

REPORT NUMBER TR-P23003-06-NC

**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

**BAYERISCHE MOTORENWERKE AG
2003 BMW X5 3.0i
SUV**

NHTSA NUMBER: M30502

**Prepared By:
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MARCH 20, 2003

FINAL REPORT

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16. Abstract A 55/28 km/h 90 deg. Moving Deformable Barrier Side Impact NCAP Test was conducted on the subject 2003 BMW X5 3.0i SUV in accordance with the specifications of the Office of Crash Worthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. The test was conducted at KARCO Engineering laboratories in Adelanto, California, on March 20, 2003. The impact velocity of the Moving Deformable Barrier was 61.98 km/h, and the outside ambient temperature at the struck (driver's) side of the vehicle was 14.4 deg. C. The target vehicle's maximum post test static crush was 286 mm located at level 2 . The test vehicle's occupant performance is as follows: <table border="1" style="width: 100%; margin-top: 10px; border-collapse: collapse;"> <thead> <tr> <th style="width: 35%;">Measurement Description</th> <th style="width: 30%;">Driver SID/HIII</th> <th style="width: 35%;">Pass. SID/HIII</th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib (LUR) G's</td> <td style="text-align: center;">58.3</td> <td style="text-align: center;">23.2</td> </tr> <tr> <td>Left Lower Rib (LLR) G's</td> <td style="text-align: center;">59.3</td> <td style="text-align: center;">22.4</td> </tr> <tr> <td>Lower Spine (T₁₂) G's</td> <td style="text-align: center;">76.0</td> <td style="text-align: center;">20.0</td> </tr> <tr> <td>Thoracic Trauma Index (TTI) G's</td> <td style="text-align: center;">68</td> <td style="text-align: center;">22</td> </tr> <tr> <td>Pelvis (PEV) G's</td> <td style="text-align: center;">70</td> <td style="text-align: center;">25</td> </tr> </tbody> </table>				Measurement Description	Driver SID/HIII	Pass. SID/HIII	Left Upper Rib (LUR) G's	58.3	23.2	Left Lower Rib (LLR) G's	59.3	22.4	Lower Spine (T ₁₂) G's	76.0	20.0	Thoracic Trauma Index (TTI) G's	68	22	Pelvis (PEV) G's	70	25
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17. Key Words New Car Assessment Program (NCAP) Side Impact Moving Deformable Barrier (MDB) Side Impact Dummy (SID/HIII)		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' 2003 test program sponsored by the National Highway Traffic Safety Administration (NHTSA), under contract No. DTNH22-99-D-02041. The purpose of this test is to generate comparative side impact data on a 2003 BMW X5 3.0i SUV manufactured by Bayerische Motorenwerke AG.

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 2003 BMW X5 3.0i SUV 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 61.98 km/h. The specified impact velocity range is from 61.1 to 62.7 km/h. The test (target) vehicle was stationary and positioned 63° to the line of forward motion. The weight of the vehicle as tested was 2426kg and the test weight of the MDB was 1361 kg. The test was conducted at KARCO Engineering, LLC in Adelanto, California, on March 20, 2003.

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver)		Left Rear (Passenger)	
	Installed	Operation	Installed	Operation
Front Airbag	Yes	Not Deployed	None	Not Applicable
Side Torso Airbag	Yes	Deployed	None	Not Applicable
Head Curtain Airbag	Yes	Deployed	Yes	Deployed

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's/Hybrid III can be found in Appendix A. Two 50th percentile adult male Side Impact Hybrid III Dummies (SID/Hybrid IIIs) were placed in the driver's and left rear passenger designated seating positions according to the test procedure. Each SID/Hybrid III is instrumented with contact switches on the pelvis and thorax and six-axis neck load cells, and fourteen 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 primary and redundant)

The test vehicle was instrumented with twenty-five (25) structural accelerometers and the MDB was instrumented with five (5) accelerometers and a one (2) 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 286 mm at level 2, 1650mm rearward of the left vertical impact point. The driver SID/Hybrid III, Serial No. 274 and the passenger SID/Hybrid III, Serial No. 275 were calibrated one test prior to this test. The SID/Hybrid III injury criteria is summarized as follows:

Measurement	Units	Driver	Passenger
Thoracic Trauma Index (TTI)	G's	68	22
Peak Pelvic G's (PEV)	G's	70	25

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/Hybrid III, vehicle, and MDB response data traces. Appendix C contains the SID's/Hybrid III Configuration and performance verification data. Appendix D contains the test equipment information.

SECTION 3

SIDE IMPACT DUMMY (SID/HYBRID III) AND VEHICLE TEST DATA

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No. M30502

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

Test Date: 3/20/03

CONVERSION FACTORS USED IN THIS REPORT*

Quantity	Typical Application	Std Units	Metric Unit	Multiply By
Mass	Vehicle Weight	lb	kg	0.4536
Linear Velocity	Impact Velocity	mile/h	km/h	1.609
Length or Distance	Measurements	in	mm	25.4
Volume	Fuel Systems	gal	liter	3.785
Volume	Small Fluids	oz	mL	29.573
Pressure	Tire Pressures	lbf/in ²	kPa	7.0
Volume	Liquid	gal	liter	3.785
Temperature	General Use	°F	°C	$=(t_f - 32)/1.8$
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: 2003 BMW X5 3.0i SUV

NHTSA No. M30502

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

Test Date: 3/20/03

TEST VEHICLE INFORMATION

Make	BMW
Model	X5 3.0i
Body Style	SUV
NHTSA No.	M30502
VIN	5UXFA53503LV84171
Color	Black
Delivery Date	3/10/2003
Odometer Reading (mile)	23
Dealer	BMW of Valencia
Transmission	5-Speed Automatic
Final Drive	Rear
Type/Number Cylinders	In-line 6
Engine Displacement (L)	3.0
Engine Placement	Longitudinal

TEST VEHICLE OPTIONS

Driver Front Airbag	Yes
Driver Side Torso Airbag	Yes
Driver Side Head Airbag	Yes
Rear Pass. Airbag	No
Rear Pass. Torso Airbag	No
Rear Pass. Head Airbag	Yes
Power Brakes	Yes
Power Steering	Yes
Disc Brakes, Front	Yes
Disc Brakes, Rear	Yes
Anti-lock Brakes	Yes
Tilt Steering Wheel	Yes
Power Windows	Yes
Power Seats	Driver Only

DATA FROM CERTIFICATION LABEL

Manufactured By	Bayerische Motorenwerke	GVWR (kg)	2724
Date of Manufacture	January-03	GAWR Front (kg)	1264
		GAWR Rear (kg)	1500

DATA FROM TIRE PLACARD

Measured Parameter	Front	Rear
Maximum Tire Pressure (kPa)	220	270
Cold Pressure (kPa)	220	270
Recommend Tire Size	P235/65R17	P235/65R17
Tire Size on Vehicle	P235/65R17	P235/65R17
Tire Manufacturer	Michelin	Michelin

Measured Parameter	Front	Rear	Third	Total
Type of Seats	Bucket	Spilt Bench	None	
Number of Occupants	2	3	0	5
Capacity Wt. (VCW) (kg)				589
Cargo Weight (RCLW) (kg)				136

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

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No. M30502

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

Test Date: 3/20/03

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVW)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	522	558		557	703	
Right	kg	520	536		512	654	
Ratio	%	48.8	51.2		44.1	55.9	
Totals	kg	1042	1094	2136	1069	1357	2426

TARGET TEST WEIGHT CALCULATION*

Measured Parameter	Units	Value
Total Delivered Weight (UVW)	kg	2136
Weight of 2 P572M Sid's/Hybrid III Dummies	kg	161
Rated Cargo/Luggage Weight (RCLW)	kg	136
Calculated Vehicle Target Weight (TVTW)	kg	2433

*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	820	826	826	830	1444
As Tested	mm	815	825	800	810	1577
Fully Loaded	mm	815	825	800	808	

GENERAL TEST VEHICLE DATA

Measurement Description	Units	Value
Test Vehicle Wheel base	mm	2820
Total Vehicle Length at Left Side	mm	3380
Total Vehicle Length at Centerline	mm	4665
Total Vehicle Length at Right Side	mm	3380
Weight of Ballast In Cargo Area	kg	154
Amount of Stoddard Solvent in Fuel Tank	Liters	86.3

TEST VEHICLE VERTICAL IMPACT LINE DATA

Measurement Description	Units	Value
Test Vehicle Wheel base	mm	2820
Target Impact Point Aft of Front Axle	mm	470
Actual Impact Point Aft of Front Axle	mm	468

DATA SHEET NO. 1...(continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2003 BMW X5 3.0i SUV

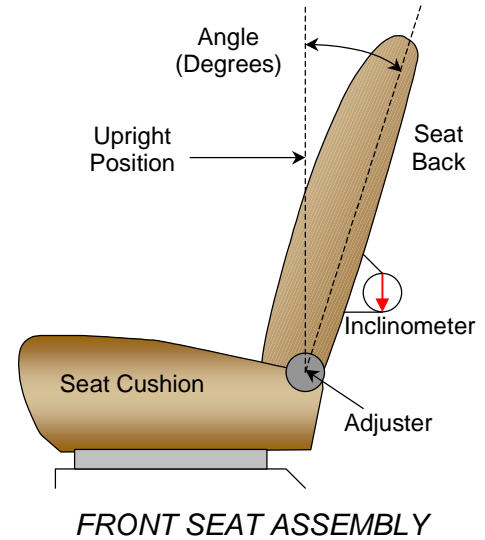
NHTSA No. M30502

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

Test Date: 3/20/03

NOMINAL DESIGN RIDING POSITION

The driver's seat back is positioned to the manufacturer's designated angle. The procedure for positioning 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.



Driver seat back angle: 18° with a seated dummy

Rear seat back angle: 23° fixed

SEAT FORE/AFT POSITIONS

The driver's seat is adjustable. The fore/aft position is set to the middle.

Driver seat fore/aft total travel: 204mm of total travel

Rear seat fore/aft total travel: Seat is fixed

Driver seat fore/aft position: set at 102mm or midpoint

Rear seat fore/aft position: Seat is fixed

SEAT BELT UPPER ANCHORAGE

The driver's "D" ring anchorage has 4 positions and is placed in the 2nd position from the top, the rear passenger seat is non-adjustable.

DATA SHEET NO. 1...(continued)

GENERAL TEST AND VEHICLE PARAMETER DATA

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No. M30502

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

Test Date: 3/20/03

FUEL TANK CAPACITY DATA

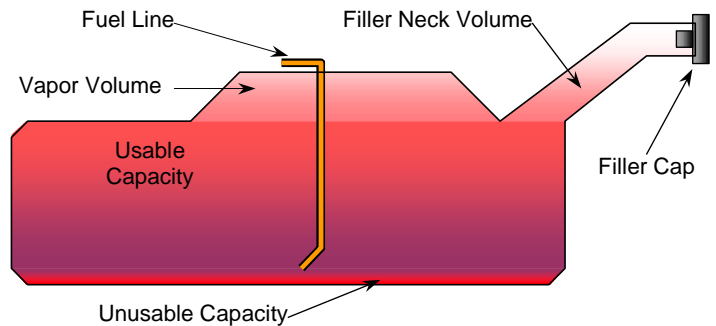
The "Usable Capacity" of the standard equipment fuel tank is: 93.1 liters

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

92-94% of "Usable Capacity" for certification to FMVSS 301 requirement: 85.5 to 87.4 liters

Actual amount of Stoddard solvent added to vehicle for certification test: 86.3 liters

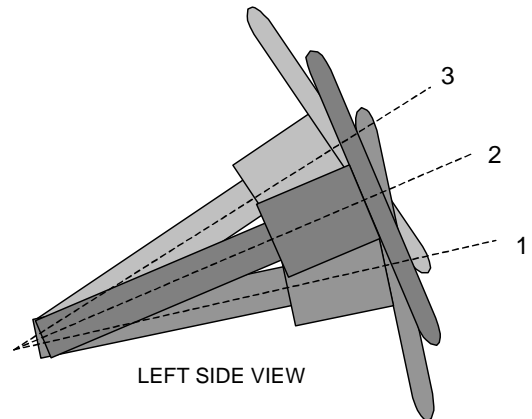
The test vehicle is equipped with an electric fuel pump. The fuel pump will operate for approximately three (3) seconds with the ignition in the "ON" position, after which the fuel pump automatically shuts off. The fuel filler door is located on the left rear fender.



VEHICLE FUEL TANK ASSEMBLY

STEERING COLUMN ADJUSTMENT

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



STEERING COLUMN ASSEMBLY

Lowermost, position 1: 21.5°

Geometric center, position 2: 23.5°

Uppermost, position 3: 25.5°

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

Test Vehicle: 2003 BMW X5 3.0i SUV
 Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No. M30502
 Test Date: 3/20/03

TEST VEHICLE WEIGHTS

	Units	As Delivered (UVM)			As Tested (ATW)		
		Front Axle	Rear Axle	Total	Front Axle	Rear Axle	Total
Left	kg	522	558		557	703	
Right	kg	520	536		512	654	
Weight Ratio	%	48.8	51.2		44.1	55.9	
Totals	kg	1042	1094	2136	1069	1357	2426

MAXIMUM EXTERIOR STATIC CRUSH

Level	Measured Parameter	Units	Maximum Crush	Above Ground
Level 1	Sill Top Height	mm	114	364
Level 2	Occupant H-Point	mm	286	751
Level 3	Mid Door	mm	281	752
Level 4	Window Sill	mm	132	1091
Level 5	Window Top	mm	21	1642
N/A	Maximum Penetration	mm	286	

INSTRUMENTATION

Driver SID/Hybrid III Accelerometers	20
Passenger SID/Hybrid III Accelerometers	20
Vehicle Structure Accelerometers	25
MDB Accelerometers	5
Total	70

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: 2003 BMW X5 3.0i SUV
 Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No. M30502
 Test Date: 3/20/03

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	61.98
Trap No. 2 Velocity (Redn.)	km/h	61.1 to 62.7	62
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	300	Left	233
B	Top of Bumper	533	300	Left	166
C	Mid Level	686	800	Right	211
D	Top of Stack	813	800	Right	236

MDB INSTRUMENTATION AND CAMERAS

Accelerometers	5
Contact Switches	2
High Speed Cameras	2

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

Test Vehicle: 2003 BMW X5 3.0i SUV
 Test Program: 55/28 km/h 90° Side Impact NCAP

NHTSA No.: M30502
 Test Date: 3/20/03

TEST DUMMY INFORMATION AND CONTACT POINTS

Description	Front Seat SID/Hybrid III	Rear Seat SID/Hybrid III
Dummy Type / Serial No.	P572F, SID / No. 274	P572F, SID / No. 275
Head Contact	Side Head Airbag	Airbag
Upper Torso Contact	Airbag/B-Pillar	Panel
Lower Torso Contact	B-Pillar	Panel
Left Knee Contact	Panel	Panel
Right Knee Contact	None	Knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

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

POST TEST STRUCTURAL OBSERVATIONS

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

SUPPLEMENTAL RESTRAINT INFORMATION

Restraint Type	Left Front (Driver) Occupant Location 01		Left Rear (Passenger) Occupant Location 04	
	Installed	Operation	Installed	Operation
	Front Airbag	Yes	Not Deployed	None
Side Torso Airbag	Yes	Deployed Properly	None	Not Applicable
Head Curtain Airbag	Yes	Deployed Properly	Yes	Deployed Properly
Seat Belt Pretensioner	N/A	Unknown	N/A	Unknown
Seat Belt Load Limiter	N/A	Unknown	N/A	Unknown

MDB LEFT EDGE IMPACT POINT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	+/- 50	2(left)
Vertical Offset	mm	+/- 20	2(Below)

SECTION 4
OCCUPANT AND VEHICLE INFORMATION

DATA SHEET NO. 5
HIIL/SID INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No.: M30502

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

Test Date: 3/20/03

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

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Upper Rib (LUR)	Y	G's	58.3	30.6	-6.6	82.5	23.2	66.3	-1.5	189.4
Lower Rib (LLR)	Y	G's	59.3	30.0	-10.9	81.9	22.4	60.0	-0.9	190.0
Lower Spine (T ₁₂)	Y	G's	76.0	34.4	-10.6	67.5	20.0	61.9	-7.9	95.0
Pelvis (PEV)	Y	G's	69.5	36.3	-9.8	62.5	24.6	47.5	-8.7	86.9

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

Location	Driver				Passenger			
	LLR	T ₁₂	TTI(g)	PEV(g)	LUR	T ₁₂	TTI(g)	PEV(g)
Primary Rib, Spine, and Pelvis	59.275	75.960	68	70	23.225	20.036	22	25

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

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Upper Rib (LUR)	Y	G's	57.9	30.6	-6.0	81.9	23.4	66.3	-1.6	189.4
Lower Rib (LLR)	Y	G's	59.4	30.0	-11.4	81.9	21.8	60.0	-0.9	190.0
Lower Spine (T ₁₂)	Y	G's	75.8	34.4	-10.8	67.5	20.5	61.9	-8.4	95.0
Pelvis (PEV)	Y	G's	0.0	0.0	0.0	0.0	24.4	47.5	-8.3	86.9

1.) Driver channel failed, no data

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

Location	Driver				Passenger			
	LLR	T ₁₂	TTI(g)	PEV(g)	LUR	T ₁₂	TTI(g)	PEV(g)
Redundant Rib, Spine, and Pelvis	59.391	75.813	68	0	23.390	20.516	22	24

1.) Driver channel failed, no data

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

DATA SHEET NO. 5...(continued)
HIII/SID INJURY CRITERIA AND SENSOR DATA

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No.: M30502

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

Test Date: 3/20/03

HEAD PRIMARY PEAK ACCELERATIONS (SAE CLASS 1000 Filtered)

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	2.4	41.9	-10.5	65.6	5.9	82.5	-6.7	102.7
Head CG	Y	G's	37.8	55.2	-4.5	151.2	66.4	77.7	-5.4	53.0
Head CG	Z	G's	7.4	35.1	-5.4	51.5	7.2	122.5	-9.3	93.8
Head CG Resultant	N/A	G's	38.9	55.2			66.4	77.7		

HEAD PRIMARY INJURY CRITERIA (SAE CLASS 1000 Filtered)

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG	124.0	41.1	67.6	29.3	190.5	72.5	82.2	51.9

HEAD REDUNDANT PEAK ACCELERATIONS (SAE CLASS 1000 Filtered)

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Head CG	X	G's	2.3	43.1	-10.0	65.1	6.0	82.0	-6.7	103.9
Head CG	Y	G's	37.8	55.8	-4.0	149.3	66.9	77.1	-6.1	53.1
Head CG	Z	G's	7.4	34.7	-5.5	51.5	7.3	122.1	-9.1	95.0
Head CG Resultant	N/A	G's	38.7	55.8			67.0	77.1		

HEAD REDUNDANT INJURY CRITERIA (SAE CLASS 1000 Filtered)

Location	Driver				Passenger			
	HIC	T ¹	T ²	Avg G	HIC	T ¹	T ²	Avg G
Head CG	122.6	41.0	67.6	29.2	194.3	72.5	82.1	52.6

UPPER NECK PEAK FORCES AND MOMENTS

Location	Axis	Units	Driver				Passenger			
			Max	Time	Min	Time	Max	Time	Min	Time
Neck Force	X	Newtons	80.1	48.6	-190.0	117.1	497.5	89.1	-114.5	169.4
Neck Force	Y	Newtons	207.3	44.1	-238.5	37.0	135.9	181.8	-1279.5	85.8
Neck Force	Z	Newtons	605.5	67.3	-217.4	135.6	369.9	123.0	-1492.4	82.2
Neck Force Resultant	N/A	Newtons	608.6	67.3			1928.0	82.2		
Neck Moment	X	N•m	7.8	100.5	-51.4	43.8	8.3	178.4	-36.2	78.0
Neck Moment	Y	N•m	9.2	95.9	-17.9	72.8	9.0	180.4	-27.2	103.7
Neck Moment	Z	N•m	9.5	77.8	-12.1	39.3	5.1	120.8	-11.9	75.0
Neck Moment Res.	N/A	N•m	52.7	43.8			38.2	77.0		

DATA SHEET NO. 6

VEHICLE PRE-TEST AND POST TEST MEASUREMENTS

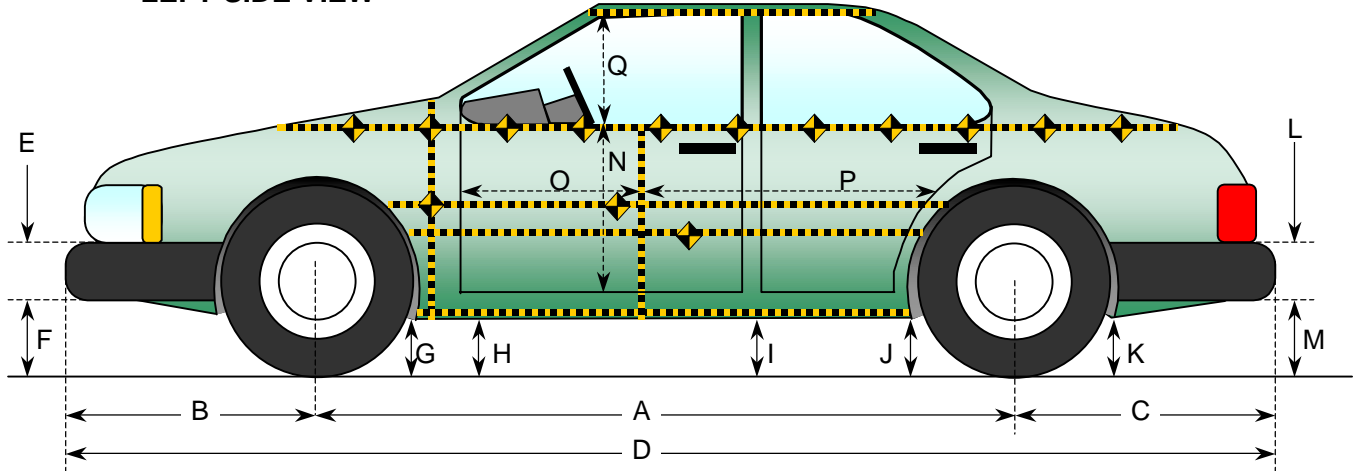
Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No. M30502

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

Test Date: 3/20/03

LEFT SIDE VIEW



All Measurements in mm

Code	Measurement Description	Pre-Test	Post-Test	Difference
A	Wheelbase	2820	2765	-55
B	Front Axle To FSOV	860	870	10
C	Rear Axle to RSOV	994	1014	20
D	Total Length at Centerline	4665	4650	-15
E	Front Bumper Thickness	477	477	0
F	Front Bumper Bottom to Ground	299	323	24
G	Sill Height at Front Wheel Well	250	234	-16
H	Sill Height at Front Door Leading Edge	262	244	-18
I	Sill Height at "B" Pillar	264	270	6
J1	Sill Height at Rear Wheel Well	267	299	32
J2	Pinch Weld Height at Rear Wheel Well	253	253	0
K	Sill Height aft of Rear Wheel Well	321	336	15
L	Rear Bumper Thickness	354	354	0
M	Rear Bumper Bottom to Ground	334	334	0
N	Sill Height to Window Bottom Sill	735	680	-55
O	Front Door Leading Edge to Impact CL	765	760	-5
P	Rear Door Trailing Edge to Impact CL	1426	1342	-84
Q	Front Window Opening	465	460	-5
R	Right Side Length	3380	3395	15
S	Left Side Length	3380	3330	-50
T	Vehicle Width at "B" Post	1880	1725	-155

DATA SHEET NO. 7

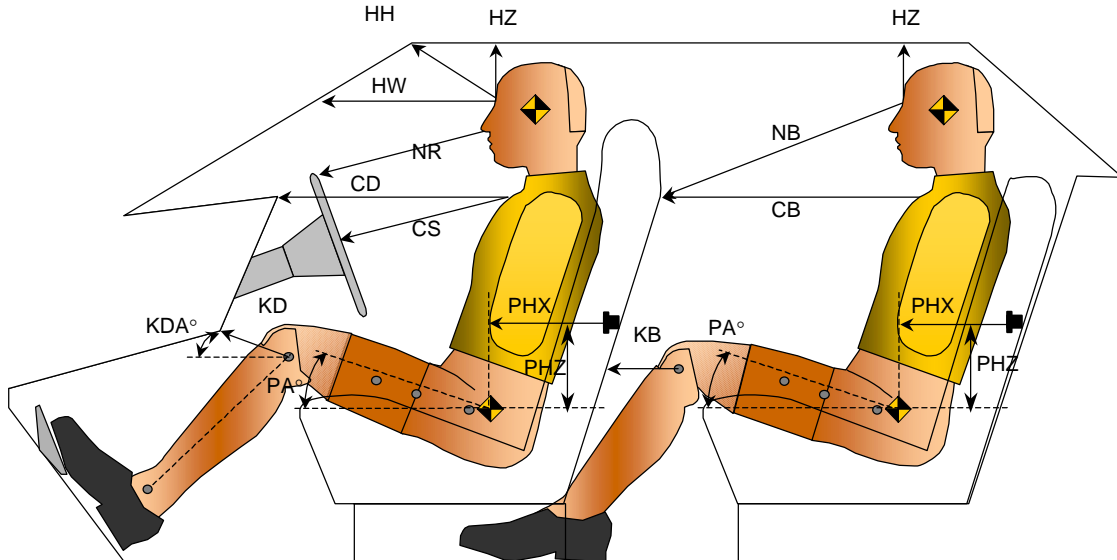
SID/HYBRID III LONGITUDINAL CLEARANCE DIMENSIONS

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No. M30502

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

Test Date: 3/20/03



Driver Code	Pass. Code	Measurement Description	Driver		Passenger	
			Length(mm)	Angle(°)	Length(mm)	Angle(°)
HH		Head to Header	590	12		
HW		Head to Windshield	800			
HZ	HZ	Head to Roof	195	90	195	90
NR	NB	Nose to Rim/Nose to Seatback	585	9	570	29
CD	CB	Chest to Dash or Seatback	660	5	495	10
CS		Chest to Steering Wheel	395	0		
KDL	KBL	Left Knee to Dash or Seatback	212	19	160	4
KDR	KBR	Right Knee to Dash or Seatback	180		155	
PA	PA	Pelvic Angle		23		25
PHX	PHX	H-Point to Striker (X-Axis)	125		160	
PHZ	PHZ	H-Point to Striker (Z-Axis)	178		158	

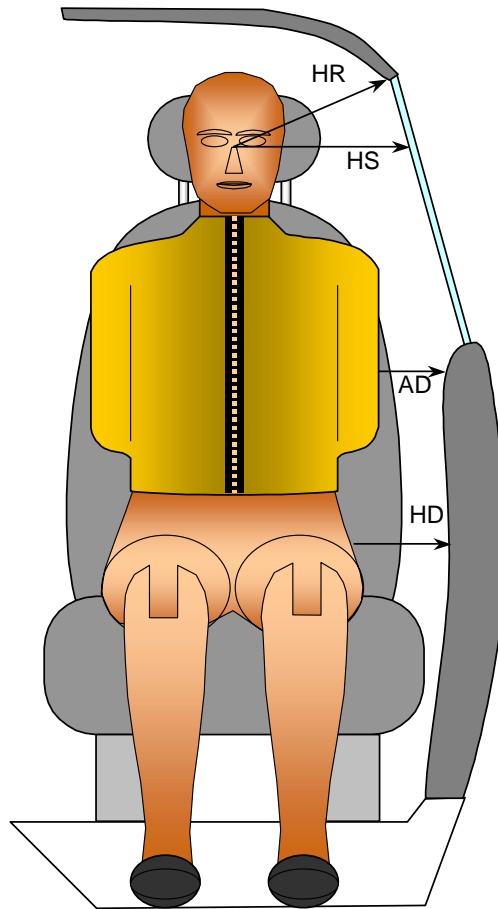
DATA SHEET NO. 8
SID/HYBRID III LATERAL CLEARANCE DIMENSIONS

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No. M30502

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

Test Date: 3/20/03



FRONT VIEW OF DUMMY

Code	Measurement Description	Units	Driver	Passenger
HR	Head to Side Header	mm	200	202
HS	Head to Side Window	mm	330	323
AD	Arm to Door	mm	106	106
HD	H-Point to Door	mm	186	175

DATA SHEET NO. 9

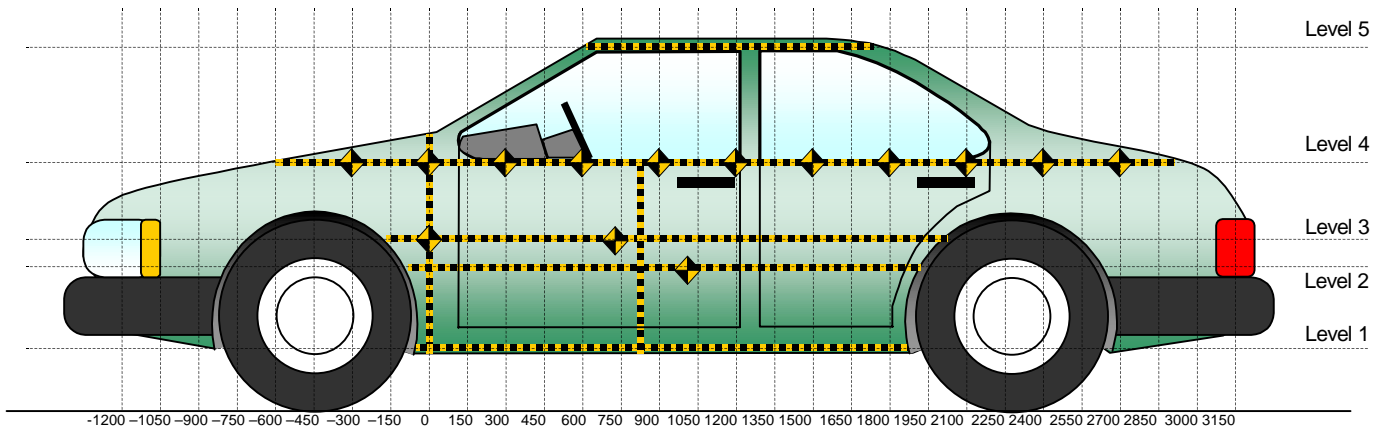
VEHICLE SIDE MEASUREMENTS

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No.: M30502

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

Test Date: 3/20/03



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	1642
4	Window Sill	1091
3	Mid Door	752
2	Occupant H-Point	751
1	Sill Top	364

DATA SHEET NO. 10 – VEHICLE EXTERIOR CRUSH PROFILES

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No.: M30502

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

Test Date: 3/20/03

	Pre-Test					Post-Test					Difference				
	1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
-900															
-750															
-600															
-450															
-300				686					704					18	
-150				670					691					21	
0	638	598	601	656		682	651	656	672		44	53	55	16	
150	636	600	603	646		722	696	691	669		86	96	88	23	
300	634	602	606	641		731	736	731	675		97	134	125	34	
450	629	597	604	639		722	766	766	683		93	169	162	44	
600	626	596	602	632		726	786	791	688		100	190	189	56	
750	624	593	600	629	888	731	806	811	698	909	107	213	211	69	21
900	625	592	597	630	886	731	826	832	706	828	106	234	235	76	-58
1050	626	592	597	629	876	733	834	842	720	804	107	242	245	91	-72
1200	627	593	598	629	864	738	832	841	733	796	111	239	243	104	-68
1350	628	594	598	629	859	741	821	836	761	789	113	227	238	132	-70
1500	630	594	600	631	856	742	851	871	740	808	112	257	271	109	-48
1650	631	595	601	633	861	742	881	882	719	796	111	286	281	86	-65
1800	632	596	600	636	861	746	876	874	702	779	114	280	274	66	-82
1950		589	592	640	868		716	756	682	758		127	164	42	-110
2100			587	646	866			659	659	742			72	13	-124
2250				648	869				642	849				-6	-20
2400				656	876				666	856				10	-20
2550															
2700															
2850															
3000															

Measurements are taken from fixed reference 1000mm from vehicle CL.

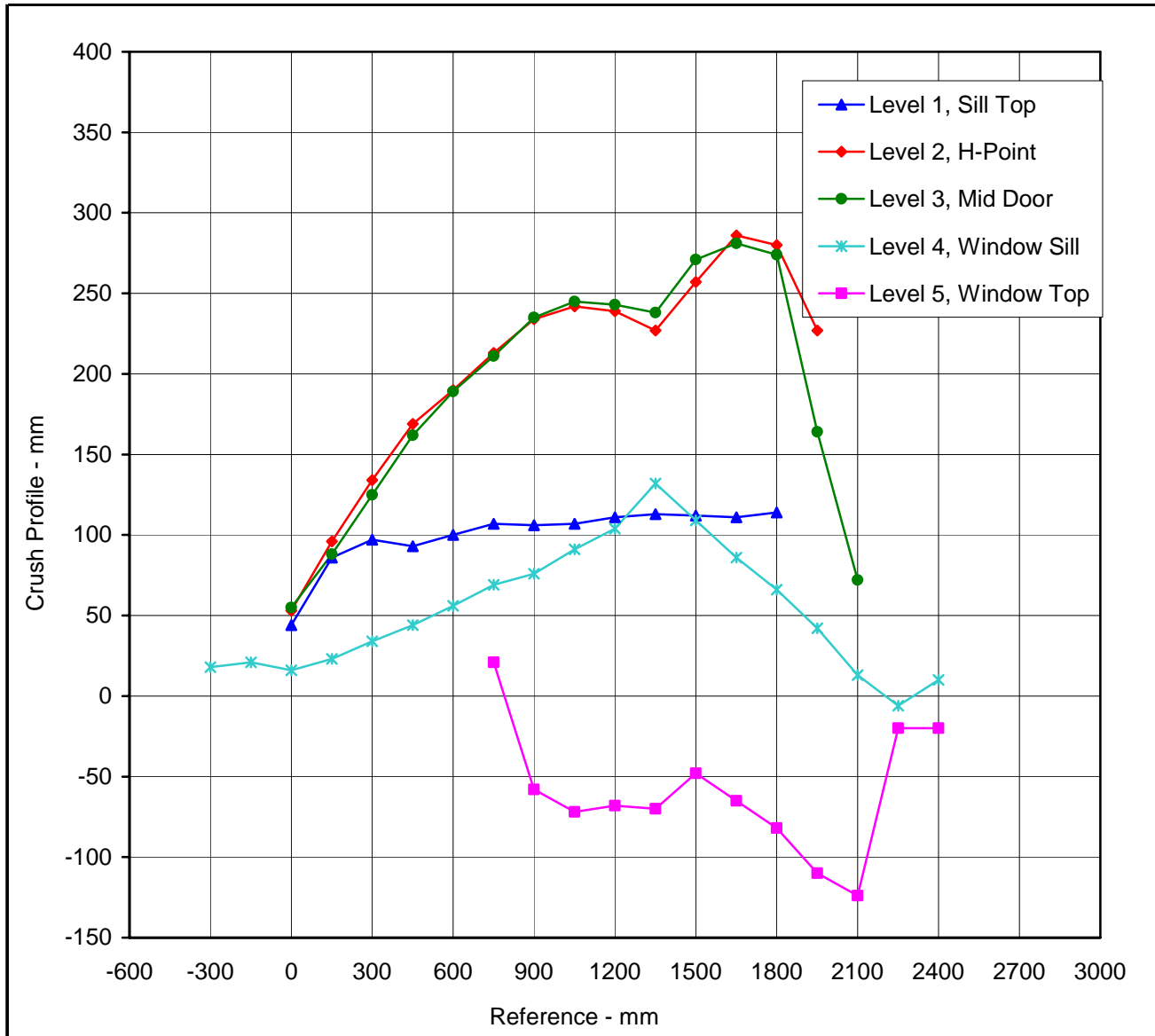
DATA SHEET NO. 10.....(CONTINUED)

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No.: M30502

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

Test Date: 3/20/03



	Units	Level 1	Level 2	Level 3	Level 4	Level 5
Maximum Crush	mm	114	286	281	132	21
Distance from Impact	mm	1800	1650	1650	1350	750

DATA SHEET NO. 11

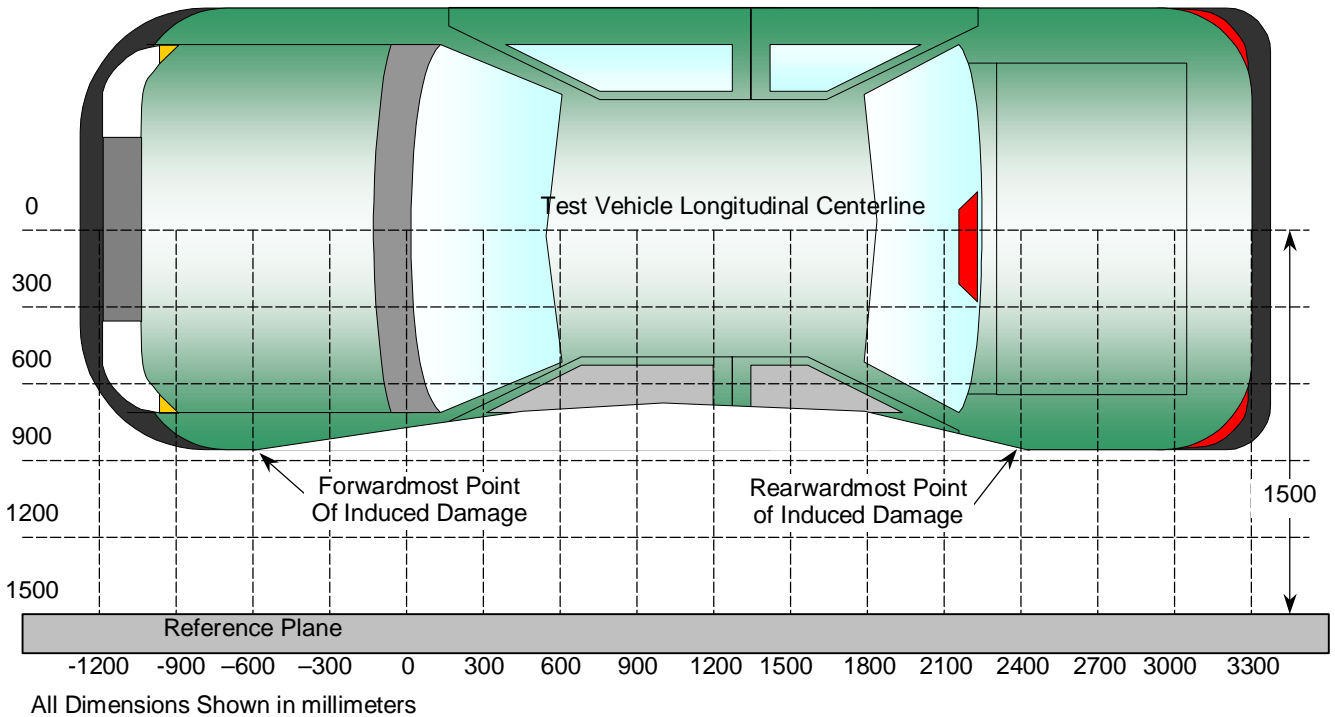
VEHICLE DAMAGE PROFILE DISTANCES

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No.: M30502

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

Test Date: 3/20/03



TOP VIEW

Damage Profile Distances

DPD	Distance From Impact Point in mm	Level	Pre-Test (mm)	Post-Test (mm)	Max Static Crush (mm)
1	-300	4	686	704	-18
2	300	2	602	736	-134
3	900	3	597	832	-235
4	1350	3	598	836	-238
5	1950	3	592	756	-164
6	2400	4	656	666	-10

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

DATA SHEET NO. 12

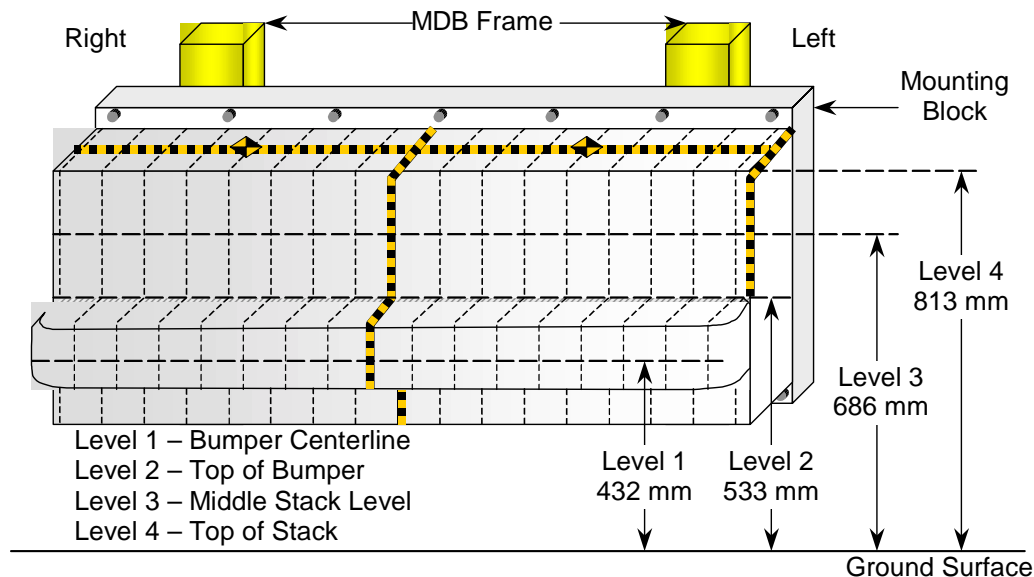
DEFORMABLE BARRIER HONEYCOMB FACE STATIC CRUSH

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No.: M30502

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

Test Date: 3/20/03



DEFORMABLE BARRIER STATIC CRUSH

Stack	Distance Right of Center								C _L	Distance Left of Center							
	800	700	600	500	400	300	200	100		0	100	200	300	400	500	600	700
1	216	203	199	196	196	193	191	195	210	222	231	233	230	227	222	220	229
2	157	151	144	143	140	138	134	134	139	149	159	166	165	159	154	151	148
3	211	168	130	116	108	96	89	81	78	84	102	131	133	118	104	90	111
4	236	198	171	144	115	95	81	69	56	54	62	82	100	73	78	94	113

All Dimensions in mm

DATA SHEET NO. 13

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

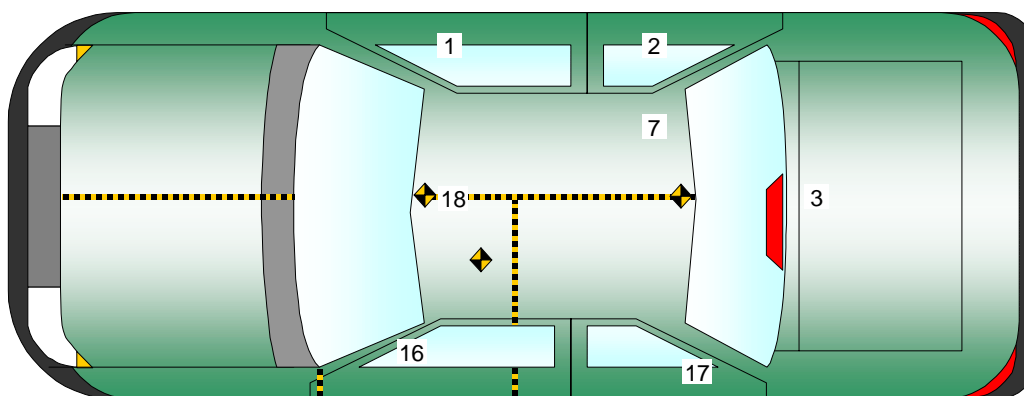
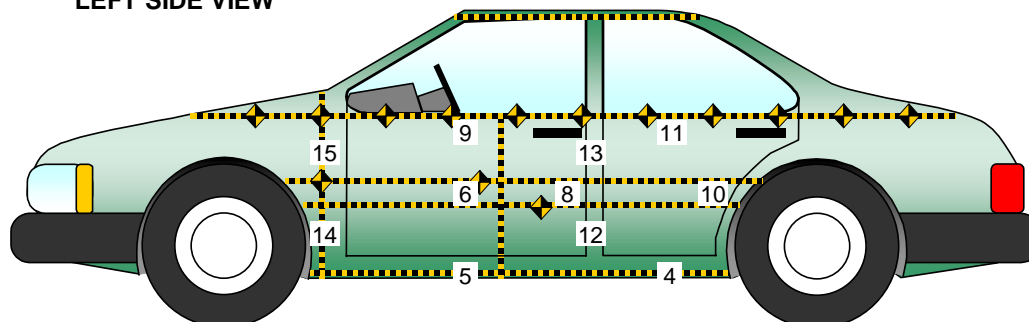
Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No.: M30502

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

Test Date: 3/20/03

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...(cont.)

VEHICLE ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No.: M30502

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

Test Date: 3/20/03

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	2700	720	480	X	1.4	75.0	-8.9	16.1
					Y	29.8	9.6	-3.8	20.6
					Z	5.1	21.0	-13.1	12.5
					RES	30.7	9.8		
2	Right Sill at Rear Seat	1780	750	480	X	1.2	75.0	-6.8	12.2
					Y	32.5	8.5	-1.5	130.3
					Z	4.4	93.4	-8.4	12.0
					RES	33.0	8.5		
3	Rear Floorpan Above Axle	910	0	530	X	1.2	20.7	-4.3	54.1
					Y	19.6	8.6	-1.6	93.6
					Z	14.5	15.2	-6.0	50.1
					RES	19.7	8.6		
4	Left Sill at Rear Door	1760	760	190	Y	95.6	4.2	-31.0	8.2
5	Left Sill at Front Door	2420	760	190	Y	96.7	4.6	-76.5	8.7
6	Front Door Centerline	2700	830	375	Y	169.3	13.3	-104.0	23.0
7	Rt. Rear Occ. Compartment	1960	535	475	Y	27.5	7.7	-1.4	130.9
8	Front Door Mid-Rear	2400	830	990	Y	170.9	18.7	-90.0	12.5
9	Front Door Upper Centerline	2720	830	980	Y	123.4	16.0	-50.9	28.8
10	Rear Door Mid-Rear	1400	780	930	Y	81.3	31.7	-117.3	24.9
11	Rear Door Upper Centerline	1600	784	1015	Y	121.5	13.8	-138.7	27.7
12	B-Post Lower	2080	860	660	Y	99.4	6.3	-38.7	23.9
13	B-Post Middle	2080	860	300	Y	57.0	11.6	-28.2	27.3
14	A-Post Lower	3220	860	700	Y	101.2	8.3	-34.5	14.9
15	A-Post Middle	3220	860	900	Y	55.5	8.3	-5.7	22.1
16	Front Seat Track	2750	640	565	Y	66.1	23.8	-8.5	28.7
17	Rear Seat Structure				Y				
18	Vehicle CG	2710	200	475	X	0.8	61.3	-3.9	19.7
					Y	26.8	8.1	-1.6	19.7
					Z	14.1	21.7	-8.1	24.8
					RES	27.4	8.2		

1.) Not installed

DATA SHEET NO. 14
MDB ACCELEROMETER LOCATION AND DATA SUMMARY

Test Vehicle: 2003 BMW X5 3.0i SUV
 Test Program: 55/28 km/h Side Impact NCAP

NHTSA No.: M30502
 Test Date: 3/20/03

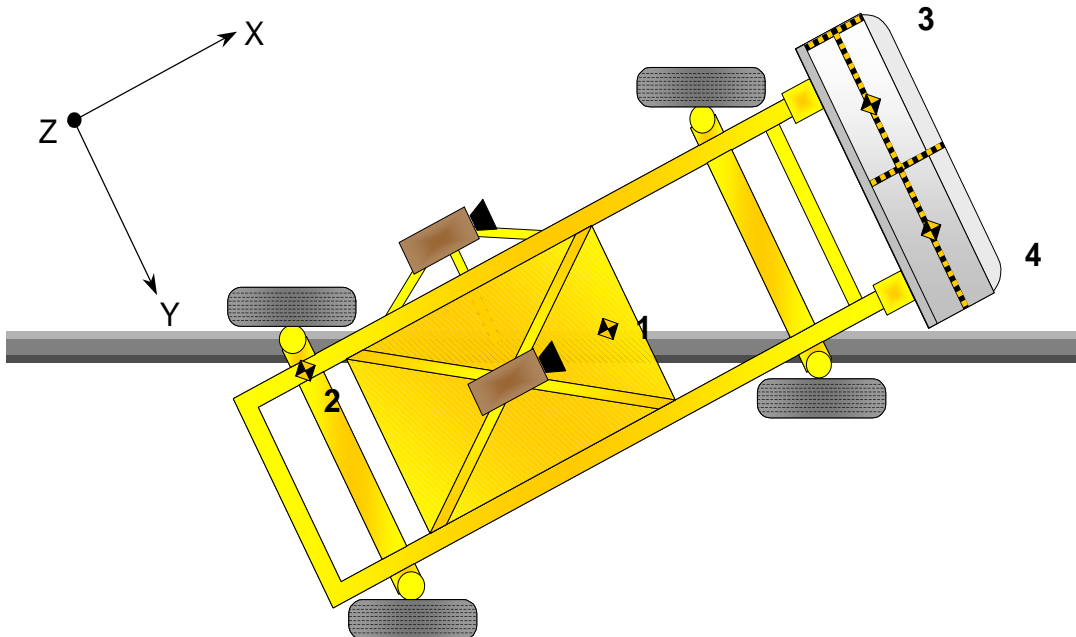
MDB ACCELEROMETER PEAK DATA AND LOCATIONS

Loc. No.	Accelerometer Location	Measurements (mm)			Peak Values (G's)				
		X	Y	Z	Axis	Max	Time	Min	Time
1	MDB CG	-1195	0	430	X	2.7	116.6	-22.3	32.9
					Y	2.8	133.4	-8.1	8.9
					Z	17.5	140.4	-23.2	130.1
					RES	23.2	130.1		
2	MDB Rear	-2642	-593	608	X	3.0	114.6	-23.2	31.8
					Y	3.3	64.8	-5.8	15.4

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	50.0	0.0
4	MDB Right Bumper	% F.S	101.0	2.4	50.0	26.8



DATA SHEET NO. 15

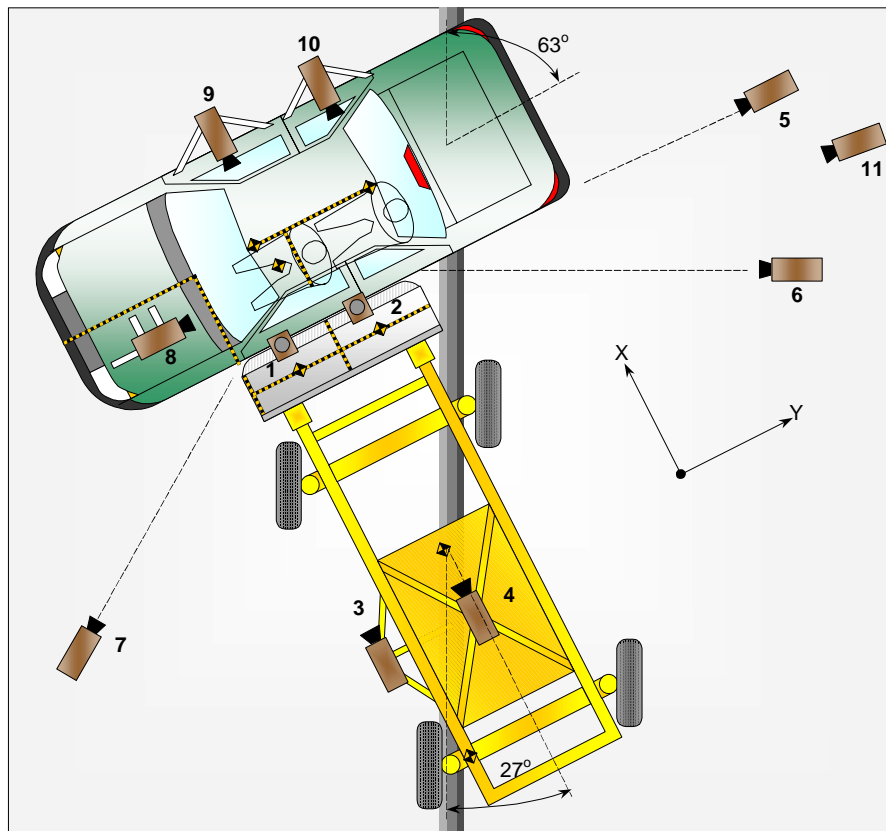
HIGH SPEED CAMERA LOCATIONS AND DATA

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No.: M30502

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

Test Date: 3/20/03



No.	Camera View	Location (mm)			Angle (deg.)	Lens (mm)	Film Speed (fr./sec.)
		X	Y	Z			
1	Overhead Overall	2438	609	5486	90	8	1000
2	Overhead Close-up	1676	-1067	5486	90	35	DNR
3	Impact Point	0	-2134	1143	7	13	550
4	Side Overall	838	-3912	1829	11	13	No Time
5	Rear	15545	228	1371	1	35-80	1000
6	Left Rear	16459	-7188	939	1	80	960
7	Left Front	-4775	-2666	1473	7	13	1000
7B	Left Front	-5080	-3531	1524	8	17	No Time
8	Driver Front	-508	508	1575	16	19	970
9	Driver Side	9144	1626	1321	7	6	1030
10	Rear Passenger	1676	1626	1321	7	6	1000
11	Overall	41148	64008	1575	1	100	510
12	Real Time	22860	3658	1727	5	17-20	24

DNR =Did Not Run

DATA SHEET NO. 16

FMVSS 301 FUEL SYSTEM INTEGRITY POST IMPACT DATA

Test Vehicle: 2003 BMW X5 3.0i SUV

NHTSA No.: M30502

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

Test Date: 3/20/03

Test Time: 1:28 PM

Temperature at Time of Impact: 14.4 °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

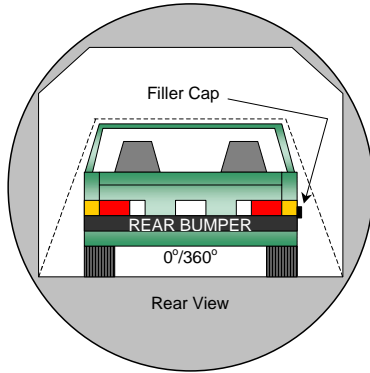
DATA SHEET NO. 17
FMVSS 301 STATIC ROLLOVER DATA SHEET

Test Vehicle: 2003 BMW X5 3.0i SUV

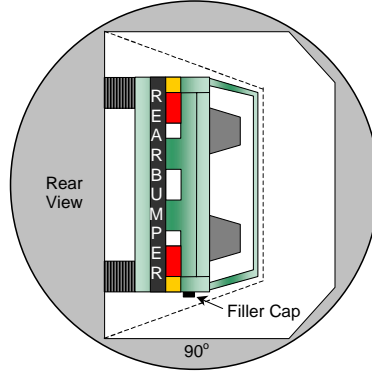
NHTSA No.: M30502

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

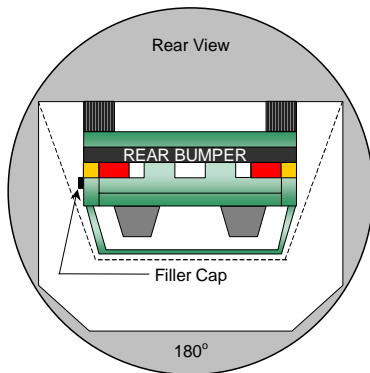
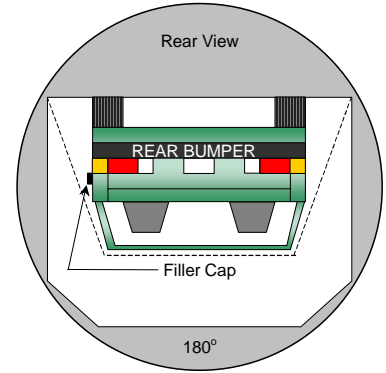
Test Date: 3/20/03



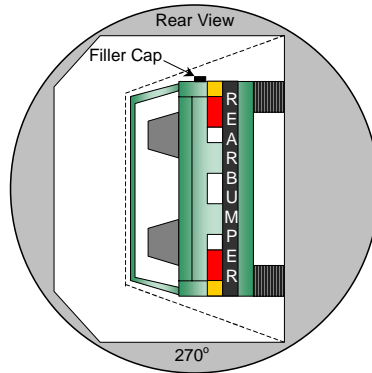
0° TO 90°



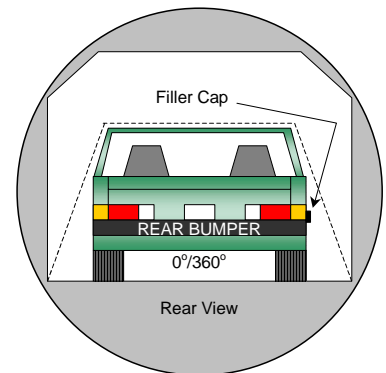
90° TO 180°



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°	79	300	0.0
180° TO 270°	79	300	0.0
270° TO 360°	79	300	0.0

**APPENDIX A
PHOTOGRAPHS**

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Figure A-1: Left Front, as Received



Figure A-2: Right Rear, as Received



X5 3.0i VEHICLE TYPE: MULTIPURPOSE PASSENGER VEHICLE
MFD BY BAYERISCHE MOTORENWERKE AG 01/03

GVWR 6005 lbs 2724 kg
GAWR FRONT 2787 lbs 1264 kg REAR 3307 lbs 1500 kg

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

5UXFA53503LV84171



7 012 956

Figure A-3: Vehicle Certification Label

CORRECT TIRE PRESSURE IS ESSENTIAL FOR YOUR AND EVERYBODY'S SAFETY. INCORRECT TIRE PRESSURE CAN LEAD TO A SERIOUS CRASH (NO VEHICLE STABILITY, TIRE DESTRUCTION).
 LA CORRECTE PRESSION DE GONFLAGE DE PNEUS EST ESSENTIELLE POUR VOTRE SECURITE ET CELLE DES AUTRES. UNE PRESSION INCORRECTE DE GONFLAGE PEUT MENER A DES COLLISIONS GRAVES (PAS DE STABILITE DU VEHICULE, DESTRUCTION DE PNEU).

GROSS VEHICLE WEIGHT RATING 2724 KG (6005 LBS) POIDS BRUT NOMINAL D'UN VEHICULE 2724 KG (6005 LBS)		DESIGNATED SEATING CAPACITY 5 NOMBRE DE PLACES DESIGNEE	FRONT/AVANT 2		REAR/ARRIERE 3	
RECOMMENDED TIRE SIZE AND RIM DIMENSION RECOMMANDEE DES PNEU ET DE JANTE		COLD TIRE INFLATION PRESSURE/ PRESSION DE GONFLAGE A FROID	KPA	PSI	KPA	PSI
235/65 R 17 104 H M+S		GROSS AXLE WEIGHT RATING 1264 KG (2787 LBS) FRONT AND 1500 KG (3307 LBS) REAR LIMITE DE CHARGE D'ESSIEU AVANT 1264 KG (2787 LBS) ET D'ESSIEU ARRIERE 1500 KG (3307 LBS)	220	32	270	39
255/55 R 18 105 H M+S			▲ 220	▲ 32	● 270	● 39
255/55 R 18 105 V		AXLE WEIGHT RATING UP TO 1205 KG (2657 LBS) FRONT AND UP TO 1285 KG (2833 LBS) REAR CHARGE SUR L'ESSIEU AVANT JUSQU'A 1205 KG (2657 LBS) ET SUR L'ESSIEU ARRIERE JUSQU'A 1285 KG (2833 LBS)	■ 420	■ 61	■ 420	■ 61
235/65 R 17 104 Q M+S						
255/55 R 18 105 Q M+S						
▲ 255/50 R 19 103 V			220	32	220	32
▲ 275/40 R 20 102 W			▲ 220	▲ 32	● 220	● 32
● 285/45 R 19 107 V			■ 420	■ 61	■ 420	■ 61
● 315/35 R 20 106 W						
■ T 155/90 D 18 113 M						
7 1/2 J x 17						
8 1/2 J x 18						
8 1/2 J x 18						
7 1/2 J x 17						
8 J x 18 OR 8 1/2 J x 18						
9 J x 19						
9 1/2 J x 20						
10 J x 19						
10 1/2 J x 20						
5 J x 18						

BMW

6 757 855 b

A-4

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Figure A-4: Vehicle Tire Label



Figure A-5: Front View, Pre-Test



Figure A-6: Front View, Post-Test



Figure A-7: Left Front $\frac{3}{4}$ View, Pre-Test



Figure A-8: Left Front ¾ View, Post-Test



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



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



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Figure A-11: Left Rear ¾ View, Pre-Test



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Figure A-12: Left Rear 3/4 View, Post-Test



Figure A-13: Rear View, Pre-Test



Figure A-14: Rear View, Post-Test



Figure A-15: Overhead Overall View, Pre-Test



Figure A-16: Overhead Overall View, Post-Test



Figure A-17: Overhead Close-up View, Pre-Test

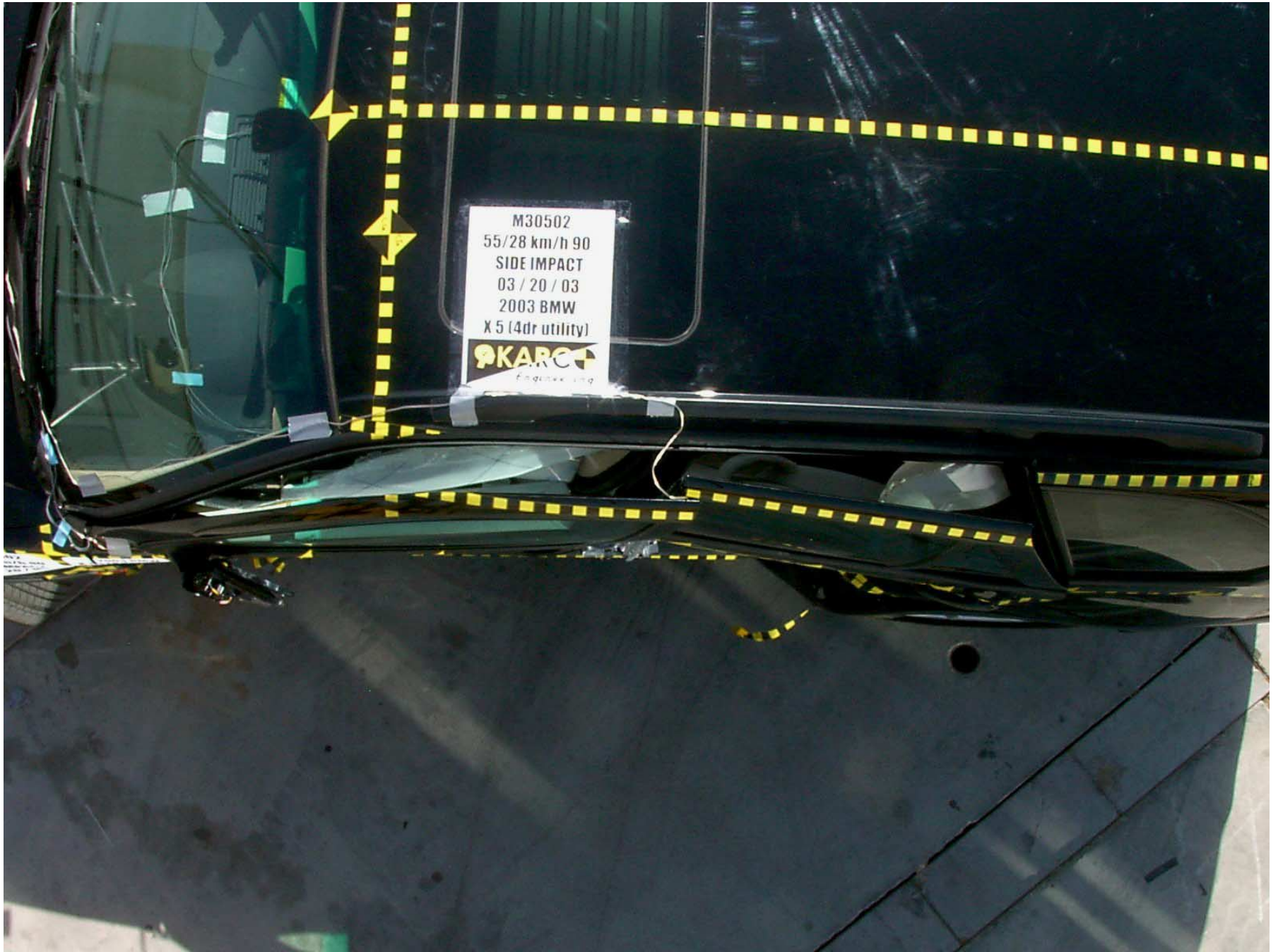


Figure A-18: Overhead Close-up View, Post-Test



Figure A-19: Impact Point Target Set-up, Pre-Test



Figure A-20: Impact Point Target, Post-Test



Figure A-21: Front $\frac{3}{4}$ View of Left Side Doors, Pre-Test



Figure A-22: Front ¾ View of Left Side Doors, Post-Test



Figure A-23: Rear ¾ View of Left Side Doors, Pre-Test



Figure A-24: Rear ¾ View of Left Side Doors, Post-Test



Figure A-25: Left Front Door Closed, Pre-Test



Figure A-26: Left Front Door Closed, Post-Test



Figure A-27: Left Rear Door Closed, Pre-Test



Figure A-28: Left Rear Door Closed, Post-Test



Figure A-29: Driver Dummy Left Side with Door Open, Pre-Test



Figure A-30: Driver Dummy Left Side, Pre-test



Figure A-31: Driver Dummy Left Side, Post-Test



Figure A-32: Driver Dummy Clearance, Pre-Test



Figure A-33: Driver Dummy Clearance, Post-Test



Figure A-34: Driver Dummy Inside View, Pre-Test



Figure A-35: Driver Dummy Inside View, Post-Test



Figure A-36: Driver Door Inside View, Pre-Test



Figure A-37: Driver Dummy Contact Points Inside View, Post-Test (Vehicle Moved)



Figure A-38: Passenger Dummy Left Side with Door Open, Pre-Test



Figure A-39: Passenger Dummy Left Side, Pre-Test



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Figure A-40: Passenger Dummy Left Side, Post-Test



Figure A-41: Passenger Dummy Clearance, Pre-Test



Figure A-42: Passenger Dummy Clearance, Post-Test



Figure A-43: Passenger Dummy Inside View, Pre-Test



Figure A-44: Passenger Dummy Inside View, Post-Test



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Figure A-45: Passenger Door Inside View, Pre-Test



Figure A-46: Passenger Dummy Contact Points Inside View, Post-Test (Vehicle Moved)



Figure A-47: Front View of Deformable Barrier, Pre-Test



Figure A-48: Front View of Deformable Barrier, Post-Test

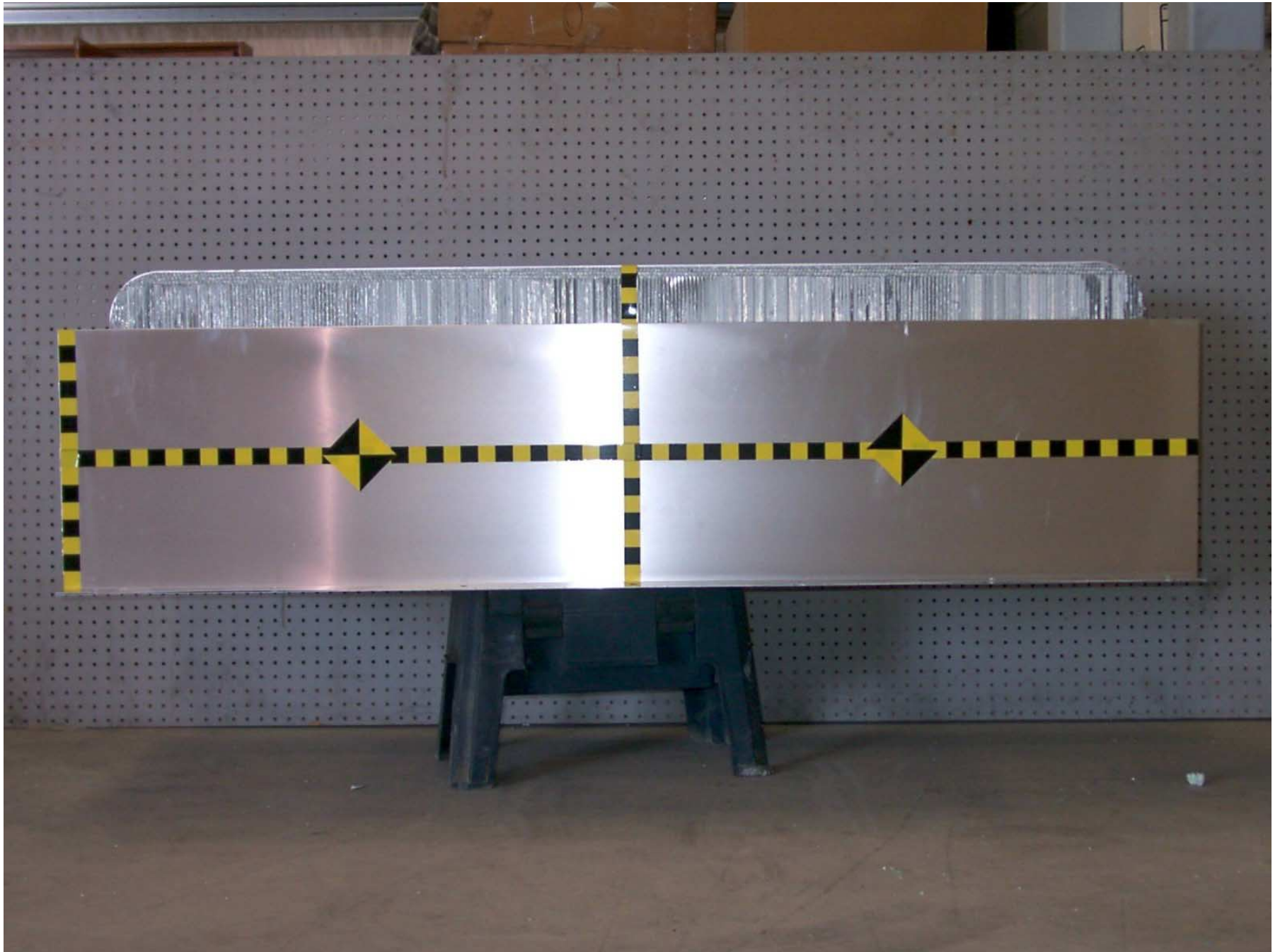


Figure A-49: Top View of Deformable Barrier, Pre-Test



Figure A-50: Top View of Deformable Barrier, Post-Test



Figure A-51: Right Side View of Deformable Barrier, Pre-Test



Figure A-52: Right Side View of Deformable Barrier, Post-Test



Figure A-53: Left Side View of Deformable Barrier, Pre-Test



Figure A-54: Left Side View of Deformable Barrier, Post-Test



Figure A-55: Vehicle on Rollover Device, Top View



Figure A-56: Vehicle During Impact

APPENDIX B
SID, VEHICLE, AND MDB RESPONSE DATA

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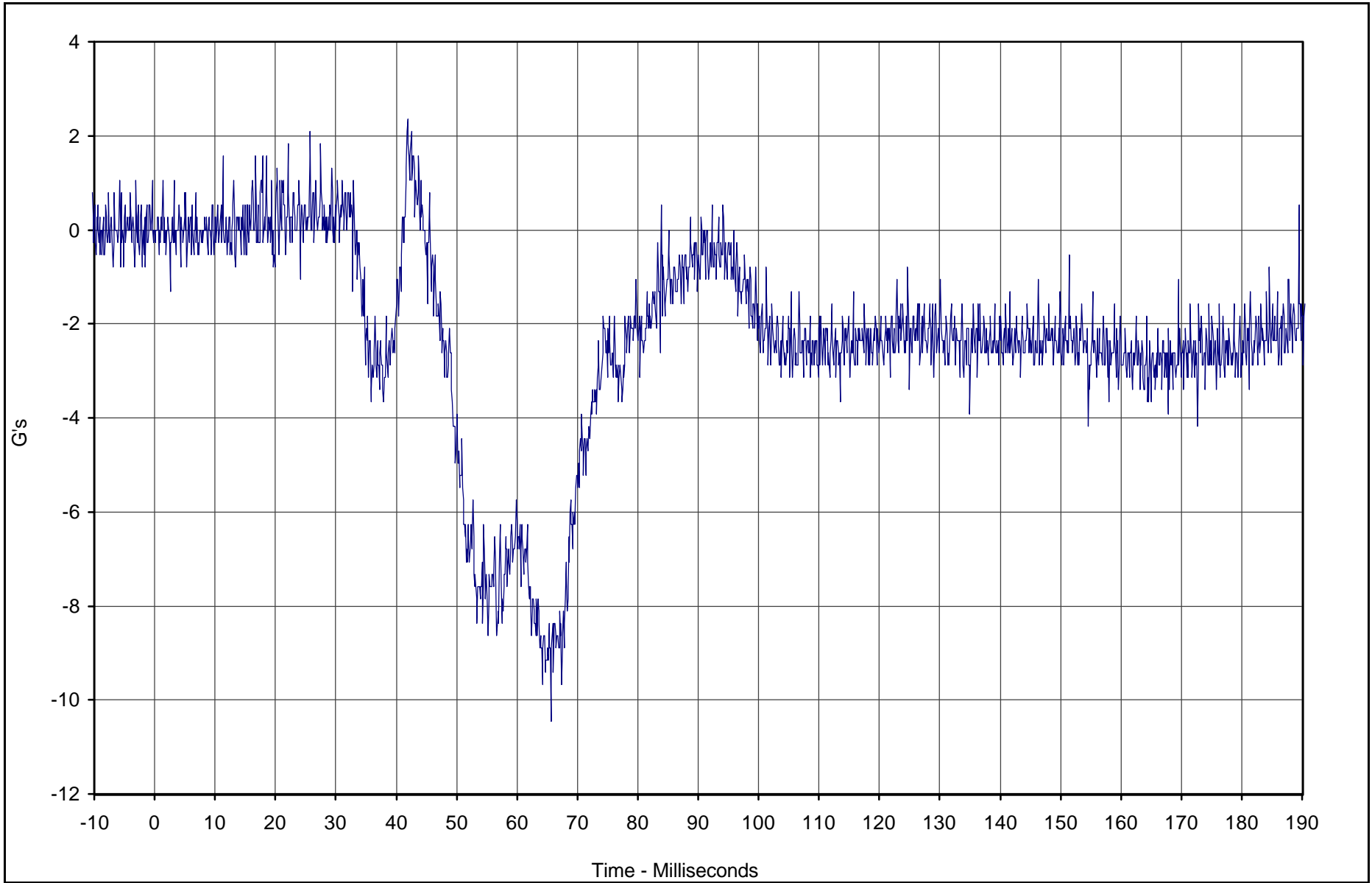
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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary X	001	FIL	G's	2.4	41.9	-10.5	65.6	1000

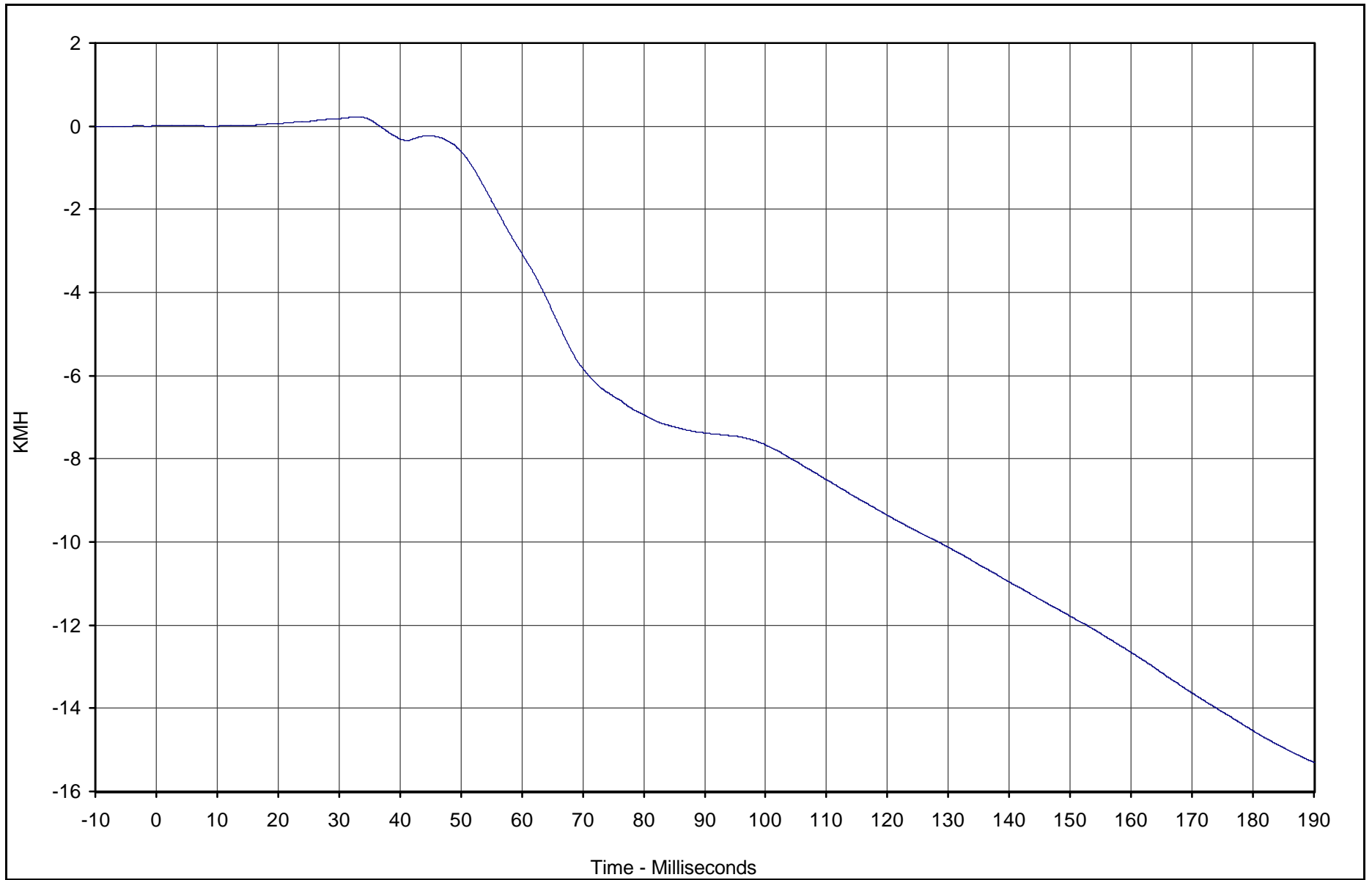


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary X Velocity	001	IN1	KMH	0.2	33.1	-15.3	189.9	180

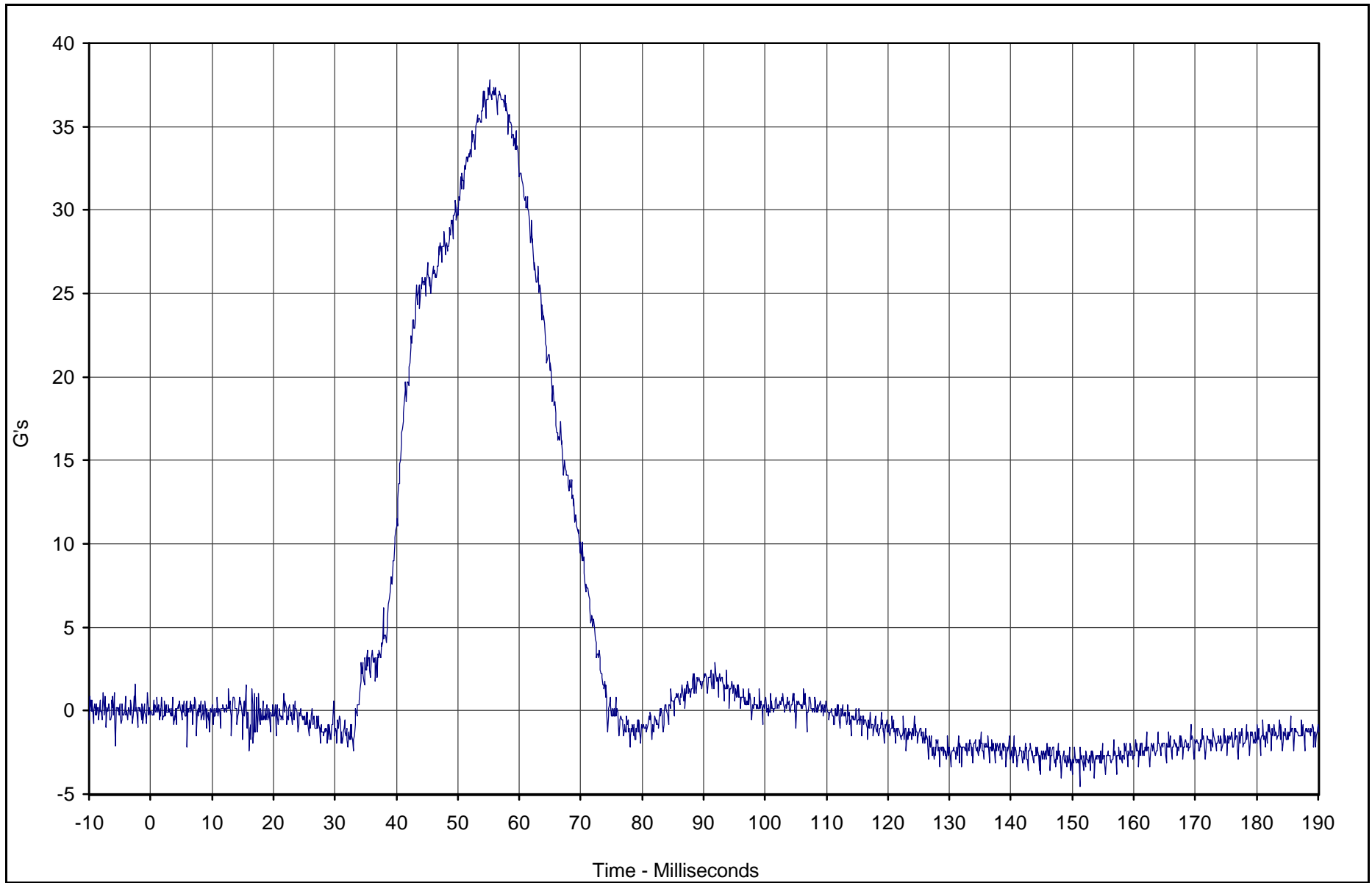


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary Y	002	FIL	G's	37.8	55.2	-4.5	151.2	1000



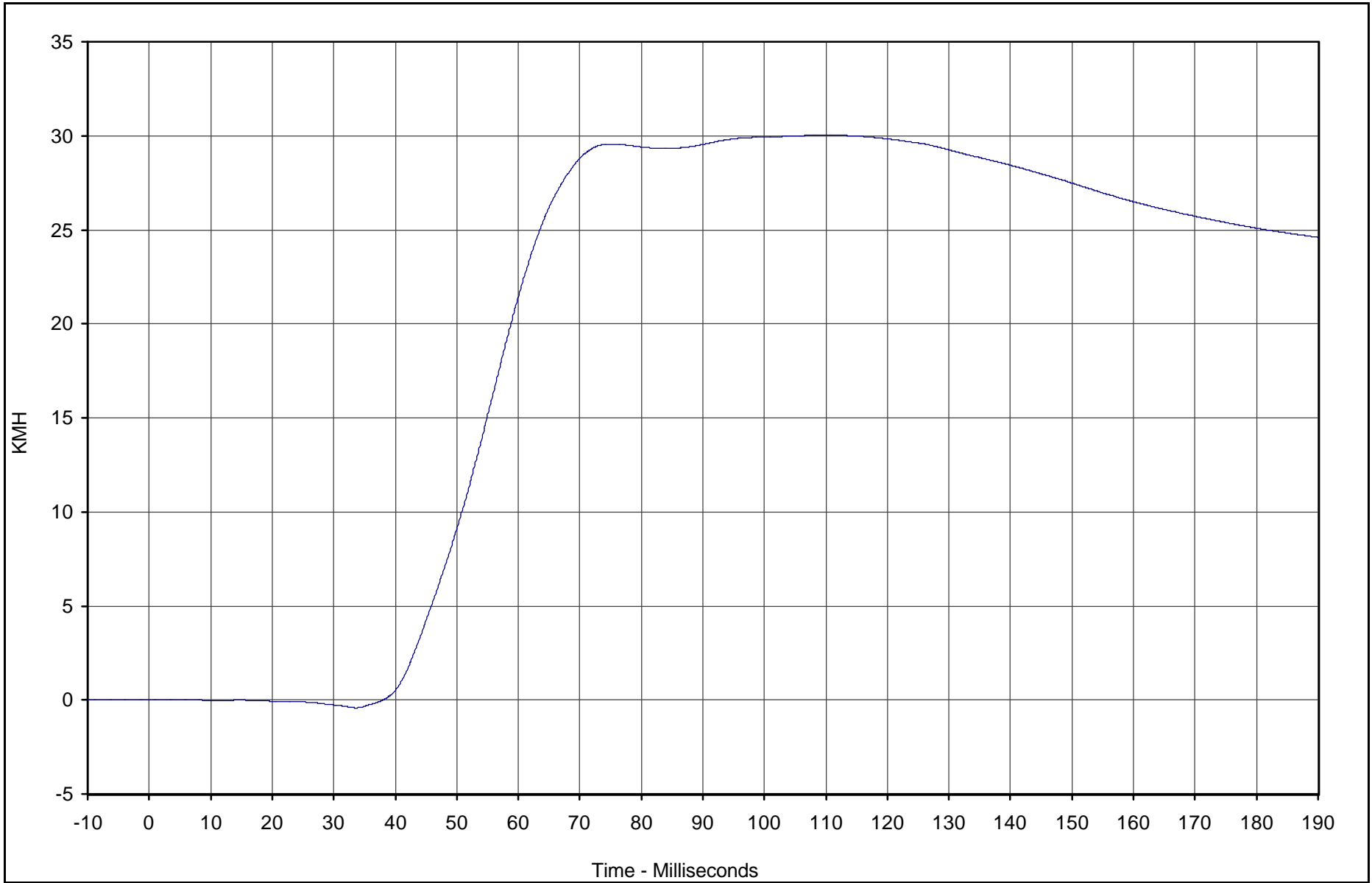
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Test Date: 3/20/03

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

NHTSA No.: M30502

B-4



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary Y Velocity	002	IN1	KMH	30.0	110.1	-0.4	33.6	180



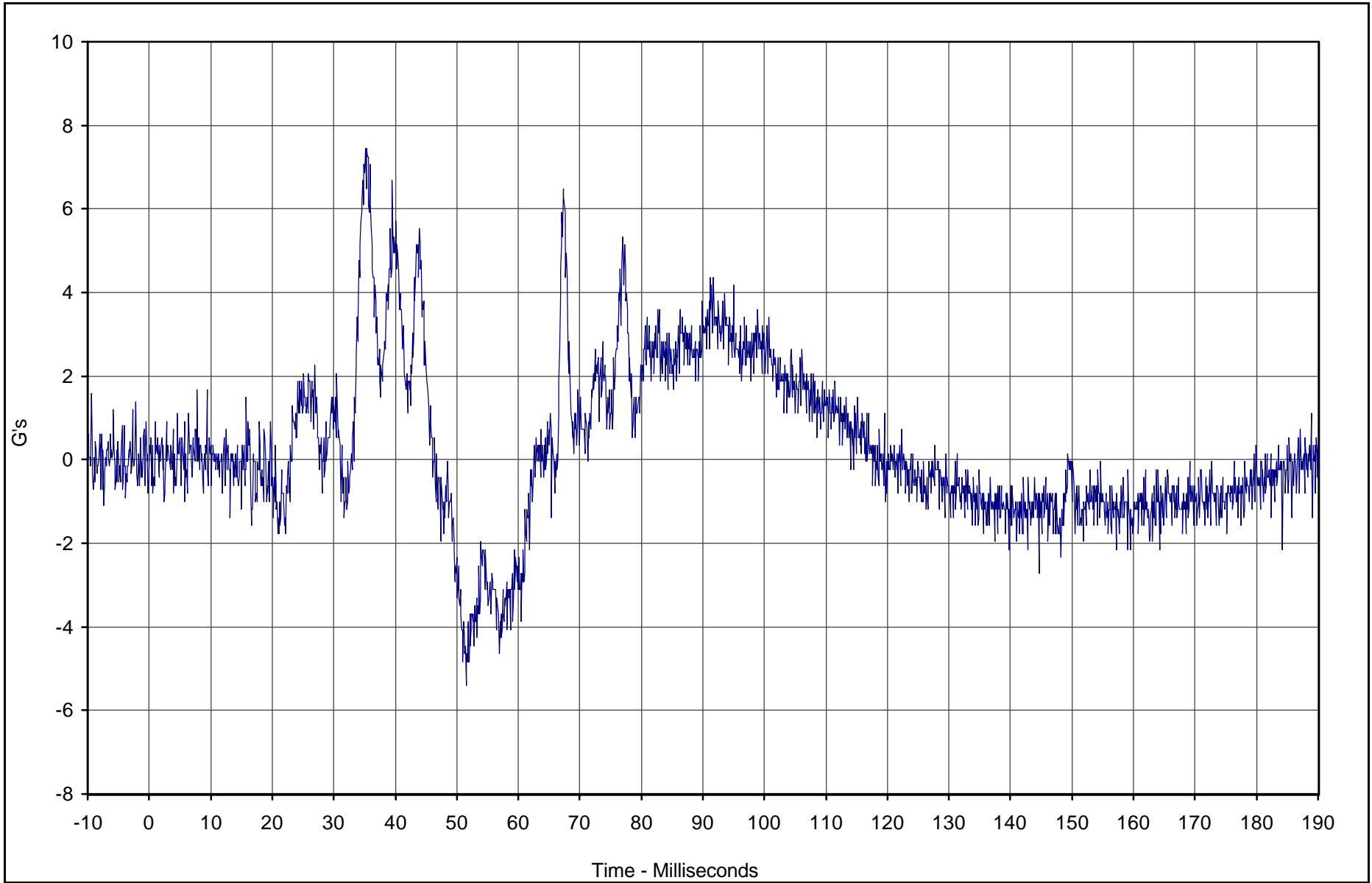
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Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary Z	003	FIL	G's	7.4	35.1	-5.4	51.5	1000



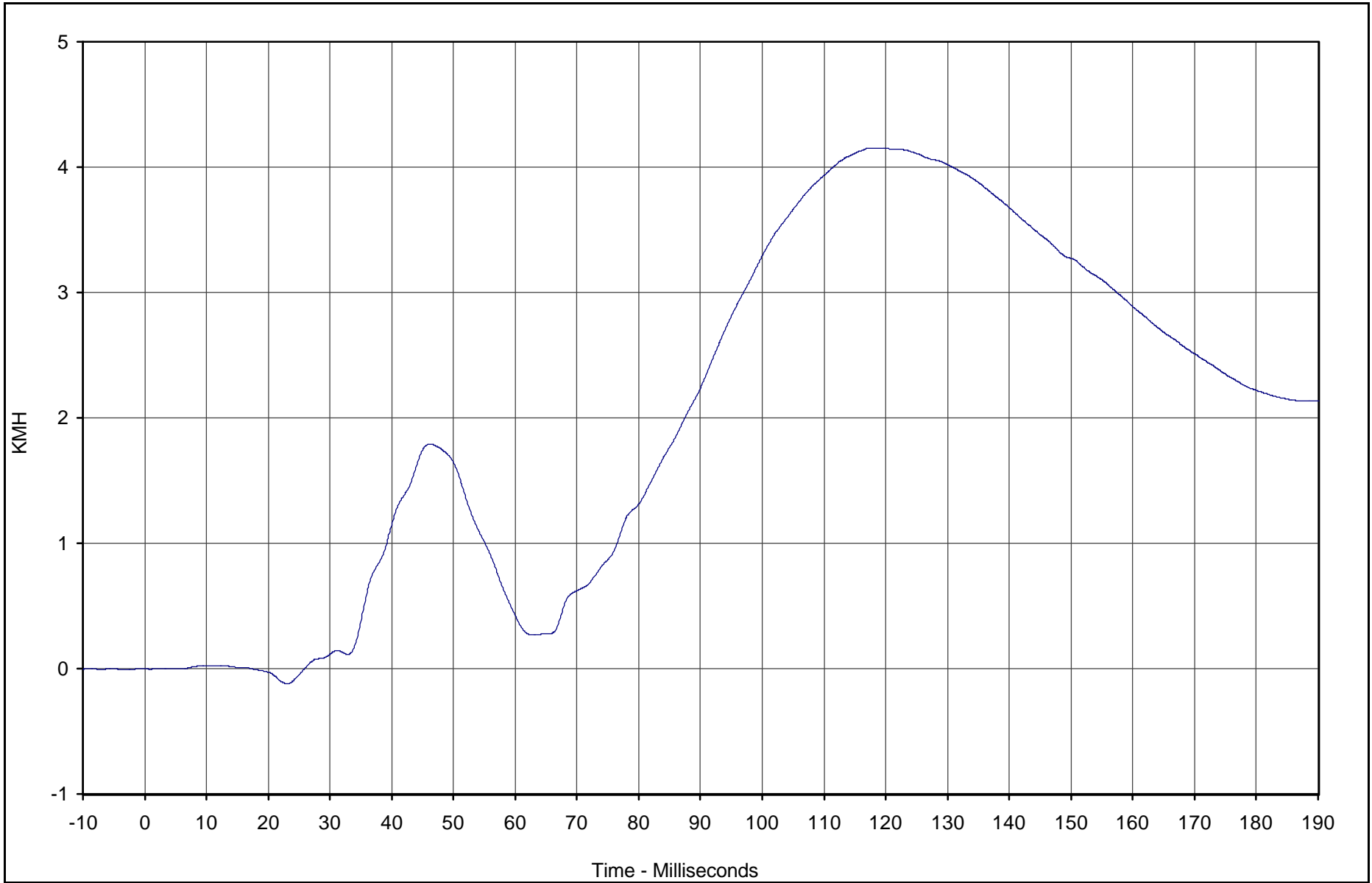
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Test Date: 3/20/03

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

NHTSA No.: M30502

B-6



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Primary Z Velocity	003	IN1	KMH	4.2	118.0	-0.1	23.0	180



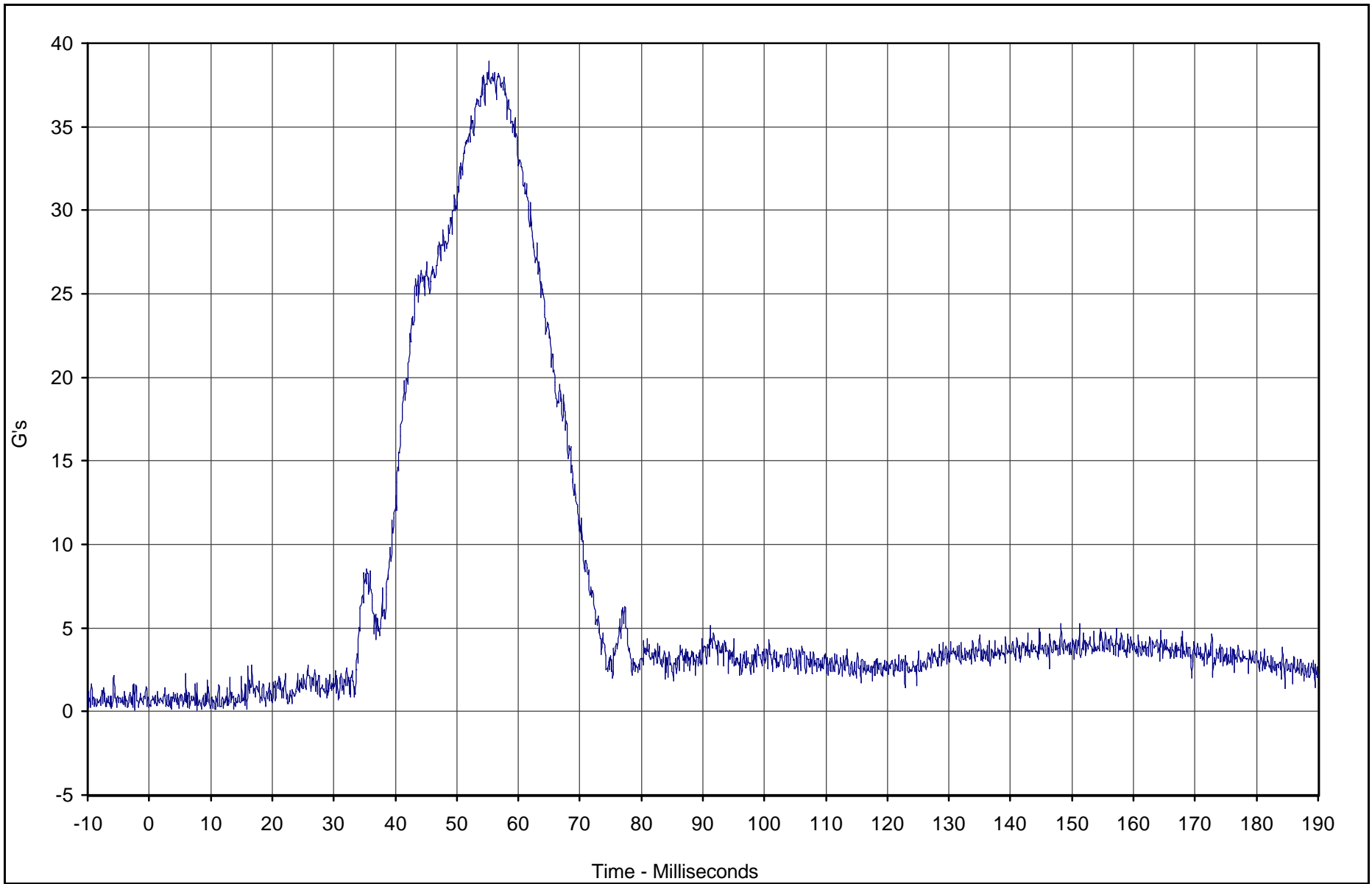
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Resultant Primary	001	RES	G's	38.9	55.2	0.1	3.7	1000

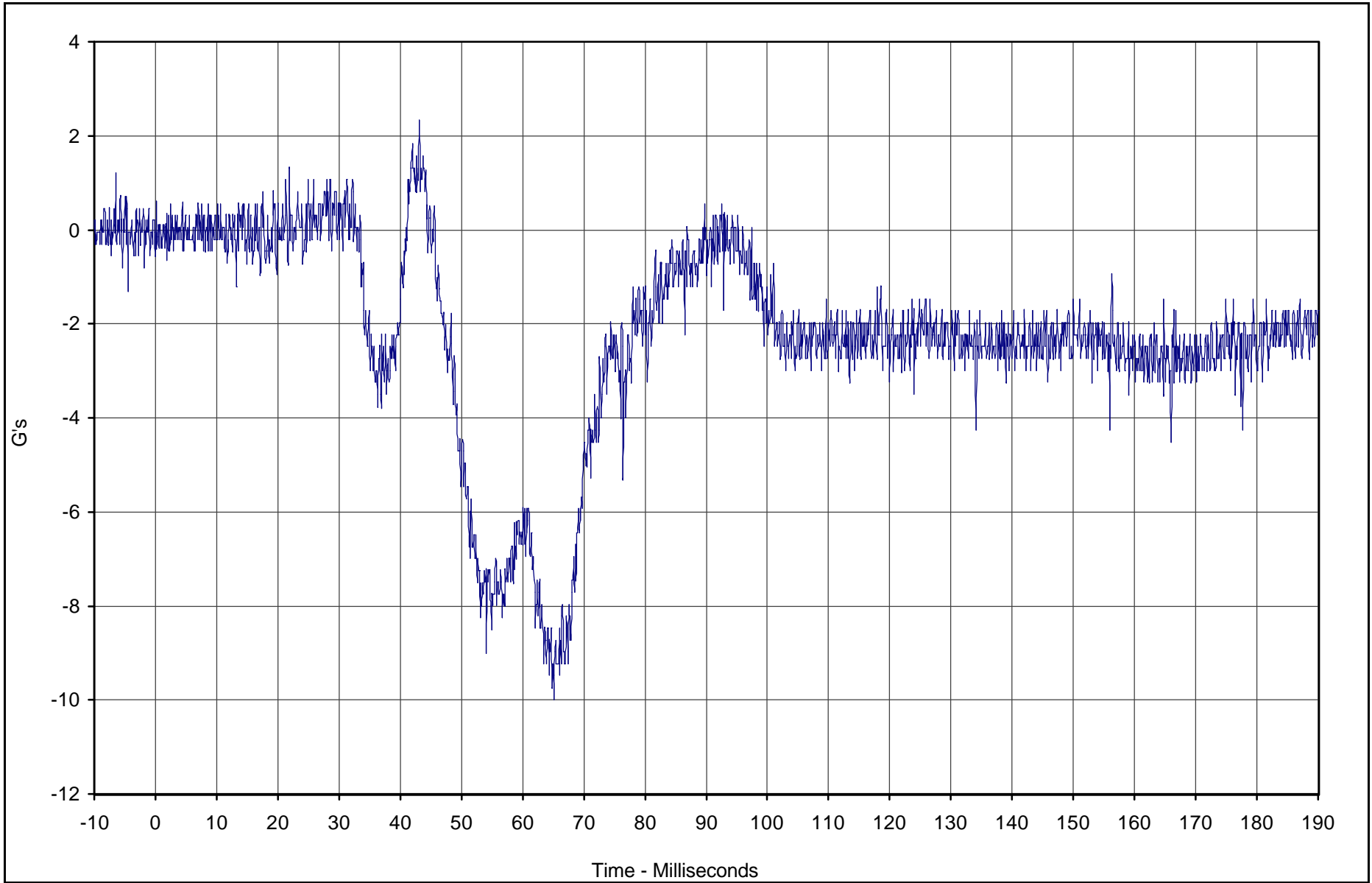


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant X	004	FIL	G's	2.3	43.1	-10.0	65.1	1000

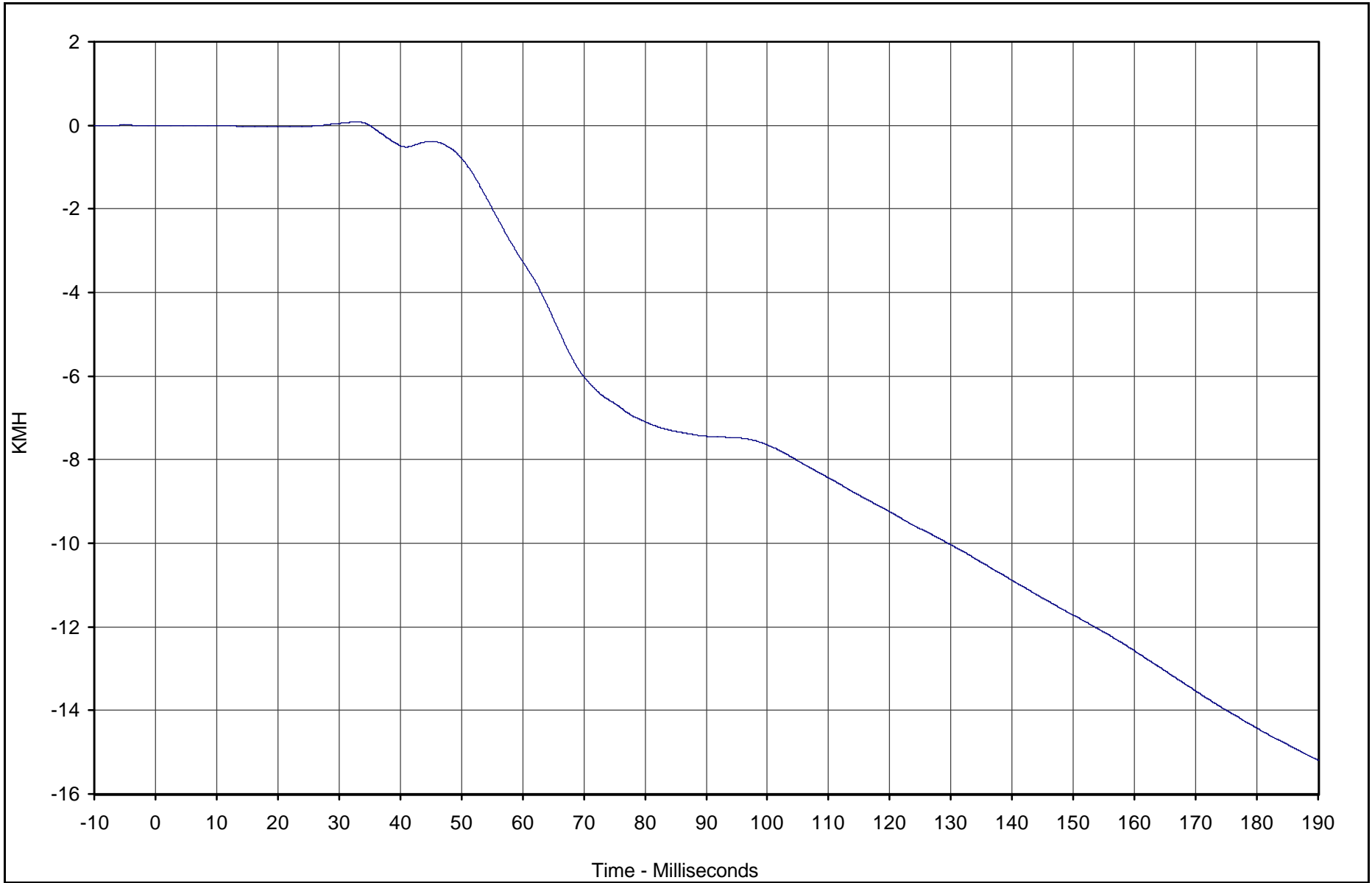


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant X Velocity	004	IN1	KMH	0.1	32.9	-15.2	189.9	180

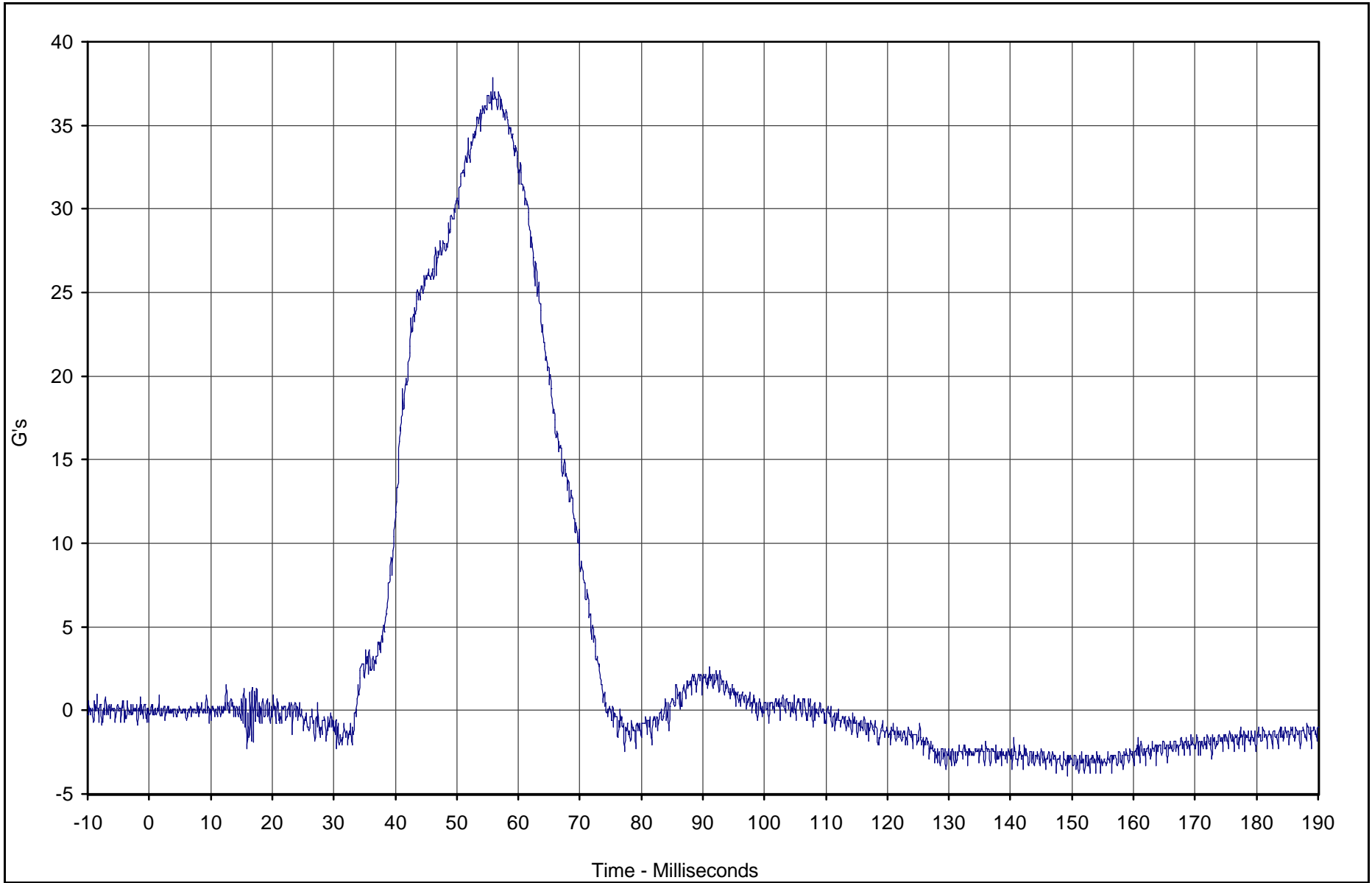


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant Y	005	FIL	G's	37.8	55.8	-4.0	149.3	1000



