

REPORT NUMBER KAR99060-01

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

**GENERAL MOTORS CORPORATION
2000 CHEVROLET MALIBU
4 DOOR SEDAN
NHTSA NUMBER: GM0002**

**PREPARED BY:
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FINAL REPORT

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16. Abstract A 55/28 km/h 90° Moving Deformable Barrier Side Impact NCAP Test was conducted on the subject 2000 Chevrolet Malibu 4-door sedan 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 December 9, 1999. The impact velocity of the Moving Deformable Barrier was 61.5 km/h, and the ambient temperature at the struck side (driver's) of the vehicle was 15°C. The target vehicle's maximum post test static crush was 433 mm located at level 2. The test vehicle's occupant performance is as follows: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 40%;">Measurement Description</th> <th style="width: 30%;">Driver SID</th> <th style="width: 30%;">Passenger SID</th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR)</td> <td style="text-align: center;">82</td> <td style="text-align: center;">60</td> </tr> <tr> <td>Left Lower Rib (LLR)</td> <td style="text-align: center;">90</td> <td style="text-align: center;">68</td> </tr> <tr> <td>Lower Spine (T₁₂)</td> <td style="text-align: center;">96</td> <td style="text-align: center;">70</td> </tr> <tr> <td>Thoracic Trauma Index (TTI)</td> <td style="text-align: center;">93</td> <td style="text-align: center;">69</td> </tr> <tr> <td>Pelvis (PEV)</td> <td style="text-align: center;">101</td> <td style="text-align: center;">92</td> </tr> </tbody> </table>				Measurement Description	Driver SID	Passenger SID	Left Upper Rib (LUR)	82	60	Left Lower Rib (LLR)	90	68	Lower Spine (T ₁₂)	96	70	Thoracic Trauma Index (TTI)	93	69	Pelvis (PEV)	101	92
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17. Key Words New Car Assessment Program (NCAP) Side Impact Moving Deformable Barrier (MDB) Side Impact Dummy (SID)		18. Distribution Statement Copies of this report are available from: National Highway Traffic Safety Admin. NHTSA Technical Reference Division 400 Seventh St., SW, Room 5108 Washington, DC 20590																			
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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 in a 2000 Chevrolet Malibu 4door sedan manufactured by General Motors Corporation, Inc., to evaluate Side Impact Protection.

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 2000 Chevrolet Malibu 4-door sedan 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 61.5 km/h (38.2 mph). The specified impact velocity range is from 61.1 to 62.7 km/h (38.0 to 39.0 mph). The test (target) vehicle was stationary and positioned 63° to the line of forward motion. The weight of the vehicle as tested was 1607 kg. (3543 lb.), and the test weight of the MDB was 1361 kg (3000 lb.). The test was conducted at KARCO Engineering in Adelanto, California, on December 9, 1999.

One (1) real-time motion picture camera and ten (10) 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 433 mm at level 2, 1200 mm rearward of the left vertical impact point. The driver and passenger SID's, Serial No. 056 and 057 respectively, were calibrated just prior to this test. The SID's injury criteria is summarized as follows:

Measurement	Units	Driver	Passenger
Thoracic Trauma Index (TTI)	G's	93	69
Peak Pelvic G's (PEV)	G's	101	92

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: 2000 Chevrolet Malibu 4 Door Sedan
 Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: GM0002
 Test Date: 12/9/99

CONVERSION FACTORS USED IN THIS REPORT*

Quantity	Typical Application	Old 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: 2000 Chevrolet Malibu 4-Door Sedan

NHTSA No.: GM0002

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

Test Date: 12/9/99

TEST VEHICLE INFORMATION

Make	Chevrolet
Model	Malibu
Body Style	4-Door Sedan
NHTSA No.	GM0002
VIN	1G1ND52J3Y6119966
Color	Tan Metallic
Delivery Date	11/10/99
Odometer Reading (mile)	81
Dealer	Singh Chevrolet
Transmission	4-Speed Automatic
Final Drive	Front
Number of Cylinders	V6
Engine Displacement (L)	3.1
Engine Placement	Transverse

TEST VEHICLE OPTIONS

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

DATA FROM CERTIFICATION LABEL

Manufactured By	General Motors Corp.	GVWR (kg)	1807
Date of Manufacture	August-99	GAWR Front (kg)	996
		GAWR Rear (kg)	811

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	240	240
Cold Pressure (kPa)	200	180
Recommend Tire Size	P215/60R15	P215/60R15
Tire Size on Vehicle	P215/60R15	P215/60R15
Tire Manufacturer	Firestone	Firestone

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Bench	None	
Number of Occupants	2	3	0	5
Capacity Wt. (VCW) (kg)				416
Cargo Weight (RCLW) (kg)				76

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

Test Vehicle: 2000 Chevrolet Malibu 4-Door Sedan
 Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: GM0002
 Test Date: 12/9/99

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	440	250		486	354	
Right	kg	446	241		455	312	
Ratio	%	64.3	35.7		58.6	41.4	
Totals	kg	886	491	1377	941	666	1607

TARGET TEST WEIGHT CALCULATION*

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	1377
Weight of 2 P572F Side Impact Dummies	kg	161
Rated Cargo/Luggage Weight (RCLW)	kg	76
Calculated Vehicle Target Weight (TVTW)	kg	1614

*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	709	704	713	718	970
As Tested	mm	694	702	664	675	1127
Fully Loaded	mm	696	702	662	679	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheel base	mm	2720
Total Vehicle Length at Left Side	mm	3485
Total Vehicle Length at Centerline	mm	4824
Total Vehicle Length at Right Side	mm	3485
Weight of Ballast In Cargo Area	kg	50
Amount of Stoddard Solvent in Fuel Tank	Liters	50.3

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Test Vehicle Wheel base	mm	2720
Target Impact Point Aft of Front Axle	mm	420
Actual Impact Point Aft of Front Axle	mm	435

DATA SHEET NO. 1...(continued)

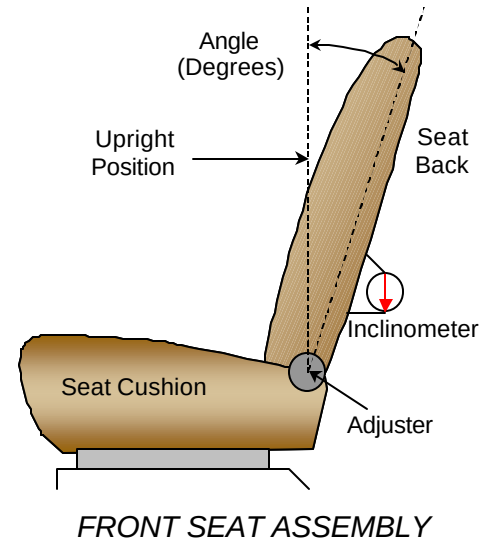
GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan
Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: GM0002
Test Date: 12/9/99

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. The rear passenger seat is fixed; no adjustments can be made.



Driver seat back angle: 25.0° with a seated dummy
Passenger seat back angle: No adjustment

SEAT FORE/AFT POSITIONS

The driver's seat is manually operated and the rear passenger seat has no adjustments. The fore/aft is set to the middle position for the driver's seat. The first detent is numbered "1".

Driver seat fore/aft total travel: 25 detents
Passenger seat fore/aft total travel: No adjustment
Driver seat fore/aft position: Set at 13, middle position
Passenger seat fore/aft position: No adjustment

SEAT BELT UPPER ANCHORAGE

The test vehicle is equipped with an adjustable "D" ring anchorage for the driver's seat positions. There are 4 positions or detents, with the uppermost position numbered "1". The driver's "D" ring anchorage is placed in position 2.

DATA SHEET NO. 1...(continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

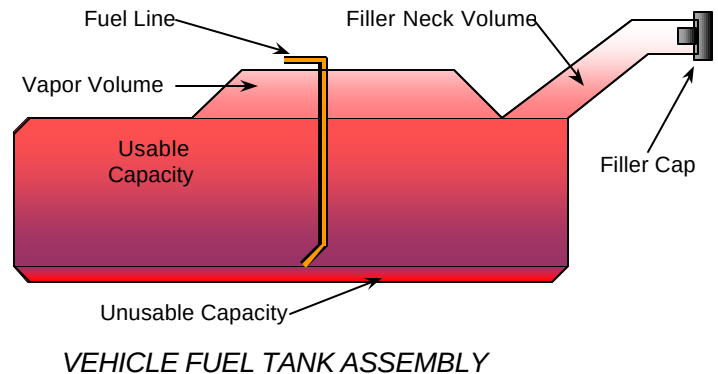
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan
Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: GM0002
Test Date: 12/9/99

FUEL TANK CAPACITY DATA

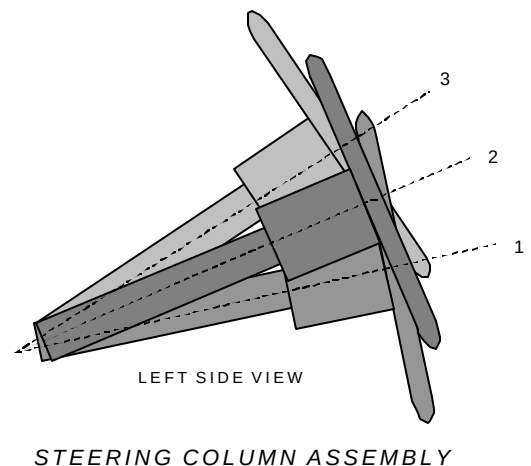
The "Usable Capacity" of the standard equipment fuel tank is: 54.1 liters
The "Usable Capacity" of any optional equipment fuel tank is: N/A liters
92-94% of "Usable Capacity" for certification to FMVSS 301 requirement: 49.8 to 50.9 liters
Actual amount of Stoddard solvent added to vehicle for certification test: 50.3 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 right rear fender. The standard fuel tank occupies the area under the rear seat. Fuel lines run along the left in-board side of the uni-body frame rail to the engine compartment.



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 lower than the geometric center, or position 2 as indicated in the drawing at right and the angle below. A true geometric center does not exist. There are 6 detents, with the uppermost detent numbered "1". The manufacturers' setting is position 4.



Lowermost, position 1: 13°
Geometric center, position 2: 21°
Uppermost, position 3: 33°

DATA SHEET NO. 2
TEST VEHICLE SUMMARY OF RESULTS

Test Vehicle: 2000 Chevrolet Malibu 4-Door Sedan
Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: GM0002
Test Date: 12/9/99

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	440	250		486	354	
Right	kg	446	241		455	312	
Weight Ratio	%	64.3	35.7		58.6	41.4	
Totals	kg	886	491	1377	941	666	1607

MAXIMUM EXTERIOR STATIC CRUSH

Level	Measured Parameter	Units	Maximum Crush	Above Ground
Level 1	Sill Top Height	mm	258	230
Level 2	Occupant H-Point	mm	433	511
Level 3	Mid Door	mm	366	605
Level 4	Window Sill	mm	335	880
Level 5	Window Top	mm	79	1349
N/A	Maximum Penetration	mm	433	511

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	5
High Speed, MDB On-Board	2
Real Time, Panning	1
Total	11

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

Test Vehicle: 2000 Chevrolet Malibu 4-Door Sedan
 Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: GM0002
 Test Date: 12/9/99

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	61.51
Trap No. 2 Velocity (Redn.)	km/h	61.1 to 62.7	61.68
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	Right	122
B	Top of Bumper	533	800	Left	88
C	Mid Level	686	800	Left	131
D	Top of Stack	813	800	Left	162

MDB INSTRUMENTATION AND CAMERAS

Accelerometers	5
Contact Switches	2
High Speed Cameras	2

DATA SHEET NO. 4
POST TEST OBSERVATIONS

Test Vehicle: 2000 Chevrolet Malibu 4-Door Sedan
Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: GM0002
Test Date: 12/9/99

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID	Rear Seat SID
Dummy Type / Serial No.	P572F, SID / No. 056	P572F, SID / No. 057
Head Contact	Side Window / Headrest	C-Pillar
Upper Torso Contact	Door Panel, Above Armrest	Door Panel, Above Armrest
Lower Torso Contact	Door Panel	Door Panel
Left Knee Contact	Door Panel, Window Crank	Door Panel
Right Knee Contact	Left Knee	Left Knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

Description	Front	Rear
Left Side Door Opening	Remain Closed	Remain Closed
Right Side Door Opening	Remain Closed	Remain Closed
Seat Movement	None	None
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

Critical Areas of Performance	Observations and Conclusions
Pillar Performance	No Apparent Visible Failure
Sill Separation	No Apparent Visible Failure
Windshield Damage	Glazing Cracks on Struck Side Only
Window Damage	Left Front and Rear Windows Shattered During Impact
Other Notable Effects	No significant items to note.

MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	+15 (aft)
Vertical Offset	mm	+/- 20	-8 (below)

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5 - SID INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

NHTSA No.: GM0002

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

Test Date: 12/9/99

THORAX AND PELVIS PEAK ACCELERATIONS, PRIMARY

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Upper Rib	Y	G's	81.5	32.5	-17.0	81.4	60.2	32.8	-7.8	115.5
Lower Rib	Y	G's	89.6	32.6	-29.4	80.9	68.1	33.8	-11.3	58.0
Lower Spine	Y	G's	95.9	31.8	-23.0	84.8	69.8	34.8	-29.2	61.8
Pelvis	Y	G's	100.6	27.8	-16.3	93.5	91.5	30.7	-26.9	68.7

THORACIC TRAUMA INDEX (TTI) AND PELVIC ACCELERATION, PRIMARY

Location	Driver				Passenger			
	LLR	T ₁₂	TTI(g)	PEV(g)	LLR	T ₁₂	TTI(g)	PEV(g)
Primary Rib, Spine, and Pelvis	89.582	95.873	93	101	68.146	69.778	69	92

THORAX AND PELVIS PEAK ACCELERATIONS, REDUNDANT

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Upper Rib	Y	G's	81.9	32.6	-20.3	70.3	61.4	32.8	-9.8	115.5
Lower Rib	Y	G's	87.8	32.6	-30.5	80.7	69.0	33.6	-10.2	58.0
Lower Spine	Y	G's	93.9	31.7	-21.5	84.7	70.1	34.7	-29.8	61.9
Pelvis	Y	G's	85.7	27.9	-15.4	93.3	90.6	30.6	-22.8	68.4*

* Driver Data Peak is Clipped.

THORACIC TRAUMA INDEX (TTI) AND PELVIC ACCELERATION, REDUNDANT

Location	Driver				Passenger			
	LLR	T ₁₂	TTI(g)	PEV(g)	LLR	T ₁₂	TTI(g)	PEV(g)
Redundant Rib, Spine, and Pelvis	87.834	93.877	91	86	69.042	70.120	70	91*

* Driver Pelvic Data Peak is Clipped.

HEAD CG PEAK ACCELERATIONS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	16.0	188.4	-31.7	71.7	8.0	52.8	-22.4	75.5
Head CG	Y	G's	60.2	43.6	-25.8	57.7	107.7	51.7	-15.0	36.0
Head CG	Z	G's	84.8	53.5	-32.1	42.4	19.0	40.2	-52.6	56.7
Head CG Resultant	N/A	G's	87.3	53.9			115.7	51.7		

DATA SHEET NO. 6

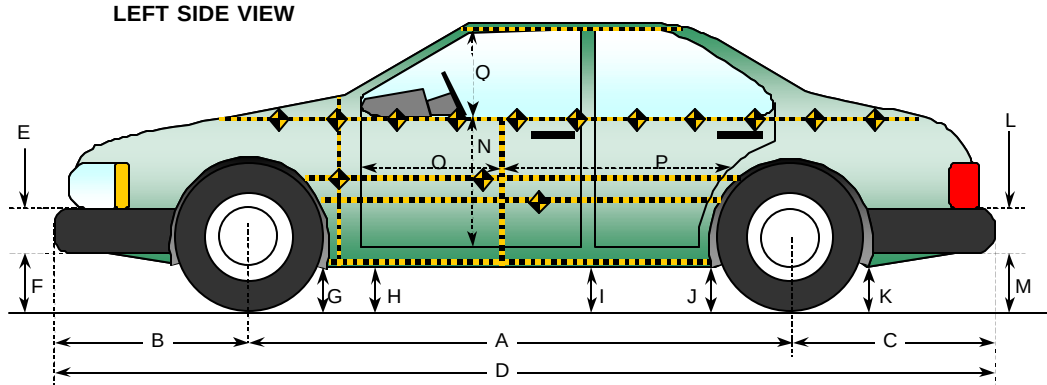
VEHICLE PRE-TEST AND POST-TEST MEASUREMENTS

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

NHTSA No.: GM0002

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

Test Date: 12/9/99



All Measurements in mm

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2720	2670	50
B	Front Axle To FSOV	994	1013	-19
C	Rear Axle to RSOV	1110	1110	0
D	Total Length at Centerline	4824	4793	31
E	Front Bumper Thickness	390	390	0
F	Front Bumper Bottom to Ground	205	211	-6
G	Sill Height at Front Wheel Well	211	209	2
H	Sill Height at Front Door Leading Edge	219	226	-7
I	Sill Height at "B" Pillar	208	211	-3
J1	Sill Height at Rear Wheel Well	176	225	-49
J2	Pinch Weld Height at Rear Wheel Well	203	247	-44
K	Sill Height aft of Rear Wheel Well	528	535	-7
L	Rear Bumper Thickness	450	450	0
M	Rear Bumper Bottom to Ground	206	214	-8
N	Sill Height to Window Bottom Sill	672	580	92
O	Front Door Leading Edge to Impact CL	780	765	15
P	Rear Door Trailing Edge to Impact CL	1193	1060	133
Q	Front Window Opening	433	410	23
R	Right Side Length	3485	3495	-10
S	Left Side Length	3485	3430	55
T	Vehicle Width at "B" Post	1762	1455	307

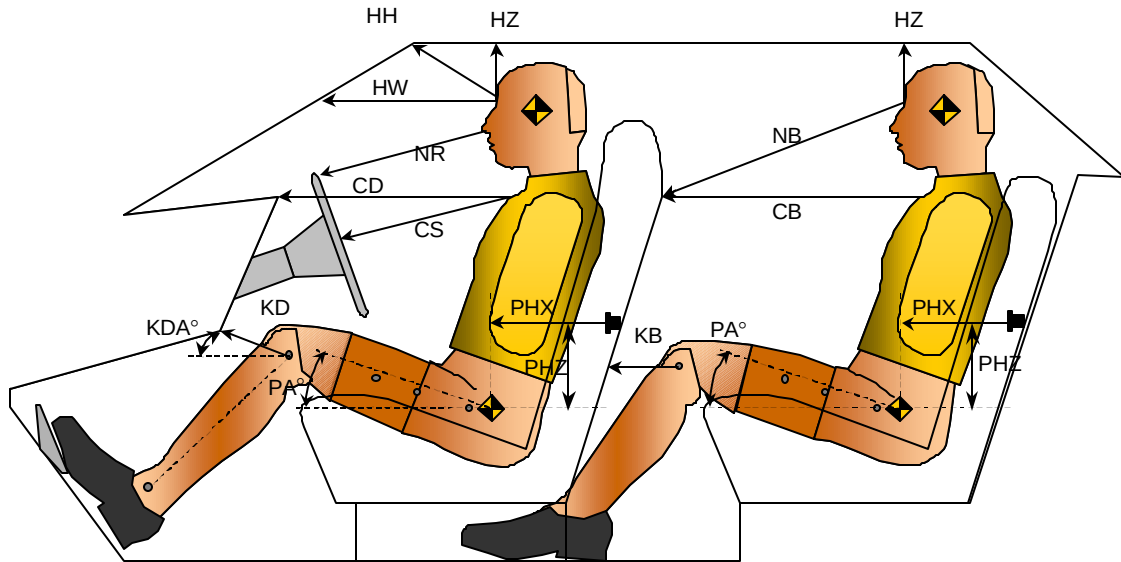
DATA SHEET NO. 7
SID LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

NHTSA No.: GM0002

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

Test Date: 12/9/99



Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH	HH	Head to Header	364	15		
HW	HW	Head to Windshield	595			
HZ	HZ	Head to Roof	175		140	
NR	NR	Nose to Rim/Nose to Seatback	462	12	669	19
CD	CB	Chest to Dash or Seatback	533		569	
CS		Chest to Steering Wheel	335	19		
KDL	KBL	Left Knee to Dash or Seatback	143	34	240	
KDR	KBR	Right Knee to Dash or Seatback	125		246	
PA	PA	Pelvic Angle		23		24
PHX	PHX	H-Point to Striker (X-Axis)	219		256	
PHZ	PHZ	H-Point to Striker (Z-Axis)	108		270	

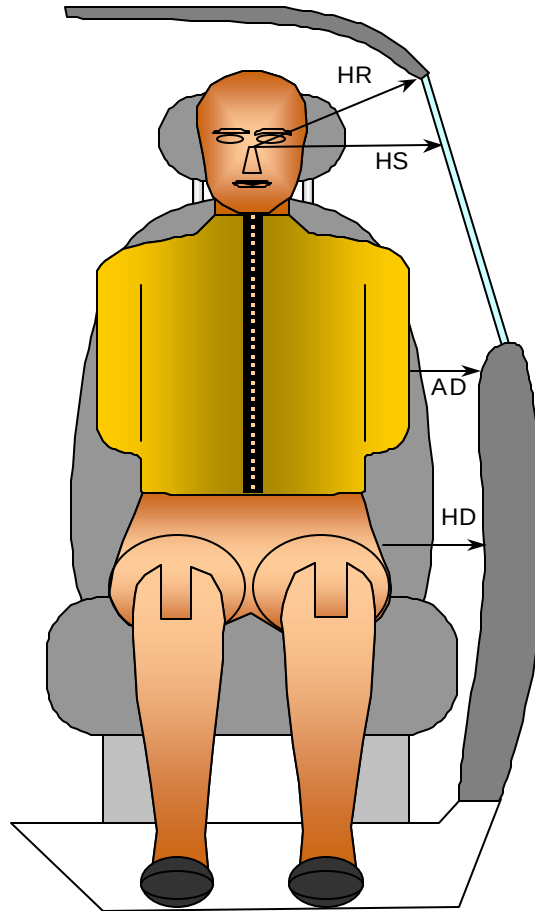
DATA SHEET NO. 8
SID LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

NHTSA No.: GM0002

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

Test Date: 12/9/99



FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	240	252
HS	Head to Side Window	mm	325	310
AD	Arm to Door	mm	110	75
HD	H-Point to Door	mm	126	113

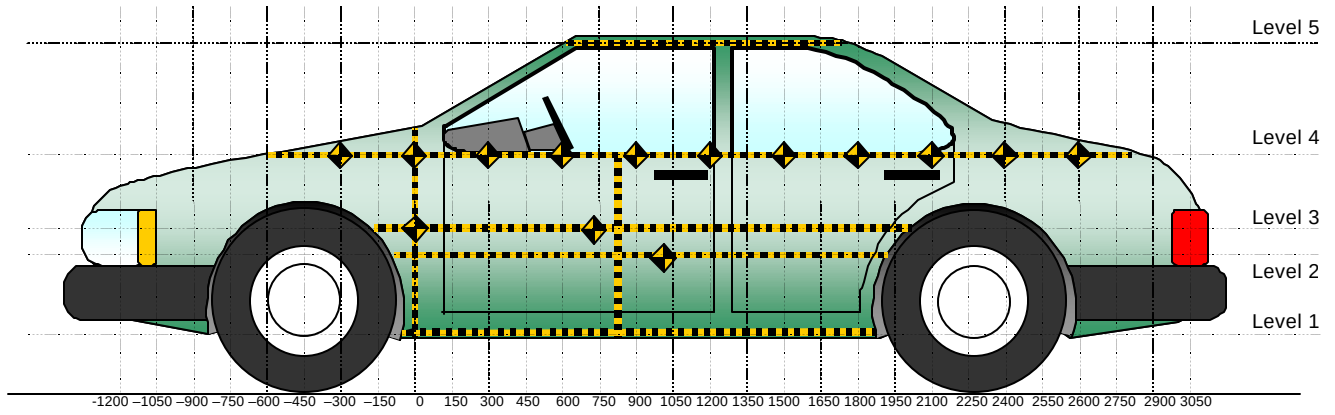
DATA SHEET NO. 9
VEHICLE SIDE MEASUREMENTS

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

NHTSA No.: GM0002

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

Test Date: 12/9/99



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	1349
4	Window Sill	880
3	Mid Door	605
2	Occupant H-Point	511
1	Sill Top	230

DATA SHEET NO. 10 - VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan
 Test Program: 55/28 km/h 90° Side Impact NCAP

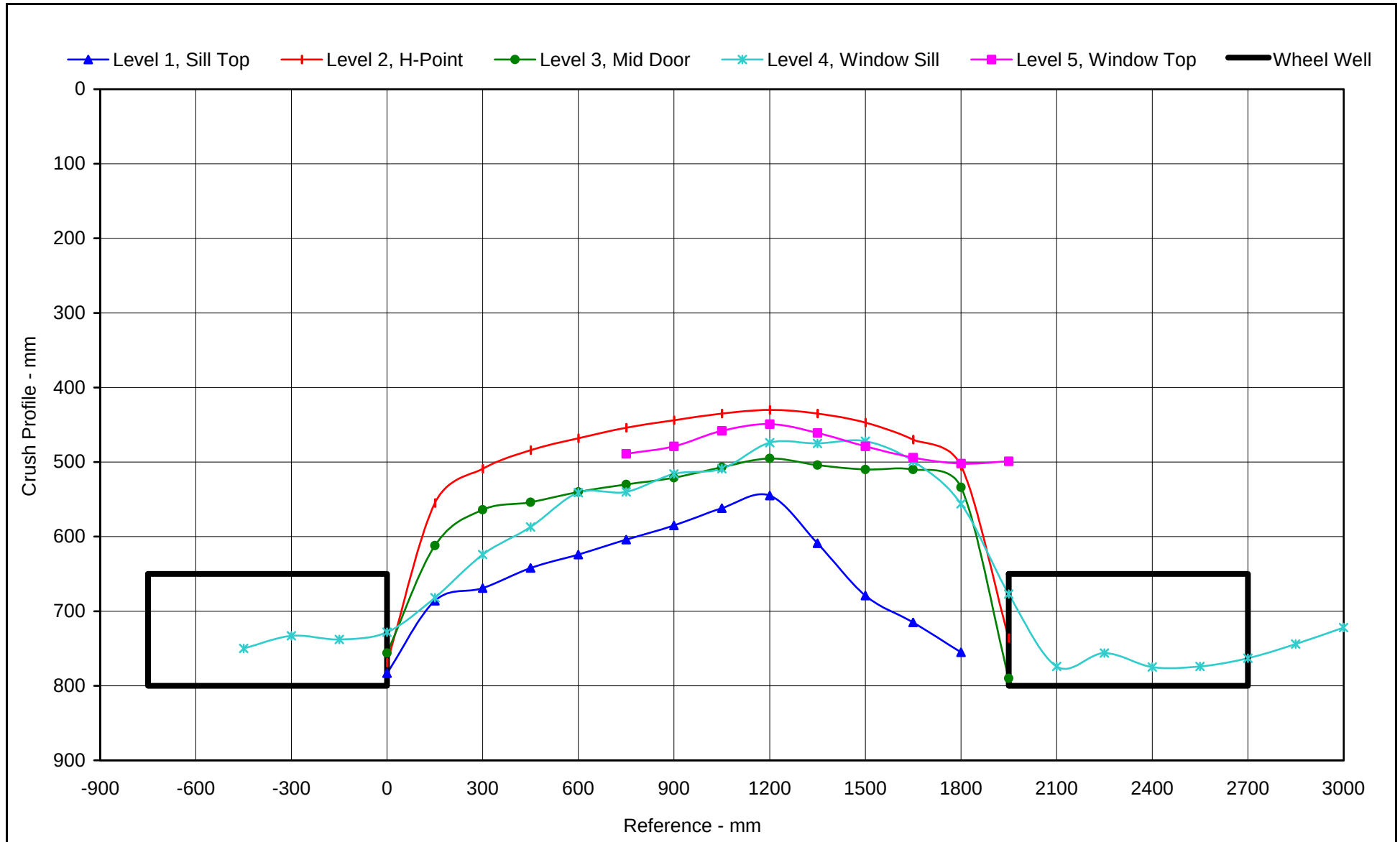
PROJECT No.: GM0002
 Test Date: 12/09/99

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450				750					750					0	
-300				758					733					25	
-150				770					738					32	
0	821	861	863	775		783	769	756	728		38	92	107	47	
150	811	864	860	790		686	555	612	682		125	309	248	108	
300	809	862	861	791		669	509	564	624		140	353	297	167	
450	808	862	861	796		642	484	554	587		166	378	307	209	
600	805	862	862	804		624	468	540	541		181	394	322	263	
750	805	864	860	805	523	604	454	530	540	489	201	410	330	265	34
900	805	864	861	808	528	585	444	521	516	479	220	420	340	292	49
1050	803	863	862	809	529	562	435	507	509	458	241	428	355	300	71
1200	803	863	861	809	528	545	430	495	474	449	258	433	366	335	79
1350	806	864	862	807	524	609	435	504	475	461	197	429	358	332	63
1500	808	864	860	807	526	679	447	510	472	479	129	417	350	335	47
1650	810	860	860	804	527	715	470	510	499	494	95	390	350	305	33
1800	811	859	857	801	525	755	505	534	556	502	56	354	323	245	23
1950		857	855	796	514		736	790	677	499		121	65	119	15
2100				791					774					17	
2250				787					756					31	
2400				781					775					6	
2550				774					774					0	
2700				764					763					1	
2850				742					744					-2	
3000				722					722					0	

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

DATA SHEET NO. 10...(continued)

18



Maximum Crush, Level 1: 258 mm at 1200 mm
 Maximum Crush, Level 2: 433 mm at 1200 mm
 Maximum Crush, Level 3: 366 mm at 1200 mm
 Maximum Crush, Level 4: 335 mm at 1200 mm
 Maximum Crush, Level 5: 79 mm at 1200 mm

Test Program: 55/28 km/h 90° Side Impact NCAP No.: GM0003
 Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan
 Test Date: 12/09/99



KAR99060-01

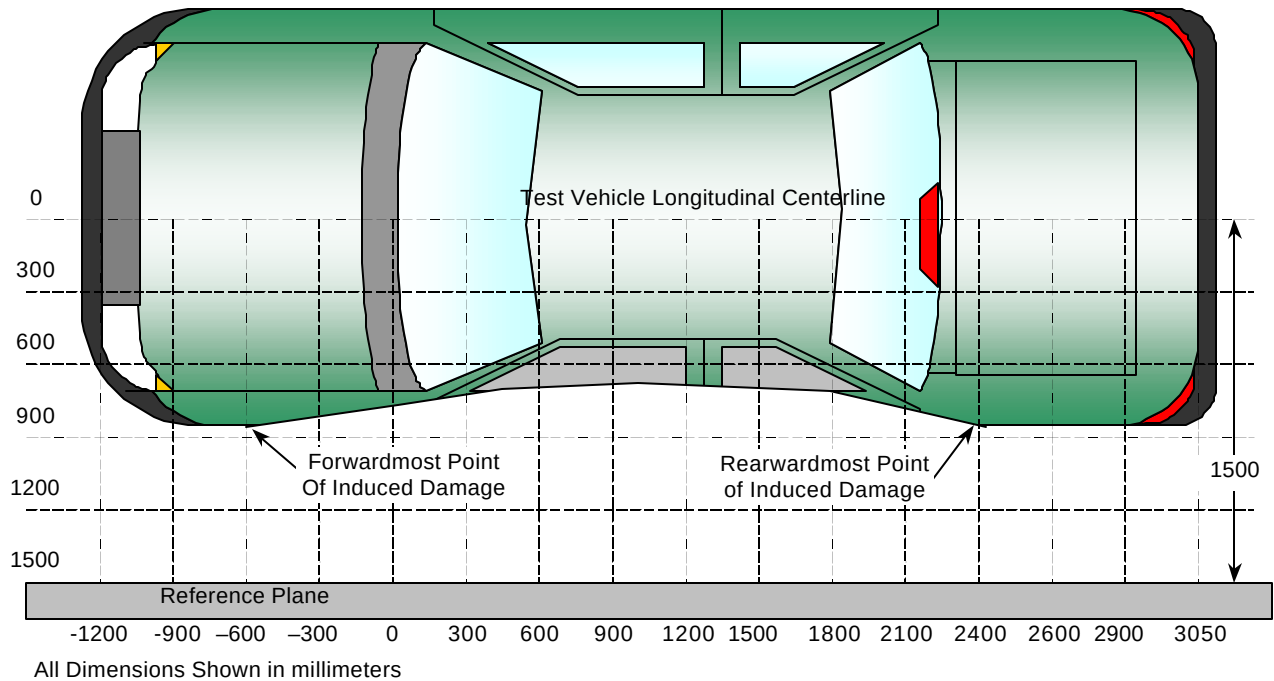
DATA SHEET NO. 11
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

NHTSA No.: GM0002

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

Test Date: 12/9/99



TOP VIEW

Damage Profile Distances

DPD	Distance From Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1	-450 mm	4	750	750	0
2	150 mm	2	864	555	309
3	750 mm	2	864	454	410
4	1350 mm	2	864	435	429
5	1950 mm	2	857	736	121
6	2550 mm	4	774	774	0

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

DATASHEET NO. 12

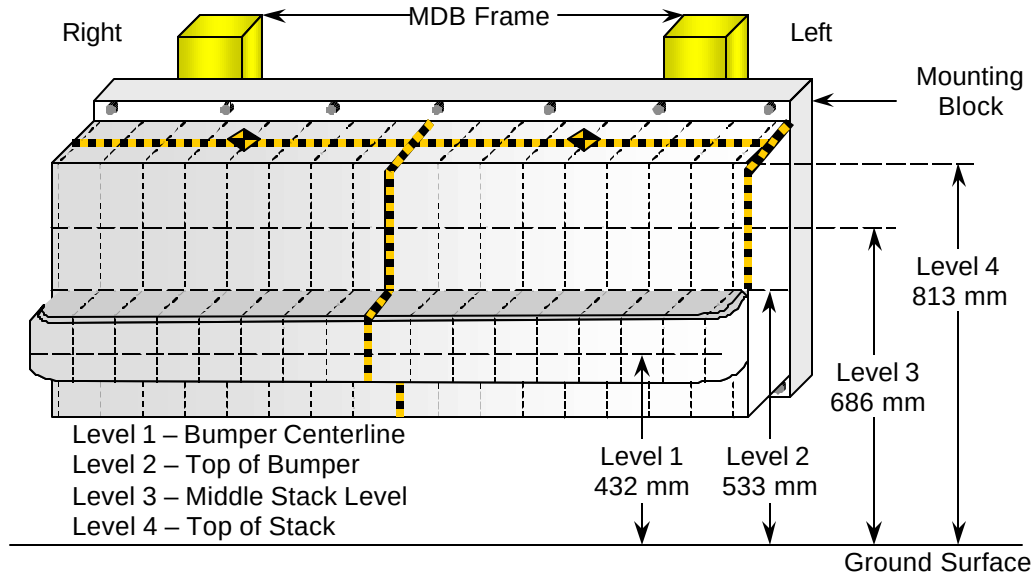
DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

NHTSA No.: GM0002

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

Test Date: 12/9/99



DEFORMABLE BARRIER STATIC CRUSH

Stack	Distance Right of Center								C _L	Distance Left of Center							
Level	800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
1	64	21	-72	-3	-4	-2	0	2	5	5	7	9	15	36	73	109	162
2	27	-2	-9	-8	-7	-5	0	-1	-3	-3	-3	-1	2	6	24	61	131
3	49	29	15	9	4	4	1	0	1	8	15	17	18	20	26	41	88
4	122	91	67	47	37	42	33	29	21	28	34	37	40	46	57	79	118

All Dimensions in mm

DATA SHEET NO. 13

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

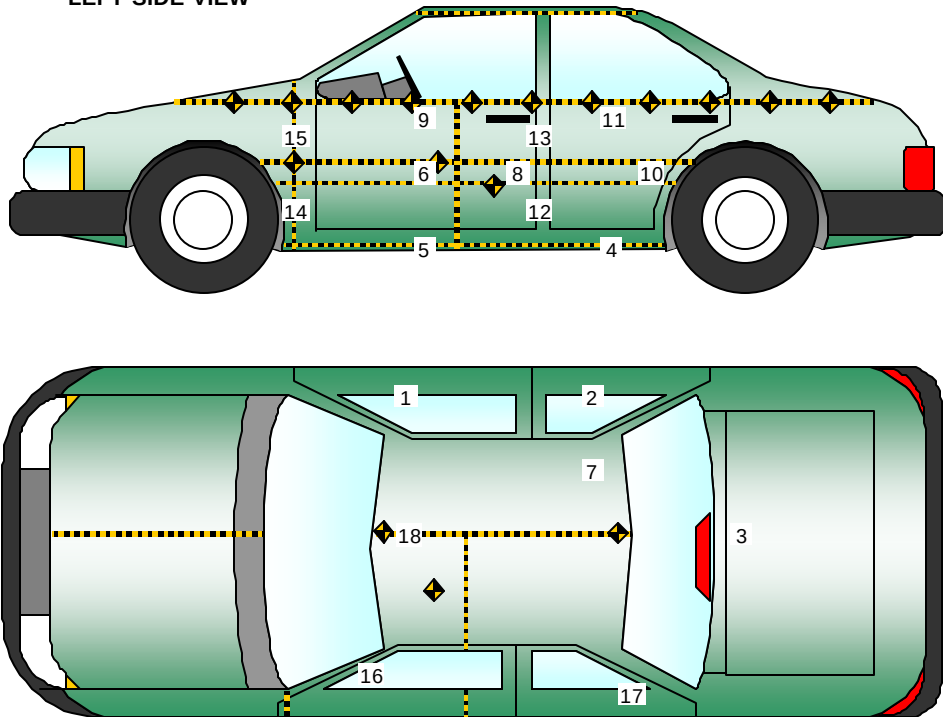
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

NHTSA No.: GM0002

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

Test Date: 2/22/00

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 LOCATIONS AND DATA SUMMARY

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

NHTSA No.: GM0002

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

Test Date: 12/9/99

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	2818	669	326	X	2.9	37.5	-6.3	11.5
					Y	20.8	6.5	-2.4	174.2
					Z	5.2	45.0	-4.7	4.9
					RES	21.3	6.5		
2	Right Sill at Rear Seat	1878	667	326	X	4.0	37.6	-5.7	11.1
					Y	20.6	17.7	-2.2	176.3
					Z	5.7	44.9	-5.8	14.3
					RES	20.7	17.8		
3	Rear Floorpan Above Axle	1215	25	475	X	3.5	44.4	-5.8	7.1
					Y	21.9	6.8	-2.0	176.8
					Z	5.6	56.5	-8.4	34.1
					RES	22.8	6.8		
4	Left Sill at Rear Door	1902	698	191	Y	57.4	11.6	-36.9	24.5
5	Left Sill at Front Door	2685	698	191	Y	48.0	4.9	-60.3	22.7
6	Front Door Centerline	2655	770	580	Y	207.8	8.5	-103.4	20.8
7	Rear Occupant Compartment	2193	484	176	Y	19.8	7.2	-3.9	93.1
8	Front Door Mid-Rear	2380	770	580	Y	185.4	7.7	-46.9	25.8
9	Front Door Upper Centerline	2380	770	860	Y	254.0	14.2	-111.5	20.7
10	Rear Door Mid-Rear	1455	660	670	Y	101.7	9.7	-69.6	23.5
11	Rear Door Upper Centerline	1780	660	912	Y	97.2	17.3	-43.8	34.5
12	B-Post Lower	2245	695	414	Y	151.9	3.9	-41.3	38.6
13	B-Post Middle	2245	695	726	Y	145.3	3.7	-34.7	19.9
14	A-Post Lower	3335	775	438	Y	89.2	8.2	-29.7	17.8
15	A-Post Middle	3335	775	632	Y	0.0	0.0	0.0	0.0 *
16	Front Seat Track	2788	495	290	Y	34.9	20.6	-12.1	29.1
17	Rear Seat Structure								**
18	Vehicle CG	2640	0	410	X	7.3	26.5	-11.0	14.0
					Y	37.0	24.0	-5.1	64.0
					Z	22.1	30.1	-35.0	21.9
					RES	43.2	23.1		

*Channel Failed, No Data

** Not Used, no rear seat track.

DATA SHEET NO. 14 - MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

NHTSA No.: GM0002

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

Test Date: 12/9/99

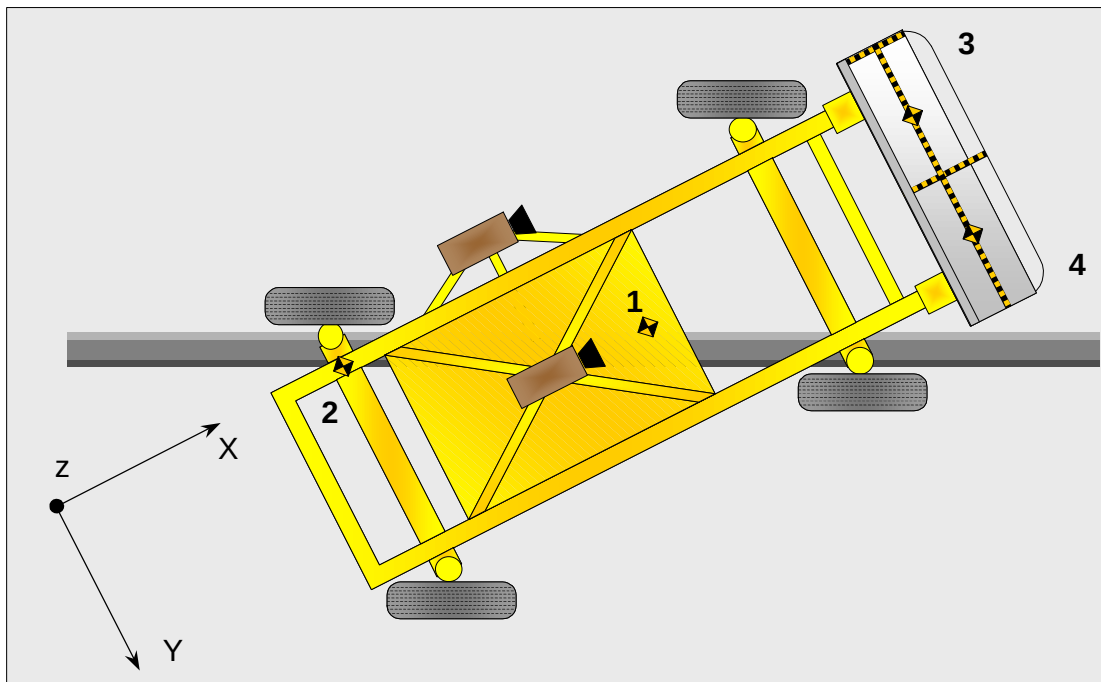
MDB ACCELEROMETER PEAK DATA AND LOCATIONS

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	3.0	148.9	-19.8	36.5
					Y	3.1	122.1	-8.7	32.3
					Z	9.0	105.0	-8.0	157.4
					RES	20.7	36.6		
2	MDB Rear	-2642	-593	608	X	2.0	148.9	-21.9	36.8
					Y	2.3	56.4	-7.4	32.9

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.	100.2	13.8	50.1	-0.5



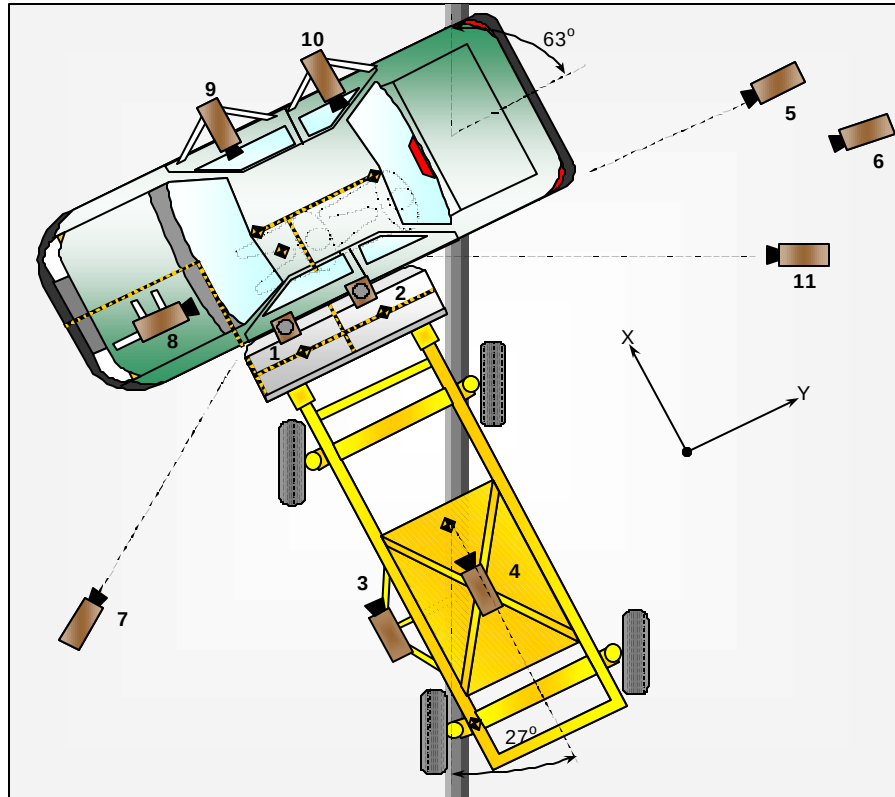
DATA SHEET NO. 15
HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

NHTSA No.: GM0002

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

Test Date: 12/9/99



No.	Camera View	Location (mm)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X	Y	Z			
1	Overhead Overall	2260	750	5490	-90	10	1010
2	Overhead Close-up	0	0	5490	-90	24	1020
3	MDB Onboard, Impact Point Close-Up	2200	0	1110	-8	13	*
4	MDB Onboard, Centerline of Impact	3420	660	1815	-12	13	870
5	Ground Level, Left Rear Overall	9200	16050	1560	-1	25	1010
6	Ground Level, Left Rear Close-up	500	14953	1410	-3	70	990
7	Ground Level, Left Front Close-up	-4765	-4255	1480	-9	13	1000
8	Vehicle Onboard Front SID, Front	340	-460	1415	-15	19	1030
9	Vehicle Onboard Front SID, Side	1780	1180	1075	-10	10	940
10	Vehicle Onboard Rear SID, Side	1780	2030	1130	-15	10	1000
11	Real Time Coverage	3152	19430	905	N/A	Zoom	24

* No timing

DATA SHEET NO. 16

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

NHTSA No.: GM0002

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

Test Date: 12/9/99

Test Time: 1:45 PM

Temperature at Time of Impact: 15 °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

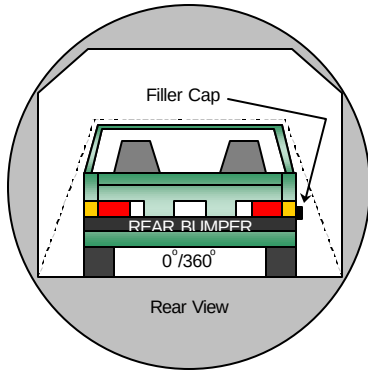
DATA SHEET NO. 17
FMVSS 301 STATIC ROLLOVER DATA SHEET

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

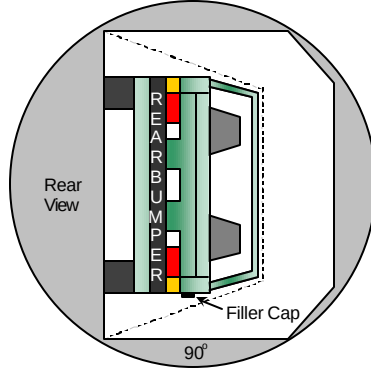
NHTSA No.: GM0002

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

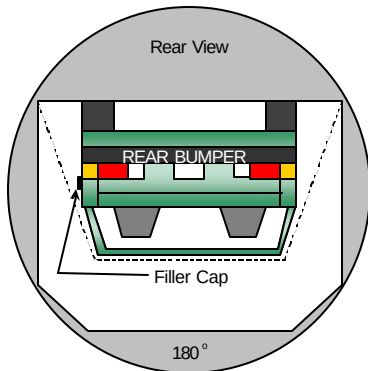
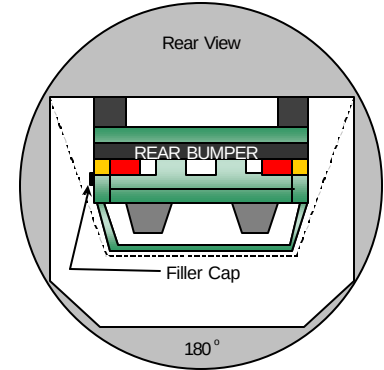
Test Date: 12/9/99



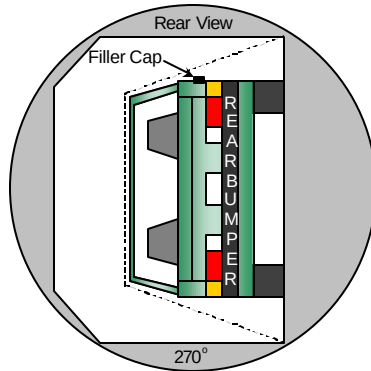
0° TO 90°



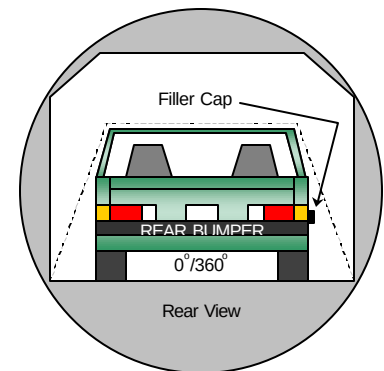
90° TO 180°



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°	81	300	0.0
90° TO 180°	82	300	0.0
180° TO 270°	78	300	0.0
270° TO 360°	80	300	0.0

APPENDIX A
PHOTOGRAPHS

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FIGURE A-1: LEFT FRONT, AS RECEIVED

A-1

KAR99060-01



FIGURE A-2: RIGHT REAR, AS RECEIVED

A-2

KAR99060-01



MFD BY GENERAL MOTORS CORP

DATE
08/99

GVWR
1807 KG
3983 LB

GAWR FRT
996 KG
2195 LB

GAWR RR
811 KG
1788 LB

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR
VEHICLE SAFETY, BUMPER, AND THEFT PREVENTION STANDARDS IN
EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.

1G1ND52J3Y6119966

TYPE: PASS CAR

FIGURE A-3: VEHICLE CERTIFICATION LABEL



TIRE - LOADING INFORMATION

OCCUPANTS				VEHICLE CAP. WT.	
FRT.	CTR.	RR.	TOTAL	KG	LBS
2	0	3	5	416	917

MAX. LOADING @ GVWR SAME AS VEHICLE CAPACITY WEIGHT.

1G1ND52J3Y6119966

MODEL: ND69 NBA

	TIRE SIZE	SPEED RTG	COLD TIRE PRESSURE
FRT	P215/60R15	S	200KPA(29PSI)
RR	P215/60R15	S	180KPA(26PSI)
SPA	T125/70D15	M	420KPA(60PSI)

IF TIRES ARE HOT, ADD 28KPA(4PSI)

SEE OWNER'S MANUAL FOR MORE INFORMATION

FIGURE A-4: VEHICLE TIRE PLACARD



FIGURE A-5: PRE-TEST FRONT VIEW



FIGURE A-6: POST-TEST FRONT VIEW



FIGURE A-7: PRE-TEST REAR VIEW



FIGURE A-8: POST-TEST REAR VIEW



FIGURE A-9: PRE-TEST LEFT SIDE (STRUCK SIDE) VIEW



FIGURE A-10: POST-TEST LEFT SIDE (STRUCK SIDE) VIEW

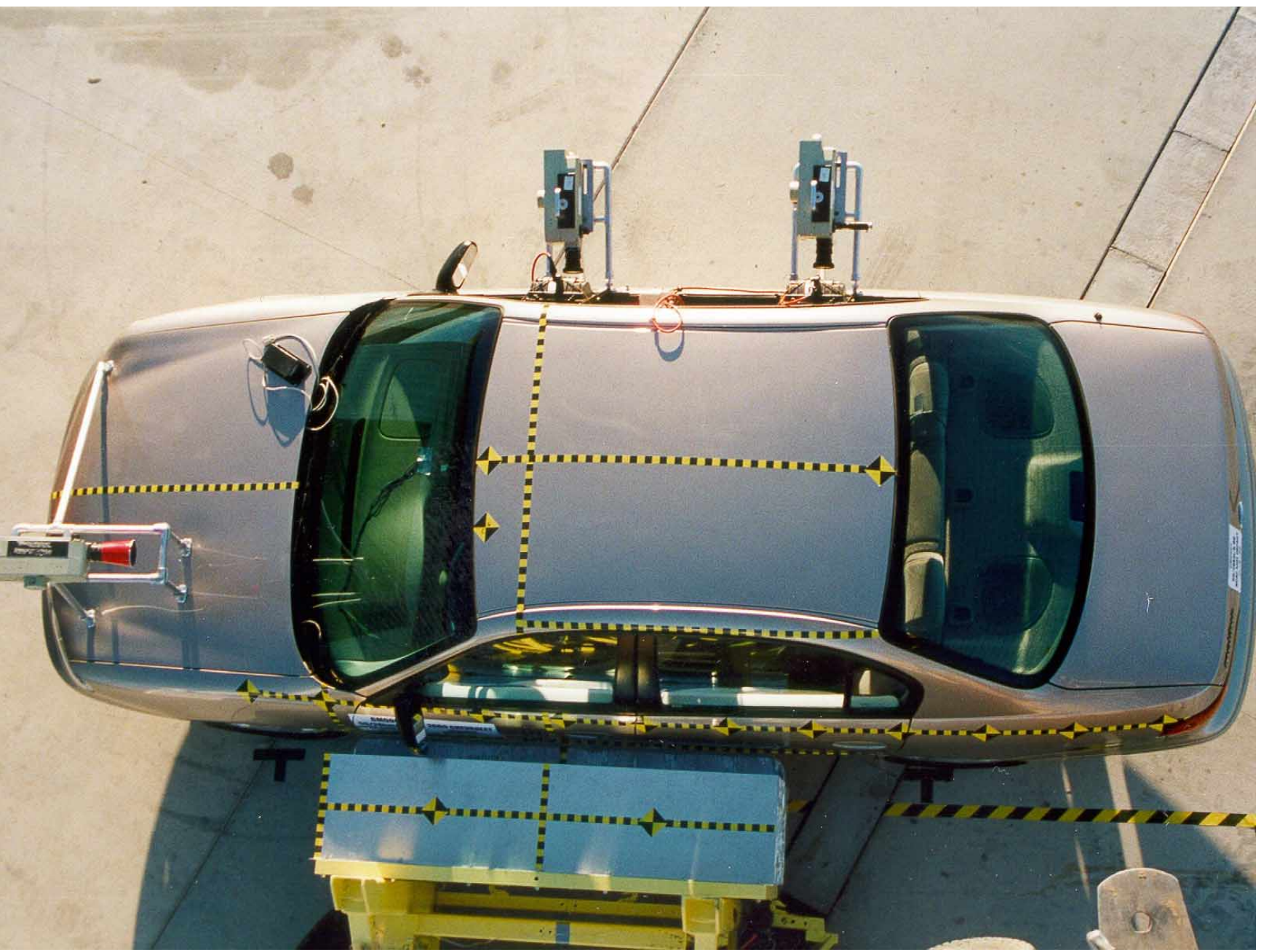


FIGURE A-11: PRE-TEST OVERHEAD OVERALL

A-11

KAR99060-01



FIGURE A-12: POST-TEST OVERHEAD OVERALL



FIGURE A-13: PRE-TEST MDB LEFT SIDE VIEW (AT IMPACT POSITION)



FIGURE A-14: PRE-TEST MDB RIGHT SIDE VIEW (AT IMPACT POSITION)



FIGURE A-15: PRE-TEST IMPACT POINT TARGET CLOSE-UP

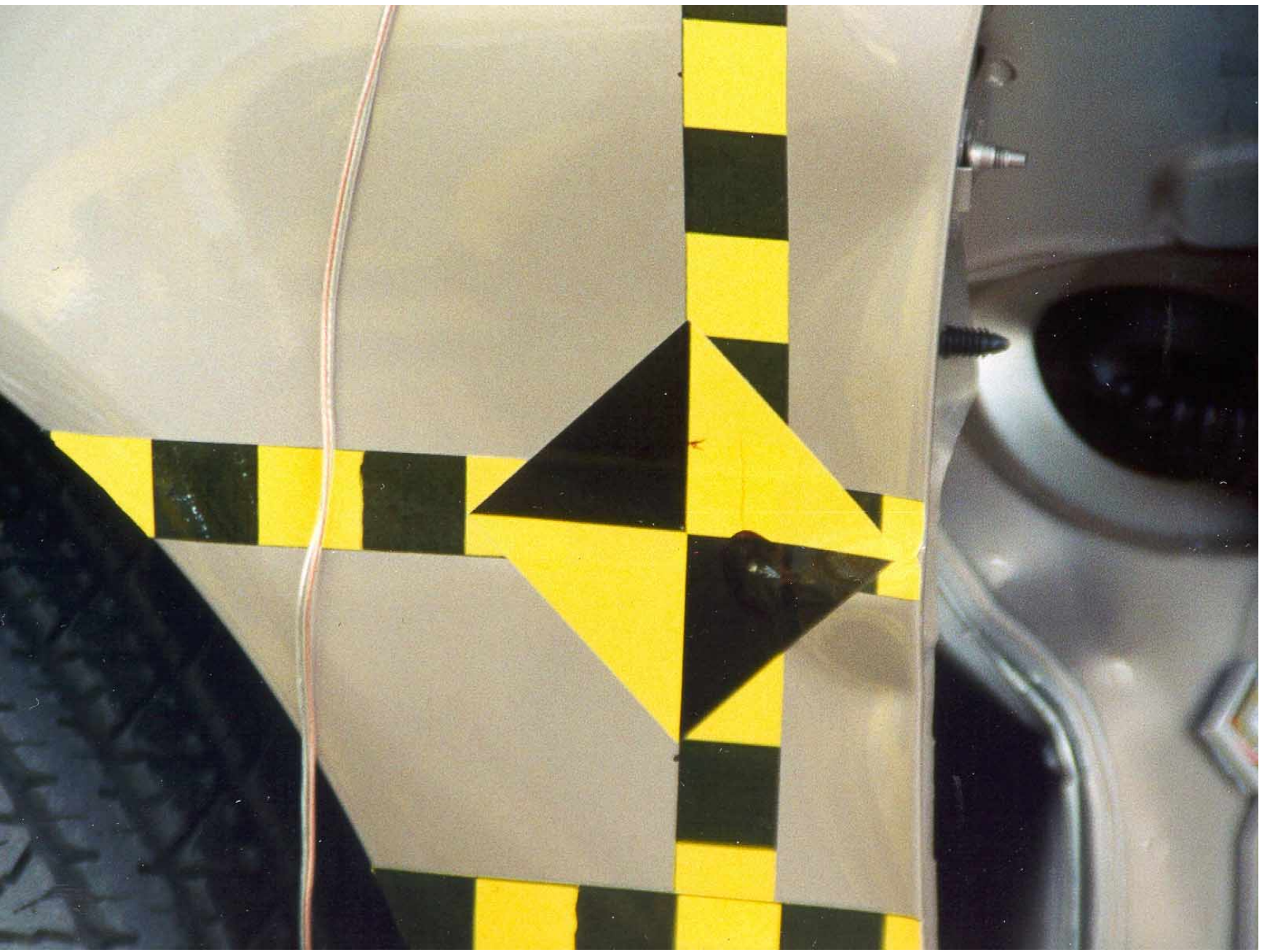


FIGURE A-16: POST-TEST IMPACT POINT TARGET CLOSE-UP



FIGURE A-17: PRE-TEST DRIVER DUMMY LEFT SIDE (DOOR OPEN)



FIGURE A-18: PRE-TEST DRIVER DUMMY LEFT SIDE VIEW



FIGURE A-19: POST-TEST DRIVER DUMMY LEFT SIDE VIEW

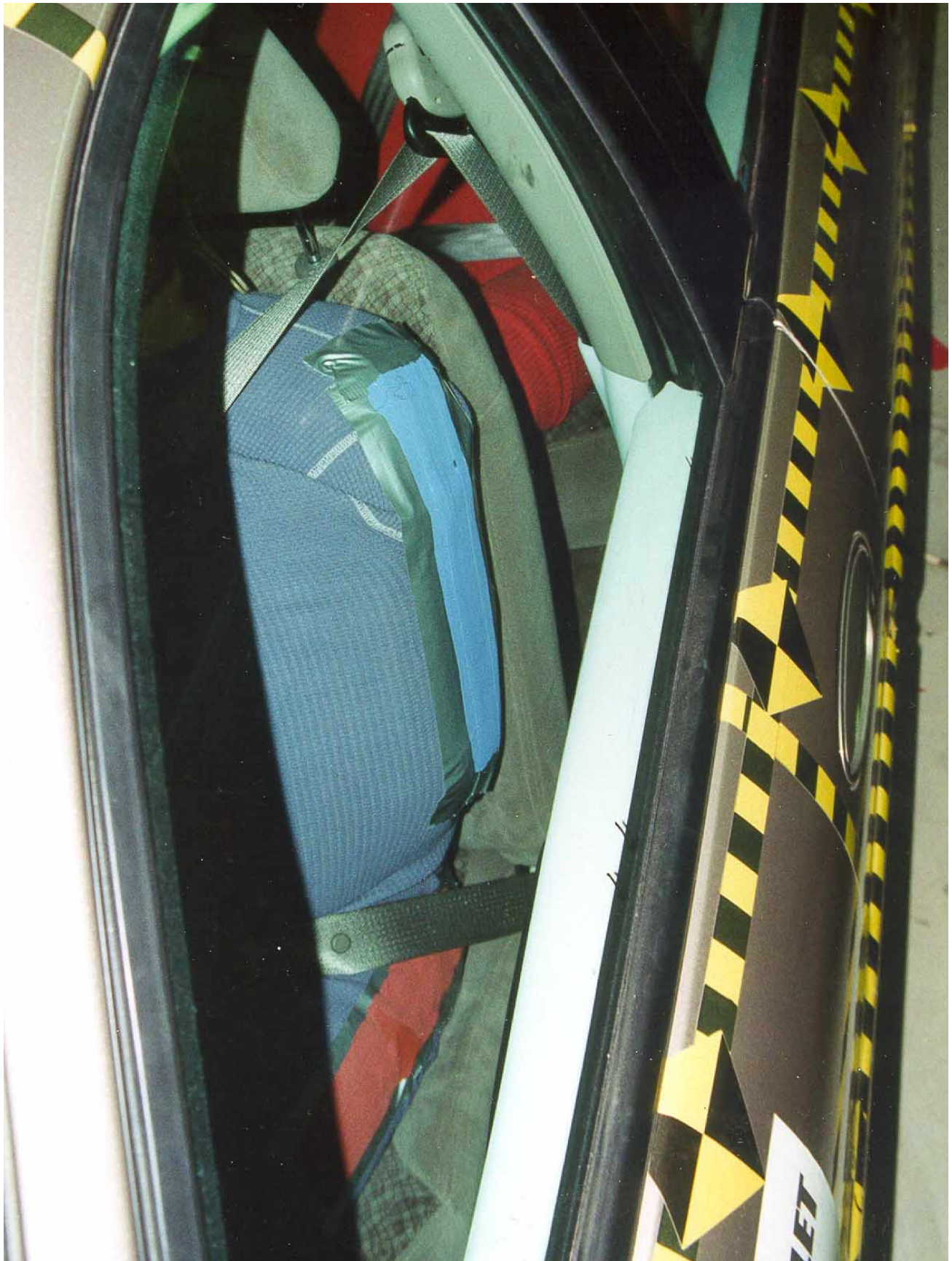


FIGURE A-20: PRE-TEST DRIVER DUMMY CLEARANCE

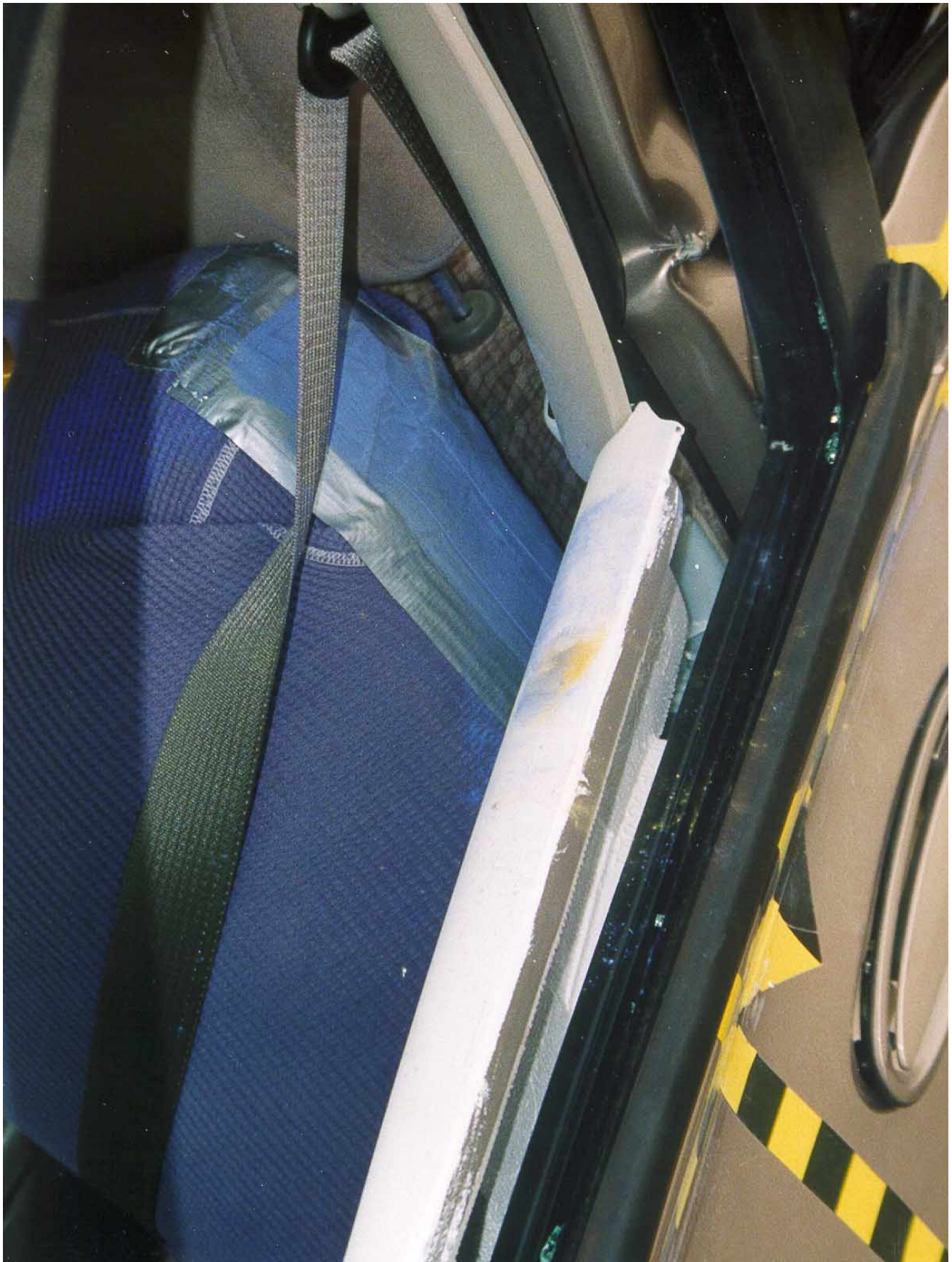


FIGURE A-21: POST-TEST DRIVER DUMMY CLEARANCE



FIGURE A-22: PRE-TEST DRIVER DUMMY INSIDE VIEW



FIGURE A-23: POST-TEST DRIVER DUMMY INSIDE VIEW

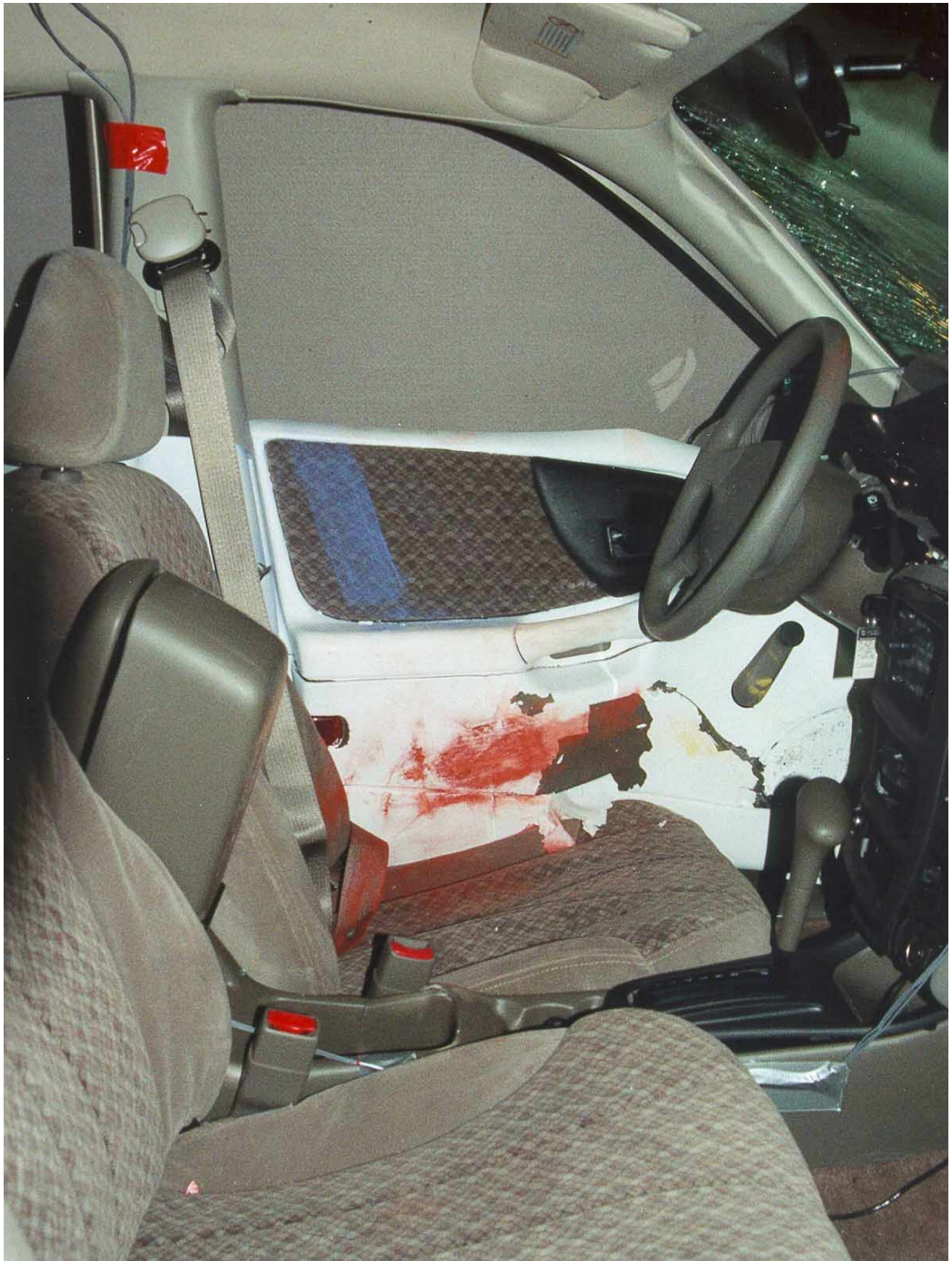


FIGURE A-24: POST-TEST DRIVER DUMMY CONTACT POINTS (INSIDE VIEW)



FIGURE A-25: PRE-TEST PASSENGER DUMMY LEFT SIDE (DOOR OPEN)



FIGURE A-26: PRE-TEST PASSENGER DUMMY LEFT SIDE VIEW



FIGURE A-27: POST-TEST PASSENGER DUMMY LEFT SIDE VIEW



FIGURE A-28: PRE-TEST PASSENGER DUMMY CLEARANCE

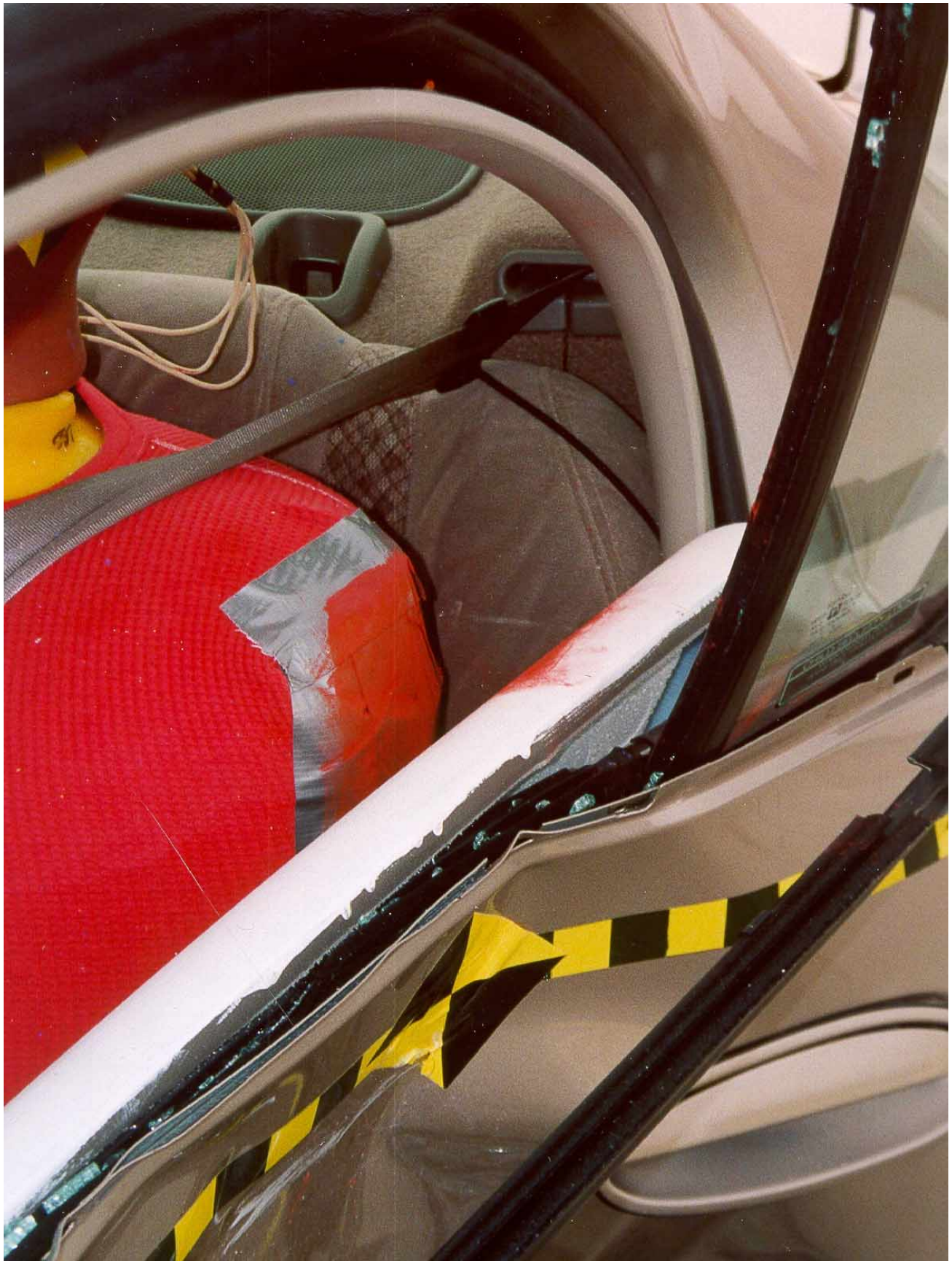


FIGURE A-29: POST-TEST PASSENGER DUMMY CLEARANCE



FIGURE A-30: PRE-TEST PASSENGER DUMMY INSIDE VIEW



FIGURE A-31: POST-TEST PASSENGER DUMMY INSIDE VIEW

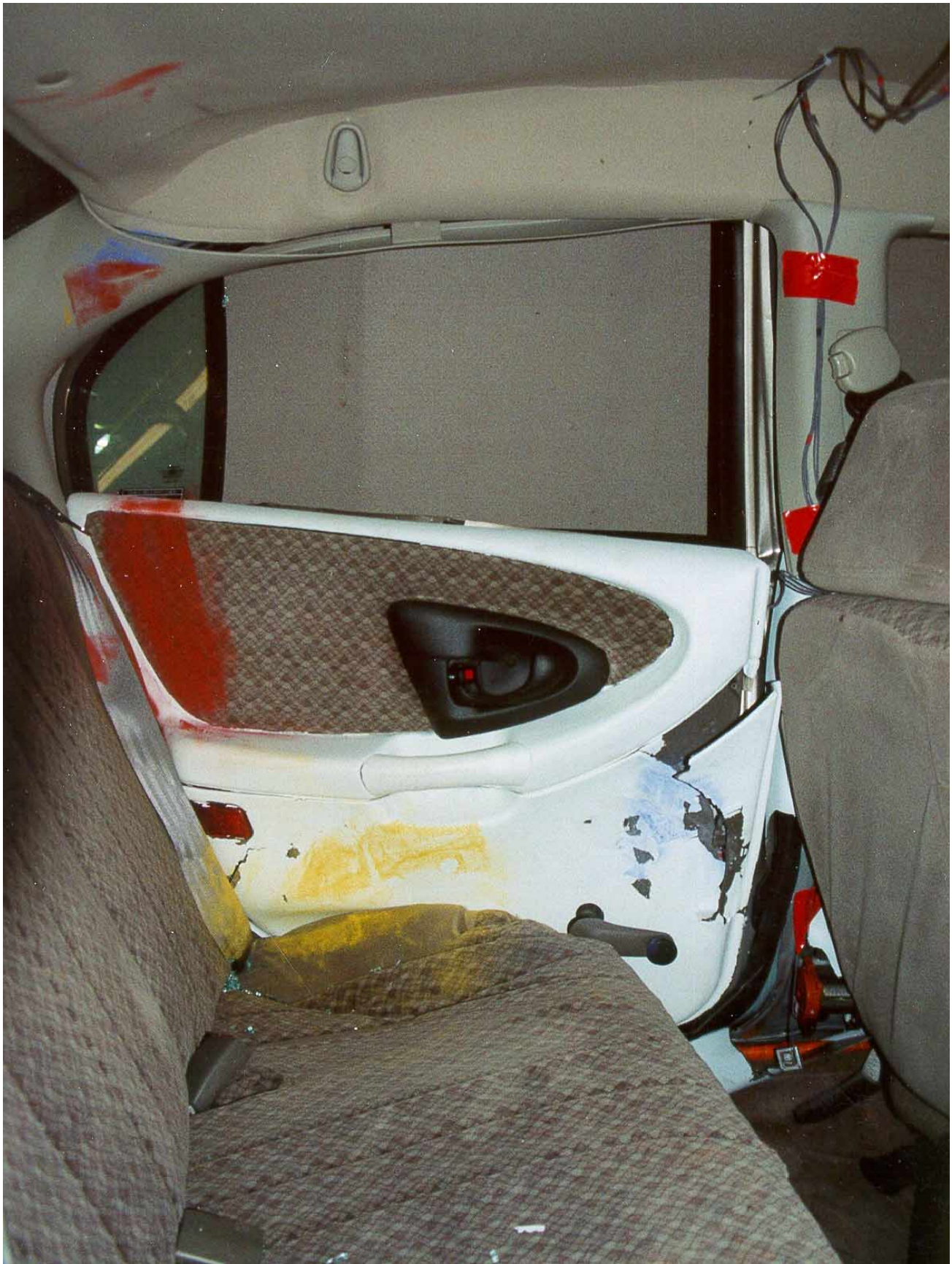


FIGURE A-32: POST-TEST PASSENGER DUMMY CONTACT POINTS (INSIDE VIEW)

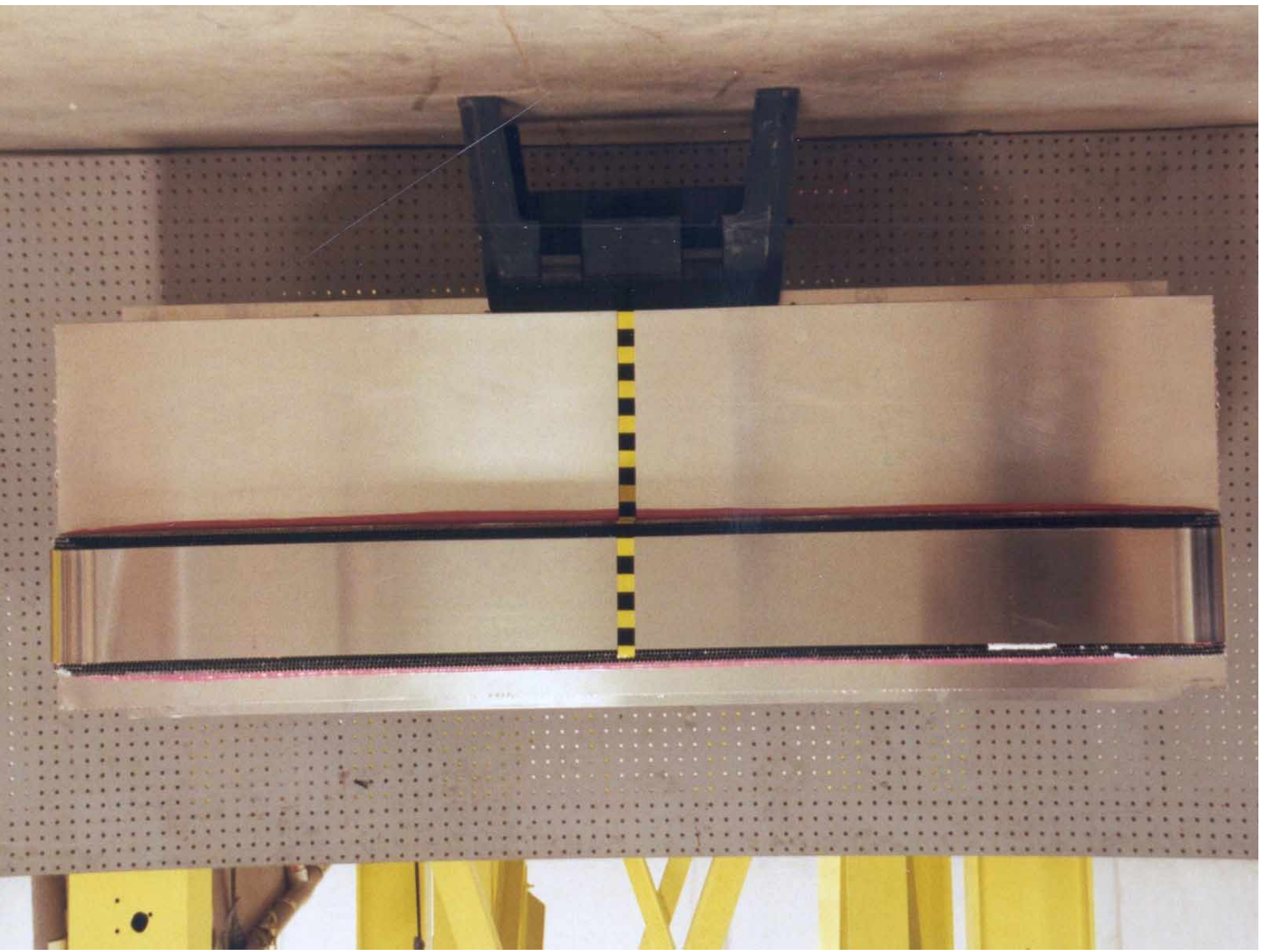


FIGURE A-33: PRE-TEST FRONT VIEW OF DEFORMABLE BARRIER



FIGURE A-34: POST-TEST FRONT VIEW OF DEFORMABLE BARRIER

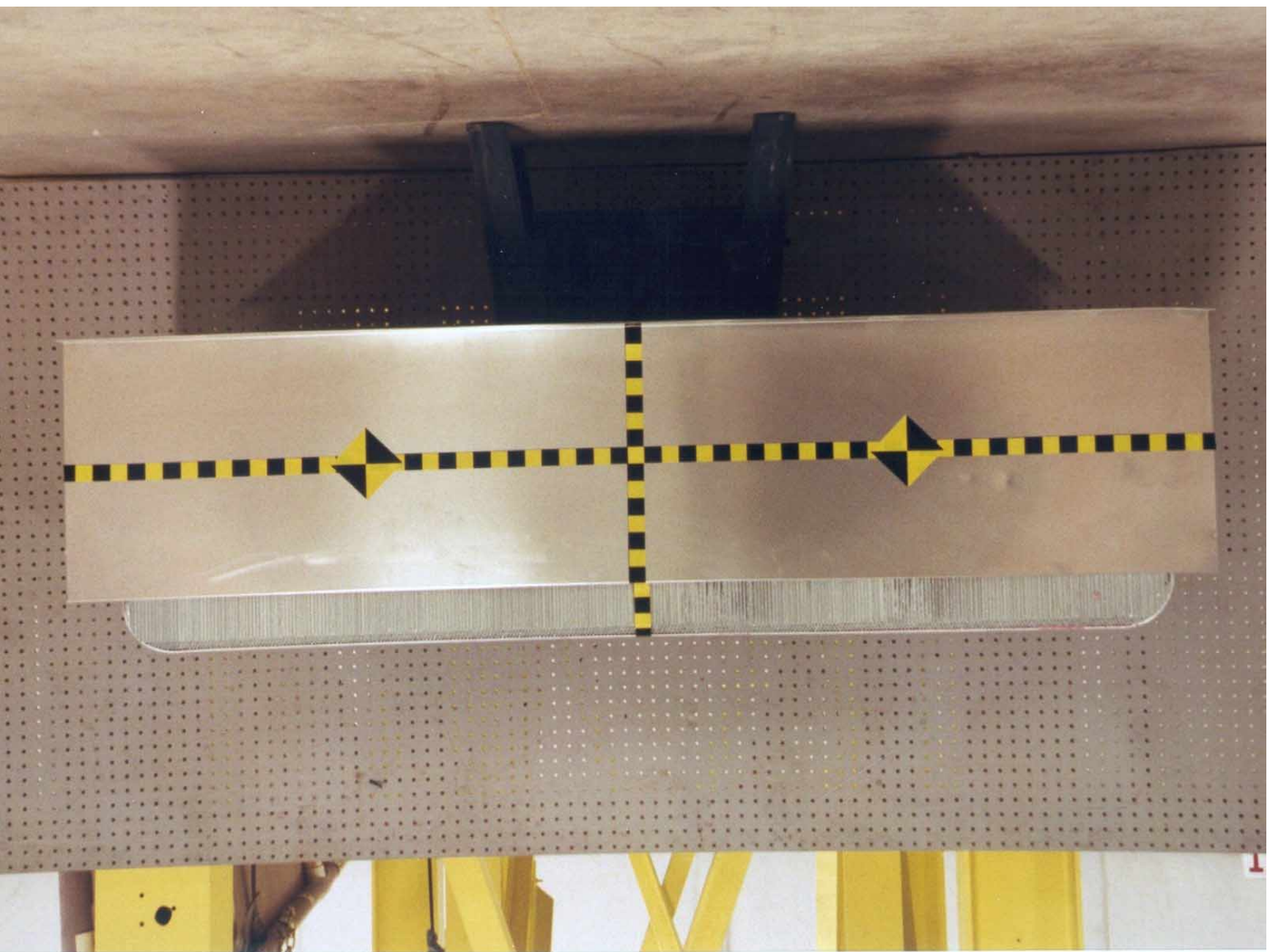


FIGURE A-35: PRE-TEST TOP VIEW OF DEFORMABLE BARRIER

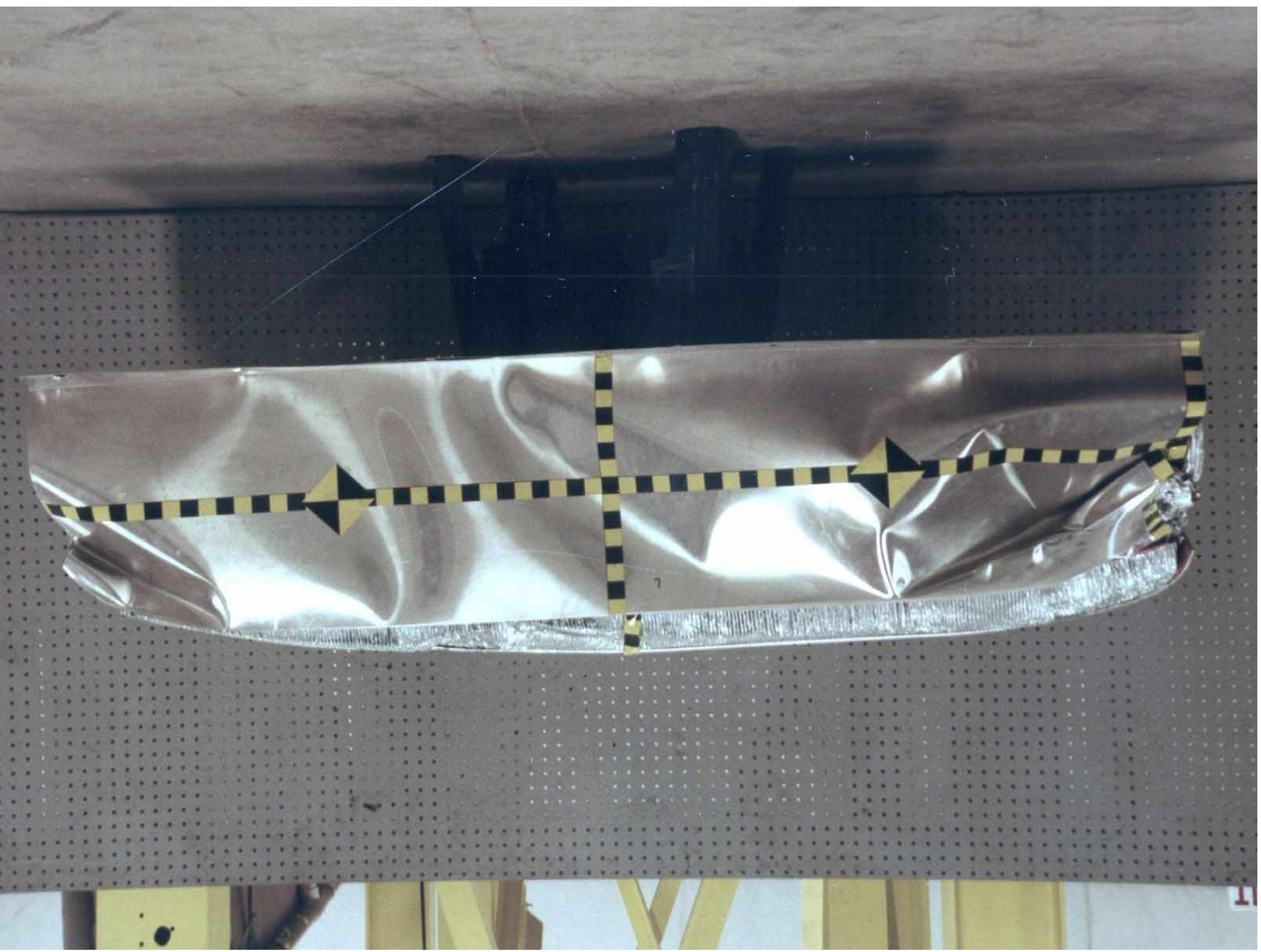


FIGURE A-36: POST-TEST TOP VIEW OF DEFORMABLE BARRIER

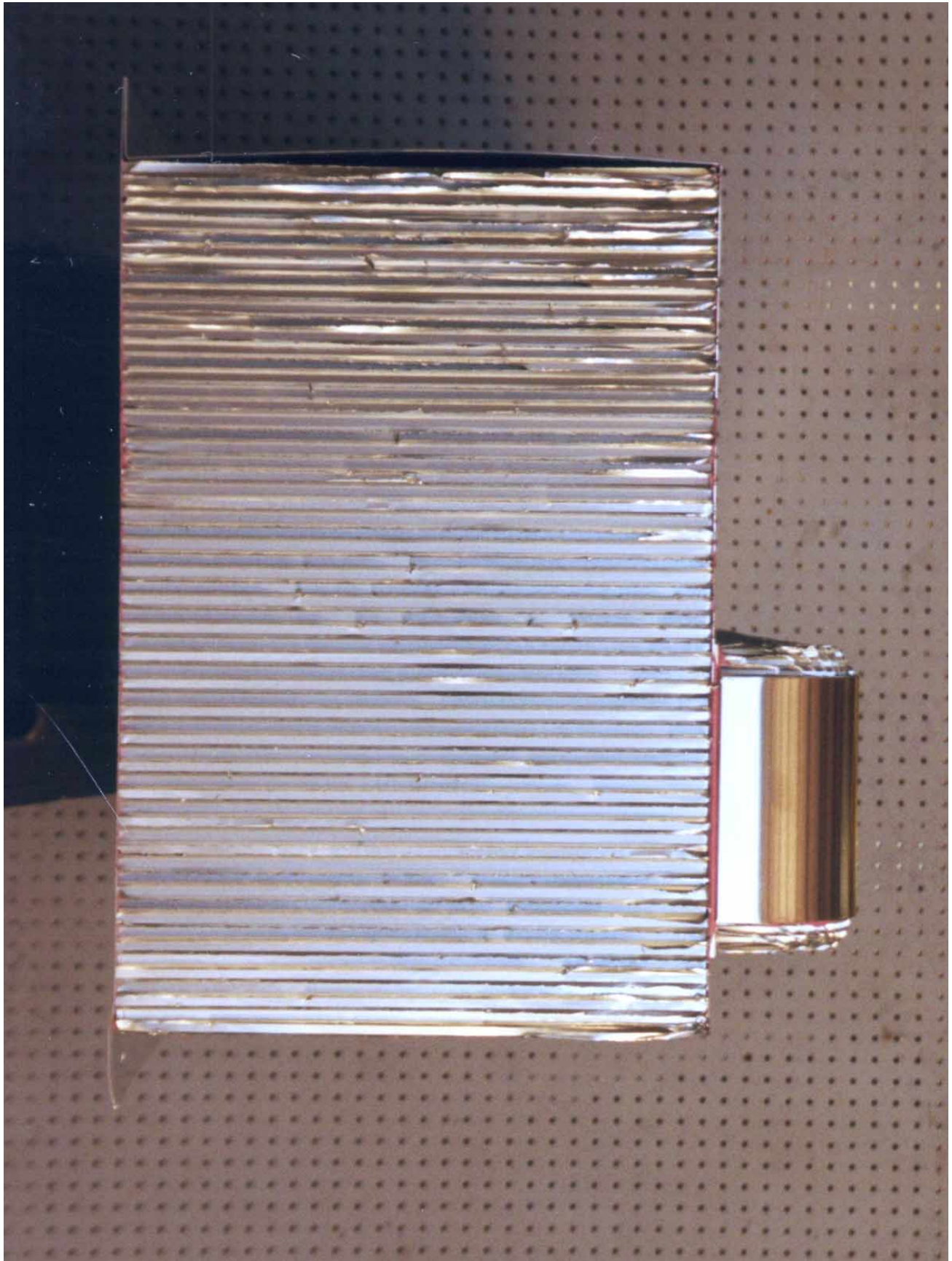


FIGURE A-37: PRE-TEST RIGHT SIDE VIEW OF DEFORMABLE BARRIER



FIGURE A-38: POST-TEST RIGHT SIDE VIEW OF DEFORMABLE BARRIER

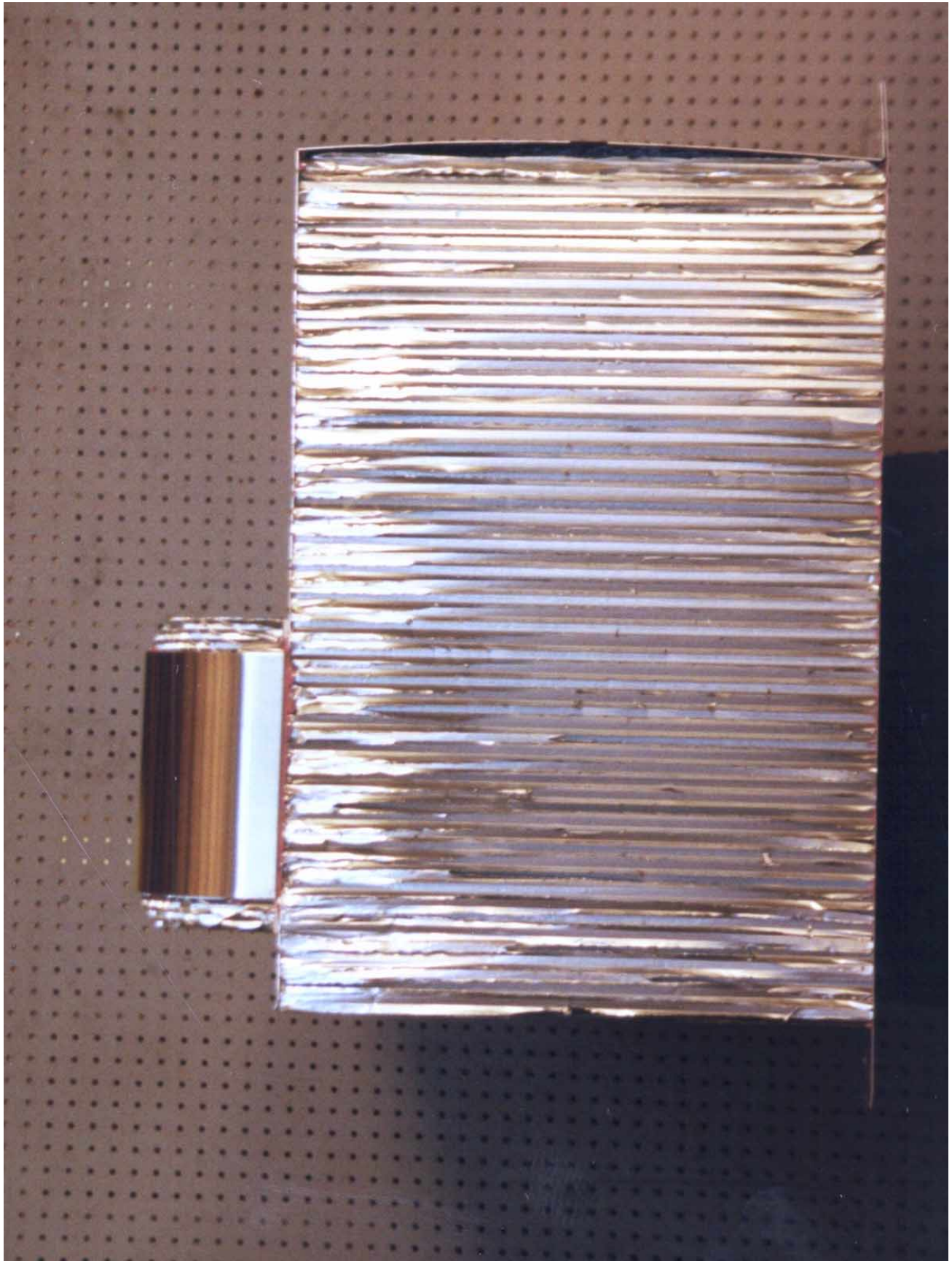


FIGURE A-39: PRE-TEST LEFT SIDE VIEW OF DEFORMABLE BARRIER



FIGURE A-40: POST-TEST LEFT SIDE VIEW OF DEFORMABLE BARRIER



FIGURE A-41: VEHICLE ON ROLLOVER, TOP VIEW

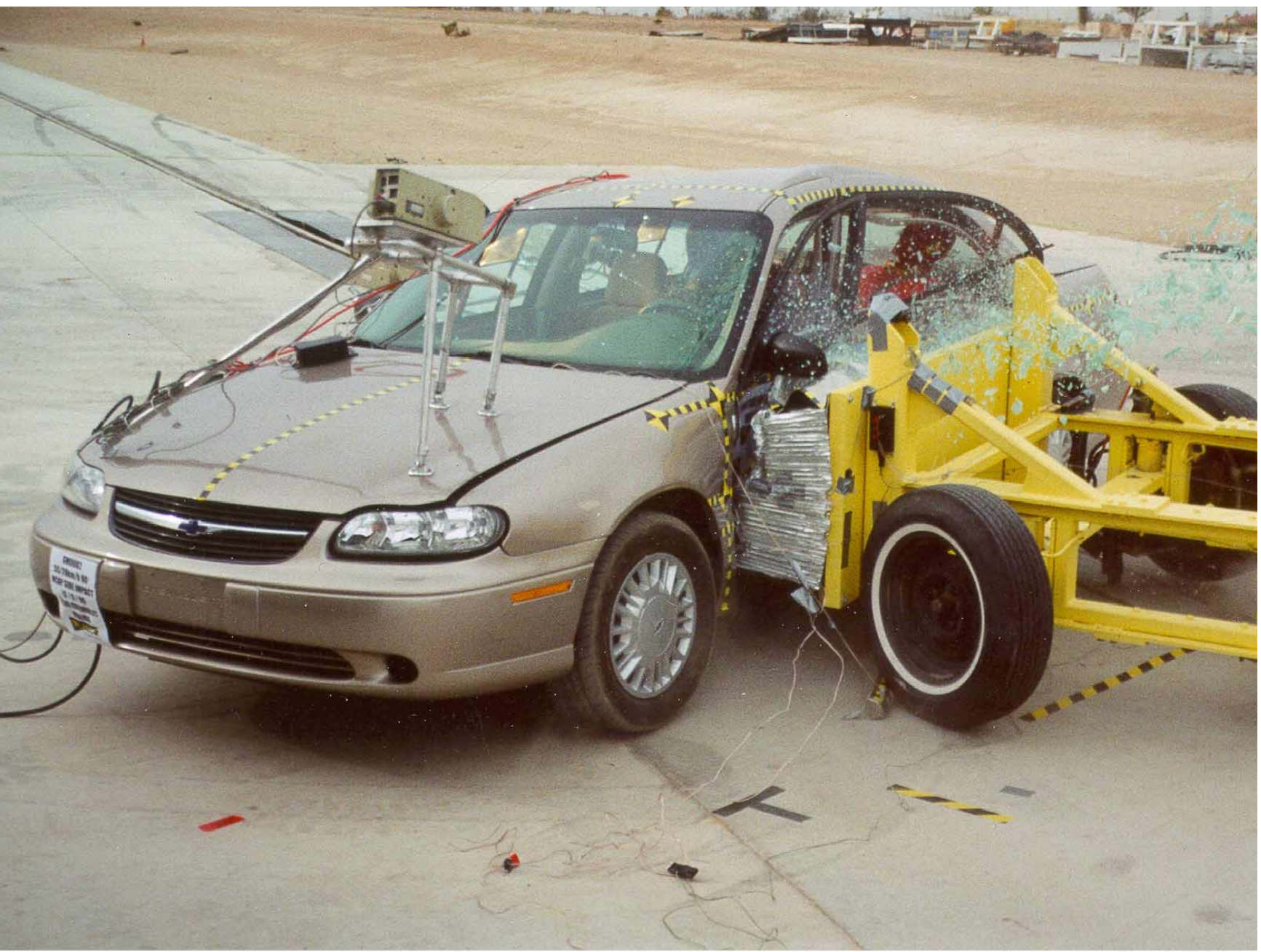


FIGURE A-42: VEHICLE DURING IMPACT

APPENDIX B
SID, VEHICLE, AND MDB RESPONSE DATA

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B-1	Driver Head CG X	B-1
B-2	Driver Head CG X Velocity	B-2
B-3	Driver Head CG Y	B-3
B-4	Driver Head CG Y Velocity	B-4
B-5	Driver Head CG Z	B-5
B-6	Driver Head CG Z Velocity	B-6
B-7	Driver Head CG Resultant	B-7
B-8	Driver Upper Rib Primary	B-8
B-9	Driver Upper Rib Primary	B-9
B-10	Driver Upper Rib Primary Y Velocity	B-10
B-11	Driver Lower Rib Primary	B-11
B-12	Driver Lower Rib Primary	B-12
B-13	Driver Lower Rib Primary Y Velocity	B-13
B-14	Driver Spine Rib Primary	B-14
B-15	Driver Spine Rib Primary	B-15
B-16	Driver Spine Rib Primary Y Velocity	B-16
B-17	Driver Pelvis Primary Y	B-17
B-18	Driver Pelvis Primary Y	B-18
B-19	Driver Pelvis Primary Y Velocity	B-19
B-20	Driver Upper Rib Redundant	B-20
B-21	Driver Upper Rib Redundant	B-21
B-22	Driver Upper Rib Redundant Y Velocity	B-22
B-23	Driver Lower Rib Redundant	B-23
B-24	Driver Lower Rib Redundant	B-24
B-25	Driver Lower Rib Redundant Y Velocity	B-25
B-26	Driver Spine Rib Redundant	B-26
B-27	Driver Spine Rib Redundant	B-27
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B-29	Driver Pelvis Redundant Y	B-29
B-30	Driver Pelvis Redundant Y	B-30
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B-32	Driver Thorax Door Contact	B-32
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LIST OF DATA PLOTS, PASSENGER SID

