

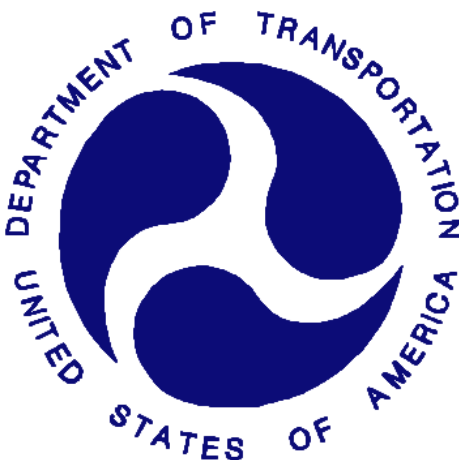
REPORT NUMBER KAR21003-01

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

**GENERAL MOTORS CORPORATION
2001 CHEVROLET VENTURE MINIVAN**

NHTSA NUMBER: M10110

**PREPARED BY:
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DECEMBER 13, 2000

FINAL REPORT

**PREPARED FOR:
U.S. DEPARTMENT OF TRANSPORTATION
NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION
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Date of Acceptance

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16. Abstract A 55/28 km/h 90° Moving Deformable Barrier Side Impact NCAP Test was conducted on the subject 2001 Chevrolet Venture Minivan in accordance with the specifications of the Office of Crash Worthiness Standards Test Procedure for the generation of consumer information on vehicle side impact crash protection. The test was conducted at KARCO Engineering laboratories in Adelanto, California, on November 28, 2000. The impact velocity of the Moving Deformable Barrier was 61.81 km/h, and the ambient temperature at the struck side (driver's) of the vehicle was 20.0° C. The target vehicle's maximum post test static crush was 394 mm located at level 2. The test vehicle's occupant performance is as follows: <table border="1" style="width: 100%; margin-top: 10px; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;">Measurement Description</th> <th style="width: 20%;">Driver SID</th> <th style="width: 20%;">Passenger SID</th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) G's</td> <td style="text-align: center;">44.3</td> <td style="text-align: center;">61.0</td> </tr> <tr> <td>Left Lower Rib (LLR) G's</td> <td style="text-align: center;">50.2</td> <td style="text-align: center;">63.6</td> </tr> <tr> <td>Lower Spine (T₁₂) G's</td> <td style="text-align: center;">49.6</td> <td style="text-align: center;">54.0</td> </tr> <tr> <td>Thoracic Trauma Index (TTI) G's</td> <td style="text-align: center;">50</td> <td style="text-align: center;">59</td> </tr> <tr> <td>Pelvis (PEV) G's</td> <td style="text-align: center;">65</td> <td style="text-align: center;">81</td> </tr> </tbody> </table>				Measurement Description	Driver SID	Passenger SID	Left Upper Rib (LUR) G's	44.3	61.0	Left Lower Rib (LLR) G's	50.2	63.6	Lower Spine (T ₁₂) G's	49.6	54.0	Thoracic Trauma Index (TTI) G's	50	59	Pelvis (PEV) G's	65	81
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SECTION 1
PURPOSE and TEST PROCEDURE

1.1 PURPOSE

This Side Impact NCAP test is conducted as part of the FY' 2000 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract No. DTNH22-99-D-02041. The purpose of this test is to generate comparative side impact data on a 2001 Chevrolet Venture Minivan manufactured by General Motors Corporation.

1.2 TEST PROCEDURE

The side impact test was conducted in accordance with the current National Highway Traffic Safety Administration (NHTSA), Office of Crashworthiness Standards (OCS), laboratory test procedure NCAP Side Impact Testing, dated July 1997 and the corresponding KARCO Engineering Test Procedure KTP-214D, dated November 18, 1998. The procedures for receiving, inspection, testing, and reporting of test results are described in the test procedures and are not repeated in this report.

SECTION 2

SUMMARY OF SIDE IMPACT TEST

2.1 SUMMARY OF SIDE IMPACT NCAP TEST

A model year 2001 Chevrolet Venture Minivan was impacted on the left (driver's) side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the tow road guidance system at a velocity of 61.81 km/h. The specified impact velocity range is from 61.1 to 62.7 km/h. The test (target) vehicle was stationary and positioned 63° to the line of forward motion. The weight of the vehicle as tested was 1983 kg and the test weight of the MDB was 1361 kg. The test was conducted at KARCO Engineering in Adelanto, California, on November 28, 2000.

One (1) real-time motion picture camera and eleven (11) high-speed motion picture cameras were used to document the impact event. The pre-test and post-test conditions were recorded by one (1) real-time motion picture camera. Camera locations and pertinent camera information is documented in the data sheets. Pre- and post-test photographs of the vehicle and SID can be found in Appendix A. Two 50th percentile adult male Side Impact Dummy's (SID's) were placed in the driver's and left rear passenger designated seating positions according to the test procedure. Each SID is instrumented with contact switches on the pelvis and thorax, and eleven accelerometers in the following locations:

- Left Upper Rib (LUR) uni-axial accelerometer (Y-axis primary and redundant)
- Left Lower Rib (LLR) uni-axial accelerometer (Y-axis primary and redundant)
- Lower Thoracic Spine (T12) uni-axial accelerometer (Y-axis primary and redundant)
- Pelvic (PEV) section uni-axial accelerometer (Y-axis primary and redundant)
- Head Center of Gravity (CG) tri-axial accelerometers (X, Y, and Z axes)

The test vehicle was instrumented with twenty-five (25) structural accelerometers and the MDB was instrumented with five (5) accelerometers and a one (1) contact switch on the right bumper to compare left side to right side bumper impact timing. All data channels were recorded with a fully self contained on-board Test Data Acquisition System (TDAS). The data was digitally sampled at 10,000 samples per second and processed per Appendix V of the Test Procedure.

2.2 GENERAL COMMENTS

The test vehicle sustained a maximum static crush of 394 mm at level 2, 1050mm rearward of the left vertical impact point. The driver SID, Serial No. 274 and the passenger SID, Serial No. 275 were calibrated just prior to this test. The SID injury criteria is summarized as follows:

Measurement	Units	Driver	Passenger
Thoracic Trauma Index (TTI)	G's	50	59
Peak Pelvic G's (PEV)	G's	65	81

Tests summaries and post-test observations are presented in Section 3. The vehicle, camera, and occupant measurements are presented in Section 4. Appendix A contains the still photograph prints. Appendix B contains the driver and passenger SID's, vehicle, and MDB response data traces. Appendix C contains the SID's Configuration and performance verification data. Appendix D contains the test equipment information.

SECTION 3

SIDE IMPACT DUMMY (SID) AND VEHICLE TEST DATA

Test Vehicle: 2001 Chevrolet Venture Minivan

NHTSA No. M10110

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 11/28/00

CONVERSION FACTORS USED IN THIS REPORT*

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	mile/h	km/h	1.609
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.573
Pressure	Tire Pressures	lbf/in ²	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	°F	°C	$=(tf - 32)/1.8$
Force	Dynamic Forces	lbf	N	4.448
Moment	Torque	lbf/ft	Nm	1.355

* Based on the Recommended Practice in SAE J916, May 85

**DATA SHEET NO. 1
GENERAL TEST AND VEHICLE PARAMETER DATA**

Test Vehicle: 2001 Chevrolet Venture Minivan

NHTSA No.: M10110

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 11/28/00

TEST VEHICLE INFORMATION

Make	Chevrolet
Model	Venture
Body Style	Minivan
NHTSA No.	M10110
VIN	1GNDU23EX10157013
Color	White
Delivery Date	11/21/00
Odometer Reading (mile)	56
Dealer	Crest Chevrolet
Transmission	4-Speed Automatic
Final Drive	Front
Number of Cylinders	6
Engine Displacement (L)	3.4 litre
Engine Placement	Transverse

TEST VEHICLE OPTIONS

Driver Airbag	Yes
Passenger Airbag	Yes
Power Windows	No
Power Steering	Yes
Power Door Locks	Yes
Tilt Wheel	Yes
Air Conditioning	Yes
Power Brakes	Yes
Disc Brakes, Front	Yes
Disc Brakes, Rear	No
Anti-lock Brakes	Yes
AM/FM/Cassette	No
Anti-Theft System	Yes
Cruise Control	Yes

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors Corporation	GVWR (kg)	2430
		GAWR Front (kg)	1236
Date of Manufacture	September-00	GAWR Rear (kg)	1215

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	245	245
Cold Pressure (kPa)	245	245
Recommend Tire Size	P215/70R15	P215/70R15
Tire Size on Vehicle	P215/70R15	P215/70R15
Tire Manufacturer	Firestone	Firestone

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench	Bench	
Number of Occupants	2	2	3	7
Capacity Wt. (VCW) (kg)				740
Cargo Weight (RCLW) (kg)				136

DATA SHEET NO. 1...(continued)
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2001 Chevrolet Venture Minivan
 Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: M10110
 Test Date: 11/28/00

TEST VEHICLE WEIGHTS

	Units	As Delivered (<i>UVW</i>)			As Tested (<i>ATW</i>)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	509	341		560	465	
Right	kg	501	339		512	446	
Ratio	%	59.8	40.2		54.1	45.9	
Totals	kg	1010	680	1690	1072	911	1983

TARGET TEST WEIGHT CALCULATION*

Measured Parameter	Units	Value
Total Delivered Weight (<i>UVW</i>)	kg	1690
Weight of 2 P572F Side Impact Dummies	kg	161.5
Rated Cargo/Luggage Weight (<i>RCLW</i>)	kg	136
Calculated Vehicle Target Weight (<i>TVTW</i>)	kg	1988

*Actual As Tested Weight (ATW) will be TVTW -5/-10 kg

TEST VEHICLE ATTITUDES AND CG

	Units	LF	RF	LR	RR	CG (aft of front axle)
As Delivered	mm	768	772	783	791	1146
As Tested	mm	752	768	739	748	1308
Fully Loaded	mm	757	768	732	749	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheel base	mm	2848
Total Vehicle Length at Left Side	mm	3581
Total Vehicle Length at Centerline	mm	4760
Total Vehicle Length at Right Side	mm	3543
Weight of Ballast In Cargo Area	kg	125
Amount of Stoddard Solvent in Fuel Tank	Liters	70.4

TEST VEHICLE IMPACT DATA

Measurement Description	Units	Value
Test Vehicle Wheel base	mm	2848
Target Impact Point Aft of Front Axle	mm	484
Actual Impact Point Aft of Front Axle	mm	517

DATA SHEET NO. 1...(continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2001 Chevrolet Venture Minivan

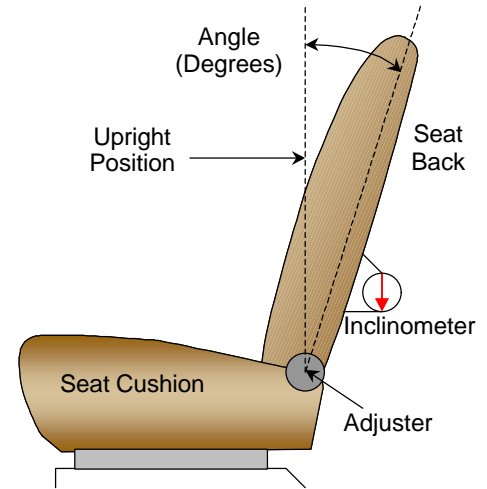
NHTSA No. M10110

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 11/28/00

NOMINAL DESIGN RIDING POSITION

The driver's seat back is positioned to the manufacturers designated angle. The procedure for the seat is as follows: A slit is cut into fabric of the seat at the outboard edge, approximately 10-13 inches above the pivot point to expose the frame of the seat. An inclinometer is firmly placed against the flat portion of the frame surface and the seat back is adjusted to the manufacturers designated angle.



FRONT SEAT ASSEMBLY

Driver seat back angle: 22° with a seated dummy

Rear seat back angle: 21° at the headrest, fixed

SEAT FORE/AFT POSITIONS

The driver's seat and the rear middle seat are both mechanically adjustable. The fore/aft is set to the middle position for the driver's seat, and forward of center for the rear middle seat.

Driver seat fore/aft total travel: 17 seat positions

Rear seat fore/aft total travel: 18 seat positions

Driver seat fore/aft position: set at the 9th detent

Rear seat fore/aft position: set at the 10th detent

SEAT BELT UPPER ANCHORAGE

The test vehicle is equipped with an adjustable "D" ring anchorage for the driver's seat position. There are 4 positions or detents. The driver's "D" ring anchorage is placed in position number three. The rear middle seat anchor is fixed, no adjustments.

DATA SHEET NO. 1...(continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2001 Chevrolet Venture Minivan
Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No. M10110
Test Date: 11/28/00

FUEL TANK CAPACITY DATA

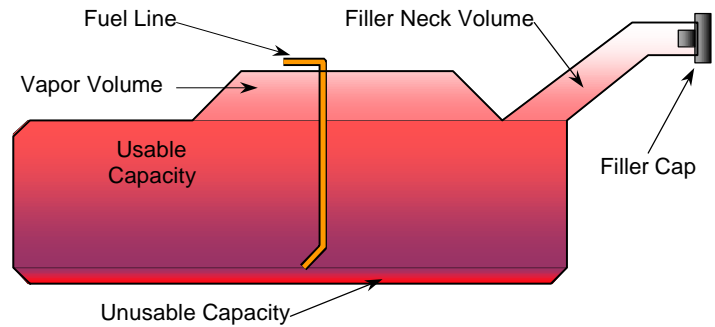
The "Usable Capacity" of the standard equipment fuel tank is: 75.7 liters

The "Usable Capacity" of any optional equipment fuel tank is: N/A liters

92-94% of "Usable Capacity" for certification to FMVSS 301 requirement: 69.6 to 71.2 liters

Actual amount of Stoddard solvent added to vehicle for certification test: 70.4 liters

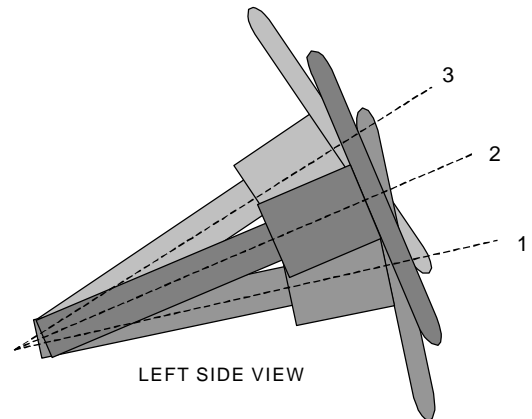
The test vehicle is equipped with an electric fuel pump. The fuel pump will operate for approximately three (3) seconds with the ignition in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

Steering wheel and column adjustments are made so that the steering wheel hub is at the geometric center of the locus it describes, when it is moved through its full range of motion. An aluminum plate is placed across the rim of the steering wheel, an inclinometer is placed onto the plate and the angle is measured. The tested vehicle has its steering column set at position 2 as indicated in the drawing at right and the angle below.



STEERING COLUMN ASSEMBLY

Lowermost, position 1: 19°
Geometric center, position 2: 29°
Uppermost, position 3: 39°

**DATA SHEET NO. 2
TEST VEHICLE SUMMARY OF RESULTS**

Test Vehicle: 2001 Chevrolet Venture Minivan
 Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: M10110
 Test Date: 11/28/00

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	509	341		560	465	
Right	kg	501	339		512	446	
Weight Ratio	%	59.8	40.2		54.1	45.9	
Totals	kg	1010	680	1690	1072	911	1983

MAXIMUM EXTERIOR STATIC CRUSH

Level	Measured Parameter	Units	Maximum Crush	Above Ground
Level 1	Sill Top Height	mm	287	276
Level 2	Occupant H-Point	mm	394	724
Level 3	Mid Door	mm	381	687
Level 4	Window Sill	mm	254	328
Level 5	Window Top	mm	124	1635
N/A	Maximum Penetration	mm	394	

INSTRUMENTATION

Driver SID Accelerometers	11
Passenger SID Accelerometers	11
Vehicle Structure Accelerometers	25
MDB Accelerometers	5
Total	52

16mm MOVIE COVERAGE

High Speed, Vehicle On-Board	3
High Speed, Off-Board	6
High Speed, MDB On-Board	2
Real Time, Panning	1
Total	12

**DATA SHEET NO. 3
MOVING DEFORMABLE BARRIER (MDB) SUMMARY OF RESULTS**

Test Vehicle: 2001 Chevrolet Venture Minivan
 Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: M10110
 Test Date: 11/28/00

MDB SPECIFICATIONS (mm)

Measurement Description	Length
Overall Width of Framework Carriage	1252
Overall Length Including Honeycomb Face	4115
Wheel base of Framework Carriage	2590
C.G. Location aft of Front Axle	1127

MDB WEIGHTS

	Units	Front Axle	Rear Axle	Total
Left	kg	384	308	
Right	kg	385	284	
Ratio	%	56.5	43.5	
Totals	kg	769	592	1361

SPEED AND IMPACT ANGLE DATA

Measured Parameter	Units	Requirement	Value
Trap No. 1 Velocity (Primary)	km/h	61.1 to 62.7	61.81
Trap No. 2 Velocity (Redn.)	km/h	61.1 to 62.7	62.30
MDB CL to Target Vehicle CL	degrees	88.5 to 91.5	89.5

MAXIMUM STATIC CRUSH OF HONEYCOMB FACE (mm)

Vertical Location			From Centerline		Max Crush
Row	Description	Height	Distance	Direction	
A	Center of Bumper	432	800	Left	168
B	Top of Bumper	533	800	Left	120
C	Mid Level	686	800	Right	89
D	Top of Stack	813	800	Left	142

MDB INSTRUMENTATION AND CAMERAS

Accelerometers	5
Contact Switches	2
High Speed Cameras	2

**DATA SHEET NO. 4
POST TEST OBSERVATIONS**

Test Vehicle: 2001 Chevrolet Venture Minivan
 Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: M10110
 Test Date: 11/28/00

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID	Rear Seat SID
Dummy Type / Serial No.	P572F, SID / No. 274	P572F, SID / No. 275
Head Contact	Airbag/Headrest	Window
Upper Torso Contact	Airbag	Door Panel/Window
Lower Torso Contact	Seat/Door Panel	Door Panel
Left Knee Contact	Door Panel/Dash	Door Panel
Right Knee Contact	Knee	Knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Door Opening	Remained closed, inoperable	Remained closed, inoperable
Right Side Door Opening	Remained closed operable	Remained closed, operable
Seat Movement	None	None
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	Pillars pushed inward with no apparent failure
Sill Separation	No Apparent Visible Failure
Windshield Damage	Glazing Cracks on Struck Side Only
Window Damage	Both left side windows broke
Other Notable Effects	No significant items to note.

AIR BAG DEPLOYMENT

	Driver	Front Passenger	Rear Passenger
Front	No	N/A	N/A
Side	Yes	N/A	N/A

MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	33 (right)
Vertical Offset	mm	+/- 20	0

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5
SID INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2001 Chevrolet Venture Minivan

Project No.: M10110

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 11/28/00

THORAX AND PELVIS PEAK ACCELERATIONS, PRIMARY (FIR 100 Filtered)

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Upper Rib (LUR)	Y	G's	44.3	52.0	-12.4	20.9	61.0	52.3	-15.3	94.0
Lower Rib (LLR)	Y	G's	50.2	40.6	-11.4	91.8	63.6	37.8	-13.8	114.6
Lower Spine (T ₁₂)	Y	G's	49.6	39.3	-12.3	66.2	54.6	40.1	-11.8	118.9
Pelvis (PEV)	Y	G's	65.1	30.7	-15.9	62.2	80.6	30.5	-9.3	82.8

THORACIC TRAUMA INDEX (TTI) AND PELVIC ACCELERATION, PRIMARY (FIR 100 Filtered)

Location	Driver				Passenger			
	LLR	T ₁₂	TTI(g)	PEV(g)	LLR	T ₁₂	TTI(g)	PEV(g)
Primary Rib, Spine, and Pelvis	50.198	49.639	50	65	63.551	54.594	59	81

THORAX AND PELVIS PEAK ACCELERATIONS, REDUNDANT (FIR 100 Filtered)

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Upper Rib (LUR)	Y	G's	44.4	52.1	-12.6	92.3	60.9	52.4	-14.7	94.1
Lower Rib (LLR)	Y	G's	50.1	40.7	-11.4	91.9	63.5	37.9	-14.1	114.7
Lower Spine (T ₁₂)	Y	G's	49.7	39.4	-12.4	66.3	54.3	40.3	-11.4	119.3
Pelvis (PEV)	Y	G's	65.1	30.8	-15.8	62.8	80.2	30.7	-9.9	83.2

THORACIC TRAUMA INDEX (TTI) AND PELVIC ACCELERATION, REDUNDANT (FIR 100 Filtered)

Location	Driver				Passenger			
	LLR	T ₁₂	TTI(g)	PEV(g)	LLR	T ₁₂	TTI(g)	PEV(g)
Redundant Rib, Spine, and Pelvis	50.101	49.660	50	65	63.487	54.315	59	80

HEAD CG PEAK ACCELERATIONS (SAE CLASS 1000 Filtered)

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	5.7	41.9	-20.8	93.3	11.5	77.0	-17.1	65.8
Head CG	Y	G's	21.3	64.9	-8.7	152.0	26.5	97.4	-13.2	40.5
Head CG	Z	G's	36.8	75.8	-3.0	25.0	60.8	73.9	-5.2	24.3
Head CG Resultant	N/A	G's	39.7	75.8			60.9	73.9		

HEAD INJURY CRITERIA (SAE CLASS 1000 Filtered)

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG	162.6	61.3	97.2	29.0	318.3	60.7	96.6	37.9

Positive Acceleration Polarities: Longitudinal (X) = Forward
 (Conforms to SAE J211) Lateral (Y) = Right
 Vertical (Z) = Down

DATA SHEET NO. 6

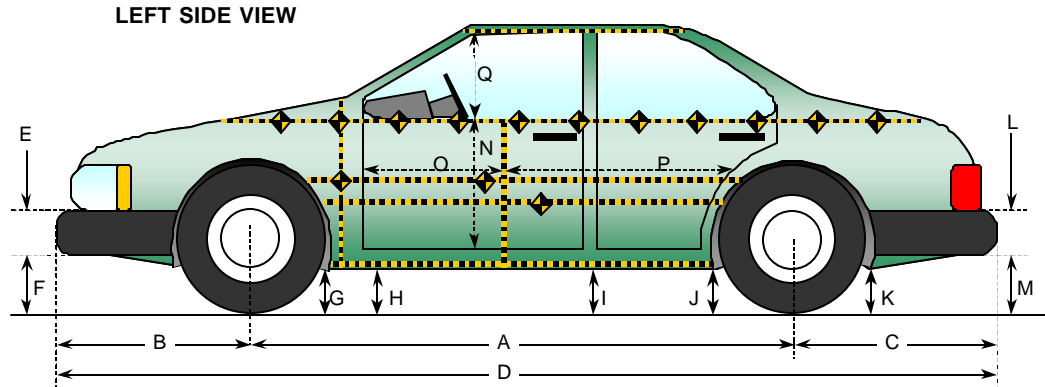
VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle: 2001 Chevrolet Venture Minivan

NHTSA No.: M10110

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 11/28/00



All Measurements in mm

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2848	2793	-55
B	Front Axle To FSOV	946	963	17
C	Rear Axle to RSOV	967	995	28
D	Total Length at Centerline	4760	4730	-30
E	Front Bumper Thickness	392	392	0
F	Front Bumper Bottom to Ground	218	220	2
G	Sill Height at Front Wheel Well	223	235	12
H	Sill Height at Front Door Leading Edge	223	233	10
I	Sill Height at "B" Pillar	236	309	73
J1	Sill Height at Rear Wheel Well	216	265	49
J2	Pinch Weld Height at Rear Wheel Well	242	293	51
K	Sill Height aft of Rear Wheel Well	250	292	42
L	Rear Bumper Thickness	235	235	0
M	Rear Bumper Bottom to Ground	240	311	71
N	Sill Height to Window Bottom Sill	765	640	-125
O	Front Door Leading Edge to Impact CL	930	853	-77
P	Rear Door Trailing Edge to Impact CL	1434	1200	-234
Q	Front Window Opening	490	440	-50
R	Right Side Length	3543	3569	26
S	Left Side Length	3581	3500	-81
T	Vehicle Width at "B" Post	1825	1663	-162

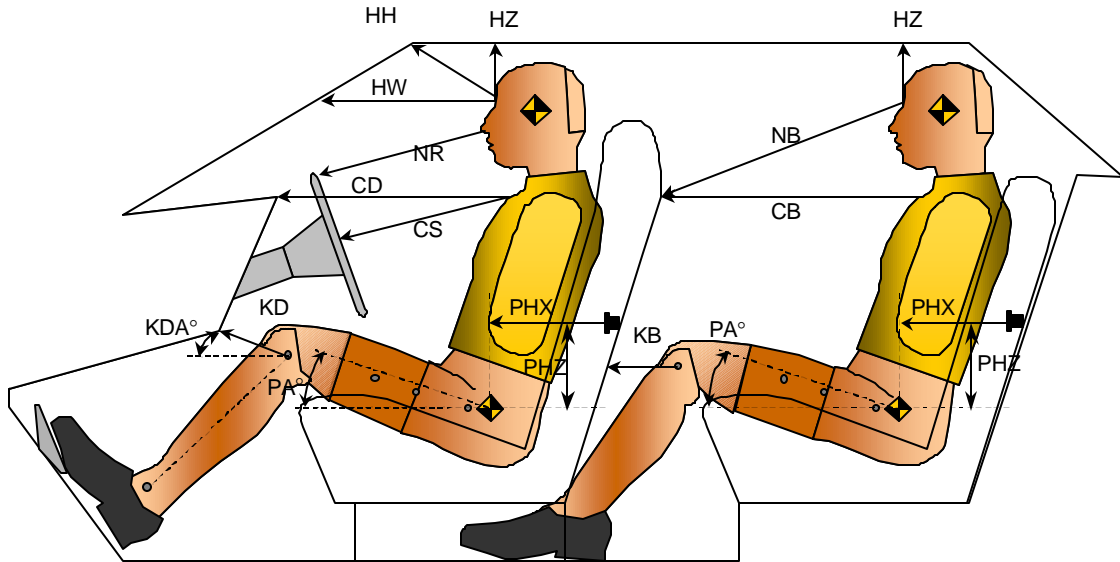
DATA SHEET NO. 7
SID LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2001 Chevrolet Venture Minivan

NHTSA No.: M10110

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 11/28/00



Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	500	14		
HW		Head to Windshield	715			
HZ	HZ	Head to Roof	210	90	185	90
NR	NR	Nose to Rim/Nose to Seatback	467	15	438	25
CD	CB	Chest to Dash or Seatback	560	3	487	0
CS		Chest to Steering Wheel	320	20		
KDL	KBL	Left Knee to Dash or Seatback	195	21	120	
KDR	KBR	Right Knee to Dash or Seatback	200		143	
PA	PA	Pelvic Angle		18		21
PHX	PHX	H-Point to Striker (X-Axis)	248		458	
PHZ	PHZ	H-Point to Striker (Z-Axis)	118		52	

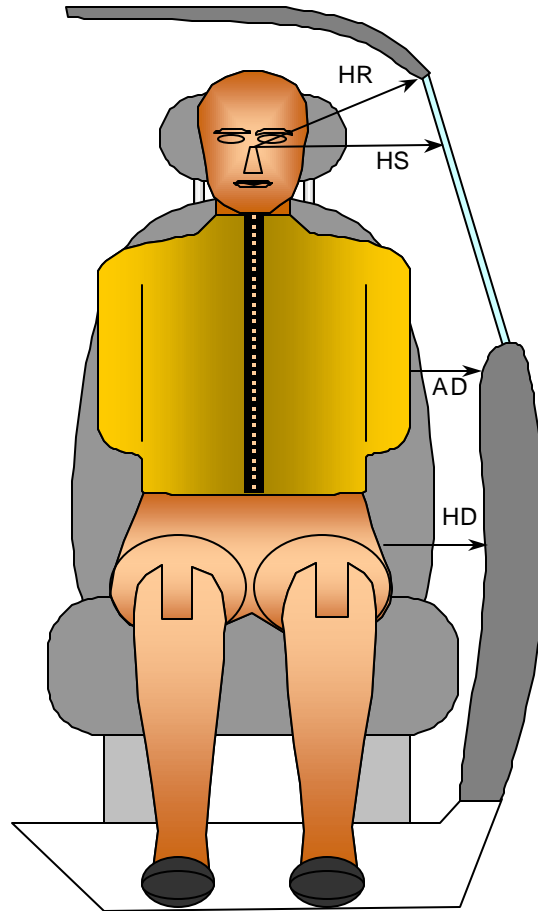
DATA SHEET NO. 8
SID LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2001 Chevrolet Venture Minivan

NHTSA No.: M10110

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 11/28/00



FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	255	180
HS	Head to Side Window	mm	357	290
AD	Arm to Door	mm	120	55
HD	H-Point to Door	mm	171	173

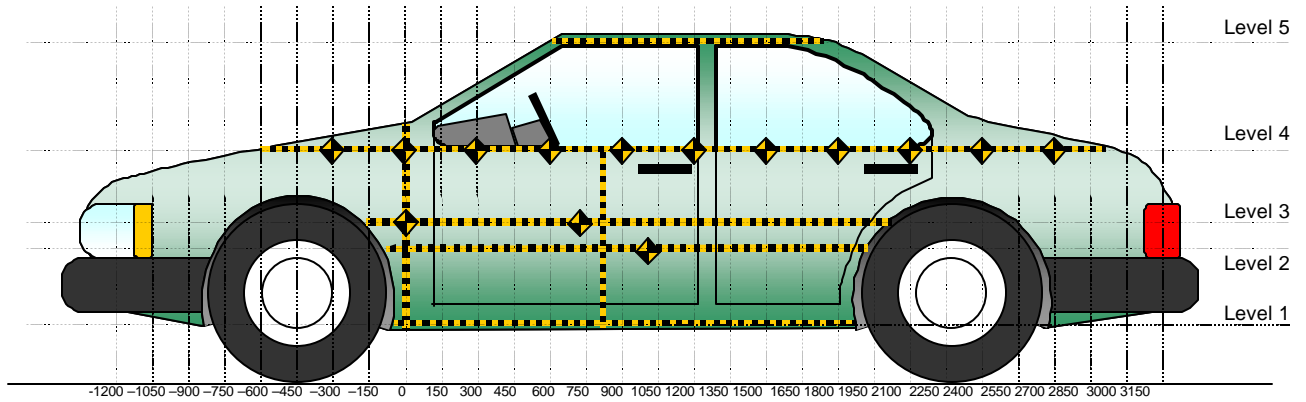
DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Test Vehicle: 2001 Chevrolet Venture Minivan

NHTSA No.: M10110

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 11/28/00



All Measurements Shown in mm

LEFT SIDE VIEW

Measurements are taken with vehicle in the as tested condition.

Measurements taken 900mm right of impact reference.

All measurements below in mm.

Level	Measurement Description	Height Above Ground
5	Window Top	1635
4	Window Sill	328
3	Mid Door	687
2	Occupant H-Point	724
1	Sill Top	276

DATA SHEET NO. 10 - VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2001 Chevrolet Venture Minivan
 Test Program: 55/28 km/h 90° Side Impact NCAP

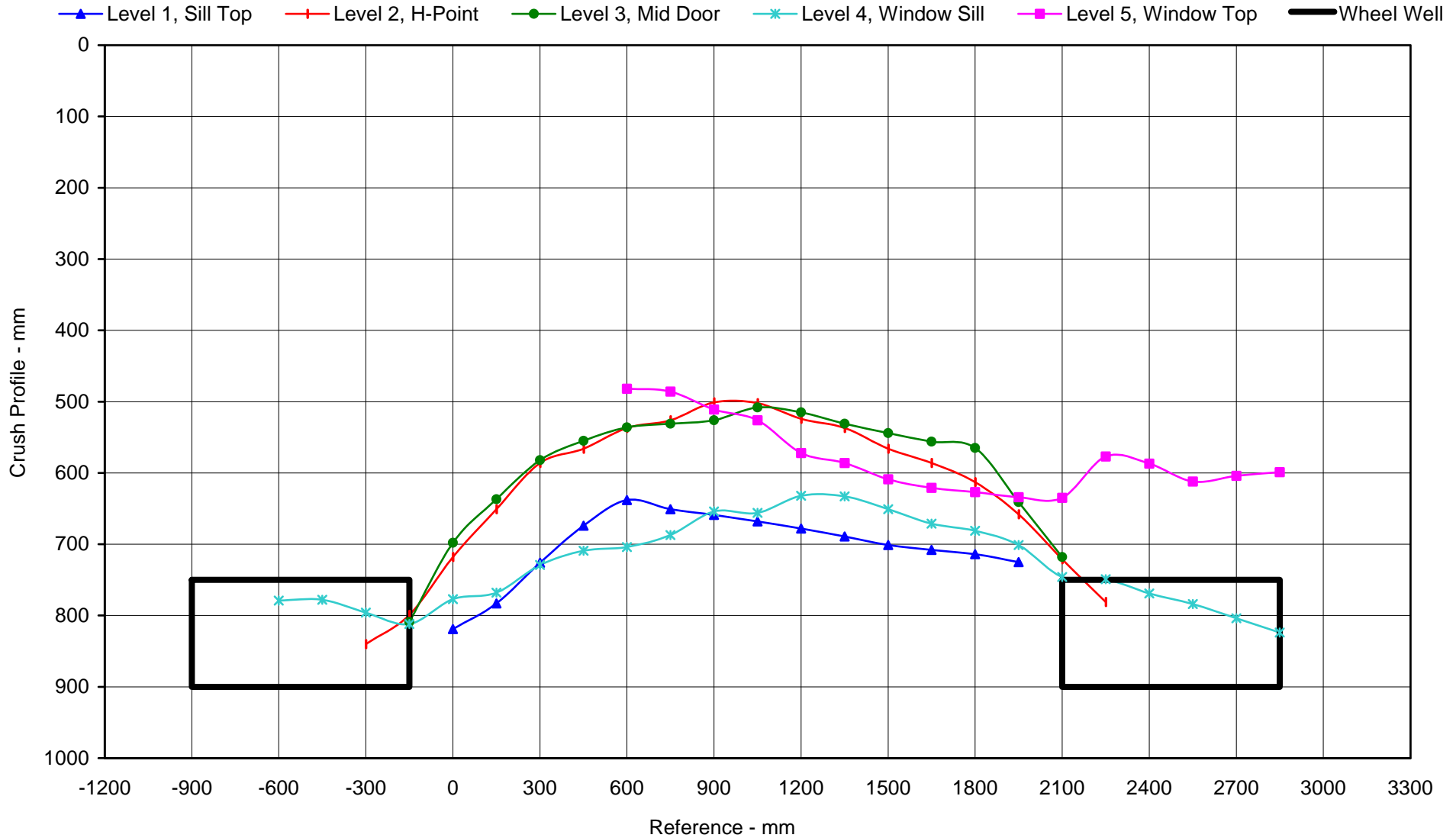
NHTSA No.: M10110
 Test Date: 11/28/00

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600				801					779					22	
-450				831					778					53	
-300		905		847			840		796			65		51	
-150		887	894	852			799	809	812			88	85	40	
0	922	887	882	854		819	718	698	777		103	169	184	77	
150	920	887	882	857		783	651	637	768		137	236	245	89	
300	922	887	884	862		726	586	582	729		196	301	302	133	
450	923	889	885	867		674	566	555	709		249	323	330	158	
600	925	890	885	871	584	638	537	536	704	482	287	353	349	167	102
750	926	891	884	874	610	651	526	531	687	486	275	365	353	187	124
900	928	894	885	877	629	659	501	526	654	511	269	393	359	223	118
1050	928	896	889	879	634	668	502	508	656	526	260	394	381	223	108
1200	927	894	891	886	647	678	524	515	632	572	249	370	376	254	75
1350	926	892	892	881	652	689	537	531	633	586	237	355	361	248	66
1500	923	892	892	883	657	701	566	544	651	609	222	326	348	232	48
1650	921	891	891	884	658	708	586	556	671	621	213	305	335	213	37
1800	917	889	891	884	659	714	613	565	681	627	203	276	326	203	32
1950	913	887	891	883	659	725	658	641	701	634	188	229	250	182	25
2100		887	905	883	659		721	718	746	635		166	187	137	24
2250		913		869	656		781		749	577		132		120	79
2400				878	656				769	587				109	69
2550				875	653				784	612				91	41
2700				872	648				804	604				68	44
2850				858	634				824	599				34	35
3000															

Pre-Test and Post-Test dimensions are actual distance from centerline of test vehicle.

DATA SHEET NO. 10...(continued)

18



Maximum Crush, Level 1: 287 mm at 600 mm
 Maximum Crush, Level 2: 394 mm at 1050 mm
 Maximum Crush, Level 3: 381 mm at 1050 mm
 Maximum Crush, Level 4: 254 mm at 1200 mm
 Maximum Crush, Level 5: 124 mm at 750 mm

Test Program: 55/28 km/h 90° Side Impact NCAP No.: M10110
 Test Vehicle: 2001 Chevrolet Venture Minivan
 Test Date: 11/28/00



KAR21003-01

DATA SHEET NO. 11

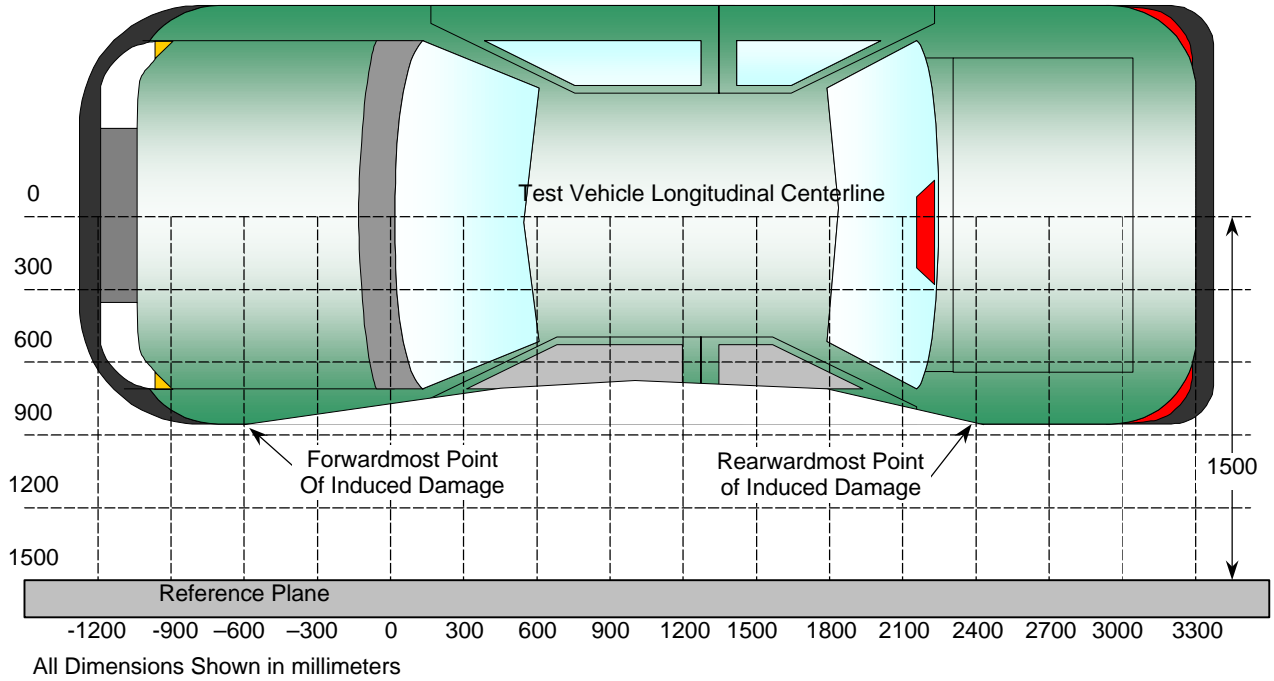
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2001 Chevrolet Venture Minivan

NHTSA No.: M10110

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 11/28/00



TOP VIEW

Damage Profile Distances

DPD	Distance From Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1	-600mm	4	623	645	-22
2	0mm	3	882	698	184
3	750mm	2	891	526	365
4	1500mm	3	892	544	348
5	2250mm	2	913	781	132
6	2850mm	5	634	599	35

Pre-Test and Post-Test measurements are distance from vehicle centerline.

DATA SHEET NO. 12

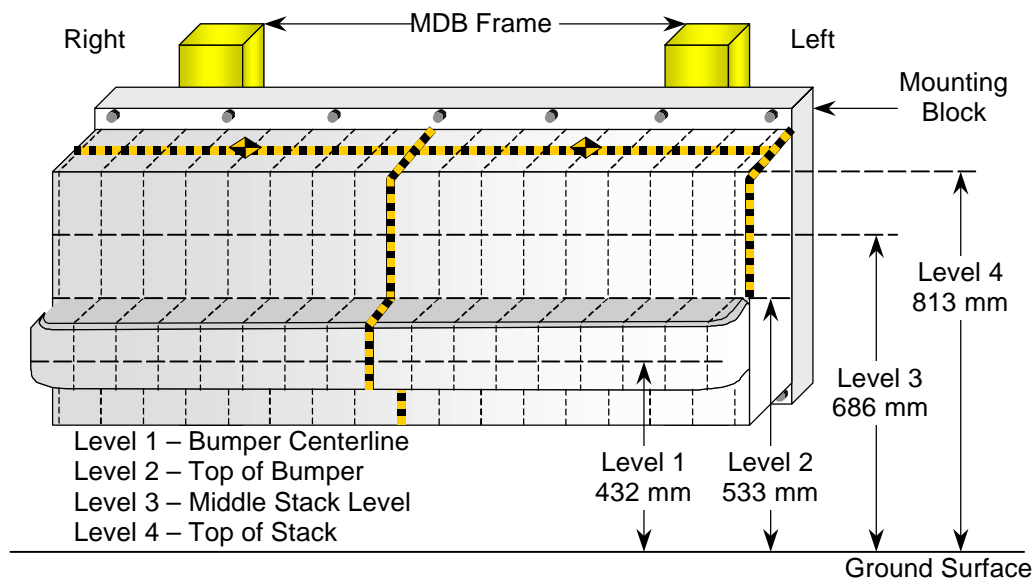
DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2001 Chevrolet Venture Minivan

NHTSA No.: M10110

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 11/28/00



DEFORMABLE BARRIER STATIC CRUSH

Stack	Distance Right of Center								C _L	Distance Left of Center							
	800	700	600	500	400	300	200	100		0	100	200	300	400	500	600	700
1	168	143	128	114	102	98	92	81	78	66	54	49	44	41	38	38	48
2	120	102	88	79	69	63	56	49	49	49	53	54	36	33	33	38	38
3	80	66	54	44	36	28	21	21	14	16	18	17	20	26	38	59	89
4	142	114	91	76	59	57	61	76	63	54	39	37	46	59	81	99	139

All Dimensions in mm

DATA SHEET NO. 13

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

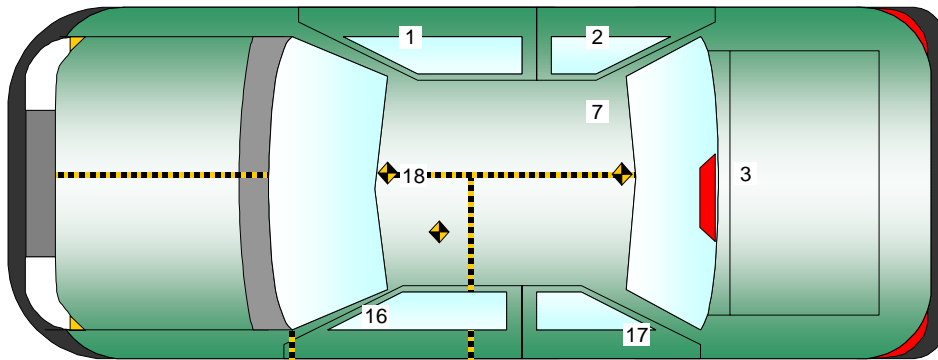
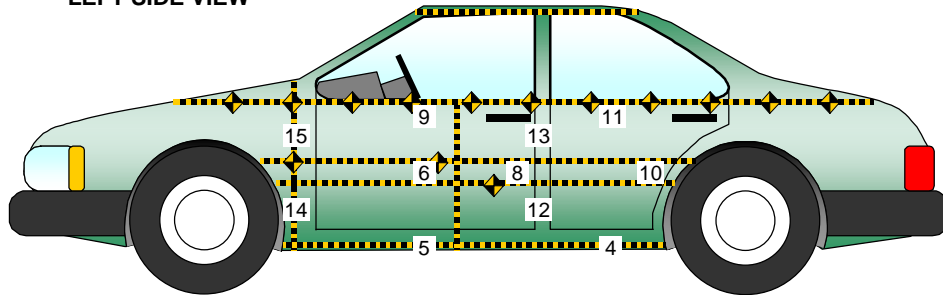
Test Vehicle: 2001 Chevrolet Venture Minivan

NHTSA No.: M10110

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 11/28/00

LEFT SIDE VIEW



No.	Location
1	Right Sill at Front Seat
2	Right Sill at Rear Seat
3	Rear Floorpan Above Axle
4	Left Sill at Rear Door
5	Left Sill at Front Door
6	Left Front Door Centerline
7	Right Rear Occupant Compartment
8	Left Front Door Mid-Rear
9	Left Front Door Upper Centerline

No.	Location
10	Left Rear Door Mid-Rear
11	Left Rear Door Upper Centerline
12	Left Lower B-Post
13	Left Middle B-Post
14	Left Lower A-Post
15	Left Middle A-Post
16	Front Seat Track
17	Rear Seat Track or Structure
18	Vehicle CG

DATA SHEET NO. 13

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2001 Chevrolet Venture Minivan

Project No.: M10110

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 11/28/00

VEHICLE ACCELEROMETER PEAK DATA AND PRE-TEST LOCATIONS

Loc. No.	Accelerometer Location	Measurements (mm)			Peak Values (G's)				
		X	Y	Z	Axis	Max	Time	Min	Time
1	Right Sill at Front Seat	2745	750	400	X	3.6	64.0	-5.7	21.5
					Y	18.1	8.8	-1.8	143.9
					Z	3.7	85.8	-7.4	13.1
					RES	18.9	9.0		
2	Right Sill at Rear Seat	1510	800	460	X	3.7	64.0	-6.0	18.7
					Y	19.6	33.8	-2.2	144.7
					Z	6.4	44.0	-7.8	27.6
					RES	20.3	33.7		
3	Rear Floorpan Above Axle	680	50	520	X	4.0	31.4	-4.3	19.6
					Y	18.6	50.4	-3.0	141.1
					Z	9.4	50.1	-5.5	75.3
					RES	20.8	50.3		
4	Left Sill at Rear Door	1700	-720	290	Y	94.2	11.6	-12.7	43.0
5	Left Sill at Front Door	2700	-720	310	Y	106.8	8.3	-16.5	21.7
6	Front Door Centerline	2790	-810	800	Y	197.2	11.8	-110.0	35.8
7	Rear Occupant Compartment	2140	690	420	Y	19.5	9.2	-3.5	145.1
8	Front Door Mid-Rear	2410	-790	800	Y	258.2	9.0	-281.8	18.2
9	Front Door Upper Centerline	2730	-810	975	Y	129.4	16.1	-76.7	25.2
10	Rear Door Mid-Rear	1260	-750	895	Y	119.1	12.7	-65.2	9.0
11	Rear Door Upper Centerline	1780	-750	855	Y	123.7	13.7	-49.0	31.6
12	B-Post Lower	2305	-760	650	Y	184.5	5.1	-94.1	17.9
13	B-Post Middle	2305	-760	850	Y	137.1	11.5	-79.6	19.2
14	A-Post Lower	3345	-830	660	Y	56.9	6.0	-13.4	27.1
15	A-Post Middle	3345	-800	1040	Y	31.9	9.1	-5.1	28.5
16	Front Seat Track	2790	-580	500	Y	37.9	21.8	15.7	28.6
17	Rear Seat Structure				Y				
18	Vehicle CG	2315	205	435	X	5.4	64.5	-7.3	15.8
					Y	18.8	28.7	-2.2	73.5
					Z	15.4	41.5	-14.2	63.3
					RES	22.3	41.7		

**

** Not installed

DATA SHEET NO. 14
MDB ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2001 Chevrolet Venture Minivan
 Test Program: 55/28 km/h 90° Side Impact NCAP

Project No.: M10110
 Test Date: 11/28/00

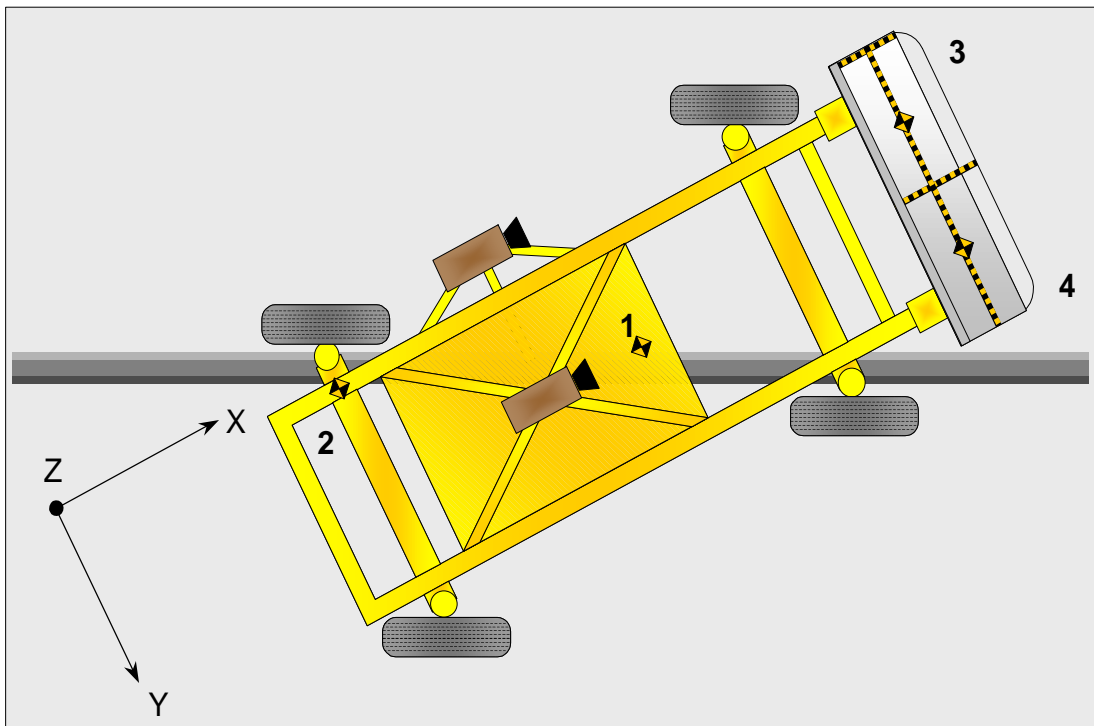
MDB ACCELEROMETER PEAK DATA AND LOCATIONS

Loc. No.	Accelerometer Location	Measurements (mm)			Peak Values (G's)				
		X	Y	Z	Axis	Max	Time	Min	Time
1	MDB CG	-1195	0	430	X	2.9	164.7	-18.8	41.4
					Y	3.1	63.3	-8.8	26.3
					Z	13.2	166.3	-16.1	157.4
					RES	20.2	41.9		
2	MDB Rear	-2642	-593	608	X	2.6	143.0	-20.3	41.0
					Y	3.3	123.1	-6.6	24.2

Reference Points X - MDB Front Axle Y - MDB Centerline Z - Ground Plane

MDB BUMPER CONTACT SWITCH DATA

Loc. No.	Contact Switch Location	Units	Peak and 50% Crossing Point			
			Max	Time	50%	Time
3	MDB Left Bumper (T=0)	% F.S	100.0	0.0	0.0	0.0
4	MDB Right Bumper	% F.S.	100.8	72.8	50.4	0.3



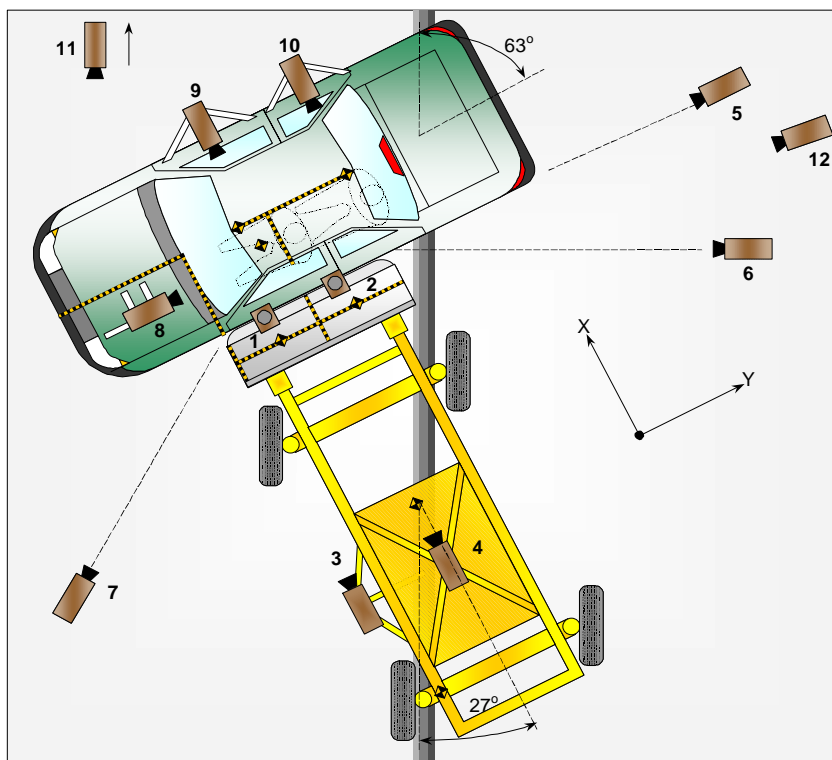
DATA SHEET NO. 15
HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2001 Chevrolet Venture Minivan

NHTSA No.: M10110

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 11/28/00



No.	Camera View	Location (mm)			Angle (deg.)	Lens (mm)	Film Speed (fr./sec.)
		X	Y	Z			
1	Overhead Overall	1676	-762	5486	-86	10	911
2	Overhead Close-up	-762	0	5791	-82	24	1007
3	MDB Onboard, Impact Point Close-Up	-2134	0	1143	-7	13	812
4	MDB Onboard, Centerline of Impact	-3048	-1676	1829	-4	13	982
5	Right Side, Ground Level, Overall	9144	-18288	2210	-1	25	1060
6	Right Side, Ground Level, Close-up	0	-18898	1524	0	60	1000
7	Left Side, Ground Level, Close-up	-2362	-5410	1448	-6	13	1020
8	Vehicle Onboard Front SID, Front	-305	1219	1478	-10	19	1006
9	Vehicle Onboard Front SID, Side	1624	914	1173	0	19	1011
10	Vehicle Onboard Rear SID, Side	1981	0	1173	0	10	1021
11	Front View In-line with Track	108051	229	1021	0	80	490
12	Real Time Coverage	3072	20040	2350	N/A	Zoom	16

DATA SHEET NO. 16

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 2001 Chevrolet Venture Minivan

NHTSA No.: M10110

Test Program: 55/28 km/h 90° Side Impact NCAP

Test Date: 11/28/00

Test Time: 12:04 PM

Temperature at Time of Impact: 20.0 °C

STODDARD SOLVENT SPILLAGE MEASUREMENTS

- A. From impact until vehicle motion ceases: 0.0 oz.
(Maximum Allowable = 1 ounce)
- B. For the 5 minute period after motion ceases: 0.0 oz.
(Maximum Allowable = 5 ounces)
- C. For the following 25 minutes: 0.0 oz.
(Maximum Allowable = 1 oz./minute)
- D. Spillage Details: No leakage occurred

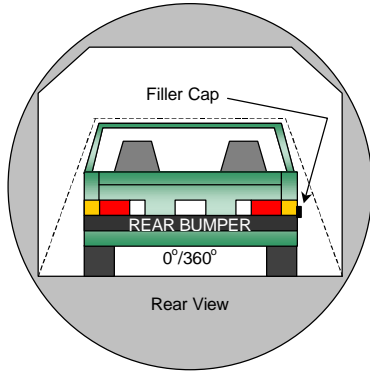
DATA SHEET NO. 17
FMVSS 301 STATIC ROLLOVER DATA SHEET

Test Vehicle: 2001 Chevrolet Venture Minivan

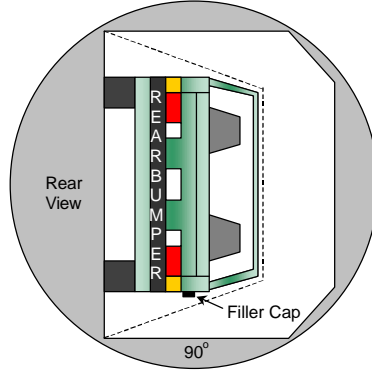
NHTSA No.: M10110

Test Program: 55/28 km/h 90° Side Impact NCAP

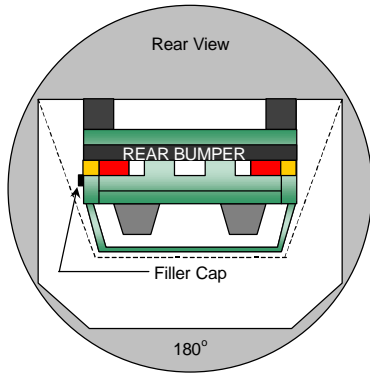
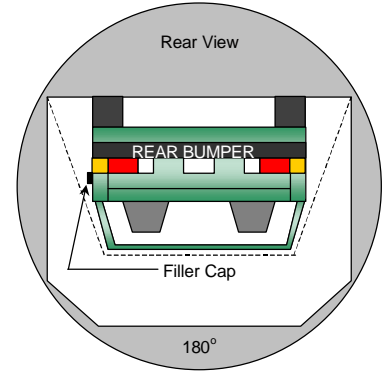
Test Date: 11/28/00



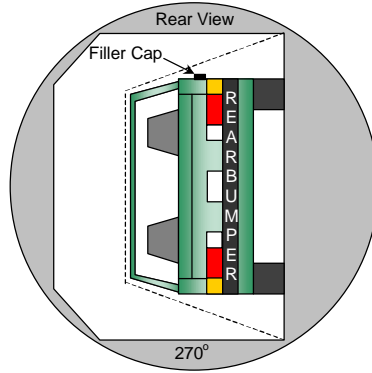
0° TO 90°



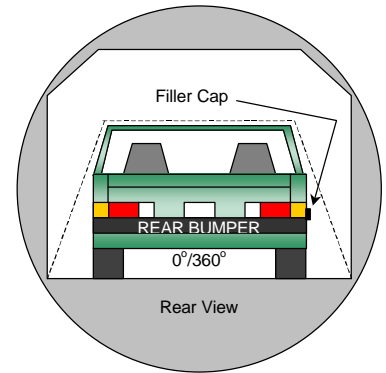
90° TO 180°



180° TO 270°



270° TO 360°



1. The specified fixture rollover rate for each 90° of rotation is 60 to 120 seconds.
2. The position hold time at each position is 300 seconds (minimum).
3. Details of Stoddard Solvent spillage locations:

No solvent leakage occurred during static rollover testing.

Rollover Test Phase	Rotation Time (sec.)	Hold Time (sec.)	Spillage (oz.)
0° TO 90°	83	300	0.0
90° TO 180°	78	300	0.0
180° TO 270°	77	300	0.0
270° TO 360°	80	300	0.0

**APPENDIX A
PHOTOGRAPHS**

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Figure A-1: Left Front, as Received



Figure A-2: Right Rear, as Received



Figure A-3: Vehicle Certification Label



GM MFD BY GENERAL MOTORS CORP 09/00
 GVWR 2430KG(5357LB) GAWR FRT 1236KG(2725LB) GAWR RR 1215KG(2678LB)
 THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY AND THEFT PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.
1GNDU23EX1D157013 TYPE: M.P.V.
 MODEL: UN16

UPBP	TIRE SIZE	SPEED RTG	RIM	COLD TIRE PRESSURE
FRT	P215/70R15	S	15X6J	240KPA(35PSI)
RR	P215/70R15	S	15X6J	240KPA(35PSI)
SPA	T135/70R16	M	16X4T	420KPA(60PSI)

 SEE OWNER'S MANUAL FOR MORE INFORMATION.

GM 1GNDU23EX1D157013
 PT. NO. 10219020 SER. NO. CNMP

Figure A-4: Vehicle Tire Label



Figure A-5: Front View, Pre-Test



Figure A-6: Front View, Post-Test



Figure A-7: Rear View, Pre-Test



Figure A-8: Rear View, Post-Test



Figure A-9: Left (Impacted) Side View, Pre-Test



A-10

KAR21003-01

Figure A-10: Left (Impacted) Side View, Post-Test



Figure A-11: Overhead Close-up View at Impact Position, Pre-Test



A-12

KAR21003-01

Figure A-12: Overhead Overall View, Pre-Test



Figure A-13: Overhead Overall View, Post-Test



Figure A-14: MDB Left Side View at Impact Position, Pre-Test



A-15

KAR21003-01

Figure A-15: MDB Right Side View at Impact Position, Pre-Test



Figure A-16: Impact Point Target Close-up, Pre-Test



Figure A-17: Impact Point Target Close-up, Post-Test



Figure A-18: Driver Dummy Left Side with Door Open, Pre-Test



Figure A-19: Driver Dummy Left Side, Pre-test



Figure A-20: Driver Dummy Left Side, Post-Test



Figure A-21: Driver Dummy Clearance, Pre-Test



Figure A-22: Driver Dummy Clearance, Post-Test



Figure A-23: Driver Dummy Inside View, Pre-Test



Figure A-24: Driver Dummy Inside View, Post-Test



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Figure A-25: Driver Door Inside View, Pre-Test



Figure A-26: Driver Dummy Contact Points Inside View, Post-Test



Figure A-27: Passenger Dummy Left Side with Door Open, Pre-Test



Figure A-28: Passenger Dummy Left Side, Pre-Test



Figure A-29: Passenger Dummy Left Side, Post-Test



Figure A-30: Passenger Dummy Clearance, Pre-Test



Figure A-31: Passenger Dummy Clearance, Post-Test



Figure A-32: Passenger Dummy Inside View, Pre-Test



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Figure A-33: Passenger Dummy Inside View, Post-Test



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Figure A-34: Passenger Door Inside View, Pre-Test



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Figure A-35: Passenger Dummy Contact Points Inside View, Post-Test

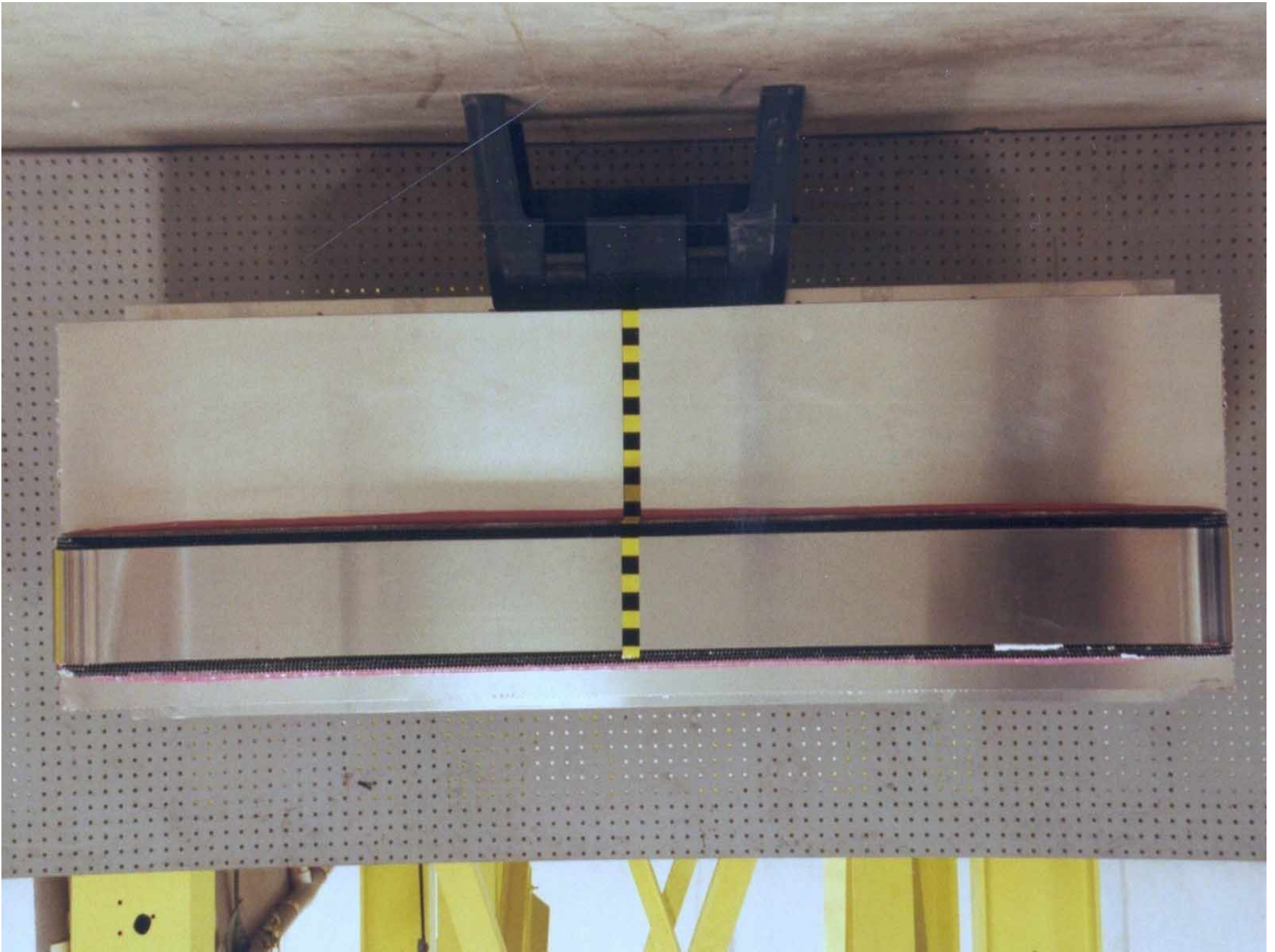
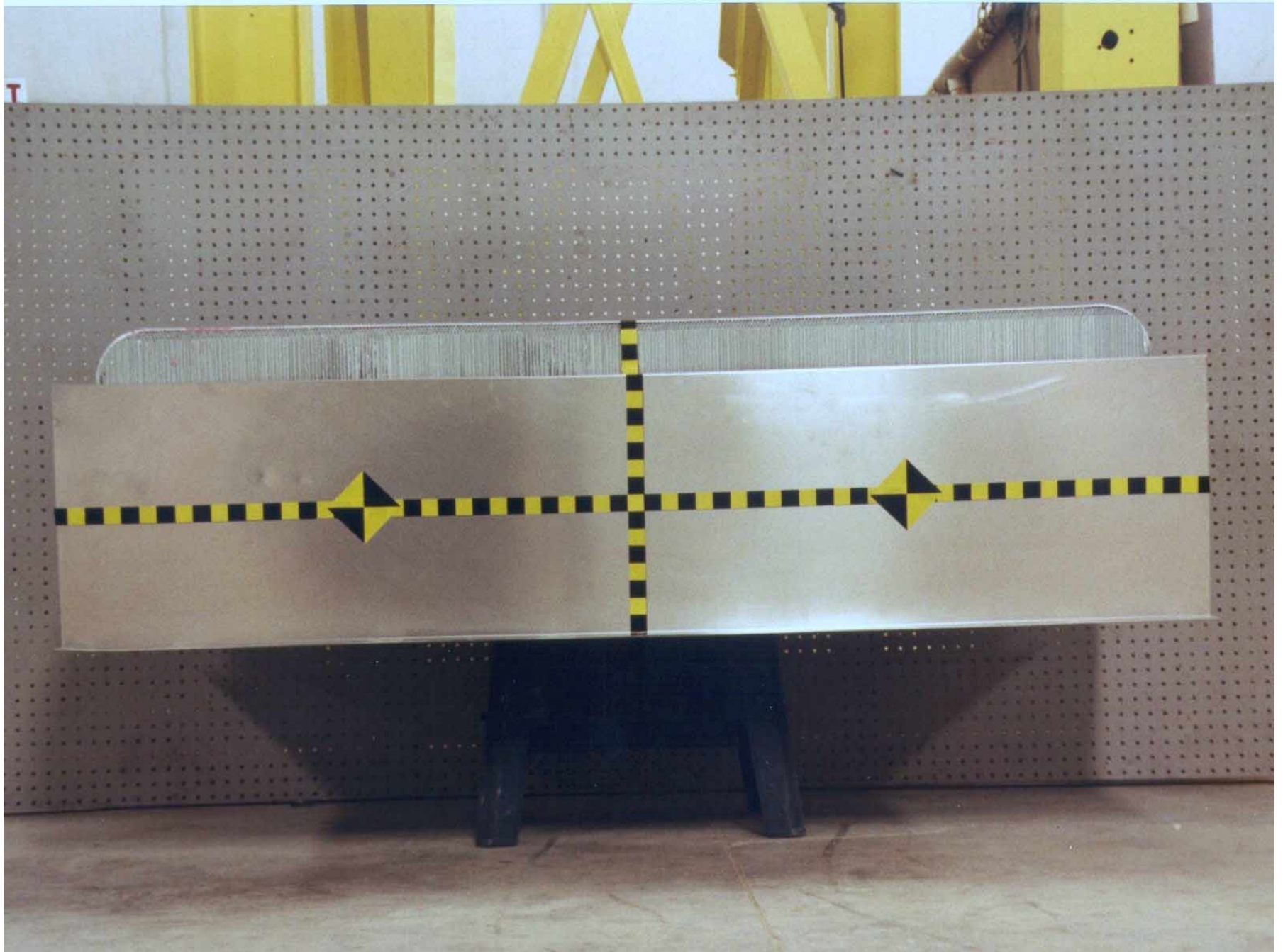


Figure A-36: Front View of Deformable Barrier, Pre-Test



Figure A-37: Front View of Deformable Barrier, Post-Test



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Figure A-38: Top View of Deformable Barrier, Pre-Test

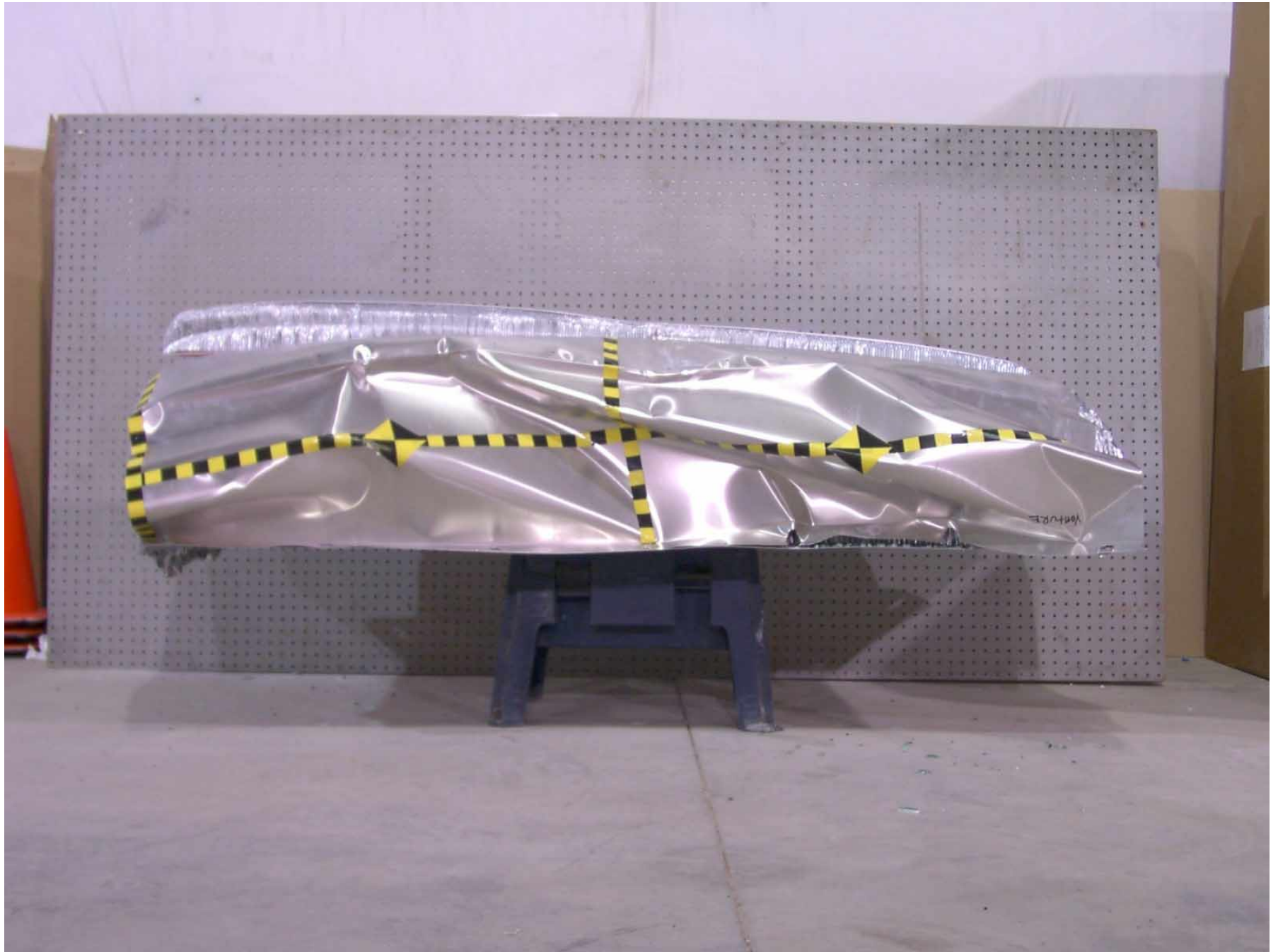


Figure A-39: Top View of Deformable Barrier, Post-Test

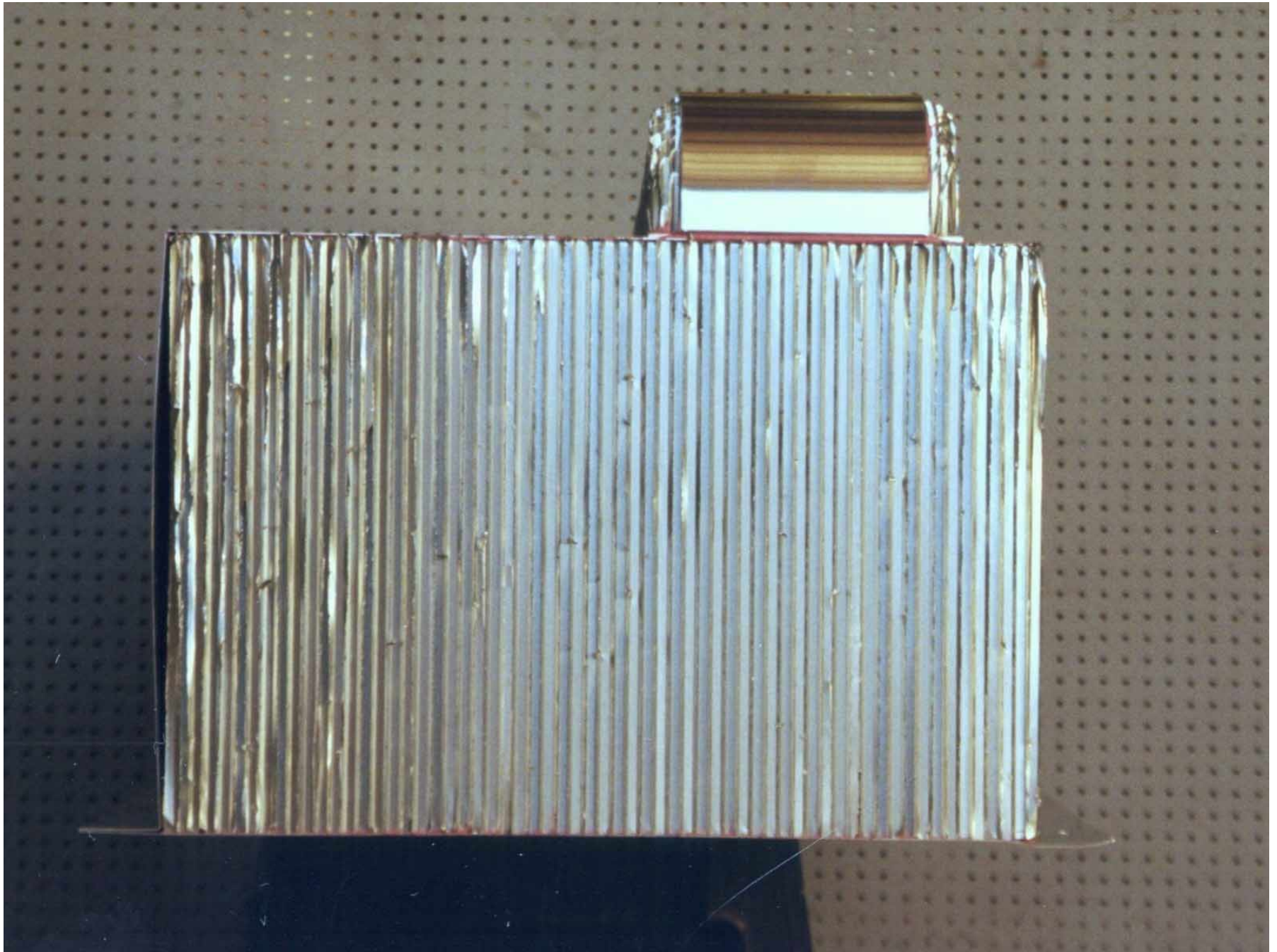


Figure A-40: Right Side View of Deformable Barrier, Pre-Test



Figure A-41: Right Side View of Deformable Barrier, Post-Test



Figure A-42: Left Side View of Deformable Barrier, Pre-Test

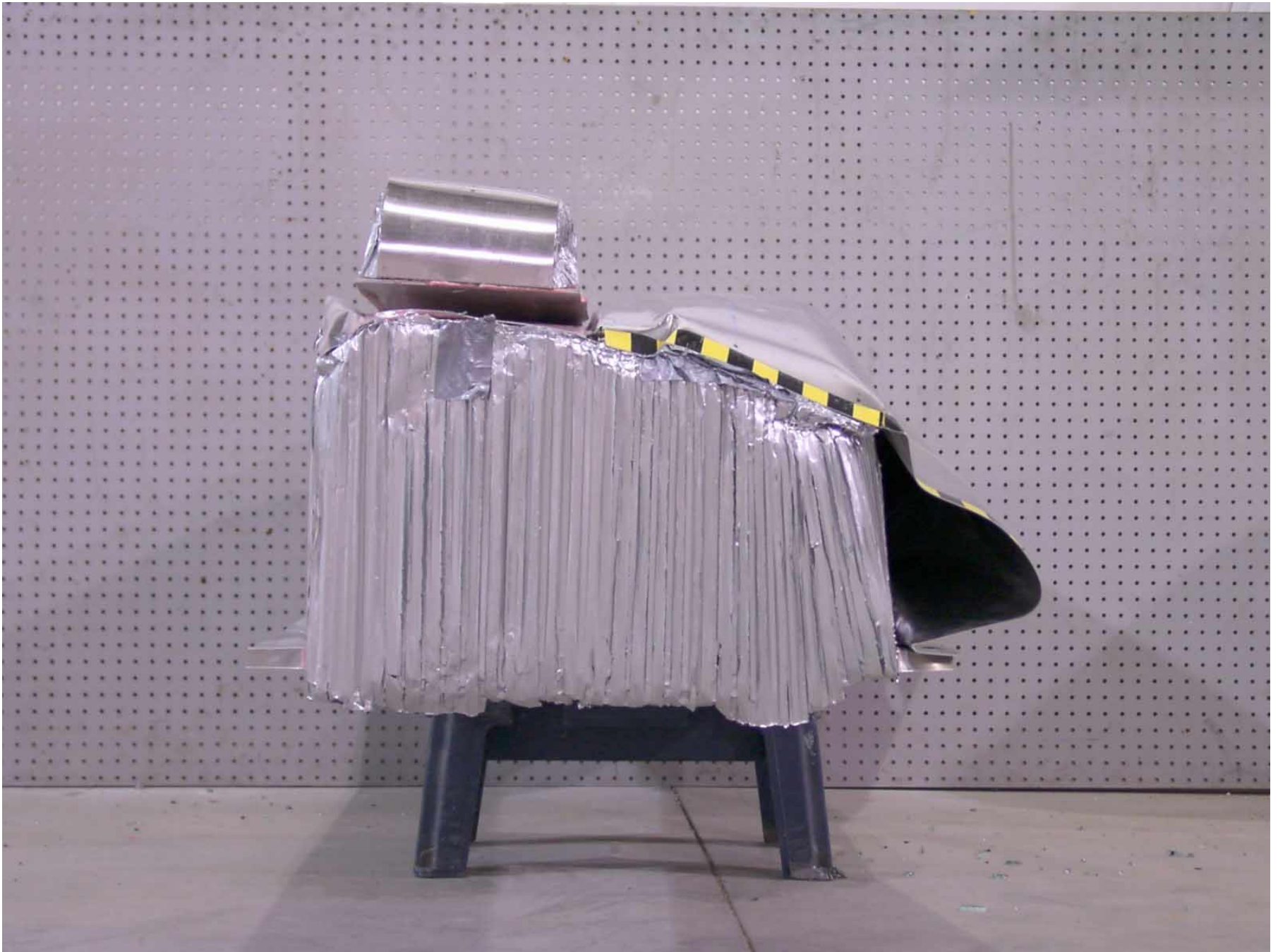


Figure A-43: Left Side View of Deformable Barrier, Post-Test



Figure A-44: Vehicle on Rollover Device, Top View



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Figure A-45: Vehicle During Impact

APPENDIX B
SID, VEHICLE, AND MDB RESPONSE DATA

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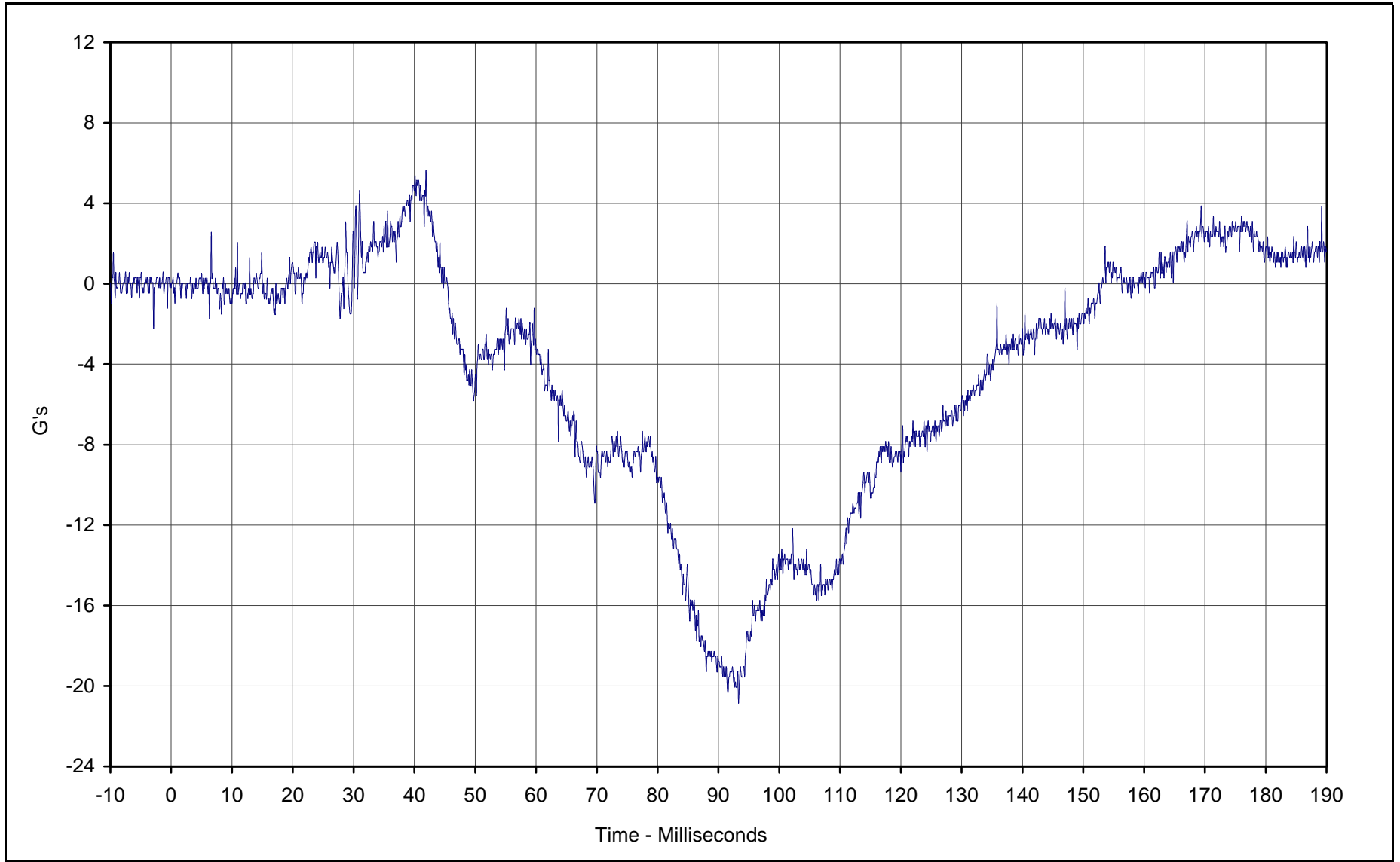
LIST OF DATA PLOTS, MDB

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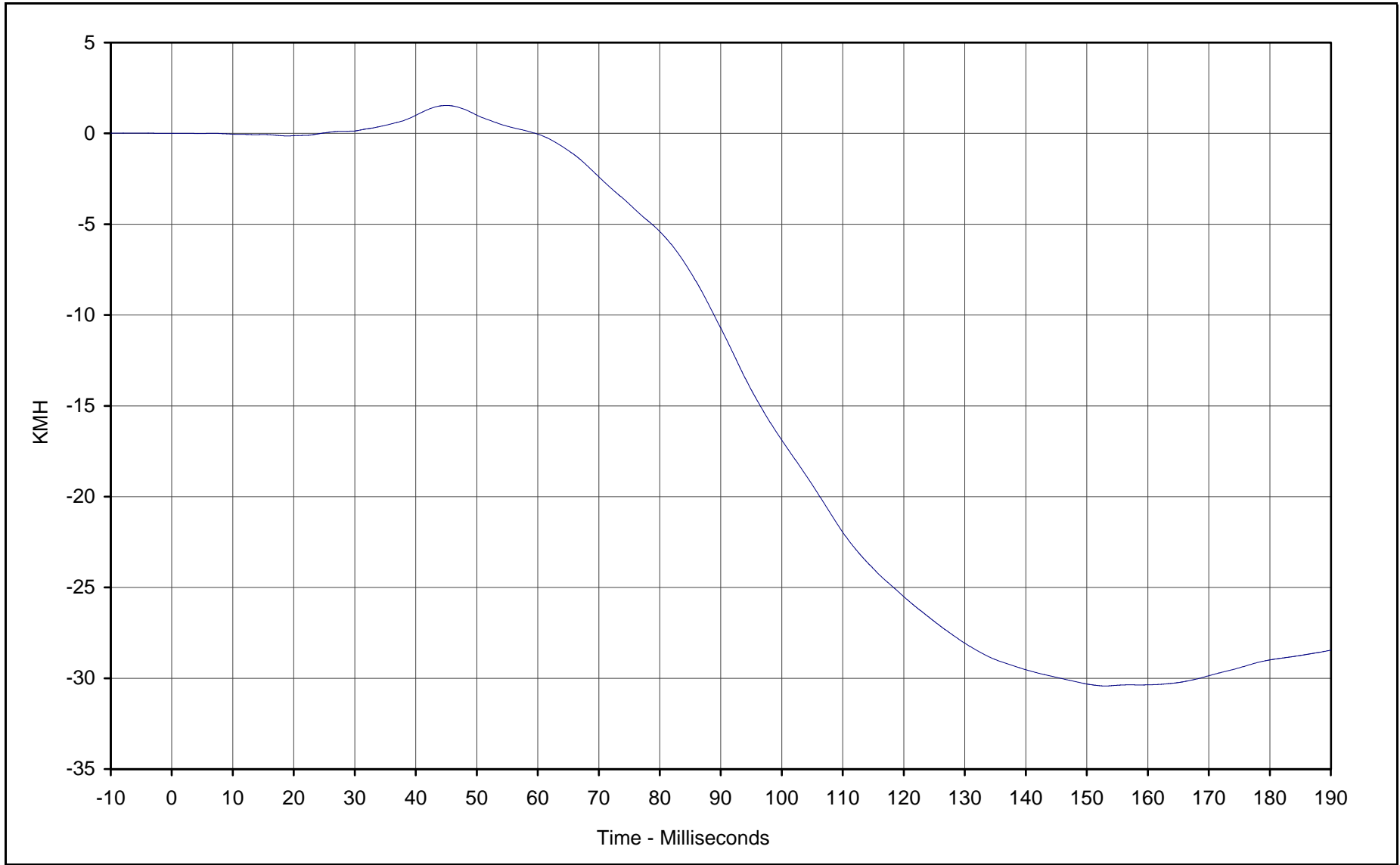
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Minimum Value: -20.8 at 93.3 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: FIL-001

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-2

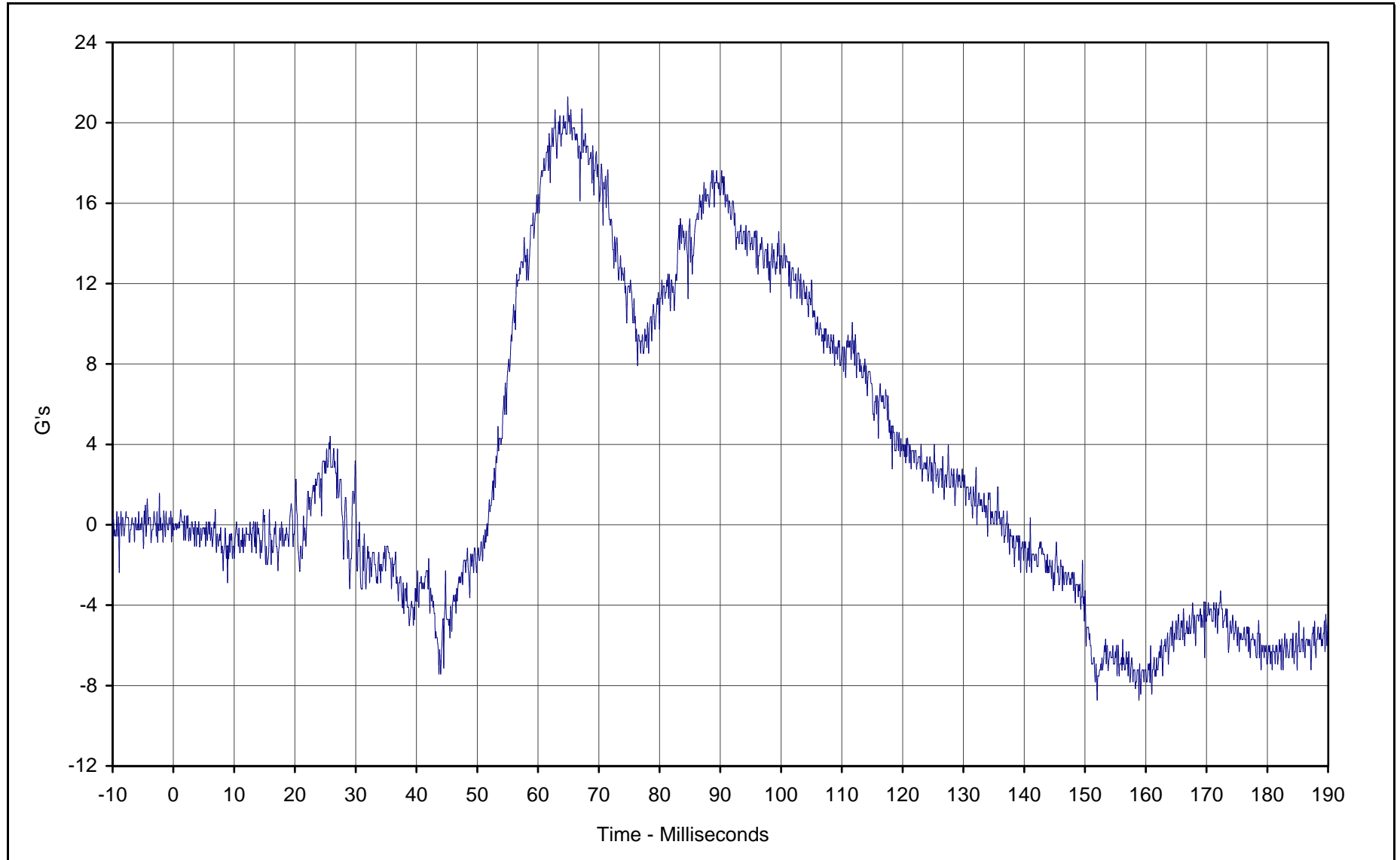


Curve Description: Driver Head CG X Velocity
Maximum Value: 1.5 at 45.1 Milliseconds
Minimum Value: -30.4 at 153.0 Milliseconds
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Date of Test: 11/28/00
Curve Number: IN1-001