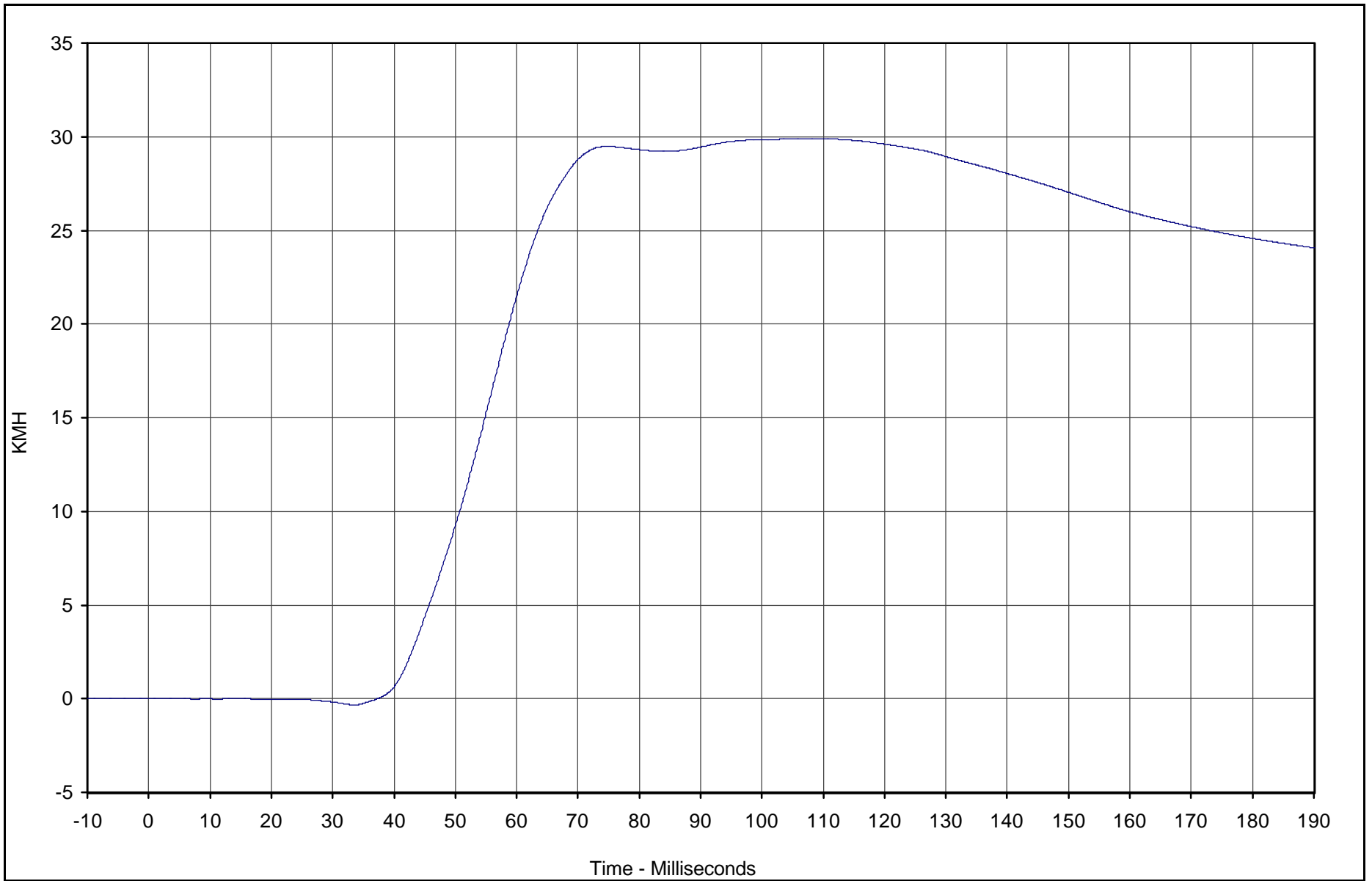
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Test Date: 3/20/03

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

NHTSA No.: M30502

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant Y Velocity	005	IN1	KMH	29.9	107.7	-0.3	33.6	180



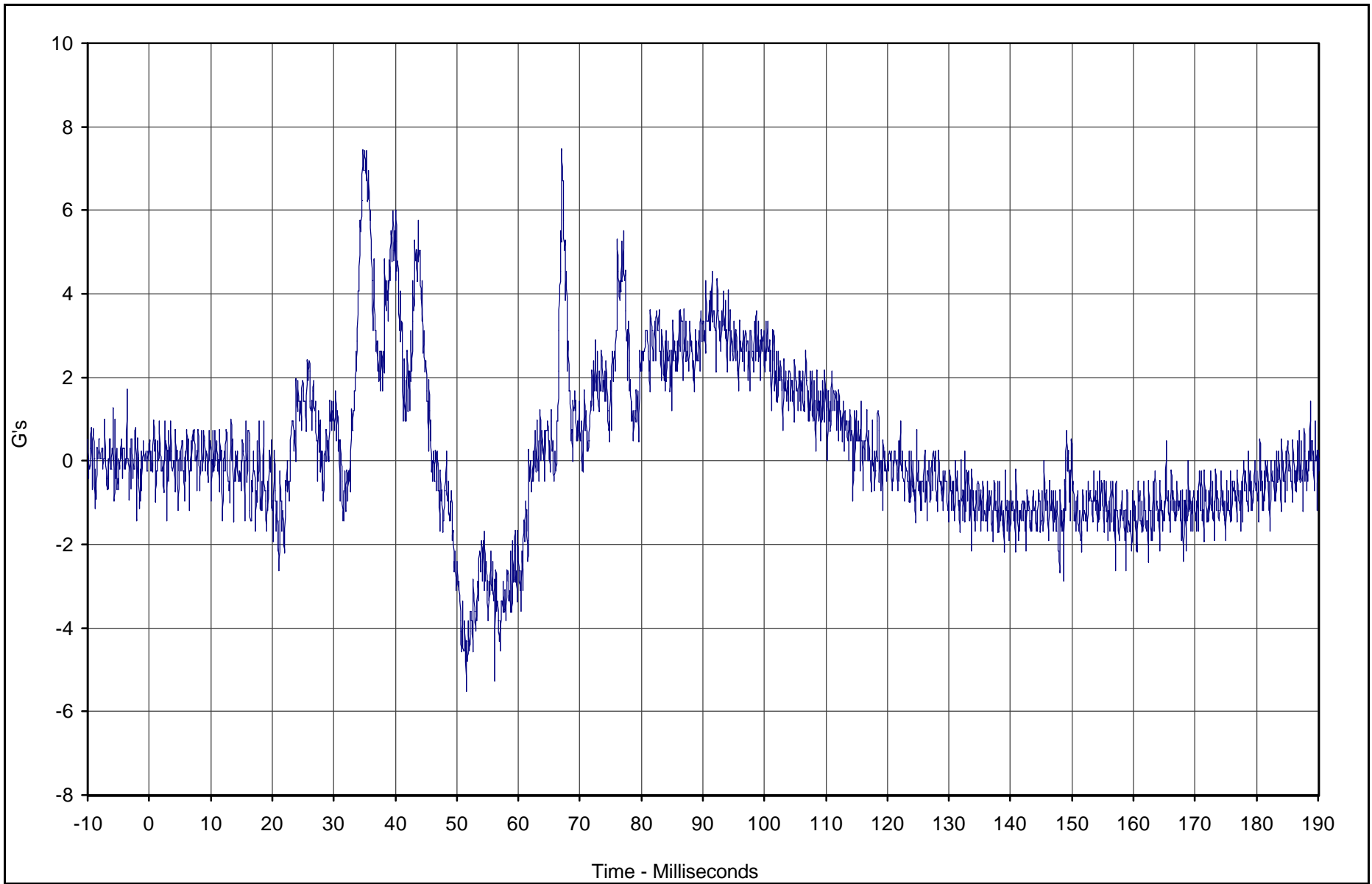
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant Z	006	FIL	G's	7.4	34.7	-5.5	51.5	1000

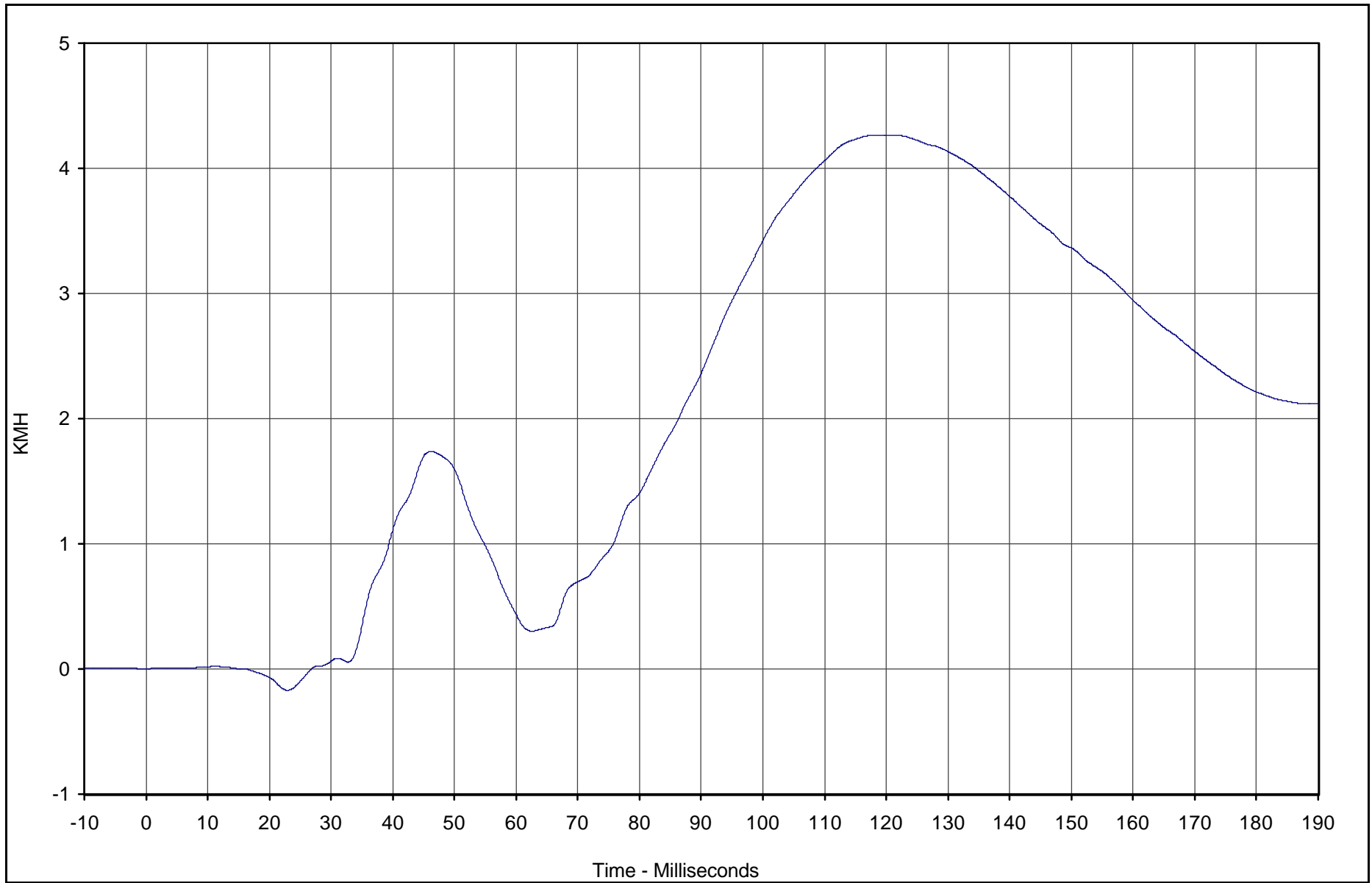


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Redundant Z Velocity	006	IN1	KMH	4.3	118.9	-0.2	22.9	180

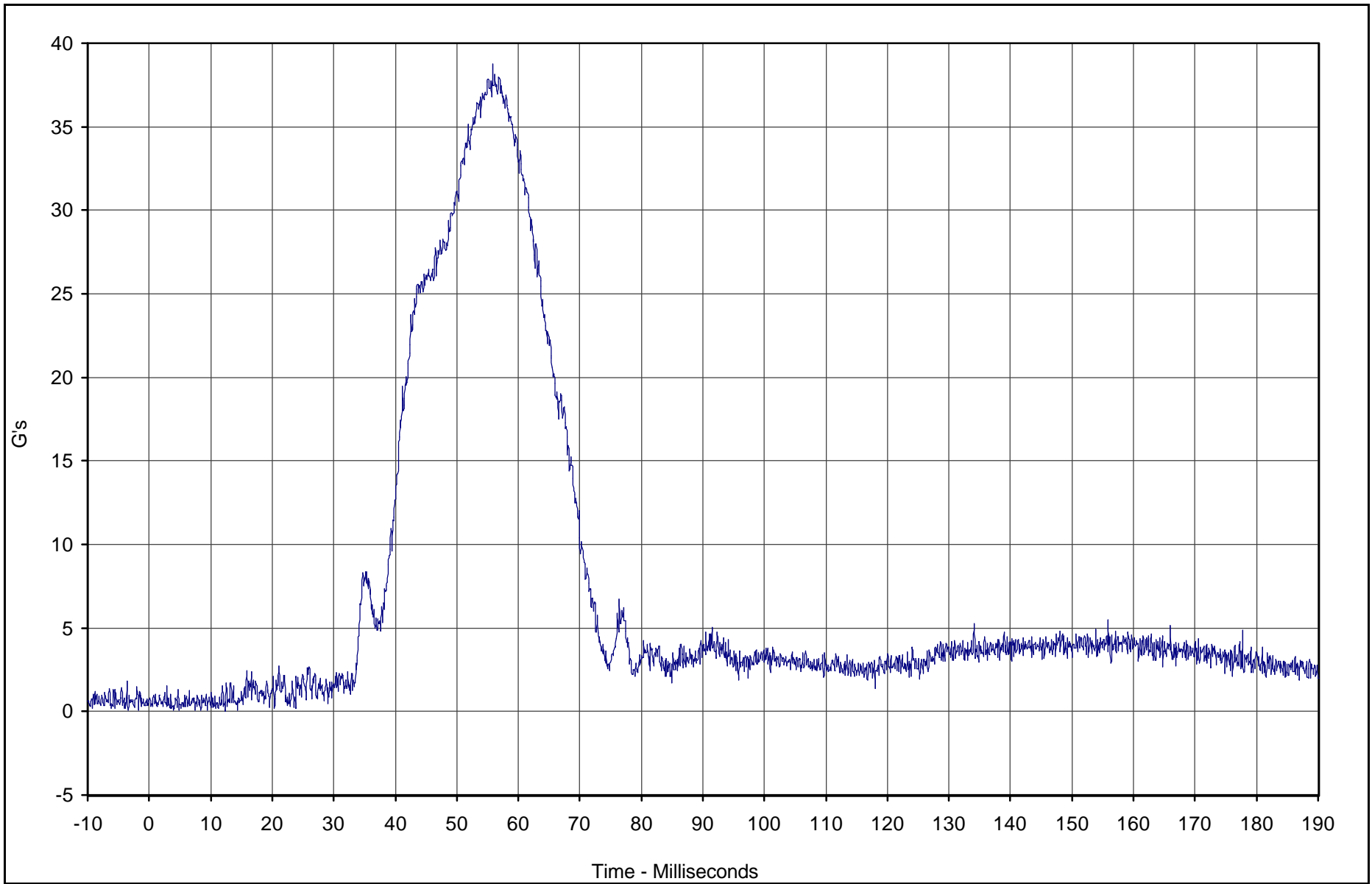


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Head Resultant Redundant	004	RES	G's	38.7	55.8	0.1	4.0	1000

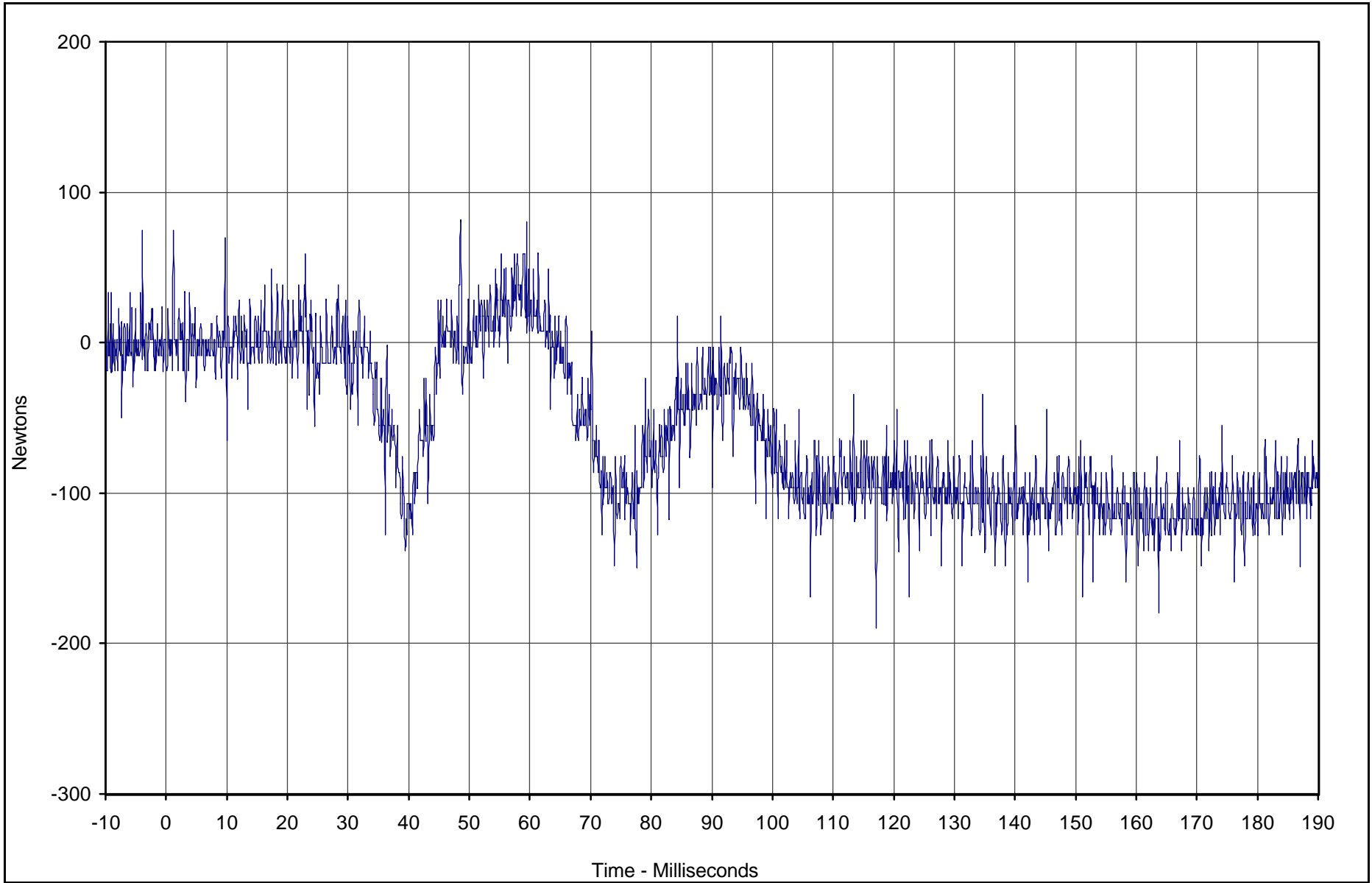


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force X	007	FIL	Newtons	80.1	48.6	-190.0	117.1	1000

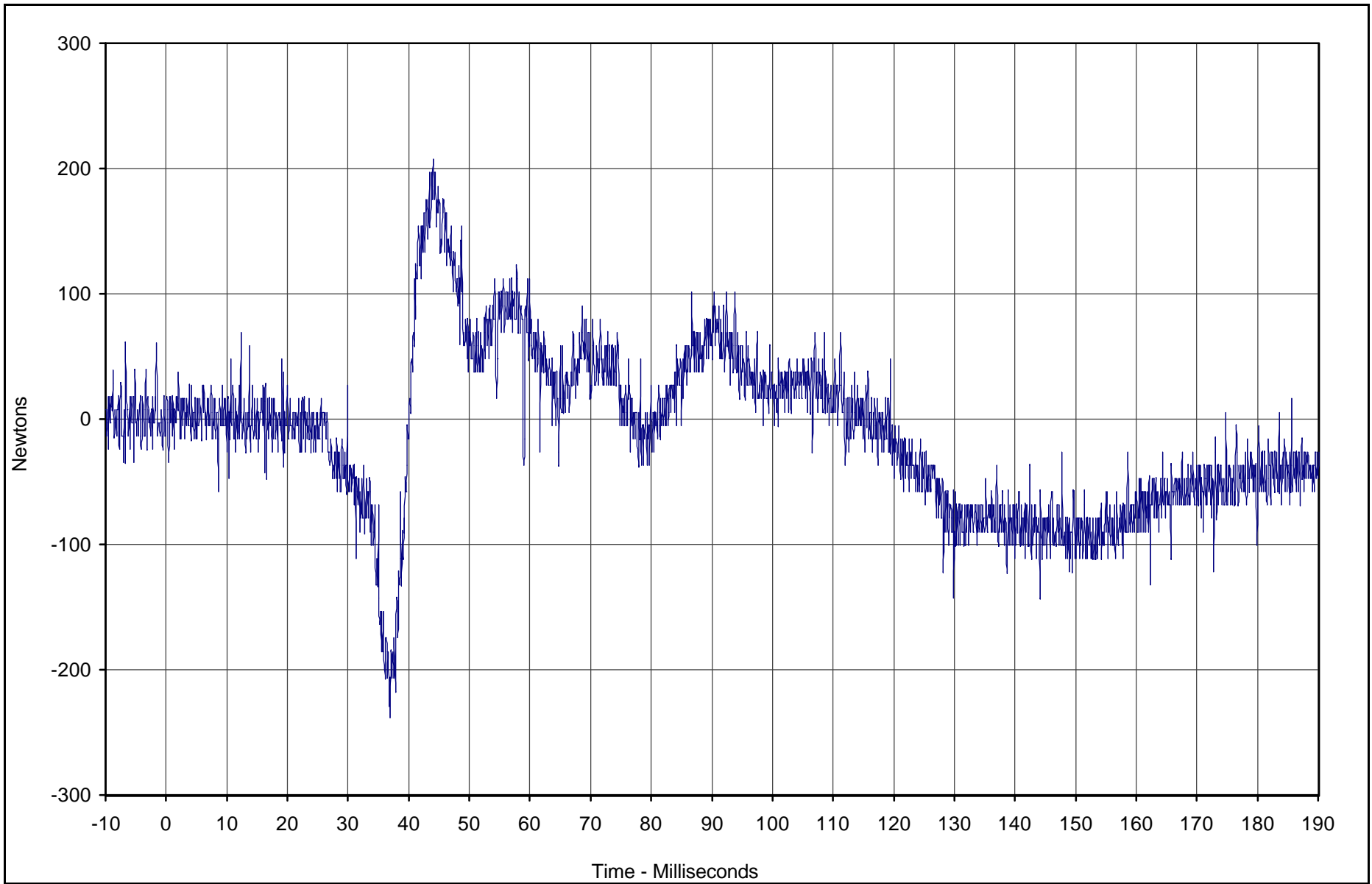


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force Y	008	FIL	Newtons	207.3	44.1	-238.5	37.0	1000

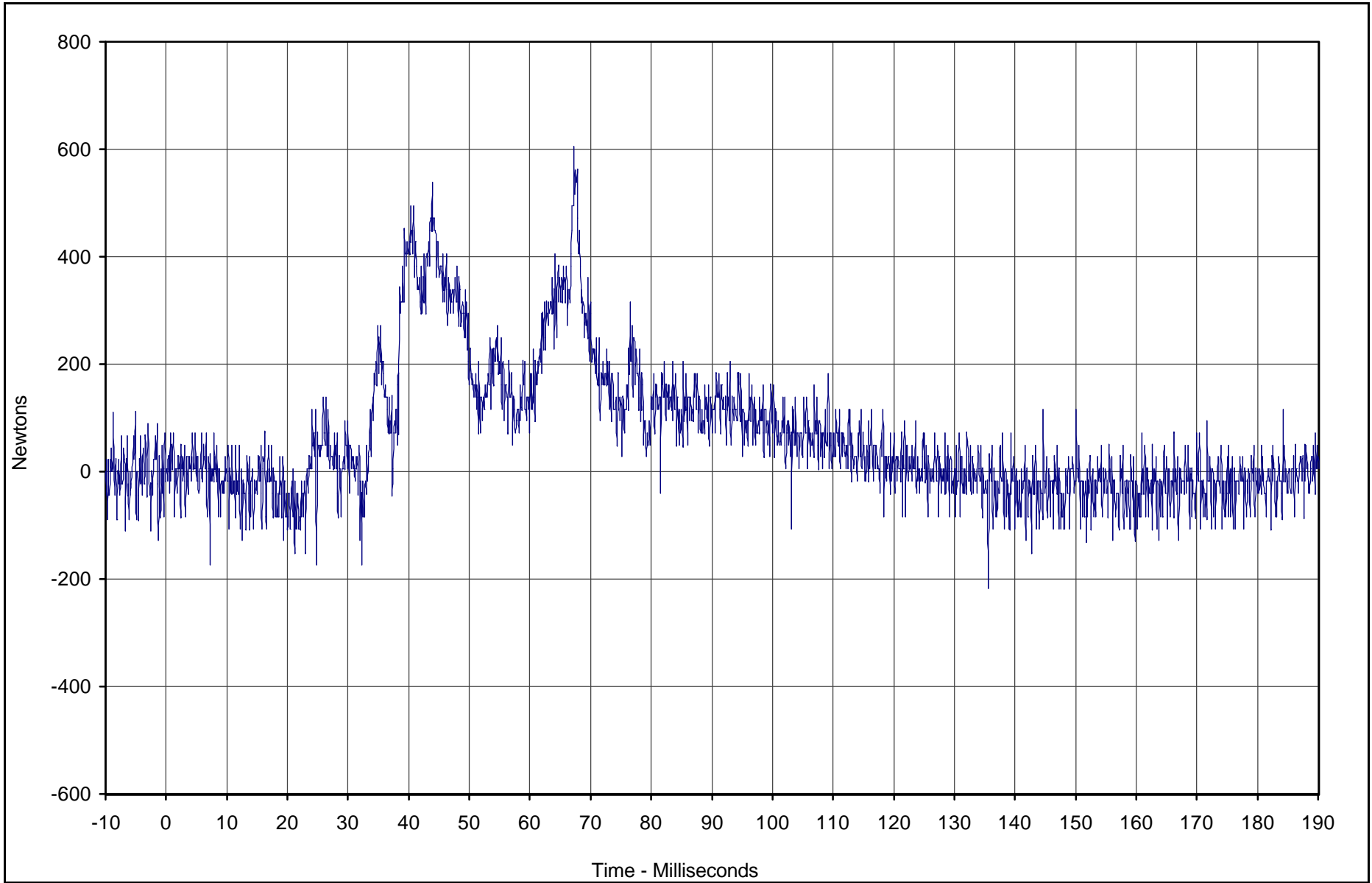


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force Z	009	FIL	Newtons	605.5	67.3	-217.4	135.6	1000

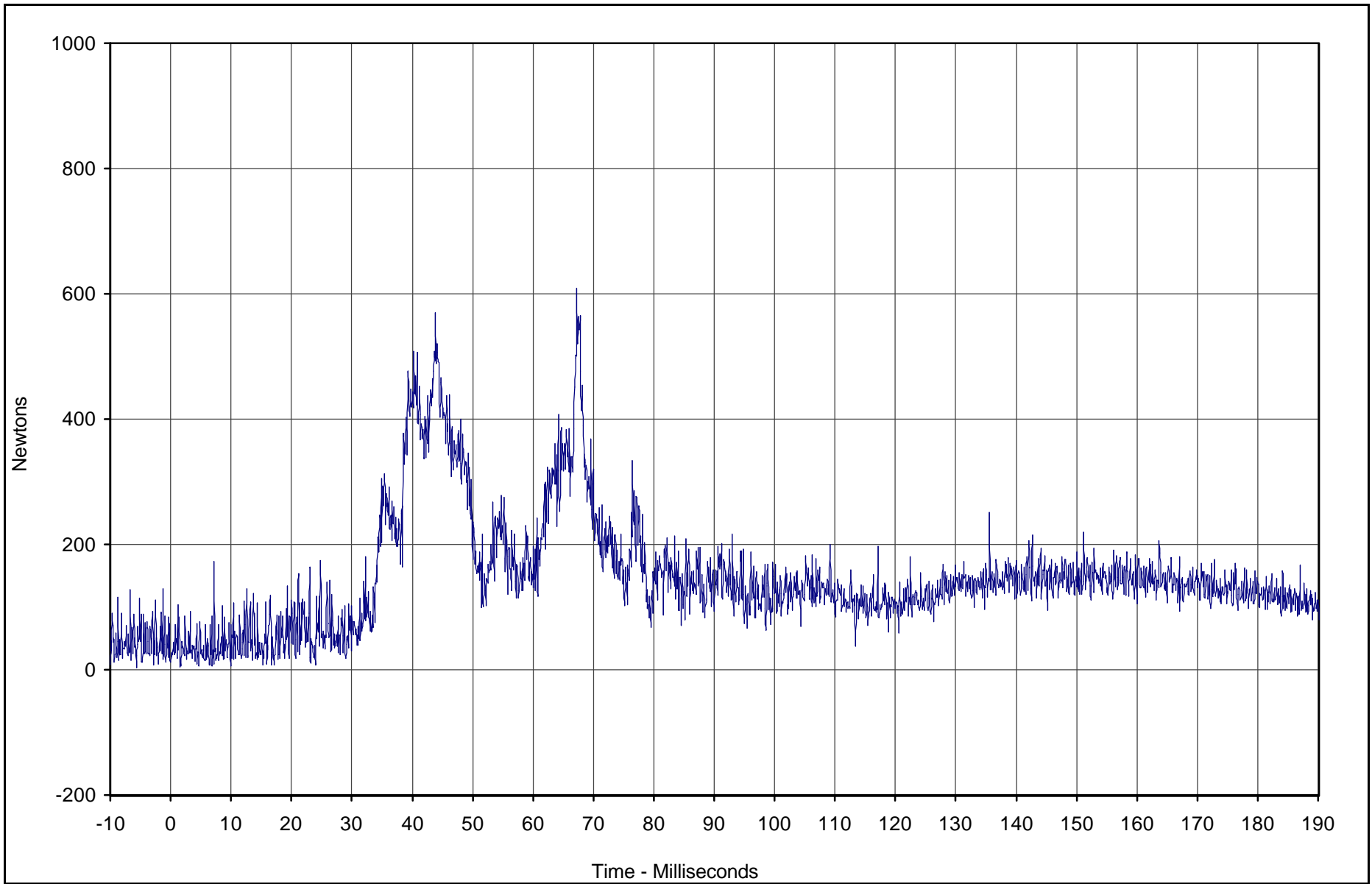


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Force Resultant	007	RES	Newtons	608.6	67.3	6.2	1.5	1000

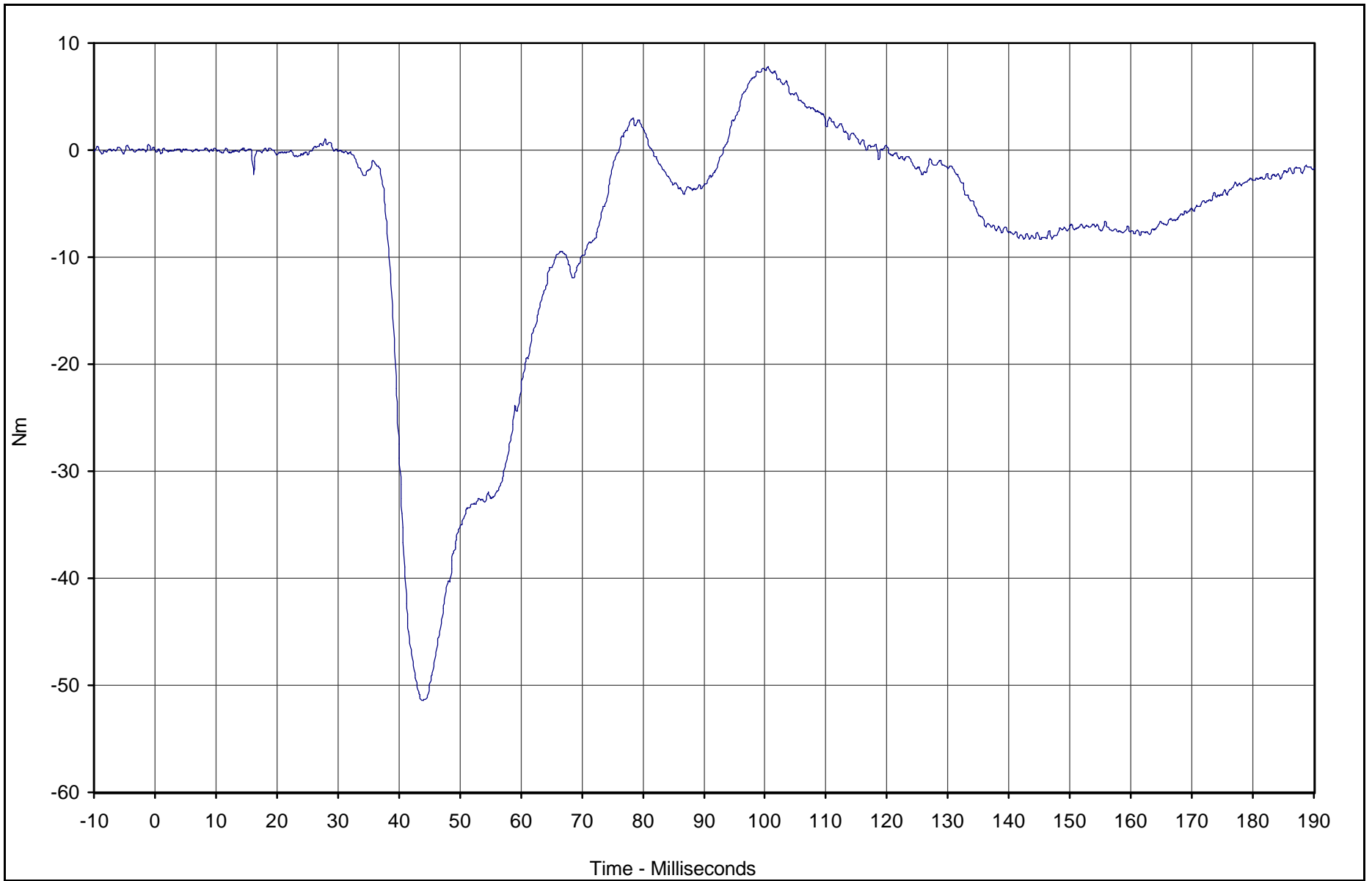


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment X	010	FIL	Nm	7.8	100.5	-51.4	43.8	600



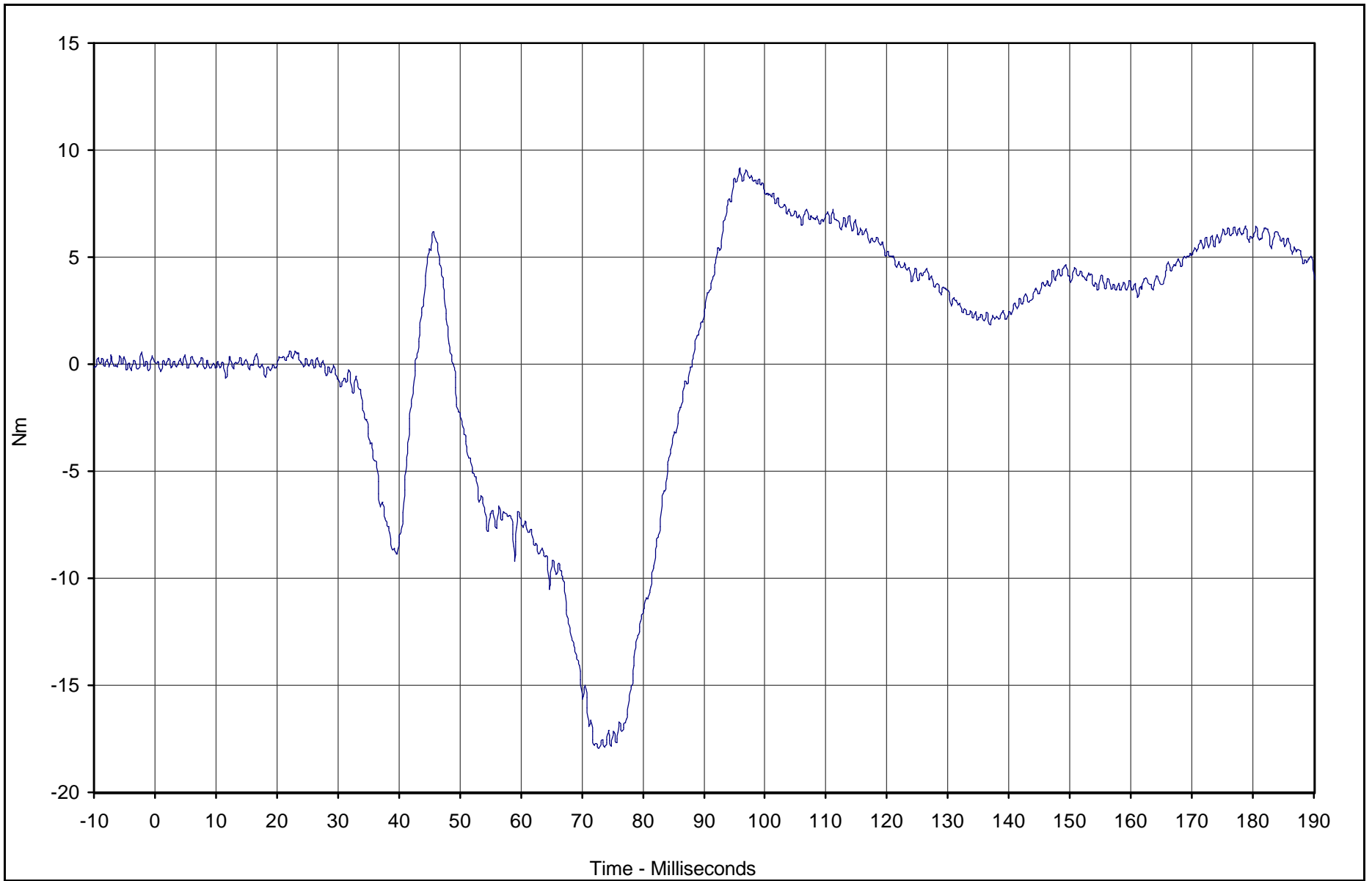
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment Y	011	FIL	Nm	9.2	95.9	-17.9	72.8	600



Test Vehicle: 2003 BMW X5 3.0i SUV

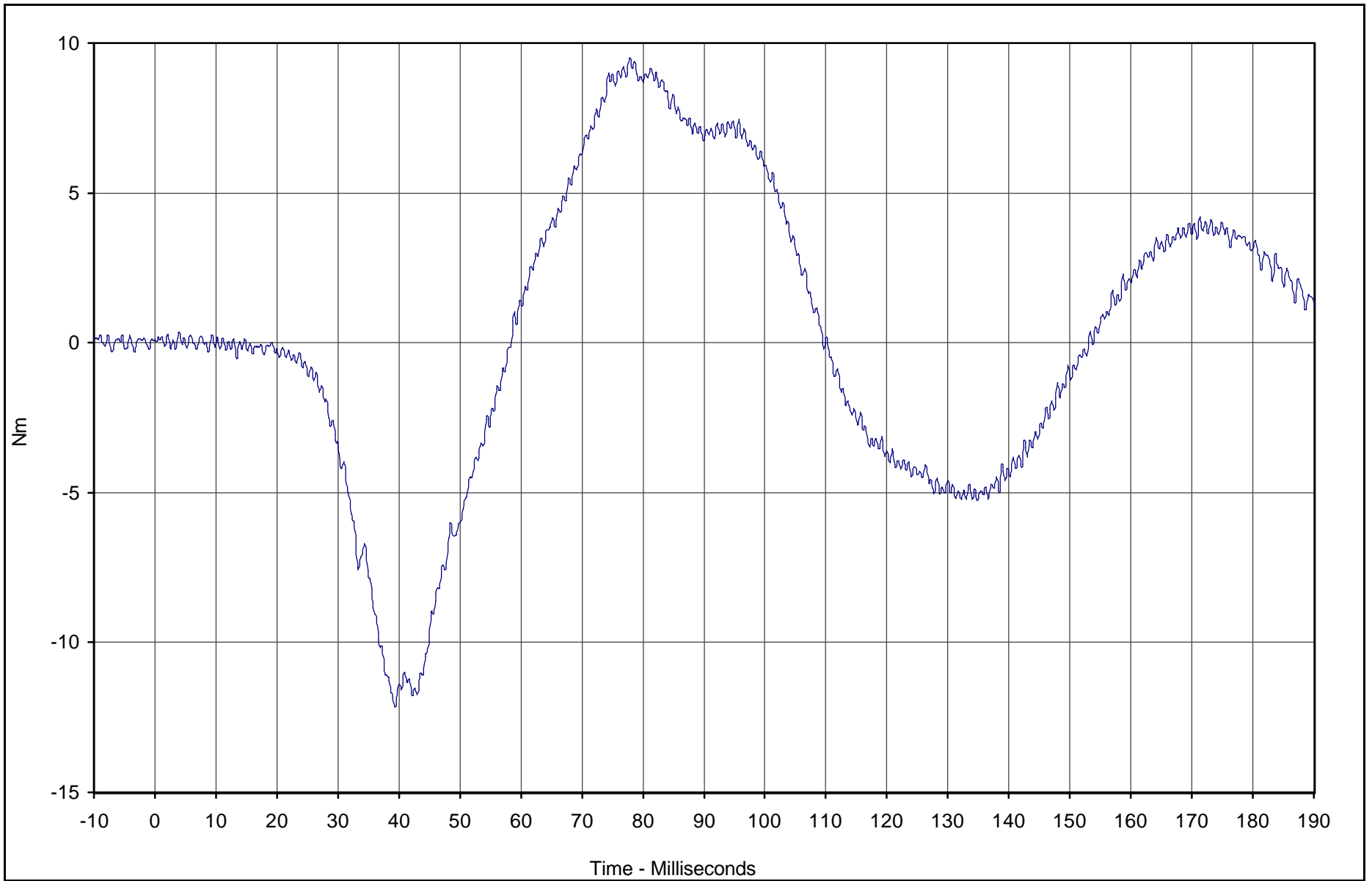
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-21



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment Z	012	FIL	Nm	9.5	77.8	-12.1	39.3	600



Test Vehicle: 2003 BMW X5 3.0i SUV

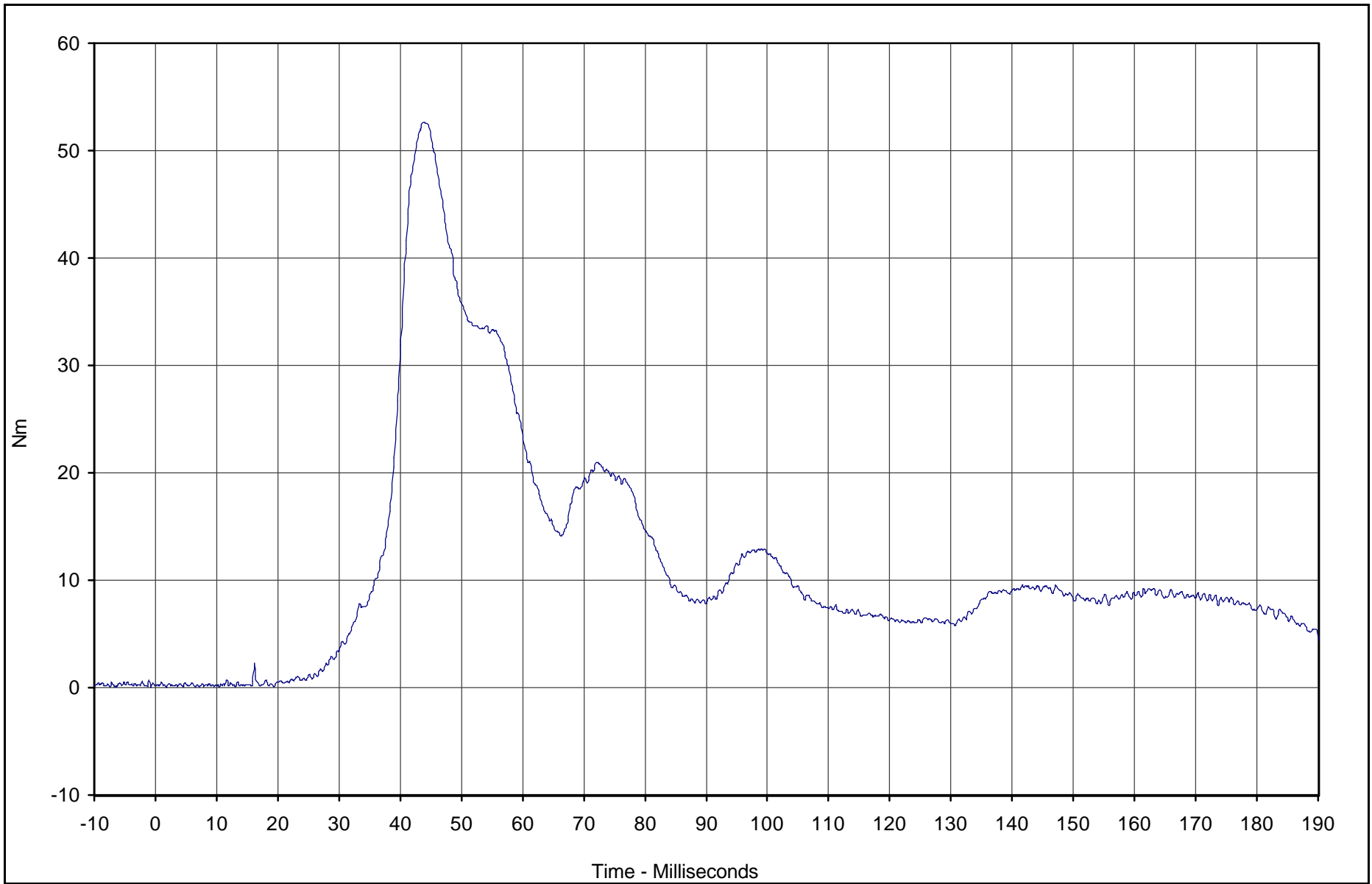
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-22



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Neck Moment Resultant	010	RES	Nm	52.7	43.8	0.0	1.8	600



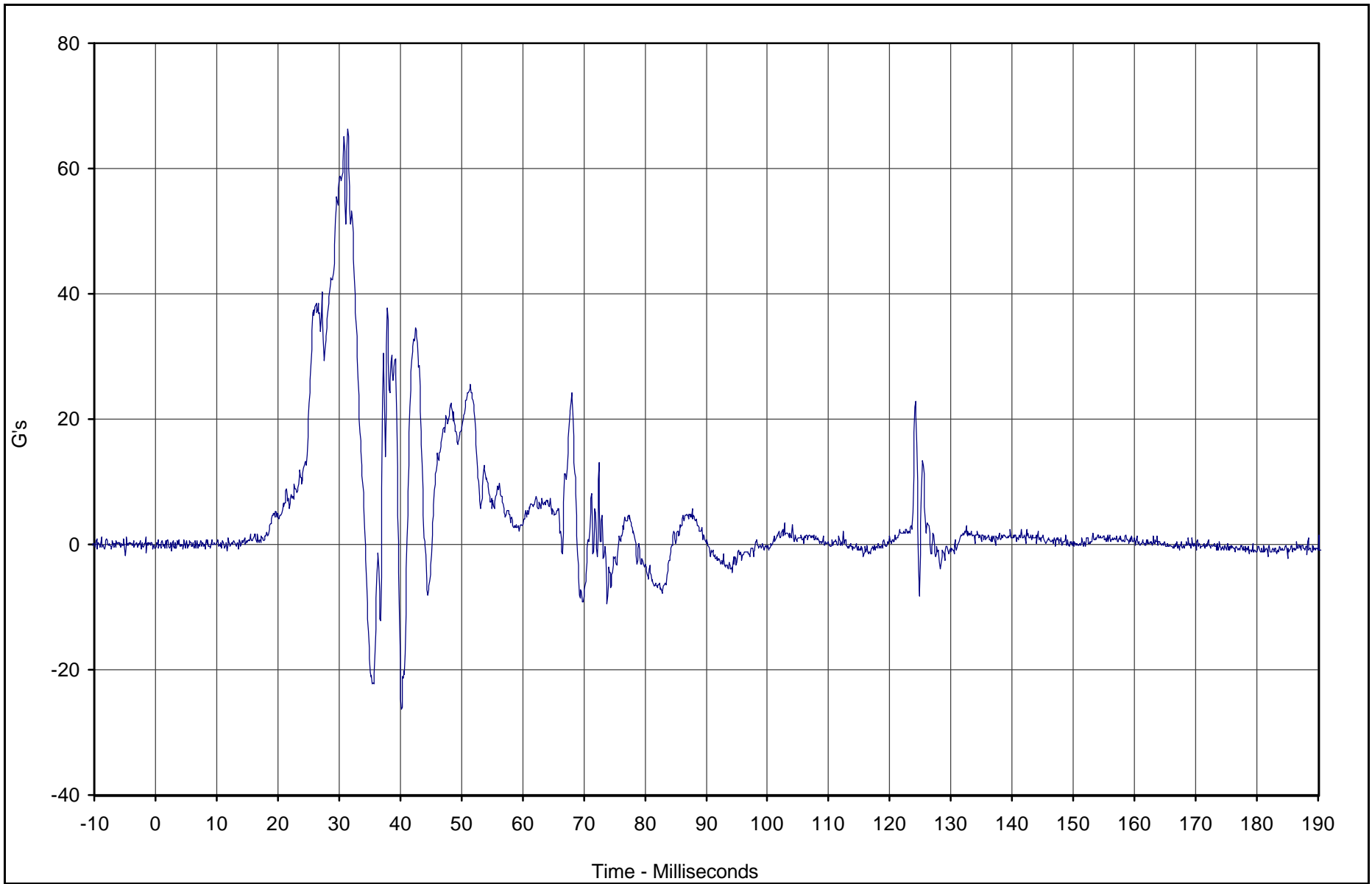
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Upper Rib Primary Y	013	FIL	G's	66.3	31.4	-26.3	40.2	1000

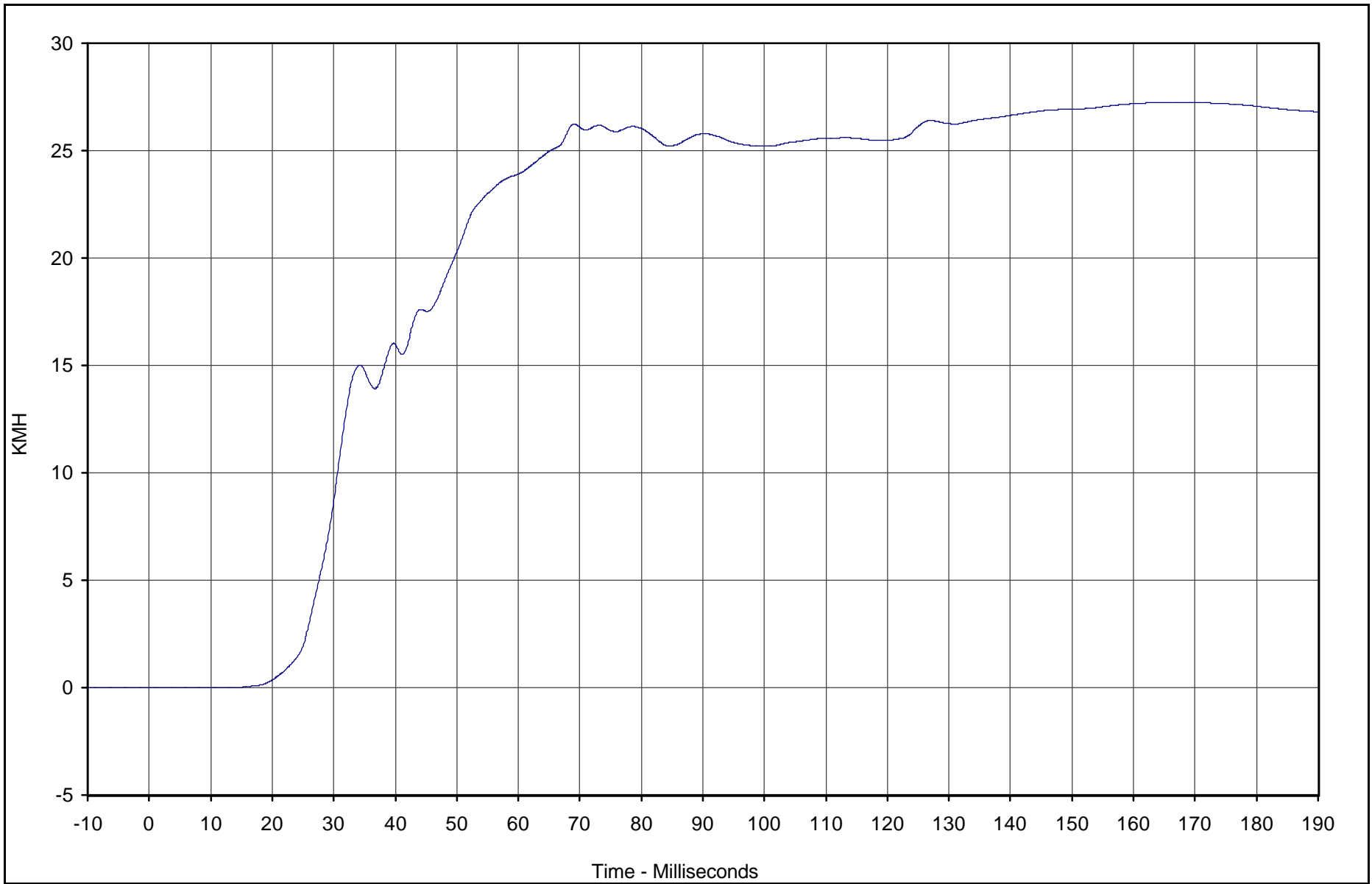


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Upper Rib Primary Y Vel.	013	IN1	KMH	27.2	164.9	0.0	7.9	180



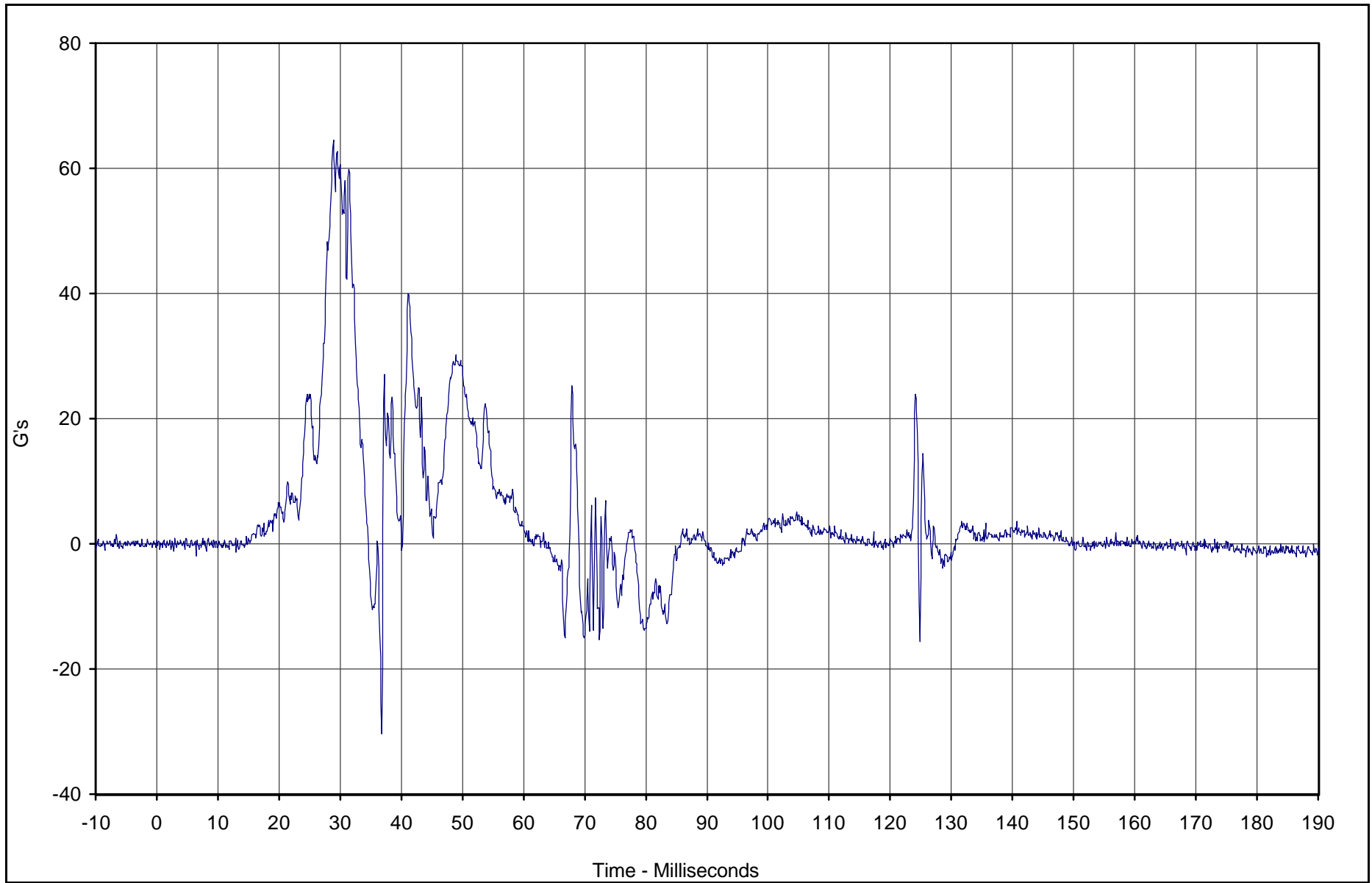
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Lower Rib Primary Y	014	FIL	G's	64.5	28.9	-30.3	36.8	1000



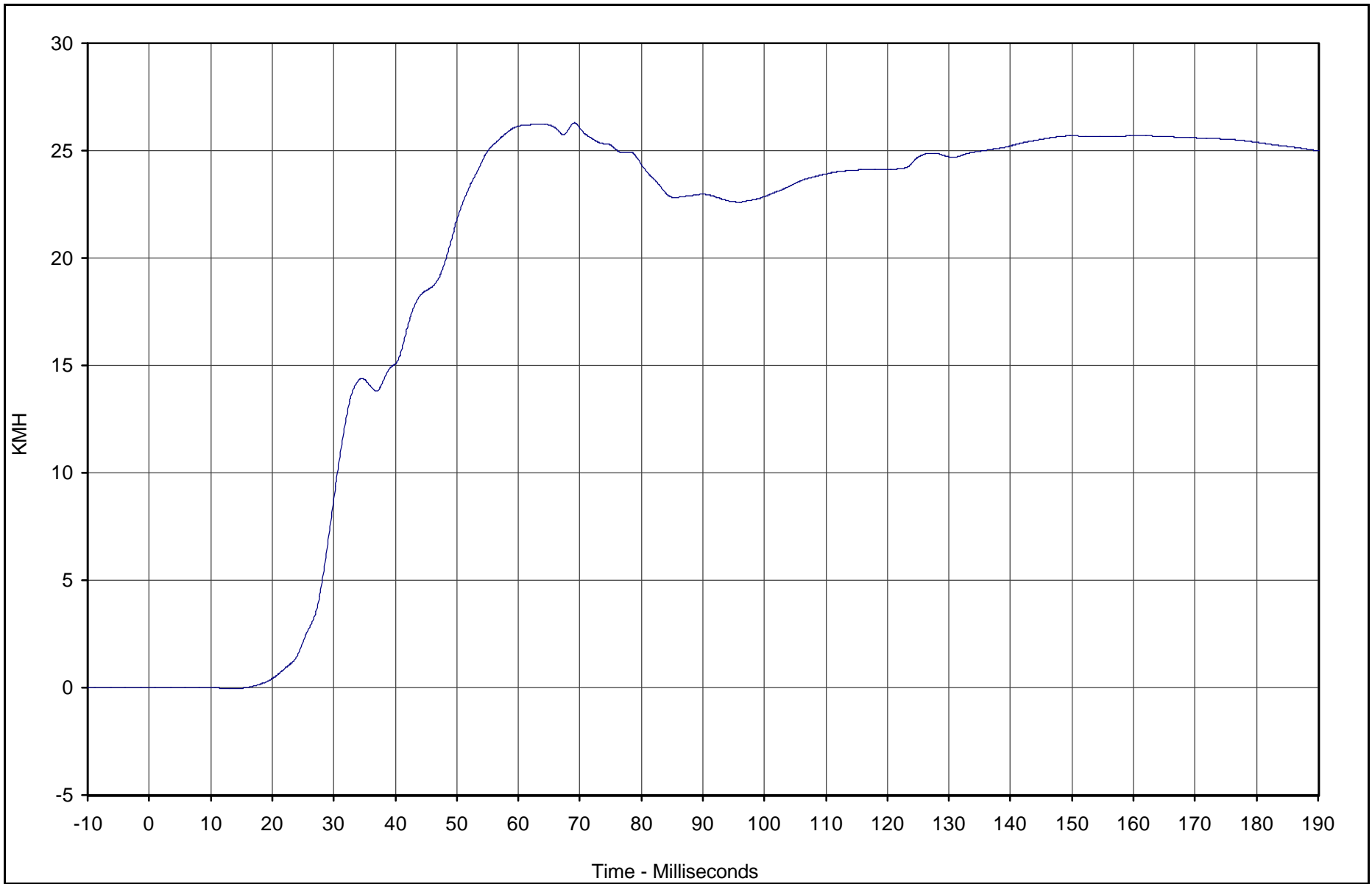
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Lower Rib Primary Y Vel.	014	IN1	KMH	26.3	69.1	0.0	14.4	180



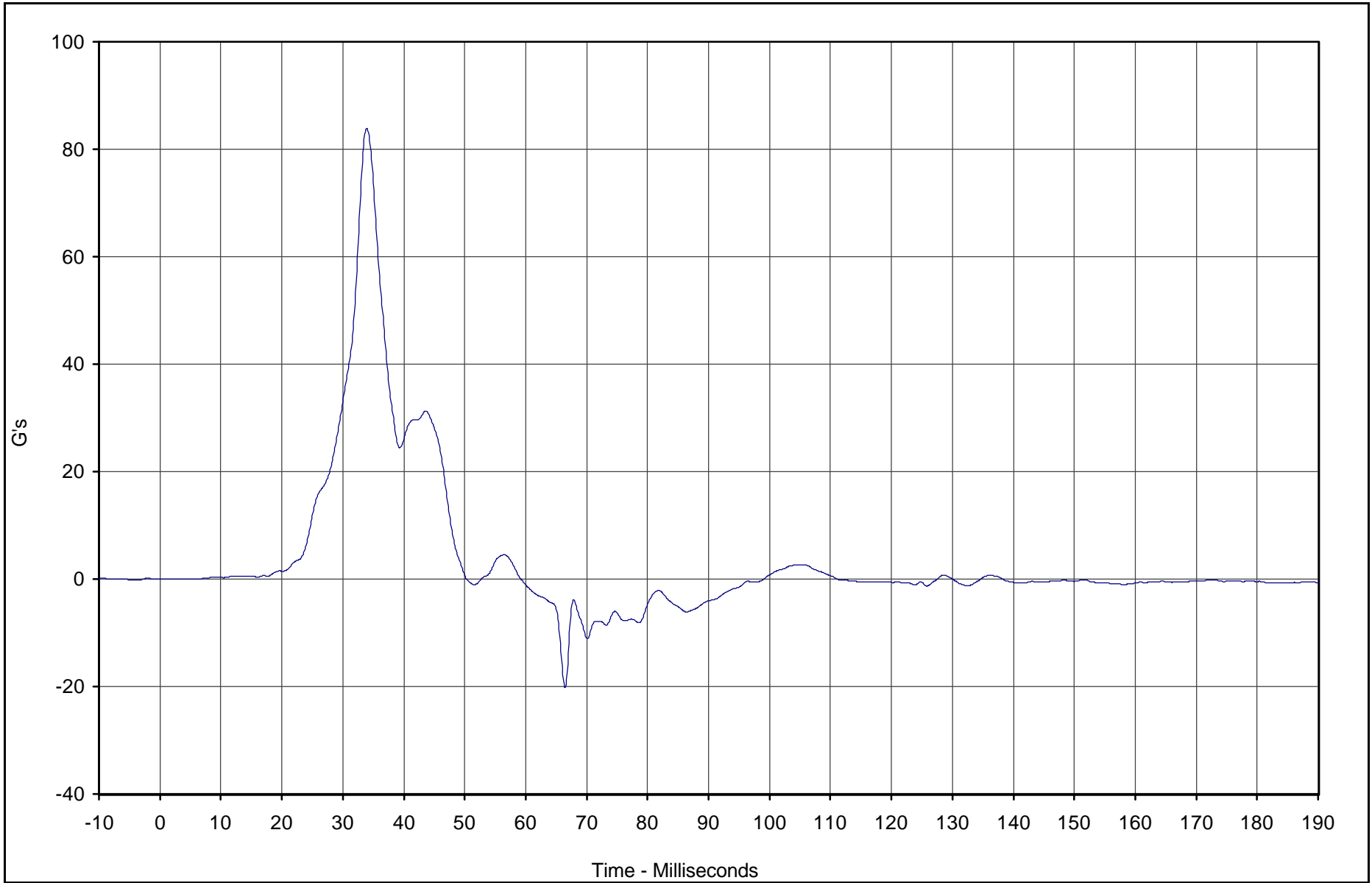
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Lower Spine Primary Y	015	FIL	G's	83.9	33.9	-20.2	66.5	180



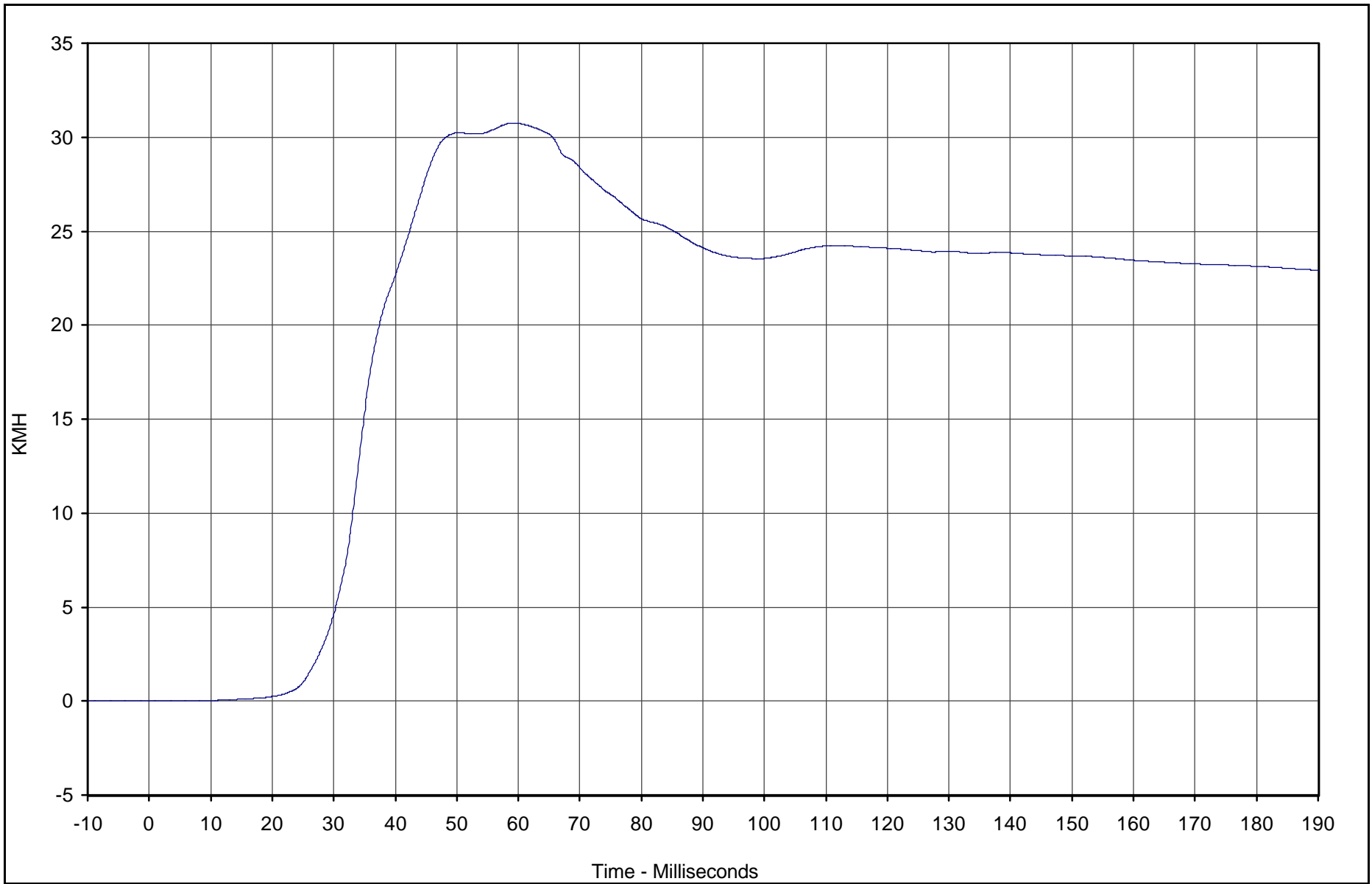
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Lower Spine Primary Y Vel.	015	IN1	KMH	30.7	59.2	0.0	6.0	180

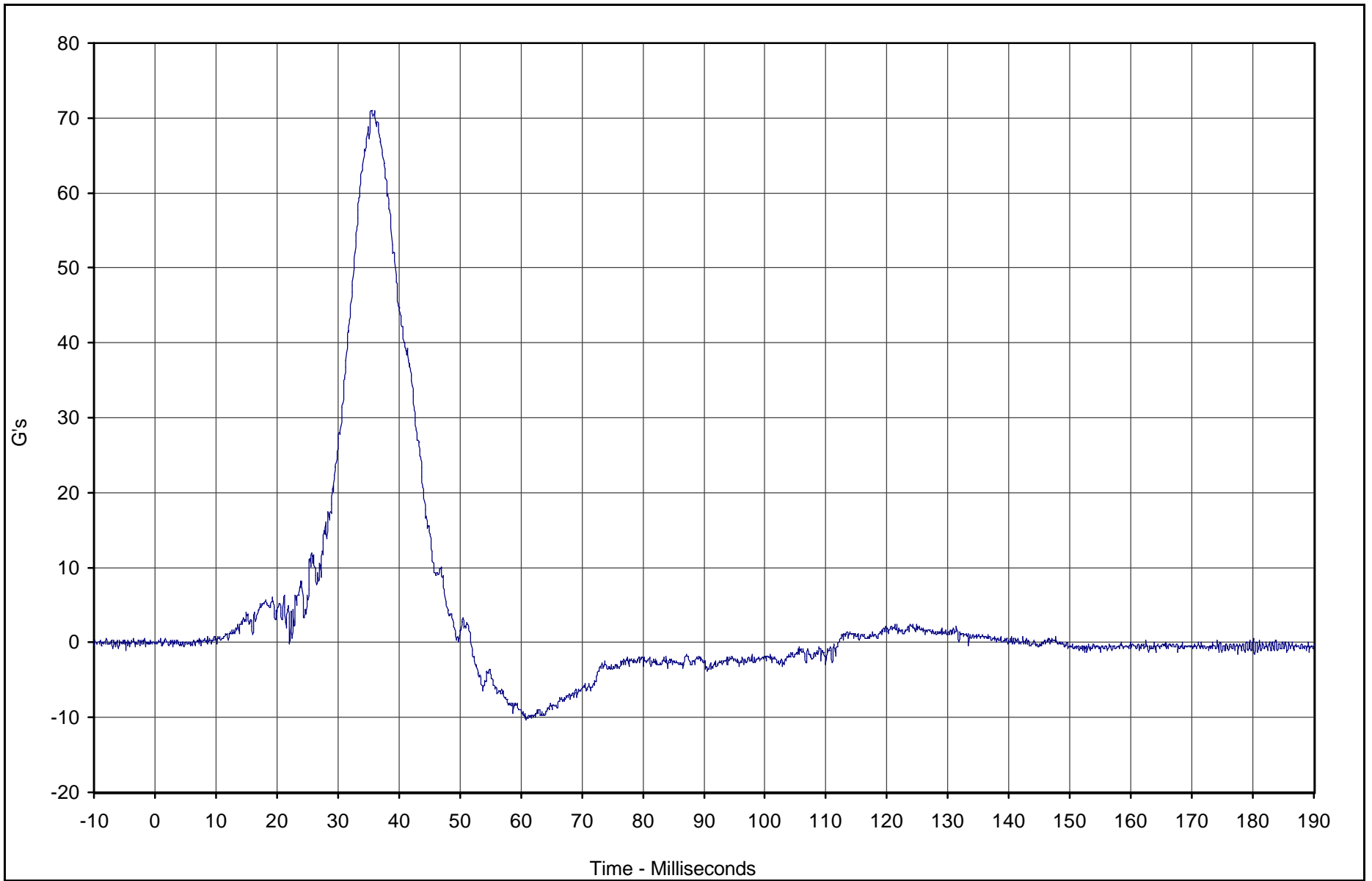


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis Primary Y	016	FIL	G's	70.9	35.4	-10.4	60.9	1000



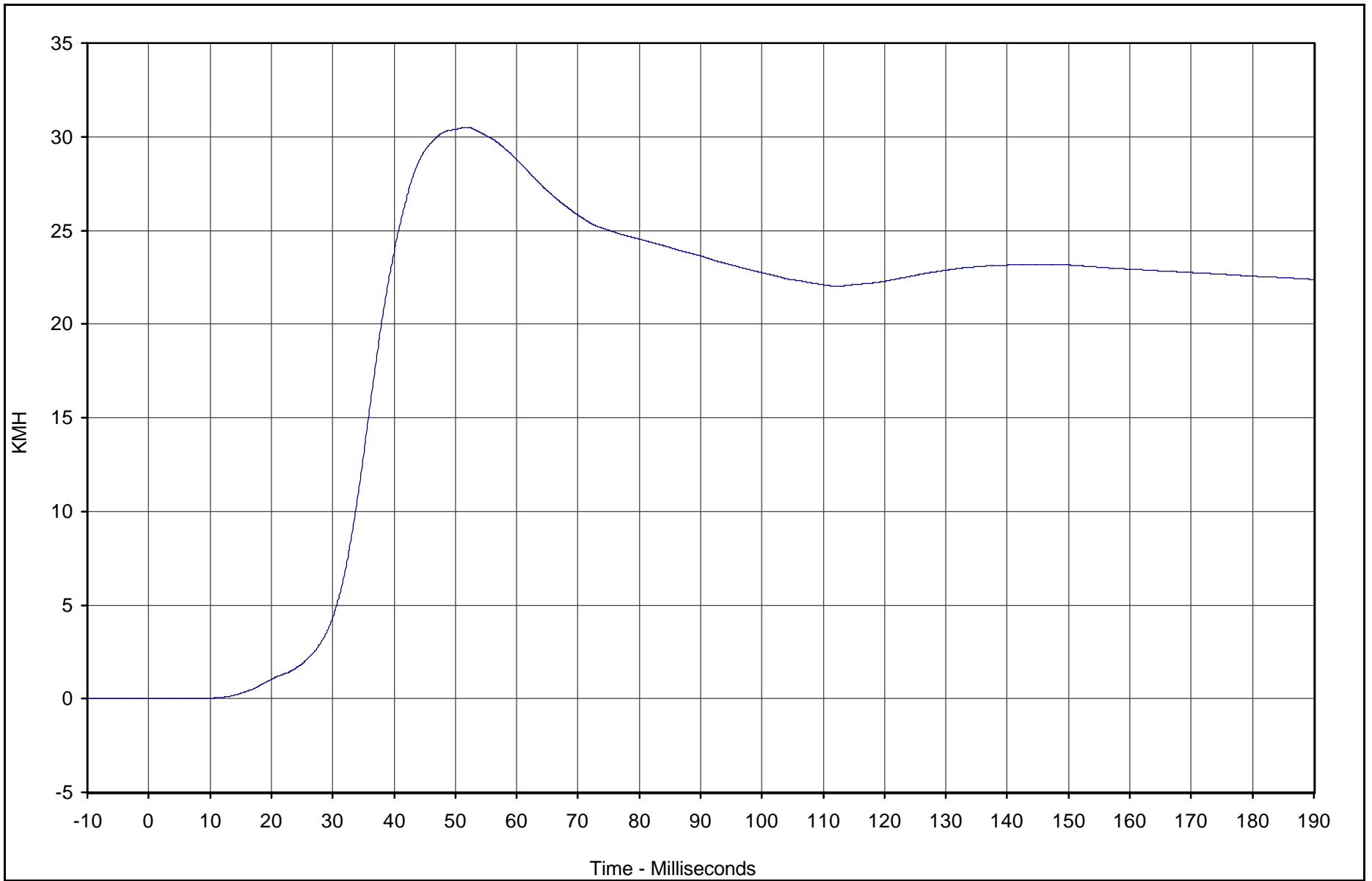
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis Primary Y Vel.	016	IN1	KMH	30.5	51.9	0.0	6.5	180



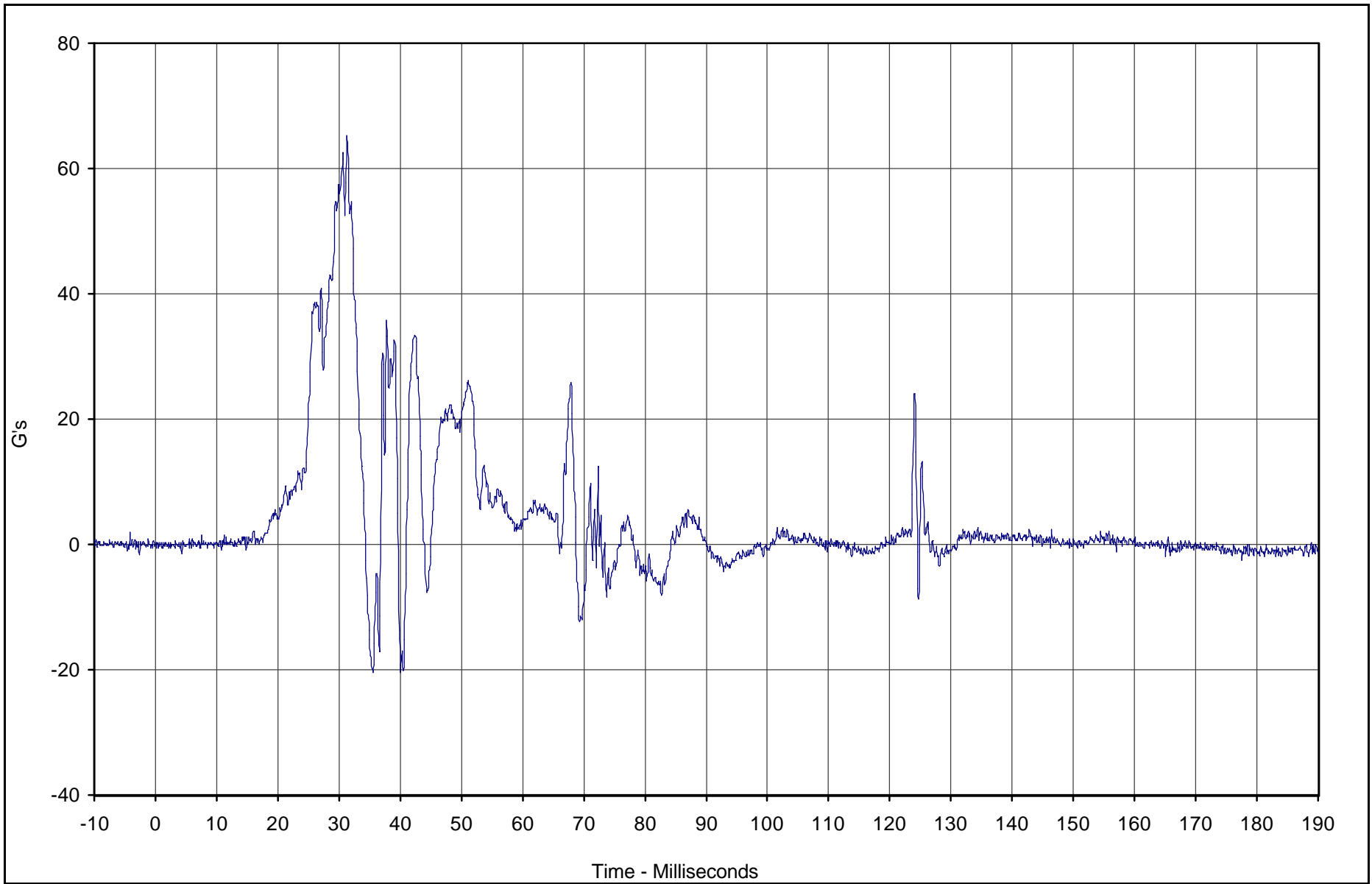
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Upper Rib Redundant Y	017	FIL	G's	65.3	31.3	-20.5	40.1	1000

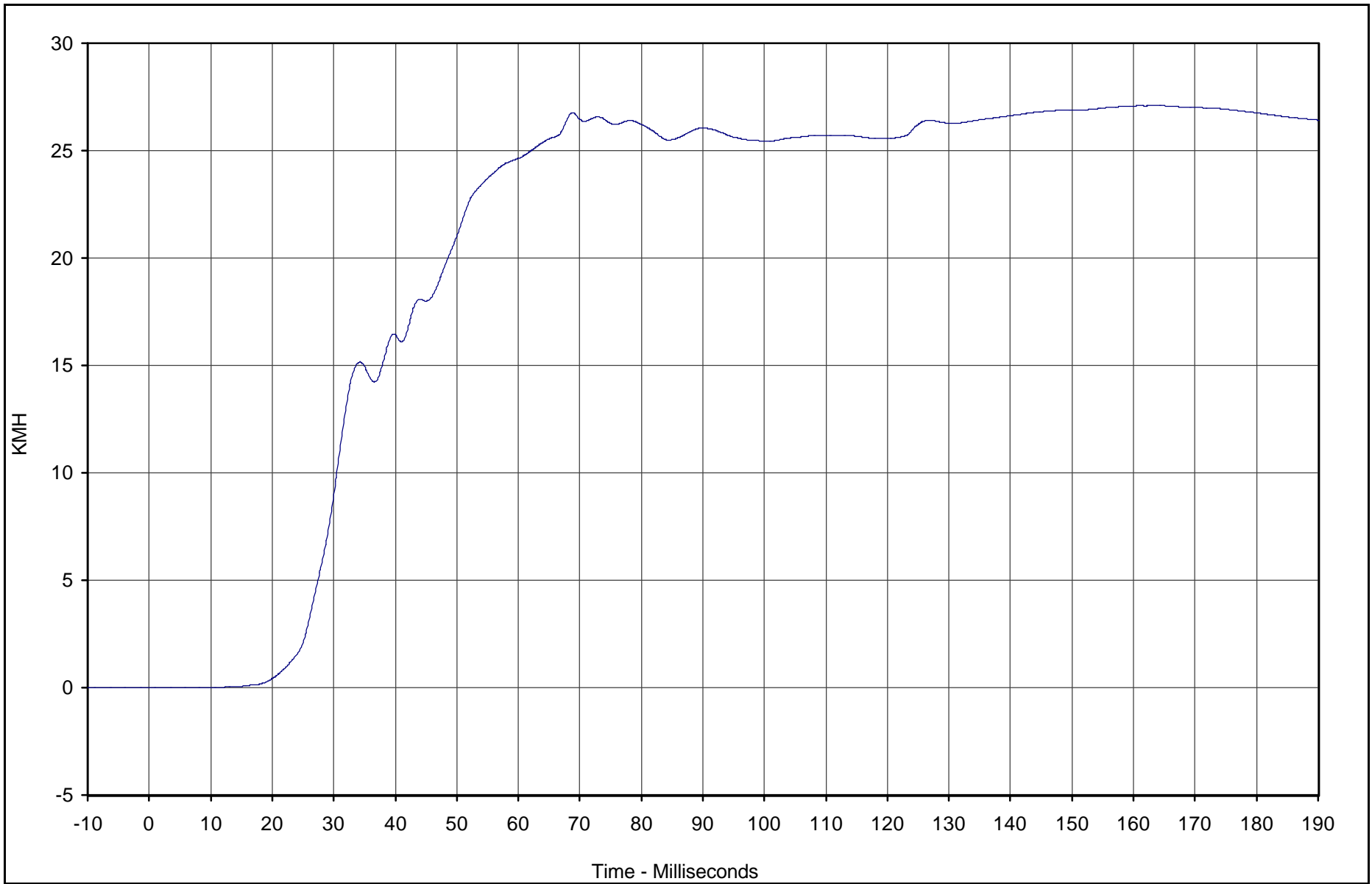


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Upper Rib Redundant Y Vel.	017	IN1	KMH	27.1	164.1	0.0	5.1	180

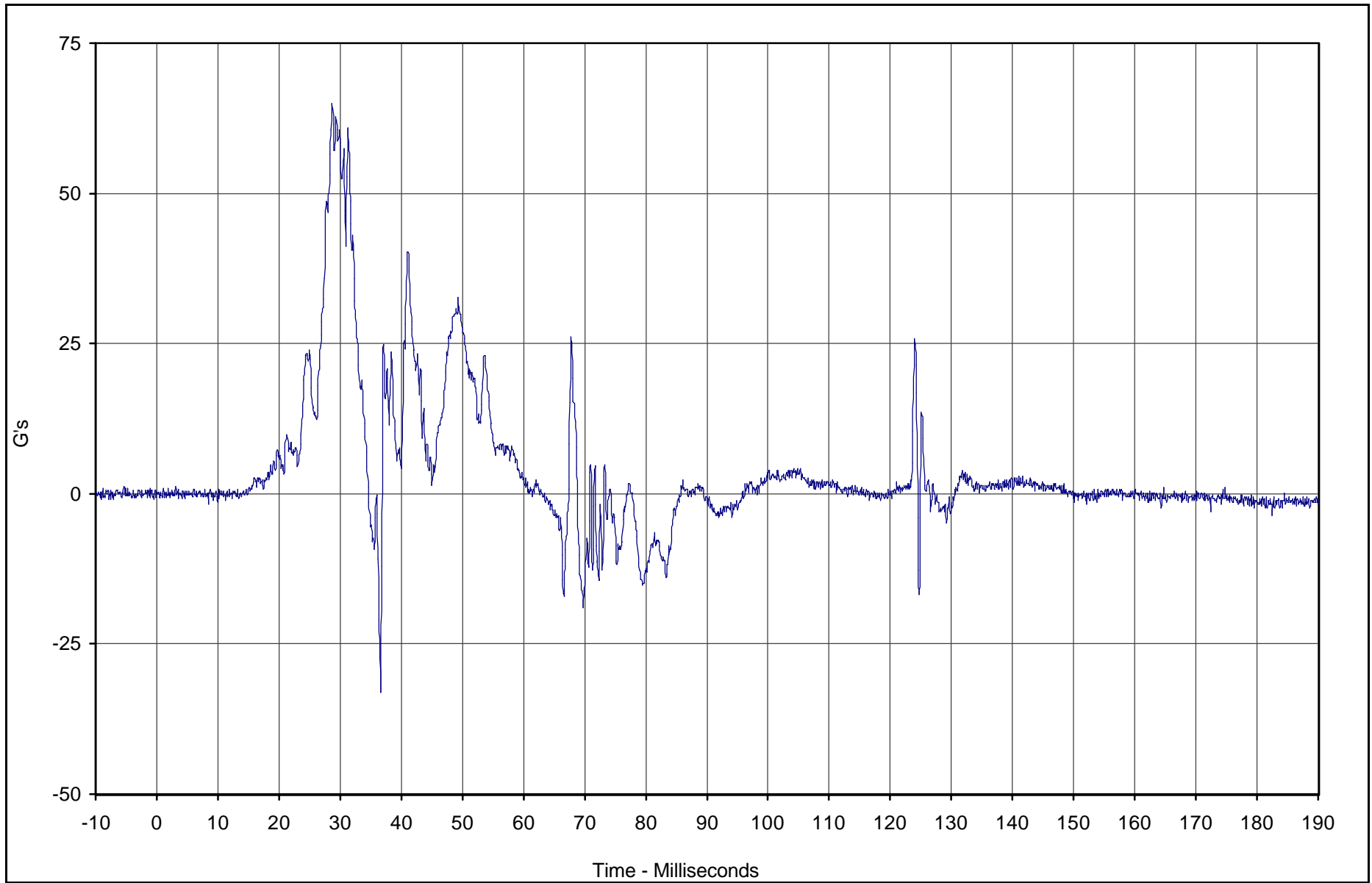


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Lower Rib Redundant Y	018	FIL	G's	65.0	28.7	-33.0	36.6	1000

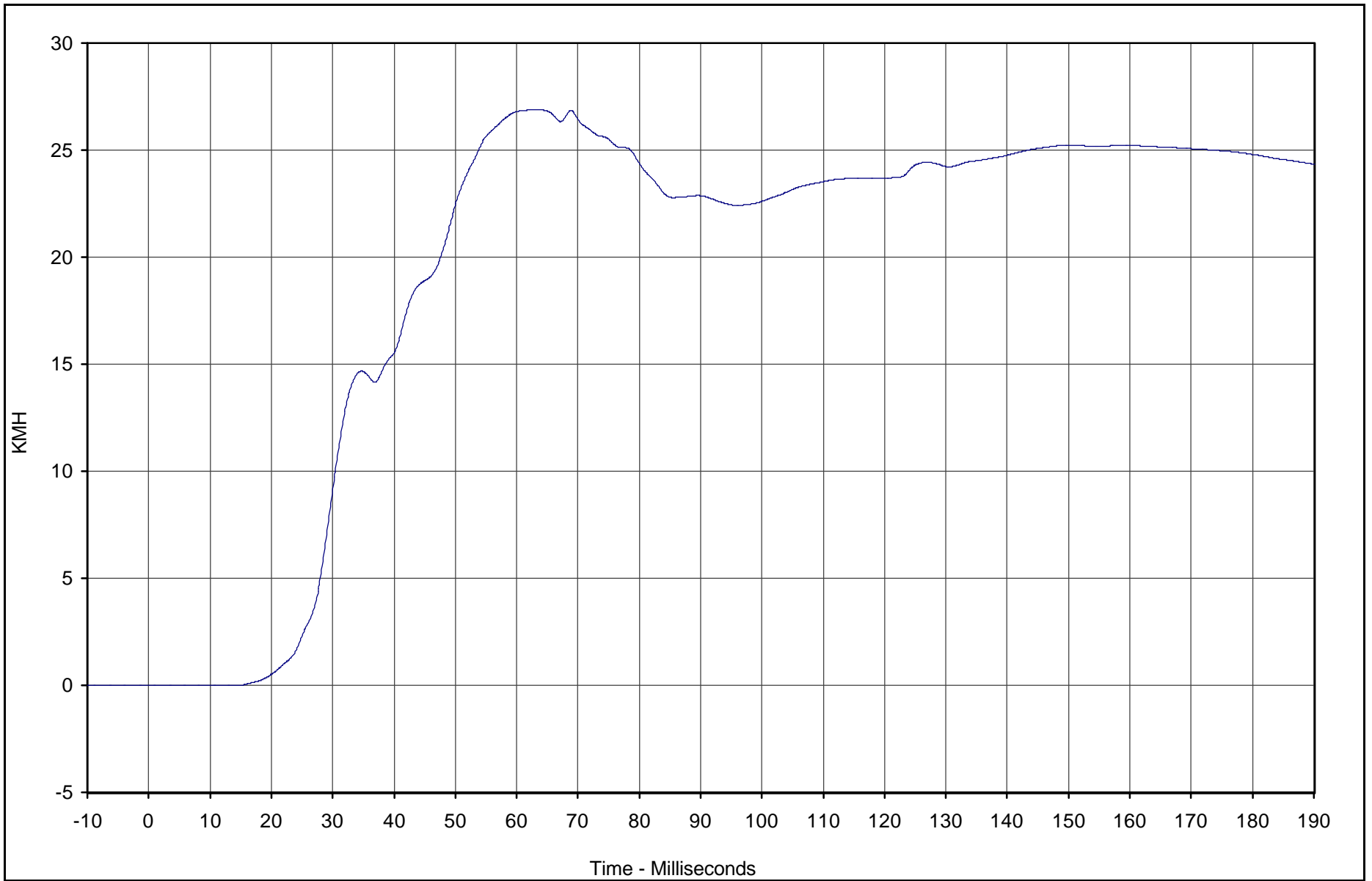


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Lower Rib Redundant Y Vel.	018	IN1	KMH	26.9	63.2	0.0	1.8	180



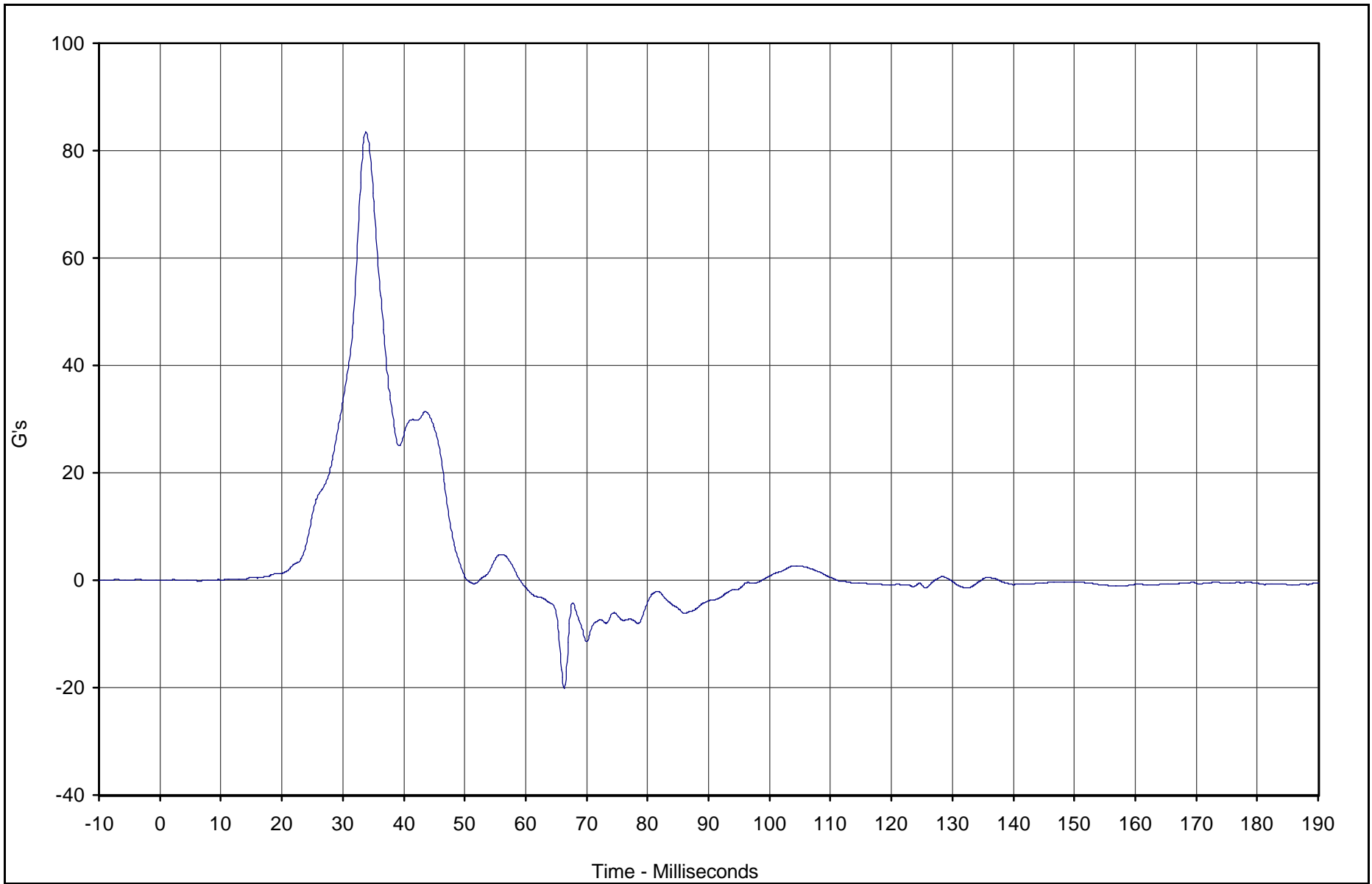
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Lower Spine Redundant Y	019	FIL	G's	83.4	33.8	-20.2	66.3	180



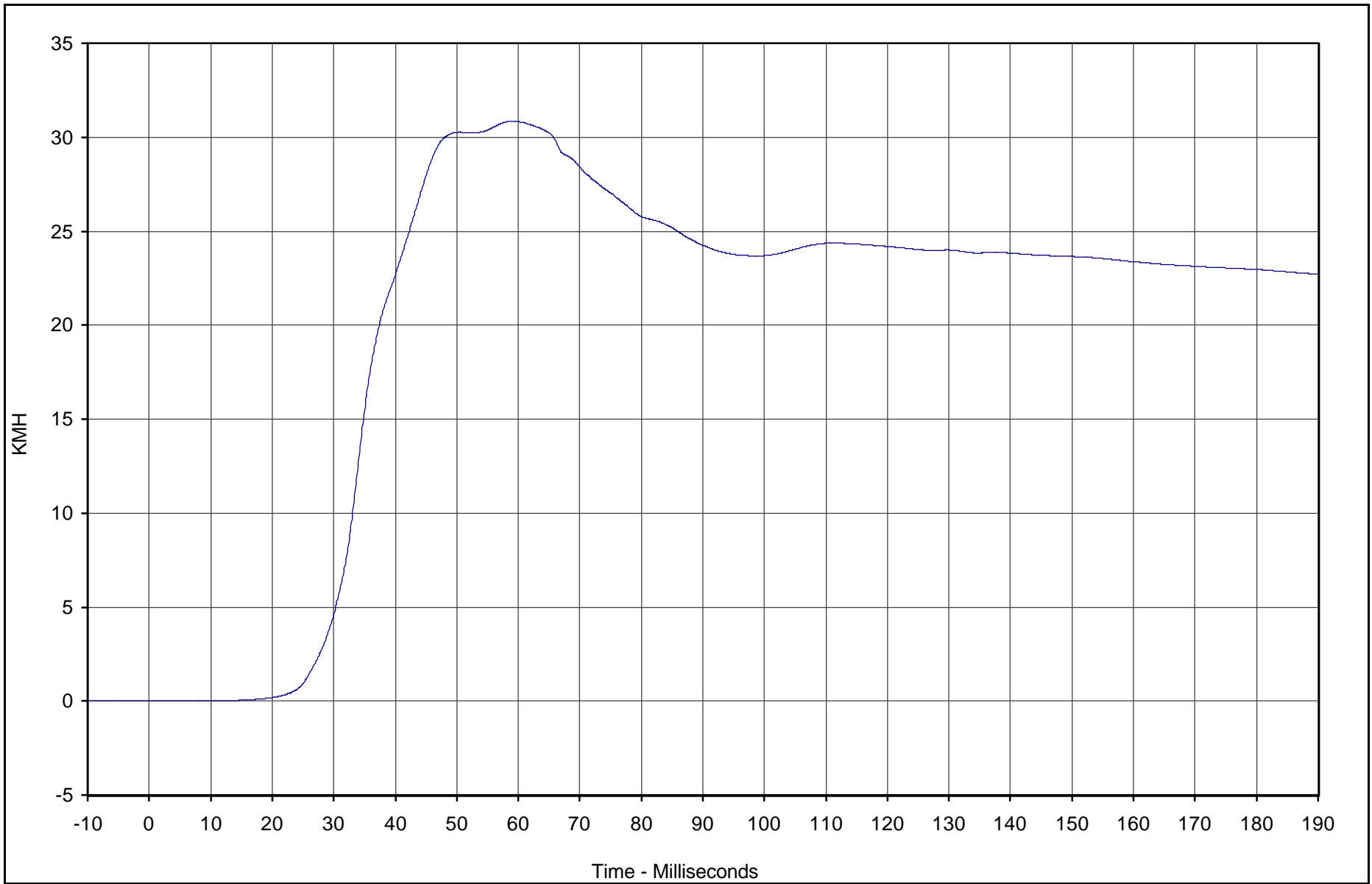
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Lower Spine Redundant Y Vel.	019	IN1	KMH	30.9	59.1	0.0	0.0	180

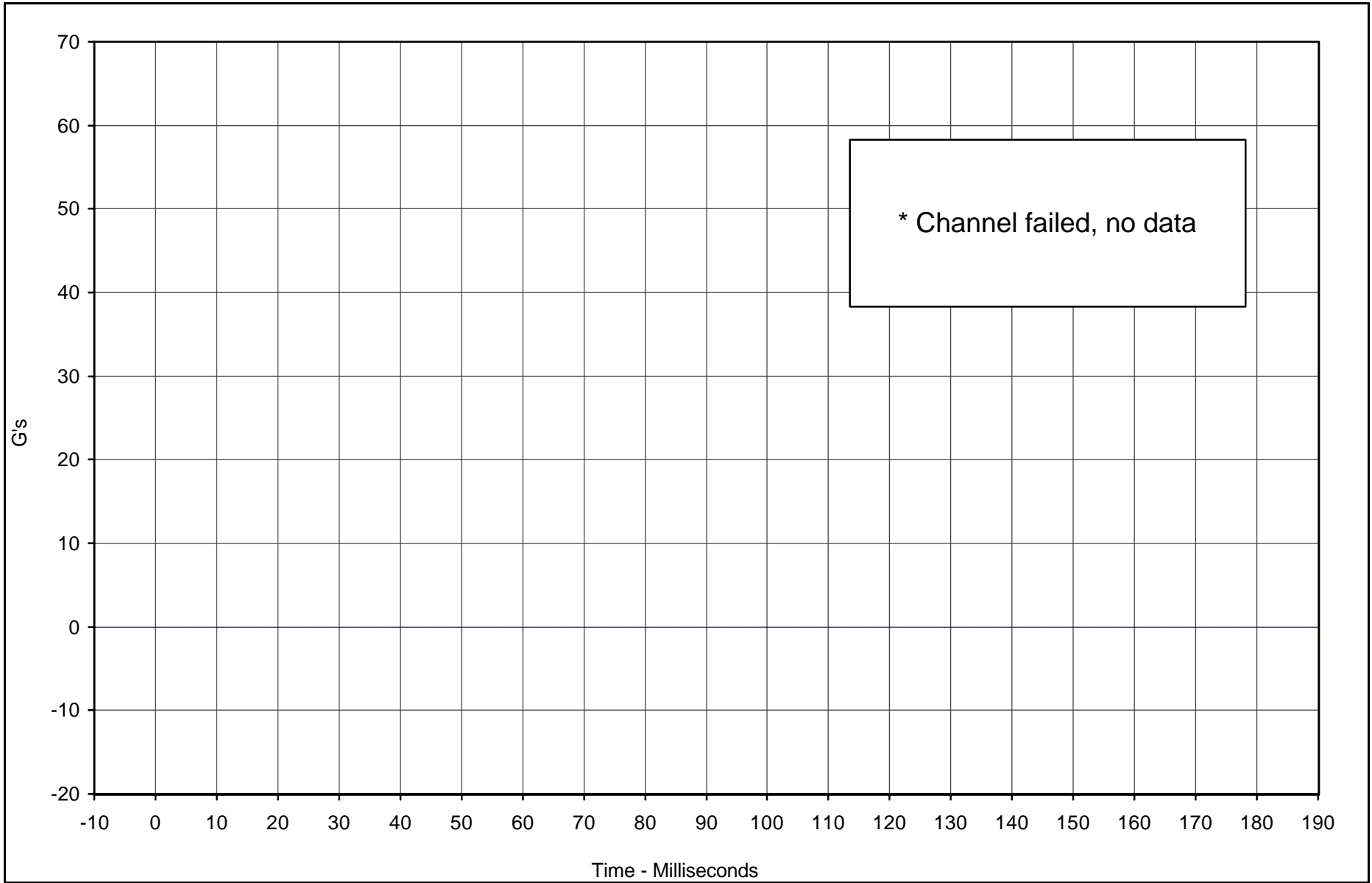


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



* Channel failed, no data

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis Redundant Y	020	FIL	G's	0.0	0.0	0.0	0.0	1000

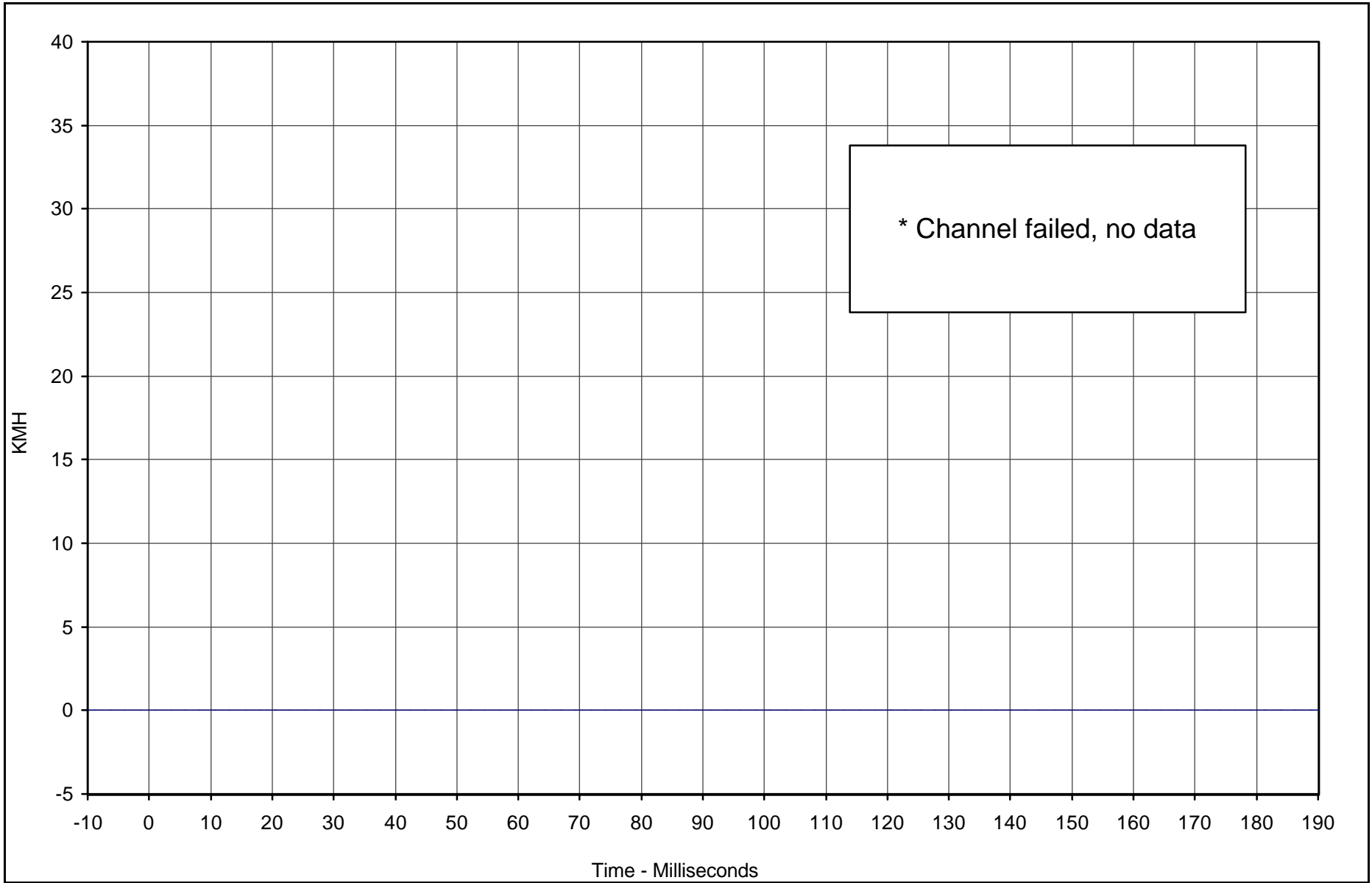


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



* Channel failed, no data

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis Redundant Y Vel.	020	IN1	KMH	0.0	0.0	0.0	0.0	180

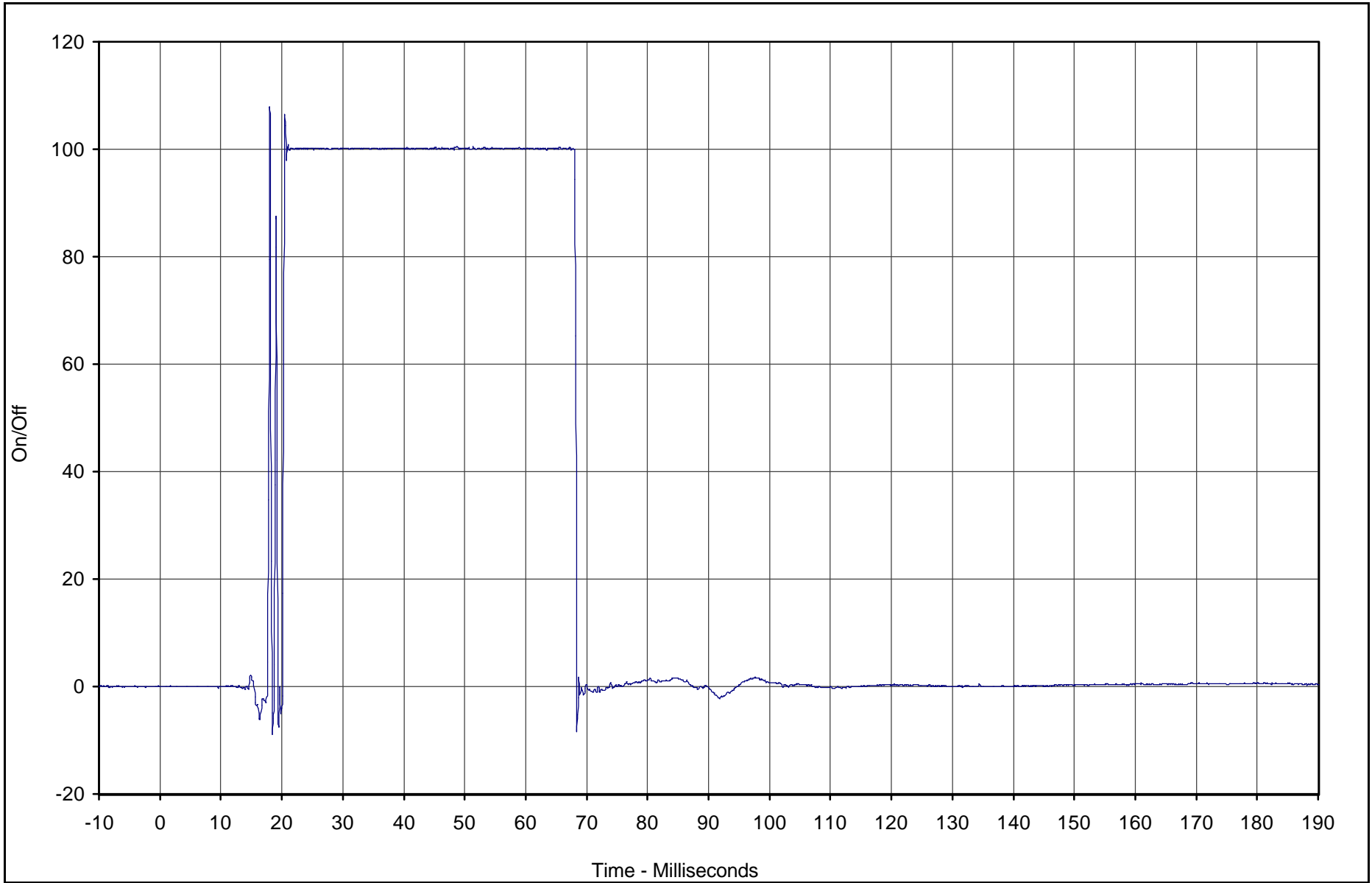


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Cross %	Time	SAE Class
Driver Thorax Contact	021	FIL	On/Off	107.8	18.0	50.0	20.3	1000