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B-36 Passenger Head CG Y	B-36
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B-41 Passenger Upper Rib Primary	B-41
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B-43 Passenger Upper Rib Primary Y Velocity	B-43
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B-45 Passenger Lower Rib Primary	B-45
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B-54 Passenger Upper Rib Redundant	B-54
B-55 Passenger Upper Rib Redundant Y Velocity	B-55
B-56 Passenger Lower Rib Redundant	B-56
B-57 Passenger Lower Rib Redundant	B-57
B-58 Passenger Lower Rib Redundant Y Velocity	B-58
B-59 Passenger Spine Rib Redundant	B-59
B-60 Passenger Spine Rib Redundant	B-60
B-61 Passenger Spine Rib Redundant Y Velocity	B-61
B-62 Passenger Pelvis Redundant Y	B-62
B-63 Passenger Pelvis Redundant Y	B-63
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B-65 Passenger Thorax Door Contact	B-65
B-66 Passenger Pelvis Door Contact	B-66

LIST OF DATA PLOTS, VEHICLE DATA

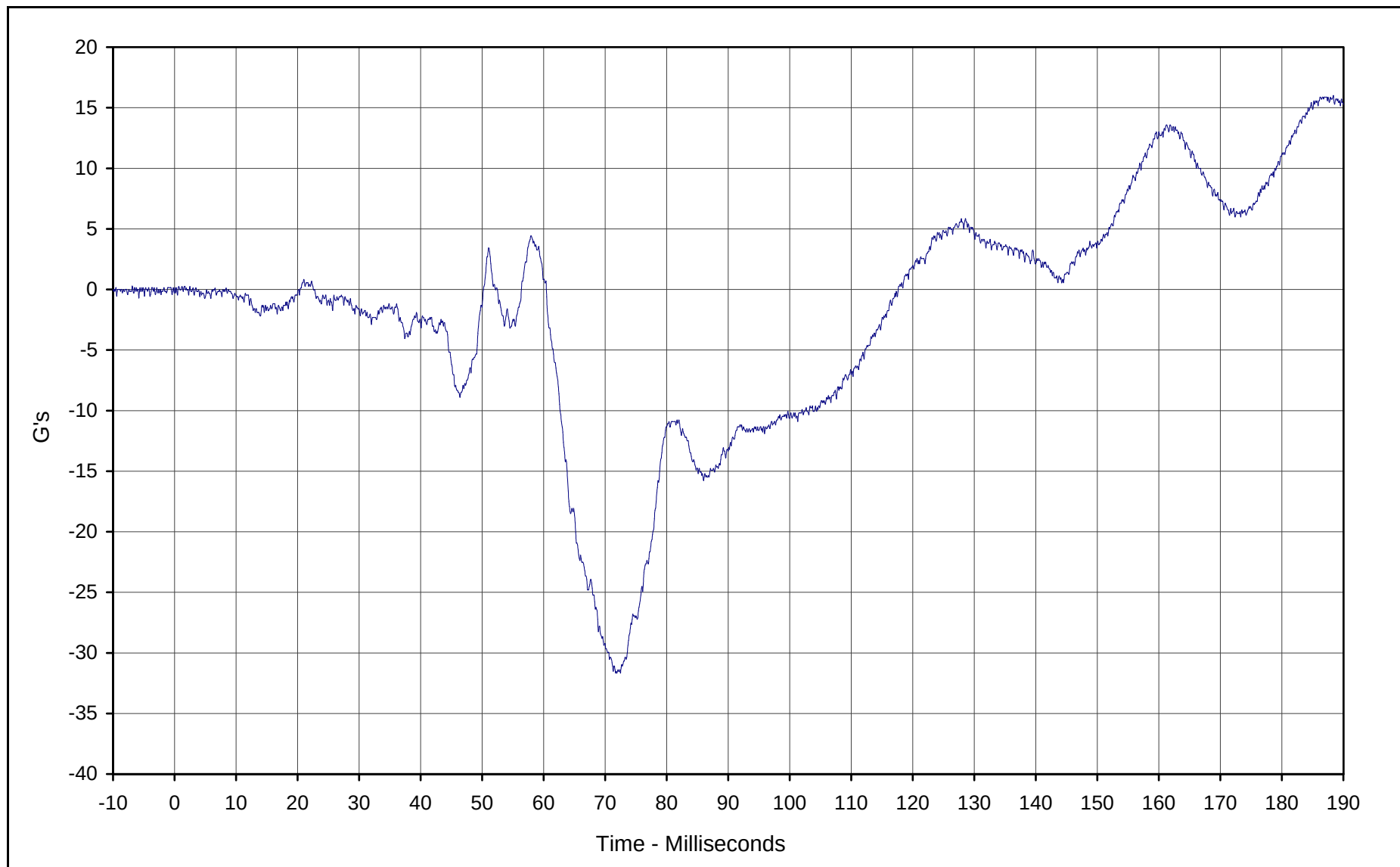
Data Plot		Page
B-67	Right Sill at Front Seat X	B-67
B-68	Right Sill at Front Seat X Velocity	B-68
B-69	Right Sill at Front Seat Y	B-69
B-70	Right Sill at Front Seat Y Velocity	B-70
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B-81	Rear Floorpan Above Axle X	B-81
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B-91	Left Sill at Rear Door Y	B-91
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B-93	Left Sill at Rear Door Y Displacement	B-93
B-94	Left Front Door Centerline Y	B-94
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B-103	Left Front Door Upper Centerline Y	B-103
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B-105	Left Front Door Upper Centerline Y Displacement	B-105
B-106	Rear Door Mid Rear Y	B-106
B-107	Rear Door Mid Rear Y Velocity	B-107
B-108	Rear Door Mid Rear Y Displacement	B-108
B-109	Rear Door Upper Centerline Y	B-109
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B-113	B-Post Lower Y Velocity	B-113
B-114	B-Post Middle Y	B-114
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B-116	A-Post Lower Y	B-116
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B-118	A-Post Middle Y	B-118
B-119	A-Post Middle Y Velocity	B-119
B-120	Left Front Seat Track Y	B-120
B-121	Left Front Seat Track Y Velocity	B-121
B-122	Rear Seat Structure Y	B-122
B-123	Rear Seat Structure Y Velocity	B-123
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B-127	Vehicle CG Y Velocity	B-127
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LIST OF DATA PLOTS, MDB DATA

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B-133	Moving Deformable Barrier CG Y	B-133
B-134	Moving Deformable Barrier CG Y Velocity	B-134
B-135	Moving Deformable Barrier CG Z	B-135
B-136	Moving Deformable Barrier CG Z Velocity	B-136
B-137	Moving Deformable Barrier CG Resultant	B-137
B-138	Moving Deformable Barrier Rear X	B-138
B-139	Moving Deformable Barrier Rear X Velocity	B-139
B-140	Moving Deformable Barrier Rear Y	B-140
B-141	Moving Deformable Barrier Rear Y Velocity	B-141
B-142	Moving Deformable Barrier Right Bumper Contact Time	B-142



Curve Description: Driver Head CG X

Maximum Value: 16.0 at 188.4 Milliseconds

Minimum Value: -31.7 at 71.7 Milliseconds

SAE Filter Class: 1000

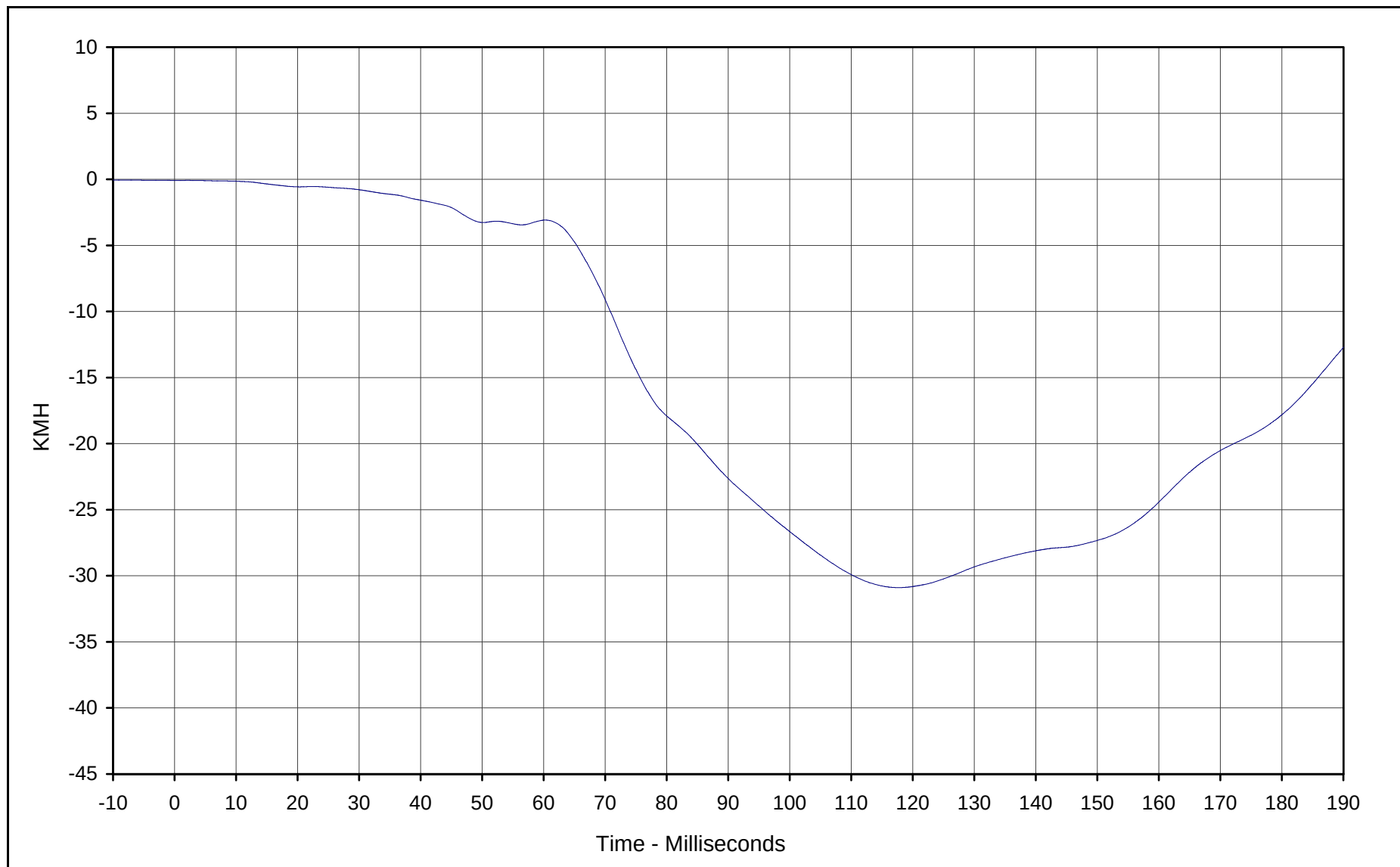
Date of Test: 12/9/99

Curve Number: FIL-001

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Head CG X Velocity

Maximum Value: -0.1 at 2.1 Milliseconds

Minimum Value: -30.9 at 117.7 Milliseconds

SAE Filter Class: 180

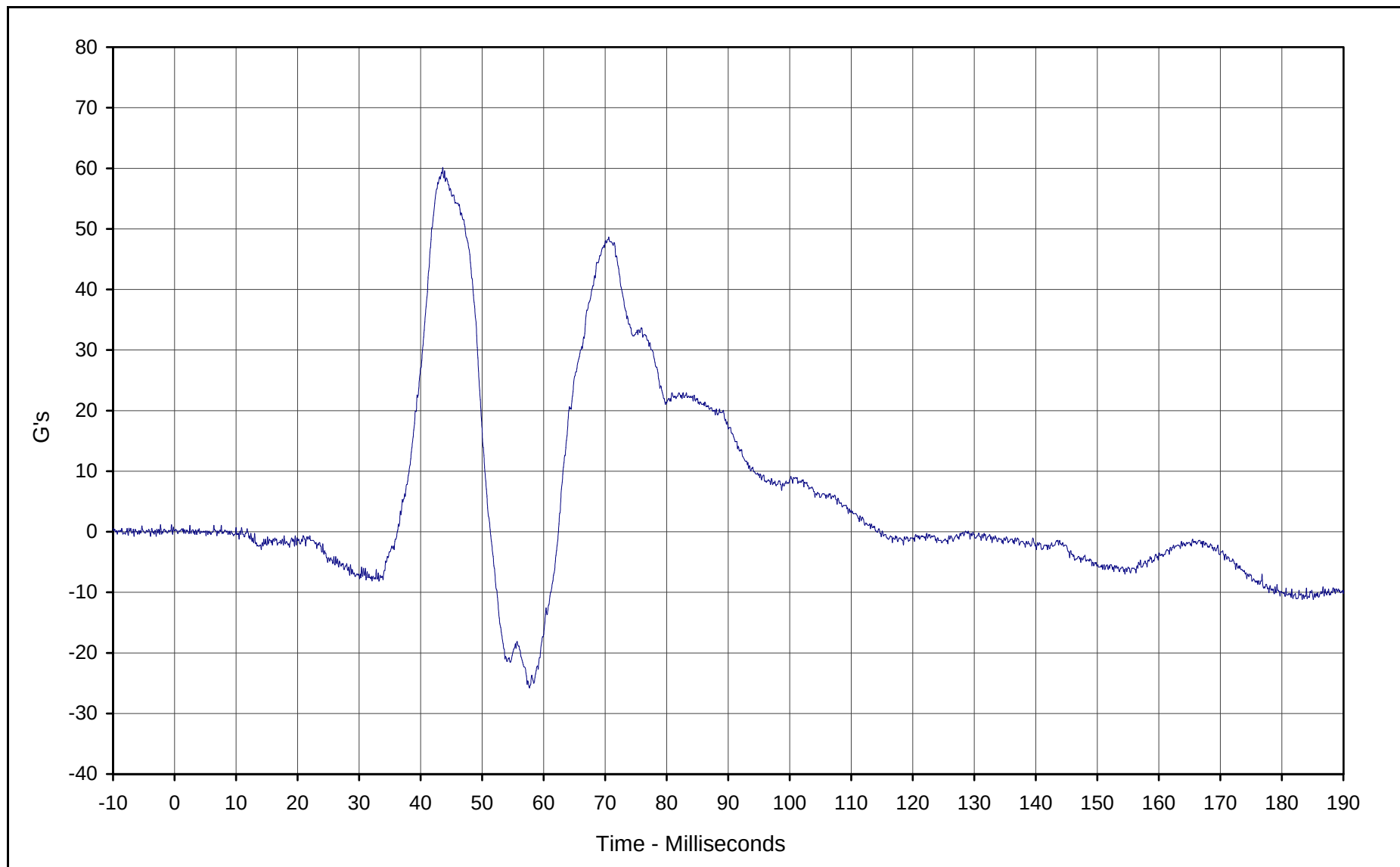
Date of Test: 12/9/99

Curve Number: IN1-001

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Head CG Y

Maximum Value: 60.2 at 43.6 Milliseconds

Minimum Value: -25.8 at 57.7 Milliseconds

SAE Filter Class: 1000

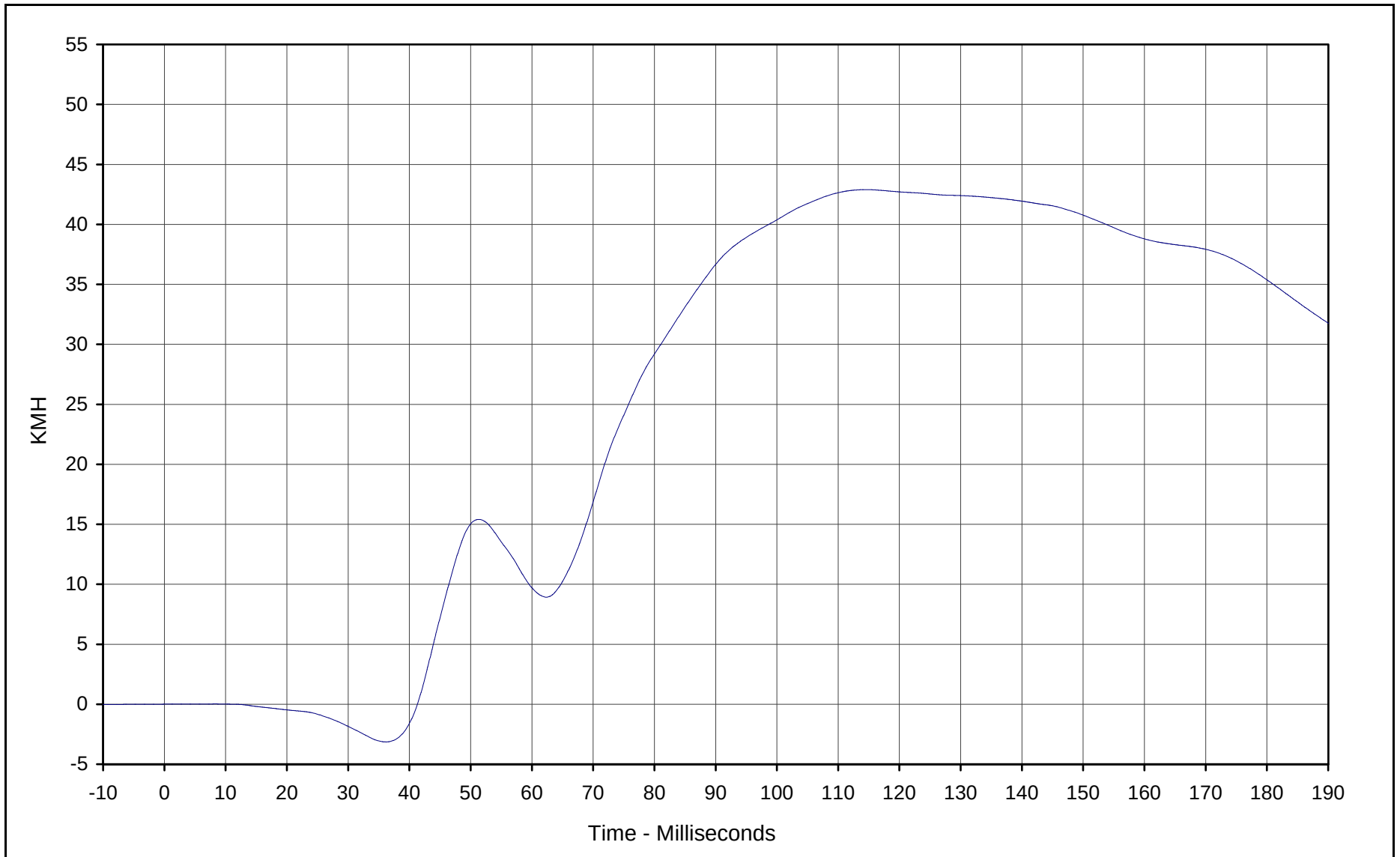
Date of Test: 12/9/99

Curve Number: FIL-002

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Head CG Y Velocity

Maximum Value: 42.9 at 114.6 Milliseconds

Minimum Value: -3.1 at 36.2 Milliseconds

SAE Filter Class: 180

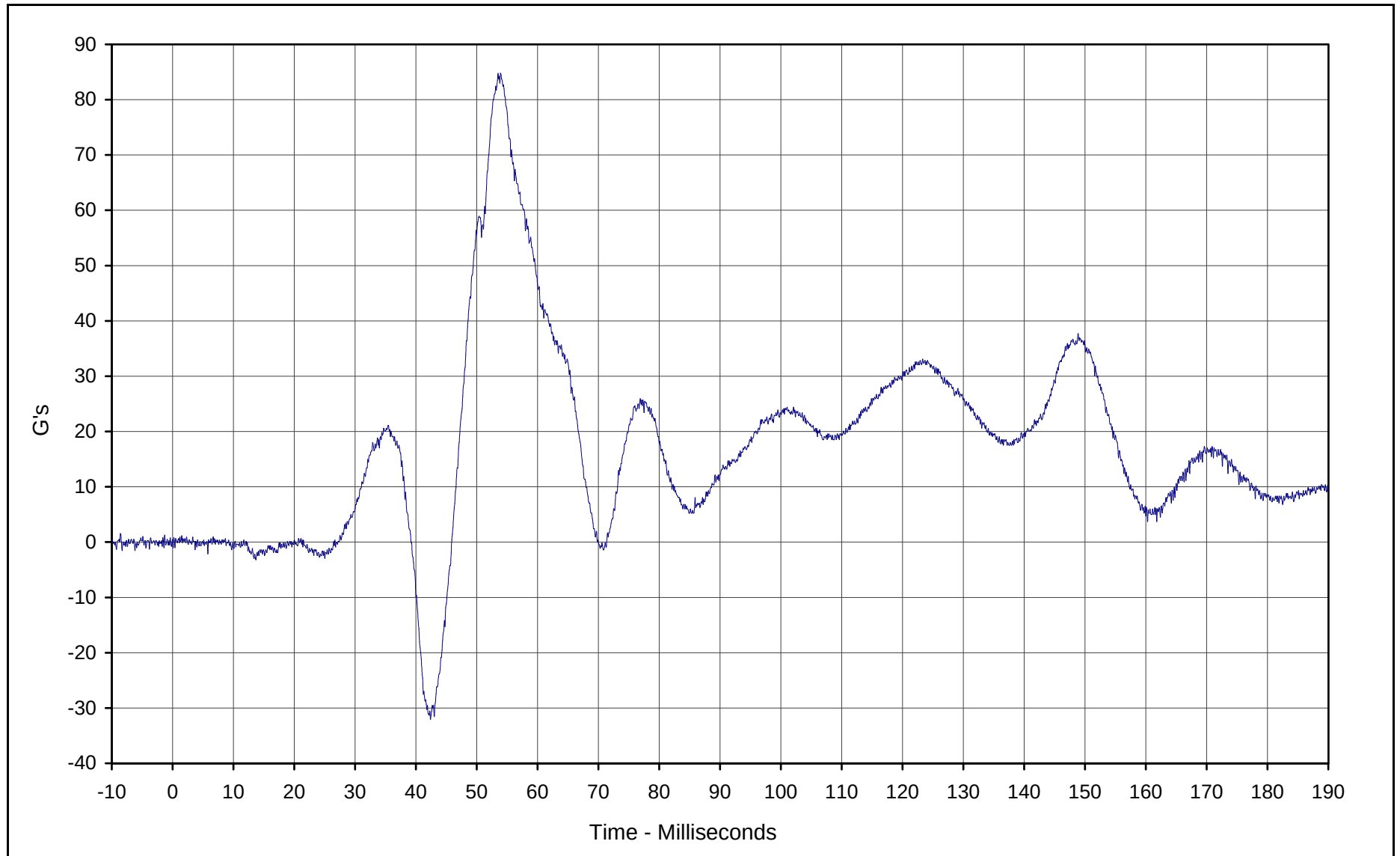
Date of Test: 12/9/99

Curve Number: IN1-002

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Head CG Z

Maximum Value: 84.8 at 53.5 Milliseconds

Minimum Value: -32.1 at 42.4 Milliseconds

SAE Filter Class: 1000

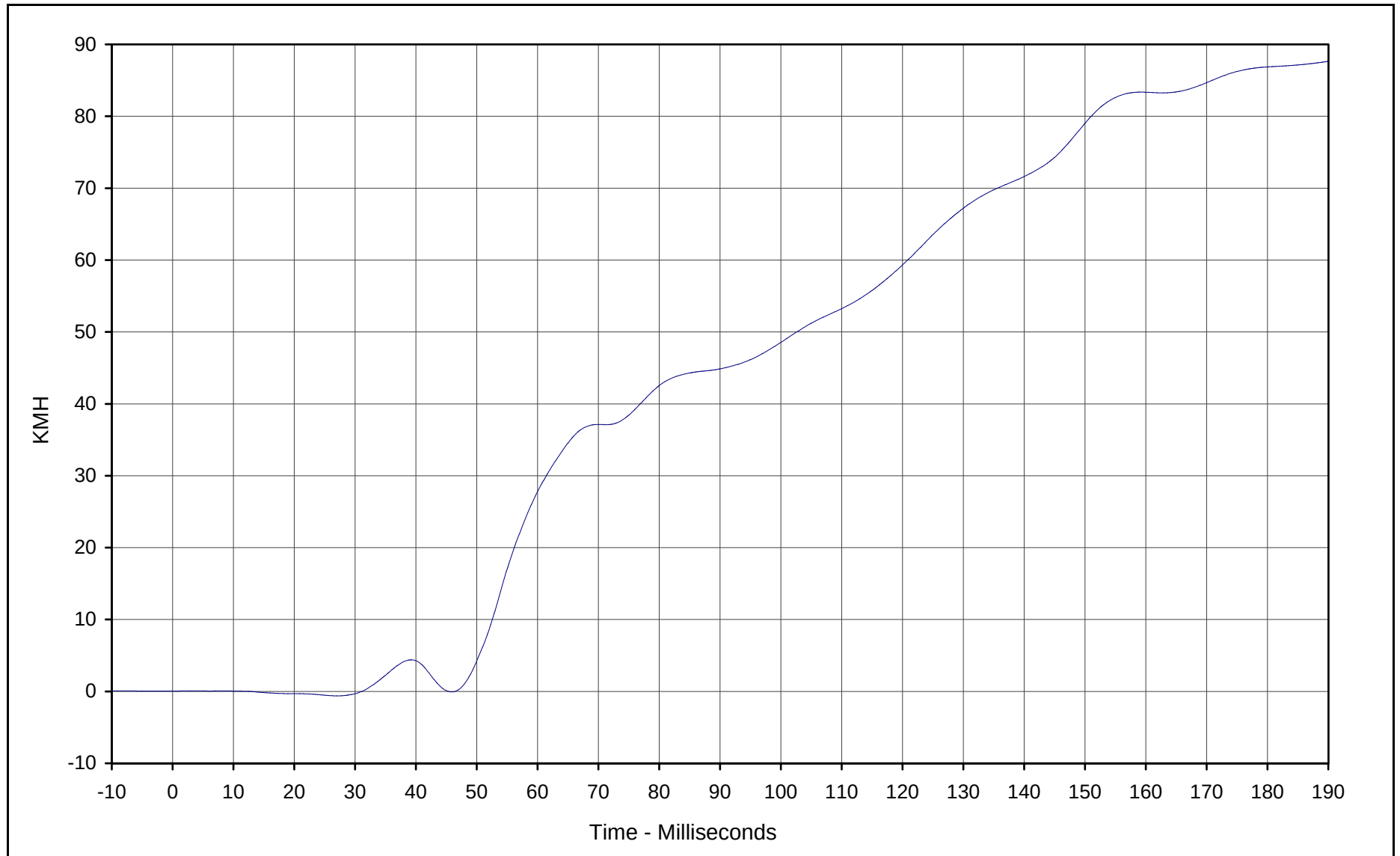
Date of Test: 12/9/99

Curve Number: FIL-003

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Head CG Z Velocity

Maximum Value: 87.6 at 189.9 Milliseconds

Minimum Value: -0.6 at 27.1 Milliseconds

SAE Filter Class: 180

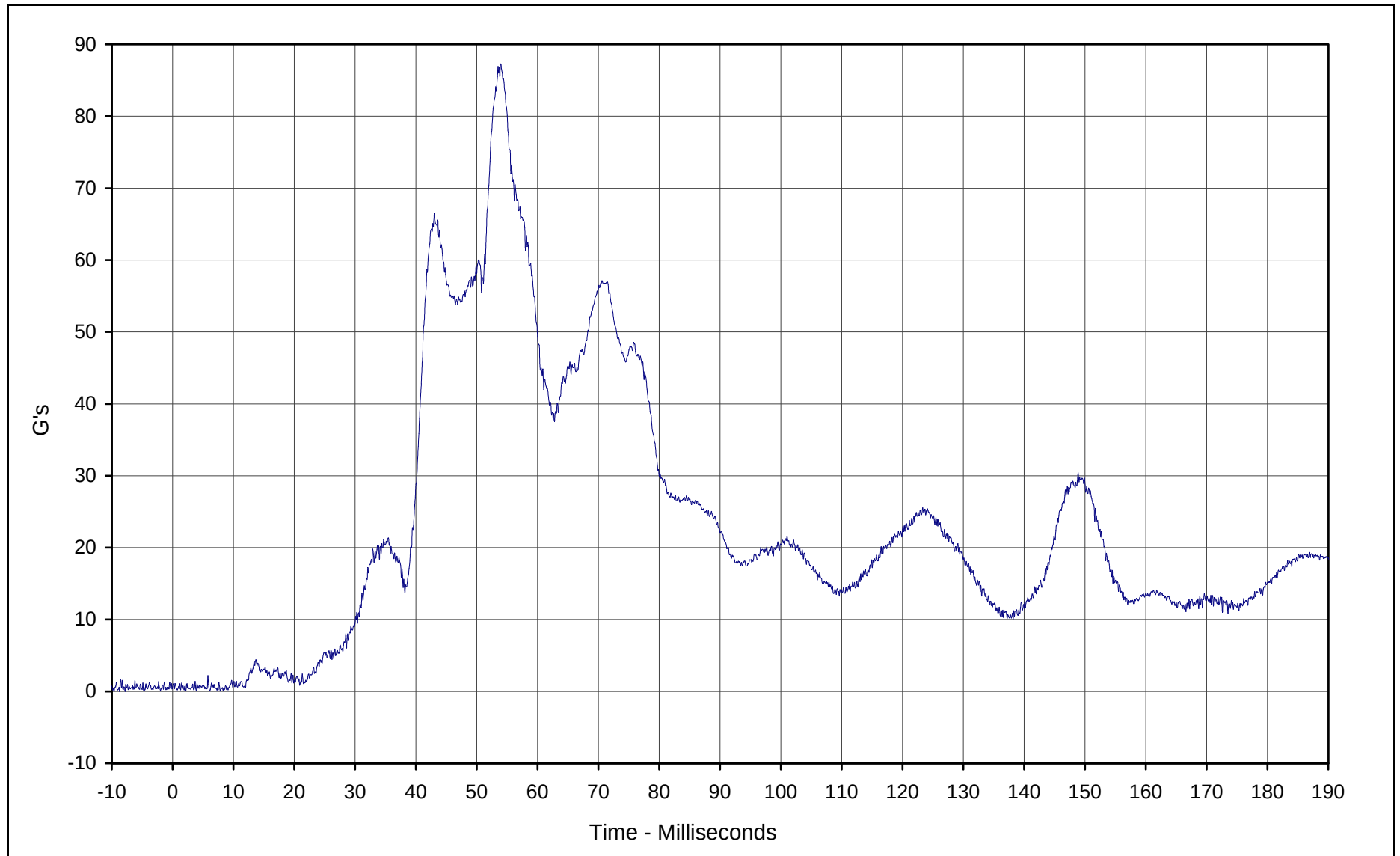
Date of Test: 12/9/99

Curve Number: IN1-003

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Head CG Resultant

Maximum Value: 87.3 at 53.9 Milliseconds

Minimum Value: 0.1 at 7.8 Milliseconds

SAE Filter Class: 1000

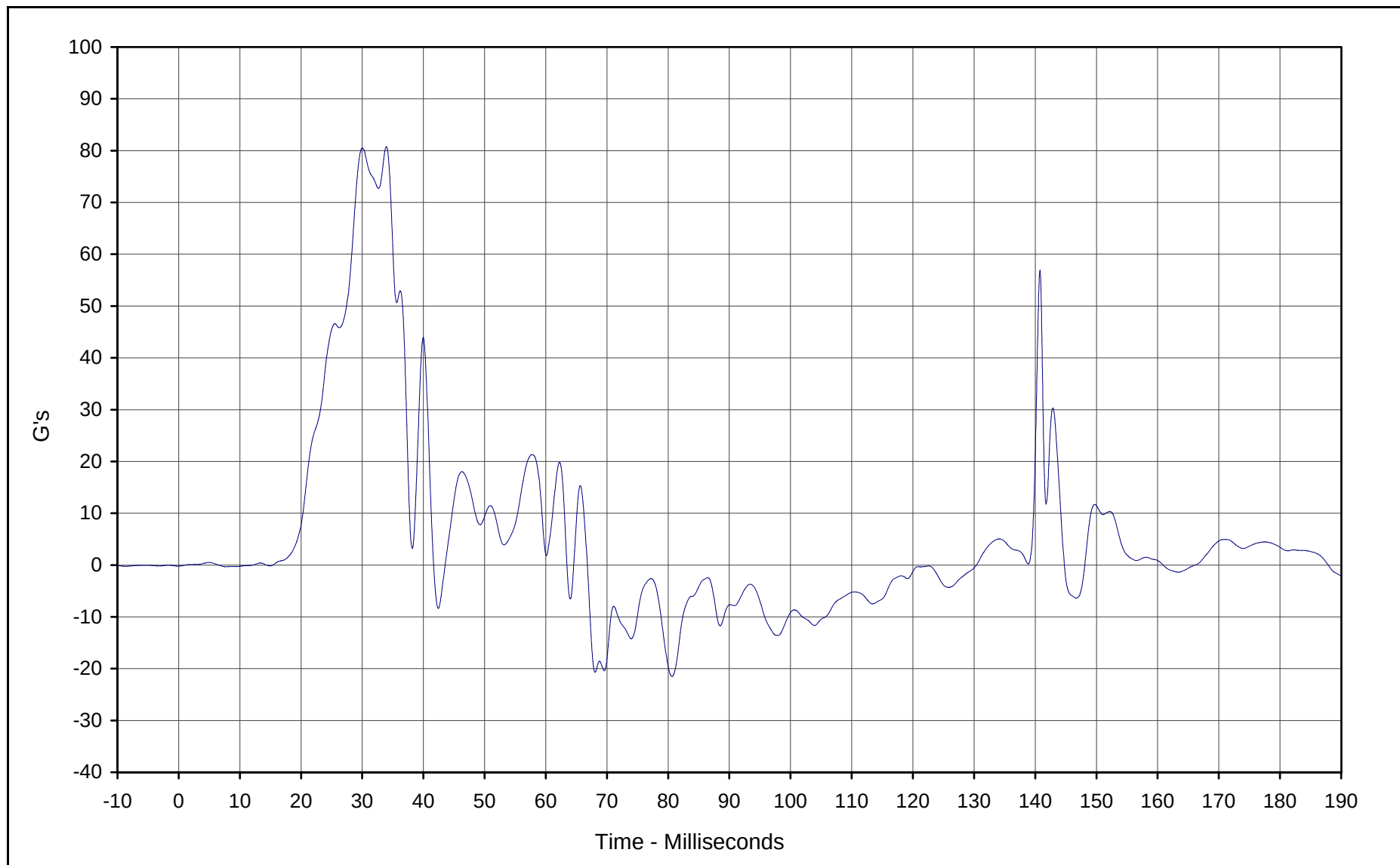
Date of Test: 12/9/99

Curve Number: RES-001

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Upper Rib Primary

Maximum Value: 80.7 at 33.9 Milliseconds

Minimum Value: -21.5 at 80.6 Milliseconds

SAE Filter Class: 180

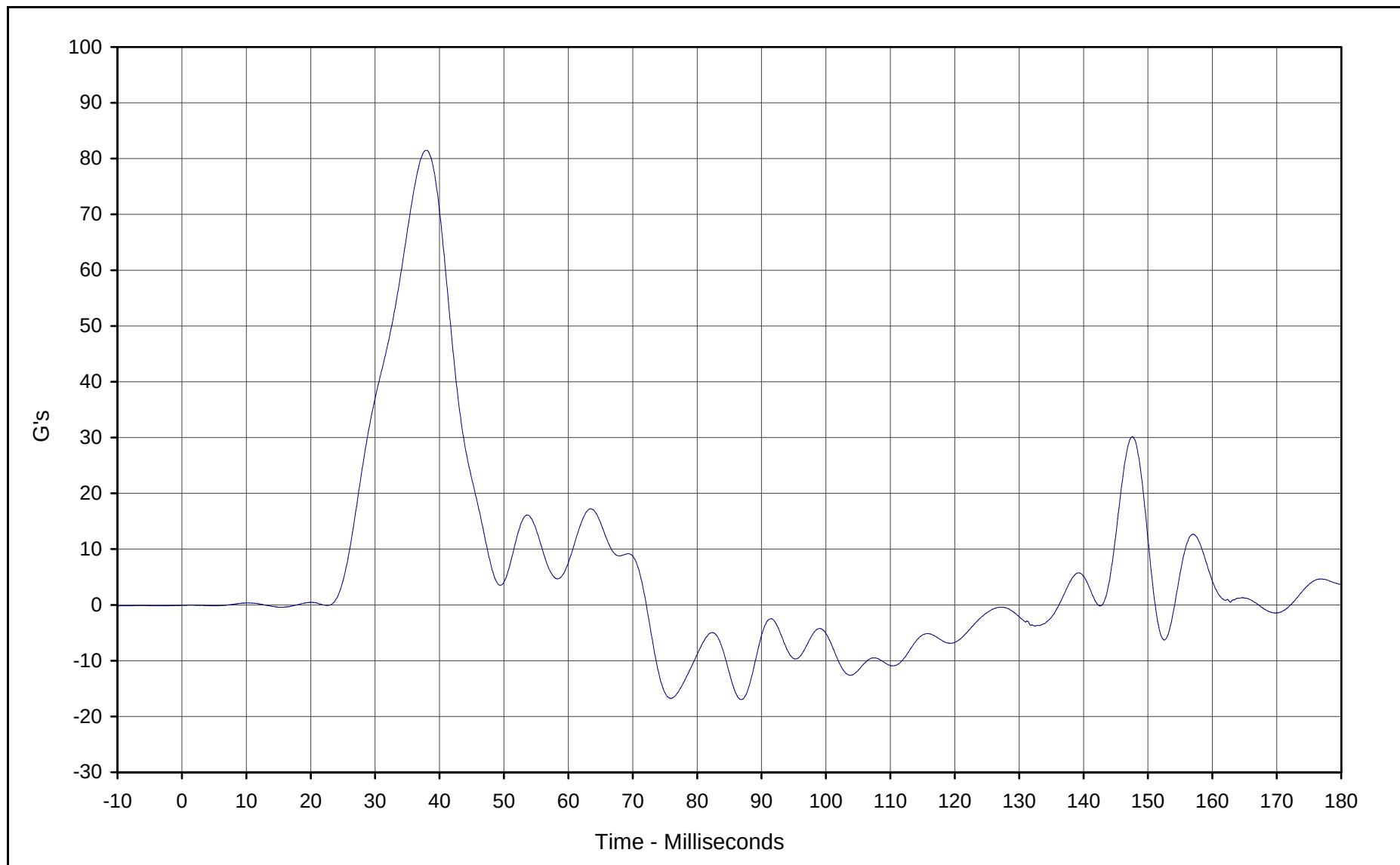
Date of Test: 12/9/99

Curve Number: FIL-004

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Upper Rib Primary

Maximum Value: 81.5 at 32.5 Milliseconds

Minimum Value: -17.0 at 81.4 Milliseconds

SAE Filter Class: FIR 100

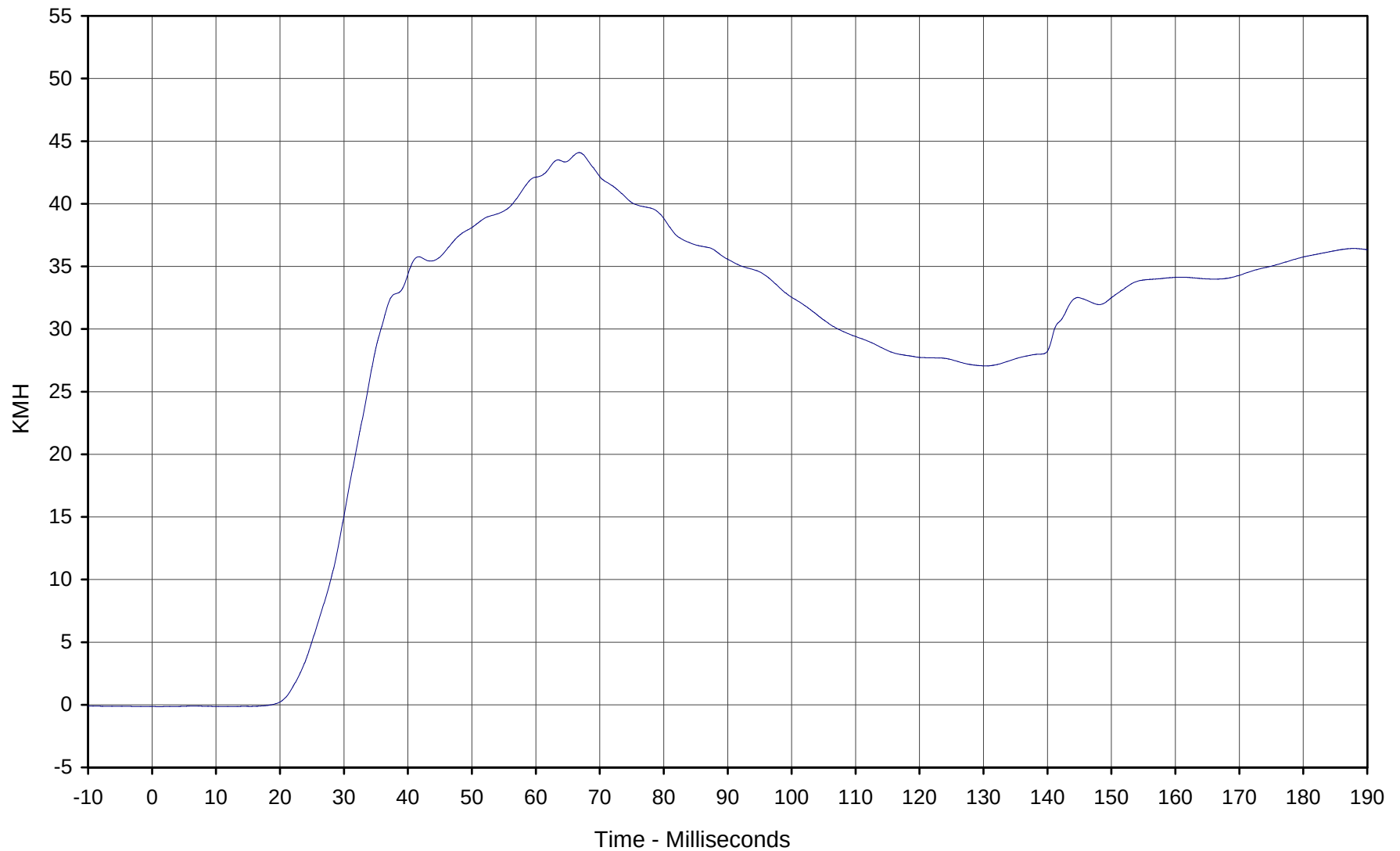
Date of Test: 12/9/99

Curve Number: FIR-004

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Upper Rib Primary Y Velocity

Maximum Value: 44.1 at 66.8 Milliseconds

Minimum Value: -0.1 at 1.1 Milliseconds

SAE Filter Class: 180

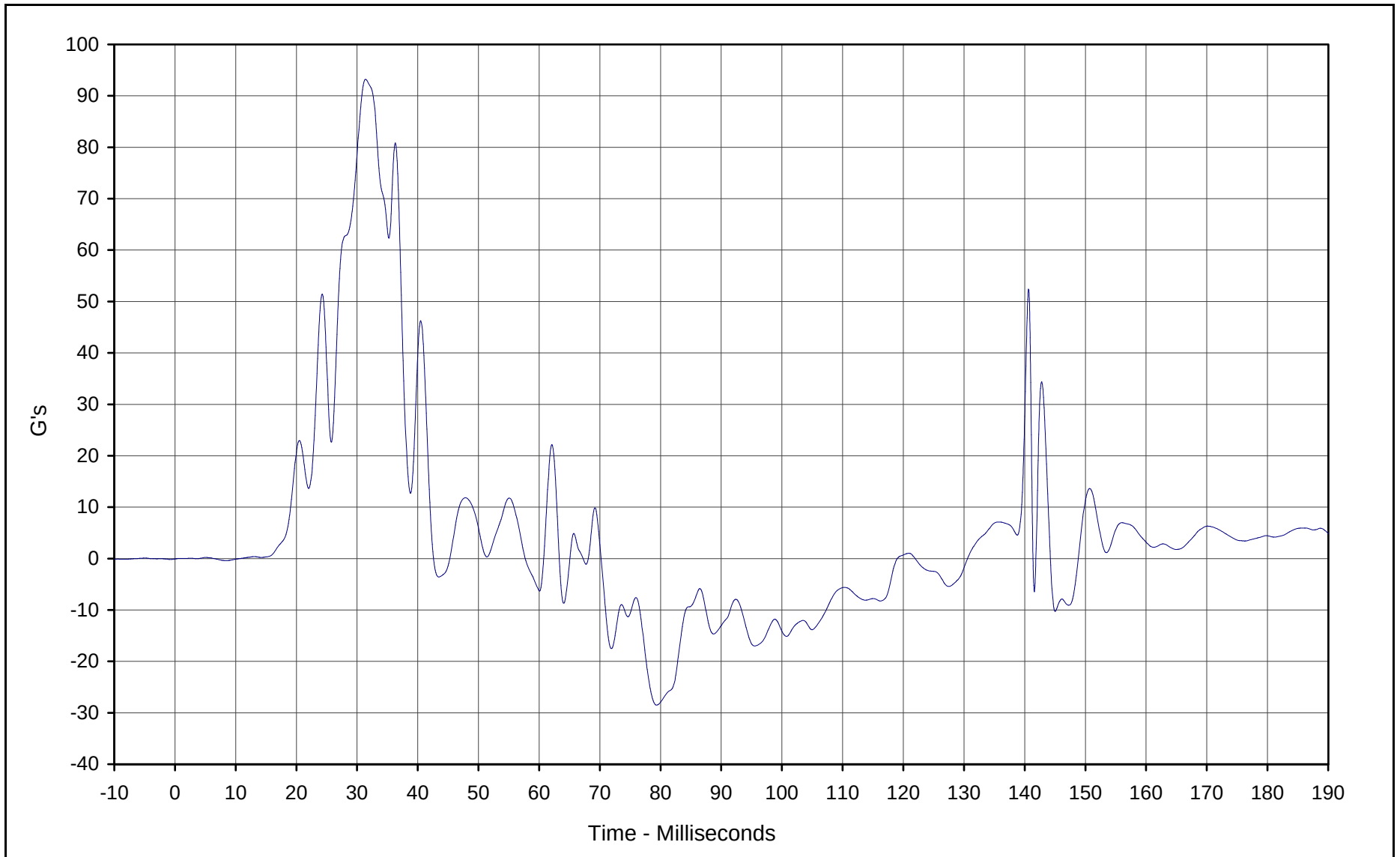
Date of Test: 12/9/99

Curve Number: IN1-004

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Lower Rib Primary

Maximum Value: 93.2 at 31.4 Milliseconds

Minimum Value: -28.5 at 79.4 Milliseconds

SAE Filter Class: 180

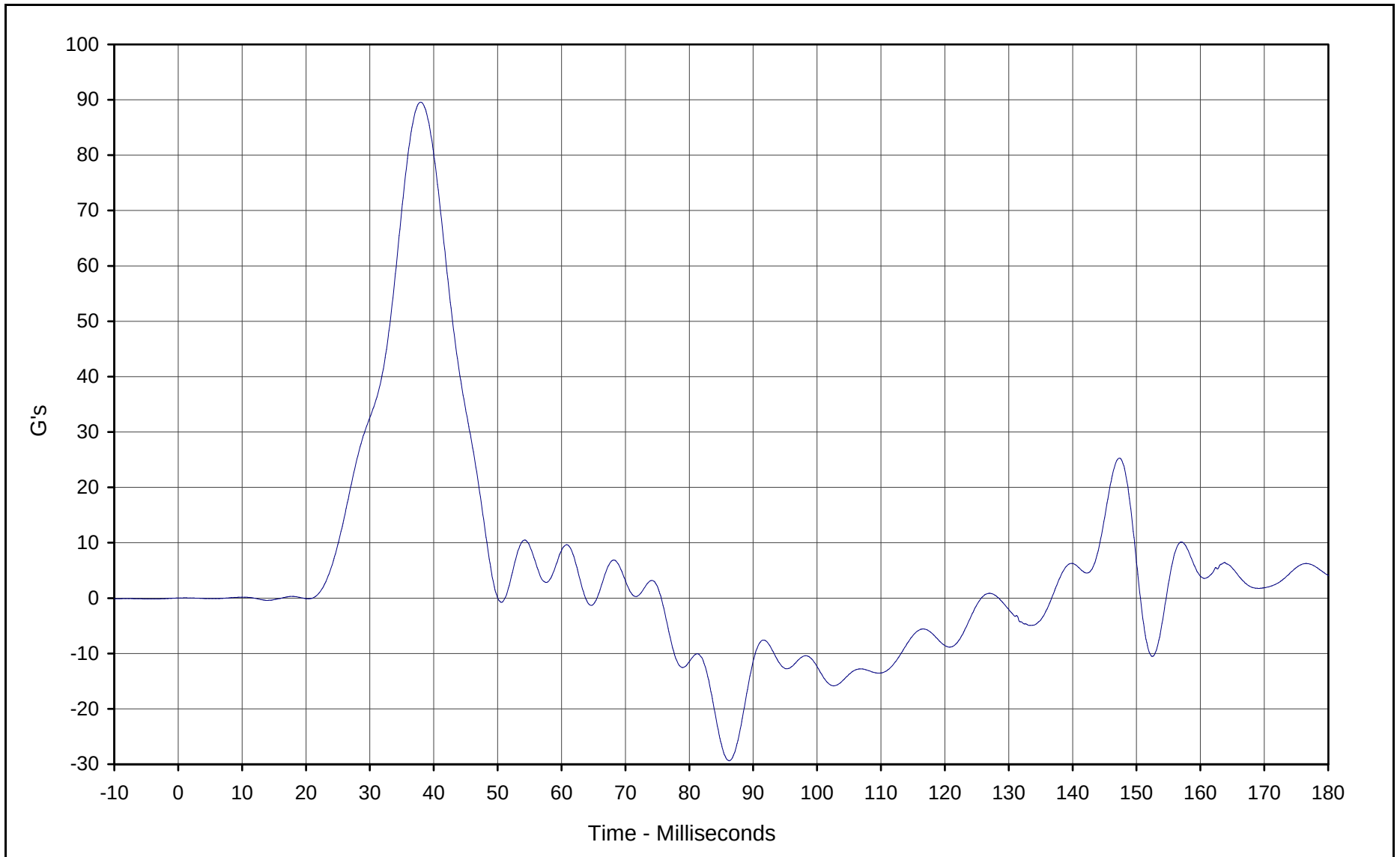
Date of Test: 12/9/99

Curve Number: FIL-005

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Lower Rib Primary

Maximum Value: 89.6 at 32.6 Milliseconds

Minimum Value: -29.4 at 80.9 Milliseconds

SAE Filter Class: FIR 100

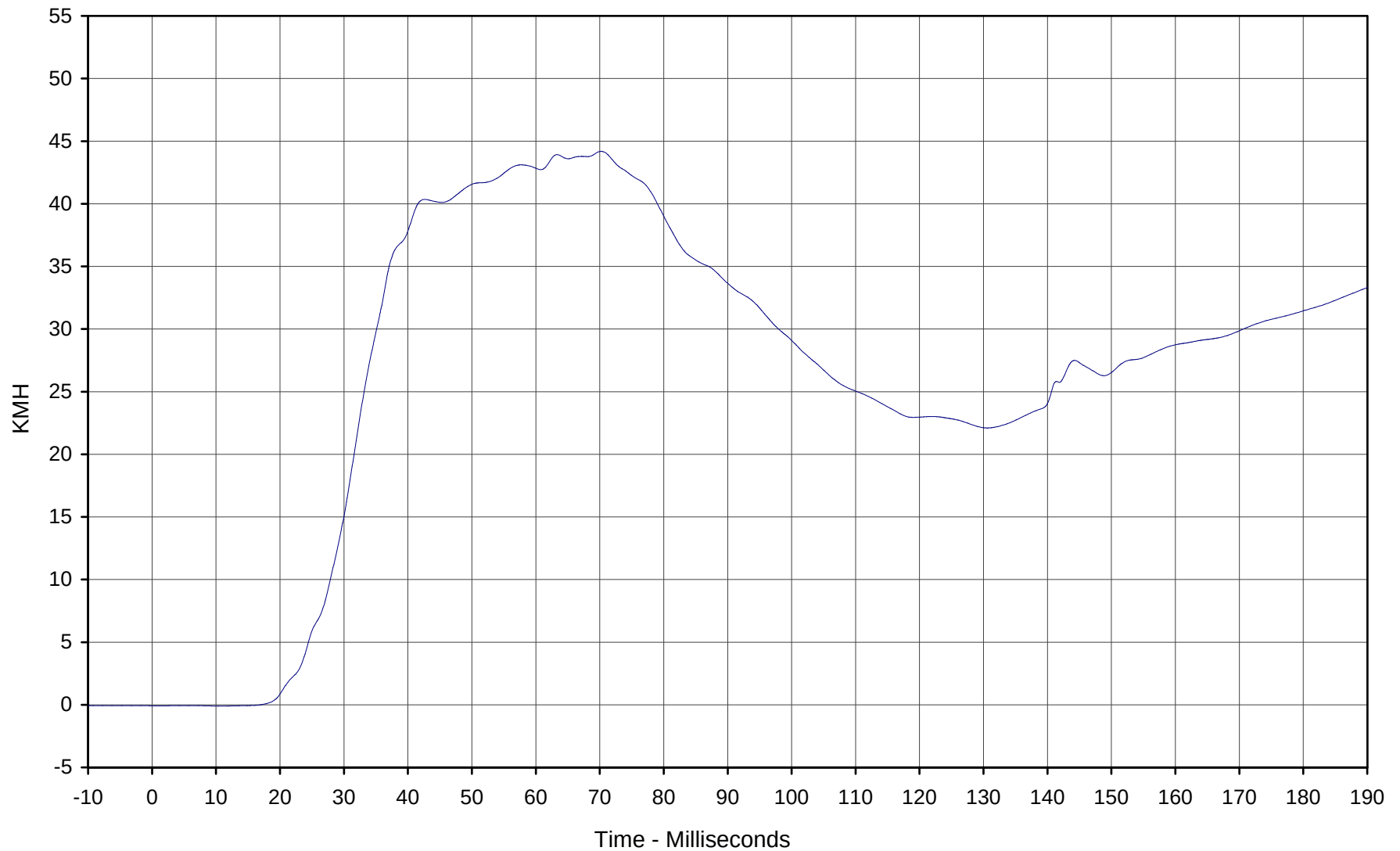
Date of Test: 12/9/99

Curve Number: FIR-005

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Lower Rib Primary Y Velocity

Maximum Value: 44.2 at 70.2 Milliseconds

Minimum Value: -0.1 at 10.7 Milliseconds

SAE Filter Class: 180

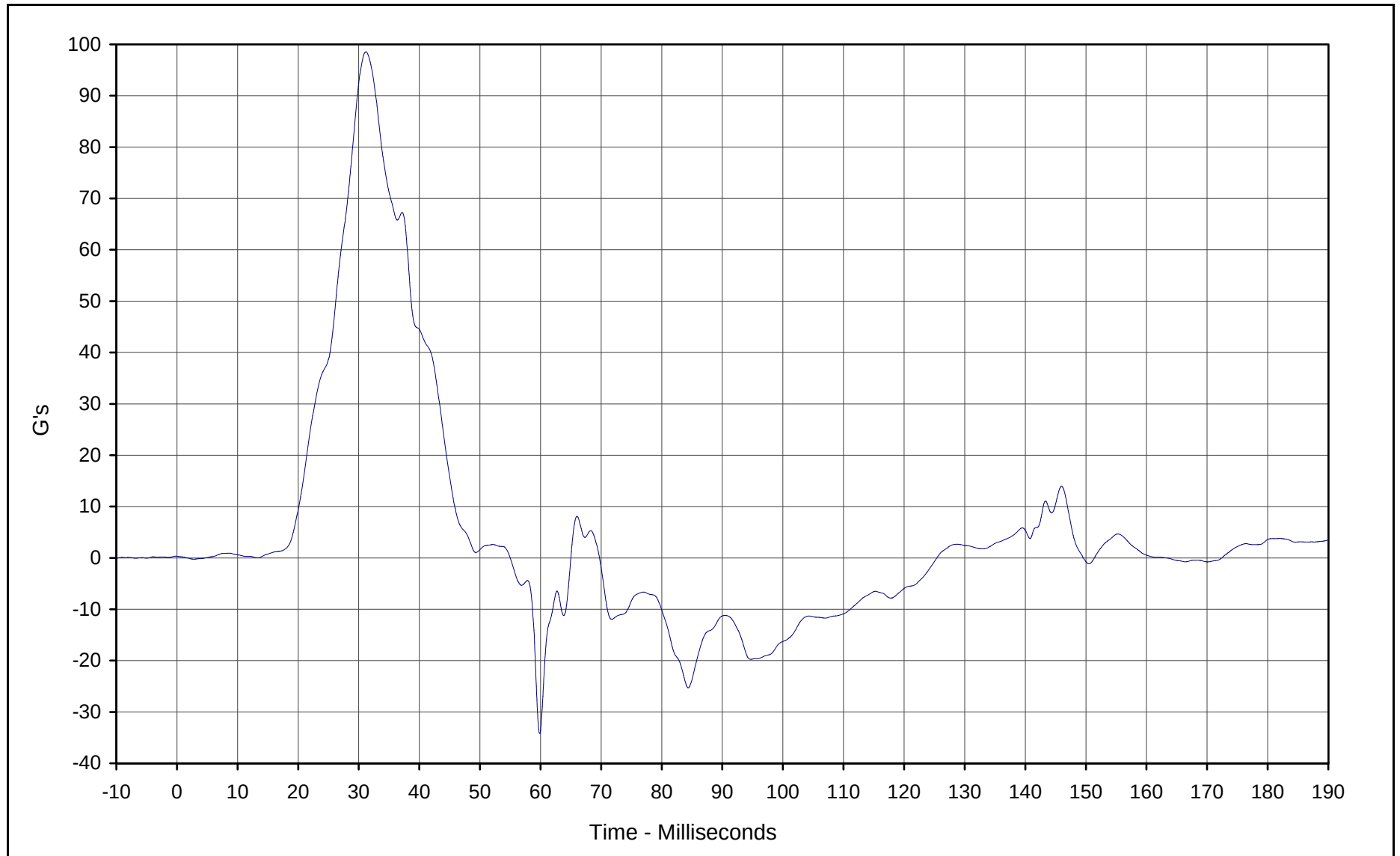
Date of Test: 12/9/99

Curve Number: IN1-005

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Lower Spine Primary

Maximum Value: 98.6 at 31.2 Milliseconds

Minimum Value: -34.2 at 59.9 Milliseconds

SAE Filter Class: 180

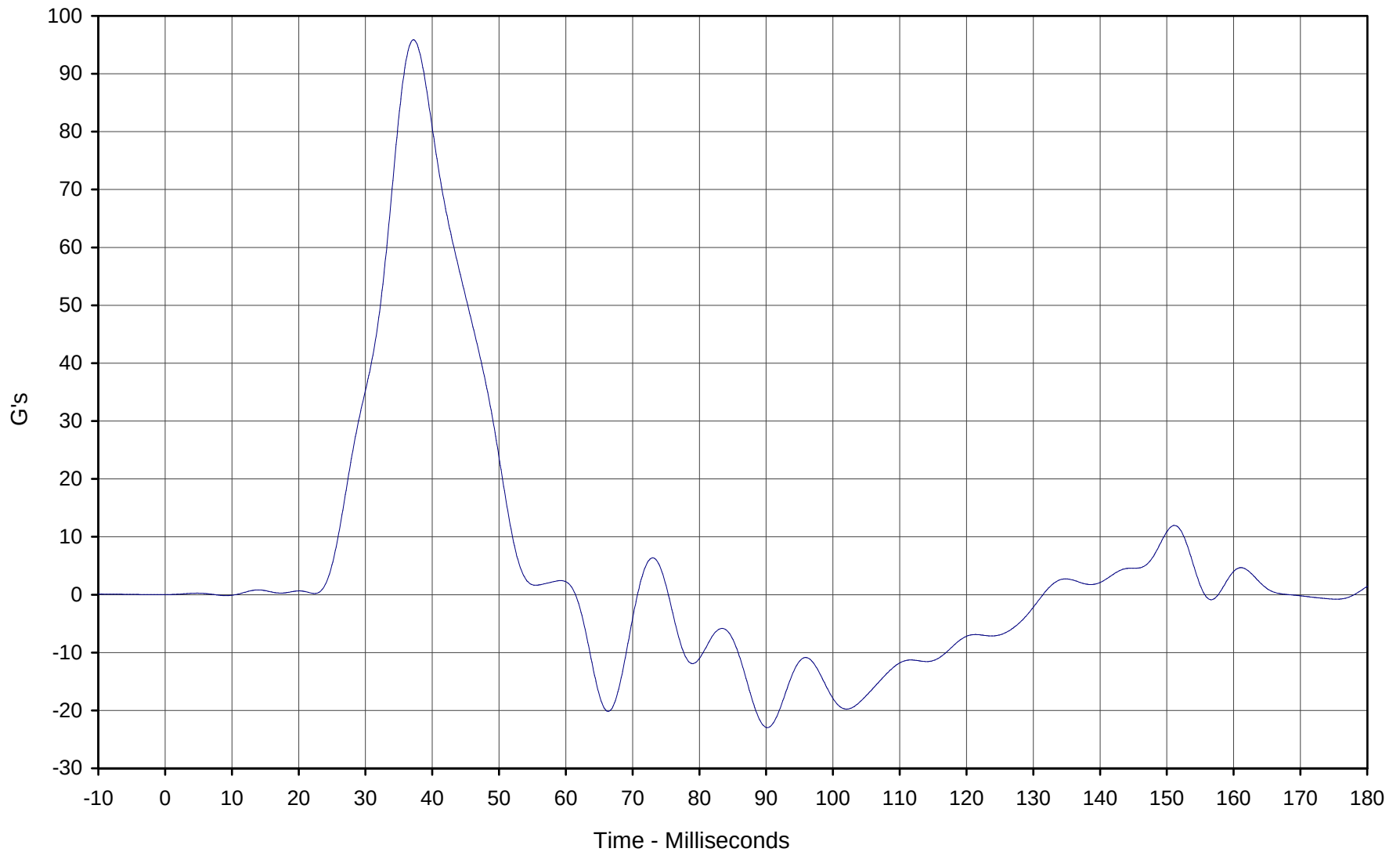
Date of Test: 12/9/99

Curve Number: FIL-006

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Lower Spine Primary

Maximum Value: 95.9 at 31.8 Milliseconds

Minimum Value: -23.0 at 84.8 Milliseconds

SAE Filter Class: FIR 100

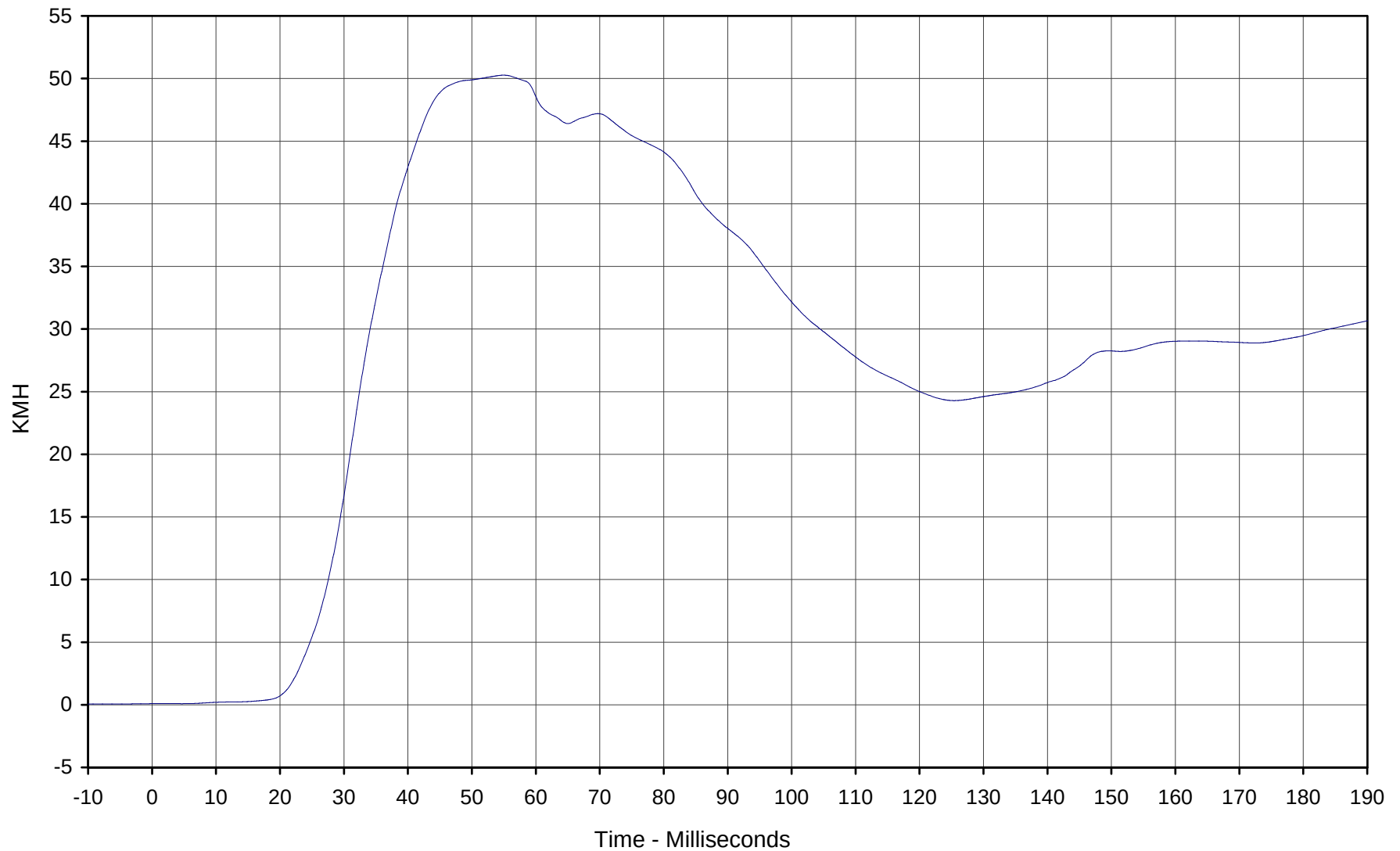
Date of Test: 12/9/99

Curve Number: FIR-006

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Lower Spine Primary Y Velocity

Maximum Value: 50.3 at 55.0 Milliseconds

Minimum Value: 0.1 at 4.7 Milliseconds

SAE Filter Class: 180

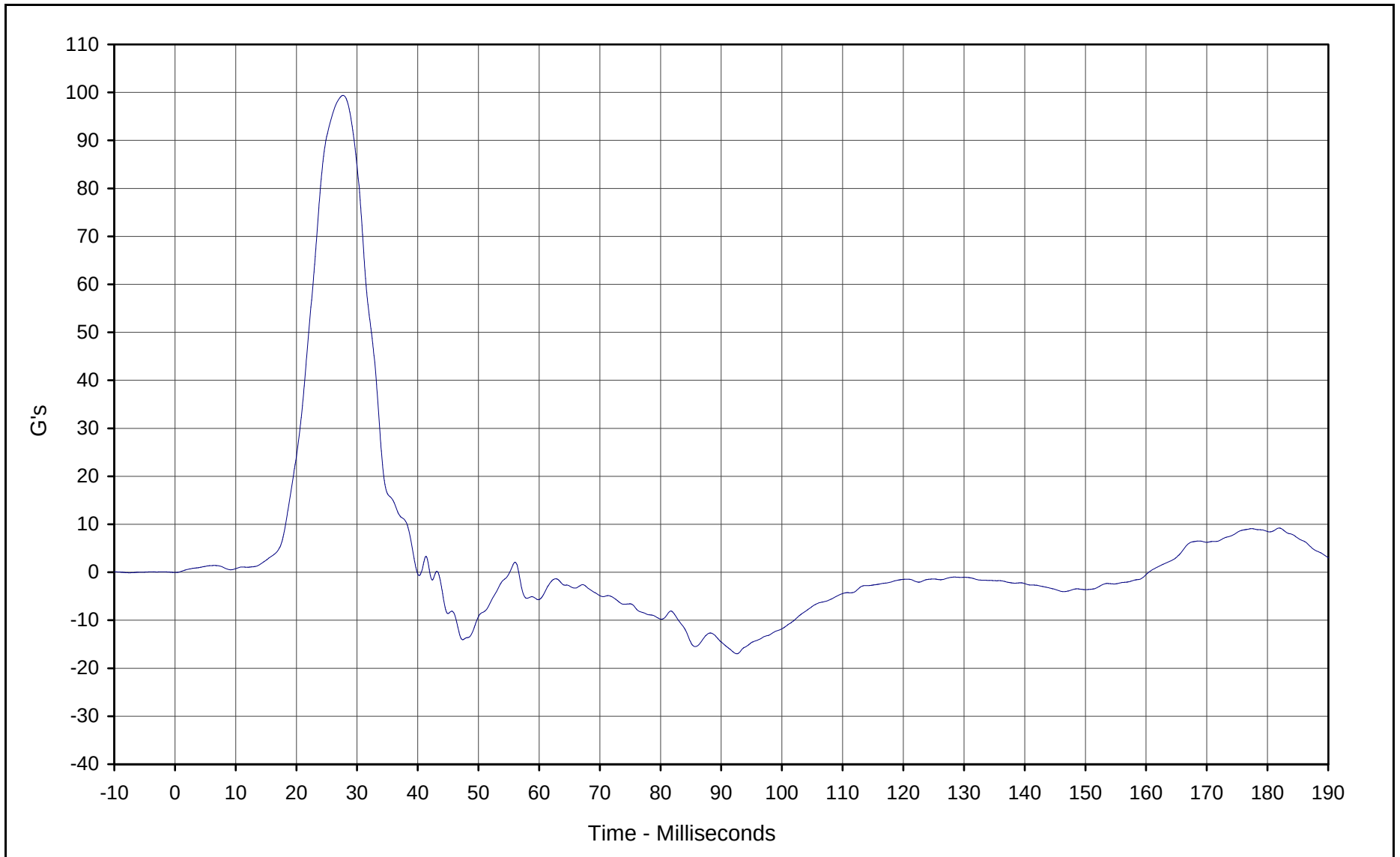
Date of Test: 12/9/99

Curve Number: IN1-006

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Pelvis Primary Y

Maximum Value: 99.4 at 27.7 Milliseconds

Minimum Value: -17.0 at 92.6 Milliseconds

SAE Filter Class: 180

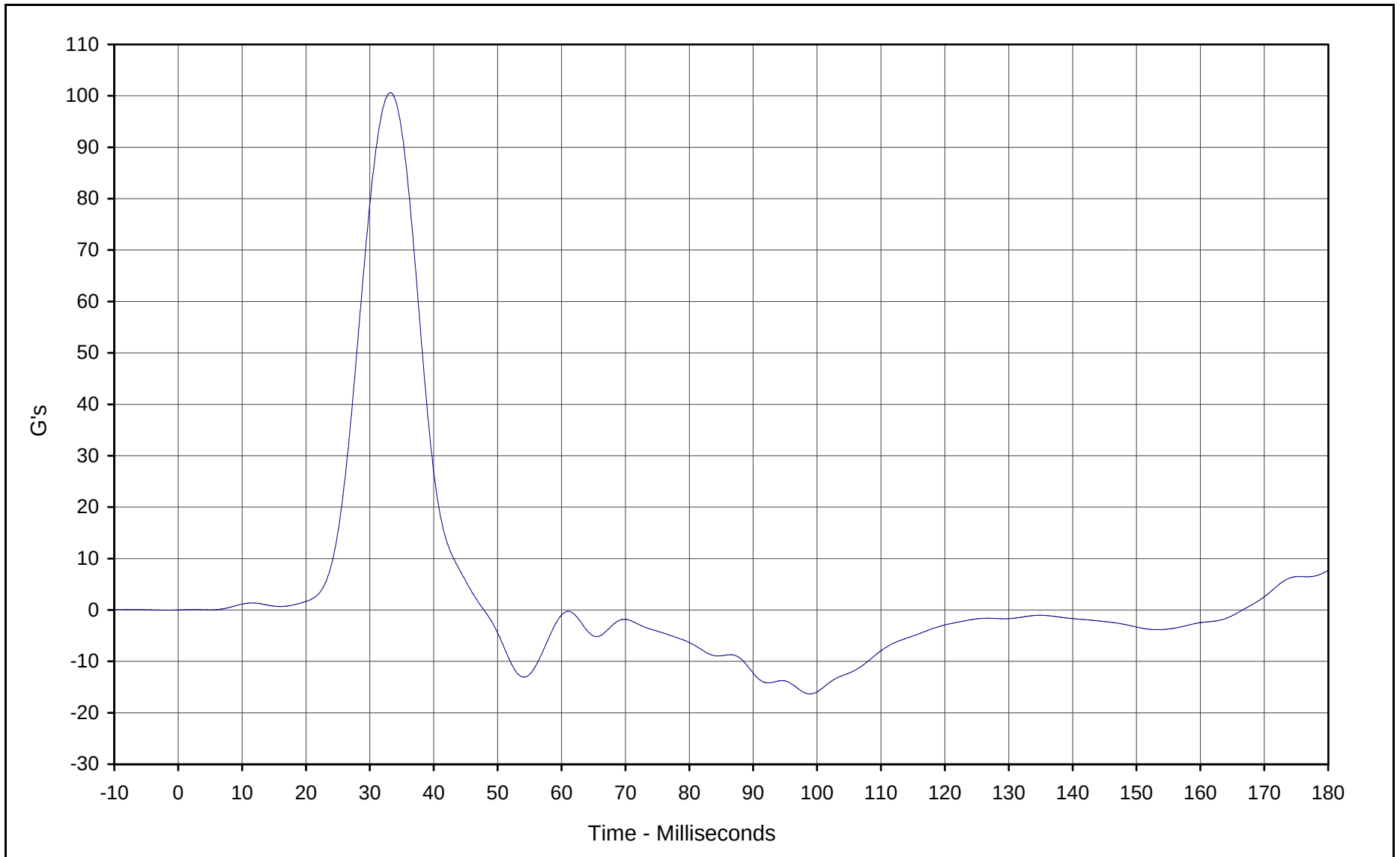
Date of Test: 12/9/99

Curve Number: FIL-007

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Pelvis Primary Y

Maximum Value: 100.6 at 27.8 Milliseconds

Minimum Value: -16.3 at 93.5 Milliseconds

SAE Filter Class: FIR 100

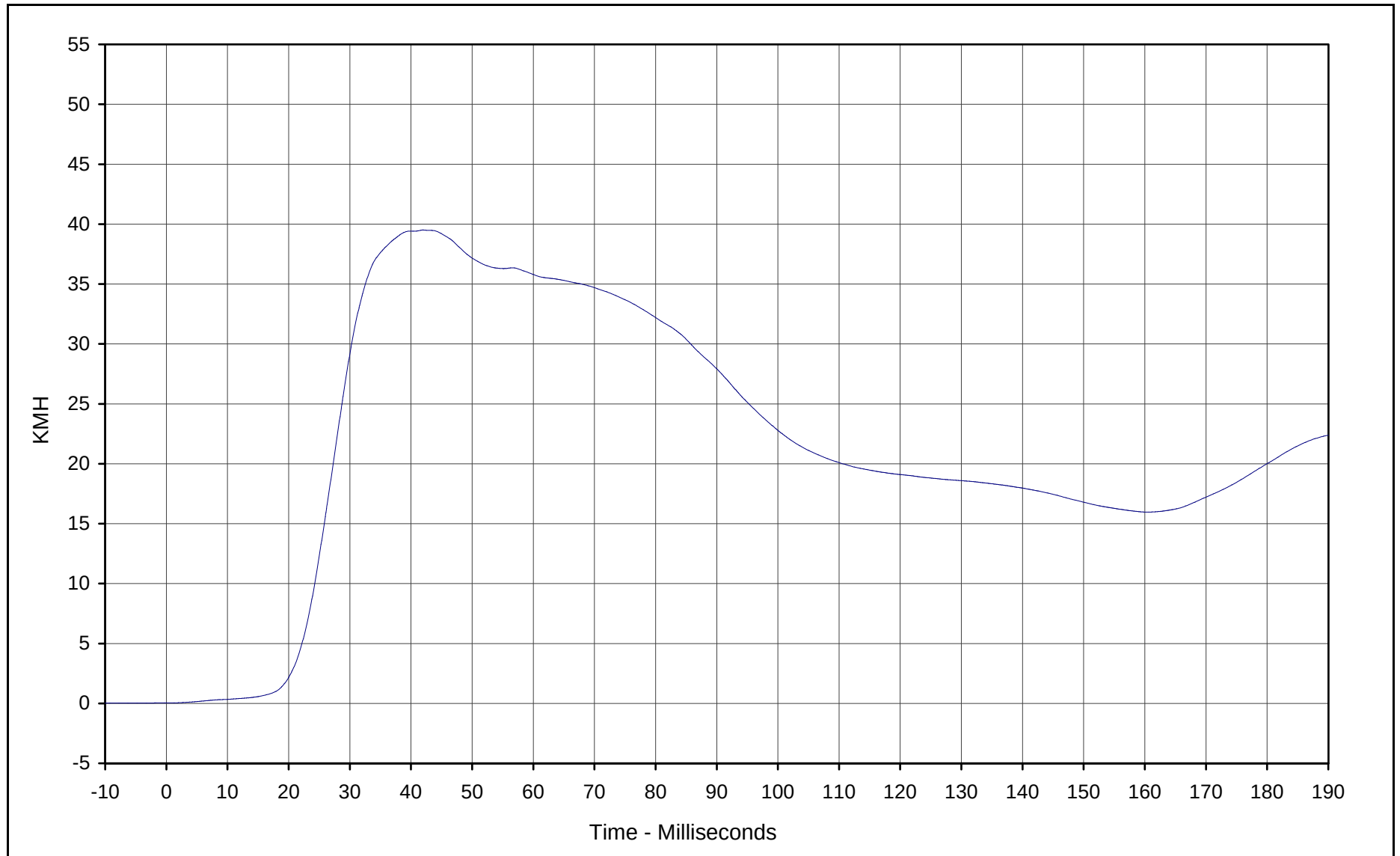
Date of Test: 12/9/99

Curve Number: FIR-007

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Pelvis Primary Y Velocity

Maximum Value: 39.5 at 42.0 Milliseconds

Minimum Value: 0.0 at 0.5 Milliseconds

SAE Filter Class: 180

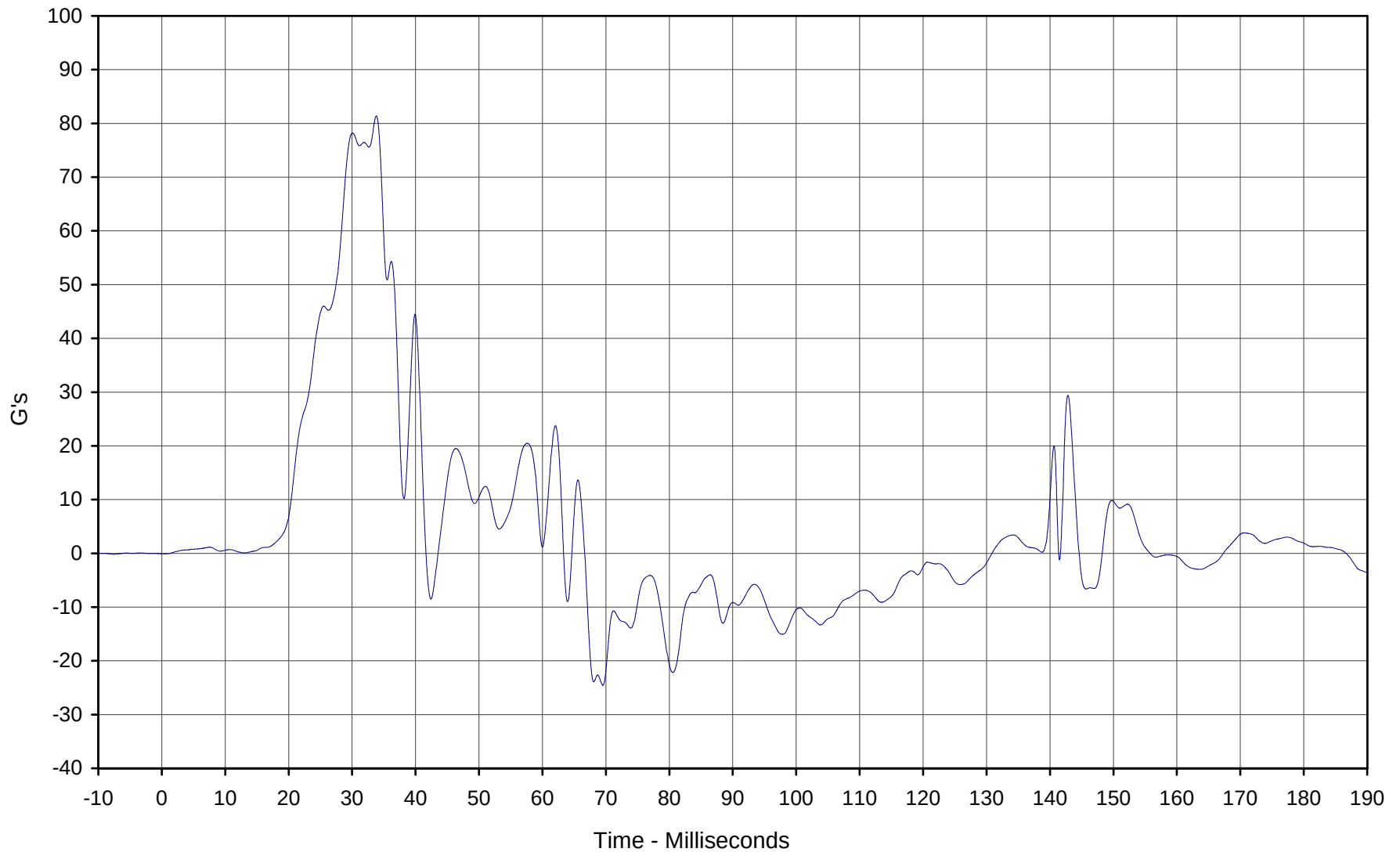
Date of Test: 12/9/99

Curve Number: IN1-007

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Upper Rib Redundant

Maximum Value: 81.4 at 33.8 Milliseconds

Minimum Value: -24.6 at 69.5 Milliseconds

SAE Filter Class: 180

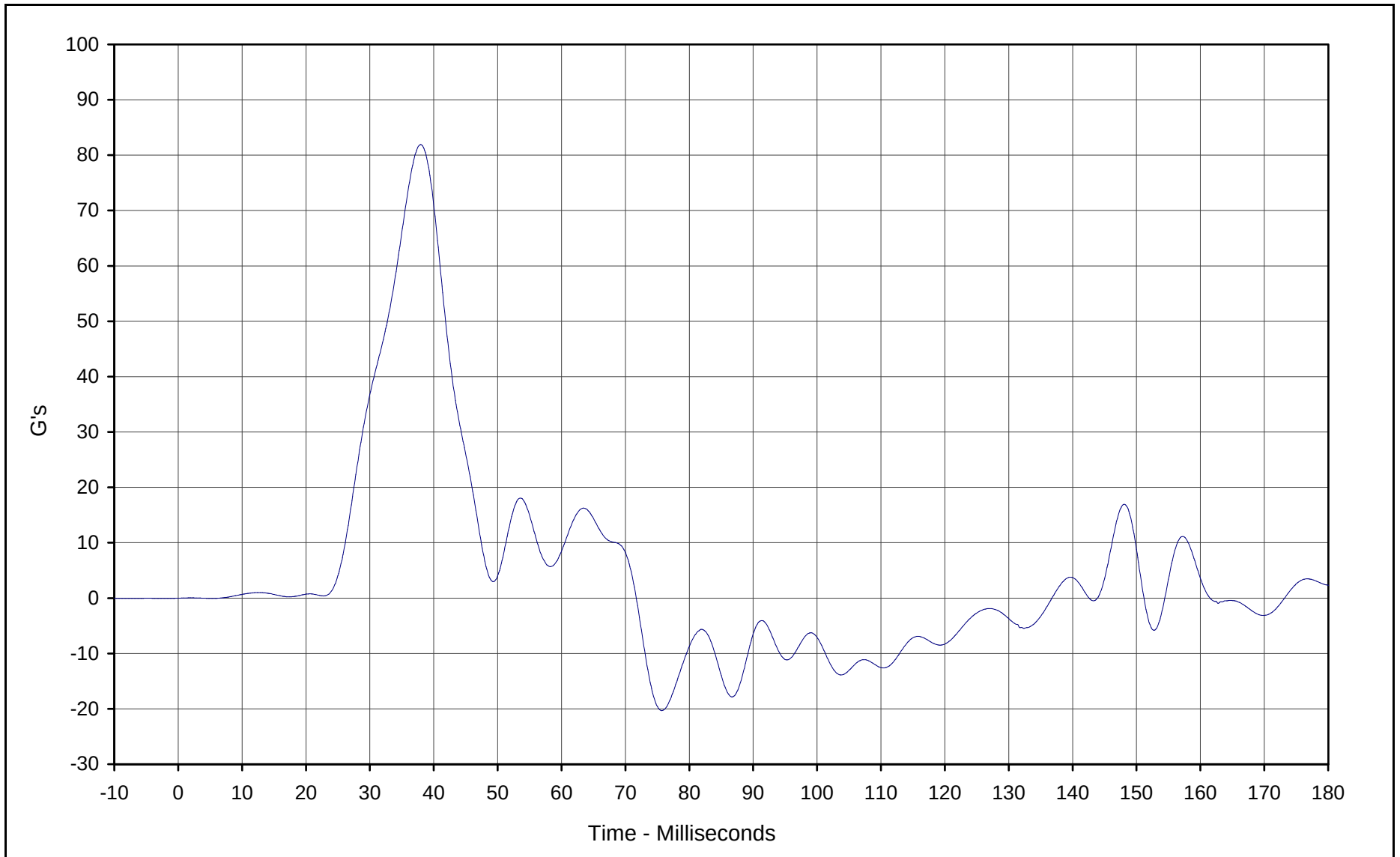
Date of Test: 12/9/99

Curve Number: FIL-008

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Upper Rib Redundant

Maximum Value: 81.9 at 32.6 Milliseconds

Minimum Value: -20.3 at 70.3 Milliseconds

SAE Filter Class: FIR 100

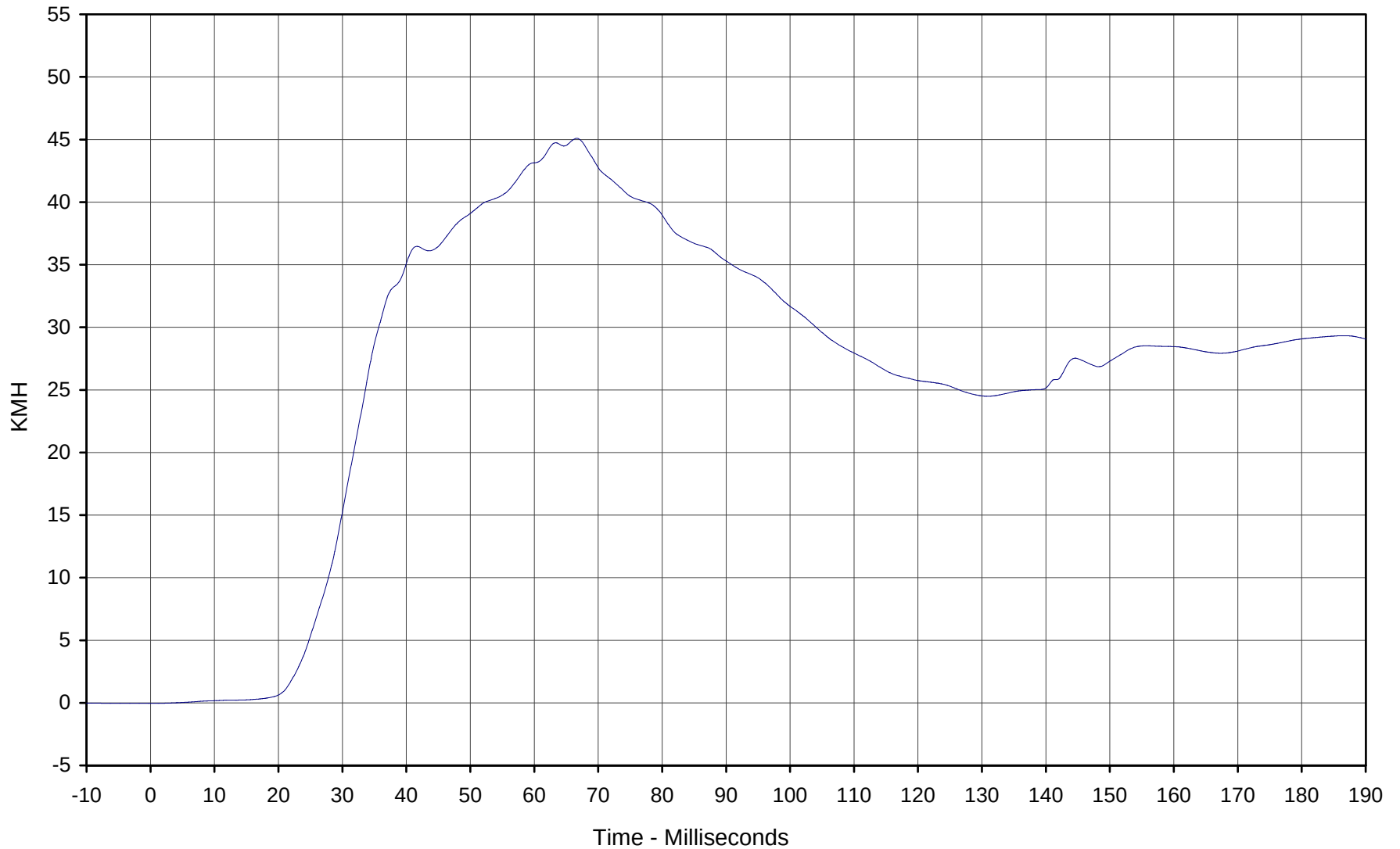
Date of Test: 12/9/99

Curve Number: FIR-008

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

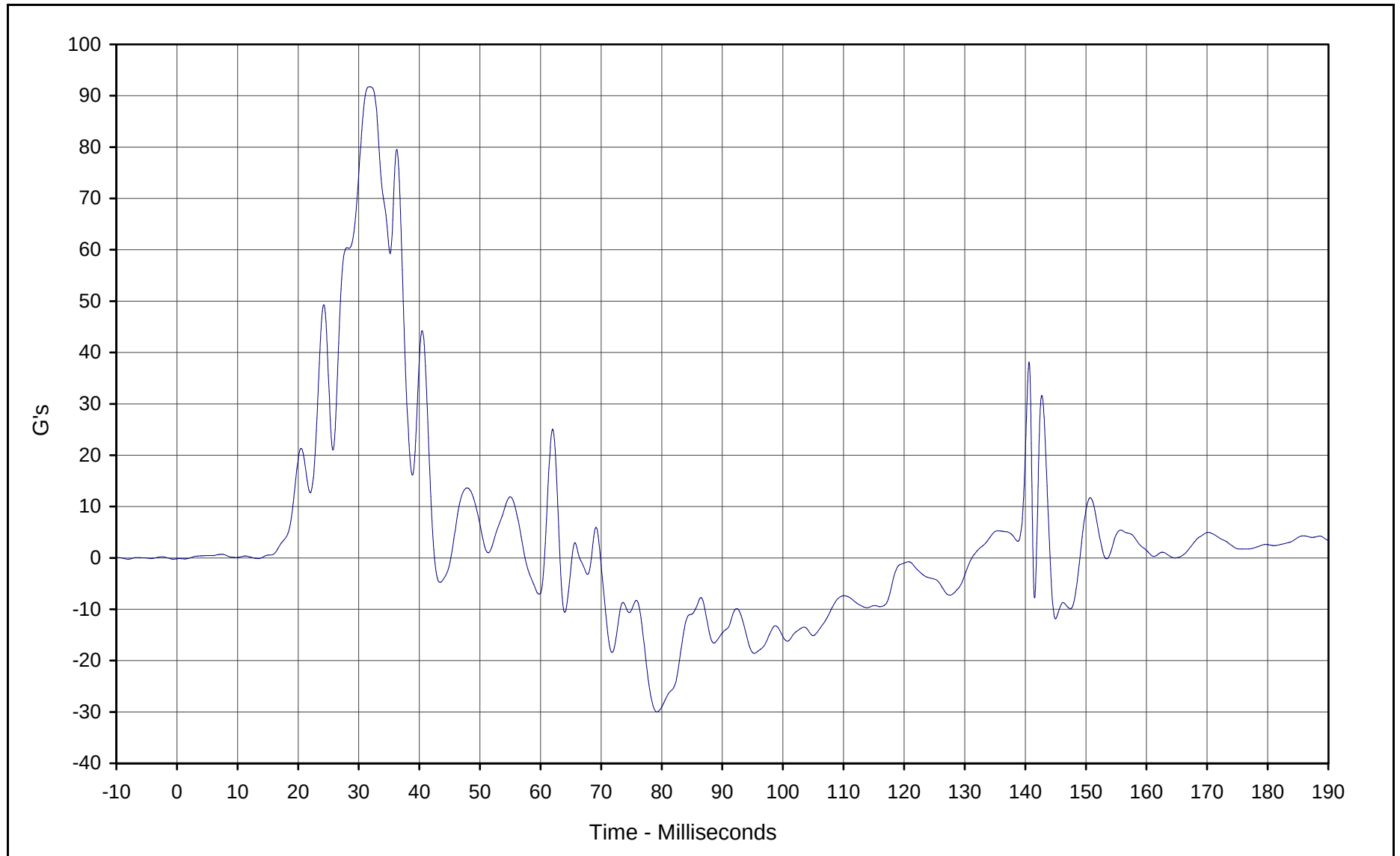




Curve Description: Driver Upper Rib Redundant Y Velocity
Maximum Value: 45.1 at 66.7 Milliseconds
Minimum Value: 0.0 at 1.3 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN1-008

