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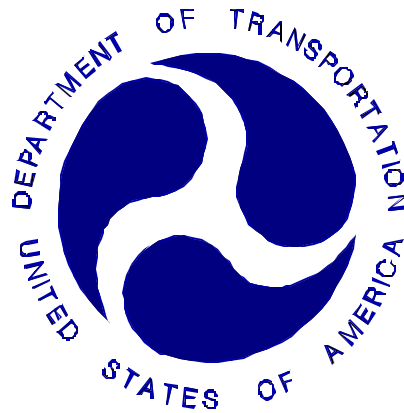
**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

KIA MOTORS CORPORATION
2004.5 KIA SPECTRA
4-DOOR SEDAN

NHTSA NUMBER: M40514

GENERAL DYNAMICS TEST NUMBER: 8725-SNCAP-04

ADVANCED INFORMATION ENGINEERING SERVICES
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May 13, 2004

FINAL REPORT

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Rulemaking
Office of Crashworthiness Standards
Mail Code: NVS-111
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Washington, DC 20590

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-98-D-02001. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

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16. Abstract A 55/28 kph 90⁰ Impact Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2004.5 Kia Spectra 4-Door Sedan in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the generation of consumer information on vehicle side crash protection. This test was conducted at the General Dynamics Advanced Information Engineering Services Crash Test Facility in Buffalo, New York, on May 13, 2004. The impact velocity of the Moving Deformable Barrier (MDB) was 61.96 kph, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21⁰C. The target vehicle post-test maximum crush was 349 mm at level 2. The test or target vehicle's performance is given below: <table border="0"> <thead> <tr> <th></th> <th><u>Front SID H3</u></th> <th></th> <th><u>Rear SID H3</u></th> <th></th> </tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td> <td align="center">43.4</td> <td align="center">g's</td> <td align="center">66.5</td> <td align="center">g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td align="center">50.6</td> <td align="center">g's</td> <td align="center">69.6</td> <td align="center">g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td align="center">77.6</td> <td align="center">g's</td> <td align="center">86.1</td> <td align="center">g's</td> </tr> <tr> <td>Thoracic Trauma Index (TTI):</td> <td align="center">64</td> <td align="center">g's</td> <td align="center">78</td> <td align="center">g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td align="center">95</td> <td align="center">g's</td> <td align="center">109</td> <td align="center">g's</td> </tr> </tbody> </table> The two doors on the struck side of the vehicle did not separate from the body at the hinges or latches and the opposite doors did not open during the side impact event.							<u>Front SID H3</u>		<u>Rear SID H3</u>		Left Upper Rib Acceleration:	43.4	g's	66.5	g's	Left Lower Rib Acceleration:	50.6	g's	69.6	g's	Lower Spine Acceleration:	77.6	g's	86.1	g's	Thoracic Trauma Index (TTI):	64	g's	78	g's	Pelvis Acceleration (PEV):	95	g's	109	g's
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17. Key Words New Car Assessment Program (NCAP) Side Impact MDB Side Impact Dummy Hybrid III (SID H3)			18. Distribution Statement <u>Copies of this report are available from:</u> National Highway Traffic Safety Administration Technical Reference Division Room 5111 (NAD-52) 400 Seventh St., S.W. Washington, D.C. 20590 Telephone No. (202) 366-4946 ATTN: Robert Hornicle																																
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SECTION 1

PURPOSE AND TEST PROCEDURE

This side impact test is part of the FY2004 New Car Assessment Program Side Impact Protection sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-03-D-22005. The purpose of this test was to generate comparative side impact performance in a 2004.5 Kia Spectra 4-Door Sedan. The test was conducted in accordance with the Office of Crashworthiness Standards' Laboratory Test Procedure dated July 1997.

SECTION 2

SUMMARY OF SIDE IMPACT TEST

A 2004.5 Kia Spectra 4-Door Sedan was impacted on the left or driver's side by a Moving Deformable Barrier (MDB) which was moving forward in a 27° crabbed position to the monorail at a velocity of 61.96 kph (38.5 mph). The target vehicle was stationary and was positioned at an angle of 63° to the line of forward motion. The side impact test was conducted by the General Dynamics Advanced Information Engineering Services in Buffalo, New York on May 13, 2004. Pre- and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the Side Impact Hybrid III Dummies (SID H3s) are included in Appendix A. The photo placards denote the vehicle as a 2004 Kia Spectra, while it is in fact according to Kia Motors a 2004.5 Kia Spectra.

Two restrained Side Impact Hybrid III Dummies (SID H3s) were placed in the driver (Pos. #1) and left rear (Pos. #4) designated seating positions according to the instructions specified in the OCWS Side Impact Laboratory Test Procedure which is dated July, 1997. The side impact test was documented by one real-time camera and 10 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The SID H3s were instrumented with the following accelerometers:

1. Left Upper Rib (LUR) uniaxial and redundant accelerometer (Y-direction)
2. Left Lower Rib (LLR) uniaxial and redundant accelerometer (Y-direction)
3. Lower Thoracic Spine (T₁₂) uniaxial and redundant accelerometer (Y-direction)
4. Pelvic (PEV) section uniaxial and redundant accelerometer (Y-direction)
5. Head triaxial accelerometers (X-, Y- and Z-direction)
6. Upper neck force and moment (X-, Y and Z-direction) load cells

A summary of the Side Impact Hybrid III Dummy (SID H3) configuration and verification test data can be found in Appendix C. A total of 65 channels of data were recorded. Appendix B contains the vehicle, MDB and dummy response data traces.

The following table summarizes the results of the test.

Injury Criteria	Front SID H3	Rear SID H3
TTI (g)	64	78
PEV (g)	95	109

AIR BAG DEPLOYMENT STATUS

	DRIVER	FRONT PASSENGER	REAR PASSENGER
Front Air Bag	No	No	N/A
Knee Bolster Bag	N/A	N/A	N/A
Side Air Bag	Yes	No	N/A
Side Curtain Bag	Yes	No	Yes

AUTOMATIC DOOR LOCK SUMMARY

ADL Equipped Test Vehicle:	No
ADL Activation Status:	N/A
Struck Side Door Lock Condition:	Unlocked

SECTION 3

SUMMARY OF TEST RESULTS

DATA SHEET 1

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2004.5 Kia Spectra 4-Door Sedan

Vehicle Body Color: Gold VIN: KNAFE122645012224

Vehicle NHTSA No.: M40514 Month & Year of Manufacture: 01/04

Engine Data: 4 Cylinders; - CID; 2.0 Liters; - cc

Engine Placement: - Longitudinal; or X Lateral

Transmission: 4 Speed; - Manual; X Automatic; X Overdrive

Final Drive: - Rear Wheel Drive; X Front Wheel Drive; - Four Wheel Drive

Odometer Reading 56 km

Supplemental Airbag Restraints:

Front Occupant: X Frontal; - Knee; X Side; X Curtain

Rear Occupant: - Frontal; - Knee; - Side; X Curtain

Options:

- ADL; X A/C; X Power Steering; X Power Brakes; - Power Windows

DATA FROM TIRE PLACARD

Recommended Tire Size: P195/60R15 87 H

* Recommended Cold Tire Pressure: 210 kPa FRONT; 210 kPa REAR

DATA FROM TIRE SIDEWALL:

Size of Tires on Test Vehicle: P195/60R15 87 H ; Manufacturer: Goodyear

Tire Pressure with Maximum Capacity Vehicle Load: Front: 300 kPa; Rear: 300 kPa

Treadwear: 300 ; Traction: A ; Temperature: A

VEHICLE CAPACITY DATA:

Number of Occupants: 2 Front; 3 Rear; - 3rd Seat; 5 Total

Type of Front Seats: X Bucket; - Bench; - Split Bench

Type of Front Seat Back: - Fixed; X Adjustable with X Lever or - Knob

Vehicle Max Capacity Loading = 385 kg (A)

No. of Occupants x 68.04 kg. = 340.2 kg (B)

Vehicle Cargo Capacity = 44.8 kg (A-B)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front = 415.5 kg Left Rear = 242.5 kg

Right Front = 412.0 kg Right Rear = 232.0 kg

TOTAL FRONT = 827.5 kg TOTAL REAR = 474.5 kg

% of Total Weight = 63.6% % % of Total Weight = 36.4 %

TOTAL WEIGHT = 1302.0 kg

* Tire pressure used in test.

DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Max. Fluids	=	<u>1302.0</u>	kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle	=	<u>44.8</u>	kg (B)
Weight of instrumented SID H3 Dummies (2 X 81.2 kg)	=	<u>162.4</u>	kg (C)
TEST VEHICLE TARGET WEIGHT:	=	<u>1509.2</u>	kg (A+B+C)

FULLY LOADED TEST VEHICLE (UDVW + 2 SID H3s + CARGO):

Left Front	=	<u>472.0</u>	kg	Left Rear	=	<u>336.5</u>	kg
Right Front	=	<u>414.0</u>	kg	Right Rear	=	<u>291.5</u>	kg
TOTAL FRONT	=	<u>886.0</u>	kg	TOTAL REAR	=	<u>628.0</u>	kg
% of Total Weight	=	<u>58.5%</u>	%	% of Total Weight	=	<u>41.5%</u>	%
TOTAL TEST WEIGHT =		<u>1514.0</u>	kg				

AS TESTED WEIGHT OF TEST VEHICLE (2 SID H(s) + CARGO + EQUIPMENT & INSTRUMENTATION):

Left Front	=	<u>466.5</u>	kg	Left Rear	=	<u>318.5</u>	kg
Right Front	=	<u>426.5</u>	kg	Right Rear	=	<u>290.0</u>	kg
TOTAL FRONT	=	<u>893.0</u>	kg	TOTAL REAR	=	<u>608.5</u>	kg
% of Total Weight	=	<u>59.5%</u>	%	% of Total Weight	=	<u>40.5%</u>	%
TOTAL TEST WEIGHT =		<u>1501.5</u>	kg				

TEST VEHICLE ATTITUDE (all dimensions in millimeters):

AS DELIVERED:

Left Front	<u>690</u>	Right Front	<u>695</u>	Left Rear	<u>690</u>	Right Rear	<u>688</u>
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FULLY LOADED:

Left Front	<u>667</u>	Right Front	<u>685</u>	Left Rear	<u>635</u>	Right Rear	<u>656</u>
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READY FOR TEST:

Left Front	<u>670</u>	Right Front	<u>685</u>	Left Rear	<u>645</u>	Right Rear	<u>660</u>
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Test Vehicle Wheelbase: 2616 millimeters

C.G. = 1060.16 millimeters rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side =	<u>4368</u>	millimeters
Left Side =	<u>4367</u>	millimeters
Centerline =	<u>4490</u>	millimeters

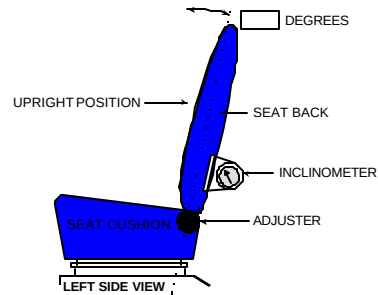
DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514

Nominal Design Riding Position for adjustable driver and passenger seat backs. Please describe how to position the inclinometer to measure the seat back angle. Include description of the location of the adjustment latch detent, if applicable.



FRONT SEAT ASSEMBLY

FRONT SEAT CUSHION PLACEMENT: Mid-position (120 mm or detent 8)

Total Length of Adjustment Travel: 240 millimeters

Total Number of Adjustment Positions or Detents: 17 (numbered 0 to 16)

FRONT SEAT BACK ADJUSTMENT POSITION: Adjusted to the 12th latch from initial lock position

Seat Back Torso Angle: 24 degrees

SECOND POSITION SEAT:

Total Length of Fore/Aft Adjustment Travel: 0 millimeters

Seat Back Adjustment Position: Not adjustable

ADJUSTABLE STEERING COLUMN POSITION: Mid-tilt position (63.5°)

WINDOW POSITIONS: Left Front: Closed Left Rear: Closed

Right Front: Open Right Rear: Removed

Note: Windows will be in closed position on struck side of test vehicle and in open position on opposite side.

AUTOMATIC DOOR LOCKS: Is test vehicle equipped with ADLs? - Yes X No

Does vehicle owner's manual describe how to deactivate ADLs? - Yes - No X N/A

Comments: None

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

54.9 liters (Fuel Tank Usable Capacity)

51.1 liters used for test (92% -94% of Fuel Tank Usable Capacity)

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

Wheelbase = 2616 millimeters

Impact Point is 368 millimeters rearward of front axle centerline

(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 368 millimeters rearward of front axle centerline

DATA SHEET 2

TEST VEHICLE SUMMARY OF RESULTS

VEHICLE IDENTIFICATION:

Vehicle Year/Make/Model: 2004.5 Kia Spectra

Body Style: 4-Door Sedan

VIN: KNAFE122645012224

NHTSA No.: M40514

Test Date: May 13, 2004

Overall Length = 4490 millimeters; Overall Width = 1746 millimeters

VEHICLE TEST WEIGHT (Pre-Test):

Left Front = 466.5 kg Left Rear = 318.5 kg

Right Front = 426.5 kg Right Rear = 290.0 kg

TOTAL FRONT = 893.0 kg TOTAL REAR = 608.5 kg

TOTAL VEHICLE WEIGHT 1501.5 kg

Wheelbase = 2616 millimeters

Longitudinal C.G. from Center of Front Axle = 1060.16 millimeters

Impact Angle with Respect to Impactor = 90 degrees

ACTUAL IMPACT POINT

Actual Impact Point is 0 mm on the nominal impact ref. line (Lateral)

Actual Impact Point is 1 mm above nominal impact point (Vertical)

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (246 mm above ground) = 180 millimeters

2. LEVEL 2 (499 mm above ground) = 349 millimeters

3. LEVEL 3 (610 mm above ground) = 314 millimeters

4. LEVEL 4 (849 mm above ground) = 266 millimeters

5. LEVEL 5 (1389 mm above ground) = 74 millimeters

Maximum Post-Test Intrusion = 349 millimeters

OCCUPANTS:

Front Passenger:

Rear Passenger:

Dummy Identification SID H3/ 269

SID H3/ 270

Restraints Used Three point safety belt, side
airbag and side curtain airbag

Three point safety belt and side
curtain airbag

INSTRUMENTATION:

Number of Vehicle Data Channels: = 26

Number of Cameras: Onboard = 3

Offboard = 8

TOTAL = 11

DATA SHEET 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514

MDB FACE MANUFACTURER AND SERIAL NUMBER:

Plascore, Inc. 115A0204 069B0304-3

POSITION OF IMPACT (MDB) ON MONORAIL:

Crabbed 27° to left

MDB DETAILS:

Overall Width of Framework Carriage	=	<u>1250</u>	millimeters
Overall Length of MDB (incl. honeycomb impact face)	=	<u>4120</u>	millimeters
Wheelbase of Framework Carriage	=	<u>2590</u>	millimeters
Tread of Framework Carriage (Front & Rear)	=	<u>1875</u>	millimeters
C.G. Location Rearward of Front Axle	=	<u>1104</u>	millimeters

MDB WEIGHT:

Left Front	=	<u>409.5</u>	kg	Left Rear	=	<u>281.5</u>	kg
Right Front	=	<u>372.5</u>	kg	Right Rear	=	<u>299.0</u>	kg
TOTAL FRONT	=	<u>782.0</u>	kg	TOTAL REAR	=	<u>580.5</u>	kg
TOTAL MDB WEIGHT	=	<u>1362.5</u>	kg				
Impact Angle (MDB C/L to Target Vehicle C/L)	=	<u>90</u>	degrees				
Impact Speed	=	<u>61.96</u>	kph				

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A at Center of Bumper Level	=	<u>117</u>	millimeters
2. Row B at Top of Bumper Level	=	<u>78</u>	millimeters
3. Row C at Mid Level	=	<u>114</u>	millimeters
4. Row D at Top of Stack Level	=	<u>164</u>	millimeters

INSTRUMENTATION:

Number of MDB Data Channels	=	<u>5</u>
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DATA SHEET 4**POST-TEST OBSERVATIONS**Vehicle: 2004.5 Kia Spectra 4-Door SedanNHTSA No. M40514TEST DUMMY INFORMATION AND CONTACT POINTS:

DESCRIPTION	FRONT SEAT	REAR SEAT
ATD Type/Serial No.	SID H3/ 269	SID H3/ 270
Head Contact:	The top, side and back of the head to the side curtain airbag.	The top and side of the head to the C-Pillar and the side of the head to the side curtain airbag.
Upper Torso Contact:	Side airbag	Interior door trim panel
Lower Torso Contact:	Side airbag	Interior door trim panel
Left Knee Contact:	Interior door trim panel	Interior door trim panel
Right Knee Contact:	Left Knee	Left Knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

DESCRIPTION	FRONT	REAR
Left Side Doors	Closed, latched and inoperable	Closed, latched and inoperable
Right Side Doors	Closed, latched and operable without tools	Closed, latched and operable without tools
Hatch/Other Door	N/A	N/A
Seat Movement (mm)	0	0
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

CRITICAL AREAS OF PERFORMANCE	
Pillar Performance	The A- and B-pillars were moved inboard during the event with no visible tears or separations.
Sill Separation	No visible tears or separations were present.
Windshield Damage	Cracked along the A-Pillar to the top header
Window Damage	Side glass shattered upon impact
Other Notable Effects	The secondary impact point could not be determined.

AIR BAG DEPLOYMENT STATUS:

	DRIVER	FRONT PASSENGER	REAR PASSENGER
Front Air Bag	No	No	N/A
Knee Bolster Bag	N/A	N/A	N/A
Side Air Bag	Yes	No	N/A
Side Curtain Bag	Yes	No	Yes

MDB LEFT EDGE IMPACT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	? 50 mm	0
Vertical Offset	mm	? 20 mm	1 mm above

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET 5

SID H3 INSTRUMENTATION DATA

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514

		Front Dummy ID# 269				Rear Dummy ID# 270			
		Pos. Direction		Neg. Direction		Pos. Direction		Neg. Direction	
		Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
HEAD ACCELERATIONS:									
Longitudinal	X	9.0	199.9	-23.1	50.2	13.0	170.6	-12.6	89.1
Lateral	Y	42.4	45.7	-4.1	78.6	79.0	50.1	-13.2	174.0
Vertical	Z	14.5	28.9	-18.9	55.6	24.6	43.9	-36.9	57.7
Resultant	R	47.6	48.6	0.0	-15.9	79.2	50.1	0.0	-13.6
HIC		284.7				458.1			
NECK FORCES:									
Longitudinal	X	192.3	199.9	-171.1	116.2	57.9	81.3	-28.3	81.7
Lateral	Y	108.6	113.6	-355.2	57.0	76.3	190.7	-1111.9	56.7
Vertical	Z	523.0	168.3	-993.9	55.4	1106.8	44.0	-1329.5	59.5
Resultant	R	1050.9	55.4	0.1	-17.2	1704.9	57.3	0.1	-11.4
NECK MOMENTS:									
X		25.6	104.5	-74.5	41.0	34.1	177.1	-83.3	62.0
Y		33.3	102.4	-53.3	52.2	27.1	175.8	-27.6	71.0
Z		5.6	57.8	-11.3	120.6	11.8	82.0	-12.2	58.0
Resultant	R	78.3	41.0	0.0	-14.1	85.1	62.2	0.0	-17.8
RIB ACCELERATIONS:									
Upper Rib Lateral	Y	43.4	24.3	-2.7	6.3	66.5	41.2	-4.8	191.8
Upper Rib Lateral	Y(R)	44.0	24.3	-3.0	6.3	65.2	41.2	-4.9	191.8
Lower Rib Lateral	Y	50.6	23.1	-7.6	83.1	69.6	40.7	-8.1	65.6
Lower Rib Lateral	Y(R)	51.0	23.1	-7.7	83.7	69.1	40.7	-8.3	65.7
SPINE ACCELERATIONS:									
Lower Lateral	Y	77.6	28.7	-14.5	65.7	86.1	44.4	-14.7	71.2
Lower Lateral	Y(R)	77.8	28.7	-14.1	66.2	84.9	44.4	-14.3	71.2
PELVIC ACCELERATIONS:									
Lateral	Y	95.2	28.2	-19.0	73.7	109.5	38.1	-7.9	84.3
Lateral	Y(R)	96.7	28.2	-19.4	71.9	107.4	38.1	-7.8	84.3

REFERENCE: Positive Direction: Longitudinal (X) = forward; Lateral (Y) = to right; Vertical (Z) = down

Note: Rib, Spine and Pelvis data has been FIR filtered, Y(R) denotes redundant Y direction accelero meter.

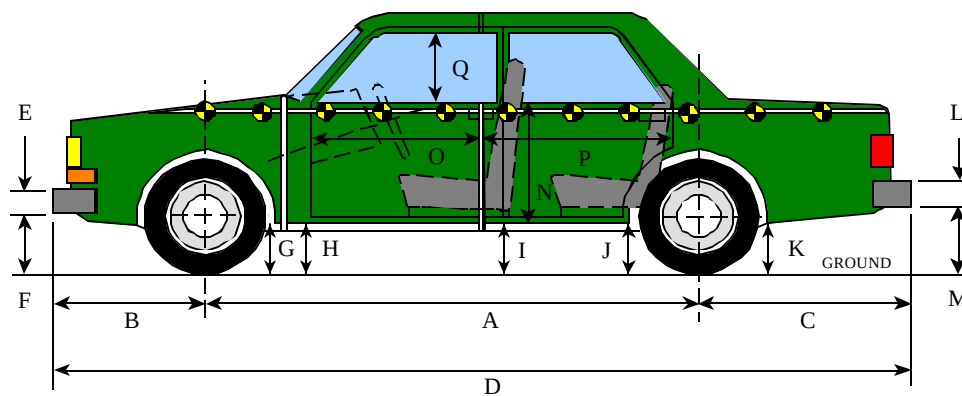
Head Accelerations and Neck Forces are filtered at SAE Class 1000, Neck Moments are filtered at SAE Class 600.

DATA SHEET 6

VEHICLE SIDE MEASUREMENTS

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514



LEFT SIDE VIEW

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

	PRE-TEST (as delivered)	PRE-TEST (as tested)	POST-TEST (as tested)	▼ CHANGE
A	2610	2616	2595	-21
B	920	-	911	-9
C	960	-	1111	151
D	4490	-	4481	-9
E	115	-	115	0
F	245	238	265	27
G	226	199	207	8
H	227	200	226	26
I	233	194	222	28
J1	201	156	178	22
J2	241	196	230	34
K	264	213	233	20
L	295	-	295	0
M	312	267	268	1
N	674	-	659	-15
O	757	-	724	-33
P	1188	-	1161	-27
Q	468	-	446	-22
R	4368	-	4368	0
S	4367	-	4353	-14
T	1746	-	1578	-168

D = Length at Centerline
T = Width at B-Pillar

E&L = Bumper Thickness
J1 = To Pinch Weld

R = Right Side Length
J2 = To Sill

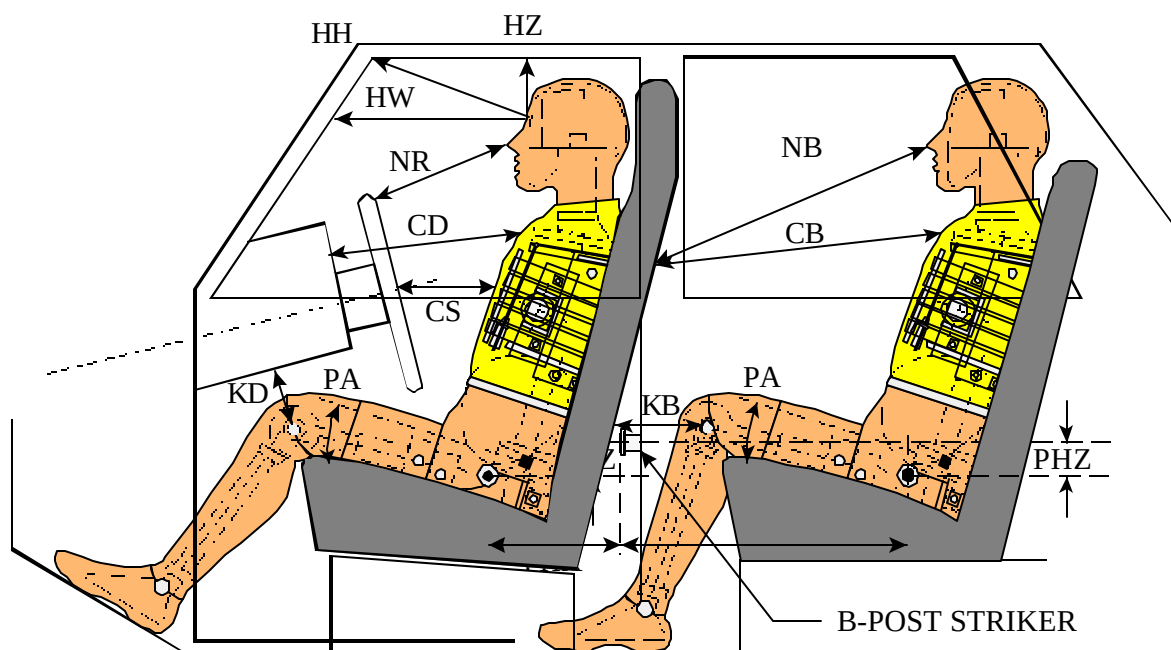
S = Left Side Length

DATA SHEET 7

SID H3 LONGITUDINAL CLEARANCE DIMENSIONS

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514



LEFT SIDE VIEW

NOTE: 2-DOOR VEHICLE SHOWN.
REAR DUMMY PHX & PHZ
MEASUREMENTS FOR A 4-DOOR
VEHICLE WOULD USE THE C-POST
STRIKER AS A REFERENCE POINT

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

	DRIVER ID# 269	LEFT REAR PASS. ID# 270
HH	354	N/A
HW	644	N/A
HZ	192	168
NR/NB	455	594
CD/CB	537	511
CS	304	N/A
KDL(KDA°)/KBL(KDA°)	195 / (28 °)	212 / (20 °)
KDR(KBA°)/KBR(KBA°)	188 / (24 °)	206 / (10 °)
PA°	23.4°	24.0°
PHX	215	323
PHZ	132	311

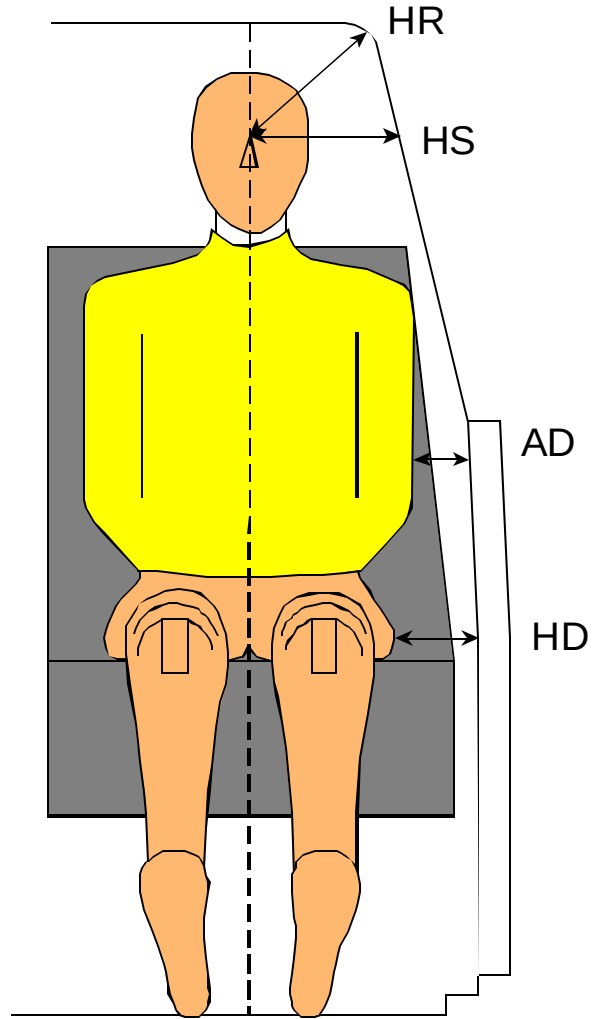
Note: 2-door vehicle shown. Rear dummy PHX & PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

DATA SHEET 8

SID H3 LATERAL CLEARANCE DIMENSIONS

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514



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

	DRIVER ID # 269				LEFT REAR PASS. ID # 270			
HR	197				188			
HS	304				322			
AD*	LOWER:	115	UPPER:	98	LOWER:	115	UPPER:	101
HD	152				182			

* Lower measurement is taken laterally at the center of the lower rib accelerometer height from the SID H3 arm segment to the closest part of the vehicle side.

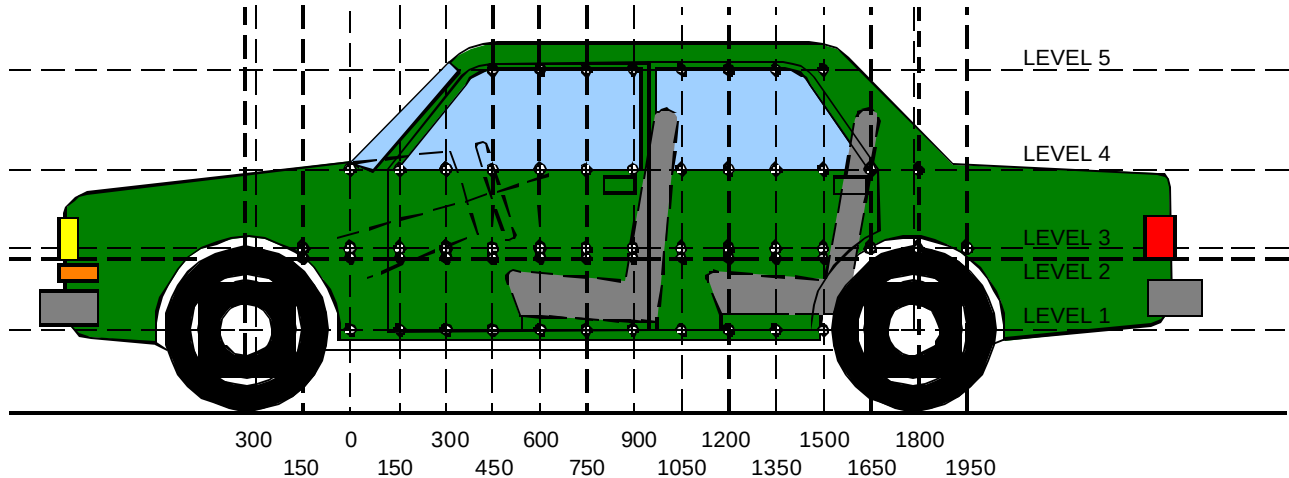
Upper measurement is taken laterally at the center of the upper rib accelerometer height from the SID H3 arm segment to the closest part of the vehicle side.