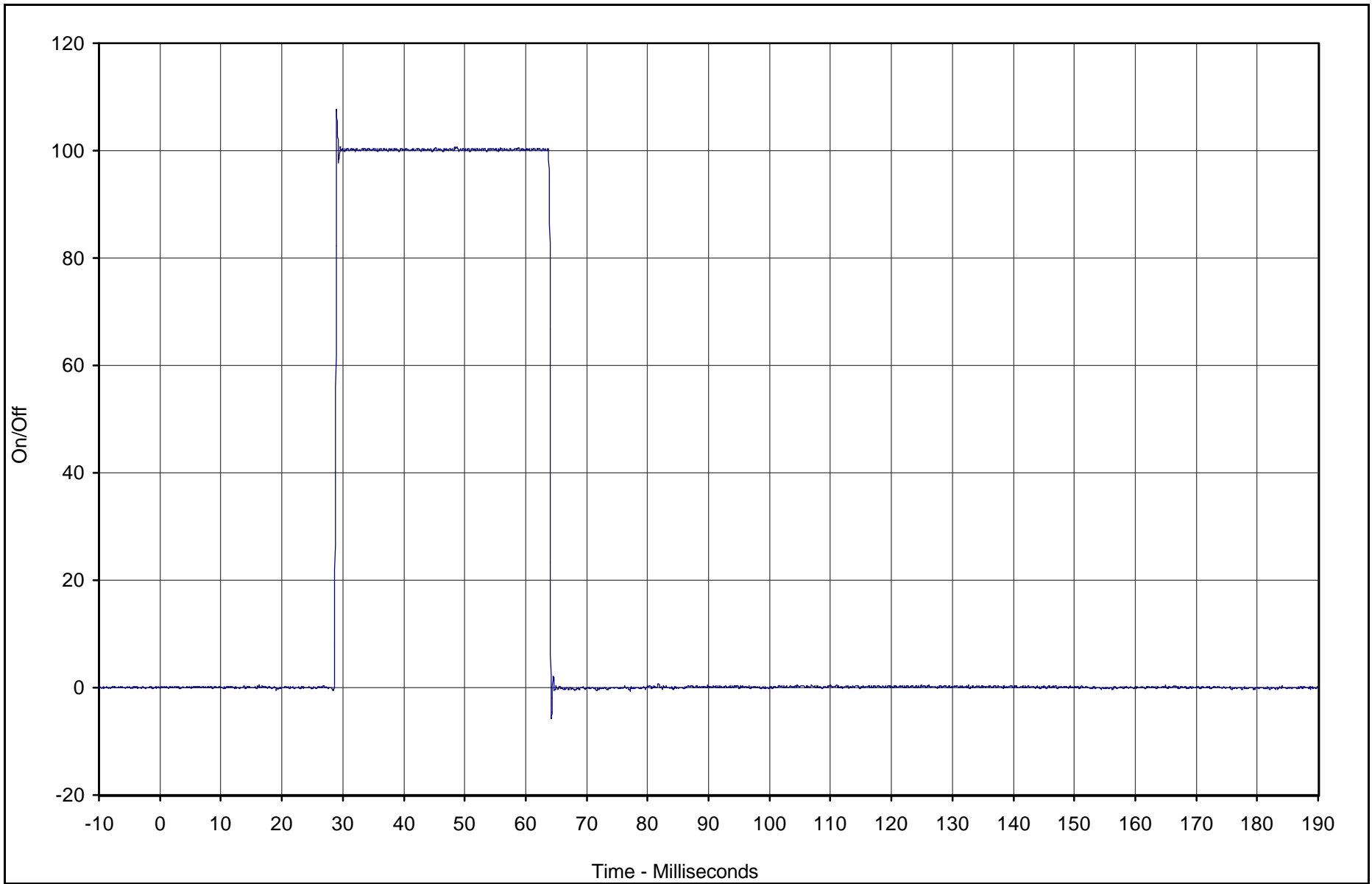
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

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Curve Description	CURNO	Type	Units	Max	Time	Cross %	Time	SAE Class
Driver Pelvis Contact	022	FIL	On/Off	107.3	29.0	50.0	28.9	1000



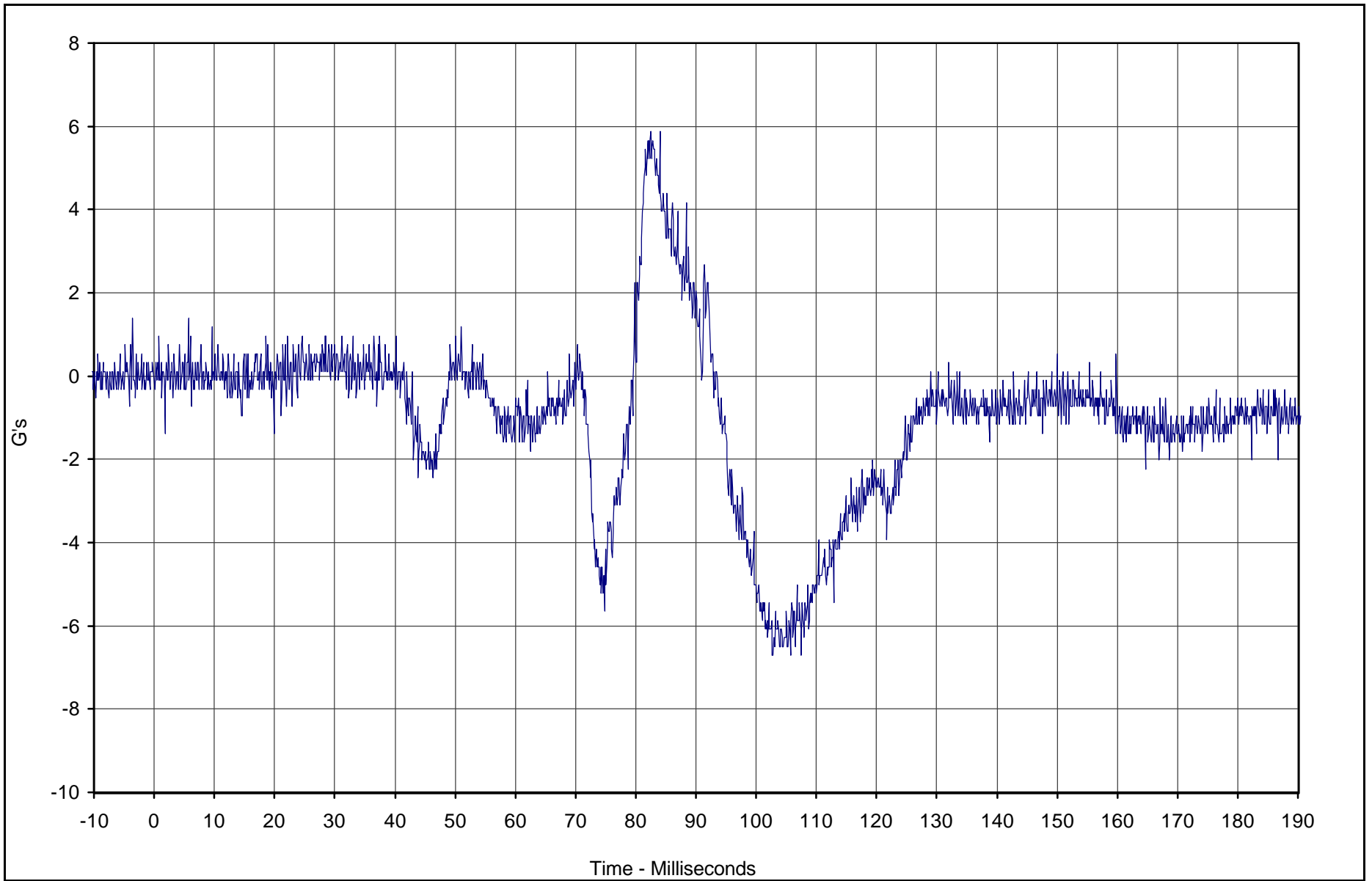
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head X	023	FIL	G's	5.9	82.5	-6.7	102.7	1000



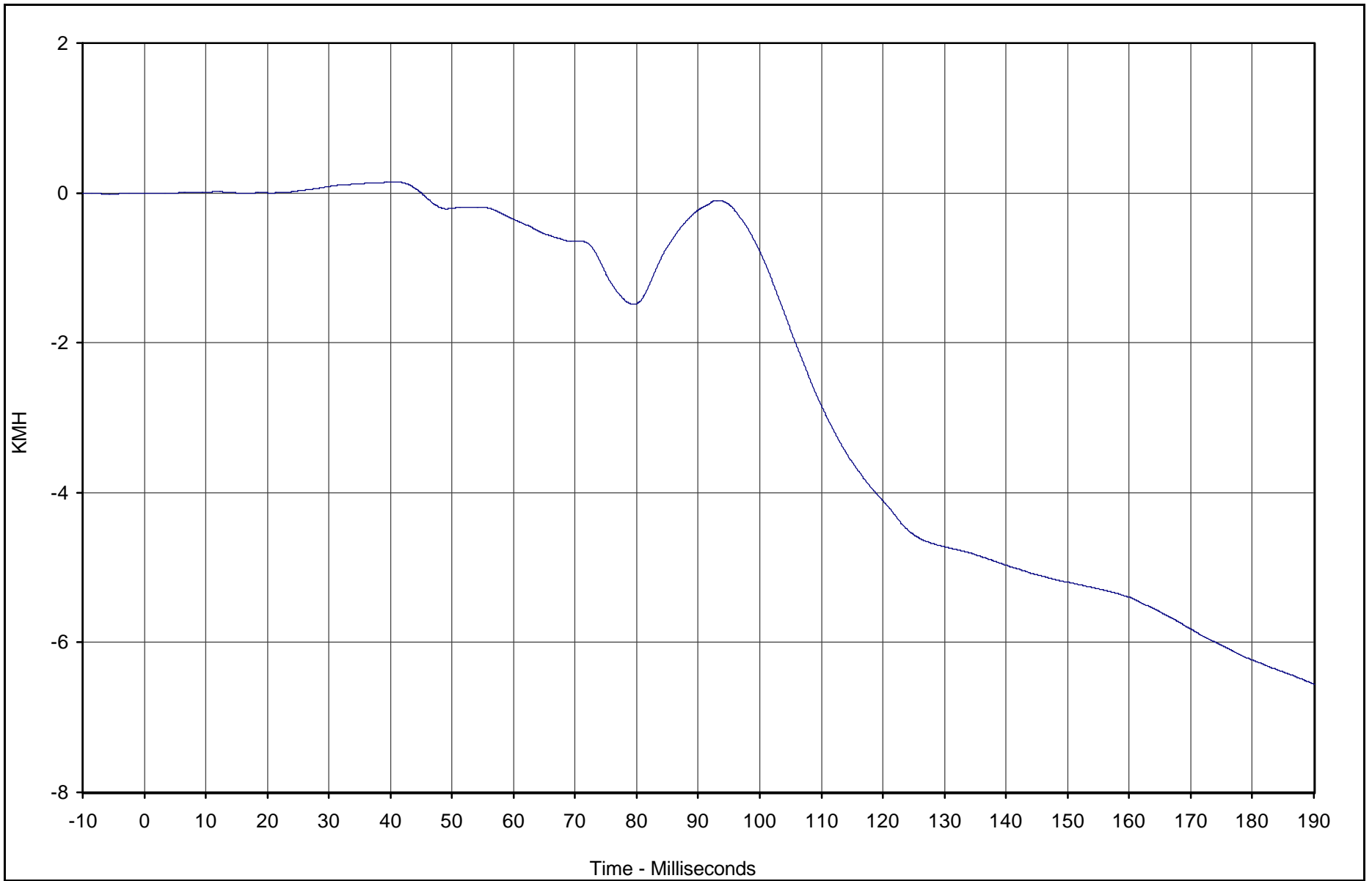
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-42



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head X Velocity	023	IN1	KMH	0.1	40.9	-6.6	189.9	180



Test Vehicle: 2003 BMW X5 3.0i SUV

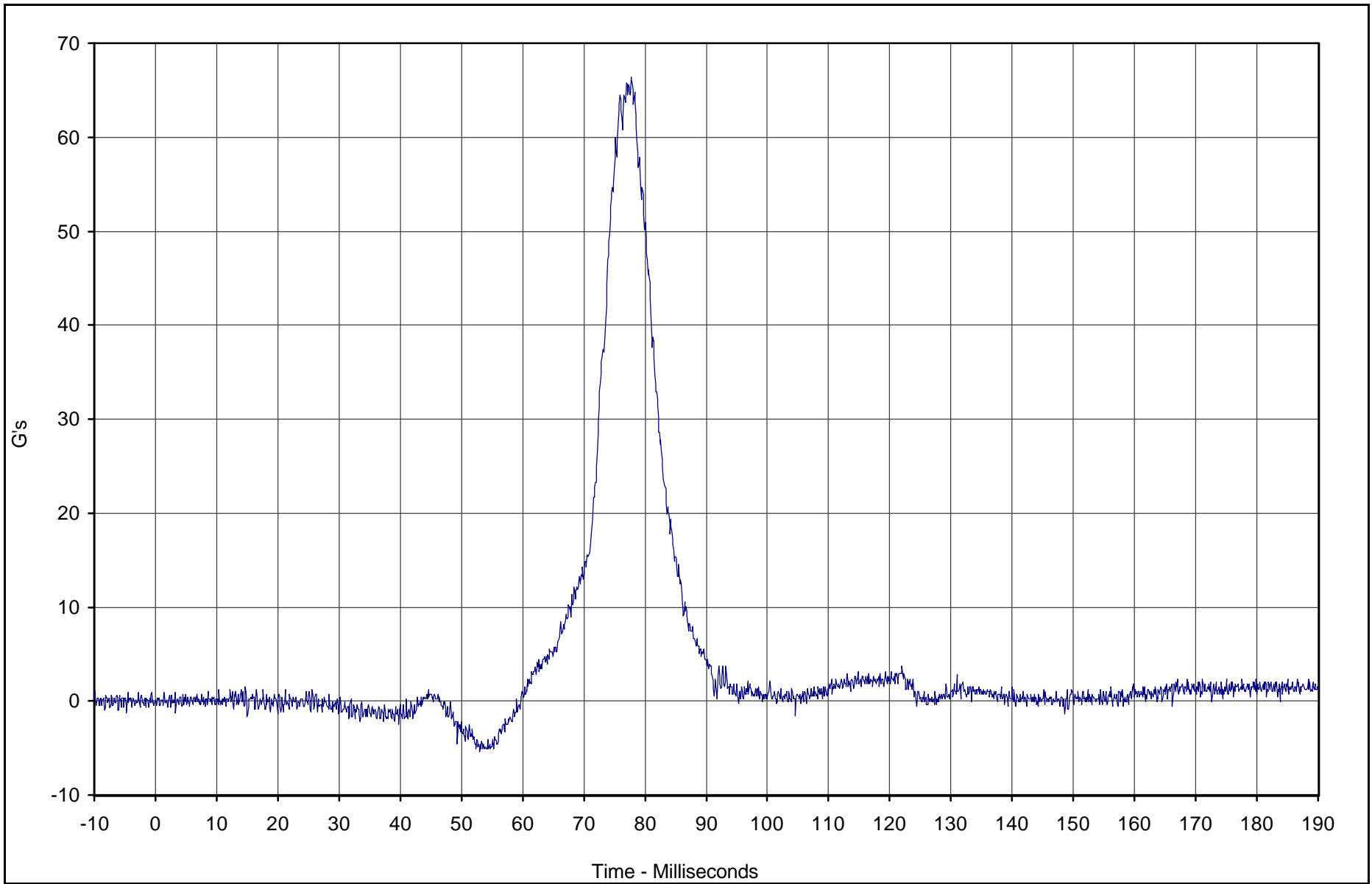
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-43



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head Y	024	FIL	G's	66.4	77.7	-5.4	53.0	1000



Test Vehicle: 2003 BMW X5 3.0i SUV

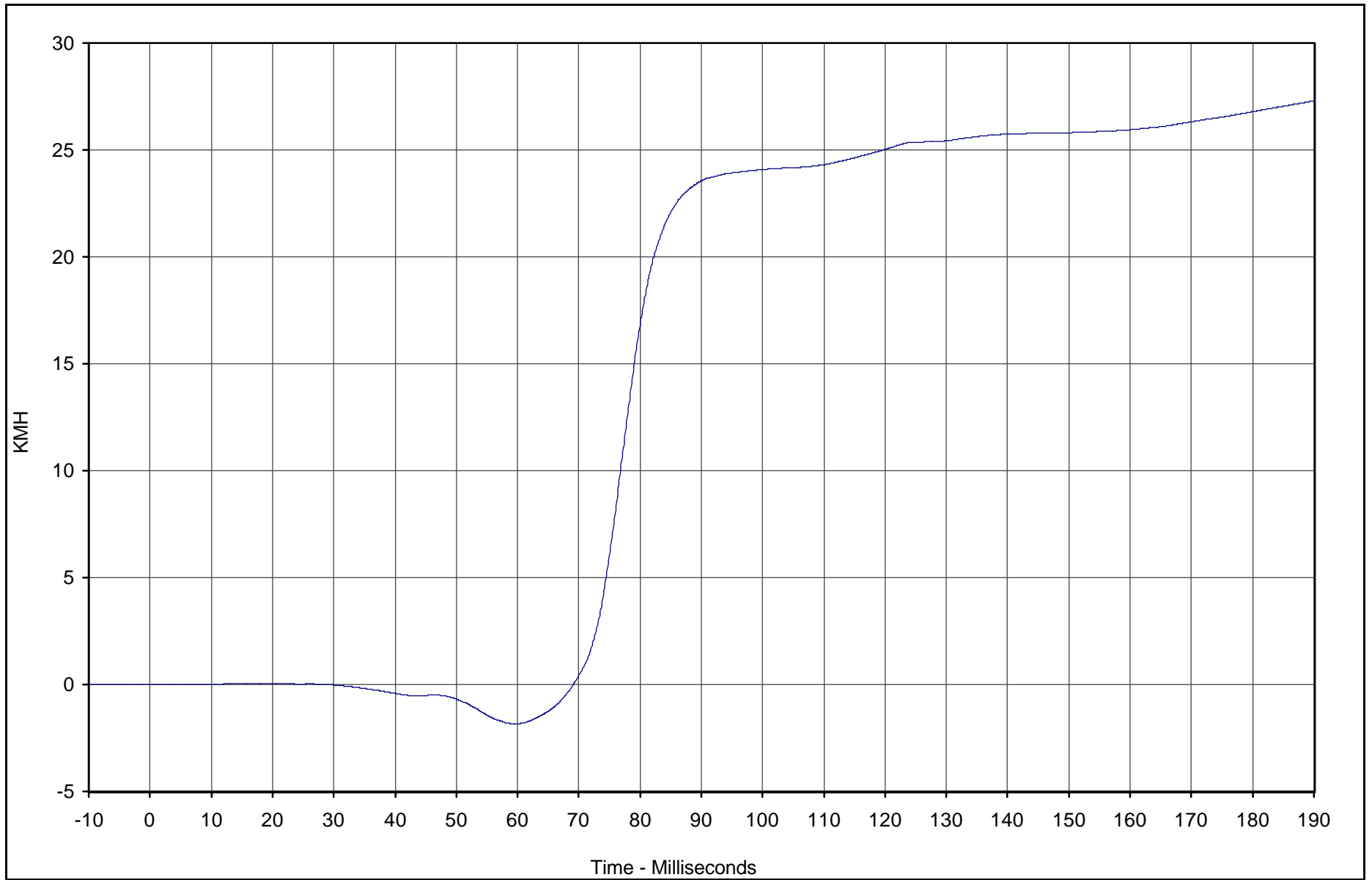
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-44



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head Y Velocity	024	IN1	KMH	27.3	189.9	-1.8	59.7	180



Test Vehicle: 2003 BMW X5 3.0i SUV

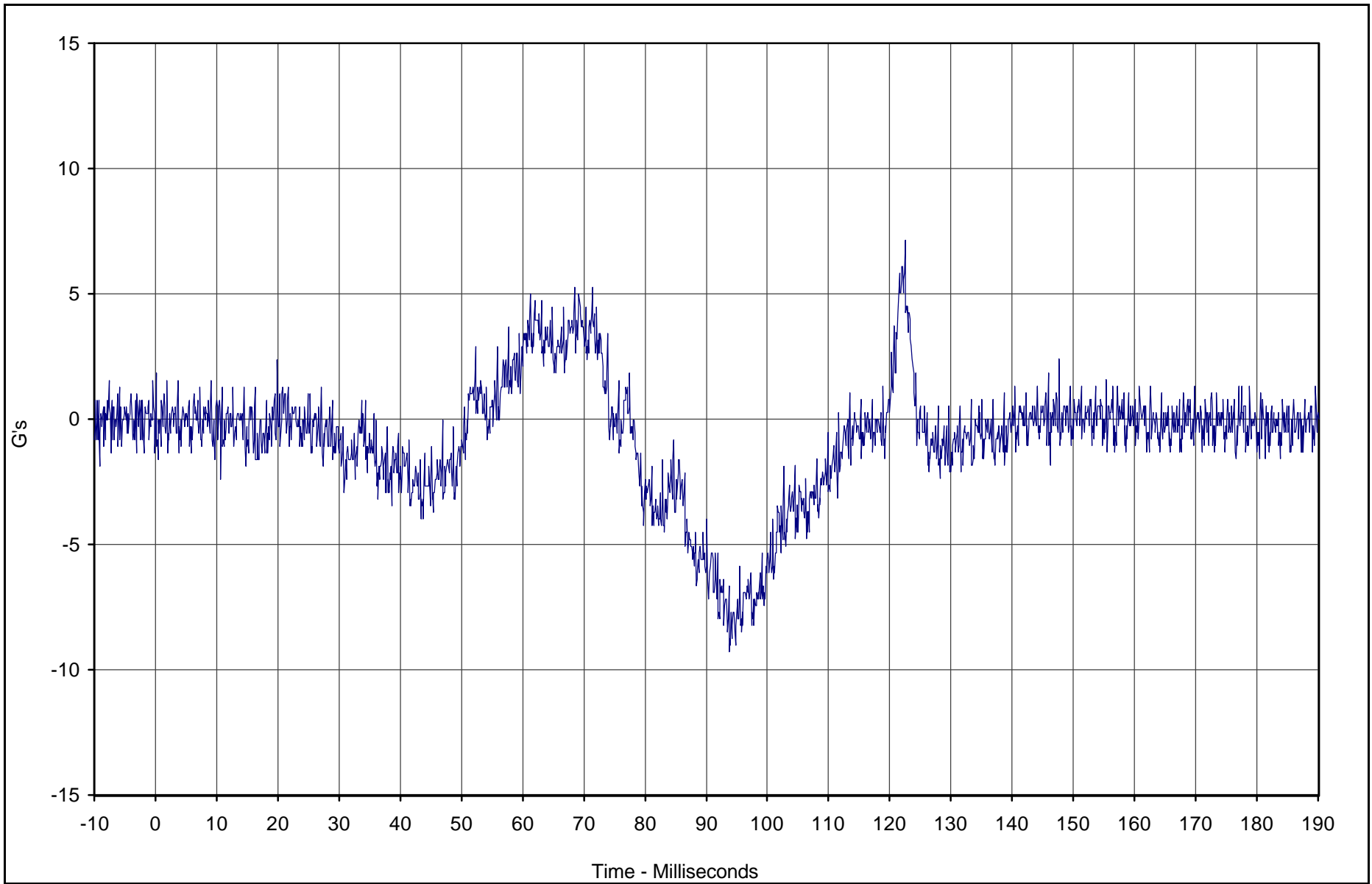
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-45



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head Z	025	FIL	G's	7.2	122.5	-9.3	93.8	1000



Test Vehicle: 2003 BMW X5 3.0i SUV

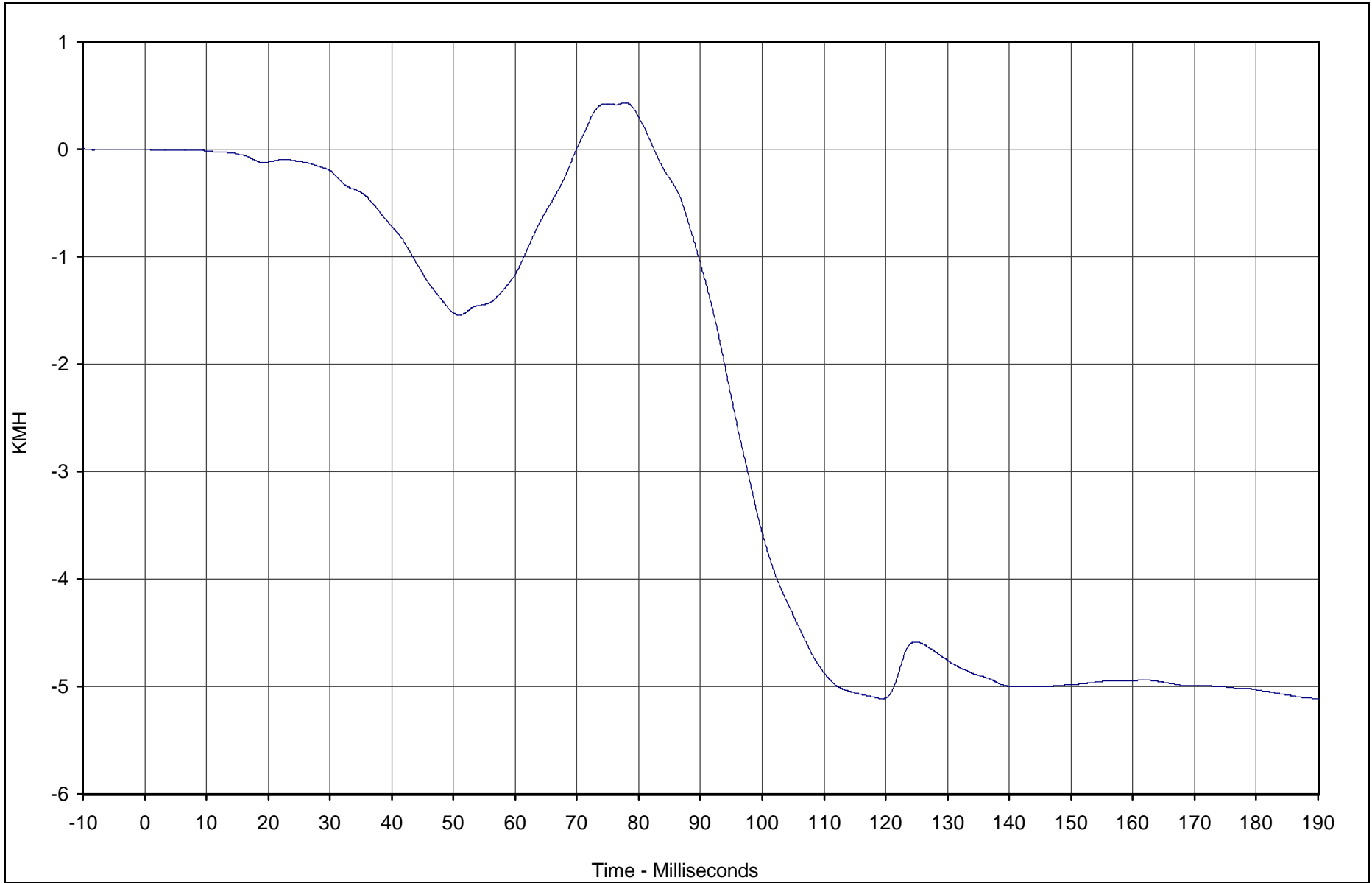
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-46



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head Z Velocity	025	IN1	KMH	0.4	77.8	-5.1	119.5	180



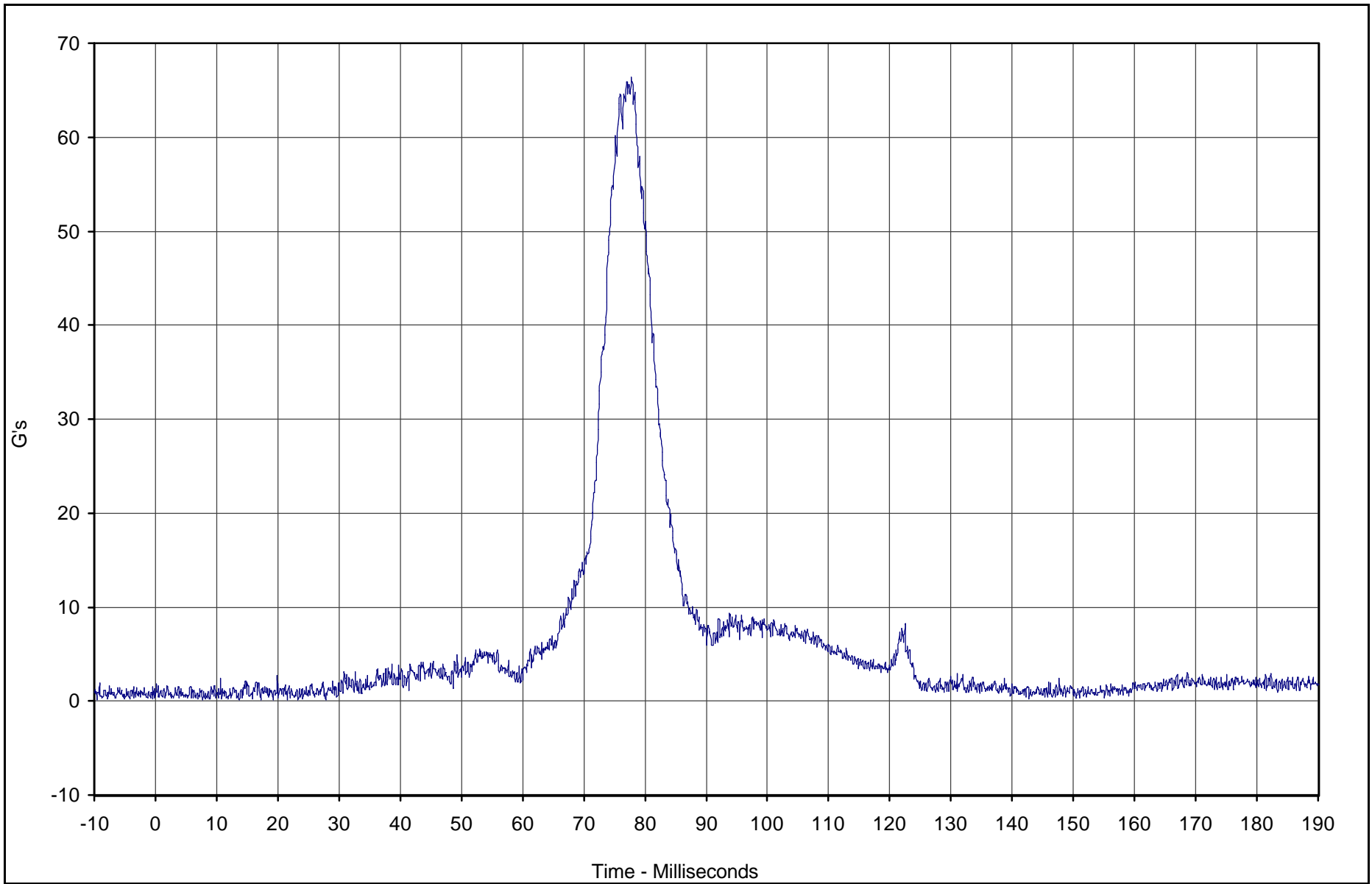
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head Resultant	023	RES	G's	66.4	77.7	0.1	17.2	1000



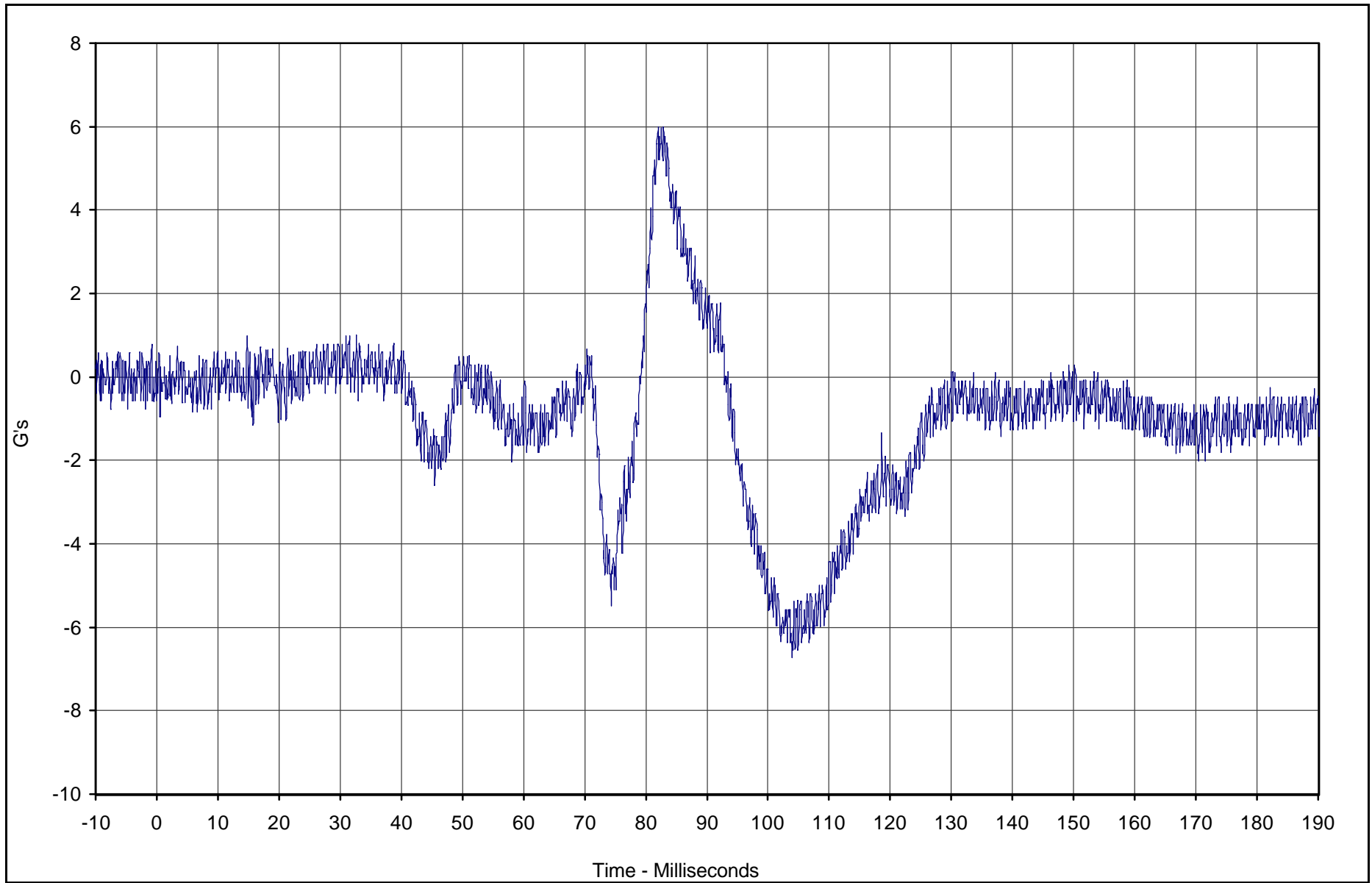
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-48



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head X Redundant	026	FIL	G's	6.0	82.0	-6.7	103.9	1000



Test Vehicle: 2003 BMW X5 3.0i SUV

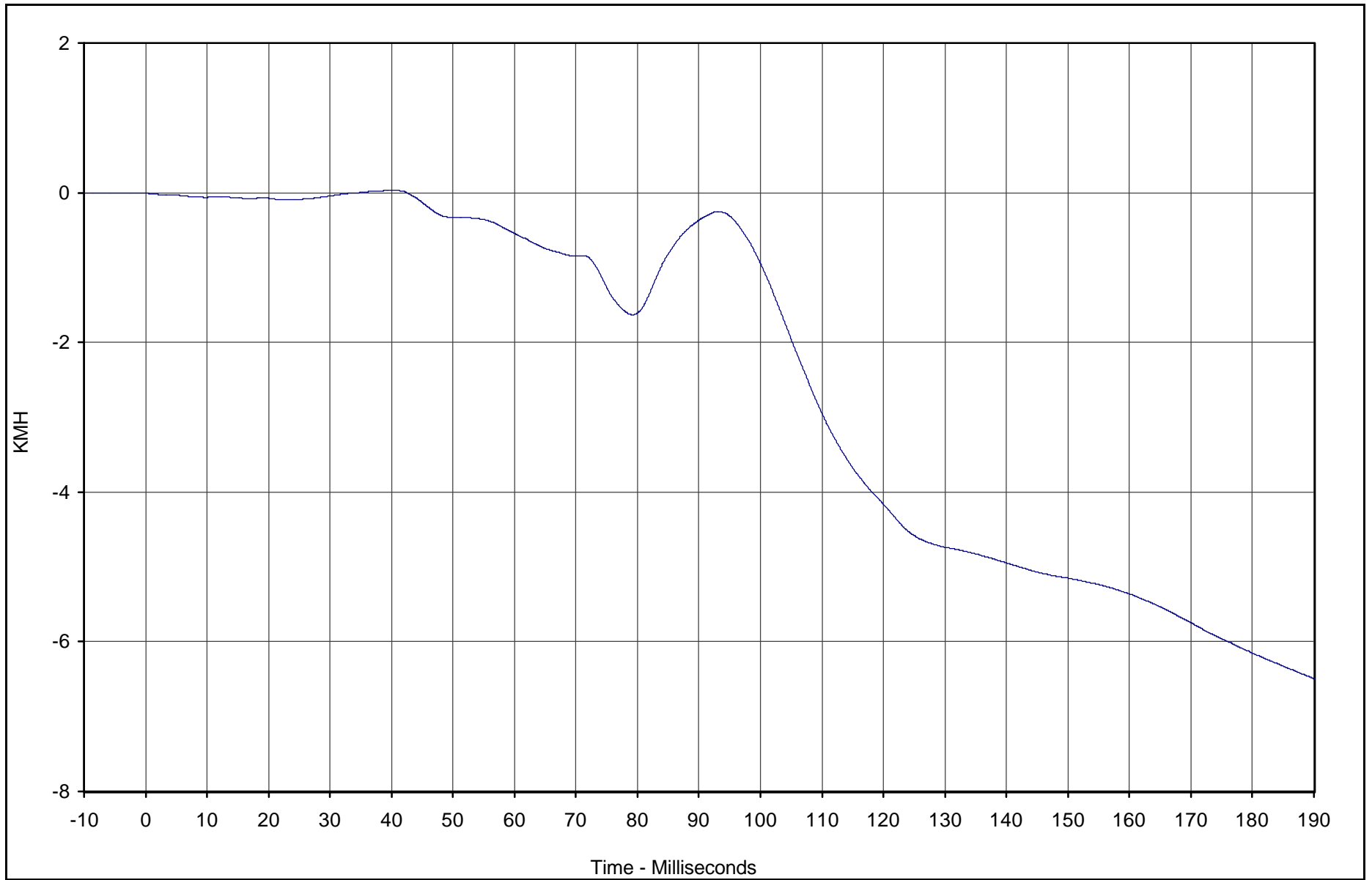
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-49



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head X Redundant Velocity	026	IN1	KMH	0.0	40.4	-6.5	189.9	180



Test Vehicle: 2003 BMW X5 3.0i SUV

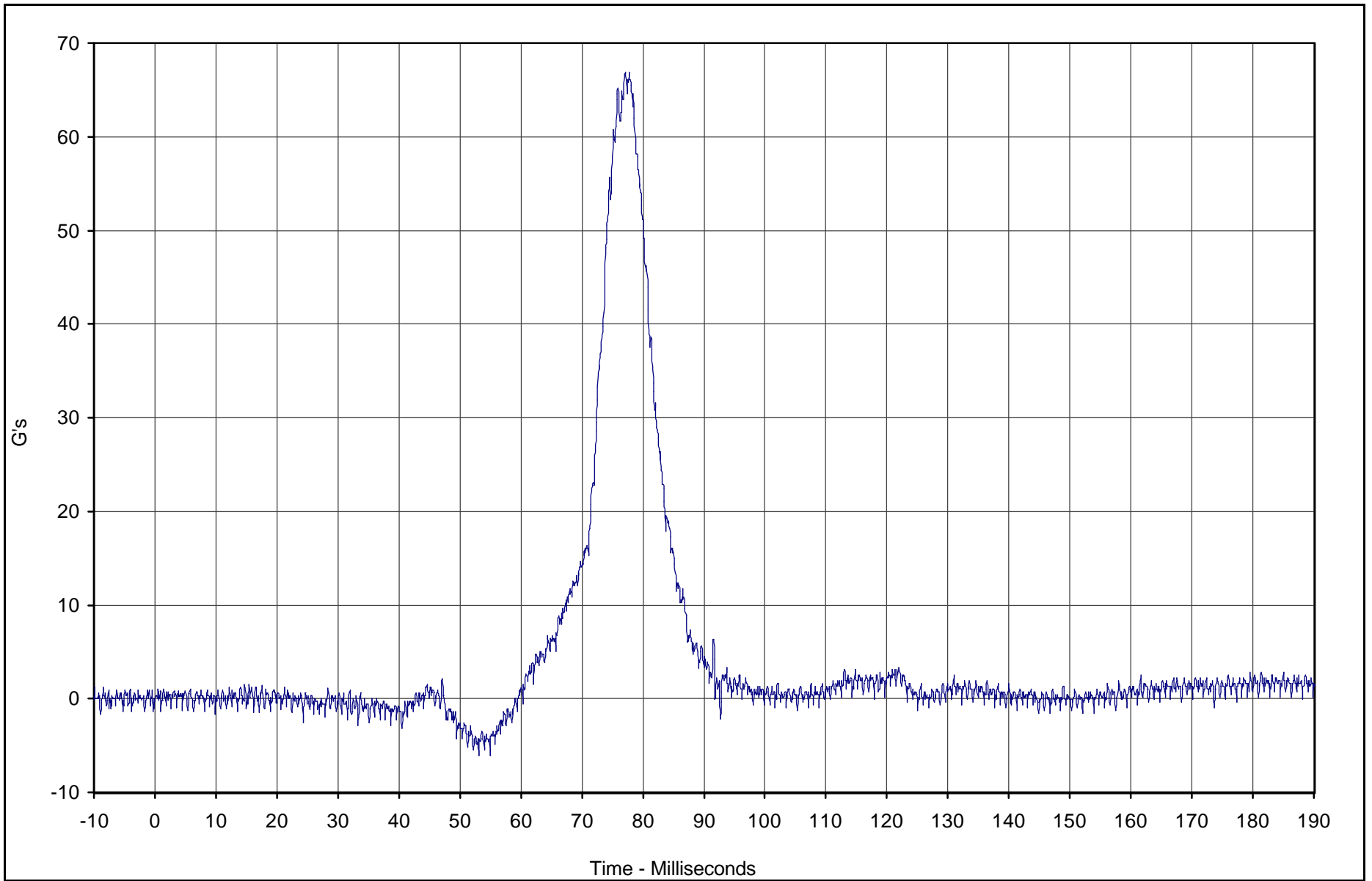
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-50



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head Blue Redundant	027	FIL	G's	66.9	77.1	-6.1	53.1	1000



Test Vehicle: 2003 BMW X5 3.0i SUV

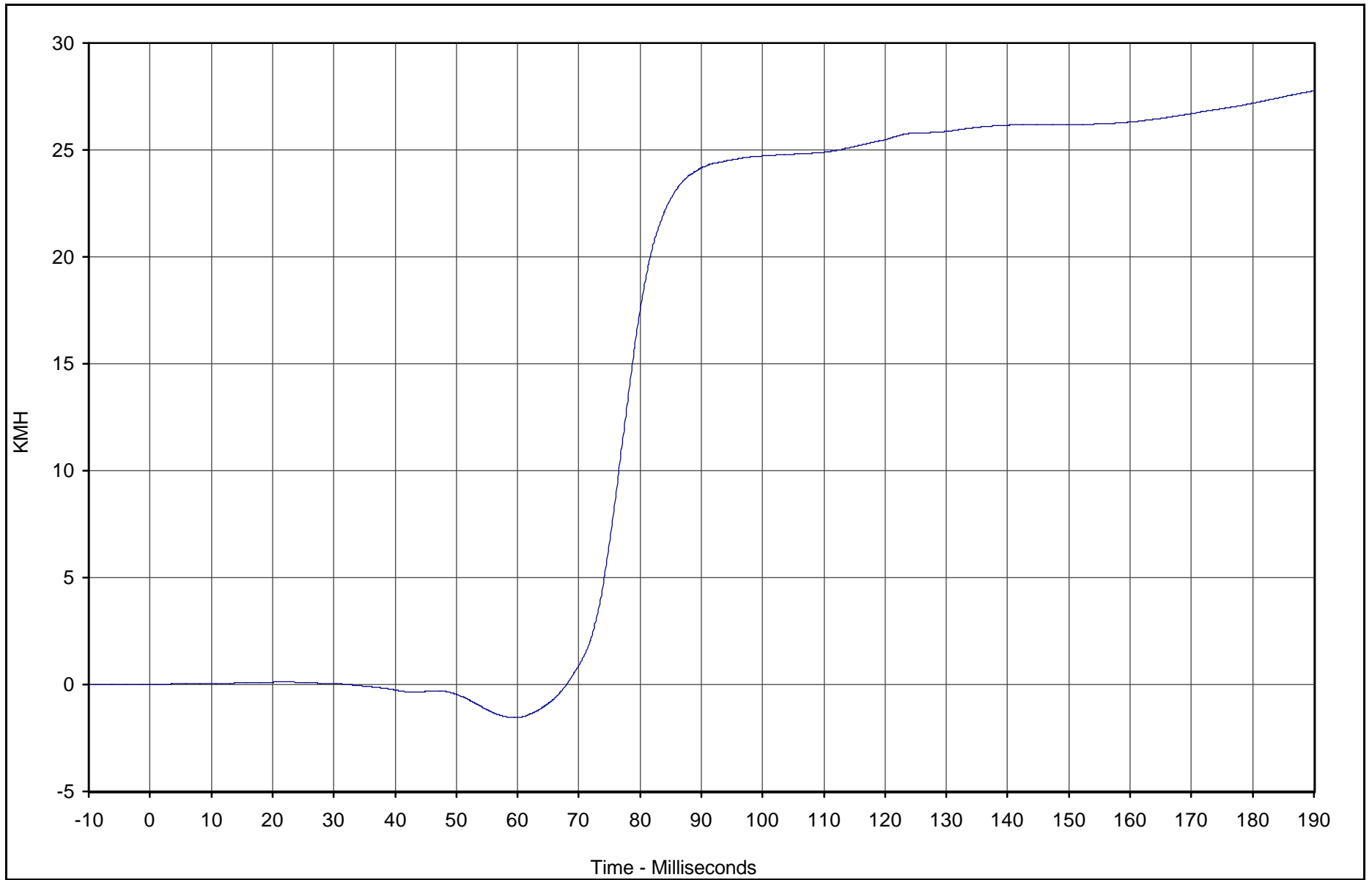
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-51



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head Y Redundant Velocity	027	IN1	KMH	27.8	189.9	-1.6	59.5	180



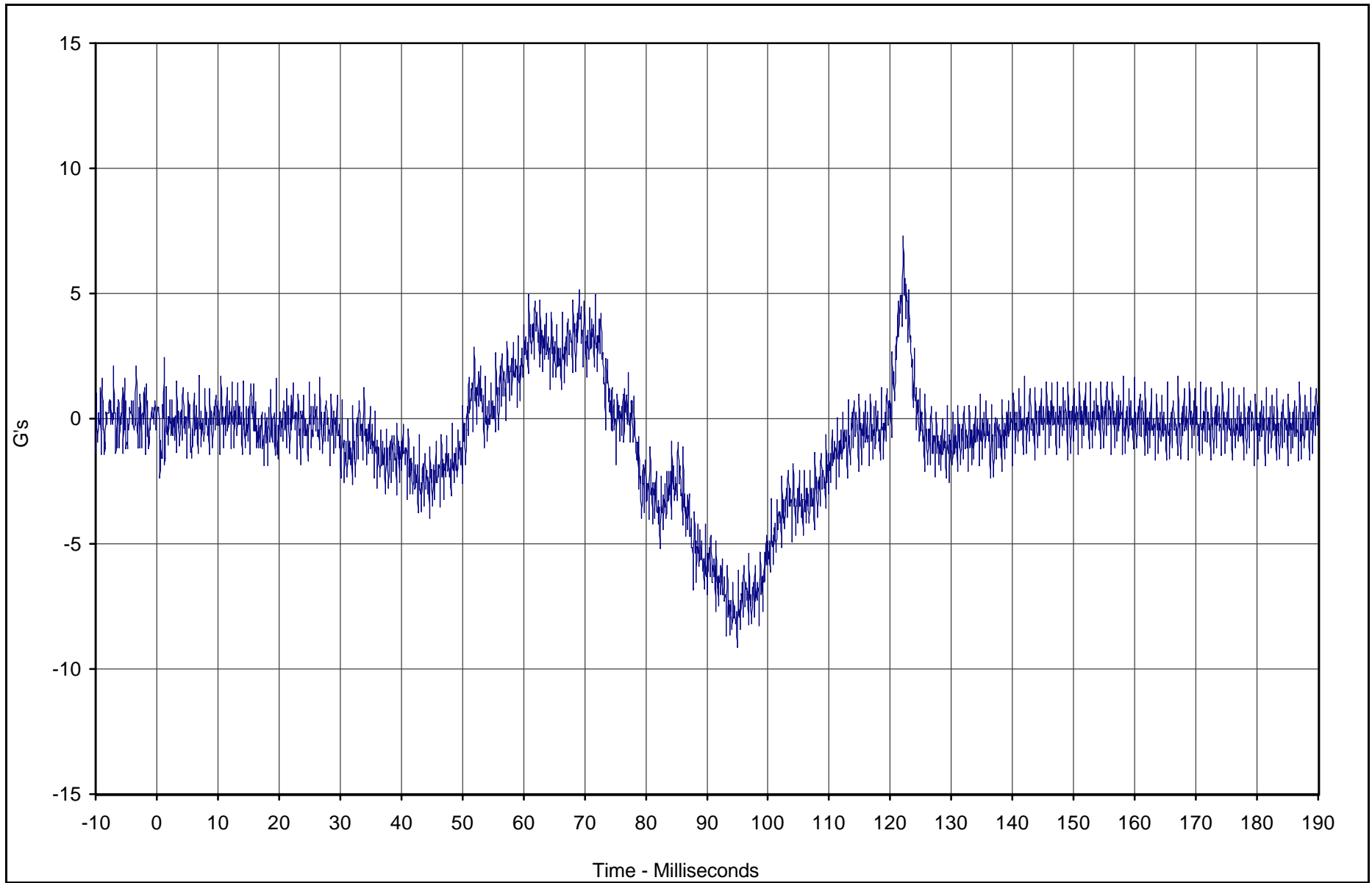
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-52



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head Z Redundant	028	FIL	G's	7.3	122.1	-9.1	95.0	1000



Test Vehicle: 2003 BMW X5 3.0i SUV

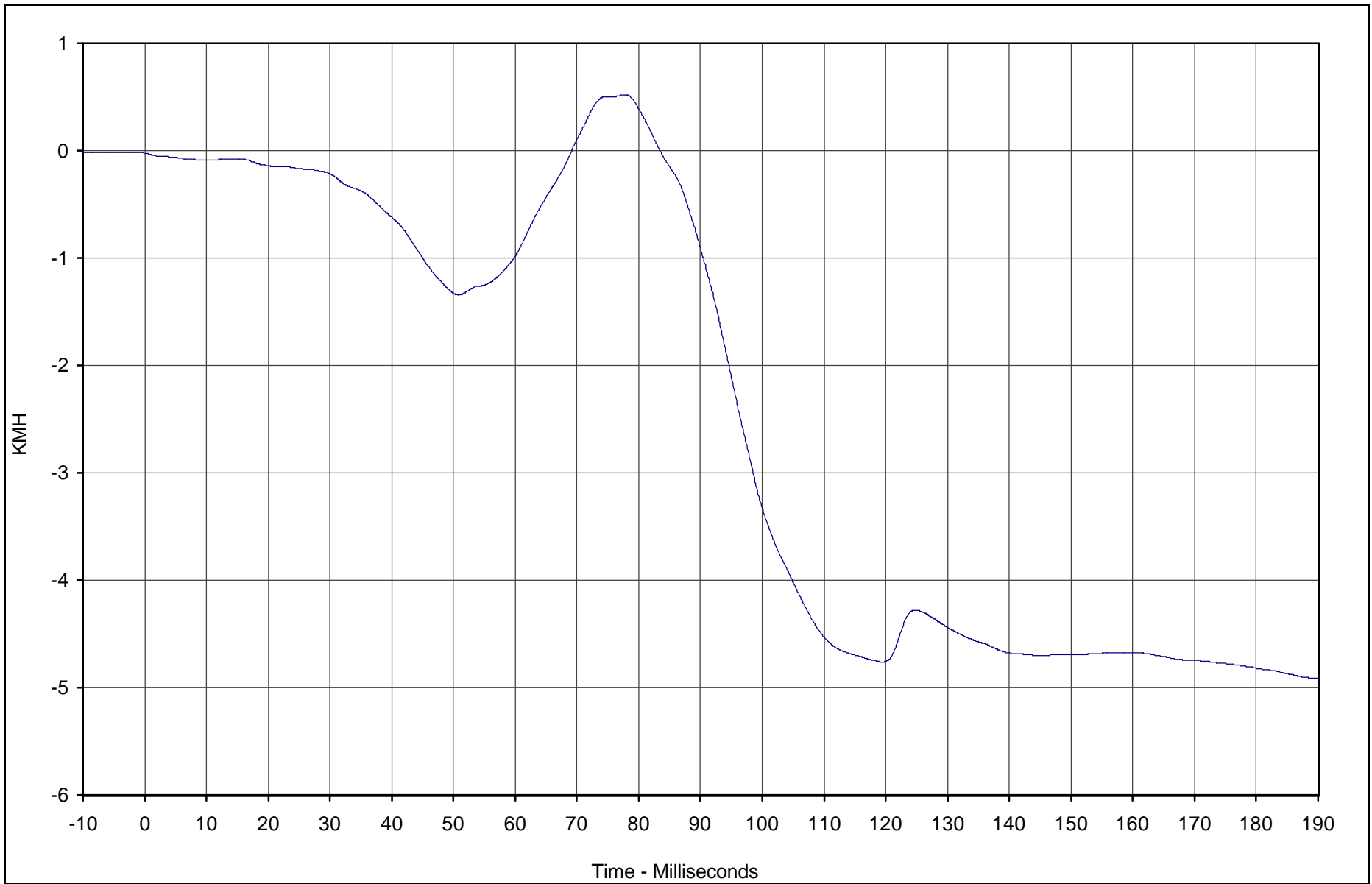
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-53



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head Z Redundant Velocity	028	IN1	KMH	0.5	77.8	-4.9	189.6	180



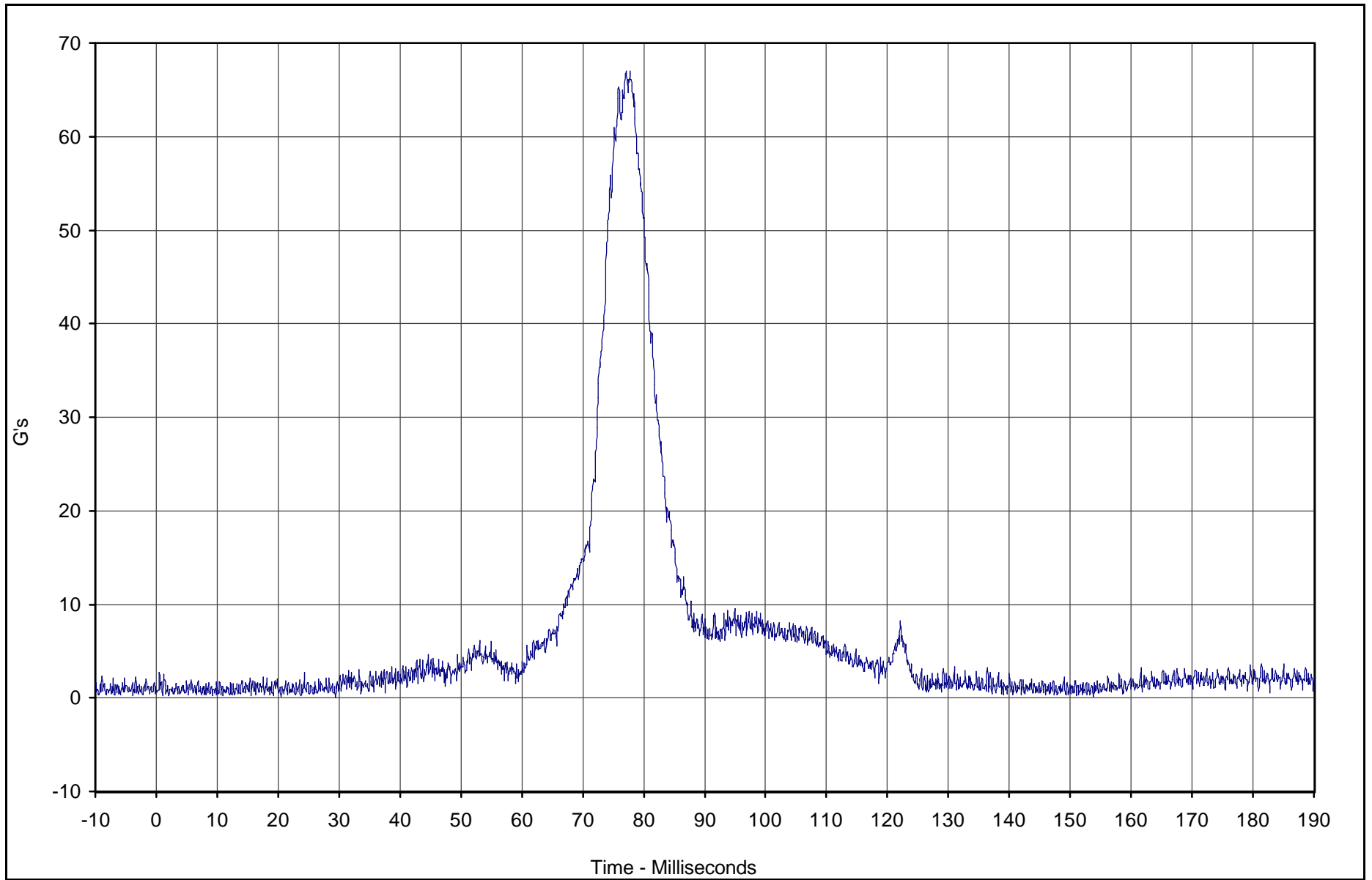
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-54



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Head Redundant Resultant	026	RES	G's	67.0	77.1	0.1	29.4	1000



Test Vehicle: 2003 BMW X5 3.0i SUV

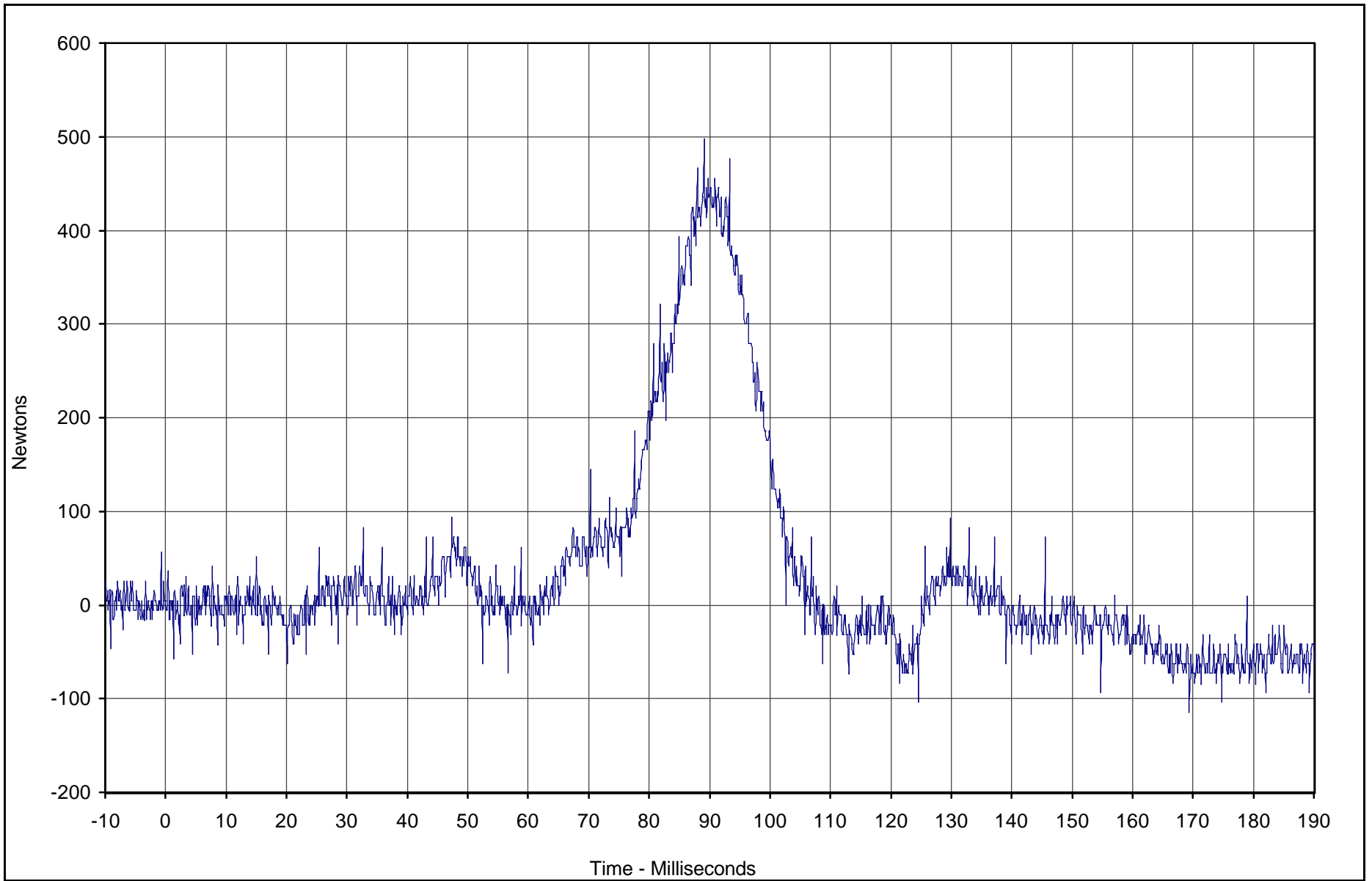
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-55



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Neck Force X	029	FIL	Newtons	497.5	89.1	-114.5	169.4	1000



Test Vehicle: 2003 BMW X5 3.0i SUV

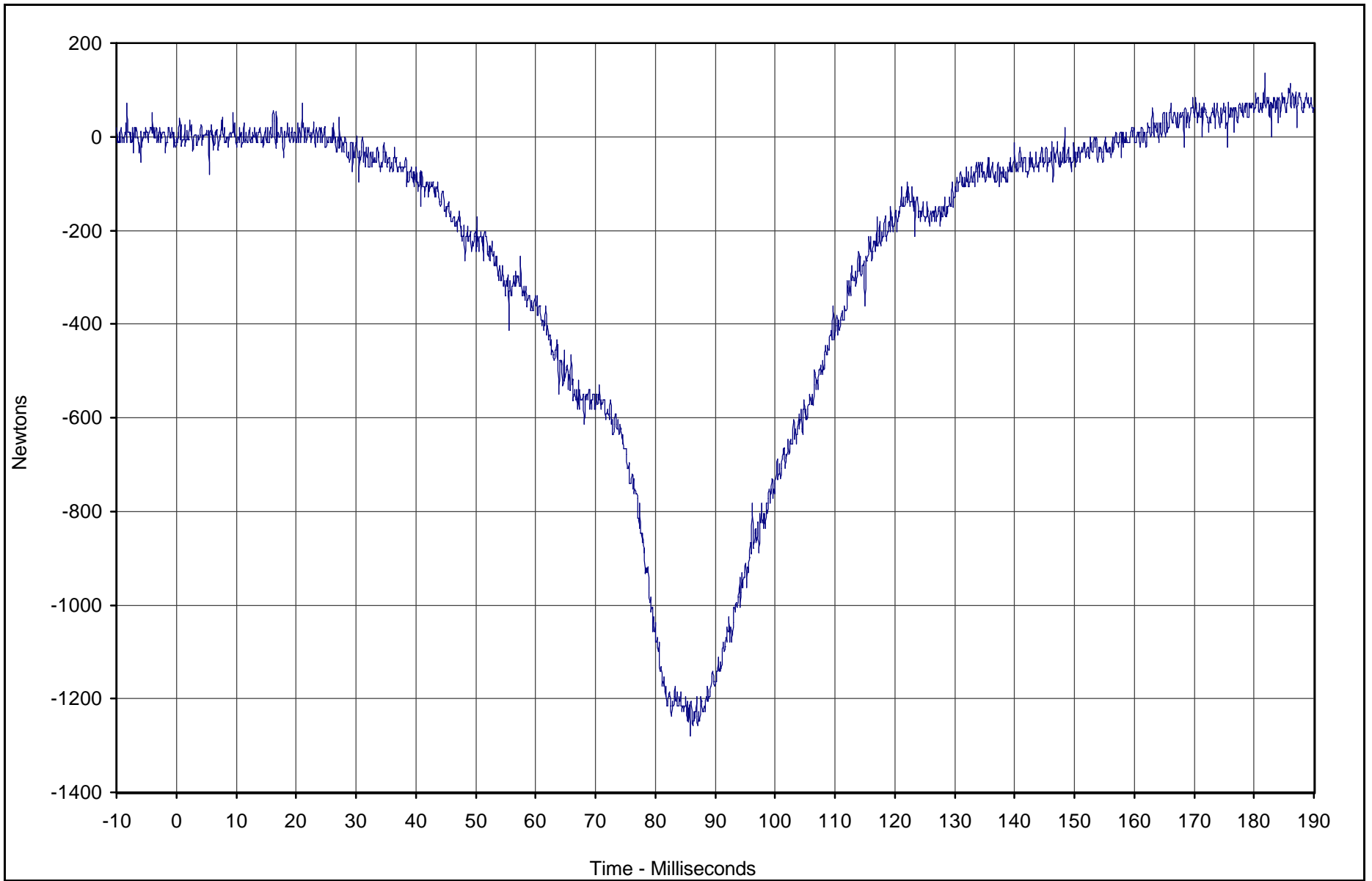
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-56



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Neck Force Y	030	FIL	Newtons	135.9	181.8	-1279.5	85.8	1000



Test Vehicle: 2003 BMW X5 3.0i SUV

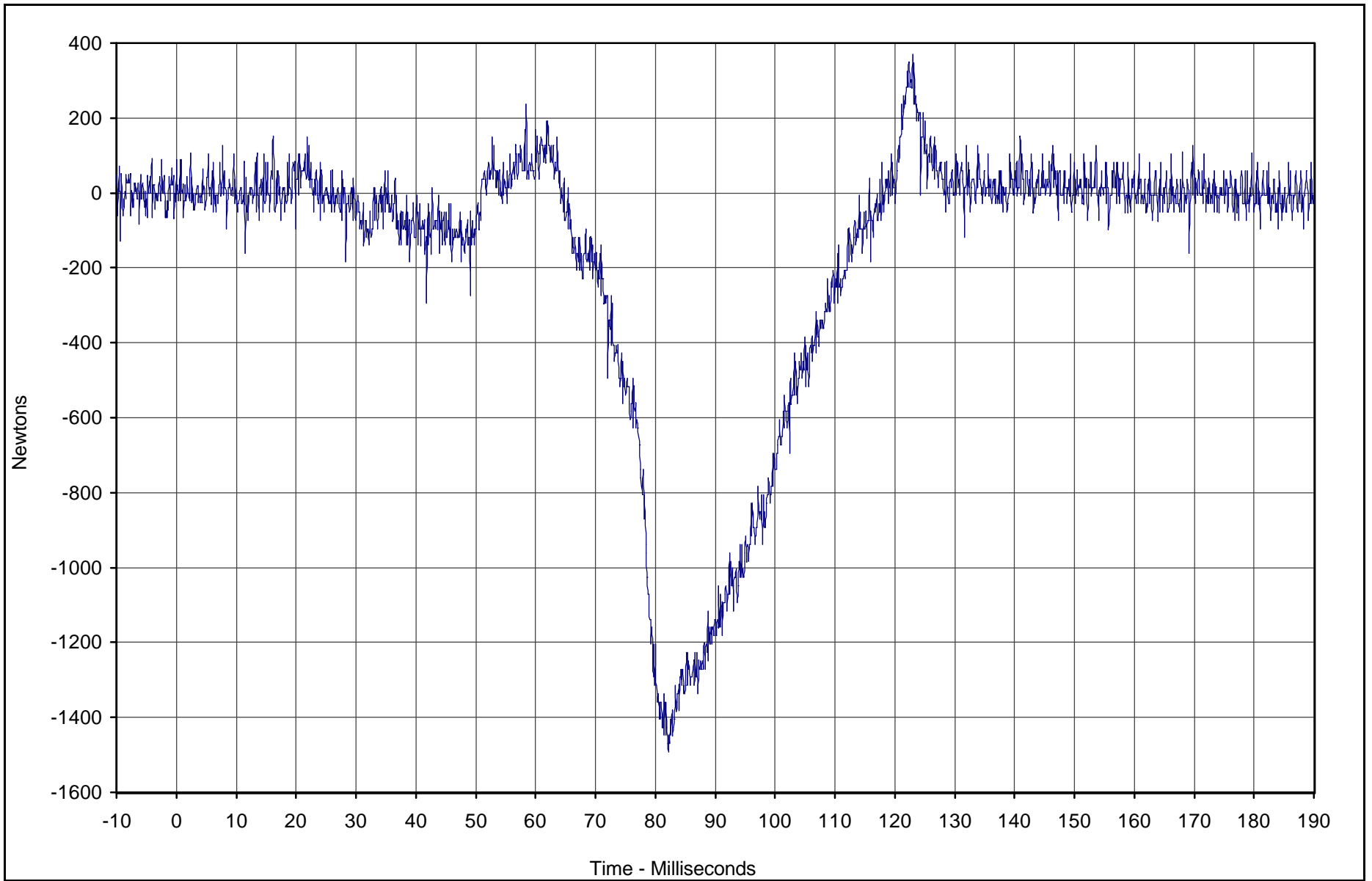
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-57



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Neck Force Z	031	FIL	Newtons	369.9	123.0	-1492.4	82.2	1000



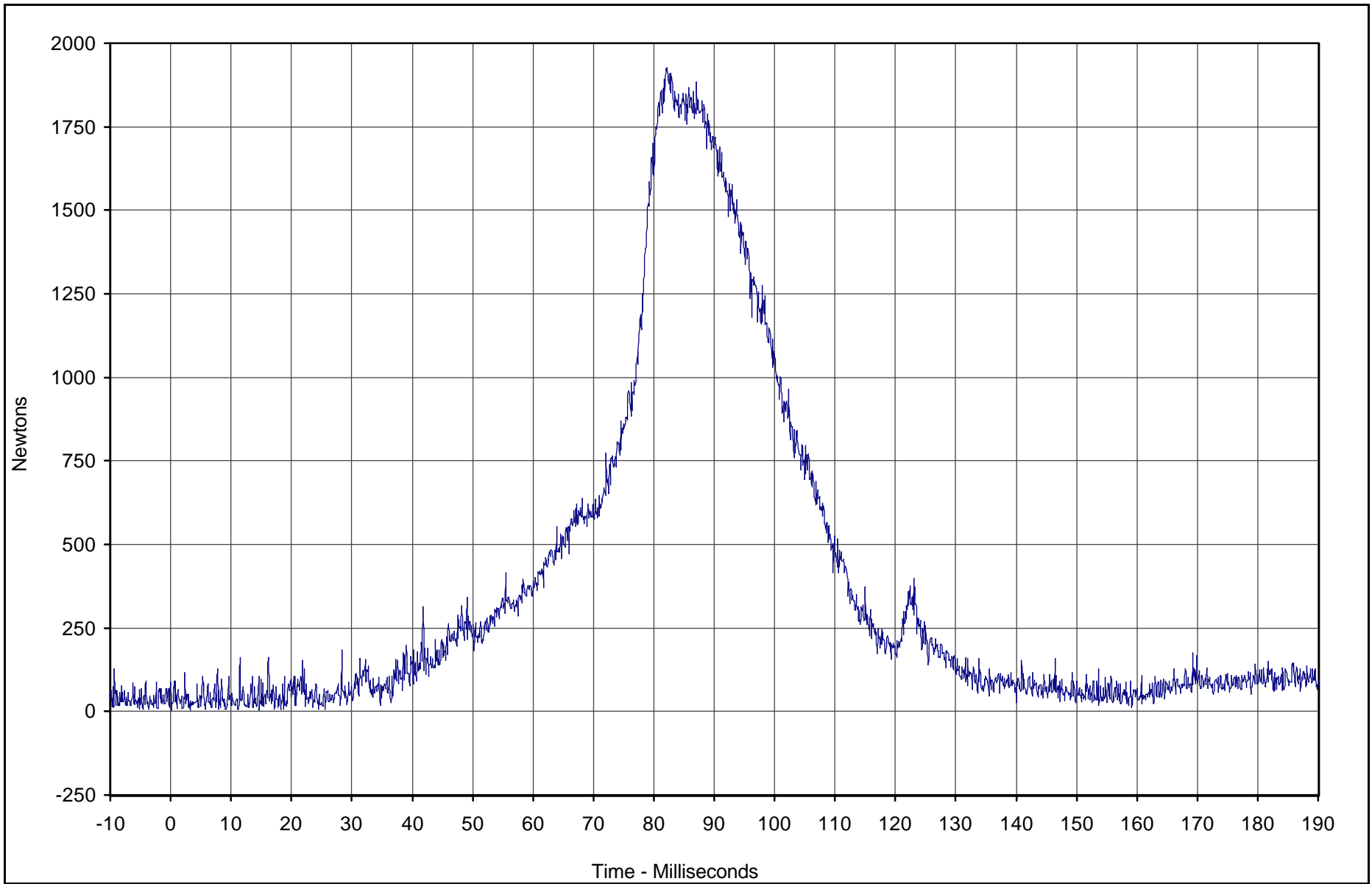
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Neck Force Resultant	029	RES	Newtons	1928.0	82.2	4.7	3.2	1000

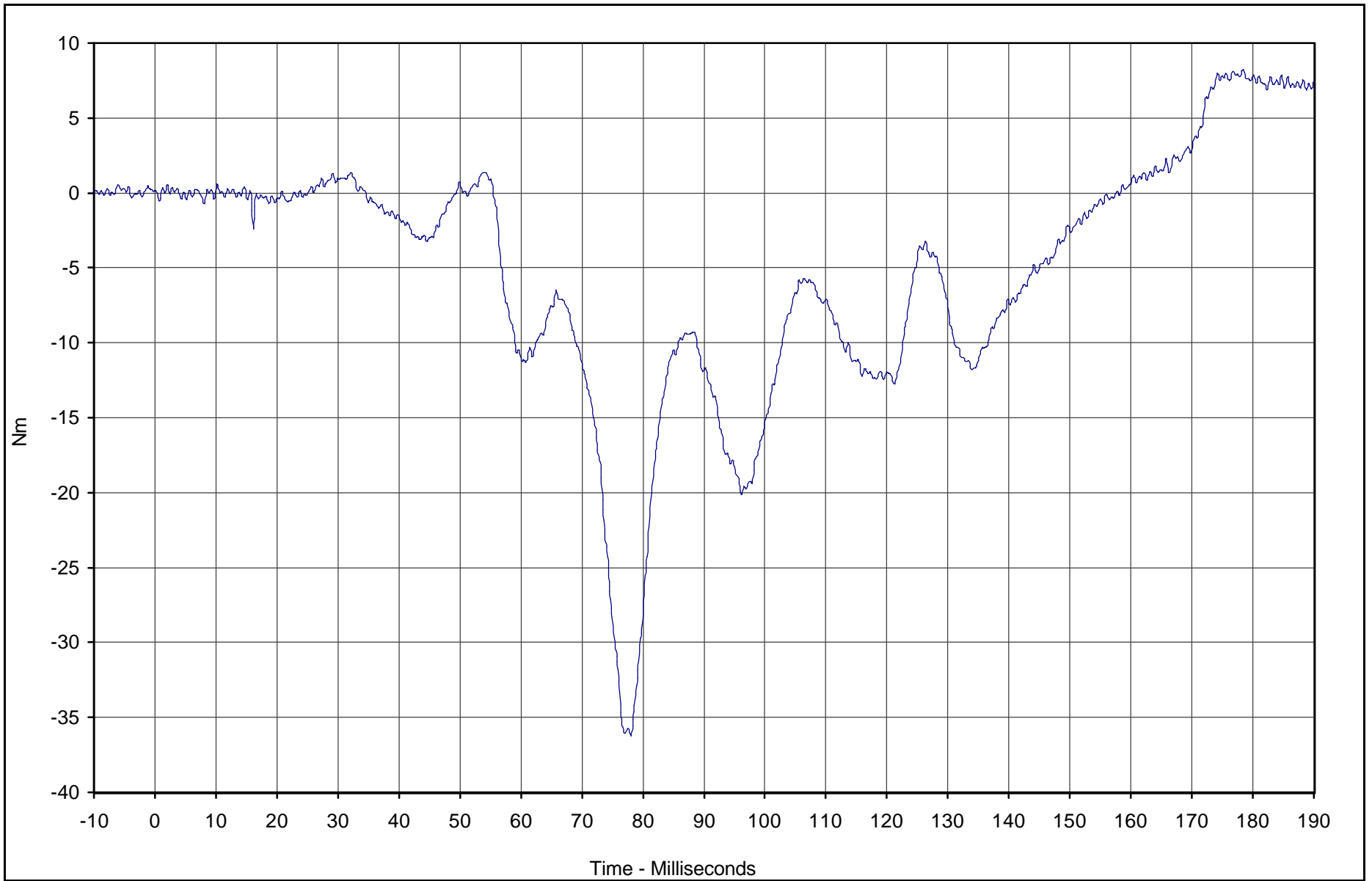


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Neck Moment X	032	FIL	Nm	8.3	178.4	-36.2	78.0	600



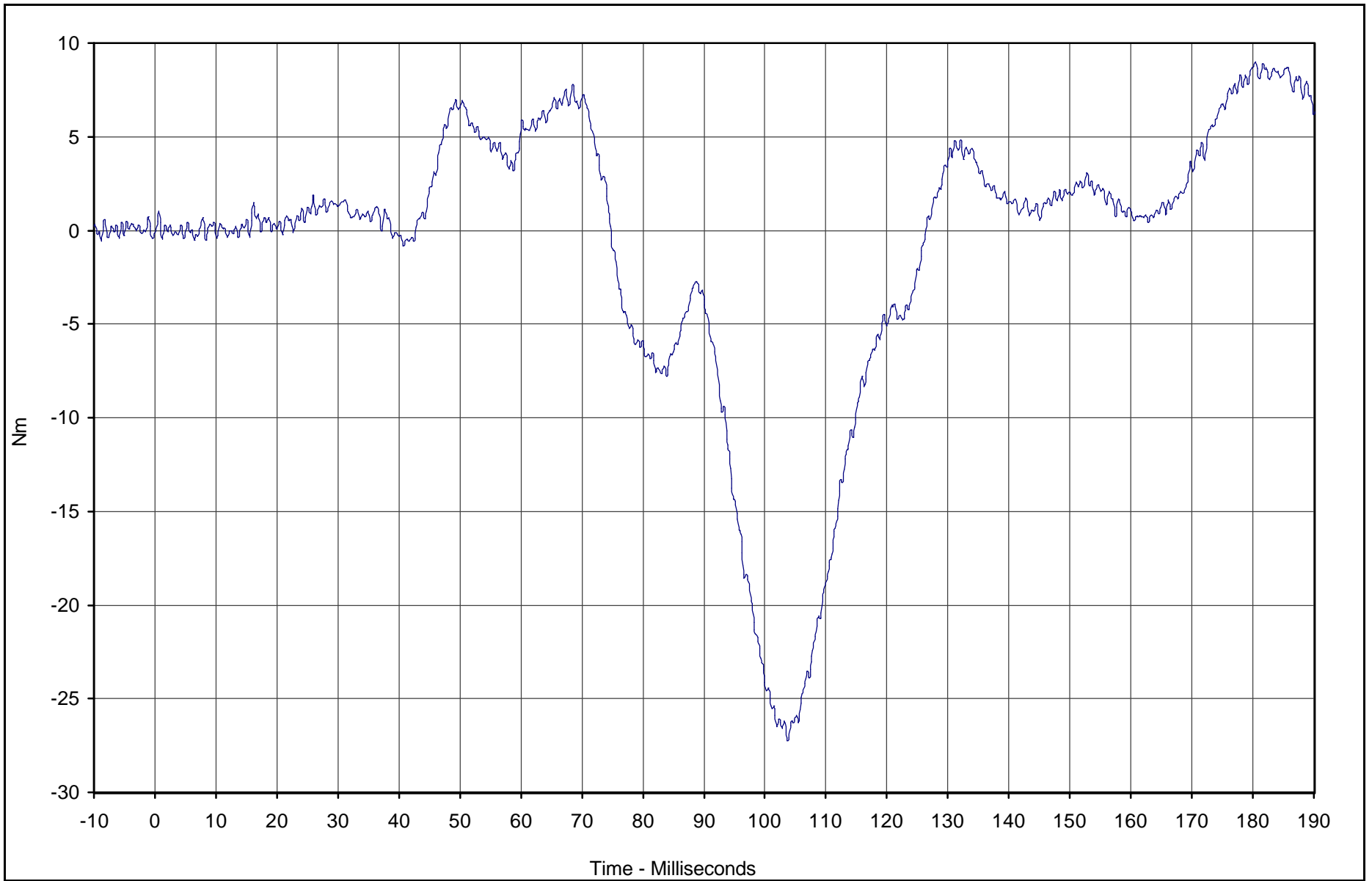
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-60



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Neck Moment Y	033	FIL	Nm	9.0	180.4	-27.2	103.7	600



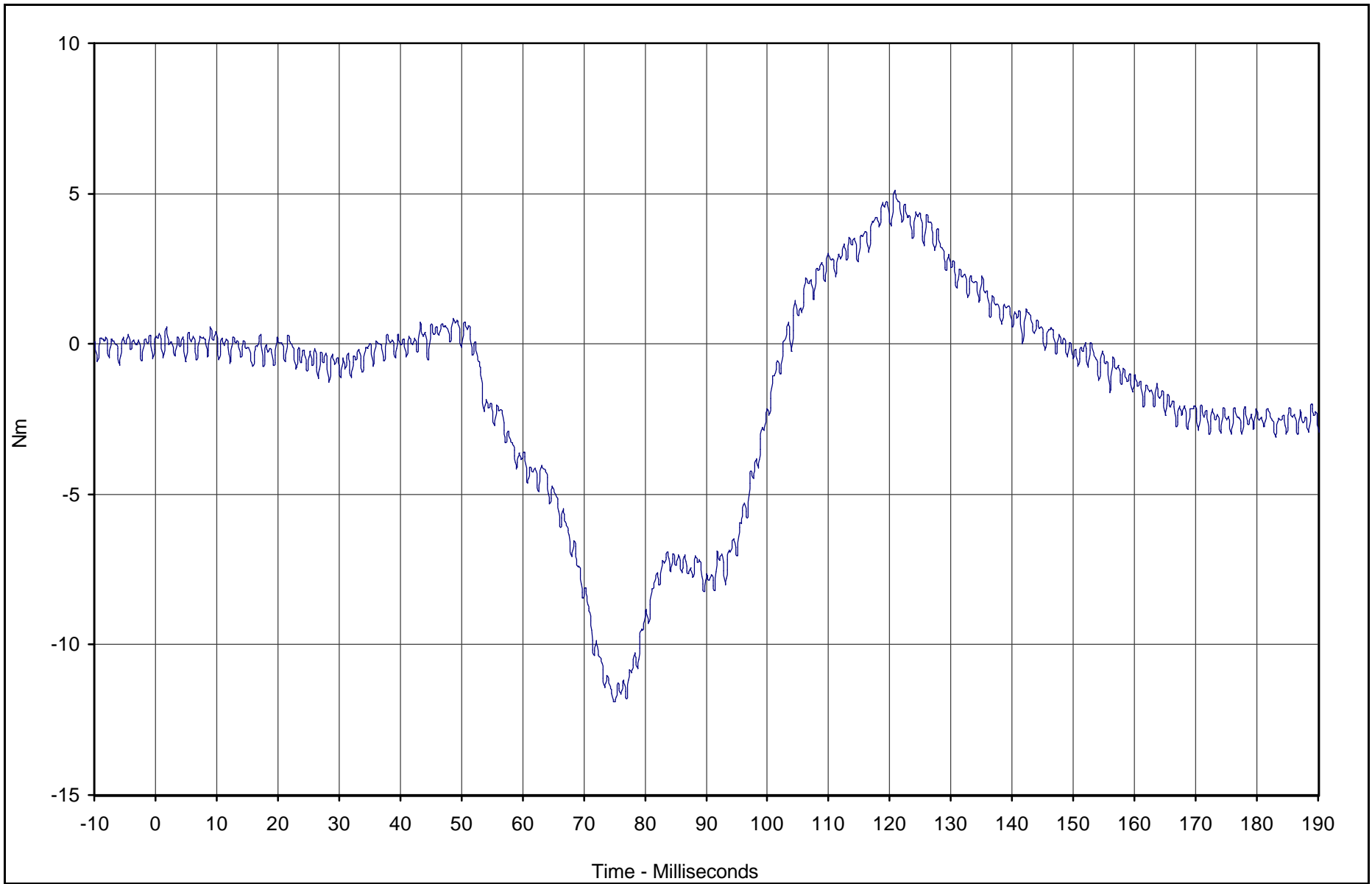
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Neck Moment Z	034	FIL	Nm	5.1	120.8	-11.9	75.0	600



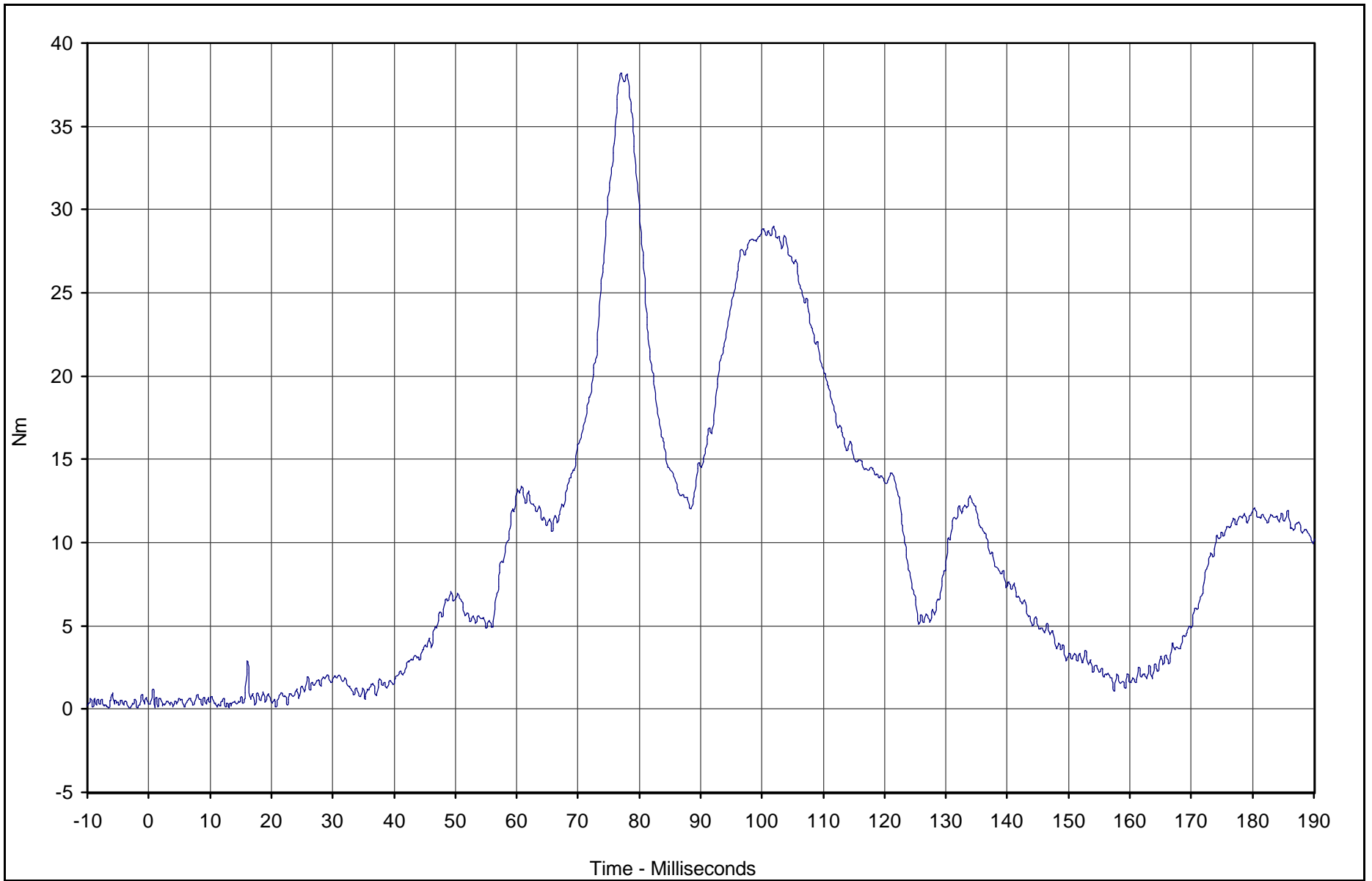
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-62



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Neck Moment Resultant	032	RES	Nm	38.2	77.0	0.1	13.1	600



Test Vehicle: 2003 BMW X5 3.0i SUV

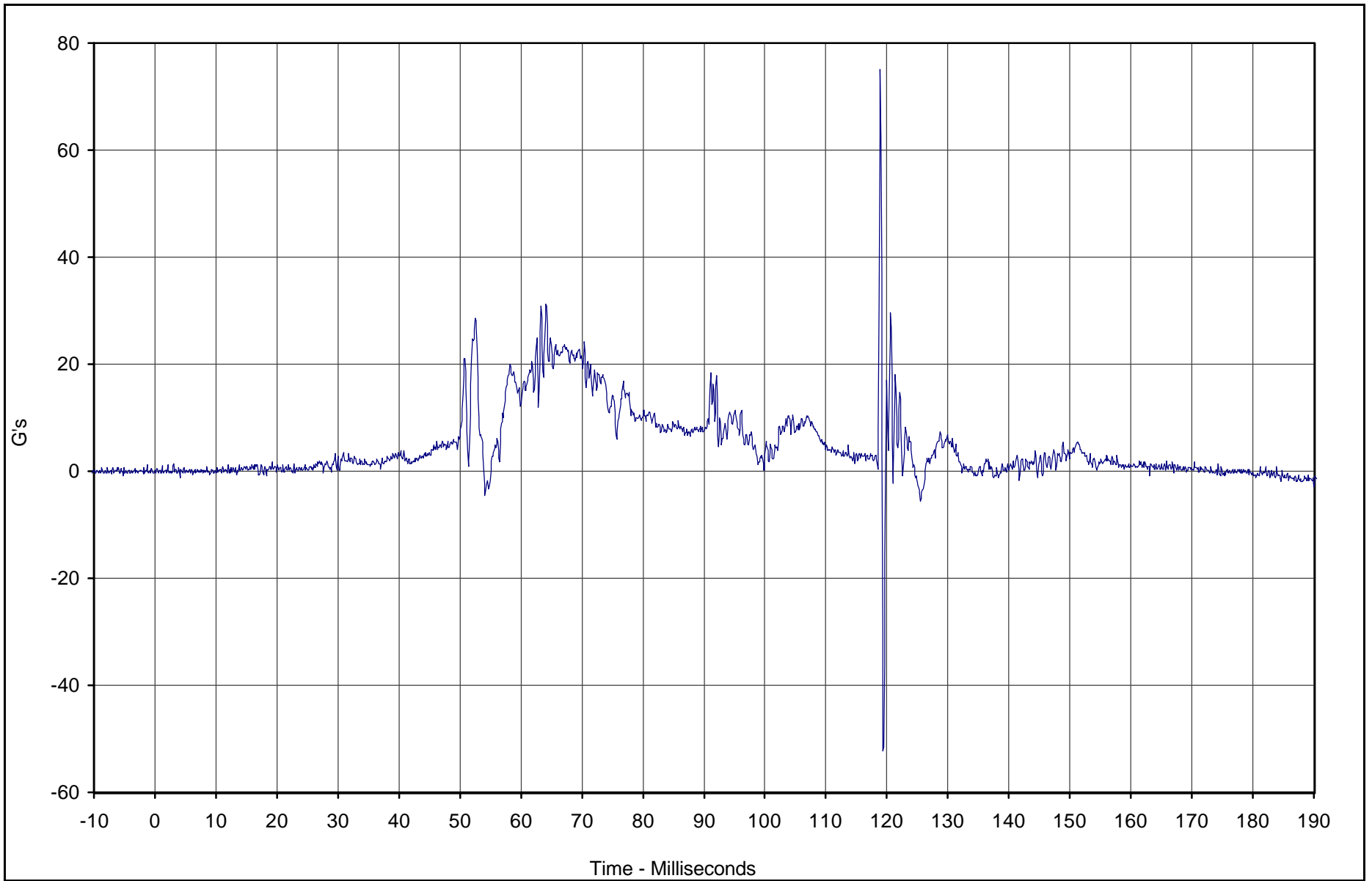
Test Date: 3/20/03

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

NHTSA No.: M30502

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B-63



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Upper Rib Primary Y	035	FIL	G's	75.0	118.9	-52.3	119.4	1000



Test Vehicle: 2003 BMW X5 3.0i SUV

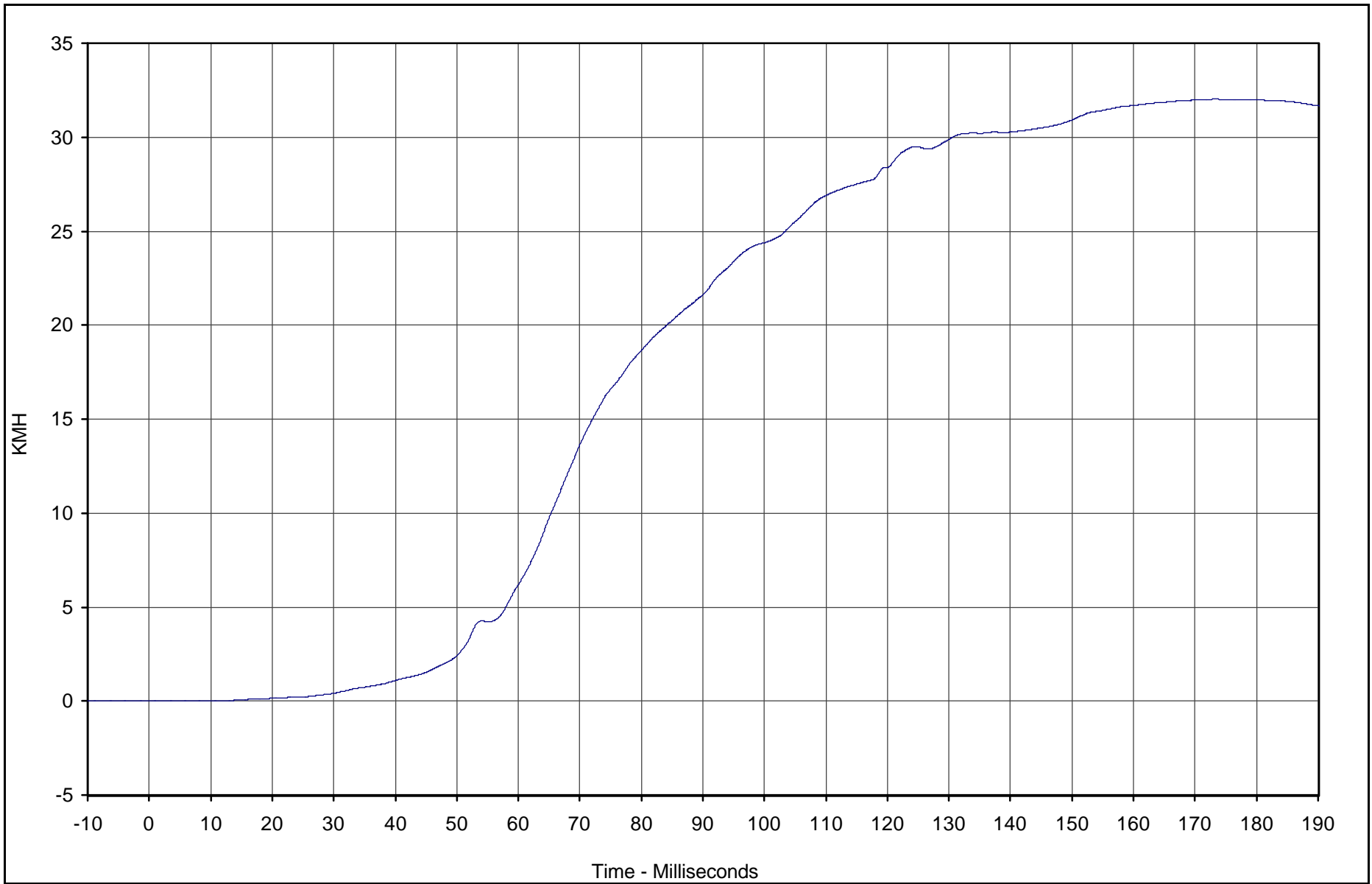
Test Date: 3/20/03

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

NHTSA No.: M30502

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B-64



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Upper Rib Primary Y Vel.	035	IN1	KMH	32.0	173.3	0.0	0.6	180



Test Vehicle: 2003 BMW X5 3.0i SUV

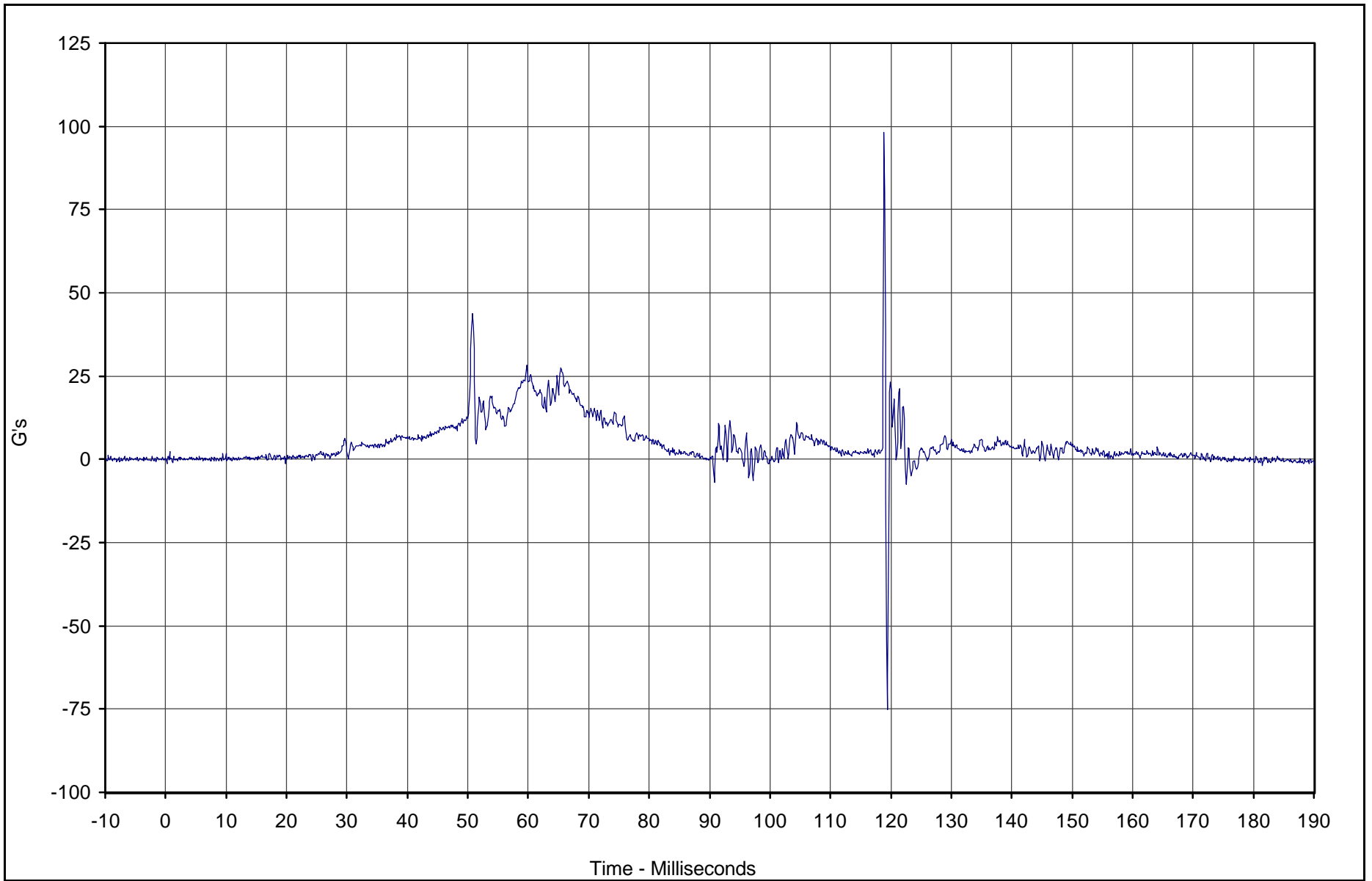
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-65



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Lower Rib Primary Y	036	FIL	G's	98.2	118.9	-75.2	119.4	1000



Test Vehicle: 2003 BMW X5 3.0i SUV

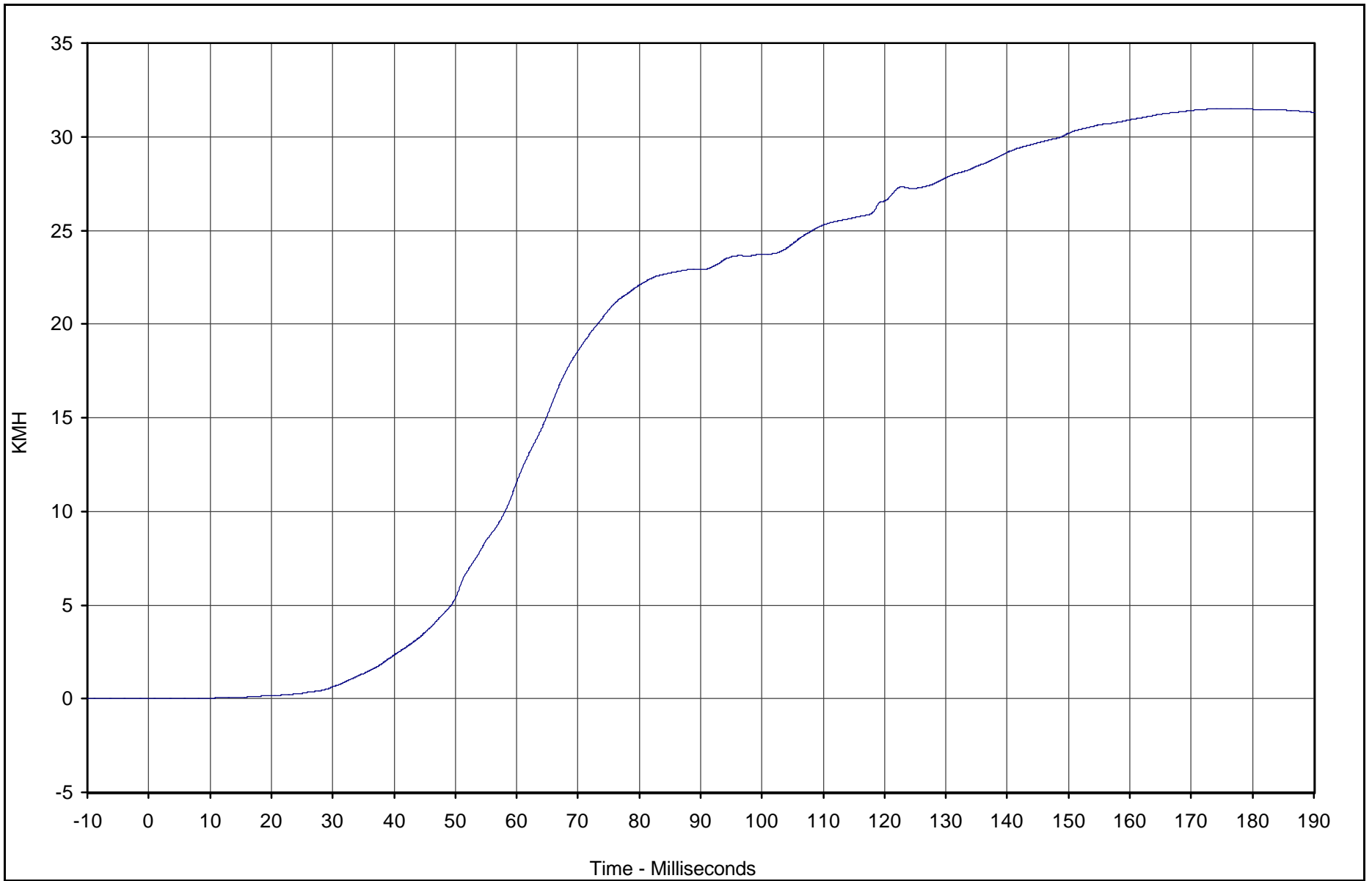
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-66



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Lower Rib Primary Y Vel.	036	IN1	KMH	31.5	175.1	0.0	0.0	180



Test Vehicle: 2003 BMW X5 3.0i SUV

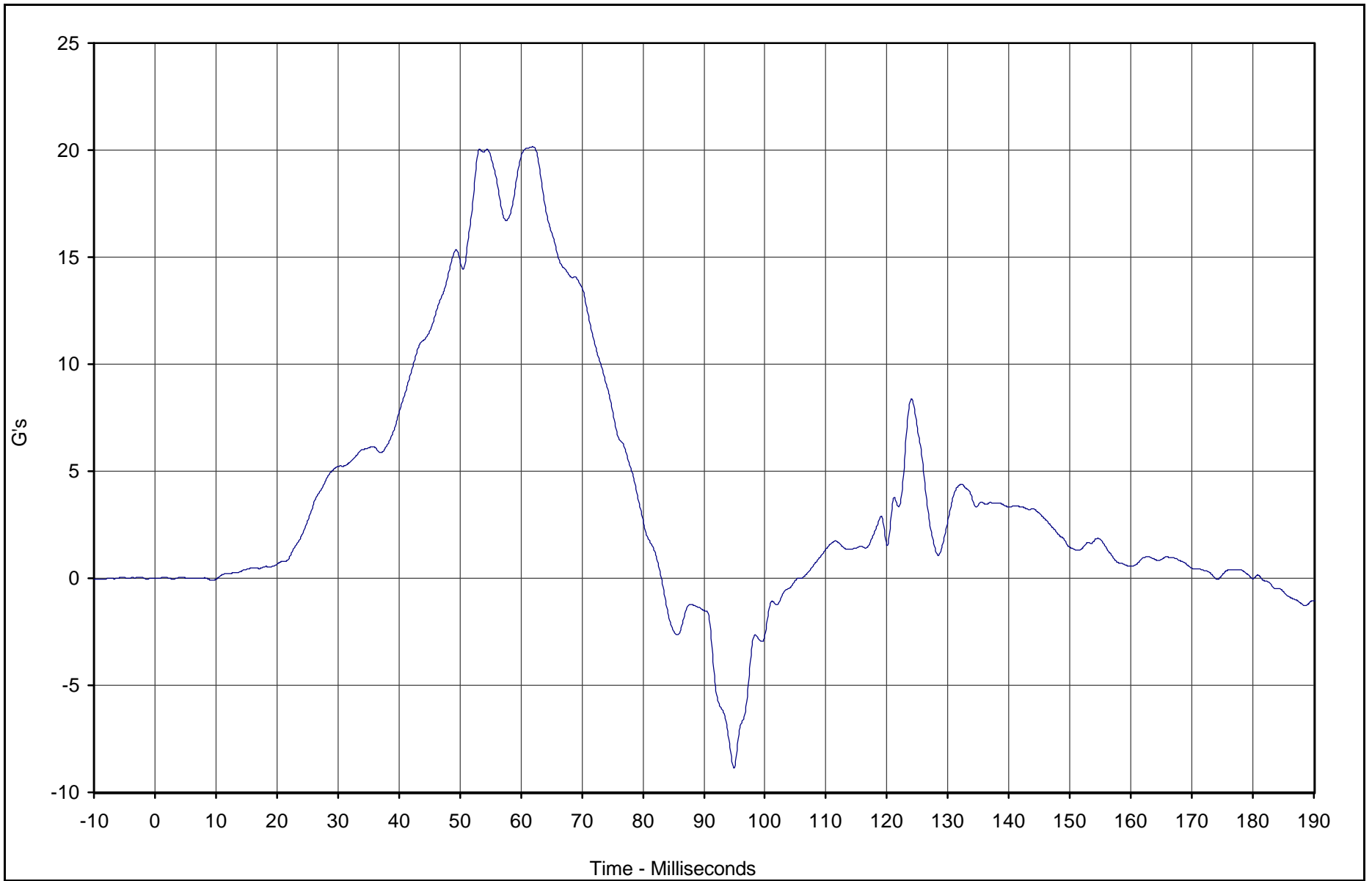
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-67