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Lower Rib Redundant

Maximum Value: 91.8 at 31.7 Milliseconds

Minimum Value: -30.0 at 79.2 Milliseconds

SAE Filter Class: 180

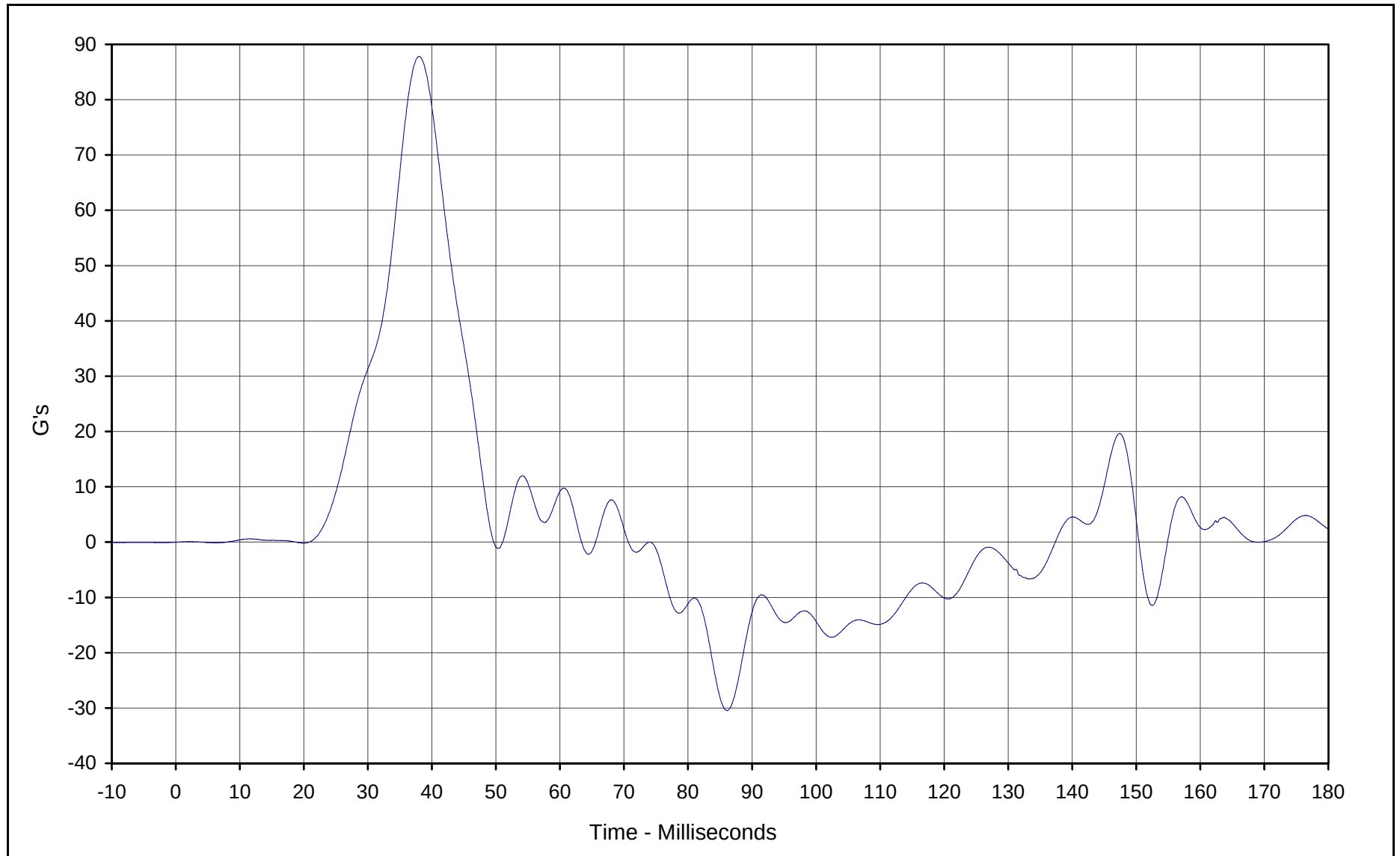
Date of Test: 12/9/99

Curve Number: FIL-009

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Lower Rib Redundant

Maximum Value: 87.8 at 32.6 Milliseconds

Minimum Value: -30.5 at 80.7 Milliseconds

SAE Filter Class: FIR 100

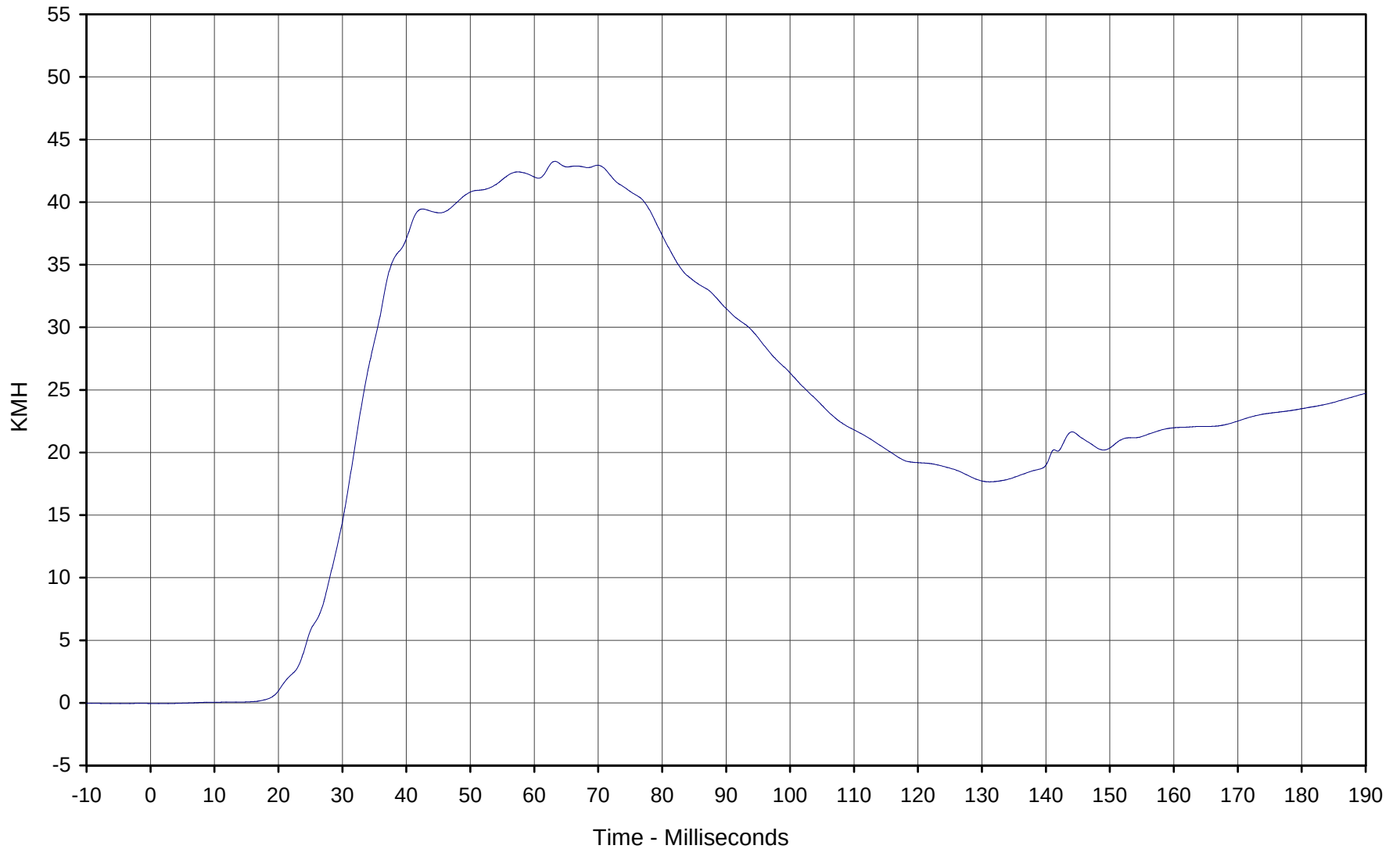
Date of Test: 12/9/99

Curve Number: FIR-009

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Lower Rib Redundant Y Velocity

Maximum Value: 43.3 at 63.2 Milliseconds

Minimum Value: -0.1 at 2.2 Milliseconds

SAE Filter Class: 180

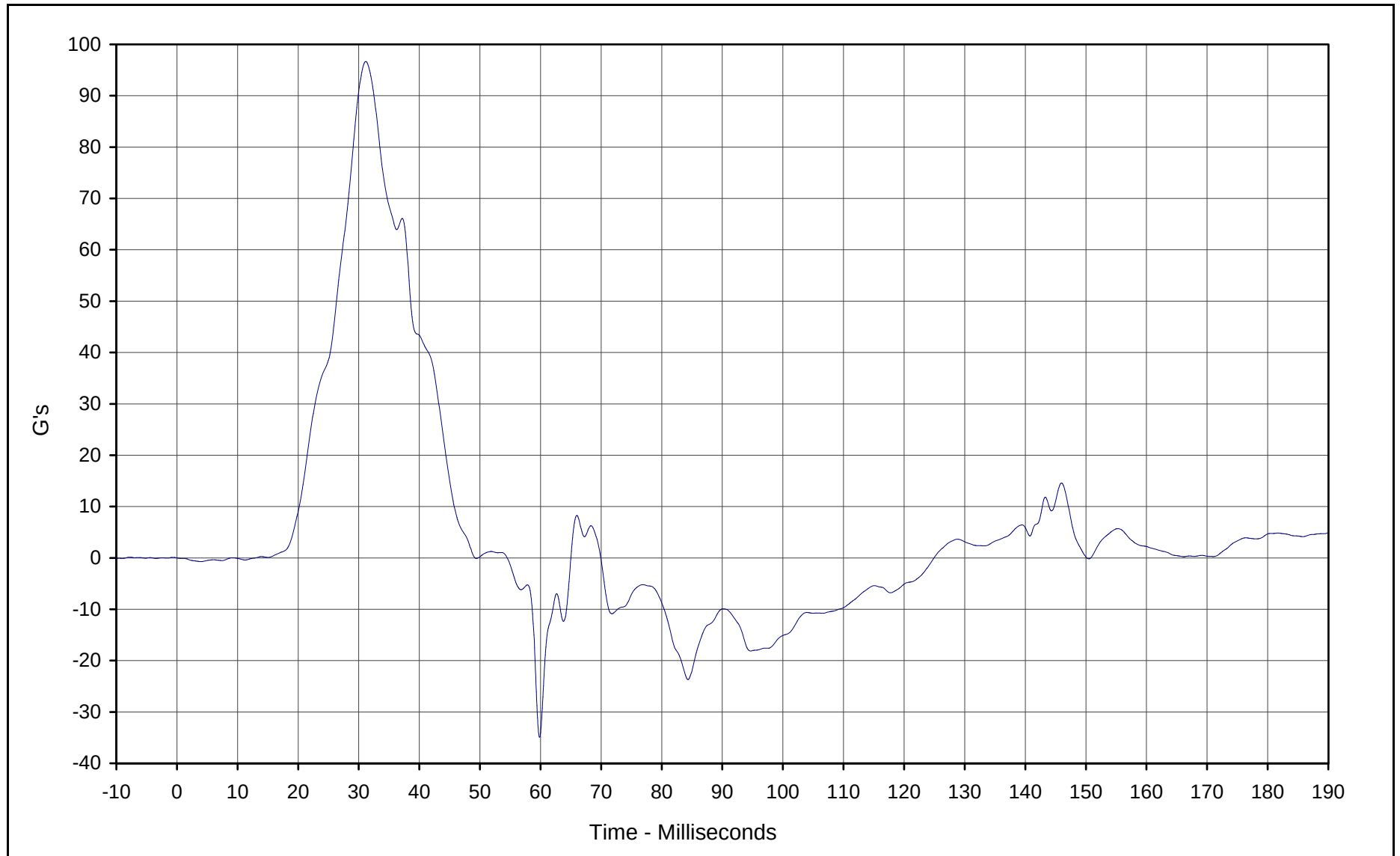
Date of Test: 12/9/99

Curve Number: IN1-009

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Lower Spine Redundant

Maximum Value: 96.7 at 31.2 Milliseconds

Minimum Value: -34.9 at 59.8 Milliseconds

SAE Filter Class: 180

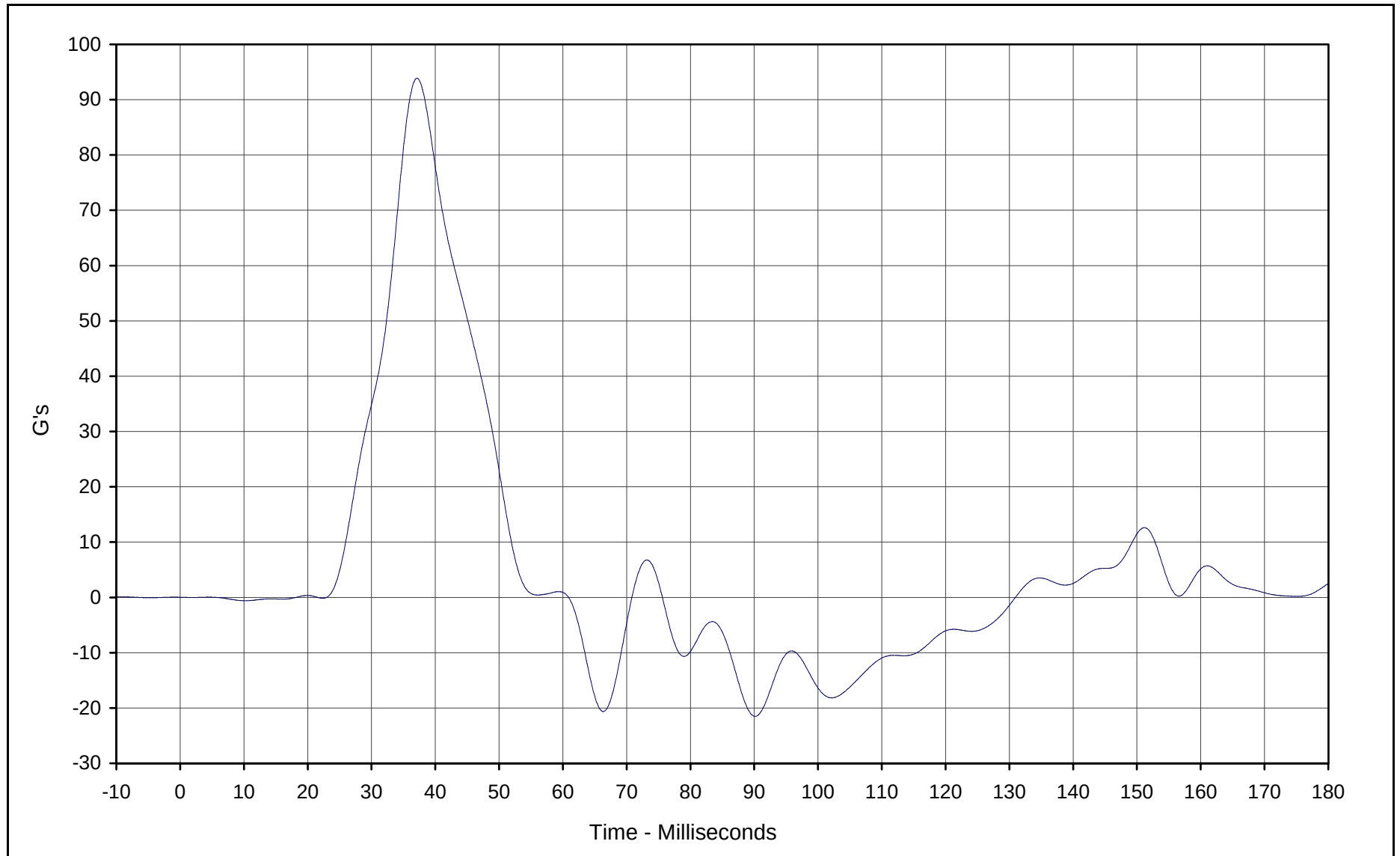
Date of Test: 12/9/99

Curve Number: FIL-010

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Lower Spine Redundant

Maximum Value: 93.9 at 31.7 Milliseconds

Minimum Value: -21.5 at 84.7 Milliseconds

SAE Filter Class: FIR 100

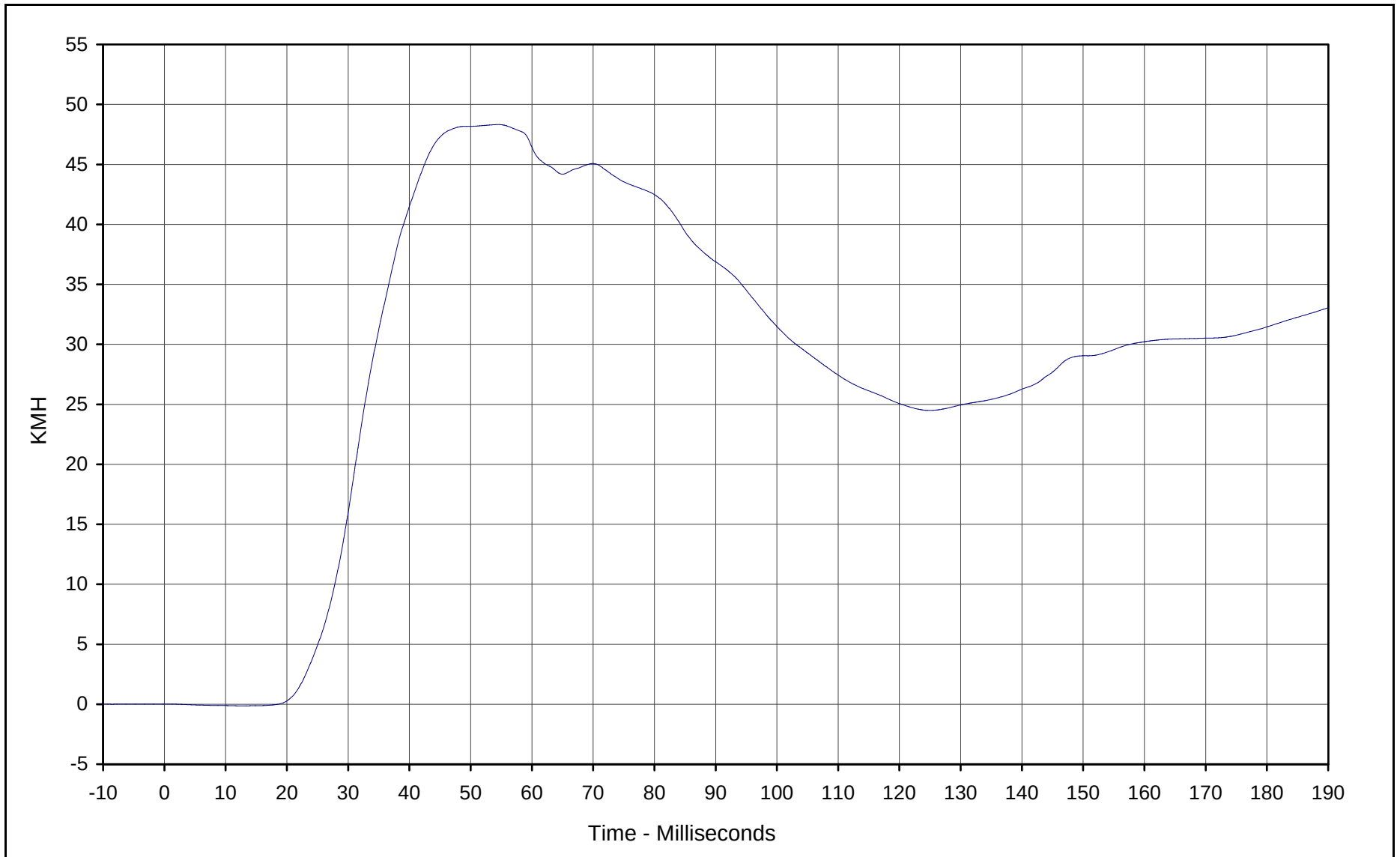
Date of Test: 12/9/99

Curve Number: FIR-010

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Lower Spine Redundant Y Velocity

Maximum Value: 48.3 at 54.5 Milliseconds

Minimum Value: -0.1 at 12.9 Milliseconds

SAE Filter Class: 180

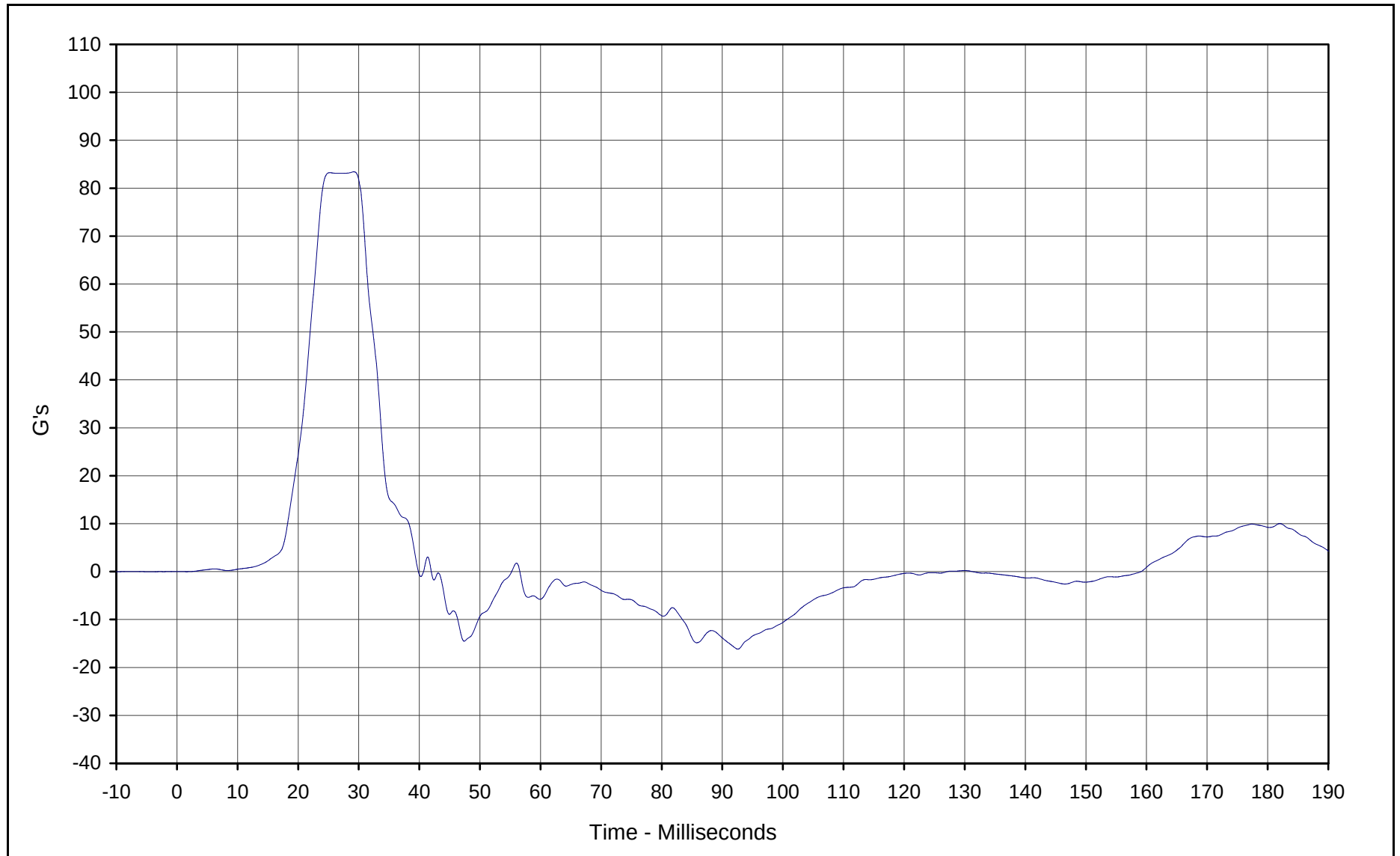
Date of Test: 12/9/99

Curve Number: IN1-0010

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Pelvis Redundant Y *

Maximum Value: 83.4 at 29.2 Milliseconds

Minimum Value: -16.2 at 92.6 Milliseconds

SAE Filter Class: 180

Date of Test: 12/9/99

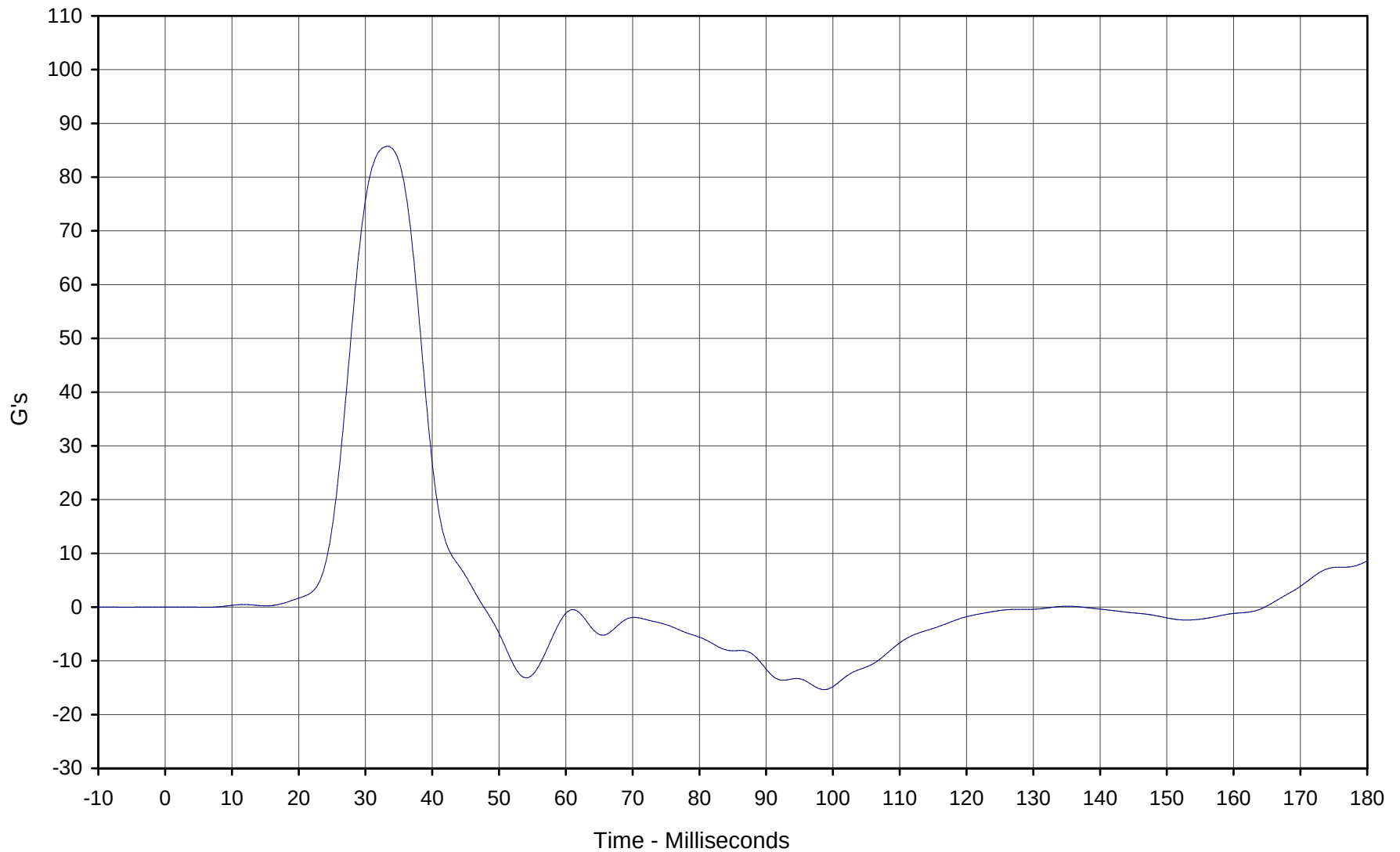
Curve Number: FIL-011

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

* Data Clipped over 80 G's





Curve Description: Driver Pelvis Redundant Y *

Maximum Value: 85.7 at 27.9 Milliseconds

Minimum Value: -15.4 at 93.3 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 12/9/99

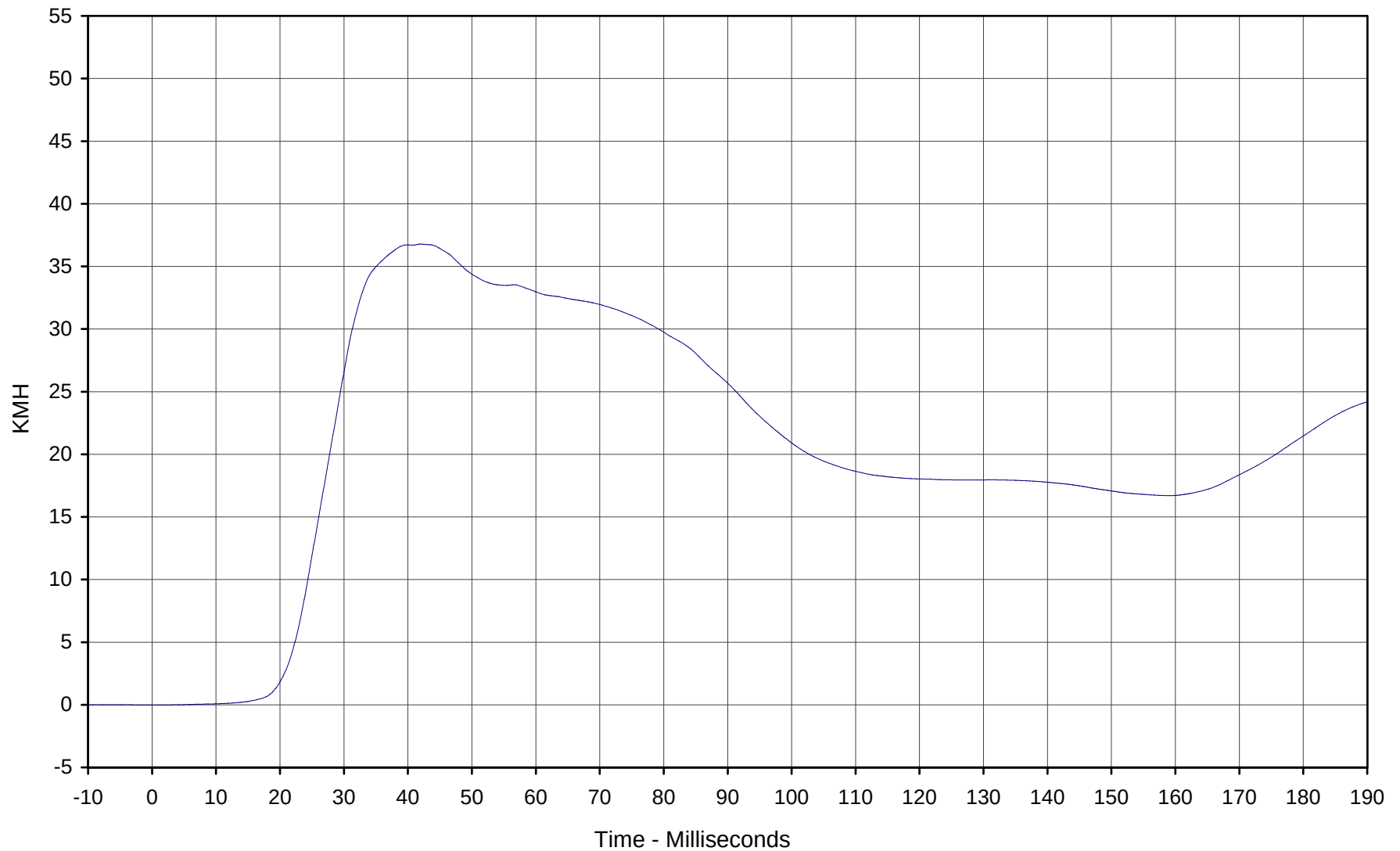
Curve Number: FIR-011

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

* Data Clipped over 80 G's





Curve Description: Driver Pelvis Redundant Y Velocity *

Maximum Value: 36.8 at 42.0 Milliseconds

Minimum Value: 0.0 at 2.2 Milliseconds

SAE Filter Class: 180

Date of Test: 12/9/99

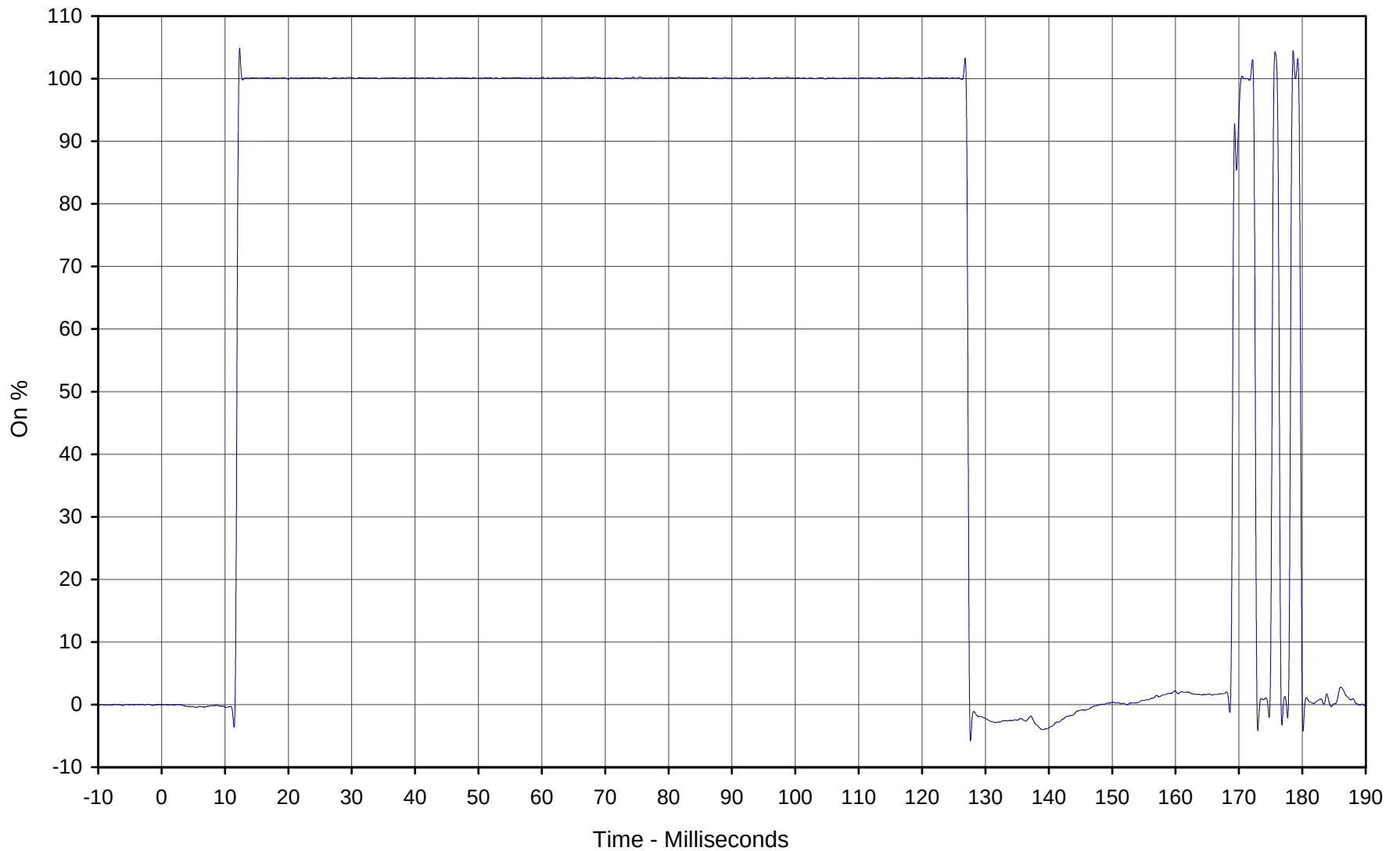
Curve Number: IN1-011

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

*Source Data Clipped over 80 G's





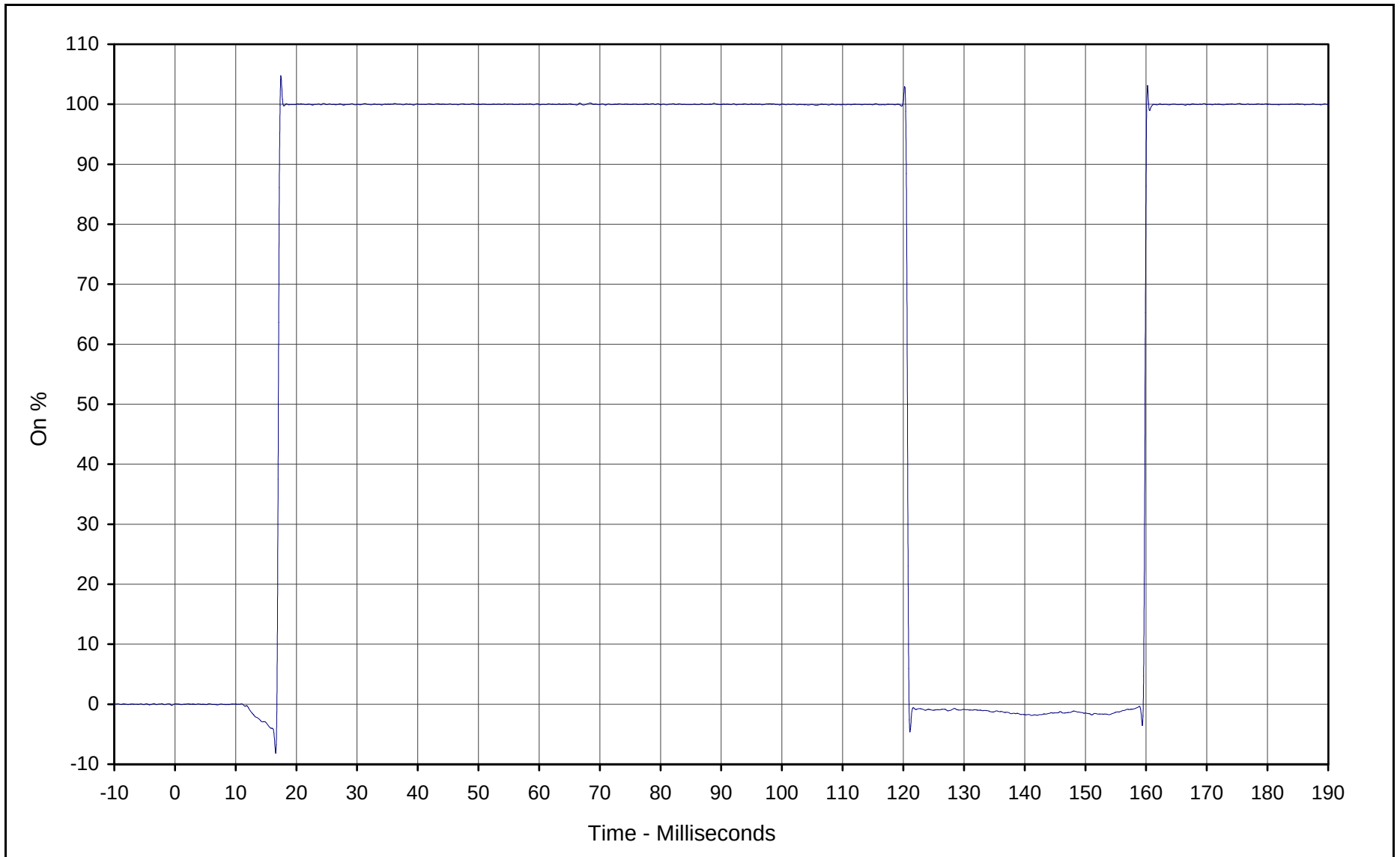
Curve Description: Driver Thorax Contact

Maximum Value:	<u>104.9</u>	at	<u>12.3</u>	Milliseconds
Crossing Point:	<u>50%</u>	at	<u>11.9</u>	Milliseconds
SAE Filter Class:	<u>600</u>			
Date of Test:	<u>12/9/99</u>			
Curve Number:	<u>FIL-012</u>			

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





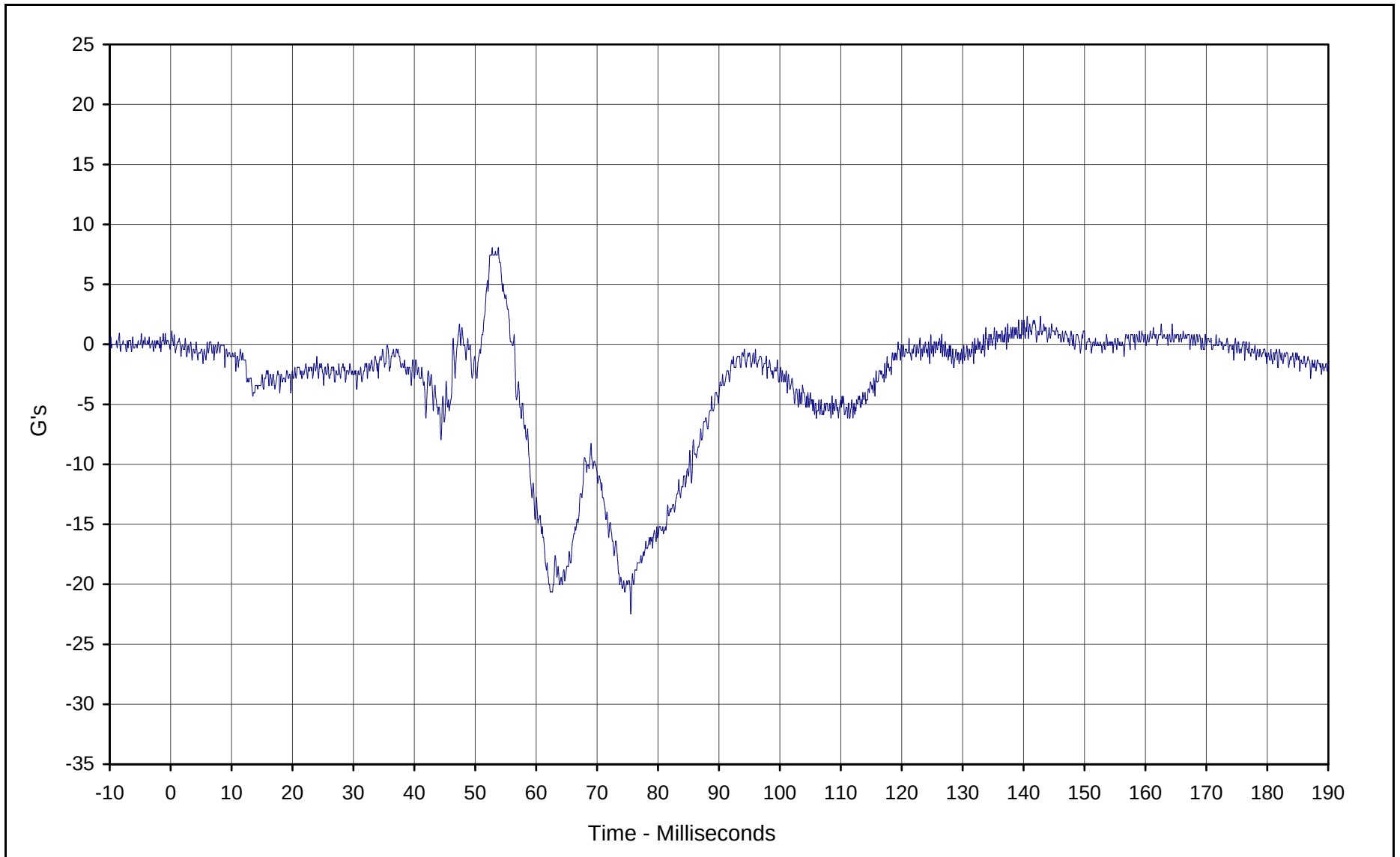
Curve Description: Driver Pelvis Contact

Maximum Value:	<u>104.8</u>	at	<u>17.4</u>	Milliseconds
Crossing Point:	<u>50%</u>	at	<u>17.1</u>	Milliseconds
SAE Filter Class:	<u>600</u>			
Date of Test:	<u>12/9/99</u>			
Curve Number:	<u>FIL-013</u>			

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Head CG X

Maximum Value: 8.0 at 52.8 Milliseconds

Minimum Value: -22.4 at 75.5 Milliseconds

SAE Filter Class: 1000

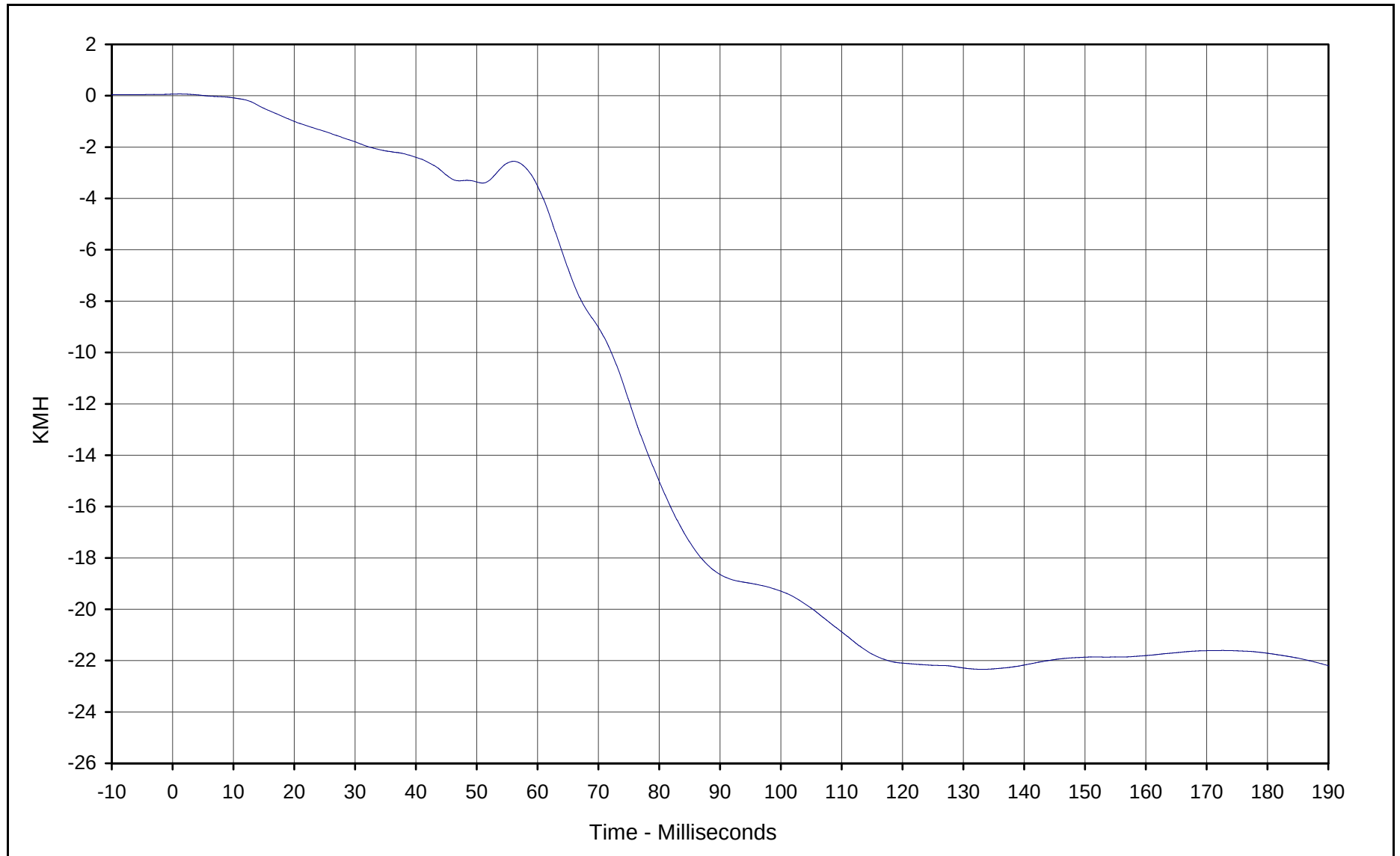
Date of Test: 12/9/99

Curve Number: FIL-014

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Head CG X Velocity

Maximum Value: 0.1 at 1.1 Milliseconds

Minimum Value: -22.3 at 133.3 Milliseconds

SAE Filter Class: 180

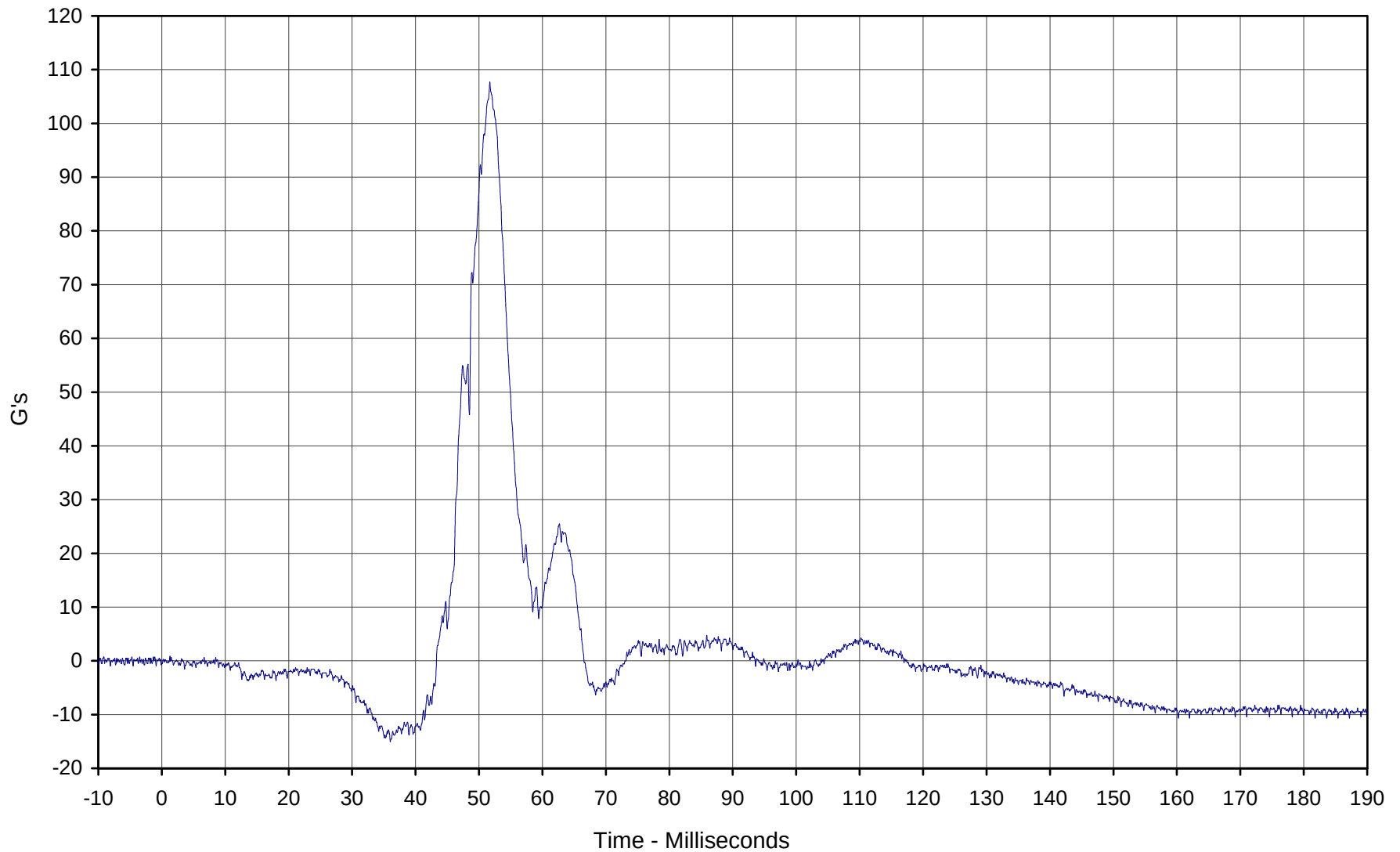
Date of Test: 12/9/99

Curve Number: IN1-014

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Head CG Y

Maximum Value: 107.7 at 51.7 Milliseconds

Minimum Value: -15.0 at 36.0 Milliseconds

SAE Filter Class: 1000

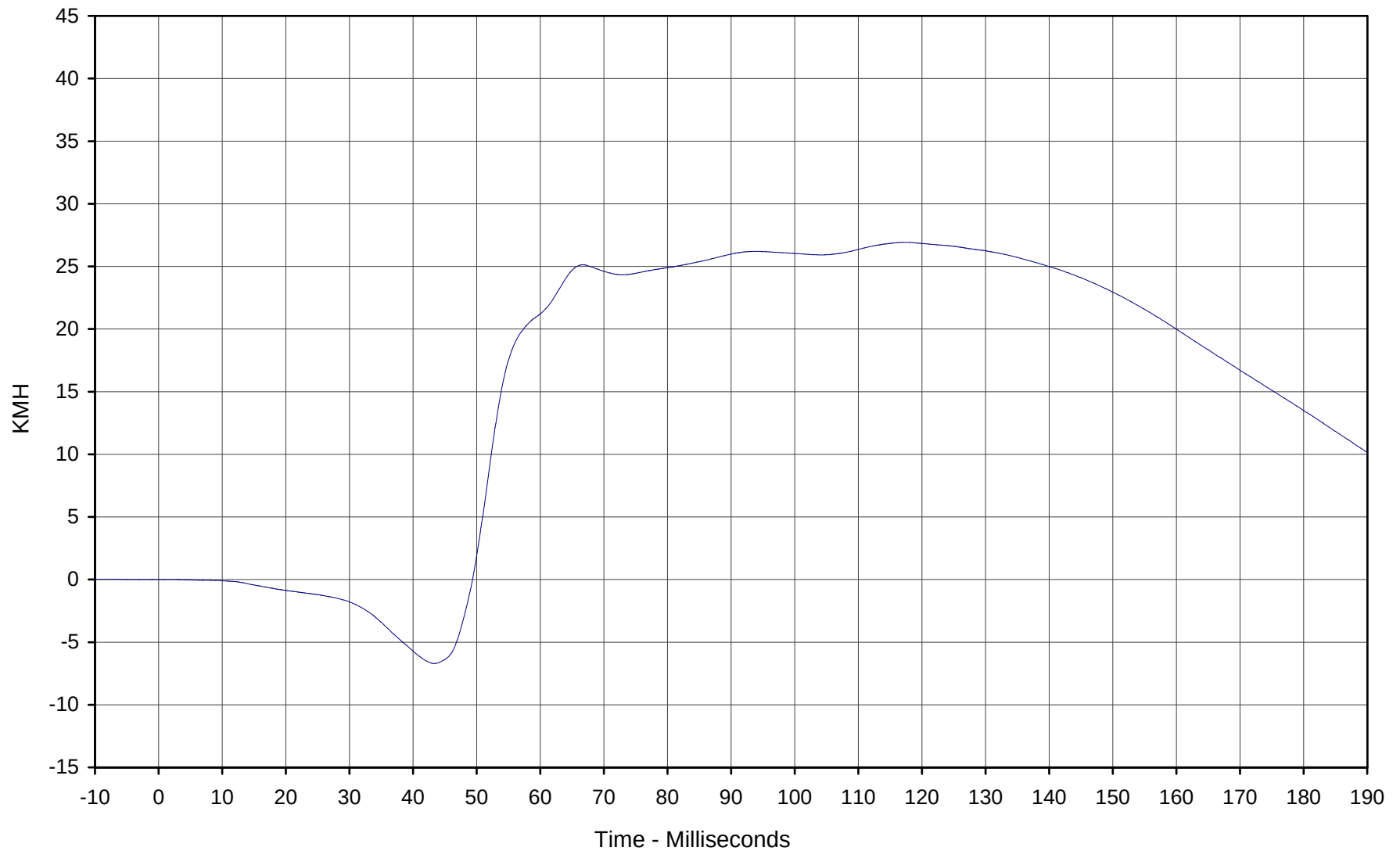
Date of Test: 12/9/99

Curve Number: FIL-015

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Head CG Y Velocity

Maximum Value: 26.9 at 117.3 Milliseconds

Minimum Value: -6.7 at 43.3 Milliseconds

SAE Filter Class: 180

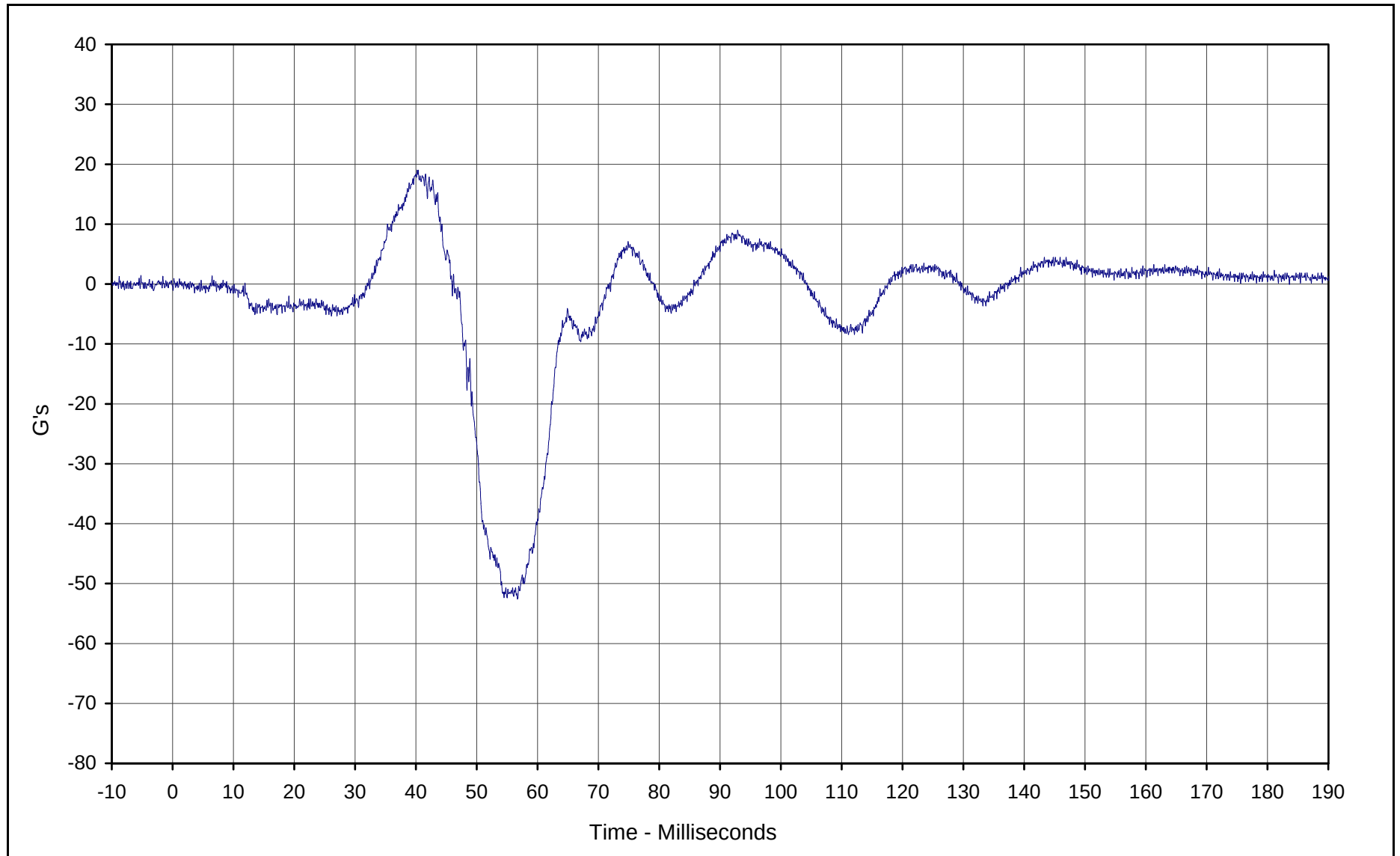
Date of Test: 12/9/99

Curve Number: IN1-015

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Head CG Z

Maximum Value: 19.0 at 40.2 Milliseconds

Minimum Value: -52.6 at 56.7 Milliseconds

SAE Filter Class: 1000

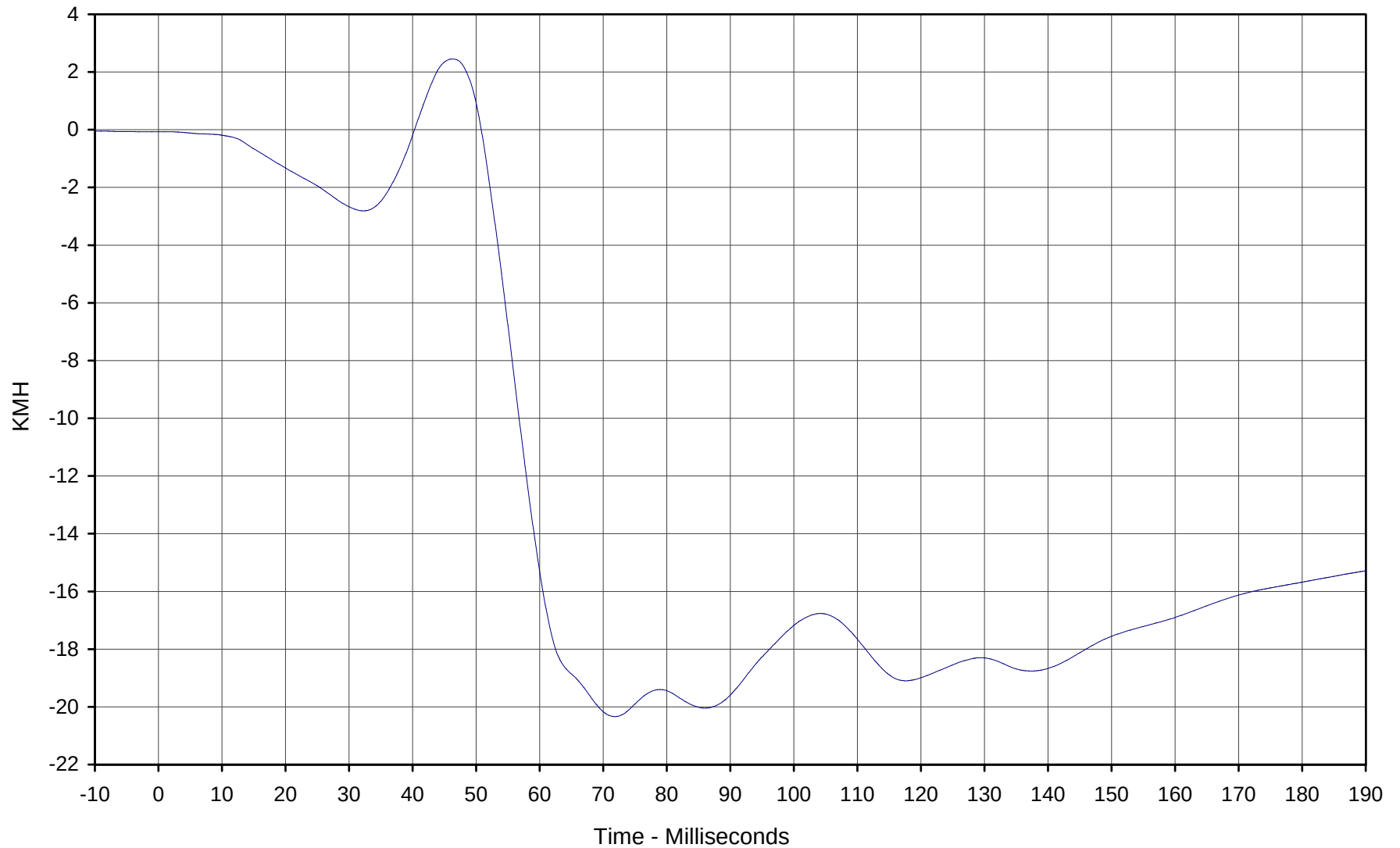
Date of Test: 12/9/99

Curve Number: FIL-016

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Driver Head CG Z Velocity

Maximum Value: 2.5 at 46.3 Milliseconds

Minimum Value: -20.3 at 71.9 Milliseconds

SAE Filter Class: 180

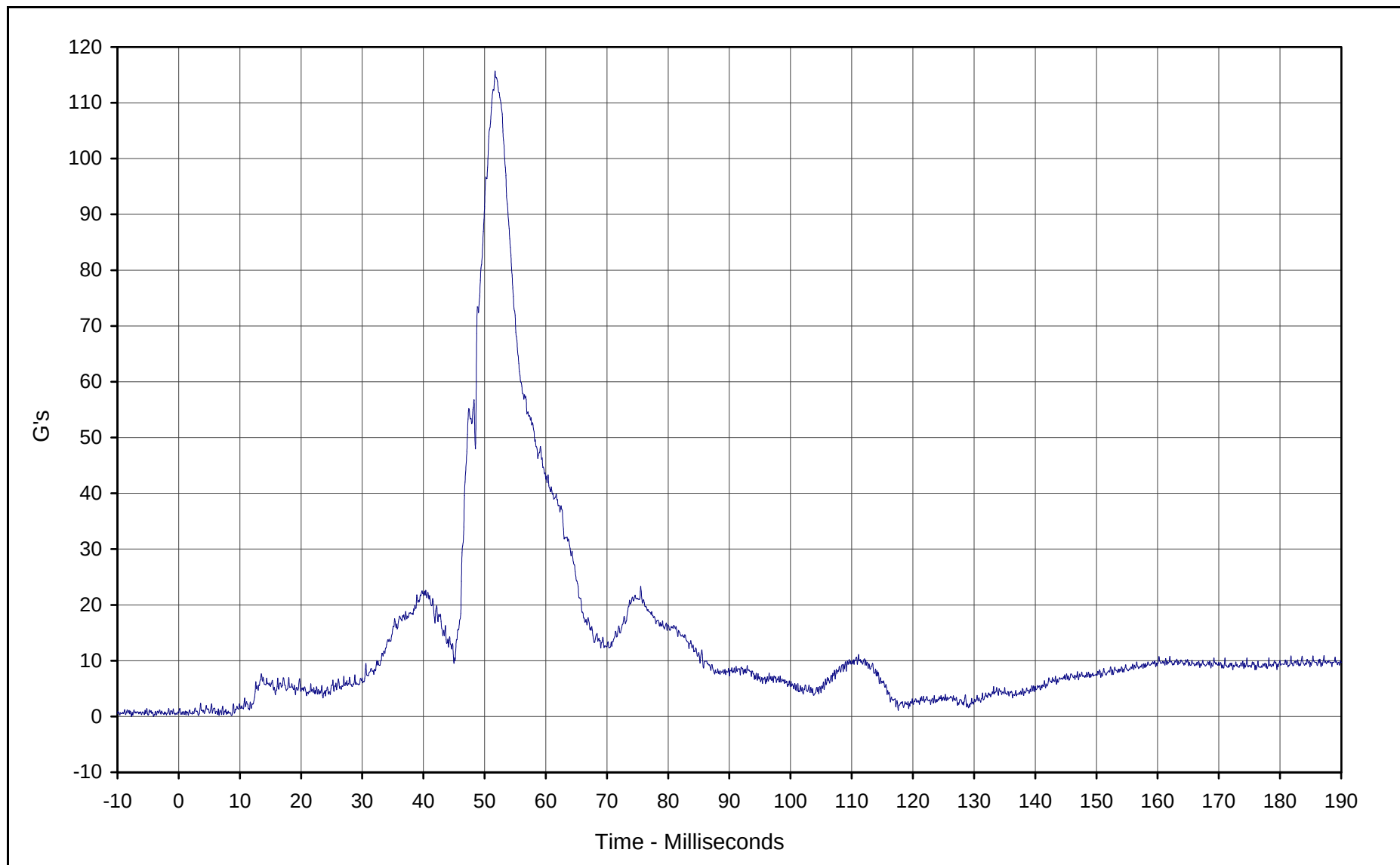
Date of Test: 12/9/99

Curve Number: IN1-016

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Head CG Resultant

Maximum Value: 115.7 at 51.7 Milliseconds

Minimum Value: 0.2 at 1.6 Milliseconds

SAE Filter Class: 1000

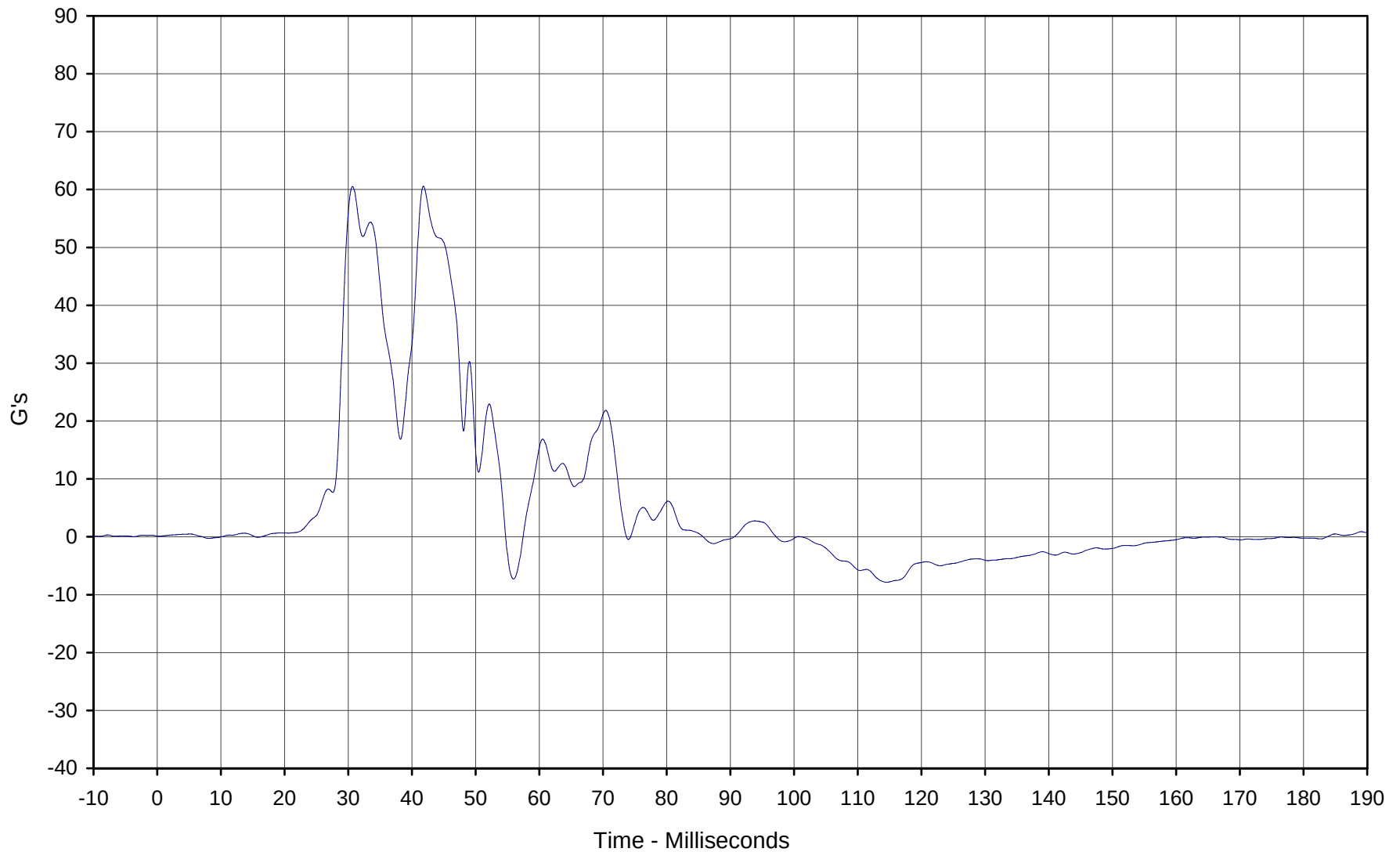
Date of Test: 12/9/99

Curve Number: RES-014

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

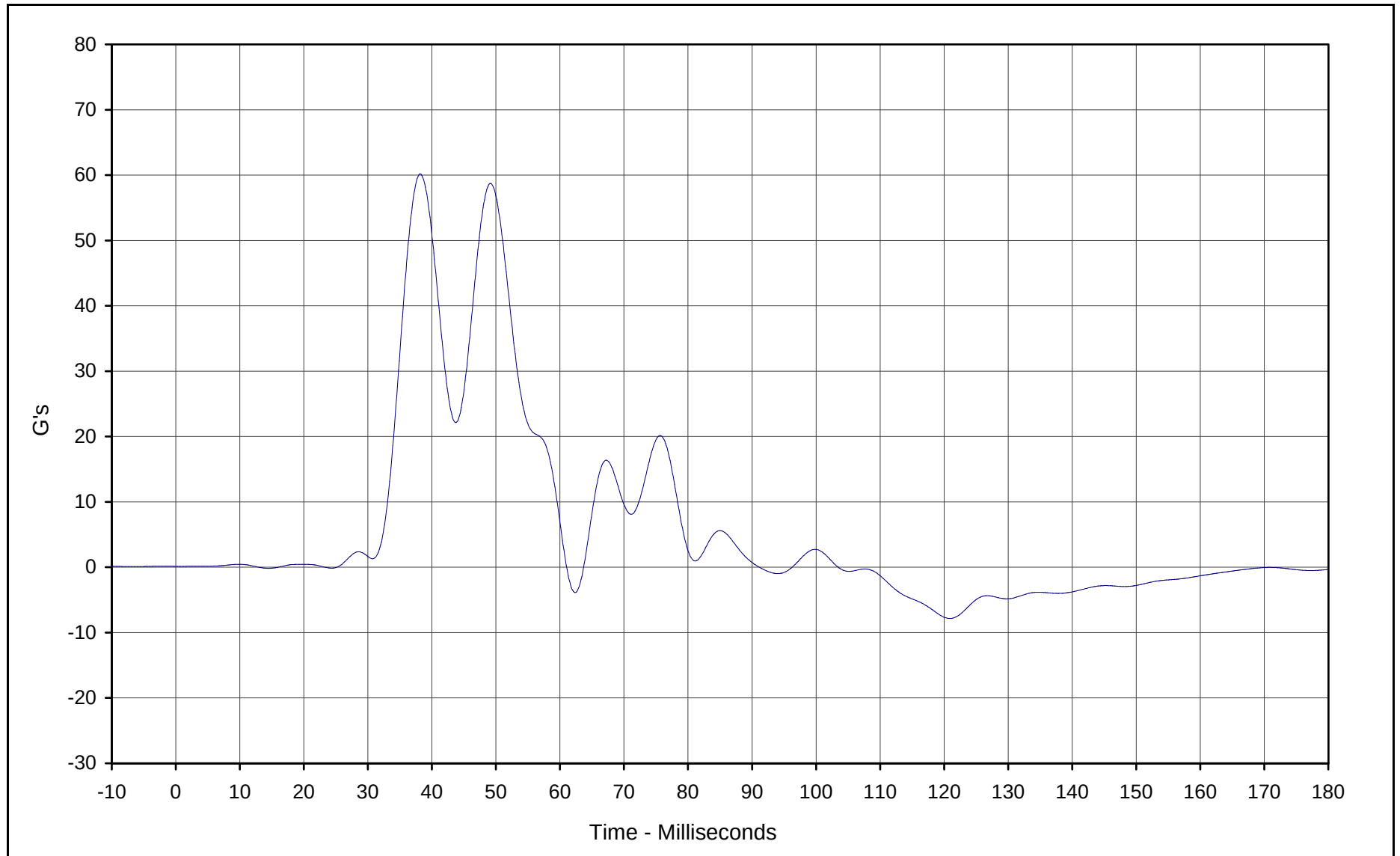




Curve Description: Passenger Upper Rib Primary
Maximum Value: 60.6 at 41.8 Milliseconds
Minimum Value: -7.9 at 114.6 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: FIL-017

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

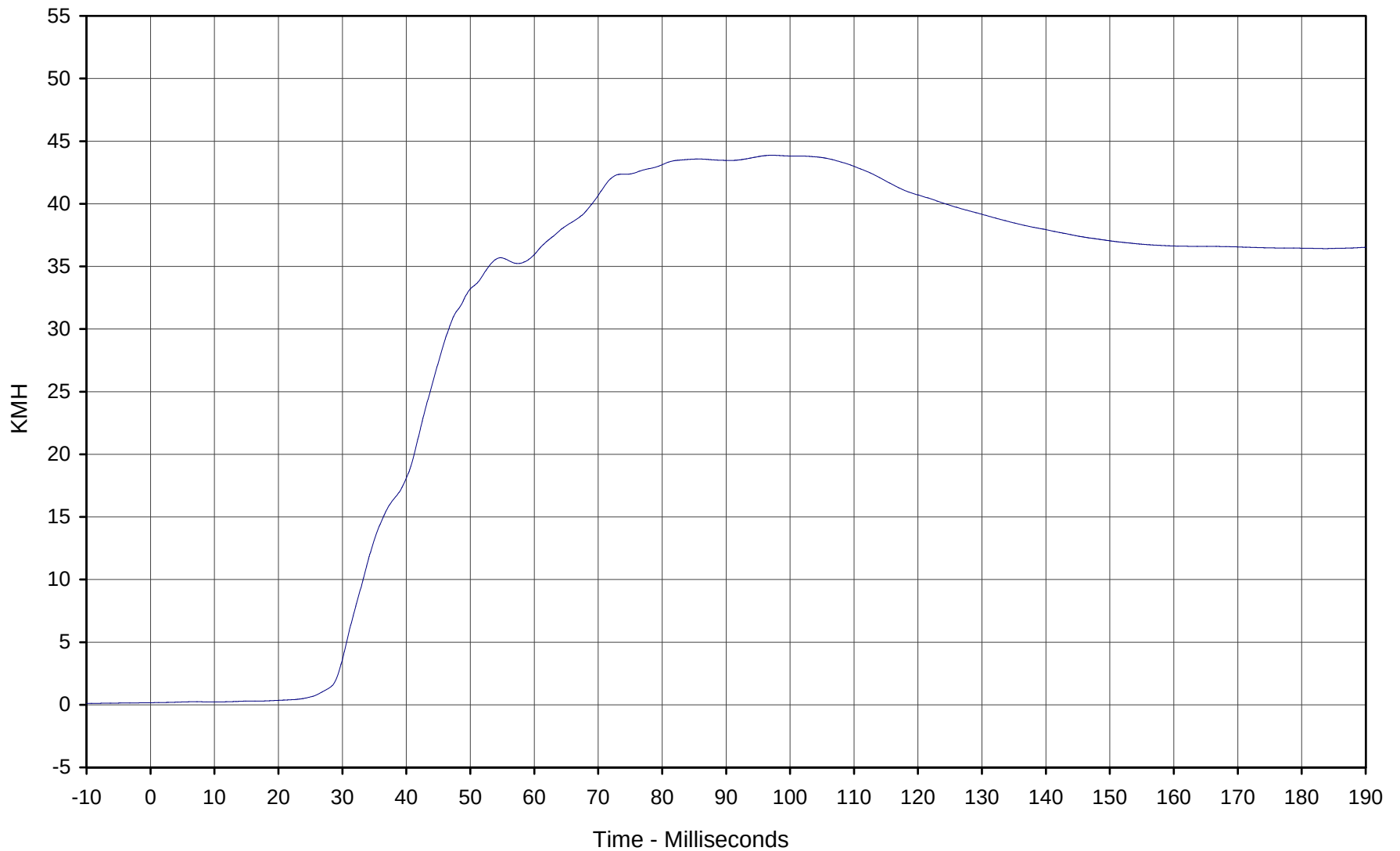




Curve Description: Passenger Upper Rib Primary
Maximum Value: 60.2 at 32.8 Milliseconds
Minimum Value: -7.8 at 115.5 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 12/9/99
Curve Number: FIR-017

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Upper Rib Primary Y Velocity

