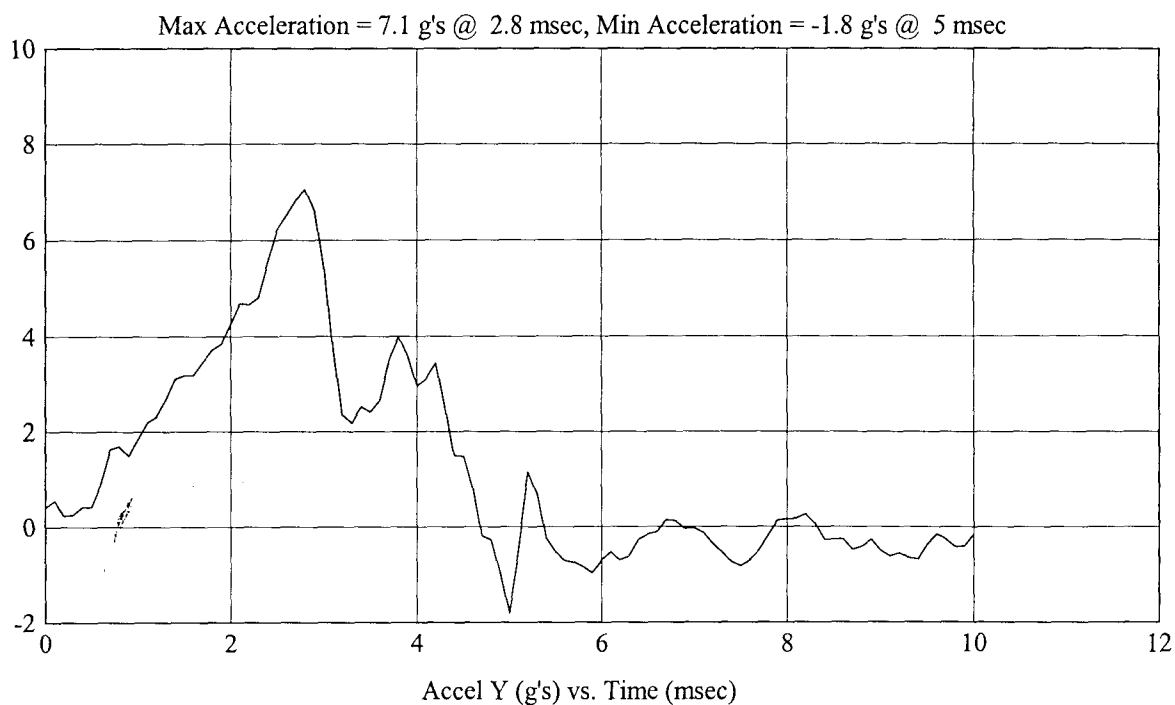
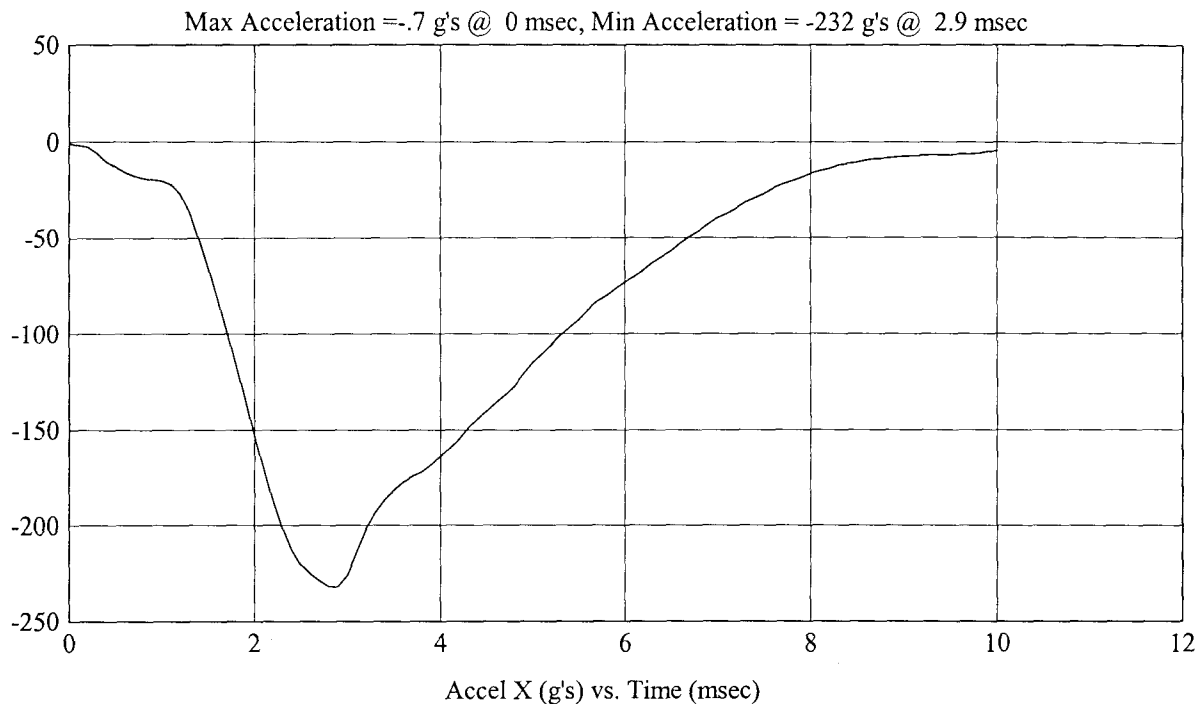
FMH
G04I7-001.13

Customer: HONDA
Test # 2
FM4493
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: SR1
Vehicle Side: Left
Horz/Vert Angle: 270/27

HIC(d) = 1220, HIC = 1396, Delta T = 3.8 msec



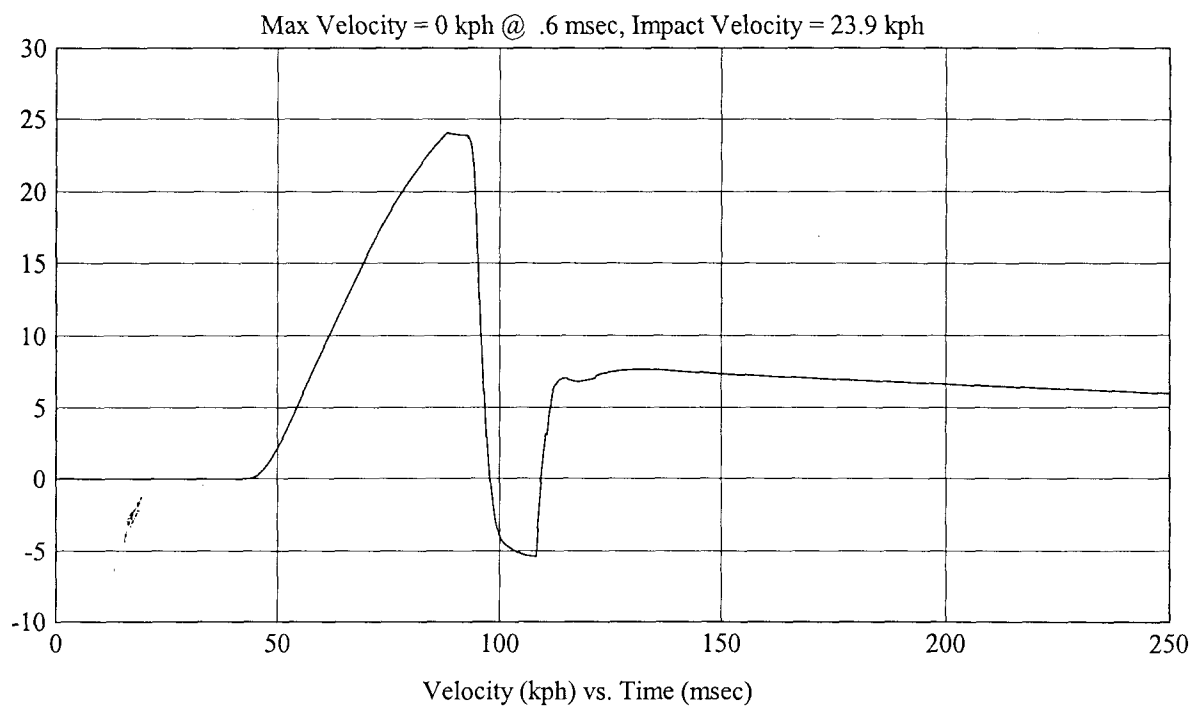
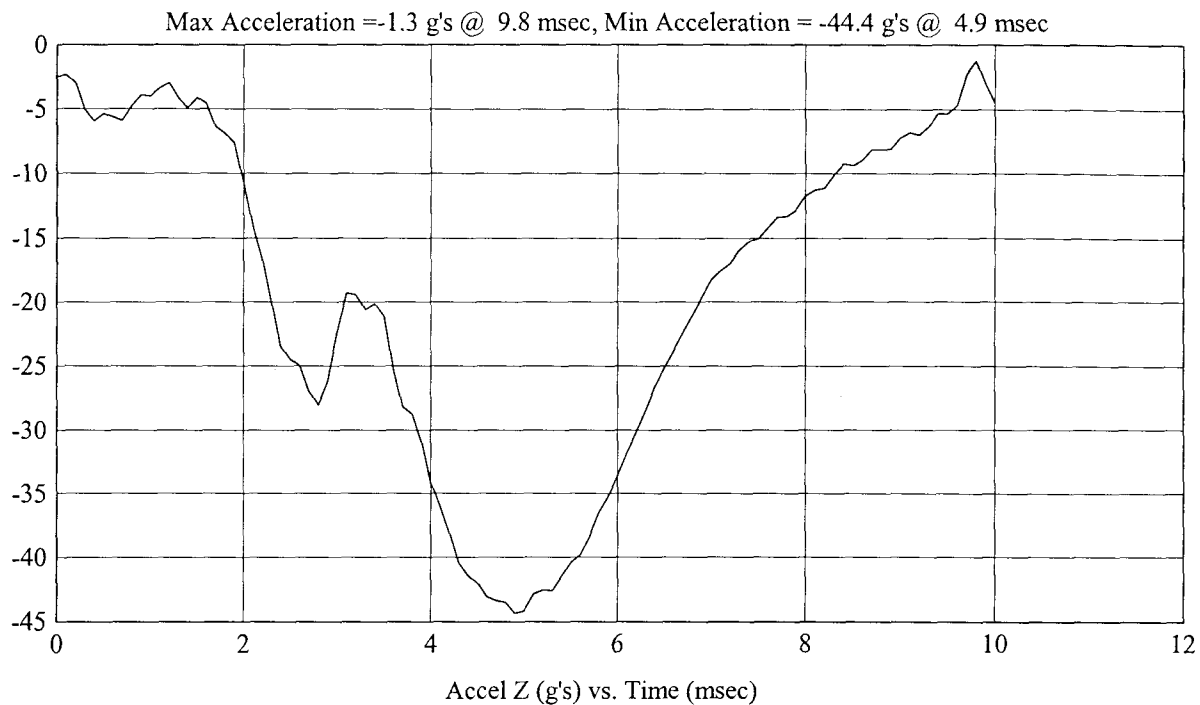
FMH
G04I7-001.13

Customer: HONDA
Test # 2
FM4493
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: SR1
Vehicle Side: Left
Horz/Vert Angle: 270/27

HIC(d) = 1220, HIC = 1396, Delta T = 3.8 msec



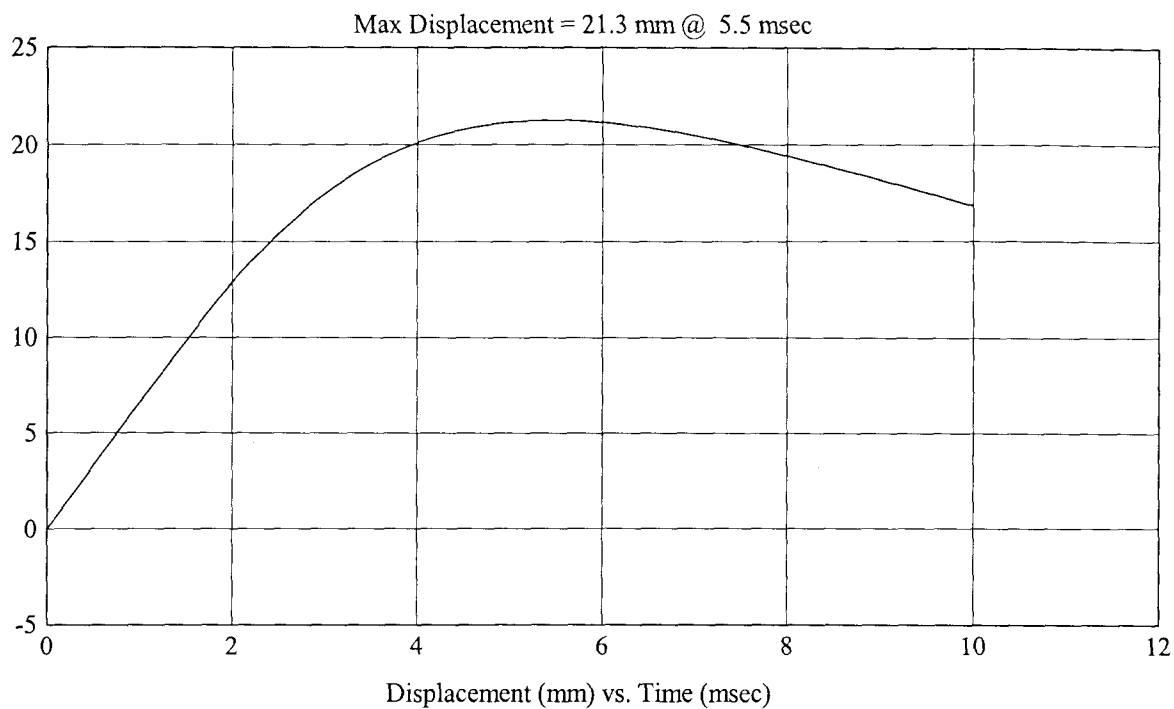
FMH
G04I7-001.13

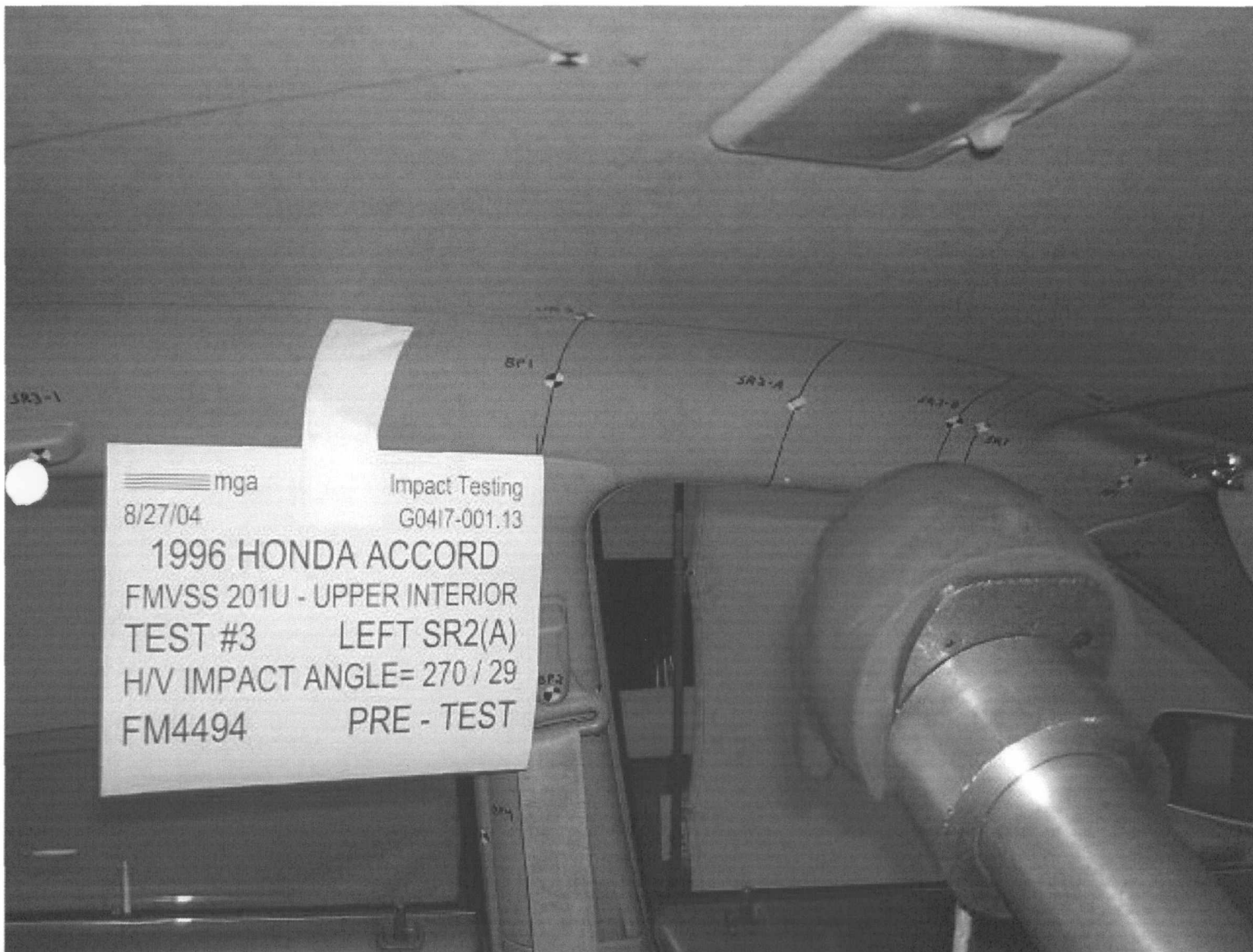
Customer: HONDA
Test # 2
FM4493
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: SR1
Vehicle Side: Left
Horz/Vert Angle: 270/27

HIC(d) = 1220, HIC = 1396, Delta T = 3.8 msec





mga
8/27/04

Impact Testing
G0417-001.13

1996 HONDA ACCORD
FMVSS 201U - UPPER INTERIOR
TEST #3 LEFT SR2(A)
H/V IMPACT ANGLE= 270 / 29
FM4494 POST-TEST

PT5300
FM4494
SR2-A L/S
270/29



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8/27/04

Impact Testing

G04I7-001.13

1996 HONDA ACCORD

FMVSS 201U - UPPER INTERIOR

TEST #3 LEFT SR2(A)

H/V IMPACT ANGLE= 270 / 29

FM4494 POST-TEST

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G04I7-001.13 VEHICLE YR/MAKE/MODEL: ACCORD 1996

GENERAL TEST PARAMETERS:

Test Number: #3

Target (Vehicle Side): SR2(a) Left

Temperature: 22C

MGA Test Reference No.: FM4494

Humidity: 68%

Approach Horizontal Angles: 270°

Time of Test: 9:20 AM

Approach Vertical Angles: 29°

FMH Serial No: 036

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
1248	1433	4.7	24.0	25	0

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35923	-100.8	1.67	1.67
Y	6	J35916	100.2	1.54	1.55
Z	7	J35918	97.9	1.58	1.58

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

~~No visible damage~~ headliner deformationRecorded By: [Signature] Approved By*: Helen A. K... Date: 6-27-04

*Only necessary for NHTSA (Government) Compliance testing.

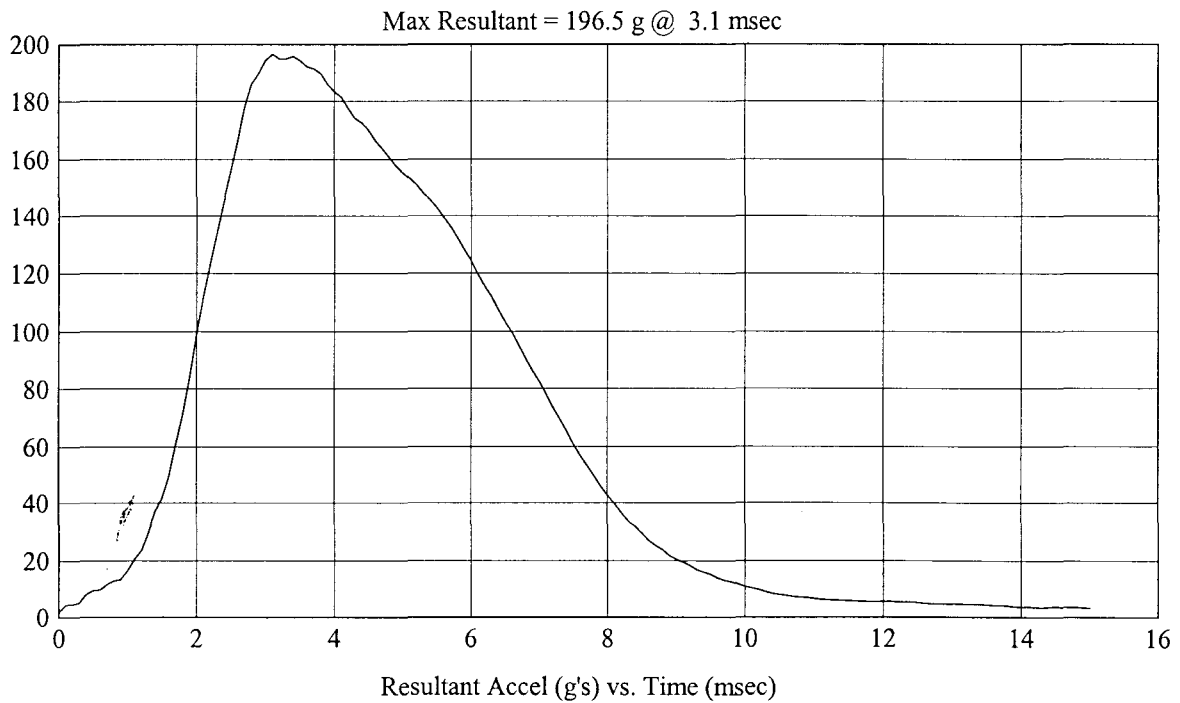
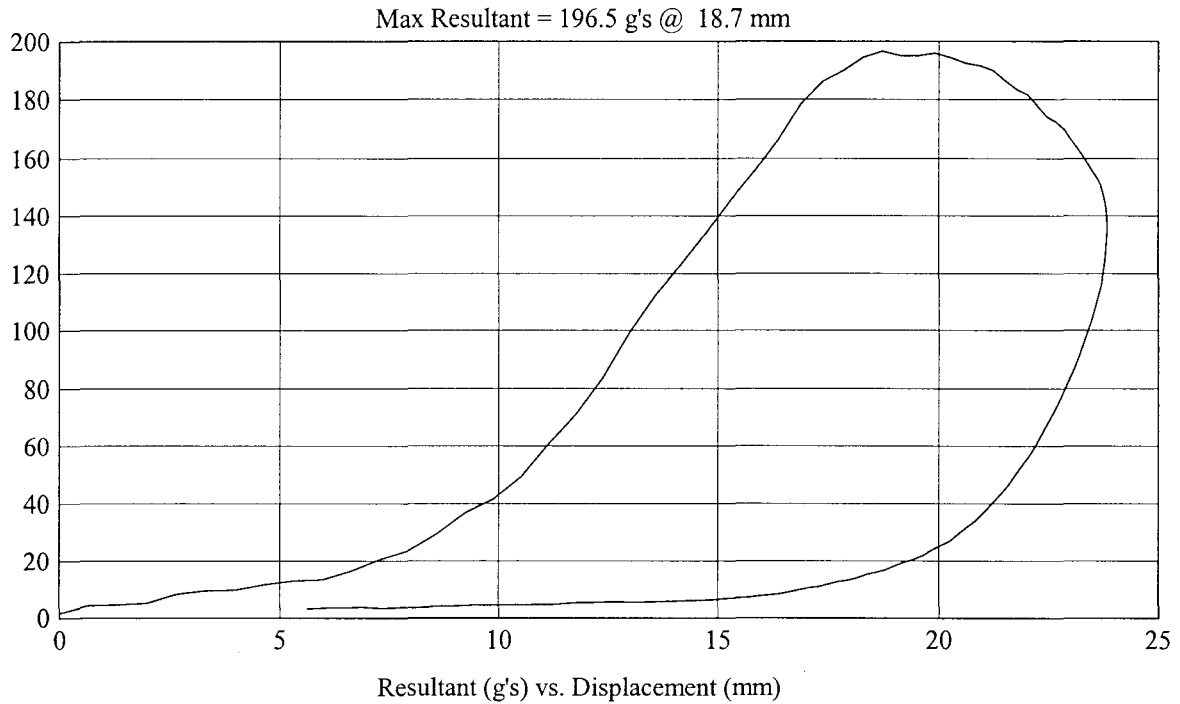
FMH
G04I7-001.13

Customer: HONDA
Test # 3
FM4494
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: SR2(a)
Vehicle Side: Left
Horz/Vert Angle: 270/29

HIC(d) = 1248, HIC = 1433, Delta T = 4.7 msec



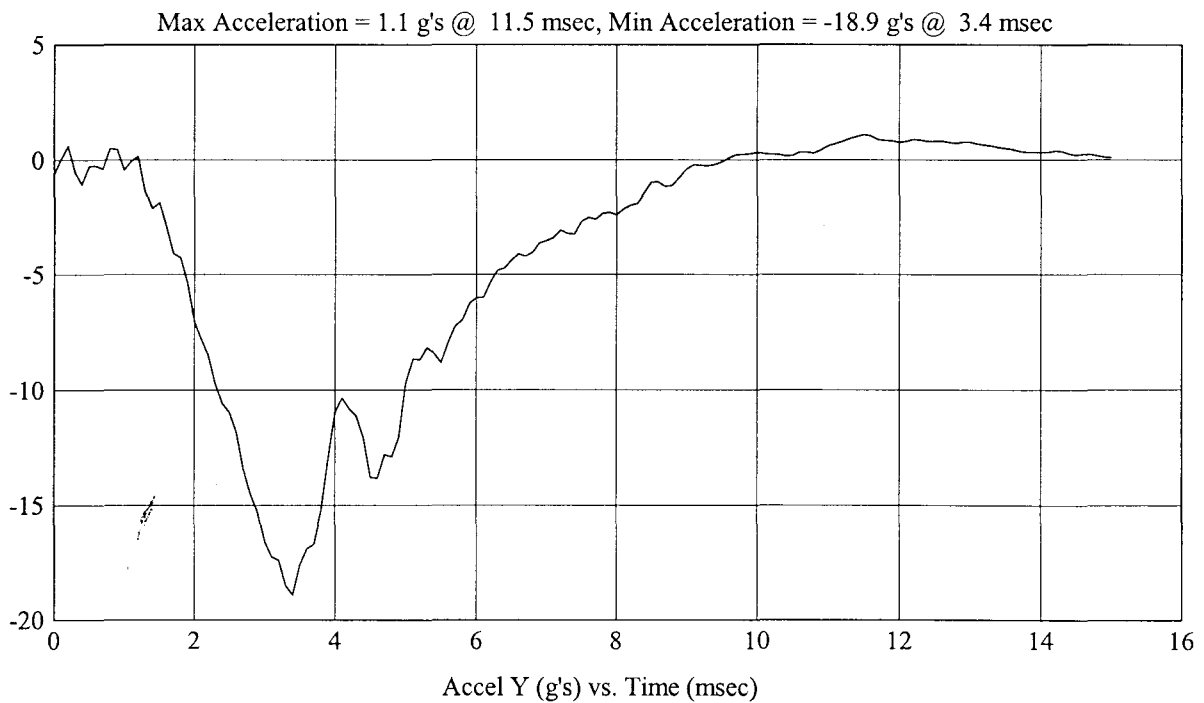
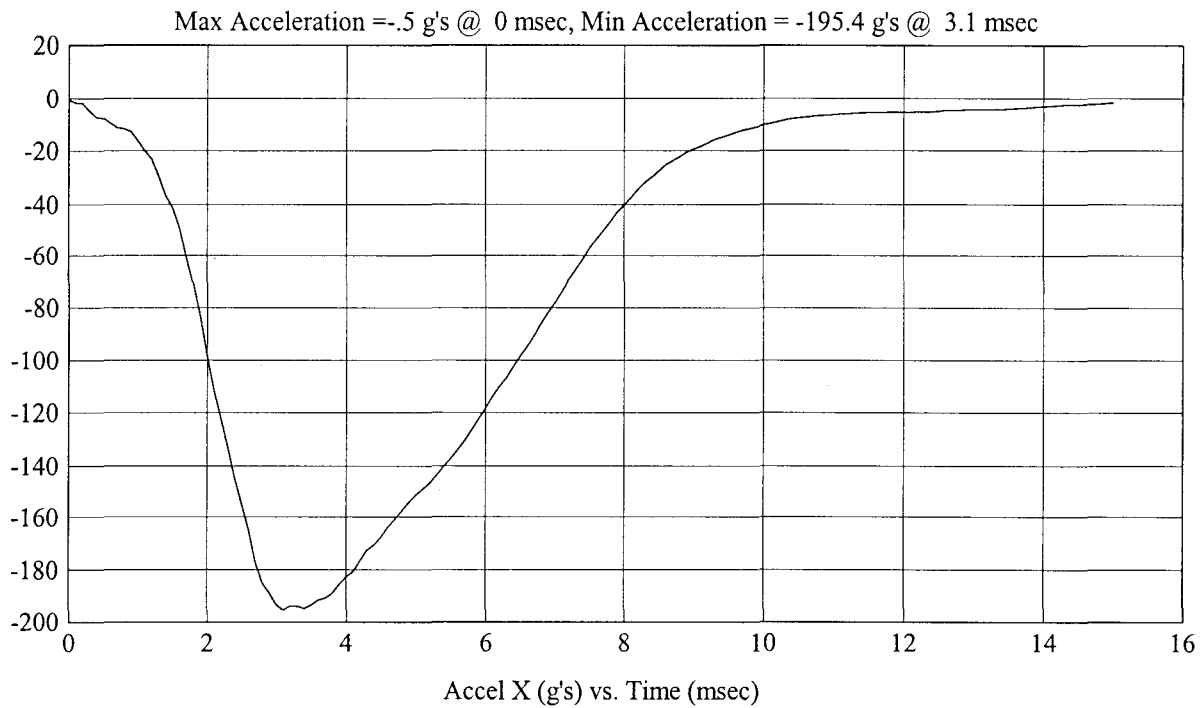
FMH
G04I7-001.13

Customer: HONDA
Test # 3
FM4494
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: SR2(a)
Vehicle Side: Left
Horz/Vert Angle: 270/29

HIC(d) = 1248, HIC = 1433, Delta T = 4.7 msec



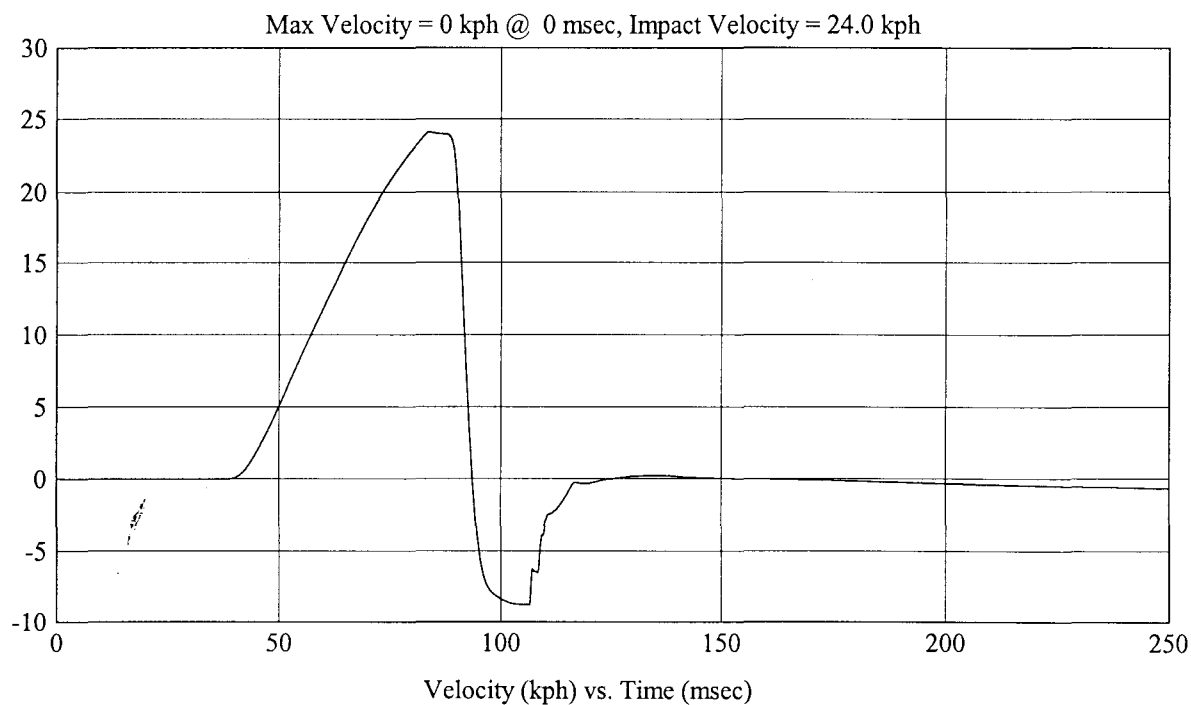
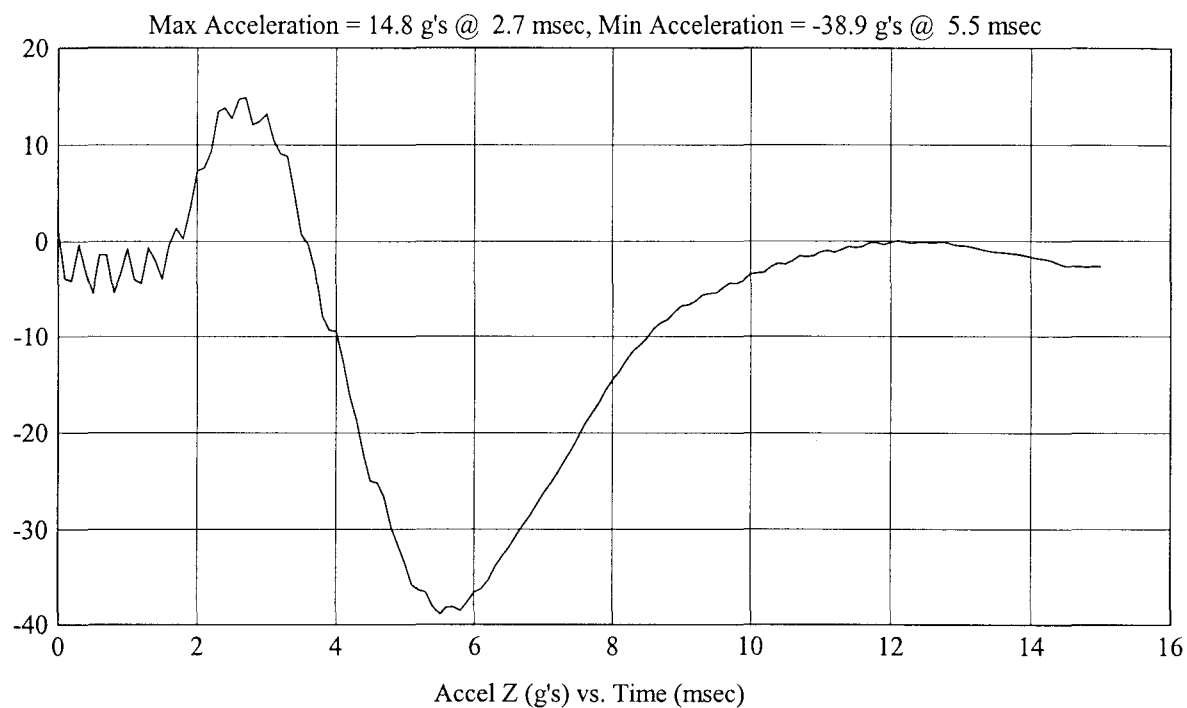
FMH
G04I7-001.13

Customer: HONDA
Test # 3
FM4494
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: SR2(a)
Vehicle Side: Left
Horz/Vert Angle: 270/29

HIC(d) = 1248, HIC = 1433, Delta T = 4.7 msec



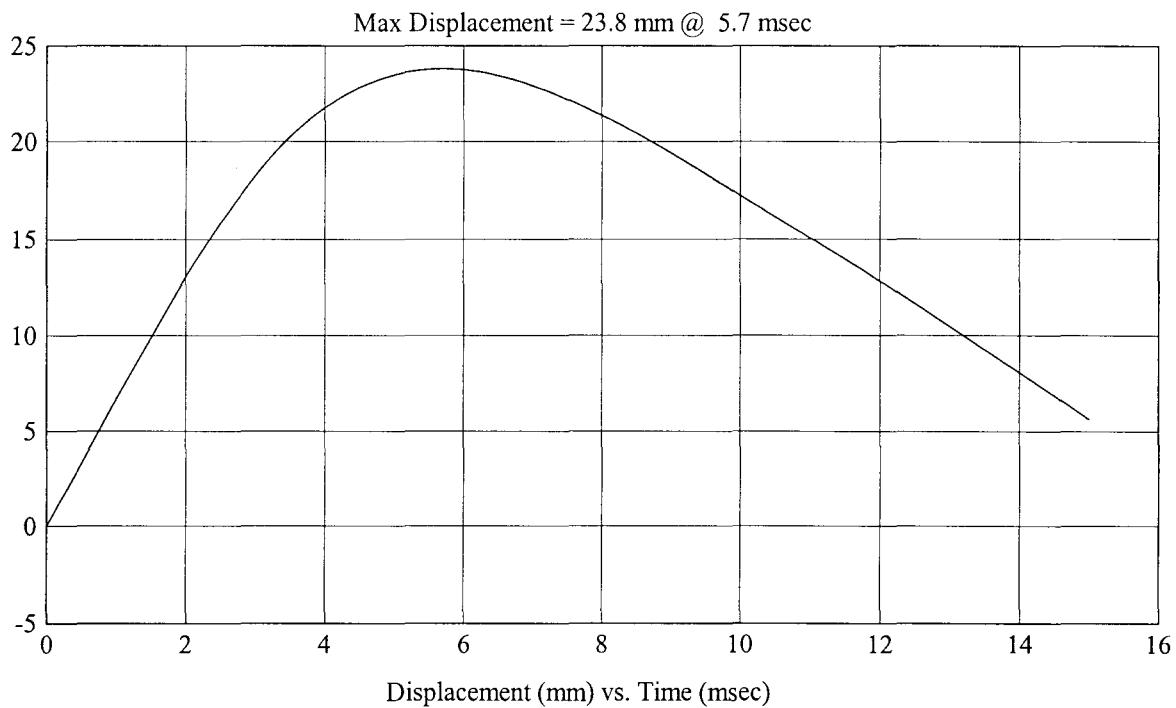
FMH
G04I7-001.13

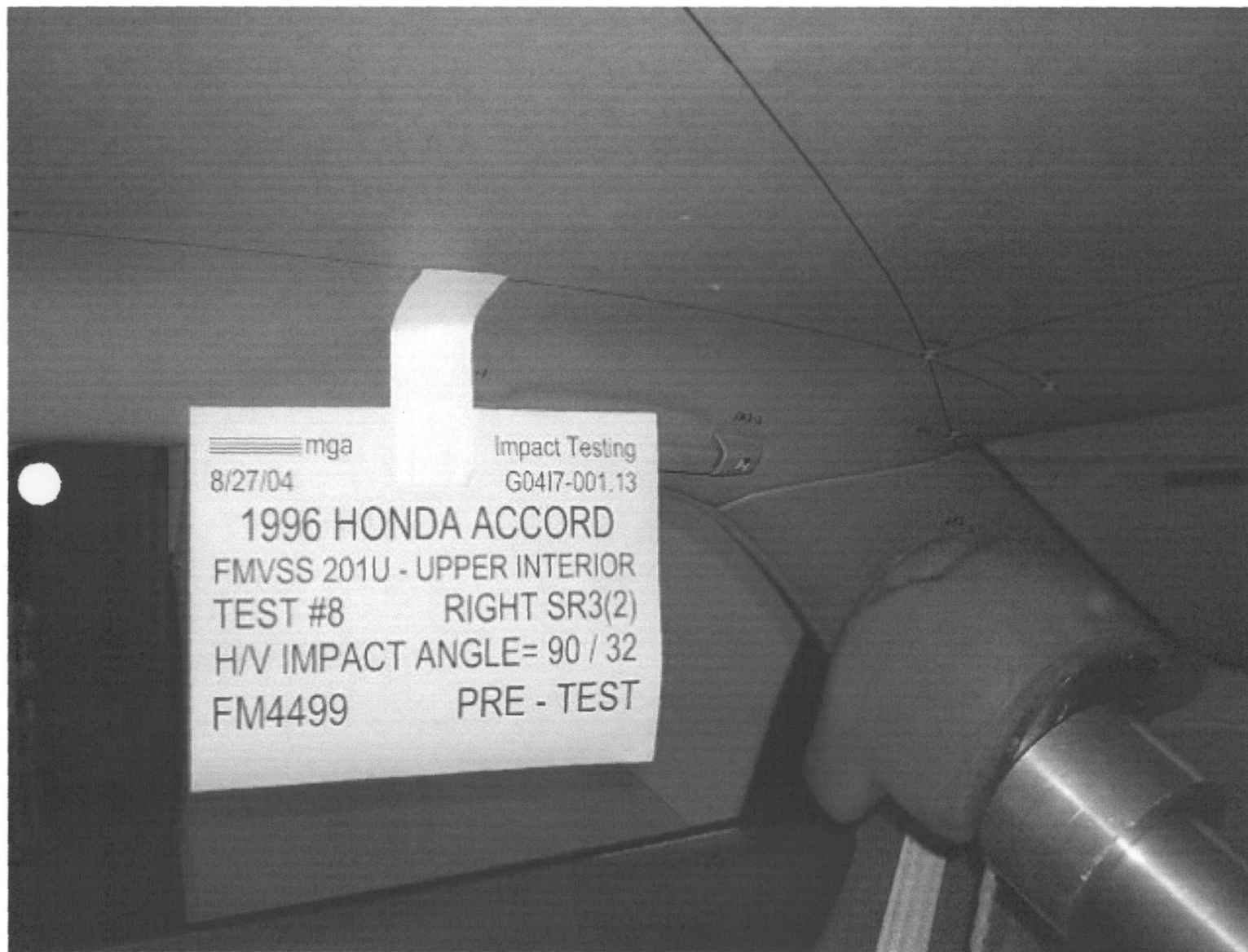
Customer: HONDA
Test # 3
FM4494
Additional Desc: N/A