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



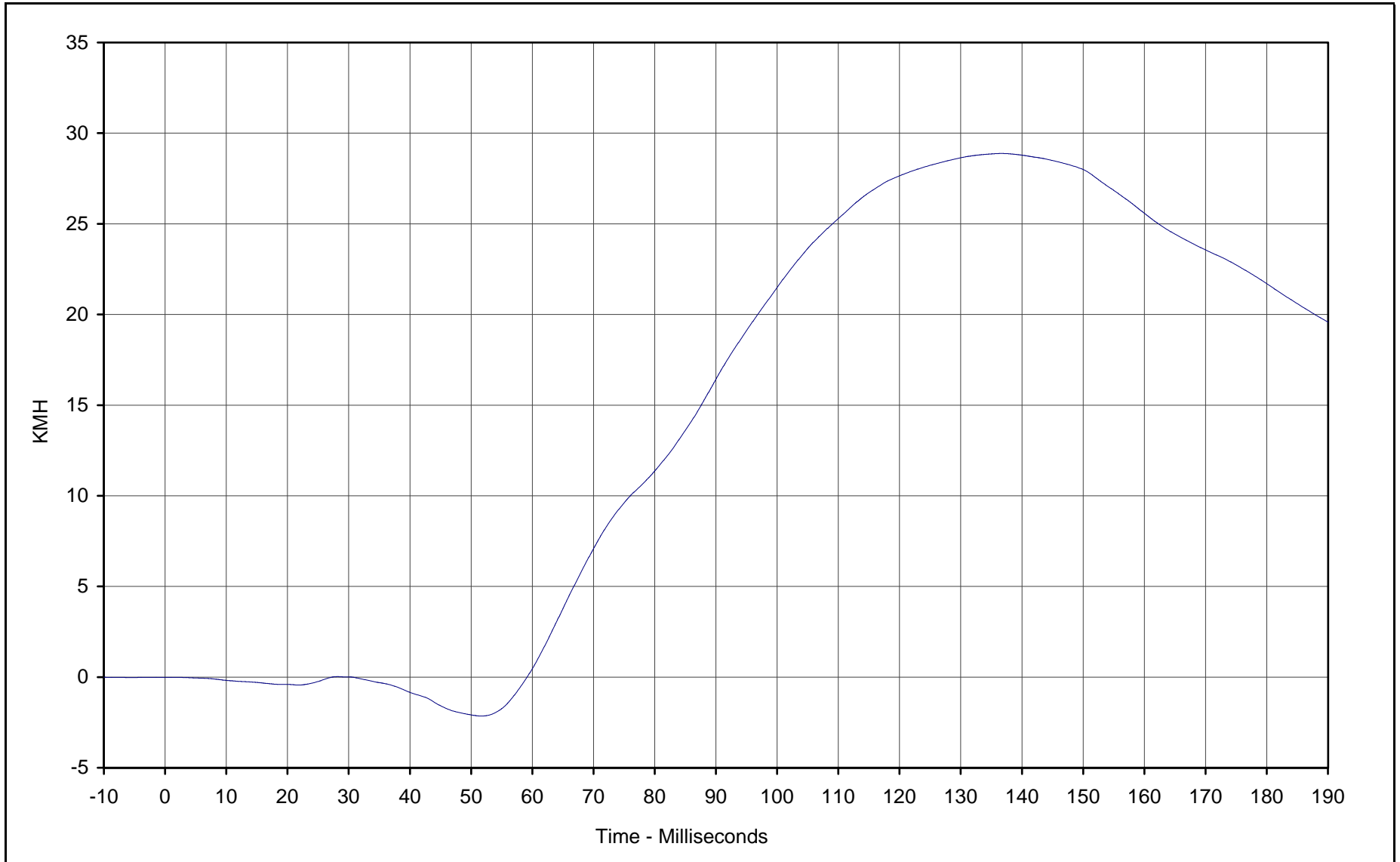
KAR21003-01



Curve Description: Driver Head CG Y
 Maximum Value: 21.3 at 64.9 Milliseconds
 Minimum Value: -8.7 at 152.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/28/00
 Curve Number: FIL-002

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
 Test Vehicle: 2001 Chevrolet Venture Minivan





Curve Description: Driver Head CG Y Velocity

Maximum Value: 28.9 at 136.6 Milliseconds

Minimum Value: -2.1 at 51.7 Milliseconds

SAE Filter Class: 180

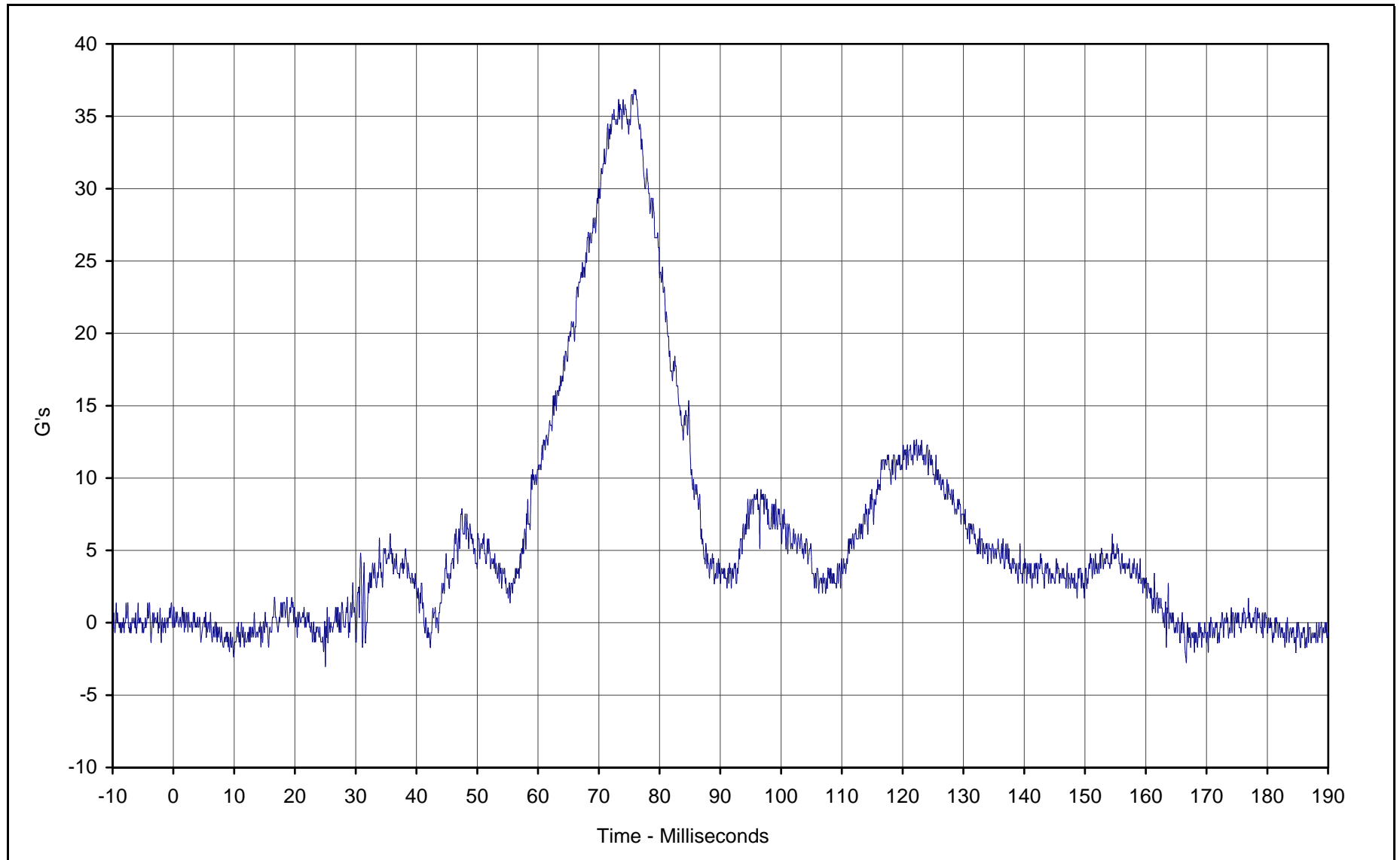
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Test Vehicle: 2001 Chevrolet Venture Minivan

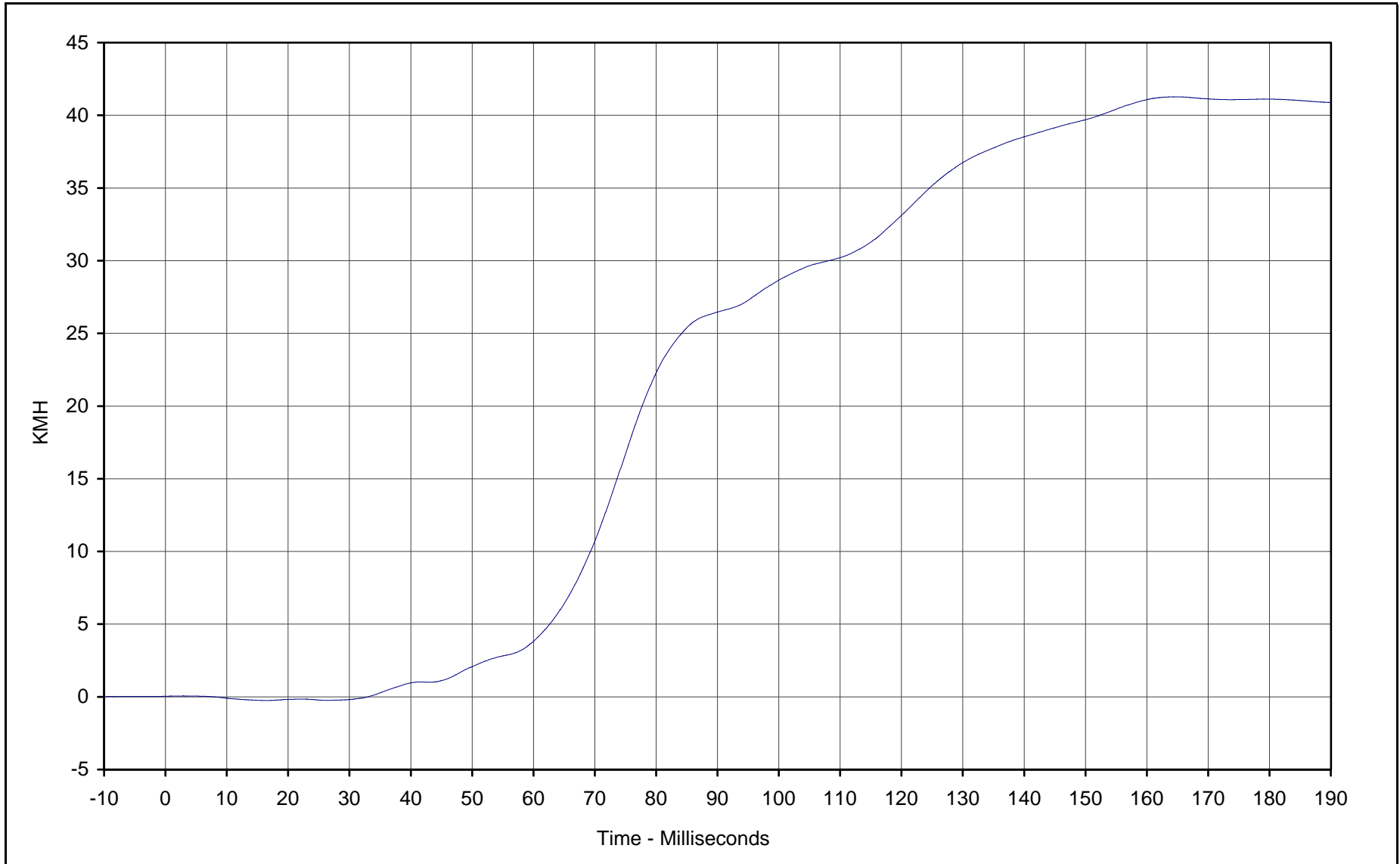




Curve Description: Driver Head CG Z
 Maximum Value: 36.8 at 75.8 Milliseconds
 Minimum Value: -3.0 at 25.0 Milliseconds
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 Curve Number: FIL-003

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
 Test Vehicle: 2001 Chevrolet Venture Minivan

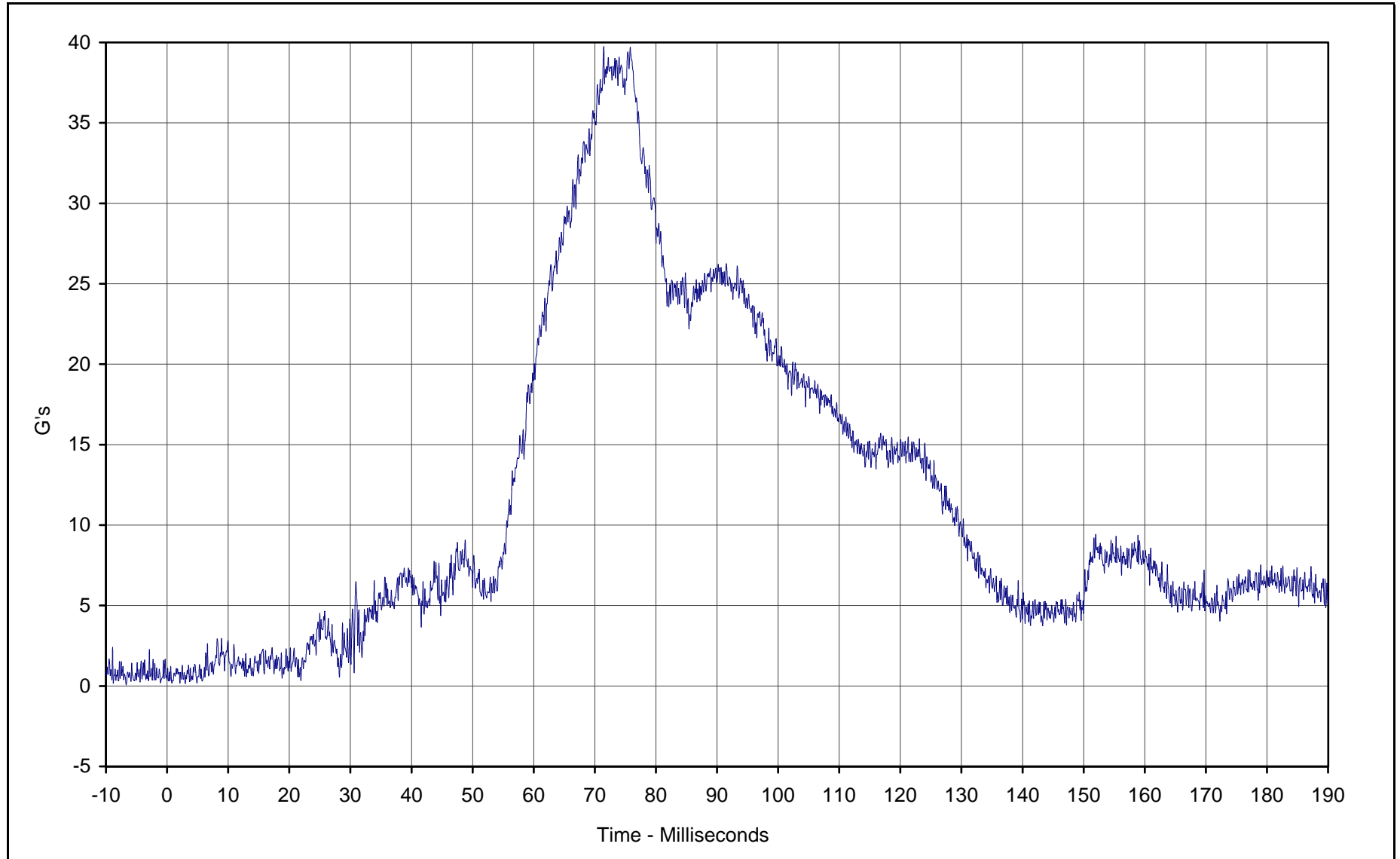




Curve Description: Driver Head CG Z Velocity
 Maximum Value: 41.3 at 164.7 Milliseconds
 Minimum Value: -0.3 at 16.3 Milliseconds
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 Curve Number: IN1-003

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
 Test Vehicle: 2001 Chevrolet Venture Minivan



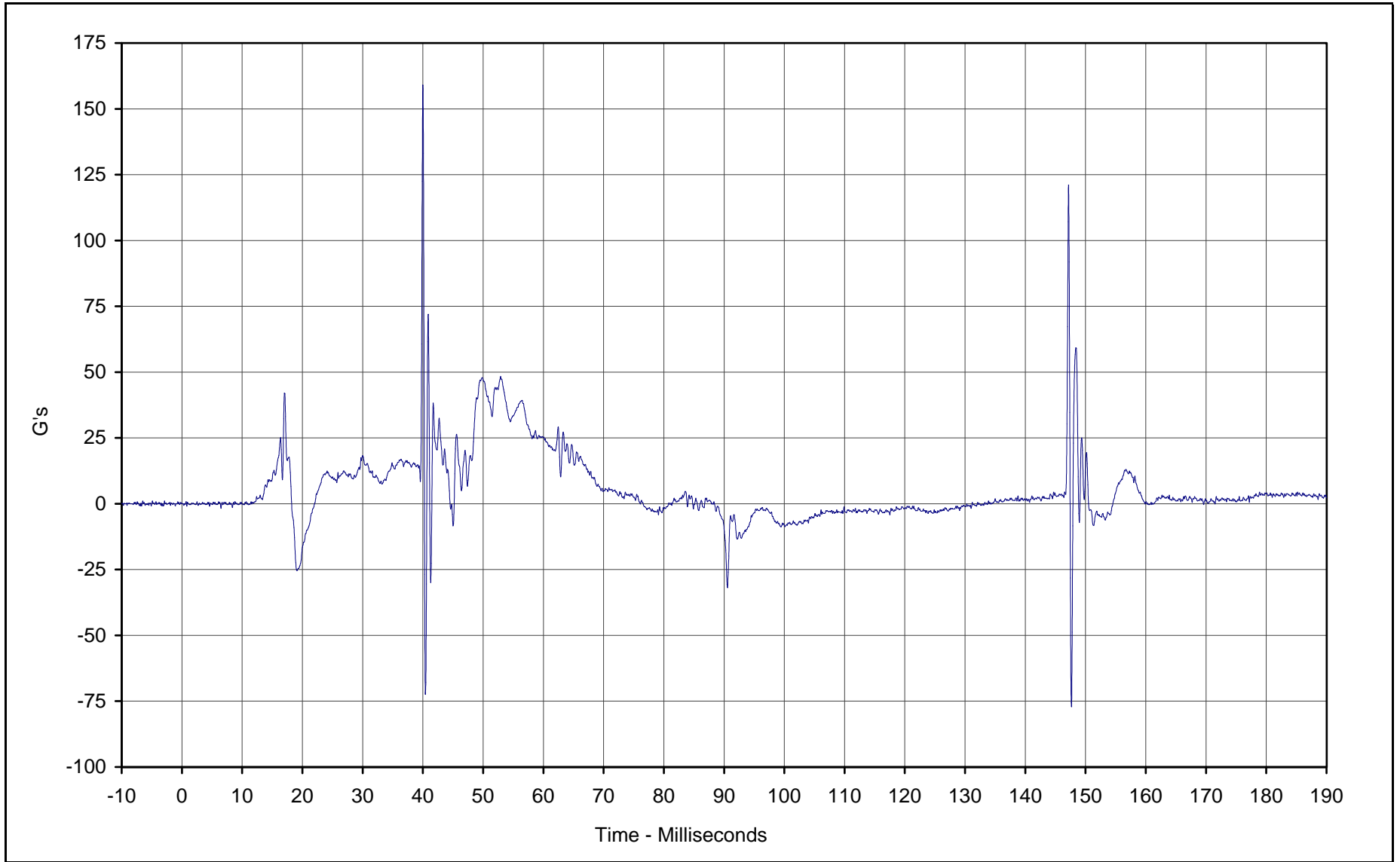


Curve Description: Driver Head CG Resultant
 Maximum Value: 39.7 at 75.8 Milliseconds
 Minimum Value: 0.1 at 3.0 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/28/00
 Curve Number: RES-001

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
 Test Vehicle: 2001 Chevrolet Venture Minivan



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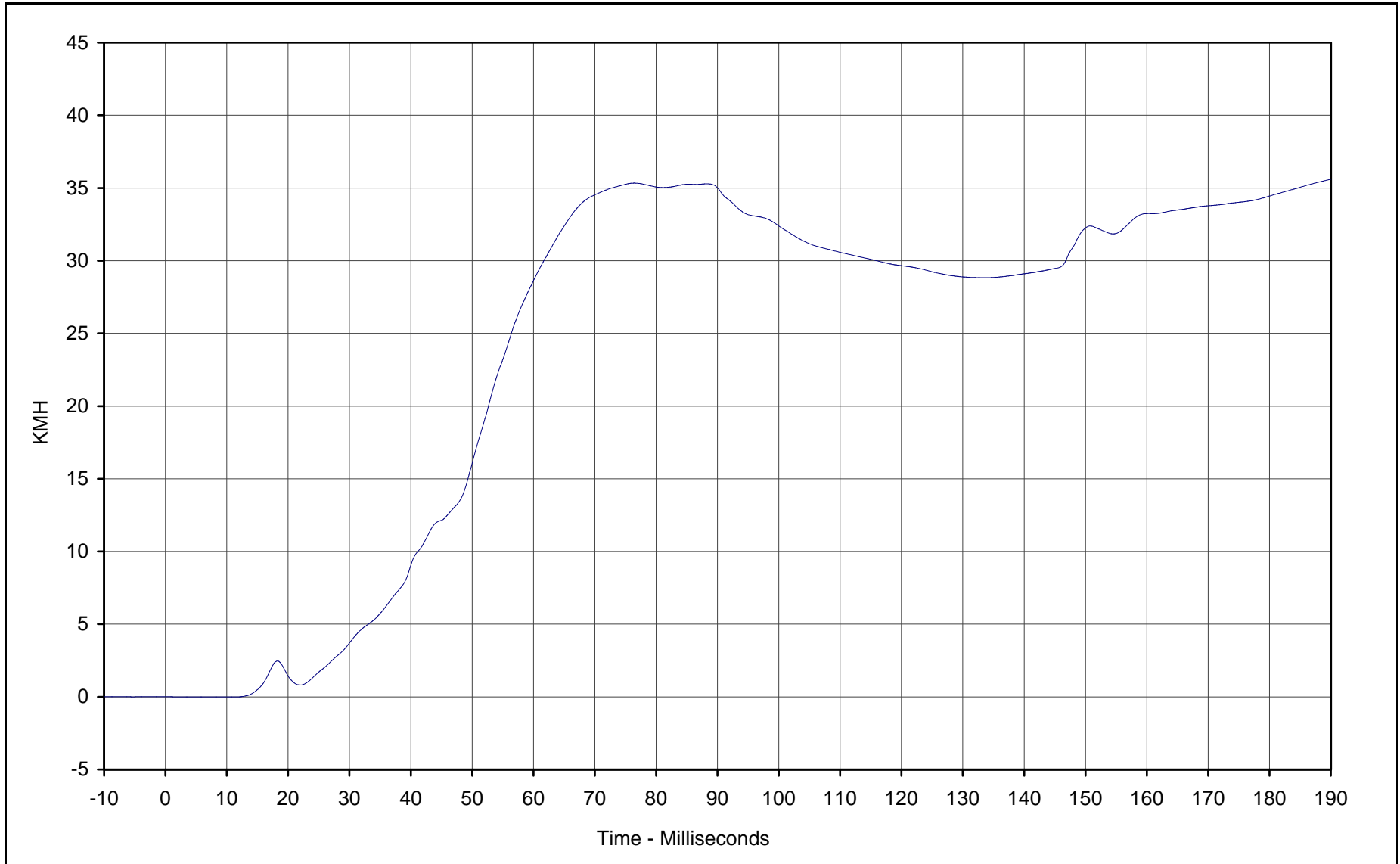
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Maximum Value: 159.0 at 40.0 Milliseconds
Minimum Value: -76.9 at 147.7 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: FIL-004

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Driver Upper Rib Primary Y Velocity

Maximum Value: 35.6 at 189.9 Milliseconds

Minimum Value: 0.0 at 11.0 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

Curve Number: IN1-004

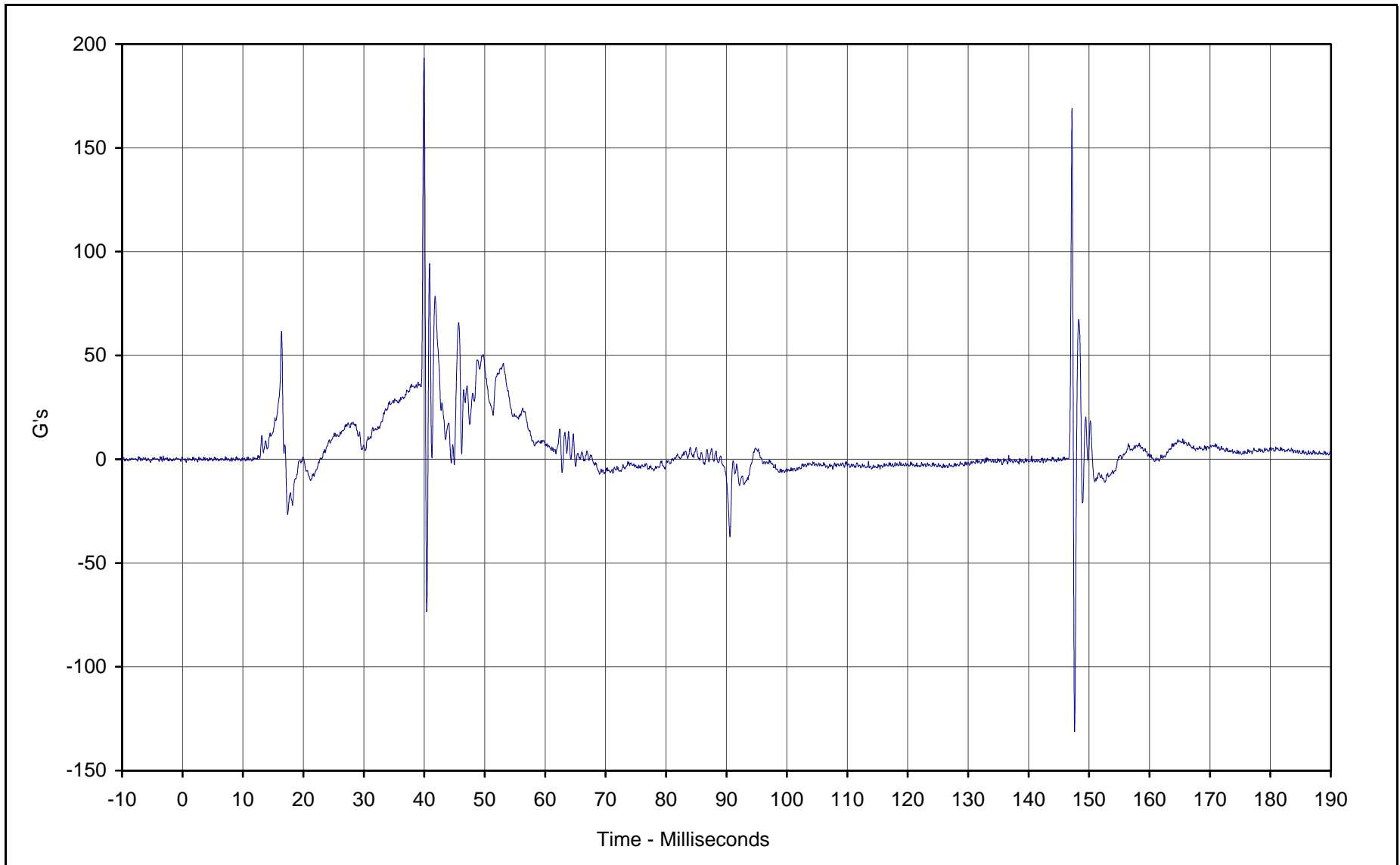
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Test Vehicle: 2001 Chevrolet Venture Minivan

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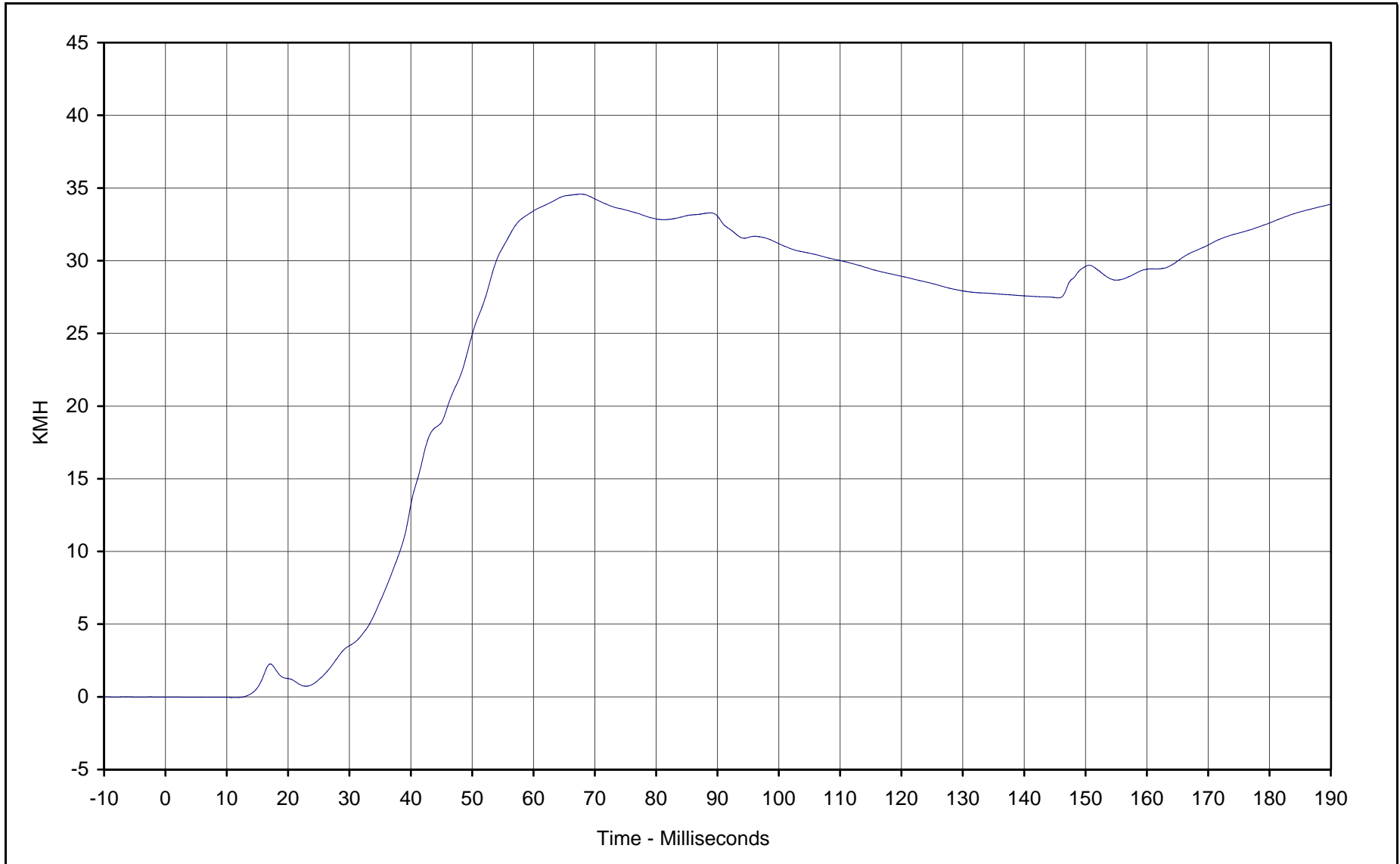
Curve Description: Driver Lower Rib Primary Y
Maximum Value: 192.6 at 40.0 Milliseconds
Minimum Value: -130.4 at 147.6 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: FIL-005

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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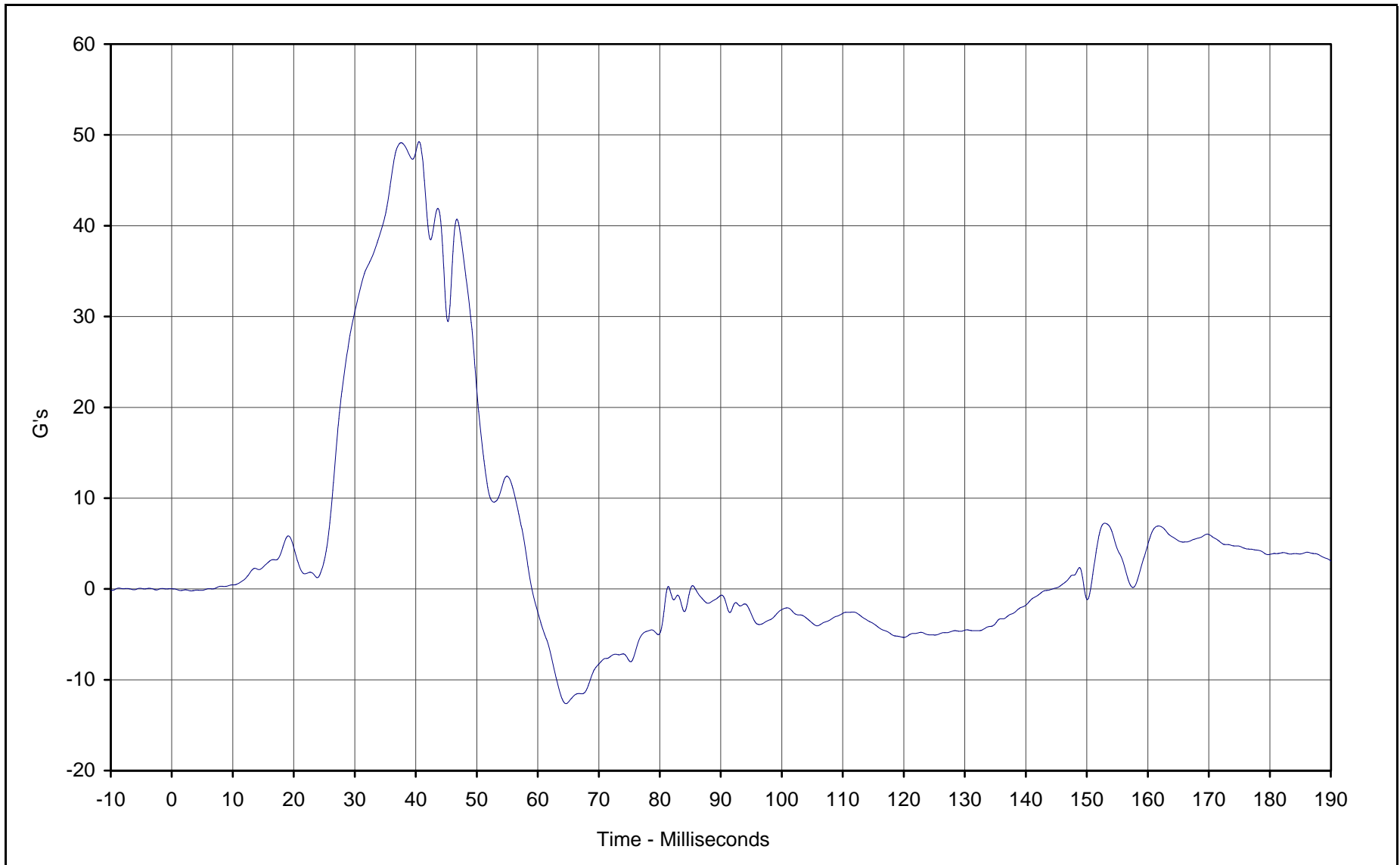
Curve Description: Driver Lower Rib Primary Y Velocity
Maximum Value: 34.6 at 67.7 Milliseconds
Minimum Value: 0.0 at 11.7 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-005

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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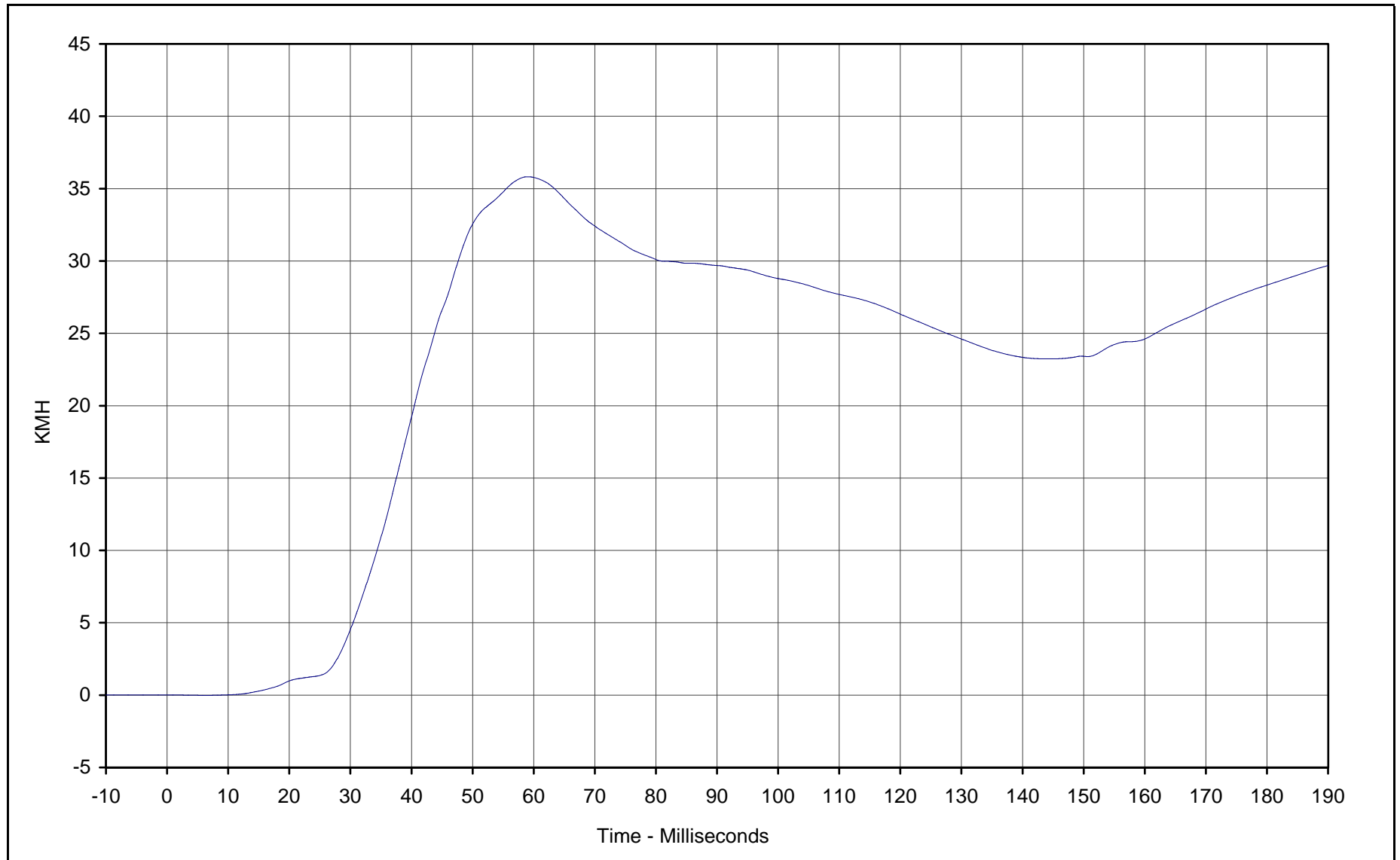


Curve Description: Driver Lower Spine Primary Y
Maximum Value: 49.3 at 40.6 Milliseconds
Minimum Value: -12.6 at 64.6 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: FIL-006

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Driver Lower Spine Primary Y Velocity

Maximum Value: 35.8 at 59.0 Milliseconds

Minimum Value: 0.0 at 5.8 Milliseconds

SAE Filter Class: 180

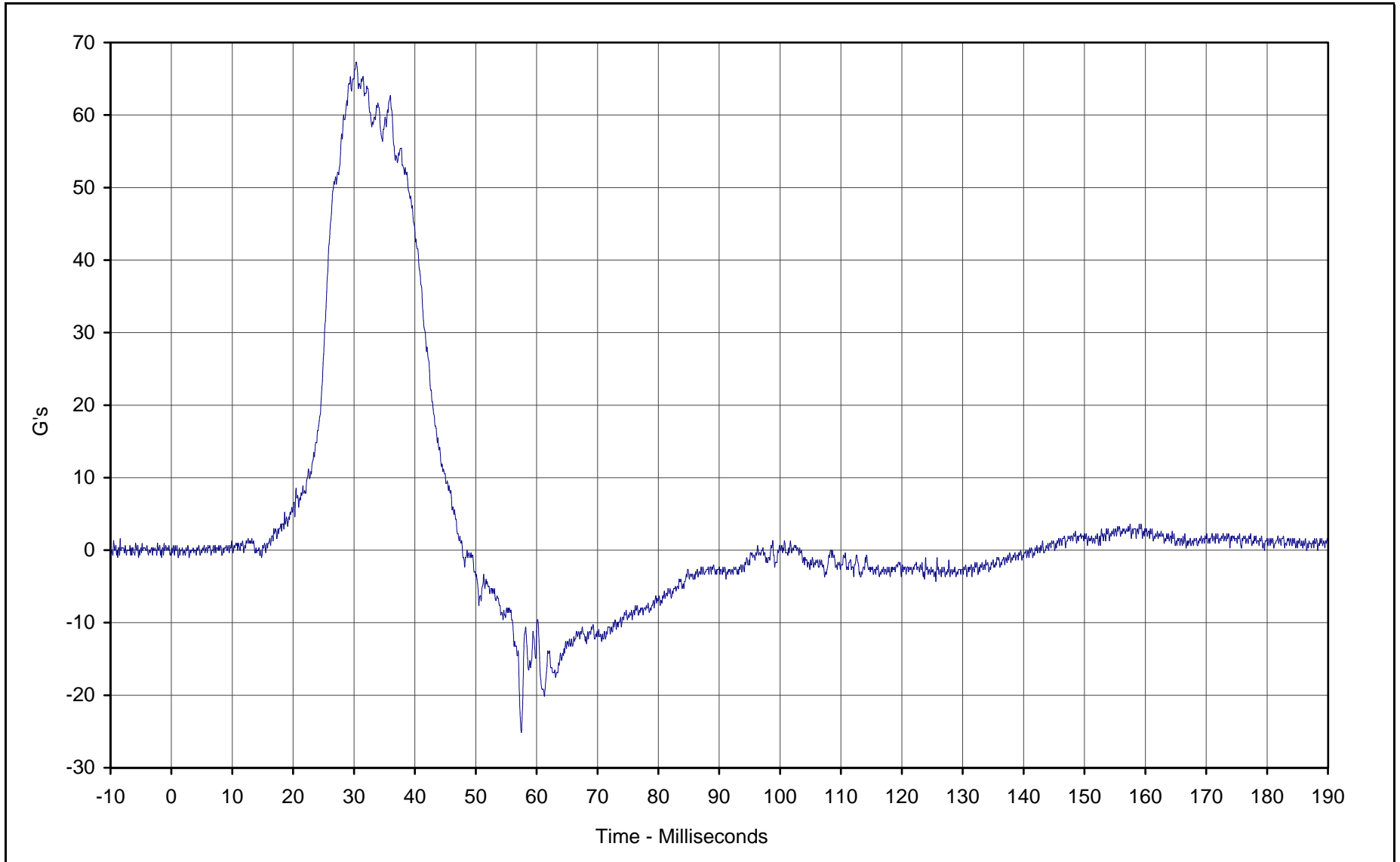
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Curve Number: IN1-006

Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

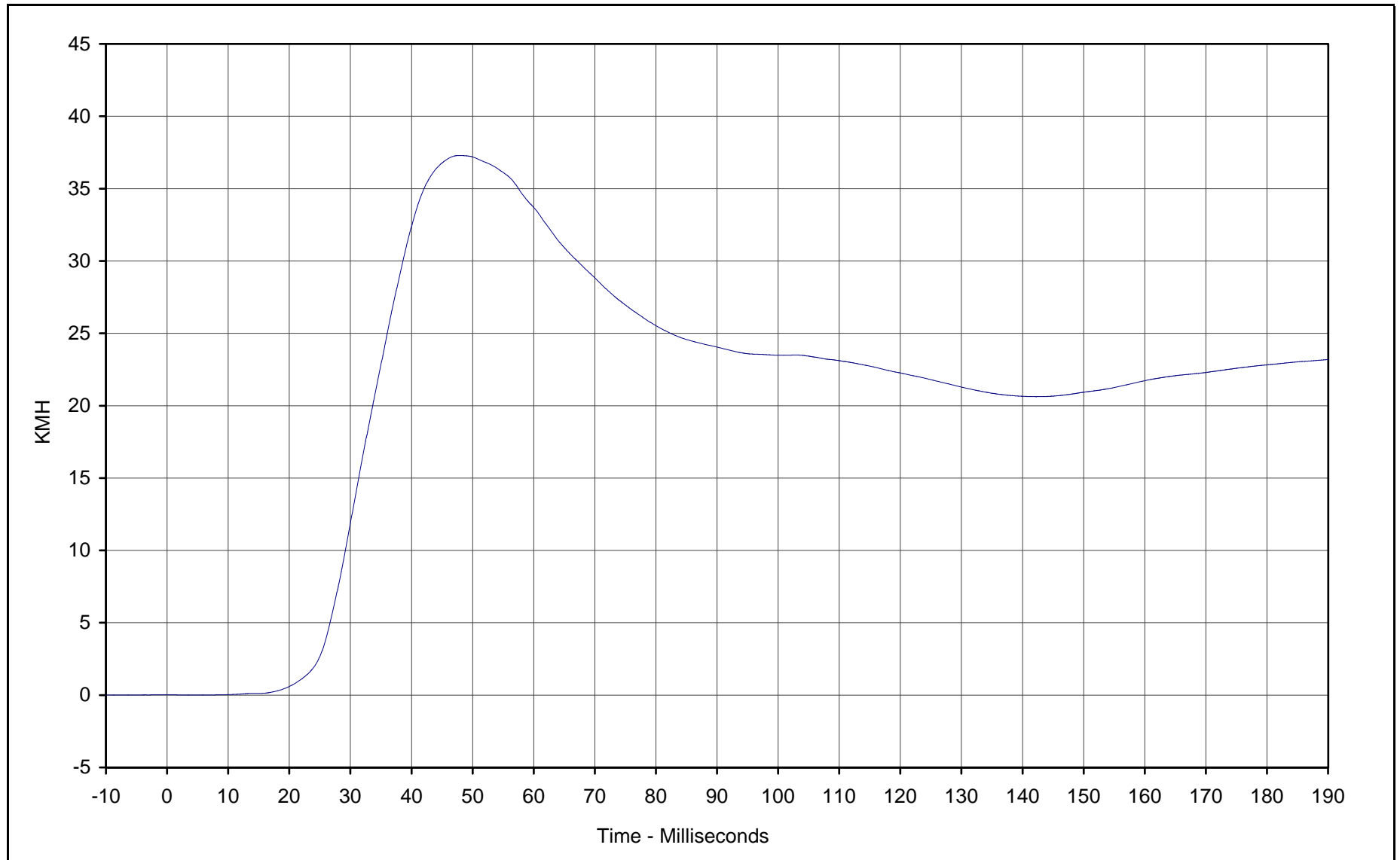




Curve Description: Driver Pelvis Primary Y
 Maximum Value: 67.3 at 30.3 Milliseconds
 Minimum Value: -25.1 at 57.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/28/00
 Curve Number: FIL-007

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
 Test Vehicle: 2001 Chevrolet Venture Minivan





Curve Description: Driver Pelvis Primary Y Velocity

Maximum Value: 37.3 at 47.9 Milliseconds

Minimum Value: 0.0 at 4.9 Milliseconds

SAE Filter Class: 180

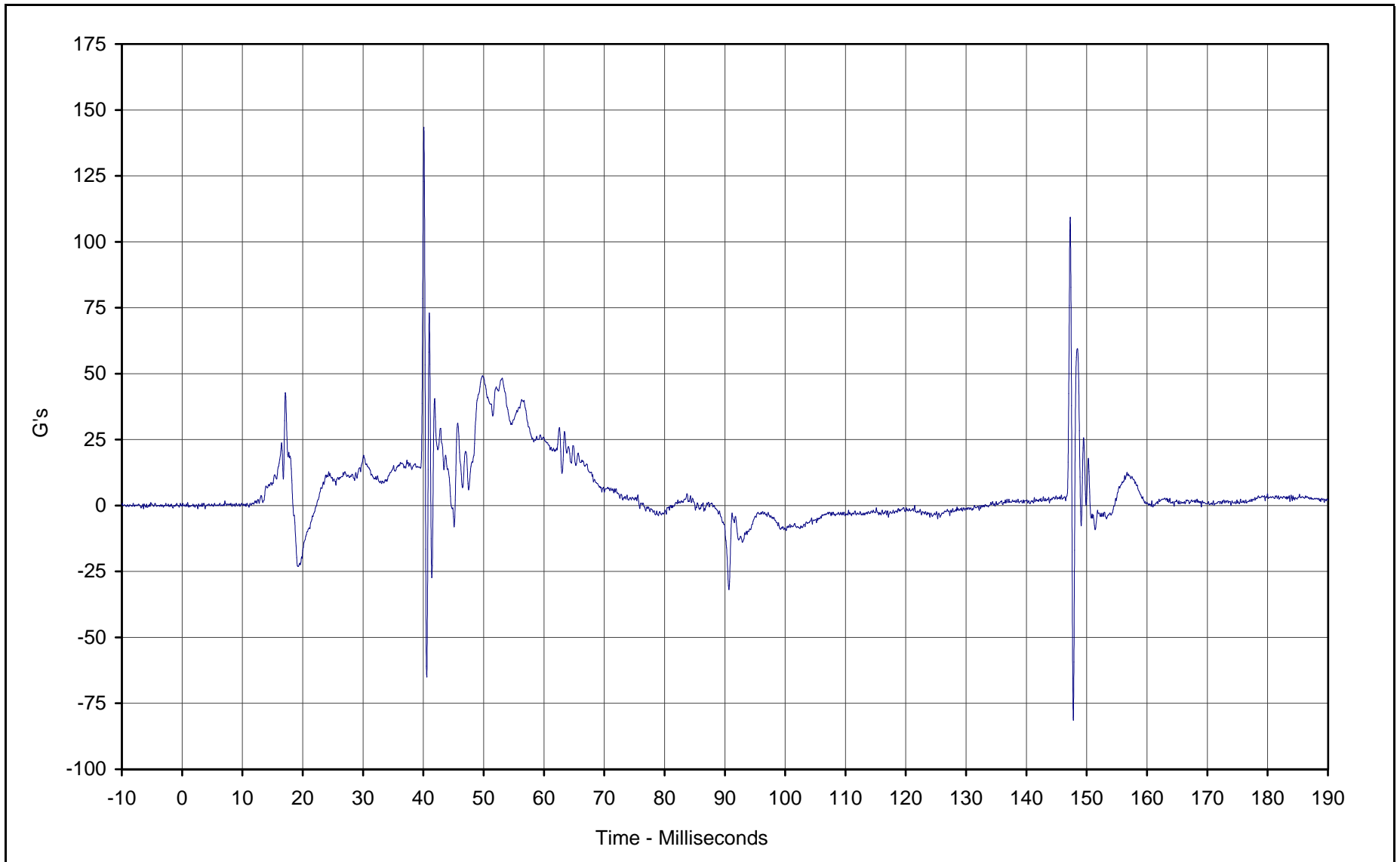
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Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

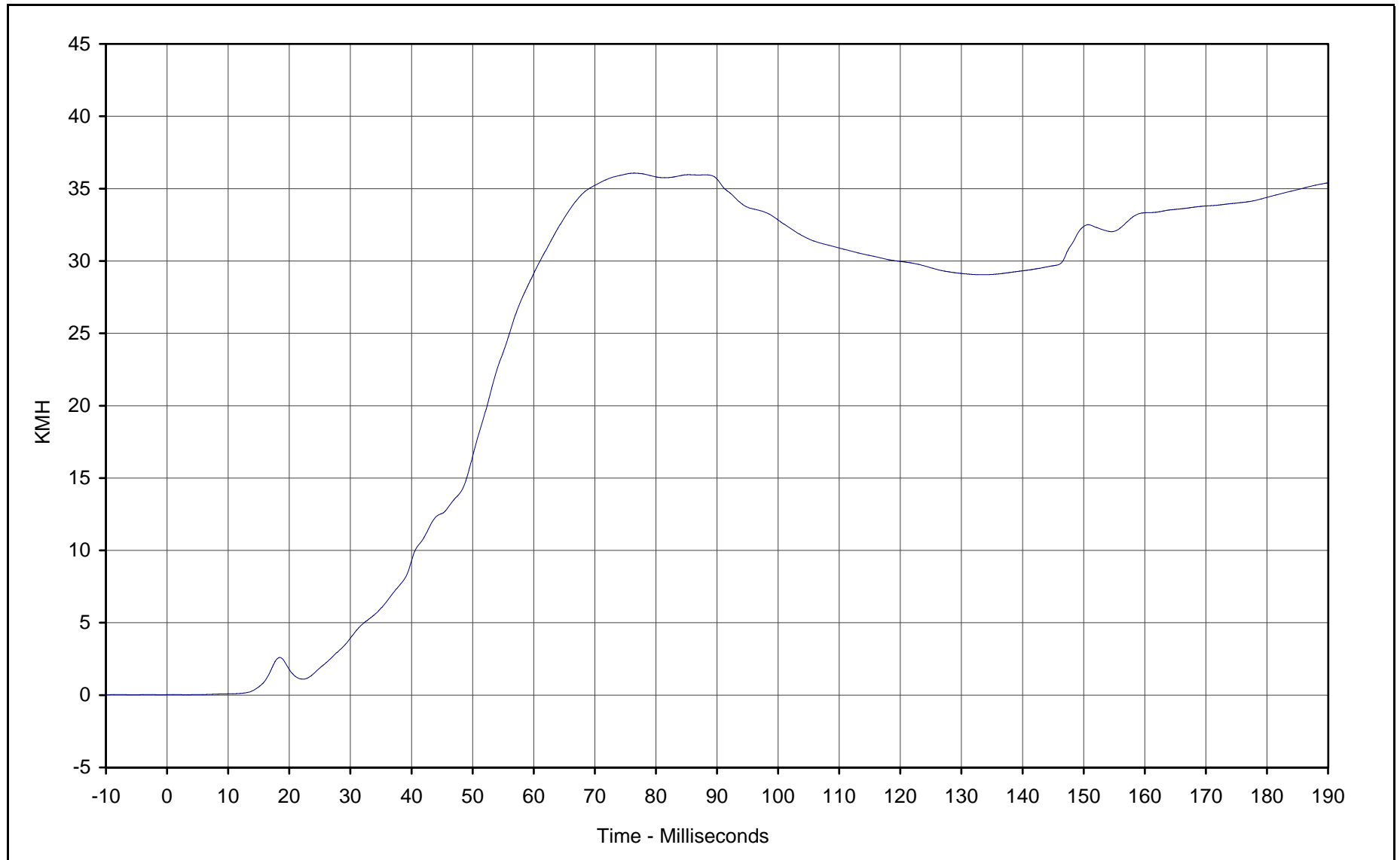




Curve Description: Driver Upper Rib Redundant Y
Maximum Value: 143.5 at 40.1 Milliseconds
Minimum Value: -81.4 at 147.8 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: FIL-008

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan





Curve Description: Driver Upper Rib Redundant Y Velocity

Maximum Value: 36.1 at 76.5 Milliseconds

Minimum Value: 0.0 at 3.0 Milliseconds

SAE Filter Class: 180

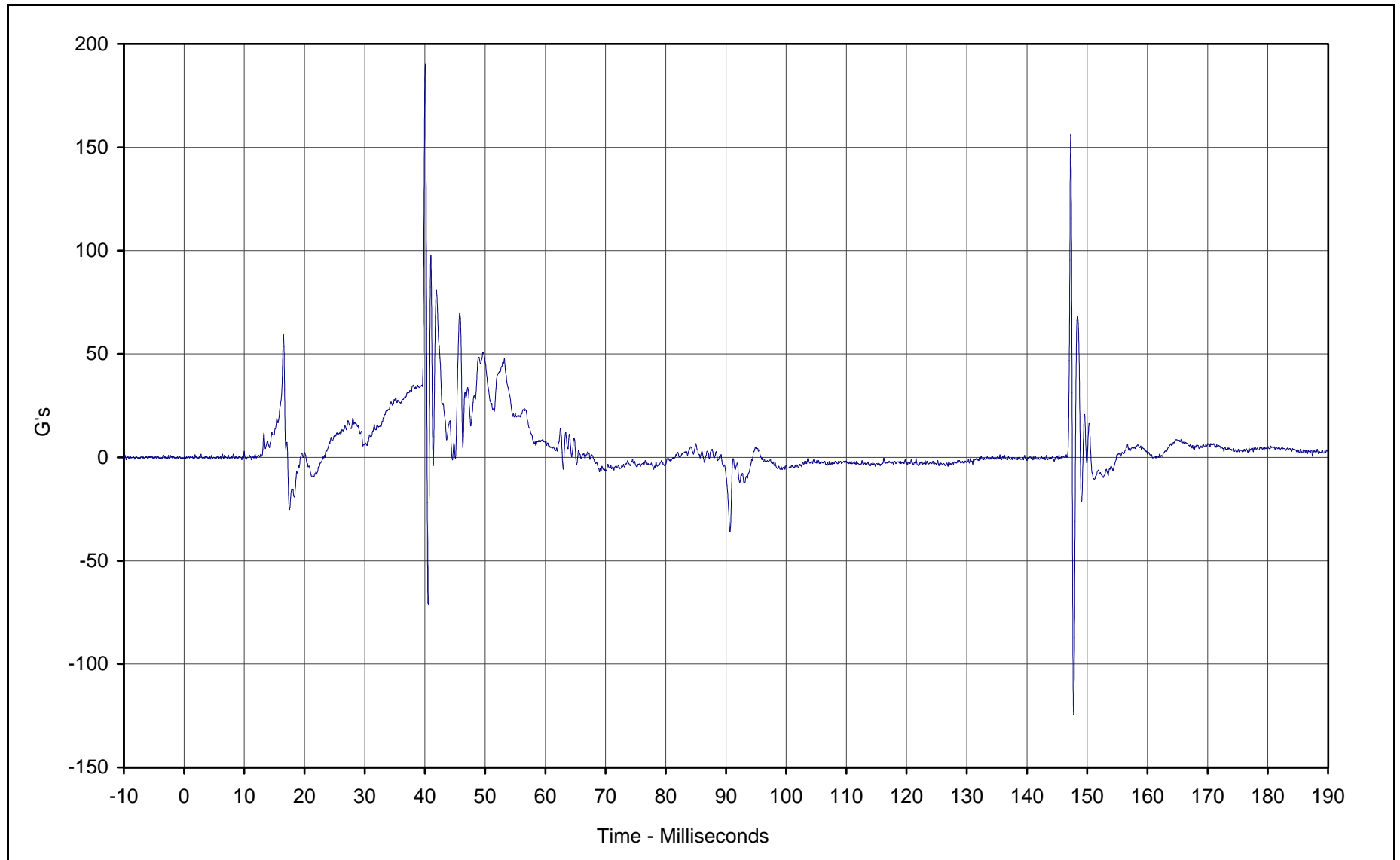
Date of Test: 11/28/00

Curve Number: IN1-008

Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

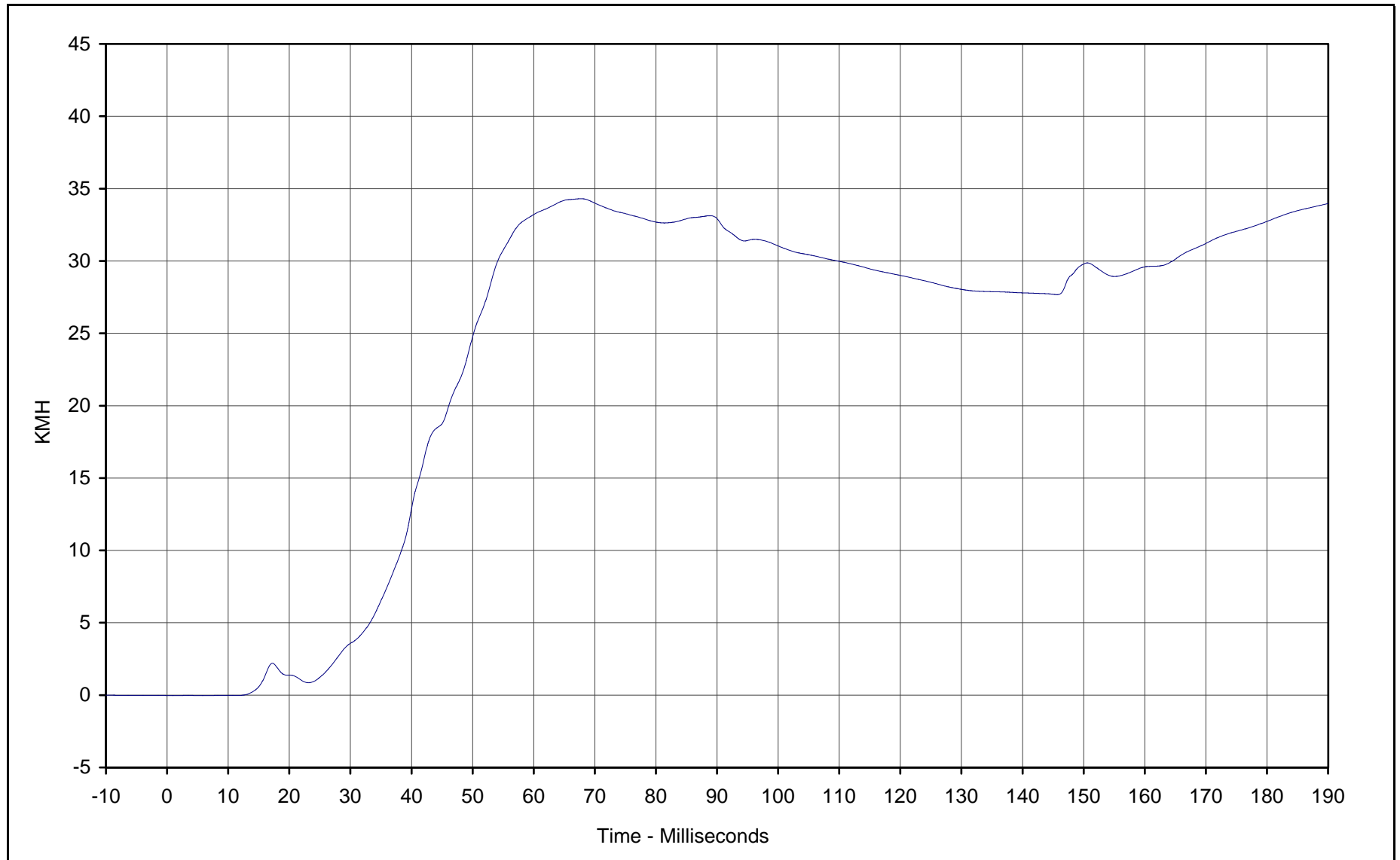




Curve Description: Driver Lower Rib Redundant Y
 Maximum Value: 189.6 at 40.1 Milliseconds
 Minimum Value: -124.1 at 147.8 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/28/00
 Curve Number: FIL-009

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
 Test Vehicle: 2001 Chevrolet Venture Minivan





Curve Description: Driver Lower Rib Redundant Y Velocity

Maximum Value: 34.3 at 67.8 Milliseconds

Minimum Value: 0.0 at 5.8 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

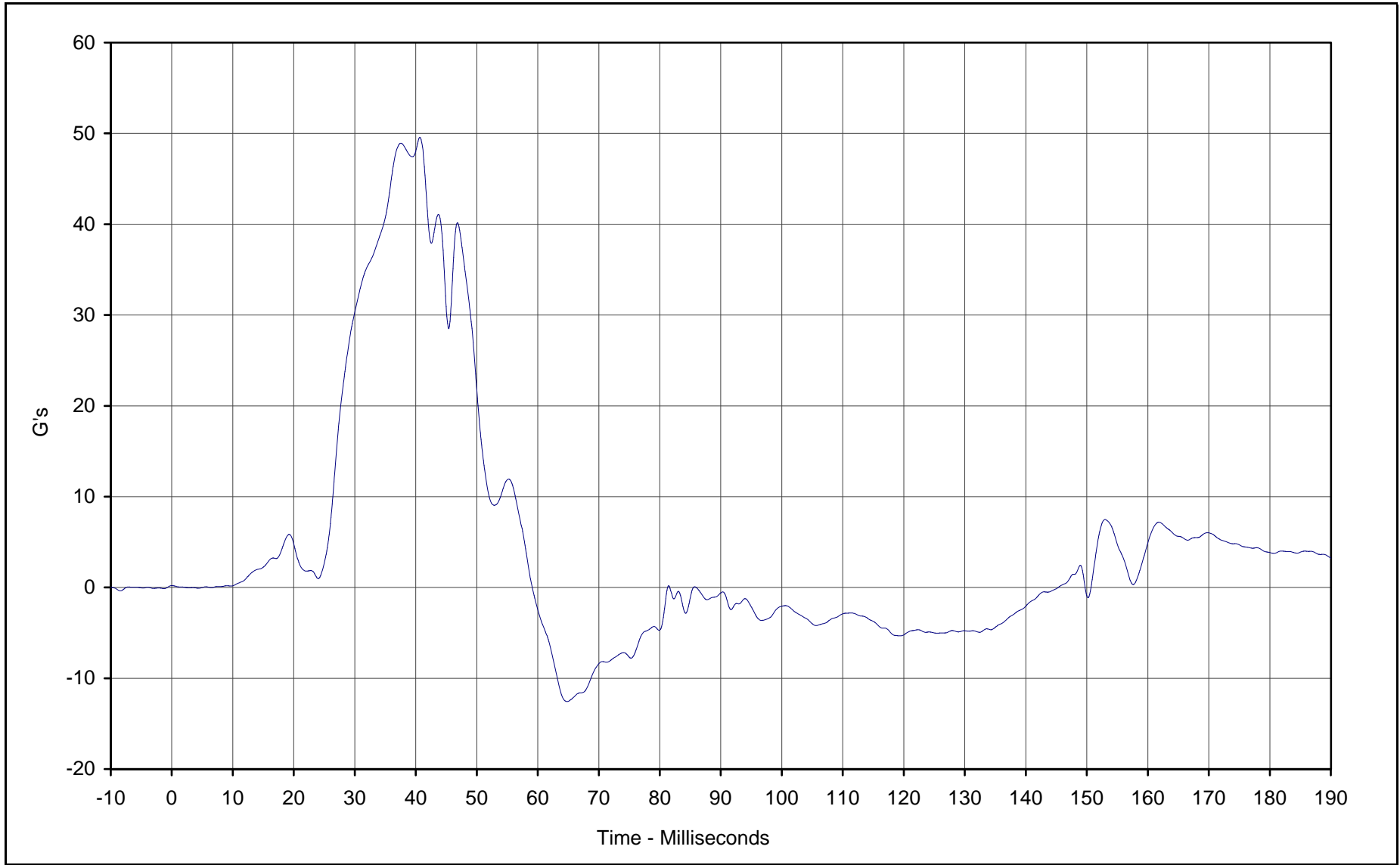
Curve Number: IN1-009

Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan



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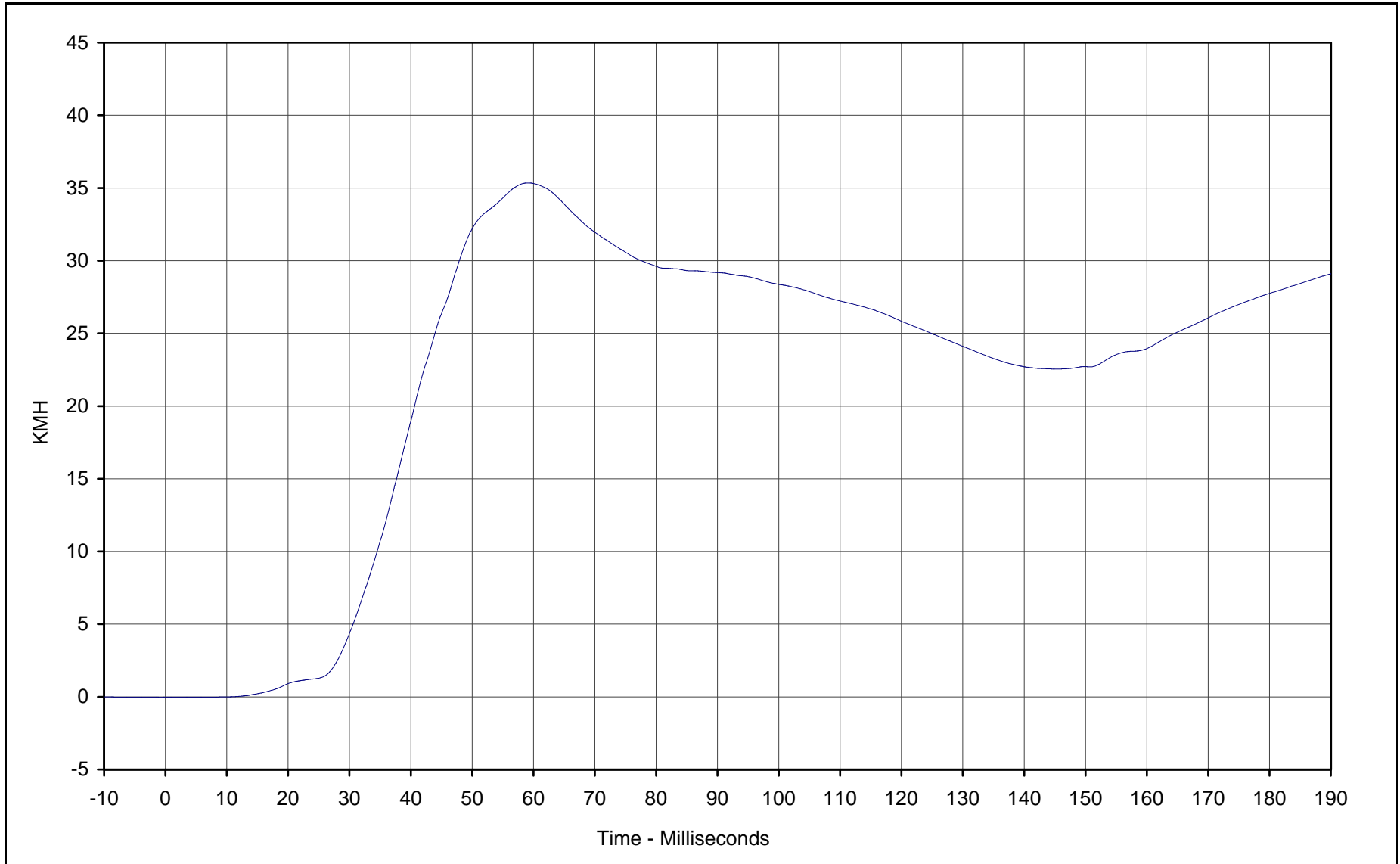
Curve Description: Driver Lower Spine Redundant Y
Maximum Value: 49.6 at 40.7 Milliseconds
Minimum Value: -12.6 at 64.8 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: FIL-010

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Driver Lower Spine Redundant Y Velocity

Maximum Value: 35.3 at 59.1 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

Curve Number: IN1-0010

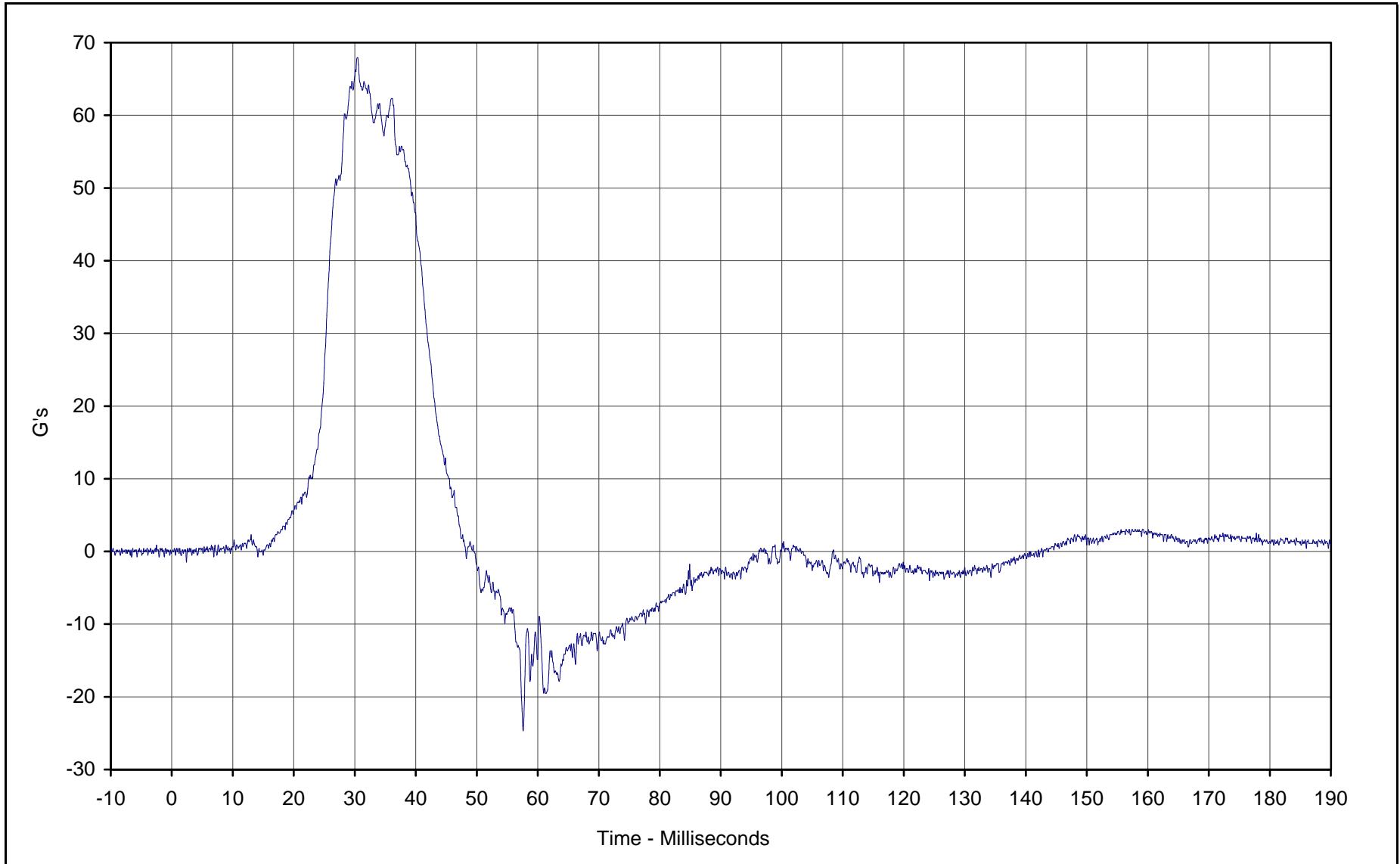
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Test Vehicle: 2001 Chevrolet Venture Minivan

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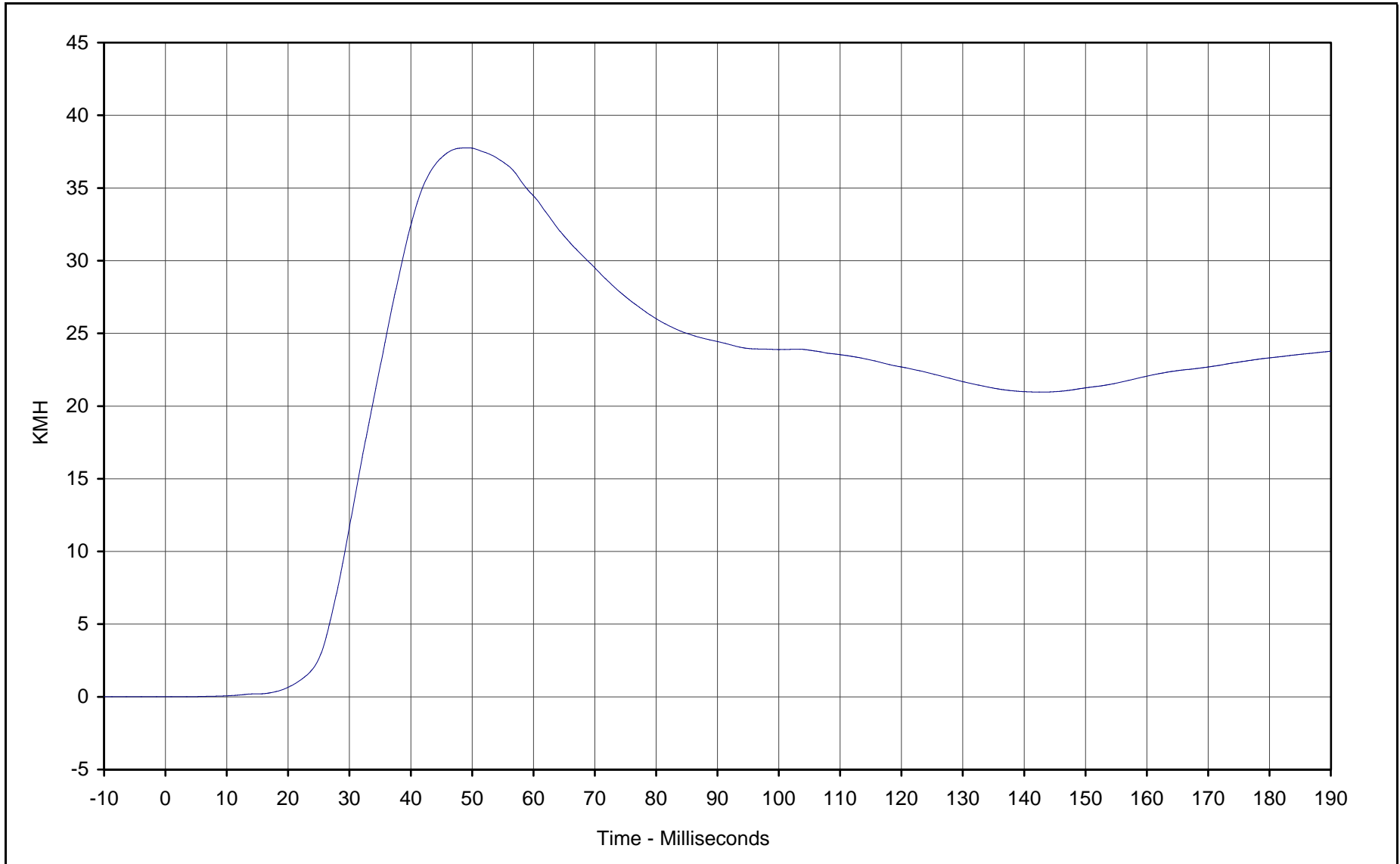
Curve Description: Driver Pelvis Redundant Y
Maximum Value: 67.9 at 30.4 Milliseconds
Minimum Value: -24.7 at 57.6 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
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Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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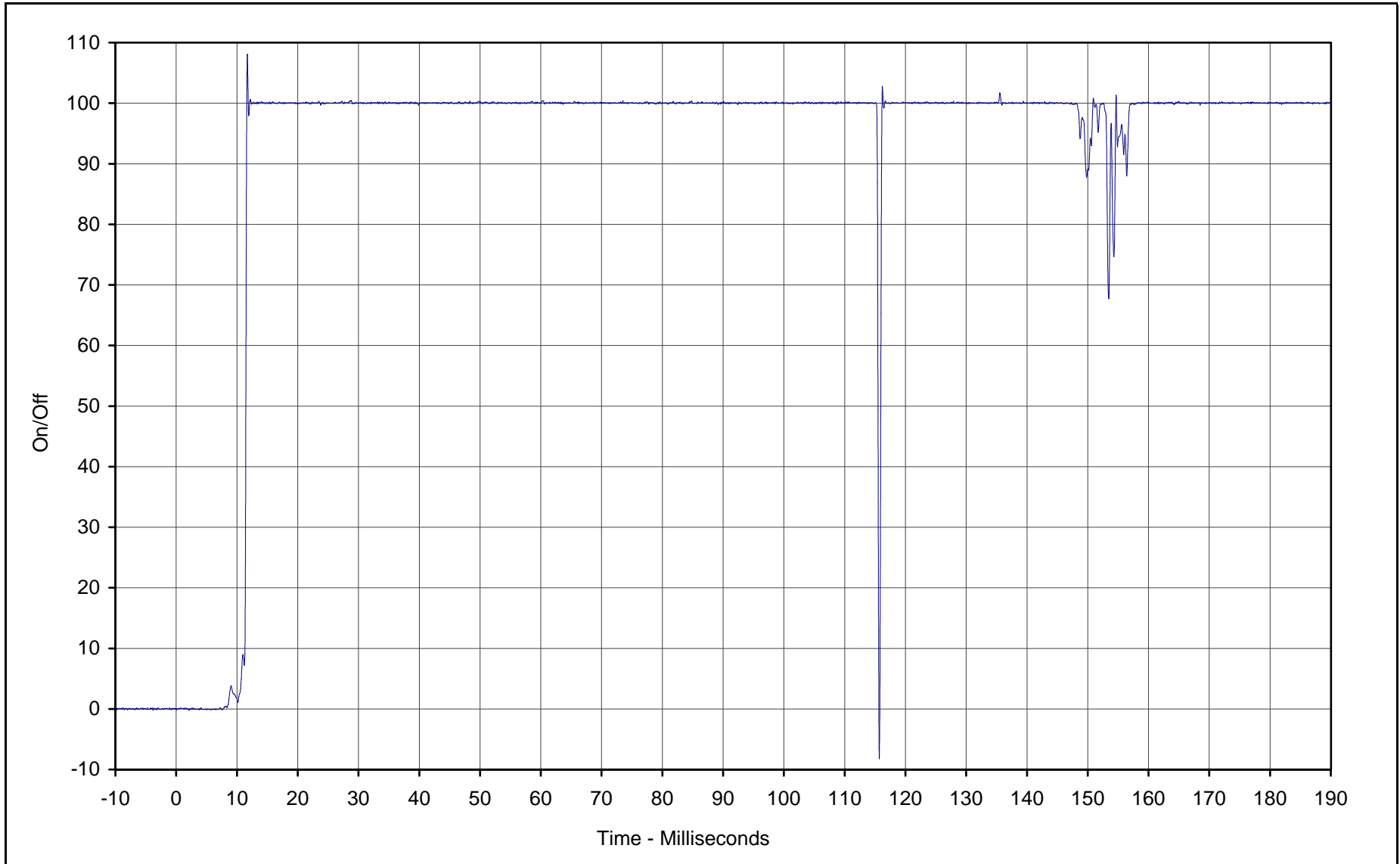
Curve Description: Driver Pelvis Redundant Y Velocity
Maximum Value: 37.8 at 49.3 Milliseconds
Minimum Value: 0.0 at 3.1 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-011

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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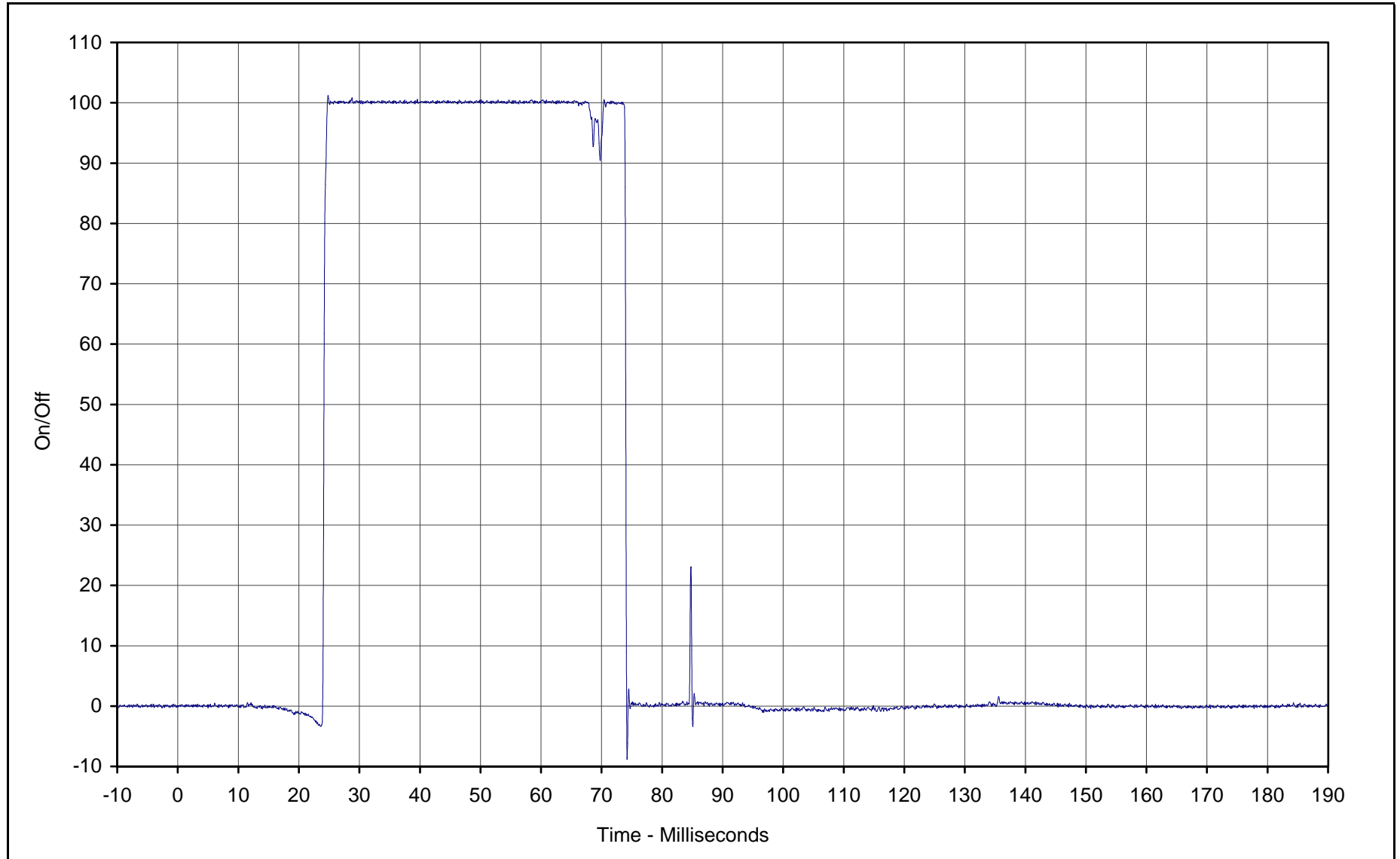


Curve Description: Driver Thorax Contact
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Crossing Point: 50% at 11.5 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: FIL-012

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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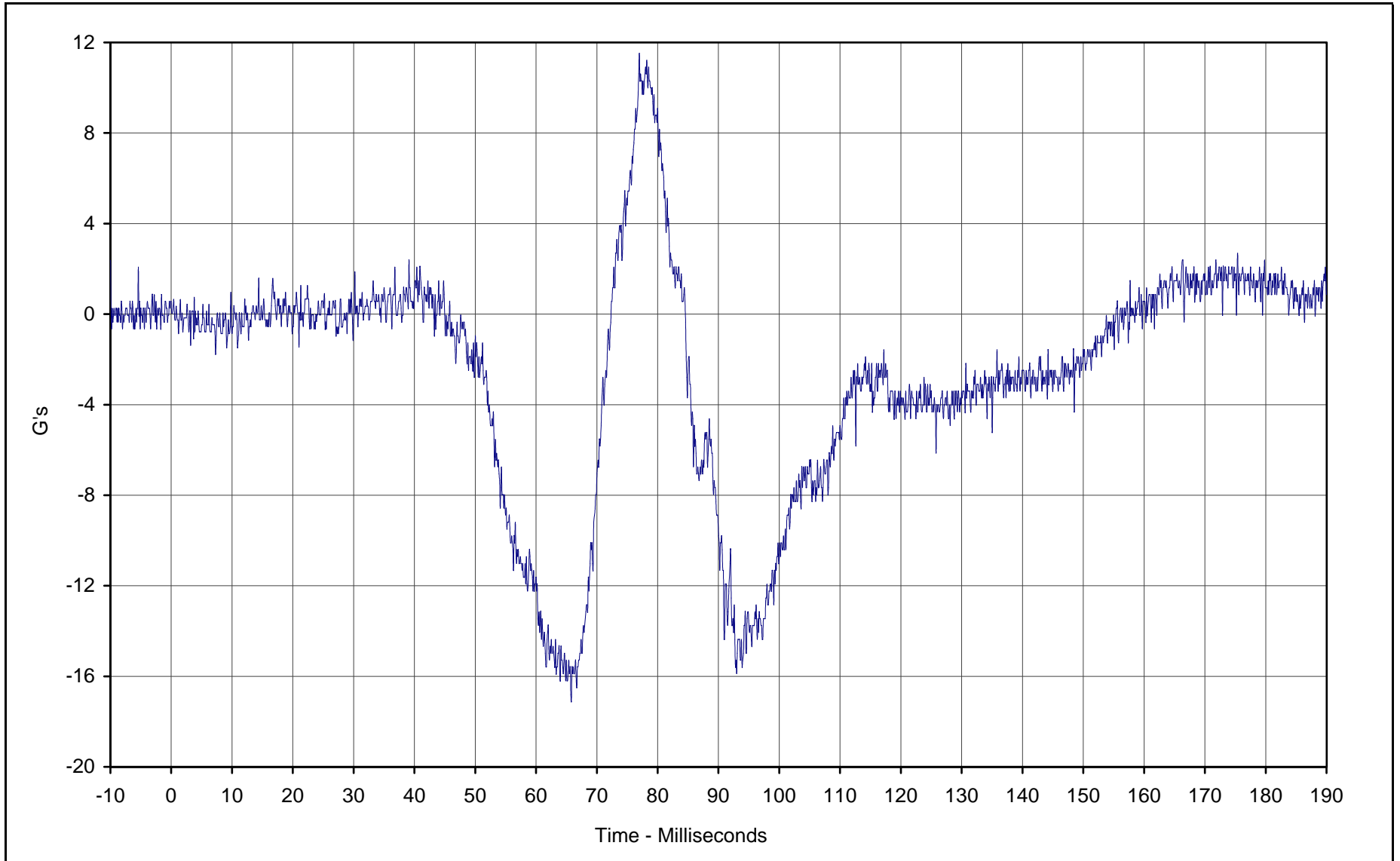


Curve Description: Driver Pelvis Contact
 Maximum Value: 101.2 at 24.8 Milliseconds
 Crossing Point: 50% at 24.2 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/28/00
 Curve Number: FIL-013