DATA SHEET 9

VEHICLE SIDE MEASUREMENTS

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514



LEFT SIDE VIEW

NOTE: All measurements are in millimeters (mm)

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

MEASUREMENTS ARE TAKEN WHEN THE VEHICLE IS IN THE "AS TESTED" CONFIGURATION.

Measurements Along the Vertical 750 mm Line Shown Above:

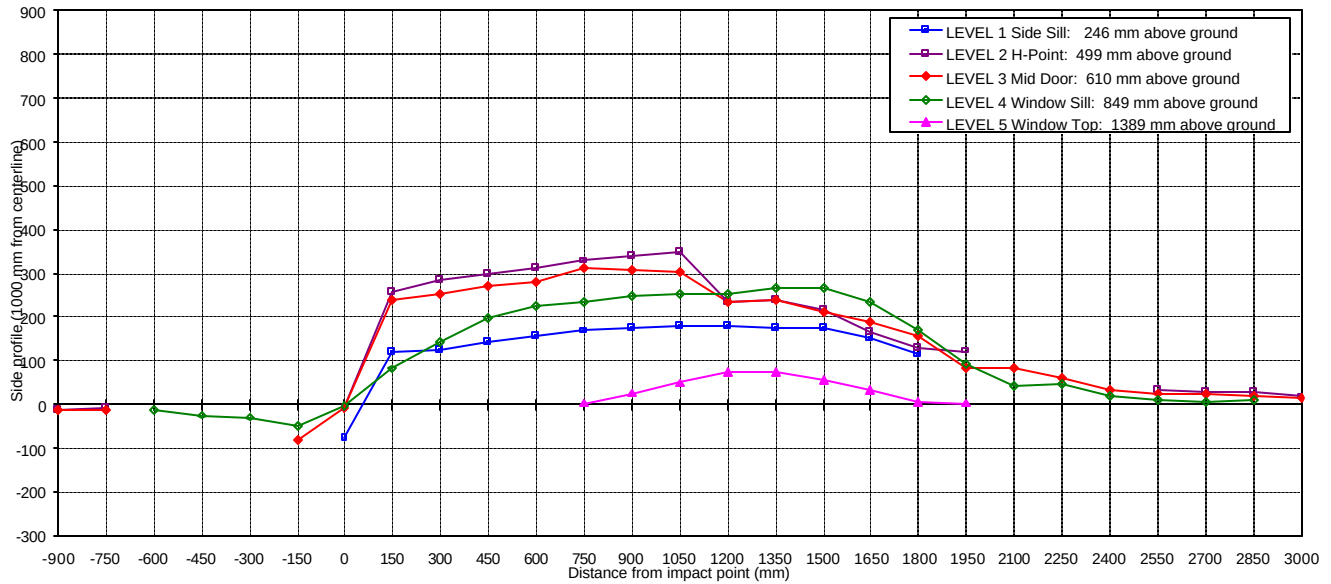
Level 5 @ Window Top	=	<u>1389</u>	millimeters
Level 4 @ Window Sill	=	<u>849</u>	millimeters
Level 3 @ Mid Door	=	<u>610</u>	millimeters
Level 2 @ Occupant H-Point	=	<u>499</u>	millimeters
Level 1 @ Axle Centerline Height (or Sill Top Height)	=	<u>246</u>	millimeters

DATA SHEET 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514



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

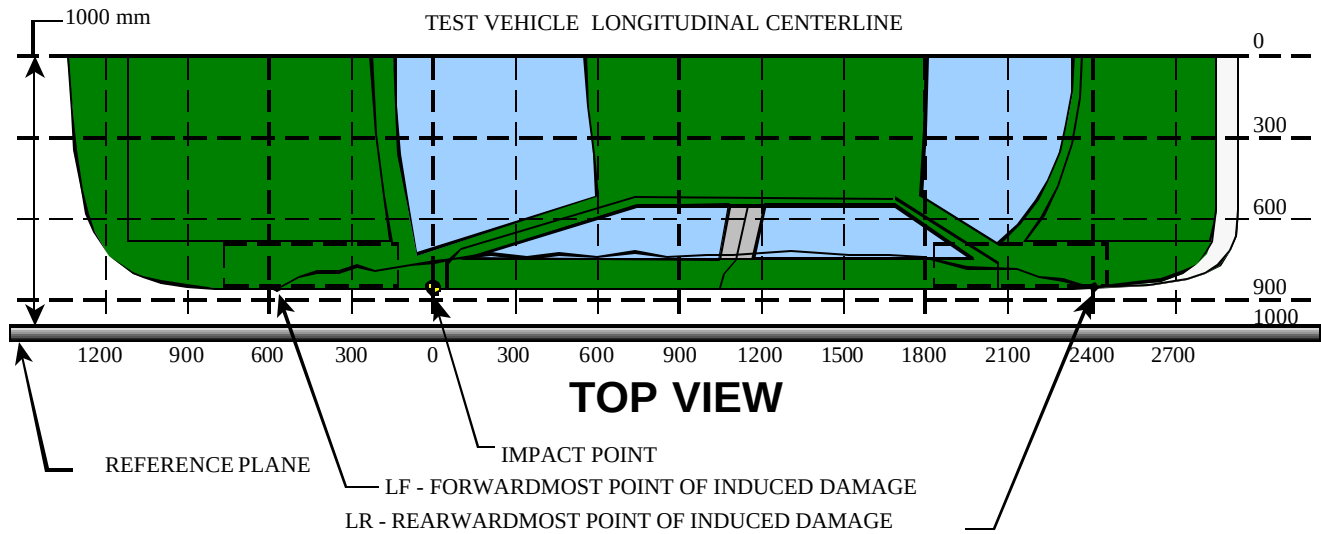
			DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT																											
LEVEL	HEIGHT (mm)		-900	-750	-600	-450	-300	-150	0	150	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700	2850	3000	
LEVEL 1 SIDE SILL	246	PRE	-	-	--	--	-	-	201	200	199	198	198	199	200	199	199	199	197	200	200	--	--	-	-	--	--	-	-	
		POST	-	-	--	--	-	-	126	320	325	341	354	367	376	377	379	372	370	352	316	--	--	-	-	--	--	-	-	
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	-75	120	126	143	156	168	176	178	180	173	173	152	116	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
LEVEL 2 H POINT	499	PRE	234	174	--	--	-	-	146	144	140	137	136	136	135	138	139	137	144	148	143	143	--	-	-	146	179	209	254	
		POST	221	167	--	--	-	-	137	403	426	437	448	464	476	487	372	374	361	312	271	265	--	-	-	181	207	237	271	
		CRUSH	-13	-7	N/A	N/A	N/A	N/A	-9	259	286	300	312	328	341	349	233	237	217	164	128	122	N/A	N/A	N/A	35	28	28	17	
LEVEL 3 MID DOOR	610	PRE	244	199	--	--	-	141	142	142	141	140	138	137	137	136	136	138	138	140	143	141	134	135	140	159	182	212	273	
		POST	229	188	134	--	-	58	132	382	395	412	418	451	446	438	369	378	350	329	301	224	217	194	173	185	205	230	288	
		CRUSH	-15	-11	N/A	N/A	N/A	-83	-10	240	254	272	280	314	309	302	233	240	212	189	158	83	83	59	33	26	23	18	15	
LEVEL 4 WINDOW SILL	849	PRE	-	-	369	263	237	221	203	190	177	171	168	164	141	143	156	157	157	159	161	150	165	176	187	203	218	247	-	
		POST	-	-	356	239	208	174	199	271	321	369	393	400	391	394	407	423	422	393	331	241	206	222	207	212	224	256	-	
		CRUSH	N/A	N/A	-13	-24	-29	-47	-4	81	144	198	225	236	250	251	251	266	265	234	170	91	41	46	20	9	6	9	N/A	
LEVEL 5 WINDOW TOP	1389	PRE	-	-	--	--	-	-	--	--	-	-	--	694	438	432	434	435	433	437	466	729	--	-	-	--	--	-	-	
		POST	-	-	--	--	-	-	--	--	-	-	--	697	464	481	508	509	490	471	472	732	--	-	-	--	--	-	-	
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	3	26	49	74	74	57	34	6	3	N/A	N/A	N/A	N/A	N/A	N/A	N/A	

DATA SHEET 11

VEHICLE DAMAGE PROFILE DISTANCES

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514



MEASUREMENT CONVENTIONS:
 Forward of the impact point (towards front of vehicle) is considered negative (—).
 Rearward of the impact point (toward rearend of vehicle) is considered positive (+).

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

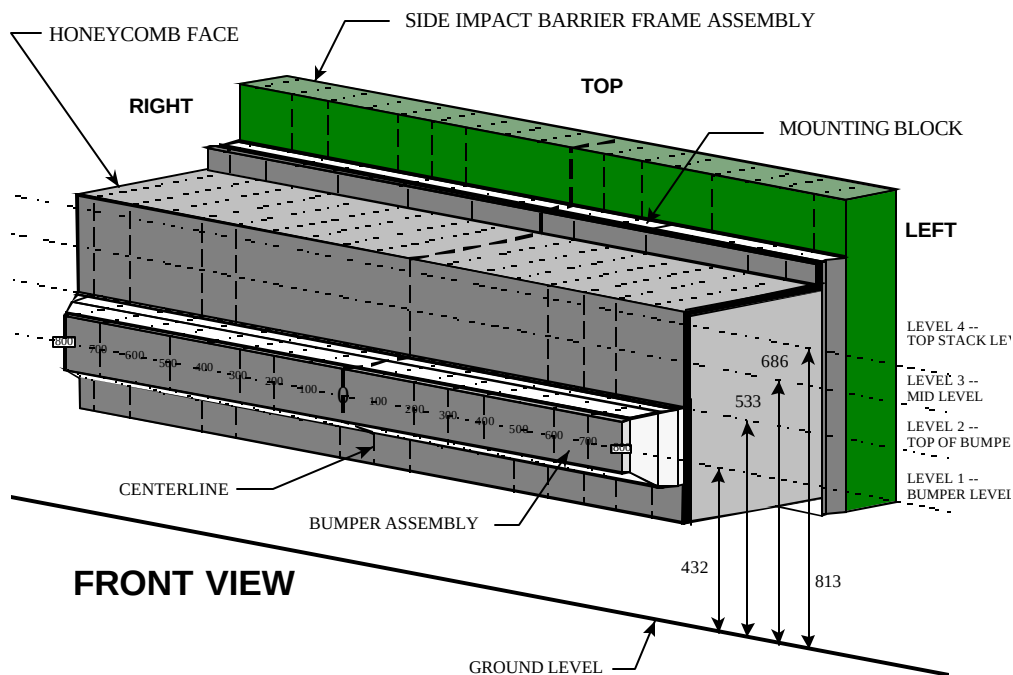
DPD MEASUREMENTS		POST TEST (mm)	PRETEST (mm)	STATIC CRUSH (mm)
1	(LR = <u>2700</u> mm)	224	218	6
2	2160	208	134	74
3	1620	399	159	240
4	1080	464	138	326
5	540	444	136	308
6	(LF = <u>0</u> mm)	199	203	-4

DATA SHEET 12

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514



NOTE: Dimensions are shown in millimeters, mm

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

			NOTE: All dimensions are in millimeters with a tolerance of ±3 mm																
			DISTANCE RIGHT OF CENTER (mm)									DISTANCE LEFT OF CENTER (mm)							
LEVEL	HEIGHT AT CL (mm)*		800	700	600	500	400	300	200	100	0	100	200	300	400	500	600	700	800
LEVEL 4 TOP STACK	813	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619
		POST	697	649	626	619	621	633	647	650	648	634	632	635	642	657	687	727	783
		CRUSH	78	30	7	0	2	14	28	31	29	15	13	16	23	38	68	108	164
LEVEL 3 MID LEVEL	686	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619
		POST	701	658	631	618	620	626	639	629	624	625	630	631	633	637	643	668	733
		CRUSH	82	39	12	-1	1	7	20	10	5	6	11	12	14	18	24	49	114
LEVEL 2 TOP BUMPER	533	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619
		POST	697	692	668	652	650	651	652	653	653	651	657	662	664	670	675	684	691
		CRUSH	78	73	49	33	31	32	33	34	34	32	38	43	45	51	56	65	72
LEVEL 1 MID BUMPER	432	PRE	535	519	518	518	518	518	518	518	518	518	518	518	518	518	518	519	535
		POST	649	619	595	578	577	585	585	589	584	583	586	591	596	601	605	622	652
		CRUSH	114	100	77	60	59	67	67	71	66	65	68	73	78	83	87	103	117

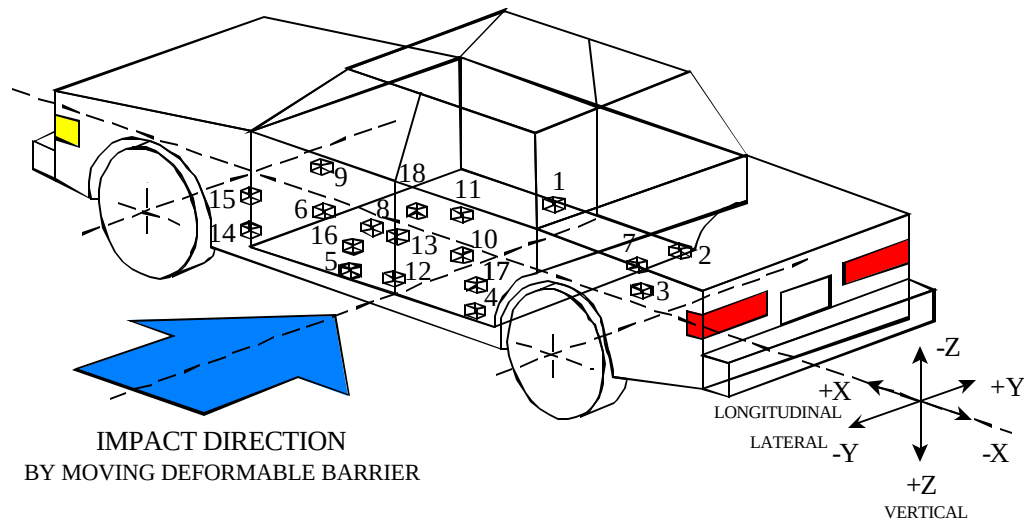
*Heights measured above ground level.

DATA SHEET 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514



- 1-Right Side Sill @ Front Seat
- 2-Right Side Sill @ Rear Seat
- 3-Rear Floorpan Above Axle
- 4-Left Side Sill @ Rear Seat
- 5-Left Side Sill @ Front Seat
- 6-Left Front Door on Centerline
- 7-Right Rear Occupant Compartment
- 8-Midrear of Left Front Door
- 9-Left Front Door Upper Centerline

- 10-Midrear of Left Rear Door
- 11-Left Rear Door Upper Centerline
- 12-Left Lower B-Pillar
- 13-Left Middle B-Pillar
- 14-Left Lower A-Pillar
- 15-Left Middle A-Pillar
- 16-Front Seat Track
- 17-Rear Seat Track
- 18-Vehicle CG

DATA SHEET 13 (continued)

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514

Accel. No.	Location	Coordinates (mm)±3 mm				Long. (x)		Lat. (y)		Vert. (z)		Resultant	
						Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
		X*	Y*	Z*									
1	Right Side Sill at Front Seat	2891	692	-299	pos.	4.1	31.3	24.9	19.2	3.1	68.1	25.9	19.1
					neg.	-6.6	16.7	-2.9	141.2	-5.1	18.8	0.0	-16.9
2	Right Side Sill at Rear Seat	1848	675	-254	pos.	4.3	31.3	24.0	8.0	5.2	79.9	24.4	8.0
					neg.	-6.9	16.9	-2.8	79.1	-8.5	23.8	0.0	-17.1
3	Rear Floorpan Above Axle	1089	48	-454	pos.	13.1	44.7	40.5	29.2	27.9	28.5	55.9	28.7
					neg.	-28.7	28.9	-3.8	90.4	-13.8	18.5	0.0	-11.0
4	Left Side Sill at Rear Seat	1790	-688	-218	pos.	-	-	31.3	5.4	-	-	-	-
					neg.	-	-	-12.4	53.3	-	-	-	-
5	Left Side Sill at Front Seat	2933	-671	-214	pos.	-	-	53.8	4.6	-	-	-	-
					neg.	-	-	-8.9	16.7	-	-	-	-
6	Left Front Door on Centerline	2667	-700	-656	pos.	-	-	315.5	9.8	-	-	-	-
					neg.	-	-	-156.9	25.7	-	-	-	-
7	Right Rear Occupant Compartment	1914	349	-212	pos.	-	-	22.8	7.5	-	-	-	-
					neg.	-	-	-3.3	79.0	-	-	-	-
8	Midrear of Left Front Door	2306	-722	-717	pos.	-	-	149.5	4.7	-	-	-	-
					neg.	-	-	-81.5	9.7	-	-	-	-
9	Left Front Door Upper Centerline	2605	-701	-877	pos.	-	-	173.4	15.7	-	-	-	-
					neg.	-	-	-65.0	24.2	-	-	-	-
10	Midrear of Left Rear Door	1444	-704	-794	Pos.			160.4	5.3				
					neg.	-	-	-159.6	29.2	-	-	-	-
11	Left Rear Door Upper Centerline	1582	-694	-934	pos.	-	-	195.9	23.2	-	-	-	-
					neg.	-	-	-140.7	30.4	-	-	-	-

*Reference: X - Rear Bumper (+ Forward)

Y - Vehicle Centerline (+ To Right) Z - Ground Level (+ Down)

**Accelerometer was not requested by COTR.

4-11

8725-SNCAp-04

DATA SHEET 13 (continued)

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514

Accel. No.	Location	Coordinates (mm)±3 mm				Long. (x)		Lat. (y)		Vert. (z)		Resultant	
						Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
		X*	Y*	Z*									
12	Left Lower B-Pillar	2010	-643	-262	pos.	-	-	113.0	6.3	-	-	-	-
					neg.	-	-	-108.7	48.3	-	-	-	-
13	Left Middle B-Pillar	1958	-651	-929	pos.	-	-	143.4	4.9	-	-	-	-
					neg.	-	-	-44.3	19.1	-	-	-	-
14	Left Lower A-Pillar	3102	-666	-341	pos.	-	-	QD29		-	-	-	-
					neg.	-	-			-	-	-	-
15	Left Middle A-Pillar	3005	-635	-948	pos.	-	-	21.2	19.3	-	-	-	-
					neg.	-	-	-16.6	23.2	-	-	-	-
16	Front Seat Track	2198	-530	-207	pos.	-	-	MN		-	-	-	-
					neg.	-	-			-	-	-	-
17	Rear Seat Track	908	-299	-551	pos.	-	-	35.6	27.8	-	-	-	-
					neg.	-	-	-1.5	91.1	-	-	-	-
18	Vehicle CG	2460	70	-367	pos.	31.6	21.2	68.5	20.0	40.8	28.9	72.3	20.3
					neg.	-26.4	26.9	-24.4	27.1	-42.7	24.2	0.0	-11.6

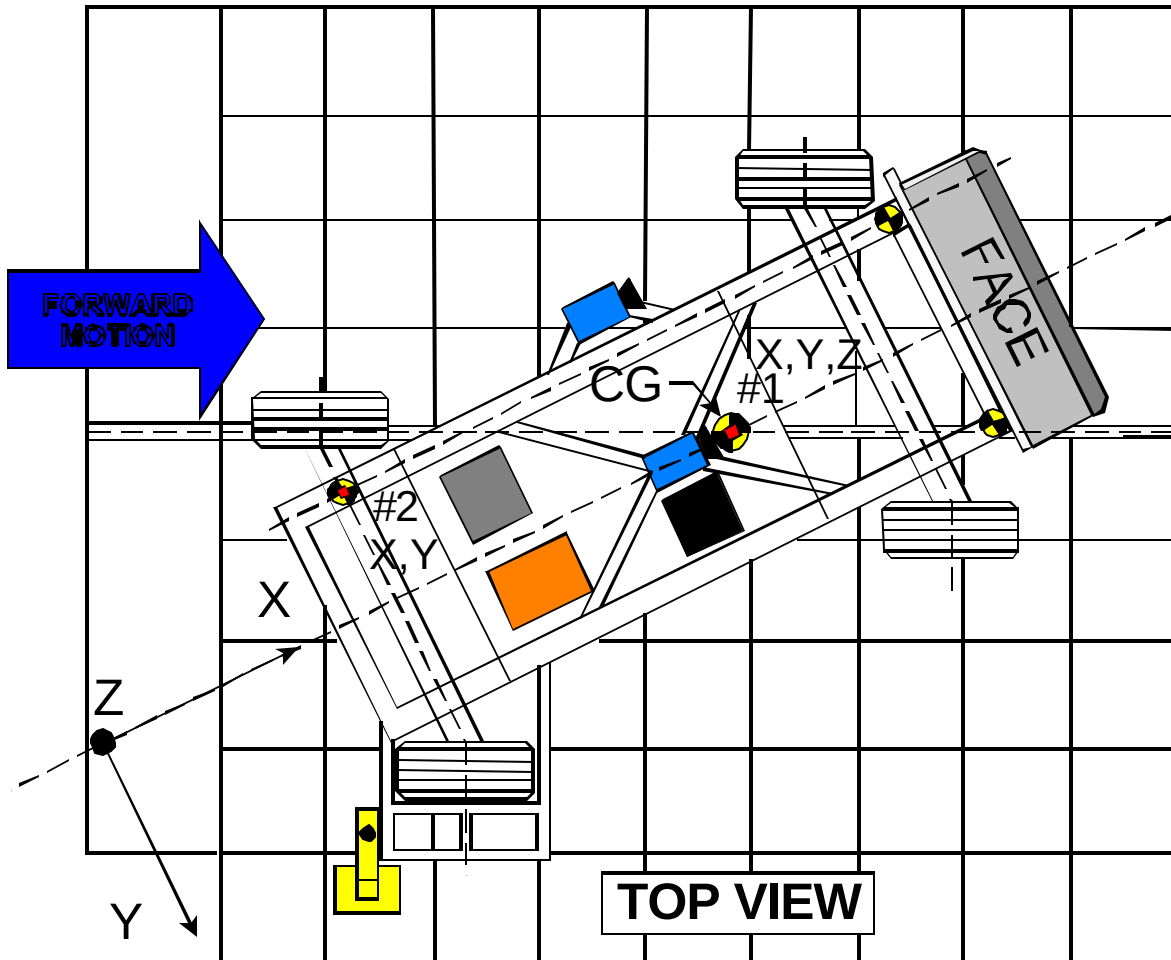
*Reference: X - Rear Bumper (+ Forward) Y - Vehicle Centerline (+ To Right) Z - Ground Level (+ Down)

DATA SHEET 14

MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514



Accel. No.	Location	Coordinates (millimeters)			Pos. Direct.		Neg. Direct.	
					Max (g)	Time (msec)	Max (g)	Time (msec)
		X*	Y*	Z*				
1	MDB Center of Gravity							
	Longitudinal... X	1859	0	-330	1.3	95.5	-19.4	35.6
	Lateral..... Y				1.8	56.0	-7.1	30.7
	Vertical..... Z				15.1	47.8	-15.9	42.1
	Resultant..... R				24.2	35.8	0.1	-16.5
2	Rear Frame Member							
	Longitudinal... X	386	-660	-660	2.1	164.8	-22.3	30.3
	Lateral..... Y				3.7	28.0	-1.8	114.6

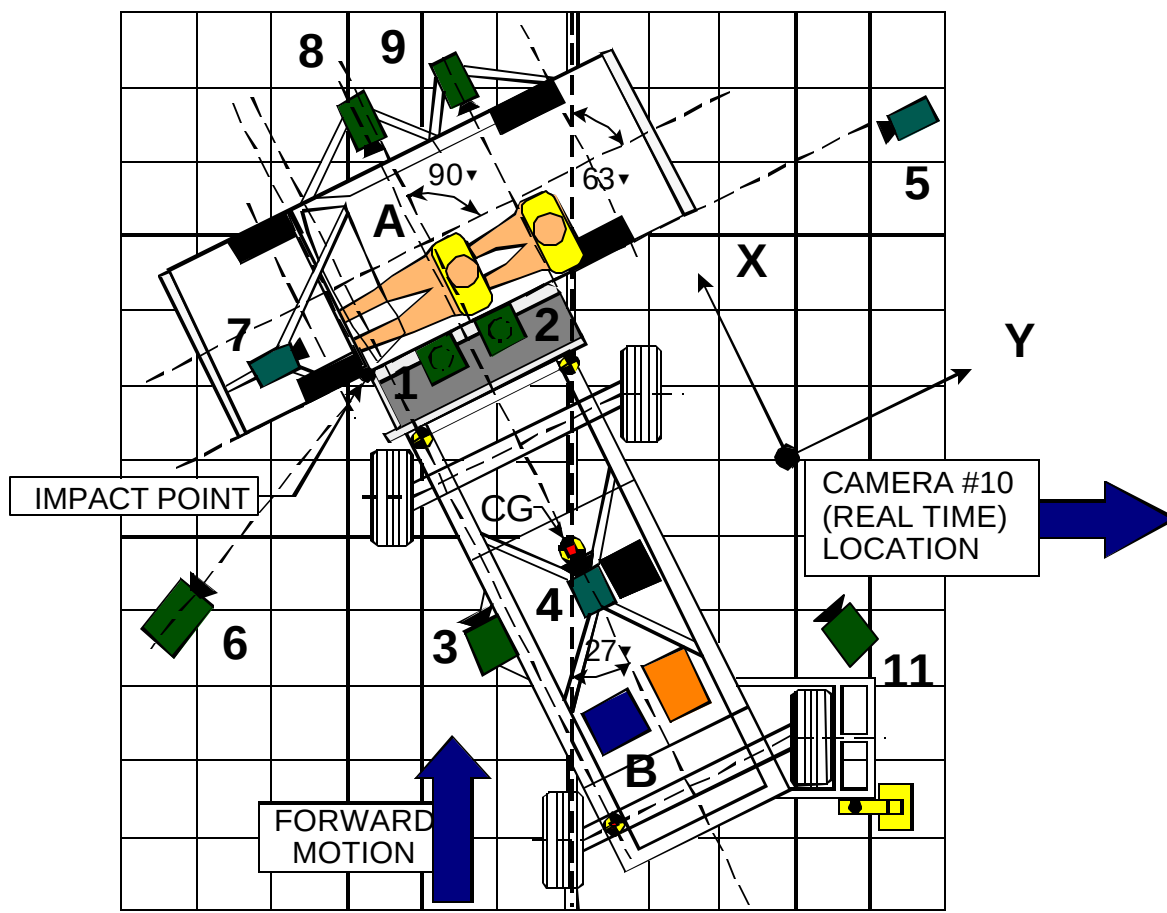
*Reference: X = Rear Bumper (+ Forward)
Y = Vehicle Centerline (+ To Right)
Z = Ground Level (+ Down)
All measurements accurate to within ± 3 mm.

DATA SHEET 15

HIGH SPEED CAMERA LOCATIONS AND DATA SUMMARY

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No. M40514



Camera No.	View	Coordinates (millimeters)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Overhead view of test vehicle	213	813	-4880	-90	8	1050
2	Overhead closeup view of impact plane	330	834	-4880	-90	12.5	1005
3	MDB onboard closeup view of impact point	-1470	0	-847	0	13	1000
4	MDB onboard view of driver dummy	-1140	838	-1586	-17	7.5	1005
5	Right side ground level overall view	8960	13	-1100	-4	25	1025
6	Left side ground level overall view	-1750	-700	-1076	-8	13	1020
7	Test vehicle onboard driver front view	-592	-430	-1222	-12	13	1005
8	Test vehicle onboard driver side view	1695	808	-1075	-12	8	950
9	Test vehicle onboard passenger side view	1700	1688	-1090	-12	8	N.T.
10	Real time film coverage of test	-	-	-	-	-	24
11	Secondary impact point view	-4020	3130	-7042	-4	25	1000

* Reference (from point of impact); all measurements accurate to within ± 6 mm.

X = (Impact Point) + Forward

Y = (Impact Point) + To Right

Z = (Ground Level) + Down

N.T. indicates no timing

SECTION 5

FUEL SYSTEM INTEGRITY

DATA SHEET 16

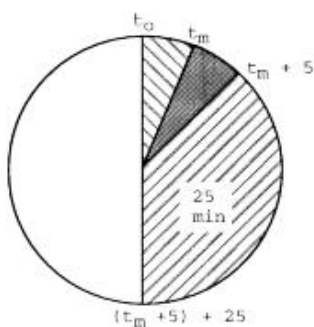
FMVSS 301 FUEL SYSTEM INTEGRITY DATA

NHTSA No.: M40514 TEST DATE: May 13, 2004
 Vehicle Mfgr./Make/Model: Kia Motors Corporation 2004.5 Kia Spectra 4-Door Sedan

TEST VEHICLE IMPACT TYPE:

- Frontal (48.28 kph)
- Oblique (48.28 kph) with - ° barrier face first
 contacting the - side
 (driver/passenger)
- Rear Moving Barrier (48.28 kph)
- Lateral Moving Barrier (32.19 kph)
- X Side Impact Moving Deformable Barrier (62.0 kph)
 contacting the driver side side
 (driver/passenger)

FUEL SPILLAGE MEASUREMENT:



1. From impact until vehicle motion ceases
2. For five minute period after vehicle motion ceases
3. For next 25 minutes

ACTUAL	MAX ALLOWED
0 g	28 g
0 g	142 g
0 g	28 g/1 min.

