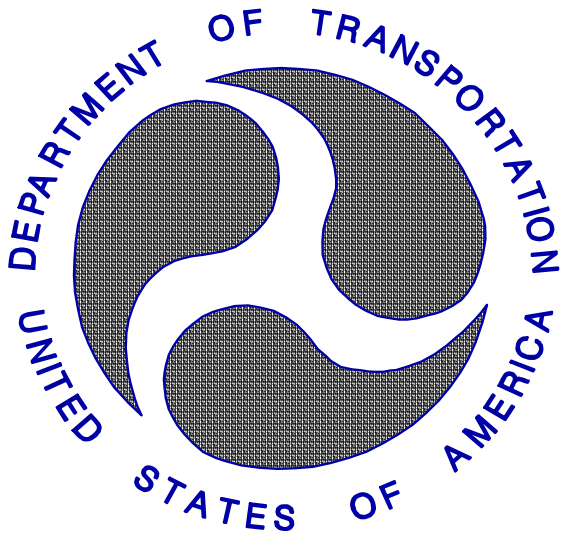
REPORT NO. MCW-DOT-05SN01

NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TESTING

FORD MOTOR CORPORATION
2005 FORD FREESTYLE MPV

NHTSA NUMBER: M5 0205

MEDICAL COLLEGE OF WISCONSIN
5000 WEST NATIONAL AVENUE
MILWAUKEE, WI 53295



18 NOVEMBER 2004

FINAL REPORT

U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
RULEMAKING
OFFICE OF CRASHWORTHINESS STANDARDS
ROOM 5307, NVS-111
400 SEVENTH STREET, SW
WASHINGTON, DC 20590

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7. Author(s) John Humm		**8. Performing Organization Report No.** 05SN01
9. Performing Organization Name and Address Medical College of Wisconsin 5000 W. National Avenue Milwaukee, WI 53295		**10. Work Unit No.** **11. Contract or Grant No.** DTNH22-03-D-42005
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15. Supplementary Notes

16. Abstract

A 55/28 km/h 90° Impact Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2005 Ford Freestyle in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for generation of consumer information on vehicle side crash protection. This test was conducted at the Medical College of Wisconsin Vehicle Crashworthiness Lab in Milwaukee, Wisconsin, on 18 November 2004.

The impact velocity of the Moving Deformable Barrier (MDB) was 62.1 km/h, and the ambient temperature at the struck side (driver's) of the target vehicle at the time of impact was 23.5° C. The target vehicle post-test maximum crush was 262 mm at Level 2. The test vehicle's performance follows:

	DRIVER	PASSENGER
Left Upper Rib Acceleration G	34.2	35.3
Left Lower Rib Acceleration G	34.7	46.6
Lower Spine Acceleration G	41.2	54.4
Thoracic Trauma Index TTI	38	51
Pelvis Acceleration G	50	75

The doors on the struck side of the vehicle did not separate from the body at the hinges or latches, and the opposite doors did not open during the side impact event.

17. Key Words New Car Assessment Program (NCAP) Side Impact MDB Side Impact Dummy (SID H3) NHTSA No. M5 0205	**18. Distribution Statement** Copies of this report are available from: National Highway Traffic Safety Administration Rulemaking Office of Crashworthiness Standards Room 5307, NVS-111 400 Seventh Street, SW Washington, DC 20590

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SECTION 1

PURPOSE AND TEST PROCEDURE

This side impact test was part of the FY05 New Car Assessment Program Side Impact Test Program, sponsored by the National Highway Traffic Safety Administration (NHTSA), under Contract No. DTNH22-03-D-42005. The purpose of this test was to evaluate side impact protection of a 2005 Ford Freestyle MPV. This side impact test was conducted in accordance with the Office of Crashworthiness Standard's Laboratory Test Procedure dated November 2002.

The Medical College of Wisconsin does not endorse or certify products. The manufacturer's name appears solely for identification purposes only.

SECTION 2

SUMMARY OF SIDE IMPACT TEST

A 2005 Ford Freestyle MPV was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) that was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 62.1 km/h (38.6 mph). The target vehicle was stationary and positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the Medical College of Wisconsin in Milwaukee, Wisconsin, on 18 November 2004.

Two restrained Side Impact Hybrid III Dummies (SID H3's) were placed in the driver and left rear designated seating positions, according to instructions specified in the OCWS Side Impact Laboratory Test Procedure, dated November 2002. The side impact event was documented by nine high-speed video cameras and one real-time camera. Camera locations and other pertinent camera information can be found in this report.

The SID H3s were equiped with the following instrumentation.

1. Left Upper Rib (LUR) Primary and Redundant uniaxial accelerometers (Y-direction)
2. Left Lower Rib (LLR) Primary and Redundant uniaxial accelerometers (Y-direction)
3. Lower Thoracic Spine (T_{12}) Primary and Redundant uniaxial accelerometers (Y-direction)
4. Pelvic (PEV) section Primary and Redundant uniaxial accelerometers (Y-direction)
5. Head Center of Gravity triaxial accelerometers (X-, Y-, and Z-direction)
6. Upper Neck (NKU) six axis load cell (Fx, Fy, Fz, Mx, My, and Mz)

Pre- and post-test photographs of the test vehicle, the MDB, and the side impact dummies (SID H3s) are included in Appendix A. Appendix B contains the vehicle, MDB, and dummy response data traces. A summary of the side impact dummy configuration and performance verification test data is shown in Appendix C. Dummy and vehicle calibration data can be found in Appendix D of this report.

The following table summarizes the results of this test.

Injury Criteria	Front SID H3	Rear SID H3
TTI (G)	38	51
PELVIS (G)	50	75
HIC36	86.2	244.2

The vehicle's airbag information is summarized in the following table

	Frontal	Side-Torso	Side-Torso/Head	Side-Head
Driver	Yes-Steering wheel	None	None	None
Front Passenger	Yes- Dashboard	None	None	None
Left Rear Passenger	None	None	None	None

SECTION 3

SUMMARY OF TEST RESULTS

DATA SHEET NO. 1

GENERAL VEHICLE TEST PARAMETER DATA

TEST VEHICLE INFORMATION

Year/ Make/ Model/ Body Style	2005 Ford Freestyle MPV							
Vehicle NHTSA No.	M5 0205			VIN	1FMZK01105GA01197			
Vehicle Body Color	Silver			Build Date	August 2004			
Engine Data	6	Cylinders	___	CID	3.0	Liter	___	cc
Placement	___	Longitudinal	X	Lateral				
Transmission	___	Speed	___	Manual	X	Automatic	X	Overdrive
Final Drive	___	Rear Wheel Drive	X	Front Wheel Drive	___	Four Wheel Drive		
Odometer Reading	15.3 Miles	Date	29 October 2004					
Options	X	A/C	X	Power Steering	X	Power Brakes	X	Power Windows
	X	Cruise Control	X	Tilt Wheel	X	Power Locks	X	ADL's

DATA FROM TIRE PLACARD:

Tire Pressure (at Capacity)	32	PSI Front
	34	PSI Rear
Recommended Tire Size	P215 65 R17	
Tires on Test Vehicle	P215 65 R17	Manufacturer: Continental

TEST VEHICLE AIRBAG INFORMATION:

	Frontal	Side-Torso	Side-Torso/Head	Side-Head
Driver	Yes-Steering wheel	None	None	None
Front Passenger	Yes- Dashboard	None	None	None
Left Rear Passenger	None	None	None	None

VEHICLE CAPACITY DATA:

Number of Occupants:	2	Front	2	Rear	2	3rd Seat	6	Total	
Type of Front Seats	X	Bucket	___	Bench	___	Split Bench			
Type of Front Seat Back	___	Fixed	X	Adjustable w/	X	Lever	___	Knob	
Vehicle Max Capacity Loading			521.6	kg	(A)				
No. of Occupants X 68.04 kg			408.2	kg	(B)				
Cargo Capacity (A) – (B)			113.4	kg					

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front	=	511.2	kg	Left Rear	=	388.3	kg
Right Front	=	508.5	kg	Right Rear	=	386.5	kg
TOTAL FRONT	=	1019.7	kg	TOTAL REAR	=	774.8	kg
% Total Weight	=	56.8	%	%Total Weight	=	43.2	%
TOTAL WEIGHT	=	1794.5	kg				

DATA SHEET 1 (continued)

GENERAL VEHICLE TEST PARAMETER DATA

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Max Fluids	=	1794.5	kg	(A)
Maximum Cargo Carrying Capacity of Test Vehicle	=	113.4	kg	(B)
Weight of (2) instrumented Side Impact Dummies	=	161	kg	(C)
TEST VEHICLE TARGET WEIGHT	=	2068.9	kg	(A+B+C)

FULLY LOADED TEST VEHICLE (UDVW + 1 OR 2 SID H3(s) + CARGO)

Left Front	=	557.0	kg	Left Rear	=	504.4	kg
Right Front	=	525.3	kg	Right Rear	=	482.2	kg
TOTAL FRONT	=	1082.3	kg	TOTAL REAR	=	986.6	kg
% Total Weight	=	52.3	%	%Total Weight	=	47.7	%
TOTAL WEIGHT	=	2068.9	kg				

AS TESTED WEIGHT OF TEST VEHICLE (UDVW+ SID H3(s)+CARGO+EQUIPMENT & INSTRUMENTATION)

Left Front	=	554.7	kg	Left Rear	=	501.7	kg
Right Front	=	525.3	kg	Right Rear	=	480.8	kg
TOTAL FRONT	=	1080.0	kg	TOTAL REAR	=	982.5	kg
% Total Weight	=	52.4	%	%Total Weight	=	47.6	%
TOTAL WEIGHT	=	2062.5	kg				

TEST VEHICLE ATTITUDE (all dimensions in millimeters):

AS DELIVERED

Left Front	805	Right Front	810	Left Rear	816	Right Rear	824

FULLY LOADED

Left Front	791	Right Front	797	Left Rear	783	Right Rear	795

AS TESTED

Left Front	794	Right Front	800	Left Rear	785	Right Rear	797

Test Vehicle Wheelbase		2867	mm
As Tested CG	=	1365	mm rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

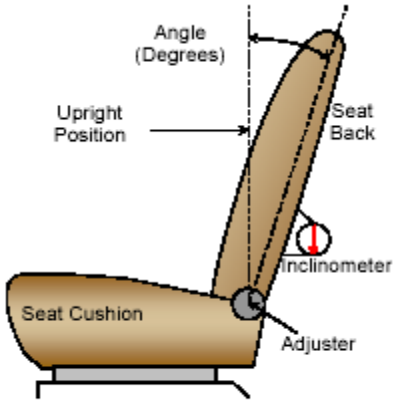
Right Side	=	4732	mm
Left Side	=	4732	mm
Centerline	=	5079	mm

DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Nominal Design Riding

The mid point of the front seat travel was determined by measuring the seat in the rear most down position and the forward most up position to determine the total length of adjustment travel. The correct seat back angle was determined by making a small slit in the front seat rear outboard frame rail and placing the inclinometer at this point.



FRONT SEAT ASSEMBLY

FRONT SEAT CUSHION PLACEMENT:

Total Length of Adjustment Travel			248 mm
Total Number of Detents	N/A	Test Position	Mid-Position

FRONT SEAT BACK ADJUSTMENT:

Seat Back Angle	24 degrees measured at outboard seat frame

REAR SEAT POSITION:

Total Length Fore/Aft Adjustment	N/A
Seat Back Adjustment Position	18.3 degrees at outboard seat back

ADJUSTABLE STEERING COLUMN POSITION:

25 degrees

WINDOW POSITIONS:

Left Front	Up	Right Front	Down
Left Rear	Up	Right Rear	Down

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

Fuel System usable Capacity	71.92 L	
Test Volume	66.89 L	93 % usable capacity

LOCATIONS OF IMPACT POINT ON TEST VEHICLE SIDE TO BE IMPACTED:

Wheelbase	2867 mm	
Impact Point is	494 mm rearward	of front axle centerline
Actual Impact Point is	483 mm rearward	of front axle centerline

DATA SHEET 2

TEST VEHICLE SUMMARY

VEHICLE IDENTIFICATION:

Year/Make/Model/Body Style	2005 Ford Freestyle MPV		
Body Color	Silver	VIN	1FMZK01105GA01197
NHTSA No.	M5 0205	Test Date	18 November 2004
Overall Length	5079 mm	Overall Width	1855 mm

VEHICLE TEST WEIGHT (Pre-Test):

Left Front	=	554.7	kg	Left Rear	=	501.7	kg
Right Front	=	525.3	kg	Right Rear	=	480.8	kg
TOTAL FRONT	=	1080	kg	TOTAL REAR	=	982.5	kg
% Total Weight	=	52.4	%	%Total Weight	=	47.6	%
TOTAL WEIGHT	=	2062.5	kg				

Wheelbase	=	2867 mm
Longitudinal CG from Center of Front Axle	=	1365 mm
Impact Angle with Respect to Impactor	=	90 degrees

ACTUAL IMPACT POINT

Actual Impact Point is 11 mm forward and 3 mm below nominal impact point

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1	(249 mm above ground)	=	38	mm
2. LEVEL 2	(640 mm above ground)	=	262	mm
3. LEVEL 3	(657 mm above ground)	=	258	mm
4. LEVEL 4	(1025 mm above ground)	=	122	mm
5. LEVEL 5	(1495 mm above ground)	=	18	mm

Maximum Post-Test intrusion at Level 2 is 262 mm

OCCUPANTS	Left Front Passenger	Left Rear Passenger
Dummy Identification	SID H3/056	SID H3/058
Restraints Used	3-Point Belt	3-Point Belt

INSTRUMENTATION:

Number of Vehicle Data Channels		26
Number of Cameras	Onboard	3
	Off board	4
	MDB	2
	Real Time	1
	TOTAL	10

DATA SHEET NO. 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY

MDB FACE MANUFACTURER AND SERIAL NUMBER:

Plascore Serial Number Plascore 016A0303-013C0203

POSITION OF IMPACT (MDB) ON TOW SYSTEM

Crabbed 27° to the left

MDB DETAILS:

Overall Width of Framework Carriage	=	1250 mm
Overall Length of MDB (incl. honeycomb impact face)	=	4116 mm
Wheelbase of Framework Carriage	=	2578 mm
Tread of Framework Carriage (Front & Rear)	=	1880 mm
C.G. Location Rearward of Front Axle	=	1135 mm
C.G. Location From Center Line	=	-10 mm
C.G. Location Above Ground Level	=	480 mm

MDB WEIGHT:

Left Front	=	458.0	kg	Left Rear	=	228.9	kg
Right Front	=	307.2	kg	Right Rear	=	365.6	kg
TOTAL FRONT	=	765.2	kg	TOTAL REAR	=	594.5	kg
% Total Weight	=	56.3	%	%Total Weight	=	43.7	%
TOTAL WEIGHT	=	1359.7	kg				

MDB IMPACT:

Impact Angle (MDB C/L to Target Vehicle)		270°	
Impact Speed	Primary	62.1 km/h	38.6 mph
	Secondary	62.0 km/h	38.5 mph

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A Center of Bumper	=	262	mm
2. Row B Top of Bumper	=	159	mm
3. Row C Mid-Level	=	143	mm
4. Row D Top of Stack	=	174	mm

INSTRUMENTATION:

Number of MDB Data Channels = 5

DATA SHEET NO. 4

POST-TEST OBSERVATIONS

VISIBLE DUMMY CONTACT POINTS:

	LEFT FRONT SID H3	LEFT REAR SID H3
Head	To left shoulder	To left rear door window
Upper Torso	To left front door panel at window sill	To left rear door panel at window sill
Lower Torso	To left front door panel 175 mm below window sill	To left rear door panel at arm rest
Left Knee	To left front door panel 75 mm below arm rest	To left rear door panel near speaker opening
Left Leg	To left front door panel 135 mm below arm rest	To left rear door panel 60 mm below arm rest

DOOR OPENING:

	LEFT DOOR	RIGHT DOOR
Front	Closed/Latched/Inoperable	Closed/Latched/Operable
Rear	Closed/Latched/Inoperable	Closed/Latched/Operable

MDB DISTANCE FROM TARGET IMPACT POINT:

Horizontal 3 mm below Vertical 11 mm forward

ARM REST LOCATIONS:

Front	215 mm below window sill
Rear	220 mm below window sill

SEAT MOVEMENT:

Front	No measurable seat bottom crush; 10 mm seat back crush
Rear	15 mm seat bottom crush; No measureable seat back crush

GLAZING DAMAGE

Windshield	None
Window	Left rear door window shattered on impact

PILLAR PERFORMANCE:

None noted

SILL SEPARATION

None noted

DOOR LOCK INFORMATION

Test vehicle was equipped with Automatic Door Locks as standard equipment. The ADL's were deactivated using the instructions in the owner's manual.

LEFT FRONT DOOR	Unlocked	RIGHT FRONT DOOR	Unlocked
LEFT REAR DOOR	Unlocked	RIGHT REAR DOOR	Unlocked

AIRBAG DEPLOYMENT STATUS:

	DRIVER	FRONT PASSENGER	REAR PASSENGER
FRONT	Did not deploy	Did no delpoy	N/A
SIDE	N/A	N/A	N/A

OTHER NOTABLE IMPACT EFFECTS:

Driver Headskin came off right lower posterior part of dummy during impact.

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET 5

SID H3 INSTRUMENTATION DATA

	Front Dummy ID SID H3/056 Accelerations				Rear Dummy ID SID H3/058 Accelerations			
	Max		Min		Max		Min	
	G's	msec	G's	msec	G's	msec	G's	msec
HEAD ACCELERATIONS								
Longitudinal (X)	4.2	13.2	-11.6	66.4	1.9	36.6	-14.9	73.6
Lateral (Y)	15.8	101.5	-5.2	39.8	24.9	93.4	-10.1	50.6
Vertical (Z)	26.6	67.5	-0.7	18.8	47.6	74.0	-2.1	17.6
Resultant (R)	31.6	67.3			53.0	74.0		
HIC36	86.2				244.2			
RIB ACCELERATIONS								
Upper Rib Lateral (Y)	34.2	50.6	-4.2	88.1	35.3	59.4	-4.7	95.0
Upper Rib Lateral (Y_R)	34.3	50.6	-4.0	88.1	34.9	59.4	-4.7	95.0
Lower Rib Lateral (Y)	34.7	50.6	-3.5	75.6	46.6	50.6	-4.5	101.3
Lower Rib Lateral (Y_R)	34.7	50.6	-3.1	78.8	46.4	50.6	-4.7	95.0
TTI	38				51			
SPINE ACCELERATIONS								
Lower Lateral (Y)	41.2	43.1	-4.0	86.9	54.4	47.5	-4.7	114.4
Lower Lateral (Y_R)	40.5	42.5	-4.5	86.9	54.1	46.9	-4.8	114.4
PELVIS ACCELERATIONS								
Lateral (Y)	50.0	36.9	-7.0	61.3	75.1	40.6	-9.0	71.9
Lateral (Y_R)	50.2	36.9	-7.0	61.3	74.4	40.6	-9.1	71.9

REFERENCE:

Positive Direction -	Anterior/Posterior	+(X) = anterior
	Lateral	+(Y)= right
	Superior/Inferior	+(Z)= inferior
Negative Direction	Anterior/Posterior	-(X) = posterior
	Lateral	-(Y)= left
	Superior/Inferior	-(Z)= superior

All the above data (except head accelerations) has been filtered using FIR (Version 1.0; July 16, 1990)
Head Accelerations have been filtered at SAE Class 1000
Y_R denotes redundant Y-direction accelerometer

DATA SHEET 5 (continued)

SID H3 INSTRUMENTATION DATA

	Front Dummy ID SID H3/056				Rear Dummy ID SID H3/058			
	Max		Min		Max		Min	
	N	msec	N	msec	N	msec	N	msec
NECK FORCES								
Longitudinal (X)	10.7	166.2	-412.3	83.0	52.3	35.8	-572.0	74.0
Lateral (Y)	539.5	92.9	-120.6	40.2	652.6	94.2	-396.2	49.0
Vertical (Z)	1042.3	67.8	-17.0	20.2	2127.1	77.1	-76.8	21.3
NECK MOMENTS								
	Nm	msec	Nm	msec	Nm	msec	Nm	msec
Lateral Bending (X)	40.9	98.4	-40.0	57.5	57.4	97.6	-64.1	59.0
Flexion/Extension (Y)	13.2	99.9	-21.3	57.4	18.2	165.1	-29.6	70.2
Rotation (Z)	20.1	99.4	-4.7	55.1	28.4	104.4	-15.0	171.8

REFERENCE:

Upper neck load cell polarity follows the dummy manipulation table A-1 in the NHTSA Test Reference Guide Version 5

Force

Fx positive response: Head rearward, chest forward
Fy positive response: Head leftward, chest rightward
Fz positive response: Head upward, chest downward

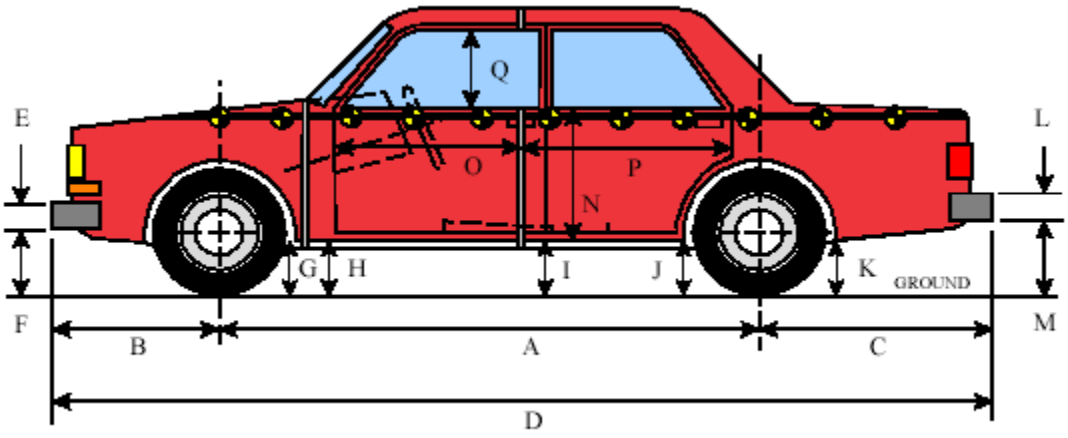
Moment

Mx positive response: Left ear to left shoulder
My positive response: Chin to sternum
Mz positive response: Chin to left shoulder

Neck forces have been filtered at SAE Class 1000
Neck moments have been filtered at SAE Class 600

DATA SHEET 6

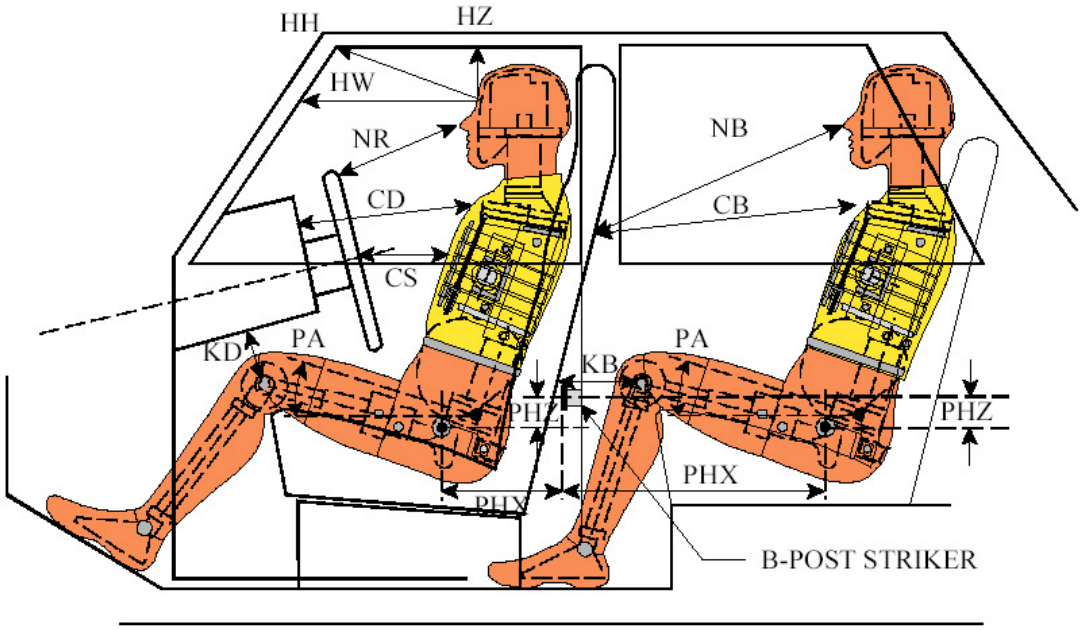
VEHICLE PRE- AND POST- MEASUREMENTS



	PRE-TEST As delivered (mm)	PRE-TEST As Tested (mm)	POST-TEST (mm)	Δ CHANGE (mm)
A	2867	-	2859	-8
B	822	-	825	3
C	1043	-	1039	-4
D	5079	-	5080	1
E	348	-	348	0
F	302	301	301	0
G	266	254	255	1
H	284	271	272	1
I	267	253	268	15
J1	242	215	215	0
J2	299	270	320	50
K	359	322	329	7
L	184	-	184	0
M	406	362	272	-90
N	796	-	697	-99
O	1075	-	1051	-24
P	1066	-	830	-236
Q	532	-	580	48
R	4732	-	4734	2
S	4732	-	4723	-9
T	1855	-	1661	-194

DATA SHEET 7

SID H3 LONGITUDINAL CLEARANCE DIMENSIONS



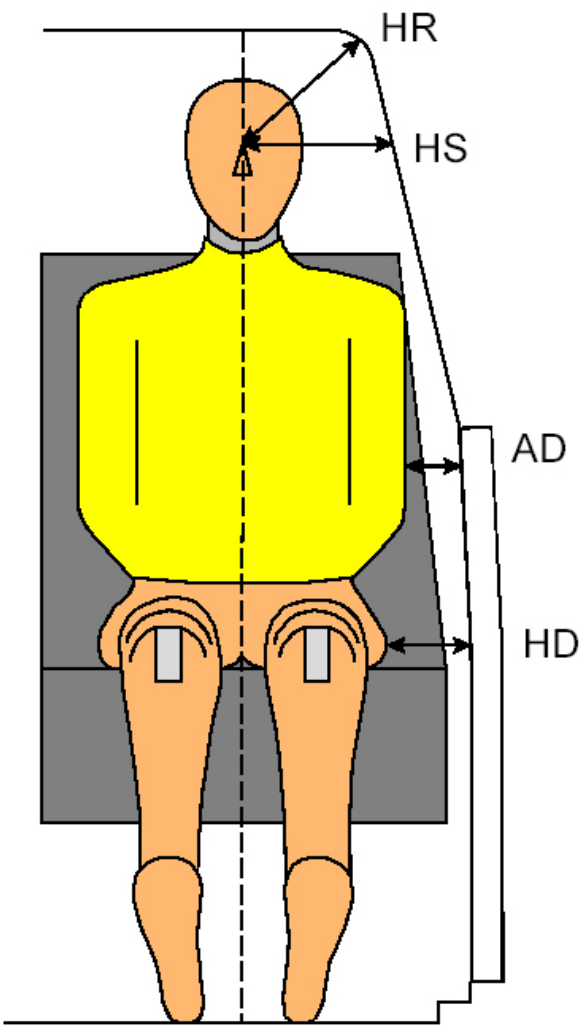
NOTE: All dimensions are in millimeters with tolerance of ±3 mm

	DRIVER SID H3/056	LEFT REAR PASSENGER SID H3/058
HH	382	N/A
HW	718	N/A
HZ	202	220
NR/NB	450	622
CD/CB	3572	553
CS	357	N/A
KDL(KDA°)/KBL(KDA°)	142/20	236/11.2
KDR(KDA°)/KBR(KDA°)	145/18.8	236/15.1
PA°	24.9	23.7
PHX	236	382
PHZ	131	247

PHX and PHZ referenced B-Pillar strker for the front dummy and C-Pillar striker for the rear dummy

DATASHEET 8

SID H3 LATERAL CLEARANCE DIMENSIONS

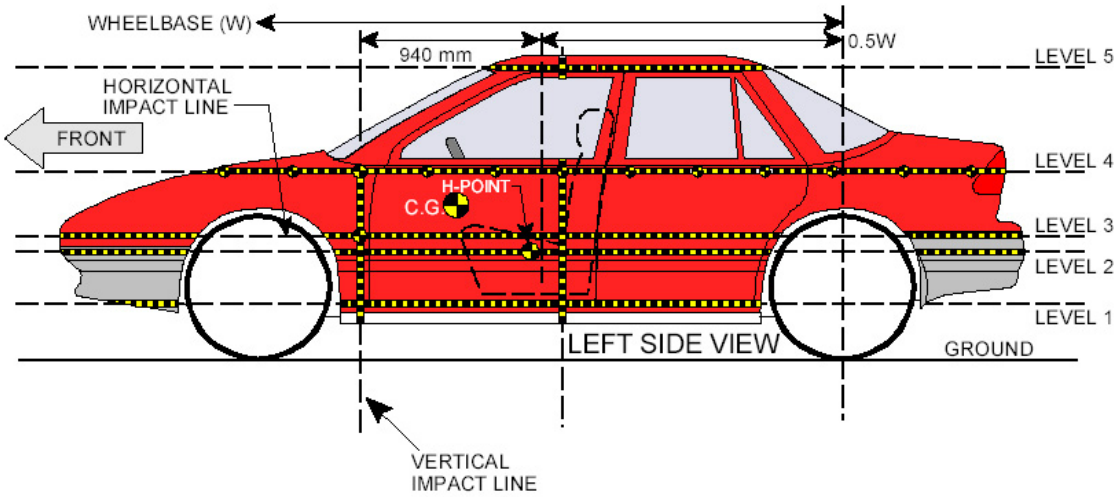


NOTE: All dimensions are in millimeters with tolerance of ±3 mm

	DRIVER SID H3/056		LEFT REAR PASSENGER SID H3/058	
HR	215		195	
HS	335		330	
AD	Upper 136	Lower 138	Upper 125	Lower 144
HD	158		145	

DATA SHEET 9

VEHICLE SIDE MEASUREMENTS



LEVEL 5 = WINDOW TOP
LEVEL 4 = WINDOW SILL
LEVEL 3 = MID-DOOR
LEVEL 2 = OCCUPANT H-POINT
LEVEL 1 = AXLE CENTERLINE HEIGHT OR SILL TOP HEIGHT

MEASUREMENTS ARE TAKEN WHEN THE VEHICLE IS IN THE "AS TESTED" CONFIGURATION
Measurements along the Vertical 750 mm line as shown

Level 5 @ Window Top	1495 mm
Level 4 @ Window Sill	1025 mm
Level 3 @ Mid-Door	657 mm
Level 2 @ Occupant H-Point	640 mm
Level 1 @ Axle Centerline or Sill Top Height	249 mm

DATA SHEET 10

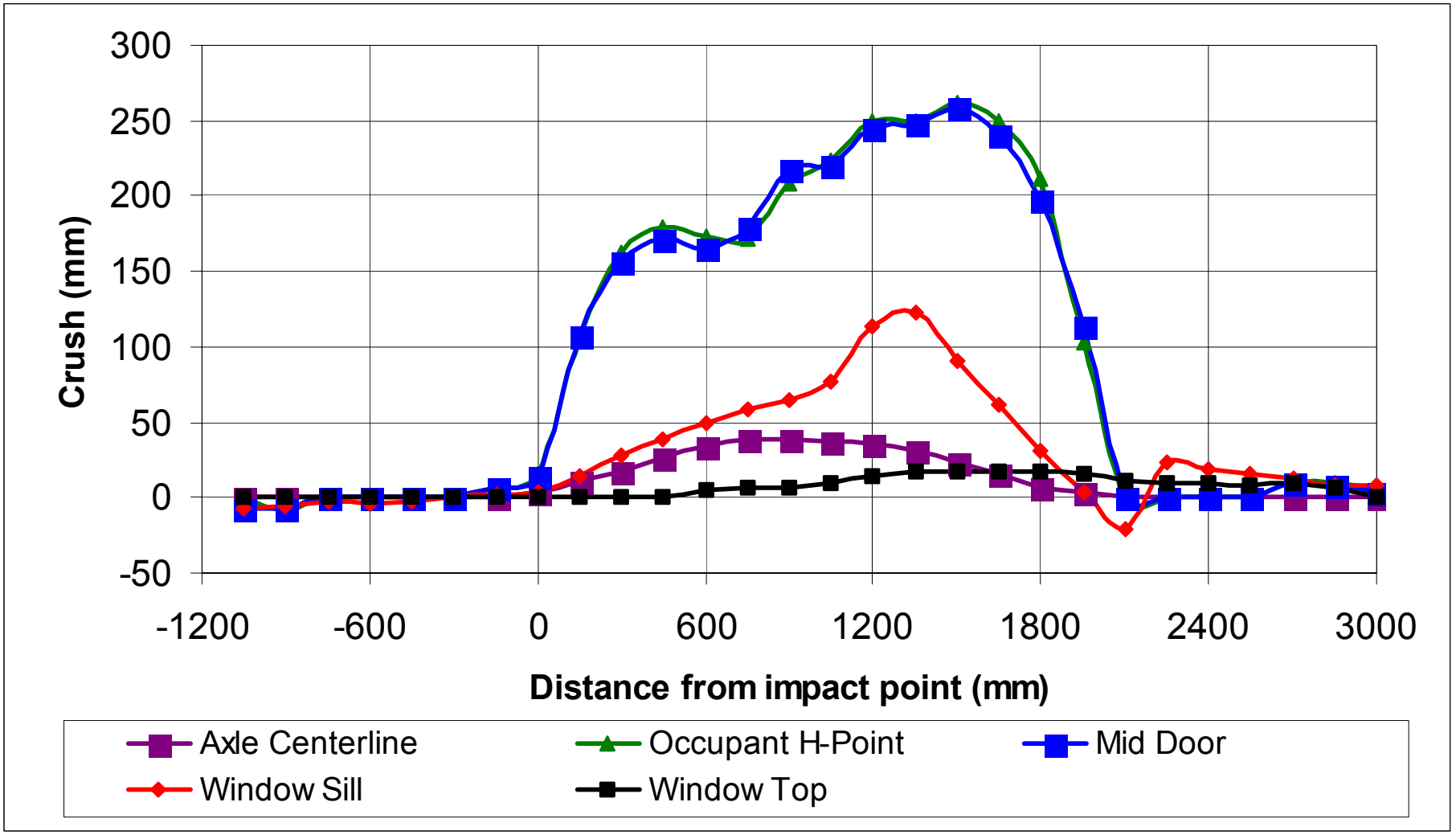
VEHICLE EXTERIOR CRUSH PROFILES – ALL LEVELS

Note: All Dimensions are in millimeters with a tolerance of ±3 mm

	Level	1			2			3			4			5		
	Height (mm)	249			640			657			1025			1495		
		Pre	Post	Crsh	Pre	Post	Crsh	Pre	Post	Crsh	Pre	Post	Crsh	Pre	Post	Crsh
DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT	1050							218	211	-7	279	272	-7			
	-900				168	160	-8	166	159	-7	254	249	-5			
	-750										236	233	-3			
	-600										226	222	-4			
	-450										216	214	-2			
	-300										206	206	0			
	-150				133	140	7	132	139	7	201	203	2			
	0	194	198	4	154	170	16	152	166	14	196	200	4			
	150	205	216	11	153	259	106	150	258	108	196	210	14			
	300	204	222	18	150	312	162	149	306	157	194	222	28			
	450	203	230	27	148	328	180	147	319	172	193	231	38			
	600	202	236	34	148	321	173	146	312	166	191	240	49	393	398	5
	750	204	242	38	147	319	172	146	325	179	191	250	59	407	413	6
	900	205	243	38	146	355	209	145	362	217	193	258	65	417	423	6
	1050	207	244	37	145	368	223	145	365	220	194	271	77	421	430	9
	1200	208	244	36	147	396	249	148	393	245	193	307	114	425	439	14
	1350	210	241	31	149	398	249	150	398	248	194	316	122	429	446	17
	1500	213	237	24	150	412	262	152	410	258	196	286	90	430	448	18
	1650	216	232	16	152	402	250	152	393	241	197	258	61	433	450	17
	1800	219	226	7	154	365	211	155	353	198	200	231	31	435	453	18
	1950	205	208	3	156	259	103	152	265	113	203	207	4	437	453	16
	2100				123	120	-3	124	125	1	207	186	-21	441	452	11
	2250										210	233	23	444	454	10
	2400										215	234	19	447	457	10
	2550										219	235	16	453	461	8
	2700				160	170	10	130	139	9	228	240	12	460	469	9
	2850				186	196	10	191	199	8	240	248	8	469	475	6
	3000				205	210	5	209	213	4	257	265	8			

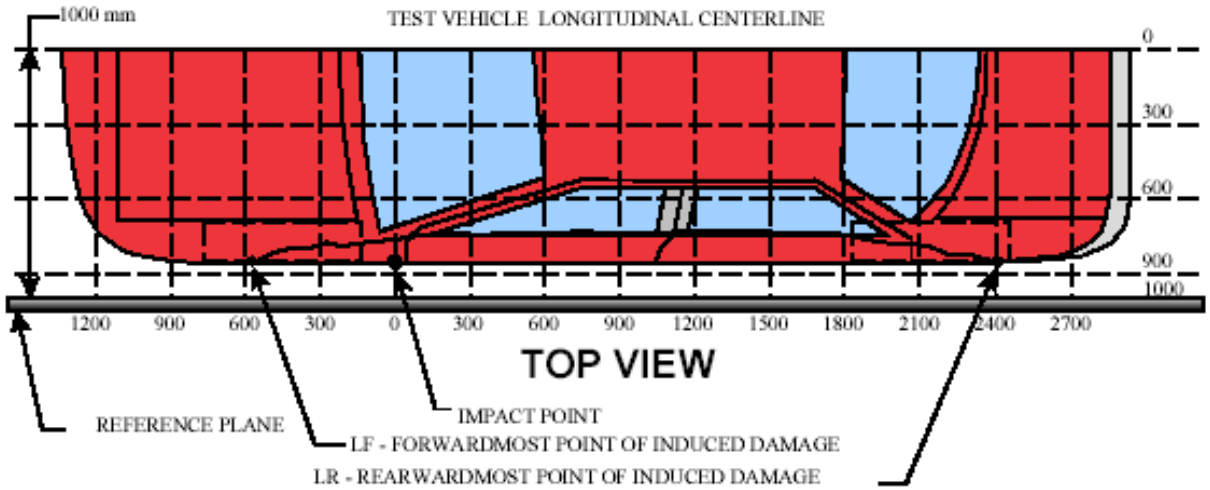
DATA SHEET 10 (continued)

VEHICLE EXTERIOR CRUSH PROFILES ALL LEVELS



DATA SHEET 11

VEHICLE DAMAGE PROFILE DISTANCES



DPD MEASUREMENTS (mm)		POST-TEST (mm)	PRE-TEST (mm)	STATIC CRUSH (mm)
1	-150	138	138	0
2	330	318	139	179
3	810	332	138	194
4	1290	392	137	255
5	1770	384	136	248
6	2250	134	134	0

DATA SHEET 12

STATIC CRUSH OF IMPACTOR FACE
(Grid as looking at MDB from front)

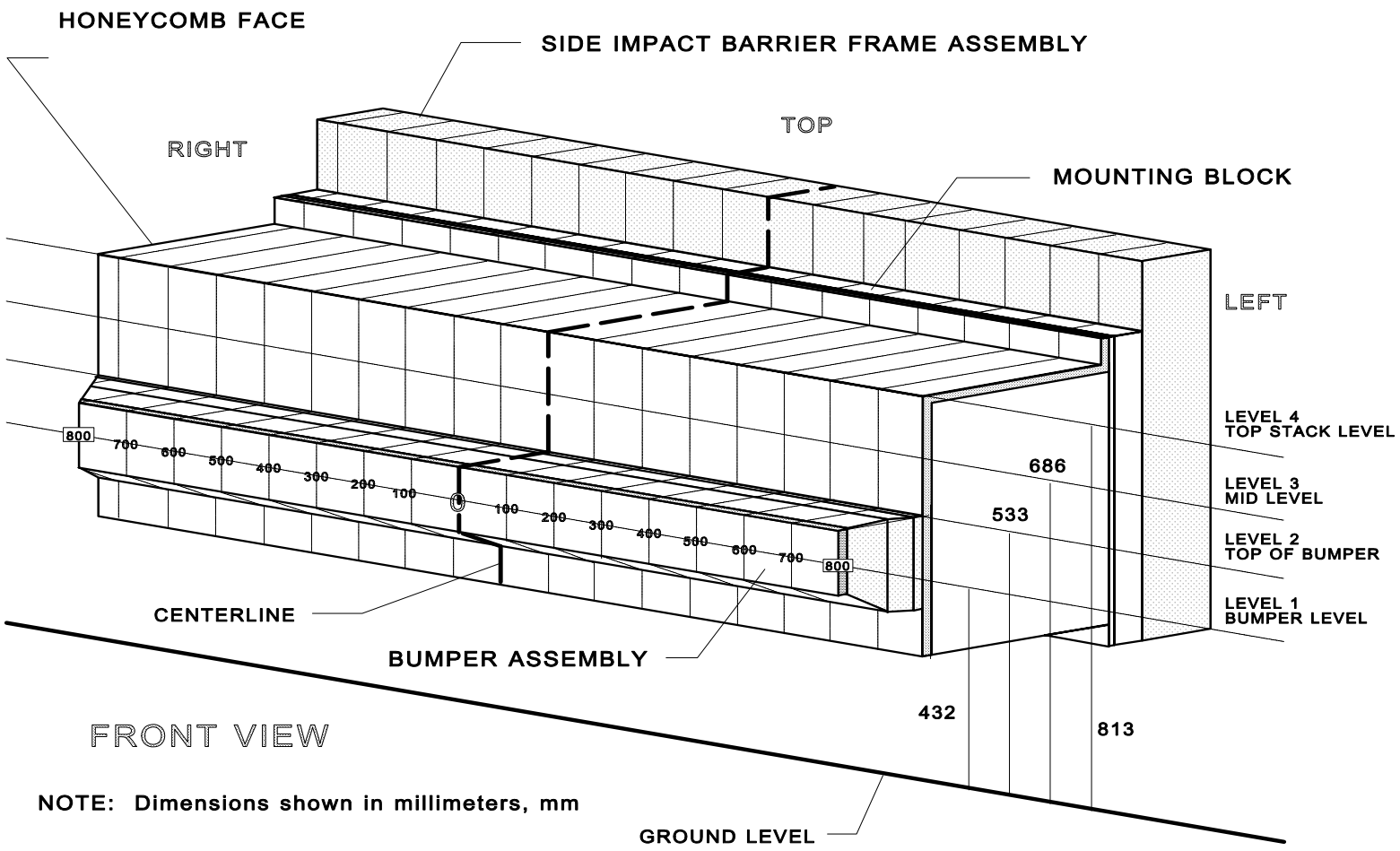
Note: All Dimensions are in millimeters with a tolerance of ±3 mm

LEVEL	HEIGHT AT CL (mm)		DISTANCE LEFT OF CENTER									DISTANCE RIGHT OF CENTER							
			800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
LEVEL 4 TOP STACK	810	PRE-	523	524	525	525	525	526	526	526	526	527	528	528	528	529	530	530	531
		POST-	610	587	572	562	574	600	625	617	594	595	602	606	614	627	652	682	705
		CRUSH	87	63	47	37	49	74	99	91	68	68	74	78	86	98	122	152	174
LEVEL 3 MID-LEVEL	685	PRE-	522	522	523	523	523	524	524	525	524	525	526	527	527	527	528	528	530
		POST-	620	592	575	574	577	578	584	591	577	572	581	590	593	600	614	631	673
		CRUSH	98	70	52	51	54	54	60	66	53	47	55	63	66	73	86	103	143
LEVEL 2 TOP BUMPER	560	PRE-	520	520	521	521	521	521	522	522	523	523	523	524	524	524	525	525	526
		POST-	676	671	660	646	631	619	614	620	622	631	640	630	625	631	636	644	685
		CRUSH	156	151	139	125	110	98	92	98	99	108	117	106	101	107	111	119	159
LEVEL 1 MID-BUMPER	432	PRE-	431	418	418	418	419	419	419	420	420	421	421	421	422	422	423	424	435
		POST-	693	673	659	642	630	628	623	620	620	623	624	625	623	623	629	637	655
		CRUSH	262	255	241	224	211	209	204	200	200	202	203	204	201	201	206	213	220

Note: Top of Bumper static crush measurements made 560 mm above ground to avoid glue at bumper/barrier interface

DATA SHEET 12 (continued)

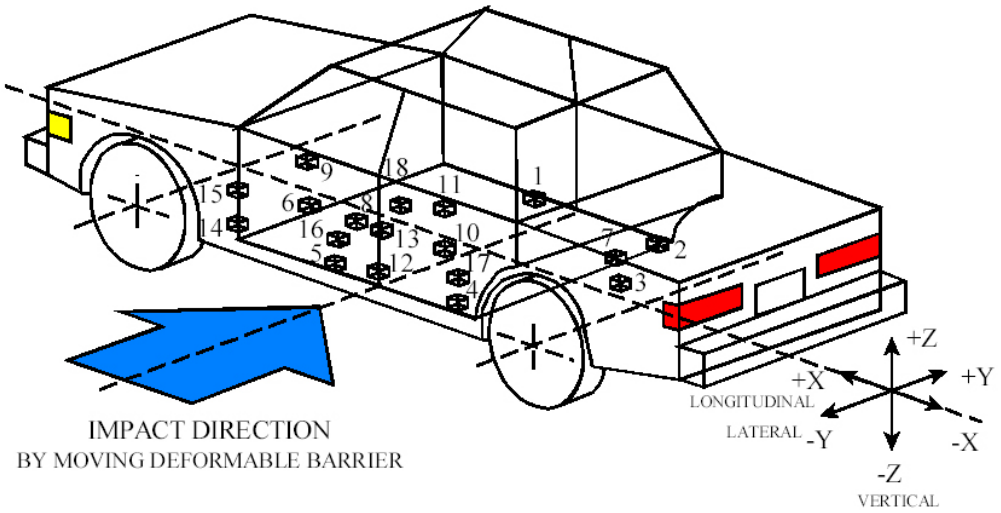
STATIC CRUSH OF IMPACTOR FACE



Note: Top of Bumper static crush measurements made 560 mm above ground to avoid glue at bumper/barrier interface

DATA SHEET 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY



1. Right Side Sill at Front Seat	10. Mid-rear of Left Rear Door
2. Right Side Sill at Rear Seat	11. Left Rear Door Upper Centerline
3. Rear Floorpan Above Axle	12. Left Lower B-Pillar
4. Left Side Sill at Rear Seat	13. Left Middle B-Pillar
5. Left Side Sill at Front Seat	14. Left Lower A-Pillar
6. Left Front Door on Centerline	15. Left Middle A-Pillar
7. Right Rear Occupant Compartment	16. Front Seat Track
8. Mid-rear of Left Front Door	17. Rear Seat Track
9. Left Front Door Upper Centerline	18. Vehicle CG

DATASHEET 13 (continued)

VEHICLE ACCELEROMETER LOCATIONS AND SUMMARY DATA

Location		Coordinates			Longitudinal (X)				Lateral (Y)				Vertical (Z)				Resultant	
		X	Y	Z	Max		Min		Max		Min		Max		Min		Max	
		mm	mm	mm	G's	msec	G's	msec	G's	msec	G's	msec	G's	msec	G's	msec	G's	msec
1	Right Side Sill at Front Seat	2850	649	308	2.4	34.2	-6.8	30.4	38.7	9.7	-2.7	67.7	11.7	24.1	-17.9	32.2	39.1	9.8
2	Right Side Sill at Rear Seat	1855	667	292	7.0	35.0	-4.7	13.1	44.4	8.8	-2.4	14.5	5.4	90.2	-11.2	15.8	44.7	8.8
3	Rear Floorpan Above Axle	1130	-22	-17	2.4	60.4	-6.0	32.5	31.9	8.7	-1.6	107.1	9.0	12.0	-9.4	8.6	33.4	8.7
4	Left Side Sill at Rear Seat	1808	-729	310					51.2	7.1	-23.8	15.2						
5	Left Side Sill at Front Seat	2877	-713	343					32.1	5.6	-119.6	13.4						
6	Left Front Door on Centerline	3037	-785	40					166.6	7.6	-120.1	12.9						
7	Right Rear Occupant Compartment	1836	439	116					39.7	8.6	-5.5	15.1						
8	Midrear of Left Front Door	2843	-797	-54					173.6	7.0	-55.2	13.6						
9	Left Front Door Upper Centerline	3024	-784	-234					89.7	11.2	-30.3	21.6						
10	Midrear of Left Rear Door	1818	-784	-262					103.8 †	17.4†	-48.5†	28.6†						

Axis Origin X – Center of Rear Bumper
Y – Center of Rear Bumper
Z – Center of Rear Bumper

Axis Orientation +(X) Forward where x axis is the vector from middle of rear bumper to mid front bumper
+(Y) Right where y axis is parallel to ground reference plane
+(Z) Down where z axis is cross product of +(X) and +(Y)

† Midrear Left Rear Door Accelerometer wire broken ~50 msec after impact

DATASHEET 13 (continued)

VEHICLE ACCELEROMETER LOCATIONS AND SUMMARY DATA

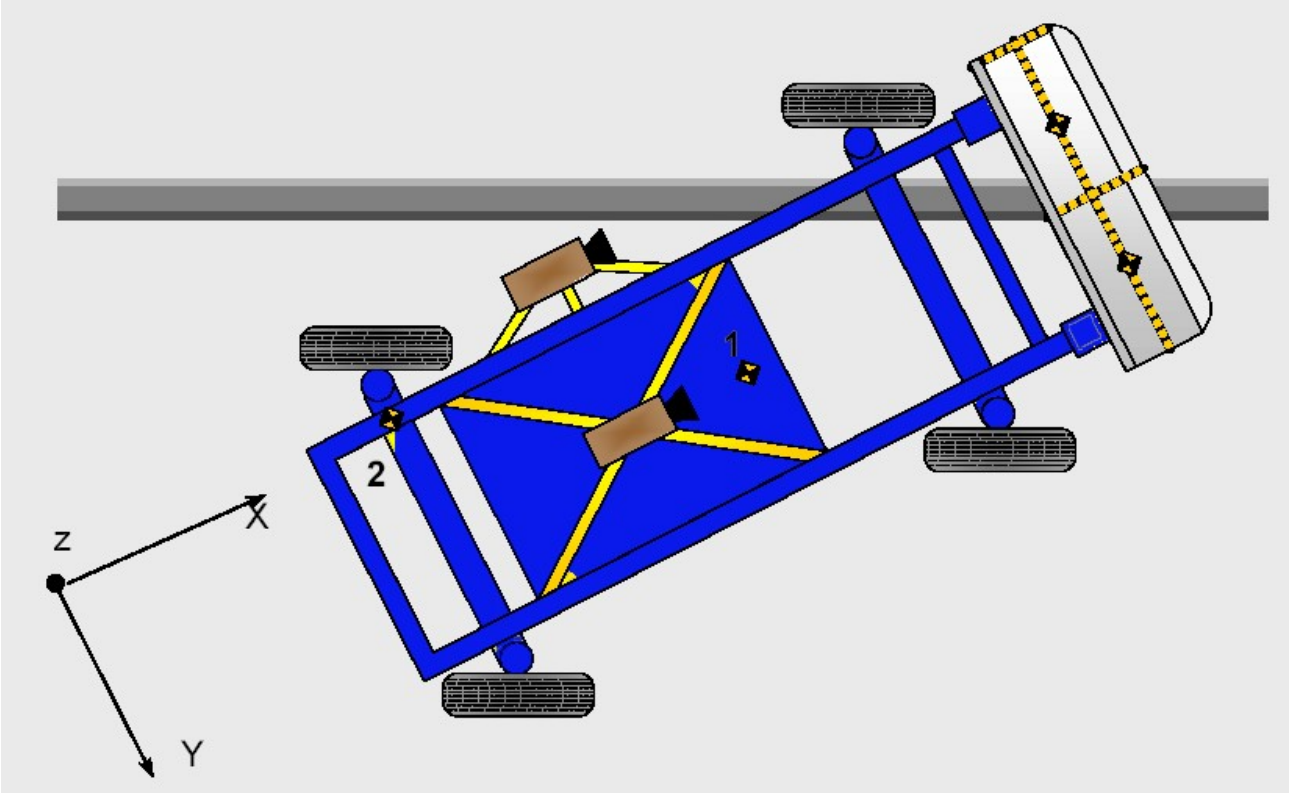
Location		Coordinates			Longitudinal (X)				Lateral (Y)				Vertical (Z)				Resultant	
		X	Y	Z	Max		Min		Max		Min		Max		Min		Max	
		mm	mm	mm	G's	msec	G's	msec	G's	msec	G's	msec	G's	msec	G's	msec	G's	msec
11	Left Rear Door Upper Centerline	2060	-809	-263					100.4	15.4	-46.7	28.6						
12	Left Lower B-Pillar	2445	-742	-116					133.0	4.5	-57.4	33.0						
13	Left Middle B-Pillar	2406	-729	-358					110.2	5.3	-27.7	29.5						
14	Left Lower A-Pillar	3433	-690	-26					37.7	6.6	-2.3	136.9						
15	Left Middle A-Pillar	3401	-690	-323					20.8	23.4	-3.3	37.0						
16	Front Seat Track	2603	-377	146					74.6	7.4	-105.1	55.9						
17	Rear Seat Track	2030	-576	84					36.2	9.6	-6.4	35.3						
18	Vehicle CG	2791	-59	117	6.8	21.3	-13.4	8.3	57.7	8.6	-2.1	139.2	10.9	33.0	-16.9	38.1	59.2	8.5

Axis Origin
X – Center of Rear Bumper
Y – Center of Rear Bumper
Z – Center of Rear Bumper

Axis Orientation
+(X) Forward where x axis is the vector from middle of rear bumper to mid front bumper
+(Y) Right where y axis is parallel to ground reference plane
+(Z) Down where z axis is cross product of +(X) and +(Y)

DATA SHEET 14

MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY



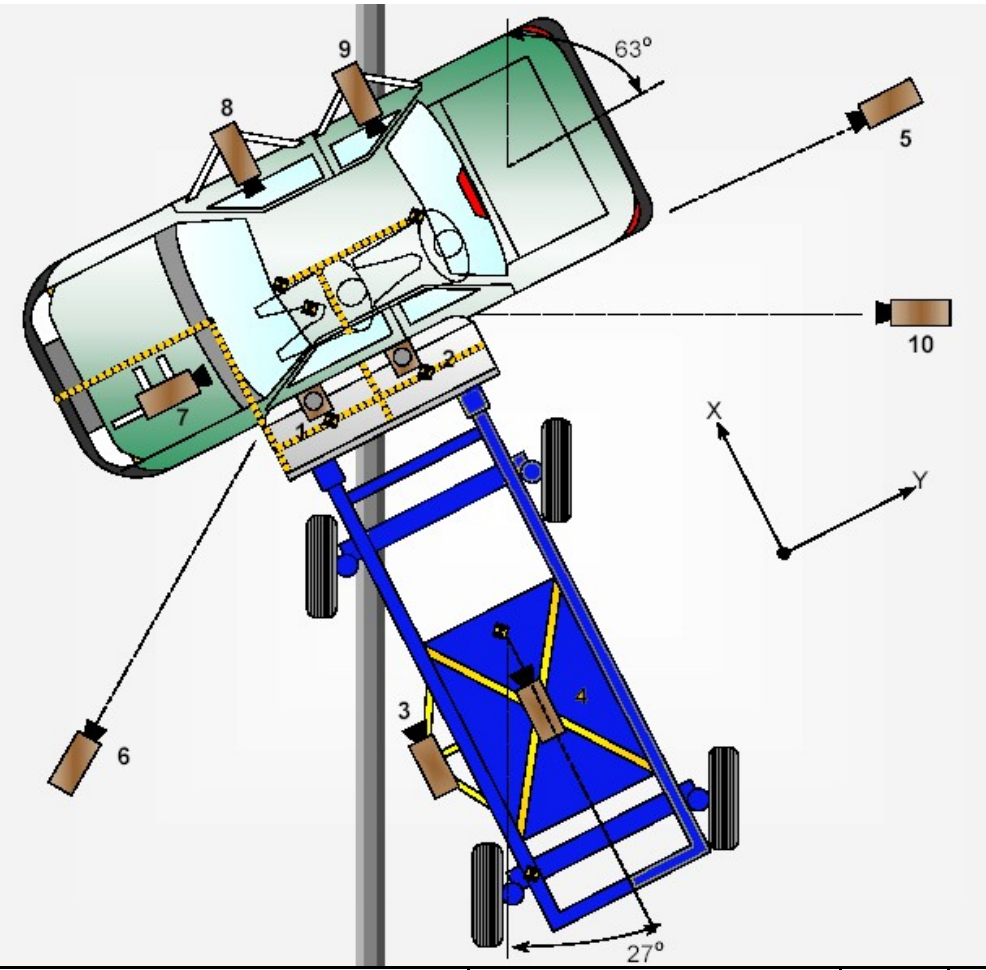
Location		Coordinates			Longitudinal (X)				Lateral (Y)				Vertical (Z)				Resultant	
		X	Y	Z	Max		Min		Max		Min		Max		Min		Max	
		mm	mm	mm	G's	msec	G's	msec	G's	msec	G's	msec	G's	msec	G's	msec	G's	msec
1	MDB Center of Gravity	1113	-1	311	1.6	116.8	-22.7	40.5	3.5	65.0	-7.6	39.3	5.7	57.4	-5.5	22.7	23.8	39.9
2	MDB Rear Frame Member	2812	-614	585	2.3	125.3	-26.6	38.2	3.8	30.3	-1.5	146.7						

Axis Origin
X – Rear Bumper
Y – Vehicle Centerline
Z – Middle of rear bumper

Axis Orientation
+(X) Forward
+(Y) Right
+(Z) Down

DATA SHEET 15

HIGH-SPEED CAMERA LOCATIONS AND DATA SUMMARY



Camera No.	View	Coordinates (mm)*			Angle wrt Horiz.	Lens (mm)	Film Speed (fps)
		X	Y	Z			
1	Overhead view of test vehicle	2198	10	5012	-90	8	1000
2	Overhead close-up view of impact plane	3364	515	4542	-90	16	1000
3	MDB onboard close-up view of impact point	-2333	-60	-38	0	25	1000
4	MDB onboard view of driver dummy	-2262	840	740	-5	13	1000
5	Right side ground level overall view	9083	1033	1165	-7	40	1000
6	Left side ground level overall view	8833	-2332	1052	-5	25	1000
7	Test vehicle onboard driver front view	4119	-357	786	-15	25	1000
8	Test vehicle onboard driver side view	2704	900.6	-623	-10	12.5	1000
9	Test vehicle onboard passenger side view	187.4	896	-659	-10	12.5	1000
10	Real-time film coverage of test	-	-	-	-	-	-

* Reference: Middle of rear bumper on test vehicle
+(X) Forward where x axis is the vector from middle of rear bumper to mid front bumper
+(Y) Right where y axis is parallel to ground reference plane
+(Z) Down where z axis is cross product of +(X) and +(Y)

SECTION 5

FUEL SYSTEM INTEGRITY

DATA SHEET 16

FUEL SYSTEM INTEGRITY DATA

TEST REQUIREMENTS:

Drain the test vehicle's fuel system and operate the engine until the fuel system is dry. Add Stoddard solvent, which has been dyed purple, until 92-94% of the stated usable capacity is reached. Operate the engine to assure the Stoddard solvent is present throughout the entire fuel system.

TEST VEHICLE IMPACT TYPE: Side impacting Moving Deformable Barrier contacting the driver side.

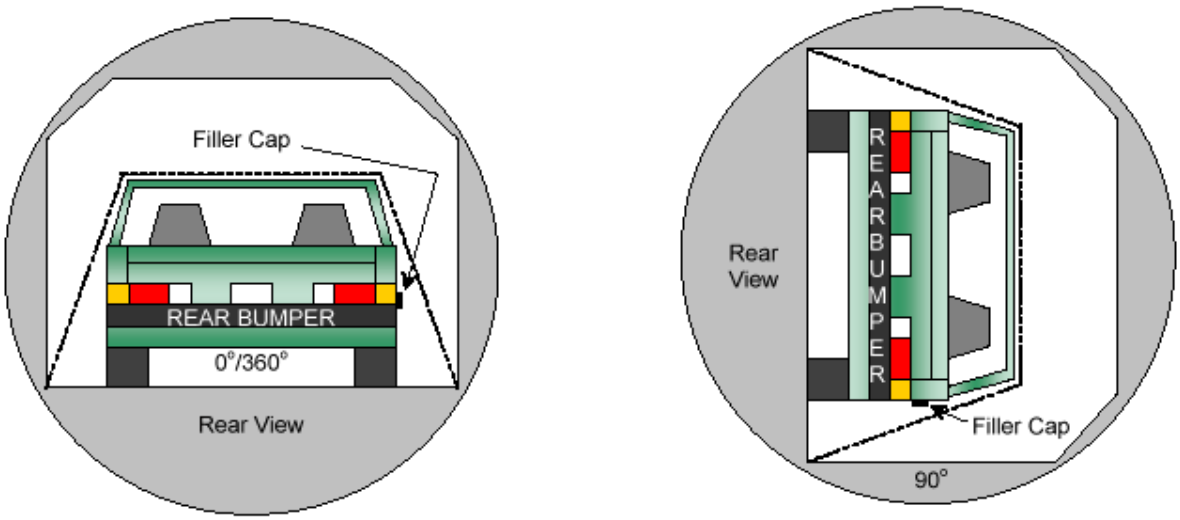
FUEL SPILLAGE MEASUREMENT:

POST IMPACT TEST	TEST RESULTS	MAXIMUM ALLOWABLE
1. From impact until vehicle motion ceases	0	1 oz.
2. For 5 minute period after vehicle motion ceases	0	5 oz.
3. For next 25 minutes	0	1 oz./minute

FUEL SPILLAGE LOCATION(S): None

DATA SHEET 17

ROLLOVER DATA



0° TO 90°

DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time	1	minutes	6	seconds
(Spec Range =1 to 3 minutes)				
FMVSS 301 Position Hold Time	5	minutes	0	seconds
TOTAL	6	minutes	6	seconds
Next whole minute interval	7	minutes		

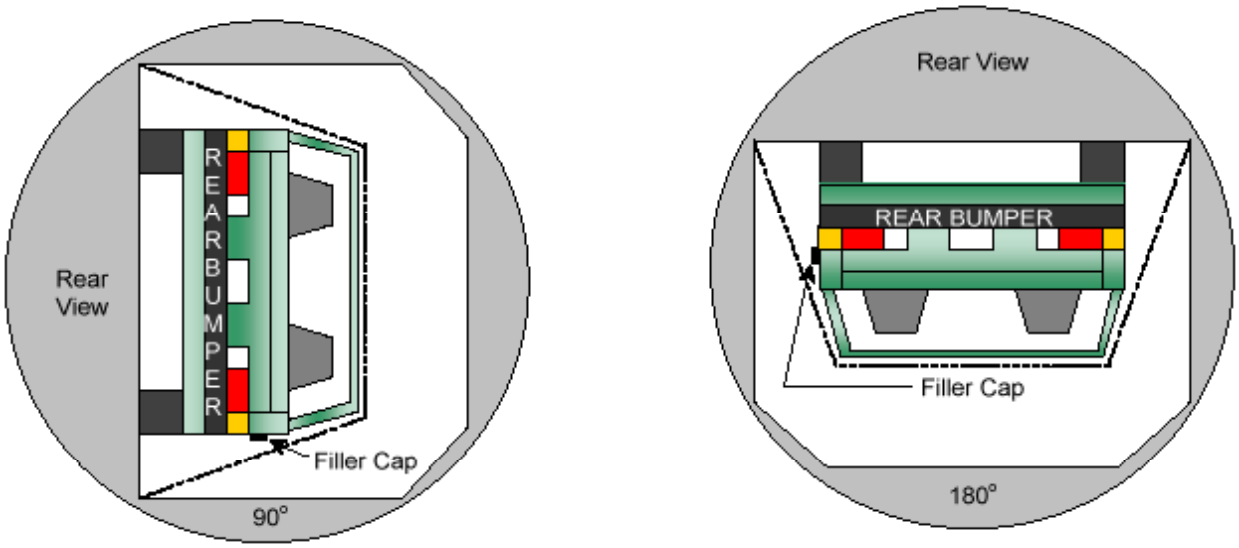
FUEL SPILLAGE MEASUREMENT:

0° TO 90° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0	5 oz.
2. Sixth Minute From Onset of Rotation	0	1 oz.
3. Seventh Minute From Onset of Rotation	0	1 oz.
4. Eighth Minute if Required	-	1 oz.

FUEL SPILLAGE LOCATION(S): None

DATA SHEET 17 (continued)

ROLLOVER VEHICLE



90° TO 180°

DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time	1	minutes	6	seconds
(Spec Range =1 to 3 minutes)				
FMVSS 301 Position Hold Time	5	minutes	0	seconds
TOTAL	6	minutes	6	seconds
Next whole minute interval	7	minutes		

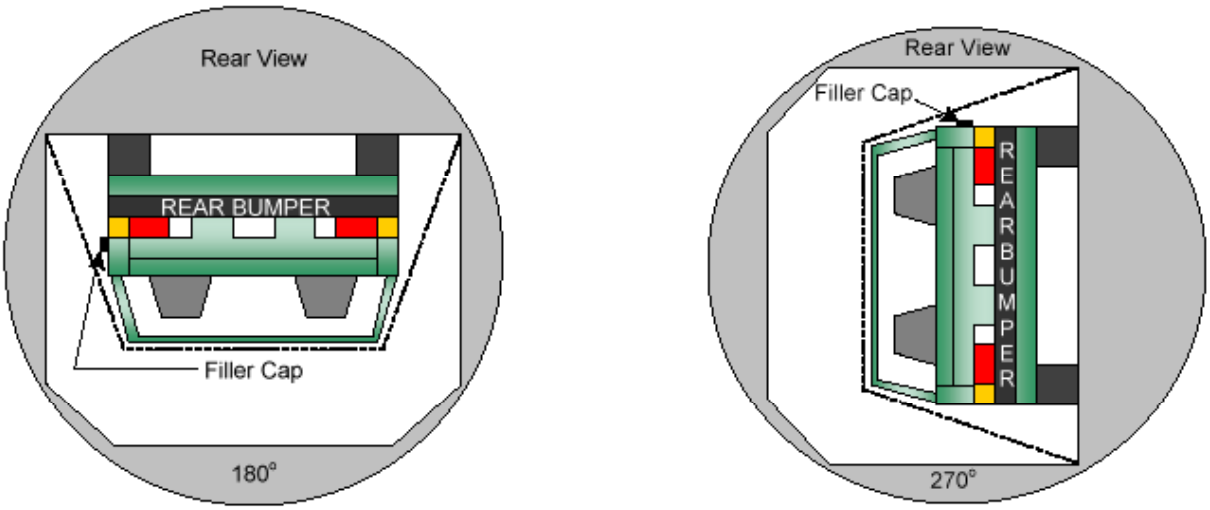
FUEL SPILLAGE MEASUREMENT:

90° TO 180° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0	5 oz.
2. Sixth Minute From Onset of Rotation	0	1 oz.
3. Seventh Minute From Onset of Rotation	0	1 oz.
4. Eighth Minute if Required	0	1 oz.

FUEL SPILLAGE LOCATION(S): None

DATA SHEET 17 (continued)

ROLLOVER VEHICLE



180° TO 270°

DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time	1	minutes	5	seconds
(Spec Range =1 to 3 minutes)				
FMVSS 301 Position Hold Time	5	minutes	0	seconds
TOTAL	6	minutes	5	seconds
Next whole minute interval	7	minutes		

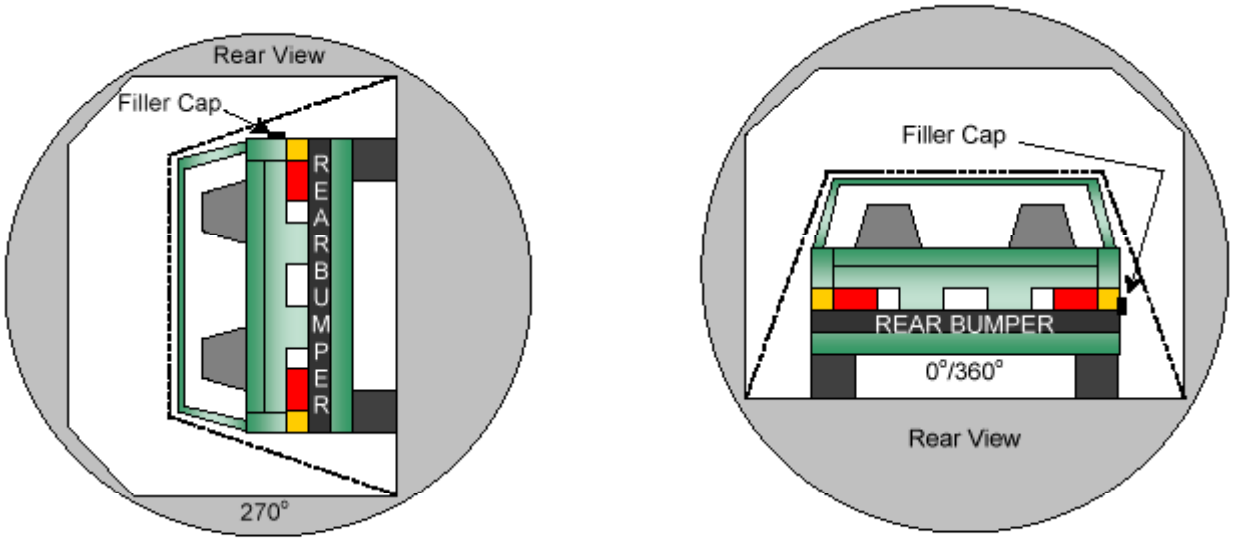
FUEL SPILLAGE MEASUREMENT:

180° TO 270° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0	5 oz.
2. Sixth Minute From Onset of Rotation	0	1 oz.
3. Seventh Minute From Onset of Rotation	0	1 oz.
4. Eighth Minute From Onset of Rotation	0	1 oz.

FUEL SPILLAGE LOCATION(S): None

DATA SHEET 17 (continued)

ROLLOVER VEHICLE



270° TO 360°

DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Fixture 90° Rotation Time	1	minutes	5	seconds
(Spec Range =1 to 3 minutes)				
FMVSS 301 Position Hold Time	5	minutes	0	seconds
TOTAL	6	minutes	5	seconds
Next whole minute interval	7	minutes		

FUEL SPILLAGE MEASUREMENT:

270° TO 360° ROTATION	TEST RESULTS	MAXIMUM ALLOWABLE
1. First 5 Minutes From Onset of Rotation	0	5 oz.
2. Sixth Minute From Onset of Rotation	0	1 oz.
3. Seventh Minute From Onset of Rotation	0	1 oz.
4. Eighth Minute if Required	0	1 oz.