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
 Test Vehicle: 2001 Chevrolet Venture Minivan



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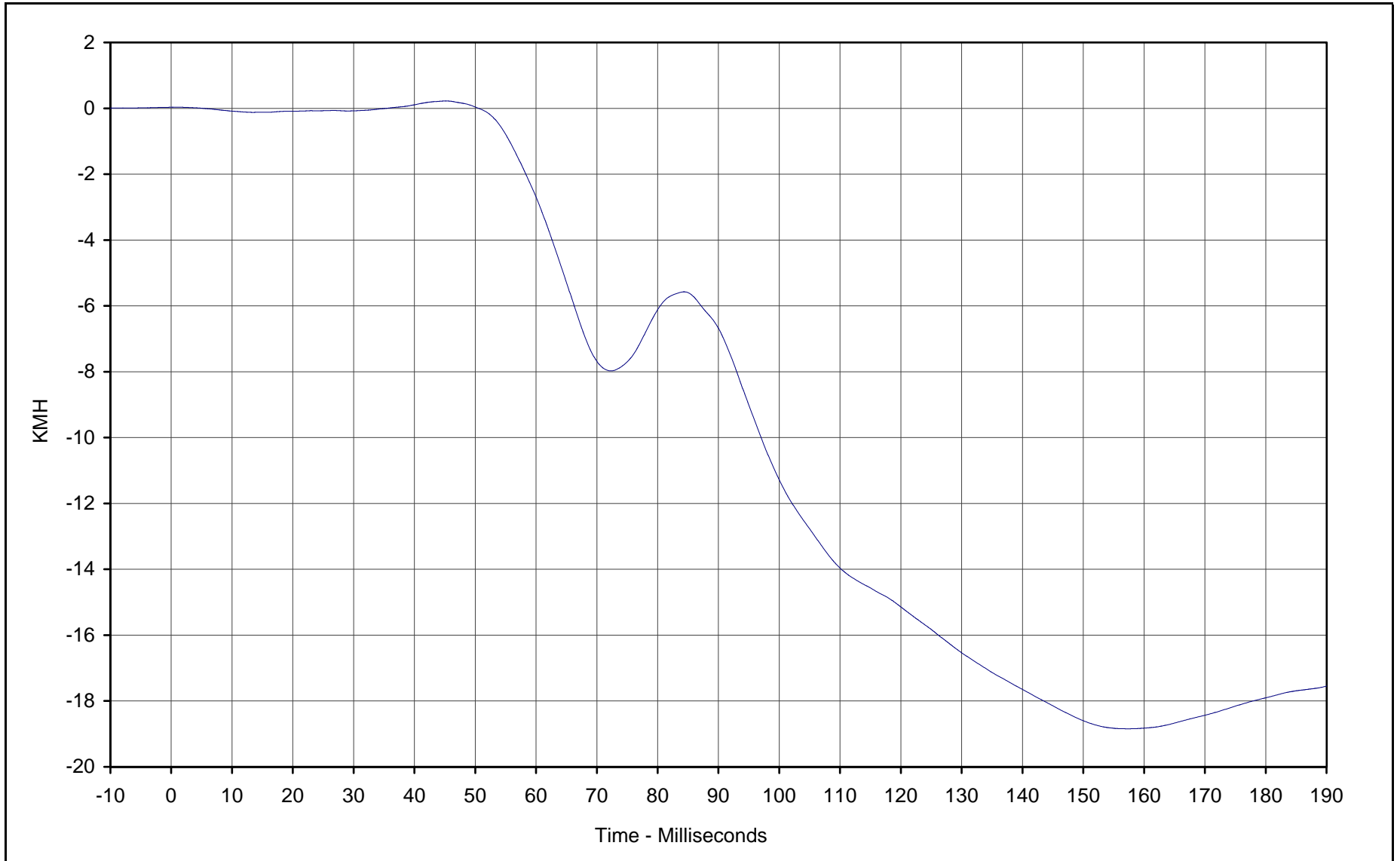
Curve Description: Pass. Head CG X
Maximum Value: 11.5 at 77.0 Milliseconds
Minimum Value: -17.1 at 65.8 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: FIL-014

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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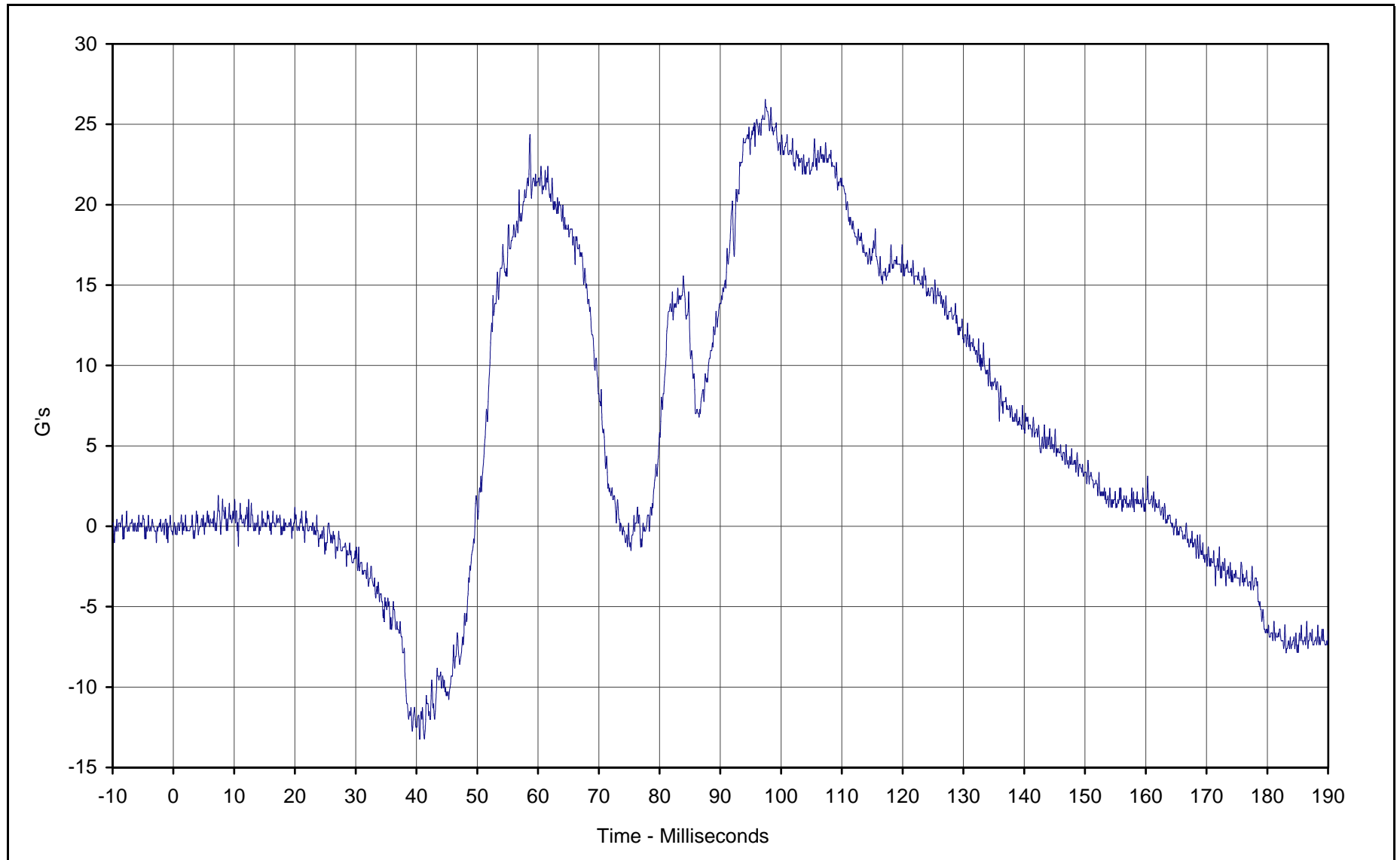


Curve Description: Pass. Head CG X Velocity
Maximum Value: 0.2 at 45.1 Milliseconds
Minimum Value: -18.8 at 157.4 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-014

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



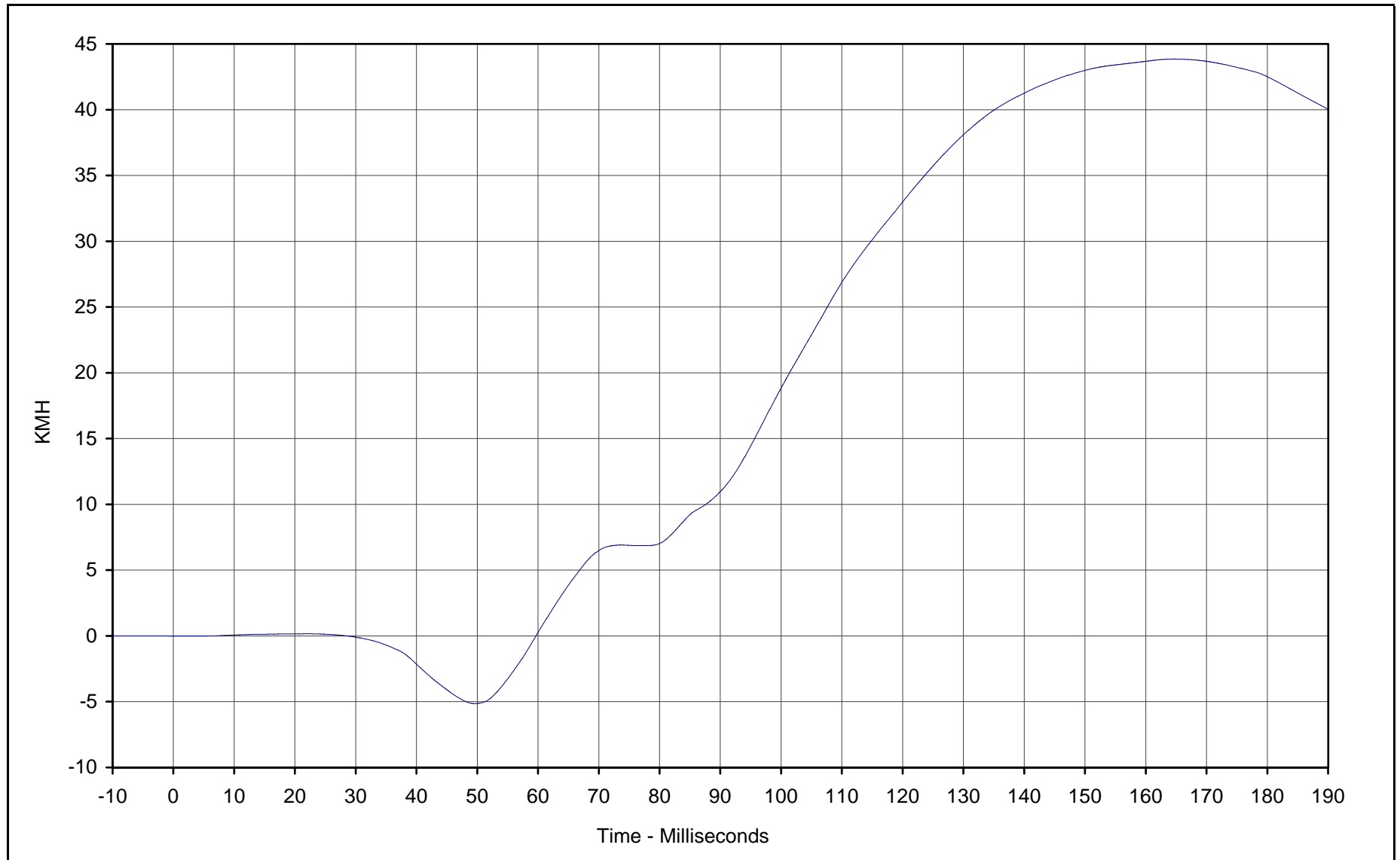
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Curve Description: Pass. Head CG Y
 Maximum Value: 26.5 at 97.4 Milliseconds
 Minimum Value: -13.2 at 40.5 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/28/00
 Curve Number: FIL-015

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
 Test Vehicle: 2001 Chevrolet Venture Minivan





Curve Description: Pass. Head CG Y Velocity

Maximum Value: 43.8 at 164.7 Milliseconds

Minimum Value: -5.1 at 49.6 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

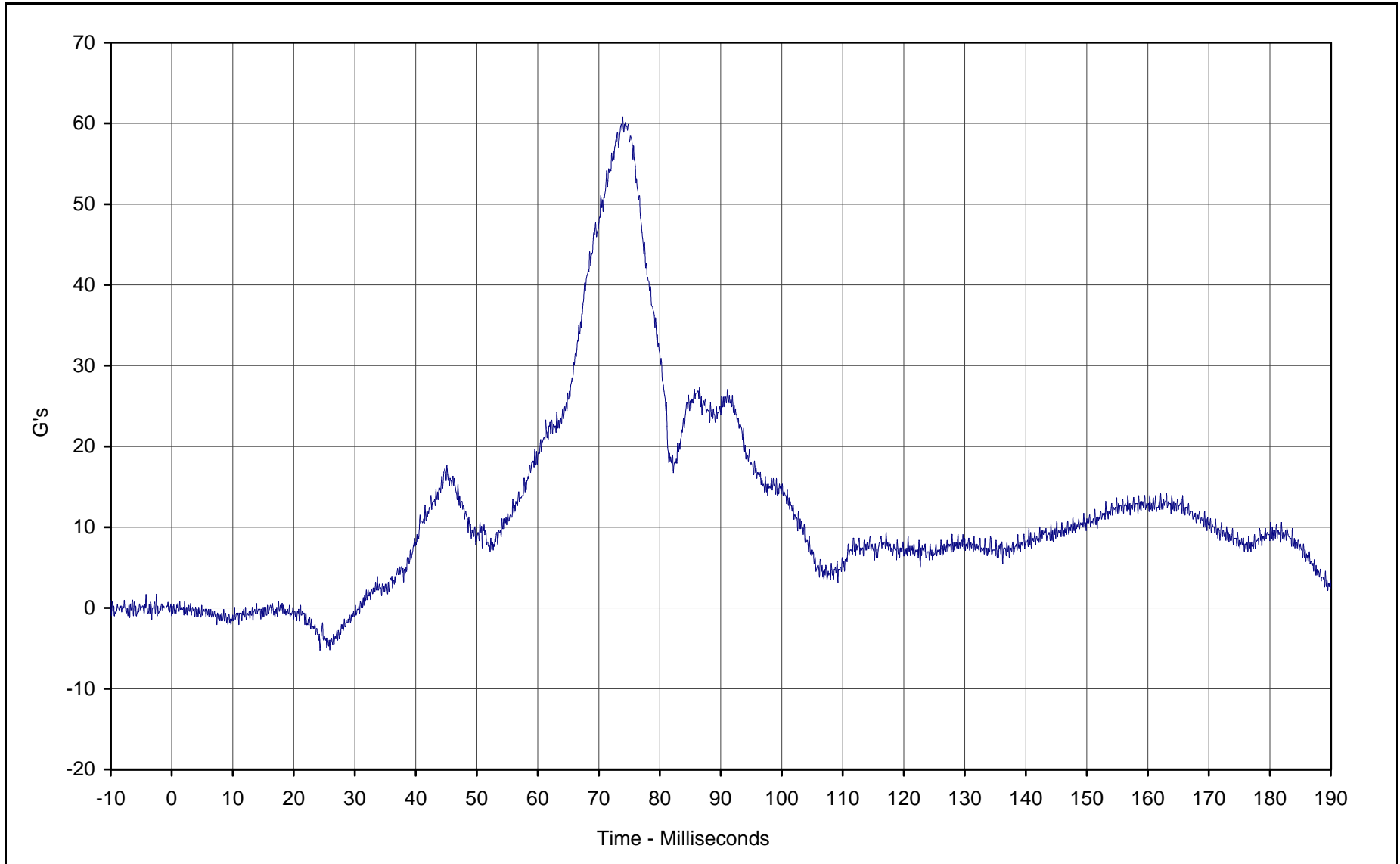
Curve Number: IN1-015

Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan



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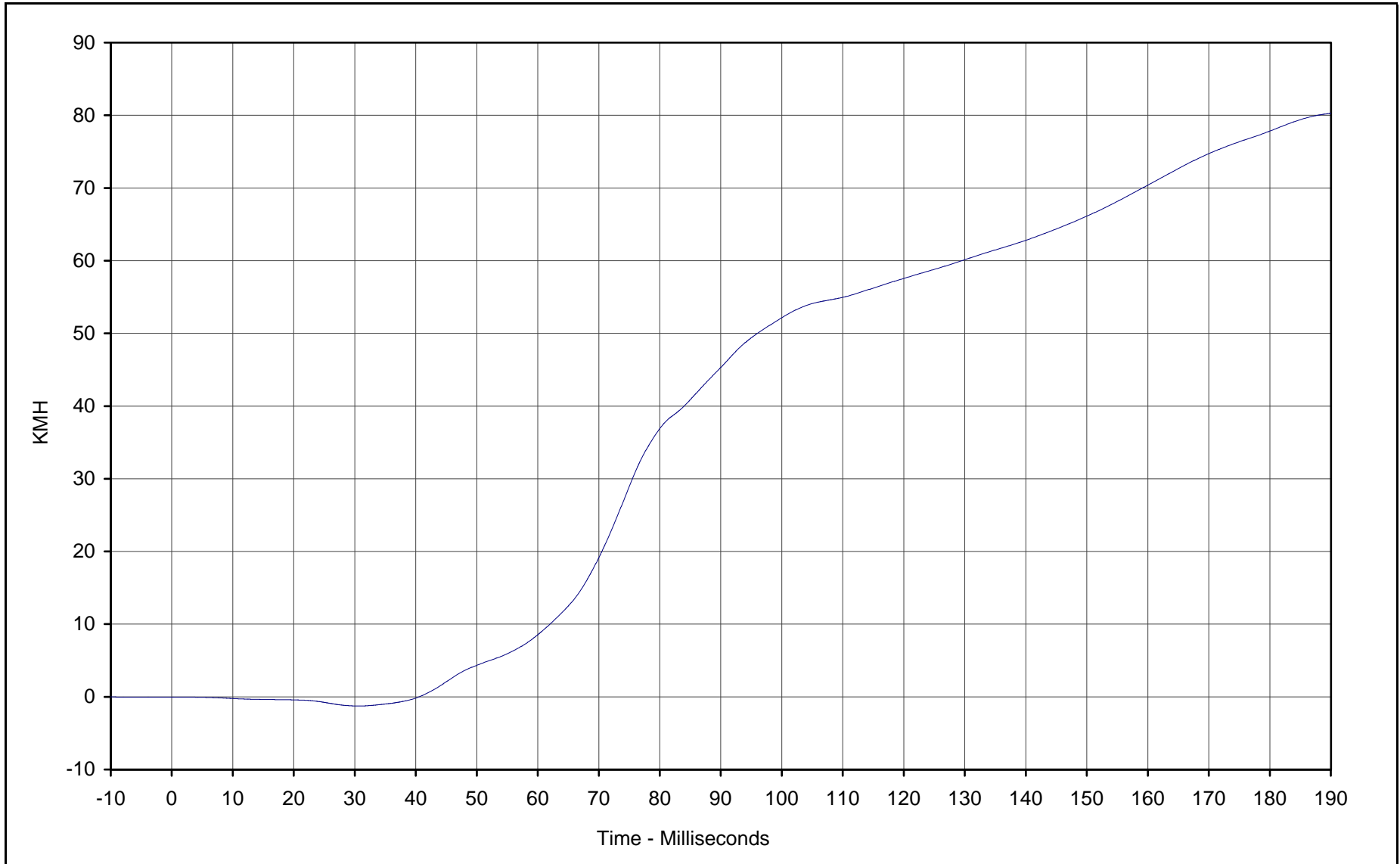
Curve Description: Pass. Head CG Z
Maximum Value: 60.8 at 73.9 Milliseconds
Minimum Value: -5.2 at 24.3 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: FIL-016

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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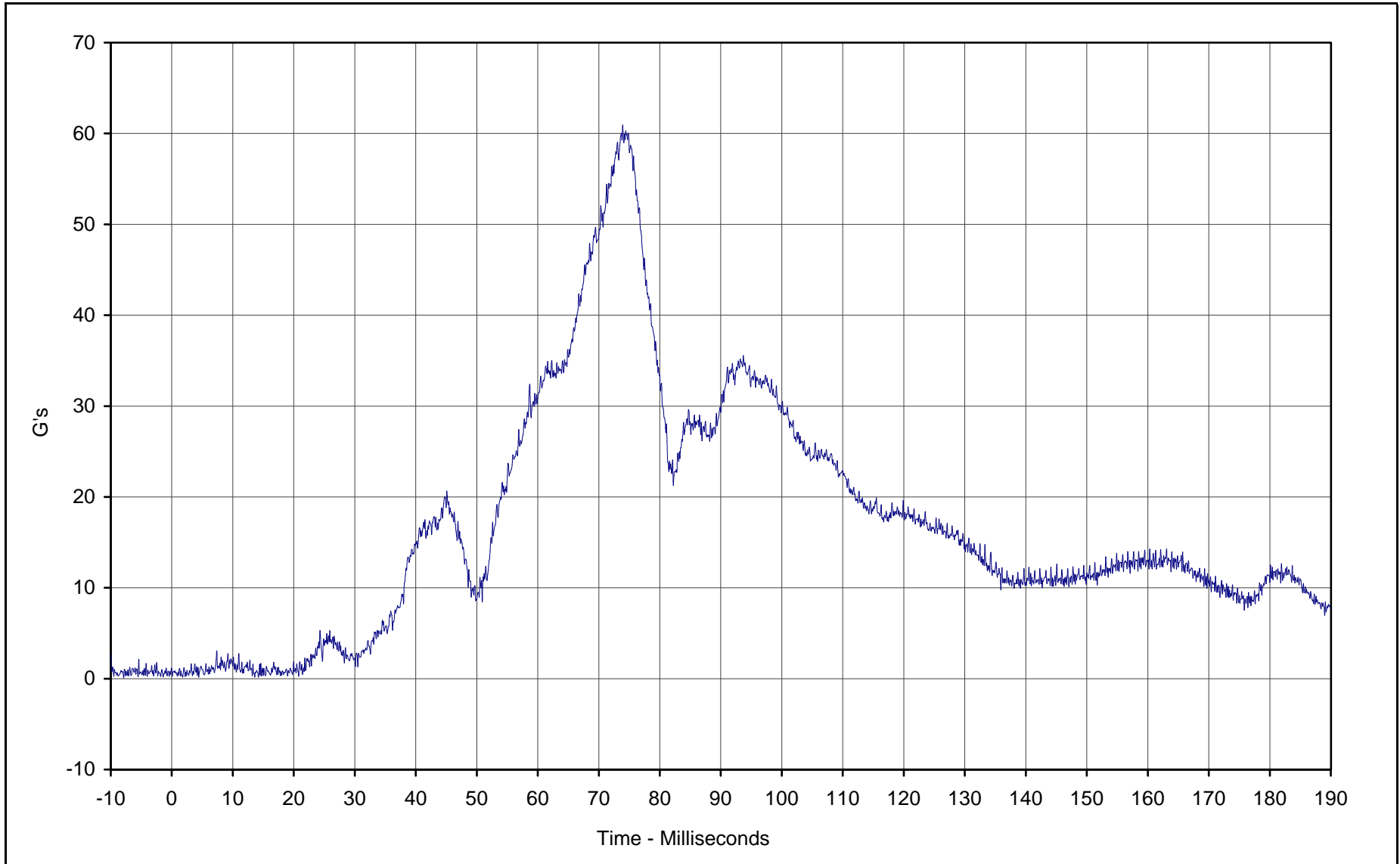
Curve Description: Pass. Head CG Z Velocity
Maximum Value: 80.3 at 189.9 Milliseconds
Minimum Value: -1.3 at 30.7 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-016

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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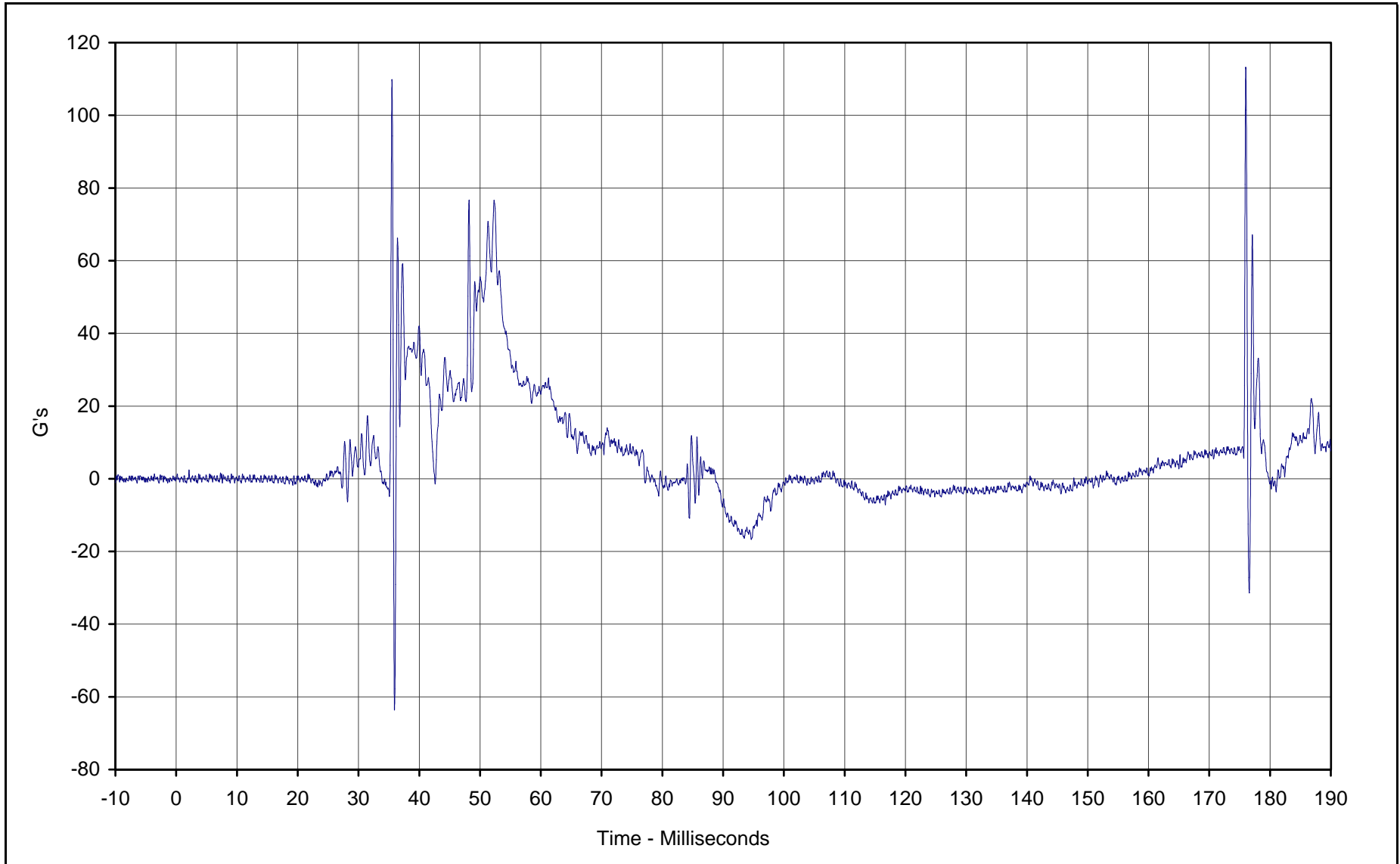
Curve Description: Pass. Head CG Resultant
Maximum Value: 60.9 at 73.9 Milliseconds
Minimum Value: 0.2 at 4.4 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: RES-014

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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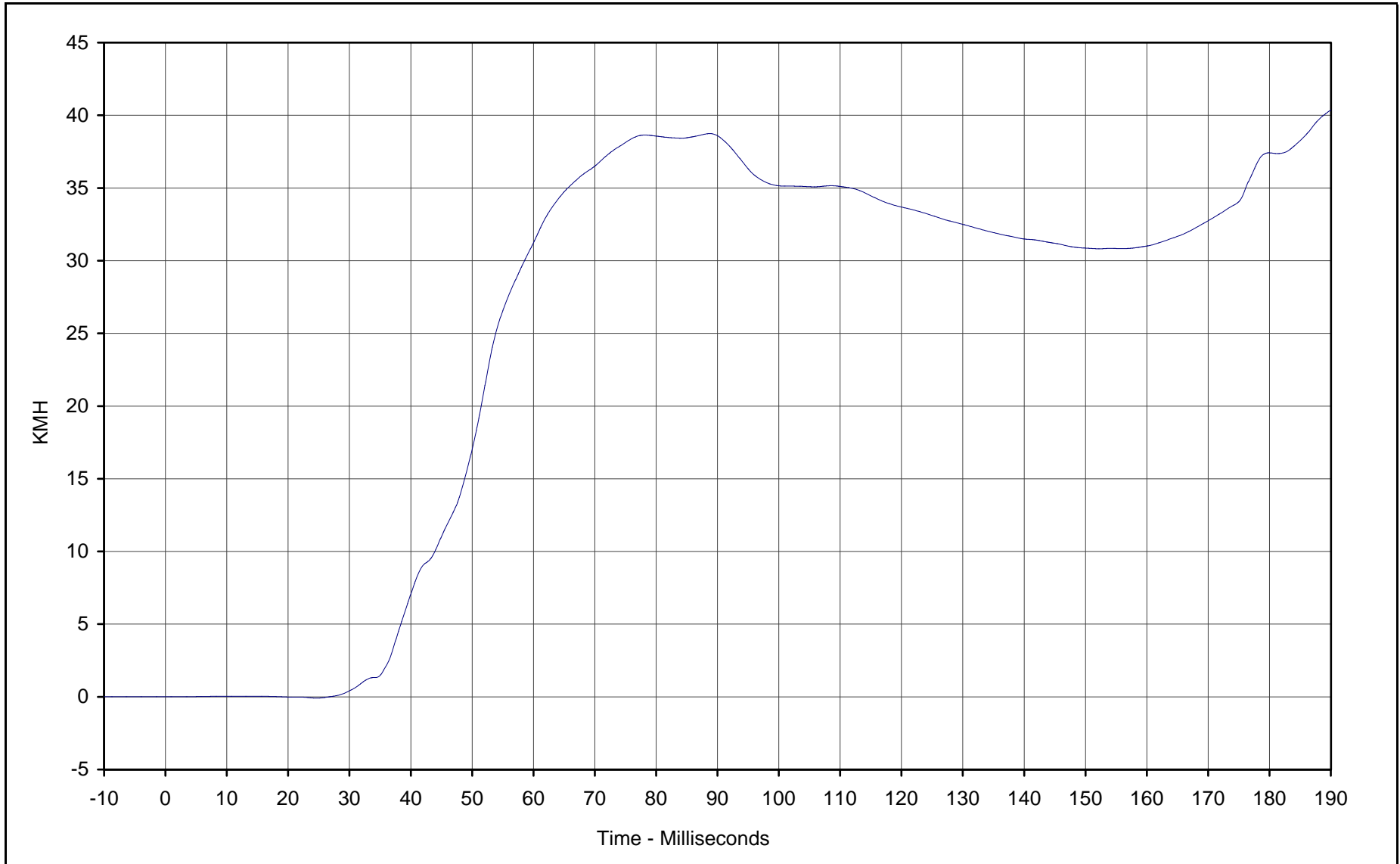
Curve Description: Pass. Upper Rib Primary Y
Maximum Value: 112.8 at 176.0 Milliseconds
Minimum Value: -63.0 at 35.9 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: FIL-017

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Pass. Upper Rib Primary Y Velocity

Maximum Value: 40.3 at 189.9 Milliseconds

Minimum Value: -0.1 at 24.6 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

Curve Number: IN1-017

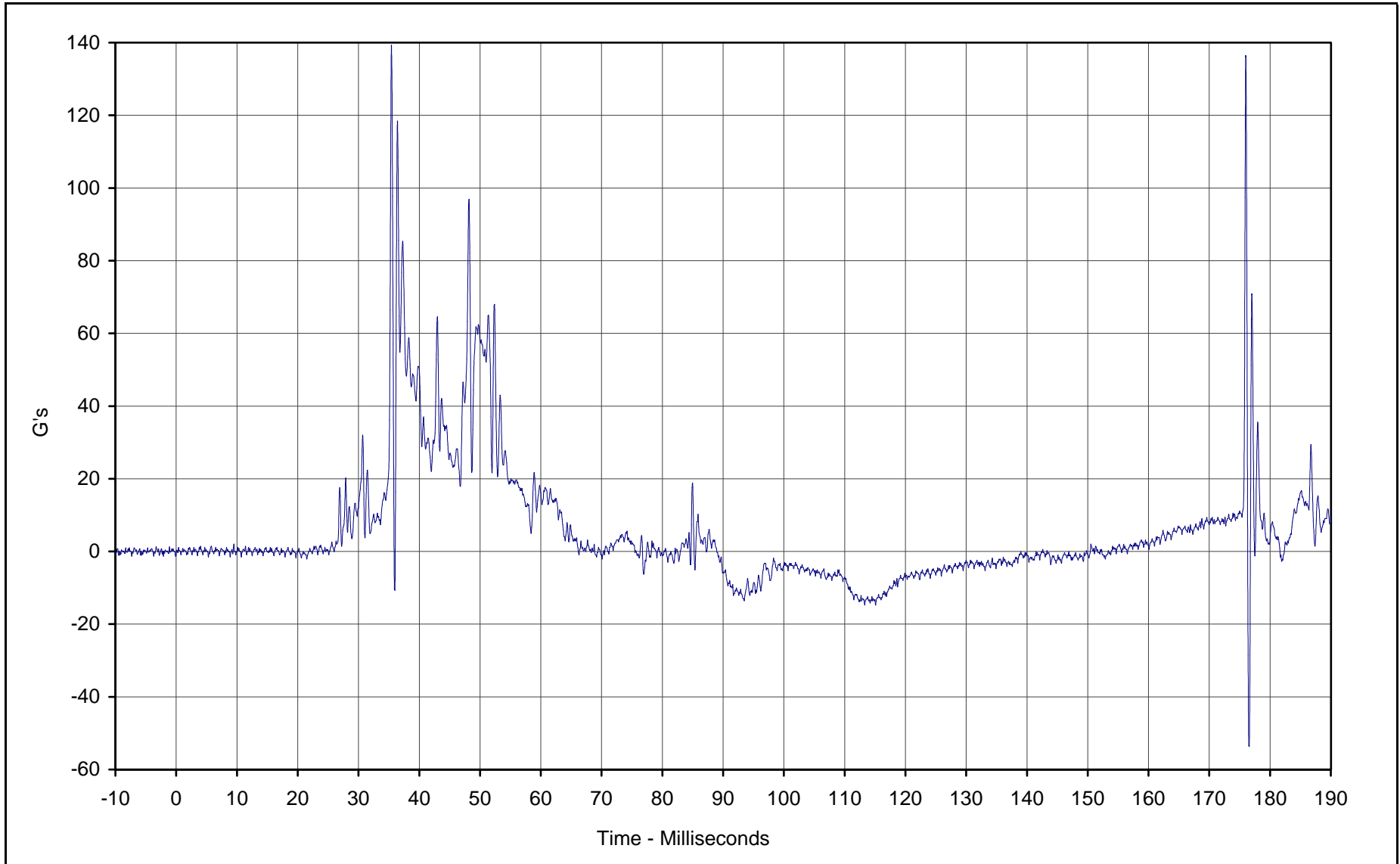
Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

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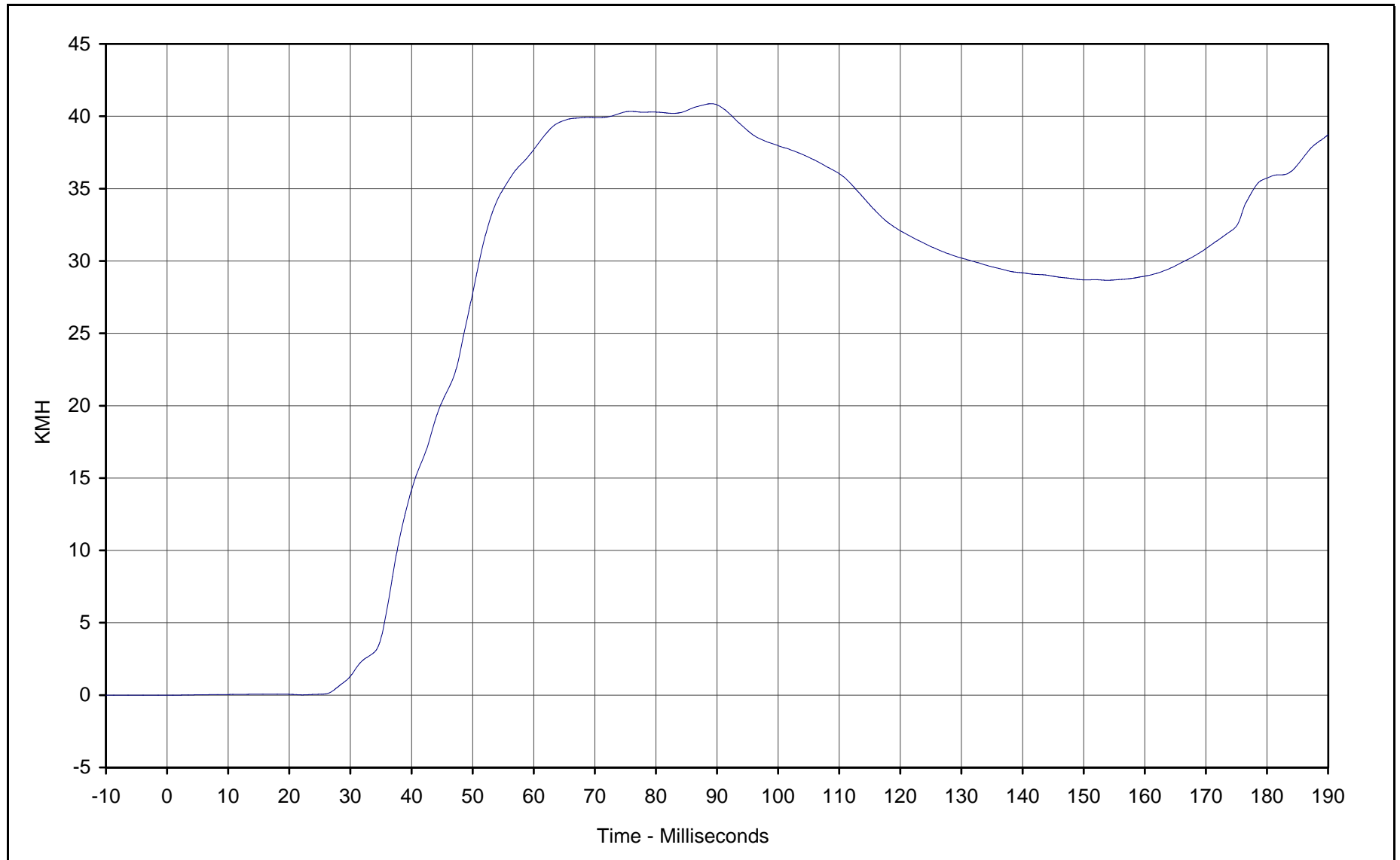


Curve Description: Pass. Lower Rib Primary Y
Maximum Value: 138.9 at 35.4 Milliseconds
Minimum Value: -53.6 at 176.6 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: FIL-018

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Pass. Lower Rib Primary Y Velocity

Maximum Value: 40.9 at 89.0 Milliseconds

Minimum Value: 0.0 at 0.5 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

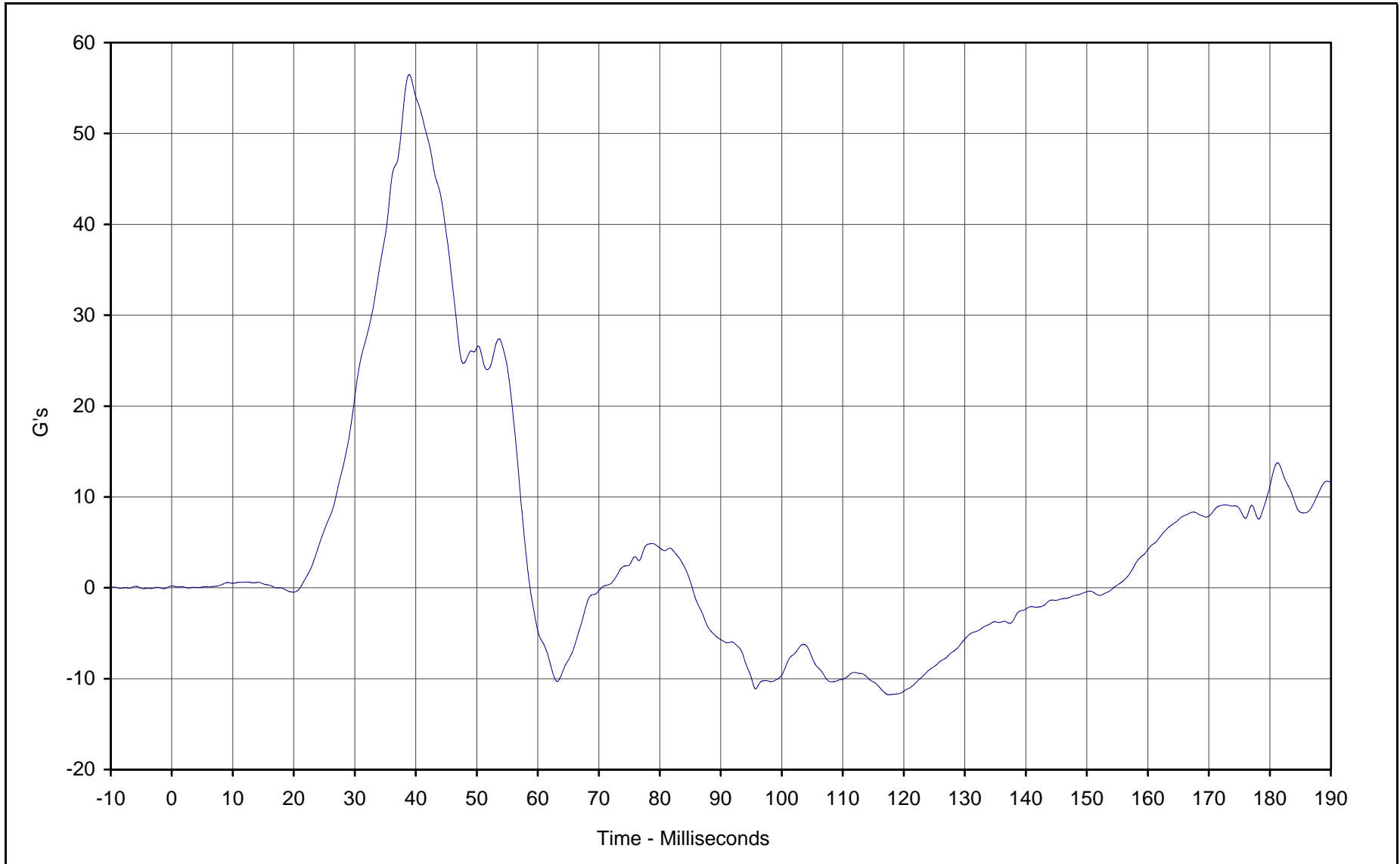
Curve Number: IN1-018

Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan



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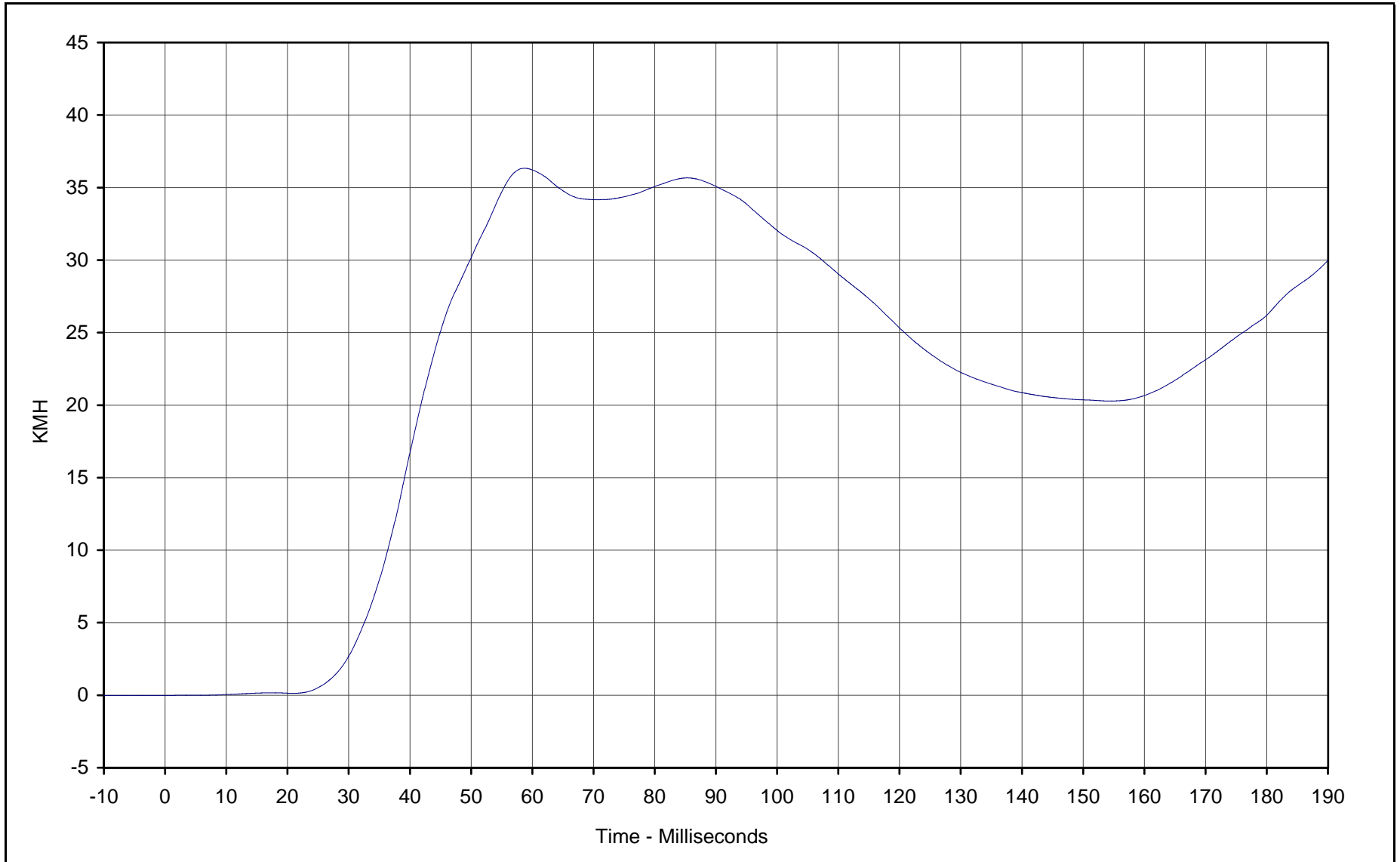
Curve Description: Pass. Lower Spine Primary Y
Maximum Value: 56.5 at 38.9 Milliseconds
Minimum Value: -11.8 at 117.6 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: FIL-019

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Pass. Lower Spine Primary Y Velocity

Maximum Value: 36.3 at 58.7 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

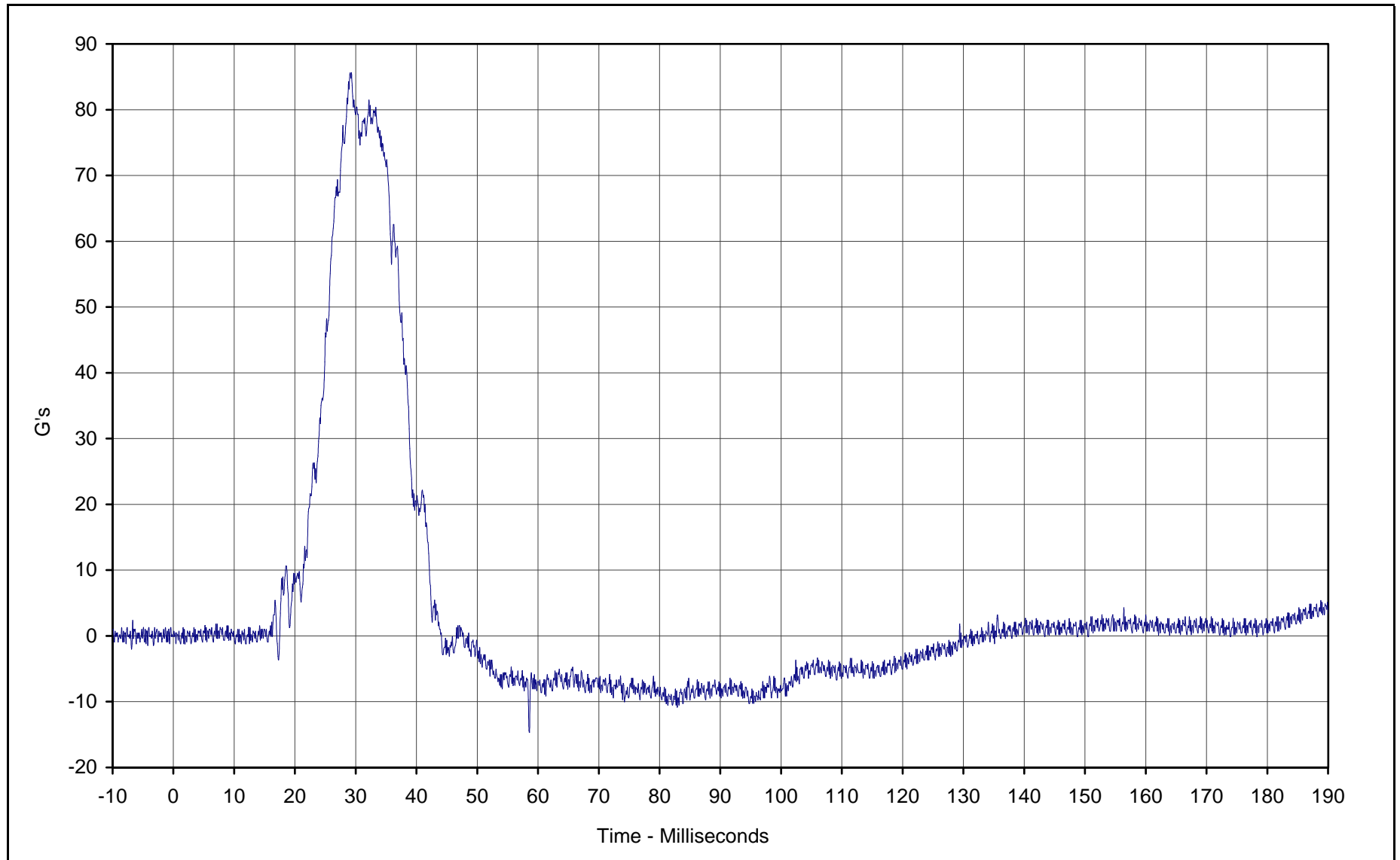
Curve Number: IN1-019

Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

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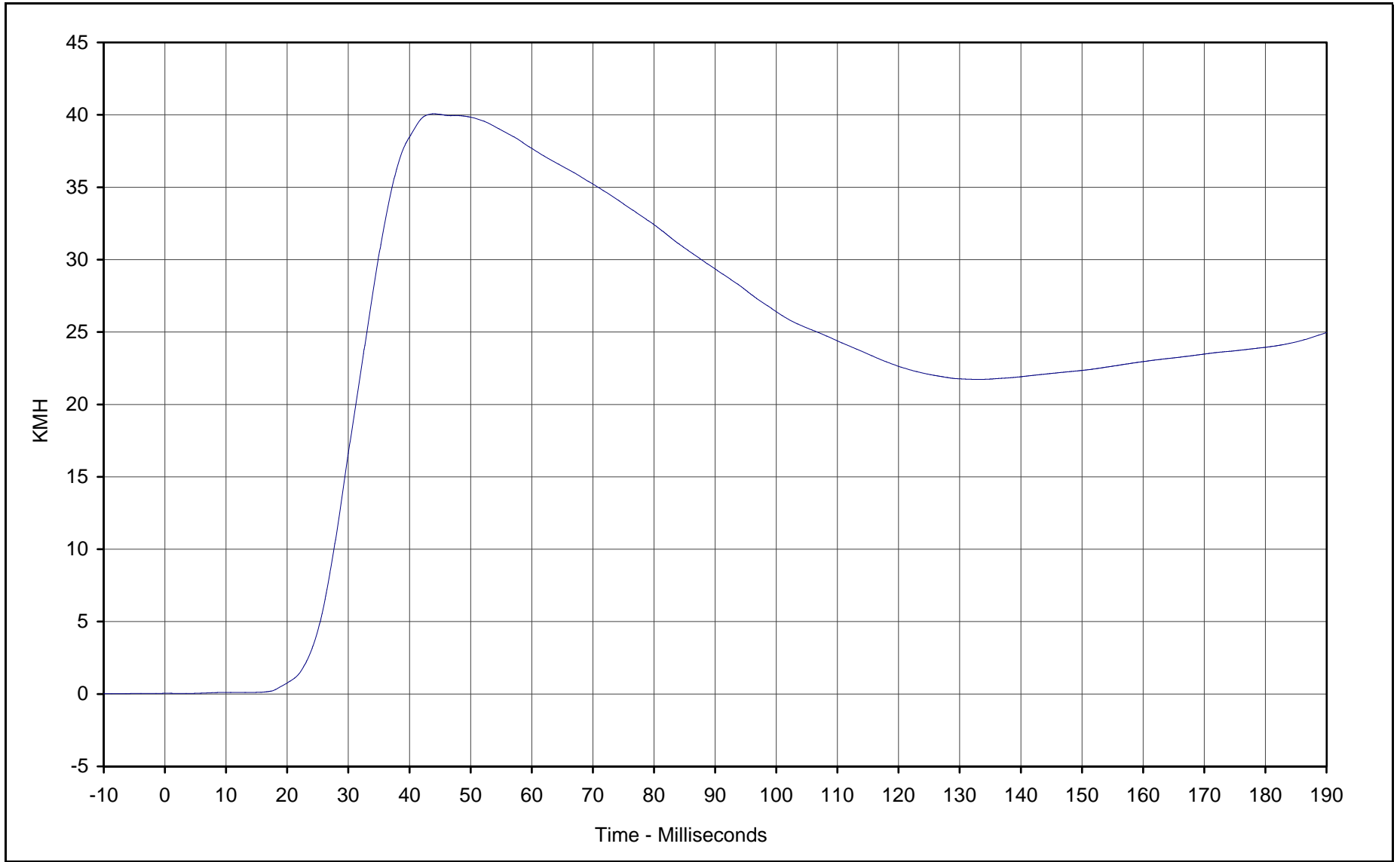


Curve Description: Pass. Pelvis Primary Y
 Maximum Value: 85.6 at 29.1 Milliseconds
 Minimum Value: -14.7 at 58.6 Milliseconds
 SAE Filter Class: 1000
 Date of Test: 11/28/00
 Curve Number: FIL-020

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
 Test Vehicle: 2001 Chevrolet Venture Minivan



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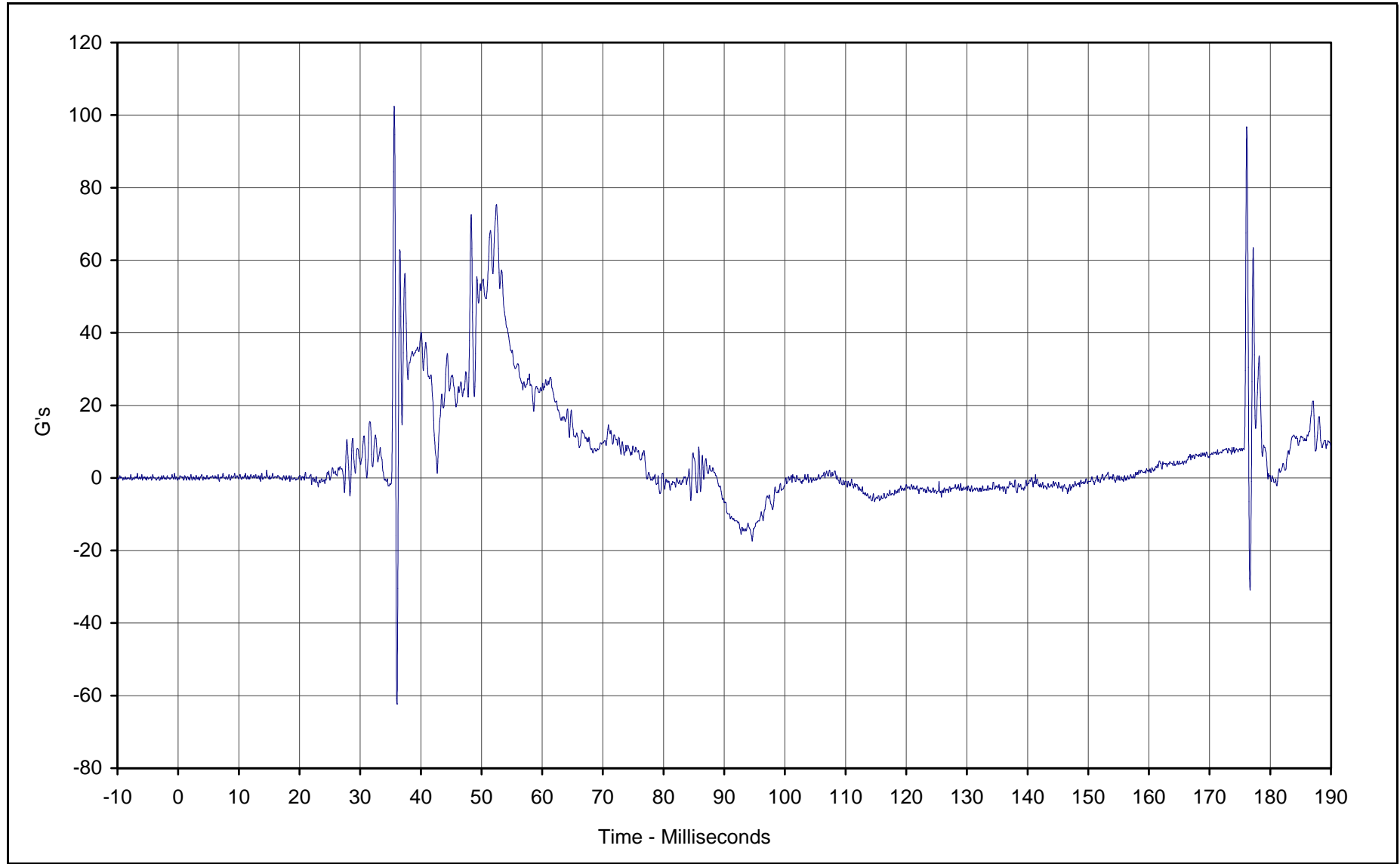
Curve Description: Pass. Pelvis Primary Y Velocity
Maximum Value: 40.1 at 44.0 Milliseconds
Minimum Value: 0.0 at 3.4 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-020

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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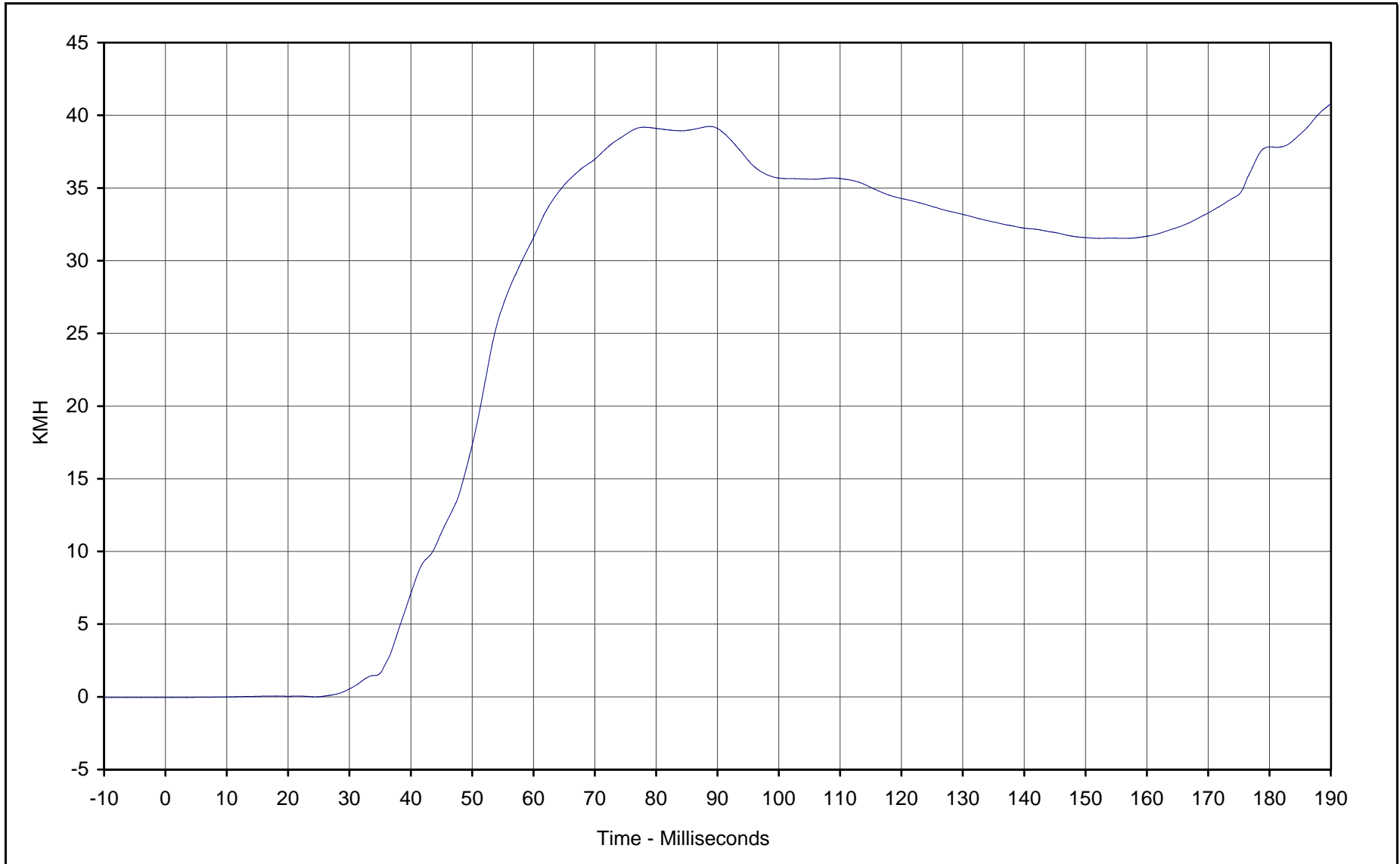
Curve Description: Pass. Upper Rib Redundant Y
Maximum Value: 102.4 at 35.6 Milliseconds
Minimum Value: -62.2 at 36.1 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: FIL-021

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Pass. Upper Rib Redundant Y Velocity

Maximum Value: 40.8 at 189.9 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

Curve Number: IN1-021

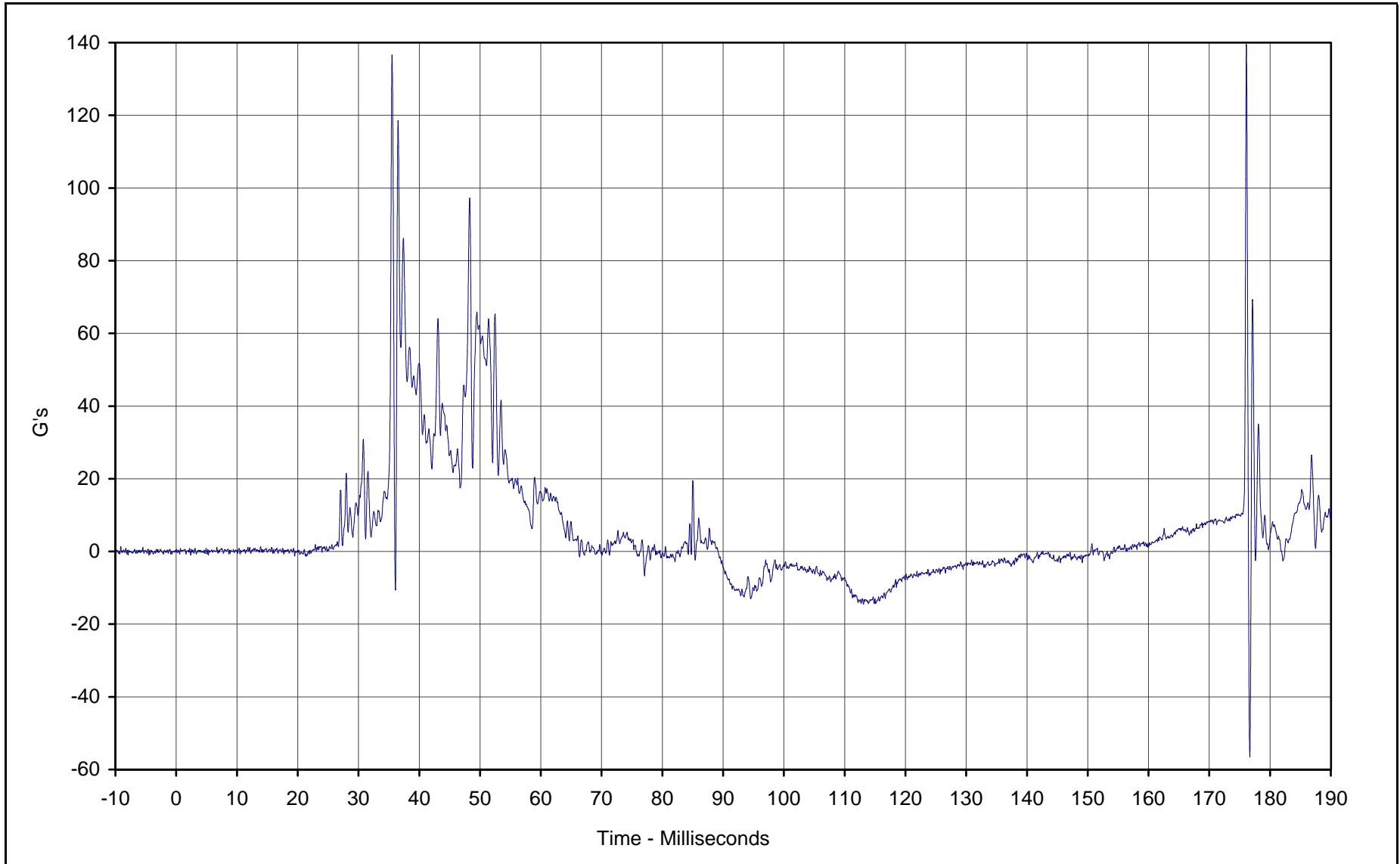
Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

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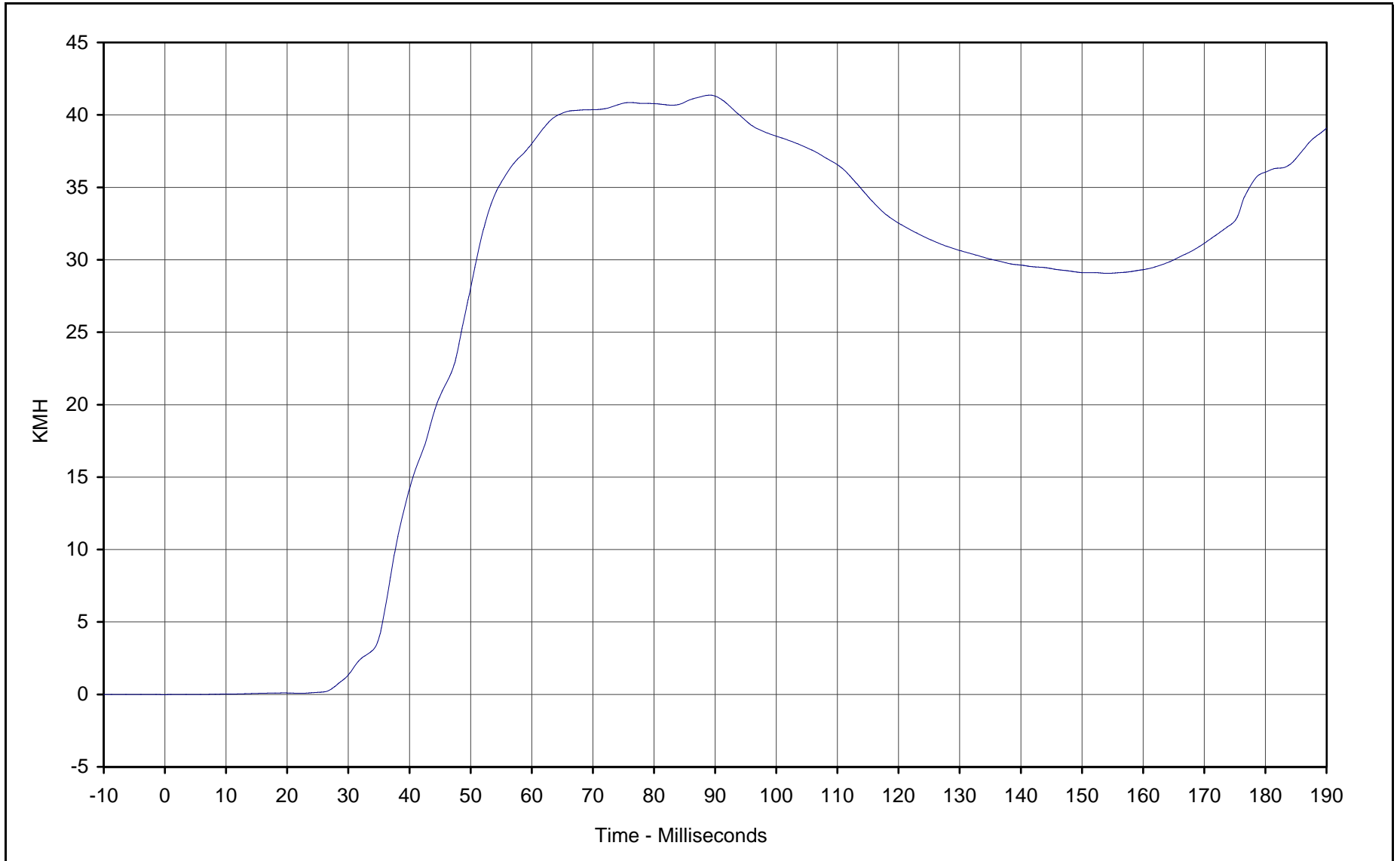
Curve Description: Pass. Lower Rib Redundant Y
Maximum Value: 139.1 at 176.1 Milliseconds
Minimum Value: -56.3 at 176.7 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: FIL-022

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Pass. Lower Rib Redundant Y Velocity

Maximum Value: 41.4 at 89.1 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

Curve Number: IN1-022

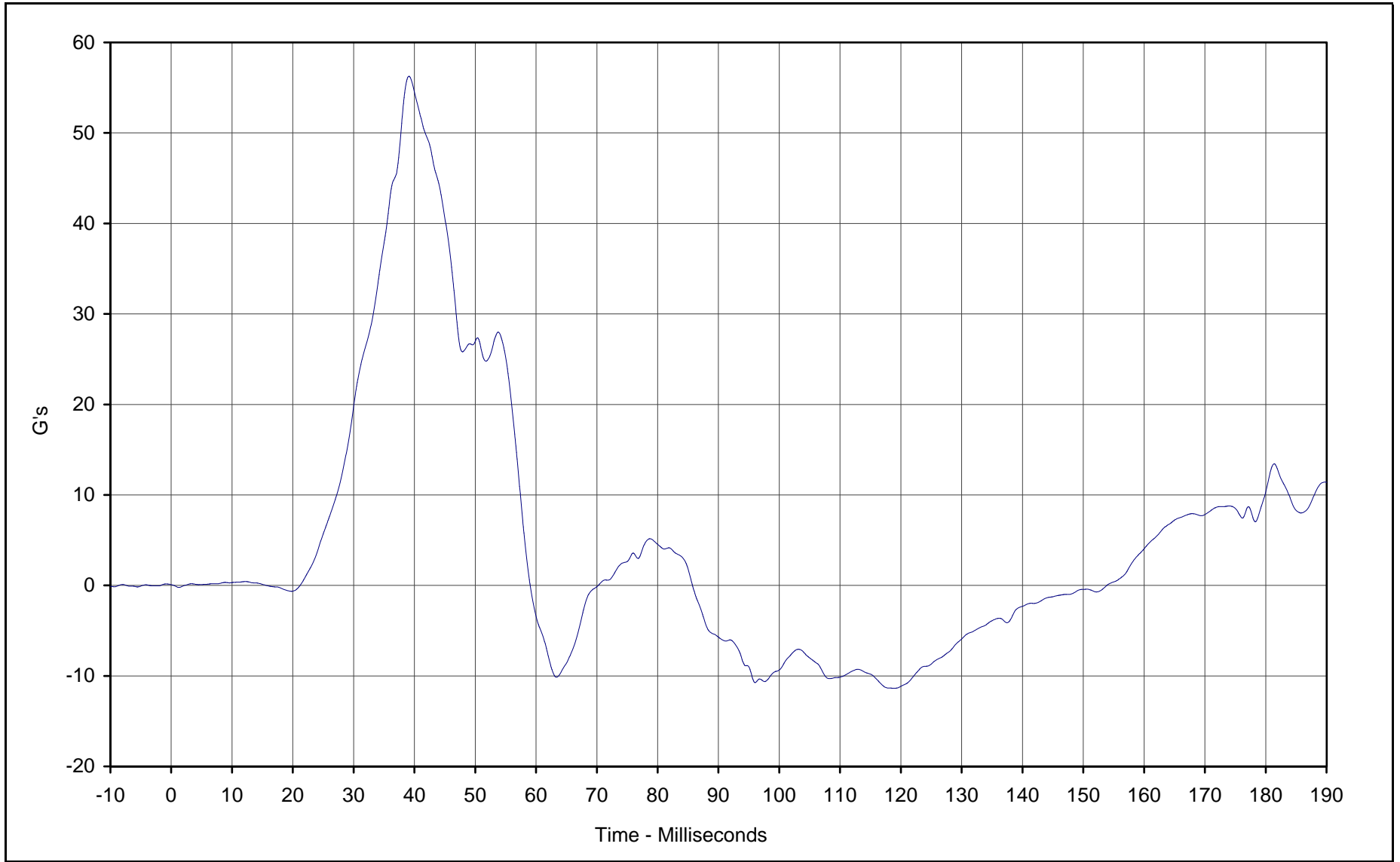
Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan



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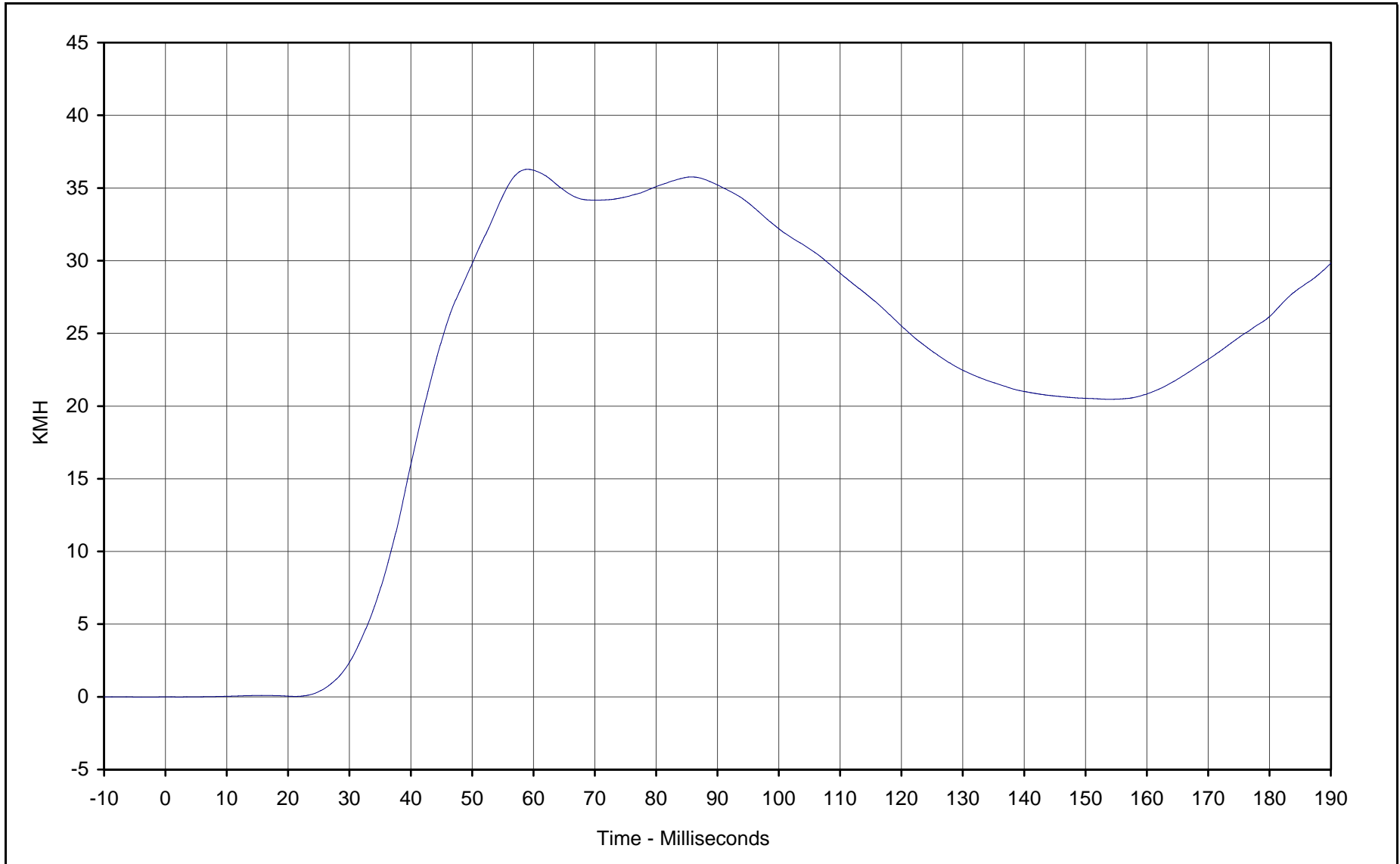
Curve Description: Pass. Lower Spine Redundant Y
Maximum Value: 56.3 at 39.1 Milliseconds
Minimum Value: -11.4 at 118.9 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: FIL-023

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Pass. Lower Spine Redundant Y Velocity

Maximum Value: 36.3 at 59.0 Milliseconds

Minimum Value: 0.0 at 2.2 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

Curve Number: IN1-023

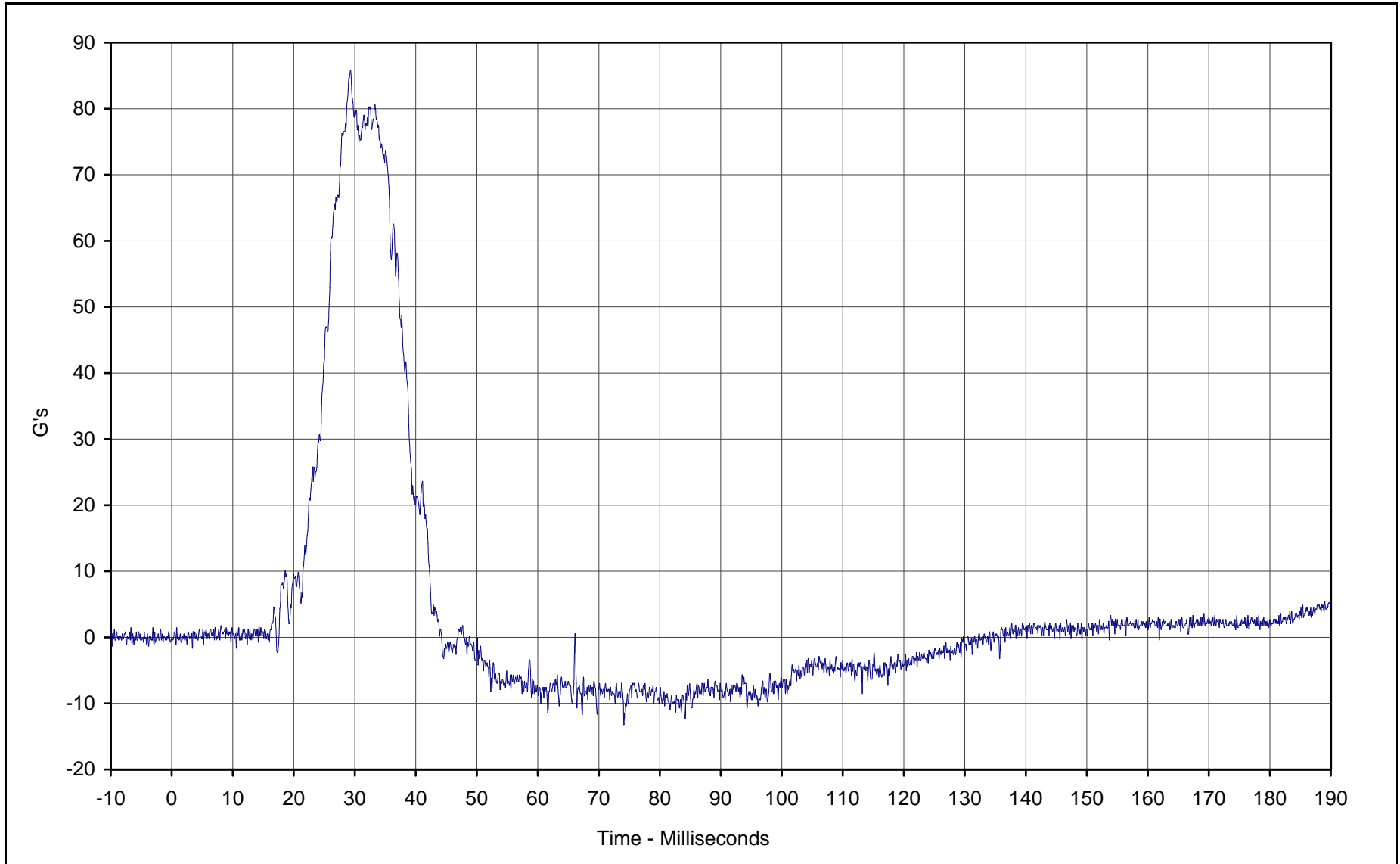
Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

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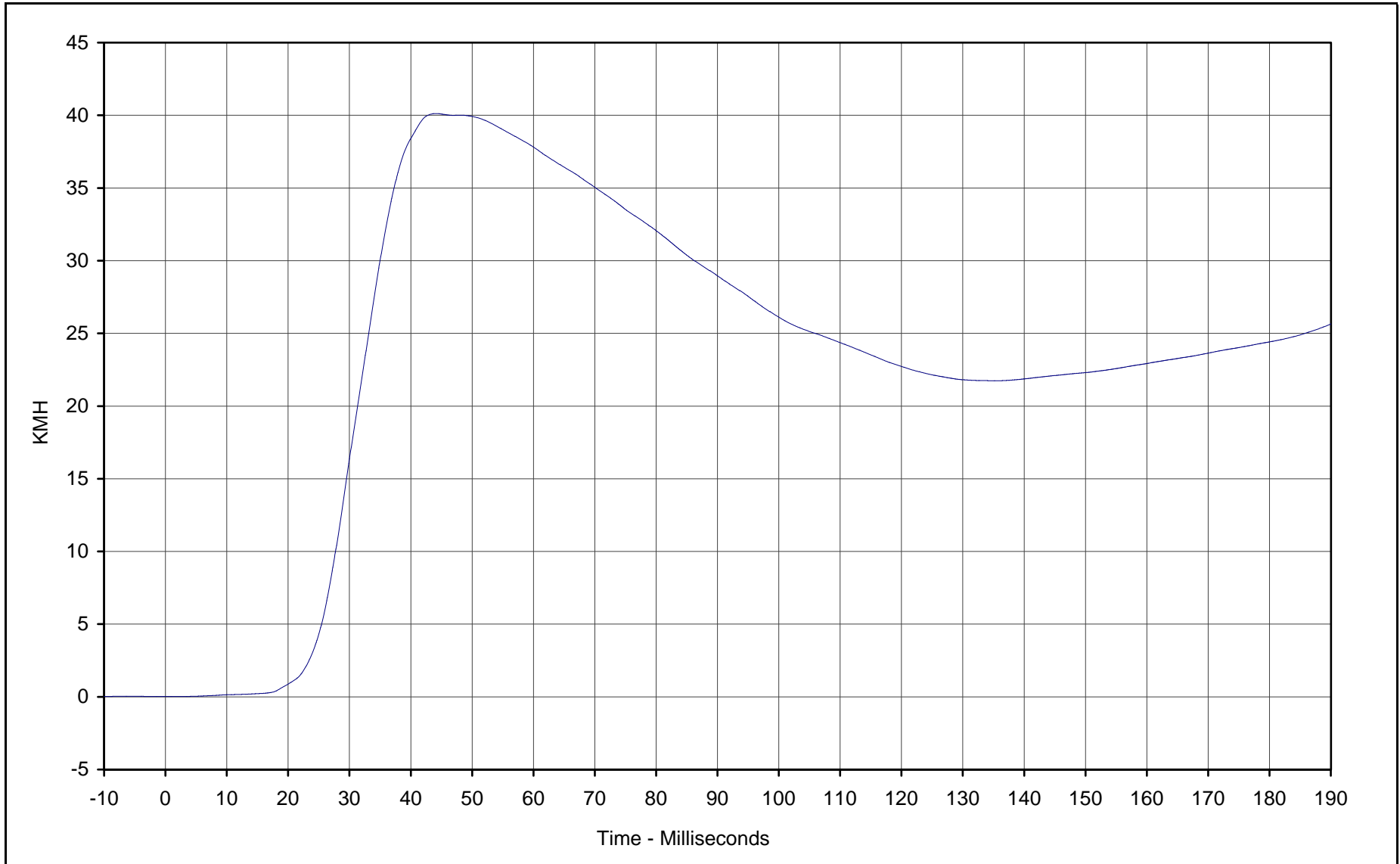
Curve Description: Pass. Pelvis Redundant Y
Maximum Value: 85.9 at 29.3 Milliseconds
Minimum Value: -13.2 at 74.1 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: FIL-024

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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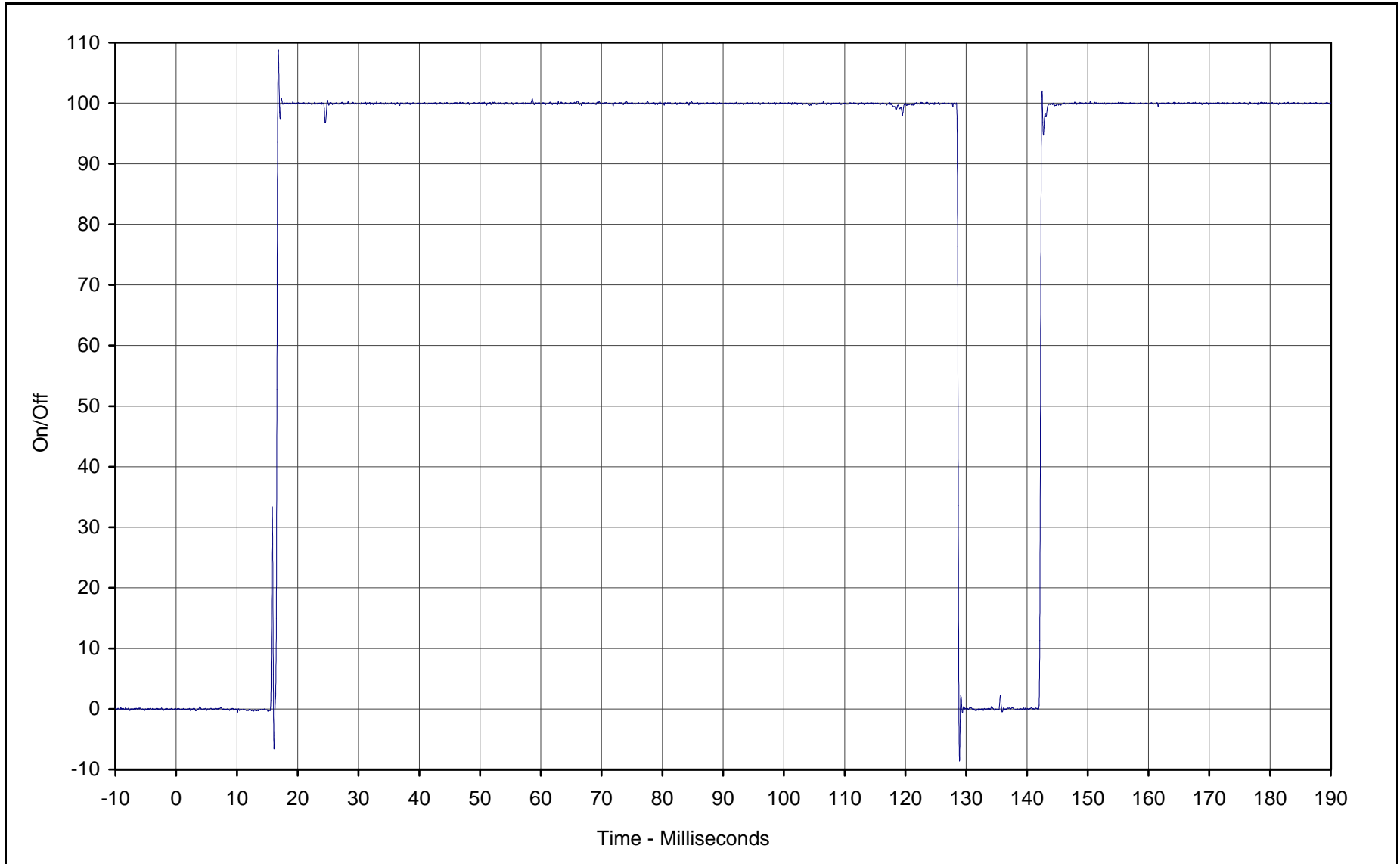
Curve Description: Pass. Pelvis Redundant Y Velocity
Maximum Value: 40.1 at 44.1 Milliseconds
Minimum Value: 0.0 at 2.6 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-024

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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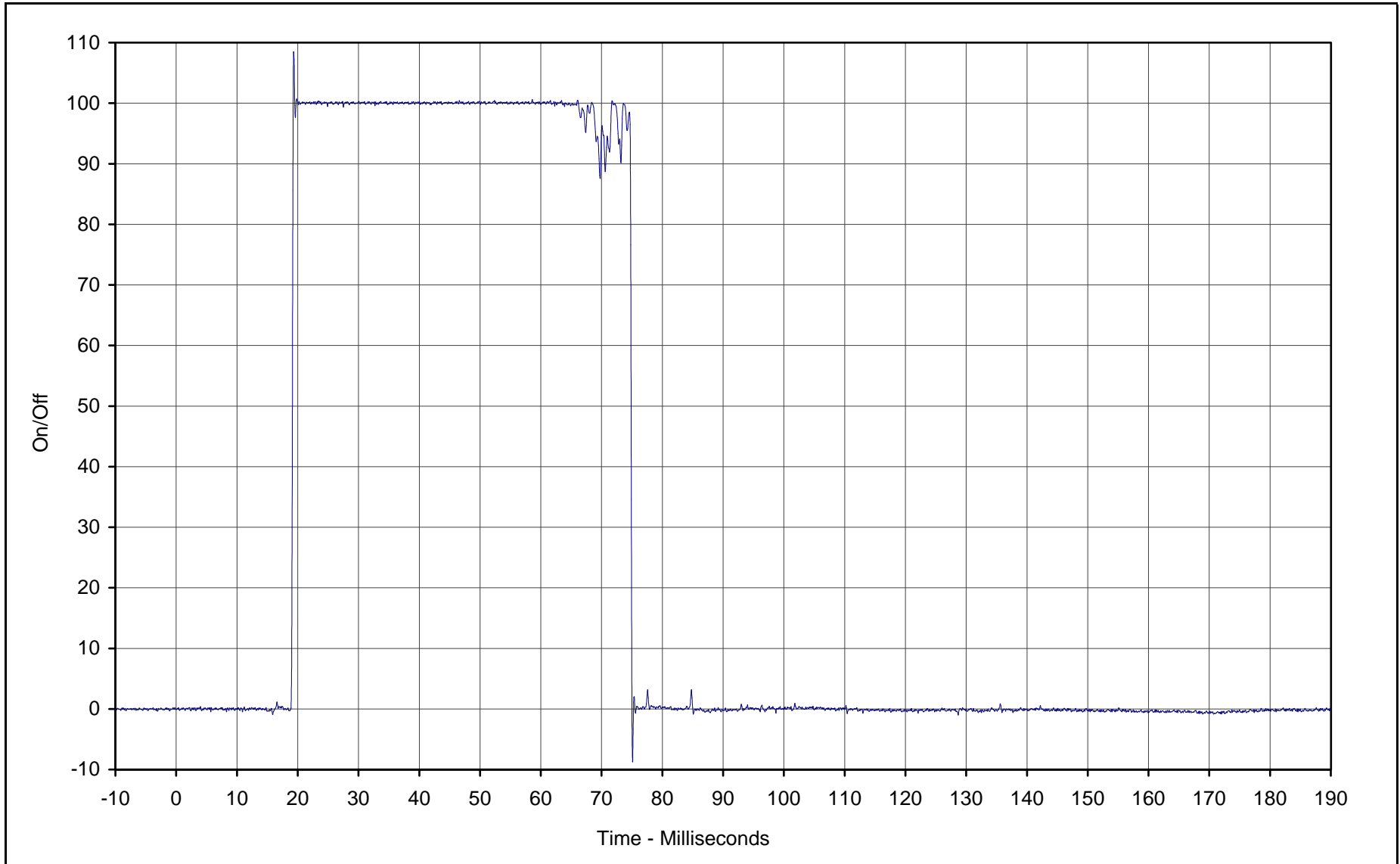
Curve Description: Pass. Thorax Contact
Maximum Value: 108.5 at 16.8 Milliseconds
Crossing Point: 50% at 16.6 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: FIL-025