SOLVENT SPILLAGE DETAILS:

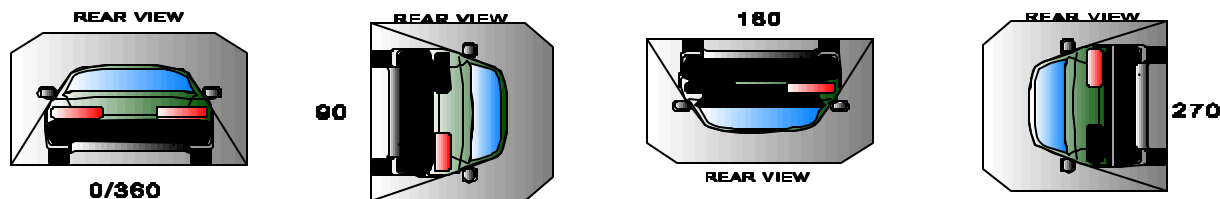
None

DATA SHEET 17

ROLLOVER DATA

Vehicle: 2004.5 Kia Spectra 4-Door Sedan

NHTSA No.: M40514



I. DETERMINATION OF SOLVENT COLLECTION TIME PERIOD:

Rollover Stage	Rotation Time (spec. 1 -3 min)				FMVSS 301 Hold Time		Total Time				Next Whole Minute Interval	
0° - 90°	1	minutes	15	seconds	5	minutes	6	minutes	15	seconds	7	minutes
90° - 180°	1	minutes	02	seconds	5	minutes	6	minutes	2	seconds	7	minutes
180°-270°	1	minutes	00	seconds	5	minutes	6	minutes	0	seconds	7	minutes
270°-360°	1	minutes	13	seconds	5	minutes	6	minutes	13	seconds	7	minutes

II. FMVSS 301 REQUIREMENTS: (Maximum allowable solvent spillage):

First 5 minutes from onset of rotation	6th min.	7th min.	8th min. (if required)
142 g	28 g	28 g	28 g

III. ACTUAL TEST VEHICLE SOLVENT SPILLAGE:

Rollover Stage	First 5 minutes from onset of rotation (g)	6th min. (g)	7th min. (g)	8th min. (if required) (g)
0° - 90°	0	0	0	N/A
90° - 180°	0	0	0	N/A
180°-270°	0	0	0	N/A
270°-360°	0	0	0	N/A

Note: Record spillage for whole minute intervals only as determined above.

IV. SOLVENT SPILLAGE LOCATION(S):

Rollover Stage	Spillage Location
0° - 90°	None
90° - 180°	None
180°-270°	None
270°-360°	None

APPENDIX A

PHOTOGRAPHS

TABLE OF PHOTOGRAPHS

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Figure A- 3	PRE-TEST REAR VIEW OF TEST VEHICLE	A- 5
Figure A- 4	POST-TEST REAR VIEW OF TEST VEHICLE	A- 6
Figure A- 5	PRE-TEST IMPACTED SIDE VIEW OF TEST VEHICLE	A- 7
Figure A- 6	POST-TEST IMPACTED SIDE VIEW OF TEST VEHICLE	A- 8
Figure A- 7	PRE-TEST LEFT FRONT VIEW OF TEST VEHICLE	A- 9
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Figure A- 9	PRE-TEST LEFT REAR VIEW OF TEST VEHICLE	A- 11
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Figure A- 15	PRE-TEST FRONTAL VIEW OF IMPACTOR FACE	A- 17
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Figure A- 45	ROLLOVER 270 DEGREES	A- 47
Figure A- 46	ROLLOVER 360 DEGREES	A- 48



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



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



Figure A-3 PRE-TEST REAR VIEW OF TEST VEHICLE



Figure A-4 POST-TEST REAR VIEW OF TEST VEHICLE



Figure A-5 PRE-TEST IMPACTED SIDE VIEW OF TEST VEHICLE



Figure A-6 POST-TEST IMPACTED SIDE VIEW OF TEST VEHICLE



Figure A-7 PRE-TEST LEFT FRONT VIEW OF TEST VEHICLE



Figure A-8 POST-TEST LEFT FRONT VIEW OF TEST VEHICLE



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



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



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



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



Figure A-13 PRE-TEST RIGHT REAR VIEW OF TEST VEHICLE



Figure A-14 POST-TEST RIGHT REAR VIEW OF TEST VEHICLE

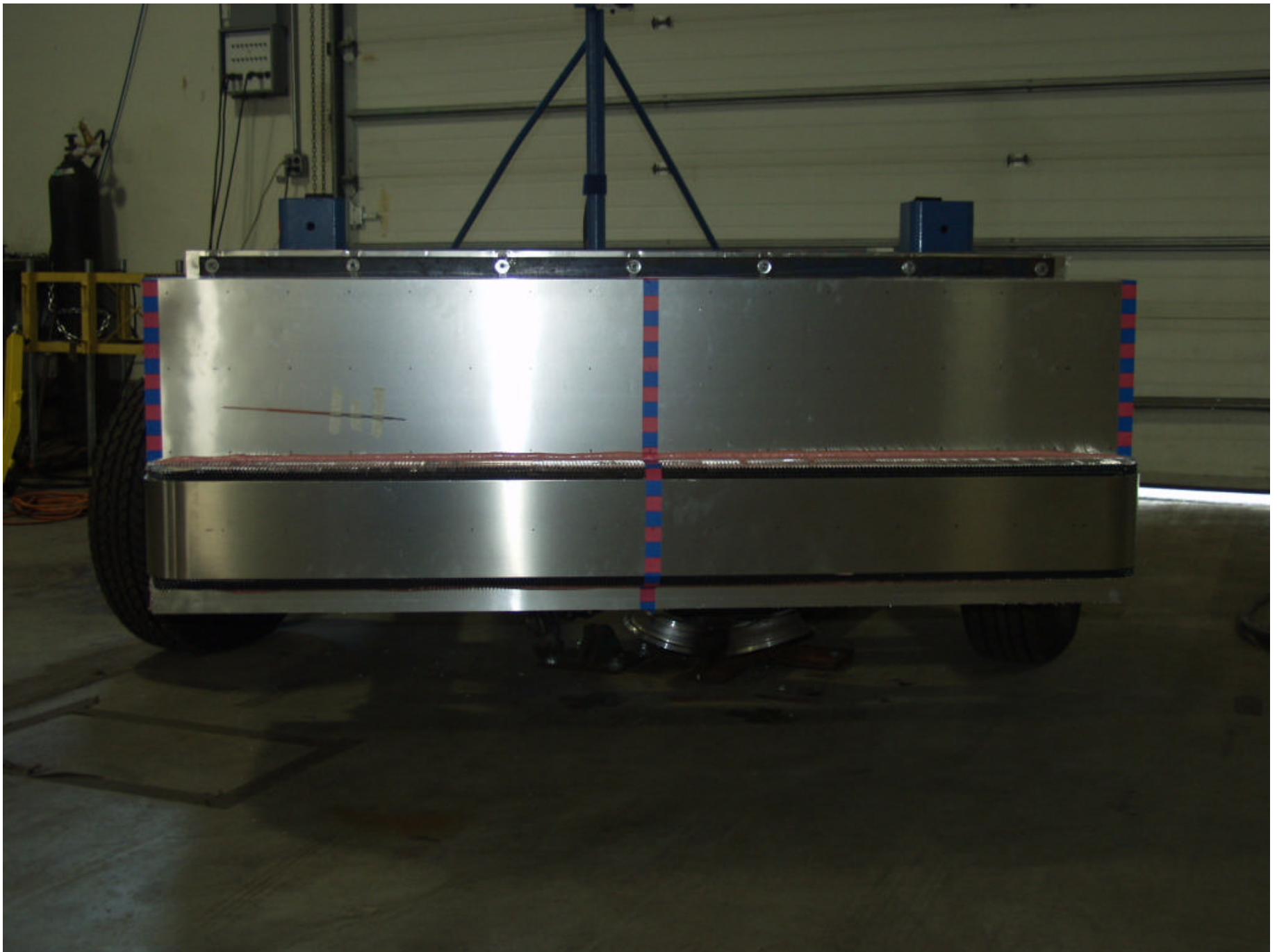


Figure A-15 PRE-TEST FRONTAL VIEW OF IMPACTOR FACE



Figure A-16 POST-TEST FRONTAL VIEW OF IMPACTOR FACE



Figure A-17 PRE-TEST LEFT SIDE VIEW OF IMPACTOR FACE



Figure A-18 POST-TEST LEFT SIDE VIEW OF IMPACTOR FACE



Figure A-19 PRE-TEST RIGHT SIDE VIEW OF IMPACTOR FACE



Figure A-20 POST-TEST RIGHT SIDE VIEW OF IMPACTOR FACE



Figure A-21 PRE-TEST TOP VIEW OF IMPACTOR FACE



Figure A-22 POST-TEST TOP VIEW OF IMPACTOR FACE

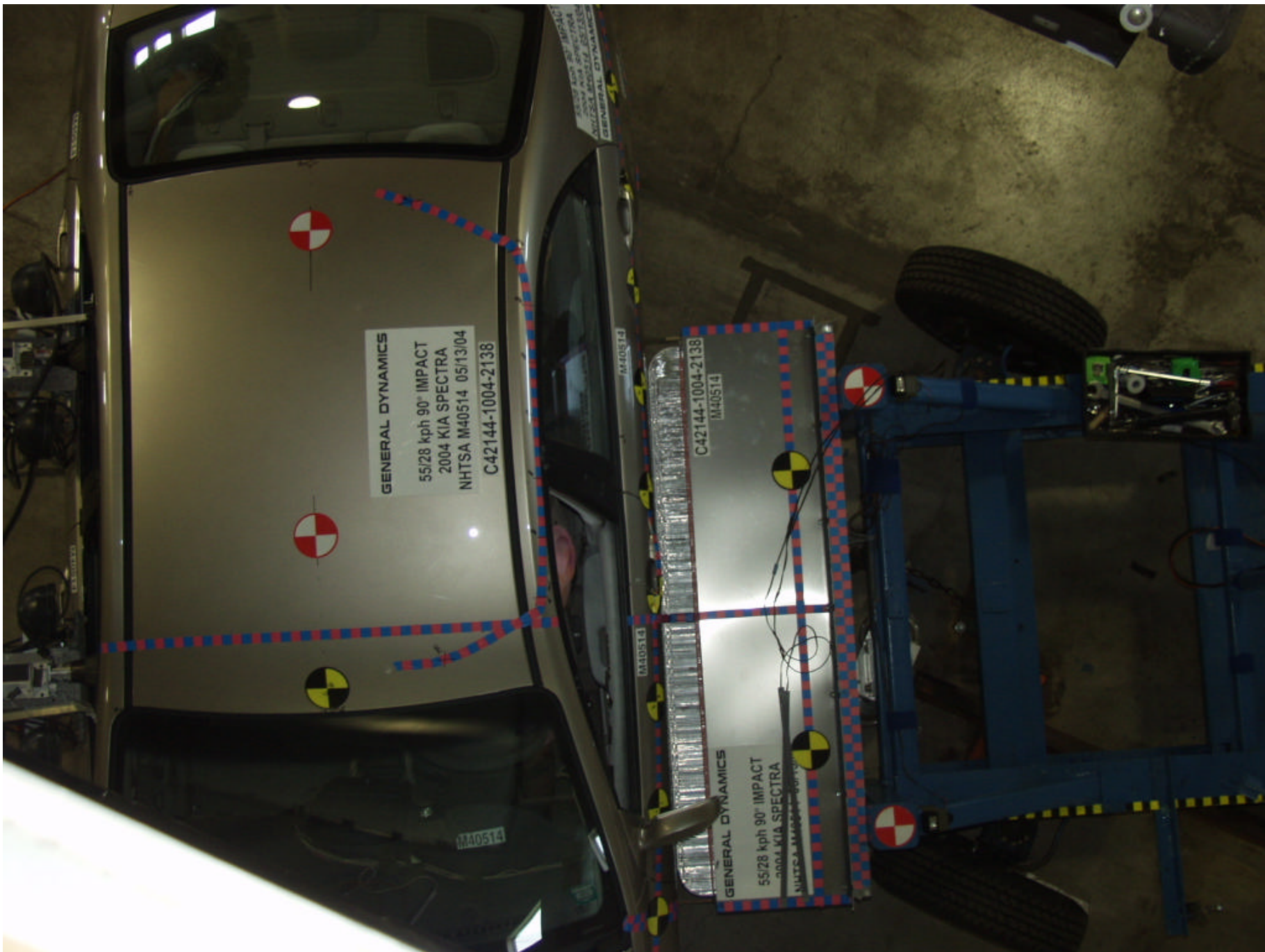


Figure A-23 PRE-TEST OVERHEAD VIEW OF ALIGNED MDB AND VEHICLE



Figure A-24 POST-TEST OVERHEAD VIEW OF MDB AND VEHICLE



Figure A-25 PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID H3



Figure A-26 POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID H3



Figure A-27 PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID H3



Figure A-28 POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID H3



Figure A-29 PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID H3



Figure A-30 POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID H3



Figure A-31 PRE-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID H3



Figure A-32 POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF REAR SID H3



Figure A-33 PRE-TEST INTERIOR OF FRONT DOOR



Figure A-34 POST-TEST INTERIOR OF FRONT DOOR SHOWING SID H3 IMPACT LOCATIONS



Figure A-35 PRE-TEST INTERIOR OF REAR DOOR



Figure A-36 POST-TEST INTERIOR OF REAR DOOR SHOWING SID H3 IMPACT LOCATIONS



Figure A-37 PRE-TEST LEFT SIDE VIEW OF MDB WITH IMPACTOR FACE IN POSITION



Figure A-38 PRE-TEST RIGHT SIDE VIEW OF MDB WITH IMPACTOR FACE IN POSITION



Figure A-39 POST-TEST CLOSE-UP VIEW OF IMPACT POINT TARGET



Figure A-40 CLOSE-UP VIEW OF VEHICLE'S CERTIFICATION LABEL

N KOREA BY
CORPORATION
796LB PAINT 4Y
84LB TRIM NZ
CABLE U.S.A. FEDERAL
PREVENTION STANDARDS
TURE SHOWN ABOVE
4
CAR

SPECTRA		RECOMMENDED TIRE SIZE AND INFLATION PRESSURE (COLD)		A
		DIMENSIONS DES PNEUS et PRESSIONS DE GONFLAGE RECOMMANDÉES (à froid)		
LOAD RANGE CHARGE NOMINALE	TIRE SIZE (LOAD RANGE C&D NOT PERMISSIBLE) DIMENSIONS DES PNEUS (CHARGES NOMINALES C ET D NON PERMISES)	PRESSURE / PRESSION		
		FRONT / AVANT		REAR / ARRIÈRE
STD	P195/60R15 87H P205/50R16 86H	30 psi 210 kPa		30 psi 210 kPa
T	T125/70D15 T125/70R15 TEMPORARY SPARE PNEU DE SECOURS PROVISOIRE	60 psi 415 kPa		
TOTAL LOAD = OCCUPANTS PLUS LUGGAGE		CHARGE GLOBALE = OCCUPANTS PLUS BAGAGES		
MODEL / MODÈLE	MAXIMUM LOAD CHARGE MAXIMALE	OCCUPANTS OCCUPANTS	DISTRIBUTION / RÉPARTITION	
			FRONT / AVANT	REAR / ARRIÈRE LUGGAGE / BAGAGES
ALL TOUS	849 lb/385 kg	5	2	3 99 lb/45 kg
SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION		VOIR MANUEL DE CONDUCTEUR POUR DES INFORMATIONS SUPPLÉMENTAIRES		

SEE OWNER'S MANUAL
THIS CAR IS EQUIPPED WITH A
SIDE AIRBAG SYSTEM
TO PROVIDE CONTINUED PROTECTION.
IF CERTAIN ELEMENTS OF THE
SIDE AIRBAG SYSTEM SHALL BE
SERVICED OR REPLACED BY AUTH-
ORIZED DEALER TEN YEARS AFTER
DATE OF MANUFACTURE DATE SHOWN
ON THE VIN PLATE

Figure A-41 CLOSE-UP VIEW OF VEHICLE'S TIRE PLACARD LABEL



Figure A-42 IMPACT PHOTO



Figure A-43 ROLLOVER 90 DEGREES



Figure A-44 ROLLOVER 180 DEGREES

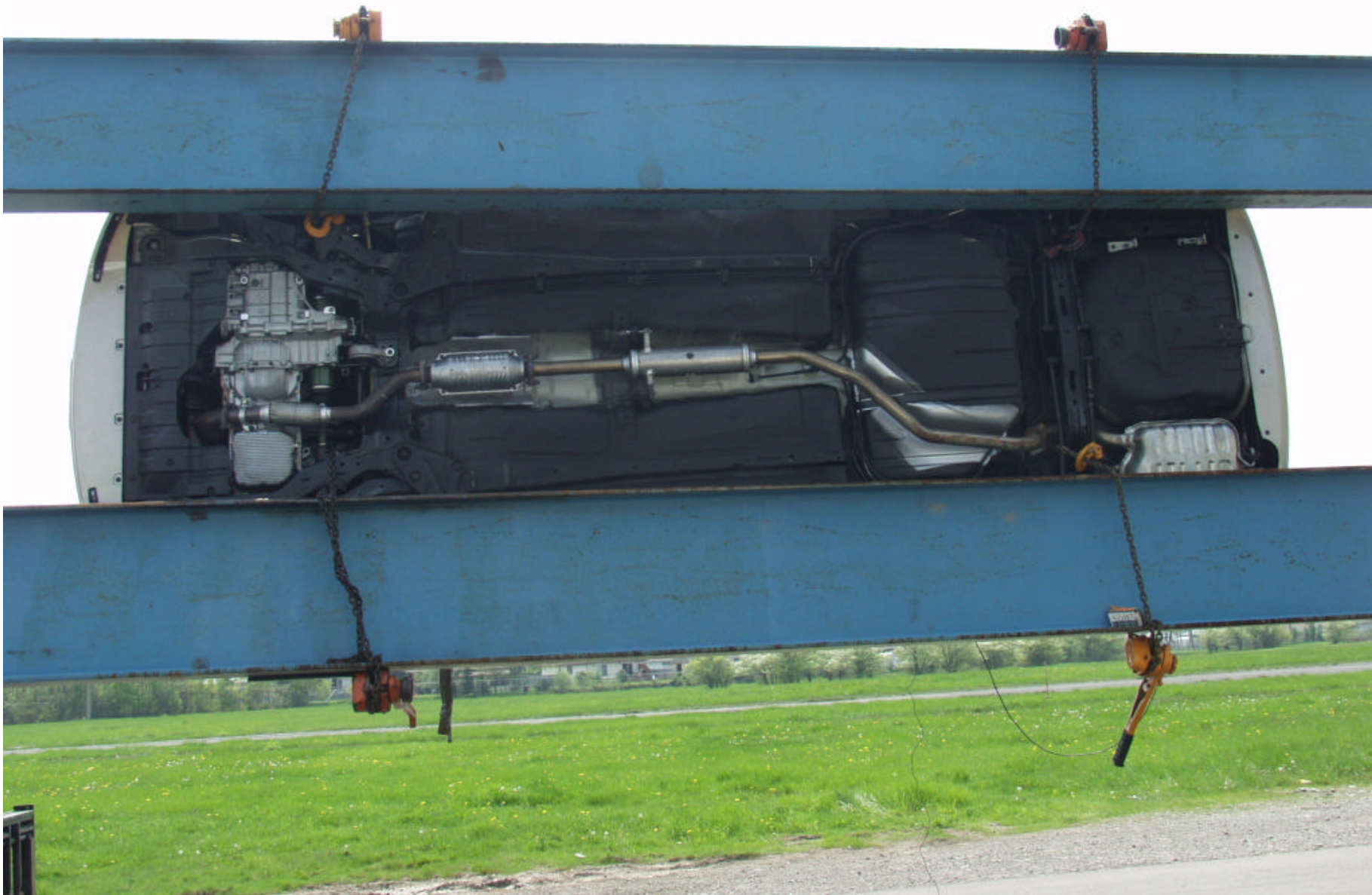


Figure A-45 ROLLOVER 270 DEGREES



Figure A-46 ROLLOVER 360 DEGREES

APPENDIX B

VEHICLE, MDB AND SID HYBRID III RESPONSE DATA

TABLE OF DATA PLOTS

DRIVER AND PASSENGER DUMMY INSTRUMENTATION PLOTS

ACCELERATION, FORCE AND MOMENT DATA - FILTER CLASS 1000, LOWER SPINE - FILTER CLASS 180
INTEGRATION DATA - FILTER CLASS 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
1	DRIVER HEAD (X) ACCELERATION VS TIME	B- 6
2	DRIVER HEAD (X) VELOCITY VS TIME	B- 7
3	DRIVER HEAD (Y) ACCELERATION VS TIME	B- 8
4	DRIVER HEAD (Y) VELOCITY VS TIME	B- 9
5	DRIVER HEAD (Z) ACCELERATION VS TIME	B- 10
6	DRIVER HEAD (Z) VELOCITY VS TIME	B- 11
7	DRIVER HEAD RESULTANT ACCELERATION VS TIME	B- 12
8	DRIVER UPPER NECK (X) FORCE VS TIME	B- 13
9	DRIVER UPPER NECK (Y) FORCE VS TIME	B- 14
10	DRIVER UPPER NECK (Z) FORCE VS TIME	B- 15
11	DRIVER UPPER NECK RESULTANT FORCE VS TIME	B- 16
12	DRIVER UPPER NECK (X) MOMENT VS TIME	B- 17
13	DRIVER UPPER NECK (Y) MOMENT VS TIME	B- 18
14	DRIVER UPPER NECK (Z) MOMENT VS TIME	B- 19
15	DRIVER UPPER NECK RESULTANT MOMENT VS TIME	B- 20
16	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 21
17	DRIVER UPPER RIB (Y) VELOCITY VS TIME	B- 22
18	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 23
19	DRIVER LOWER RIB (Y) VELOCITY VS TIME	B- 24
20	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 25
21	DRIVER LOWER SPINE (Y) VELOCITY VS TIME	B- 26
22	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 27
23	DRIVER PELVIC (Y) VELOCITY VS TIME	B- 28
24	PASSENGER HEAD (X) ACCELERATION VS TIME	B- 29
25	PASSENGER HEAD (X) VELOCITY VS TIME	B- 30
26	PASSENGER HEAD (Y) ACCELERATION VS TIME	B- 31
27	PASSENGER HEAD (Y) VELOCITY VS TIME	B- 32
28	PASSENGER HEAD (Z) ACCELERATION VS TIME	B- 33
29	PASSENGER HEAD (Z) VELOCITY VS TIME	B- 34
30	PASSENGER HEAD RESULTANT ACCELERATION VS TIME	B- 35
31	PASSENGER UPPER NECK (X) FORCE VS TIME	B- 36
32	PASSENGER UPPER NECK (Y) FORCE VS TIME	B- 37
33	PASSENGER UPPER NECK (Z) FORCE VS TIME	B- 38
34	PASSENGER UPPER NECK RESULTANT FORCE VS TIME	B- 39
35	PASSENGER UPPER NECK (X) MOMENT VS TIME	B- 40
36	PASSENGER UPPER NECK (Y) MOMENT VS TIME	B- 41
37	PASSENGER UPPER NECK (Z) MOMENT VS TIME	B- 42
38	PASSENGER UPPER NECK RESULTANT MOMENT VS TIME	B- 43
39	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 44
40	PASSENGER UPPER RIB (Y) VELOCITY VS TIME	B- 45
41	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 46
42	PASSENGER LOWER RIB (Y) VELOCITY VS TIME	B- 47
43	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 48
44	PASSENGER LOWER SPINE (Y) VELOCITY VS TIME	B- 49
45	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 50
46	PASSENGER PELVIC (Y) VELOCITY VS TIME	B- 51

DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS

ACCELERATION DATA - FIR FILTERED

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
47	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 52
48	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 53
49	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 54
50	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 55
51	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 56
52	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 57
53	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 58
54	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 59

TEST VEHICLE INSTRUMENTATION PLOTS
ACCELERATION DATA - FILTER CLASS 60
INTEGRATION DATA - FILTER CLASS 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
55	RIGHT SIDE SILL AT FRONT SEAT (X) ACCELERATION VS TIME	B- 60
56	RIGHT SIDE SILL AT FRONT SEAT (X) VELOCITY VS TIME	B- 61
57	RIGHT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B- 62
58	RIGHT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B- 63
59	RIGHT SIDE SILL AT FRONT SEAT (Z) ACCELERATION VS TIME	B- 64
60	RIGHT SIDE SILL AT FRONT SEAT (Z) VELOCITY VS TIME	B- 65
61	RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION VS TIME	B- 66
62	RIGHT SIDE SILL AT REAR SEAT (X) ACCELERATION VS TIME	B- 67
63	RIGHT SIDE SILL AT REAR SEAT (X) VELOCITY VS TIME	B- 68
64	RIGHT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B- 69
65	RIGHT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B- 70
66	RIGHT SIDE SILL AT REAR SEAT (Z) ACCELERATION VS TIME	B- 71
67	RIGHT SIDE SILL AT REAR SEAT (Z) VELOCITY VS TIME	B- 72
68	RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION VS TIME	B- 73
69	REAR FLOORPAN ABOVE AXLE (X) ACCELERATION VS TIME	B- 74
70	REAR FLOORPAN ABOVE AXLE (X) VELOCITY VS TIME	B- 75
71	REAR FLOORPAN ABOVE AXLE (Y) ACCELERATION VS TIME	B- 76
72	REAR FLOORPAN ABOVE AXLE (Y) VELOCITY VS TIME	B- 77
73	REAR FLOORPAN ABOVE AXLE (Z) ACCELERATION VS TIME	B- 78
74	REAR FLOORPAN ABOVE AXLE (Z) VELOCITY VS TIME	B- 79
75	REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION VS TIME	B- 80
76	LEFT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B- 81
77	LEFT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B- 82
78	LEFT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B- 83
79	LEFT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B- 84
80	LEFT FRONT DOOR ON CENTERLINE (Y) ACCELERATION VS TIME	B- 85
81	LEFT FRONT DOOR ON CENTERLINE (Y) VELOCITY VS TIME	B- 86
82	RIGHT REAR OCCUPANT COMPARTMENT (Y) ACCELERATION VS TIME	B- 87
83	RIGHT REAR OCCUPANT COMPARTMENT (Y) VELOCITY VS TIME	B- 88
84	MID REAR OF LEFT FRONT DOOR (Y) ACCELERATION VS TIME	B- 89
85	MID REAR OF LEFT FRONT DOOR (Y) VELOCITY VS TIME	B- 90
86	LEFT FRONT DOOR UPPER CENTERLINE (Y) ACCELERATION VS TIME	B- 91
87	LEFT FRONT DOOR UPPER CENTERLINE (Y) VELOCITY VS TIME	B- 92
88	MID REAR OF LEFT REAR DOOR (Y) ACCELERATION VS TIME	B- 93
89	MID REAR OF LEFT REAR DOOR (Y) VELOCITY VS TIME	B- 94
90	LEFT REAR DOOR UPPER CENTERLINE (Y) ACCELERATION VS TIME	B- 95
91	LEFT REAR DOOR UPPER CENTERLINE (Y) VELOCITY VS TIME	B- 96
92	LOWER B-POST (Y) ACCELERATION VS TIME	B- 97
93	LOWER B-POST (Y) VELOCITY VS TIME	B- 98
94	UPPER B-POST (Y) ACCELERATION VS TIME	B- 99
95	UPPER B-POST (Y) VELOCITY VS TIME	B- 100
96	LOWER A-POST (Y) ACCELERATION VS TIME	B- 101

TEST VEHICLE INSTRUMENTATION PLOTS
ACCELERATION DATA - FILTER CLASS 60
INTEGRATION DATA - FILTER CLASS 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
97	LOWER A-POST (Y) VELOCITY VS TIME	B- 102
98	UPPER A-POST (Y) ACCELERATION VS TIME	B- 103
99	UPPER A-POST (Y) VELOCITY VS TIME	B- 104
100	FRONT SEAT TRACK (Y) ACCELERATION VS TIME	B- 105
101	FRONT SEAT TRACK (Y) VELOCITY VS TIME	B- 106
102	REAR SEAT TRACK (Y) ACCELERATION VS TIME	B- 107
103	REAR SEAT TRACK (Y) VELOCITY VS TIME	B- 108
104	VEHICLE CENTER OF GRAVITY (X) ACCELERATION VS TIME	B- 109
105	VEHICLE CENTER OF GRAVITY (X) VELOCITY VS TIME	B- 110
106	VEHICLE CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B- 111
107	VEHICLE CENTER OF GRAVITY (Y) VELOCITY ACCELERATION VS TIME	B- 112
108	VEHICLE CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B- 113
109	VEHICLE CENTER OF GRAVITY (Z) VELOCITY VS TIME	B- 114
110	VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B- 115

MDB INSTRUMENTATION PLOTS
ACCELERATION DATA - FILTER CLASS 60
INTEGRATION DATA - FILTER CLASS 180

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
111	MDB CENTER OF GRAVITY (X) ACCELERATION VS TIME	B- 116
112	MDB CENTER OF GRAVITY (X) VELOCITY VS TIME	B- 117
113	MDB CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B- 118
114	MDB CENTER OF GRAVITY (Y) VELOCITY VS TIME	B- 119
115	MDB CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B- 120
116	MDB CENTER OF GRAVITY (Z) VELOCITY VS TIME	B- 121
117	MDB CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B- 122
118	MDB REAR (X) ACCELERATION VS TIME	B- 123
119	MDB REAR (X) VELOCITY VS TIME	B- 124
120	MDB REAR (Y) ACCELERATION VS TIME	B- 125
121	MDB REAR (Y) VELOCITY VS TIME	B- 126