FUEL SPILLAGE LOCATION(S): None

APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

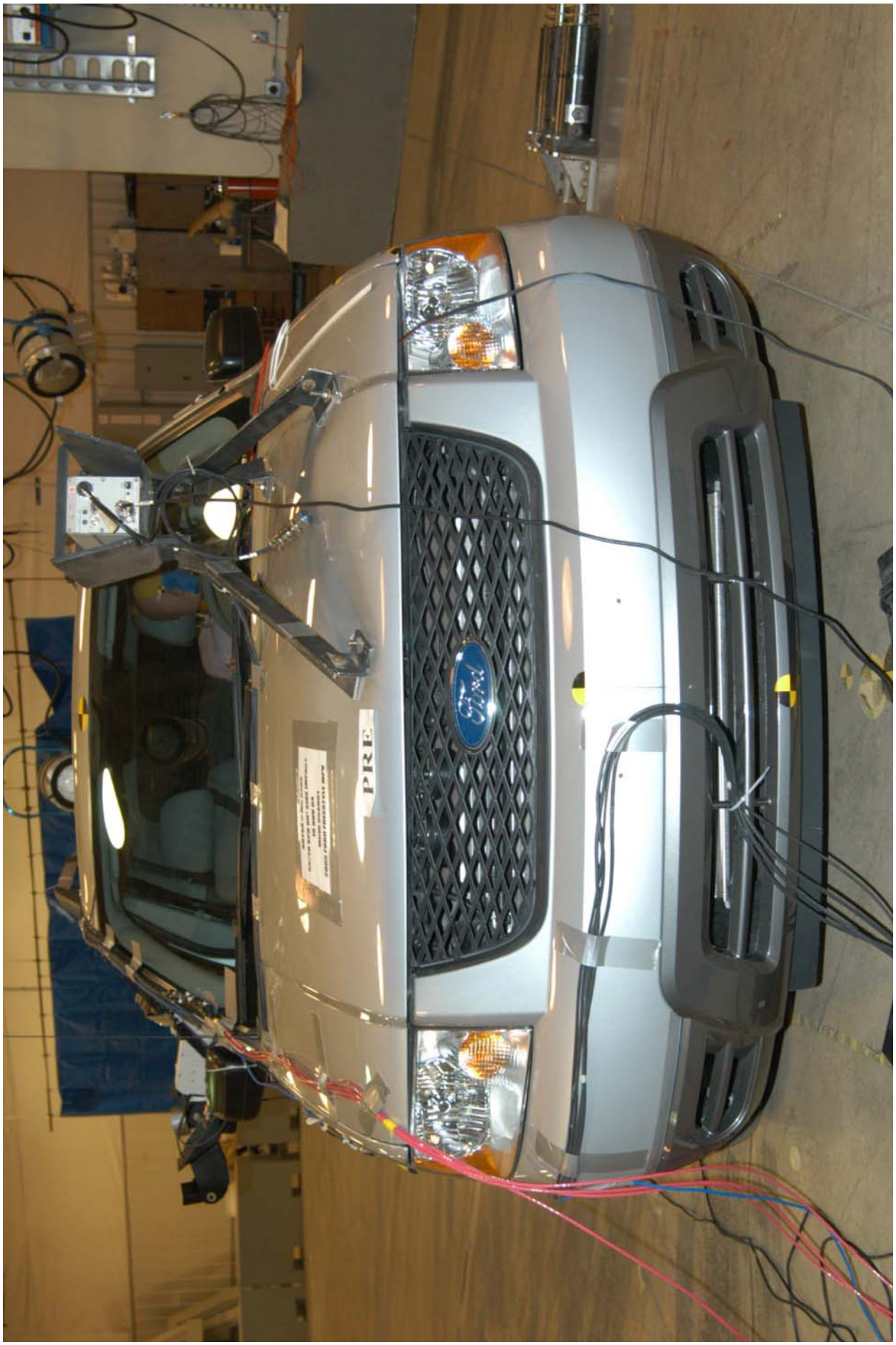


Figure A-1: PRE-TEST FRONTAL VIEW OF TEST VEHICLE

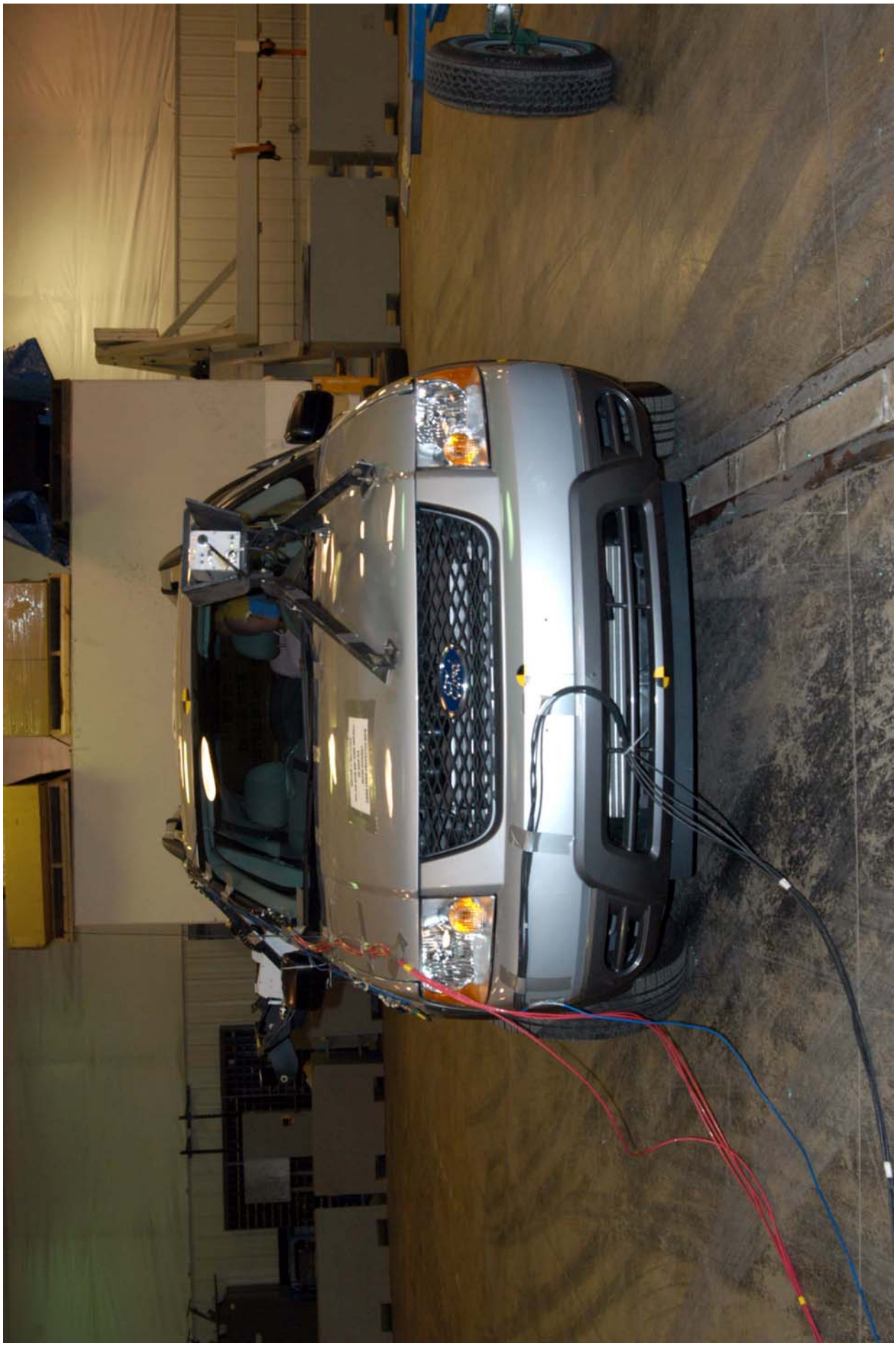


Figure A-2: POST-TEST FRONTAL VIEW OF TEST VEHICLE

Figure A-3: PRE-TEST LEFT FRONT VIEW OF TEST VEHICLE

Figure A-4: POST-TEST LEFT FRONT VIEW OF TEST VEHICLE

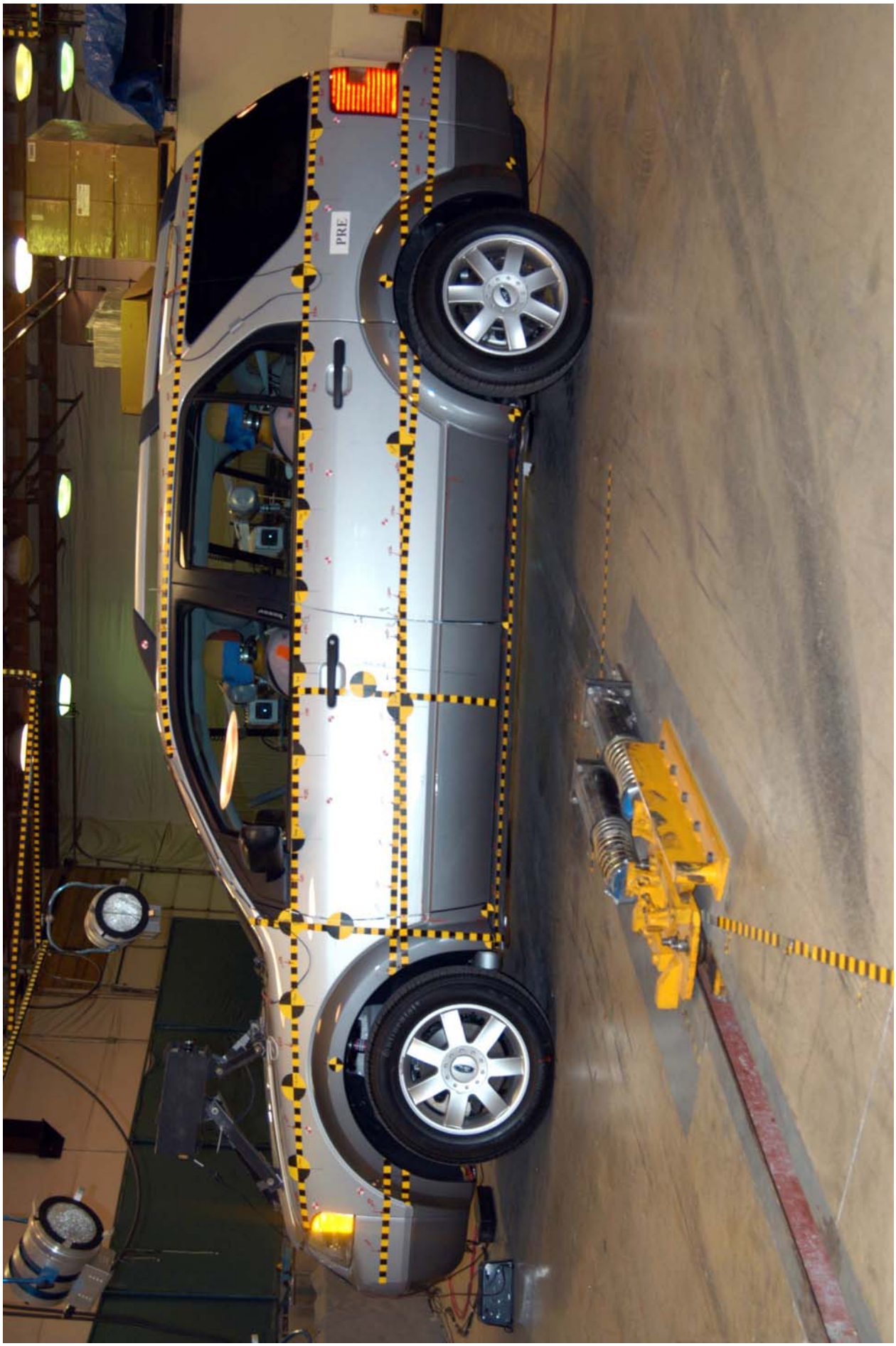


Figure A-5: PRE-TEST LEFT SIDE VIEW OF TEST VEHICLE

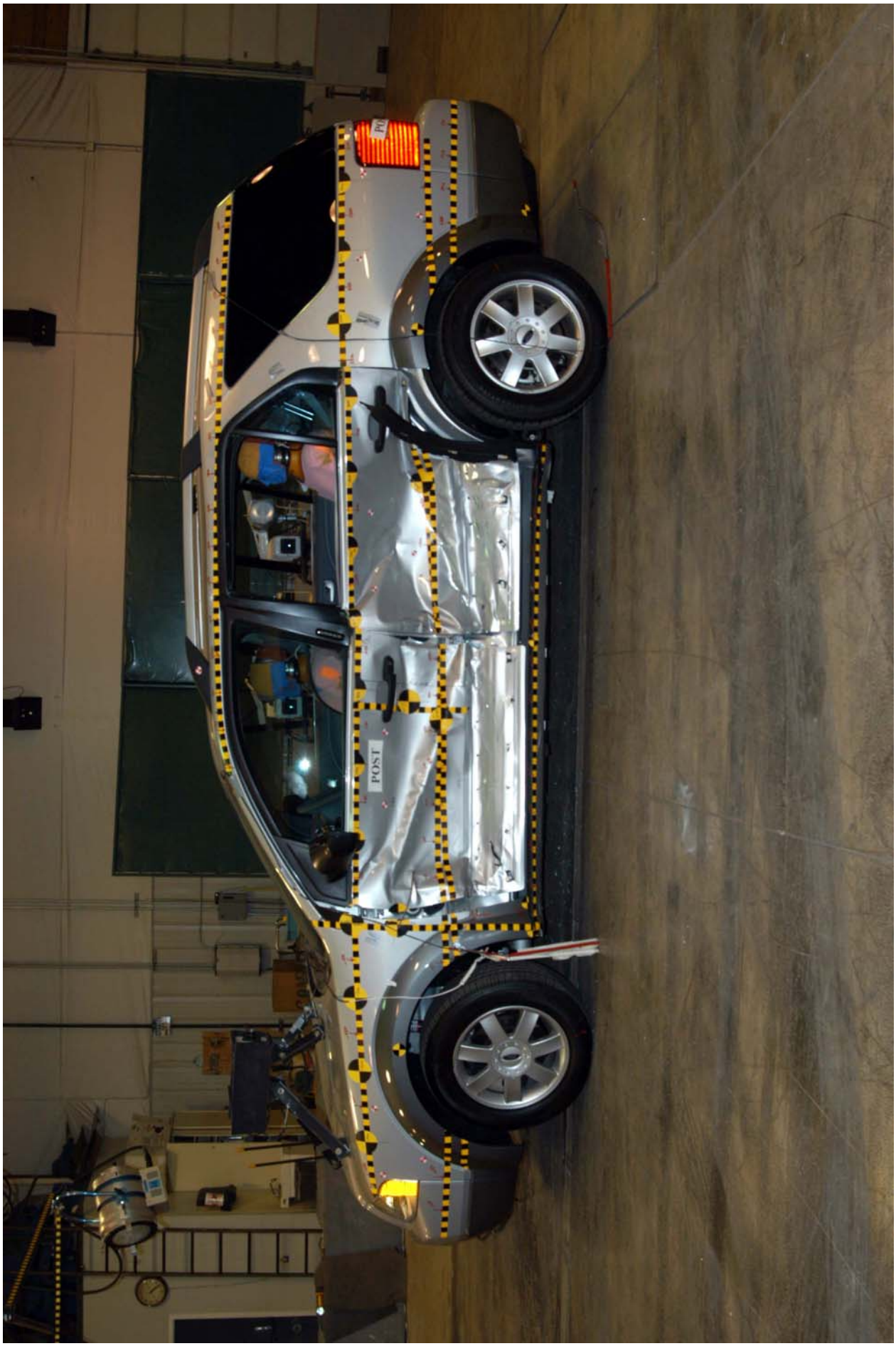


Figure A-6: POST-TEST LEFT SIDE VIEW OF TEST VEHICLE

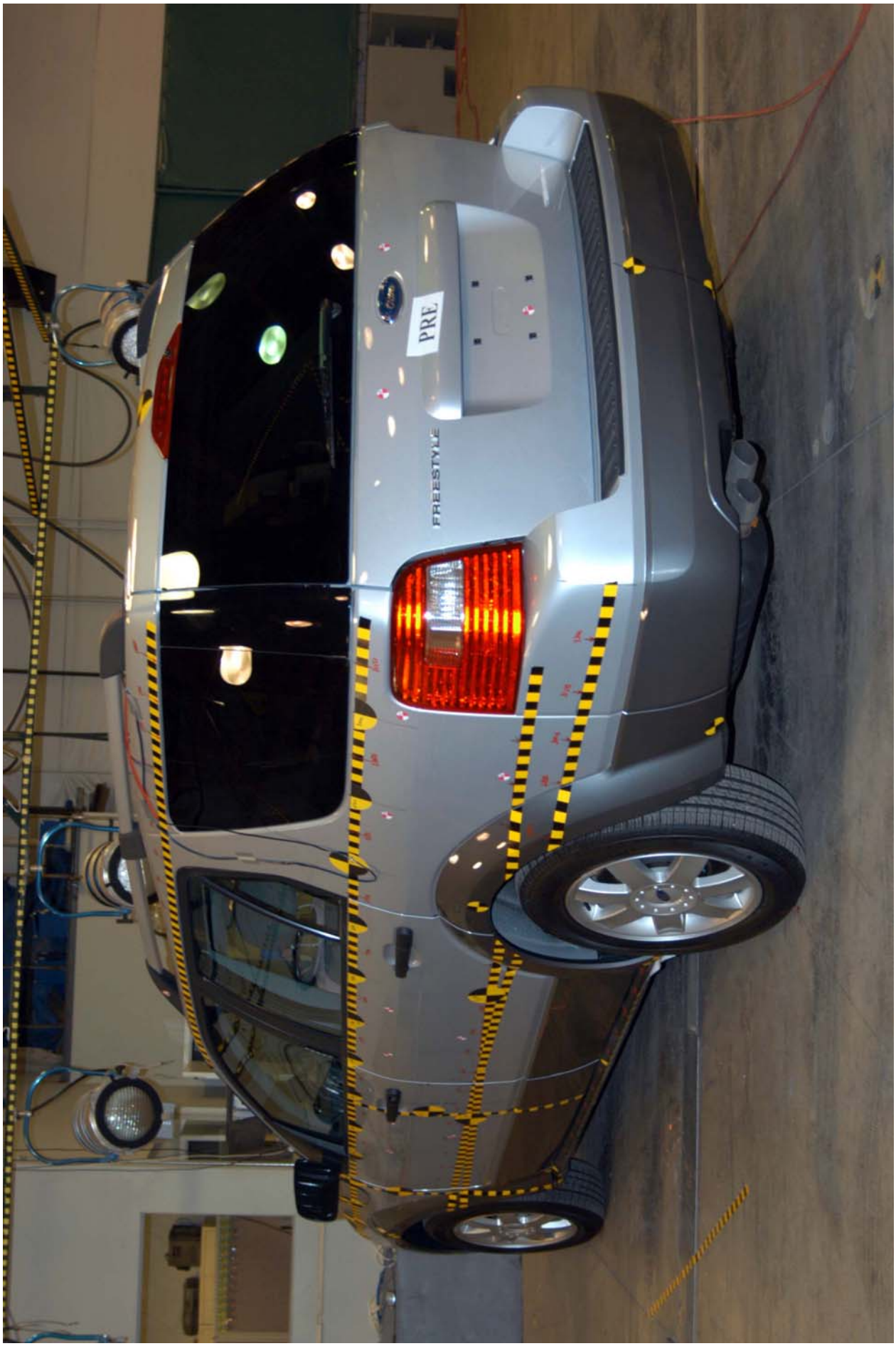


Figure A-7: PRE-TEST LEFT REAR VIEW OF TEST VEHICLE

Figure A-8: POST-TEST LEFT REAR VIEW OF TEST VEHICLE

Figure A-9: PRE-TEST REAR VIEW OF TEST VEHICLE

Figure A-10: POST-TEST REAR VIEW OF TEST VEHICLE

Figure A-11 PRE-TEST RIGHT REAR VIEW OF TEST VEHICLE

Figure A-12 POST-TEST RIGHT REAR VIEW OF TEST VEHICLE

Figure A-13: PRE-TEST RIGHT SIDE VIEW OF TEST VEHICLE

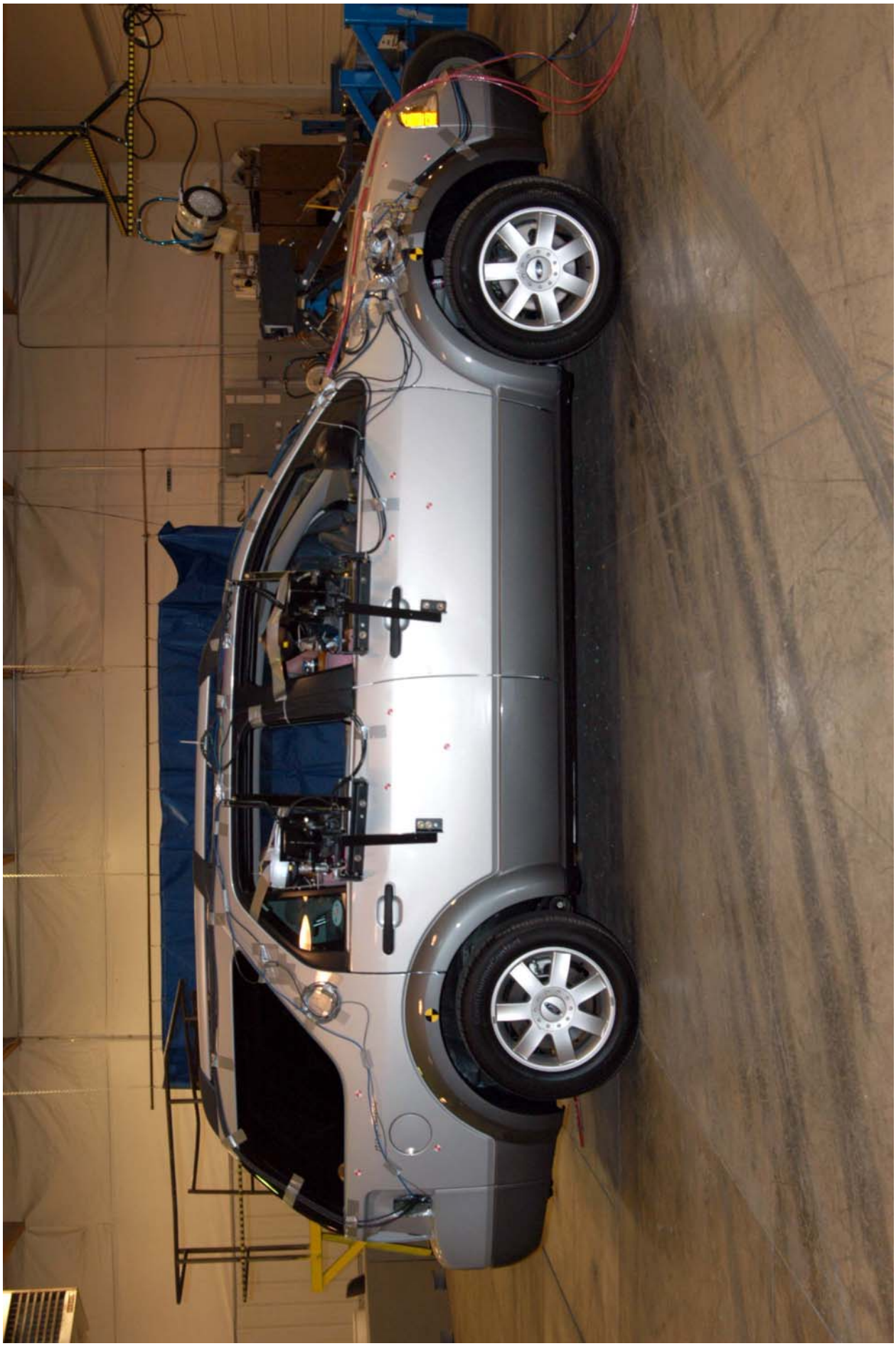


Figure A-14: POST-TEST RIGHT SIDE VIEW OF TEST VEHICLE

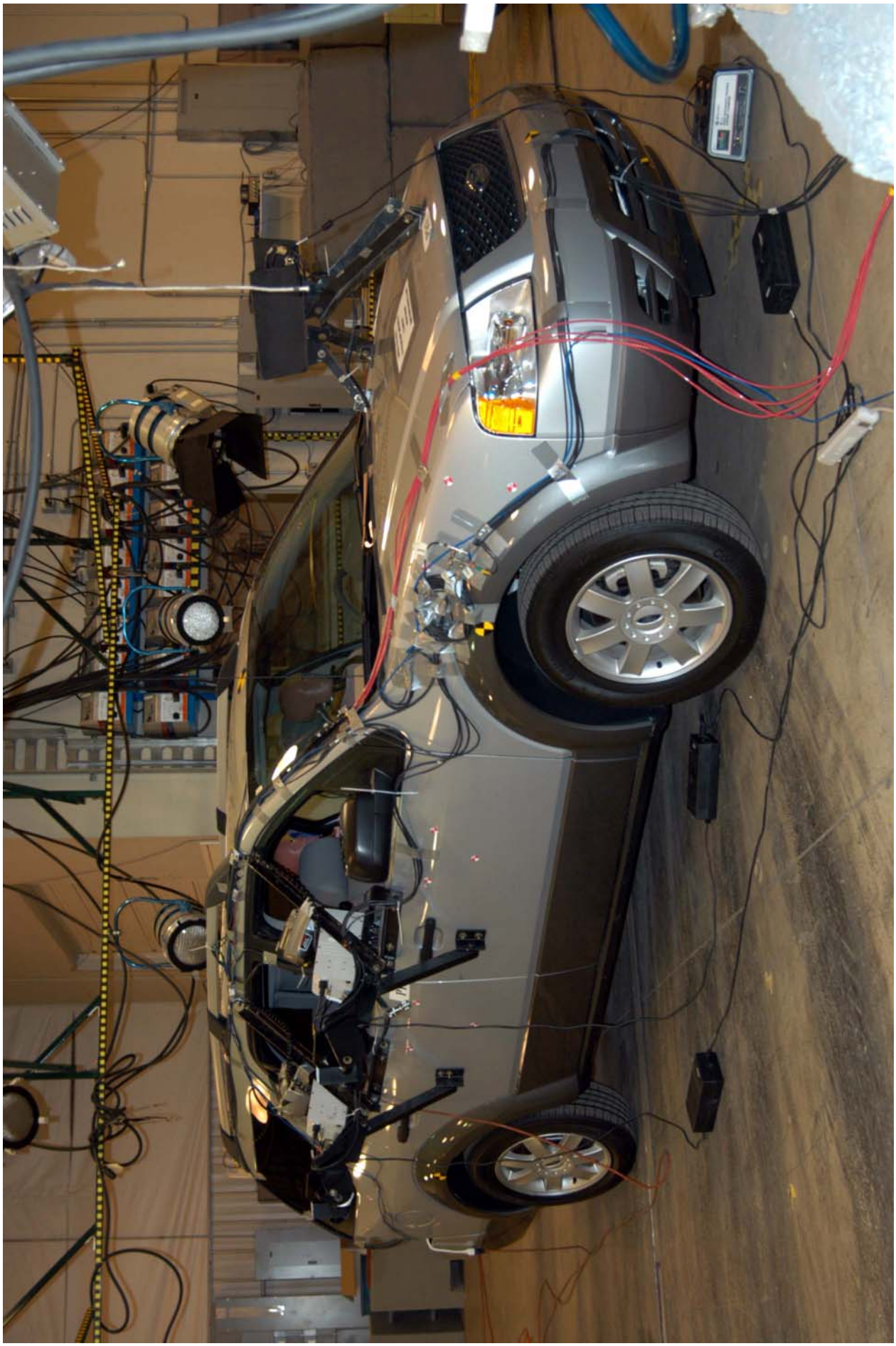


Figure A-15: PRE-TEST FRONT RIGHT VIEW OF TEST VEHICLE

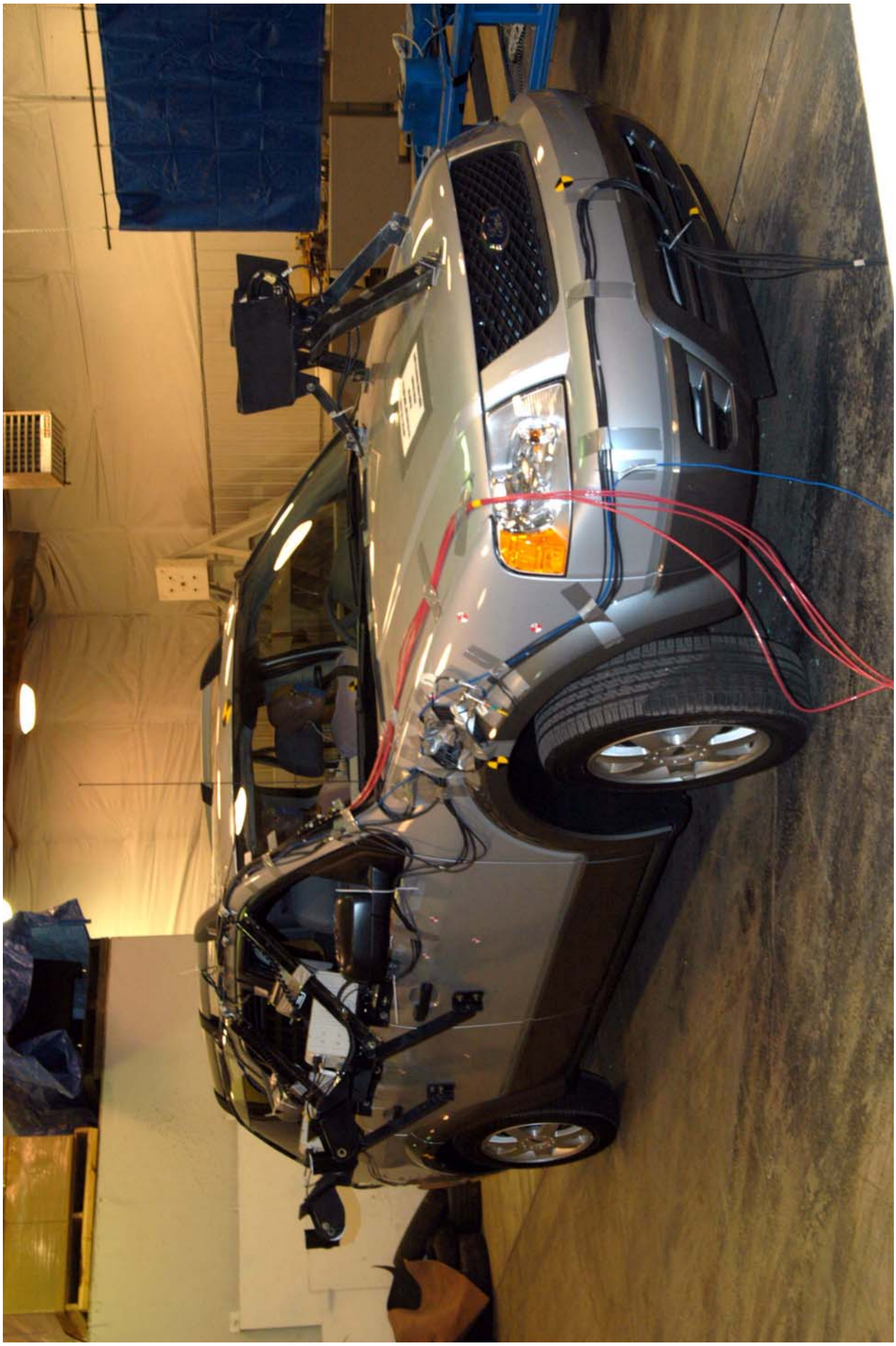


Figure A-16: POST-TEST FRONT RIGHT VIEW OF TEST VEHICLE

Figure A-17: PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID H3

Figure A-18: P0ST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID H3

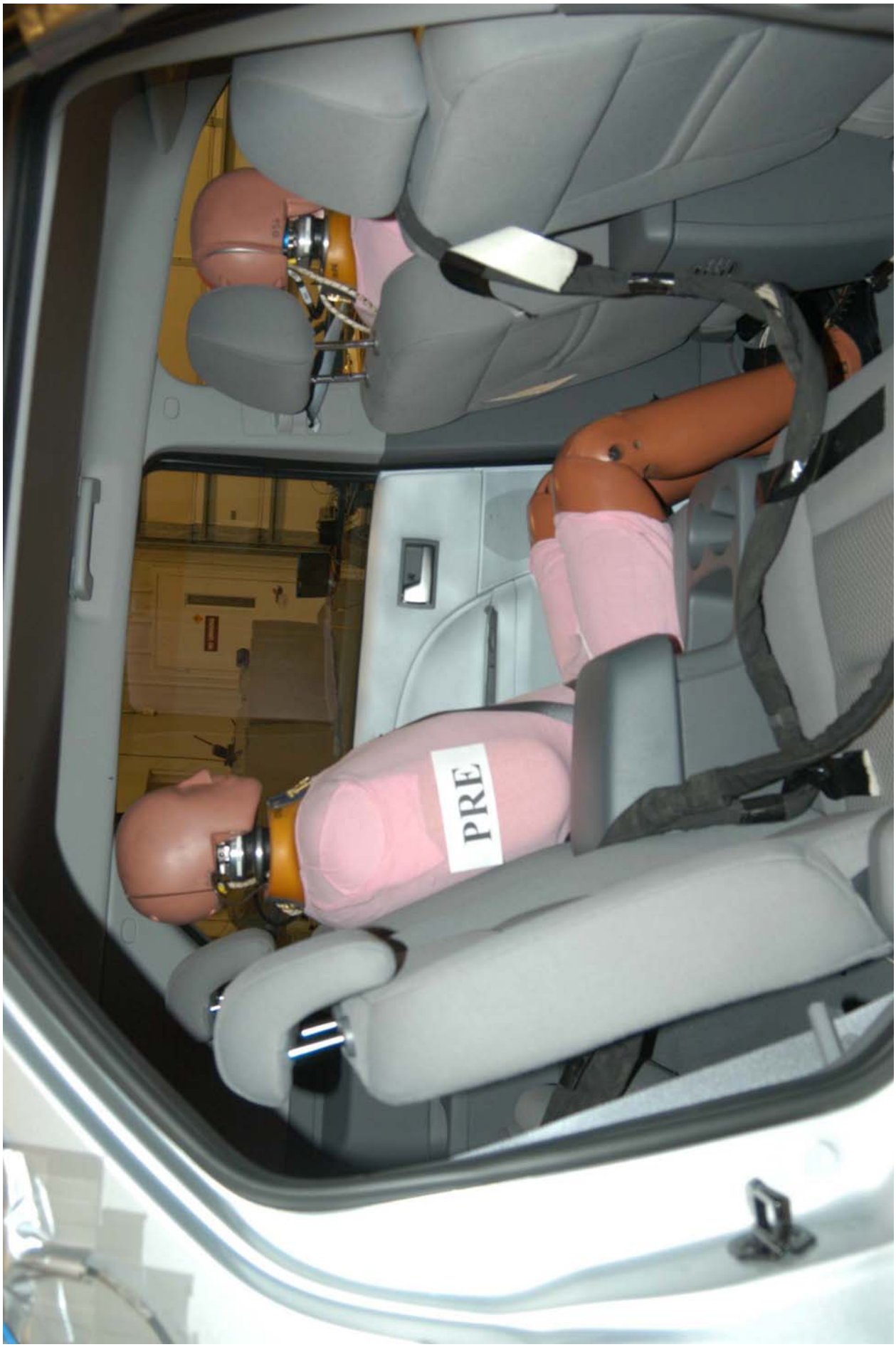


Figure A-19: PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID H3

Figure A-20: POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID H3

Figure A-21: PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID H3

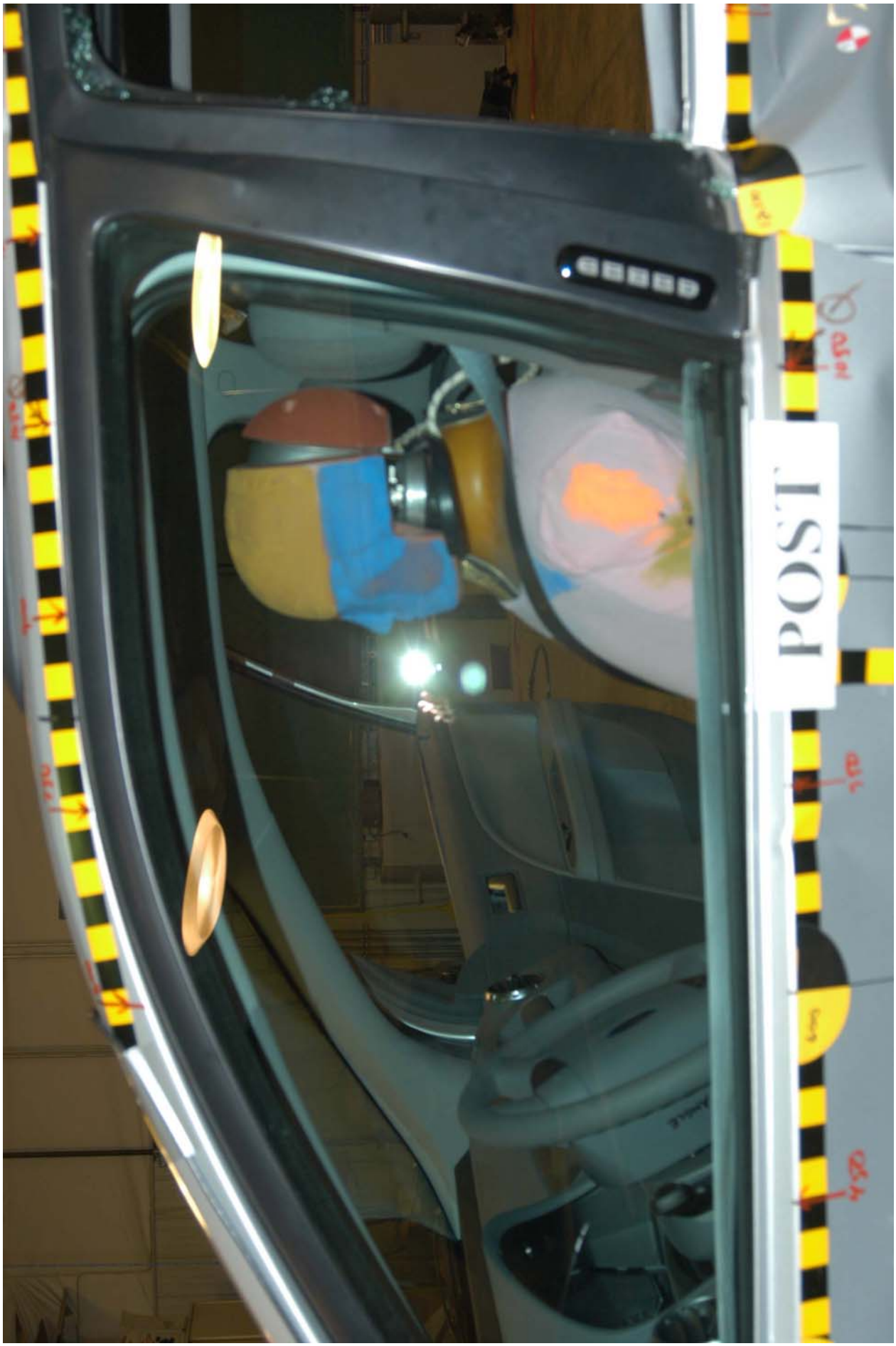


Figure A-22: POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID H3

Figure A-23: PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID H3

Figure A-24: POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID H3

Figure A-25: PRE-TEST INTERIOR OF FRONT DOOR

Figure A-26: POST-TEST INTERIOR OF FRONT DOOR SHOWING SID H3 IMPACT LOCATIONS

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Figure A-31: PRE TEST LEFT SIDE VIEW OF MDB IN IMPACT POSITION

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Figure A-33: PRE TEST RIGHT SIDE VIEW OF MDB IN IMPACT POSITION

Figure A-34: POST TEST RIGHT SIDE VIEW OF MDB

Figure A-35: PRE TEST OVERHEAD VIEW OF MDB IN IMPACT POSITION

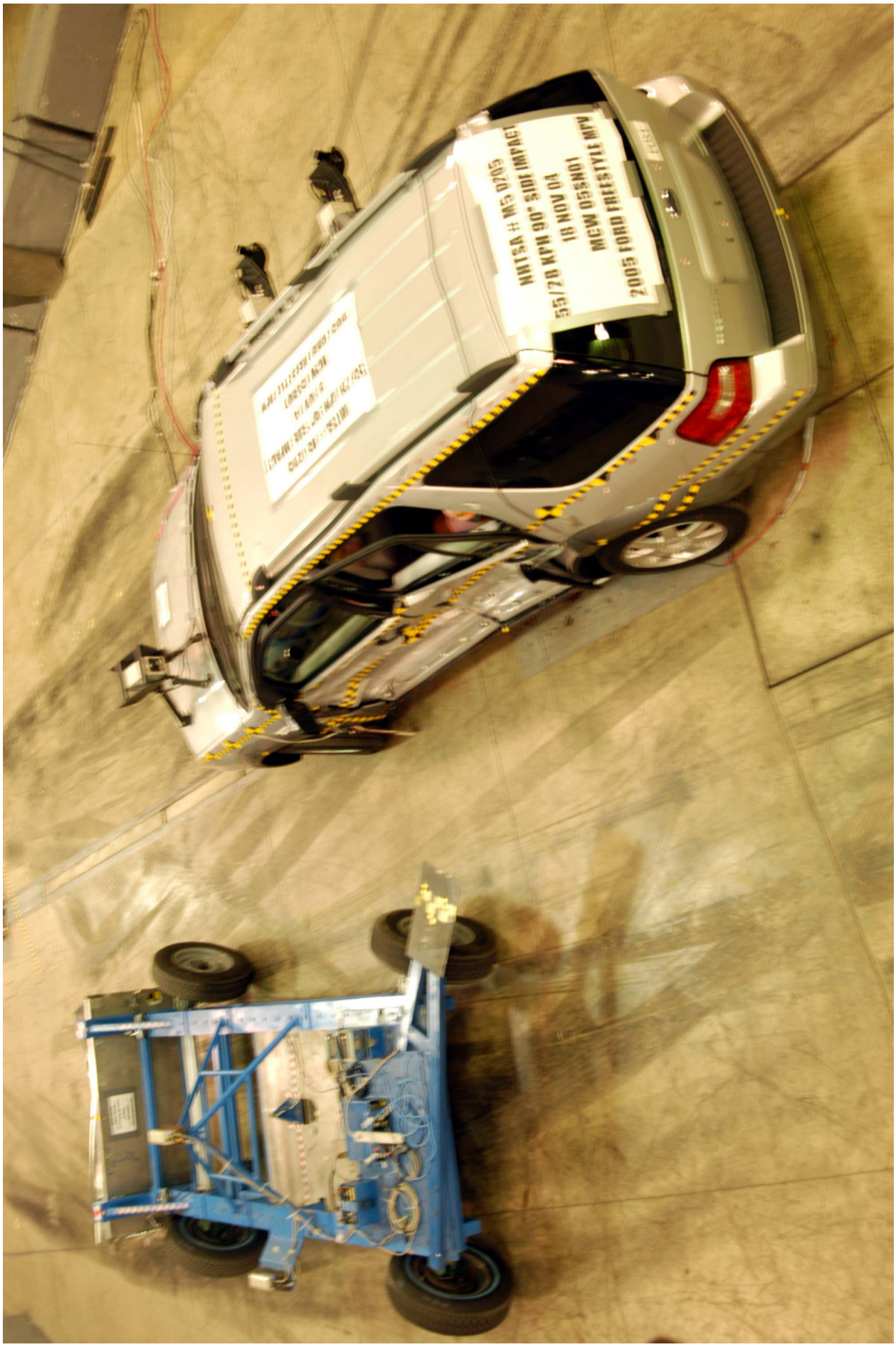

Figure A-36: POST TEST OVERHEAD VIEW OF MDB

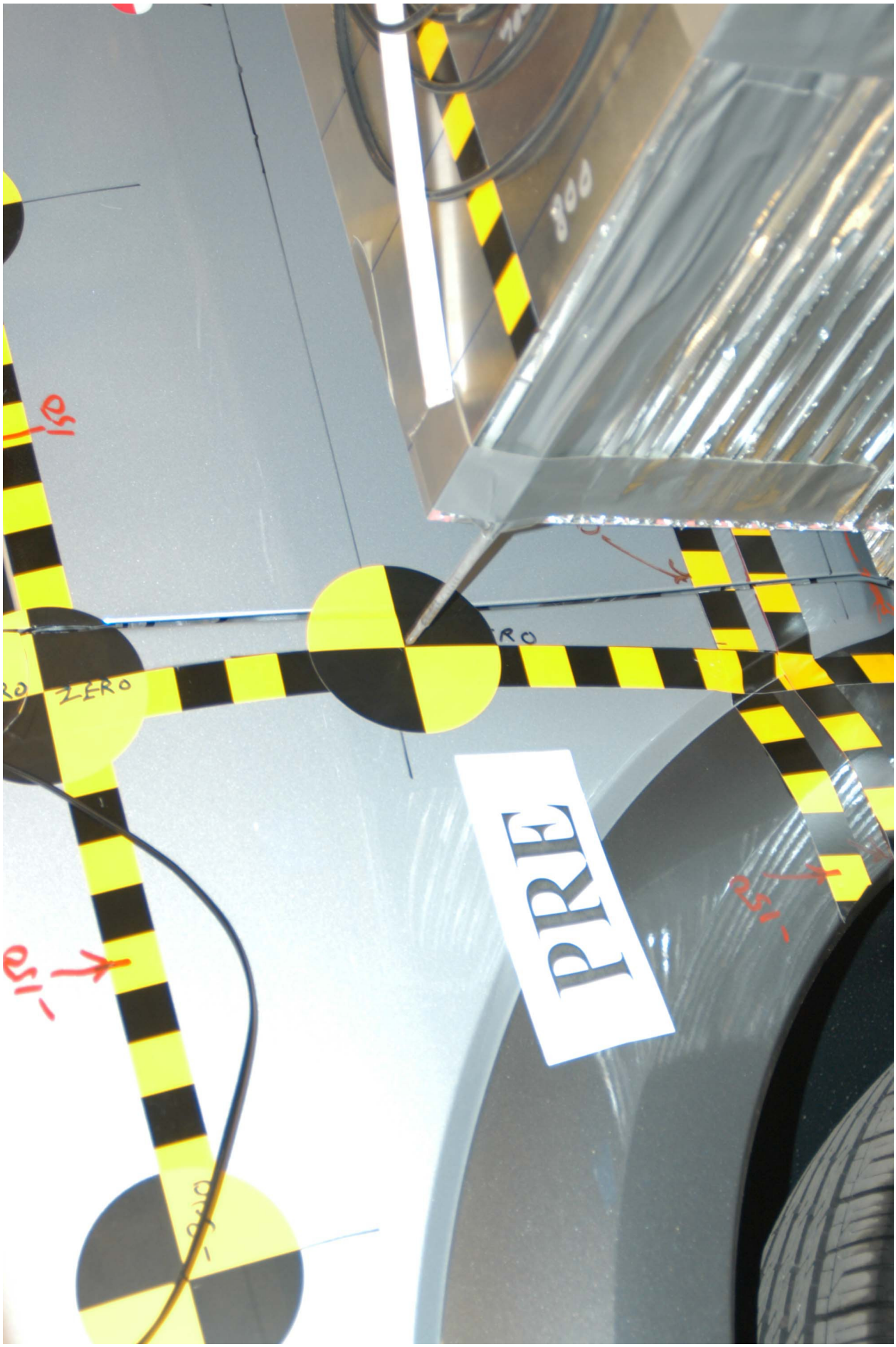

Figure A-37: PRE TEST CLOSE-UP OF IMPACT POINT TARGET SHOWING WELDING ROD

Figure A-38: POST TEST CLOSE-UP OF IMPACT POINT TARGET

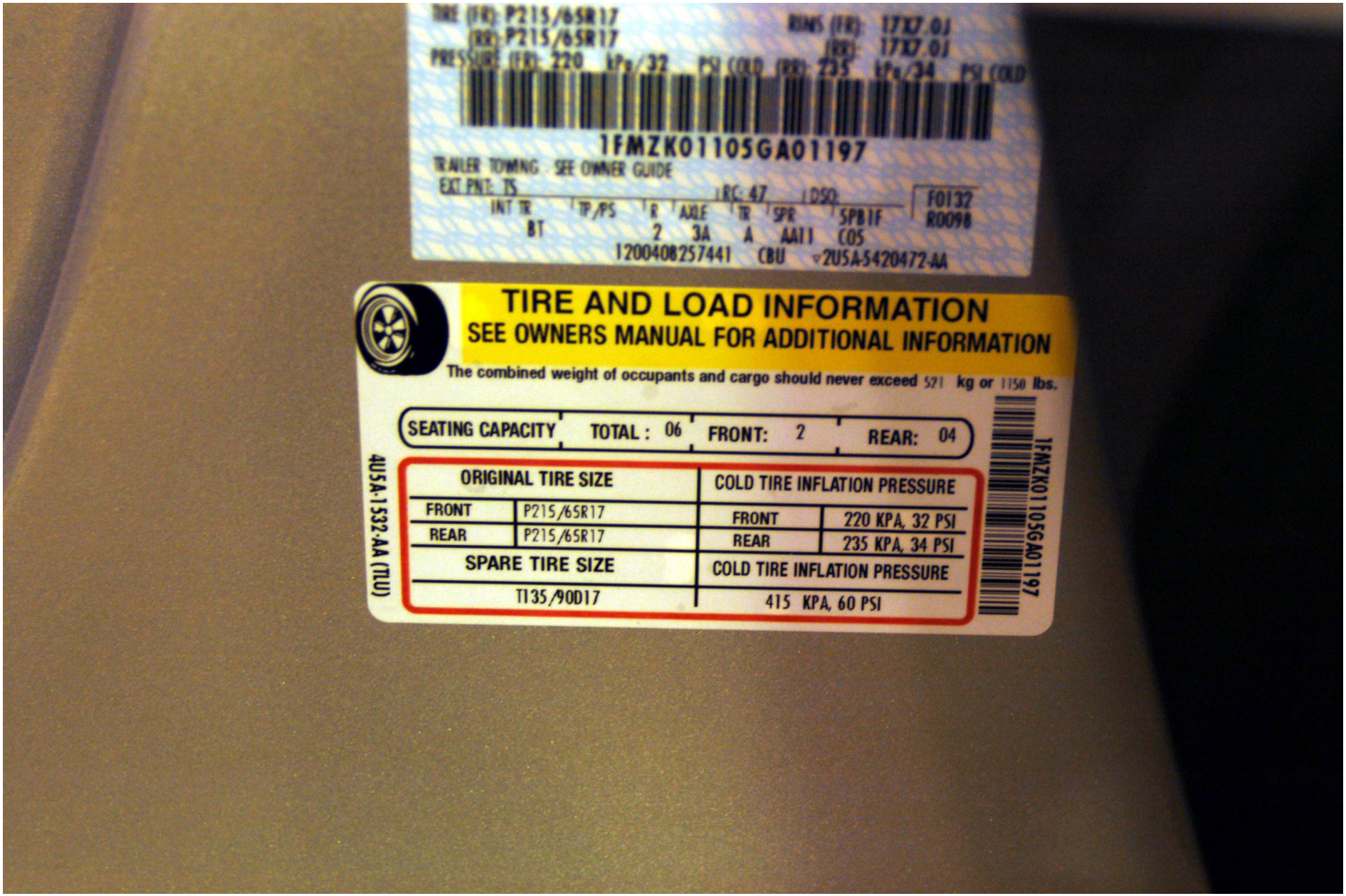

Figure A-39: VEHICLE TIRE PLACARD

Figure A-40: VEHICLE CERTIFICATION LABEL

Figure A-41: IMPACT

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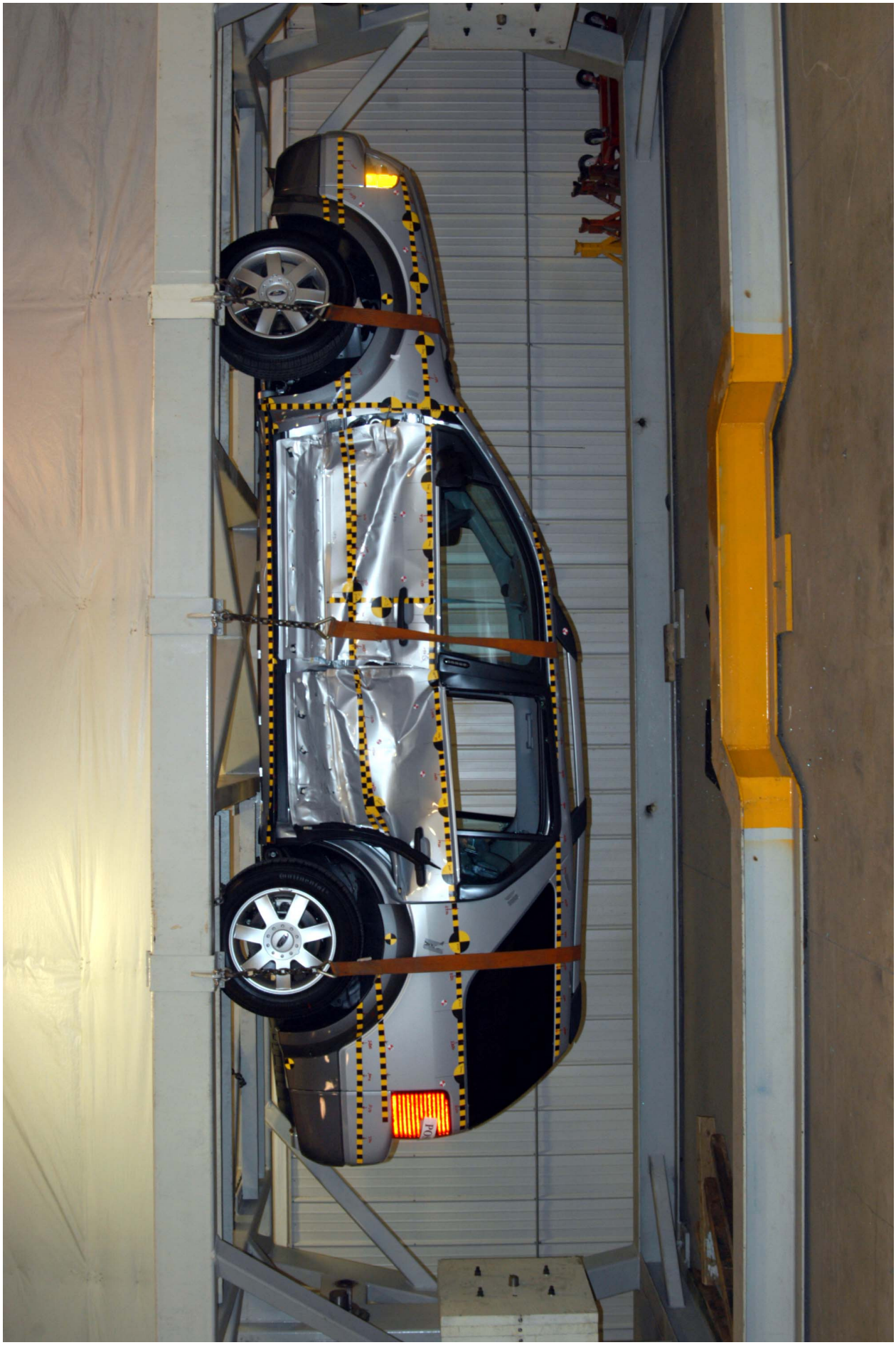

Figure A-44: ROLLOVER 180 DEGREES

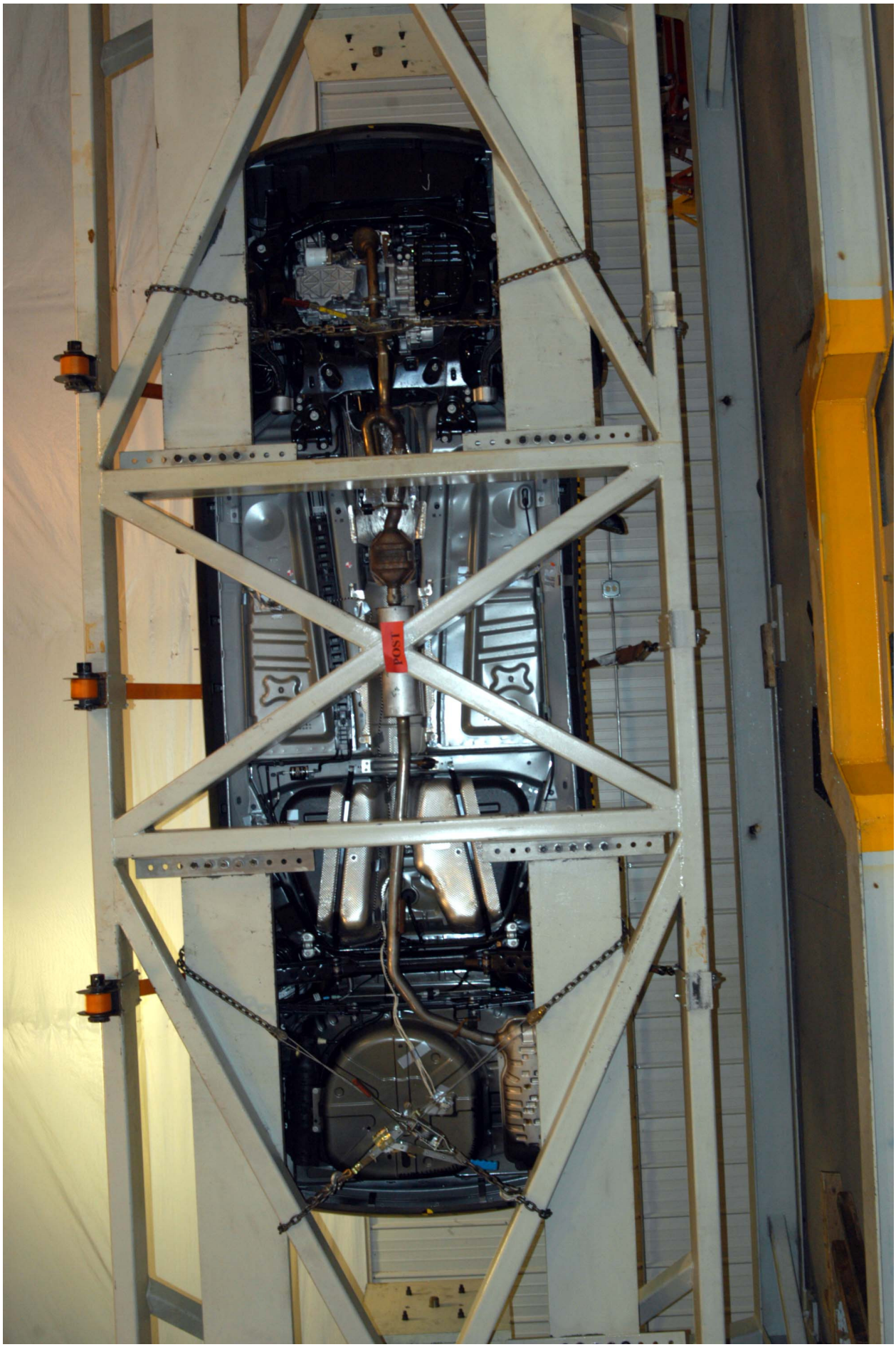

Figure A-45: ROLLOVER 270 DEGREES

Figure A-46: ROLLOVER 360 DEGREES

Figure A-47: PRE-TEST ALUMINUM BARRIER FRONT

Figure A-48: POST-TEST ALUMINUM BARRIER FRONT

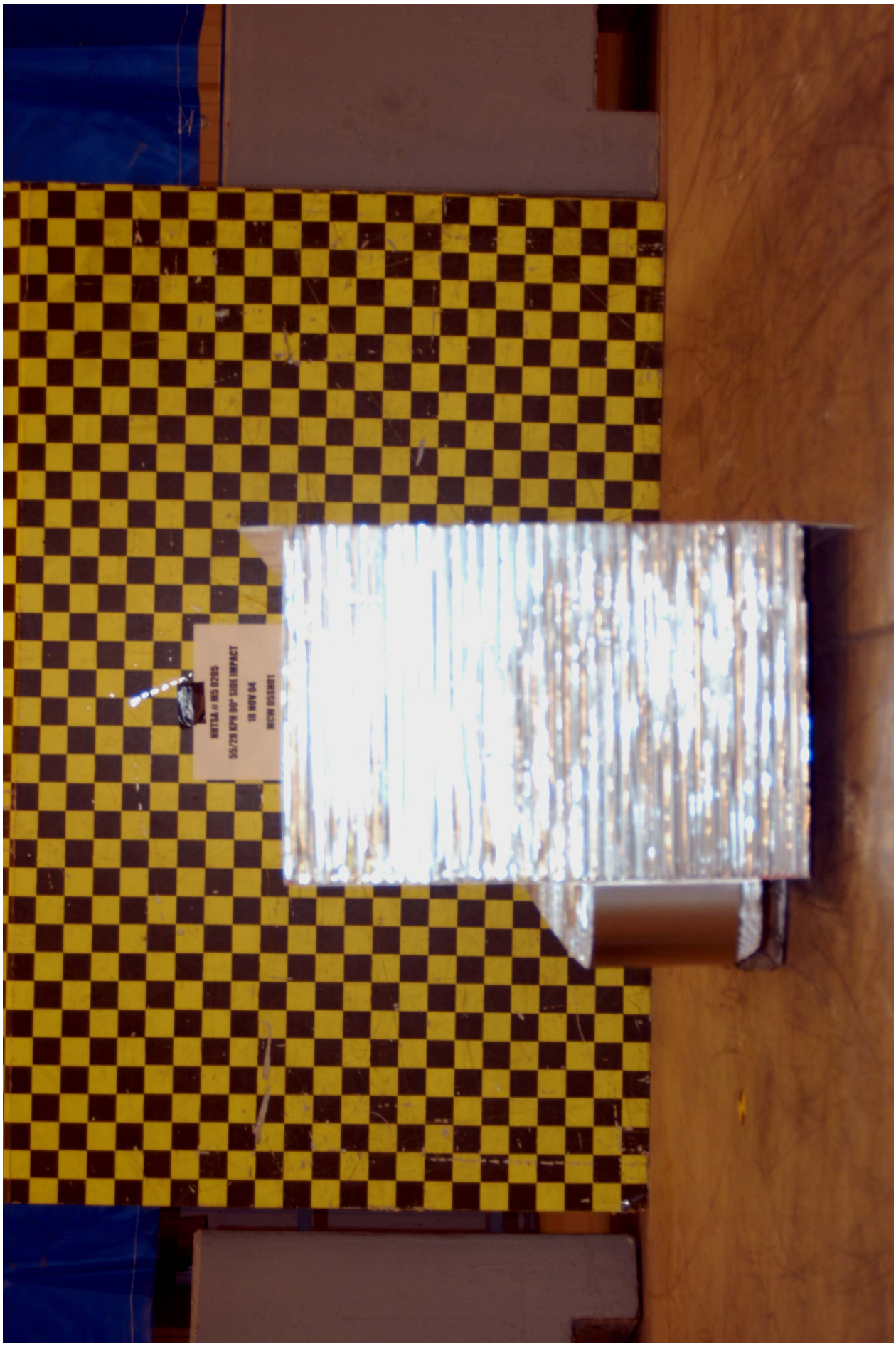

Figure A-49: PRE-TEST ALUMINUM BARRIER LEFT SIDE

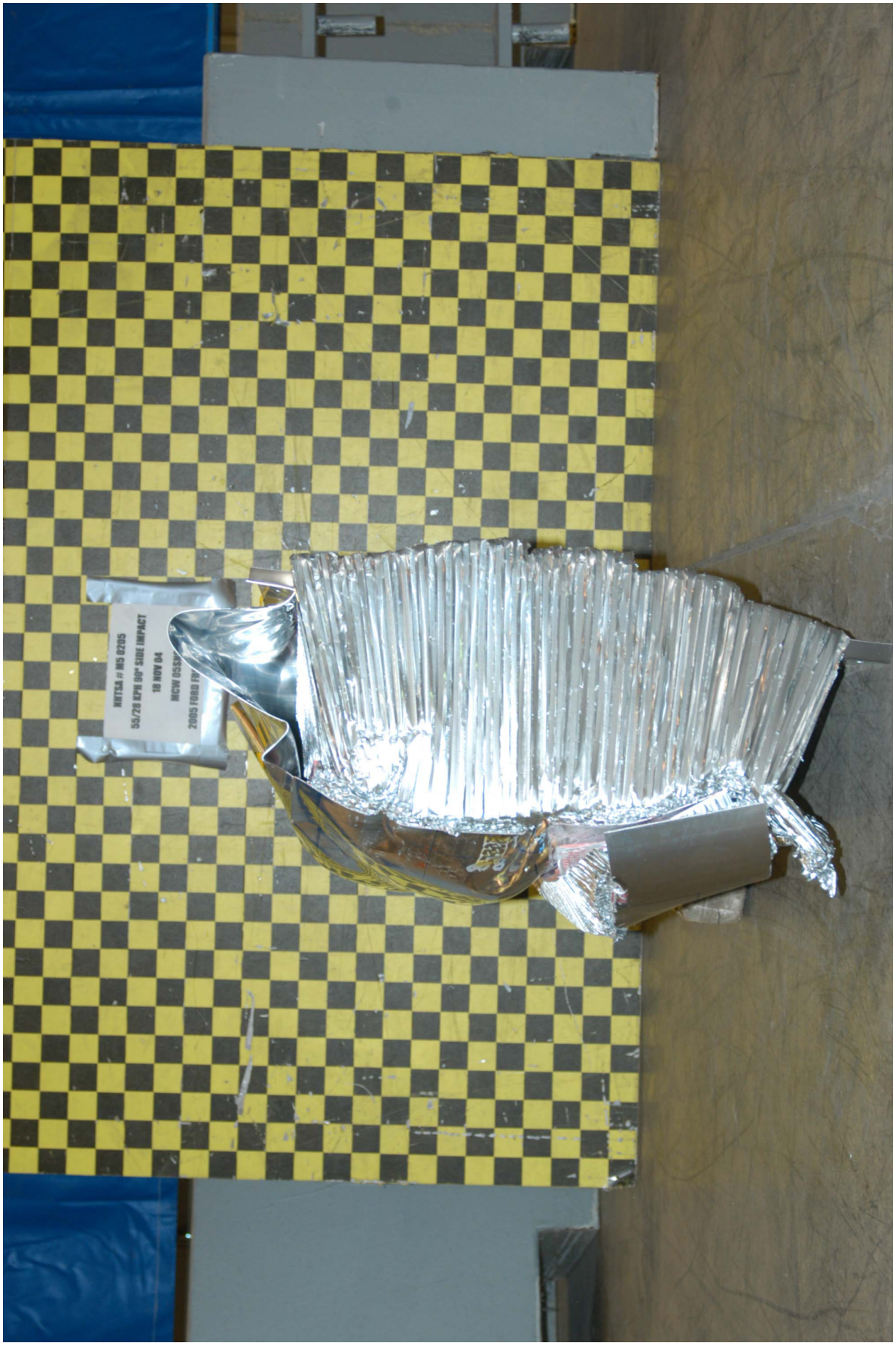

Figure A-50: POST-TEST ALUMINUM BARRIER LEFT SIDE

Figure A-51: PRE-TEST ALUMINUM BARRIER RIGHT SIDE

Figure A-52: POST-TEST ALUMINUM BARRIER RIGHT SIDE

Figure A-53: PRE-TEST ALUMINUM BARRIER TOP

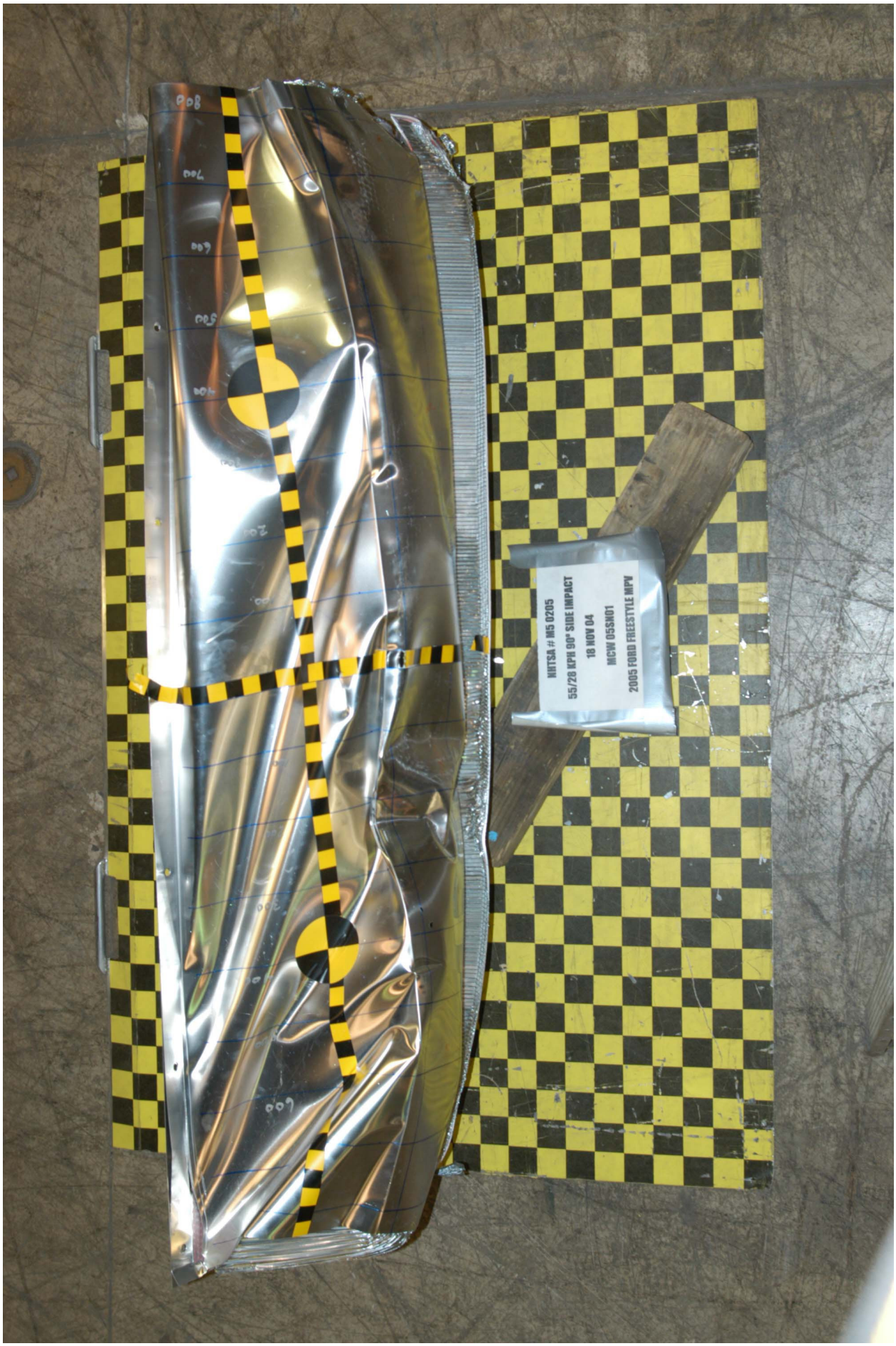

Figure A-54: POST-TEST ALUMINUM BARRIER TOP

APPENDIX B

VEHICLE, MDB, AND SID RESPONSE DATA

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DRIVER AND PASSENGER DUMMY INSTRUMENTATION PLOTS

ACCELERATION DATA – FILTER CLASS 1000, LOWER SPINE FILTER CLASS 180
UPPER NECK FORCES – FILTER CLASS 1000; UPPER NECK MOMENTS FILTER CLASS 600
INTEGRATION DATA FILTER CLASS 180

DRIVER AND PASSENGER DUMMY INSTRUMENTATION PLOTS

ACCELERATION DATA – FIR FILTERED

TEST VEHICLE INSTRUMENTATION PLOTS

ACCELERATION DATA – FILTER CLASS 60

INTEGRATION DATA – FILTER CLASS 180

MDB INSTRUMENTATION PLOTS

ACCELERATION DATA – FILTER CLASS 60

INTEGRATION DATA – FILTER CLASS 180

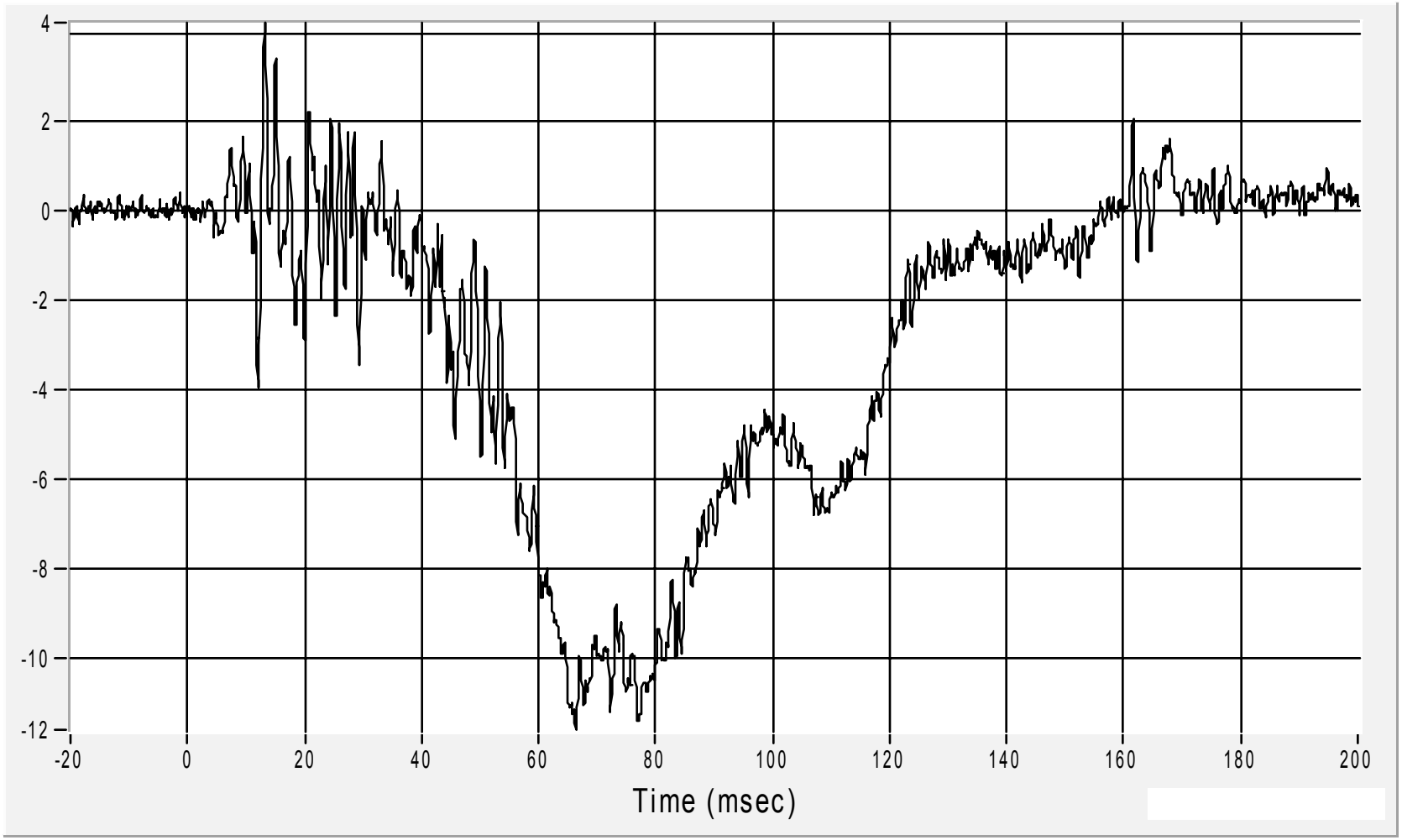
DRIVER AND PASSENGER DUMMY INSTRUMENTATION PLOTS (REDUNDANT)
ACCELERATION DATA – FILTER CLASS 1000, LOWER SPINE FILTER CLASS 180
INTEGRATION DATA FILTER CLASS 180

DRIVER AND PASSENGER DUMMY INSTRUMENTATION PLOT (REDUNDANT)
ACCELERATION DATA – FIR FILTERED

Driver Head CG (X) Acceleration

Acceleration (G's) CFC1000

Max	**4.2**	**G**	**at**	**13.2**	**msec**
Min	**-11.6**	**G**	**at**	**66.4**	**msec**



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18 November 2004

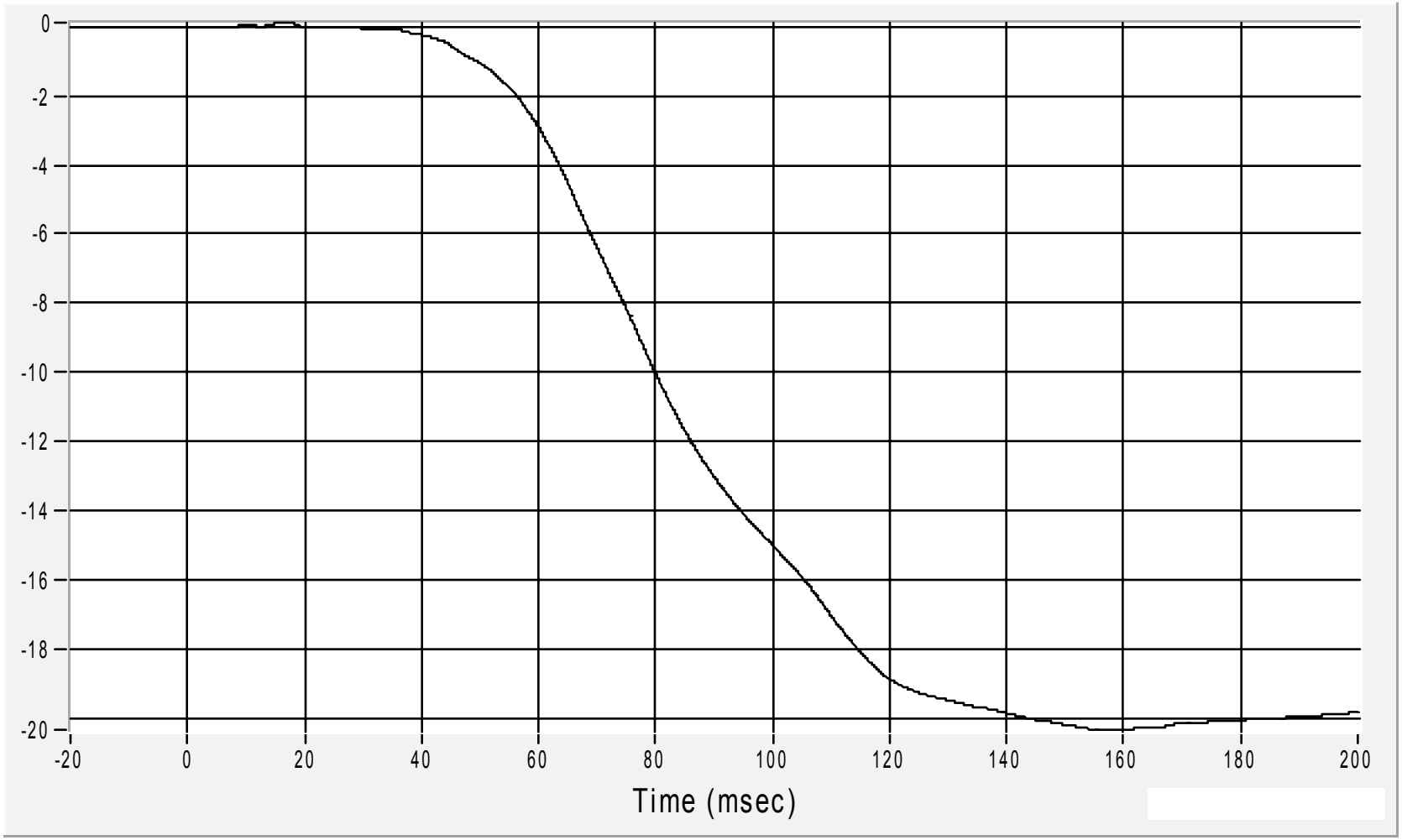
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Head CG (X) Velocity

Velocity (km/h) CFC180

Max 0.1 km/h at 15.8 msec

Min -20.3 km/h at 157.0 msec



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18 November 2004

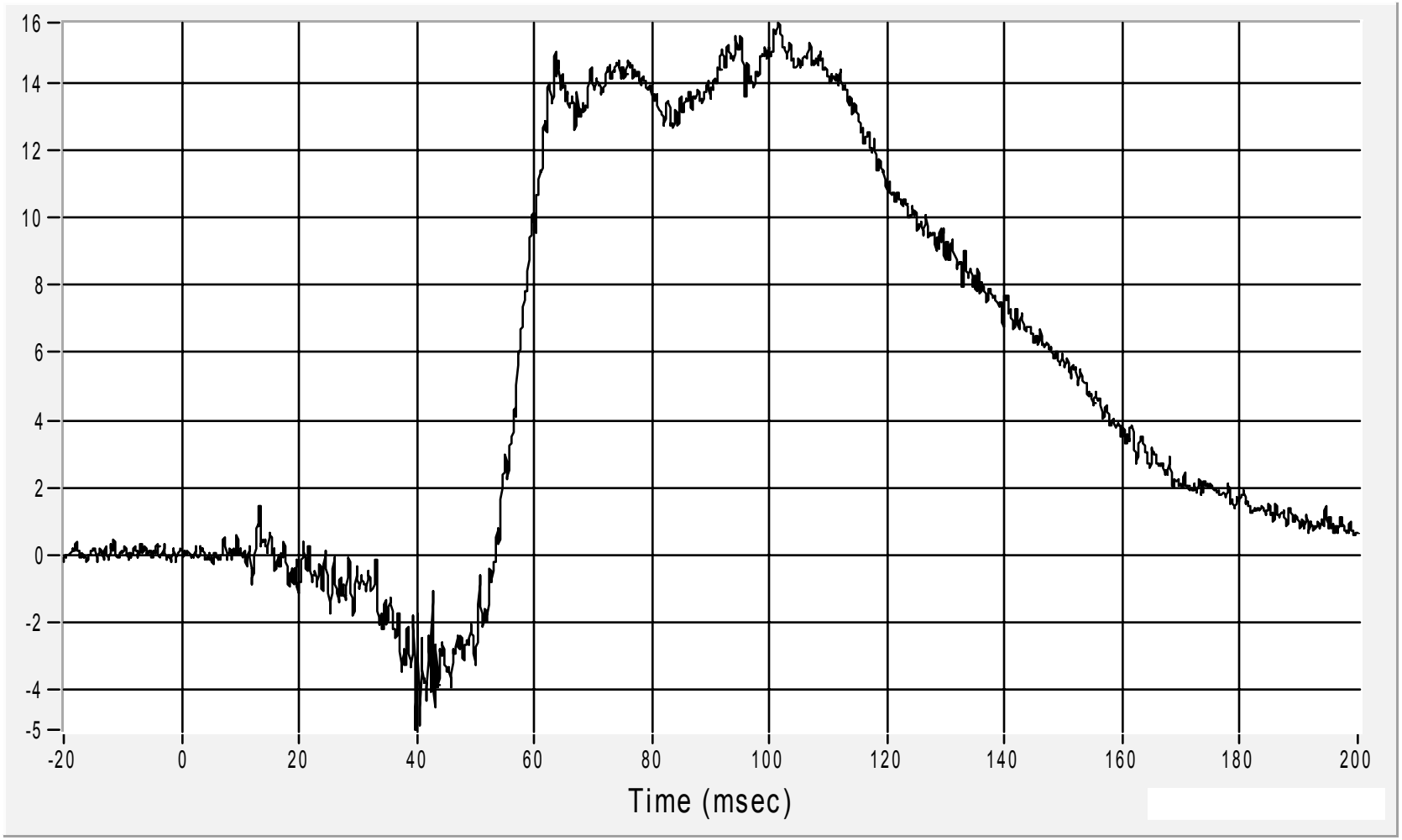
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Head CG (Y) Acceleration

Acceleration (G's) CFC1000

Max 15.8 G at 101.5 msec

Min -5.2 G at 39.8 msec



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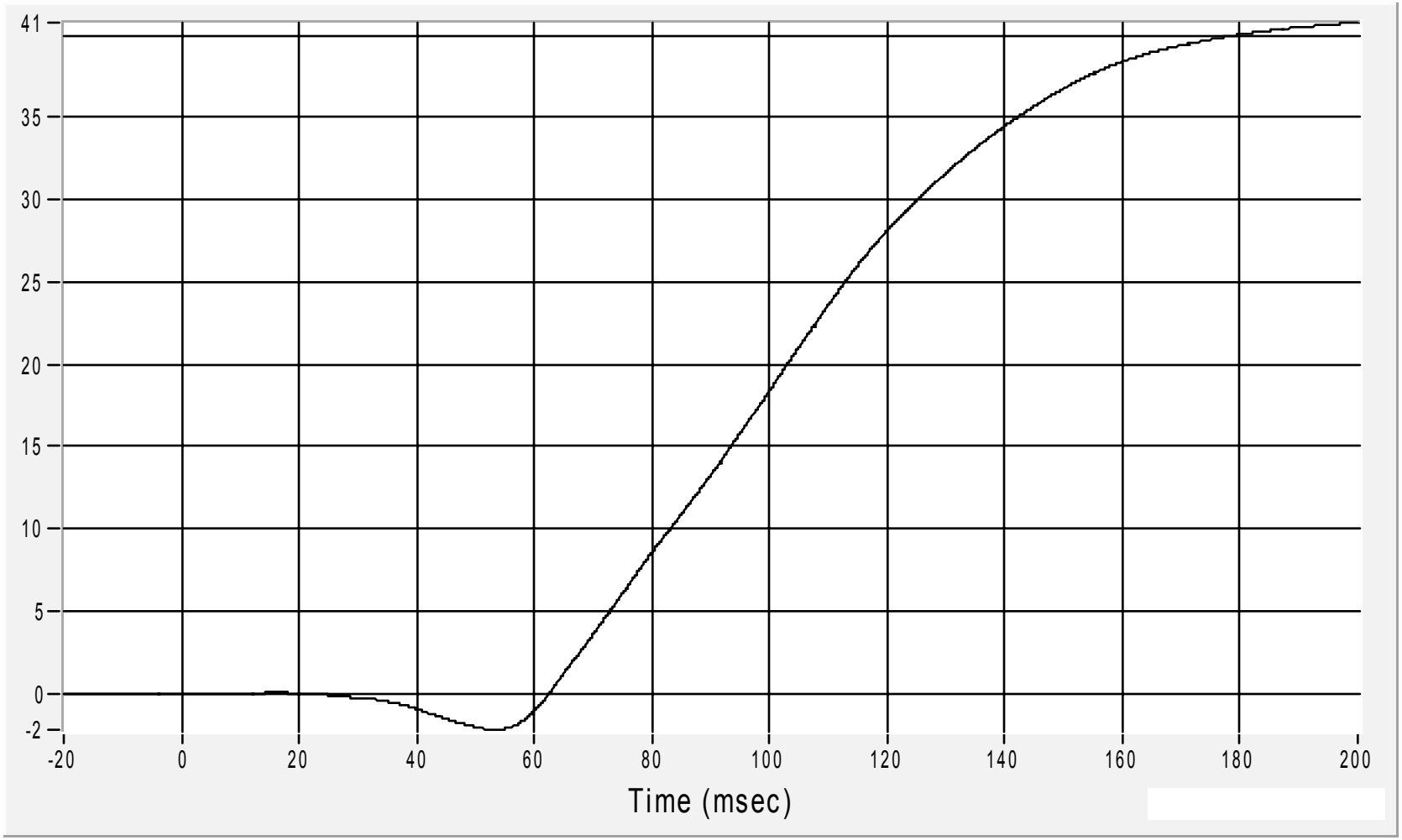
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Head CG (Y) Velocity

Velocity (km/h) CFC180

Max 40.7 km/h at 199.9 msec

Min -2.2 km/h at 53.3 msec



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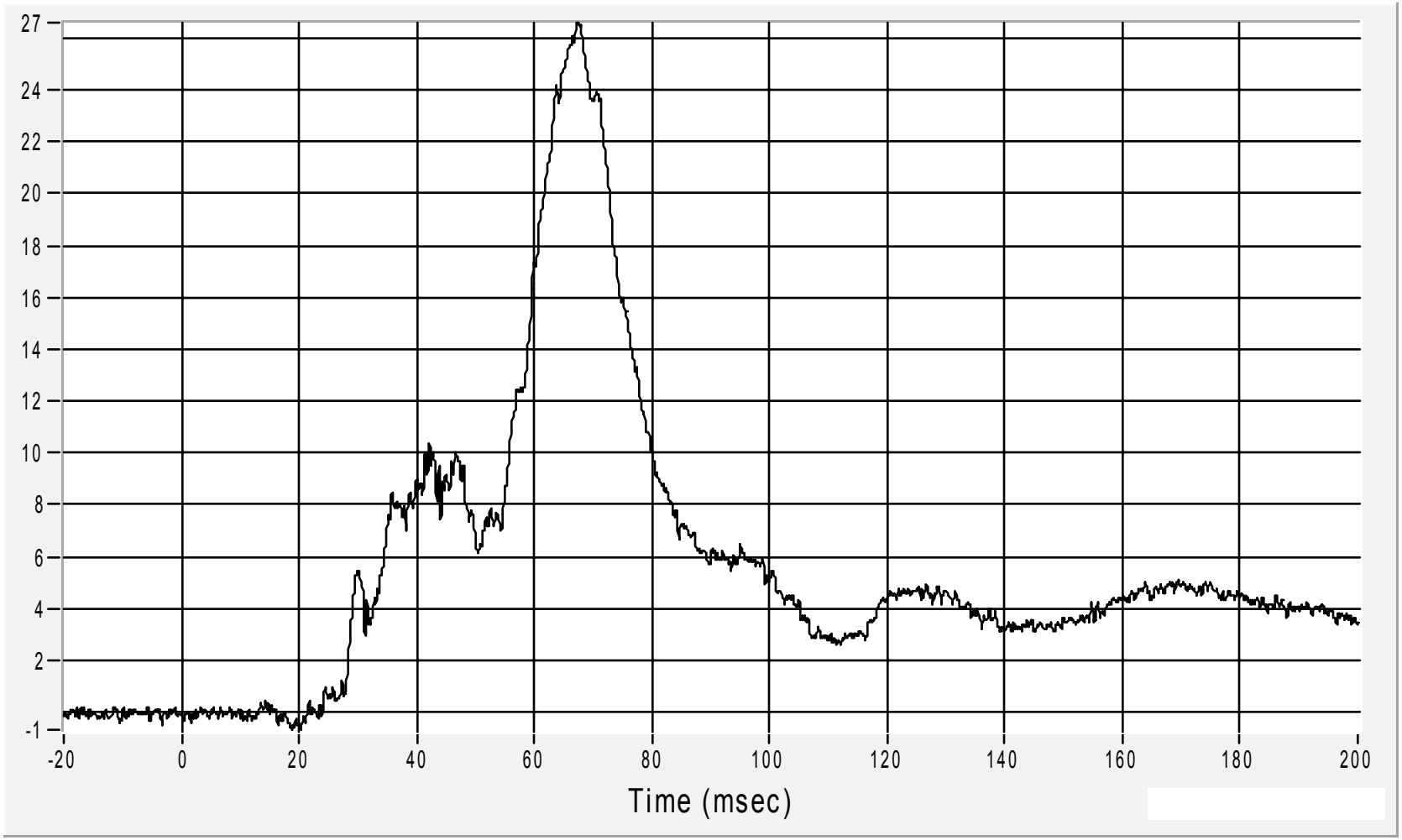
Driver Head CG (Z) Acceleration

Acceleration (G's) CFC1000

Max	**26.6**	**G**	**at**	**67.5**	**msec**
Min	**-0.7**	**G**	**at**	**18.8**	**msec**



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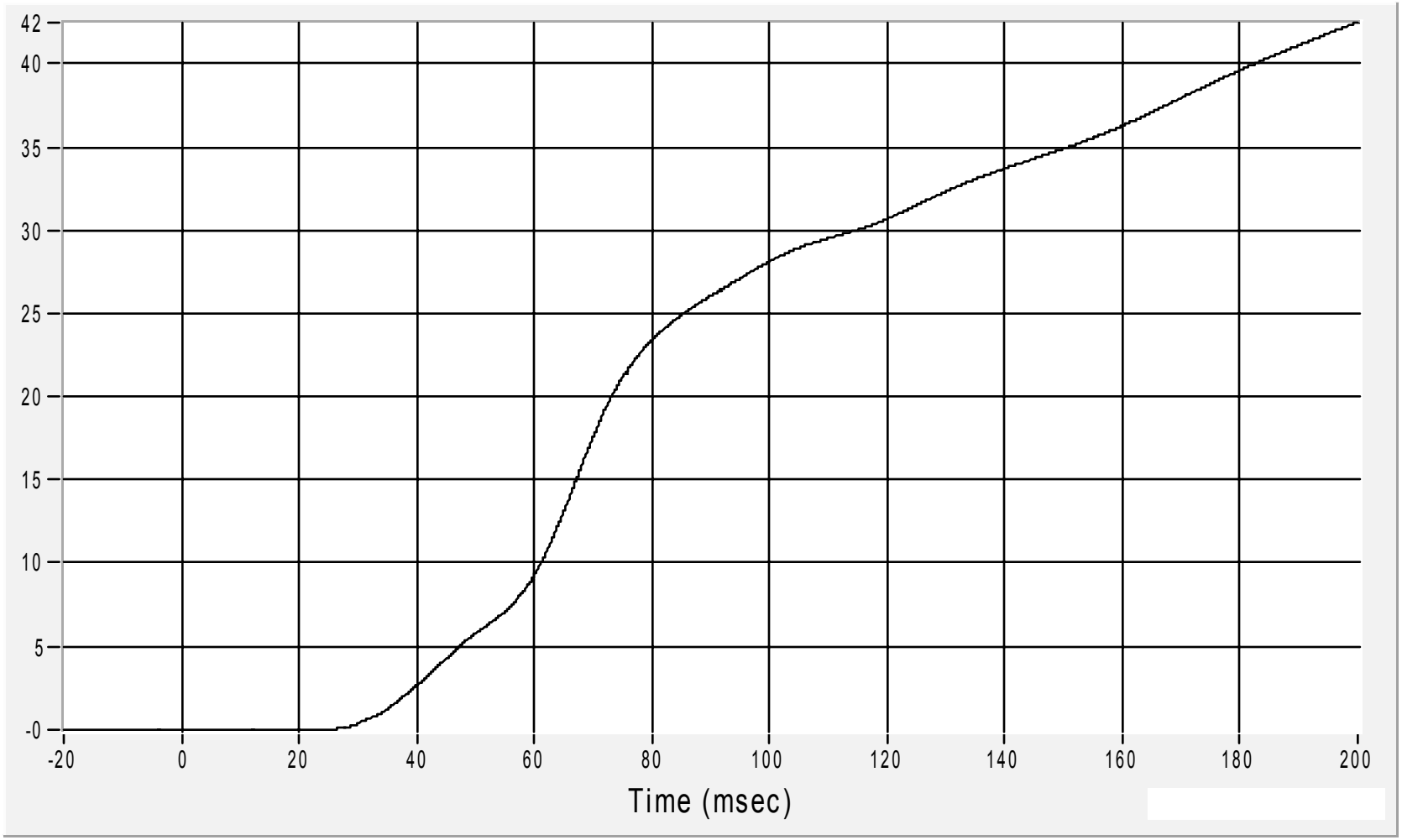
Vehicle Crashworthiness Lab

Driver Head CG (Z) Velocity

Velocity (km/h) CFC180

Max 42.5 km/h at 199.9 msec

Min 0.0 km/h at 21.4 msec



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18 November 2004

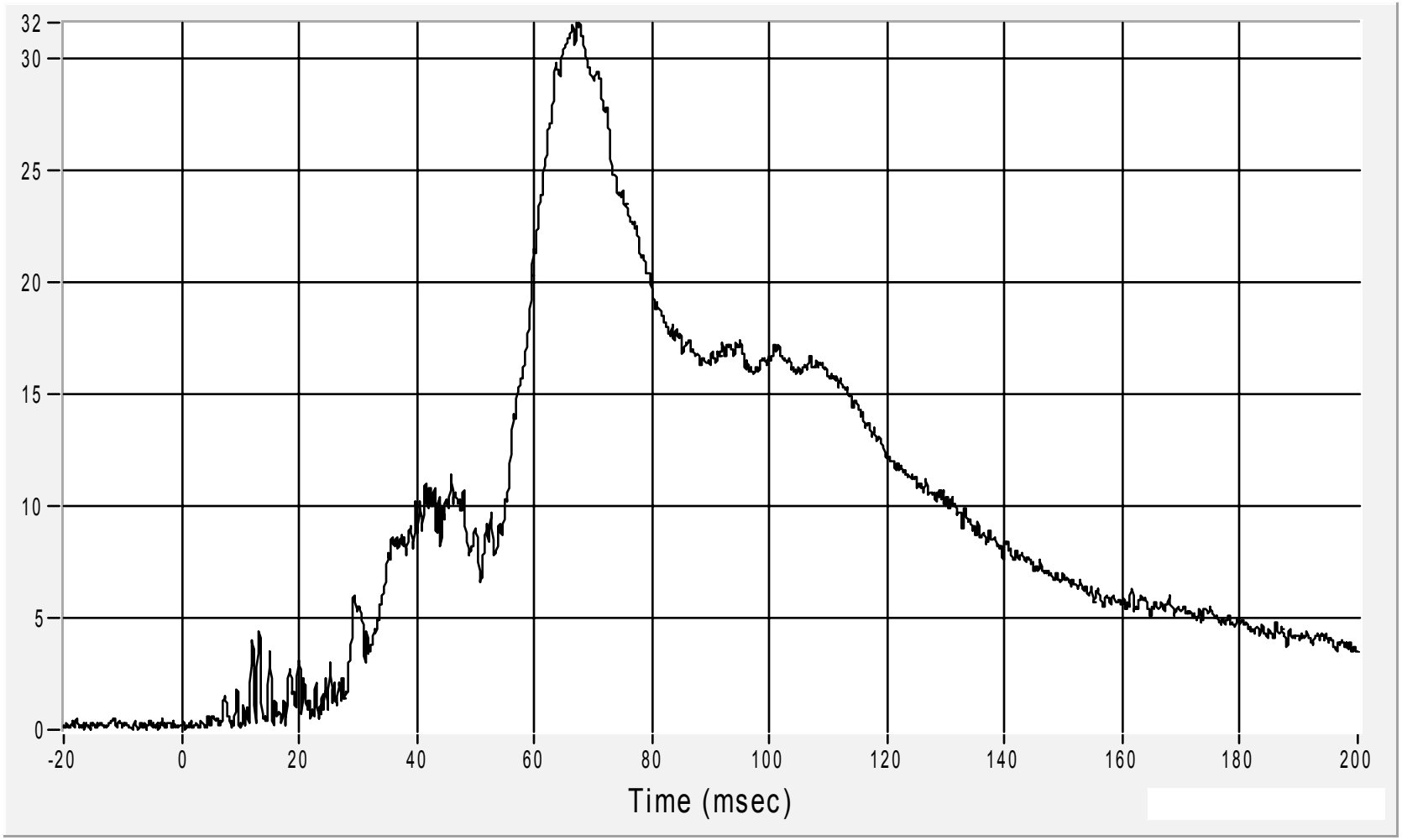
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Head Resultant Acceleration

Acceleration (G's) CFC1000

Max 31.6 G's at 67.3 msec

Min 0.0 G's at 0.7 msec



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18 November 2004

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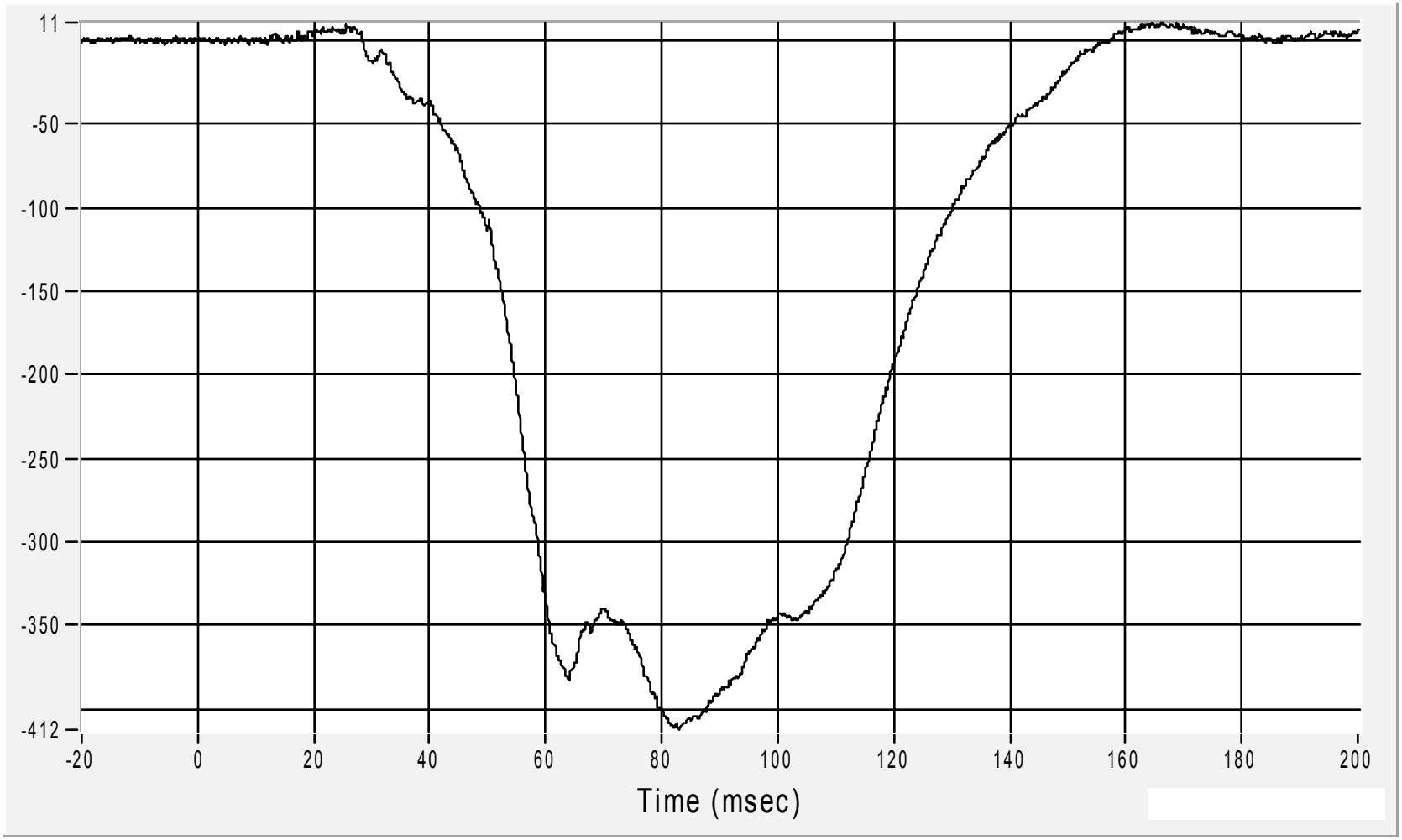
Driver Upper Neck (X) Force

Force (N) CFC1000

Max 10.7 N at 166.2 msec

Min -412.3 N at 83.0 msec



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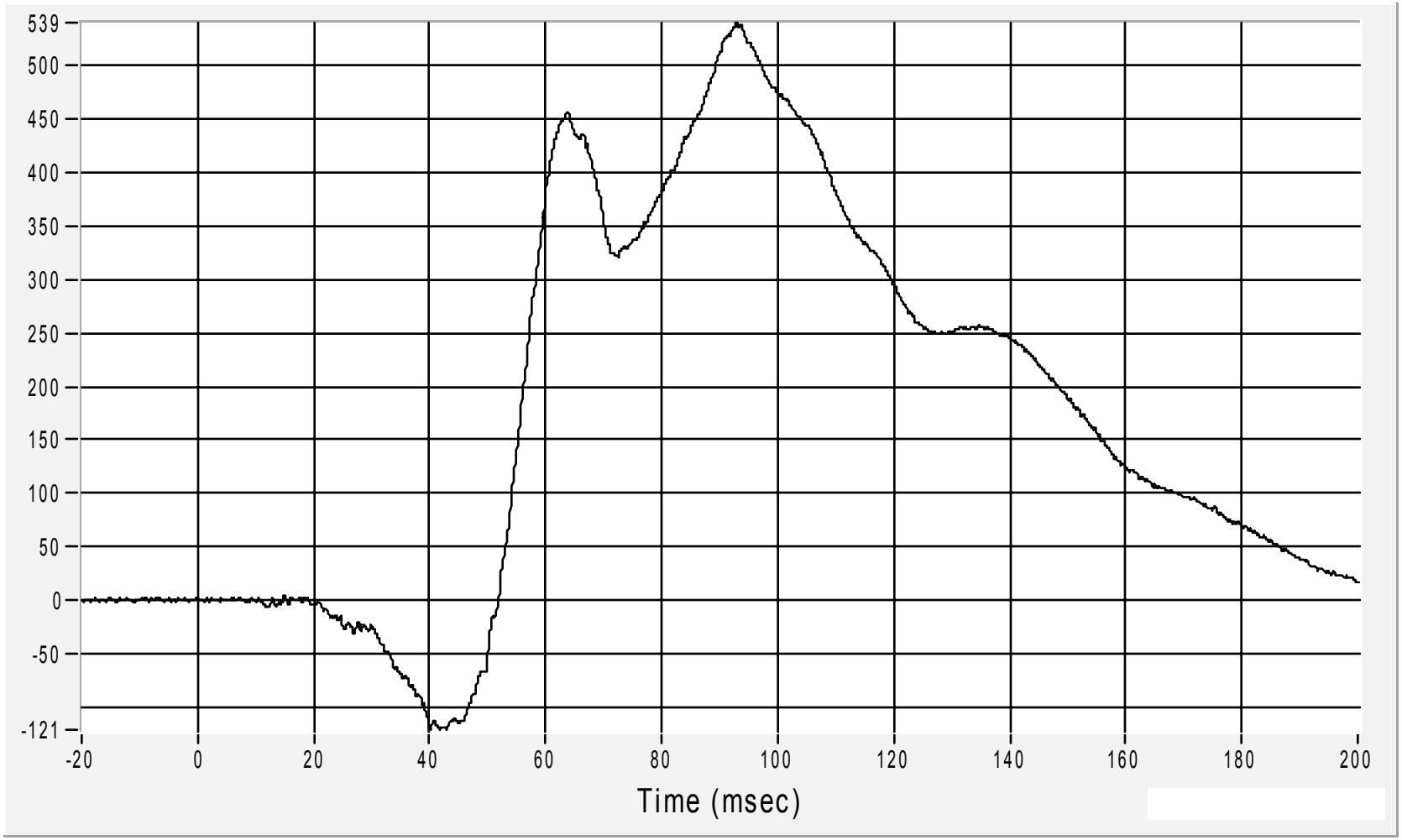
Driver Upper Neck (Y) Force