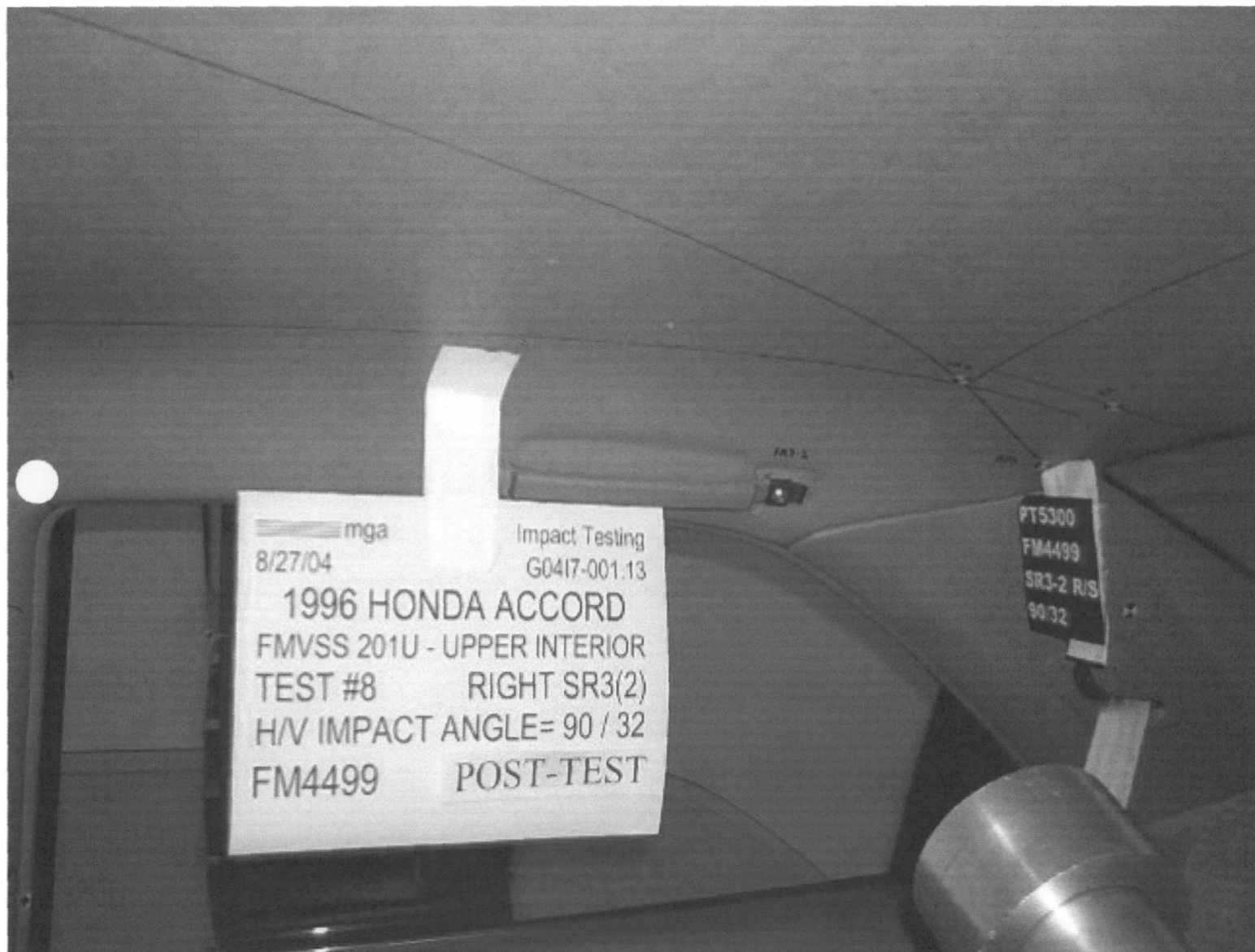
Vehicle Program : ACCORD

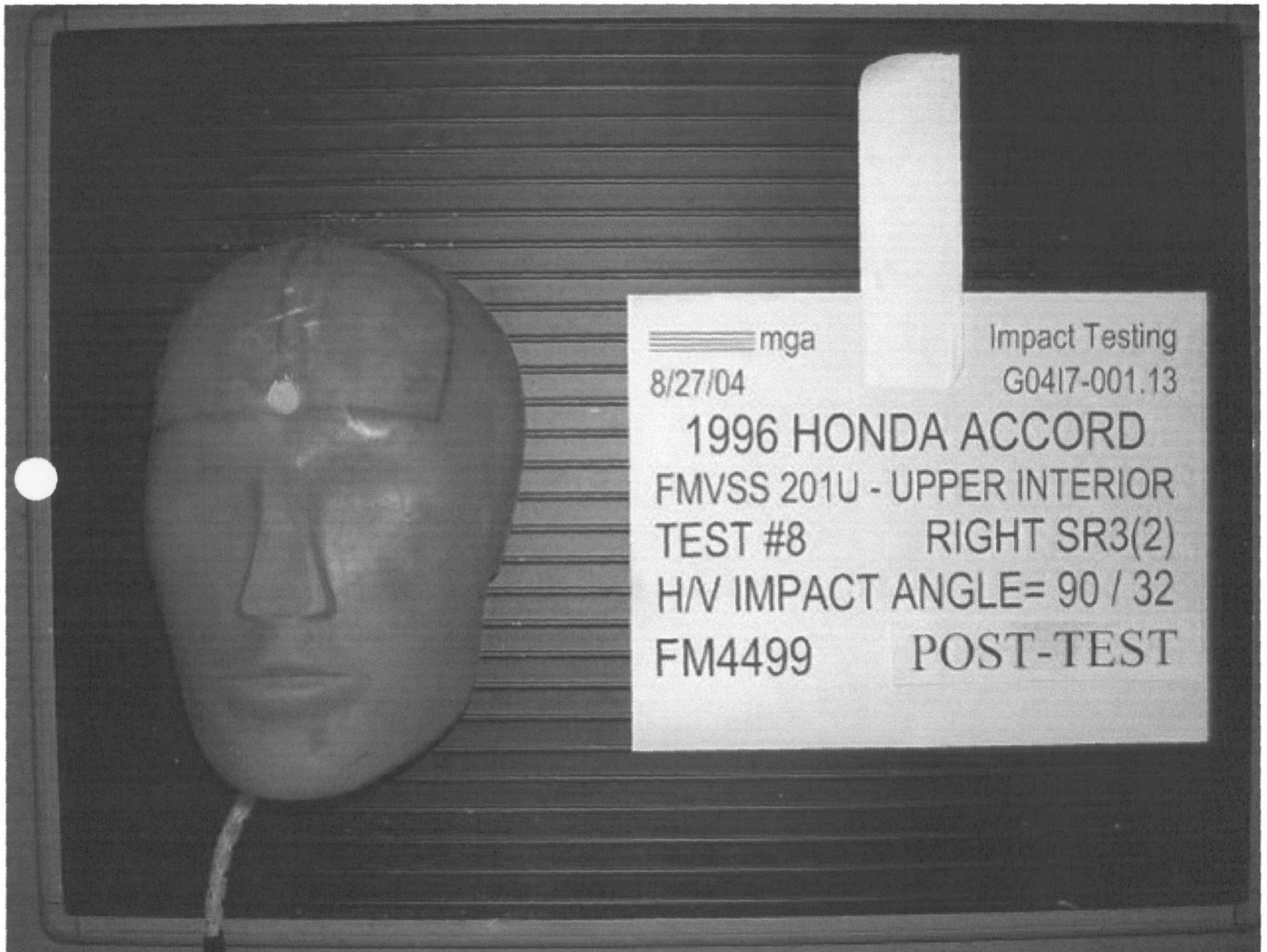
Model Year: 1996
Target: SR2(a)
Vehicle Side: Left
Horz/Vert Angle: 270/29

HIC(d) = 1248, HIC = 1433, Delta T = 4.7 msec









mga
8/27/04

Impact Testing
G0417-001.13

1996 HONDA ACCORD
FMVSS 201U - UPPER INTERIOR
TEST #8 RIGHT SR3(2)
H/V IMPACT ANGLE= 90 / 32
FM4499 POST-TEST

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G04I7-001.13 VEHICLE YR/MAKE/MODEL: ACCORD 1996

GENERAL TEST PARAMETERS:

Test Number: #8

Target (Vehicle Side): SR3(2) Right

Temperature: 22C

MGA Test Reference No.: FM4499

Humidity: 69%

Approach Horizontal Angles: 90°

Time of Test: 3:40 PM

Approach Vertical Angles: 32°

FMH Serial No: 035

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
711	722	7.2	24.0	5	0

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35924	-92.4	1.67	1.67
Y	6	J35919	93.8	1.54	1.54
Z	7	J21969	88.5	1.58	1.58

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

Broke grab handle

Recorded By: m jre Approved By*: Devin Kalish Date: 8-27-04

*Only necessary for NHTSA (Government) Compliance testing.

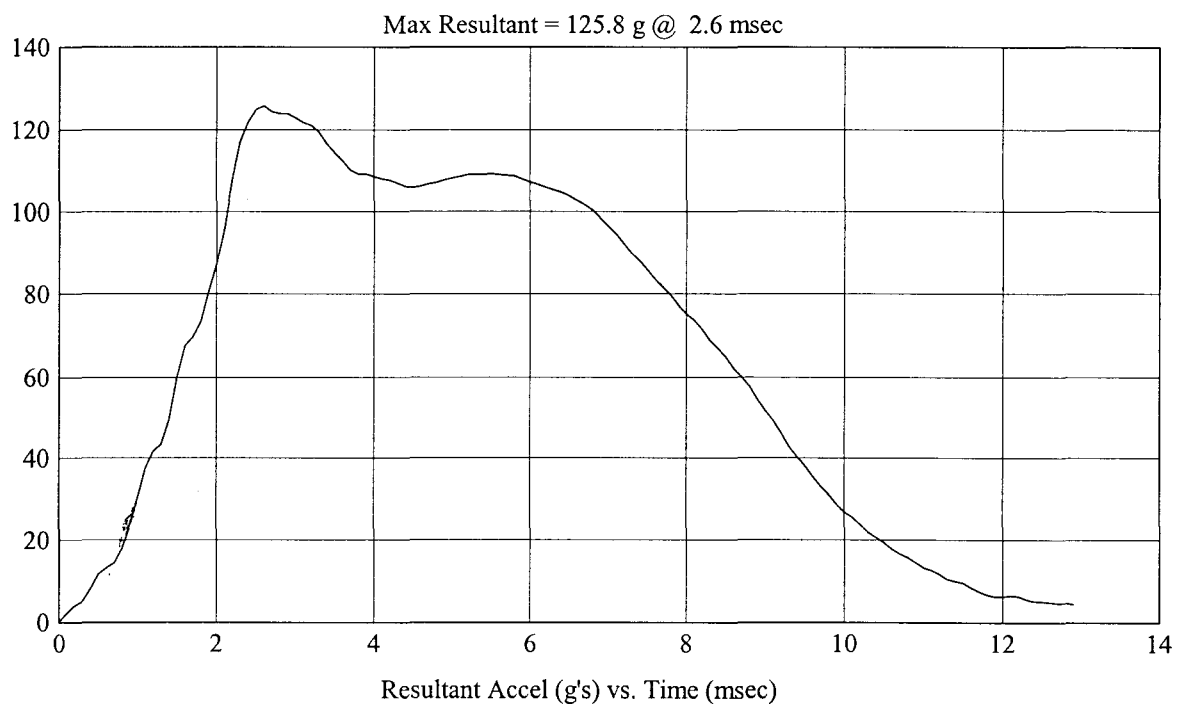
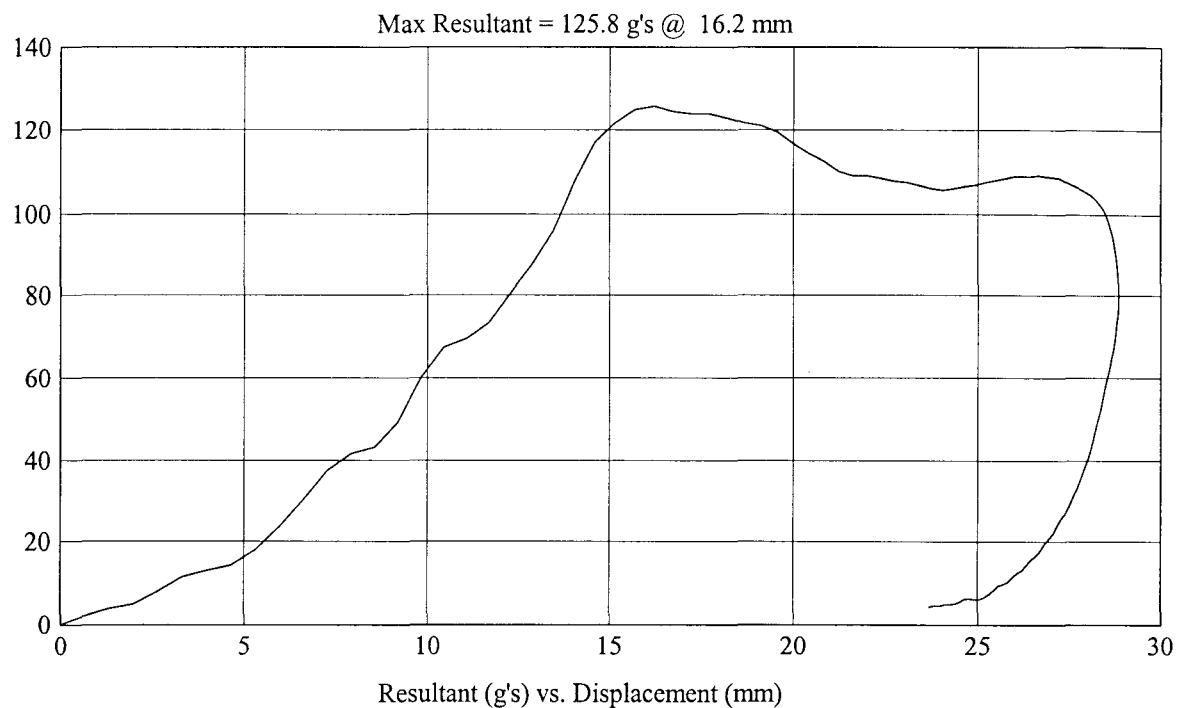
FMH
G04I7-001.13

Customer: HONDA
Test # 8
FM4499
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: SR3(2)
Vehicle Side: Right
Horz/Vert Angle: 90/32

HIC(d) = 711, HIC = 722, Delta T = 7.2 msec



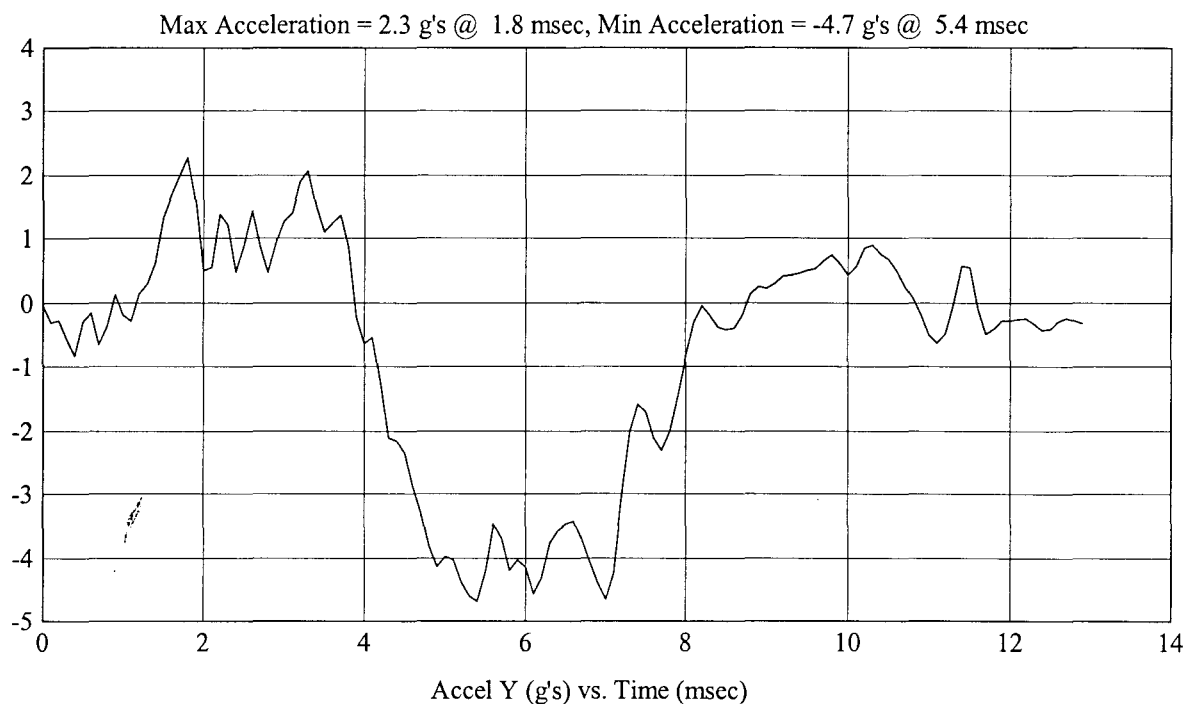
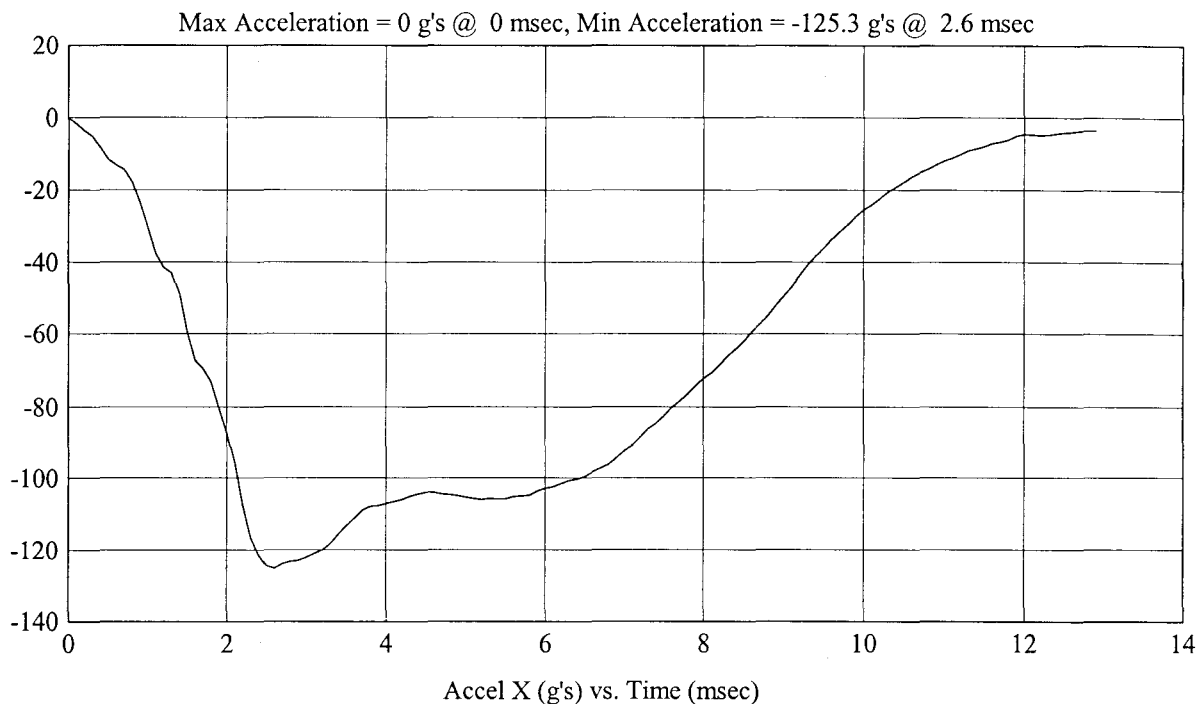
FMH
G04I7-001.13

Customer: HONDA
Test # 8
FM4499
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: SR3(2)
Vehicle Side: Right
Horz/Vert Angle: 90/32

HIC(d) = 711, HIC = 722, Delta T = 7.2 msec



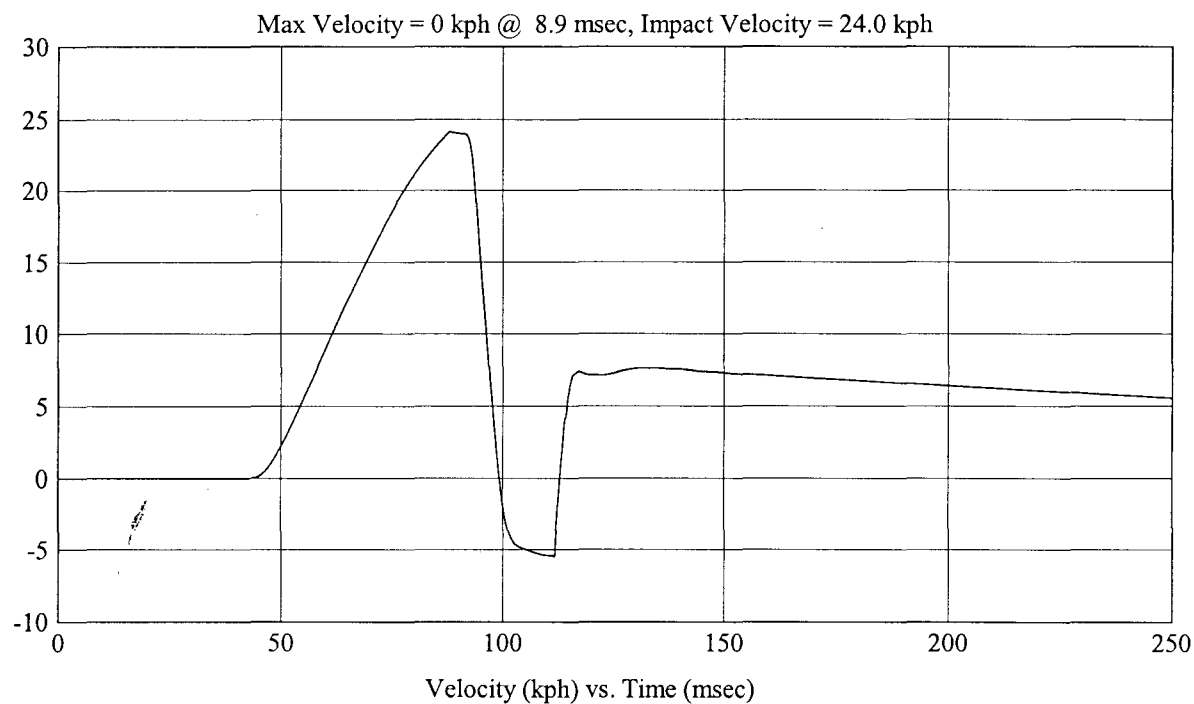
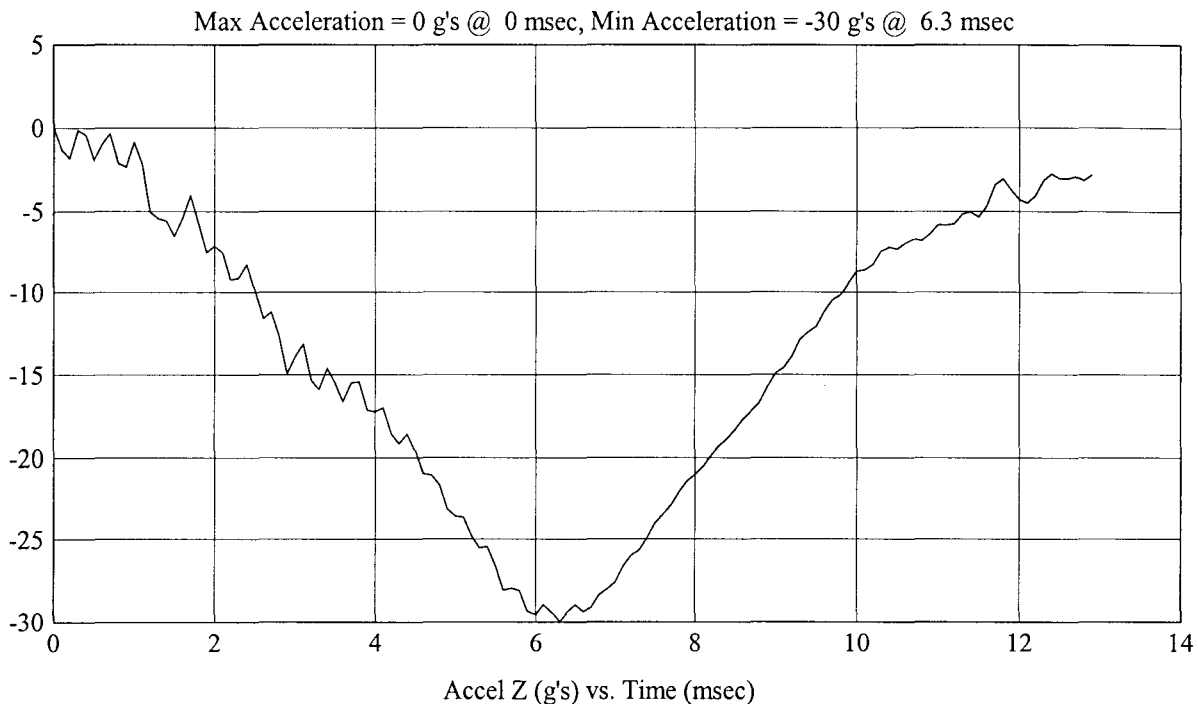
FMH
G04I7-001.13

Customer: HONDA
Test # 8
FM4499
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: SR3(2)
Vehicle Side: Right
Horz/Vert Angle: 90/32

HIC(d) = 711, HIC = 722, Delta T = 7.2 msec



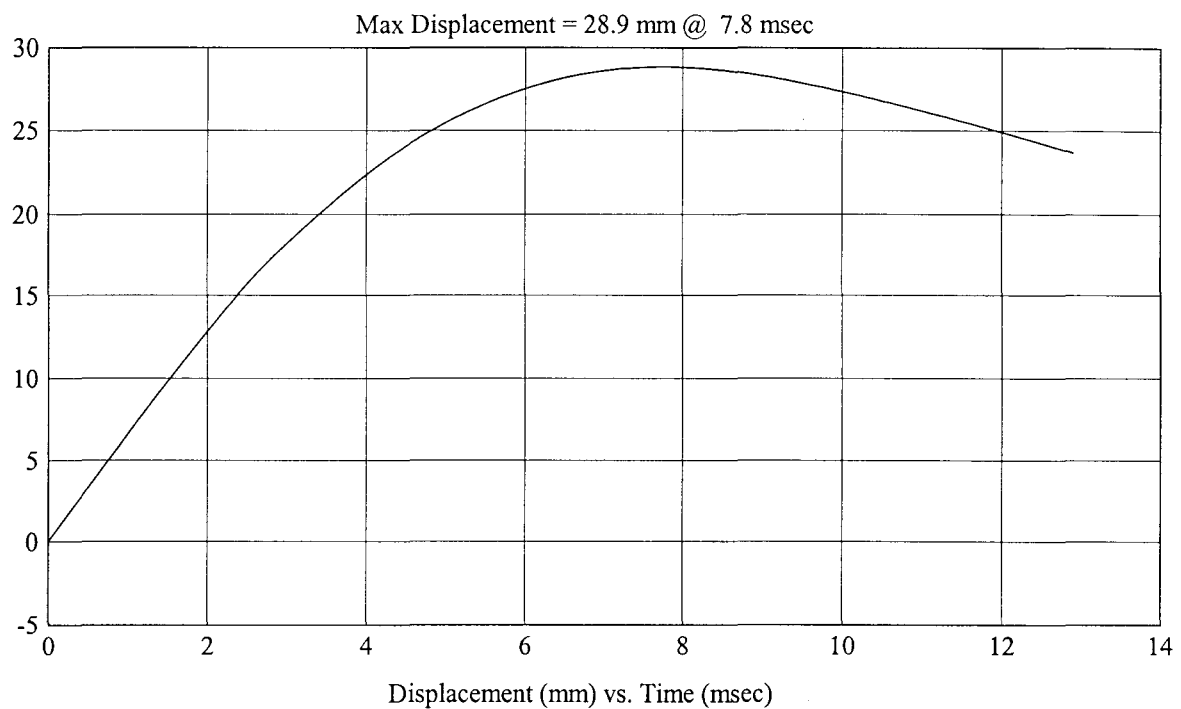
FMH
G04I7-001.13

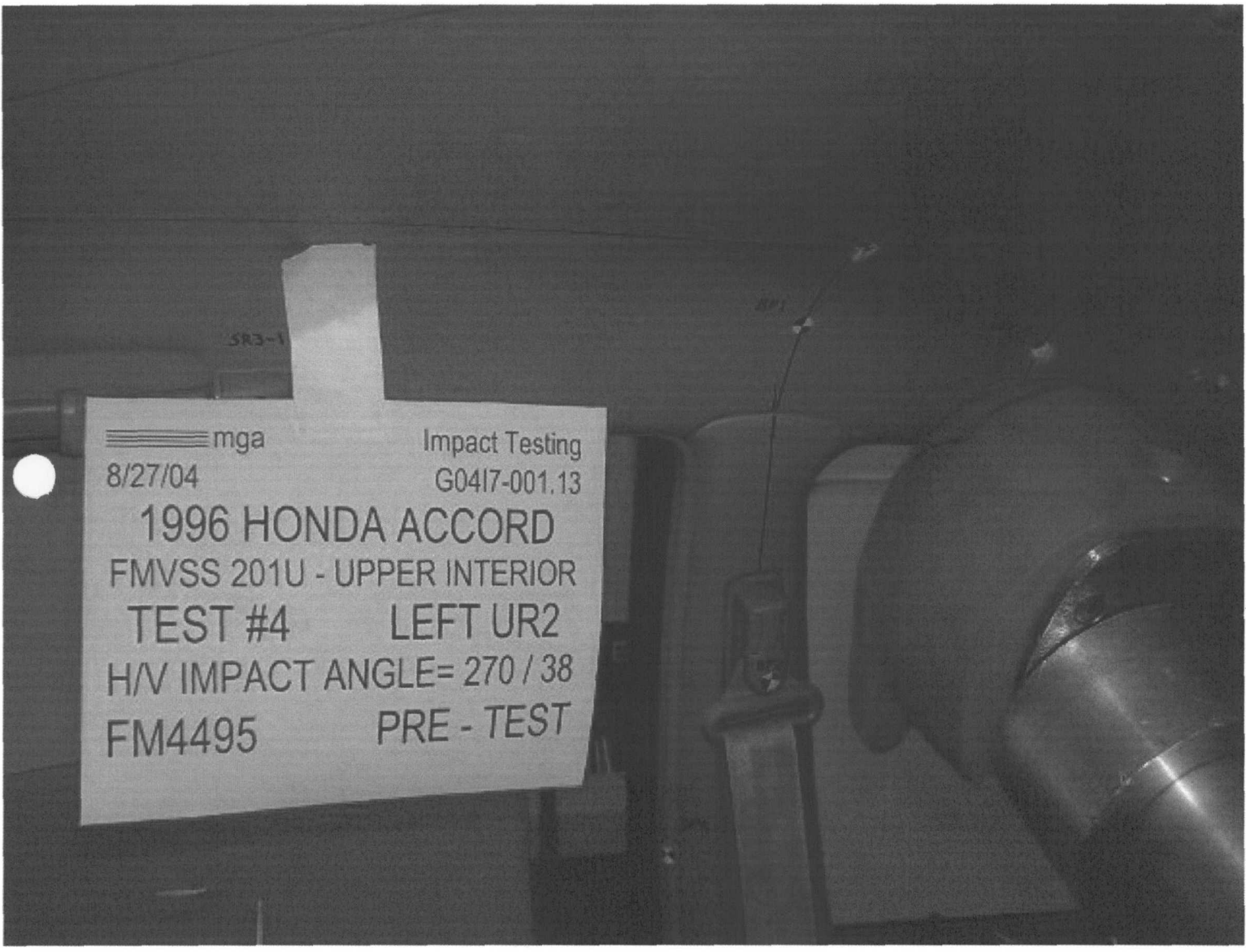
Customer: HONDA
Test # 8
FM4499
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: SR3(2)
Vehicle Side: Right
Horz/Vert Angle: 90/32

HIC(d) = 711, HIC = 722, Delta T = 7.2 msec





SR3-1

mga

8/27/04

Impact Testing

G0417-001.13

1996 HONDA ACCORD

FMVSS 201U - UPPER INTERIOR

TEST #4 LEFT UR2

H/V IMPACT ANGLE= 270 / 38

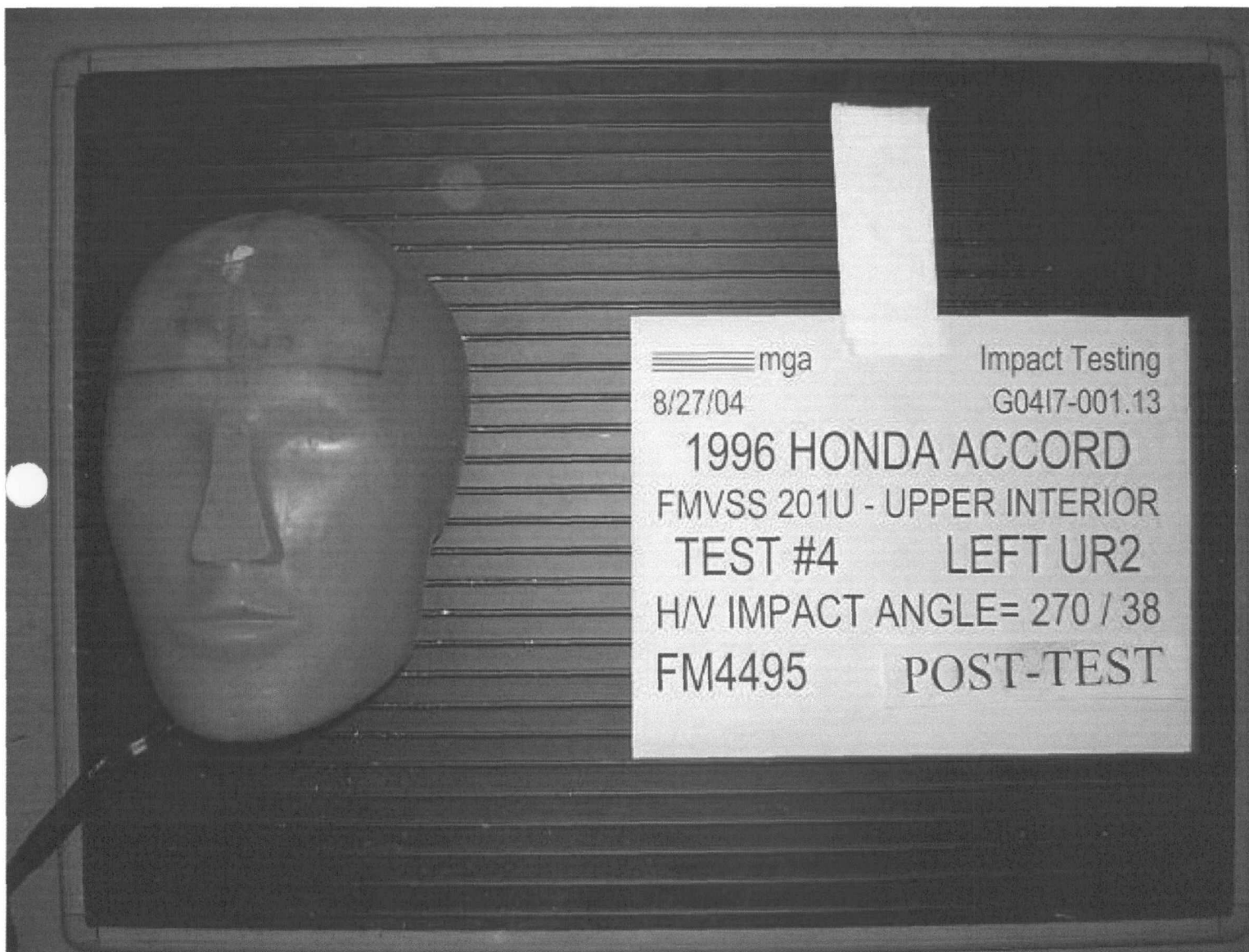
FM4495 PRE - TEST

mga
8/27/04

Impact Testing
G0417-001.13

1996 HONDA ACCORD
FMVSS 201U - UPPER INTERIOR
TEST #4 LEFT UR2
H/V IMPACT ANGLE= 270 / 38
FM4495 POST-TEST

PT5300
FM4495
UR2 L/S
270/38



==== mga

Impact Testing

8/27/04

G04I7-001.13

1996 HONDA ACCORD

FMVSS 201U - UPPER INTERIOR

TEST #4 LEFT UR2

H/V IMPACT ANGLE= 270 / 38

FM4495 POST-TEST

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G04I7-001.13 VEHICLE YR/MAKE/MODEL: ACCORD 1996

GENERAL TEST PARAMETERS:

Test Number: #4

Target (Vehicle Side): UR2 Left

Temperature: 22C

MGA Test Reference No.: FM4495

Humidity: 68%

Approach Horizontal Angles: 270°

Time of Test: 10:00 AM

Approach Vertical Angles: 38°

FMH Serial No: 038

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
741	762	6.4	23.8	50	0

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J36197	-108	1.68	1.67
Y	6	J36193	101.4	1.54	1.54
Z	7	J36353	96.8	1.40	1.41

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

Headliner deformation

Recorded By: sm jia Approved By*: Helen Q. Kalish Date: 8-27-01

*Only necessary for NHTSA (Government) Compliance testing.