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

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
122	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 127
123	DRIVER UPPER RIB (Y) VELOCITY VS TIME	B- 128
124	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 129
125	DRIVER LOWER RIB (Y) VELOCITY VS TIME	B- 130
126	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 131
127	DRIVER LOWER SPINE (Y) VELOCITY VS TIME	B- 132
128	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 133
129	DRIVER PELVIC (Y) VELOCITY VS TIME	B- 134
130	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 135
131	PASSENGER UPPER RIB (Y) VELOCITY VS TIME	B- 136
132	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 137
133	PASSENGER LOWER RIB (Y) VELOCITY VS TIME	B- 138
134	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 139
135	PASSENGER LOWER SPINE (Y) VELOCITY VS TIME	B- 140
136	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 141
137	PASSENGER PELVIC (Y) VELOCITY VS TIME	B- 142

DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS (REDUNDANT)
ACCELERATION DATA - FIR FILTERED

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
138	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 143
139	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 144
140	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 145
141	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 146
142	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 147
143	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 148
144	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 149
145	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 150

2004 SNCAP Test 4 - 2004 Kia Spectra

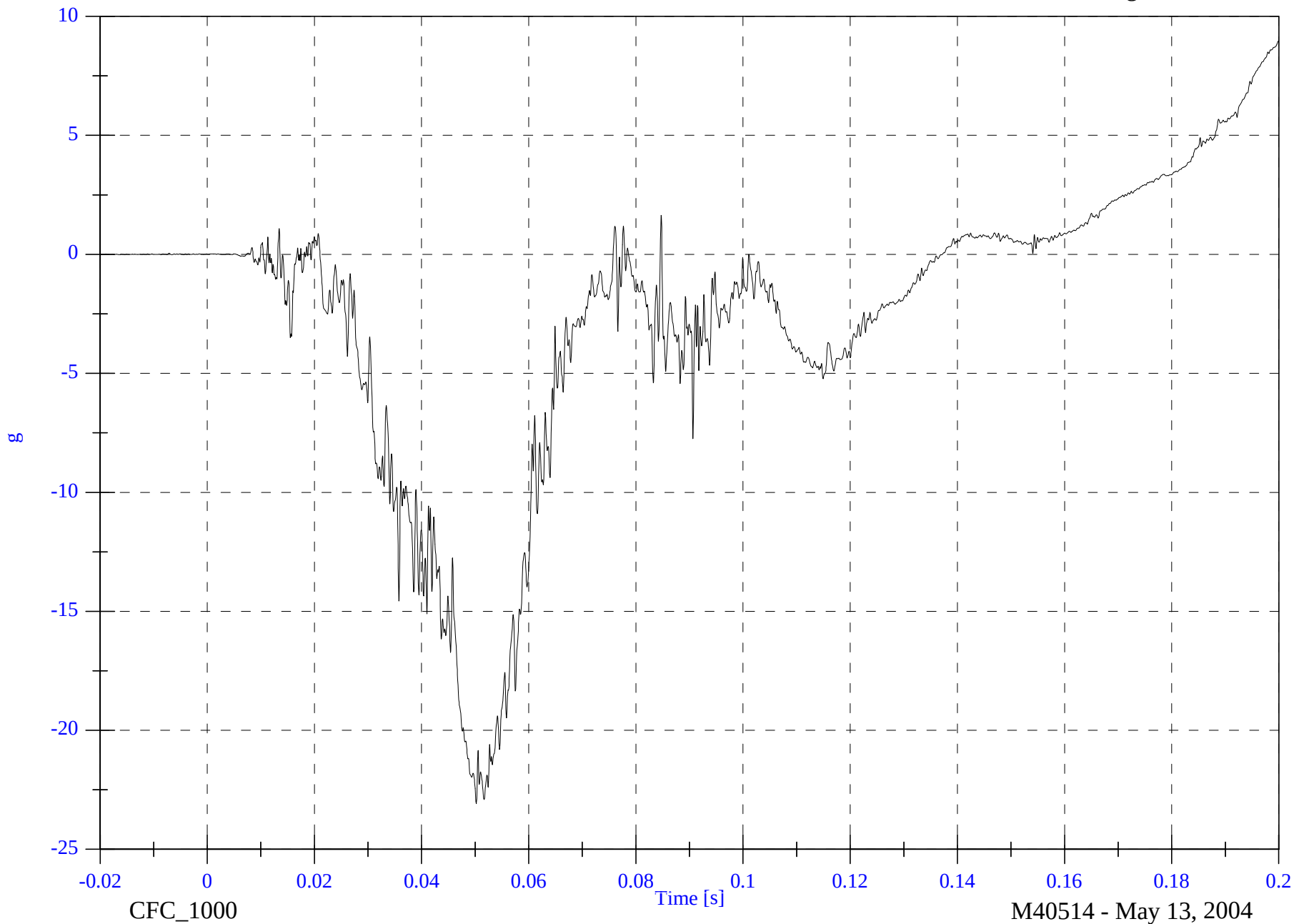
V2P1 Head x

Max: 9.0 [g] at 0.200 [s]

Min: -23.1 [g] at 0.050 [s]

B-6

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Head x Velocity

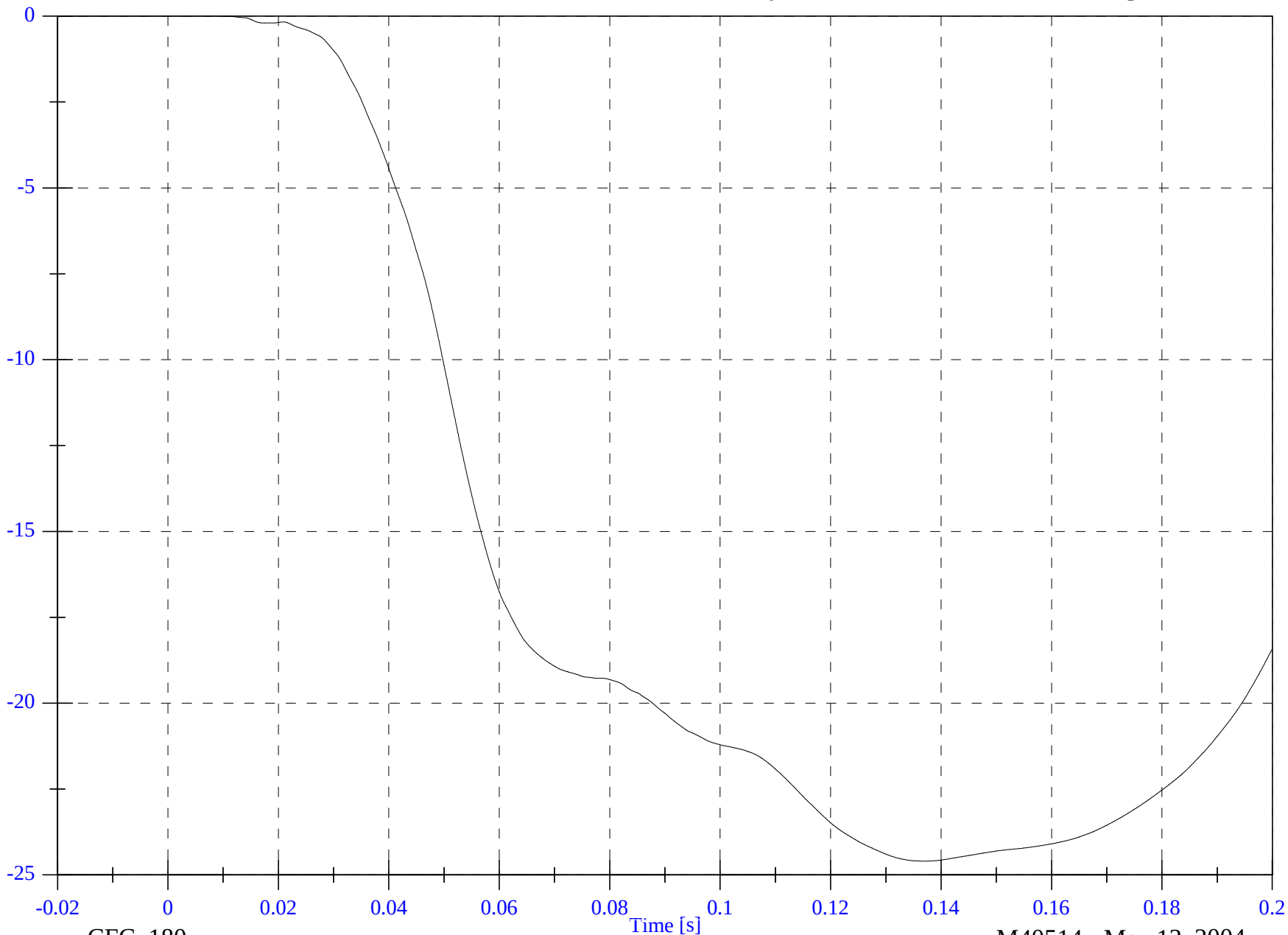
Max: 0.0 [kph] at 0.005 [s]

Min: -24.6 [kph] at 0.137 [s]

B-7

8725-SNCAP-04

kph



CFC_180

M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

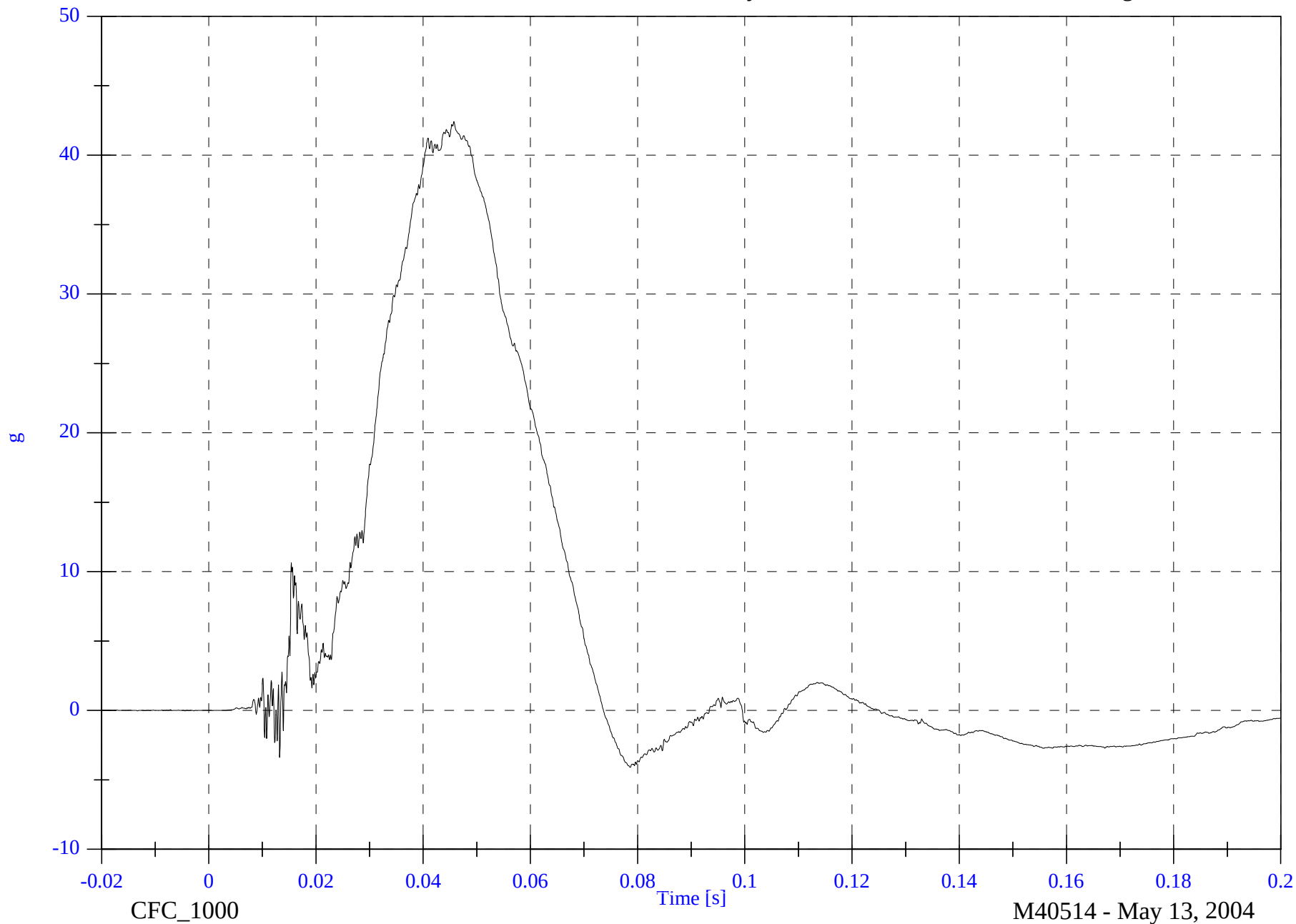
V2P1 Head y

Max: 42.4 [g] at 0.046 [s]

Min: -4.1 [g] at 0.079 [s]

B-8

8725-SNCAP-04

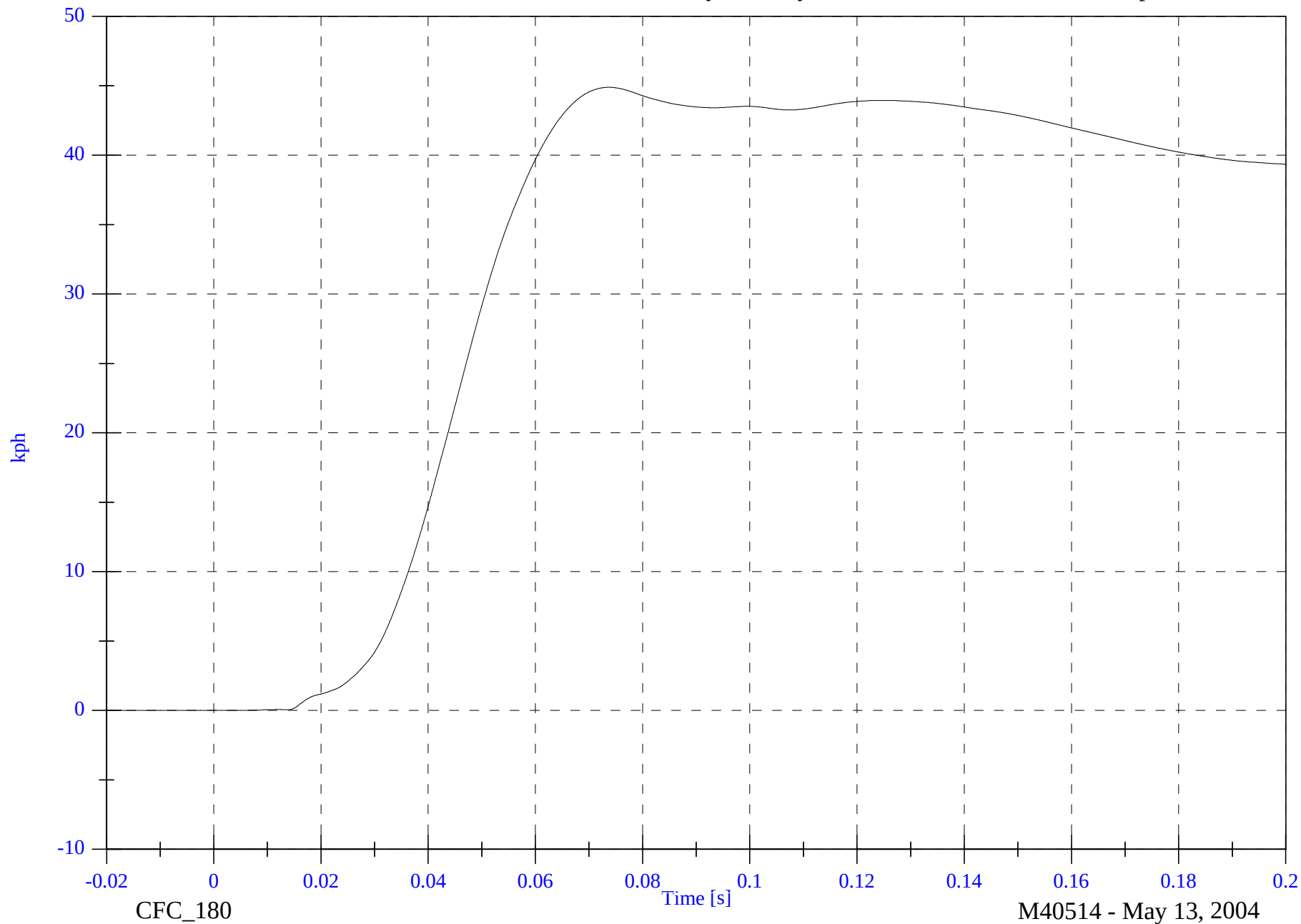


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Head y Velocity

Max: 44.9 [kph] at 0.074 [s]

Min: -0.0 [kph] at -0.020 [s]



B-9

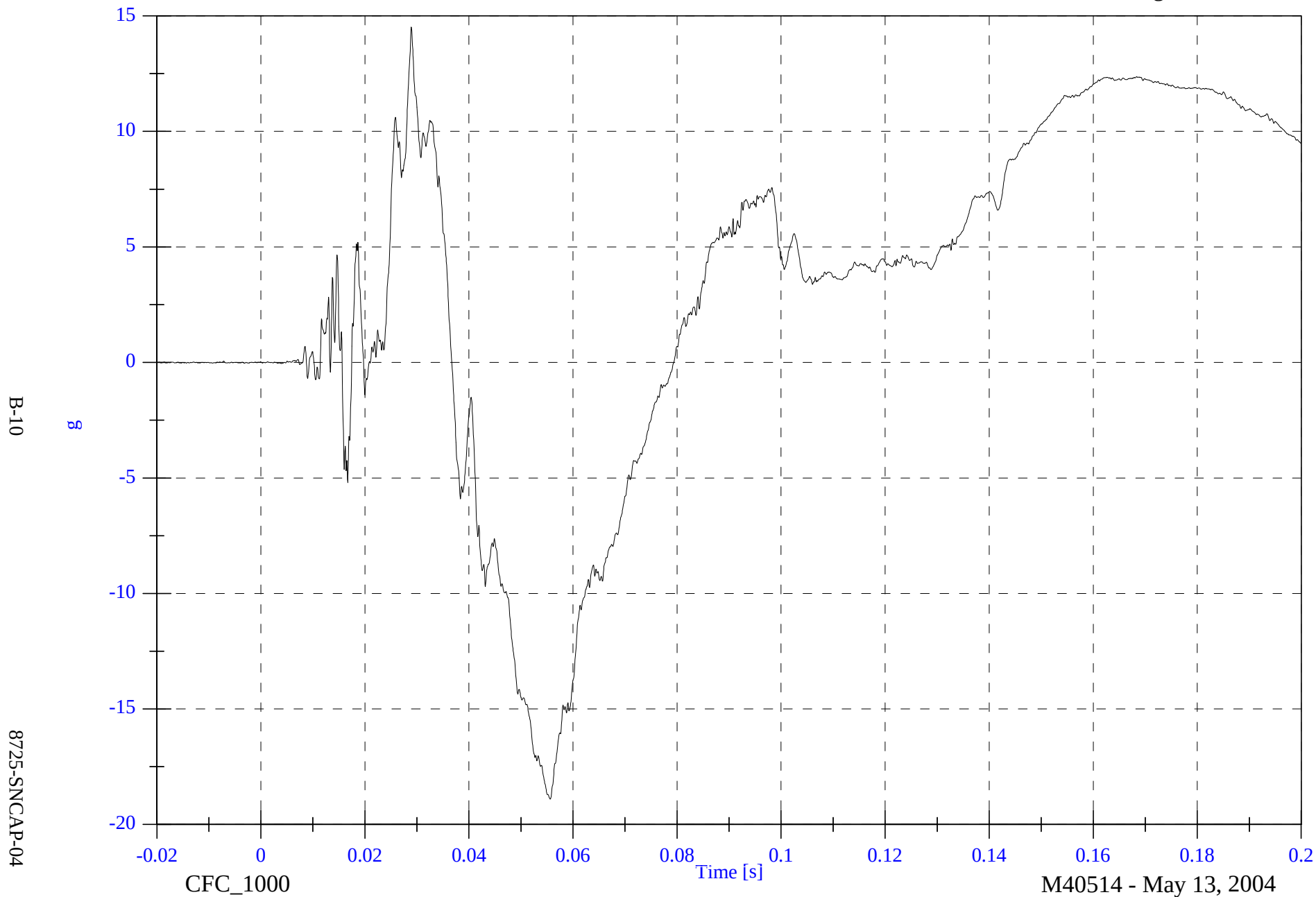
8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Head z

Max: 14.5 [g] at 0.029 [s]

Min: -18.9 [g] at 0.056 [s]



2004 SNCAP Test 4 - 2004 Kia Spectra

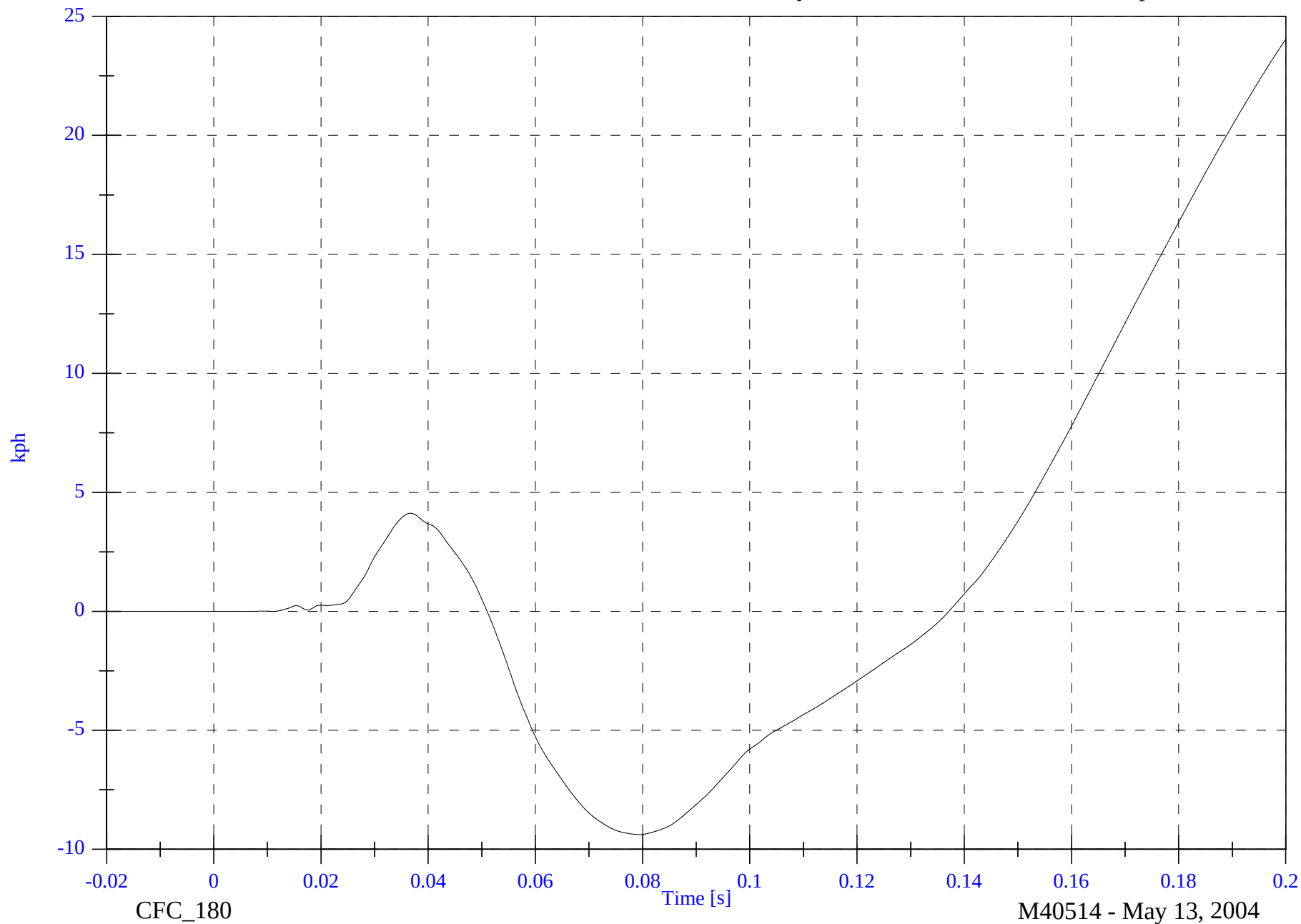
V2P1 Head z Velocity

Max: 24.0 [kph] at 0.200 [s]

Min: -9.4 [kph] at 0.079 [s]

B-11

8725-SNCAP-04



CFC_180

M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

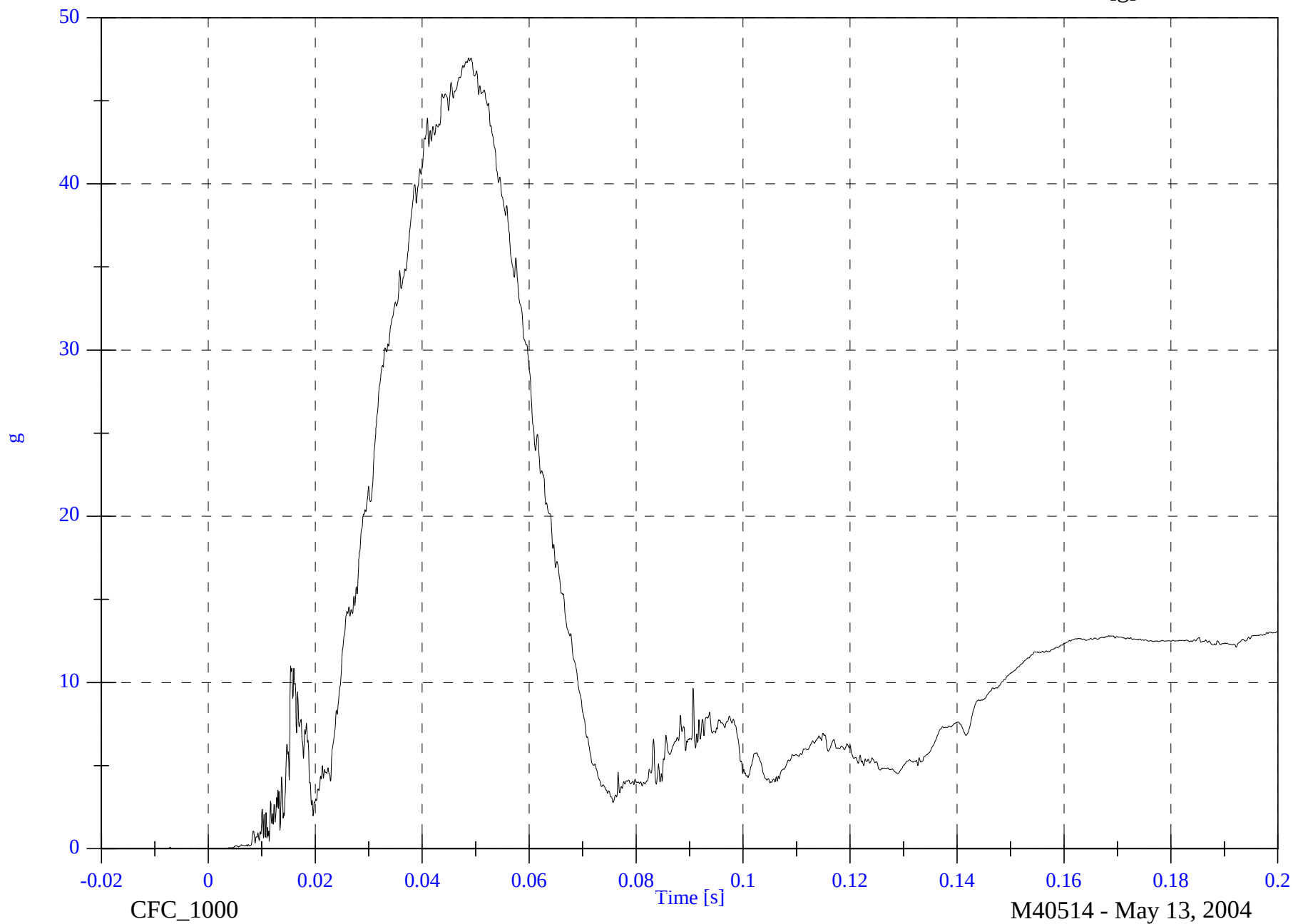
V2P1 Head Resultant

Max: 47.6 [g] at 0.049 [s]

Min: 0.0 [g] at -0.016 [s]