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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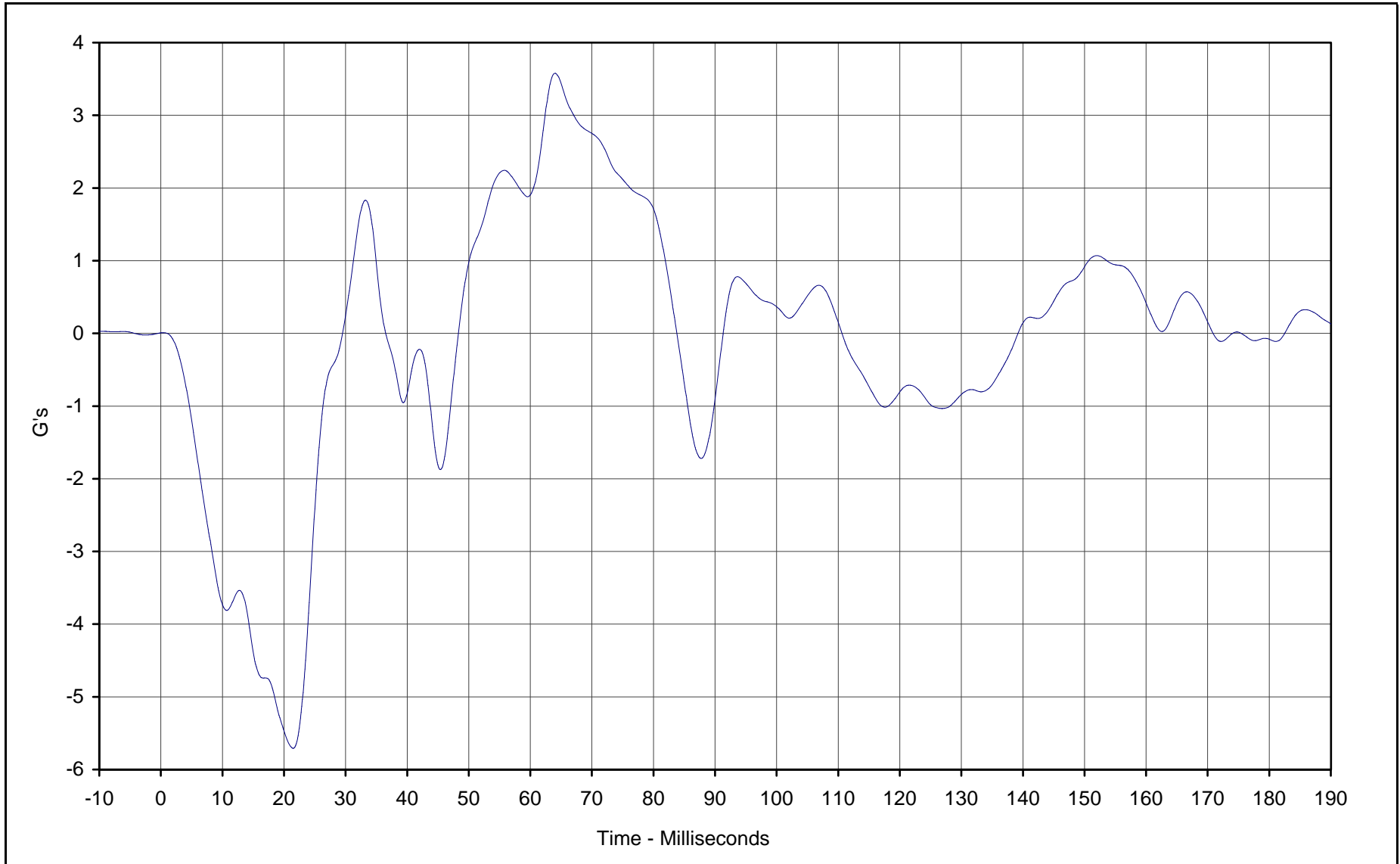
Curve Description: Pass. Pelvis Contact
Maximum Value: 108.4 at 19.3 Milliseconds
Crossing Point: 50% at 19.2 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: FIL-026

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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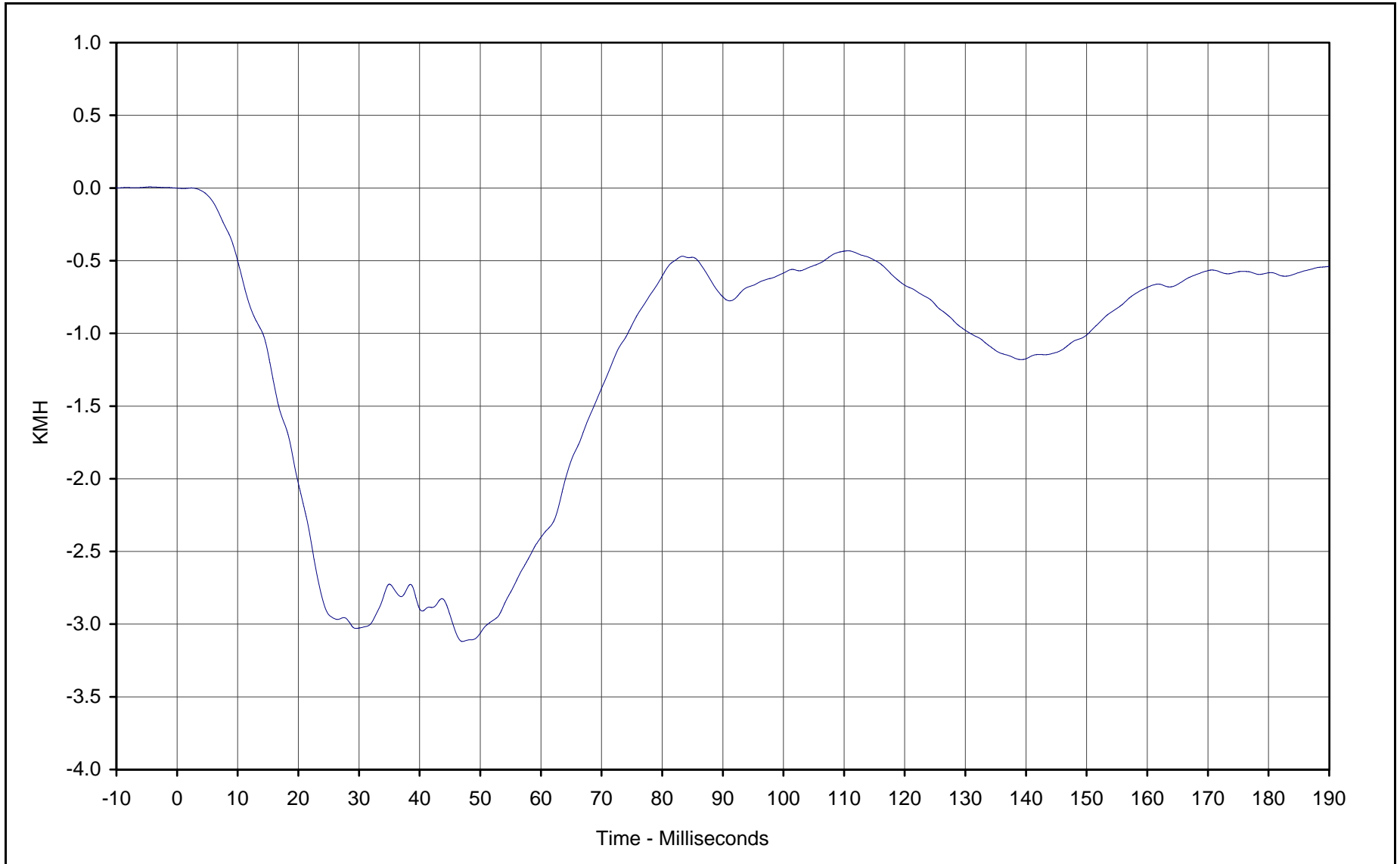
Curve Description: Right Sill at Front Seat X
Maximum Value: 3.6 at 64.0 Milliseconds
Minimum Value: -5.7 at 21.5 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-027

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Right Sill at Front Seat X Velocity

Maximum Value: 0.0 at 2.4 Milliseconds

Minimum Value: -3.1 at 47.1 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

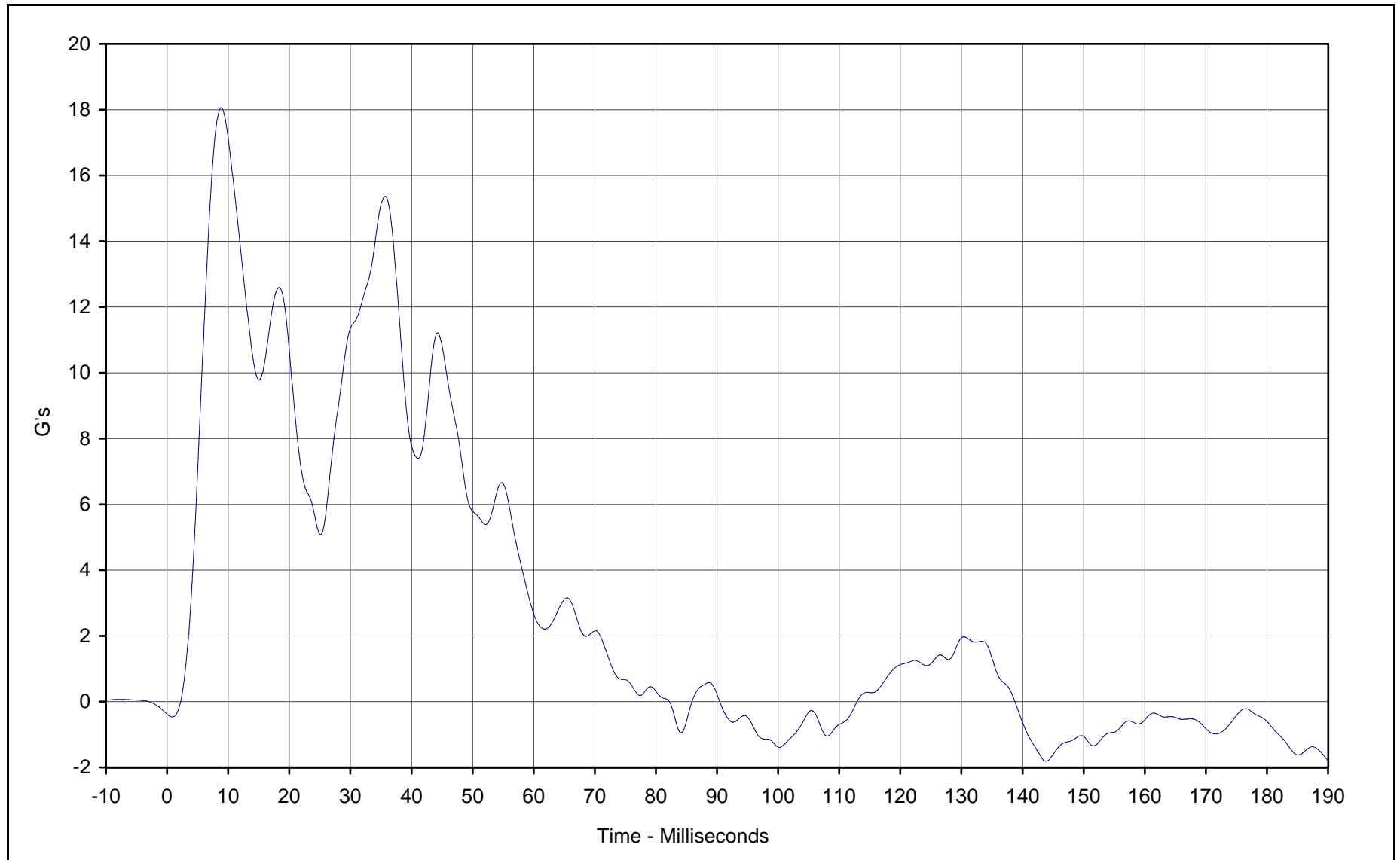
Curve Number: IN1-027

Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

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Curve Description: Right Sill at Front Seat Y

Maximum Value: 18.1 at 8.8 Milliseconds

Minimum Value: -1.8 at 143.9 Milliseconds

SAE Filter Class: 60

Date of Test: 11/28/00

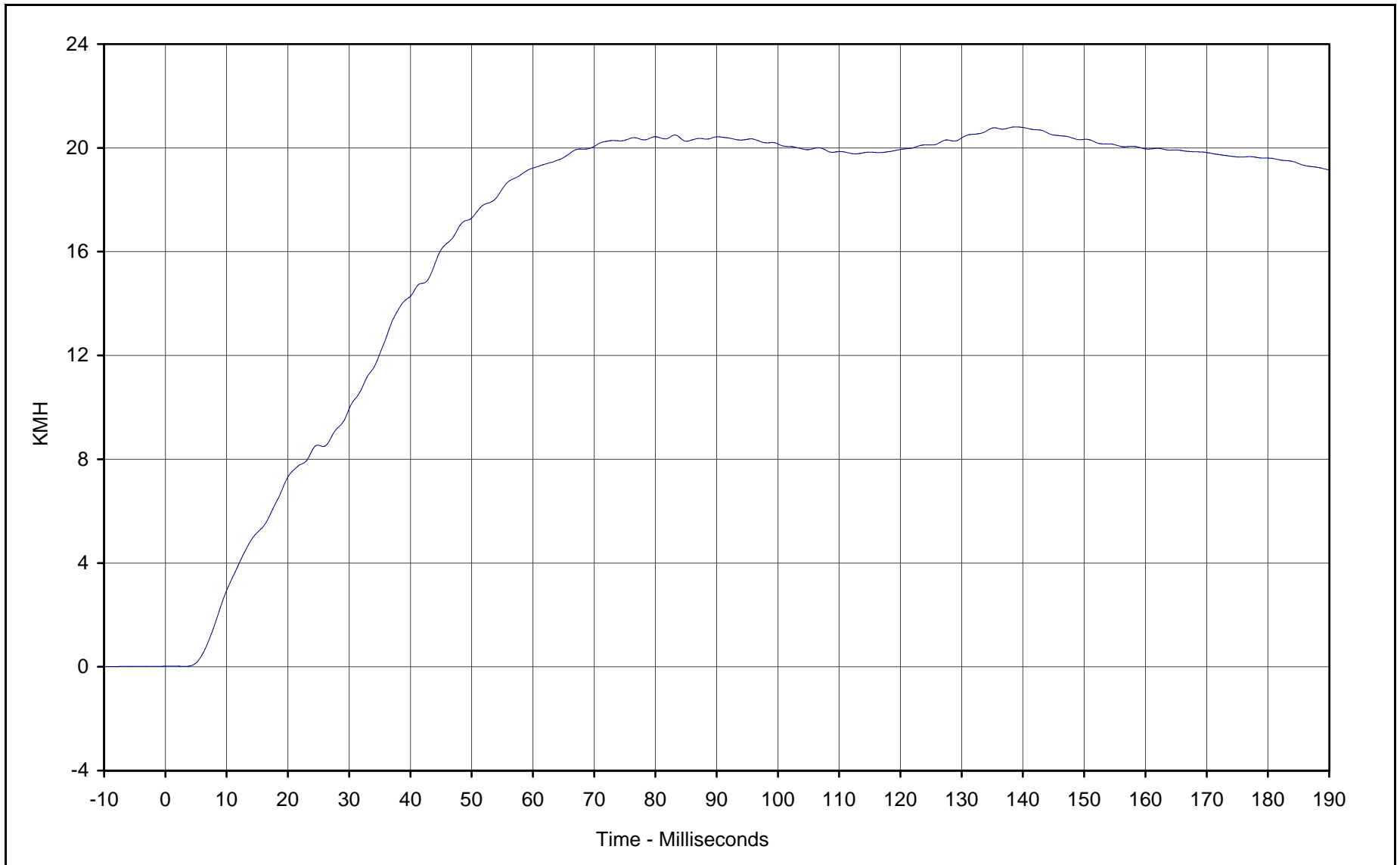
Curve Number: FIL-028

Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Right Sill at Front Seat Y Velocity

Maximum Value: 20.8 at 138.8 Milliseconds

Minimum Value: 0.0 at 3.3 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

Curve Number: IN1-028

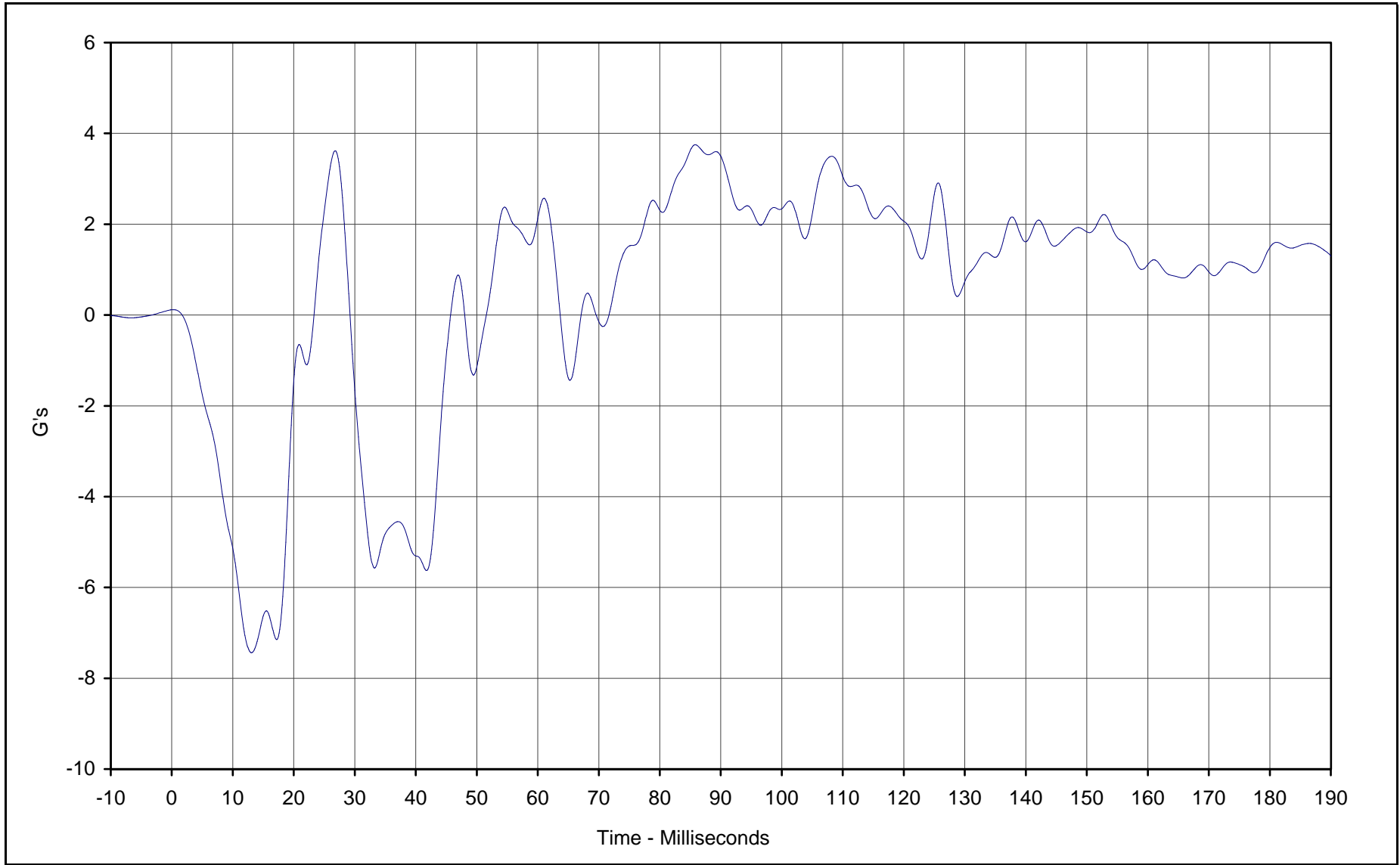
Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

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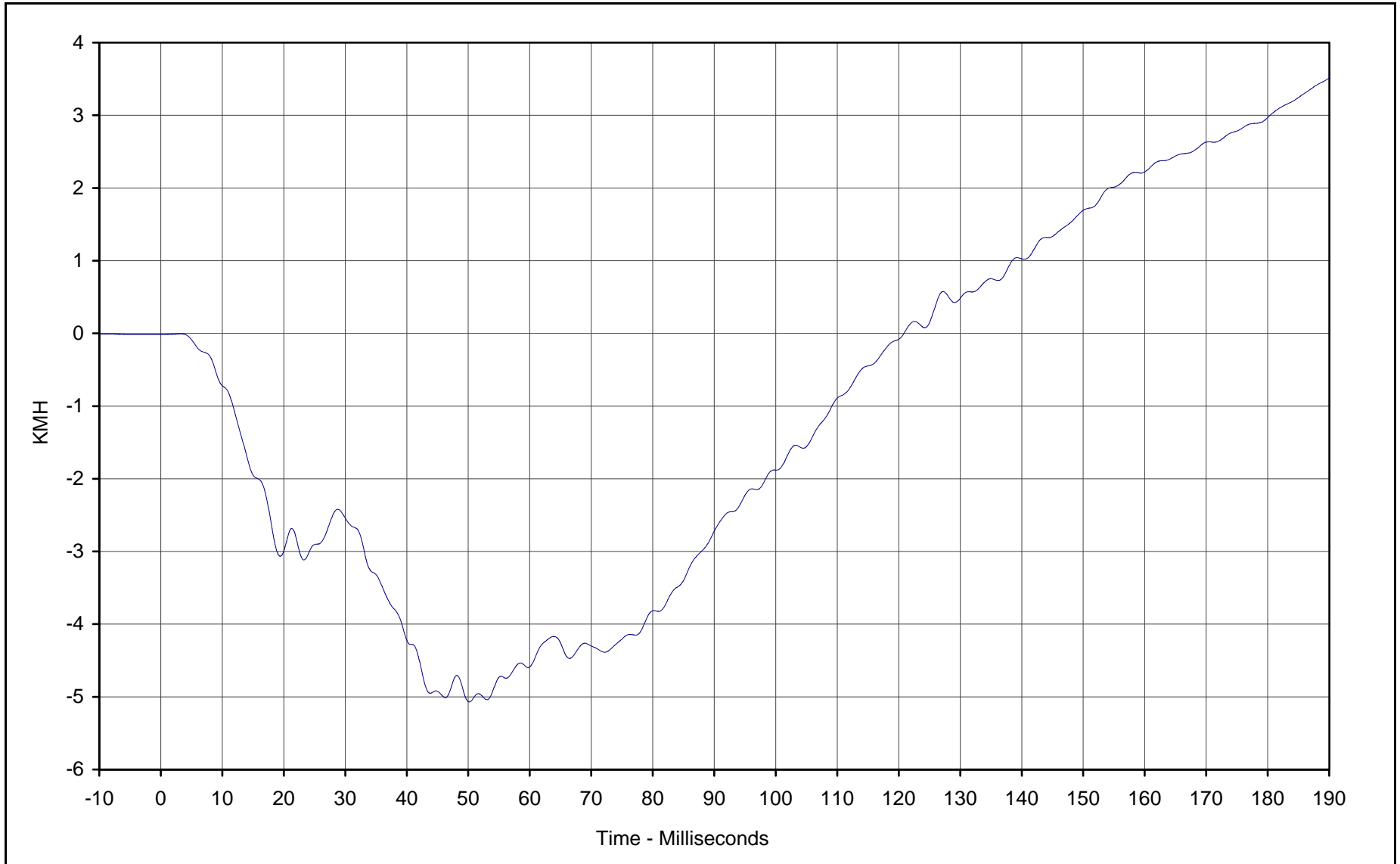
Curve Description: Right Sill at Front Seat Z
Maximum Value: 3.7 at 85.8 Milliseconds
Minimum Value: -7.4 at 13.1 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-029

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Right Sill at Front Seat Z Velocity

Maximum Value: 3.5 at 189.9 Milliseconds

Minimum Value: -5.1 at 50.2 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

Curve Number: IN1-029

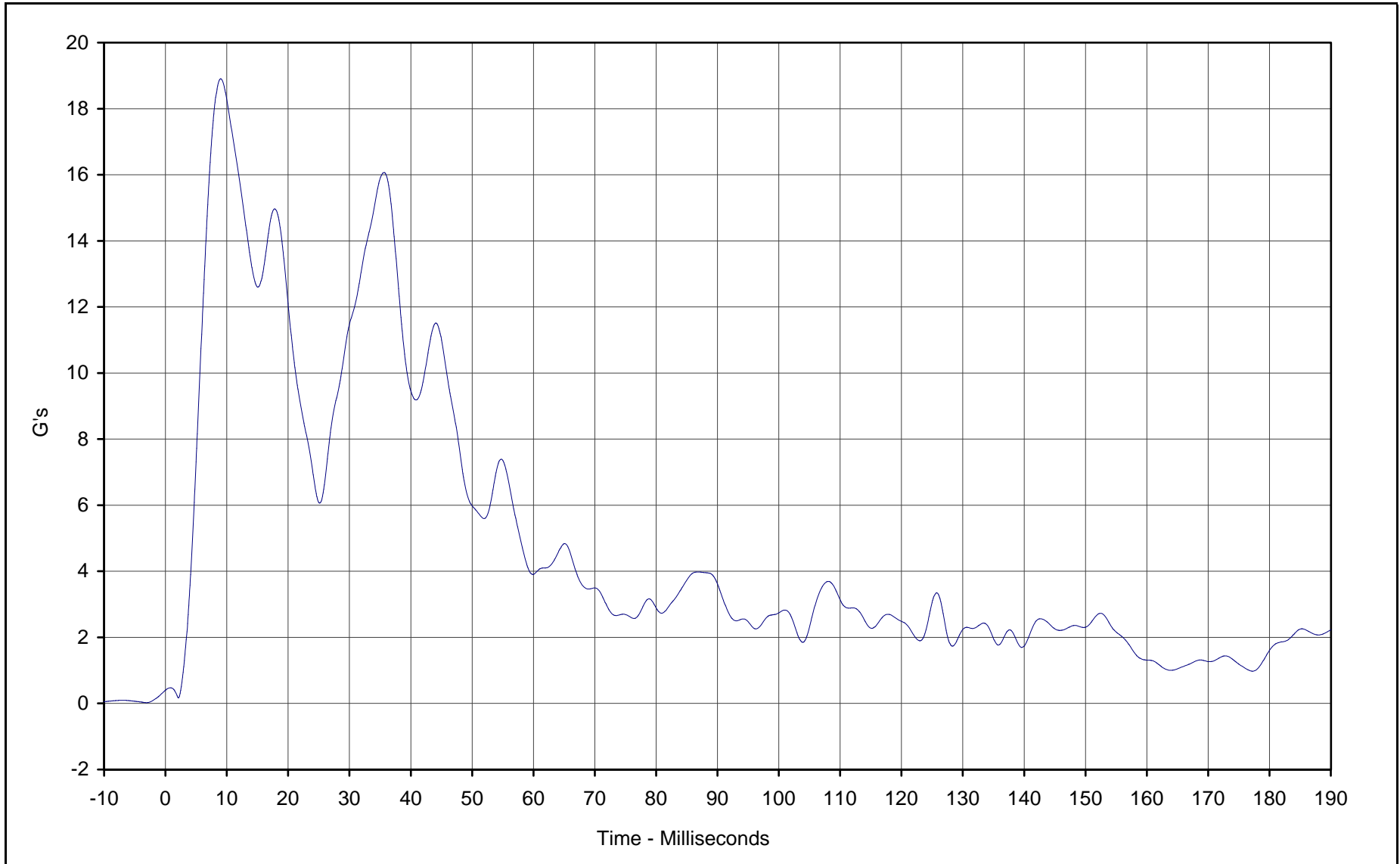
Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan



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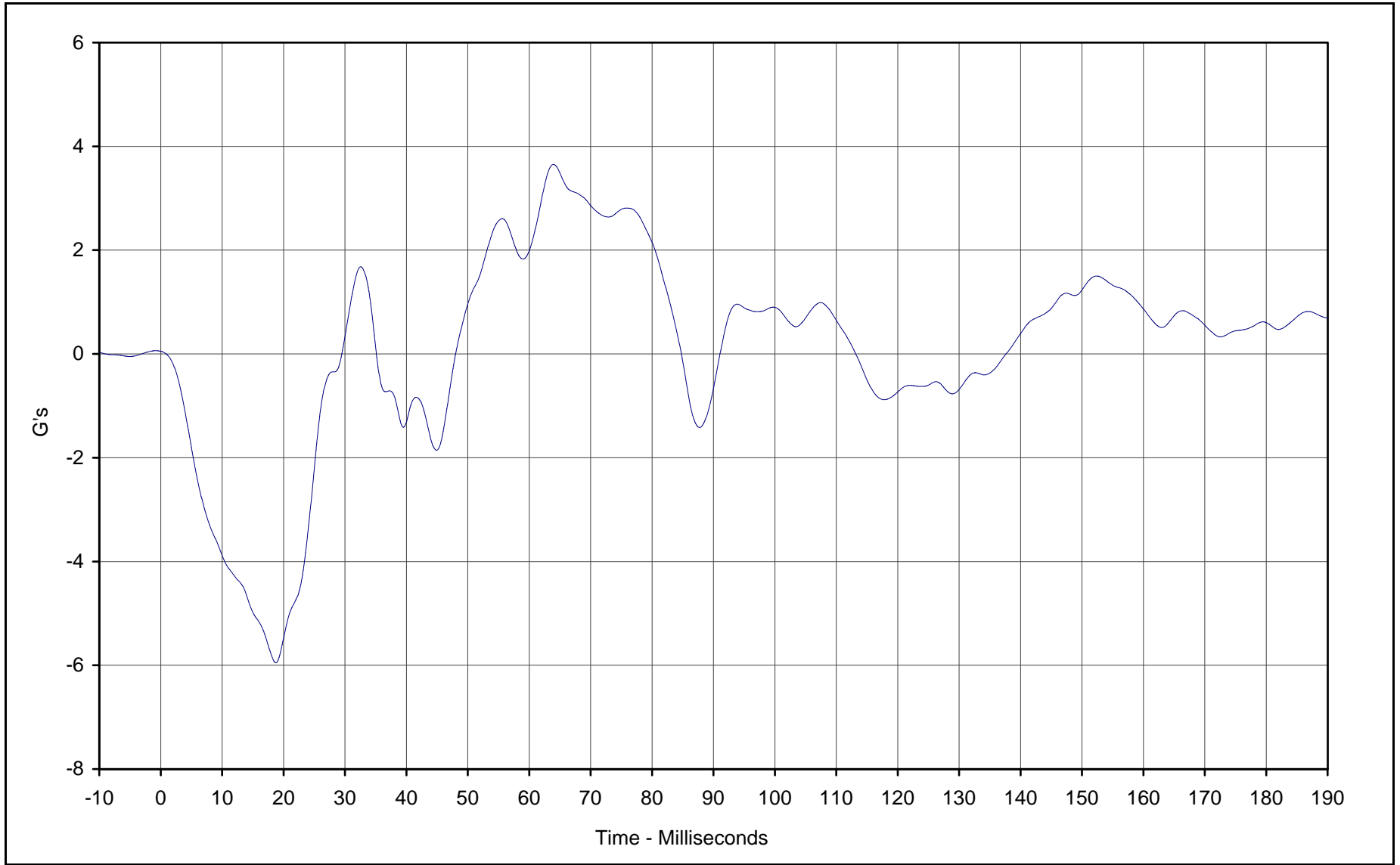
Curve Description: Right Sill at Front Seat Resultant
Maximum Value: 18.9 at 9.0 Milliseconds
Minimum Value: 0.2 at 2.1 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: RES-027

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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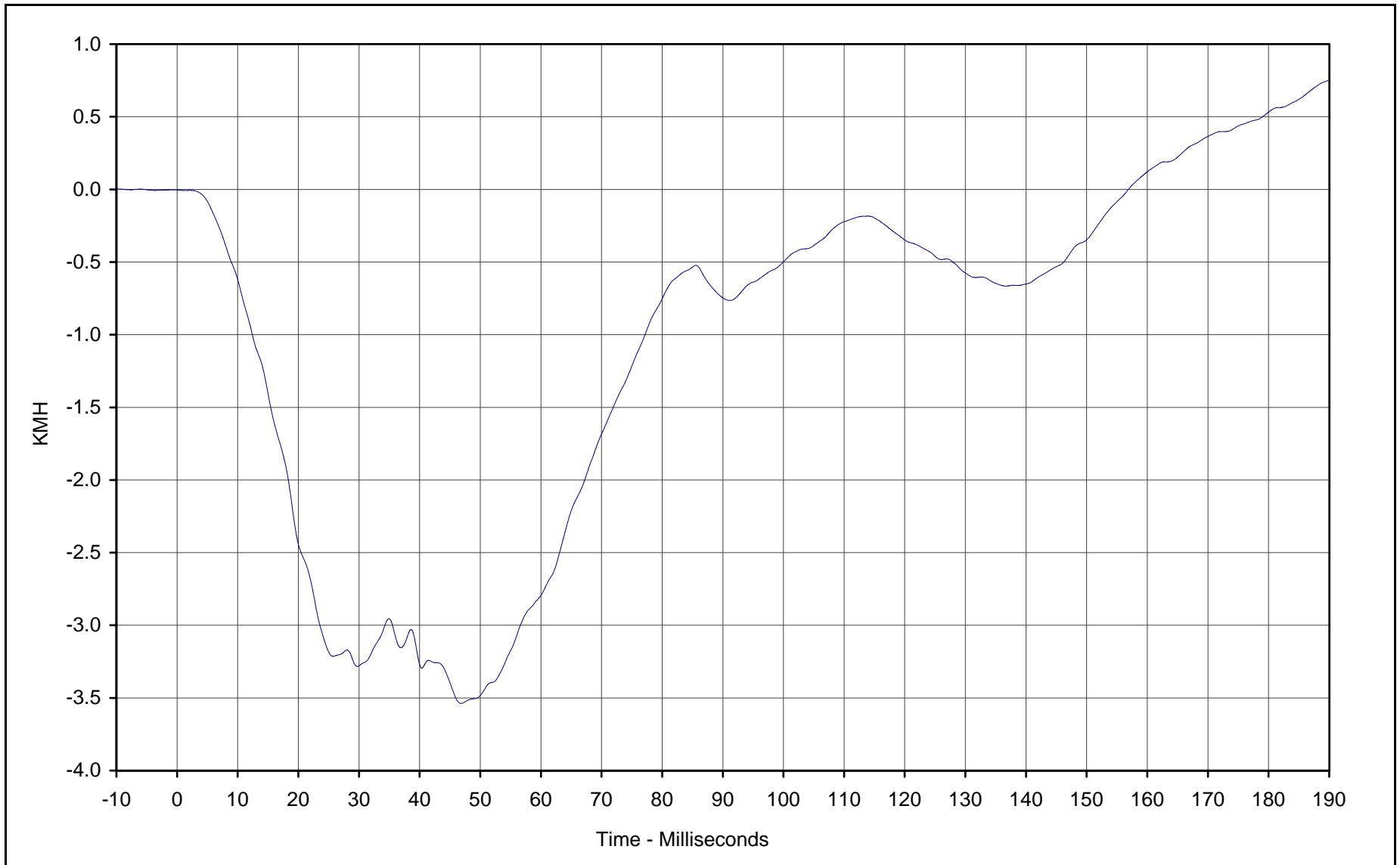
Curve Description: Right Sill at Rear Seat X
Maximum Value: 3.7 at 64.0 Milliseconds
Minimum Value: -6.0 at 18.7 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-030

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Right Sill at Rear Seat X Velocity

Maximum Value: 0.8 at 189.9 Milliseconds

Minimum Value: -3.5 at 46.8 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

Curve Number: IN1-030

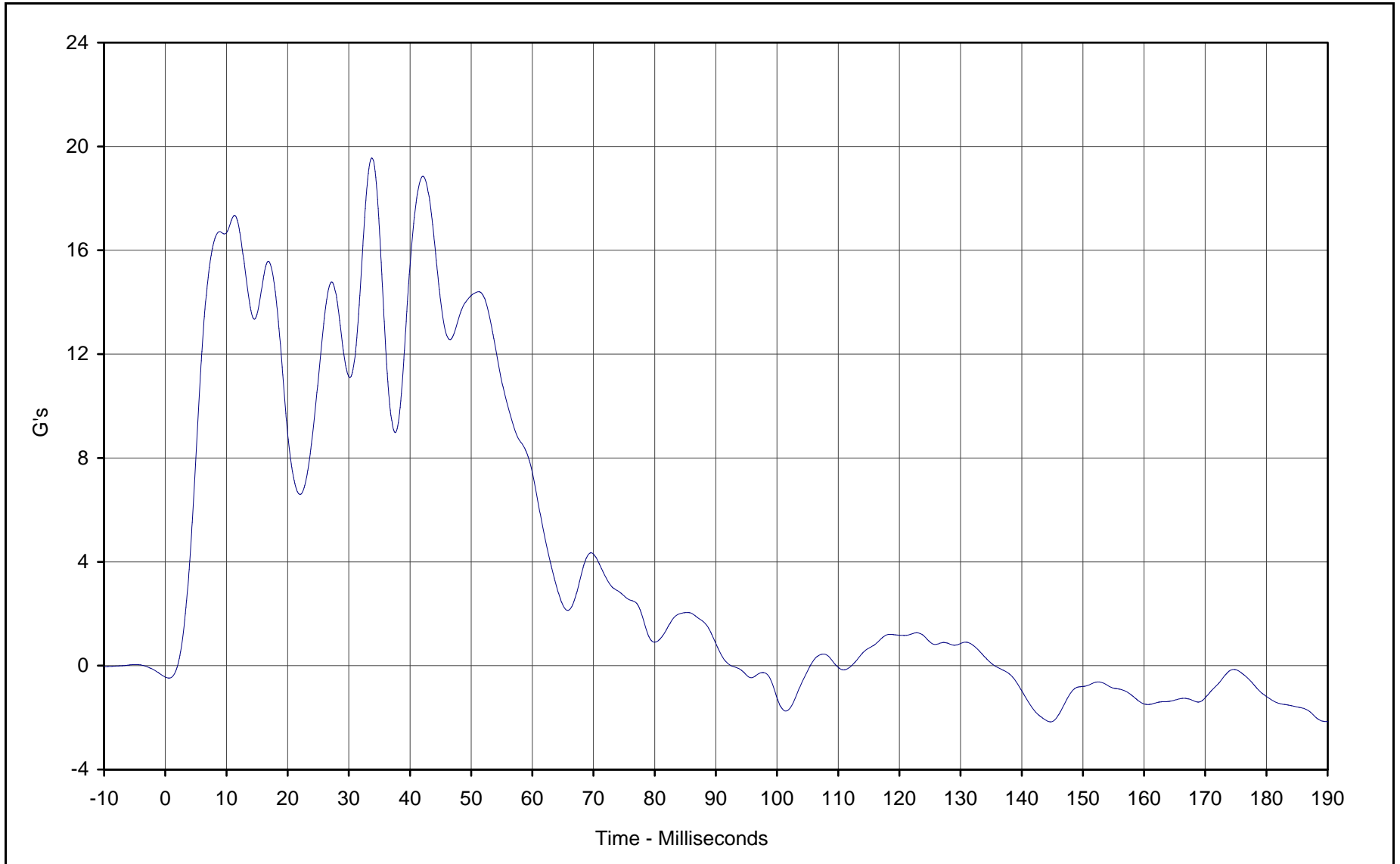
Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

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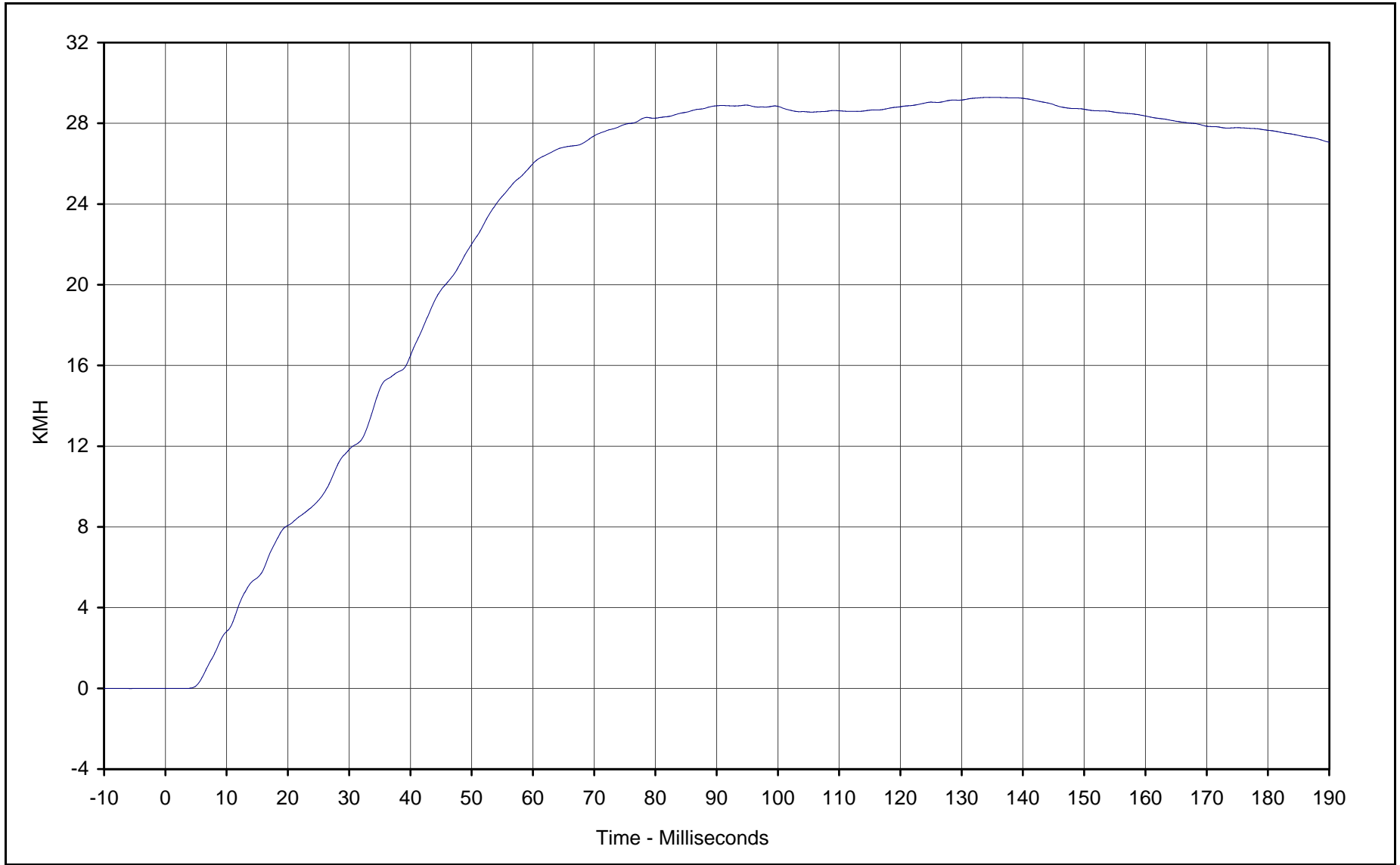
Curve Description: Right Sill at Rear Seat Y
Maximum Value: 19.6 at 33.8 Milliseconds
Minimum Value: -2.2 at 144.7 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-031

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Right Sill at Rear Seat Y Velocity

Maximum Value: 29.3 at 134.6 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

Curve Number: IN1-031

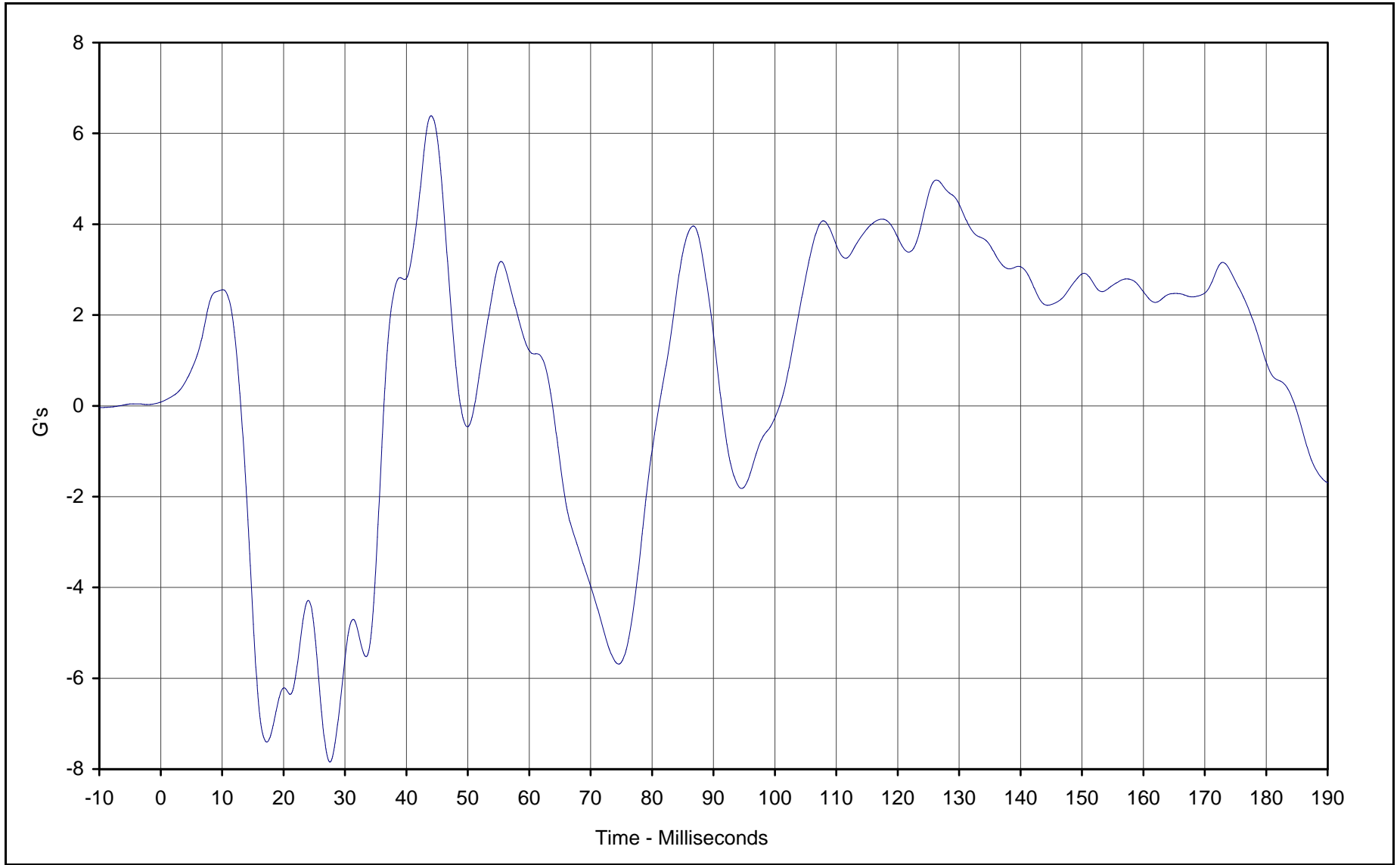
Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

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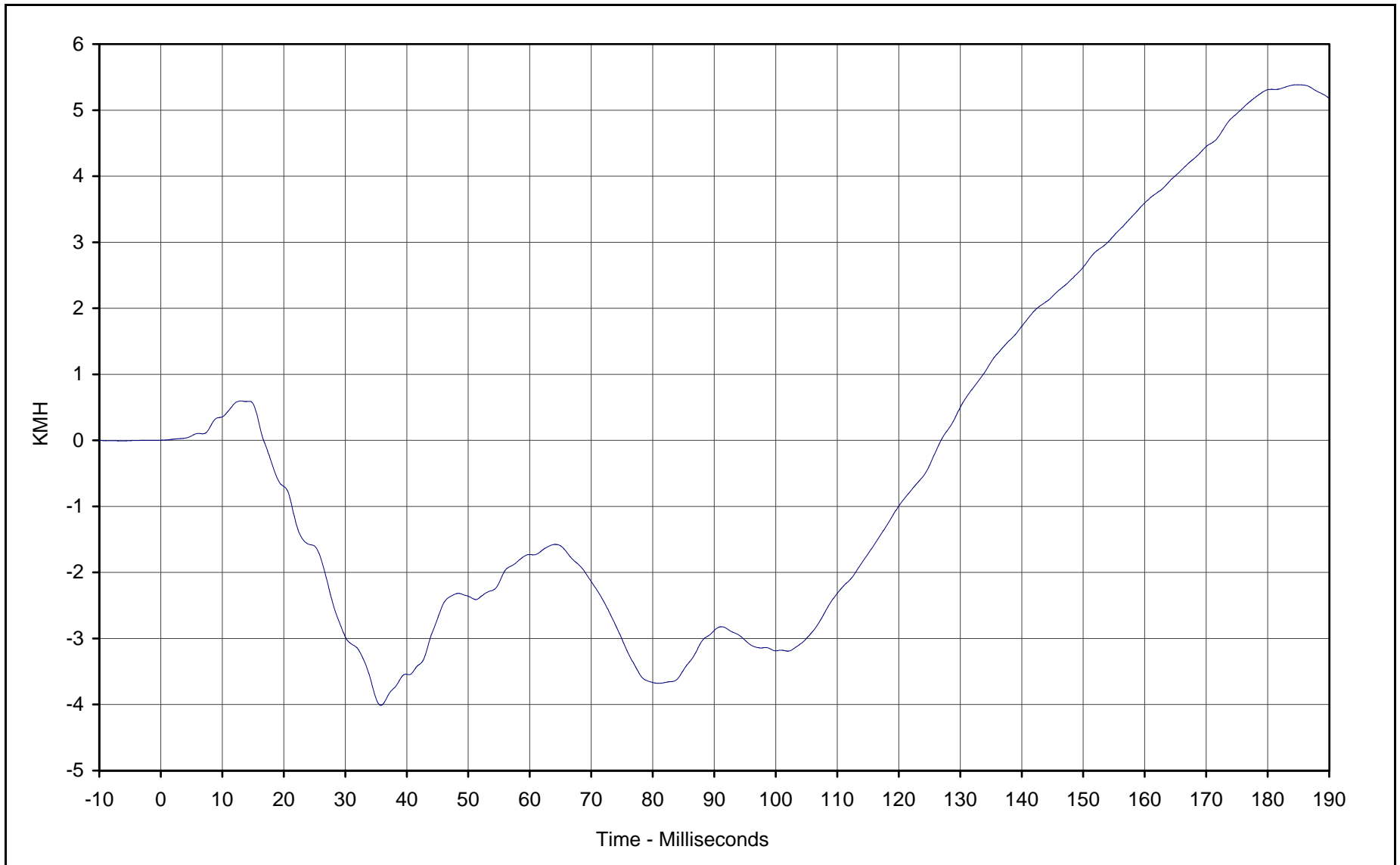
Curve Description: Right Sill at Rear Seat Z
Maximum Value: 6.4 at 44.0 Milliseconds
Minimum Value: -7.8 at 27.6 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-032

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Right Sill at Rear Seat Z Velocity

Maximum Value: 5.4 at 184.8 Milliseconds

Minimum Value: -4.0 at 35.8 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

Curve Number: IN1-032

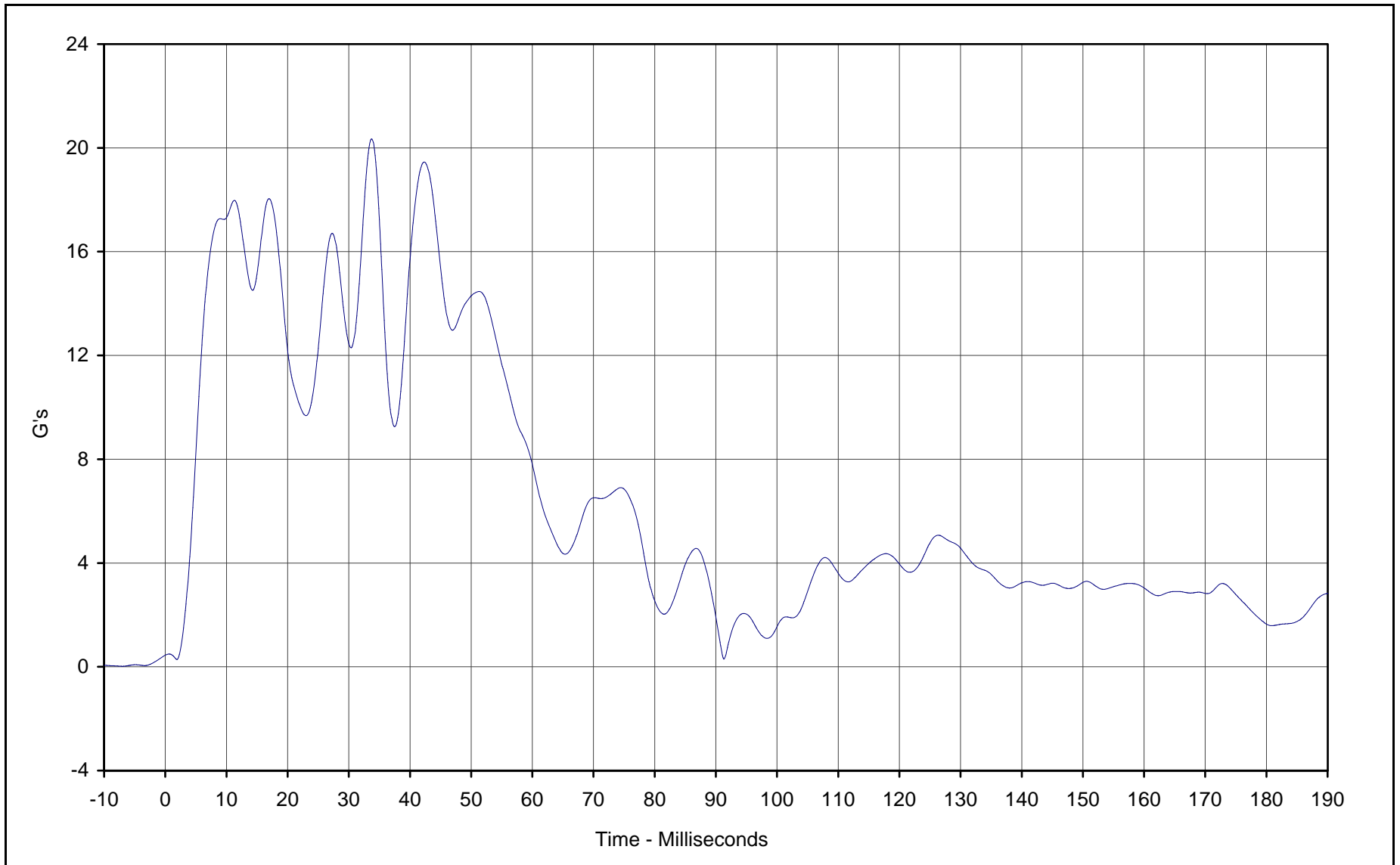
Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

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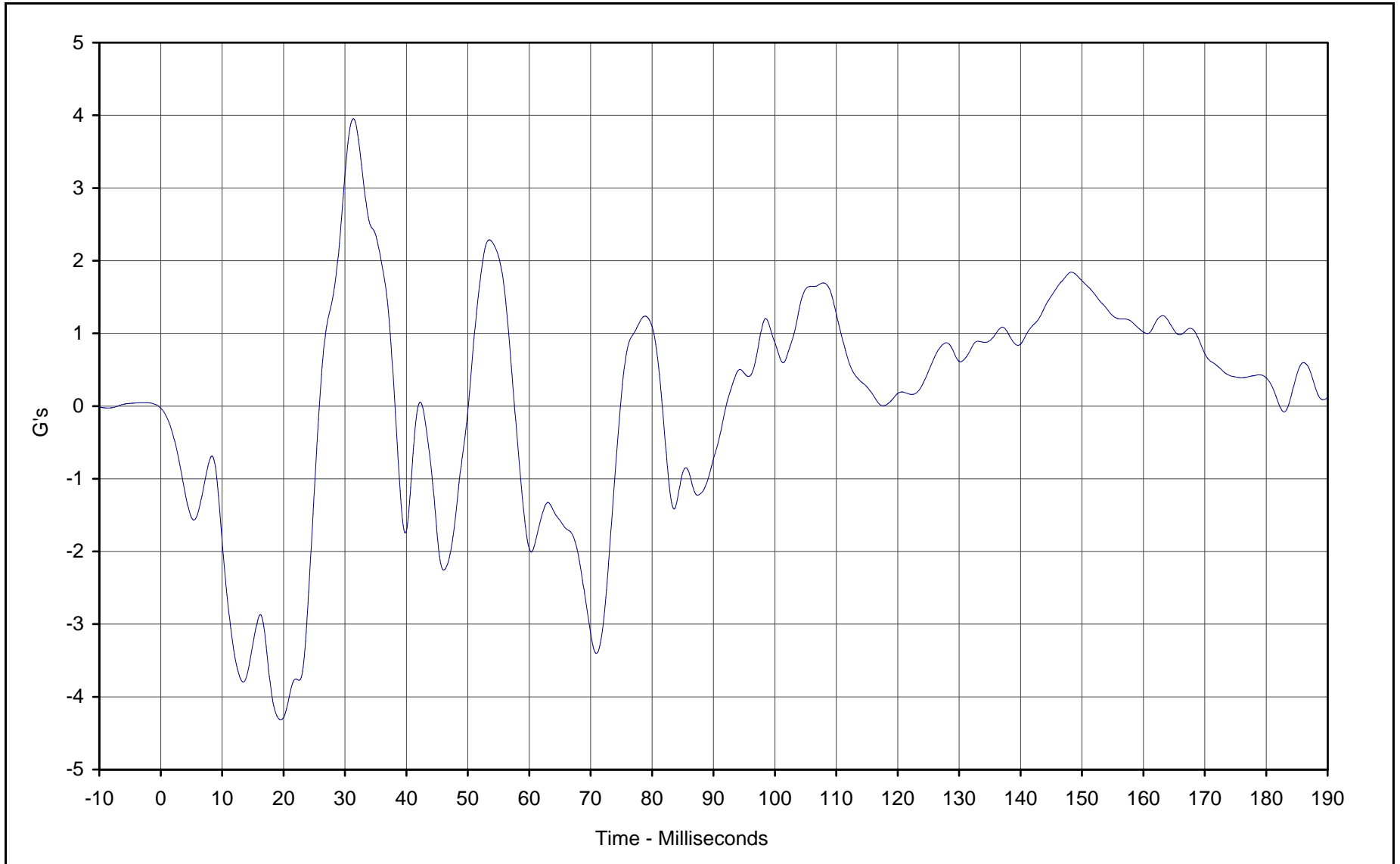
Curve Description: Right Sill at Rear Resultant
Maximum Value: 20.3 at 33.7 Milliseconds
Minimum Value: 0.3 at 1.9 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: RES-030

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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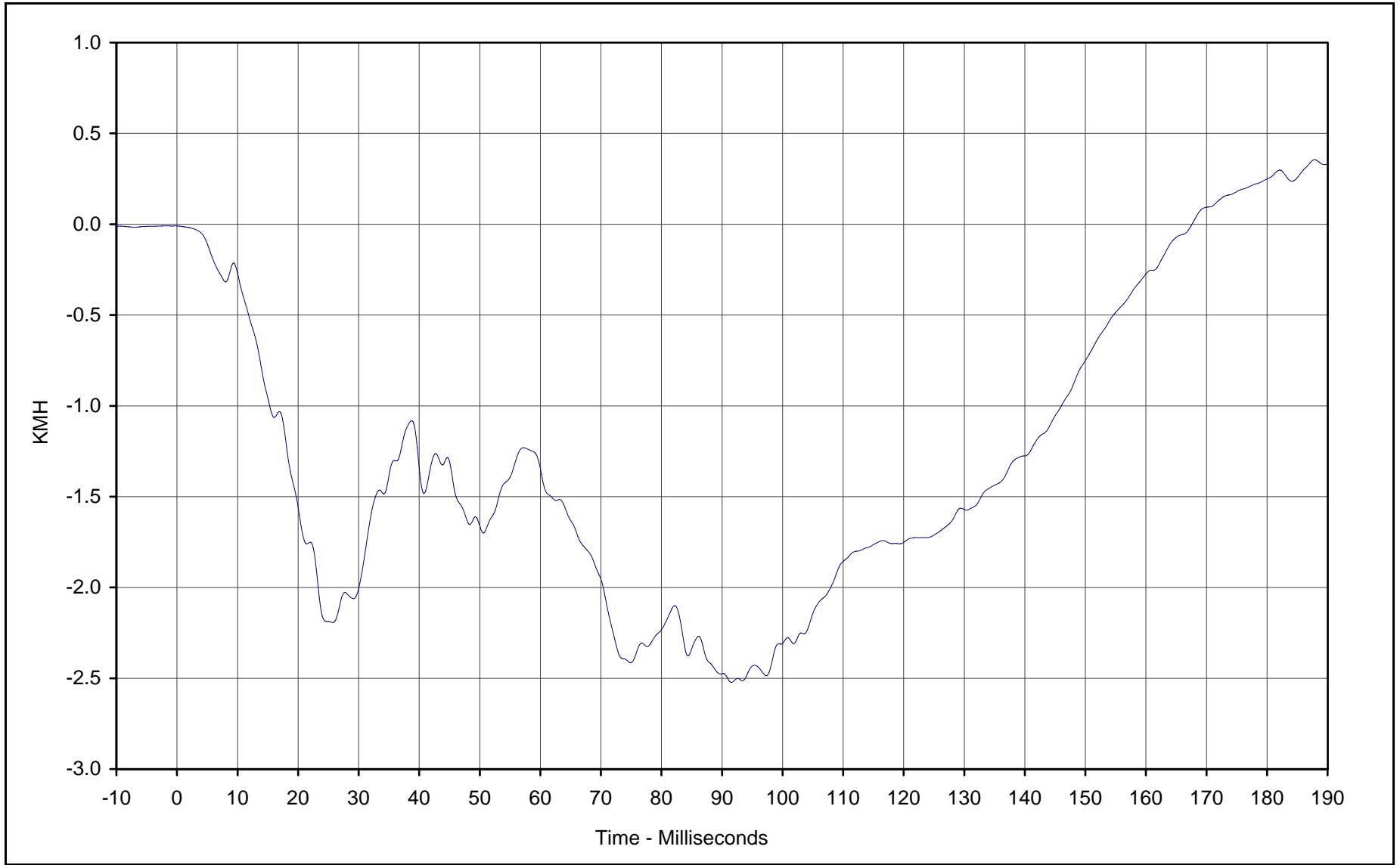
Curve Description: Rear Floor Above Axle X
Maximum Value: 4.0 at 31.4 Milliseconds
Minimum Value: -4.3 at 19.6 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-033

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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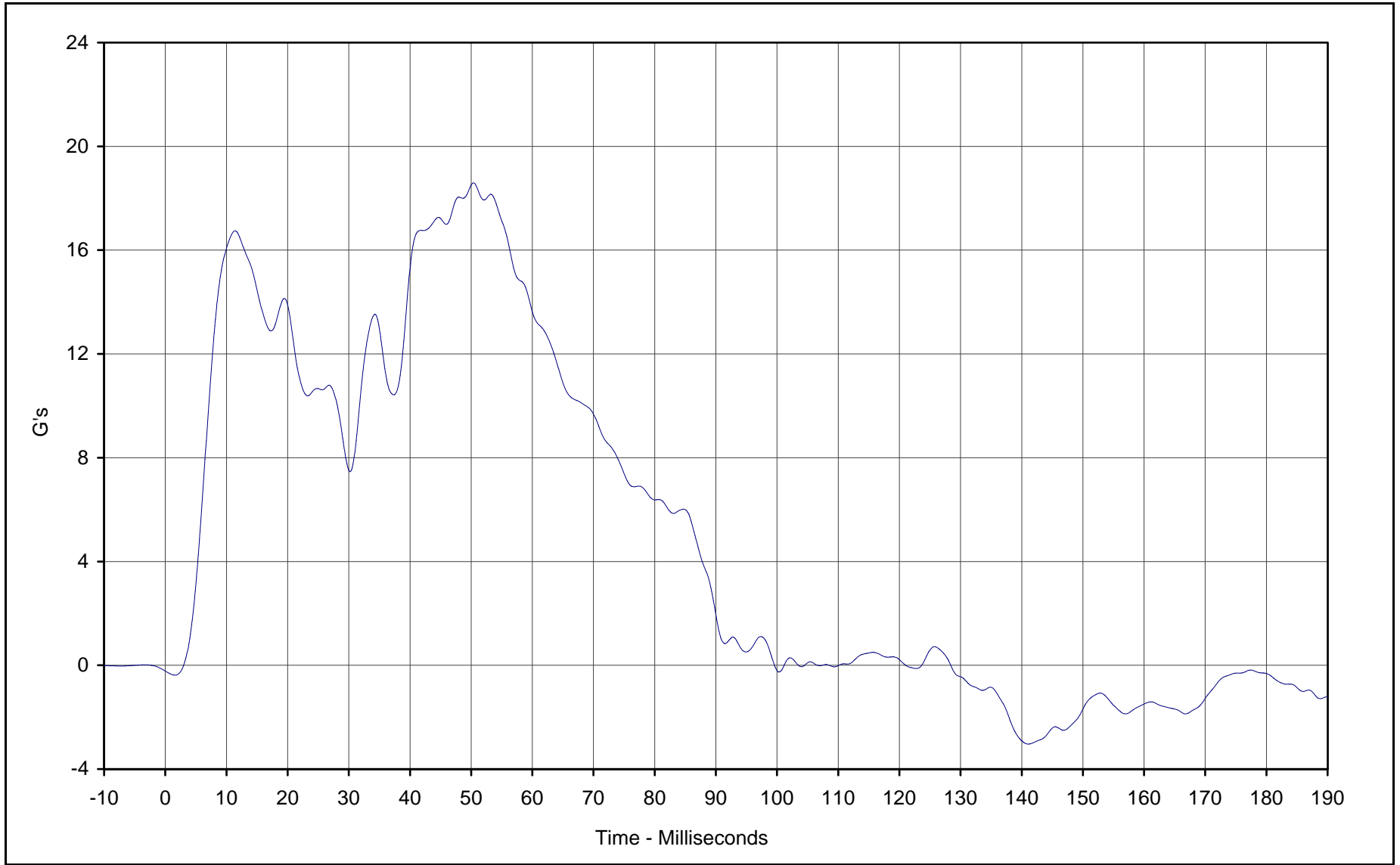
Curve Description: Rear Floor Above Axle X Velocity
Maximum Value: 0.4 at 187.9 Milliseconds
Minimum Value: -2.5 at 91.5 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-033

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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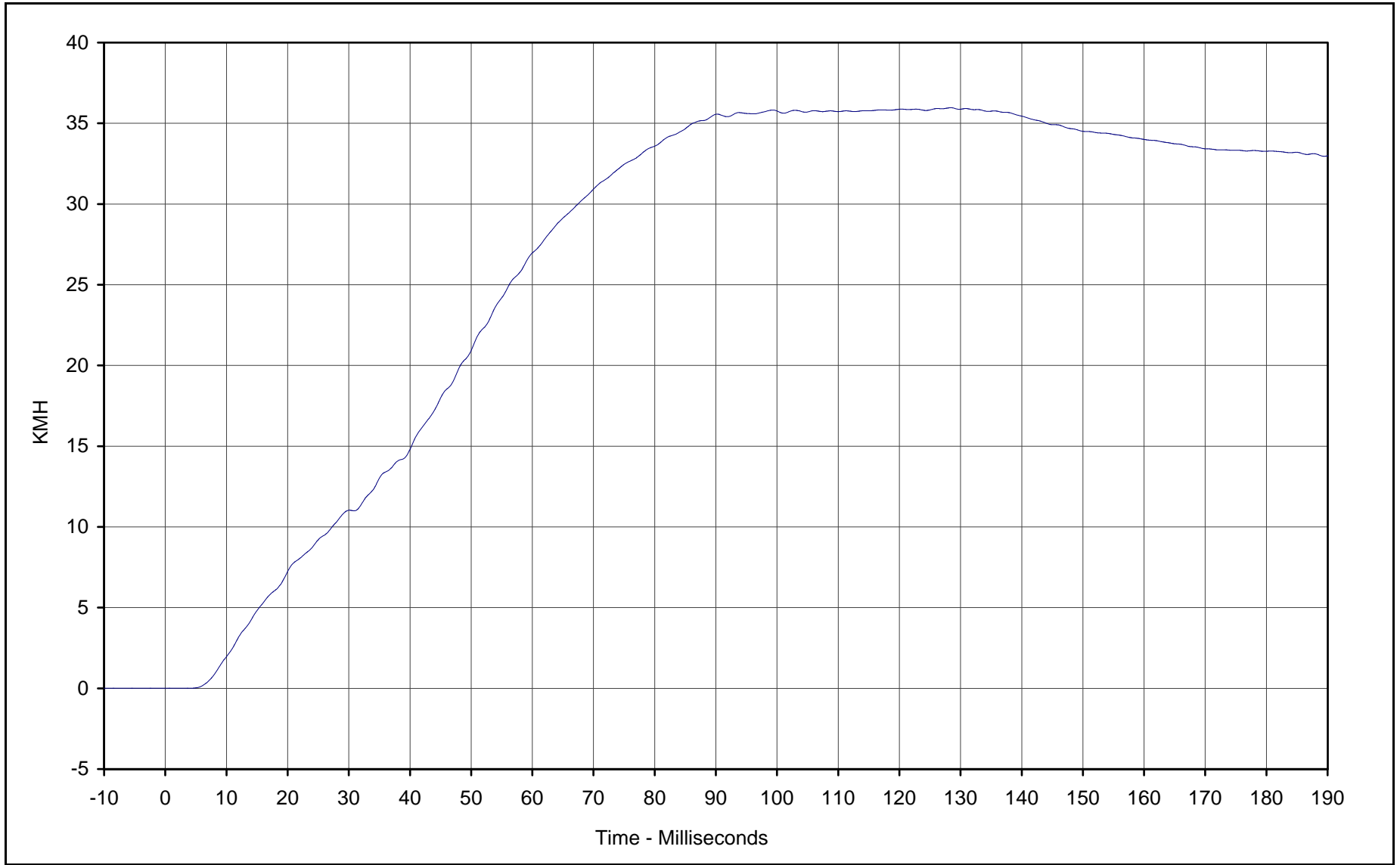
Curve Description: Rear Floor Above Axle Y
Maximum Value: 18.6 at 50.4 Milliseconds
Minimum Value: -3.0 at 141.1 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-034

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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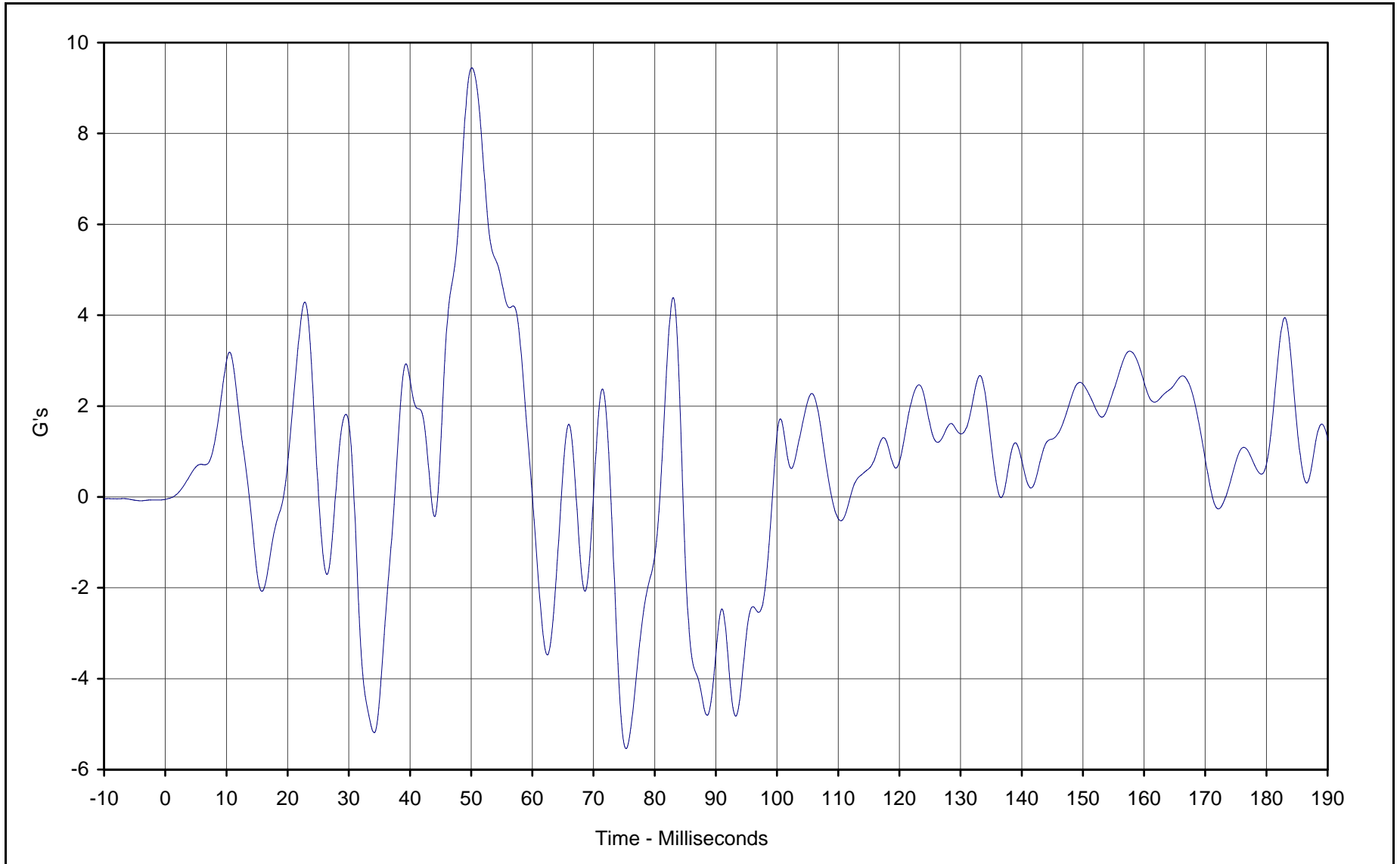
Curve Description: Rear Floor Above Axle Y Velocity
Maximum Value: 36.0 at 128.4 Milliseconds
Minimum Value: 0.0 at 2.0 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-034

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan

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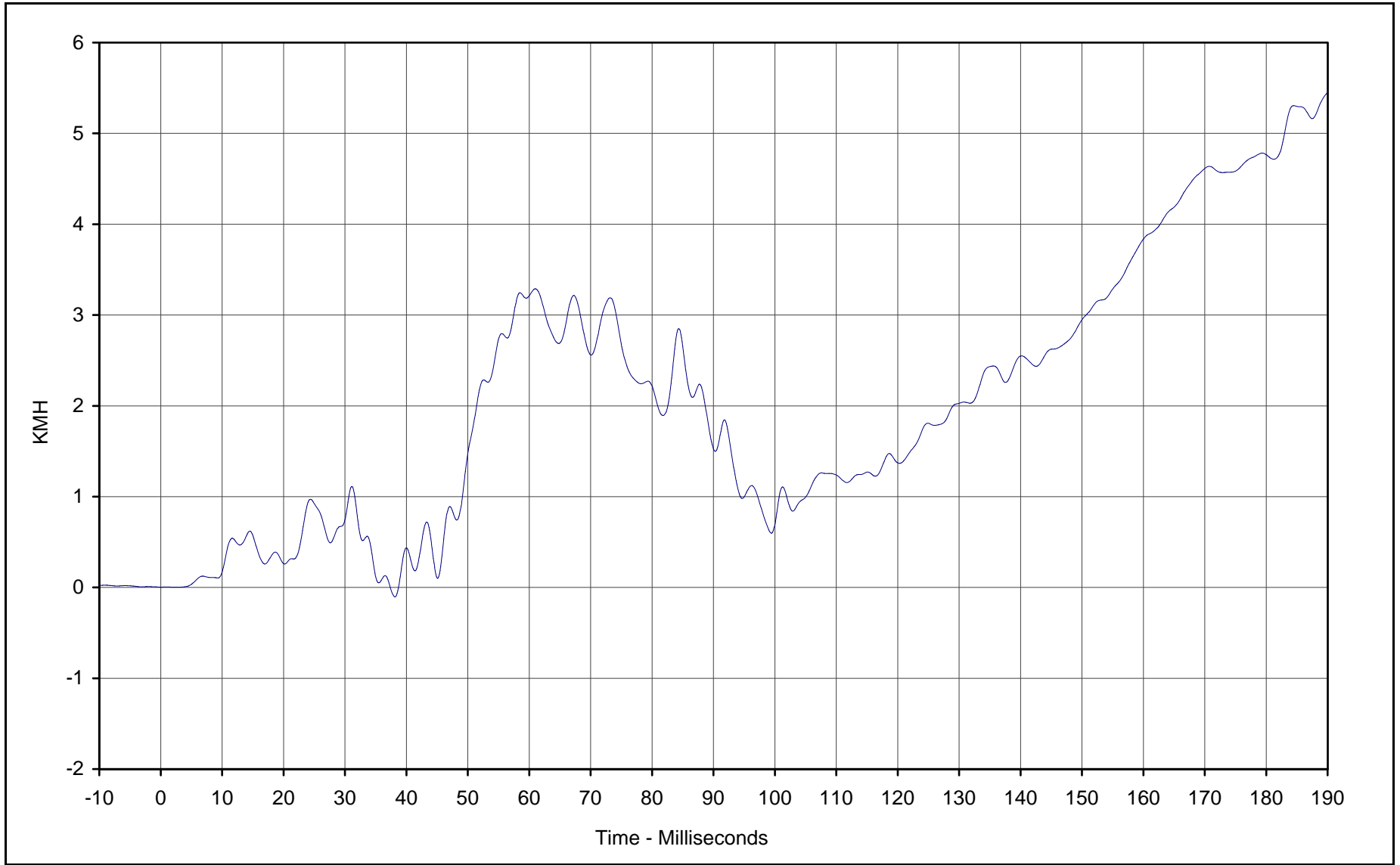
Curve Description: Rear Floor Above Axle Z
Maximum Value: 9.4 at 50.1 Milliseconds
Minimum Value: -5.5 at 75.3 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-035

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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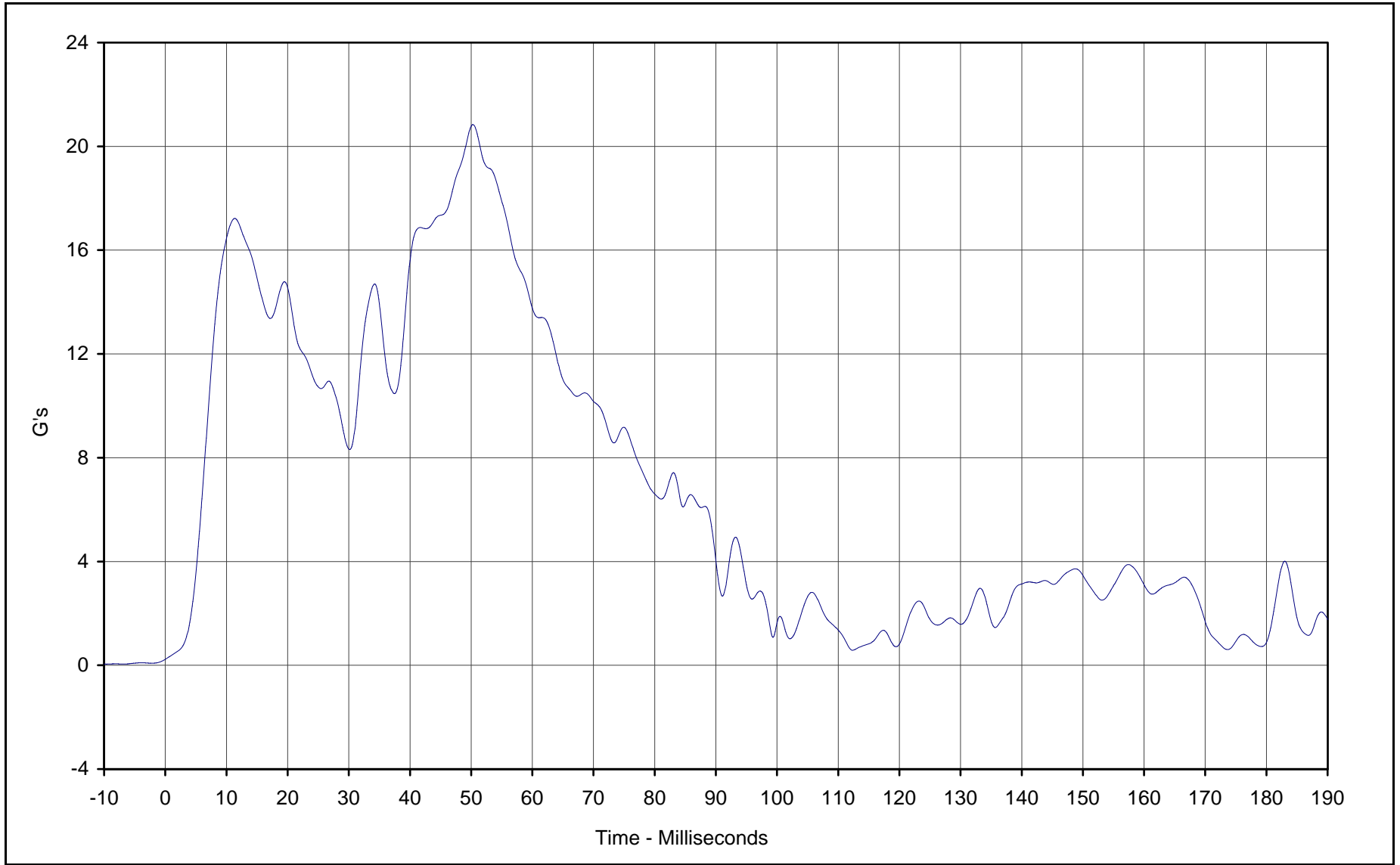
Curve Description: Rear Floor Above Axle Z Velocity
Maximum Value: 5.4 at 189.9 Milliseconds
Minimum Value: -0.1 at 38.1 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-035

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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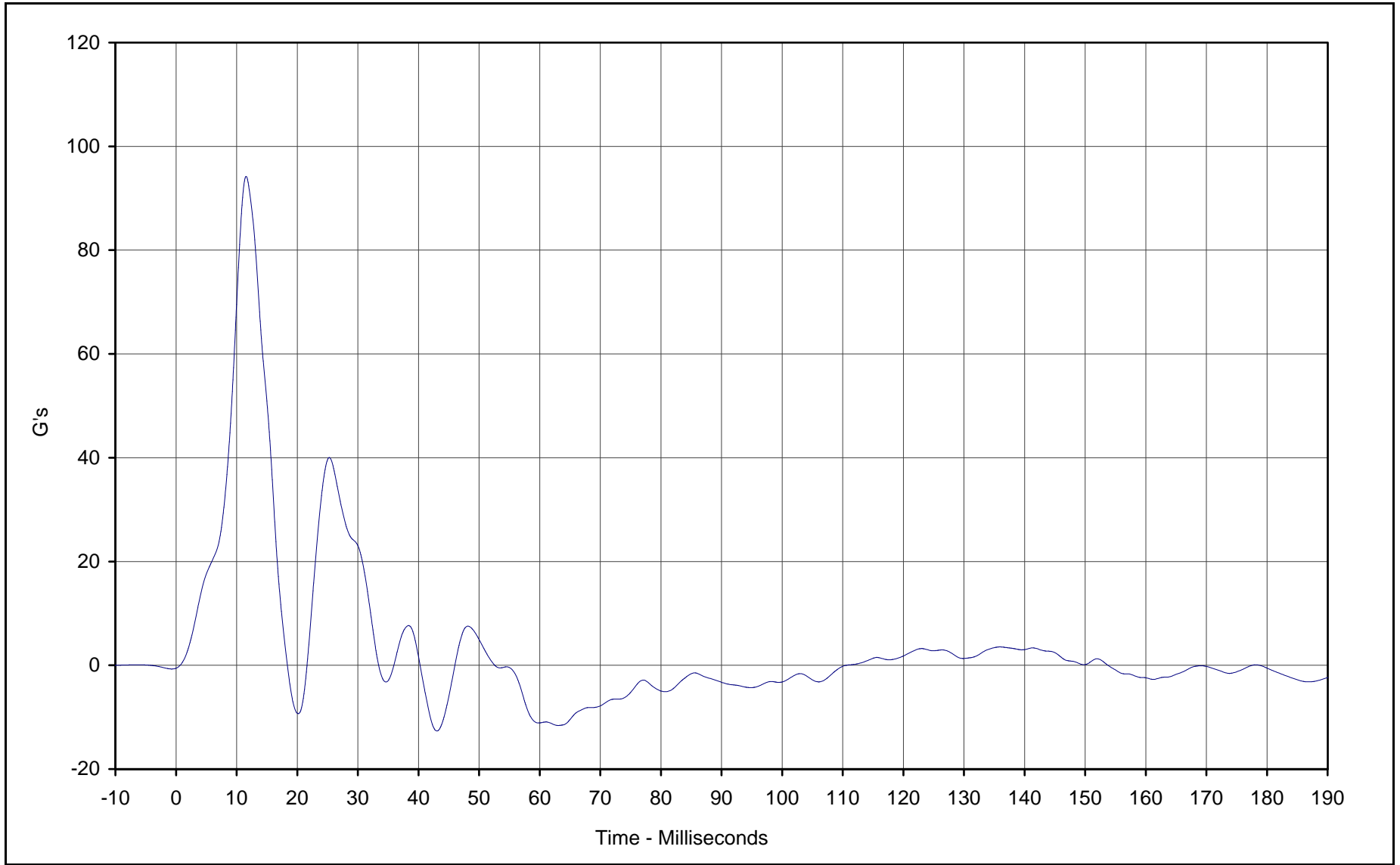
Curve Description: Rear Floor Above Axle Resultant
Maximum Value: 20.8 at 50.3 Milliseconds
Minimum Value: 0.2 at 0.0 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: RES-033

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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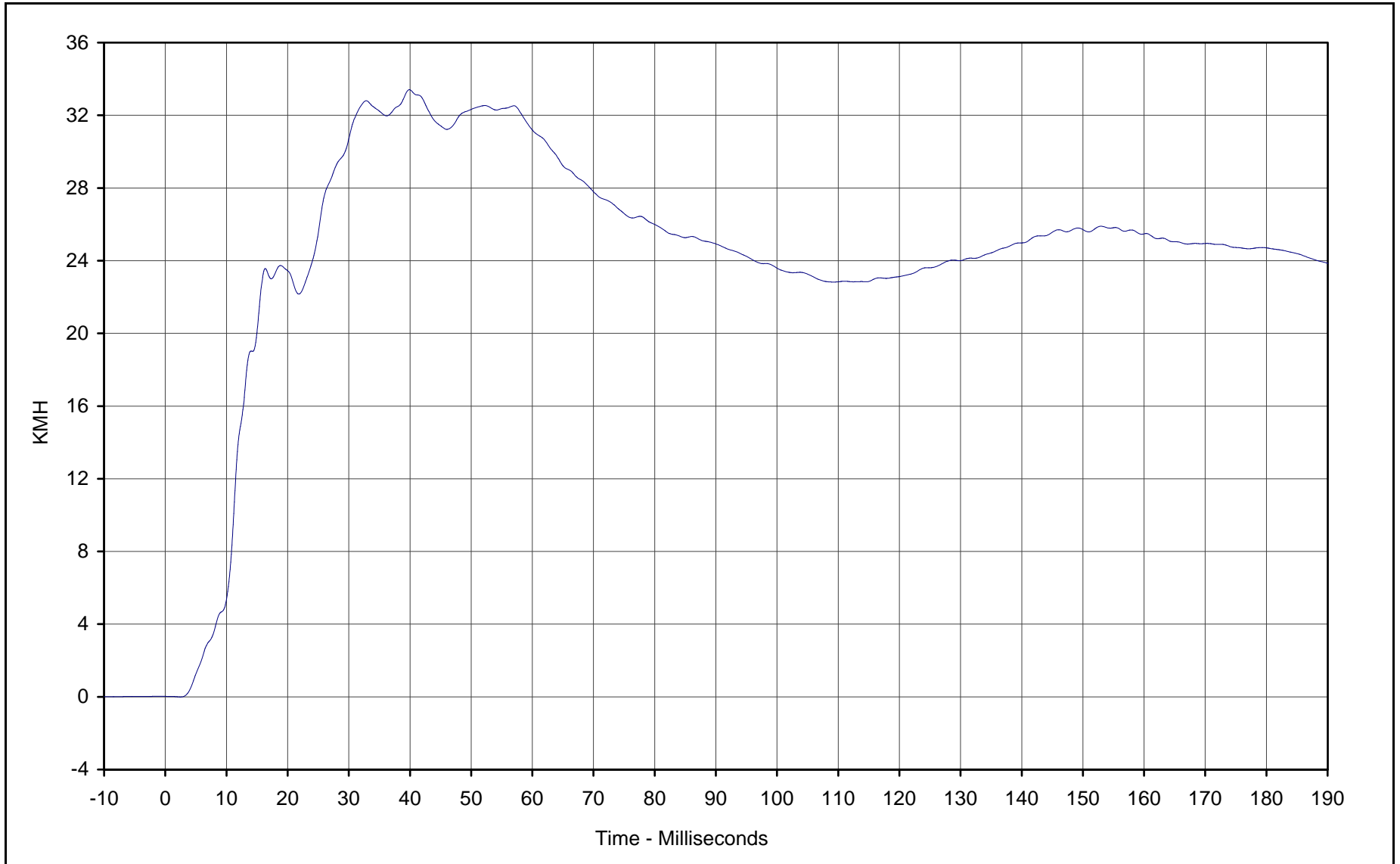
Curve Description: Left Sill at Rear Door Y
Maximum Value: 94.2 at 11.6 Milliseconds
Minimum Value: -12.7 at 43.0 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-036