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Lower Spine Primary Y	037	FIL	G's	20.2	61.9	-8.9	94.9	180



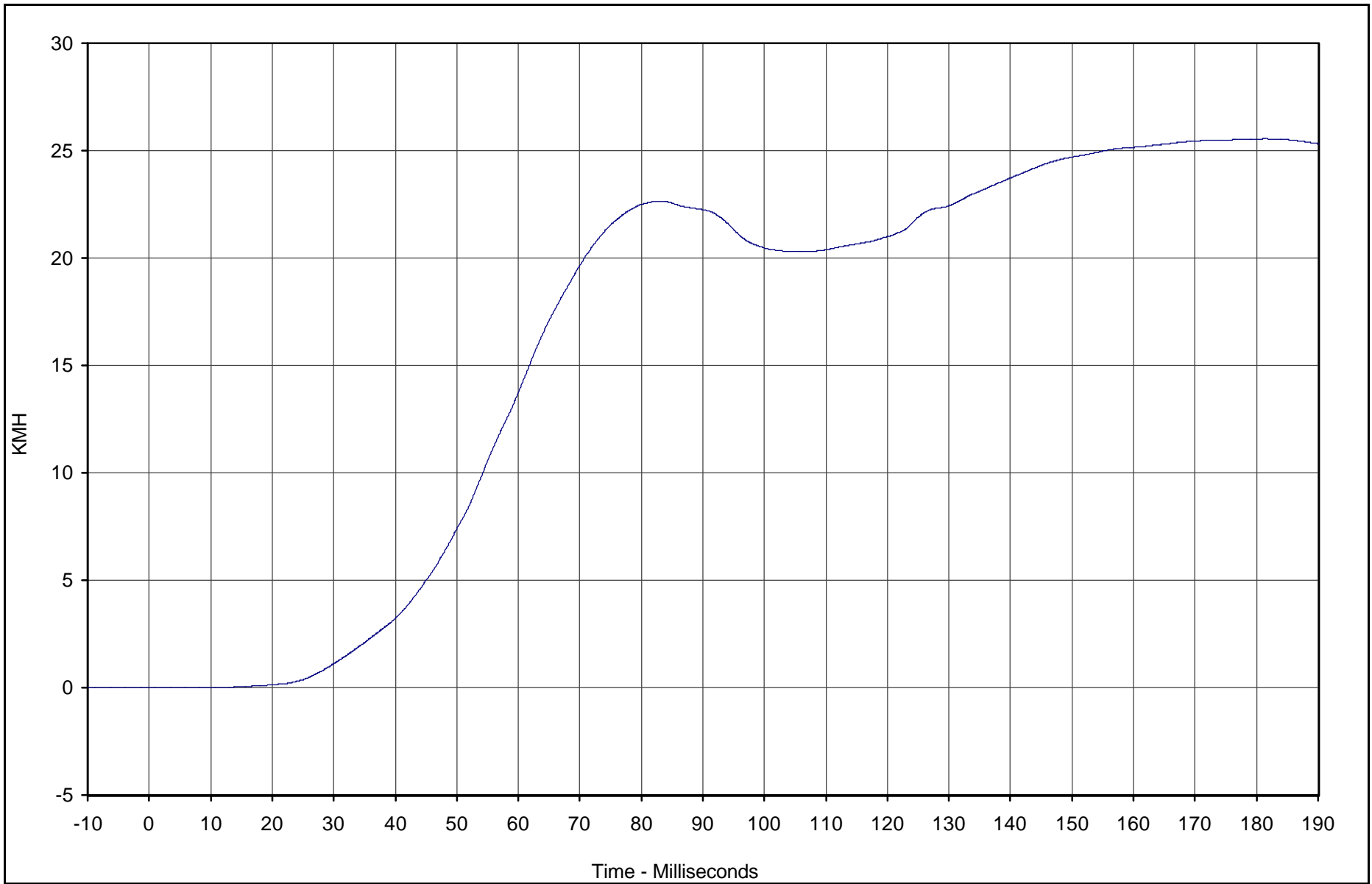
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Lower Spine Primary Y Vel.	037	IN1	KMH	25.5	181.4	0.0	10.2	180



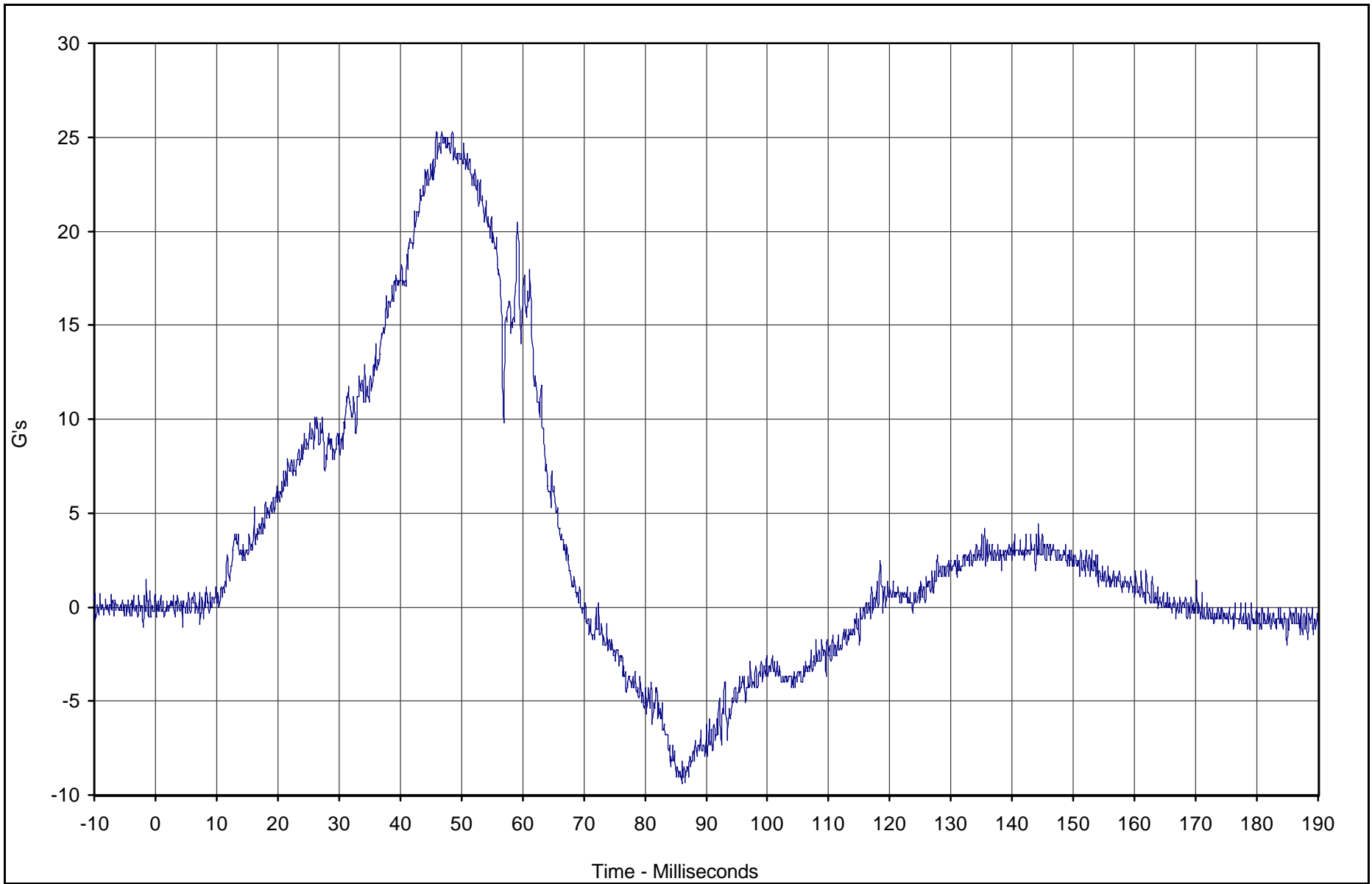
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Pelvis Primary Y	038	FIL	G's	25.3	45.9	-9.3	86.0	1000



Test Vehicle: 2003 BMW X5 3.0i SUV

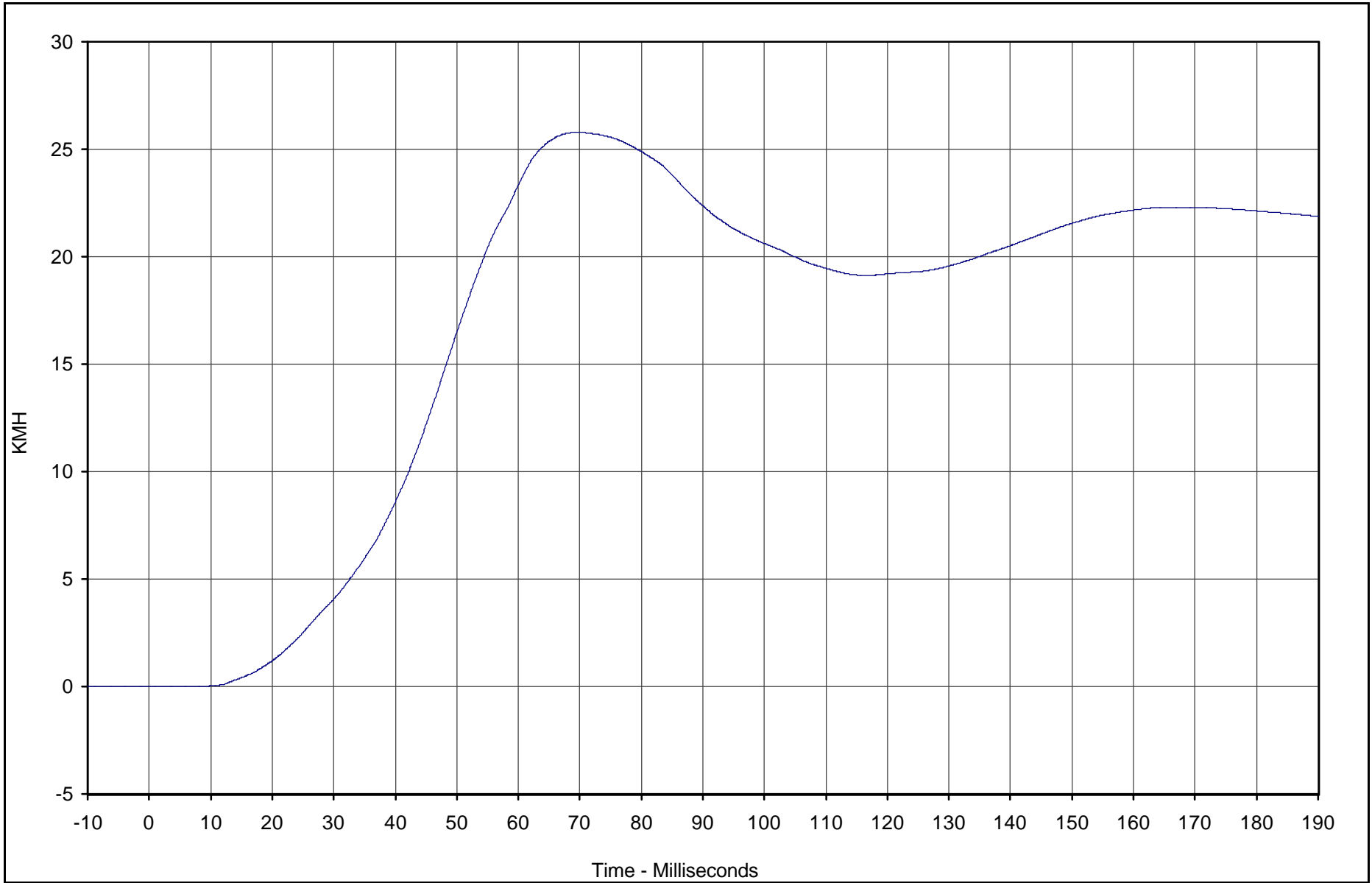
Test Date: 3/20/03

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

NHTSA No.: M30502

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B-70



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Pelvis Primary Y Vel.	038	IN1	KMH	25.8	69.7	0.0	2.0	180



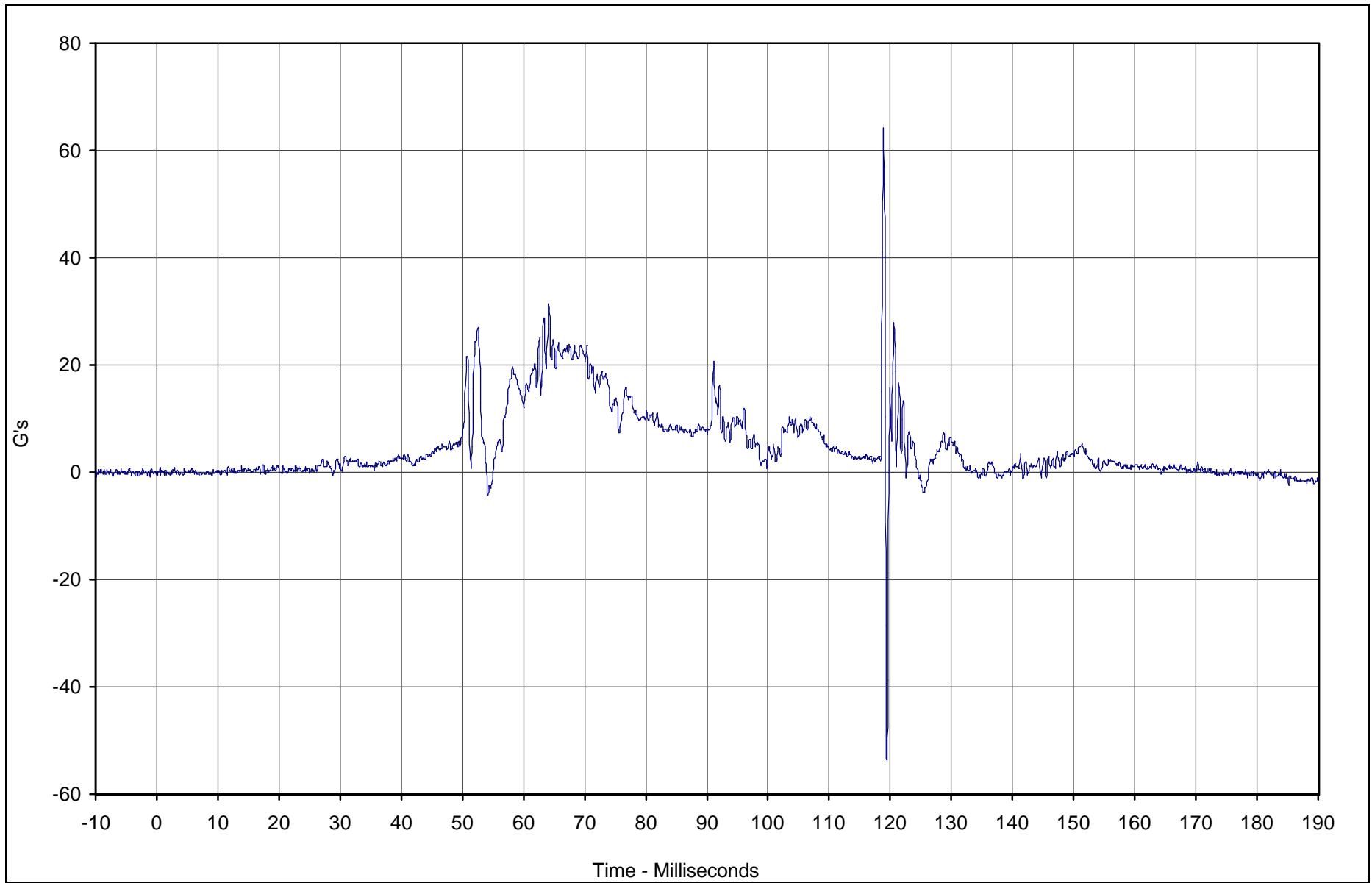
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-71



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Upper Rib Redundant Y	039	FIL	G's	64.3	118.9	-53.7	119.5	1000



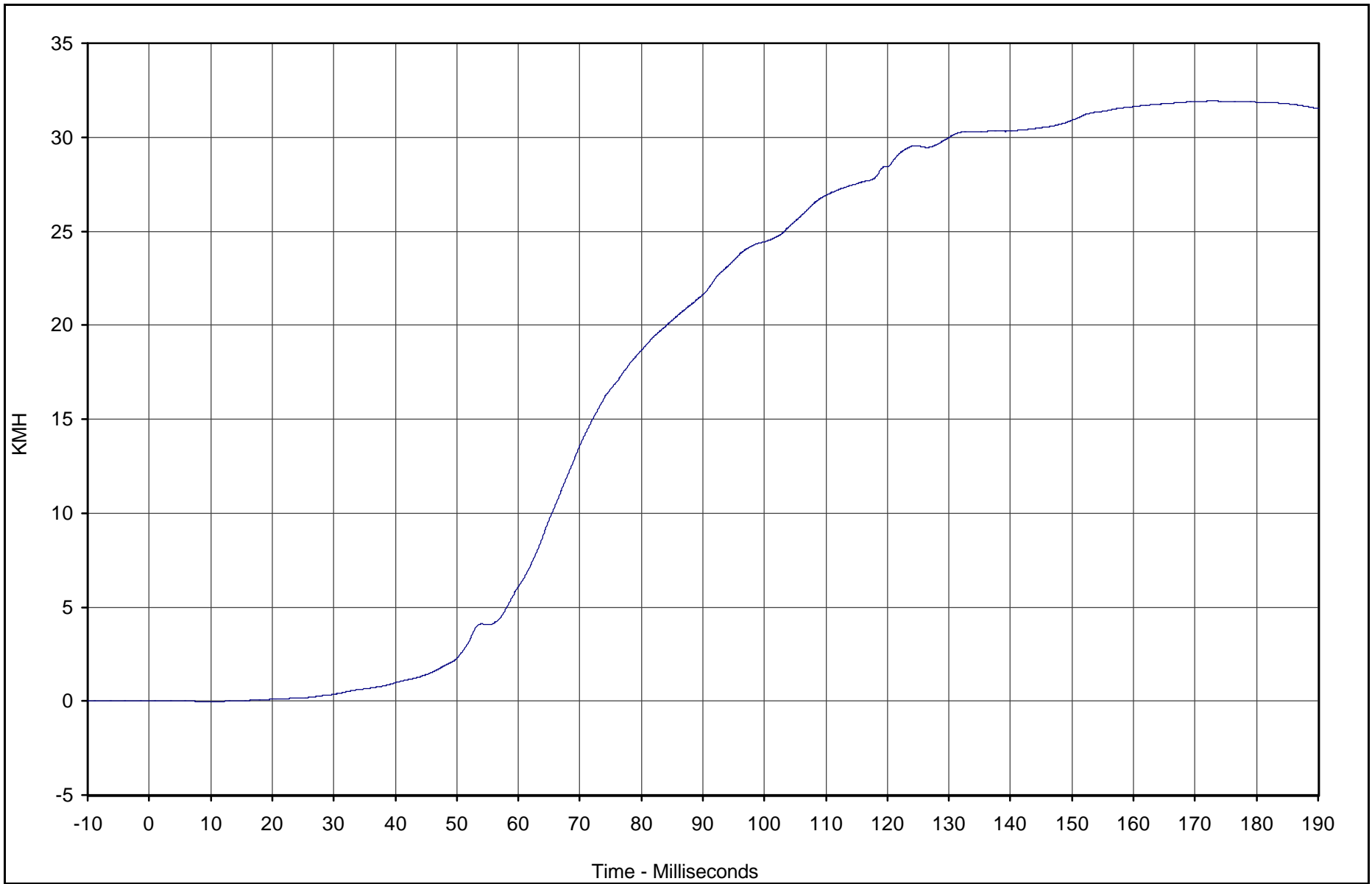
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Upper Rib Redundant Y Vel.	039	IN1	KMH	31.9	172.8	0.0	9.6	180



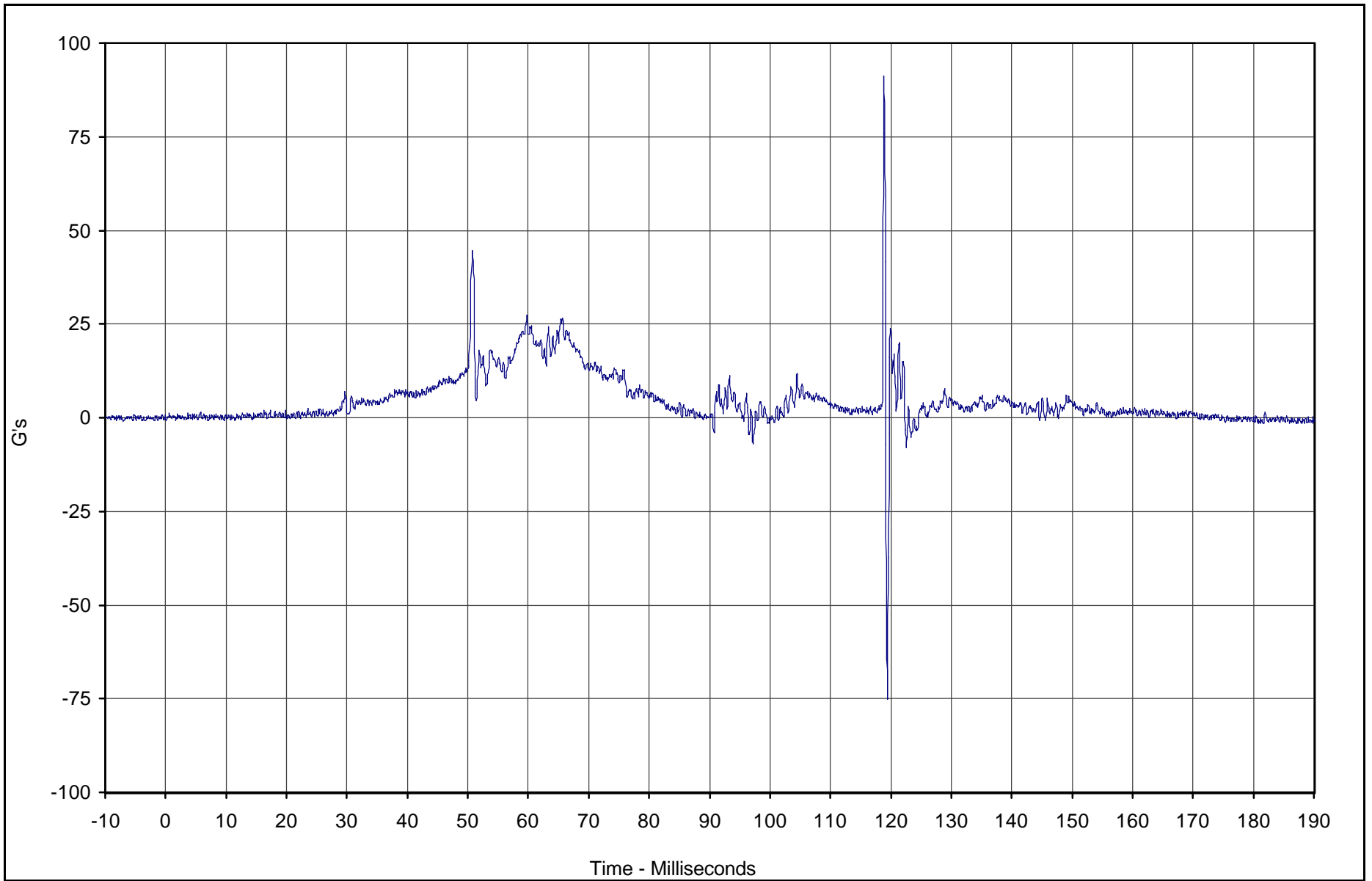
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-73



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Lower Rib Redundant Y	040	FIL	G's	91.2	118.9	-74.9	119.4	1000



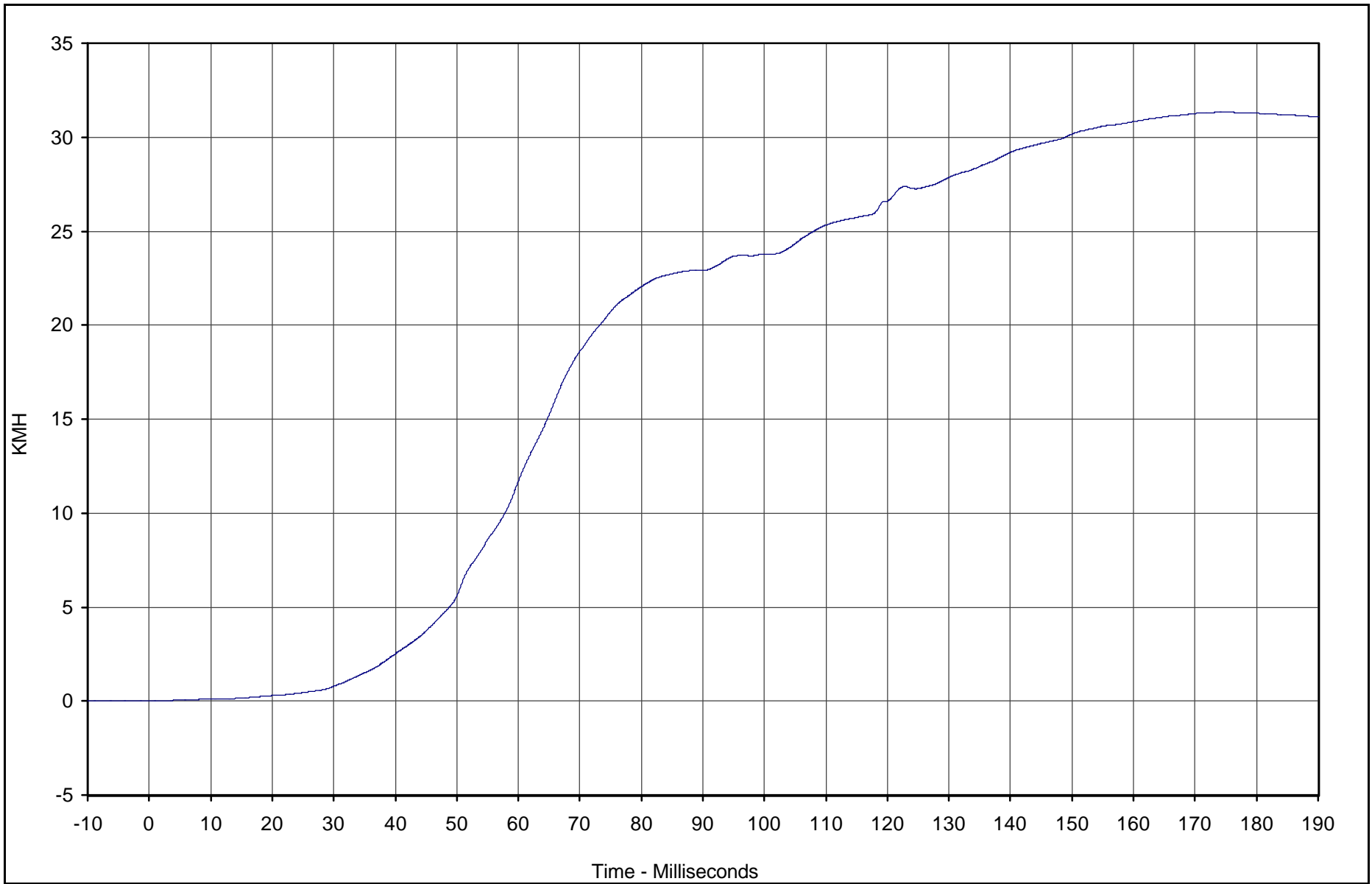
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Lower Rib Redundant Y Vel.	040	IN1	KMH	31.3	174.7	0.0	0.0	180



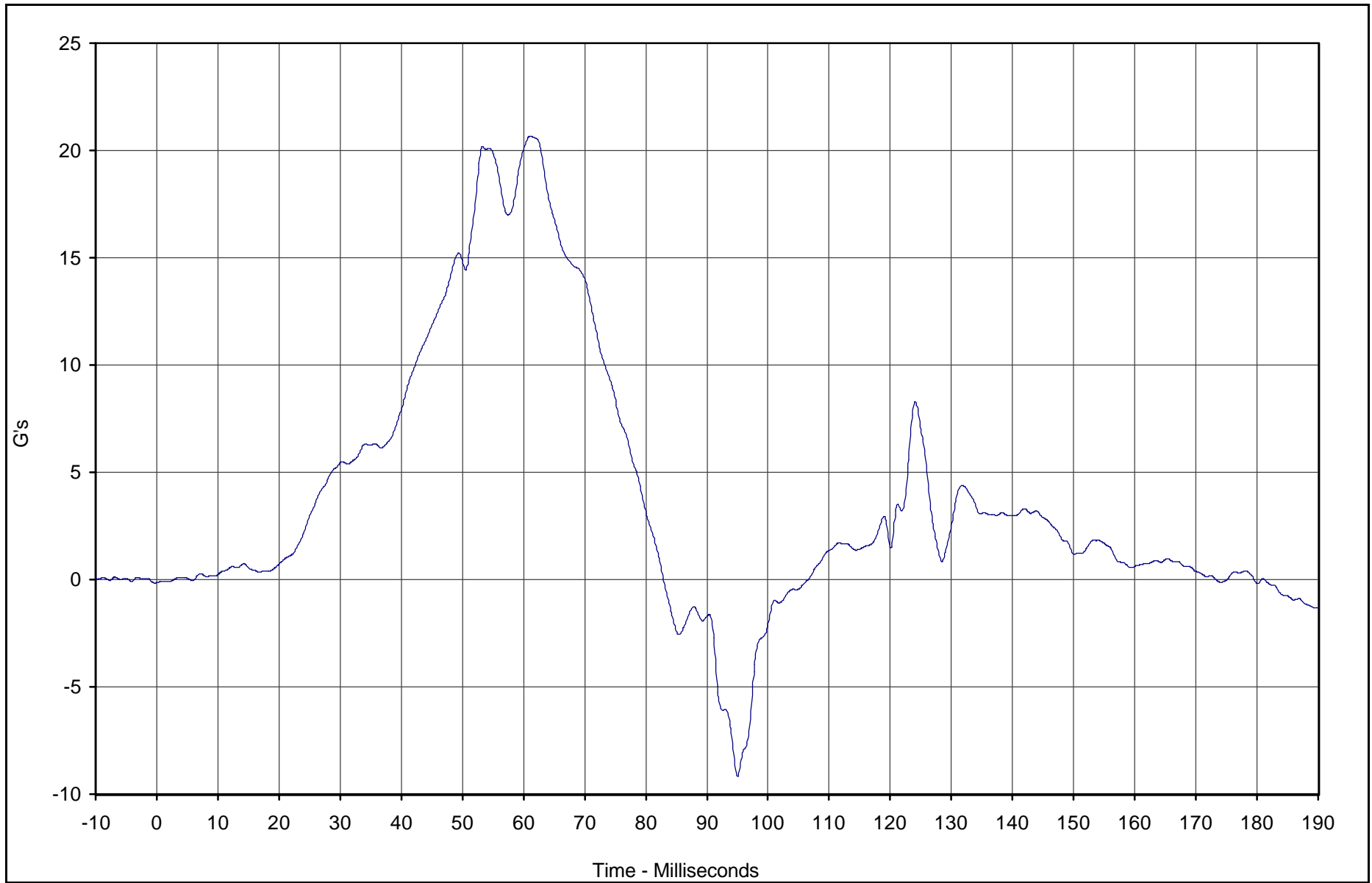
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-75



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Lower Spine Redundant Y	041	FIL	G's	20.7	61.2	-9.2	95.0	180



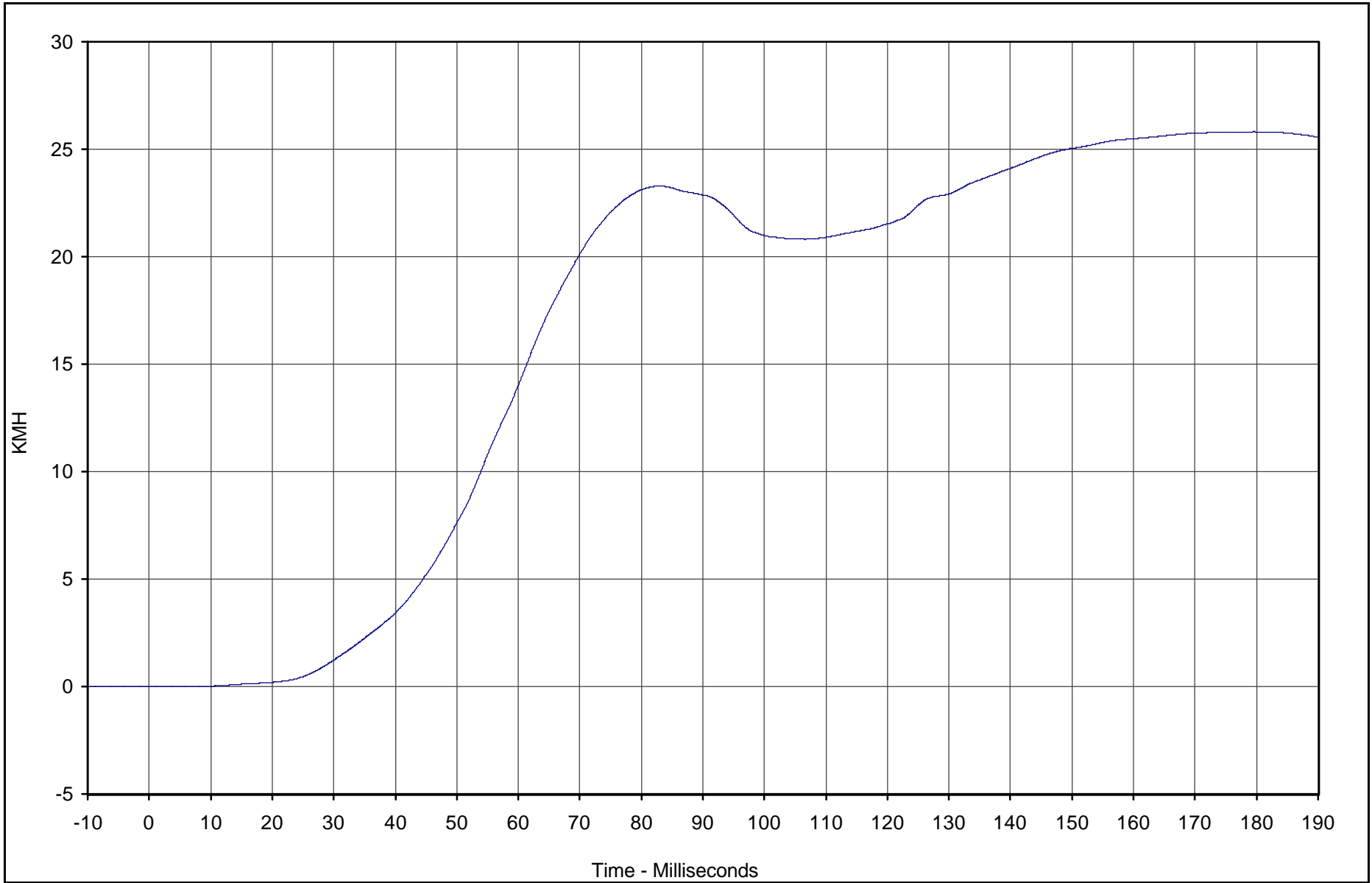
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Lower Spine Redundant Y Vel.	041	IN1	KMH	25.8	179.5	0.0	2.9	180



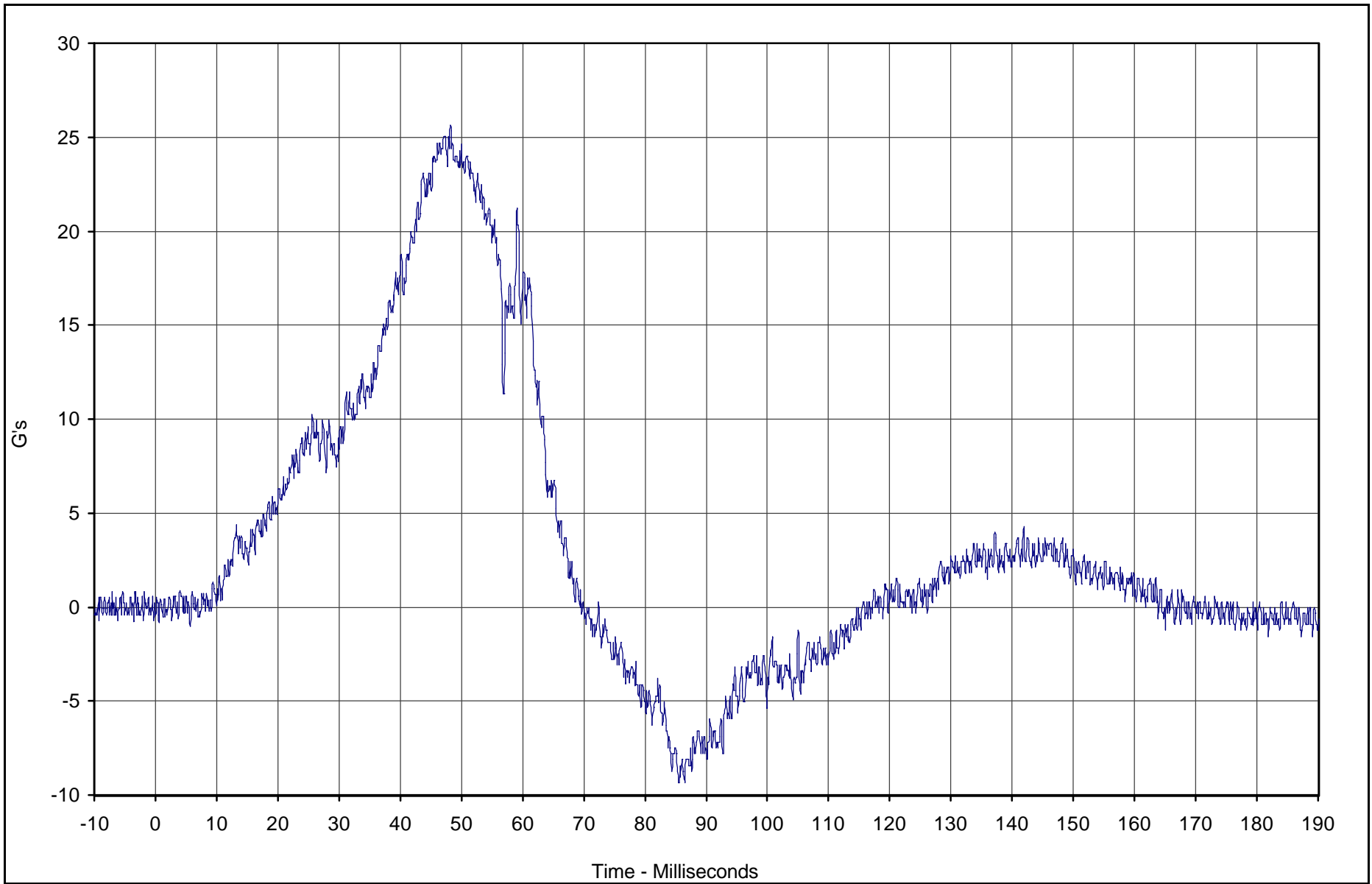
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Pelvis Redundant Y	042	FIL	G's	25.6	48.2	-9.3	85.5	1000



Test Vehicle: 2003 BMW X5 3.0i SUV

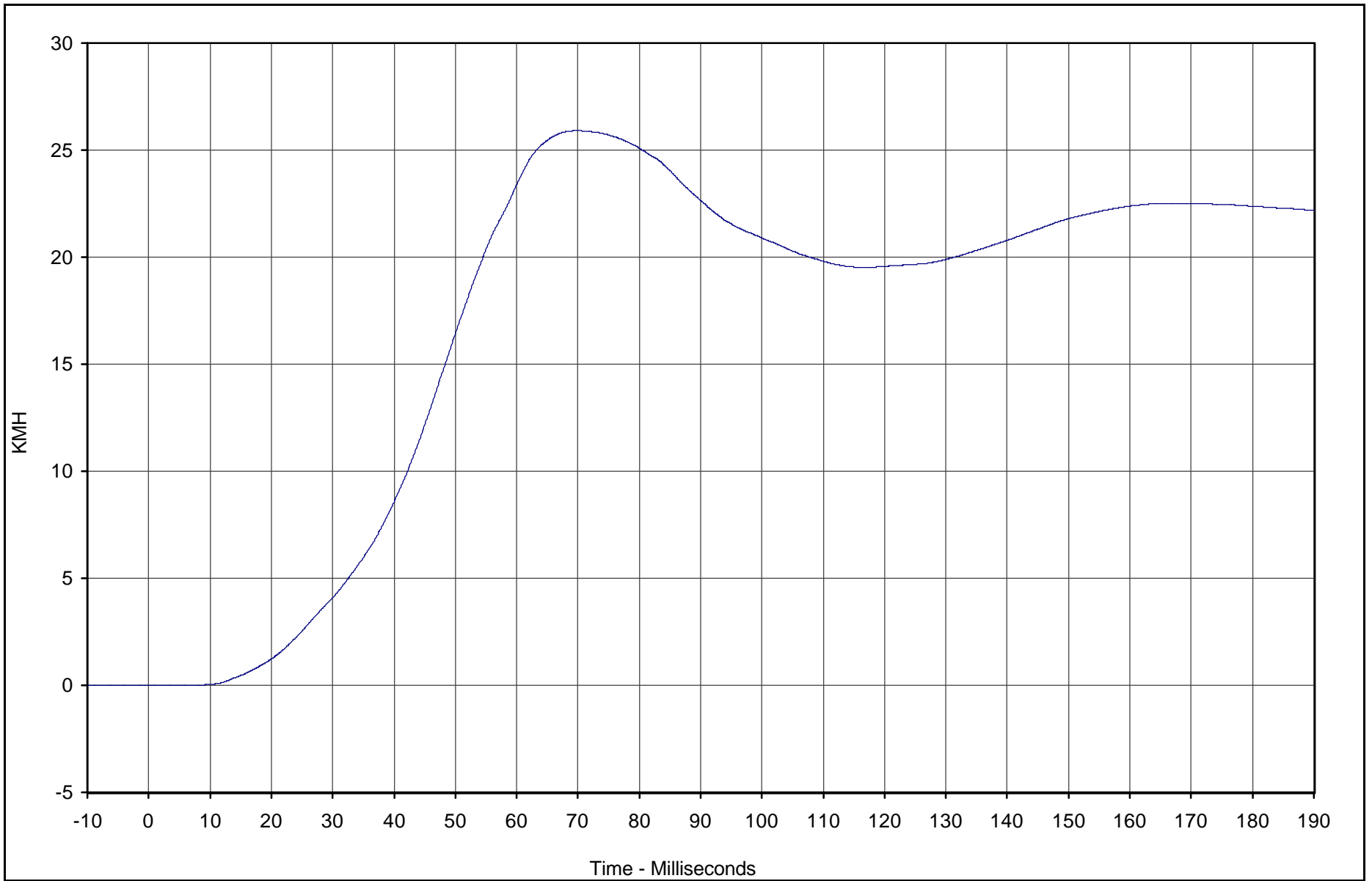
Test Date: 3/20/03

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

NHTSA No.: M30502

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B-78



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Pelvis Redundant Y Vel.	042	IN1	KMH	25.9	69.8	0.0	2.1	180



Test Vehicle: 2003 BMW X5 3.0i SUV

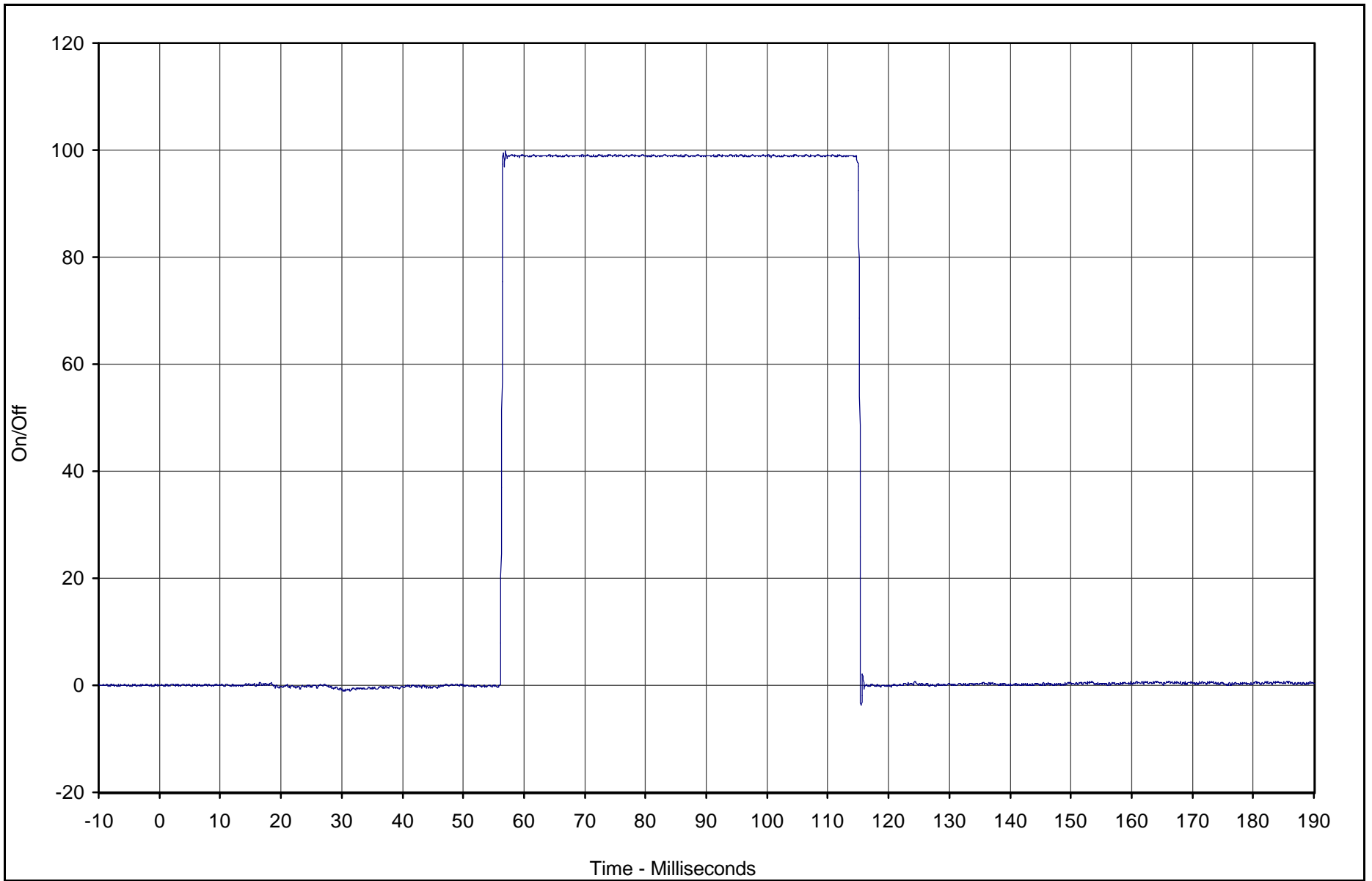
Test Date: 3/20/03

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

NHTSA No.: M30502

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TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Cross %	Time	SAE Class
Pass. Thorax Contact	043	FIL	On/Off	99.7	57.0	50.0	45.6	1000



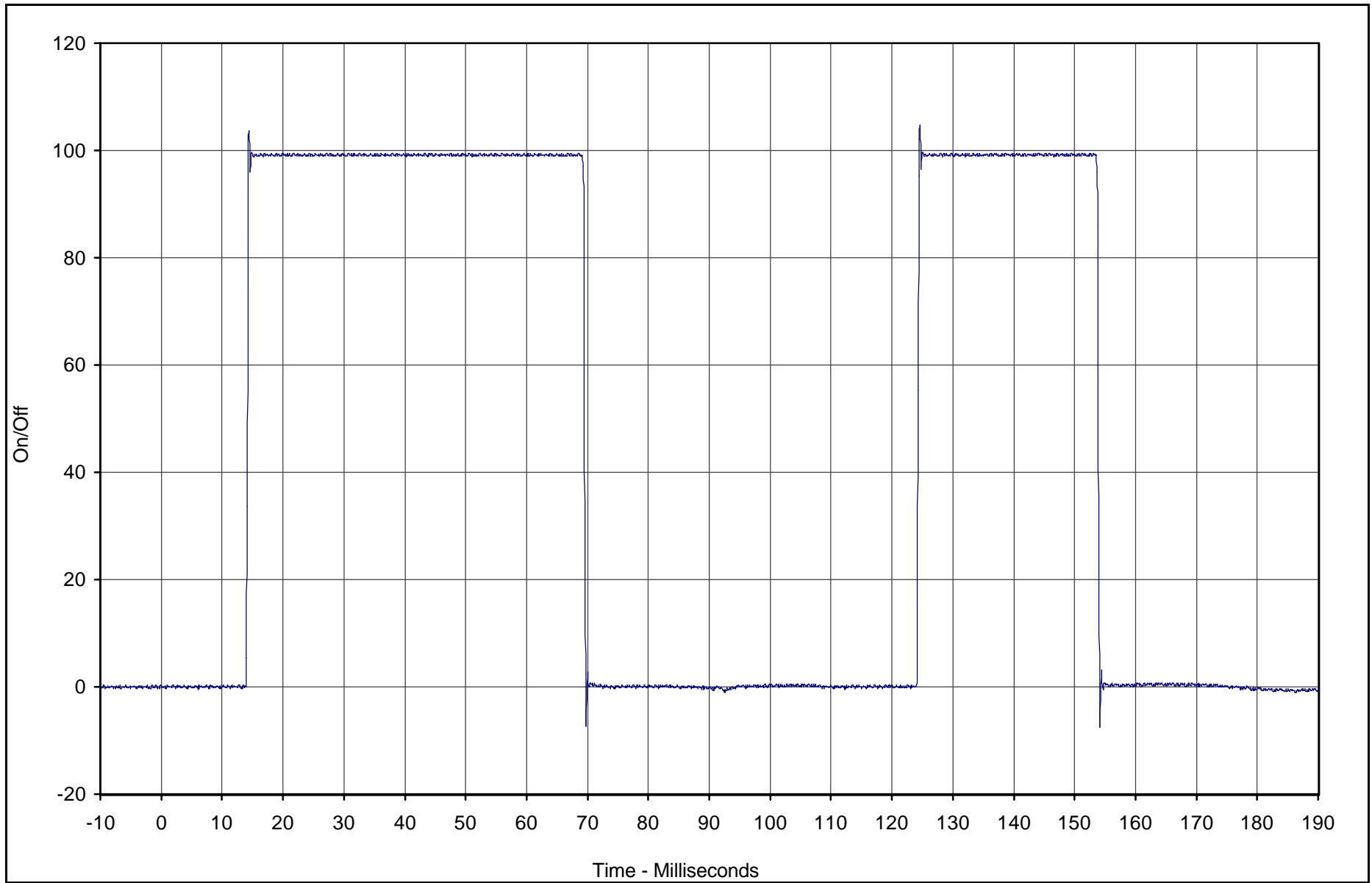
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-80



Curve Description	CURNO	Type	Units	Max	Time	Cross %	Time	SAE Class
Pass. Pelvis Contact	044	FIL	On/Off	104.6	124.6	50.0	14.2	1000



Test Vehicle: 2003 BMW X5 3.0i SUV

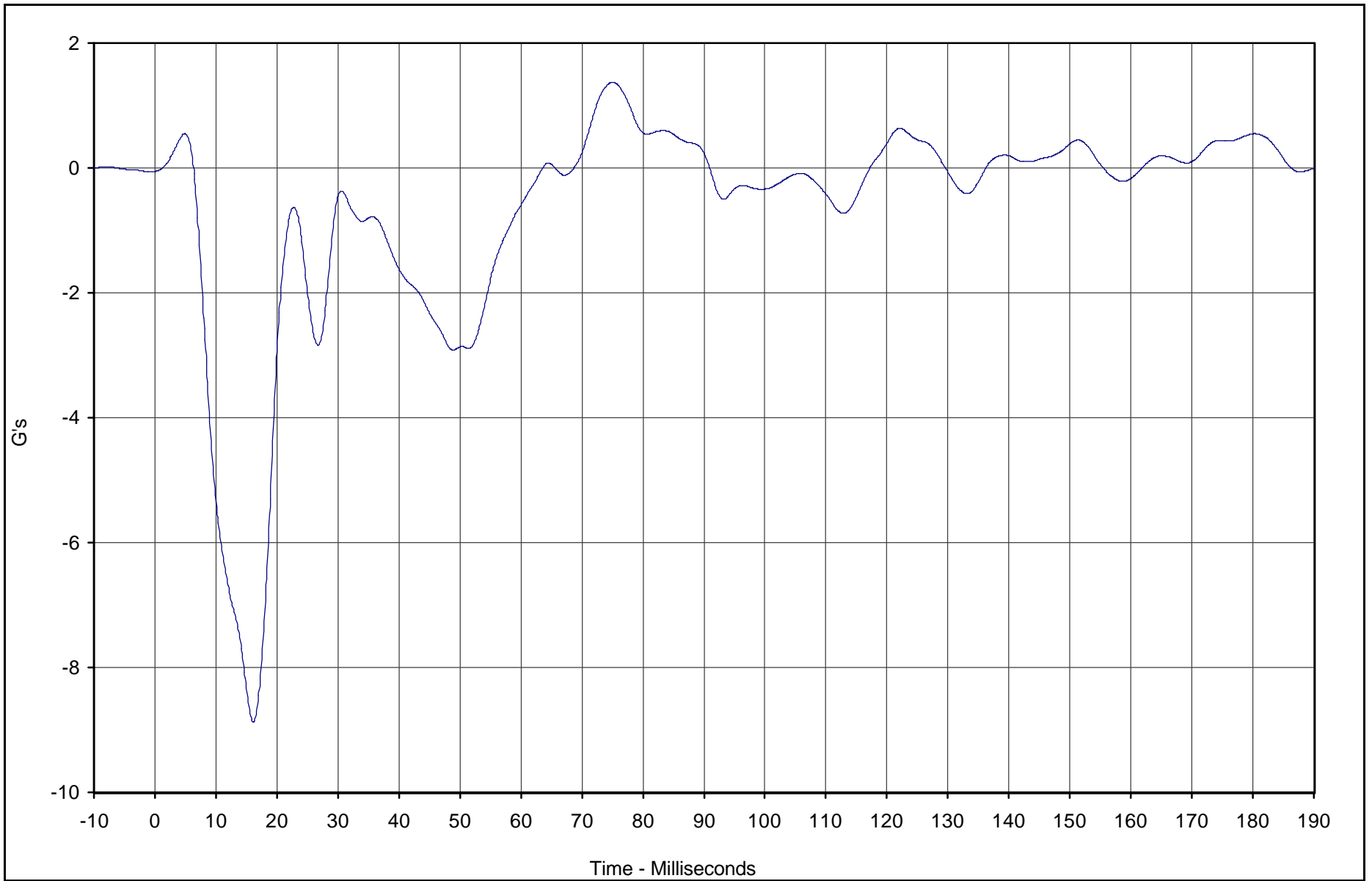
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-81



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Sill Front Seat X	045	FIL	G's	1.4	75.0	-8.9	16.1	60



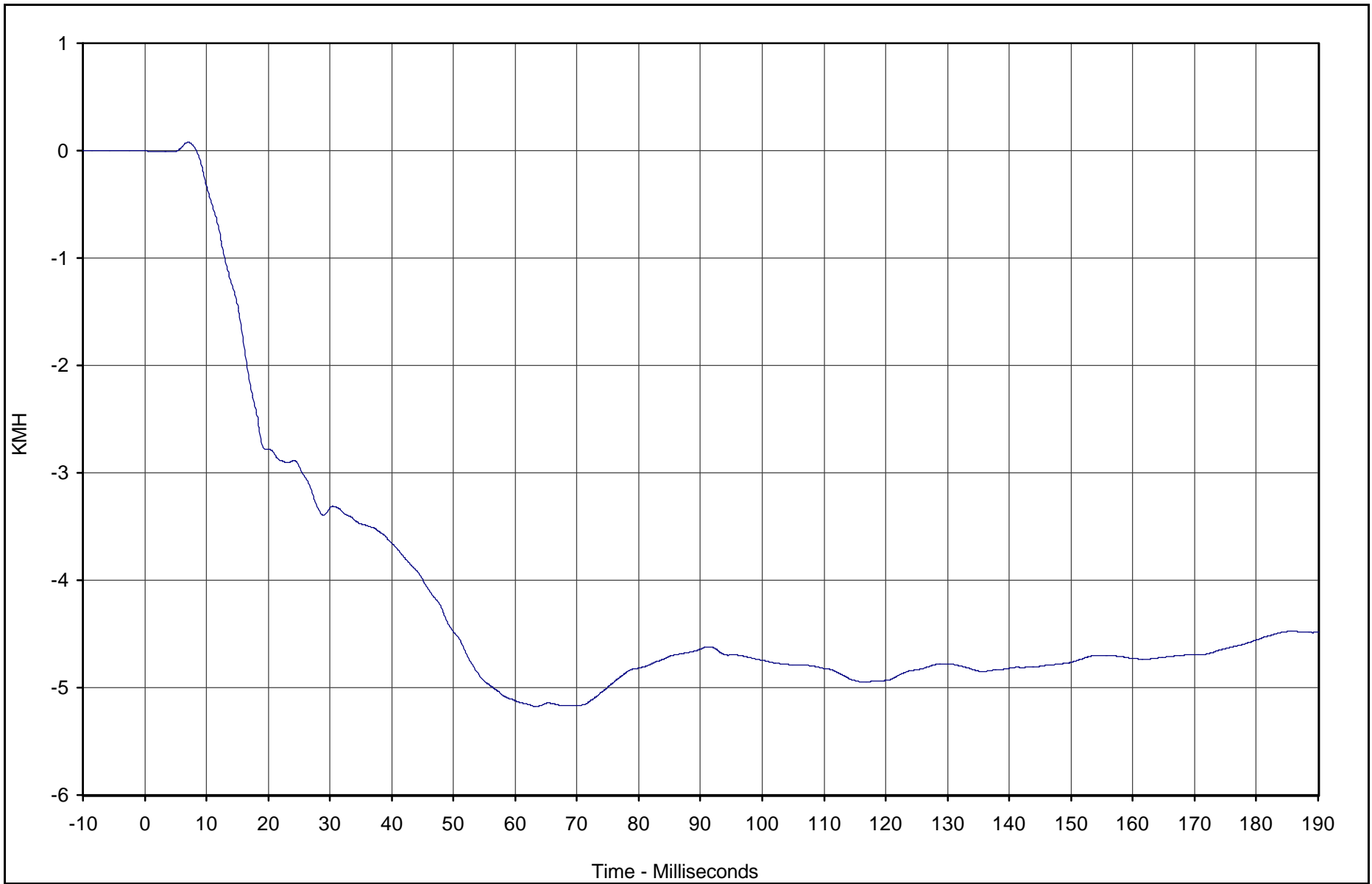
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Sill Front Seat X Velocity	045	IN1	KMH	0.1	7.1	-5.2	63.4	180

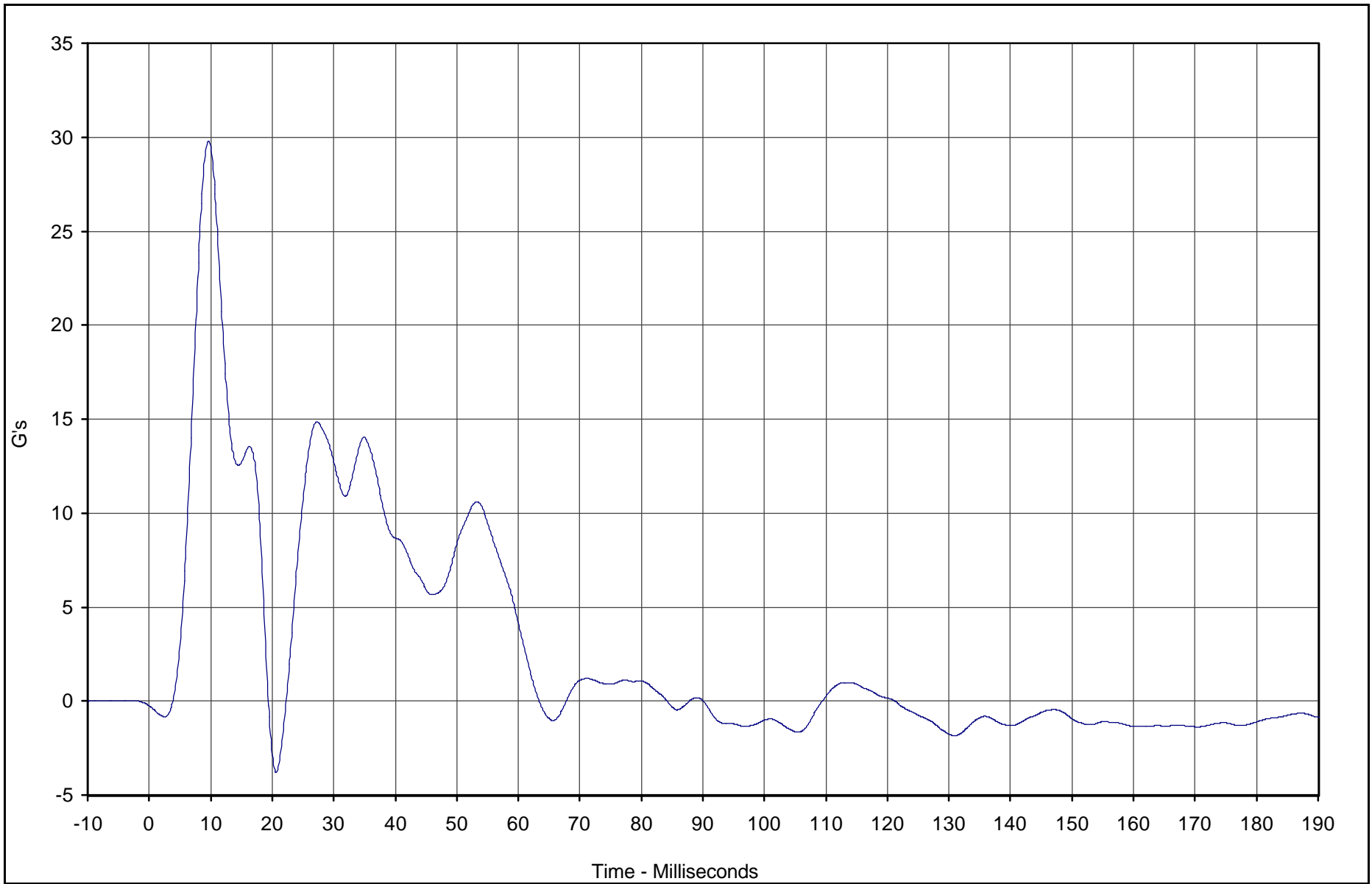


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Sill Front Seat Y	046	FIL	G's	29.8	9.6	-3.8	20.6	60

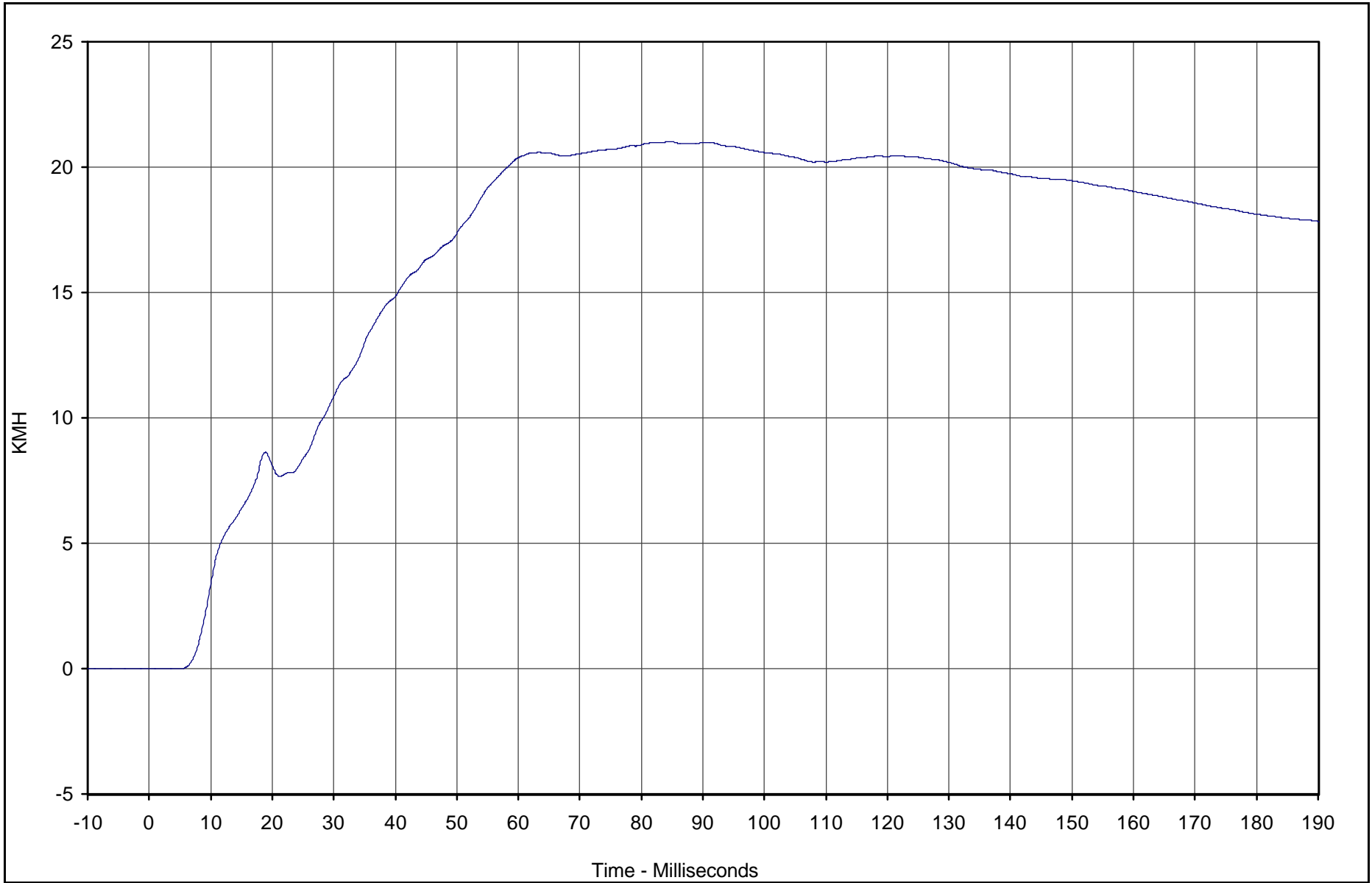


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Sill Front Seat Y Velocity	046	IN1	KMH	21.0	84.6	0.0	0.1	180

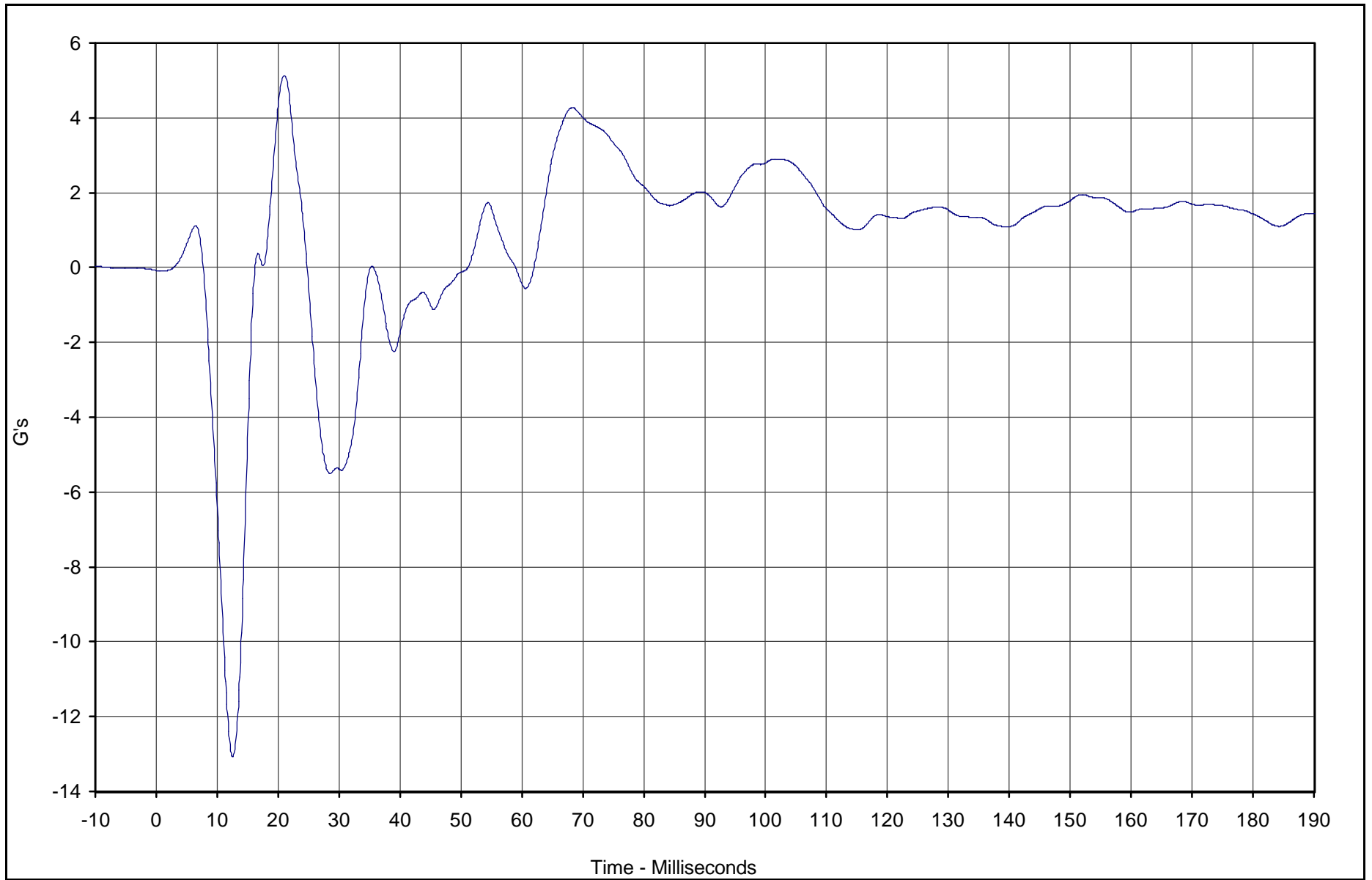


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Sill Front Seat Z	047	FIL	G's	5.1	21.0	-13.1	12.5	60

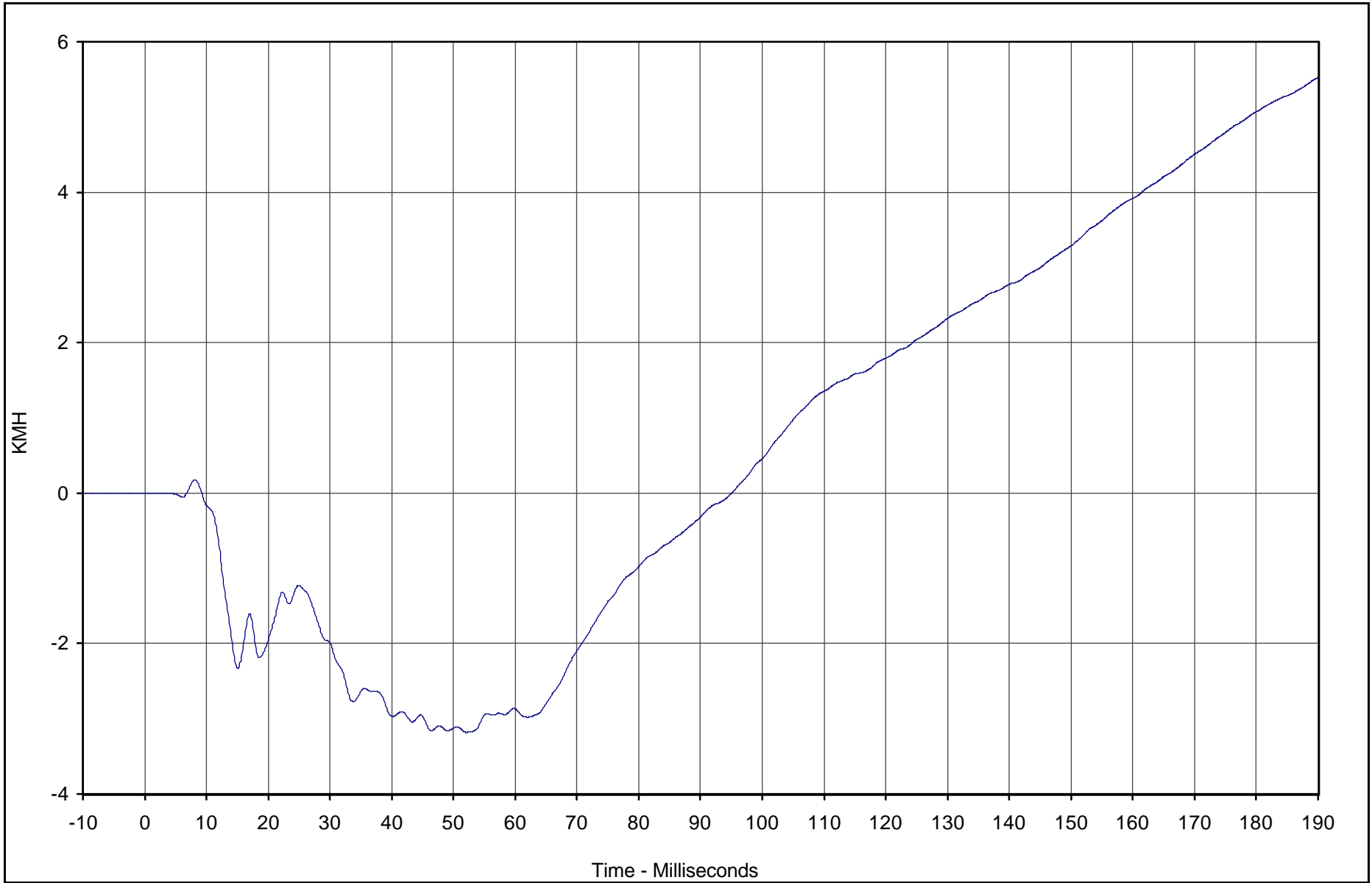


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Sill Front Seat Z Velocity	047	IN1	KMH	5.5	189.9	-3.2	52.2	180

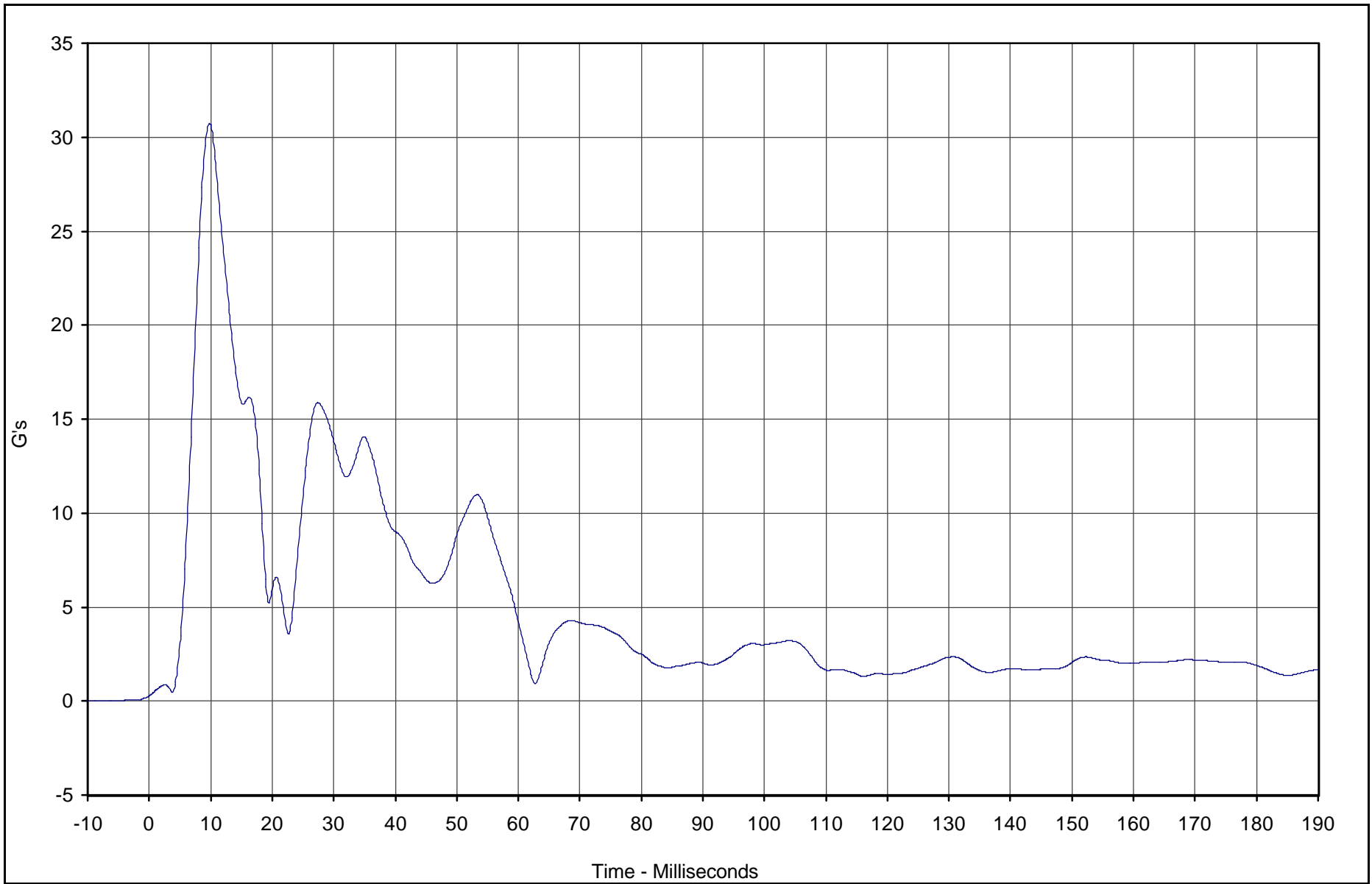


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Sill Front Seat Resultant	045	RES	G's	30.7	9.8	0.3	0.0	60

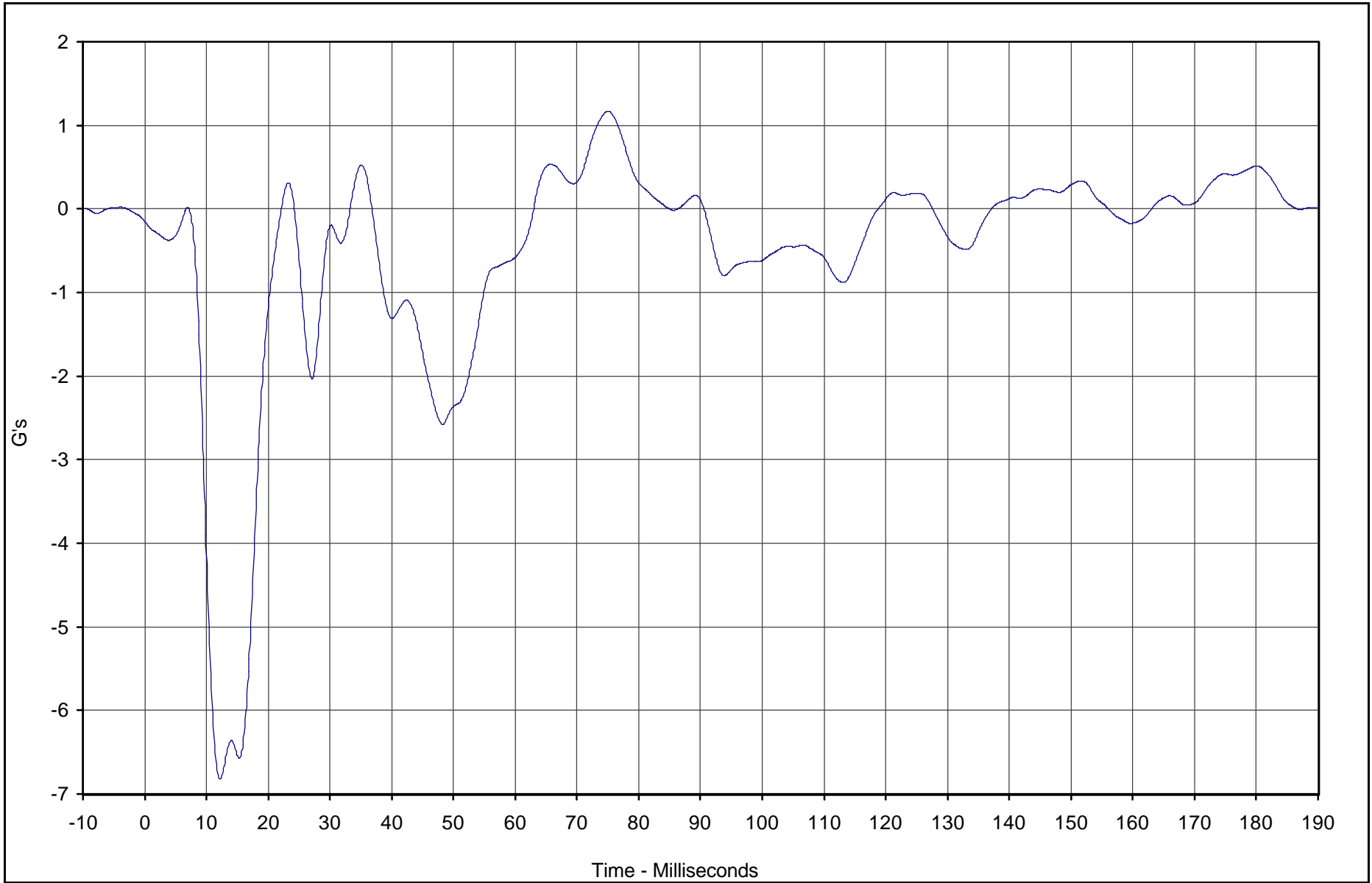


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Sill Rear Seat X	048	FIL	G's	1.2	75.0	-6.8	12.2	60



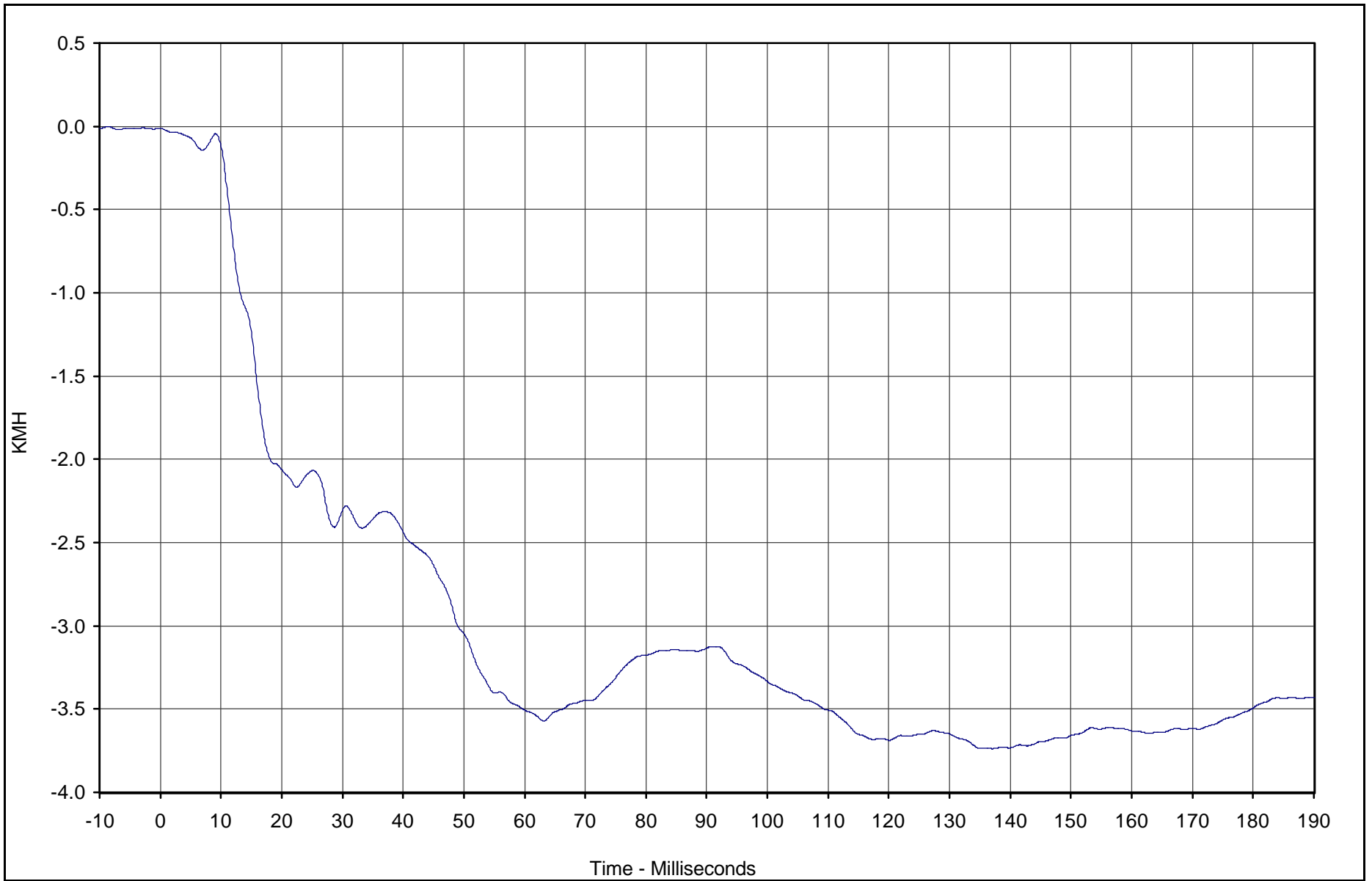
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

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Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Sill Rear Seat X Velocity	048	IN1	KMH	0.0	0.0	-3.7	137.0	180



Test Vehicle: 2003 BMW X5 3.0i SUV

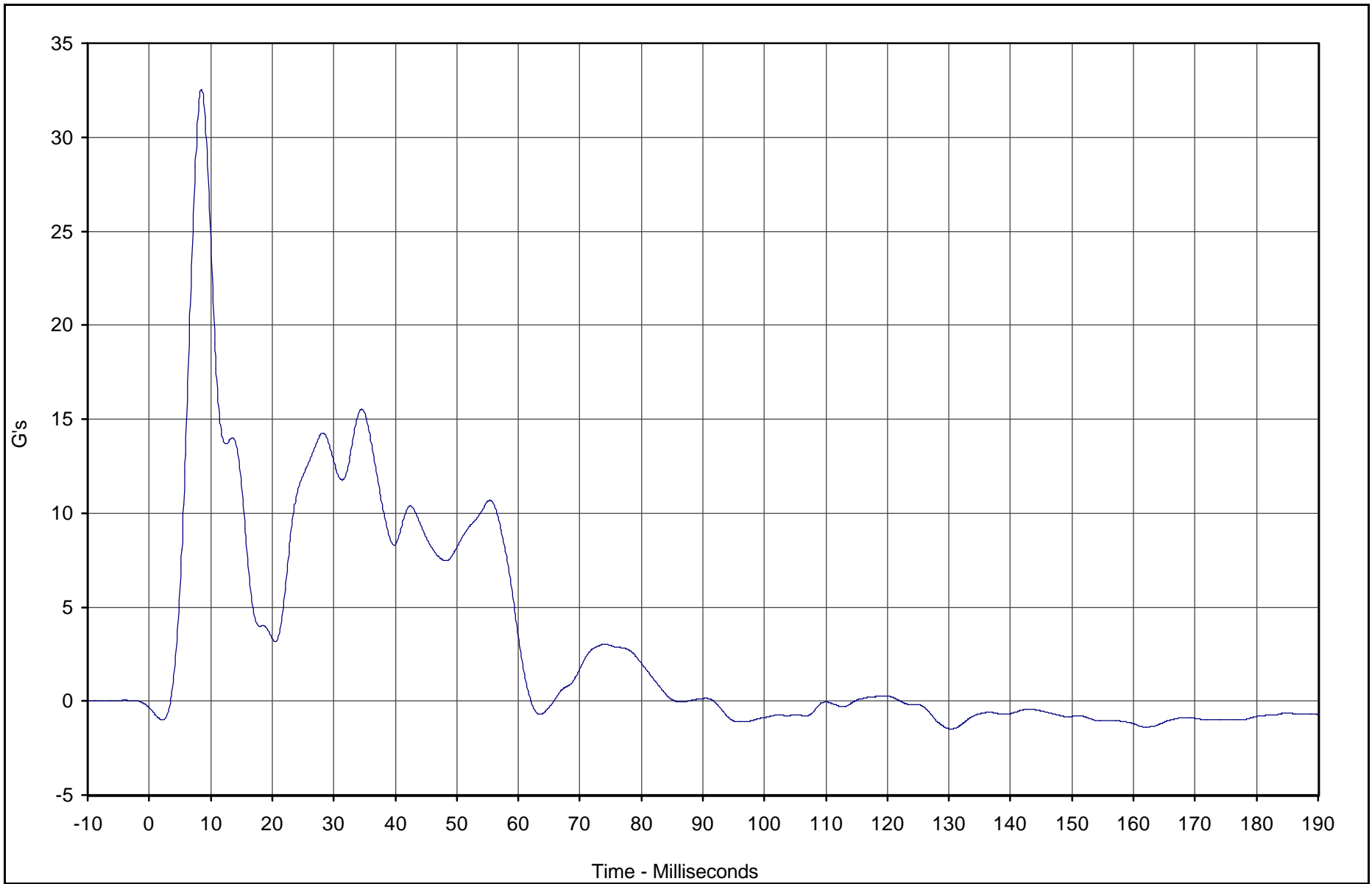
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-90



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Sill Rear Seat Y	049	FIL	G's	32.5	8.5	-1.5	130.3	60



Test Vehicle: 2003 BMW X5 3.0i SUV

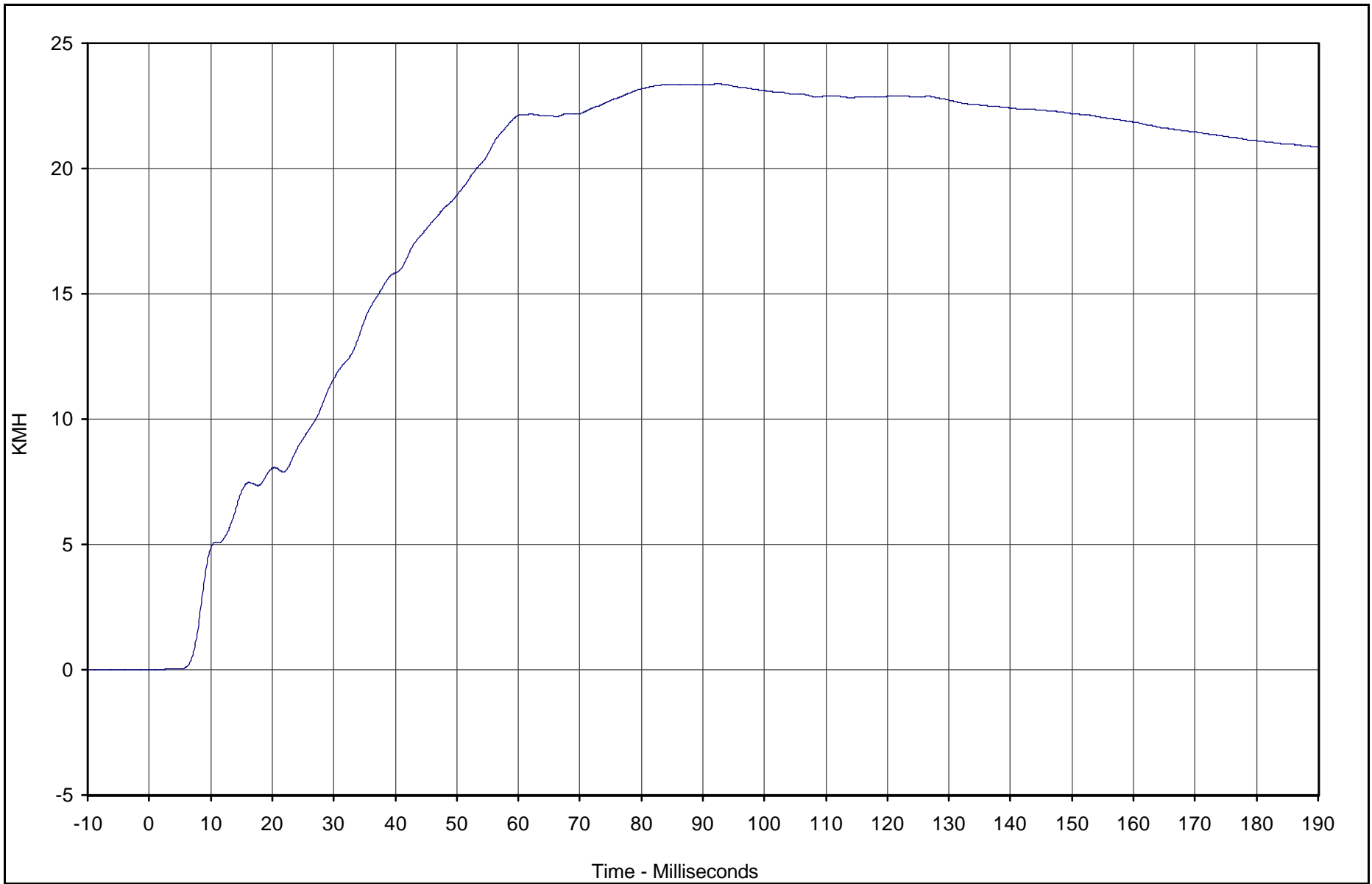
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-91



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Sill Rear Seat Y Velocity	049	IN1	KMH	23.4	92.4	0.0	0.2	180



Test Vehicle: 2003 BMW X5 3.0i SUV

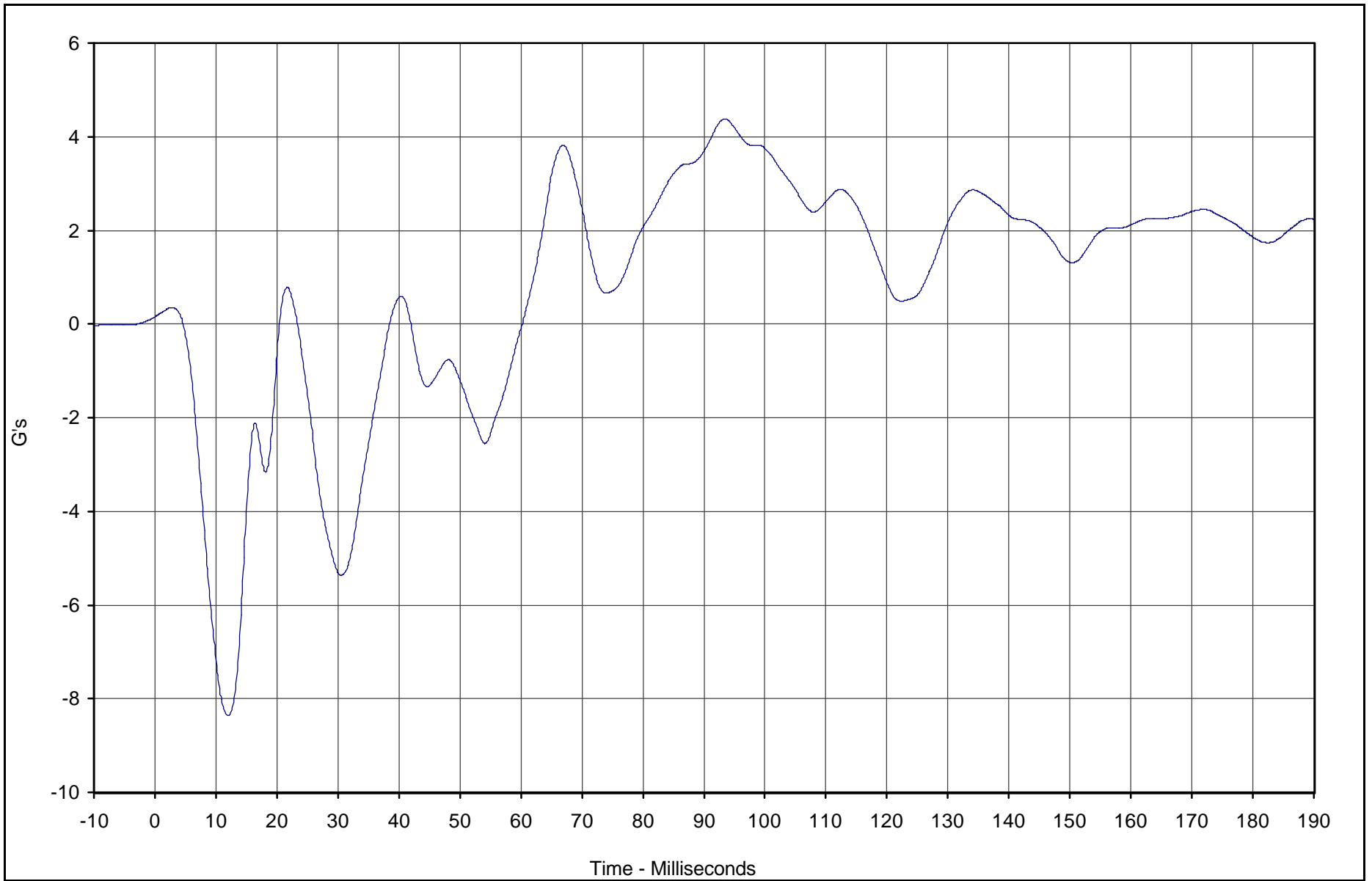
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-92



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Sill Rear Seat Z	050	FIL	G's	4.4	93.4	-8.4	12.0	60



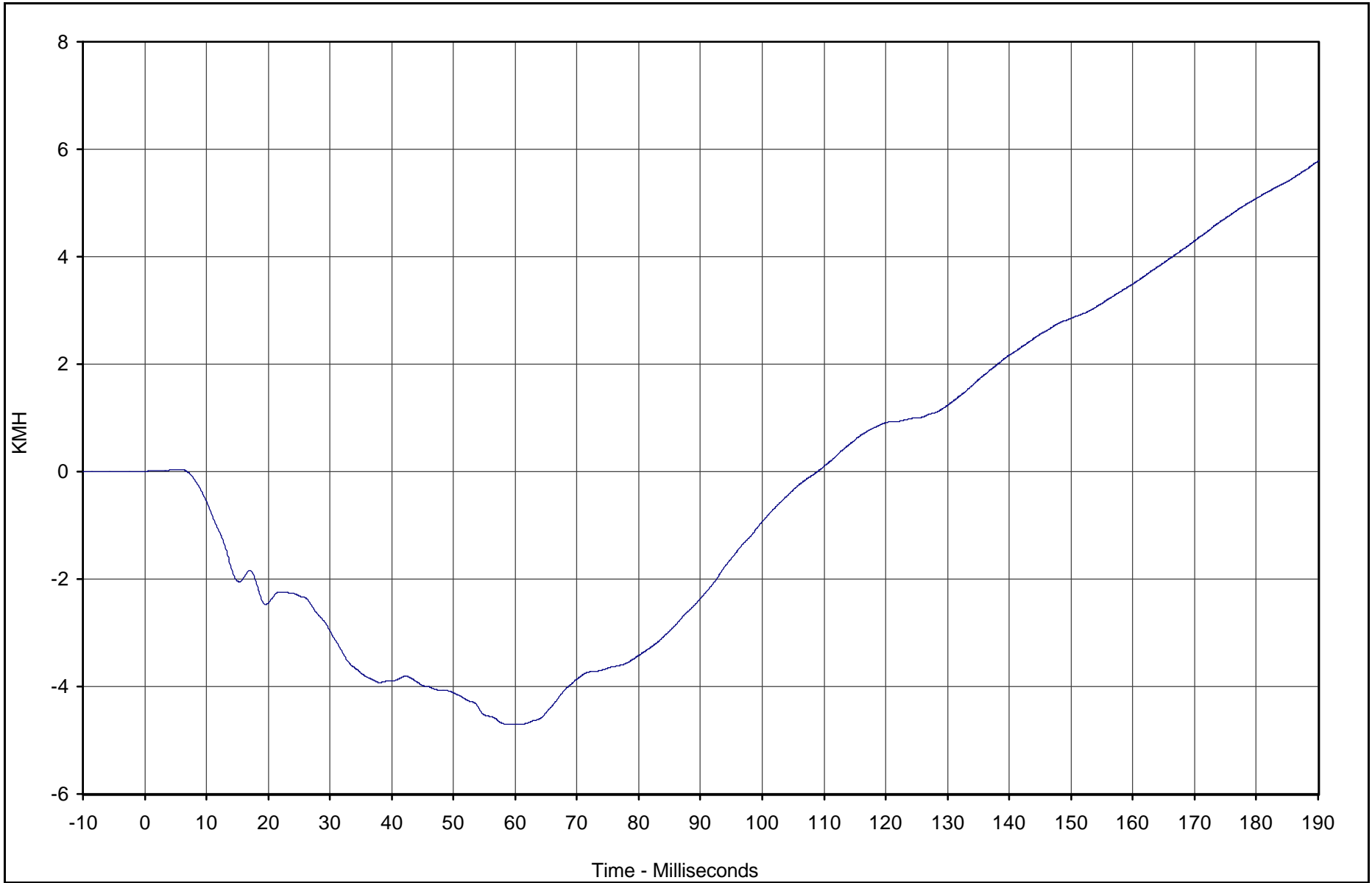
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Sill Rear Seat Z Velocity	050	IN1	KMH	5.8	189.9	-4.7	60.8	180

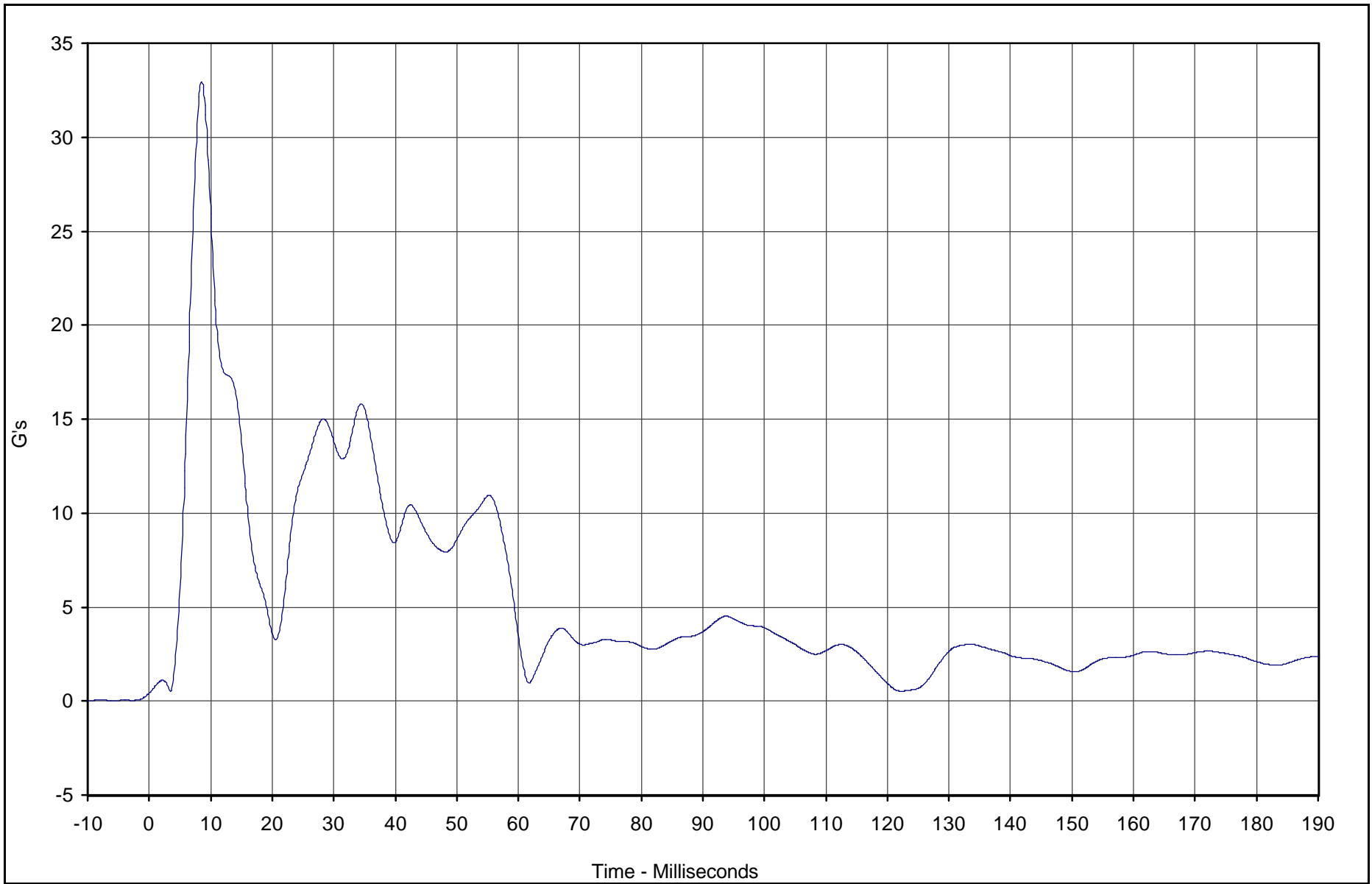


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Sill Rear Seat Resultant	048	RES	G's	33.0	8.5	0.4	0.0	60



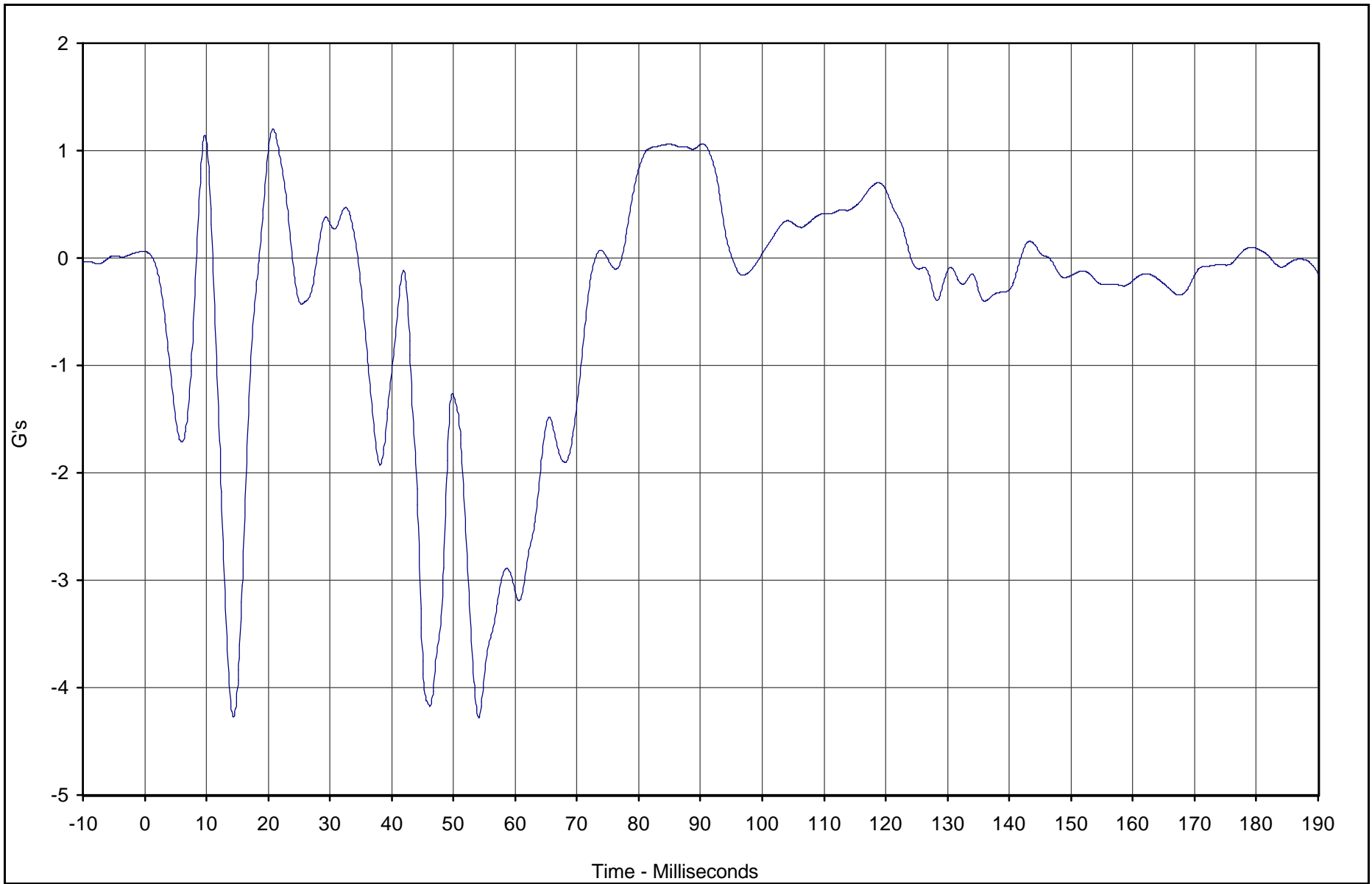
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-95



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Rear Floor Above Axle X	051	FIL	G's	1.2	20.7	-4.3	54.1	60