Force (N) CFC1000

Max 539.5 N at 92.9 msec

Min -120.6 N at 40.2 msec



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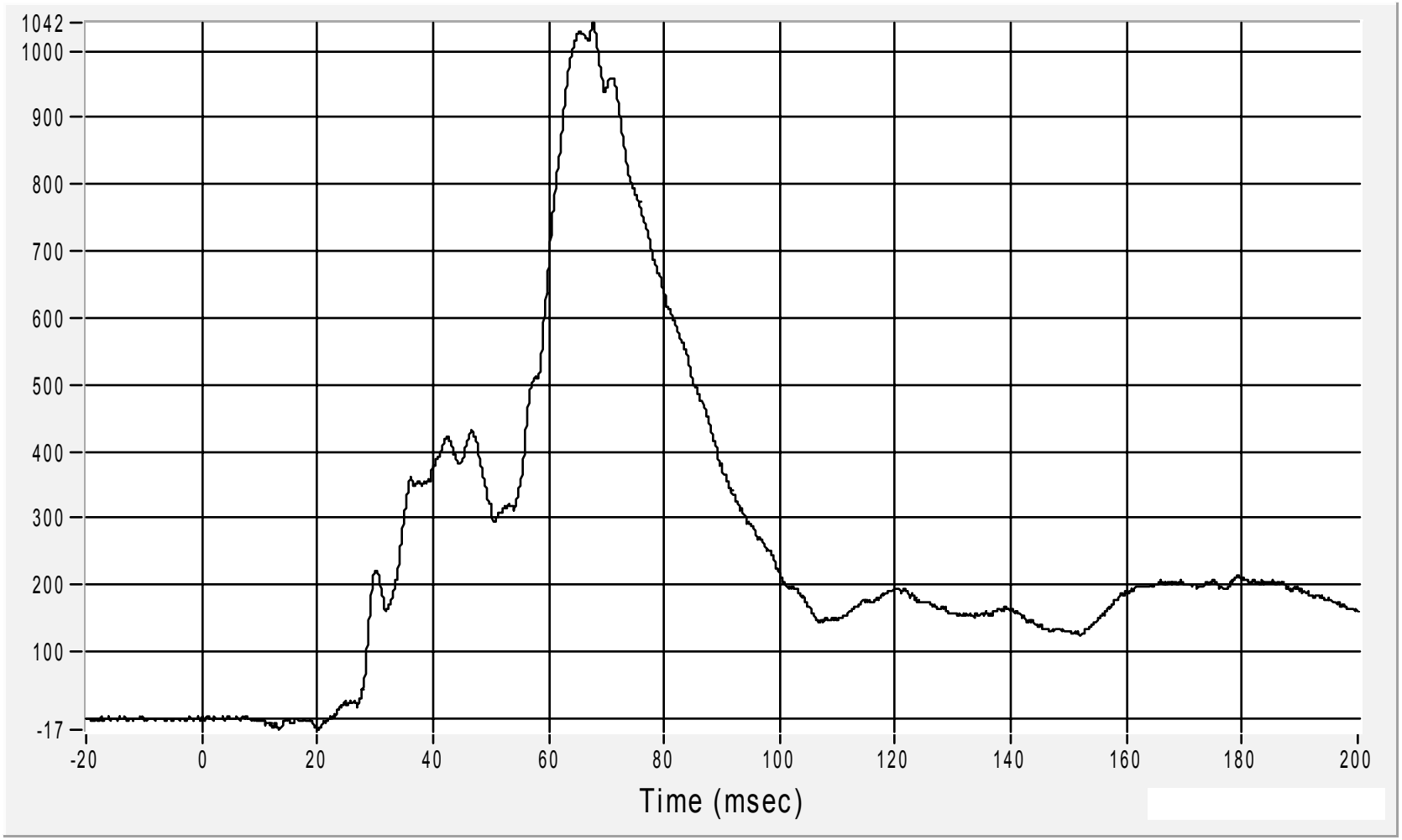
Vehicle Crashworthiness Lab

Driver Upper Neck (Z) Force

Force (N) CFC1000

Max 1042.3 N at 67.8 msec

Min -17.0 N at 20.2 msec



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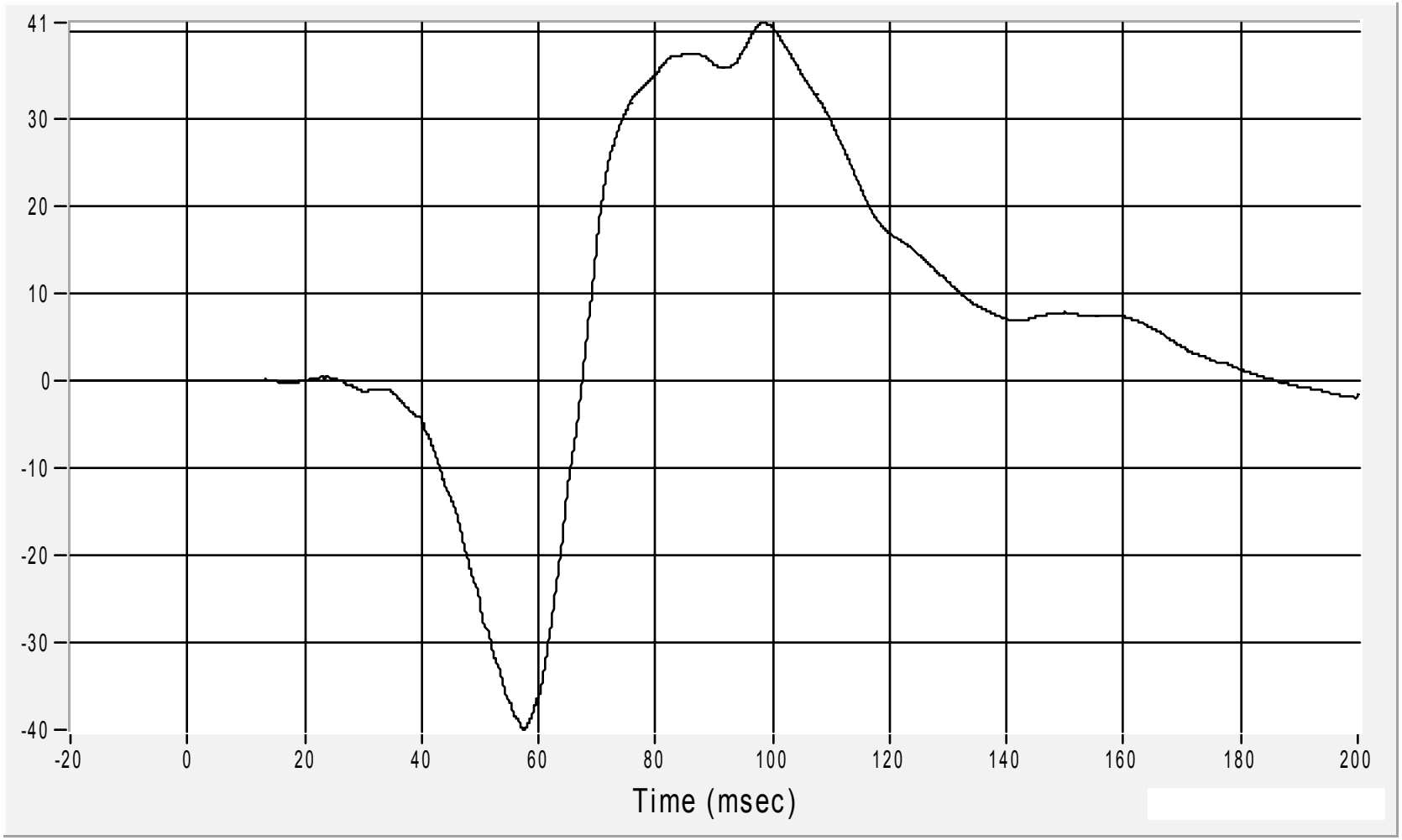
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Upper Neck (X) Moment

Moment (Nm) CFC600

Max 40.9 Nm at 98.4 msec

Min -40.0 Nm at 57.5 msec



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18 November 2004

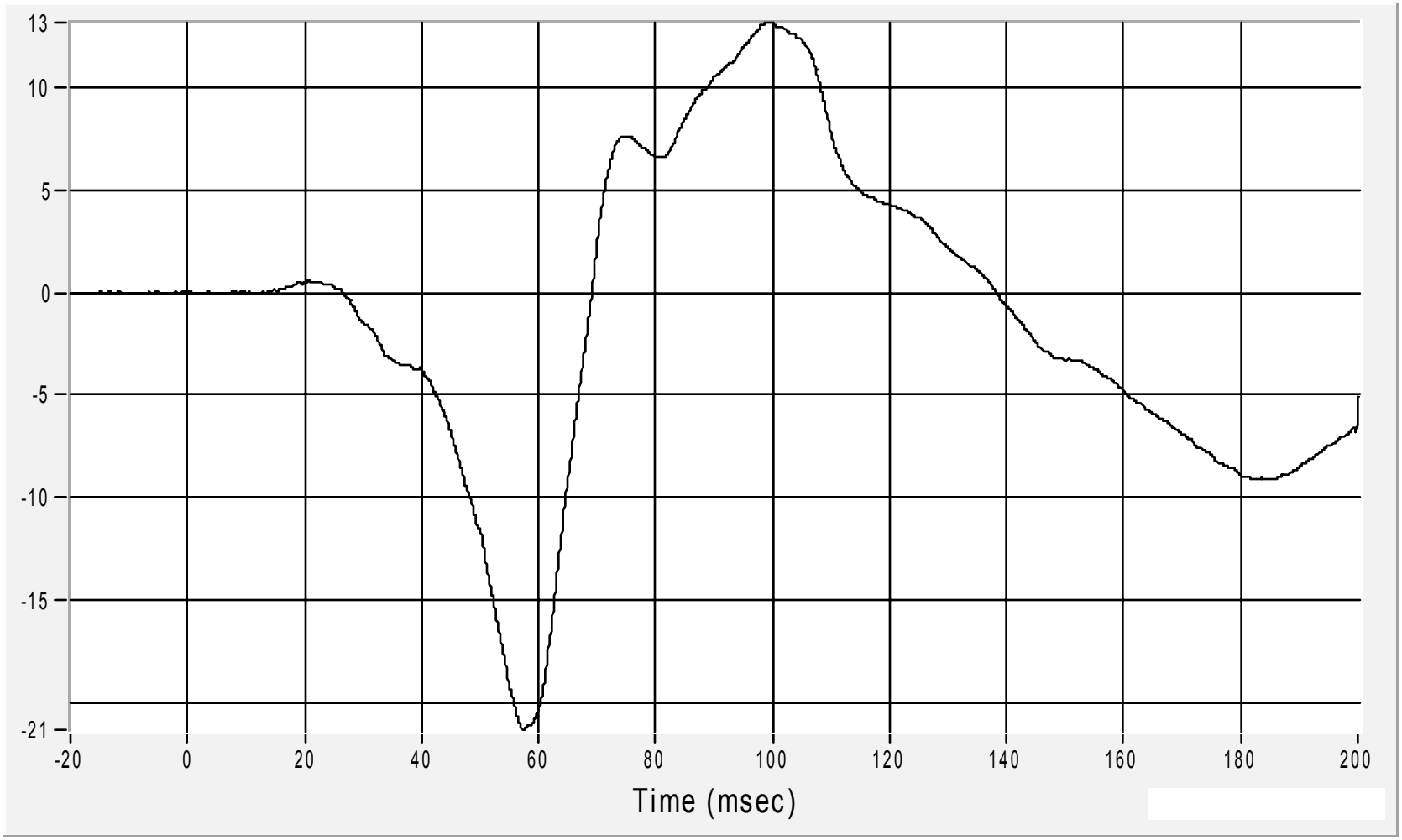
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Upper Neck (Y) Moment

Moment (Nm) CFC600

Max 13.2 Nm at 99.9 msec

Min -21.3 Nm at 57.4 msec



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18 November 2004

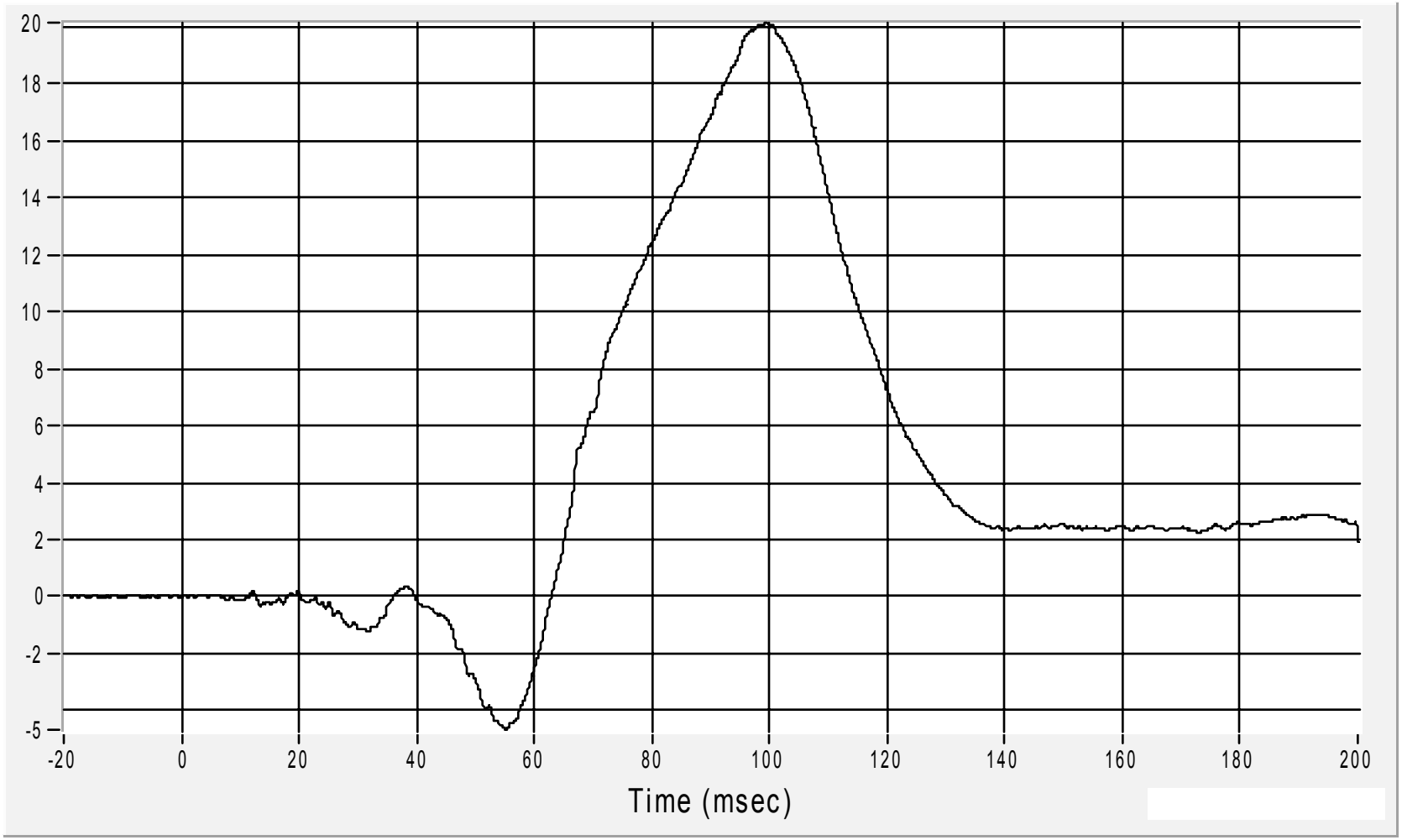
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Upper Neck (Z) Moment

Moment (Nm) CFC600

Max 20.1 Nm at 99.4 msec

Min -4.7 Nm at 55.1 msec



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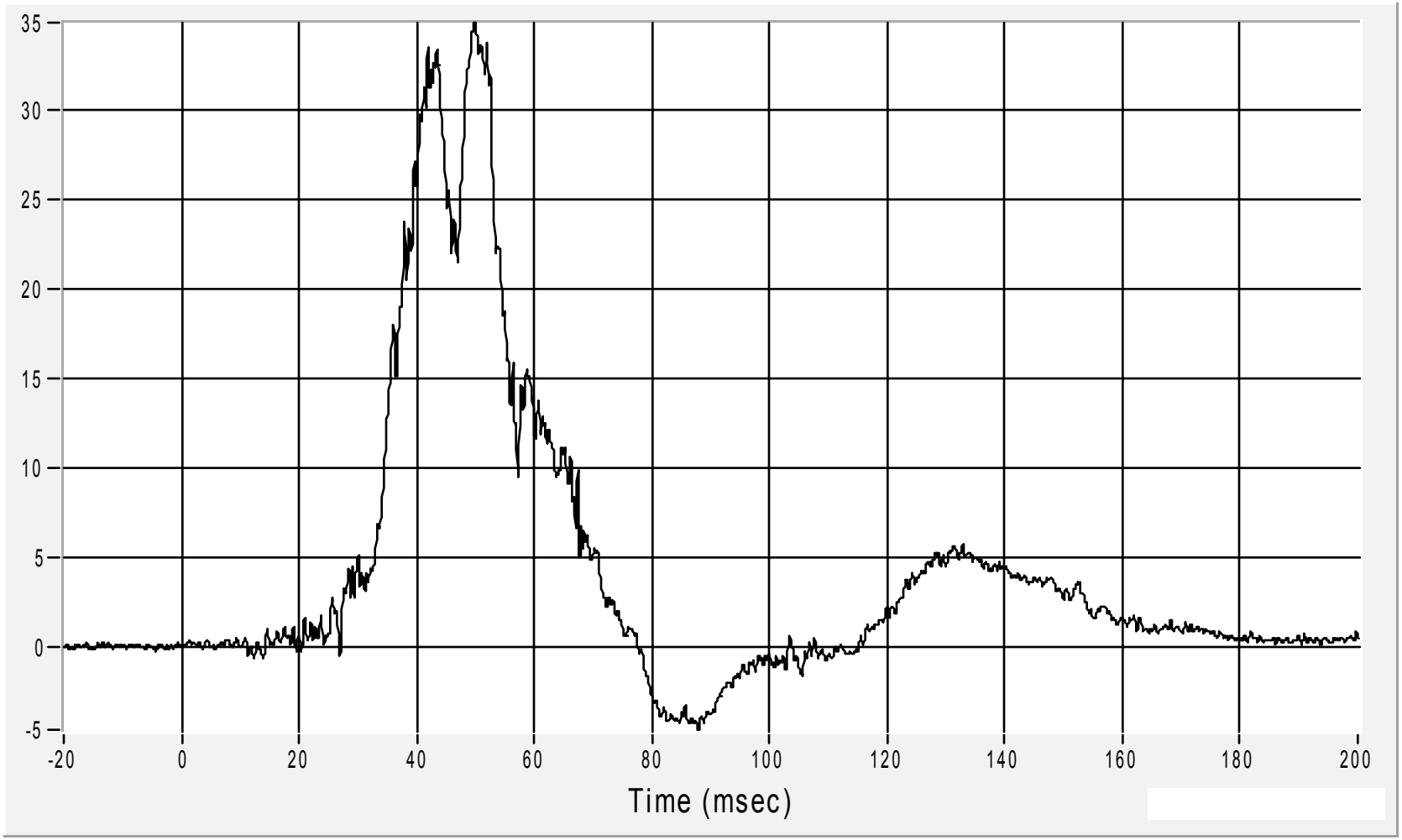
Vehicle Crashworthiness Lab

Driver Upper Rib (Y) Acceleration

Acceleration (G's) CFC1000

Max	**34.9**	**G**	**at**	**49.8**	**msec**
Min	**-4.6**	**G**	**at**	**87.8**	**msec**



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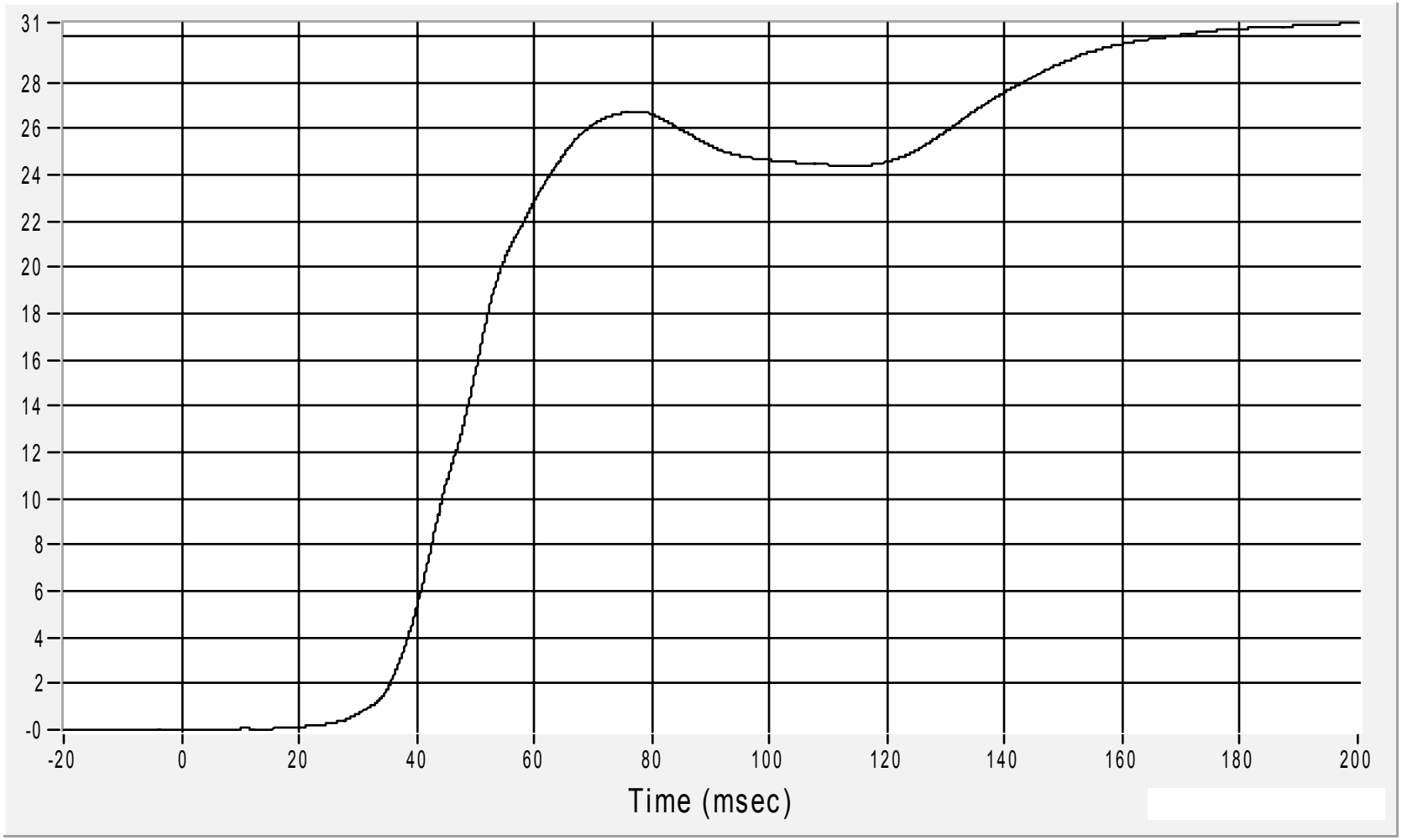
Vehicle Crashworthiness Lab

Driver Upper Rib (Y) Velocity

Velocity (km/h) CFC180

Max 30.6 km/h at 199.9 msec

Min 0.0 km/h at 0.0 msec



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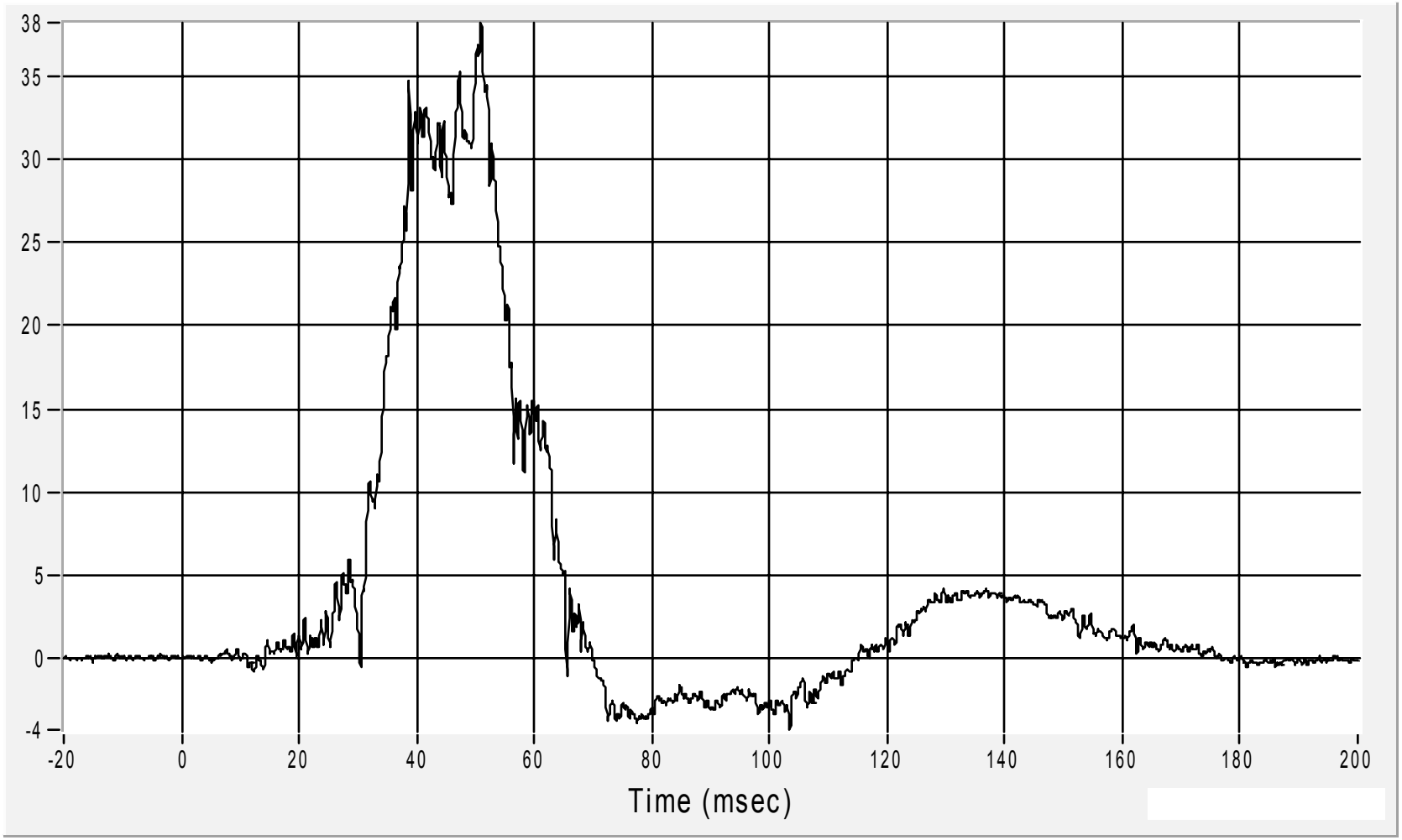
Vehicle Crashworthiness Lab

Driver Lower Rib (Y) Acceleration

Acceleration (G's) CFC1000

Max 38.2 G at 51.0 msec

Min -4.2 G at 103.4 msec



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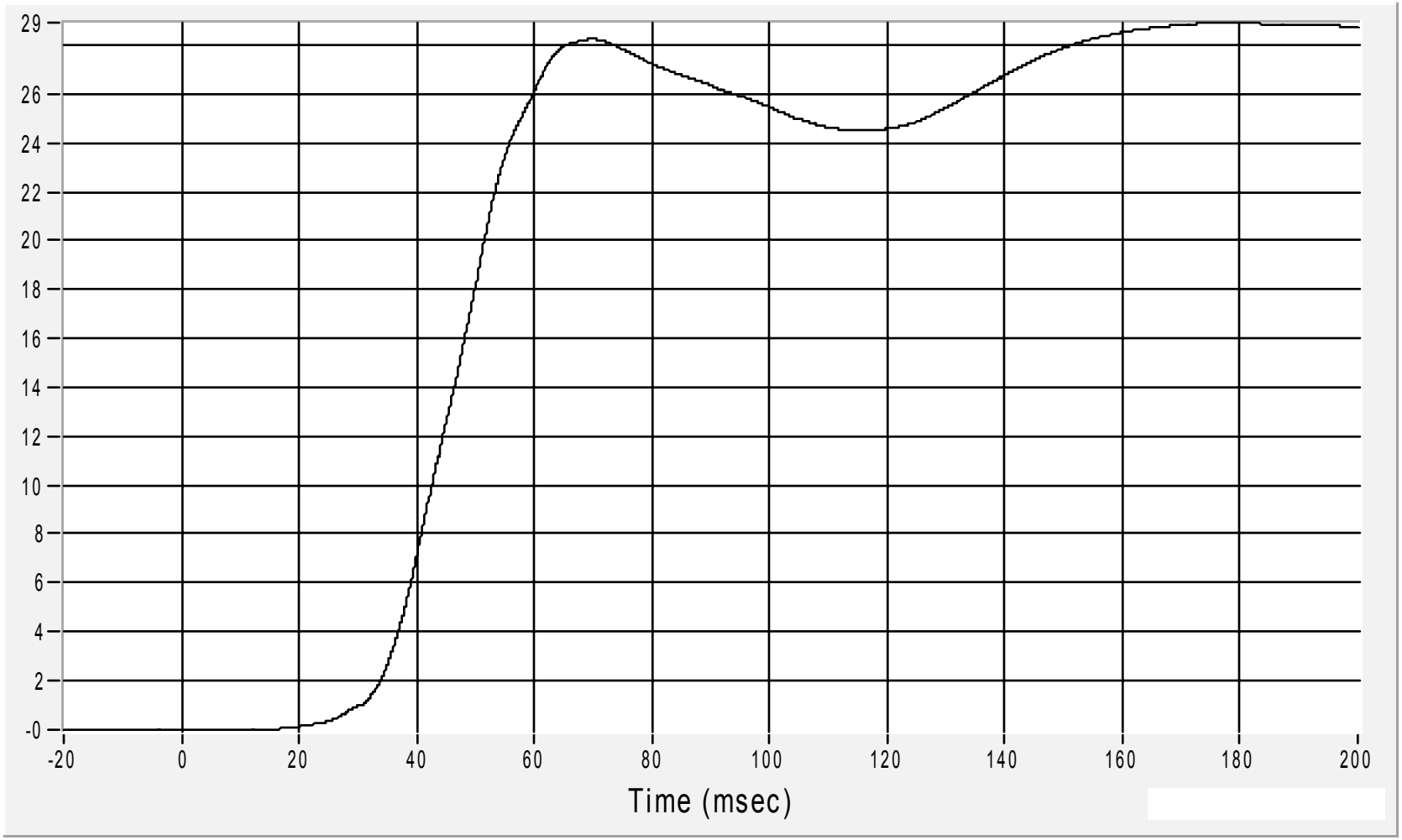
Vehicle Crashworthiness Lab

Driver Lower Rib (Y) Velocity

Velocity (km/h) CFC180

Max 28.9 km/h at 176.7 msec

Min 0.0 km/h at 14.1 msec



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18 November 2004

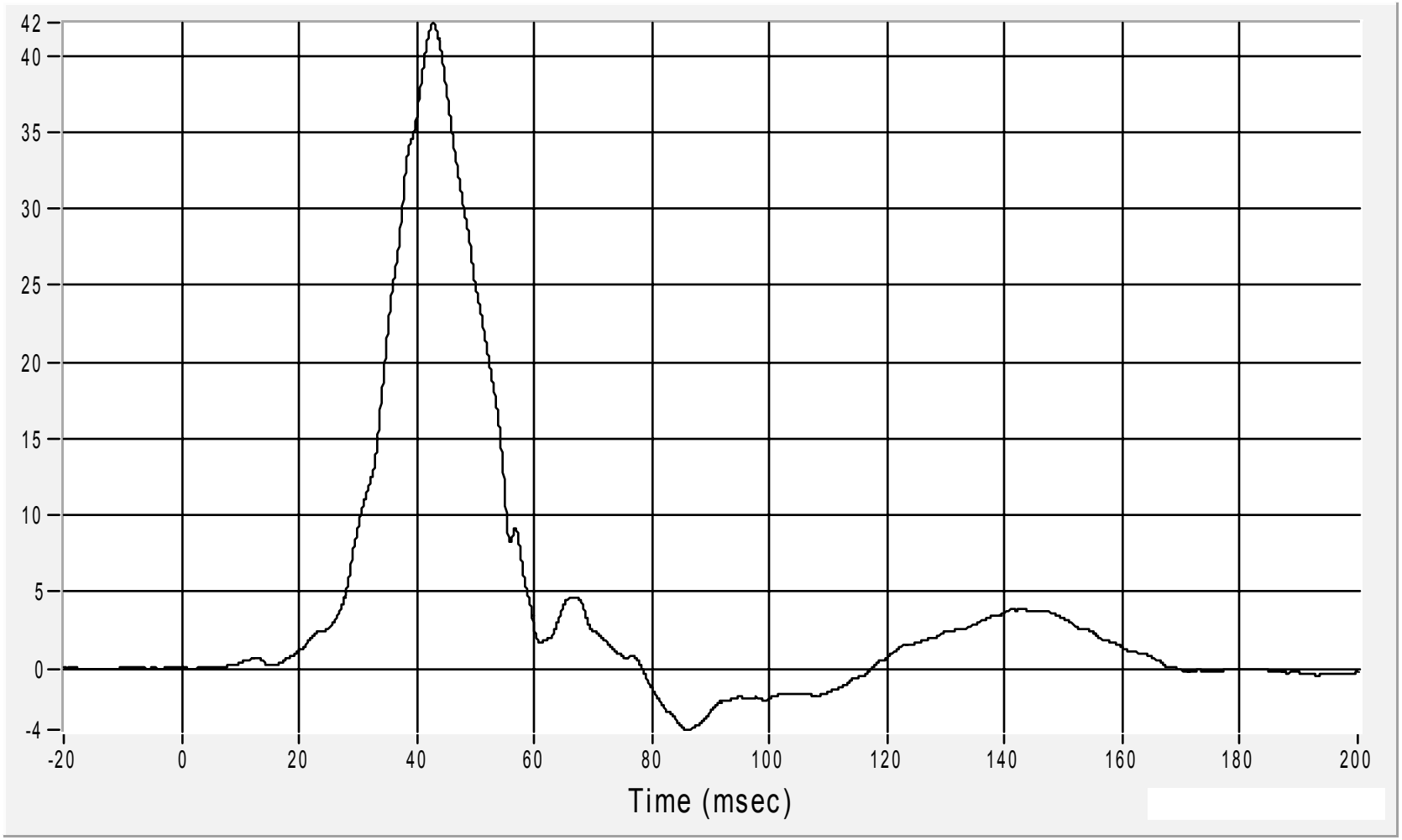
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Lower Spine (Y) Acceleration

Acceleration (G's) CFC180

Max 42.1 G at 42.8 msec

Min -4.0 G at 86.0 msec



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18 November 2004

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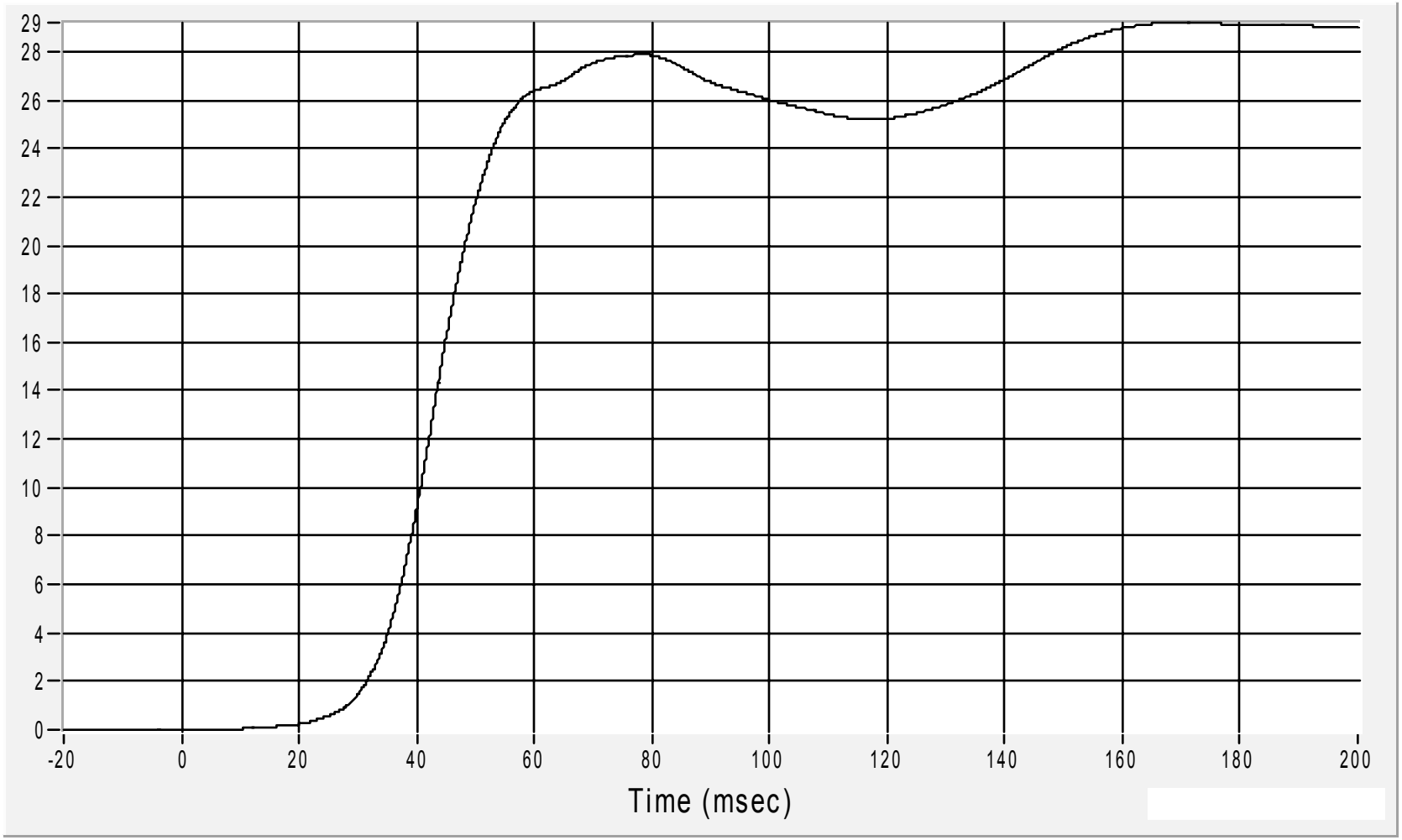
Vehicle Crashworthiness Lab

Driver Lower Spine (Y) Velocity

Velocity (km/h) CFC180

Max 29.2 km/h at 169.4 msec

Min 0.0 km/h at 0.0 msec



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18 November 2004

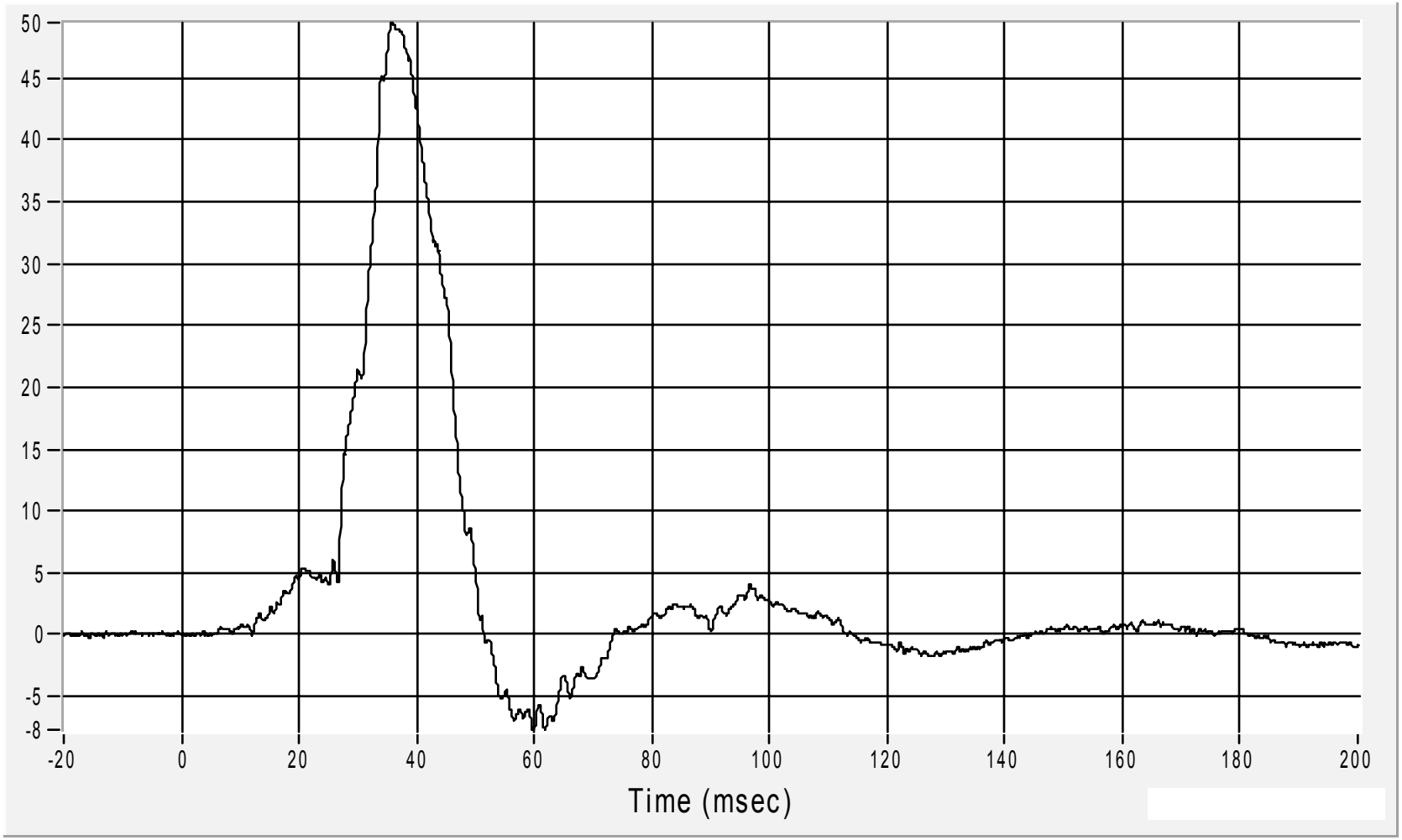
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Pelvic (Y) Acceleration

Acceleration (G's) CFC1000

Max 49.5 G at 35.8 msec

Min -7.7 G at 59.8 msec



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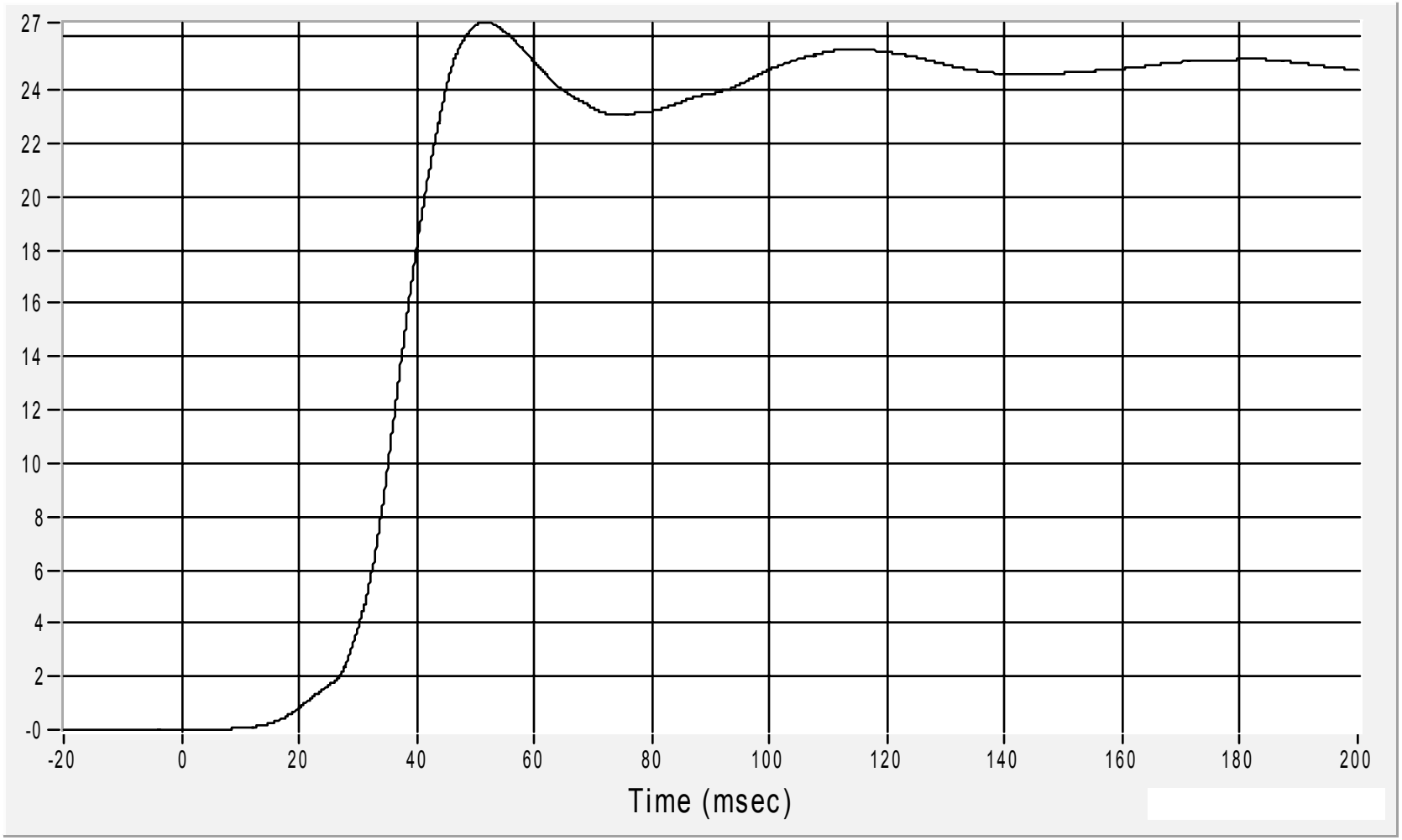
Driver Pelvic (Y) Velocity

Velocity (km/h) CFC180

Max 26.5 km/h at 51.5 msec

Min 0.0 km/h at 1.4 msec



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18 November 2004

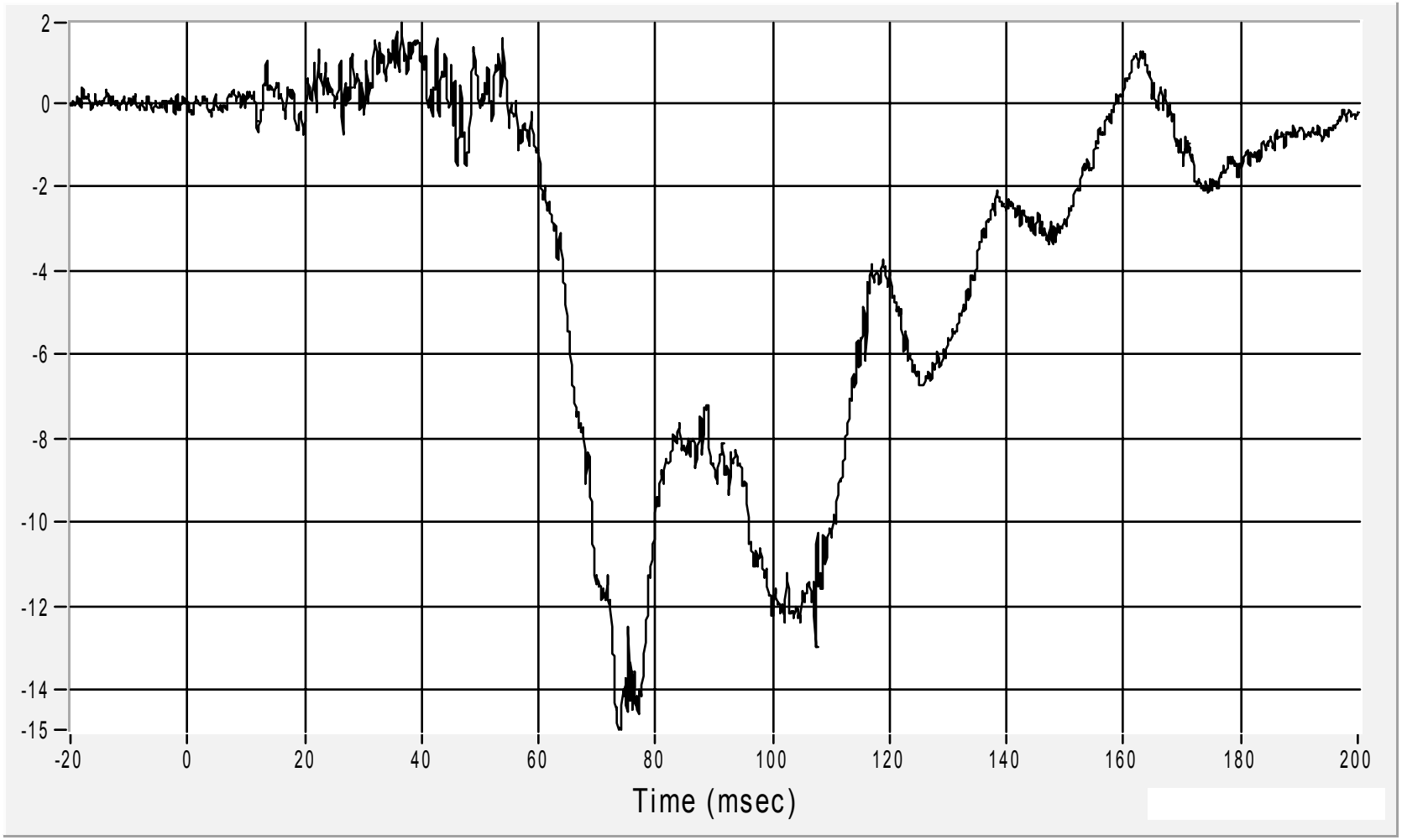
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Head CG (X) Acceleration

Acceleration (G's) CFC1000

Max 1.9 G at 36.6 msec

Min -14.9 G at 73.6 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

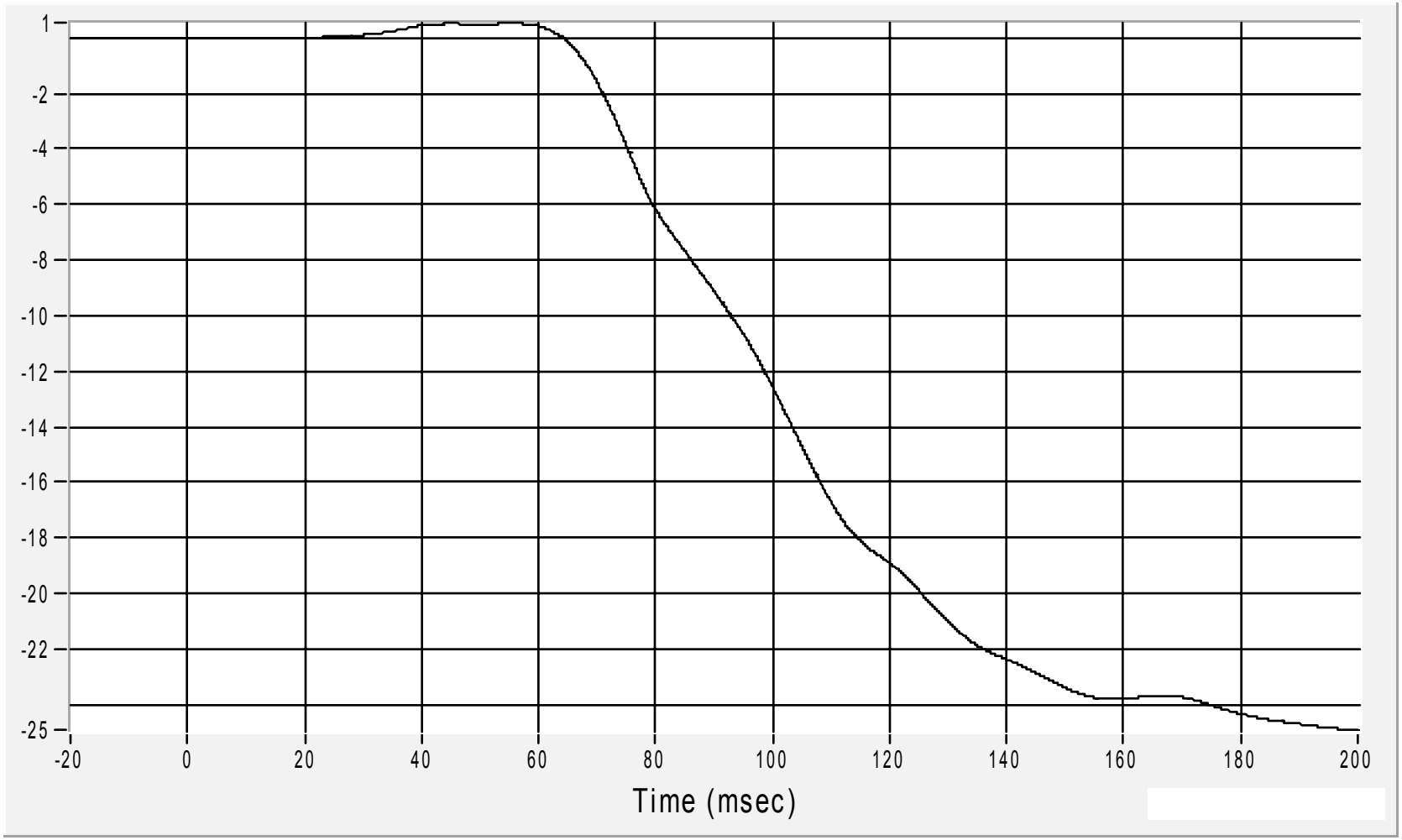
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Head CG (X) Velocity

Velocity (km/h) CFC180

Max 0.5 km/h at 54.9 msec

Min -24.9 km/h at 199.9 msec



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18 November 2004

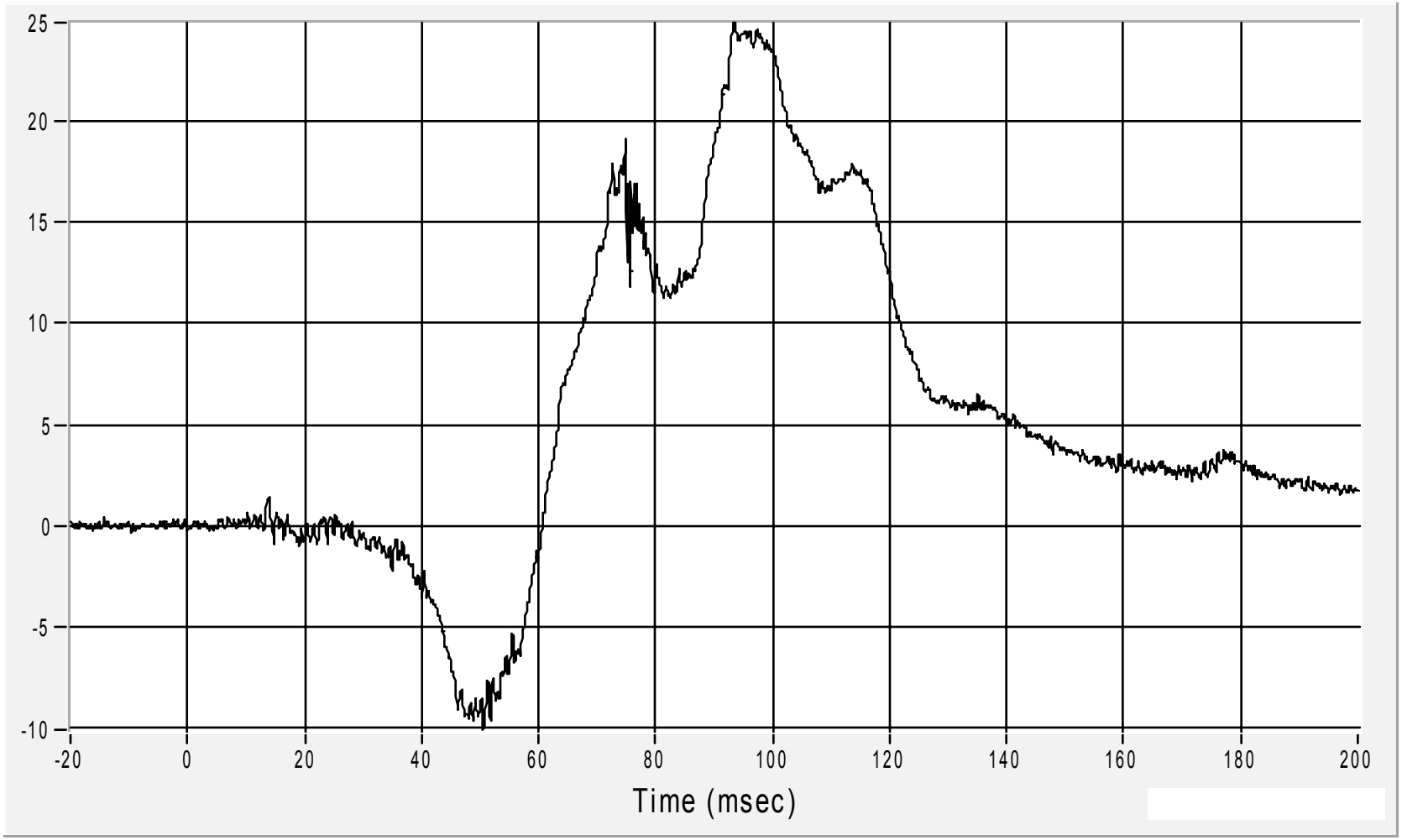
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Head CG (Y) Acceleration

Acceleration (G's) CFC1000

Max 24.9 G at 93.4 msec

Min -10.1 G at 50.6 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

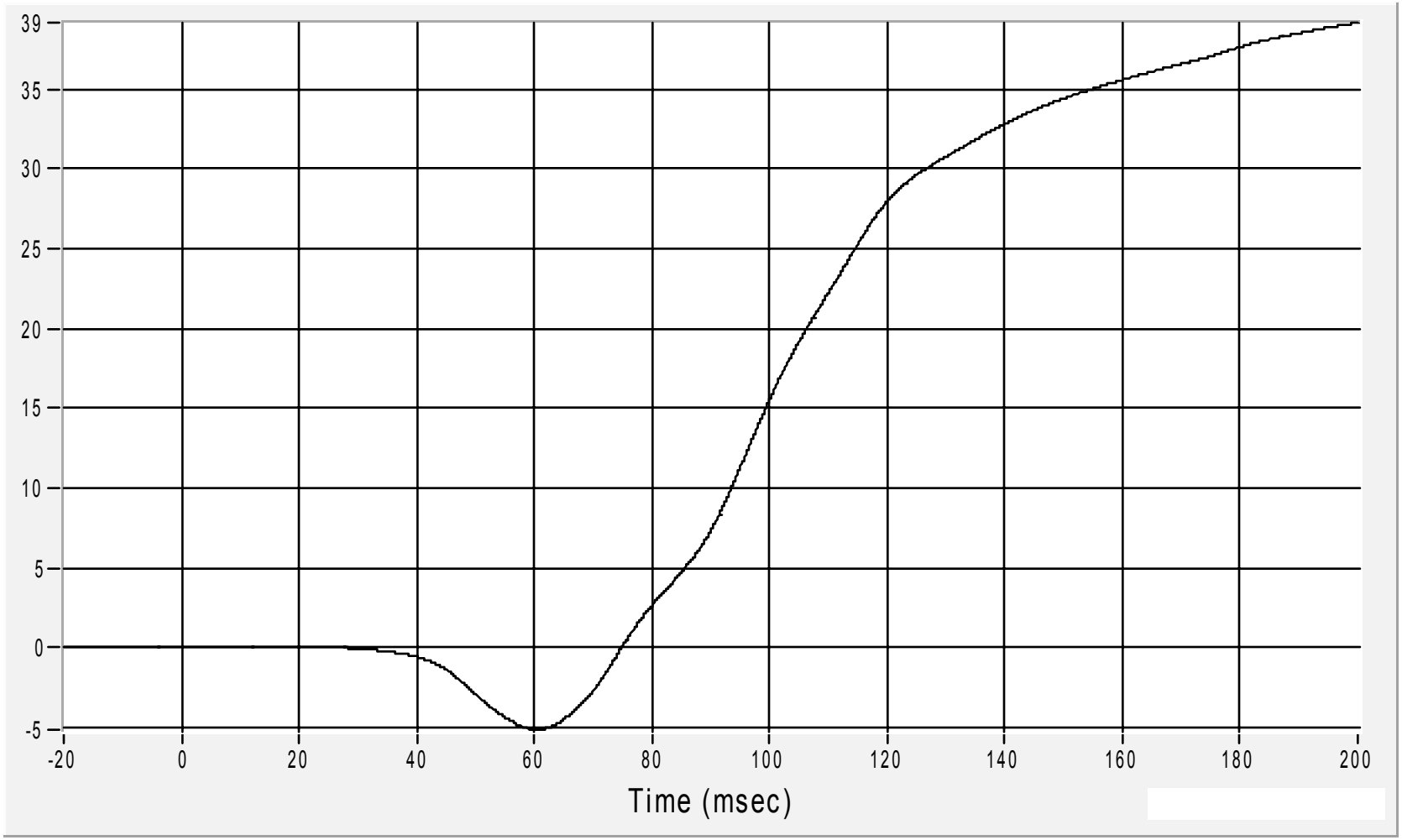
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Head CG (Y) Velocity

Velocity (km/h) CFC180

Max 39.2 km/h at 199.9 msec

Min -5.1 km/h at 60.6 msec



05SN01 - 2005 FORD FREESTYLE MPV

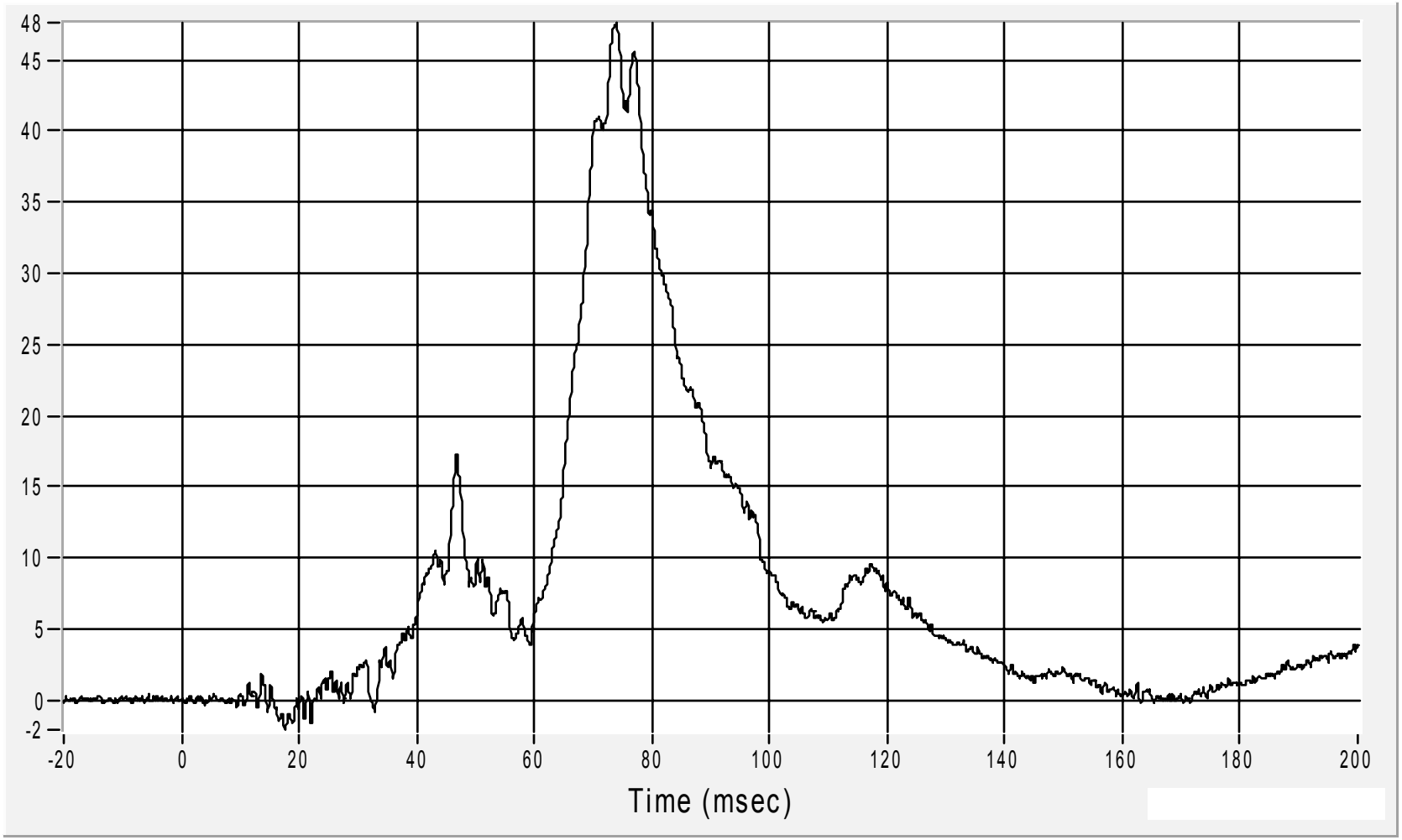
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Head CG (Z) Acceleration

Acceleration (G's) CFC1000

Max	**47.6**	**G**	**at**	**74.0**	**msec**
Min	**-2.1**	**G**	**at**	**17.6**	**msec**



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

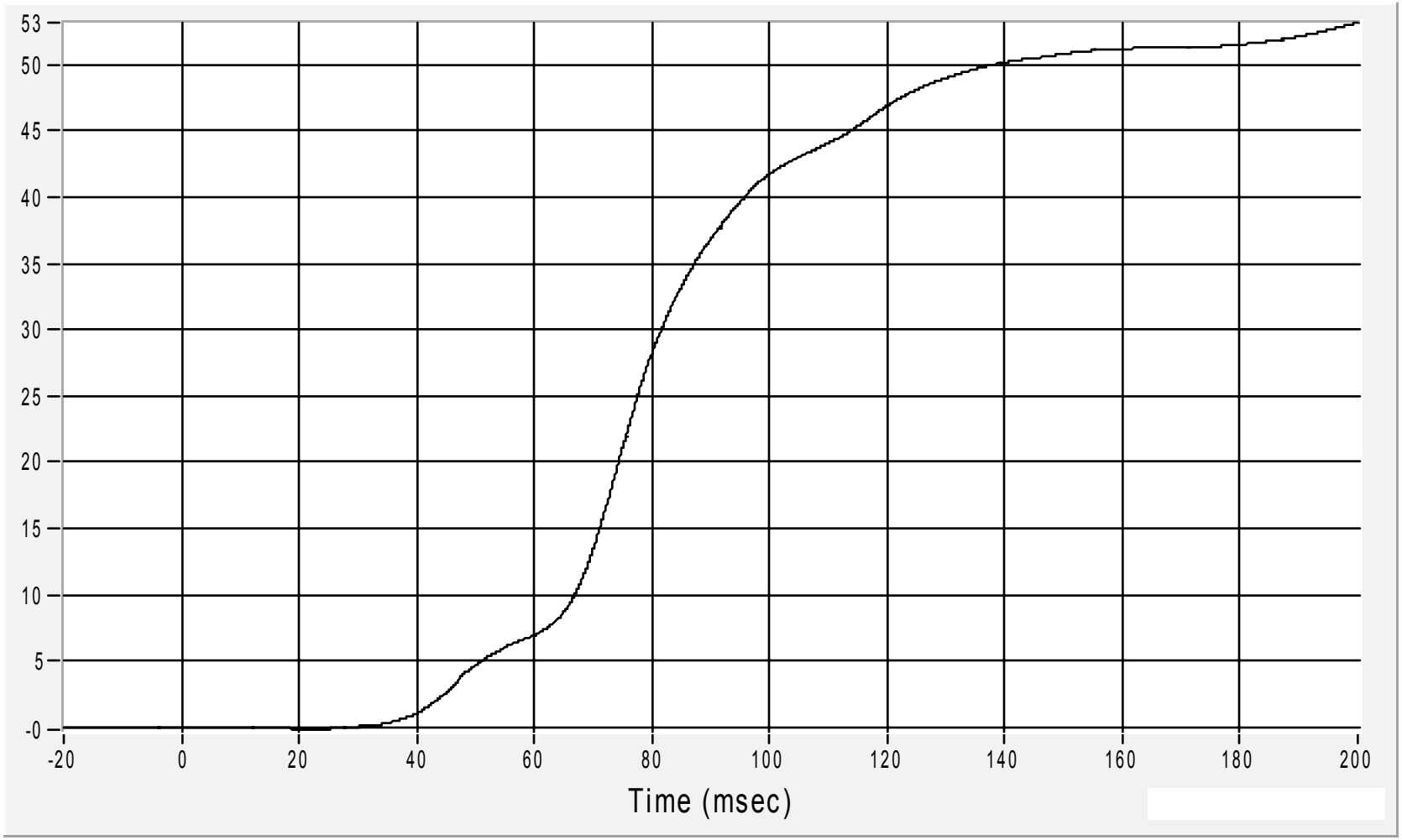
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Head CG (Z) Velocity

Velocity (km/h) CFC180

Max 53.1 km/h at 199.9 msec

Min -0.2 km/h at 22.7 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

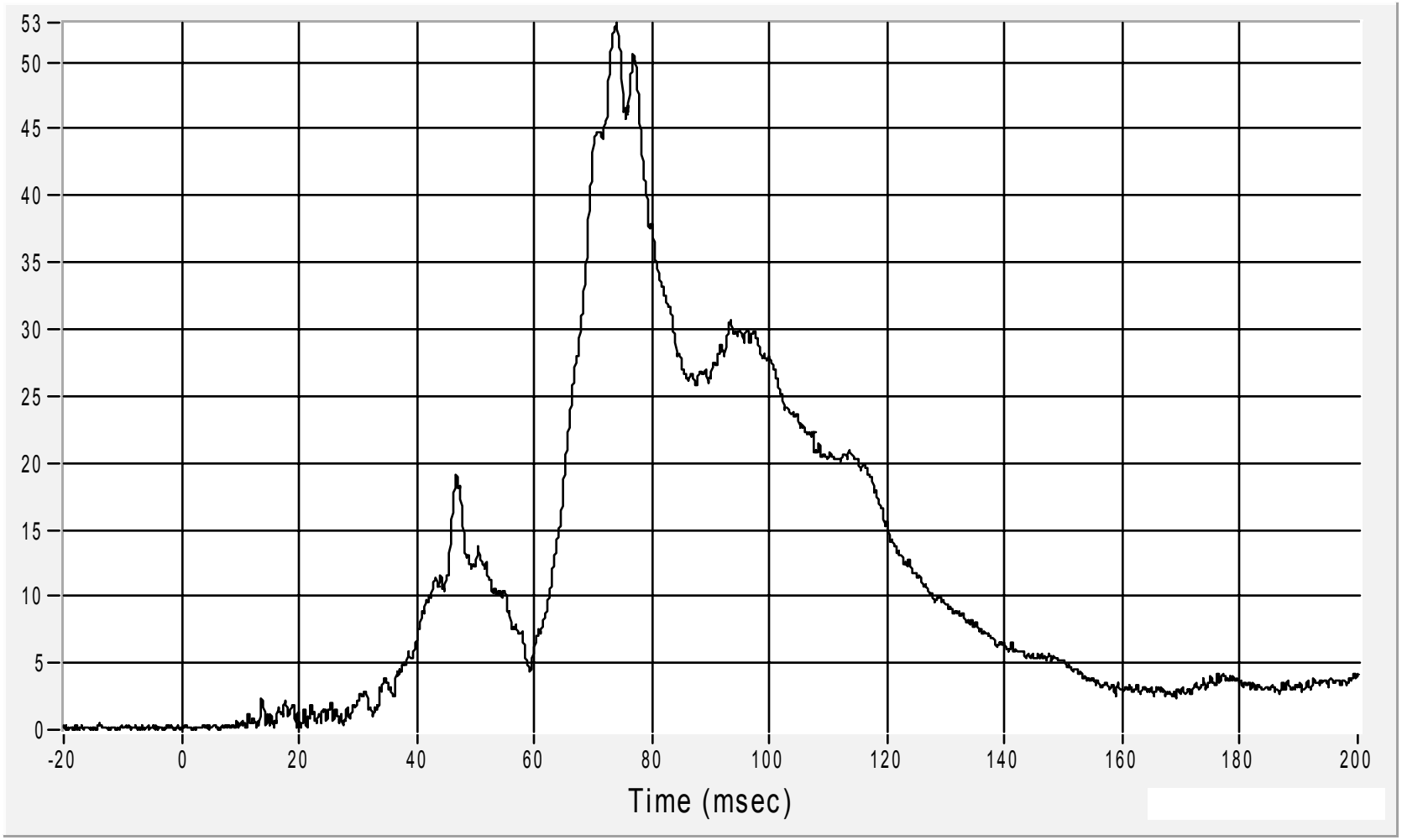
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Head Resultant Acceleration

Acceleration (G's) CFC1000

Max 53.0 G's at 74.0 msec

Min 0.1 G's at 1.9 msec



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18 November 2004

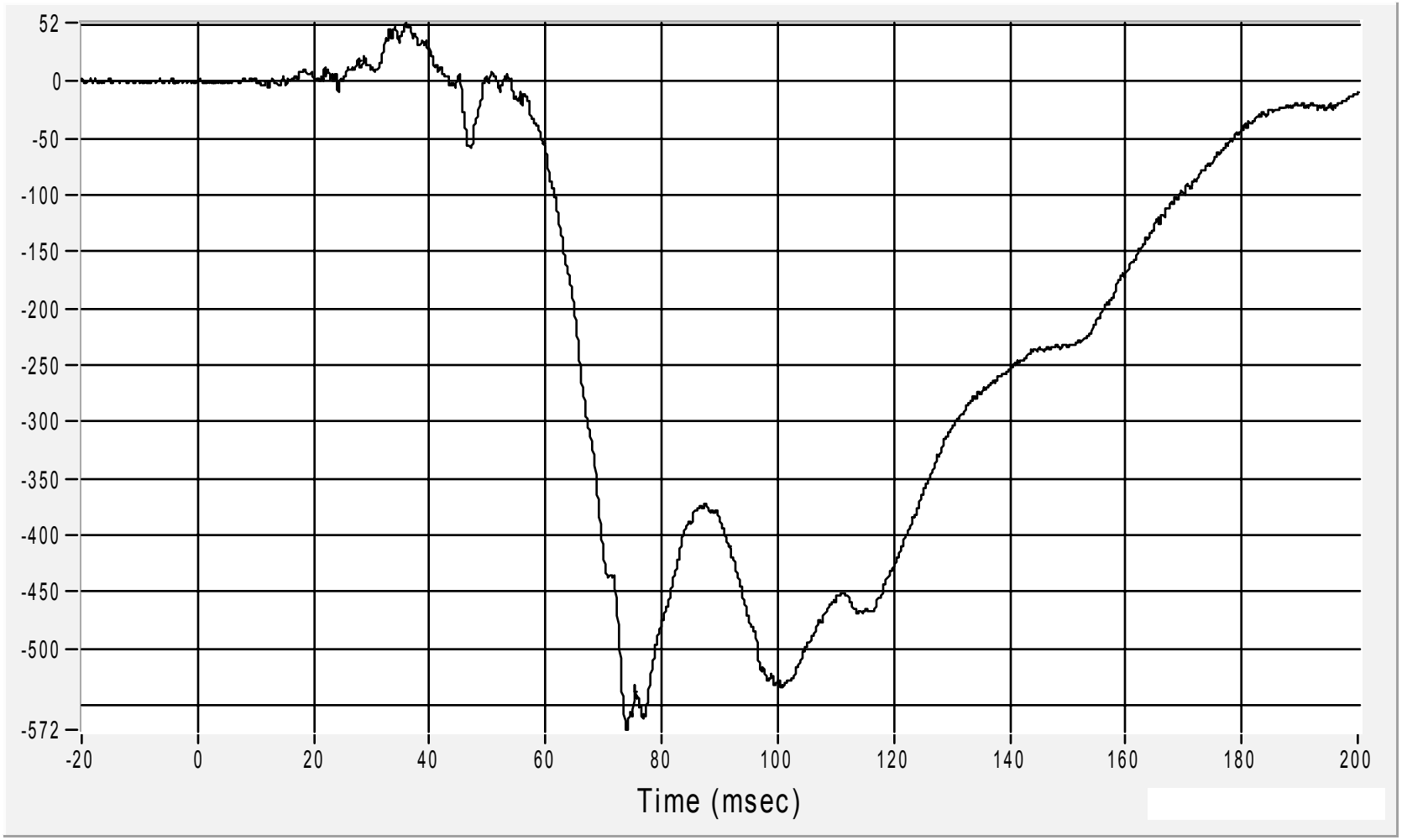
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Upper Neck (X) Force

Force (N) CFC1000

Max 52.3 N at 35.8 msec

Min -572.0 N at 74.0 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

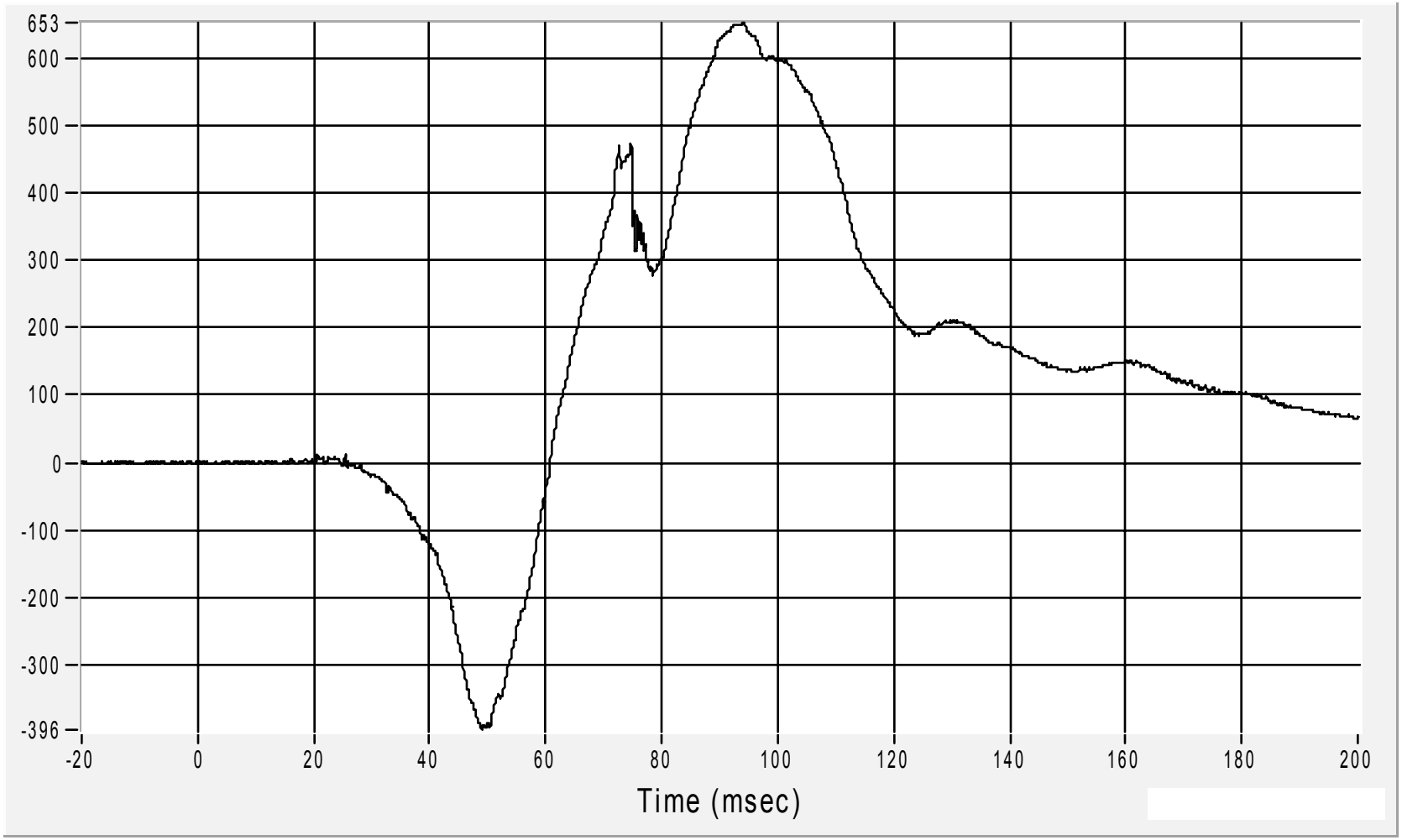
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Upper Neck (Y) Force

Force (N) CFC1000

Max 652.6 N at 94.2 msec

Min -396.2 N at 49.0 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

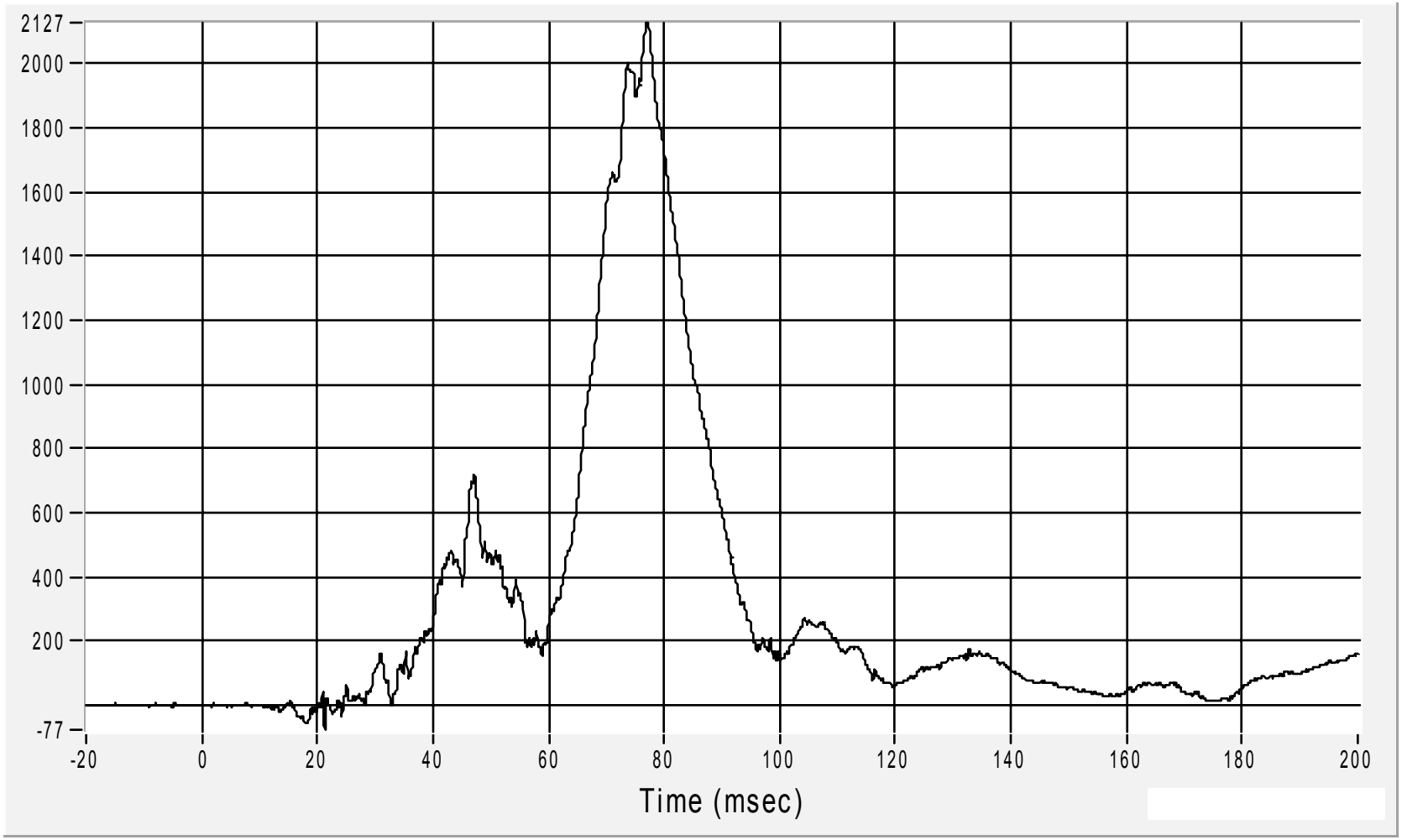
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Upper Neck (Z) Force