B-12

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Upper Neck Fx

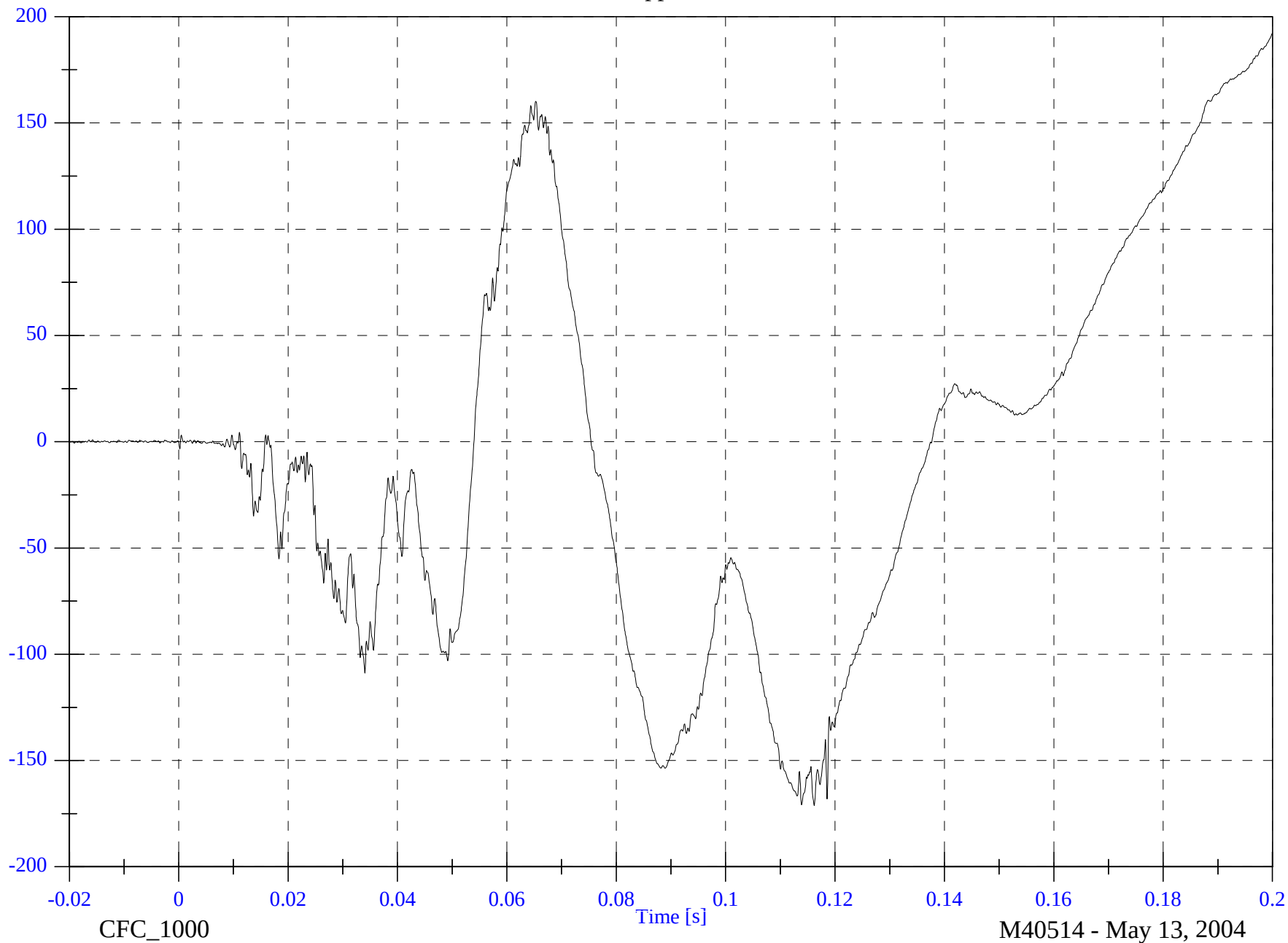
Max: 192.3 [N] at 0.200 [s]

Min: -171.1 [N] at 0.116 [s]

B-13

N

8725-SNCAP-04



CFC_1000

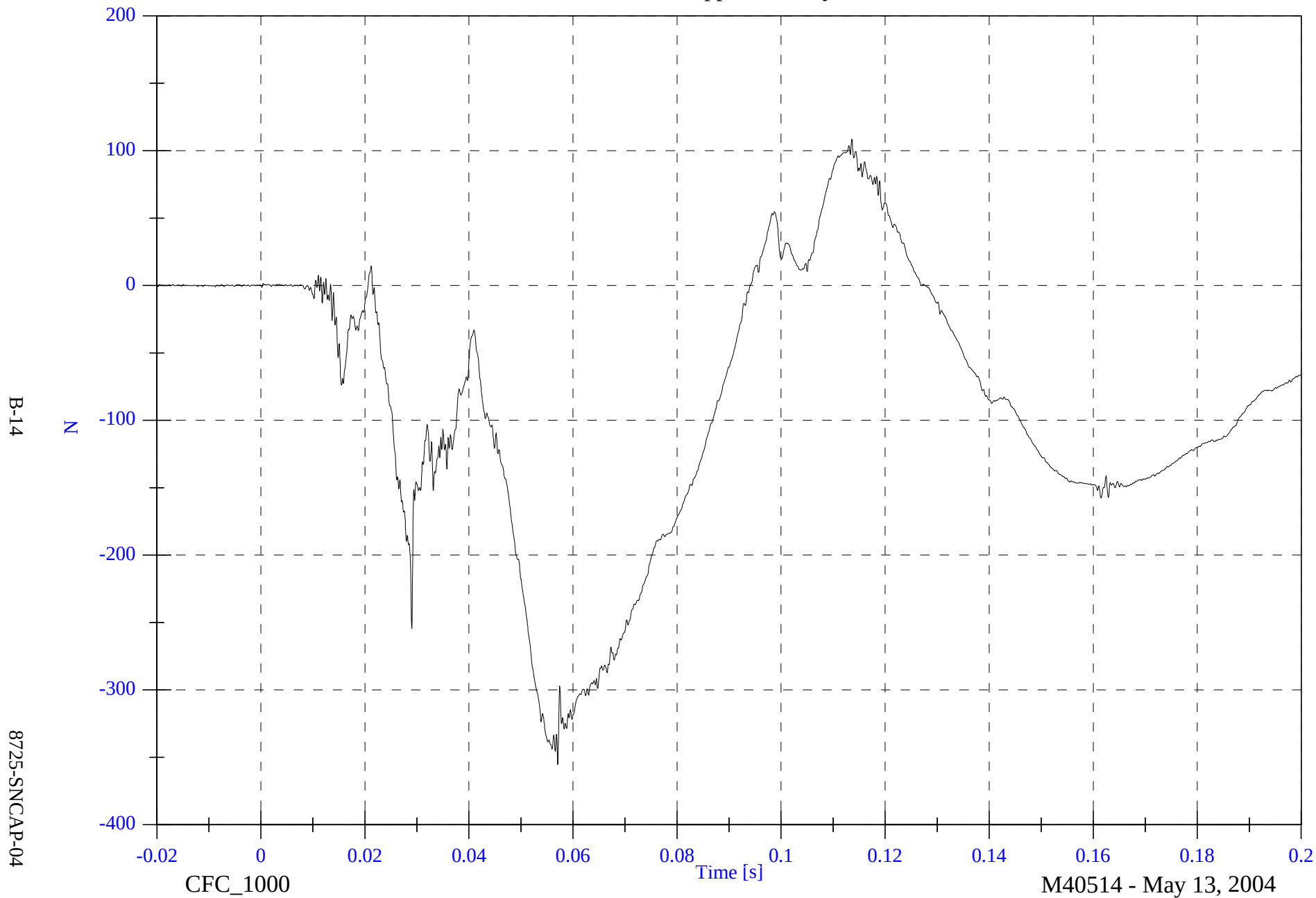
M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Upper Neck Fy

Max: 108.6 [N] at 0.114 [s]

Min: -355.2 [N] at 0.057 [s]

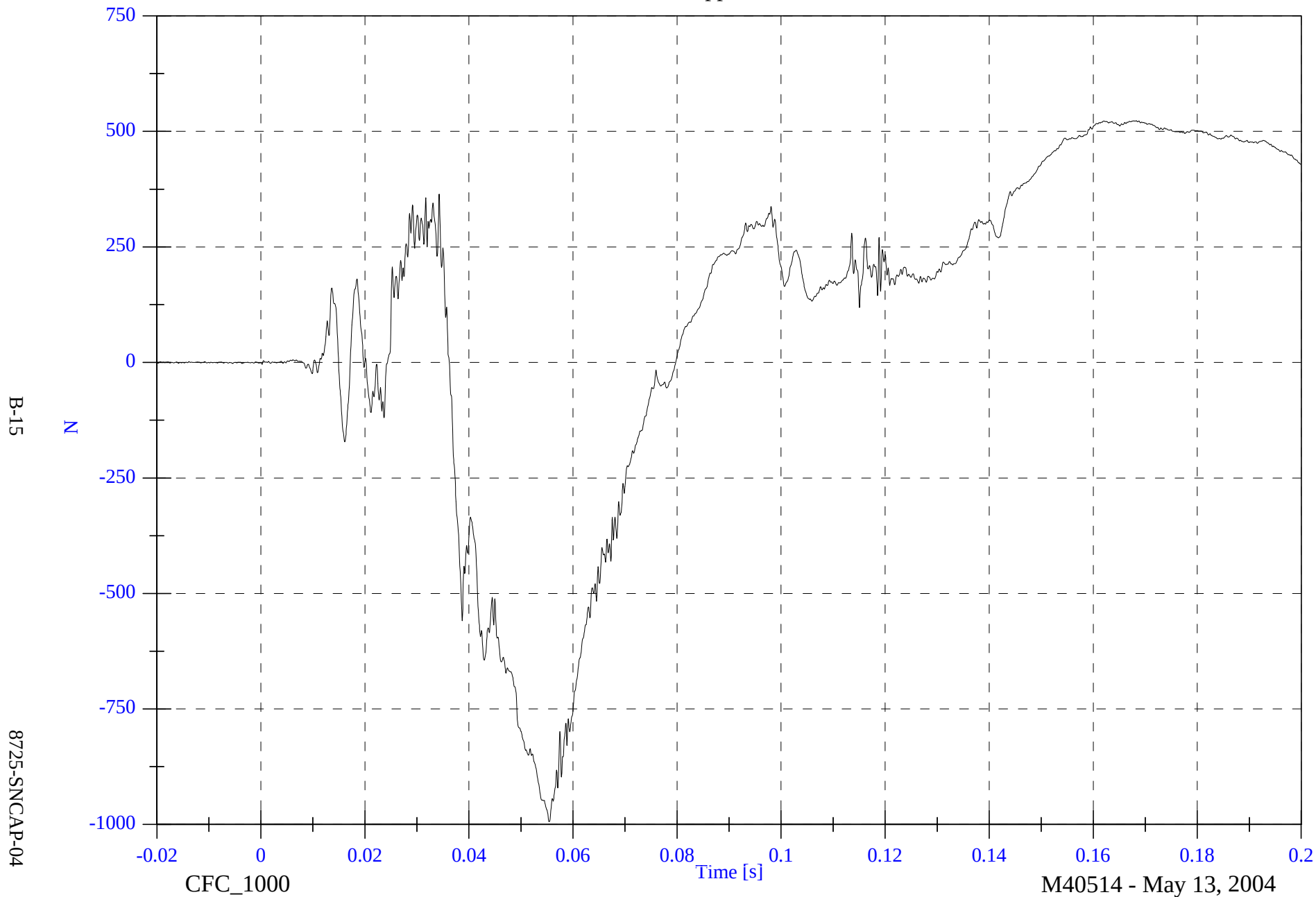


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Upper Neck Fz

Max: 523.0 [N] at 0.168 [s]

Min: -993.9 [N] at 0.055 [s]



2004 SNCAP Test 4 - 2004 Kia Spectra

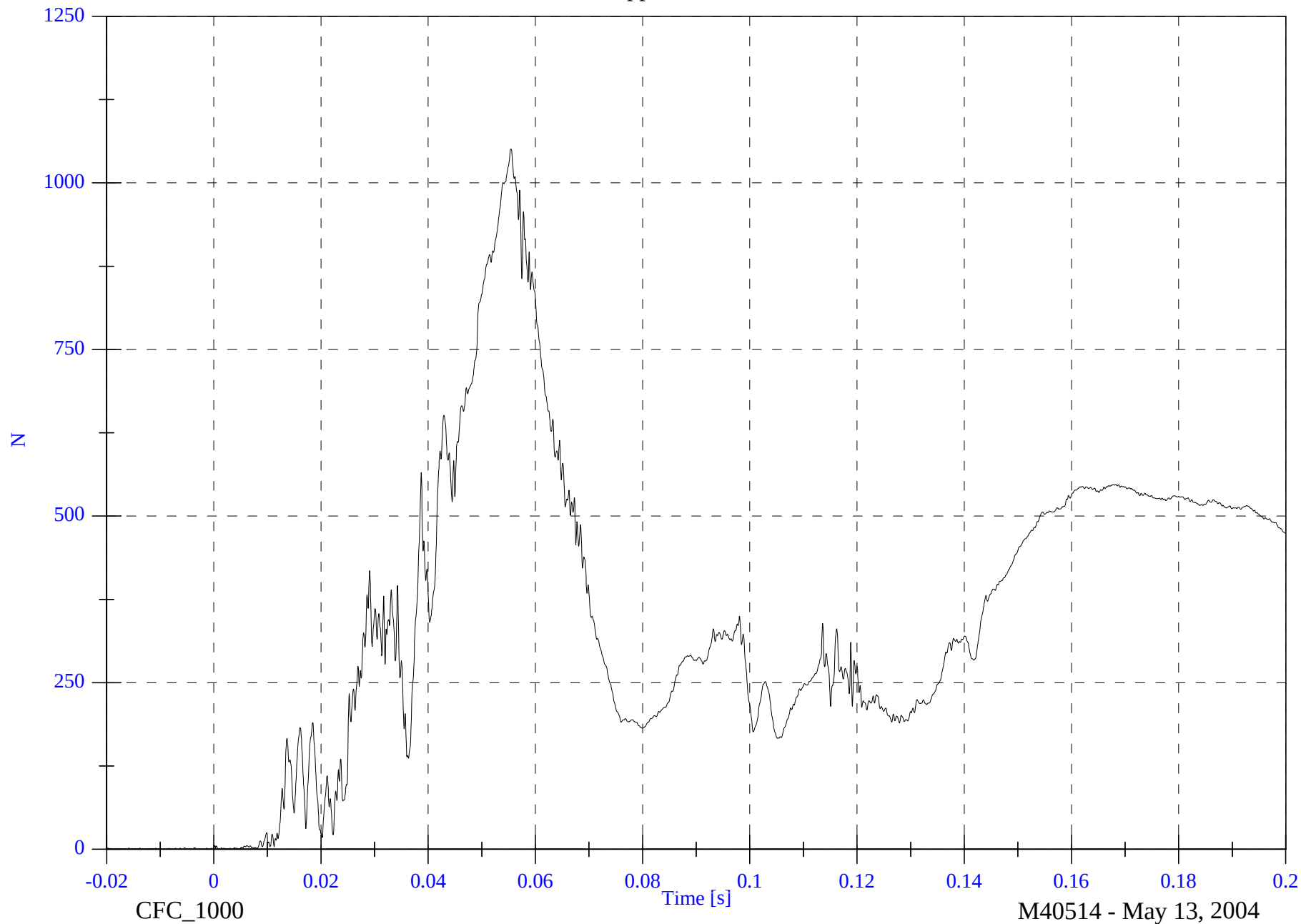
V2P1 Upper Neck F Resultant

Max: 1050.9 [N] at 0.055 [s]

Min: 0.1 [N] at -0.017 [s]

B-16

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

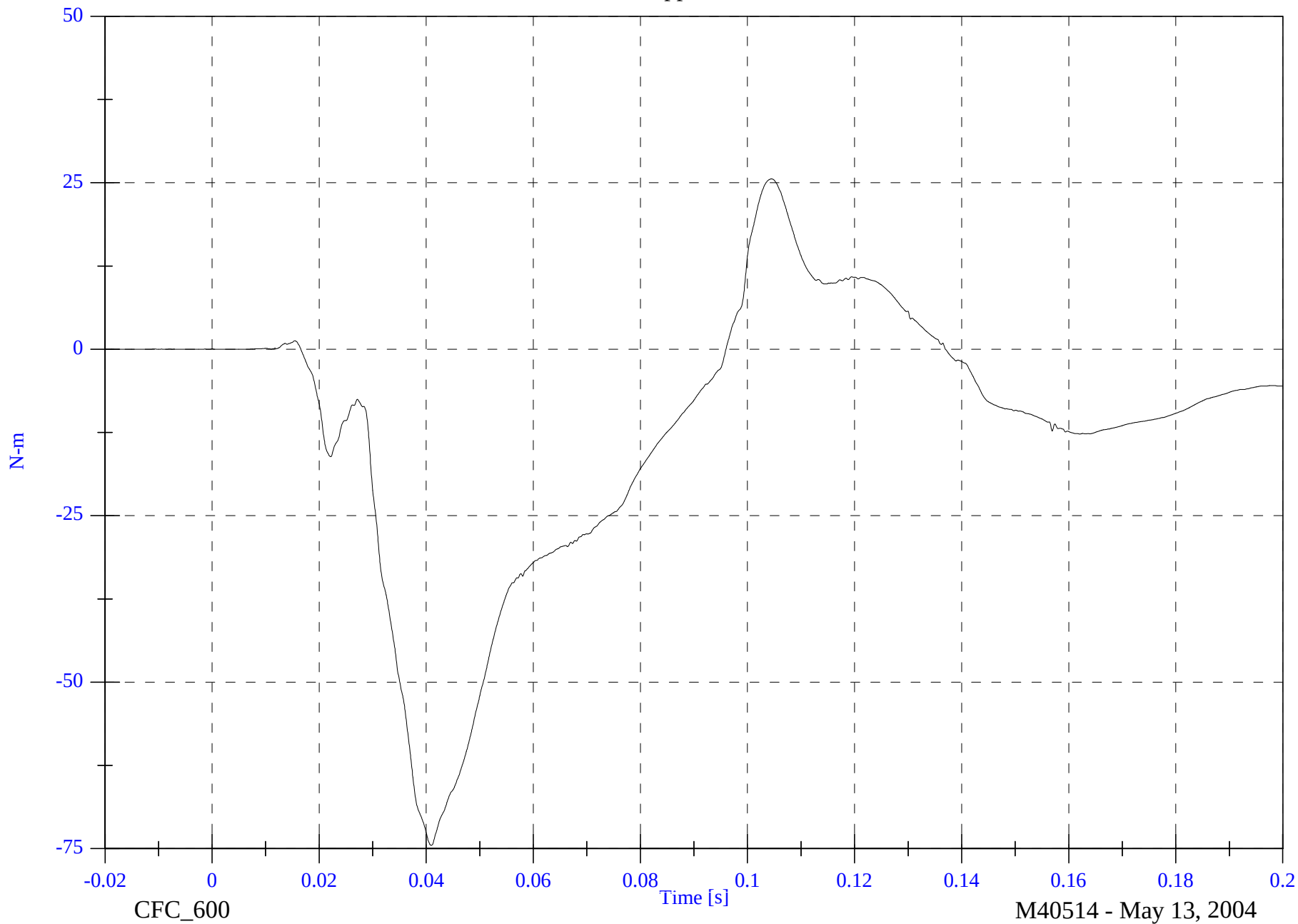
V2P1 Upper Neck Mx

Max: 25.6 [N-m] at 0.104 [s]

Min: -74.5 [N-m] at 0.041 [s]

B-17

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

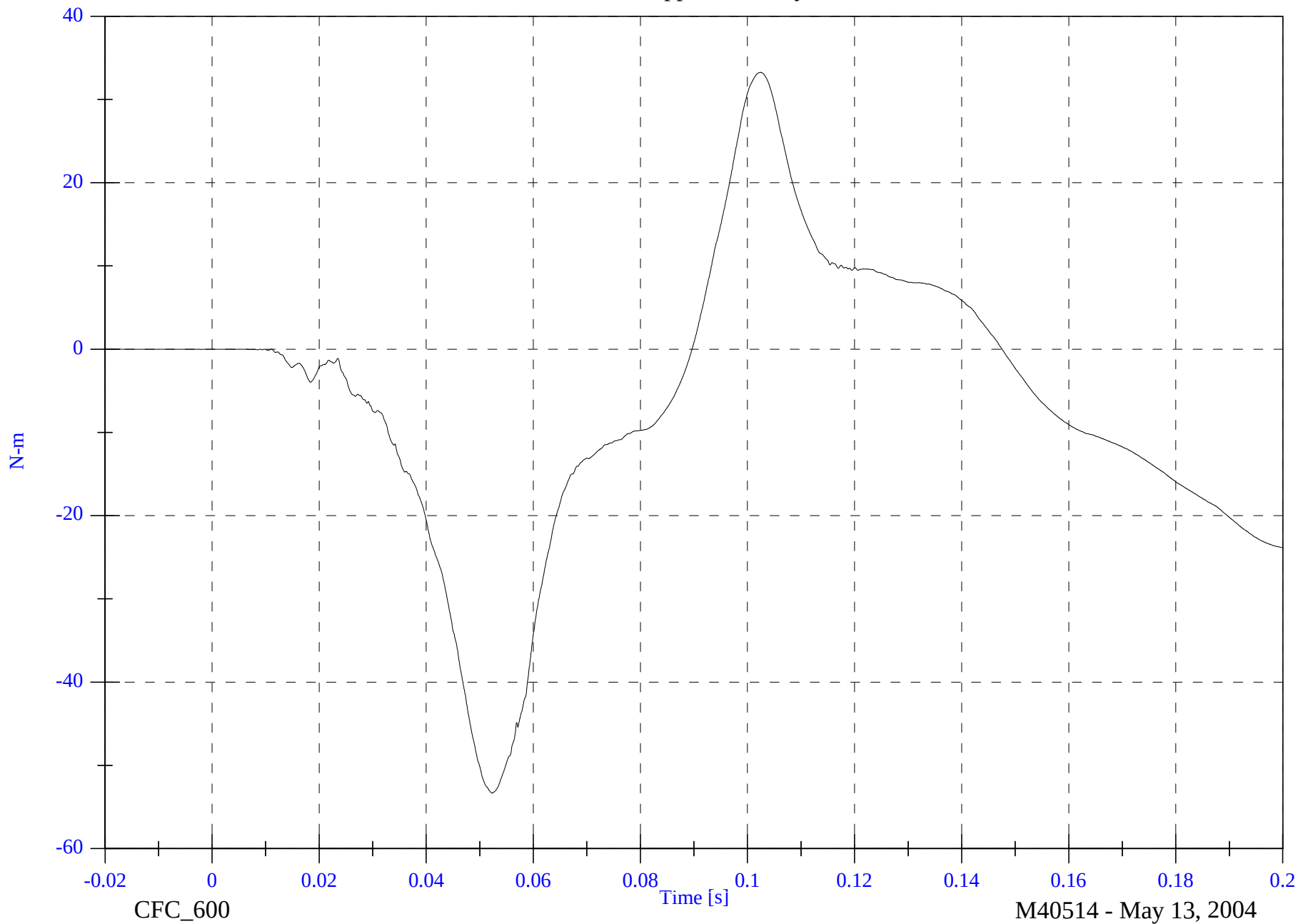
V2P1 Upper Neck My

Max: 33.3 [N-m] at 0.102 [s]

Min: -53.3 [N-m] at 0.052 [s]

B-18

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Upper Neck Mz

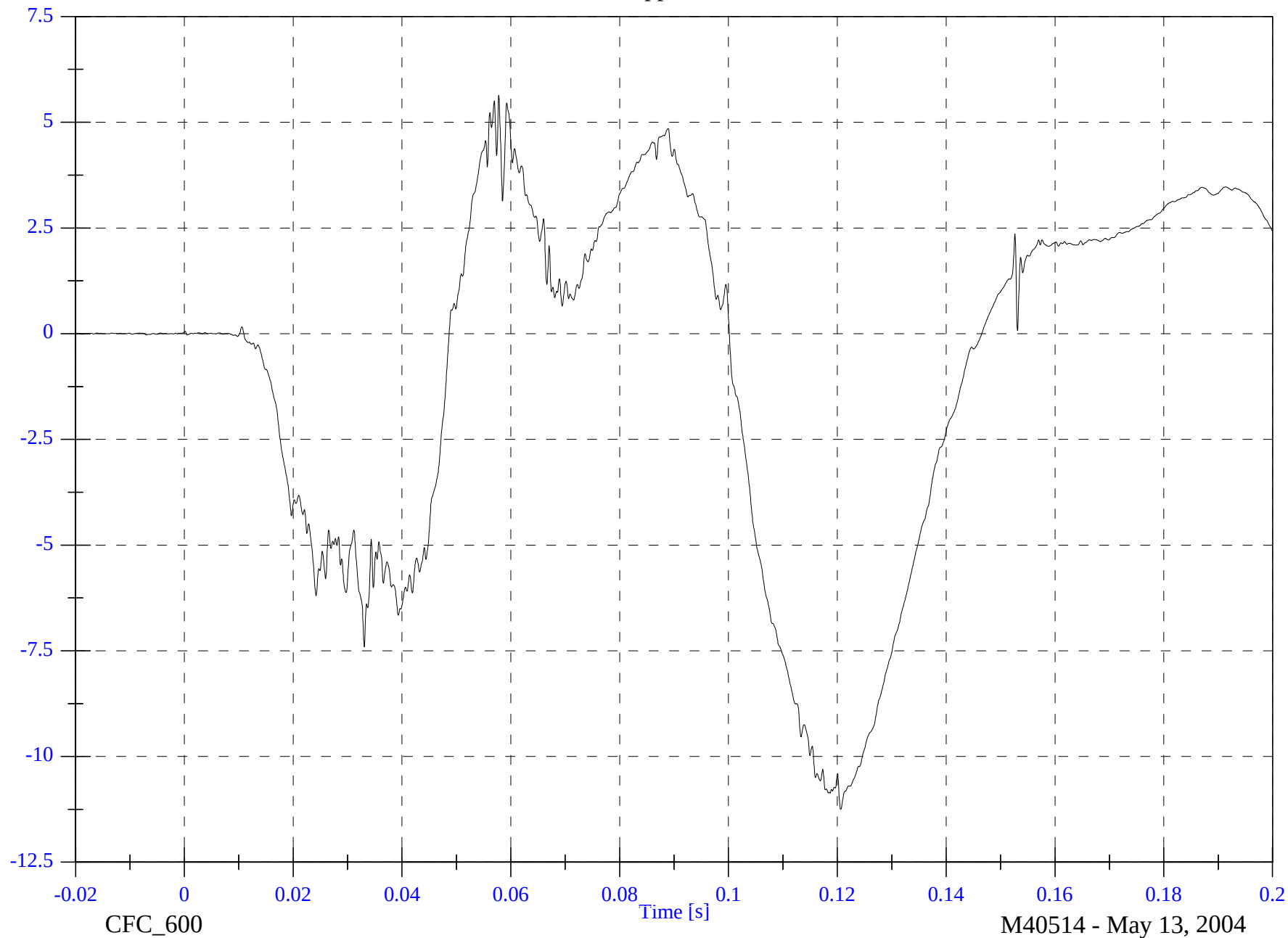
Max: 5.6 [N-m] at 0.058 [s]

Min: -11.3 [N-m] at 0.121 [s]

B-19

N-m

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

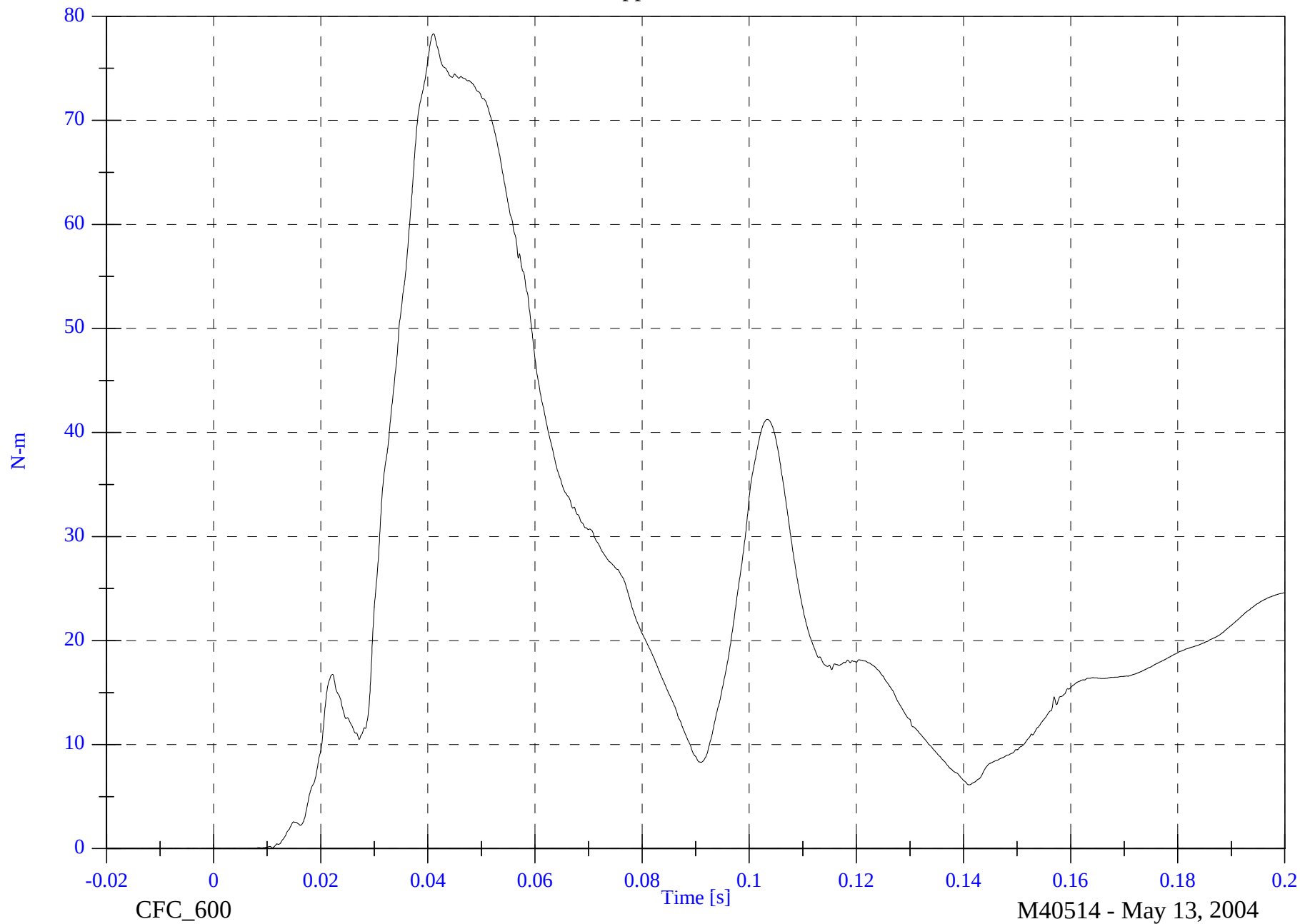
V2P1 Upper Neck M Resultant

Max: 78.3 [N-m] at 0.041 [s]

Min: 0.0 [N-m] at -0.014 [s]