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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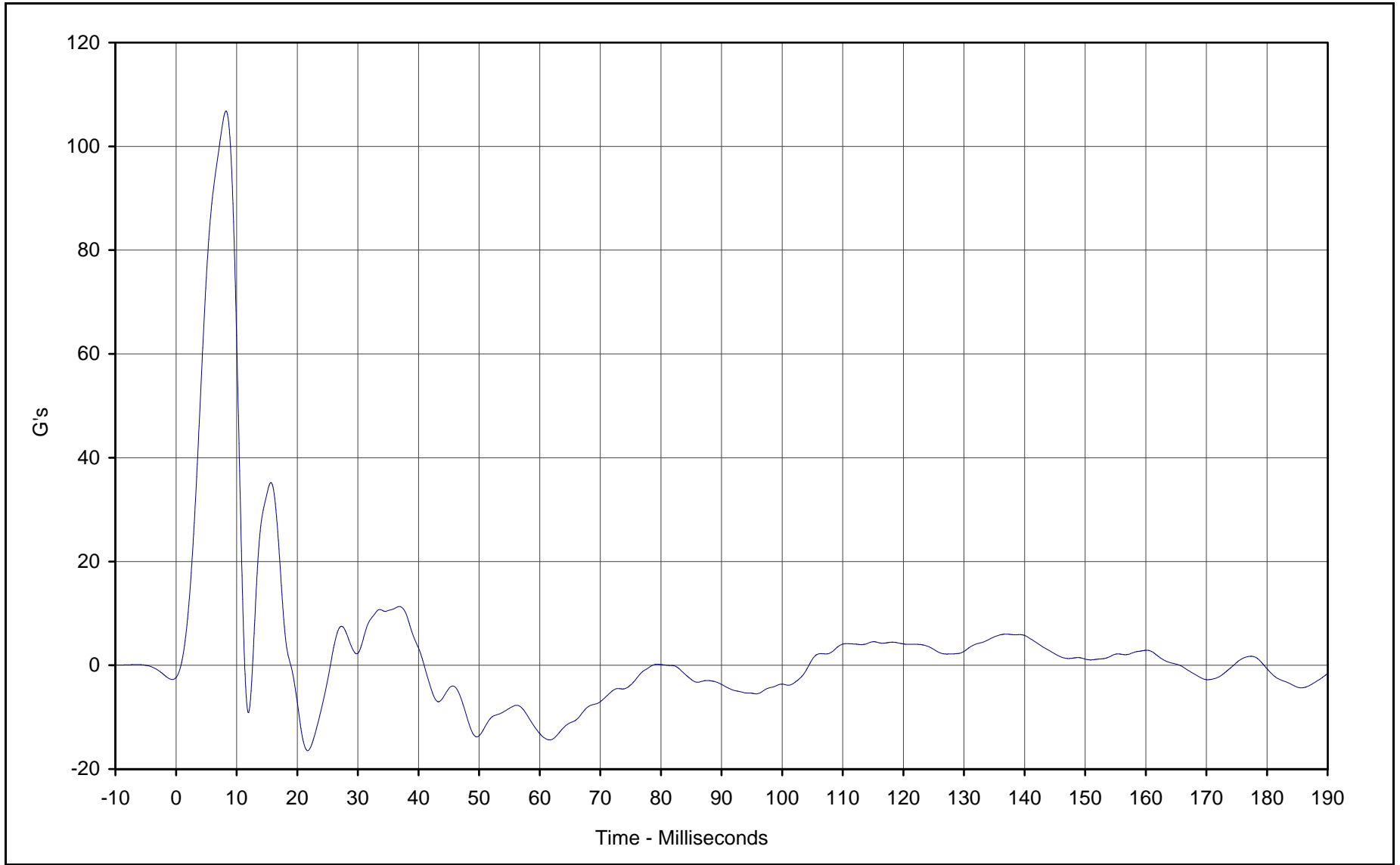
Curve Description: Left Sill at Rear Door Y Velocity
Maximum Value: 33.4 at 39.9 Milliseconds
Minimum Value: 0.0 at 2.5 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-036

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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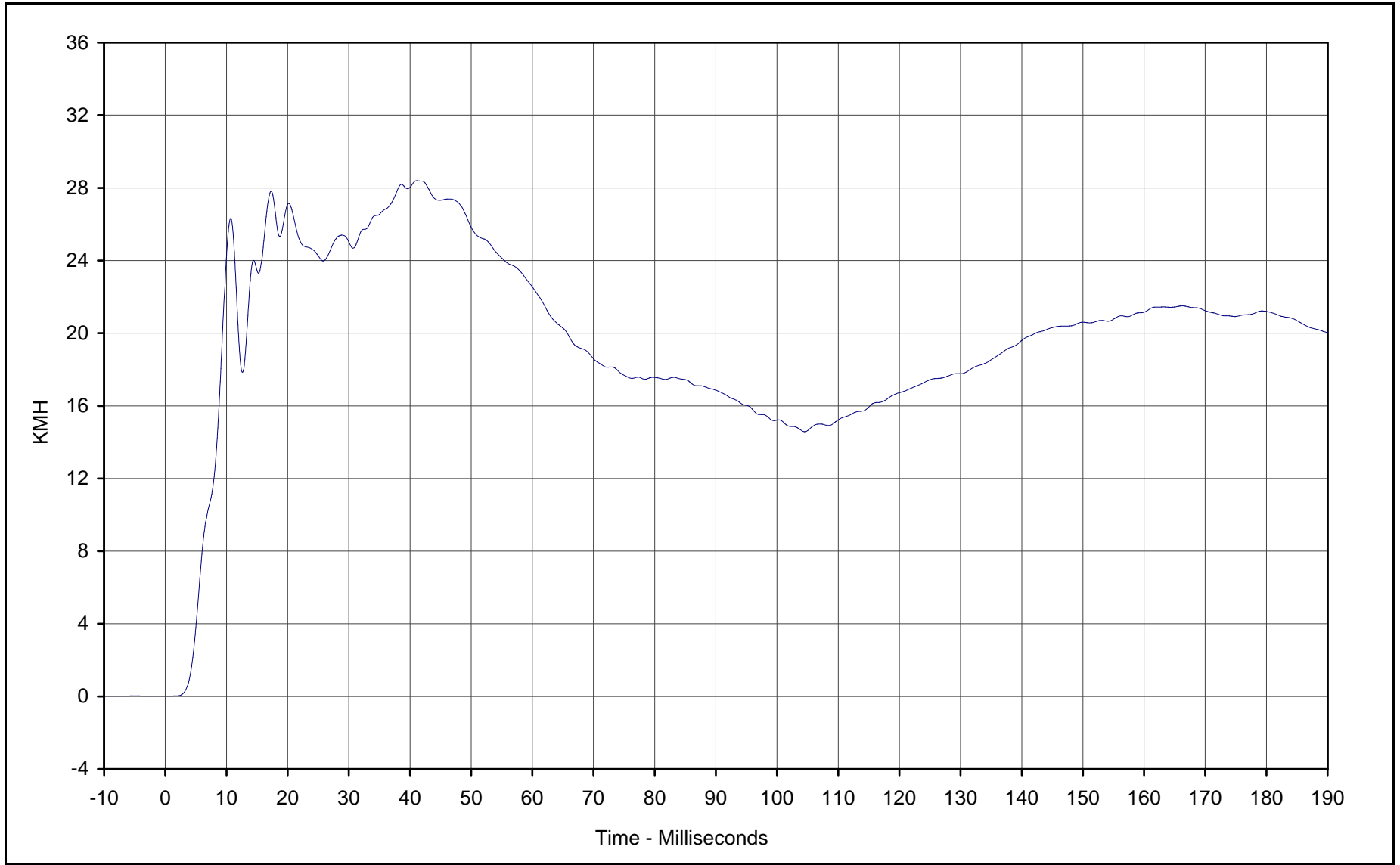
Curve Description: Left Sill at Front Door Y
Maximum Value: 106.8 at 8.3 Milliseconds
Minimum Value: -16.5 at 21.7 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-037

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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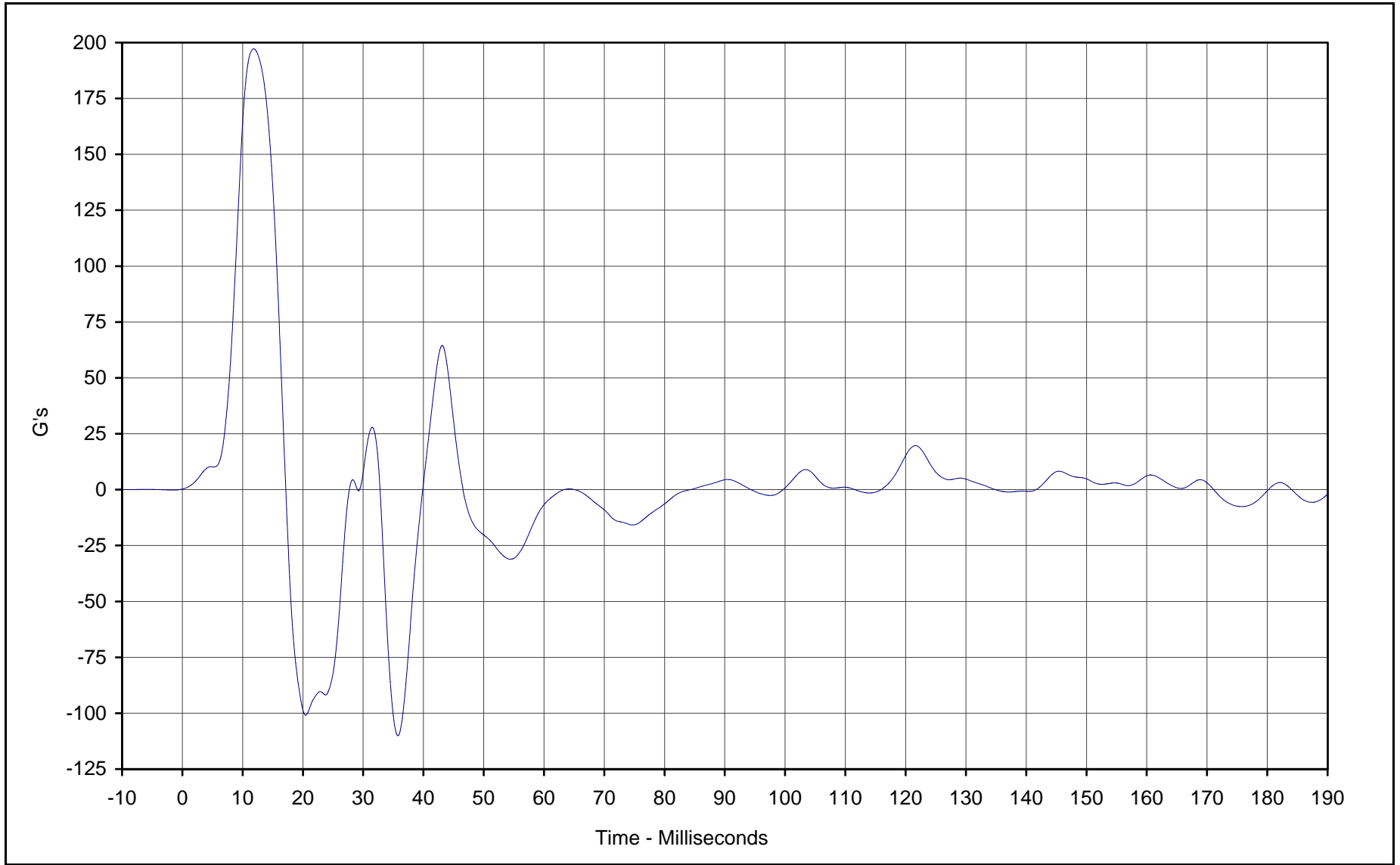
Curve Description: Left Sill at Front Door Y Velocity
Maximum Value: 28.4 at 41.1 Milliseconds
Minimum Value: 0.0 at 0.1 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-037

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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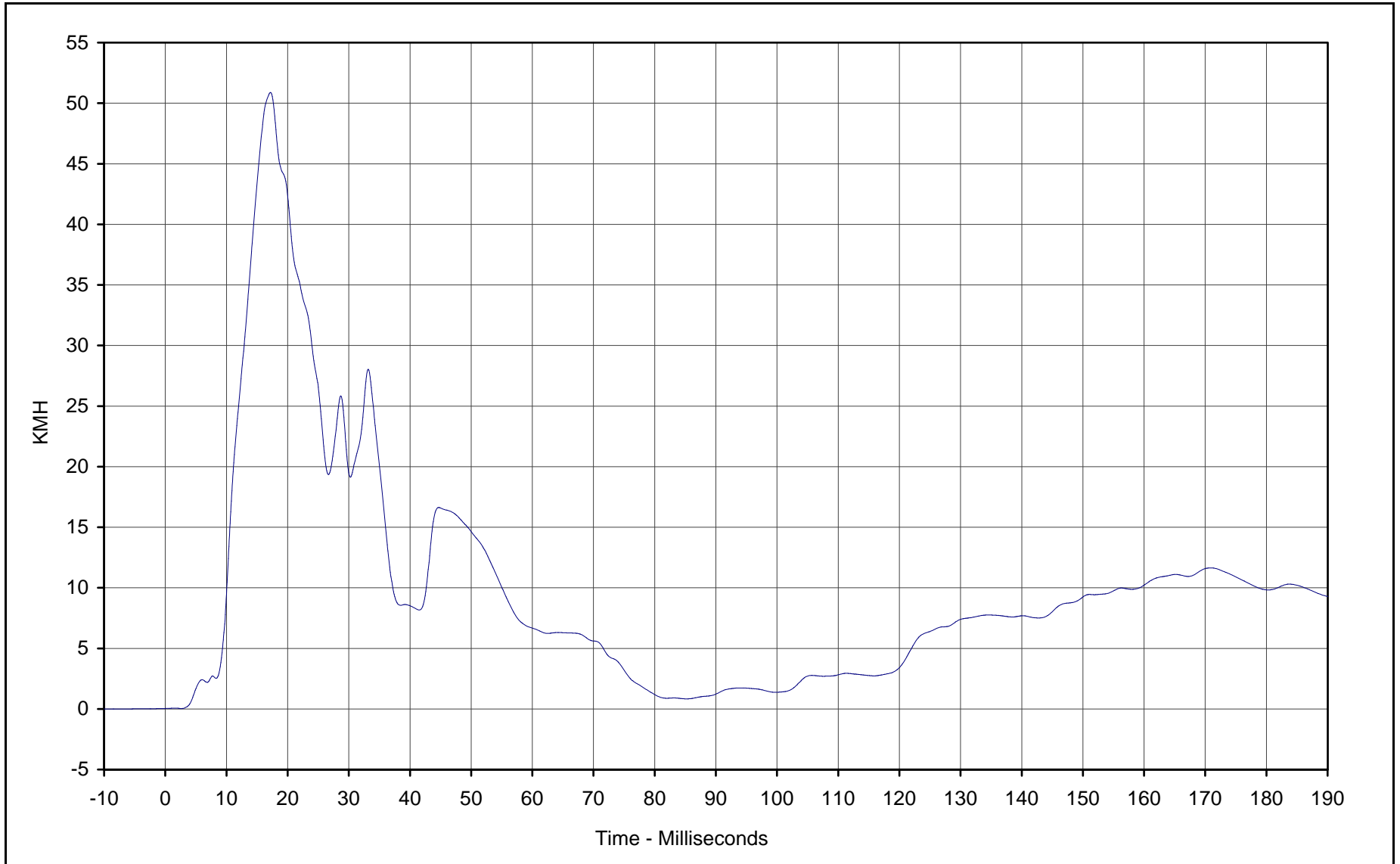
Curve Description: Left Front Door Centerline Y
Maximum Value: 197.2 at 11.8 Milliseconds
Minimum Value: -110.0 at 35.8 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-038

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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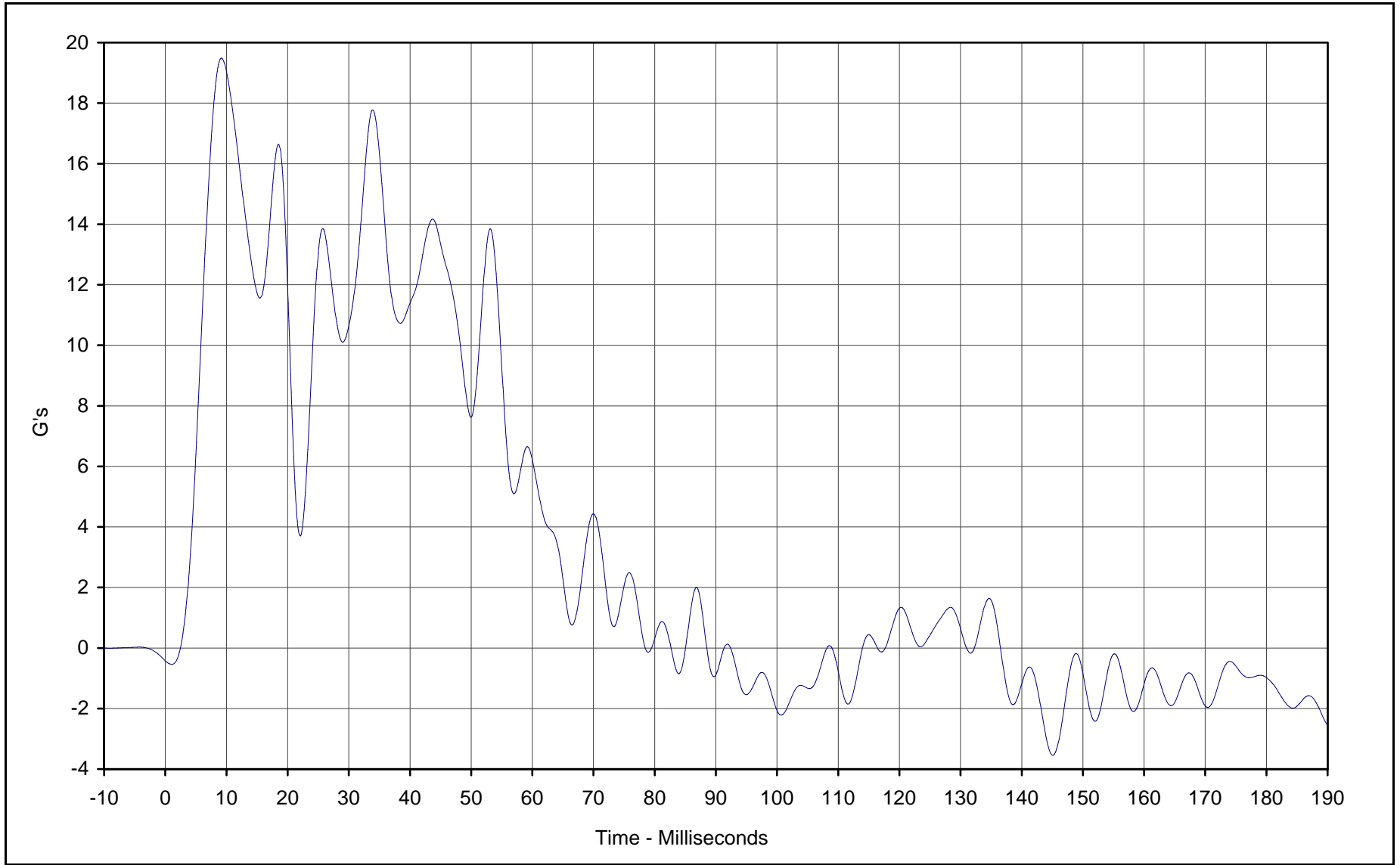
Curve Description: Left Front Door CL Y Velocity
Maximum Value: 50.9 at 17.2 Milliseconds
Minimum Value: 0.0 at 2.6 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-038

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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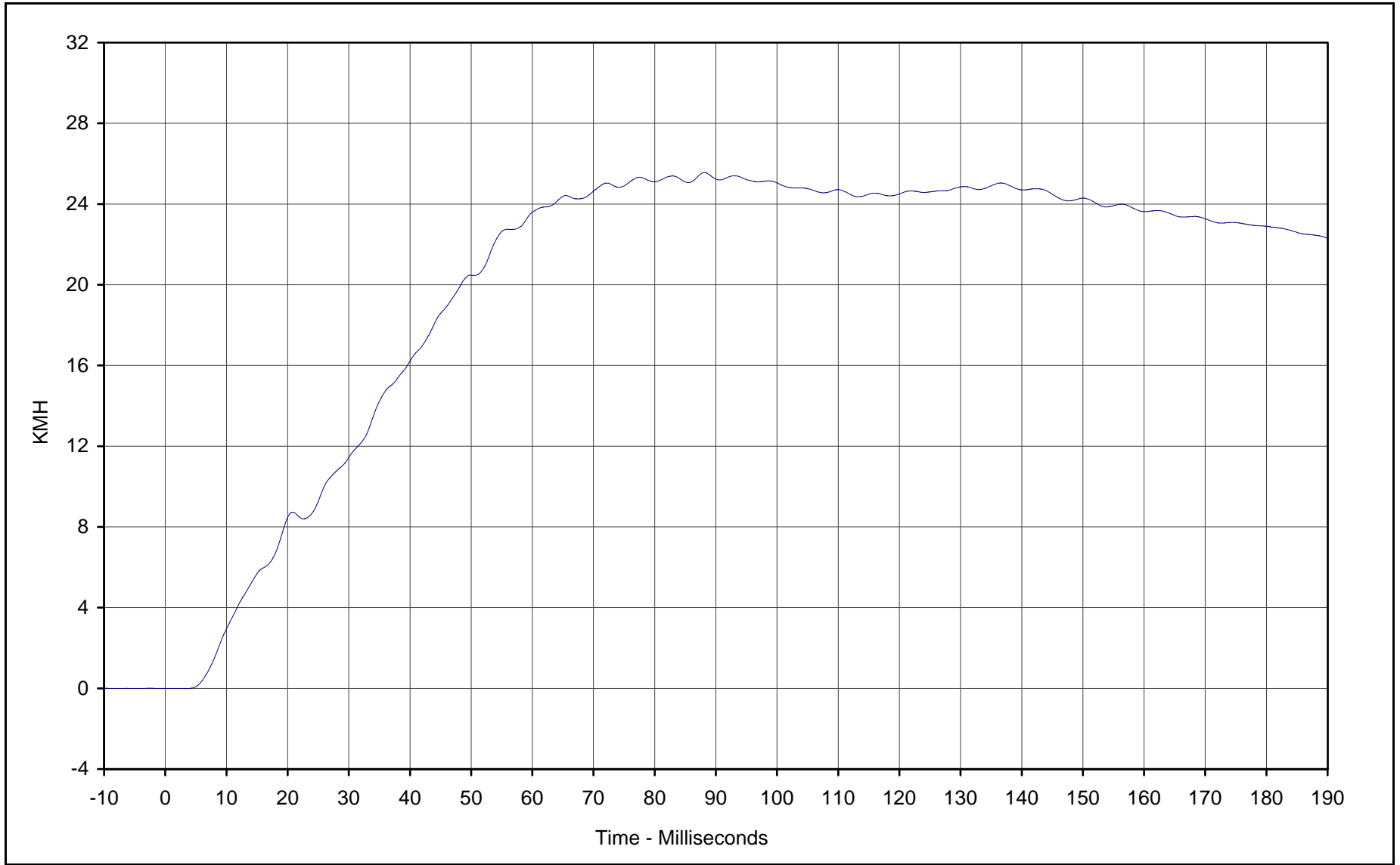
Curve Description: Right Rear Occ. Compartment Y
Maximum Value: 19.5 at 9.2 Milliseconds
Minimum Value: -3.5 at 145.1 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-039

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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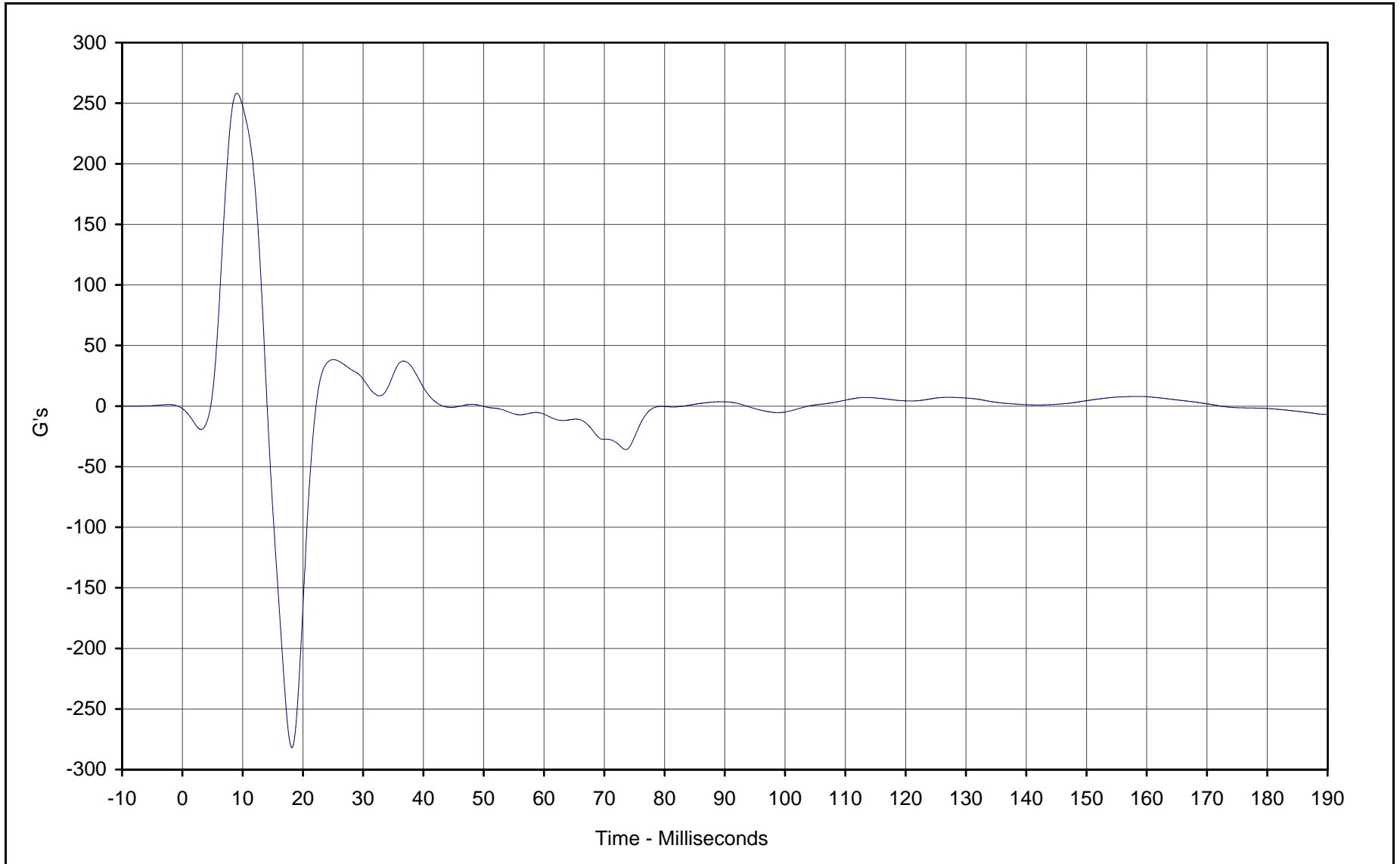
Curve Description: Rear Occ. Comp. Y Velocity
Maximum Value: 25.6 at 88.1 Milliseconds
Minimum Value: 0.0 at 3.4 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-039

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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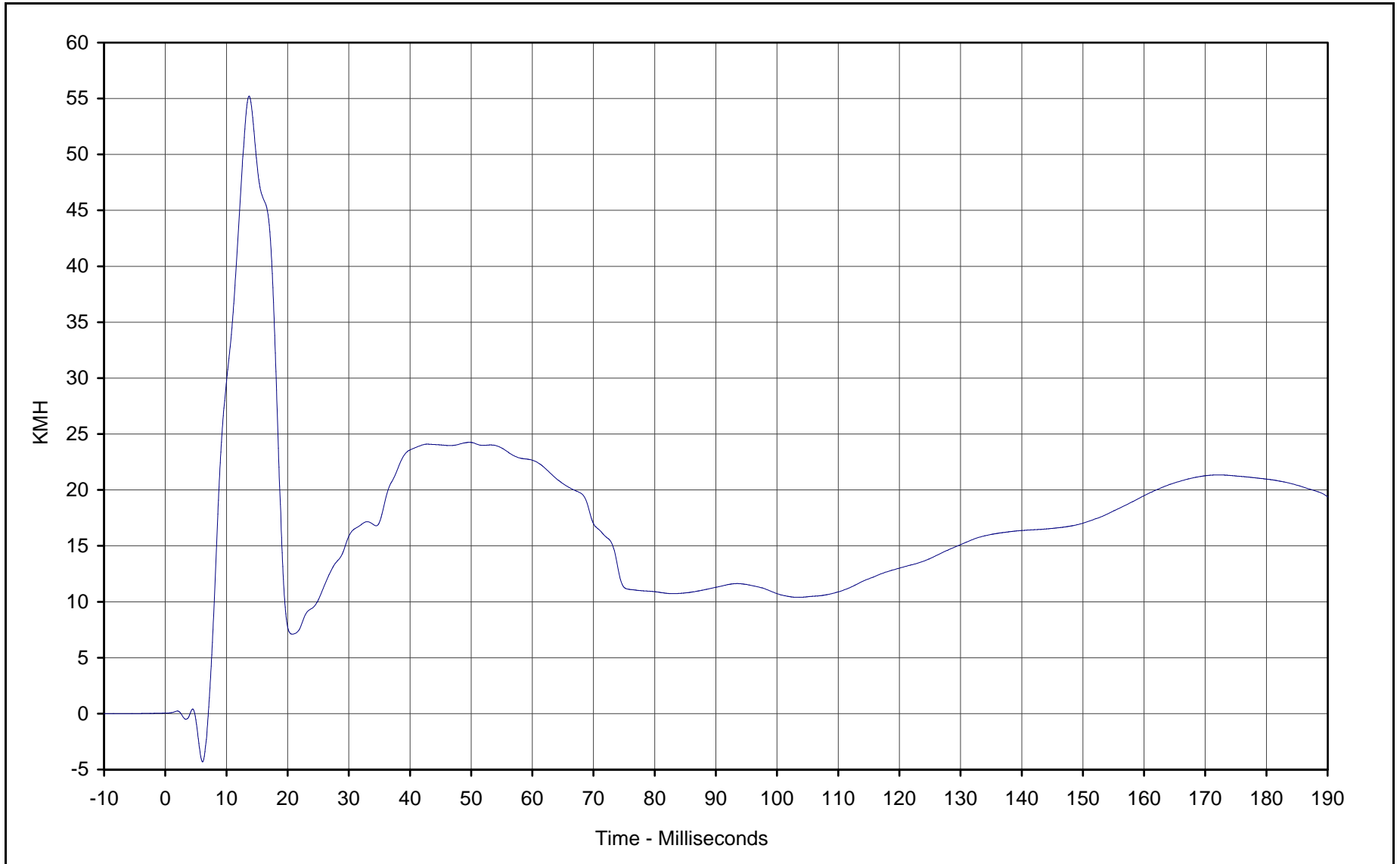
Curve Description: Left Front Door Mid Rear Y
Maximum Value: 258.2 at 9.0 Milliseconds
Minimum Value: -281.8 at 18.2 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-040

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Left Front Door Mid-Rear Y Velocity

Maximum Value: 55.2 at 13.7 Milliseconds

Minimum Value: -4.3 at 6.1 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

Curve Number: IN1-040

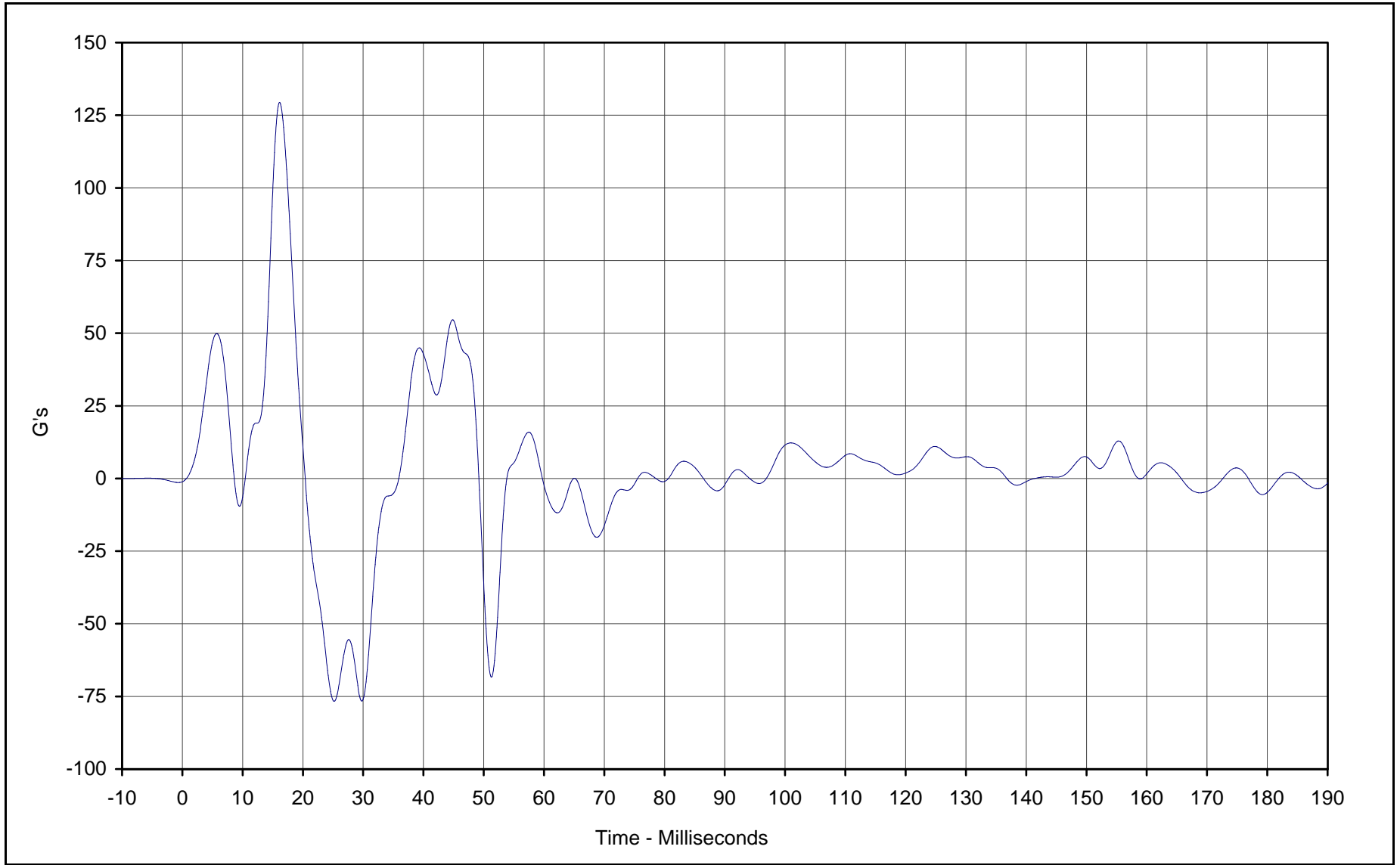
Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

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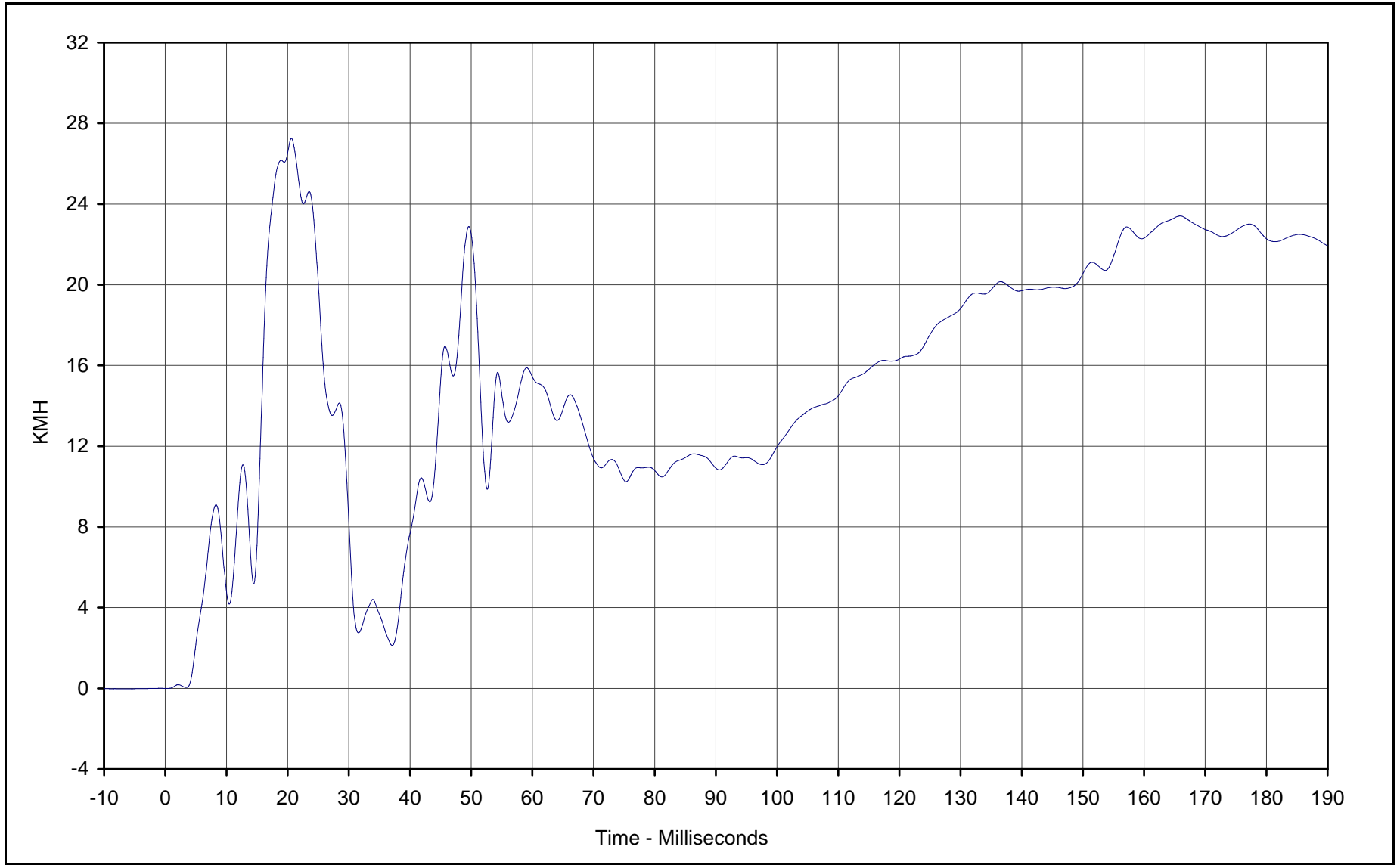
Curve Description: Left Front Door Upper CL Y
Maximum Value: 129.4 at 16.1 Milliseconds
Minimum Value: -76.7 at 25.2 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-041

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Left Front Door Upper CL Y Velocity

Maximum Value: 27.3 at 20.6 Milliseconds

Minimum Value: 0.0 at 0.3 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

Curve Number: IN1-041

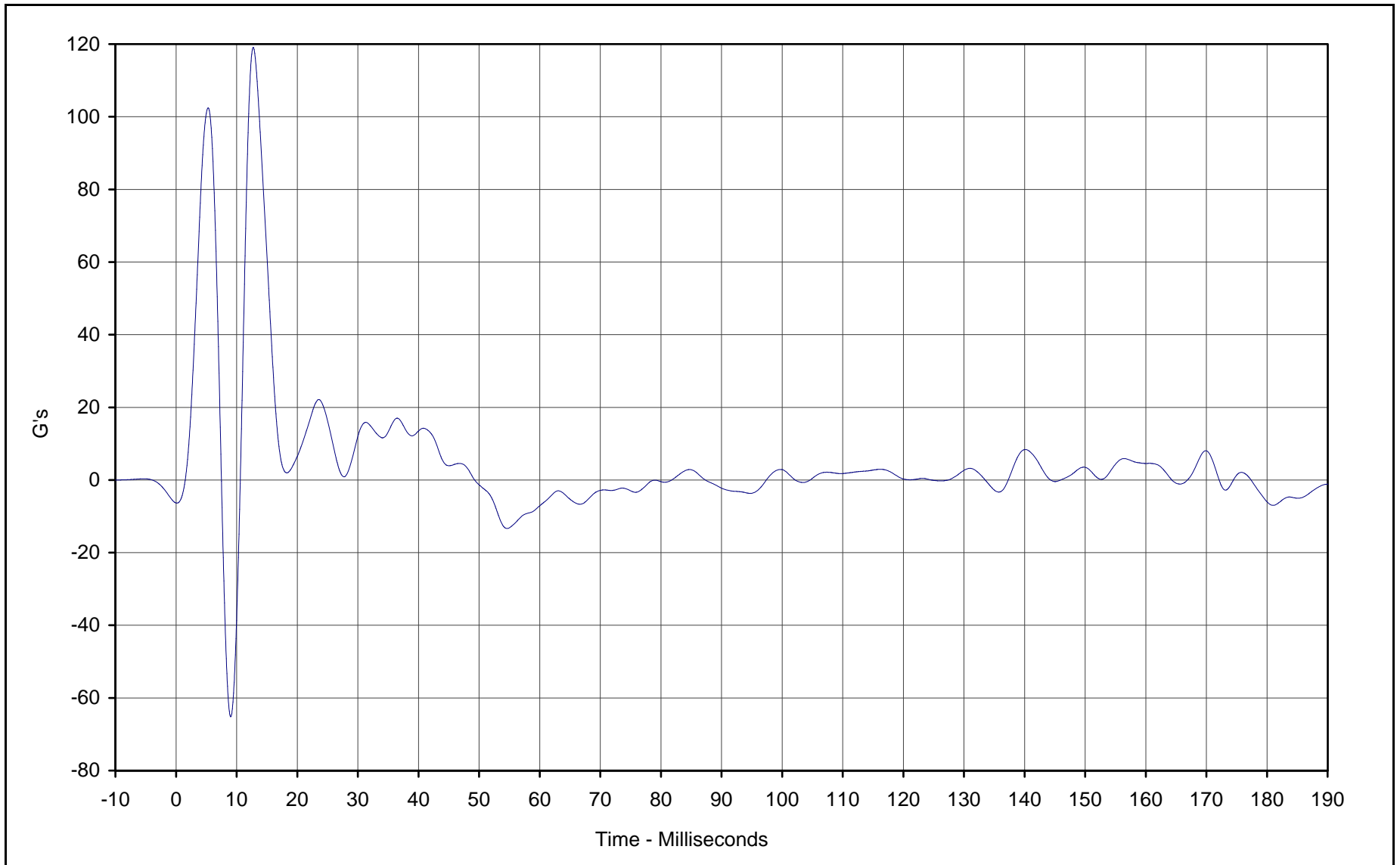
Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

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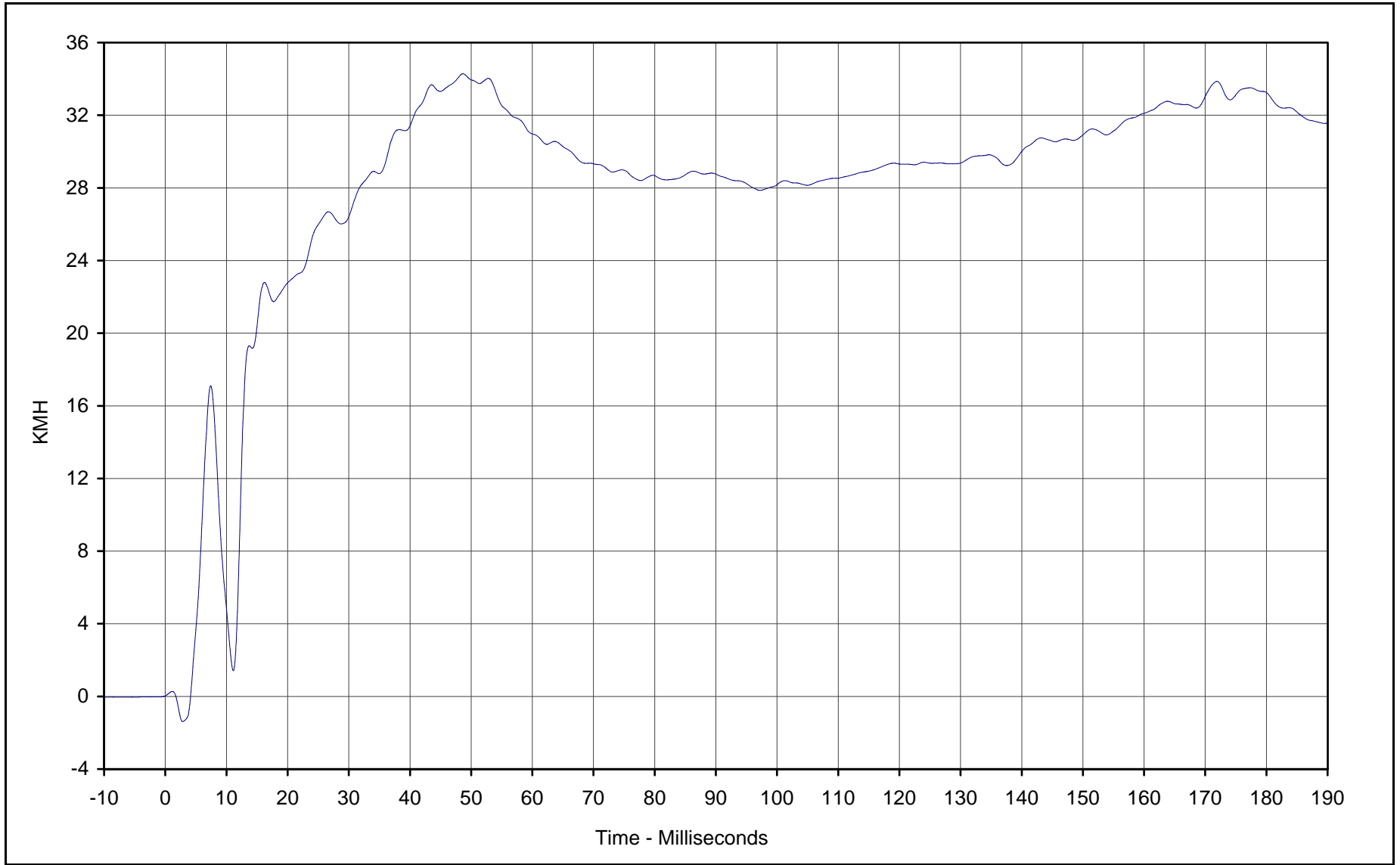
Curve Description: Left Rear Door Mid Rear Y
Maximum Value: 119.1 at 12.7 Milliseconds
Minimum Value: -65.2 at 9.0 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-042

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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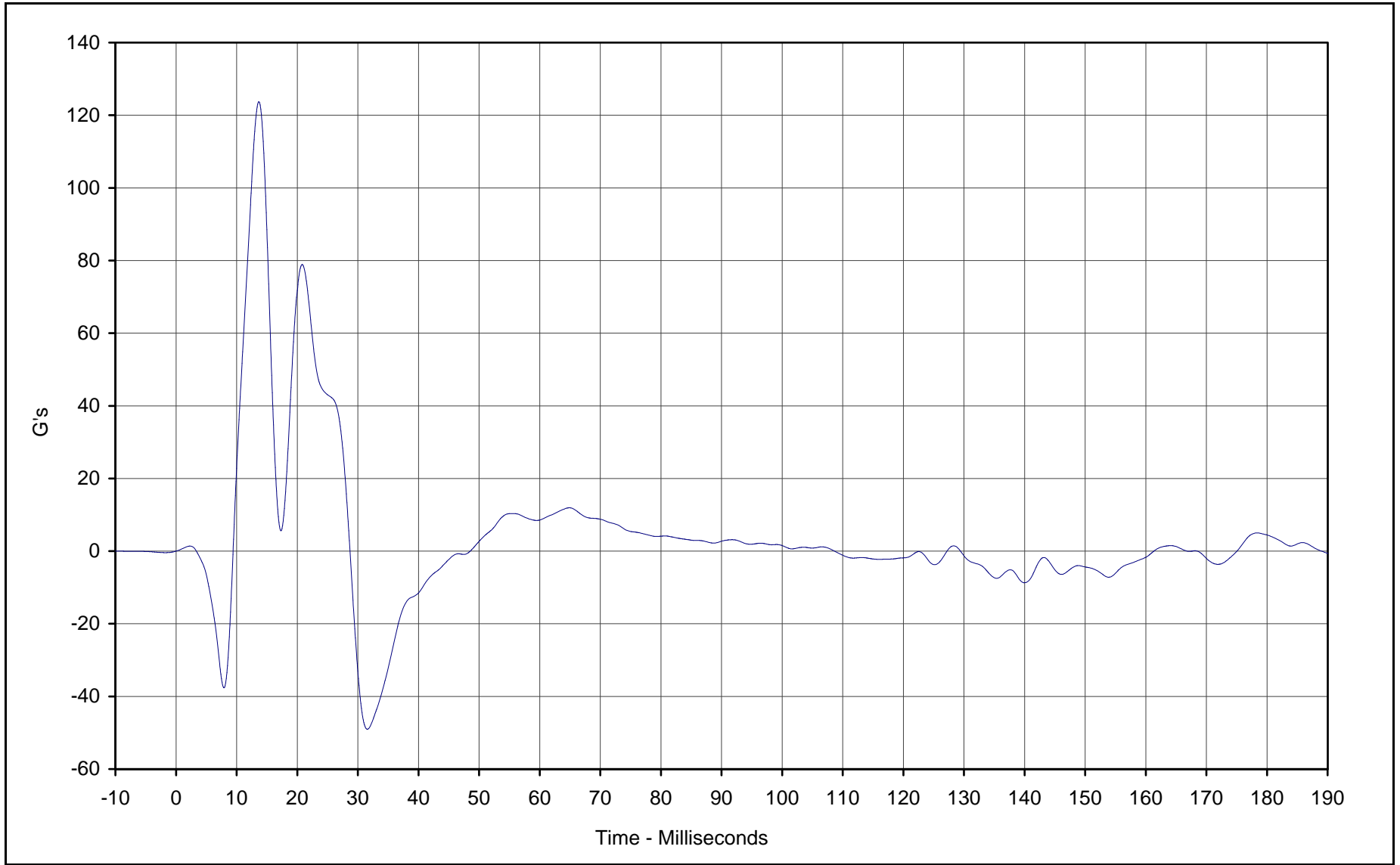
Curve Description: Left Rear Door Mid Rear Y Velocity
Maximum Value: 34.3 at 48.7 Milliseconds
Minimum Value: -1.4 at 2.9 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-042

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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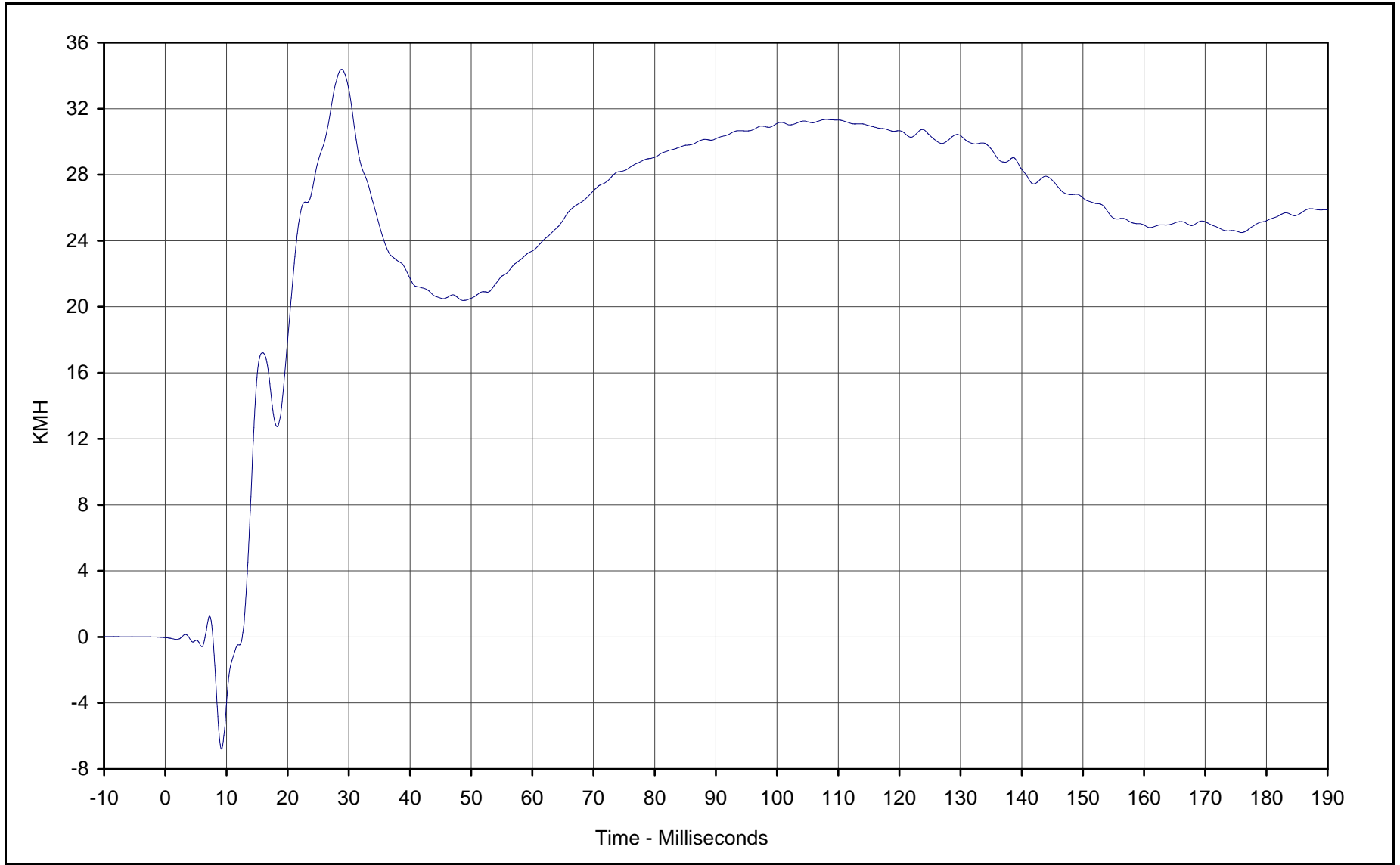
Curve Description: Left Rear Door Upper CL Y
Maximum Value: 123.7 at 13.7 Milliseconds
Minimum Value: -49.0 at 31.6 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-043

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan

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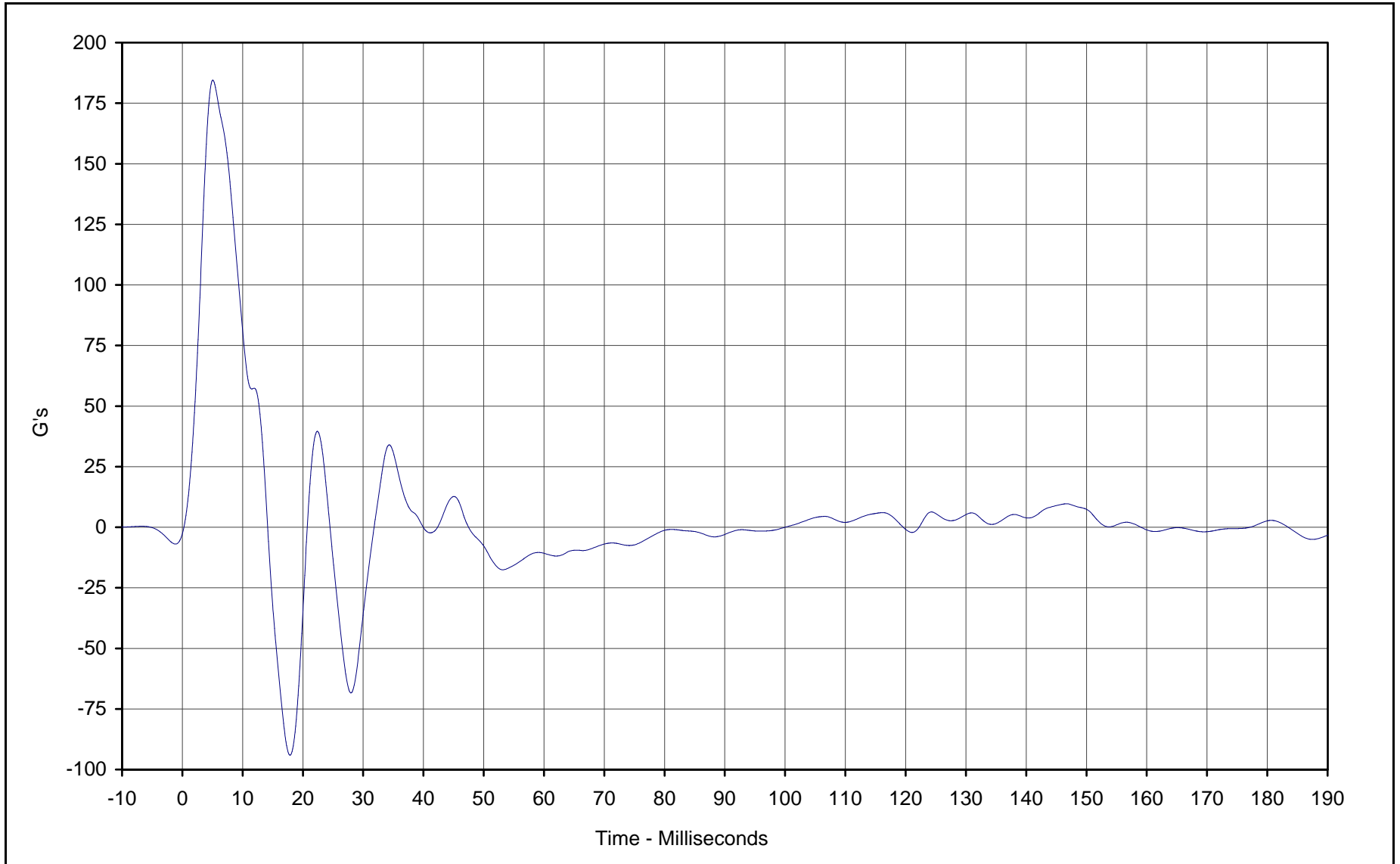
Curve Description: Left Rear Door Upper CL Y Velocity
Maximum Value: 34.4 at 28.8 Milliseconds
Minimum Value: -6.8 at 9.2 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-043

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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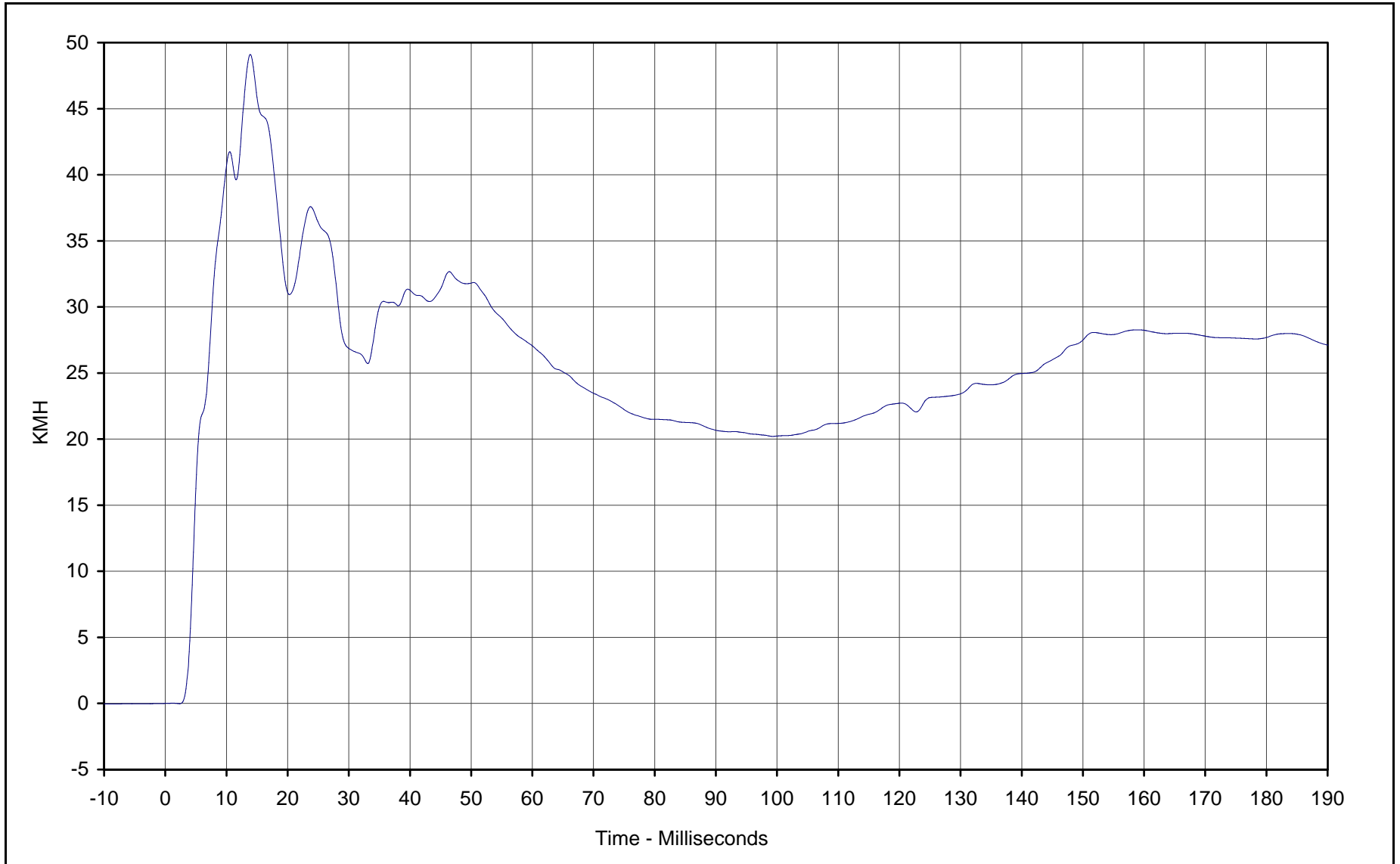
Curve Description: Left B-Post Lower Y
Maximum Value: 184.5 at 5.1 Milliseconds
Minimum Value: -94.1 at 17.9 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-044

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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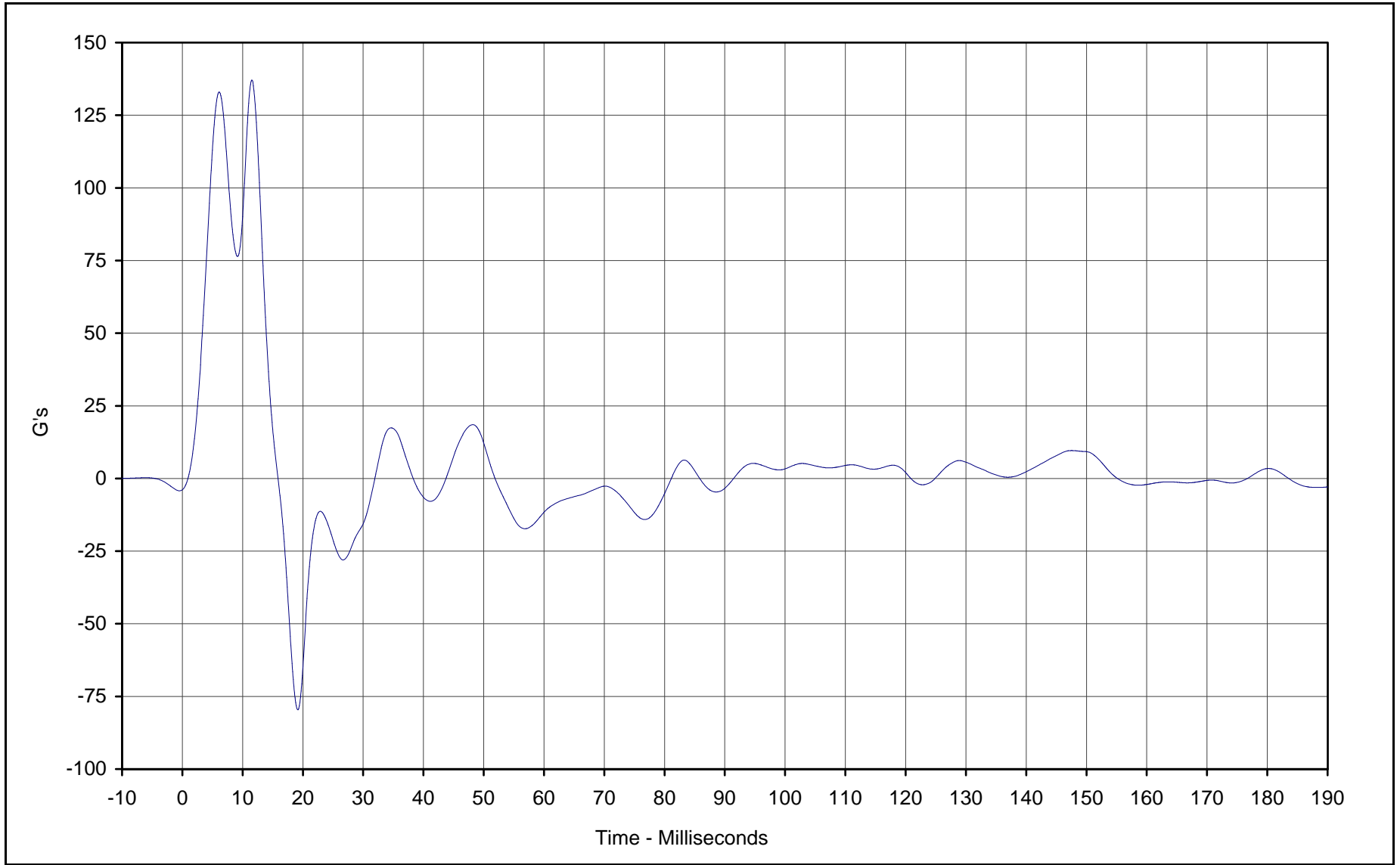
Curve Description: Left B-Post Lower Y Velocity
Maximum Value: 49.1 at 13.9 Milliseconds
Minimum Value: 0.0 at 2.3 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-044

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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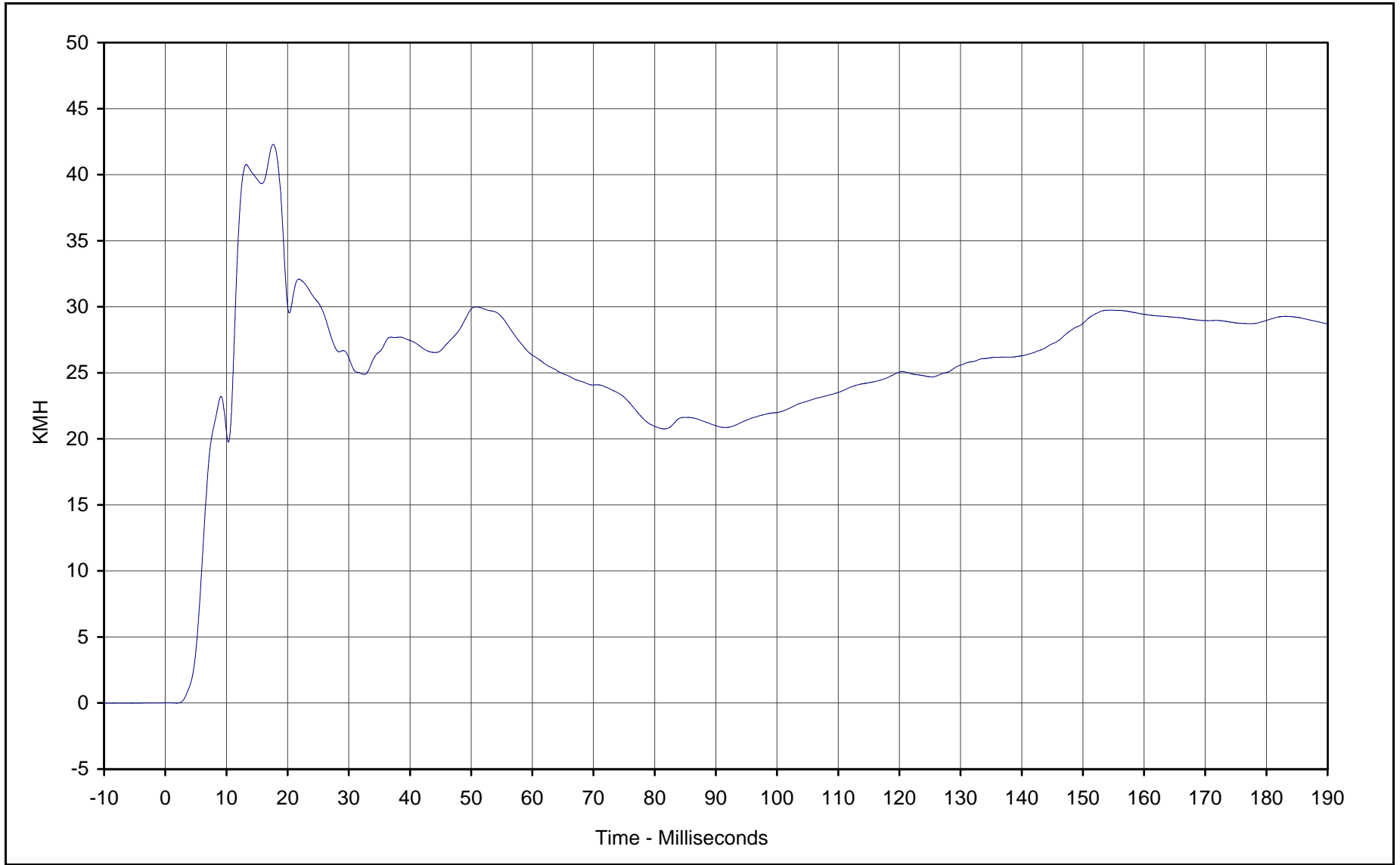
Curve Description: Left B-Post Middle Y
Maximum Value: 137.1 at 11.5 Milliseconds
Minimum Value: -79.6 at 19.2 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-045

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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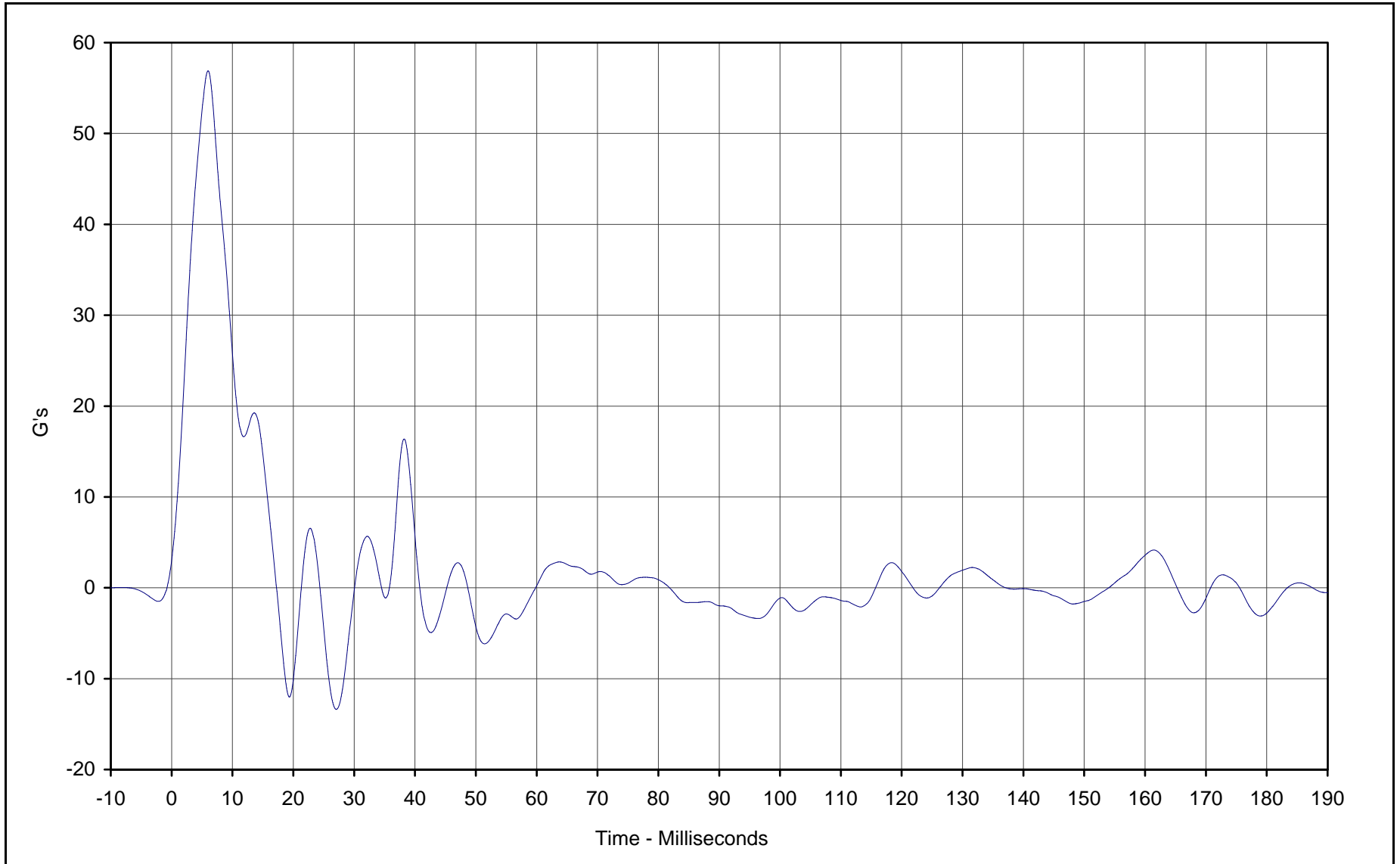
Curve Description: Left B-Post Middle Y Velocity
Maximum Value: 42.3 at 17.7 Milliseconds
Minimum Value: 0.0 at 1.9 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-045

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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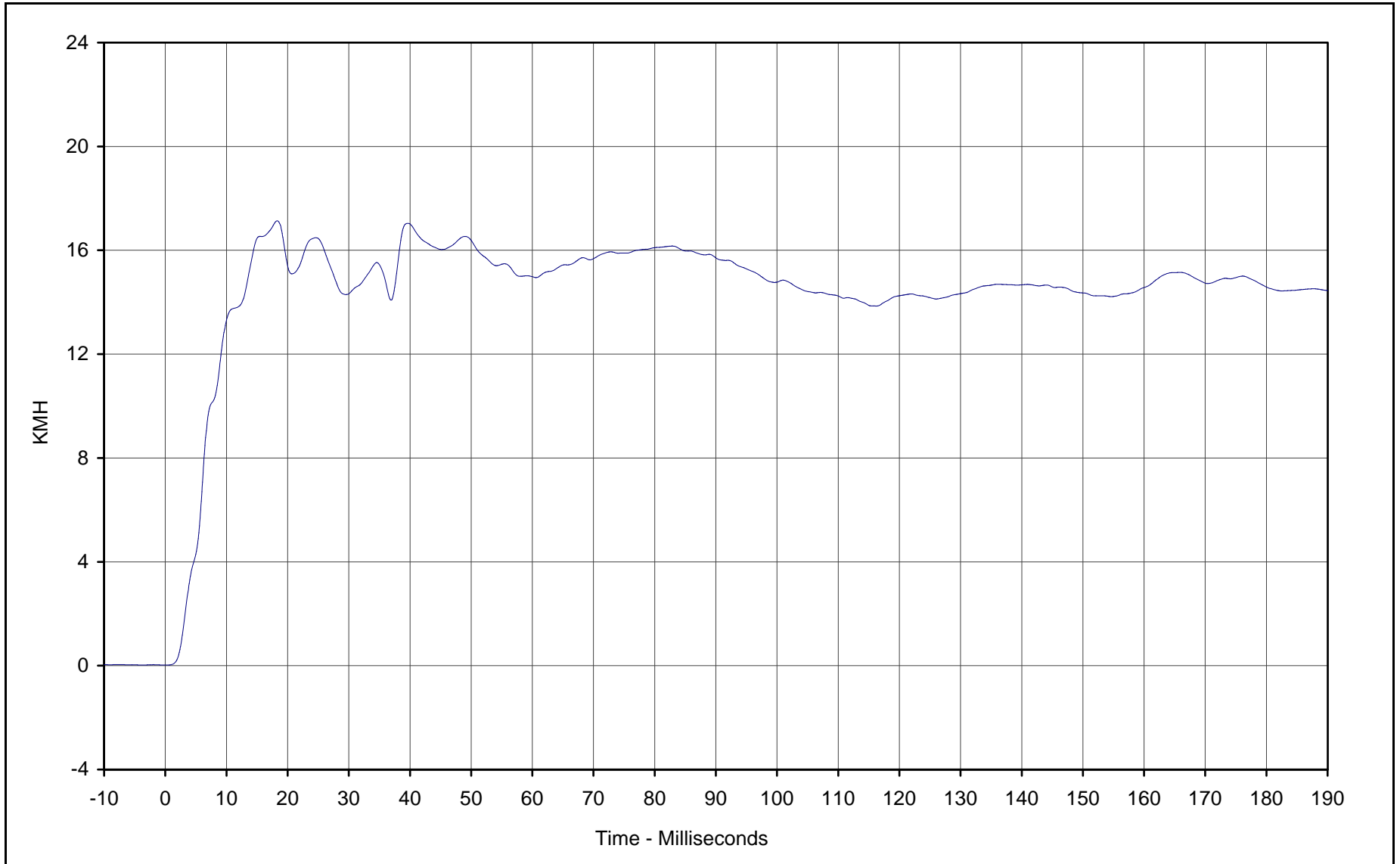
Curve Description: Left A-Post Lower Y
Maximum Value: 56.9 at 6.0 Milliseconds
Minimum Value: -13.4 at 27.1 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-046

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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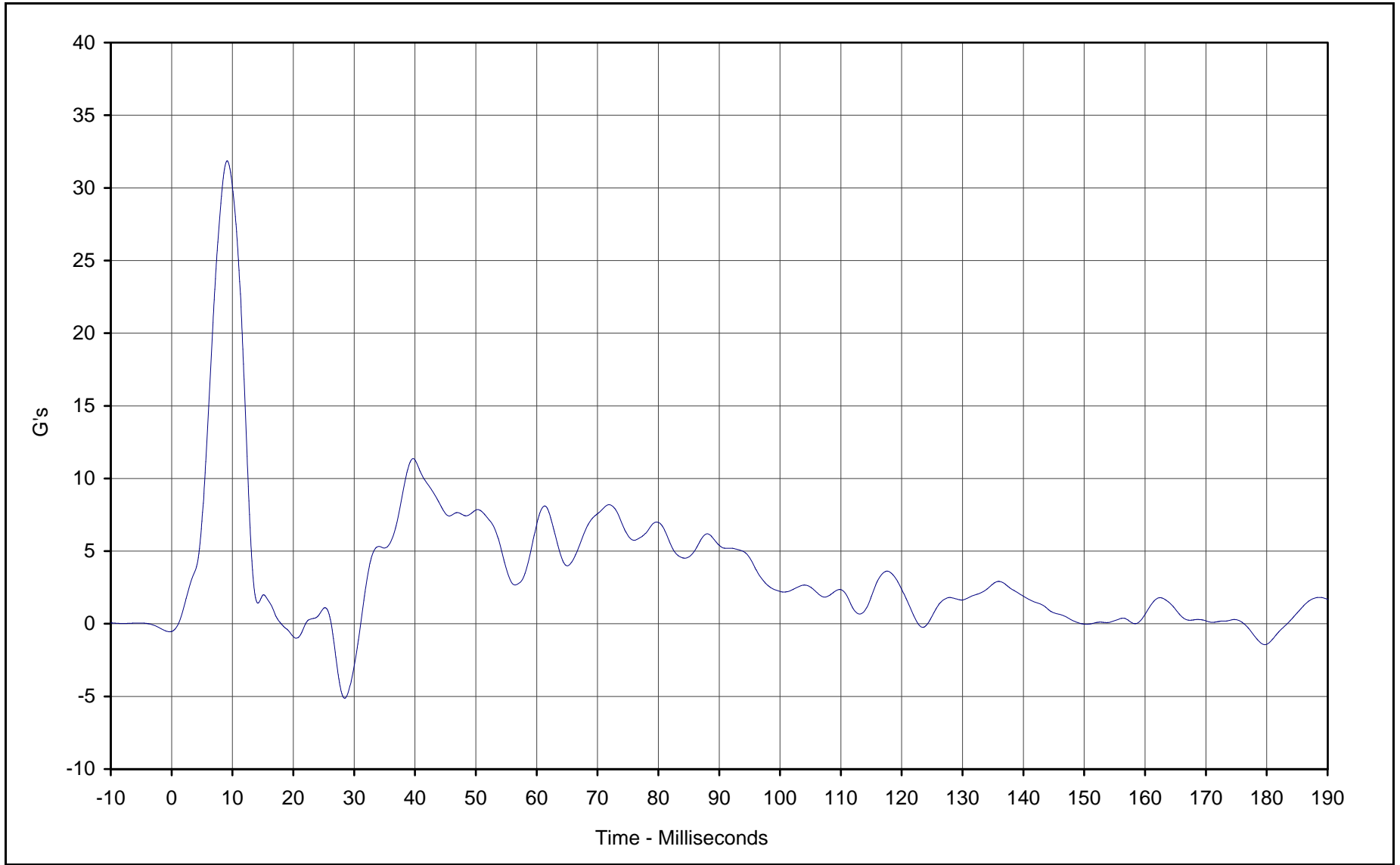
Curve Description: Left A-Post Lower Y Velocity
Maximum Value: 17.1 at 18.3 Milliseconds
Minimum Value: 0.0 at 0.1 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-046

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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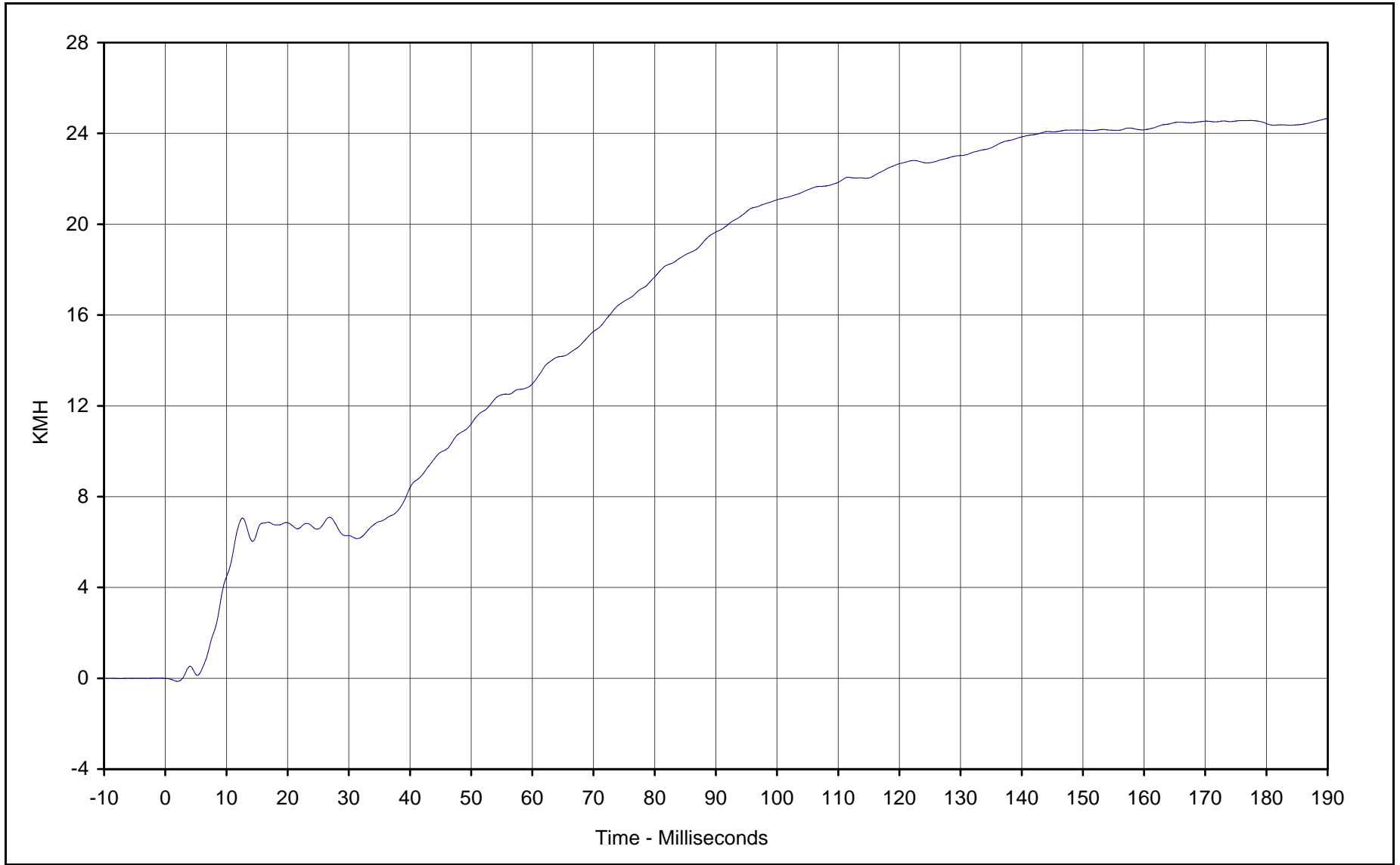
Curve Description: Left A-Post Middle Y
Maximum Value: 31.9 at 9.1 Milliseconds
Minimum Value: -5.1 at 28.5 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-047

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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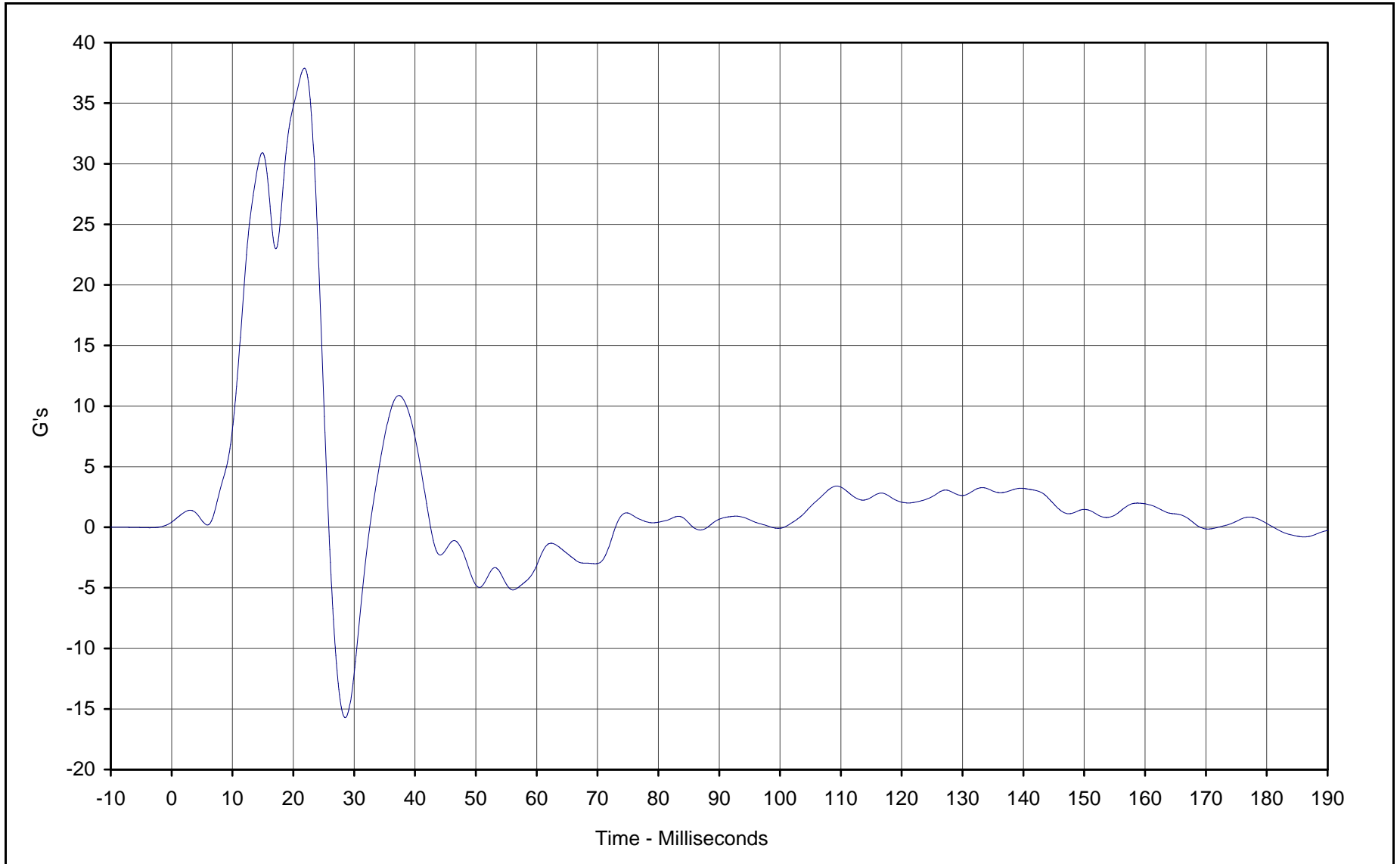
Curve Description: Left A-Post Middle Y Velocity
Maximum Value: 24.7 at 189.9 Milliseconds
Minimum Value: -0.1 at 2.0 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-047

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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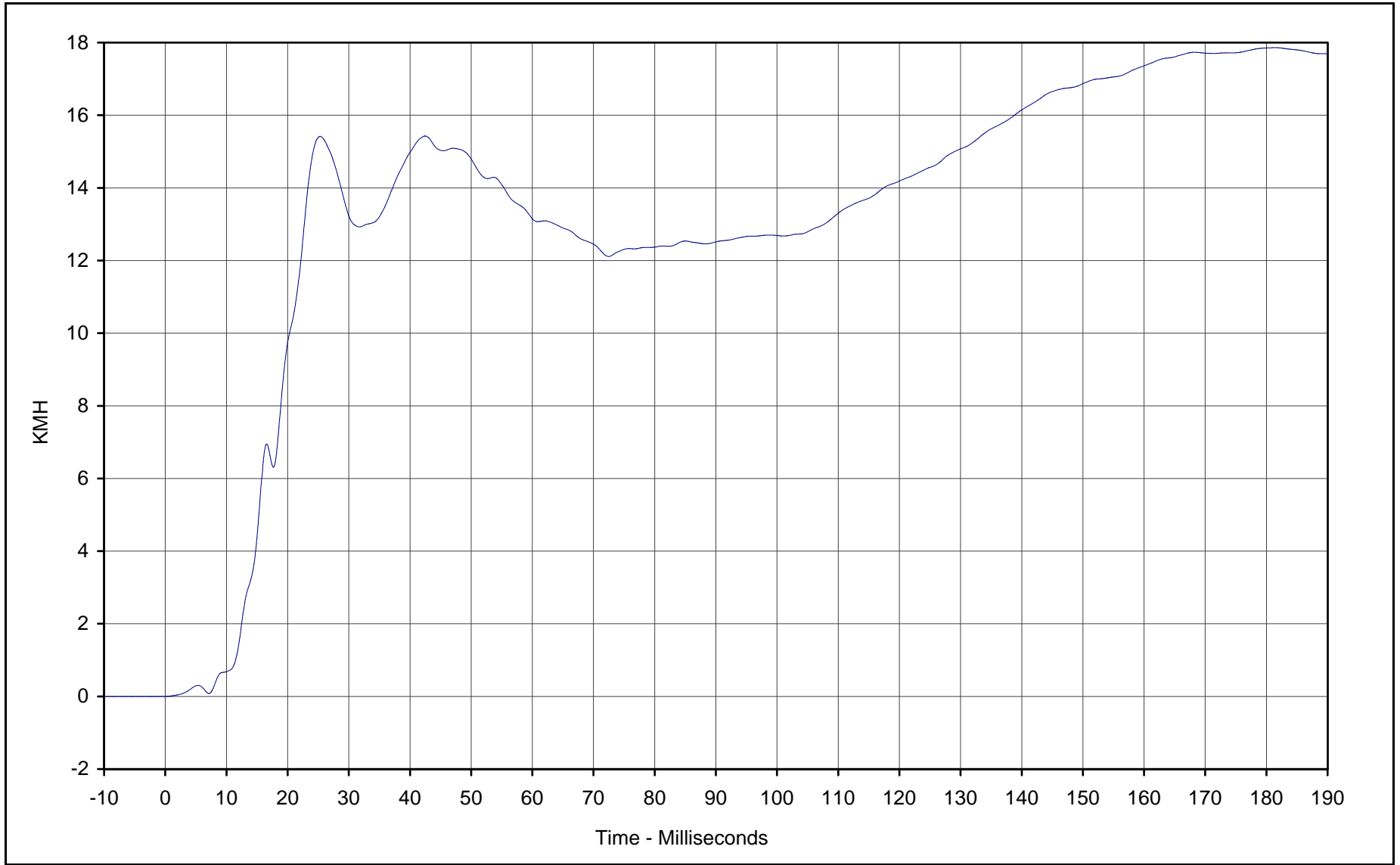
Curve Description: Left Front Seat Track Y
Maximum Value: 37.9 at 21.8 Milliseconds
Minimum Value: -15.7 at 28.6 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-048