Force (N) CFC1000

Max 2127.1 N at 77.1 msec

Min -76.8 N at 21.3 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

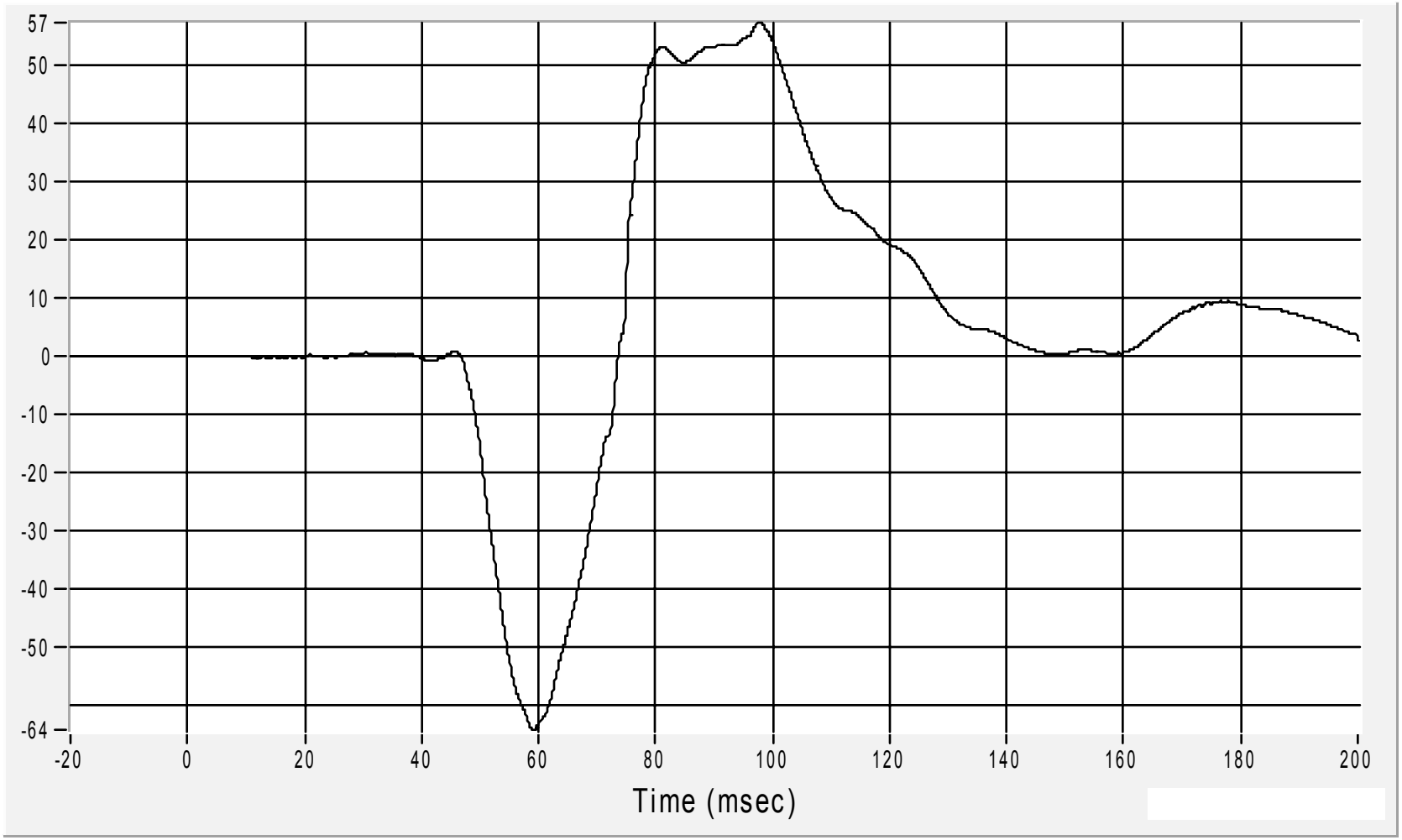
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Upper Neck (X) Moment

Moment (Nm) CFC600

Max 57.4 Nm at 97.6 msec

Min -64.1 Nm at 59.0 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

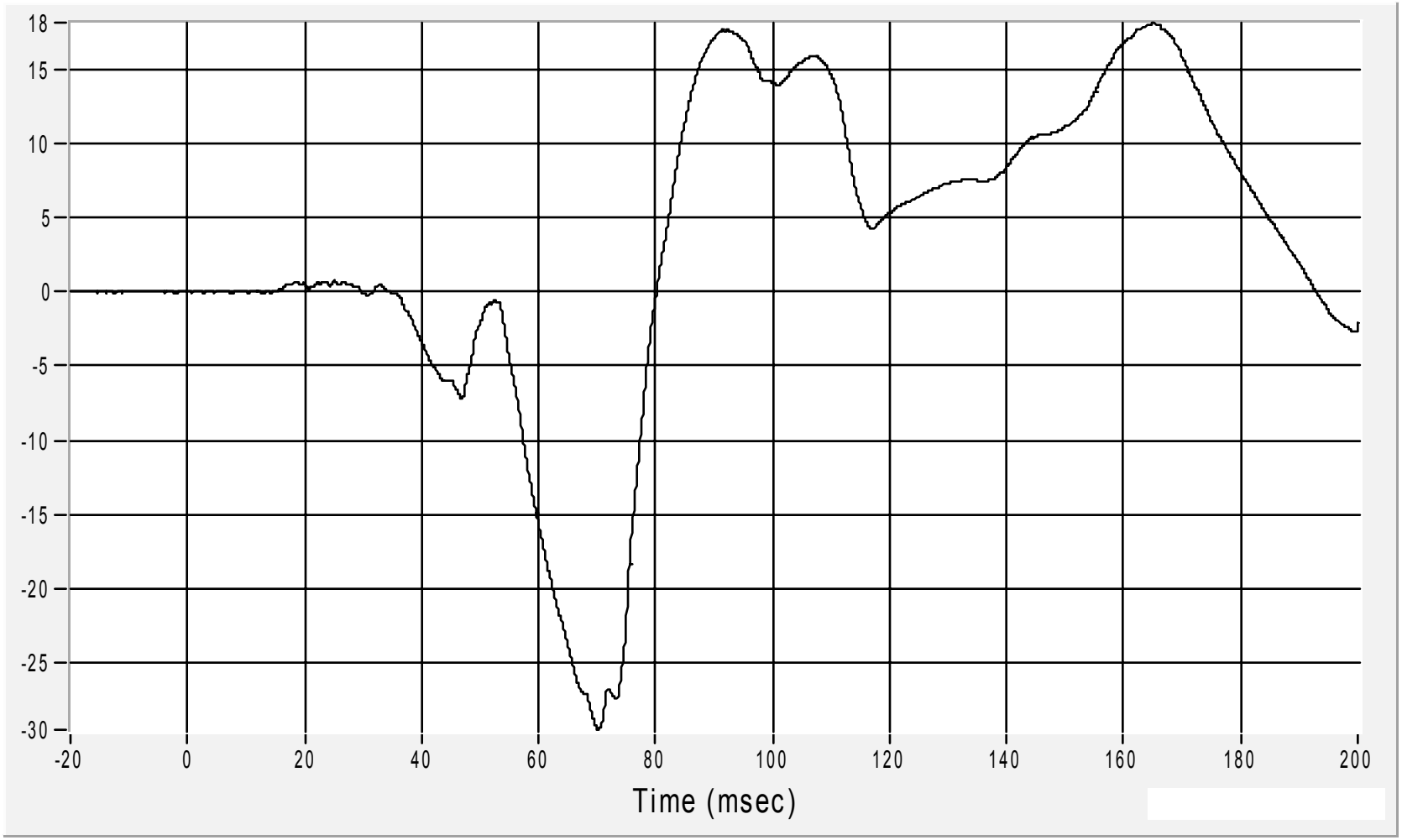
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Upper Neck (Y) Moment

Moment (Nm) CFC600

Max 18.2 Nm at 165.1 msec

Min -29.6 Nm at 70.2 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

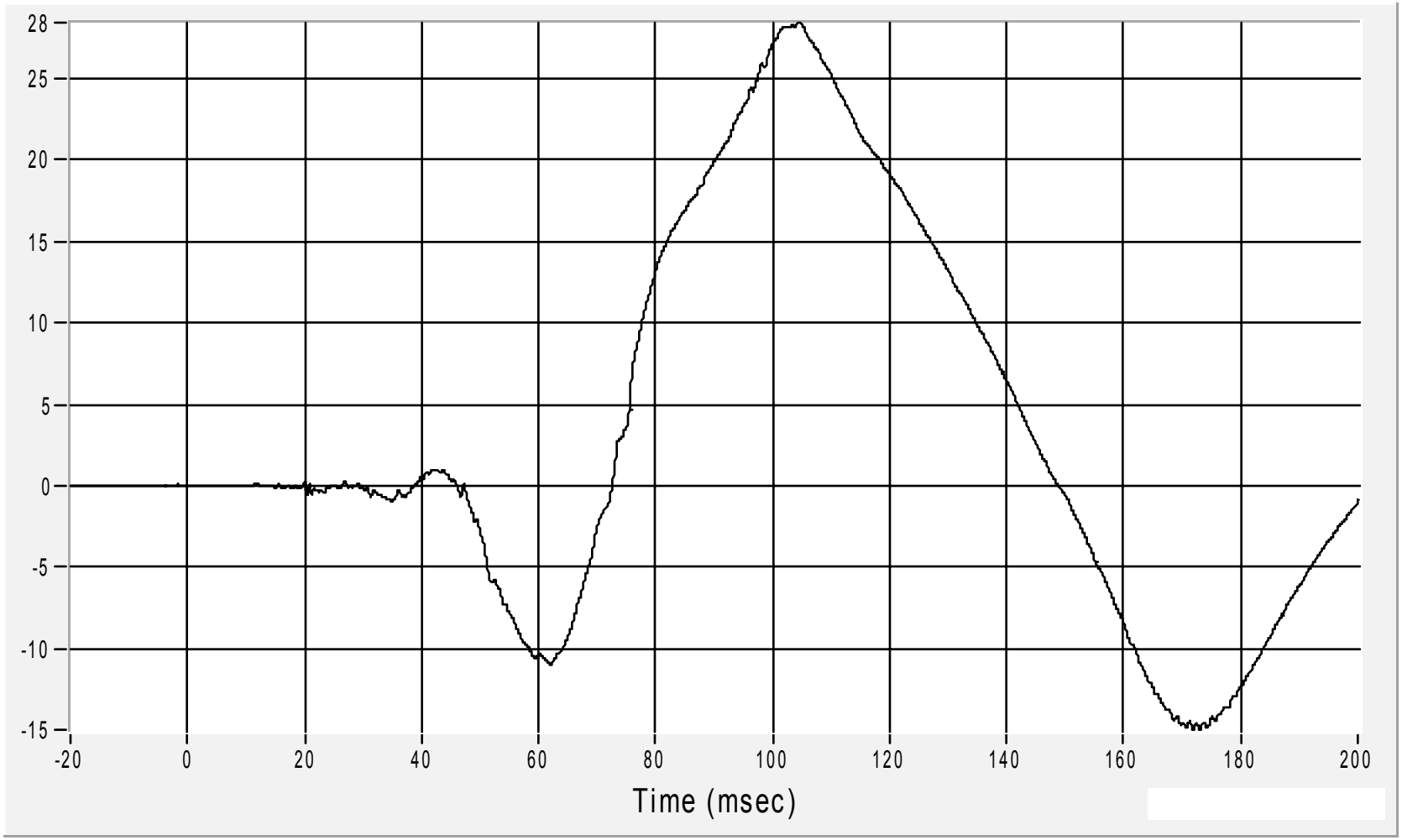
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Upper Neck (Z) Moment

Moment (Nm) CFC600

Max 28.4 Nm at 104.4 msec

Min -15.0 Nm at 171.8 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

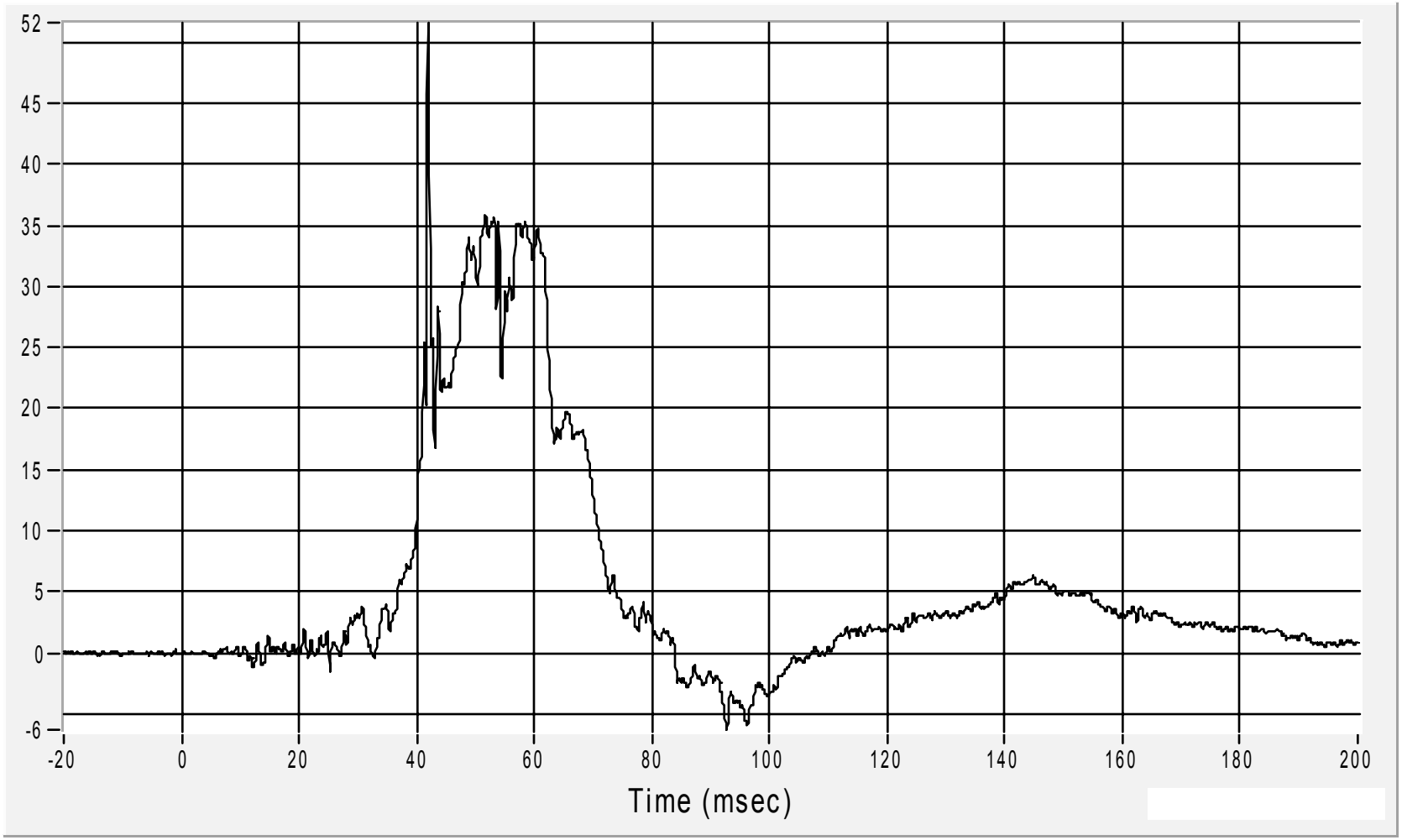
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Upper Rib (Y) Acceleration

Acceleration (G's) CFC1000

Max 51.6 G at 41.9 msec

Min -6.3 G at 92.6 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

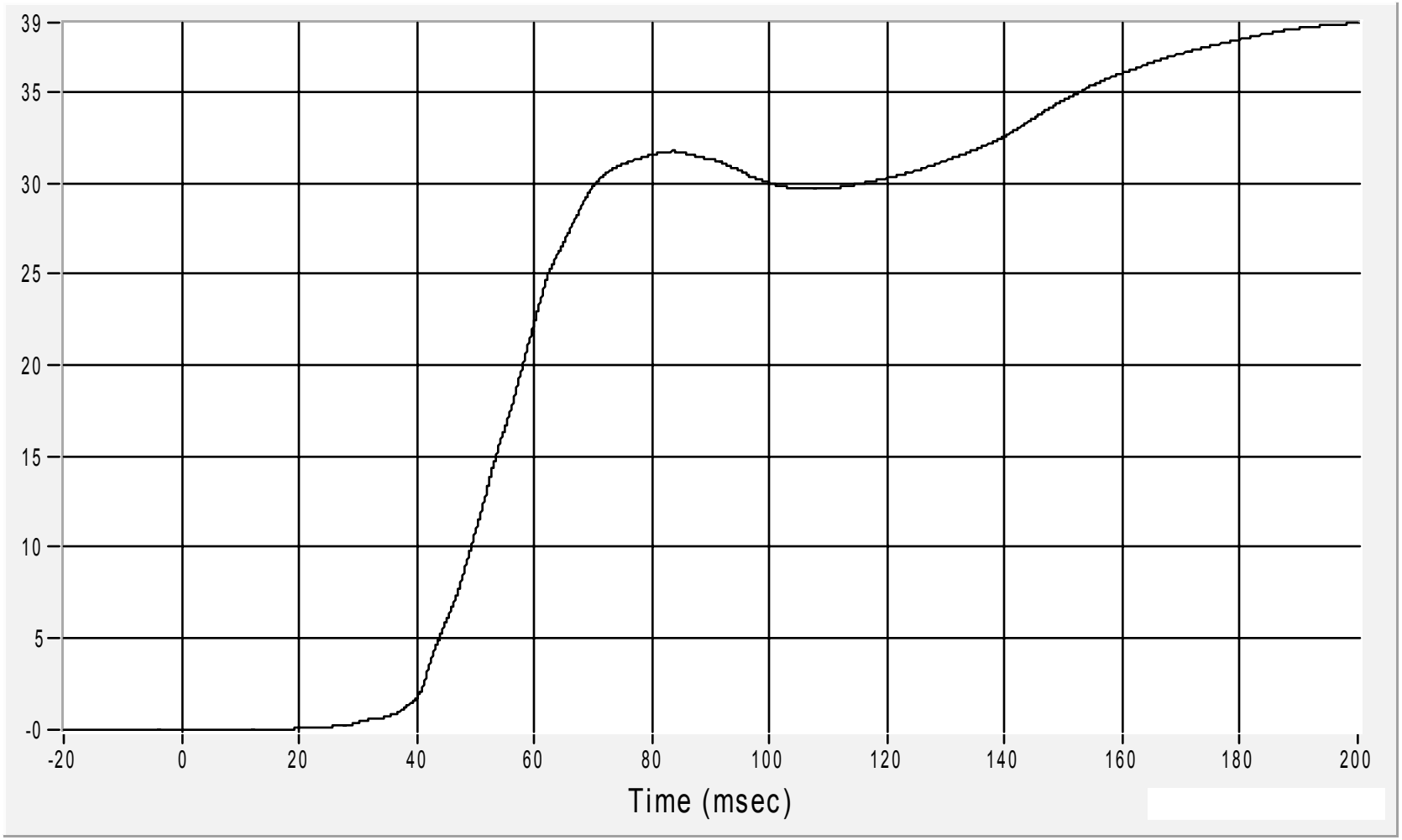
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Upper Rib (Y) Velocity

Velocity (km/h) CFC180

Max 38.8 km/h at 199.9 msec

Min 0.0 km/h at 14.1 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

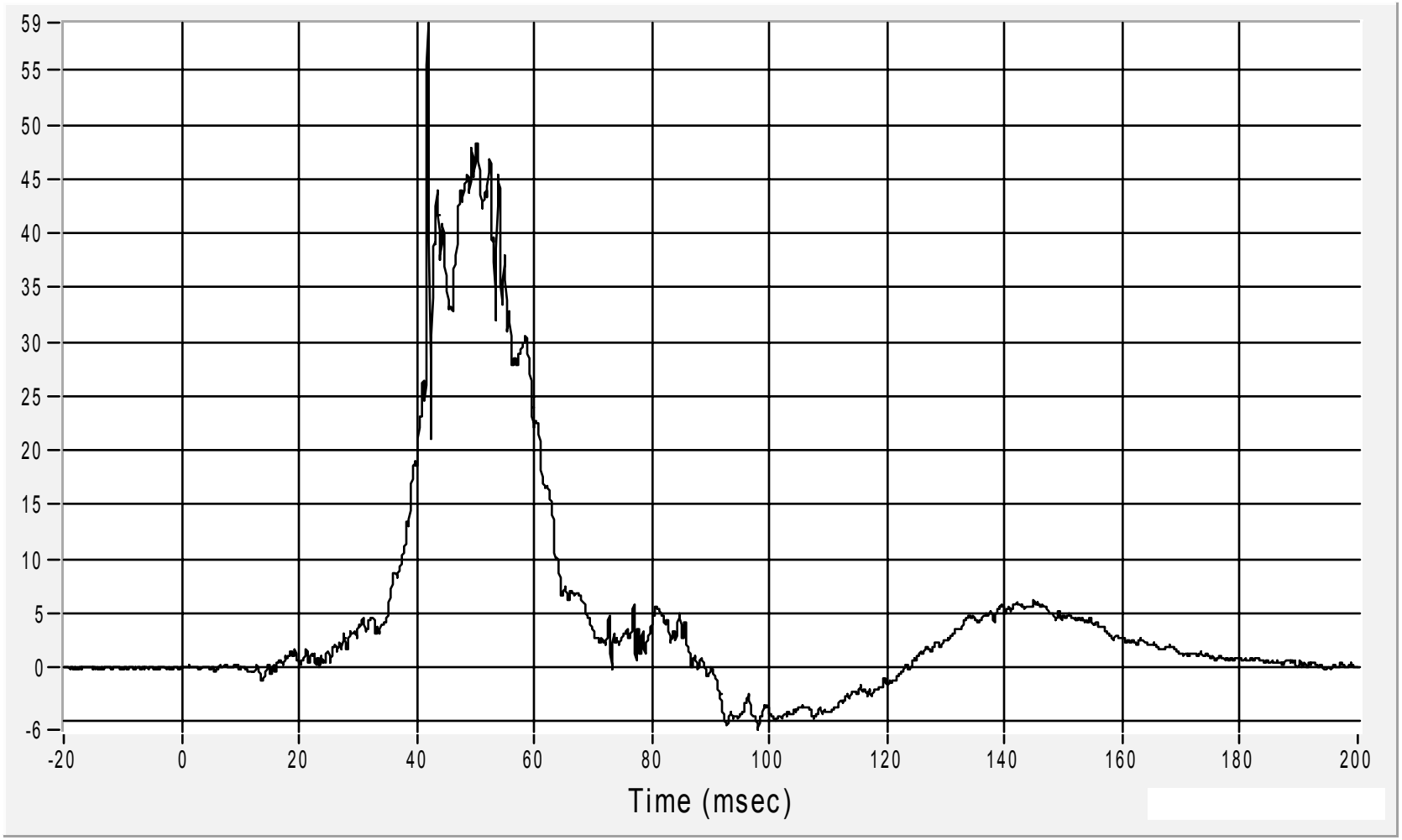
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Lower Rib (Y) Acceleration

Acceleration (G's) CFC1000

Max 59.4 G at 41.9 msec

Min -5.7 G at 98.0 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

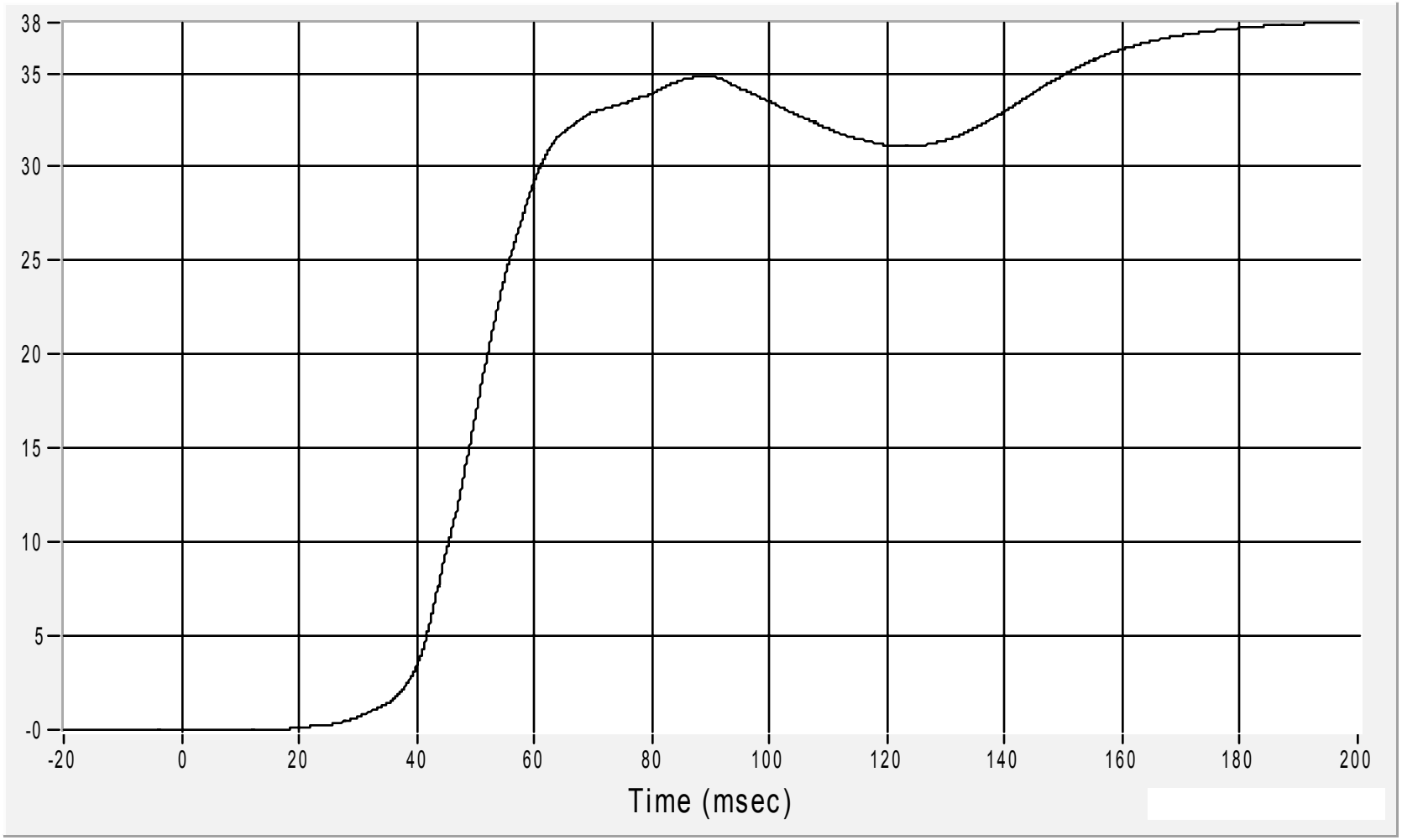
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Lower Rib (Y) Velocity

Velocity (km/h) CFC180

Max 37.7 km/h at 199.9 msec

Min 0.0 km/h at 15.7 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

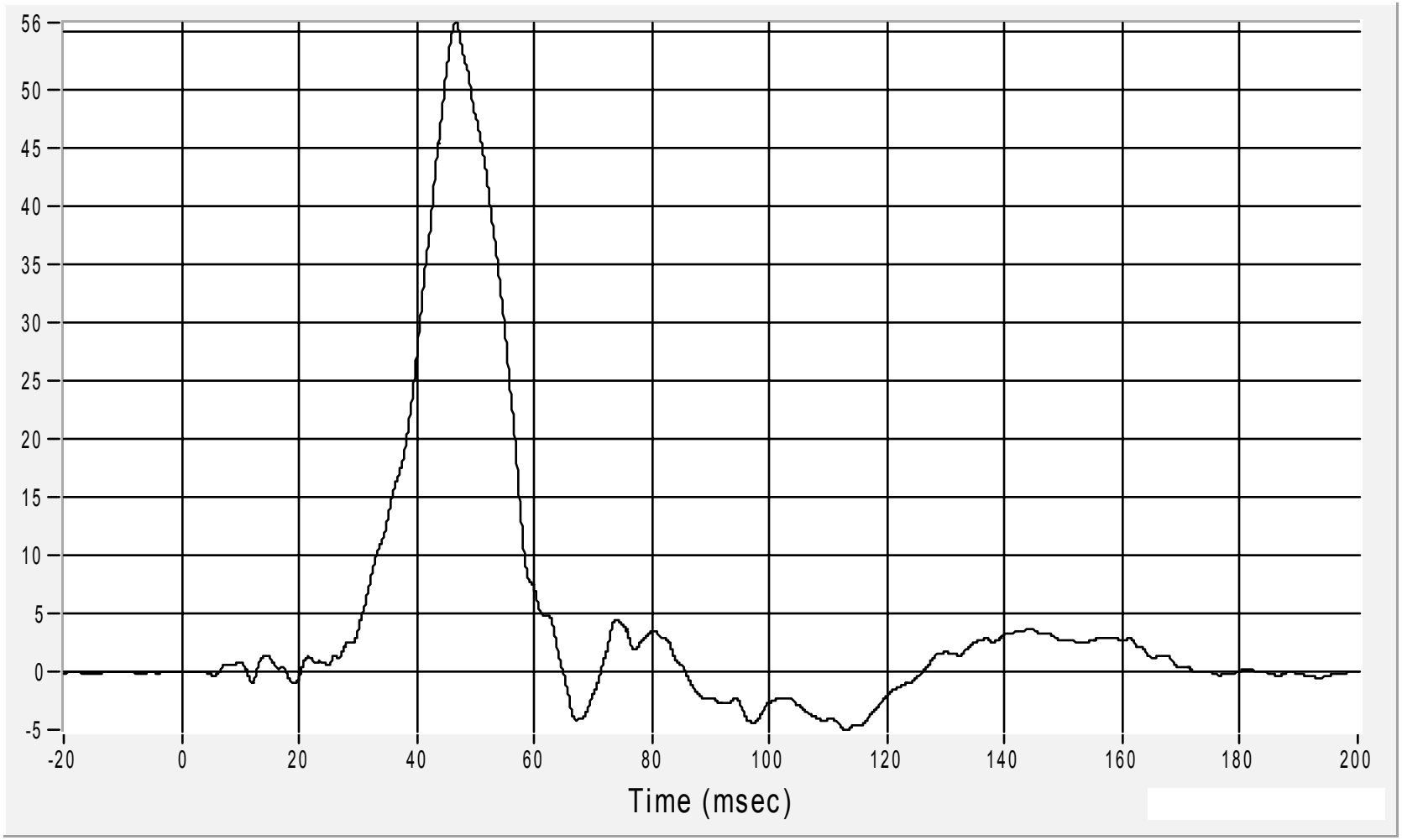
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Lower Spine (Y) Acceleration

Acceleration (G's) CFC180

Max 55.7 G at 46.6 msec

Min -4.9 G at 113.1 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

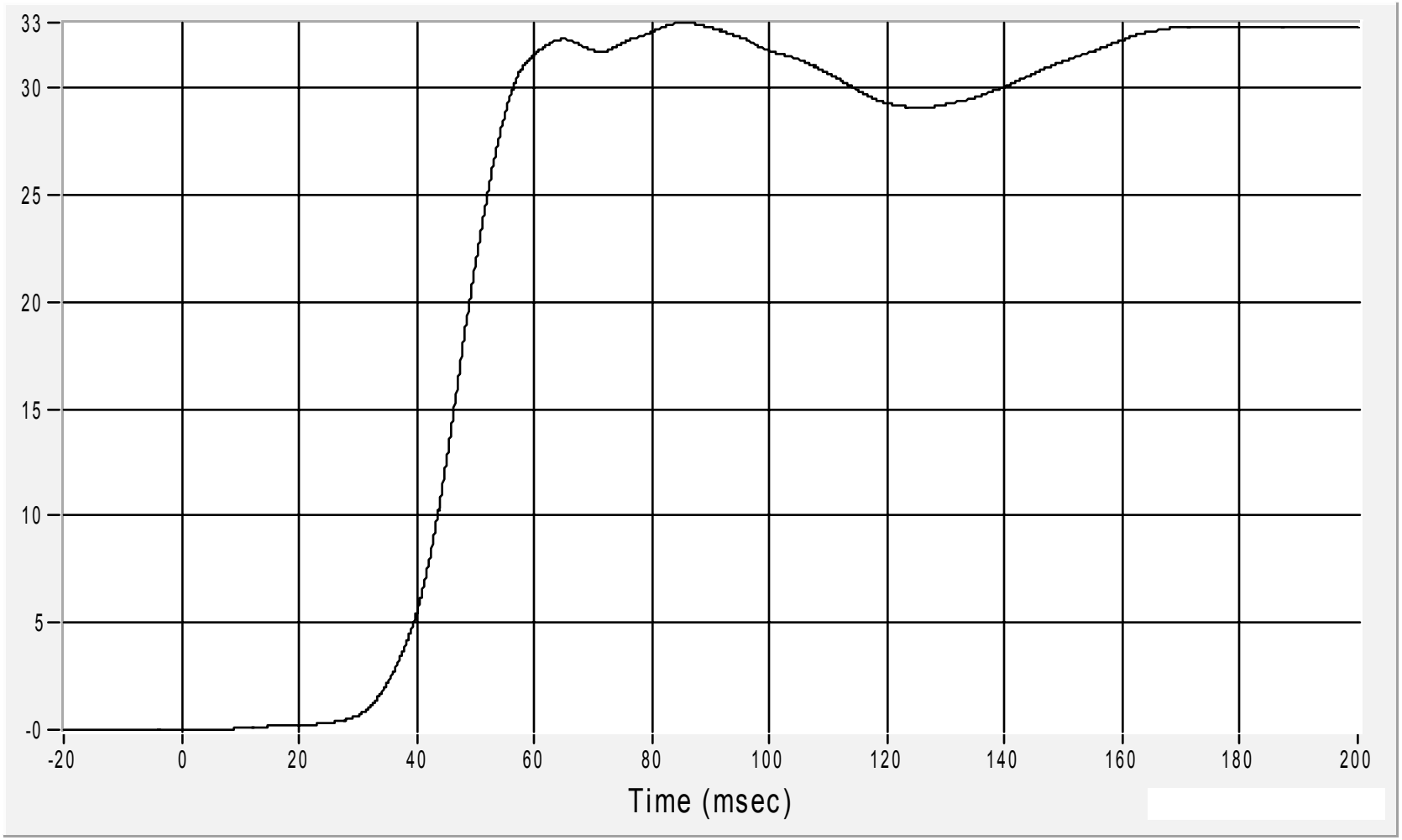
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Lower Spine (Y) Velocity

Velocity (km/h) CFC180

Max 33.1 km/h at 85.8 msec

Min 0.0 km/h at 6.3 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

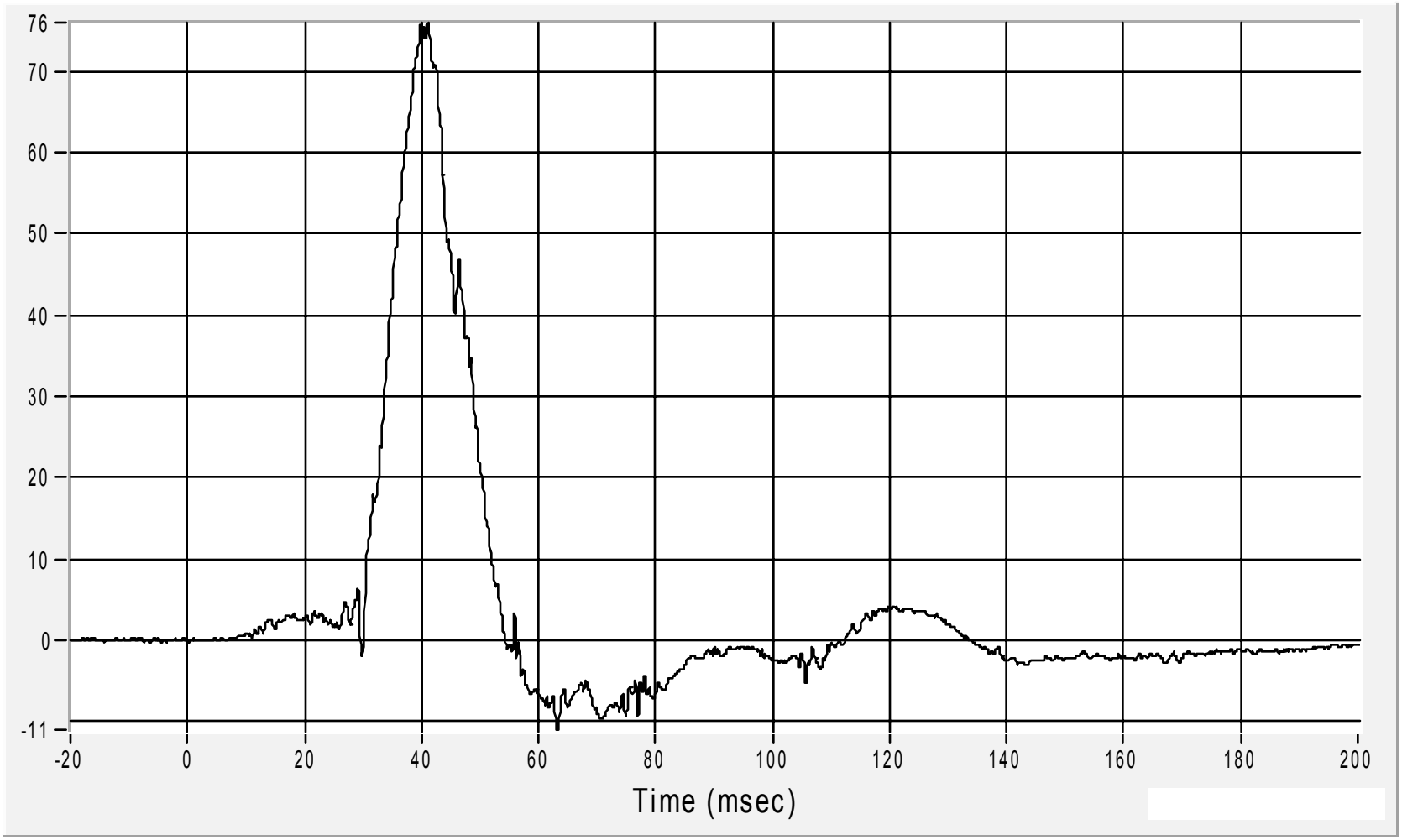
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Pelvic (Y) Acceleration

Acceleration (G's) CFC1000

Max 76.0 G at 41.0 msec

Min -11.0 G at 63.2 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

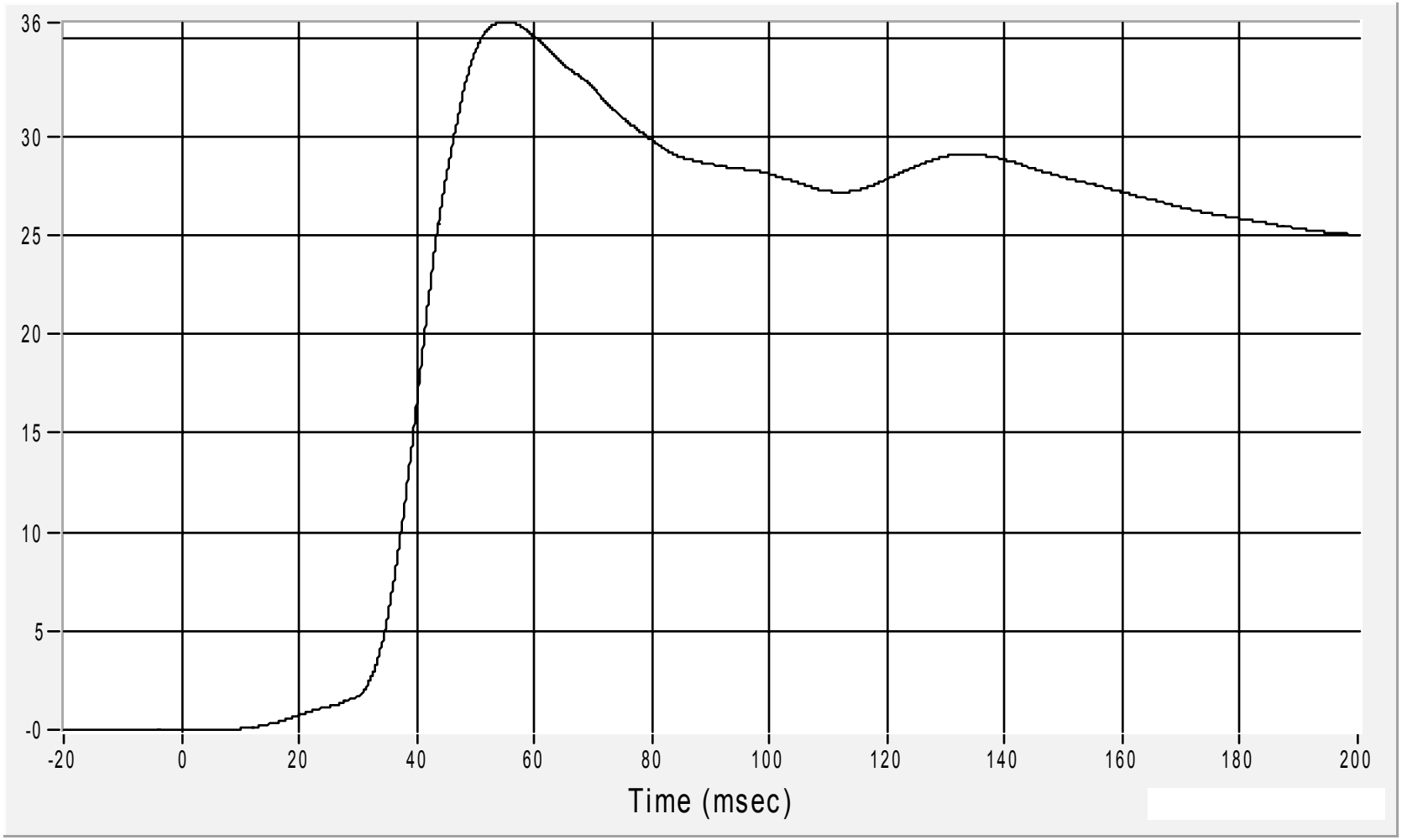
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Pelvic (Y) Velocity

Velocity (km/h) CFC180

Max 35.8 km/h at 54.3 msec

Min 0.0 km/h at 4.2 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

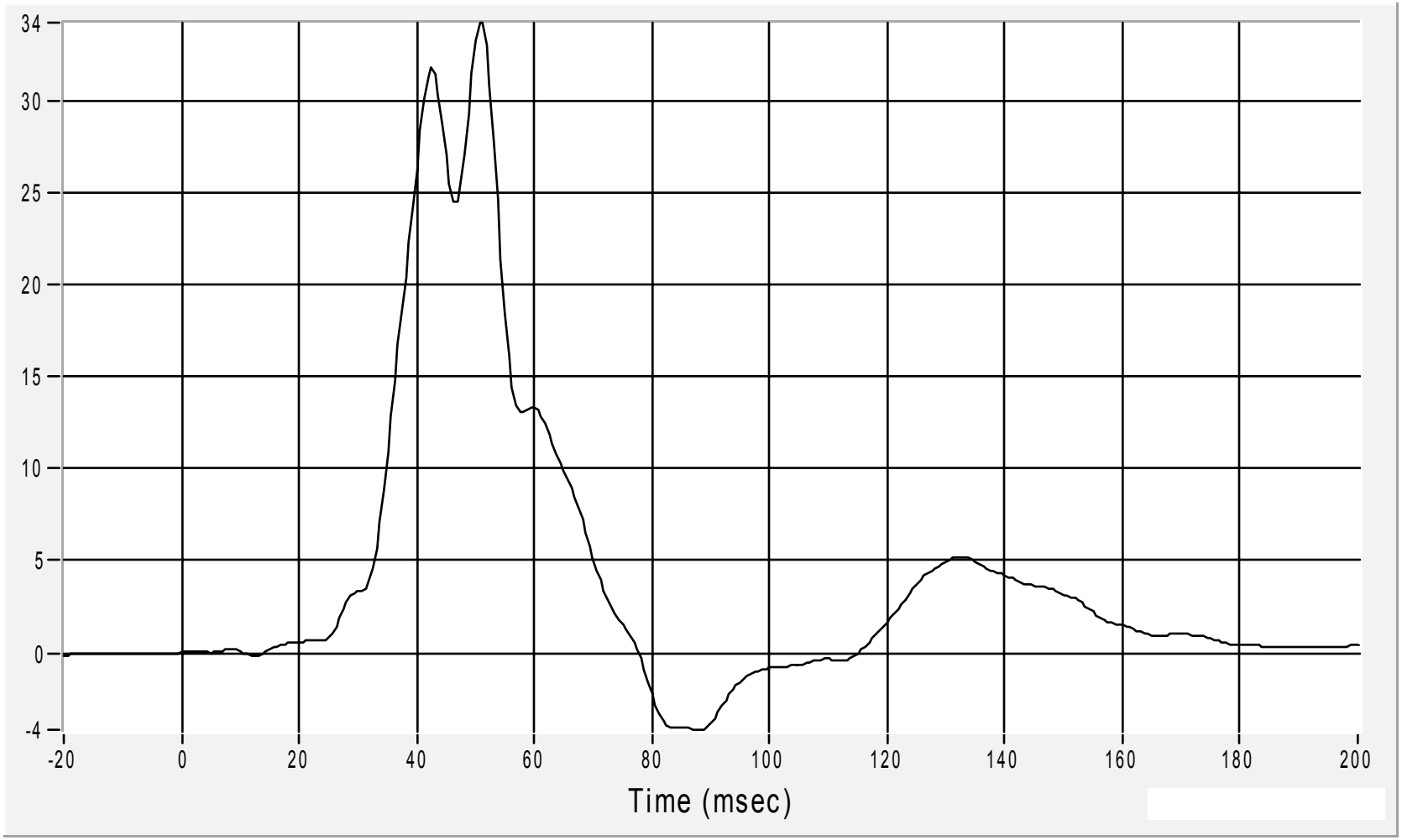
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Upper Rib (Y) Acceleration

Acceleration (G's) FIR100

Max 34.2 G at 50.6 msec

Min -4.2 G at 88.1 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

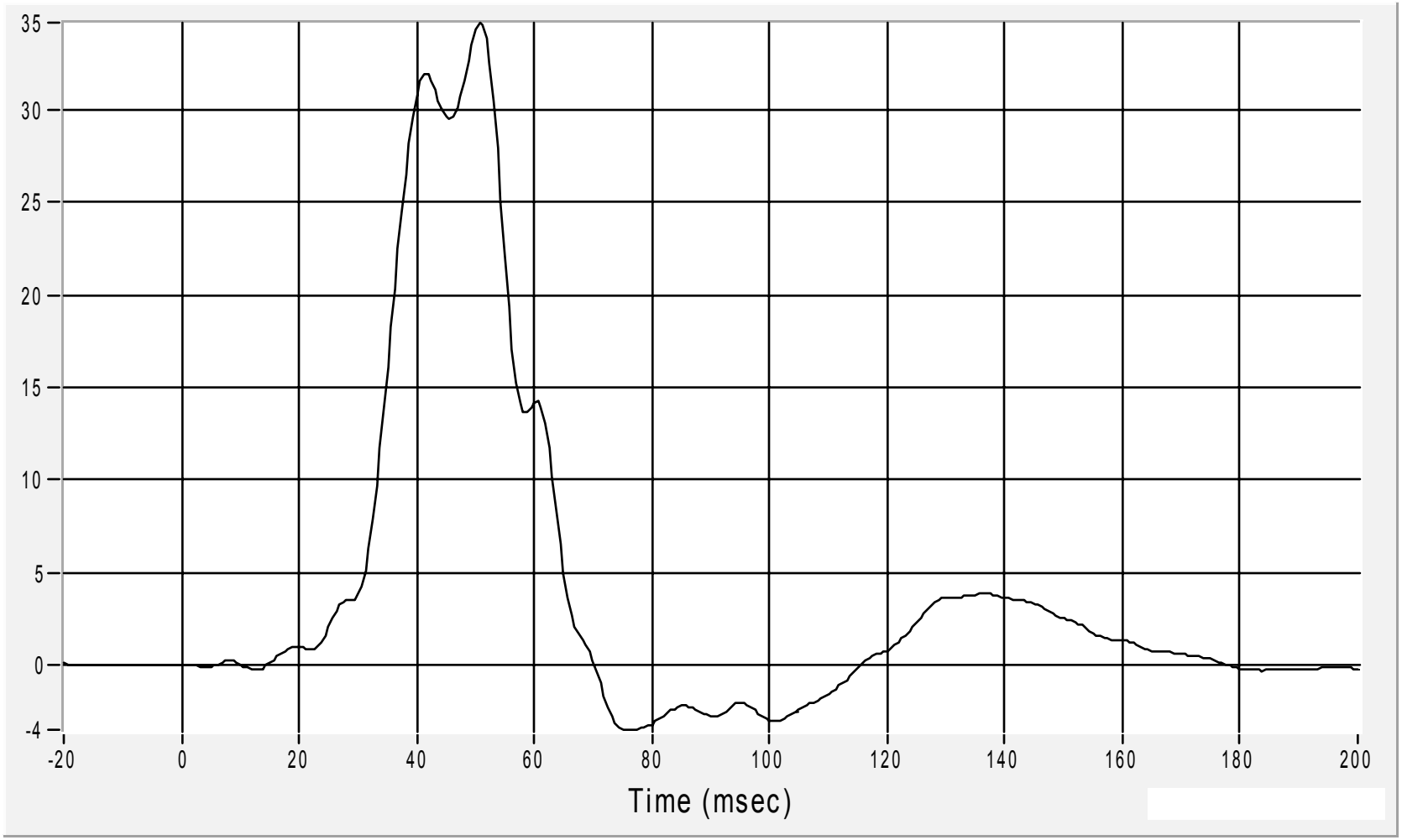
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Lower Rib (Y) Acceleration

Acceleration (G's) FIR100

Max 34.7 G at 50.6 msec

Min -3.5 G at 75.6 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

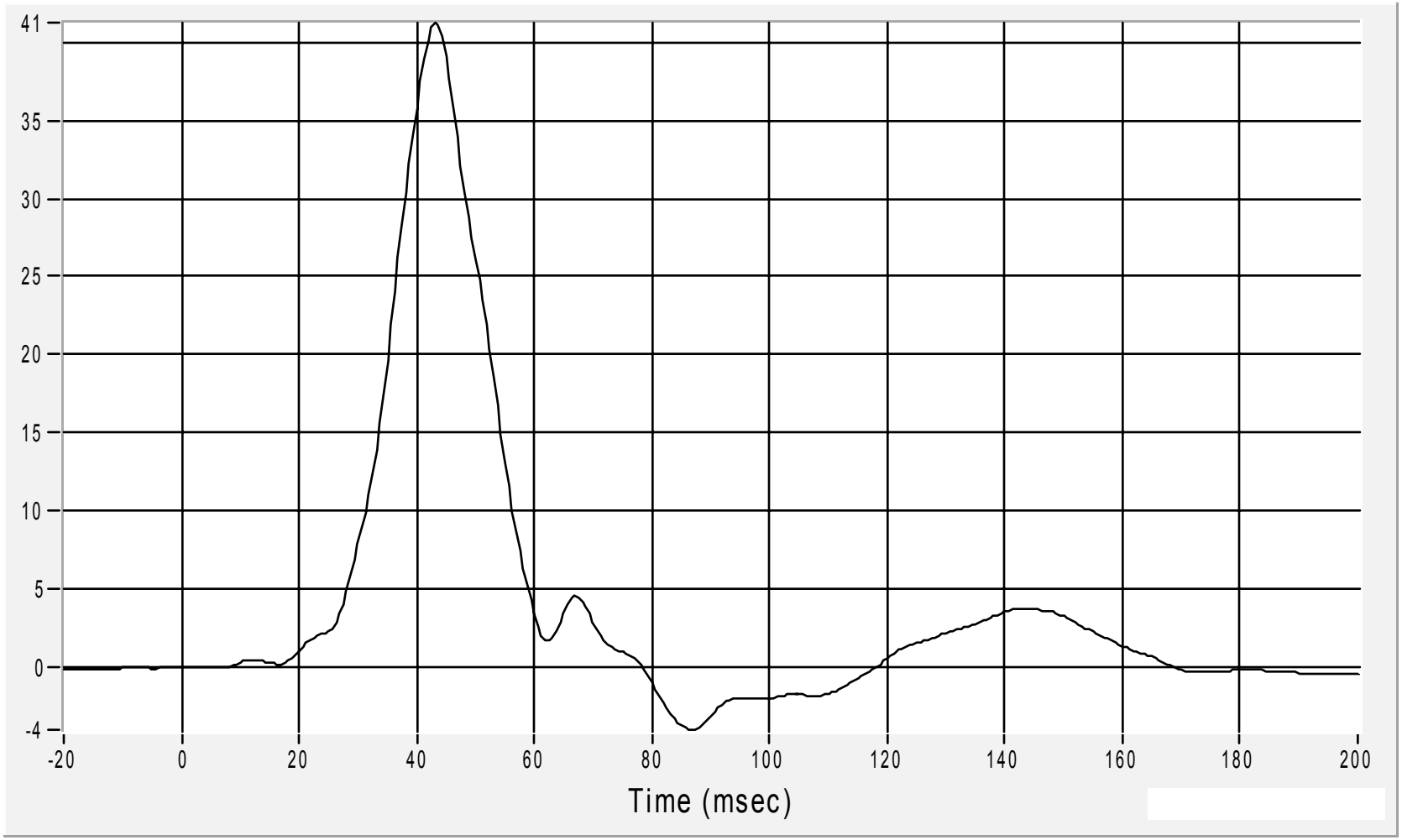
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Lower Spine (Y) Acceleration

Acceleration (G's) FIR100

Max 41.2 G at 43.1 msec

Min -4.0 G at 86.9 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

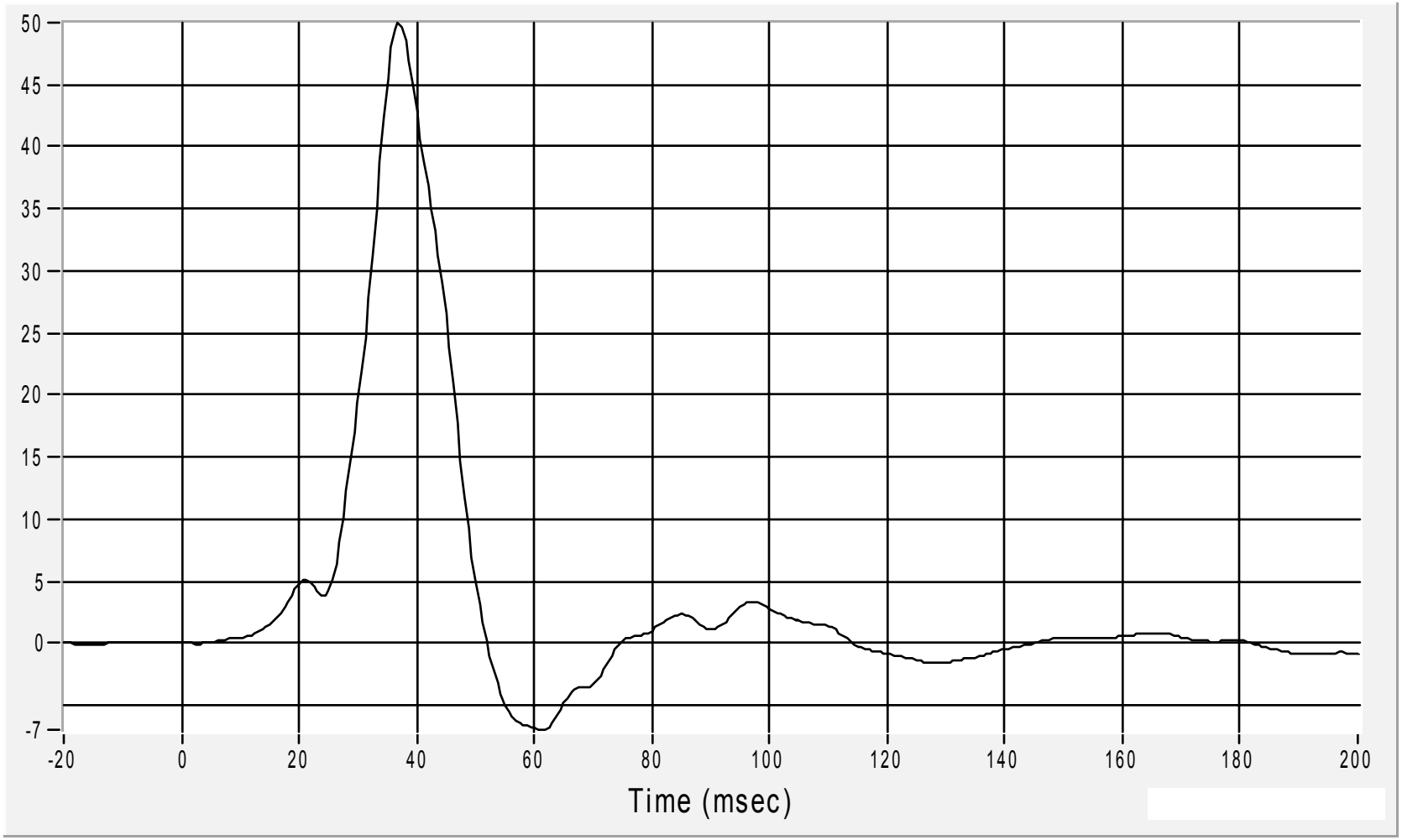
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Pelvic (Y) Acceleration

Acceleration (G's) FIR100

Max 50.0 G at 36.9 msec

Min -7.0 G at 61.2 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

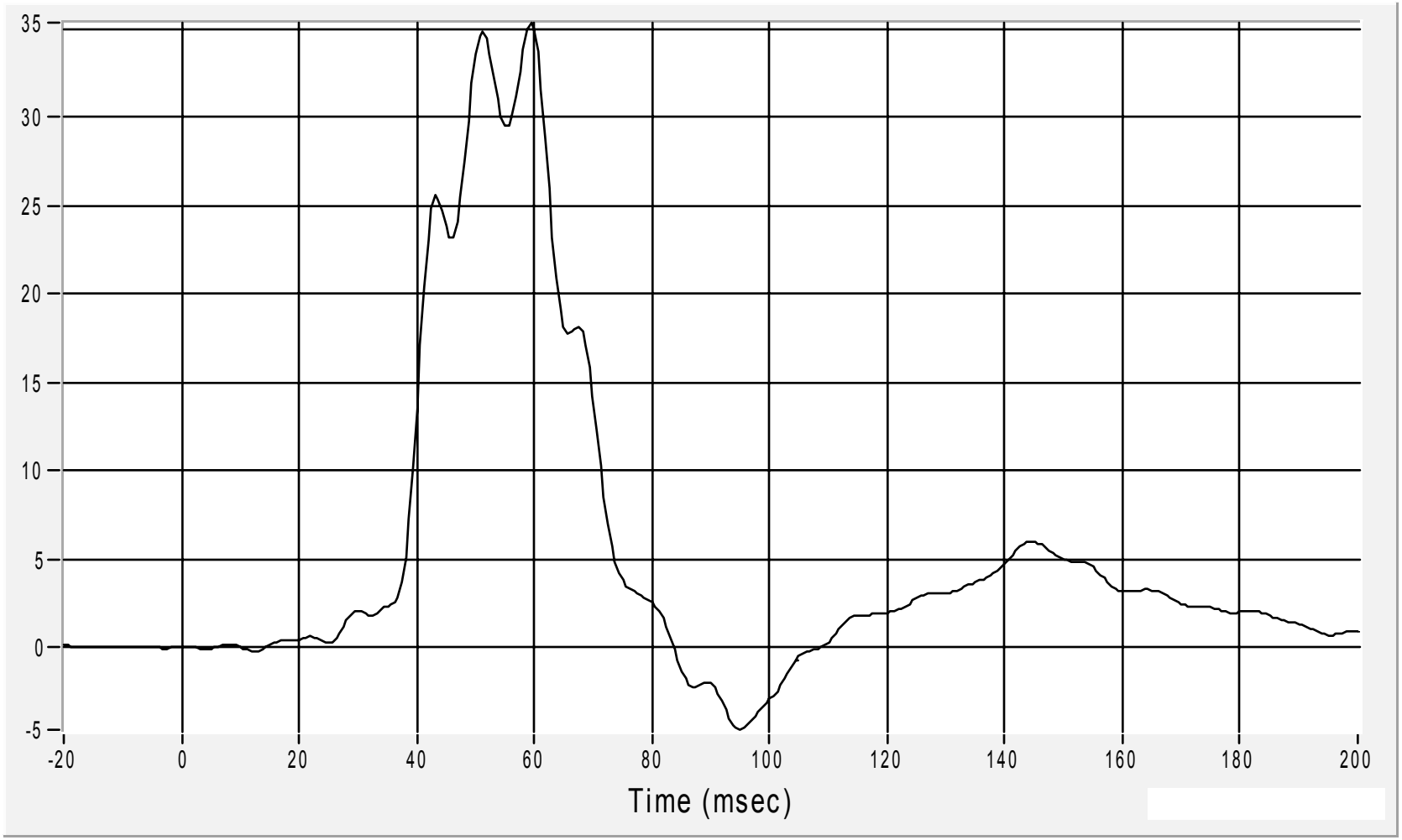
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Upper Rib (Y) Acceleration

Acceleration (G's) FIR100

Max 35.3 G at 59.4 msec

Min -4.7 G at 95.0 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

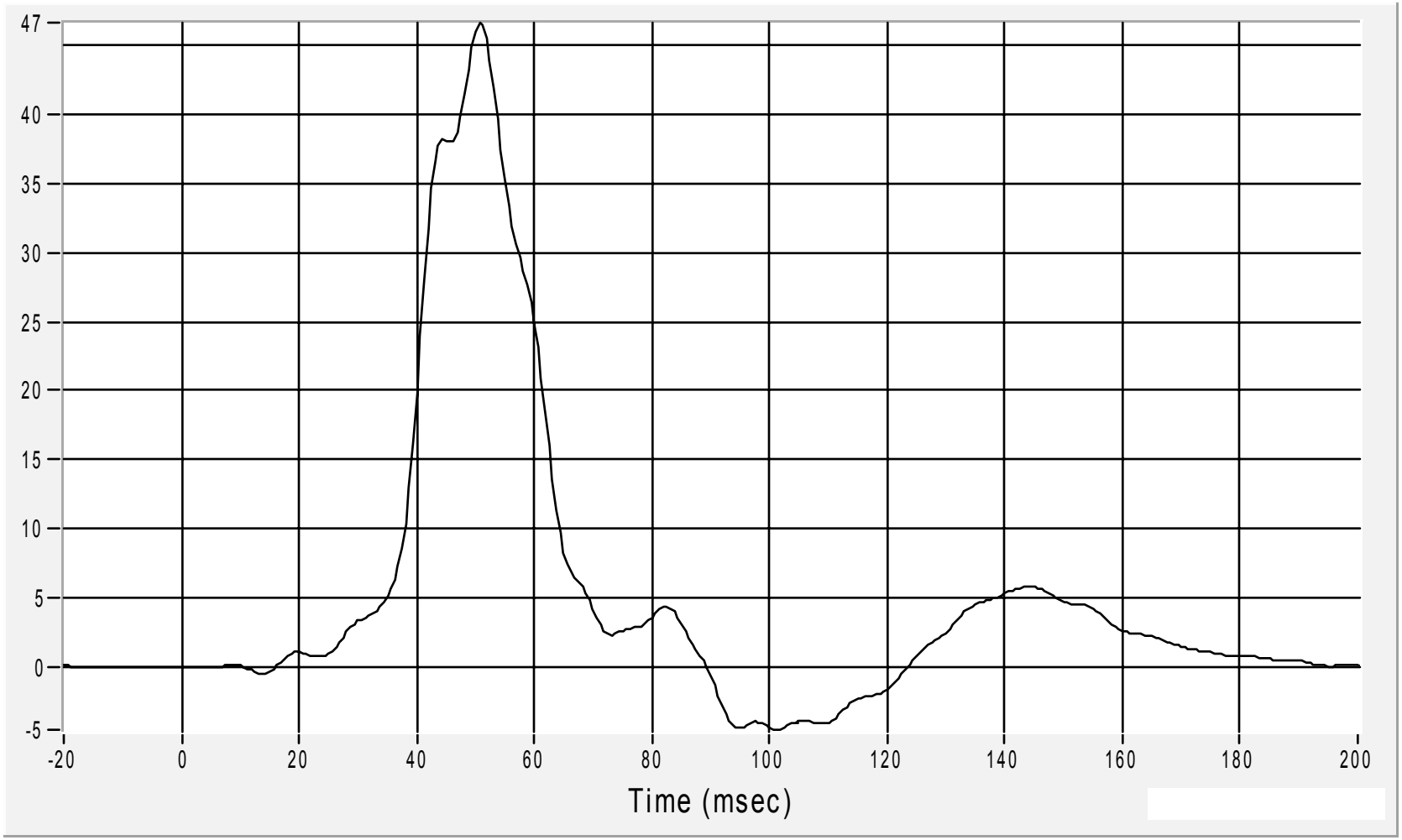
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Lower Rib (Y) Acceleration

Acceleration (G's) FIR100

Max 46.6 G at 50.6 msec

Min -4.5 G at 101.2 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

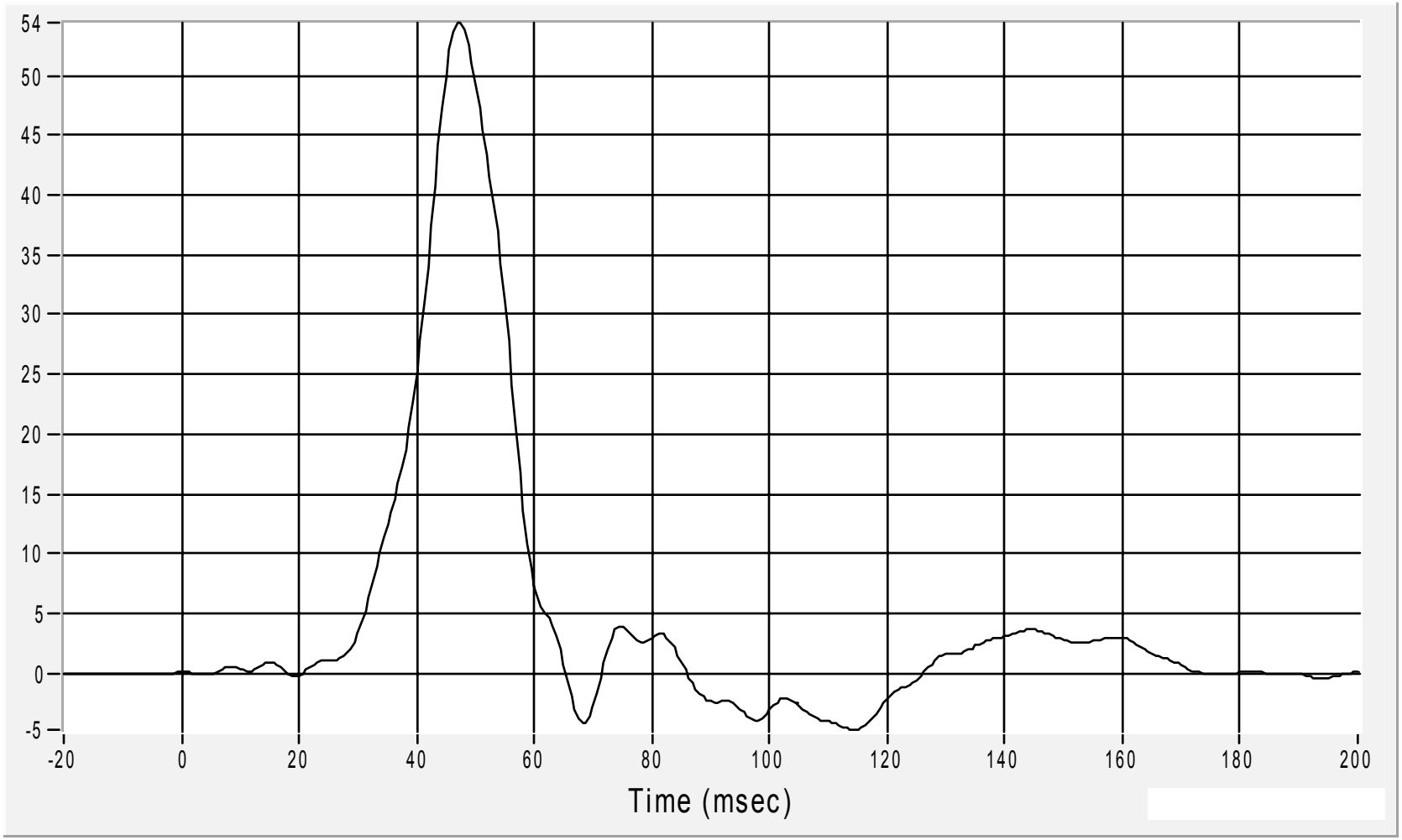
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Lower Spine (Y) Acceleration

Acceleration (G's) FIR100

Max 54.4 G at 47.5 msec

Min -4.7 G at 114.4 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

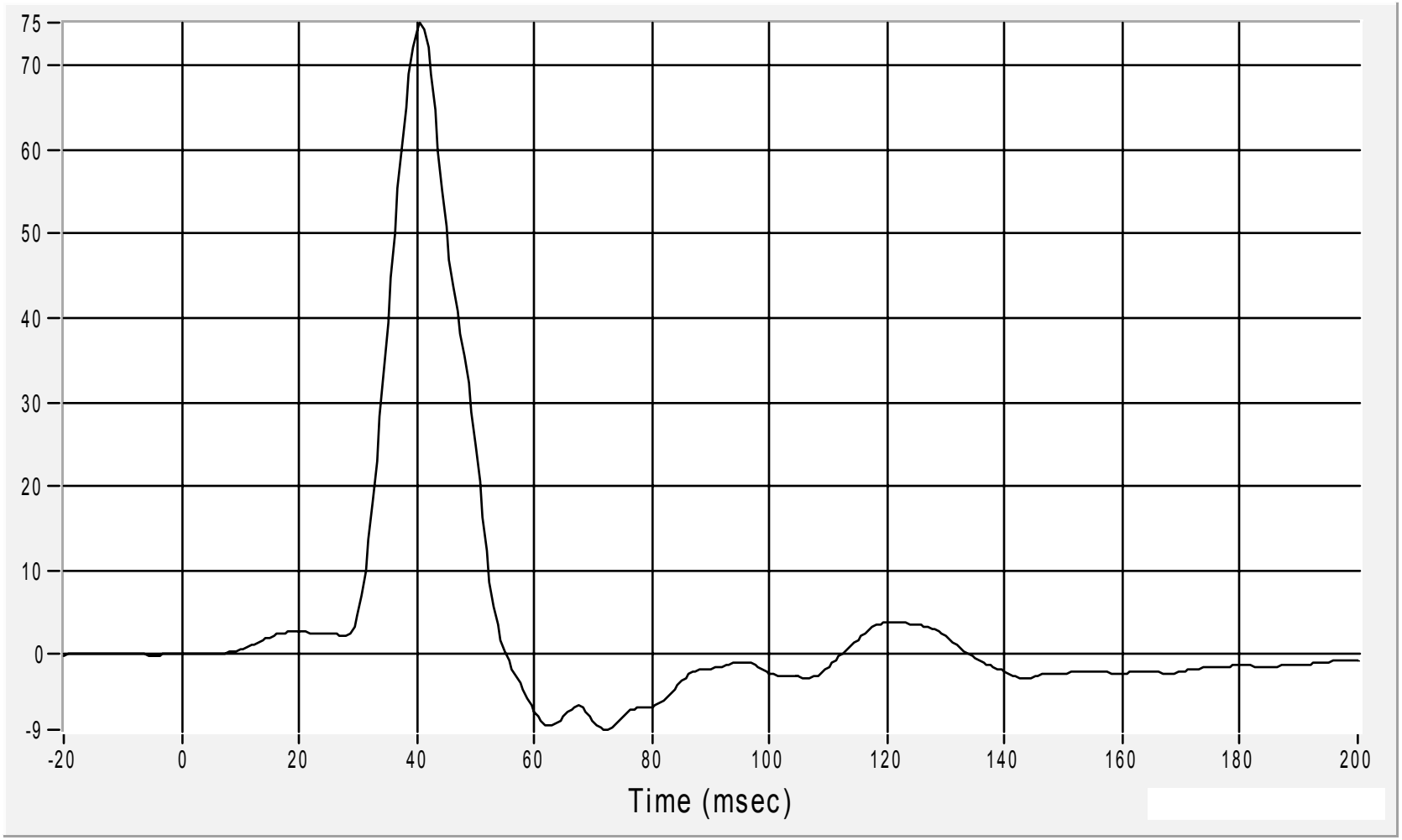
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Pelvic (Y) Acceleration

Acceleration (G's) FIR100

Max 75.1 G at 40.6 msec

Min -9.0 G at 71.9 msec



05SN01 - 2005 FORD FREESTYLE MPV

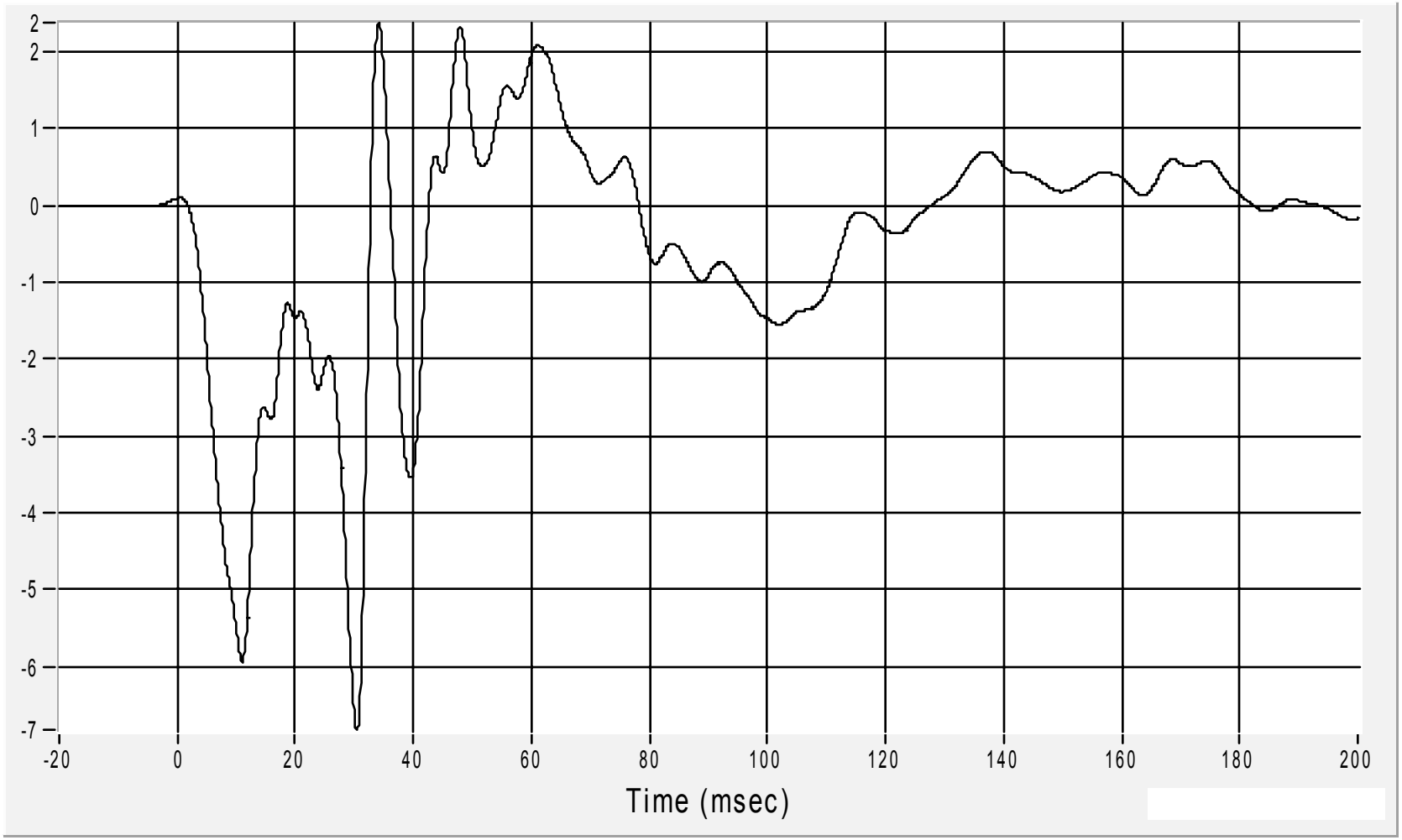
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Side Sill at Front Seat (X) Acceleration

Acceleration (G's) CFC60

Max	**2.4**	**G**	**at**	**34.2**	**msec**
Min	**-6.8**	**G**	**at**	**30.4**	**msec**



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

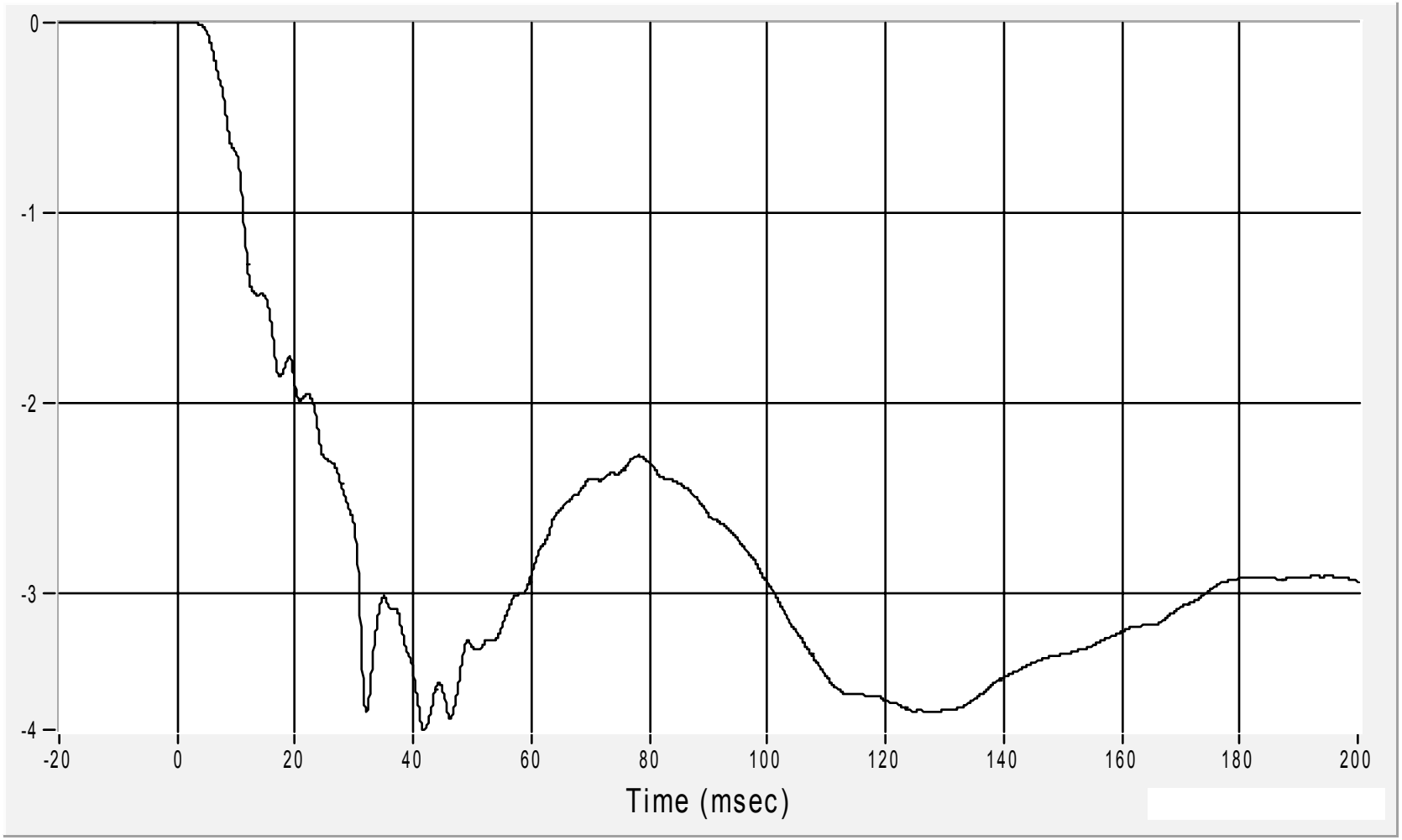
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Side Sill at Front Seat (X) Velocity

Velocity (km/h) CFC180

Max 0.0 km/h at 2.5 msec

Min -3.7 km/h at 41.8 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

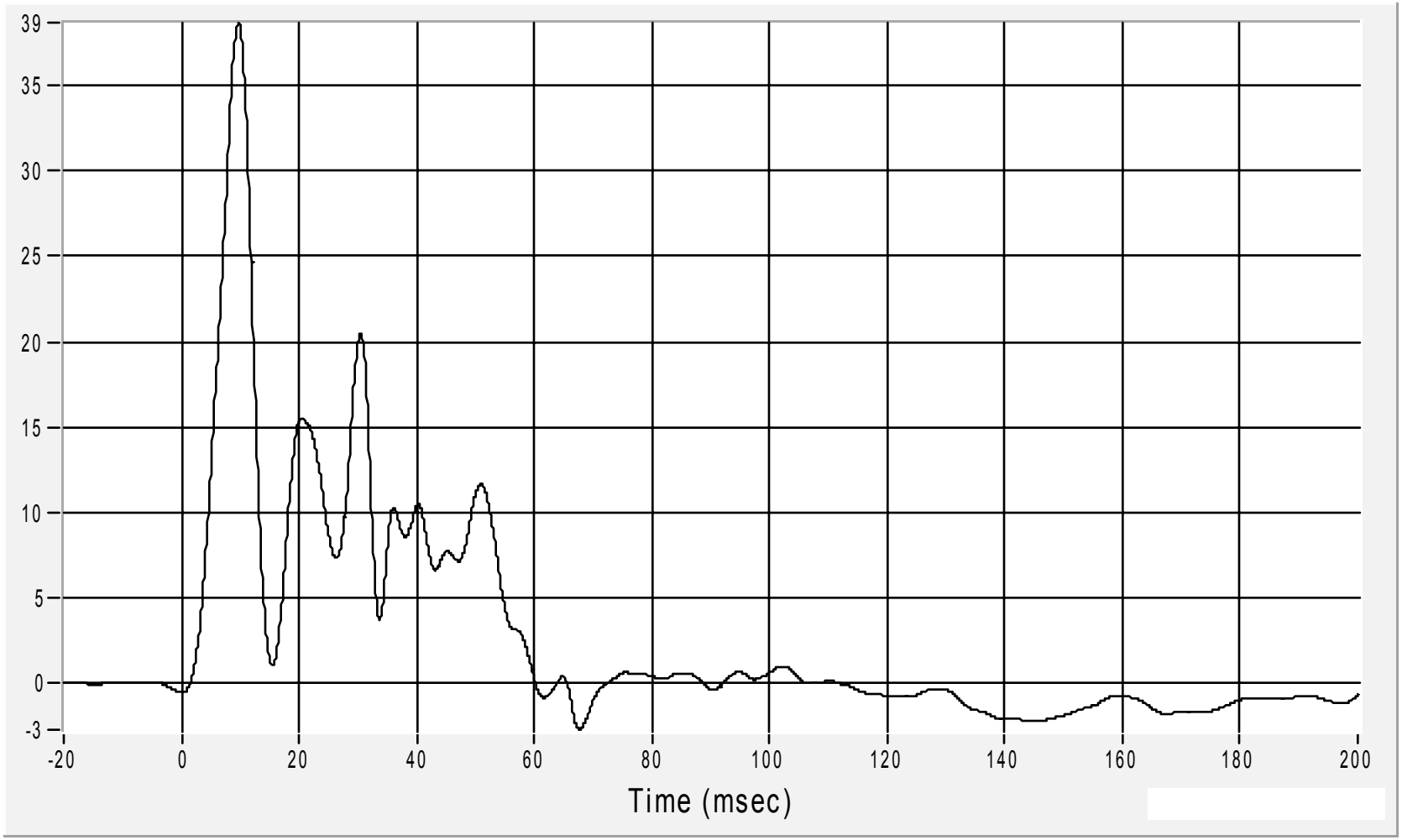
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Side Sill at Front Seat (Y) Acceleration

Acceleration (G's) CFC60

Max 38.7 G at 9.7 msec

Min -2.7 G at 67.7 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

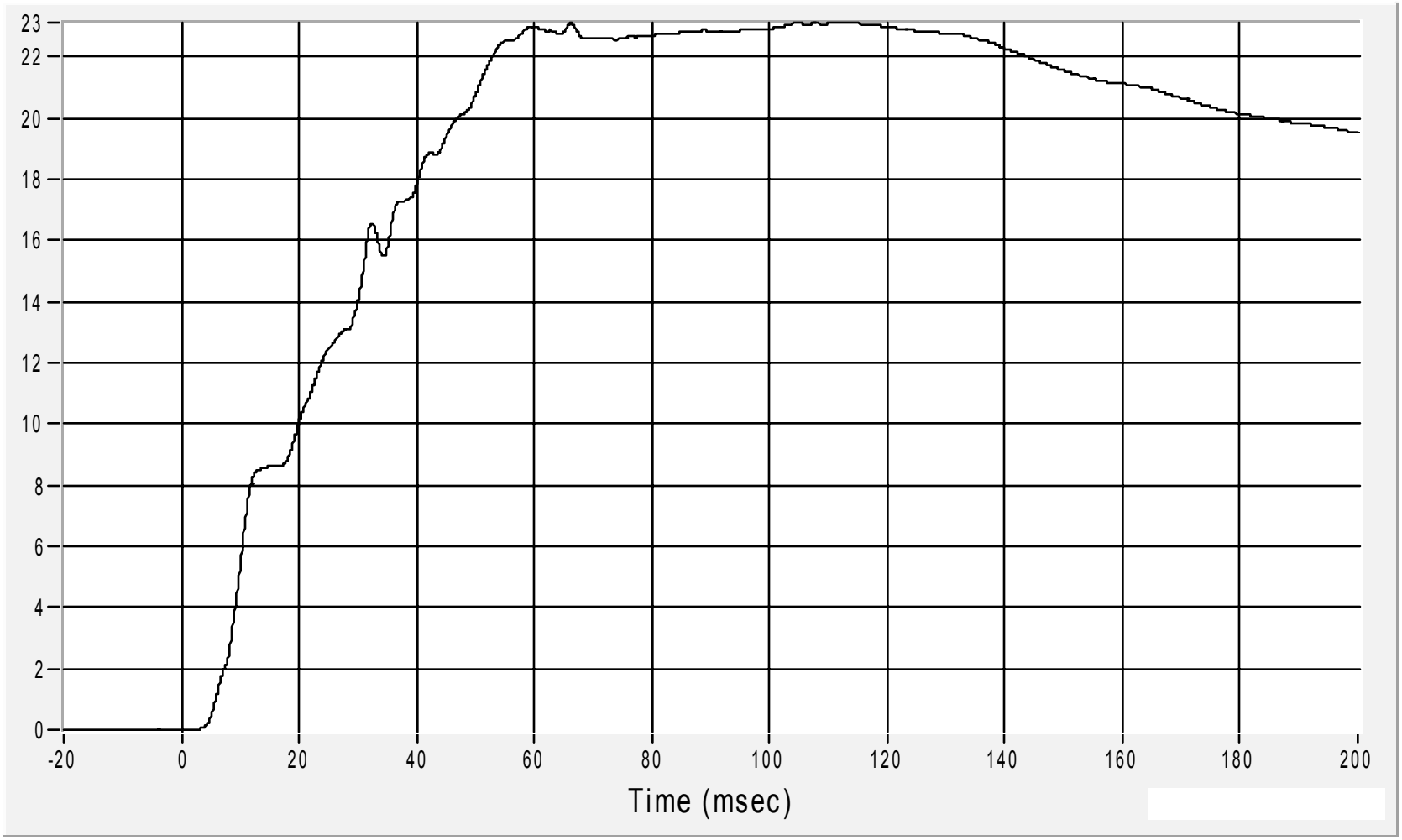
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Side Sill at Front Seat (Y) Velocity