B-20

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

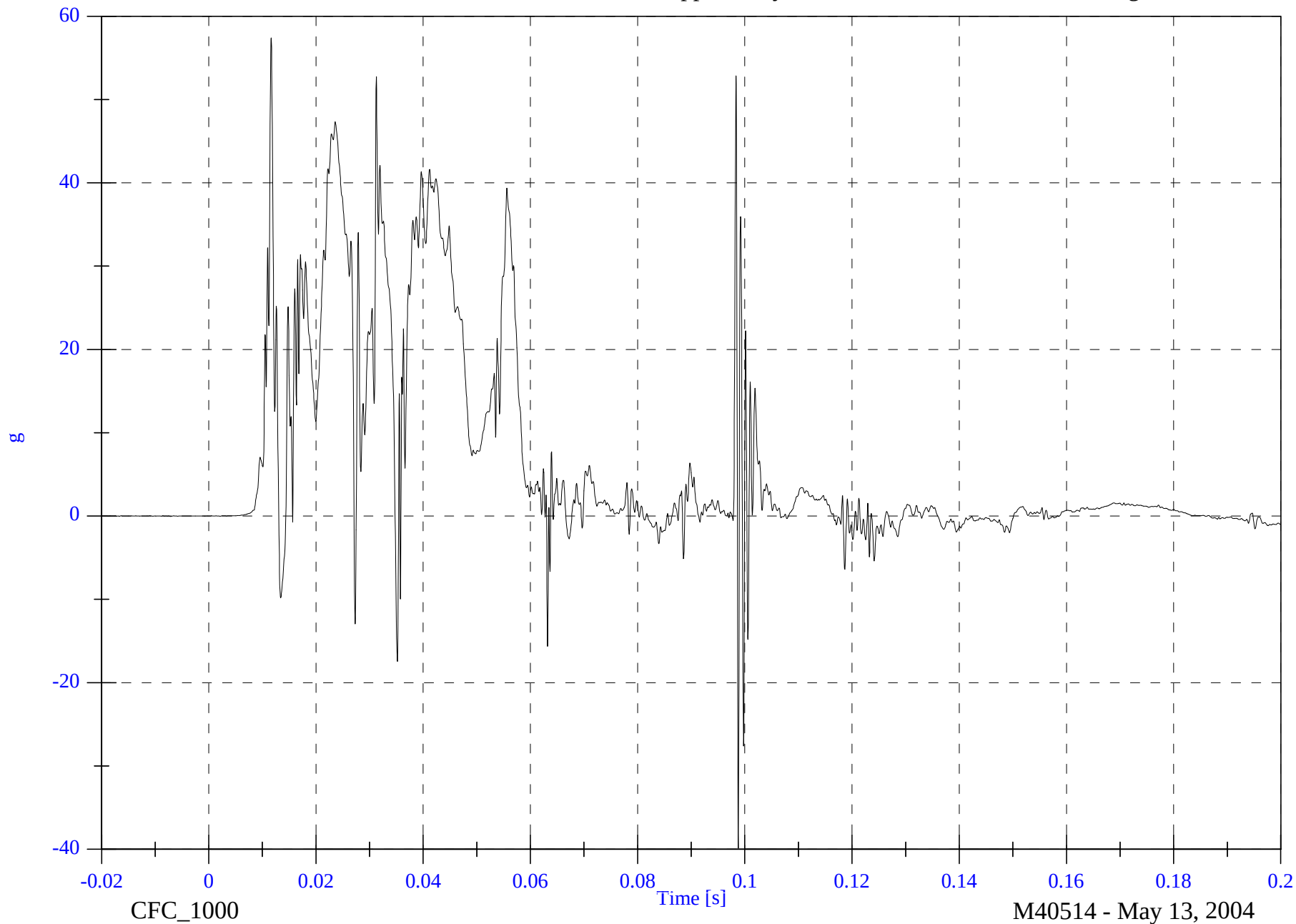
V2P1 Upper Rib y

Max: 57.4 [g] at 0.012 [s]

Min: -39.9 [g] at 0.099 [s]

B-21

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

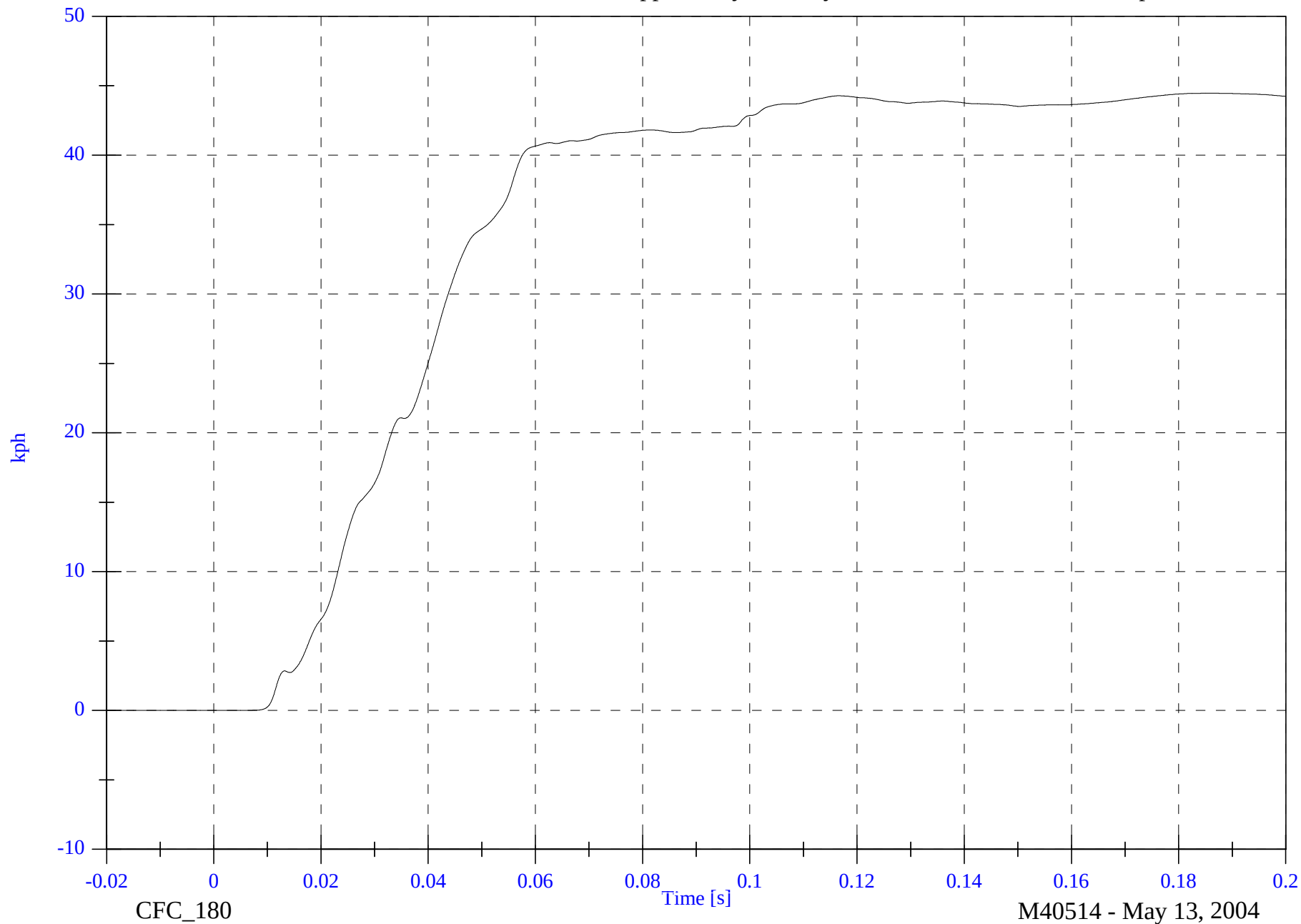
V2P1 Upper Rib y Velocity

Max: 44.5 [kph] at 0.186 [s]

Min: -0.0 [kph] at -0.020 [s]

B-22

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

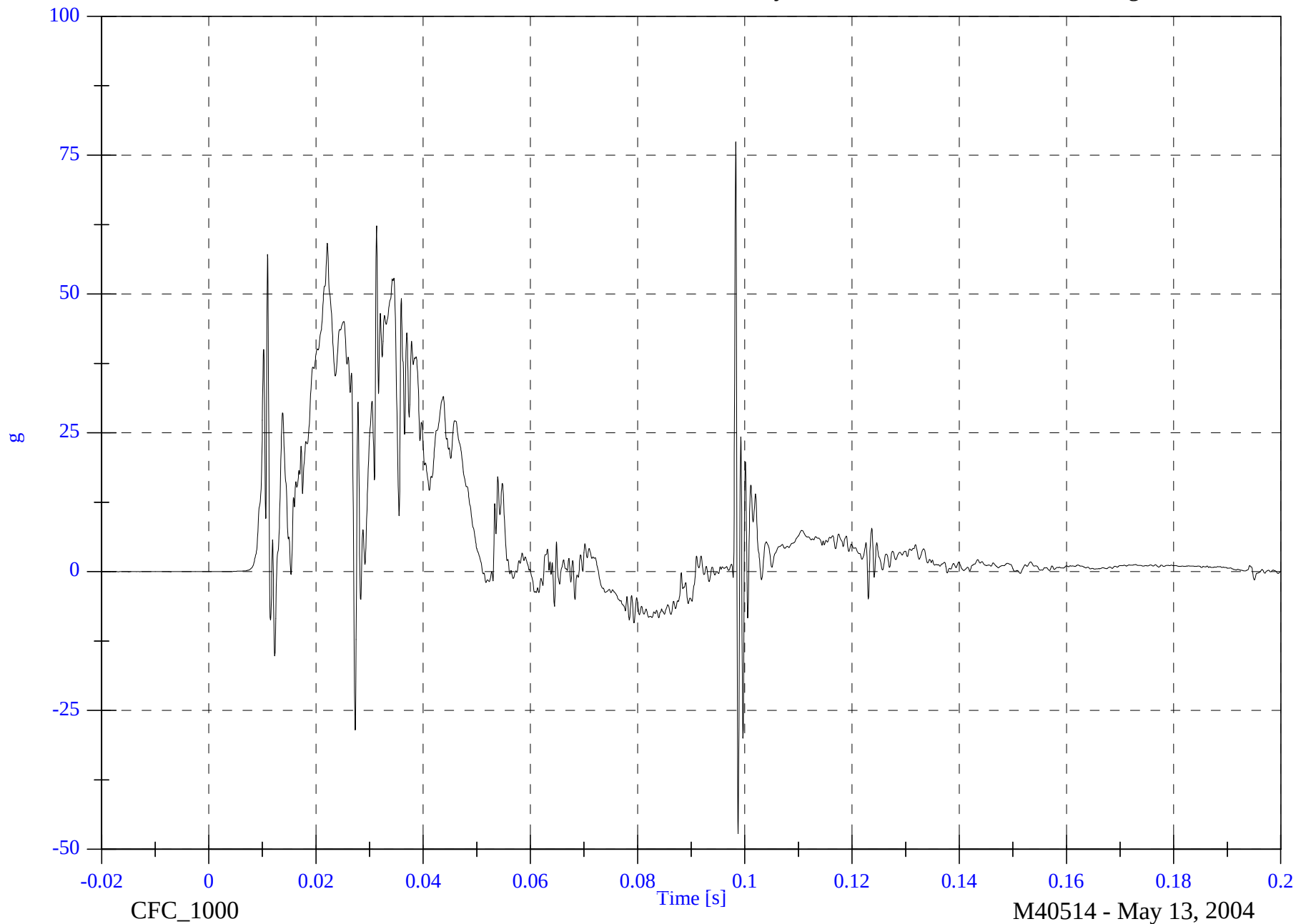
V2P1 Lower Rib y

Max: 77.4 [g] at 0.098 [s]

Min: -47.2 [g] at 0.099 [s]

B-23

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Lower Rib y Velocity

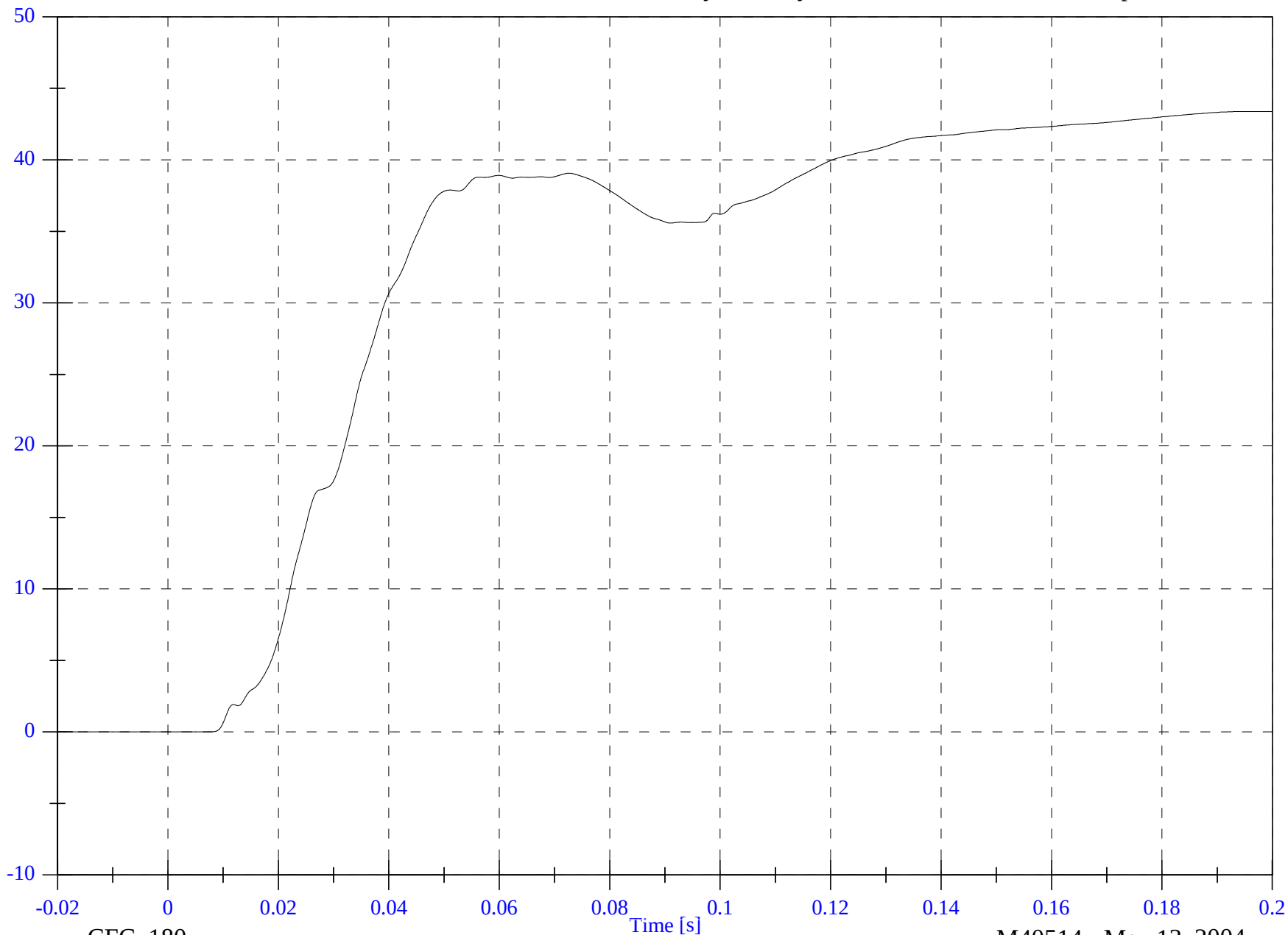
Max: 43.4 [kph] at 0.195 [s]

Min: -0.0 [kph] at -0.020 [s]

B-24

8725-SNCAP-04

kph



CFC_180

M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Lower Spine y

Max: 78.9 [g] at 0.028 [s]

Min: -14.6 [g] at 0.065 [s]

B-25

8725-SNCAP-04

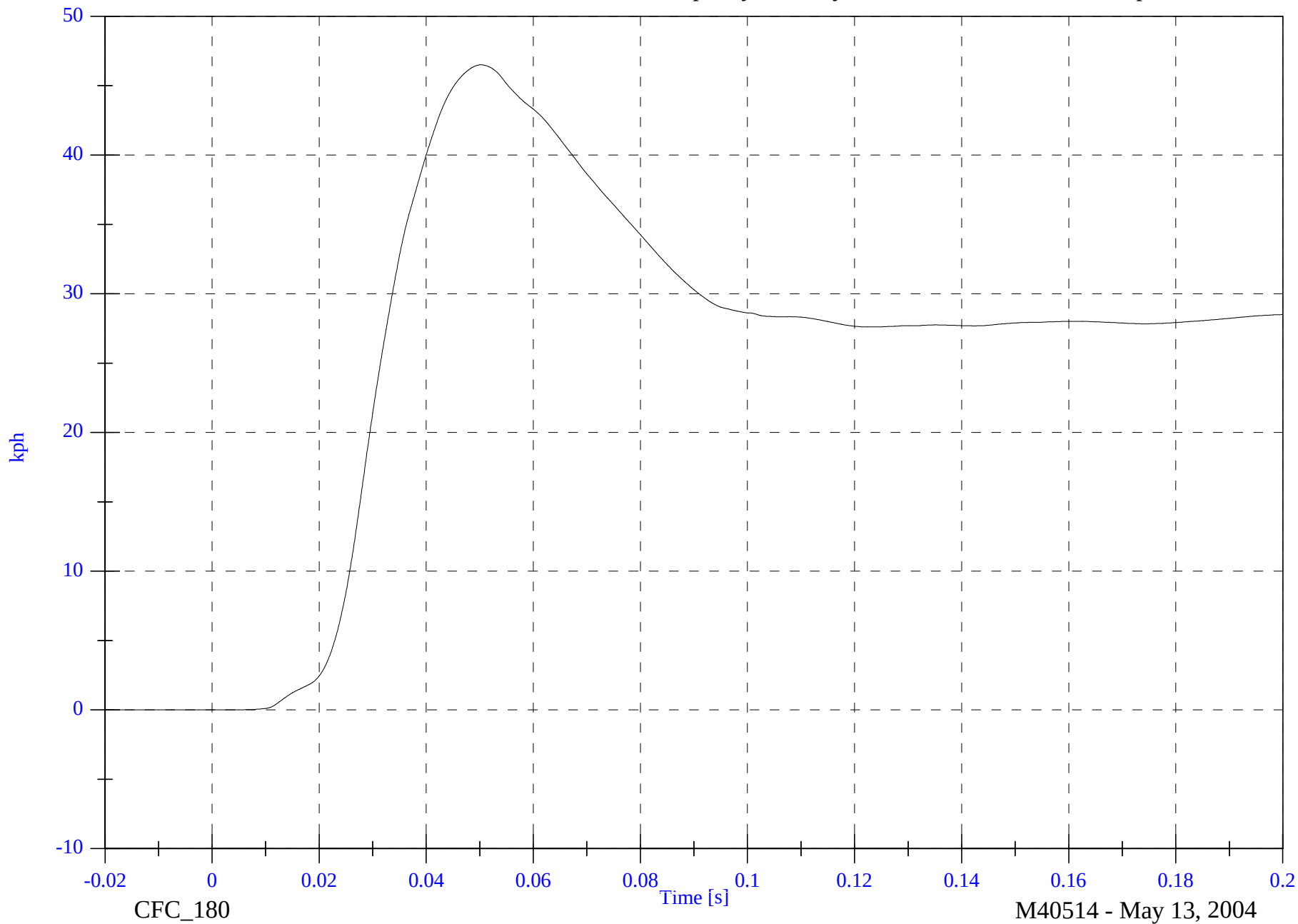


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Lower Spine y Velocity

Max: 46.5 [kph] at 0.050 [s]

Min: -0.0 [kph] at -0.020 [s]



B-26

8725-SNCAP-04

CFC_180

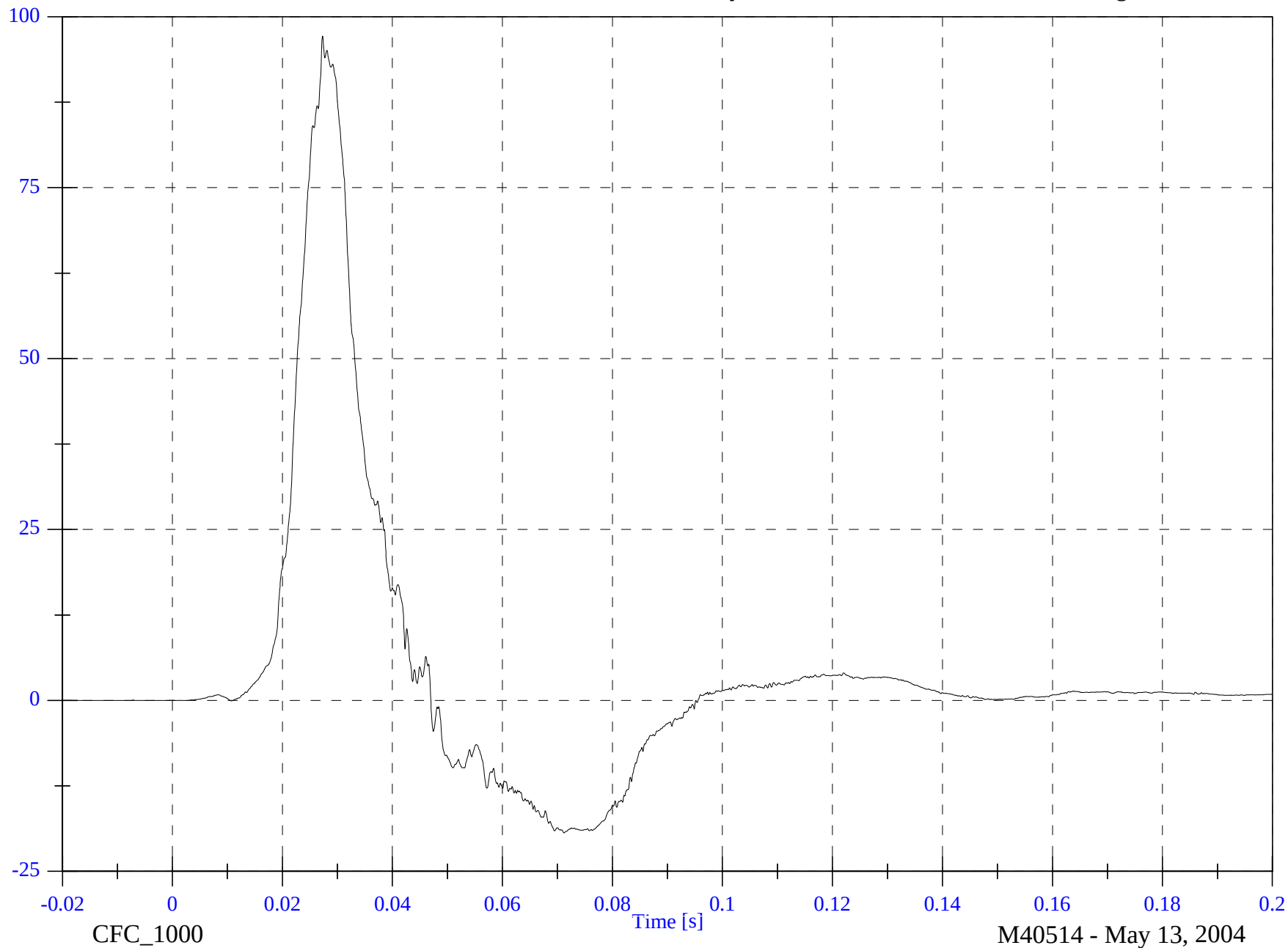
M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Pelvic y

Max: 97.2 [g] at 0.027 [s]

Min: -19.4 [g] at 0.071 [s]



B-27

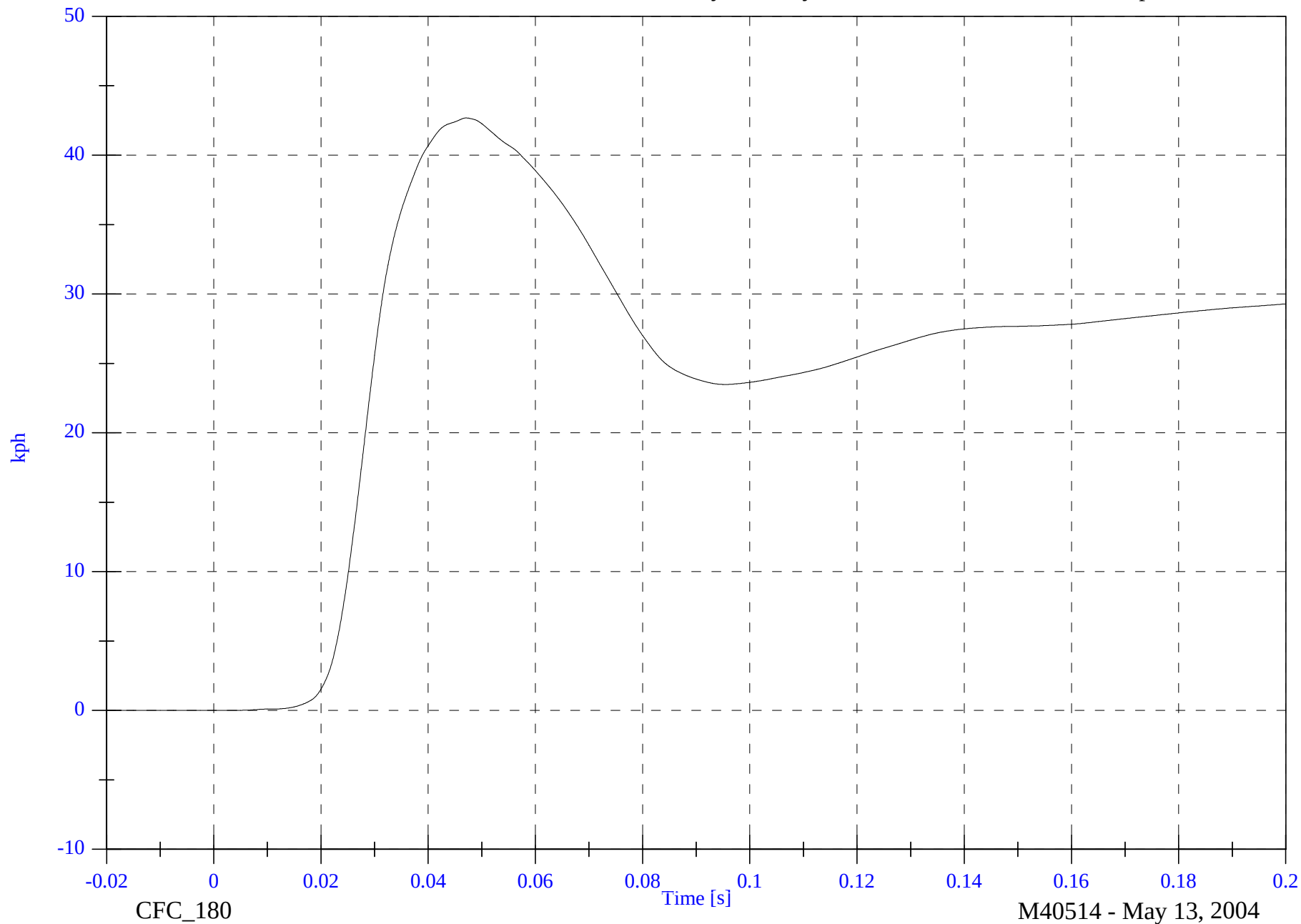
8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Pelvic y Velocity

Max: 42.7 [kph] at 0.047 [s]

Min: -0.0 [kph] at -0.018 [s]



B-28

8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

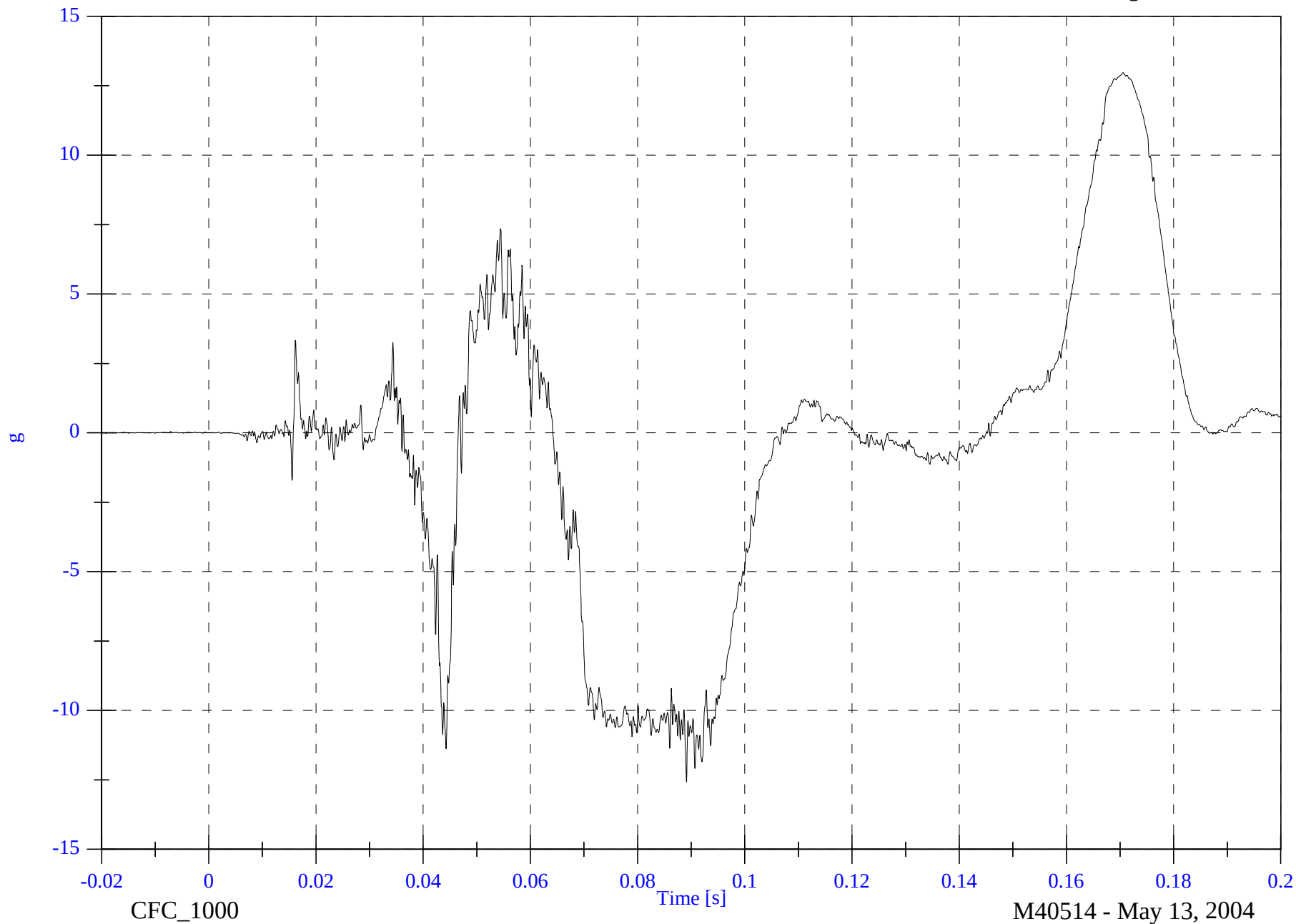
V2P4 Head x

Max: 13.0 [g] at 0.171 [s]