Maximum Value: 43.9 at 97.2 Milliseconds

Minimum Value: 0.2 at 0.0 Milliseconds

SAE Filter Class: 180

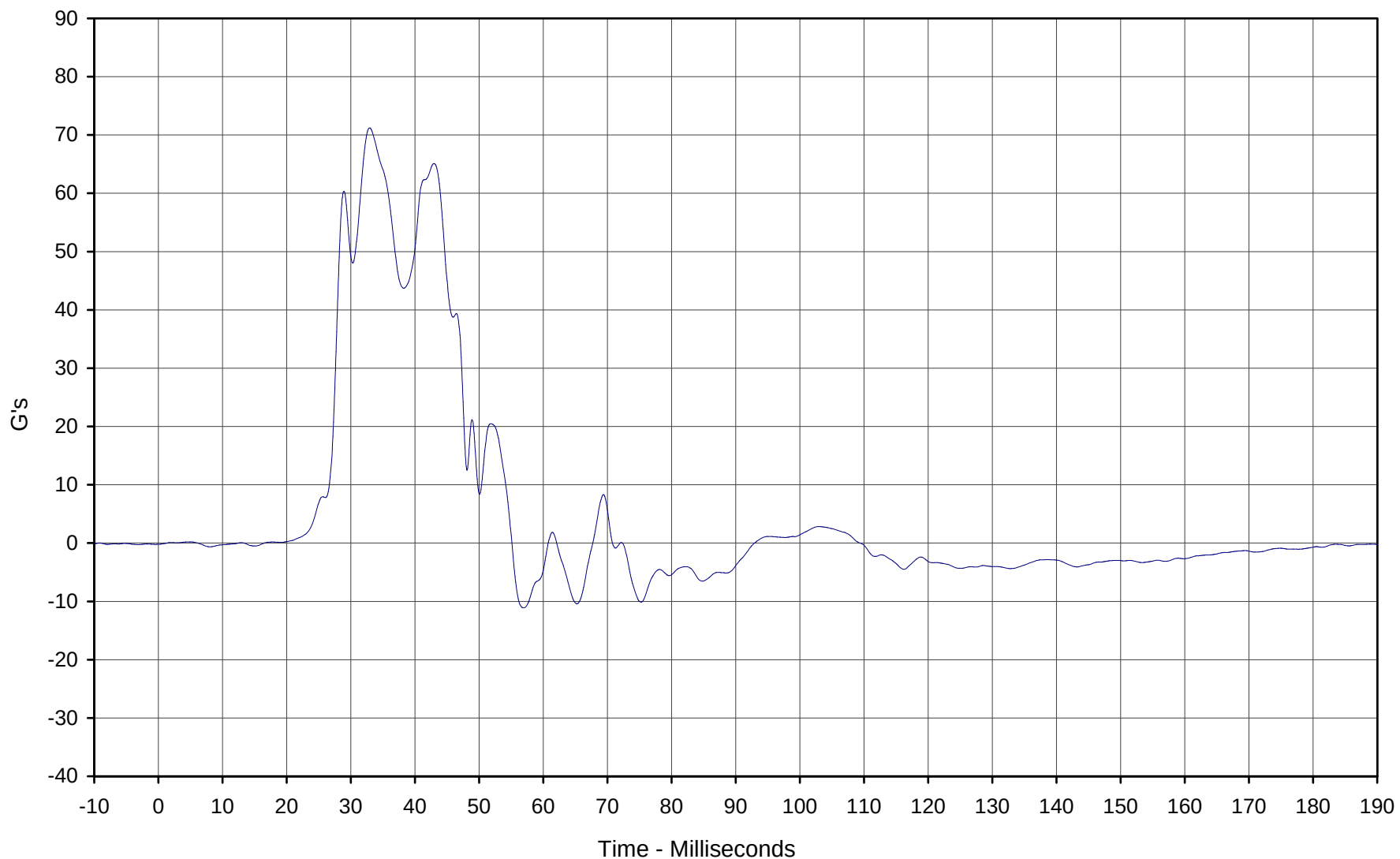
Date of Test: 12/9/99

Curve Number: IN1-017

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Lower Rib Primary

Maximum Value: 71.2 at 32.9 Milliseconds

Minimum Value: -11.1 at 56.9 Milliseconds

SAE Filter Class: 180

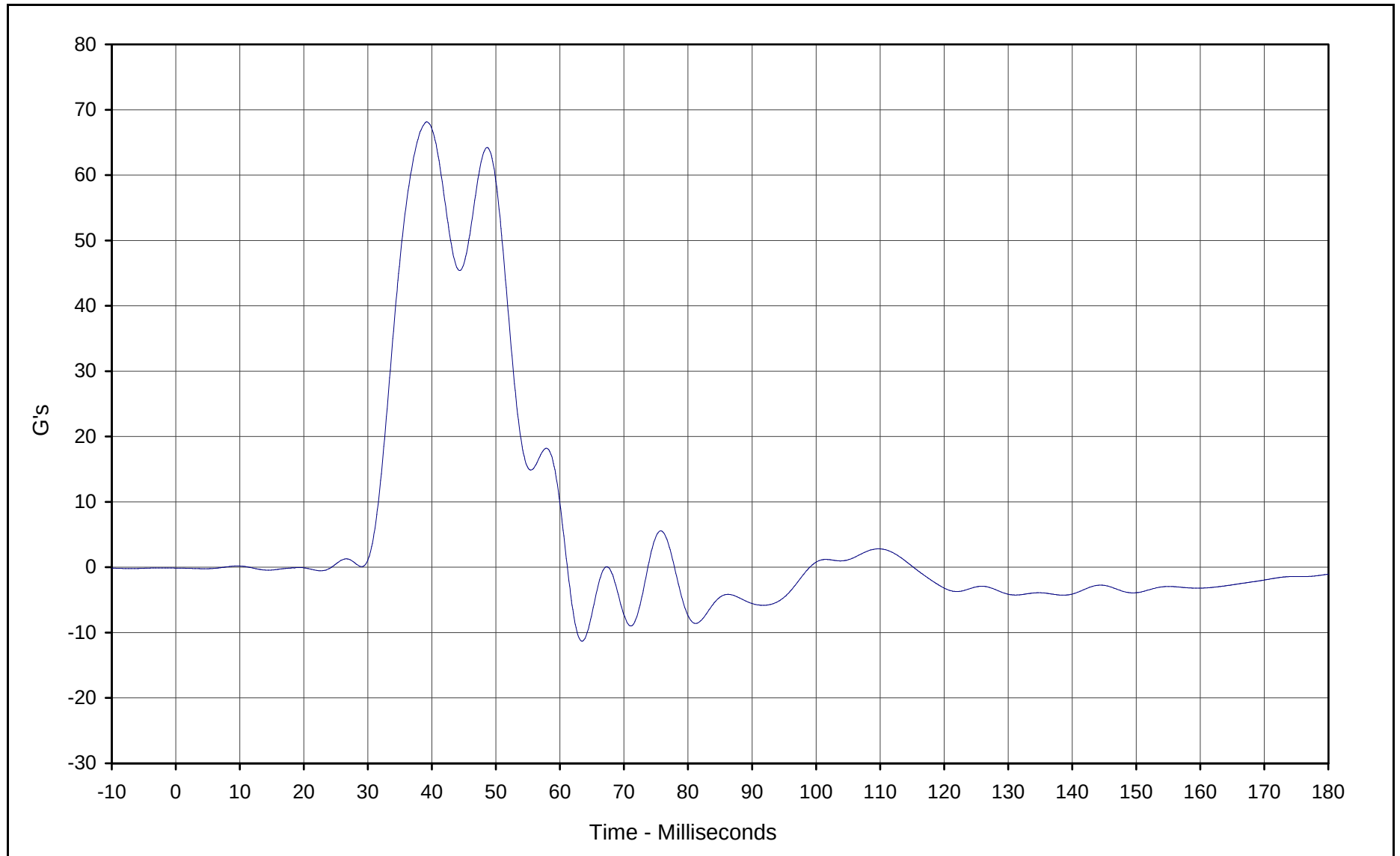
Date of Test: 12/9/99

Curve Number: FIL-018

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Lower Rib Primary

Maximum Value: 68.1 at 33.8 Milliseconds

Minimum Value: -11.3 at 58.0 Milliseconds

SAE Filter Class: FIR 100

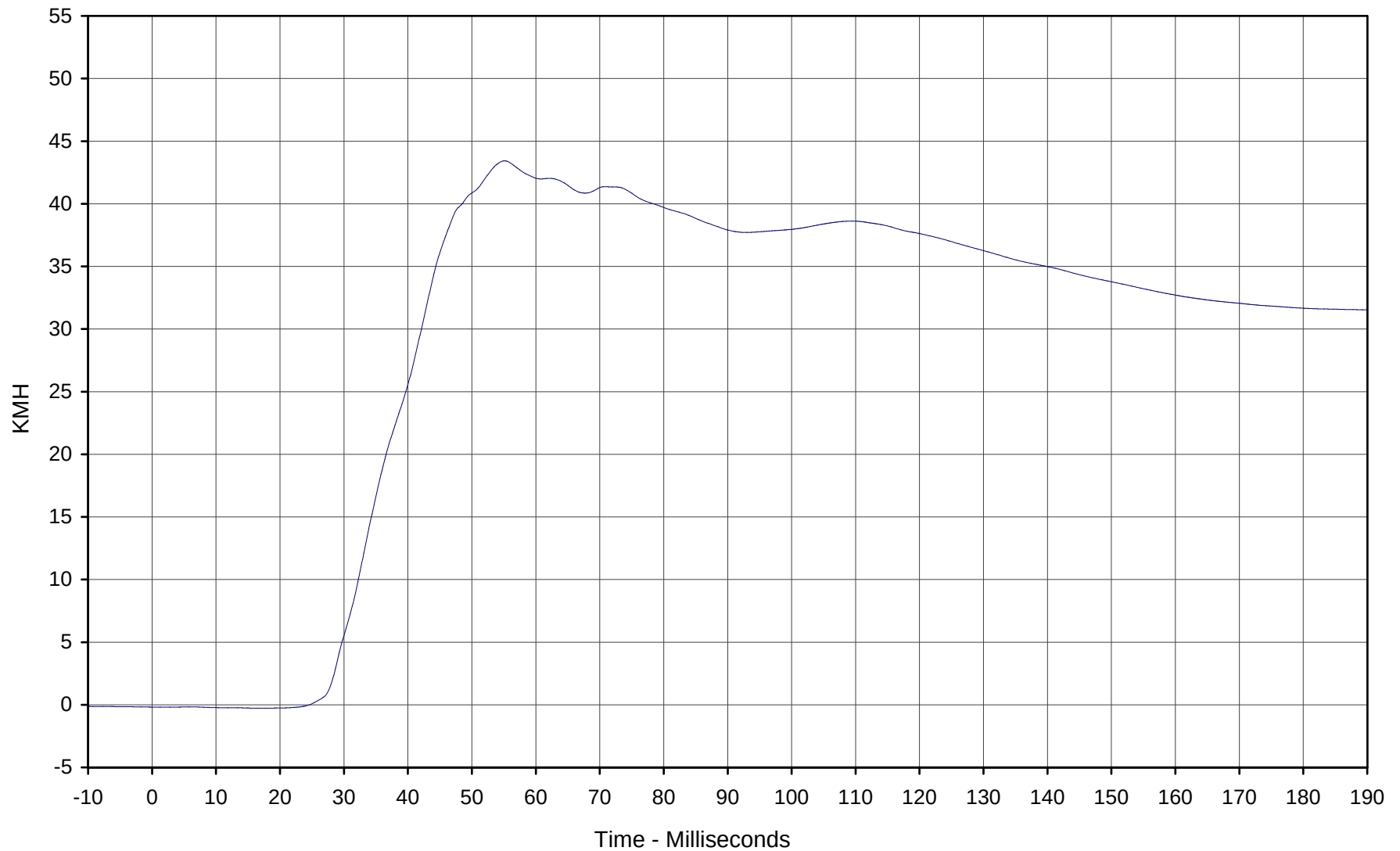
Date of Test: 12/9/99

Curve Number: FIR-018

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Lower Rib Primary Y Velocity

Maximum Value: 43.4 at 55.1 Milliseconds

Minimum Value: -0.3 at 16.5 Milliseconds

SAE Filter Class: 180

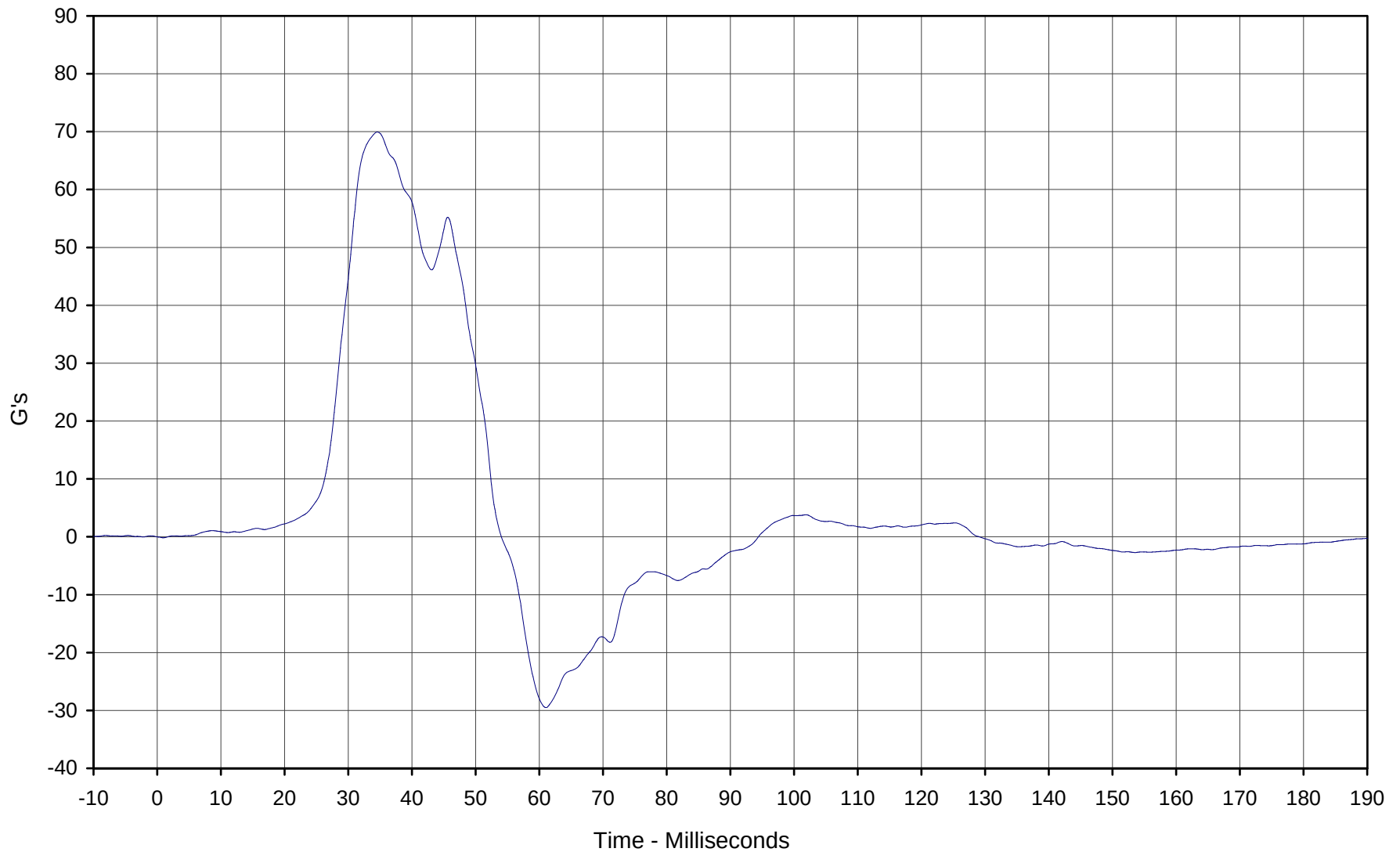
Date of Test: 12/9/99

Curve Number: IN1-018

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Lower Spine Primary

Maximum Value: 69.9 at 34.6 Milliseconds

Minimum Value: -29.5 at 61.0 Milliseconds

SAE Filter Class: 180

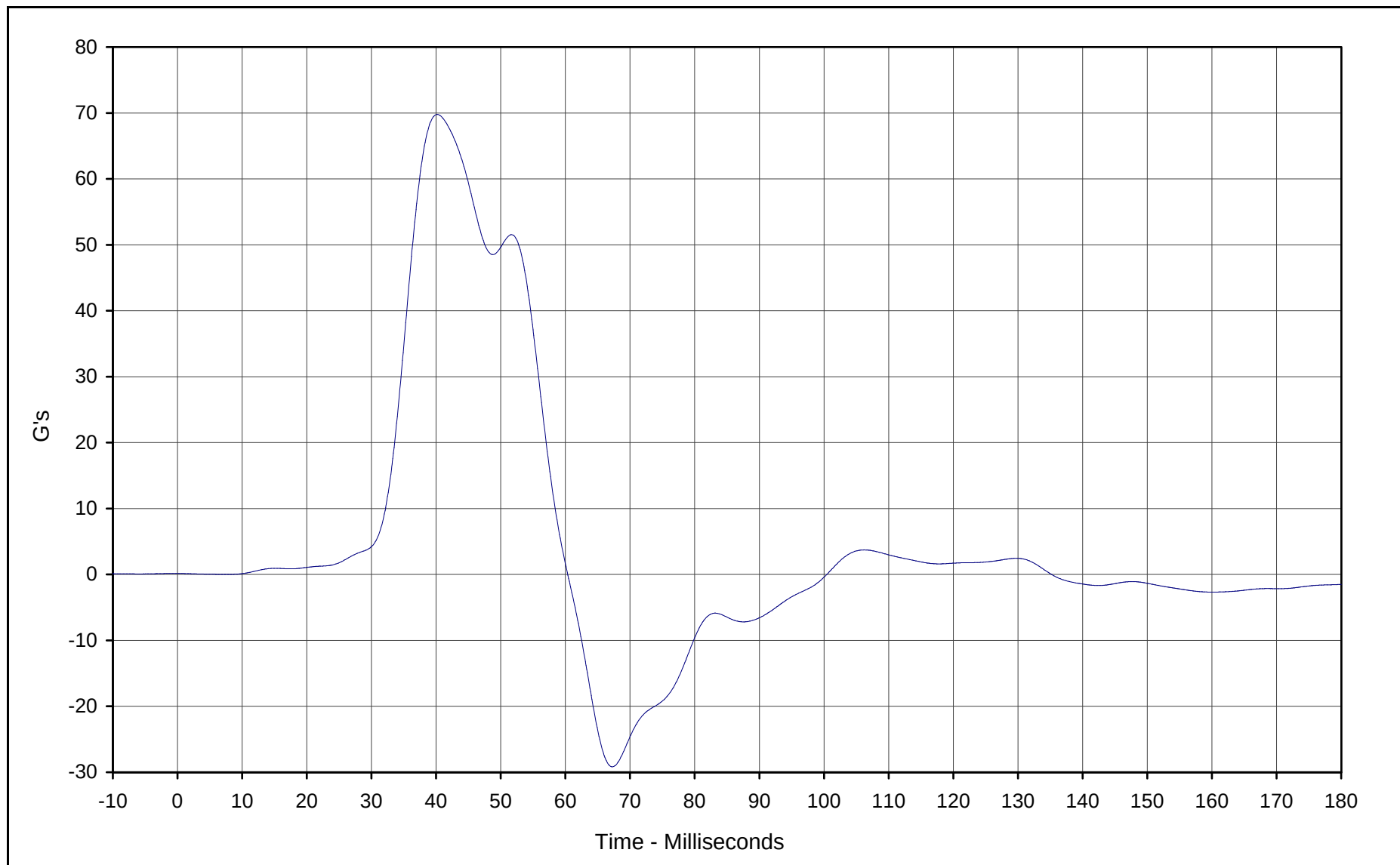
Date of Test: 12/9/99

Curve Number: FIL-019

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Lower Spine Primary

Maximum Value: 69.8 at 34.8 Milliseconds

Minimum Value: -29.2 at 61.8 Milliseconds

SAE Filter Class: FIR 100

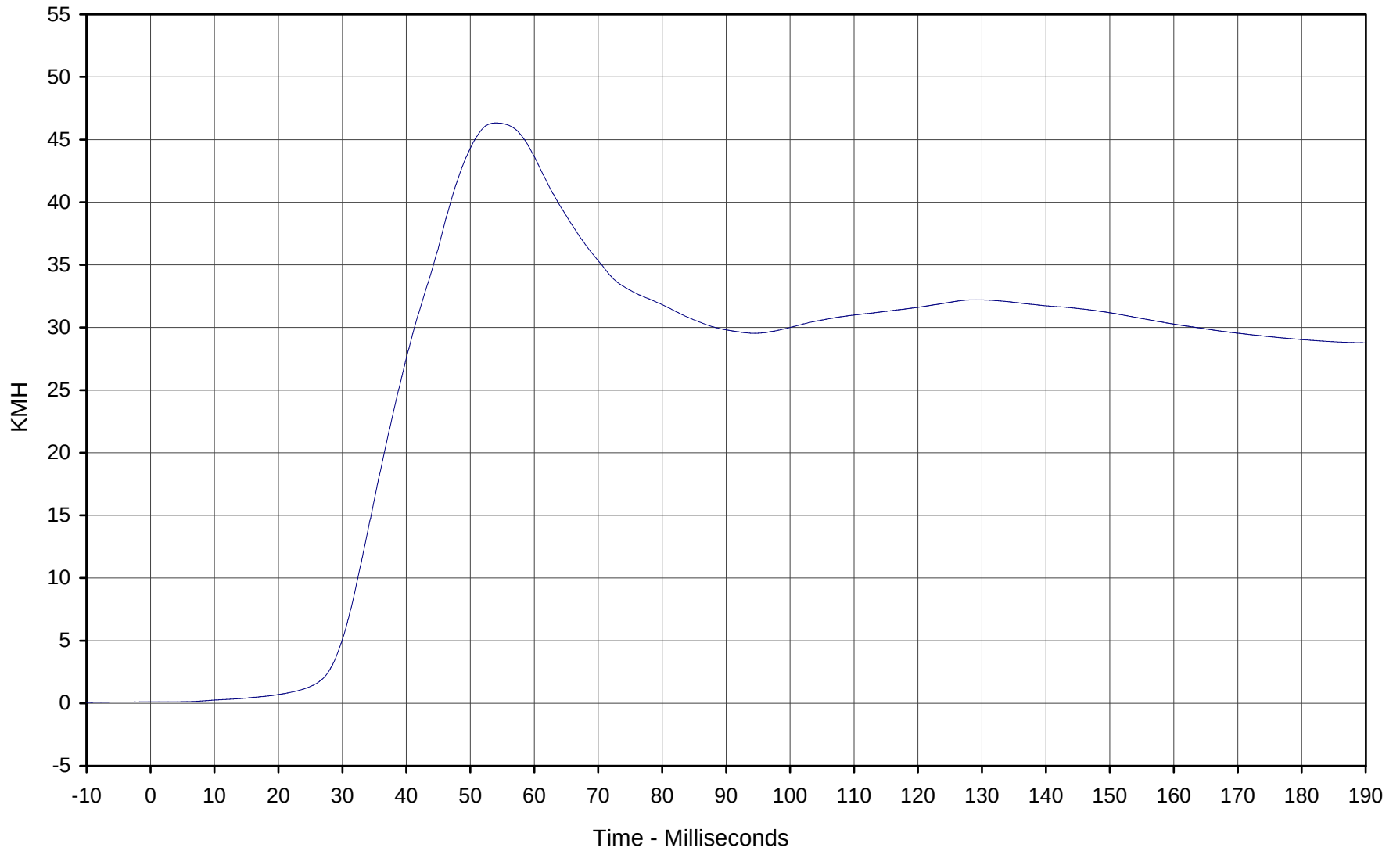
Date of Test: 12/9/99

Curve Number: FIR-019

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Lower Spine Primary Y Velocity

Maximum Value: 46.3 at 54.0 Milliseconds

Minimum Value: 0.1 at 1.7 Milliseconds

SAE Filter Class: 180

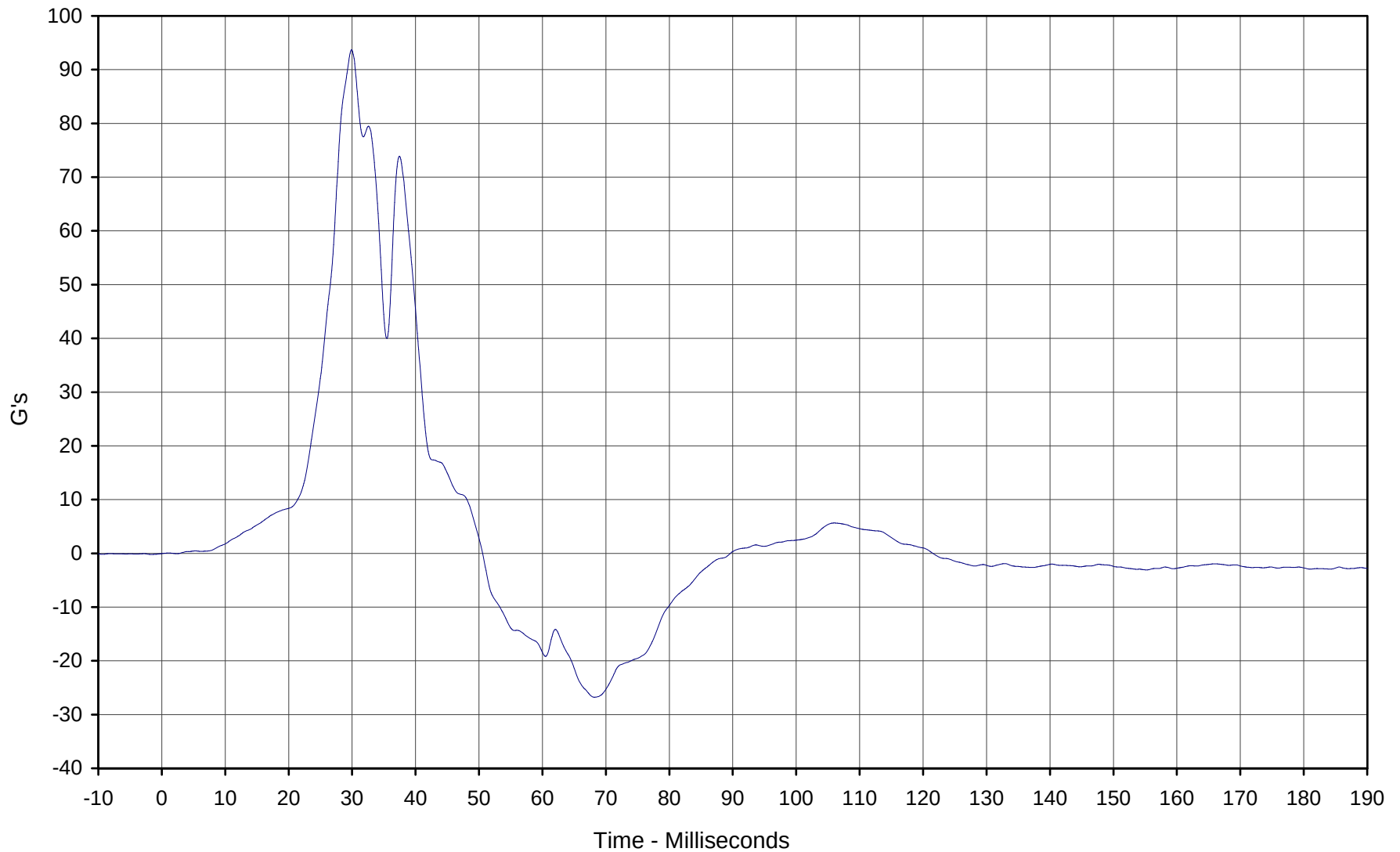
Date of Test: 12/9/99

Curve Number: IN1-019

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Pelvis Primary Y

Maximum Value: 93.7 at 29.9 Milliseconds

Minimum Value: -26.8 at 68.2 Milliseconds

SAE Filter Class: 180

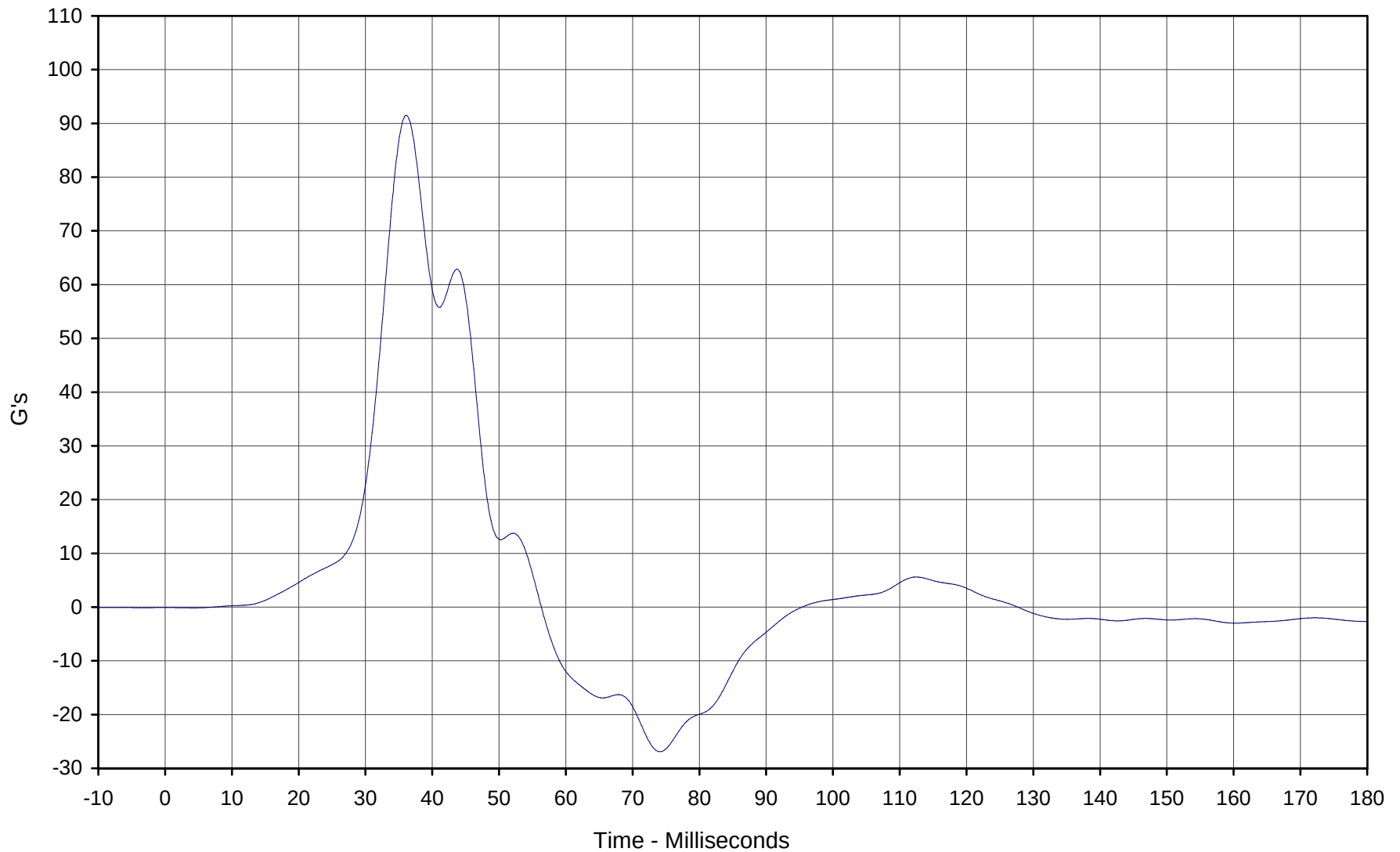
Date of Test: 12/9/99

Curve Number: FIL-020

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Pelvis Primary Y

Maximum Value: 91.5 at 30.7 Milliseconds

Minimum Value: -26.9 at 68.7 Milliseconds

SAE Filter Class: FIR 100

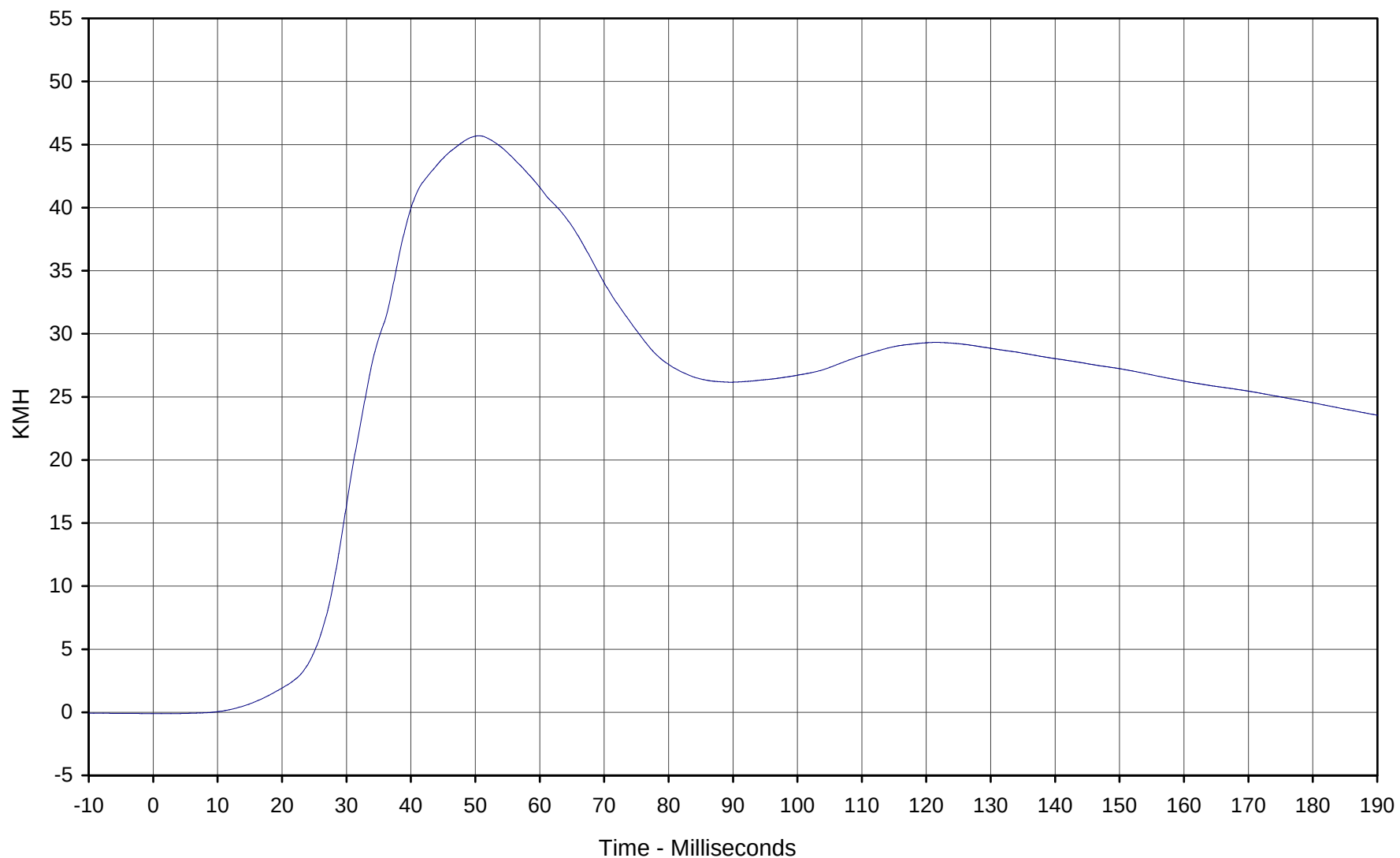
Date of Test: 12/9/99

Curve Number: FIR-020

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Pelvis Primary Y Velocity

Maximum Value: 45.7 at 50.6 Milliseconds

Minimum Value: -0.1 at 0.3 Milliseconds

SAE Filter Class: 180

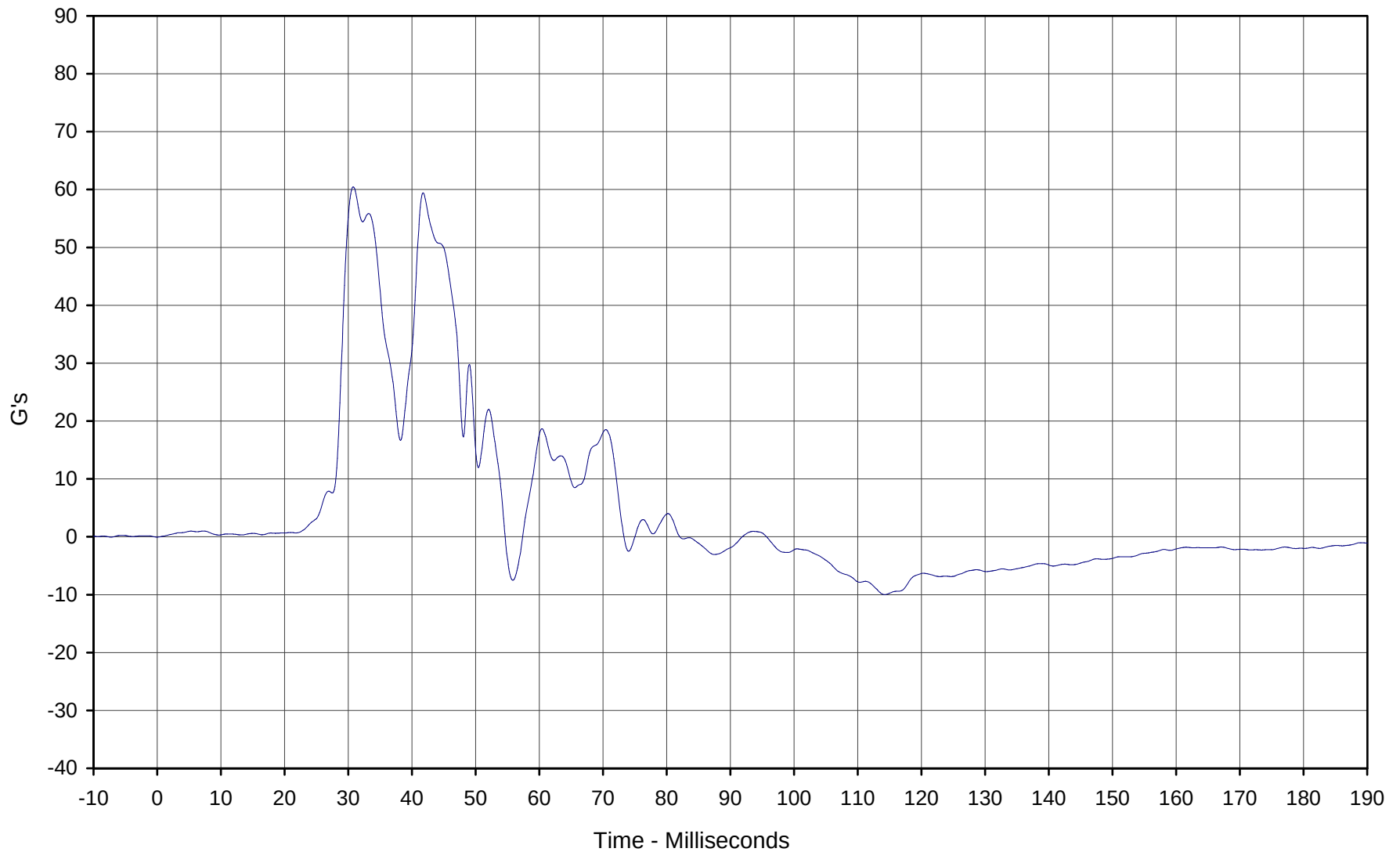
Date of Test: 12/9/99

Curve Number: IN1-020

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Upper Rib Redundant

Maximum Value: 60.5 at 30.8 Milliseconds

Minimum Value: -10.0 at 114.2 Milliseconds

SAE Filter Class: 180

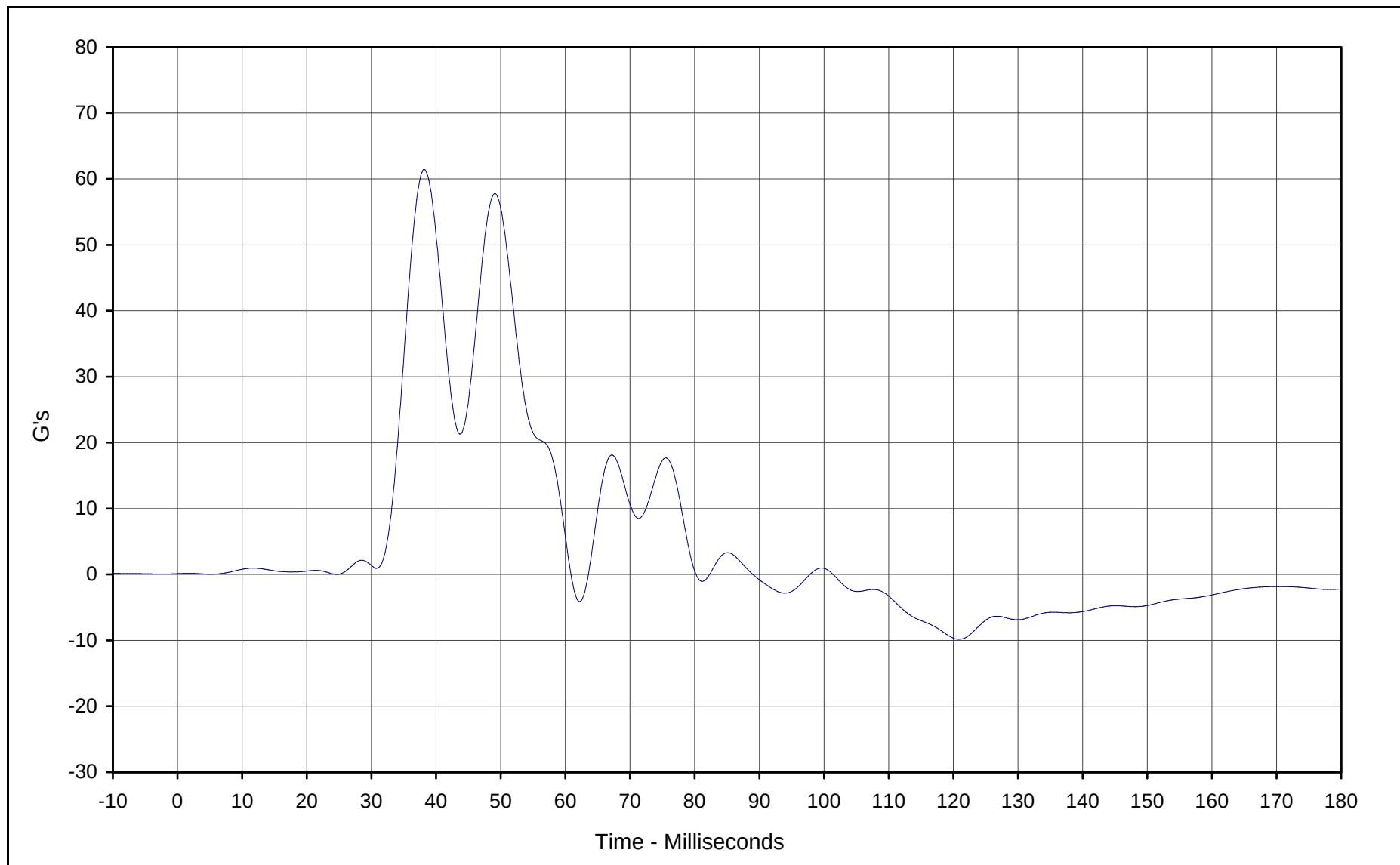
Date of Test: 12/9/99

Curve Number: FIL-021

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Upper Rib Redundant

Maximum Value: 61.4 at 32.8 Milliseconds

Minimum Value: -9.8 at 115.5 Milliseconds

SAE Filter Class: FIR 100

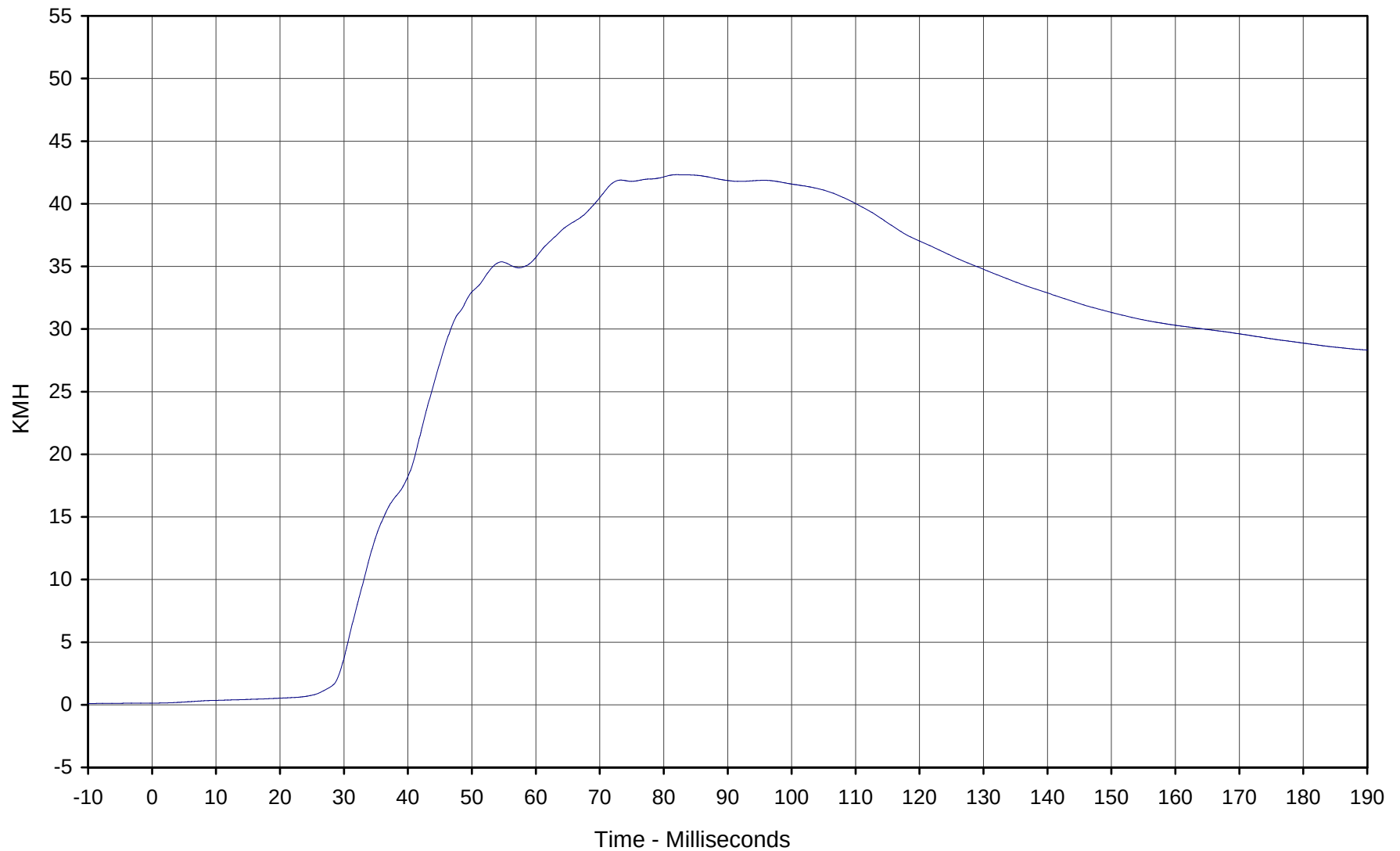
Date of Test: 12/9/99

Curve Number: FIR-021

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Upper Rib Redundant Y Velocity

Maximum Value: 42.3 at 82.1 Milliseconds

Minimum Value: 0.1 at 0.4 Milliseconds

SAE Filter Class: 180

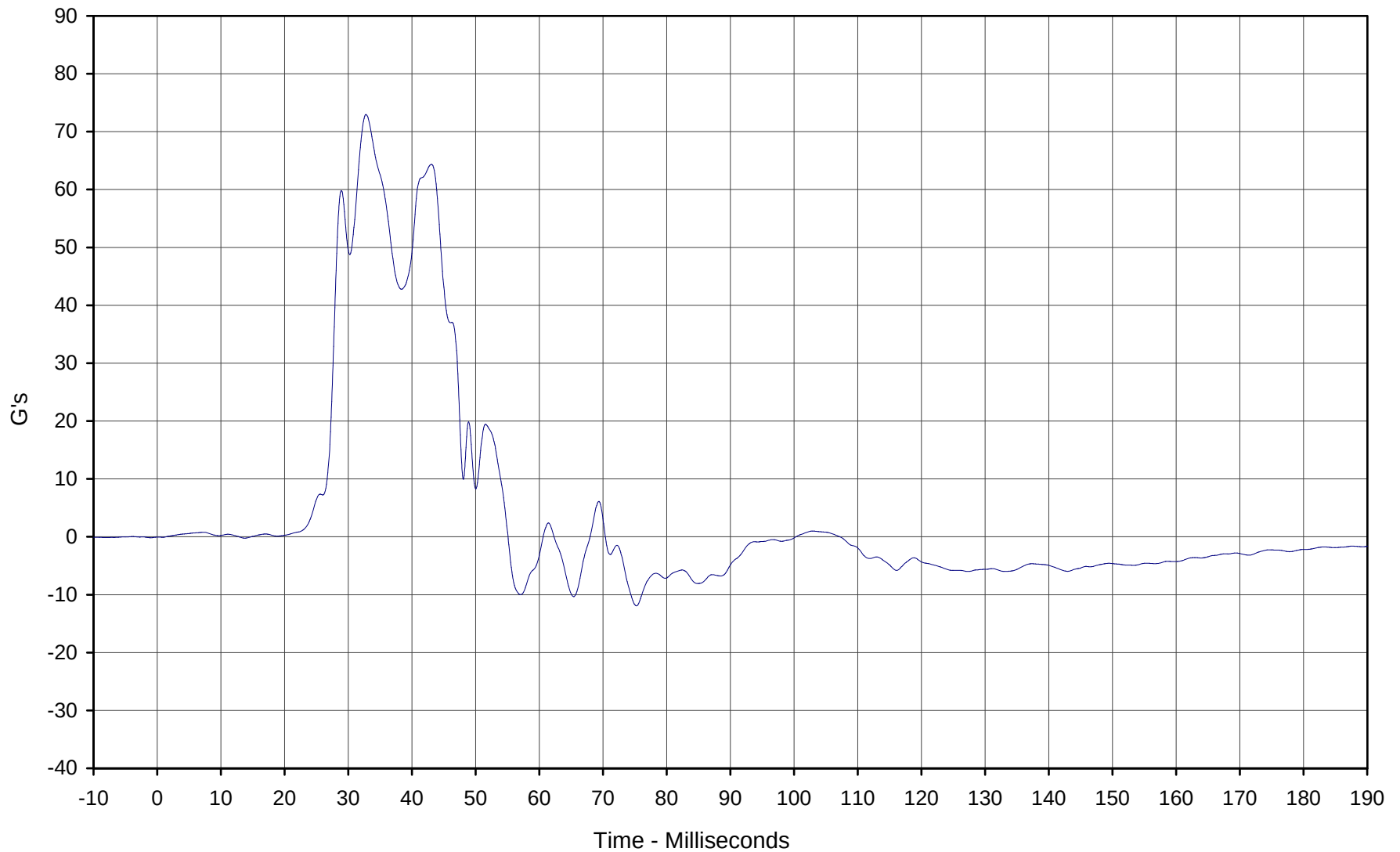
Date of Test: 12/9/99

Curve Number: IN1-021

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Lower Rib Redundant

Maximum Value: 73.0 at 32.8 Milliseconds

Minimum Value: -11.9 at 75.2 Milliseconds

SAE Filter Class: 180

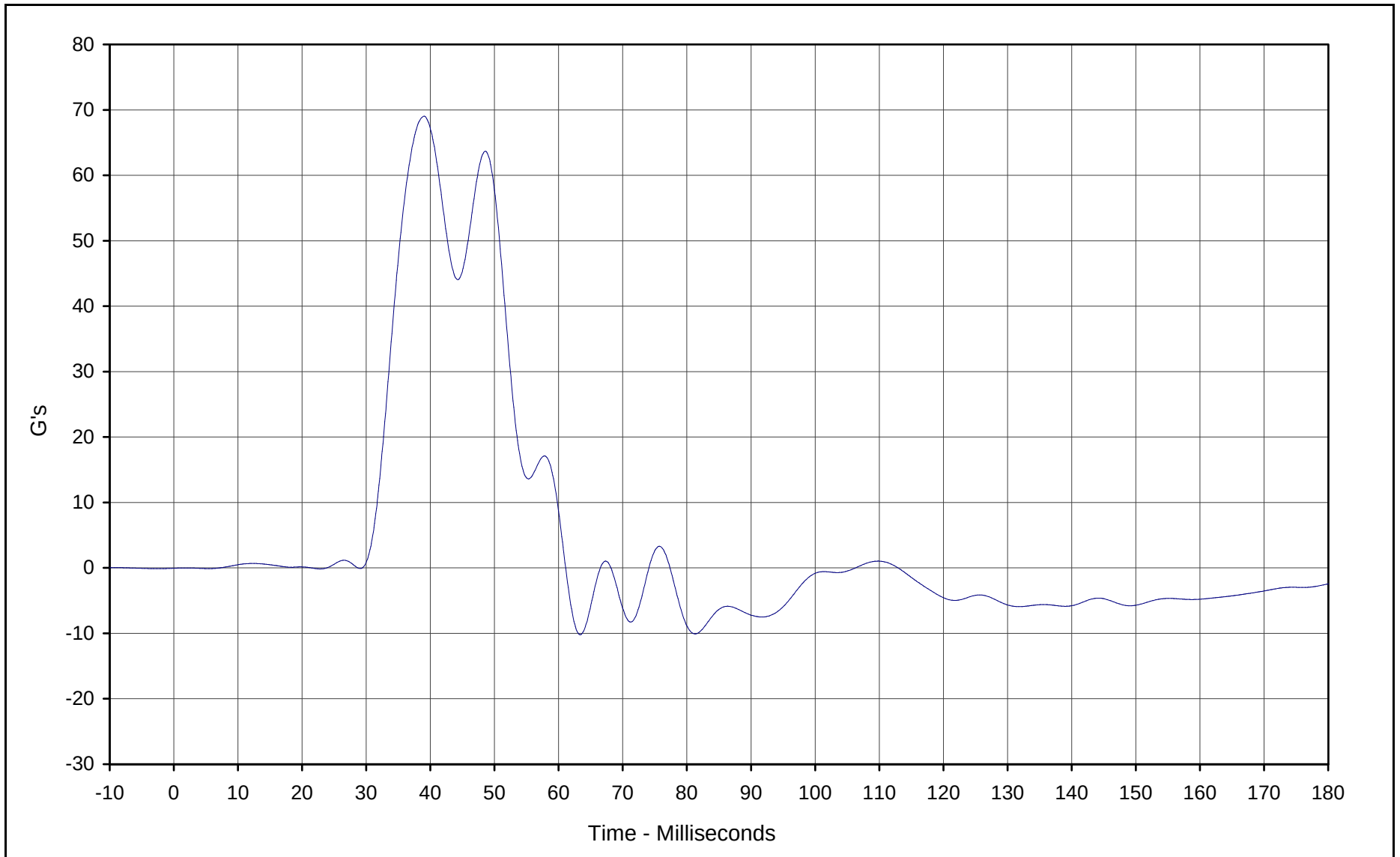
Date of Test: 12/9/99

Curve Number: FIL-022

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Lower Rib Redundant

Maximum Value: 69.0 at 33.6 Milliseconds

Minimum Value: -10.2 at 58.0 Milliseconds

SAE Filter Class: FIR 100

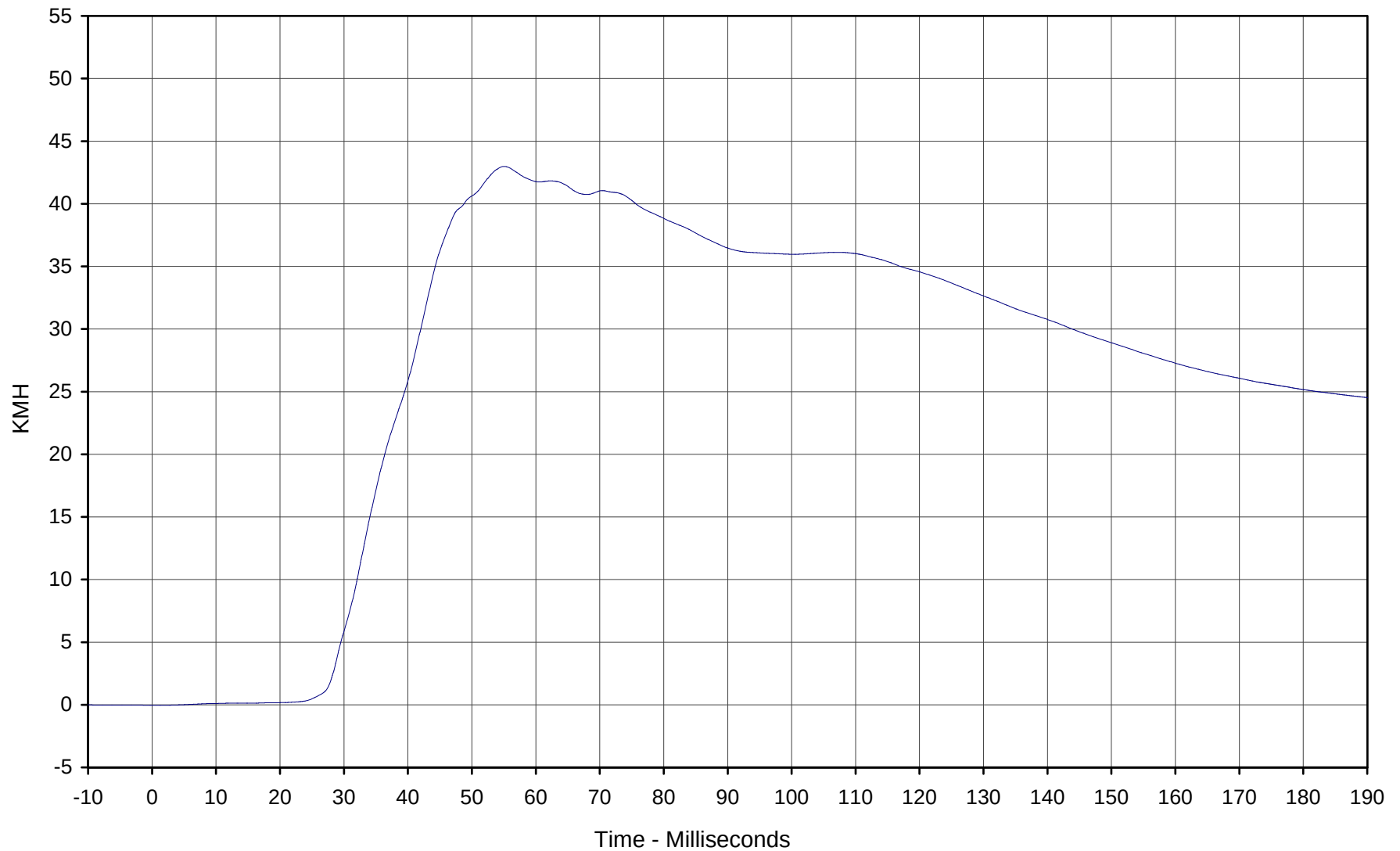
Date of Test: 12/9/99

Curve Number: FIR-022

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Lower Rib Redundant Y Velocity

Maximum Value: 43.0 at 55.1 Milliseconds

Minimum Value: 0.0 at 1.4 Milliseconds

SAE Filter Class: 180

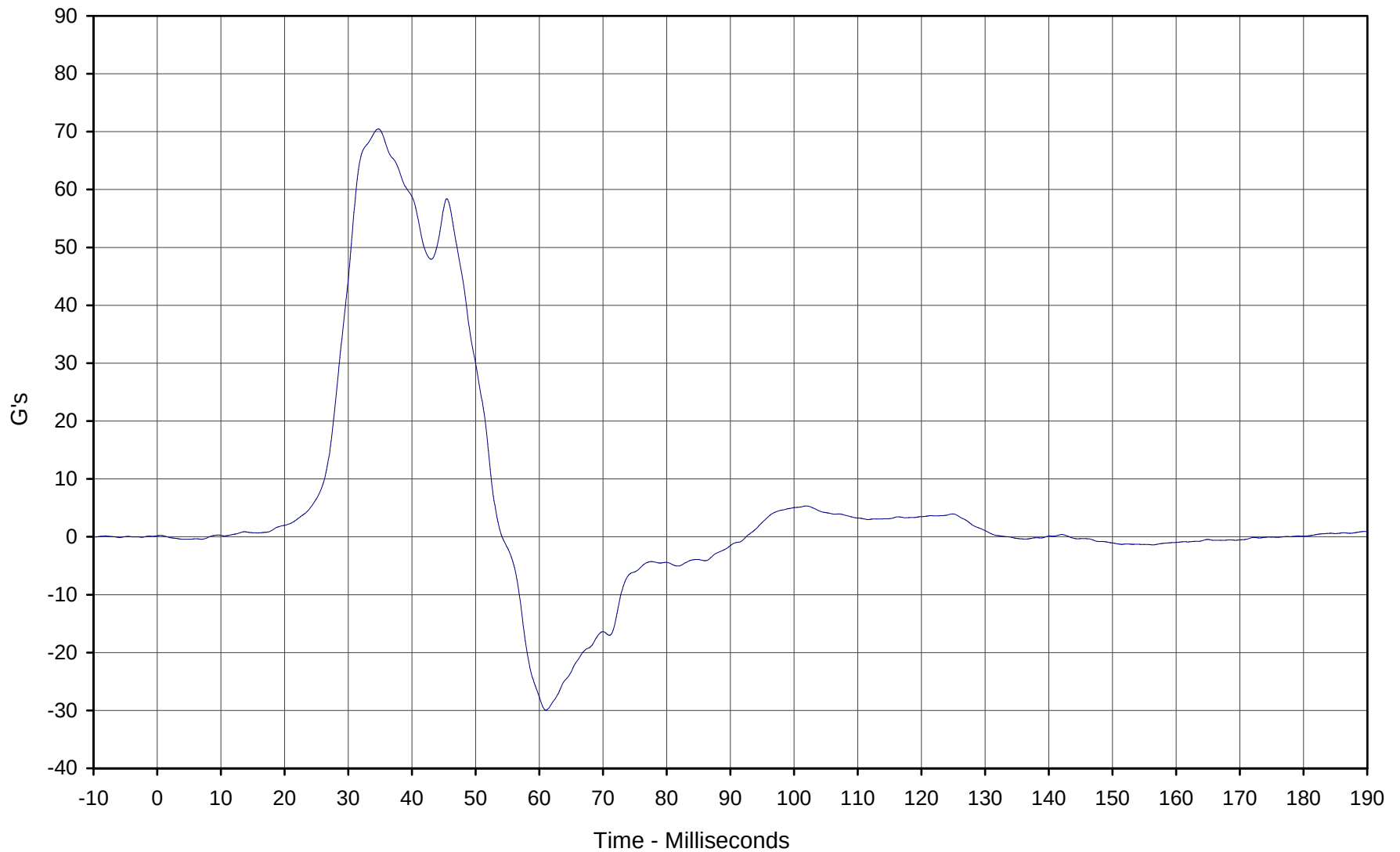
Date of Test: 12/9/99

Curve Number: IN1-022

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Lower Spine Redundant

Maximum Value: 70.5 at 34.7 Milliseconds

Minimum Value: -29.9 at 61.0 Milliseconds

SAE Filter Class: 180

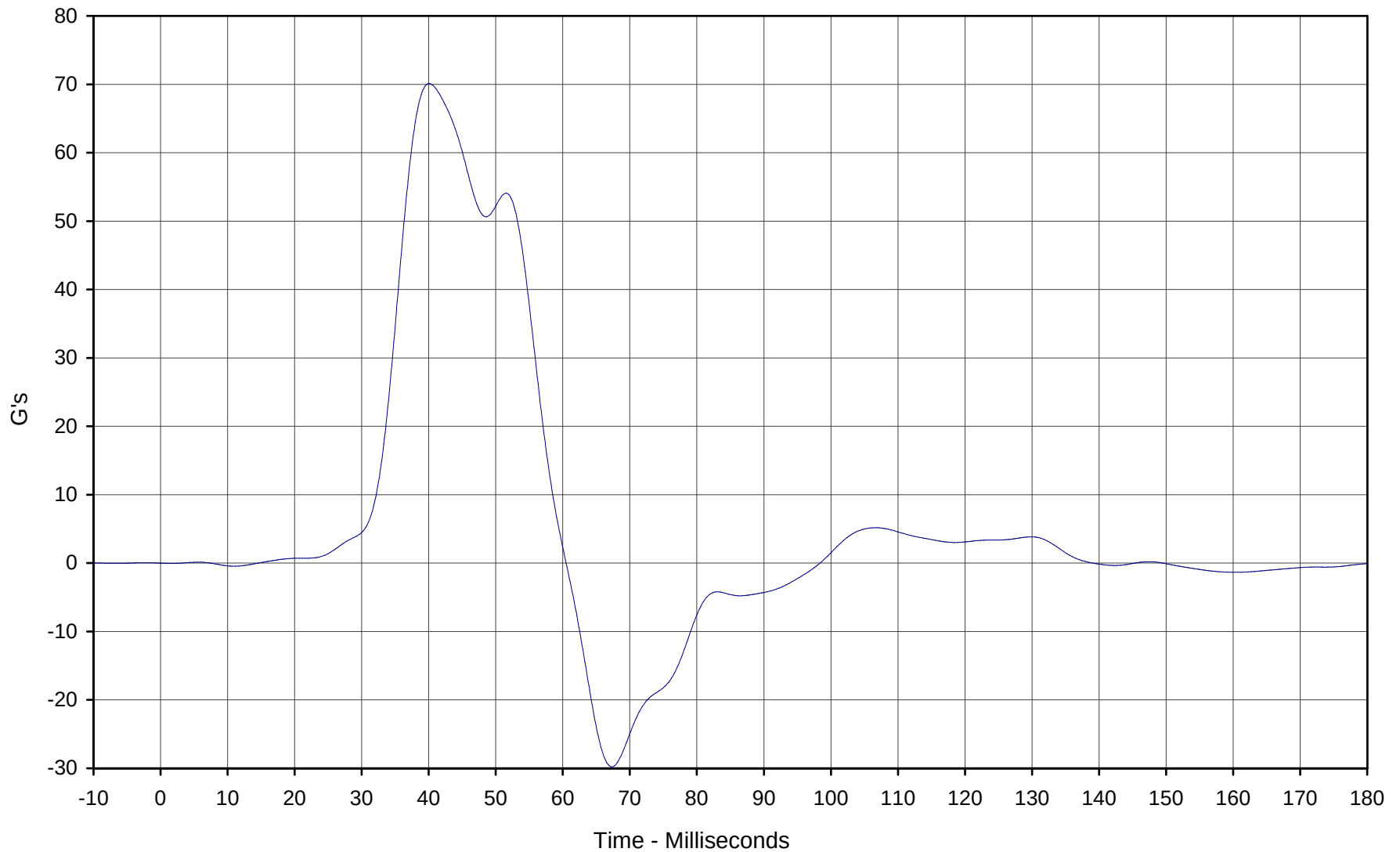
Date of Test: 12/9/99

Curve Number: FIL-023

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Lower Spine Redundant

Maximum Value: 70.1 at 34.7 Milliseconds

Minimum Value: -29.8 at 61.9 Milliseconds

SAE Filter Class: FIR 100

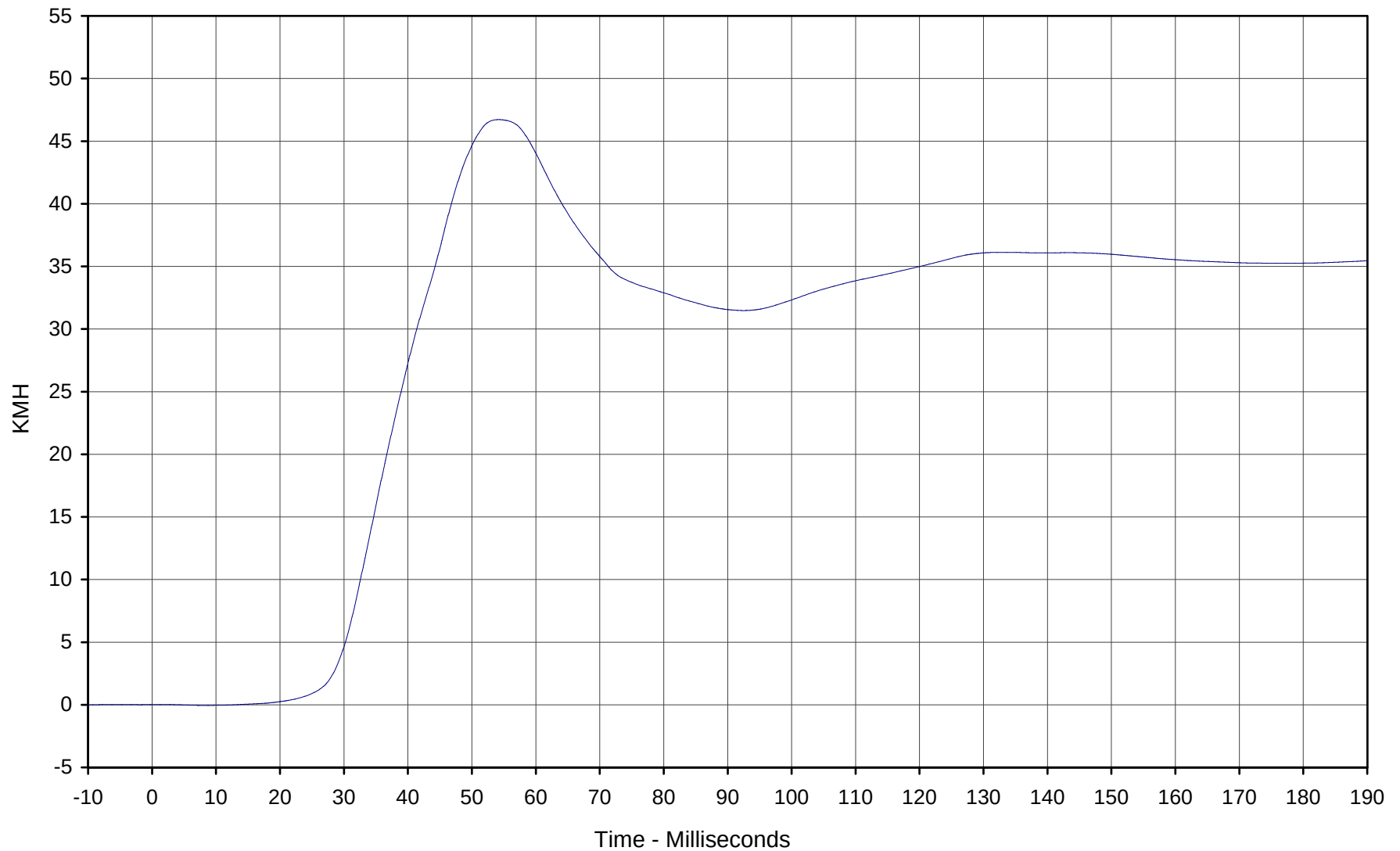
Date of Test: 12/9/99

Curve Number: FIR-023

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Lower Spine Redundant Y Velocity

Maximum Value: 46.7 at 54.2 Milliseconds

Minimum Value: -0.1 at 8.2 Milliseconds

SAE Filter Class: 180

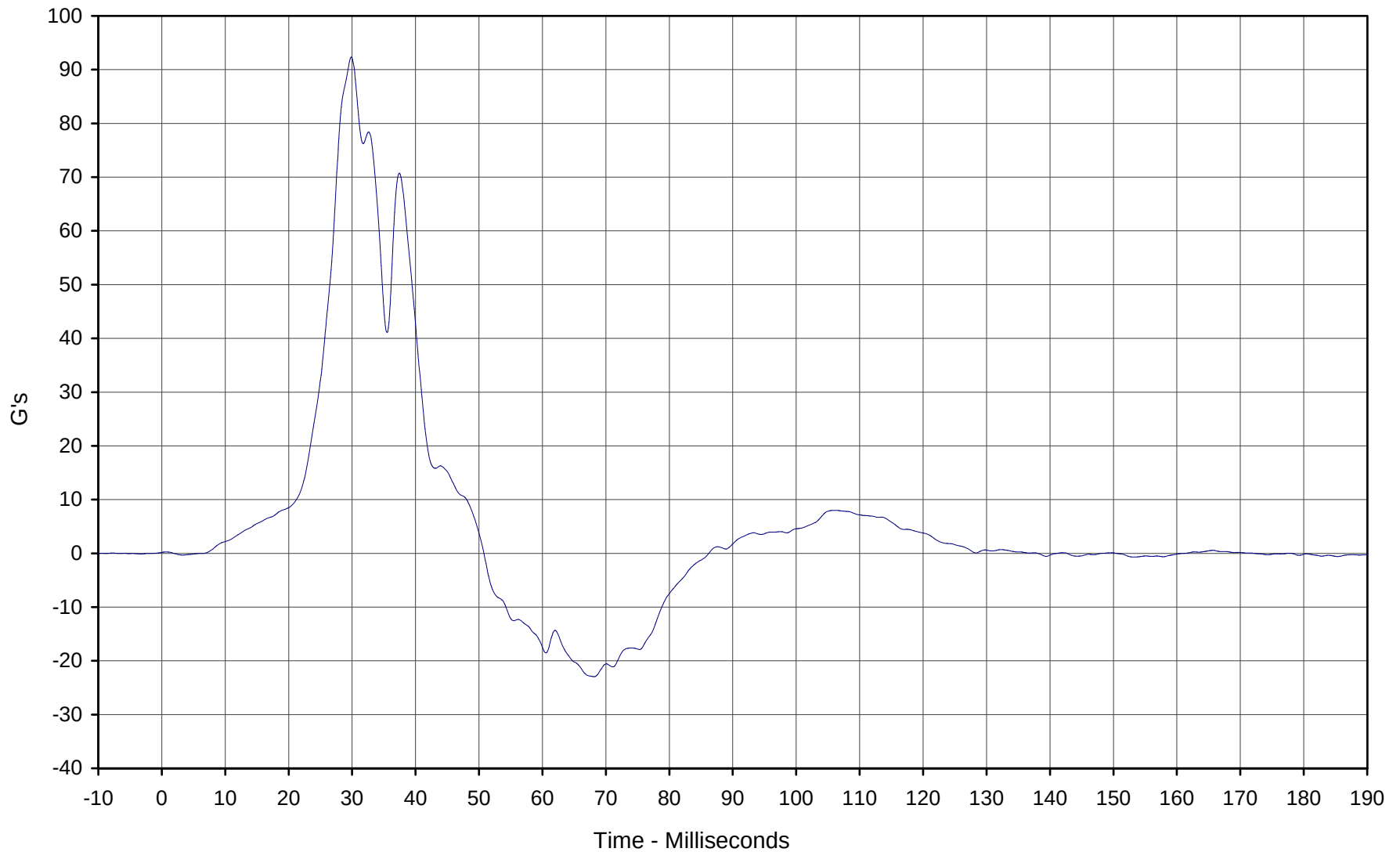
Date of Test: 12/9/99

Curve Number: IN1-023

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

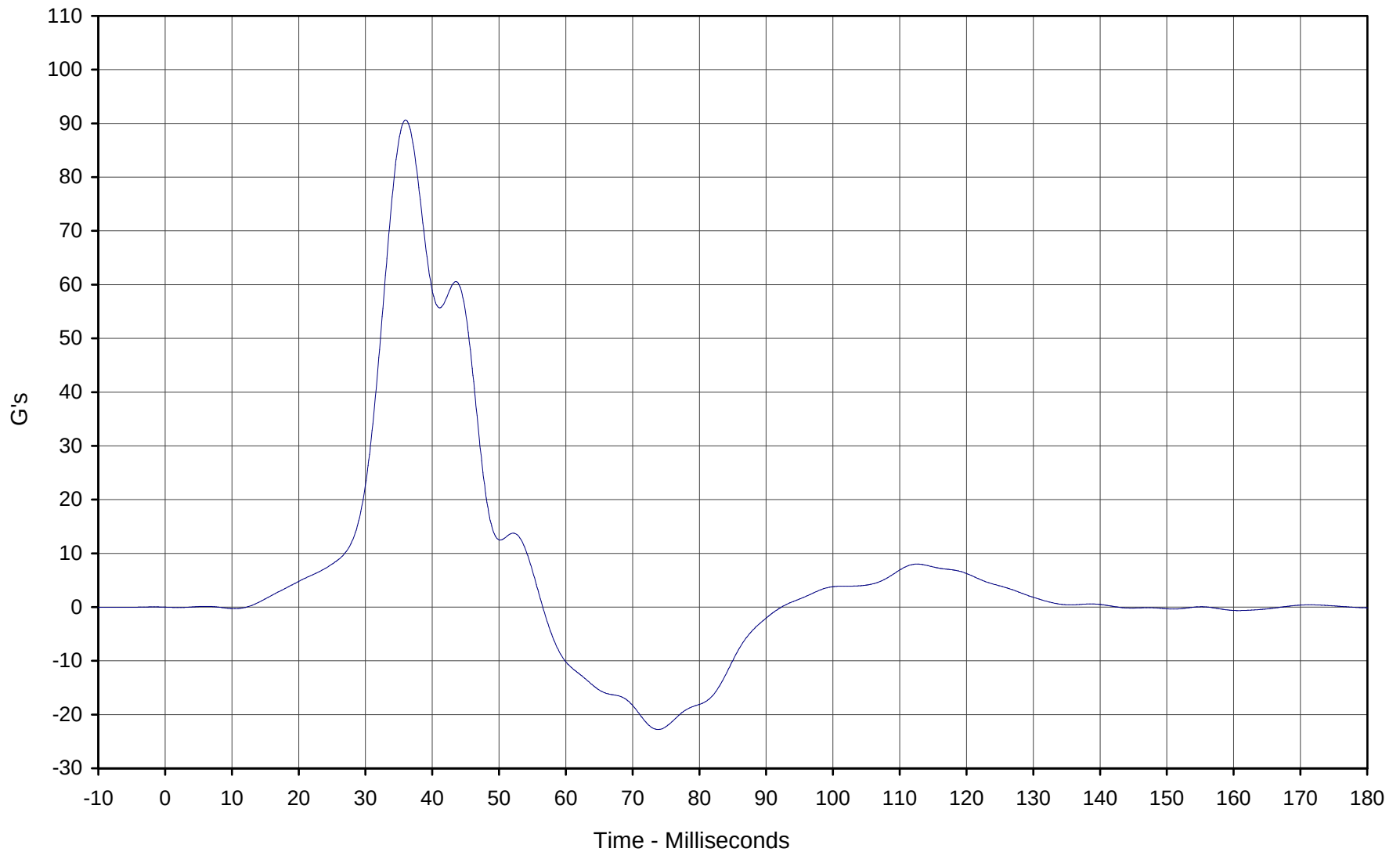




Curve Description: Passenger Pelvis Redundant Y
Maximum Value: 92.4 at 29.9 Milliseconds
Minimum Value: -22.9 at 68.2 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: FIL-024

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

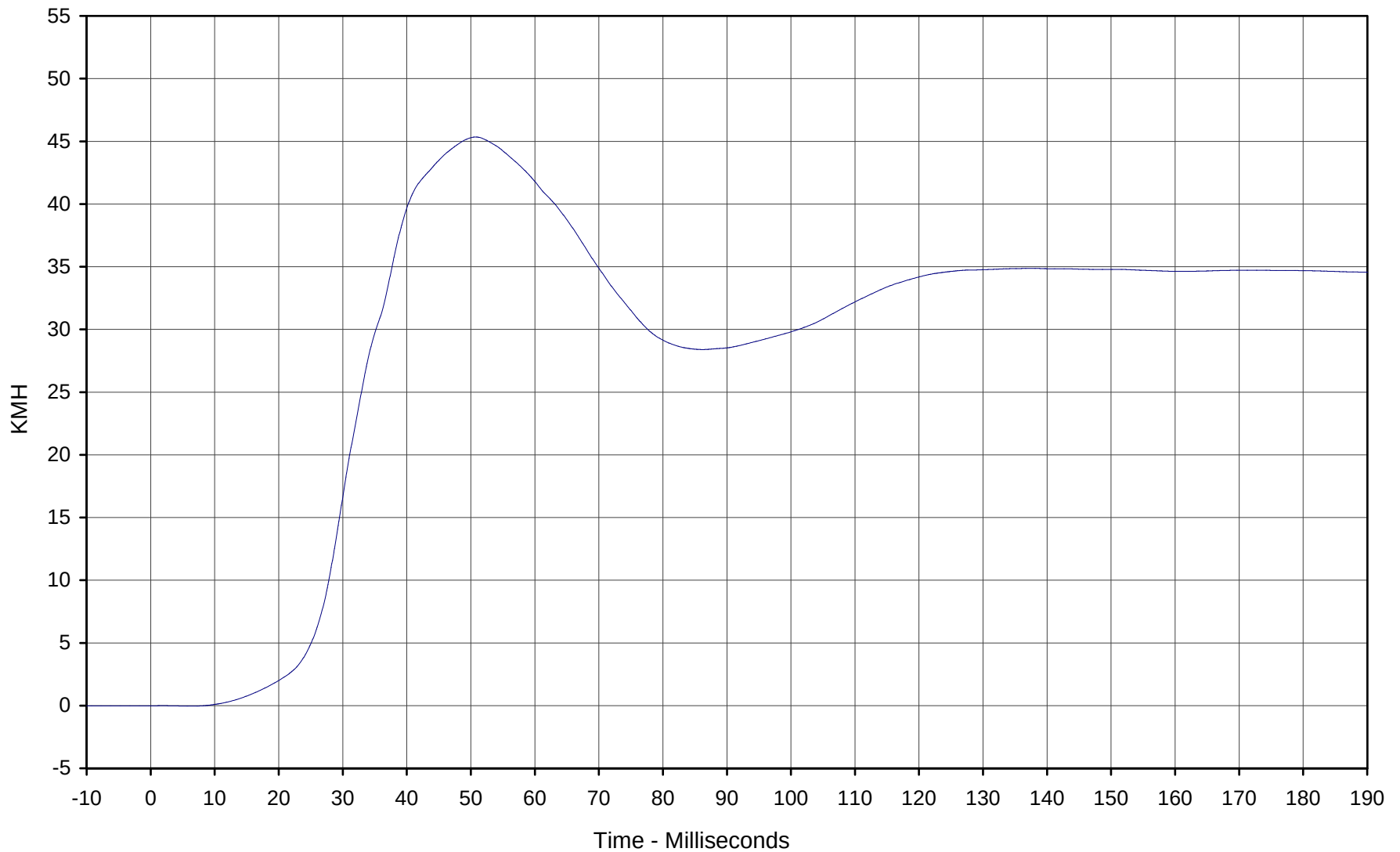




Curve Description: Passenger Pelvis Redundant Y
Maximum Value: 90.6 at 30.6 Milliseconds
Minimum Value: -22.8 at 68.4 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 12/9/99
Curve Number: FIR-024

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Pelvis Redundant Y Velocity

Maximum Value: 45.3 at 50.8 Milliseconds

Minimum Value: 0.0 at 6.7 Milliseconds

SAE Filter Class: 180

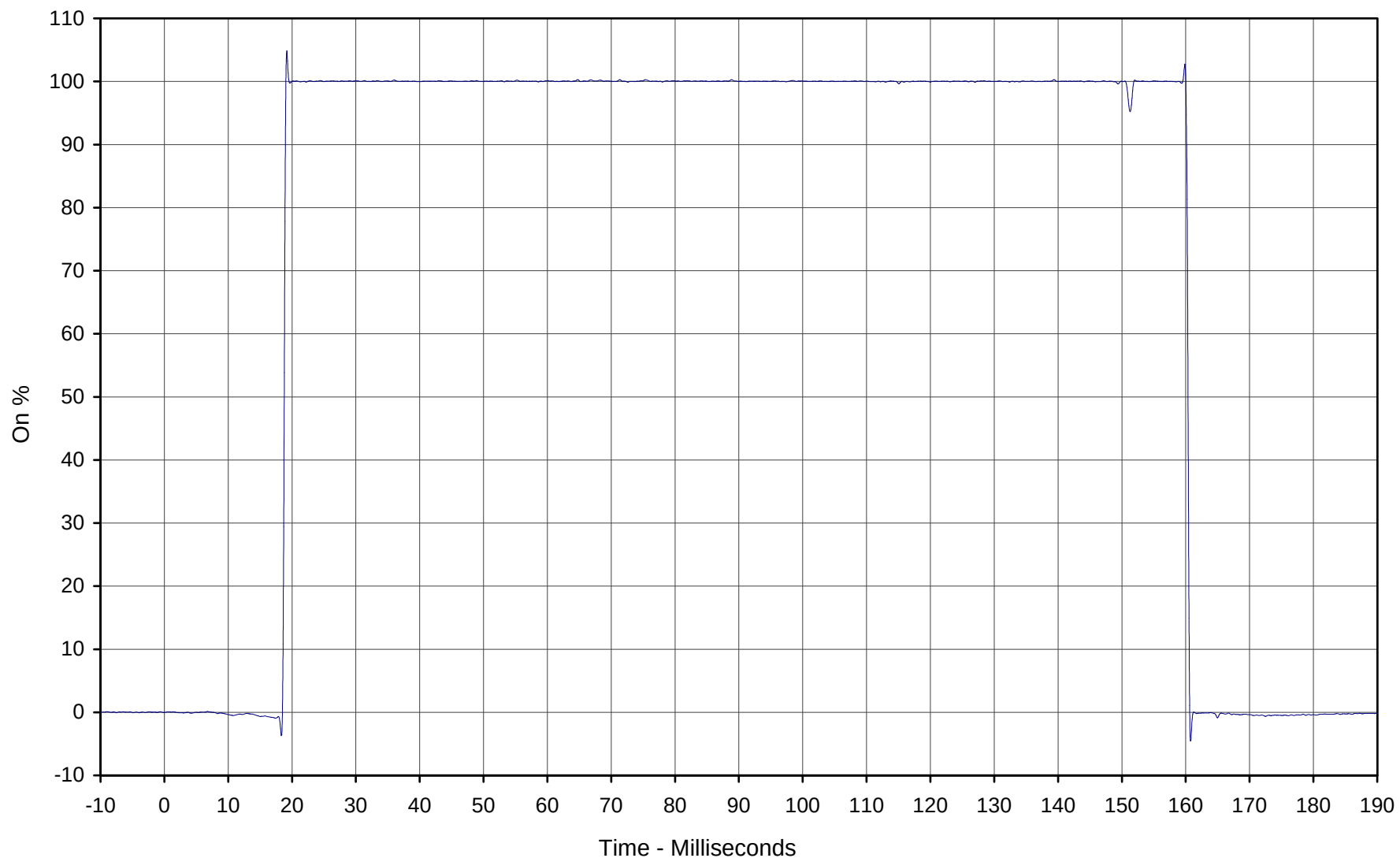
Date of Test: 12/9/99

Curve Number: IN1-024

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Thorax Contact

Maximum Value: 104.9 at 19.2 Milliseconds

Crossing Point: 50% at 18.8 Milliseconds

SAE Filter Class: 600

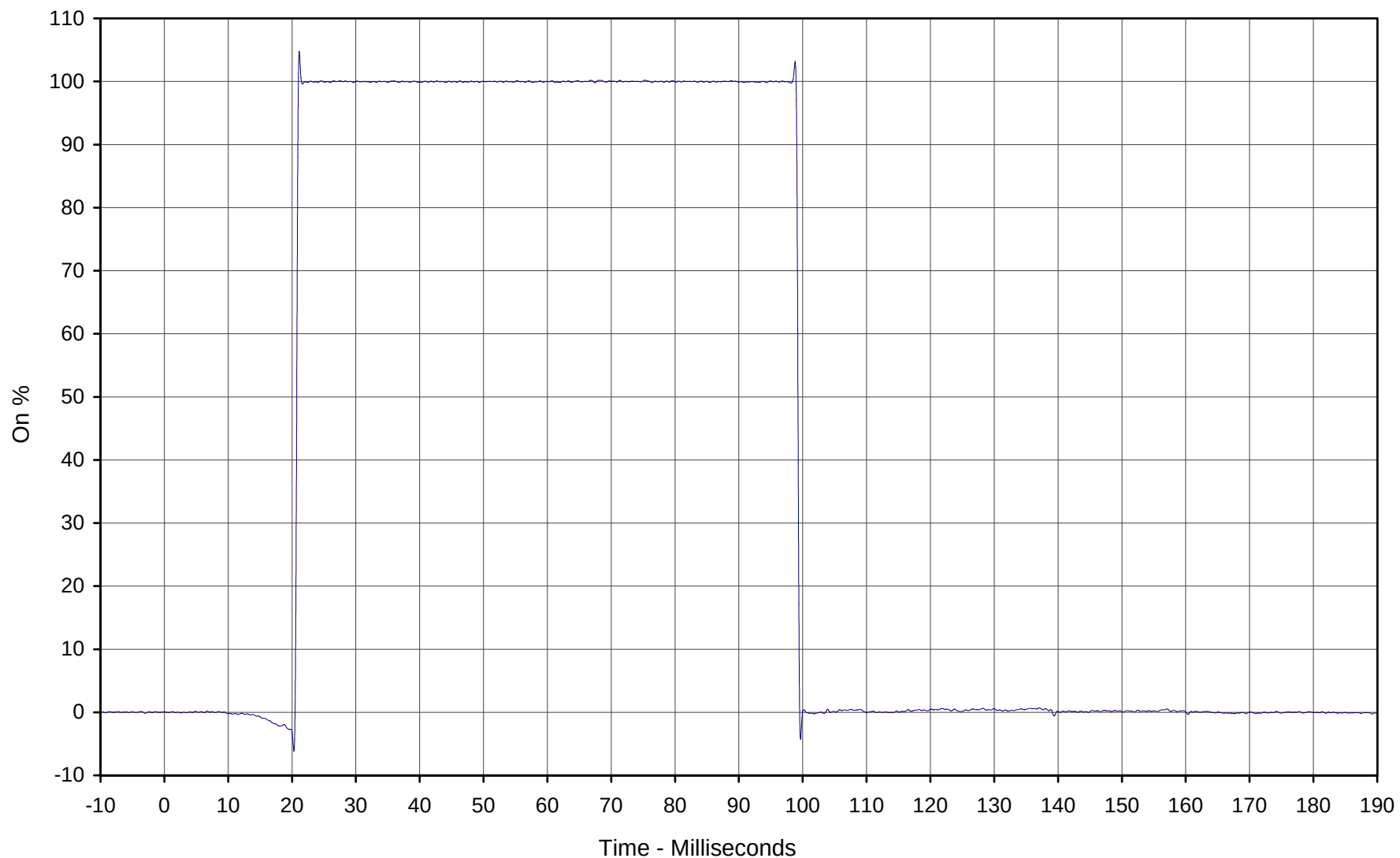
Date of Test: 12/9/99

Curve Number: FIL-025

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Passenger Pelvis Contact

Maximum Value: 104.7 at 21.1 Milliseconds

Crossing Point: 50% at 20.8 Milliseconds

SAE Filter Class: 600

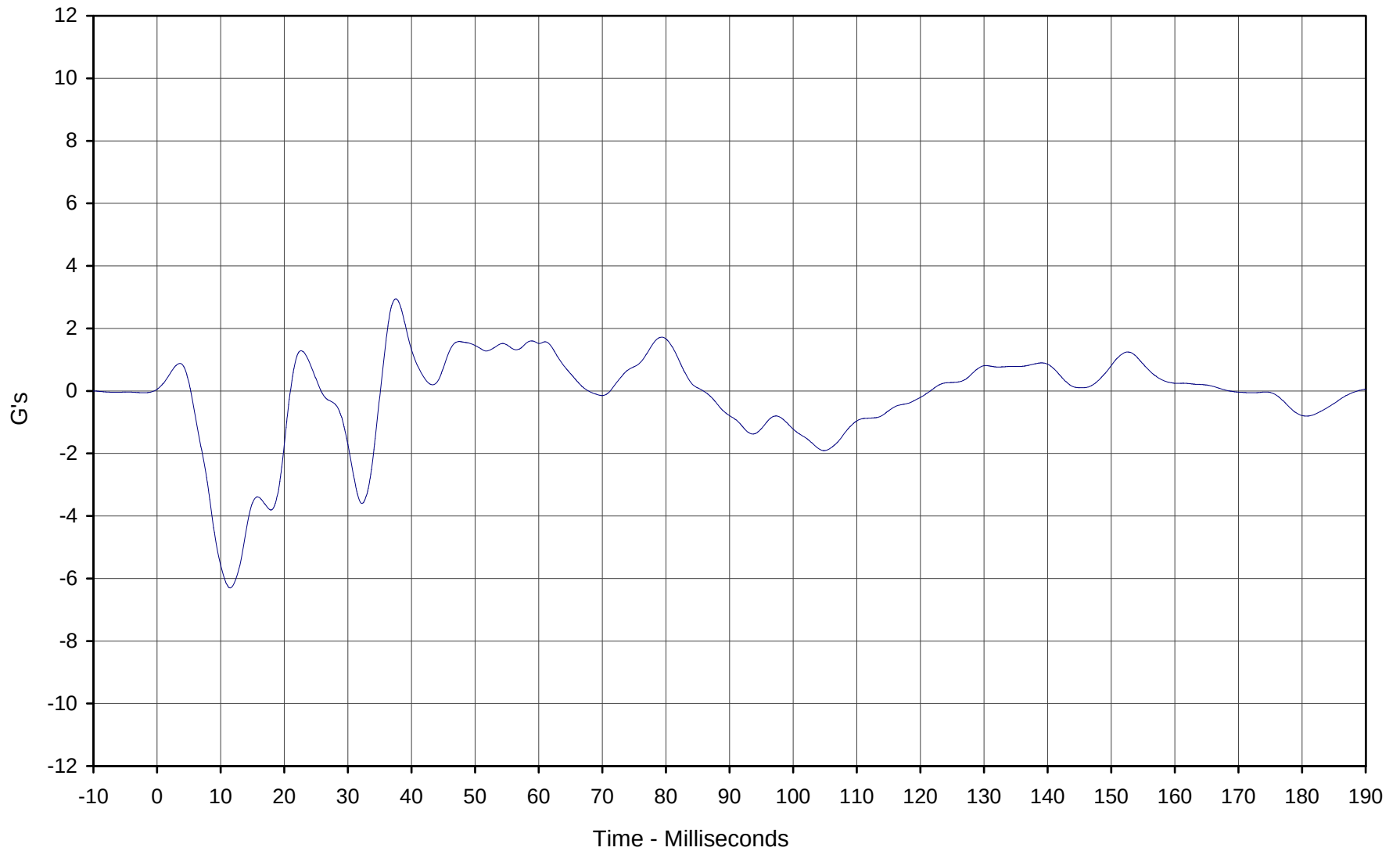
Date of Test: 12/9/99

Curve Number: FIL-026

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

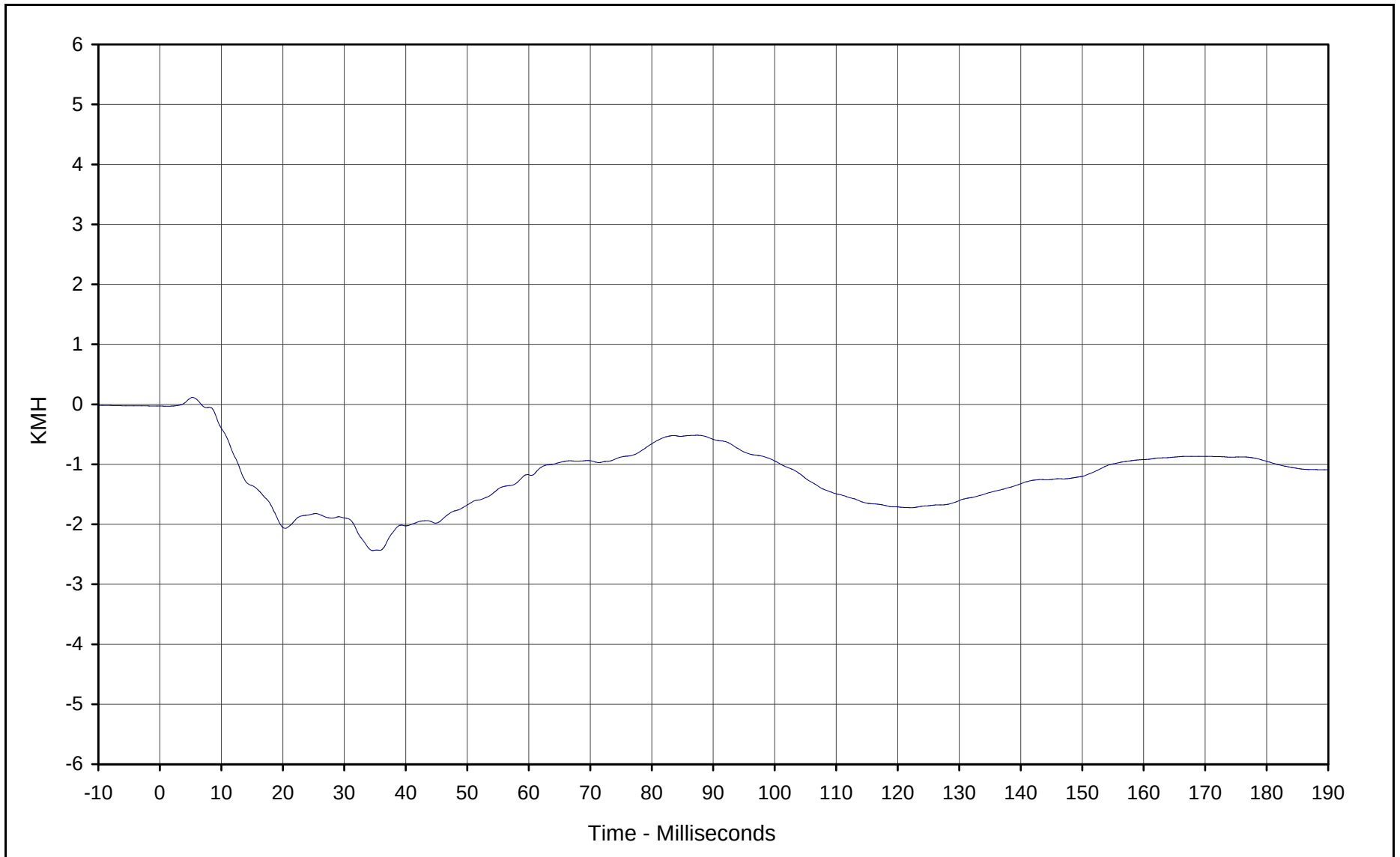




Curve Description: Vehicle Right Sill at Front Seat X
Maximum Value: 2.9 at 37.5 Milliseconds
Minimum Value: -6.3 at 11.5 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: FIL-027