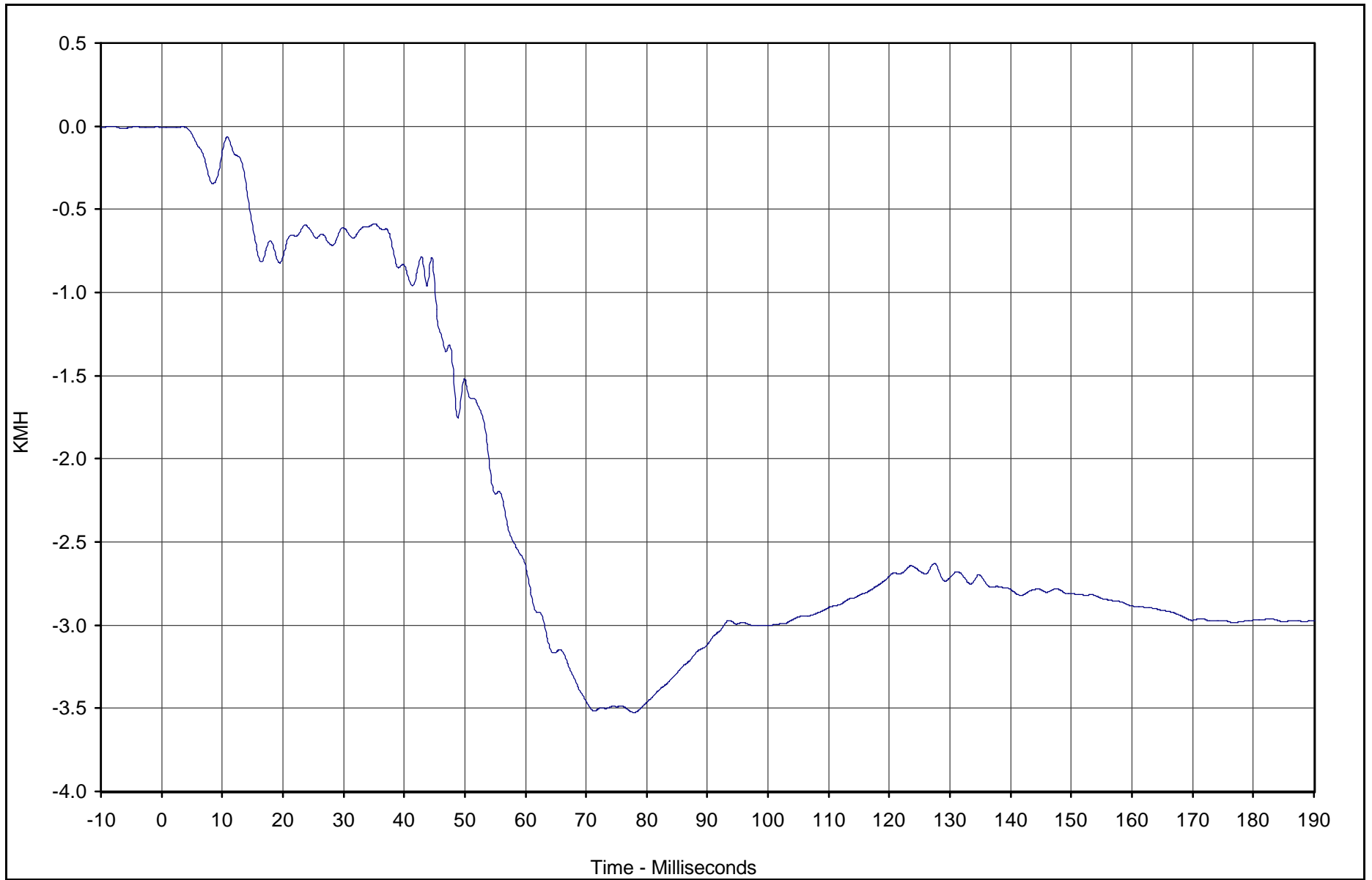
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-96



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Rear Floor Above Axle X Velocity	051	IN1	KMH	0.0	3.4	-3.5	77.9	180



Test Vehicle: 2003 BMW X5 3.0i SUV

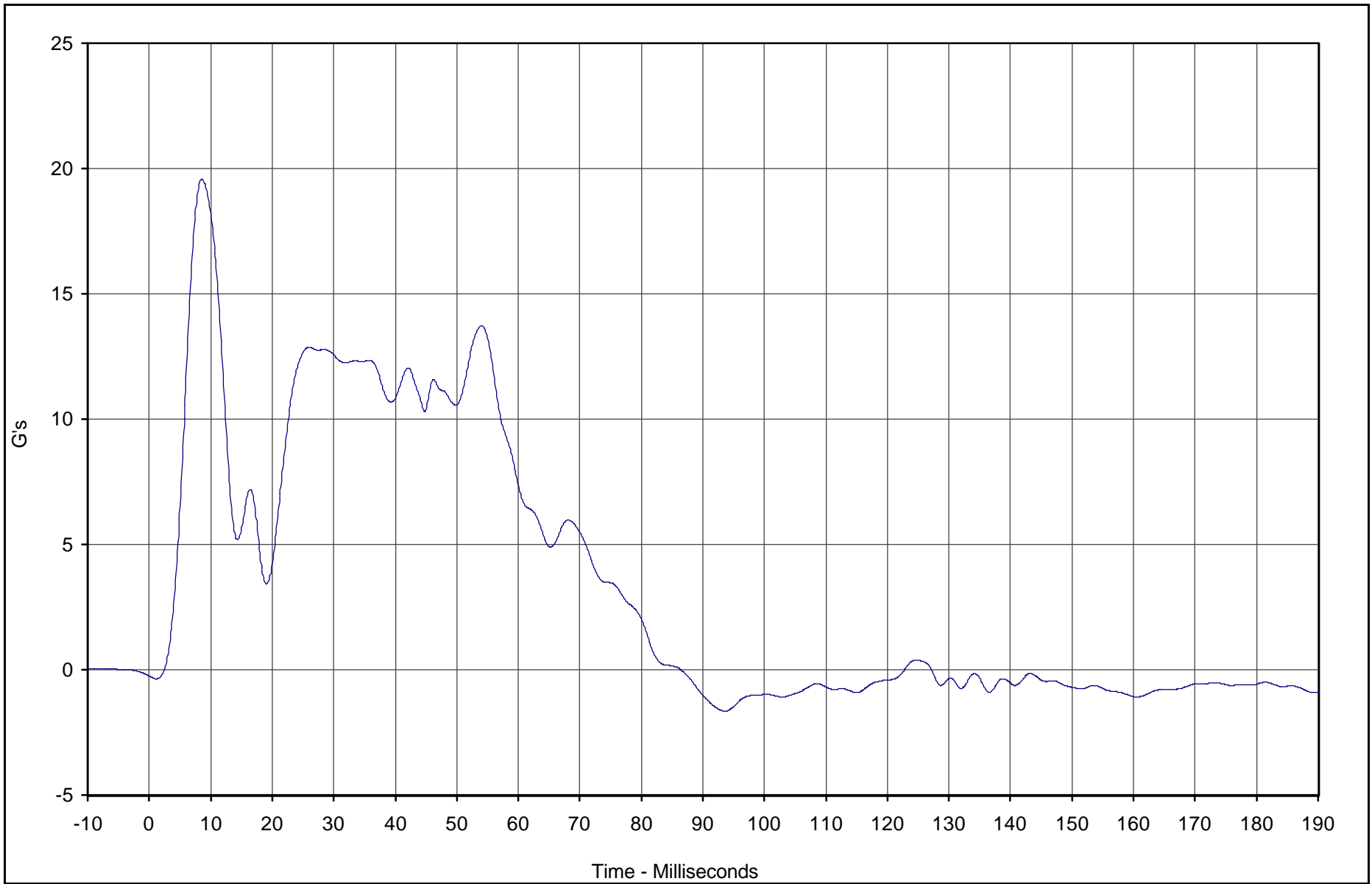
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-97



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Rear Floor Above Axle Y	052	FIL	G's	19.6	8.6	-1.6	93.6	60



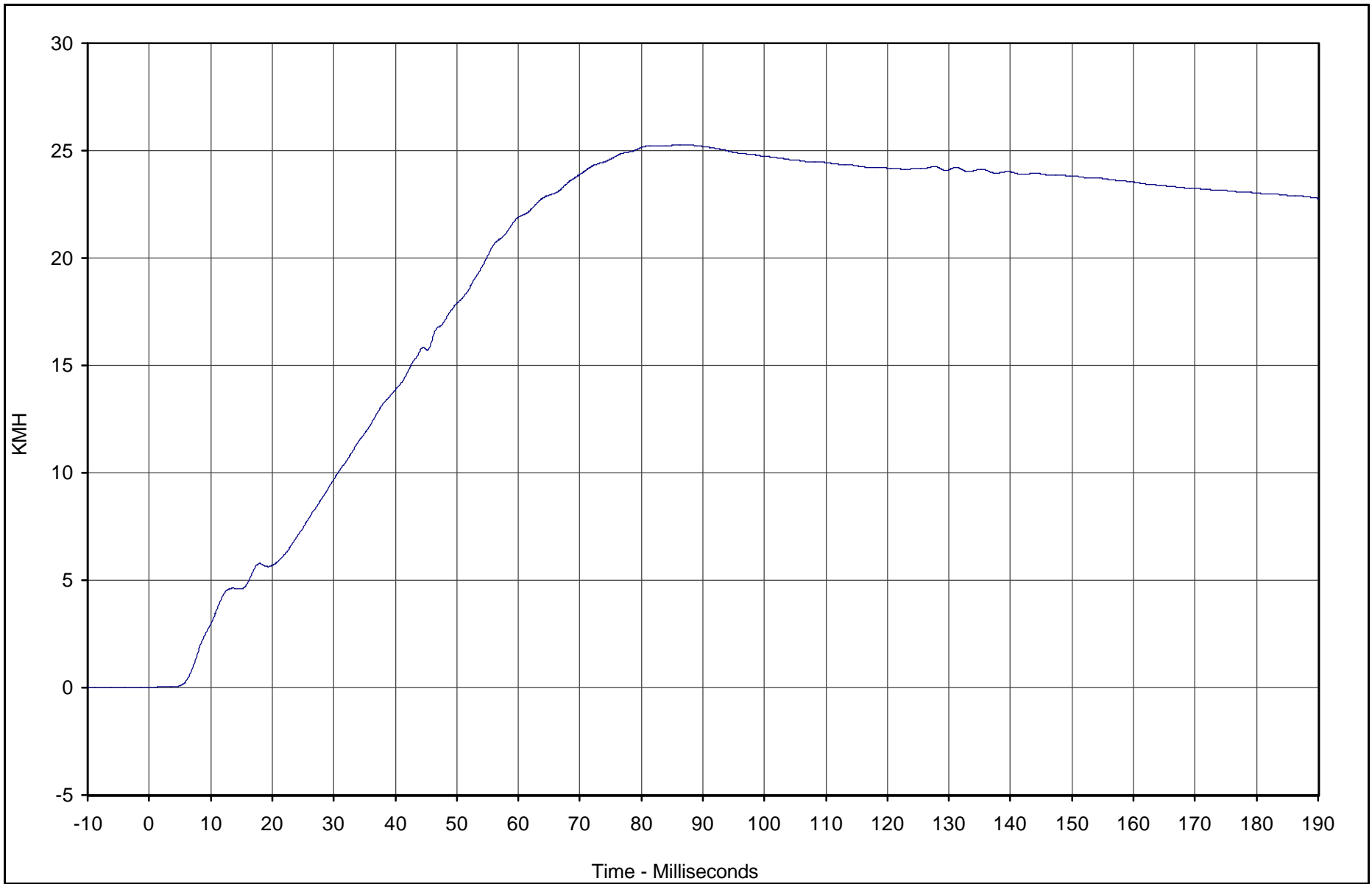
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Rear Floor Above Axle Y Velocity	052	IN1	KMH	25.3	86.3	0.0	0.0	180

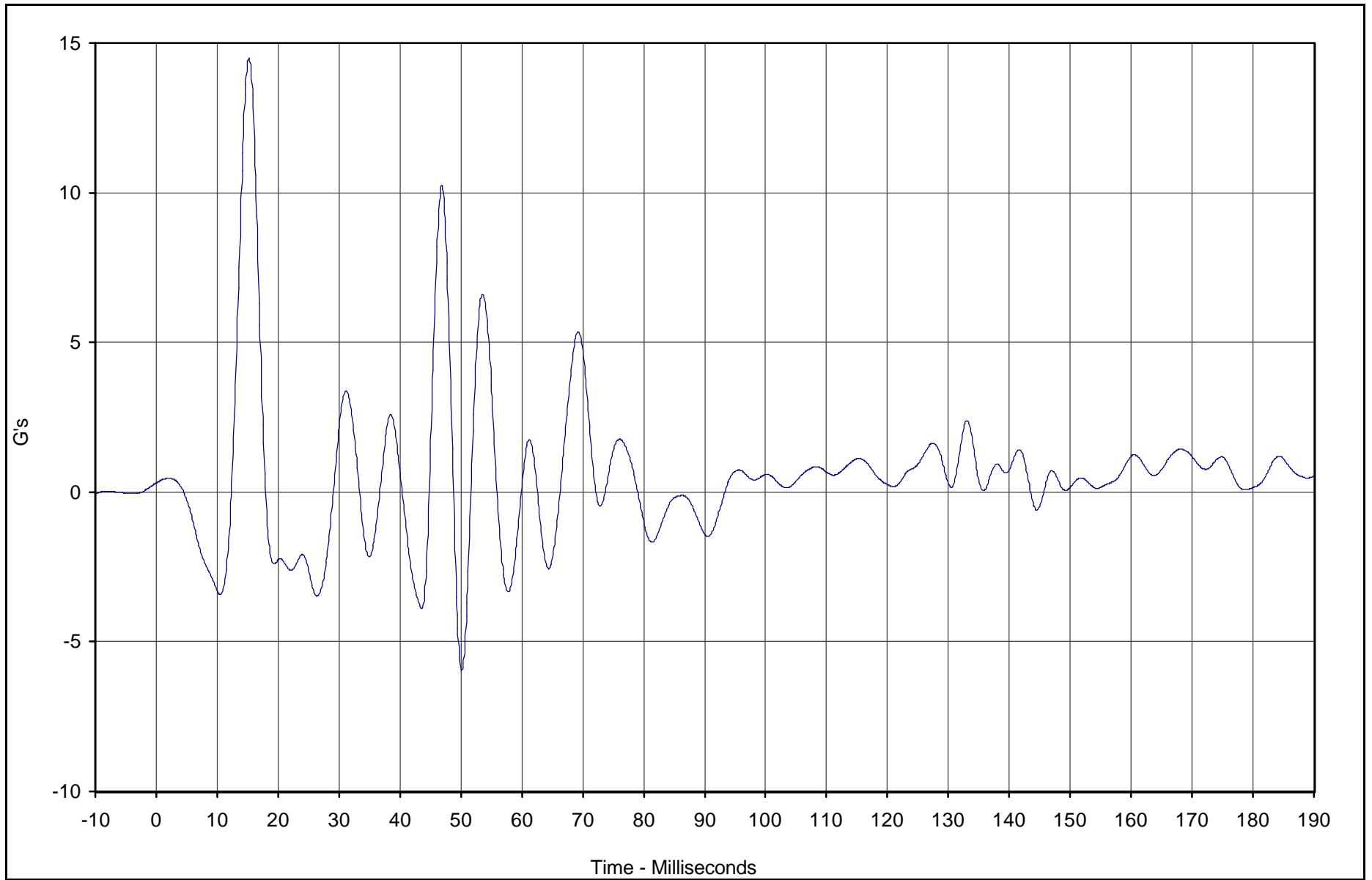


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Rear Floor Above Axle Z	053	FIL	G's	14.5	15.2	-6.0	50.1	60



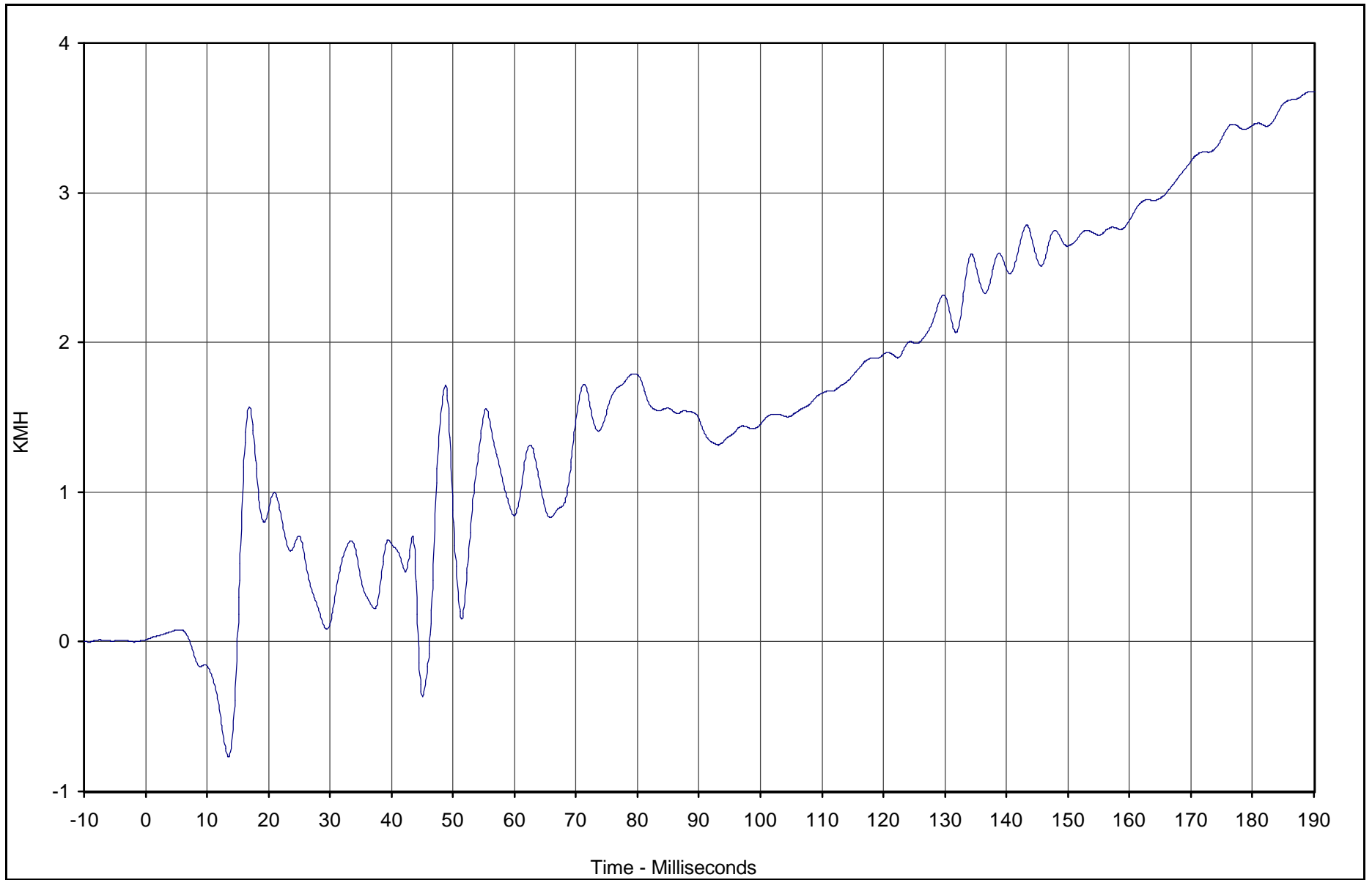
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-100



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Rear Floor Above Axle Z Velocity	053	IN1	KMH	3.7	189.9	-0.8	13.5	180



Test Vehicle: 2003 BMW X5 3.0i SUV

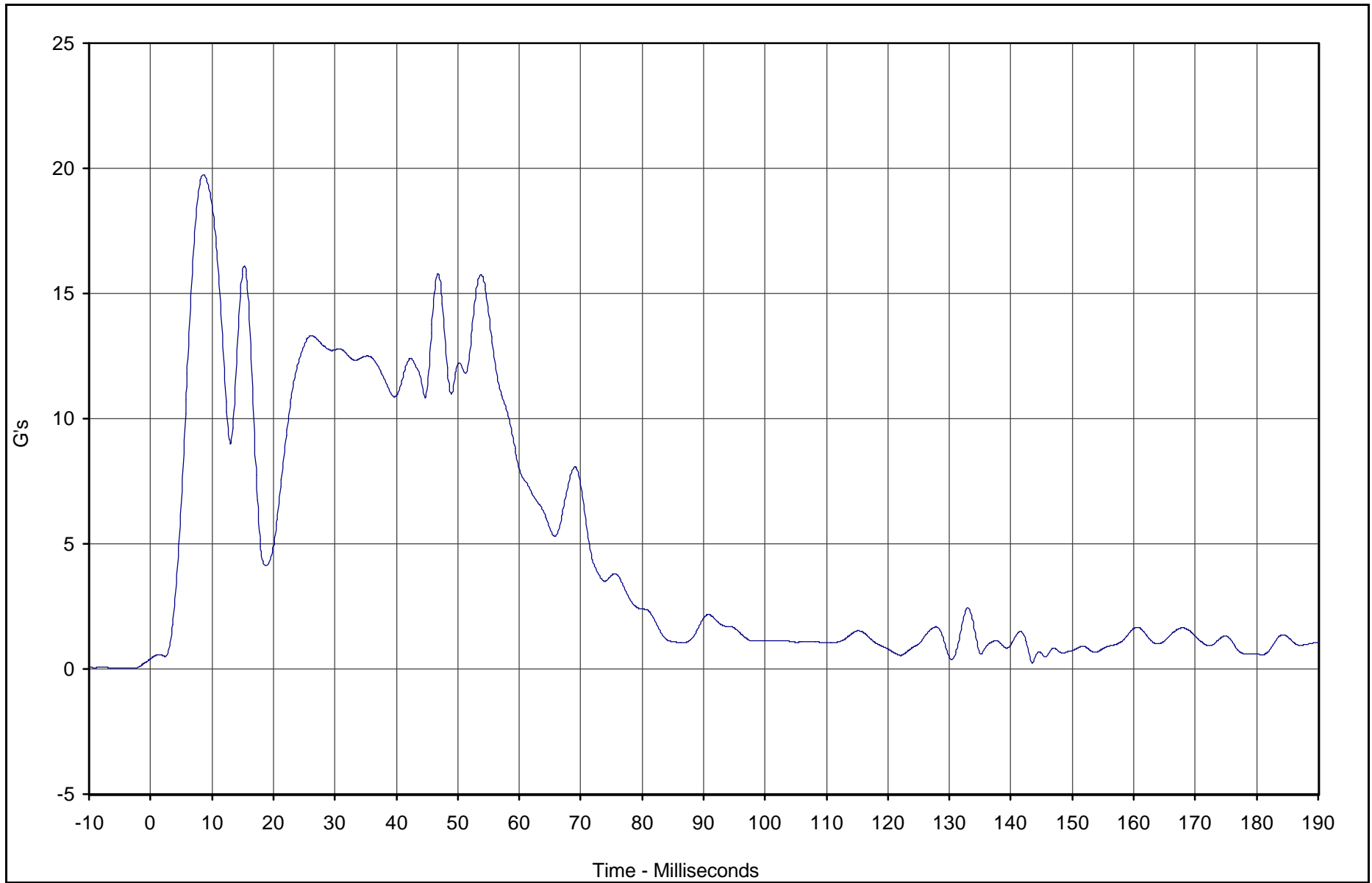
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-101



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Rear Floor Above Axle Resultant	051	RES	G's	19.7	8.6	0.2	143.5	60



Test Vehicle: 2003 BMW X5 3.0i SUV

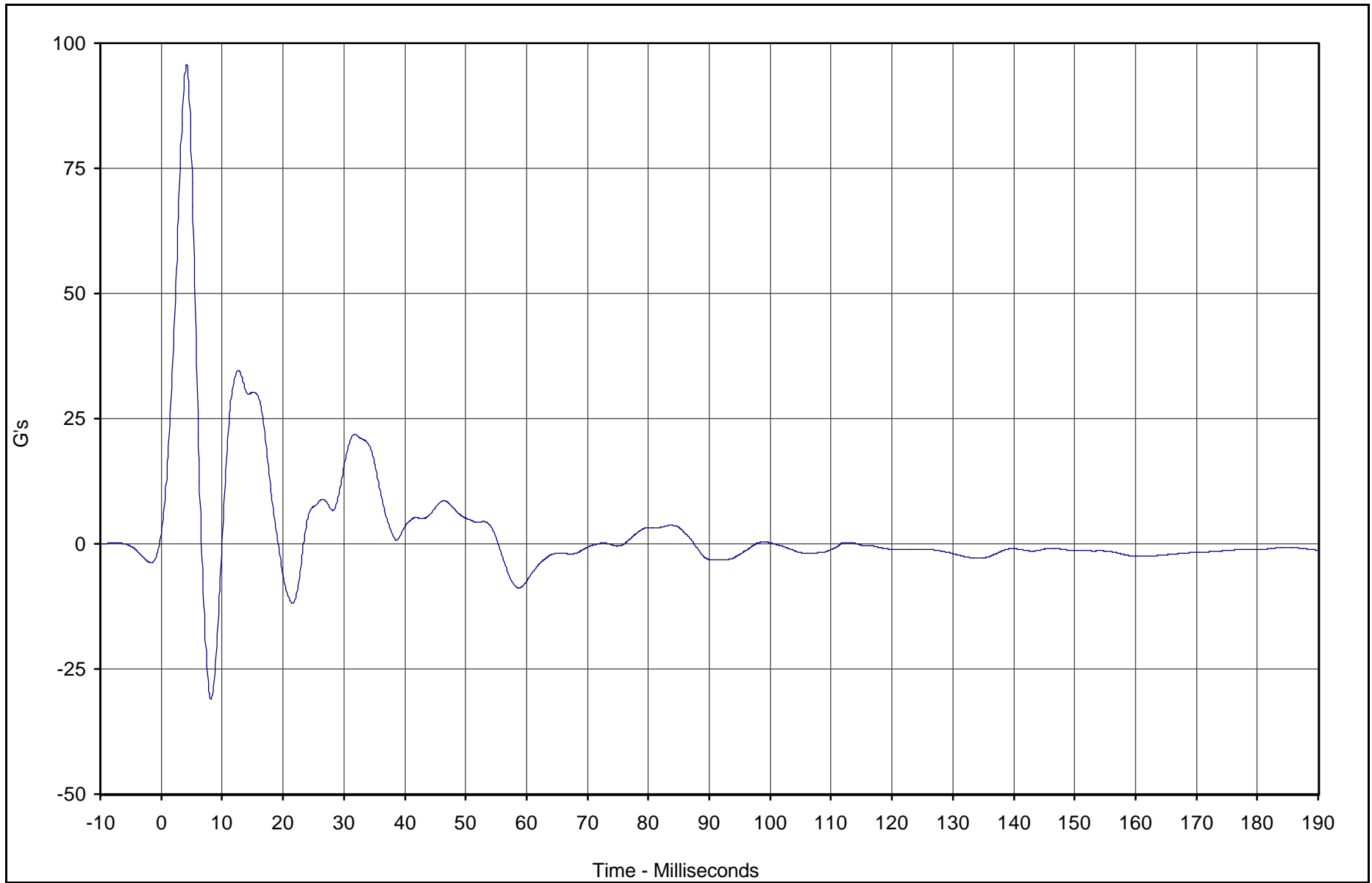
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-102



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Sill Rear Door Y	054	FIL	G's	95.6	4.2	-31.0	8.2	60



Test Vehicle: 2003 BMW X5 3.0i SUV

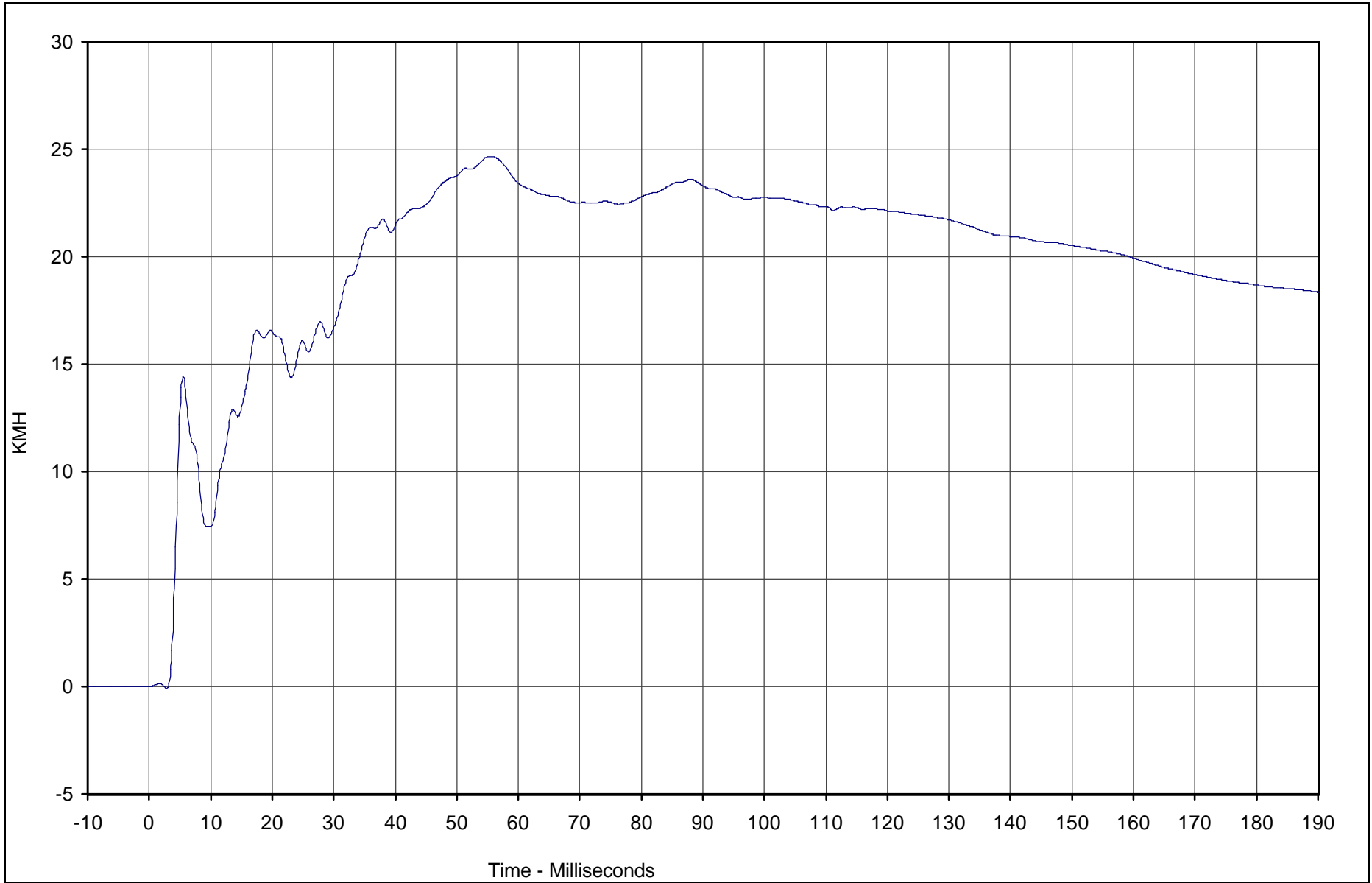
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-103



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Sill Rear Door Y Velocity	054	IN1	KMH	24.7	55.5	-0.1	2.8	180



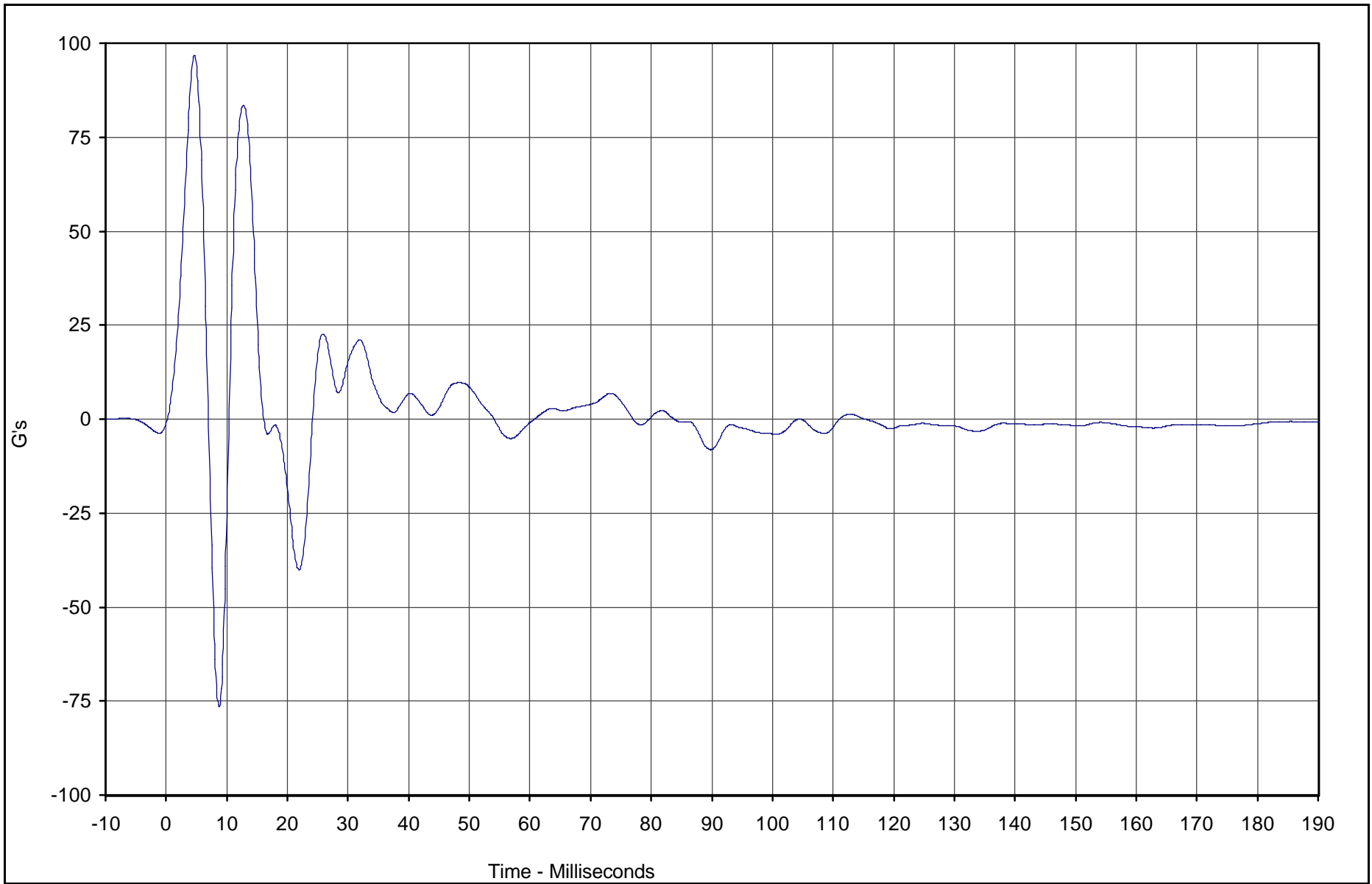
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-104



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Sill Front Door Y	055	FIL	G's	96.7	4.6	-76.5	8.7	60



Test Vehicle: 2003 BMW X5 3.0i SUV

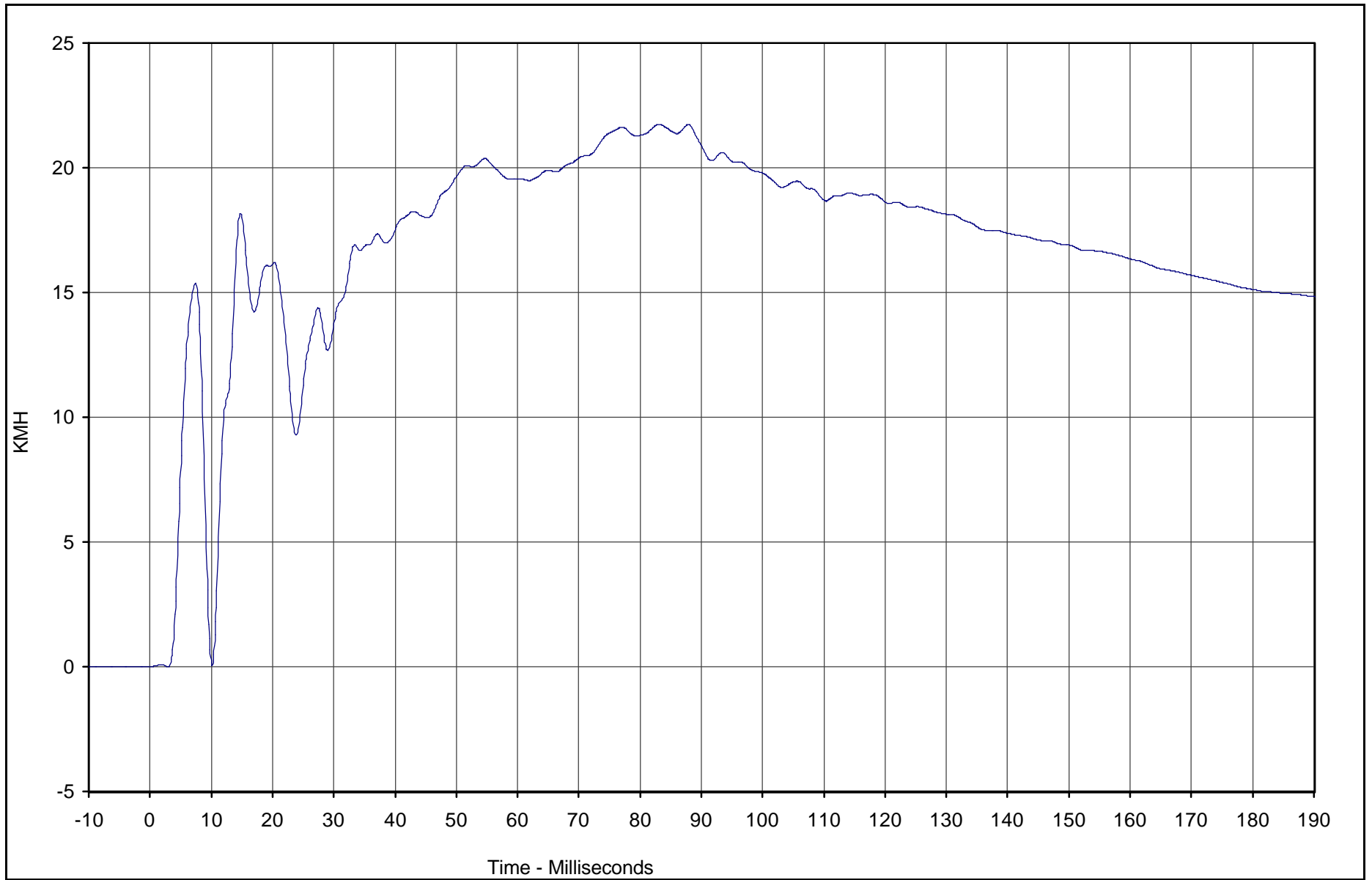
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-105



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Sill Front Door Y Velocity	055	IN1	KMH	21.7	83.1	0.0	2.9	180



Test Vehicle: 2003 BMW X5 3.0i SUV

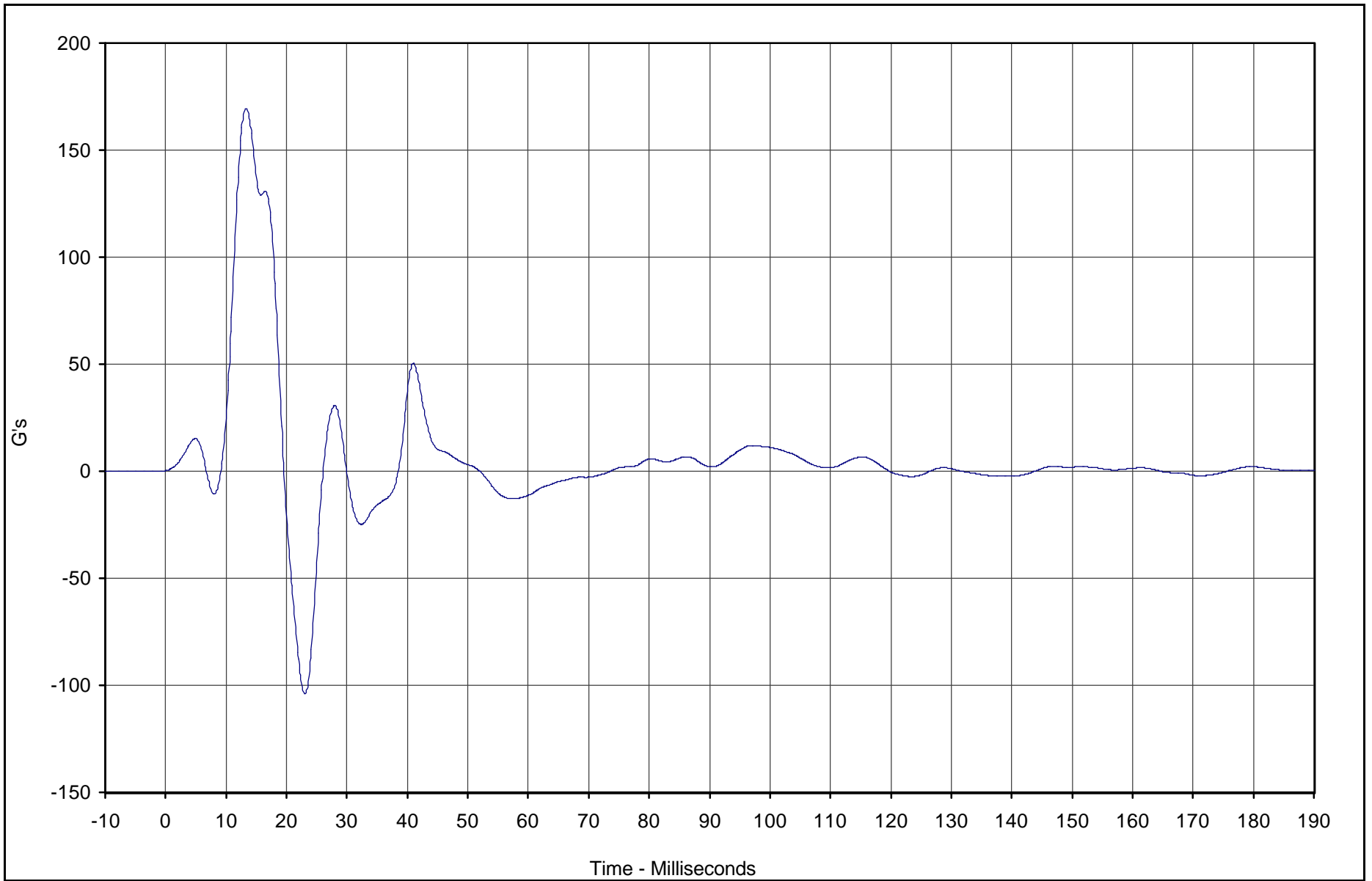
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-106



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Front Door CL Y	056	FIL	G's	169.3	13.3	-104.0	23.0	60



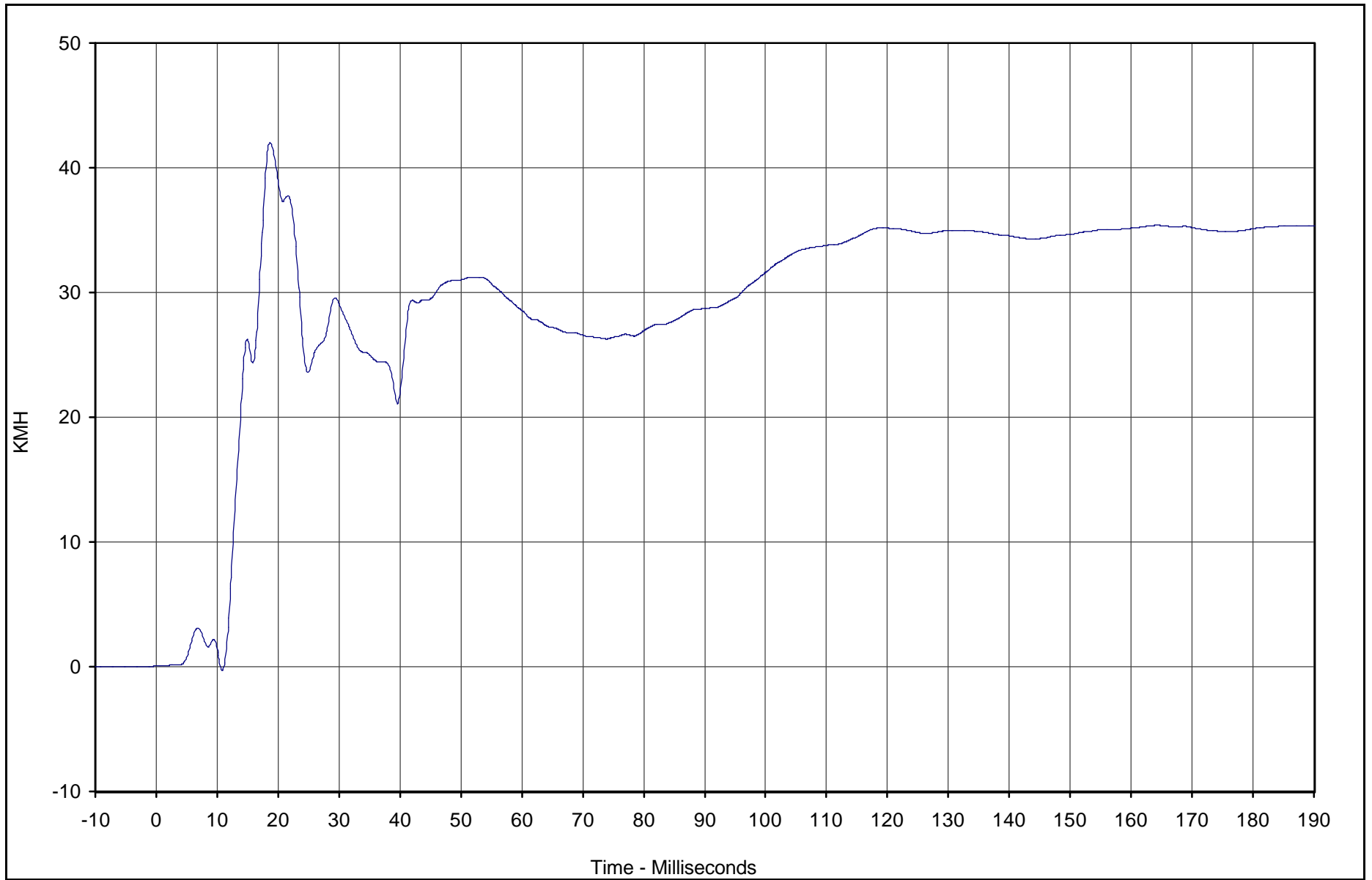
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-107



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Front Door CL Y Velocity	056	IN1	KMH	42.0	18.7	-0.3	10.8	180



Test Vehicle: 2003 BMW X5 3.0i SUV

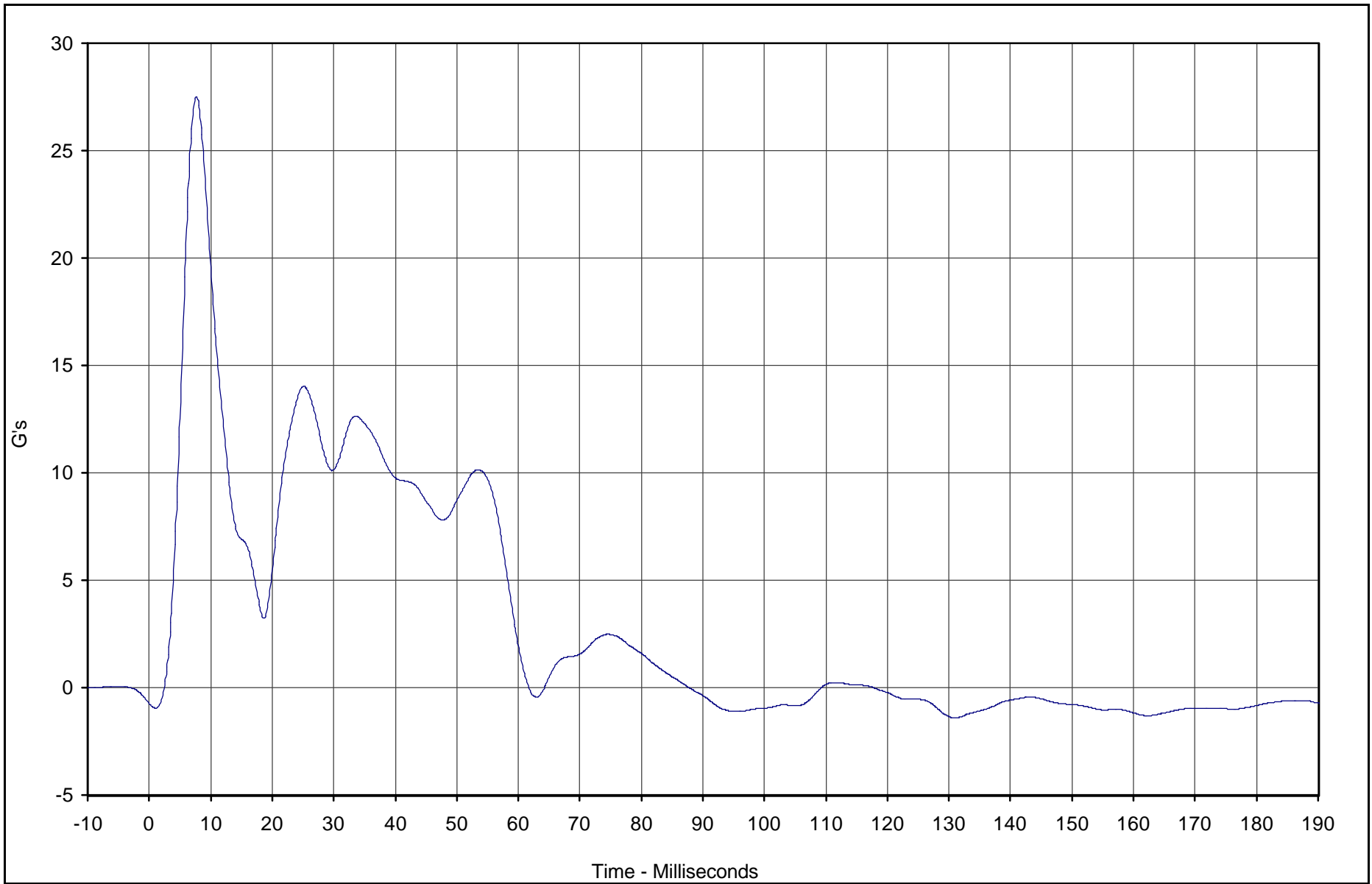
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-108



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Occ. Comp. Y	057	FIL	G's	27.5	7.7	-1.4	130.9	60



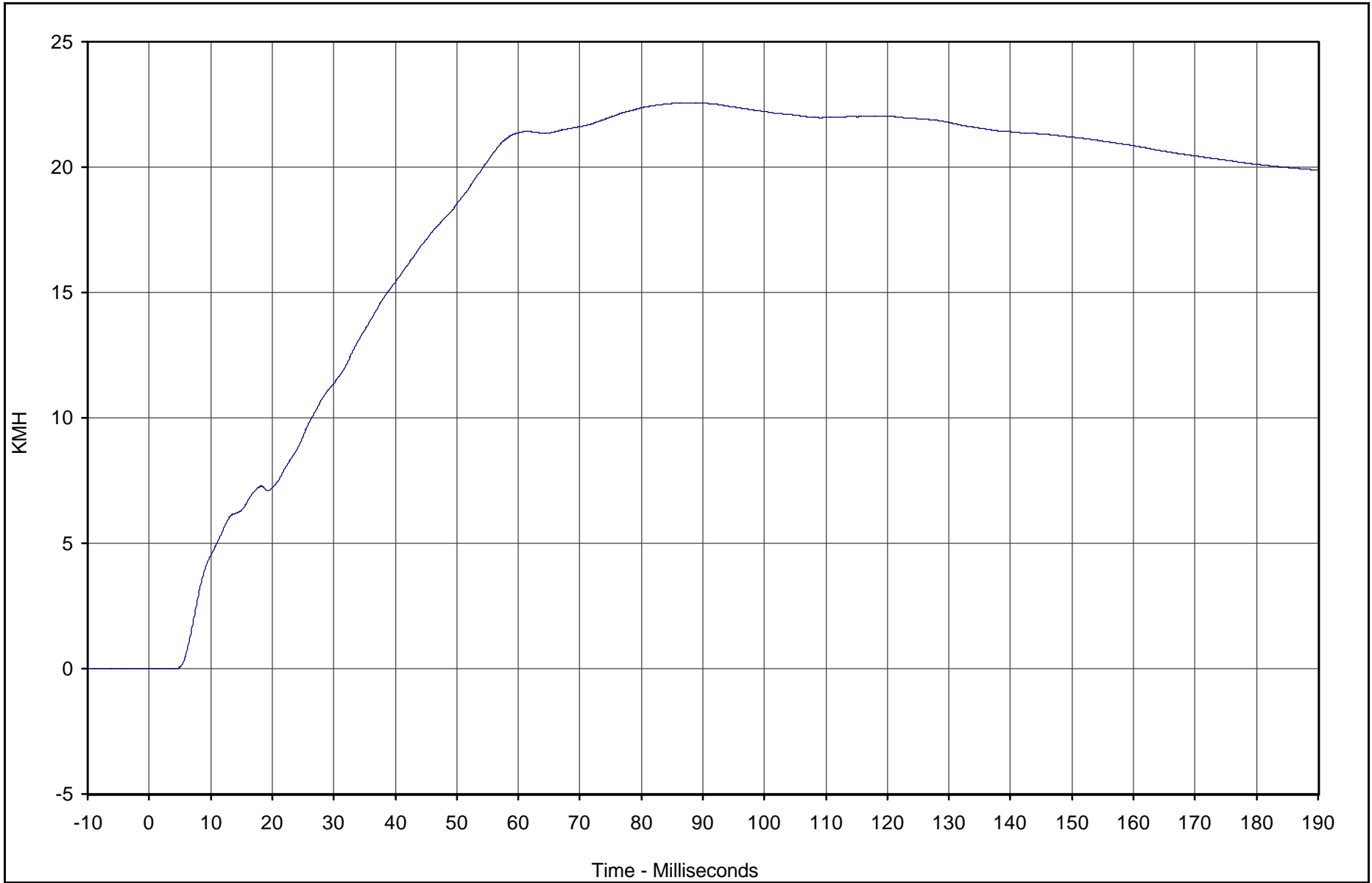
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-109



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Right Rear Occ. Comp. Y Velocity	057	IN1	KMH	22.6	87.4	0.0	4.2	180



Test Vehicle: 2003 BMW X5 3.0i SUV

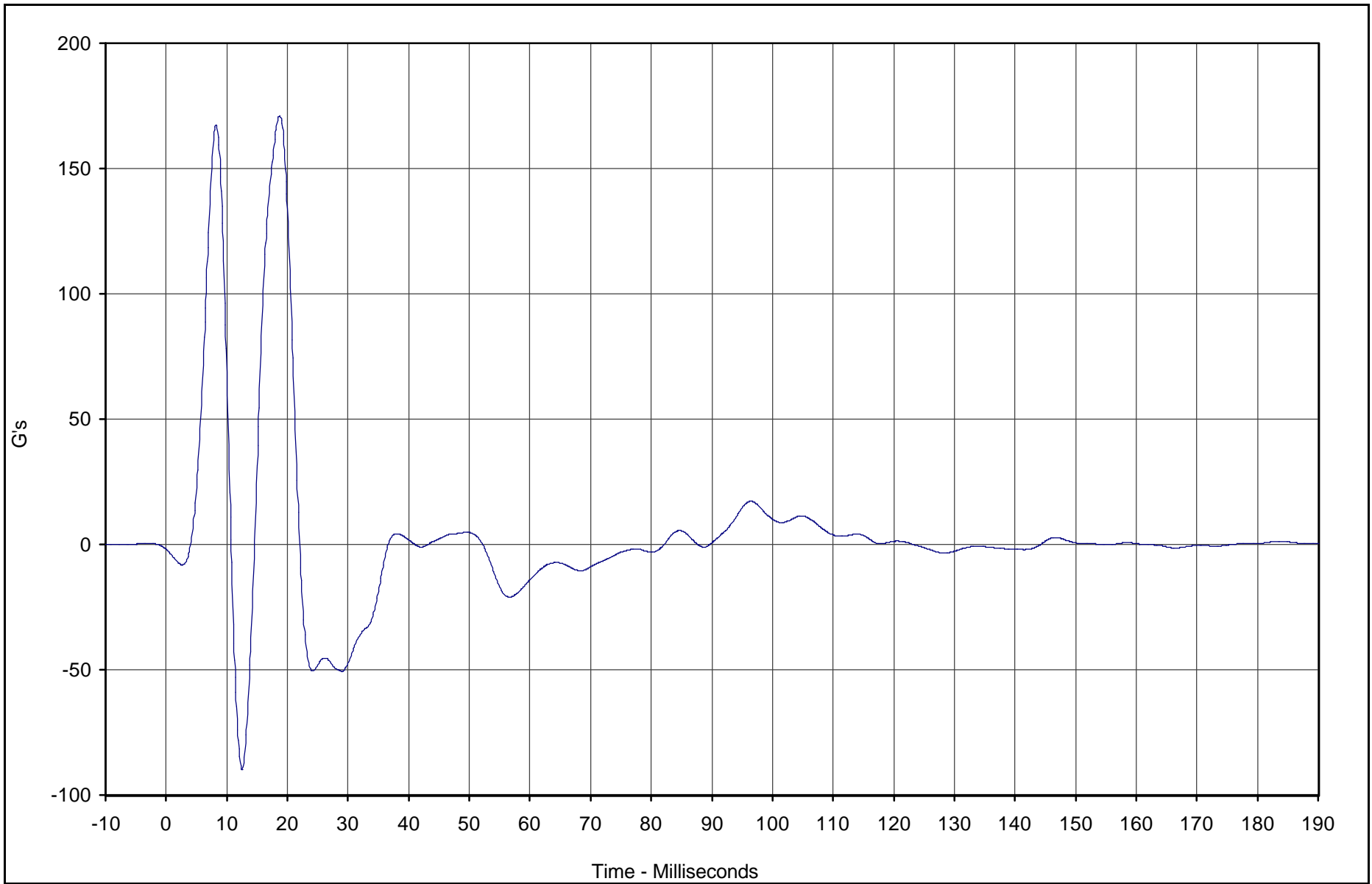
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-110



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Front Door Mid-Rear Y	058	FIL	G's	170.9	18.7	-90.0	12.5	60



Test Vehicle: 2003 BMW X5 3.0i SUV

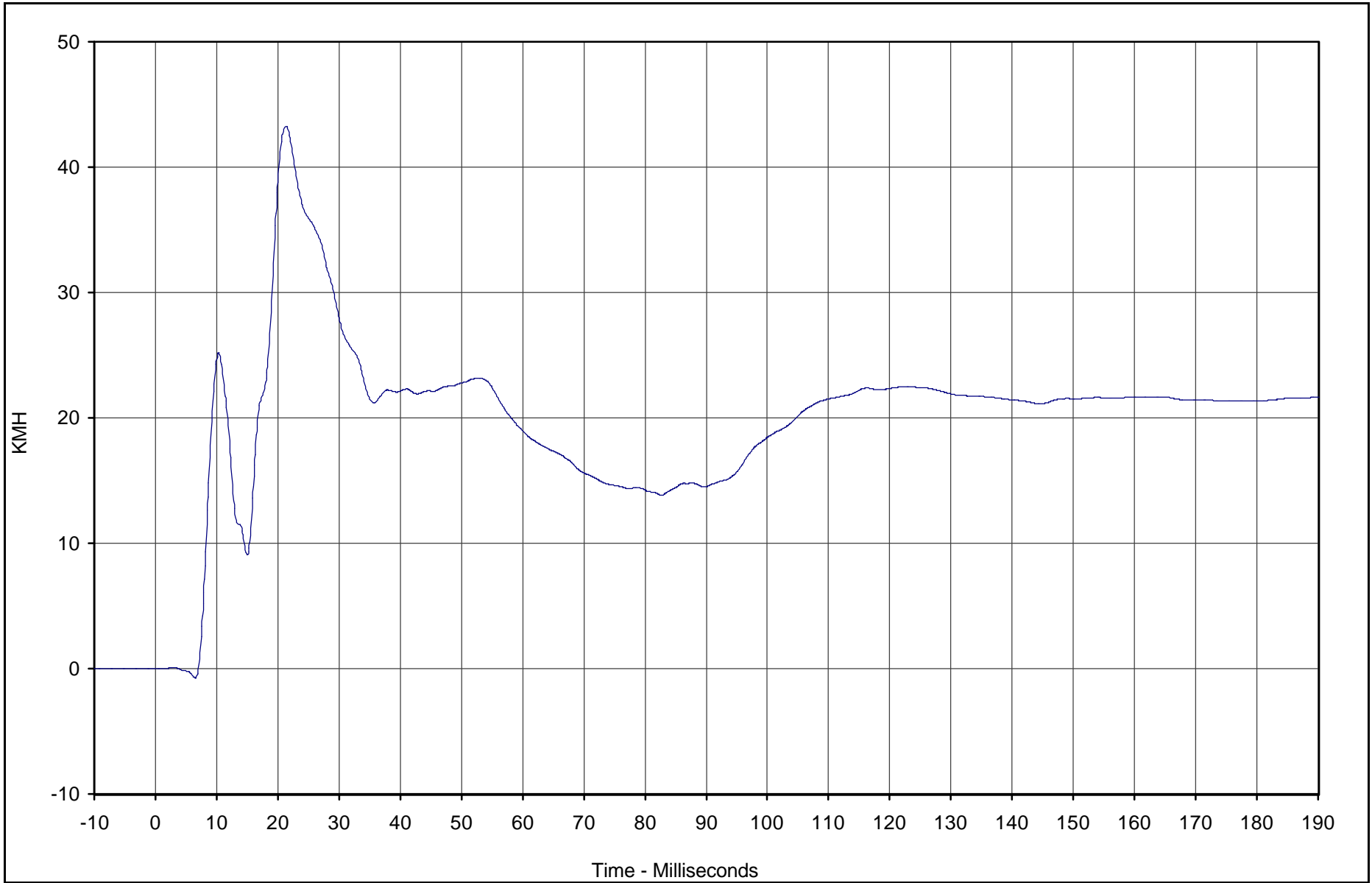
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-111



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Front Door Mid-Rear Y Velocity	058	IN1	KMH	43.3	21.3	-0.7	6.5	180



Test Vehicle: 2003 BMW X5 3.0i SUV

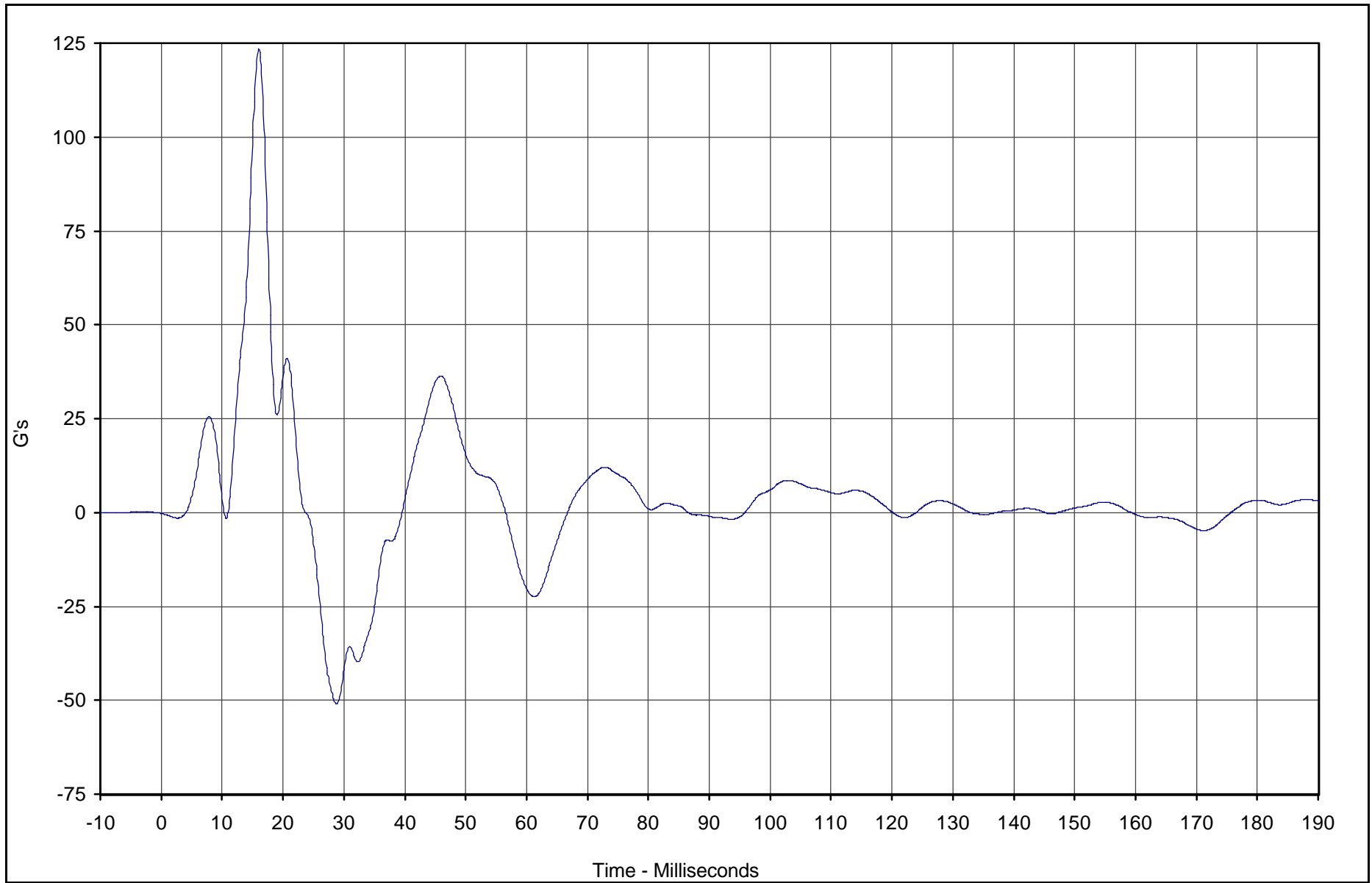
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-112



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Front Door Upper CL Y	059	FIL	G's	123.4	16.0	-50.9	28.8	60



Test Vehicle: 2003 BMW X5 3.0i SUV

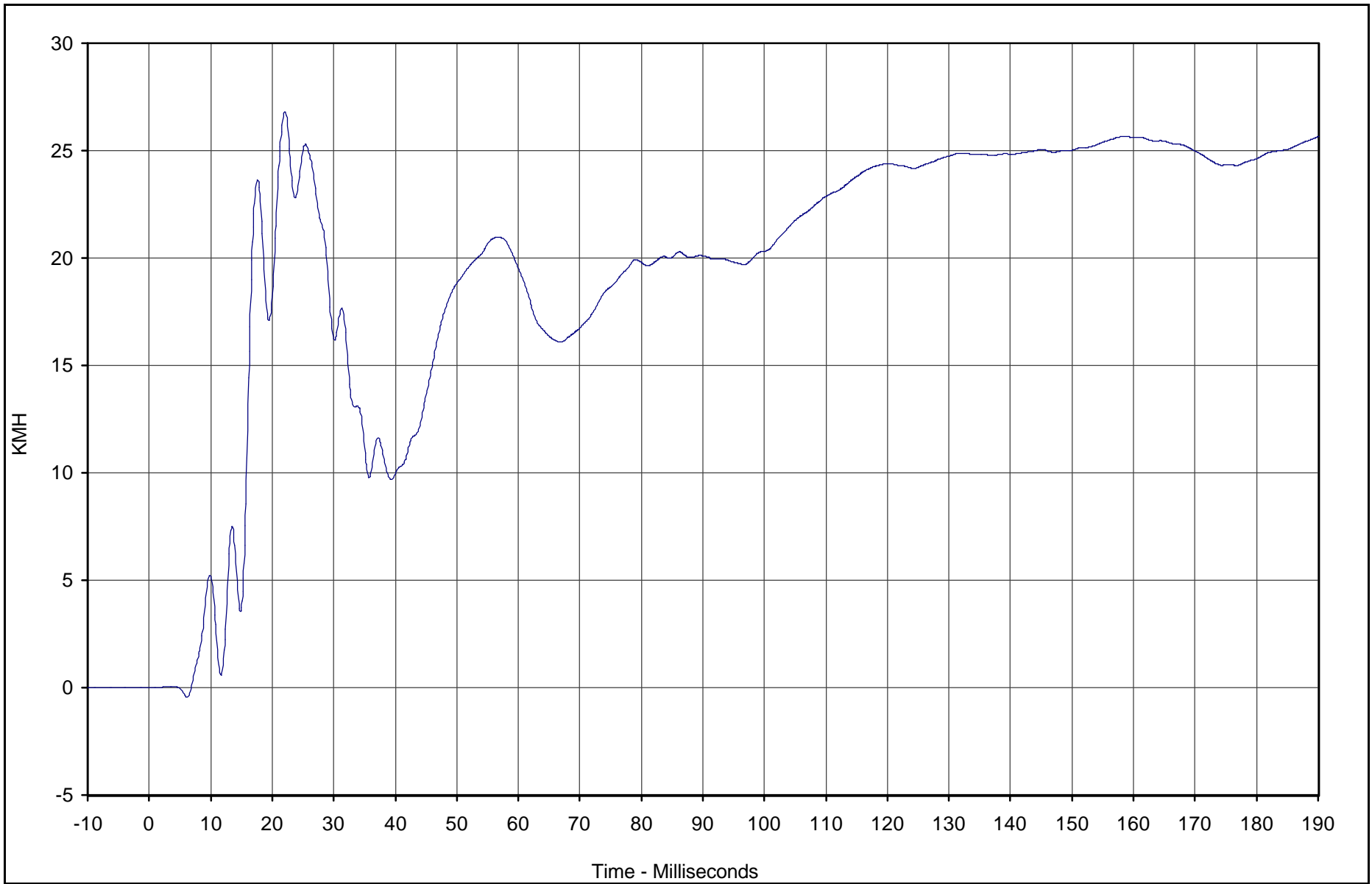
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-113



* Channel failed at 22.1 msec.

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Front Door Upper CL Y Velocity	059	IN1	KMH	26.8	22.1	-0.5	6.2	180



Test Vehicle: 2003 BMW X5 3.0i SUV

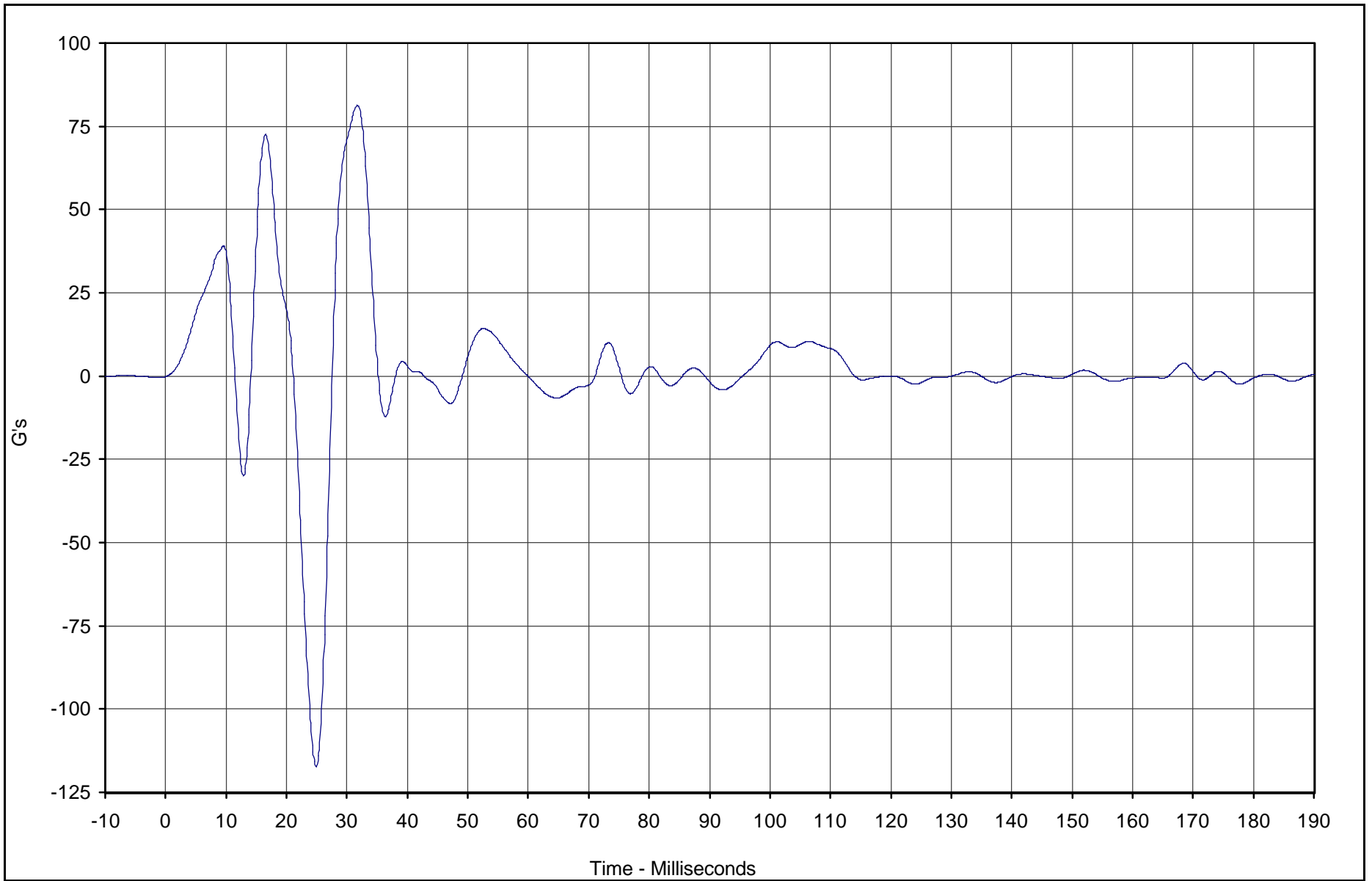
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-114



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear Door Mid-Rear Y	060	FIL	G's	81.3	31.7	-117.3	24.9	60



Test Vehicle: 2003 BMW X5 3.0i SUV

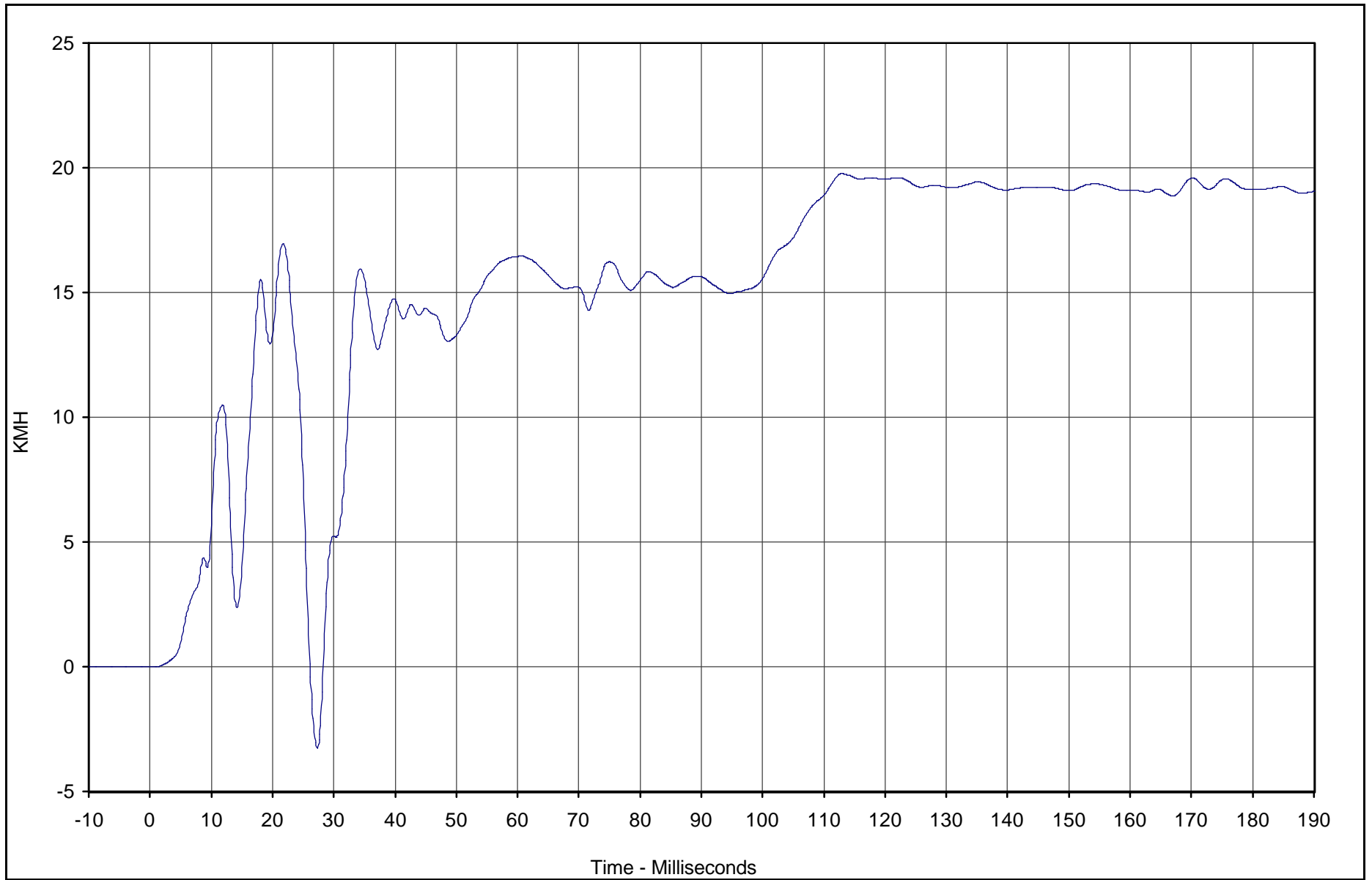
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-115



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear Door Mid-Rear Y Velocity	060	IN1	KMH	19.8	112.9	-3.3	27.3	180



Test Vehicle: 2003 BMW X5 3.0i SUV

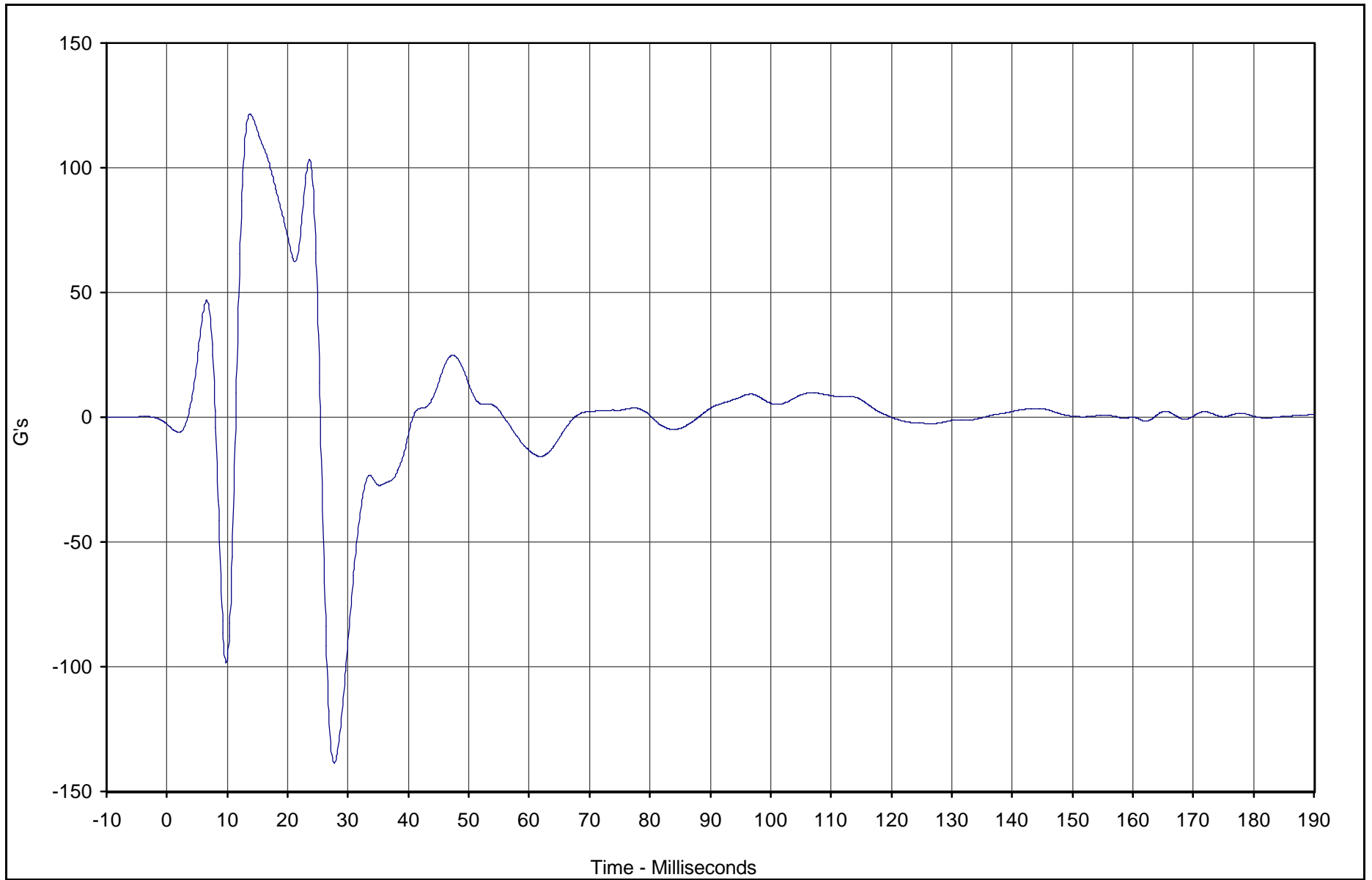
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-116



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear Door Upper CL Y	061	FIL	G's	121.5	13.8	-138.7	27.7	60



Test Vehicle: 2003 BMW X5 3.0i SUV

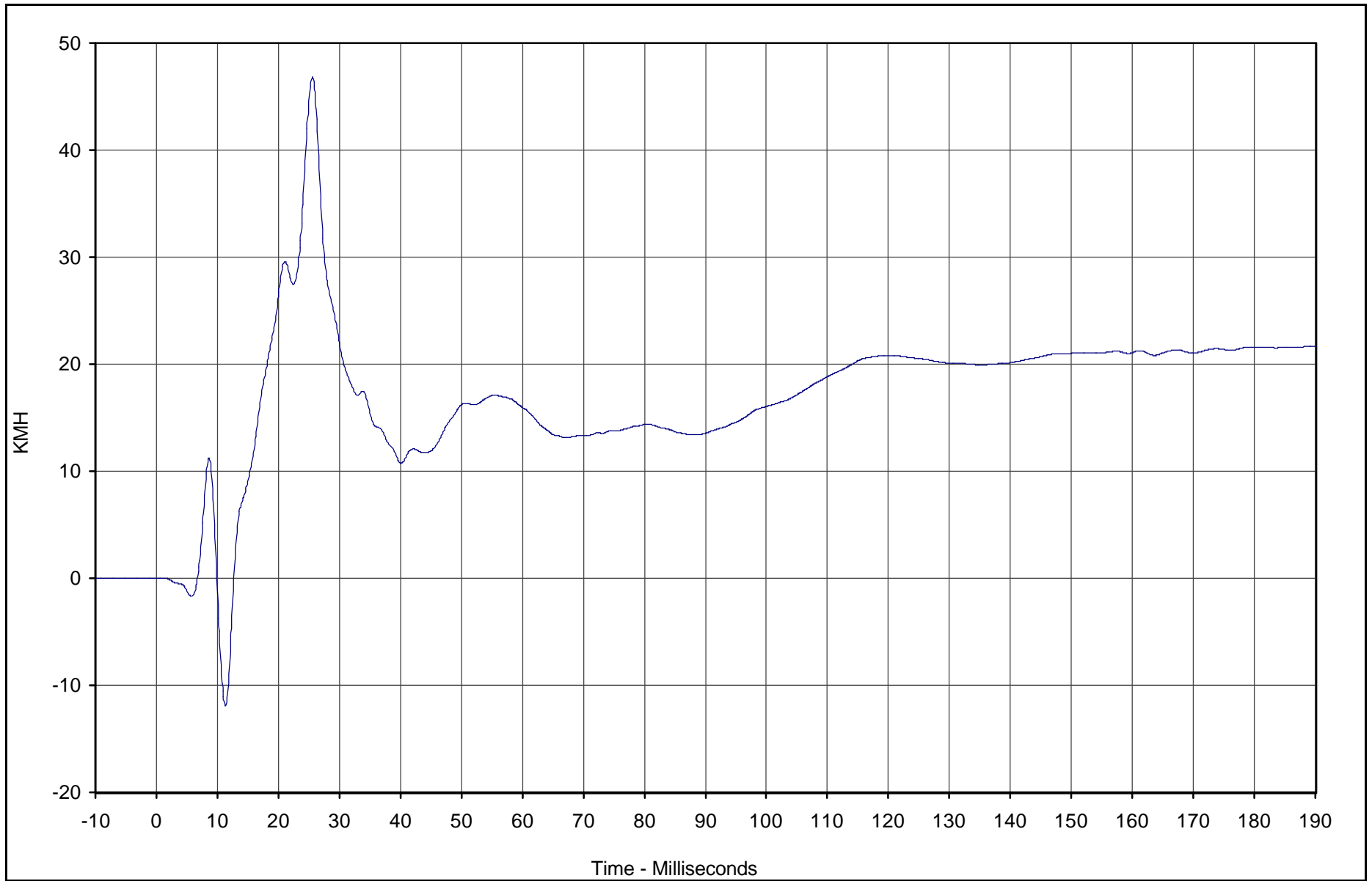
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-117



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Rear Door Upper CL Y Velocity	061	IN1	KMH	46.8	25.6	-11.9	11.3	180



Test Vehicle: 2003 BMW X5 3.0i SUV

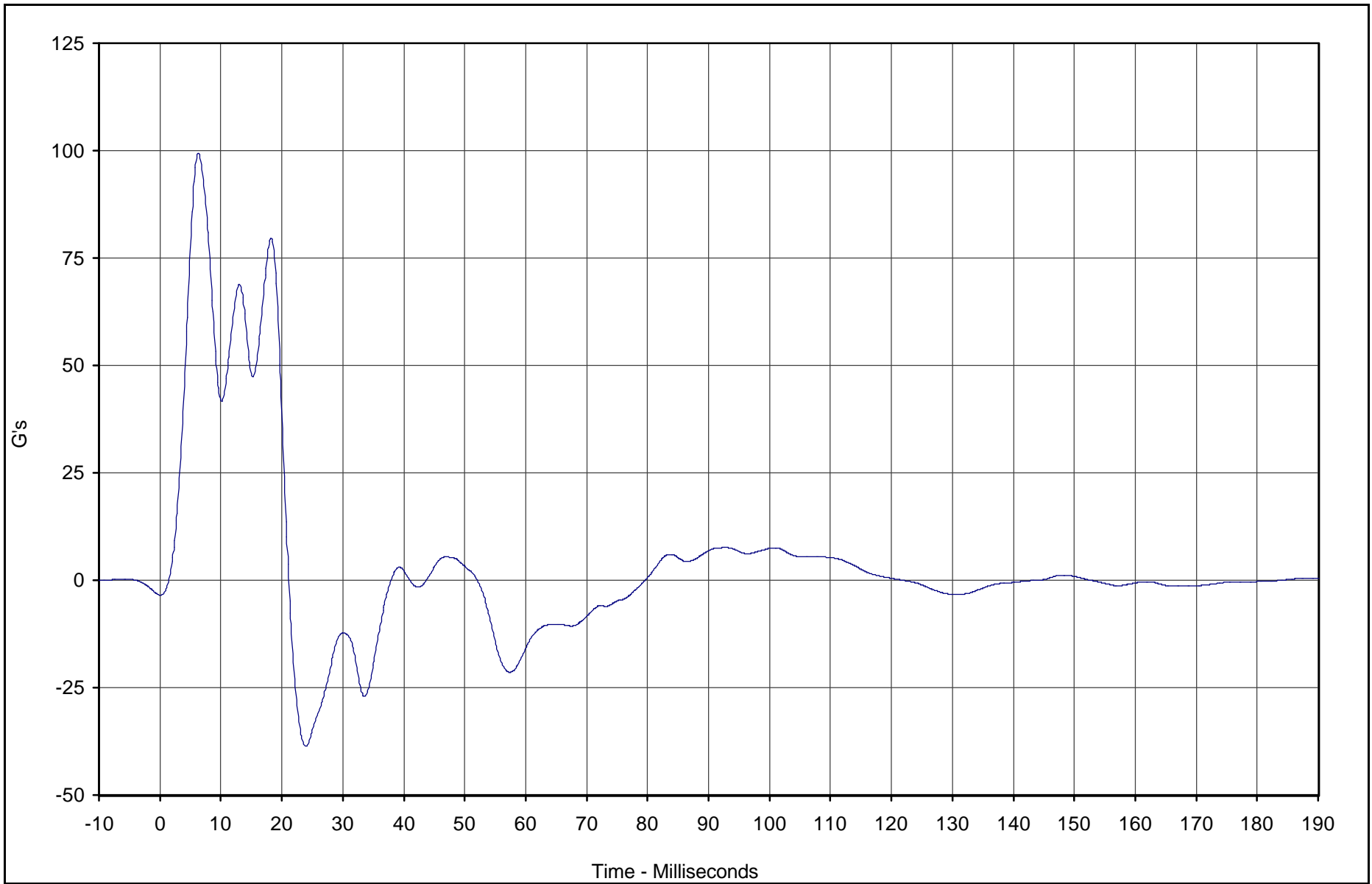
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-118



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
B-Post Lower Y	062	FIL	G's	99.4	6.3	-38.7	23.9	60



Test Vehicle: 2003 BMW X5 3.0i SUV

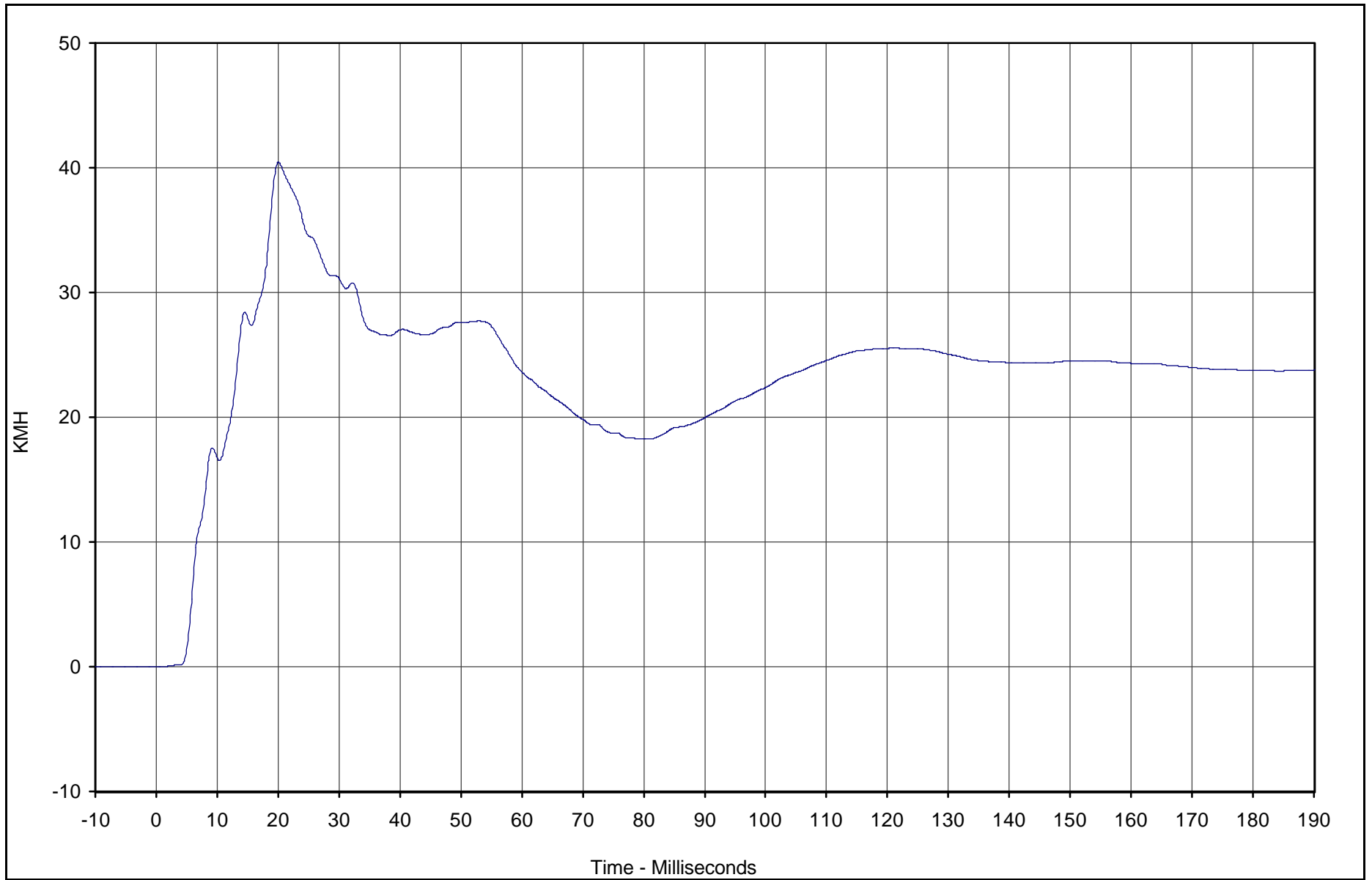
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-119



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
B-Post Lower Y Velocity	062	IN1	KMH	40.4	20.1	0.0	0.0	180



Test Vehicle: 2003 BMW X5 3.0i SUV

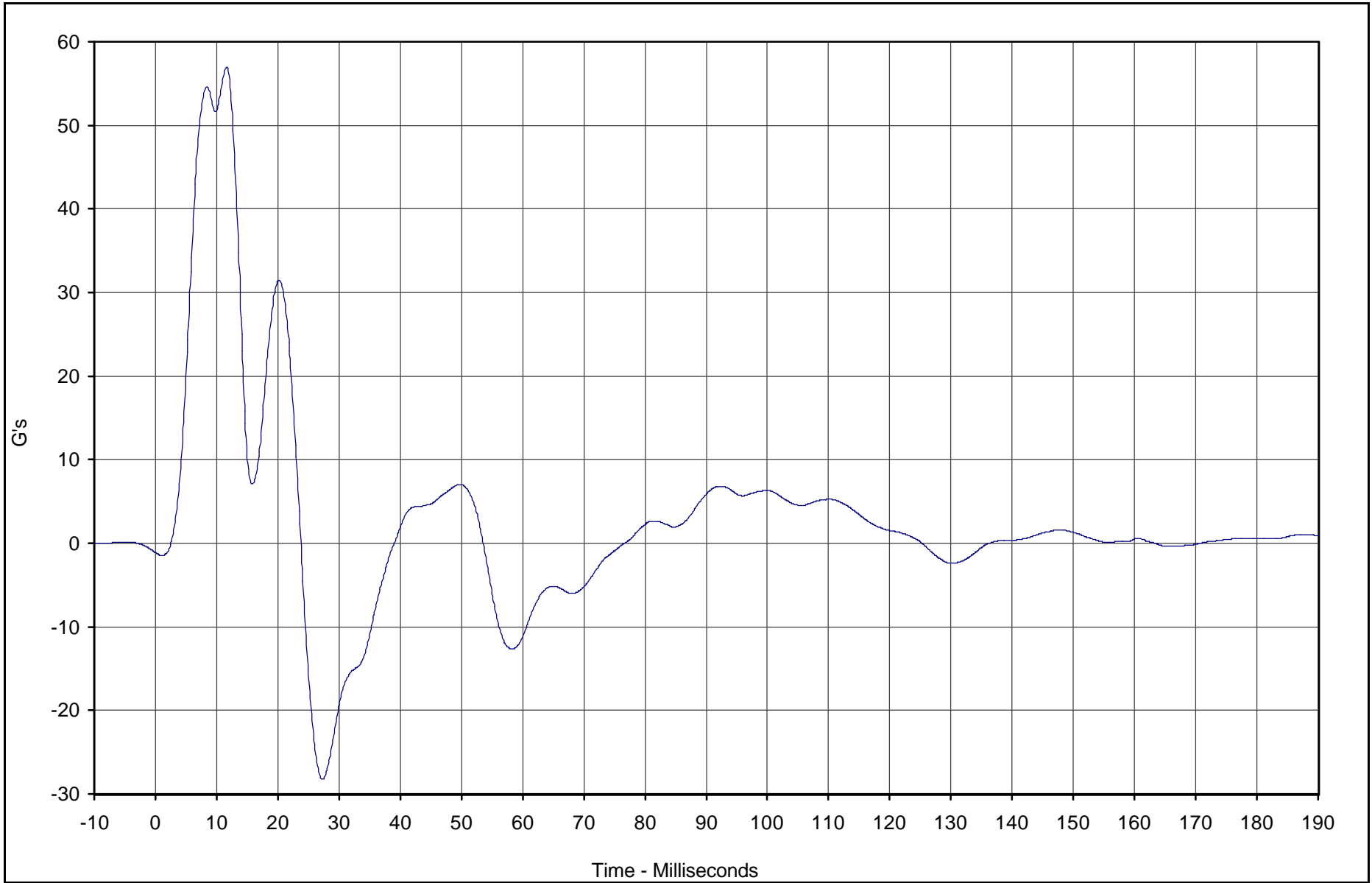
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-120



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
B-Post Middle Y	063	FIL	G's	57.0	11.6	-28.2	27.3	60



Test Vehicle: 2003 BMW X5 3.0i SUV

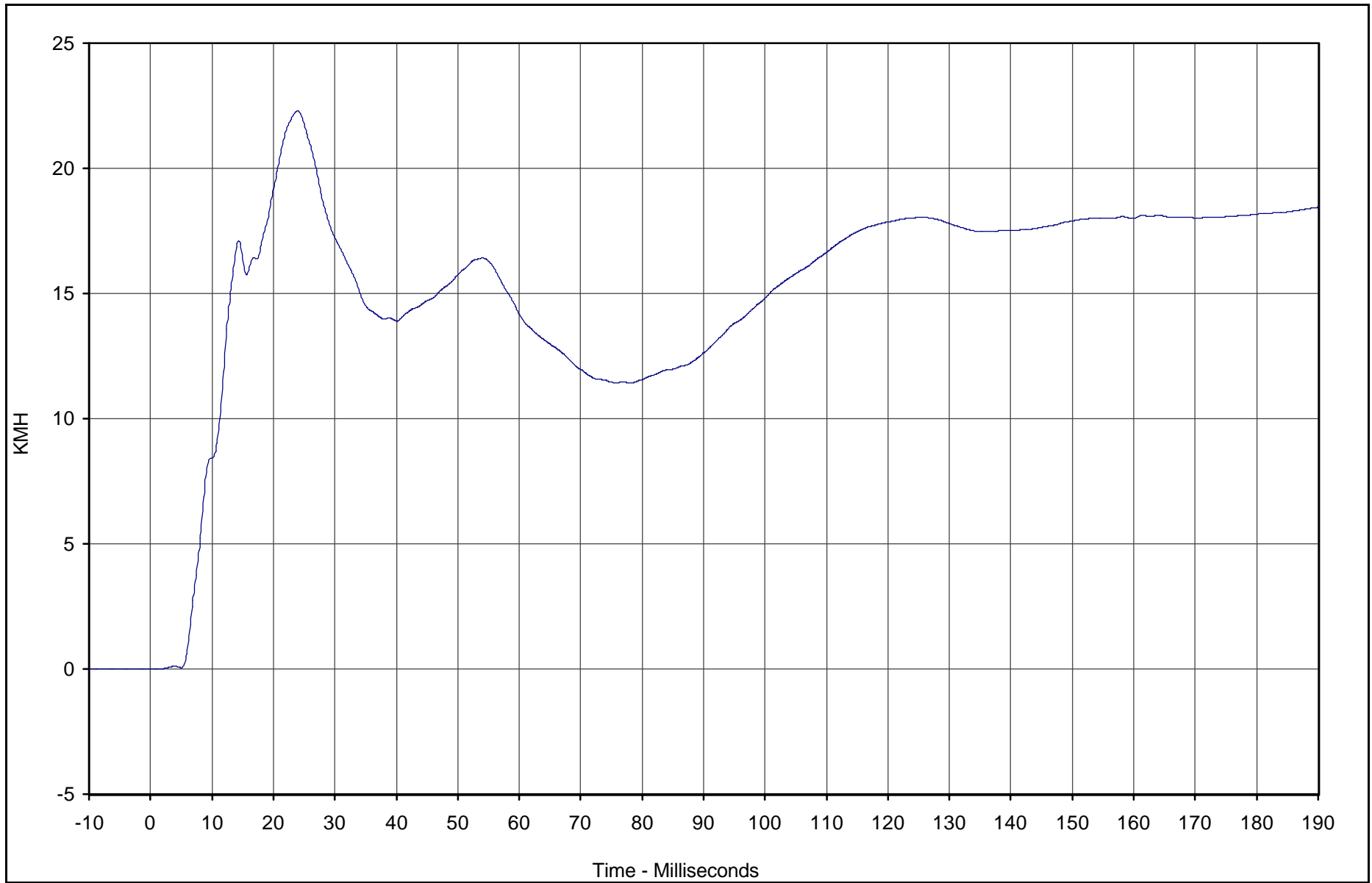
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-121



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
B-Post Middle Y Velocity	063	IN1	KMH	22.3	24.0	0.0	0.7	180



Test Vehicle: 2003 BMW X5 3.0i SUV

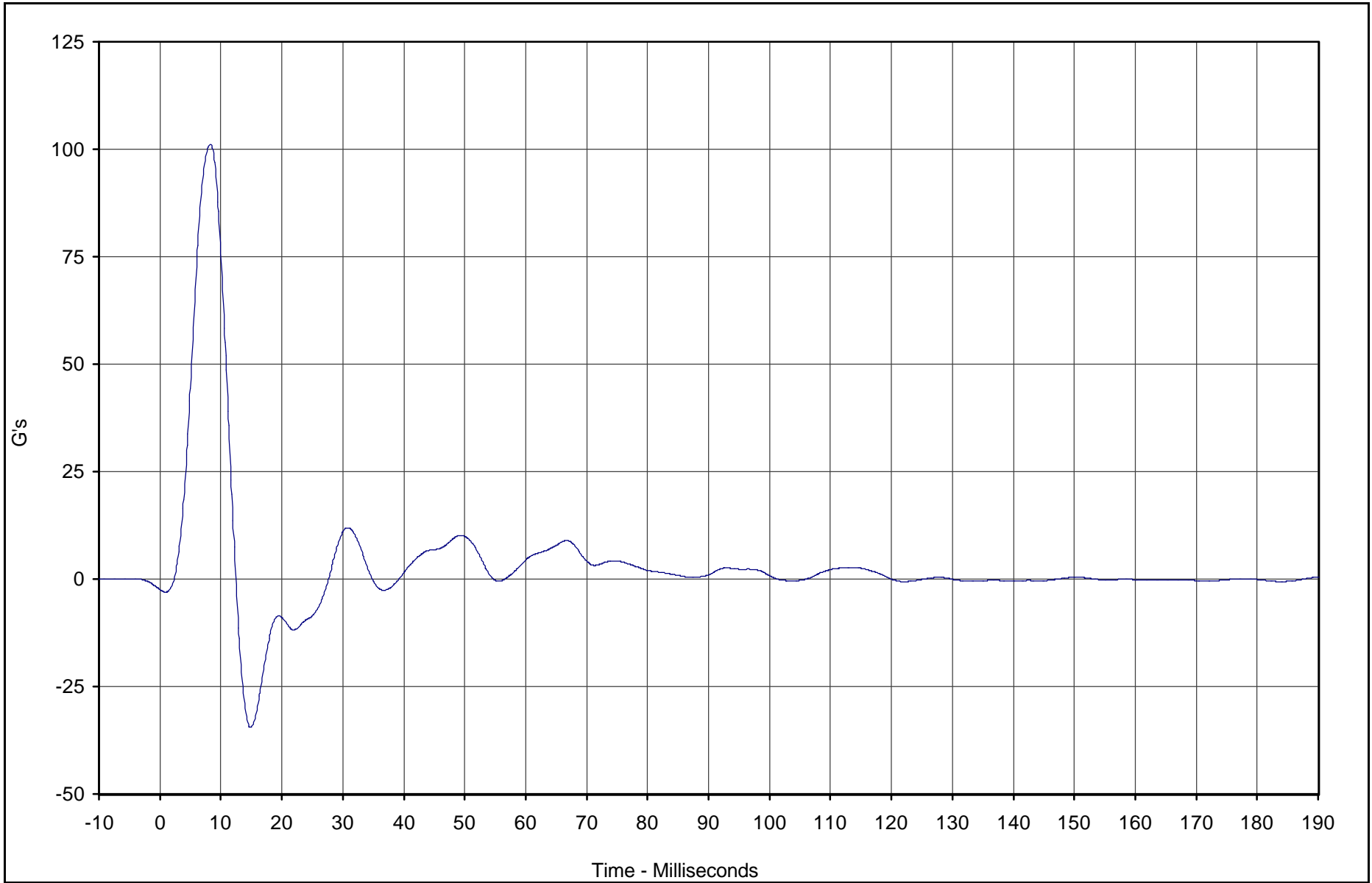
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-122



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
A-Post Lower Y	064	FIL	G's	101.2	8.3	-34.5	14.9	60



Test Vehicle: 2003 BMW X5 3.0i SUV

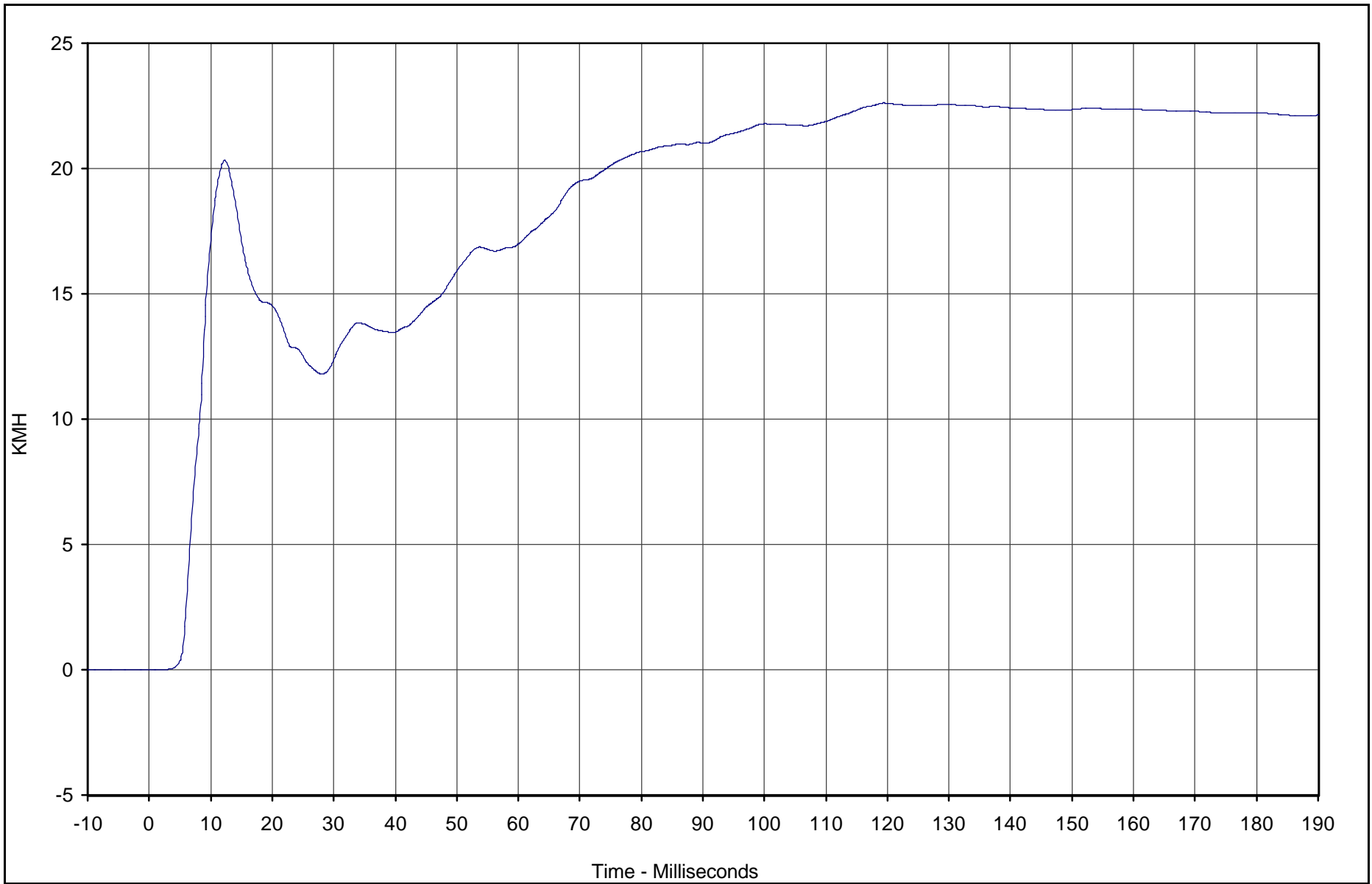
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-123



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
A-Post Lower Y Velocity	064	IN1	KMH	22.6	119.4	0.0	0.0	180