Min: -12.6 [g] at 0.089 [s]

B-29

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

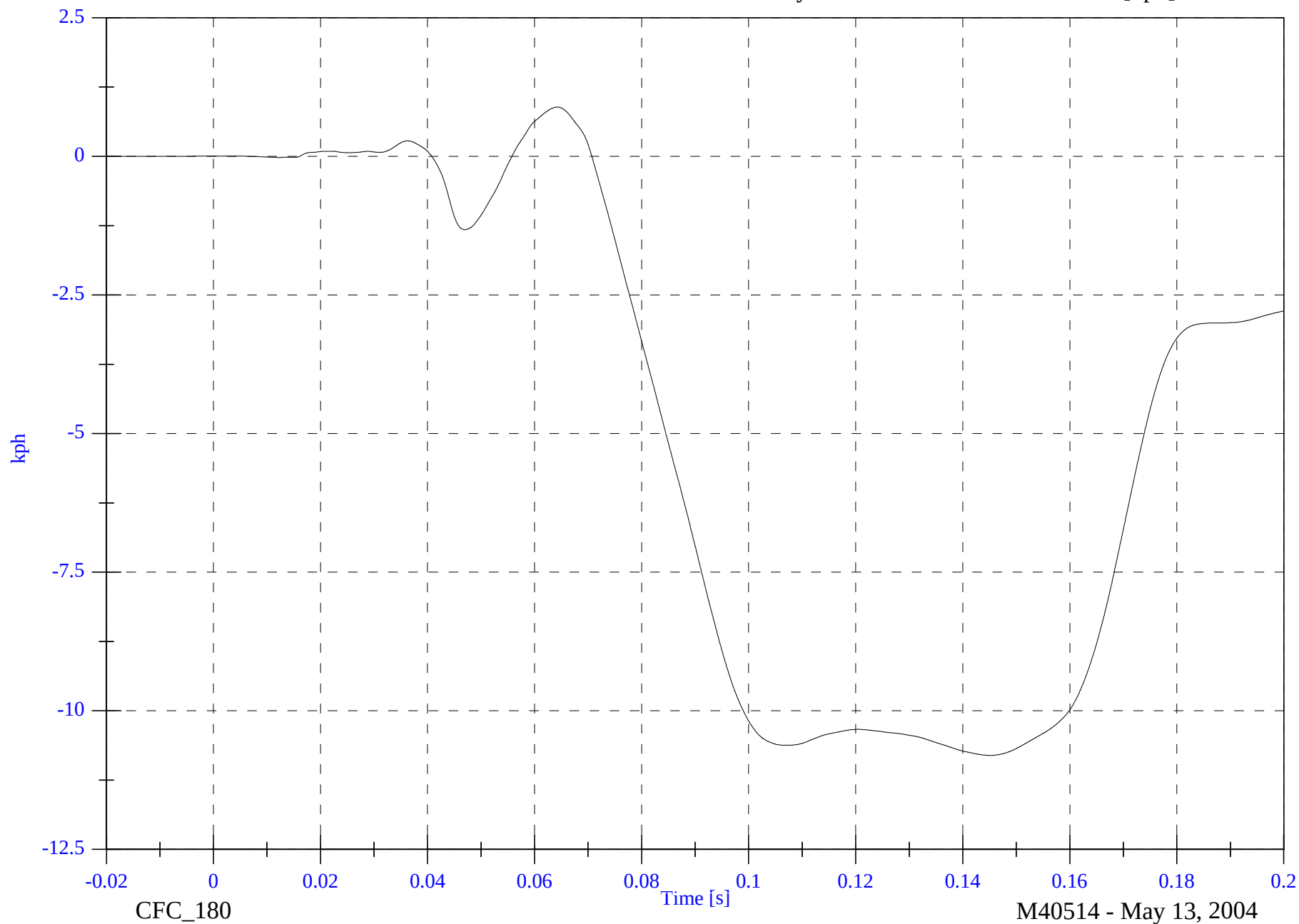
V2P4 Head x Velocity

Max: 0.9 [kph] at 0.064 [s]

Min: -10.8 [kph] at 0.145 [s]

B-30

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

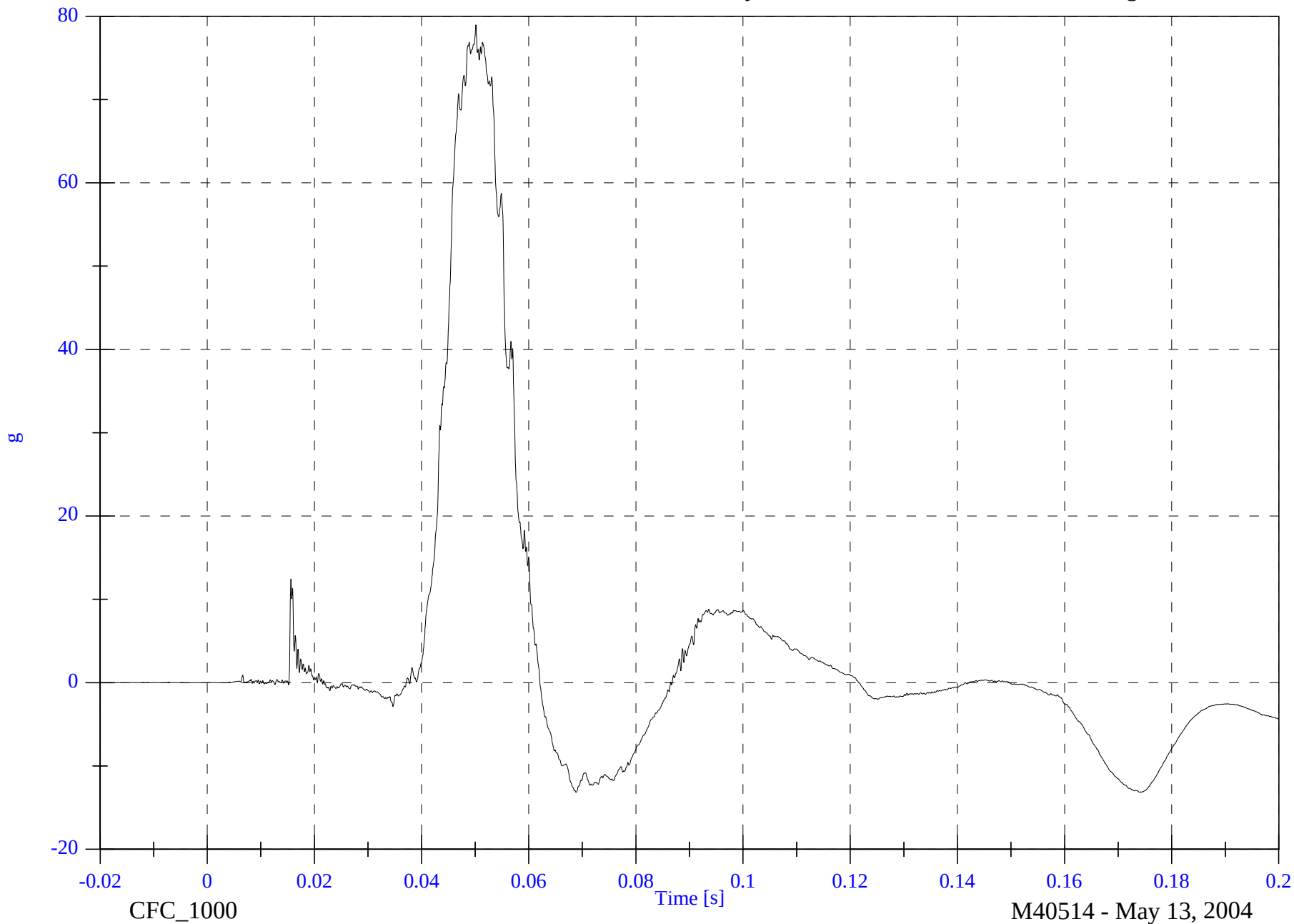
V2P4 Head y

Max: 79.0 [g] at 0.050 [s]

Min: -13.2 [g] at 0.174 [s]

B-31

8725-SNCAP-04

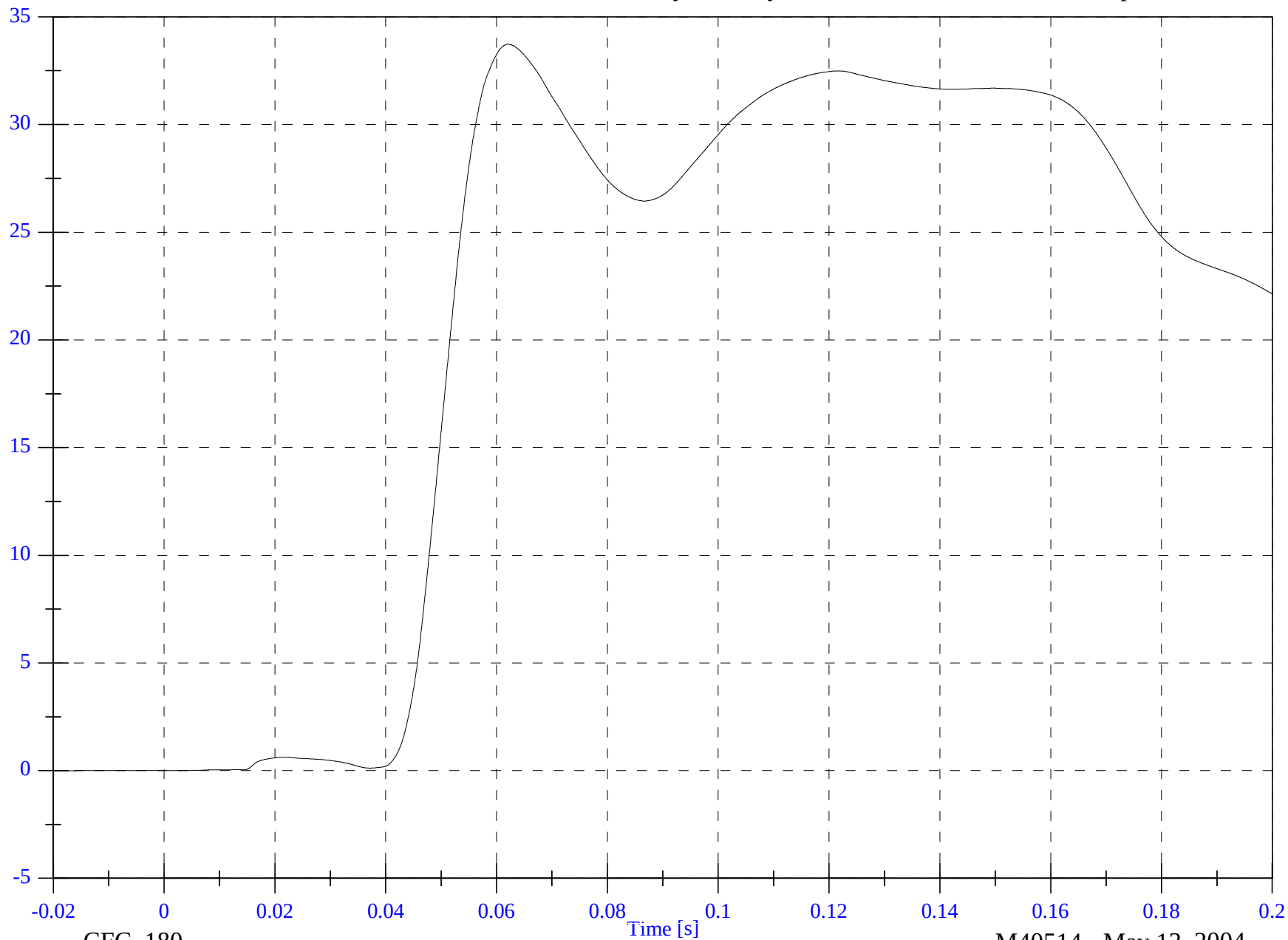


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Head y Velocity

Max: 33.7 [kph] at 0.062 [s]

Min: -0.0 [kph] at -0.020 [s]



B-32

8725-SNCAP-04

CFC_180

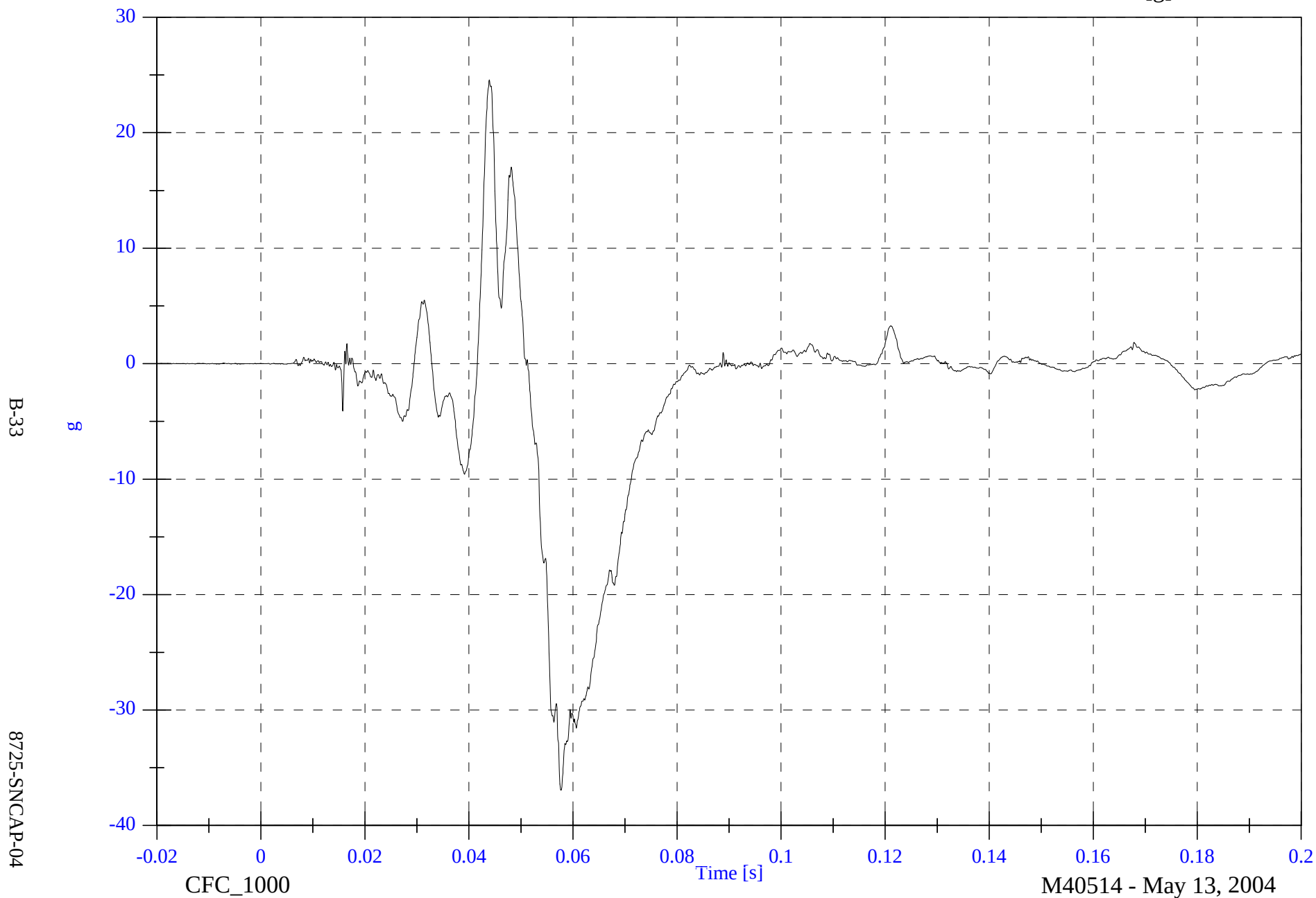
M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Head z

Max: 24.6 [g] at 0.044 [s]

Min: -36.9 [g] at 0.058 [s]

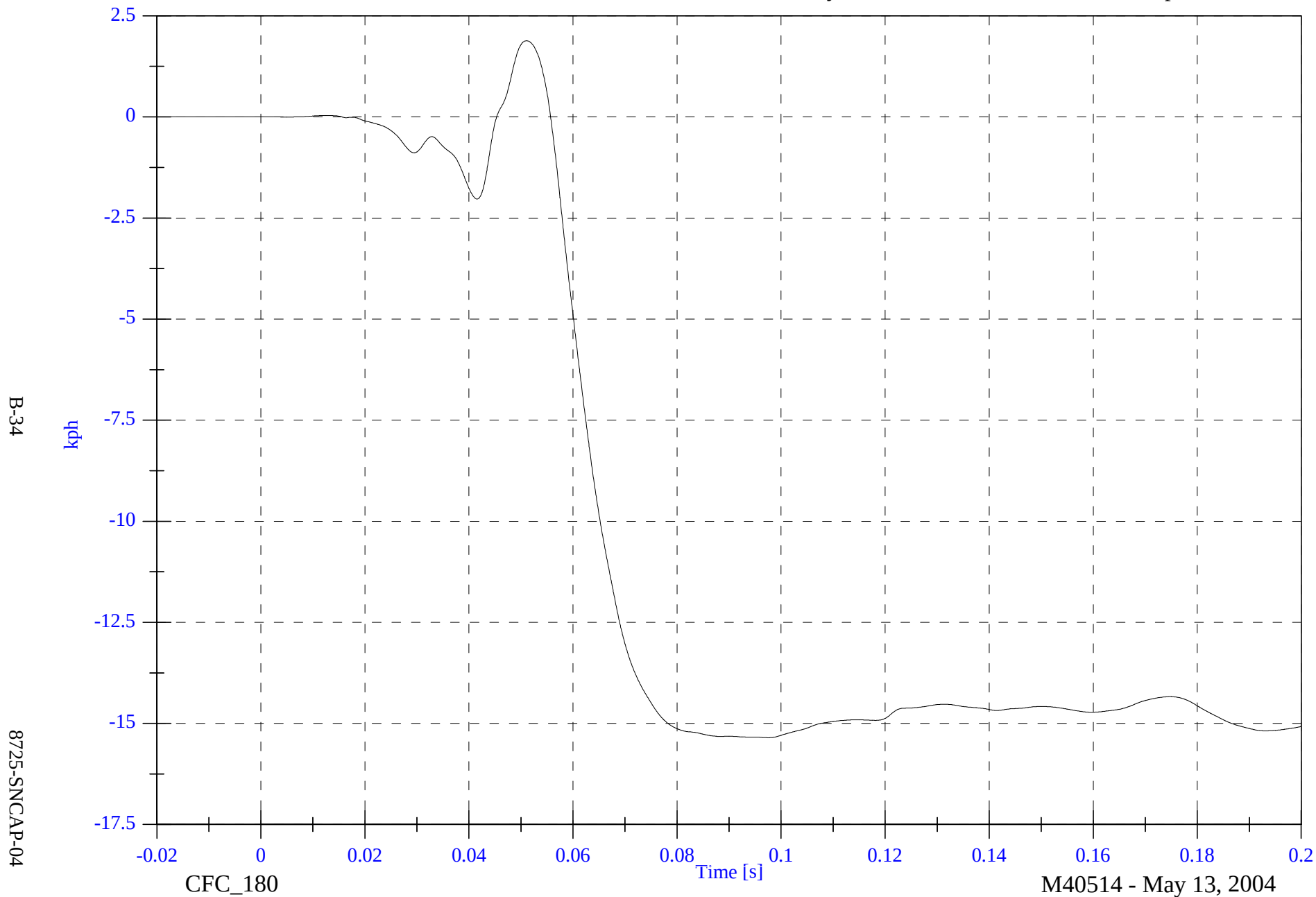


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Head z Velocity

Max: 1.9 [kph] at 0.051 [s]

Min: -15.4 [kph] at 0.098 [s]



2004 SNCAP Test 4 - 2004 Kia Spectra

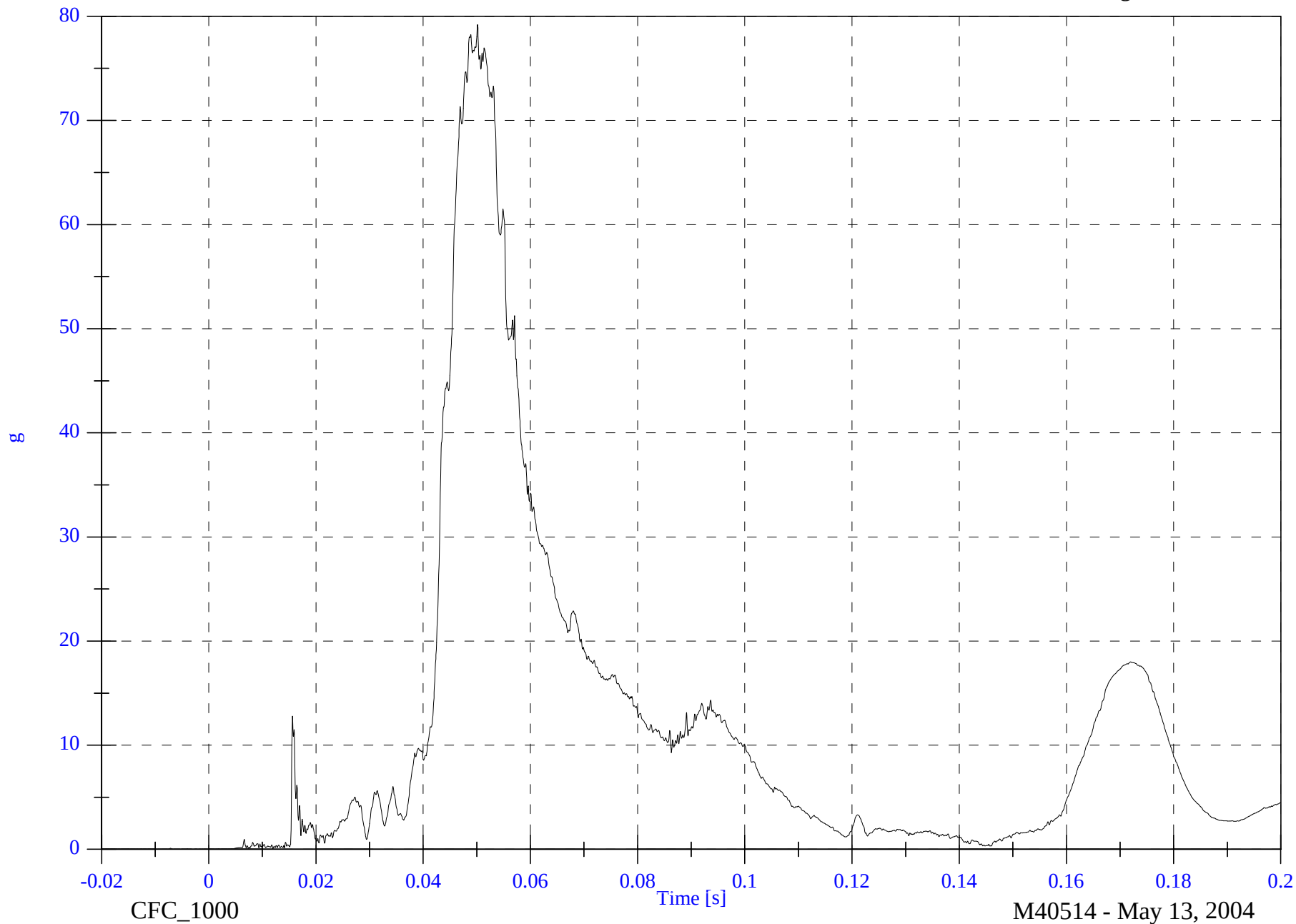
V2P4 Head Resultant

Max: 79.2 [g] at 0.050 [s]

Min: 0.0 [g] at -0.014 [s]

B-35

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Upper Neck Fx

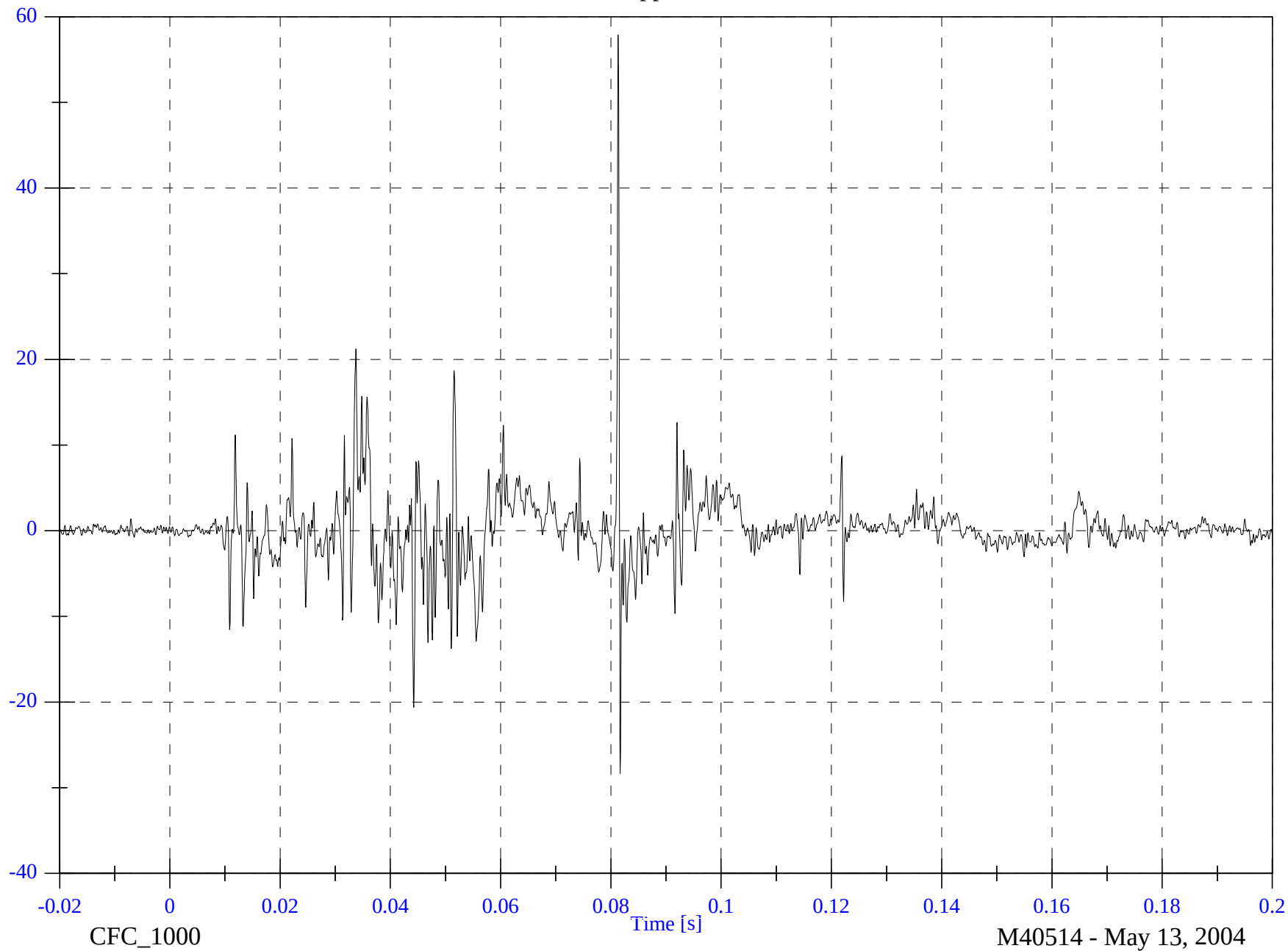
Max: 57.9 [N] at 0.081 [s]

Min: -28.3 [N] at 0.082 [s]