Velocity (km/h) CFC180

Max 23.1 km/h at 111.4 msec

Min 0.0 km/h at 0.0 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

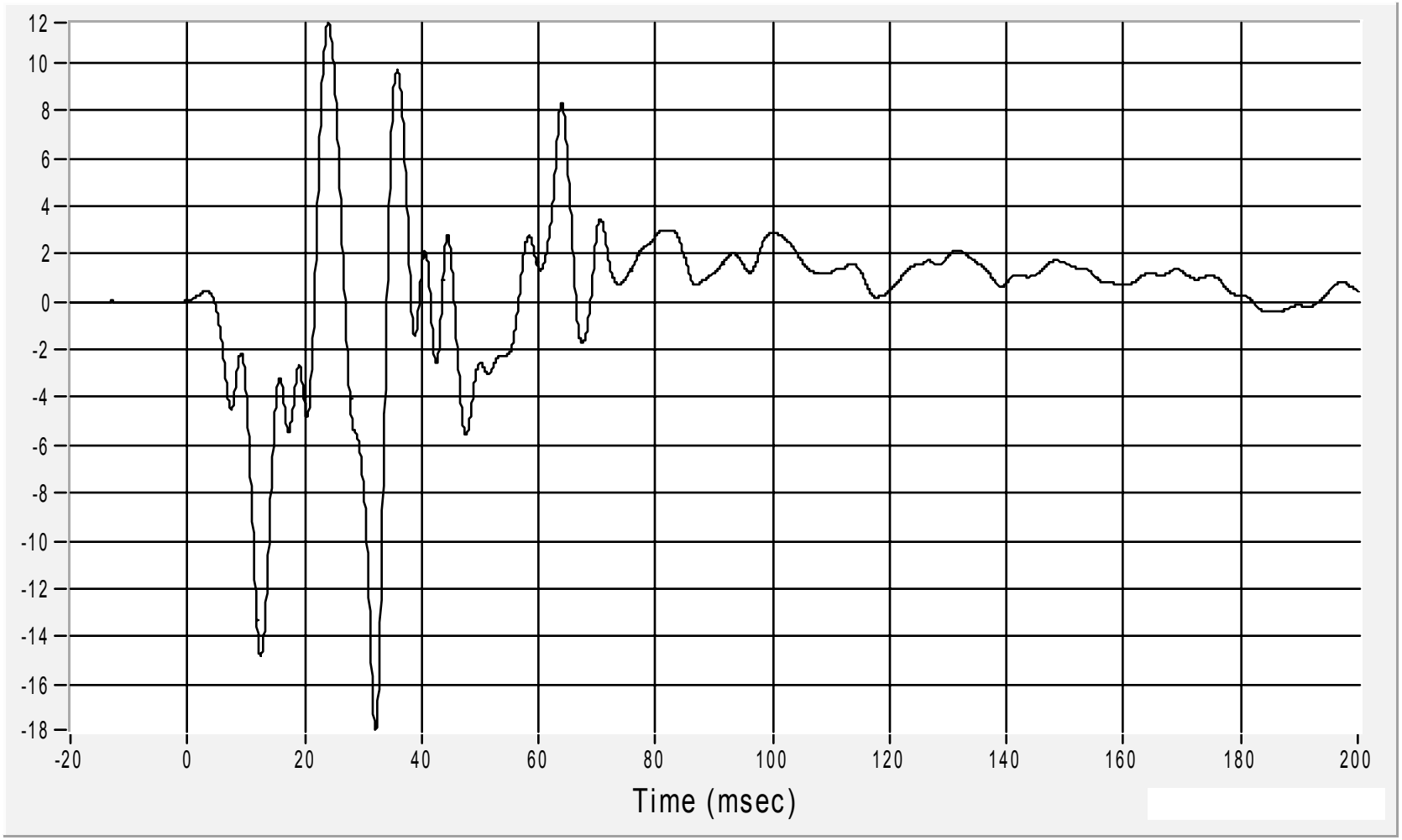
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Side Sill at Front Seat (Z) Acceleration

Acceleration (G's) CFC60

Max 11.7 G at 24.1 msec

Min -17.9 G at 32.2 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

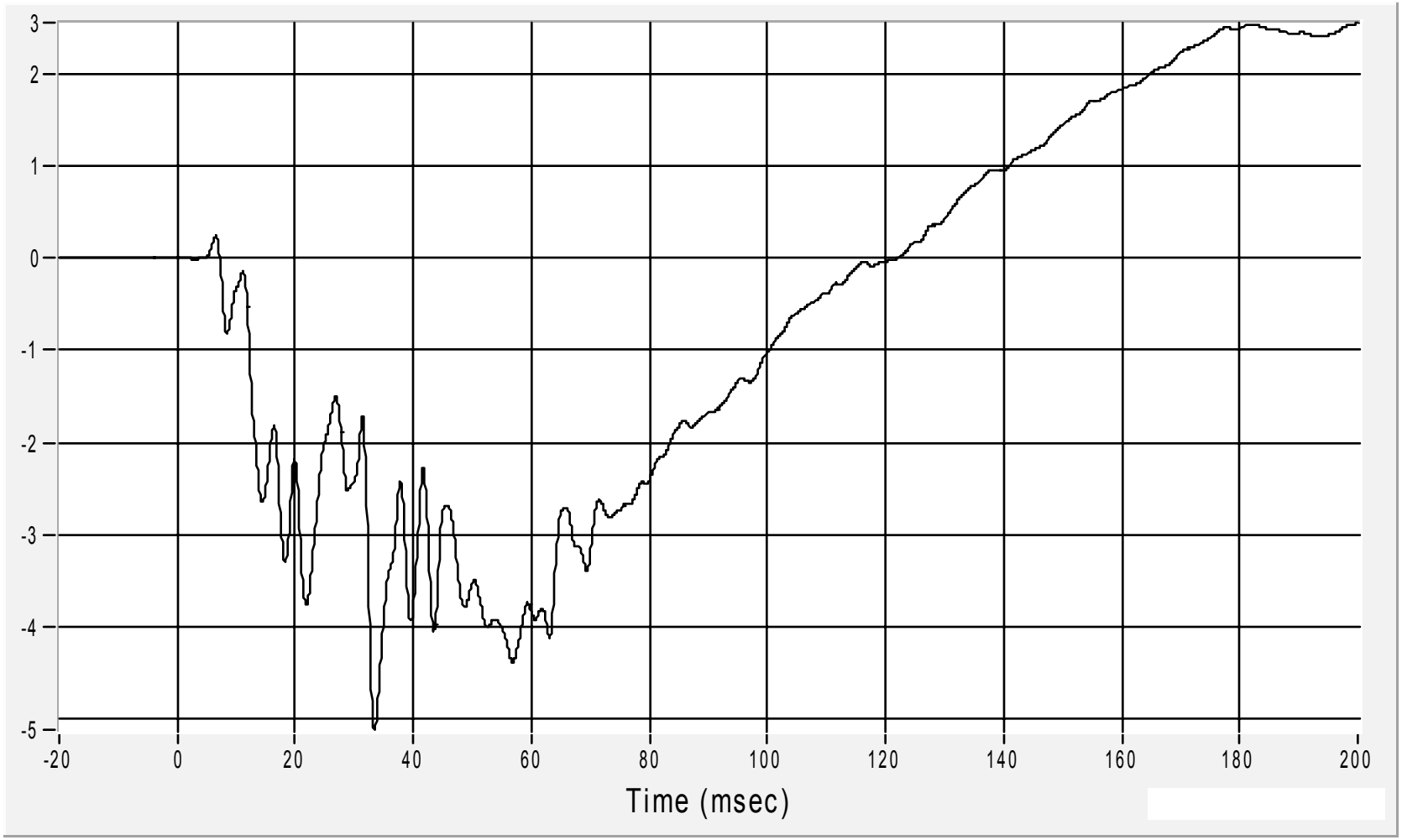
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Side Sill at Front Seat (Z) Velocity

Velocity (km/h) CFC180

Max 2.5 km/h at 199.9 msec

Min -5.1 km/h at 33.4 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

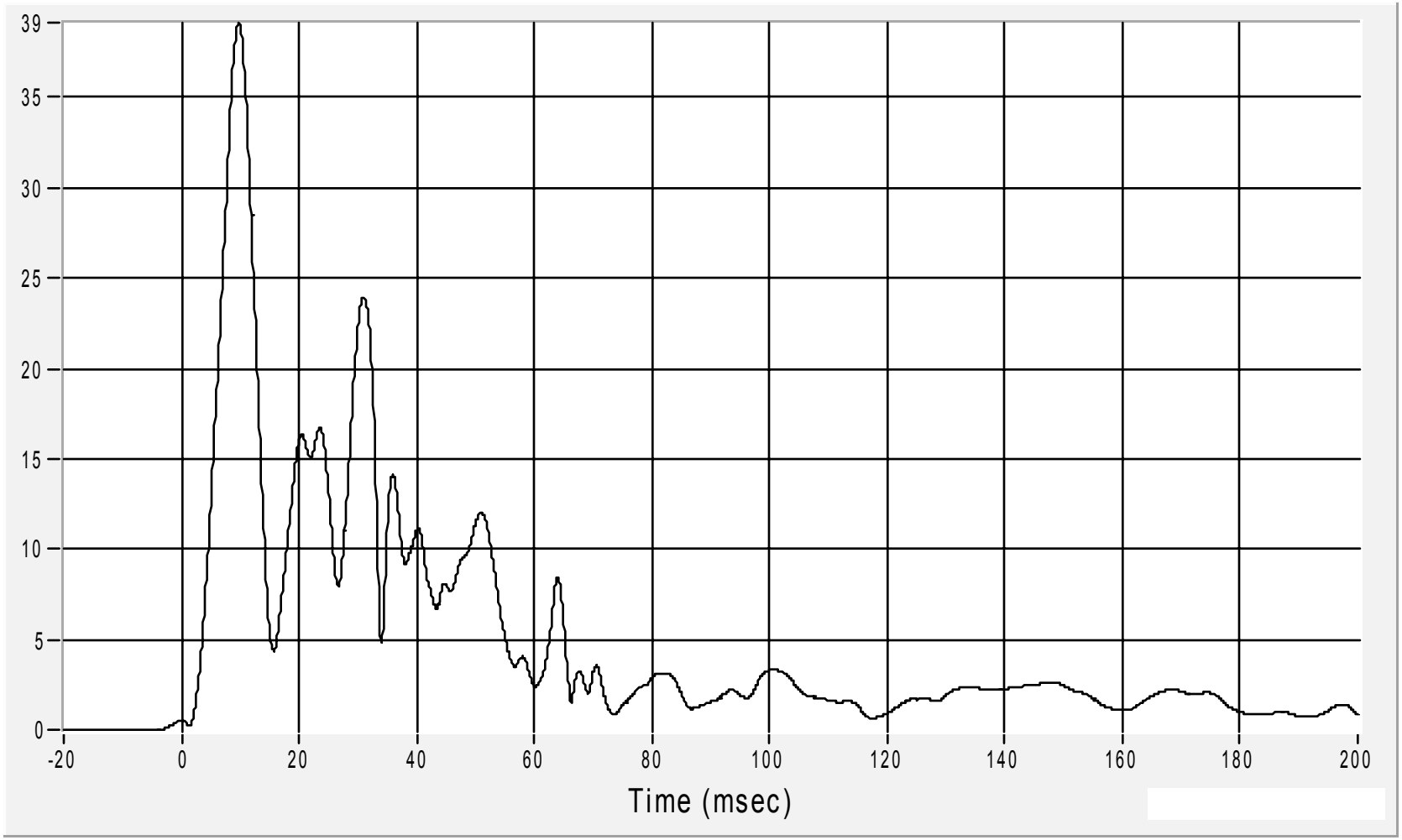
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Side Sill at Front Seat Resultant Acceleration

Acceleration (G's) CFC60

Max 39.1 G's at 9.8 msec

Min 0.2 G's at 1.4 msec



05SN01 - 2005 FORD FREESTYLE MPV

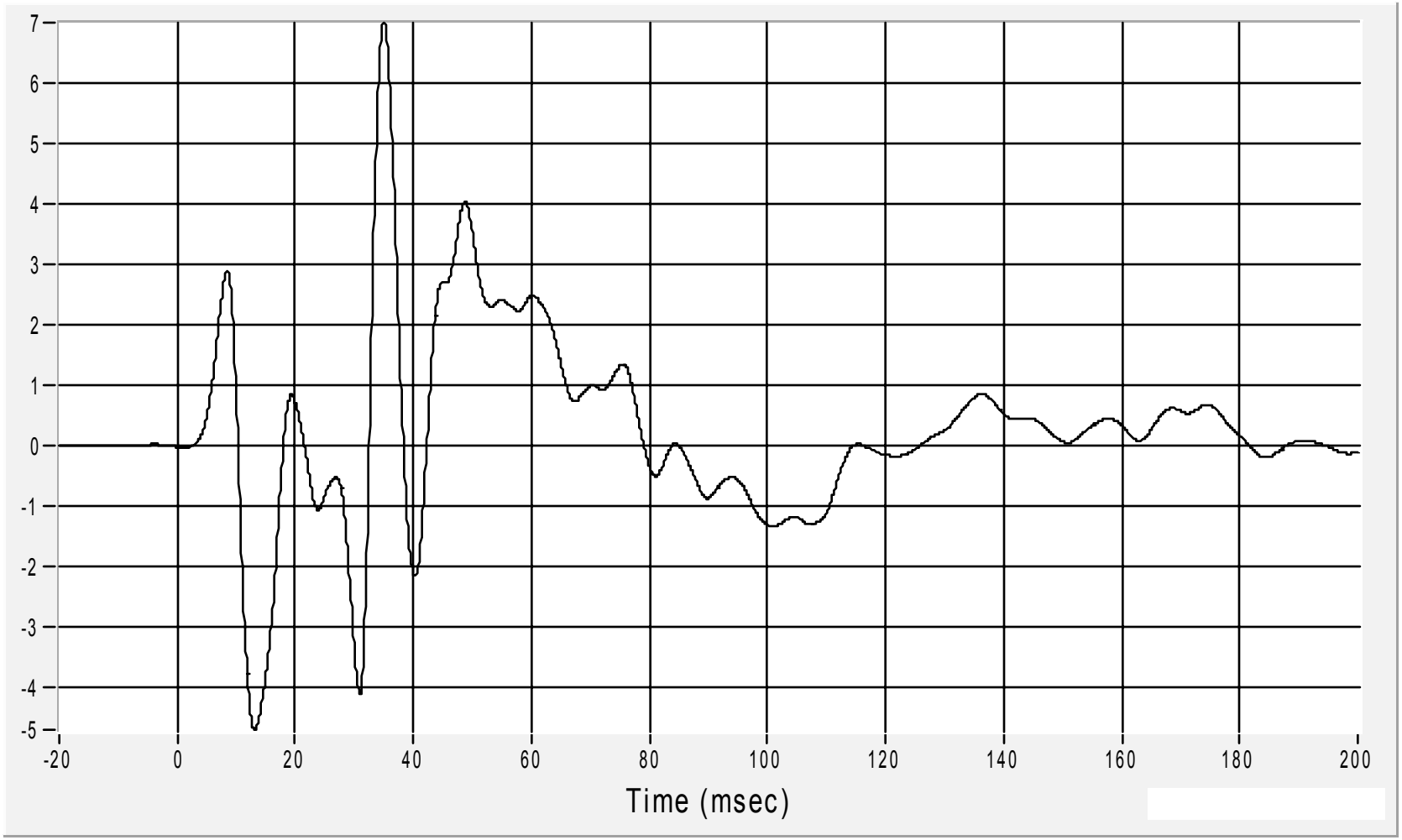
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Side Sill at Rear Seat (X) Acceleration

Acceleration (G's) CFC60

Max	**7.0**	**G**	**at**	**35.0**	**msec**
Min	**-4.7**	**G**	**at**	**13.1**	**msec**



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

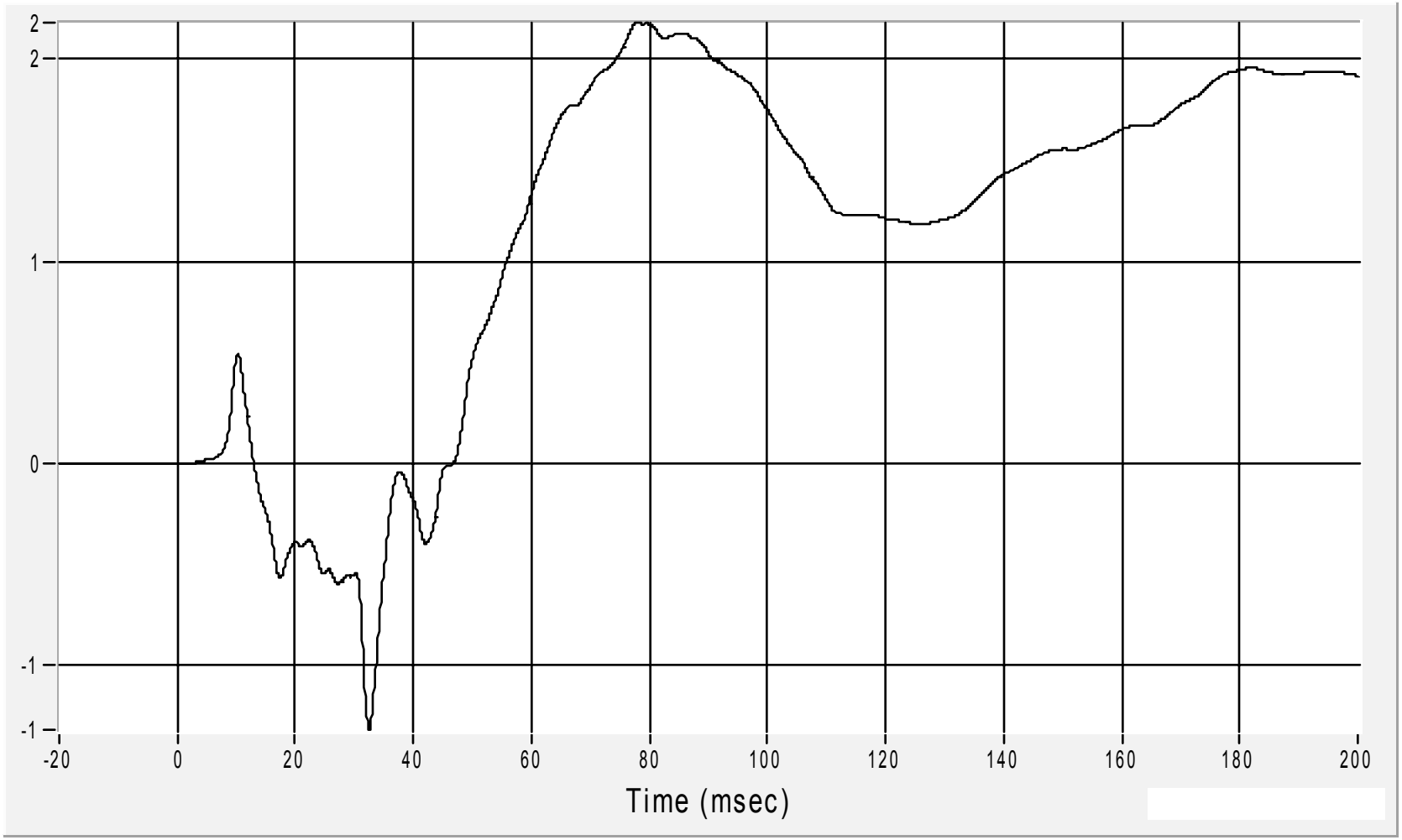
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Side Sill at Rear Seat (X) Velocity

Velocity (km/h) CFC180

Max 2.2 km/h at 77.9 msec

Min -1.3 km/h at 32.5 msec



05SN01 - 2005 FORD FREESTYLE MPV

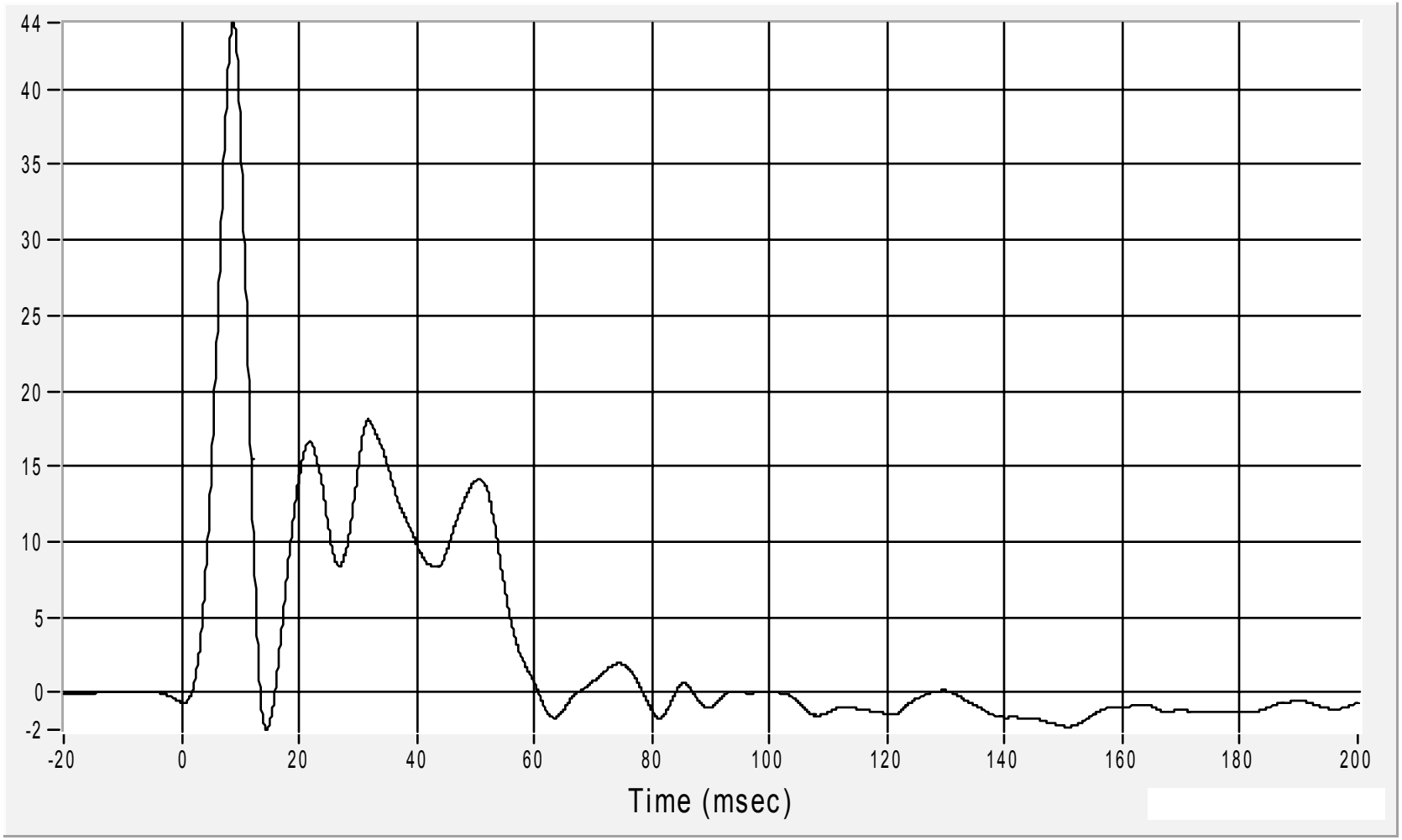
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Side Sill at Rear Seat (Y) Acceleration

Max	**44.4**	**G**	**at**	**8.8**	**msec**
Min	**-2.4**	**G**	**at**	**14.5**	**msec**

Acceleration (G's) CFC60



05SN01 - 2005 FORD FREESTYLE MPV
18 November 2004

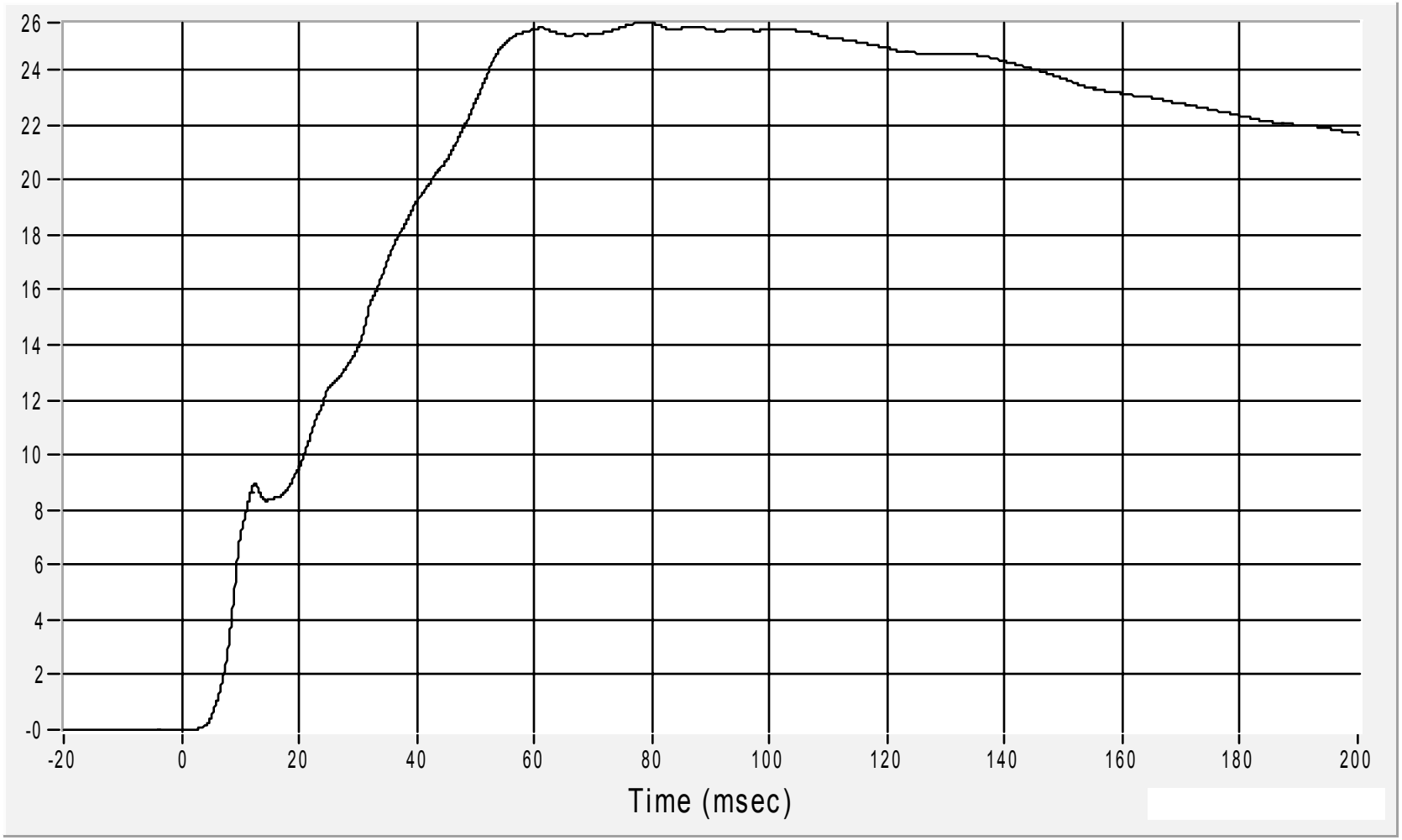
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Side Sill at Rear Seat (Y) Velocity

Velocity (km/h) CFC180

Max 25.7 km/h at 78.8 msec

Min 0.0 km/h at 1.1 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

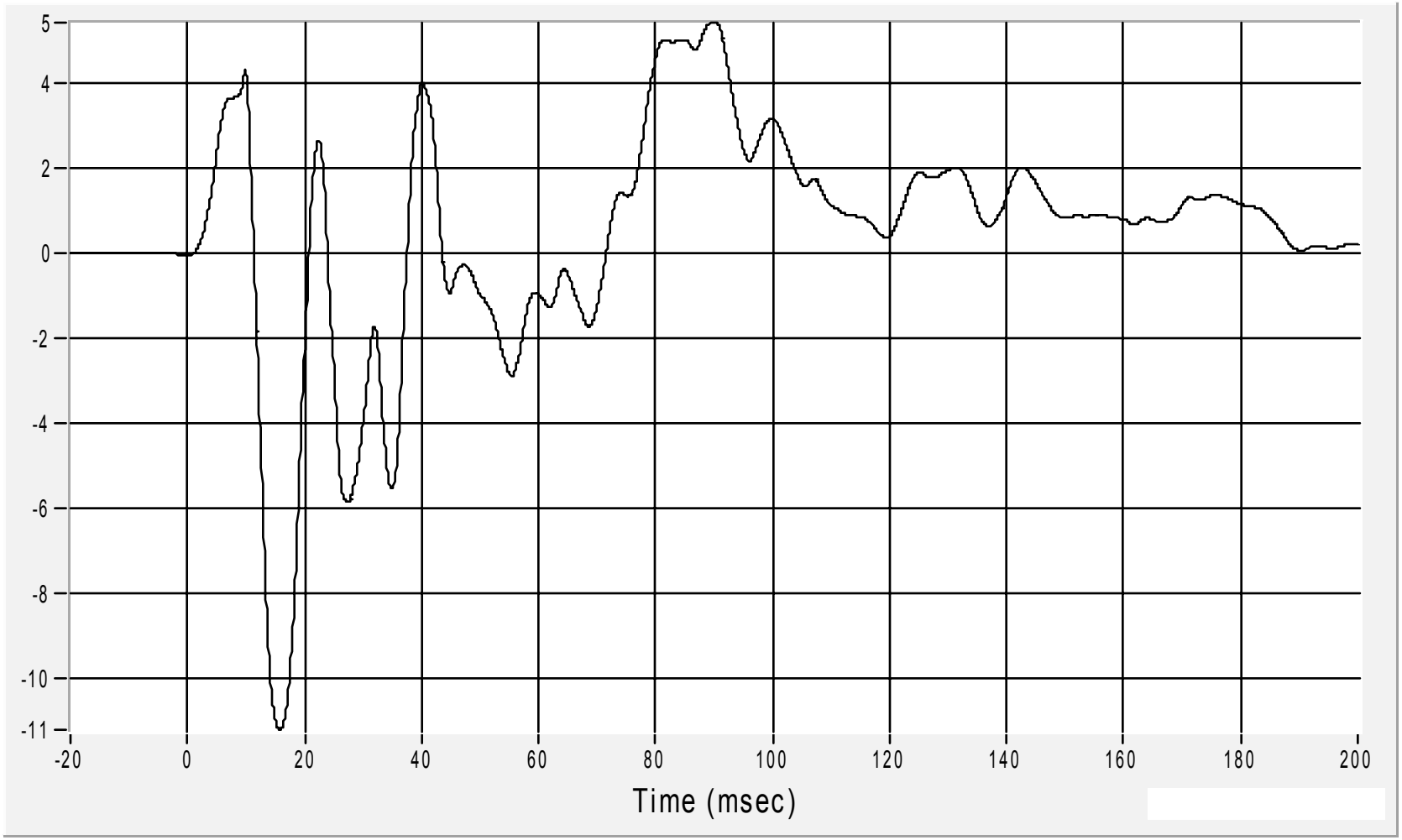
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Side Sill at Rear Seat (Z) Acceleration

Acceleration (G's) CFC60

Max 5.4 G at 90.2 msec

Min -11.2 G at 15.8 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

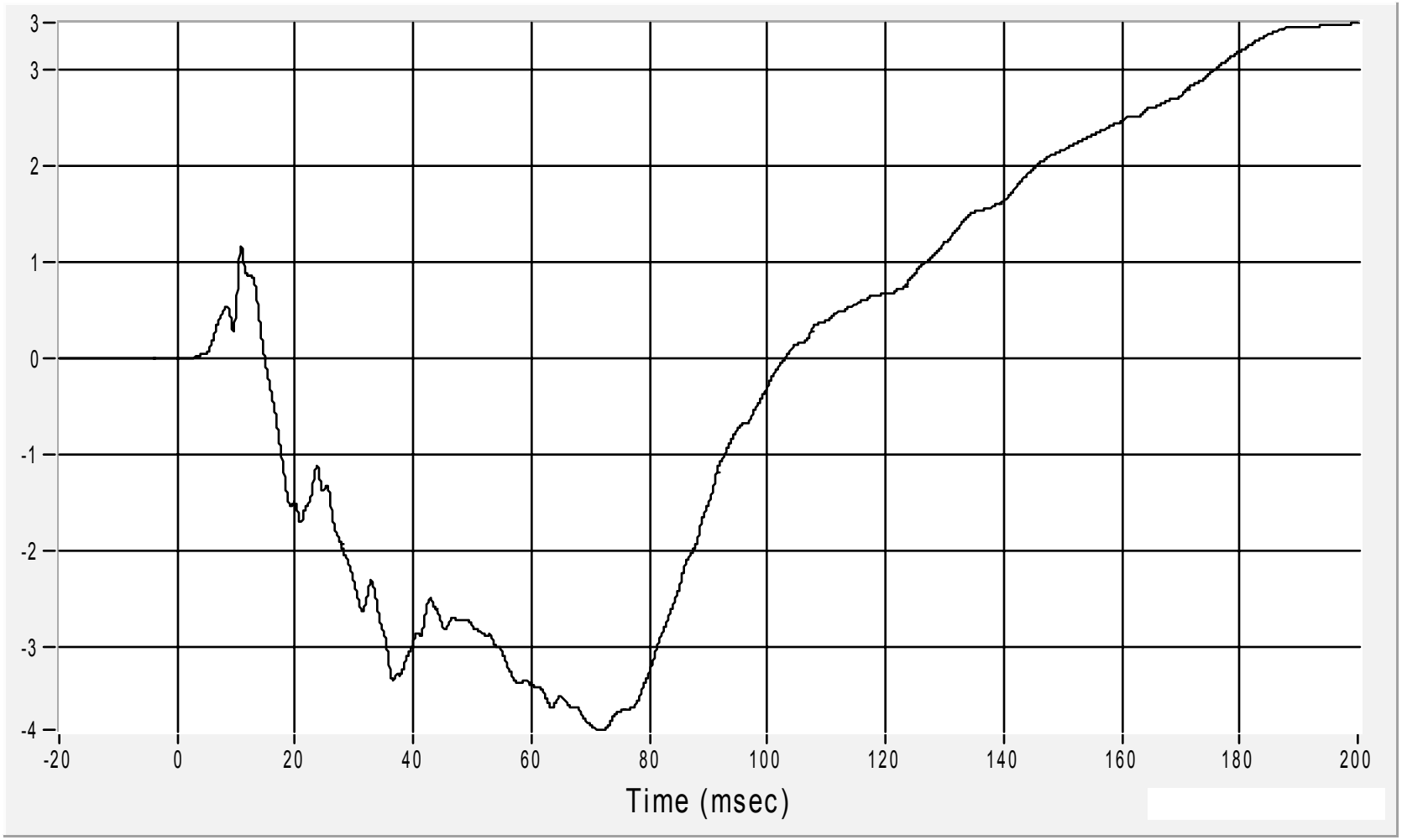
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Side Sill at Rear Seat (Z) Velocity

Velocity (km/h) CFC180

Max 3.5 km/h at 199.9 msec

Min -3.9 km/h at 71.8 msec



05SN01 - 2005 FORD FREESTYLE MPV

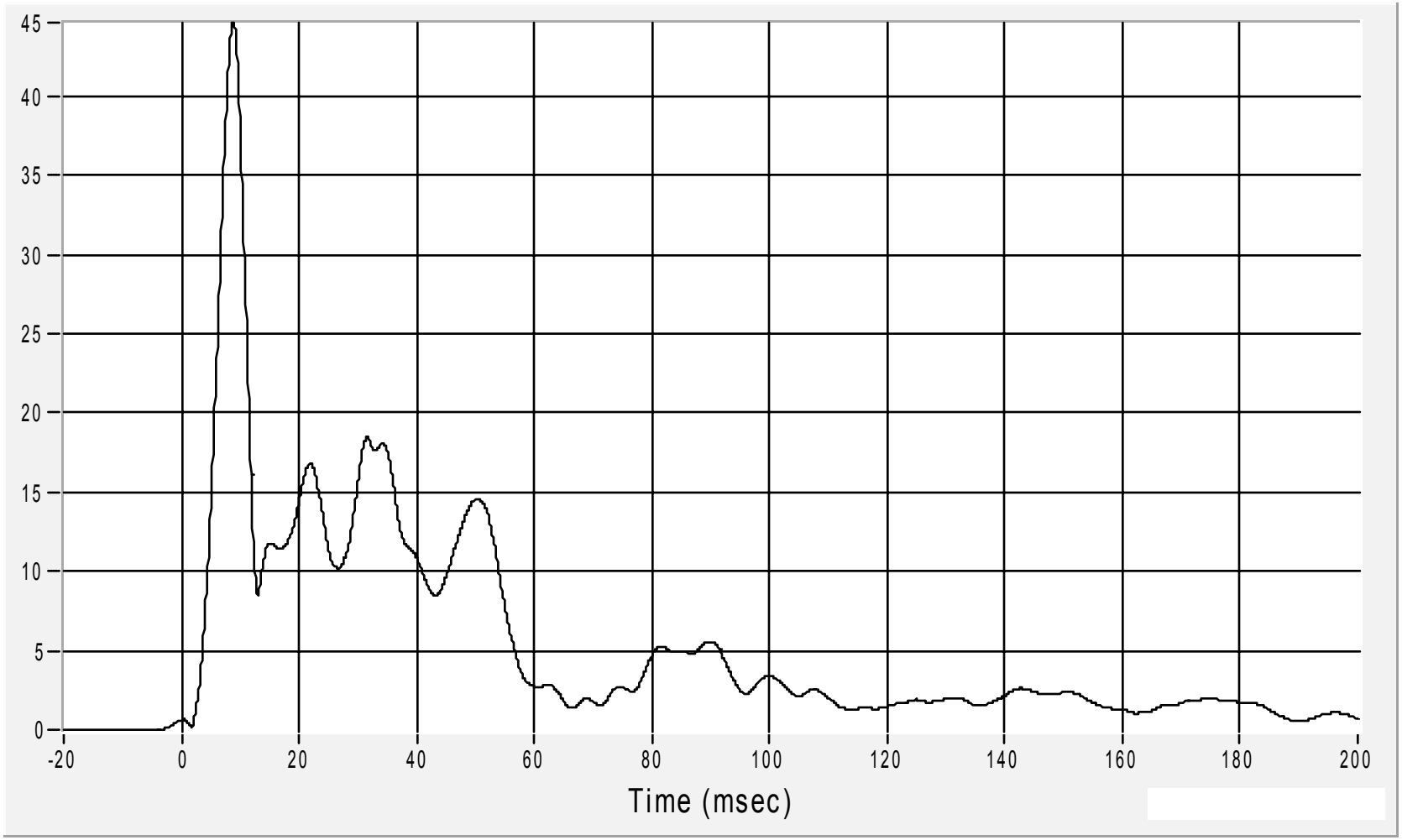
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Side Sill at Rear Seat Resultant Acceleration

Max	**44.7**	**G's**	**at**	**8.8**	**msec**
Min	**0.1**	**G's**	**at**	**1.7**	**msec**

Acceleration (G's) CFC60



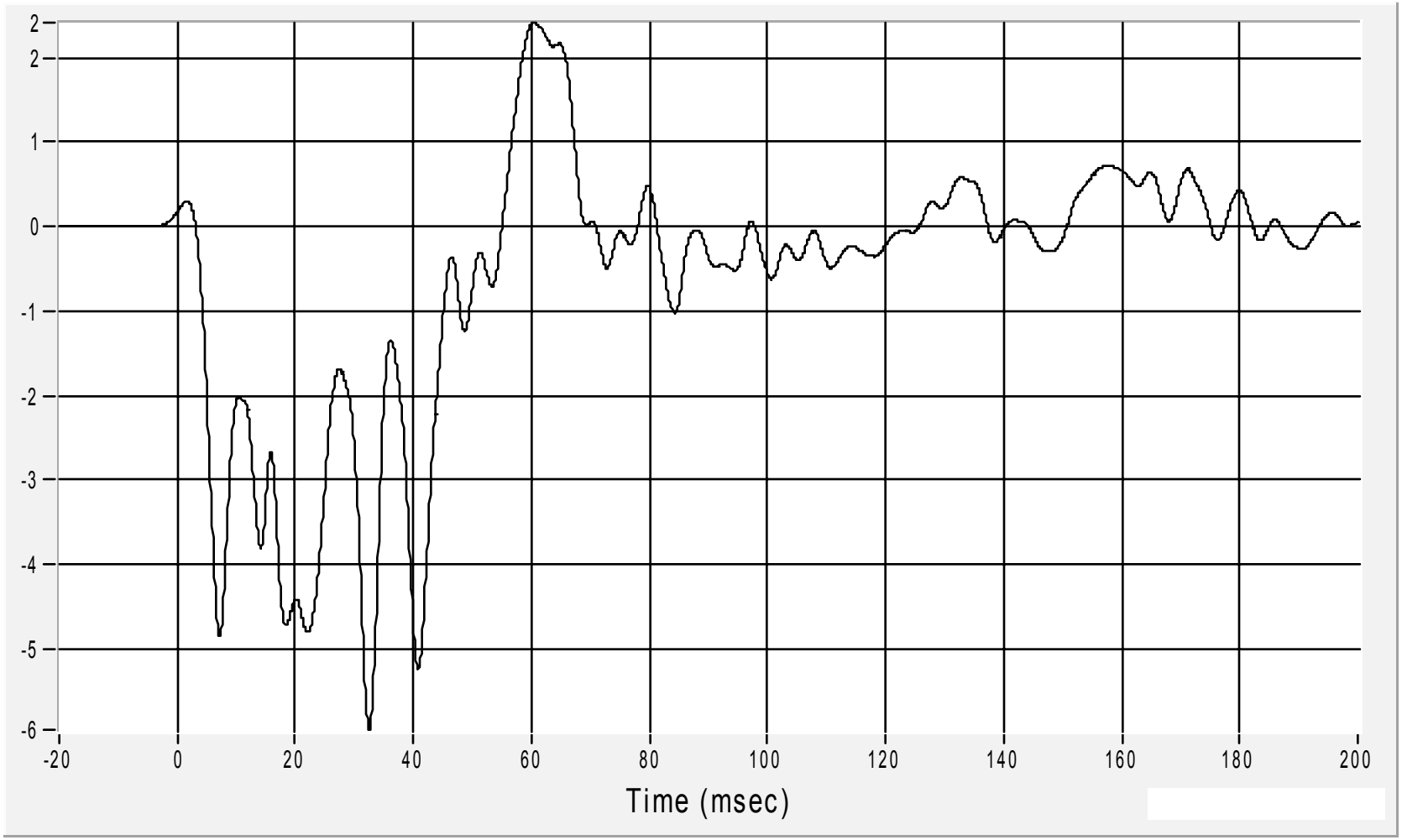
05SN01 - 2005 FORD FREESTYLE MPV
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

Rear Floorpan Above Axle (X) Acceleration

Acceleration (G's) CFC60

Max	**2.4**	**G**	**at**	**60.4**	**msec**
Min	**-6.0**	**G**	**at**	**32.5**	**msec**



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

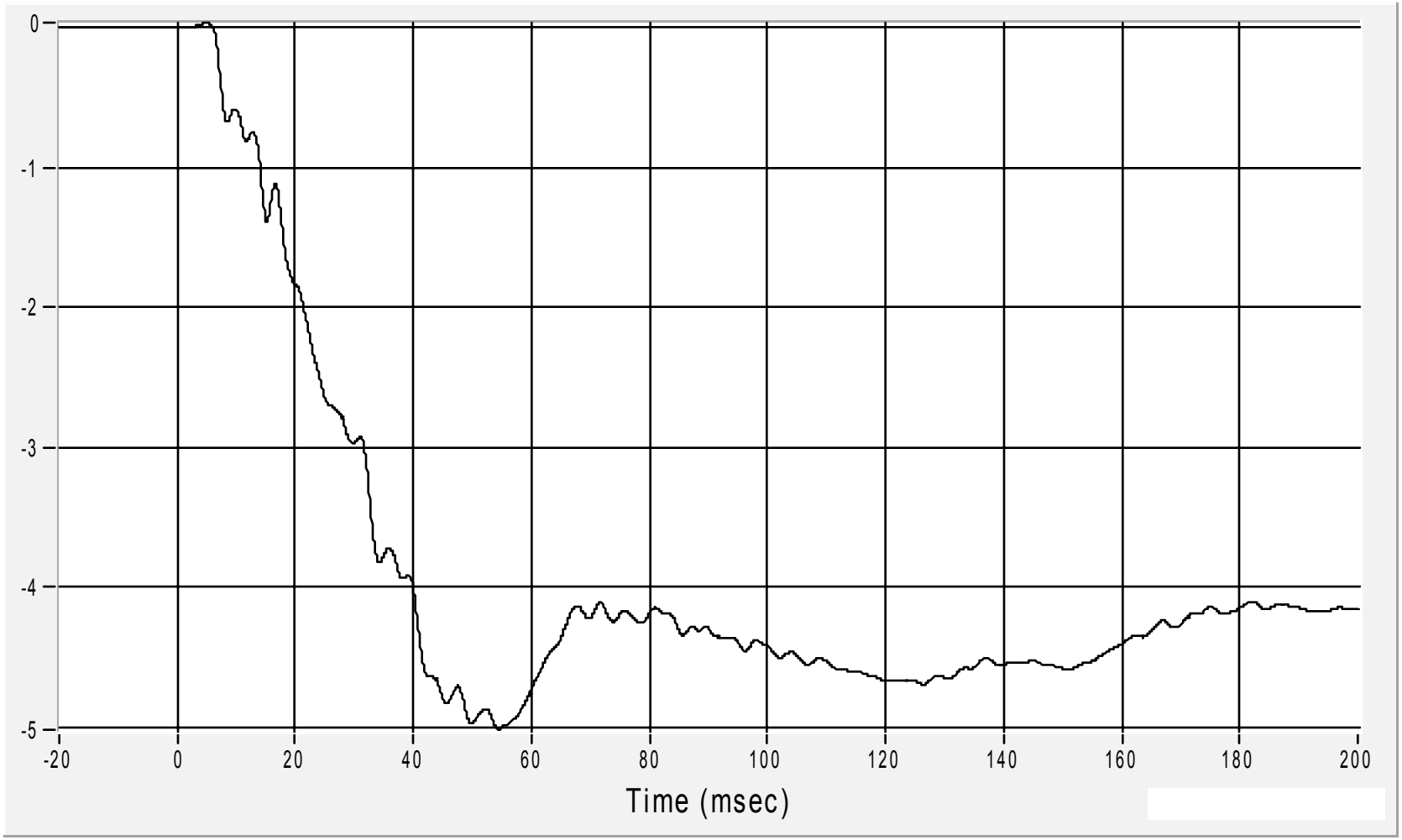
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Rear Floorpan Above Axle (X) Velocity

Velocity (km/h) CFC180

Max 0.0 km/h at 4.9 msec

Min -5.0 km/h at 54.4 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

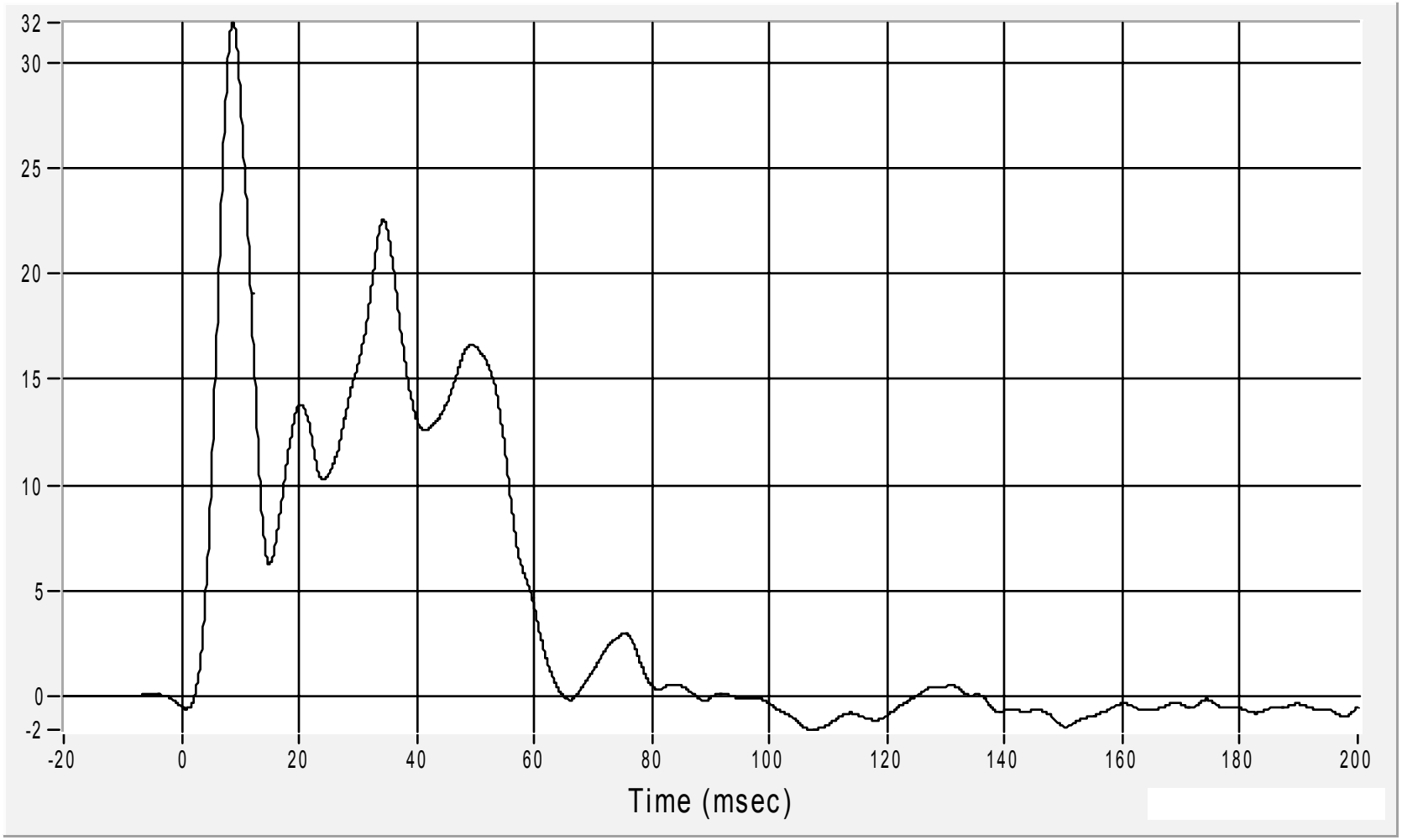
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Rear Floorpan Above Axle (Y) Acceleration

Acceleration (G's) CFC60

Max 31.9 G at 8.7 msec

Min -1.6 G at 107.1 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

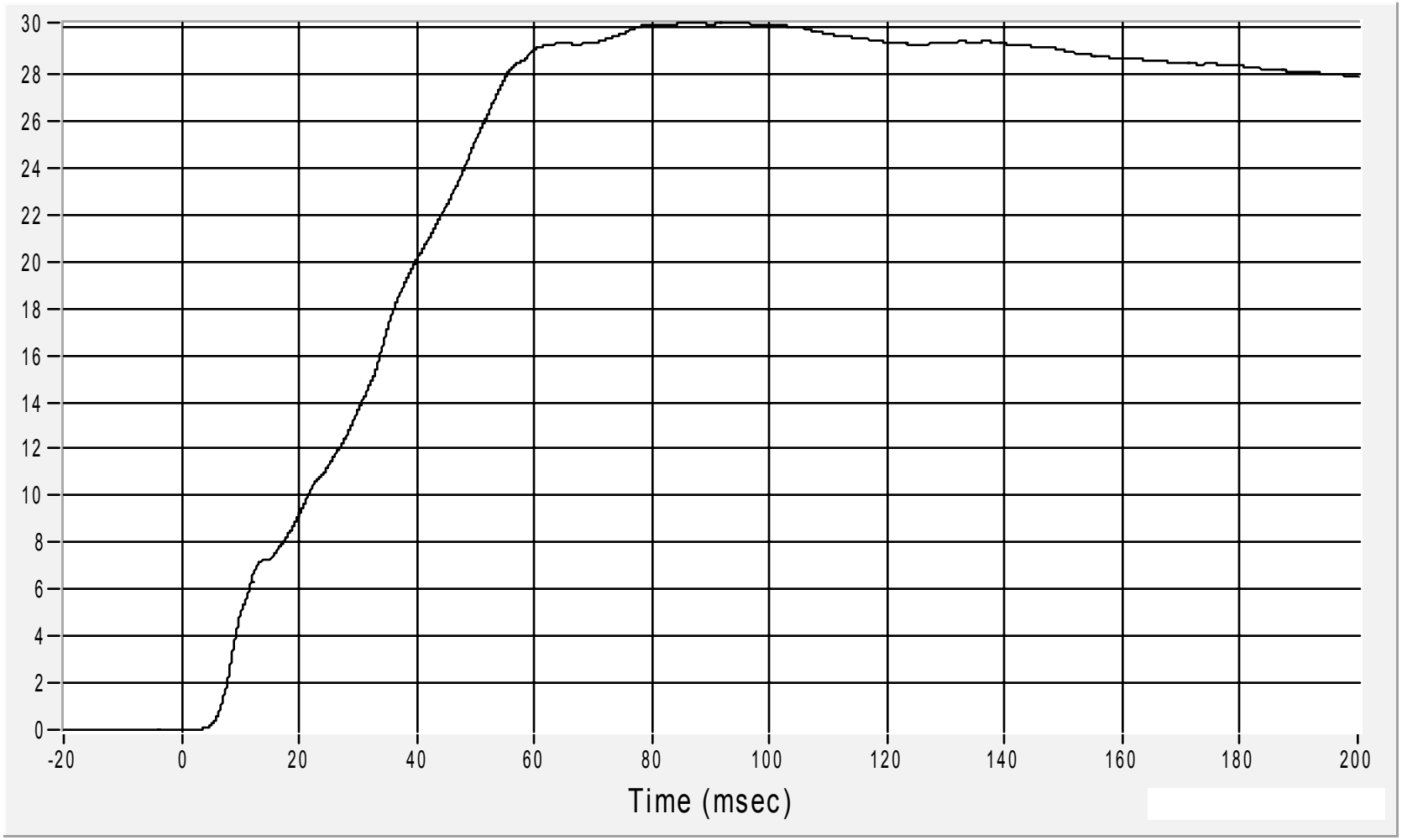
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Rear Floorpan Above Axle (Y) Velocity

Velocity (km/h) CFC180

Max 30.2 km/h at 87.9 msec

Min 0.0 km/h at 0.0 msec



05SN01 - 2005 FORD FREESTYLE MPV

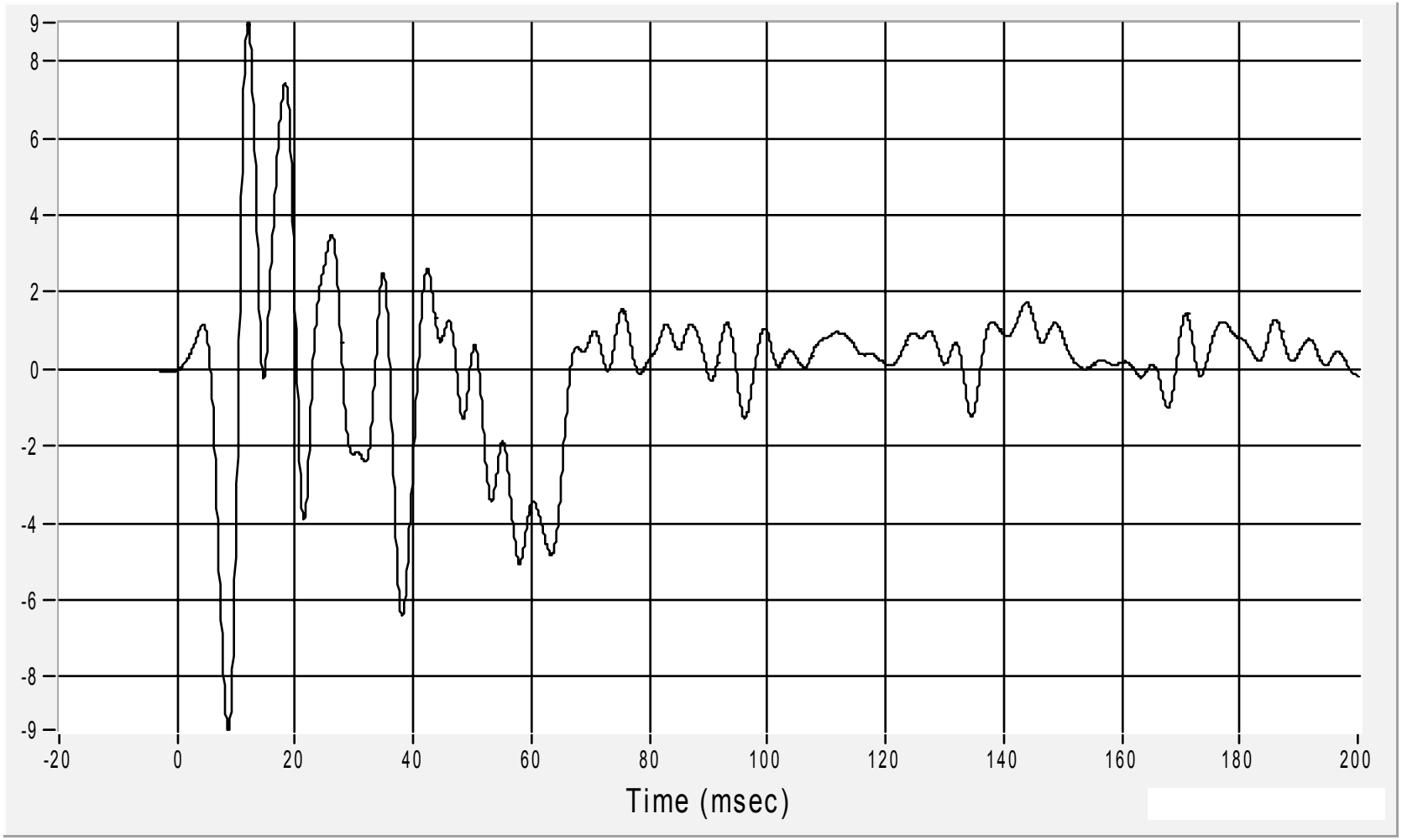
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

Rear Floorpan Above Axle (Z) Acceleration

Acceleration (G's) CFC60

Max	**9.0**	**G**	**at**	**12.0**	**msec**
Min	**-9.4**	**G**	**at**	**8.6**	**msec**



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

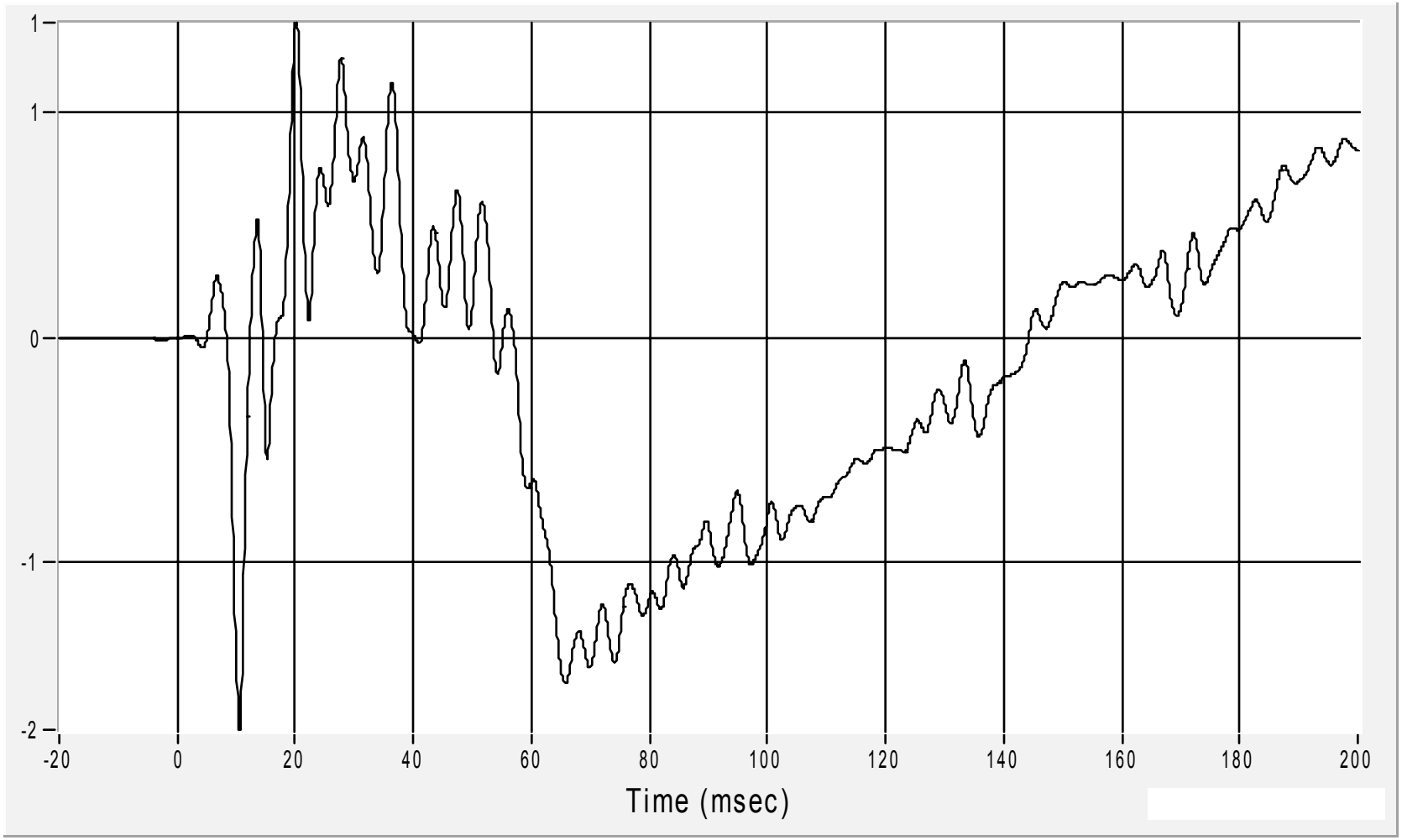
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Rear Floorpan Above Axle (Z) Velocity

Velocity (km/h) CFC180

Max 1.4 km/h at 20.2 msec

Min -1.7 km/h at 10.6 msec



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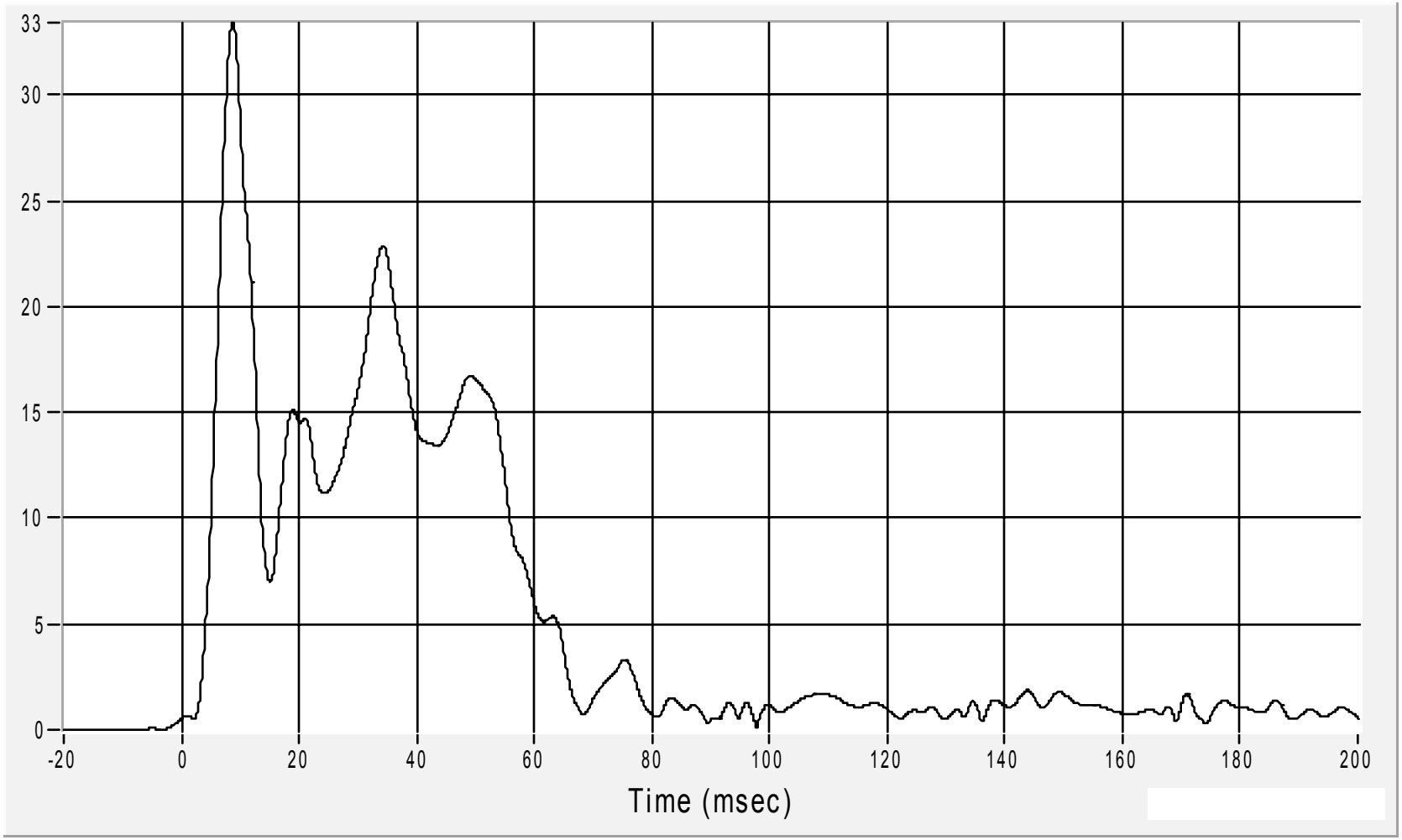
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

Rear Floorpan Above Axle Resultant Acceleration

Acceleration (G's) CFC60

Max	**33.4**	**G's**	**at**	**8.7**	**msec**
Min	**0.1**	**G's**	**at**	**97.8**	**msec**



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18 November 2004

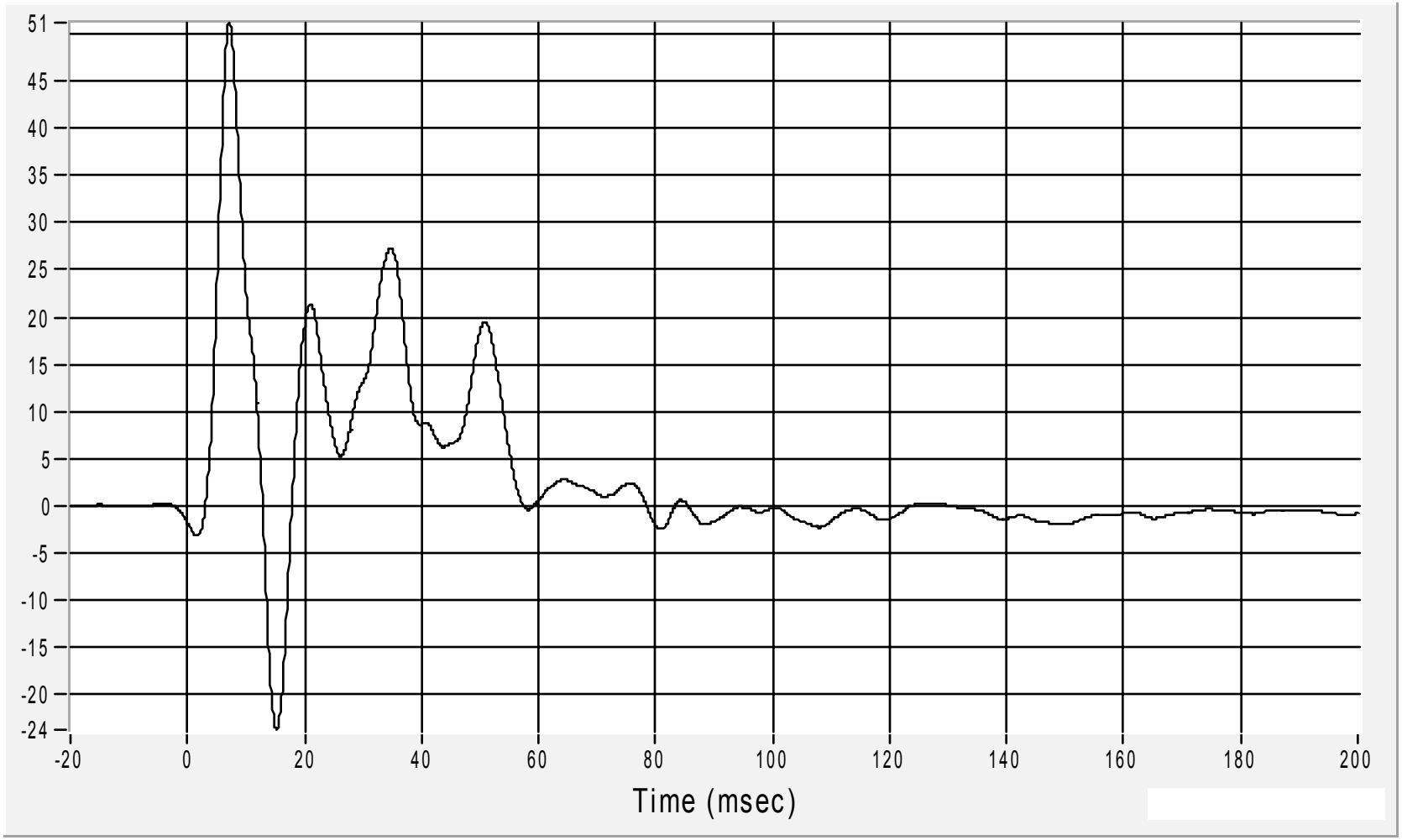
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Side Sill at Rear Seat (Y) Acceleration

Acceleration (G's) CFC60

Max 51.2 G at 7.1 msec

Min -23.8 G at 15.2 msec



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18 November 2004

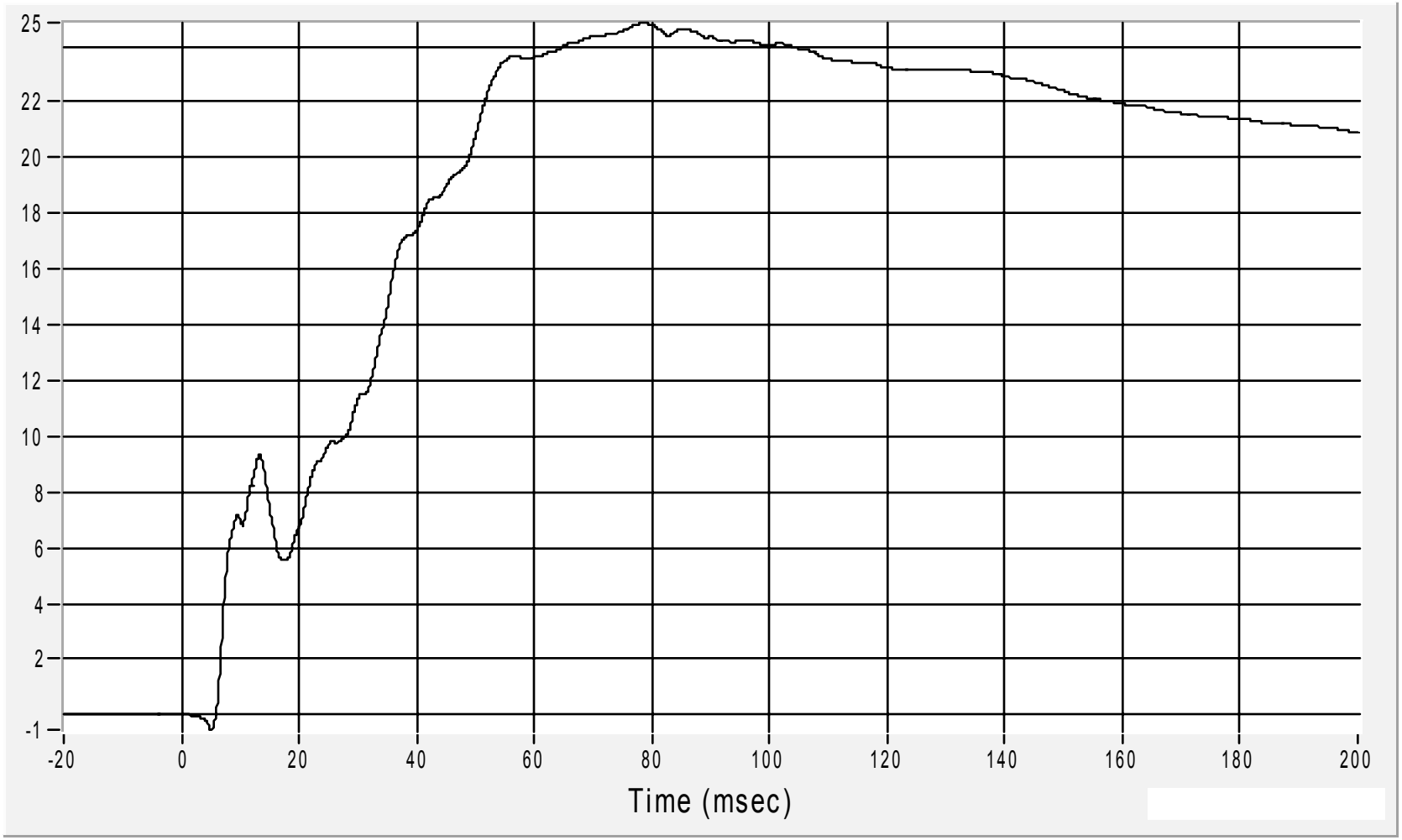
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Side Sill at Rear Seat (Y) Velocity

Velocity (km/h) CFC180

Max 24.8 km/h at 78.6 msec

Min -0.5 km/h at 5.1 msec



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18 November 2004

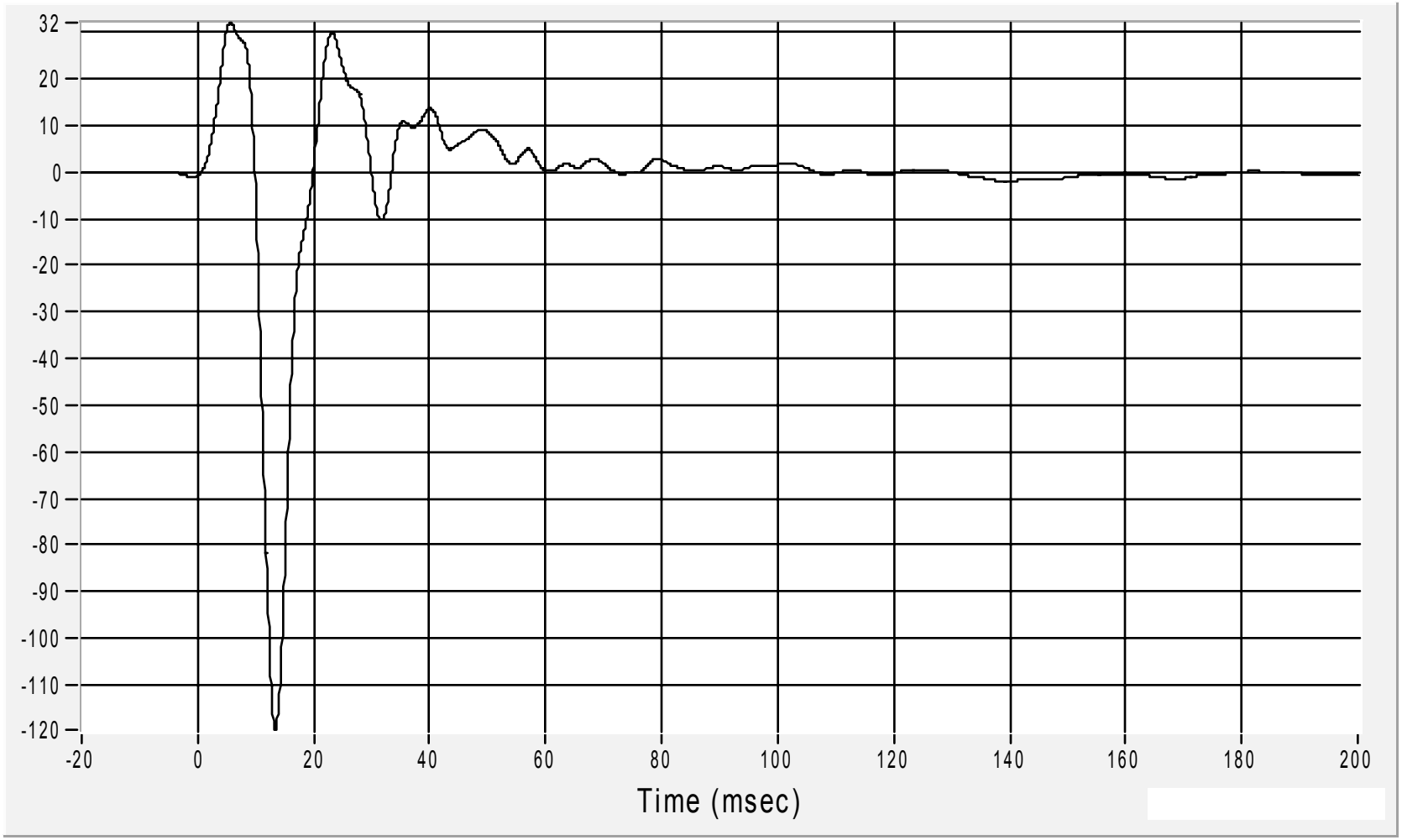
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Side Sill at Front Seat (Y) Acceleration

Acceleration (G's) CFC60

Max 32.1 G at 5.6 msec

Min -119.6 G at 13.4 msec



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18 November 2004

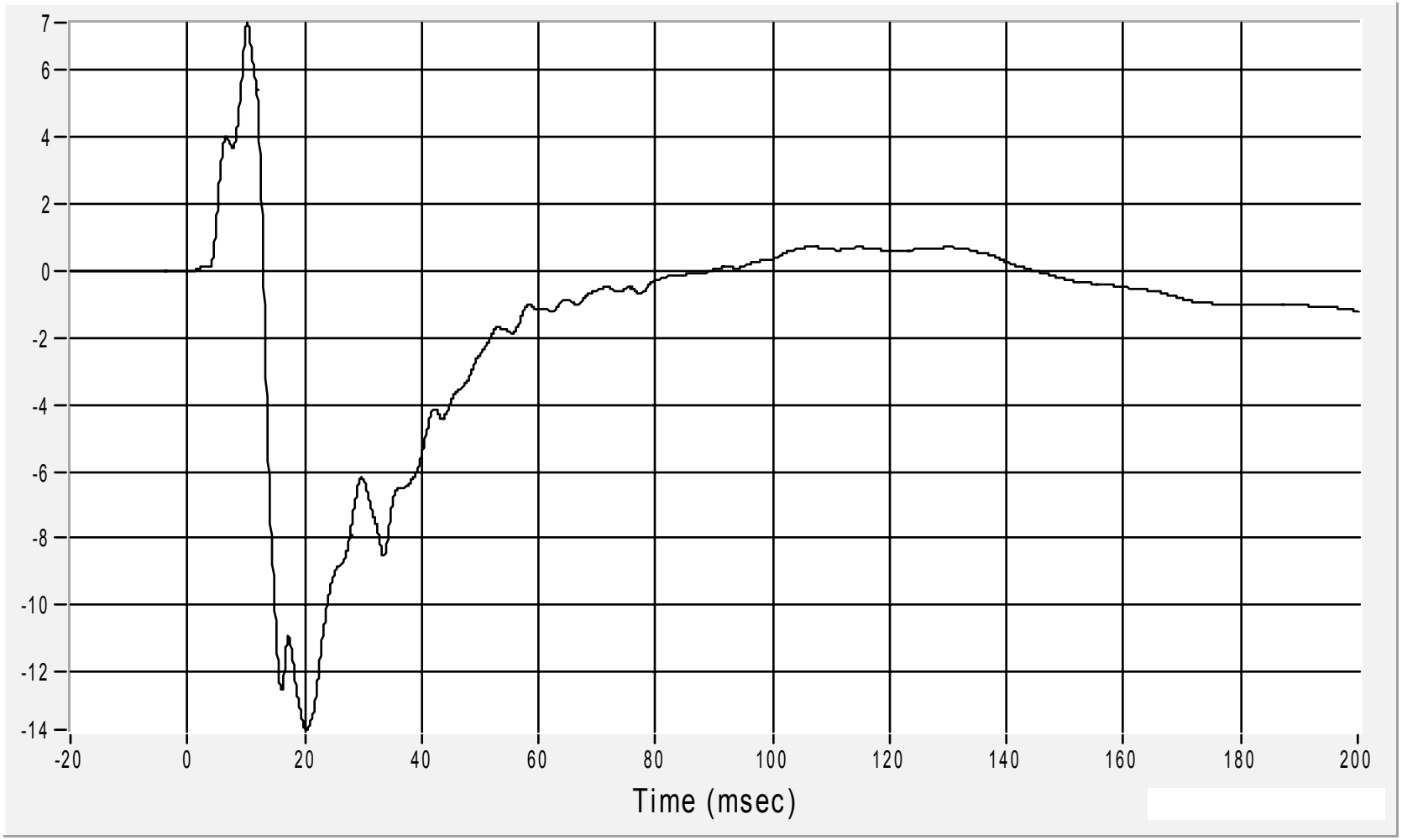
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Side Sill at Front Seat (Y) Velocity

Velocity (km/h) CFC180

Max 7.4 km/h at 10.2 msec

Min -13.7 km/h at 20.3 msec



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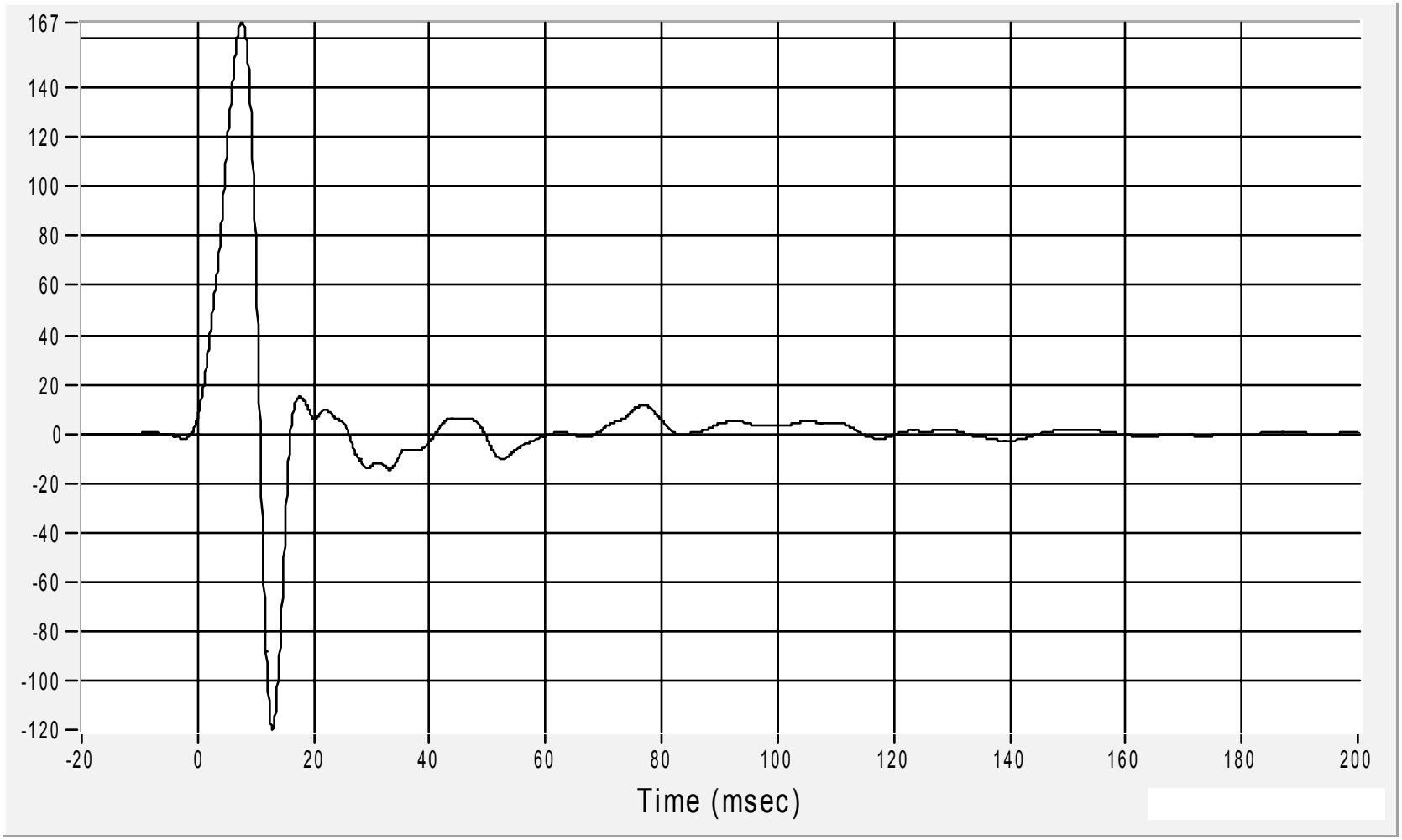
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Front Door on Centerline (Y) Acceleration

Max	**166.6**	**G**	**at**	**7.6**	**msec**
Min	**-120.1**	**G**	**at**	**12.9**	**msec**

Acceleration (G's) CFC60



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18 November 2004

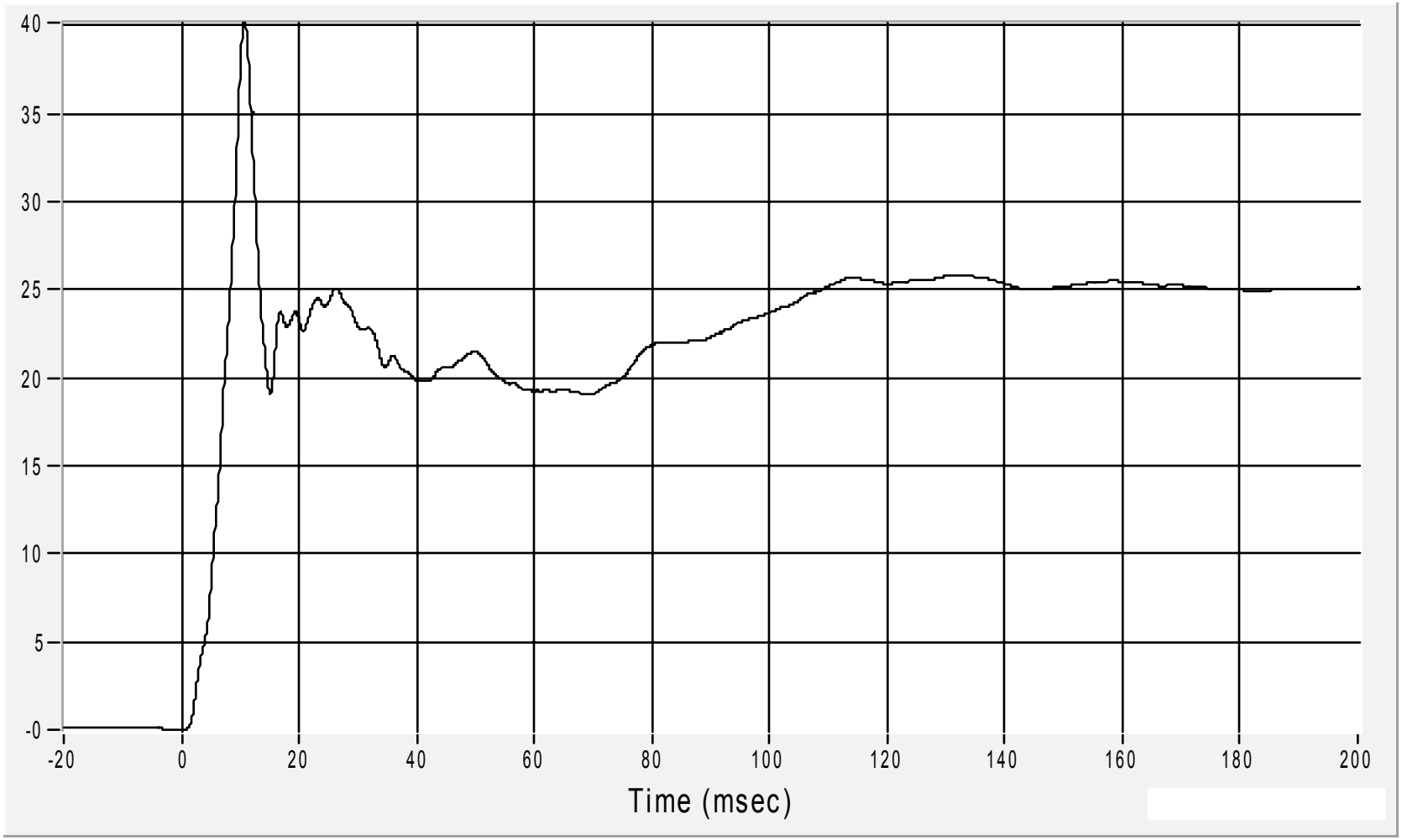
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Front Door on Centerline (Y) Velocity