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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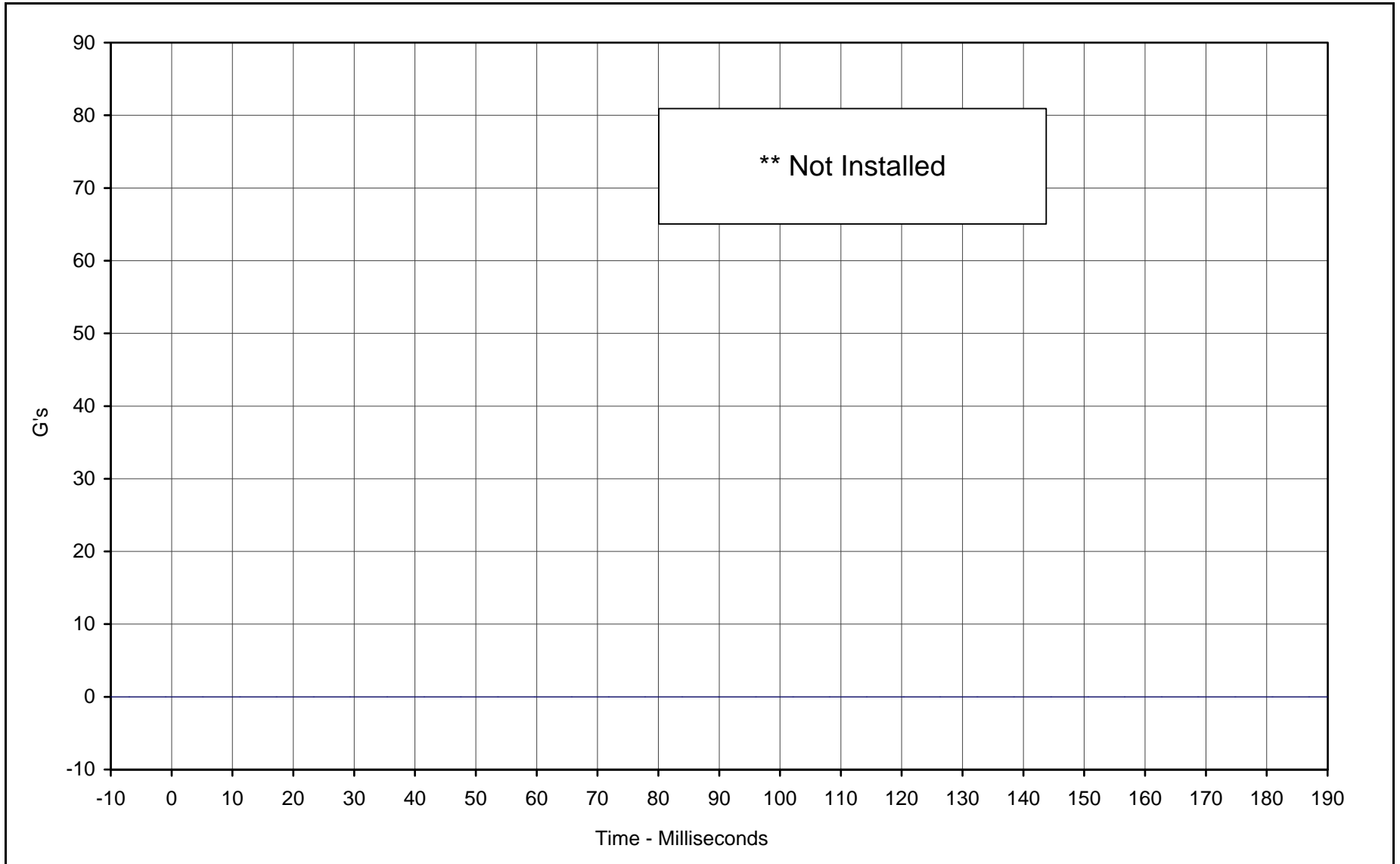
Curve Description: Front Seat Track Y Velocity
Maximum Value: 17.9 at 181.5 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-048

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Left Rear Seat Structure Y **

Maximum Value: 0.0 at 0.0 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 60

Date of Test: 11/28/00

Curve Number: FIL-049

Test Program: 55/28 km/h Side Impact NCAP No.: M10110

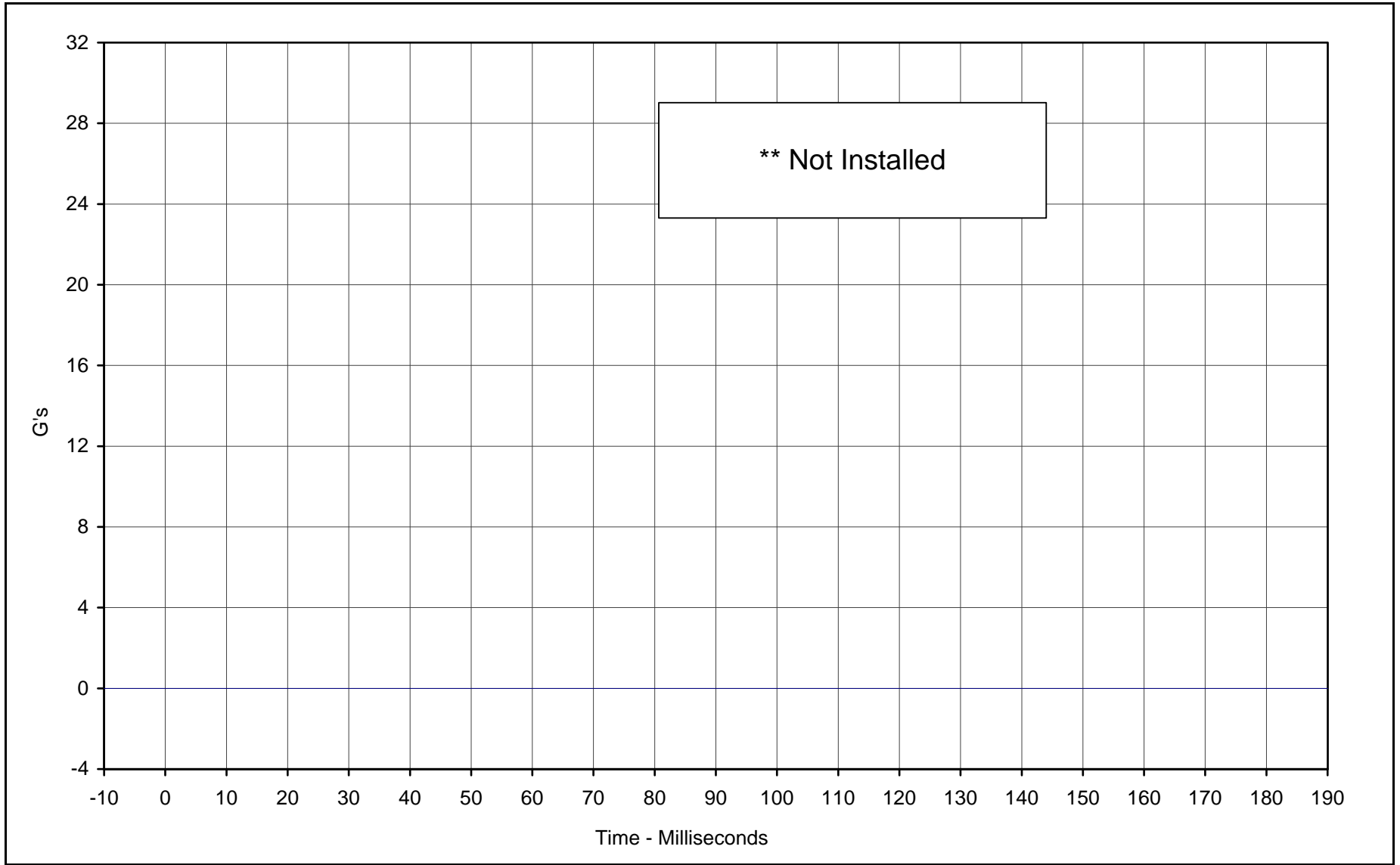
Test Vehicle: 2001 Chevrolet Venture Minivan

** Not Installed



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Curve Description: Left Rear Seat Structure Y Velocity **

Maximum Value: 0.0 at 0.0 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 180

Date of Test: 11/28/00

Curve Number: IN1-049

Test Program: 55/28 km/h Side Impact NCAP No.: M10110

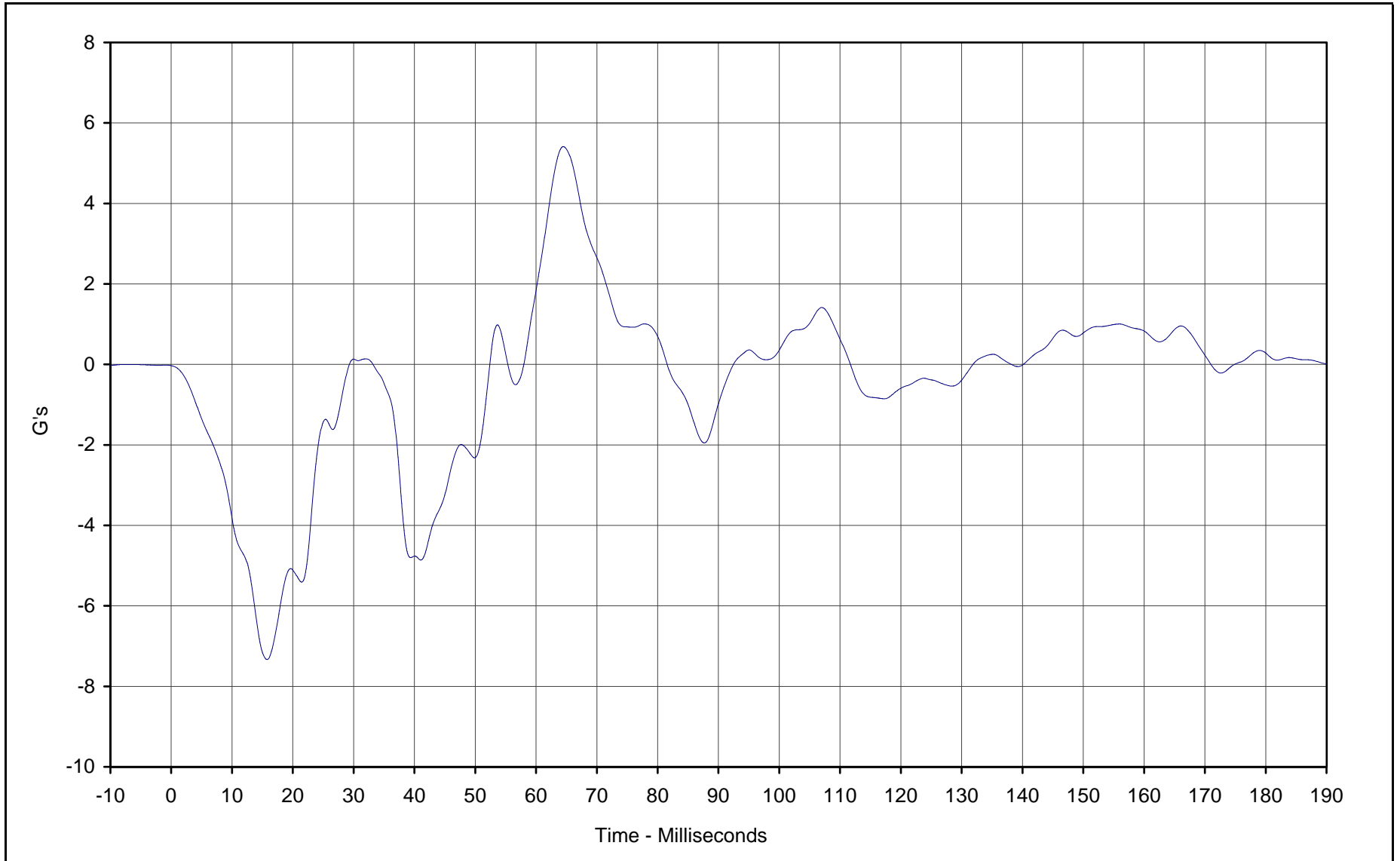
Test Vehicle: 2001 Chevrolet Venture Minivan

** Not Installed



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B-100



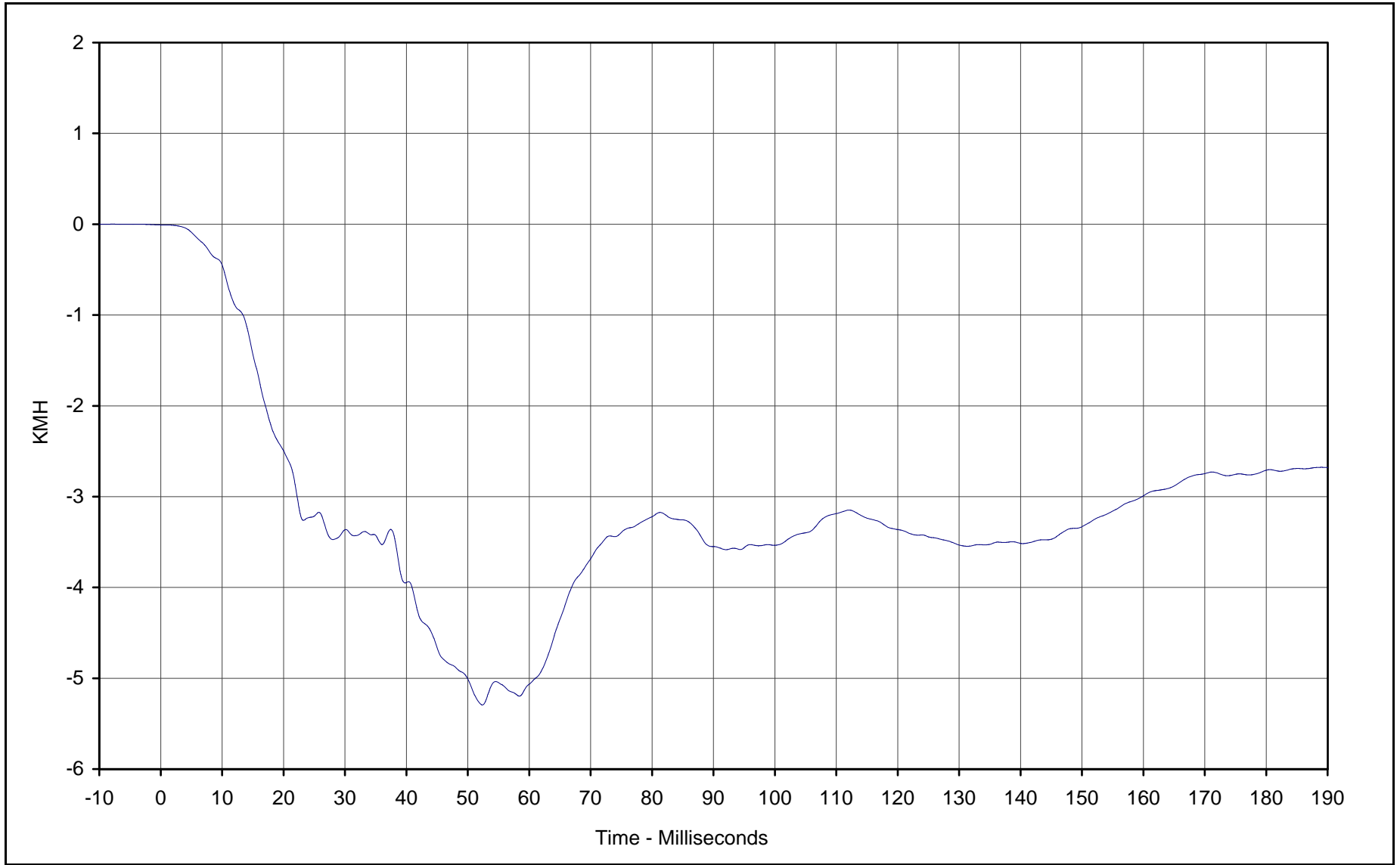
Curve Description: Vehicle CG X
Maximum Value: 5.4 at 64.5 Milliseconds
Minimum Value: -7.3 at 15.8 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-050

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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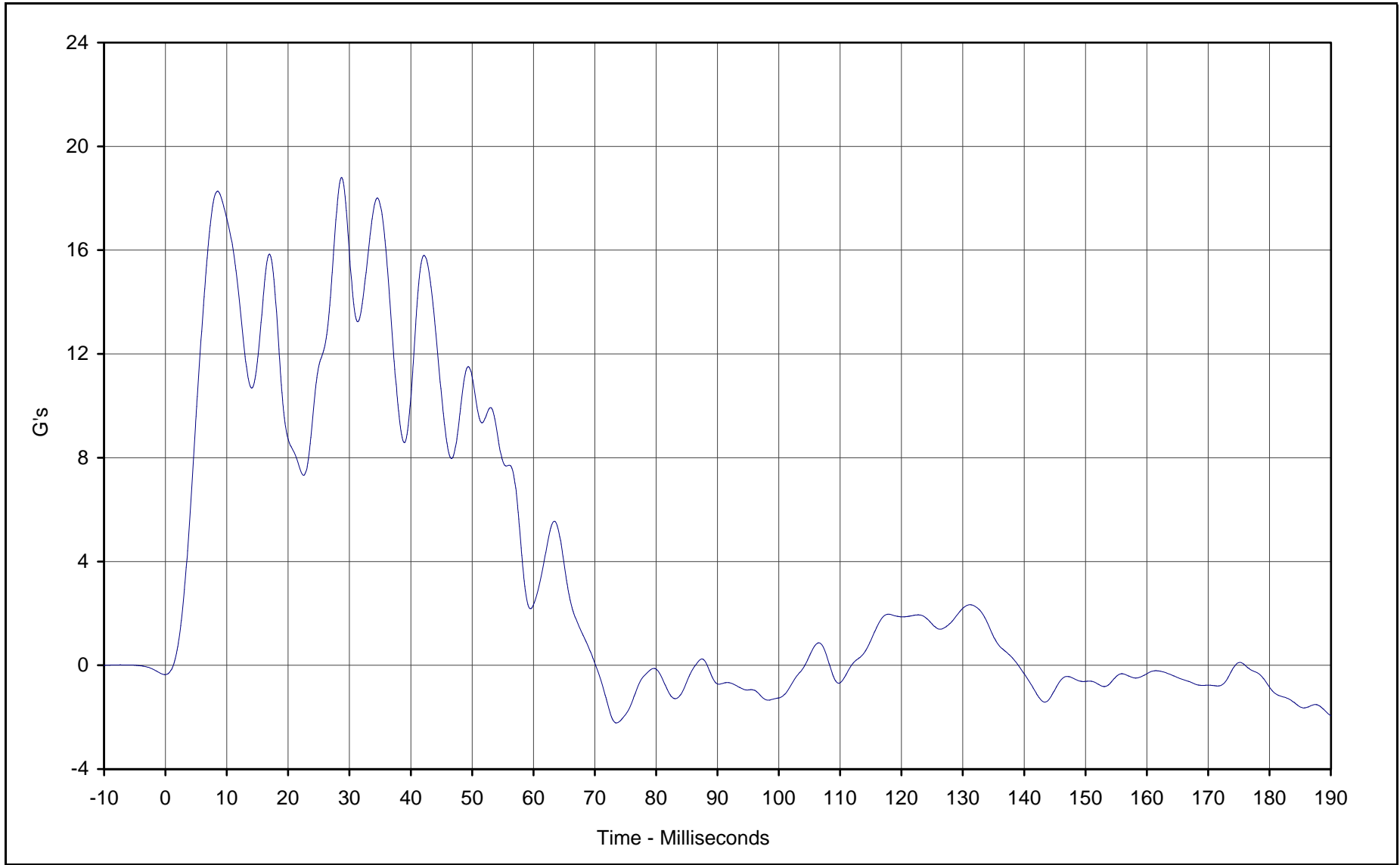
Curve Description: Vehicle CG X Velocity
Maximum Value: 0.0 at 0.0 Milliseconds
Minimum Value: -5.3 at 52.4 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-050

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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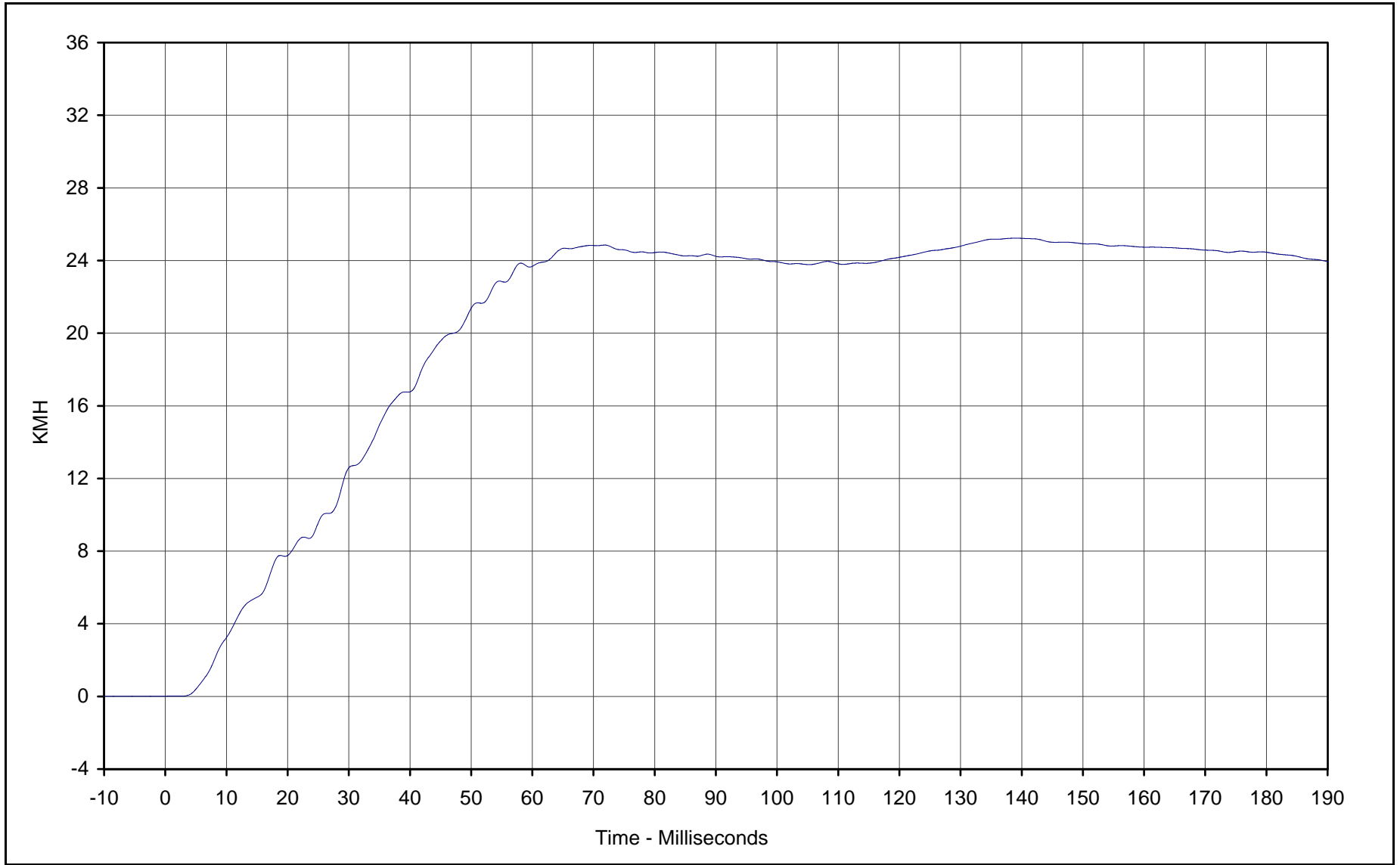
Curve Description: Vehicle CG Y
Maximum Value: 18.8 at 28.7 Milliseconds
Minimum Value: -2.2 at 73.5 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-051

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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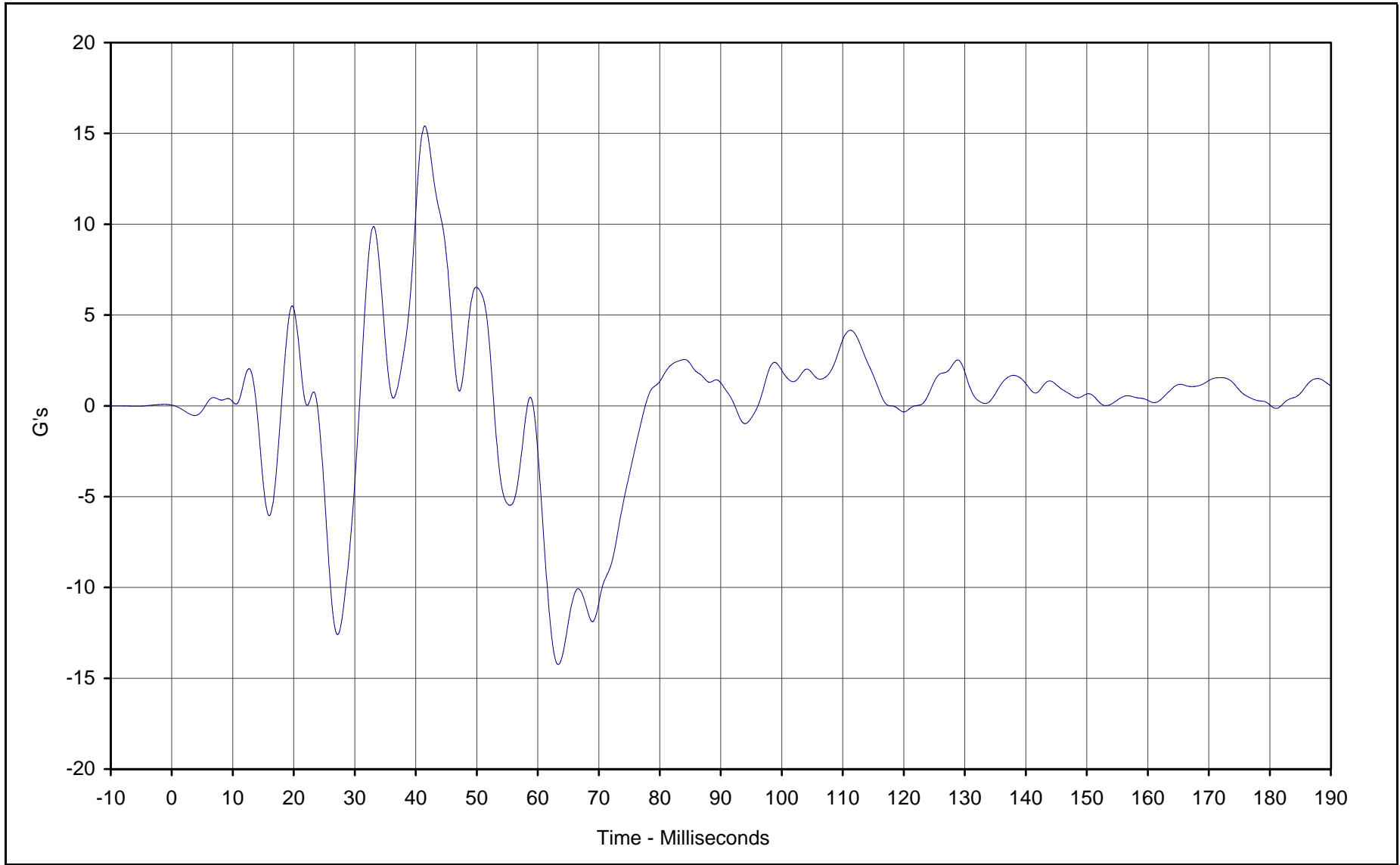
Curve Description: Vehicle CG Y Velocity
Maximum Value: 25.2 at 139.1 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-051

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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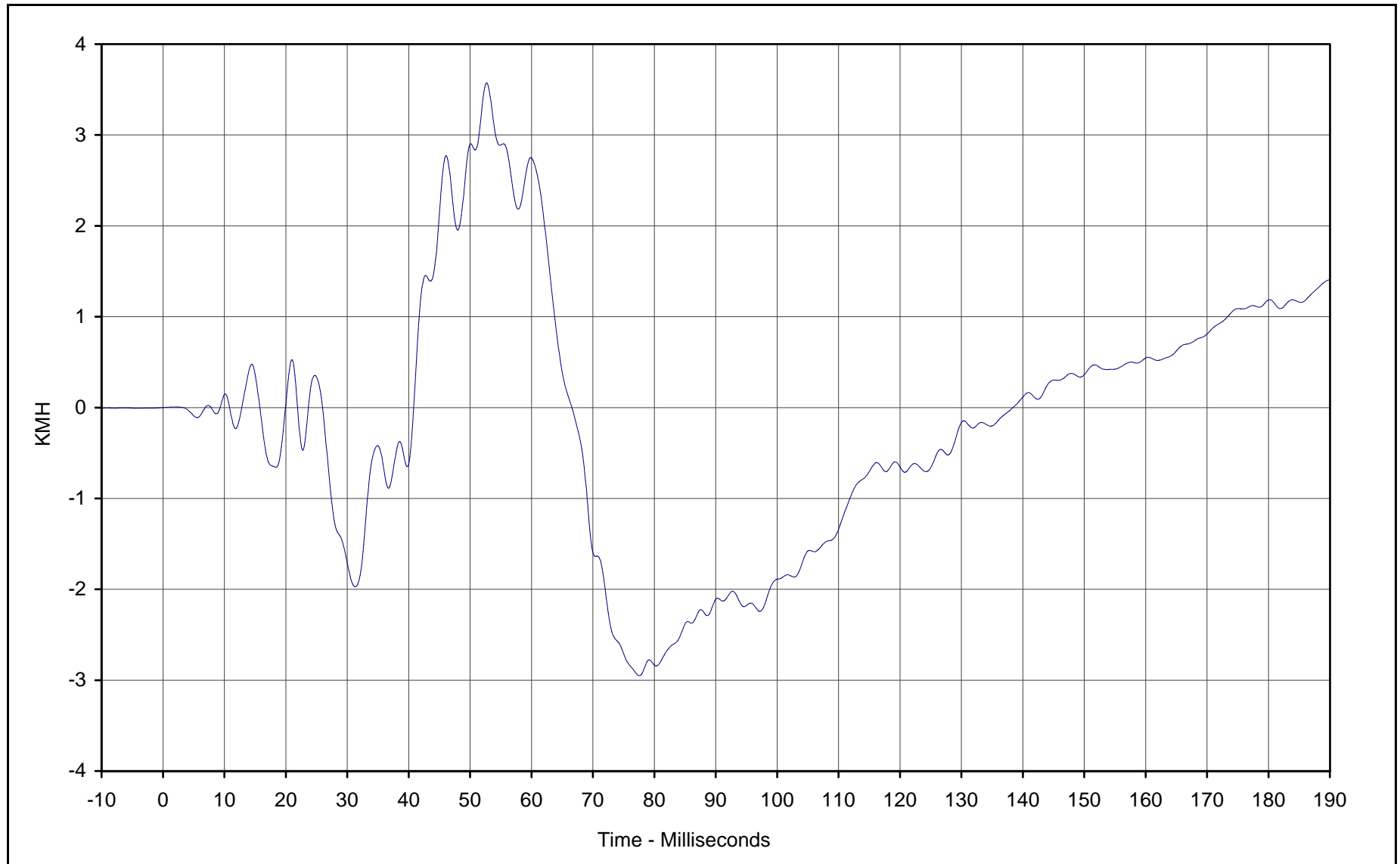


Curve Description: Vehicle CG Z
Maximum Value: 15.4 at 41.5 Milliseconds
Minimum Value: -14.2 at 63.3 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-052

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Vehicle CG Z Velocity

Maximum Value: 3.6 at 52.7 Milliseconds

Minimum Value: -3.0 at 77.6 Milliseconds

SAE Filter Class: 180

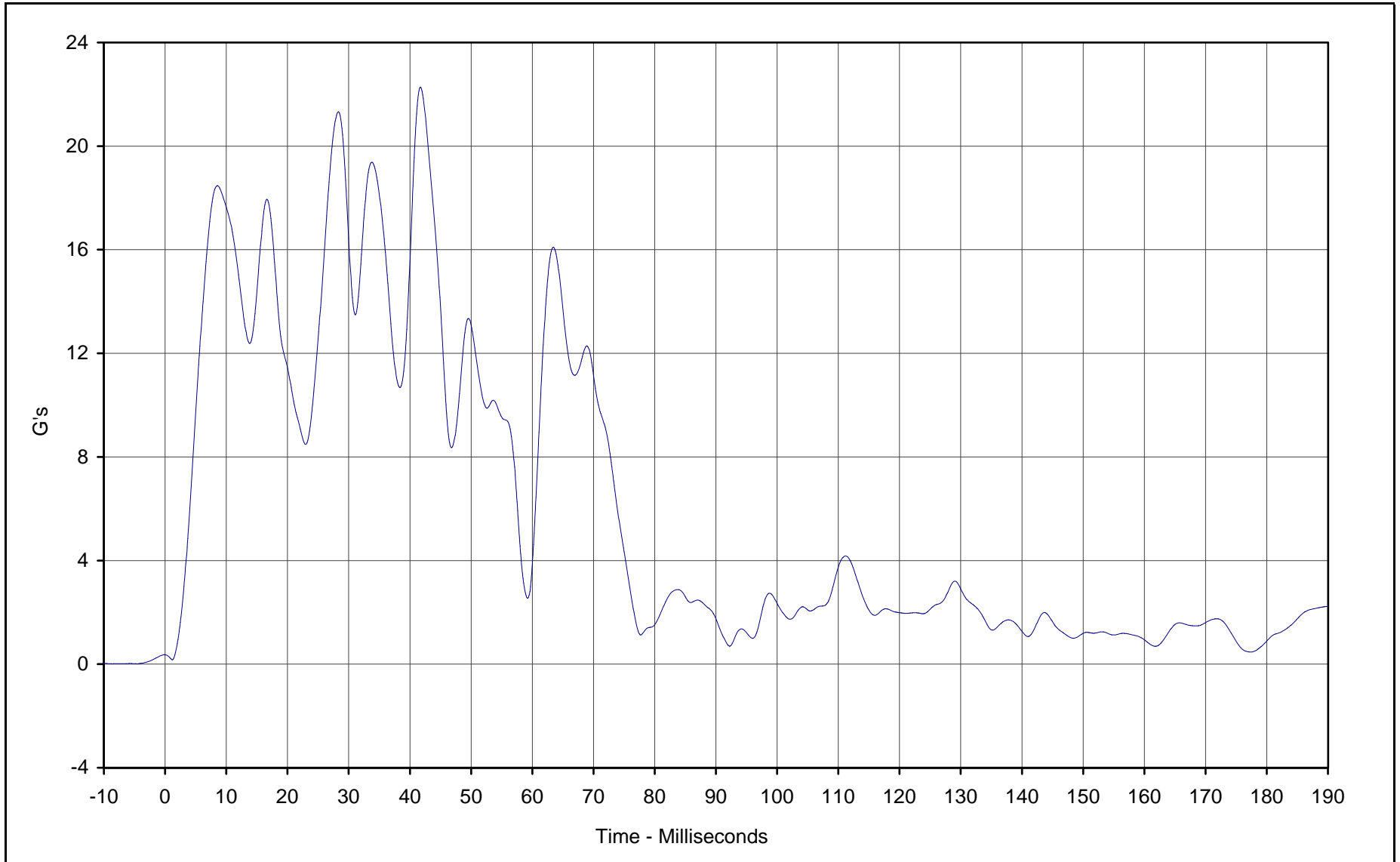
Date of Test: 11/28/00

Curve Number: IN1-052

Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan



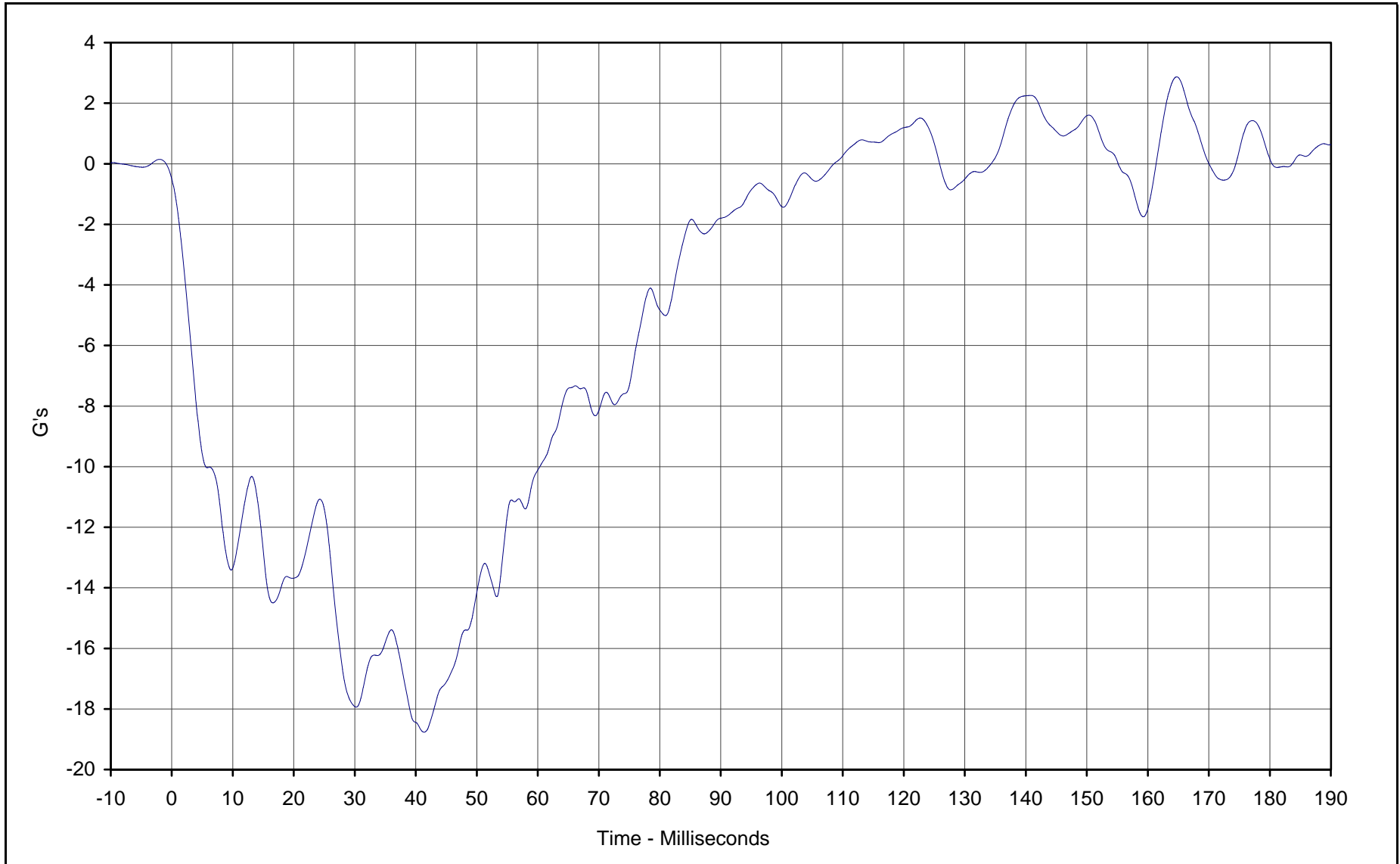


Curve Description: Vehicle CG Resultant
 Maximum Value: 22.3 at 41.7 Milliseconds
 Minimum Value: 0.2 at 1.2 Milliseconds
 SAE Filter Class: 60
 Date of Test: 11/28/00
 Curve Number: RES-050

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
 Test Vehicle: 2001 Chevrolet Venture Minivan



B-107



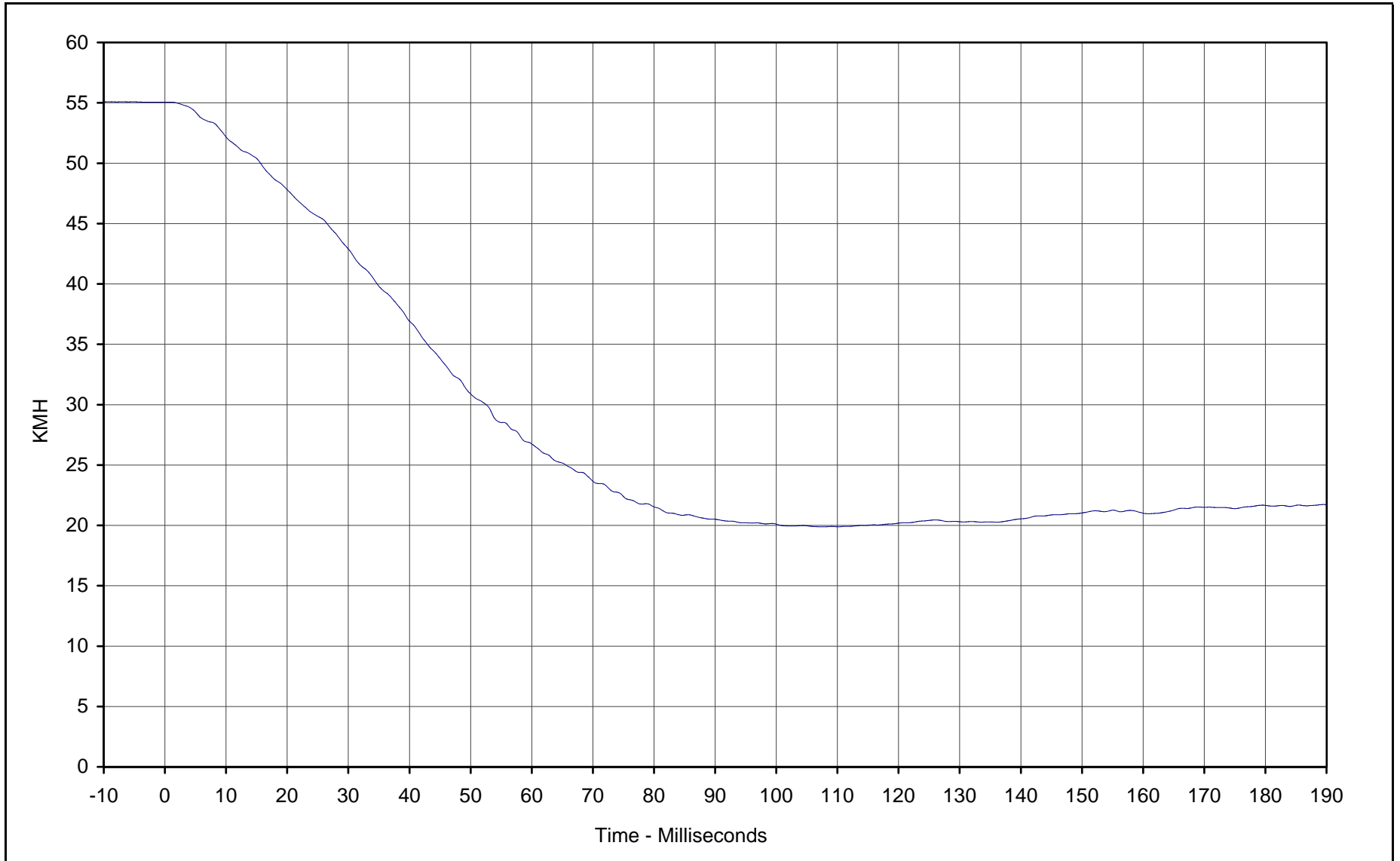
Curve Description: MDB CG X
Maximum Value: 2.9 at 164.7 Milliseconds
Minimum Value: -18.8 at 41.4 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-053

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-108



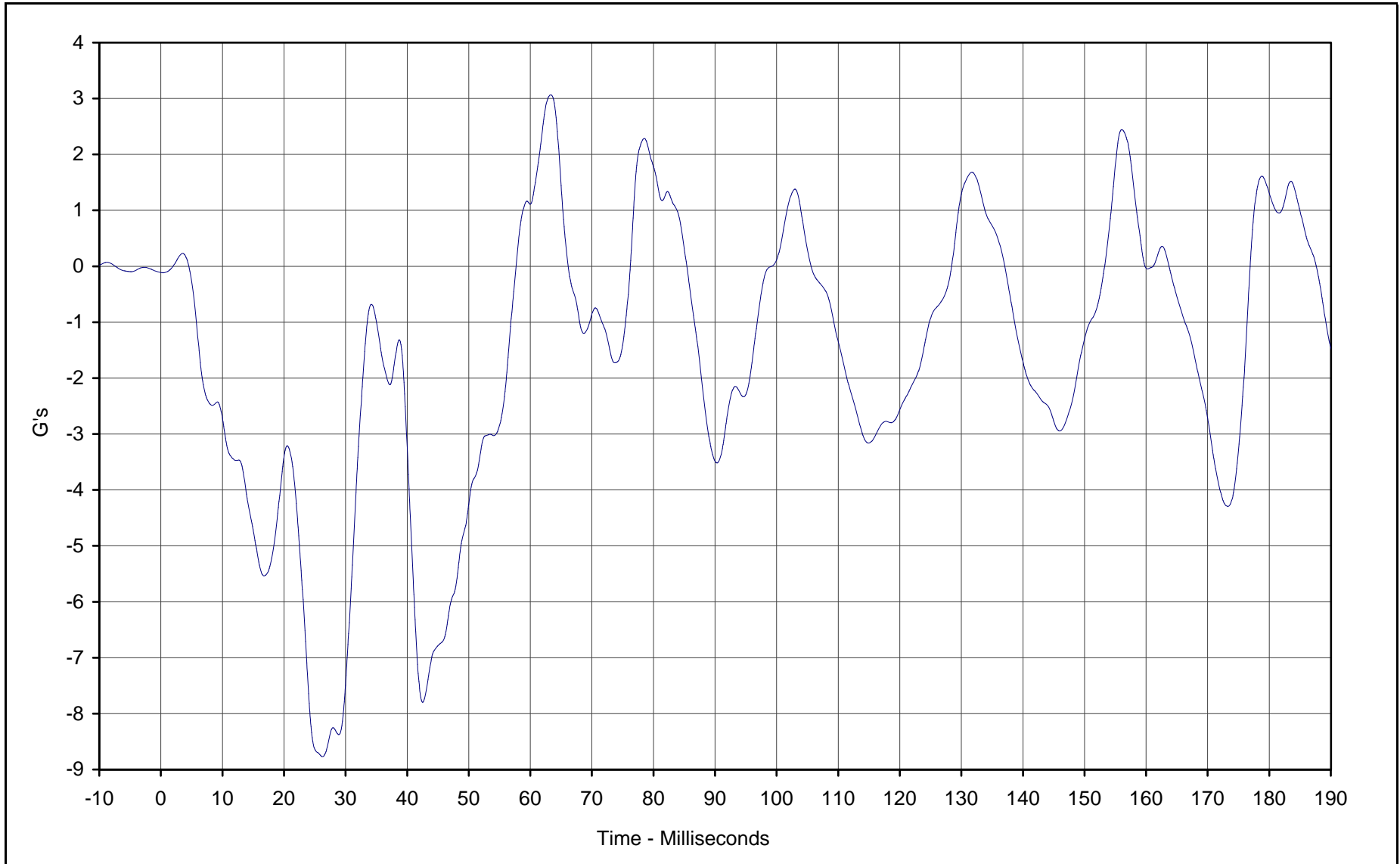
Curve Description: MDB CG X Velocity
Maximum Value: 55.1 at 0.8 Milliseconds
Minimum Value: 19.9 at 107.8 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-053

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-109



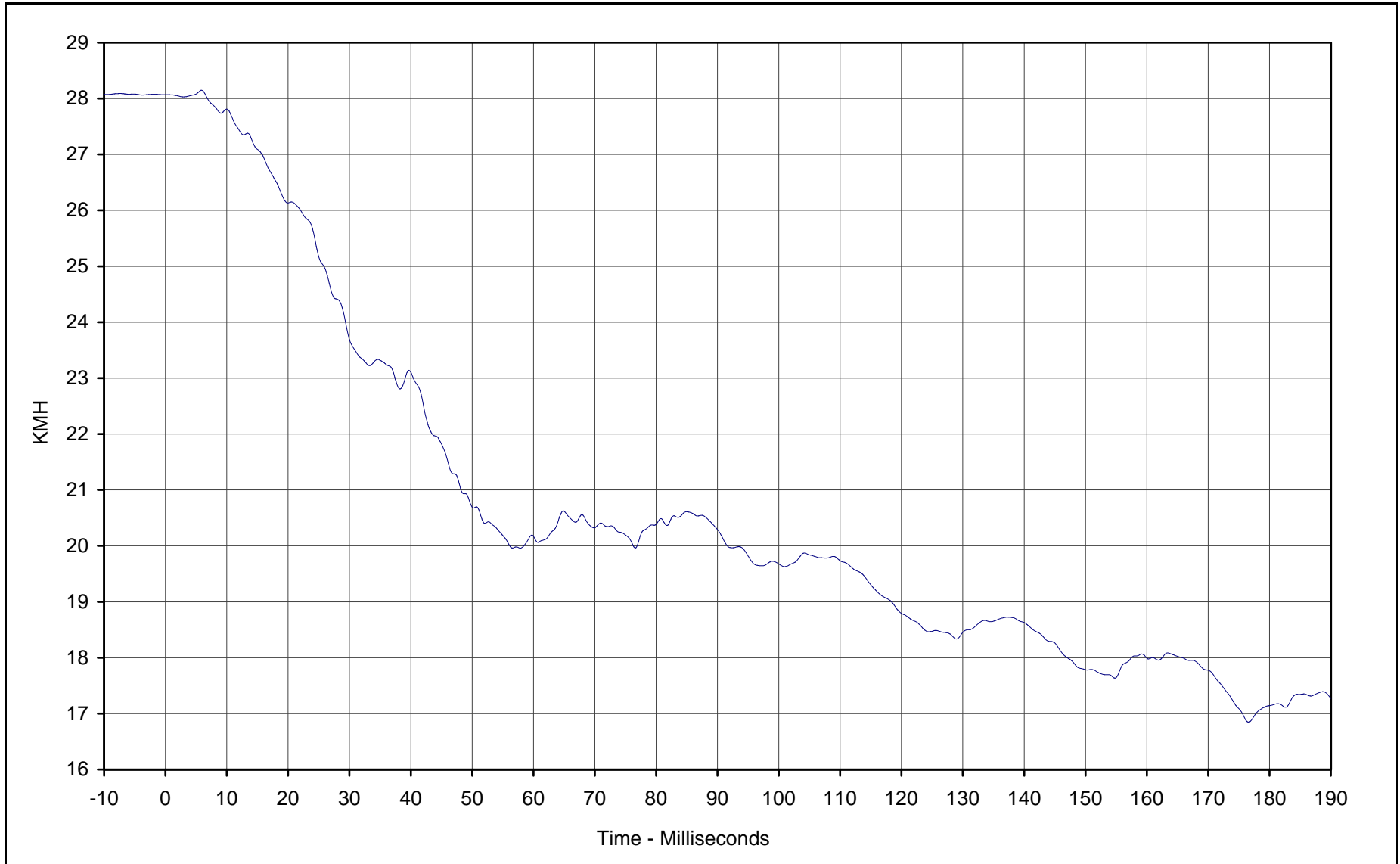
Curve Description: MDB CG Y
Maximum Value: 3.1 at 63.3 Milliseconds
Minimum Value: -8.8 at 26.3 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-054

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-110



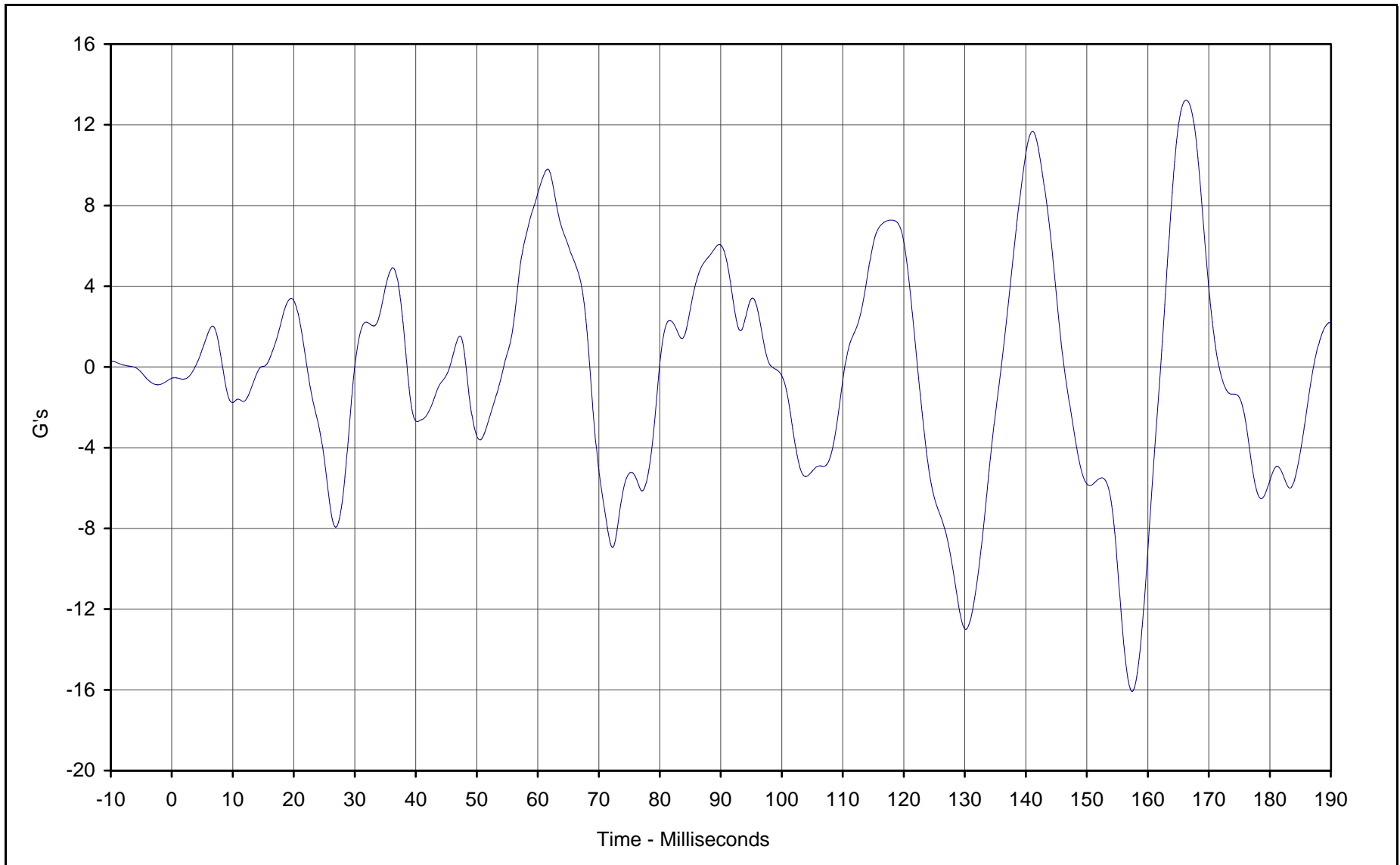
Curve Description: MDB CG Y Velocity
Maximum Value: 28.1 at 5.9 Milliseconds
Minimum Value: 16.8 at 176.6 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-054

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-111



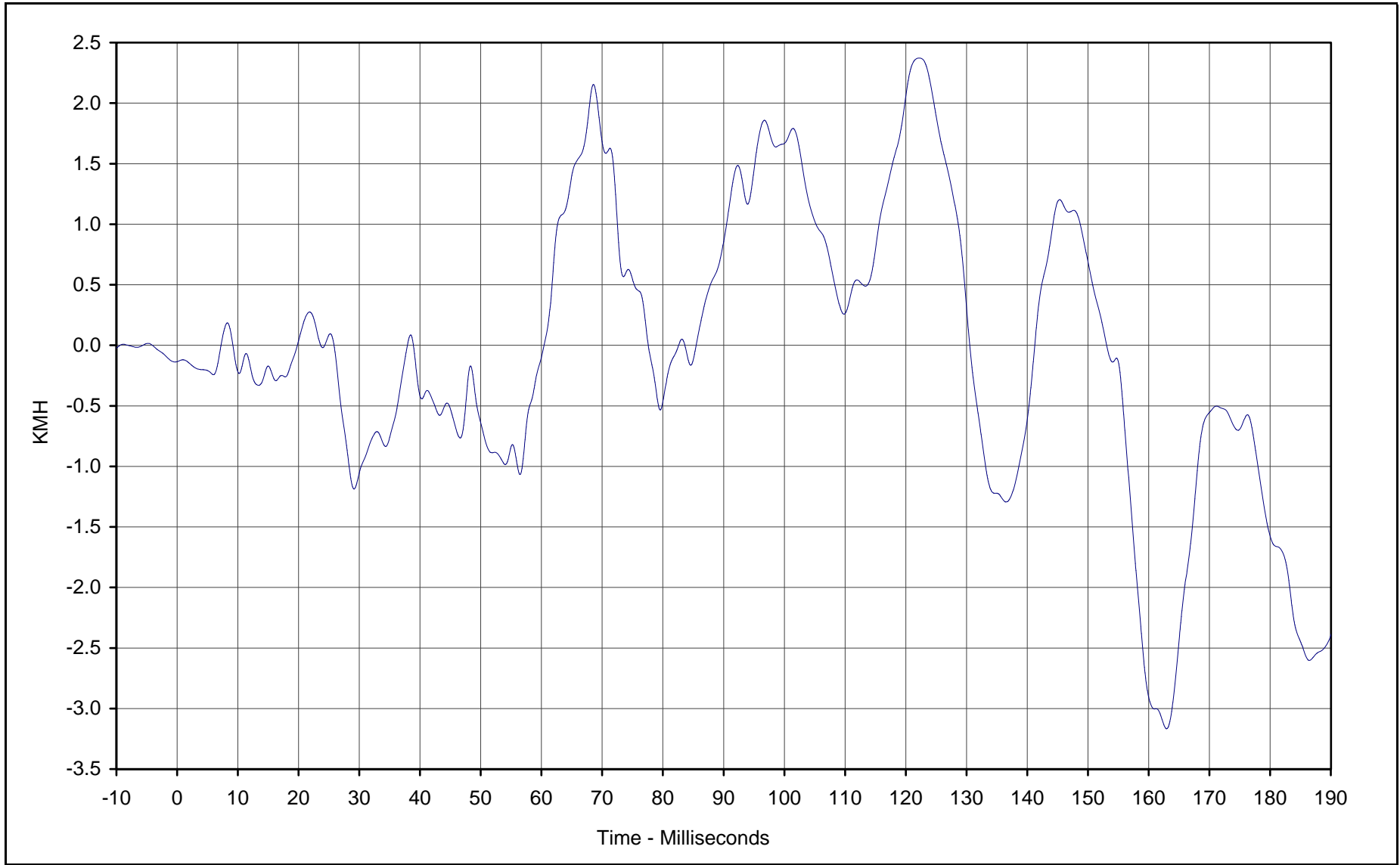
Curve Description: MDB CG Z
Maximum Value: 13.2 at 166.3 Milliseconds
Minimum Value: -16.1 at 157.4 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-055

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-112



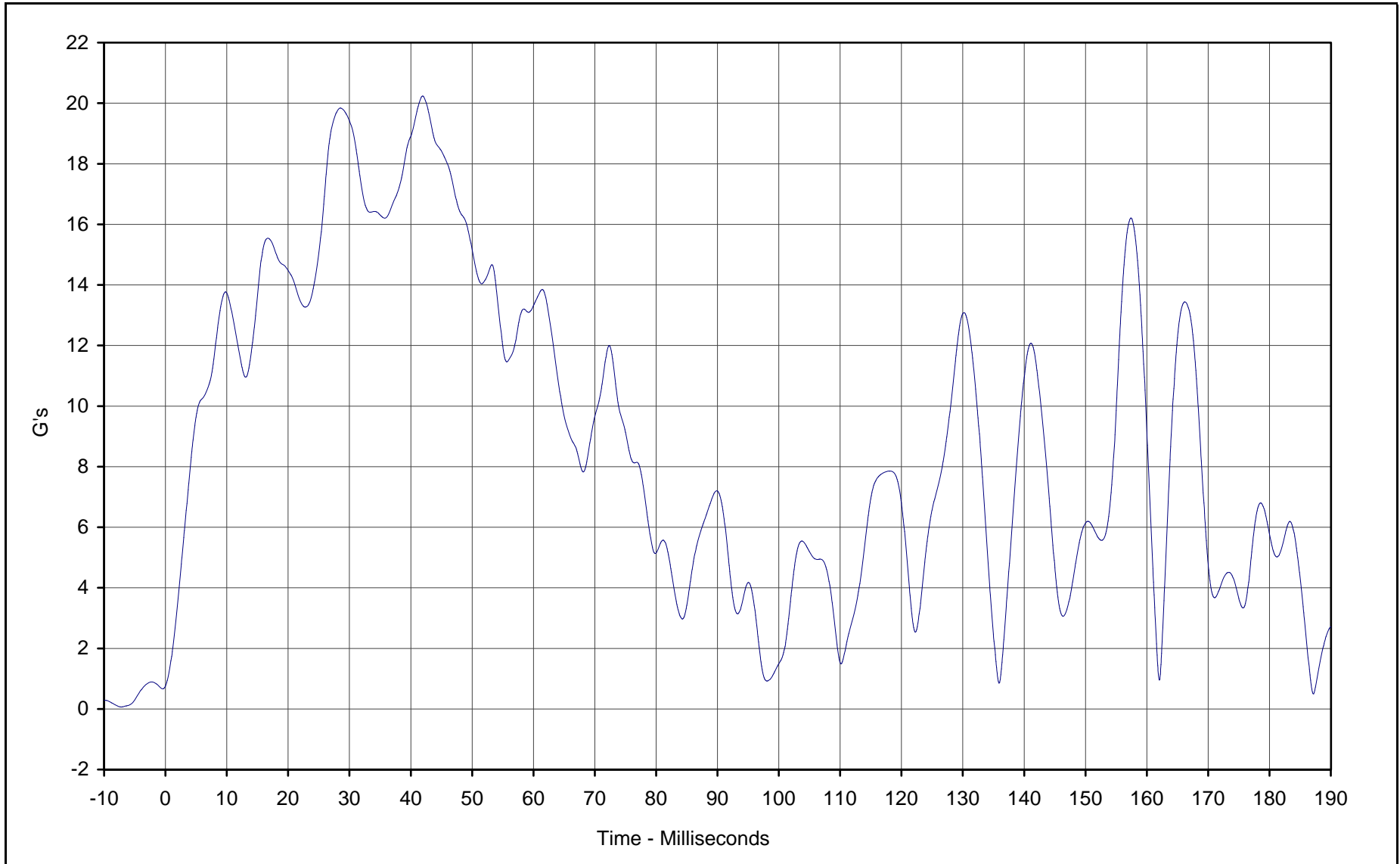
Curve Description: MDB CG Z Velocity
Maximum Value: 2.4 at 122.2 Milliseconds
Minimum Value: -3.2 at 163.0 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-055

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-113



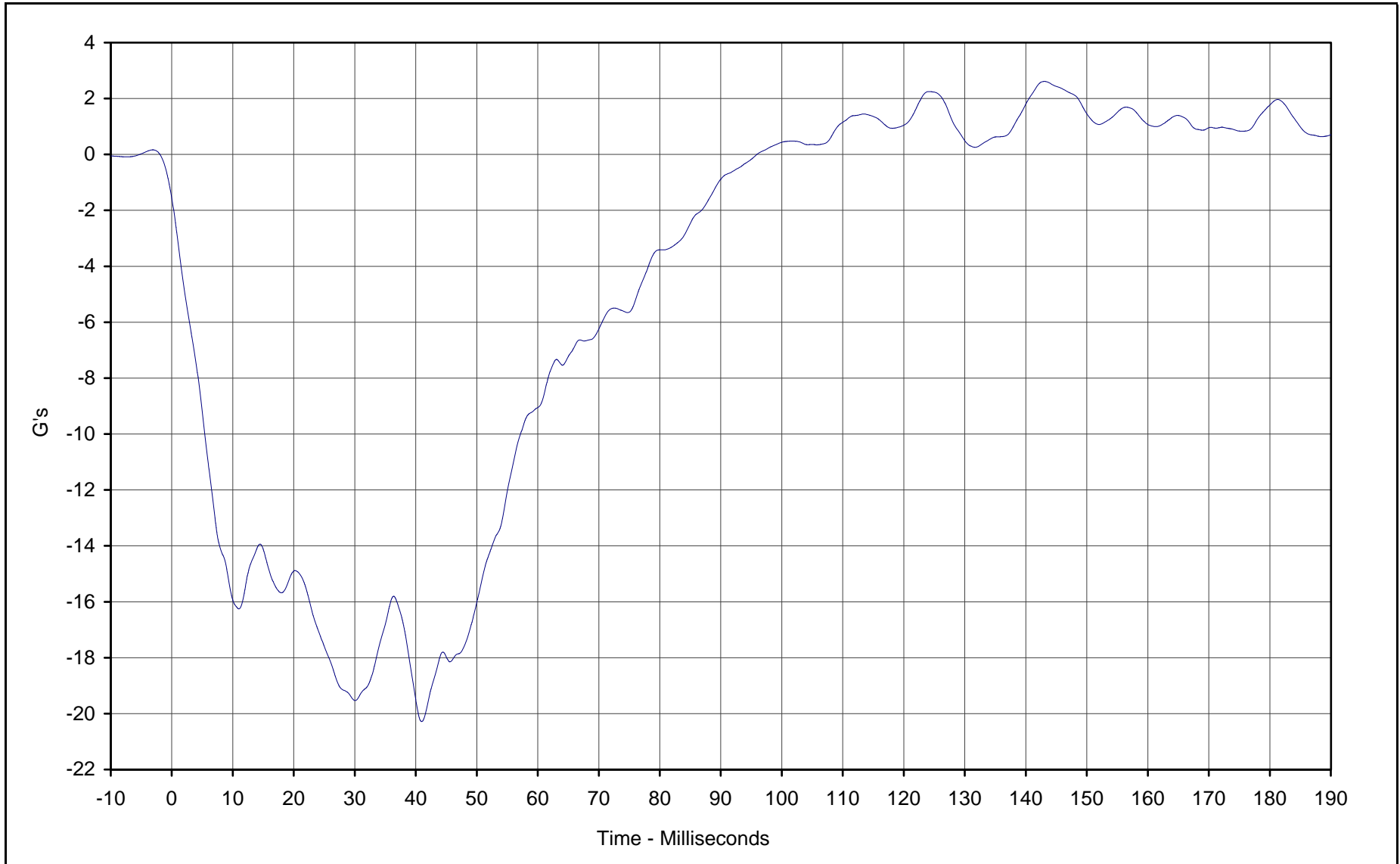
Curve Description: MDB CG Resultant
Maximum Value: 20.2 at 41.9 Milliseconds
Minimum Value: 0.5 at 187.2 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: RES-053

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-114



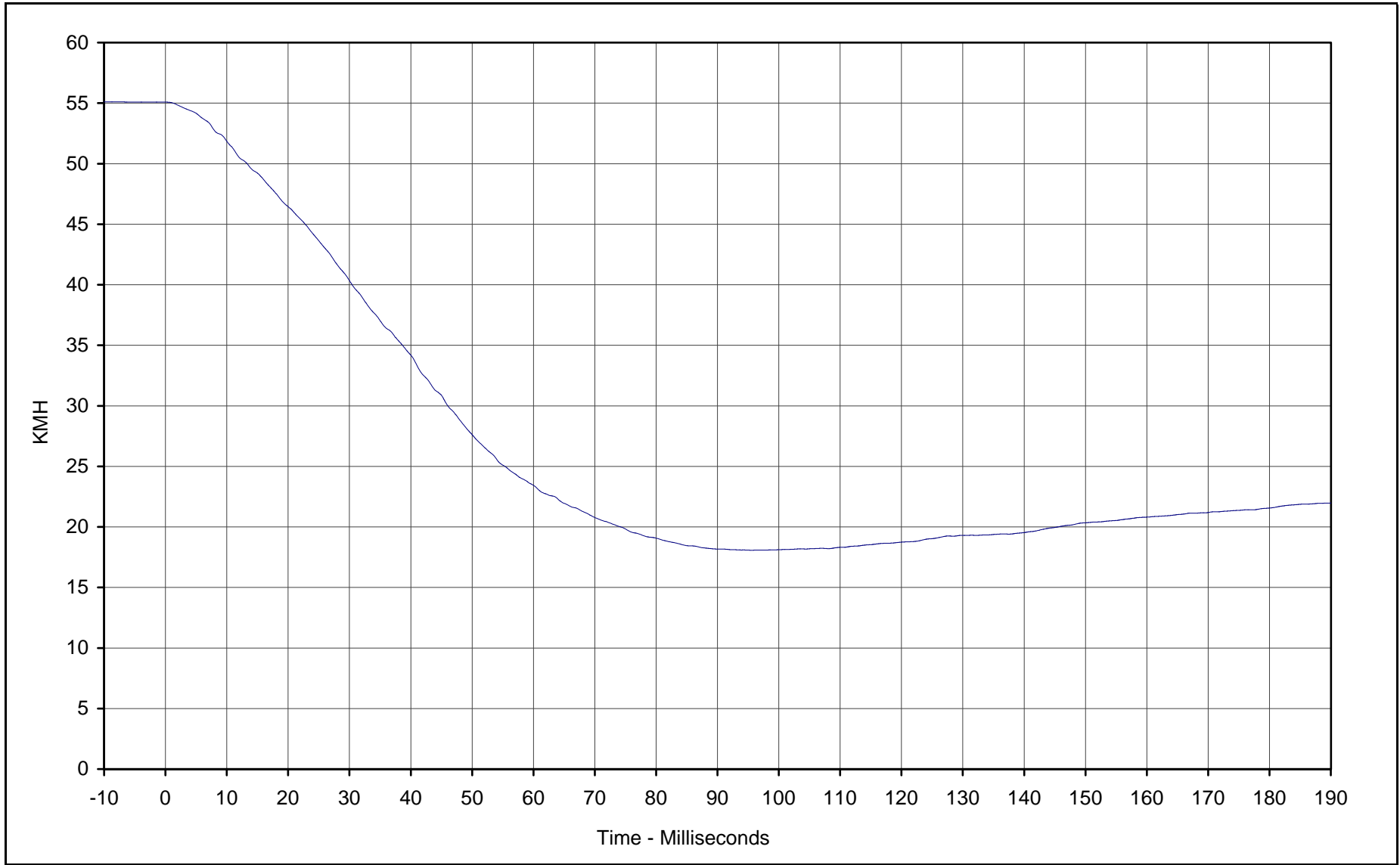
Curve Description: MDB Rear X
Maximum Value: 2.6 at 143.0 Milliseconds
Minimum Value: -20.3 at 41.0 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-056

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-115



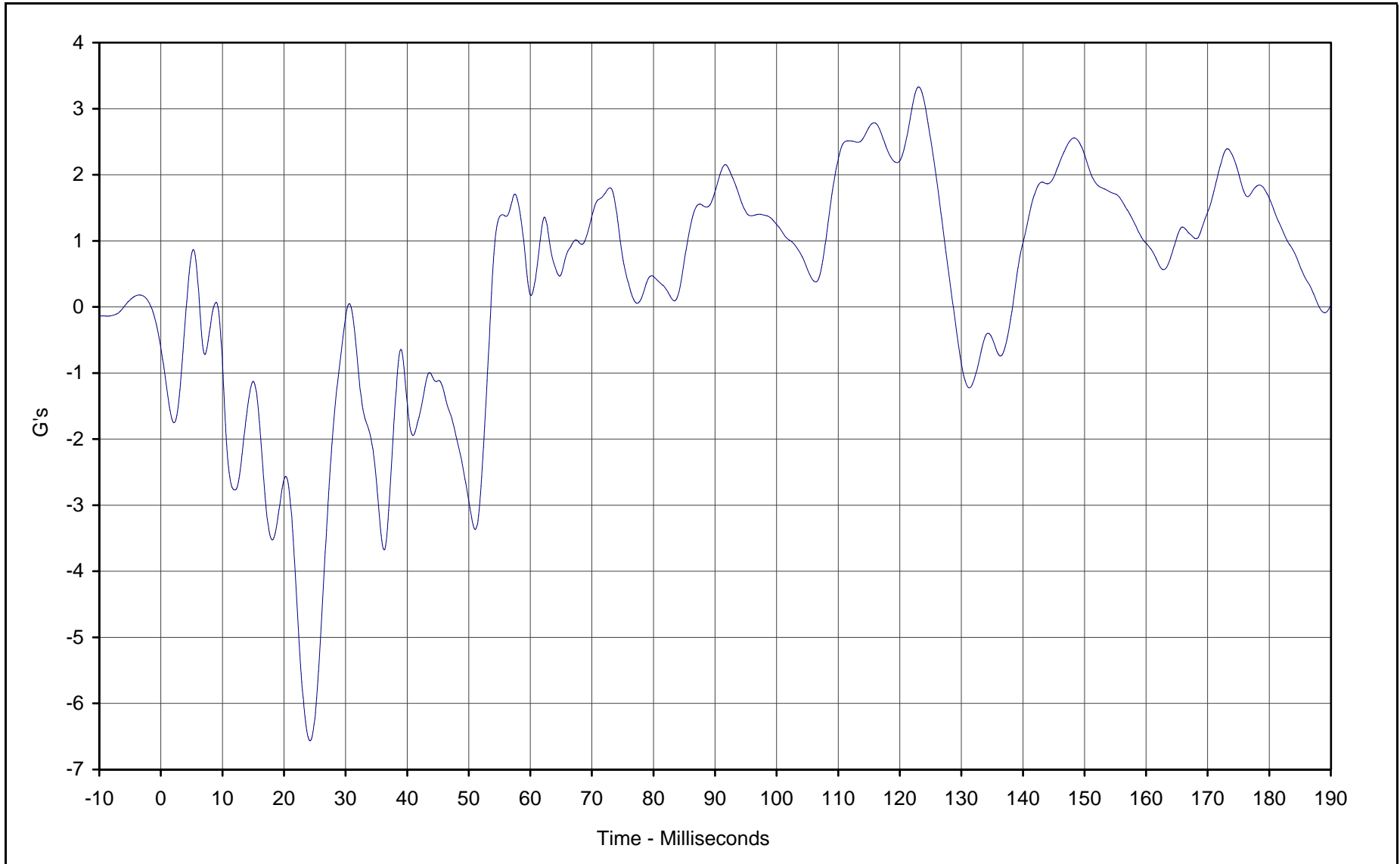
Curve Description: MDB Rear X Velocity
Maximum Value: 55.1 at 0.0 Milliseconds
Minimum Value: 18.1 at 95.6 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-056

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-116



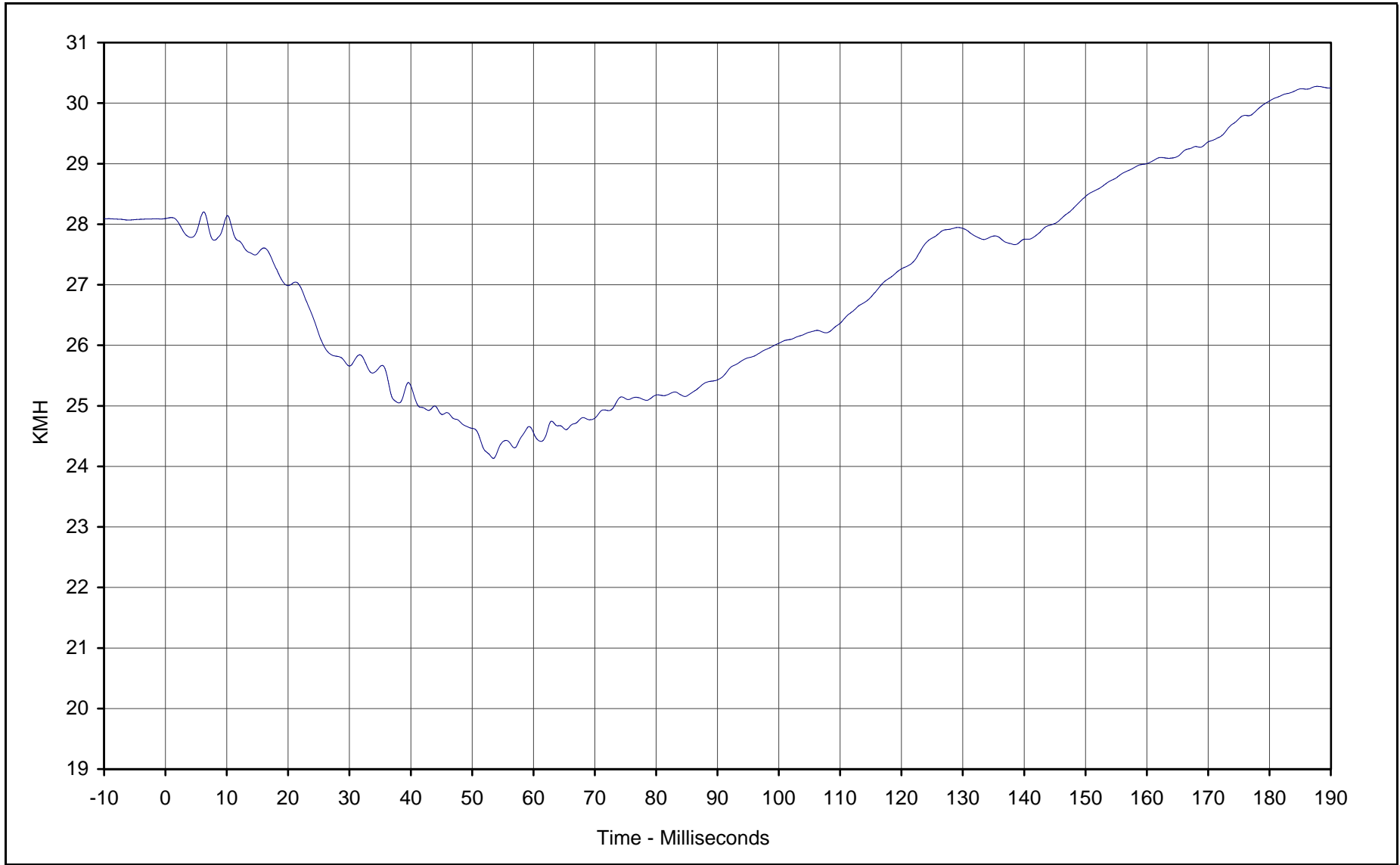
Curve Description: MDB Rear Y
Maximum Value: 3.3 at 123.1 Milliseconds
Minimum Value: -6.6 at 24.2 Milliseconds
SAE Filter Class: 60
Date of Test: 11/28/00
Curve Number: FIL-057

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-117



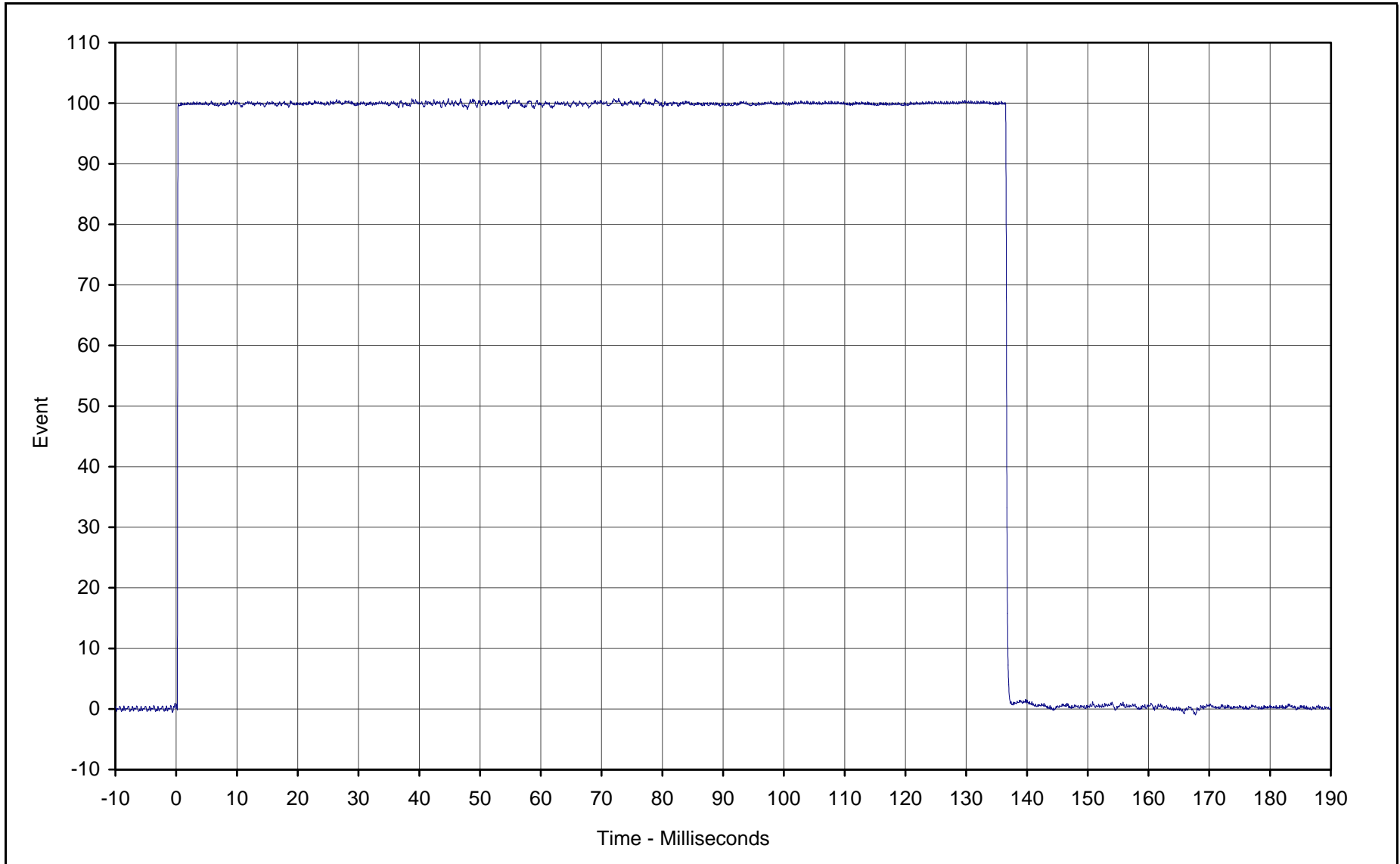
Curve Description: MDB Rear Y Velocity
Maximum Value: 30.3 at 187.8 Milliseconds
Minimum Value: 24.1 at 53.5 Milliseconds
SAE Filter Class: 180
Date of Test: 11/28/00
Curve Number: IN1-057

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan

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B-118



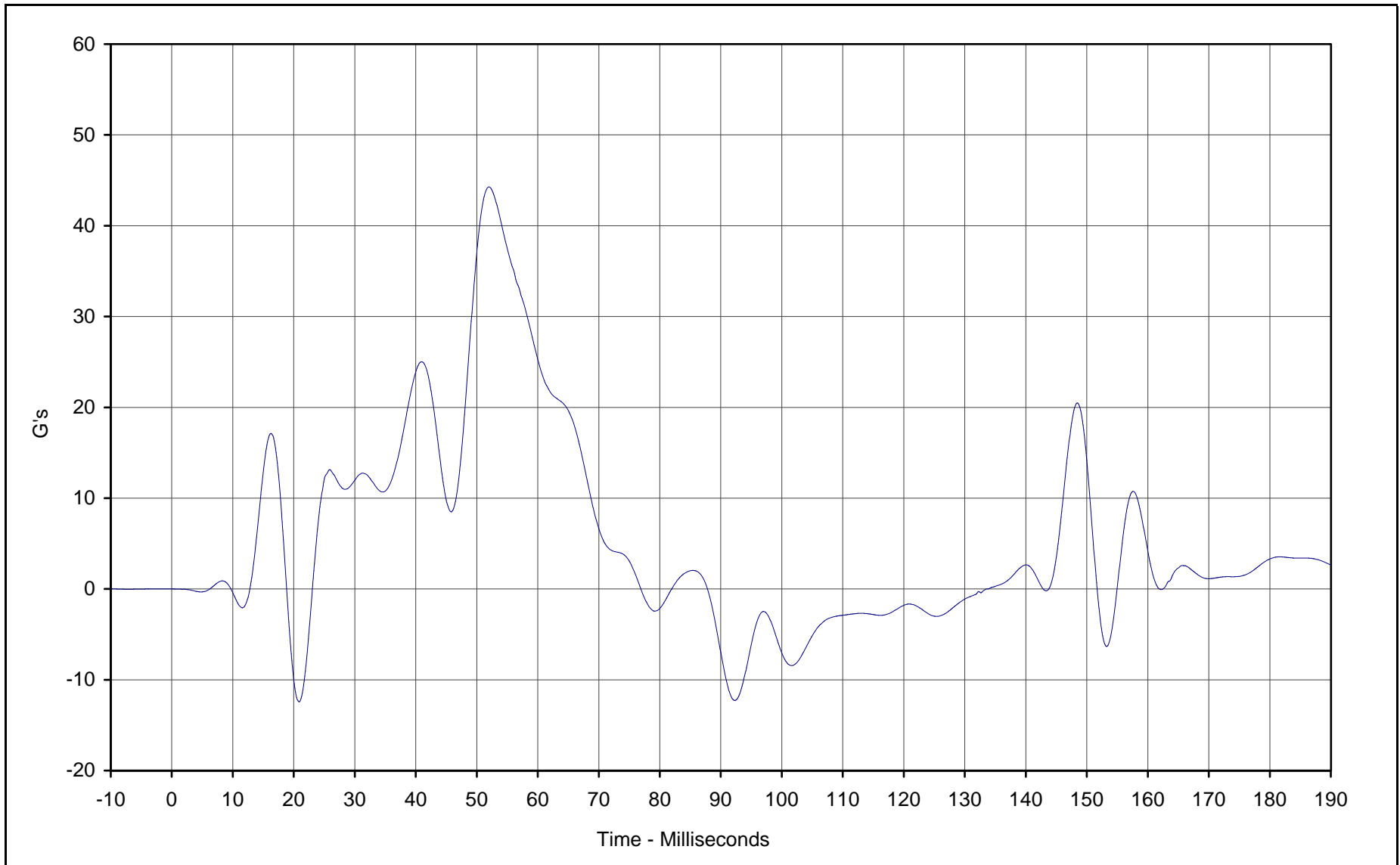
Curve Description: MDB Right Bumper Contact
Maximum Value: 100.8 at 72.8 Milliseconds
Crossing Point: 50% at 0.3 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/28/00
Curve Number: FIL-058

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-119



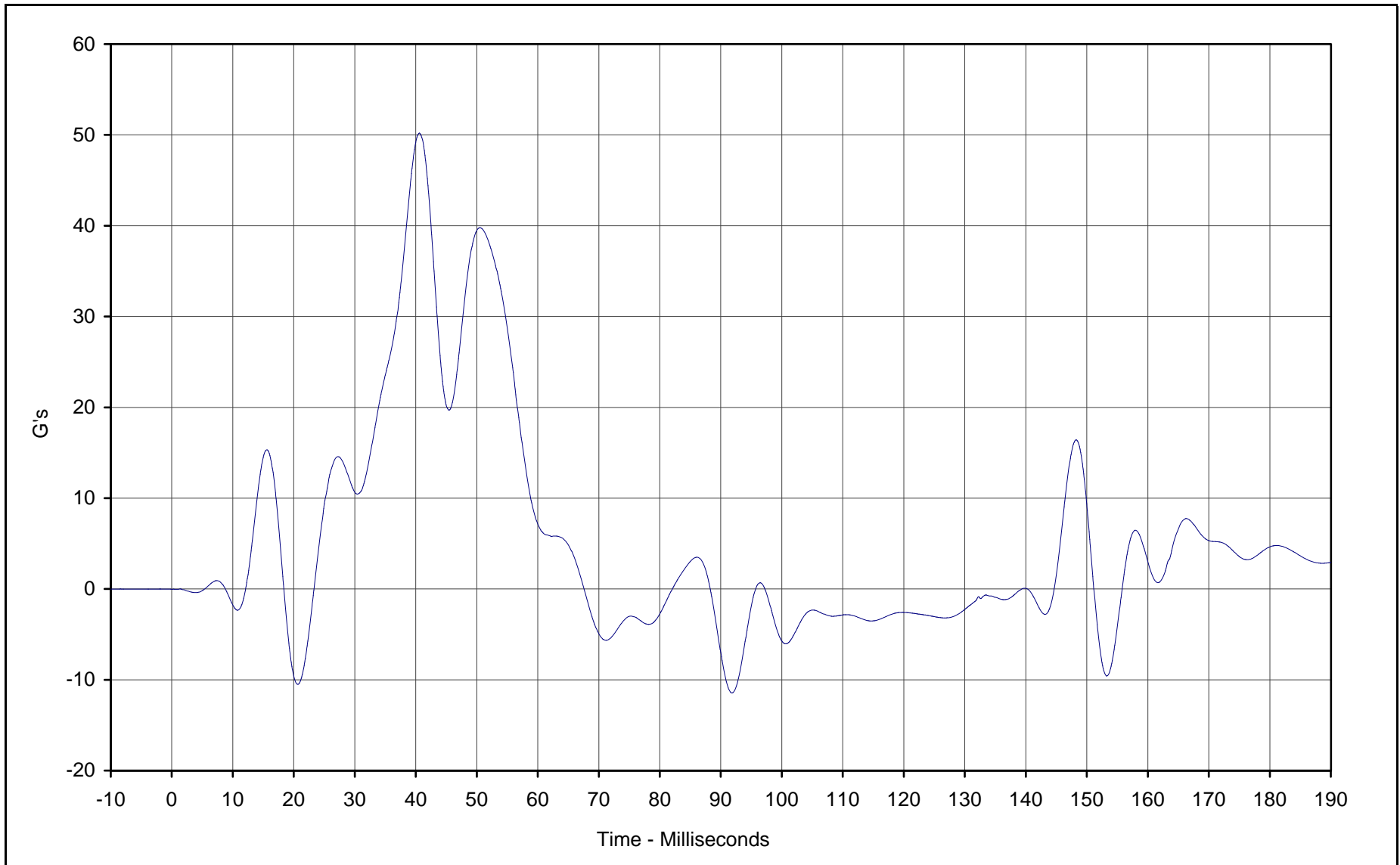
Curve Description: Driver Upper Rib Primary Y
Maximum Value: 44.3 at 52.0 Milliseconds
Minimum Value: -12.4 at 20.9 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/28/00
Curve Number: FIR-004