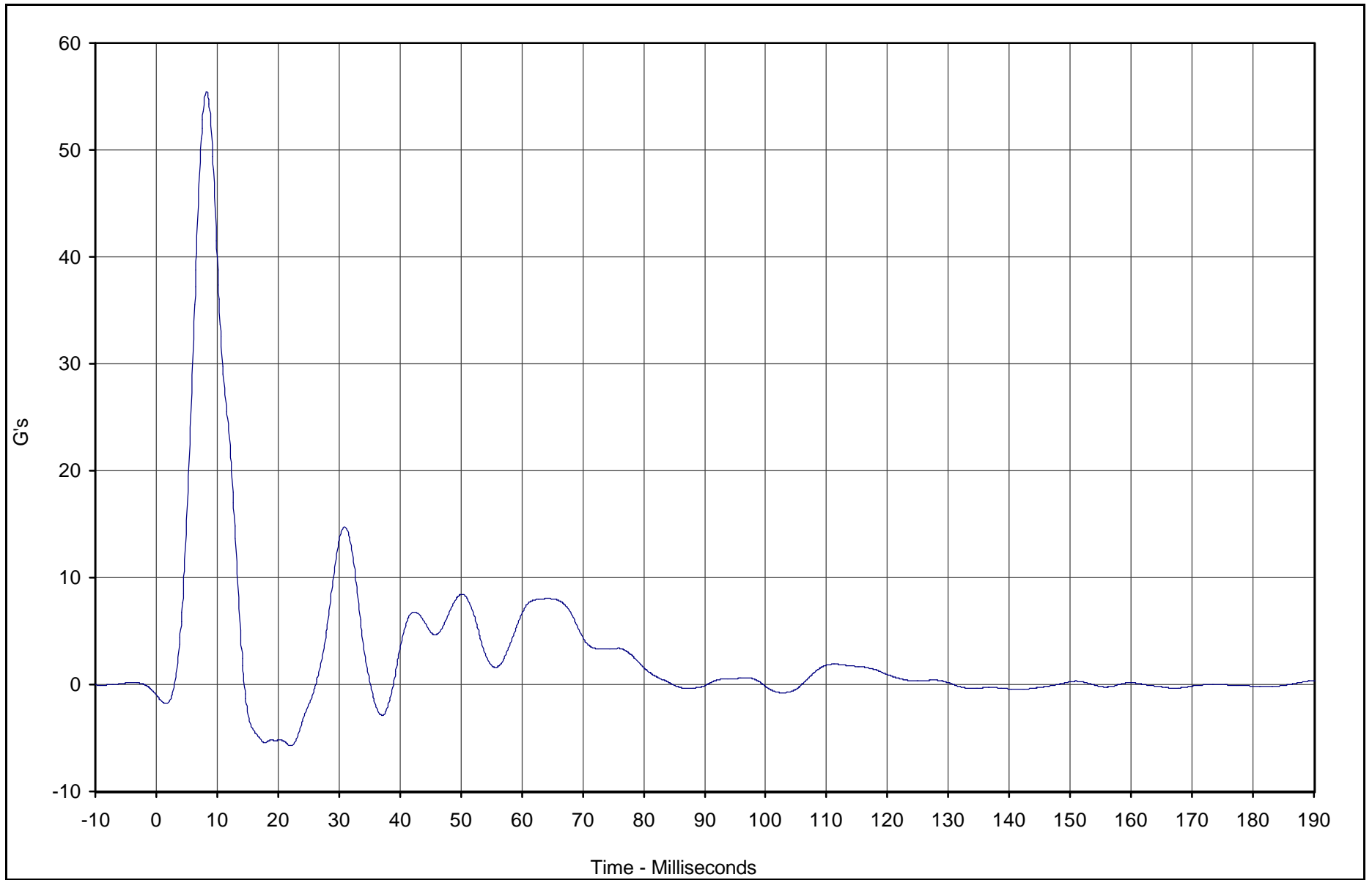
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-124



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
A-Post Middle Y	065	FIL	G's	55.5	8.3	-5.7	22.1	60



Test Vehicle: 2003 BMW X5 3.0i SUV

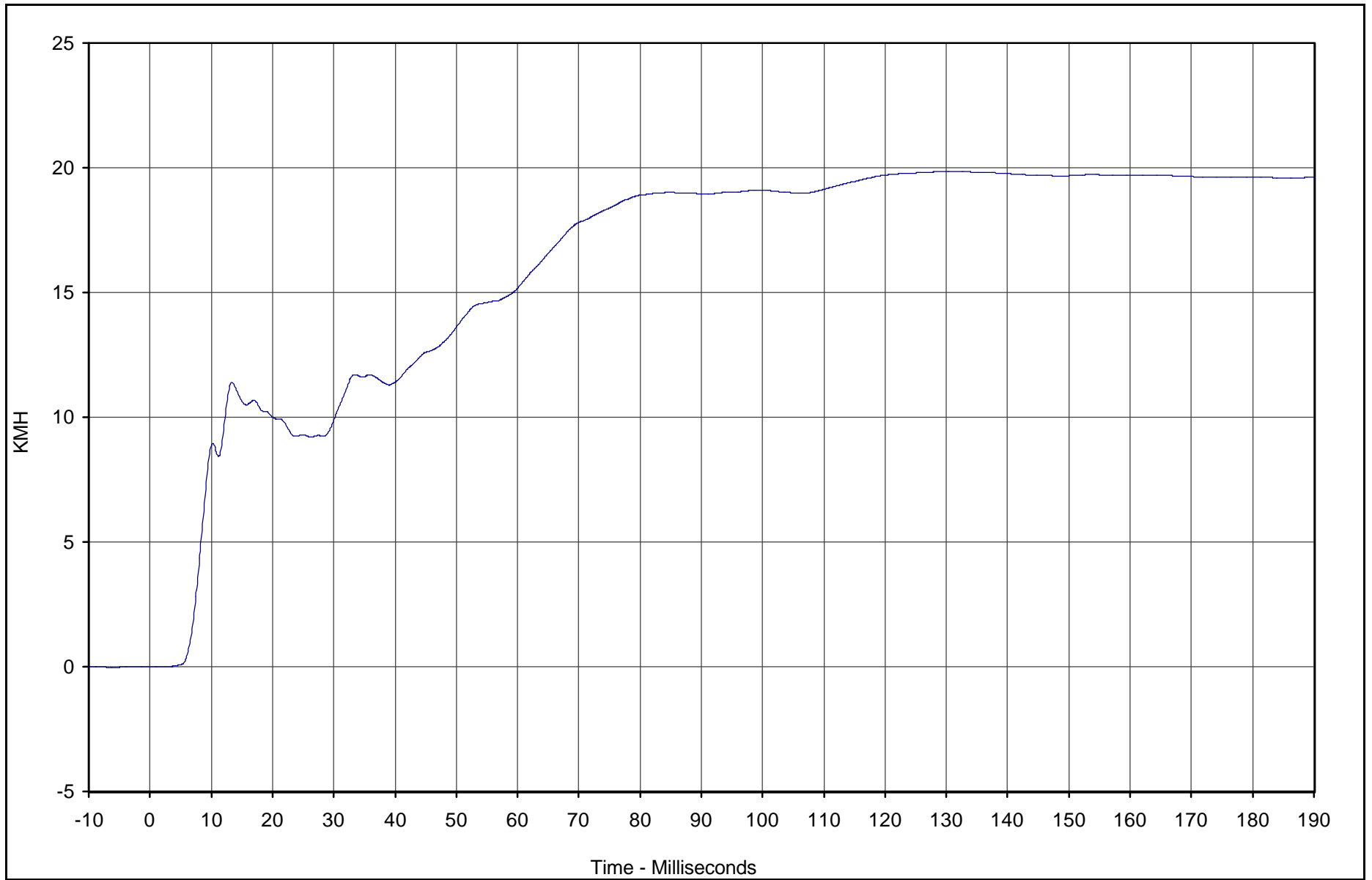
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-125



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
A-Post Middle Y Velocity	065	IN1	KMH	19.9	130.9	0.0	0.0	180



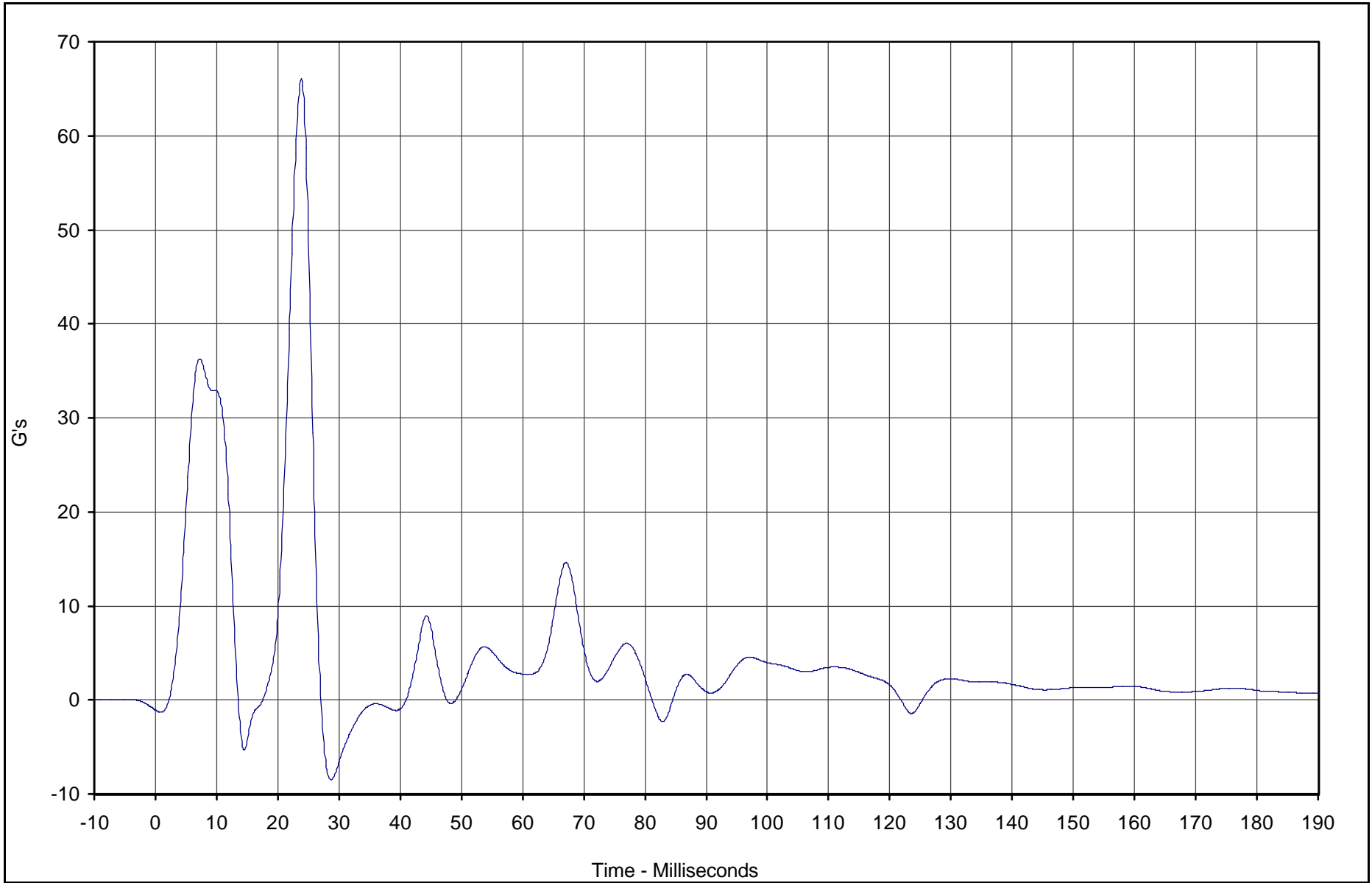
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-126



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Front Seat Track Y	066	FIL	G's	66.1	23.8	-8.5	28.7	60



Test Vehicle: 2003 BMW X5 3.0i SUV

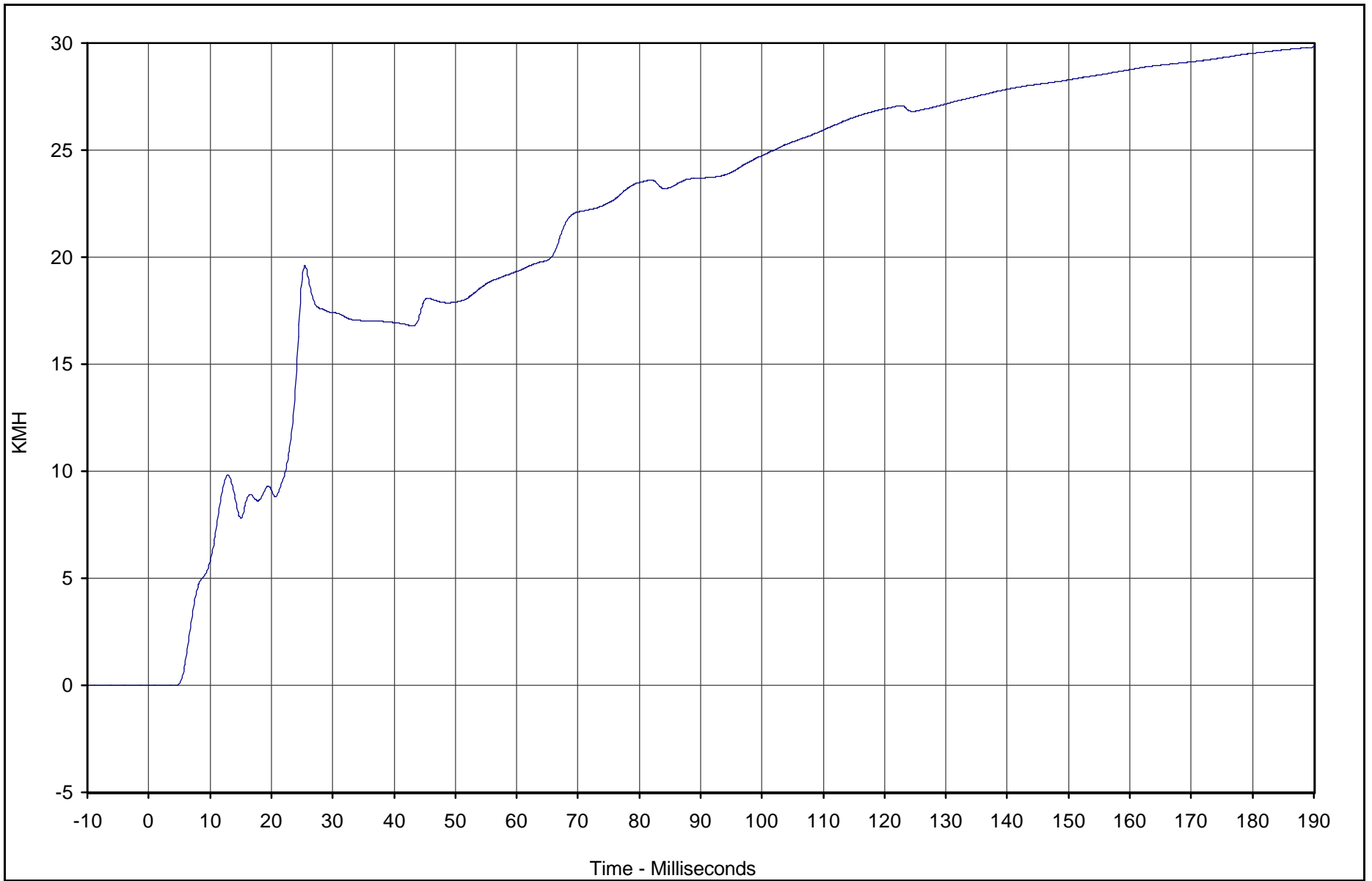
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-127



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Left Front Seat Track Y Velocity	066	IN1	KMH	29.8	189.9	0.0	4.3	180



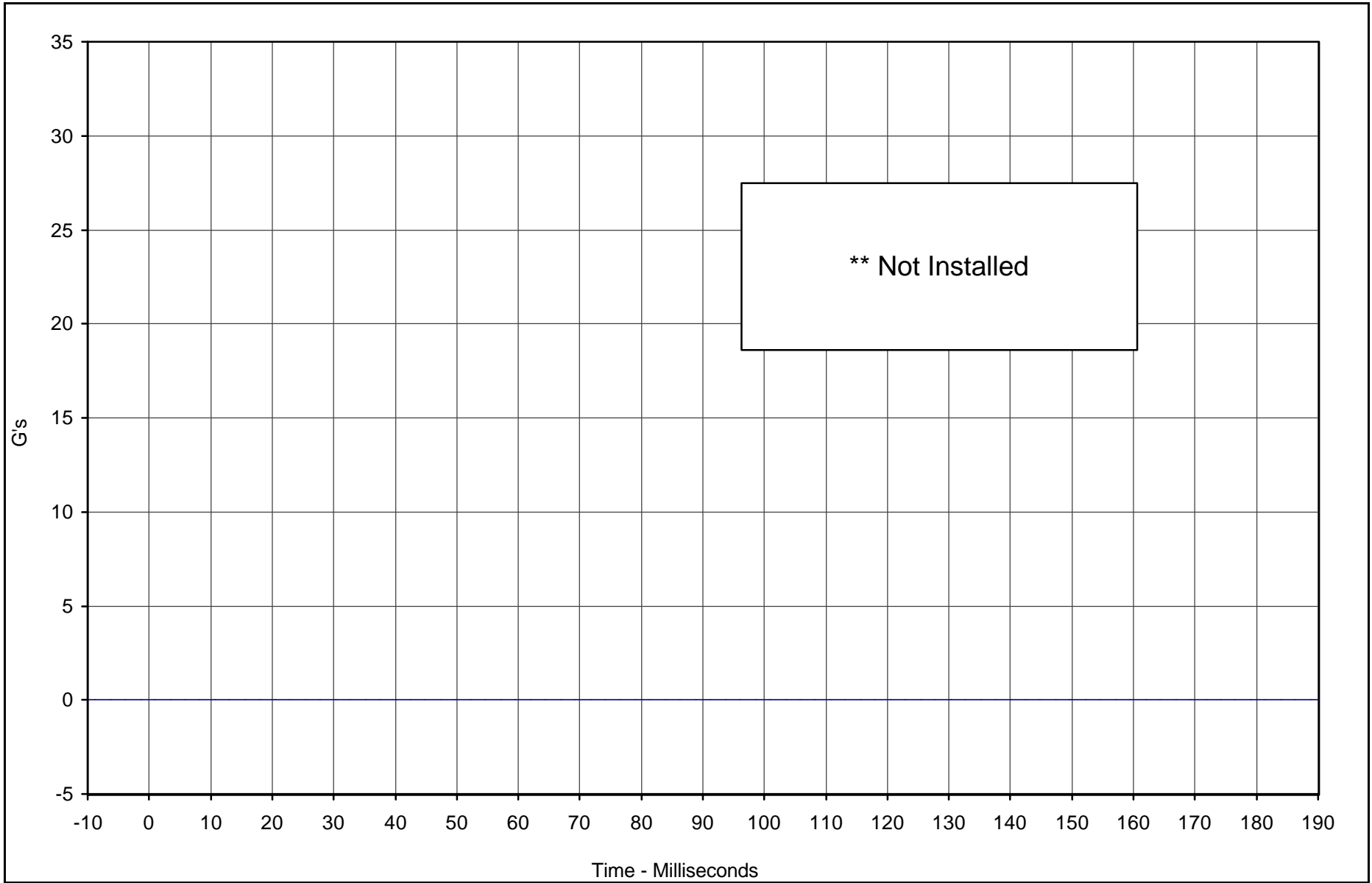
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



** Not installed

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Rear Seat Structure Y	067	FIL	G's	0.0	0.0	0.0	0.0	60

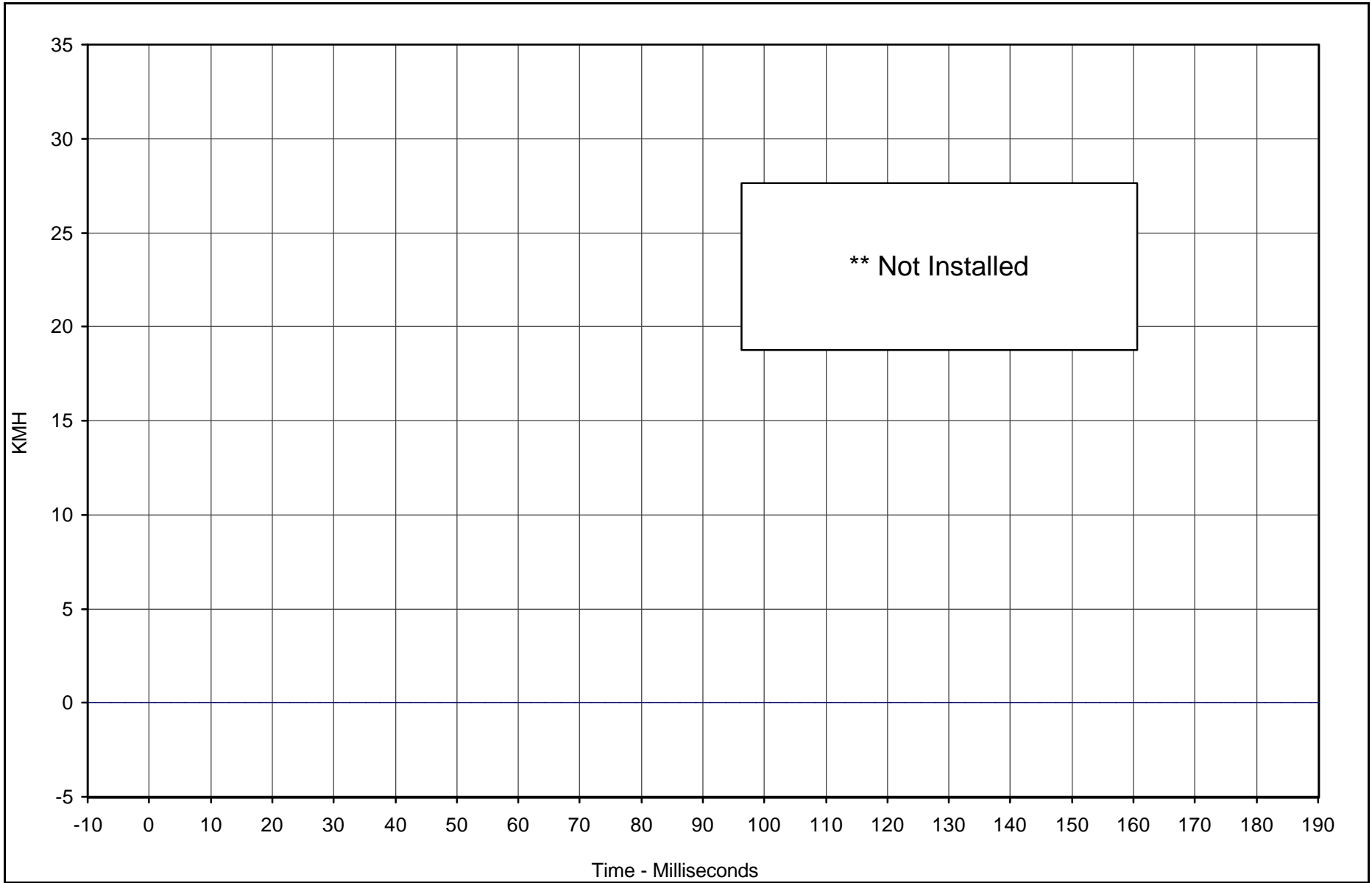


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



** Not installed

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Rear Seat Structure Y Velocity	067	IN1	KMH	0.0	0.0	0.0	0.0	180

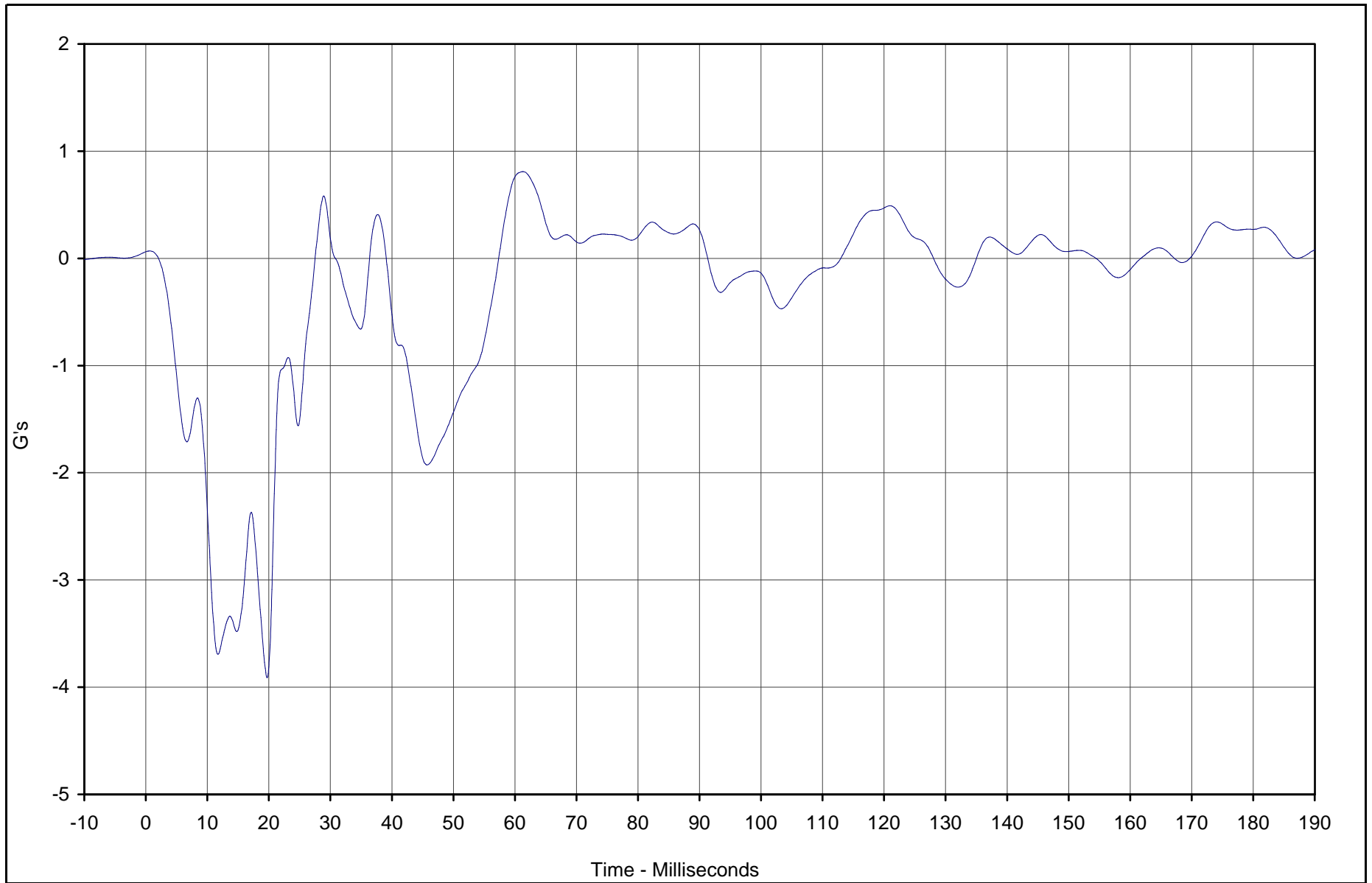


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle CG X	068	FIL	G's	0.8	61.3	-3.9	19.7	60



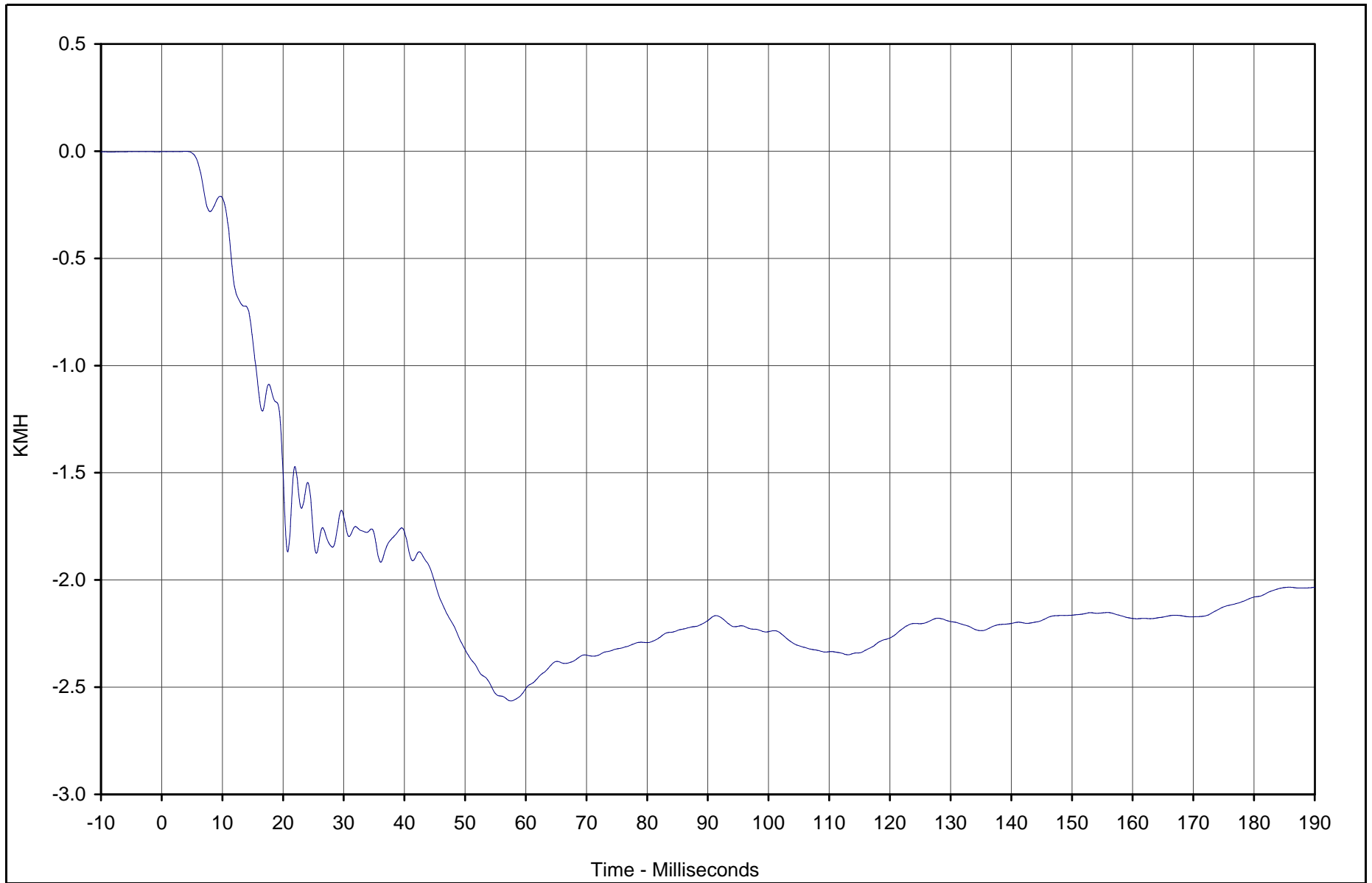
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-131



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle CG X Velocity	068	IN1	KMH	0.0	4.1	-2.6	57.5	180

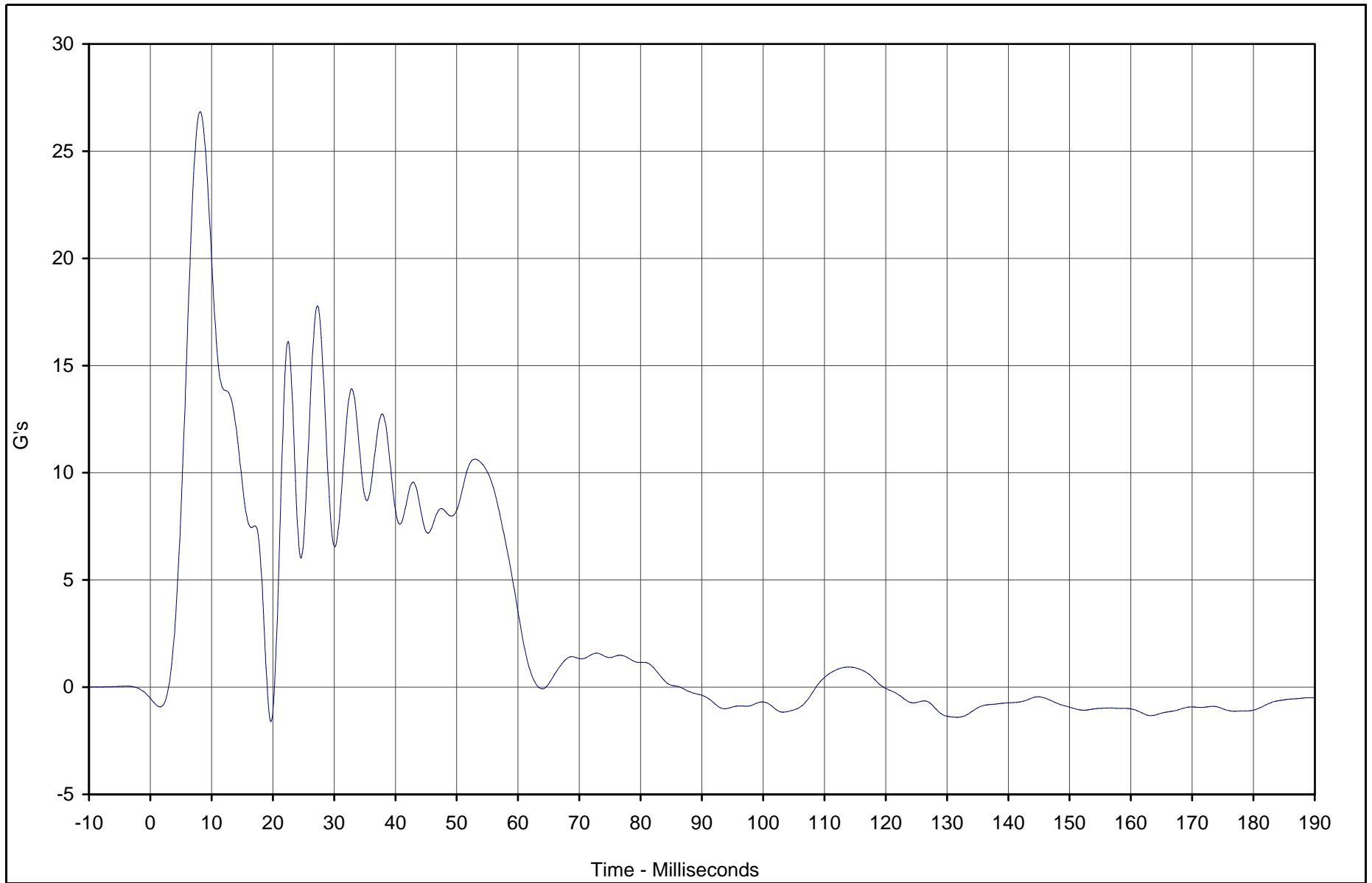


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle CG Y	069	FIL	G's	26.8	8.1	-1.6	19.7	60



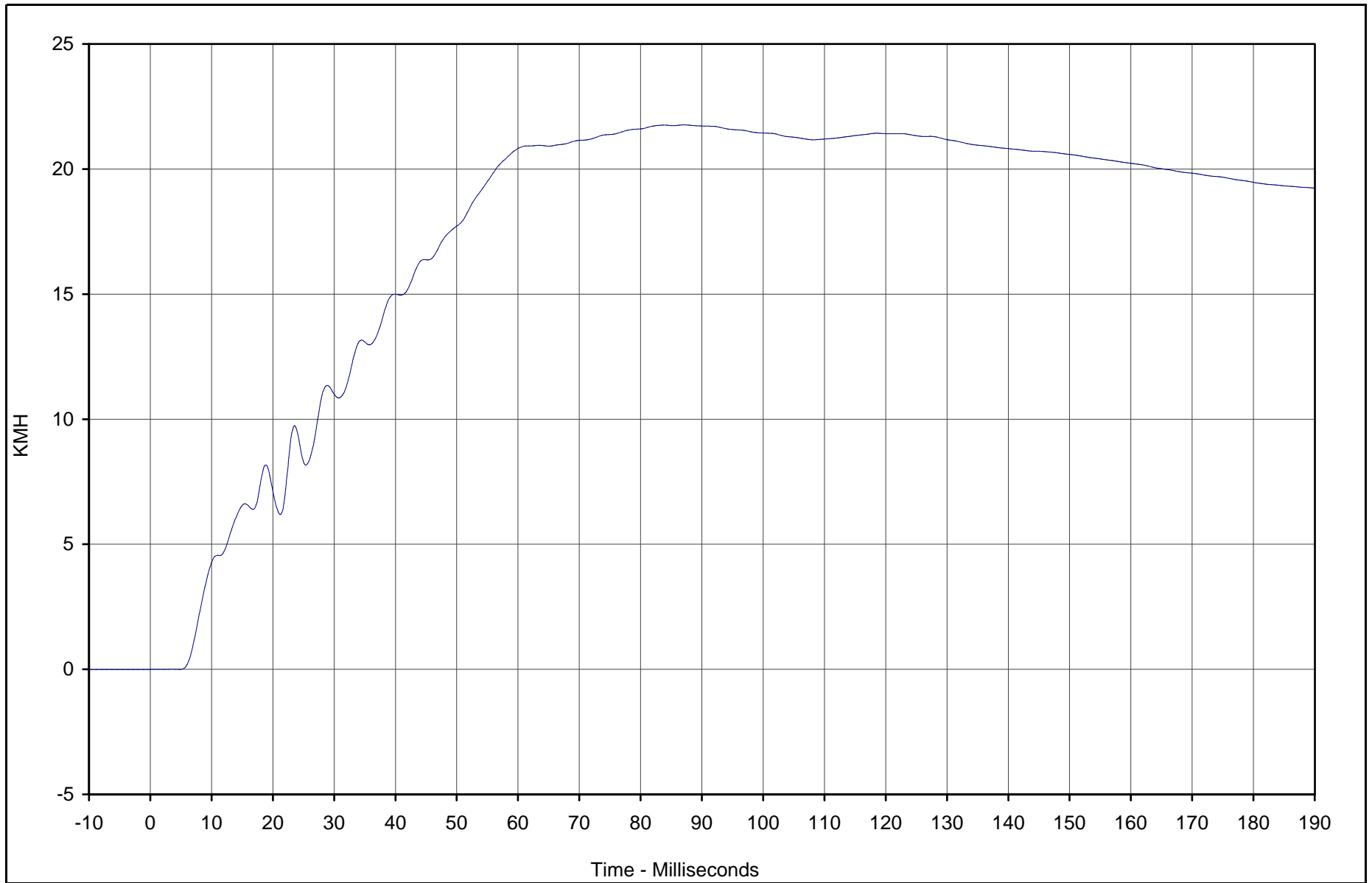
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-133



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle CG Y Velocity	069	IN1	KMH	21.8	87.0	0.0	4.8	180

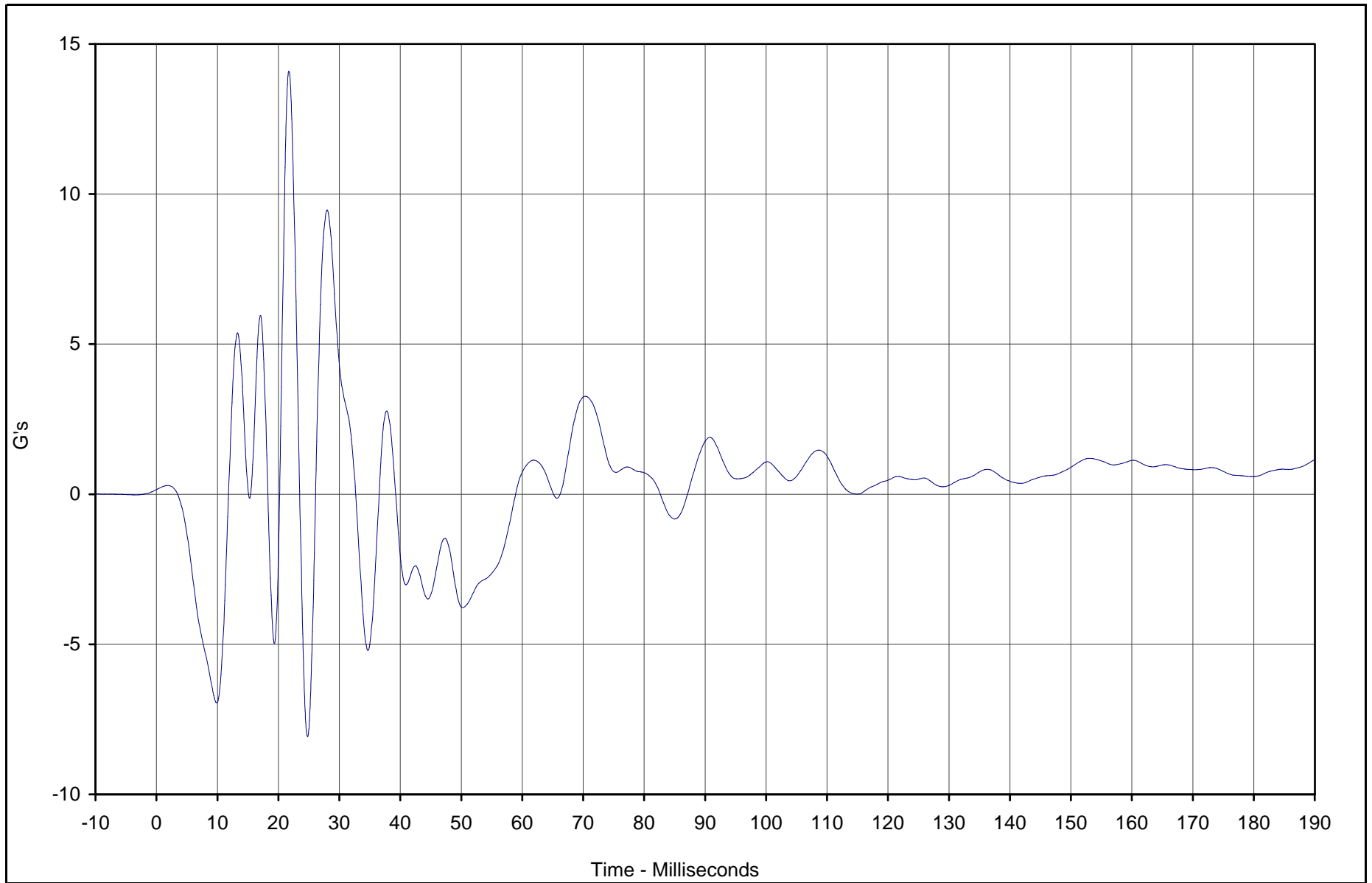


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle CG Z	070	FIL	G's	14.1	21.7	-8.1	24.8	60



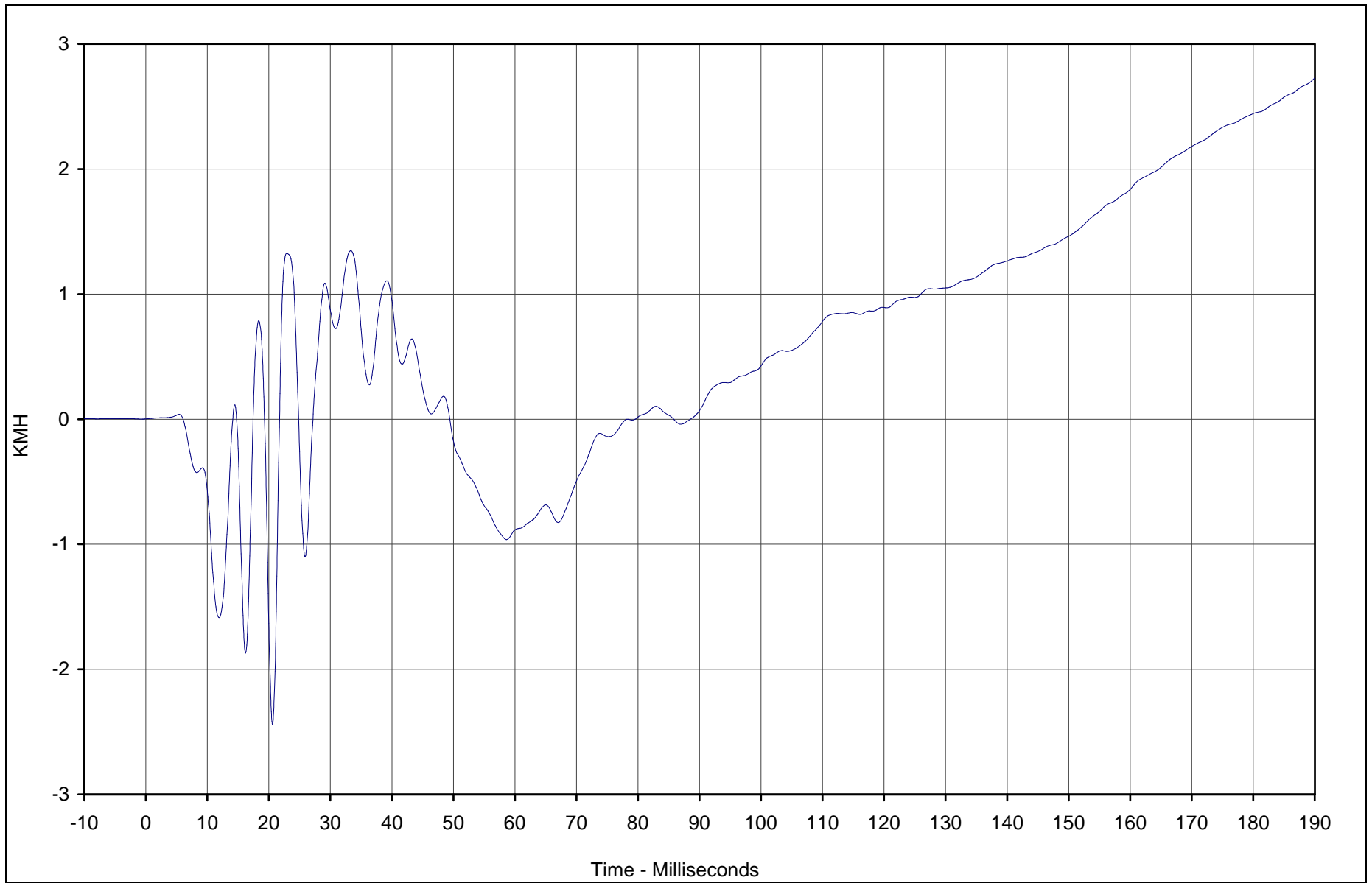
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-135



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle CG Z Velocity	070	IN1	KMH	2.7	189.9	-2.4	20.6	180



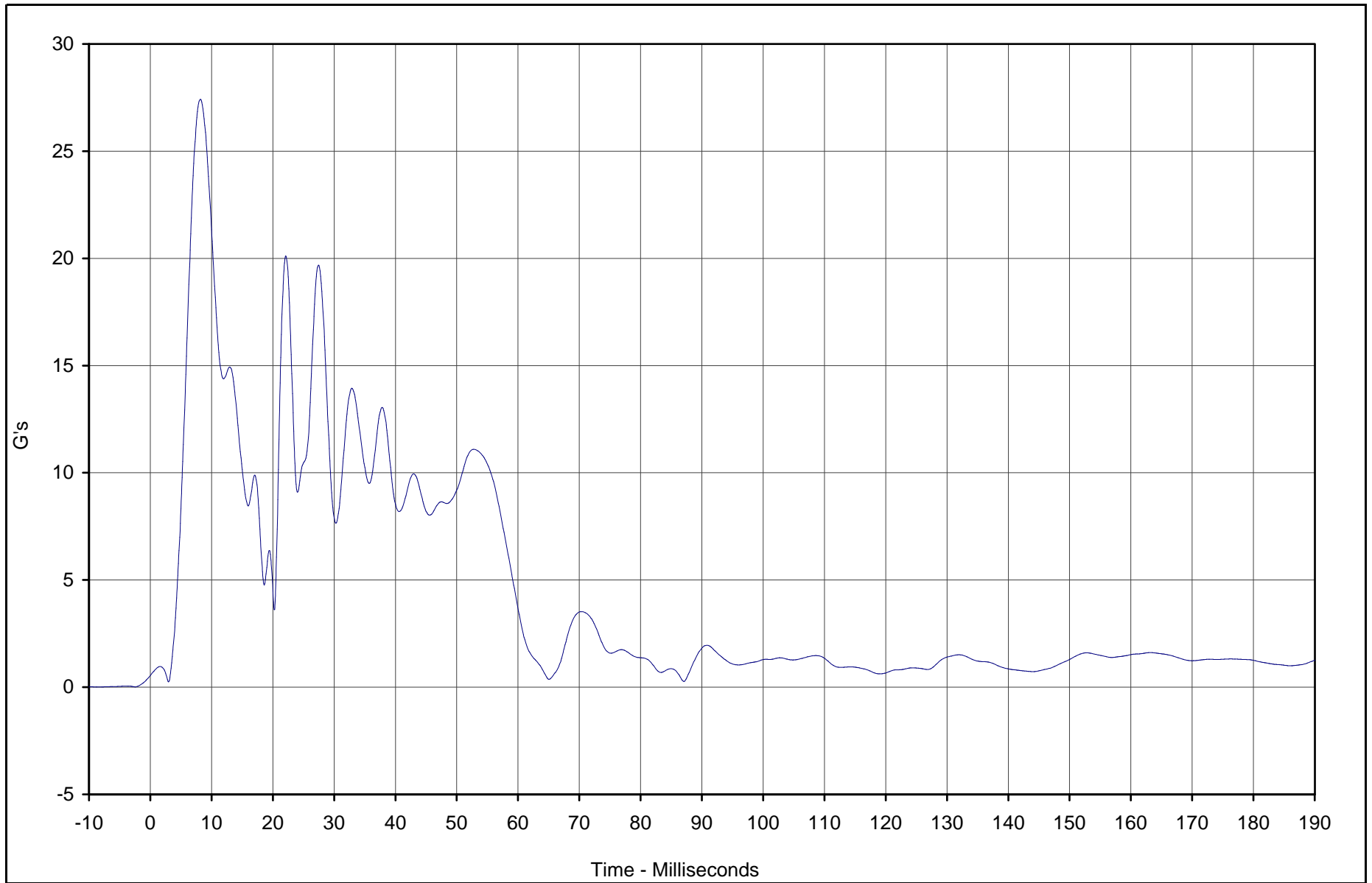
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Vehicle CG Resultant	068	RES	G's	27.4	8.2	0.2	3.0	60



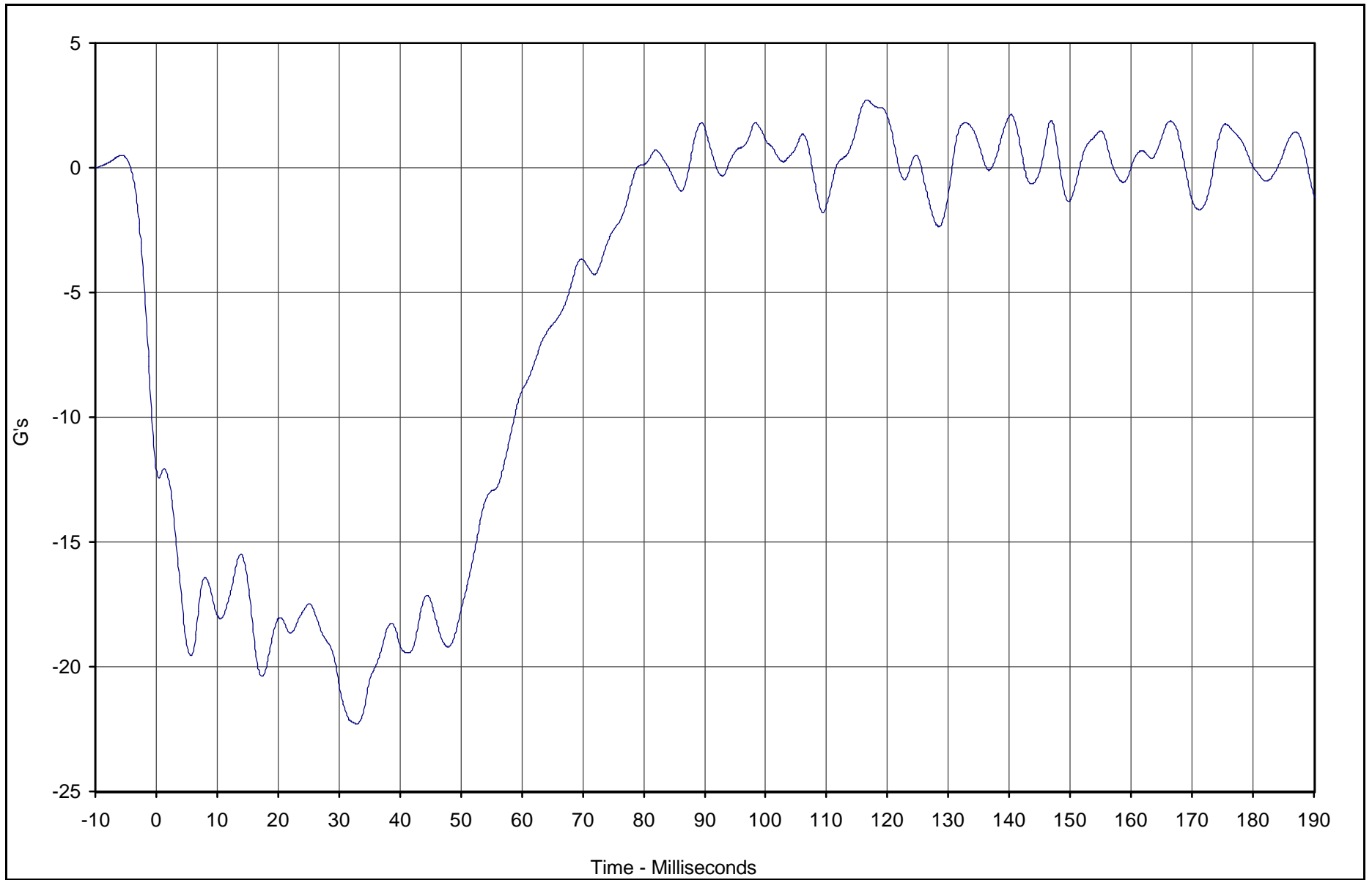
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-137



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
MDB CG X	071	FIL	G's	2.7	116.6	-22.3	32.9	60



Test Vehicle: 2003 BMW X5 3.0i SUV

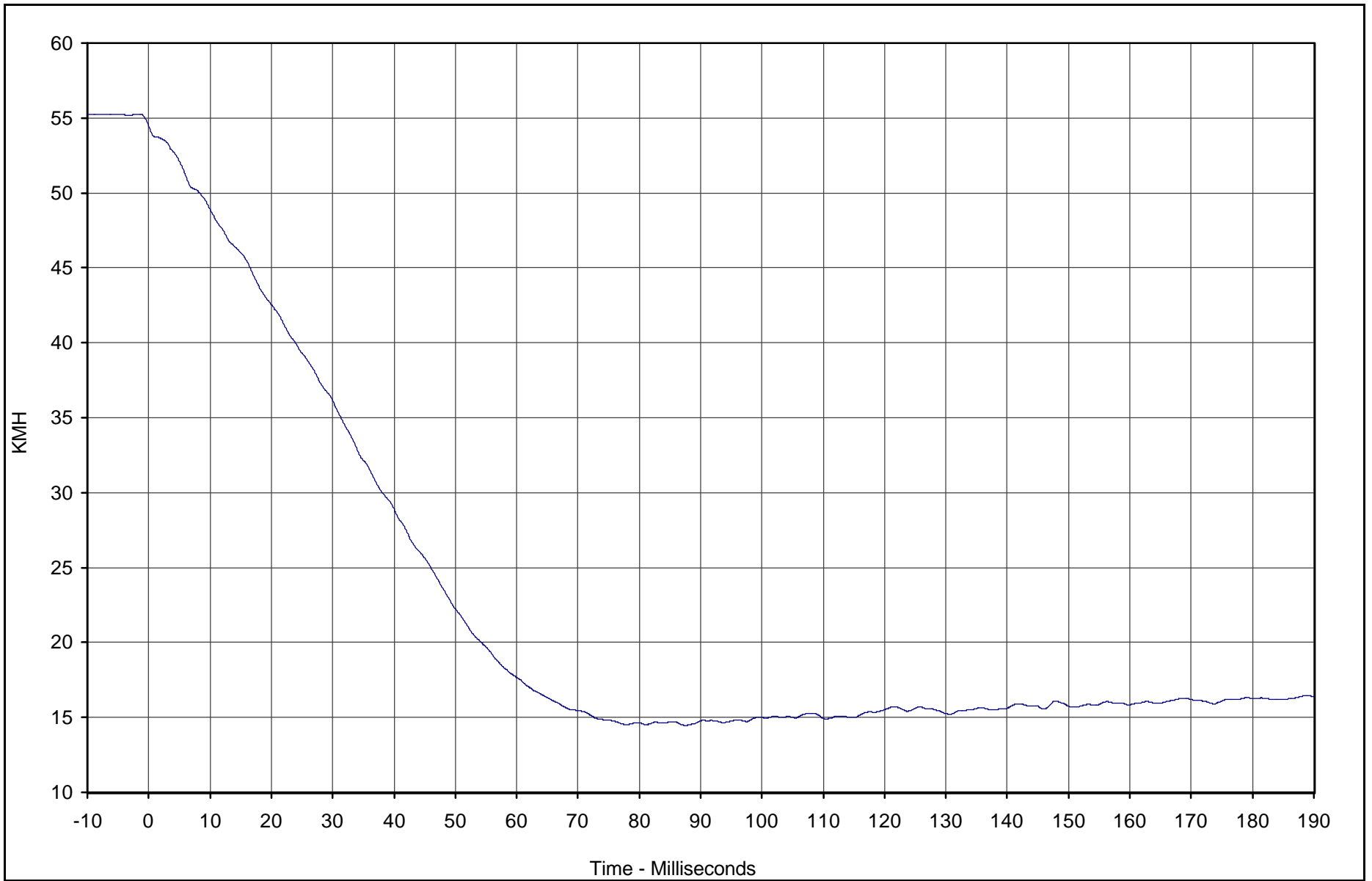
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-138



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
MDB CG X Velocity	071	IN1	KMH	54.5	0.0	14.5	87.5	180



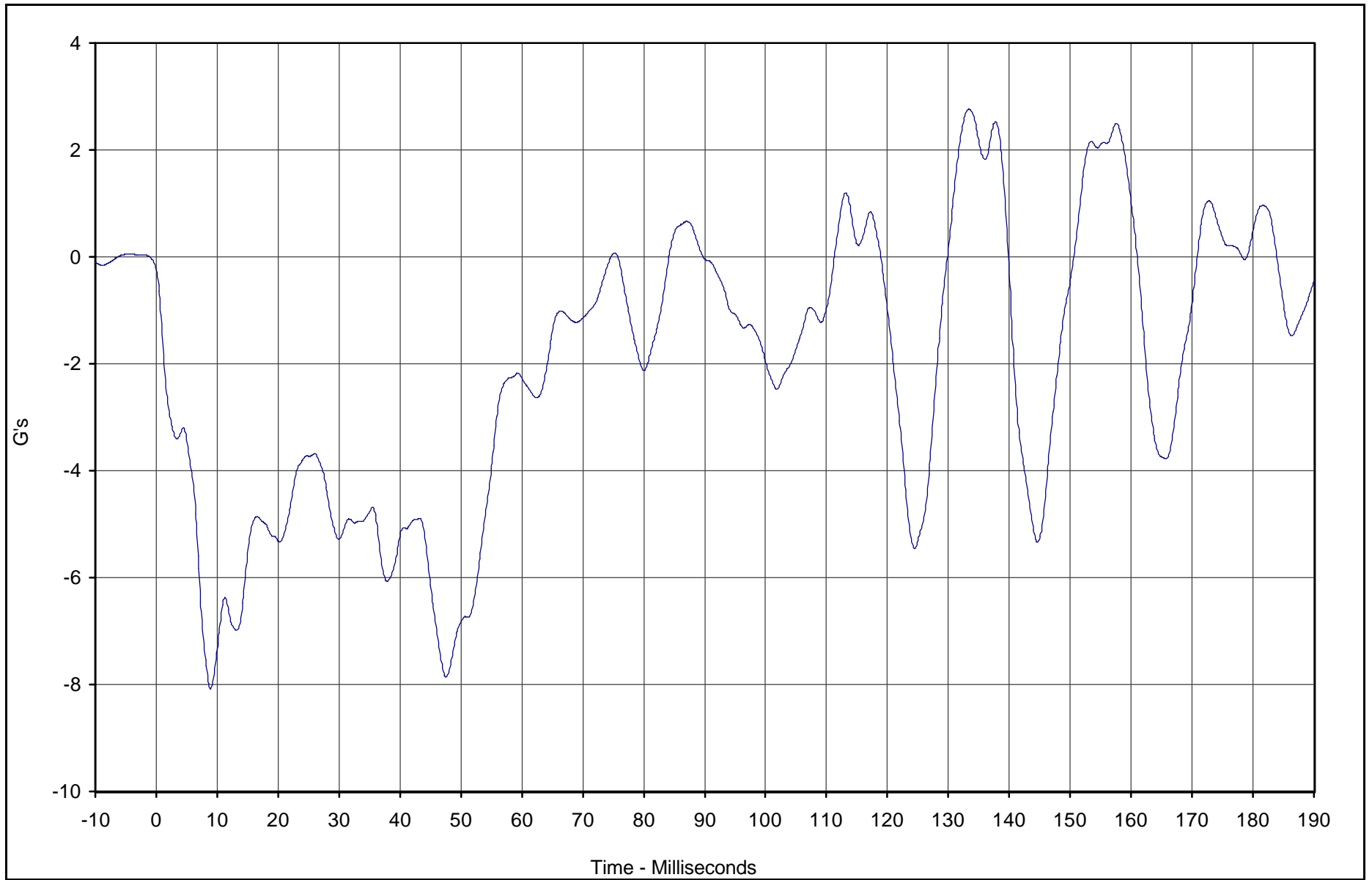
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-139



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
MDB CG Y	072	FIL	G's	2.8	133.4	-8.1	8.9	60



Test Vehicle: 2003 BMW X5 3.0i SUV

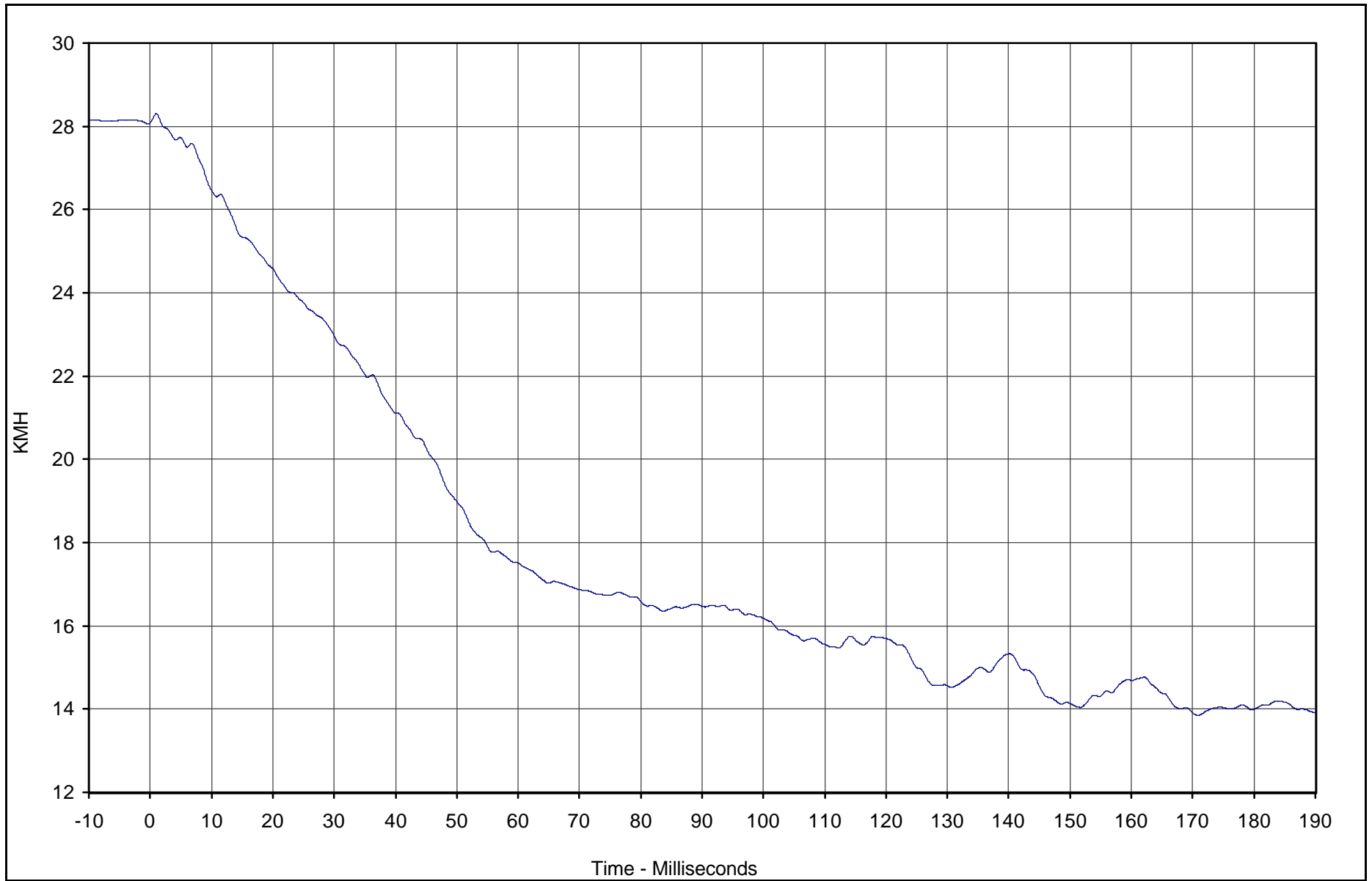
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-140



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
MDB CG Y Velocity	072	IN1	KMH	28.3	1.0	13.8	170.8	180



Test Vehicle: 2003 BMW X5 3.0i SUV

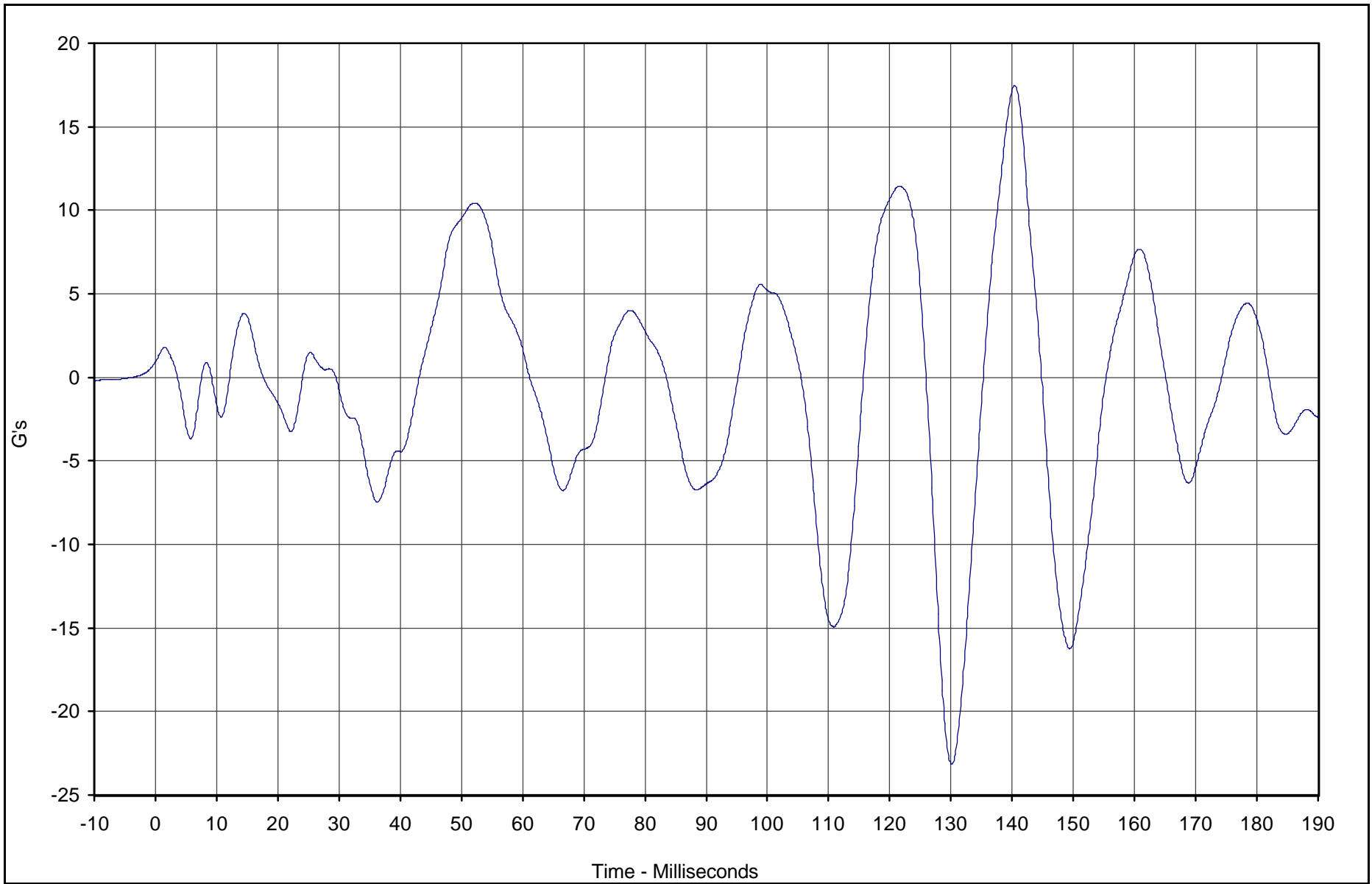
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-141



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
MDB CG Z	073	FIL	G's	17.5	140.4	-23.2	130.1	60



Test Vehicle: 2003 BMW X5 3.0i SUV

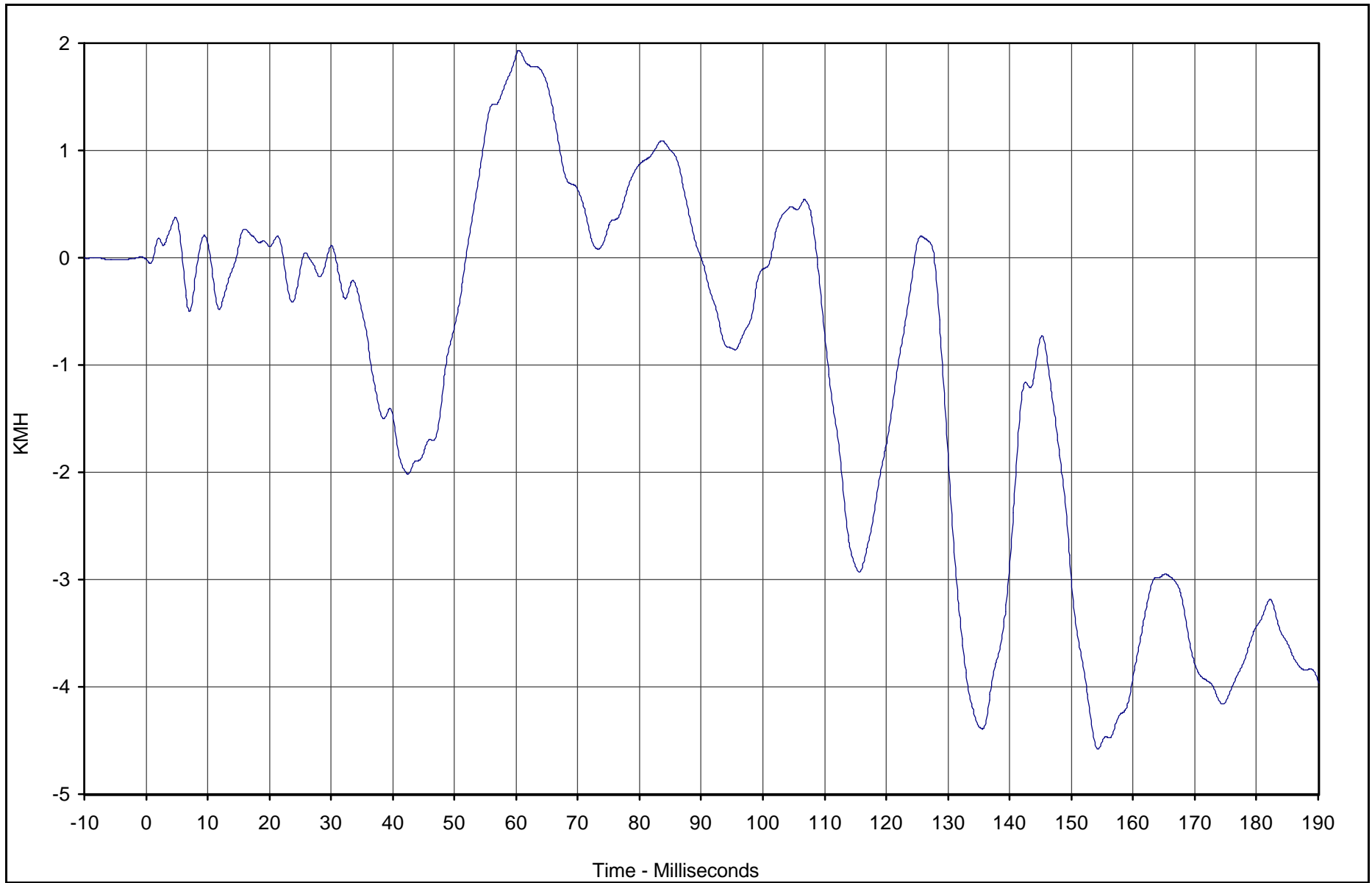
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-142



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
MDB CG Z Velocity	073	IN1	KMH	1.9	60.5	-4.6	154.3	180



Test Vehicle: 2003 BMW X5 3.0i SUV

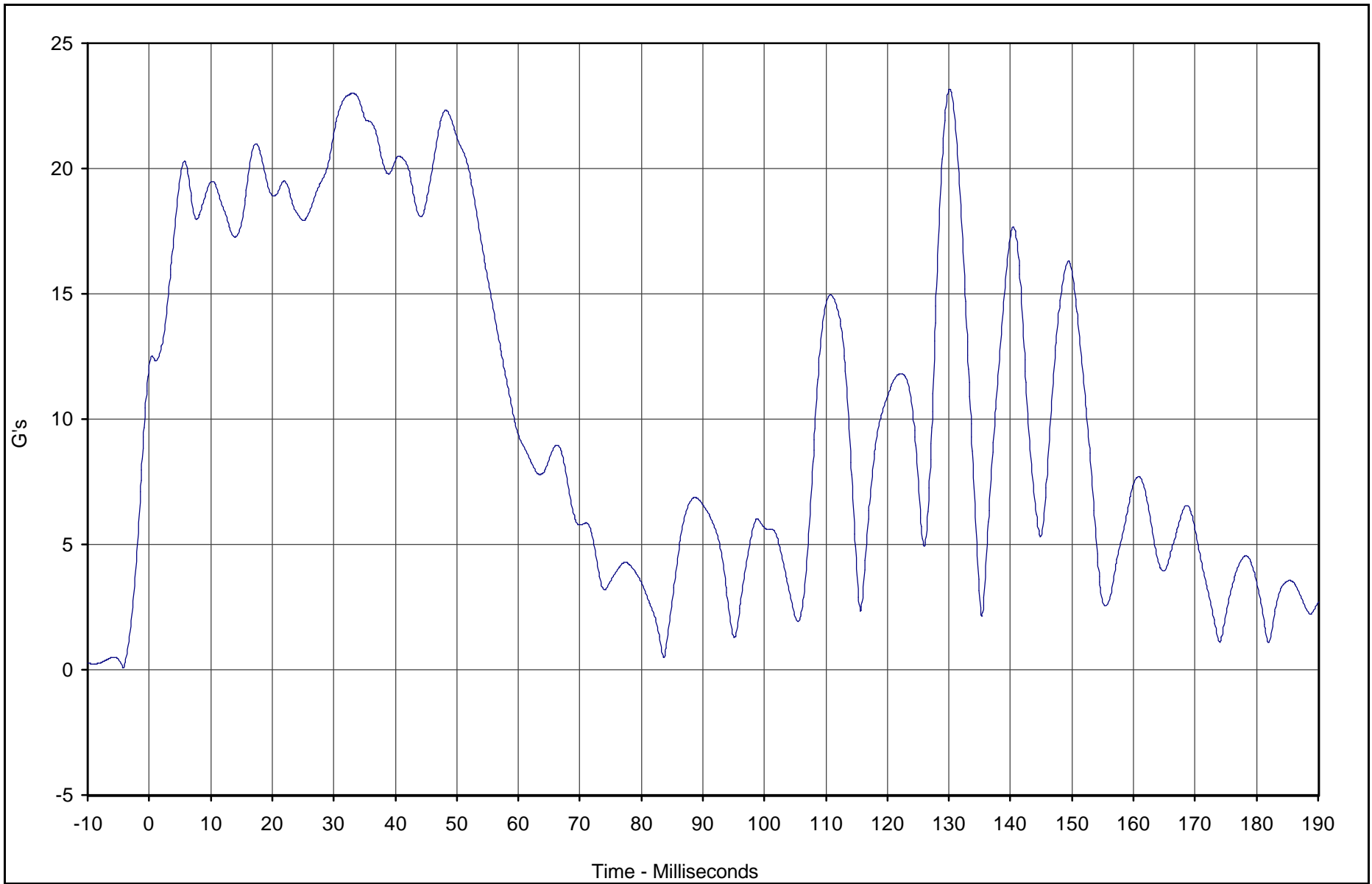
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-143



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
MDB CG Resultant	071	RES	G's	23.2	130.1	0.5	83.6	60



Test Vehicle: 2003 BMW X5 3.0i SUV

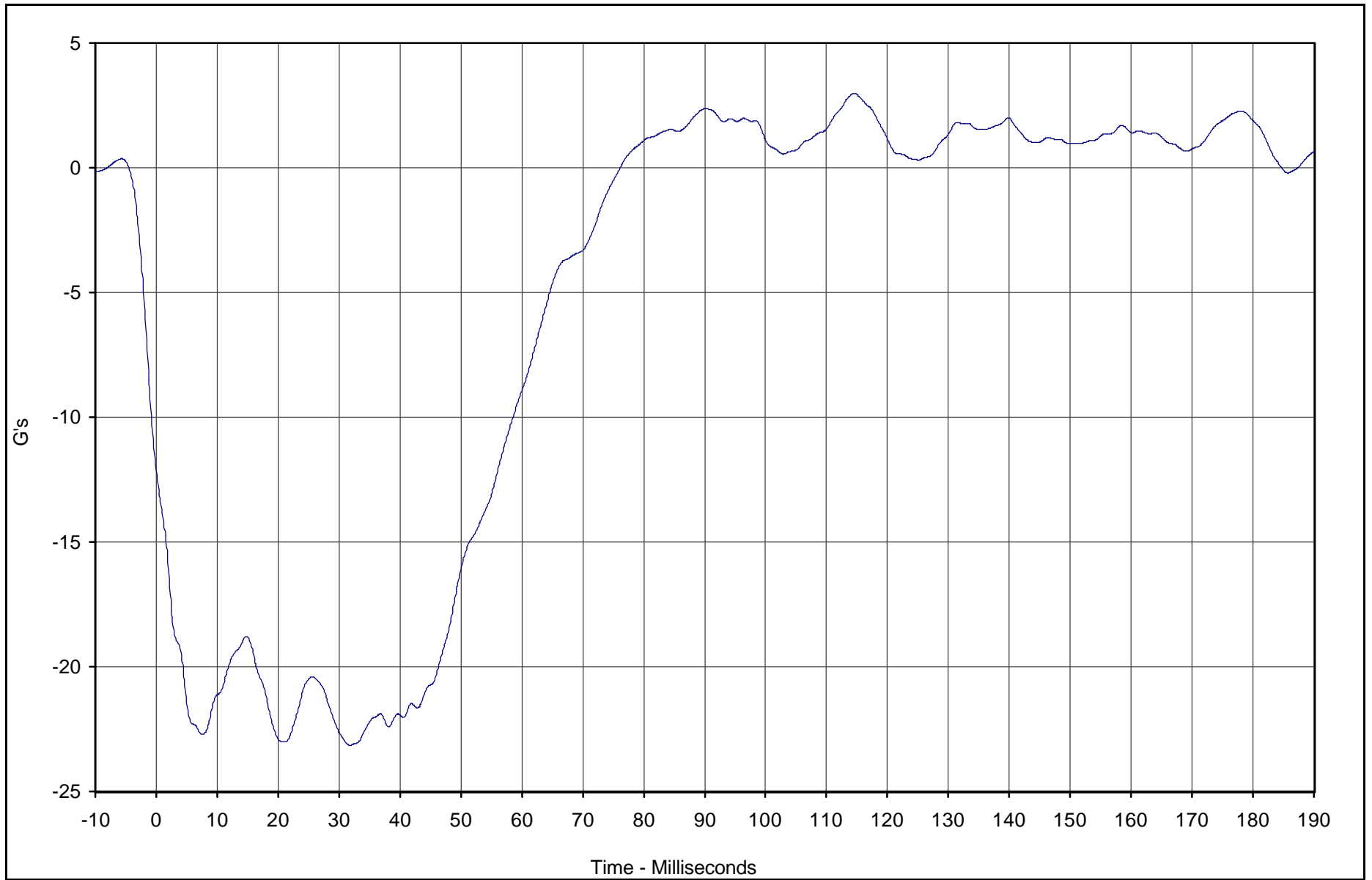
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-144



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
MDB Rear X	074	FIL	G's	3.0	114.6	-23.2	31.8	60



Test Vehicle: 2003 BMW X5 3.0i SUV

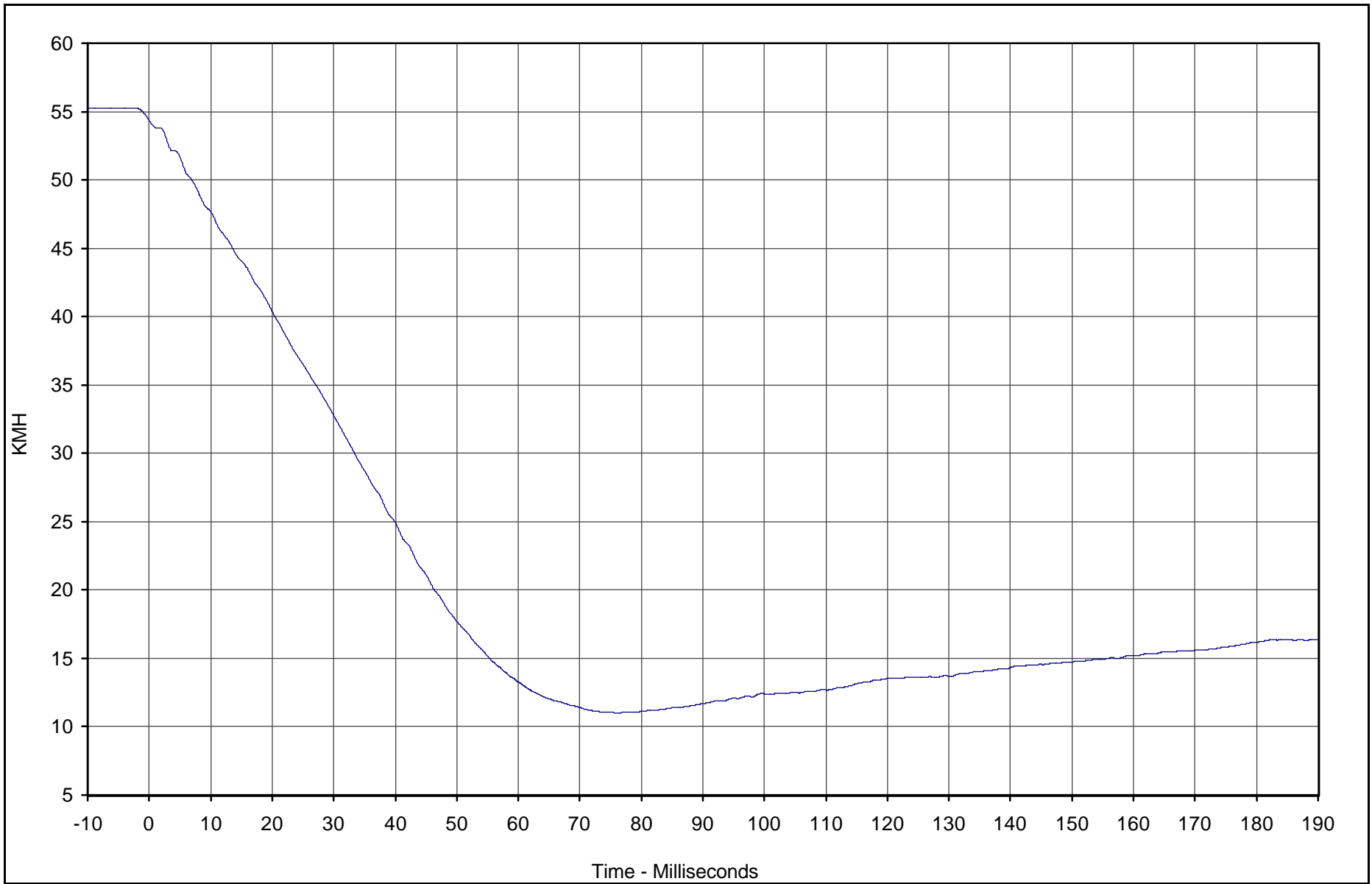
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-145



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
MDB Rear X Velocity	074	IN1	KMH	54.3	0.0	11.0	76.0	180

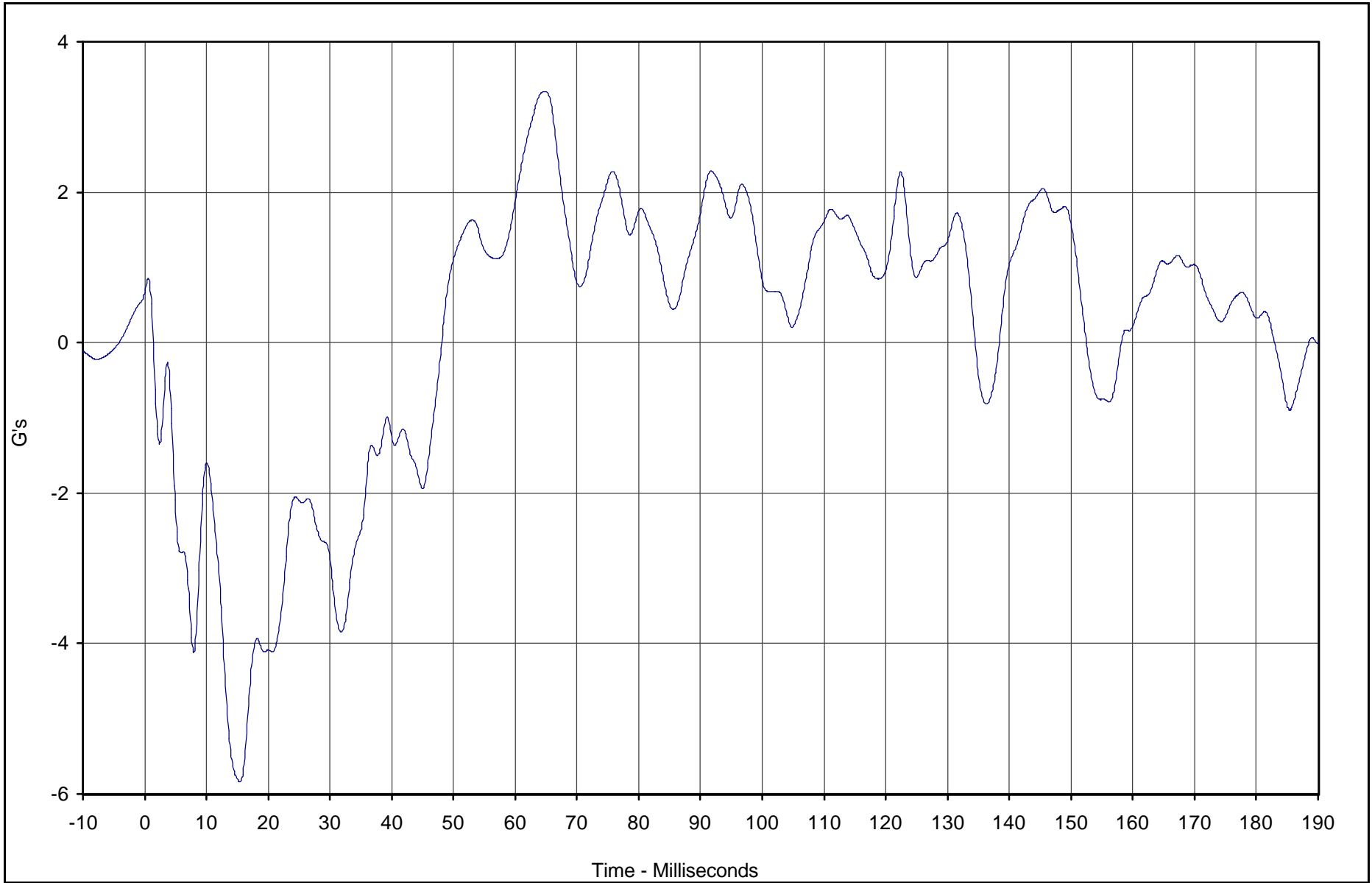


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
MDB Rear Y	075	FIL	G's	3.3	64.8	-5.8	15.4	60



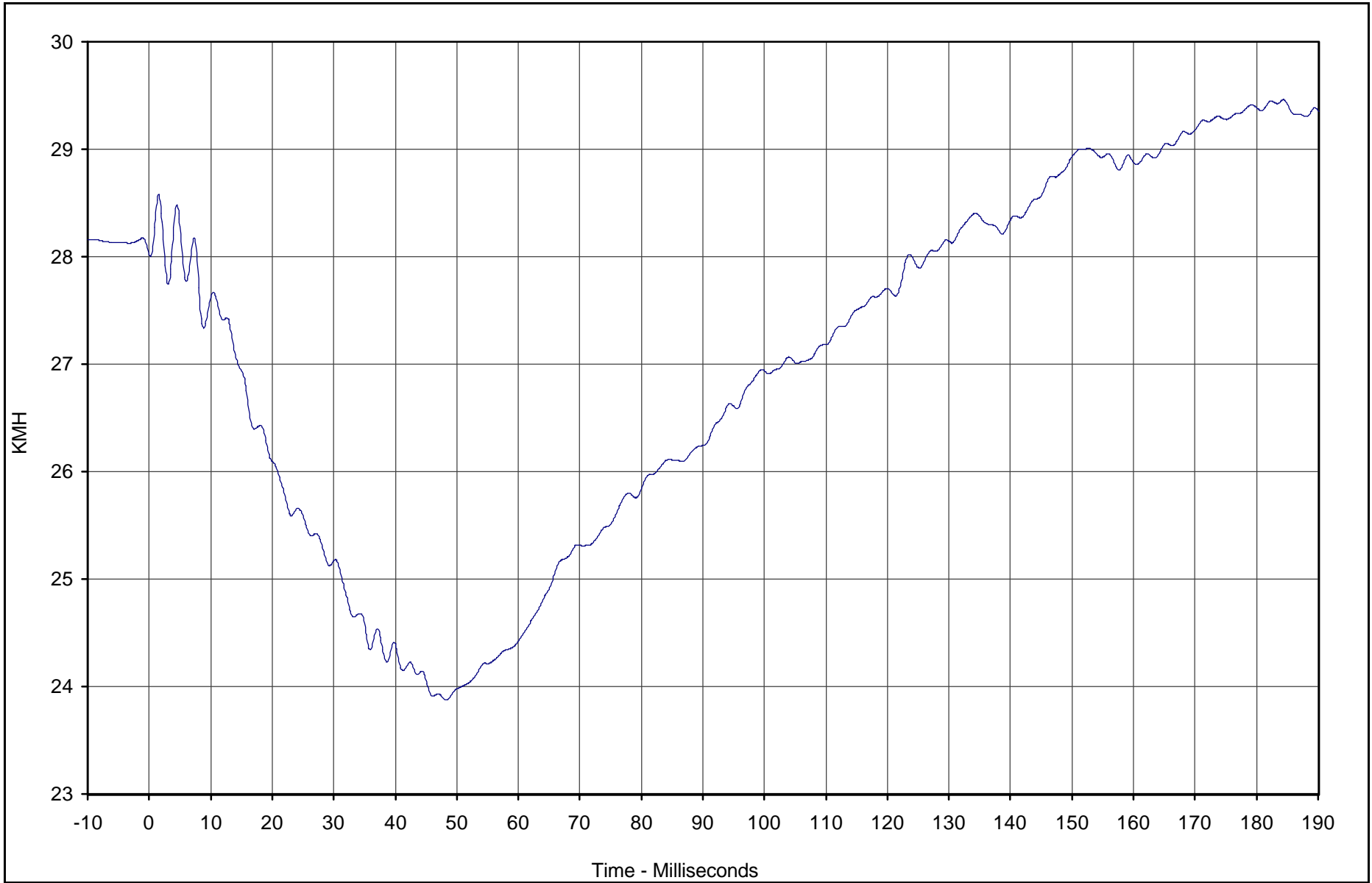
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-147



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
MDB Rear Y Velocity	075	IN1	KMH	29.5	184.4	23.9	48.3	180



Test Vehicle: 2003 BMW X5 3.0i SUV

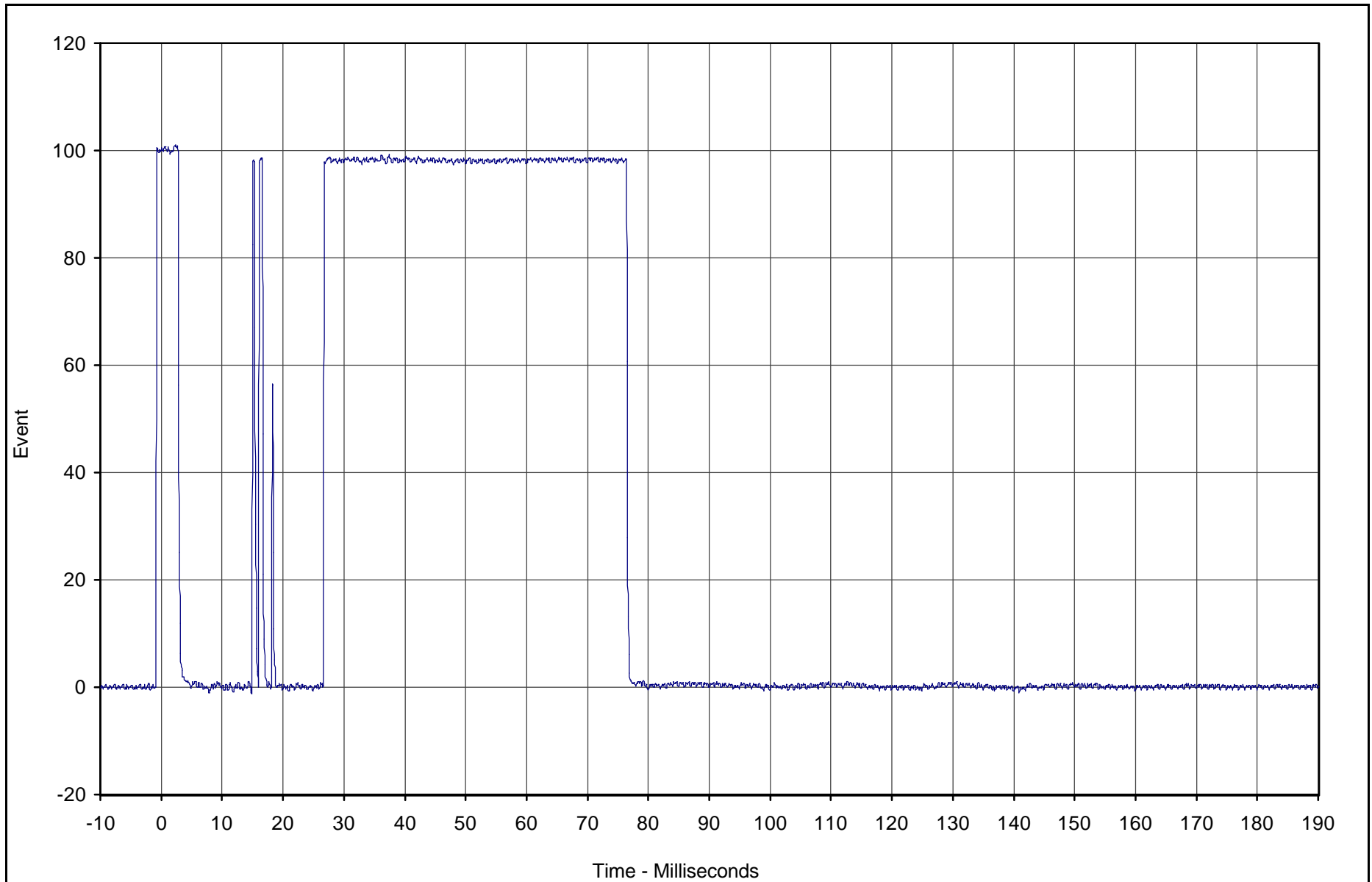
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-148



Curve Description	CURNO	Type	Units	Max	Time	Cross %	Time	SAE Class
MDB Right Bumper Contact	076	FIL	Event	101.0	2.4	50.0	26.8	1000



Test Vehicle: 2003 BMW X5 3.0i SUV

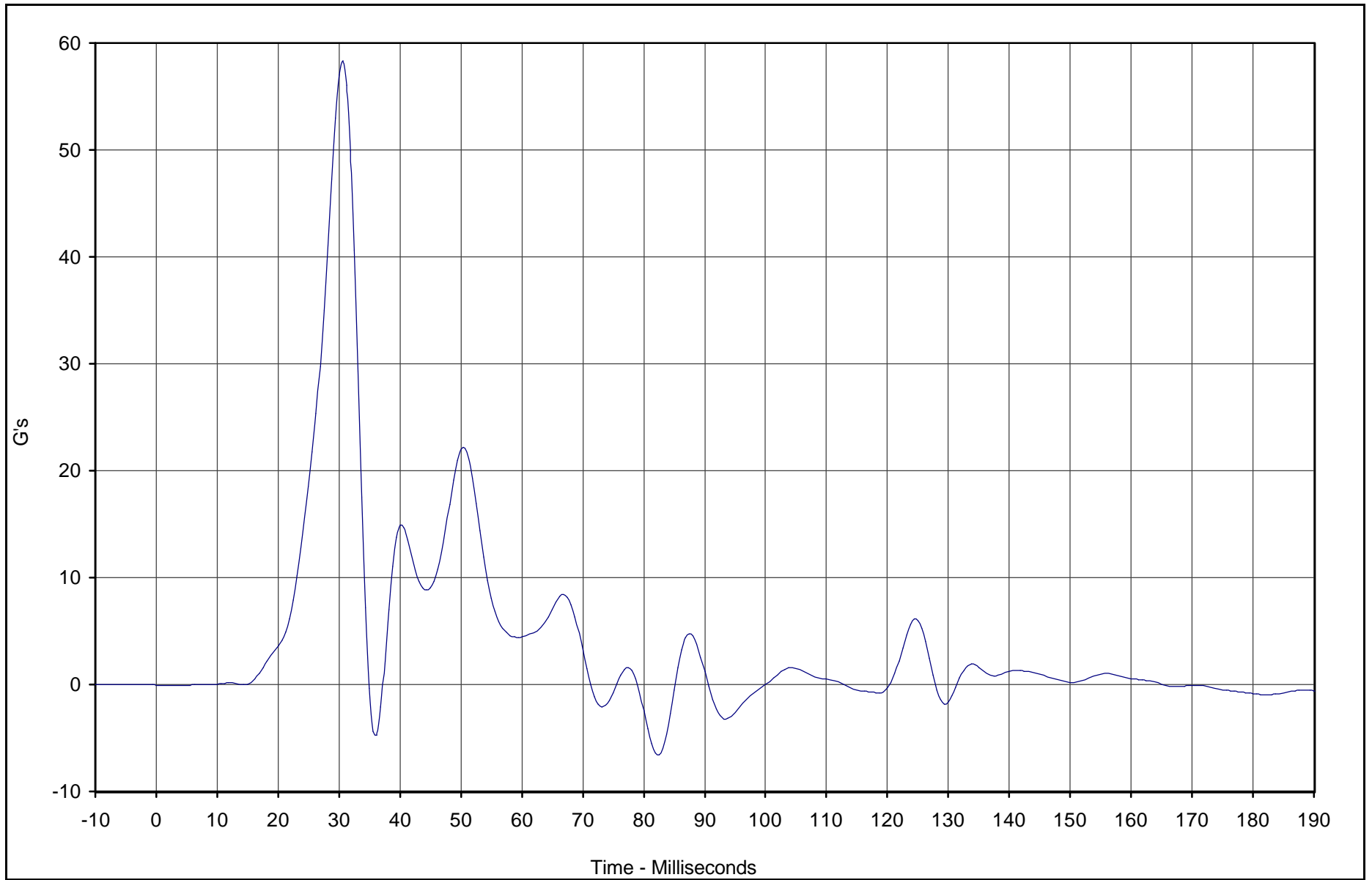
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-149



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Upper Rib Primary Y	013	FIR	G's	58.3	30.6	-6.6	82.5	FIR100



Test Vehicle: 2003 BMW X5 3.0i SUV

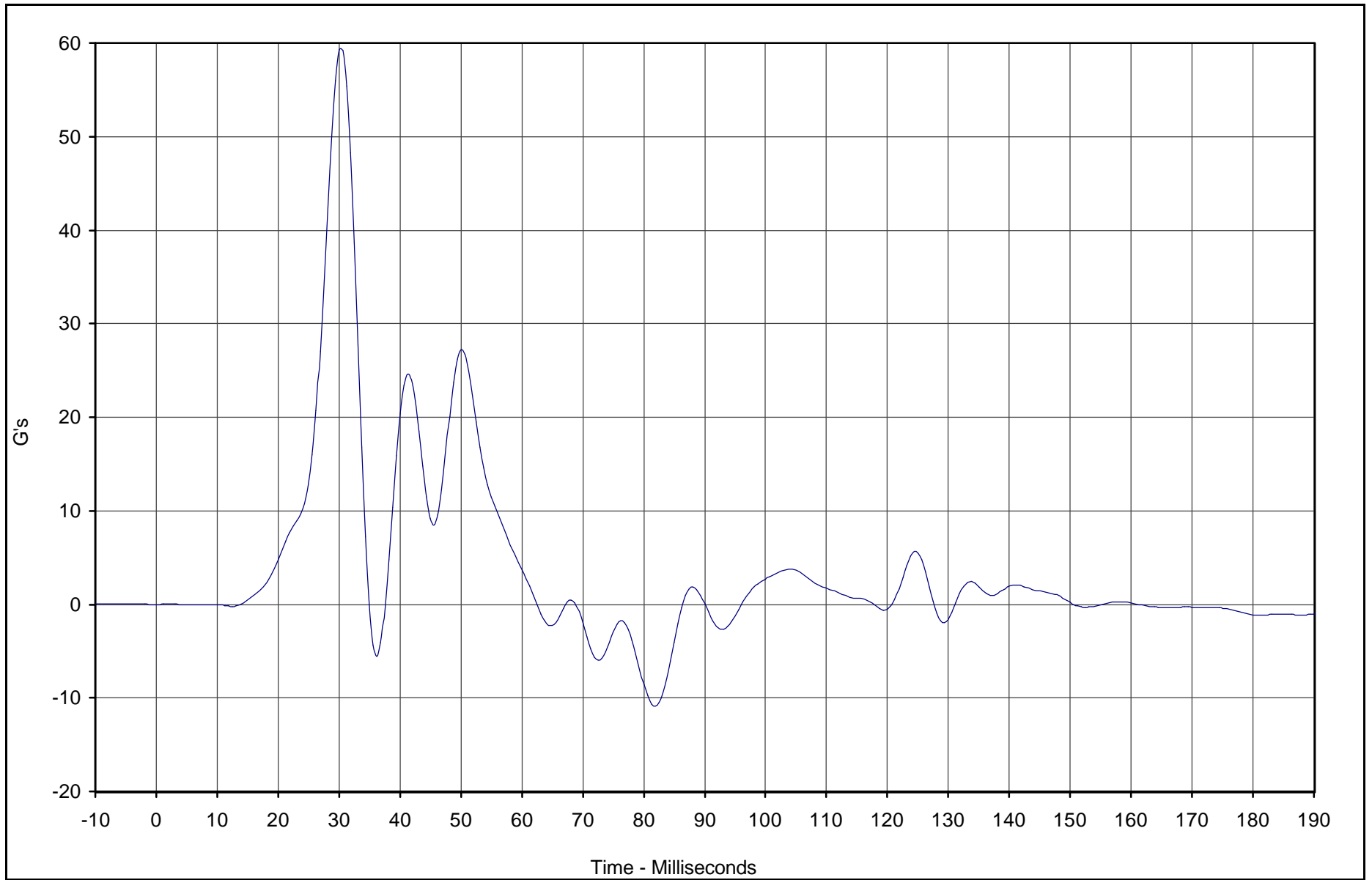
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-150



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Lower Rib Primary Y	014	FIR	G's	59.3	30.0	-10.9	81.9	FIR100



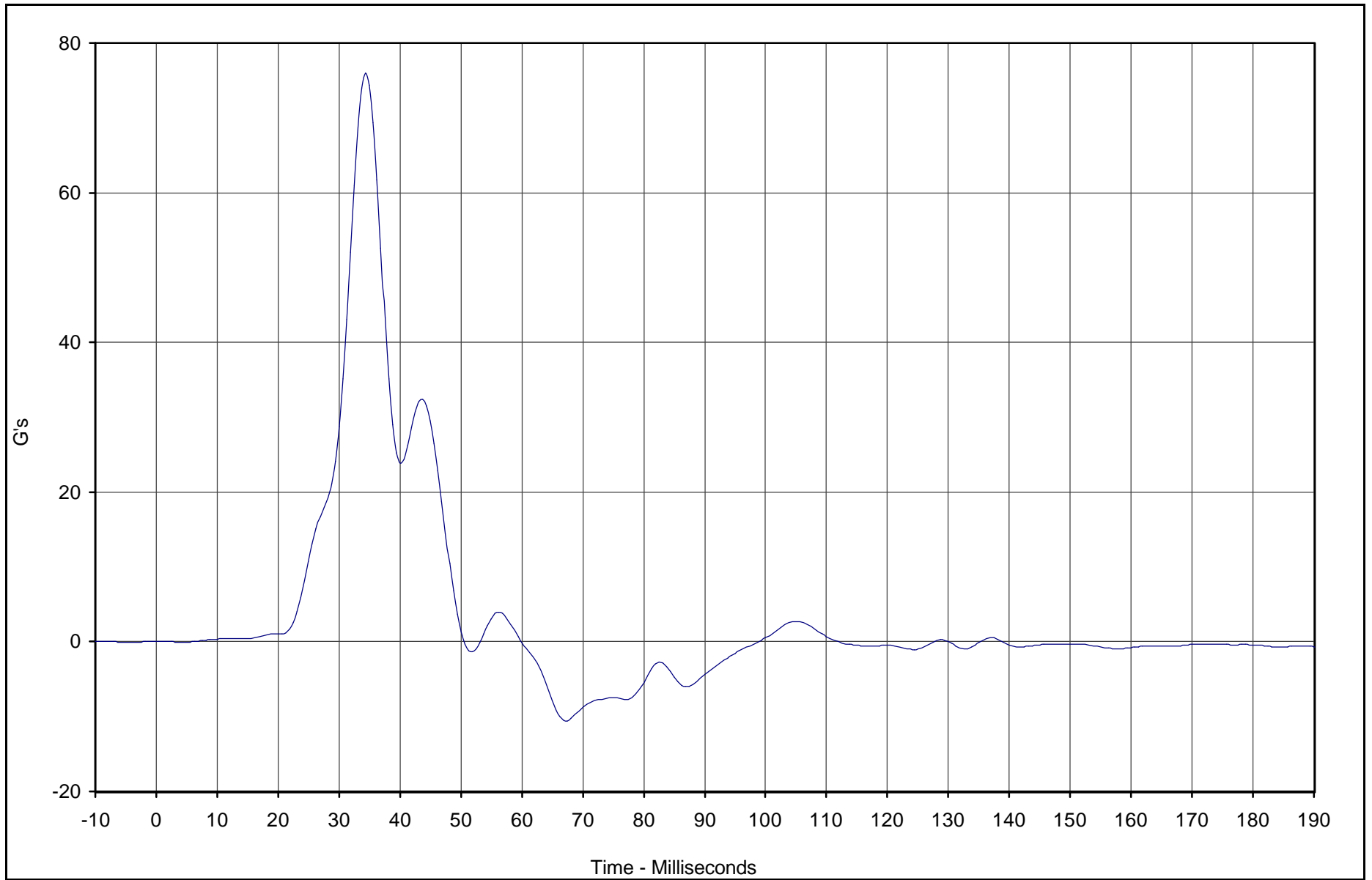
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-151



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Lower Spine Primary Y	015	FIR	G's	76.0	34.4	-10.6	67.5	FIR100