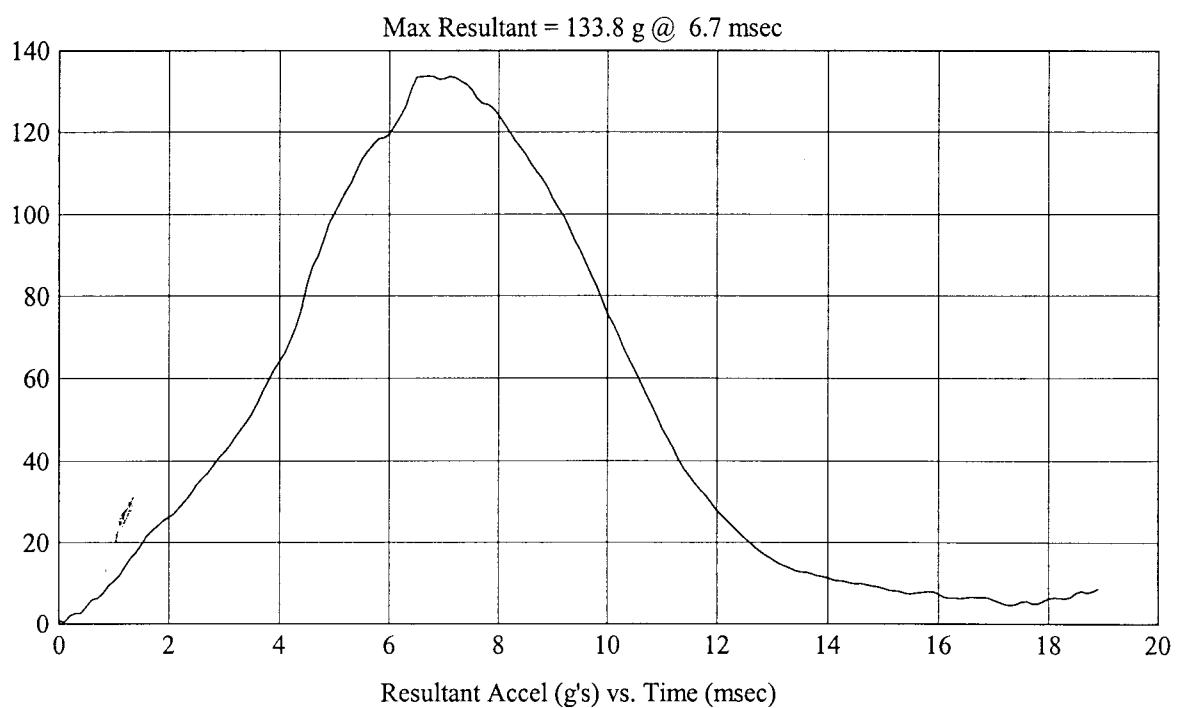
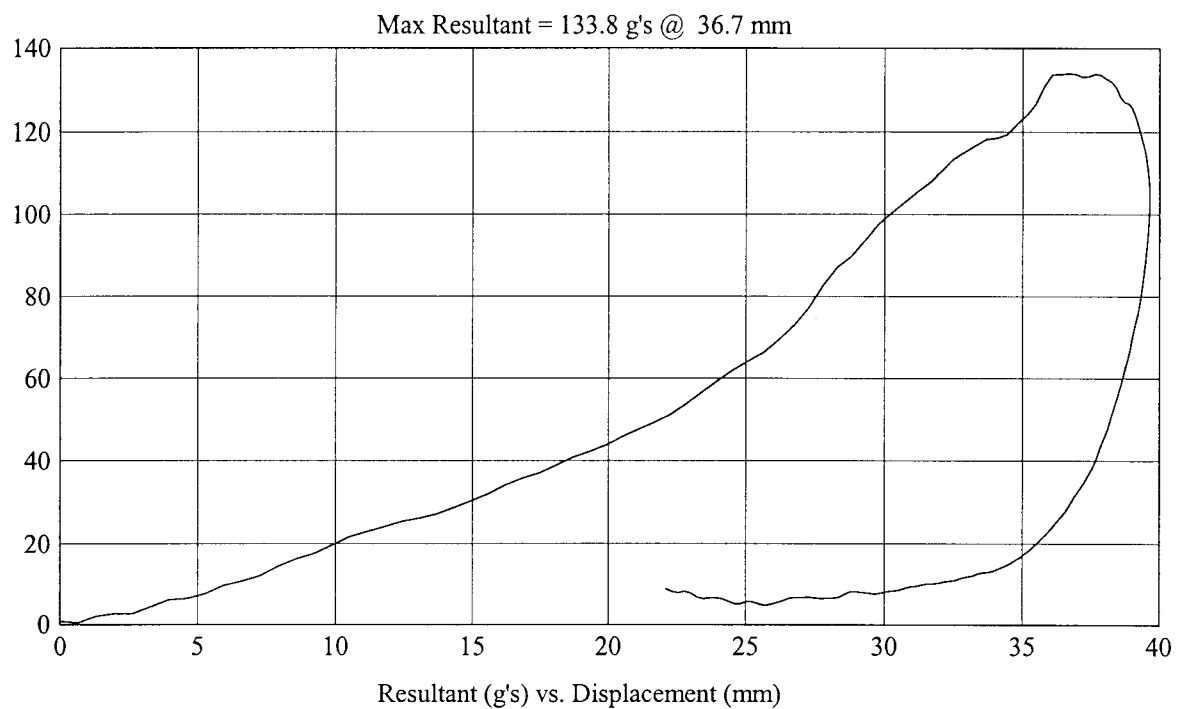
FMH
G04I7-001.13

Customer: HONDA
Test # 4
FM4495
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: UR2
Vehicle Side: Left
Horz/Vert Angle: 270/38

HIC(d) = 741, HIC = 762, Delta T = 6.4 msec



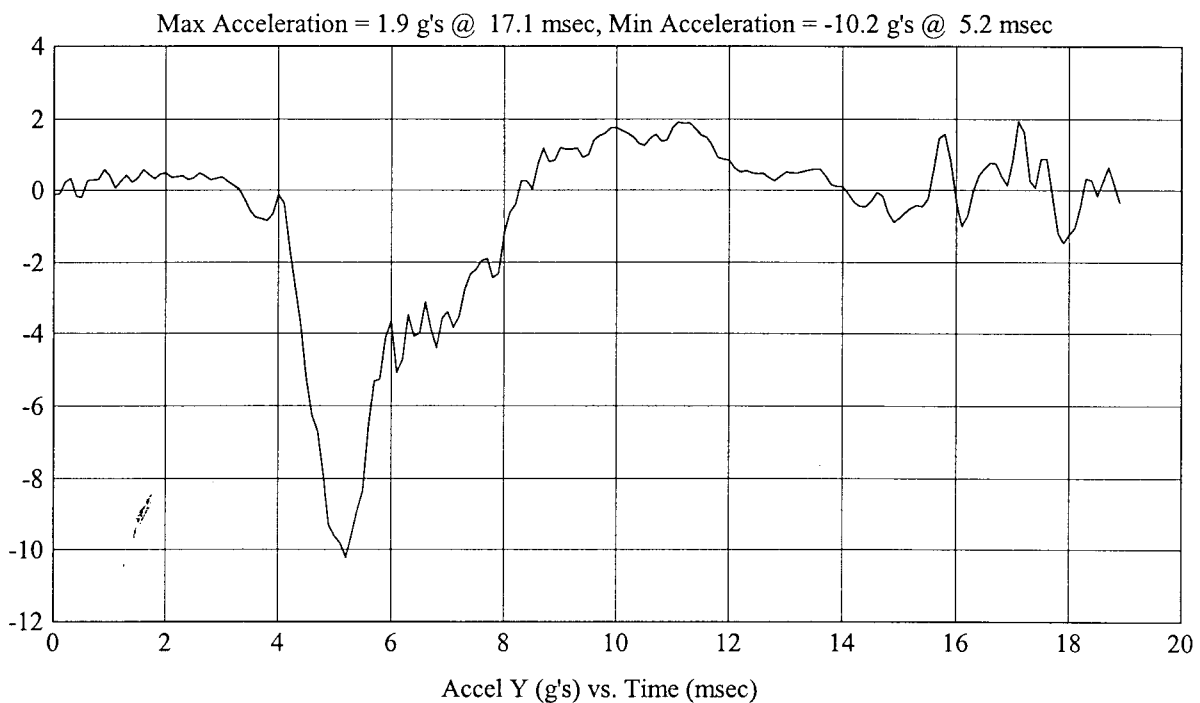
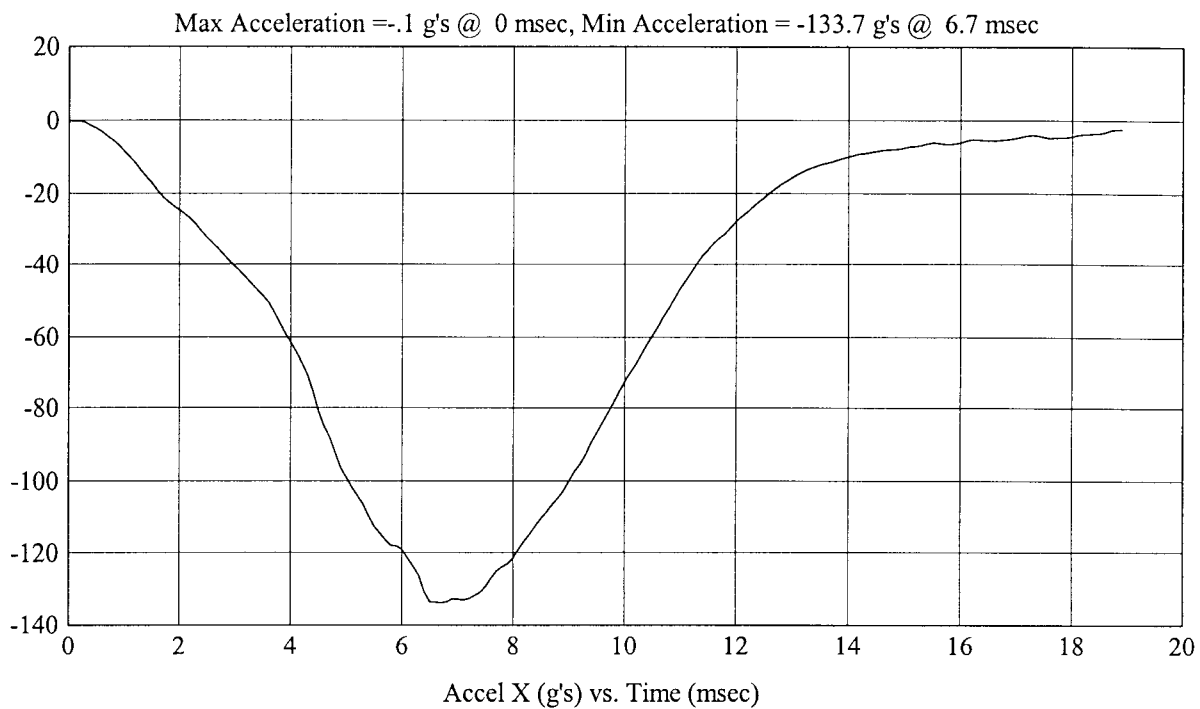
FMH
G04I7-001.13

Customer: HONDA
Test # 4
FM4495
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: UR2
Vehicle Side: Left
Horz/Vert Angle: 270/38

HIC(d) = 741, HIC = 762, Delta T = 6.4 msec



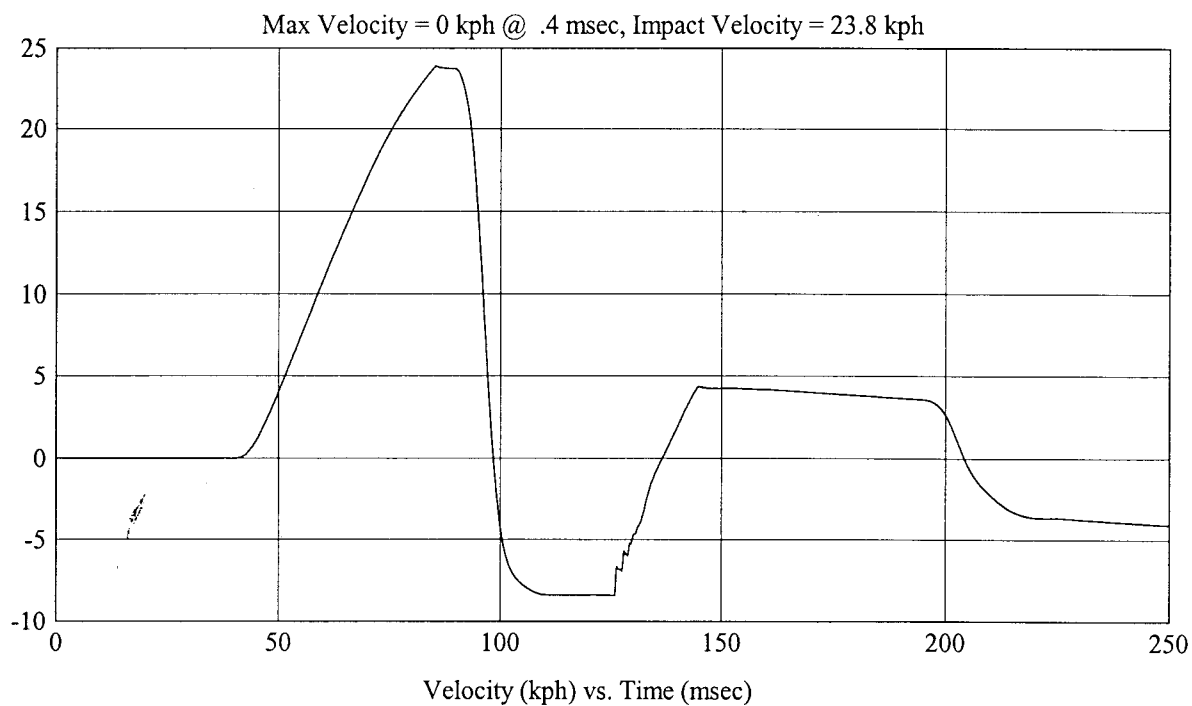
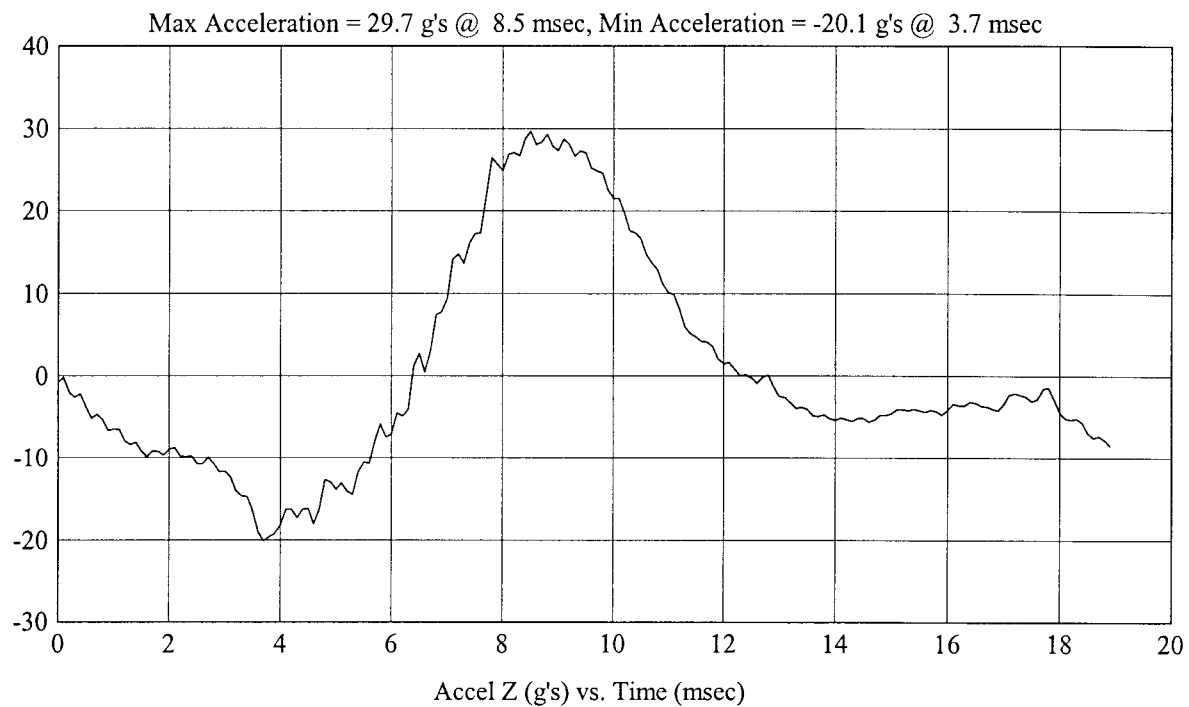
FMH
G04I7-001.13

Customer: HONDA
Test # 4
FM4495
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: UR2
Vehicle Side: Left
Horz/Vert Angle: 270/38

HIC(d) = 741, HIC = 762, Delta T = 6.4 msec



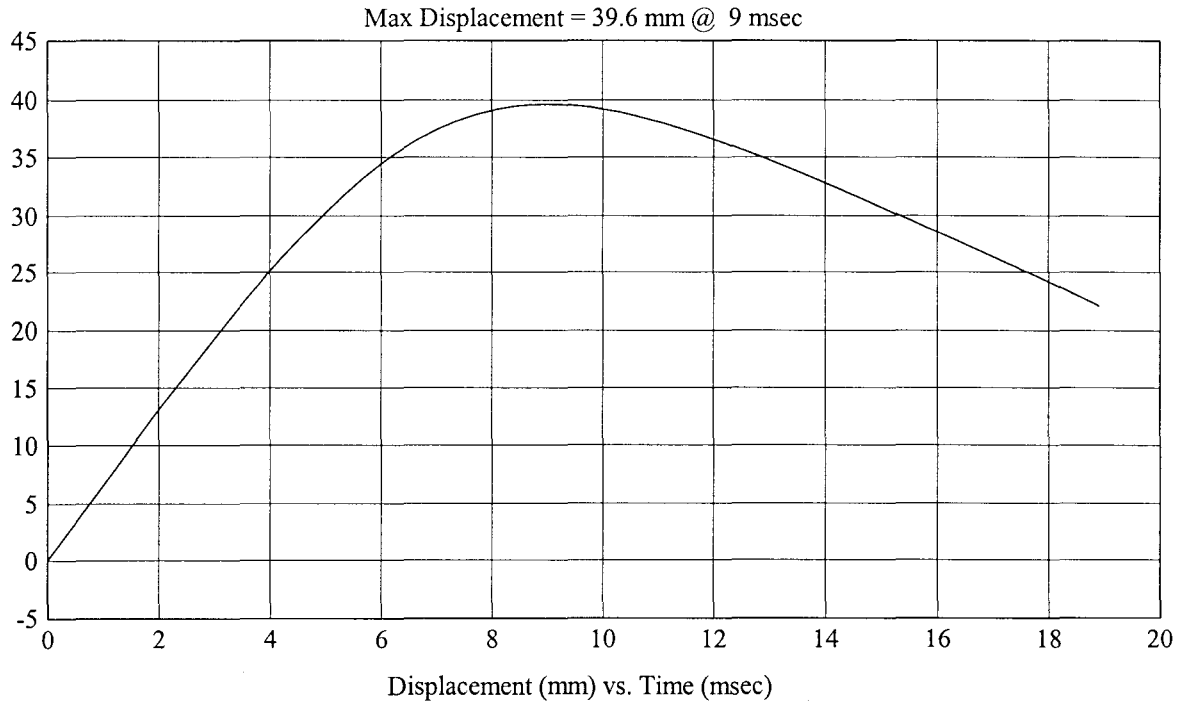
FMH
G04I7-001.13

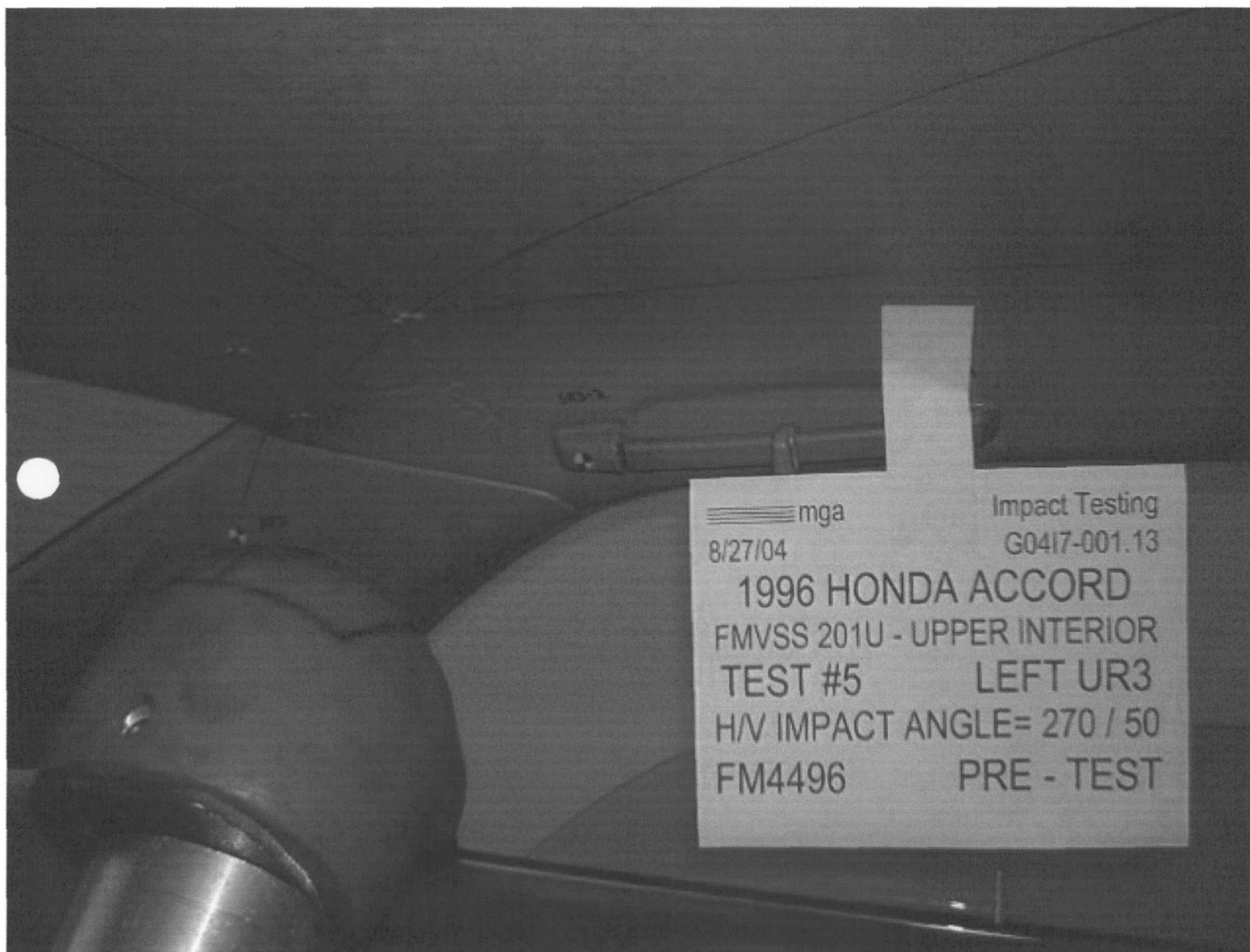
Customer: HONDA
Test # 4
FM4495
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: UR2
Vehicle Side: Left
Horz/Vert Angle: 270/38

HIC(d) = 741, HIC = 762, Delta T = 6.4 msec

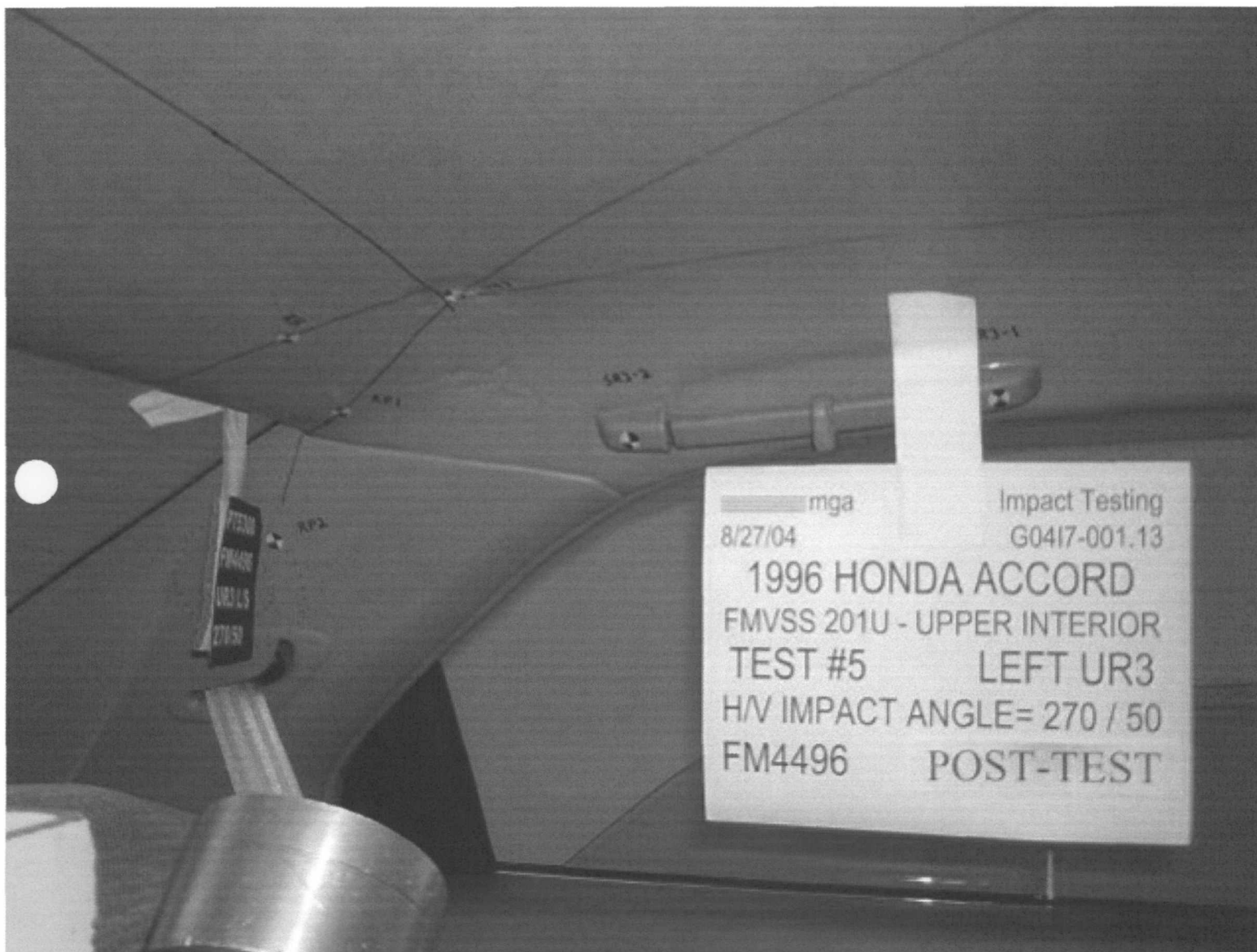




mga
8/27/04

Impact Testing
G04I7-001.13

1996 HONDA ACCORD
FMVSS 201U - UPPER INTERIOR
TEST #5 LEFT UR3
H/V IMPACT ANGLE= 270 / 50
FM4496 PRE - TEST



mga

Impact Testing

8/27/04

G0417-001.13

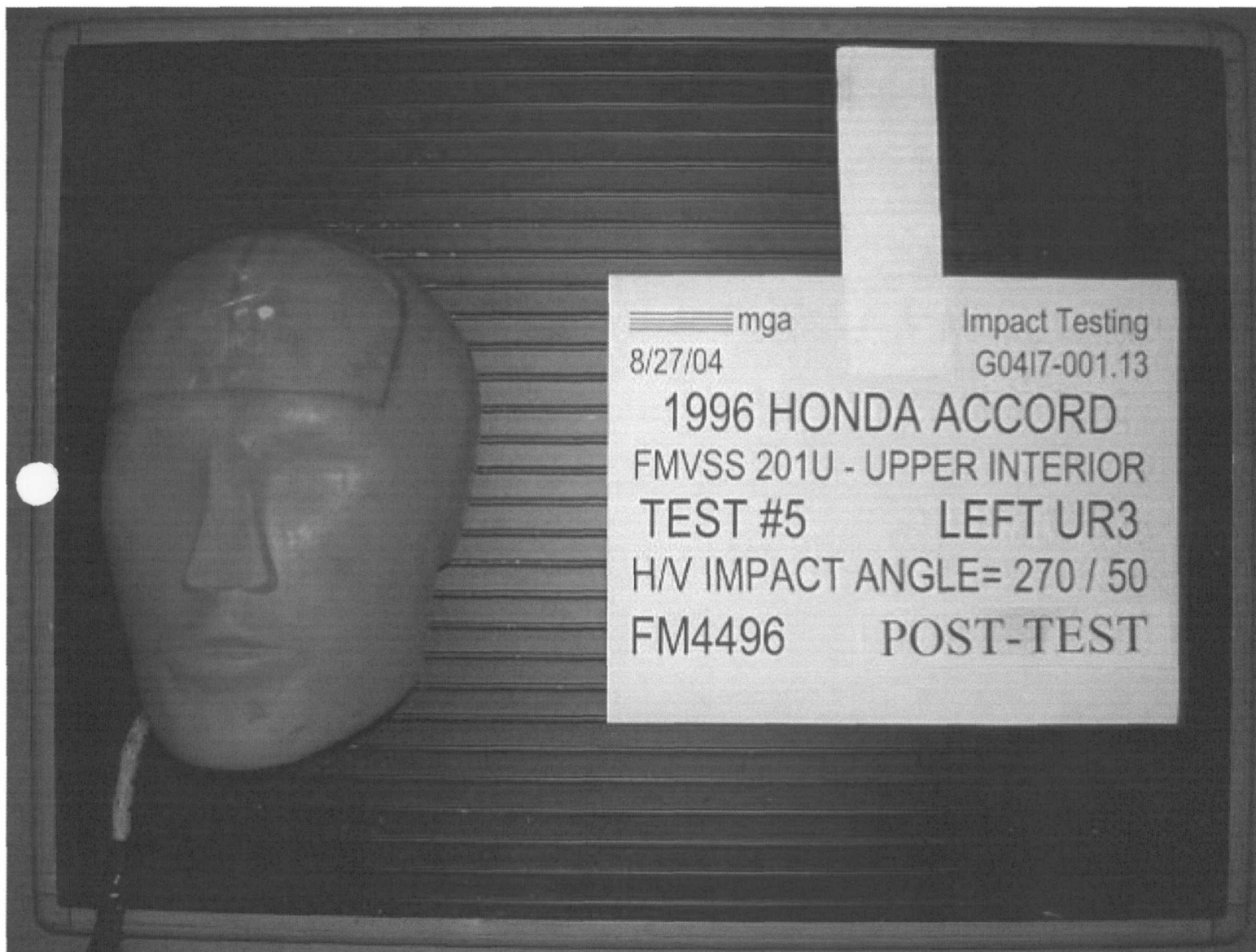
1996 HONDA ACCORD

FMVSS 201U - UPPER INTERIOR

TEST #5 LEFT UR3

H/V IMPACT ANGLE= 270 / 50

FM4496 POST-TEST



SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0417-001.13 VEHICLE YR/MAKE/MODEL: ACCORD 1996

GENERAL TEST PARAMETERS:

Test Number: #5

Target (Vehicle Side): UR3 Left

Temperature: 22C

MGA Test Reference No.: FM4496

Humidity: 69%

Approach Horizontal Angles: 270°

Time of Test: 12:00 PM

Approach Vertical Angles: 50°

FMH Serial No: 035

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
886	954	5.5	23.8	32	12 L

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35924	-92.4	1.67	1.67
Y	6	J35919	93.8	1.54	1.54
Z	7	J21969	88.5	1.58	1.58

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

Headliner deformation

Recorded By: [Signature] Approved By: [Signature] Date: 8-27-04

*Only necessary for NHTSA (Government) Compliance testing.

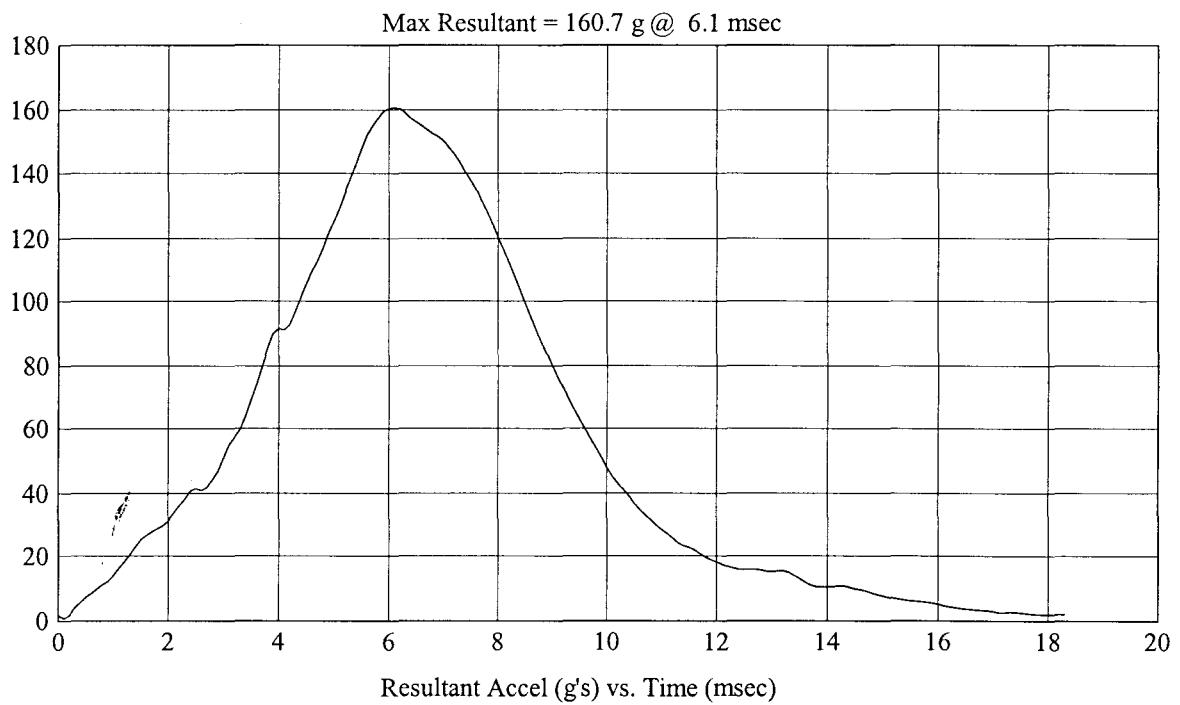
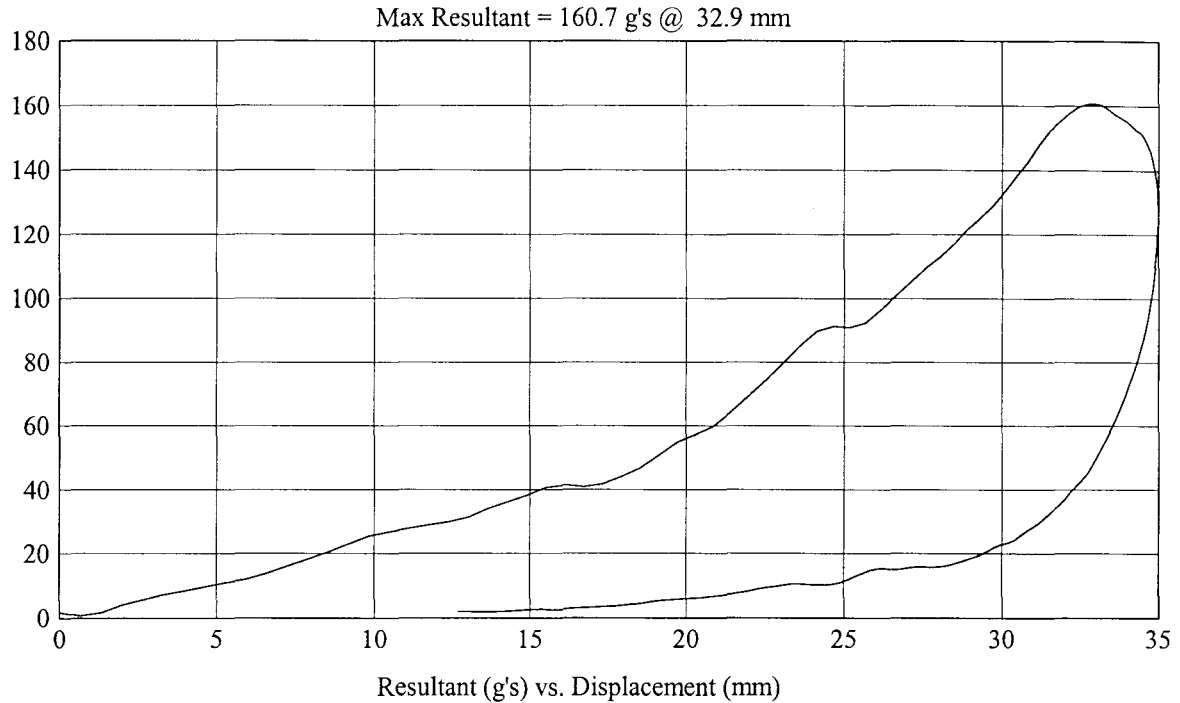
FMH
G04I7-001.13

Customer: HONDA
Test # 5
FM4496
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: UR3
Vehicle Side: Left
Horz/Vert Angle: 270/50

HIC(d) = 886, HIC = 954, Delta T = 5.5 msec



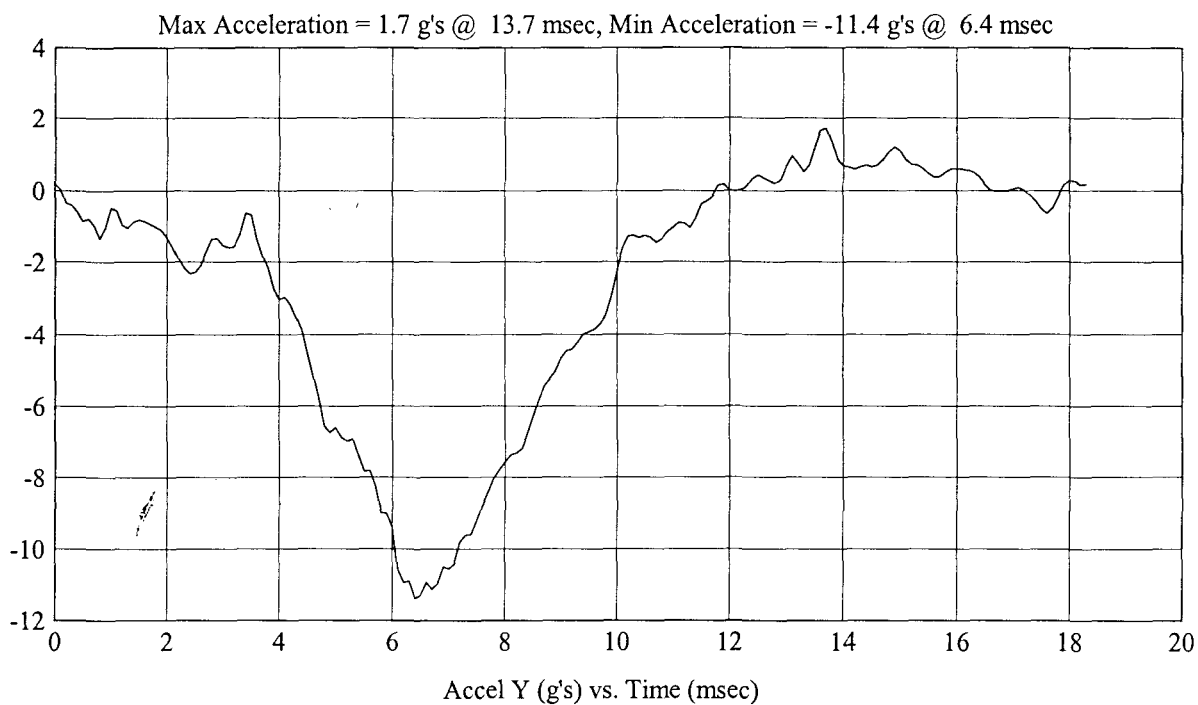
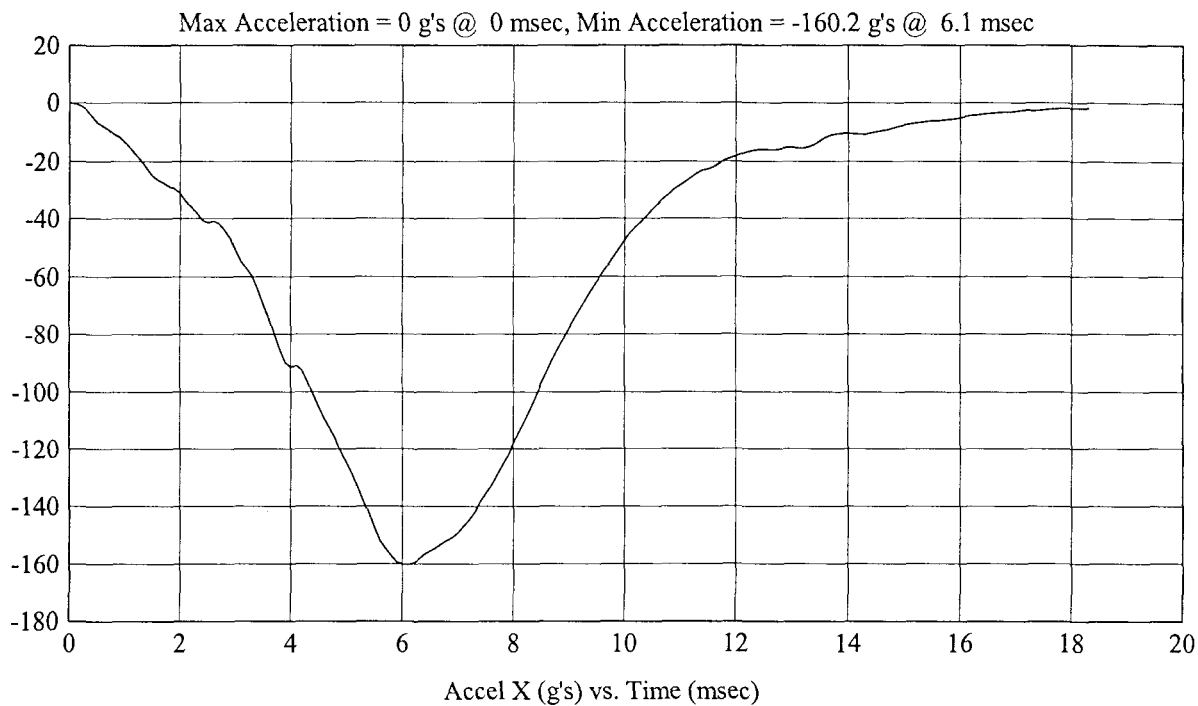
FMH
G04I7-001.13