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-120



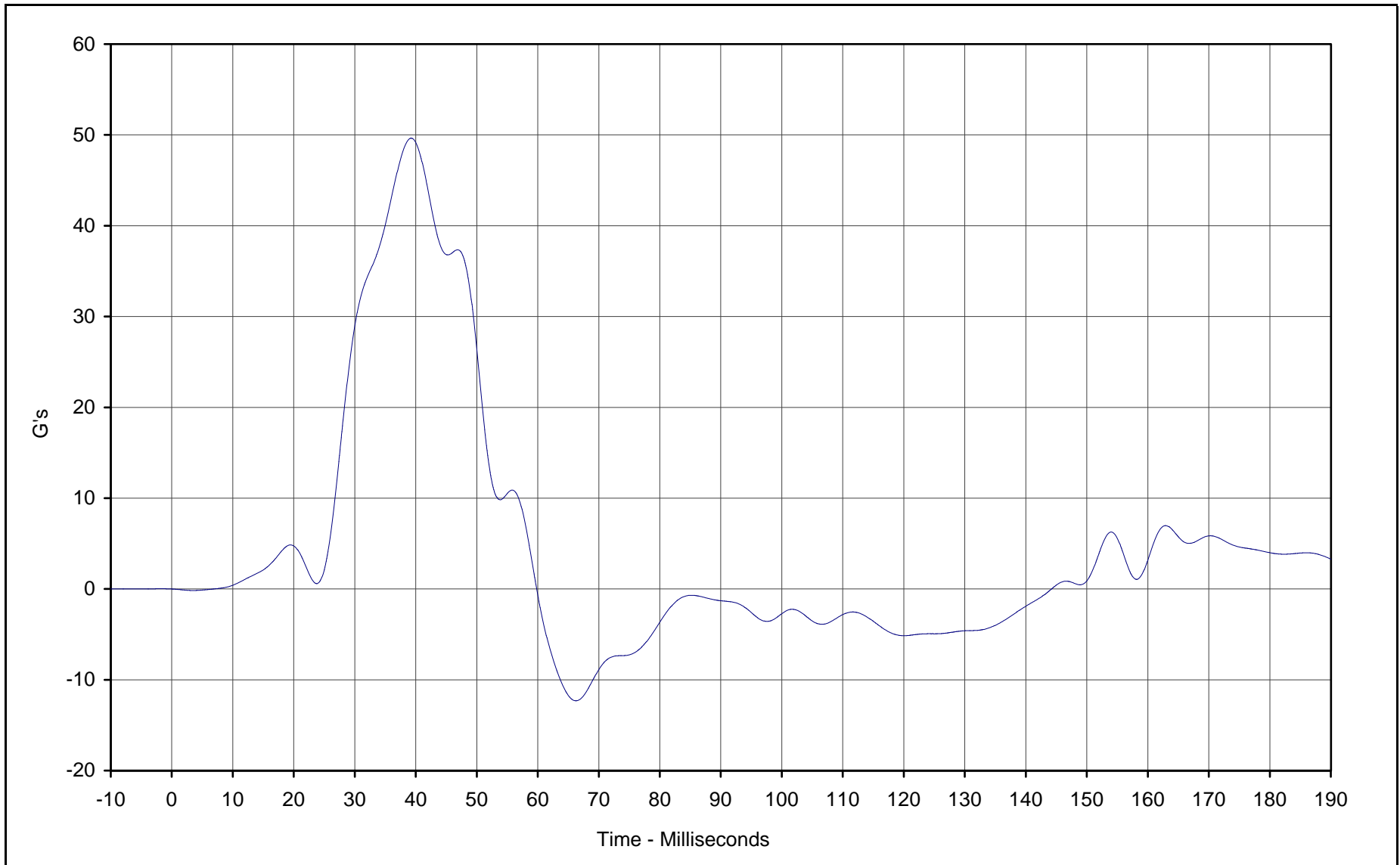
Curve Description: Driver Lower Rib Primary Y
Maximum Value: 50.2 at 40.6 Milliseconds
Minimum Value: -11.4 at 91.8 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/28/00
Curve Number: FIR-005

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Driver Lower Spine Primary Y

Maximum Value: 49.6 at 39.3 Milliseconds

Minimum Value: -12.3 at 66.2 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 11/28/00

Curve Number: FIR-006

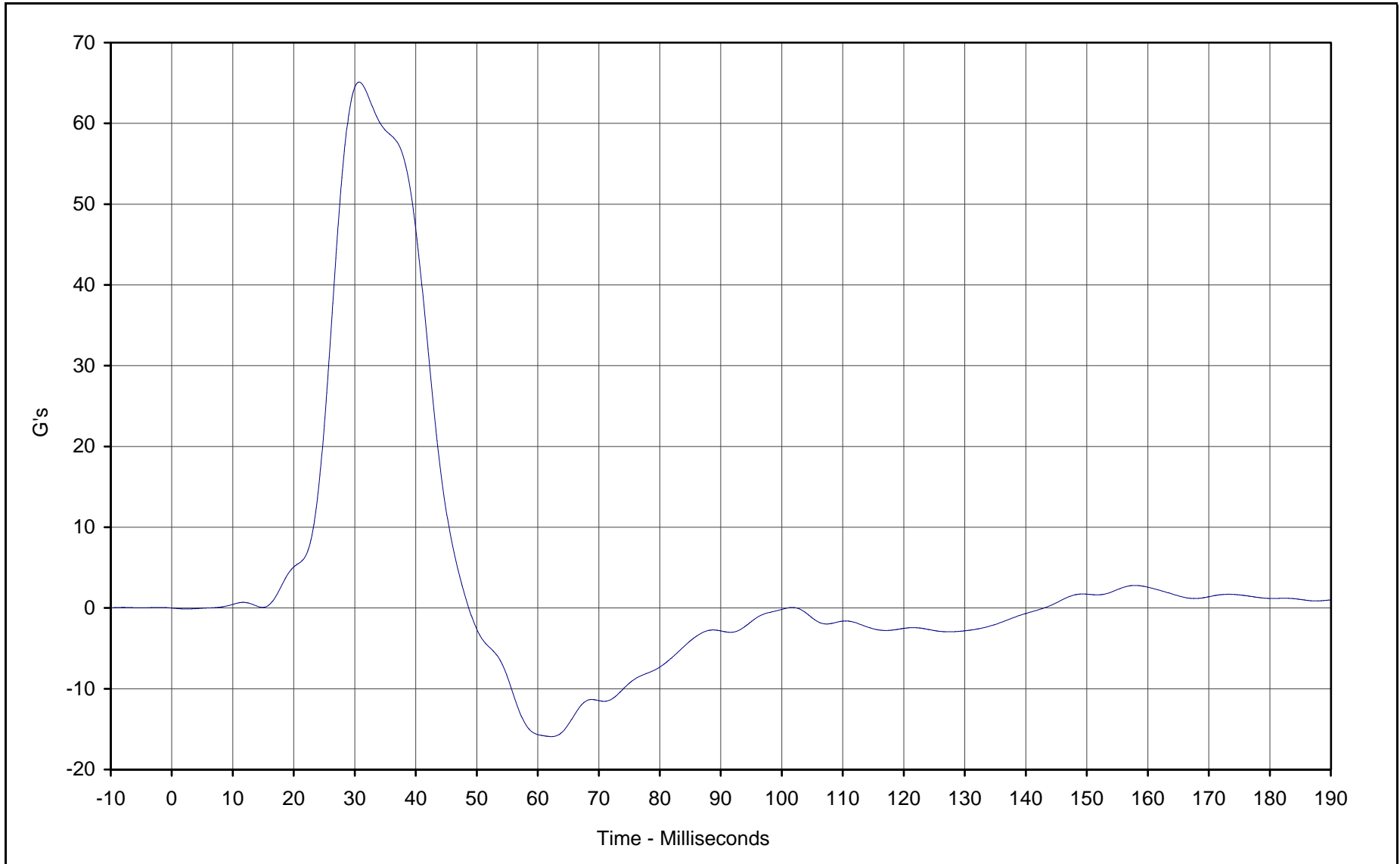
Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

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B-122



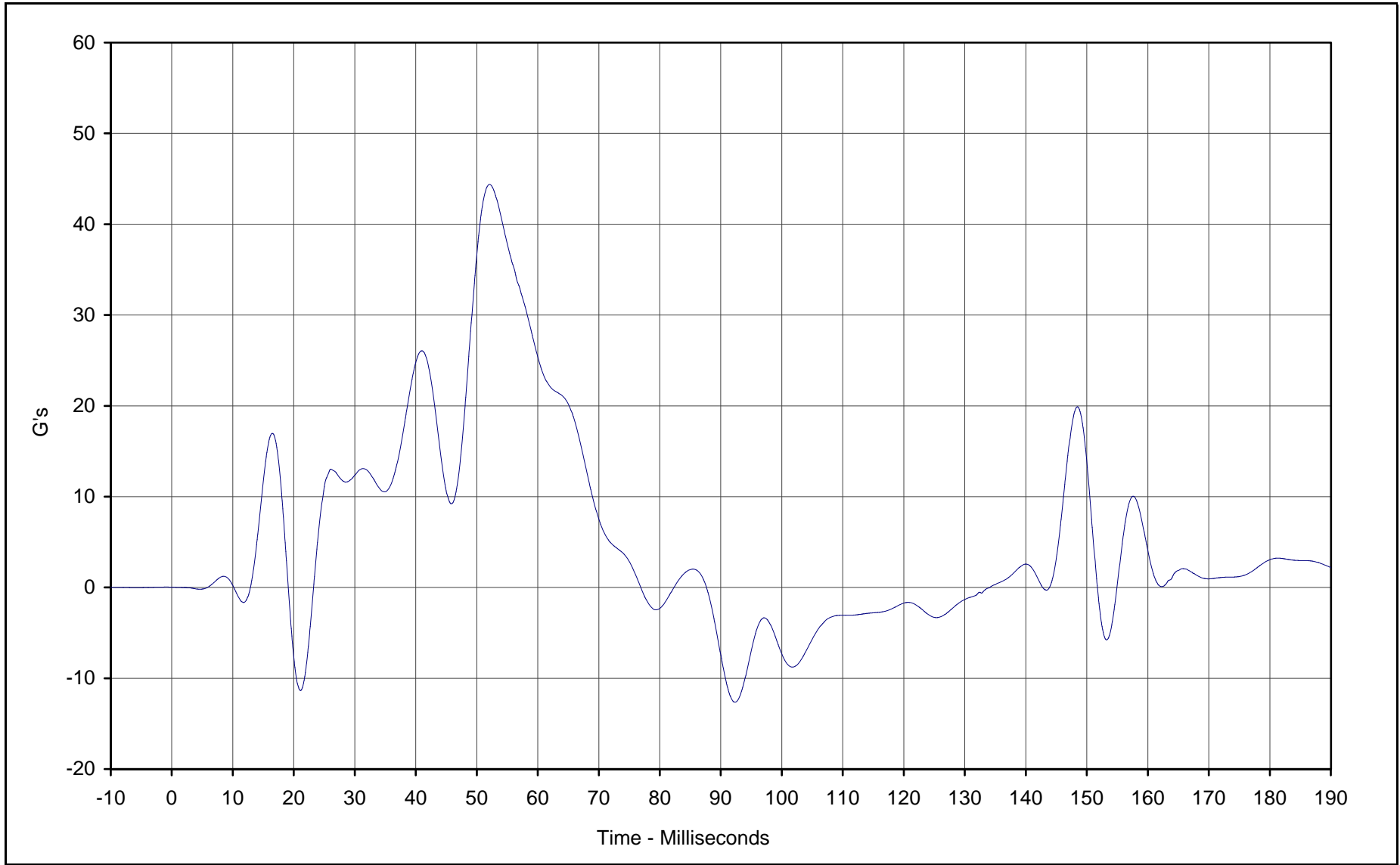
Curve Description: Driver Pelvis Primary Y
Maximum Value: 65.1 at 30.7 Milliseconds
Minimum Value: -15.9 at 62.2 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/28/00
Curve Number: FIR-007

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-123



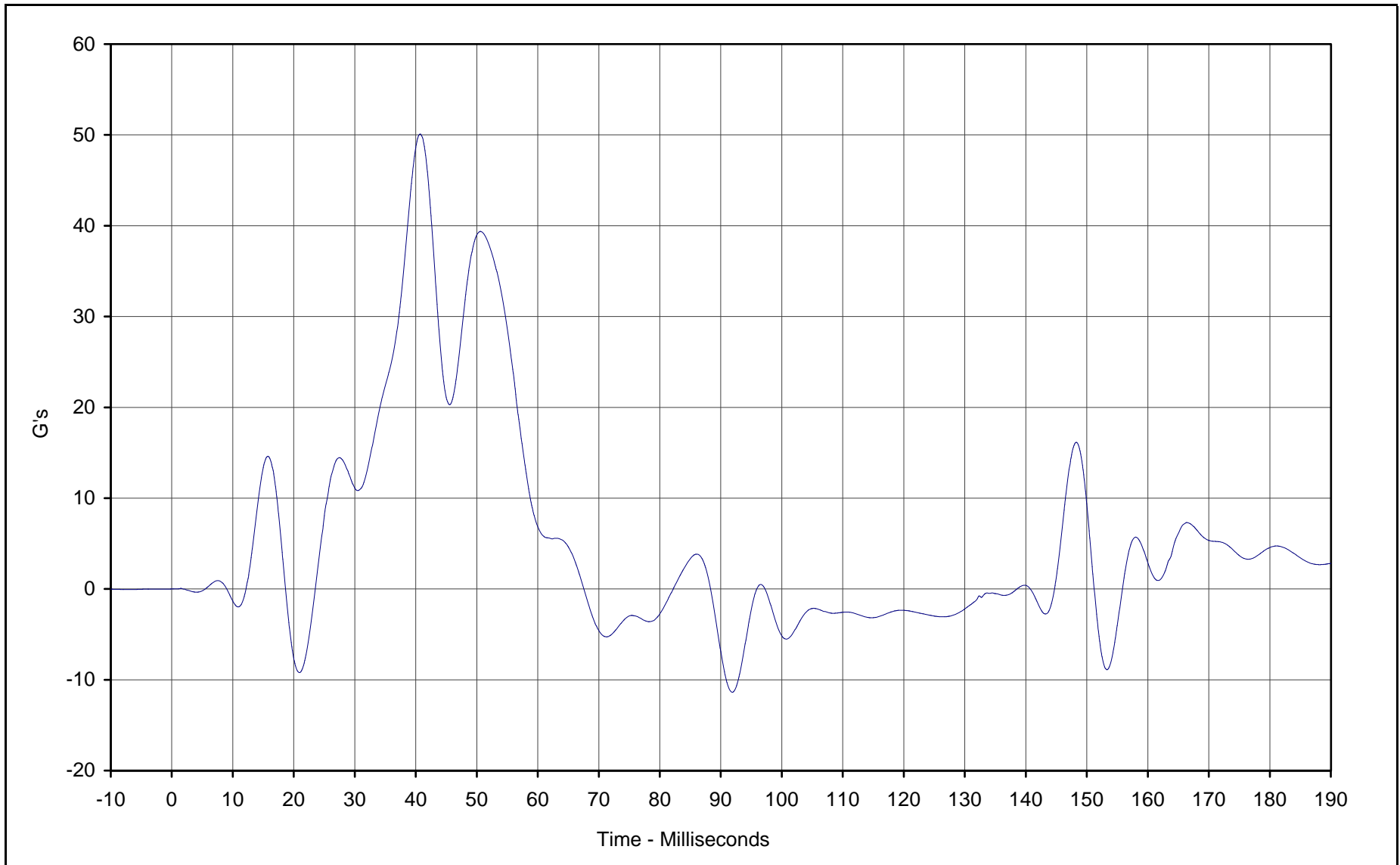
Curve Description: Driver Upper Rib Redundant Y
Maximum Value: 44.4 at 52.1 Milliseconds
Minimum Value: -12.6 at 92.3 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/28/00
Curve Number: FIR-008

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan

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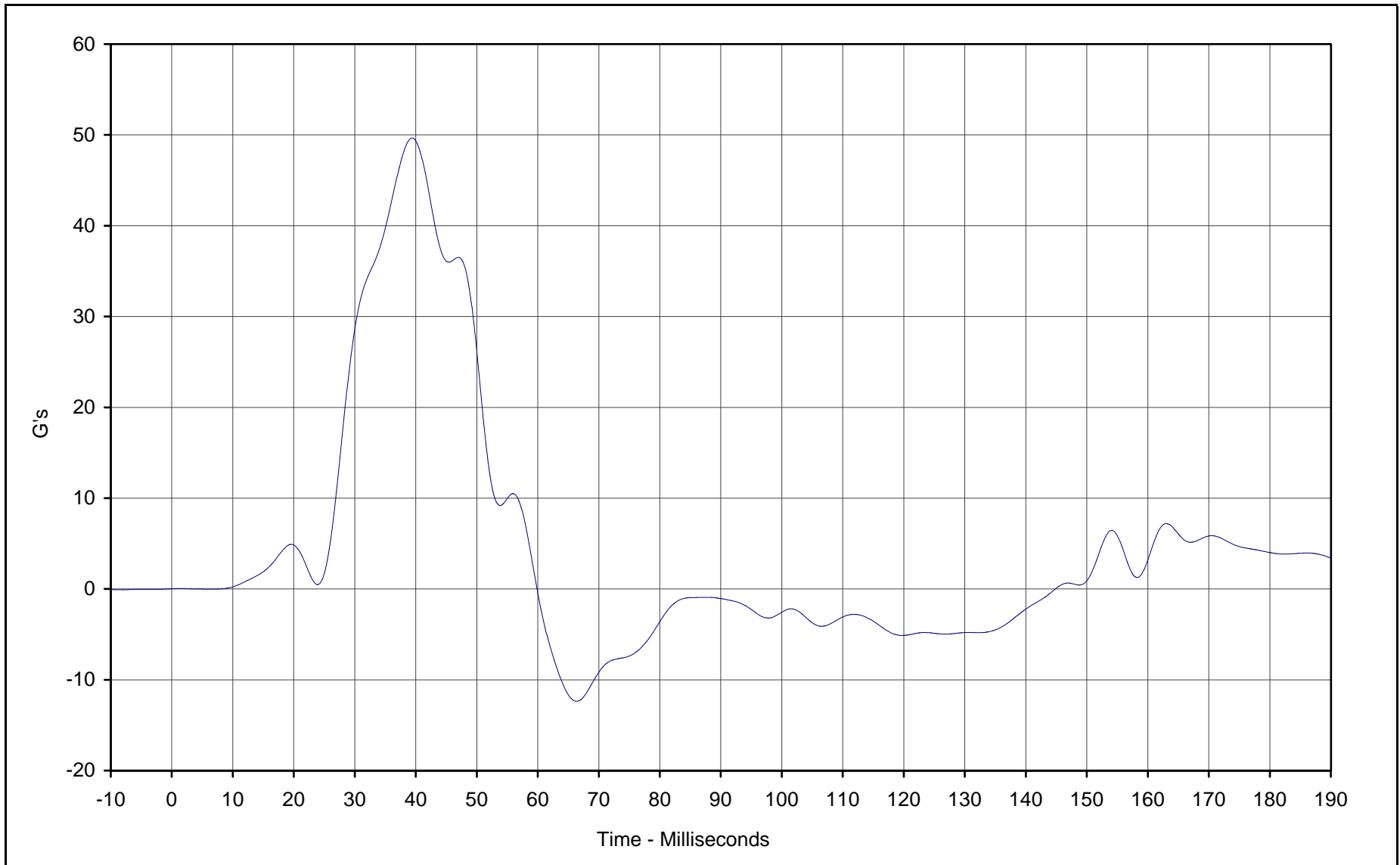
Curve Description: Driver Lower Rib Redundant Y
Maximum Value: 50.1 at 40.7 Milliseconds
Minimum Value: -11.4 at 91.9 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/28/00
Curve Number: FIR-009

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-125



Curve Description: Driver Lower Spine Redundant Y

Maximum Value: 49.7 at 39.4 Milliseconds

Minimum Value: -12.4 at 66.3 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 11/28/00

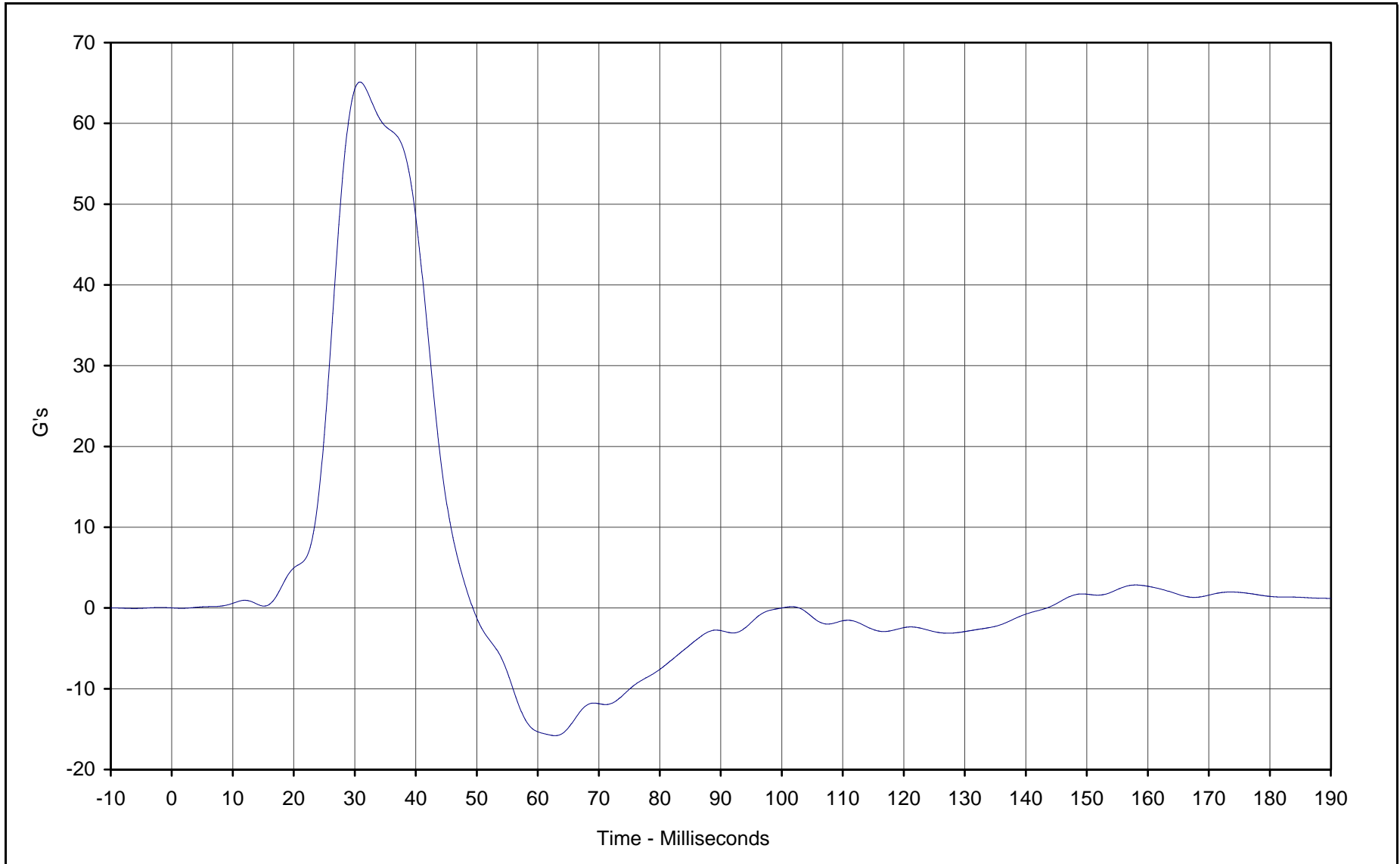
Curve Number: FIR-010

Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan



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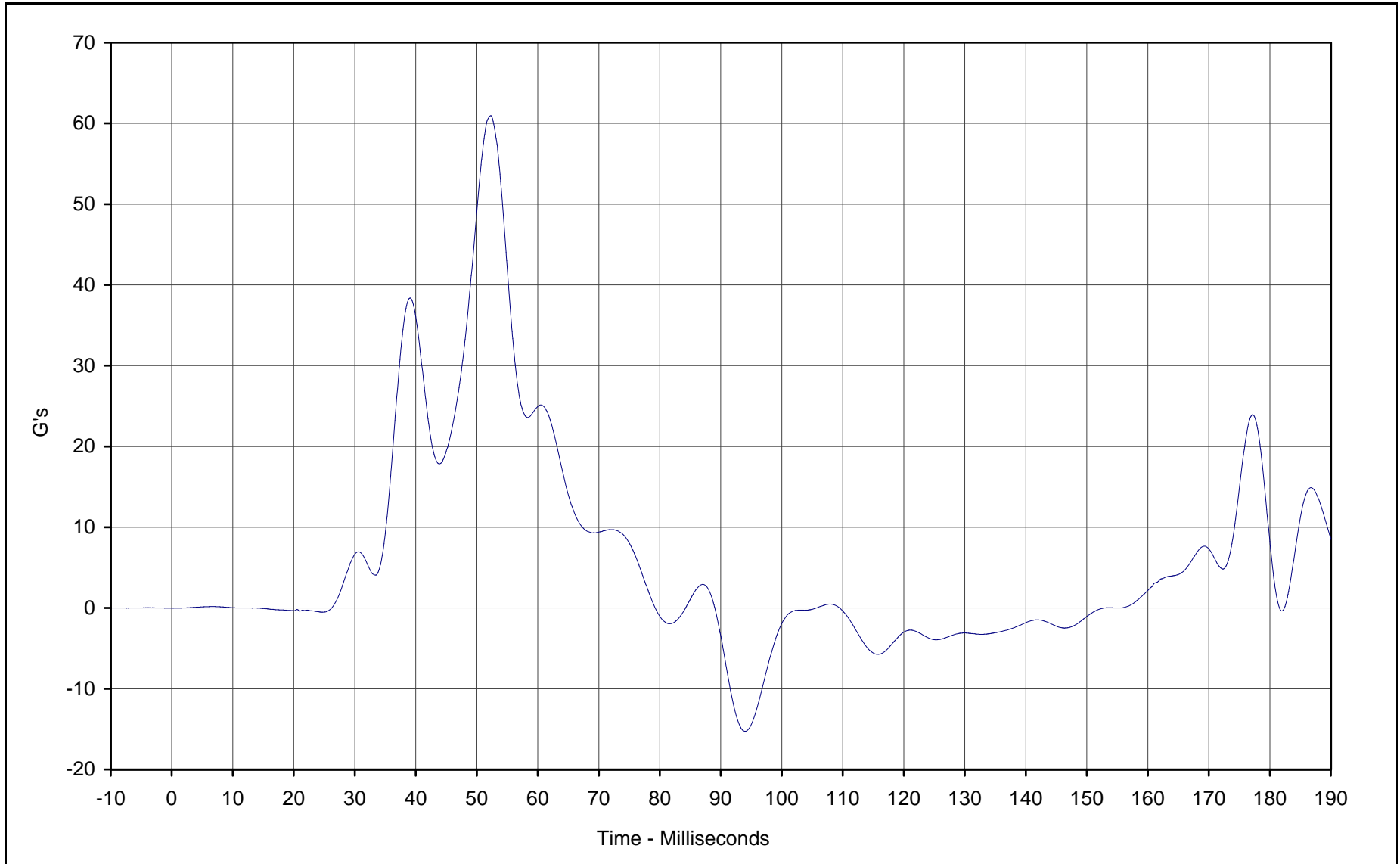


Curve Description: Driver Pelvis Redundant Y
Maximum Value: 65.1 at 30.8 Milliseconds
Minimum Value: -15.8 at 62.8 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/28/00
Curve Number: FIR-011

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



B-127



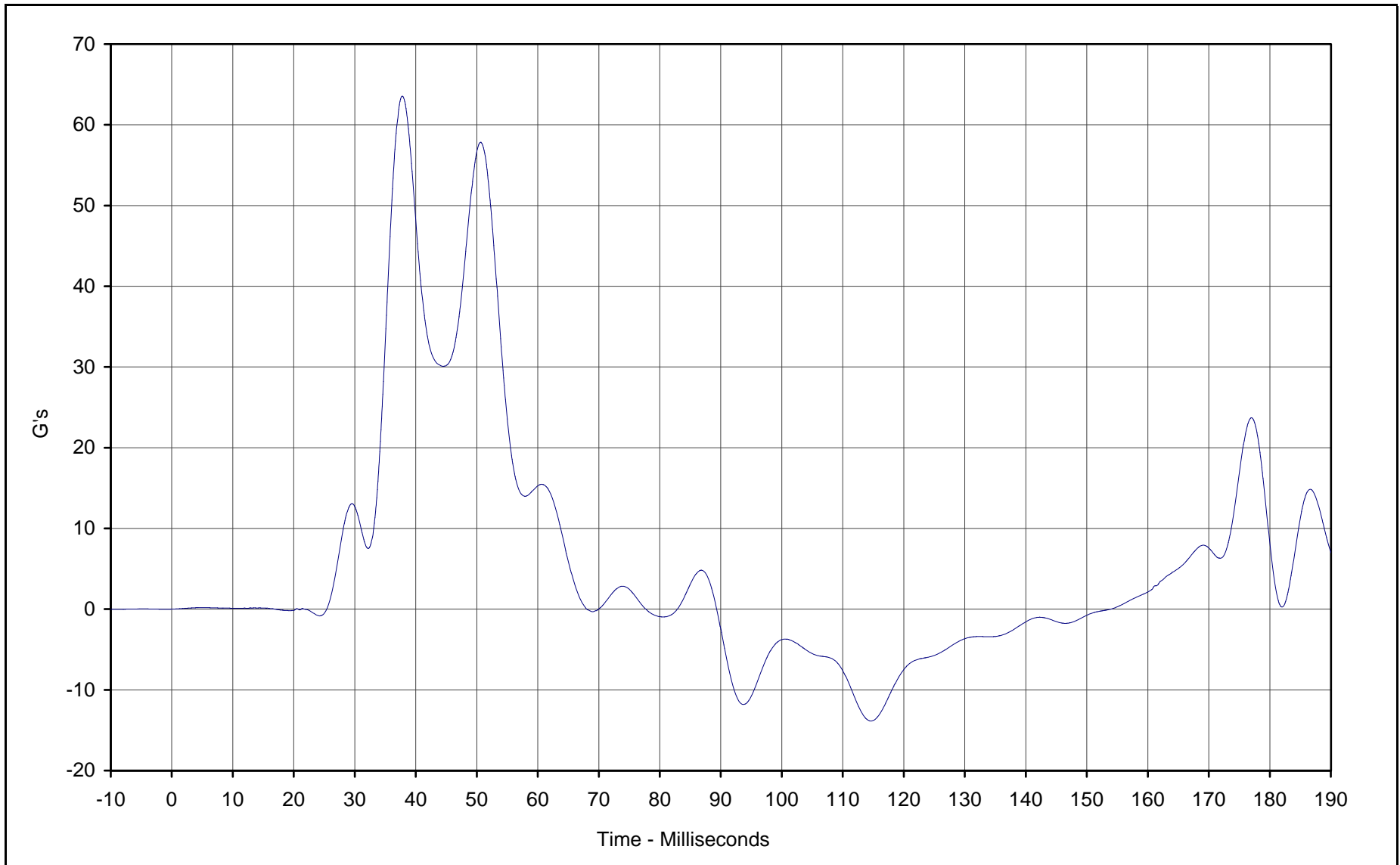
Curve Description: Pass. Upper Rib Primary Y
Maximum Value: 61.0 at 52.3 Milliseconds
Minimum Value: -15.3 at 94.0 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/28/00
Curve Number: FIR-017

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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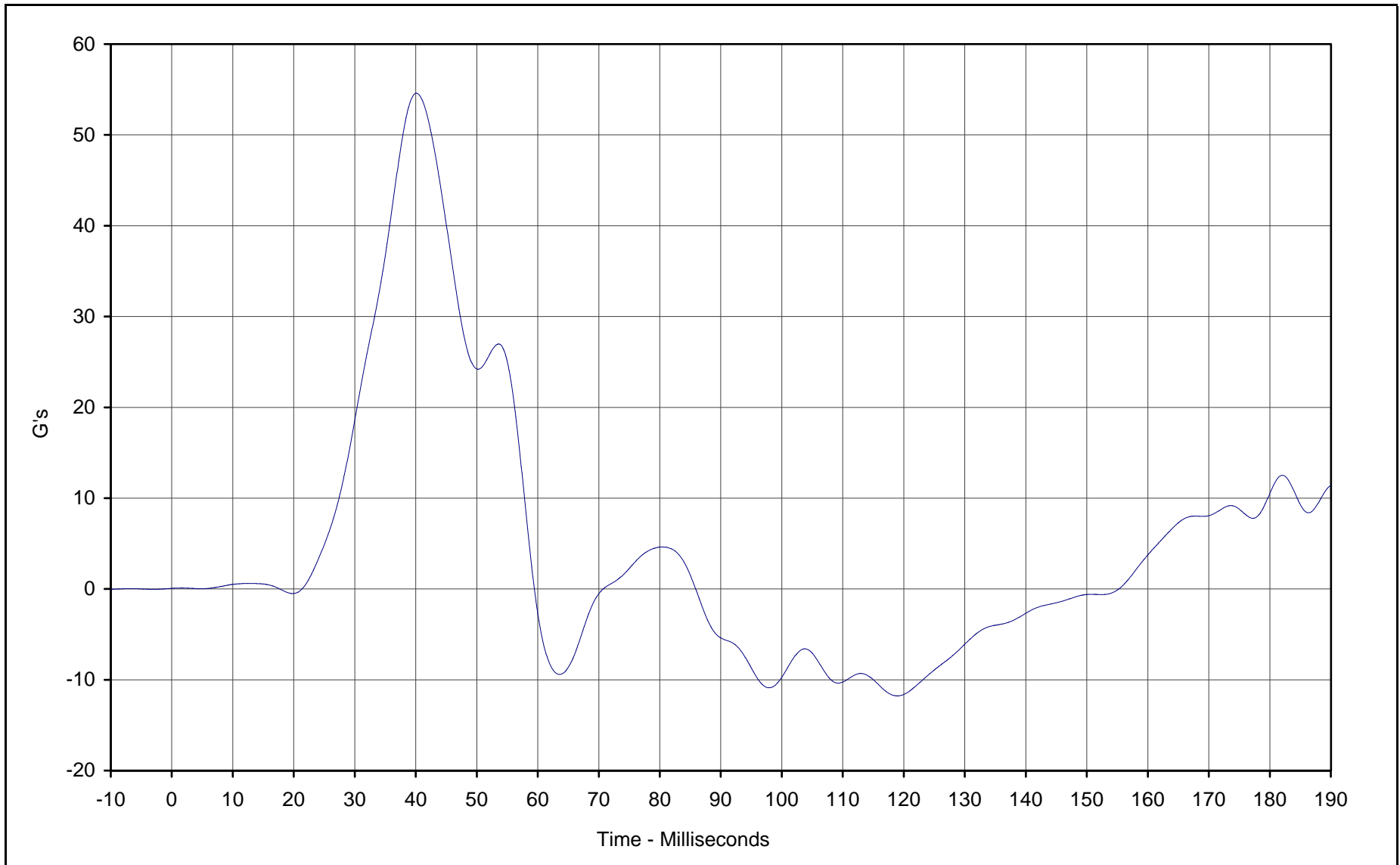
Curve Description: Pass. Lower Rib Primary Y
Maximum Value: 63.6 at 37.8 Milliseconds
Minimum Value: -13.8 at 114.6 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/28/00
Curve Number: FIR-018

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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Curve Description: Pass. Lower Spine Primary Y

Maximum Value: 54.6 at 40.1 Milliseconds

Minimum Value: -11.8 at 118.9 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 11/28/00

Curve Number: FIR-019

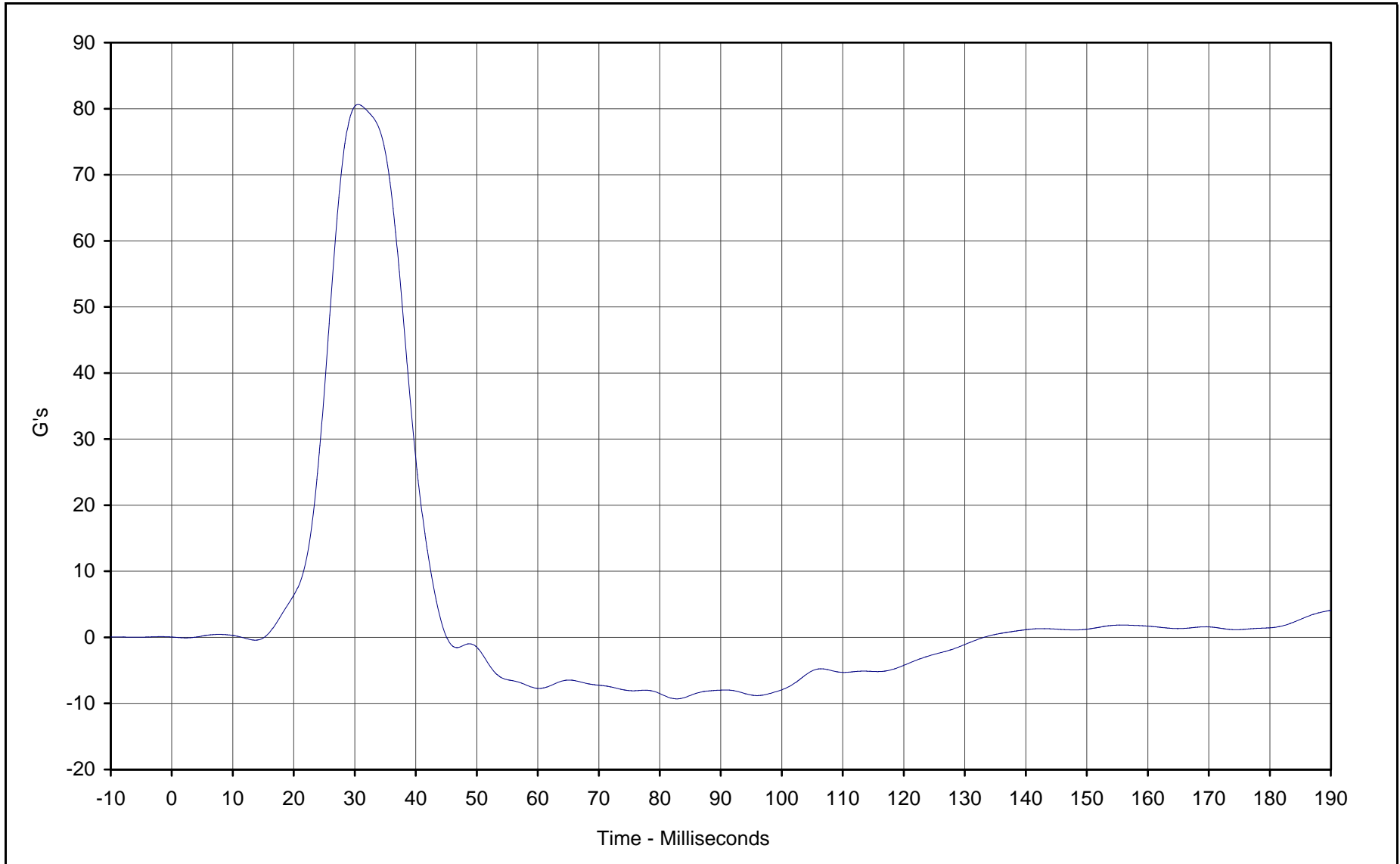
Test Program: 55/28 km/h Side Impact NCAP No.: M10110

Test Vehicle: 2001 Chevrolet Venture Minivan

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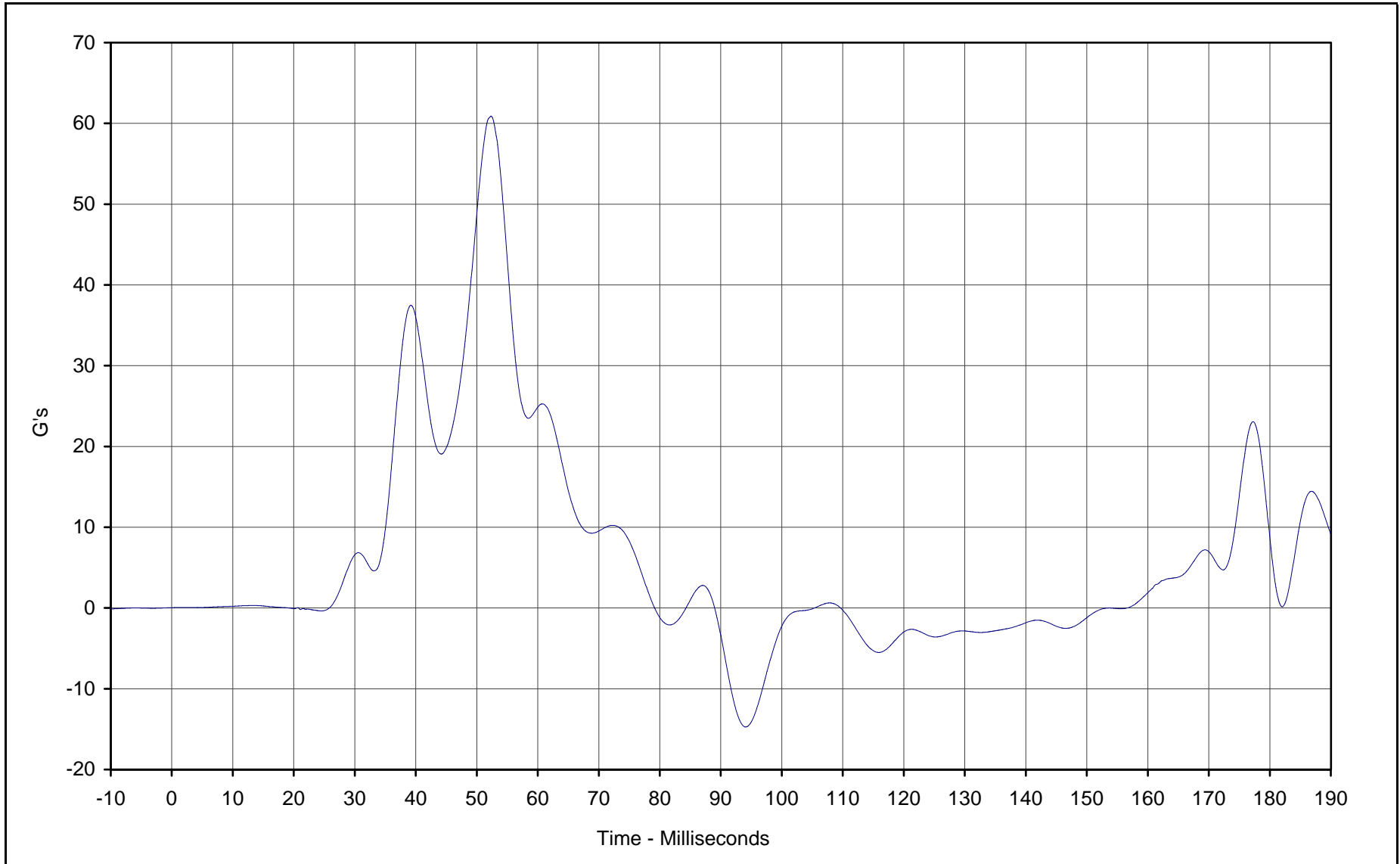
Curve Description: Pass. Pelvis Primary Y
Maximum Value: 80.6 at 30.5 Milliseconds
Minimum Value: -9.3 at 82.8 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/28/00
Curve Number: FIR-020

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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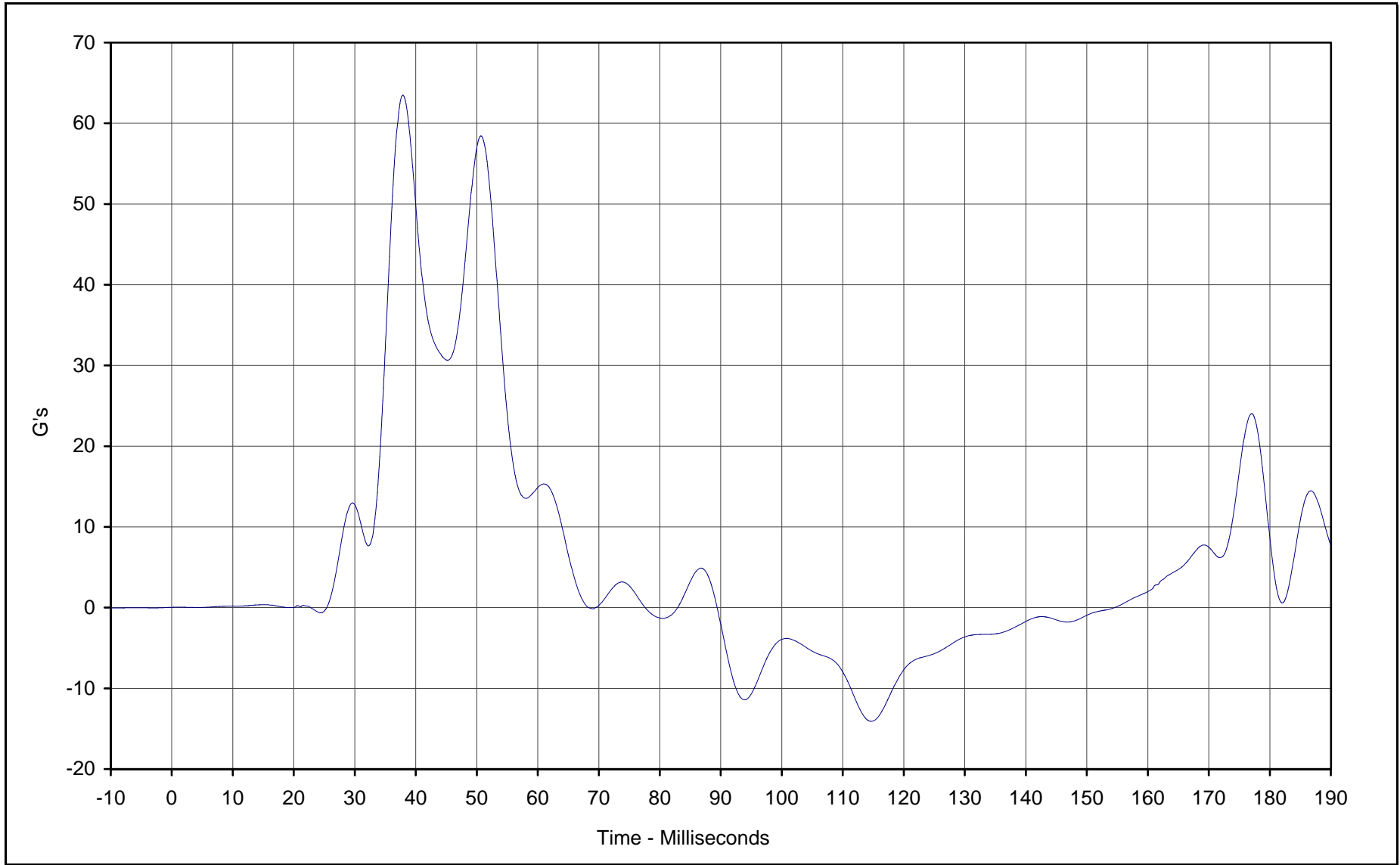
Curve Description: Pass. Upper Rib Redundant Y
Maximum Value: 60.9 at 52.4 Milliseconds
Minimum Value: -14.7 at 94.1 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/28/00
Curve Number: FIR-021

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-132



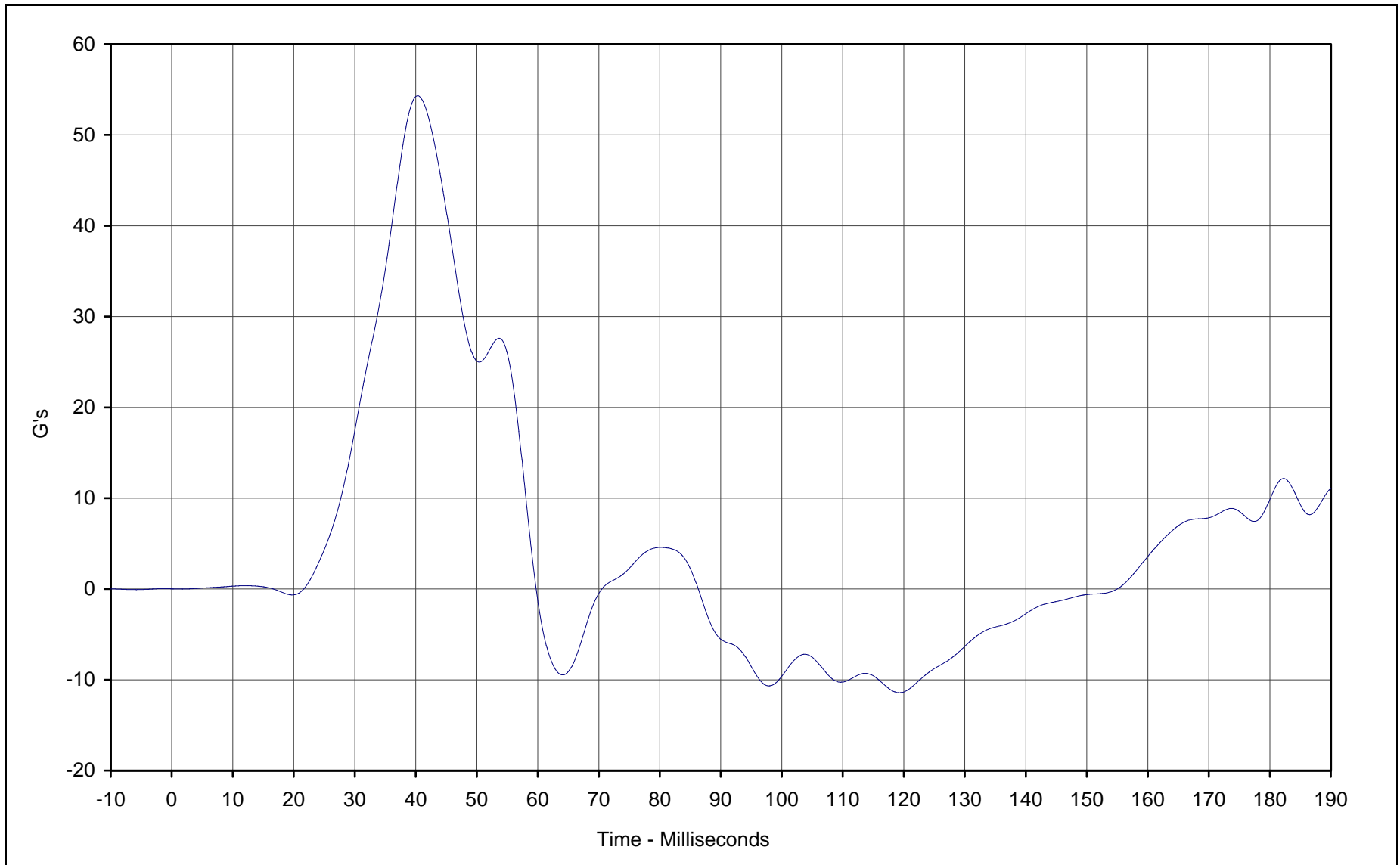
Curve Description: Pass. Lower Rib Redundant Y
Maximum Value: 63.5 at 37.9 Milliseconds
Minimum Value: -14.1 at 114.7 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/28/00
Curve Number: FIR-022

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



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B-133



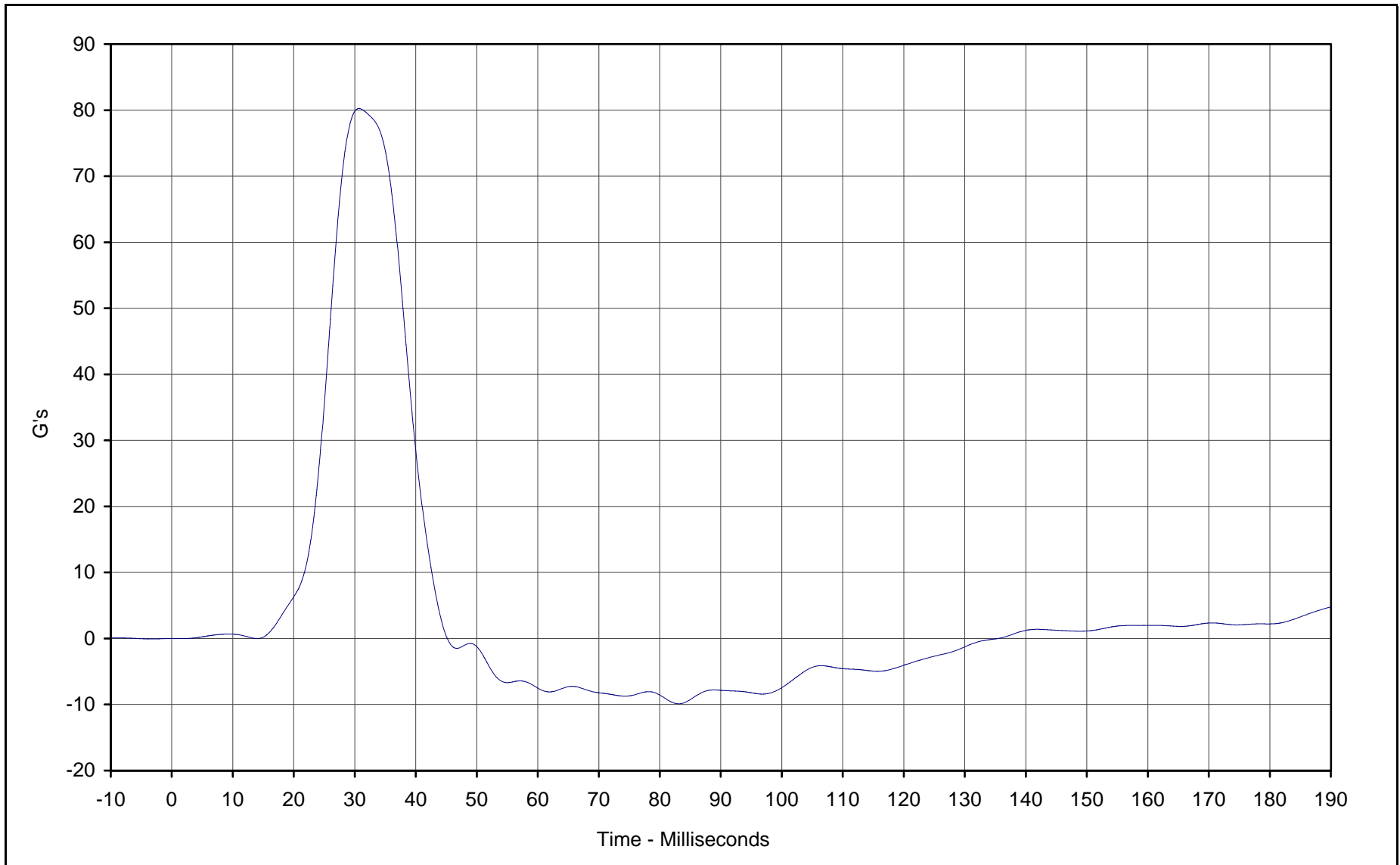
Curve Description: Pass. Lower Spine Redundant Y
Maximum Value: 54.3 at 40.3 Milliseconds
Minimum Value: -11.4 at 119.3 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/28/00
Curve Number: FIR-023

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan

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B-134



Curve Description: Pass. Pelvis Redundant Y
Maximum Value: 80.2 at 30.7 Milliseconds
Minimum Value: -9.9 at 83.2 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/28/00
Curve Number: FIR-024

Test Program: 55/28 km/h Side Impact NCAP No.: M10110
Test Vehicle: 2001 Chevrolet Venture Minivan



KAR21003-01

APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

APPENDIX C
PRE-TEST SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA



Performance Verification Data Side Impact Dummy (SID) External Dimensions

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	21.1	Pass
Laboratory relative humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	902	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	510	Pass
KH- Knee Pivot From Back Line	mm	511 to 526	521	Pass
KV- Knee Pivot From Floor	mm	490 to 505	501	Pass
HW- Hip Width	mm	356 to 391	362	Pass
Overall Test Results				Pass

Laboratory Technician

November 24, 2000

Test Date

Approved By

Date



Performance Verification Data Side Impact Dummy (SID) Thorax Lateral Impact

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: TI08C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.28	Pass
Left Upper Rib Acceleration	G's	37.0 to 46.0	39.3	Pass
Left Lower Rib Acceleration	G's	37.0 to 46.0	37.8	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	20.1	Pass
Overall Test Results				Pass

Laboratory Technician

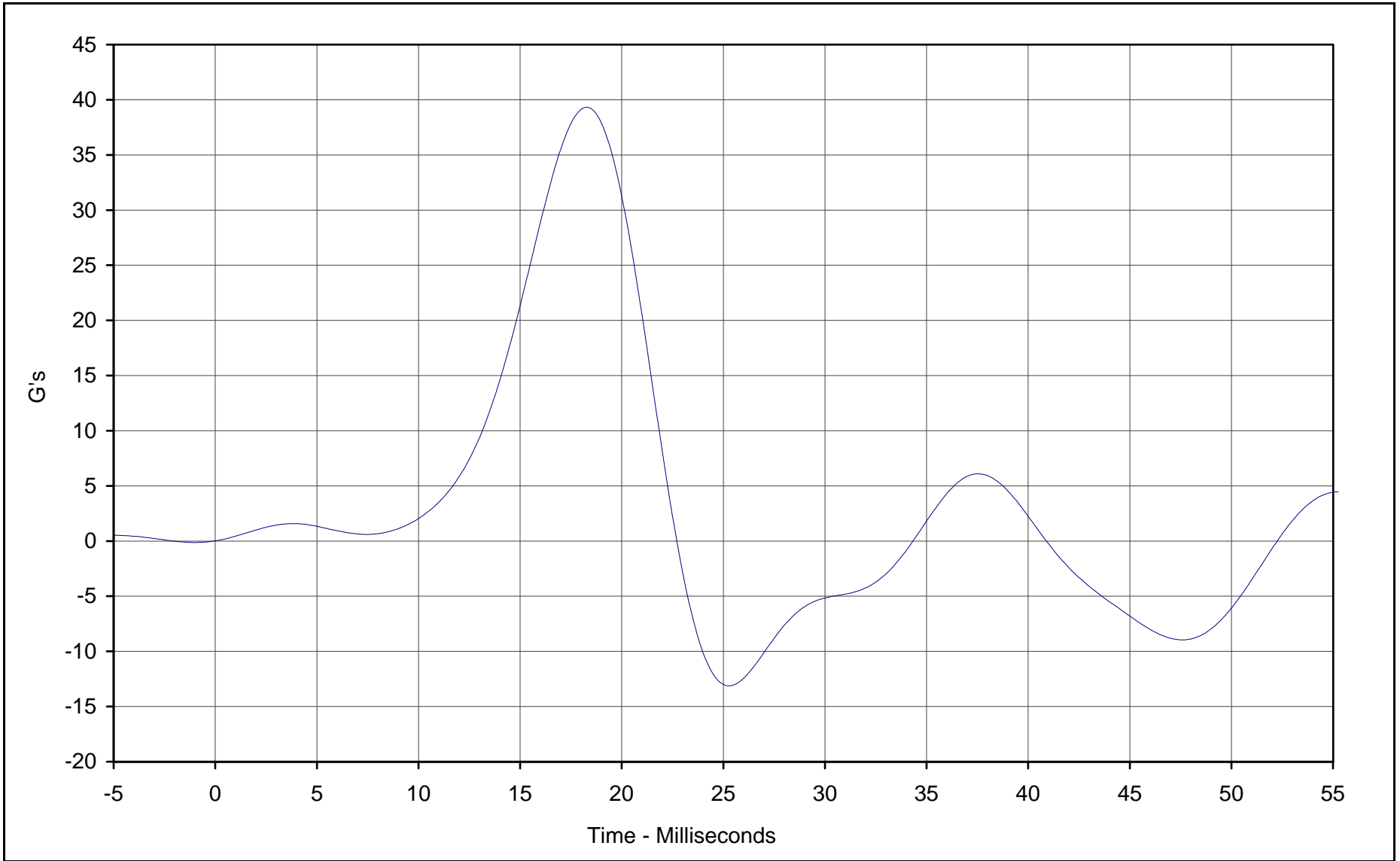
November 22, 2000

Test Date

Approved By

Date

C-3



Curve Description: Left Upper Rib Y Acceleration

Maximum Value: 39.3 at 18.3 Milliseconds

Minimum Value: -13.1 at 25.3 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 11/22/00

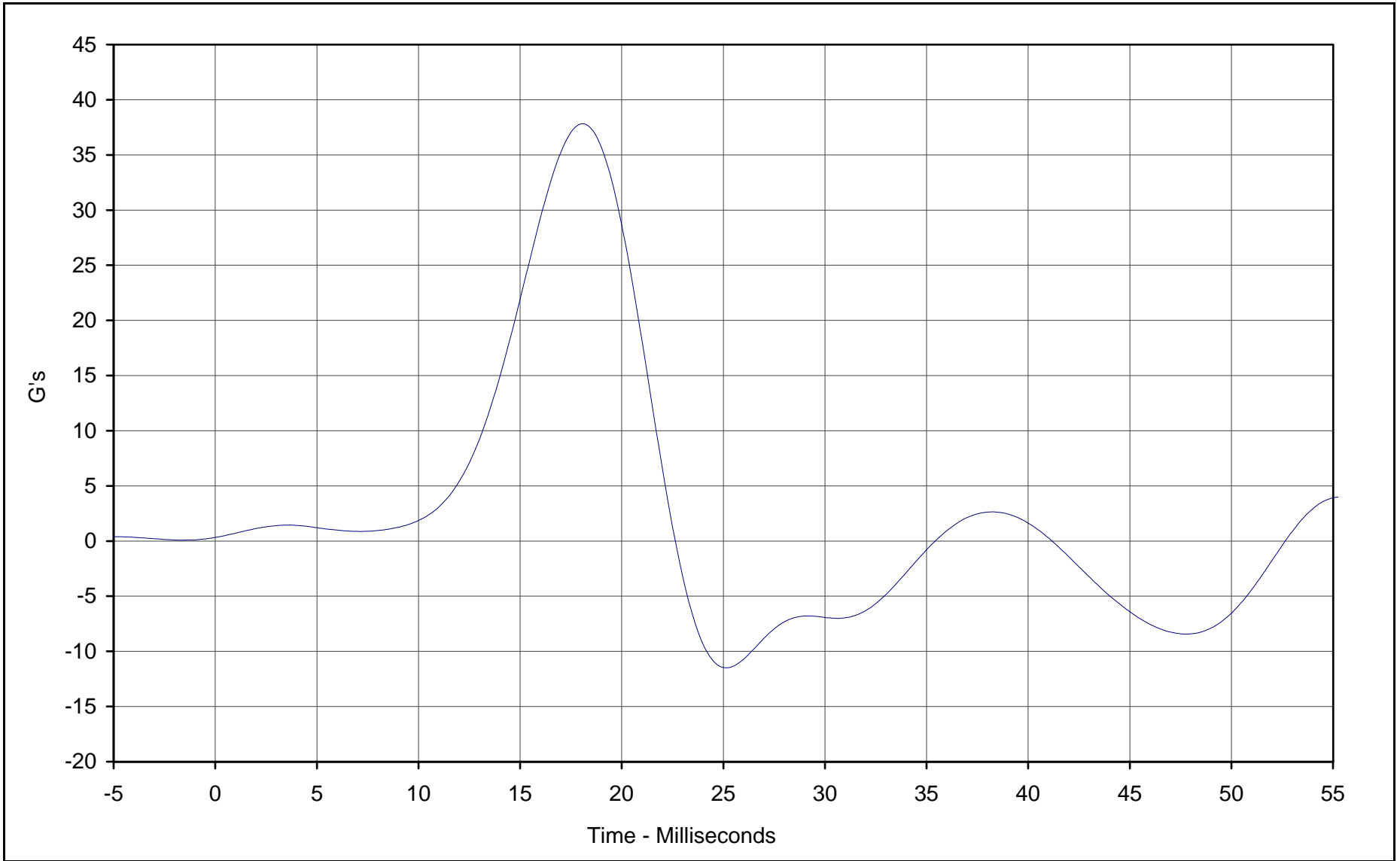
Test Program: SID Thorax Lateral Impact Test

Test Information: SID S/N: 274 Test I.D.: TI08C



KAR21003-01

C-4



Curve Description: Left Lower Rib Y Acceleration

Maximum Value: 37.8 at 18.1 Milliseconds

Minimum Value: -11.5 at 25.1 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 11/22/00

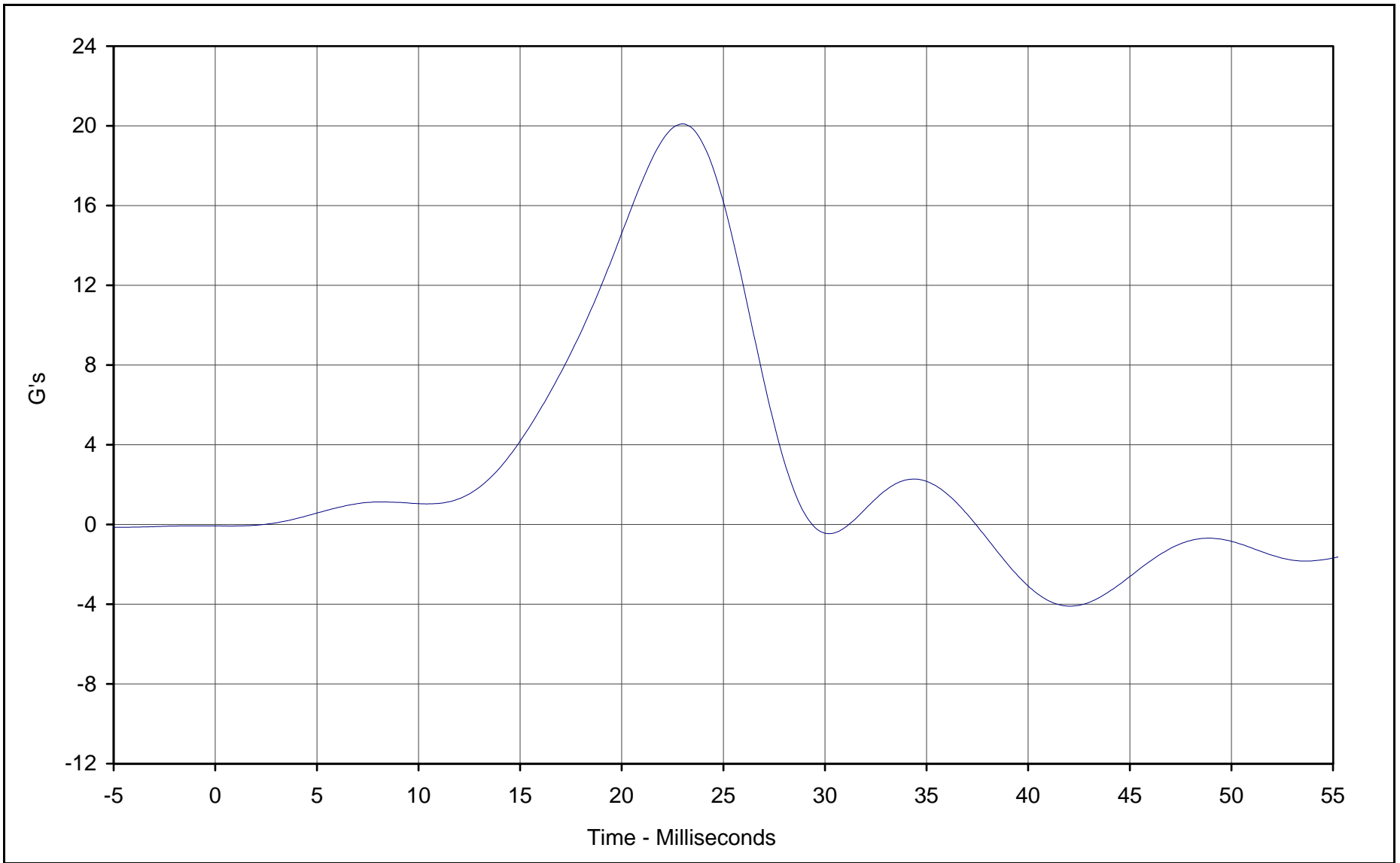
Test Program: SID Thorax Lateral Impact Test

Test Information: SID S/N: 274 Test I.D.: TI08C



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C-5



Curve Description: Lower Spine Y Acceleration

Maximum Value: 20.1 at 23.0 Milliseconds

Minimum Value: -4.1 at 42.1 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 11/22/00

Test Program: SID Thorax Lateral Impact Test

Test Information: SID S/N: 274 Test I.D.: TI08C



KAR21003-01



**Performance Verification Data
Side Impact Dummy (SID)
Left Side Pelvis Lateral Impact**

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: PI10C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.33	Pass
Pelvis Acceleration	G's	40.0 to 60.0	45.4	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0 Msec.	6.2	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

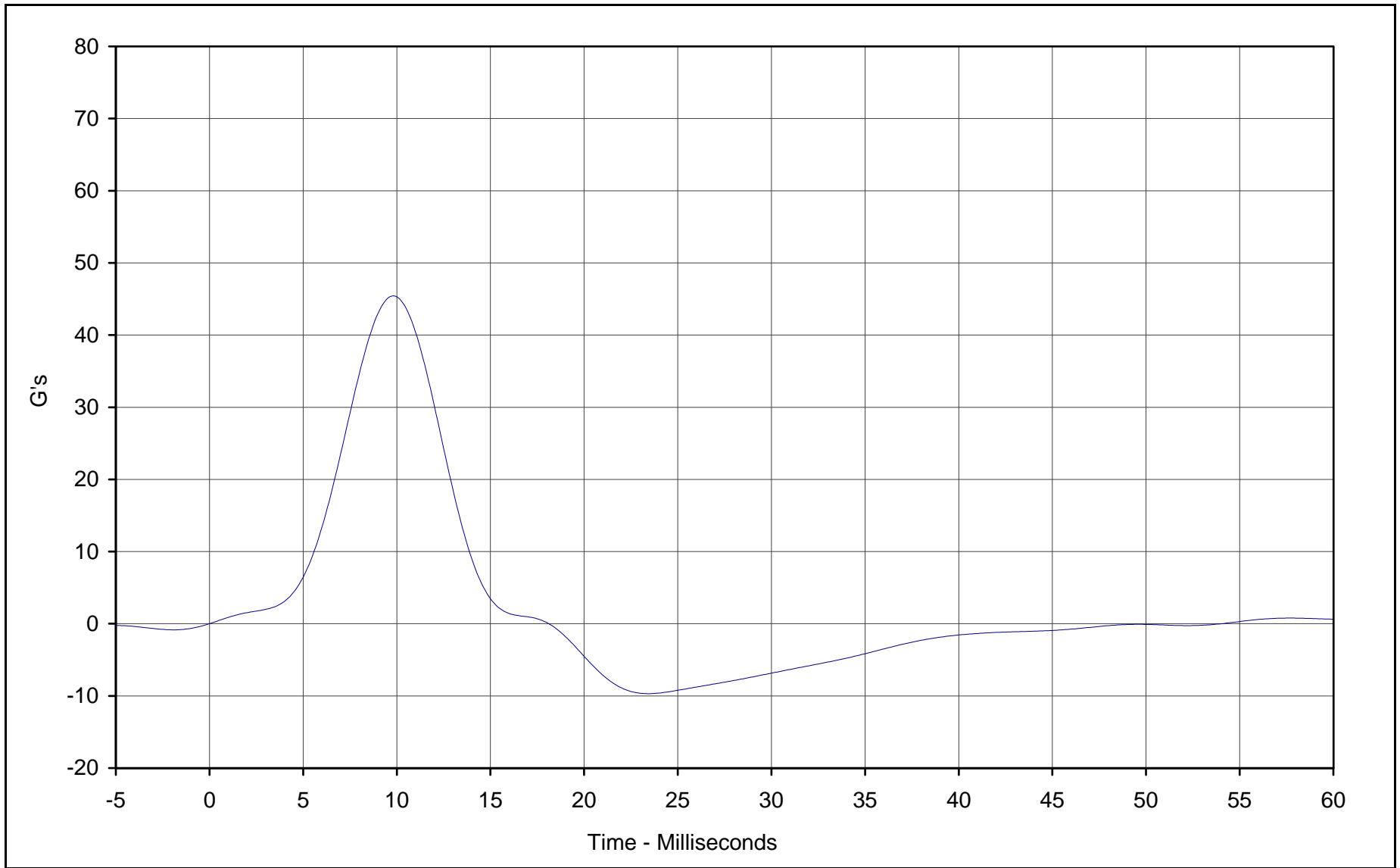
November 22, 2000

Test Date

Approved By

Date

C-7



Curve Description: Pelvis Y Axis Acceleration
Maximum Value: 45.4 at 9.8 Milliseconds
Minimum Value: -9.7 at 23.4 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/22/00

Test Program: Left Side Pelvis Lateral Impact
Test Information: SID S/N: 274 Test I.D.: PI10C



KAR21003-01



Performance Verification Data Side Impact Dummy (SID) Abdominal Compression Test

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: AB11A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Force at 0.5 Inches of Displacement	Pounds	23.0 to 36.0	29.9	Pass
Force at 0.75 Inches of Displacement	Pounds	36.0 to 50.0	44.8	Pass
Force at 1.0 Inches of Displacement	Pounds	50.0 to 63.0	61.9	Pass
Force at 1.3 Inches of Displacement	Pounds	73.0 to 88.0	86.2	Pass
Overall Test Results				Pass

Laboratory Technician

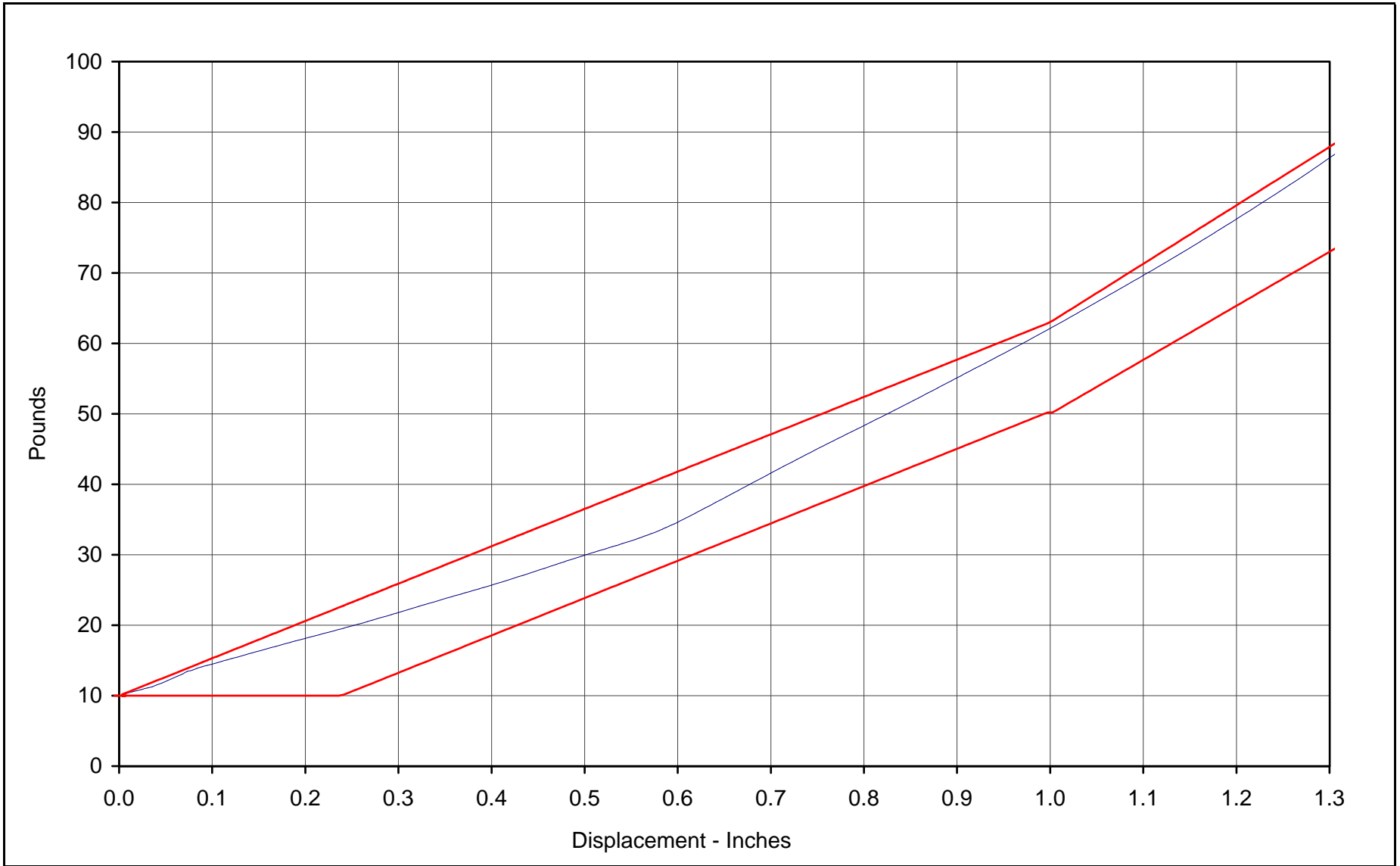
November 23, 2000

Test Date

Approved By

Date

C-9



Curve Description: Abdomen Force vs. Displacement

Test Program: SID Abdominal Compression

Force at 0.5 In.: 29.9 Pounds

Test Information: SID S/N: 274 Test I.D.: AB11A

Force at 0.75 In.: 44.8 Pounds

Force at 1.0 In.: 61.9 Pounds

Force at 1.3 In.: 86.2 Pounds

Date of Test: 11/23/00



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Performance Verification Data Side Impact Dummy (SID) Head Drop Calibration

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: HD11A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	210.0 to 260.0	242.9	Pass
Peak Lateral Acceleration	G's	≤10.0	7.6	Pass
Time Above 100 G's	Msec.	0.9 to 1.5	1.1	Pass
Is Resultant Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

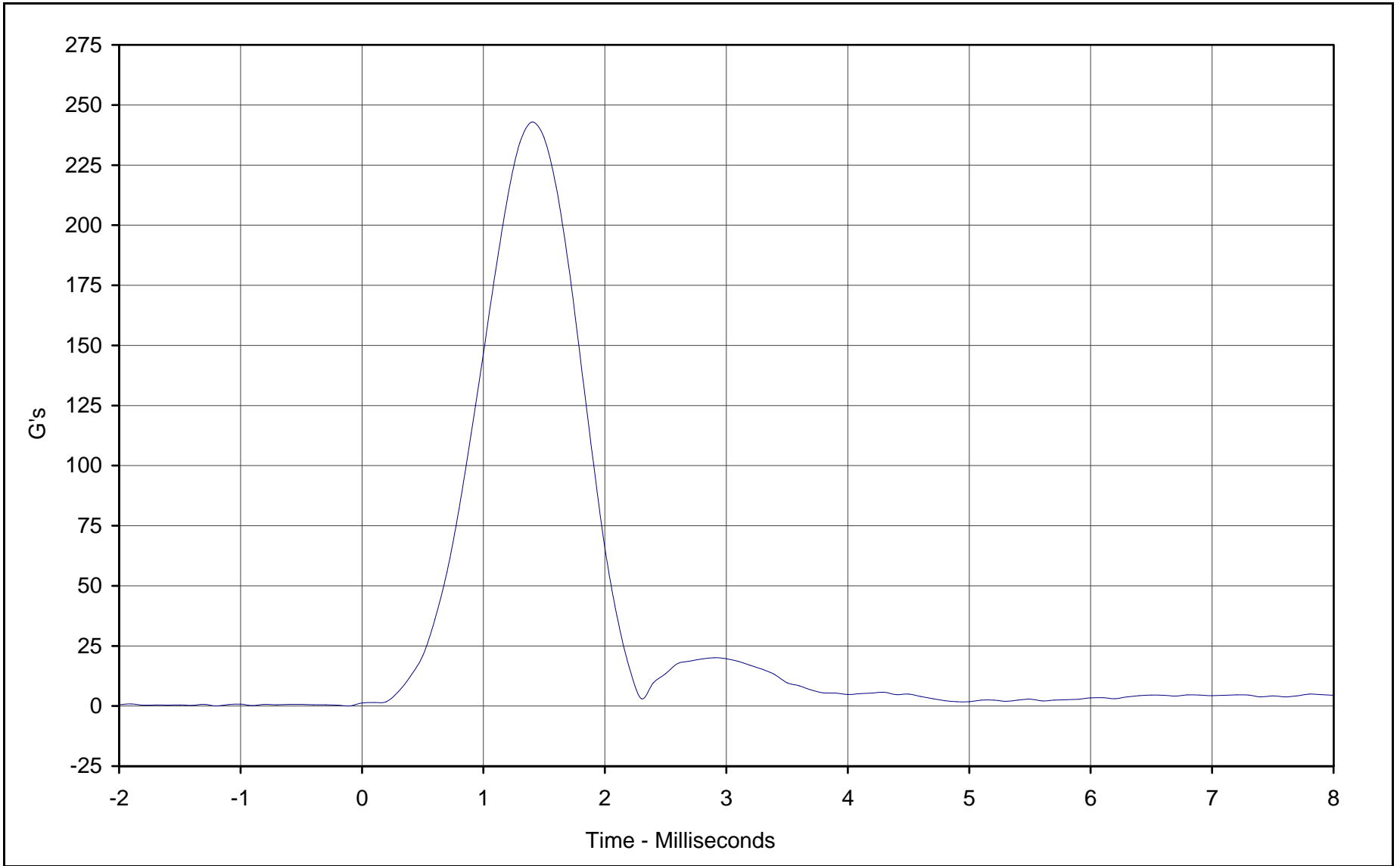
November 23, 2000

Test Date

Approved By

Date

C-11



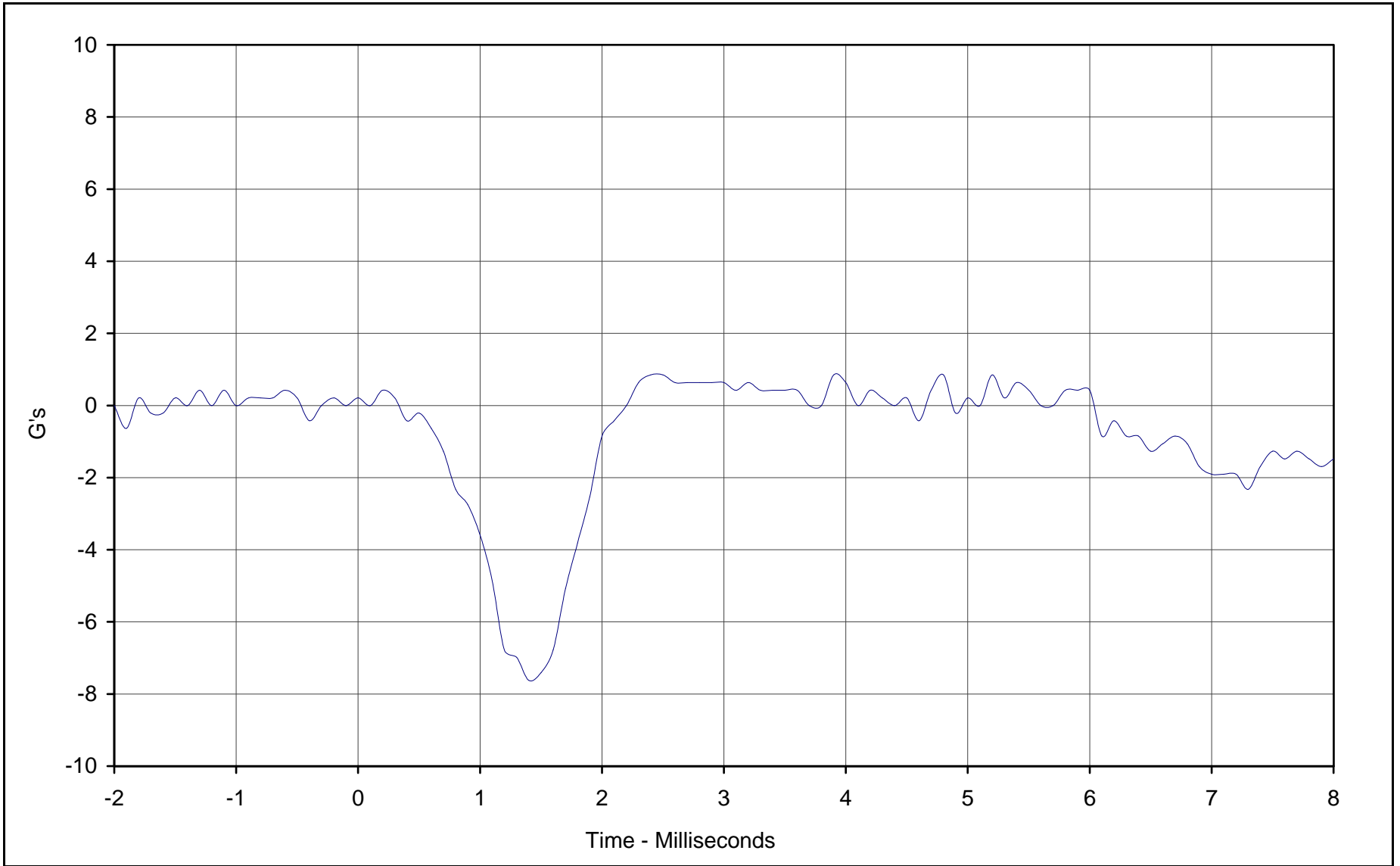
Curve Description: Head Resultant Acceleration
Maximum Value: 242.9 at 1.4 Milliseconds
Minimum Value: 1.3 at 0.0 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/23/00

Test Program: Hybrid II Head Drop Calibration
Test Information: SID S/N: 274 Test I.D.: HD11A



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C-12



Curve Description: Head Y Axis Acceleration
Maximum Value: 0.8 at 2.4 Milliseconds
Minimum Value: -7.6 at 1.4 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/23/00

Test Program: Hybrid II Head Drop Calibration
Test Information: SID S/N: 274 Test I.D.: HD11A



KAR21003-01



Performance Verification Data Side Impact Dummy (SID) External Dimensions

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	21.1	Pass
Laboratory relative humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	902	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	510	Pass
KH- Knee Pivot From Back Line	mm	511 to 526	520	Pass
KV- Knee Pivot From Floor	mm	490 to 505	500	Pass
HW- Hip Width	mm	356 to 391	360	Pass
Overall Test Results				Pass

Laboratory Technician

November 24, 2000

Test Date

Approved By

Date



Performance Verification Data Side Impact Dummy (SID) Thorax Lateral Impact

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: TI08D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.27	Pass
Left Upper Rib Acceleration	G's	37.0 to 46.0	41.5	Pass
Left Lower Rib Acceleration	G's	37.0 to 46.0	40.7	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	21.5	Pass
Overall Test Results				Pass

Laboratory Technician

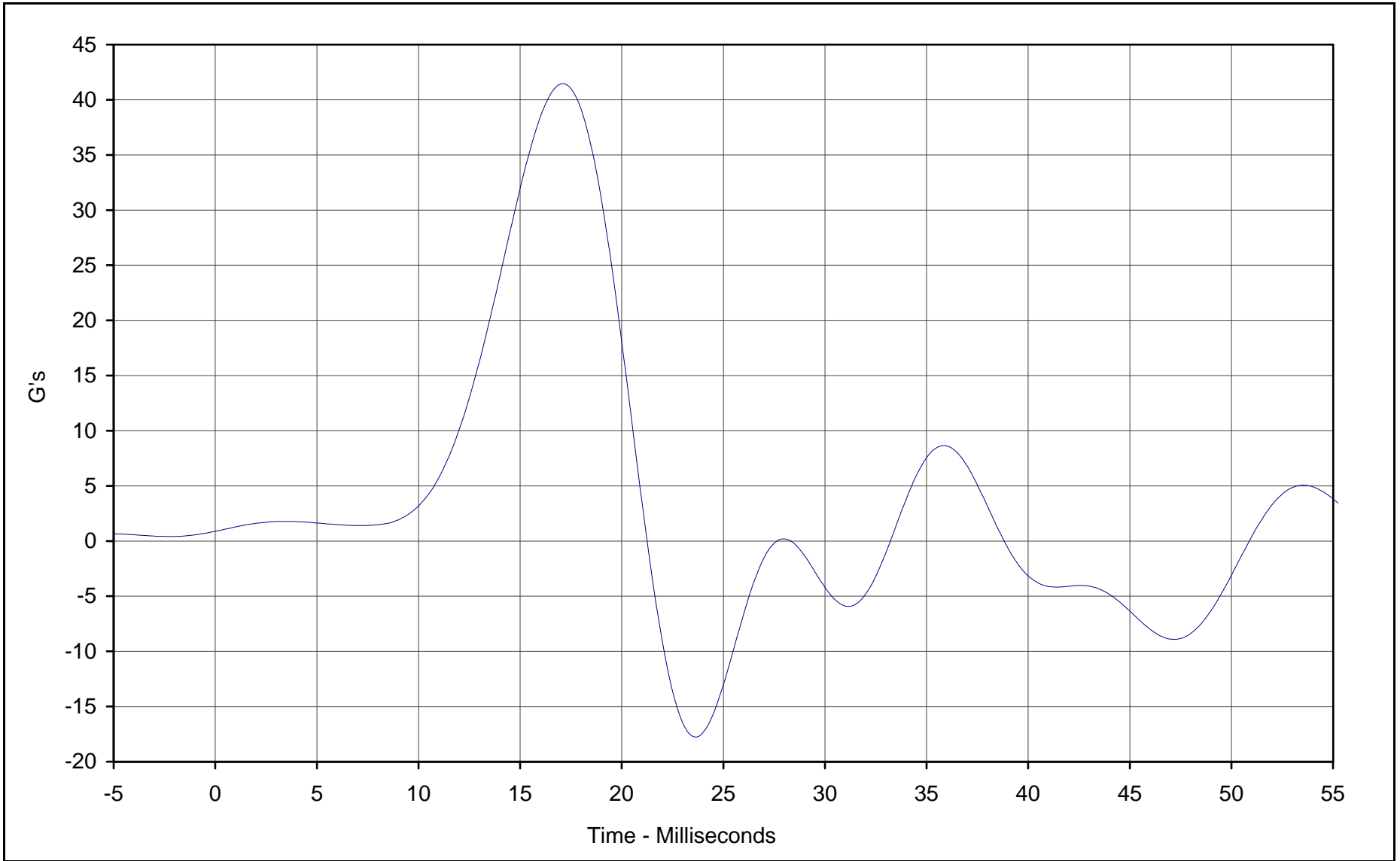
November 22, 2000

Test Date

Approved By

Date

C-15



Curve Description: Left Upper Rib Y Acceleration

Maximum Value: 41.5 at 17.1 Milliseconds

Minimum Value: -17.8 at 23.6 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 11/22/00

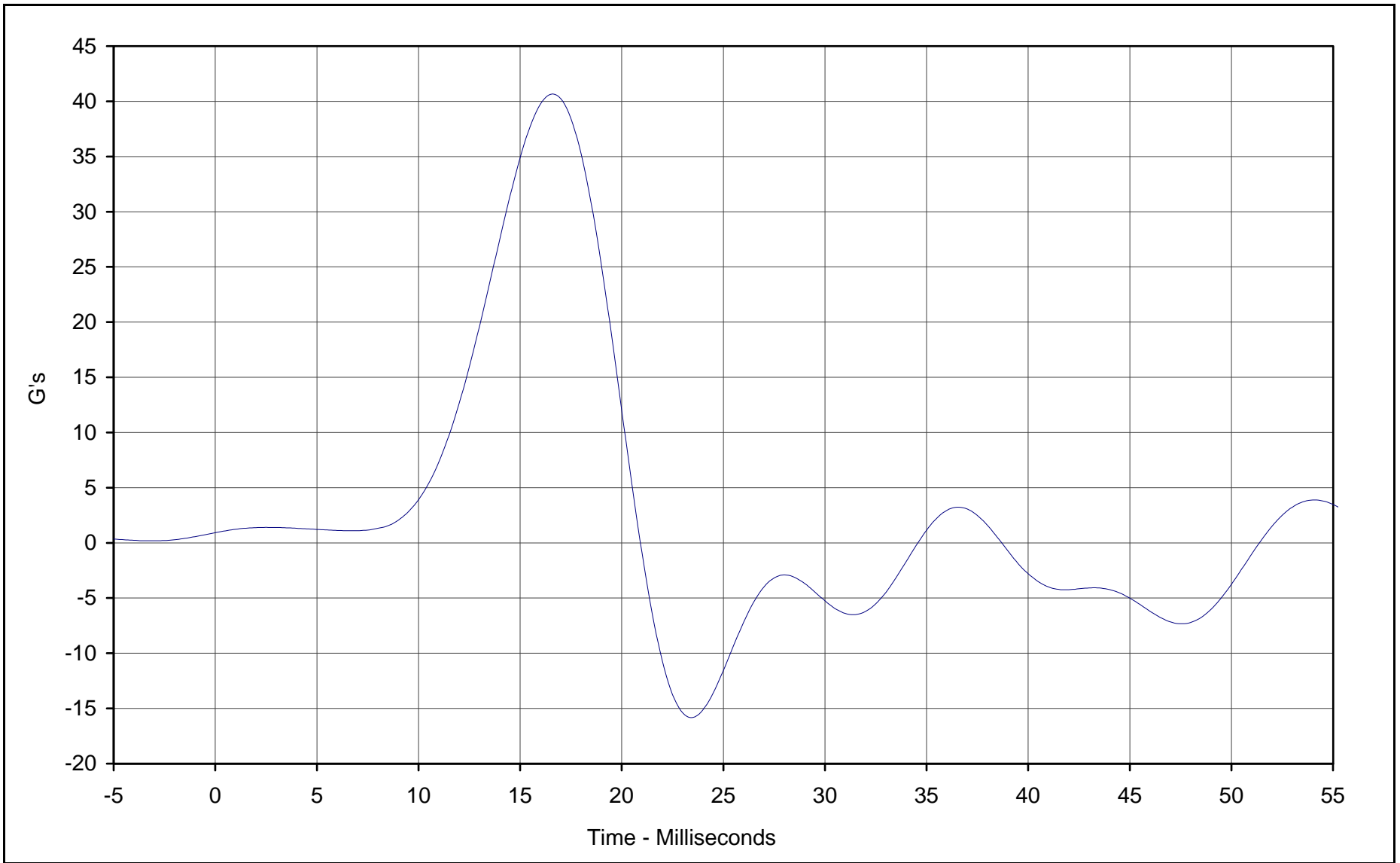
Test Program: SID Thorax Lateral Impact Test