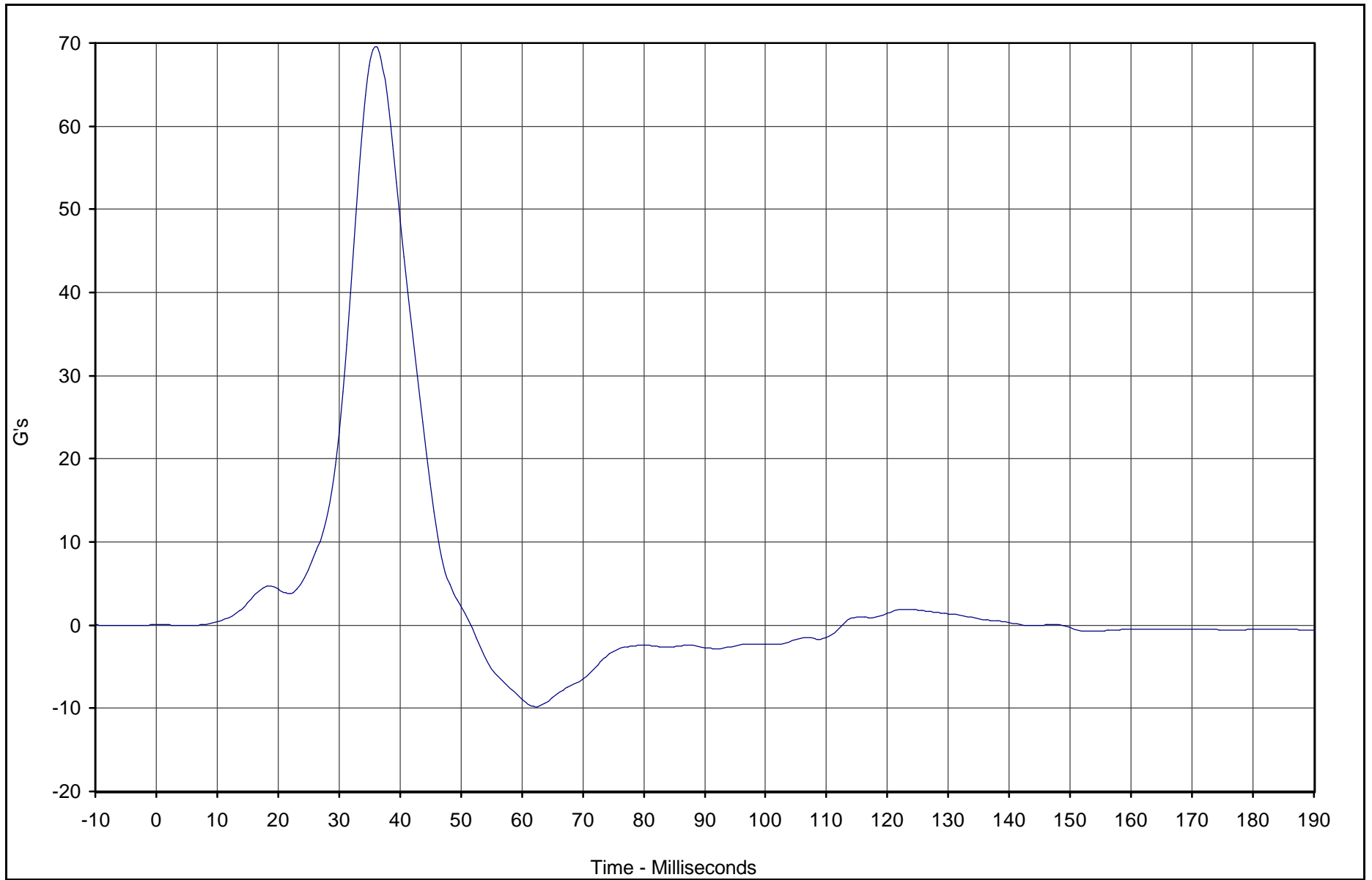
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-152



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis Primary Y	016	FIR	G's	69.5	36.3	-9.8	62.5	FIR100

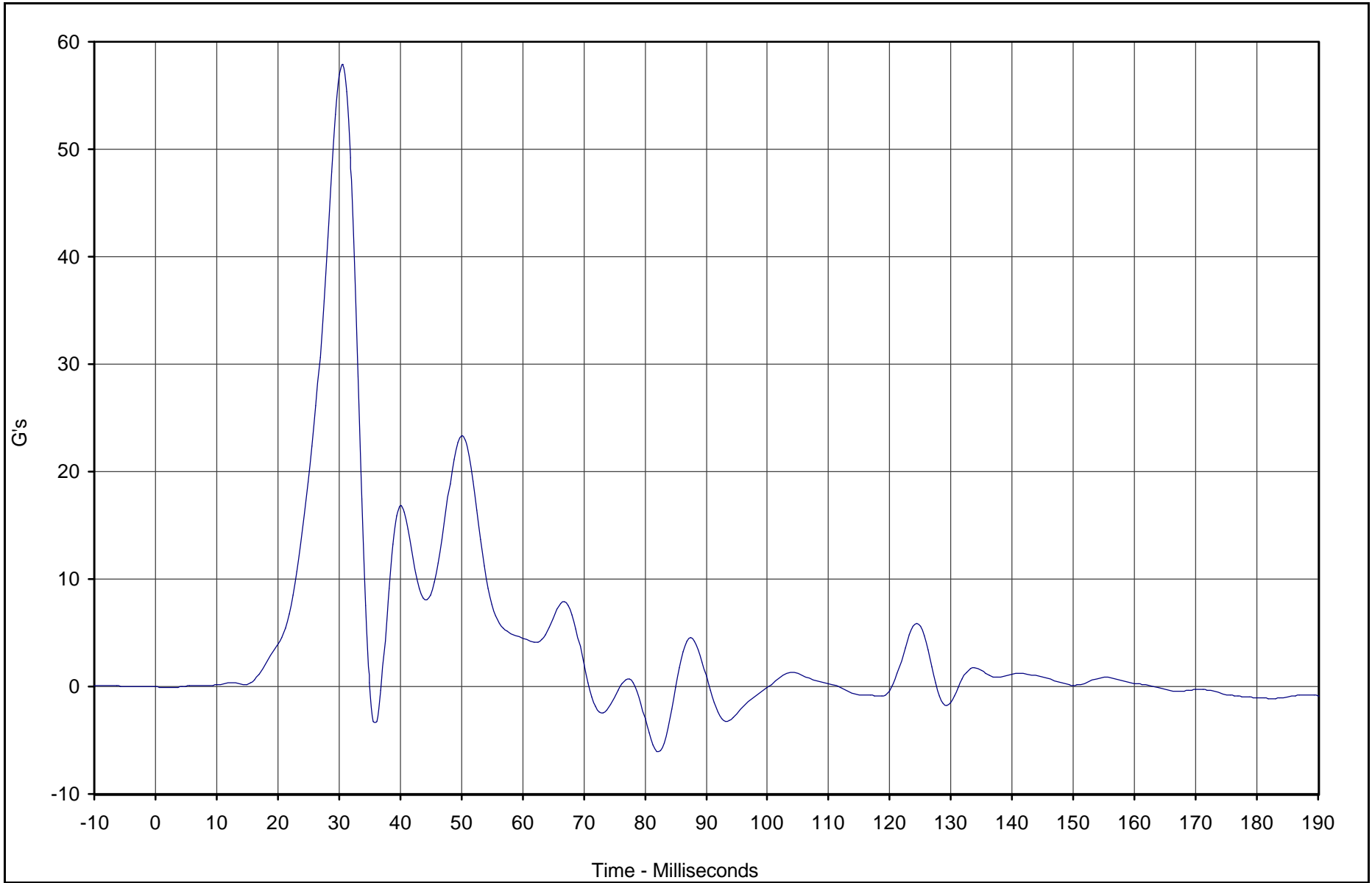


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Upper Rib Redundant Y	017	FIR	G's	57.9	30.6	-6.0	81.9	FIR100



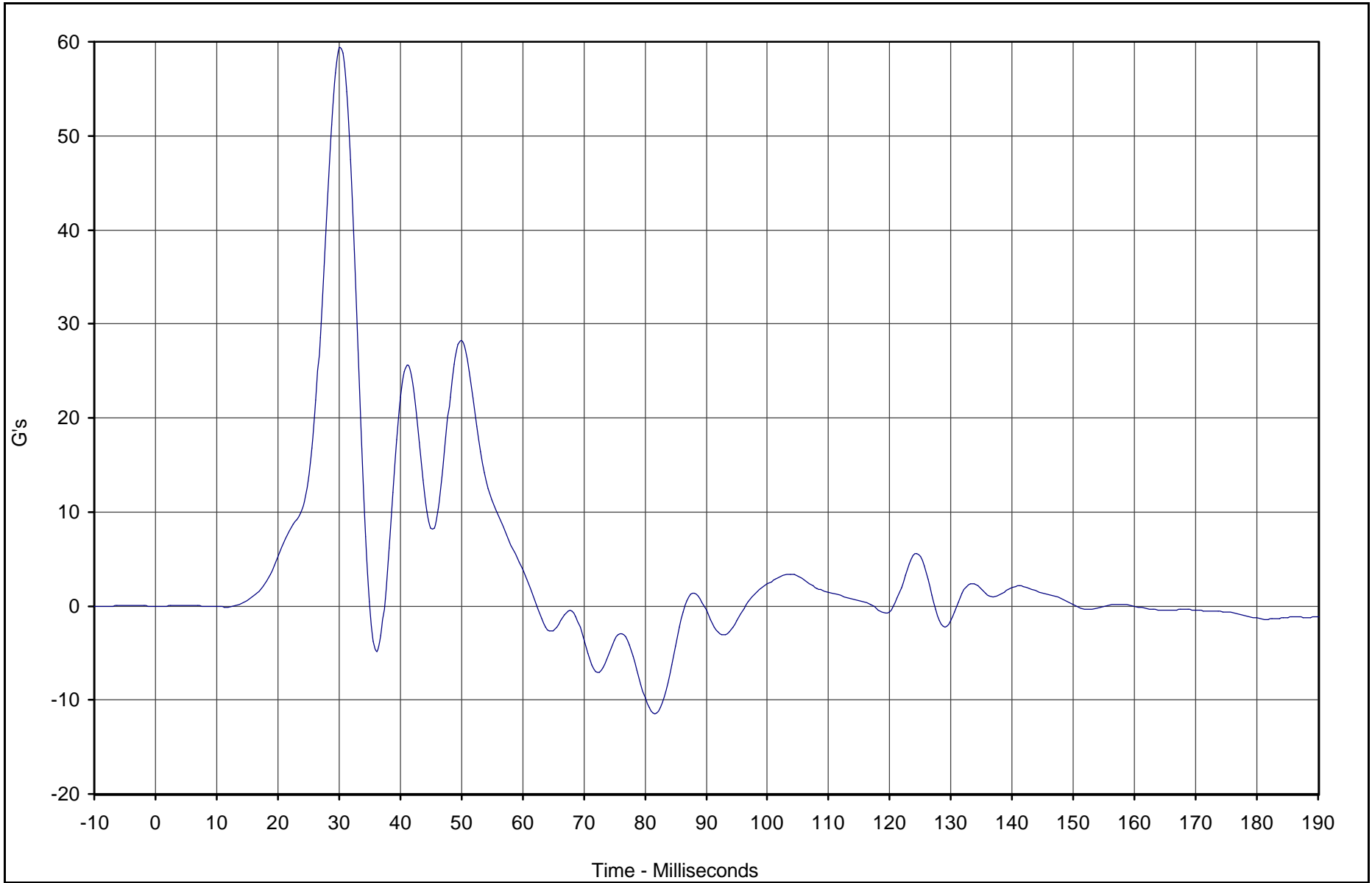
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-154



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Lower Rib Redundant Y	018	FIR	G's	59.4	30.0	-11.4	81.9	FIR100



Test Vehicle: 2003 BMW X5 3.0i SUV

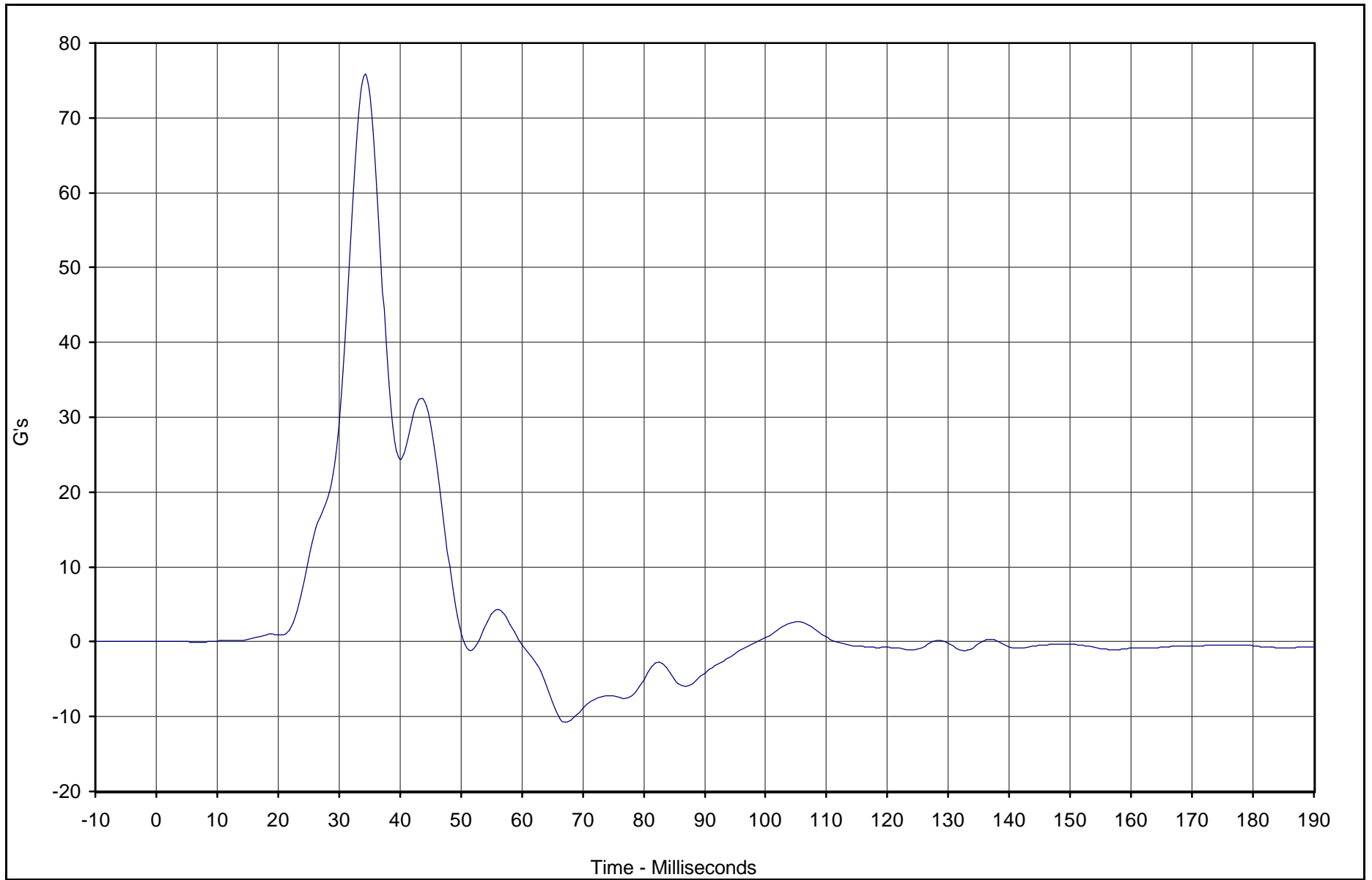
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-155



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Lower Spine Redundant Y	019	FIR	G's	75.8	34.4	-10.8	67.5	FIR100

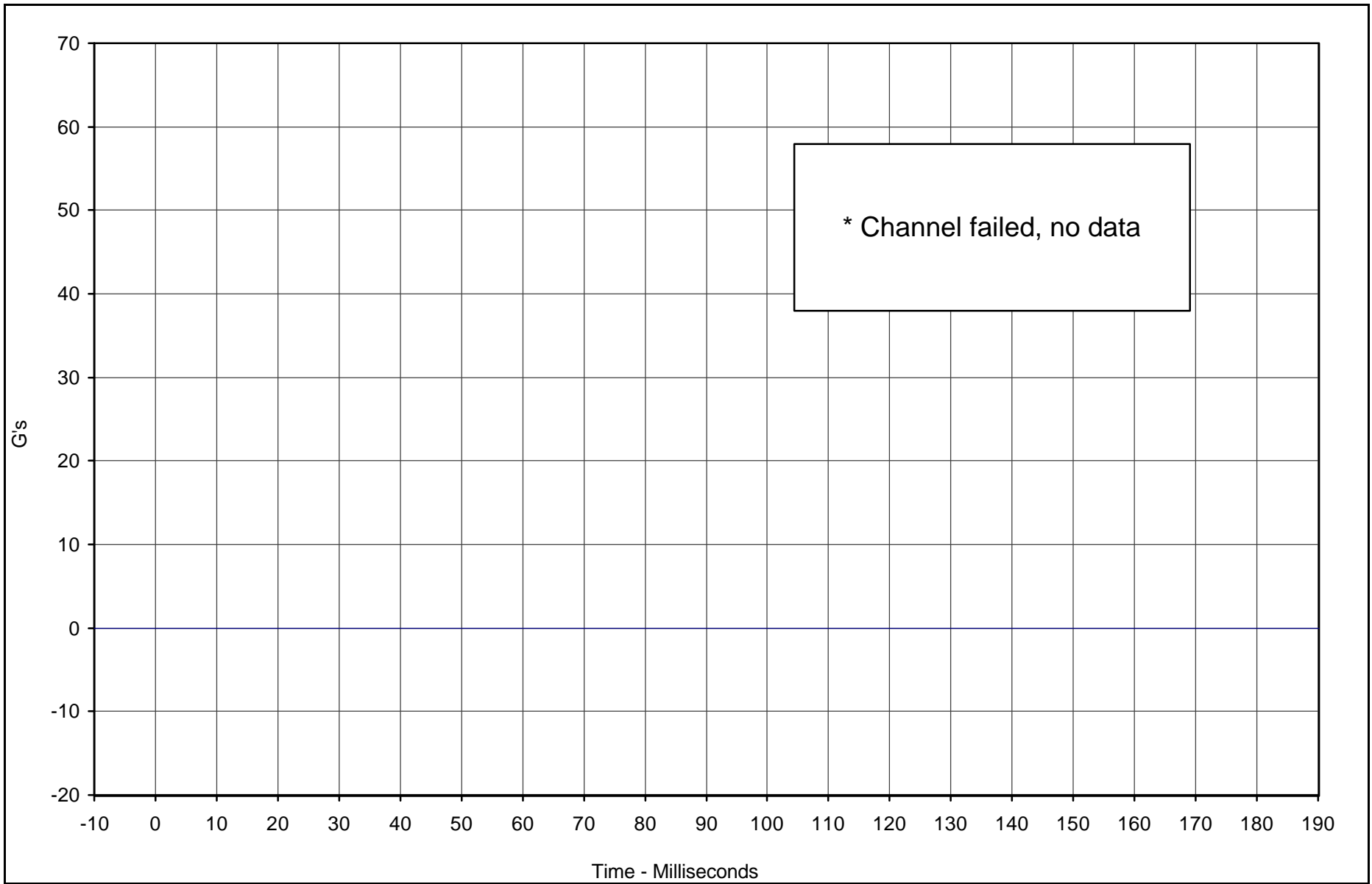


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



* Channel failed, no data

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Driver Pelvis Redundant Y	020	FIR	G's	0.0	0.0	0.0	0.0	FIR100

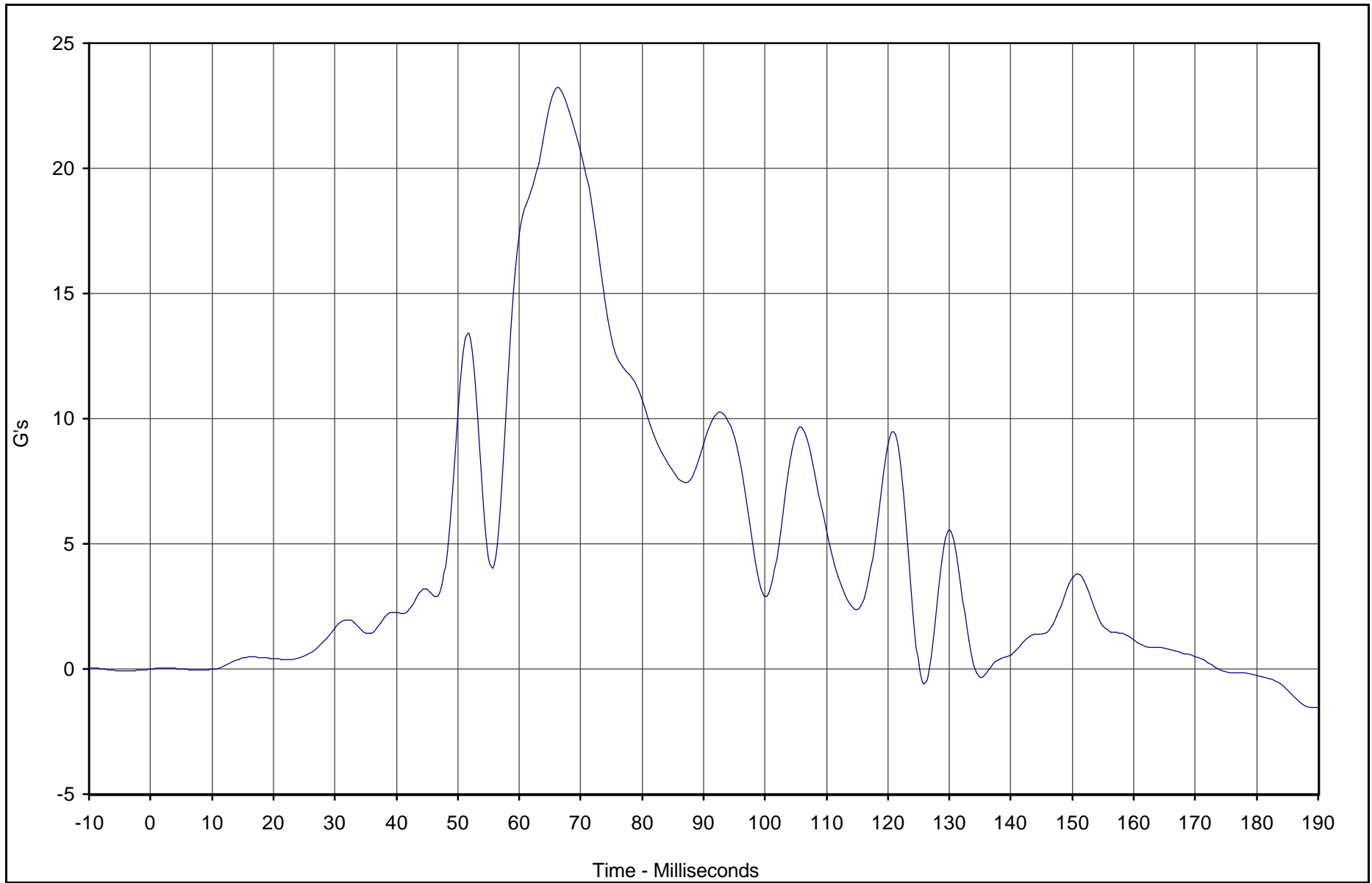


Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Upper Rib Primary Y	035	FIR	G's	23.2	66.3	-1.5	189.4	FIR100



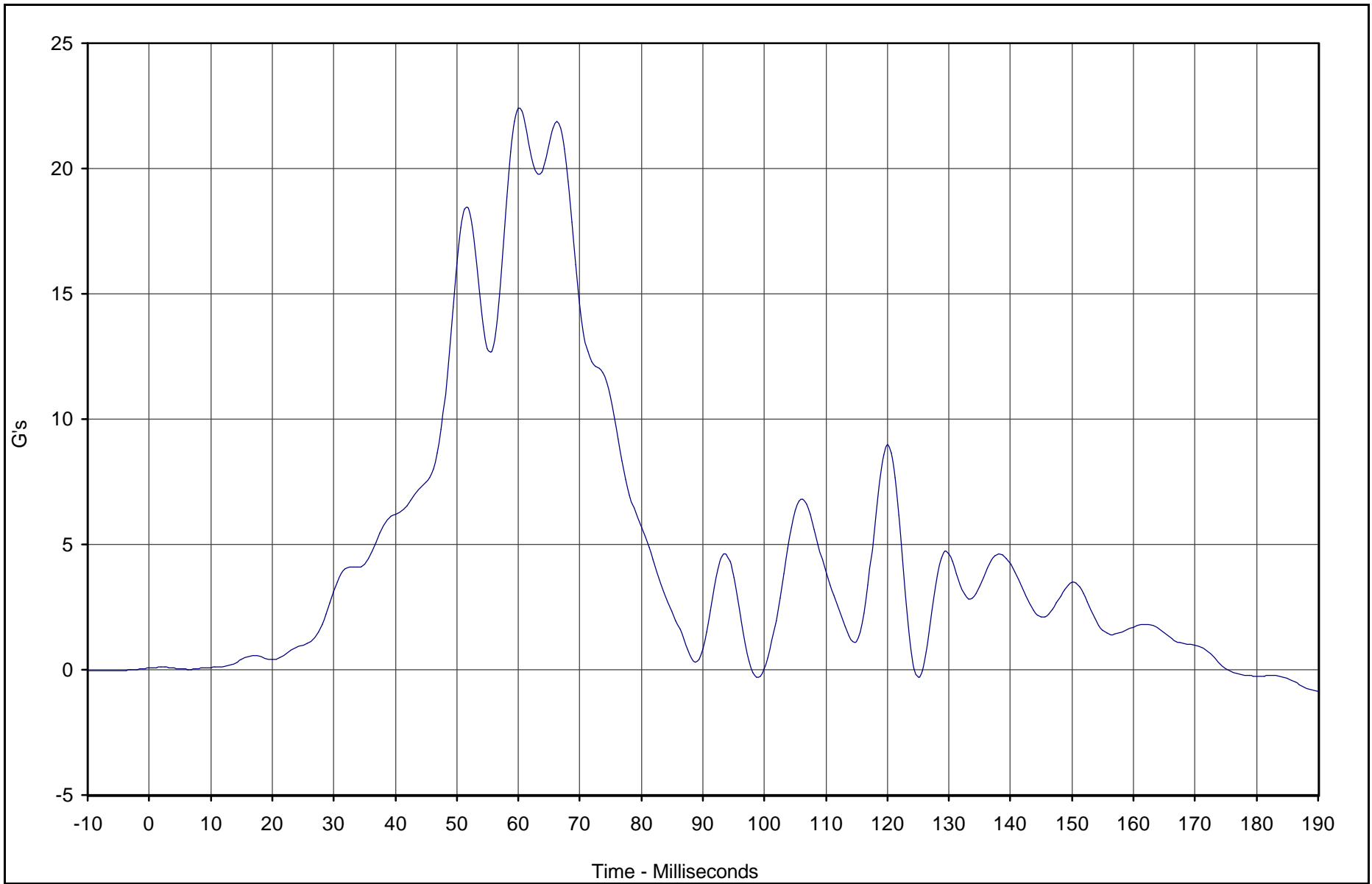
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-158



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Lower Rib Primary Y	036	FIR	G's	22.4	60.0	-0.9	190.0	FIR100



Test Vehicle: 2003 BMW X5 3.0i SUV

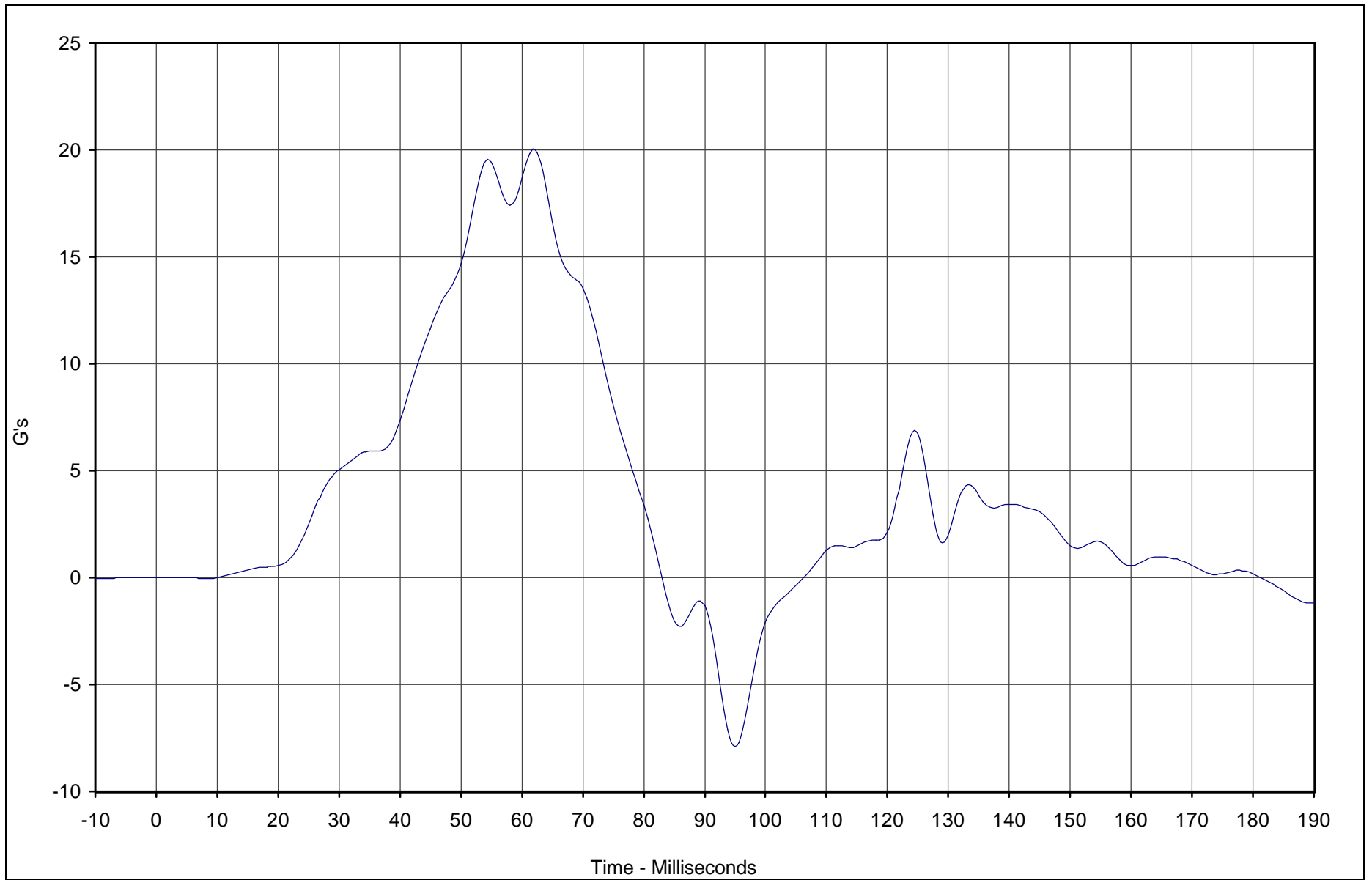
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-159



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Lower Spine Primary Y	037	FIR	G's	20.0	61.9	-7.9	95.0	FIR100



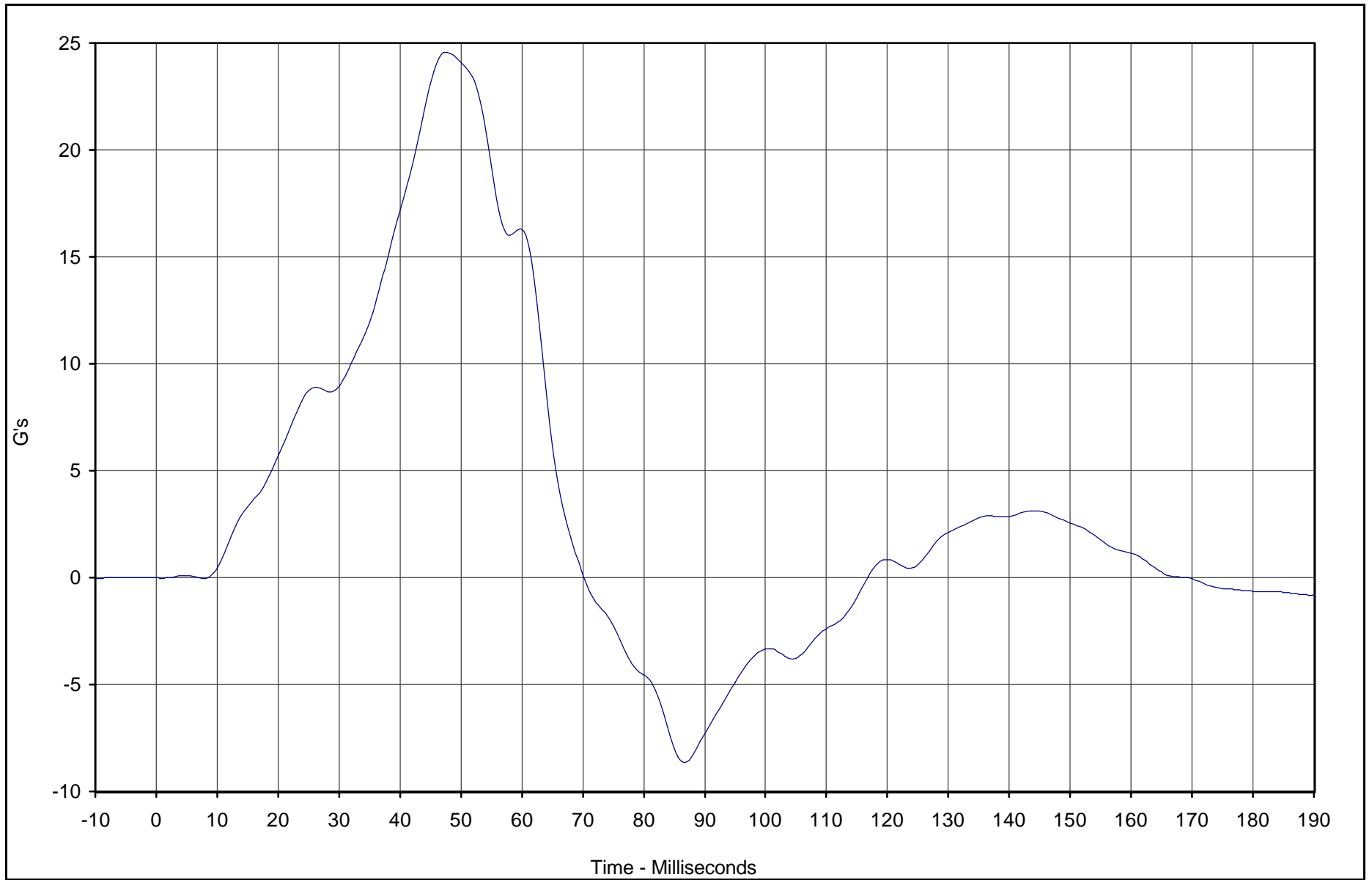
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-160



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Pelvis Primary Y	038	FIR	G's	24.6	47.5	-8.7	86.9	FIR100



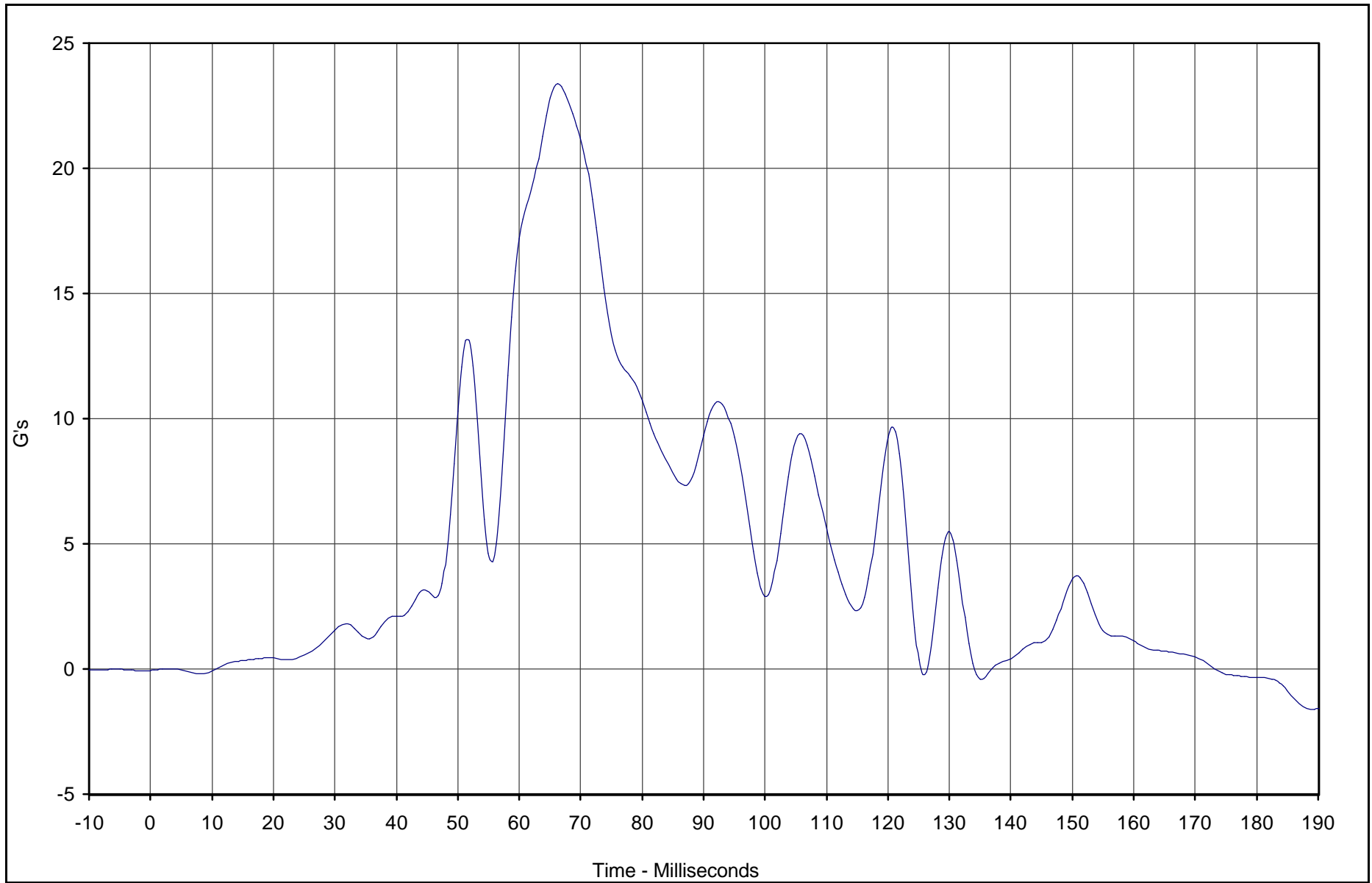
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-161



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Upper Rib Redundant Y	039	FIR	G's	23.4	66.3	-1.6	189.4	FIR100



Test Vehicle: 2003 BMW X5 3.0i SUV

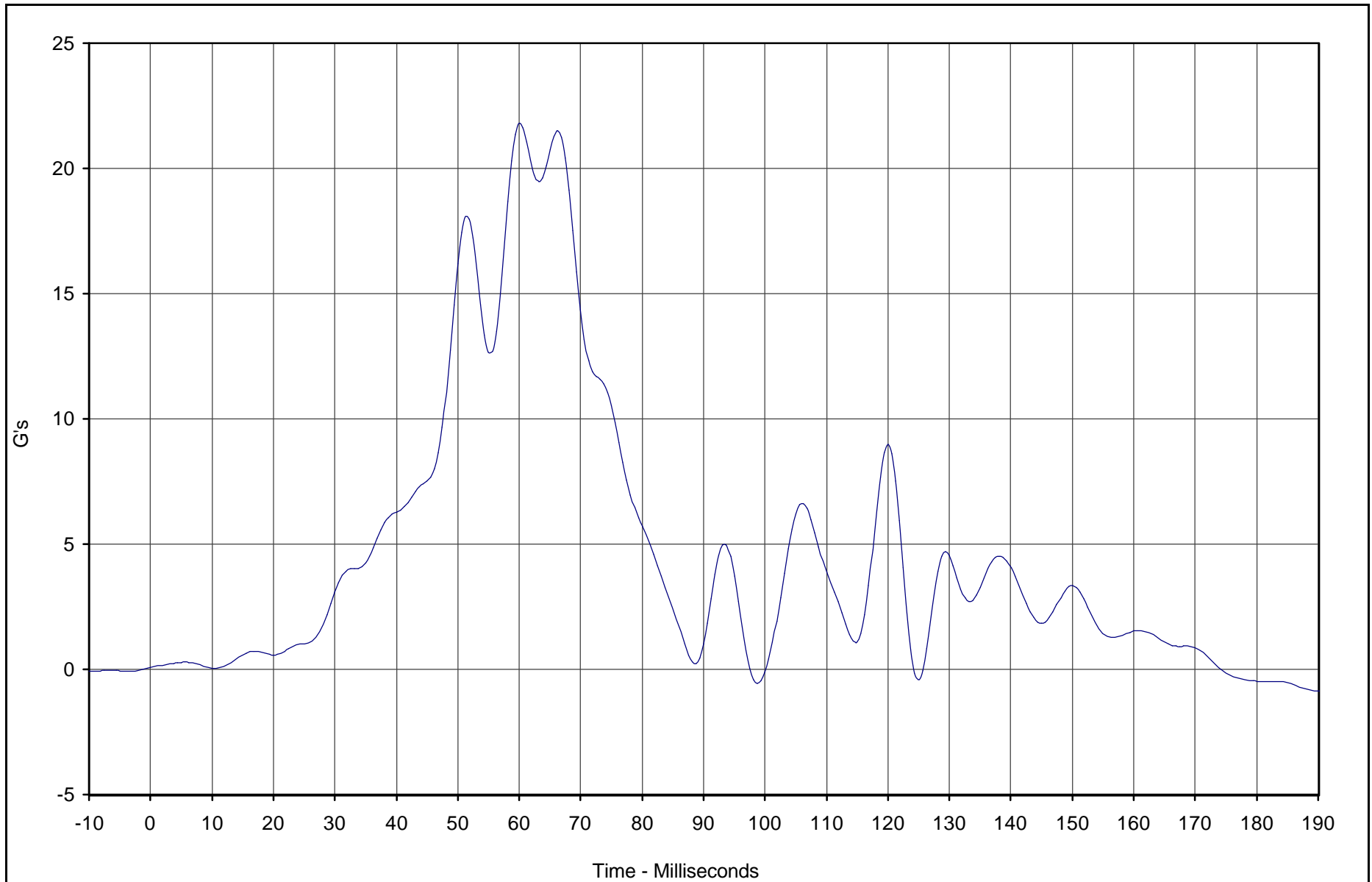
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-162



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Lower Rib Redundant Y	040	FIR	G's	21.8	60.0	-0.9	190.0	FIR100



Test Vehicle: 2003 BMW X5 3.0i SUV

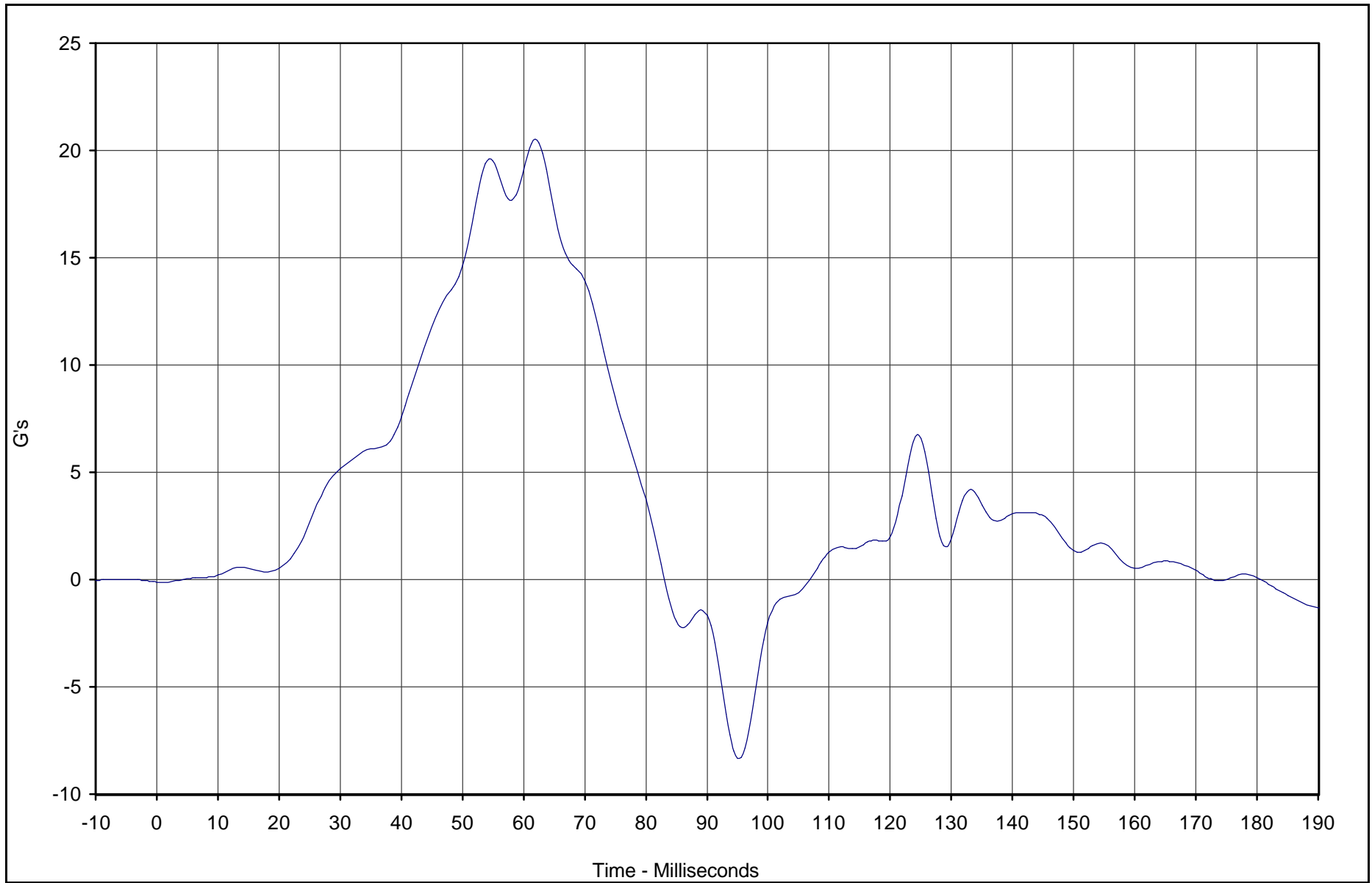
Test Date: 3/20/03

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

NHTSA No.: M30502

TR-P23003-06-NC

B-163



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Lower Spine Redundant Y	041	FIR	G's	20.5	61.9	-8.4	95.0	FIR100



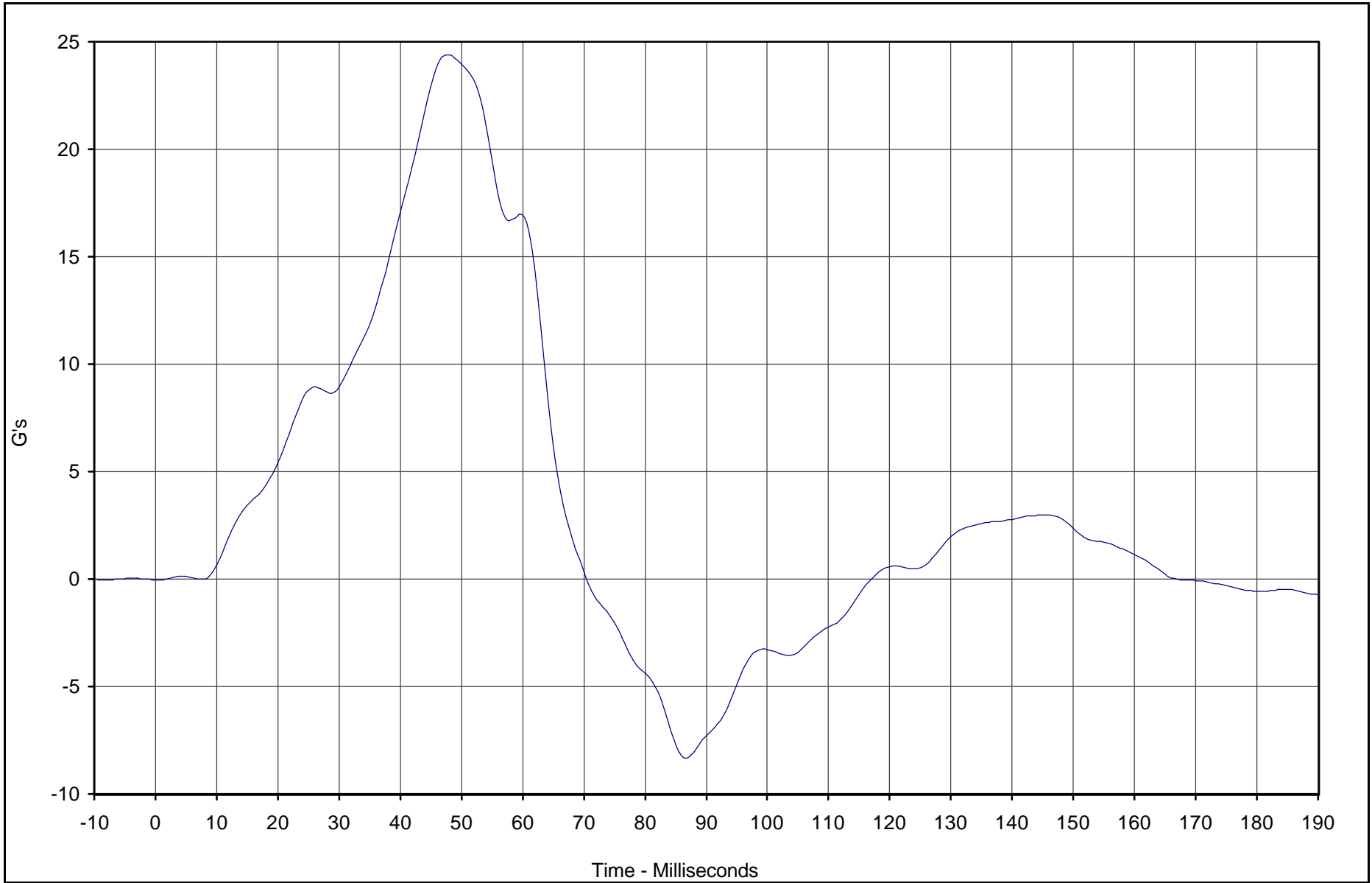
Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

B-164



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pass. Pelvis Redundant Y	042	FIR	G's	24.4	47.5	-8.3	86.9	FIR100



Test Vehicle: 2003 BMW X5 3.0i SUV

Test Date: 3/20/03

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

NHTSA No.: M30502

APPENDIX C
SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

APPENDIX C
PRE-TEST SID / HIII CONFIGURATION AND PERFORMANCE VERIFICATION DATA



Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) External Measurements

ATD Serial No.: 274

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	905	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	520	Pass
KH- Knee Pivot From Back Line	mm	511 to 526	515	Pass
KV- Knee Pivot From Floor	mm	490 to 505	495	Pass
HW- Hip Width	mm	356 to 391	385	Pass
Overall Test Results				Pass

C-1

TR-P23003-06-NC

Laboratory Technician

March 8, 2003
Test Date



Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) Thorax Lateral Impact

ATD Serial No.: 274

Test I.D.: TH03C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.30	Pass
Upper Rib Acceleration	G's	37.0 to 46.0	44.8	Pass
Lower Rib Acceleration	G's	37.0 to 46.0	43.6	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	19.5	Pass
Overall Test Results				Pass

C-2

TR-P23003-06-NC

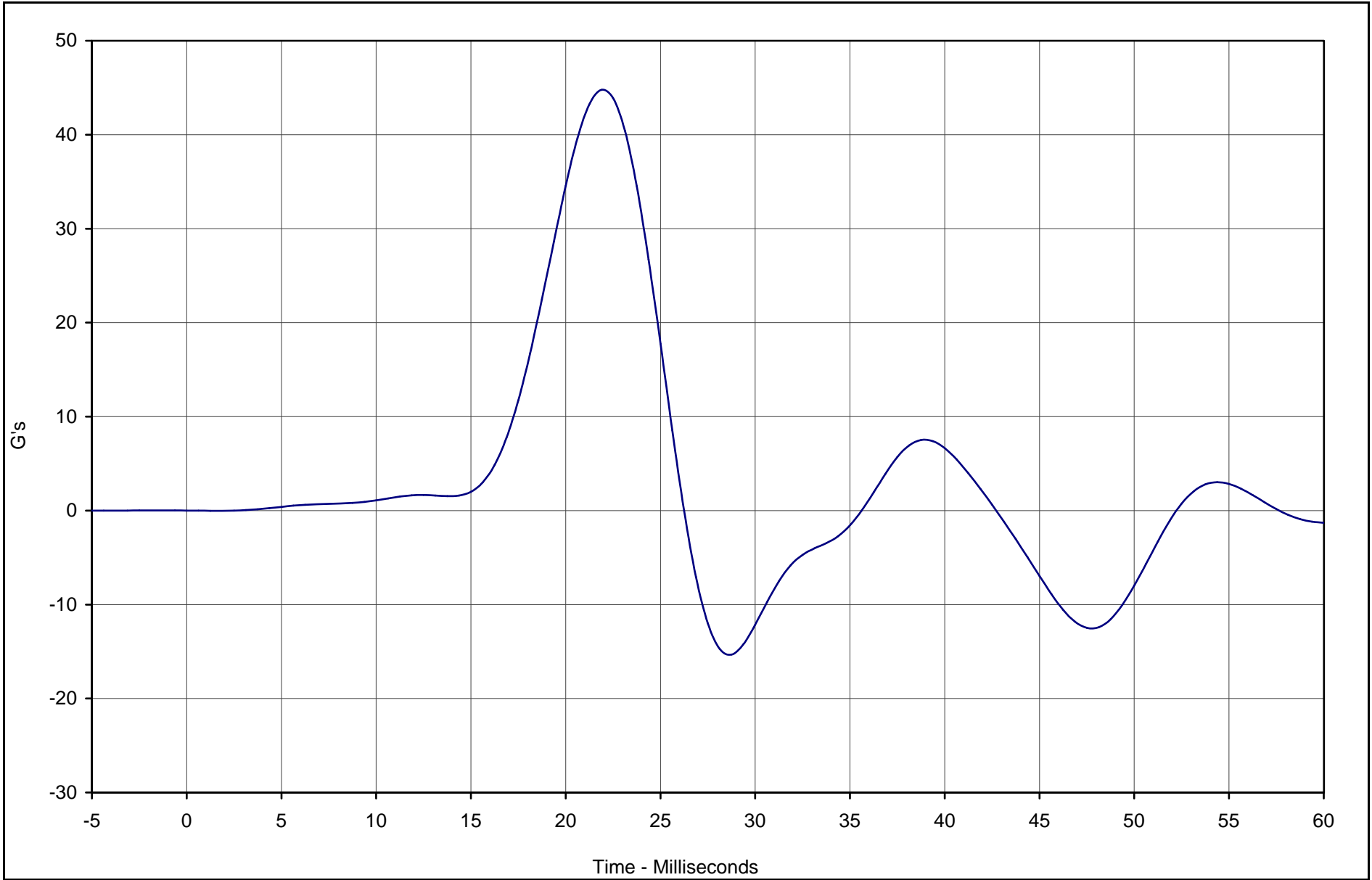
Laboratory Technician

March 7, 2003

Test Date

C-3

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Upper Rib Y Acceleration	001	FIL	G's	44.8	21.9	-15.3	28.8	FIR100



Test Vehicle: SID / HIII Thorax Lateral Impact

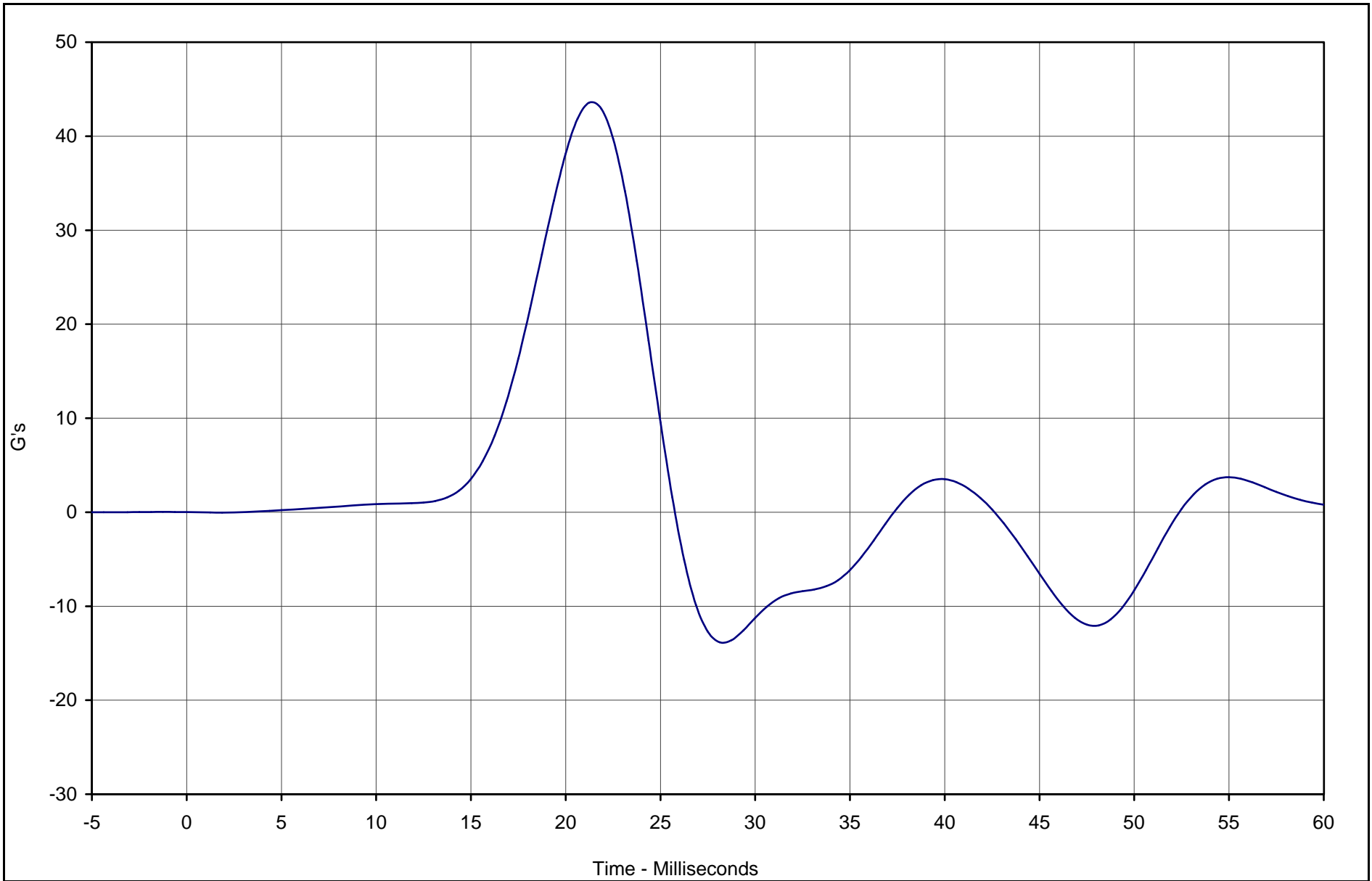
SID Serial No.: 274

Test Date: 3/7/03

Test I.D.: TH03C

C-4

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Lower Rib Y Acceleration	002	FIL	G's	43.6	21.3	-13.8	28.1	FIR100

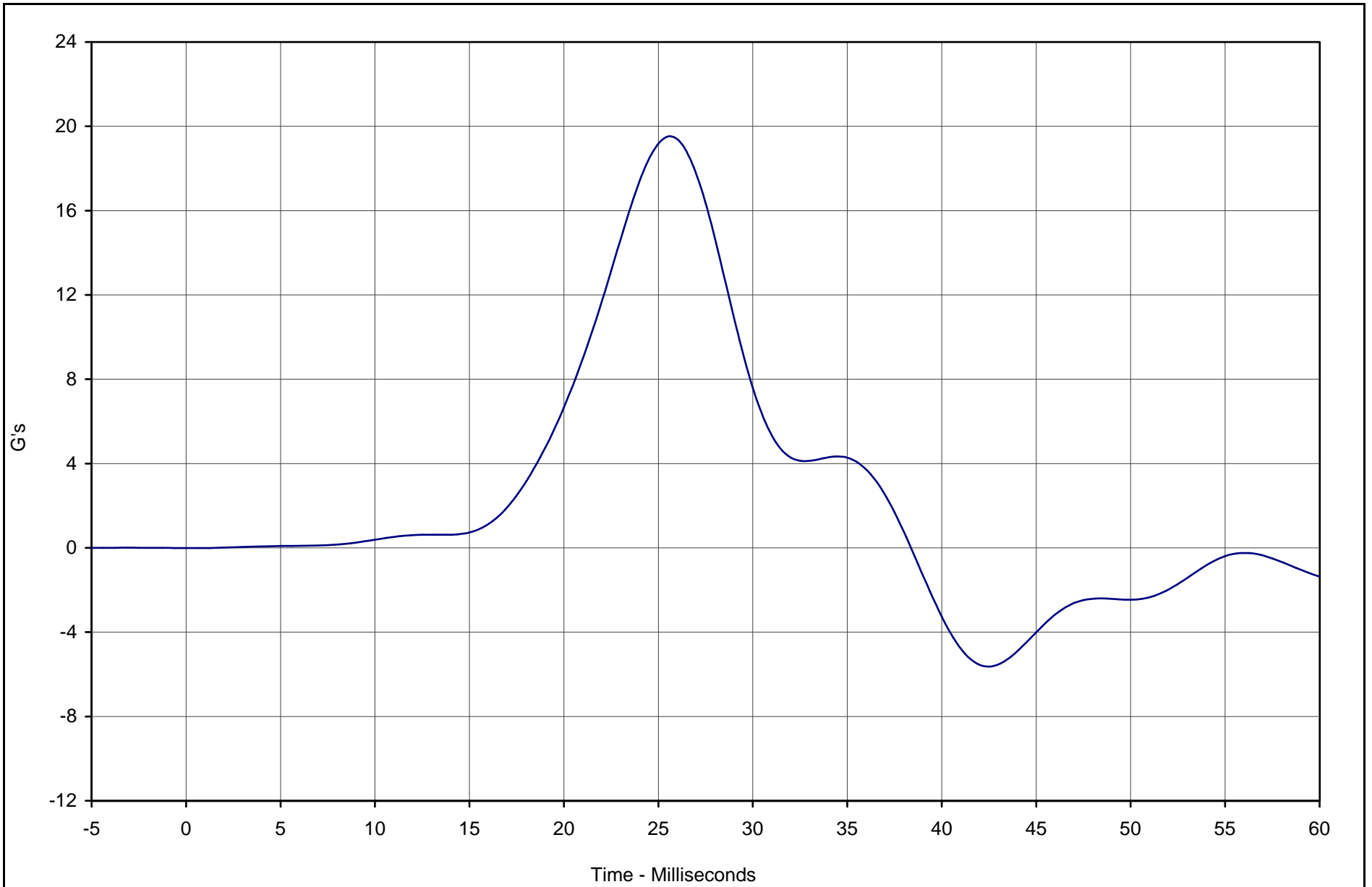


Test Vehicle: SID / HIII Thorax Lateral Impact

SID Serial No.: 274

Test Date: 3/7/03

Test I.D.: TH03C



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Lower Spine Y Acceleration	003	FIL	G's	19.5	25.6	-5.6	42.5	FIR100



Test Vehicle: SID / HIII Thorax Lateral Impact

SID Serial No.: 274

Test Date: 3/7/03

Test I.D.: TH03C



Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) Pelvis Lateral Impact

ATD Serial No.: 274

Test I.D.: PI03C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.26	Pass
Peak Pelvis Acceleration	G's	40.0 to 60.0	45.4	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0	6.3	Pass
Overall Test Results				Pass

C-6

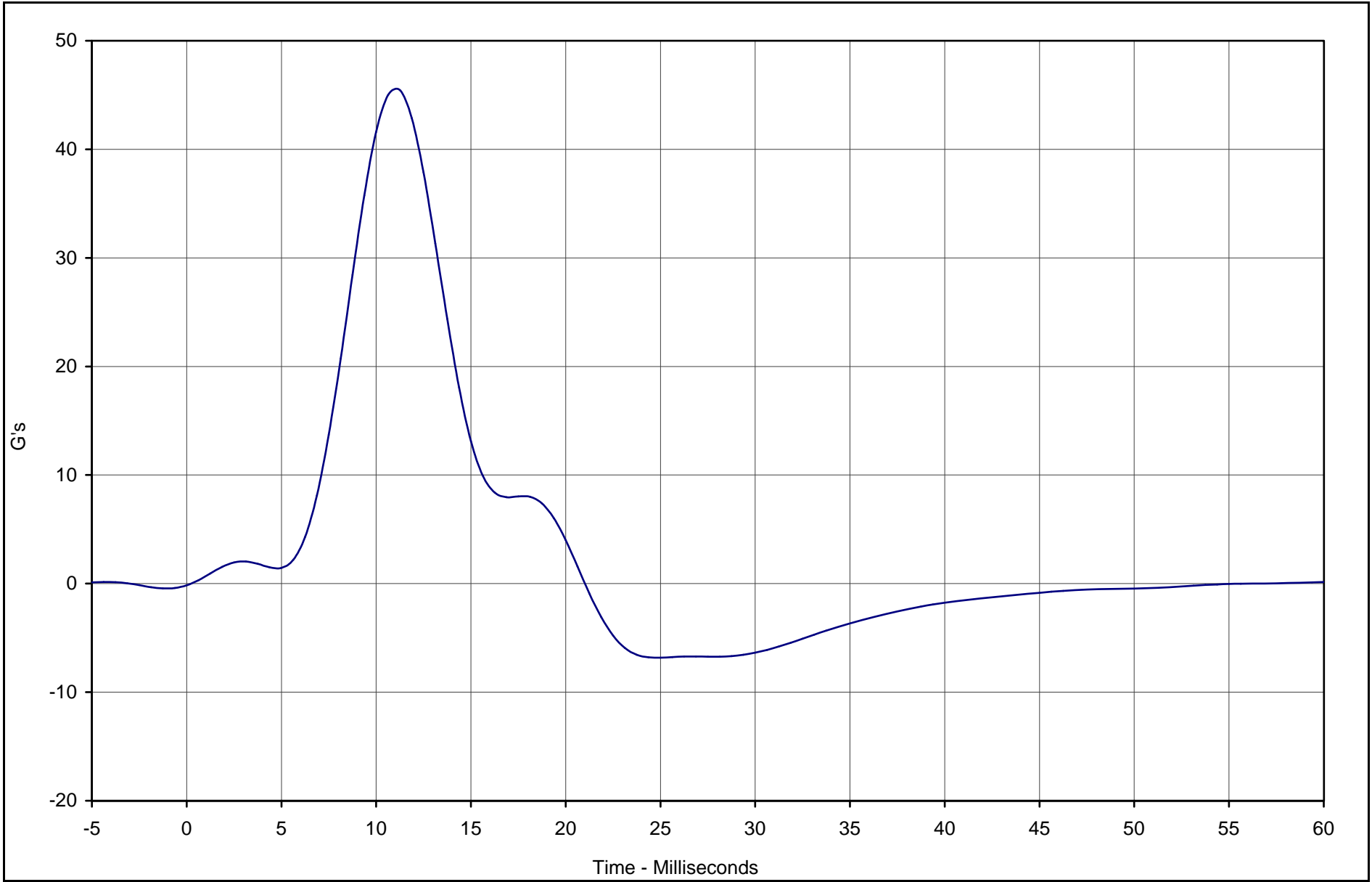
TR-P23003-06-NC

Laboratory Technician

March 7, 2003

Test Date

C-7



TR-P23003-06-NC

Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pelvis Y Acceleration	001	FIL	G's	45.4	11.3	-8.5	0.0	FIR100



Test Vehicle: Side Impact Dummy (SID) Pelvis Lateral Impact

SID Serial No.: 274

Test Date: 3/7/03

Test I.D.: PI03C



Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) Head Drop Lateral Impact Test

ATD Serial No.: 274

Test I.D.: HD01C

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	120.0 to 150.0	140.4	Pass
Peak Longitudinal Acceleration	G's	≤15.0	8.9	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<10	4.2	Pass
Overall Test Results				Pass

C-8

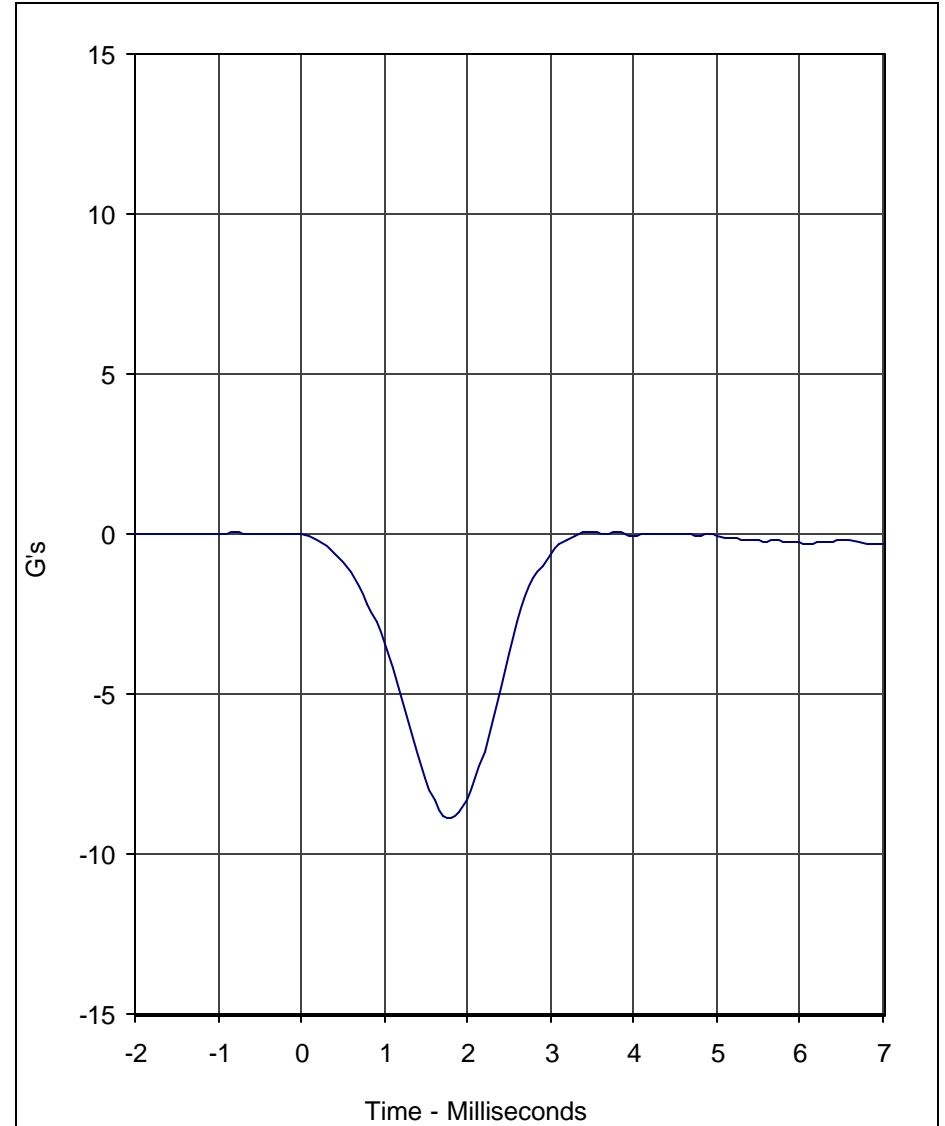
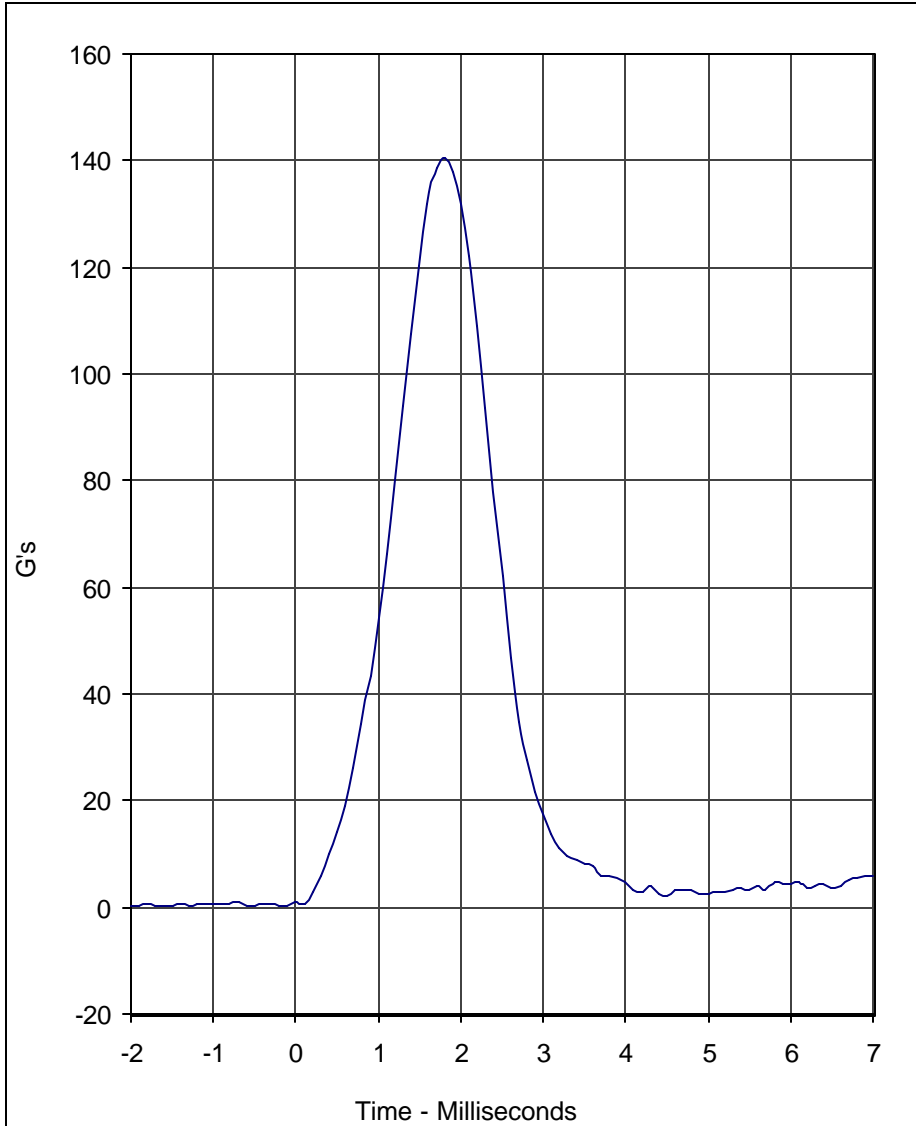
TR-P23003-06-NC

Laboratory Technician

March 7, 2003

Test Date

C-9



Curve Description	CURNO	Type
Head Resultant	001	RES

Curve Description	CURNO	Type
Head Y	002	FIL

Units	Max	Time	Min	Time	SAE Class
G's	140.4	1.8	0.2	-1.6	1000

Units	Max	Time	Min	Time	SAE Class
G's	0.1	3.5	-8.9	1.8	1000

Test Program: SID / HIII Head Drop Lateral Impact Test
 Test Date: 3/7/03

A.T.D. Serial No.: 274
 Test I.D.: HD01C



TR-P23003-06-NC



Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) Neck Pendulum Lateral Test

ATD Serial No.: 274

Test I.D.: NB09A

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.10	Pass
Pendulum Deceleration	10	Msec.	1.96 to 2.55	2.25	Pass
	20	Msec.	4.12 to 5.10	4.60	Pass
	30	Msec.	5.73 to 7.01	6.63	Pass
	40 to 70	Msec.	6.27 to 7.64	6.90	Pass
Maximum "D" Plane Rotation		Degrees	66.0 to 82.0	71.1	Pass
Maximum "D" Plane Rotation Time After Peak Moment		Msec.	2.0 to 15.0	6.7	Pass
"D" Plane Rotation Decay Time From Peak Angle to Zero Angle		Msec.	58.0 to 67.0	63.0	Pass
Calculated Moment About Occipital Condyle		N•m	73.0 to 88.0	87.5	Pass
Moment About Occipital Condyle Decay, Time From Positive Peak Value To 0 N•m		Msec.	49.0 to 64.0	51.6	Pass
Overall Test Results					Pass

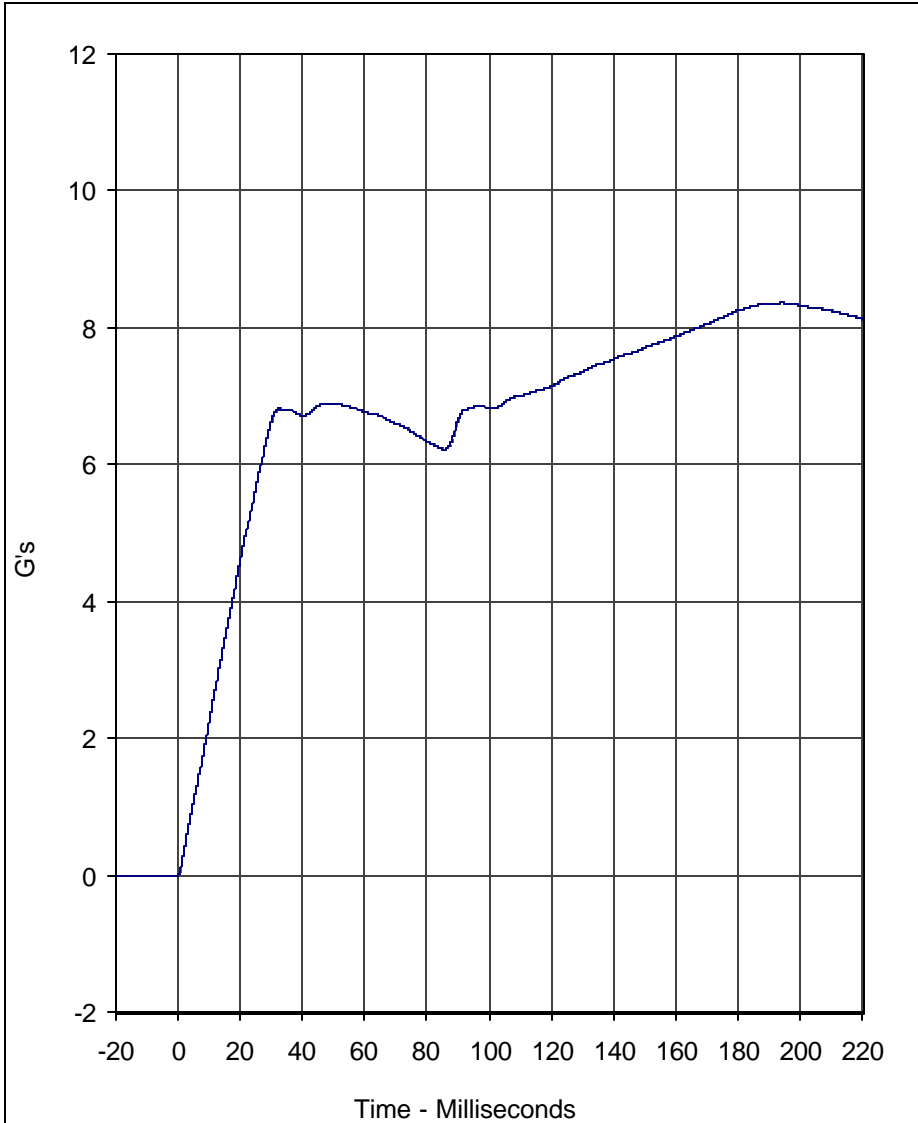
Laboratory Technician

March 8, 2003

Test Date

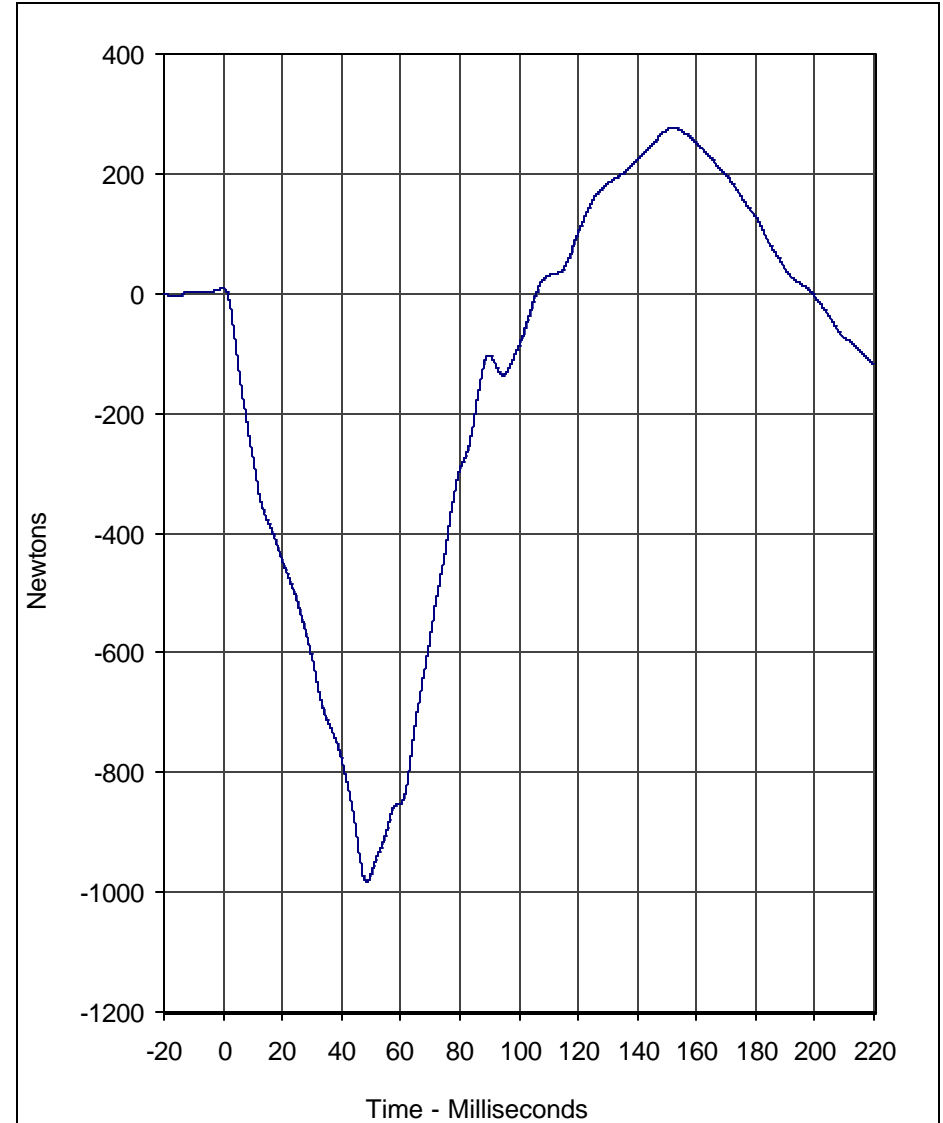
C-10

TR-P23003-06-NC



Curve Description	CURNO	Type
Pendulum Velocity	001	FIL

Units	Max	Time	Min	Time	SAE Class
G's	8.4	194.4	0.0	-0.7	180



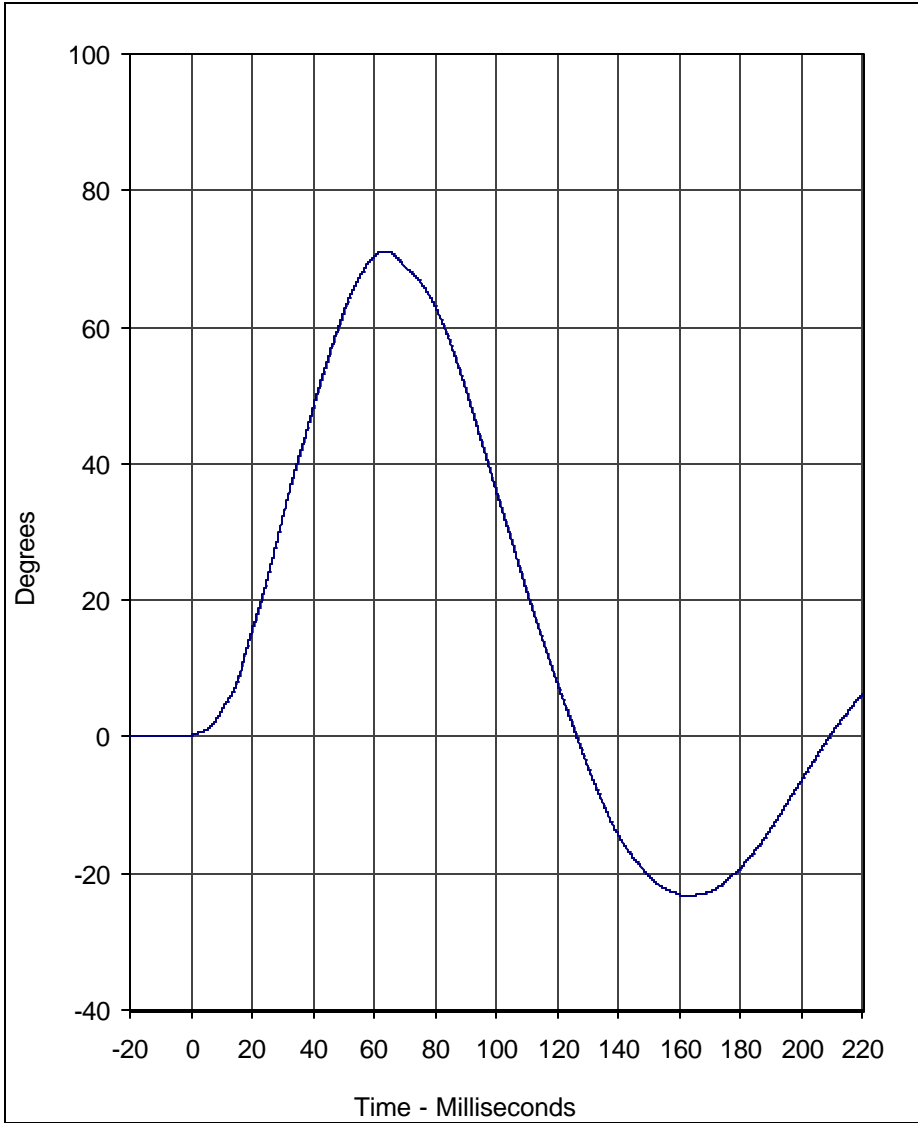
Curve Description	CURNO	Type
Neck Force Y	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	275.8	152.1	-983.1	48.5	60

Test Program: SID / HIII Neck Pendulum Lateral Test
 Test Date: 3/8/03

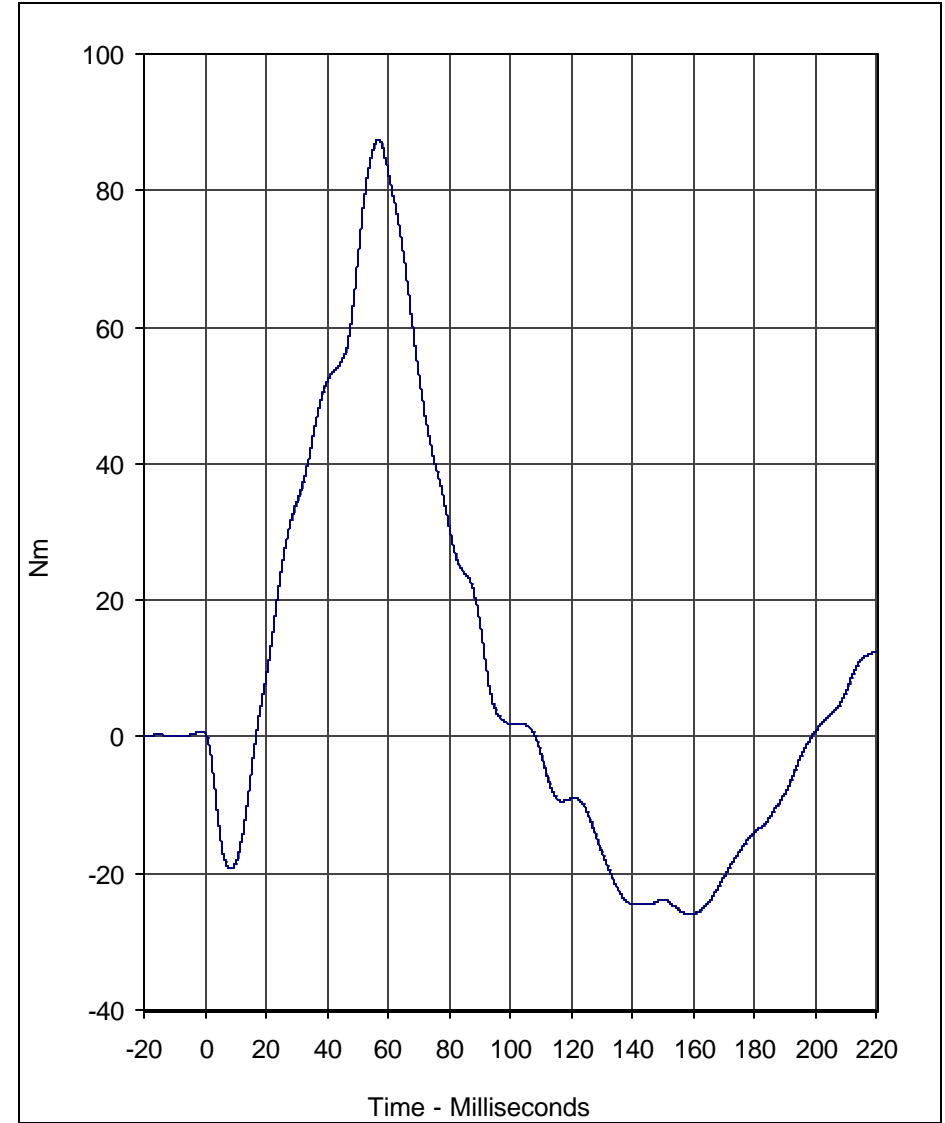
A.T.D. Serial No.: 274
 Test I.D.: NB09A





Curve Description	CURNO	Type
"D" Plane Rotation	003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	71.1	63.5	-23.3	162.9	60



Curve Description	CURNO	Type
Moment About Occipital Condyle	004	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	87.5	56.8	-25.9	158.9	60

Test Program: SID / HIII Neck Pendulum Lateral Test
 Test Date: 3/8/03

A.T.D. Serial No.: 274
 Test I.D.: NB09A





Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) External Measurements

ATD Serial No.: 275

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	895	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	515	Pass
KV- Knee Pivot From Floor	mm	490 to 505	495	Pass
HW- Hip Width	mm	356 to 391	390	Pass
Overall Test Results				Pass

C-13

TR-P23003-06-NC

Laboratory Technician

March 8, 2003
Test Date



Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) Thorax Lateral Impact

ATD Serial No.: 275

Test I.D.: TH03D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.30	Pass
Upper Rib Acceleration	G's	37.0 to 46.0	42.4	Pass
Lower Rib Acceleration	G's	37.0 to 46.0	45.7	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	20.4	Pass
Overall Test Results				Pass

C-14

TR-P23003-06-NC

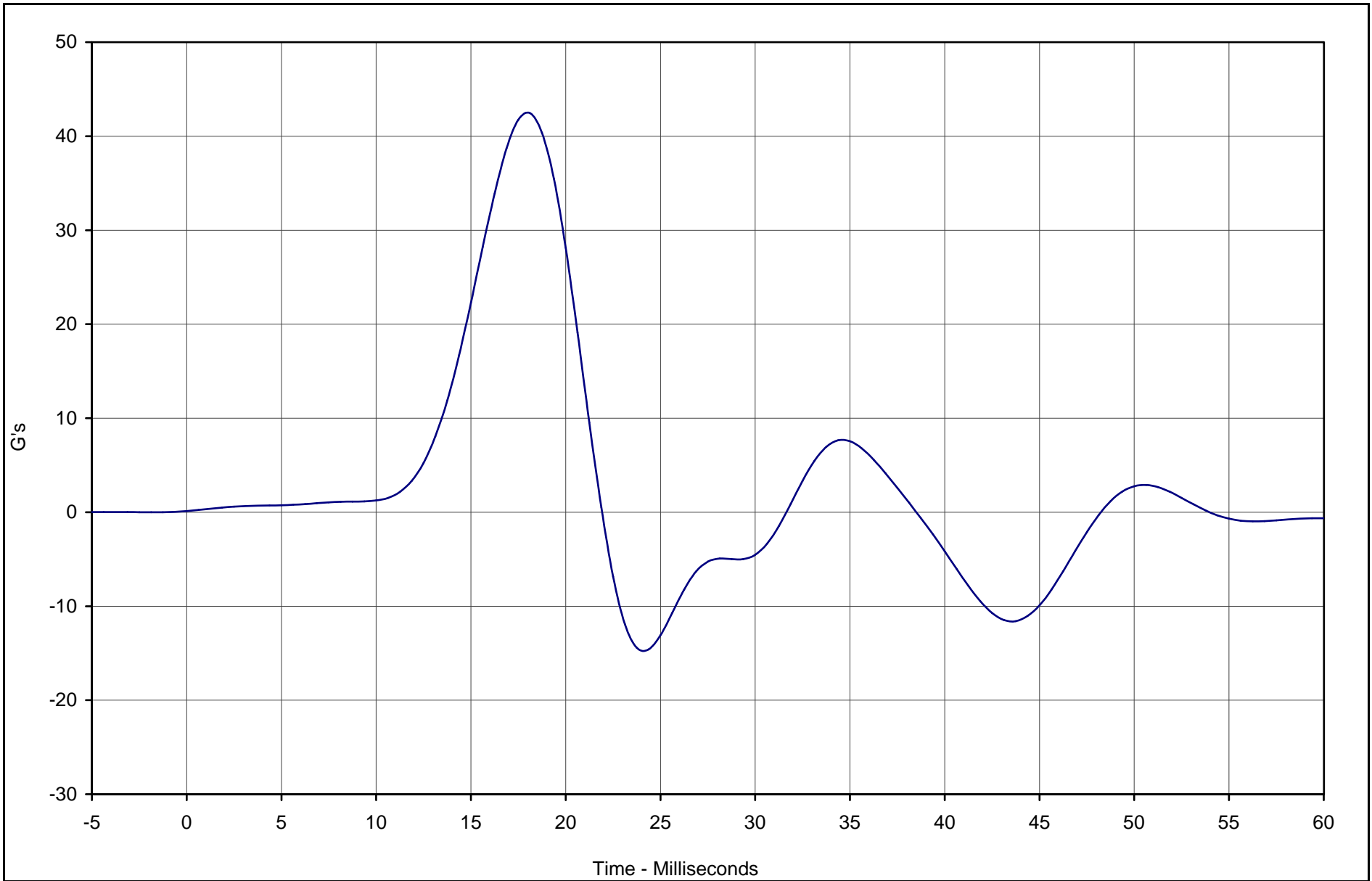
Laboratory Technician

March 7, 2003

Test Date

C-15

TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Upper Rib Y Acceleration	001	FIL	G's	42.4	18.1	-14.6	24.4	FIR100

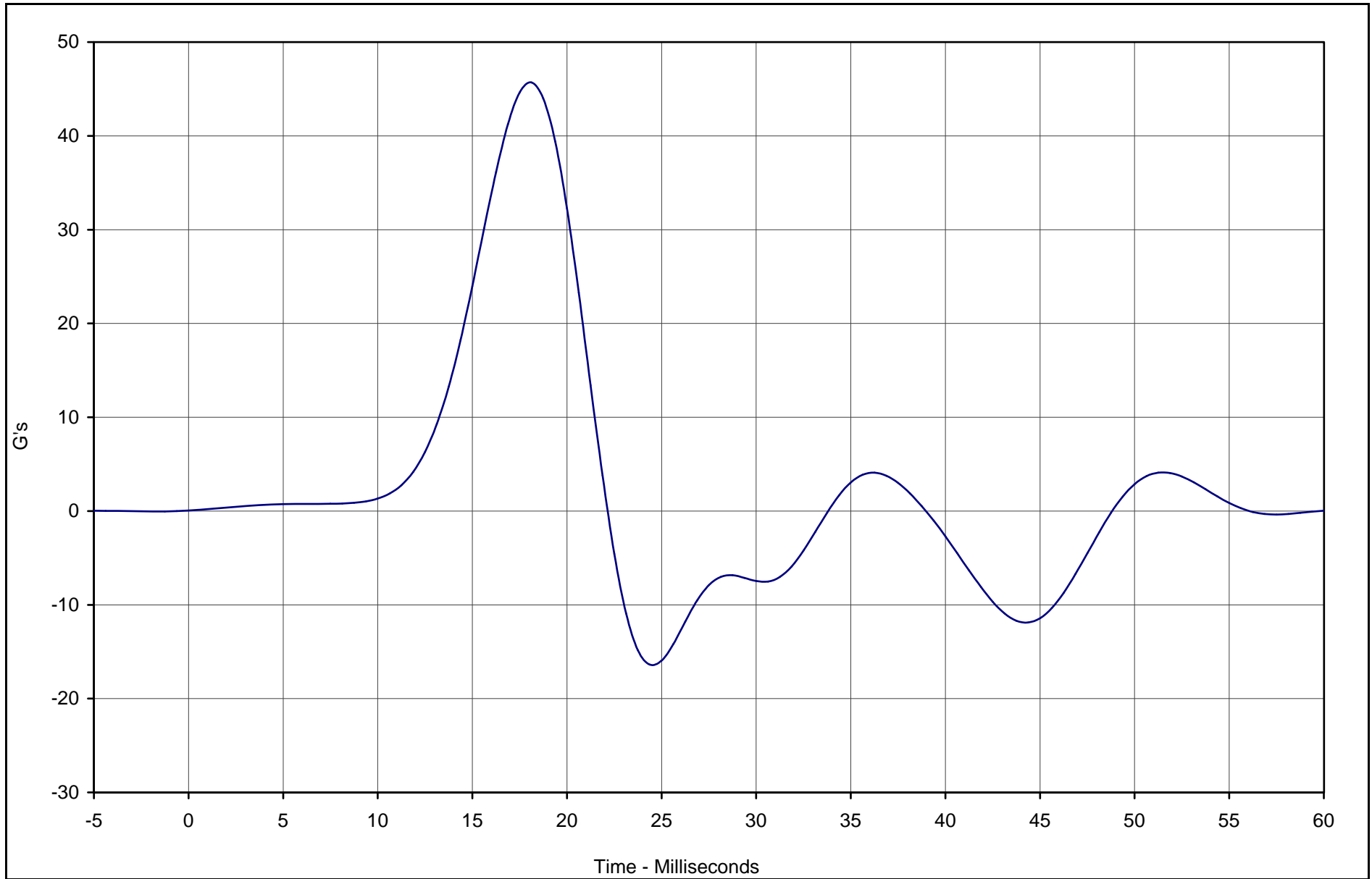


Test Vehicle: SID / HIII Thorax Lateral Impact

SID Serial No.: 275

Test Date: 3/7/03

Test I.D.: TH03D



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Lower Rib Y Acceleration	002	FIL	G's	45.7	18.1	-16.4	24.4	FIR100

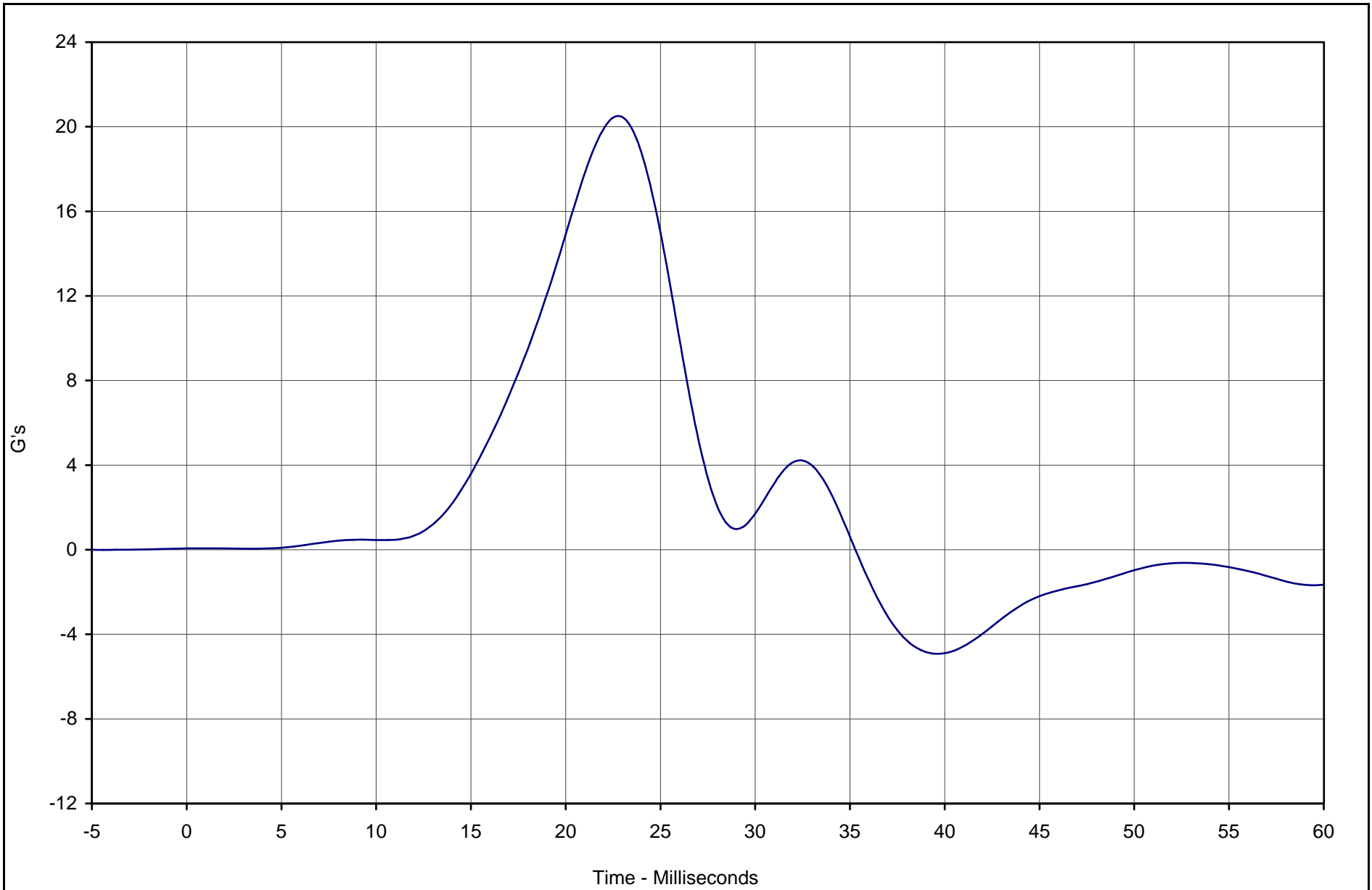


Test Vehicle: SID / HIII Thorax Lateral Impact

SID Serial No.: 275

Test Date: 3/7/03

Test I.D.: TH03D



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Lower Spine Y Acceleration	003	FIL	G's	20.4	22.5	-4.9	39.4	FIR100



Test Vehicle: SID / HIII Thorax Lateral Impact

SID Serial No.: 275

Test Date: 3/7/03

Test I.D.: TH03D



Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) Pelvis Lateral Impact

ATD Serial No.: 275

Test I.D.: PI03D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.29	Pass
Peak Pelvis Acceleration	G's	40.0 to 60.0	42.2	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0	6.9	Pass
Overall Test Results				Pass

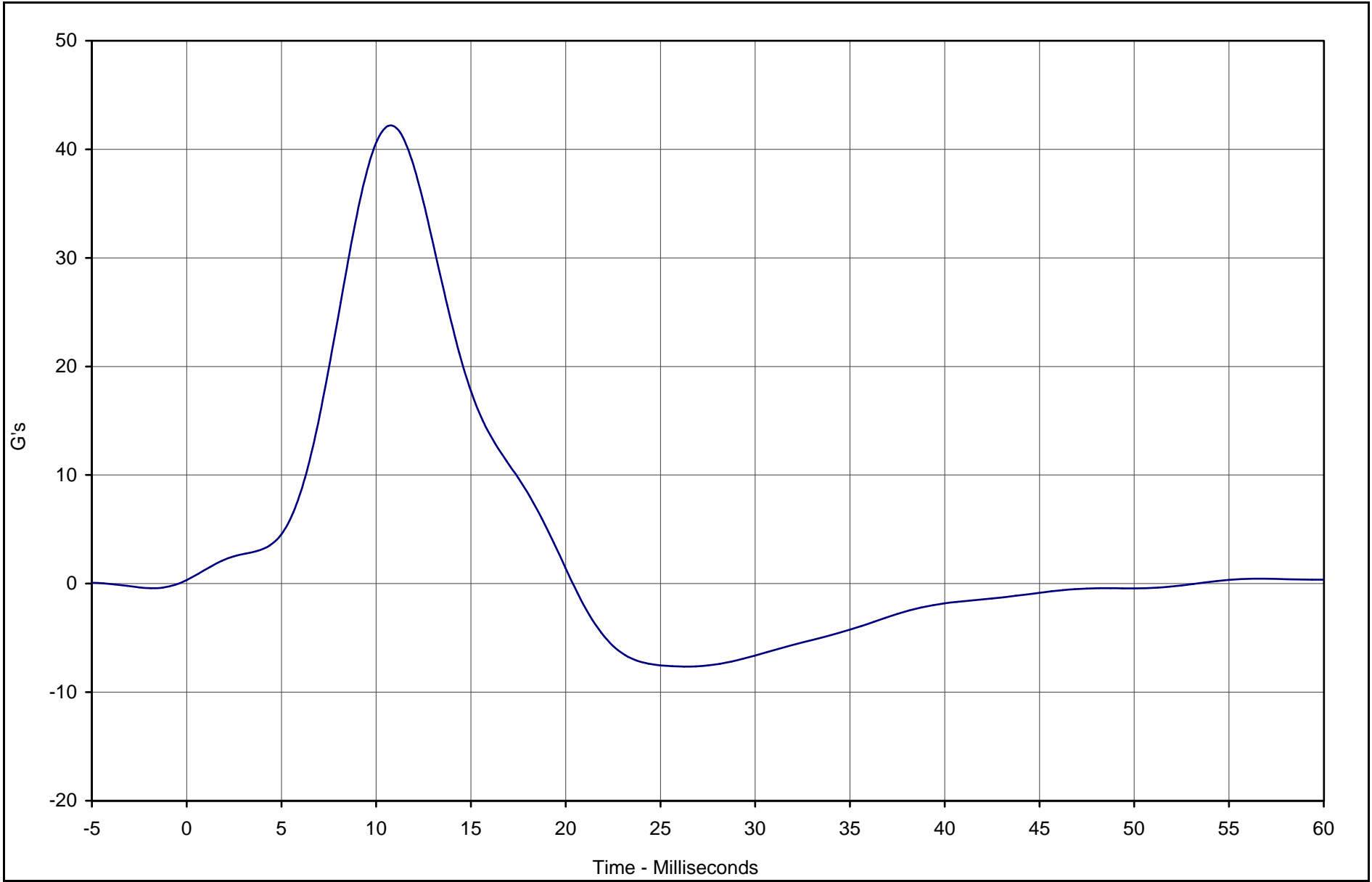
C-18

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Laboratory Technician

March 7, 2003

Test Date



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pelvis Y Acceleration	001	FIL	G's	42.2	10.6	-7.6	26.3	FIR100



Test Vehicle: Side Impact Dummy (SID) Pelvis Lateral Impact

SID Serial No.: 275

Test Date: 3/7/03

Test I.D.: PI03D



Calibration Data Sheet

Side Impact Hybrid Dummy (SID/HIII)

Head Drop Lateral Impact Test

ATD Serial No.: 275

Test I.D.: HD01D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	120.0 to 150.0	137.2	Pass
Peak Longitudinal Acceleration	G's	≤15.0	3.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<10	3.9	Pass
Overall Test Results				Pass