Customer: HONDA
Test # 5
FM4496
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: UR3
Vehicle Side: Left
Horz/Vert Angle: 270/50

HIC(d) = 886, HIC = 954, Delta T = 5.5 msec



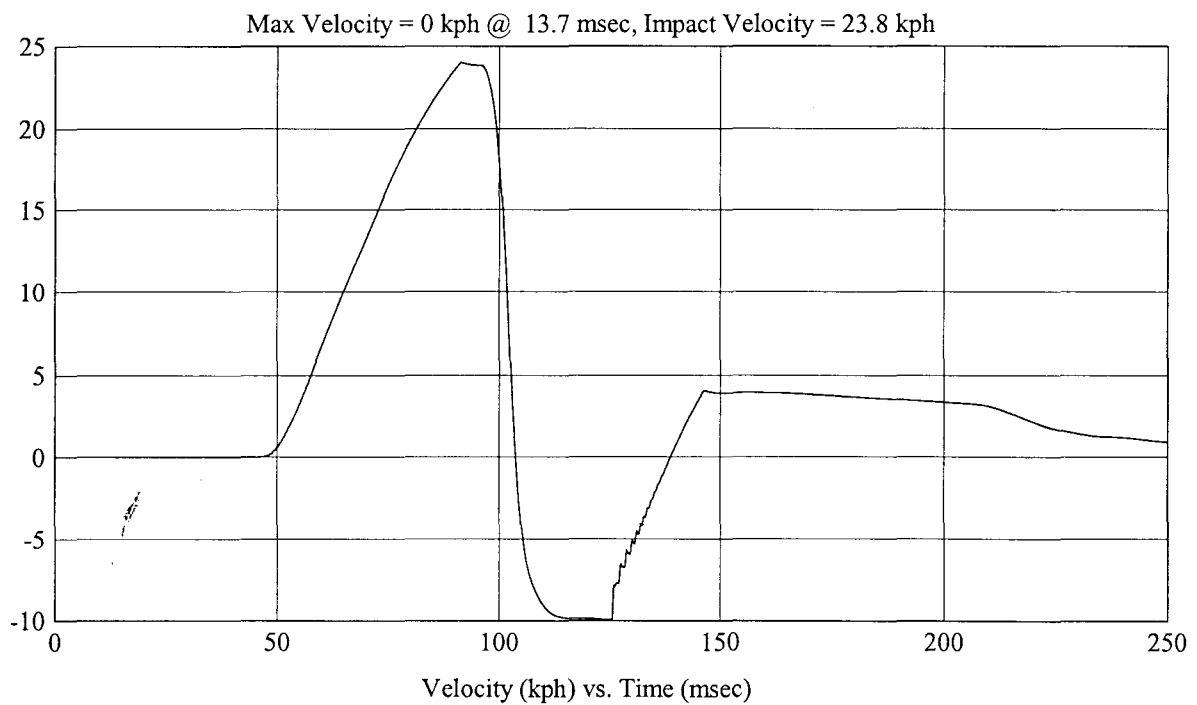
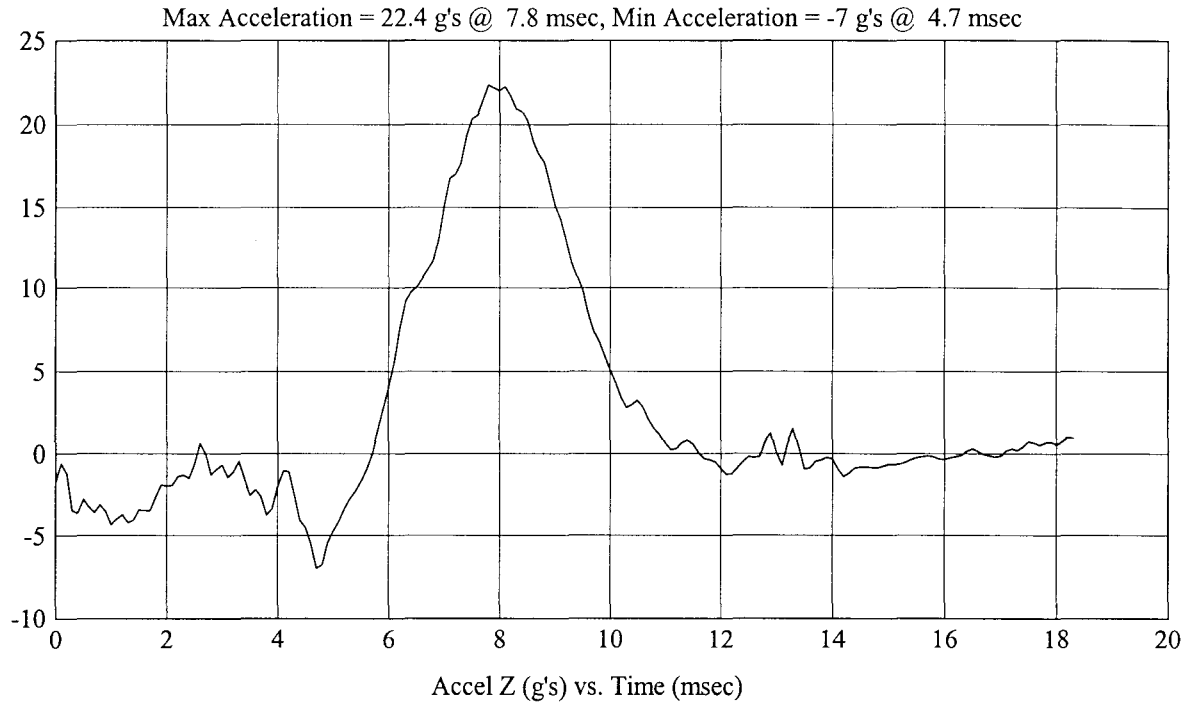
FMH
G04I7-001.13

Customer: HONDA
Test # 5
FM4496
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: UR3
Vehicle Side: Left
Horz/Vert Angle: 270/50

HIC(d) = 886, HIC = 954, Delta T = 5.5 msec



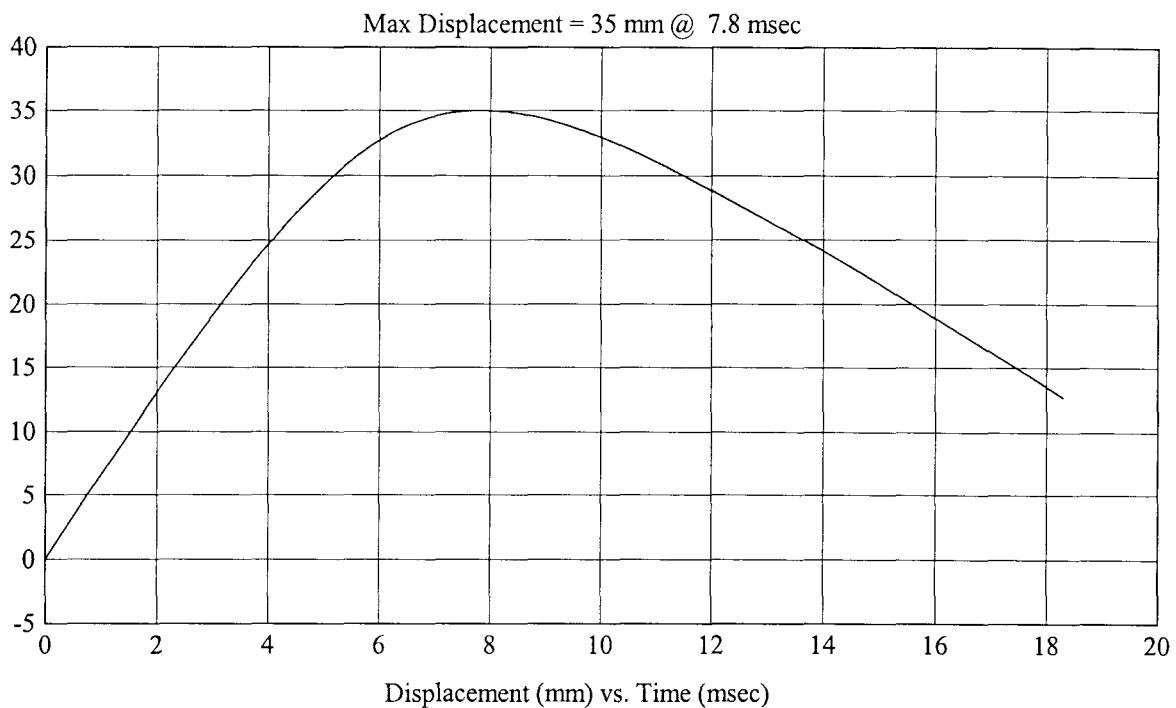
FMH
G04I7-001.13

Customer: HONDA
Test # 5
FM4496
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: UR3
Vehicle Side: Left
Horz/Vert Angle: 270/50

HIC(d) = 886, HIC = 954, Delta T = 5.5 msec





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8/27/04

Impact Testing

G0417-001.13

1996 HONDA ACCORD

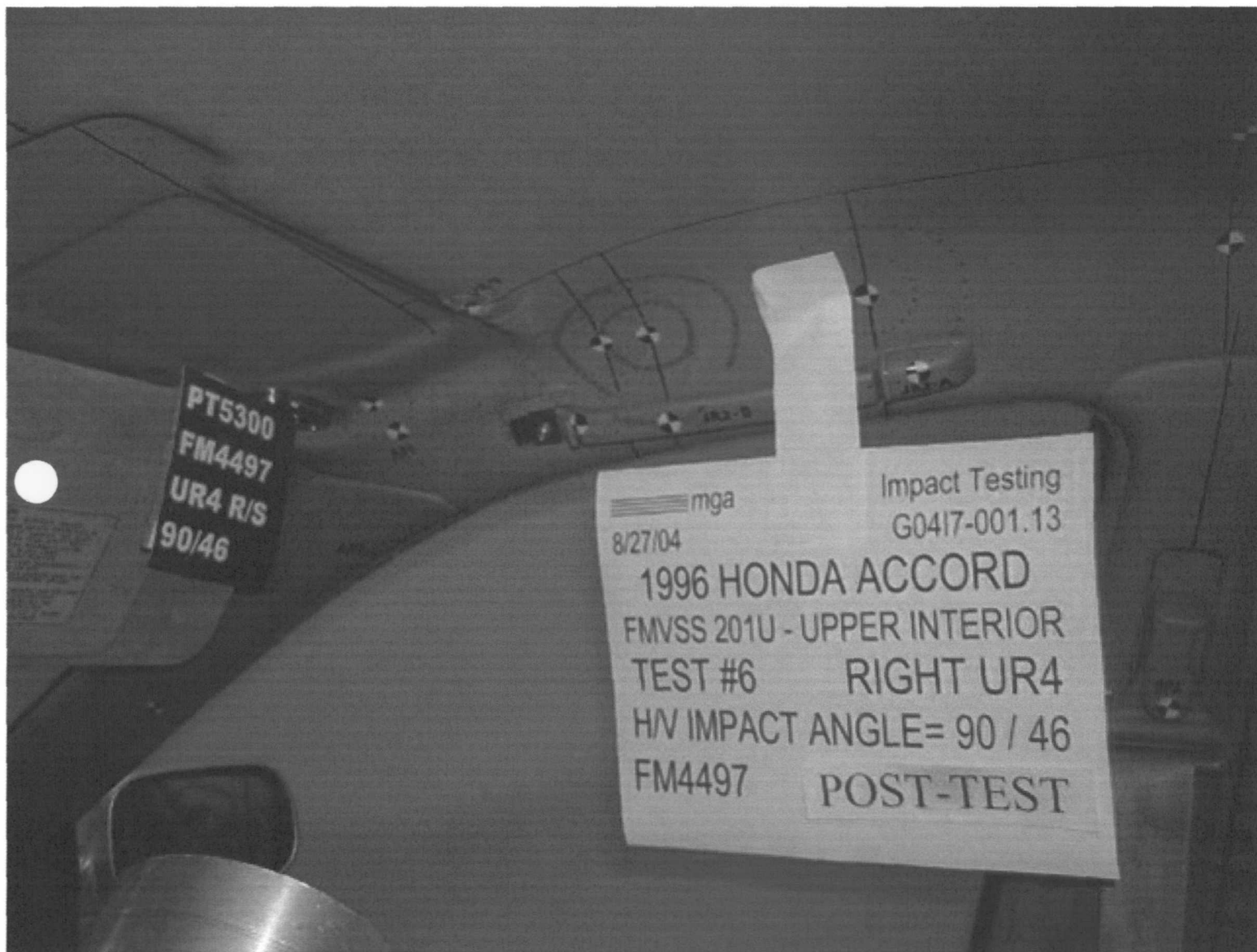
FMVSS 201U - UPPER INTERIOR

TEST #6 RIGHT UR4

H/V IMPACT ANGLE= 90 / 46

FM4497

PRE - TEST

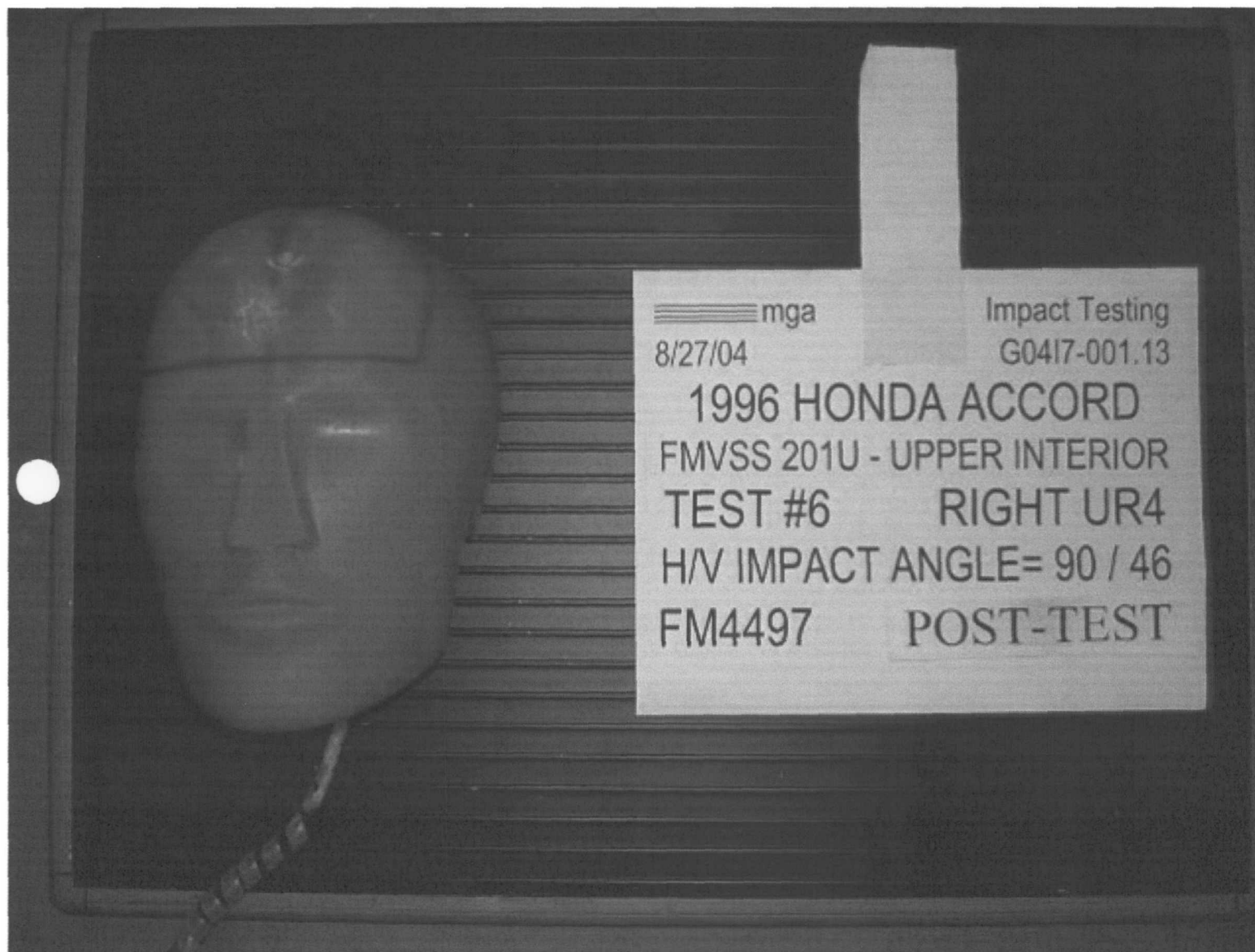


PT5300
FM4497
UR4 R/S
90/46

 mga
8/27/04

Impact Testing
G0417-001.13

1996 HONDA ACCORD
FMVSS 201U - UPPER INTERIOR
TEST #6 RIGHT UR4
H/V IMPACT ANGLE= 90 / 46
FM4497 POST-TEST



==== mga

8/27/04

Impact Testing

G04I7-001.13

1996 HONDA ACCORD

FMVSS 201U - UPPER INTERIOR

TEST #6 RIGHT UR4

H/V IMPACT ANGLE= 90 / 46

FM4497 POST-TEST

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0417-001.13 VEHICLE YR/MAKE/MODEL: ACCORD 1996

GENERAL TEST PARAMETERS:

Test Number: #6

Target (Vehicle Side): UR4 Right

Temperature: 22C

MGA Test Reference No.: FM4497

Humidity: 69%

Approach Horizontal Angles: 90°

Time of Test: 1:50 PM

Approach Vertical Angles: 46°

FMH Serial No: 036

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
832	882	5.5	23.9	44	3 L

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35923	-100.8	1.67	1.67
Y	6	J35916	100.2	1.54	1.55
Z	7	J35918	97.9	1.58	1.58

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

Headliner deformation, broke grab handle

Recorded By:  Approved By:  Date: 8-27-04

*Only necessary for NHTSA (Government) Compliance testing.

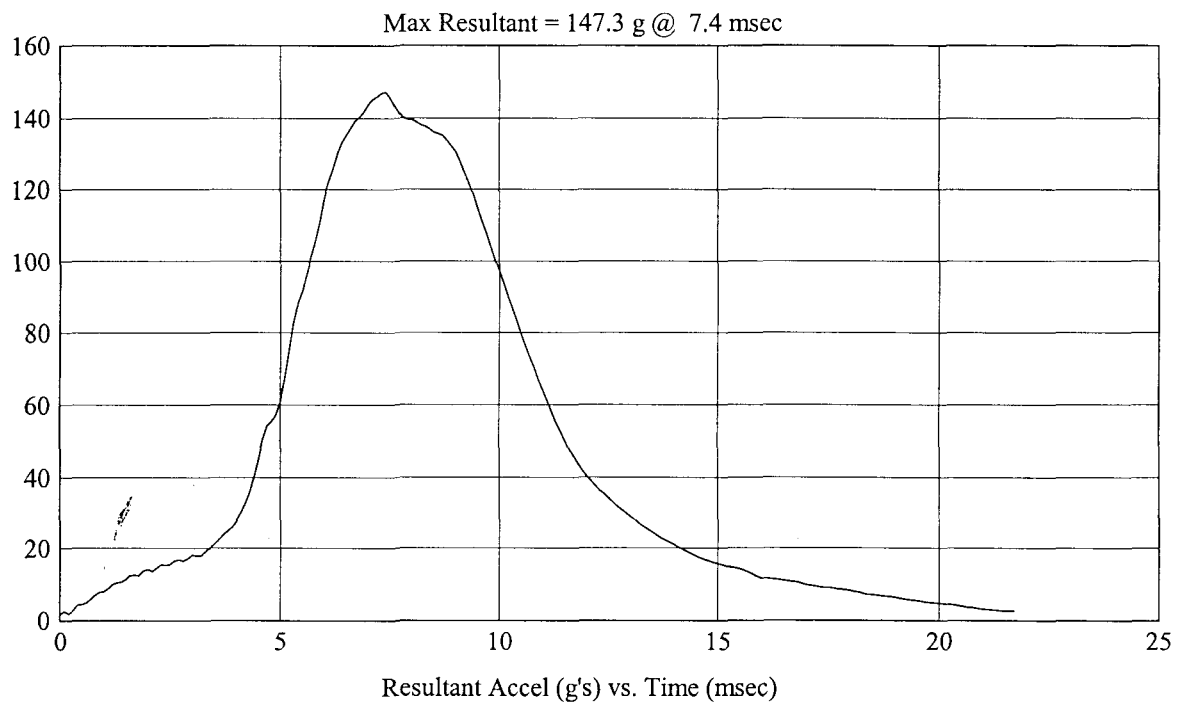
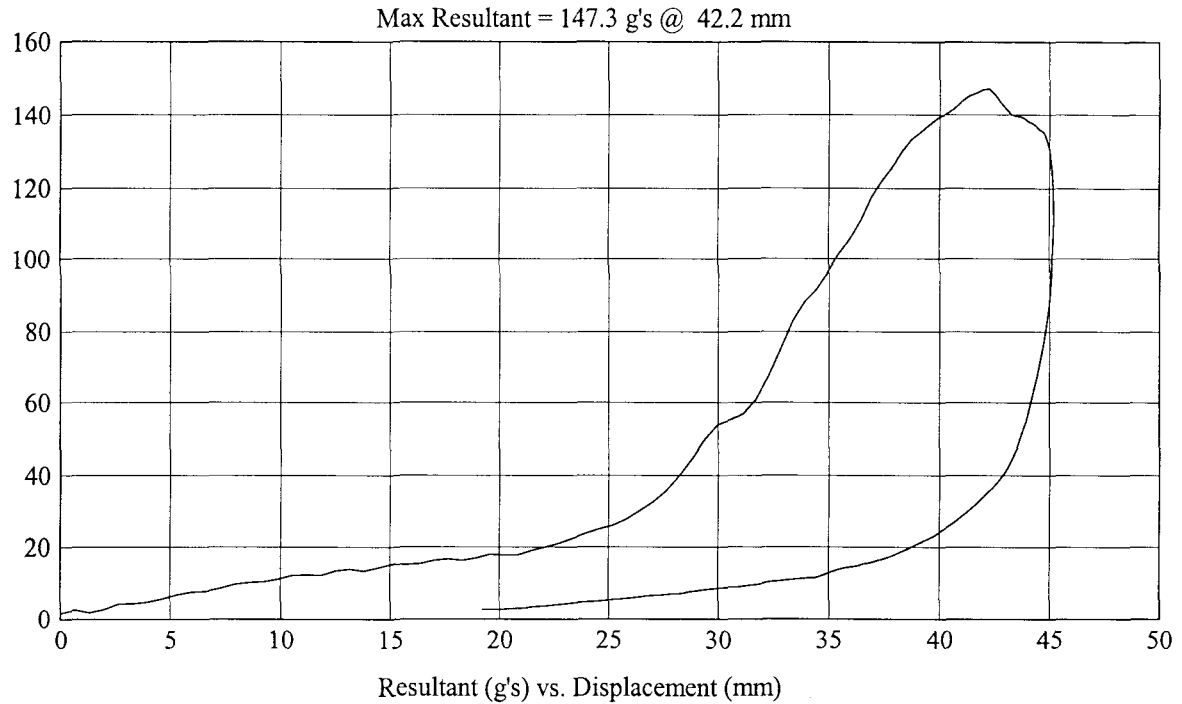
FMH
G04I7-001.13

Customer: HONDA
Test # 6
FM4497
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: UR4
Vehicle Side: Right
Horz/Vert Angle: 90/46

HIC(d) = 832, HIC = 882, Delta T = 5.5 msec



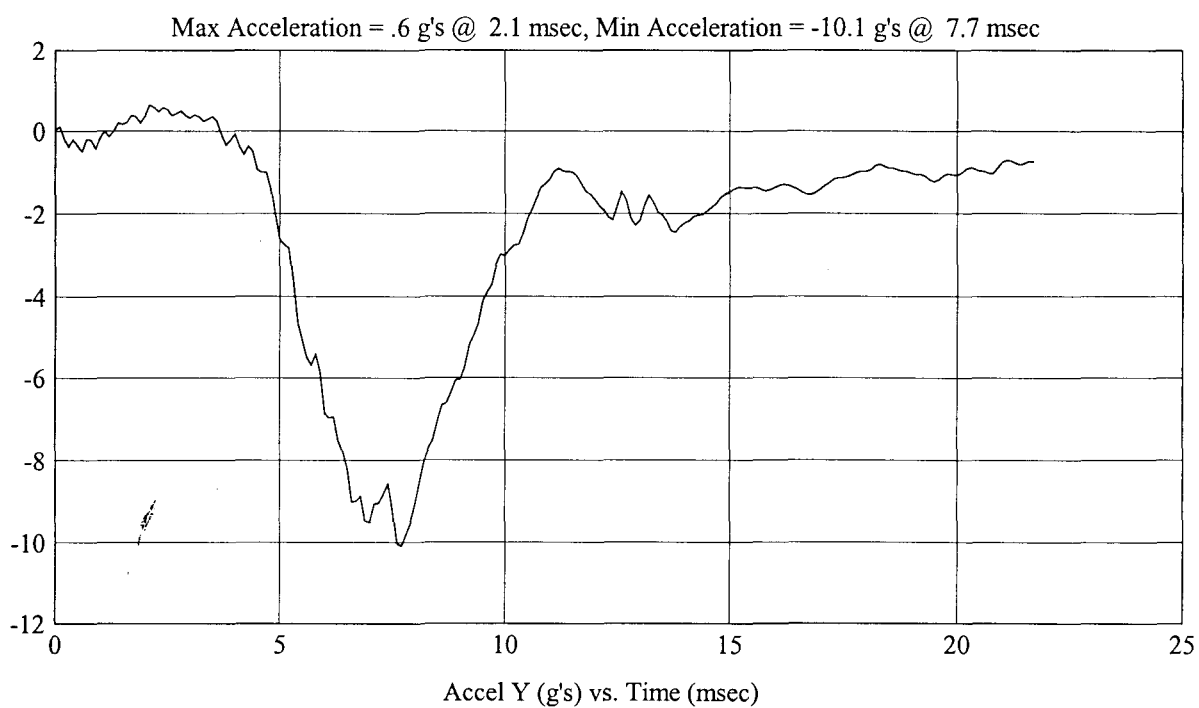
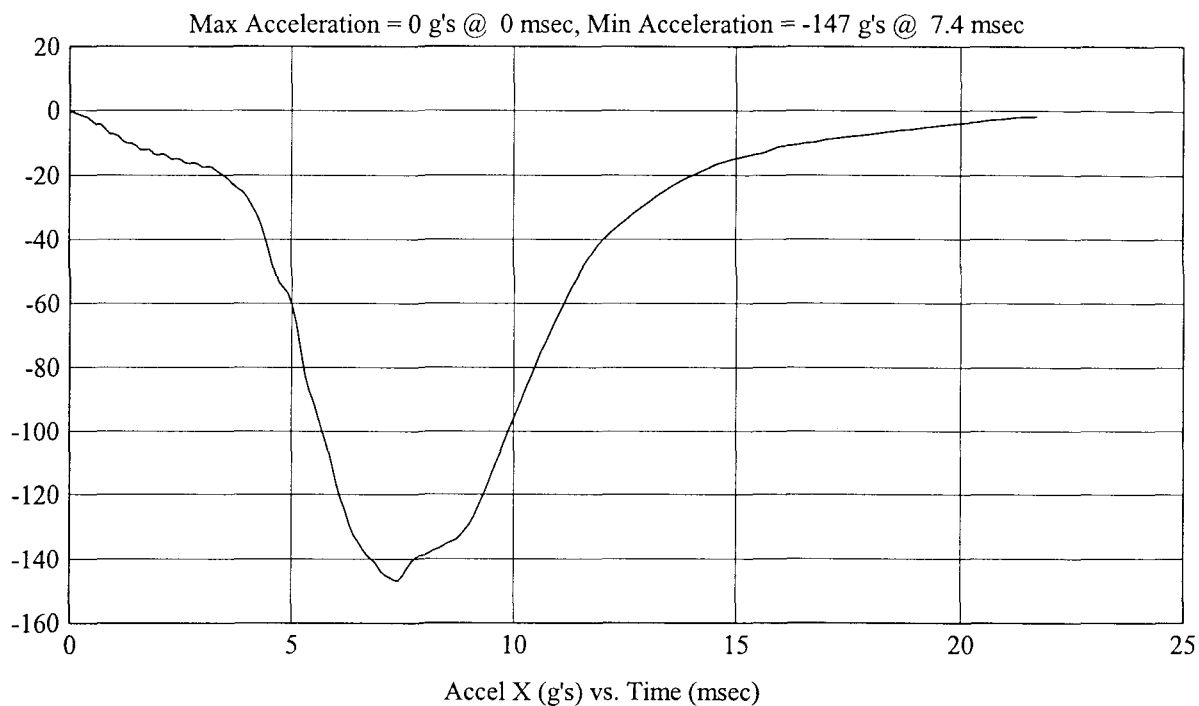
FMH
G04I7-001.13

Customer: HONDA
Test # 6
FM4497
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: UR4
Vehicle Side: Right
Horz/Vert Angle: 90/46

HIC(d) = 832, HIC = 882, Delta T = 5.5 msec



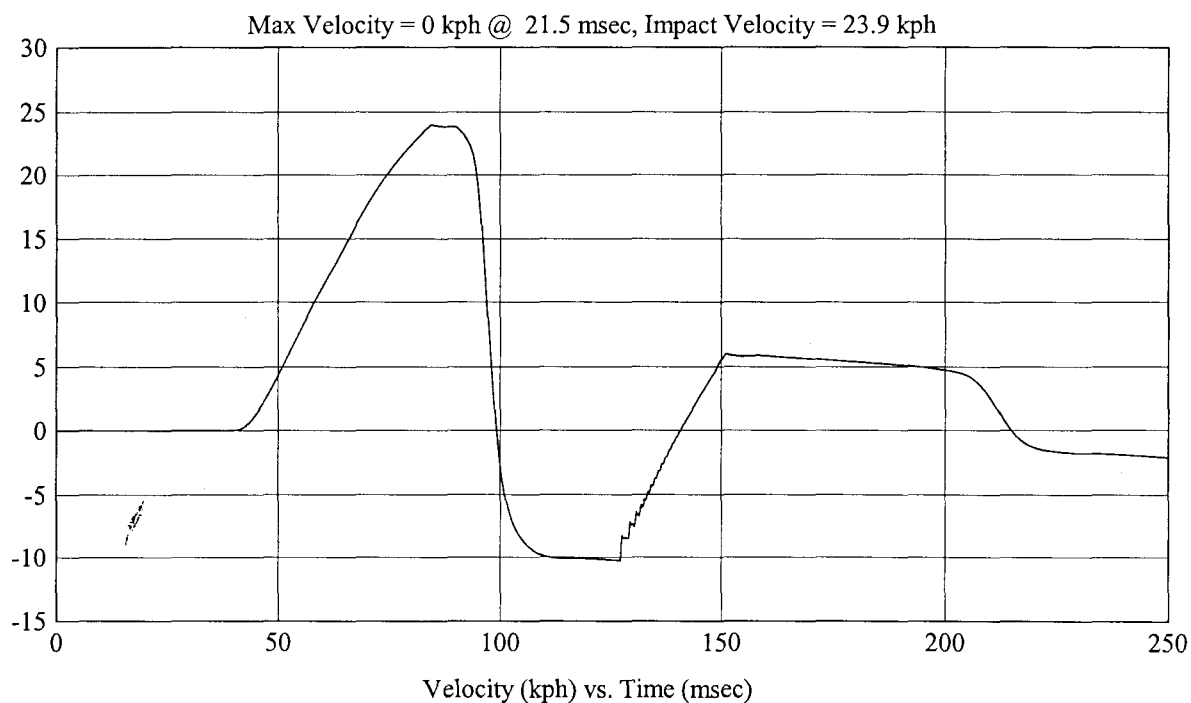
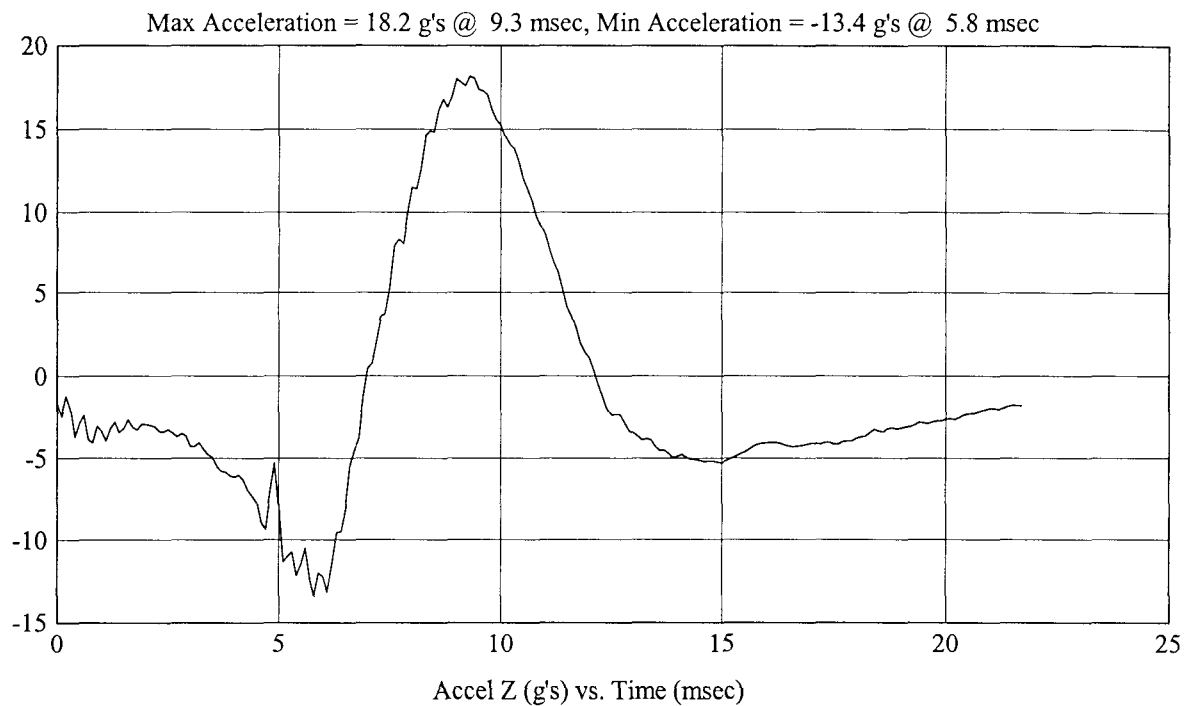
FMH
G04I7-001.13

Customer: HONDA
Test # 6
FM4497
Additional Desc: N/A

Vehicle Program : ACCORD

Model Year: 1996
Target: UR4
Vehicle Side: Right
Horz/Vert Angle: 90/46

HIC(d) = 832, HIC = 882, Delta T = 5.5 msec



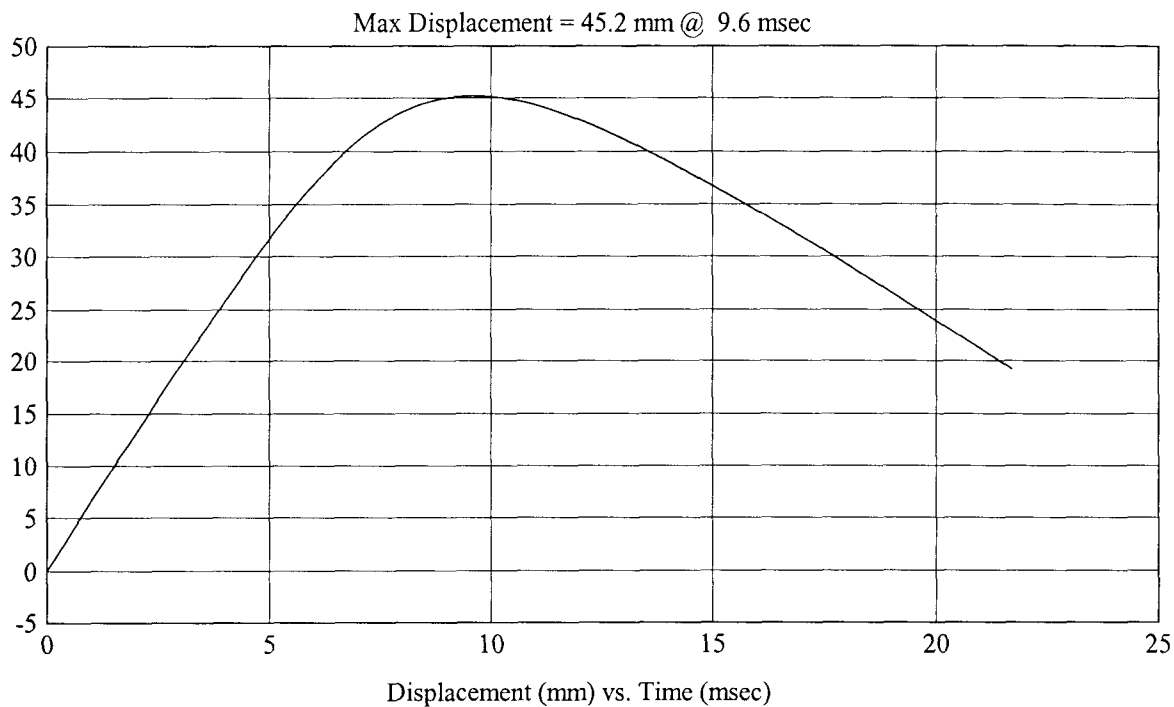
FMH
G04I7-001.13

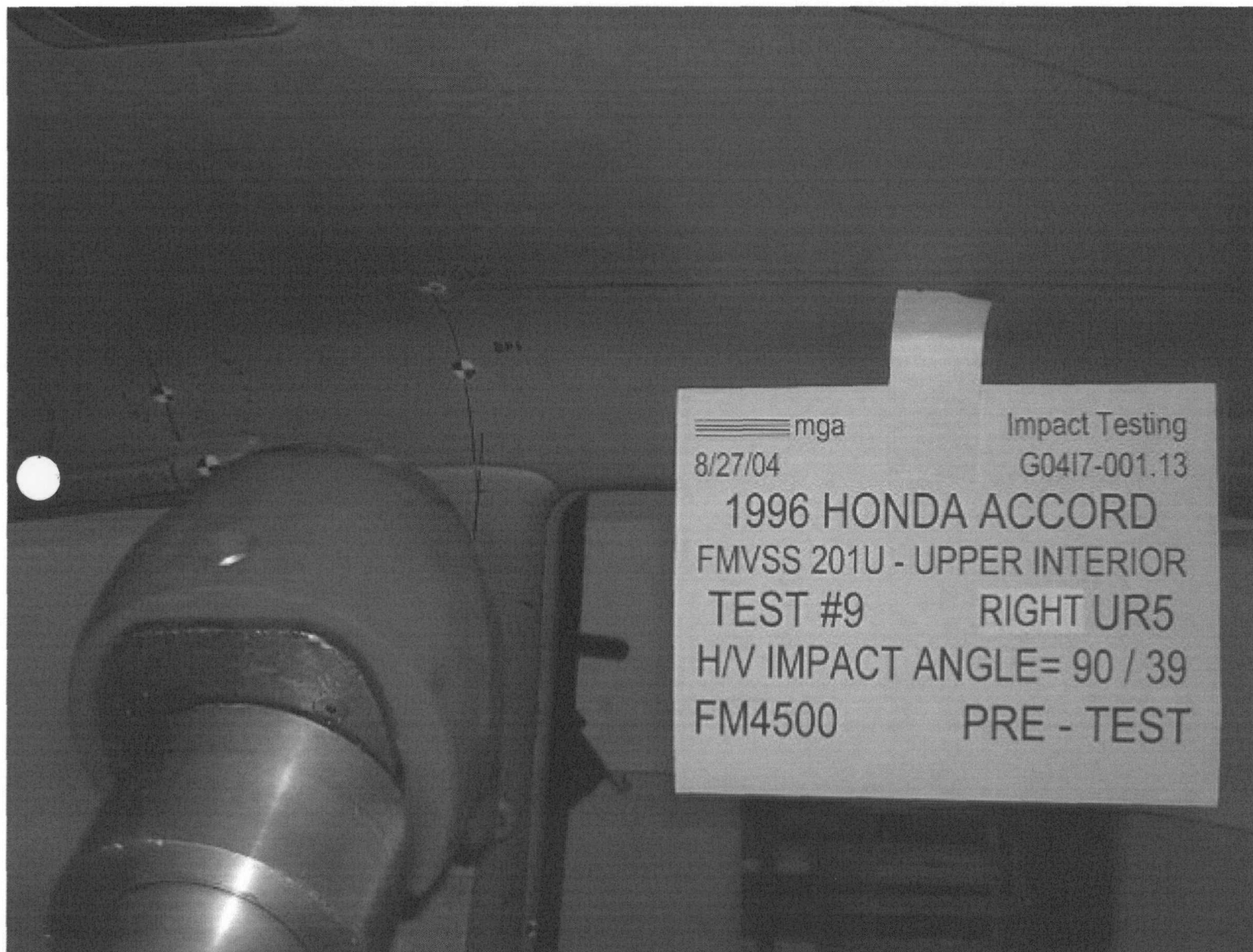
Customer: HONDA
Test # 6
FM4497
Additional Desc: N/A