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

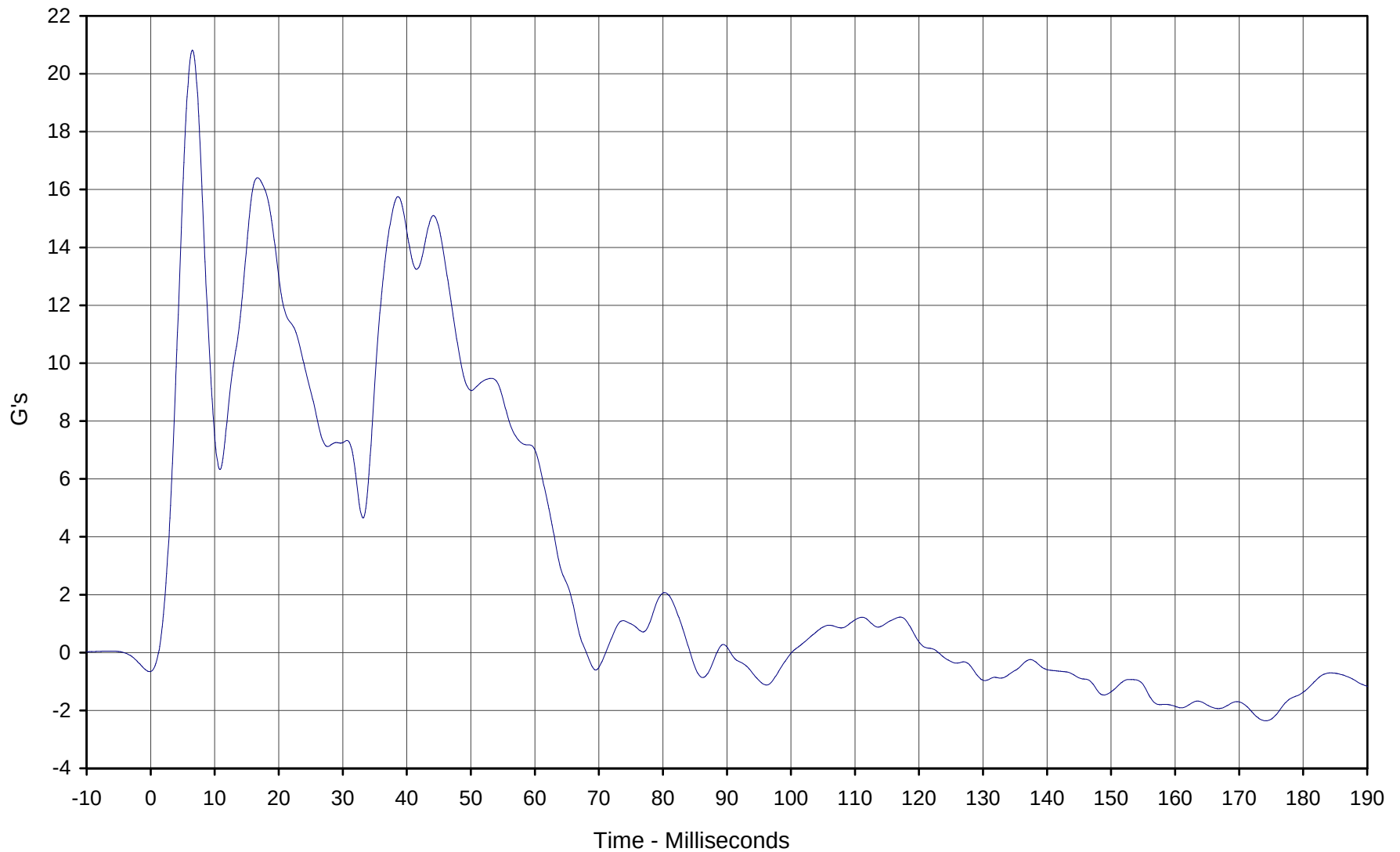




Curve Description: Vehicle Right Sill Front Seat X Velocity
Maximum Value: 0.1 at 5.3 Milliseconds
Minimum Value: -2.4 at 34.6 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN1-027

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Vehicle Right Sill at Front Seat Y

Maximum Value: 20.8 at 6.5 Milliseconds

Minimum Value: -2.4 at 174.2 Milliseconds

SAE Filter Class: 60

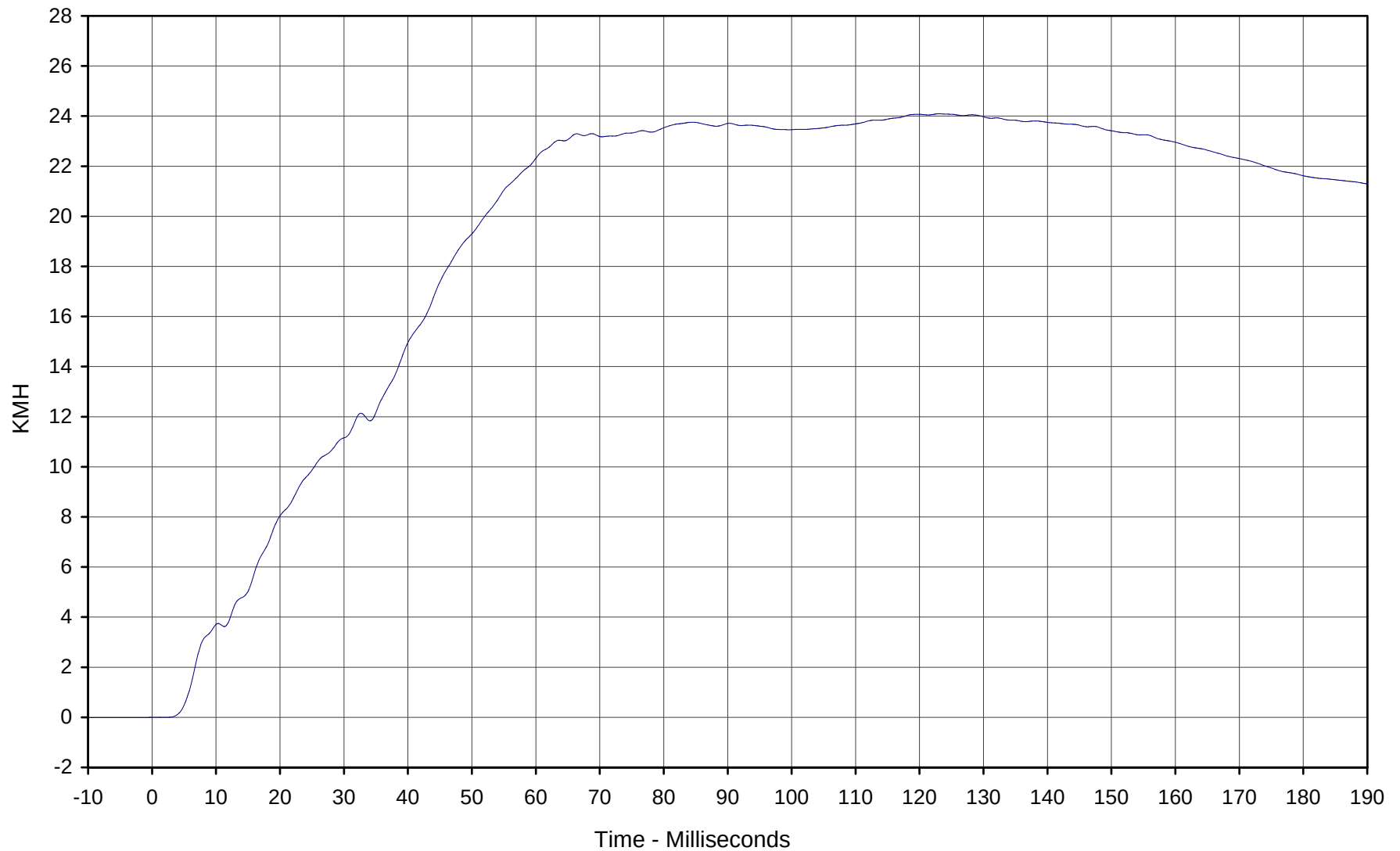
Date of Test: 12/9/99

Curve Number: FIL-028

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Vehicle Right Sill Front Seat Y Velocity

Maximum Value: 24.1 at 123.1 Milliseconds

Minimum Value: 0.0 at 1.9 Milliseconds

SAE Filter Class: 180

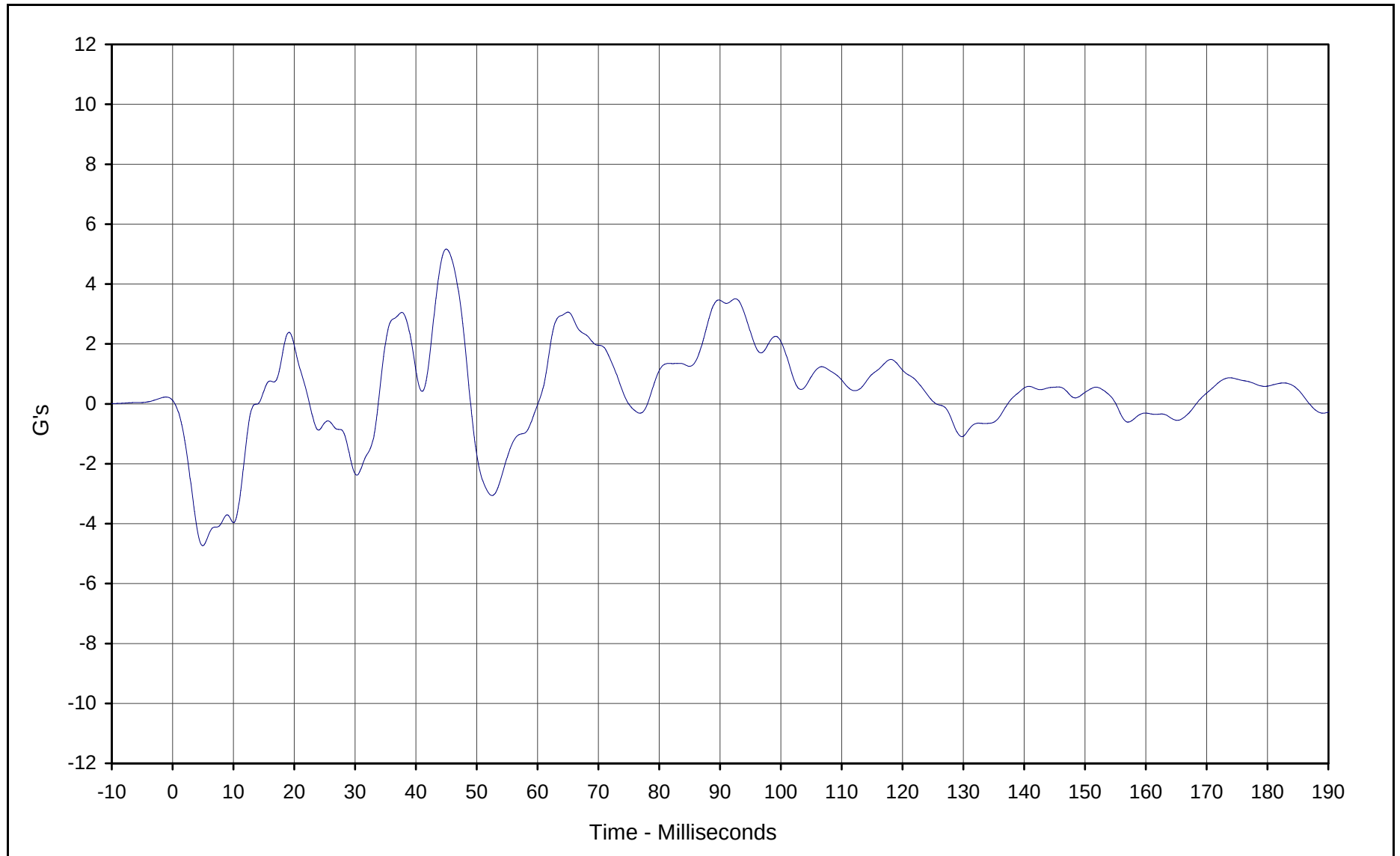
Date of Test: 12/9/99

Curve Number: IN1-028

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Vehicle Right Sill at Front Seat Z

Maximum Value: 5.2 at 45.0 Milliseconds

Minimum Value: -4.7 at 4.9 Milliseconds

SAE Filter Class: 60

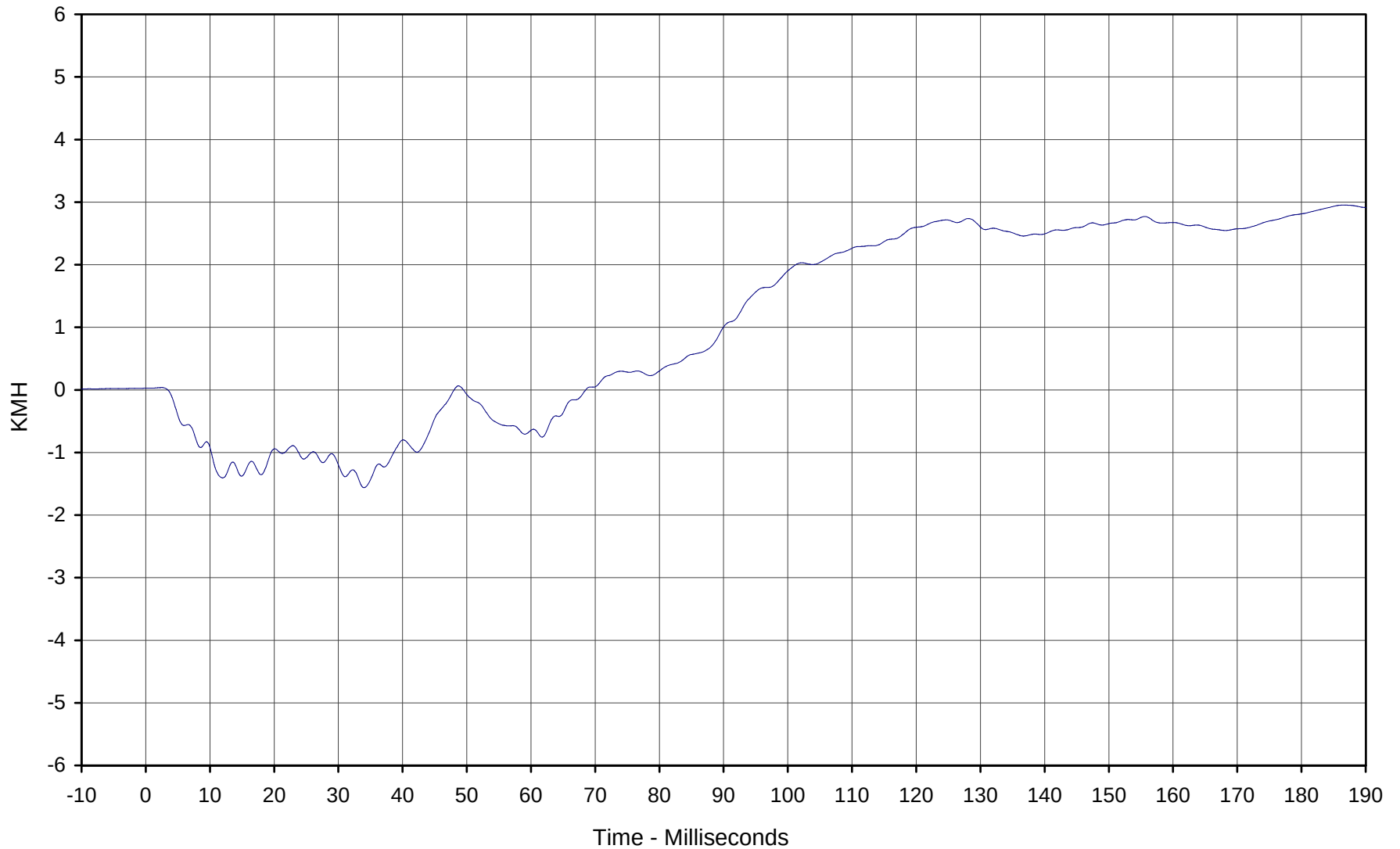
Date of Test: 12/9/99

Curve Number: FIL-029

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Vehicle Right Sill Front Seat Z Velocity

Maximum Value: 3.0 at 186.6 Milliseconds

Minimum Value: -1.6 at 34.0 Milliseconds

SAE Filter Class: 180

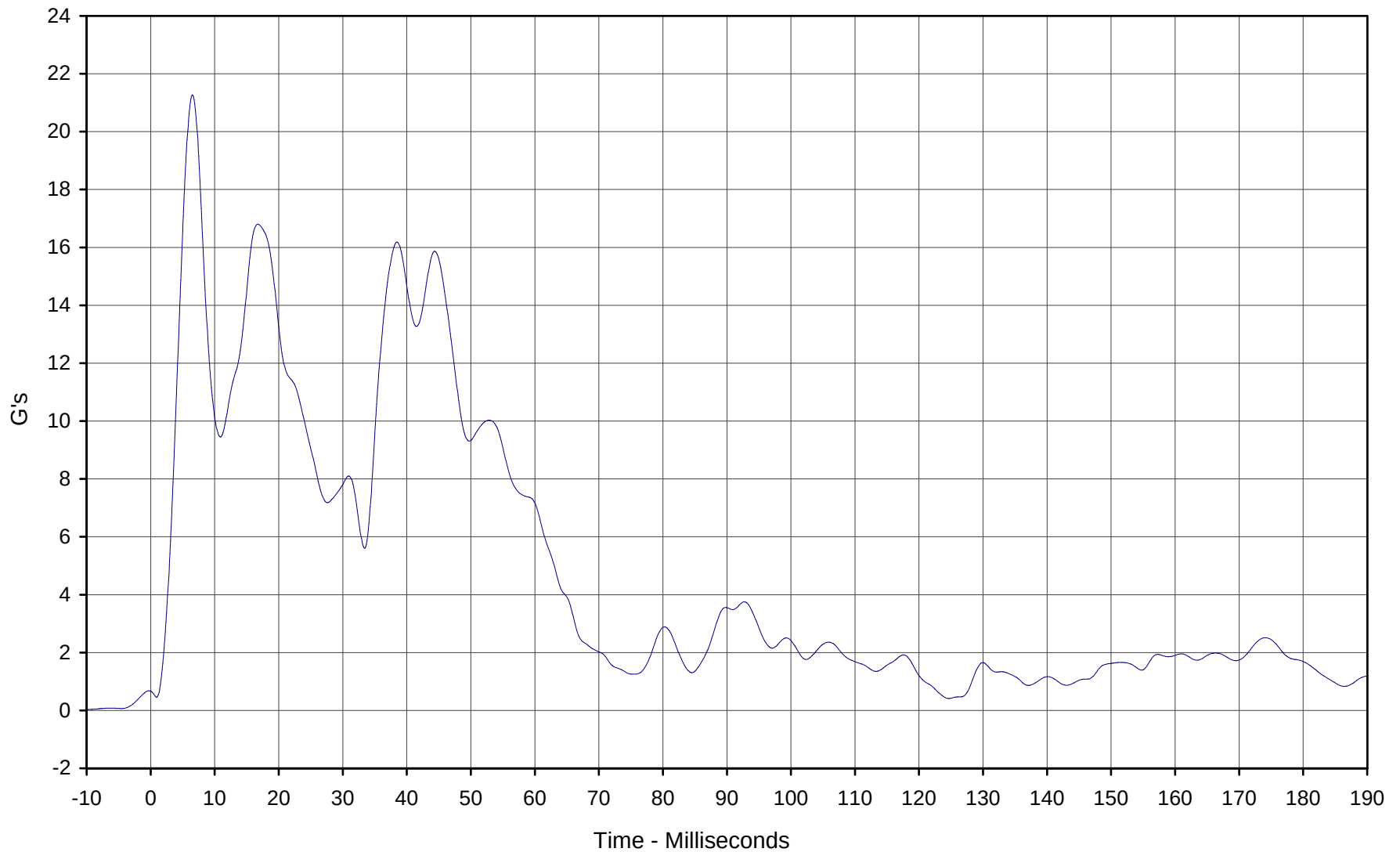
Date of Test: 12/9/99

Curve Number: IN1-029

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

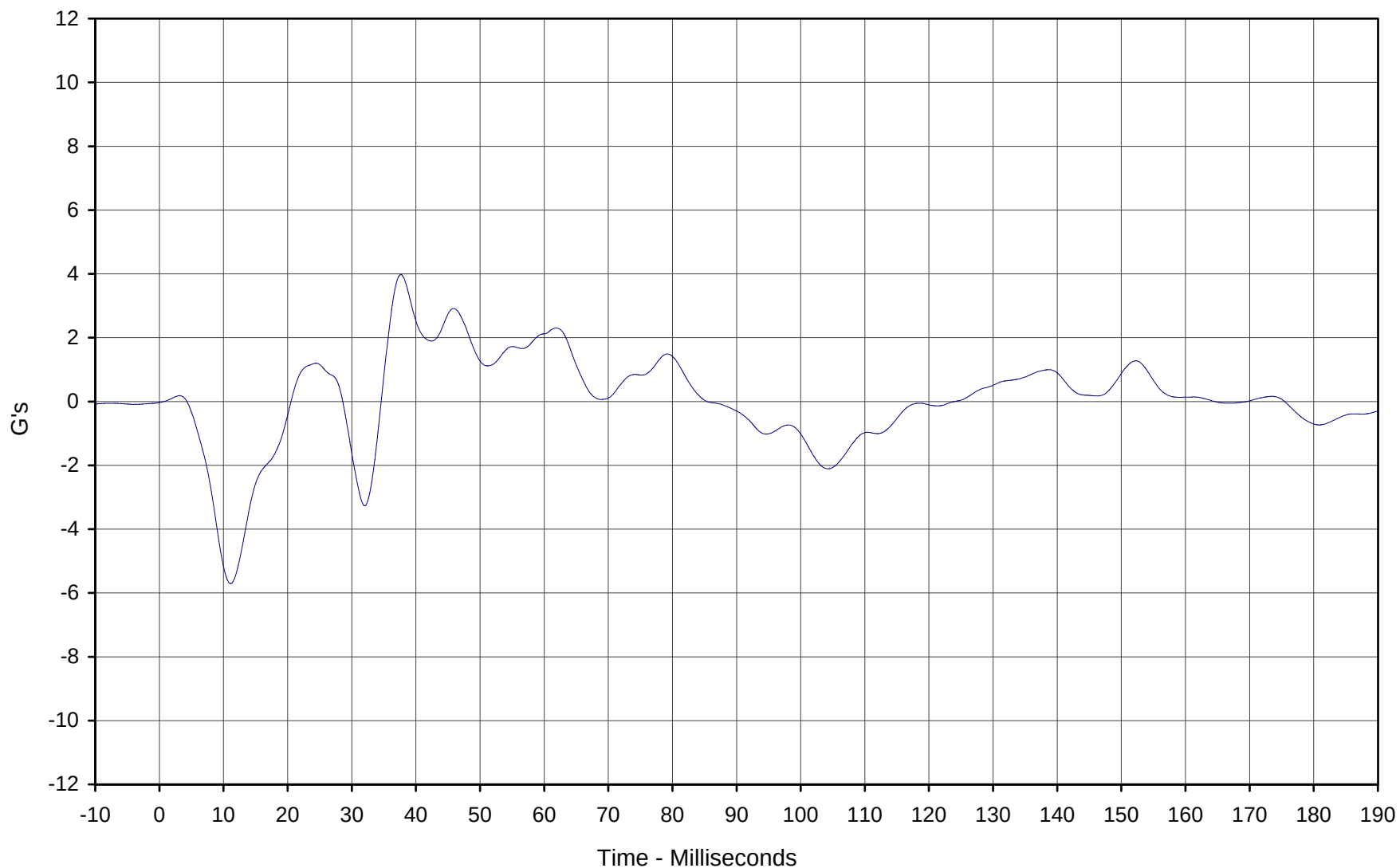




Curve Description: Vehicle Right Front Sill Resultant
Maximum Value: 21.3 at 6.5 Milliseconds
Minimum Value: 0.4 at 124.7 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: RES-027

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

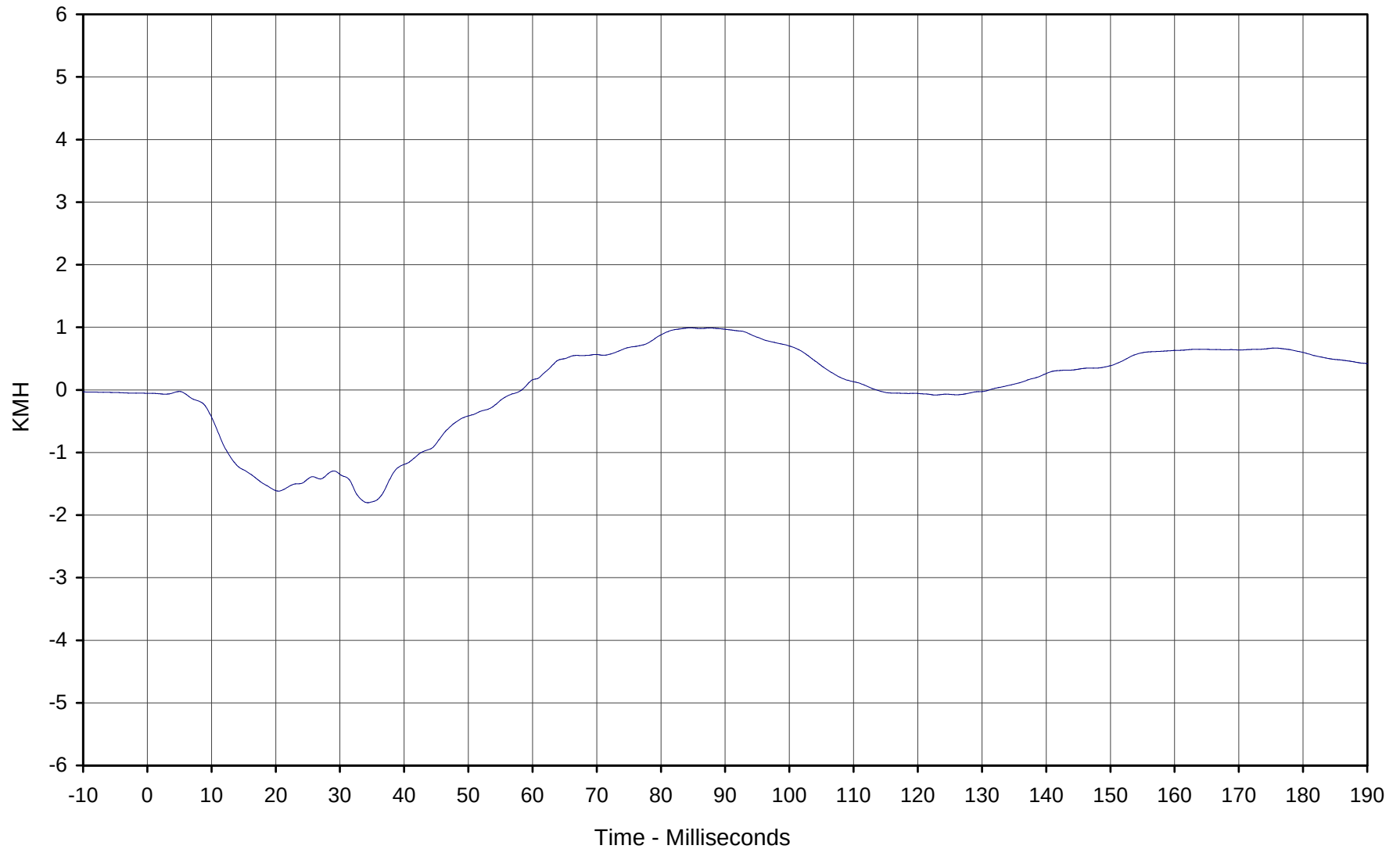




Curve Description: Vehicle Right Sill at Rear Seat X
Maximum Value: 4.0 at 37.6 Milliseconds
Minimum Value: -5.7 at 11.1 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: FIL-030

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Vehicle Right Sill Rear Seat X Velocity

Maximum Value: 1.0 at 84.6 Milliseconds

Minimum Value: -1.8 at 34.3 Milliseconds

SAE Filter Class: 180

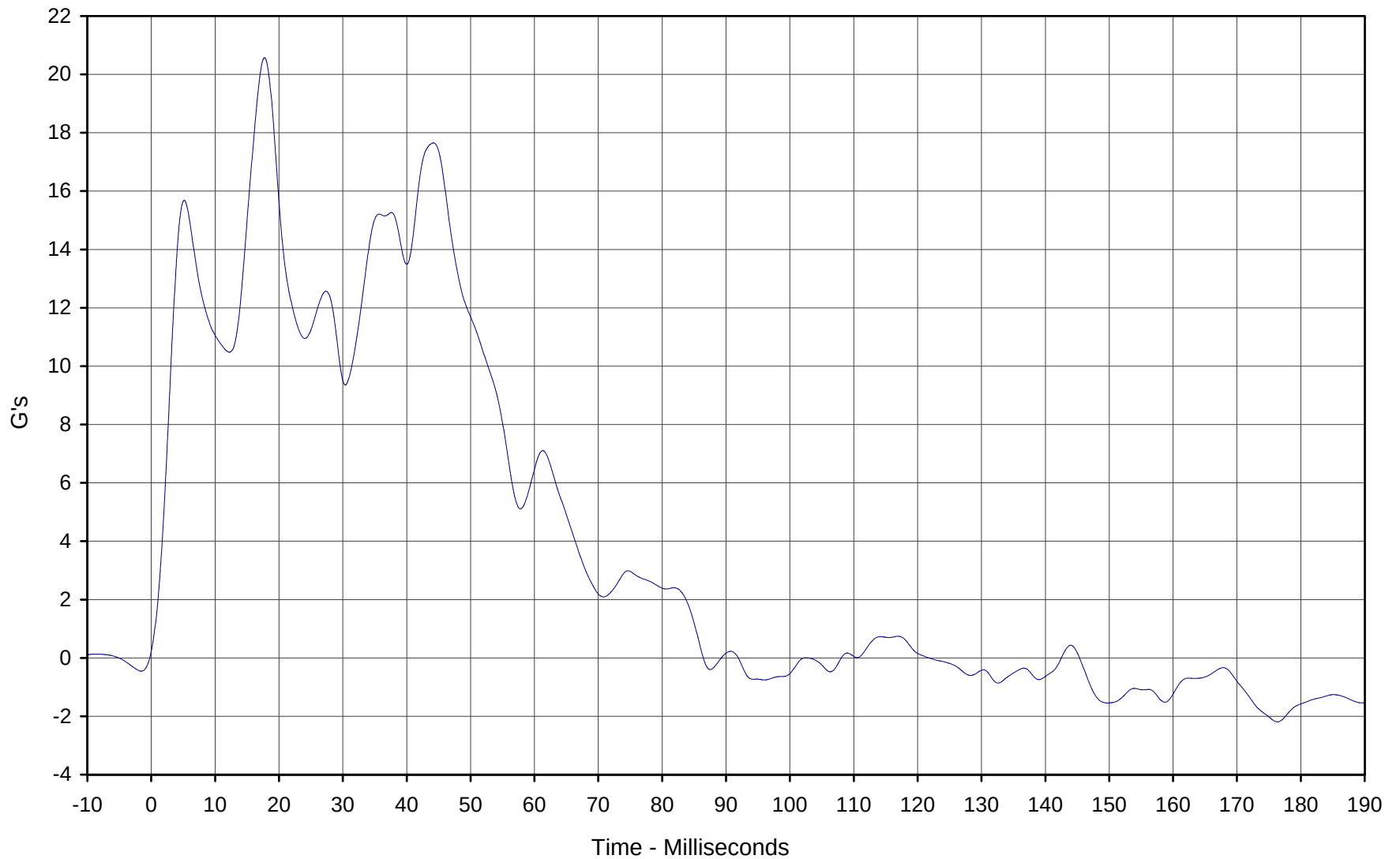
Date of Test: 12/9/99

Curve Number: IN1-030

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

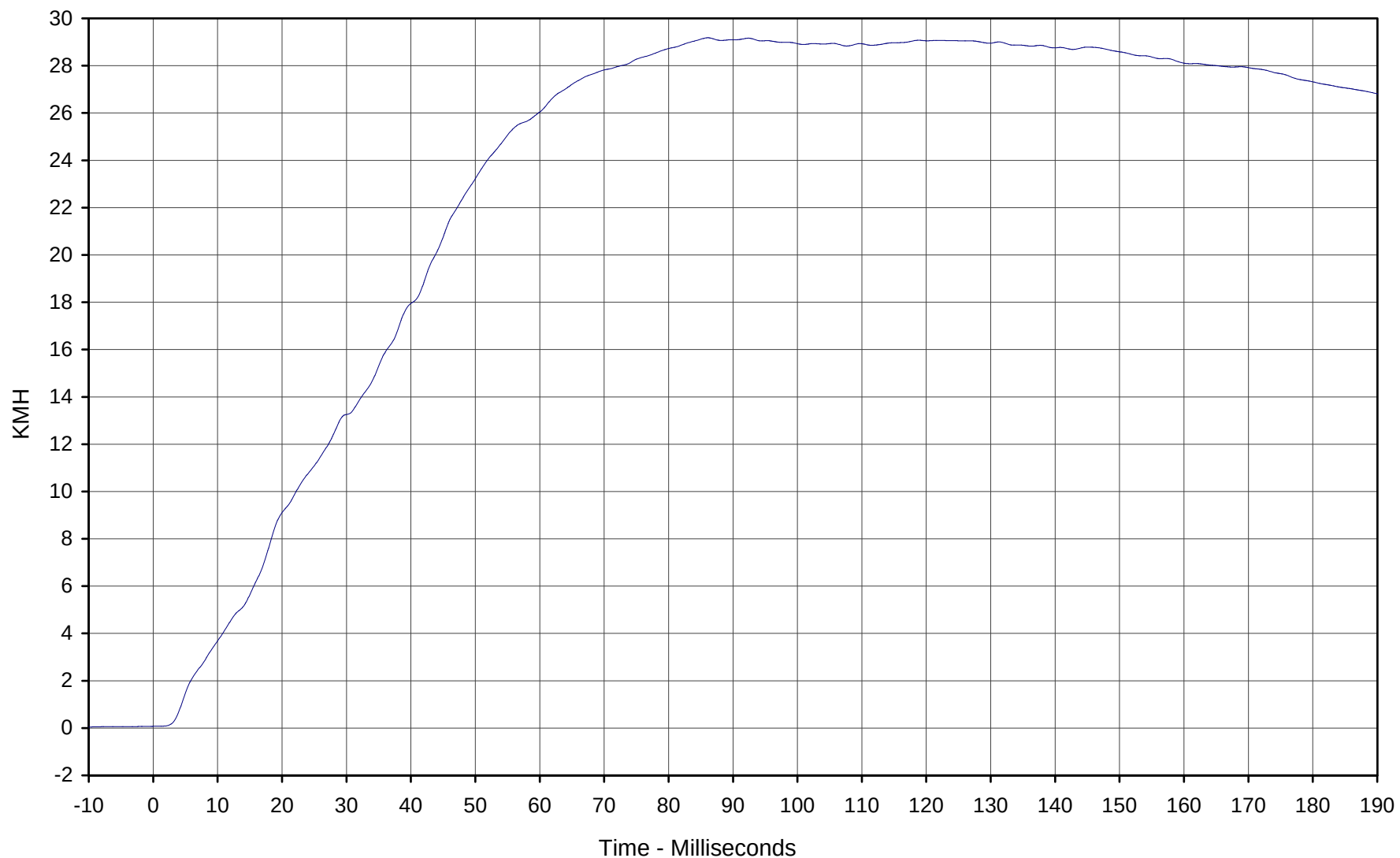




Curve Description: Vehicle Right Sill At Rear Seat Y
Maximum Value: 20.6 at 17.7 Milliseconds
Minimum Value: -2.2 at 176.3 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: FIL-031

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Vehicle Right Sill Rear Seat Y Velocity

Maximum Value: 29.2 at 86.1 Milliseconds

Minimum Value: 0.1 at 0.0 Milliseconds

SAE Filter Class: 180

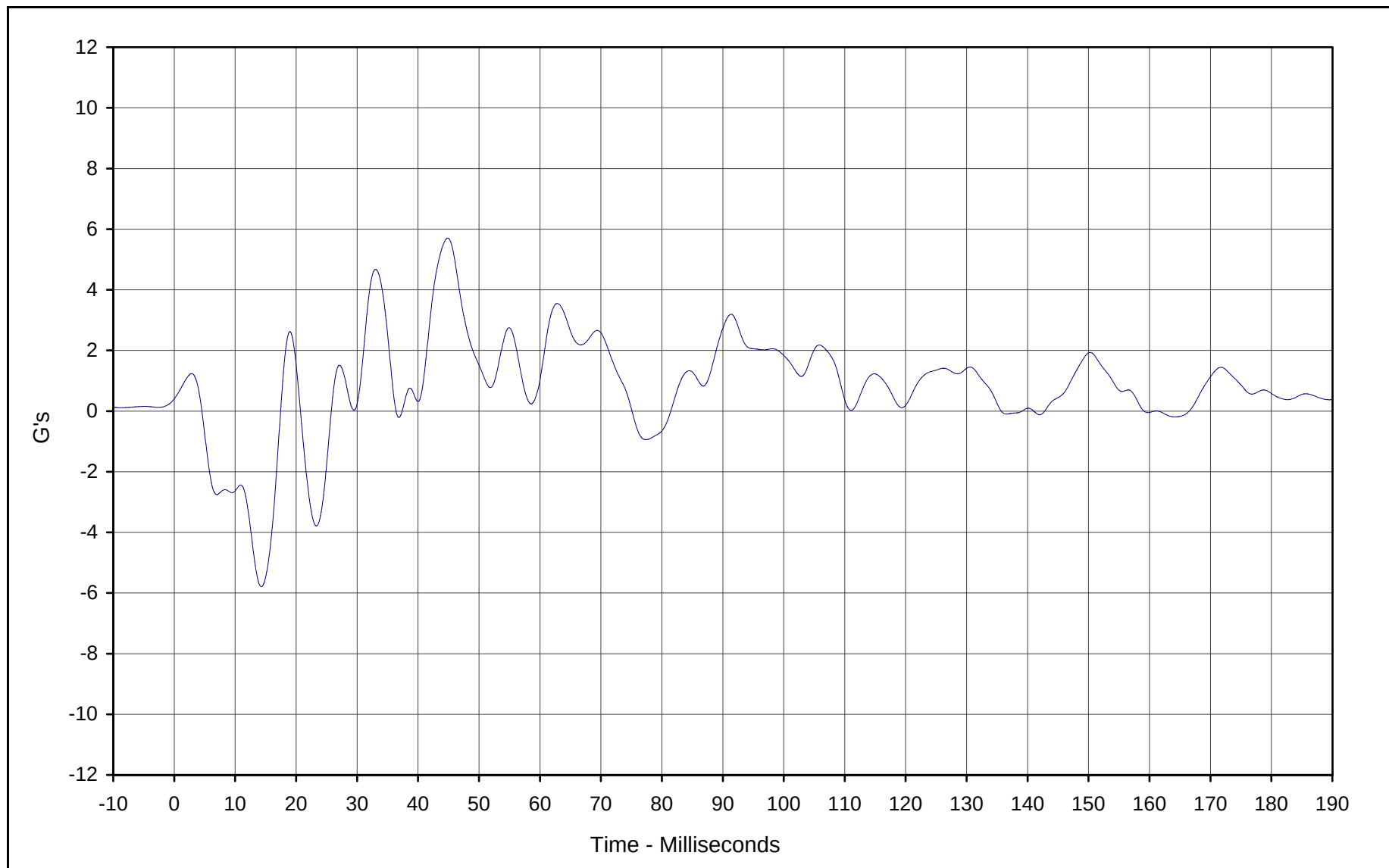
Date of Test: 12/9/99

Curve Number: IN1-031

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

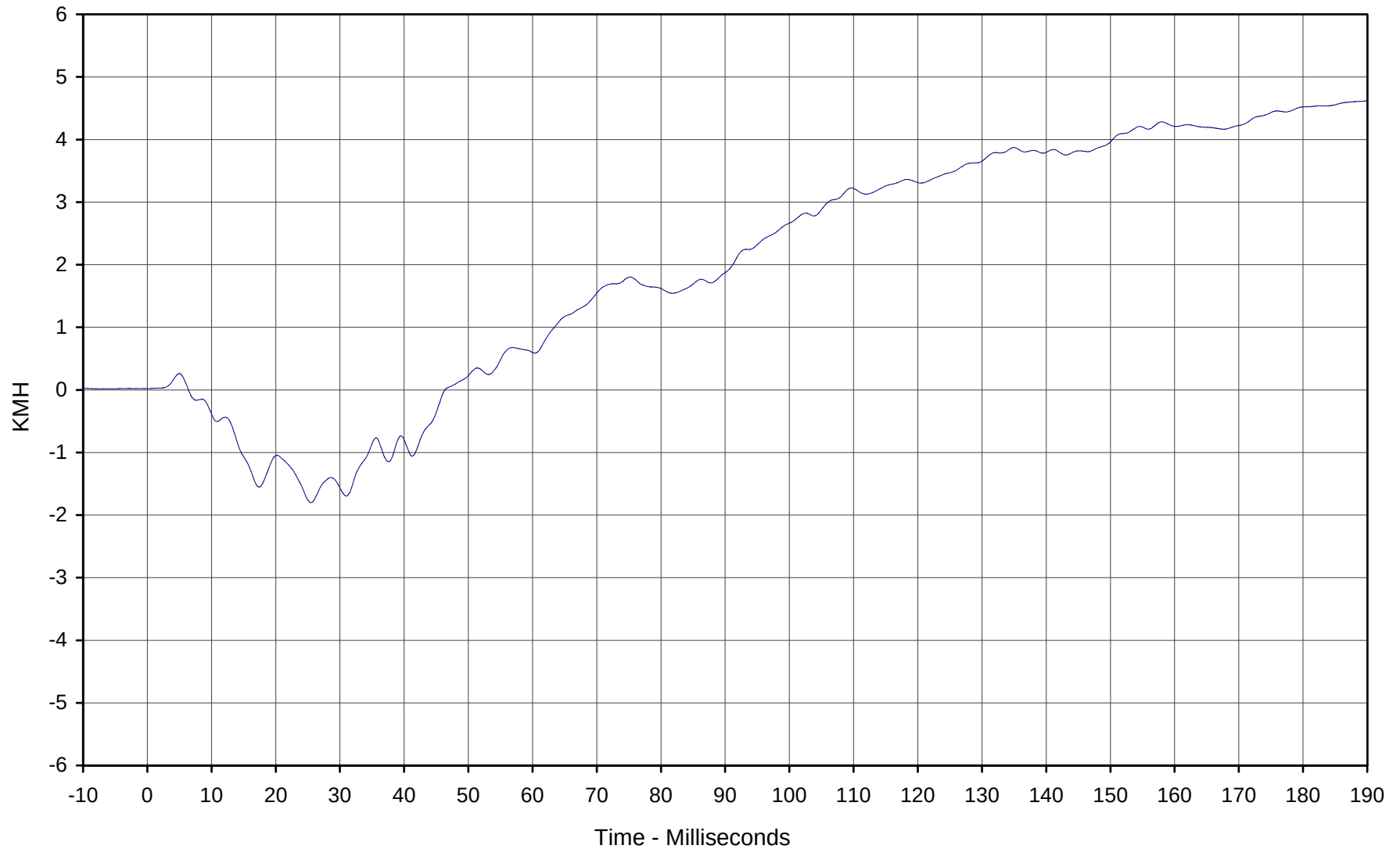




Curve Description: Vehicle Right Sill At Rear Seat Z
Maximum Value: 5.7 at 44.9 Milliseconds
Minimum Value: -5.8 at 14.3 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: FIL-032

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Vehicle Right Sill Rear Seat Z Velocity

Maximum Value: 4.6 at 189.9 Milliseconds

Minimum Value: -1.8 at 25.5 Milliseconds

SAE Filter Class: 180

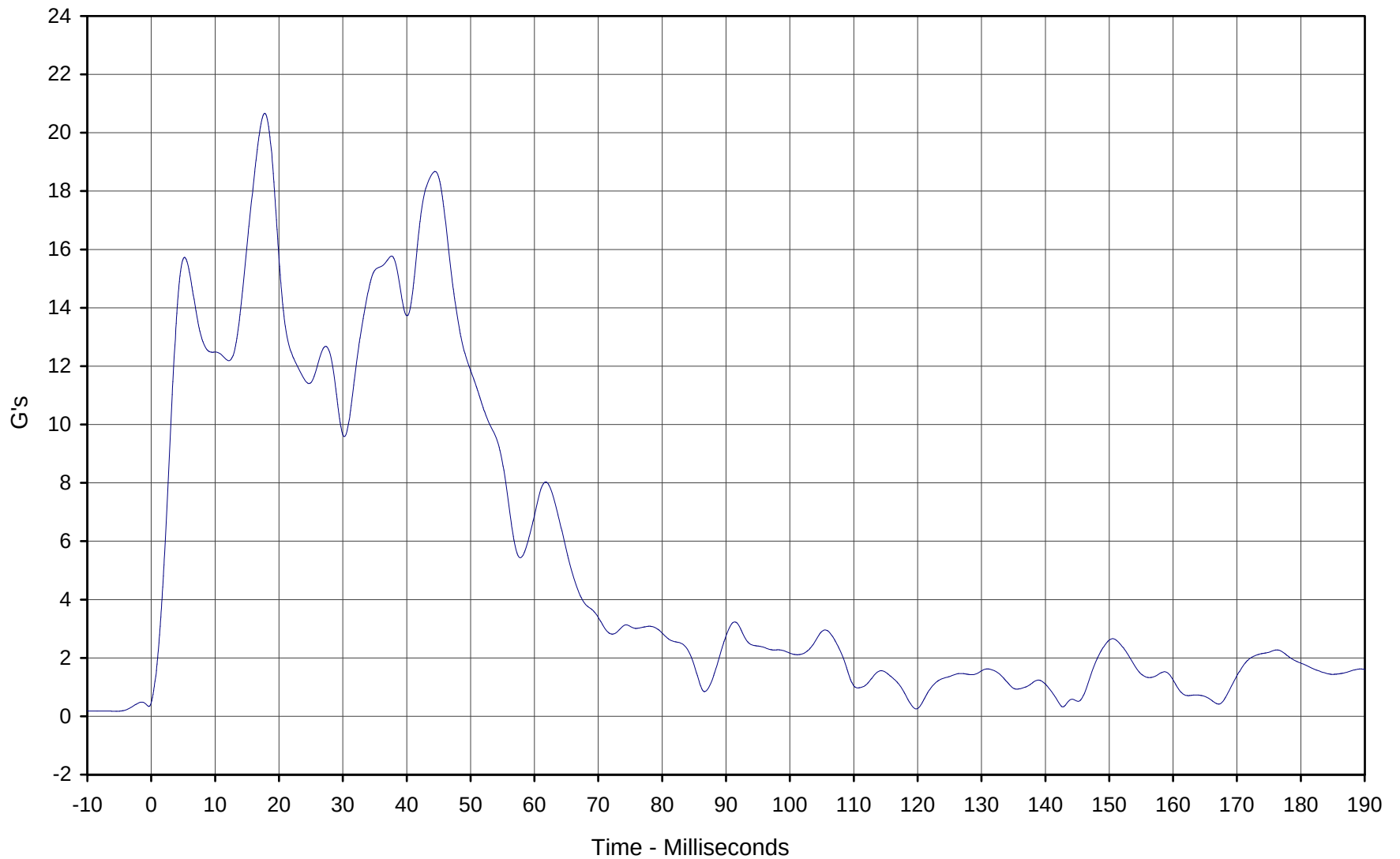
Date of Test: 12/9/99

Curve Number: IN1-032

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

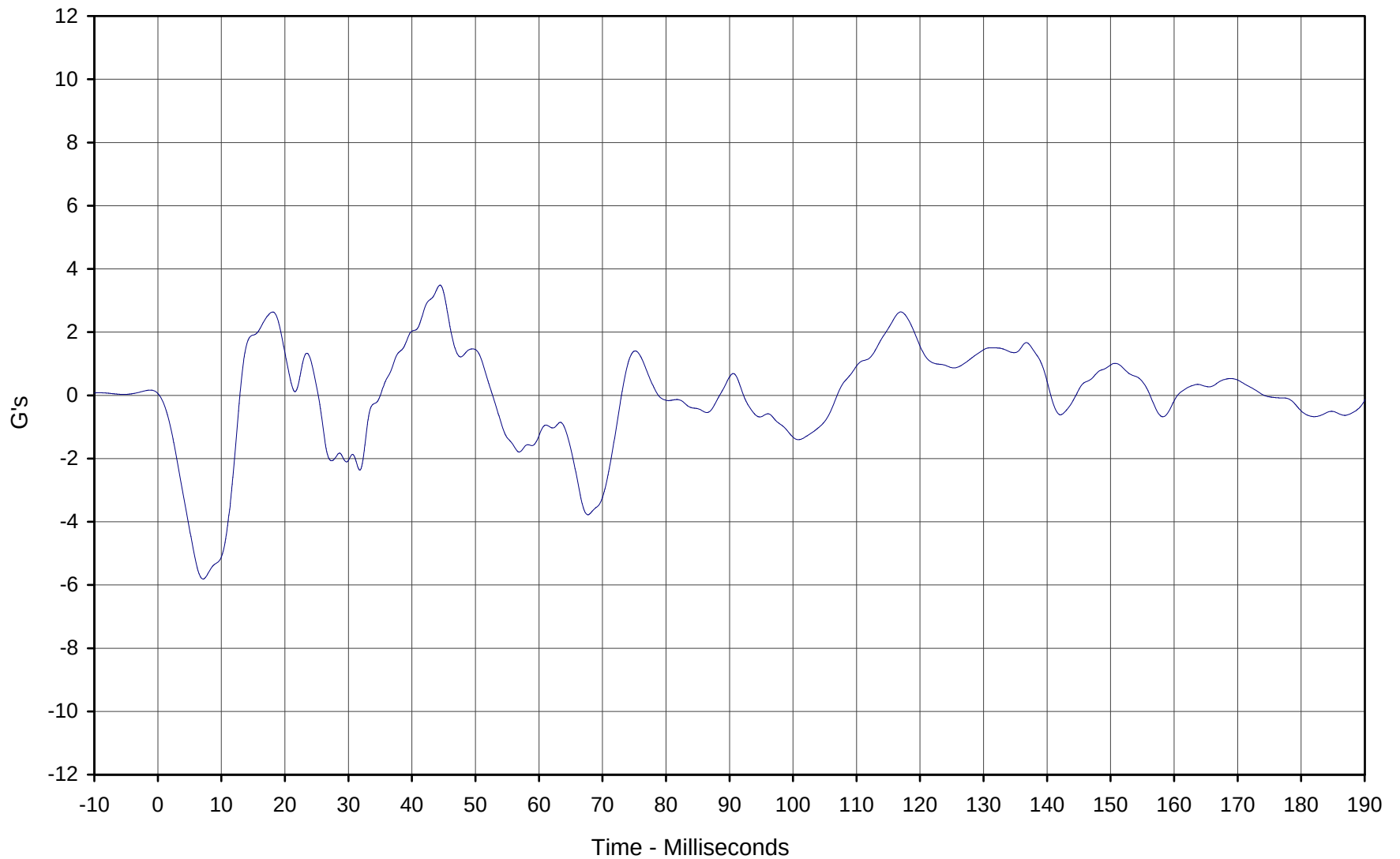




Curve Description: Vehicle Right Rear Sill Resultant
Maximum Value: 20.7 at 17.8 Milliseconds
Minimum Value: 0.3 at 119.8 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: RES-030

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

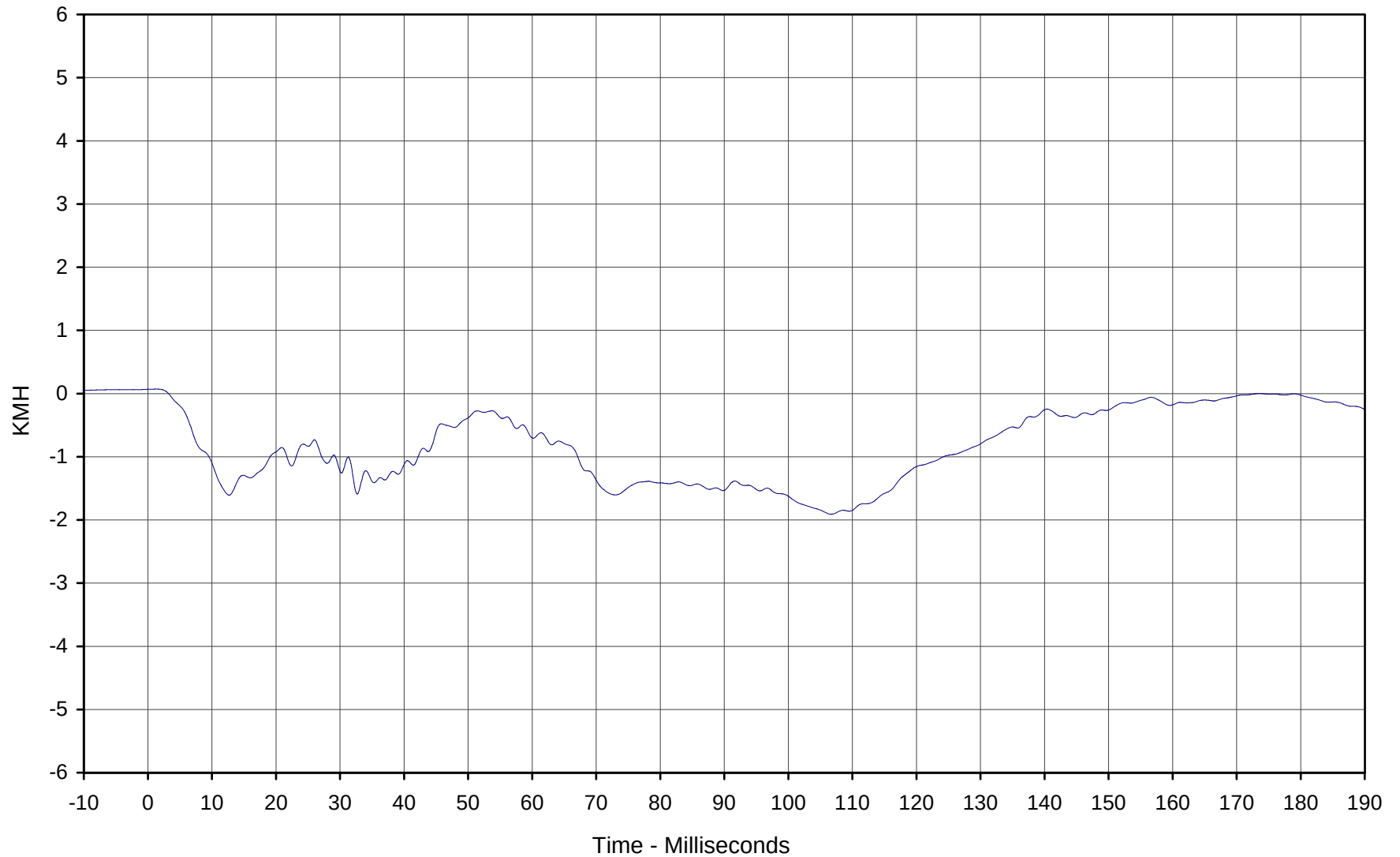




Curve Description: Vehicle Rear Floor Above Axle X
Maximum Value: 3.5 at 44.4 Milliseconds
Minimum Value: -5.8 at 7.1 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: FIL-033

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Vehicle Rear Floorpan Above Axle X

Maximum Value: 0.1 at 1.4 Milliseconds

Minimum Value: -1.9 at 106.7 Milliseconds

SAE Filter Class: 180

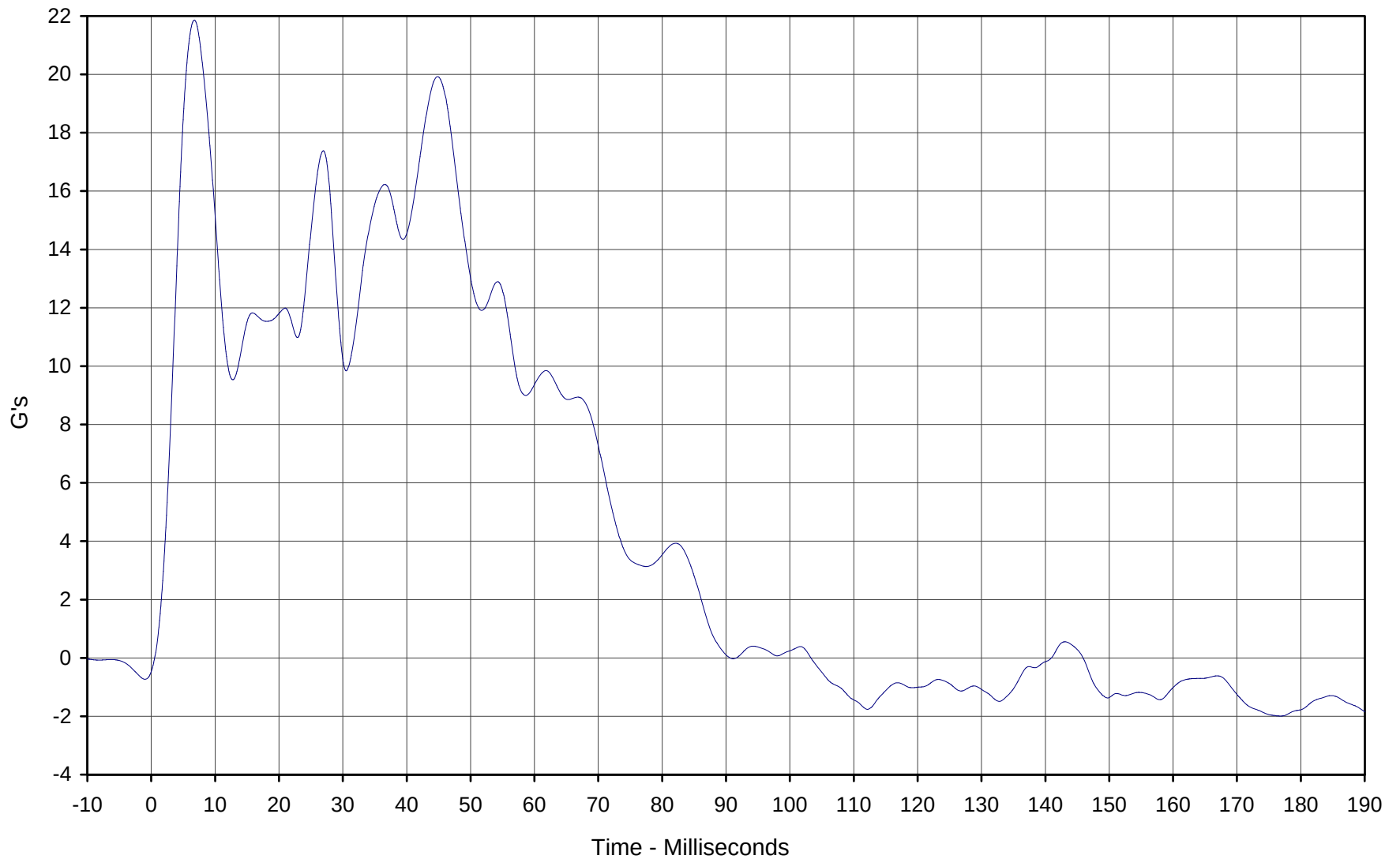
Date of Test: 12/9/99

Curve Number: IN1-033

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

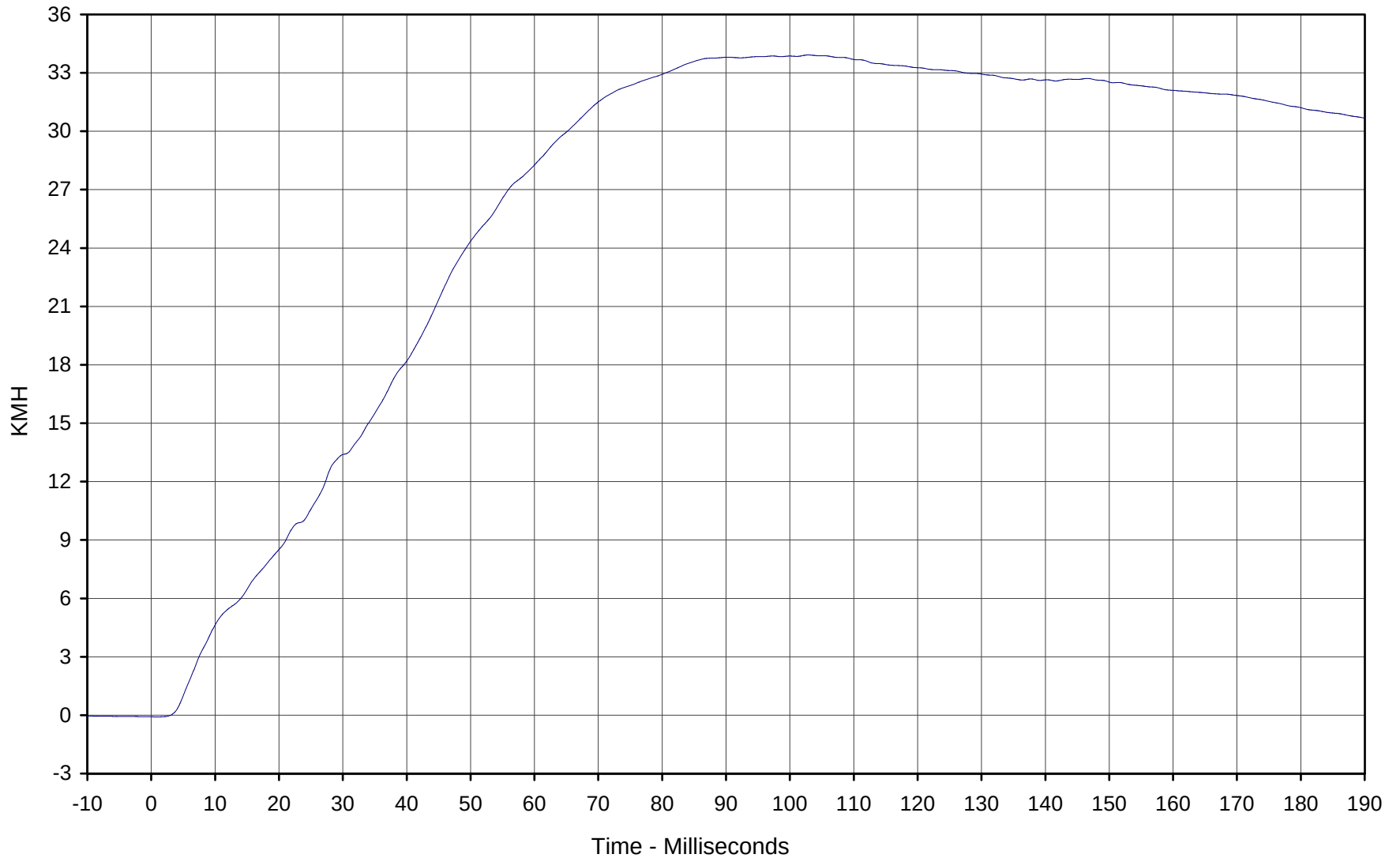




Curve Description: Vehicle Rear Floor Above Axle Y
Maximum Value: 21.9 at 6.8 Milliseconds
Minimum Value: -2.0 at 176.8 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: FIL-034

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

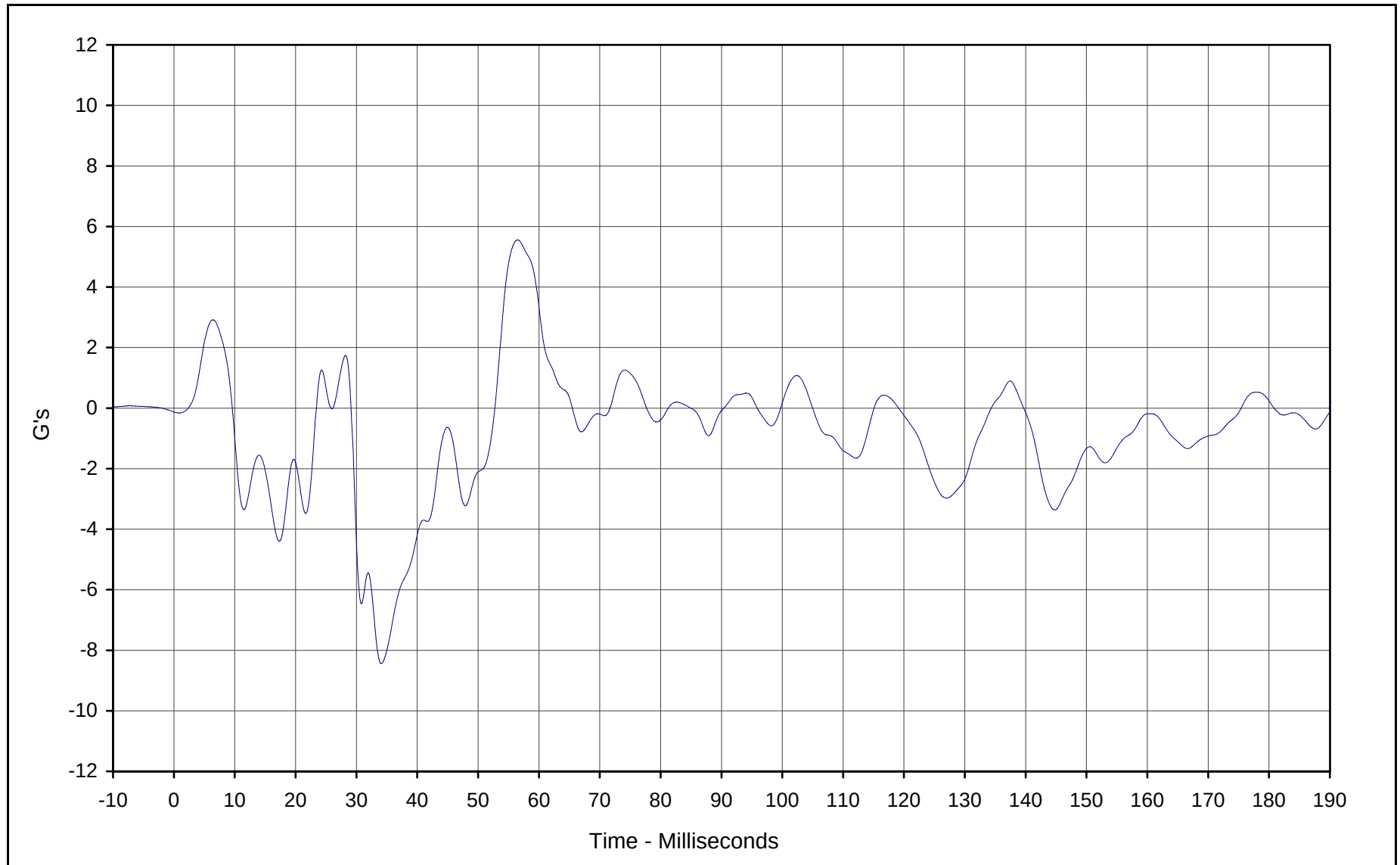




Curve Description: Vehicle Rear Floorpan Above Axle Y
Maximum Value: 33.9 at 102.9 Milliseconds
Minimum Value: -0.1 at 1.1 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN1-034

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Vehicle Rear Floorpan Above Axle Z

Maximum Value: 5.6 at 56.5 Milliseconds

Minimum Value: -8.4 at 34.1 Milliseconds

SAE Filter Class: 60

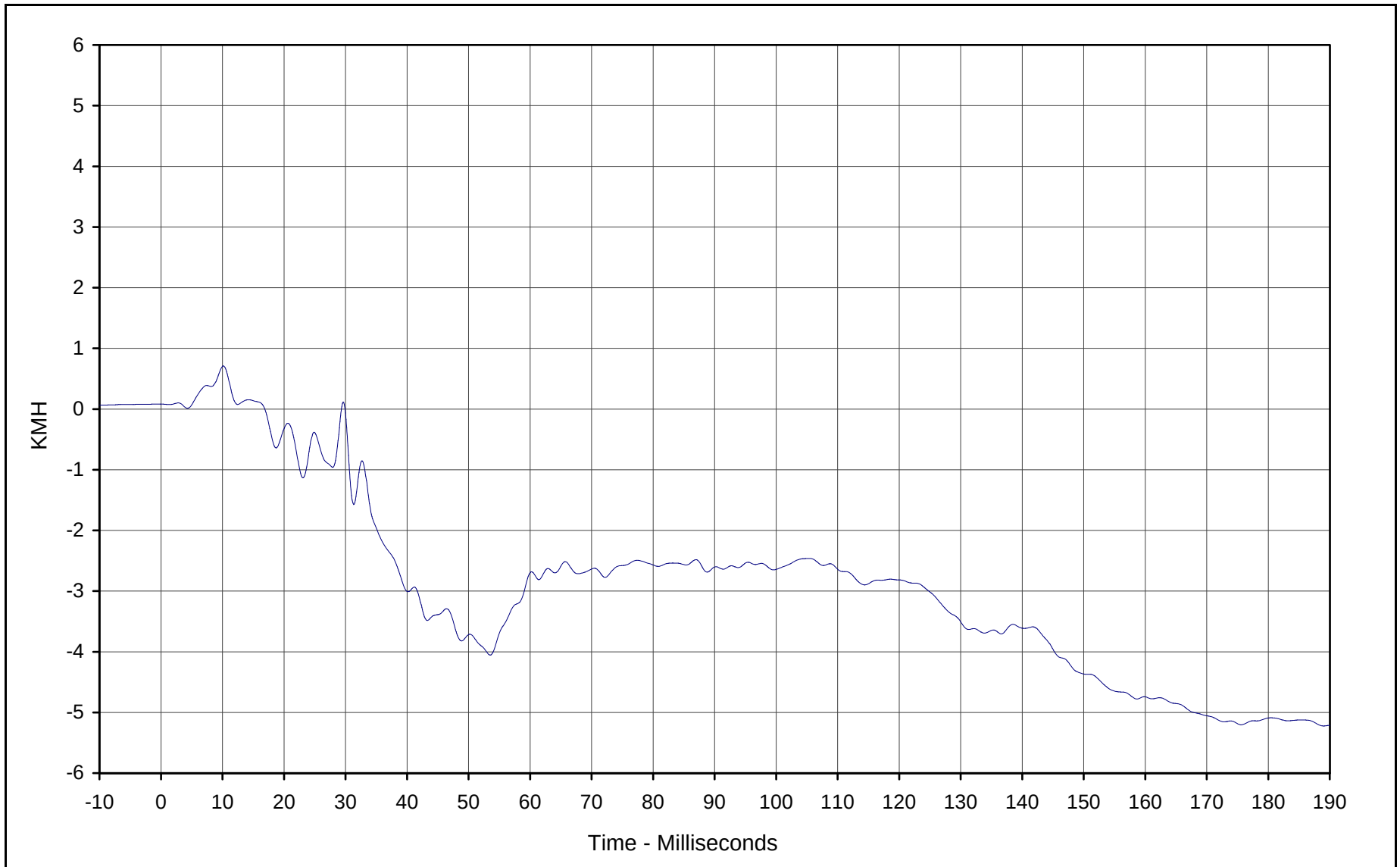
Date of Test: 12/9/99

Curve Number: FIL-035

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Vehicle Rear Floorpan Above Axle Z

Maximum Value: 0.7 at 10.1 Milliseconds

Minimum Value: -5.2 at 189.0 Milliseconds

SAE Filter Class: 180

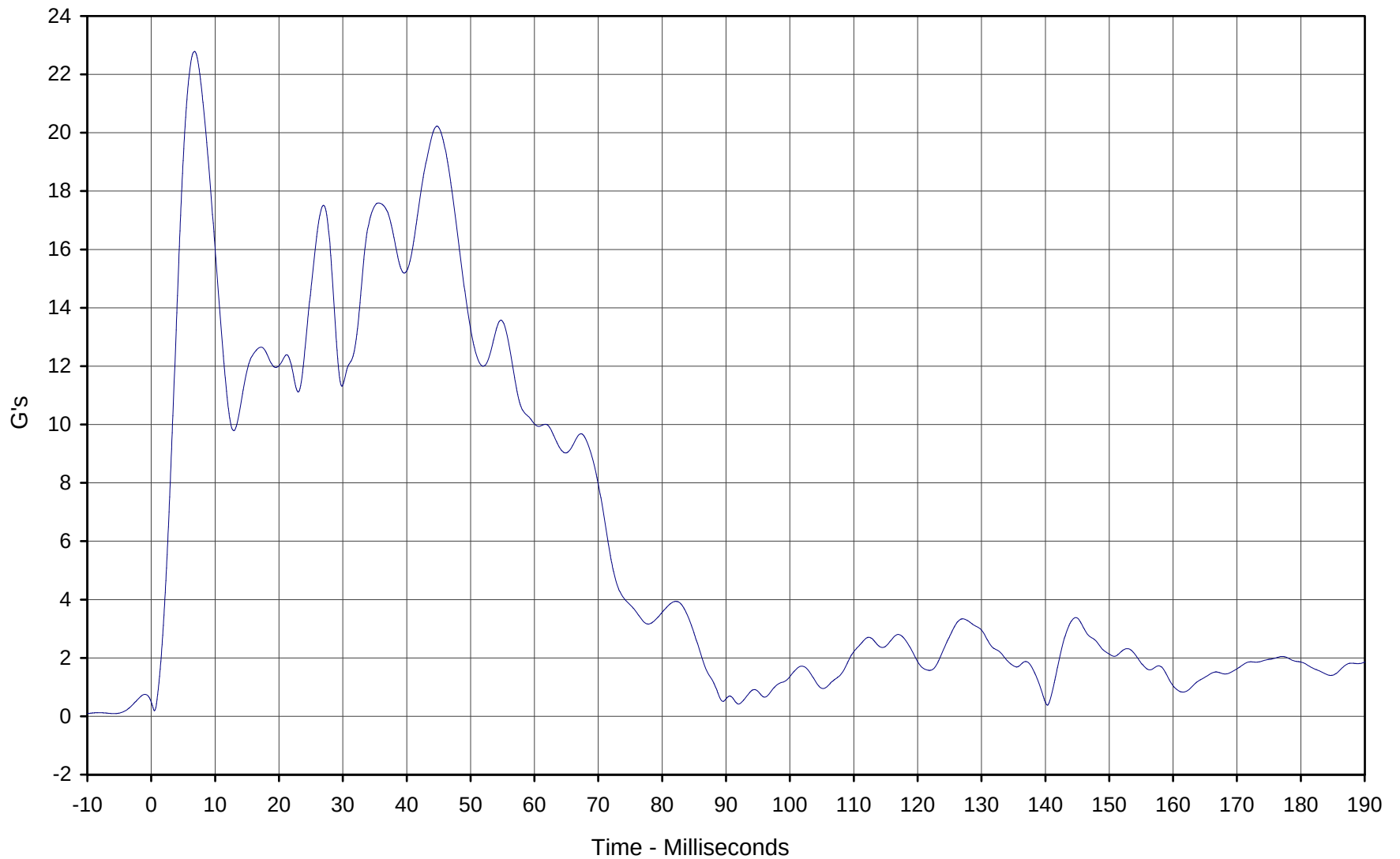
Date of Test: 12/9/99

Curve Number: IN1-035

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Rear Floorpan Above Axle Resultant

Maximum Value: 22.8 at 6.8 Milliseconds

Minimum Value: 0.2 at 0.5 Milliseconds

SAE Filter Class: 60

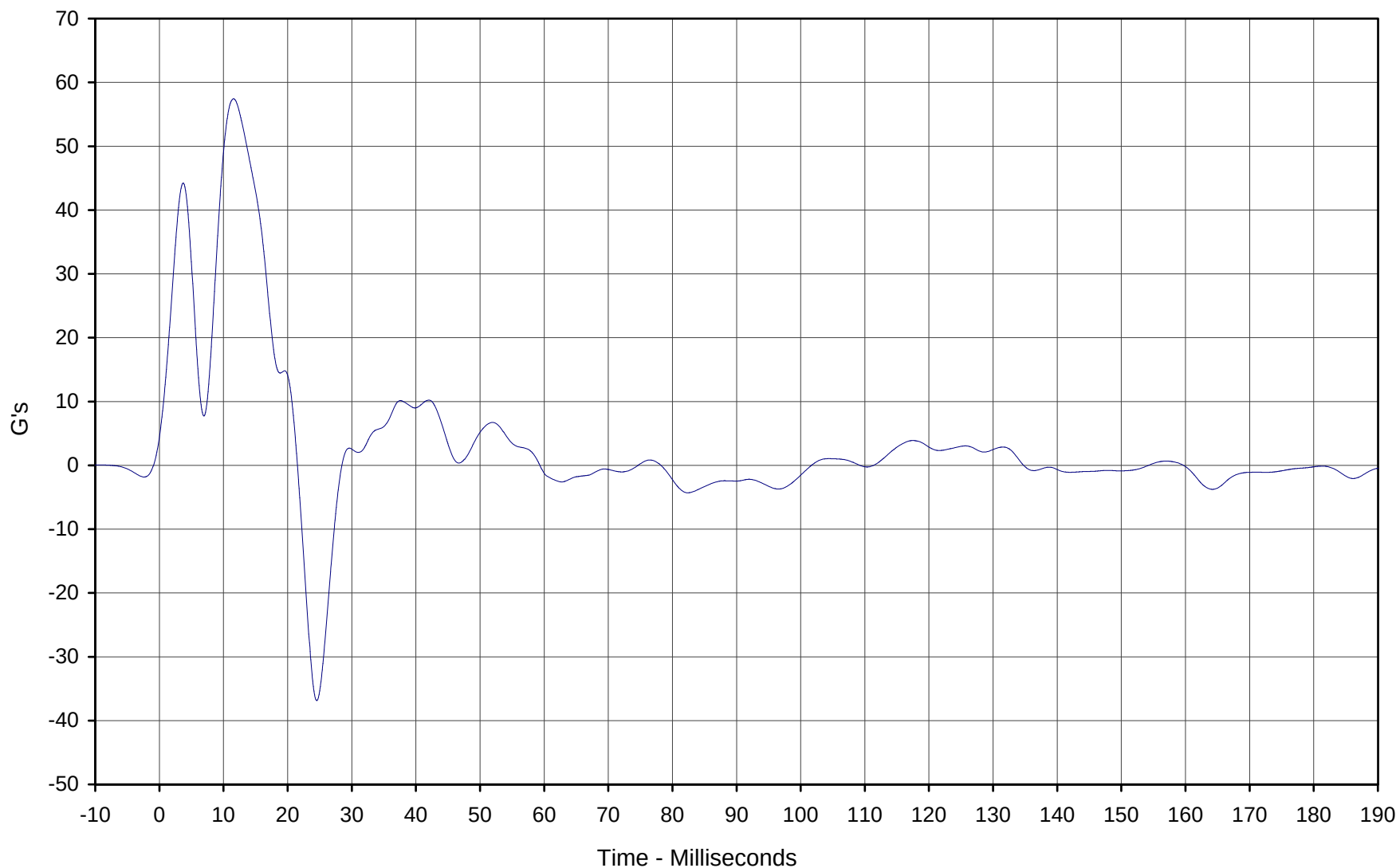
Date of Test: 12/9/99

Curve Number: FIL-033

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Left Sill at Front Door Y

Maximum Value: 57.4 at 11.6 Milliseconds

Minimum Value: -36.9 at 24.5 Milliseconds

SAE Filter Class: 60

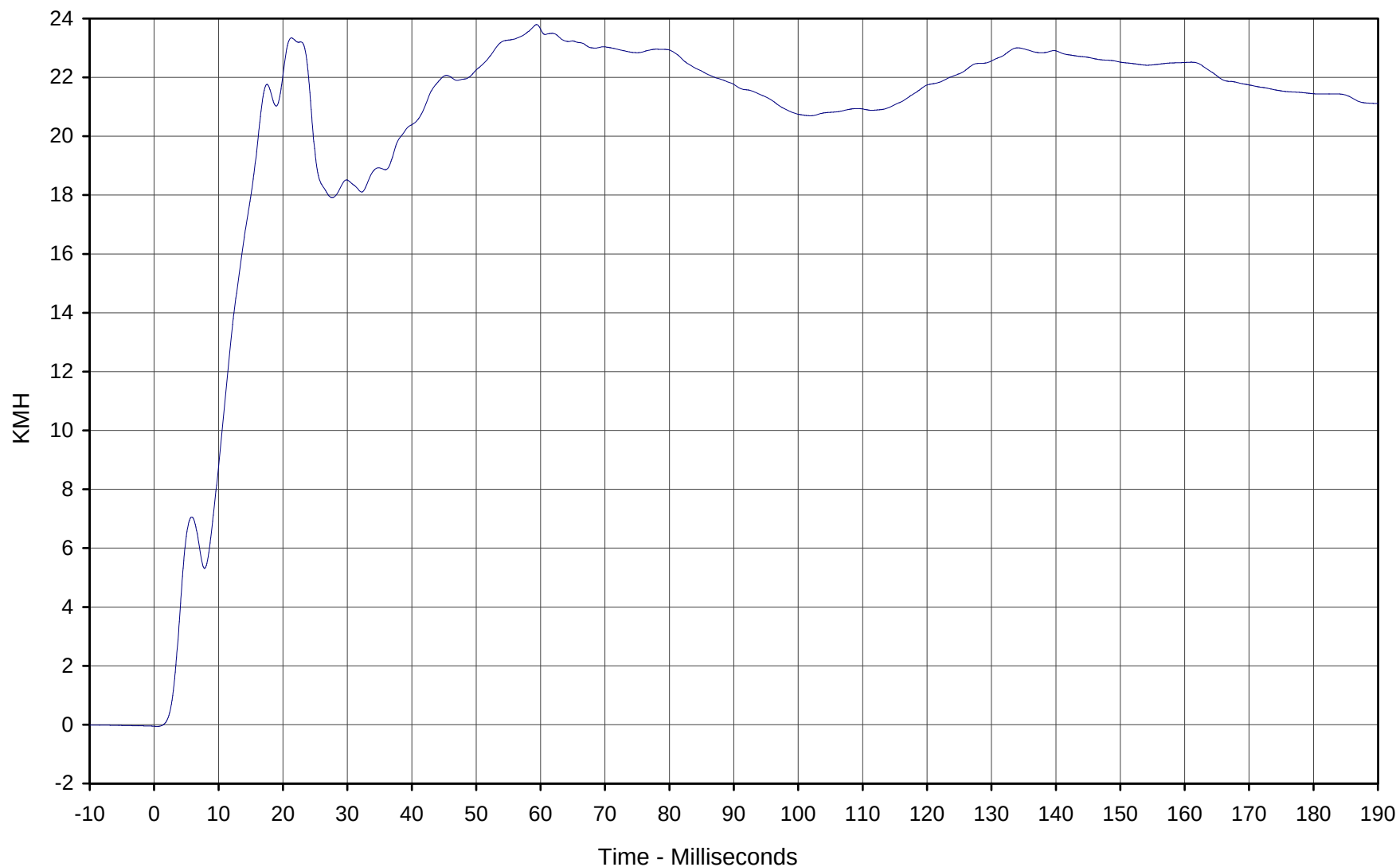
Date of Test: 12/9/99

Curve Number: FIL-036

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

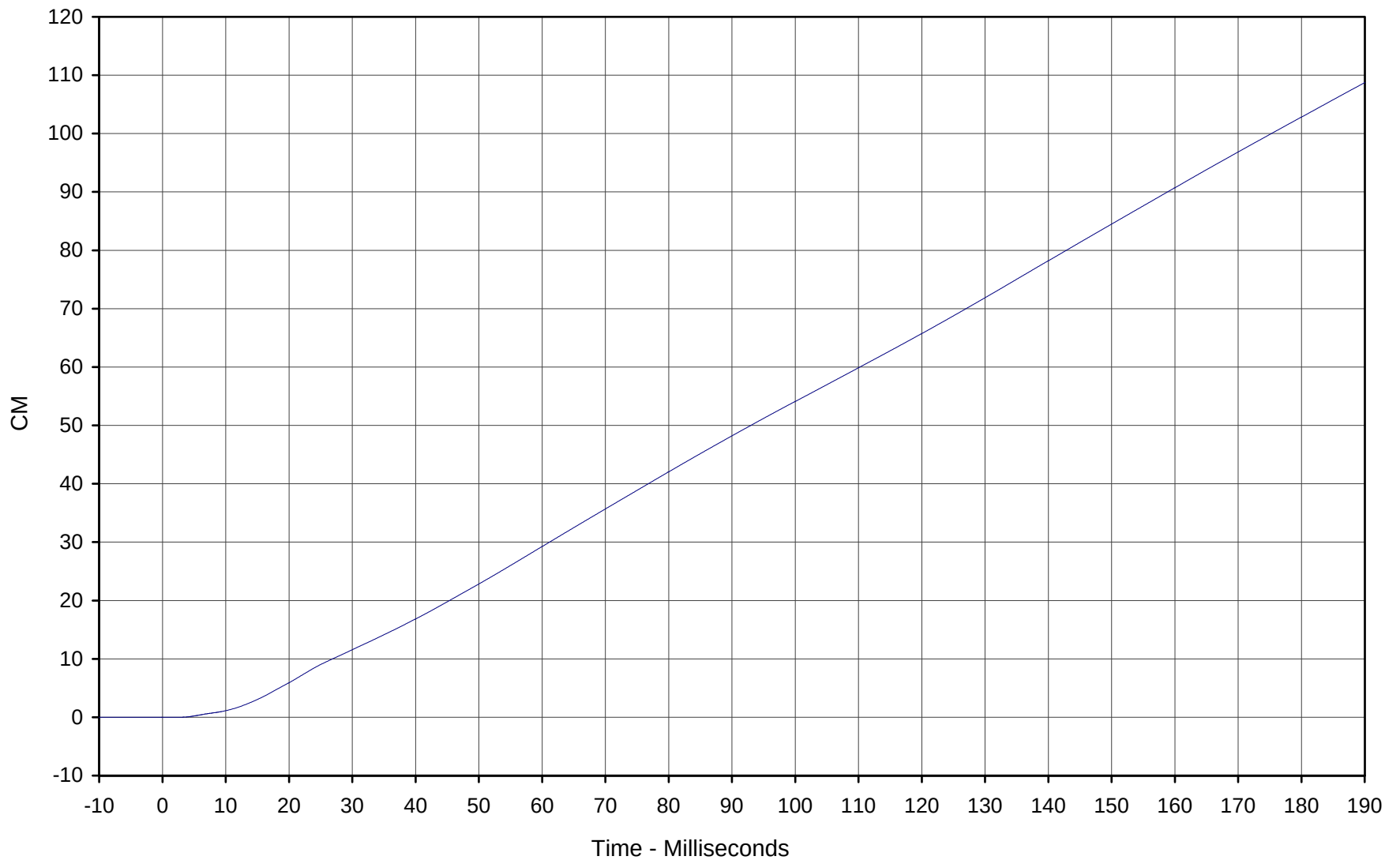




Curve Description	Left Sill at Front Door Y Velocity		
Maximum Value:	23.8	at	59.4 Milliseconds
Minimum Value:	-0.1	at	0.5 Milliseconds
SAE Filter Class:	180		
Date of Test:	12/9/99		
Curve Number:	IN1-036		

Test Program:	55/28 km/h Side Impact NCAP	No.: GM0002
Test Vehicle:	2000 Chevrolet Malibu 4 Door Sedan	