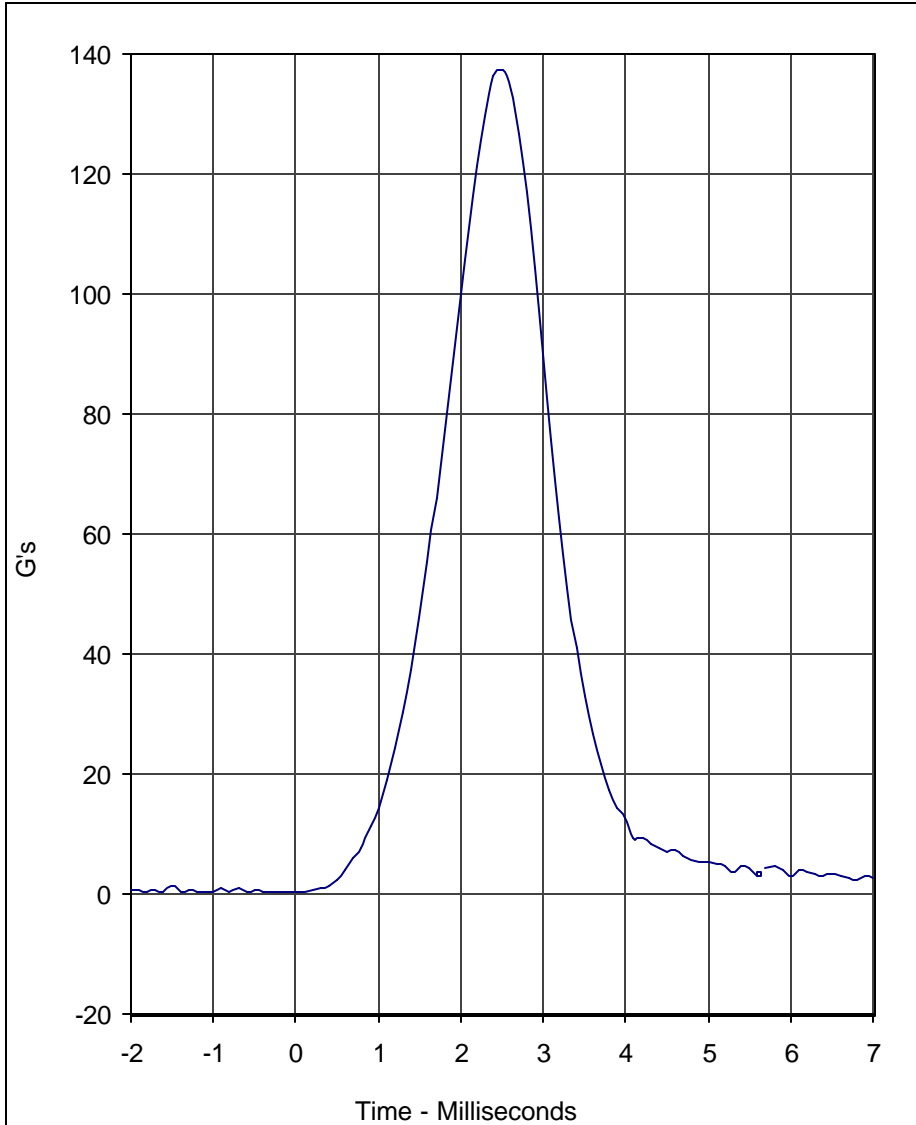
C-20

TR-P23003-06-NC

Laboratory Technician

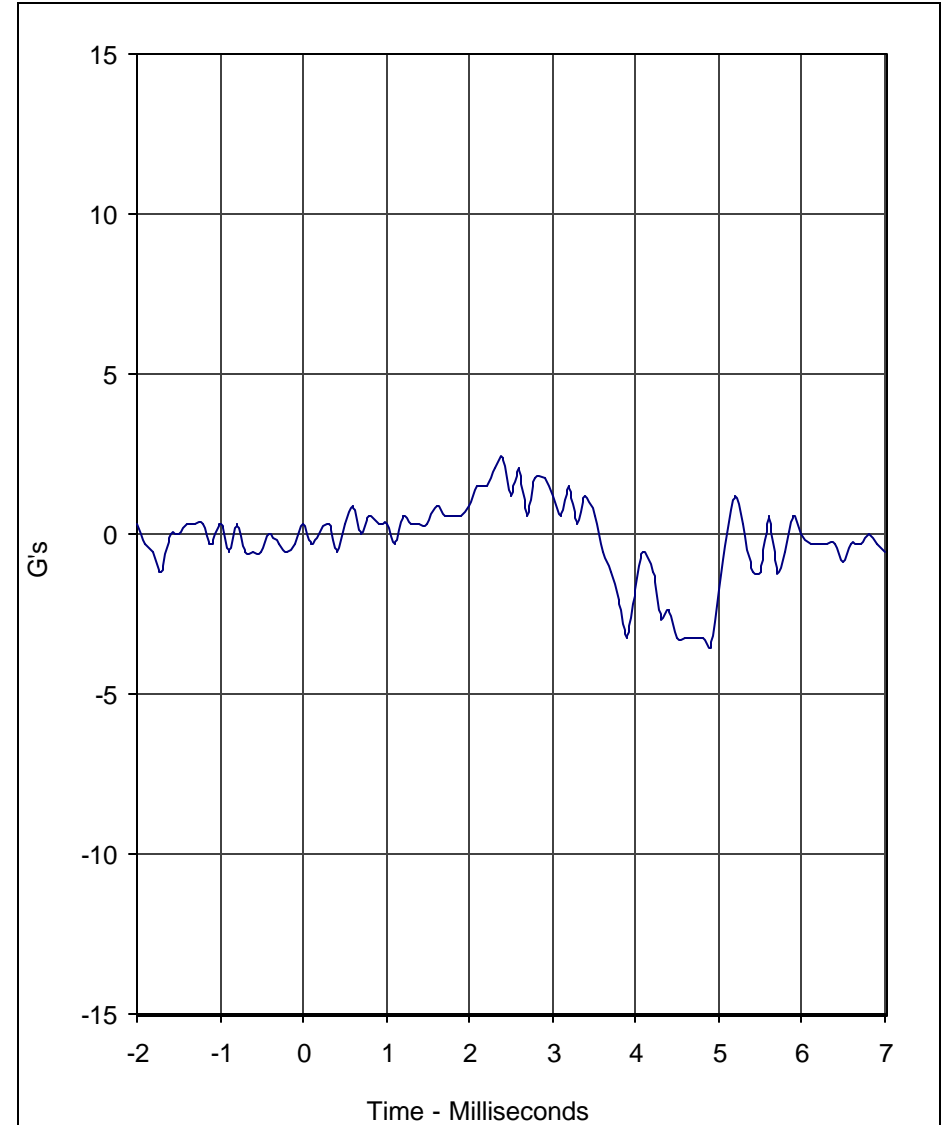
March 7, 2003

Test Date



Curve Description	CURNO	Type
Head Resultant	001	RES

Units	Max	Time	Min	Time	SAE Class
G's	137.2	2.5	0.2	-0.4	1000



Curve Description	CURNO	Type
Head Y	002	FIL

Units	Max	Time	Min	Time	SAE Class
G's	2.4	2.4	-3.5	4.9	1000

Test Program: SID / HIII Head Drop Lateral Impact Test
 Test Date: 3/7/03

A.T.D. Serial No.: 275
 Test I.D.: HD01D





Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) Neck Pendulum Lateral Test

ATD Serial No.: 275

Test I.D.: NB11D

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.03	Pass
Pendulum Deceleration	10	Msec.	1.96 to 2.55	2.32	Pass
	20	Msec.	4.12 to 5.10	4.81	Pass
	30	Msec.	5.73 to 7.01	6.68	Pass
	40 to 70	Msec.	6.27 to 7.64	7.56	Pass
Maximum "D" Plane Rotation		Degrees	66.0 to 82.0	70.6	Pass
Maximum "D" Plane Rotation Time After Peak Moment		Msec.	2.0 to 15.0	14.8	Pass
"D" Plane Rotation Decay Time From Peak Angle to Zero Angle		Msec.	58.0 to 67.0	63.2	Pass
Calculated Moment About Occipital Condyle		N•m	73.0 to 88.0	76.3	Pass
Moment About Occipital Condyle Decay, Time From Positive Peak Value To 0 N•m		Msec.	49.0 to 64.0	50.4	Pass
Overall Test Results					Pass

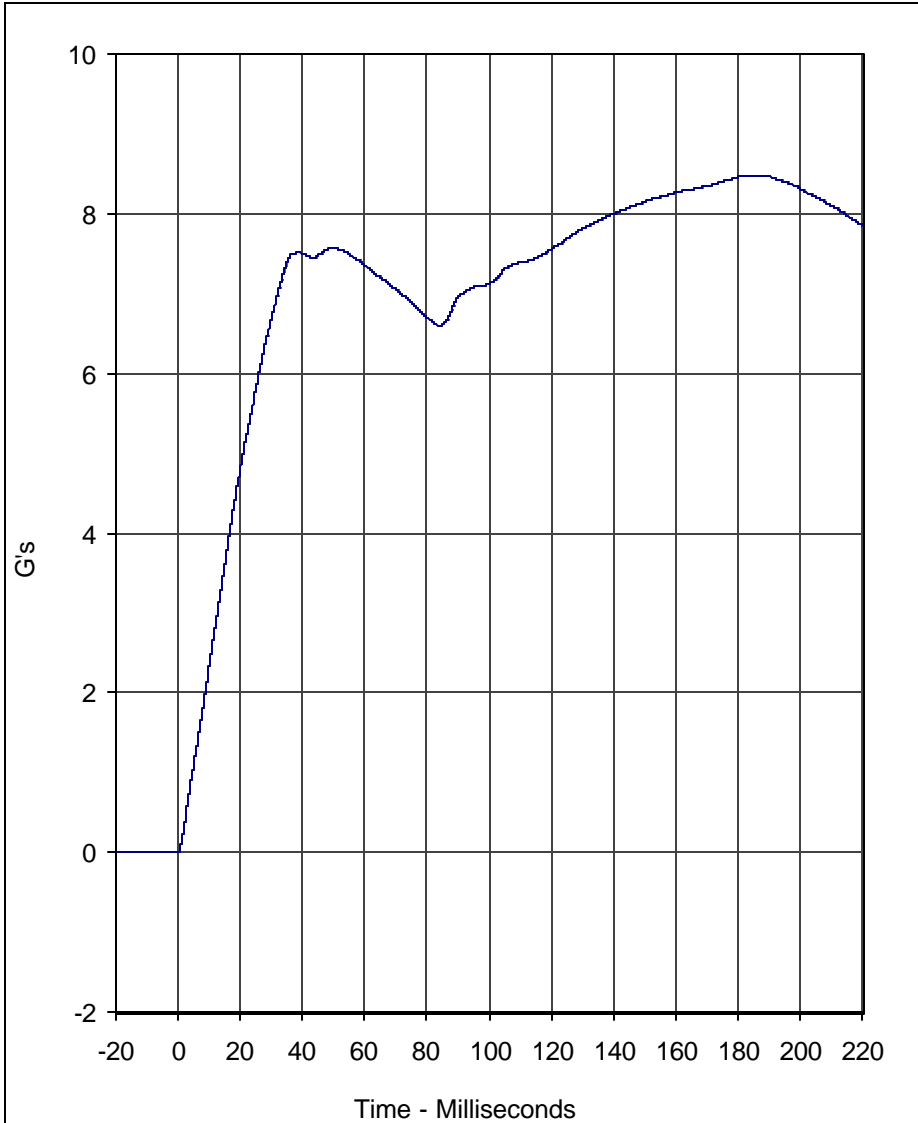
Laboratory Technician

March 8, 2003

Test Date

C-22

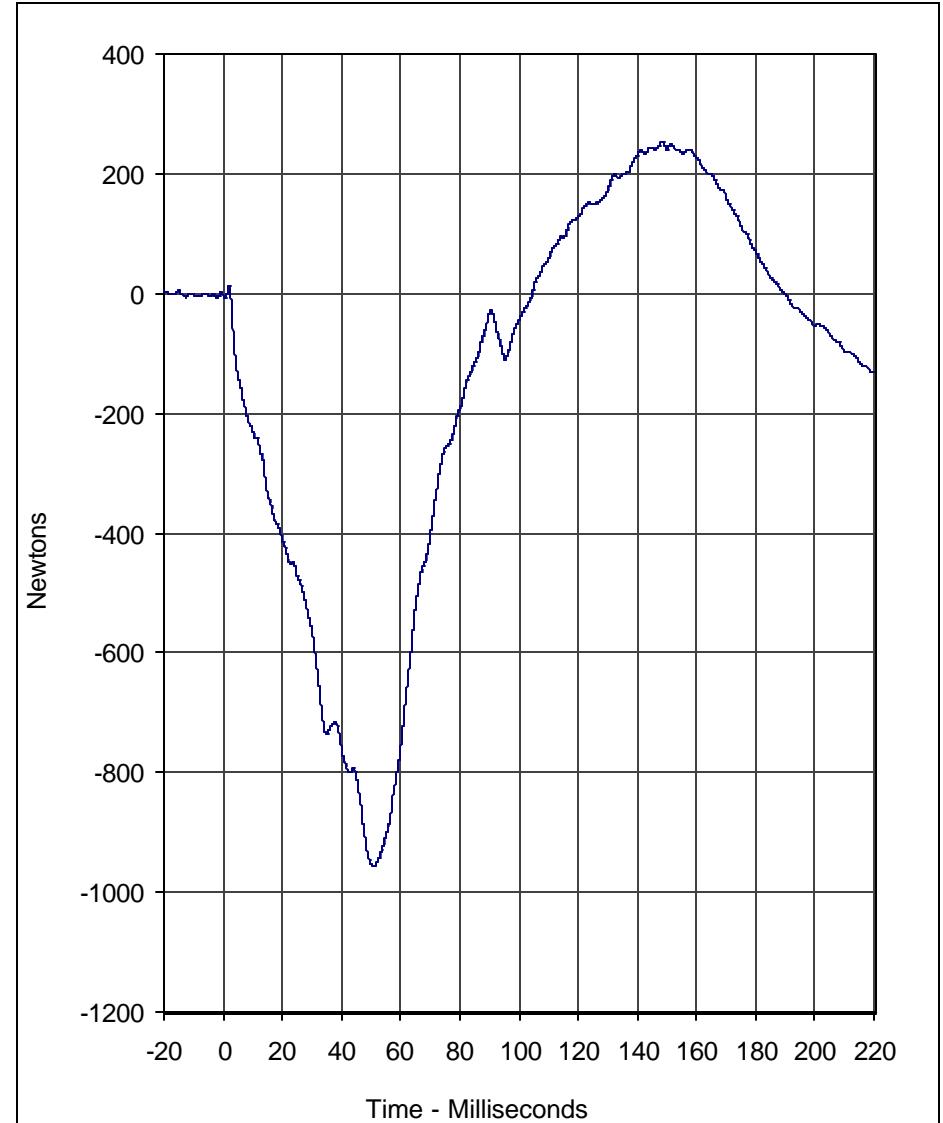
TR-P23003-06-NC



Curve Description	CURNO	Type
Pendulum Velocity	001	FIL

Units	Max	Time	Min	Time	SAE Class
G's	8.5	183.2	0.0	-20.0	180

Test Program: SID / HIII Neck Pendulum Lateral Test
 Test Date: 3/8/03

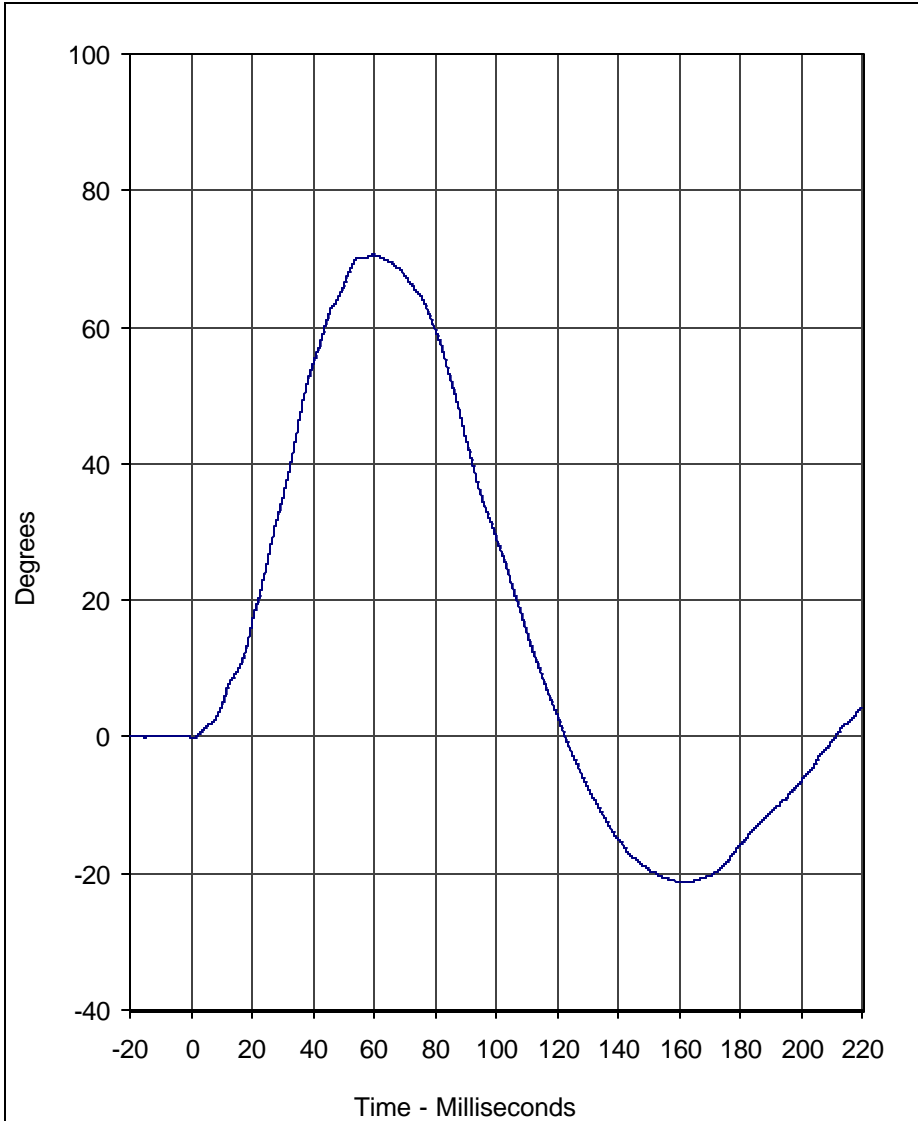


Curve Description	CURNO	Type
Neck Force Y	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	252.9	148.4	-956.8	50.7	180

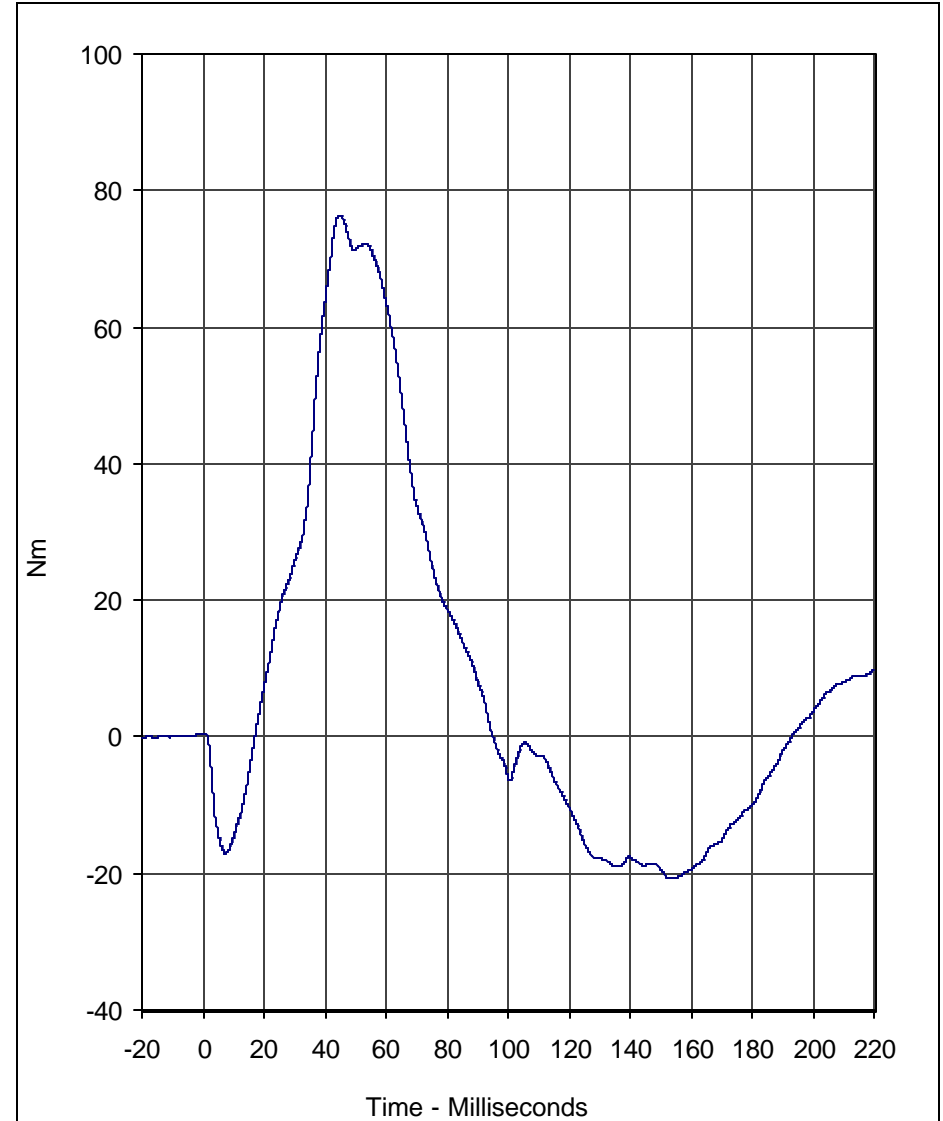
A.T.D. Serial No.: 275
 Test I.D.: NB11D





Curve Description	CURNO	Type
"D" Plane Rotation	003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	70.6	59.5	-21.2	160.1	180



Curve Description	CURNO	Type
Moment About Occipital Condyle	004	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	76.3	44.7	-20.8	153.7	180

Test Program: SID / HIII Neck Pendulum Lateral Test
 Test Date: 3/8/03

A.T.D. Serial No.: 275
 Test I.D.: NB11D



APPENDIX C
POST-TEST SID / HIII CONFIGURATION AND PERFORMANCE VERIFICATION DATA



Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) External Measurements

ATD Serial No.: 274

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	895	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	510	Pass
KH- Knee Pivot From Back Line	mm	511 to 526	520	Pass
KV- Knee Pivot From Floor	mm	490 to 505	500	Pass
HW- Hip Width	mm	356 to 391	365	Pass
Overall Test Results				Pass

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TR-P23003-06-NC

Laboratory Technician

March 22, 2003

Test Date



Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) Thorax Lateral Impact

ATD Serial No.: 274

Test I.D.: T111D

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.30	Pass
Upper Rib Acceleration	G's	37.0 to 46.0	42.9	Pass
Lower Rib Acceleration	G's	37.0 to 46.0	43.6	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	19.3	Pass
Overall Test Results				Pass

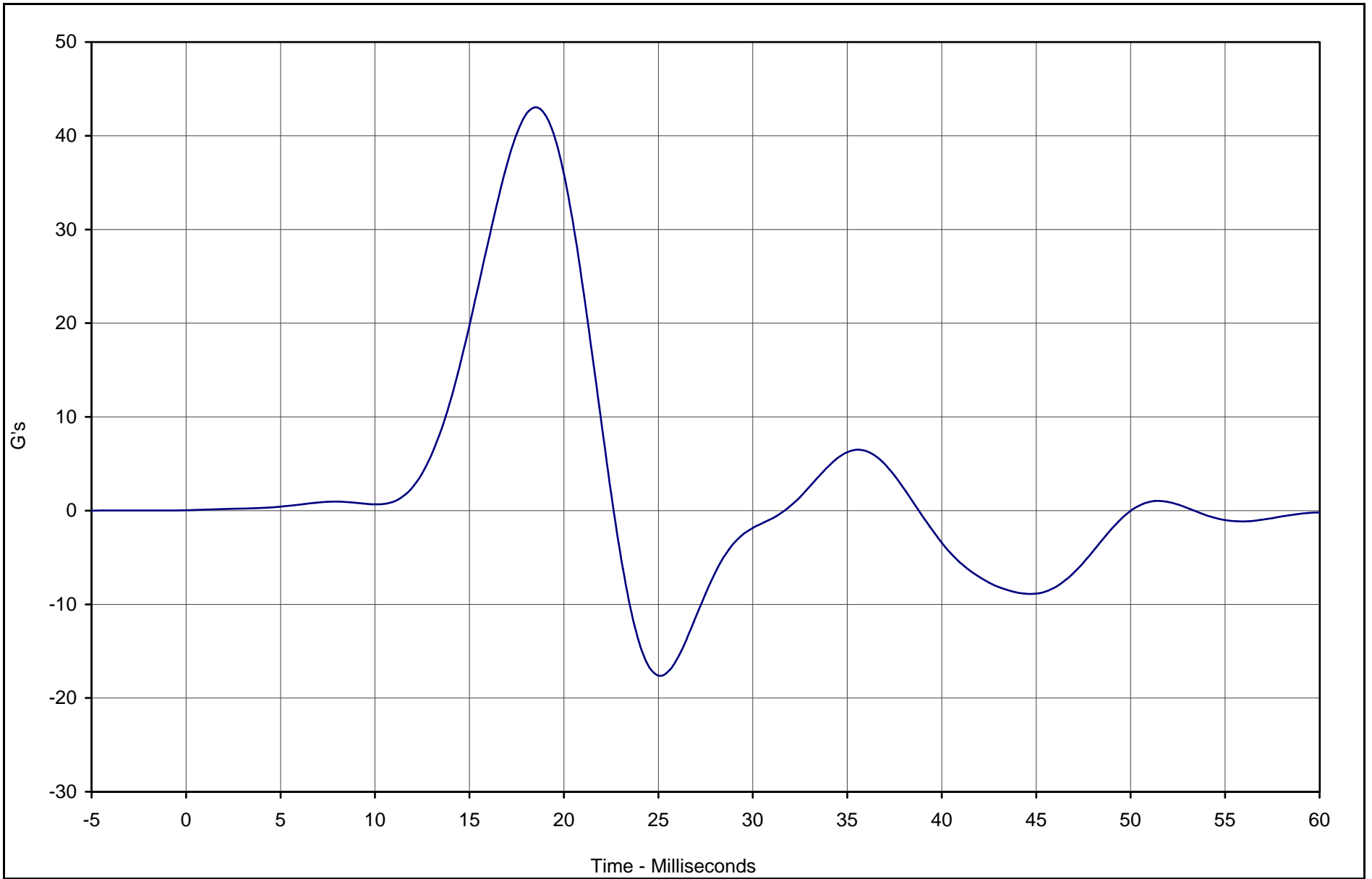
C-26

TR-P22003-06-NC

Laboratory Technician

March 21, 2003

Test Date



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Upper Rib Y Acceleration	001	FIL	G's	42.9	18.8	-17.6	25.0	FIR100

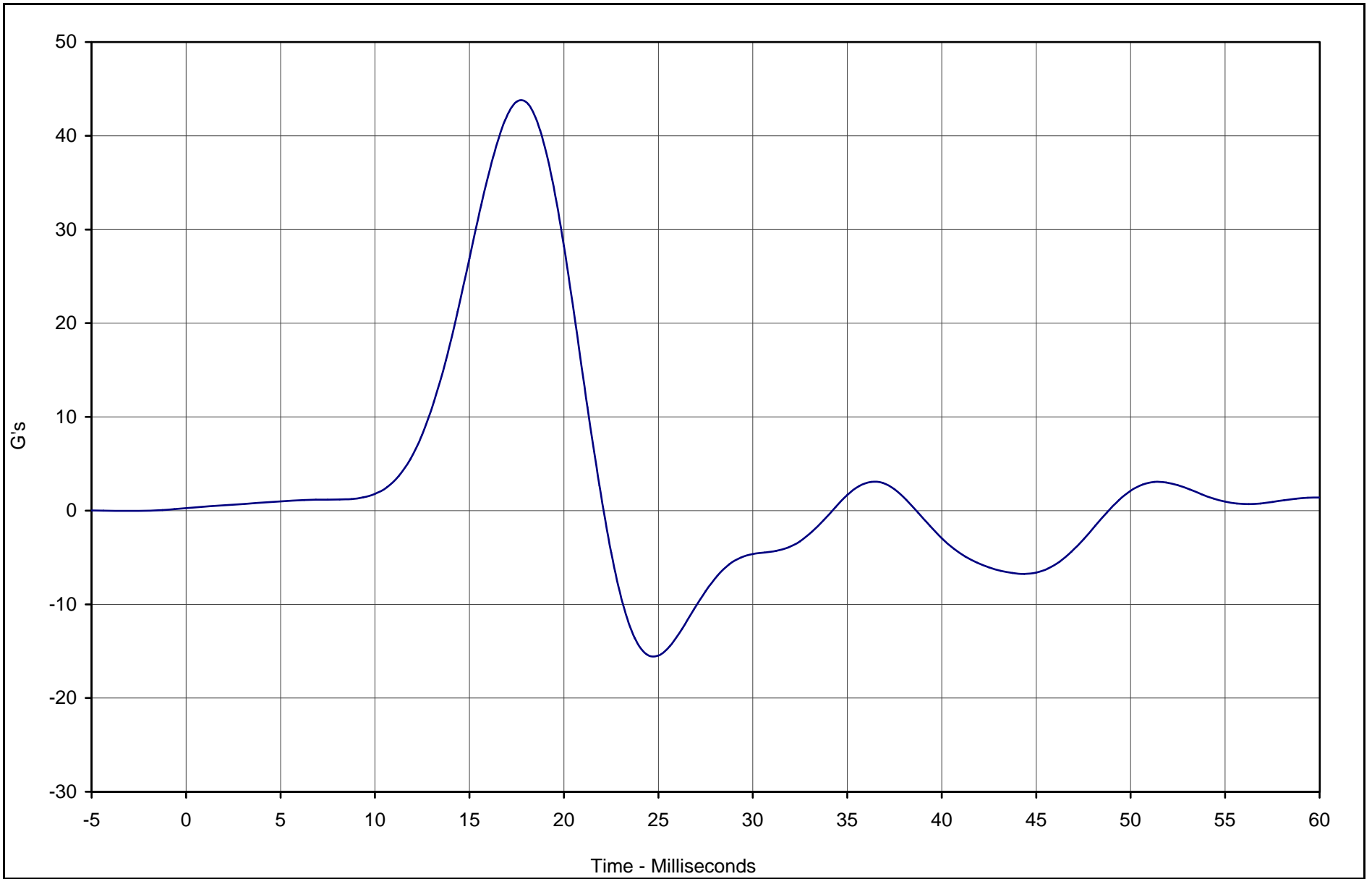


Test Vehicle: SID / HIII Thorax Lateral Impact

SID Serial No.: 274

Test Date: 3/21/03

Test I.D.: TI11D



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Lower Rib Y Acceleration	002	FIL	G's	43.6	17.5	-15.5	25.0	FIR100

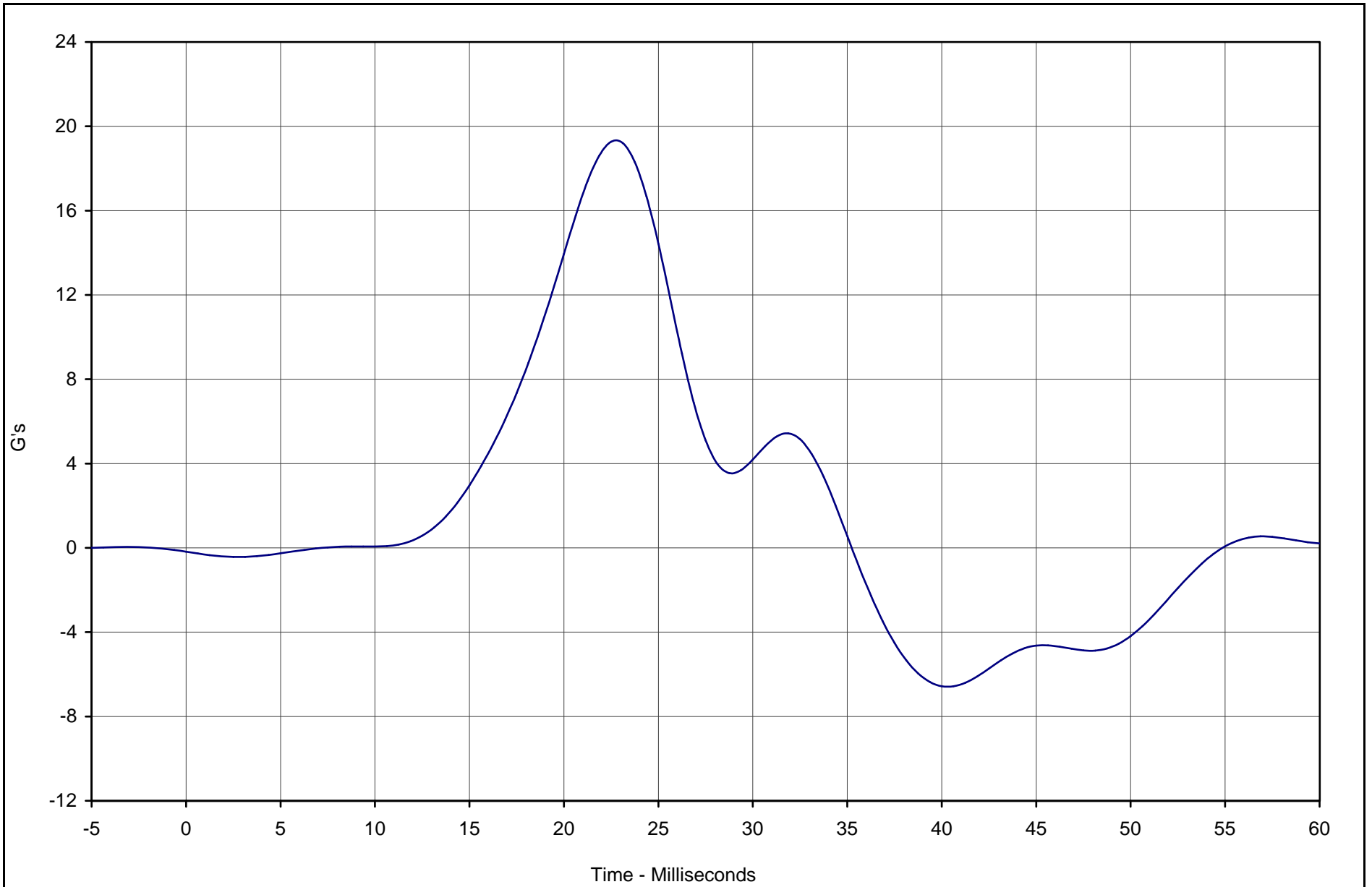


Test Vehicle: SID / HIII Thorax Lateral Impact

SID Serial No.: 274

Test Date: 3/21/03

Test I.D.: TI11D



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Lower Spine Y Acceleration	003	FIL	G's	19.3	22.5	-6.6	40.6	FIR100



Test Vehicle: SID / HIII Thorax Lateral Impact

SID Serial No.: 274

Test Date: 3/21/03

Test I.D.: TI11D



Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) Pelvis Lateral Impact

ATD Serial No.: 274

Test I.D.: PI03E

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.24	Pass
Peak Pelvis Acceleration	G's	40.0 to 60.0	44.2	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0	6.9	Pass
Overall Test Results				Pass

C-30

TR-P23003-06-NC

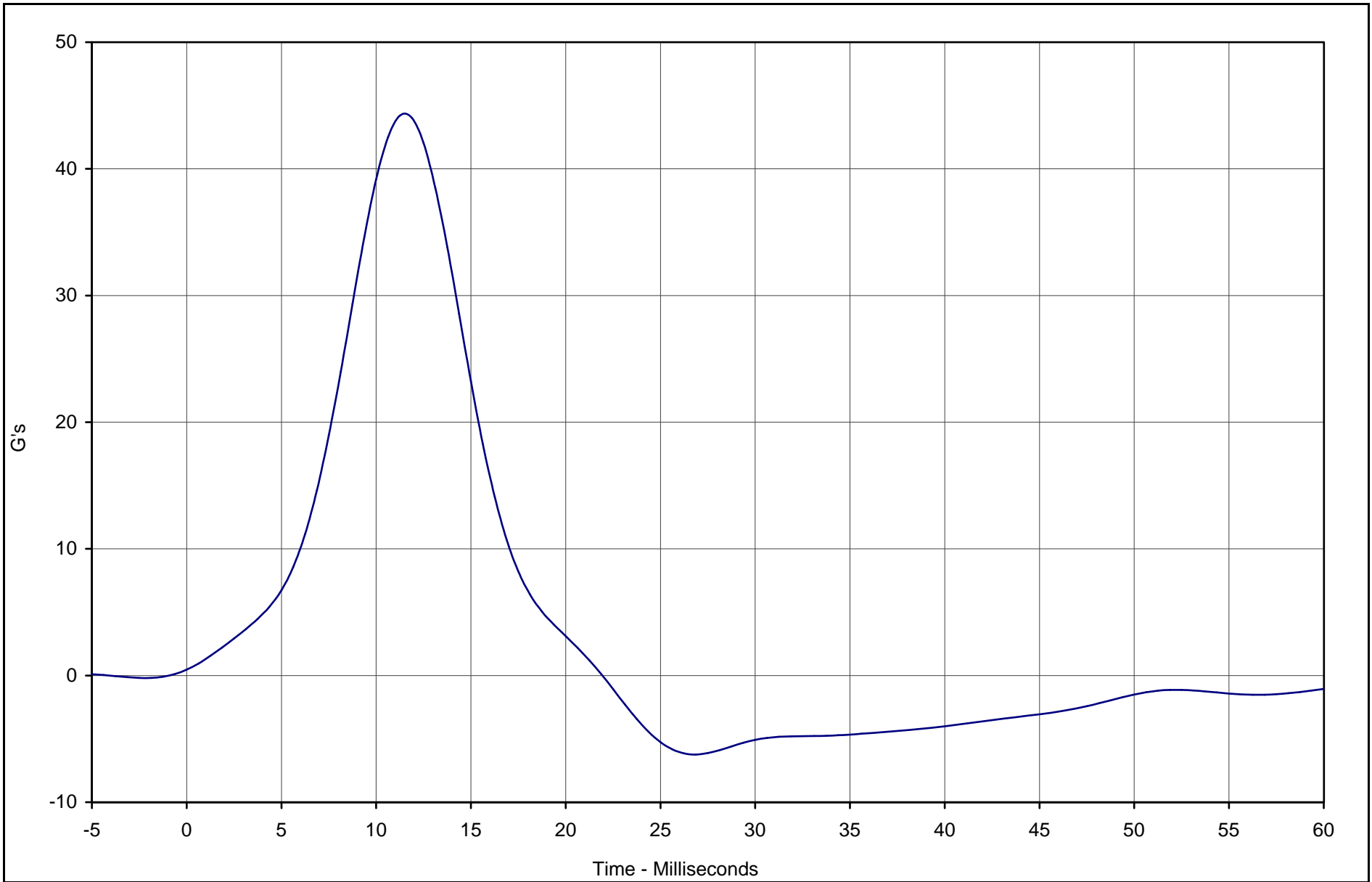
Laboratory Technician

March 21, 2003

Test Date

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TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pelvis Y Acceleration	001	FIL	G's	44.2	11.3	-12.8	0.0	FIR100



Test Vehicle: Side Impact Dummy (SID) Pelvis Lateral Impact

SID Serial No.: 274

Test Date: 3/21/03

Test I.D.: PI03E



Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) Head Drop Lateral Impact Test

ATD Serial No.: 274

Test I.D.: HD04A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	120.0 to 150.0	131.6	Pass
Peak Longitudinal Acceleration	G's	≤15.0	5.0	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<10	2.5	Pass
Overall Test Results				Pass

C-32

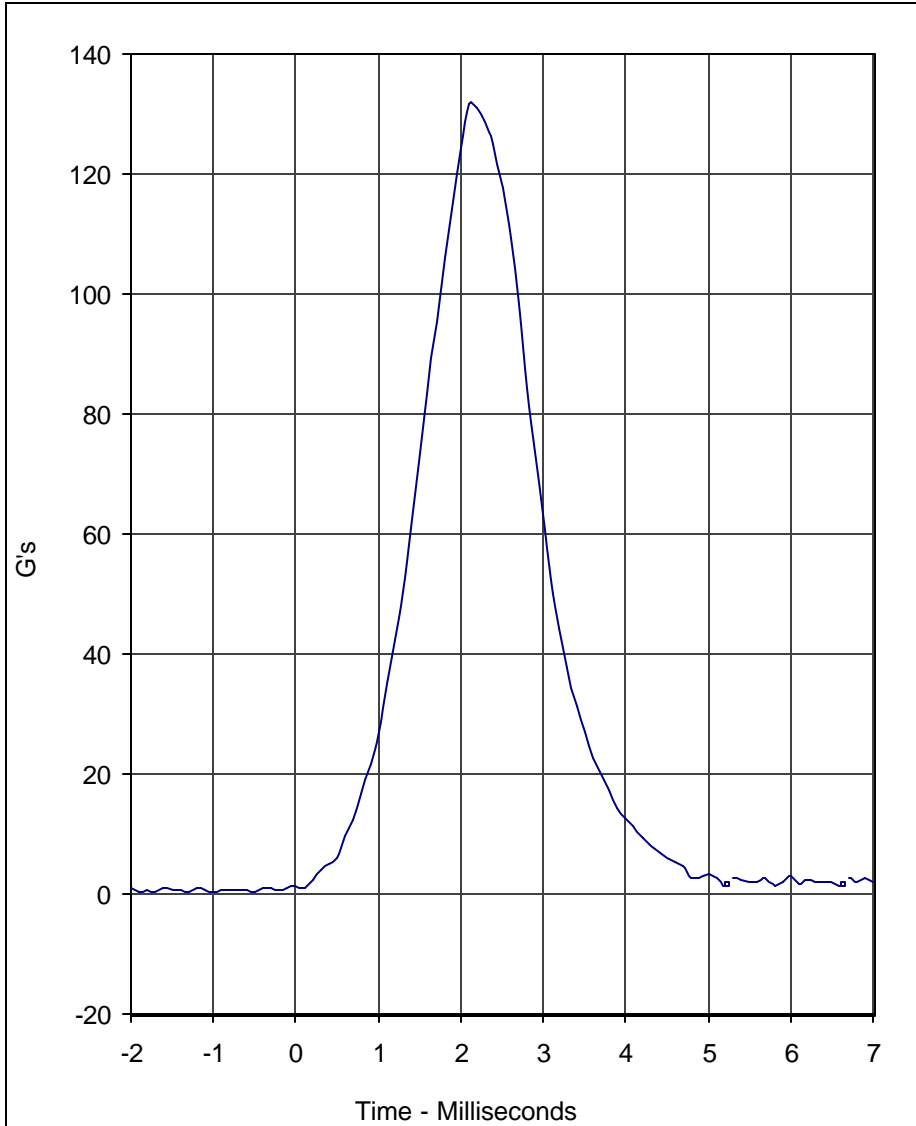
TR-P23003-06-NC

Laboratory Technician

March 21, 2003

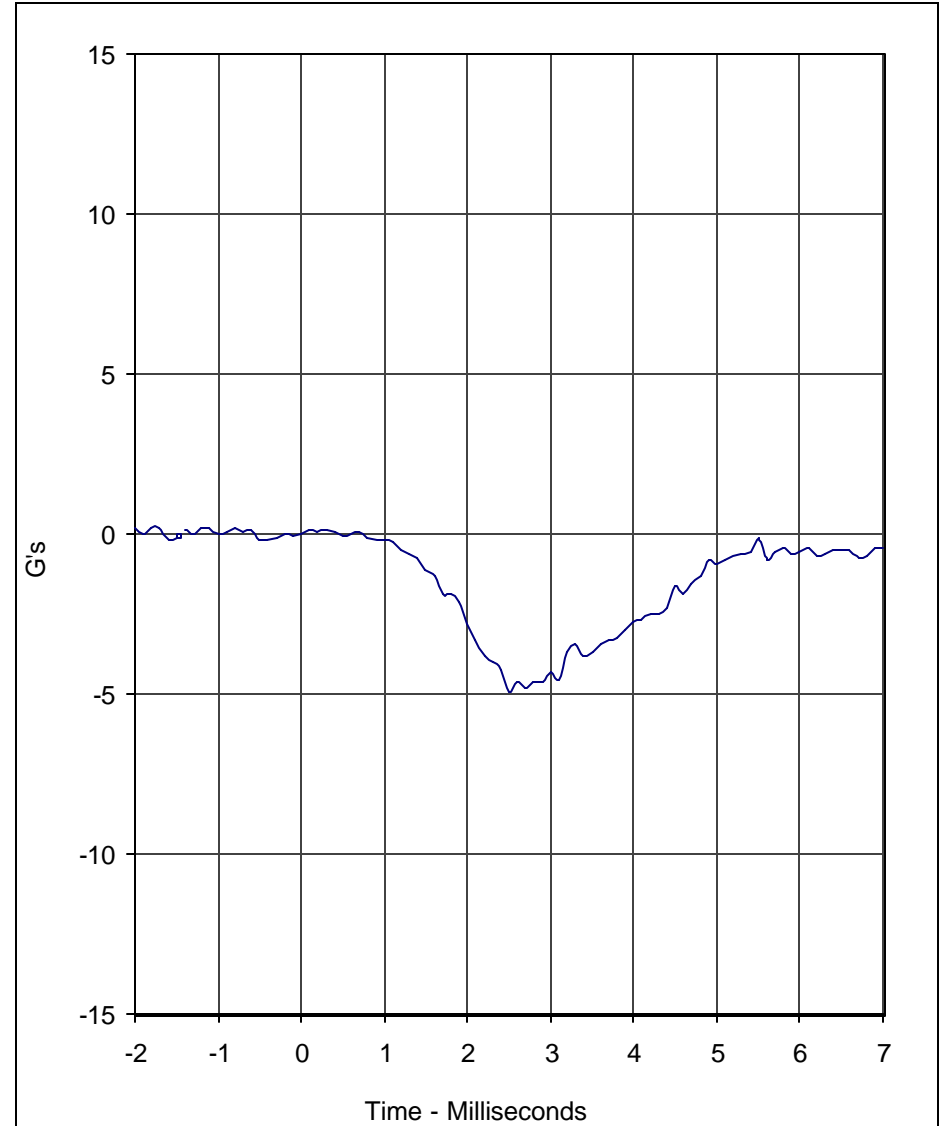
Test Date

C-33



Curve Description		CURNO	Type
Head Resultant		001	RES

Units	Max	Time	Min	Time	SAE Class
G's	131.6	2.1	0.2	-1.3	1000



Curve Description		CURNO	Type
Head X		002	FIL

Units	Max	Time	Min	Time	SAE Class
G's	0.2	-2.0	-5.0	2.5	1000

Test Program: SID / HIII Head Drop Lateral Impact Test
 Test Date: 3/21/03

A.T.D. Serial No.: 274
 Test I.D.: HD04A



TR-P23003-06-NC



Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) Neck Pendulum Lateral Test

ATD Serial No.: 274

Test I.D.: NB05A

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	7.11	Pass
Pendulum Deceleration	10	Msec.	1.96 to 2.55	2.36	Pass
	20	Msec.	4.12 to 5.10	4.81	Pass
	30	Msec.	5.73 to 7.01	6.92	Pass
	40 to 70	Msec.	6.27 to 7.64	7.18	Pass
Maximum "D" Plane Rotation		Degrees	66.0 to 82.0	77.2	Pass
Maximum "D" Plane Rotation Time After Peak Moment		Msec.	2.0 to 15.0	14.8	Pass
"D" Plane Rotation Decay Time From Peak Angle to Zero Angle		Msec.	58.0 to 67.0	63.2	Pass
Calculated Moment About Occipital Condyle		N•m	73.0 to 88.0	83.4	Pass
Moment About Occipital Condyle Decay, Time From Positive Peak Value To 0 N•m		Msec.	49.0 to 64.0	50.4	Pass
Overall Test Results					Pass

Laboratory Technician

March 21, 2003

Test Date

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TR-P23003-06-NC



Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) External Measurements

ATD Serial No.: 275

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
SH- Seated Height	mm	889 to 909	895	Pass
HP- Hip Point Height	mm	99 (reference)	99	Pass
RH- Rib Height	mm	502 to 520	515	Pass
KH- Knee Pivot From Back Line	mm	511 to 526	515	Pass
KV- Knee Pivot From Floor	mm	490 to 505	490	Pass
HW- Hip Width	mm	356 to 391	360	Pass
Overall Test Results				Pass

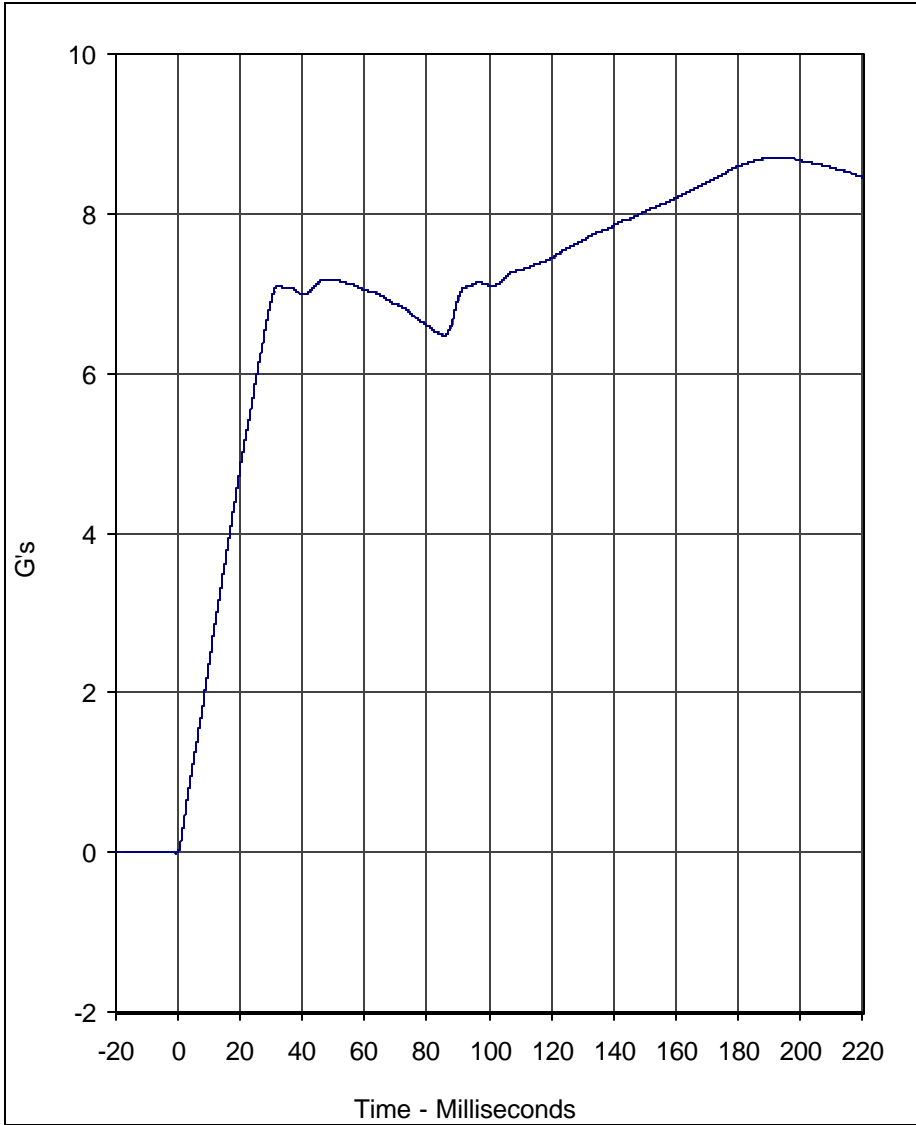
C-35

TR-P23003-06-NC

Laboratory Technician

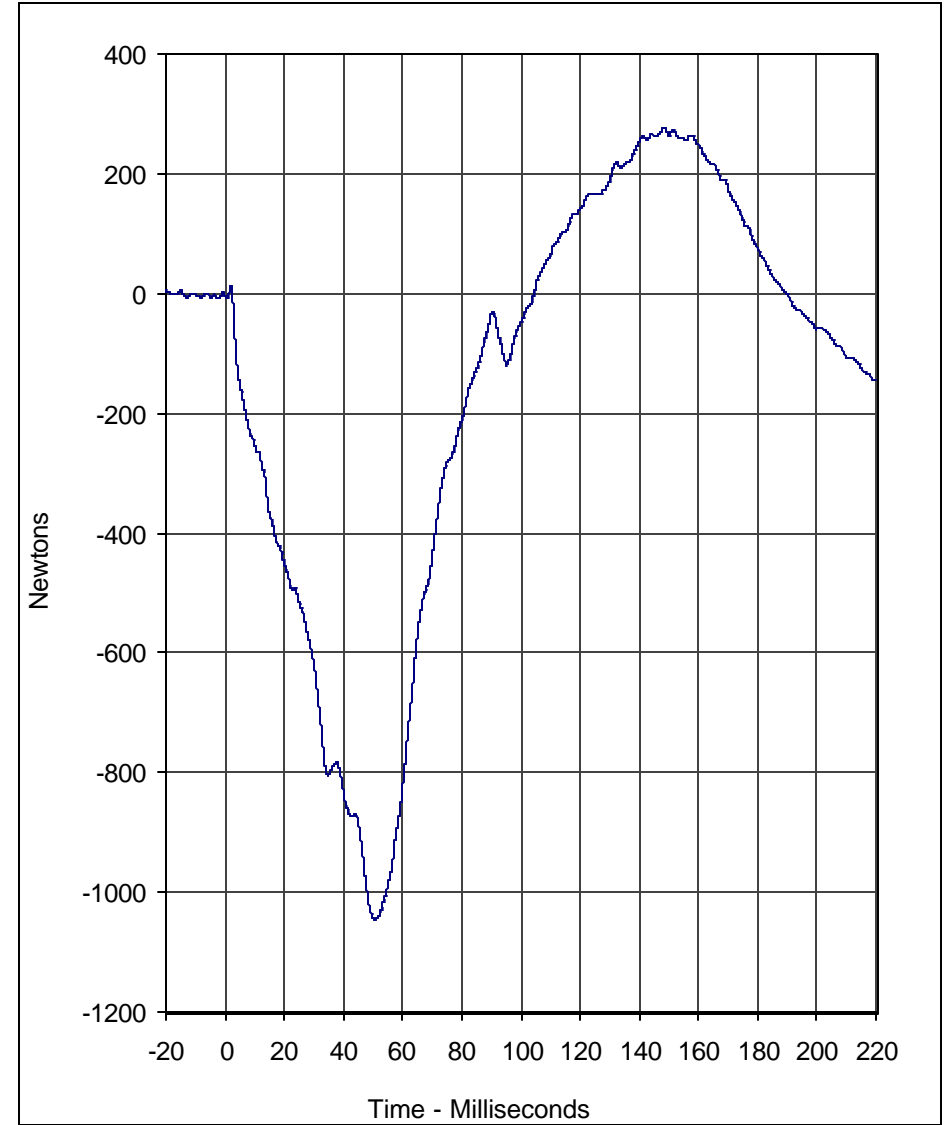
March 22, 2003

Test Date



Curve Description	CURNO	Type
Pendulum Velocity	001	FIL

Units	Max	Time	Min	Time	SAE Class
G's	8.7	194.3	0.0	-0.8	180



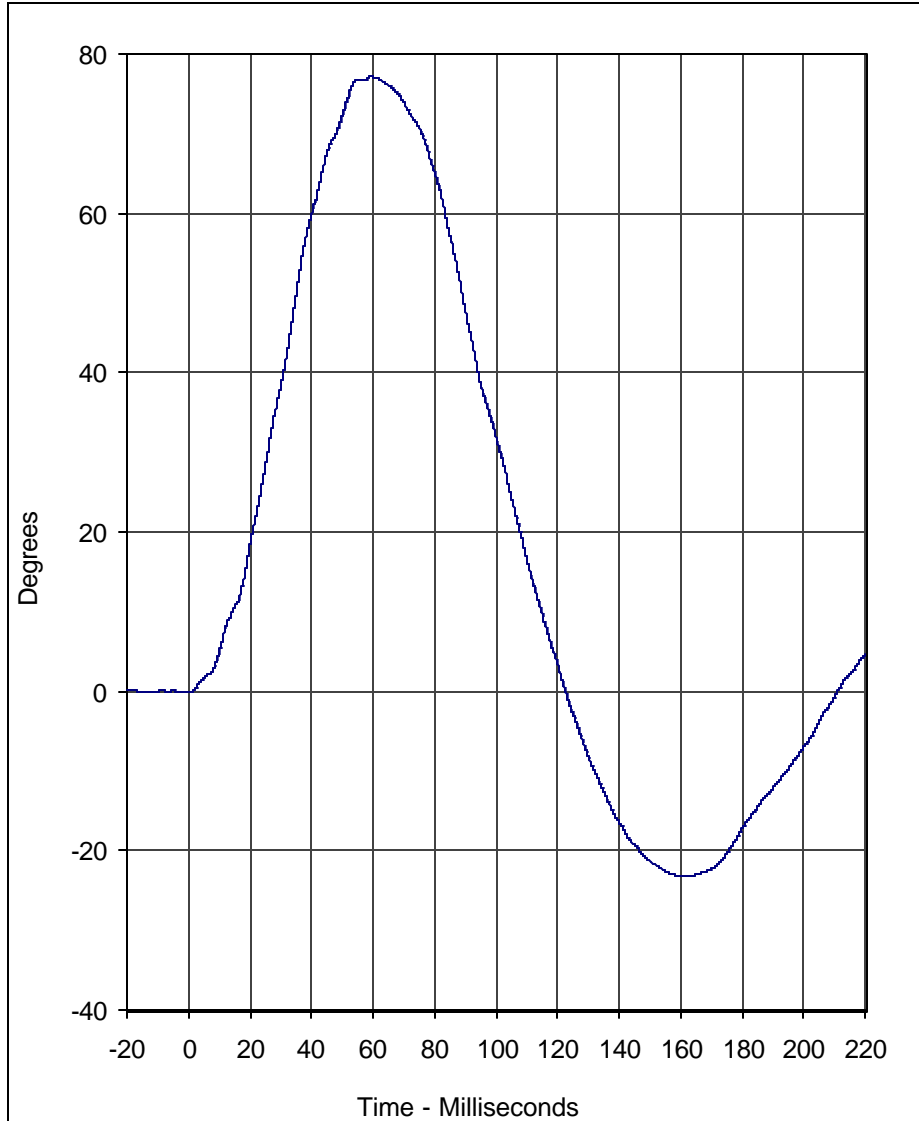
Curve Description	CURNO	Type
Neck Force Y	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	276.6	148.3	-1046.5	50.6	180

Test Program: SID / HIII Neck Pendulum Lateral Test
 Test Date: 3/21/03

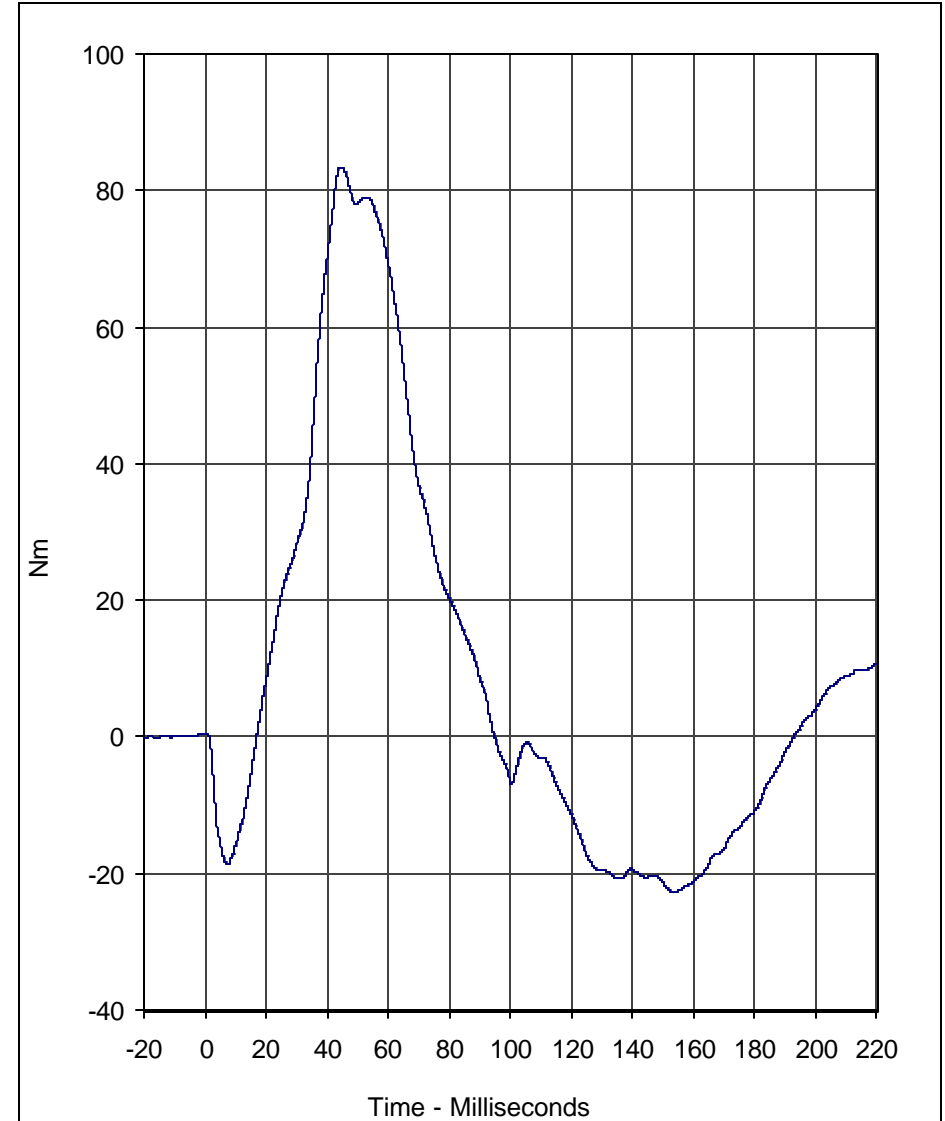
A.T.D. Serial No.: 274
 Test I.D.: NB05A





Curve Description	CURNO	Type
"D" Plane Rotation	003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	77.2	59.4	-23.2	160.0	180



Curve Description	CURNO	Type
Moment About Occipital Condyle	004	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	83.4	44.6	-22.7	153.6	180

Test Program: SID / HIII Neck Pendulum Lateral Test
 Test Date: 3/21/03

A.T.D. Serial No.: 274
 Test I.D.: NB05A





Calibration Data Sheet

Side Impact Hybrid Dummy (SID/HIII)

Thorax Lateral Impact

ATD Serial No.: 275

Test I.D.: TI04A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.24	Pass
Upper Rib Acceleration	G's	37.0 to 46.0	43.7	Pass
Lower Rib Acceleration	G's	37.0 to 46.0	44.5	Pass
Thoracic Spine Acceleration	G's	15.0 to 22.0	18.7	Pass
Overall Test Results				Pass

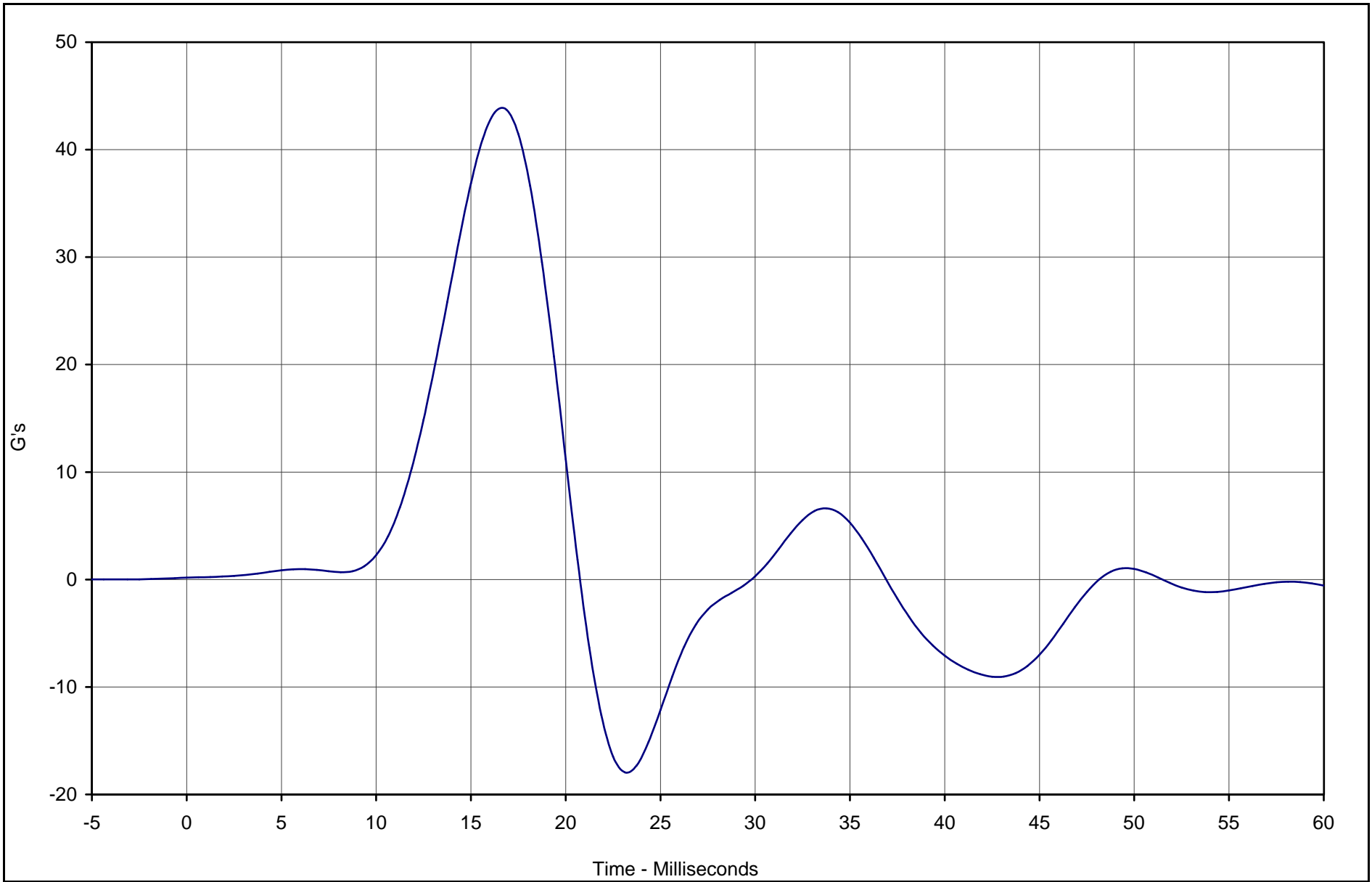
C-38

TR-P22003-06-NC

Laboratory Technician

March 21, 2003

Test Date



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Upper Rib Y Acceleration	001	FIL	G's	43.7	16.9	-17.9	23.1	FIR100



Test Vehicle: SID / HIII Thorax Lateral Impact

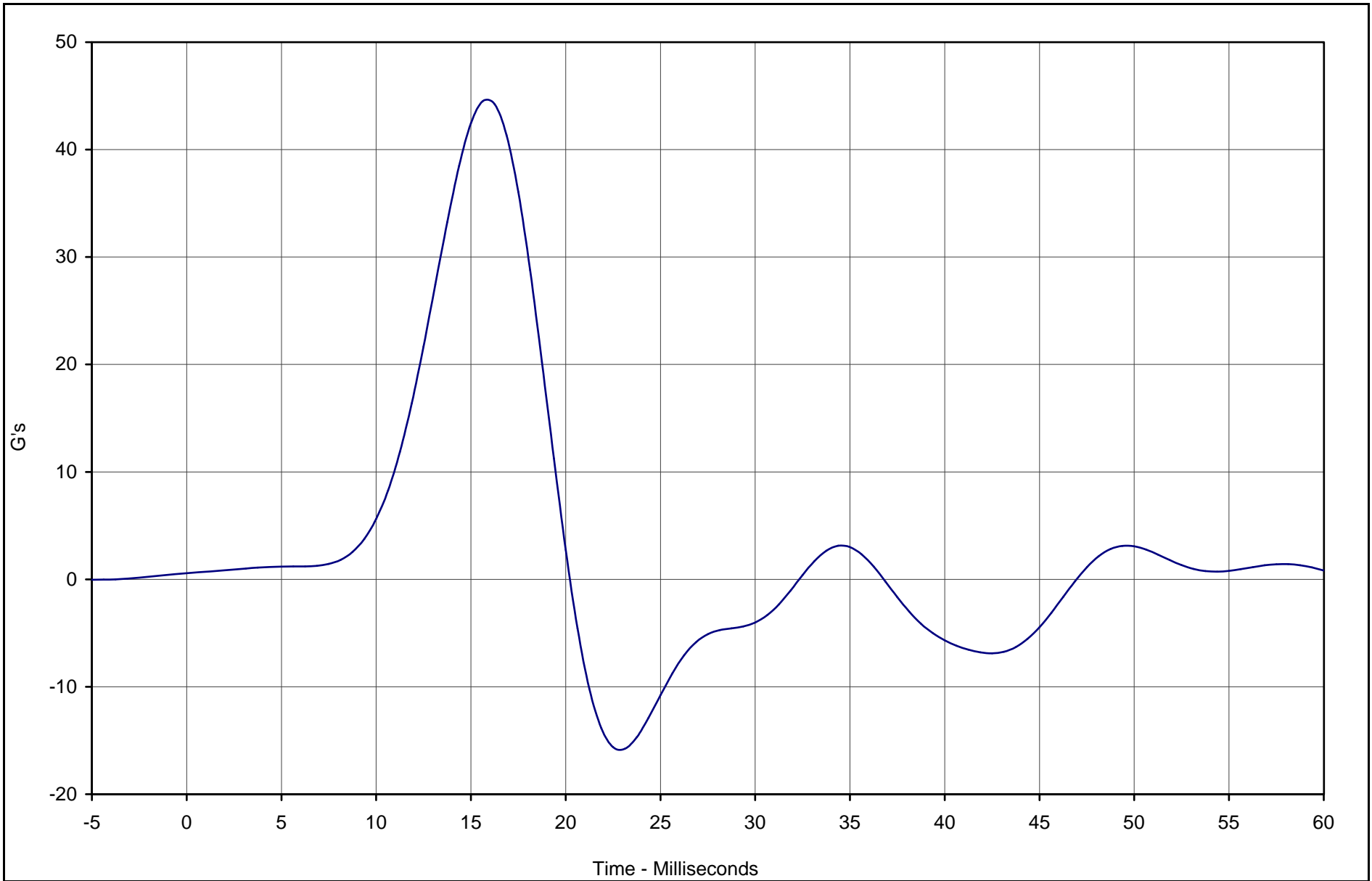
SID Serial No.: 275

Test Date: 3/21/03

Test I.D.: TI04A

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TR-P22003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Lower Rib Y Acceleration	002	FIL	G's	44.5	15.6	-15.8	23.1	FIR100



Test Vehicle: SID / HIII Thorax Lateral Impact

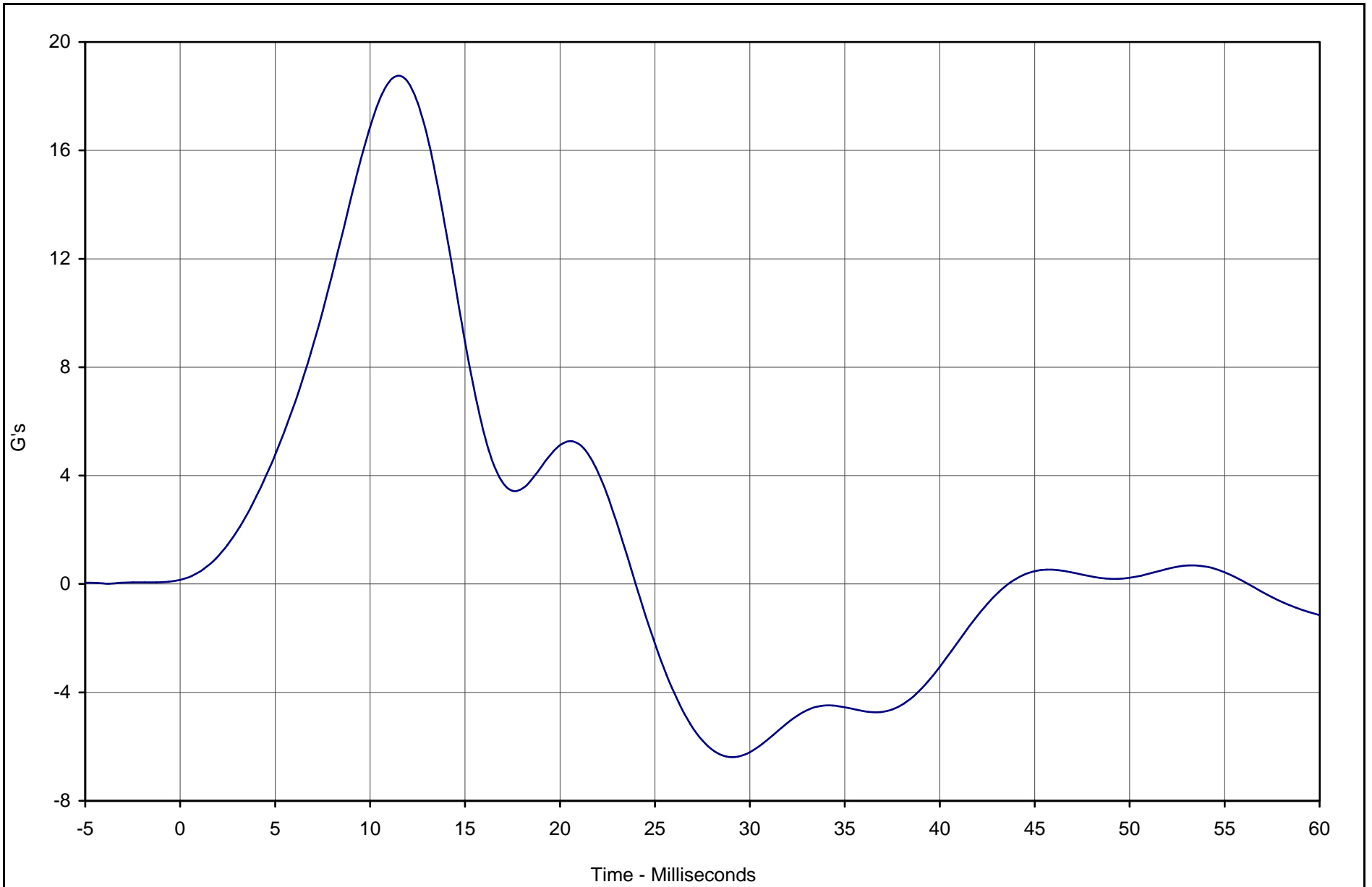
SID Serial No.: 275

Test Date: 3/21/03

Test I.D.: TI04A

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TR-P22003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Lower Spine Y Acceleration	003	FIL	G's	18.7	11.3	-6.4	29.4	FIR100



Test Vehicle: SID / HIII Thorax Lateral Impact

SID Serial No.: 275

Test Date: 3/21/03

Test I.D.: TI04A



Calibration Data Sheet

Side Impact Hybrid Dummy (SID/HIII)

Pelvis Lateral Impact

ATD Serial No.: 275

Test I.D.: PI03F

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Probe Velocity	m/s	4.21 to 4.33	4.28	Pass
Peak Pelvis Acceleration	G's	40.0 to 60.0	44.0	Pass
Acceleration Time Above 20 G's	Msec.	3.0 to 7.0	6.9	Pass
Overall Test Results				Pass

C-42

TR-P23003-06-NC

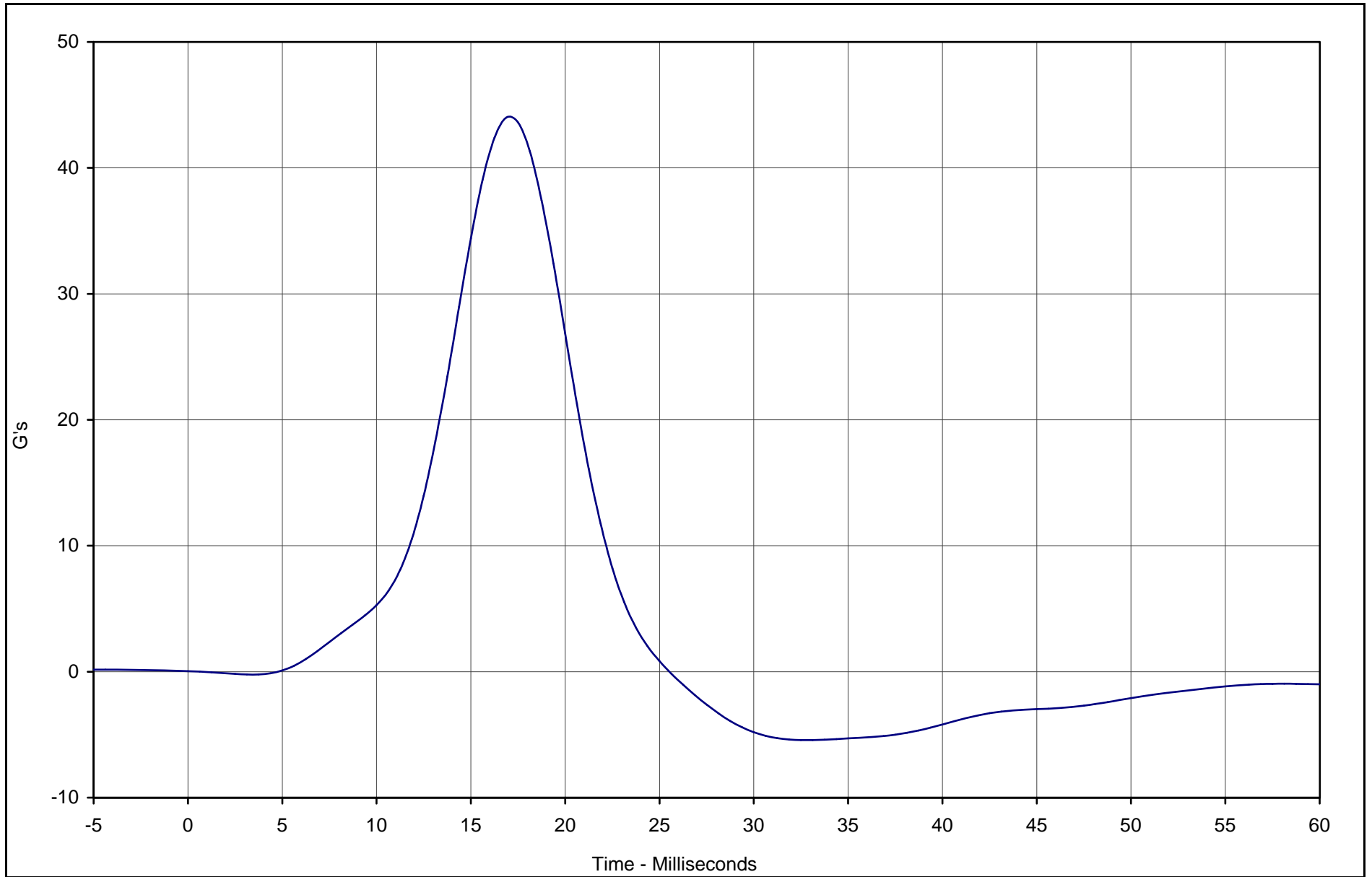
Laboratory Technician

March 21, 2003

Test Date

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TR-P23003-06-NC



Curve Description	CURNO	Type	Units	Max	Time	Min	Time	SAE Class
Pelvis Y Acceleration	001	FIL	G's	44.0	16.9	-8.3	0.0	FIR100



Test Vehicle: Side Impact Dummy (SID) Pelvis Lateral Impact

SID Serial No.: 275

Test Date: 3/21/03

Test I.D.: PI03F



Calibration Data Sheet Side Impact Hybrid Dummy (SID/HIII) Head Drop Lateral Impact Test

ATD Serial No.: 275

Test I.D.: HD05A

Tested Parameter	Units	Specification	Result	Pass/Fail
Laboratory Temperature	°C	18.9 to 25.6	21.1	Pass
Laboratory Relative Humidity	%	10 to 70	30	Pass
Peak Resultant Acceleration	G's	120.0 to 150.0	123.6	Pass
Peak Longitudinal Acceleration	G's	≤15.0	3.5	Pass
Is Acceleration Unimodal?	Yes/No	Yes	Yes	Pass
Oscillations After Main Pulse	%	<10	3.2	Pass
Overall Test Results				Pass

C-44

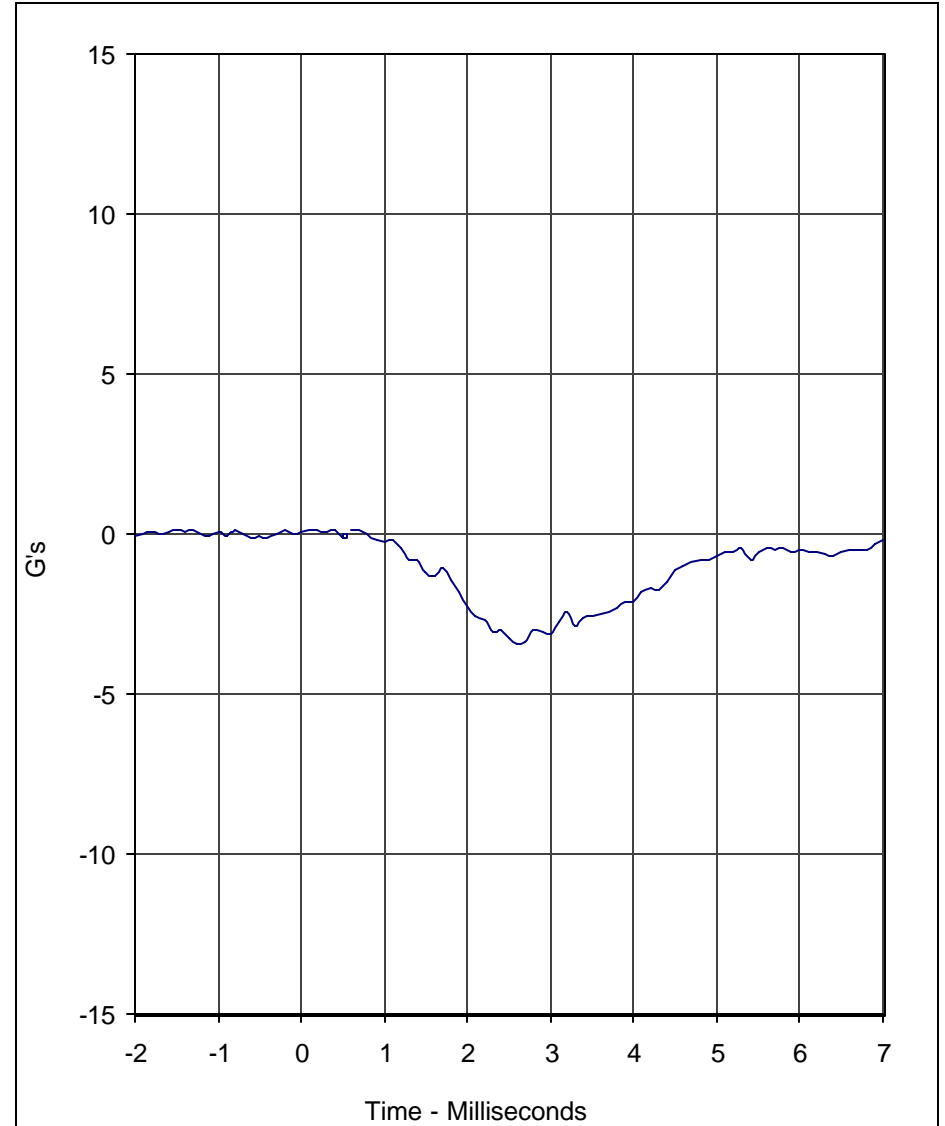
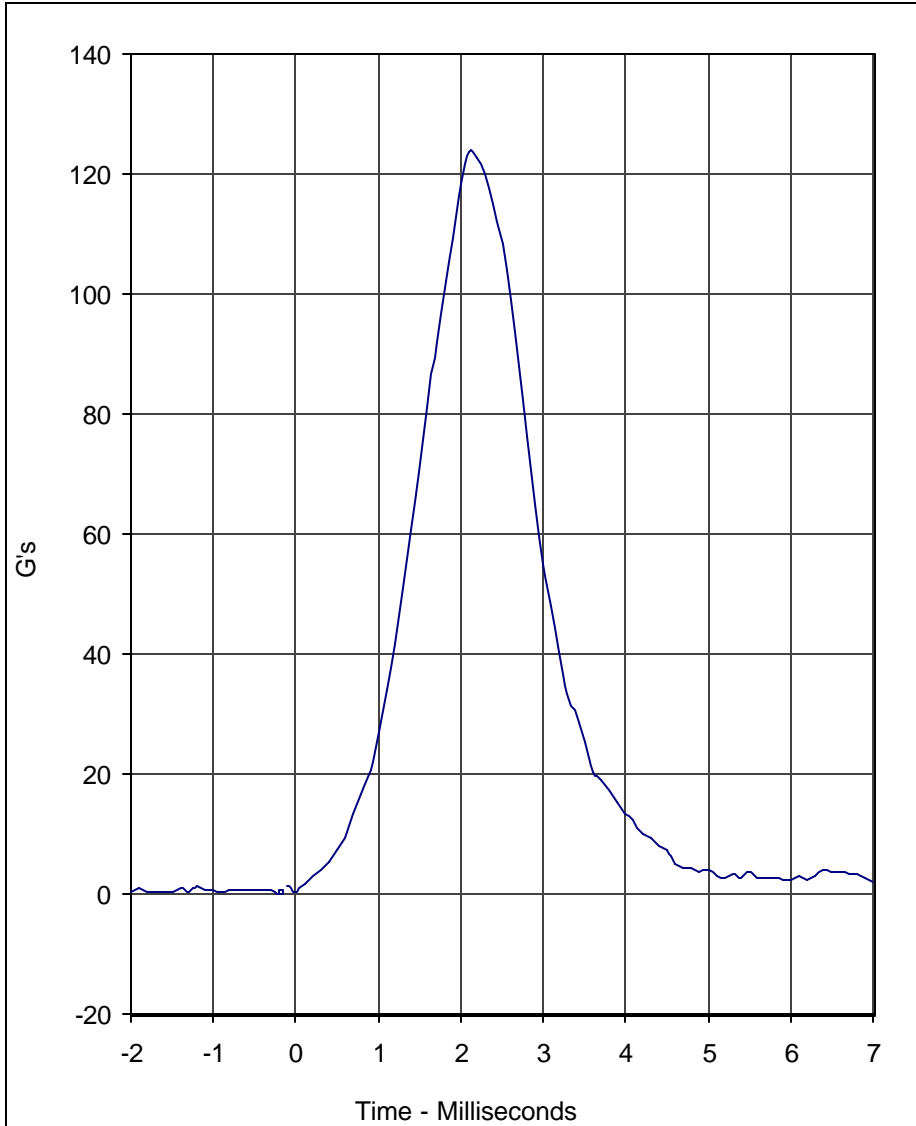
TR-P23003-06-NC

Laboratory Technician

March 21, 2003

Test Date

C45



Curve Description	CURNO	Type
Head Resultant	001	RES

Curve Description	CURNO	Type
Head X	002	FIL

Units	Max	Time	Min	Time	SAE Class
G's	123.6	2.1	0.0	-0.2	1000

Units	Max	Time	Min	Time	SAE Class
G's	0.1	-1.5	-3.5	2.6	1000

Test Program: SID / HIII Head Drop Lateral Impact Test
 Test Date: 3/21/03

A.T.D. Serial No.: 275
 Test I.D.: HD05A



TR-P23003-06-NC



Calibration Data Sheet

Side Impact Hybrid Dummy (SID/HIII)

Neck Pendulum Lateral Test

ATD Serial No.: 275

Test I.D.: NB06A

Tested Parameter		Units	Specification	Result	Pass/Fail
Laboratory Temperature		°C	20.6 to 22.2	21.1	Pass
Laboratory Relative Humidity		%	10 to 70	30	Pass
Pendulum Velocity		m/s	6.89 to 7.13	6.98	Pass
Pendulum Deceleration	10	Msec.	1.96 to 2.55	2.30	Pass
	20	Msec.	4.12 to 5.10	4.73	Pass
	30	Msec.	5.73 to 7.01	6.75	Pass
	40 to 70	Msec.	6.27 to 7.64	6.99	Pass
Maximum "D" Plane Rotation		Degrees	66.0 to 82.0	78.3	Pass
Maximum "D" Plane Rotation Time After Peak Moment		Msec.	2.0 to 15.0	15.0	Pass
"D" Plane Rotation Decay Time From Peak Angle to Zero Angle		Msec.	58.0 to 67.0	62.8	Pass
Calculated Moment About Occipital Condyle		N•m	73.0 to 88.0	84.2	Pass
Moment About Occipital Condyle Decay, Time From Positive Peak Value To 0 N•m		Msec.	49.0 to 64.0	51.1	Pass
Overall Test Results					Pass

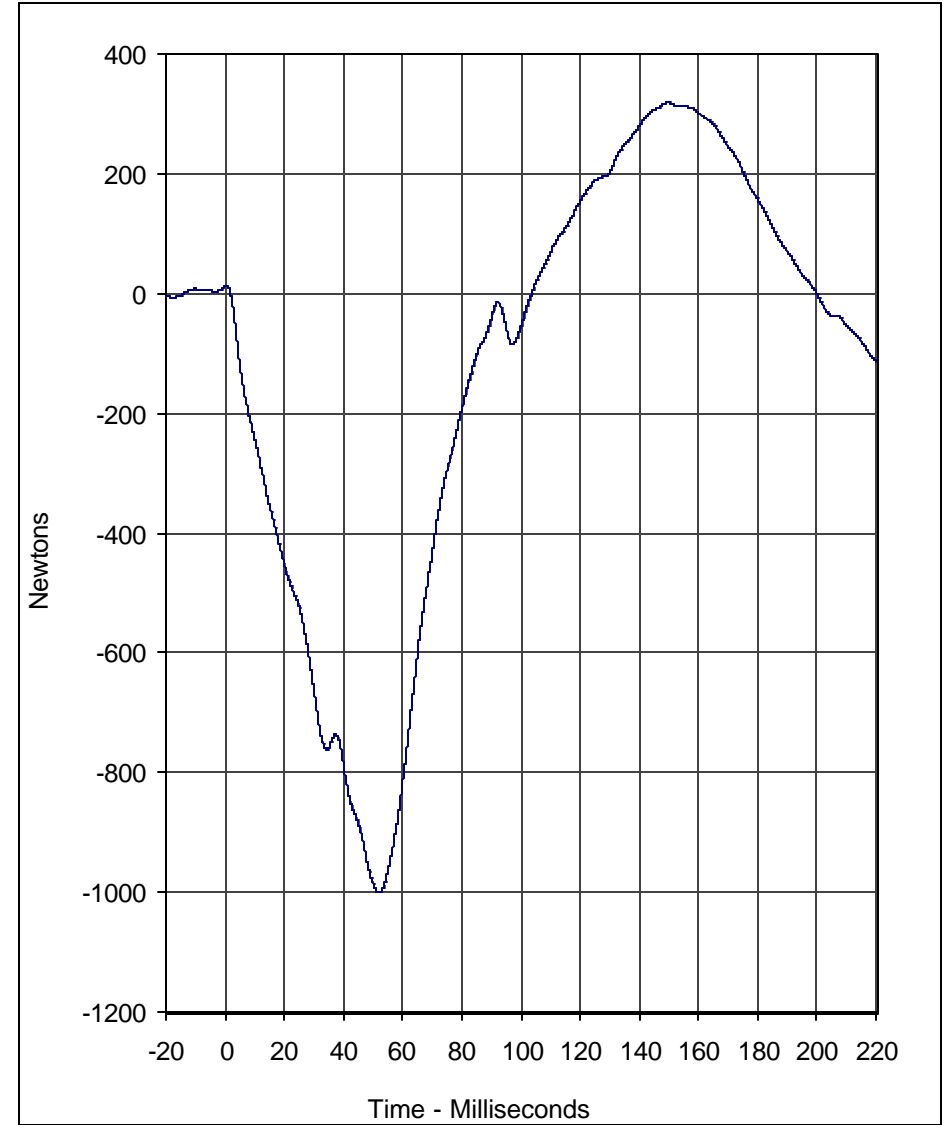
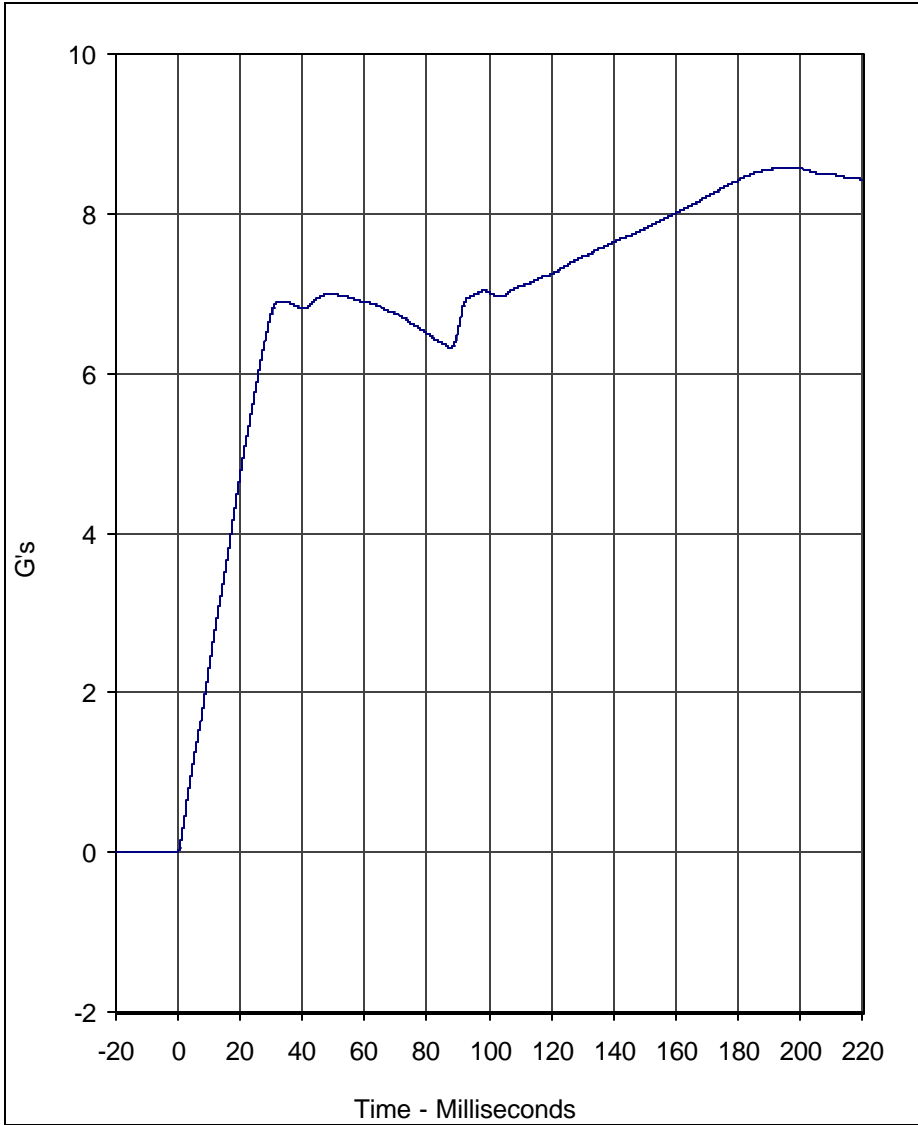
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TR-P23003-06-NC

Laboratory Technician

March 21, 2003

Test Date



Curve Description	CURNO	Type
Pendulum Velocity	001	FIL

Units	Max	Time	Min	Time	SAE Class
G's	8.6	194.8	0.0	-0.7	180

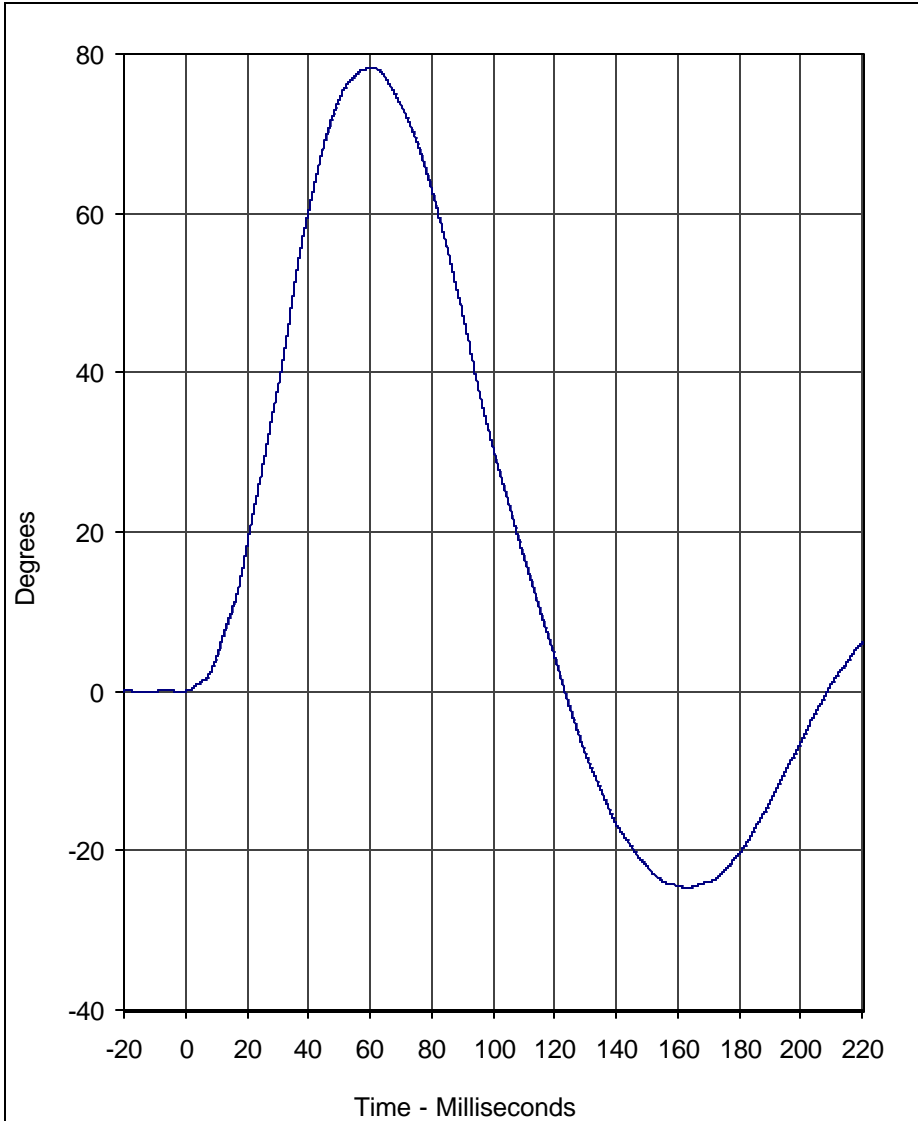
Curve Description	CURNO	Type
Neck Force Y	002	FIL

Units	Max	Time	Min	Time	SAE Class
Newtons	318.4	149.7	-1000.3	52.0	60

Test Program: SID / HIII Neck Pendulum Lateral Test
 Test Date: 3/21/03

A.T.D. Serial No.: 275
 Test I.D.: NB06A

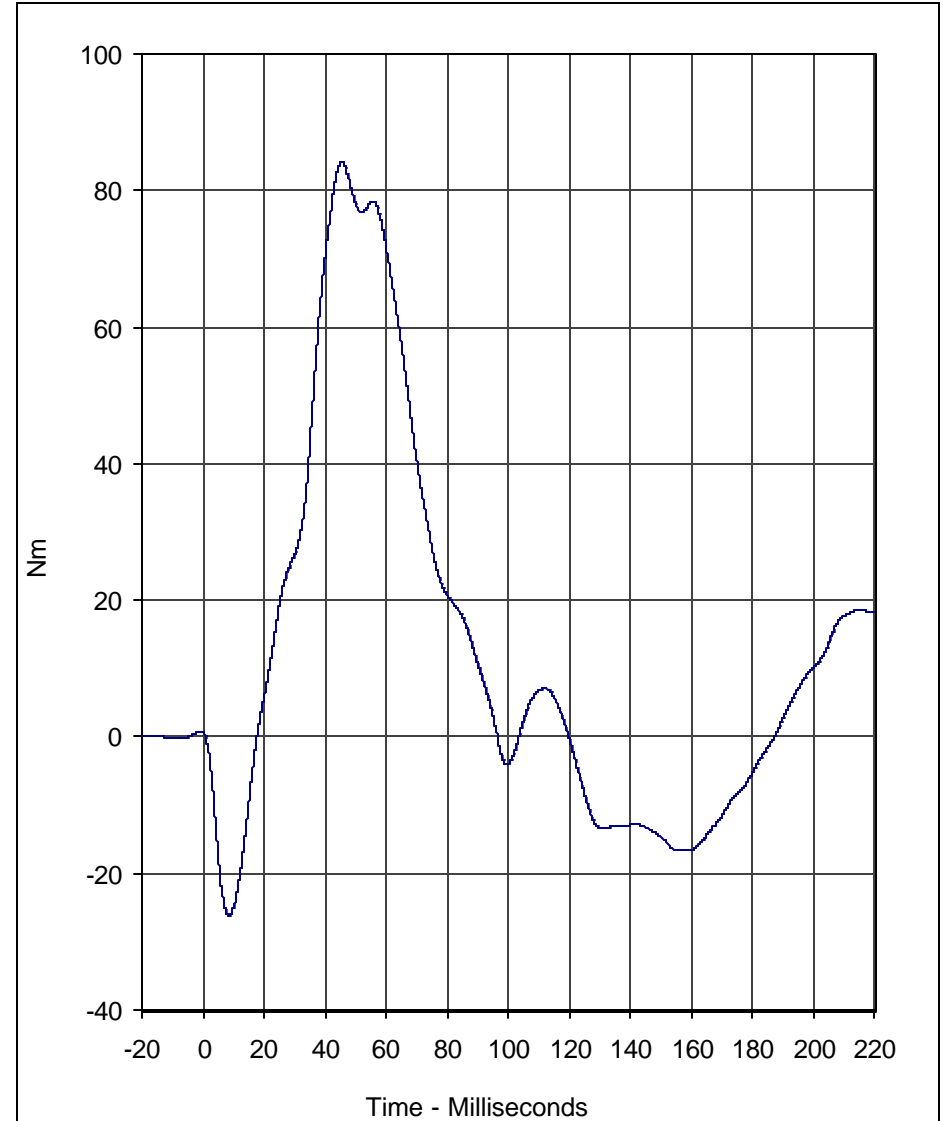




Curve Description	CURNO	Type
"D" Plane Rotation	003	FIL

Units	Max	Time	Min	Time	SAE Class
Degrees	78.3	60.6	-24.7	163.0	60

Test Program: SID / HIII Neck Pendulum Lateral Test
 Test Date: 3/21/03



Curve Description	CURNO	Type
Moment About Occipital Condyle	004	FIL

Units	Max	Time	Min	Time	SAE Class
Nm	84.2	45.5	-26.1	8.5	60

A.T.D. Serial No.: 275
 Test I.D.: NB06A



APPENDIX D
TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

**55/28 km/h Side Impact NCAP
Instrumentation Data Channel Assignments
Driver SID/HIII Serial Number 274
3/20/03
2003 BMW X5 3.0i SUV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
1	Head CG	X	KEAC086	Accel.,1/2 bridge	Endevco	7264-2000X	G
2	Head CG	Y	KEAC087	Accel.,1/2 bridge	Endevco	7264-2000Y	G
3	Head CG	Z	KEAC088	Accel.,1/2 bridge	Endevco	7264-2000Z	G
4	Head CG, Redundant	X	KEAC060	Accel.,1/2 bridge	Endevco	7264-2000	G
5	Head CG, Redundant	Y	KEAC061	Accel.,1/2 bridge	Endevco	7264-2000	G
6	Head CG, Redundant	Z	KEAC062	Accel.,1/2 bridge	Endevco	7264-2000	G
7	Neck Force	X	GPUN01FX	Load cell, six axis neck	R. A. Denton	1716A	N
8	Neck Force	Y	GPUN01FY	Load cell, six axis neck	R. A. Denton	1716A	N
9	Neck Force	Z	GPUN01FZ	Load cell, six axis neck	R. A. Denton	1716A	N
10	Neck Moment	X	GPUN01MX	Load cell, six axis neck	R. A. Denton	1716A	Nm
11	Neck Moment	Y	GPUN01MY	Load cell, six axis neck	R. A. Denton	1716A	Nm
12	Neck Moment	Z	GPUN01MZ	Load cell, six axis neck	R. A. Denton	1716A	Nm
13	Upper Rib Primary	Y	KEAC070	Accel.,1/2 bridge	Endevco	7264-2000X	G
14	Lower Rib, Primary	Y	KEAC071	Accel.,1/2 bridge	Endevco	7264-2000Y	G
15	Lower Spine, Primary	Y	KEAC072	Accel.,1/2 bridge	Endevco	7264-2000Z	G
16	Pelvis, Primary	Y	KEAC090	Accel.,Full bridge	Endevco	7264-2000X	G
17	Upper Rib Redundant	Y	KEAC076	Accel.,1/2 bridge	Endevco	7264-2000X	G
18	Lower Rib, Redundant	Y	KEAC077	Accel.,1/2 bridge	Endevco	7264-2000Y	G
19	Lower Spine, Redundant	Y	KEAC078	Accel.,1/2 bridge	Endevco	7264-2000Z	G
20	Pelvis, Redundant	Y	KEAC089	Accel.,1/2 bridge	Endevco	7264-2000X	G
21	Thorax Contact	N/A	T0	Contact Switch	Tapeswitch	8 oz. Yellow	%
22	Pelvis Contact	N/A	T0	Contact Switch	Tapeswitch	8 oz. Yellow	%

**55/28 km/h Side Impact NCAP
Instrumentation Data Channel Assignments
Passenger SID/HIII Serial Number 275
3/20/03
2003 BMW X5 3.0i SUV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
23	Head CG	X	KEAC069	Accel.,1/2 bridge	Endevco	7264-2000X	G
24	Head CG	Y	KEAC080	Accel.,1/2 bridge	Endevco	7264-2000Y	G
25	Head CG	Z	KEAC082	Accel.,1/2 bridge	Endevco	7264-2000Z	G
26	Head CG, Redundant	X	KEAC083	Accel.,1/2 bridge	Endevco	7264-2000X	G
27	Head CG, Redundant	Y	KEAC084	Accel.,1/2 bridge	Endevco	7264-2000Y	G
28	Head CG, Redundant	Z	KEAC085	Accel.,1/2 bridge	Endevco	7264-2000Z	G
29	Neck Force	X	GPUN01FX	Load cell, six axis neck	R. A. Denton	1716A	N
30	Neck Force	Y	GPUN01FY	Load cell, six axis neck	R. A. Denton	1716A	N
31	Neck Force	Z	GPUN01FZ	Load cell, six axis neck	R. A. Denton	1716A	N
32	Neck Moment	X	GPUN01MX	Load cell, six axis neck	R. A. Denton	1716A	Nm
33	Neck Moment	Y	GPUN01MY	Load cell, six axis neck	R. A. Denton	1716A	Nm
34	Neck Moment	Z	GPUN01MZ	Load cell, six axis neck	R. A. Denton	1716A	Nm
35	Upper Rib Primary	Y	KEAC066	Accel.,1/2 bridge	Endevco	7264-2000X	G
36	Lower Rib, Primary	Y	KEAC067	Accel.,1/2 bridge	Endevco	7264-2000Y	G
37	Lower Spine, Primary	Y	KEAC068	Accel.,1/2 bridge	Endevco	7264-2000Z	G
38	Pelvis, Primary	Y	KEAC079	Accel.,1/2 bridge	Endevco	7264-2000X	G
39	Upper Rib Redundant	Y	KEAC073	Accel.,1/2 bridge	Endevco	7264-2000X	G
40	Lower Rib, Redundant	Y	KEAC074	Accel.,1/2 bridge	Endevco	7264-2000Y	G
41	Lower Spine, Redundant	Y	KEAC075	Accel.,1/2 bridge	Endevco	7264-2000Z	G
42	Pelvis, Redundant	Y	KEAC081	Accel.,1/2 bridge	Endevco	7264-2000X	G
43	Thorax Contact	Y	T0	Contact Switch	Tapeswitch	8 oz. Yellow	%
44	Pelvis Contact	Y	T0	Contact Switch	Tapeswitch	8 oz. Yellow	%

**55/28 km/h Side Impact NCAP
Instrumentation Data Channel Assignments
Vehicle Accelerometers
3/20/03
2003 BMW X5 3.0i SUV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
45	Right at Sill Front Seat	X	KETX2A	Accel., Triax	I.C. Sensor	3031-200	G
46	Right at Sill Front Seat	Y	KETX2B	Accel., Triax	I.C. Sensor	3031-200	G
47	Right at Sill Front Seat	Z	KETX2C	Accel., Triax	I.C. Sensor	3031-200	G
48	Right at Sill Rear Seat	X	KETX3A	Accel., Triax	I.C. Sensor	3031-500	G
49	Right at Sill Rear Seat	Y	KETX3B	Accel., Triax	I.C. Sensor	3031-500	G
50	Right at Sill Rear Seat	Z	KETX3C	Accel., Triax	I.C. Sensor	3031-500	G
51	Rear Floorpan Above Axle	X	KETX4A	Accel., Triax	I.C. Sensor	3031-500	G
52	Rear Floorpan Above Axle	Y	KETX4B	Accel., Triax	I.C. Sensor	3031-500	G
53	Rear Floorpan Above Axle	Z	KETX4C	Accel., Triax	I.C. Sensor	3031-500	G
54	Left Sill at Rear Door	Y	KEVA012	Accel., Vehicle block	I.C. Sensor	3031-500	G
55	Left Sill at Front Door	Y	KEVA001	Accel., Vehicle block	I.C. Sensor	3031-500	G
56	Left Front Door Centerline	Y	ICST004X	Accel., Triax	I.C. Sensor	3031-500	G
57	Rear Occupant Compartment	Y	KEVA006	Accel., Vehicle block	I.C. Sensor	3031-200	G
58	Left Front Door Mid-Rear	Y	ICST004Y	Accel., Triax	I.C. Sensor	3031-500	G
59	Left Front Door Upper Centerline	Y	ICST004Z	Accel., Triax	I.C. Sensor	3031-500	G
60	Rear Door Mid-Rear	Y	ICST005X	Accel., Triax	I.C. Sensor	3031-500	G
61	Rear Door Upper Centerline	Y	ICST005Y	Accel., Triax	I.C. Sensor	3031-500	G
62	B-Post Lower	Y	KEBX2A	Accel., Biax	I.C. Sensor	3031-500	G
63	B-Post Middle	Y	KEBX2B	Accel., Biax	I.C. Sensor	3031-500	G
64	A-Post Lower	Y	KEBX1A	Accel., Biax	I.C. Sensor	3031-200	G
65	A-Post Middle	Y	KEBX1B	Accel., Biax	I.C. Sensor	3031-500	G
66	Front Seat Track	Y	KEIC008Y	Single	I.C. Sensor	3031-500	G
67	Rear Seat Structure	Y	N/A	N/A	N/A	N/A	N/A
68	Vehicle CG	X	KETX2A	Accel., Triax	I.C. Sensor	3031-200	G
69	Vehicle CG	Y	KETX2B	Accel., Triax	I.C. Sensor	3031-200	G
70	Vehicle CG	Z	KETX2C	Accel., Triax	I.C. Sensor	3031-200	G

**55/28 km/h Side Impact NCAP
Instrumentation Data Channel Assignments
Moving Deformable Barrier
3/20/03
2003 BMW X5 3.0i SUV**

CH.	LOCATION	AXIS	IDENT. NO.	DESCRIPTION	MFR	MODEL	UNITS
71	MDB CG	X	ICST001X	Accel., Triax	I.C. Sensor	3031-500	G
72	MDB CG	Y	ICST001Y	Accel., Triax	I.C. Sensor	3031-500	G
73	MDB CG	Z	ICST001Z	Accel., Triax	I.C. Sensor	3031-500	G
74	MDB Rear Centerline	X	ICST002X	Accel., Triax	I.C. Sensor	3031-50	G
75	MDB Rear Centerline	Y	ICST002Y	Accel., Triax	I.C. Sensor	3031-50	G
76	Right Bumper Contact	N/A	T0	Contact Switch	Tapeswitch	40 oz. Grey	%