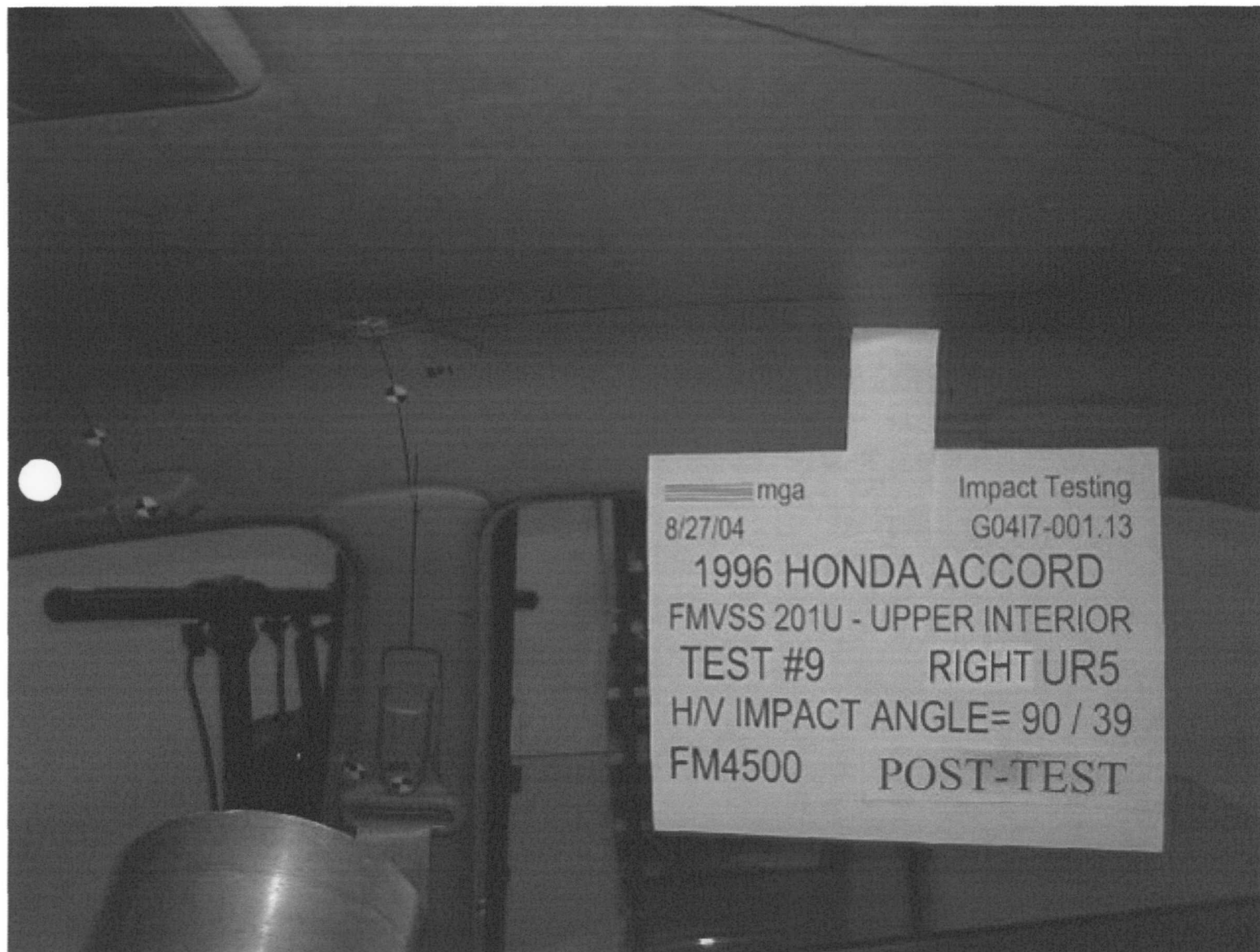
Vehicle Program : ACCORD

Model Year: 1996
Target: UR4
Vehicle Side: Right
Horz/Vert Angle: 90/46

HIC(d) = 832, HIC = 882, Delta T = 5.5 msec







mga

8/27/04

Impact Testing

G0417-001.13

1996 HONDA ACCORD

FMVSS 201U - UPPER INTERIOR

TEST #9 RIGHT UR5

H/V IMPACT ANGLE= 90 / 39

FM4500 POST-TEST



==== mga

8/27/04

Impact Testing

G0417-001.13

1996 HONDA ACCORD

FMVSS 201U - UPPER INTERIOR

TEST #9

RIGHT UR5

H/V IMPACT ANGLE= 90 / 39

FM4500

POST-TEST

SUMMARY OF FMVSS 201U TEST

JOB/NHTSA NO: G0417-001.13 VEHICLE YR/MAKE/MODEL: ACCORD 1996

GENERAL TEST PARAMETERS:

Test Number: #9

Target (Vehicle Side): UR5 Right

Temperature: 22C

MGA Test Reference No.: FM4500

Humidity: 69%

Approach Horizontal Angles: 90°

Time of Test: 5:00 PM

Approach Vertical Angles: 39°

FMH Serial No: 036

TEST RESULTS:

HIC(d)	HIC	Δt (msec)	Velocity (kph)	Impact location on FMH (mm)	
				Above Pt. O	Left/Right Pt. O
816	860	5.7	23.9	55	2 L

INSTRUMENTATION INFORMATION: (all accelerometers are Endevco 7264-2000)

Axis	Channel	Serial No.	DLR Value	ΔV Pre-Test	ΔV Post-Test
X	5	J35923	-100.8	1.67	1.67
Y	6	J35916	100.2	1.54	1.54
Z	7	J35918	97.9	1.58	1.58

REMARKS (Summary of test, damage, non-compliance, invalid test, etc.):

headliner deformation

Recorded By: Wm J. Mc Approved By: Wm J. Mc Date: 8-27-01

*Only necessary for NHTSA (Government) Compliance testing.

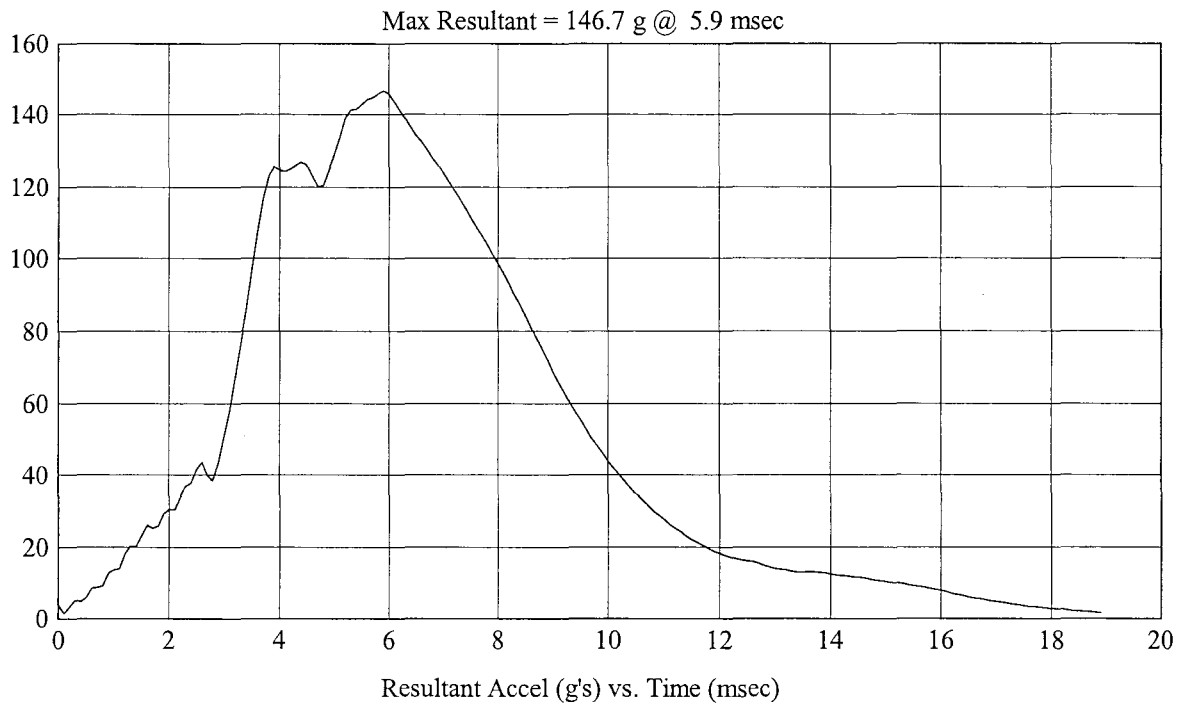
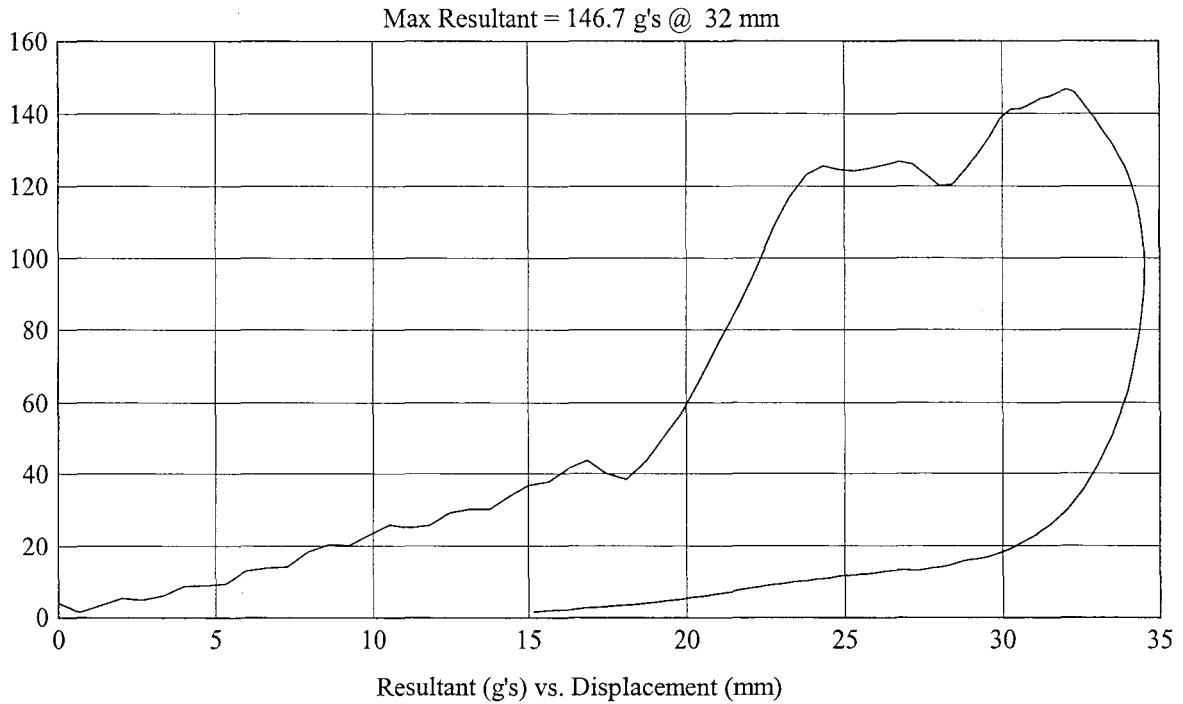
Customer: HONDA
Test # 9
FM4500
Additional Desc: N/A

Vehicle Program : ACCORD

Test Date: 8/27/04

Model Year: 1996
Target: UR5
Vehicle Side: Right
Horz/Vert Angle: 90/39

HIC(d) = 816, HIC = 860, Delta T = 5.7 msec



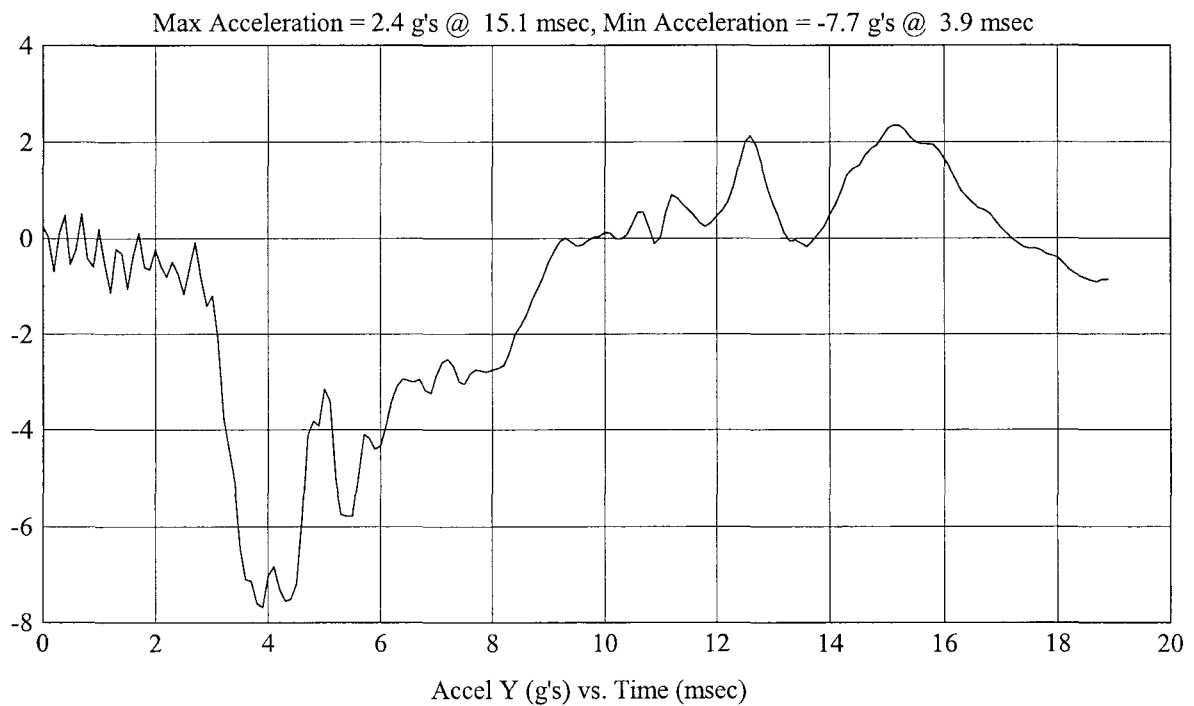
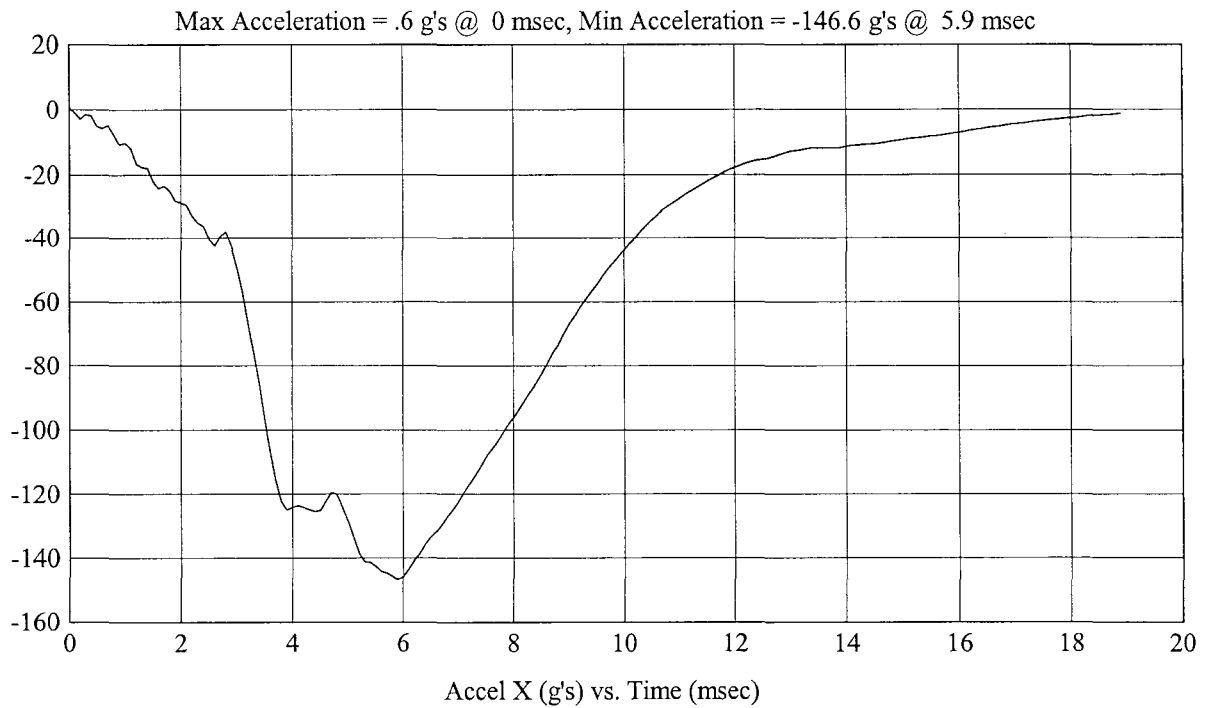
Customer: HONDA
Test # 9
FM4500
Additional Desc: N/A

Vehicle Program : ACCORD

Test Date: 8/27/04

Model Year: 1996
Target: UR5
Vehicle Side: Right
Horz/Vert Angle: 90/39

HIC(d) = 816, HIC = 860, Delta T = 5.7 msec



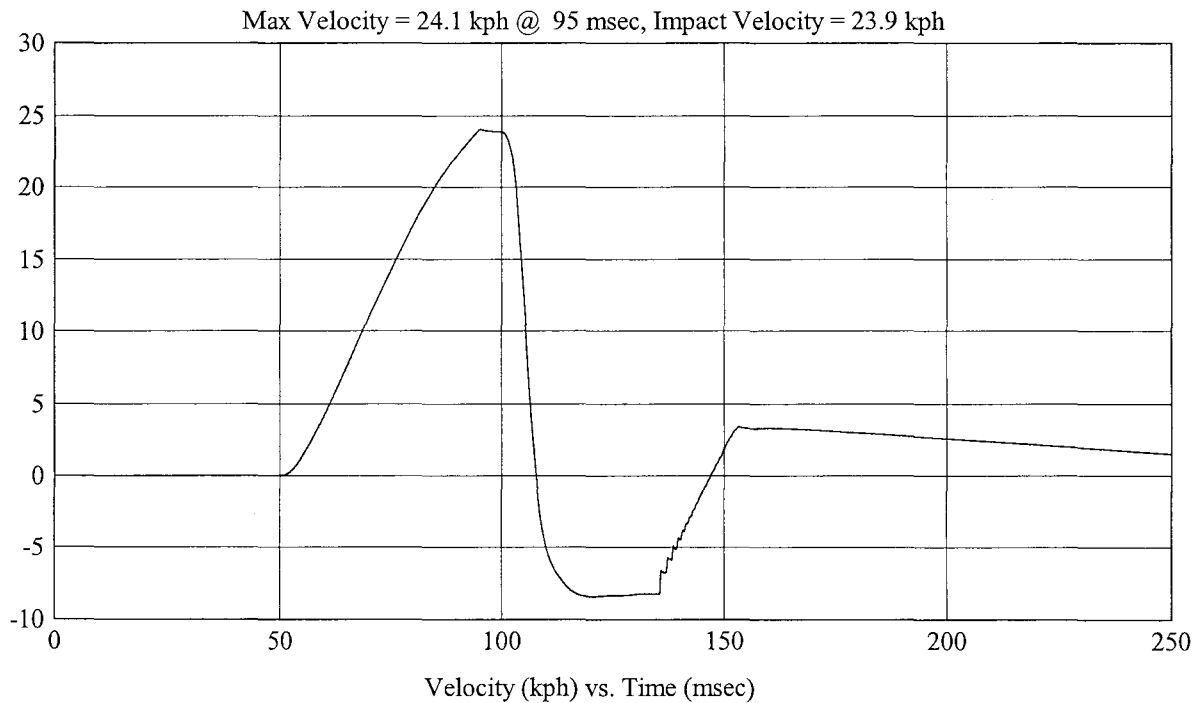
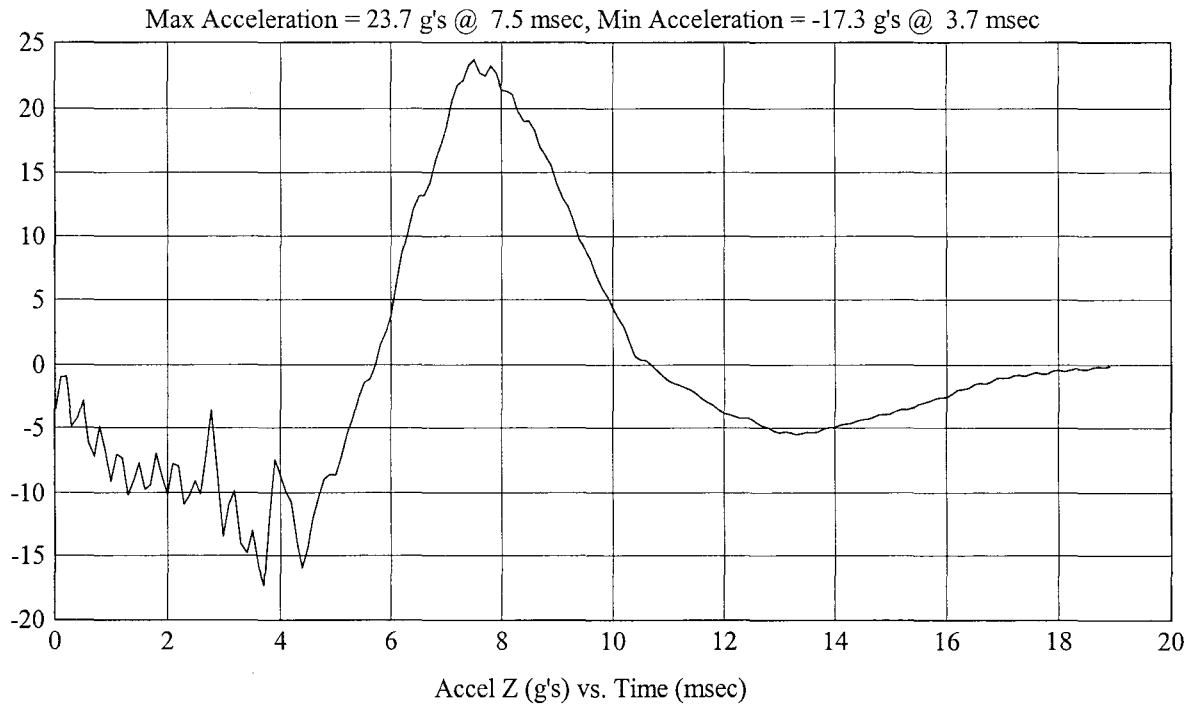
Customer: HONDA
Test # 9
FM4500
Additional Desc: N/A

Vehicle Program : ACCORD

Test Date: 8/27/04

Model Year: 1996
Target: UR5
Vehicle Side: Right
Horz/Vert Angle: 90/39

HIC(d) = 816, HIC = 860, Delta T = 5.7 msec



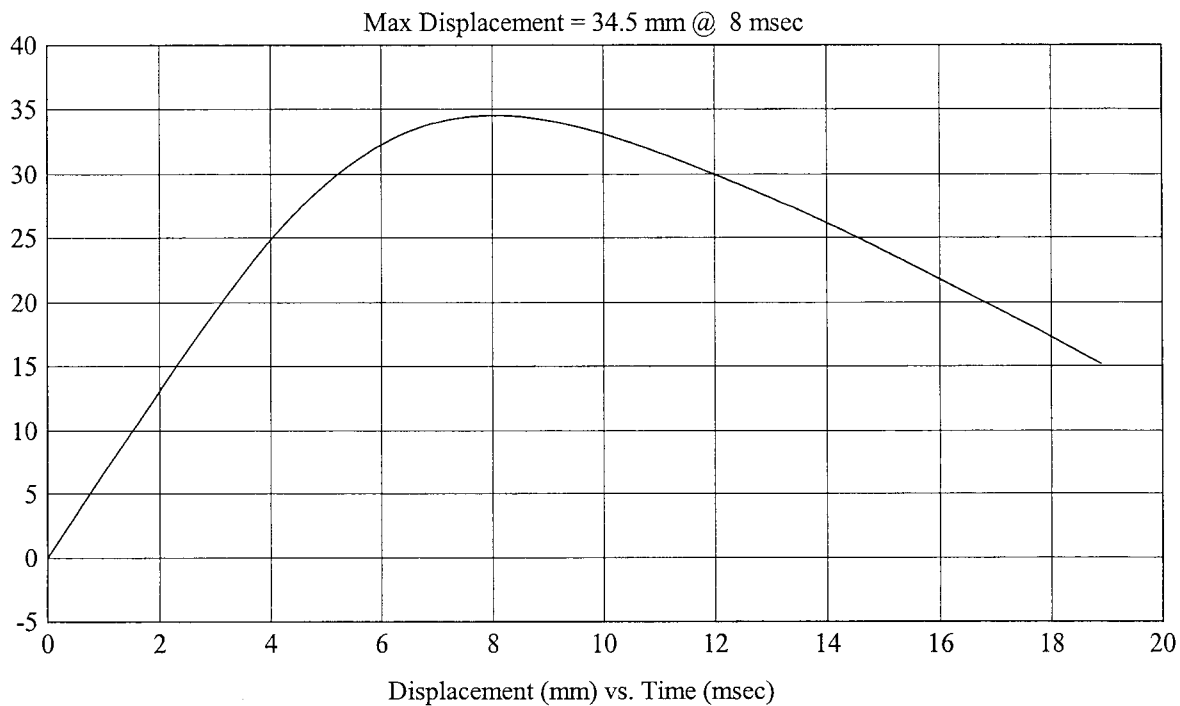
Customer: HONDA
Test # 9
FM4500
Additional Desc: N/A

Vehicle Program : ACCORD

Test Date: 8/27/04

Model Year: 1996
Target: UR5
Vehicle Side: Right
Horz/Vert Angle: 90/39

HIC(d) = 816, HIC = 860, Delta T = 5.7 msec



4.0 TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

The following section lists the test equipment for the test series. Items marked with an asterisk are calibrated by an external lab. An additional summary table is given for the pre and post-test calibration data for the Free Motion Headforms. The temperature trace to confirm testing was conducted between 66°F and 78°F (19°C - 26°C) is included in Appendix A. Calibration information can be found in Appendix B.

TABLE 4-1 LIST OF ITEMS USED

ITEM	MANUFACTURER NAME	MODEL #	FUNCTION OF ITEM	ACCURACY	CAL. INTERNAL
Head Drop Tower (includes test frame and DAS)	MGA Research Corp.	MGA-100-DC	FMH Calibration	N/A	N/A
Accelerometers	Endevco	7264-2000	Acceleration Data	±0.5%	6 months
*Digital Inclinometer	Mitutoyo	PRO 360	Set Angle of FMH/Targeting	0.1°	Annual
FMVSS 201U Test Frame (includes the propulsion control system, actuator, test frame, and DAS)	MGA Research Corp.	MGA-100-FMH	Test System	N/A	N/A
Free Motion Headforms	UTAMA UTAMA UTAMA	035 036 038	Test Device	N/A	Pre and Post-Test Series
High Speed Video	Kodak	RO1000	Record Event	N/A	N/A
*FARO™	Faro Technologies	G08020203122	Targeting	0.1 mm	Annual
Measuring Devices: - Tape Measure - Plumb Bobs - Protractor	Stanley N/A Mitutoyo	289 -- --	Measurement Targeting FMH setup Horizontal Measurement	1 mm N/A 0.5°	Annual
*Vehicle Scale 9804-022/9805-175	Cardinal	8950F	Weighing Vehicle	± .5 kg	Annual
* Scale	Detecto	AP-20	Weigh FMH Head	± 0.01 lb	Annual
*Temperature Recorder	Dickson	TR-320	Record Temperature and Humidity	± 1°C ± 1% RH	Annual

TABLE 4-2 FMH CALIBRATION SUMMARY DATA SUMMARY TABLE

FMH Serial #		Weight (lbs)	Temp (°C)	% Humidity	Peak Resultant Acceleration (G's)	Peak Lateral Acceleration (G's)	Unimodal
Pre	#35	10.02	22.0	65.0	246.5	5.1	Yes
Post	#35	10.02	22.0	68.0	248.8	2.3	Yes
Pre	#36	10.03	22.0	65.0	250.6	13.5	Yes
Post	#36	10.03	22.0	68.0	261.1	7.2	Yes
Pre	#38	9.99	22.0	68.0	254.5	7.1	Yes
Post	#38	9.99	22.0	68.0	263.6	12.8	Yes

RECORDED BY: David G. GotwalsDATE: August 27, 2004APPROVED BY: Helen A. Kaletto

HEAD DROP TEST SUMMARY
PART 572L

HEADFORM SERIAL NUMBER: <u>35</u> CALIBRATION DATE: <u>8-26-04</u>		
TEST PARAMETER	SPECIFICATION	TEST RESULTS
Weight	9.90 to 10.10 lbs.	10.02
Temperature	19° C to 26° C	22
Relative Humidity	10% to 70%	65
Peak Resultant Acceleration	225 G's to 275 G's	246.5
Peak Lateral Acceleration	15 G's Maximum	5.1
Unimodal Acceleration Curve	YES	yes

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	Manufacturer	Model Number	Serial Number	Date of Last Calibration	Date of Next Calibration
1	ENDEVCO	7264-2000	535924	5-20-04	11-20-04
3	ENDEVCO	7264-2000	535919	5-20-04	11-20-04
4	ENDEVCO	7264-2000	521969	6-19-04	11-19-04

REMARKS:

RECORDED BY: Mr J. R.

DATE: 8-26-04

APPROVED BY: W. J. C.

Head Drop
(Preliminary Test Report)

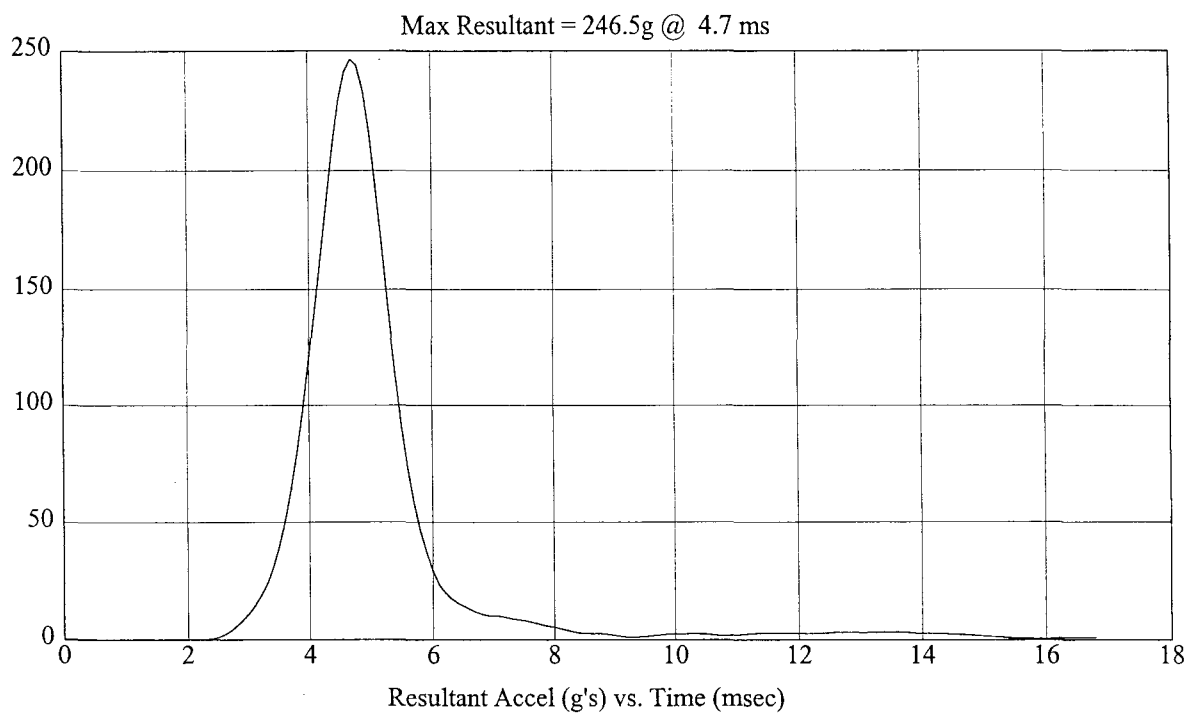
Test Number: H35253

MGA Job Number: G04I7-001.13

Test Date: 8/26/04

Test Description: Pre - Test Calibration

Head # : 035



Head Drop
(Preliminary Test Report)

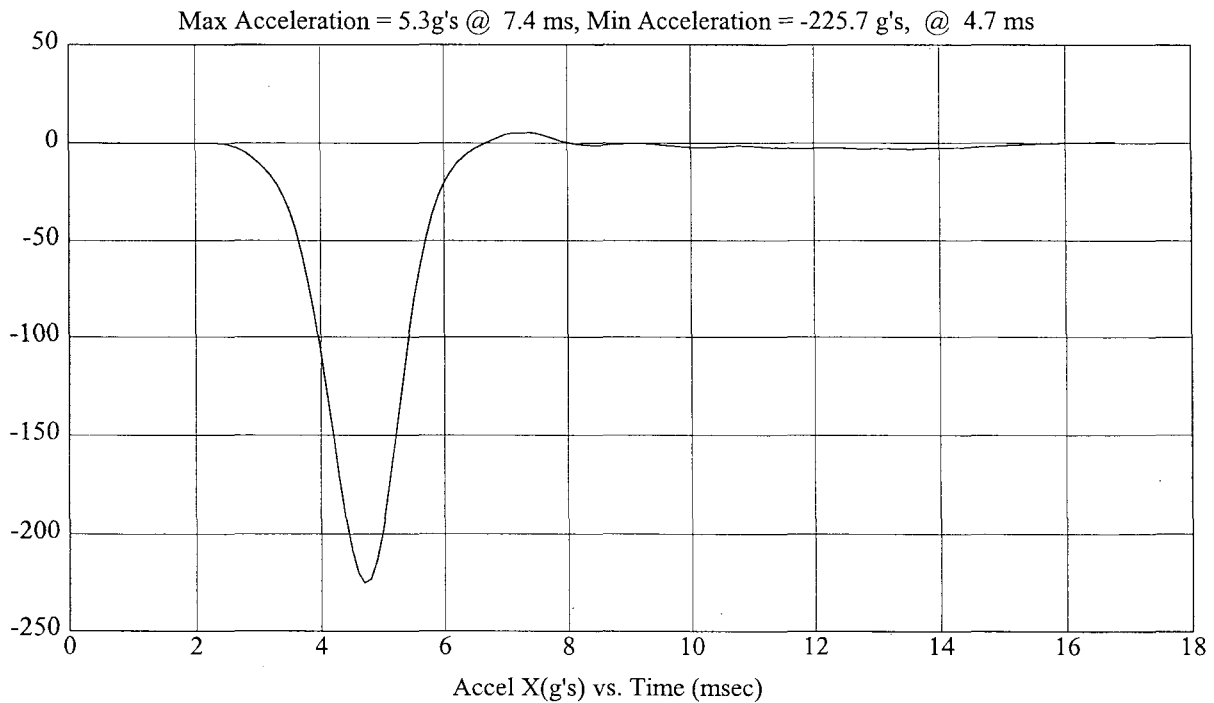
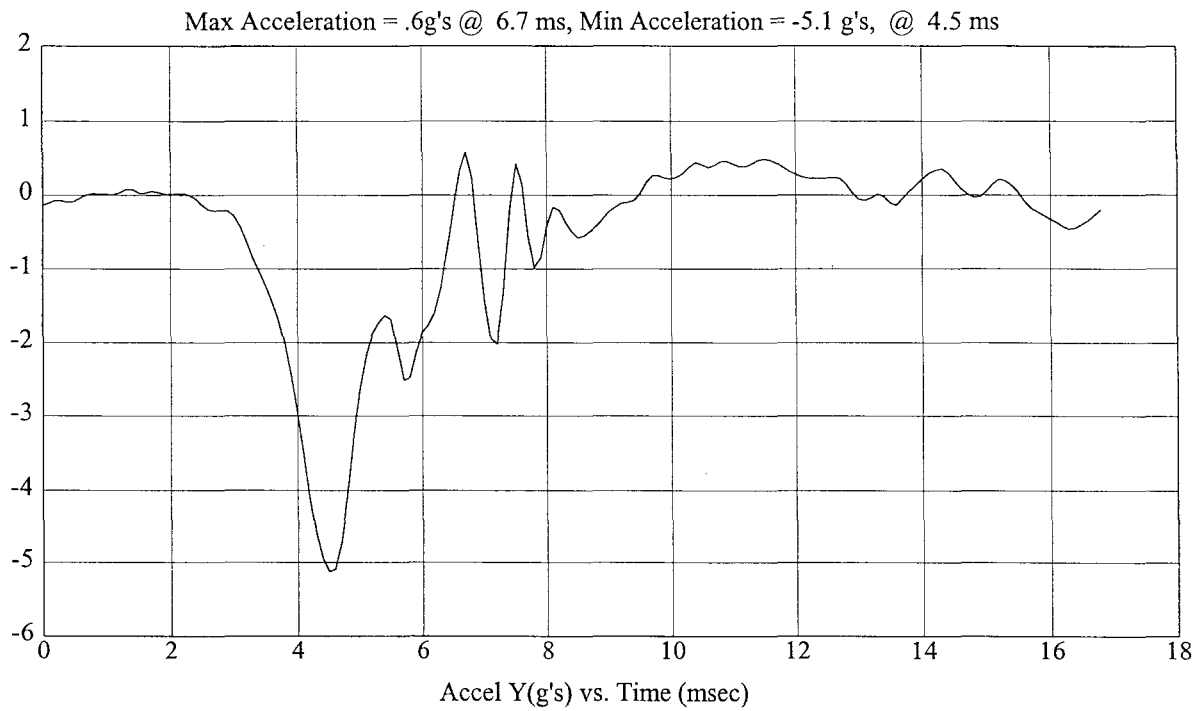
Test Number: H35253