Test Information: SID S/N: 275 Test I.D.: TI08D



KAR21003-01

C-16



Curve Description: Left Lower Rib Y Acceleration

Maximum Value: 40.7 at 16.6 Milliseconds

Minimum Value: -15.8 at 23.4 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 11/22/00

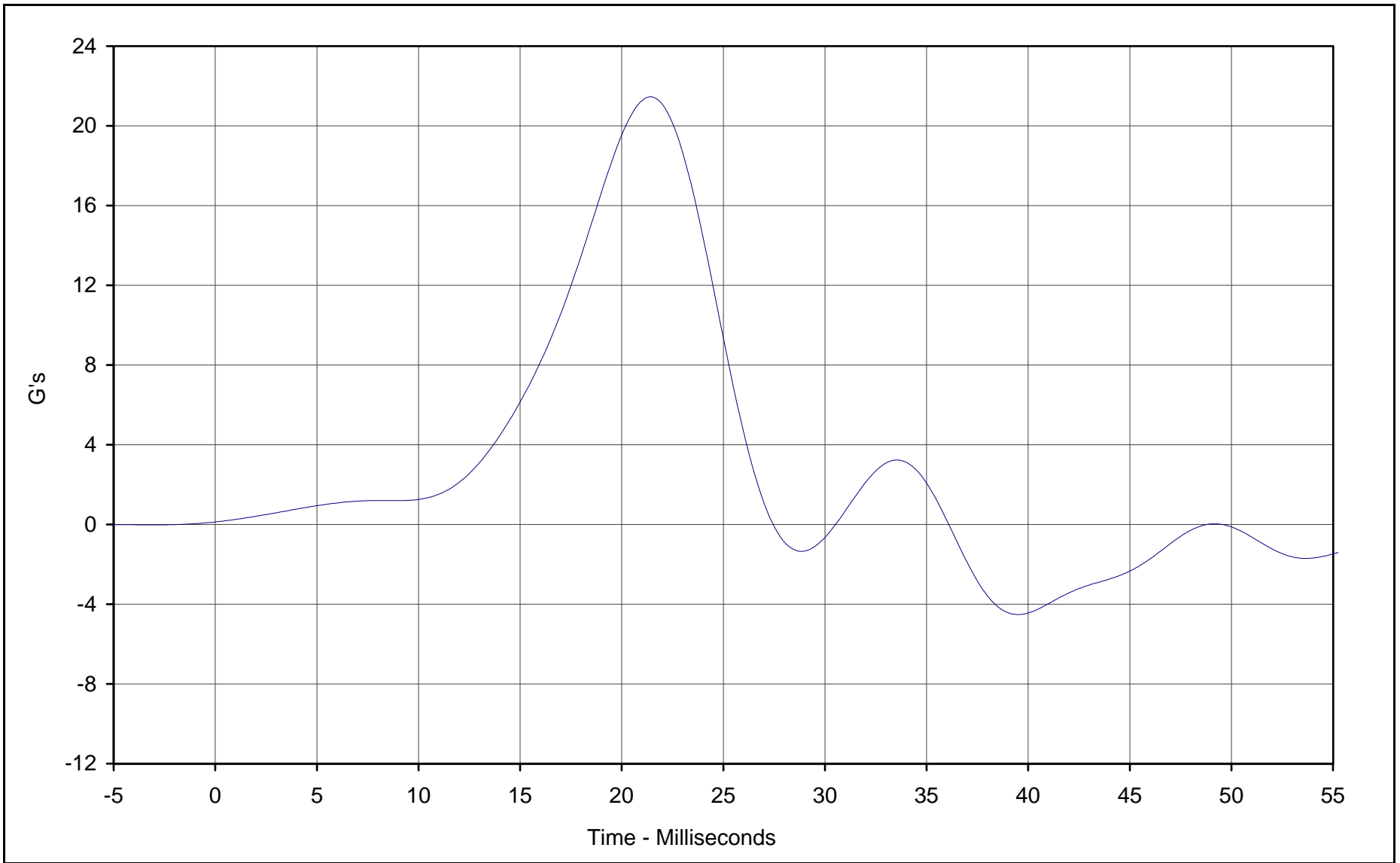
Test Program: SID Thorax Lateral Impact Test

Test Information: SID S/N: 275 Test I.D.: TI08D



KAR21003-01

C-17



Curve Description: Lower Spine Y Acceleration

Maximum Value: 21.5 at 21.4 Milliseconds

Minimum Value: -4.5 at 39.5 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 11/22/00

Test Program: SID Thorax Lateral Impact Test

Test Information: SID S/N: 275 Test I.D.: TI08D



KAR21003-01



**Performance Verification Data
Side Impact Dummy (SID)
Left Side Pelvis Lateral Impact**

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: PI10D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.33	Pass
Pelvis Acceleration	G's	40.0 to 60.0	44.2	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0 Msec.	6.1	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

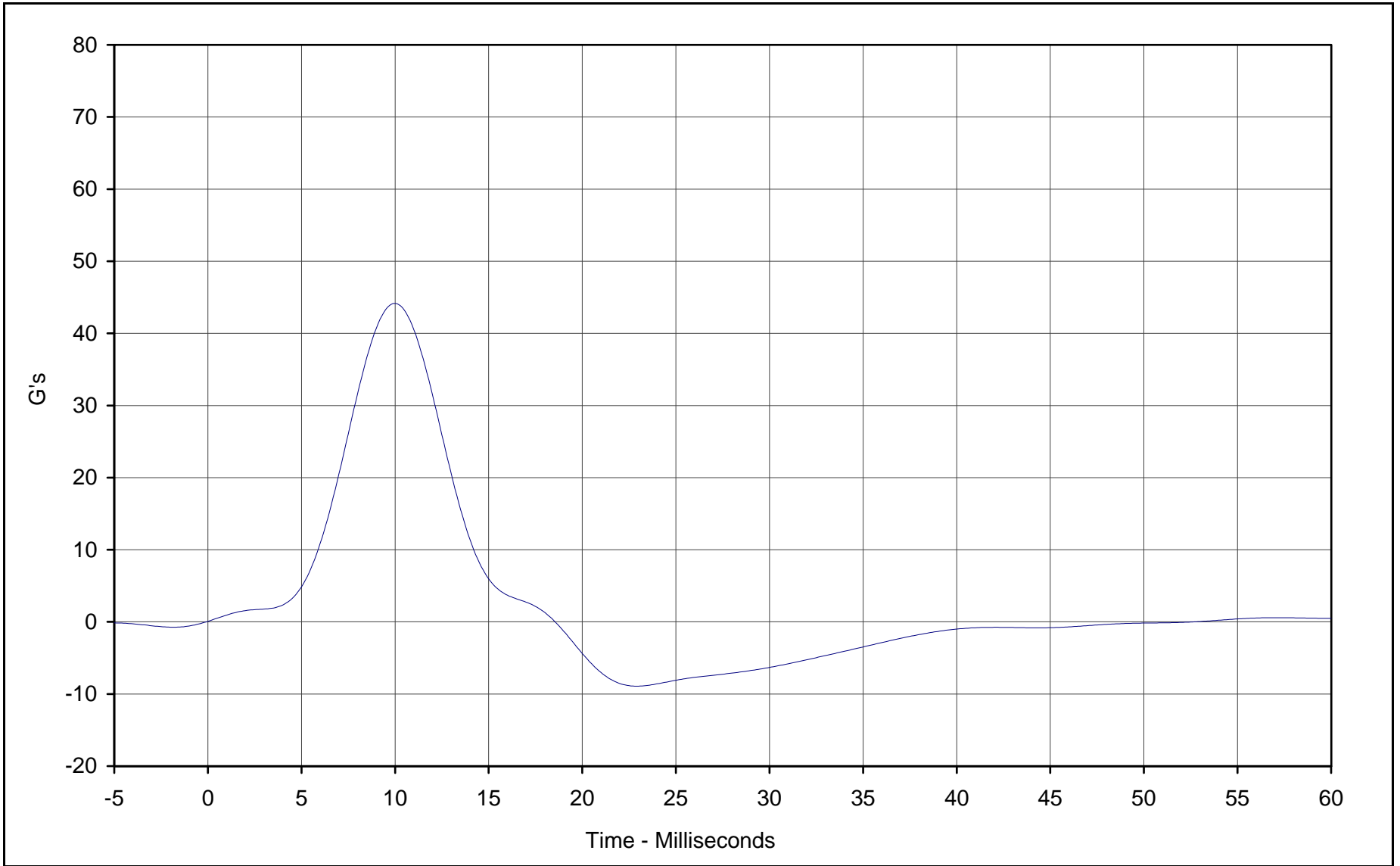
November 22, 2000

Test Date

Approved By

Date

C-19



Curve Description: Pelvis Y Axis Acceleration
Maximum Value: 44.2 at 10.0 Milliseconds
Minimum Value: -8.9 at 22.9 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/22/00

Test Program: Left Side Pelvis Lateral Impact
Test Information: SID S/N: 275 Test I.D.: PI10D



KAR21003-01



Performance Verification Data Side Impact Dummy (SID) Abdominal Compression Test

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: AB11B

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Force at 0.5 Inches of Displacement	Pounds	23.0 to 36.0	30.2	Pass
Force at 0.75 Inches of Displacement	Pounds	36.0 to 50.0	45.7	Pass
Force at 1.0 Inches of Displacement	Pounds	50.0 to 63.0	62.8	Pass
Force at 1.3 Inches of Displacement	Pounds	73.0 to 88.0	87.3	Pass
Overall Test Results				Pass

Laboratory Technician

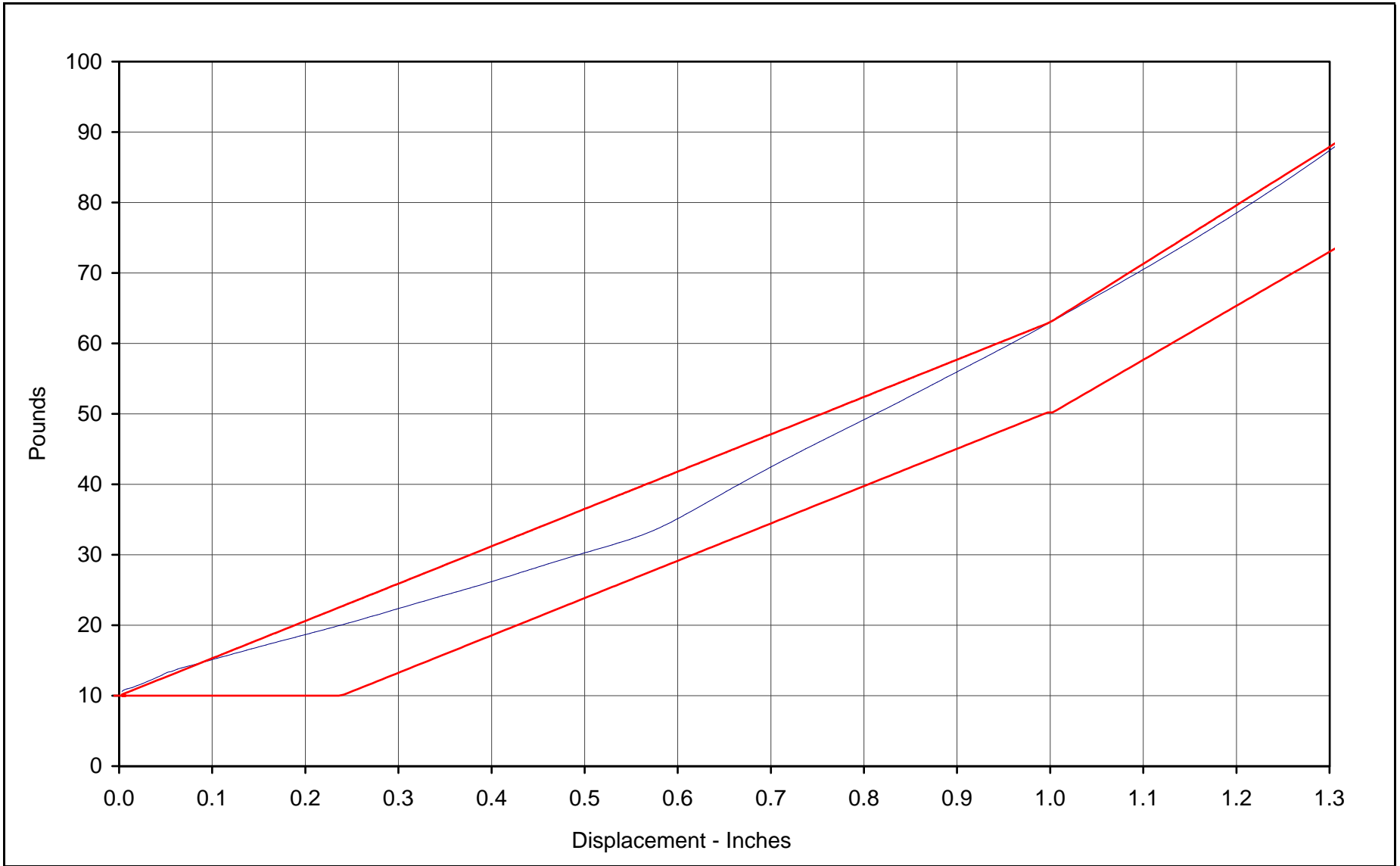
November 23, 2000

Test Date

Approved By

Date

C-21



Curve Description: Abdomen Force vs. Displacement

Test Program: SID Abdominal Compression

Force at 0.5 In.: 30.2 Pounds

Test Information: SID S/N: 275 Test I.D.: AB11B

Force at 0.75 In.: 45.7 Pounds

Force at 1.0 In.: 62.8 Pounds

Force at 1.3 In.: 87.3 Pounds

Date of Test: 11/23/00



KAR21003-01



Performance Verification Data Side Impact Dummy (SID) Head Drop Calibration

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: HD11B

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	210.0 to 260.0	240.5	Pass
Peak Lateral Acceleration	G's	≤10.0	3.8	Pass
Time Above 100 G's	Msec.	0.9 to 1.5	1.1	Pass
Is Resultant Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

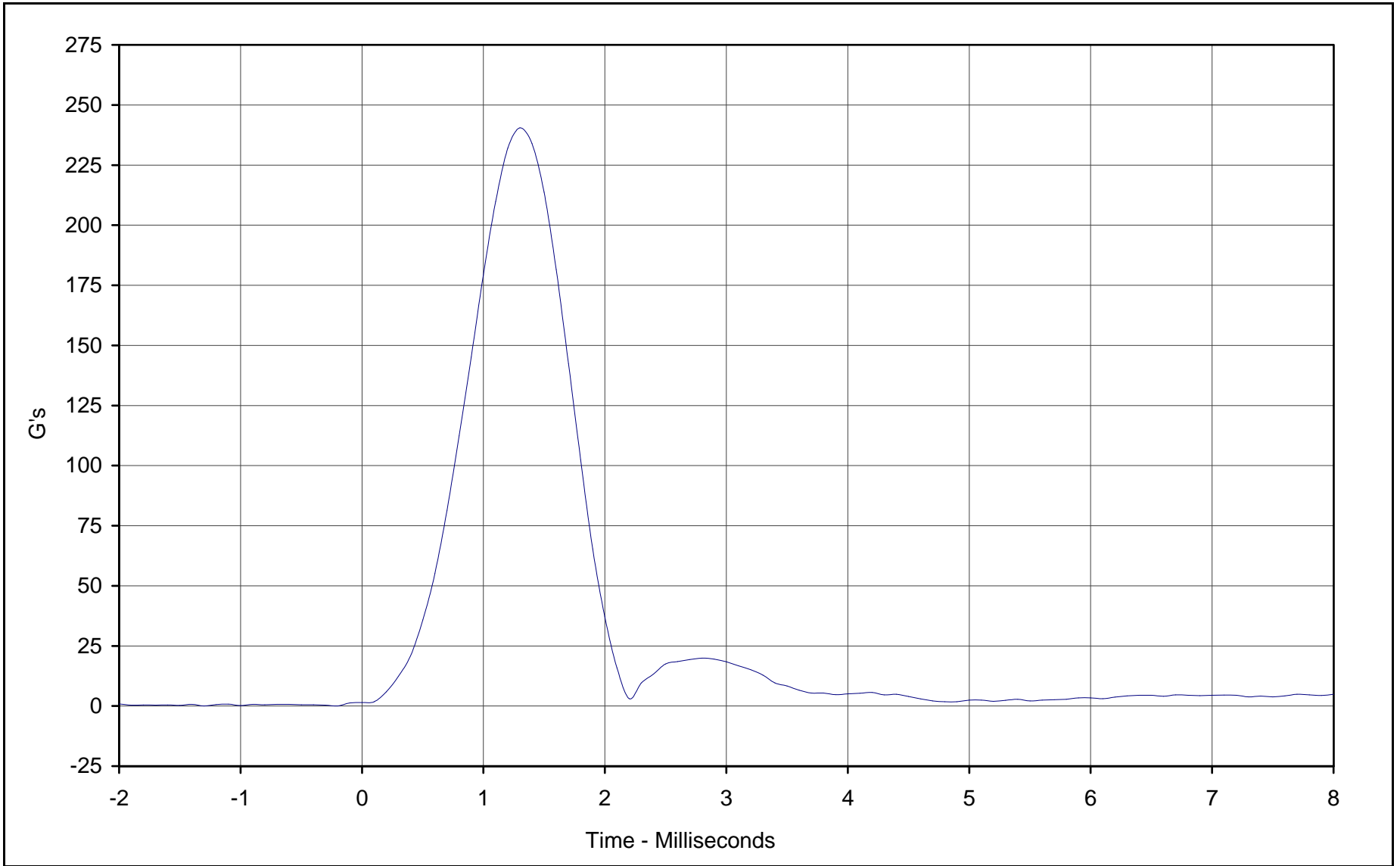
November 23, 2000

Test Date

Approved By

Date

C-23



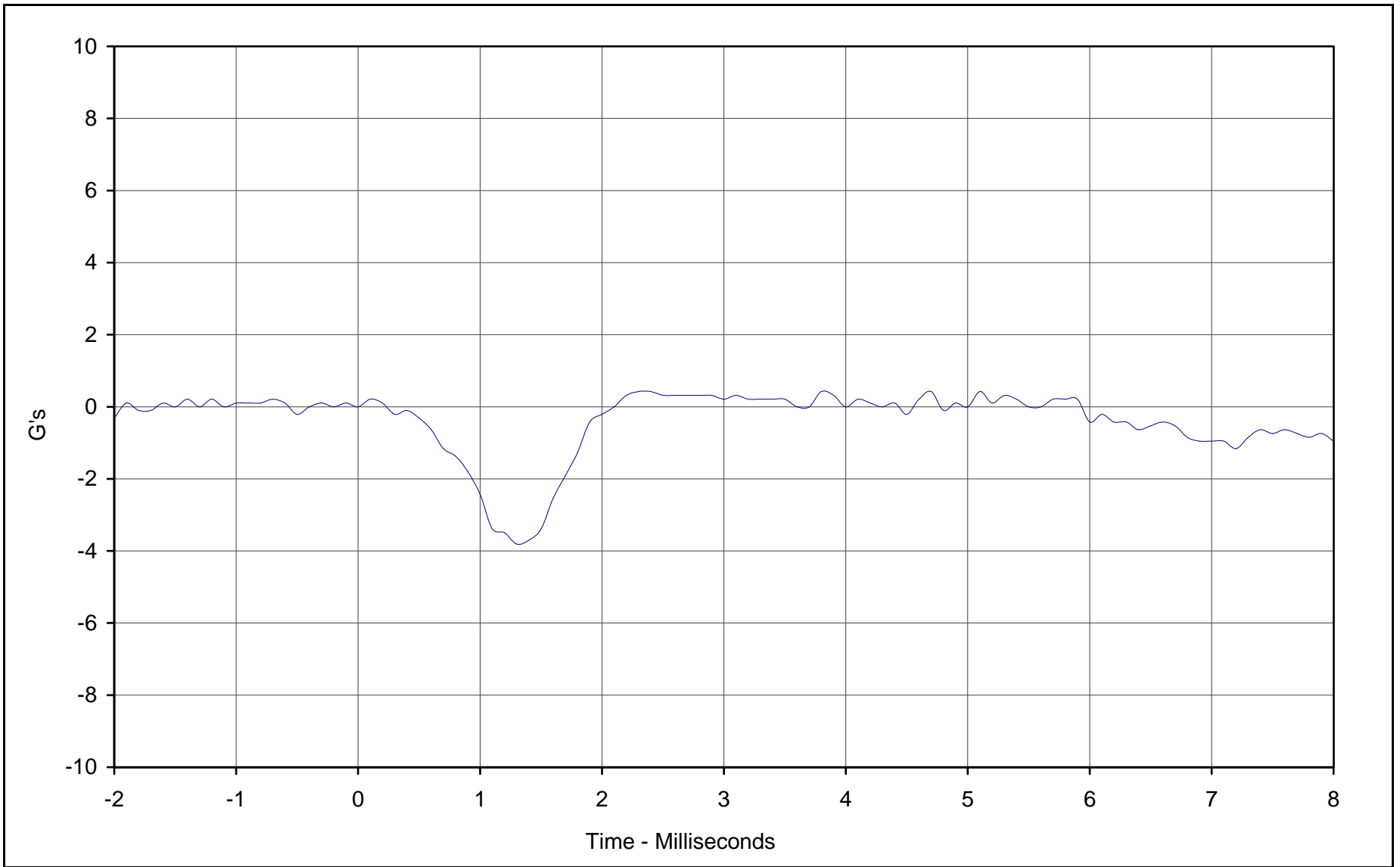
Curve Description: Head Resultant Acceleration
Maximum Value: 240.5 at 1.3 Milliseconds
Minimum Value: 1.4 at 0.0 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/23/00

Test Program: Hybrid II Head Drop Calibration
Test Information: SID S/N: 275 Test I.D.: HD11B



KAR21003-01

C-24



Curve Description: Head Y Axis Acceleration
Maximum Value: 0.4 at 2.3 Milliseconds
Minimum Value: -3.8 at 1.3 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/23/00

Test Program: Hybrid II Head Drop Calibration
Test Information: SID S/N: 275 Test I.D.: HD11B



KAR21003-01

APPENDIX C
POST-TEST SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA



Performance Verification Data Side Impact Dummy (SID) External Dimensions

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	21.1	Pass
Laboratory relative humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	905	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	515	Pass
KH- Knee Pivot From Back Line	mm	511 to 526	515	Pass
KV- Knee Pivot From Floor	mm	490 to 505	500	Pass
HW- Hip Width	mm	356 to 391	360	Pass
Overall Test Results				Pass

Laboratory Technician

November 29, 2000

Test Date

Approved By

Date



Performance Verification Data Side Impact Dummy (SID) Thorax Lateral Impact

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: TI10B

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.27	Pass
Left Upper Rib Acceleration	G's	37.0 to 46.0	39.5	Pass
Left Lower Rib Acceleration	G's	37.0 to 46.0	41.7	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	18.0	Pass
Overall Test Results				Pass

Laboratory Technician

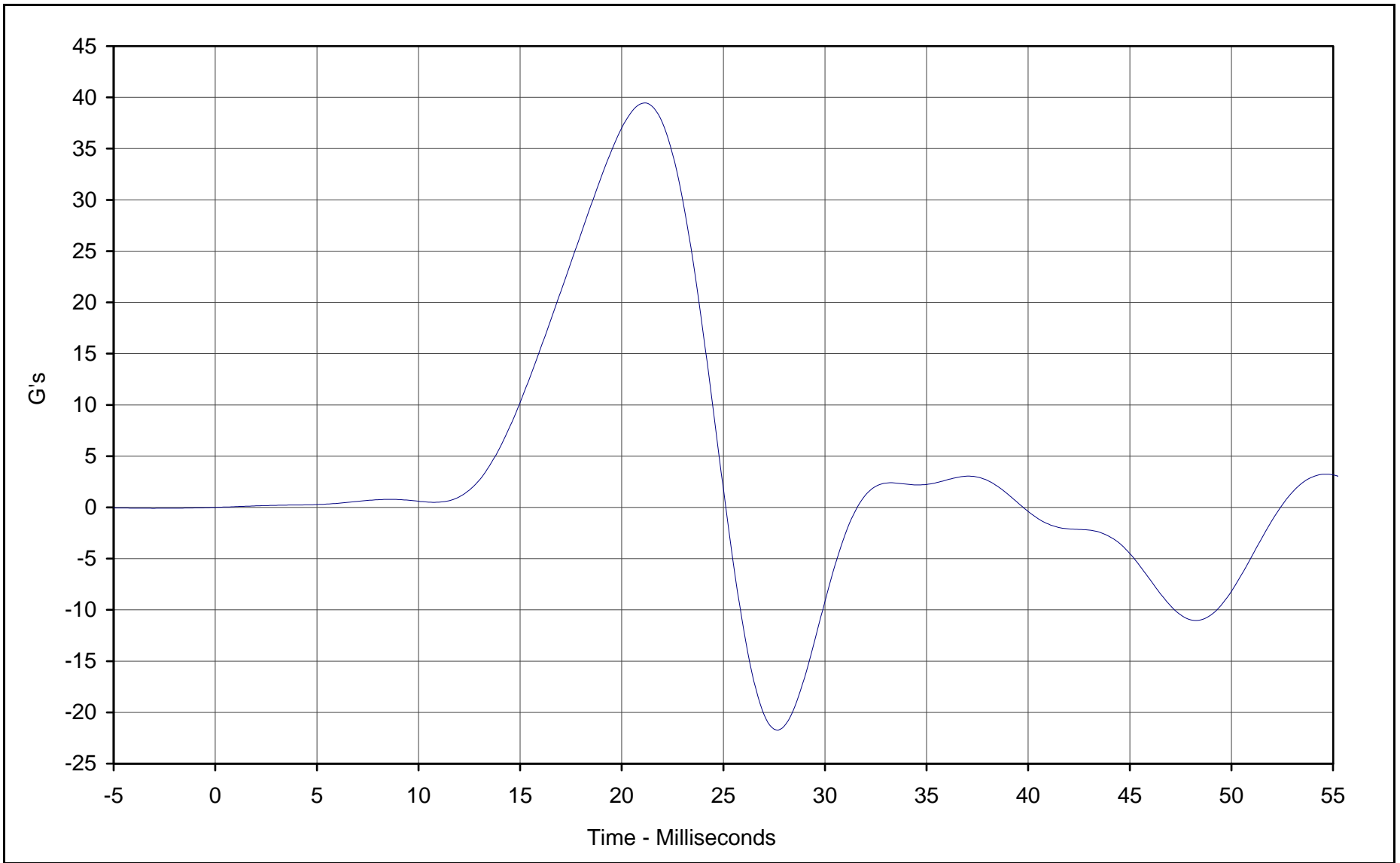
November 29, 2000

Test Date

Approved By

Date

C-27



Curve Description: Left Upper Rib Y Acceleration

Maximum Value: 39.5 at 21.1 Milliseconds

Minimum Value: -21.7 at 27.7 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 11/29/00

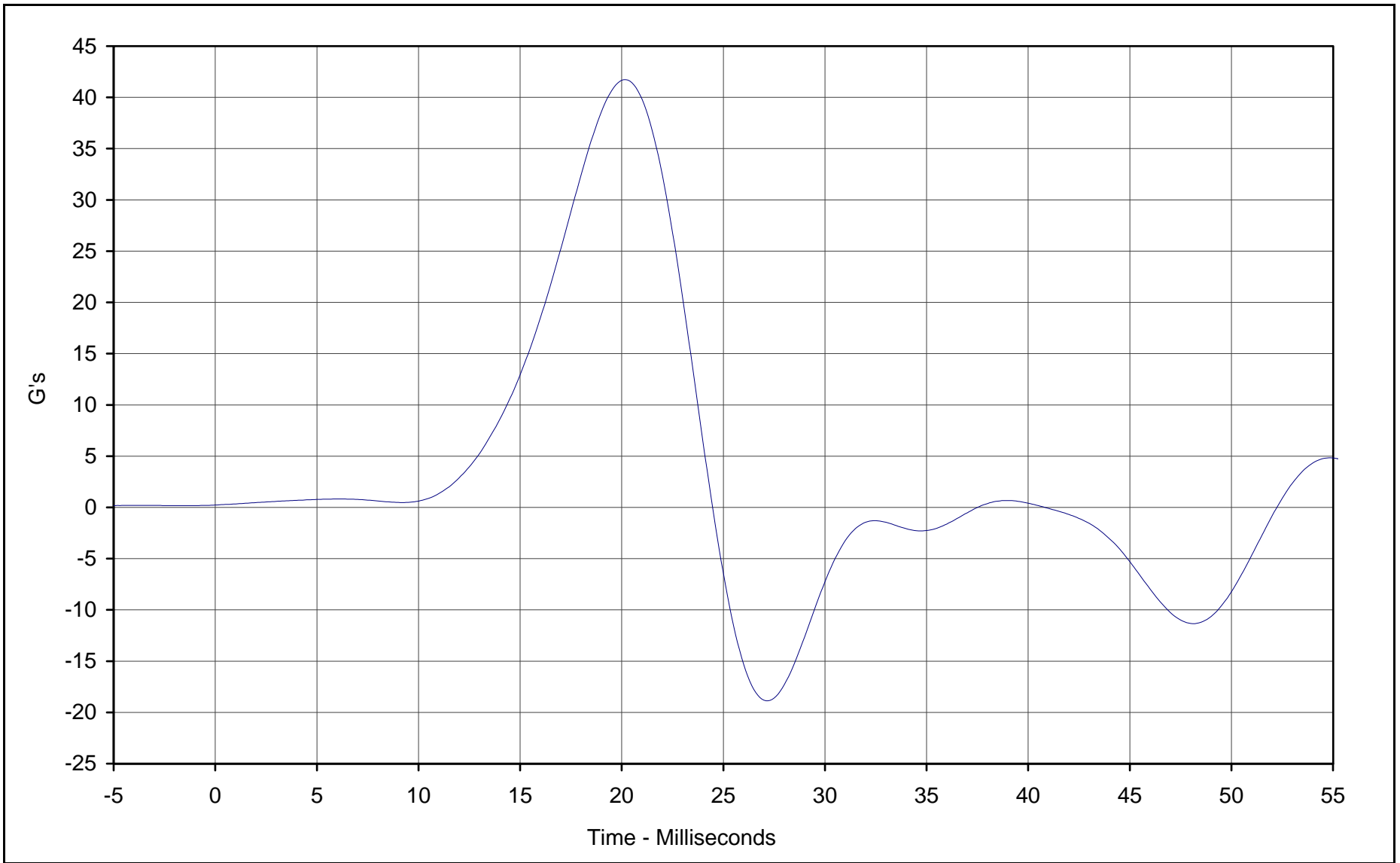
Test Program: SID Thorax Lateral Impact Test

Test Information: SID S/N: 274 Test I.D.: TI10B



KAR21003-01

C-28



Curve Description: Left Lower Rib Y Acceleration

Maximum Value: 41.7 at 20.2 Milliseconds

Minimum Value: -18.9 at 27.2 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 11/29/00

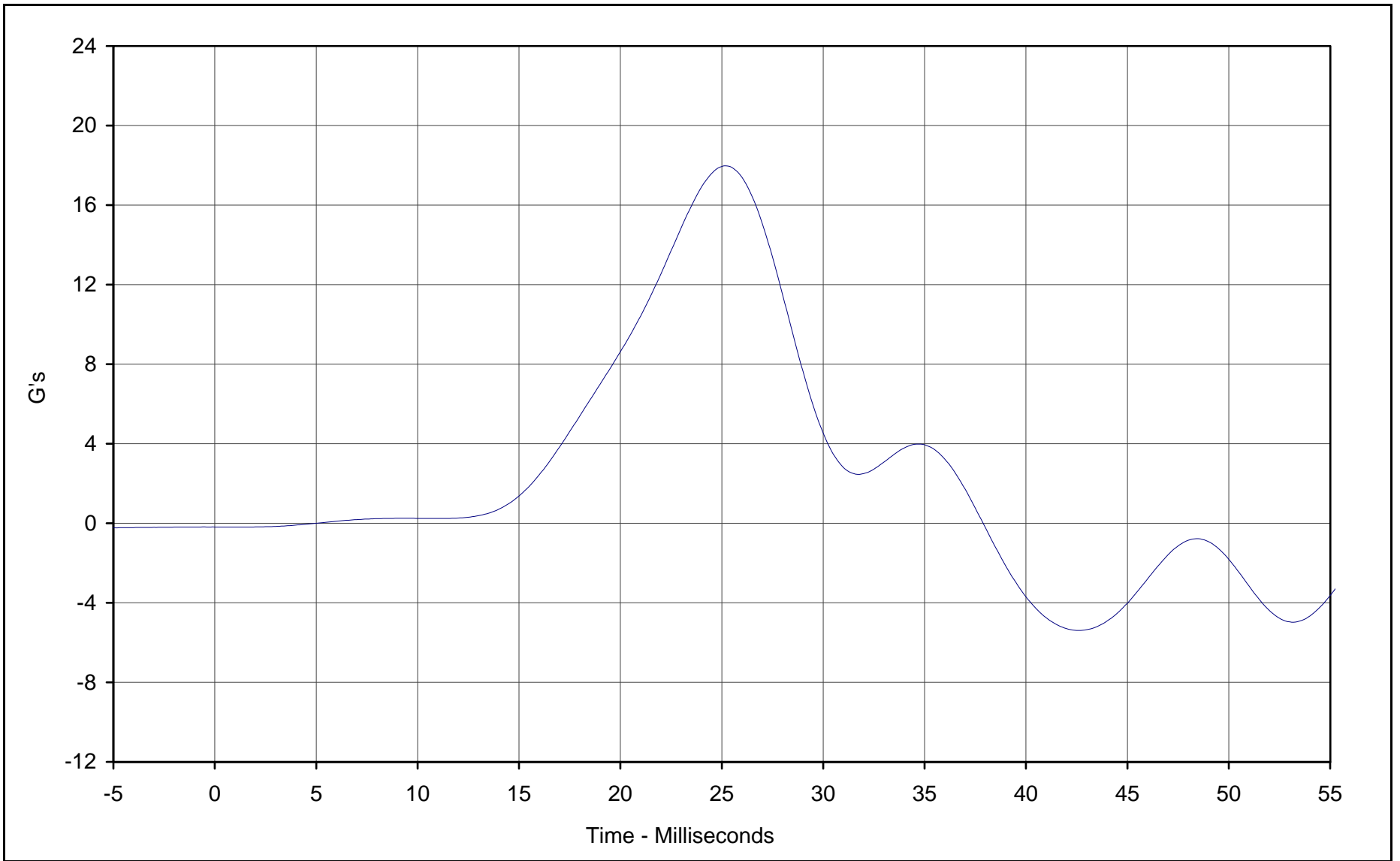
Test Program: SID Thorax Lateral Impact Test

Test Information: SID S/N: 274 Test I.D.: TI10B



KAR21003-01

C-29



Curve Description: Lower Spine Y Acceleration
Maximum Value: 18.0 at 25.2 Milliseconds
Minimum Value: -5.4 at 42.6 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/29/00

Test Program: SID Thorax Lateral Impact Test
Test Information: SID S/N: 274 Test I.D.: TI10B



KAR21003-01



**Performance Verification Data
Side Impact Dummy (SID)
Left Side Pelvis Lateral Impact**

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: PI11A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.33	Pass
Pelvis Acceleration	G's	40.0 to 60.0	47.7	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0 Msec.	6.2	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

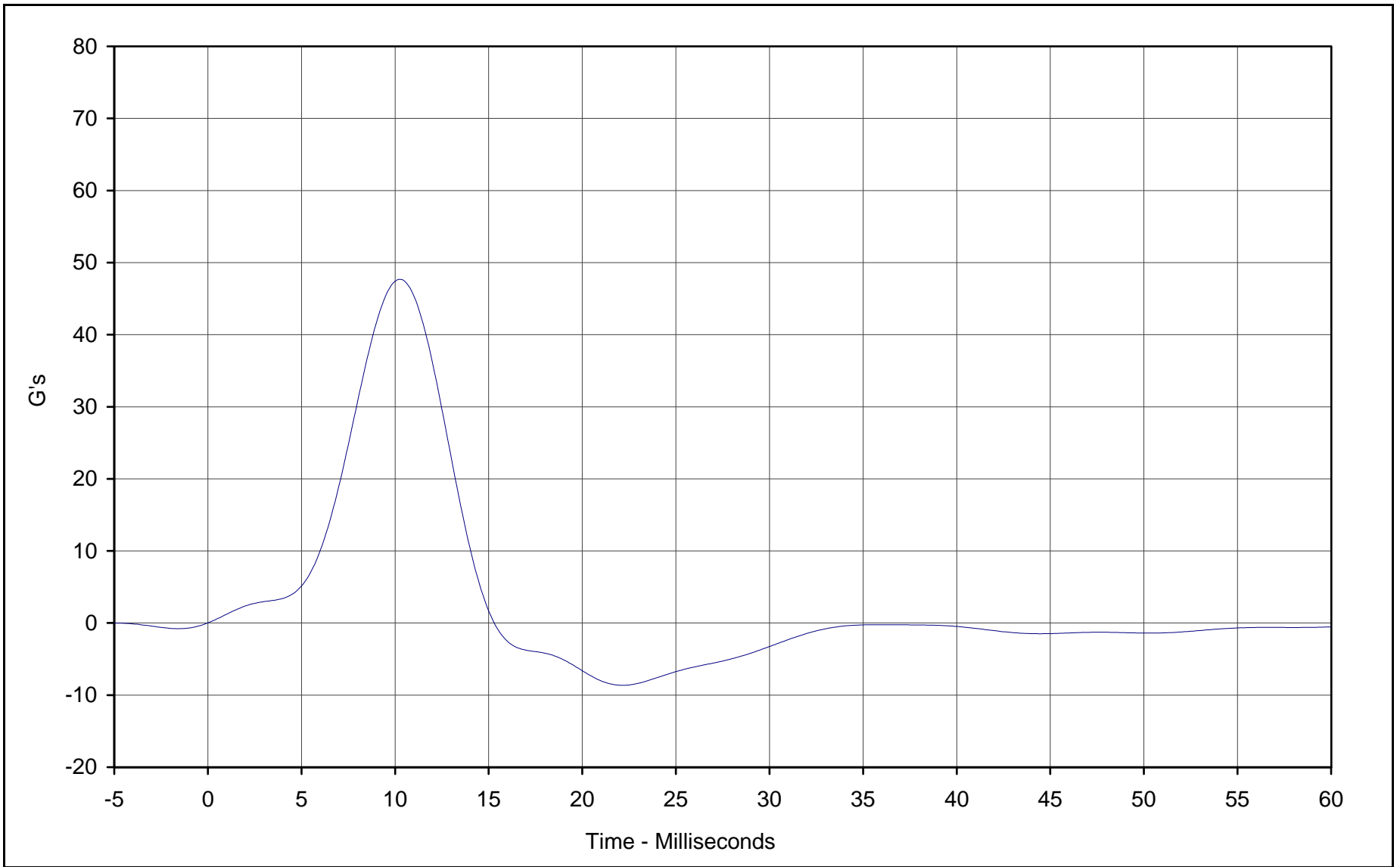
November 29, 2000

Test Date

Approved By

Date

C-31



Curve Description: Pelvis Y Axis Acceleration
Maximum Value: 47.7 at 10.3 Milliseconds
Minimum Value: -8.6 at 22.2 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/29/00

Test Program: Left Side Pelvis Lateral Impact
Test Information: SID S/N: 274 Test I.D.: P111A



KAR21003-01



Performance Verification Data Side Impact Dummy (SID) Abdominal Compression Test

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: AB11C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Force at 0.5 Inches of Displacement	Pounds	23.0 to 36.0	32.0	Pass
Force at 0.75 Inches of Displacement	Pounds	36.0 to 50.0	44.4	Pass
Force at 1.0 Inches of Displacement	Pounds	50.0 to 63.0	60.3	Pass
Force at 1.3 Inches of Displacement	Pounds	73.0 to 88.0	87.0	Pass
Overall Test Results				Pass

Laboratory Technician

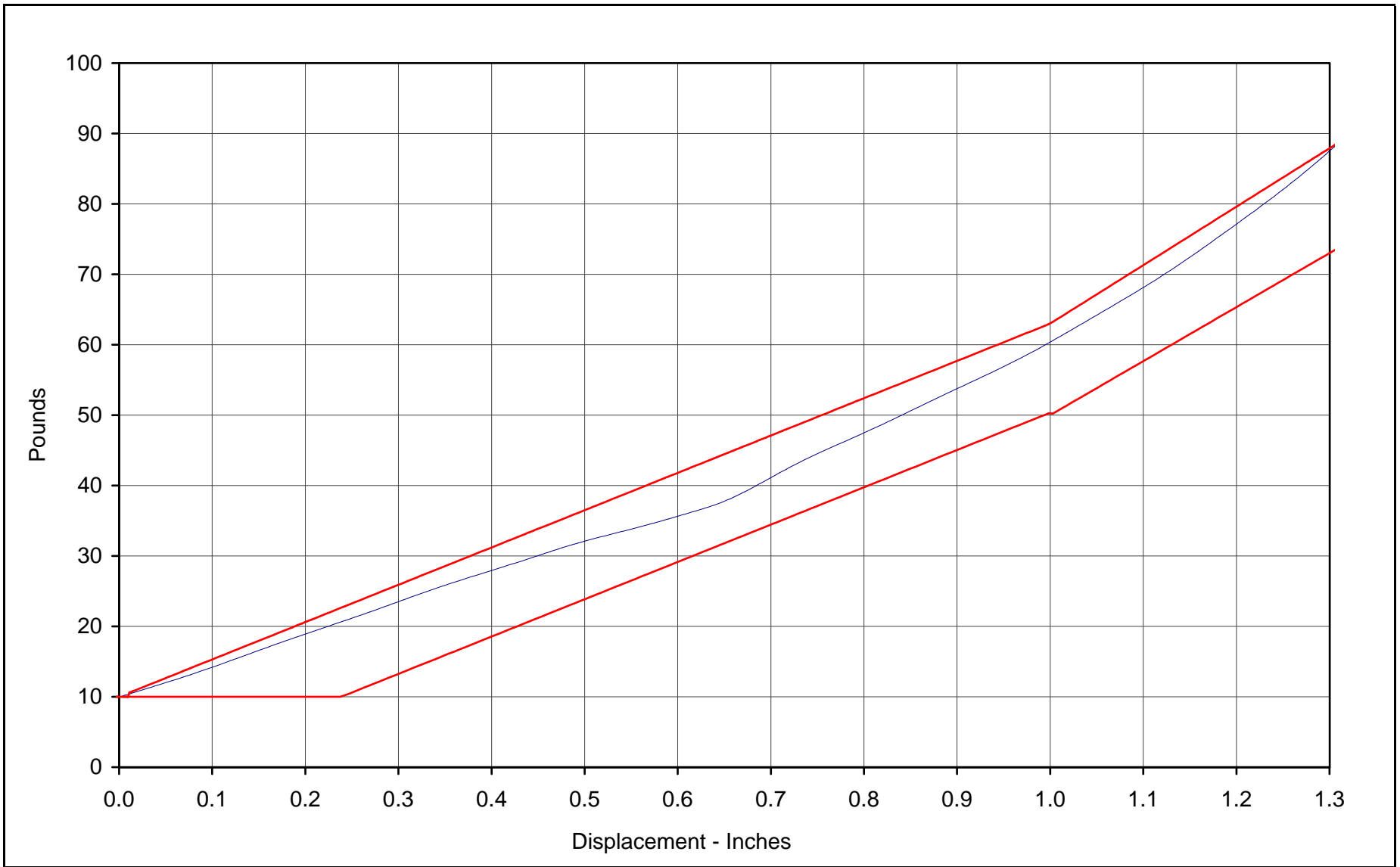
November 29, 2000

Test Date

Approved By

Date

C-33



Curve Description: Abdomen Force vs. Displacement

Test Program: SID Abdominal Compression

Force at 0.5 In.: 32.0 Pounds

Test Information: SID S/N: 274 Test I.D.: AB11C

Force at 0.75 In.: 44.4 Pounds

Force at 1.0 In.: 60.3 Pounds

Force at 1.3 In.: 87.0 Pounds

Date of Test: 11/29/00



KAR21003-01



Performance Verification Data Side Impact Dummy (SID) Head Drop Calibration

ATD Serial No.: 274

Part Serial No.: N/A

Test I.D.: HD11E

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	210.0 to 260.0	249.2	Pass
Peak Lateral Acceleration	G's	≤10.0	4.5	Pass
Time Above 100 G's	Msec.	0.9 to 1.5	1.3	Pass
Is Resultant Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

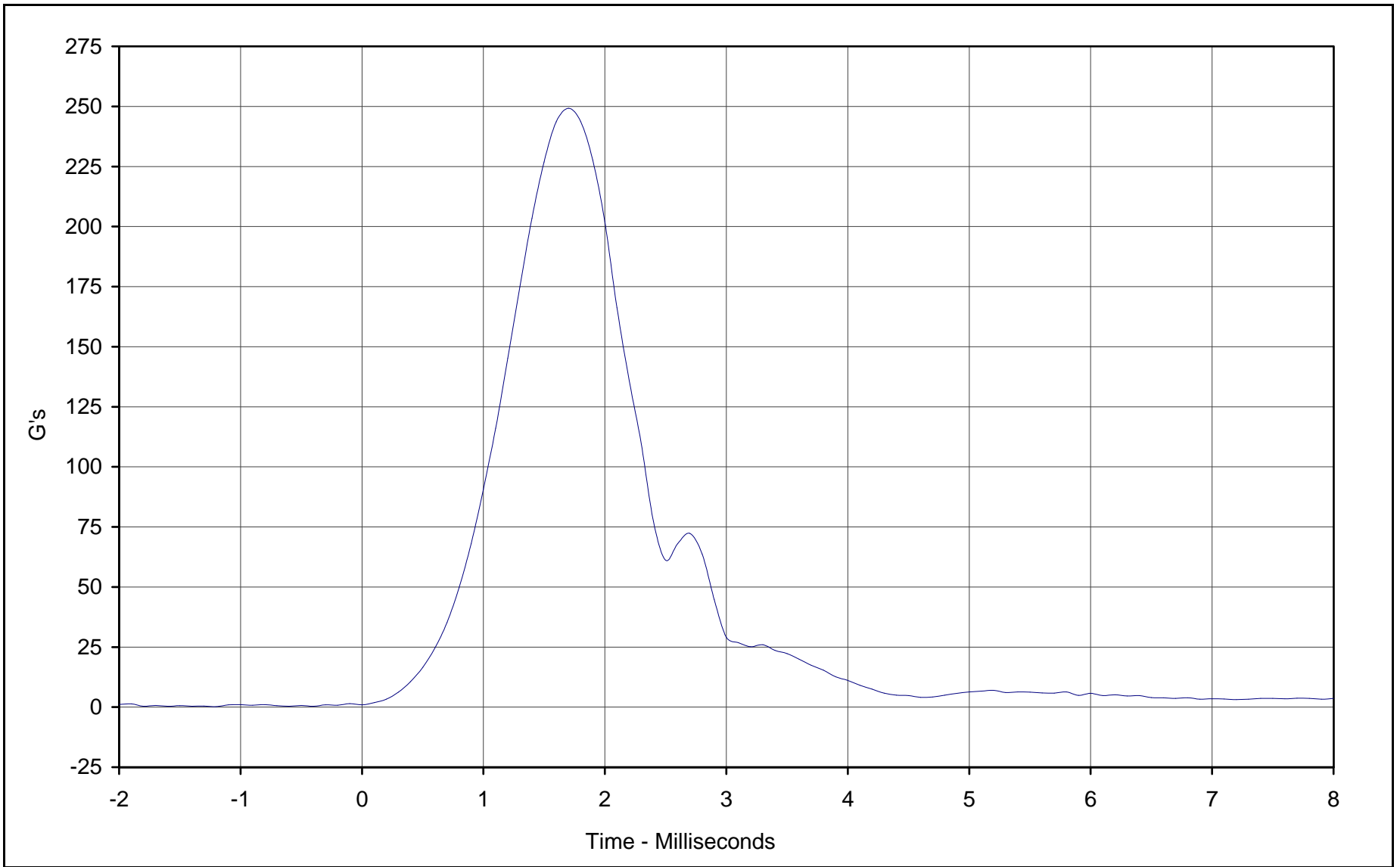
November 29, 2000

Test Date

Approved By

Date

C-35



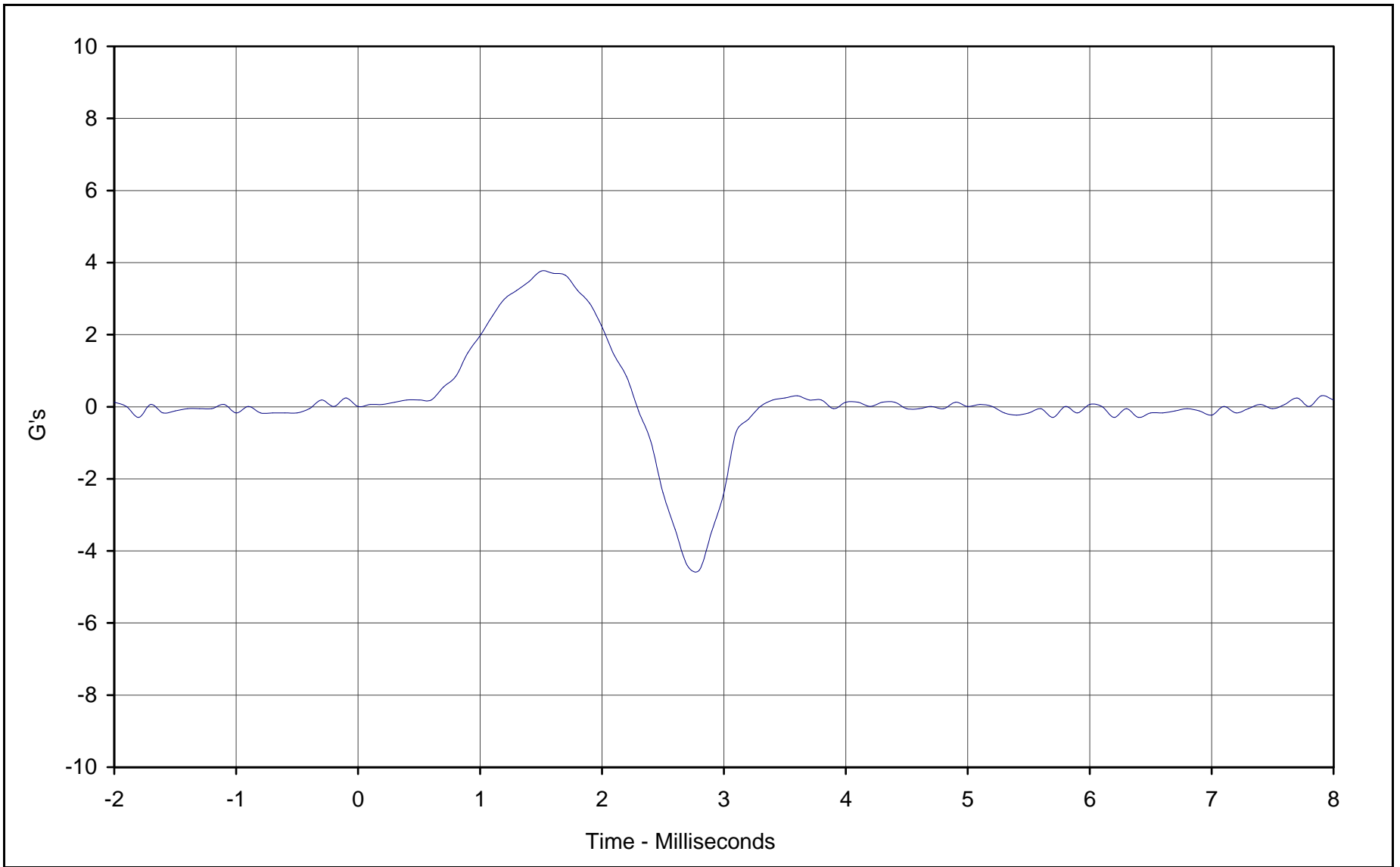
Curve Description: Head Resultant Acceleration
Maximum Value: 249.2 at 1.7 Milliseconds
Minimum Value: 1.0 at 0.0 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/29/00

Test Program: Hybrid II Head Drop Calibration
Test Information: SID S/N: 274 Test I.D.: HD11E



KAR20109-01

C-36



Curve Description: Head Y Axis Acceleration

Maximum Value: 3.8 at 1.5 Milliseconds

Minimum Value: -4.5 at 2.8 Milliseconds

SAE Filter Class: 1000

Date of Test: 11/29/00

Test Program: Hybrid II Head Drop Calibration

Test Information: SID S/N: 274 Test I.D.: HD11E



KAR20109-01



Performance Verification Data Side Impact Dummy (SID) External Dimensions

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: N/A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory temperature	°C	20.4 to 22.1	21.1	Pass
Laboratory relative humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	902	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	510	Pass
KH- Knee Pivot From Back Line	mm	511 to 526	520	Pass
KV- Knee Pivot From Floor	mm	490 to 505	500	Pass
HW- Hip Width	mm	356 to 391	360	Pass
Overall Test Results				Pass

Laboratory Technician

November 29, 2000

Test Date

Approved By

Date



Performance Verification Data

Side Impact Dummy (SID)

Thorax Lateral Impact

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: TI10C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.27	Pass
Left Upper Rib Acceleration	G's	37.0 to 46.0	40.2	Pass
Left Lower Rib Acceleration	G's	37.0 to 46.0	39.5	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	20.5	Pass
Overall Test Results				Pass

Laboratory Technician

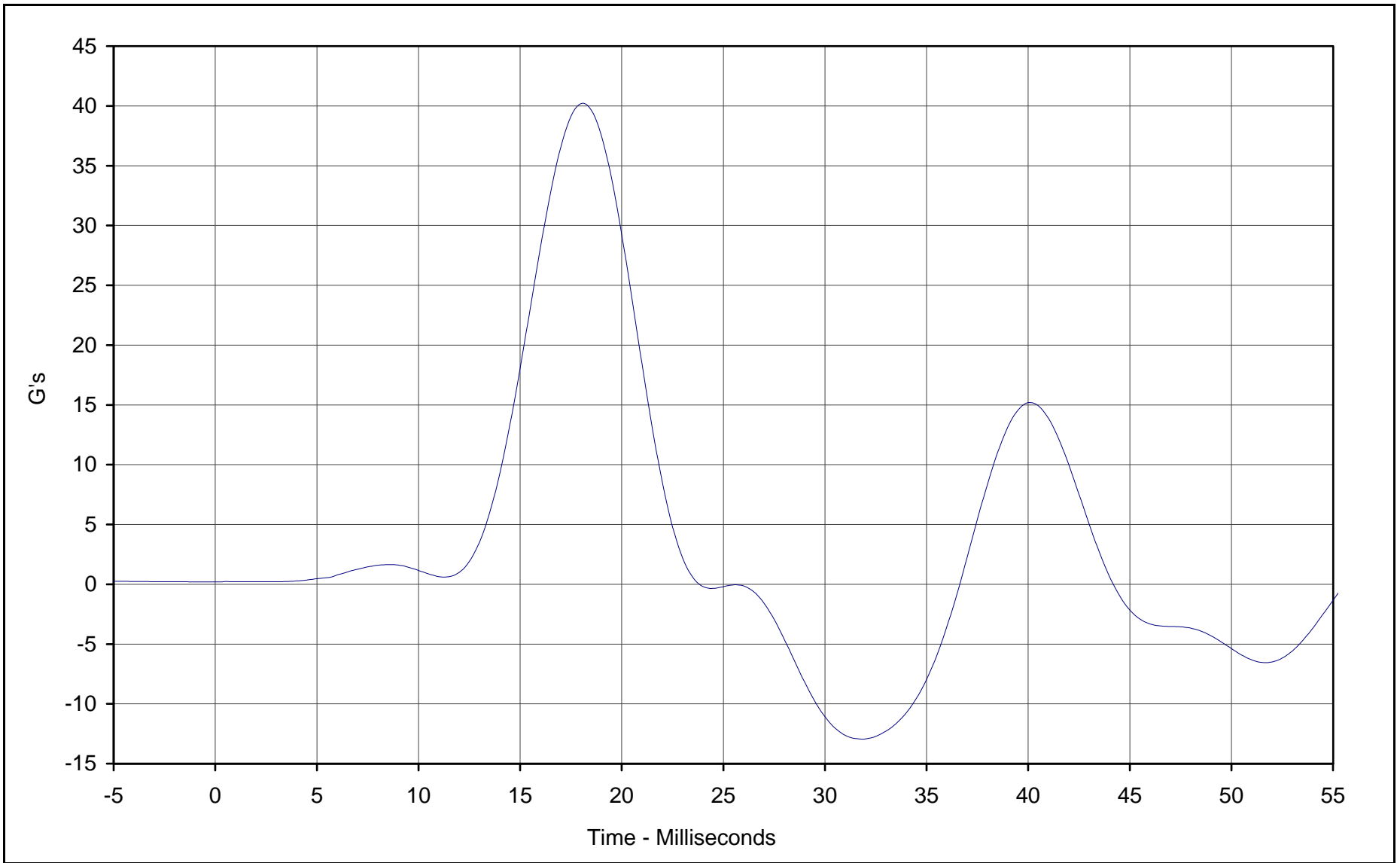
November 29, 2000

Test Date

Approved By

Date

C-39



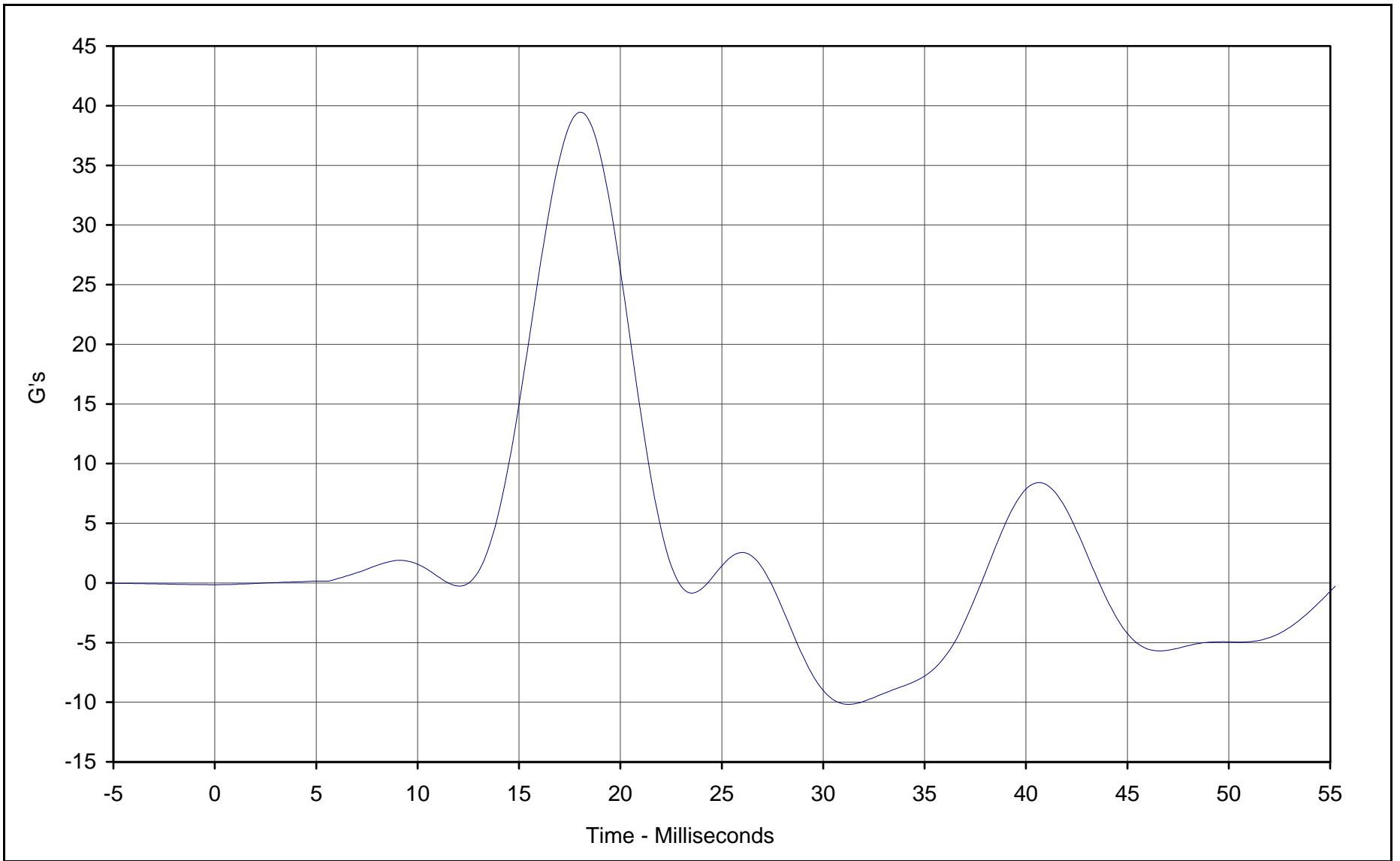
Curve Description: Left Upper Rib Y Acceleration
Maximum Value: 40.2 at 18.1 Milliseconds
Minimum Value: -13.0 at 31.8 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/29/00

Test Program: SID Thorax Lateral Impact Test
Test Information: SID S/N: 275 Test I.D.: TI10C



KAR21003-01

C-40



Curve Description: Left Lower Rib Y Acceleration

Maximum Value: 39.5 at 18.0 Milliseconds

Minimum Value: -10.2 at 31.3 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 11/29/00

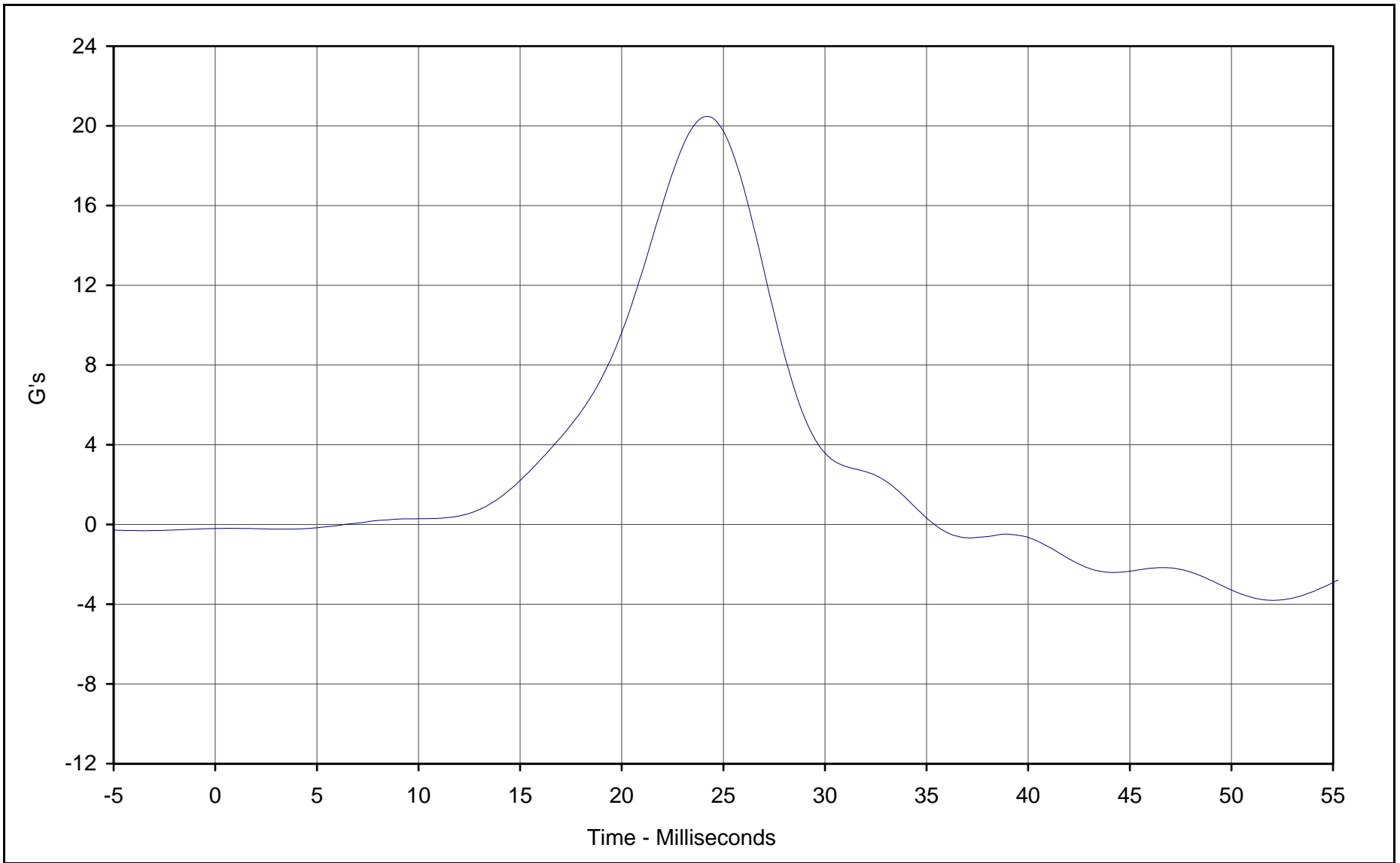
Test Program: SID Thorax Lateral Impact Test

Test Information: SID S/N: 275 Test I.D.: TI10C



KAR21003-01

C-41



Curve Description: Lower Spine Y Acceleration
Maximum Value: 20.5 at 24.2 Milliseconds
Minimum Value: -3.8 at 52.1 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/29/00

Test Program: SID Thorax Lateral Impact Test
Test Information: SID S/N: 275 Test I.D.: TI10C



KAR21003-01



**Performance Verification Data
Side Impact Dummy (SID)
Left Side Pelvis Lateral Impact**

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: PIIB

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.33	Pass
Pelvis Acceleration	G's	40.0 to 60.0	49.8	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0 Msec.	5.9	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

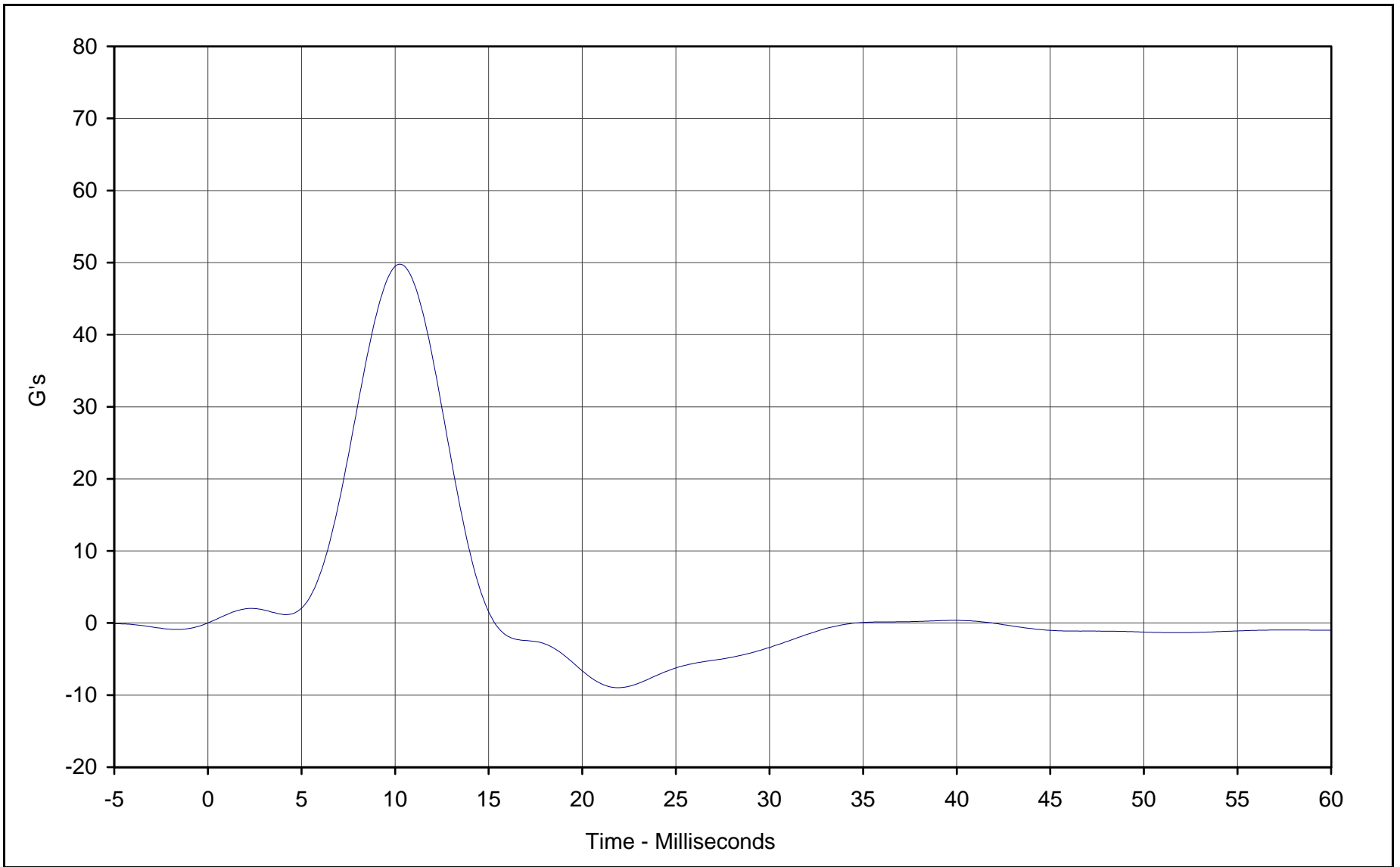
November 29, 2000

Test Date

Approved By

Date

C-43



Curve Description: Pelvis Y Axis Acceleration
Maximum Value: 49.8 at 10.3 Milliseconds
Minimum Value: -9.0 at 21.9 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/29/00

Test Program: Left Side Pelvis Lateral Impact
Test Information: SID S/N: 275 Test I.D.: PIIB



KAR21003-01



Performance Verification Data Side Impact Dummy (SID) Abdominal Compression Test

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: AB11D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Force at 0.5 Inches of Displacement	Pounds	23.0 to 36.0	32.0	Pass
Force at 0.75 Inches of Displacement	Pounds	36.0 to 50.0	44.4	Pass
Force at 1.0 Inches of Displacement	Pounds	50.0 to 63.0	60.3	Pass
Force at 1.3 Inches of Displacement	Pounds	73.0 to 88.0	87.0	Pass
Overall Test Results				Pass

Laboratory Technician

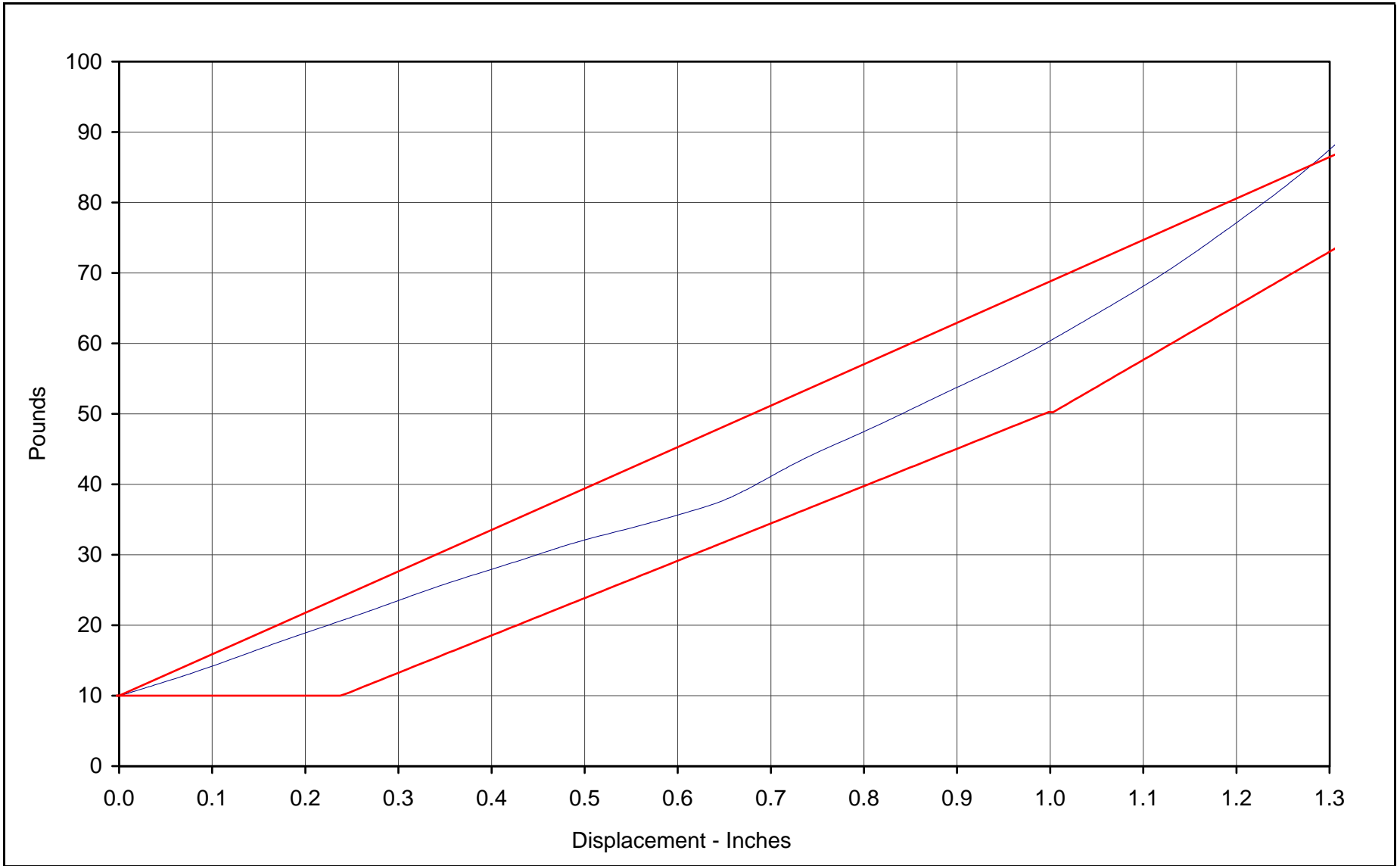
November 29, 2000

Test Date

Approved By

Date

C-45



Curve Description: Abdomen Force vs. Displacement

Test Program: SID Abdominal Compression

Force at 0.5 In.: 32.0 Pounds

Test Information: SID S/N: 275 Test I.D.: AB11D

Force at 0.75 In.: 44.4 Pounds

Force at 1.0 In.: 60.3 Pounds

Force at 1.3 In.: 87.0 Pounds

Date of Test: 11/29/00



KAR21003-01



Performance Verification Data Side Impact Dummy (SID) Head Drop Calibration

ATD Serial No.: 275

Part Serial No.: N/A

Test I.D.: HD11C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	210.0 to 260.0	245.3	Pass
Peak Lateral Acceleration	G's	≤10.0	1.1	Pass
Time Above 100 G's	Msec.	0.9 to 1.5	1.1	Pass
Is Resultant Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

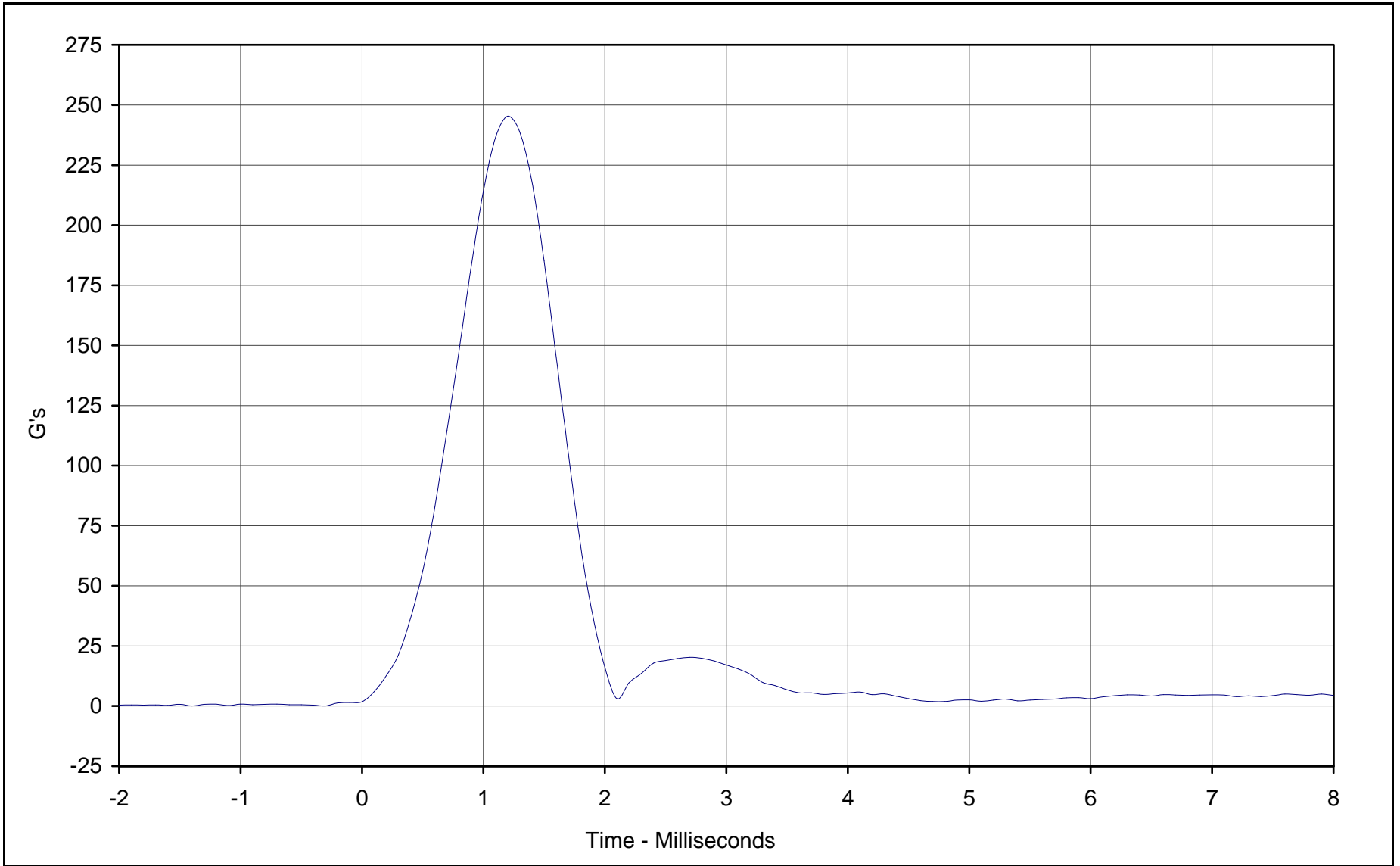
November 29, 2000

Test Date

Approved By

Date

C-47



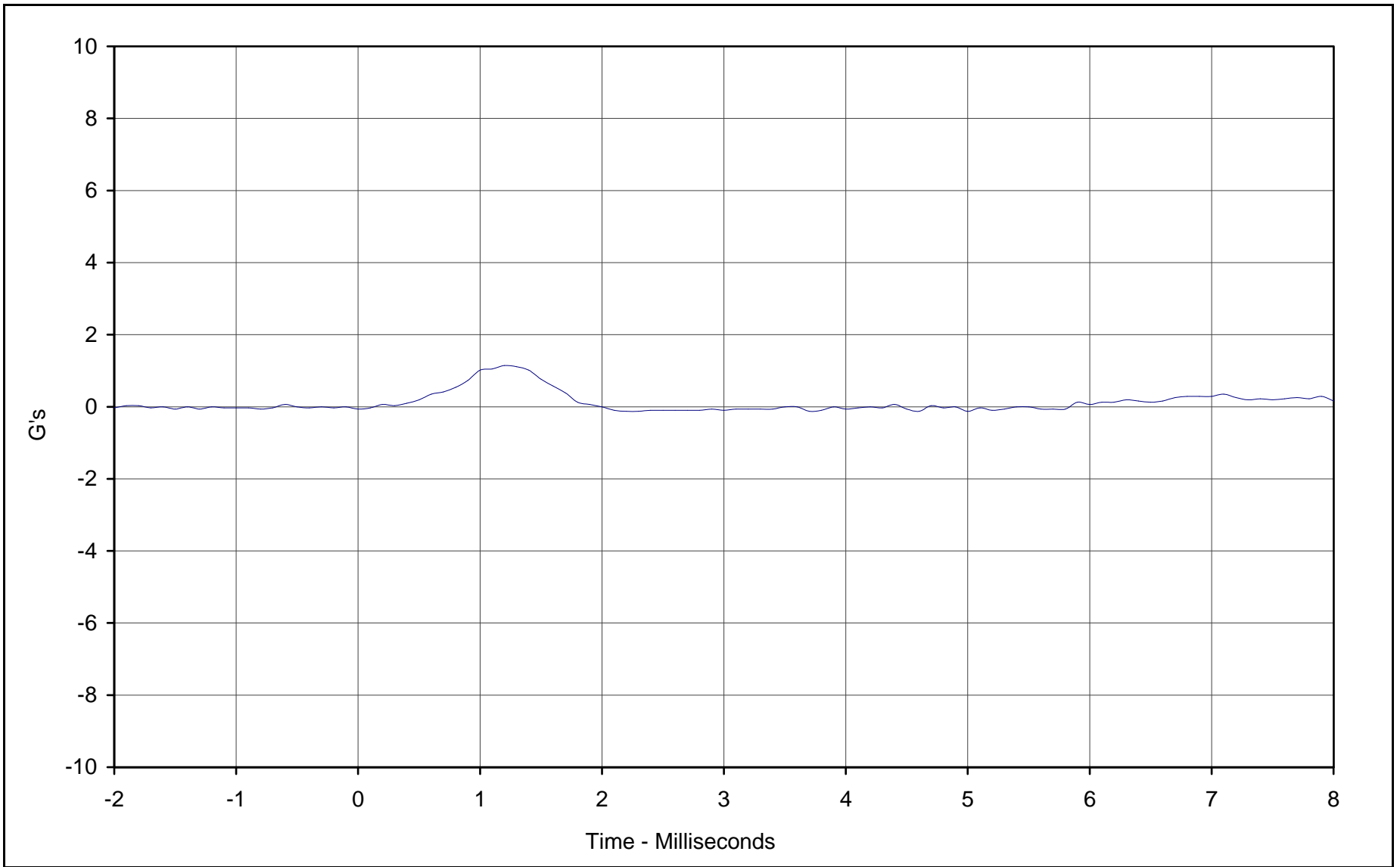
Curve Description: Head Resultant Acceleration
Maximum Value: 245.3 at 1.2 Milliseconds
Minimum Value: 1.8 at 0.0 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/29/00

Test Program: Hybrid II Head Drop Calibration
Test Information: SID S/N: 275 Test I.D.: HD11C



KAR21003-01

C-48



Curve Description: Head Y Axis Acceleration
Maximum Value: 1.1 at 1.2 Milliseconds
Minimum Value: -0.1 at 2.2 Milliseconds
SAE Filter Class: 1000
Date of Test: 11/29/00

Test Program: Hybrid II Head Drop Calibration
Test Information: SID S/N: 275 Test I.D.: HD11C



KAR21003-01

APPENDIX D
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

**55/28 km/h Side Impact NCAP
Instrumentation Data Channel Assignments
Driver S.I.D. Serial Number 274
11/28/00
2001 Chevrolet Venture Minivan**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
1	Head CG	X	KEAC086	Accel., 1/2 bridge	Endevco	7264-2000X	G
2	Head CG	Y	KEAC087	Accel., 1/2 bridge	Endevco	7264-2000Y	G
3	Head CG	Z	KEAC088	Accel., 1/2 bridge	Endevco	7264-2000Z	G
4	Upper Rib Primary	Y	KEAC070	Accel., 1/2 bridge	Endevco	7264-2000X	G
5	Lower Rib, Primary	Y	KEAC071	Accel., 1/2 bridge	Endevco	7264-2000Y	G
6	Lower Spine, Primary	Y	KEAC072	Accel., 1/2 bridge	Endevco	7264-2000Z	G
7	Pelvis, Primary	Y	KEAC090	Accel., Full bridge	Endevco	7264-2000X	G
8	Upper Rib Redundant	Y	KEAC076	Accel., 1/2 bridge	Endevco	7264-2000X	G
9	Lower Rib, Redundant	Y	KEAC077	Accel., 1/2 bridge	Endevco	7264-2000Y	G
10	Lower Spine, Redundant	Y	KEAC078	Accel., 1/2 bridge	Endevco	7264-2000Z	G
11	Pelvis, Redundant	Y	KEAC089	Accel., 1/2 bridge	Endevco	7264-2000X	G
12	Thorax Contact	N/A	T0	Contact Switch	Tapeswitch	8 oz. Grey	%
13	Pelvis Contact	N/A	T0	Contact Switch	Tapeswitch	8 oz. Grey	%

D-1

KAR21003-01

**55/28 km/h Side Impact NCAP
Instrumentation Data Channel Assignments
Passenger S.I.D. Serial Number 275
11/28/00
2001 Chevrolet Venture Minivan**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
14	Head CG	X	KEAC069	Accel., 1/2 bridge	Endevco	7264-2000X	G
15	Head CG	Y	KEAC080	Accel., 1/2 bridge	Endevco	7264-2000Y	G
16	Head CG	Z	KEAC082	Accel., 1/2 bridge	Endevco	7264-2000Z	G
17	Upper Rib Primary	Y	KEAC066	Accel., 1/2 bridge	Endevco	7264-2000X	G
18	Lower Rib, Primary	Y	KEAC067	Accel., 1/2 bridge	Endevco	7264-2000Y	G
19	Lower Spine, Primary	Y	KEAC068	Accel., 1/2 bridge	Endevco	7264-2000Z	G
20	Pelvis, Primary	Y	KEAC079	Accel., 1/2 bridge	Endevco	7264-2000X	G
21	Upper Rib Redundant	Y	KEAC073	Accel., 1/2 bridge	Endevco	7264-2000X	G
22	Lower Rib, Redundant	Y	KEAC074	Accel., 1/2 bridge	Endevco	7264-2000Y	G
23	Lower Spine, Redundant	Y	KEAC075	Accel., 1/2 bridge	Endevco	7264-2000Z	G
24	Pelvis, Redundant	Y	KEAC081	Accel., 1/2 bridge	Endevco	7264-2000X	G
25	Thorax Contact	Y	T0	Contact Switch	Tapeswitch	8 oz. Grey	%
26	Pelvis Contact	Y	T0	Contact Switch	Tapeswitch	8 oz. Grey	%

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KAR21003-01

**55/28 km/h Side Impact NCAP
Instrumentation Data Channel Assignments
Vehicle Accelerometers
11/28/00
2001 Chevrolet Venture Minivan**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
27	Right at Sill Front Seat	X	KETX2A	Accel., Triax	I.C. Sensor	3031-200	G
28	Right at Sill Front Seat	Y	KETX2B	Accel., Triax	I.C. Sensor	3031-200	G
29	Right at Sill Front Seat	Z	KETX2C	Accel., Triax	I.C. Sensor	3031-200	G
30	Right at Sill Rear Seat	X	KETX3A	Accel., Triax	I.C. Sensor	3031-500	G
31	Right at Sill Rear Seat	Y	KETX3B	Accel., Triax	I.C. Sensor	3031-500	G
32	Right at Sill Rear Seat	Z	KETX3C	Accel., Triax	I.C. Sensor	3031-500	G
33	Rear Floorpan Above Axle	X	KETX4A	Accel., Triax	I.C. Sensor	3031-500	G
34	Rear Floorpan Above Axle	Y	KETX4B	Accel., Triax	I.C. Sensor	3031-500	G
35	Rear Floorpan Above Axle	Z	KETX4C	Accel., Triax	I.C. Sensor	3031-500	G
36	Left Sill at Rear Door	Y	KEVA007	Accel., Vehicle block	I.C. Sensor	3031-500	G
37	Left Sill at Front Door	Y	KEVA005	Accel., Vehicle block	I.C. Sensor	3031-500	G
38	Left Front Door Centerline	Y	ICST004X	Accel., Triax	I.C. Sensor	3031-500	G
39	Rear Ocupant Compartment	Y	KEVA006	Accel., Vehicle block	I.C. Sensor	3031-200	G
40	Left Front Door Mid-Rear	Y	ICST004Y	Accel., Triax	I.C. Sensor	3031-500	G
41	Left Front Door Upper Centerline	Y	ICST004Z	Accel., Triax	I.C. Sensor	3031-500	G
42	Rear Door Mid-Rear	Y	ICST005X	Accel., Triax	I.C. Sensor	3031-500	G
43	Rear Door Upper Centerline	Y	ICST005Y	Accel., Triax	I.C. Sensor	3031-500	G
44	B-Post Lower	Y	KEBX2A	Accel., Biax	I.C. Sensor	3031-500	G
45	B-Post Middle	Y	KEBX2B	Accel., Biax	I.C. Sensor	3031-500	G
46	A-Post Lower	Y	KEBX1A	Accel., Biax	I.C. Sensor	3031-200	G
47	A-Post Middle	Y	KEBX1B	Accel., Biax	I.C. Sensor	3031-500	G
48	Front Seat Track	Y	KEIC008Y	Single	I.C. Sensor	3031-500	G
49	Rear Seat Strutcure	Y	N/A	N/A	N/A	N/A	N/A
50	Vehicle CG	X	KETX2A	Accel., Triax	I.C. Sensor	3031-200	G
51	Vehicle CG	Y	KETX2B	Accel., Triax	I.C. Sensor	3031-200	G
52	Vehicle CG	Z	KETX2C	Accel., Triax	I.C. Sensor	3031-200	G

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KAR21003-01

**55/28 km/h Side Impact NCAP
Instrumentation Data Channel Assignments
Moving Deformable Barrier
11/28/00
2001 Chevrolet Venture Minivan**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
53	MDB CG	X	ICST001X	Accel., Triax	I.C. Sensor	3031-100	G
54	MDB CG	Y	ICST001Y	Accel., Triax	I.C. Sensor	3031-100	G
55	MDB CG	Z	ICST001Z	Accel., Triax	I.C. Sensor	3031-100	G
56	MDB Rear Centerline	X	ICST002X	Accel., Triax	I.C. Sensor	3031-100	G
57	MDB Rear Centerline	Y	ICST002Y	Accel., Triax	I.C. Sensor	3031-100	G
58	Right Bumper Contact	N/A	T0	Contact Switch	Tapeswitch	8 oz. Grey	%