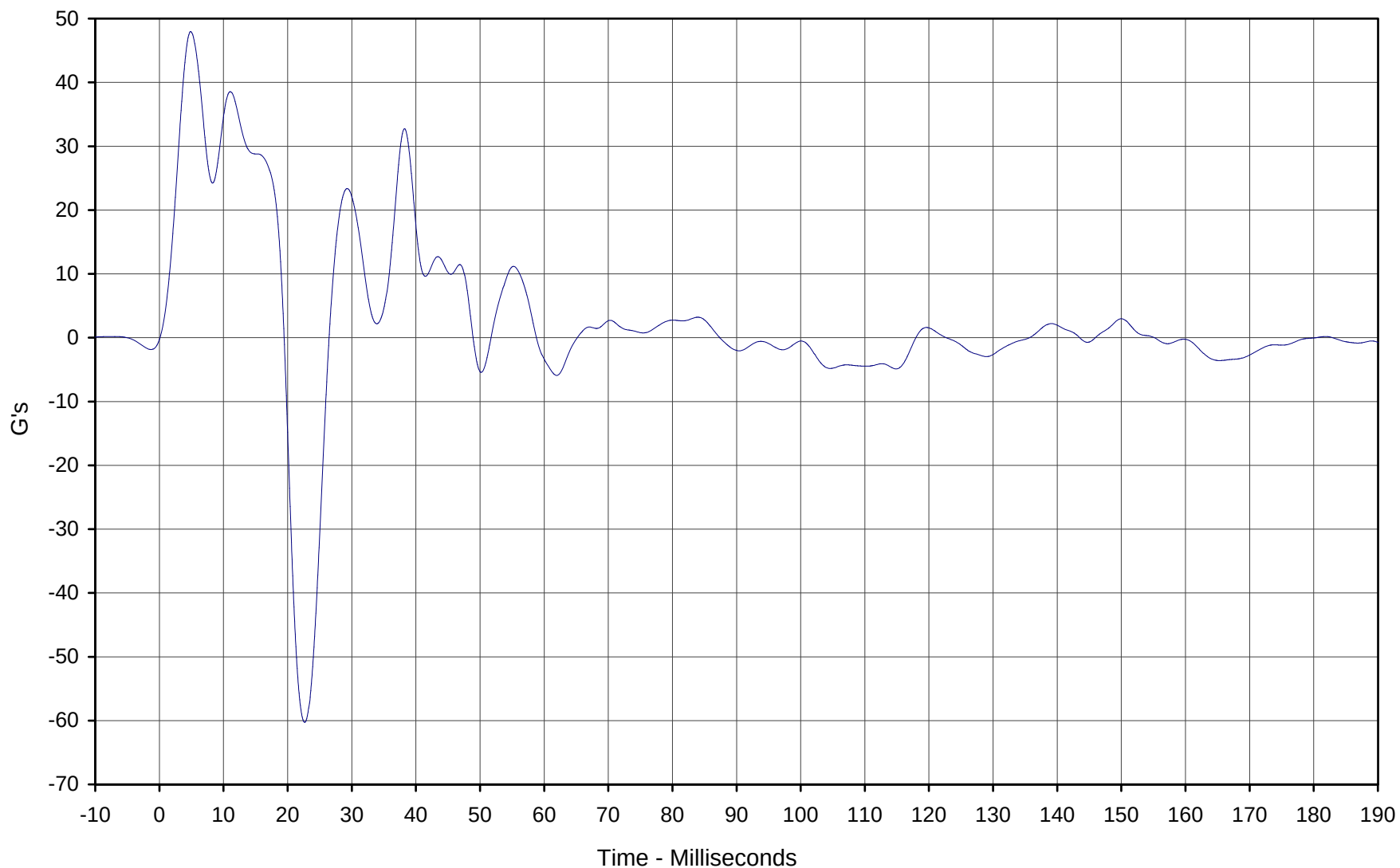




Curve Description: Left Sill at Front Door Y Disp.
Maximum Value: 108.7 at 189.9 Milliseconds
Minimum Value: 0.0 at 1.4 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN2-036

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

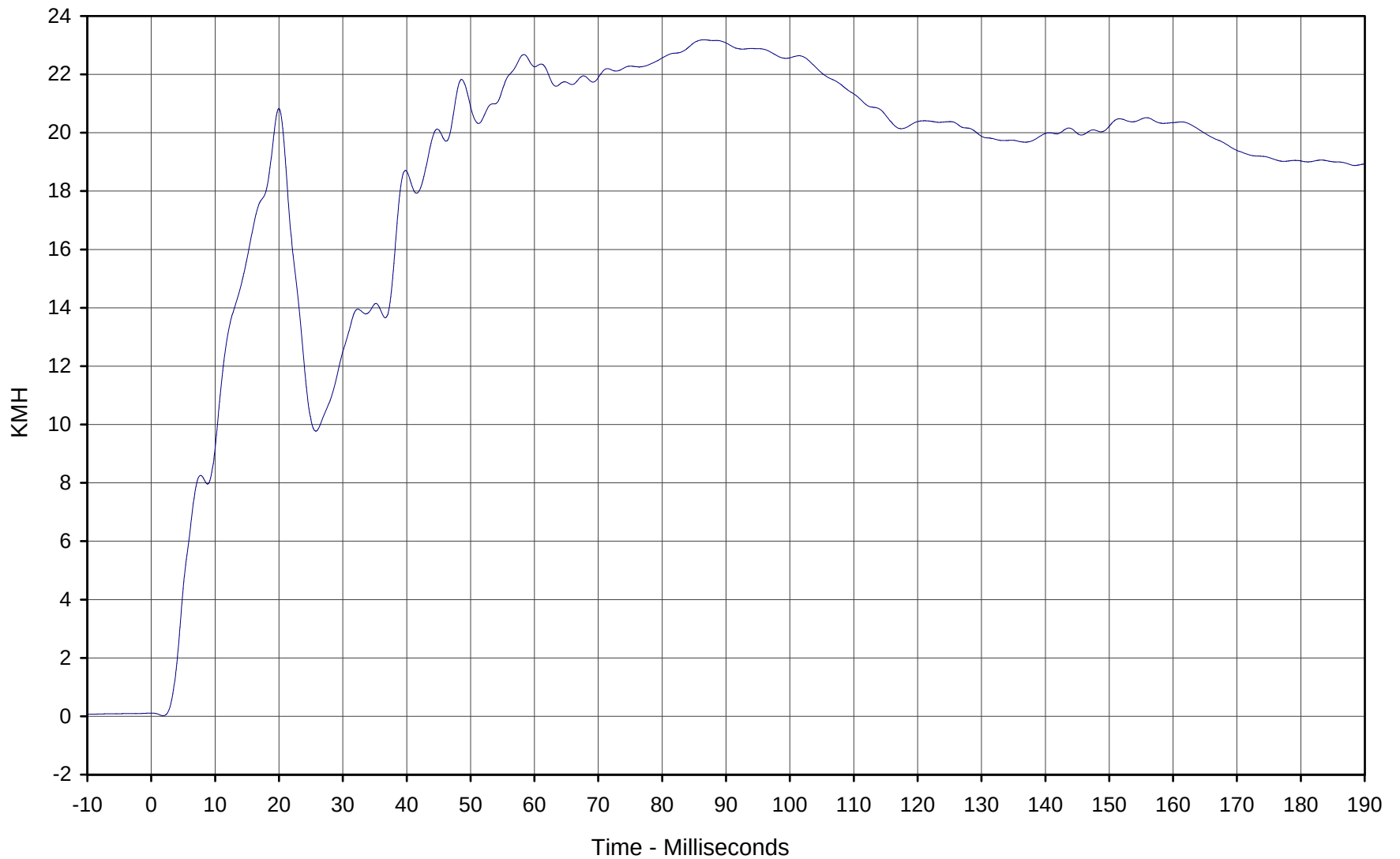




Curve Description: Left Sill at Rear Door Y
Maximum Value: 48.0 at 4.9 Milliseconds
Minimum Value: -60.3 at 22.7 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: FIL-037

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

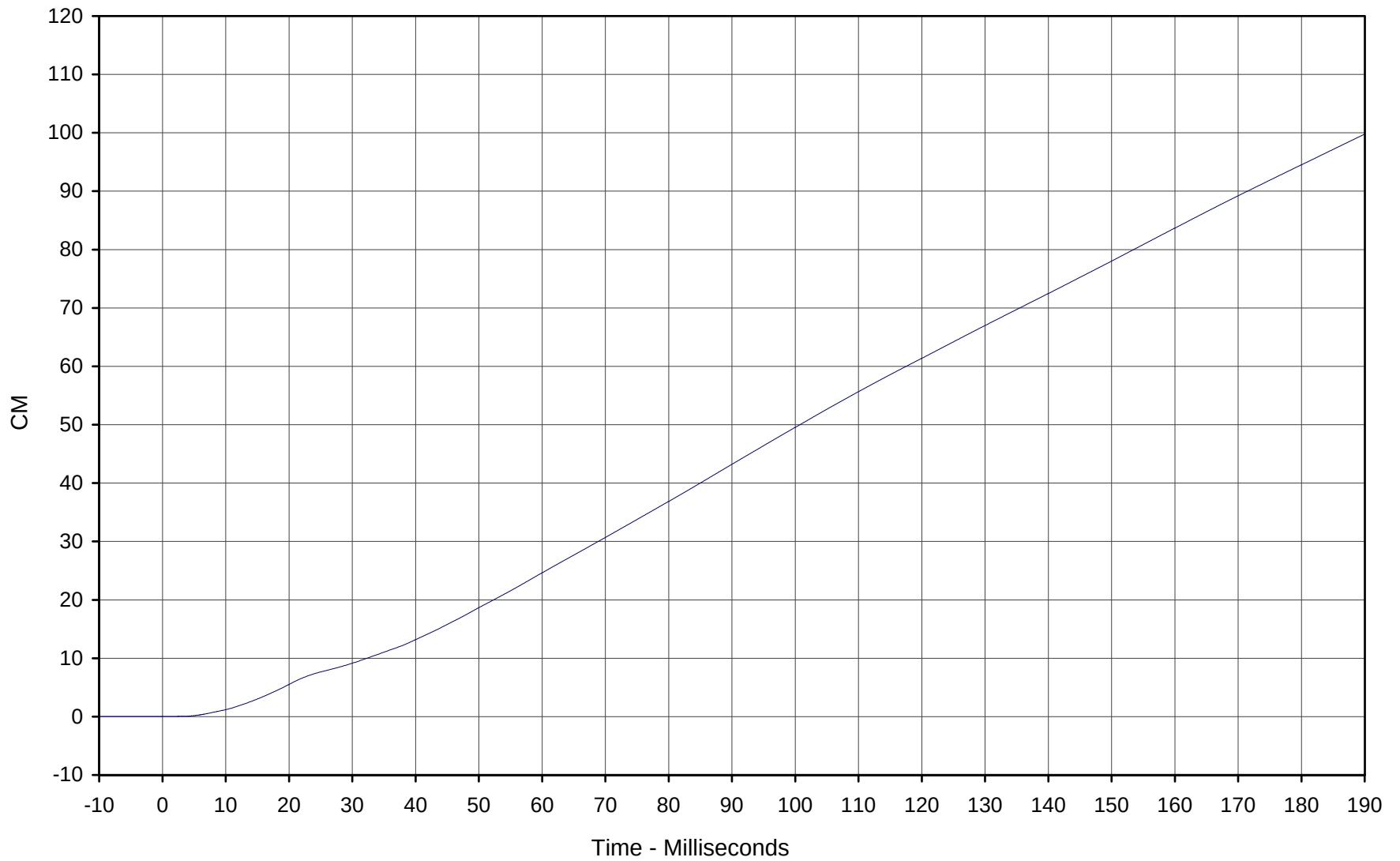




Curve Description: Left Sill Rear Door Y Velocity
Maximum Value: 23.2 at 86.5 Milliseconds
Minimum Value: 0.0 at 1.9 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN1-037

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

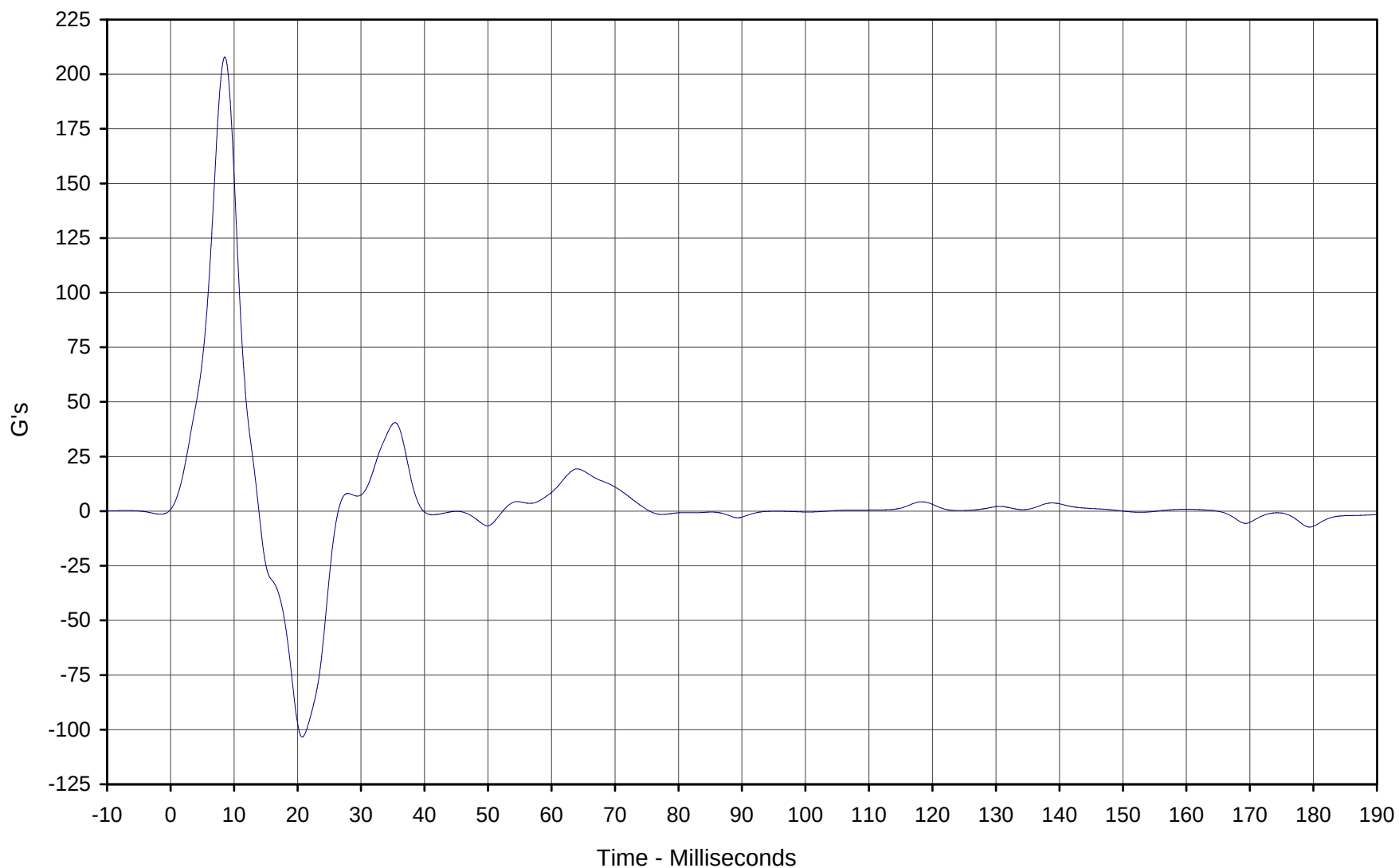




Curve Description: Left Sill Rear Door Y Disp.
Maximum Value: 99.7 at 189.9 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN2-037

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

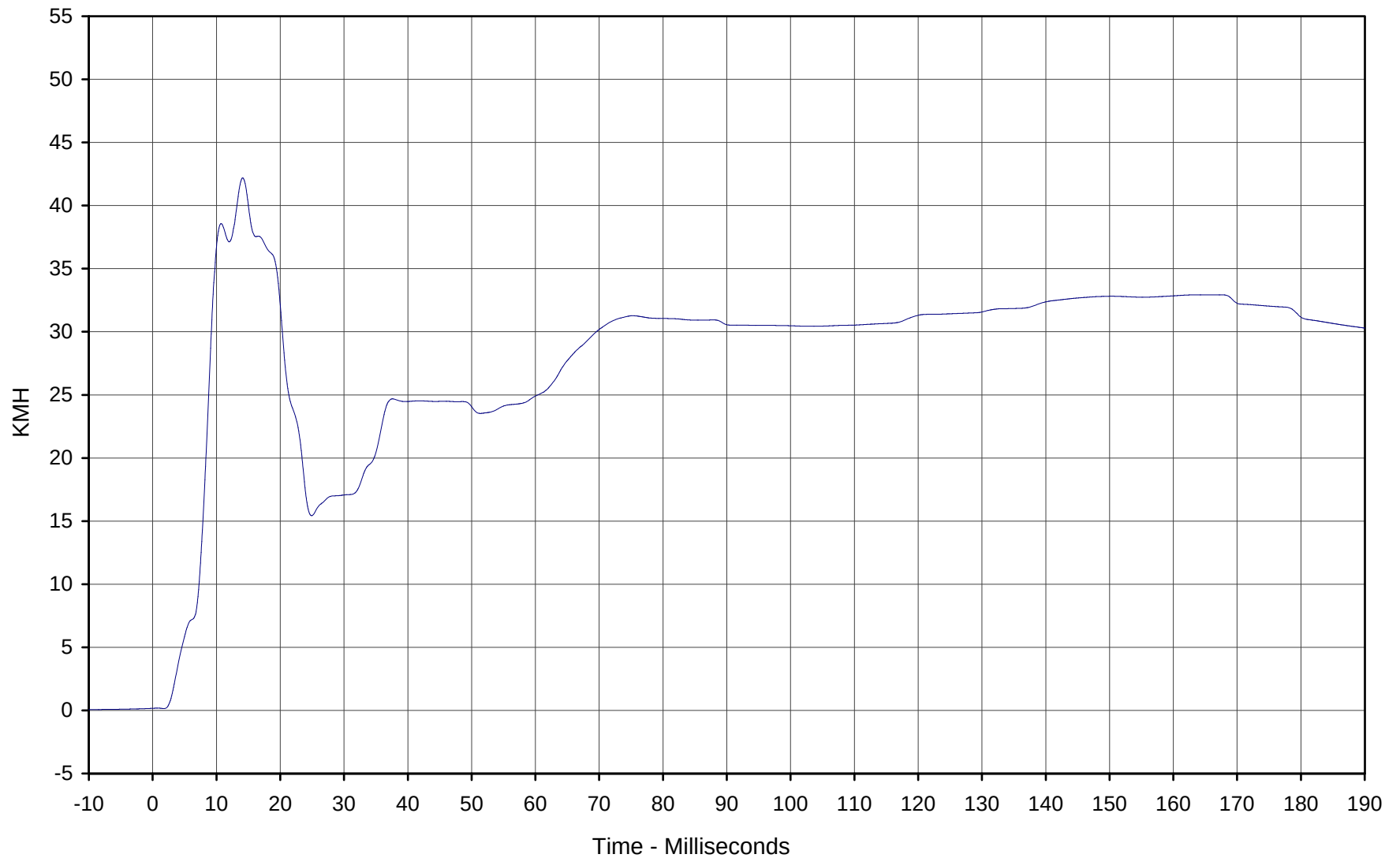




Curve Description: Left Front Door Centerline Y
Maximum Value: 207.8 at 8.5 Milliseconds
Minimum Value: -103.4 at 20.8 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: FIL-038

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

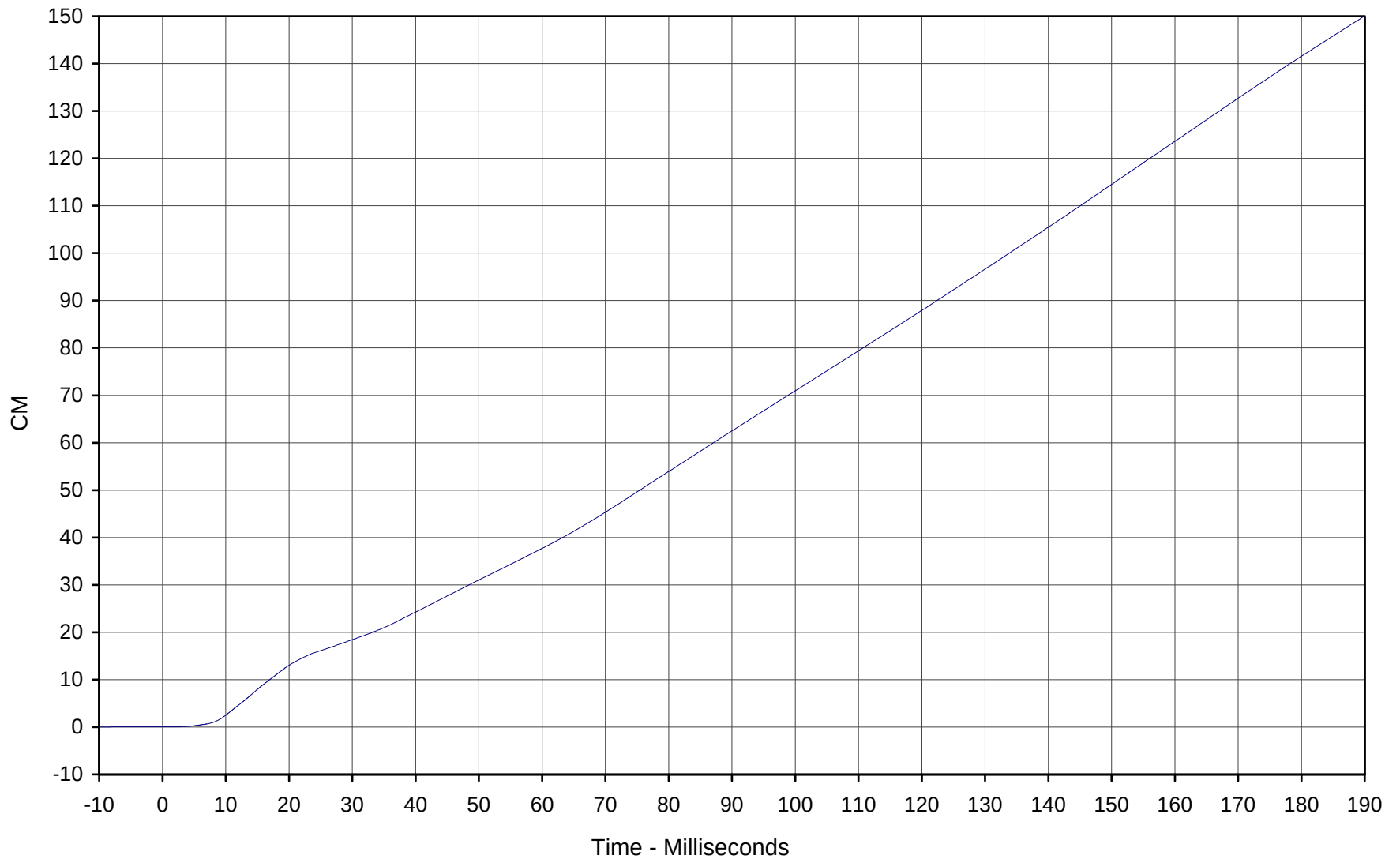




Curve Description: Left Front Door CL Y Velocity
Maximum Value: 42.2 at 14.1 Milliseconds
Minimum Value: 0.1 at 1.7 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN1-038

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

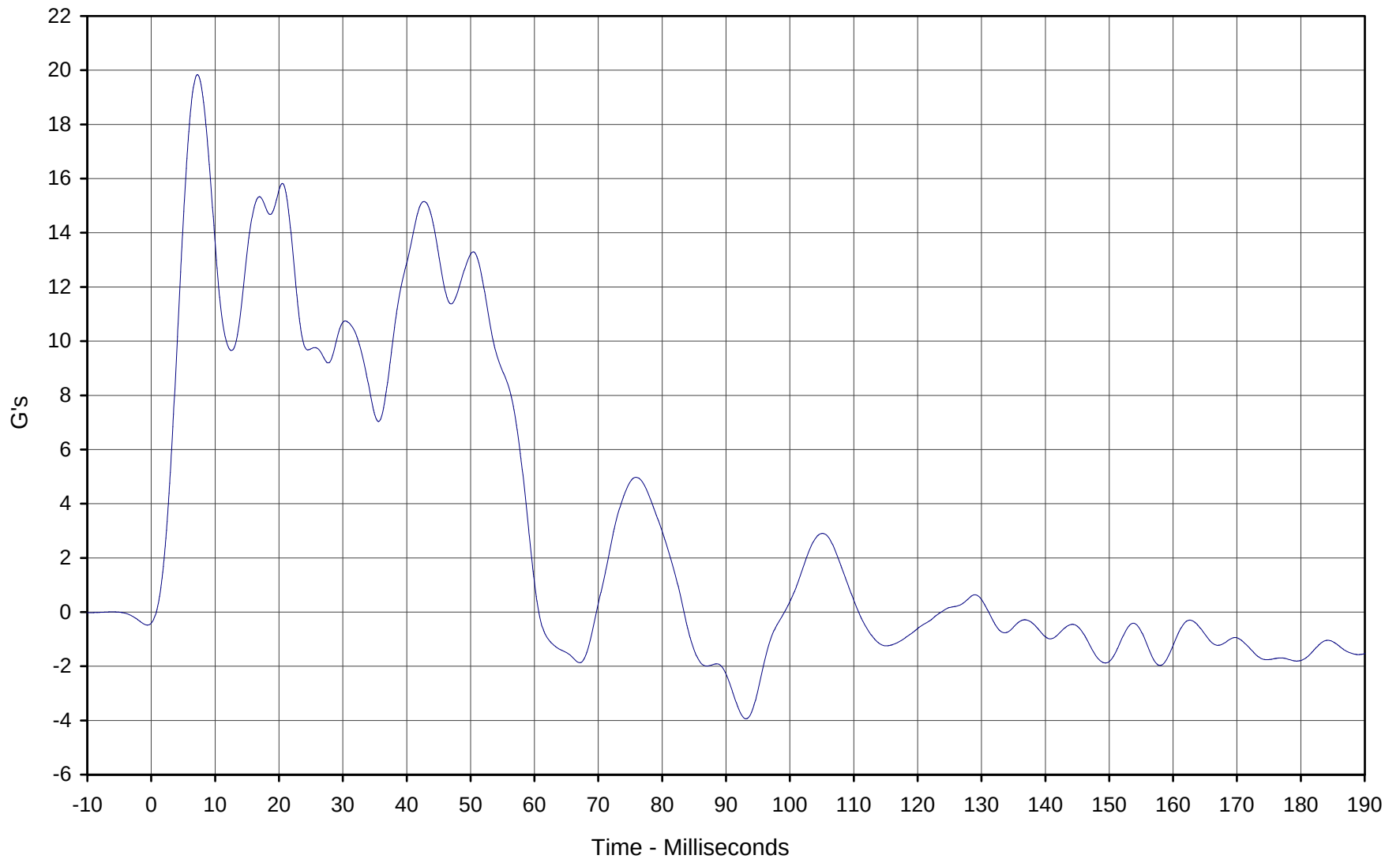




Curve Description: Left Front Door CL Y Displacement
Maximum Value: 150.0 at 189.9 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN2-038

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

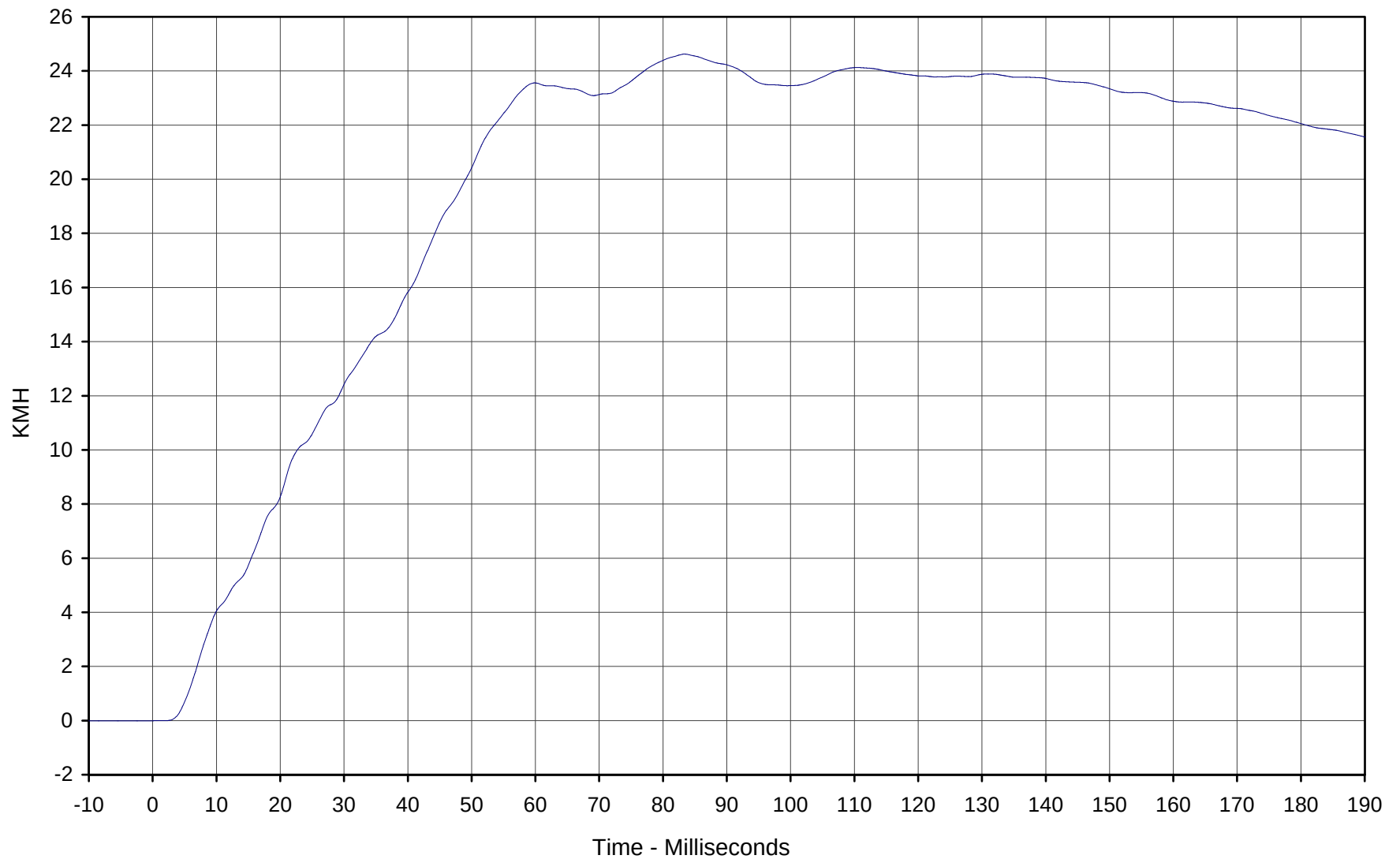




Curve Description: Right Rear Occ. Compartment Y
Maximum Value: 19.8 at 7.2 Milliseconds
Minimum Value: -3.9 at 93.1 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: FIL-039

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

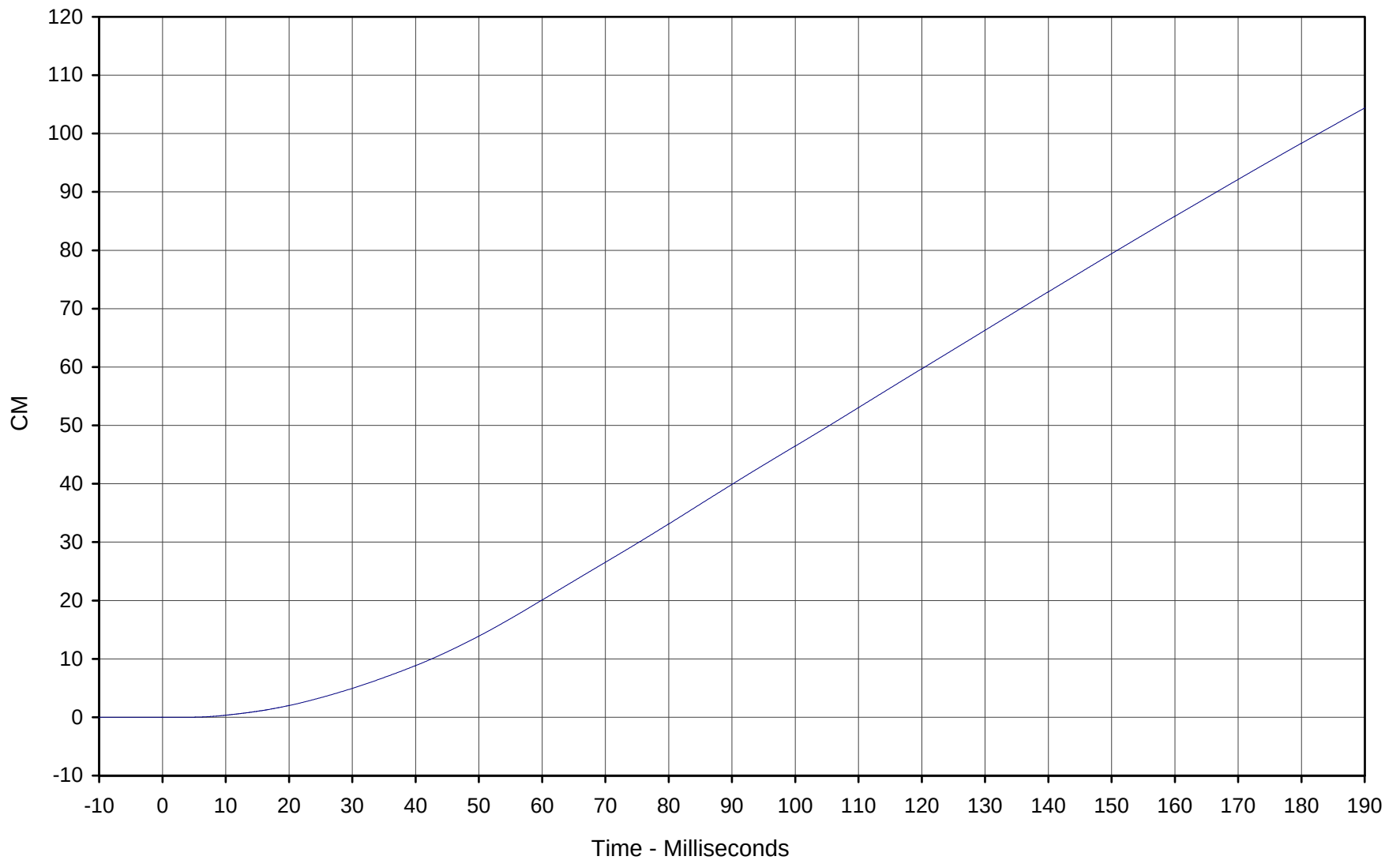




Curve Description: Right Rear Occ. Comp. Y Velocity
Maximum Value: 24.6 at 83.4 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN1-039

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

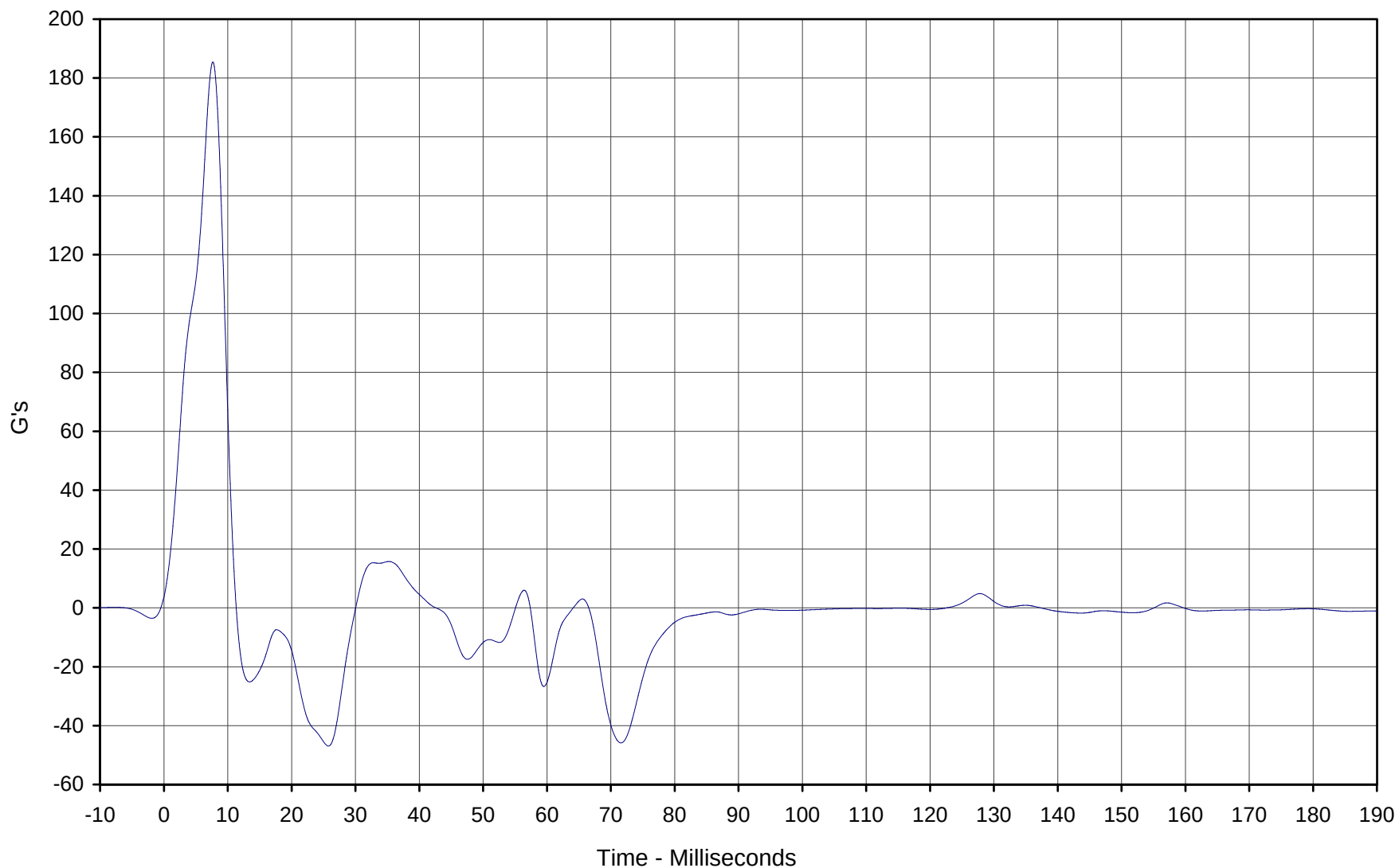




Curve Description: Right Rear Occ. Comp. Y Disp.
Maximum Value: 104.3 at 189.9 Milliseconds
Minimum Value: 0.0 at 2.4 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN2-039

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

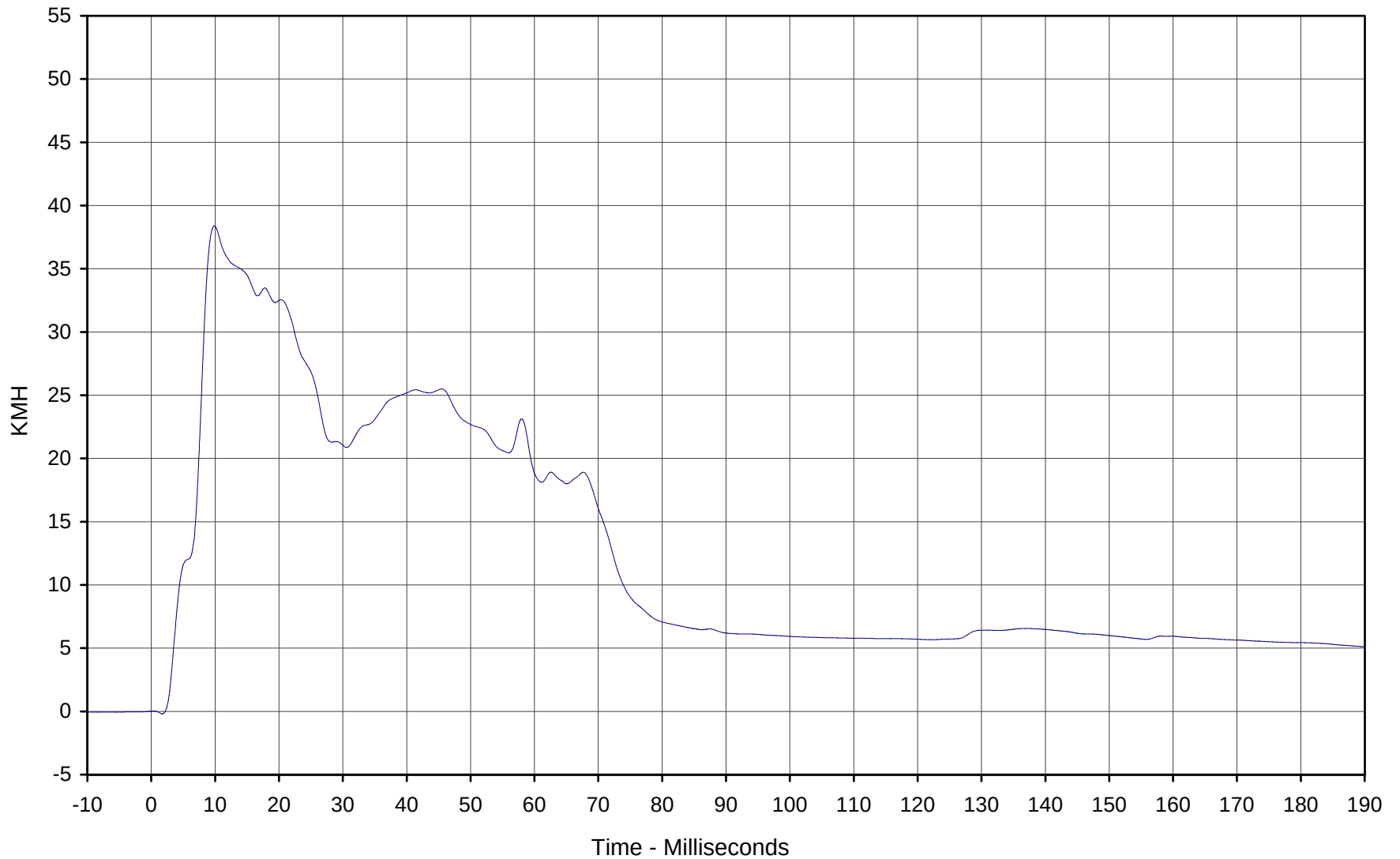




Curve Description: Left Front Door Mid Rear Y
Maximum Value: 185.4 at 7.7 Milliseconds
Minimum Value: -46.9 at 25.8 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: FIL-040

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

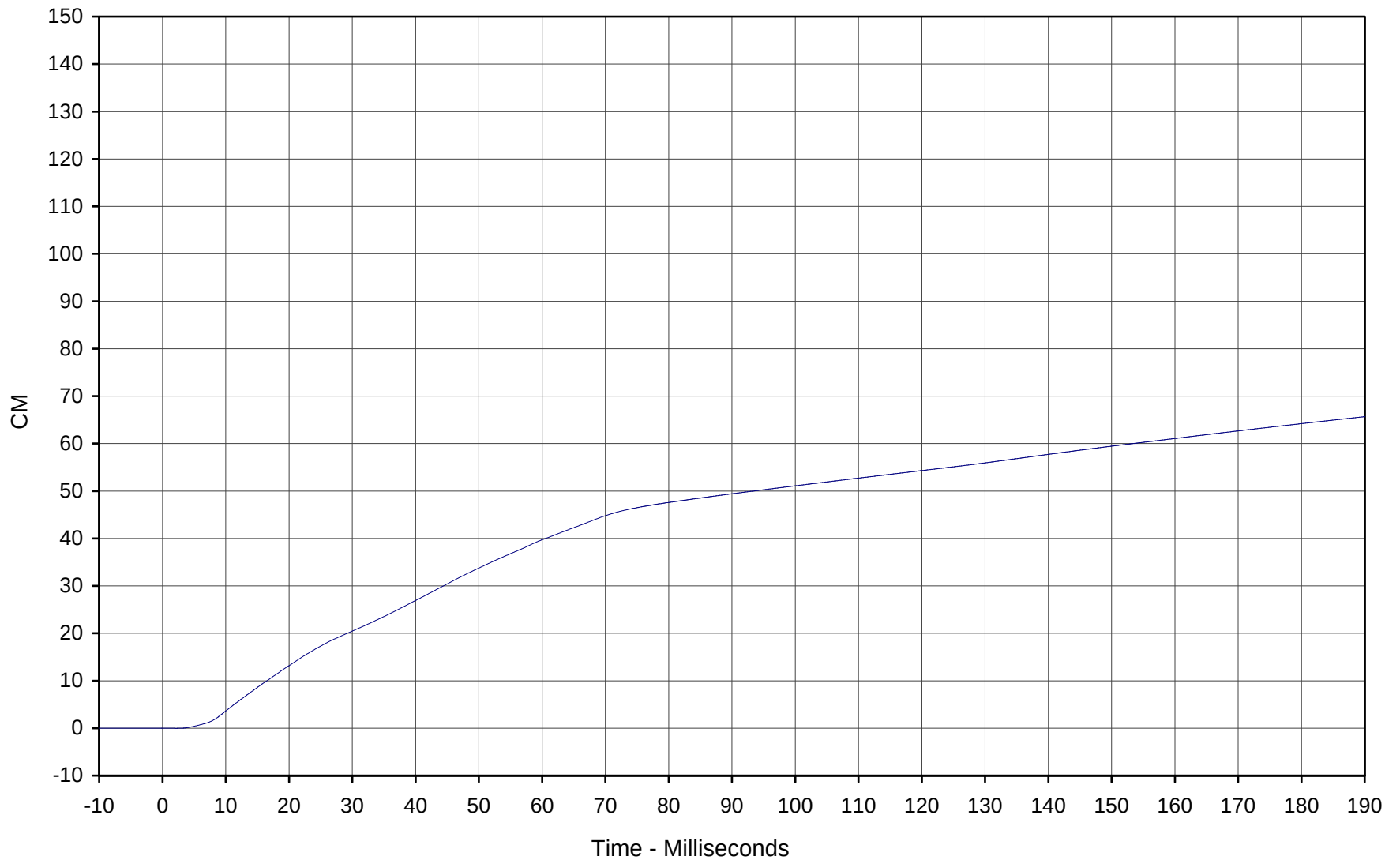




Curve Description: Left Front Door Mid-Rear Y Velocity
Maximum Value: 38.4 at 9.9 Milliseconds
Minimum Value: -0.2 at 1.7 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN1-040

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

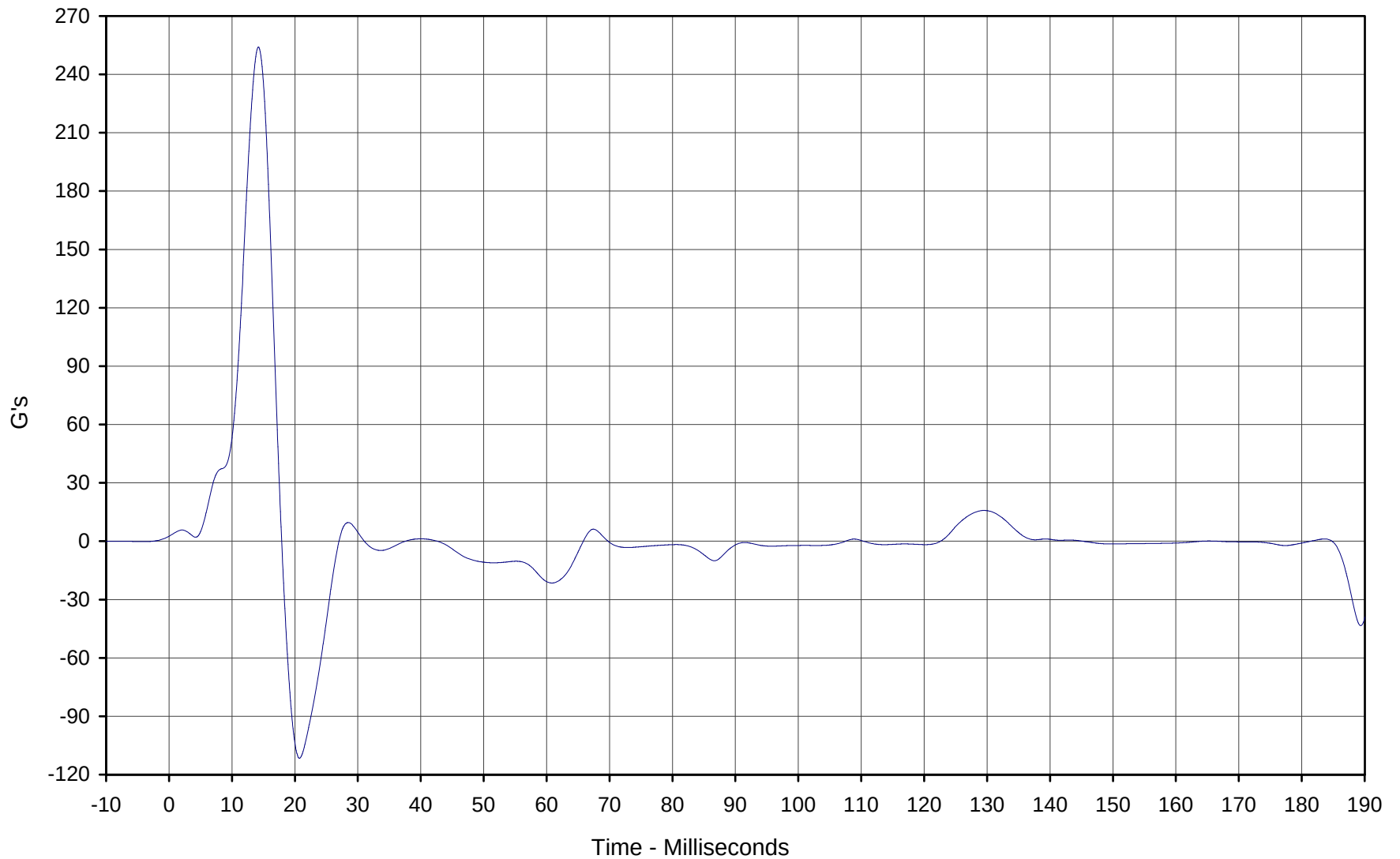




Curve Description: Left Front Door Mid-Rear Y Disp.
Maximum Value: 65.6 at 189.9 Milliseconds
Minimum Value: 0.0 at 2.2 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN2-040

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

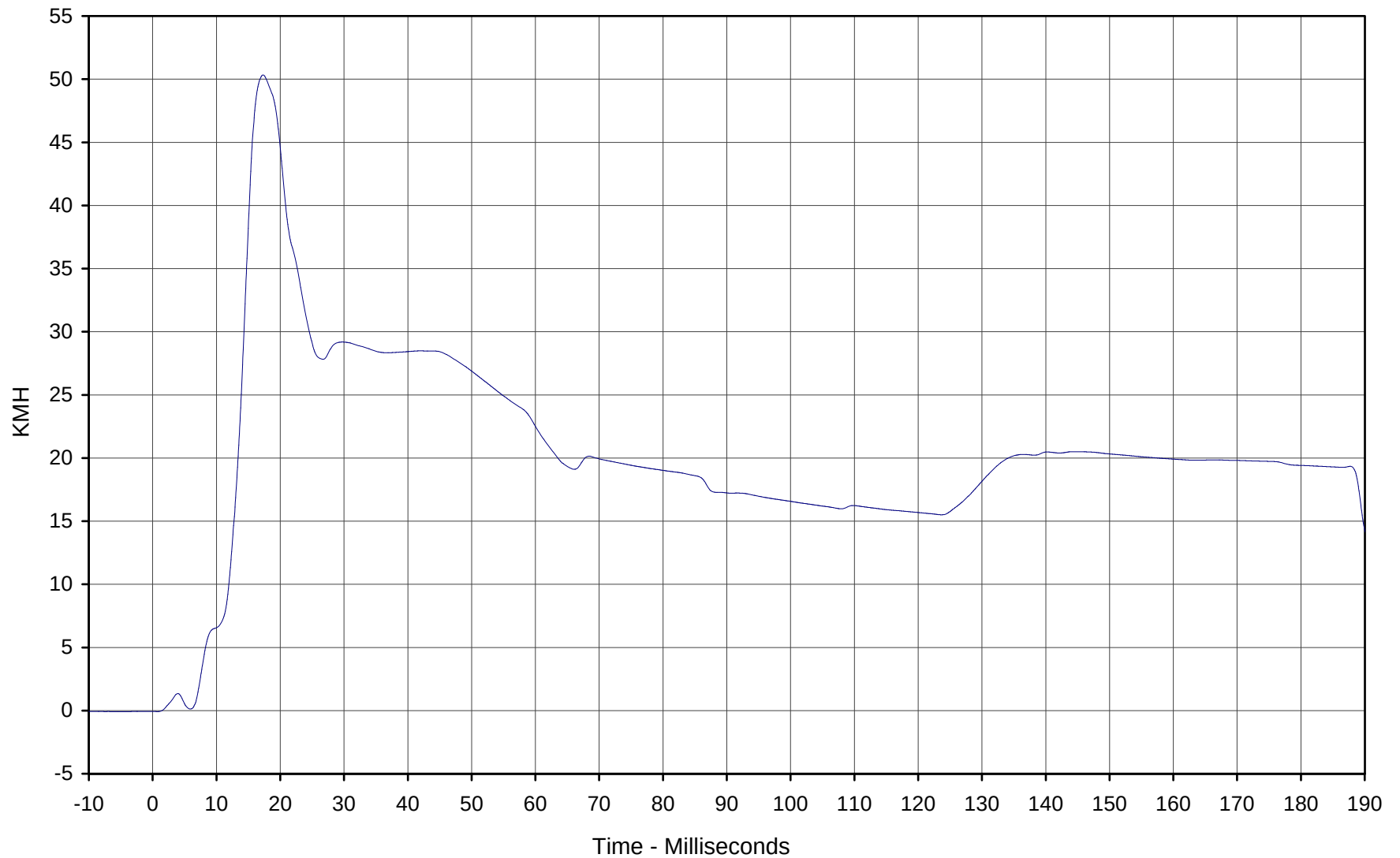




Curve Description: Left Front Door Upper CL Y
Maximum Value: 254.0 at 14.2 Milliseconds
Minimum Value: -111.5 at 20.7 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: FIL-041

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

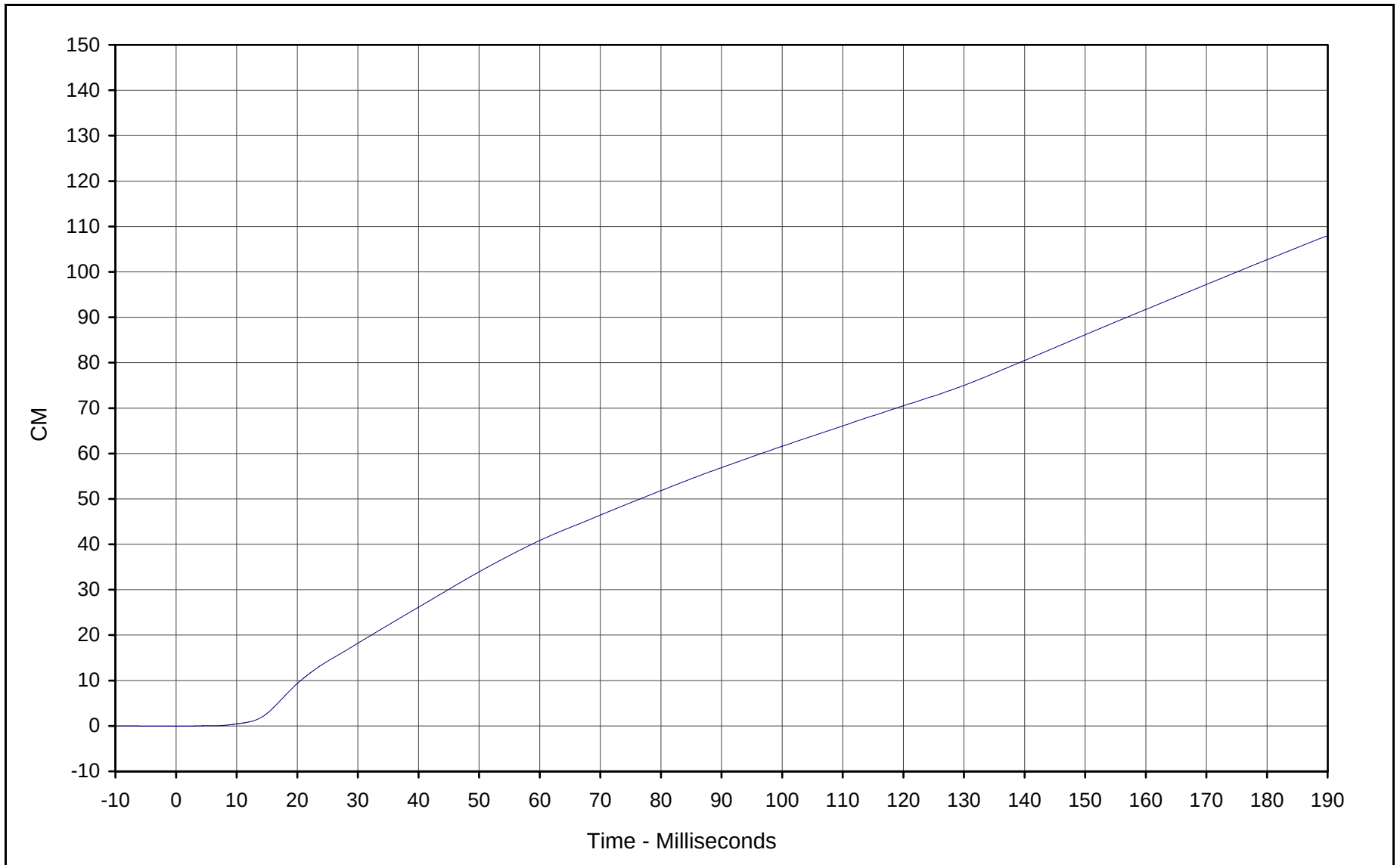




Curve Description: Left Front Door Upper CL Y Velocity
Maximum Value: 50.3 at 17.3 Milliseconds
Minimum Value: -0.1 at 0.7 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN1-041

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

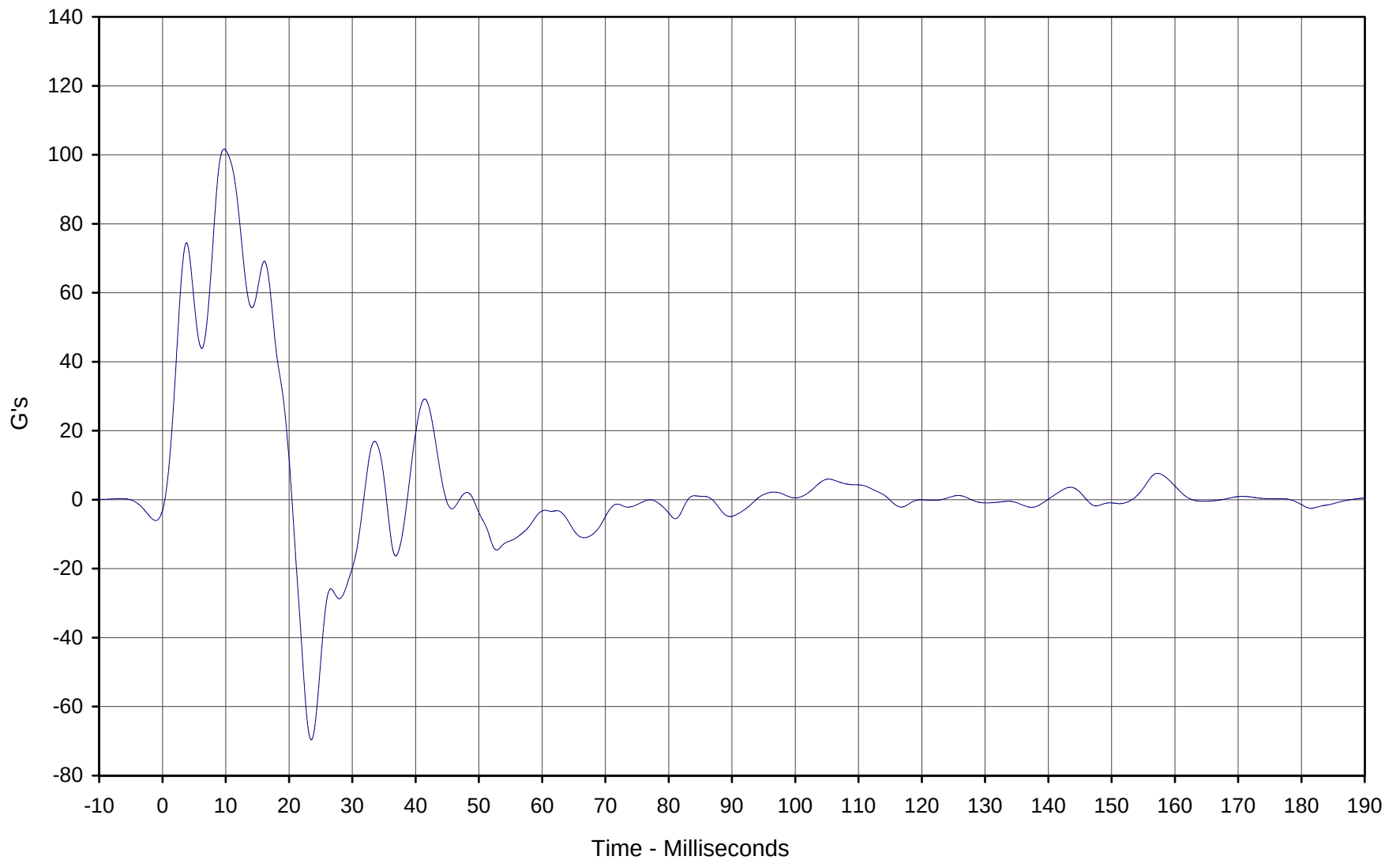




Curve Description: Left Front Door Upper CL Y Disp.
Maximum Value: 107.9 at 189.9 Milliseconds
Minimum Value: 0.0 at 1.5 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN2-041

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

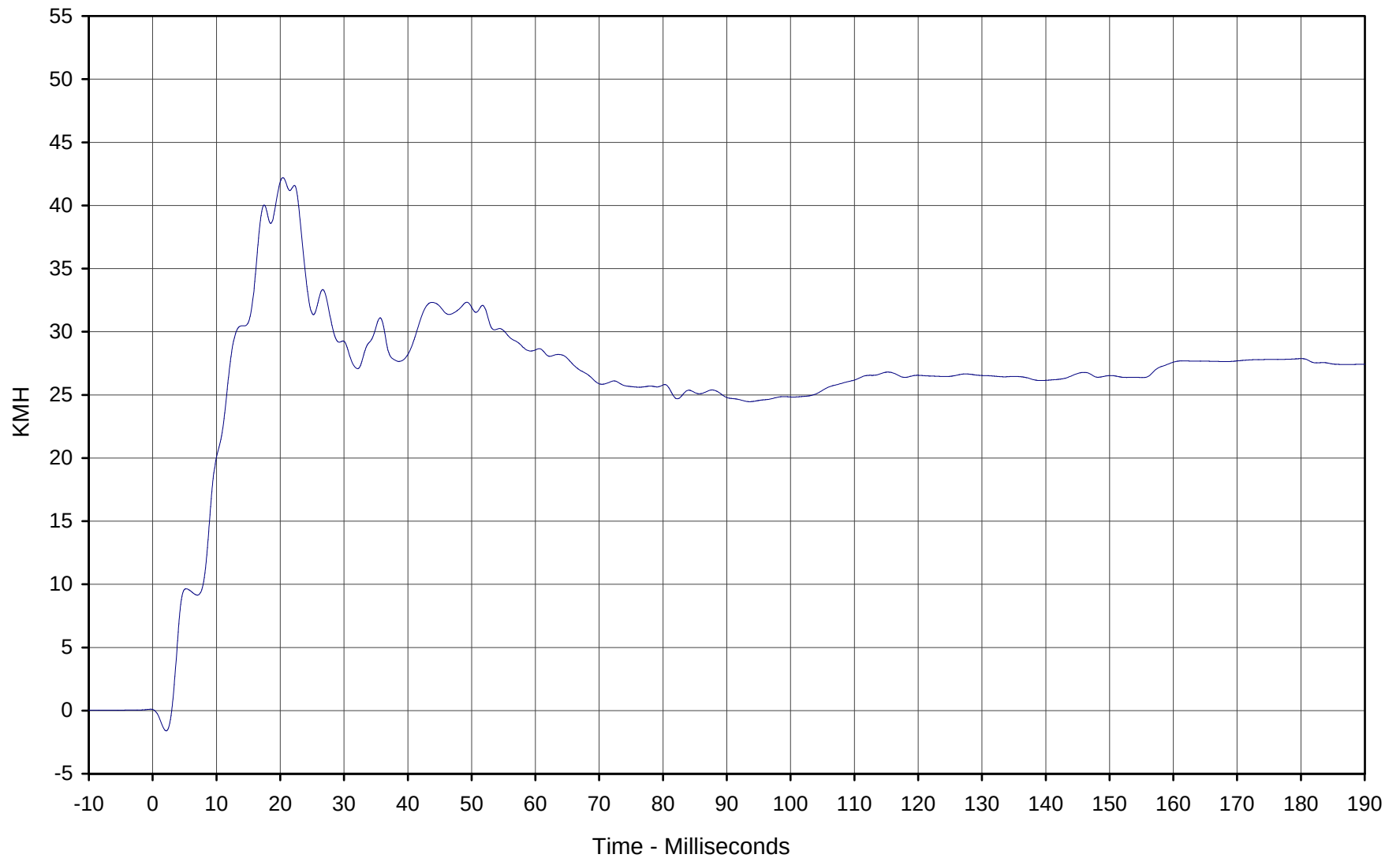




Curve Description: Left Rear Door Mid Rear Y
Maximum Value: 101.7 at 9.7 Milliseconds
Minimum Value: -69.6 at 23.5 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: FIL-042

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

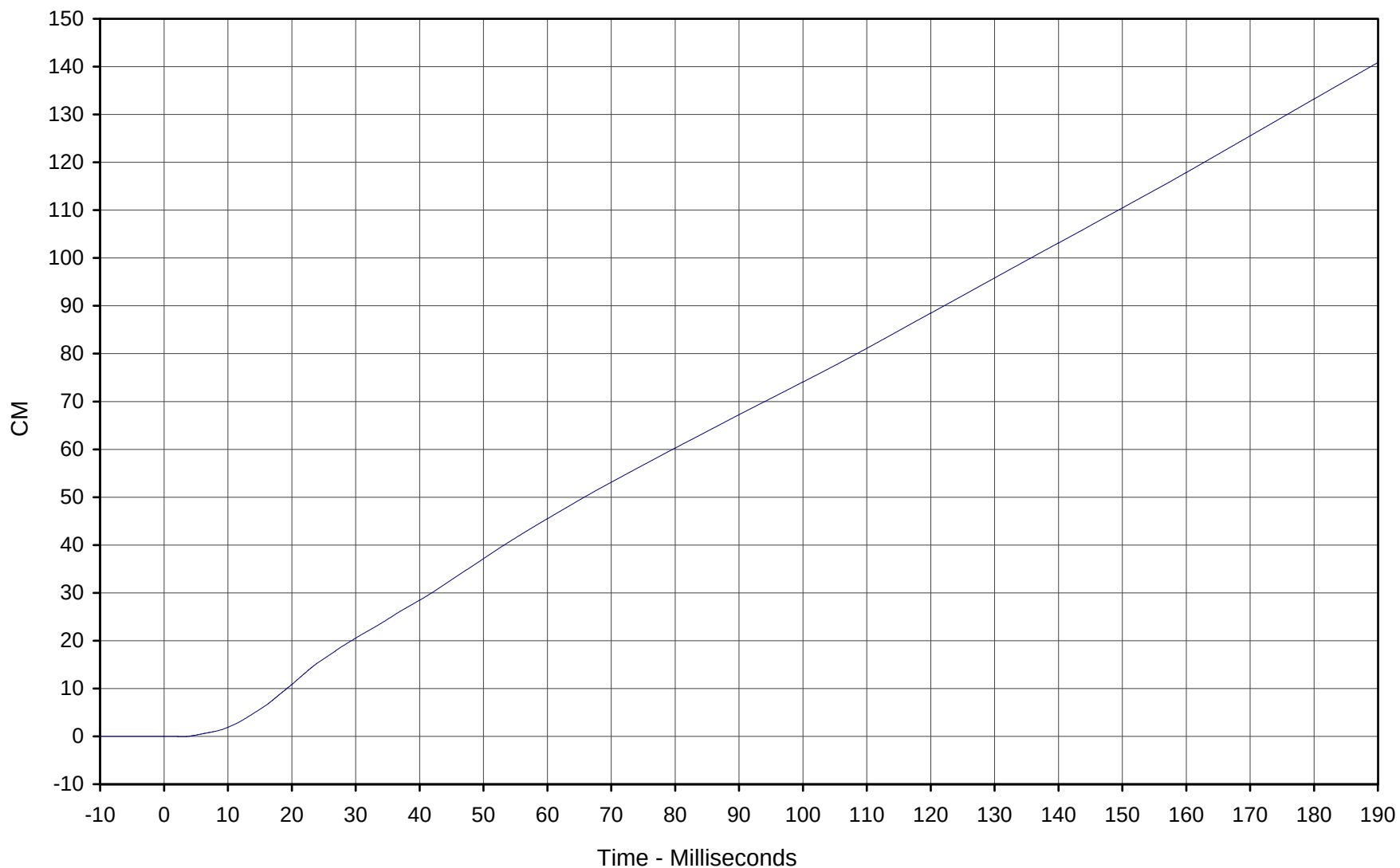




Curve Description: Left Rear Door Mid Rear Y Velocity
Maximum Value: 42.2 at 20.4 Milliseconds
Minimum Value: -1.6 at 2.1 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN1-042

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

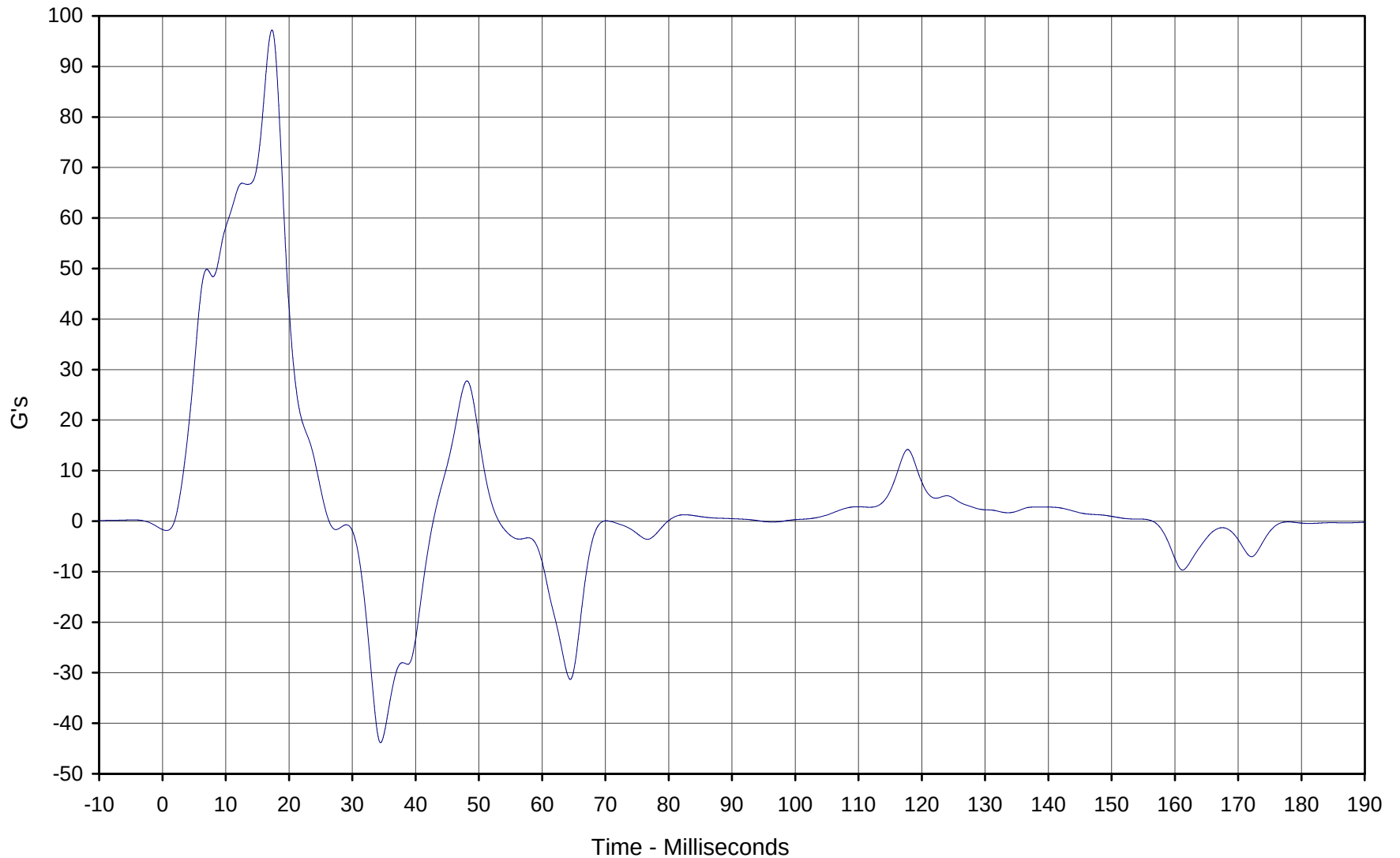




Curve Description: Left Rear Door Mid-Rear Y Disp.
Maximum Value: 140.8 at 189.9 Milliseconds
Minimum Value: -0.1 at 3.0 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN2-042

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

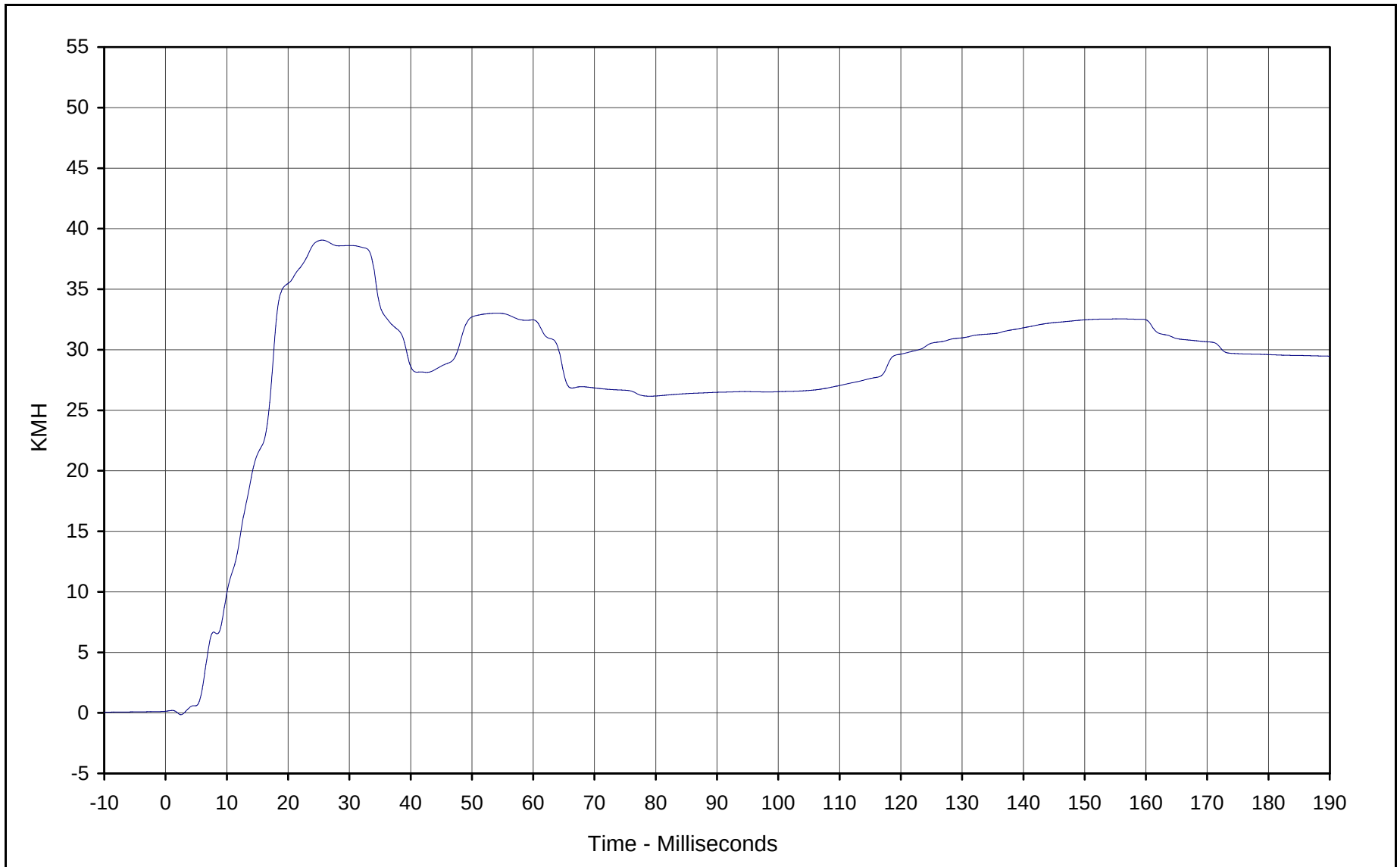




Curve Description: Left Rear Door Upper CL Y
Maximum Value: 97.2 at 17.3 Milliseconds
Minimum Value: -43.8 at 34.5 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: FIL-043

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: Left Rear Door Upper CL Y Velocity

Maximum Value: 39.1 at 25.5 Milliseconds

Minimum Value: -0.1 at 2.5 Milliseconds

SAE Filter Class: 180

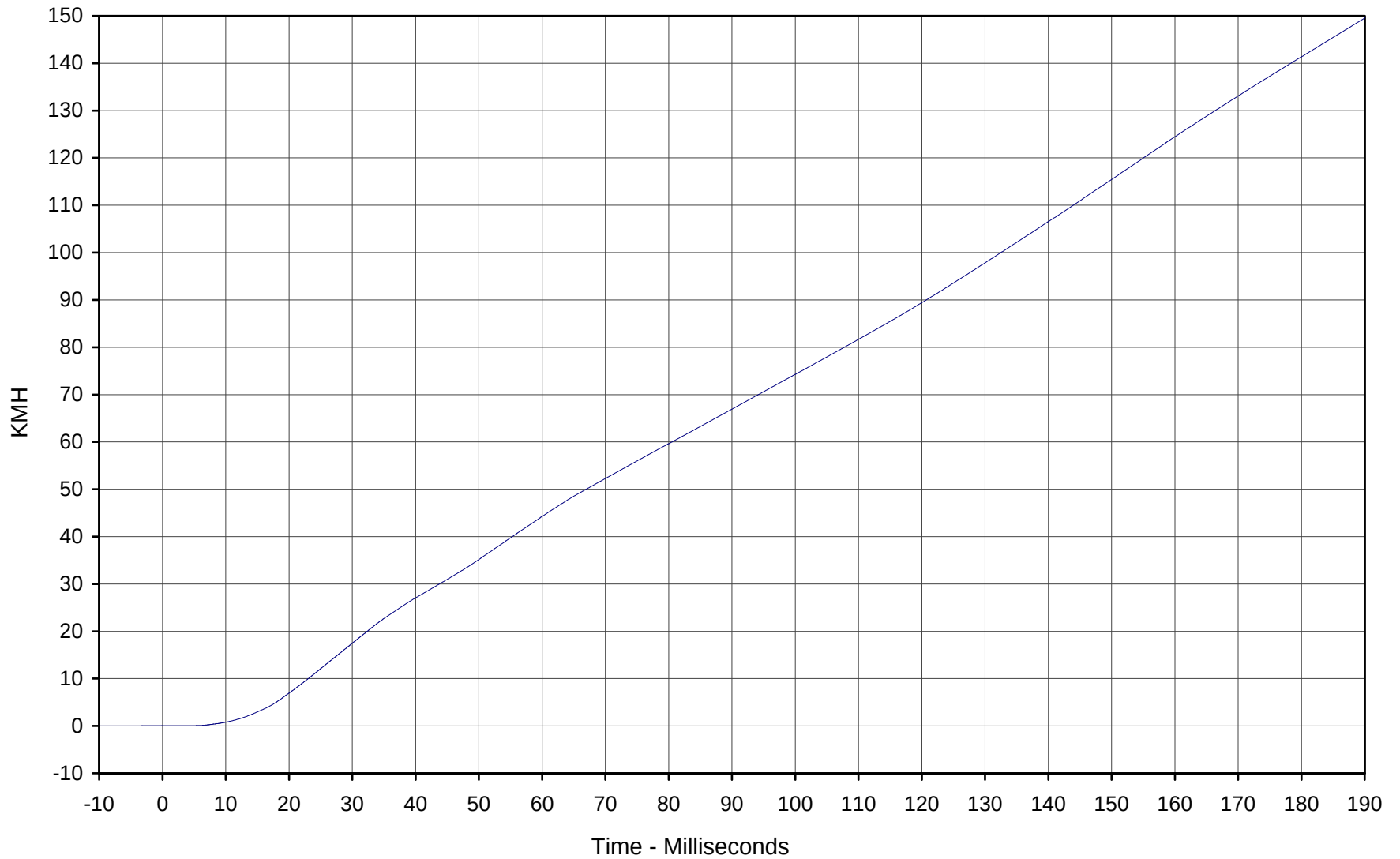
Date of Test: 12/9/99

Curve Number: IN1-043

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan



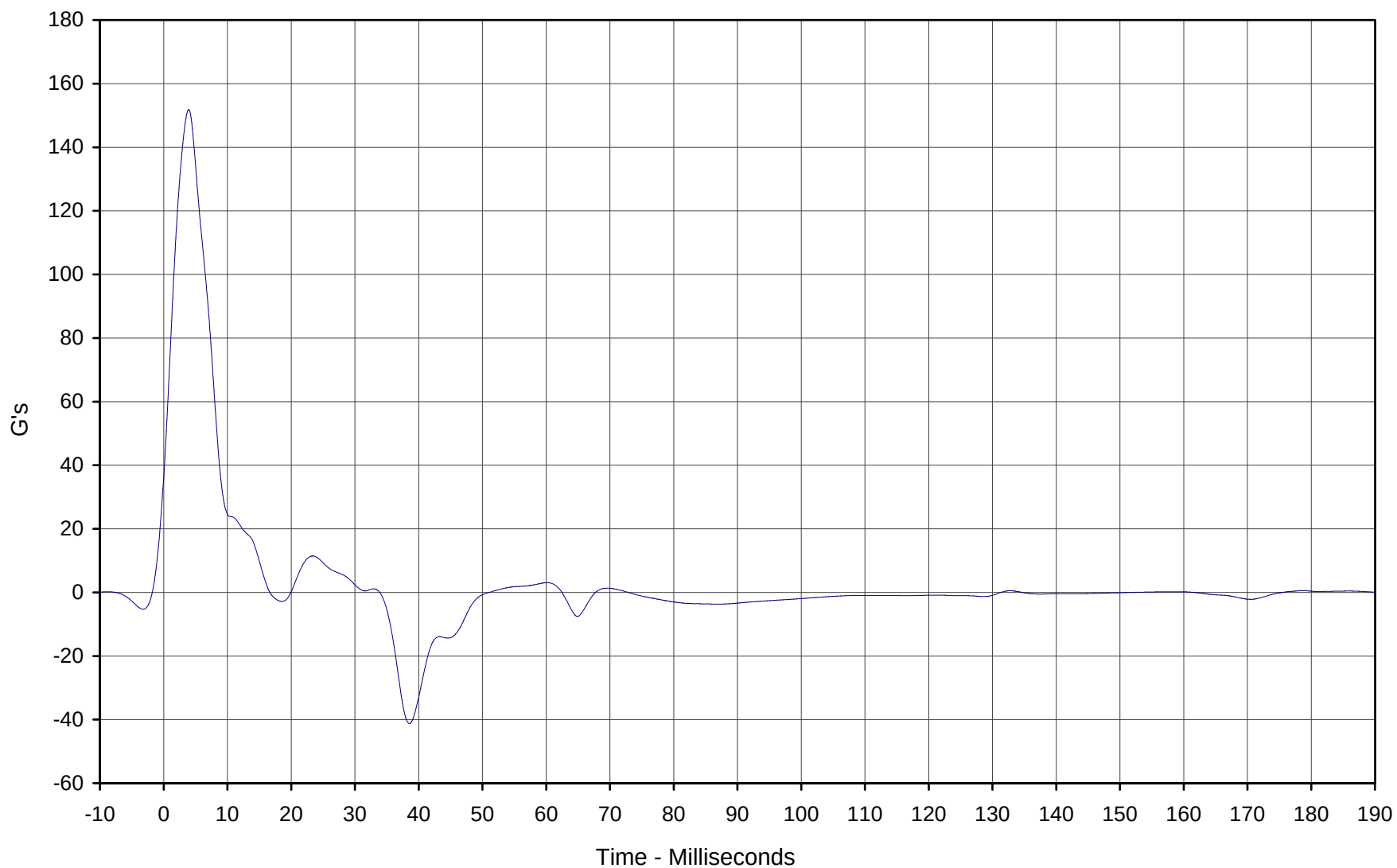


Curve Description: Left Rear Door Upper CL Y Disp.
Maximum Value: 149.5 at 189.9 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN2-043

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan



B-112



Curve Description: B-Post Lower Y

Maximum Value: 151.9 at 3.9 Milliseconds

Minimum Value: -41.3 at 38.6 Milliseconds

SAE Filter Class: 60

Date of Test: 12/9/99

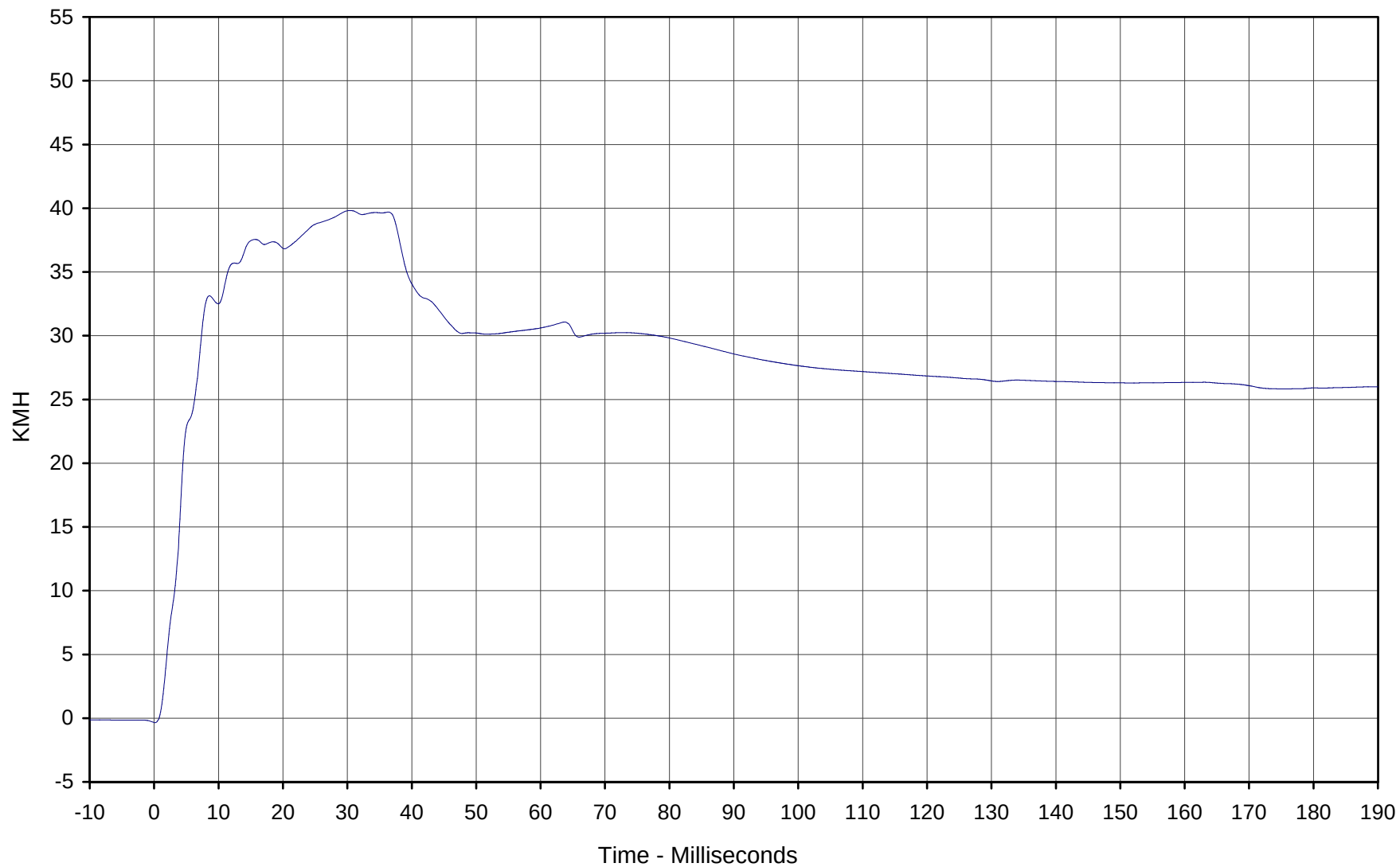
Curve Number: FIL-044

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan



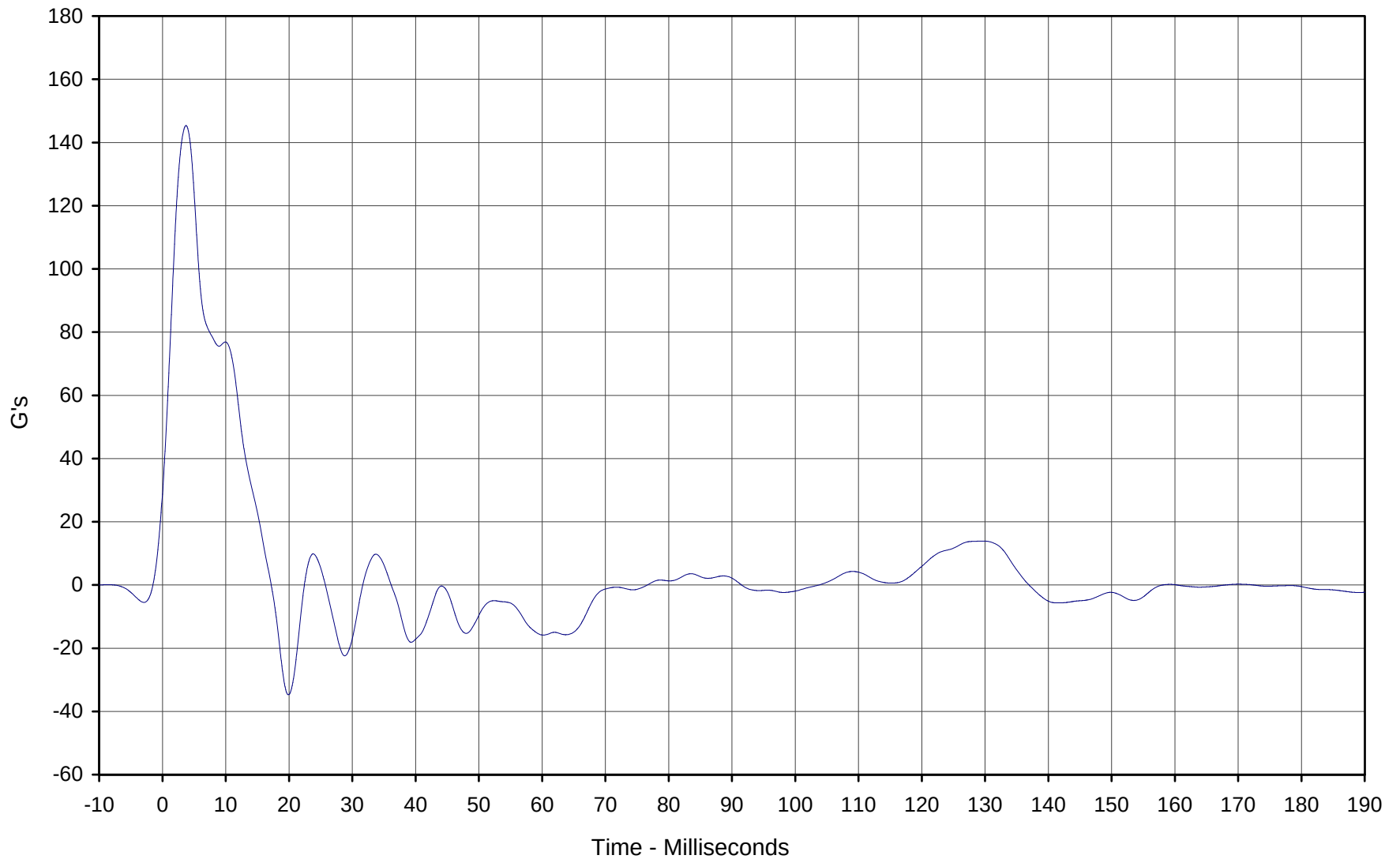
KAR99060-01



Curve Description: B-Post Lower Y Velocity
Maximum Value: 39.8 at 30.4 Milliseconds
Minimum Value: -0.3 at 0.1 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN1-044