MGA Job Number: G04I7-001.13

Test Date: 8/26/04

Test Description: Pre - Test Calibration

Head #: 035



Head Drop
(Preliminary Test Report)

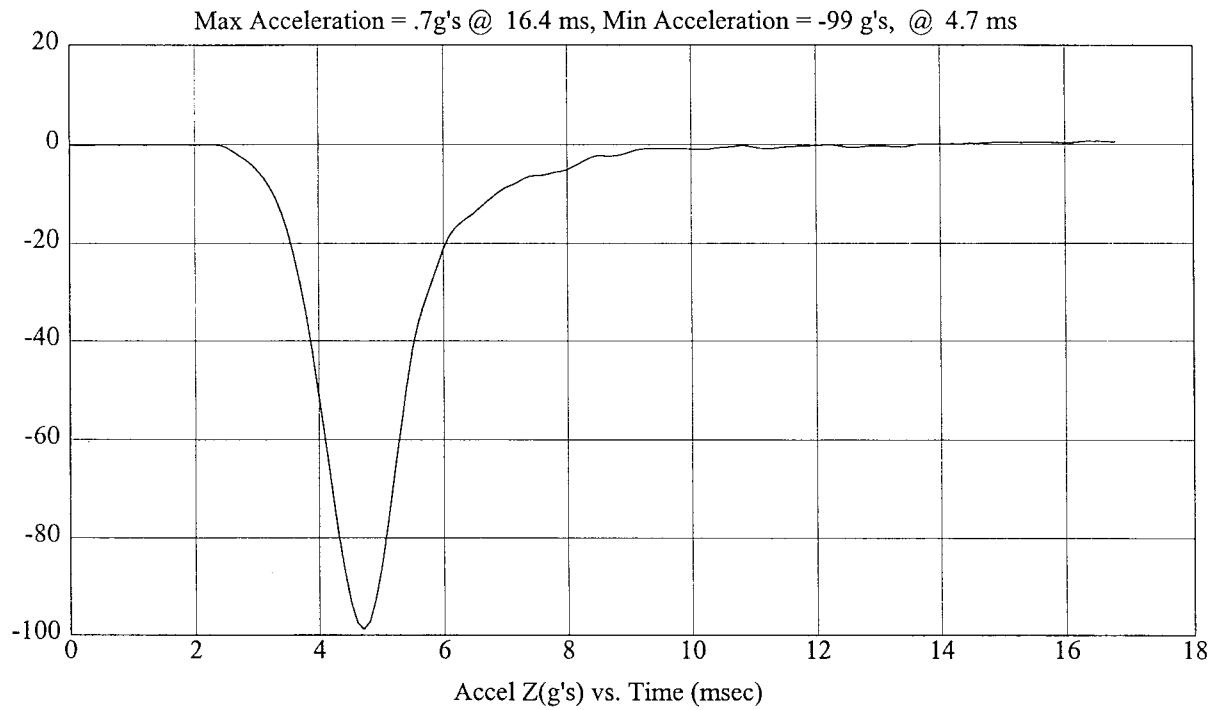
Test Number: H35253

MGA Job Number: G04I7-001.13

Test Date: 8/26/04

Test Description: Pre - Test Calibration

Head #: 035



**HEAD DROP TEST SUMMARY
PART 572L**

HEADFORM SERIAL NUMBER: <u>035</u> CALIBRATION DATE: <u>8-28-04</u>		
TEST PARAMETER	SPECIFICATION	TEST RESULTS
Weight	9.90 to 10.10 lbs.	10.02
Temperature	19° C to 26° C	22
Relative Humidity	10% to 70%	68
Peak Resultant Acceleration	225 G's to 275 G's	248.8
Peak Lateral Acceleration	15 G's Maximum	2.3
Unimodal Acceleration Curve	YES	Yes

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	Manufacturer	Model Number	Serial Number	Date of Last Calibration	Date of Next Calibration
1	ENDEVCO	7264-2000	J35924	5-21-04	11-21-04
3	ENDEVCO	7264-2000	J35919	5-21-04	11-21-04
4	ENDEVCO	7264-2000	J21969	5-19-04	11-19-04

REMARKS:

RECORDED BY:  DATE: 8-28-04
APPROVED BY: 

Head Drop
(Preliminary Test Report)

4-8

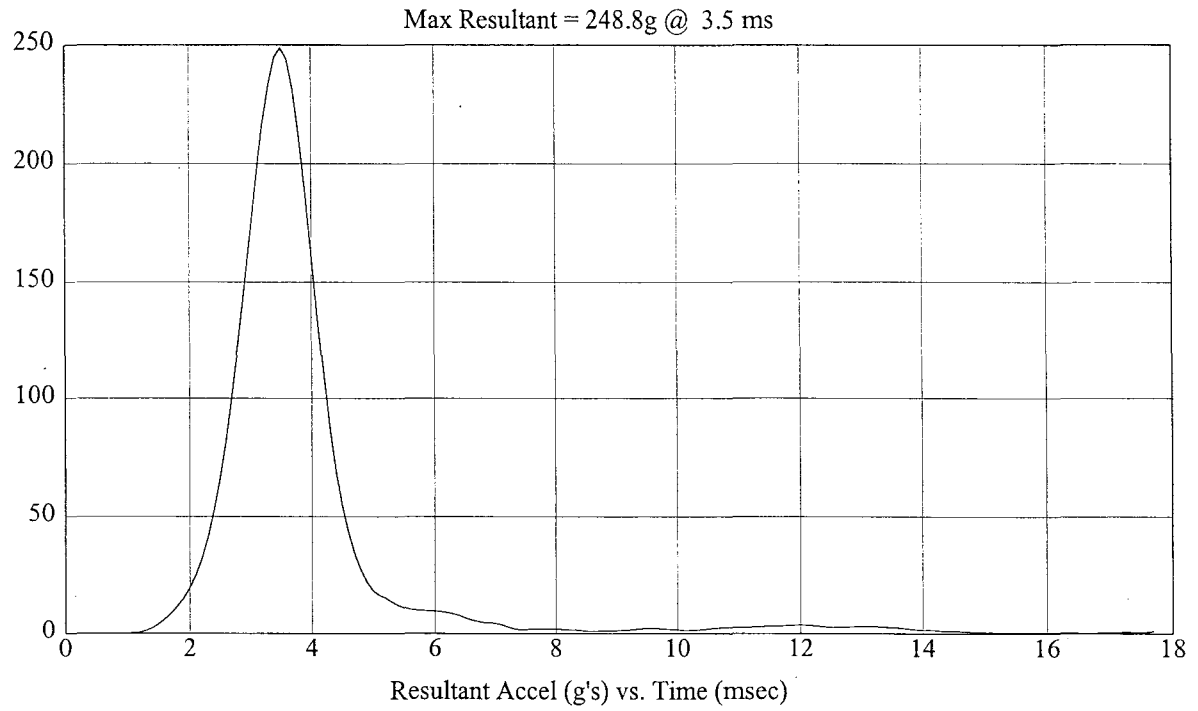
Test Number: H35254

MGA Job Number: G04I7-001.13

Test Date: 8/28/04

Test Description: Post - Test Calibration

Head #: 35



Head Drop
(Preliminary Test Report)

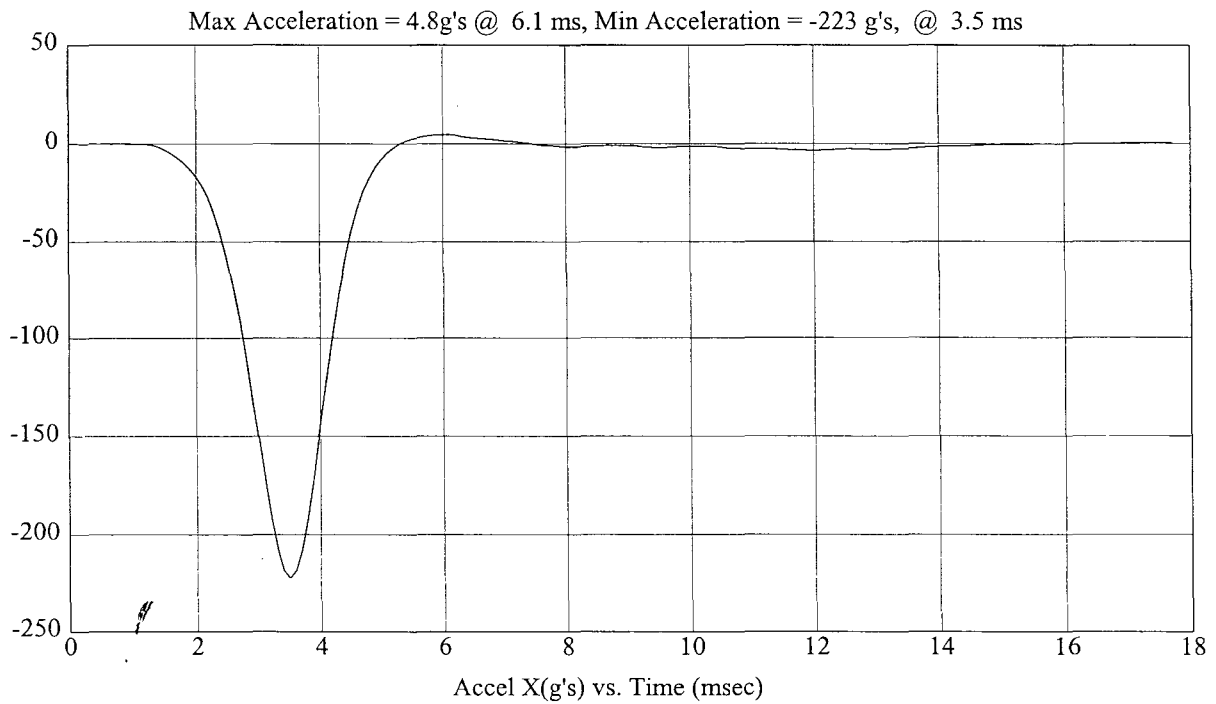
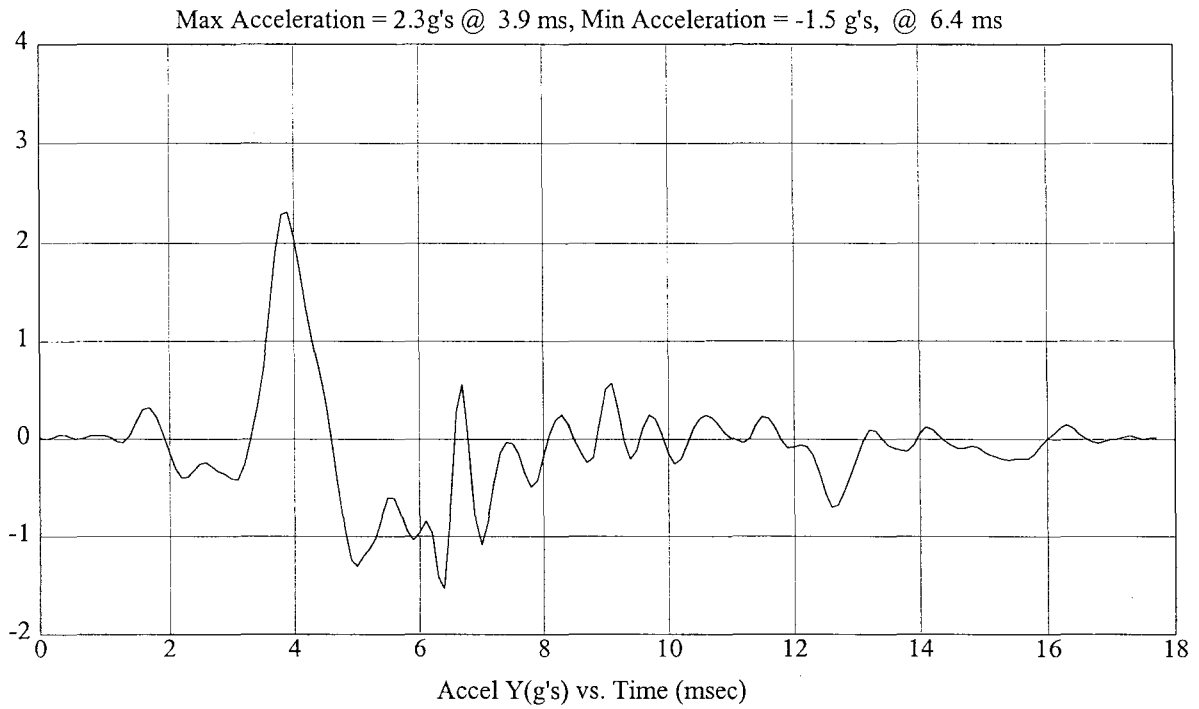
Test Number: H35254

MGA Job Number: G04I7-001.13

Test Date: 8/28/04

Test Description: Post - Test Calibration

Head #: 35



Head Drop
(Preliminary Test Report)

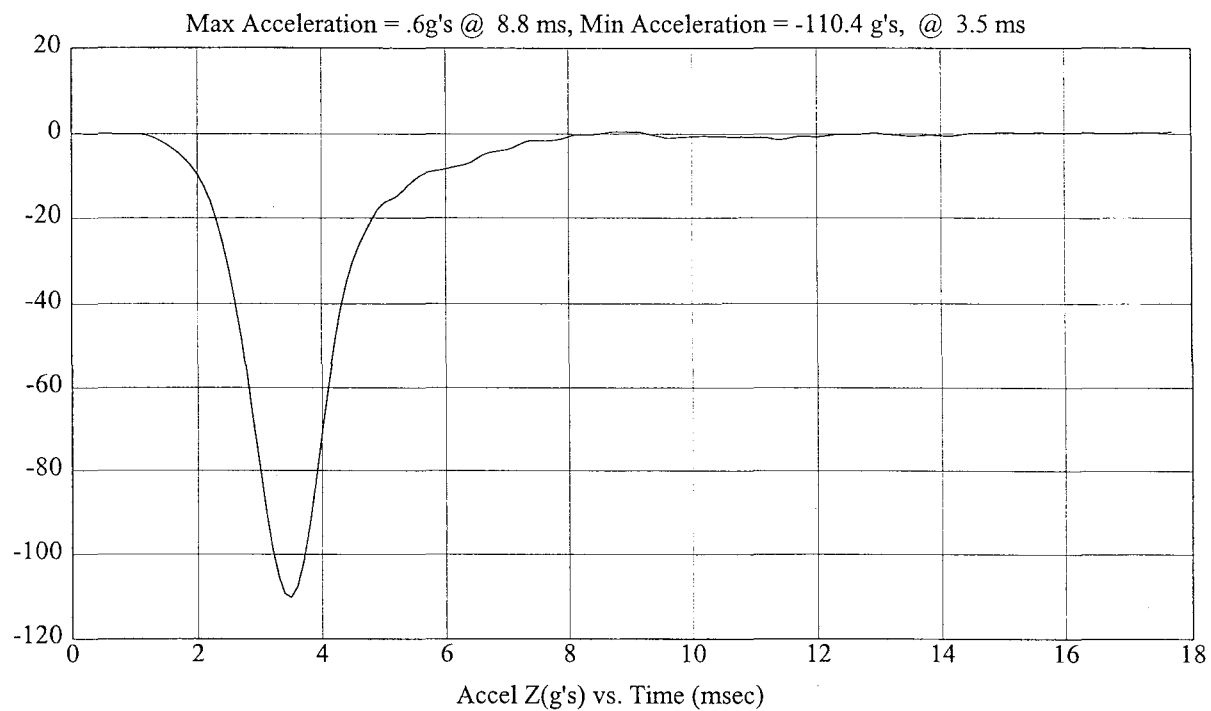
Test Number: H35254

MGA Job Number: G0417-001.13

Test Date: 8/28/04

Test Description: Post - Test Calibration

Head #: 35



HEAD DROP TEST SUMMARY
PART 572L

HEADFORM SERIAL NUMBER: <u>036</u> CALIBRATION DATE: <u>8-26-04</u>		
TEST PARAMETER	SPECIFICATION	TEST RESULTS
Weight	9.90 to 10.10 lbs.	10.03
Temperature	19° C to 26° C	22
Relative Humidity	10% to 70%	65
Peak Resultant Acceleration	225 G's to 275 G's	250.6
Peak Lateral Acceleration	15 G's Maximum	13.5
Unimodal Acceleration Curve	YES	Yes

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	Manufacturer	Model Number	Serial Number	Date of Last Calibration	Date of Next Calibration
1	ENDEVCO	7264-2000	J35983	5-23-04	11-23-04
3	ENDEVCO	7264-2000	J35916	5-23-04	11-23-04
4	ENDEVCO	7264-2000	J35918	5-23-04	11-23-04

REMARKS:

RECORDED BY: 

DATE: 8-26-04

APPROVED BY: 

Head Drop
(Preliminary Test Report)

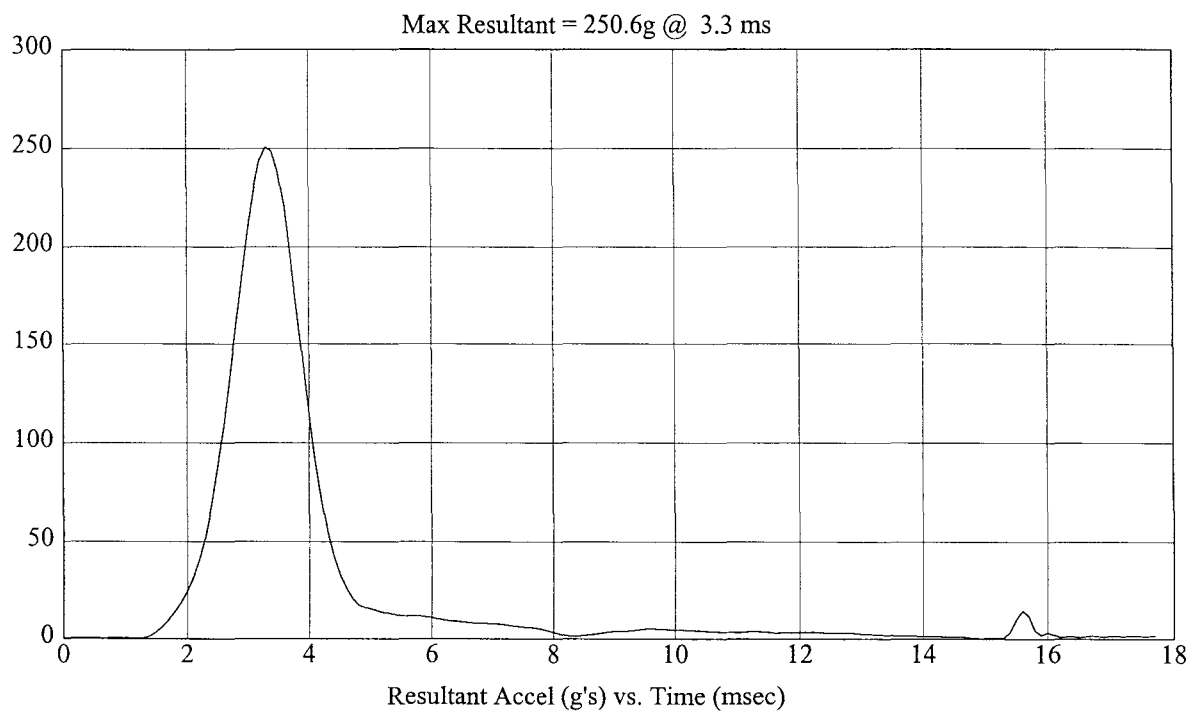
Test Number: H36252

MGA Job Number: G04I7-001.13

Test Date: 8/26/04

Test Description: Pre - Test Calibration

Head # : 036



Head Drop
(Preliminary Test Report)

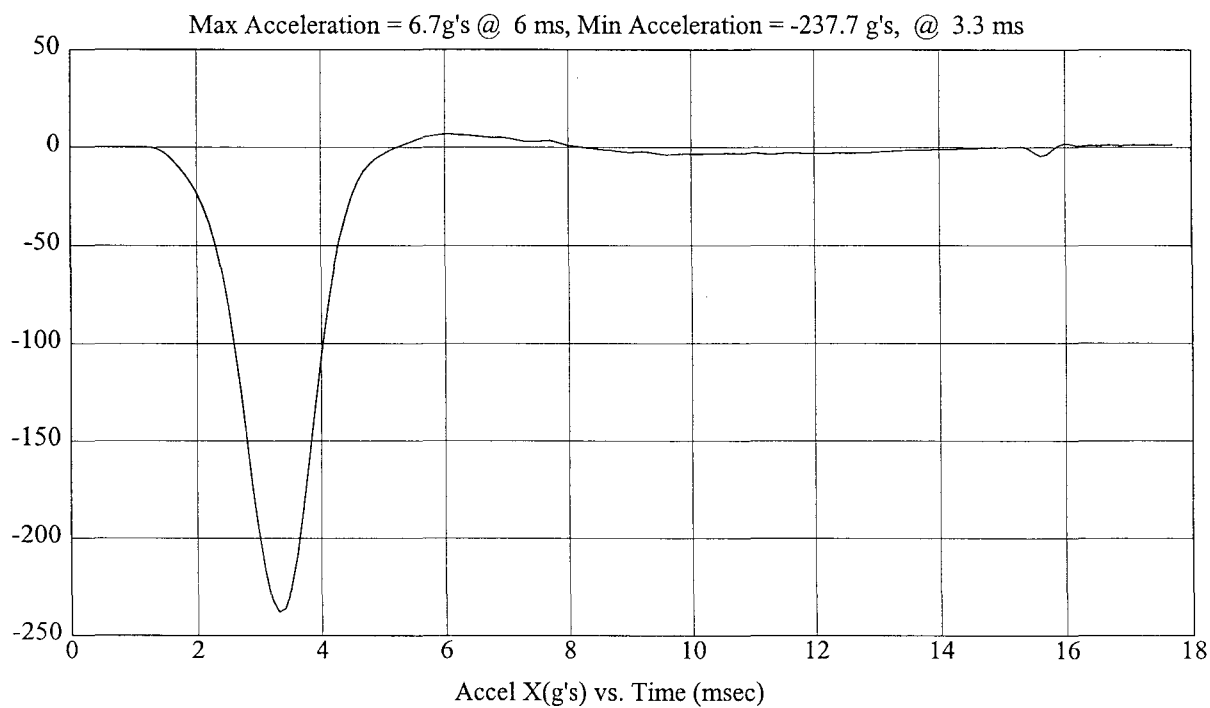
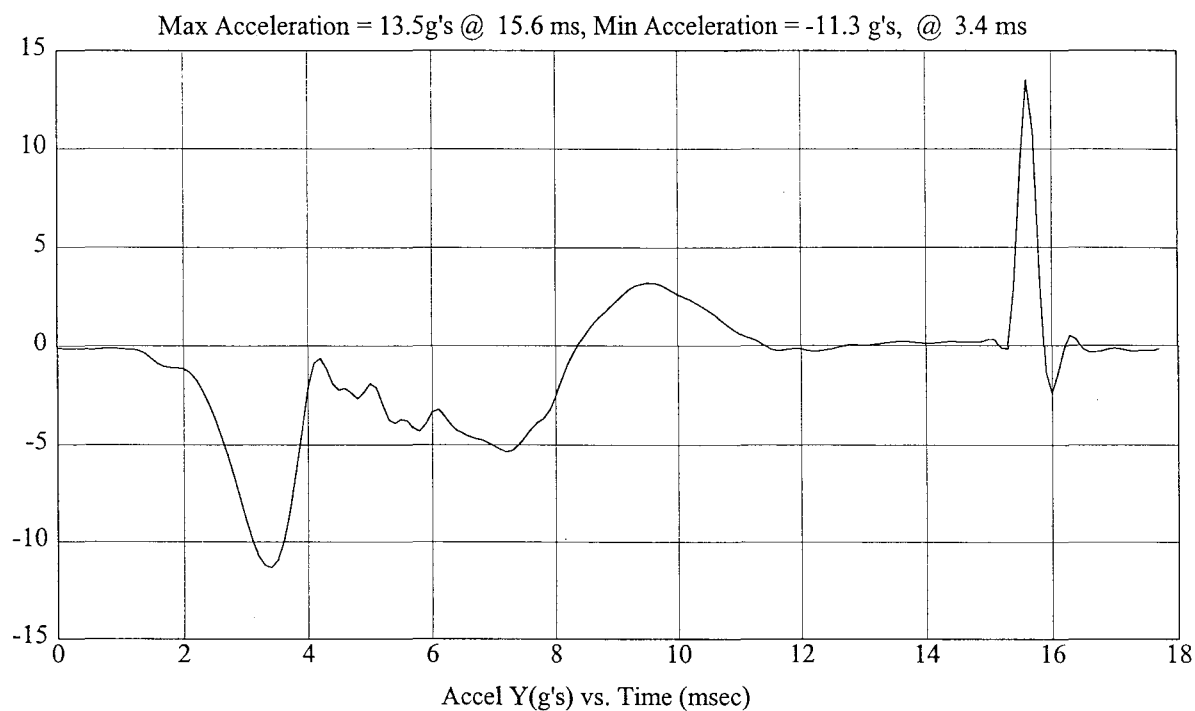
Test Number: H36252

MGA Job Number: G04I7-001.13

Test Date: 8/26/04

Test Description: Pre - Test Calibration

Head #: 036



Head Drop
(Preliminary Test Report)

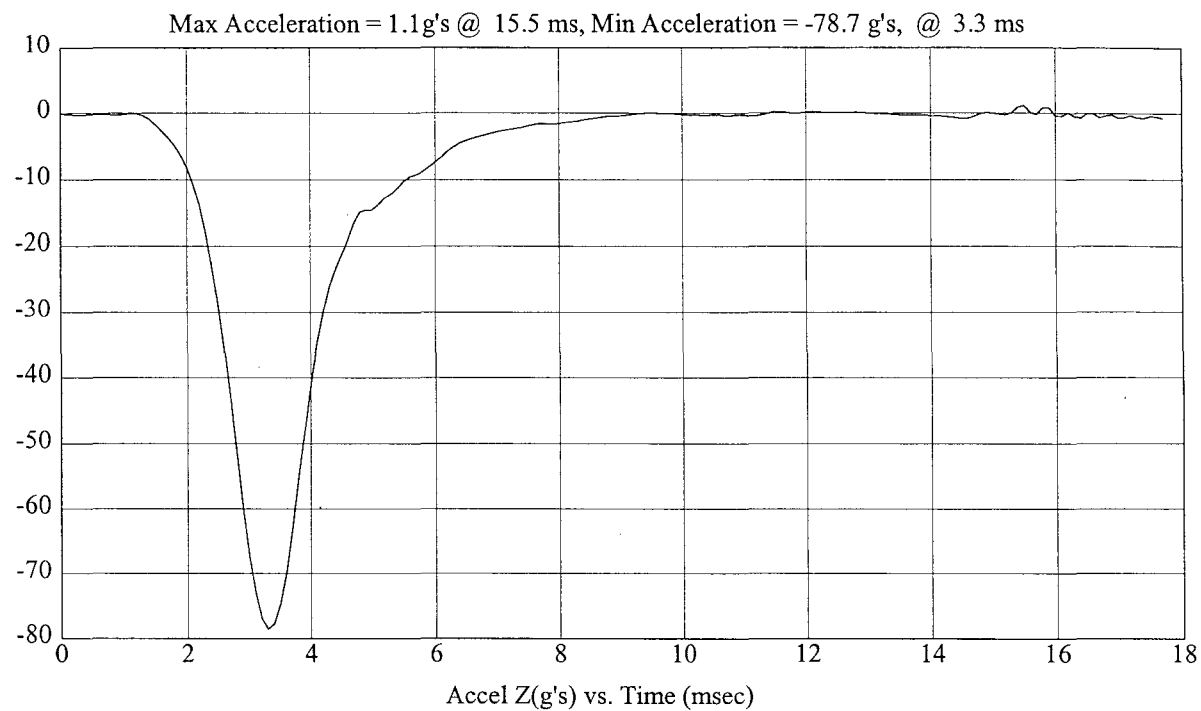
Test Number: H36252

MGA Job Number: G04I7-001.13

Test Date: 8/26/04

Test Description: Pre - Test Calibration

Head # : 036



MICHIGAN OPERATIONS
DATE: 3/20/03
SUPERCEDES: MGATPHDT.5

Post 6017-001.13
DOC. NO.: MGATP201UHD
REVISION NO.: 6
PAGE 6 OF 7

HEAD DROP TEST SUMMARY PART 572L

HEADFORM SERIAL NUMBER: <u>036</u> CALIBRATION DATE: <u>8-28-04</u>		
TEST PARAMETER	SPECIFICATION	TEST RESULTS
Weight	9.90 to 10.10 lbs.	10.03
Temperature	19° C to 26° C	22
Relative Humidity	10% to 70%	68
Peak Resultant Acceleration	225 G's to 275 G's	261.1
Peak Lateral Acceleration	15 G's Maximum	7.2
Unimodal Acceleration Curve	YES	Yes

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	Manufacturer	Model Number	Serial Number	Date of Last Calibration	Date of Next Calibration
1	ENDEVCO	7264-2000	535923	5-23-04	11-23-04
3	ENDEVCO	7264-2000	535916	5-23-04	11-23-04
4	ENDEVCO	7264-2000	535918	5-23-04	11-23-04

REMARKS:

RECORDED BY: R. A. [Signature] DATE: 8-28-04
APPROVED BY: [Signature]

Head Drop
(Preliminary Test Report)

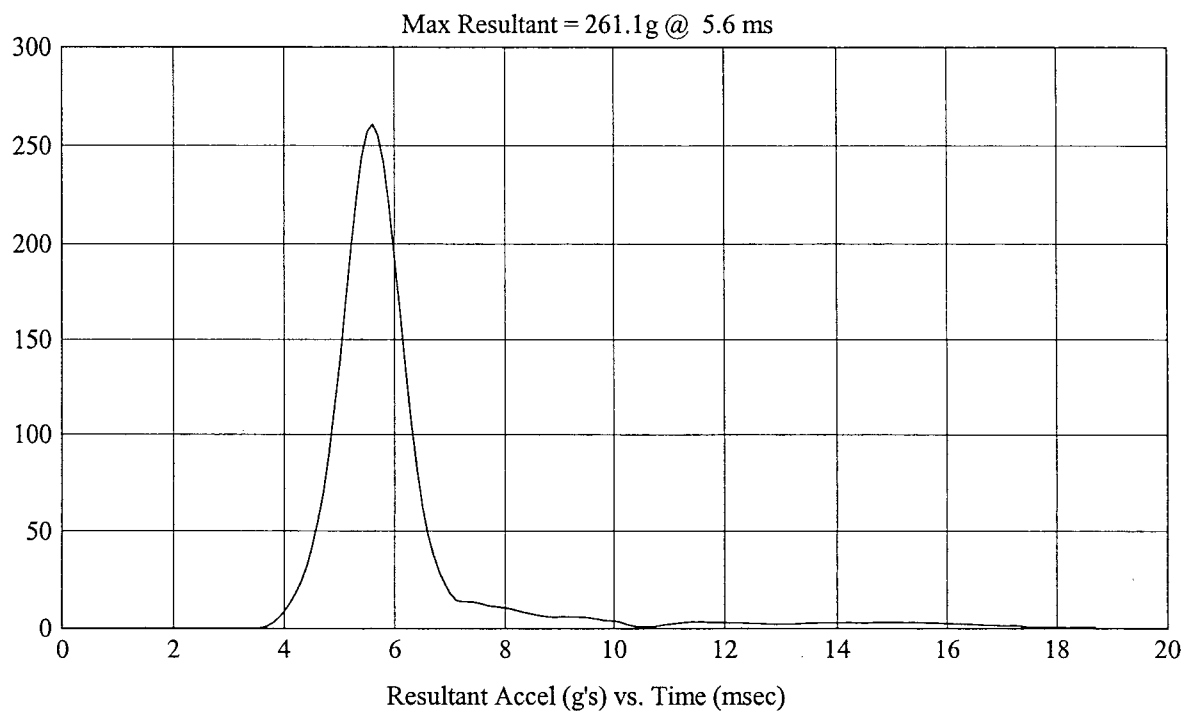
Test Number: H36253

MGA Job Number: G04I7-001.13

Test Date: 8/28/04

Test Description: Post - Test Calibration

Head #: 36



Head Drop
(Preliminary Test Report)

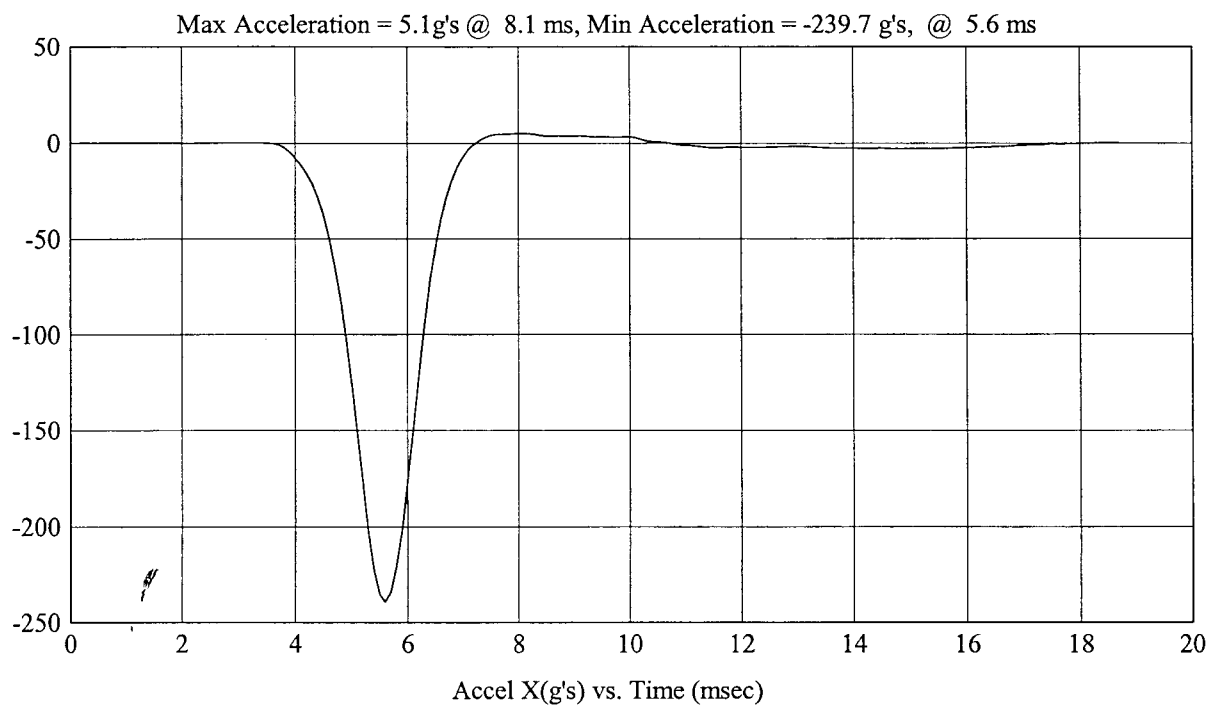
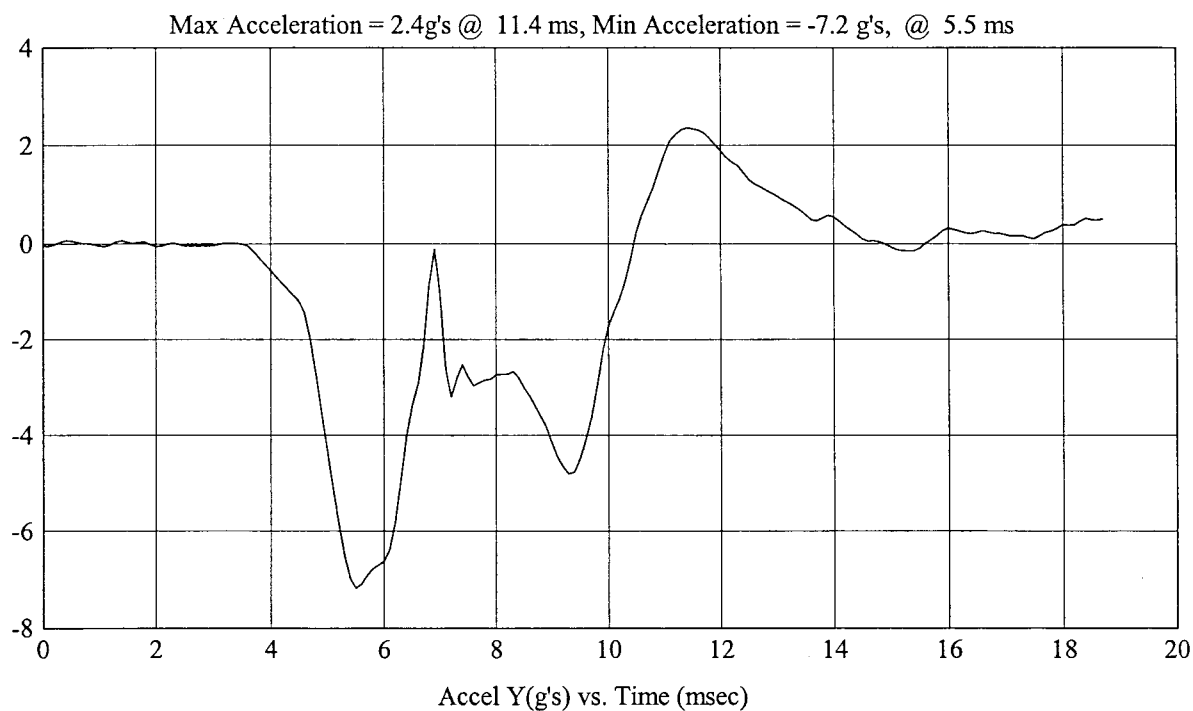
Test Number: H36253

MGA Job Number: G04I7-001.13

Test Date: 8/28/04

Test Description: Post - Test Calibration

Head #: 36



Head Drop
(Preliminary Test Report)

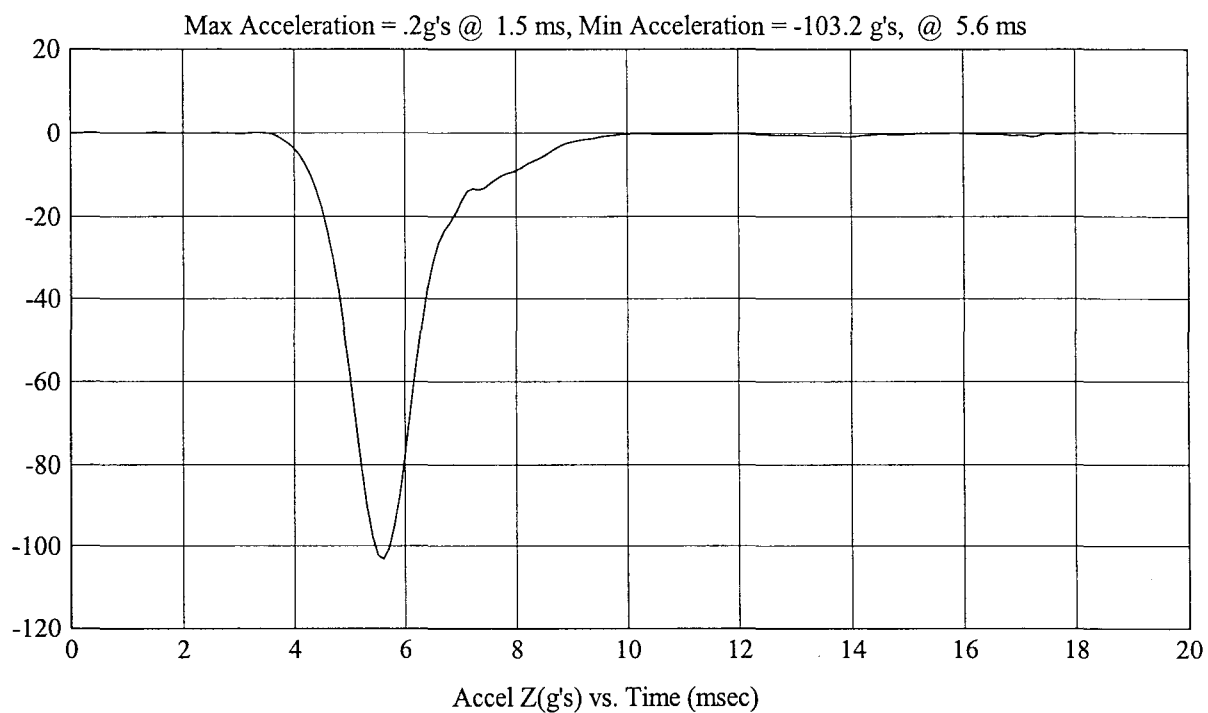
Test Number: H36253

MGA Job Number: G04I7-001.13

Test Date: 8/28/04

Test Description: Post - Test Calibration

Head # : 36



**HEAD DROP TEST SUMMARY
PART 572L**

HEADFORM SERIAL NUMBER: <u>038</u> CALIBRATION DATE: <u>8-24-04</u>		
TEST PARAMETER	SPECIFICATION	TEST RESULTS
Weight	9.90 to 10.10 lbs.	9.99
Temperature	19° C to 26° C	22
Relative Humidity	10% to 70%	68
Peak Resultant Acceleration	225 G's to 275 G's	254.5
Peak Lateral Acceleration	15 G's Maximum	7.1
Unimodal Acceleration Curve	YES	Yes