Velocity (km/h) CFC180

Max 40.2 km/h at 10.7 msec

Min 0.0 km/h at 0.6 msec



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18 November 2004

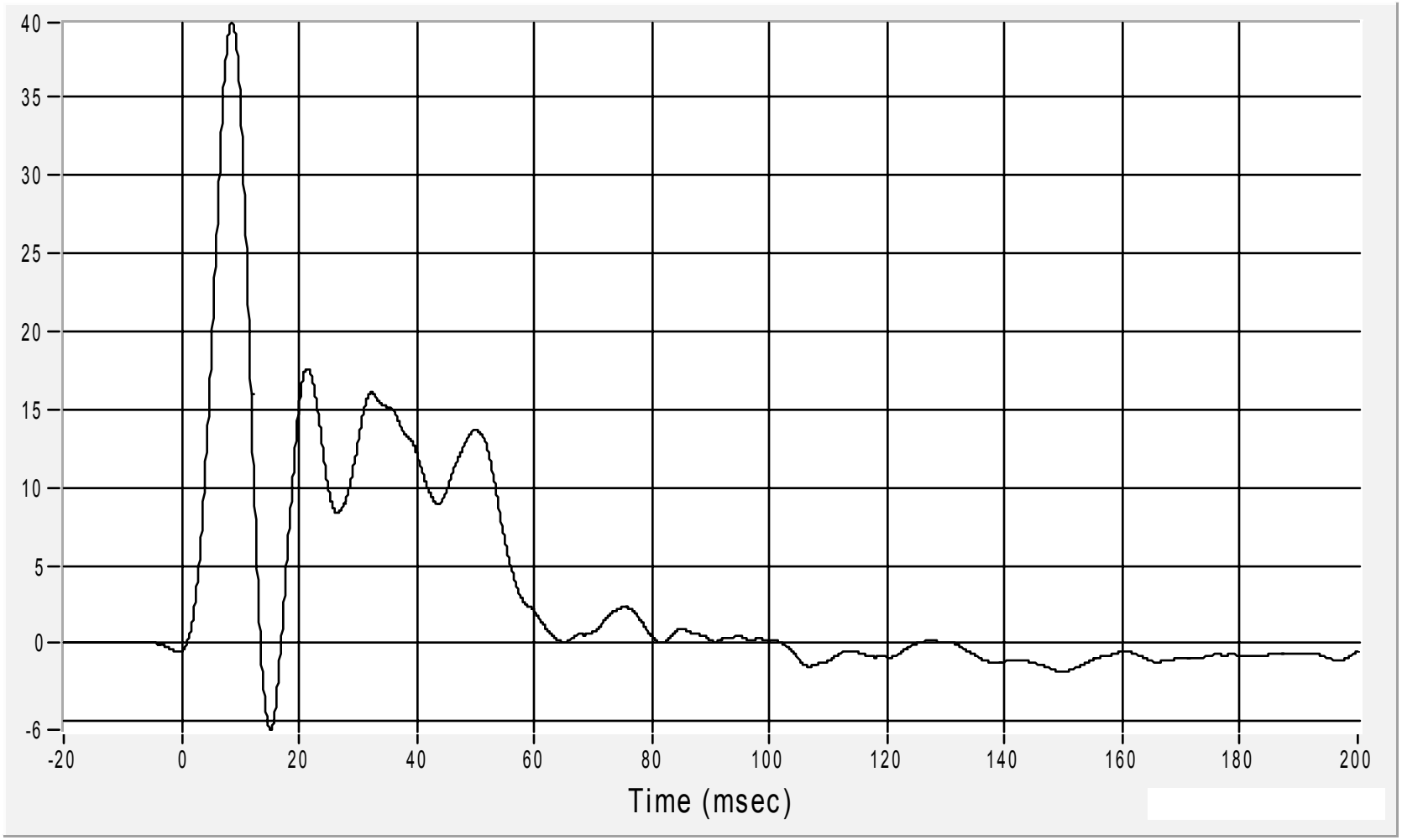
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Rear Occupant Compartment (Y) Acceleration

Acceleration (G's) CFC60

Max 39.7 G at 8.6 msec

Min -5.5 G at 15.1 msec



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18 November 2004

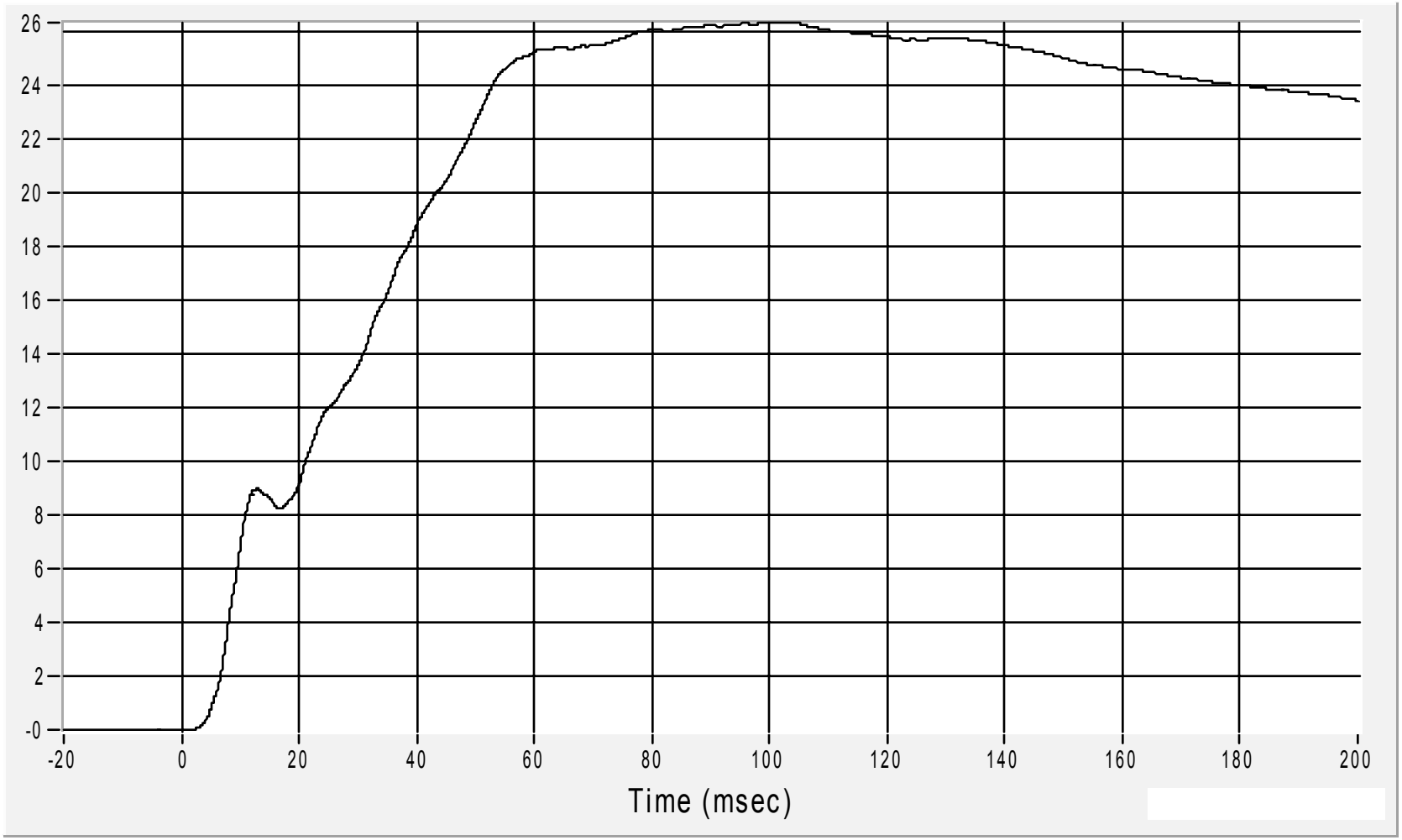
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Right Rear Occupant Compartment (Y) Velocity

Velocity (km/h) CFC180

Max 26.3 km/h at 99.1 msec

Min 0.0 km/h at 0.5 msec



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18 November 2004

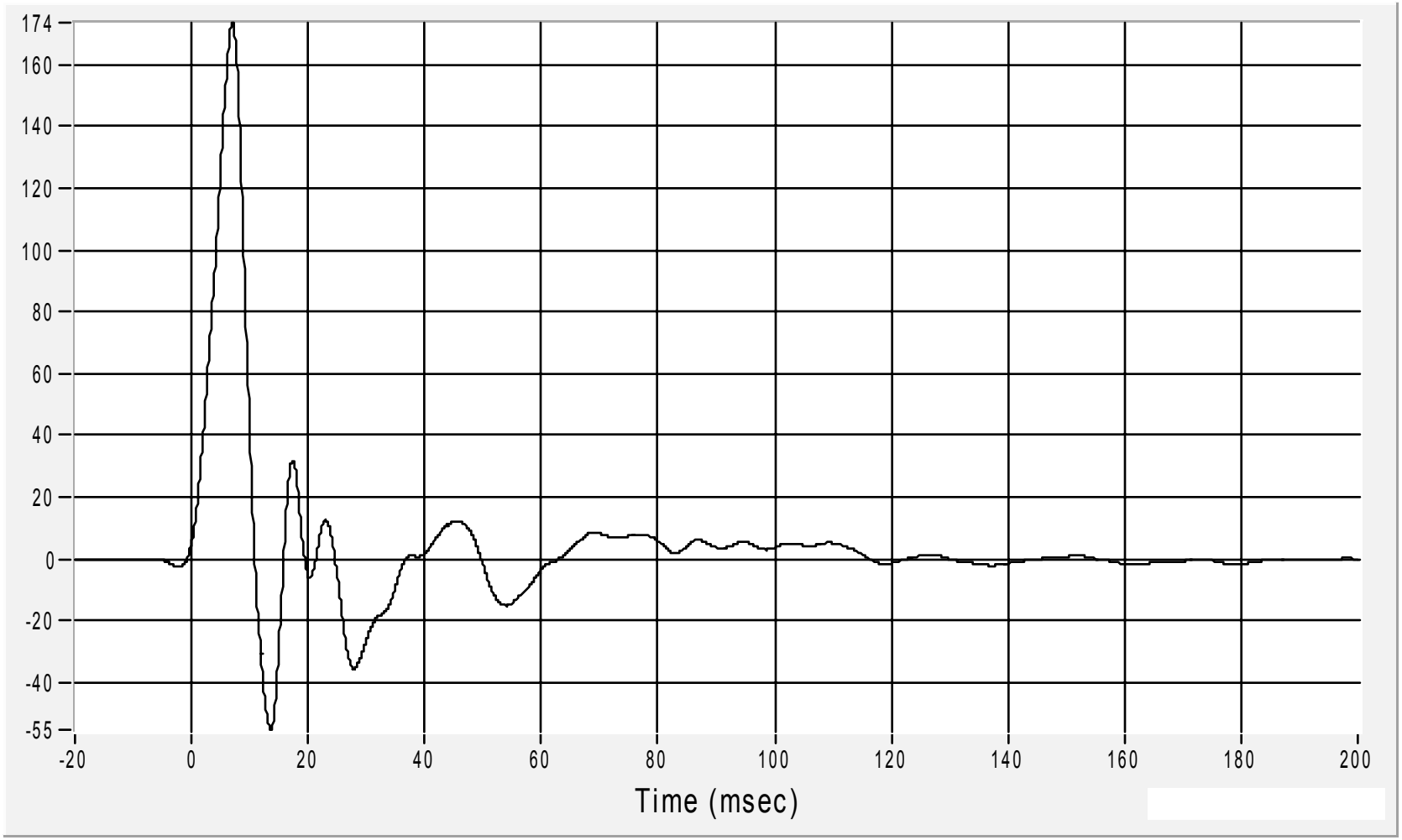
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Mid-Rear of Left Front Door (Y) Acceleration

Acceleration (G's) CFC60

Max 173.6 G at 7.0 msec

Min -55.2 G at 13.6 msec



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18 November 2004

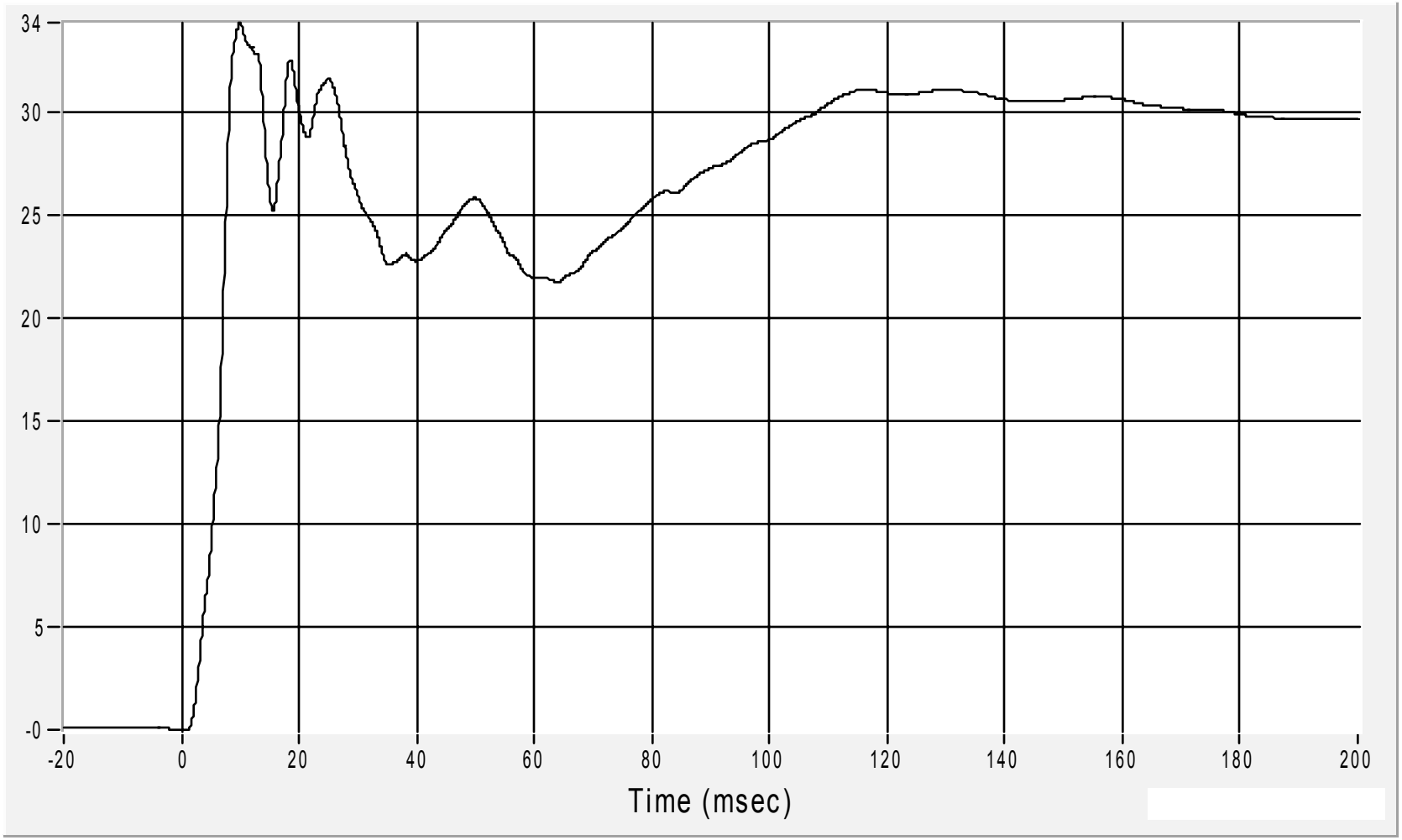
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Mid-Rear of Left Front Door (Y) Velocity

Velocity (km/h) CFC180

Max 34.4 km/h at 10.0 msec

Min 0.0 km/h at 0.7 msec



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18 November 2004

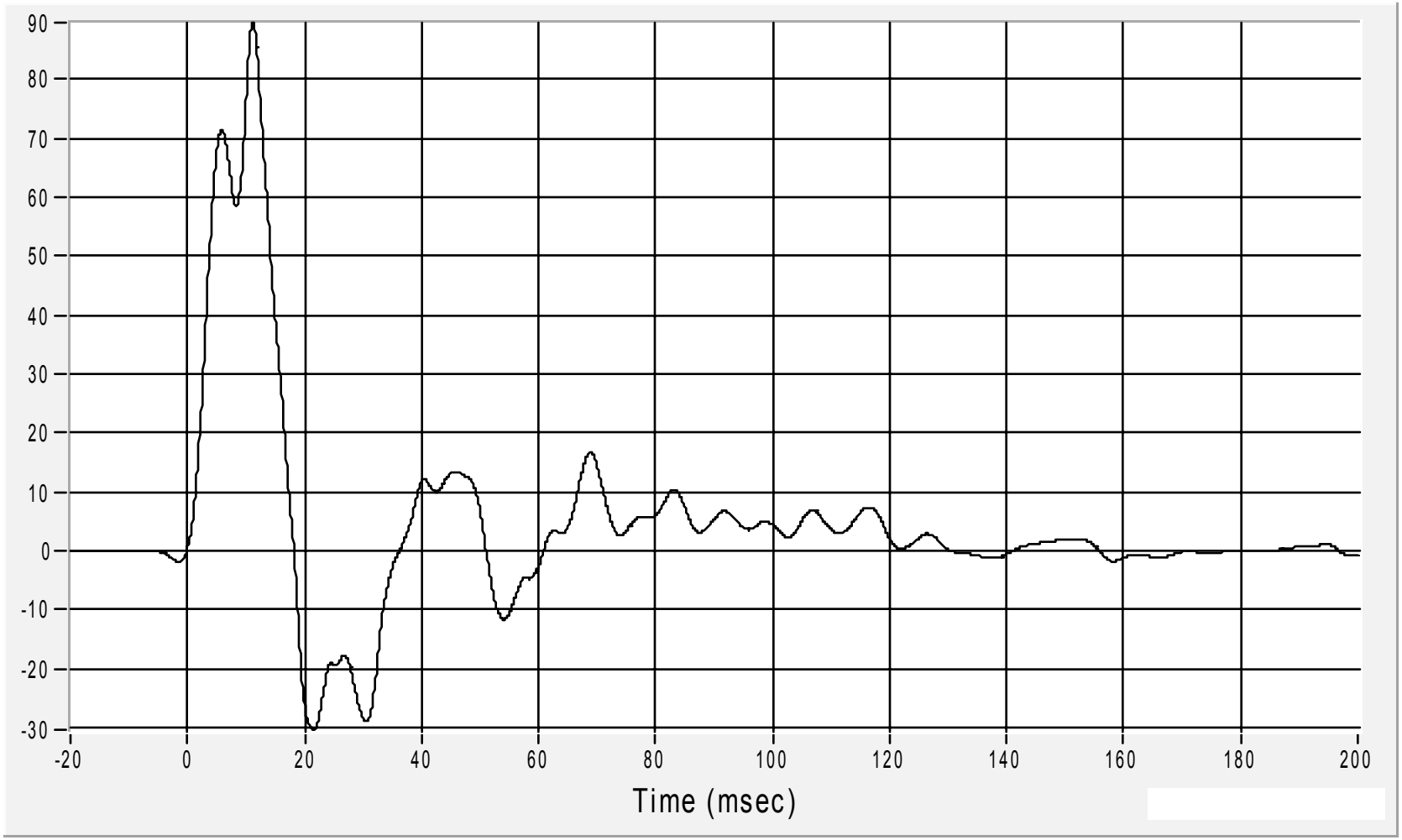
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Front Door Upper Centerline (Y) Acceleration

Acceleration (G's) CFC60

Max 89.7 G at 11.2 msec

Min -30.3 G at 21.6 msec



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18 November 2004

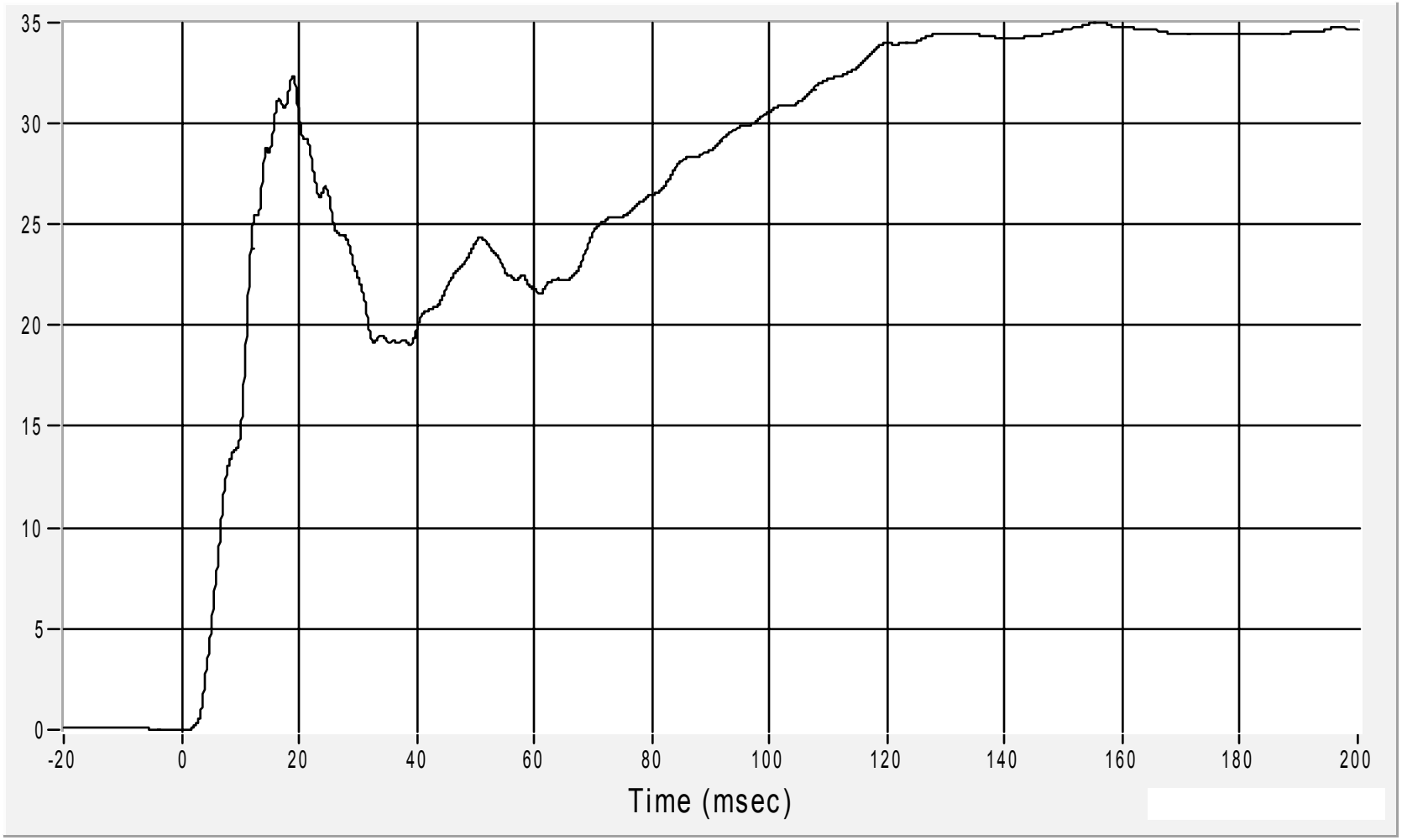
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Front Door Upper Centerline (Y) Velocity

Velocity (km/h) CFC180

Max 35.0 km/h at 156.2 msec

Min 0.0 km/h at 0.0 msec



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18 November 2004

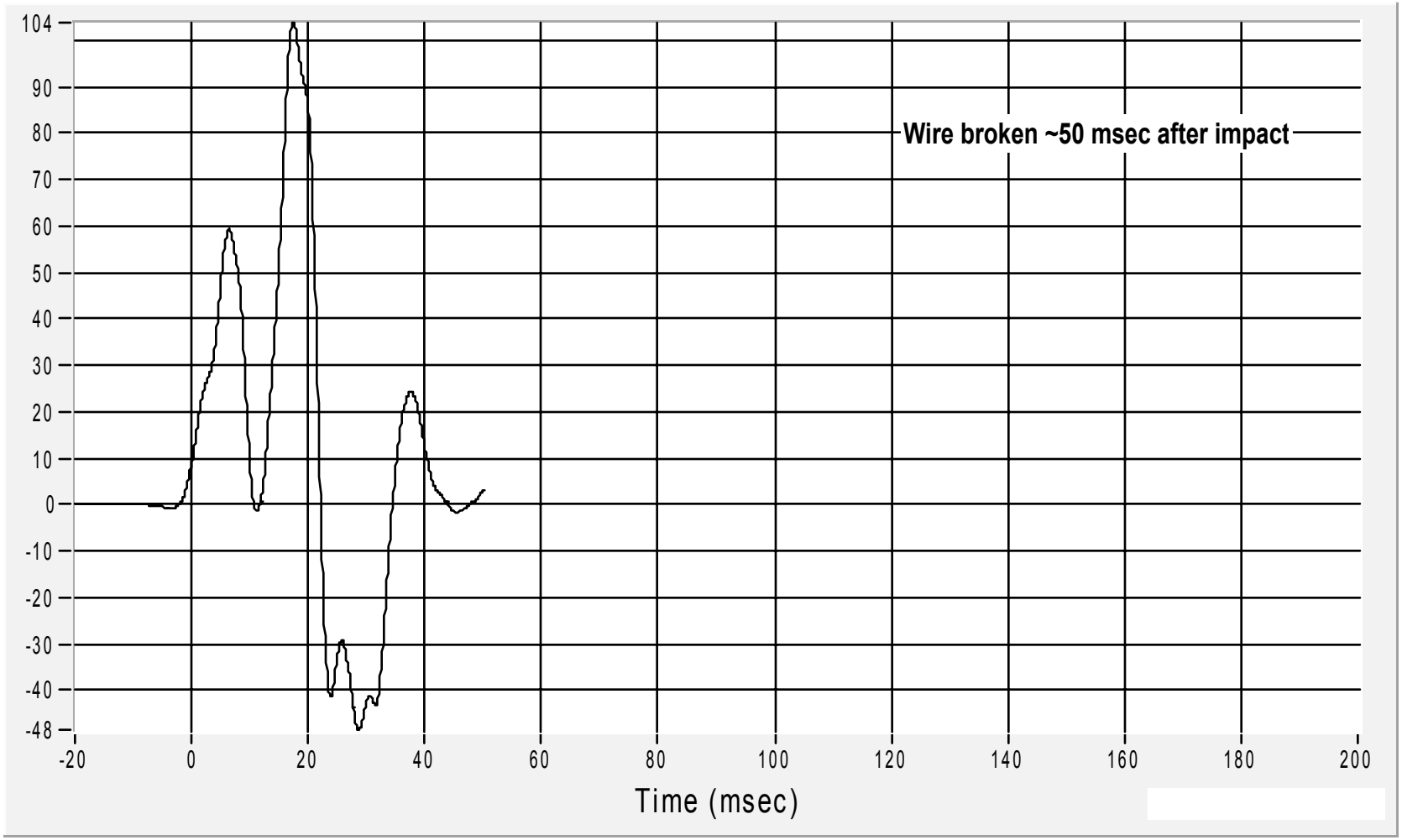
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Mid-Rear of Left Rear Door (Y) Acceleration

Acceleration (G's) CFC60

Max 103.8 G at 17.4 msec

Min -48.5 G at 28.6 msec



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18 November 2004

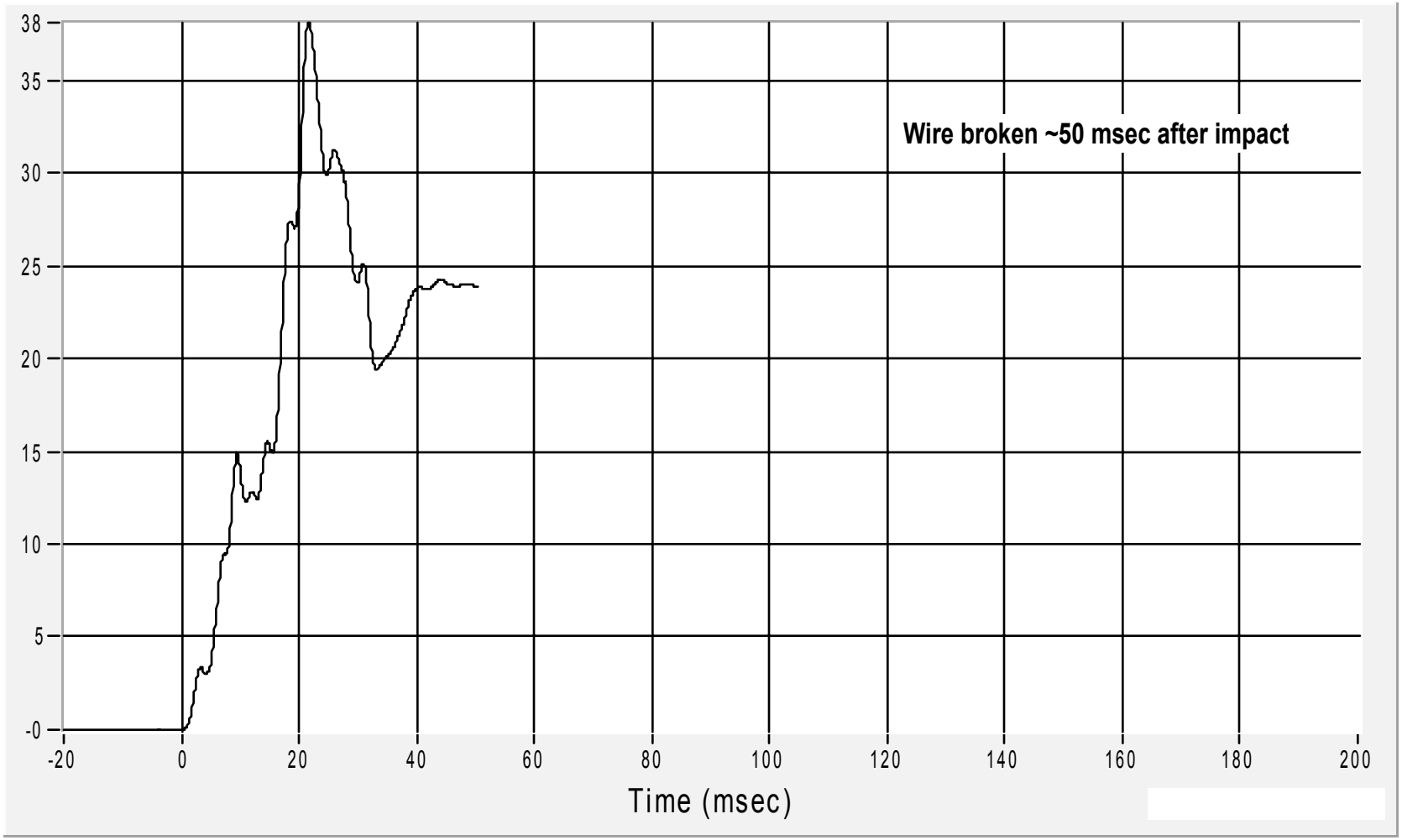
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Mid-Rear of Left Rear Door (Y) Velocity

Velocity (km/h) CFC180

Max 38.1 km/h at 21.6 msec

Min 0.0 km/h at 0.2 msec



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18 November 2004

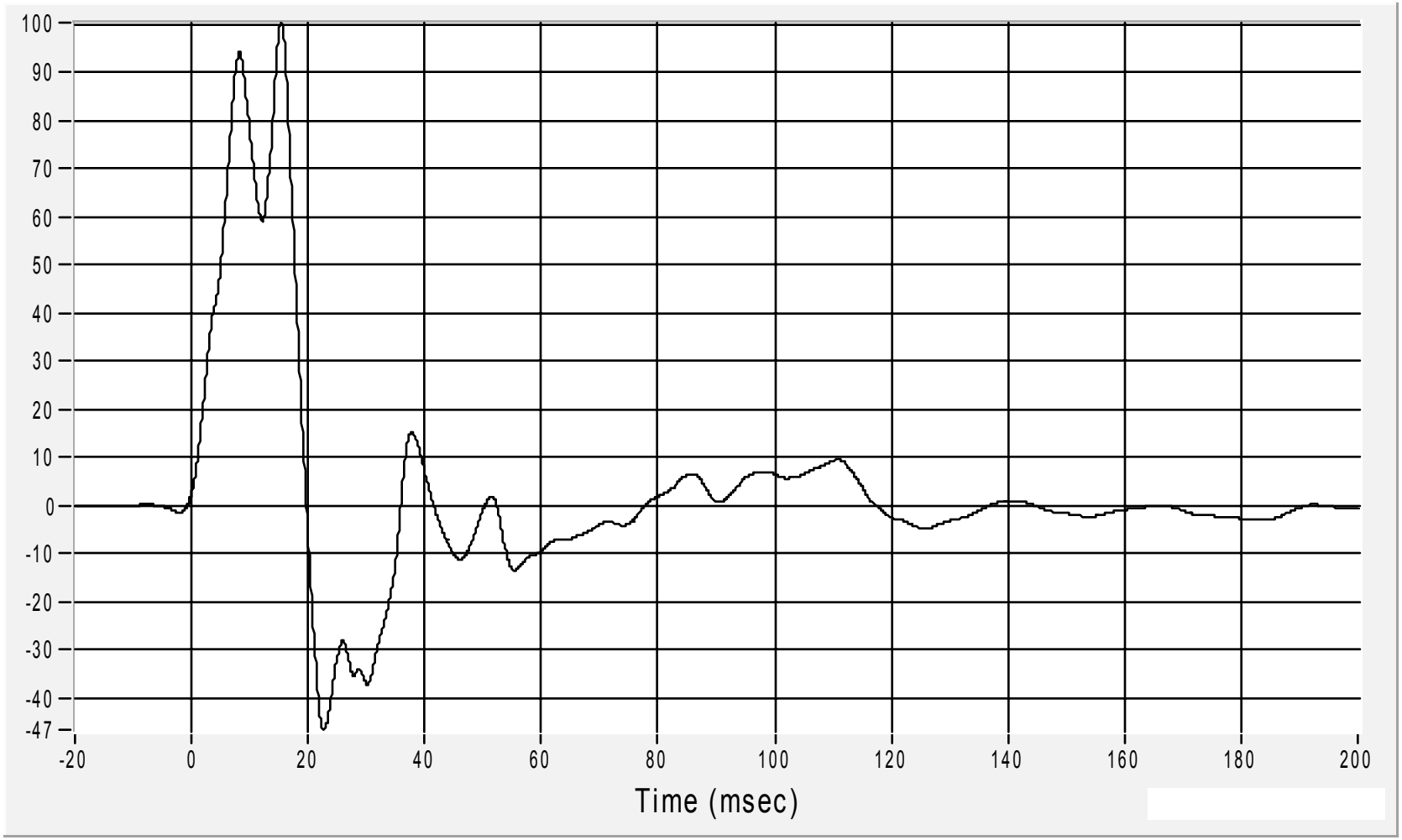
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Rear Door Upper Centerline (Y) Acceleration

Acceleration (G's) CFC60

Max 100.4 G at 15.4 msec

Min -46.7 G at 22.6 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

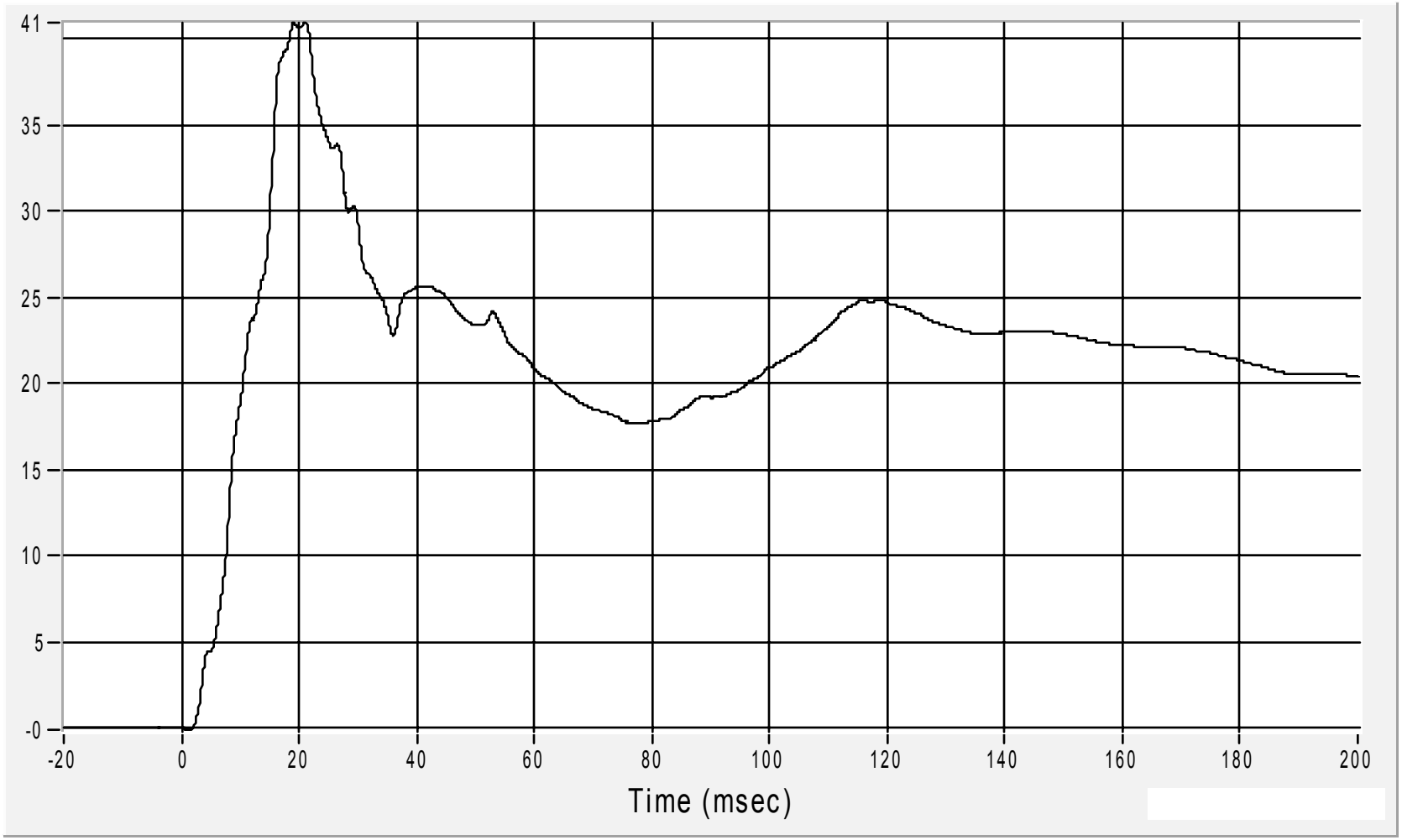
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Rear Door Upper Centerline (Y) Velocity

Velocity (km/h) CFC180

Max 40.9 km/h at 21.1 msec

Min 0.0 km/h at 1.4 msec



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18 November 2004

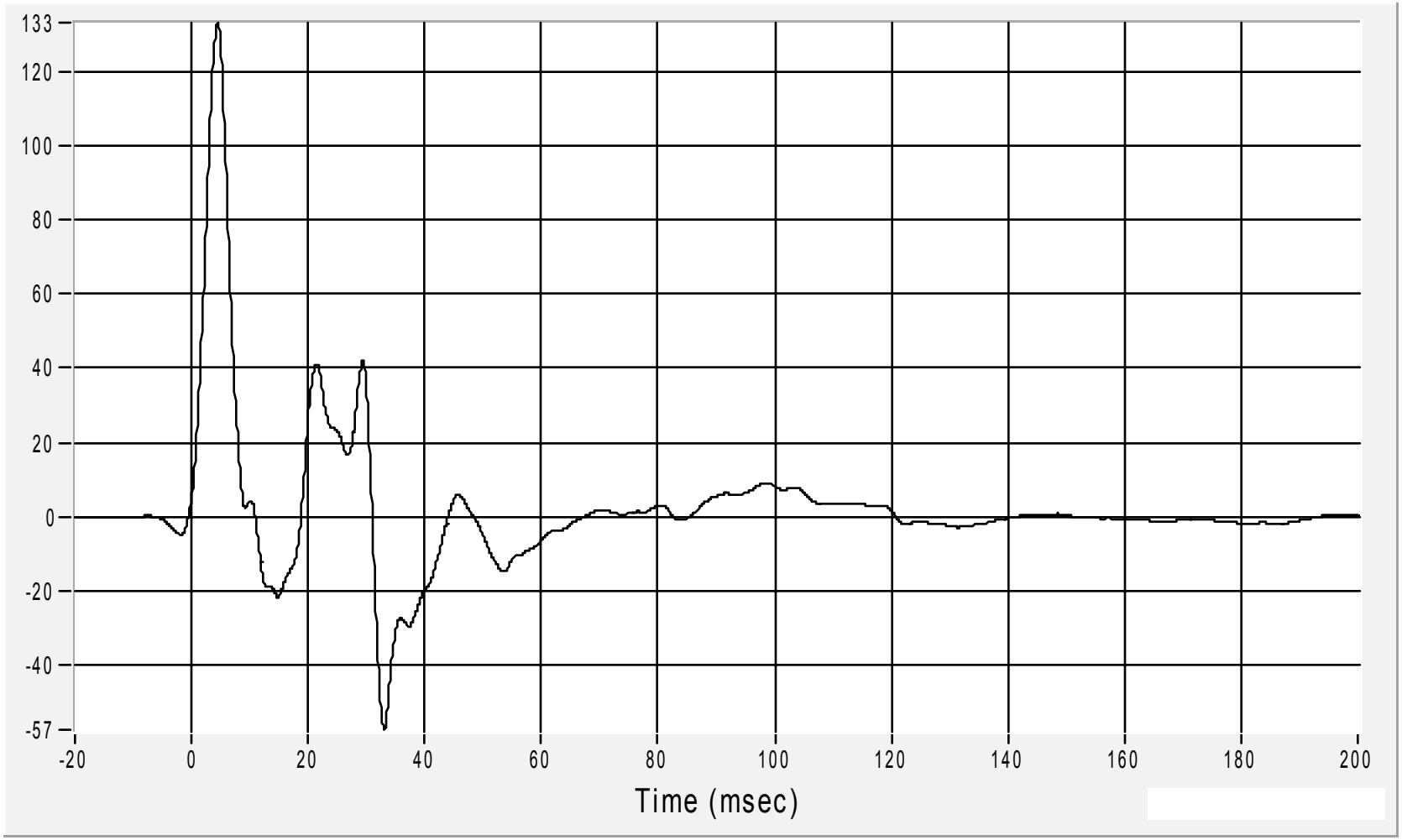
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Lower B-Pillar (Y) Acceleration

Acceleration (G's) CFC60

Max 133.0 G at 4.5 msec

Min -57.4 G at 33.0 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

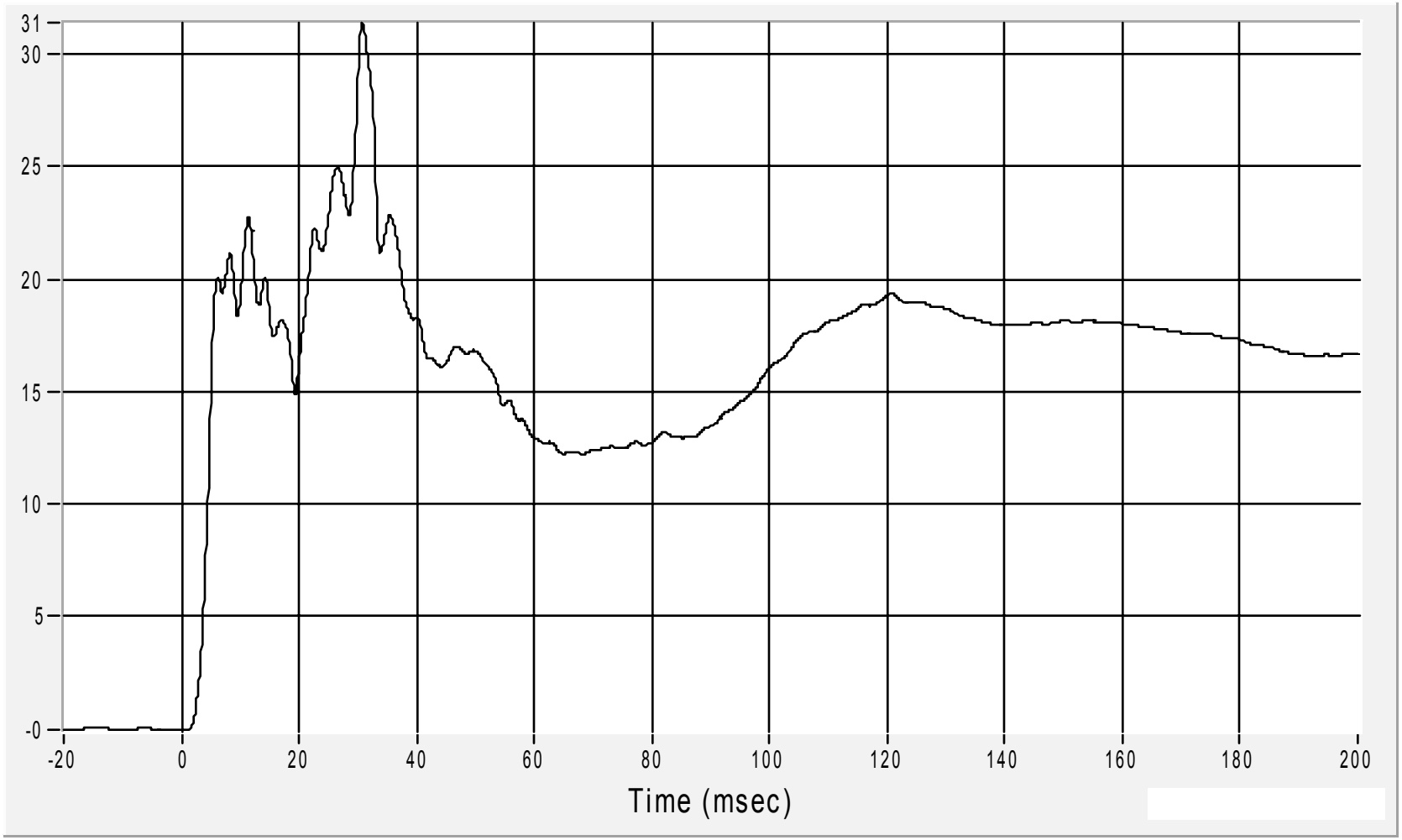
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Lower B-Pillar (Y) Velocity

Velocity (km/h) CFC180

Max 31.4 km/h at 30.7 msec

Min 0.0 km/h at 1.0 msec



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18 November 2004

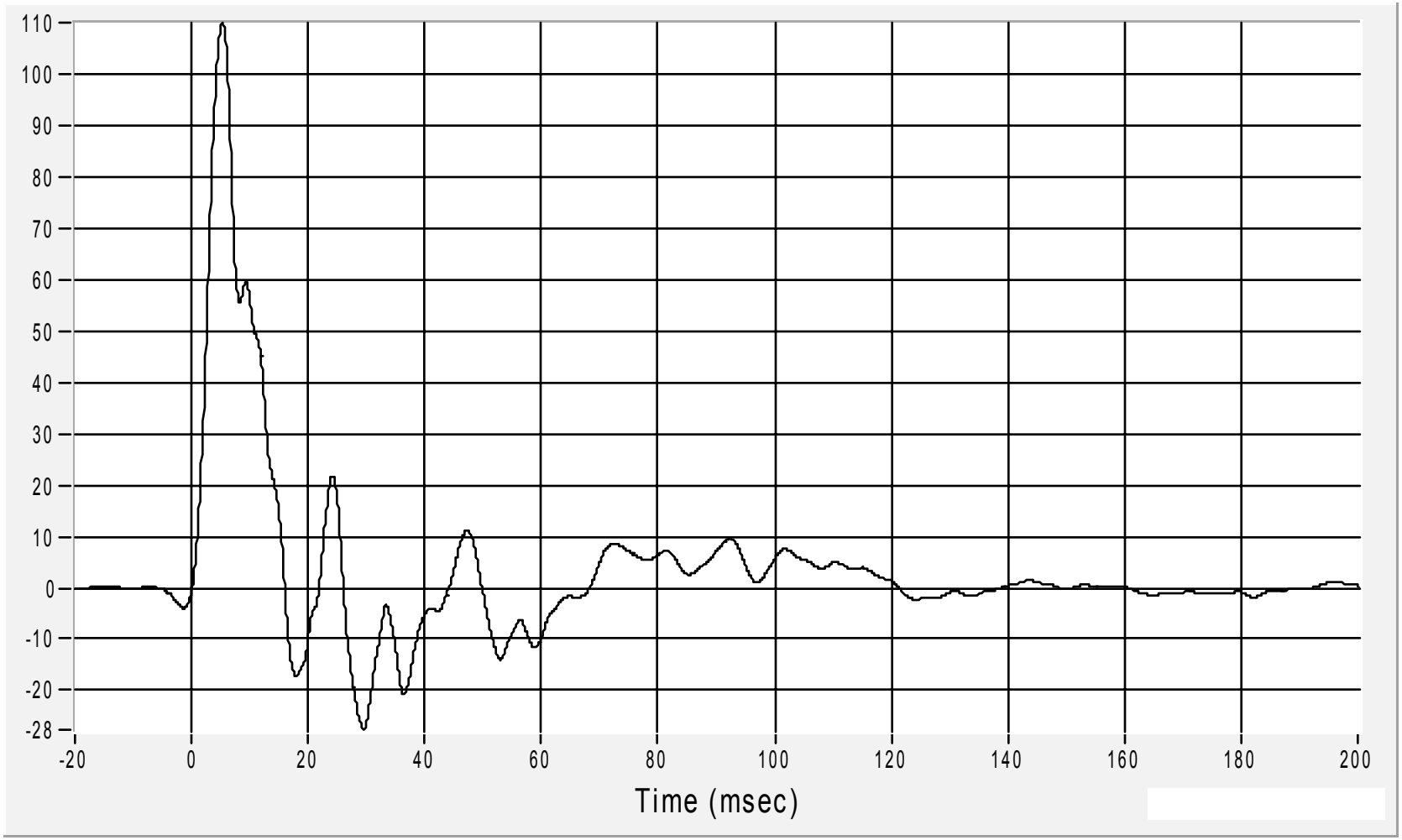
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Middle B-Pillar (Y) Acceleration

Acceleration (G's) CFC60

Max 110.2 G at 5.3 msec

Min -27.7 G at 29.5 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

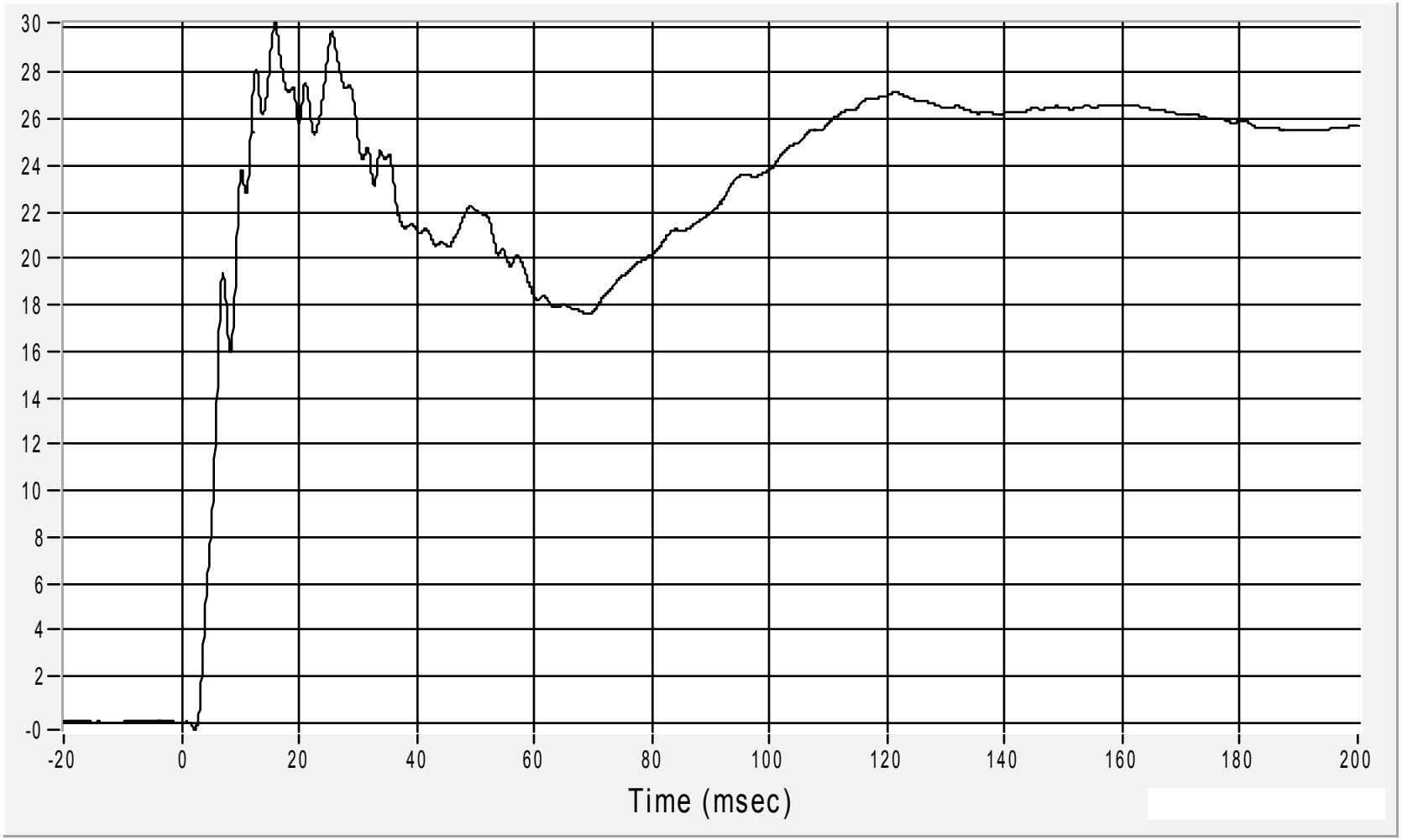
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Middle B-Pillar (Y) Velocity

Velocity (km/h) CFC180

Max 30.2 km/h at 15.9 msec

Min -0.3 km/h at 2.3 msec



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18 November 2004

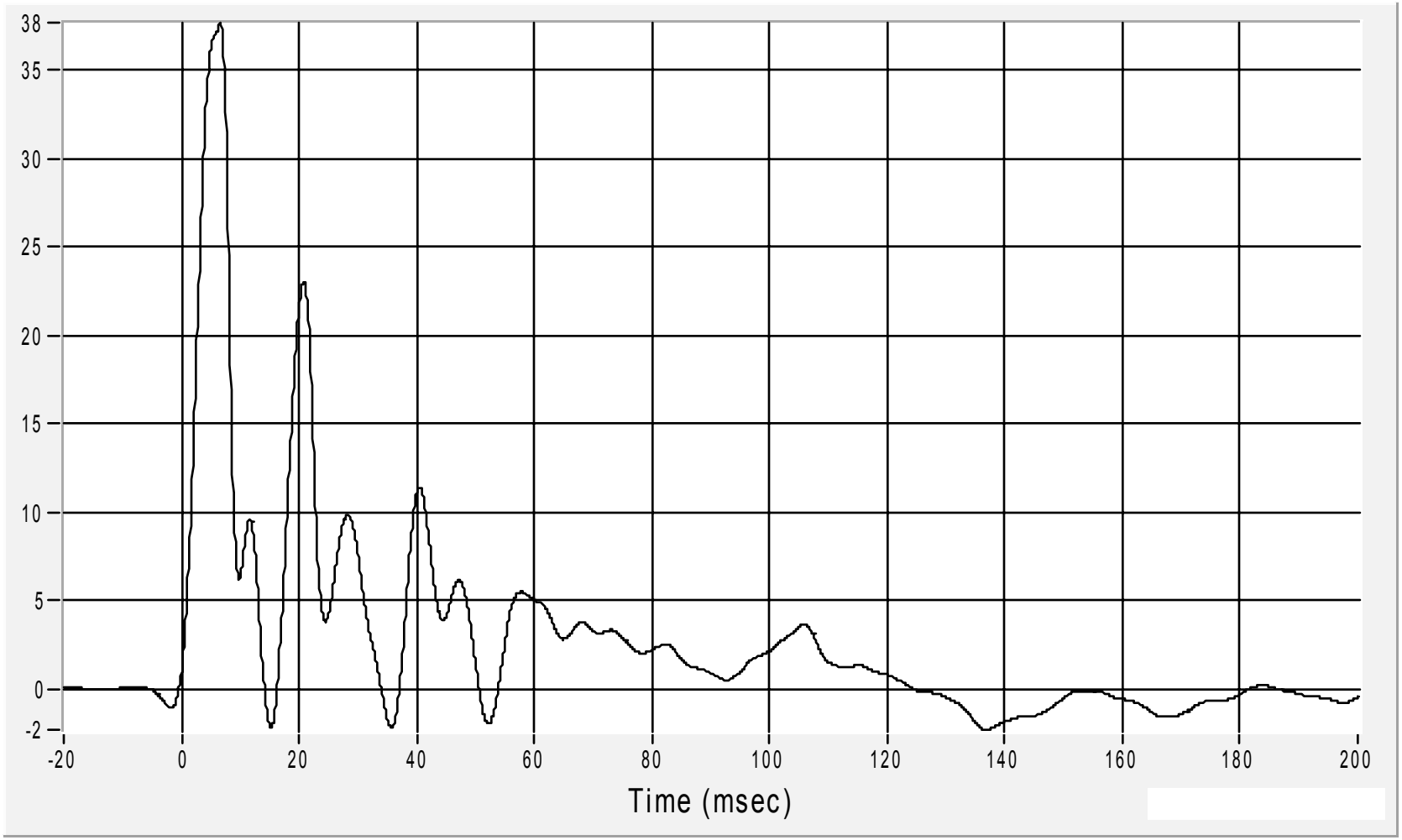
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Lower A-Pillar (Y) Acceleration

Acceleration (G's) CFC60

Max 37.7 G at 6.6 msec

Min -2.3 G at 136.9 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

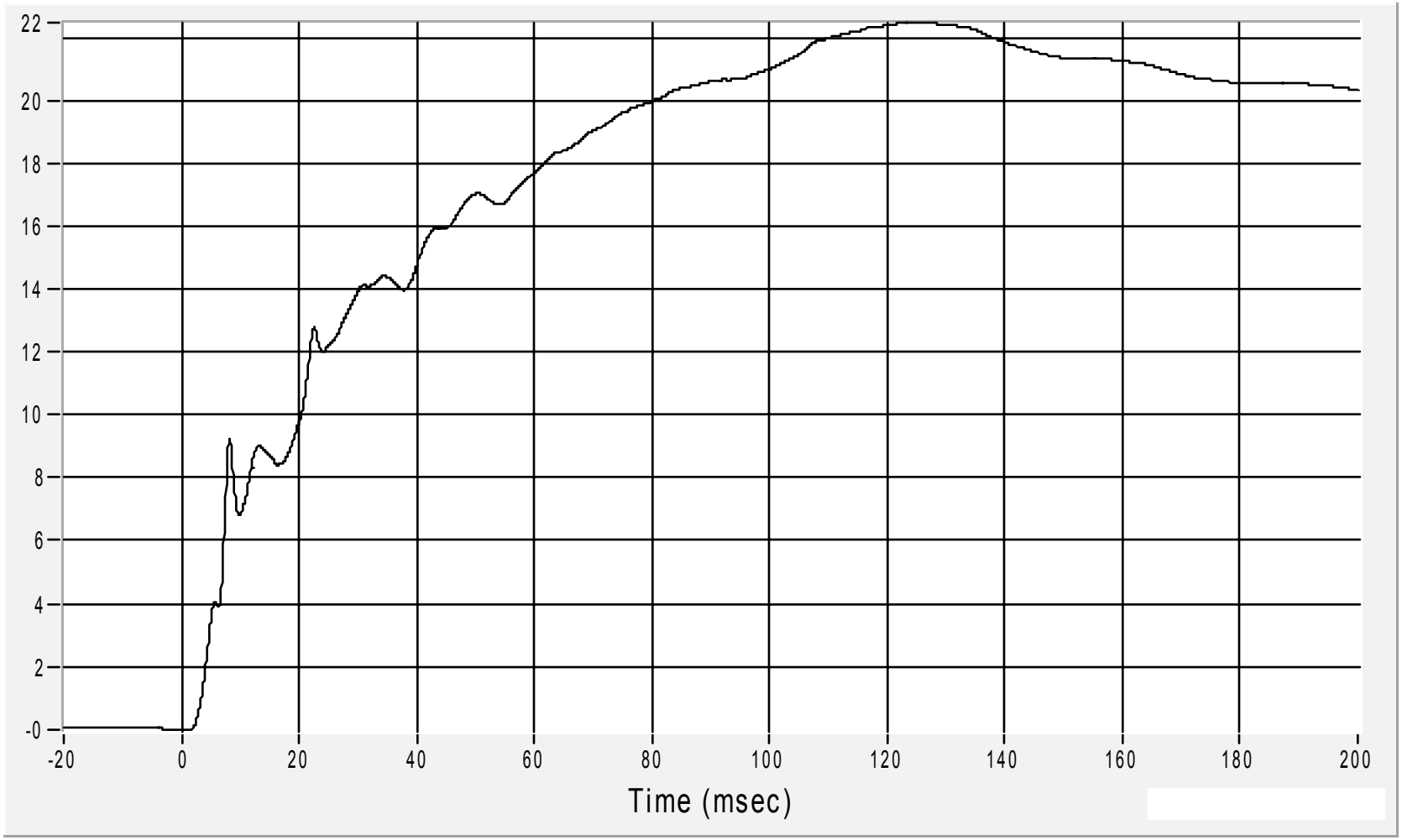
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Lower A-Pillar (Y) Velocity

Velocity (km/h) CFC180

Max 22.5 km/h at 124.1 msec

Min 0.0 km/h at 1.3 msec



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18 November 2004

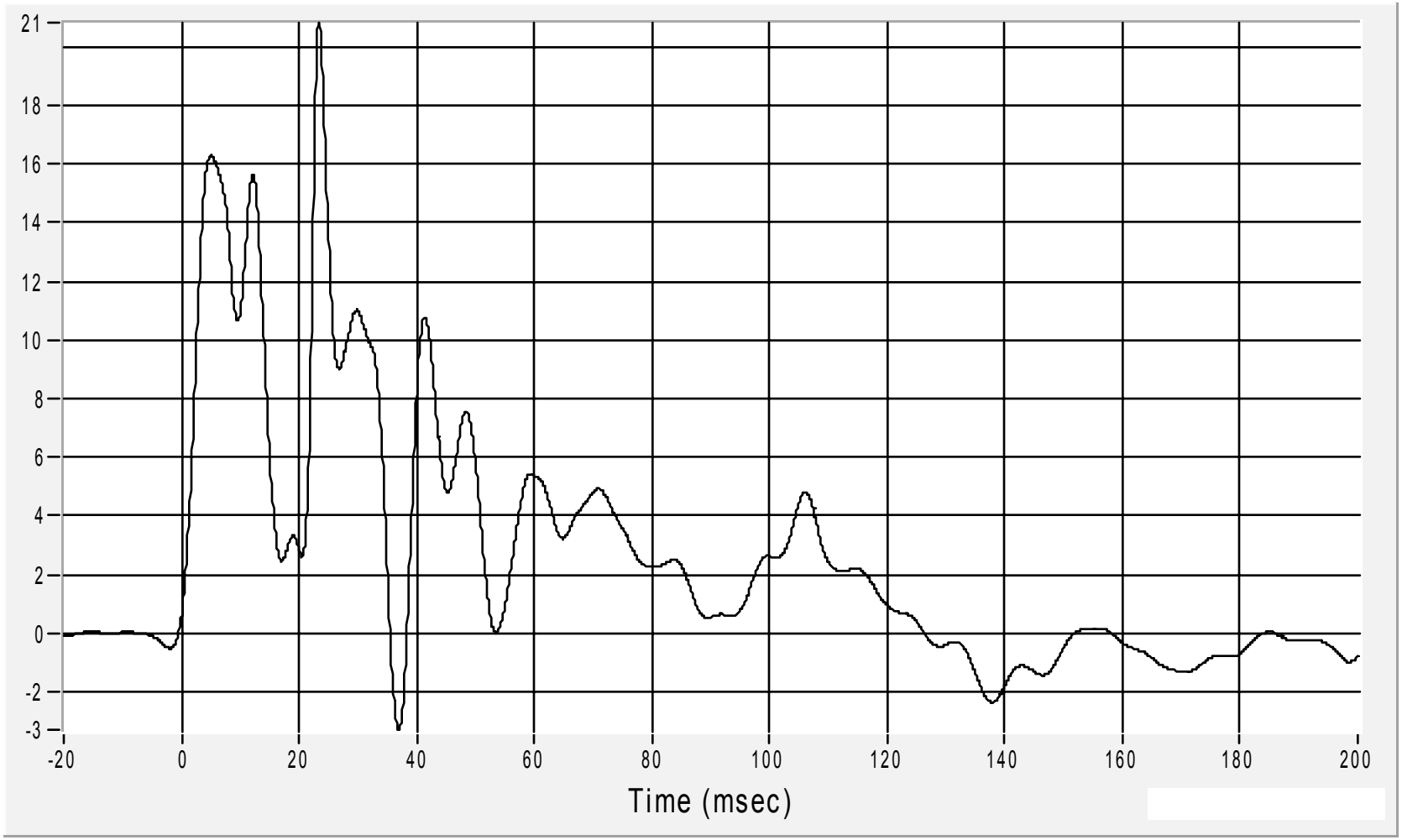
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Middle A-Pillar (Y) Acceleration

Acceleration (G's) CFC60

Max 20.8 G at 23.4 msec

Min -3.3 G at 37.0 msec



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18 November 2004

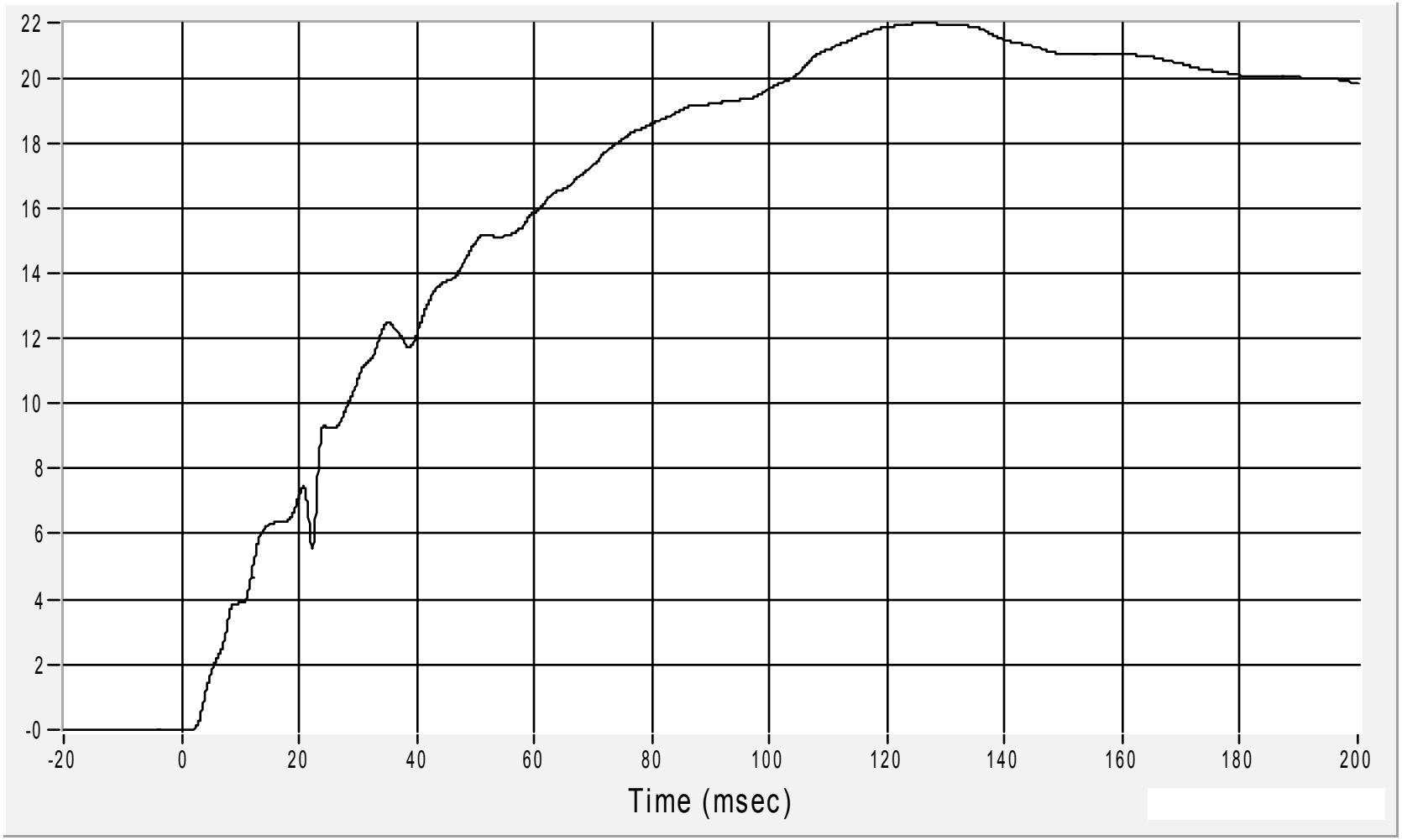
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Left Middle A-Pillar (Y) Velocity

Velocity (km/h) CFC180

Max 21.7 km/h at 126.6 msec

Min 0.0 km/h at 1.6 msec



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18 November 2004

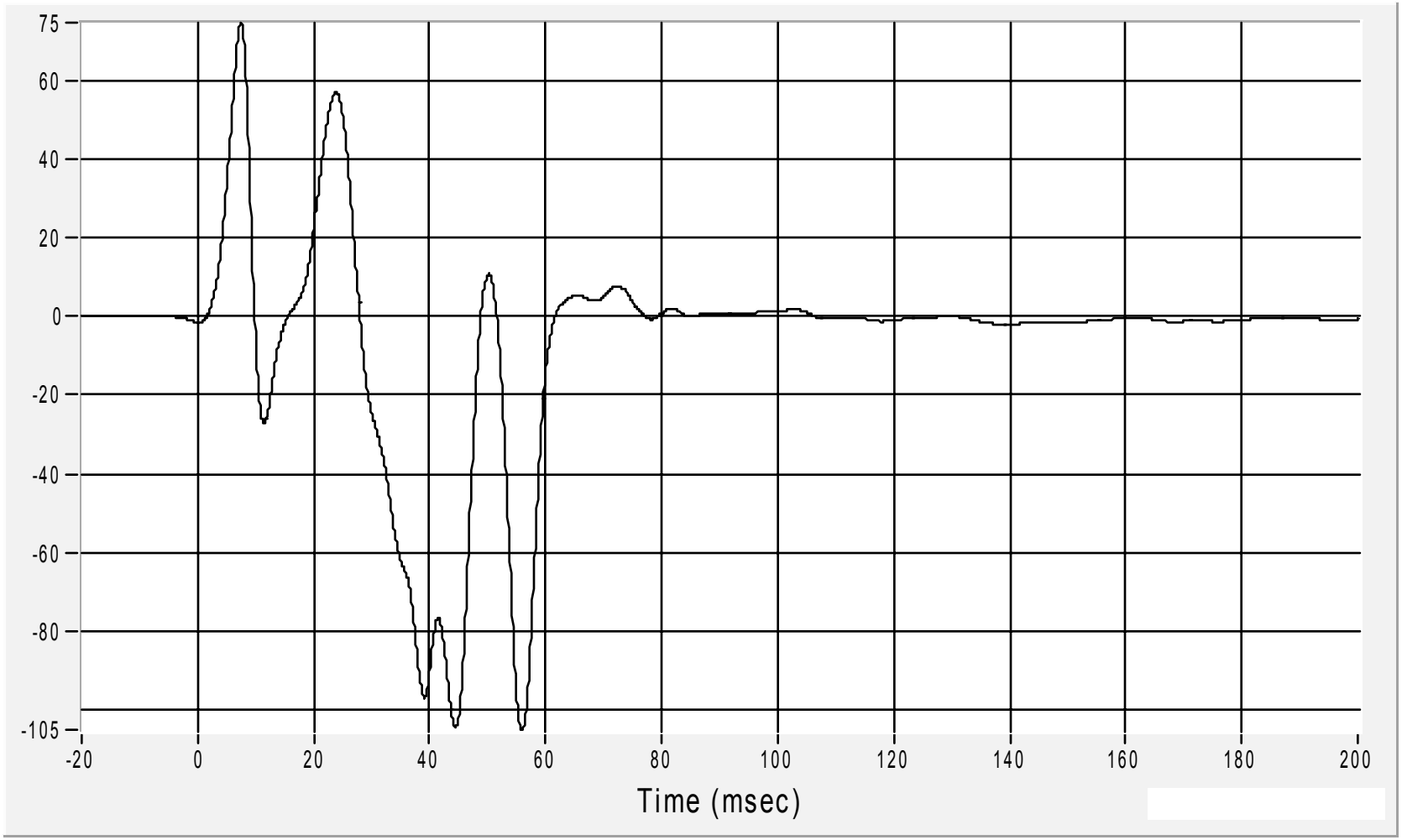
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Front Seat Track (Y) Acceleration

Acceleration (G's) CFC60

Max 74.6 G at 7.4 msec

Min -105.1 G at 55.9 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

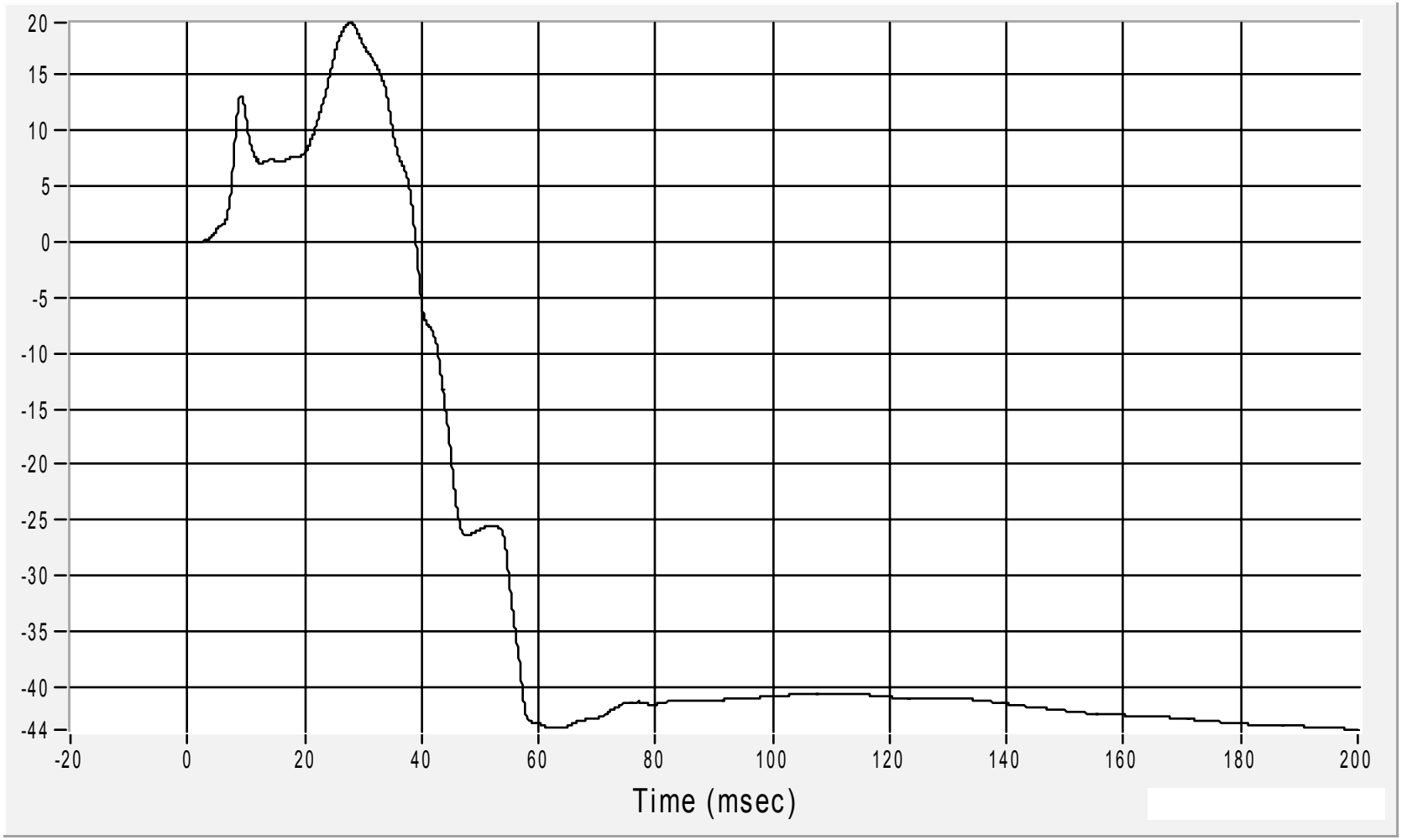
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Front Seat Track (Y) Velocity

Velocity (km/h) CFC180

Max 19.7 km/h at 27.8 msec

Min -43.8 km/h at 199.9 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

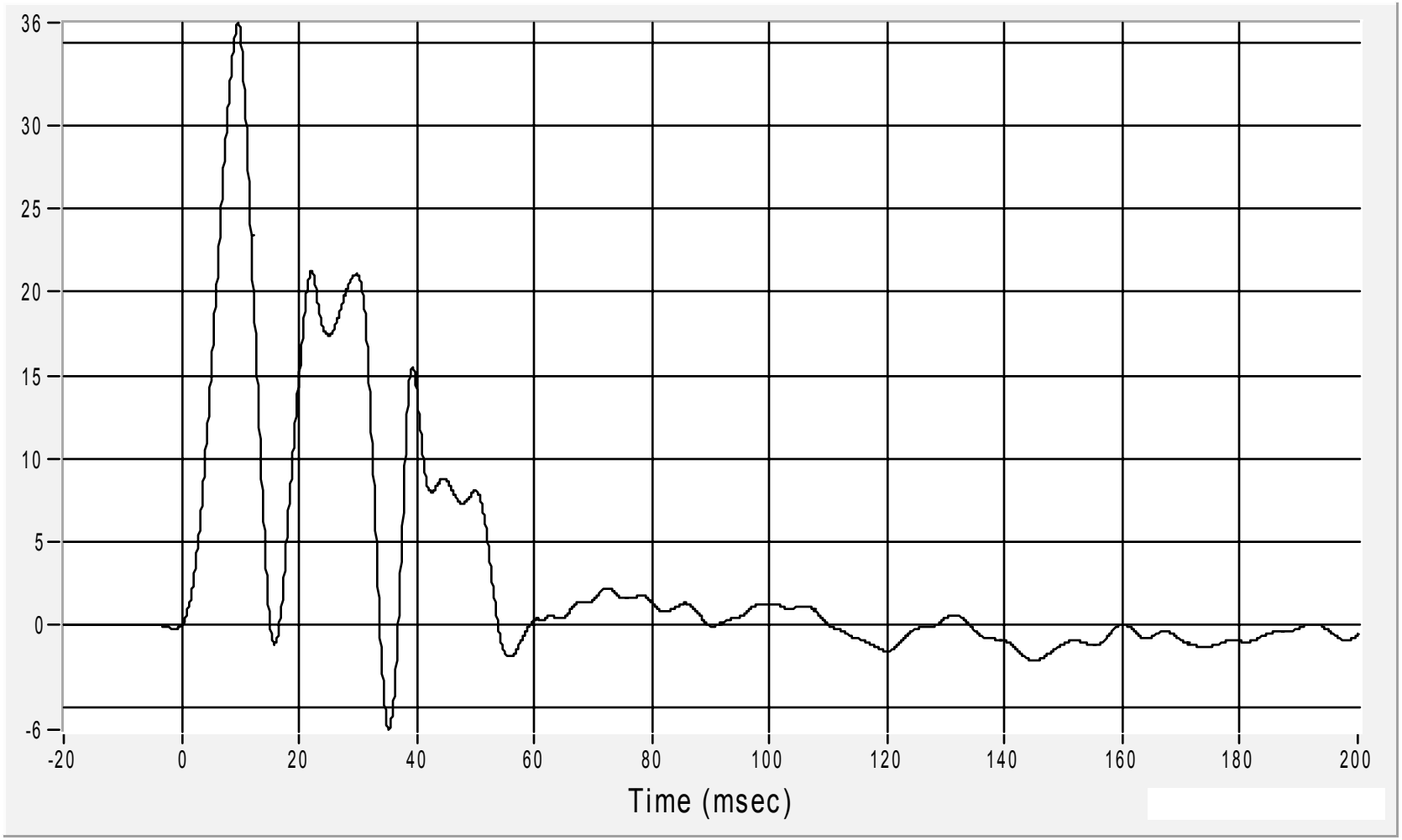
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Rear Seat Track (Y) Acceleration

Acceleration (G's) CFC60

Max 36.2 G at 9.6 msec

Min -6.4 G at 35.3 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

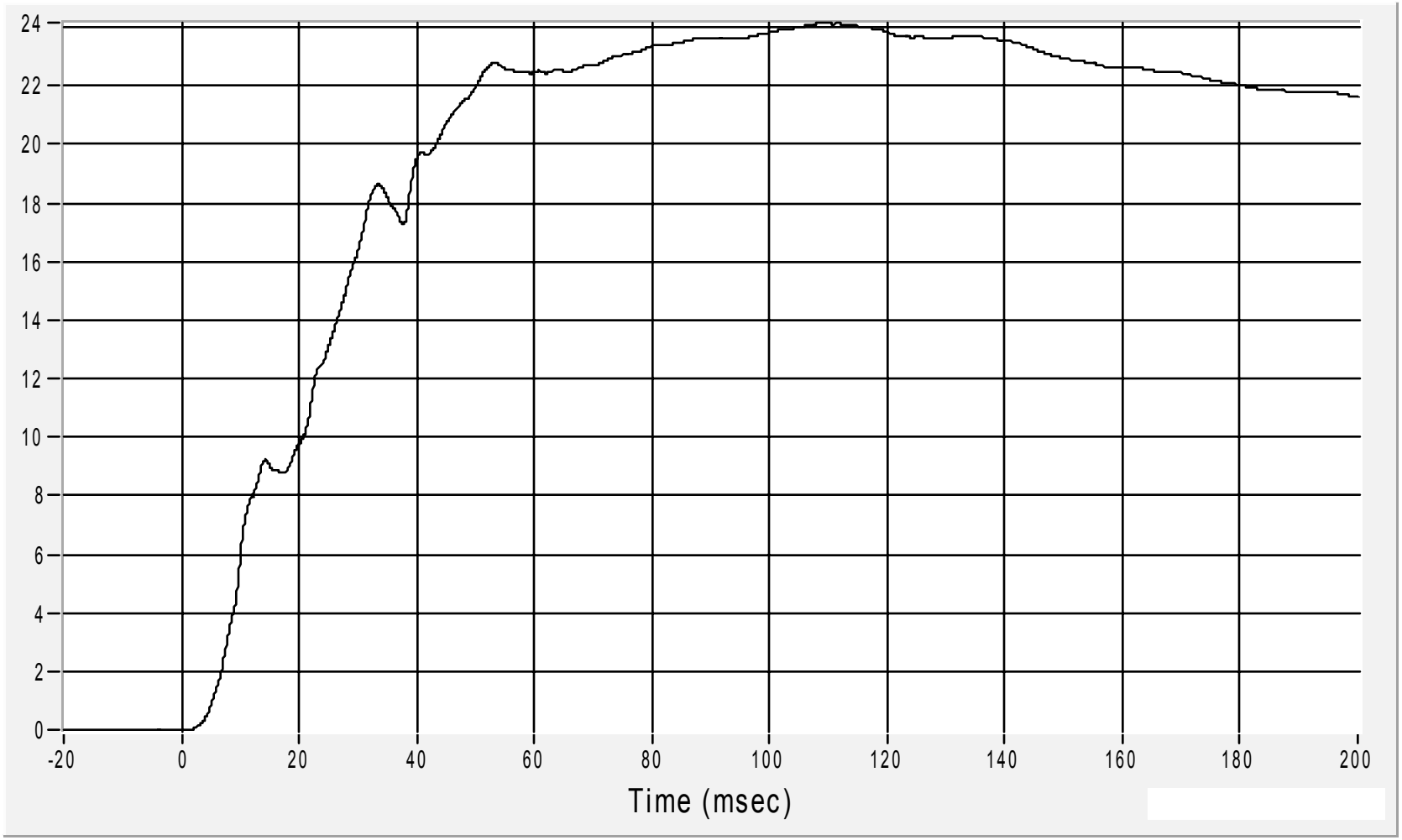
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Rear Seat Track (Y) Velocity

Velocity (km/h) CFC180

Max 24.2 km/h at 109.0 msec

Min 0.0 km/h at 0.0 msec



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18 November 2004

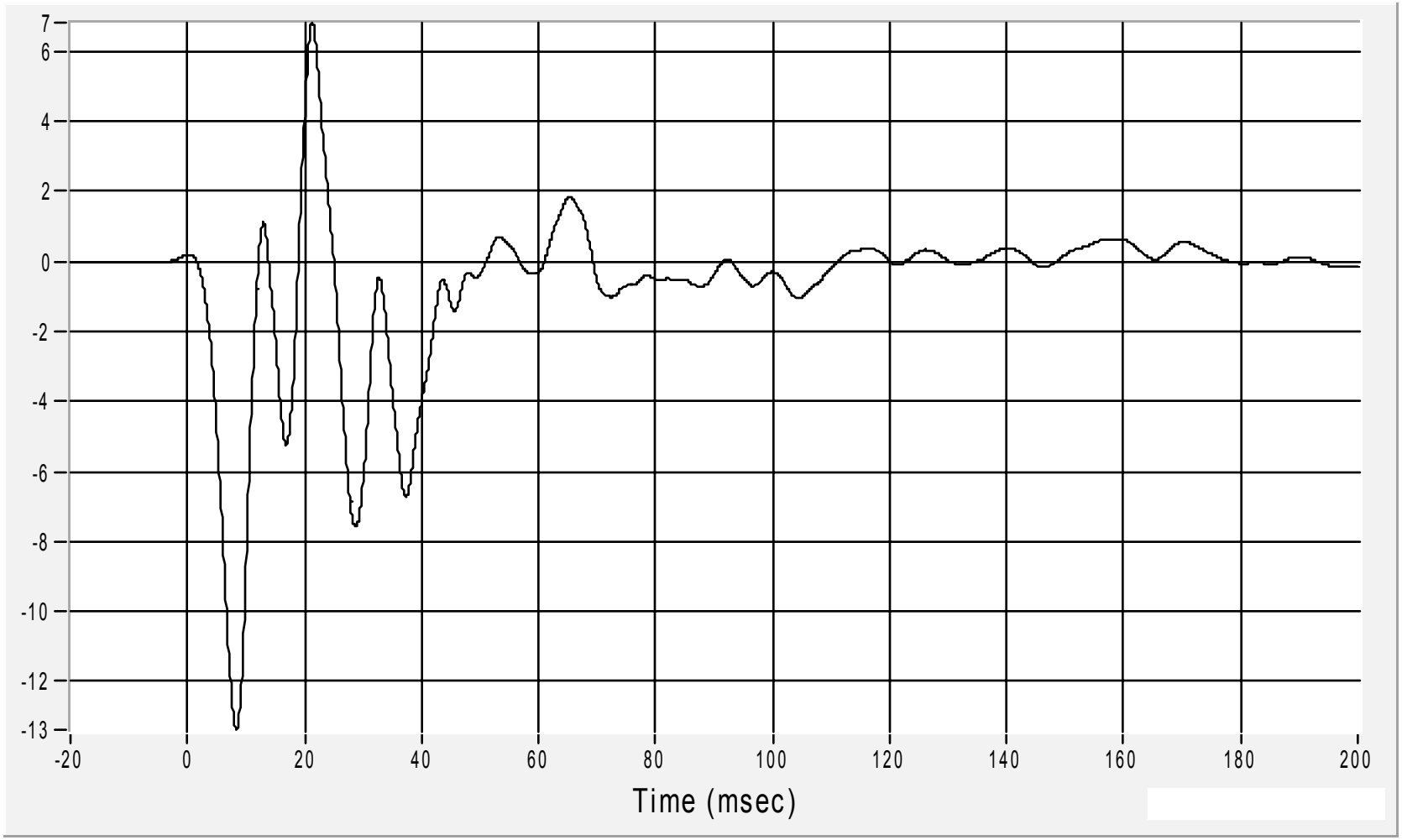
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Vehicle Center of Gravity (X) Acceleration