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: B-Post Middle Y

Maximum Value: 145.3 at 3.7 Milliseconds

Minimum Value: -34.7 at 19.9 Milliseconds

SAE Filter Class: 60

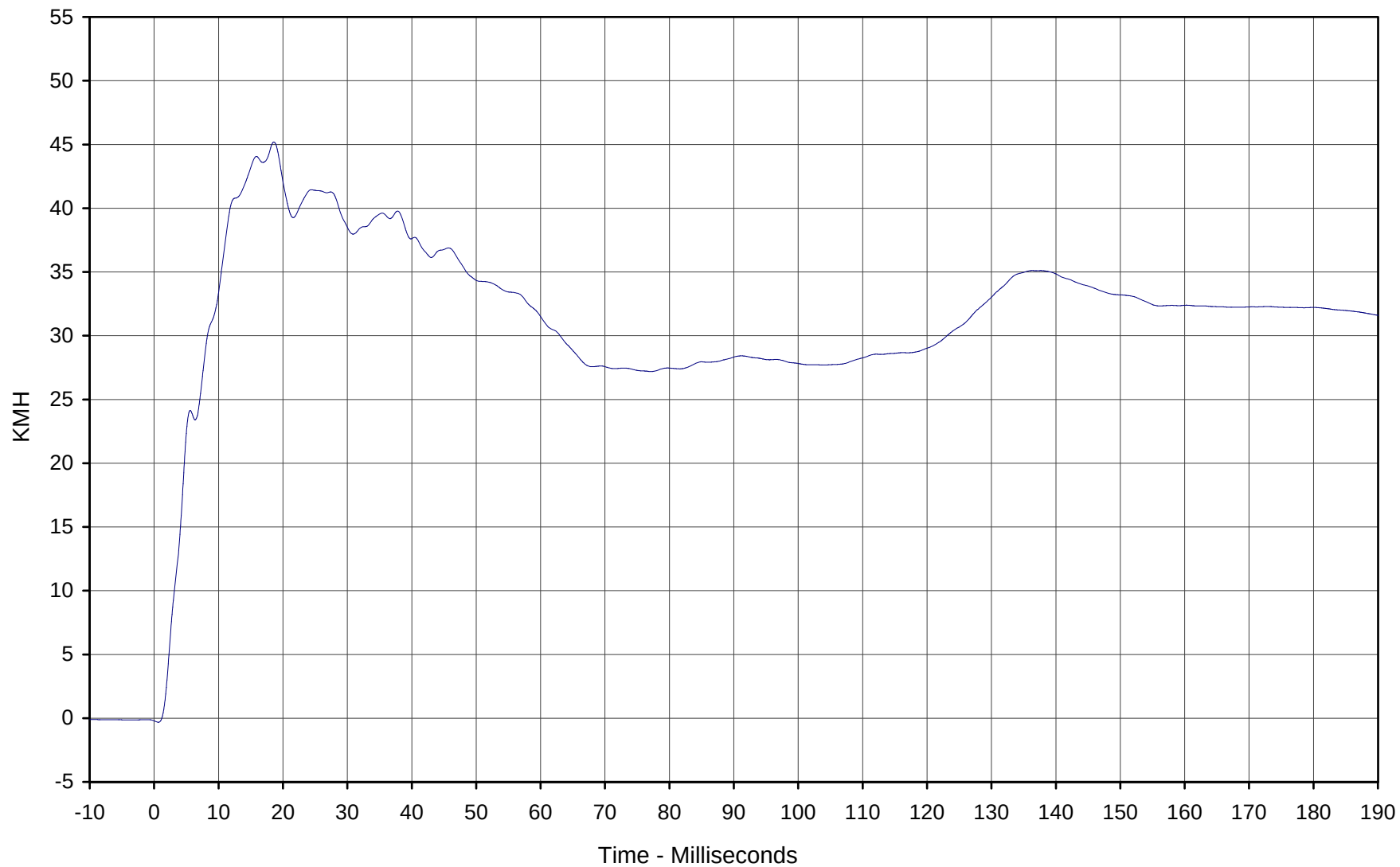
Date of Test: 12/9/99

Curve Number: FIL-045

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

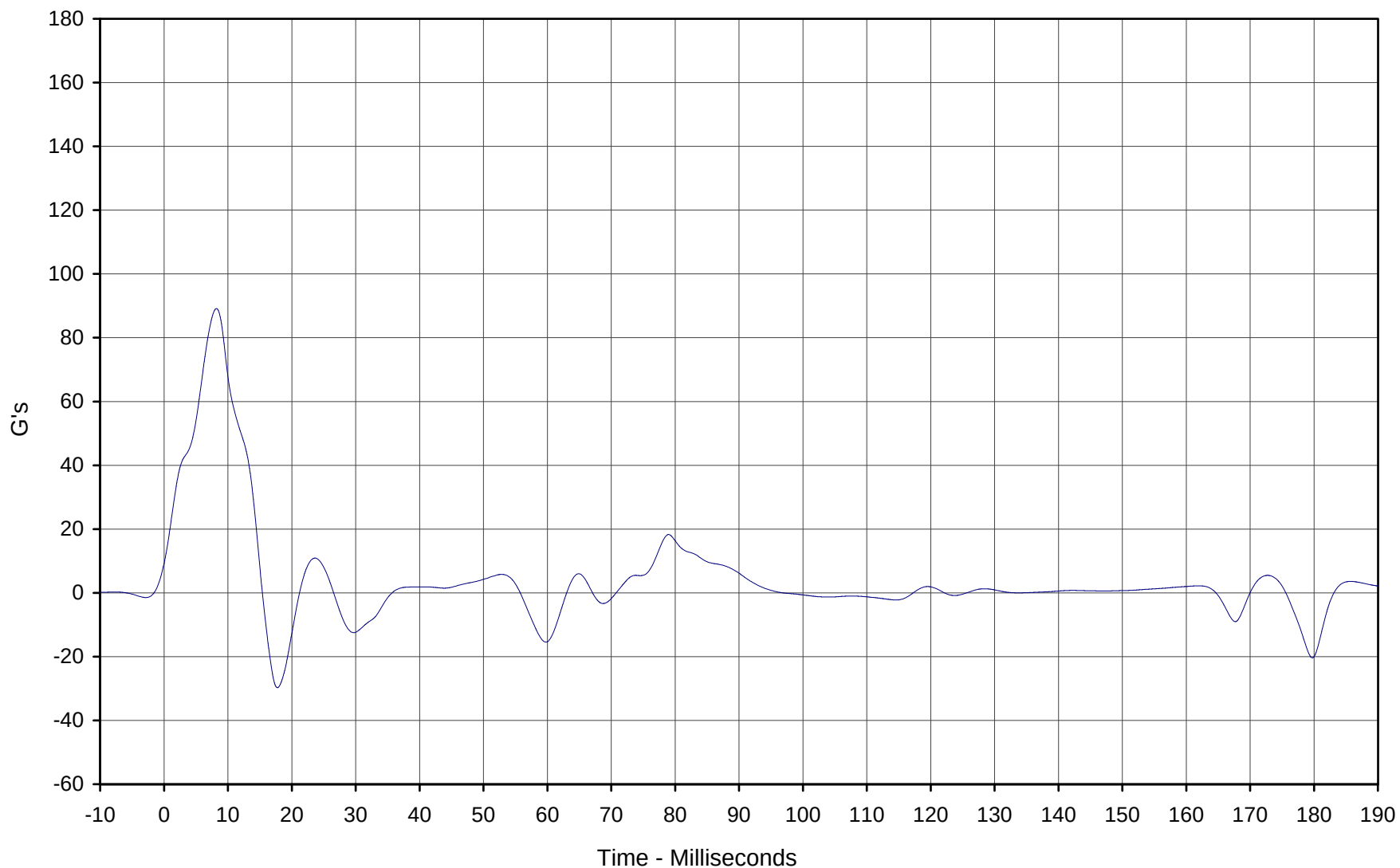




Curve Description: B-Post Middle Y Velocity
Maximum Value: 45.2 at 18.6 Milliseconds
Minimum Value: -0.3 at 0.6 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN1-045

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: A-Post Lower Y

Maximum Value: 89.2 at 8.2 Milliseconds

Minimum Value: -29.7 at 17.8 Milliseconds

SAE Filter Class: 60

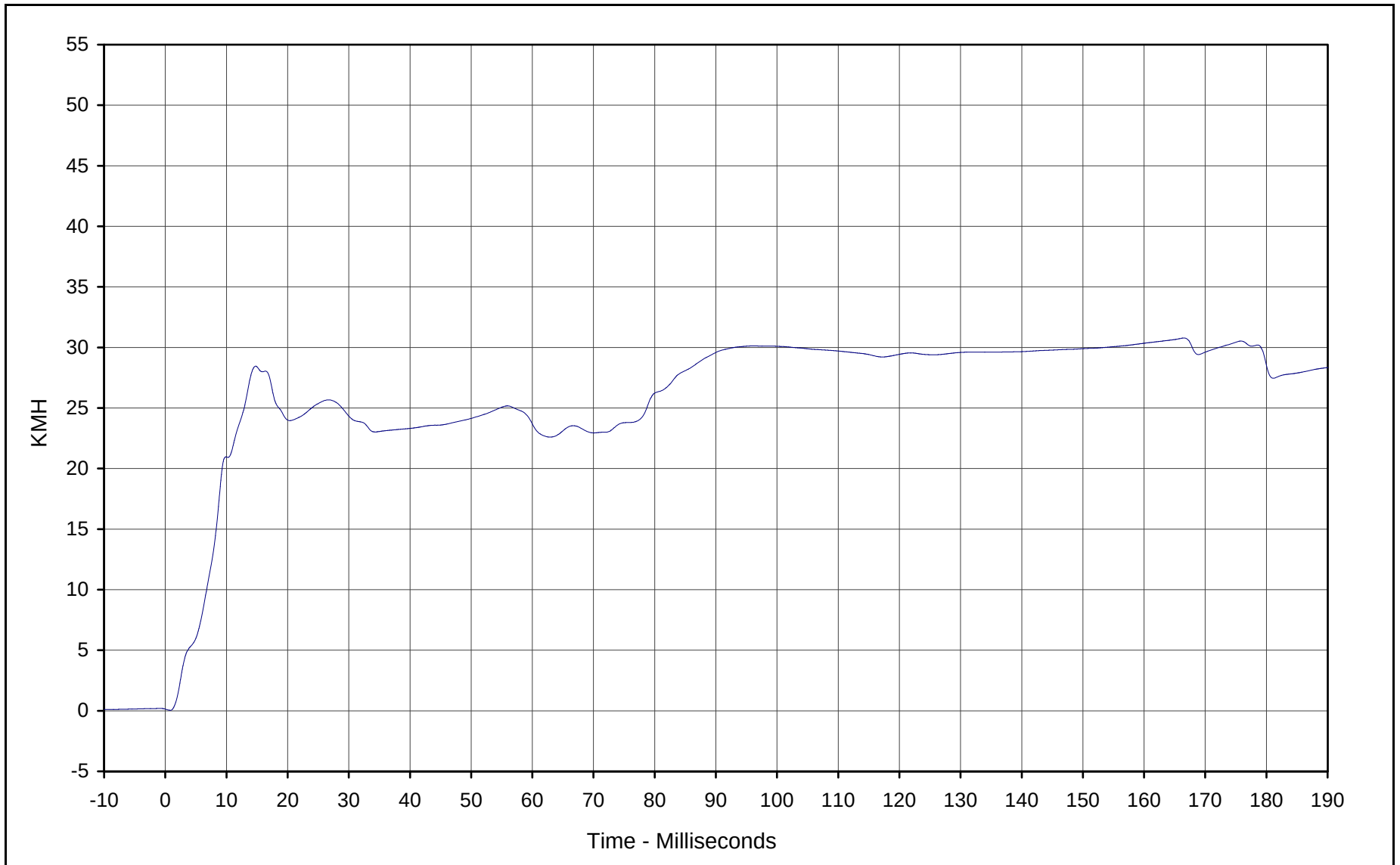
Date of Test: 12/9/99

Curve Number: FIL-046

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

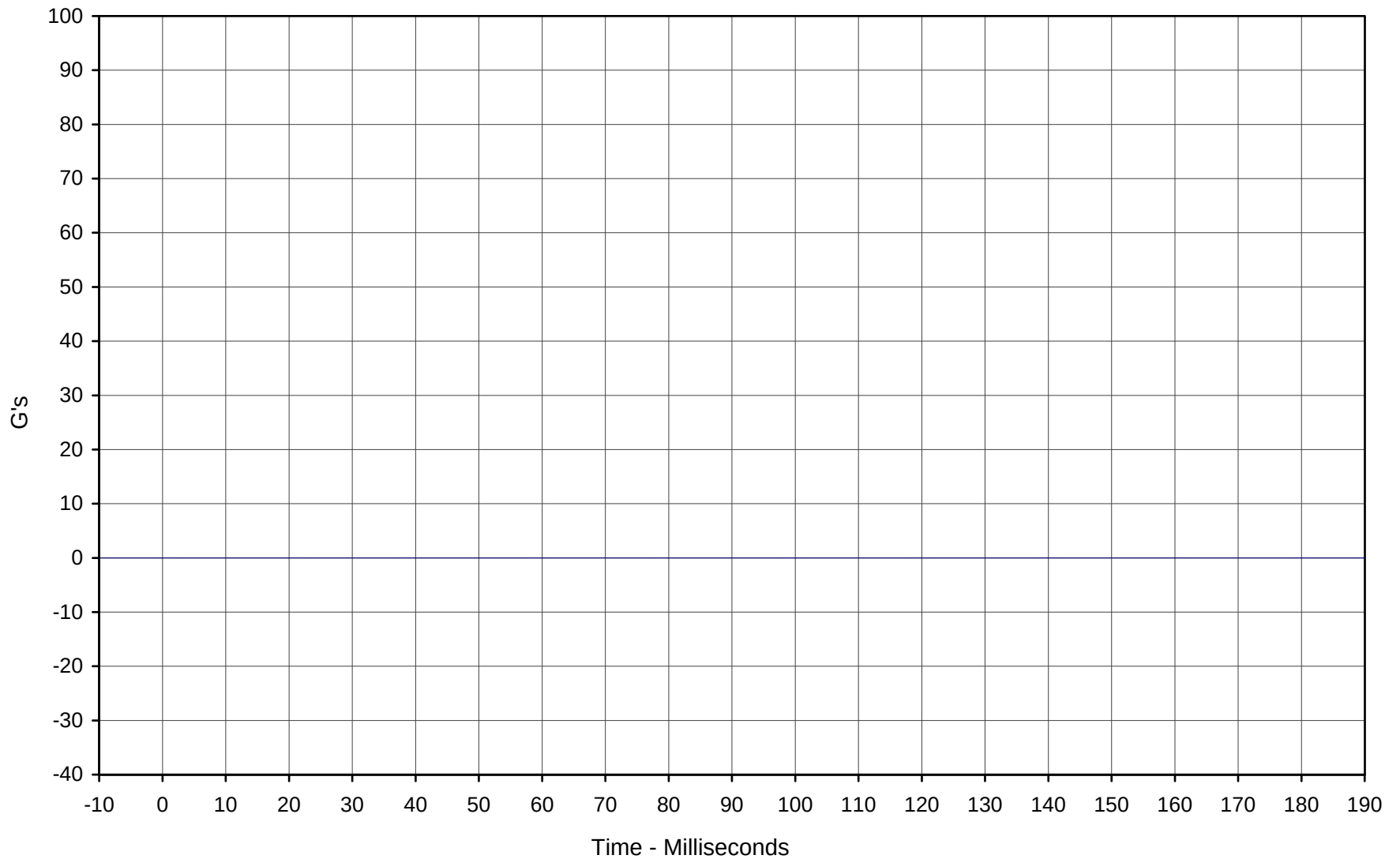




Curve Description: A-Post Lower Y Velocity
Maximum Value: 30.8 at 166.5 Milliseconds
Minimum Value: 0.0 at 0.8 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN1-046

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: A-Post Middle Y *

Maximum Value: 0.0 at 0.0 Milliseconds

Minimum Value: 0.0 at 0.0 Milliseconds

SAE Filter Class: 60

Date of Test: 12/9/99

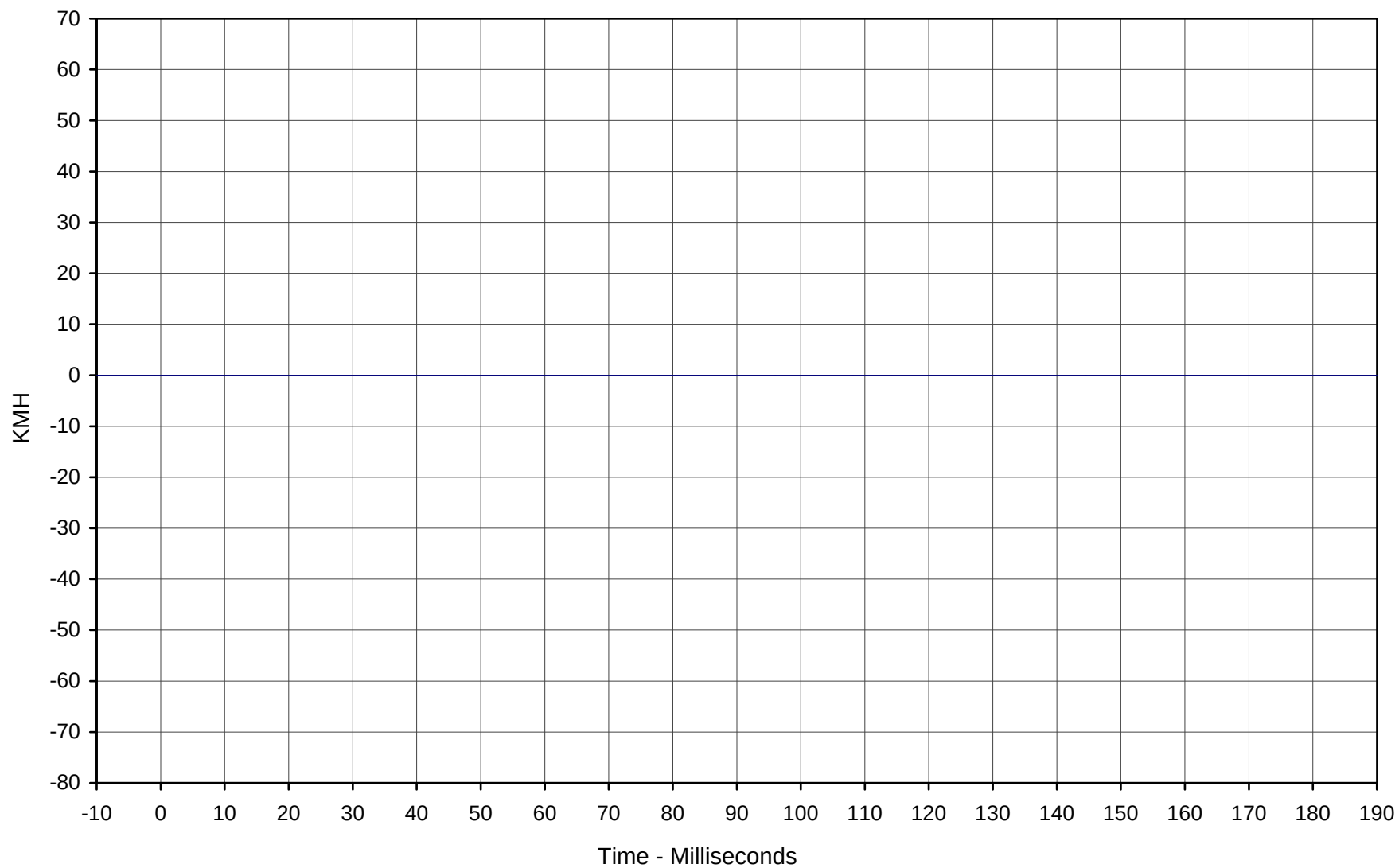
Curve Number: FIL-047

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

* Channel Failed, No Data





Curve Description: A-Post Middle 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: 12/9/99

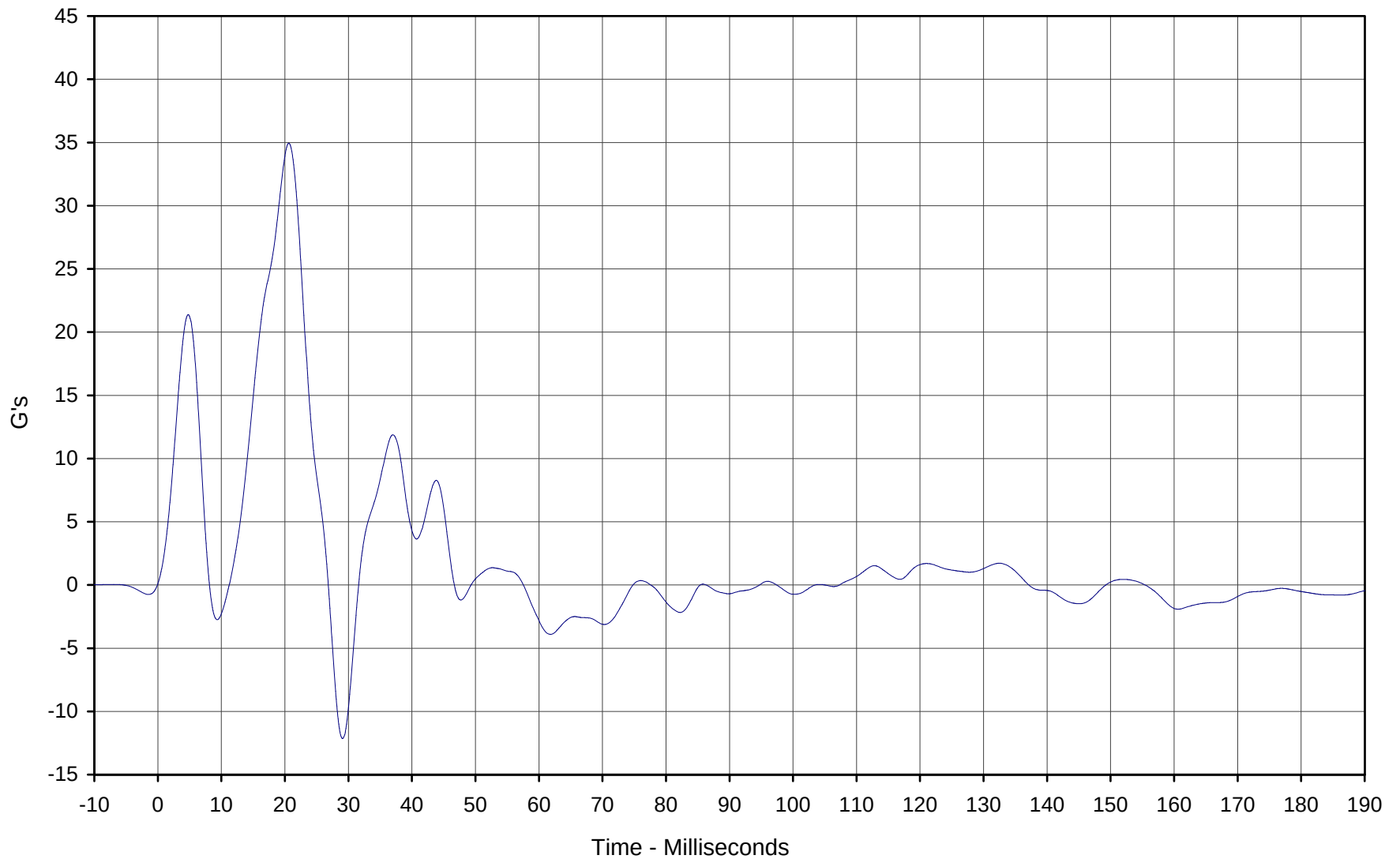
Curve Number: IN1-047

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

* Channel Failed, No Data





Curve Description: Left Front Seat Track Y

Maximum Value: 34.9 at 20.6 Milliseconds

Minimum Value: -12.1 at 29.1 Milliseconds

SAE Filter Class: 60

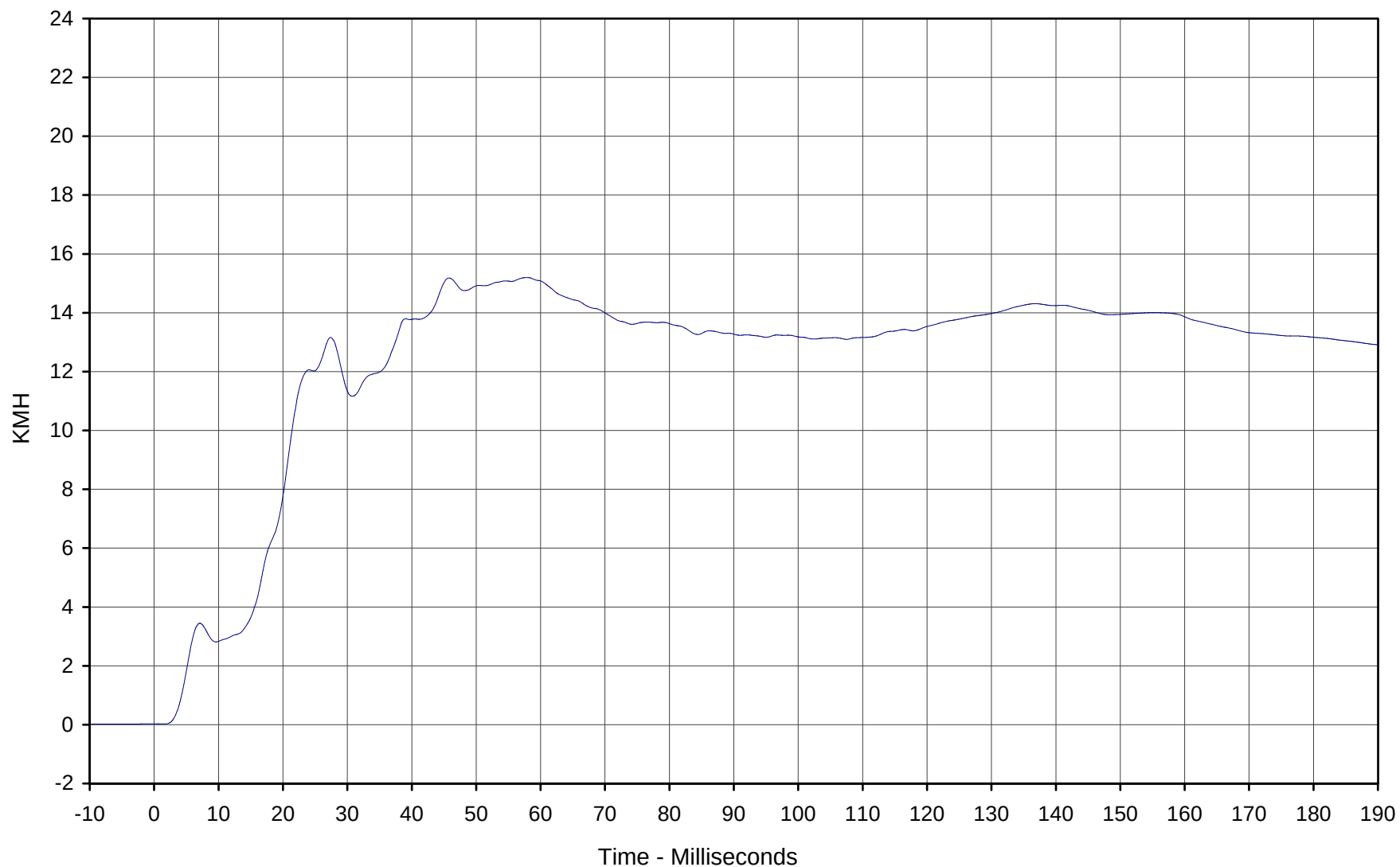
Date of Test: 12/9/99

Curve Number: FIL-048

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

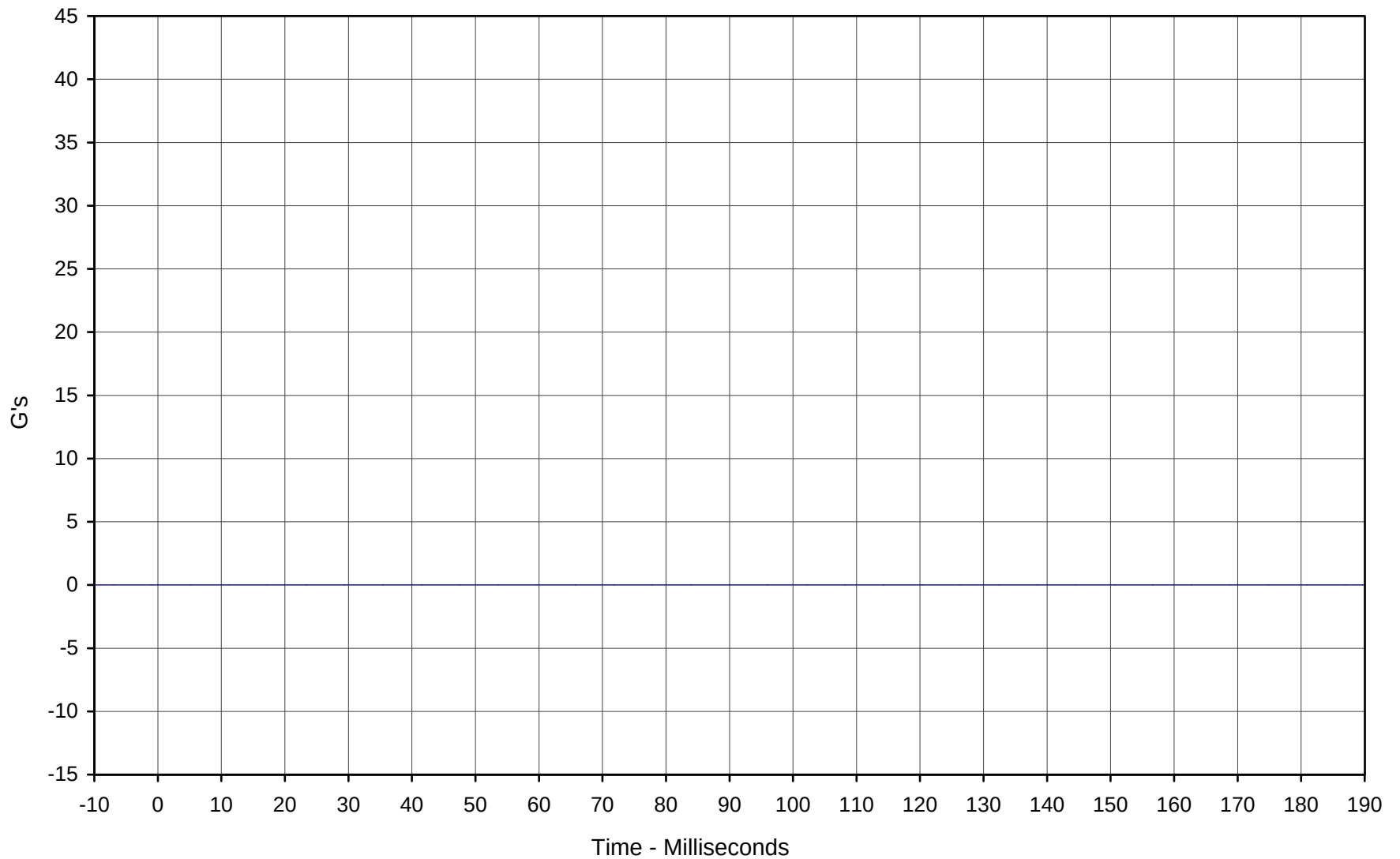




Curve Description: Left Front Seat Track Y Velocity
Maximum Value: 15.2 at 58.0 Milliseconds
Minimum Value: 0.0 at 1.6 Milliseconds
SAE Filter Class: 180
Date of Test: 12/9/99
Curve Number: IN1-048

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: 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: 12/9/99

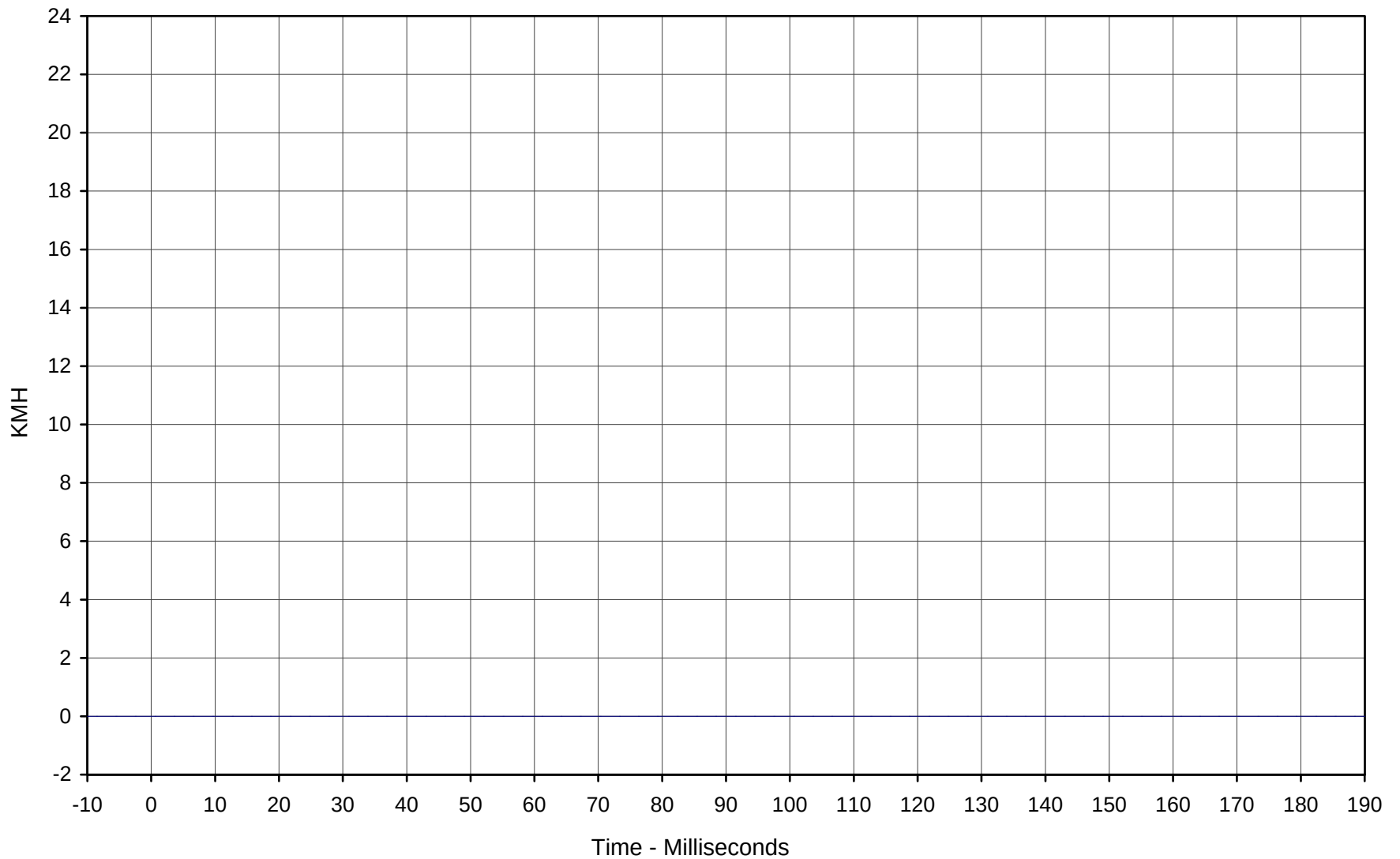
Curve Number: FIL-049

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

* Not Installed





Curve Description: 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: 12/9/99

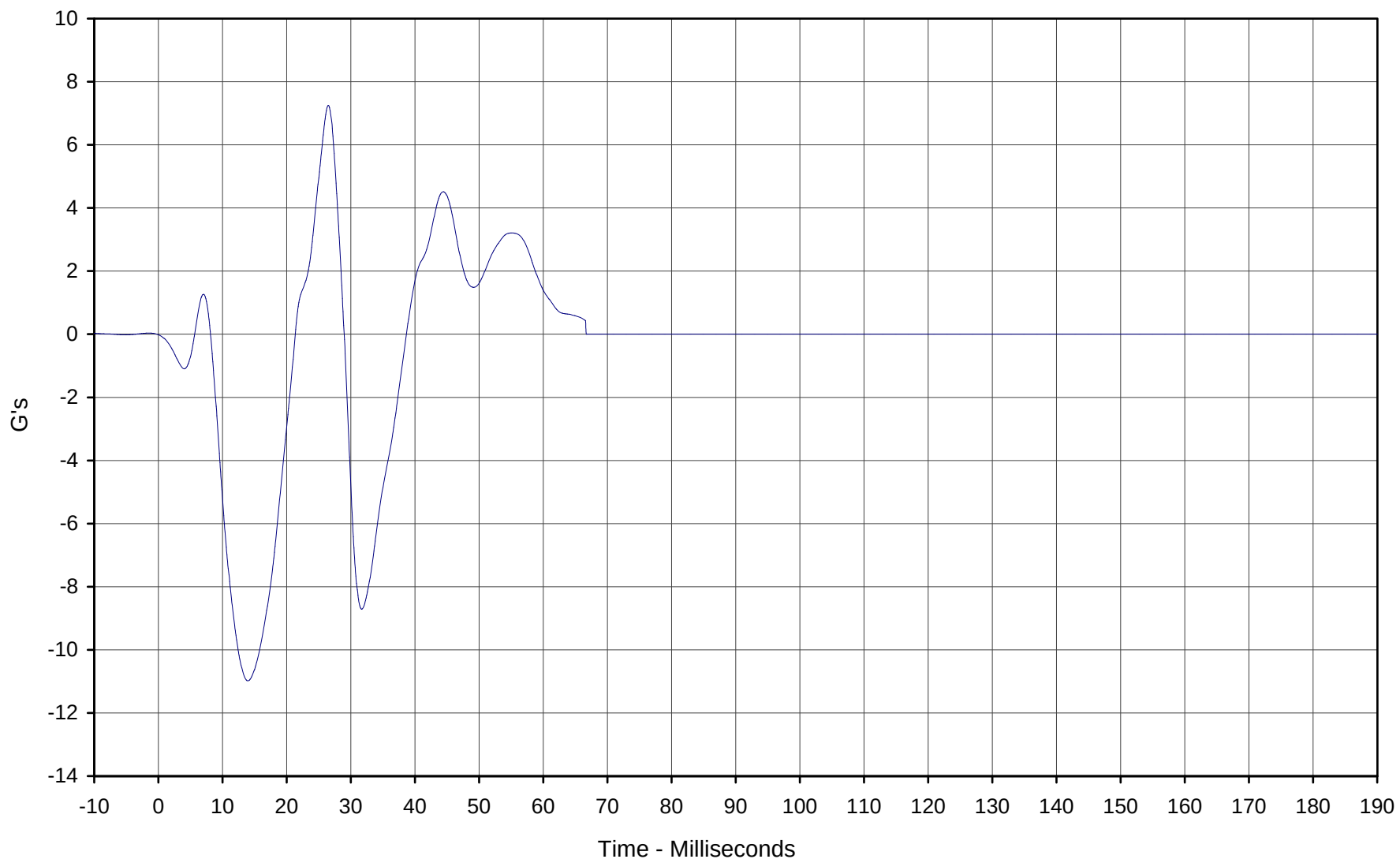
Curve Number: IN1-049

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

* Not Installed





Curve Description: Vehicle CG X *

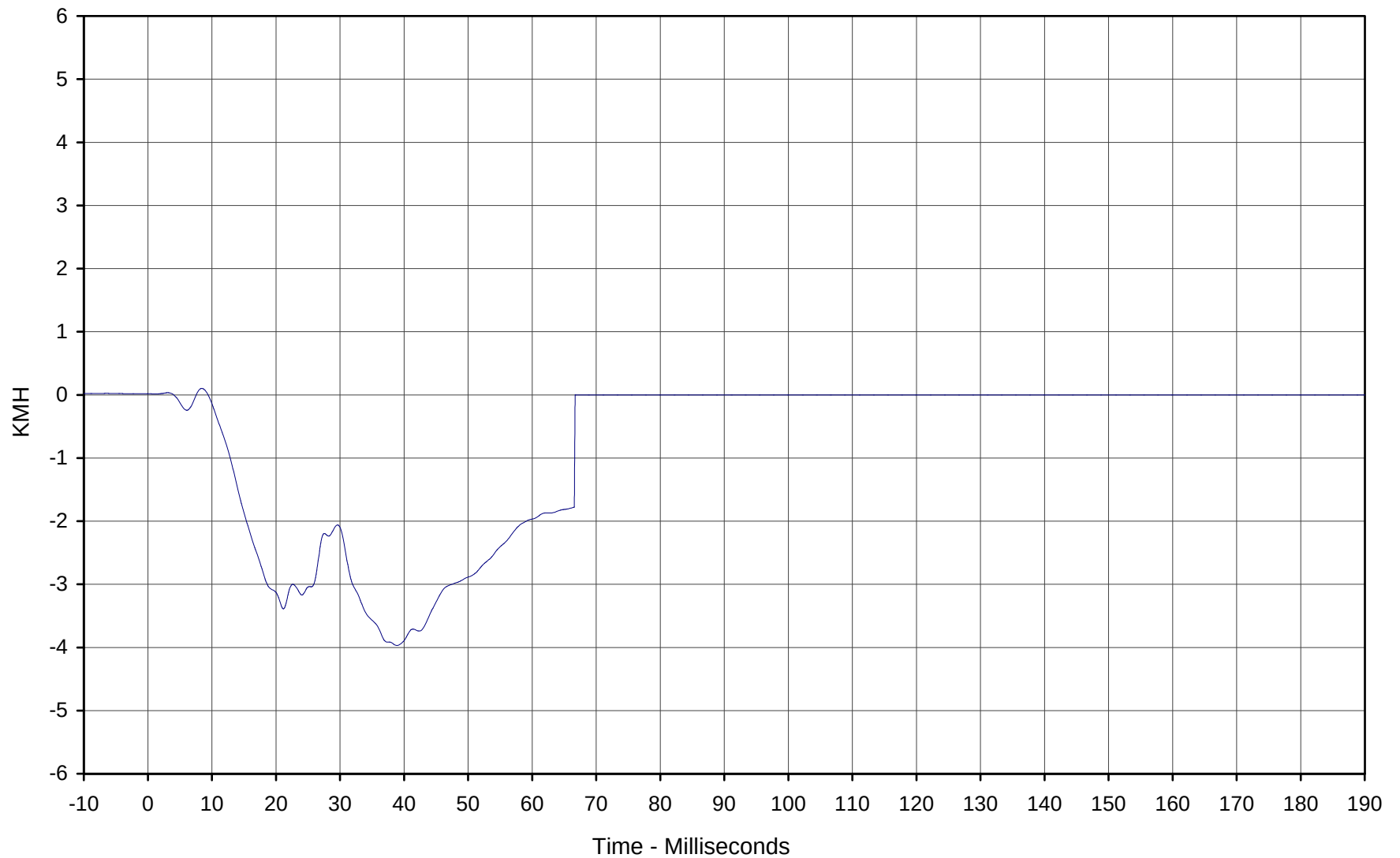
Maximum Value:	<u>7.3</u>	at	<u>26.5</u>	Milliseconds
Minimum Value:	<u>-11.0</u>	at	<u>14.0</u>	Milliseconds
SAE Filter Class:	<u>60</u>			
Date of Test:	<u>12/9/99</u>			
Curve Number:	<u>FIL-050</u>			

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

* Channel Failed at 66.7 Msec.





Curve Description: Vehicle CG X Velocity *

Maximum Value: 0.1 at 8.4 Milliseconds

Minimum Value: -4.0 at 38.9 Milliseconds

SAE Filter Class: 180

Date of Test: 12/9/99

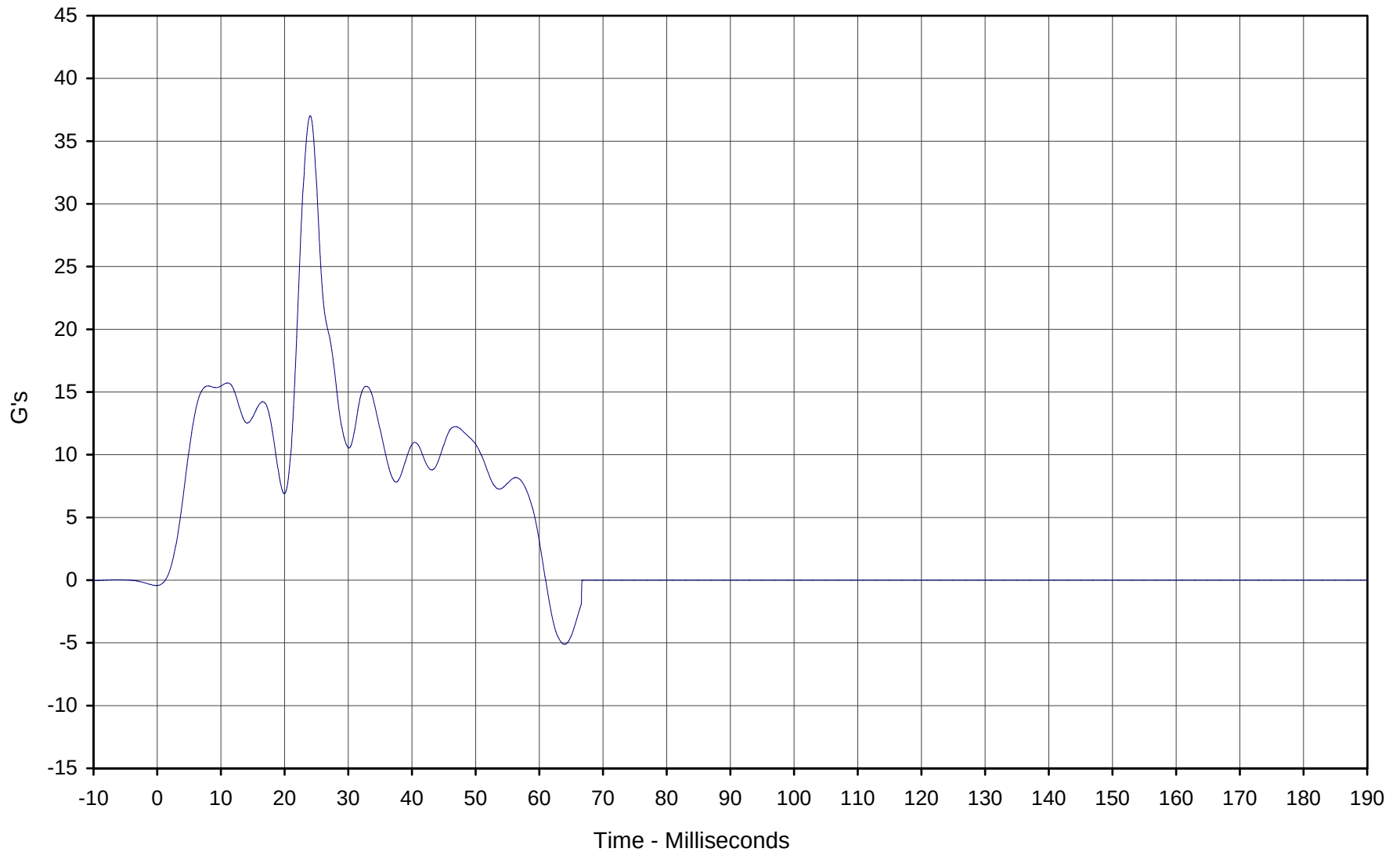
Curve Number: IN1-050

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

* Channel Failed at 66.7 Msec.





Curve Description: Vehicle CG Y *

Maximum Value: 37.0 at 24.0 Milliseconds

Minimum Value: -5.1 at 64.0 Milliseconds

SAE Filter Class: 60

Date of Test: 12/9/99

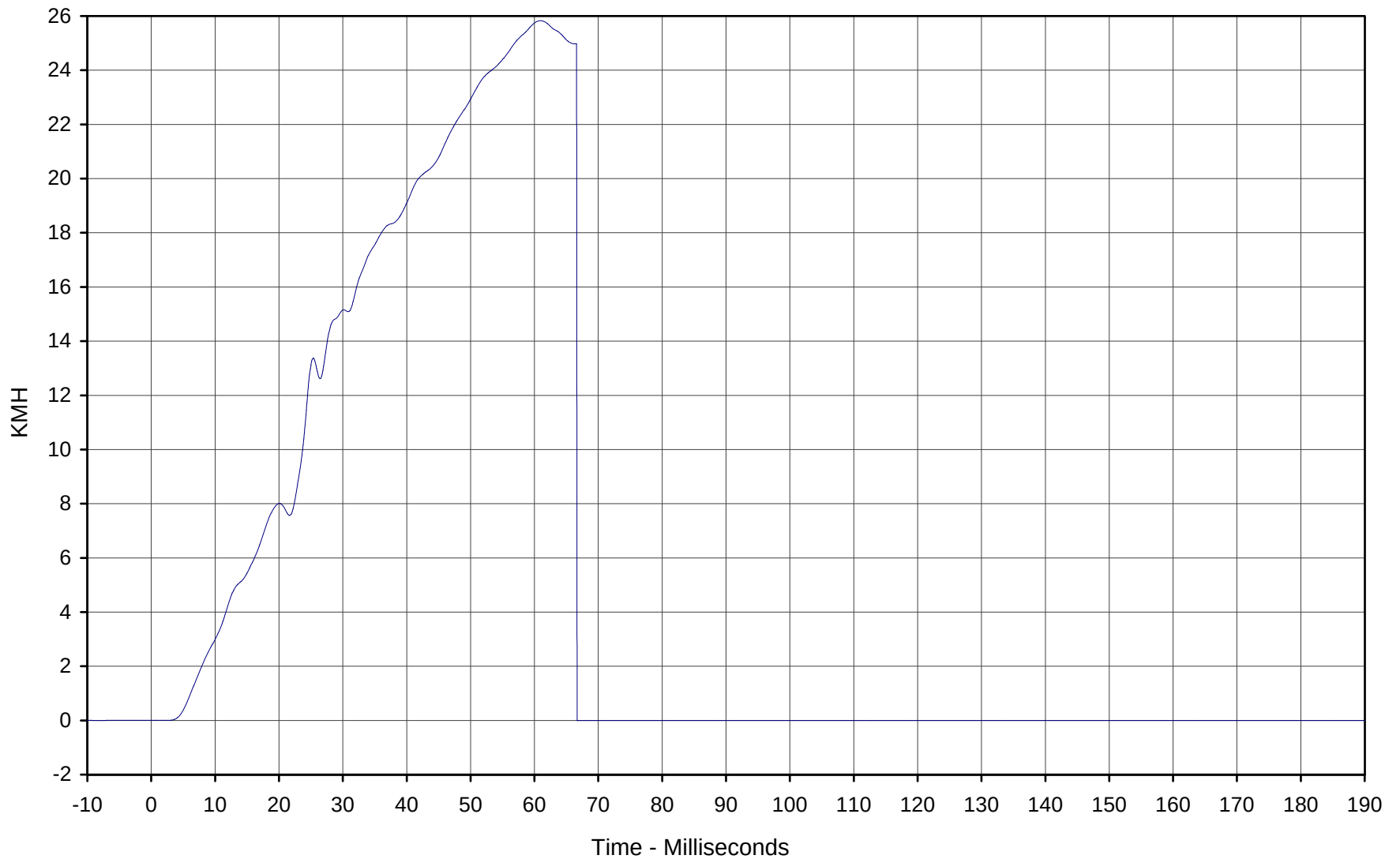
Curve Number: FIL-051

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

* Channel Failed at 66.7 Msec.





Curve Description: Vehicle CG Y Velocity *

Maximum Value: 25.8 at 61.0 Milliseconds

Minimum Value: 0.0 at 66.7 Milliseconds

SAE Filter Class: 180

Date of Test: 12/9/99

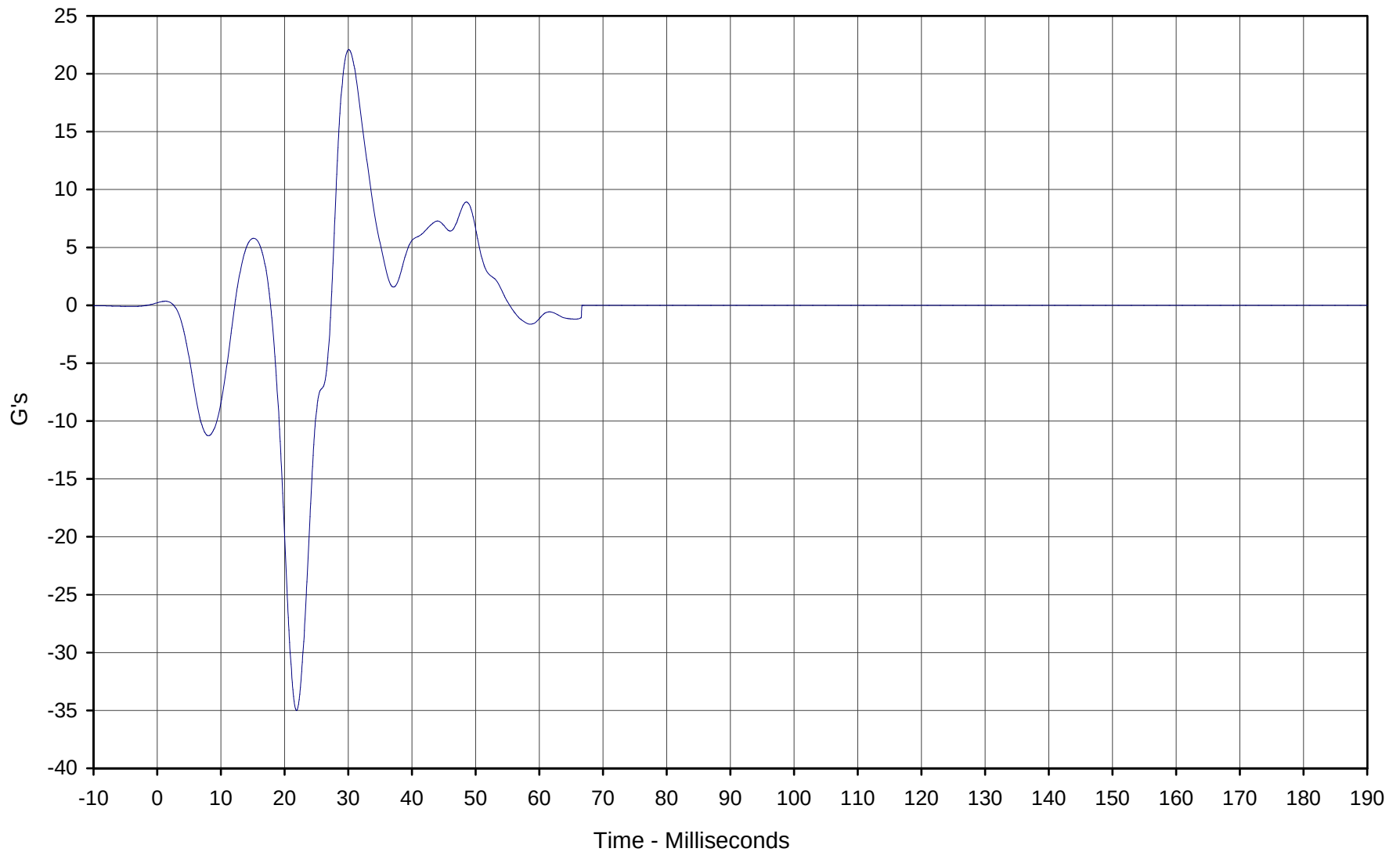
Curve Number: IN1-051

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

* Channel Failed at 66.7 Msec.





Curve Description: Vehicle CG Z *

Maximum Value: 22.1 at 30.1 Milliseconds

Minimum Value: -35.0 at 21.9 Milliseconds

SAE Filter Class: 60

Date of Test: 12/9/99

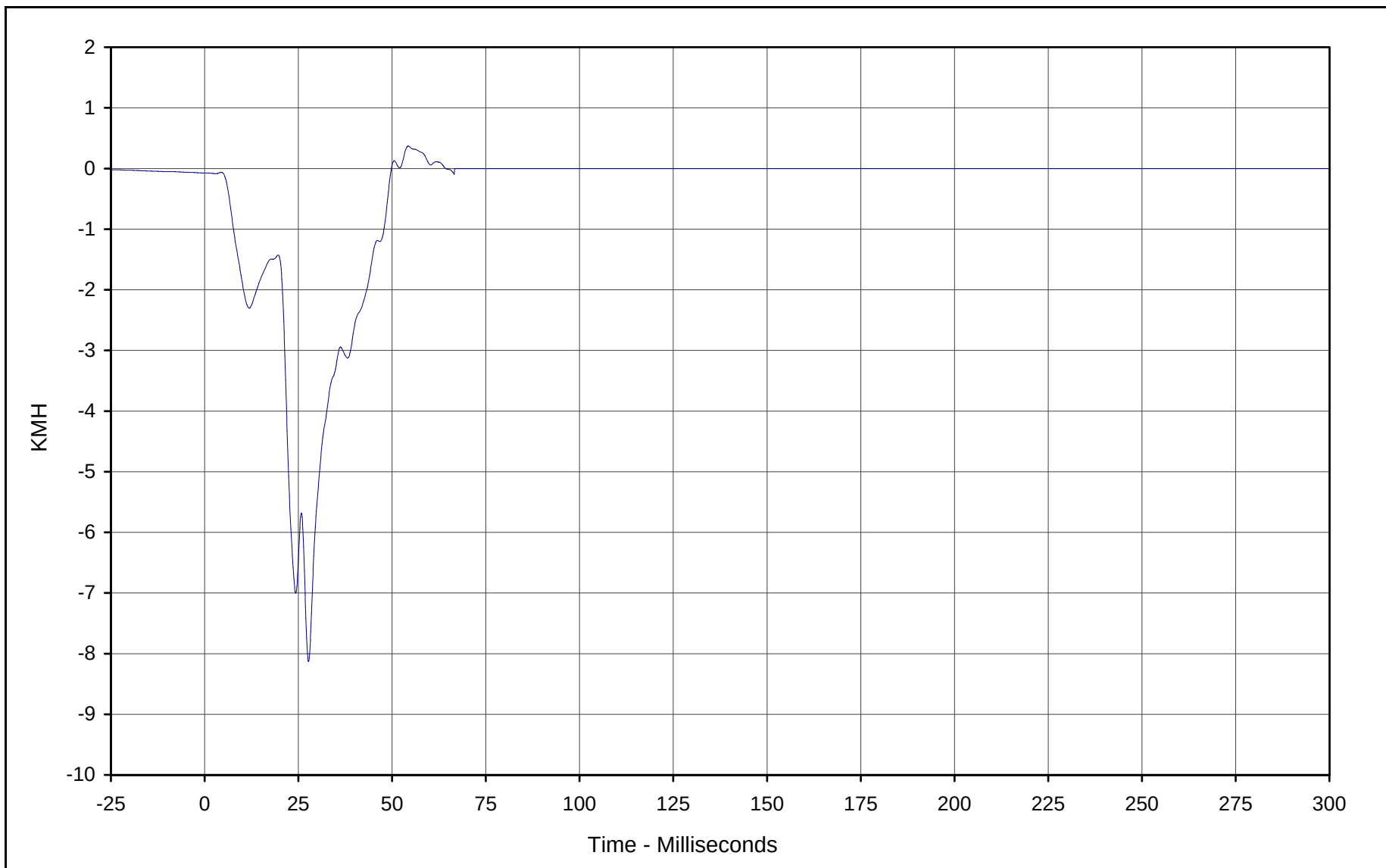
Curve Number: FIL-052

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

* Channel Failed at 66.7 Msec.





Curve Description: Vehicle CG Z Velocity *

Maximum Value: 0.4 at 54.3 Milliseconds

Minimum Value: -8.1 at 27.7 Milliseconds

SAE Filter Class: 180

Date of Test: 12/9/99

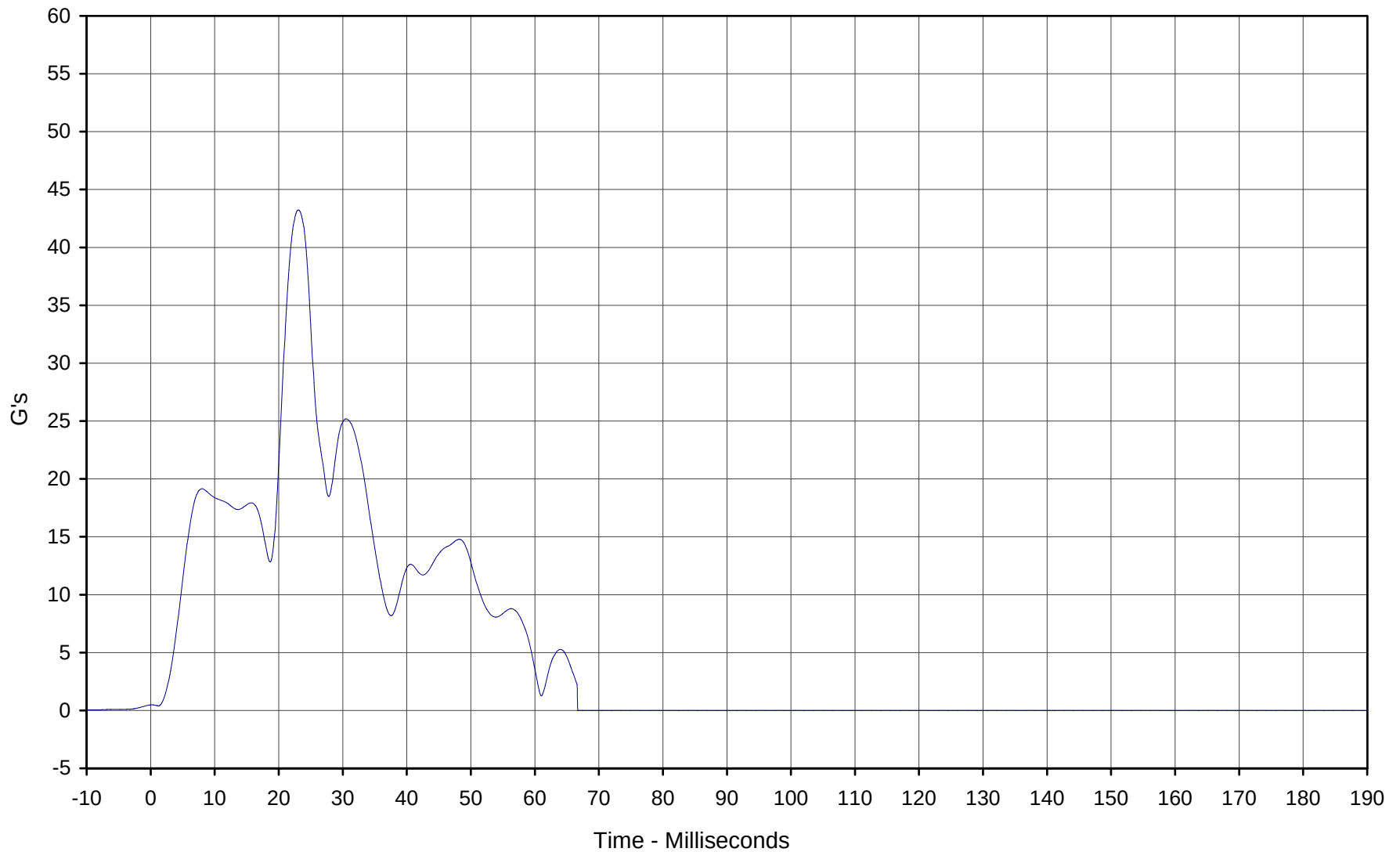
Curve Number: IN1-052

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

* Channel Failed at 66.7 Msec.





Curve Description: Vehicle CG Resultant *

Maximum Value: 43.2 at 23.1 Milliseconds

Minimum Value: 0.0 at 66.7 Milliseconds

SAE Filter Class: 60

Date of Test: 12/9/99

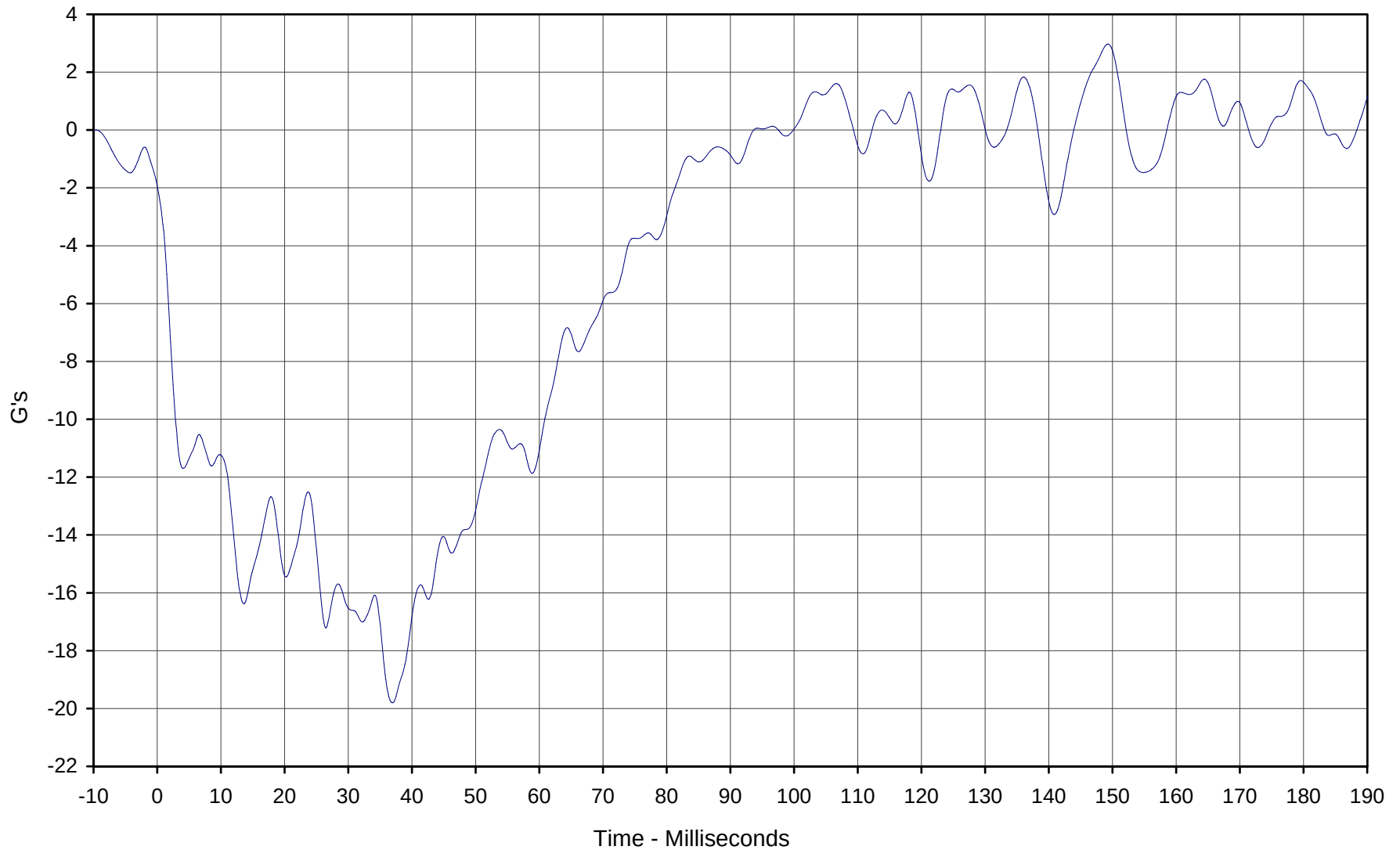
Curve Number: RES-050

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

* Channel Failed at 66.7 Msec.





Curve Description: MDB CG X

Maximum Value: 3.0 at 148.9 Milliseconds

Minimum Value: -19.8 at 36.5 Milliseconds

SAE Filter Class: 60

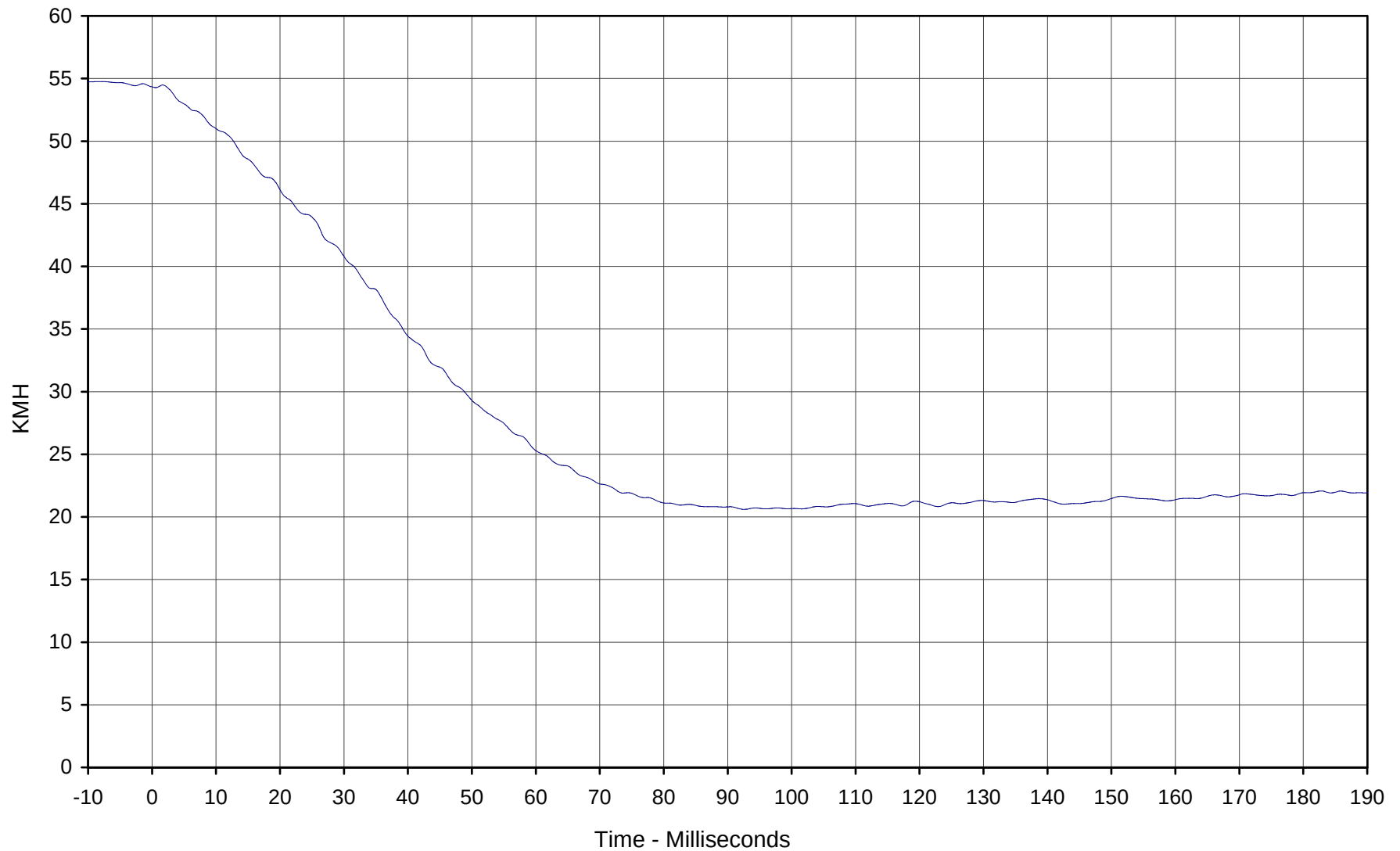
Date of Test: 12/9/99

Curve Number: FIL-053

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: MDB CG Velocity X

Maximum Value: 54.5 at 1.3 Milliseconds

Minimum Value: 20.6 at 92.2 Milliseconds

SAE Filter Class: 180

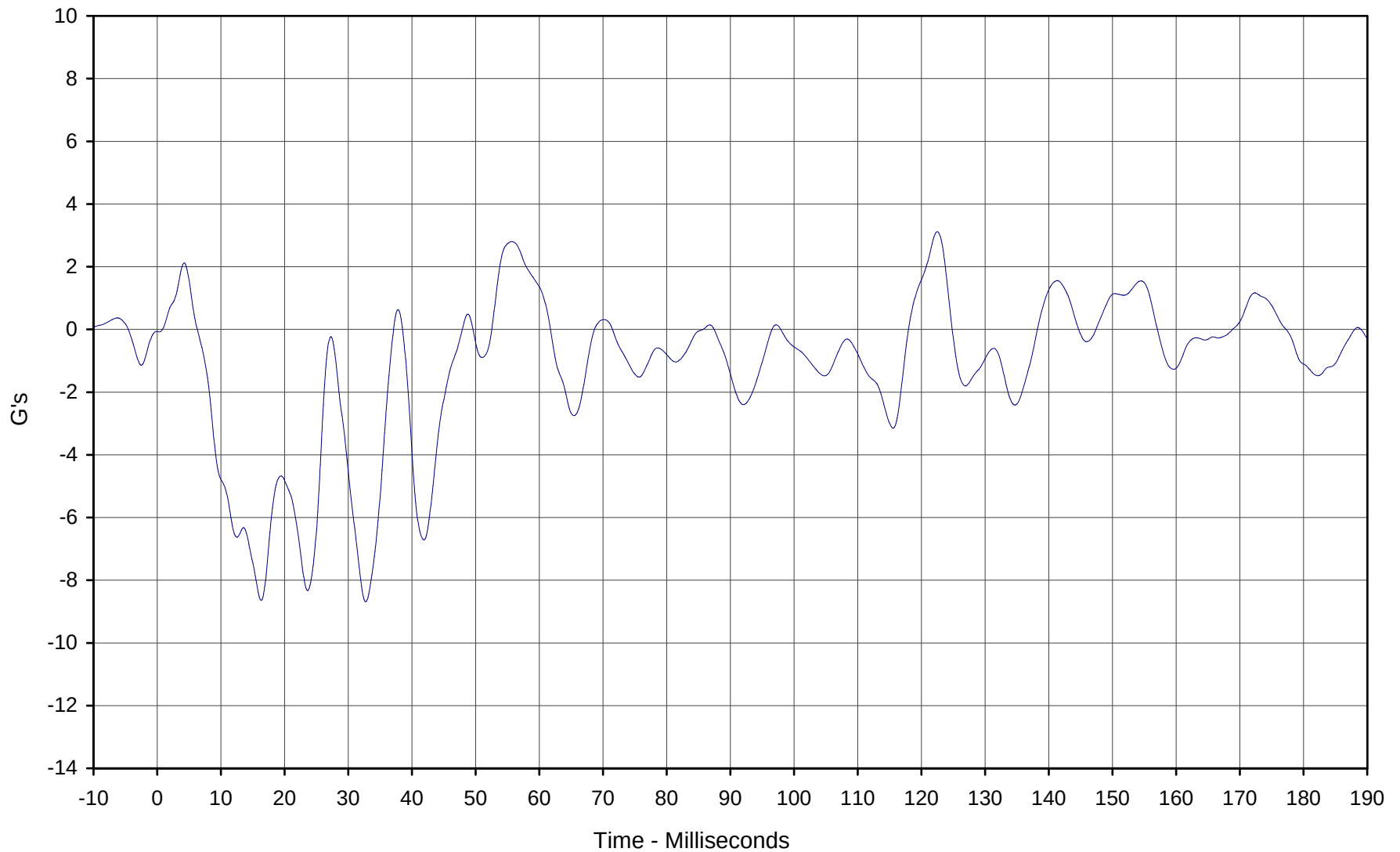
Date of Test: 12/9/99

Curve Number: IN1-053

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan

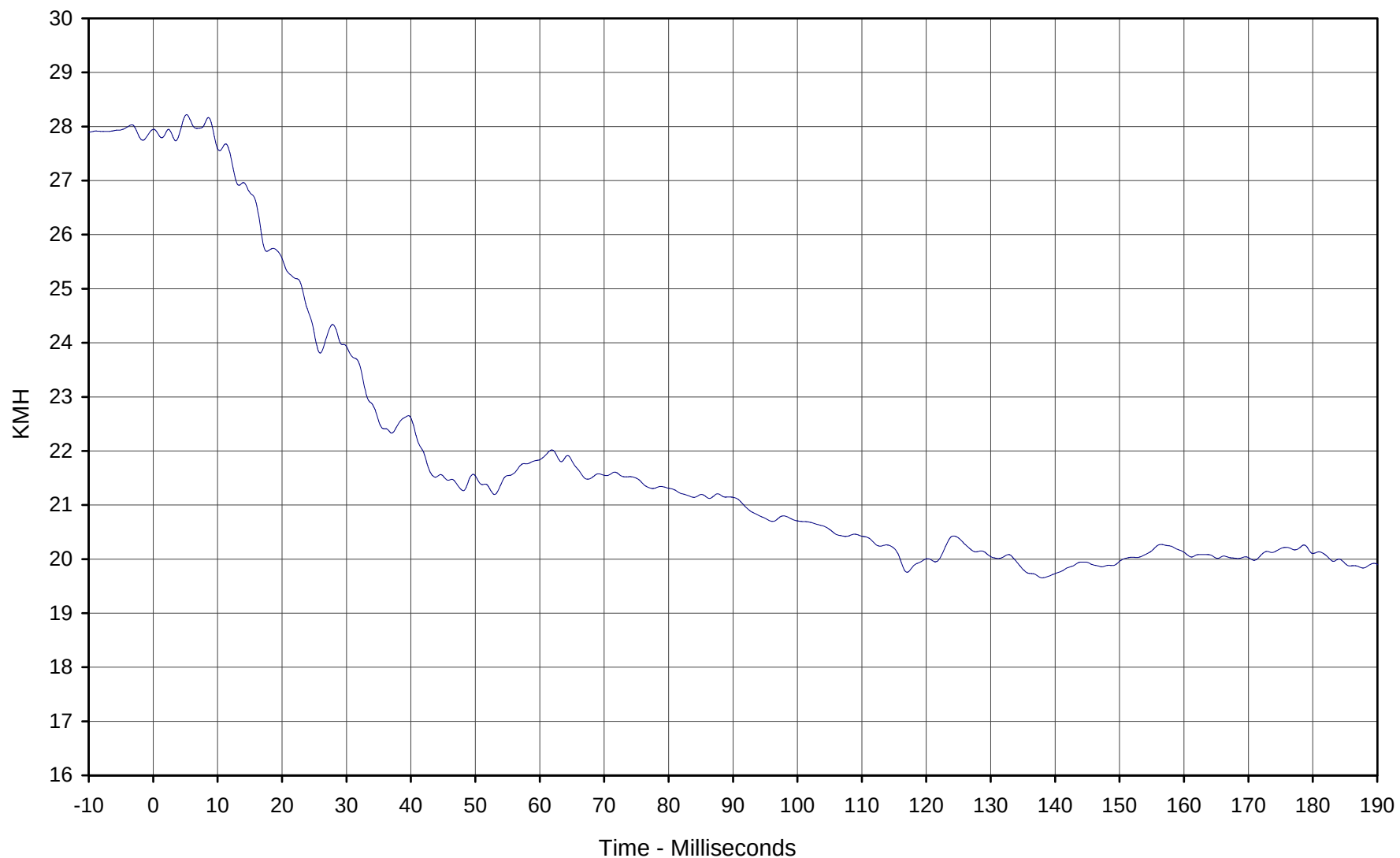




Curve Description: MDB CG Y
Maximum Value: 3.1 at 122.1 Milliseconds
Minimum Value: -8.7 at 32.3 Milliseconds
SAE Filter Class: 60
Date of Test: 12/9/99
Curve Number: FIL-054

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002
Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: MDB CG Velocity Y