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	Manufacturer	Model Number	Serial Number	Date of Last Calibration	Date of Next Calibration
1	ENDEVCO	7264-2000	J36197	5-23-04	11-23-04
3	ENDEVCO	7264-2000	J36193	5-23-04	11-23-04
4	ENDEVCO	7264-2000	J36353	5-23-04	11-23-04

REMARKS:

RECORDED BY: [Signature]

DATE: 8-24-04

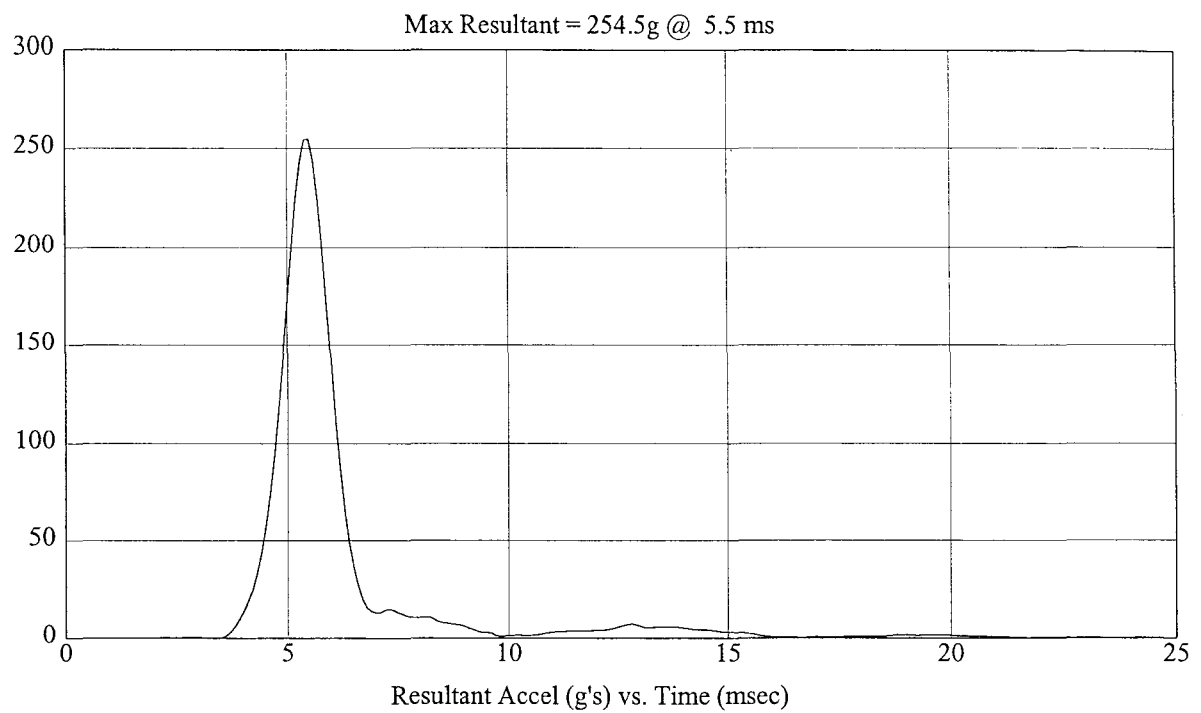
APPROVED BY: Helena A. Kalito

Head Drop
(Preliminary Test Report)

Test Number: H38238
Test Description: Pre - Test Calibration

MGA Job Number: G04I7-001.8

Test Date: 8/24/04
Head # : 038

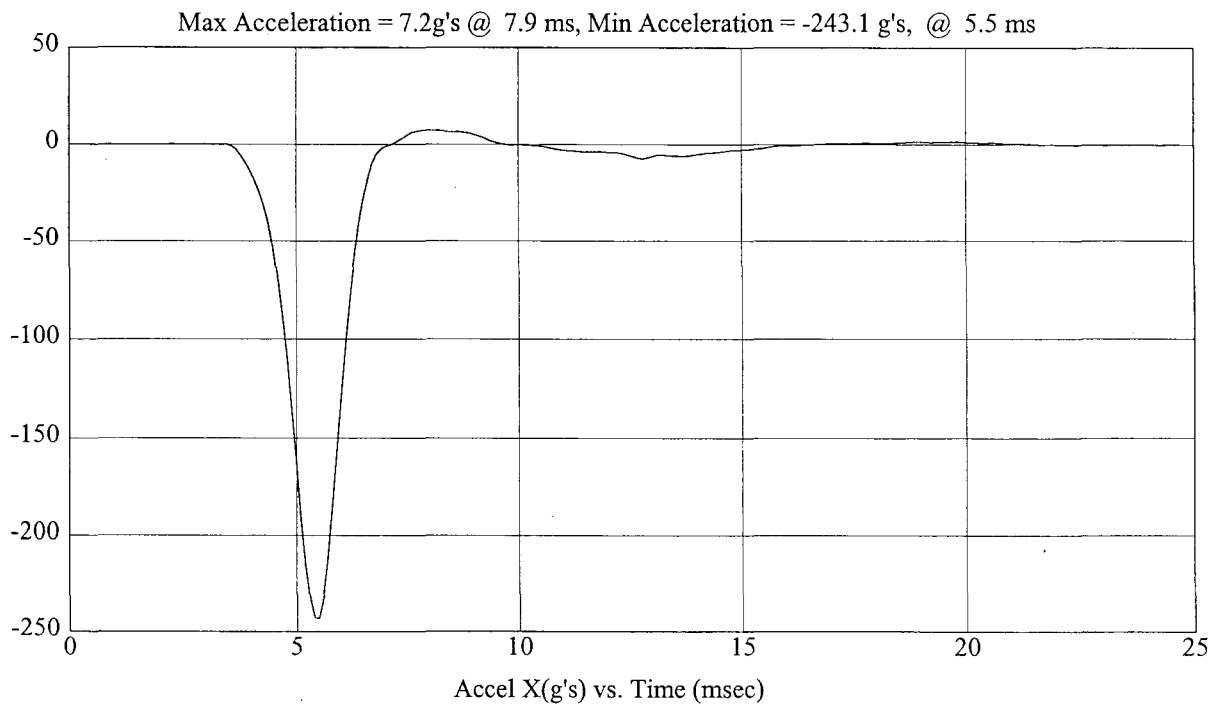
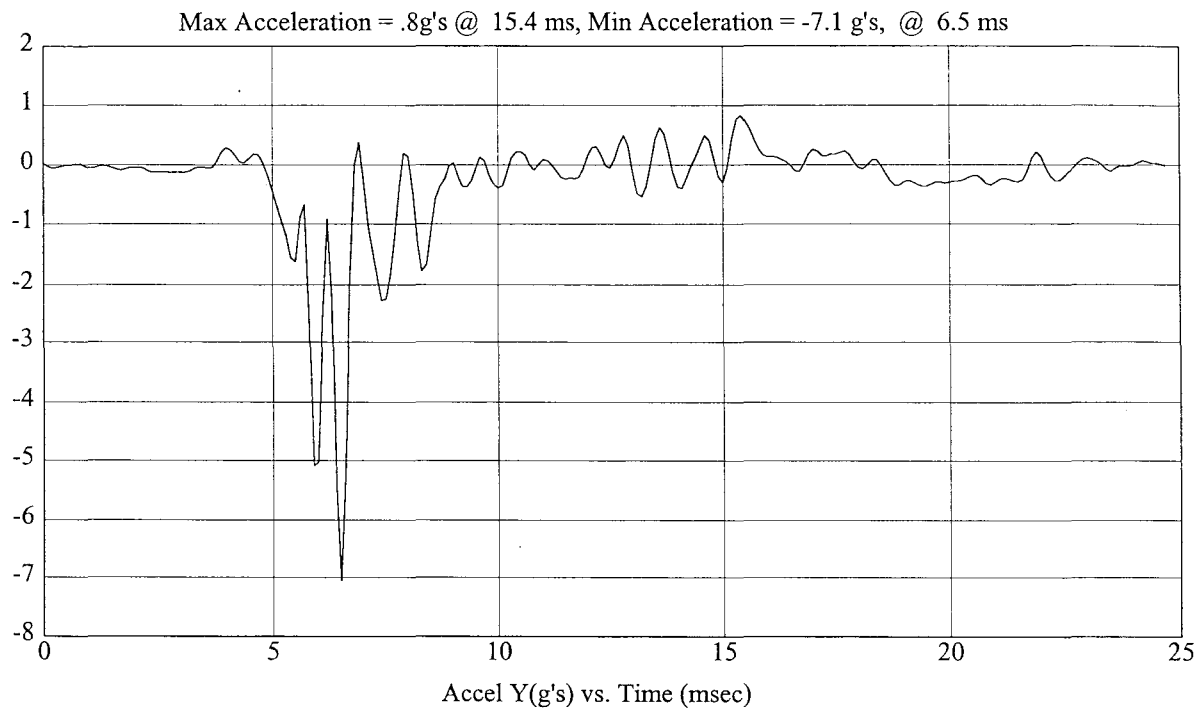


Head Drop
(Preliminary Test Report)

Test Number: H38238
Test Description: Pre - Test Calibration

MGA Job Number: G04I7-001.8

Test Date: 8/24/04
Head #: 038



Head Drop
(Preliminary Test Report)

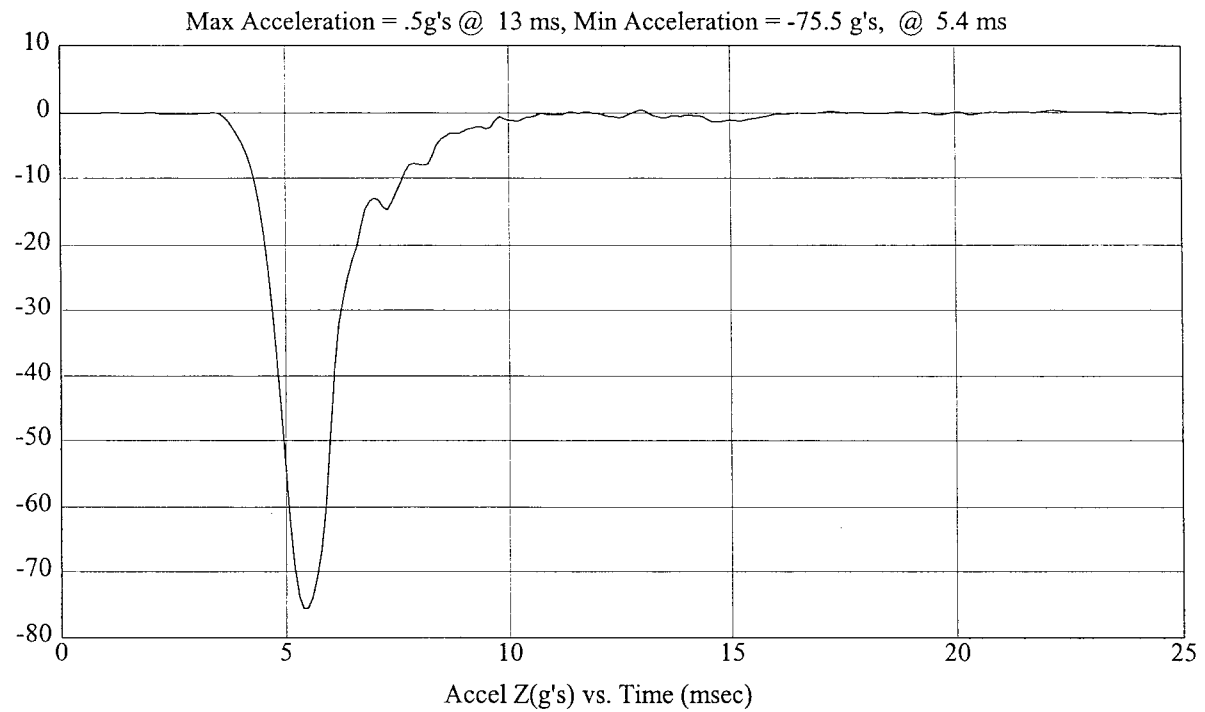
Test Number: H38238

MGA Job Number: G04I7-001.8

Test Date: 8/24/04

Test Description: Pre - Test Calibration

Head # : 038

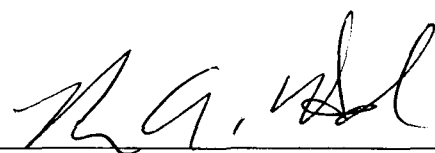


HEAD DROP TEST SUMMARY
PART 572L

HEADFORM SERIAL NUMBER: <u>038</u> CALIBRATION DATE: <u>8-28-04</u>		
TEST PARAMETER	SPECIFICATION	TEST RESULTS
Weight	9.90 to 10.10 lbs.	9.99
Temperature	19° C to 26° C	22
Relative Humidity	10% to 70%	68
Peak Resultant Acceleration	225 G's to 275 G's	263.6
Peak Lateral Acceleration	15 G's Maximum	12.8
Unimodal Acceleration Curve	YES	Yes

FMH INSTRUMENTATION					
HEAD ACCELEROMETERS					
Channel Number	Manufacturer	Model Number	Serial Number	Date of Last Calibration	Date of Next Calibration
	ENDEVCO	7264-2000	536197	-108.0	11-23-04
	ENDEVCO	7264-2000	536193	101.4	11-23-04
	ENDEVCO	7264-2000	536353	96.8	11-23-04

REMARKS:

RECORDED BY: 

DATE: 8-28-04

APPROVED BY: 

Head Drop
(Preliminary Test Report)

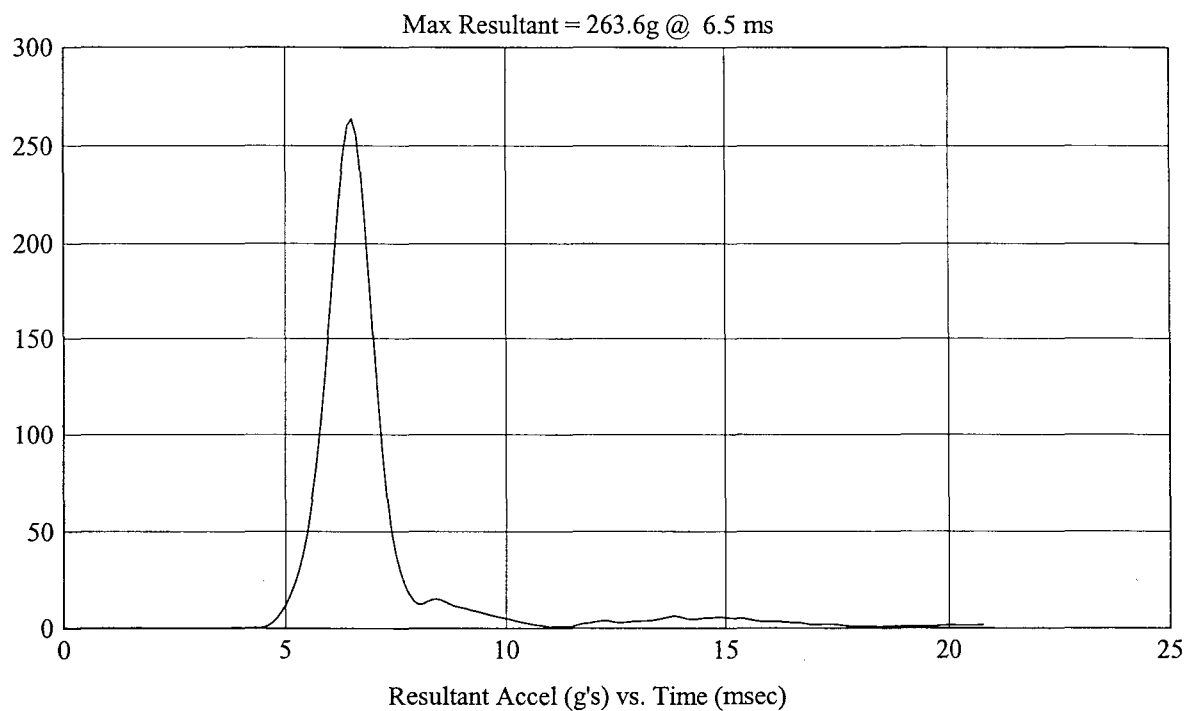
Test Number: H38239

MGA Job Number: G04I7-001.13

Test Date: 8/28/04

Test Description: Post - Test Calibration

Head # : 38



Head Drop
(Preliminary Test Report)

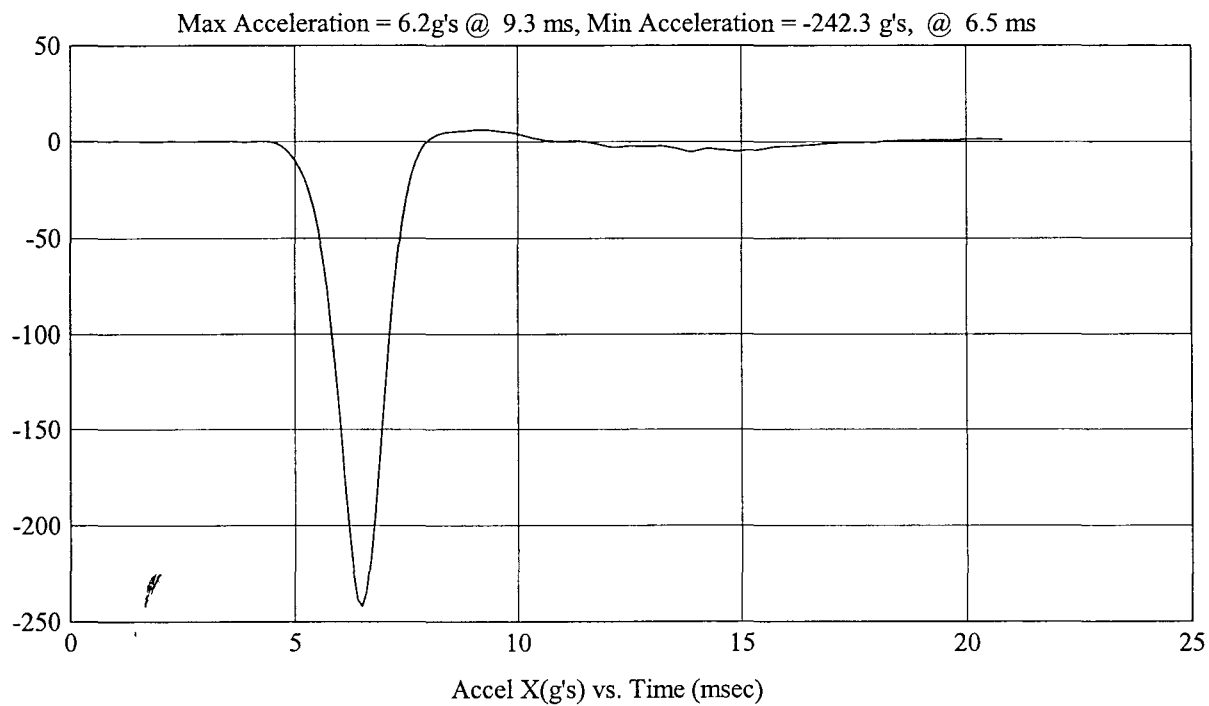
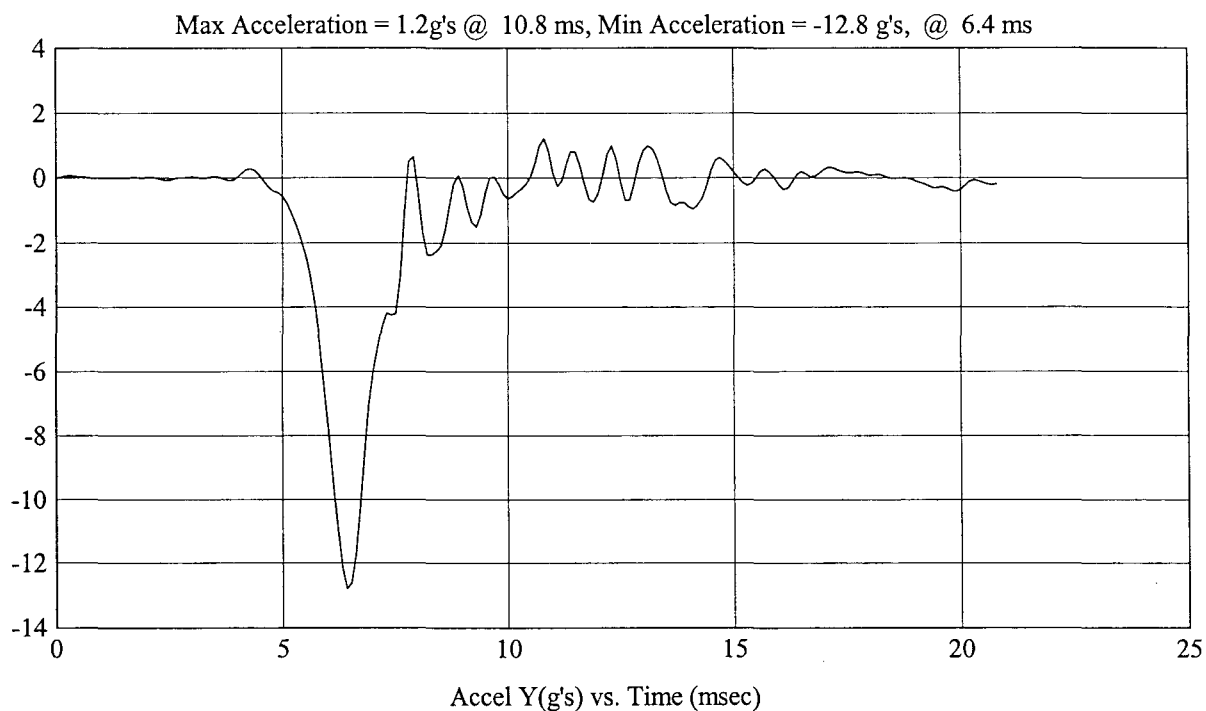
Test Number: H38239

MGA Job Number: G04I7-001.13

Test Date: 8/28/04

Test Description: Post - Test Calibration

Head #: 38



Head Drop
(Preliminary Test Report)

4-26

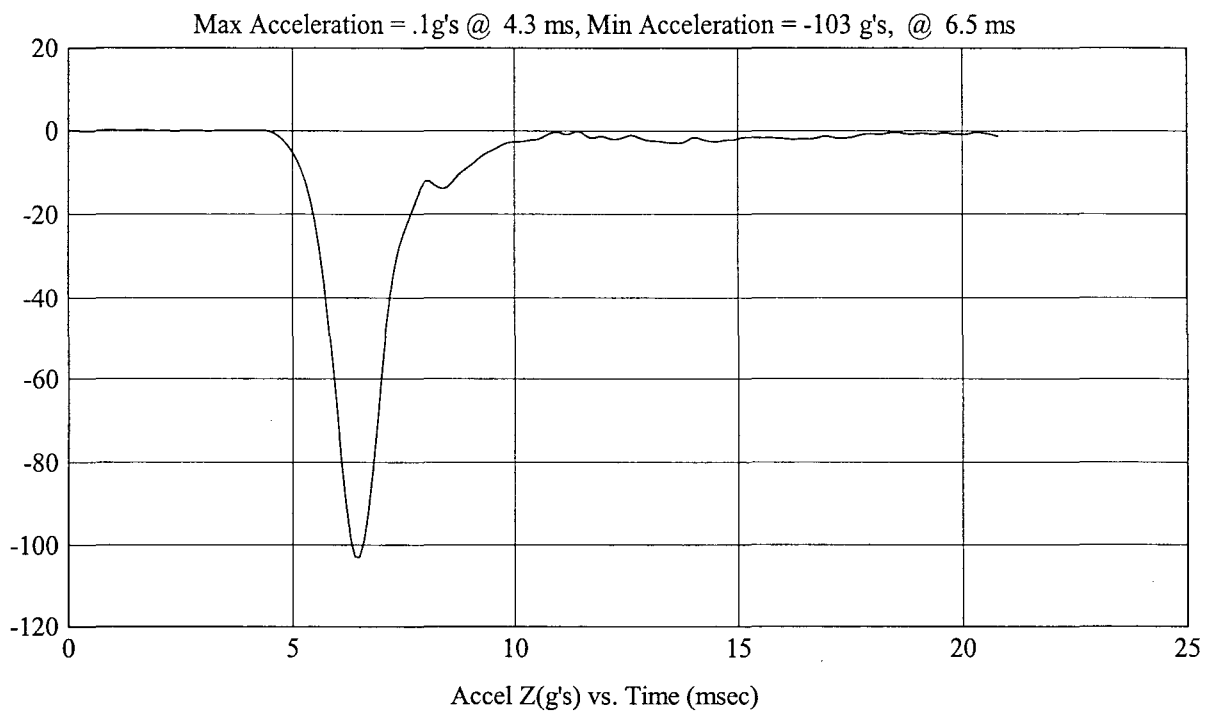
Test Number: H38239

MGA Job Number: G04I7-001.13

Test Date: 8/28/04

Test Description: Post - Test Calibration

Head # : 38





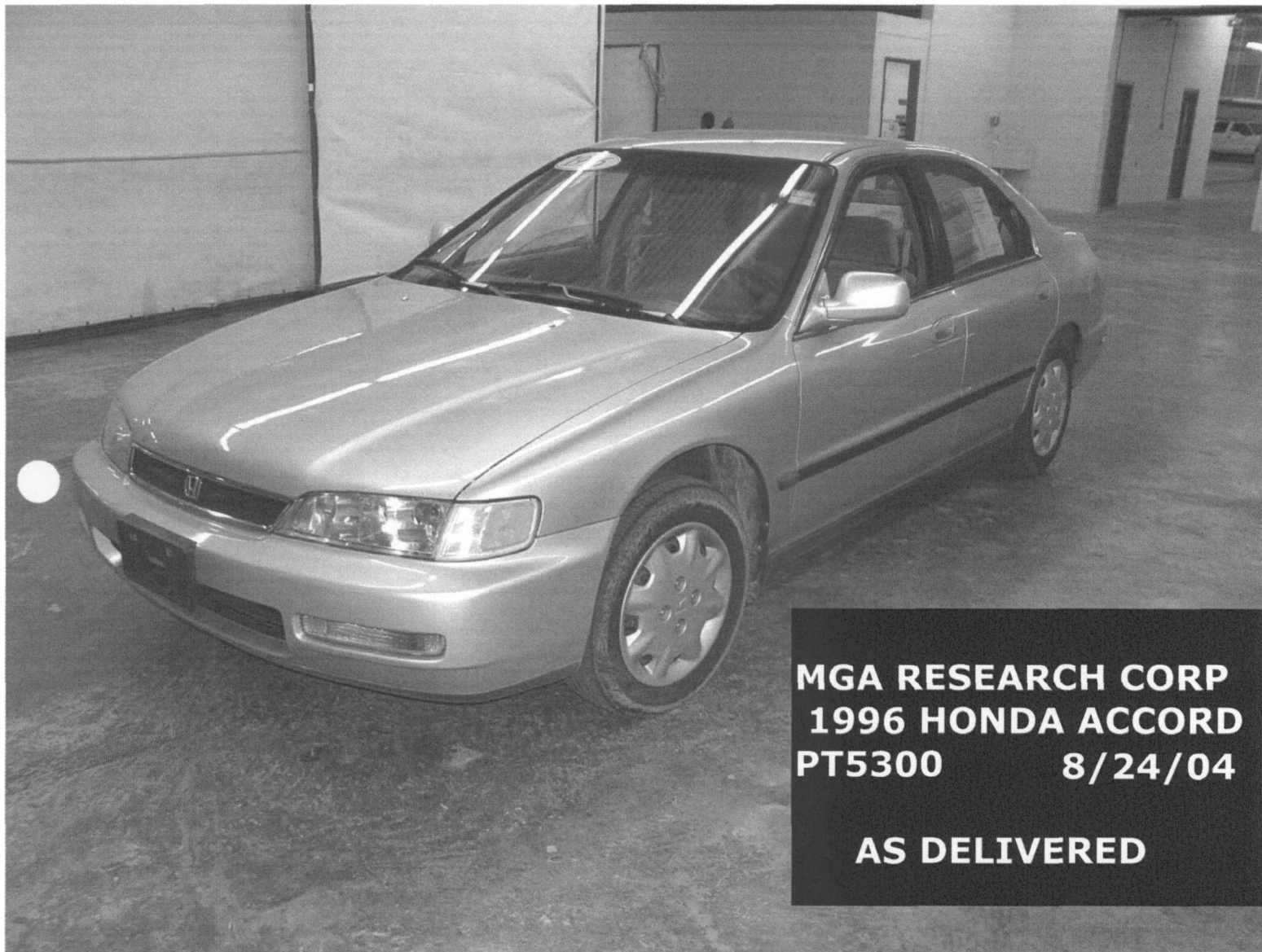
MGA RESEARCH CORP
1996 HONDA ACCORD
PT5300 8/24/04

AS DELIVERED



**MGA RESEARCH CORP
1996 HONDA ACCORD
PT5300 8/24/04**

AS DELIVERED





MGA RESEARCH CORP
1996 HONDA ACCORD
PT5300 **8/24/04**

AS DELIVERED

TIRE INFORMATION

VEHICLE CAPACITY WEIGHT: 850 lbs.

SEATING CAPACITY: TOTAL 5 FRONT 2 REAR 3

RECOMMENDED TIRE SIZE	COLD TIRE INFLATION PRESSURE	
185 / 65R15 88S	FRONT / REAR 220kPa, 32psi	•UP TO VEHICLE CAPACITY WEIGHT
COMPACT SPARE TIRE T115 / 70D14	INFLATION PRESSURE 420kPa, 60psi	•DO NOT INSTALL ON OTHER VEHICLES.

SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION.

V4YA3

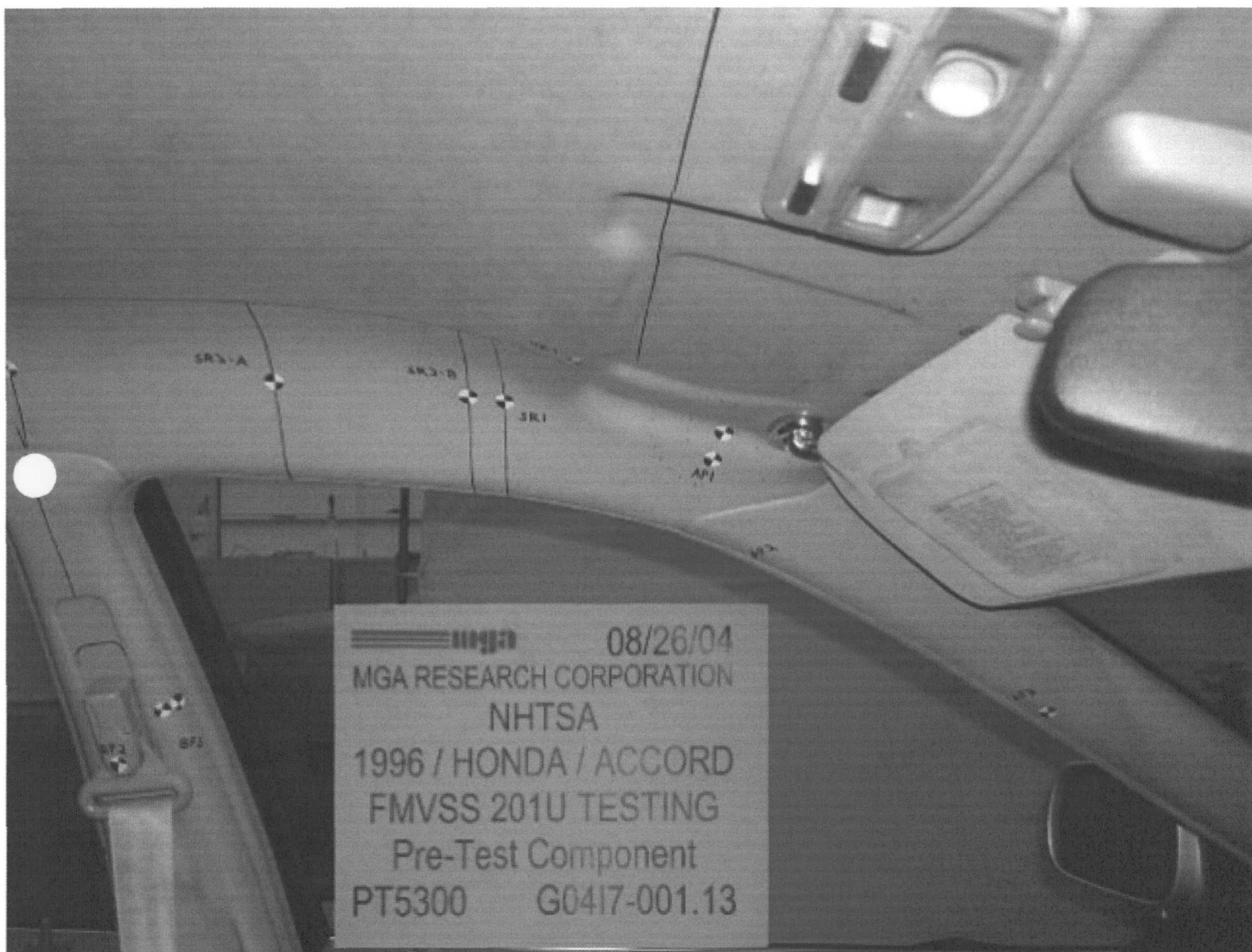
MFD. BY HONDA OF AMERICA MFG., INC. 9/95
GVWR 3915LBS GAWR F 2140LBS R 1810LBS
THIS VEHICLE CONFORMS TO ALL APPLICABLE
FEDERAL MOTOR VEHICLE SAFETY, BUMPER,
AND THEFT PREVENTION STANDARDS IN EFFECT
ON THE DATE OF MANUFACTURE SHOWN ABOVE:

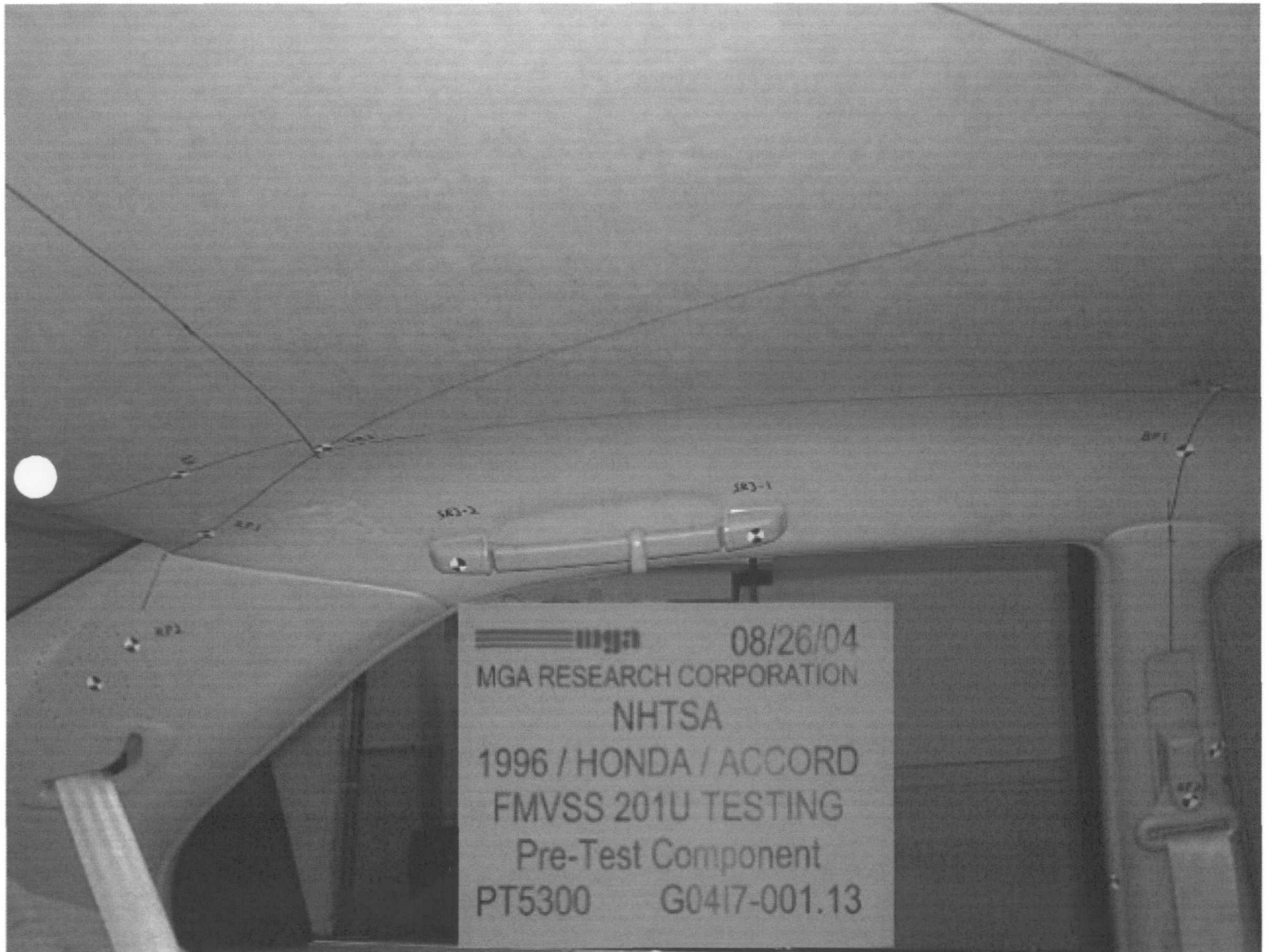
V.I.N. 1HGCD5632TA

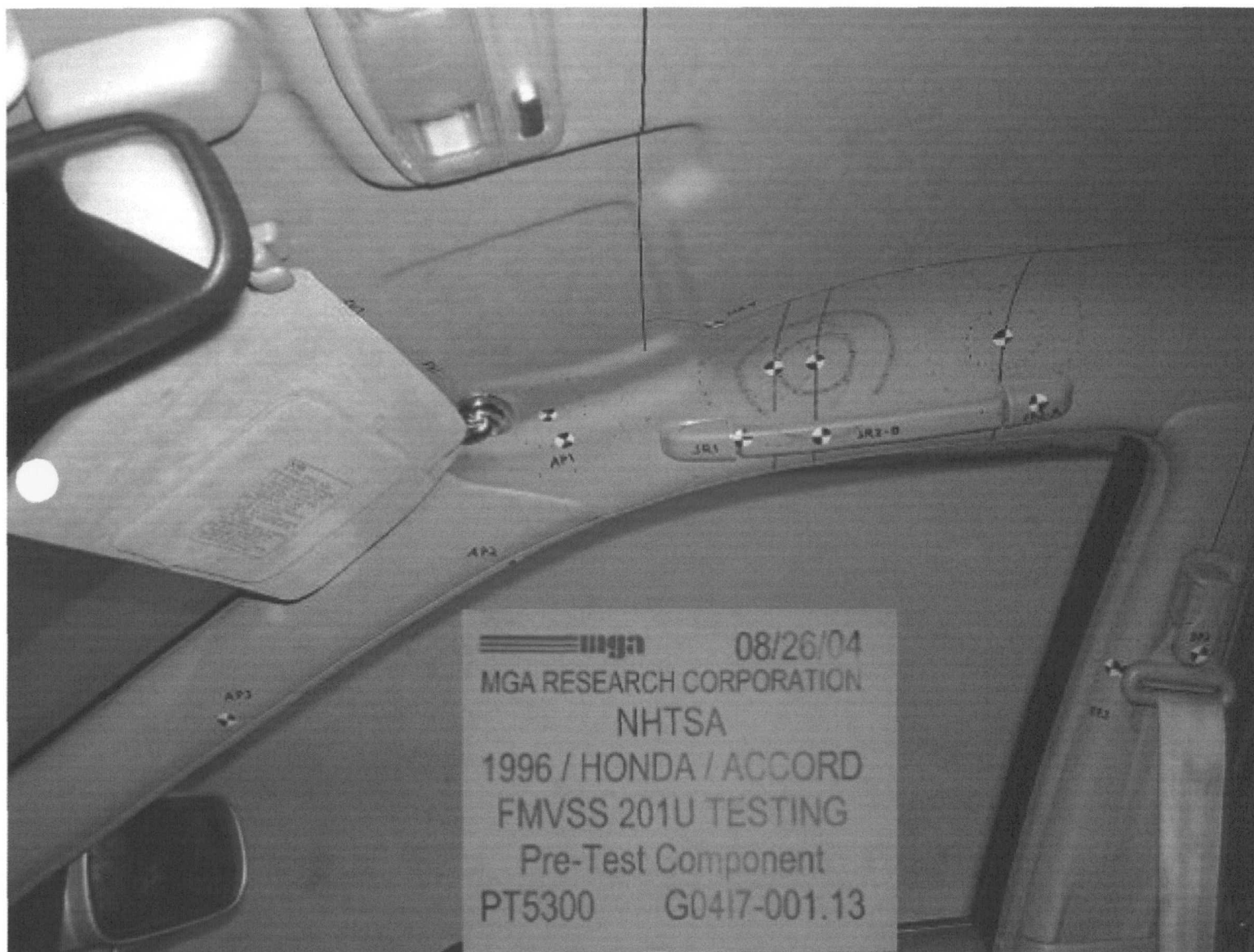
PASSENGER CAR

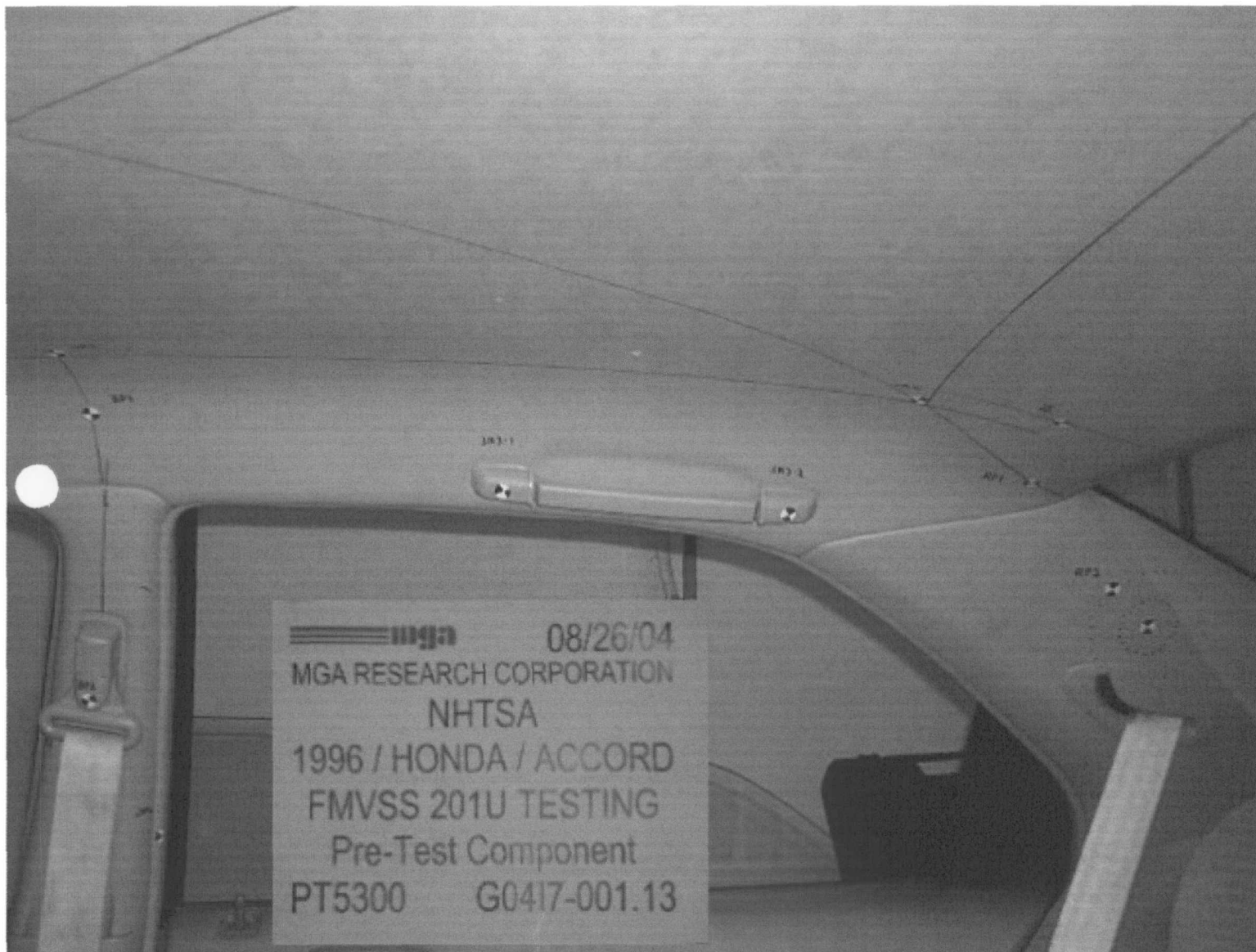
MADE IN U.S.A.