Acceleration (G's) CFC60

Max 6.8 G at 21.3 msec

Min -13.4 G at 8.3 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

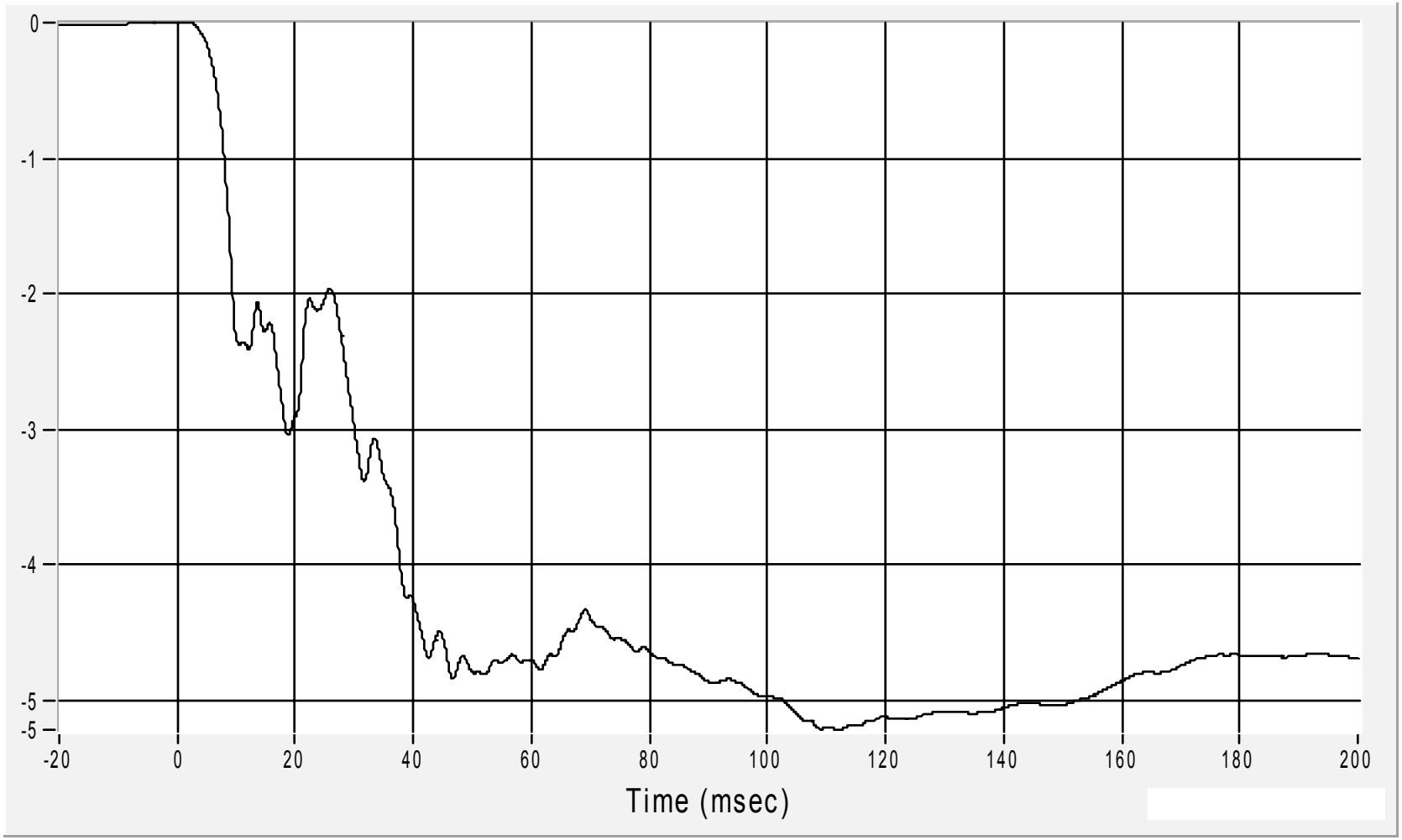
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Vehicle Center of Gravity (X) Velocity

Velocity (km/h) CFC180

Max 0.0 km/h at 1.8 msec

Min -5.2 km/h at 112.0 msec



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18 November 2004

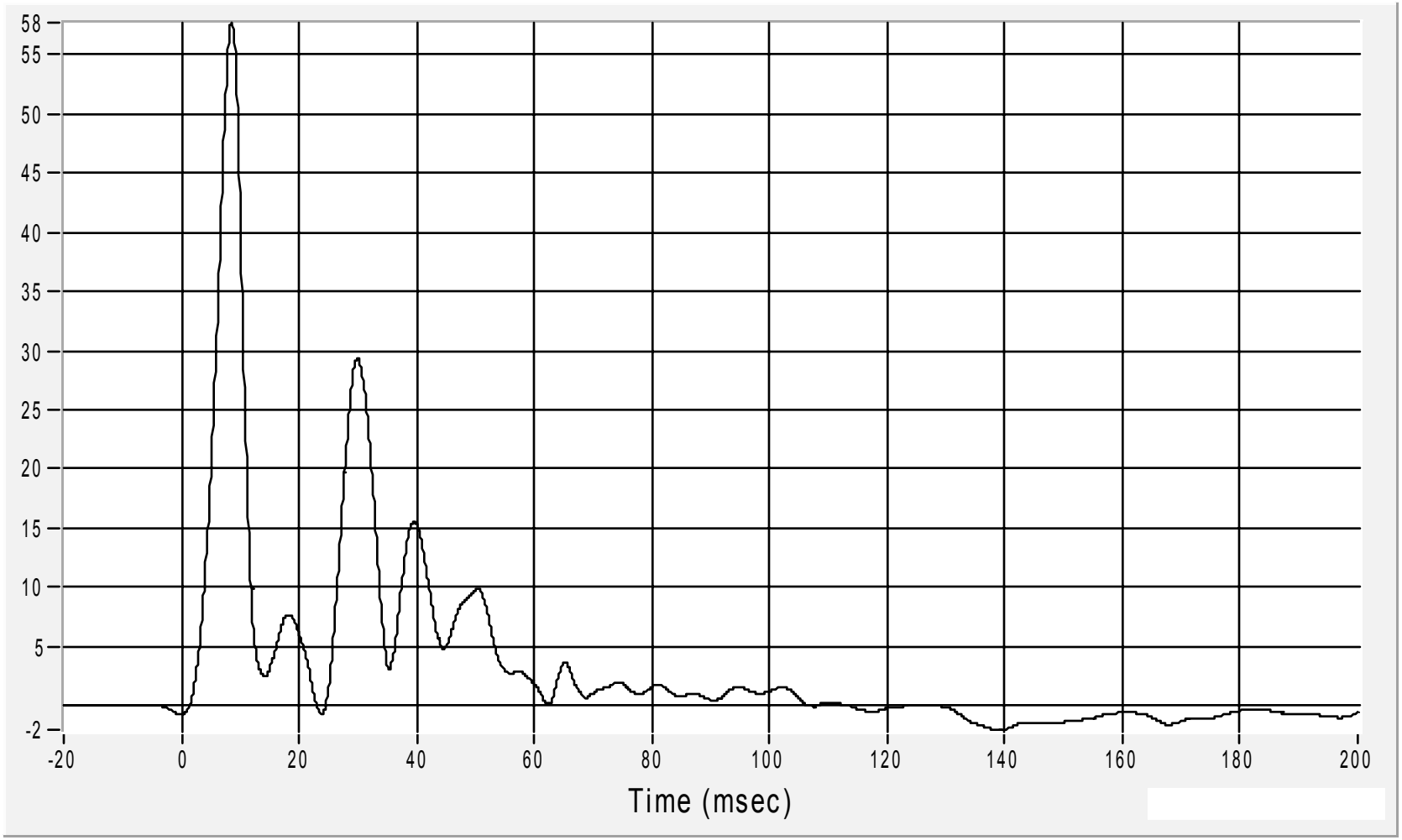
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Vehicle Center of Gravity (Y) Acceleration

Acceleration (G's) CFC60

Max 57.7 G at 8.6 msec

Min -2.1 G at 139.2 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

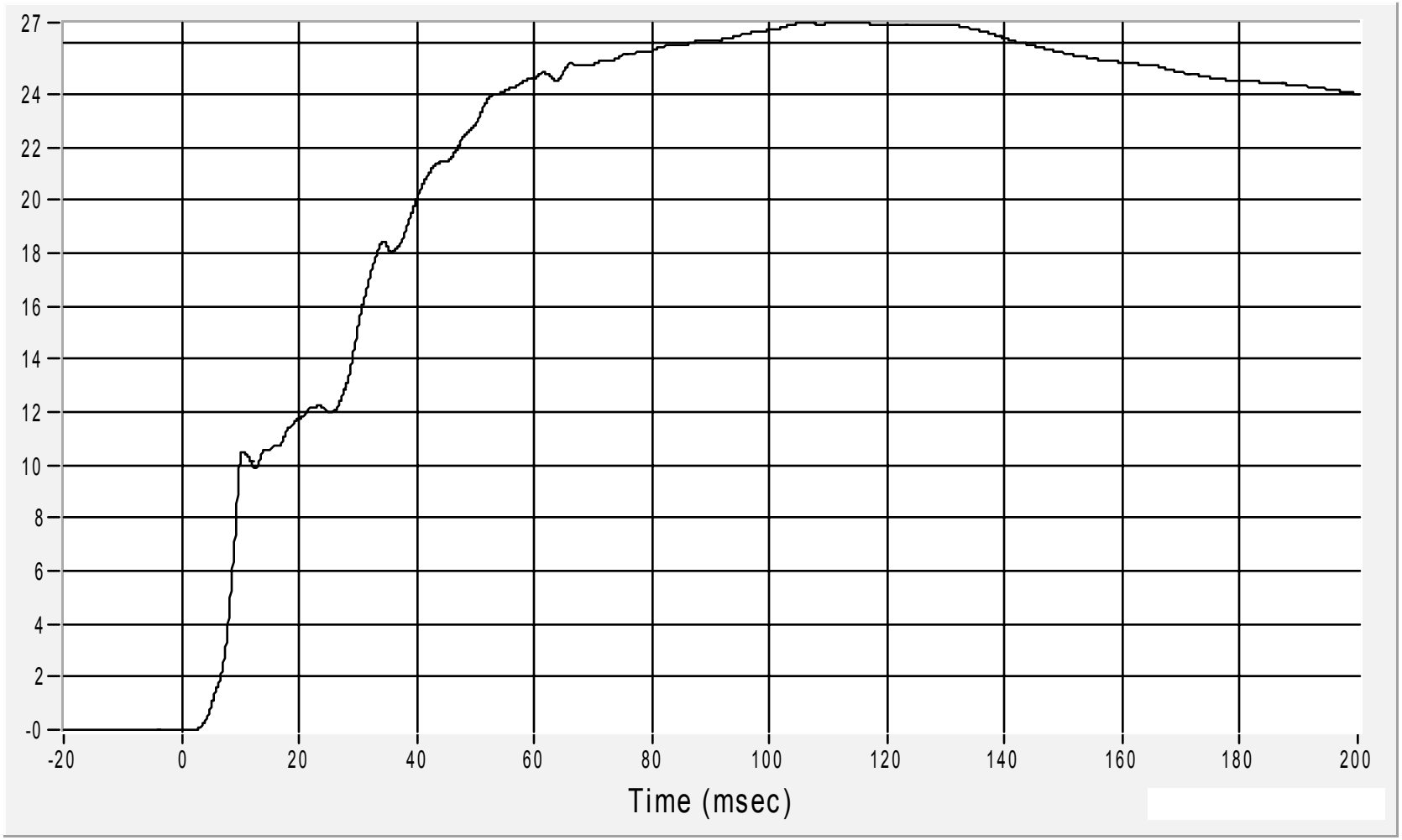
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Vehicle Center of Gravity (Y) Velocity

Velocity (km/h) CFC180

Max 26.7 km/h at 114.4 msec

Min 0.0 km/h at 1.5 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

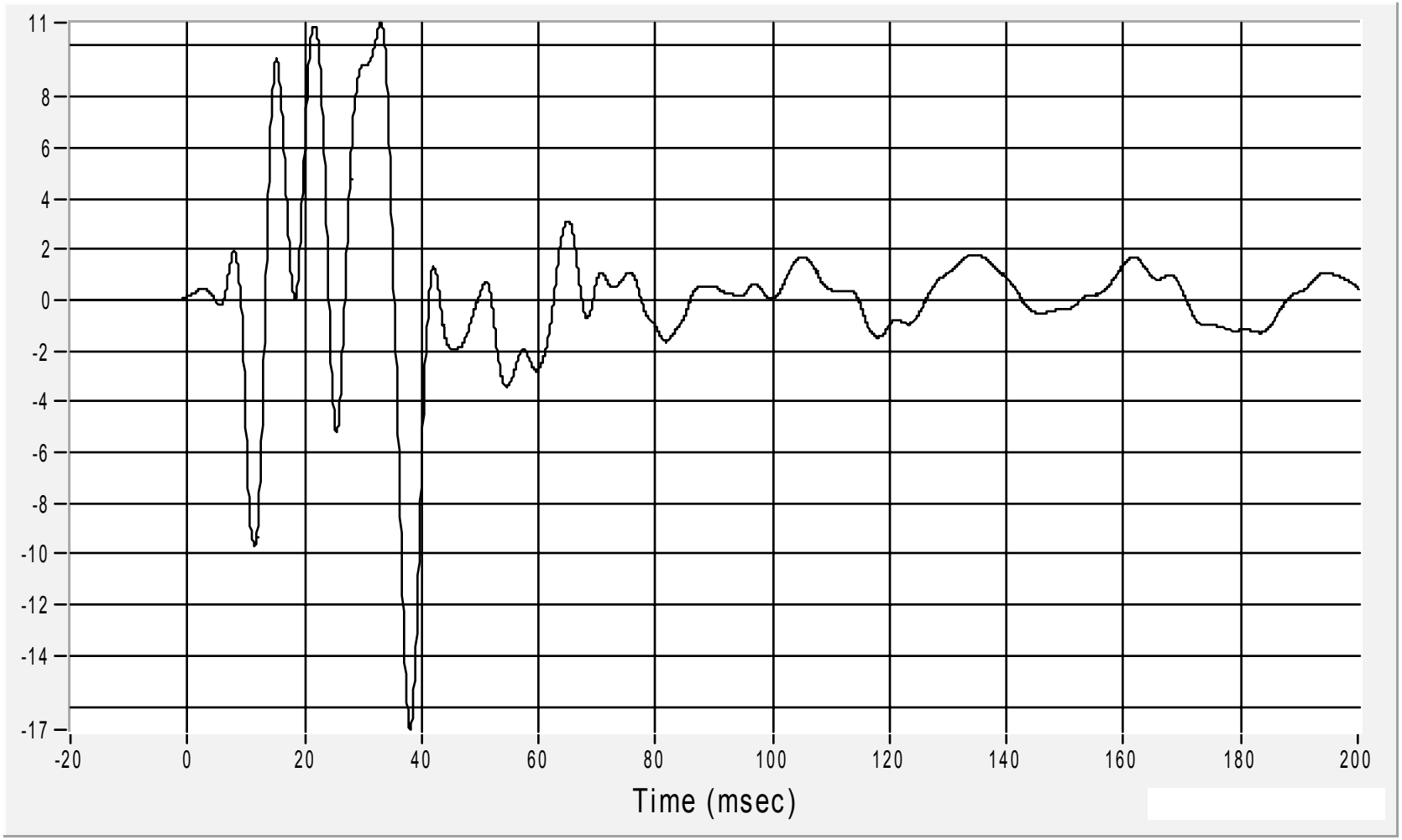
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Vehicle Center of Gravity (Z) Acceleration

Acceleration (G's) CFC60

Max 10.9 G at 33.0 msec

Min -16.9 G at 38.1 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

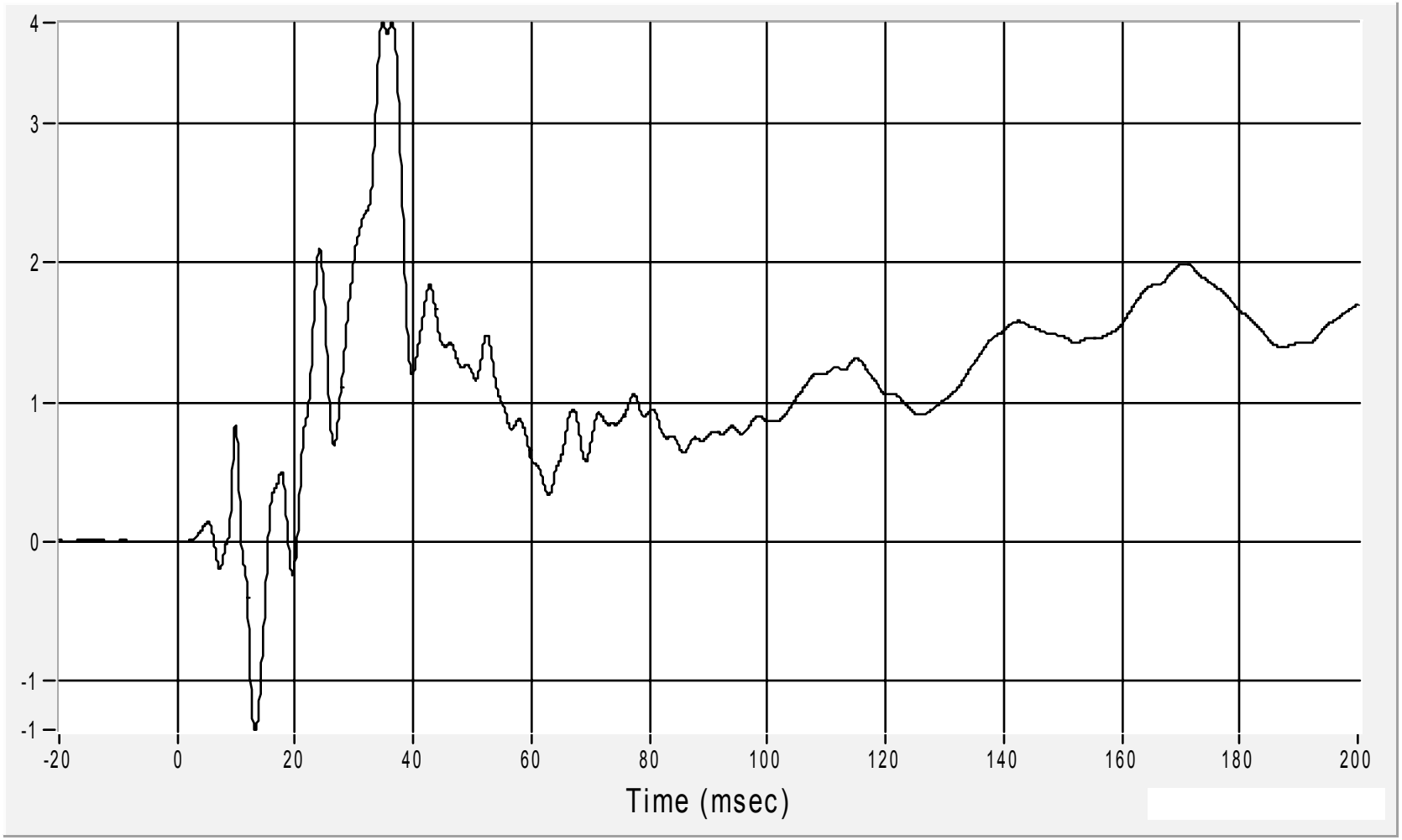
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Vehicle Center of Gravity (Z) Velocity

Velocity (km/h) CFC180

Max 3.7 km/h at 34.8 msec

Min -1.3 km/h at 13.2 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

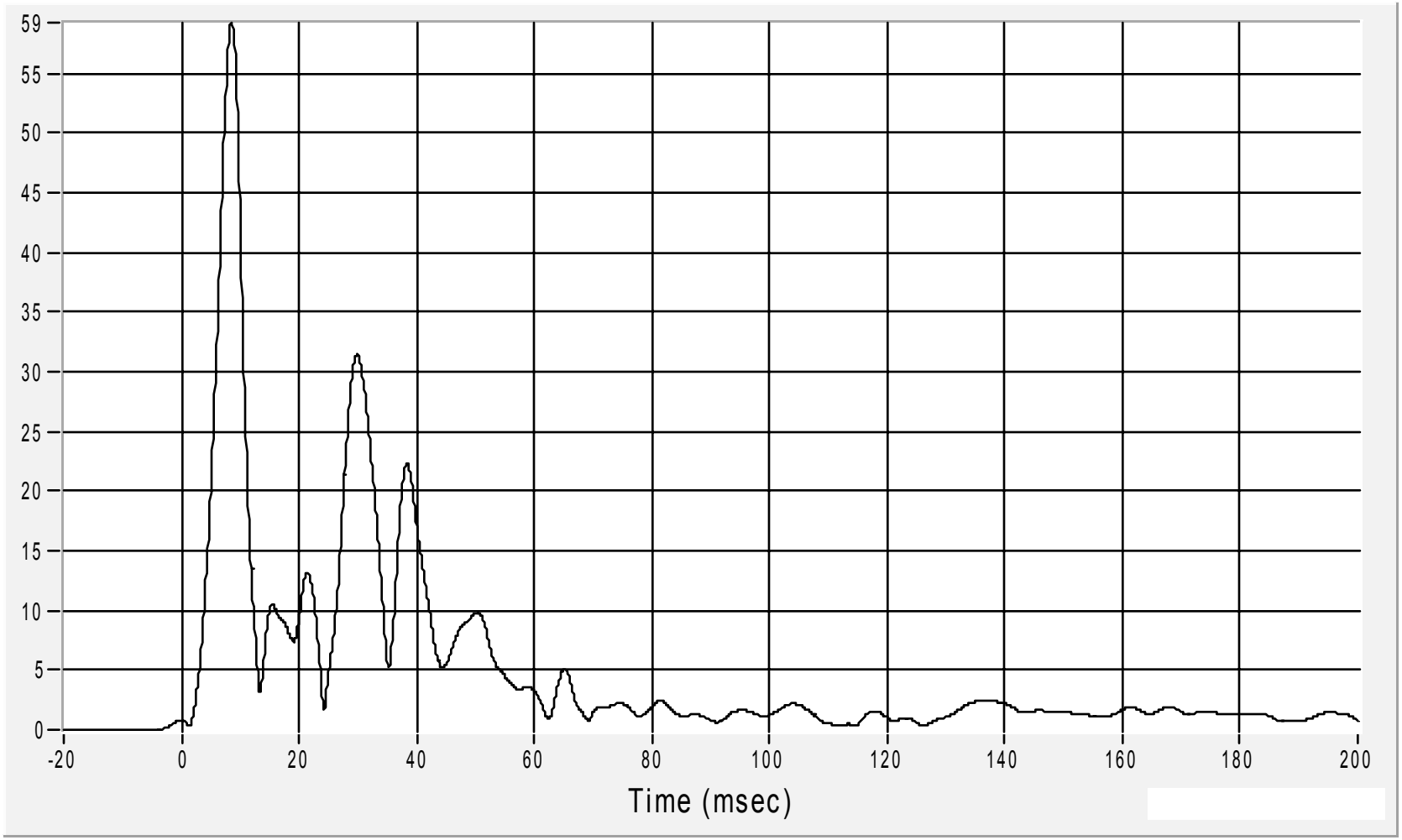
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Vehicle Center of Gravity Resultant Acceleration

Acceleration (G's) CFC60

Max 59.2 G's at 8.5 msec

Min 0.3 G's at 1.4 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

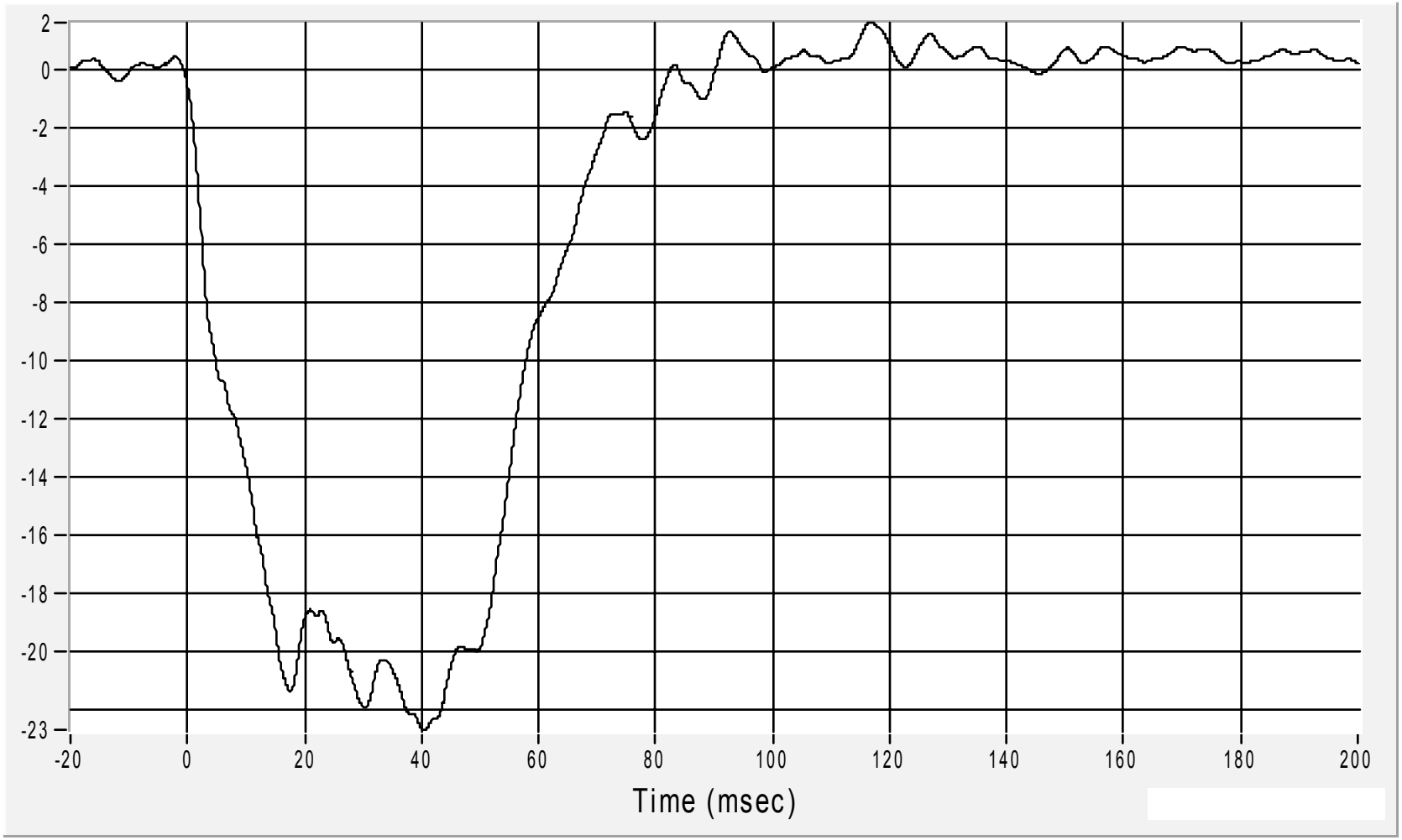
Medical College of Wisconsin
Vehicle Crashworthiness Lab

MDB Center of Gravity (X) Acceleration

Acceleration (G's) CFC60

Max 1.6 G at 116.8 msec

Min -22.7 G at 40.5 msec



05sn01 - 2005 FORD FREESTYLE MPV

18 November 2004

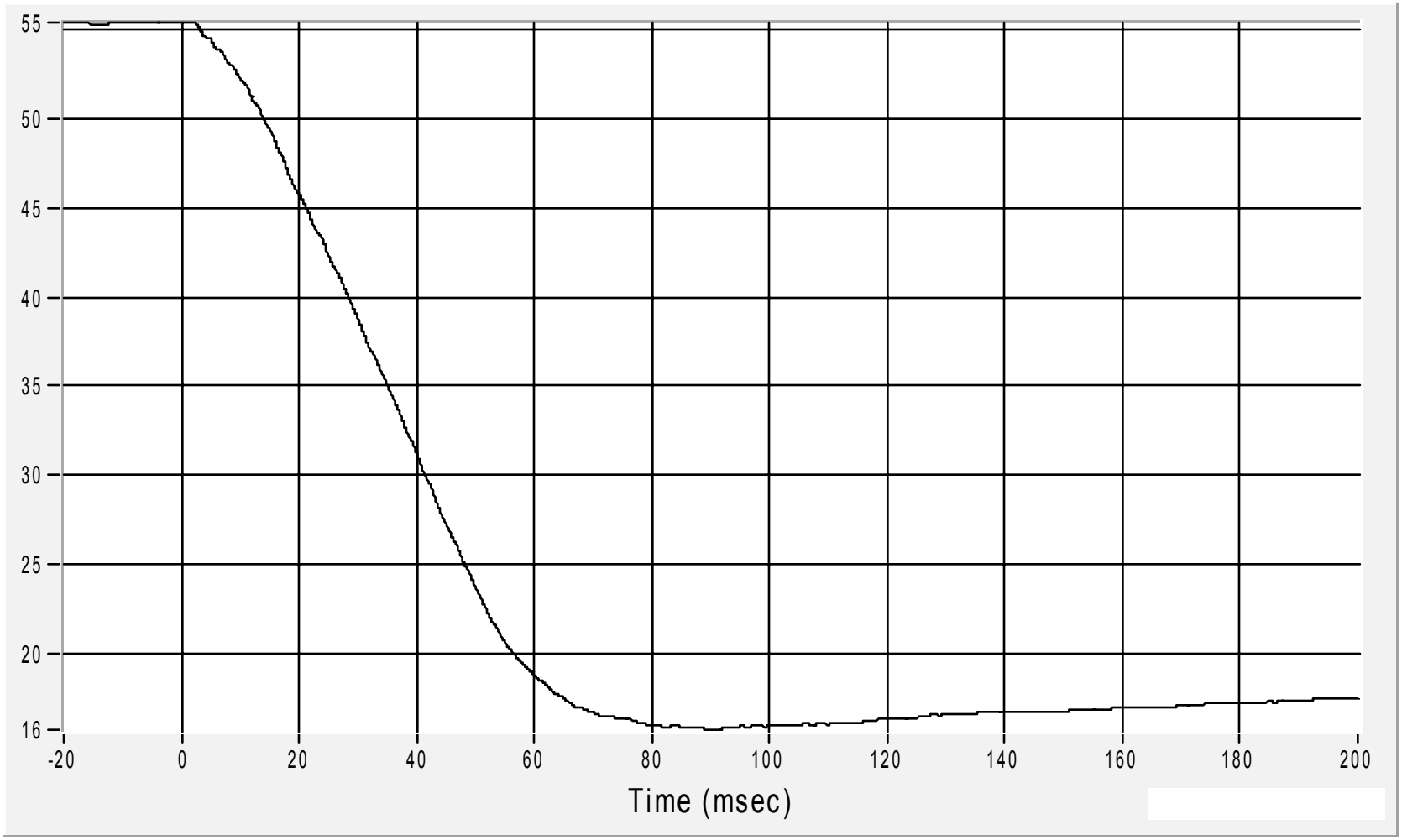
Medical College of Wisconsin
Vehicle Crashworthiness Lab

MDB Center of Gravity (X) Velocity

Velocity (km/h) CFC180

Max 55.4 km/h at 0.6 msec

Min 15.8 km/h at 91.1 msec



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18 November 2004

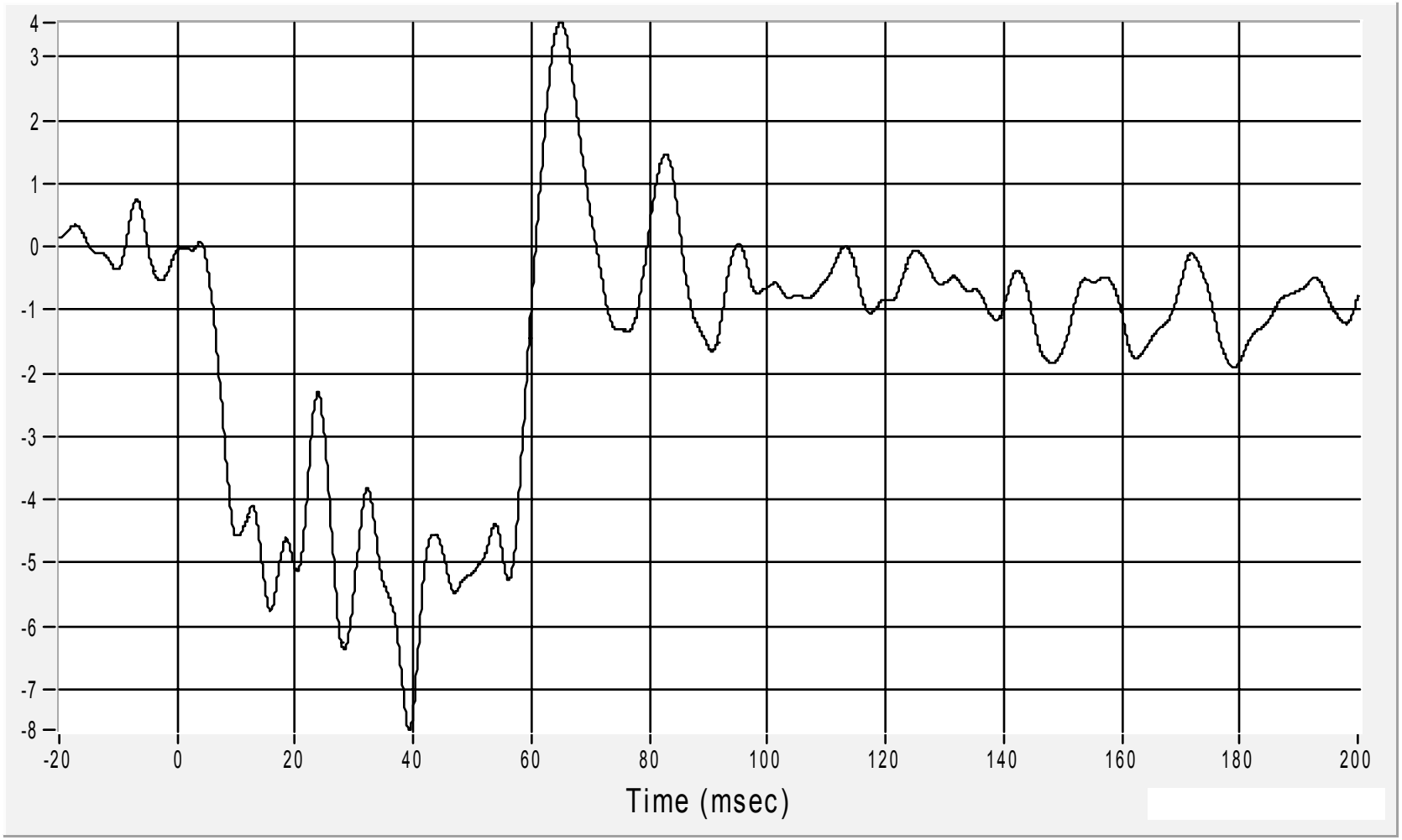
Medical College of Wisconsin
Vehicle Crashworthiness Lab

MDB Center of Gravity (Y) Acceleration

Acceleration (G's) CFC60

Max 3.5 G at 65.0 msec

Min -7.6 G at 39.3 msec



05sn01 - 2005 FORD FREESTYLE MPV

18 November 2004

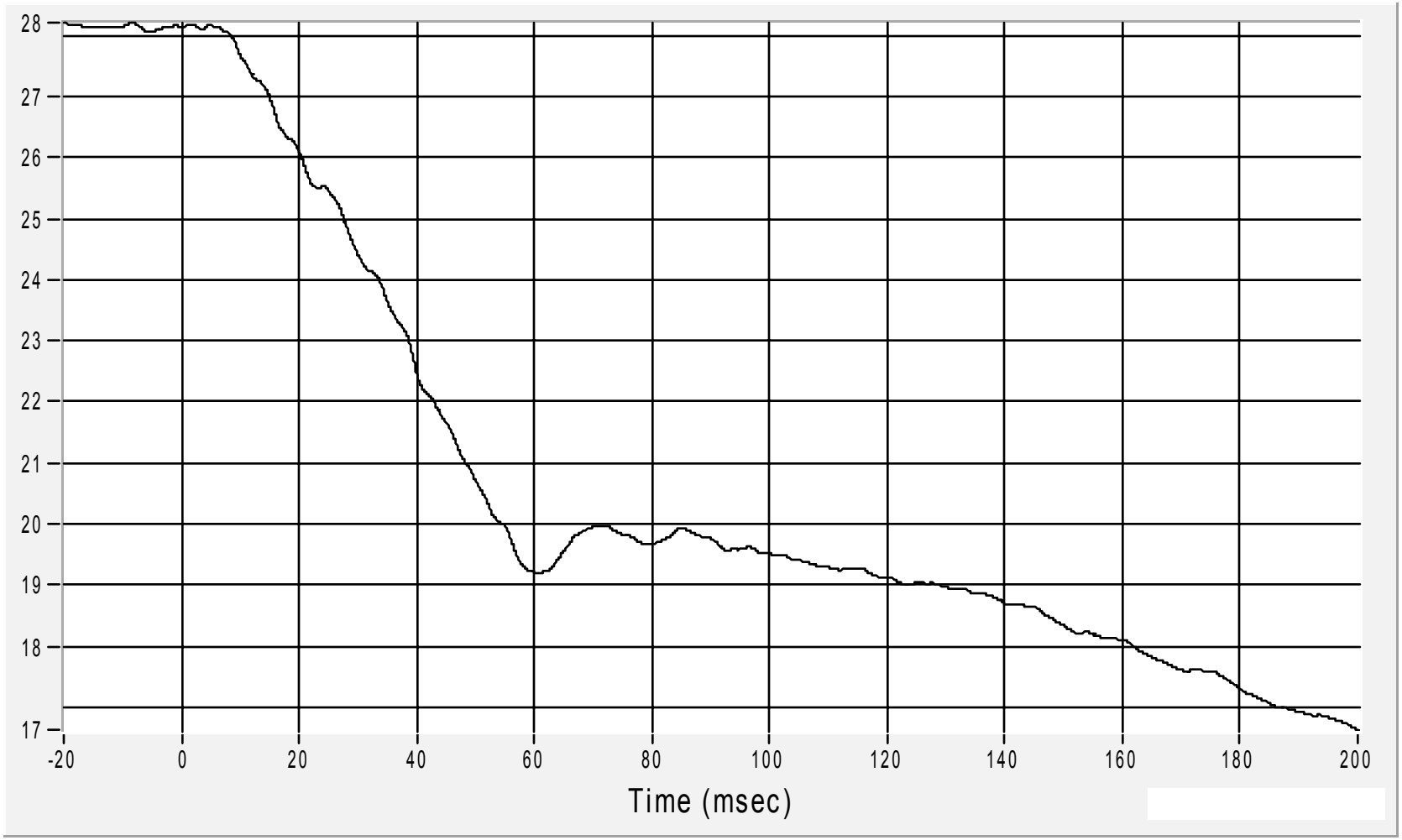
Medical College of Wisconsin
Vehicle Crashworthiness Lab

MDB Center of Gravity (Y) Velocity

Velocity (km/h) CFC180

Max 28.2 km/h at 4.8 msec

Min 16.6 km/h at 199.9 msec



05sn01 - 2005 FORD FREESTYLE MPV

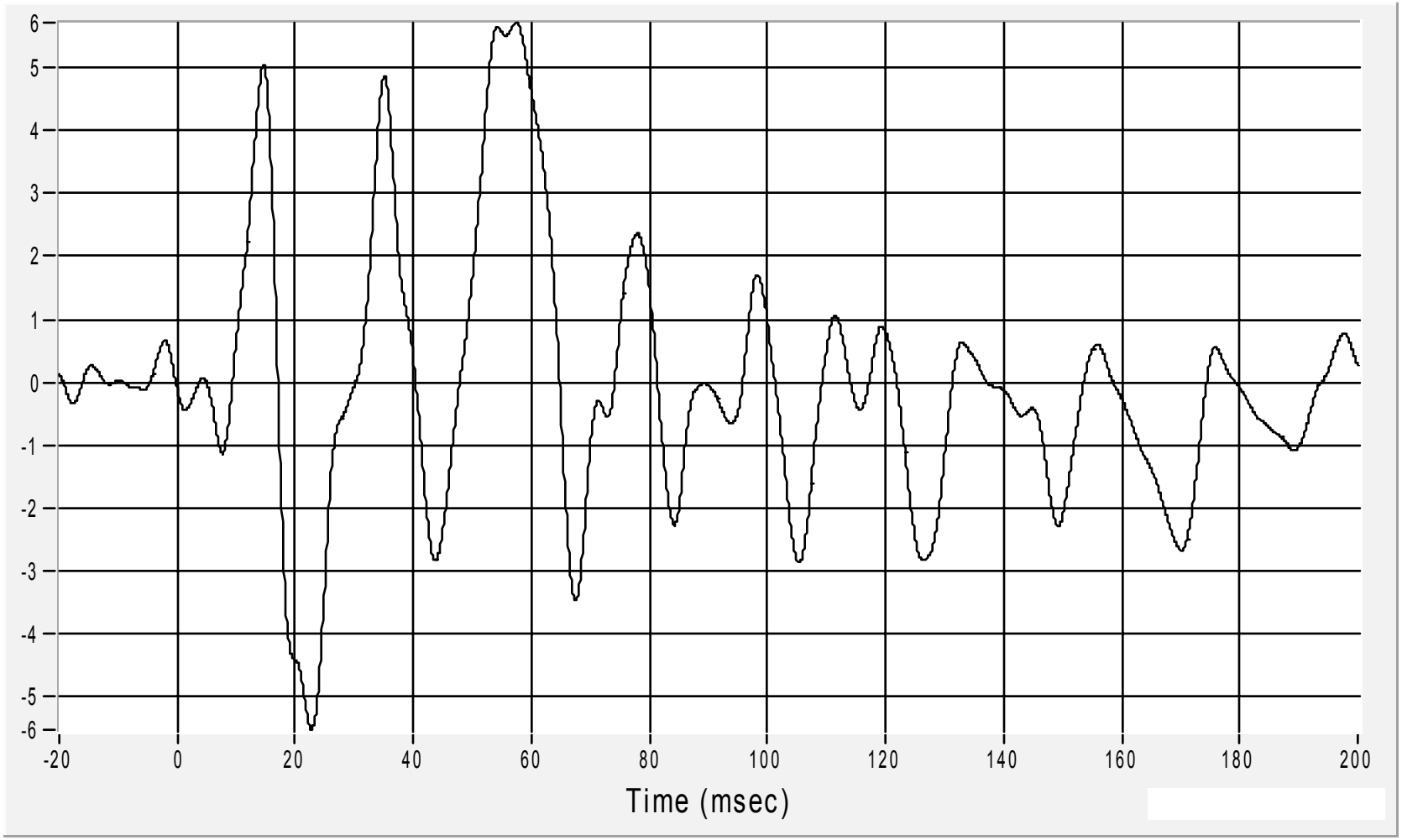
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

MDB Center of Gravity (Z) Acceleration

Acceleration (G's) CFC60

Max	**5.7**	**G**	**at**	**57.4**	**msec**
Min	**-5.5**	**G**	**at**	**22.7**	**msec**



05sn01 - 2005 FORD FREESTYLE MPV

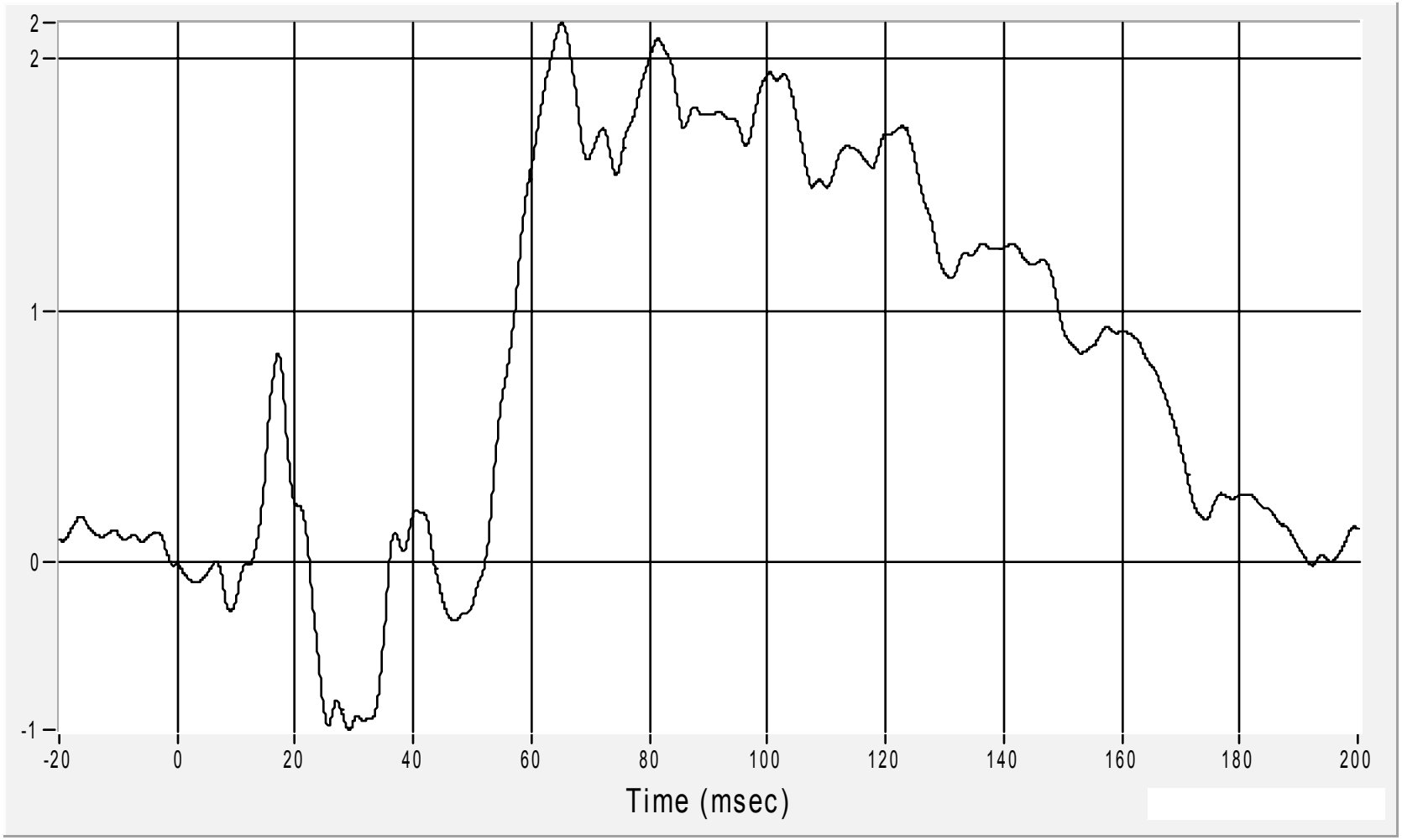
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

MDB Center of Gravity (Z) Velocity

Velocity (km/h) CFC180

Max	**2.1**	**km/h**	**at**	**65.1**	**msec**
Min	**-0.7**	**km/h**	**at**	**29.0**	**msec**



05sn01 - 2005 FORD FREESTYLE MPV

18 November 2004

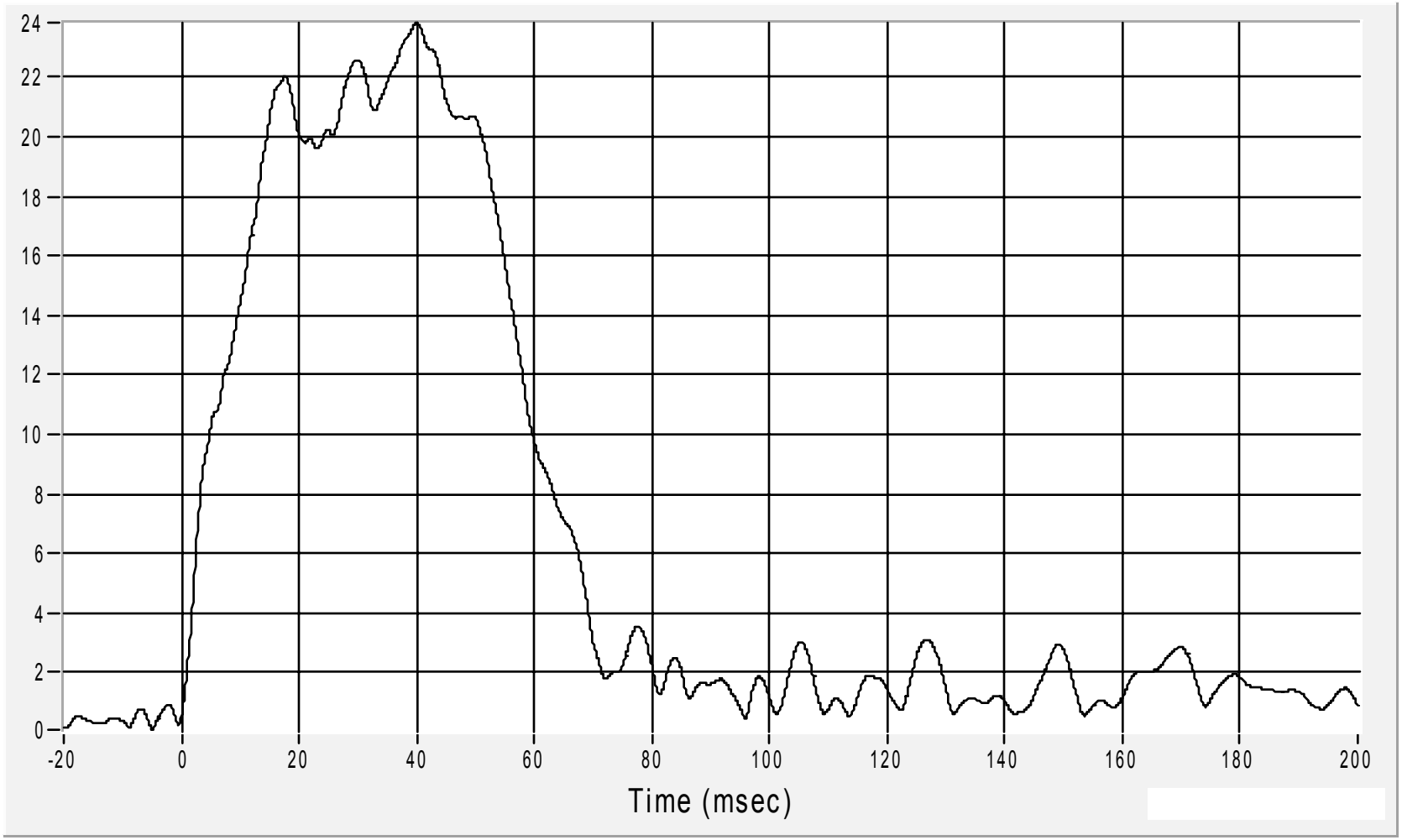
Medical College of Wisconsin
Vehicle Crashworthiness Lab

MDB Center of Gravity Resultant Acceleration

Acceleration (G's) CFC60

Max 23.8 G's at 39.9 msec

Min 0.5 G's at 95.8 msec



05sn01 - 2005 FORD FREESTYLE MPV

18 November 2004

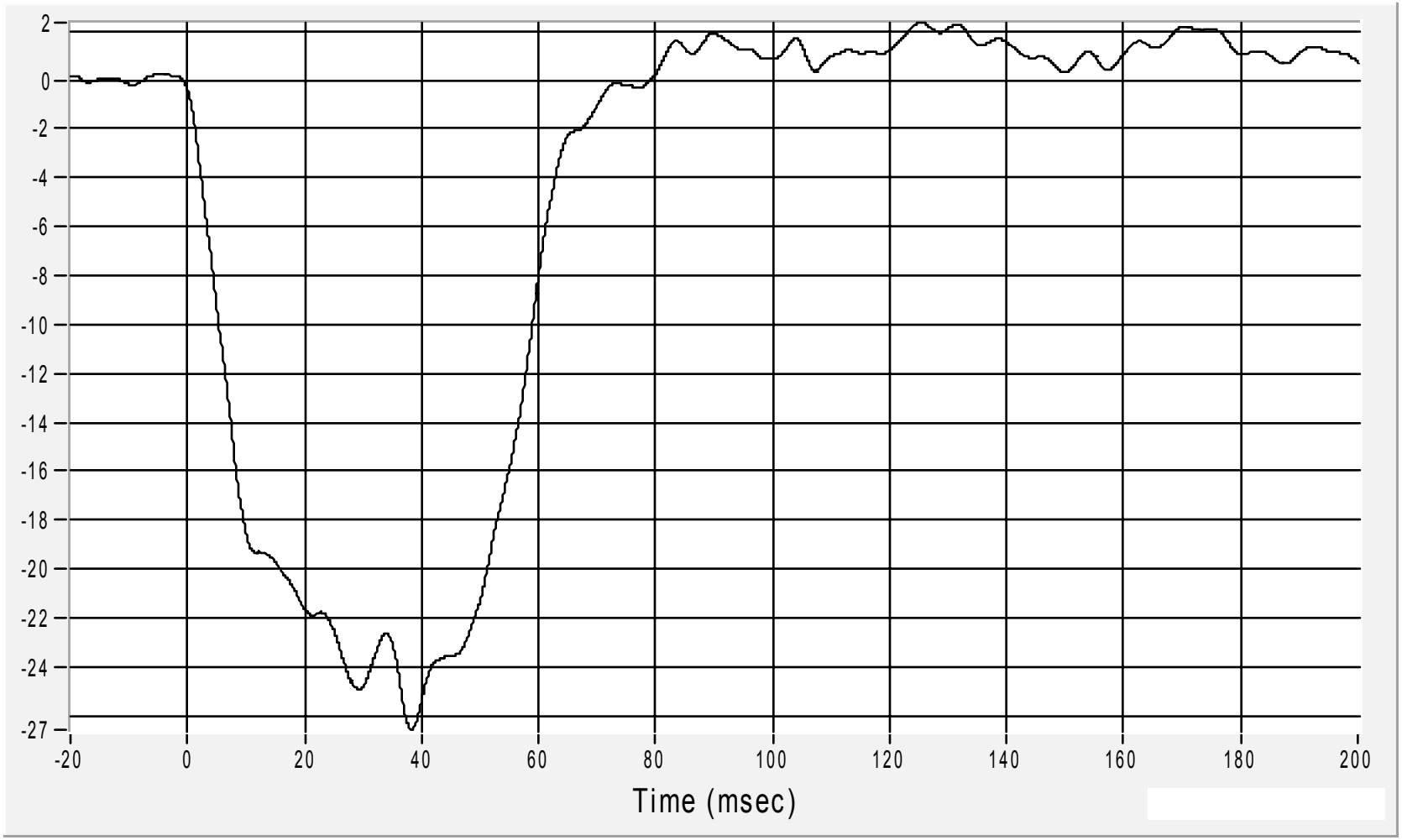
Medical College of Wisconsin
Vehicle Crashworthiness Lab

MDB Rear (X) Acceleration

Acceleration (G's) CFC60

Max 2.3 G at 125.3 msec

Min -26.6 G at 38.2 msec



05sn01 - 2005 FORD FREESTYLE MPV

18 November 2004

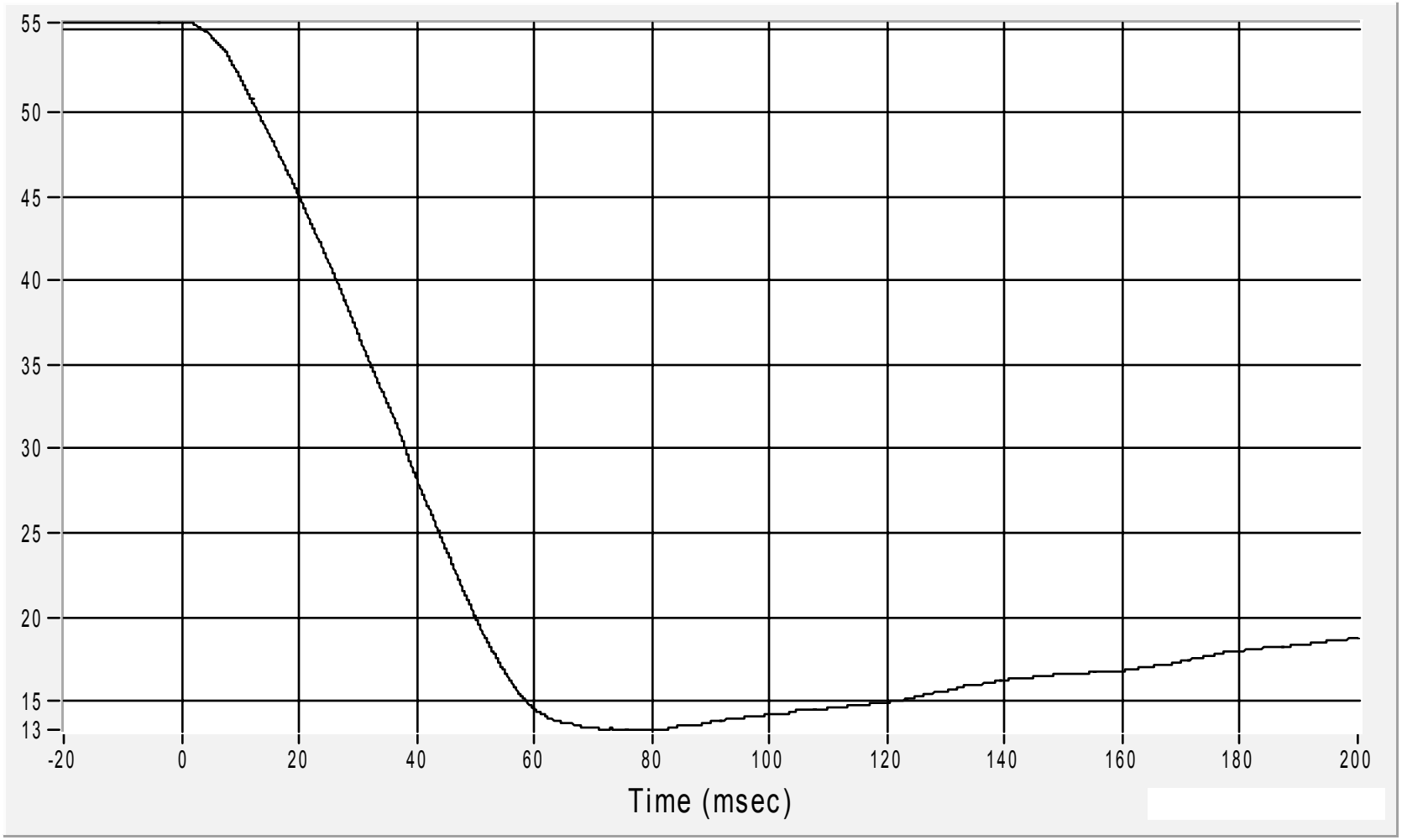
Medical College of Wisconsin
Vehicle Crashworthiness Lab

MDB Rear (X) Velocity

Velocity (km/h) CFC180

Max 55.4 km/h at 1.2 msec

Min 13.3 km/h at 78.5 msec



05sn01 - 2005 FORD FREESTYLE MPV

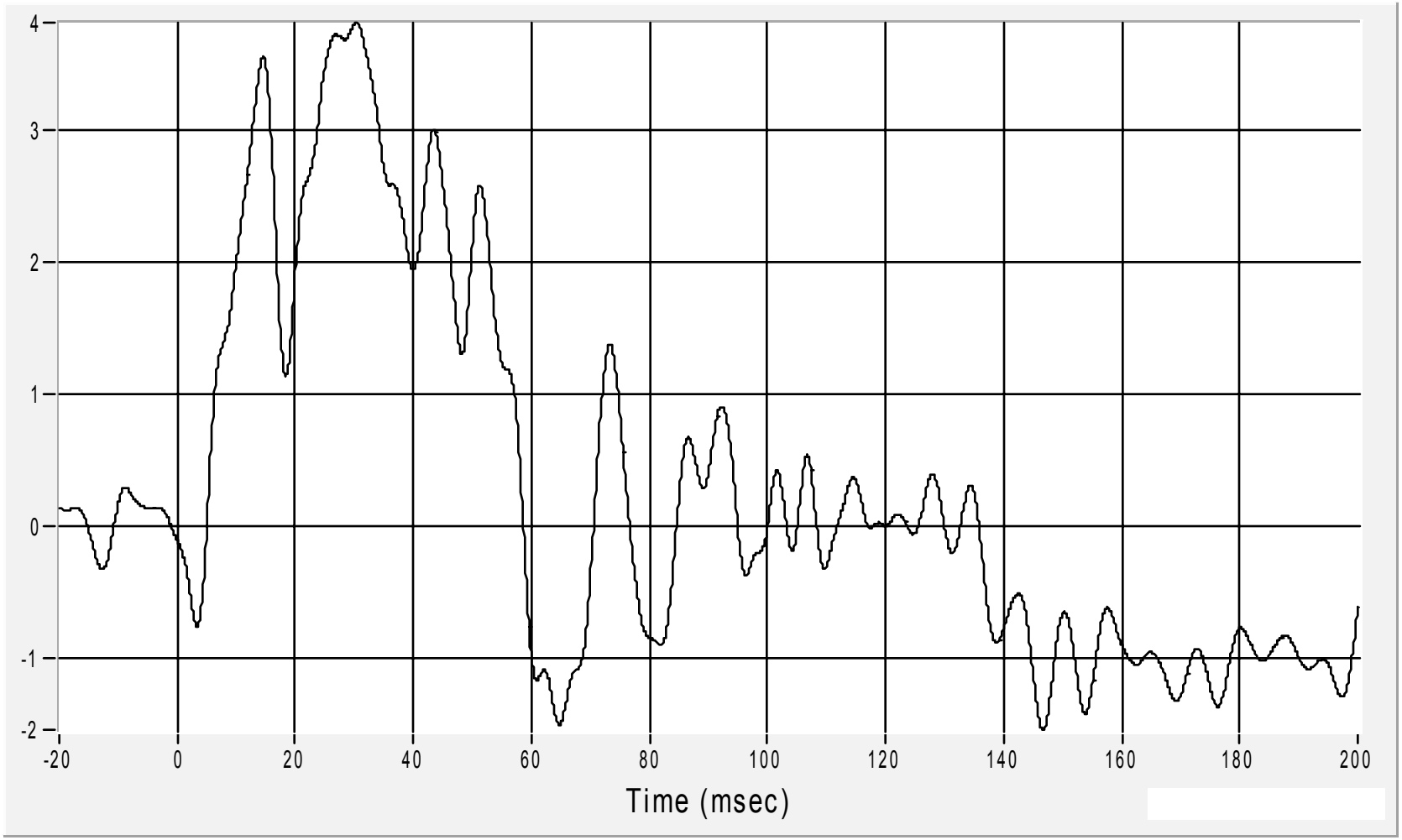
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

MDB Rear (Y) Acceleration

Acceleration (G's) CFC60

Max	**3.8**	**G**	**at**	**30.3**	**msec**
Min	**-1.5**	**G**	**at**	**146.7**	**msec**



05sn01 - 2005 FORD FREESTYLE MPV

18 November 2004

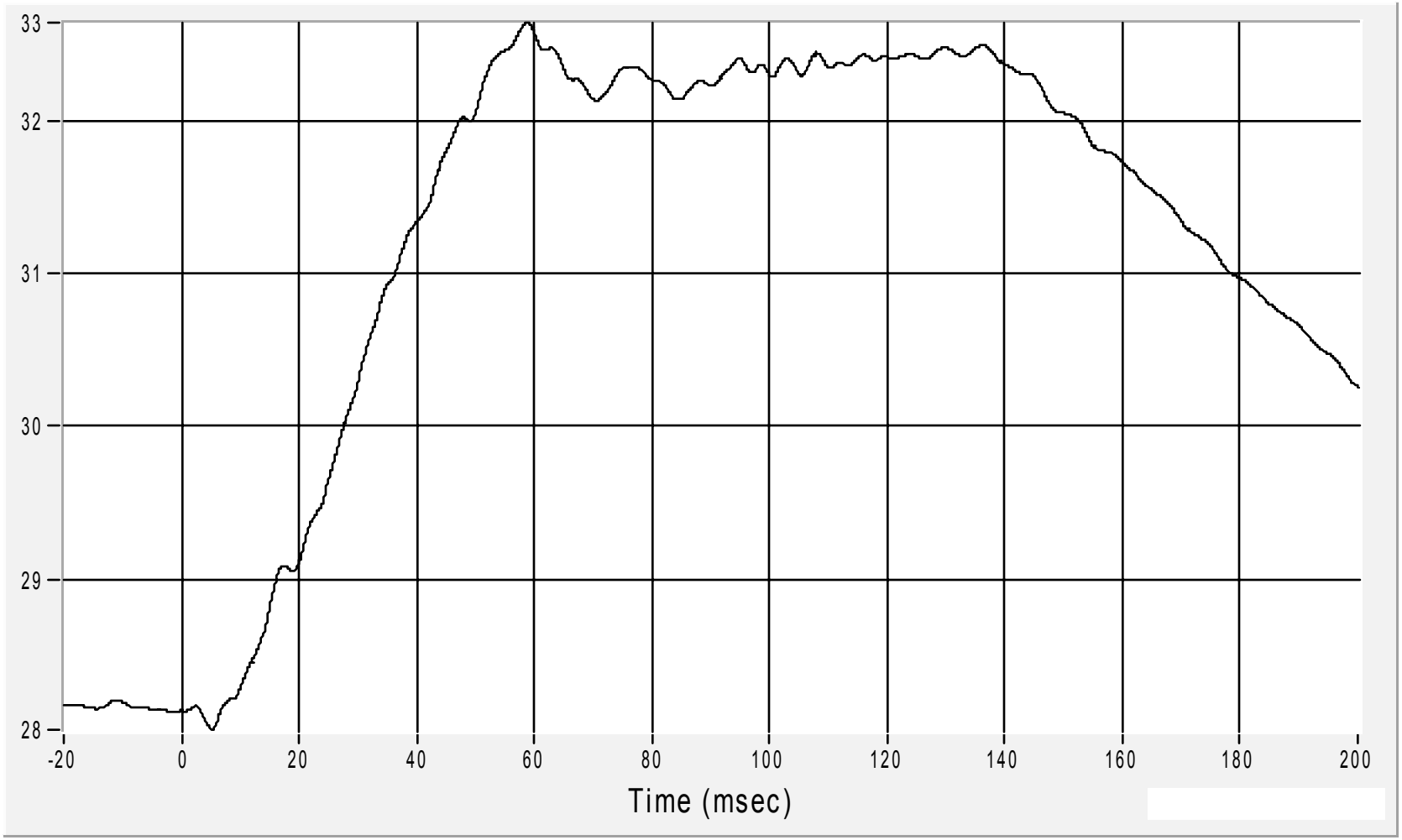
Medical College of Wisconsin
Vehicle Crashworthiness Lab

MDB Rear (Y) Velocity

Velocity (km/h) CFC180

Max 32.6 km/h at 58.8 msec

Min 28.0 km/h at 5.2 msec



05sn01 - 2005 FORD FREESTYLE MPV

18 November 2004

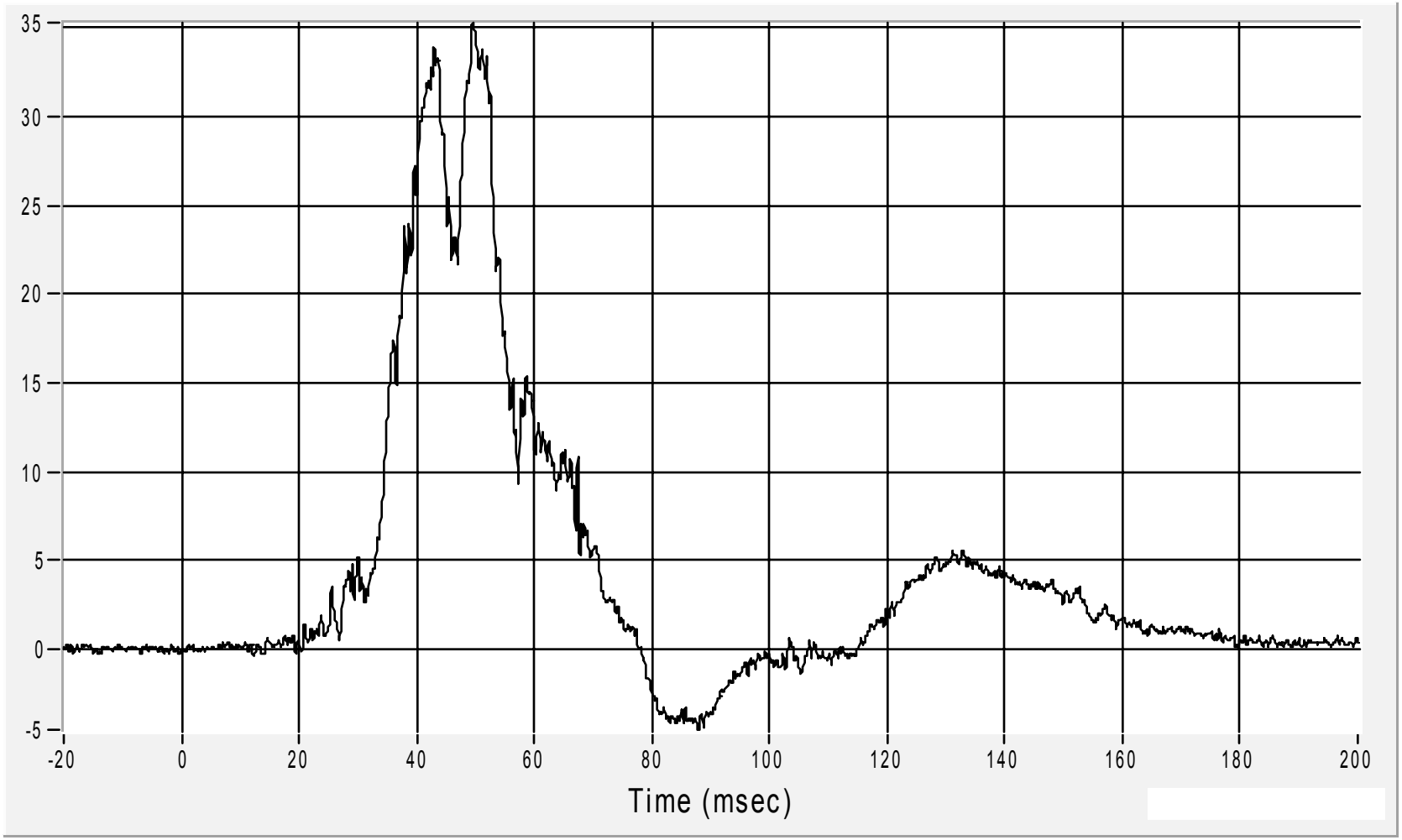
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Upper Rib (Y) - Redundant Acceleration

Acceleration (G's) CFC1000

Max 35.3 G at 49.5 msec

Min -4.5 G at 87.9 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

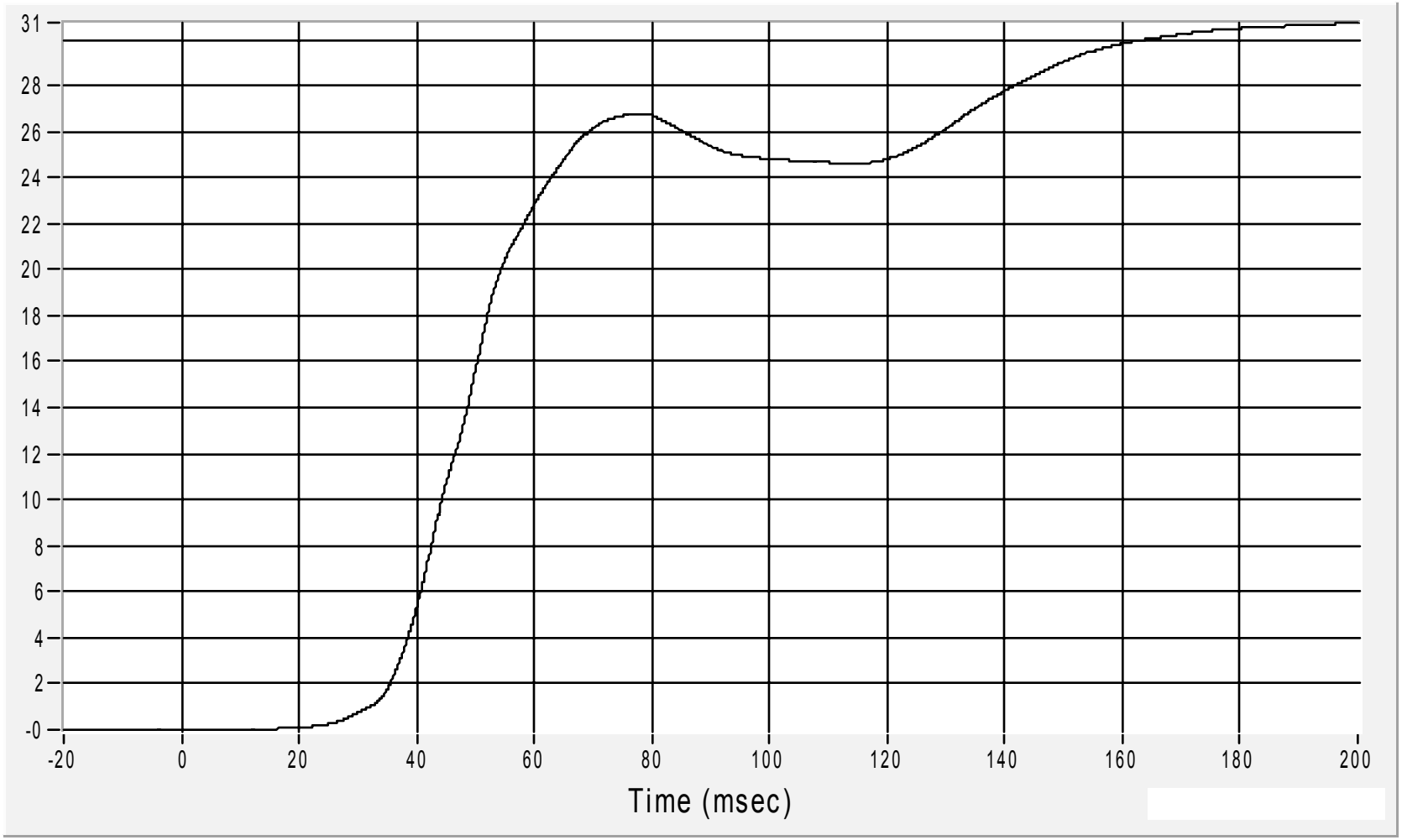
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Upper Rib (Y) Velocity - Redundant

Velocity (km/h) CFC180

Max 30.7 km/h at 199.9 msec

Min 0.0 km/h at 4.4 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

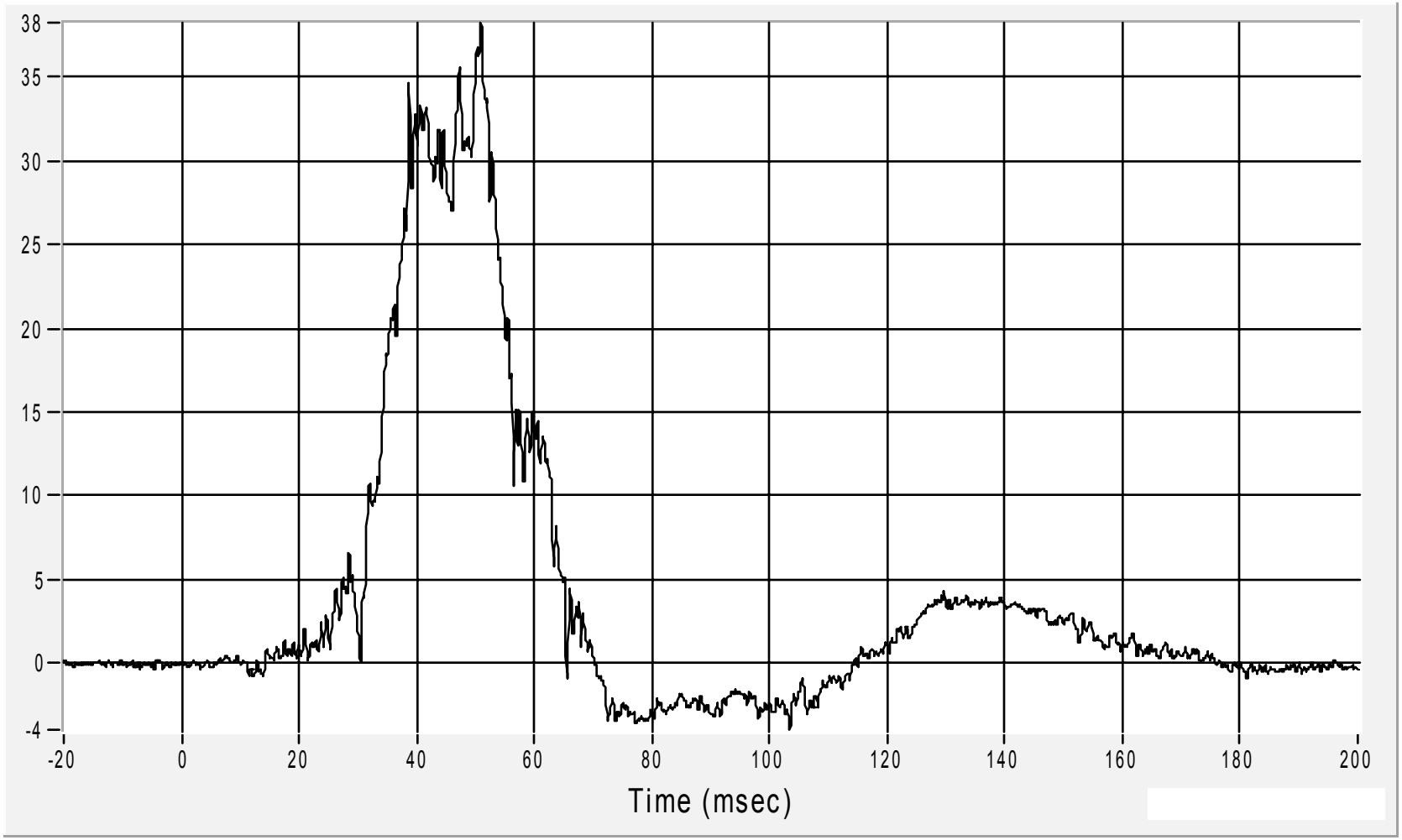
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Lower Rib (Y) - Redundant Acceleration

Acceleration (G's) CFC1000

Max 38.2 G at 51.0 msec

Min -4.0 G at 103.4 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

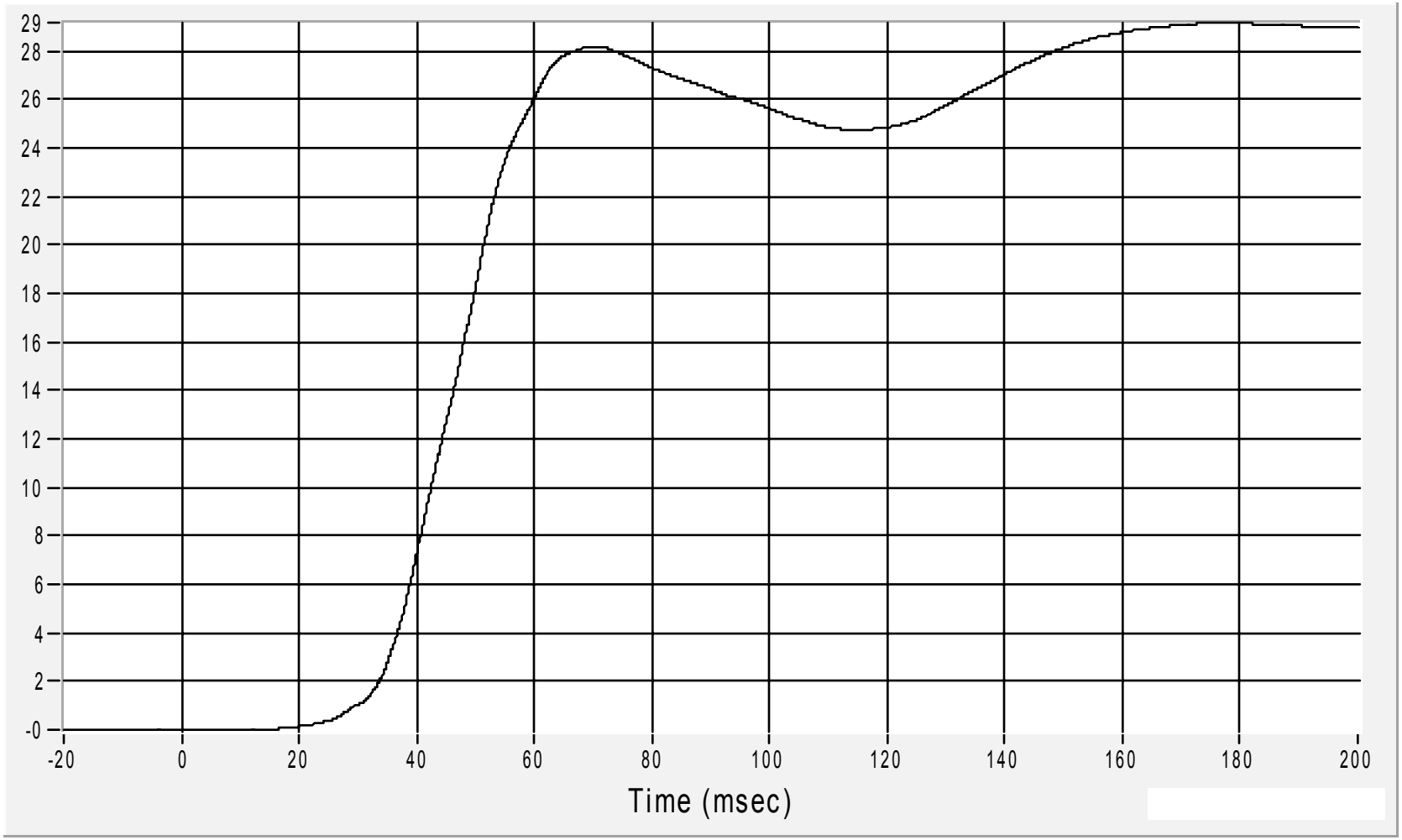
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Lower Rib (Y) Velocity - Redundant

Velocity (km/h) CFC180

Max 29.2 km/h at 176.5 msec

Min 0.0 km/h at 14.1 msec



05SN01 - 2005 FORD FREESTYLE MPV

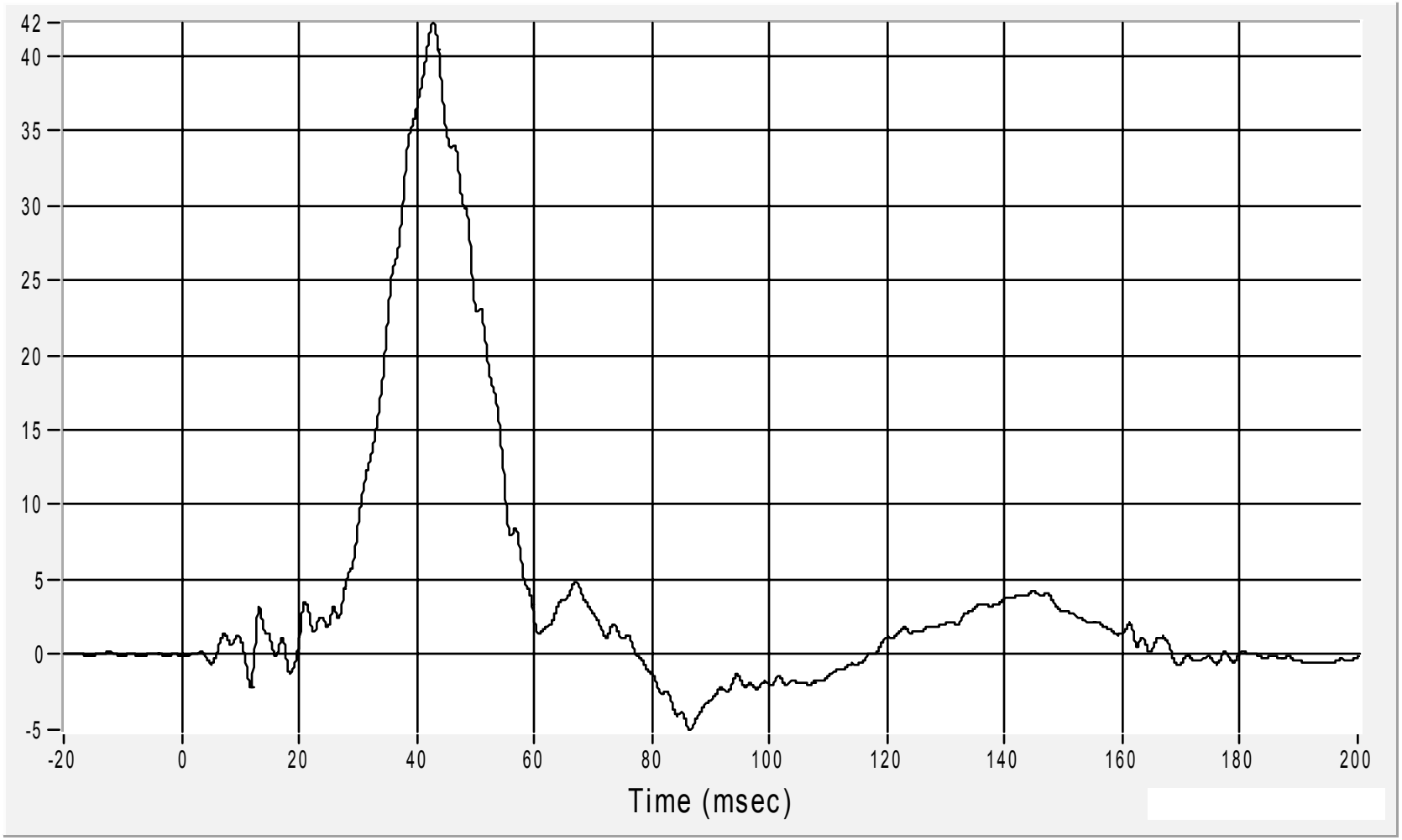
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Lower Spine (Y) - Redundant Acceleration

Acceleration (G's) CFC180

Max	**42.2**	**G**	**at**	**42.8**	**msec**
Min	**-5.1**	**G**	**at**	**86.5**	**msec**