Maximum Value: 28.2 at 4.8 Milliseconds

Minimum Value: 19.7 at 137.6 Milliseconds

SAE Filter Class: 180

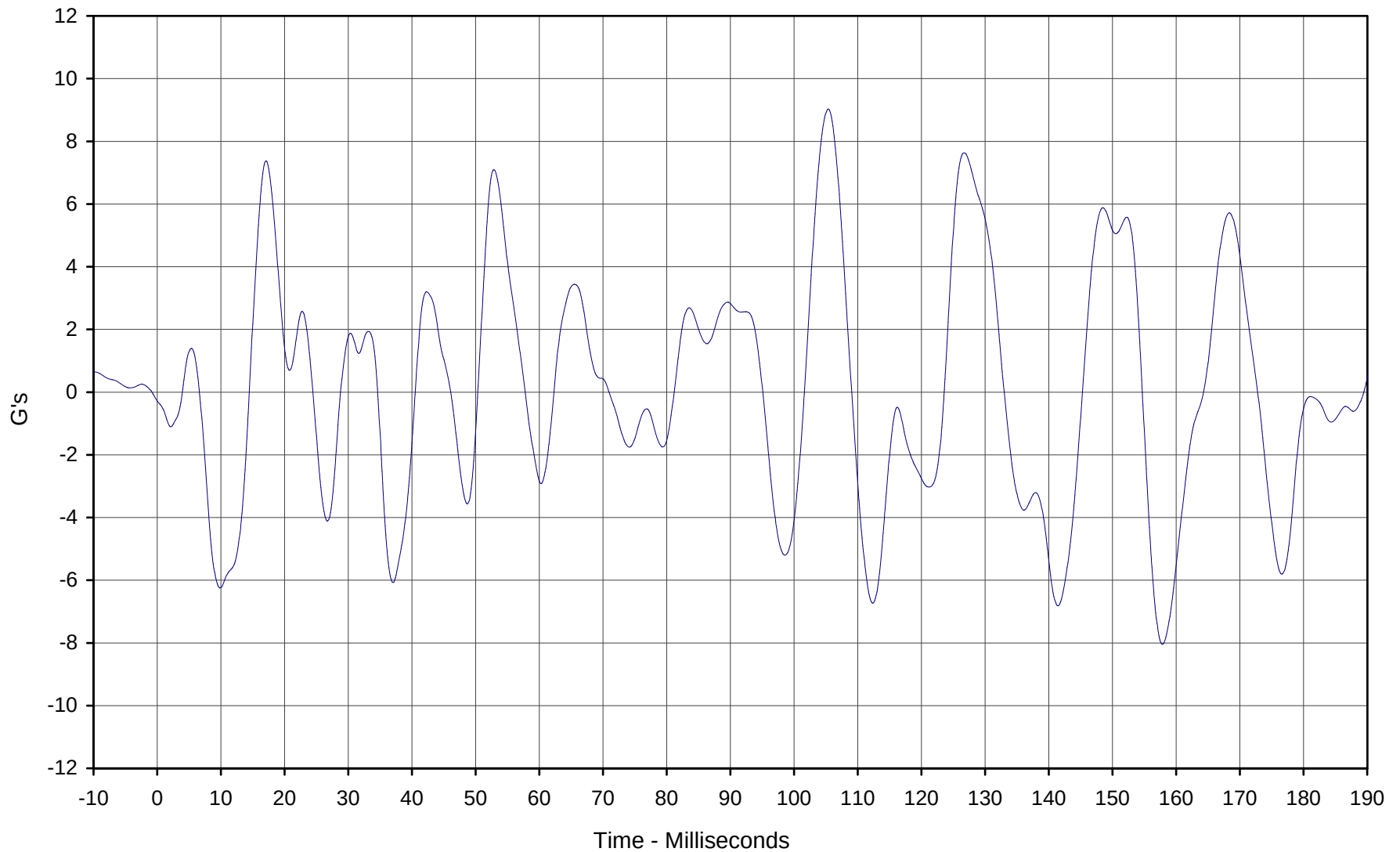
Date of Test: 12/9/99

Curve Number: IN1-054

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: MDB CG Z

Maximum Value: 9.0 at 105.0 Milliseconds

Minimum Value: -8.0 at 157.4 Milliseconds

SAE Filter Class: 60

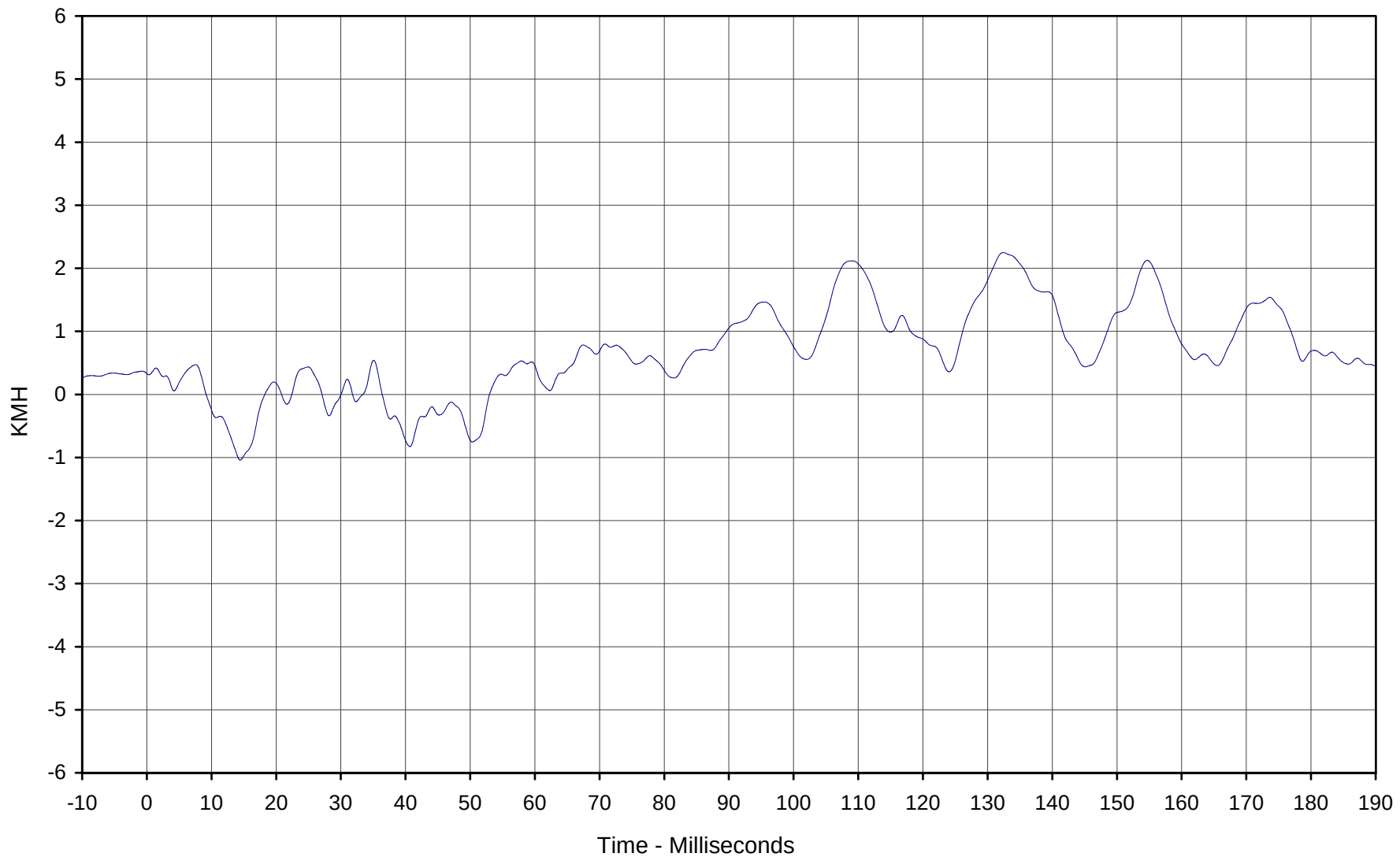
Date of Test: 12/9/99

Curve Number: FIL-055

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: MDB CG Velocity Z

Maximum Value: 2.3 at 132.0 Milliseconds

Minimum Value: -1.0 at 14.0 Milliseconds

SAE Filter Class: 180

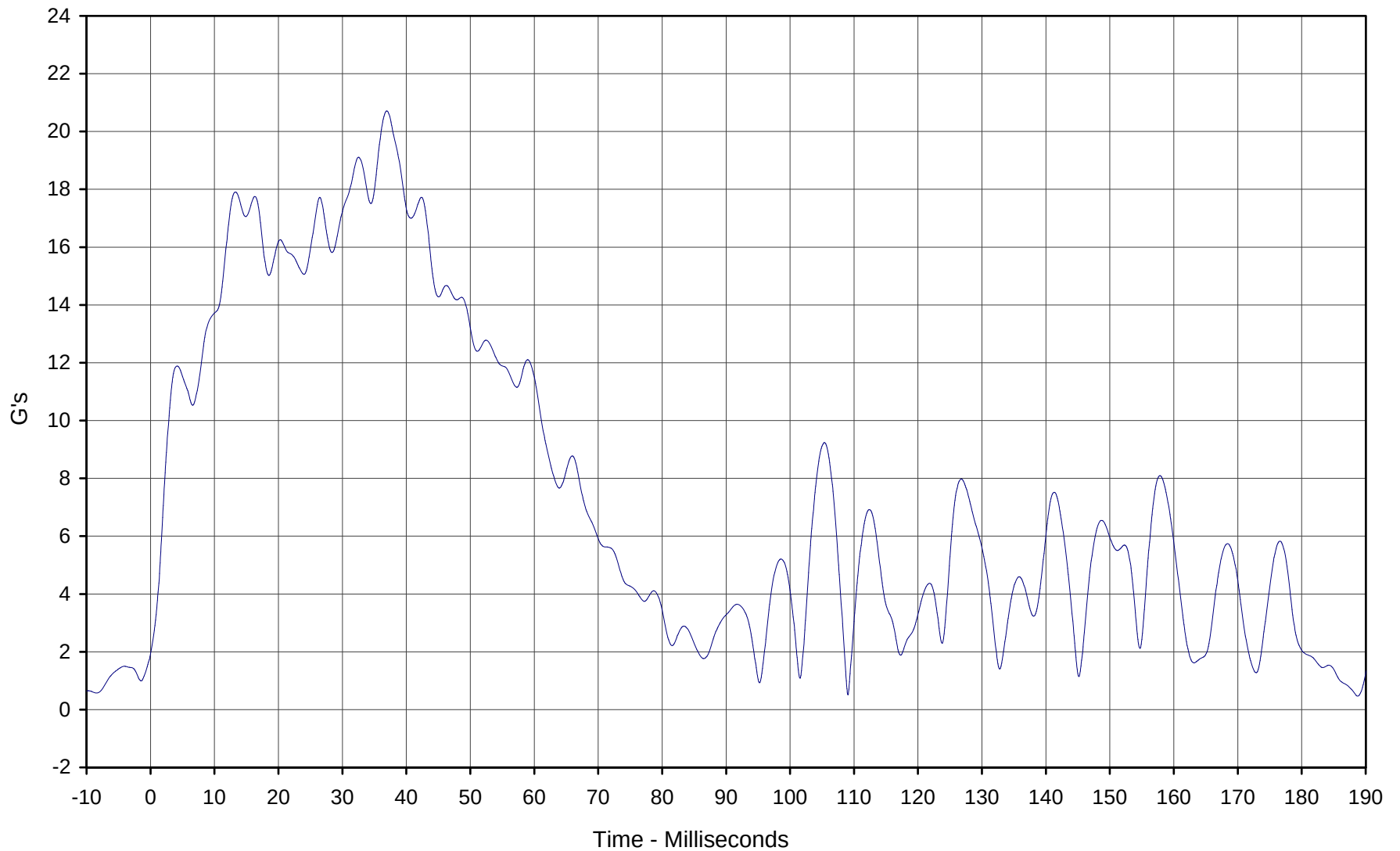
Date of Test: 12/9/99

Curve Number: IN1-055

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: MDB CG Resultant

Maximum Value: 20.7 at 36.6 Milliseconds

Minimum Value: 0.5 at 188.4 Milliseconds

SAE Filter Class: 60

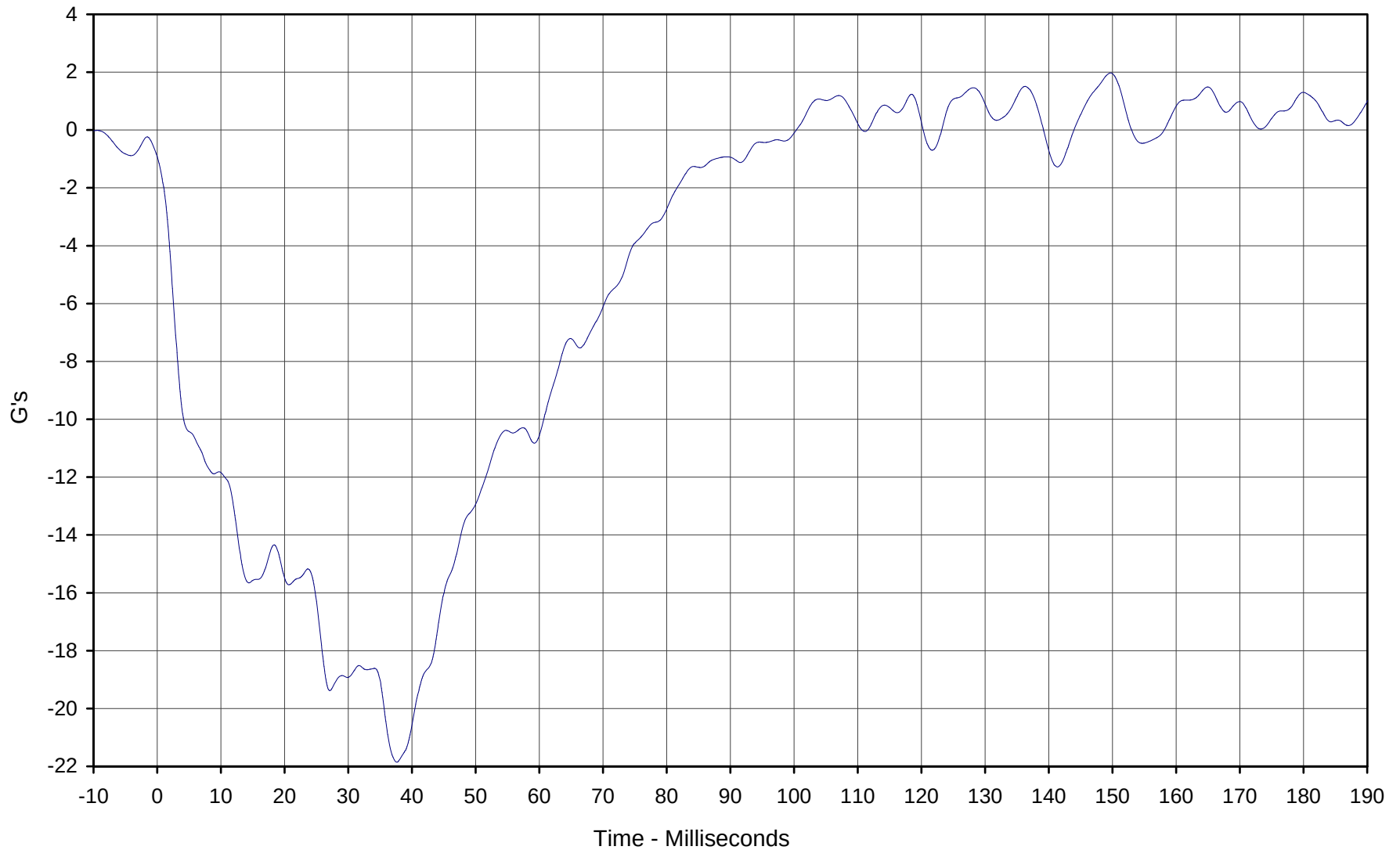
Date of Test: 12/9/99

Curve Number: RES-053

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: MDB Rear X

Maximum Value: 2.0 at 148.9 Milliseconds

Minimum Value: -21.9 at 36.8 Milliseconds

SAE Filter Class: 60

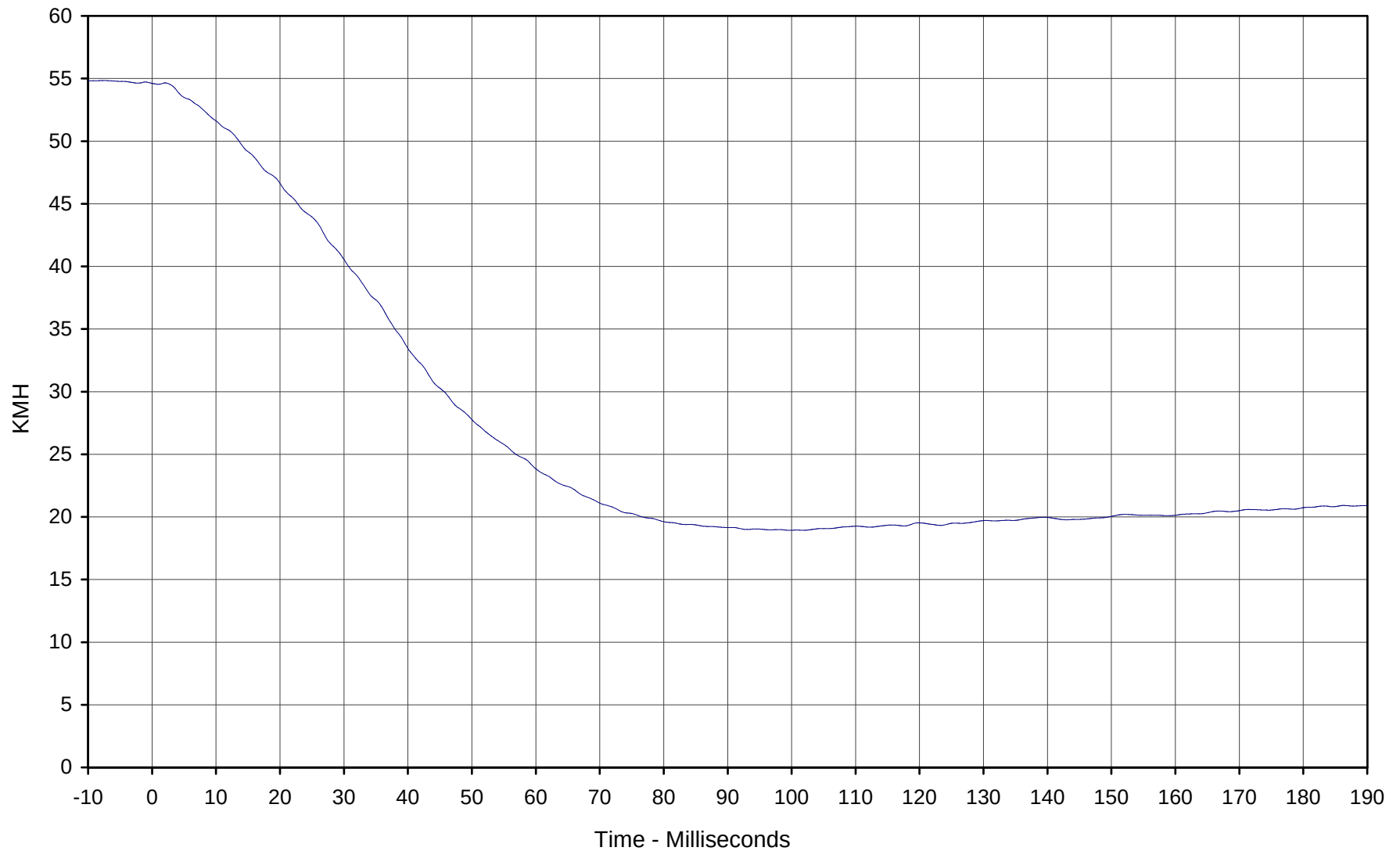
Date of Test: 12/9/99

Curve Number: FIL-056

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: MDB Rear X Velocity

Maximum Value: 54.6 at 1.3 Milliseconds

Minimum Value: 18.9 at 98.9 Milliseconds

SAE Filter Class: 180

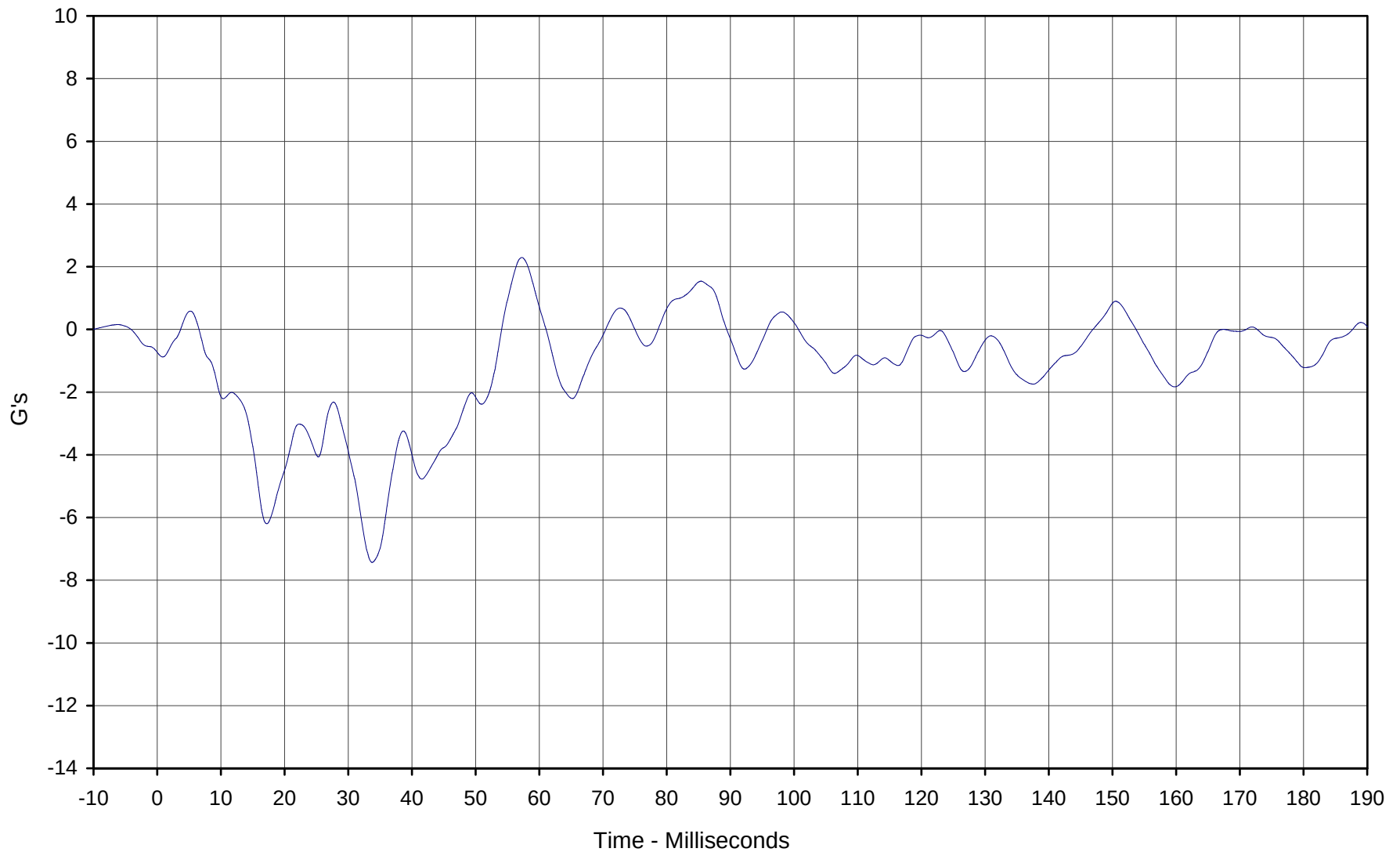
Date of Test: 12/9/99

Curve Number: IN1-056

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: MDB Rear Y

Maximum Value: 2.3 at 56.4 Milliseconds

Minimum Value: -7.4 at 32.9 Milliseconds

SAE Filter Class: 60

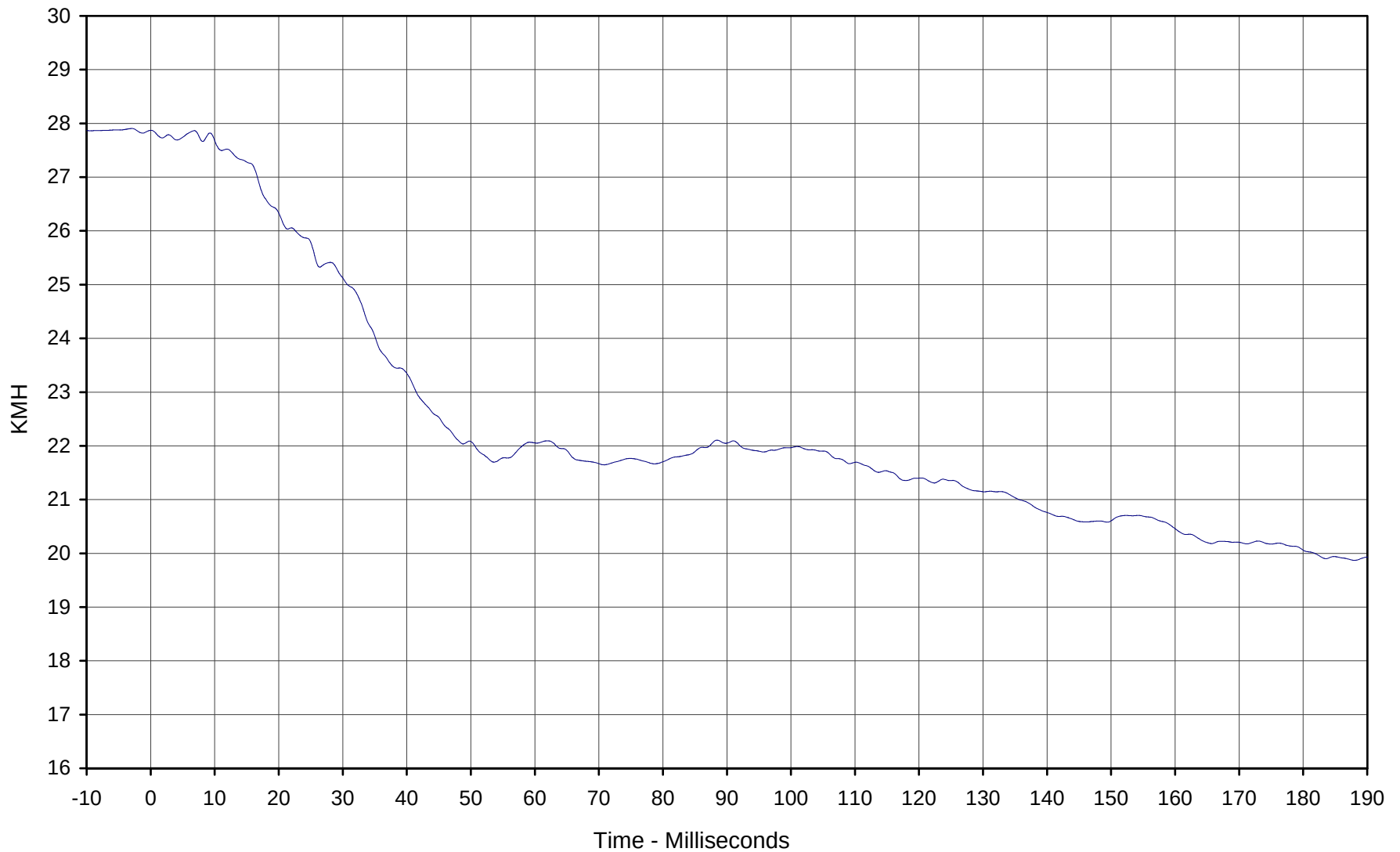
Date of Test: 12/9/99

Curve Number: FIL-057

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: MDB Rear Y Velocity

Maximum Value: 27.9 at #N/A Milliseconds

Minimum Value: 19.9 at 187.3 Milliseconds

SAE Filter Class: 180

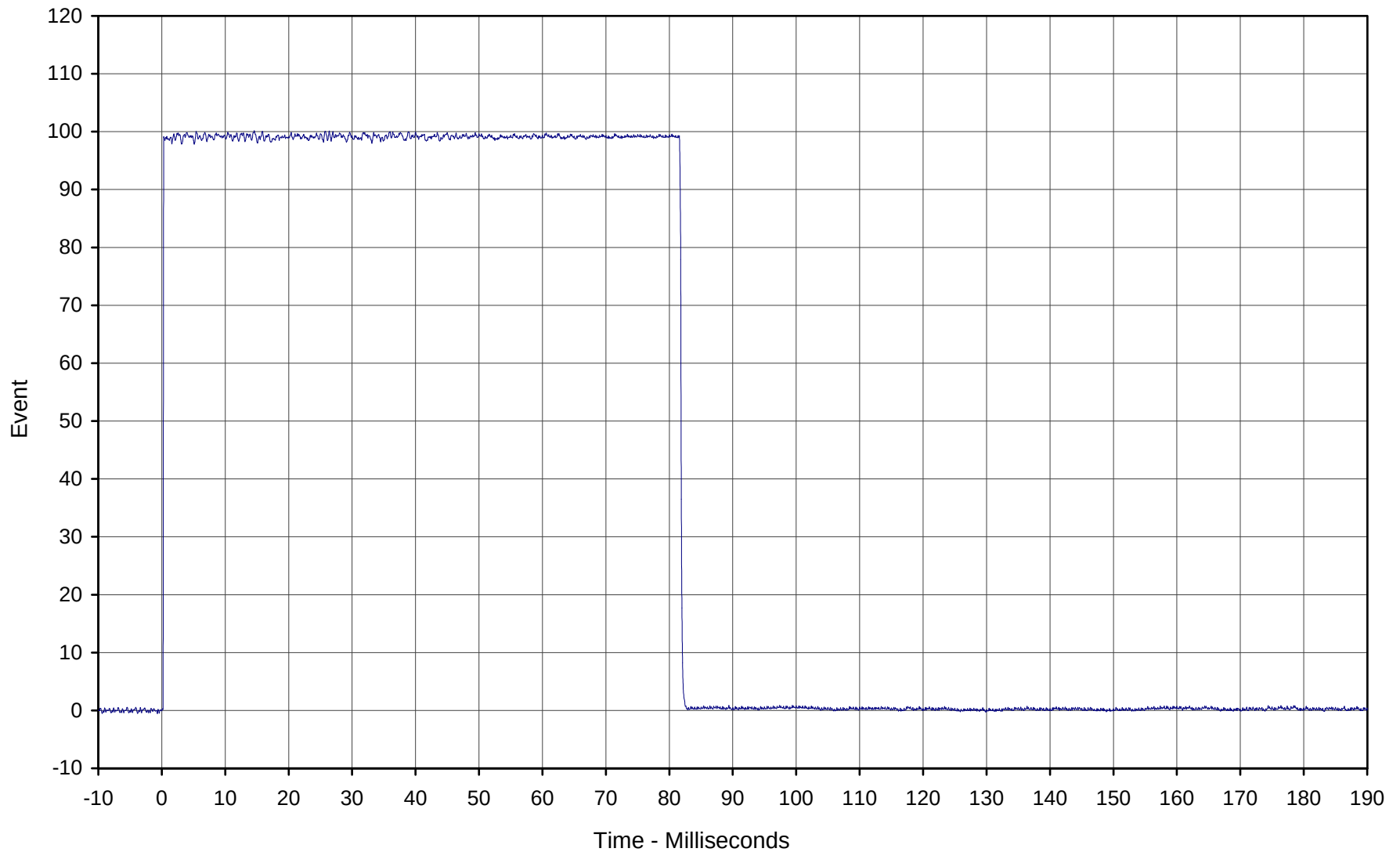
Date of Test: 12/9/99

Curve Number: IN1-057

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan





Curve Description: MDB Right Bumper Contact

Maximum Value: 100.2 at 13.8 Milliseconds

Crossing Point: 50% at -0.5 Milliseconds

SAE Filter Class: 1000

Date of Test: 12/9/99

Curve Number: FIL-058

Test Program: 55/28 km/h Side Impact NCAP No.: GM0002

Test Vehicle: 2000 Chevrolet Malibu 4 Door Sedan



APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA



Performance Verification Data Side Impact Dummy (SID) External Dimensions

ATD Serial No.: 056

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	20.6	Pass
Laboratory relative humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	900	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	363	Pass
Overall Test Results				Pass

Laboratory Technician

December 7, 1999

Test Date

Approved By

Date



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

ATD Serial No.: 056

Part Serial No.: N/A

Test I.D.: TI10A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	22.8	Pass
Laboratory Relative Humidity	%	10 to 70	41	Pass
Probe Velocity	m/s	4.21 to 4.33	4.33	Pass
Left Upper Spine Acceleration	G's	37.0 to 46.0	39.8	Pass
Left Lower Spine Acceleration	G's	37.0 to 46.0	40.8	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	20.1	Pass
Overall Test Results				Pass

Laboratory Technician

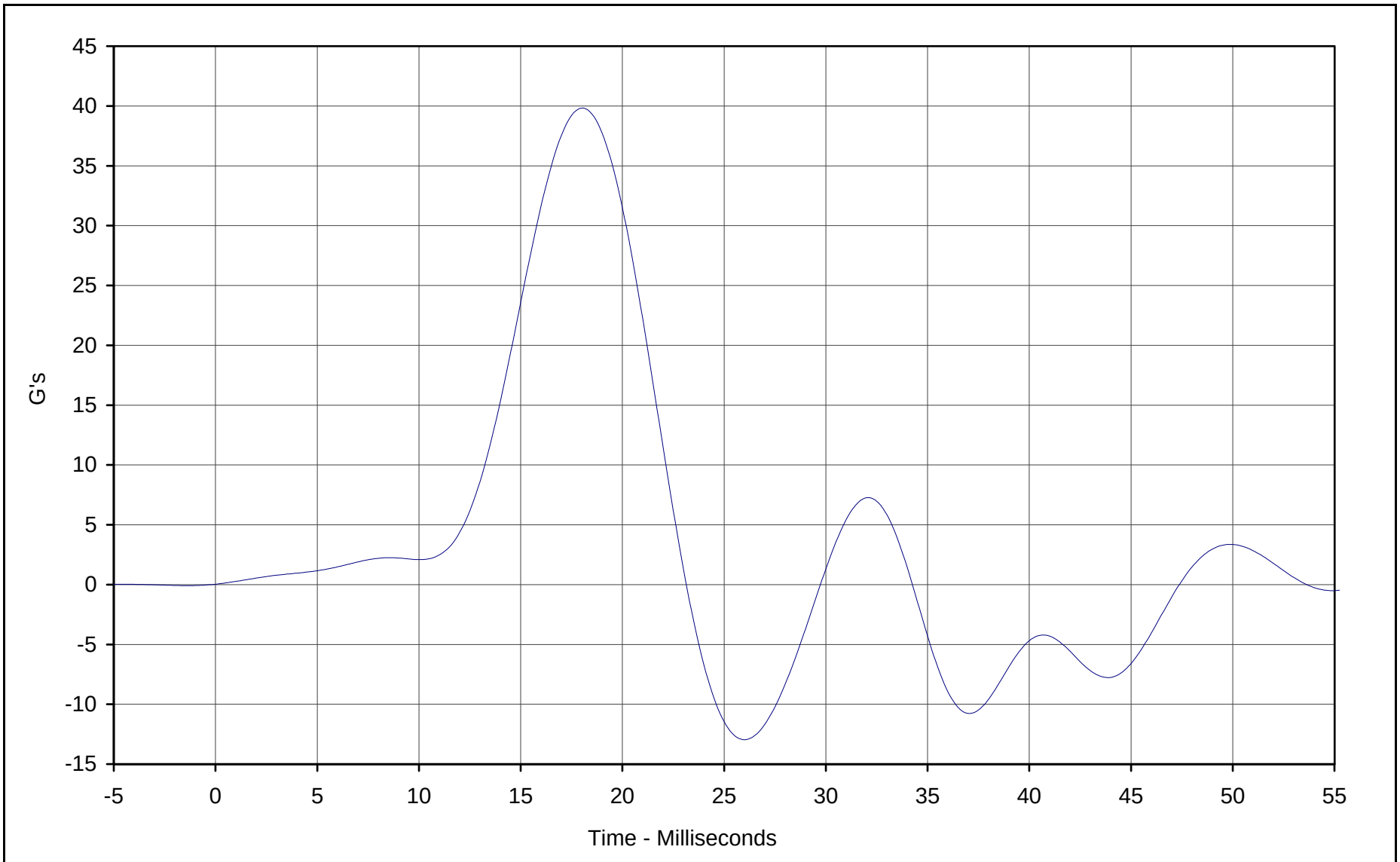
November 26, 1999

Test Date

Approved By

Date

C-3



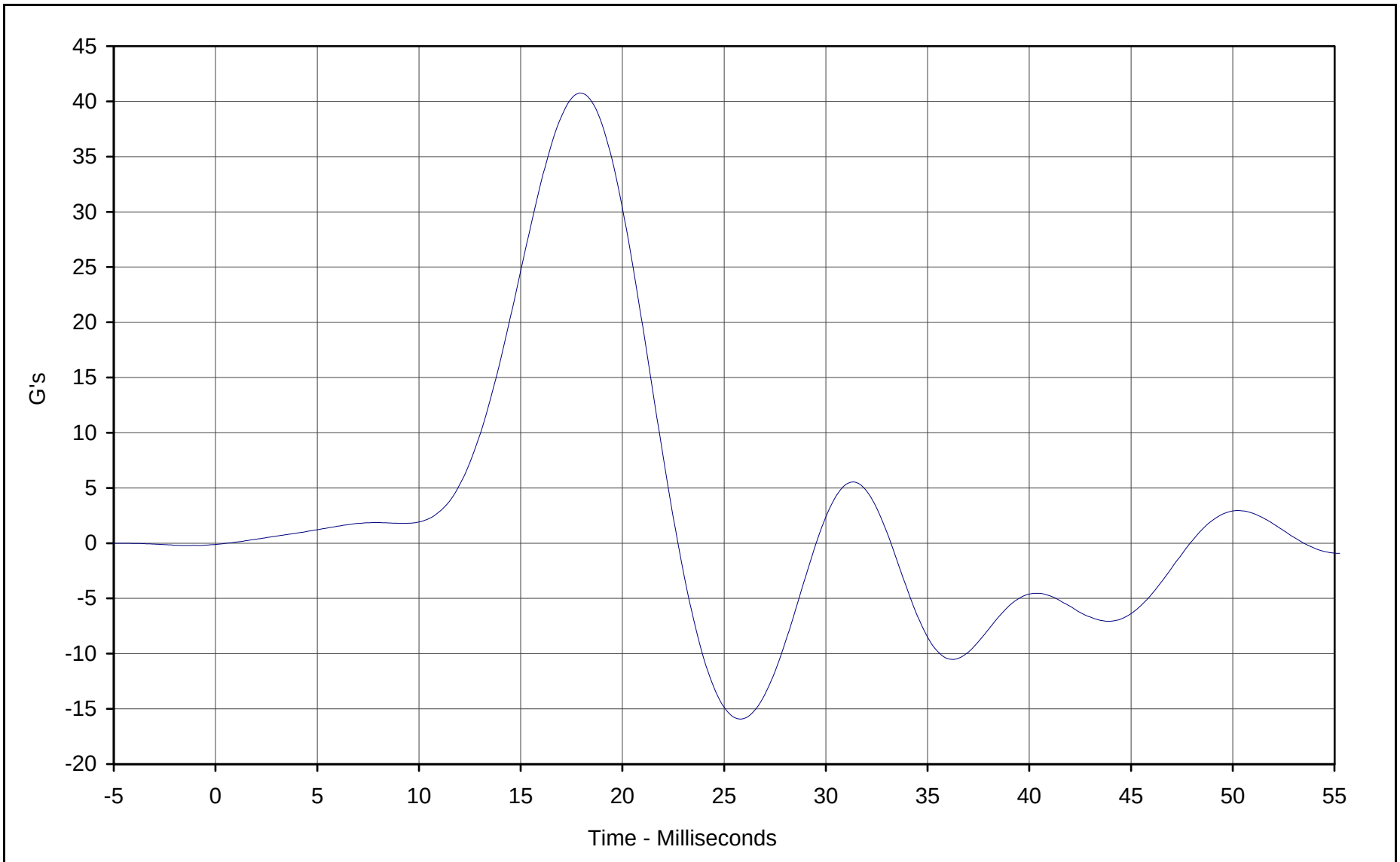
Curve Description: Left Upper Rib Y Acceleration
Maximum Value: 39.8 at 18.0 Milliseconds
Minimum Value: -13.0 at 26.0 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/26/99

Test Program: SID Thorax Lateral Impact Test
Test Information: SID S/N: 056 Test I.D.: TI10A



KAR99060-01

C-4



Curve Description: Left Lower Rib Y Acceleration

Maximum Value: 40.8 at 17.9 Milliseconds

Minimum Value: -15.9 at 25.8 Milliseconds

SAE Filter Class: FIR 100

Date of Test: 11/26/99

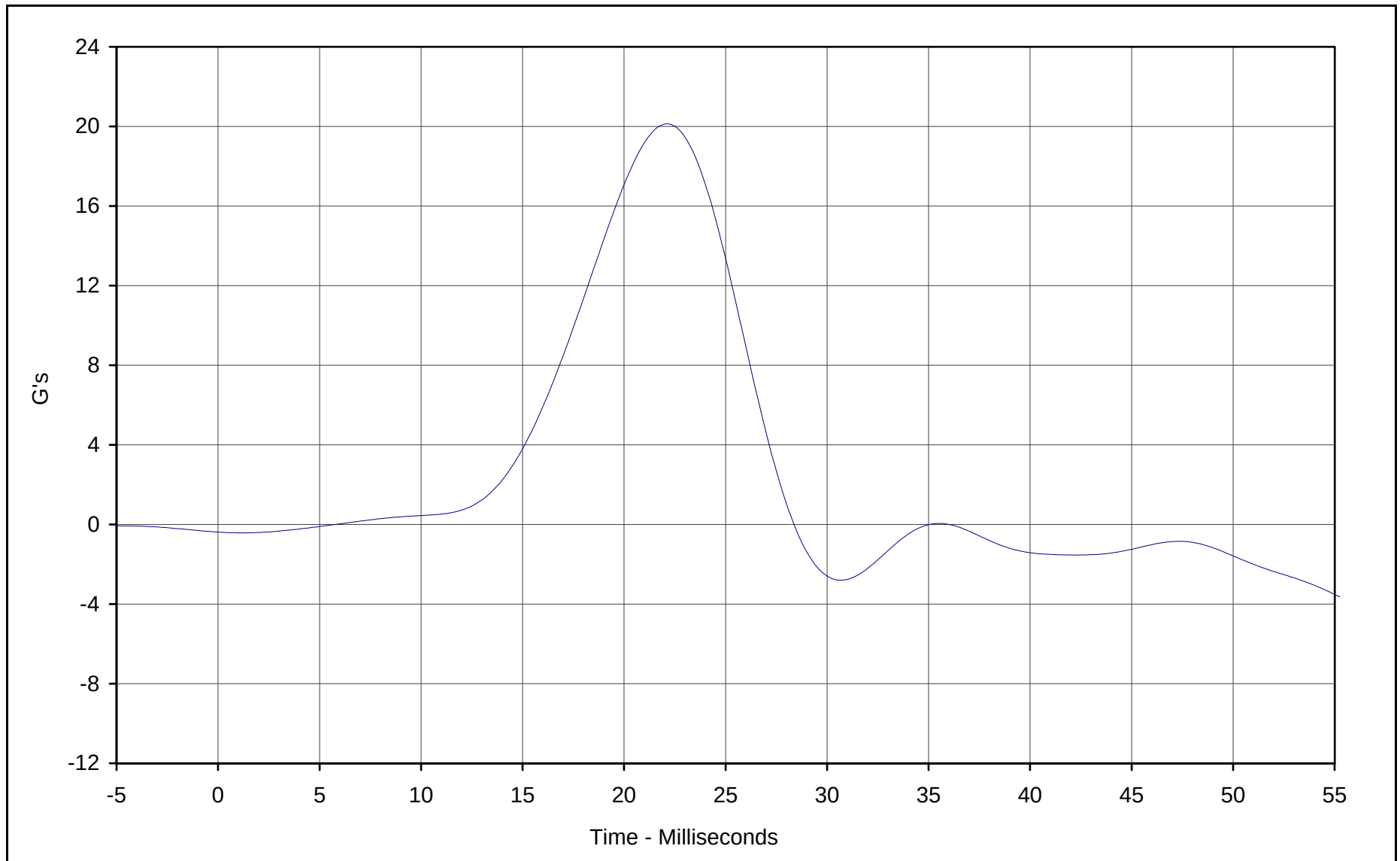
Test Program: SID Thorax Lateral Impact Test

Test Information: SID S/N: 056 Test I.D.: TI10A



KAR99060-01

C-5



Curve Description: Lower Spine Y Acceleration
Maximum Value: 20.1 at 22.1 Milliseconds
Minimum Value: -4.2 at 57.1 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 11/26/99

Test Program: SID Thorax Lateral Impact Test
Test Information: SID S/N: 056 Test I.D.: TI10A



KAR99060-01



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

ATD Serial No.: 056

Part Serial No.: N/A

Test I.D.: PI10A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Probe Velocity	m/s	4.21 to 4.33	4.33	Pass
Pelvis Acceleration	G's	40.0 to 60.0	56.3	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0 Msec.	5.8	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

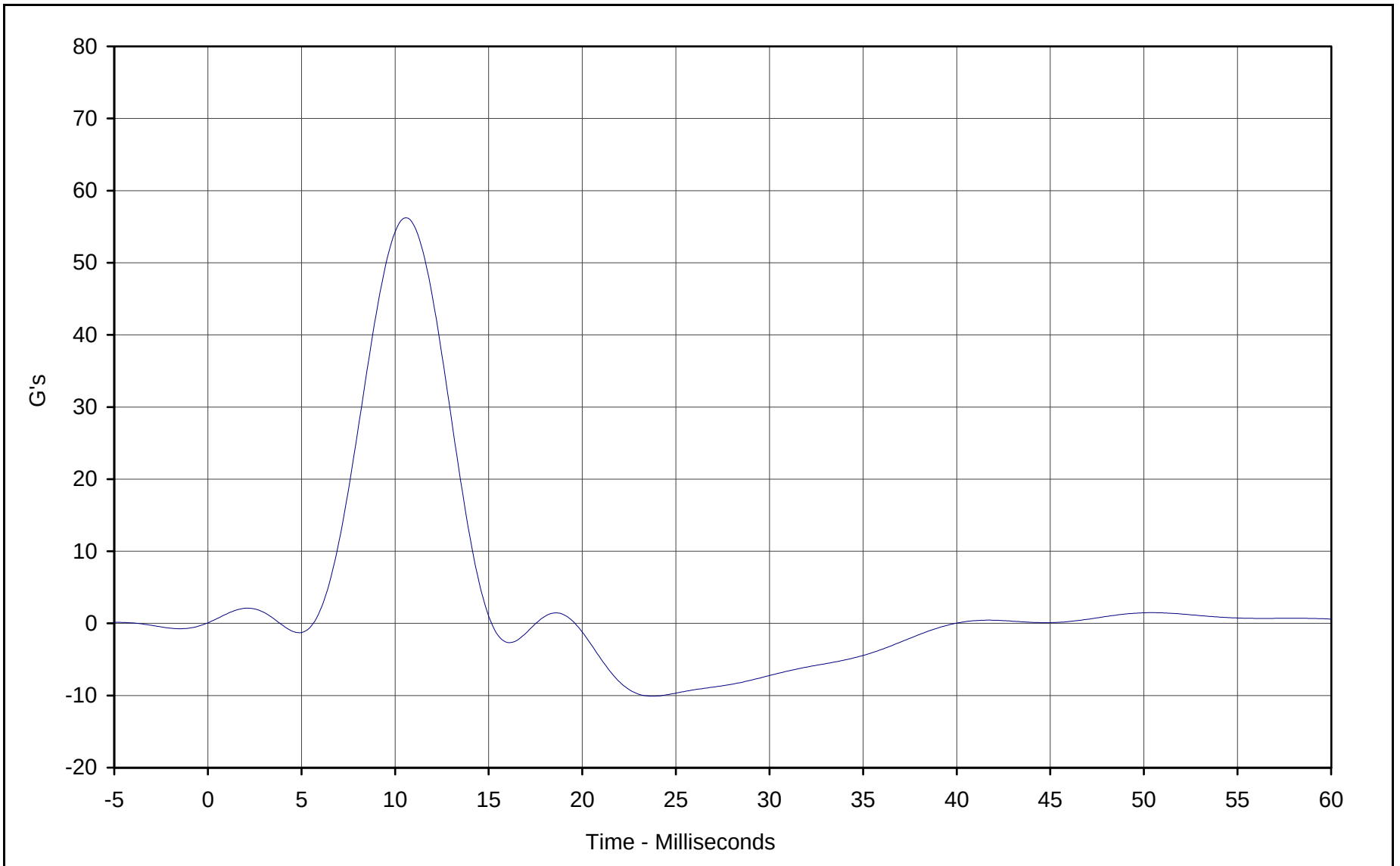
October 25, 1999

Test Date

Approved By

Date

C-7



Curve Description: Pelvis Y Axis Acceleration
Maximum Value: 56.3 at 10.6 Milliseconds
Minimum Value: -10.1 at 23.7 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 10/25/99

Test Program: Left Side Pelvis Lateral Impact
Test Information: SID S/N: 056 Test I.D.: PI10A



KAR99060-01



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

ATD Serial No.: 056

Part Serial No.: N/A

Test I.D.: AC12B

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Force at 0.5 Inches of Displacement	Pounds	23.0 to 36.0	29.2	Pass
Force at 0.75 Inches of Displacement	Pounds	36.0 to 50.0	42.9	Pass
Force at 1.0 Inches of Displacement	Pounds	50.0 to 63.0	59.5	Pass
Force at 1.3 Inches of Displacement	Pounds	73.0 to 88.0	82.5	Pass
Overall Test Results				Pass

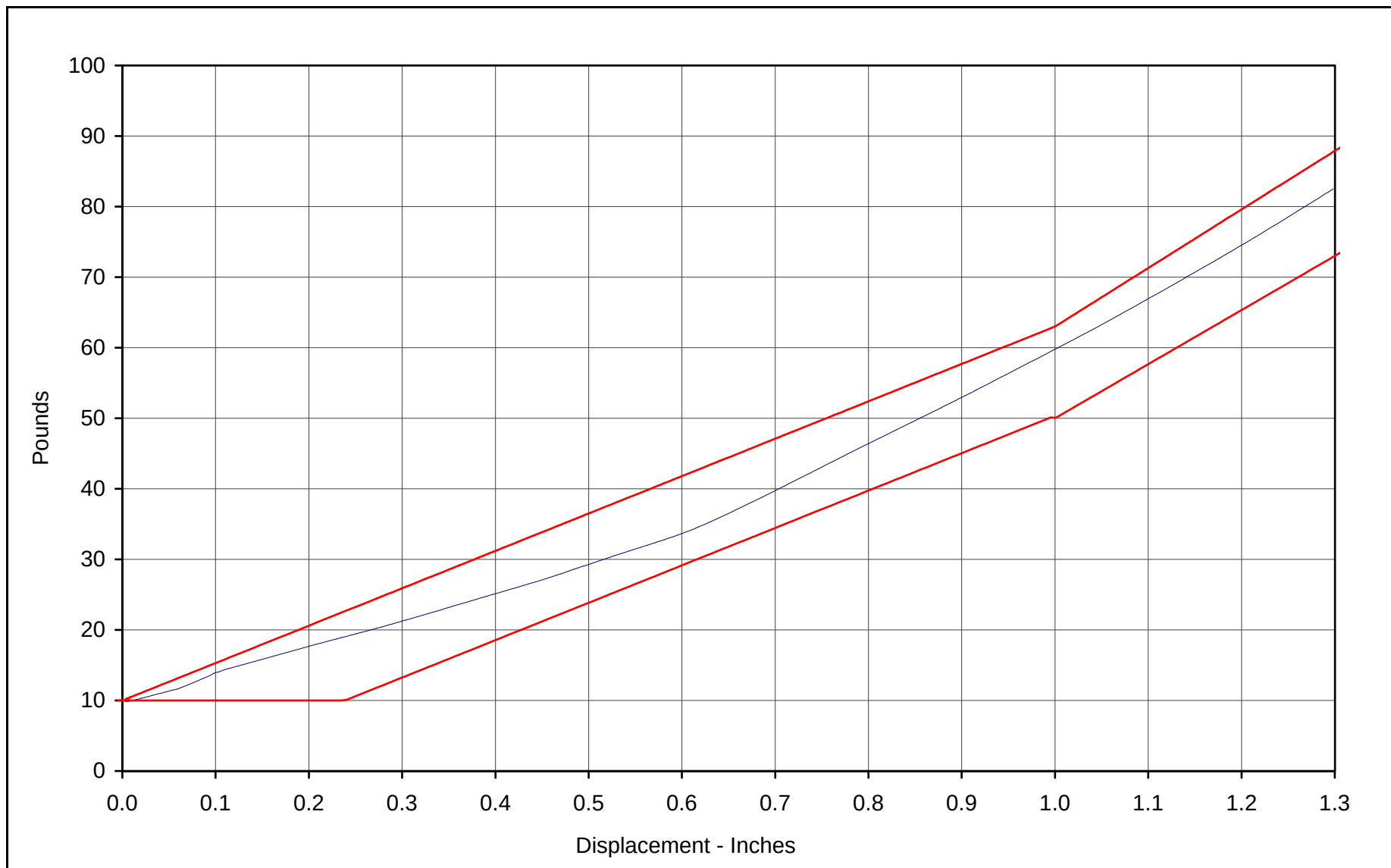
Laboratory Technician

December 6, 1999

Test Date

Approved By

Date



Curve Description: Abdomen Force vs. Displacement

Force at 0.5 In.: 29.2 Pounds

Force at 0.75 In.: 42.9 Pounds

Force at 1.0 In.: 59.5 Pounds

Force at 1.3 In.: 82.5 Pounds

Date of Test: 12/6/99

Test Program: SID Abdominal Compression

Test Information: SID S/N: 056 Test I.D.: AC12B





Performance Verification Data

Side Impact Dummy (SID)

Lumbar Flexion Test

ATD Serial No.: 056

Part Serial No.: N/A

Test I.D.: LF12B

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	24	Pass
Applied Force at 0° of Flexion	Pounds	0.0	0.0	Pass
Applied Force at 20° of Flexion	Pounds	22.0 to 34.0	29.2	Pass
Applied Force at 30° of Flexion	Pounds	34.0 to 46.0	40.3	Pass
Applied Force at 40° of Flexion	Pounds	46.0 to 58.0	56.2	Pass
Return Angle 3 Minutes After Release	Degrees	≤12.0	6.7	Pass
Overall Test Results				Pass

Laboratory Technician

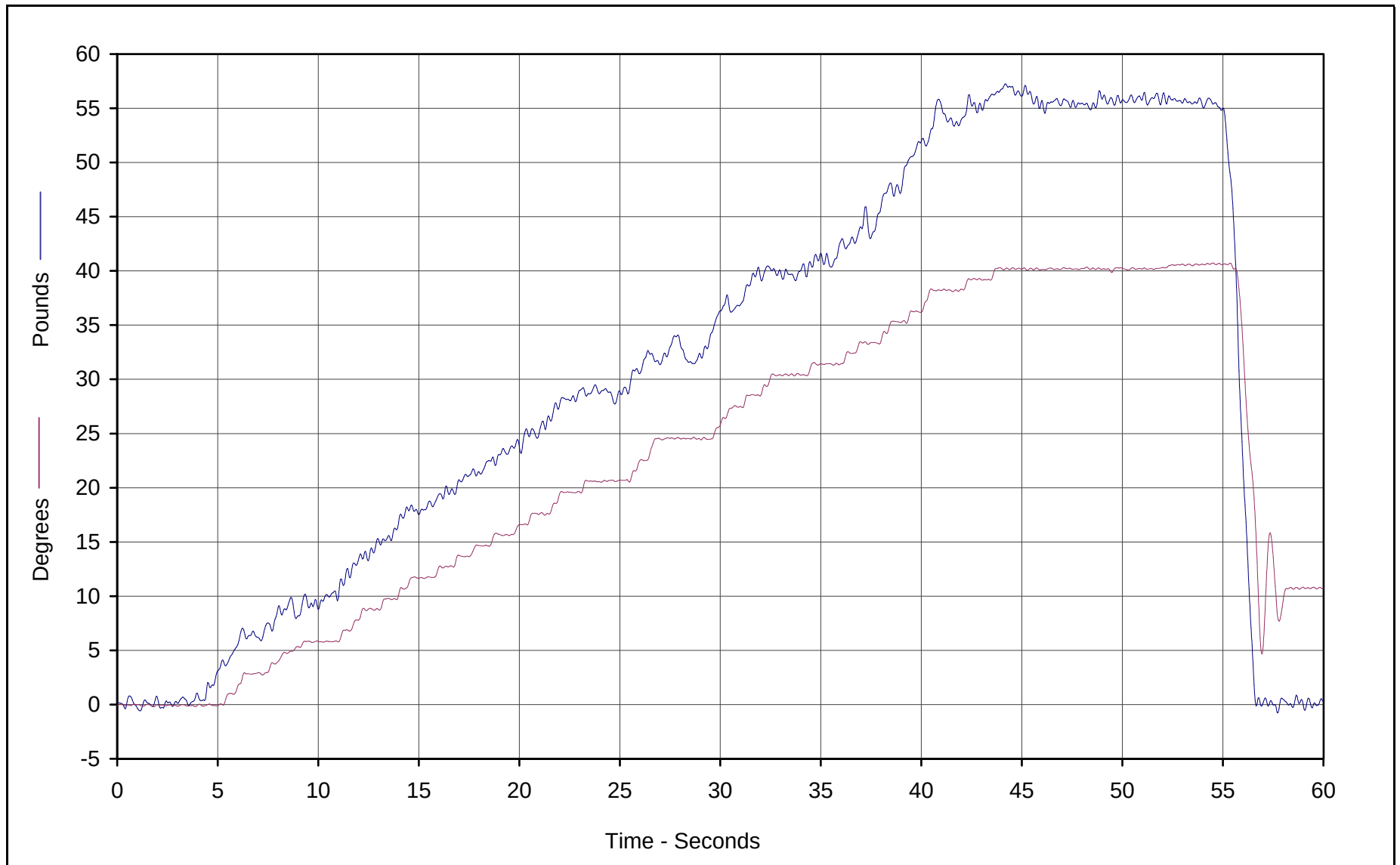
December 6, 1999

Test Date

Approved By

Date

C-11

Curve Description: Applied Lumbar Force And AngleForce at 20°: 29.2 PoundsForce at 30°: 40.3 PoundsForce at 40°: 56.2 PoundsReturn Angle: 6.7 DegreesTest Date: 12/6/99Test Program: Side Impact Dummy Lumbar FlexionTest Information: SID S/N: 056 Test I.D.: LF12B

KAR99060-01



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

ATD Serial No.: 056

Part Serial No.: N/A

Test I.D.: SH12B

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	69	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	210.0 to 260.0	255.7	Pass
Peak Lateral Acceleration	G's	≤10.0	8.0	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

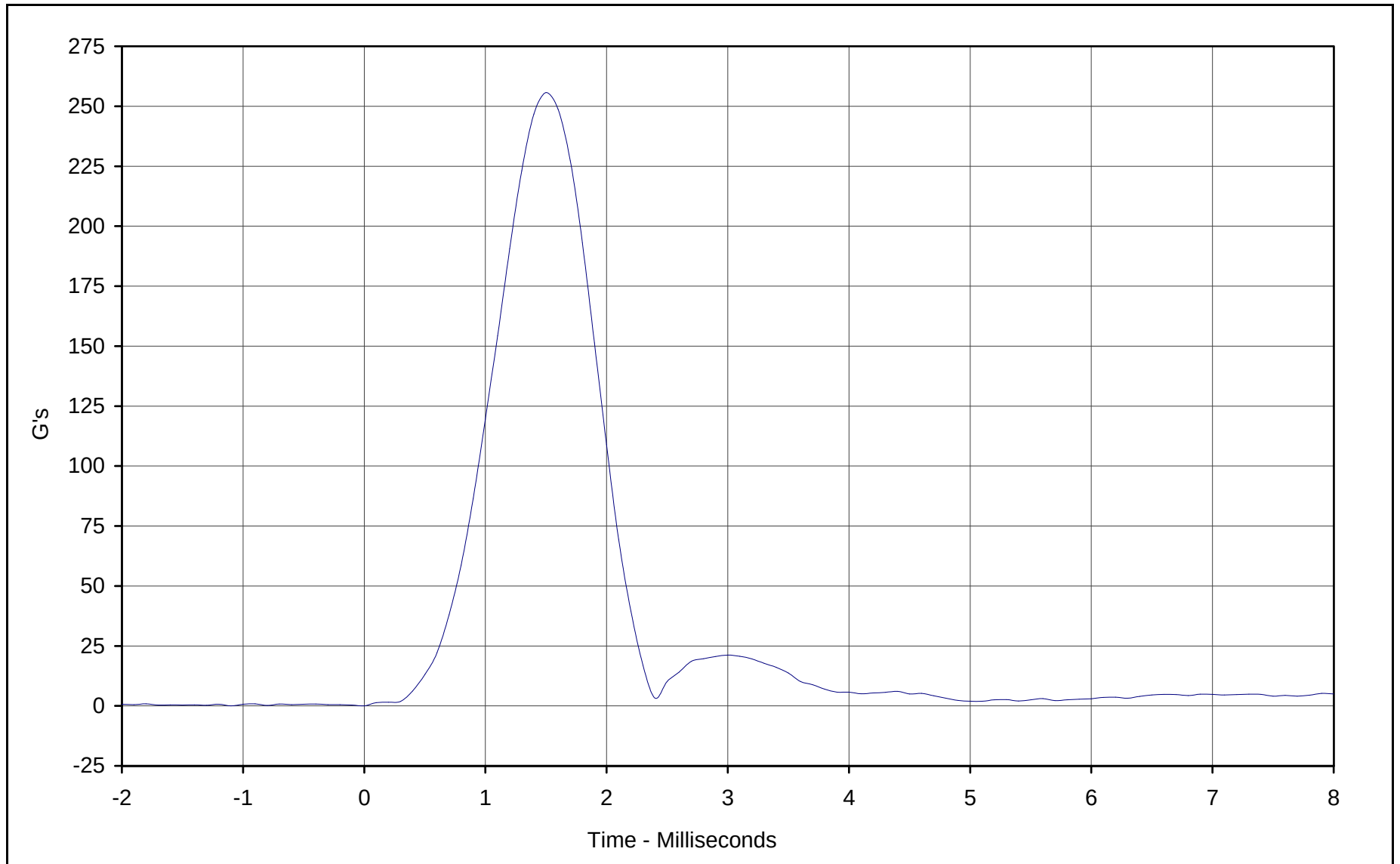
December 3, 1999

Test Date

Approved By

Date

C-13



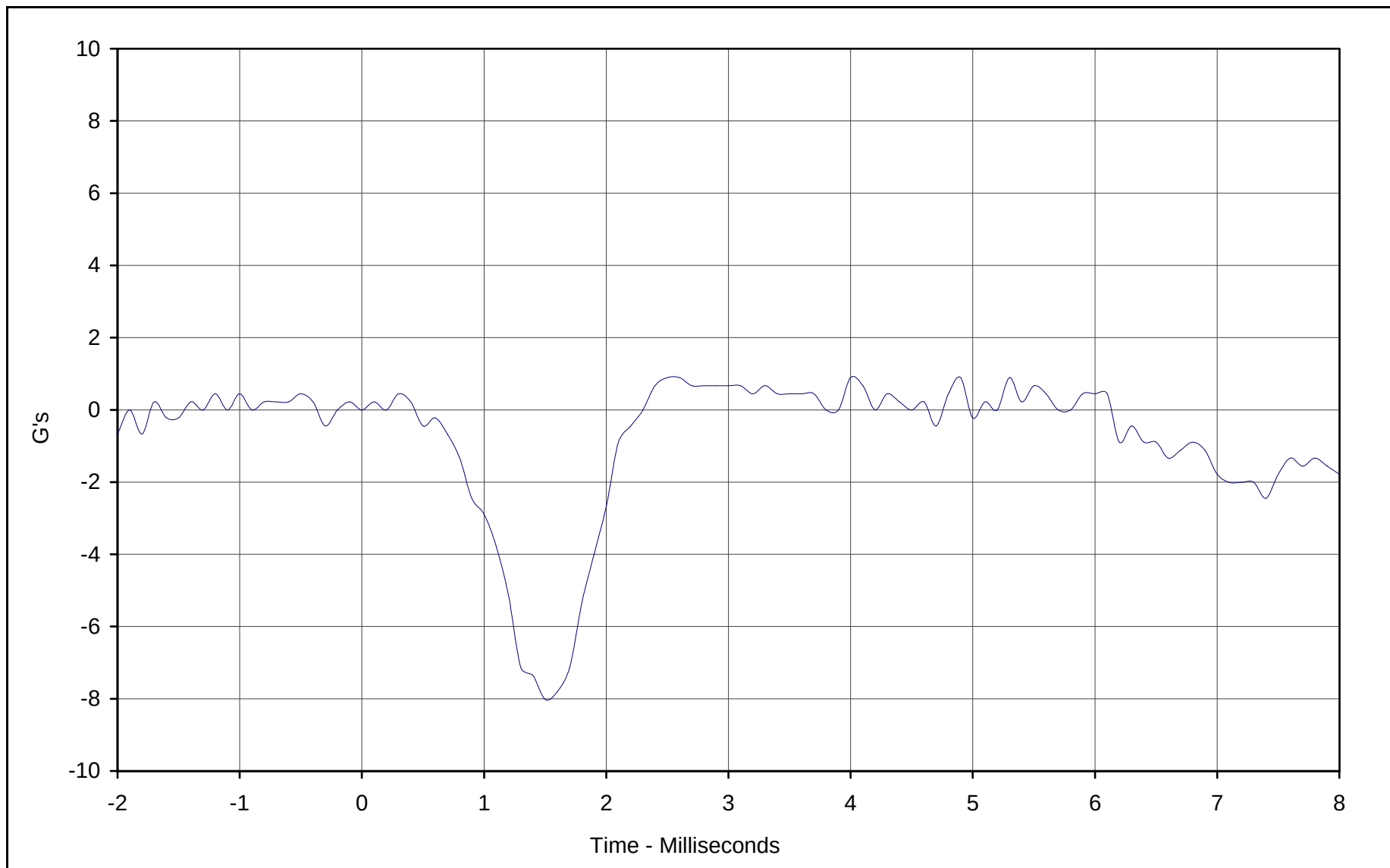
Curve Description: Head Resultant Acceleration
Maximum Value: 255.7 at 1.5 Milliseconds
Minimum Value: 0.0 at 0.0 Milliseconds
SAE Filter Class: 1000
Date of Test: 12/3/99

Test Program: SID Head Drop Calibration
Test Information: SID S/N: 056 Test I.D.: SH12B



KAR99060-01

C-14



Curve Description: Head Y Axis Acceleration

Maximum Value:	0.9	at	2.5	Milliseconds
Minimum Value:	-8.0	at	1.5	Milliseconds
SAE Filter Class:	1000			
Date of Test:	12/3/99			

Test Program: SID Head Drop Calibration

Test Information: SID S/N: 056 Test I.D.: SH12B



KAR99060-01



Performance Verification Data Side Impact Dummy (SID) External Dimensions

ATD Serial No.: 057

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	21.7	Pass
Laboratory relative humidity	%	10 to 70	34	Pass
SH- Seated Height	mm	889 to 909	901	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	509	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

December 7, 1999

Test Date

Approved By

Date



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

ATD Serial No.: 057

Part Serial No.: N/A

Test I.D.: TI12A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	22.2	Pass
Laboratory Relative Humidity	%	10 to 70	41	Pass
Probe Velocity	m/s	4.21 to 4.33	4.30	Pass
Left Upper Spine Acceleration	G's	37.0 to 46.0	41.4	Pass
Left Lower Spine Acceleration	G's	37.0 to 46.0	41.7	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	21.5	Pass
Overall Test Results				Pass

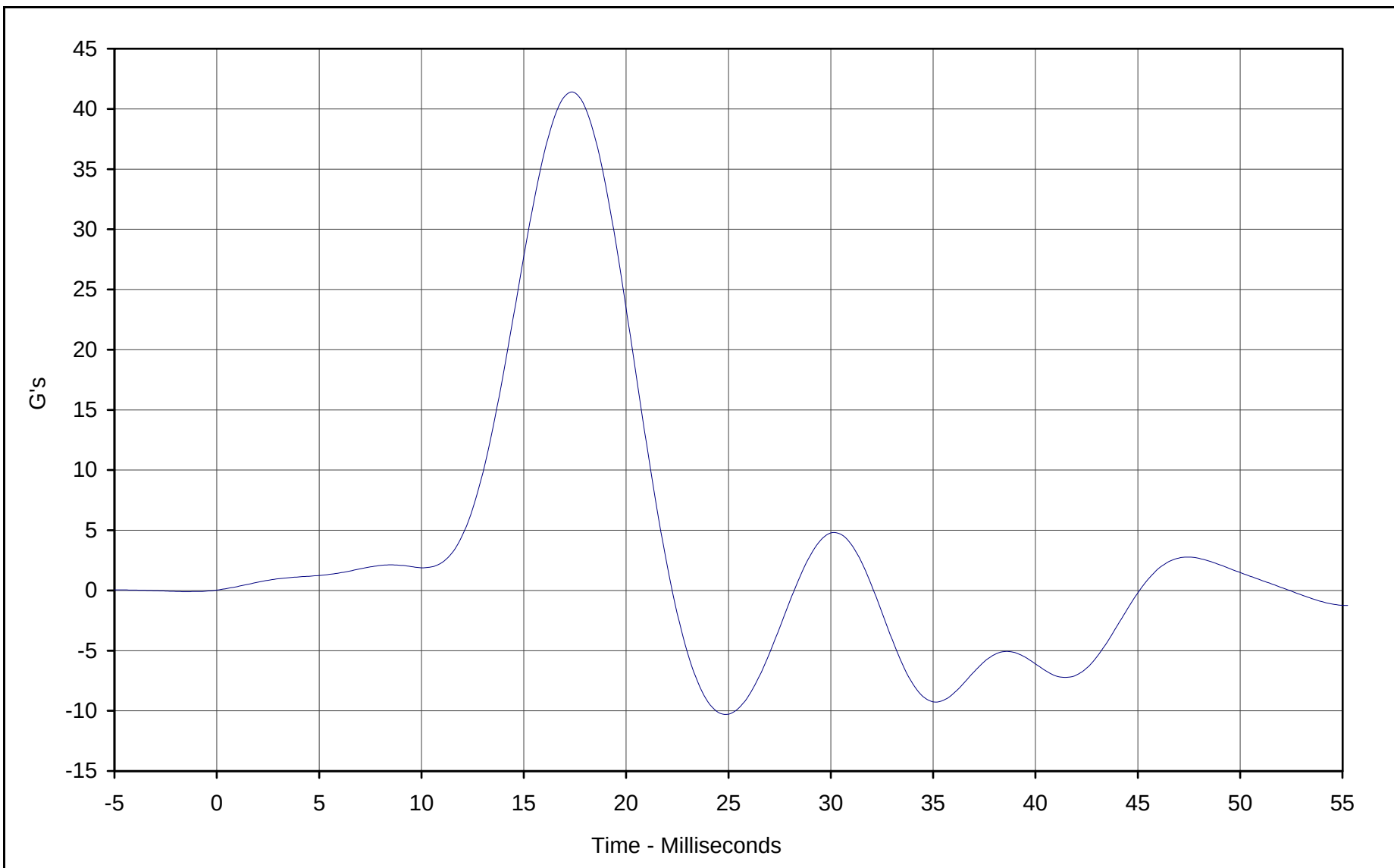
Laboratory Technician

December 3, 1999

Test Date

Approved By

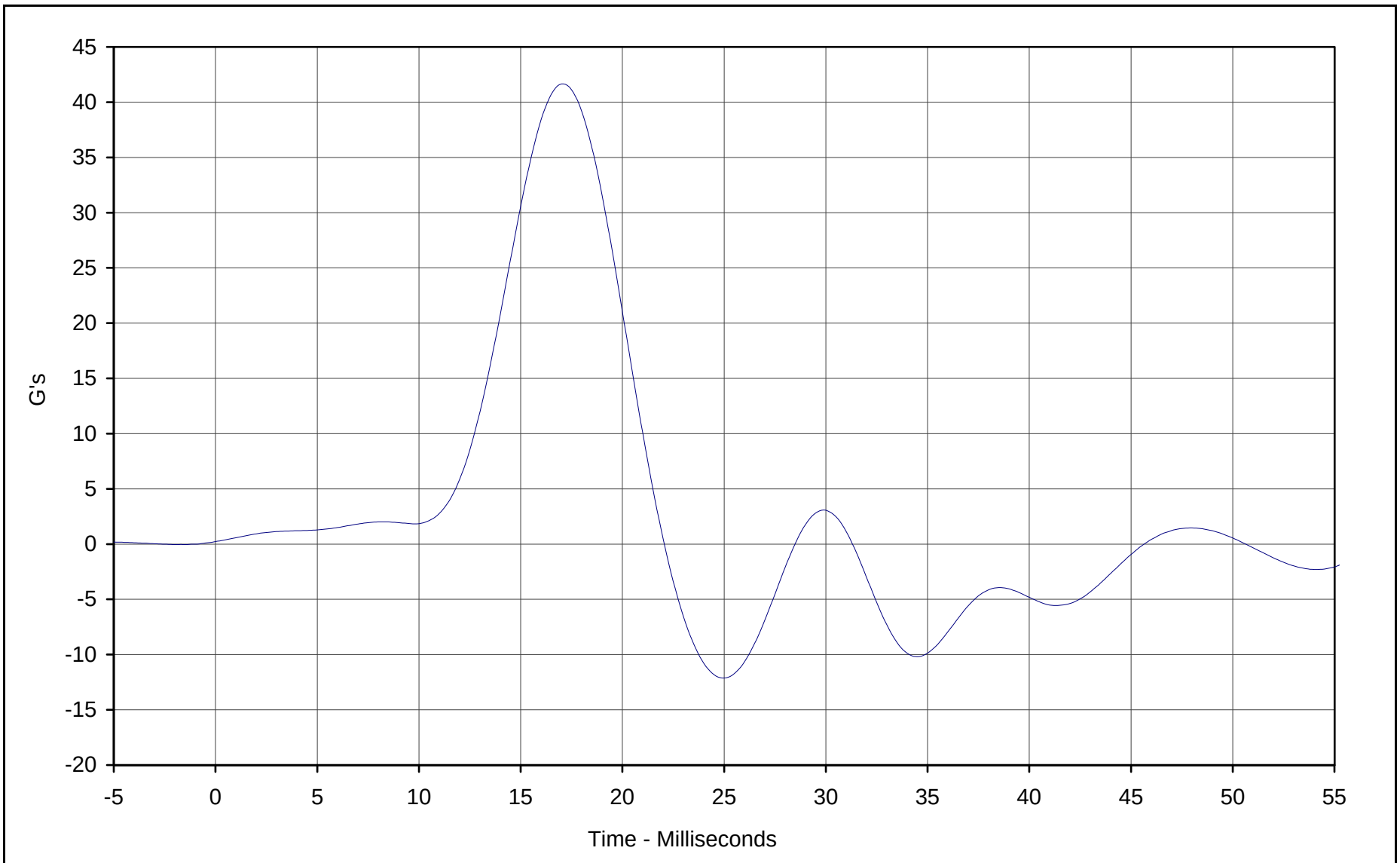
Date



Curve Description: Left Upper Rib Y Acceleration
Maximum Value: 41.4 at 17.3 Milliseconds
Minimum Value: -10.3 at 24.9 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 12/3/99

Test Program: SID Thorax Lateral Impact Test
Test Information: SID S/N: 057 Test I.D.: TI12A



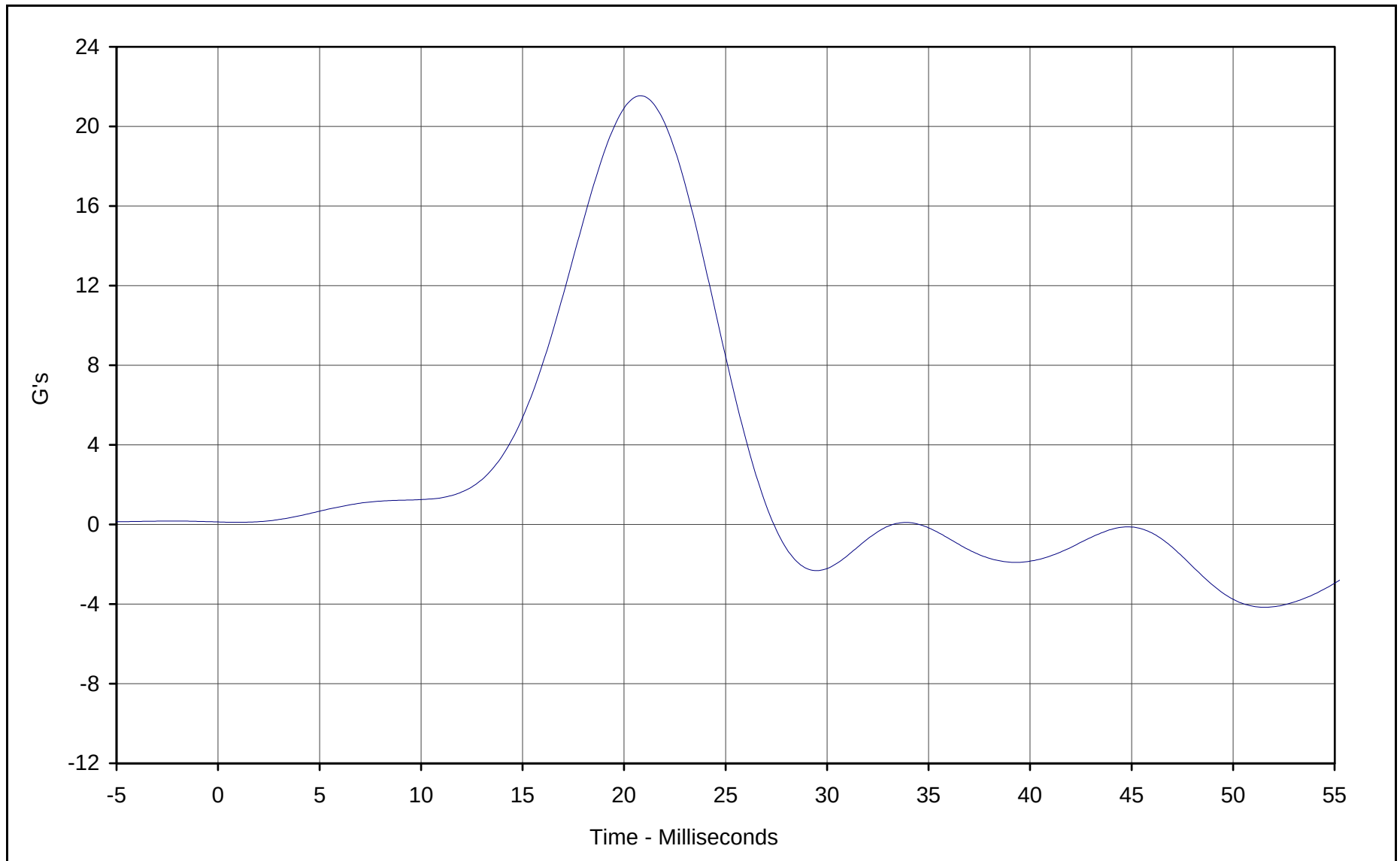


Curve Description: Left Lower Rib Y Acceleration
Maximum Value: 41.7 at 17.1 Milliseconds
Minimum Value: -12.1 at 25.0 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 12/3/99

Test Program: SID Thorax Lateral Impact Test
Test Information: SID S/N: 057 Test I.D.: TI12A



C-19



Curve Description: Lower Spine Y Acceleration
Maximum Value: 21.5 at 20.8 Milliseconds
Minimum Value: -4.2 at 51.5 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 12/3/99

Test Program: SID Thorax Lateral Impact Test
Test Information: SID S/N: 057 Test I.D.: TI12A



KAR99060-01



Performance Verification Data

Side Impact Dummy (SID)

Left Side Pelvis Lateral Impact

ATD Serial No.: 057

Part Serial No.: N/A

Test I.D.: PI12A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.5	21.7	Pass
Laboratory Relative Humidity	%	10 to 70	42	Pass
Probe Velocity	m/s	4.21 to 4.33	4.33	Pass
Pelvis Acceleration	G's	40.0 to 60.0	46.2	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0 Msec.	6.8	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Overall Test Results				Pass

Laboratory Technician

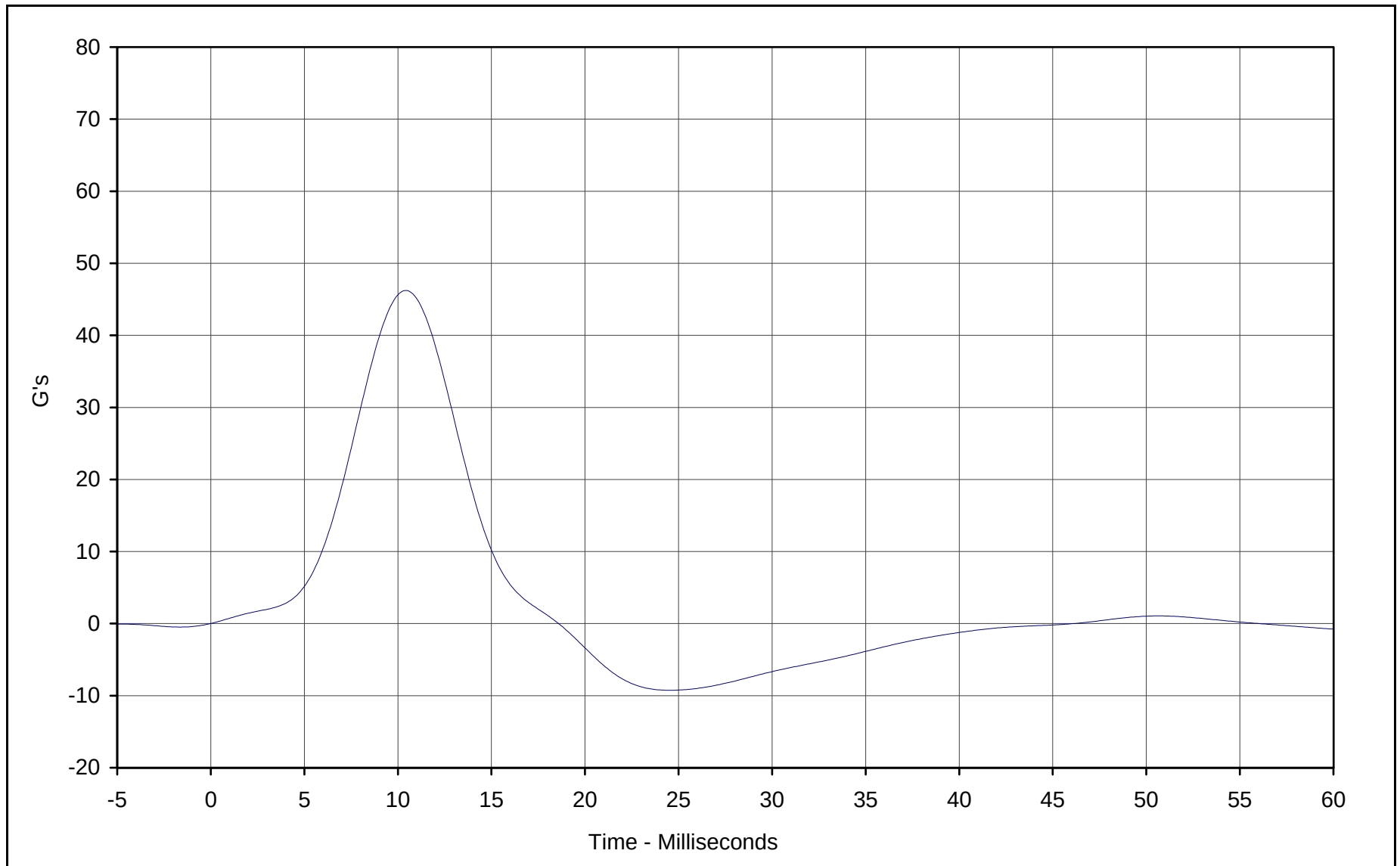
December 3, 1999

Test Date

Approved By

Date

C-21



Curve Description: Pelvis Y Axis Acceleration
Maximum Value: 46.2 at 10.4 Milliseconds
Minimum Value: -9.3 at 24.5 Milliseconds
SAE Filter Class: FIR 100
Date of Test: 12/3/99

Test Program: Left Side Pelvis Lateral Impact
Test Information: SID S/N: 057 Test I.D.: PI12A



KAR99060-01



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

ATD Serial No.: 057

Part Serial No.: N/A

Test I.D.: AC12A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	71	Pass
Laboratory Relative Humidity	%	10 to 70	38	Pass
Force at 0.5 Inches of Displacement	Pounds	23.0 to 36.0	26.5	Pass
Force at 0.75 Inches of Displacement	Pounds	36.0 to 50.0	39.1	Pass
Force at 1.0 Inches of Displacement	Pounds	50.0 to 63.0	54.0	Pass
Force at 1.3 Inches of Displacement	Pounds	73.0 to 88.0	74.7	Pass
Overall Test Results				Pass

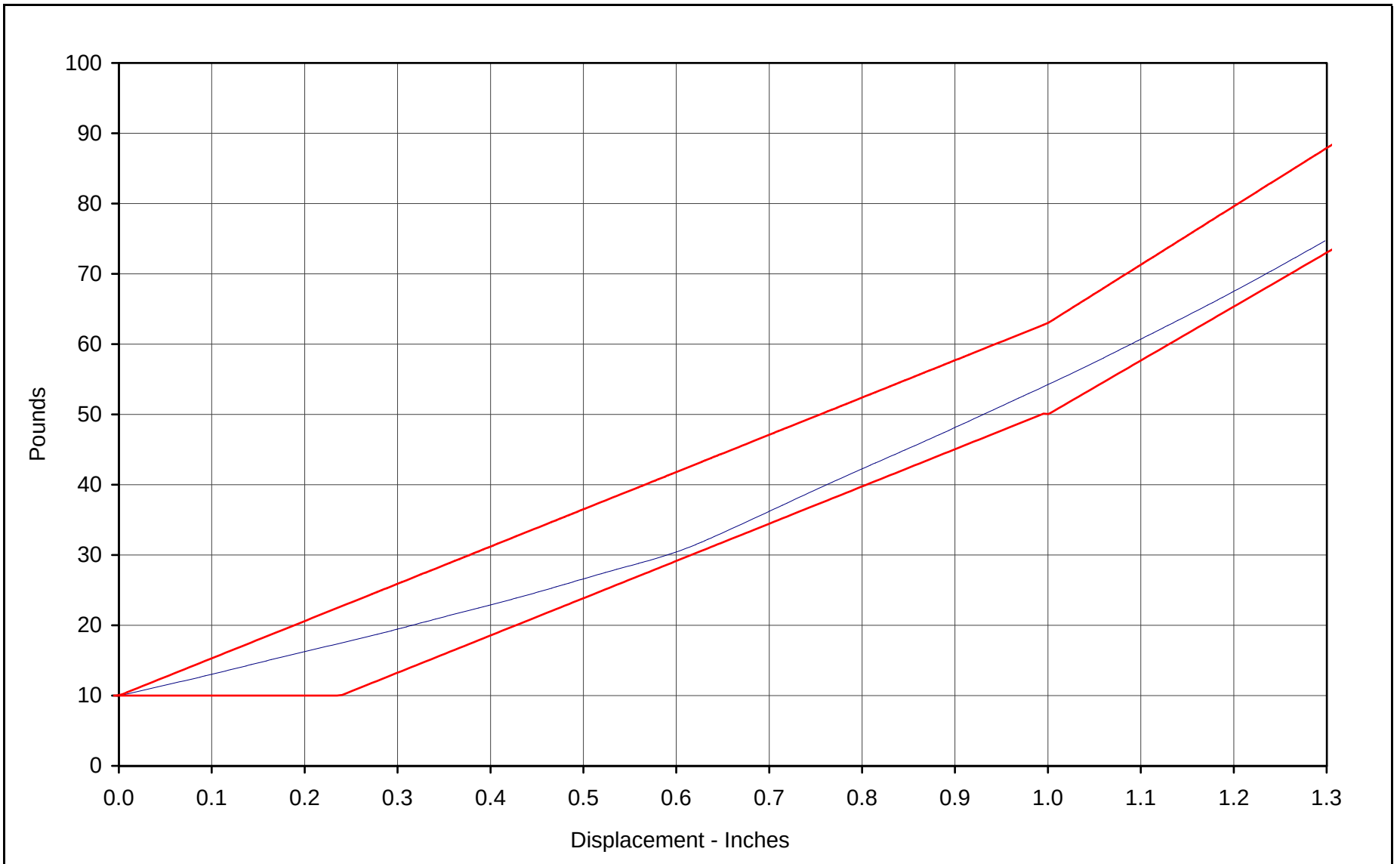
Laboratory Technician

December 6, 1999

Test Date

Approved By

Date



Curve Description: Abdomen Force vs. Displacement

Force at 0.5 In.: 26.5 Pounds

Force at 0.75 In.: 39.1 Pounds

Force at 1.0 In.: 54.0 Pounds

Force at 1.3 In.: 74.7 Pounds

Date of Test: 12/6/99

Test Program: SID Abdominal Compression

Test Information: SID S/N: 057 Test I.D.: AC12A





Performance Verification Data Side Impact Dummy (SID) Lumbar Flexion Test

ATD Serial No.: 057

Part Serial No.: N/A

Test I.D.: LF12A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°F	66 to 78	70	Pass
Laboratory Relative Humidity	%	10 to 70	32	Pass
Applied Force at 0° of Flexion	Pounds	0.0	0.0	Pass
Applied Force at 20° of Flexion	Pounds	22.0 to 34.0	26.0	Pass
Applied Force at 30° of Flexion	Pounds	34.0 to 46.0	35.8	Pass
Applied Force at 40° of Flexion	Pounds	46.0 to 58.0	50.1	Pass
Return Angle 3 Minutes After Release	Degrees	≤12.0	6.7	Pass
Overall Test Results			Pass	

Laboratory Technician

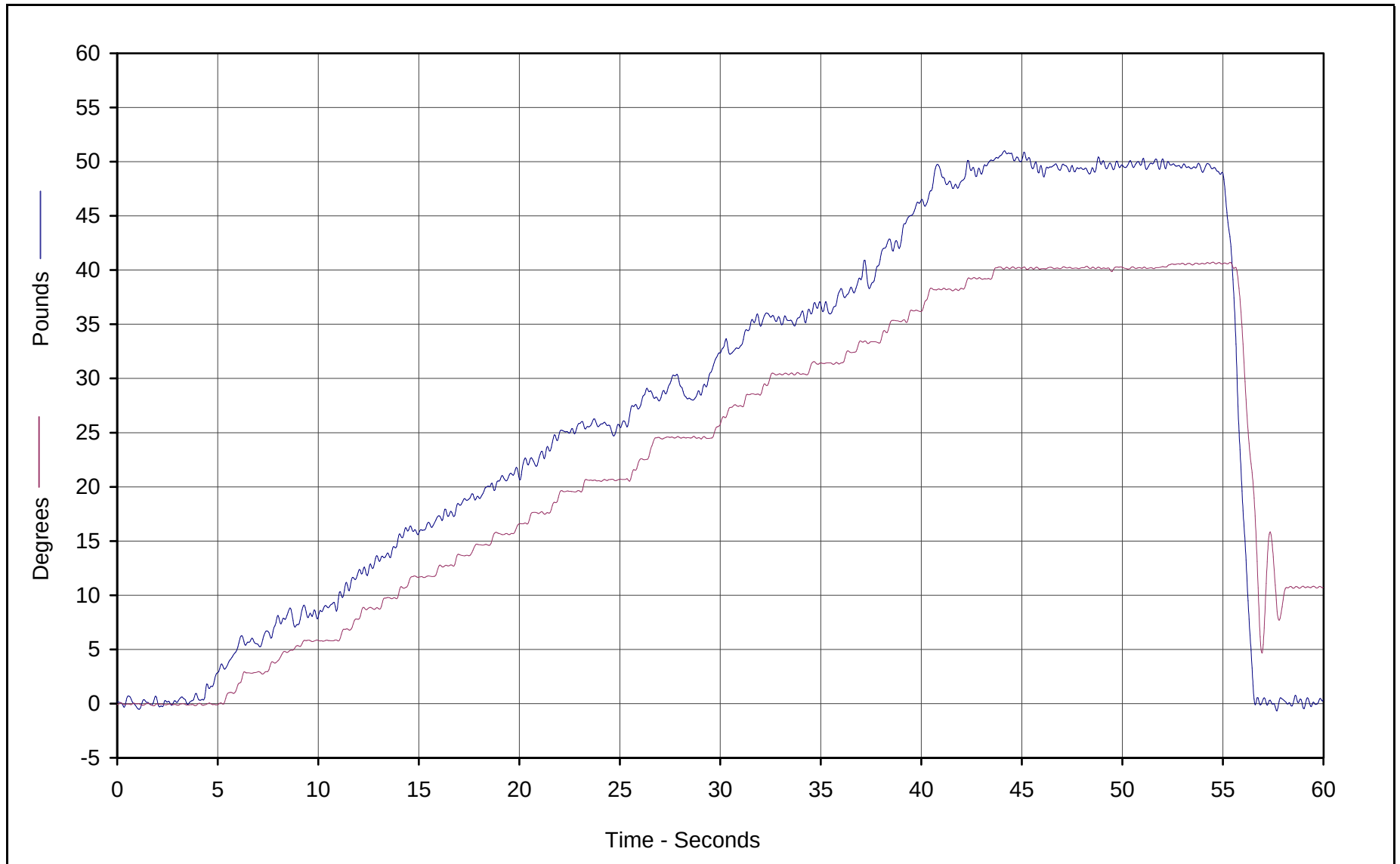
December 6, 1999

Test Date

Approved By

Date

C-25

Curve Description: Applied Lumbar Force And AngleForce at 20°: 26.0 PoundsForce at 30°: 35.8 PoundsForce at 40°: 50.1 PoundsReturn Angle: 6.7 DegreesTest Date: 12/6/99Test Program: Side Impact Dummy Lumbar FlexionTest Information: SID S/N: 057 Test I.D.: LF12A

KAR99060-01



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

ATD Serial No.: 057

Part Serial No.: N/A

Test I.D.: SH12A

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	250.4	Pass
Peak Lateral Acceleration	G's	≤10.0	8.0	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

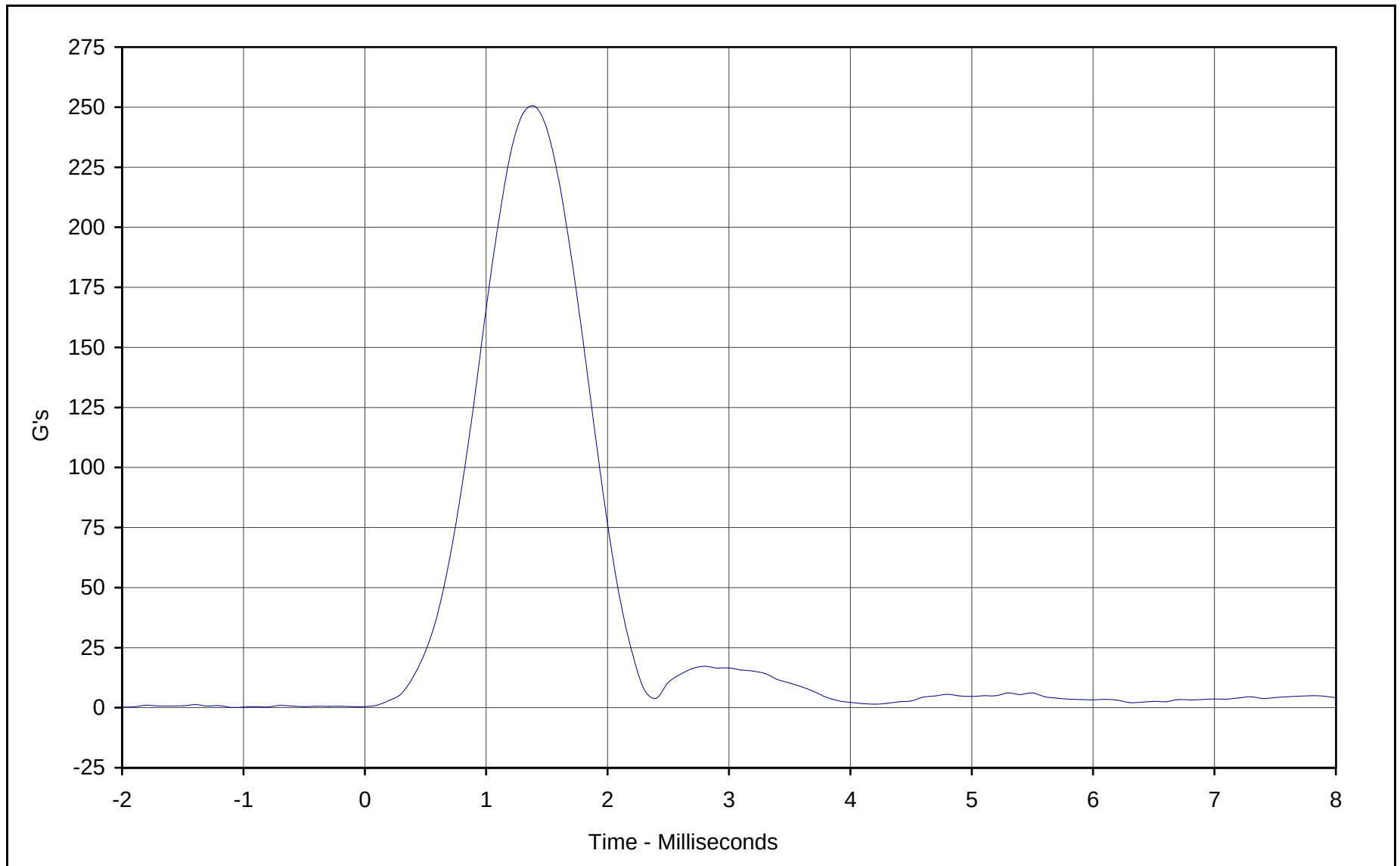
December 3, 1999

Test Date

Approved By

Date

C-27



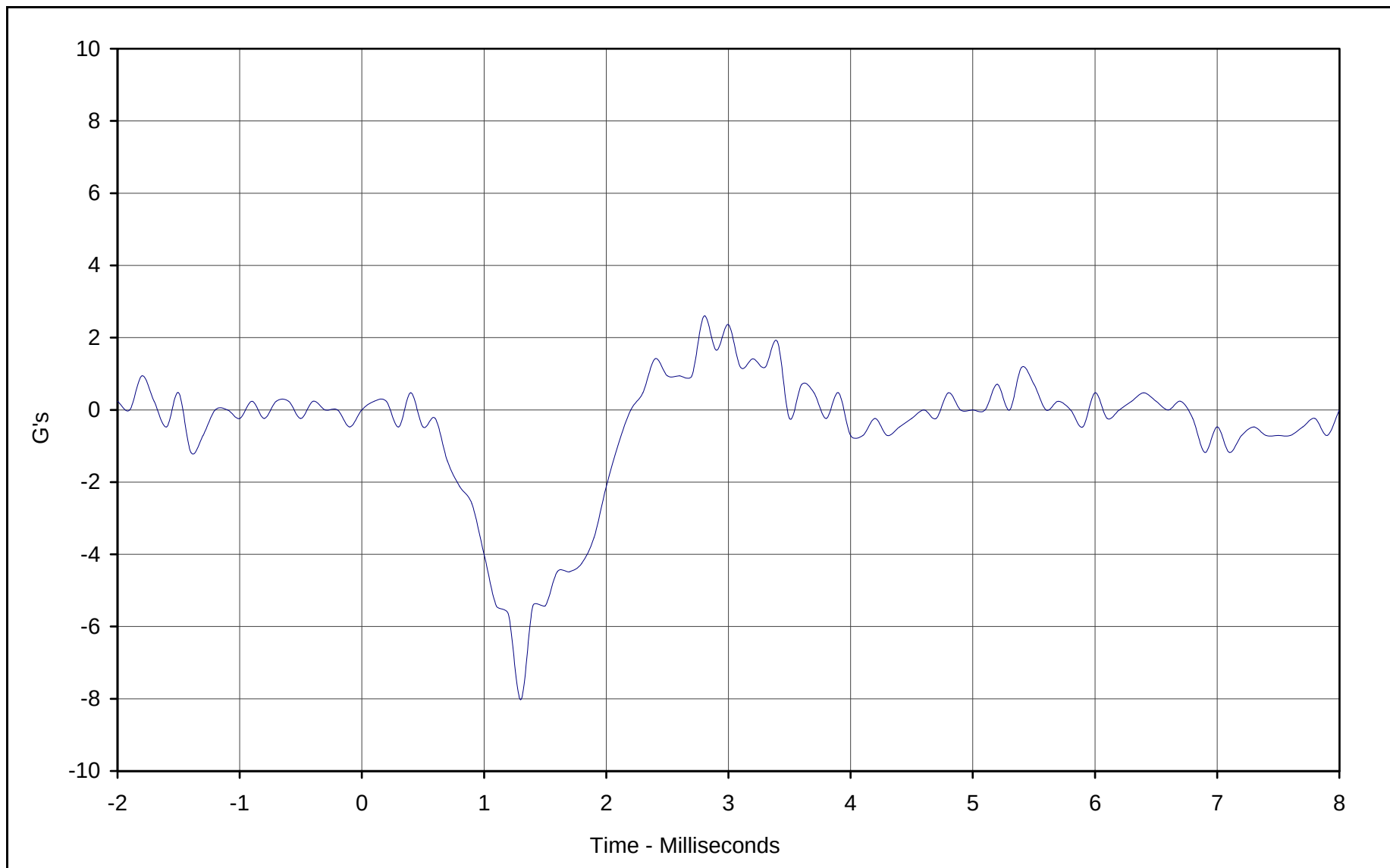
Curve Description: Head Resultant Acceleration
Maximum Value: 250.4 at 1.4 Milliseconds
Minimum Value: 0.5 at 0.0 Milliseconds
SAE Filter Class: 1000
Date of Test: 12/3/99

Test Program: SID Head Drop Calibration
Test Information: SID S/N: 057 Test I.D.: SH12A



KAR99060-01

C-28



Curve Description: Head Y Axis Acceleration
Maximum Value: 2.6 at 2.8 Milliseconds
Minimum Value: -8.0 at 1.3 Milliseconds
SAE Filter Class: 1000
Date of Test: 12/3/99

Test Program: SID Head Drop Calibration
Test Information: SID S/N: 057 Test I.D.: SH12A



KAR99060-01

APPENDIX D
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

55/28 km/h 90° Side Impact NCAP
Instrumentation Data Channel Assignments
Driver S.I.D. Serial Number 056
12/9/99
2000 Chevrolet Malibu 4 Door Sedan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
1	Head CG	X	KEAC060	Accel.,1/2 bridge	Endevco	7264-2000	G
2	Head CG	Y	KEAC061	Accel.,1/2 bridge	Endevco	7264-2000	G
3	Head CG	Z	KEAC062	Accel.,1/2 bridge	Endevco	7264-2000	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	%

55/28 km/h 90° Side Impact NCAP
Instrumentation Data Channel Assignments
Passenger S.I.D. Serial Number 057
12/9/99
2000 Chevrolet Malibu 4 Door Sedan

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	%

**55/28 km/h 90° Side Impact NCAP
Instrumentation Data Channel Assignments**

Vehicle Accelerometers

12/9/99

2000 Chevrolet Malibu 4 Door Sedan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
27	Right Sill Front Seat	X	KETX2A	Accel., Triax	I.C. Sensor	3031-200	G
28	Right Sill Front Seat	Y	KETX2B	Accel., Triax	I.C. Sensor	3031-200	G
29	Right Sill Front Seat	Z	KETX2C	Accel., Triax	I.C. Sensor	3031-200	G
30	Right Sill Rear Seat	X	KETX3A	Accel., Triax	I.C. Sensor	3031-500	G
31	Right Sill Rear Seat	Y	KETX3B	Accel., Triax	I.C. Sensor	3031-500	G
32	Right 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	KEVA005	Accel., Vehicle block	I.C. Sensor	3031-500	G
37	Left Sill at Front Door	Y	KEVA001	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	3031-500	G
47	A-Post Middle	Y	KEBX2A	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	KETX1A	Accel., Triax	I.C. Sensor	3031-200	G
51	Vehicle CG	Y	KETX1B	Accel., Triax	I.C. Sensor	3031-200	G
52	Vehicle CG	Z	KETX1C	Accel., Triax	I.C. Sensor	3031-200	G

55/28 km/h 90° Side Impact NCAP
Instrumentation Data Channel Assignments
Moving Deformable Barrier
12/9/99
2000 Chevrolet Malibu 4 Door Sedan

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
53	MDB CG	X	MDASX	Accel., Triax	I.C. Sensor	3031-200	G
54	MDB CG	Y	MDASY	Accel., Triax	I.C. Sensor	3031-200	G
55	MDB CG	Z	MDASZ	Accel., Triax	I.C. Sensor	3031-200	G
56	MDB Rear Centerline	X	PREAMPX	Accel., Triax	I.C. Sensor	3031-200	G
57	MDB Rear Centerline	Y	PREAMPY	Accel., Triax	I.C. Sensor	3031-200	G
58	Right Bumper Contact	N/A	T0	Contact Switch	Tapeswitch	8 oz. Grey	%