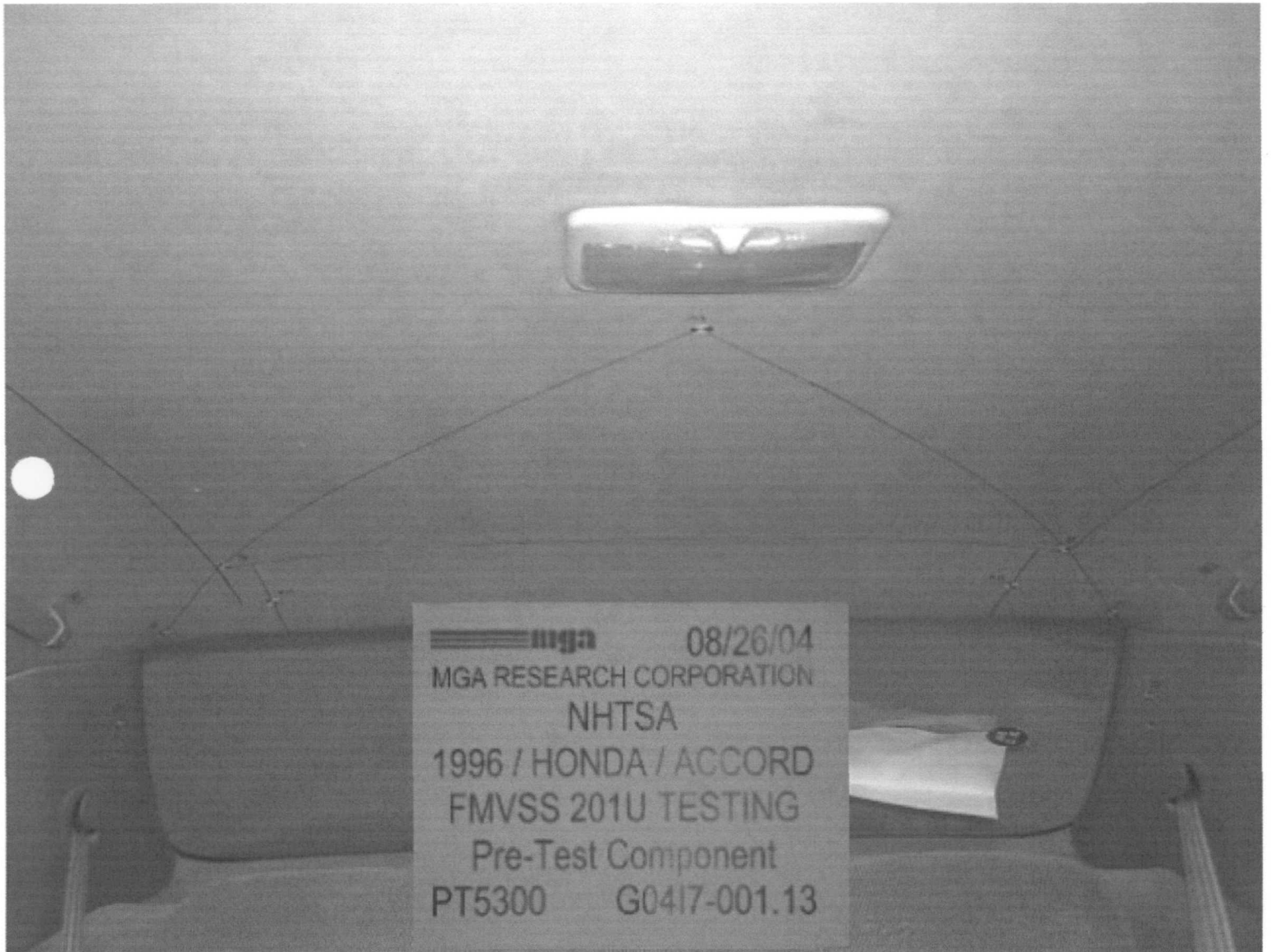
















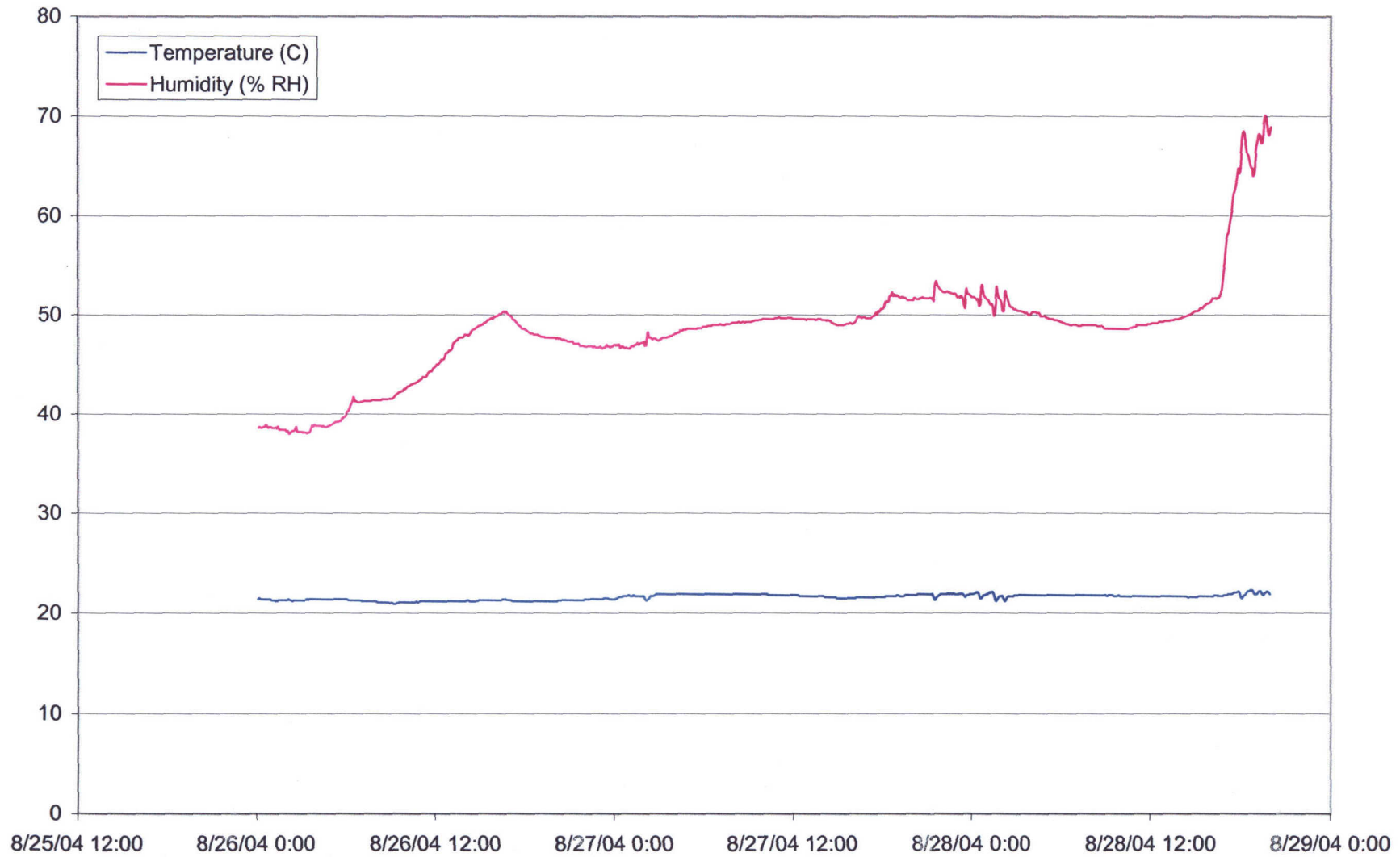


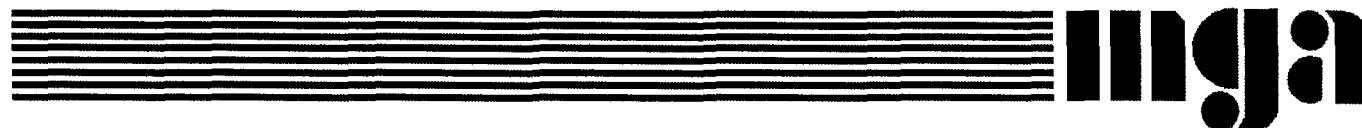






1996 Honda Accord PT5300
August 26-28th, 2004





mga research corporation

CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7624-2000	Model: 301M09/484B
S/N: J35924	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 5/21/04	Calibration Date: 5/11/04
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0410

New DLR (100k , Units: G): 92.3

StdDeviation (%): 0.106

% Difference in DLR (New vs. Old): 0.506

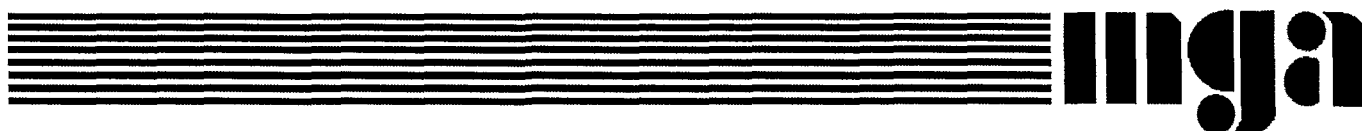
Temperature (°F): 72

Humidity (%): 47

Performed By:

Approved By:

All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 3.8\%$.
All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor $k=2$.



mga research corporation

CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7624-2000	Model: 301M09/484B
S/N: J35919	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 5/21/04	Calibration Date: 5/11/04
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0410

New DLR (100k , Units: G): 93.8

StdDeviation (%): 0.066

% Difference in DLR (New vs. Old): -0.27

Temperature (°F): 72

Humidity (%): 47

Performed By:

Approved By:

All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 3.8\%$.
All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor $k=2$.



mga research corporation

CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7624-2000	Model: 301M09/484B
S/N: J21969	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 5/19/04	Calibration Date: 5/11/04
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0409

New DLR (100k , Units: G): 88.5

StdDeviation (%) 0.194

% Difference in DLR (New vs. Old): -1.641

Temperature (°F): 73

Humidity (%): 43

Performed By:

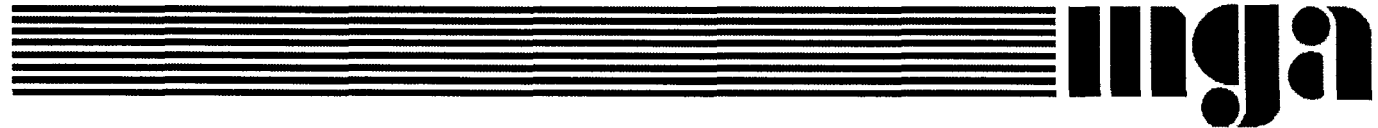
Approved By:

All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 3.8\%$.
All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor $k=2$.

446 executive drive • troy, mi 48083

248 / 577-5001 • fax 248 / 577-5025

www.mgaresearch.com



mga research corporation

CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7624-2000	Model: <i>301M09/484B</i>
S/N: J35923	S/N: <i>862/247</i>
Capacity: 2000 G	Capacity: <i>170 G</i>
Calibration Date: 5/23/04	Calibration Date: <i>5/11/04</i>
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0412

New DLR (100k , Units: G): 100.8

StdDeviation (%) 0.782

% Difference in DLR (New vs. Old): -1.506

Temperature (°F): 74

Humidity (%): 50

Performed By:

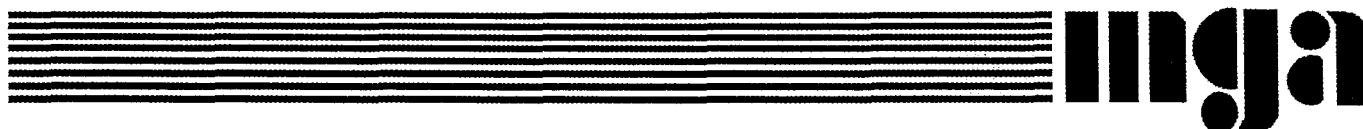
Approved By:

All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 3.8\%$.
All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor $k=2$.

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www.mga research.com



mga research corporation

CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7624-2000	Model: 301M09/484B
S/N: J35916	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 5/23/04	Calibration Date: 5/11/04
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0412

New DLR (100k , Units: G): 100.2

StdDeviation (%): 0.215

% Difference in DLR (New vs. Old): 0.872

Temperature (°F): 74

Humidity (%): 50

Performed By:

Approved By:

All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 3.8\%$.
All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor $k=2$.



mga research corporation

CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7624-2000	Model: 301M09/484B
S/N: J35918	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 5/23/04	Calibration Date: 5/11/04
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0412

New DLR (100k , Units: G): 97.9

StdDeviation (%) 0.929

% Difference in DLR (New vs. Old): -0.762

Temperature (°F): 74

Humidity (%): 50

Performed By:

Approved By:

All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 3.8\%$.
All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor $k=2$.

446 executive drive • troy, mi 48083
248 / 577-5001 • fax 248 / 577-5025
www.mgaresearch.com



mga research corporation

CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7624-2000	Model: <i>301M09/484B</i>
S/N: J36193	S/N: <i>862/247</i>
Capacity: 2000 G	Capacity: <i>170 G</i>
Calibration Date: 5/23/04	Calibration Date: <i>5/11/04</i>
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0412

New DLR (100k , Units: G): 101.4

StdDeviation (%) 0.375

% Difference in DLR (New vs. Old): -3.509

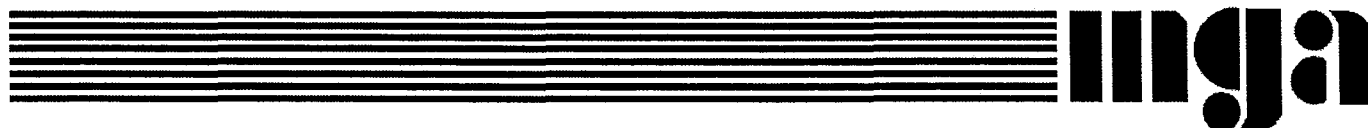
Temperature (°F): 74

Humidity (%): 50

Performed By: 

Approved By: 

All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 3.8\%$.
All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor $k=2$.



mga research corporation

CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7624-2000	Model: 301M09/484B
S/N: J36197	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 5/23/04	Calibration Date: 5/11/04
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0412

New DLR (100k , Units: G): 108.0

StdDeviation (%): 0.915

% Difference in DLR (New vs. Old): 0.719

Temperature (°F): 74

Humidity (%): 50

Performed By:

Approved By:

All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 3.8\%$.
All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor $k=2$.



mga research corporation

CALIBRATION CERTIFICATE

Sensor Information	Reference Sensor Information
Name: 2000 G Accelerometer	Name: <i>Reference Accelerometer</i>
Model: 7624-2000	Model: 301M09/484B
S/N: J36353	S/N: 862/247
Capacity: 2000 G	Capacity: 170 G
Calibration Date: 5/23/04	Calibration Date: 5/11/04
	Calibrated By: <i>Chris Vega/PCB Piezotronics, Inc.</i>

Test Reference Number: A0412

New DLR (100k , Units: G): 96.8

StdDeviation (%): 0.376

% Difference in DLR (New vs. Old): -0.677

Temperature (°F): 74

Humidity (%): 50

Performed By: *James Campbell*

Approved By: *Donald A. Kalito*

All calibrations are traceable to the National Institute of Standards and Technology. Estimated uncertainty of the measurement is $\pm 3.8\%$.
All certification data and equipment are on file for inspection at your request. Best uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor $k=2$.

~Certificate of Calibration~

Model Number: 484B	N.I.S.T. Project #: 6720012
Serial Number: 2470	Calibration Date: 05/11/2004
Description: Signal Conditioner	Recalibration Date:
Test Procedure: AT-106-1	Calibration Technician: Chris Vega CV. #36
Temperature: 74° F	Relative Humidity: 42%

<u>TESTS</u>	<u>BEFORE</u>	<u>AFTER</u>
INPUT VOLTAGE ($24 \pm 0.1V$)	24.02	24.02
ICP CURRENT ($4 \pm 0.6mA$)	3.97	3.97
DC OFFSET A.C. MODE (volts)	-.001	-.001
GAIN (REF 1 VRMS, 1kHz)	1.0000	NOT ADJUSTABLE
DRIFT (DC MODE)	< 2mV/min.	NOT ADJUSTABLE
FREQUENCY RESPONSE 10 Vp-p, 1 kHz REFERENCE	FLAT TO 200kHz	NOT ADJUSTABLE

As Received: In tolerance

As Left: In tolerance

Special Notes: MGA Research

This document certifies that the equipment referenced above meets published specifications. The calibration procedure is in compliance with ISO 10012-1, and former MIL-STD-45662A and is traceable to NIST. *Measurement uncertainty (95% confidence level w/coverage factor of 2) for scale factors is +/- 0.2%.

This certificate may not be reproduced, except in full, without written approval of

~ Calibration Certificate ~

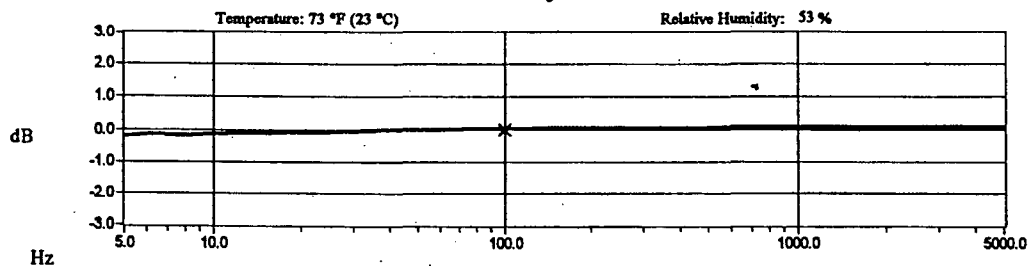
Per ISO 10063-21

Model Number: **301M09/484B (394M17 SYSTEM)**Serial Number: **862/2470**Description: **ICP® Accelerometer**Method: **Back-to-Back Comparison Calibration**Manufacturer: **PCB**

Calibration Data

Sensitivity @ 100.0 Hz **31.17 mV/g** Output Bias **8.6 VDC**
 (3.179 mV/m/s²) Transverse Sensitivity **3.0 %**

Sensitivity



Data Points

Frequency (Hz)	Dev. (%)	Frequency (Hz)	Dev. (%)	Frequency (Hz)	Dev. (%)
5.0	-2.5	REF. FREQ.	0.0	5000.0	1.1
10.0	-1.9	300.0	0.7		
15.0	-1.4	500.0	0.8		
30.0	-0.6	1000.0	1.0		
50.0	-0.2	3000.0	1.1		

Mounting Surface: Stainless Steel with Silver Grease Coating Fastener: Steel Mount

Acceleration Level (g_{rms}):10.0 g (98.1 m/s²)

Vertical

*The acceleration level may be limited by shaker displacement at low frequencies. If the total level cannot be obtained, the calibration system uses the following formula to set the vibration amplitude: Acceleration Level (g) = 0.010 x (Hz)^{0.7}.
 *The gravitational constant used for calculations by the calibration system is: 1 g = 9.80665 m/s².

Condition of Unit

As Found: In Tolerance, No Adjustment NecessaryAs Left: In Tolerance

Notes

1. Calibration is NIST Traceable thru Project 822/267400 and PTB Traceable thru Project 1055.
2. This certificate shall not be reproduced, except in full, without written approval from PCB Piezotronics, Inc.
3. Calibration is performed in compliance with ISO 9001, ISO 10012-1, ANSI/NCSL Z540-1-1994 and ISO 17025.
4. See Manufacturer's Specification Sheet for a detailed listing of performance specifications.
5. Measurement uncertainty (95% confidence level with coverage factor of 2) for frequency ranges tested during calibration are as follows: 5-9 Hz; +/- 2.0%, 10-99 Hz; +/- 1.5%, 100-1999 Hz; +/- 1.0%, 2-10 kHz; +/- 2.5%.

Technician: _____

Chuck DiMaggio *CD*Date: 05/13/04

Cert No 1062.01

PCB PIEZOTRONICS™

VIBRATION DIVISION

3425 Walden Avenue • Depew, NY 14043

TEL: 822-684-0013 • FAX: 716-685-3826 • www.pcb.com

PAGE 1 of 1

encl - 316728389.34

Interim Certification Document

Part Description: Gold Series Faro Arm

Serial Number: G08020203122

Single Point 2 Sigma: G08-00 +/-0.051mm (+/-0.0020 in)

Linear Displacement 2 Sigma: G08-00 +/-0.072mm (+/-0.0028 in)

Certification Date: February 03, 2004

MEASUREMENT STANDARDS, N.I.S.T., U.K.A.S. TRACEABILITY

Bal-Tec Invar Ball Bar Kit	Kit Serial Number: 473	N.I.S.T. Test No.: FBB-473-12012003 Date: 12/01/2003
		U.K.A.S. Cert. No.: FBB-473-12012003 Date: 12/01/2003
Mitutoyo Corporation, 10mm Step Gage	Code No.: 515-744; Serial No.: 810107	N.I.S.T. Control No.: 279517 Date: 01/13/2003
Measuring Range: 1.5m		U.K.A.S. Cert. No.: 133193 Date: 12/18/2002

CERTIFICATION RESULTS

A basic 4 quadrant certification included with all Gold Series and comprised of: 2 vertical level single point repeatability test in 4 quadrants with 5 repeats from 4 directions.	PASSED
12 Step gauge tests in 12 positions.	PASSED
FARO ball bar 10 points per quadrant in 4 quadrants.	PASSED
3 lengths in 8 positions free ball bar test.	PASSED

This instrument, as received, was within specifications.

Ambient Temperature: 22°C ± 3°C

Technician:

Rafael Rocha

02/03/04

Rafael Rocha

02/03/04

This certificate shall not be reproduced, except in full, without the written permission of FARO Technologies, Inc.

The results of this certificate relate only to the items calibrated or tested.

Faro Technologies, Inc.
ph: (407) 333-9911

125 Technology Park
1-800-736-2771

Lake Mary, FL 32746
(407) 333-8056 fax

FARO

Revised: January 22, 2004

f:\control\forms\07qcontr\English\07fm07-006.doc



Certificate Number: 20040729Cal

Detroit Testing Laboratory, Inc.



7111 E. 11 Mile Road, Warren, MI 48092-2709 • (586) 754-9000 • FAX (586) 754-9045 • www.dtl-inc.com

Certificate of Calibration

Equipment Information

Customer: MGA Research Corporation
446 Executive Drive
Troy, MI 48083

Model: AP 20
Serial Number: E33603-0213
Manufacturer: Detecto
Description: Scale

System ID: MGA00081

Customer Asset No.:

Calibration Information

Calibration Date: 3/24/04
Calibration Due: 3/24/05
Calibration Interval: 12 Month
Rec'd In Tol:¹ Yes/Pass
Returned In Tol:¹ Yes/Pass
Performed On Site: No
Calibration Limitation:

Procedure Used: 33K6-4-72-1/98
Calibrated to: MFR SPEC
Temperature: 24 °C
Humidity: 37 %RH

The Uncertainty of the Measurements Pertaining to This Calibration are Estimated to be: $(0.006 + 0.01\% \text{ Ind}) \text{ lb}$

¹ Pass/Fail or In/Out of Tolerance statements are opinions only of the person performing the calibration based on data from measurements at the time they were made, procedure utilized, professional experience, and the uncertainty associated with this calibration. It is ultimately up to the user of this equipment to determine if this item meets their specific requirements for accuracy for its intended application.

Calibration Standards Used

System ID:	Model:	Serial:	Manufacturer:	Description:	Date Due:
09126	CT485B	61201050	OMEGA	Thermohumidigraph	5/12/04
07580	CLASS C	07580	TROEMNER	WEIGHT SET	9/11/04

Any calibration interval and due date of this device, if stated, is at the request of the customer. Due to the fact that many variables may effect drift of reported value over time there is no assurance implied that this item will maintain it's stated accuracy through the end of this interval.

This Calibration has been performed per requirements of ISO 17025-1999. Reported results are from standards with accuracies that are traceable to the International Systems of Units (SI), derived from physical constants, ratio measurements, national measurement standards, or compared to consensus standards. Measurement uncertainty is expressed as a confidence level of approximately 95% (coverage factor k=2).

Signature: <u>Jerry Wells</u> Jerry Wells	Date: <u>3-24-04</u> Technician	Approved: <u>Paul H. [Signature]</u> Date: <u>3-24-04</u>
Date Printed: 03/24/04	Printed By: Jerry Wells	Page: 1 of 2

QFC 1048-1 Rev 4/17/03

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Detroit Testing Laboratory, Inc.

CALIBRATION DATA SHEET

Date: 3/24/04
 DTL I.D: MGA00081
 Cert. Number: 20040729Cal

Cal Point lb std	Reading As Found lb out	Reading As Left lb out	Deviation As Found lb	Deviation As Left lb	% of Allowed Dev as Found	% of Allowed Dev as Left
5.00	5.00	5.00	0.00	0.00	0.0	0.0
10.00	10.01	10.00	0.01	0.00	100.0	0.0
15.00	15.01	15.00	0.01	0.00	100.0	0.0
20.00	20.01	20.00	0.01	0.00	100.0	0.0

MICHIGAN OPERATIONS
DATE: 3/21/03
SUPERCEDES: MQATPTMC.3

DOC. NO.: MQATPTMC
REVISION NO.: 4
PAGE 3 OF 3

Tape Measure Calibration Certificate

Reference Steel Rule

Brand: GEE
S/N: C18033
Calibration Date: 11 24 3

Subject Tape Measure

Brand: STANLEY
S/N: 289
Calibration Date: 1.7.4

Reference mm	Subject Tape Measure	Difference	Reference mm	Subject Tape Measure	Difference
0	0	0	450	450	0
25	25	0	475	475	0
50	50	0	500	500	0
75	75	0	525	525	0
100	100	0	550	550	0
125	125	0	575	575	0
150	150	0	600	600	0
175	175	0	625	625	0
200	200	0	650	650	0
225	225	0	675	675	0
250	250	0	700	700	0
275	275	0	725	725	0
300	300	0	750	750	0
325	325	0	775	775	0
350	350	0	800	800	0
375	375	0	825	825	0
400	400	0	850	850	0
425	425	0	875	875	0

If all differences are ± 1 mm, then the tape measure is acceptable.

Pass X Fail Maximum Difference = 0

Date: 1.7.05

Performed By: Rf Mill

Certificate of Instrument Calibration and Testing

Calibration report shall not be reproduced, except in full, without written authorization from Dickson.

Customer Instrument

Dickson Model Number: **TR320**

Serial Number: **04018409**

Calibration Technician: **Kitty McReynolds**

Calibration Date: **01/22/2004**

Calibration Standards

General Eastern Model # M1

Ser. # 0050804 / 1300502

Accuracy: $\pm .4\%$ FS RH and $\pm .1^\circ\text{F}$

Certified February, 2003 / August, 2003

Asendi Model # A1011 Ser. # 12513-9017

RTD Platinum Probe Ser. # 496013 Accuracy: $\pm .2^\circ\text{F}$

Certified February, 2003

Cole Parmer Model # PT1000/90111-00

Ser. # 10067869 / Ser. # 10148057 Accuracy: $\pm .1^\circ\text{F}$

Certified June, 2003

The calibration standards are traceable through the National Institute of Standards and Technology.



Calibration Procedure P1130

The customer instrument was compared to the calibration standard. Drifts and faults were determined, and any necessary mechanical or electronic adjustments were taken. The Dickson calibration system conforms to the requirements of MIL-STD-45661A, ANSI/CSA Z540, ISO/IEC guide 25, and ISO 17025 as appropriate. Recalibration of the customer instrument is recommended within 6 months after the unit is placed into service. Any number of factors may cause the calibration item to drift before the recommended interval has expired. A2LA Certificate Number: 1621-01

Environmental Conditions

72°F

41%RH

Calibration Standard Reading	Customer Instrument Reading	Unit Specifications
Humidity (%RH)	Humidity (%RH)	Humidity
22.1	22.9	$\pm 2\%$ RH
55	56.1	$\pm 2\%$ RH
86.6	88.2	$\pm 3\%$ RH
Temperature °F	Temperature °F	Temperature
7.8	7.1	$\pm 1.3^\circ\text{F} (\pm 0.7^\circ\text{C})$
75.1	75	
111.5	111.4	

The TR320 has an ISO/IEC 17025 required NIST Technical note 1297, Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results, estimated measurement uncertainty at 95% CL (K=2) of $\pm 0.7^\circ\text{F}$ and $\pm 1.1\%$ RH.

FOR YOUR NEXT CALIBRATION NO PHONE CALLS REQUIRED

Fill out and send this form along with your instrument to Dickson. Label the outside of the box with "CCM", that is your RA#.

That's all there is to it!

1. Purchase Order

Name: _____

Phone: _____

Model #: **TR320**

Serial #: **04018409**

3. Please return via:

☐ Ground Freight*

☐ 2nd Day Air*

☐ Next Day Air*

*Charges added at factory

2. ☐ 1-Point Deluxe NIST Calibration \$149.00

☐ 3-Point Deluxe NIST Calibration \$199.00

☐ 3-Point Ultima Deluxe A2LA NIST \$299.00 (with incoming reading)

☐ N995 - User selectable NIST Temperature points \$50.00 each

(to be selected in addition to one of the above calibration options)

☐ N997 - Next Day Service \$50.00 (Not available for ULTIMA service)

4. Ship To:

Bill To:

Charts/Pens

(Order now and receive them with your calibrated unit)

	Order No.	Qty.	Price Ea.
☐ 6 Red Pens	P222	_____	\$36 pk.
☐ 3 Red/3 Blue Pens	P246	_____	\$36 pk.
☐ Charts* (60 per box)	C_____	_____	\$24 box

*Please fill in the chart order number. For a listing of available charts go to www.dicksonweb.com, click on "product search" and select the product type. *Tax applicable.

Prices are subject to change.

Let Dickson remind you the next time your unit is due for calibration. Register for our FREE Calibration Club now at www.dicksonweb.com

Dickson Calibration Services

930 South Westwood Avenue Addison, Illinois 60101 630-543-3747 Fax 630-543-0498

NuWeigh, Inc.

10421 Enterprise Drive
 Davisburg, MI 48350
 248-922-1435 Fax 248-922-1465
 ISO/IEC 17025 ACCREDITED

CALIBRATION / TEST REPORTPage 1 of 1

SCR 4365

Customer MGA Research	Date of service 3-23-04	Location C-S
Address 446 Executive Dr	Last known test date 3-28-03	Environmental conditions acceptable ☒ Yes ☐ No
City Troy State MI Zip 48063	Frequency ☒ Annual ☐ Semi Annual ☐ Quarterly ☐ Monthly ☐ Bi Monthly ☐ Other	

Indicator Mfg. Cardinal	Platform Mfg. Cardinal	Indicator Mfg.	Platform Mfg.
Model 708	Model 8950 F	Model	Model
Serial No. 9804-022	Serial No. 9805-175	Serial No.	Serial No.
Seal Applied? ☐ Yes ☒ No	Platform size 28" x 28"	Seal Applied? ☐ Yes ☒ No	Platform size
Customer Id. Shop	Cap. & Grade 2000 x 1 lb	Customer Id.	Cap. & Grade
Printer Mfg./model	General device condition ☒ Good ☐ Fair ☐ Poor	Printer Mfg./model	General device condition ☐ Good ☐ Fair ☐ Poor

Weight Applied	Reading as Found	Error as Found	Reading as Left	Error as Left	Weight Applied	Reading as Found	Error as Found	Reading as Left	Error as Left
$\emptyset$	$\emptyset$	$\emptyset$							
100 lb	100	$\emptyset$							
300 lb	300	$\emptyset$							
500 lb	500	$\emptyset$							
300 lb	300	$\emptyset$							
100 lb	100	$\emptyset$							
$\emptyset$	$\emptyset$	$\emptyset$							
X	X	X							
Load Section #1	100	$\emptyset$			Load Section #1				
Load Section #2	100	$\emptyset$			Load Section #2				
Load Section #3	100	$\emptyset$			Load Section #3				
Load Section #4	100	$\emptyset$			Load Section #4				

Scale meets NIB44 tolerance: Yes ☒ No ☐
 Standards used (serial nos.): **6-15**
 Estimated measurement uncertainty of applied load is **.038** %
 Traceable report nos. **MI 10-01-6285**

RECOMMENDATIONS/OPINIONS

NO adjustments needed
Scale Tested good.

Scale meets NIB44 tolerance: Yes ☐ No ☐
 Standards used (serial nos.):
 Estimated measurement uncertainty of applied load is %
 Traceable report nos.

RECOMMENDATIONS/OPINIONS

Test procedure: NuWeigh Quality Manual and Procedures, Handbook 44

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Mike Kindt **3-23-04** **George Baber**
 TECHNICIAN DATE CUSTOMER

White - Customer Copy

Canary - File Copy

SCR Rev 7.602



Certificate Number: 20040204Cal

Detroit Testing Laboratory, Inc.



7111 E. 11 Mile Road, Warren, MI 48092-2709 • (586) 754-9000 • FAX (586) 754-9045 • www.dtl-inc.com

Certificate of Calibration

Equipment Information

Customer: MGA Research Corporation
446 Executive Drive
Troy, MI 48083

Model: Pro 360
Serial Number: NONE
Manufacturer: Mitutoyo
Description: Protractor

System ID: MGA00072

Customer Asset No.: MGA00072(012904)

Calibration Information

Calibration Date: 1/28/04
Calibration Due: 1/28/05
Calibration Interval: 12 Month
Rec'd In Tol: ¹ Yes/Pass
Returned In Tol: ¹ Yes/Pass
Performed On Site: No

Procedure Used: 33K6-4-1597-1/99
Calibrated to: MFR SPEC
Temperature: 20 °C
Humidity: 35 %RH

Calibration Limitation:

The Uncertainty of the Measurements Pertaining to This Calibration are Estimated to be: Various

¹ Pass/Fail or In/Out of Tolerance statements are opinions only of the person performing the calibration based on data from measurements at the time they were made, procedure utilized, professional experience, and the uncertainty associated with this calibration. It is ultimately up to the user of this equipment to determine if this item meets their specific requirements for accuracy for its intended application.

Calibration Standards Used

System ID:	Model:	Serial:	Manufacturer	Description:	Date Due:
09098	CT485B	61201094	Omega	Thermohumidigraph	7/28/04
07748	2 X 2'	13928	TRU-STONE	Granite Surface Plate	2/19/04
10493	SP-66-S1	9902	Suburban Tool, Inc.	Sine Plate	2/17/06
09156	CHALLENGER 81 P	09156	AA JANSSON	Gage Blocks	3/5/04

Any calibration interval and due date of this device, if stated, is at the request of the customer. Due to the fact that many variables may effect drift of reported values over time there is no assurance implied that this item will maintain it's stated accuracy through the end of this interval.

This Calibration has been performed per requirements of ISO 17025-1999. Reported results are from standards with accuracies that are traceable to the International Systems of Units (SI), derived from physical constants, ratio measurements, national measurement standards, or compared to consensus standards. Measurement uncertainty is expressed at a confidence level of approximately 95% (coverage factor k=2).

Signature: <u>Paul Wonsowicz</u> Paul Wonsowicz Technician	Date: <u>1-29-04</u>	Approved: <u>[Signature]</u> Date: <u>1/29/04</u>
Date Printed: 01/29/04	Printed By: Paul Wonsowicz	Page: 1 of 2

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