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

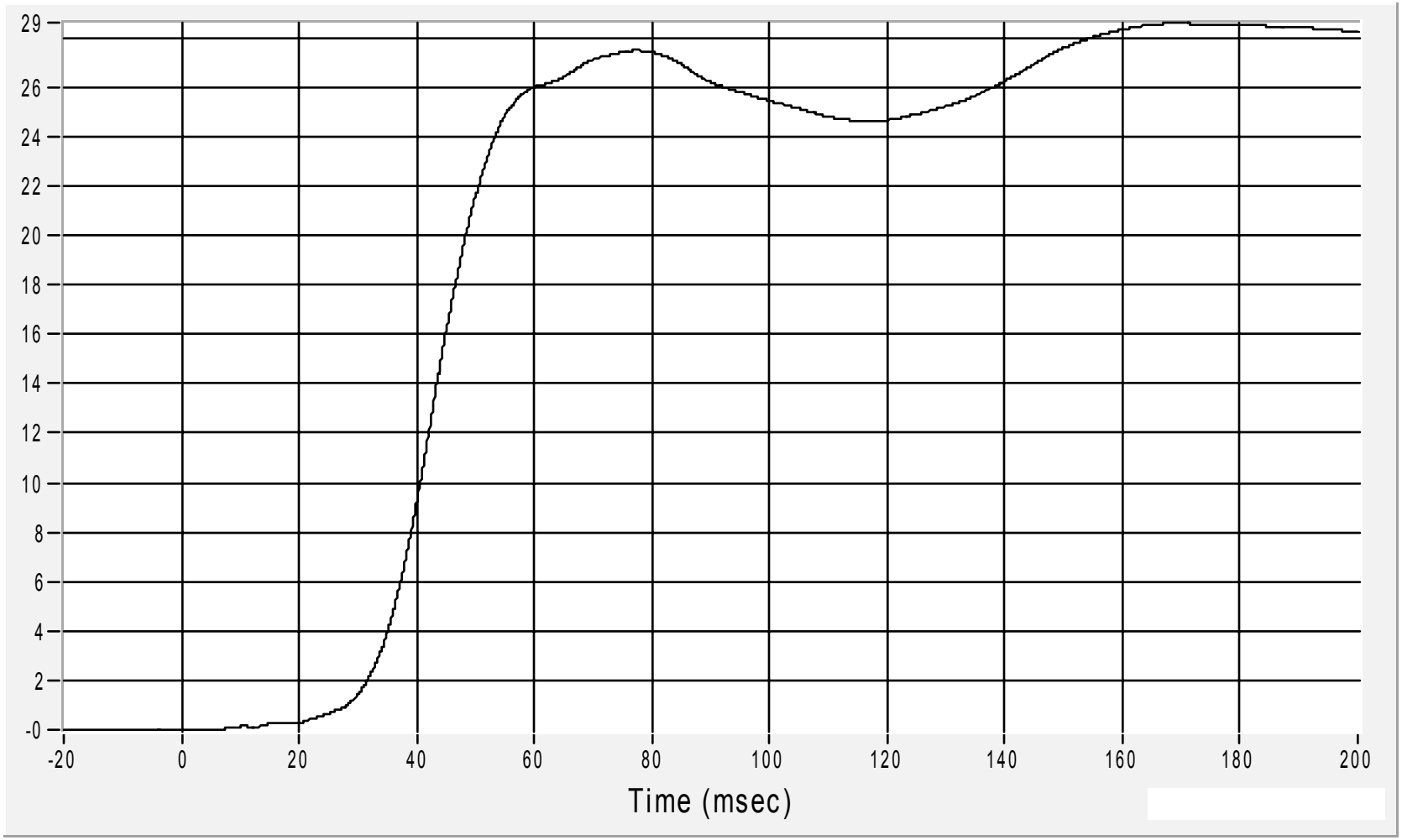
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Lower Spine (Y) Velocity - Redundant

Velocity (km/h) CFC180

Max 28.7 km/h at 168.4 msec

Min 0.0 km/h at 5.9 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

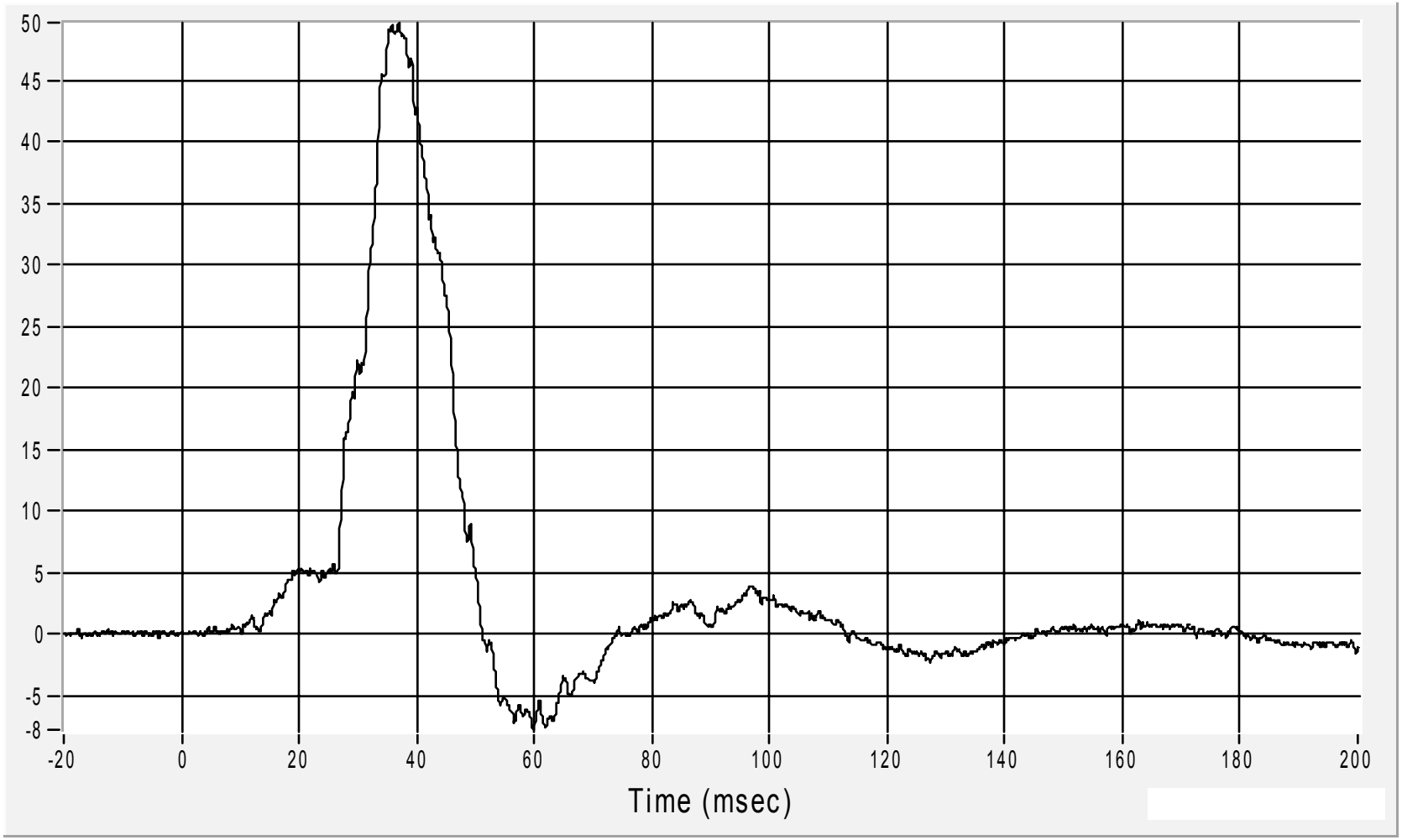
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Pelvic (Y) - Redundant Acceleration

Acceleration (G's) CFC1000

Max 49.7 G at 37.0 msec

Min -7.8 G at 59.8 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

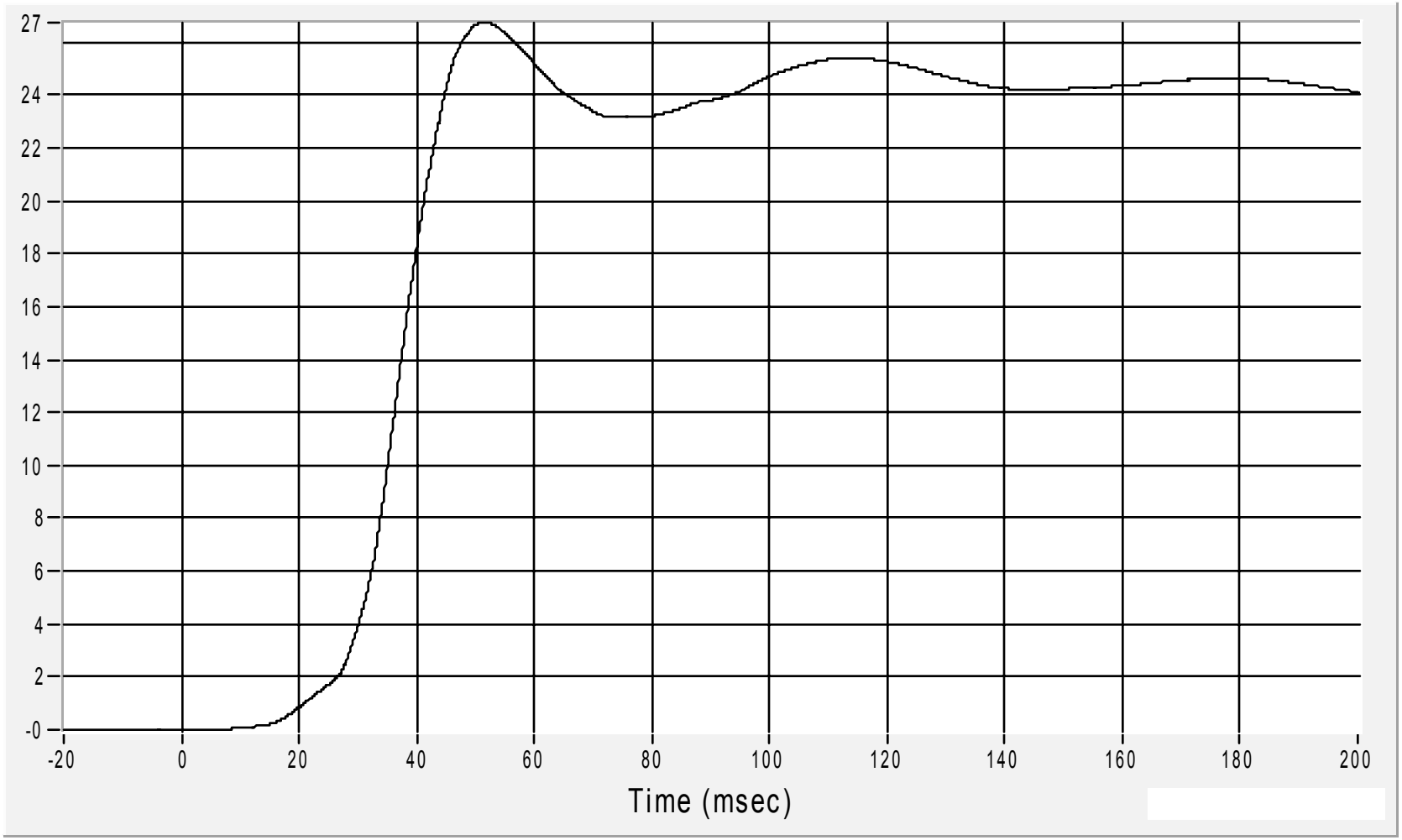
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Pelvic (Y) Velocity - Redundant

Velocity (km/h) CFC180

Max 26.7 km/h at 51.2 msec

Min 0.0 km/h at 0.0 msec



05SN01 - 2005 FORD FREESTYLE MPV

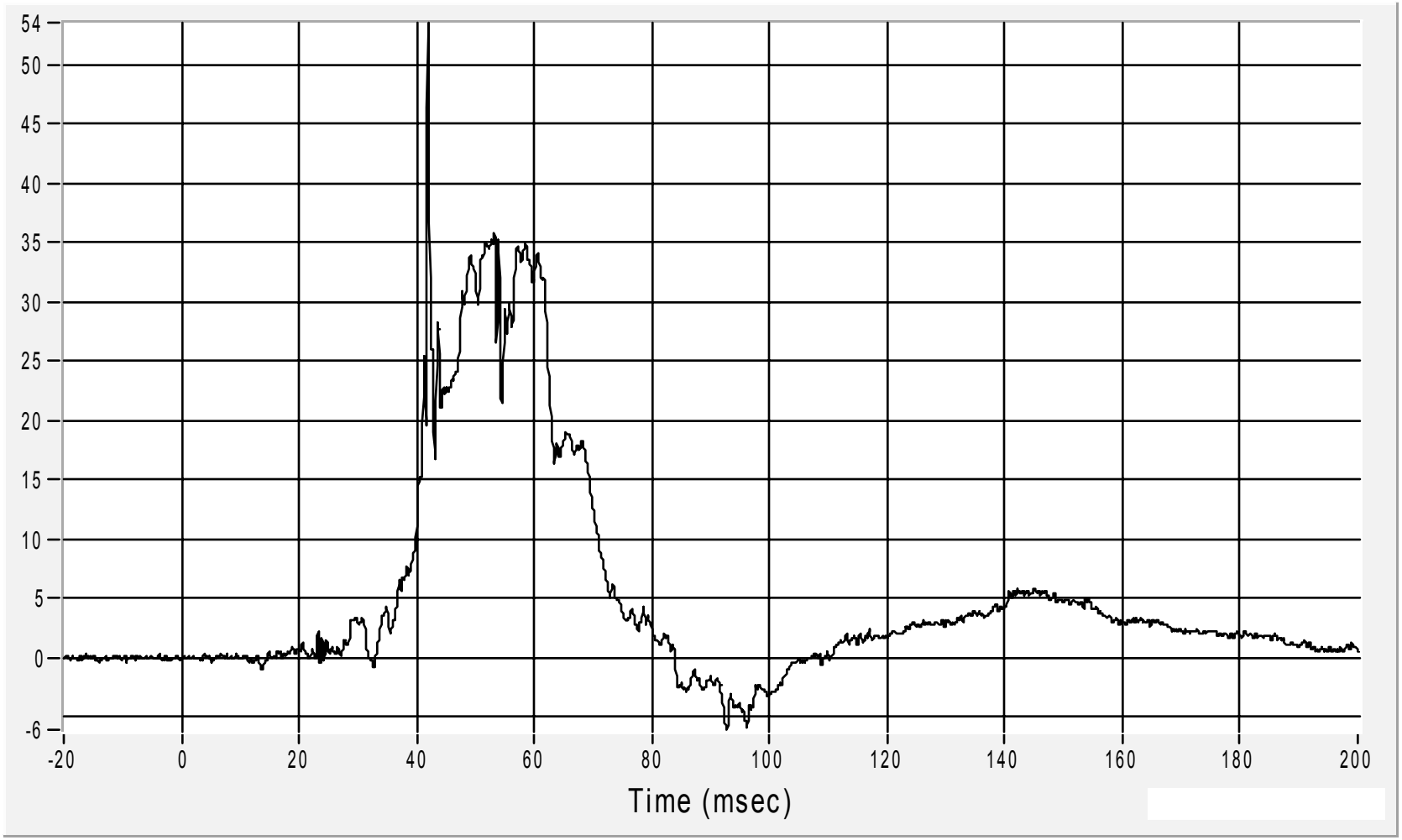
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Upper Rib (Y) - Redundant Acceleration

Acceleration (G's) CFC1000

Max	**53.6**	**G**	**at**	**41.9**	**msec**
Min	**-6.1**	**G**	**at**	**92.7**	**msec**



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

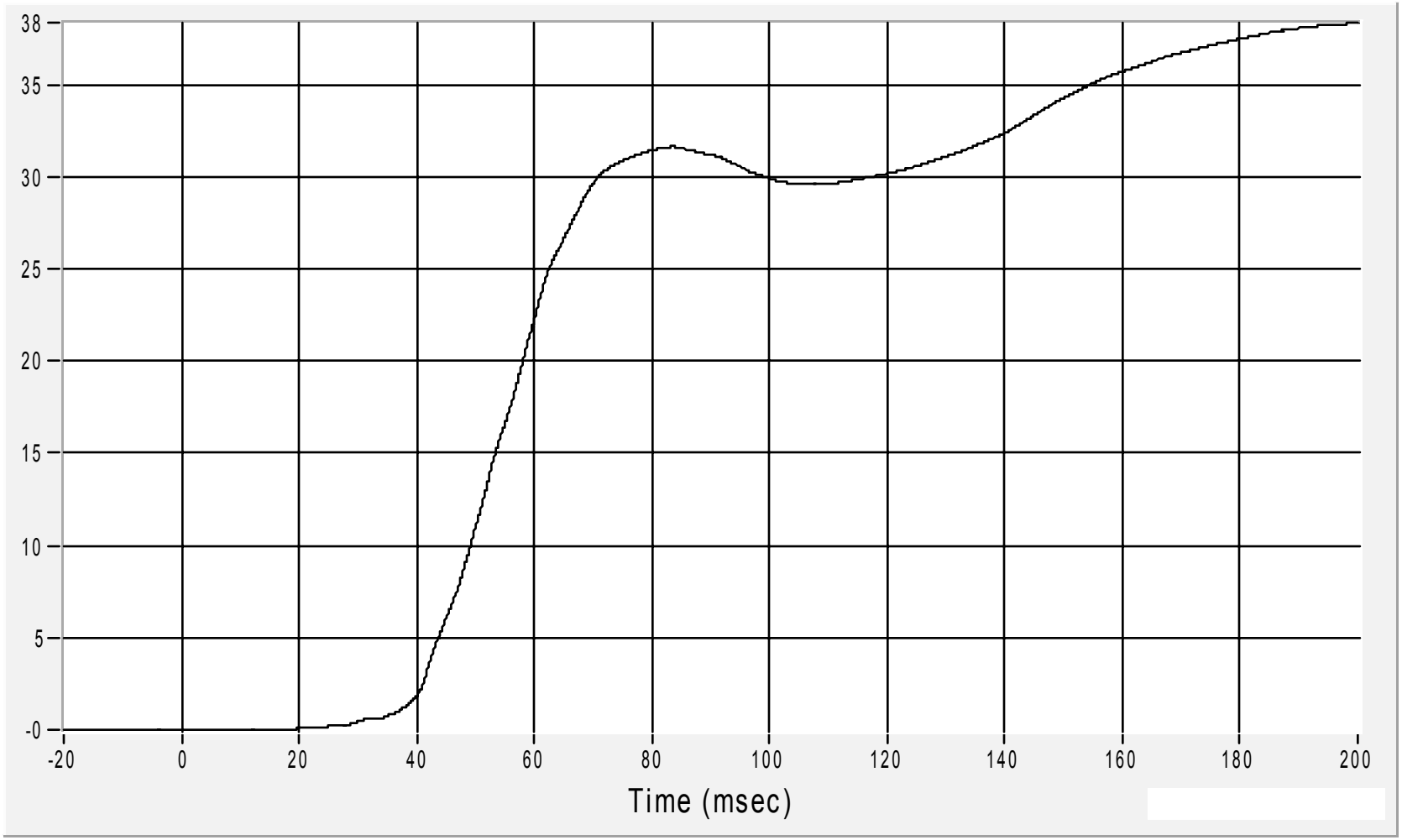
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Upper Rib (Y) Velocity - Redundant

Velocity (km/h) CFC180

Max 38.4 km/h at 199.9 msec

Min 0.0 km/h at 14.6 msec



05SN01 - 2005 FORD FREESTYLE MPV

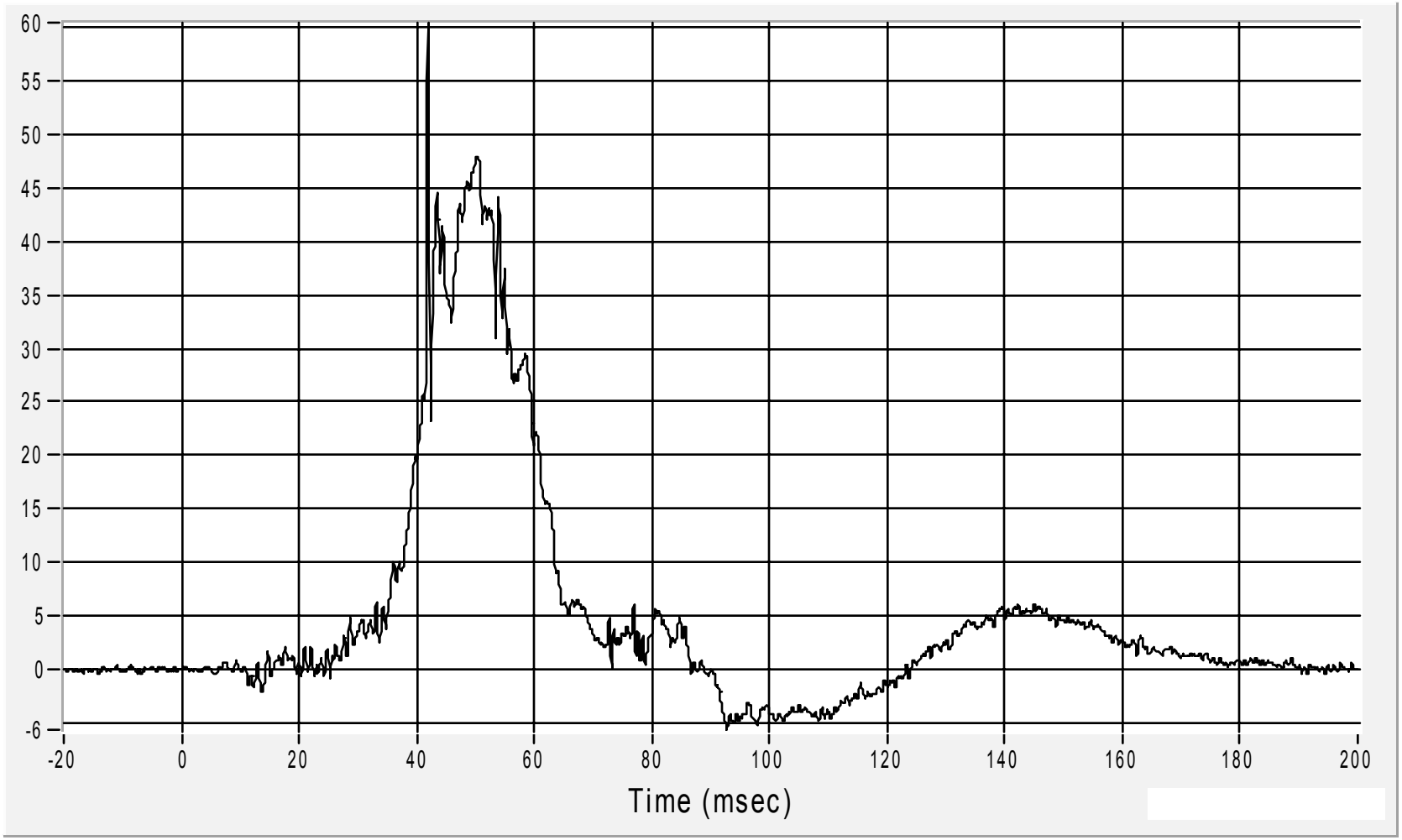
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Lower Rib (Y) - Redundant Acceleration

Acceleration (G's) CFC1000

Max	**60.4**	**G**	**at**	**41.9**	**msec**
Min	**-5.6**	**G**	**at**	**92.7**	**msec**



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

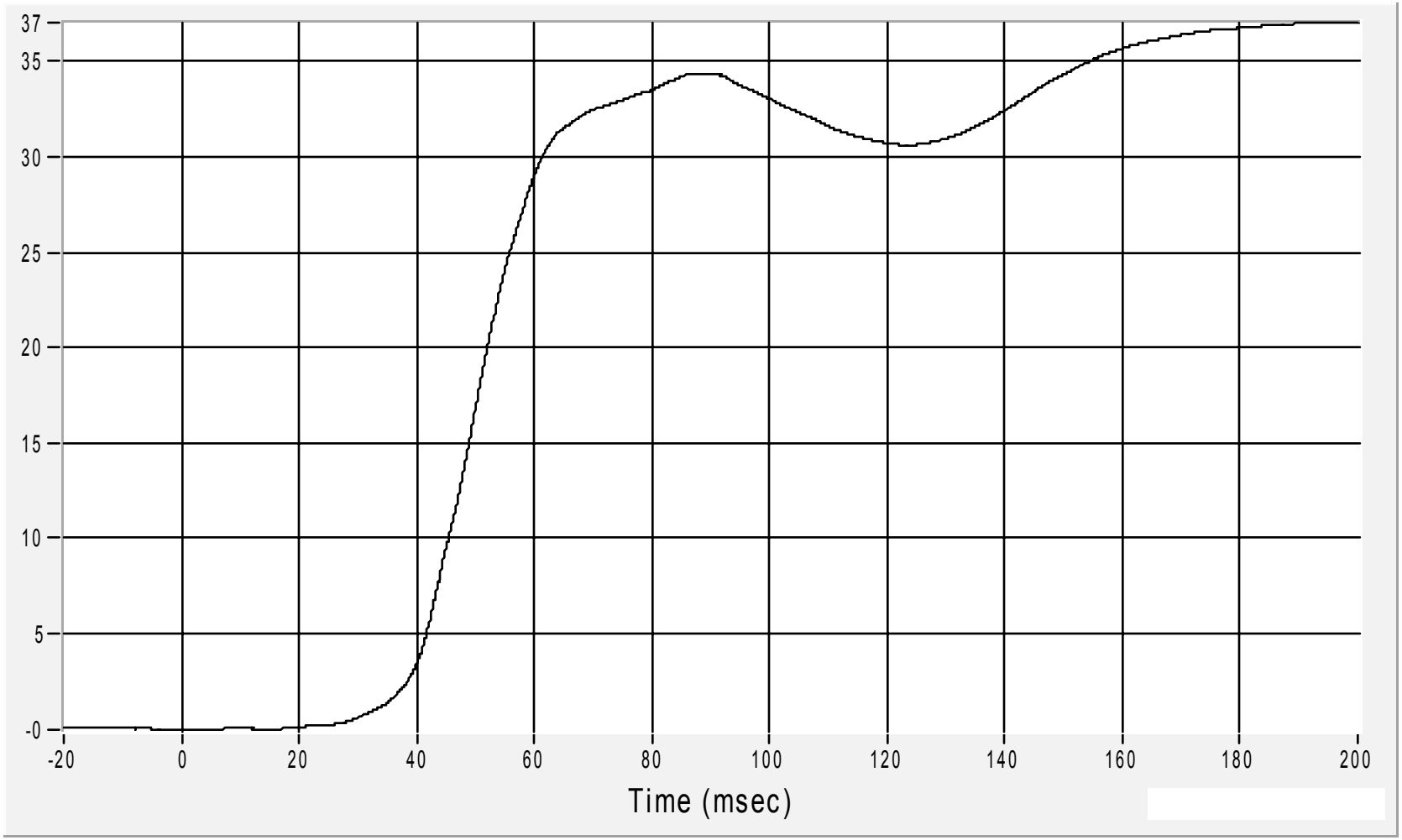
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Lower Rib (Y) Velocity - Redundant

Velocity (km/h) CFC180

Max 37.0 km/h at 199.9 msec

Min 0.0 km/h at 14.4 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

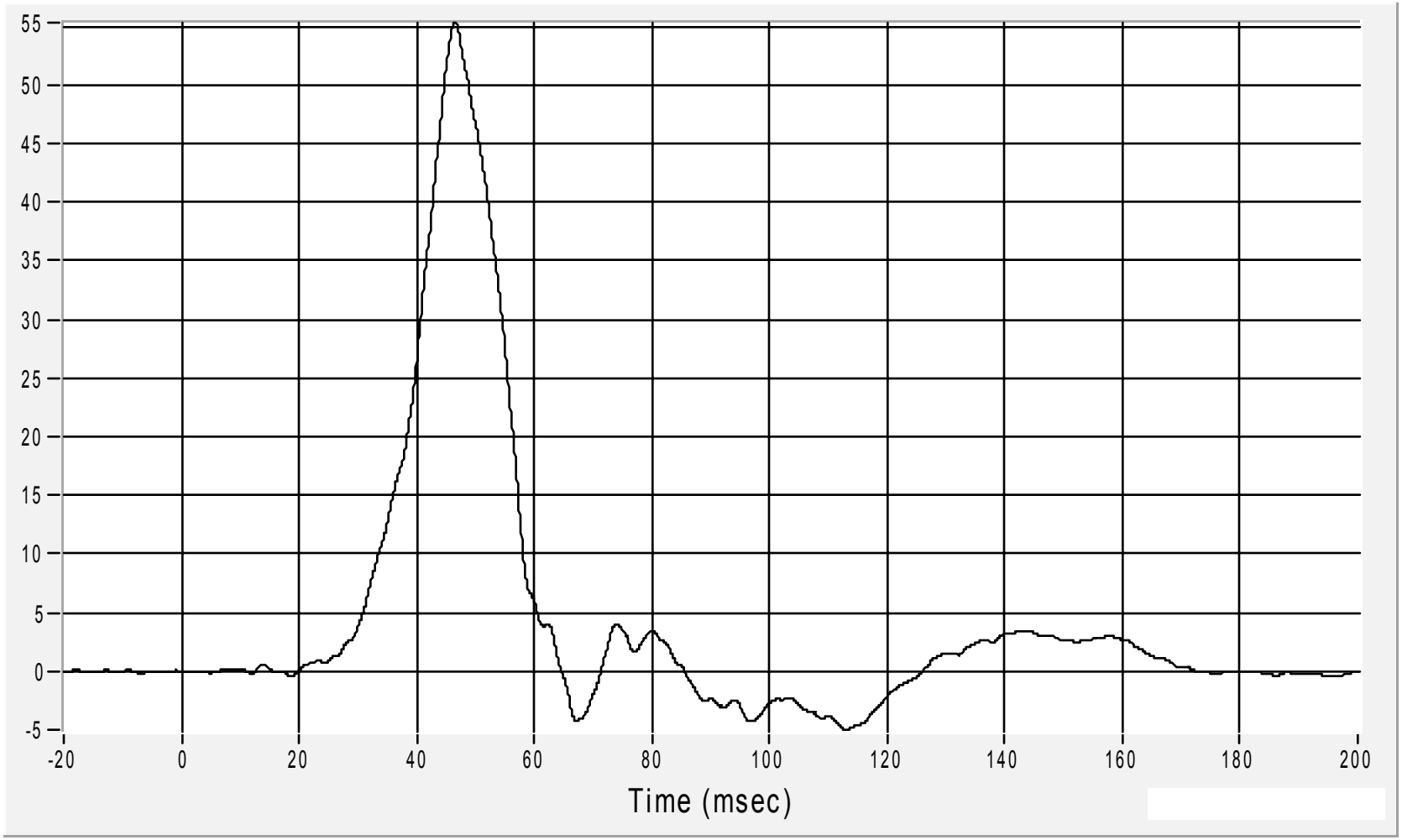
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Lower Spine (Y) - Redundant Acceleration

Acceleration (G's) CFC180

Max 55.3 G at 46.6 msec

Min -5.0 G at 113.0 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

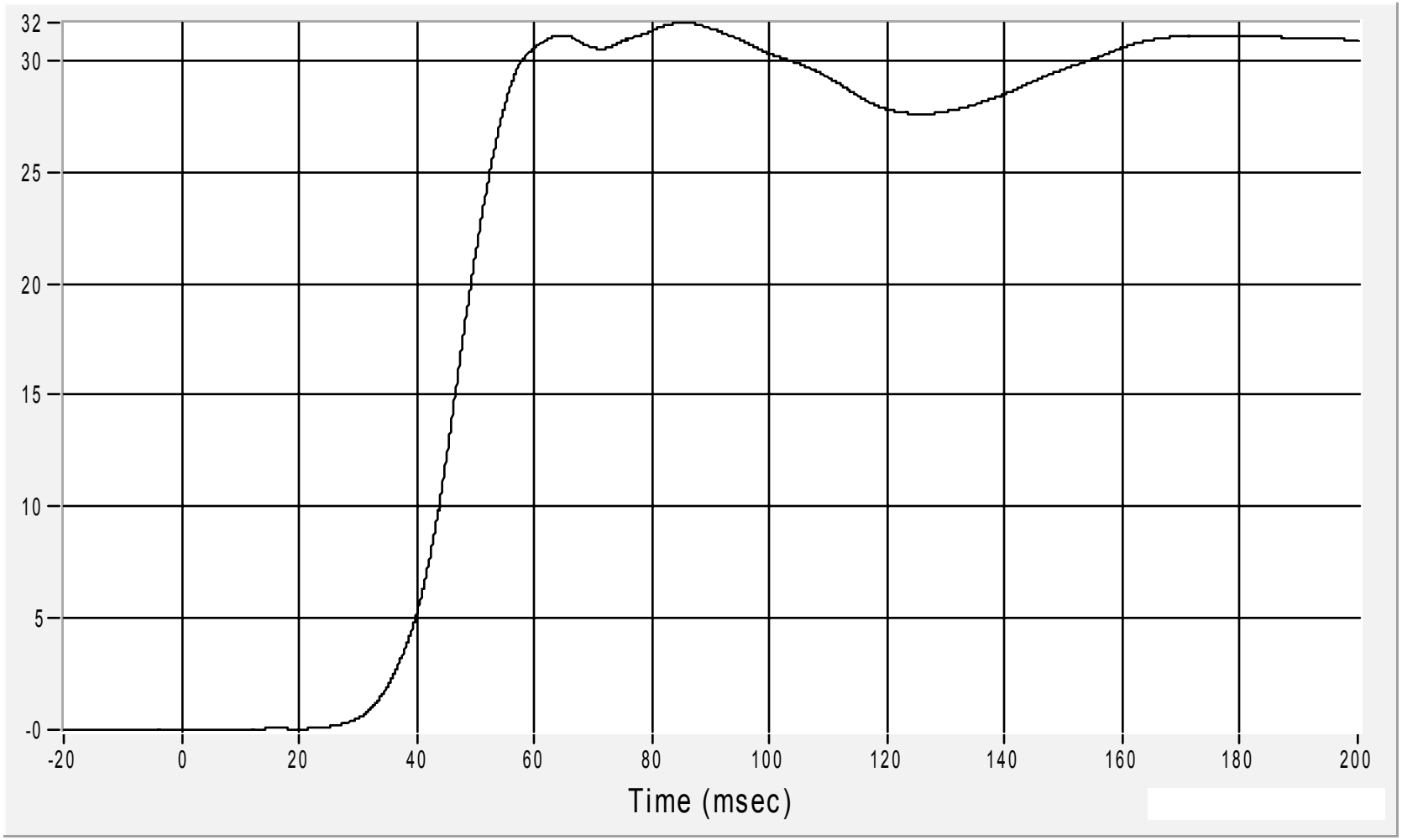
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Lower Spine (Y) Velocity - Redundant

Velocity (km/h) CFC180

Max 31.7 km/h at 85.5 msec

Min 0.0 km/h at 6.2 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

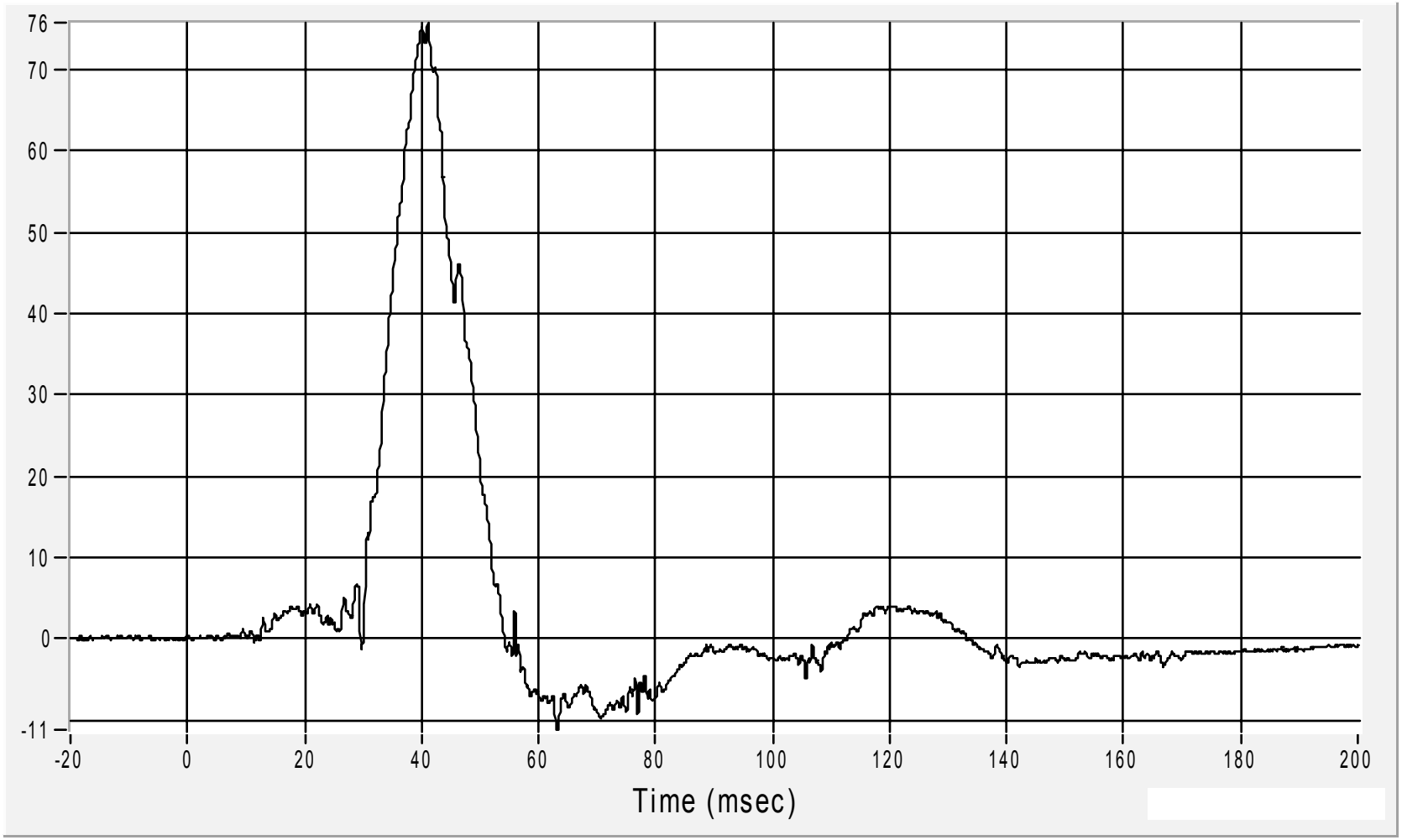
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Pelvic (Y) - Redundant Acceleration

Acceleration (G's) CFC1000

Max 75.8 G at 41.1 msec

Min -11.2 G at 63.3 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

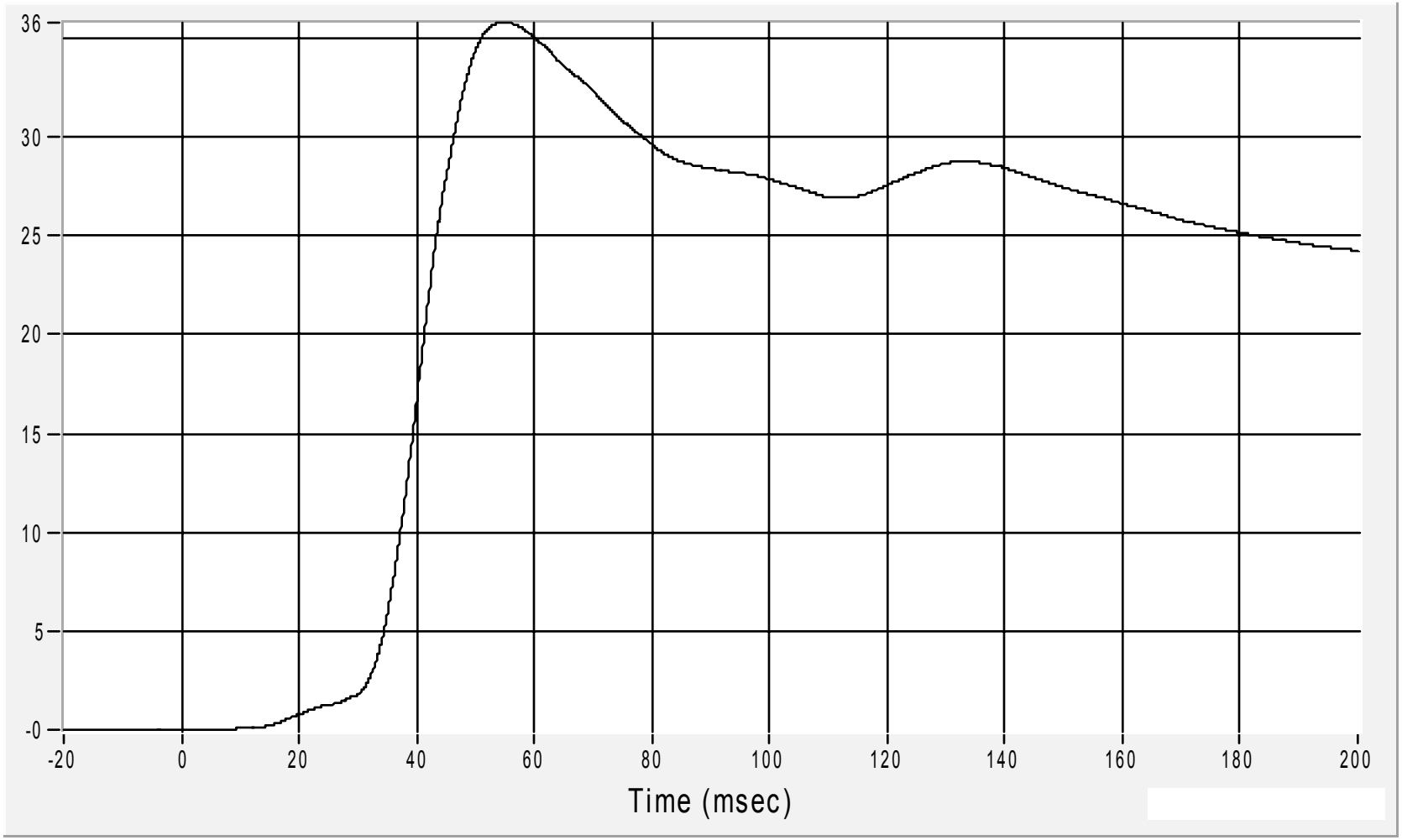
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Pelvic (Y) Velocity - Redundant

Velocity (km/h) CFC180

Max 35.8 km/h at 54.2 msec

Min 0.0 km/h at 1.9 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

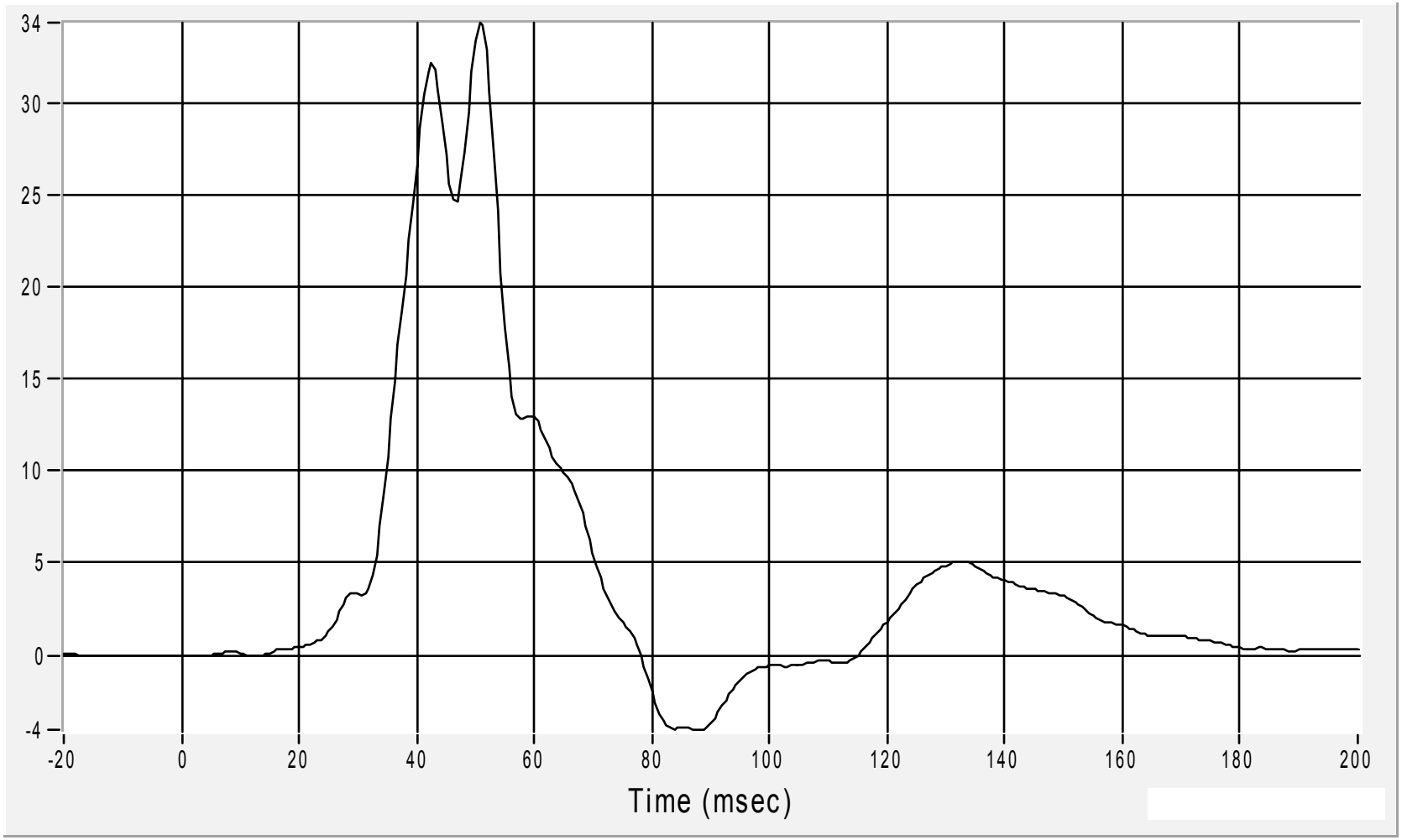
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Upper Rib (Y) - Redundant Acceleration

Acceleration (G's) FIR100

Max 34.3 G at 50.6 msec

Min -4.0 G at 88.1 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

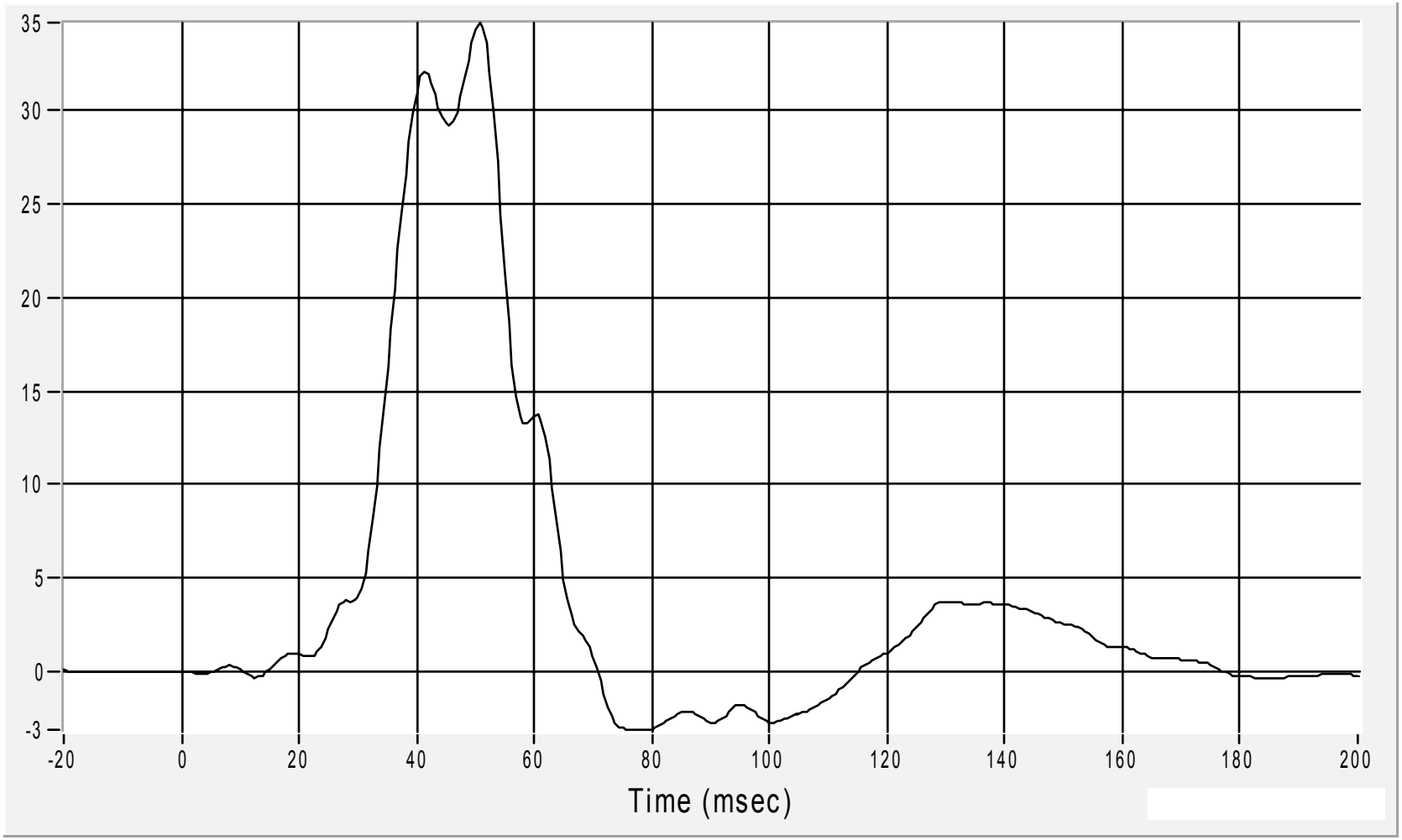
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Lower Rib (Y) - Redundant Acceleration

Acceleration (G's) FIR100

Max 34.7 G at 50.6 msec

Min -3.1 G at 78.8 msec



05SN01 - 2005 FORD FREESTYLE MPV

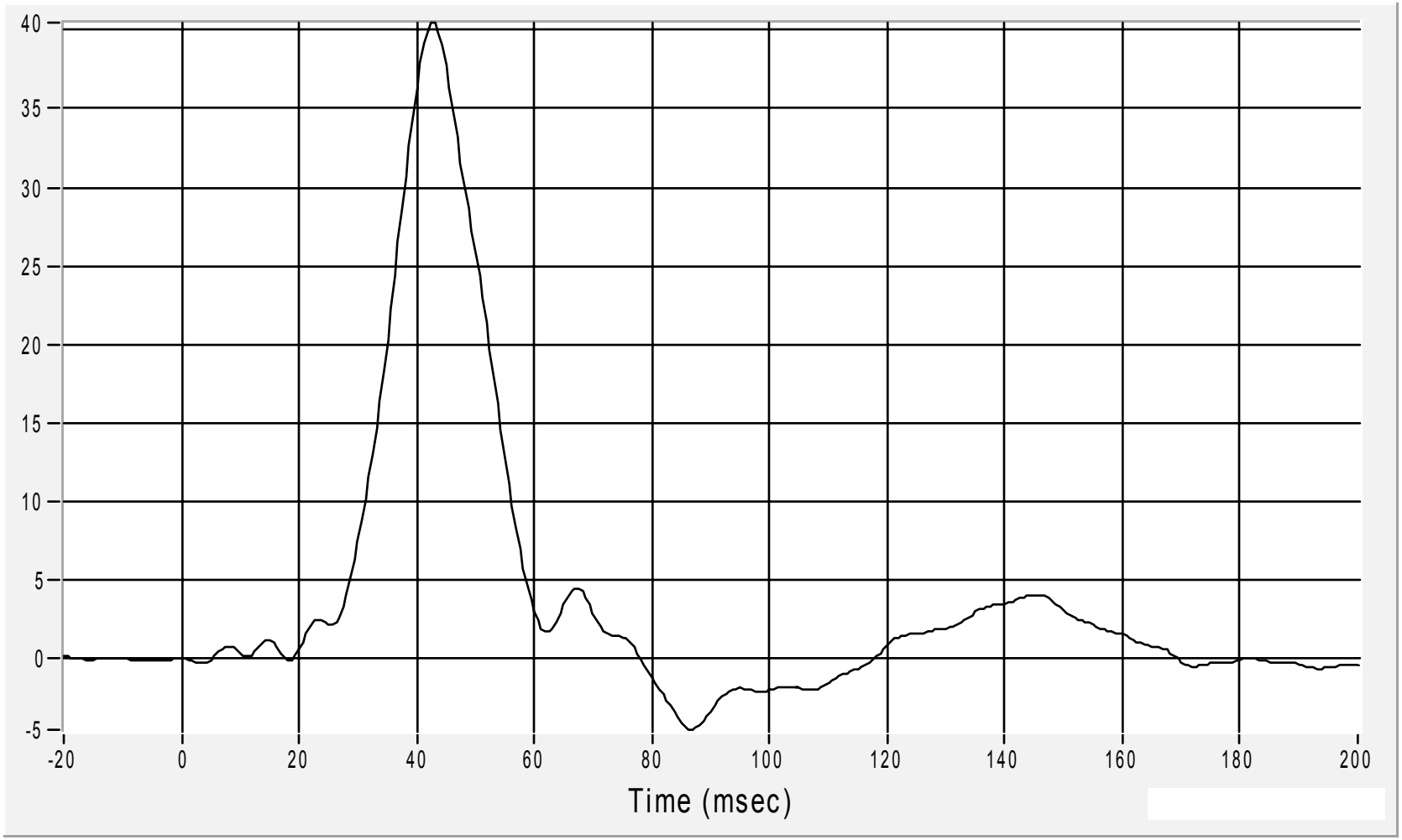
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Lower Spine (Y) - Redundant Acceleration

Acceleration (G's) FIR100

Max	**40.5**	**G**	**at**	**42.5**	**msec**
Min	**-4.5**	**G**	**at**	**86.9**	**msec**



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

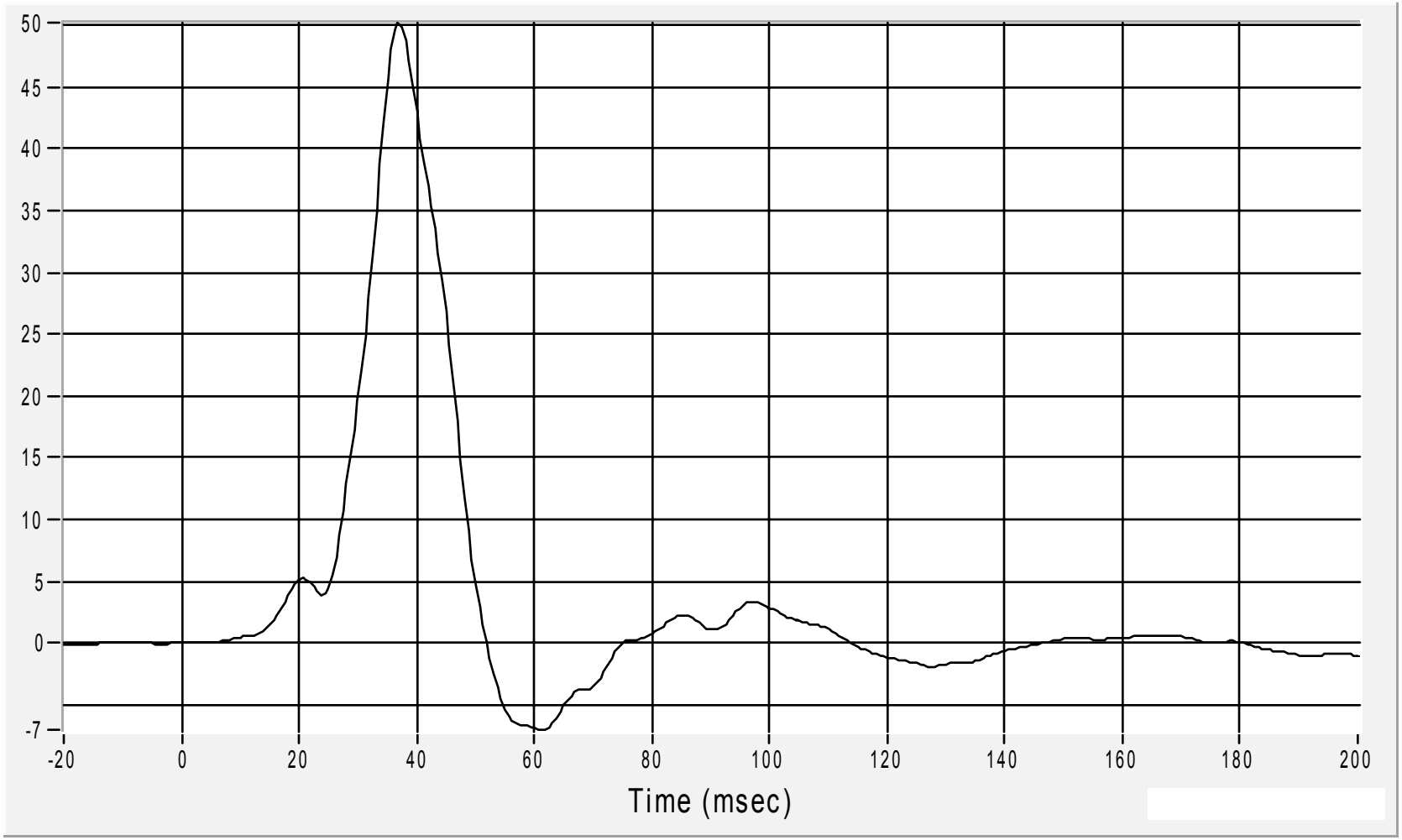
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Driver Pelvic (Y) - Redundant Acceleration

Acceleration (G's) FIR100

Max 50.2 G at 36.9 msec

Min -7.0 G at 61.2 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

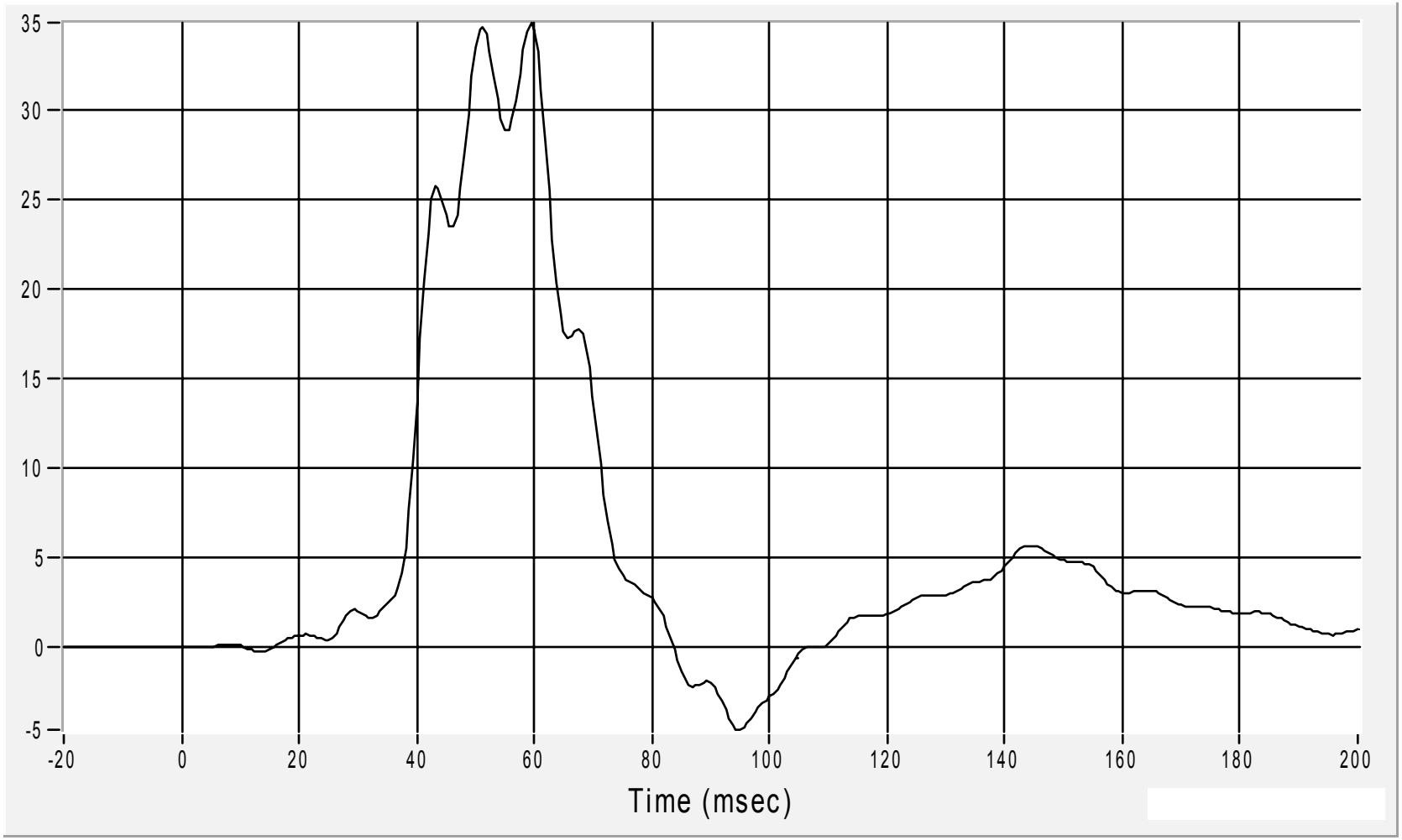
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Upper Rib (Y) - Redundant Acceleration

Acceleration (G's) FIR100

Max 34.9 G at 59.4 msec

Min -4.7 G at 95.0 msec



05SN01 - 2005 FORD FREESTYLE MPV

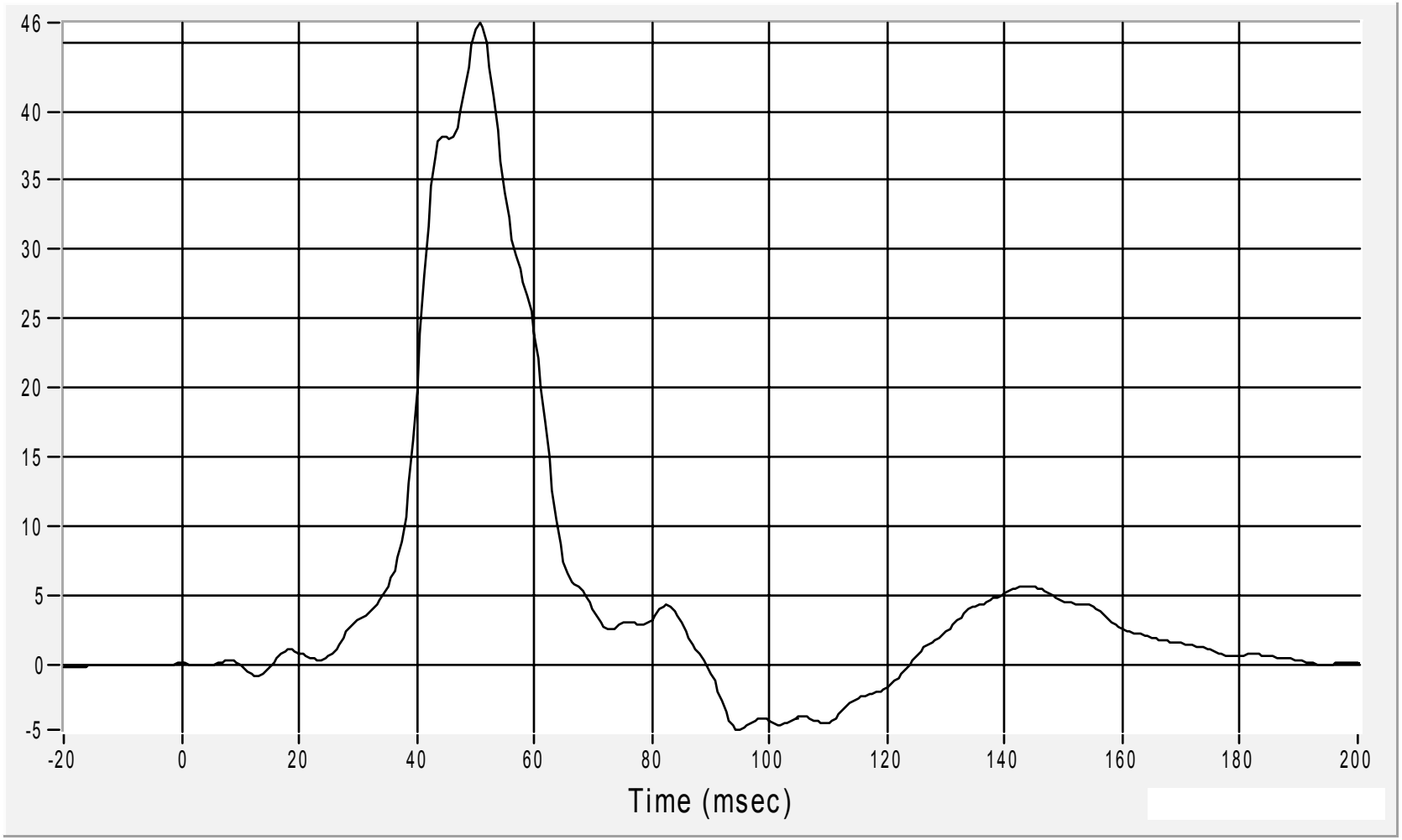
18 November 2004

Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Lower Rib (Y) - Redundant Acceleration

Acceleration (G's) FIR100

Max	**46.4**	**G**	**at**	**50.6**	**msec**
Min	**-4.7**	**G**	**at**	**95.0**	**msec**



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

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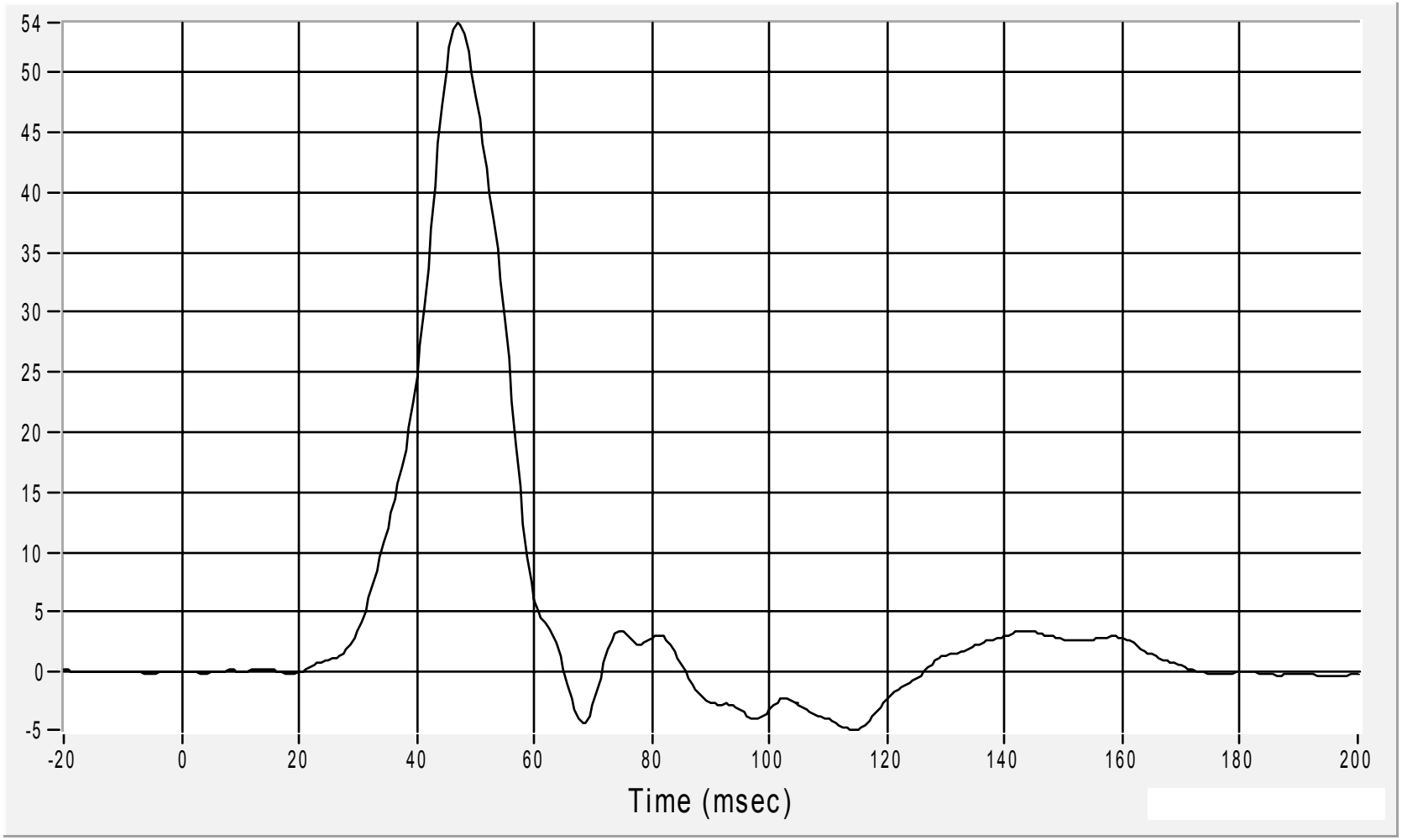
Vehicle Crashworthiness Lab

Passenger Lower Spine (Y) - Redundant Acceleration

Max	**54.1**	**G**	**at**	**46.9**	**msec**
Min	**-4.8**	**G**	**at**	**114.4**	**msec**

Acceleration (G's) FIR100



05SN01 - 2005 FORD FREESTYLE MPV
18 November 2004

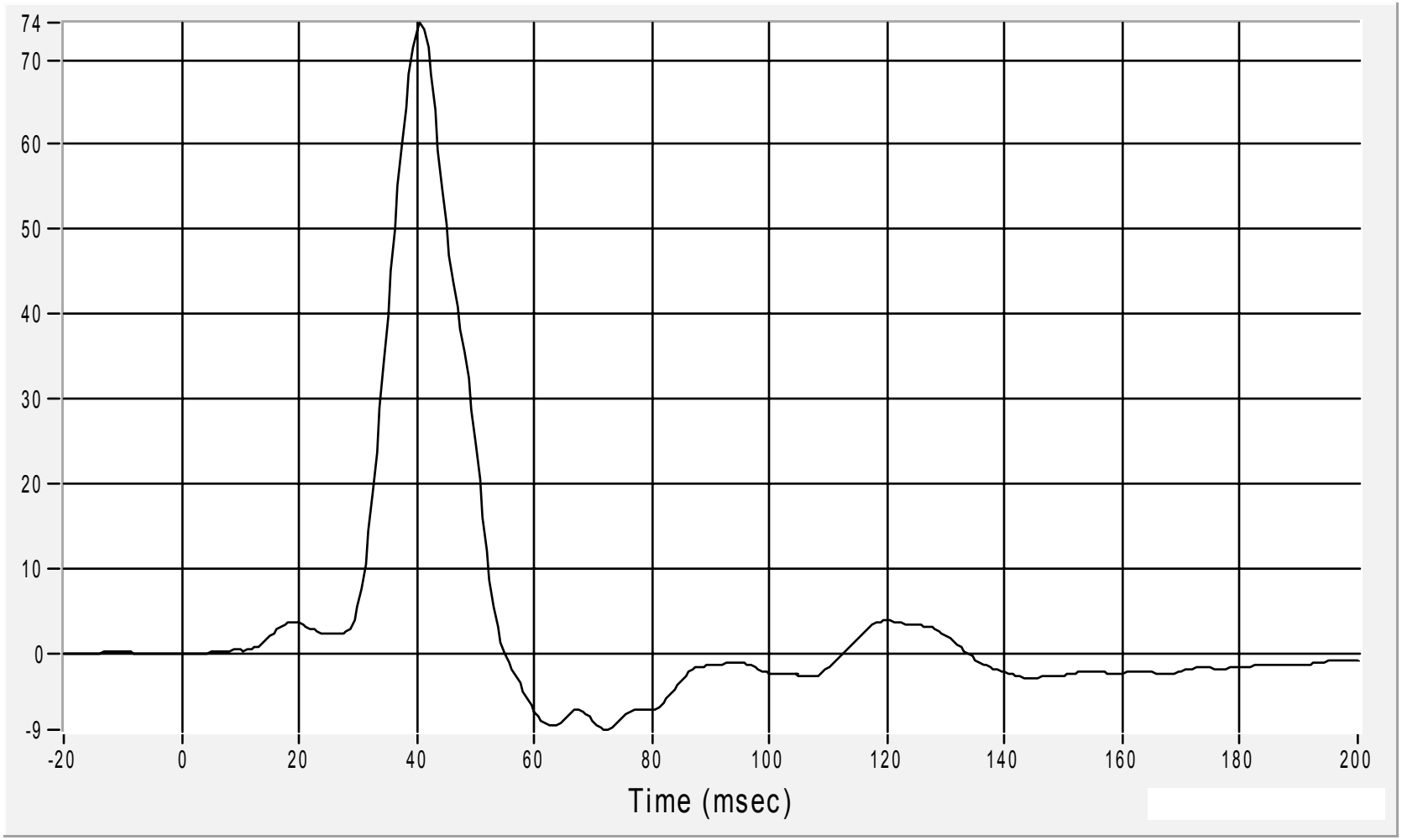
Medical College of Wisconsin
Vehicle Crashworthiness Lab

Passenger Pelvic (Y) - Redundant Acceleration

Acceleration (G's) FIR100

Max 74.4 G at 40.6 msec

Min -9.1 G at 71.9 msec



05SN01 - 2005 FORD FREESTYLE MPV

18 November 2004

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Vehicle Crashworthiness Lab

APPENDIX C

SID H3 CONFIGURATION AND VERIFICATION RESULTS

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VERIFICATION TEST RESULTS SUMMARY
PRE AND POST TEST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial Number SID H3 056 Test Sequences 01 and 02

TEST	PRE		POST	
	COMMENTS	BY	COMMENTS	BY
EXTERNAL DIMENSIONS	Pass all requirements	Mark Meyer	Pass all requirements	Mark Meyer
THORACIC SHOCK ABSORBER TEST	Pass all requirements	Mark Meyer	N/A	N/A
LATERAL THORAX IMPACT TEST	Pass all requirements	Mark Meyer	Pass all requirements	Mark Meyer
LATERAL PELVIS IMPACT TEST	Pass all requirements	Mark Meyer	Pass all requirements	Mark Meyer
ABDOMINAL COMPRESSION	Pass all requirements	Mark Meyer	Pass all requirements	Mark Meyer
LUMBAR FLEXION	Pass all requirements	Mark Meyer	Pass all requirements	Mark Meyer
HYBRID III LATERAL NECK TEST	Pass all requirements	Mark Meyer	Pass all requirements	Mark Meyer
HYBRID III LATERAL HEAD DROP	Pass all requirements	Mark Meyer	Pass all requirements	Mark Meyer

SID Serial Number SID H3 058 Test Sequences 01 and 02

TEST	PRE		POST	
	COMMENTS	BY	COMMENTS	BY
EXTERNAL DIMENSIONS	Pass all requirements	Mark Meyer	Pass all requirements	Mark Meyer
THORACIC SHOCK ABSORBER TEST	Pass all requirements	Mark Meyer	N/A	N/A
LATERAL THORAX IMPACT TEST	Pass all requirements	Mark Meyer	Pass all requirements	Mark Meyer
LATERAL PELVIS IMPACT TEST	Pass all requirements	Mark Meyer	Pass all requirements	Mark Meyer
ABDOMINAL COMPRESSION	Pass all requirements	Mark Meyer	Pass all requirements	Mark Meyer
LUMBAR FLEXION	Pass all requirements	Mark Meyer	Pass all requirements	Mark Meyer
HYBRID III LATERAL NECK TEST	Pass all requirements	Mark Meyer	Pass all requirements	Mark Meyer
HYBRID III LATERAL HEAD DROP	Pass all requirements	Mark Meyer	Pass all requirements	Mark Meyer

SUMMARY
SID H3 PRE AND POST VERIFICATION

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial Number	SID H3 056 SID H3 058	Test Sequences	01 and 02 (SID H3 056) 01 and 02 (SID H3 058)

TEST PARAMETER	SPECIFICATION	SID H3 056		SID H3 058	
		PRE	POST	PRE	POST
MEASUREMENTS					
Date	-	15Nov04	24Nov04	15Nov04	24Nov04
Sequential Test Number	-	1	2	1	2
Temperature (°C)	18.9-25.5	21.7	19.5	21.6	20.2
Relative Humidity (%)	10-70	33.5	28.4	33.9	27.9
SH – Seated Height (mm)	889-909	908	906	907	908
RH – Rib Height (mm)	501-521	507	502	508	508
HP – Hip Pivot Height (mm)	99	99/99	99/99	99/99	99/99
RD – Rib From Back Line (mm)	229-241	229	229	229	229
KH – Knee Pivot from Back Line (mm)	511-526	520/519	525/520	524/524	525/522
KV – Knee Pivot to Floor (mm)	490-505	499/495	500/498	496/500	498/497
HW – Hip Width (mm)	356-391	367	366	365	363
THORAX IMPACTS					
Date	-	15Nov04	24Nov04	15Nov04	24Nov04
Sequential Test Number	-	1	2	1	2
Temperature (°C)	18.9-25.5	21.4	20.0	20.7	20.2
Relative Humidity (%)	10-70	35.7	28.2	33.5	27.4
Probe Speed (m/s)	4.21-4.33	4.24	4.24	4.27	4.22
Upper Rib Acceleration (G)	37-46	39.9	42.1	44.9	45.2
Lower Rib Acceleration (G)	37-46	38.5	41.5	43.9	44.2
Lower Spine Acceleration (G)	15-22	17.9	19.4	21.6	20.7
PELVIS IMPACTS					
Date	-	15Nov04	24Nov04	15Nov04	24Nov04
Sequential Test Number	-	1	2	1	2
Temperature (°C)	18.9-25.5	21.3	20.0	20.6	20.3
Relative Humidity (%)	10-70	35.7	27.9	33.7	27.5
Probe Speed (m/s)	4.21-4.33	4.26	4.24	4.28	4.22
Pelvis Acceleration (G)	40-60	52.5	57.7	58.3	47.6
THORACIC SHOCK ABSORBER					
Shock Absorber ID Number	-	1746		3130164	
Damper Setting	1-10	6.25		5	
Date	-	10Nov04		09Nov04	
Sequential Test Number	-	1		1	
Temperature	18.9-25.5	21.3		22.4	
Relative Humidity	10-70	33.2		31.3	
Probe Speed (m/s) Low	3.05	3.05		3.05	
Force (N)	836 – 1125	927.5	N/A	1051.7	N/A
Displacement (mm)	30 – 35	32.2		30.6	
Probe Speed (m/s) Middle	4.27	4.27		4.26	
Force (N)	1730 – 2099	2041.8		1910.0	
Displacement (mm)	32 – 37	35.7		35.7	
Probe Speed (m/s) High	6.10	6.14		6.08	
Force (N)	3741 – 4448	3795		4438.8	
Displacement (mm)	33 - 40	39.1		36.0	

TEST PARAMETER	SPECIFICATION	SID H3 056		SID H3 058	
		PRE	POST	PRE	POST
ABDOMINAL COMPRESSION					
Date	-	11Nov04	19Nov04	11Nov04	19Nov04
Sequential Test Number	-	1	2	1	2
Temperature (°C)	18.9-25.5	23.6	21.9	22.2	21.9
Relative Humidity (%)	10-70	29.4	39.5	32.5	39.5
Force at 13 mm (N)	104-162	131.1	125.0	131.1	127.3
Force at 19 mm (N)	163-221	176.0	174.9	180.6	181.5
Force at 25 mm (N)	222-280	235.4	232.2	234.5	237.9
Force at 33 mm (N)	325-391	327.0	334.5	329.4	334.3
LUMBAR FLEXION					
Date	-	11Nov04	22Nov04	12Nov04	22Nov04
Sequential Test Number	-	1	2	1	2
Temperature (°C)	18.9-25.5	21.3	20.8	19.4	19.7
Relative Humidity (%)	10-70	34.7	29.7	32.5	30.9
Force at 0° (N)	0-26.7	0	0	3.6	0
Force at 0° (N)	97.8-151.2	119.6	126.2	99.5	126.3
Force at 0° (N)	151.2-204.6	171.6	169.9	158.5	159.5
Force at 0° (N)	204.6-258	218.1	221.7	207.5	218.4
Return Angle	12° Maximum	11.5	3.8	10.7	10.1
HYBRID III LATERAL NECK					
Date	-	08Nov04	23Nov04	06Nov04	23Nov04
Sequential Test Number	-	1	2	1	2
Temperature (°C)	18.9-25.5	22.2	22.2	21.1	21.4
Relative Humidity (%)	10-70	23.4	31.3	25.4	30.4
Pendulum Speed (m/s)	6.89-7.13	7.08	7.08	7.07	7.05
Pendulum Pulse 10ms (m/s)	1.96-2.55	2.13	2.48	2.05	1.98
Pendulum Pulse 20ms (m/s)	4.12-5.10	4.44	4.99	4.38	4.20
Pendulum Pulse 30ms (m/s)	5.73-7.01	6.60	6.90	6.51	6.18
Pendulum Pulse 40 –70 ms (m/s)	6.27-7.64	7.61	6.85	6.51	6.75
Max Head rotation (deg)	66-82	69.3	73.8	77.1	59.7
Head angle crosses zero (ms)	58-67	64.6	65.4	59.1	58.8
Peak Moment (Nm)	73-88	74.2	76.6	80.9	74.3
Moment crosses zero (ms)	49-64	49.3	49.5	49.1	53.5
Max rotation wrt peak moment (ms)	2-15	2.0	10.2	7.0	8.6
HYBRID III LATERAL HEAD DROP					
Date	-	04Nov04	19Nov04	04Nov04	19Nov04
Sequential Test Number	-	1	2	1	2
Temperature (°C)	18.9-25.5	21.9	22.0	21.3	21.0
Relative Humidity (%)	10-70	32.5	40.0	34.5	39.5
Resultant Max (G)	120-150	129.9	121.2	136.5	141.0
Longitudinal Max (G)	<15	2.6	9.7	1.4	13.7

DUMMY INSPECTION LIST
PRE AND POST TEST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial Number	SID H3 056 SID H3 058	Test Sequences	01 and 02 (SID H3 056) 01 and 02 (SID H3 058)

		SID H3 056		SID H3 058	
		PRE	POST	PRE	POST
	Date	11Nov04	22Nov04	11Nov04	22Nov04
	Performed By	Mark Meyer	Mark Meyer	Mark Meyer	Mark Meyer
PART	INSPECTION				
Skin	Visual	Pass	Pass	Pass	Pass
Head	Visual, Ballast, Accelerometer Mount	Pass	Pass	Pass	Pass
Neck	Visual and Palpated, Cable Torque	Pass	Pass	Pass	Pass
Spine Box	Visual, Ballast, Weldment, Accelerometer Mount	Pass	Pass	Pass	Pass
Rib Cage	Visual, Palpated, Measured, Stiffness	Pass	Pass	Pass	Pass
Sternum	Visual	Pass	Pass	Pass	Pass
Lumbar Spine	Visual	Pass	Pass	Pass	Pass
Abdomen	Visual	Pass	Pass	Pass	Pass
Pelvis	Visual, Palpated, Accelerometer Mount	Pass	Pass	Pass	Pass
Upper Legs	Visual	Pass	Pass	Pass	Pass
Knees	Visual, Stops, Inserts	Pass	Pass	Pass	Pass
Lower Legs	Visual, Range of Motion	Pass	Pass	Pass	Pass
Ankles	Visual, Range of Motion	Pass	Pass	Pass	Pass
Feet	Visual, Range of Motion	Pass	Pass	Pass	Pass
Joints	1 to 2 G Range	Pass	Pass	Pass	Pass
Other		N/A	N/A	N/A	N/A

APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

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SID INSTRUMENTATION

FRONT SID H3 NO. 056

	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD X ACCELERATION	J35839	ENDEVCO	01Sep04
HEAD Y ACCELERATION	J22318	ENDEVCO	01Sep04
HEAD Z ACCELERATION	J36659	ENDEVCO	27Aug04
SIX AXIS UPPER NECK LOAD CELL (FX, FY, FZ, MX, MY, MZ)	1591	DENTON ATD	10Aug04
UPPER RIB ACCELERATION	J43512	ENDEVCO	27Aug04
LOWER RIB ACCELERATION	J43445	ENDEVCO	27Aug04
LOWER SPINE ACCELERATION	J44021	ENDEVCO	27Aug04
PELVIS ACCELERATION	J43810	ENDEVCO	27Aug04
UPPER RIB REDUNDANT ACCELERATION	J43798	ENDEVCO	27Aug04
LOWER RIB REDUNDANT ACCELERATION	J43434	ENDEVCO	26Aug04
LOWER SPINE REDUNDANT ACCELERATION	J43485	ENDEVCO	31Aug04
PELVIS REDUNDANT ACCELERATION	J43739	ENDEVCO	27Aug04

REAR SID H3 NO. 058

	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD X ACCELERATION	J35932	ENDEVCO	26Aug04
HEAD Y ACCELERATION	J43481	ENDEVCO	27Aug04
HEAD Z ACCELERATION	J43442	ENDEVCO	27Aug04
SIX AXIS UPPER NECK LOAD CELL (FX, FY, FZ, MX, MY, MZ)	0452	DENTON	10Aug04
UPPER RIB ACCELERATION	J43444	ENDEVCO	27Aug04
LOWER RIB ACCELERATION	J44018	ENDEVCO	27Aug04
LOWER SPINE ACCELERATION	J43479	ENDEVCO	27Aug04
PELVIS ACCELERATION	J43708	ENDEVCO	27Aug04
UPPER RIB REDUNDANT ACCELERATION	J43809	ENDEVCO	27Aug04
LOWER RIB REDUNDANT ACCELERATION	J43480	ENDEVCO	31Aug04
LOWER SPINE REDUNDANT ACCELERATION	J43468	ENDEVCO	27Aug04
PELVIS REDUNDANT ACCELERATION	J43441	ENDEVCO	27Aug04

VEHICLE INSTRUMENTATION

	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
RIGHT FRONT SILL X	P22993	ENDEVCO	27Aug04
RIGHT FRONT SILL Y	P21738	ENDEVCO	27Aug04
RIGHT FRONT SILL Z	P22312	ENDEVCO	26Aug04
RIGHT REAR SILL X	P14135	ENDEVCO	31Aug04
RIGHT REAR SILL Y	P22323	ENDEVCO	26Aug04
RIGHT REAR SILL Z	P22539	ENDEVCO	26Aug04
REAR FLOORPAN ABOVE AXLE X	98L98H31-Z05	ENTRAN	31Aug04
REAR FLOORPAN ABOVE AXLE Y	98L9811-N01	ENTRAN	01Sep04
REAR FLOORPAN ABOVE AXLE Z	98G98D22-Z15	ENTRAN	31Aug04
LEFT REAR SILL Y	P21586	ENDEVCO	26Aug04
LEFT FRONT SILL Y	P13836	ENDEVCO	26Aug04
LEFT FRONT DOOR CENTERLINE Y	04A04A05-A06	ENTRAN	27Aug04
RIGHT REAR OCCUPANT COMP Y	P14223	ENDEVCO	26Aug04
MID-REAR OF LEFT FRONT DOOR Y	04A04A07-J13	ENTRAN	27Aug04
LEFT FRONT DOOR UPPER C/L Y	04A04A12-Z10	ENTRAN	26Aug04
MID-REAR OF LEFT REAR DOOR Y	B12689	ENDEVCO	01Sep04
LEFT REAR DOOR UPPER C/L Y	98F98E11-K11	ENTRAN	25Aug04
LEFT LOWER B-PILLAR Y	P24302	ENDEVCO	26Aug04
LEFT MIDDLE B-PILLAR Y	P22311	ENDEVCO	27Aug04
LEFT LOWER A-PILLAR Y	P21732	ENDEVCO	31Aug04
LEFT UPPER A-PILLAR	P22978	ENTRAN	26Aug04
FRONT SEAT TRACK Y	P19311	ENDEVCO	27Aug04
REAR SEAT TRACK Y	P19525	ENDEVCO	27Aug04
VEHICLE CG X	P22298	ENDEVCO	26Aug04
VEHICLE CG Y	P22230	ENDEVCO	26Aug04
VEHICLE CG Z	B13038	ENDEVCO	31Aug04

MDB INSTRUMENTATION

MDB CG X	P25041	ENDEVCO	07Sep04
MDB CG Y	P23595	ENDEVCO	07Sep04
MDB CG Z	P24733	ENDEVCO	03Sep04
MDB REAR FRAME MEMBER X	P21608	ENDEVCO	07Sep04
MDB REAR FRAME MEMBER Y	P24089	ENDEVCO	07Sep04