B-36

N

8725-SNCAP-04

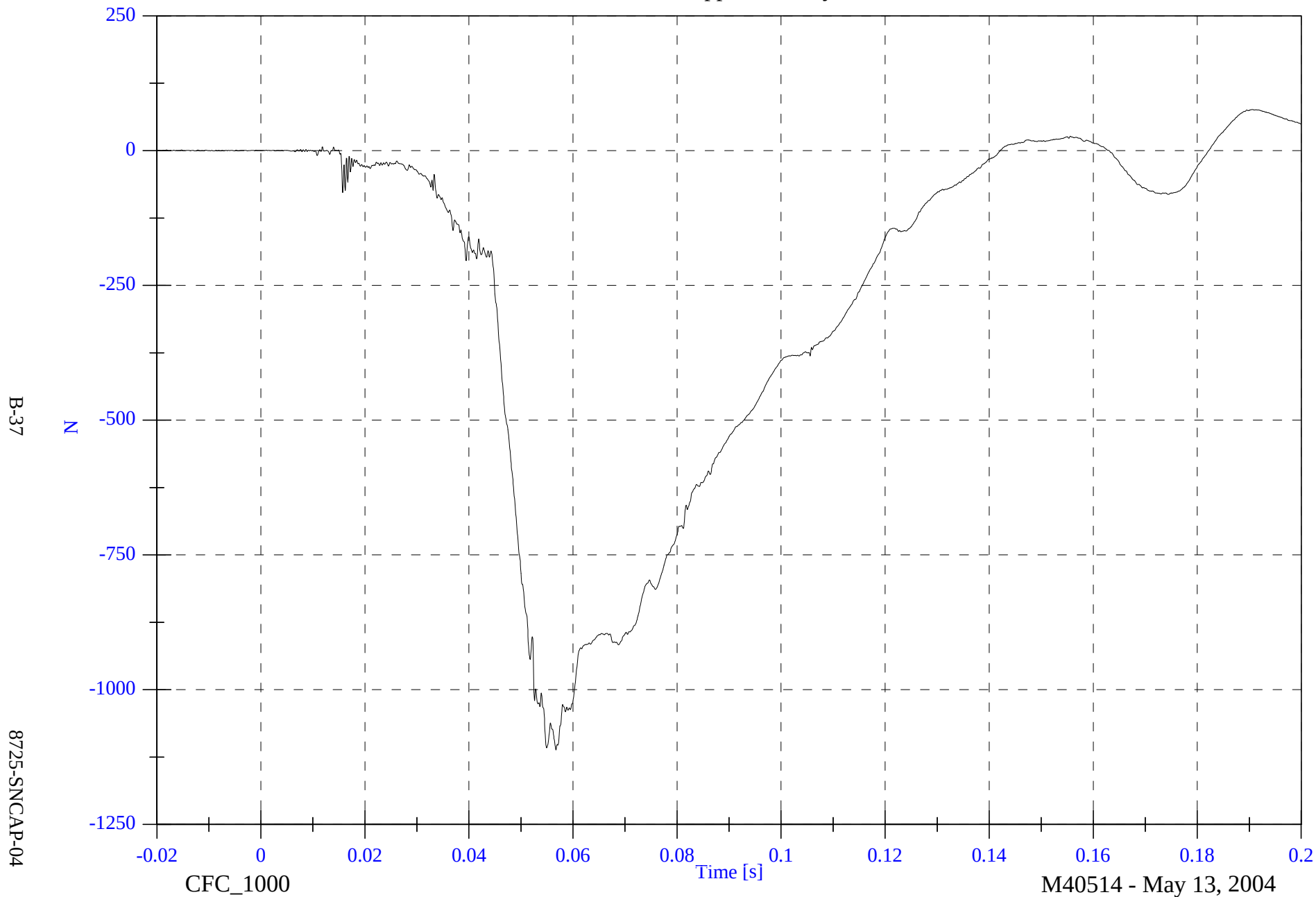


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Upper Neck Fy

Max: 76.3 [N] at 0.191 [s]

Min: -1111.9 [N] at 0.057 [s]

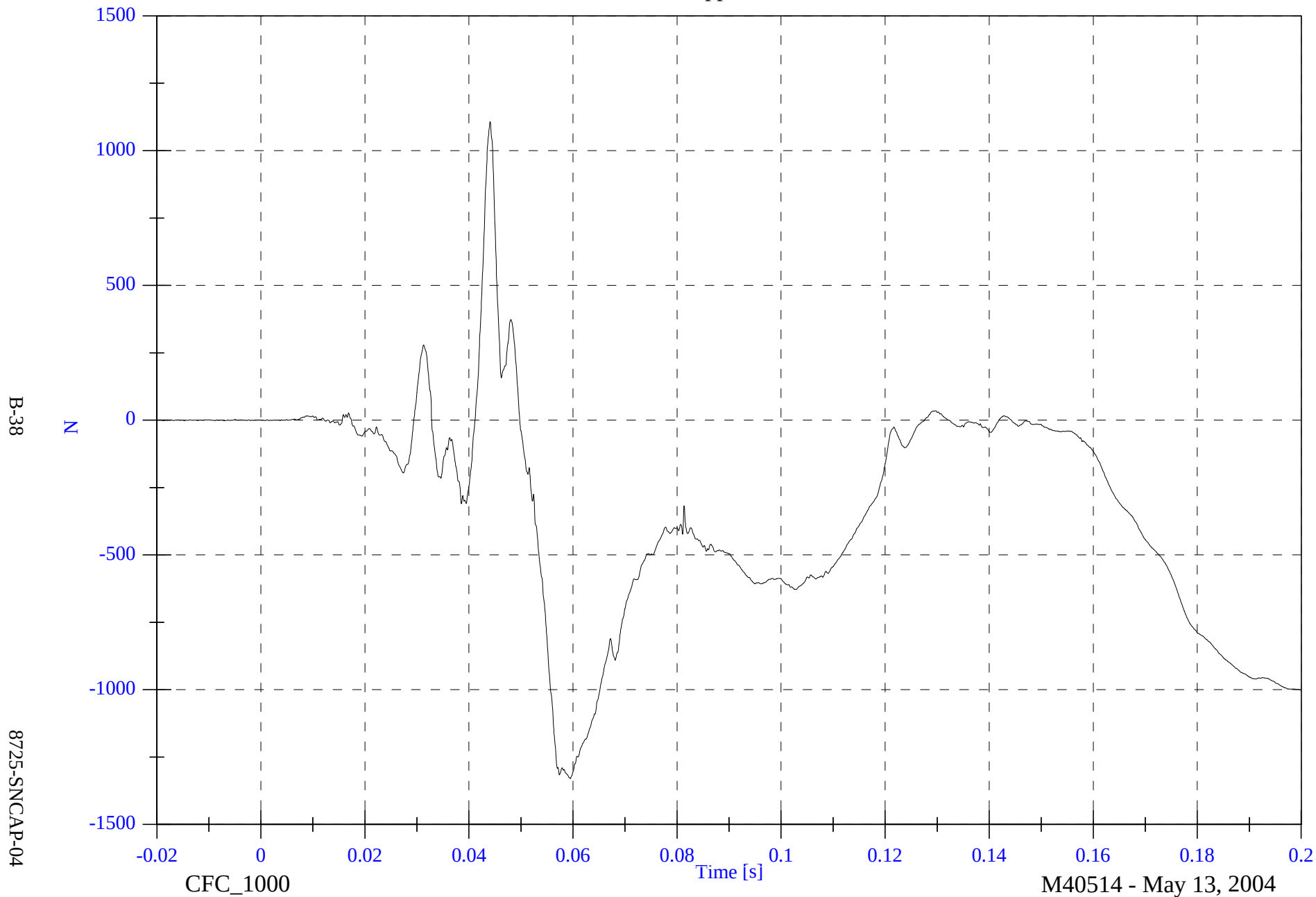


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Upper Neck Fz

Max: 1106.8 [N] at 0.044 [s]

Min: -1329.5 [N] at 0.059 [s]



2004 SNCAP Test 4 - 2004 Kia Spectra

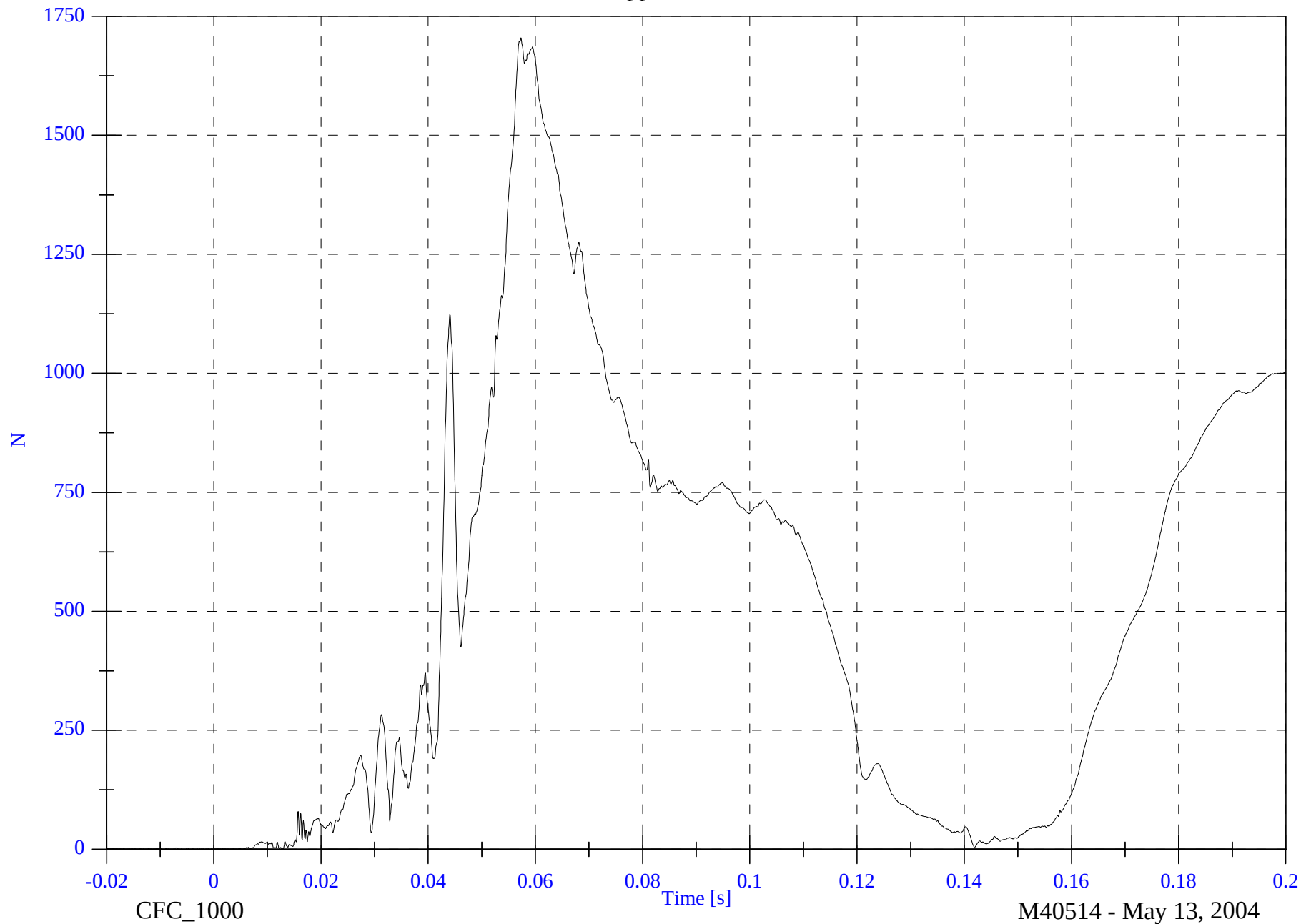
V2P4 Upper Neck F Resultant

Max: 1704.9 [N] at 0.057 [s]

Min: 0.1 [N] at -0.011 [s]

B-39

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Upper Neck Mx

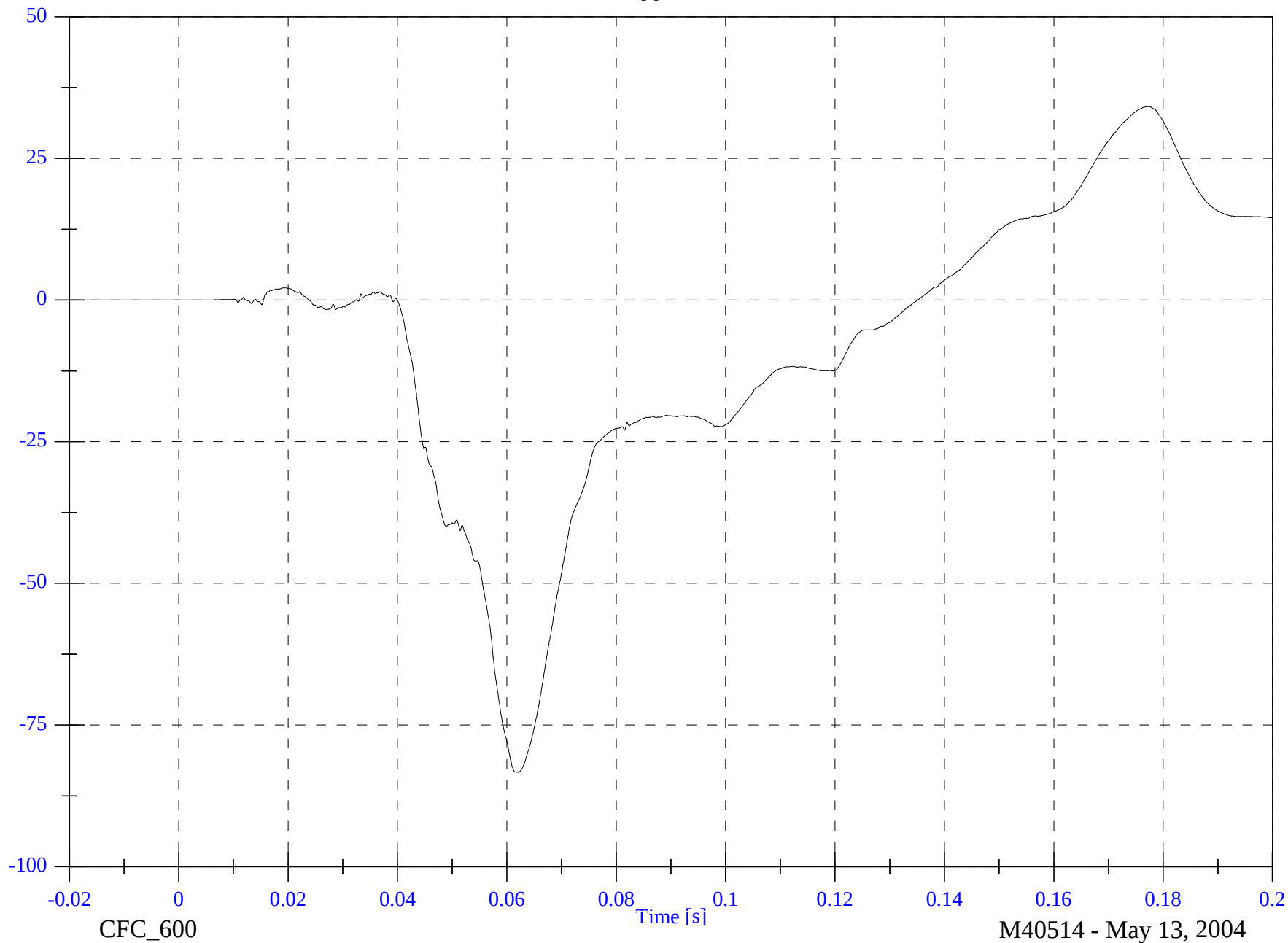
Max: 34.1 [N-m] at 0.177 [s]

Min: -83.3 [N-m] at 0.062 [s]

B-40

N-m

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

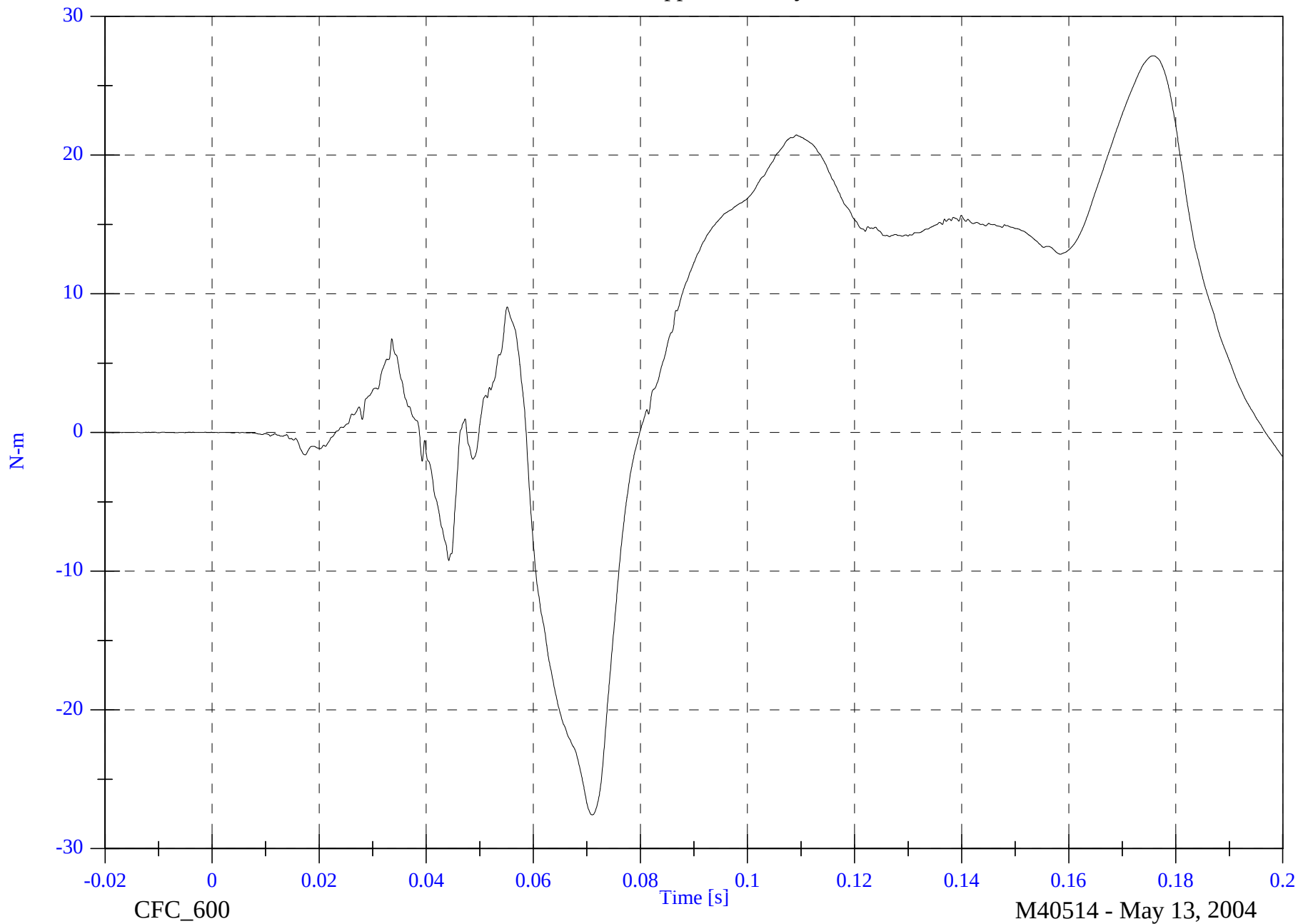
V2P4 Upper Neck My

Max: 27.1 [N-m] at 0.176 [s]

Min: -27.6 [N-m] at 0.071 [s]

B-41

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

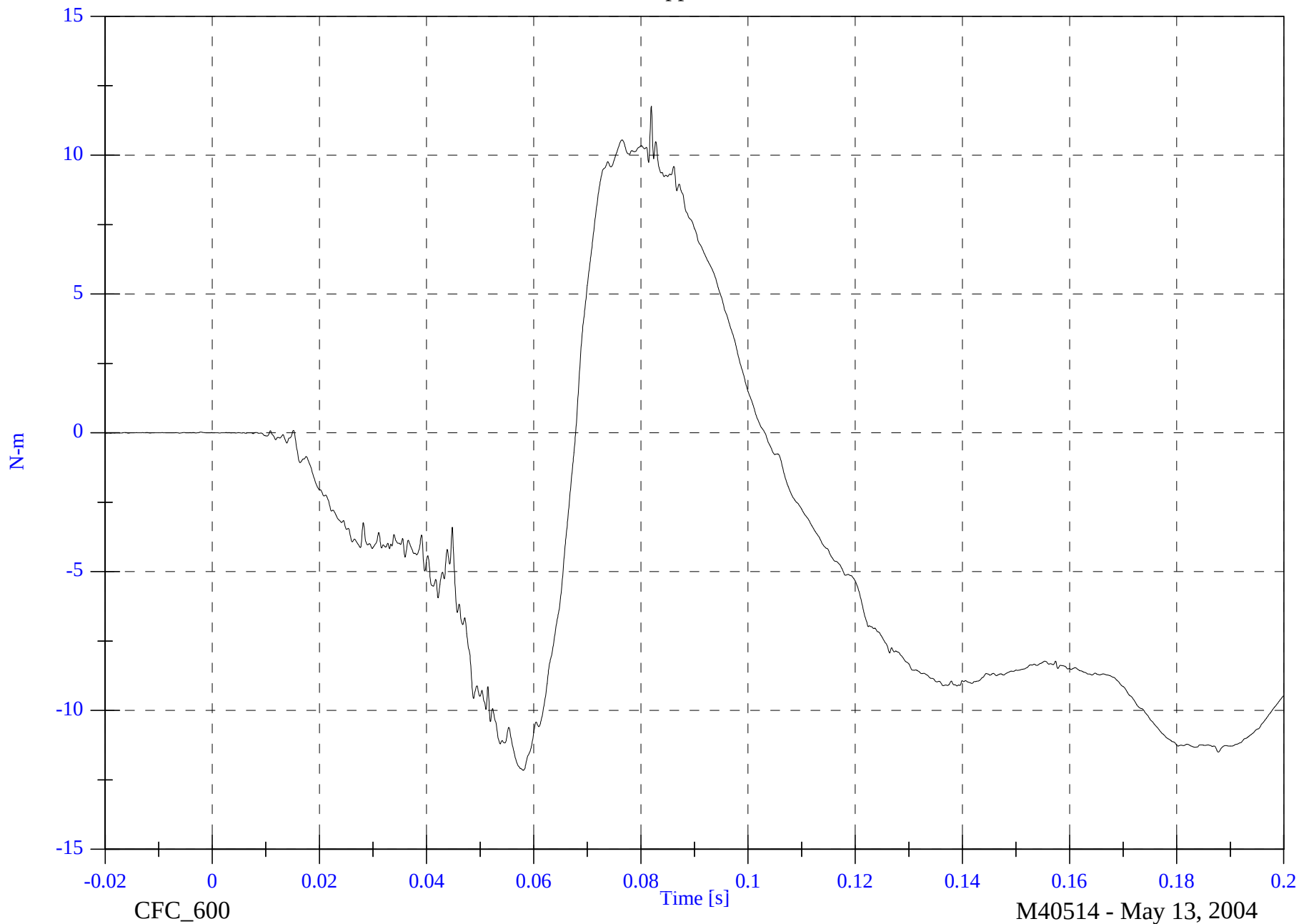
V2P4 Upper Neck Mz

Max: 11.8 [N-m] at 0.082 [s]

Min: -12.2 [N-m] at 0.058 [s]

B-42

8725-SNCAP-04

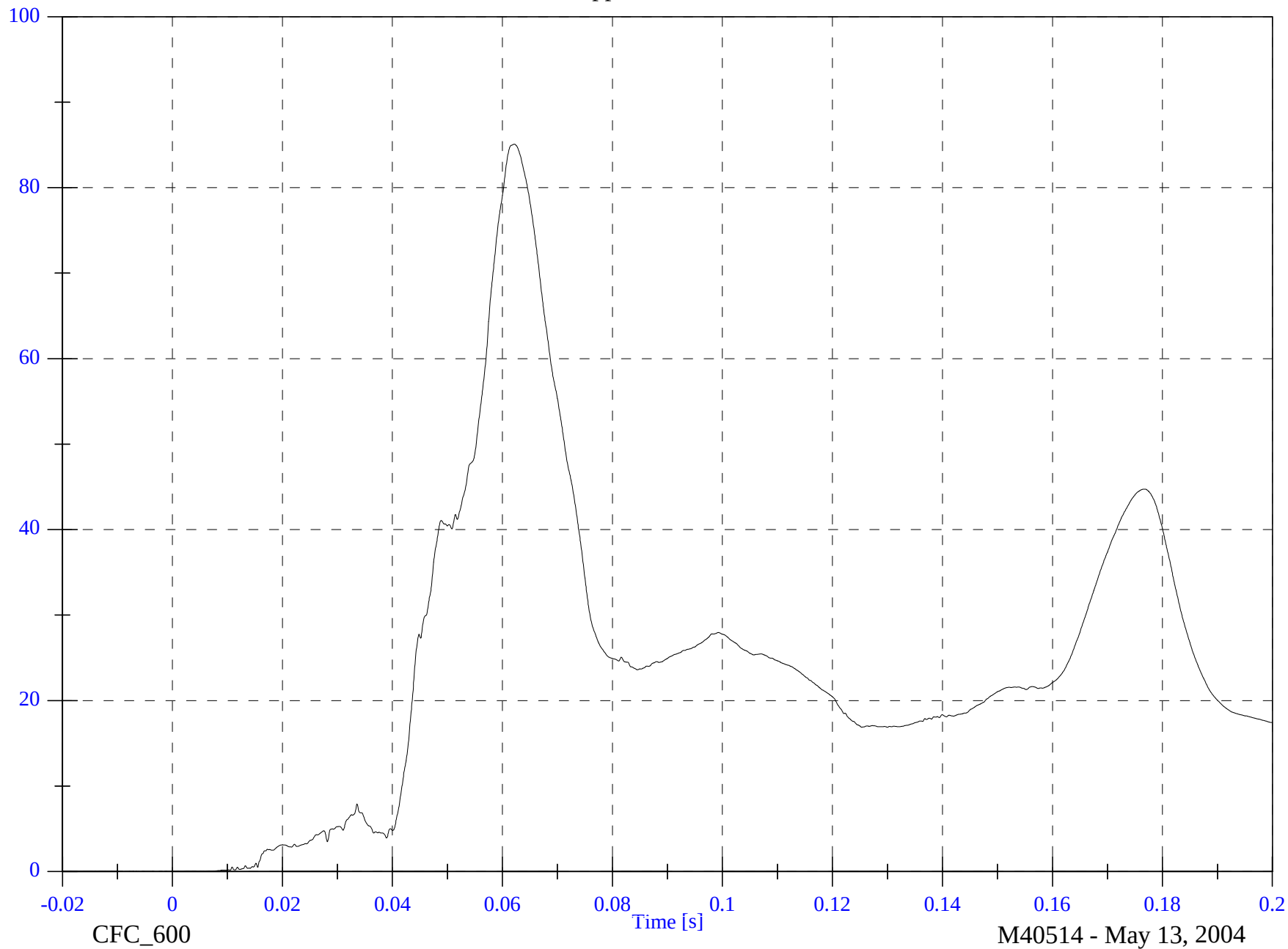


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Upper Neck M Resultant

Max: 85.1 [N-m] at 0.062 [s]

Min: 0.0 [N-m] at -0.018 [s]



B-43

8725-SNCAP-04

CFC_600

M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

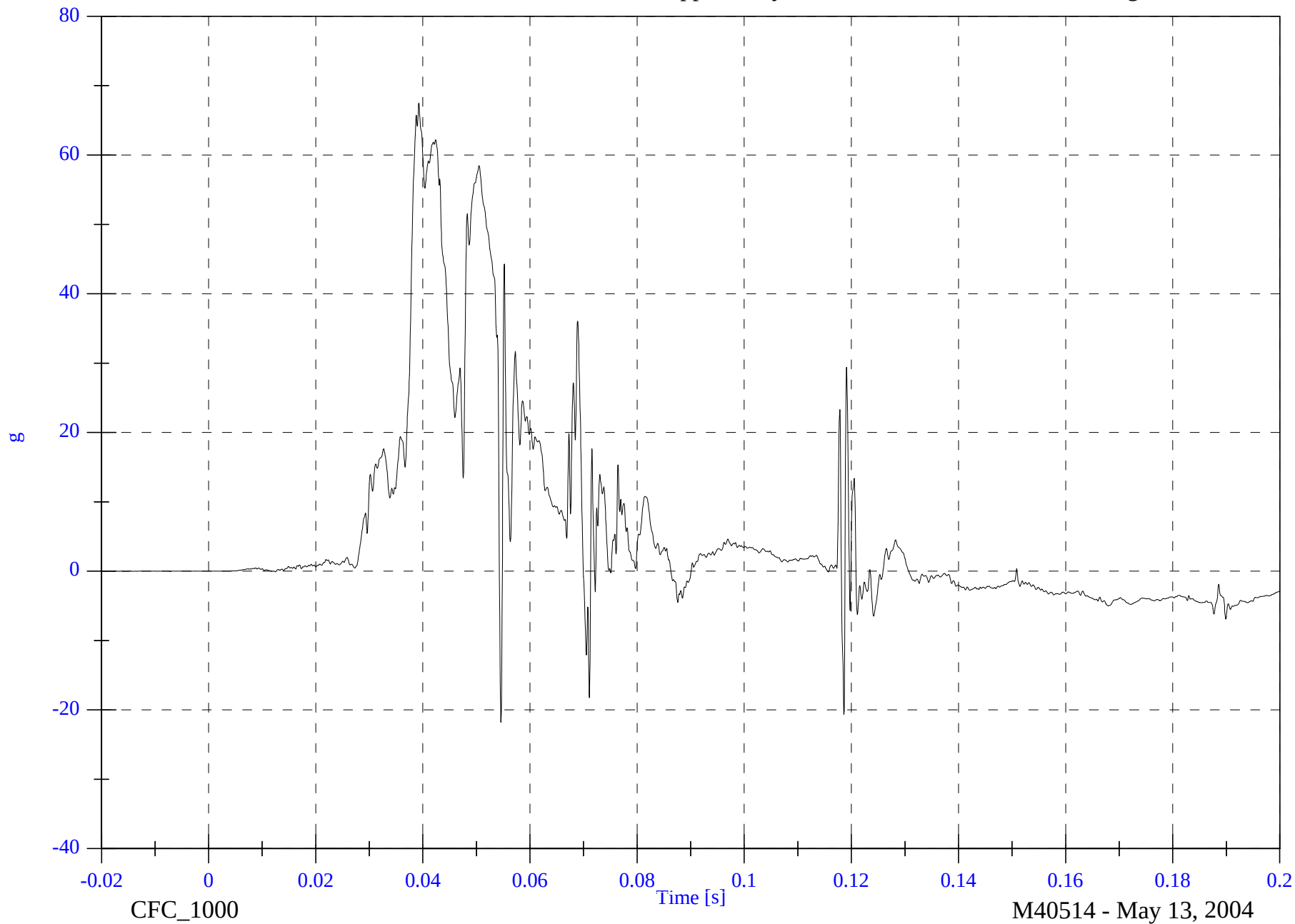
V2P4 Upper Rib y

Max: 67.5 [g] at 0.039 [s]

Min: -21.8 [g] at 0.055 [s]

B-44

8725-SNCAP-04

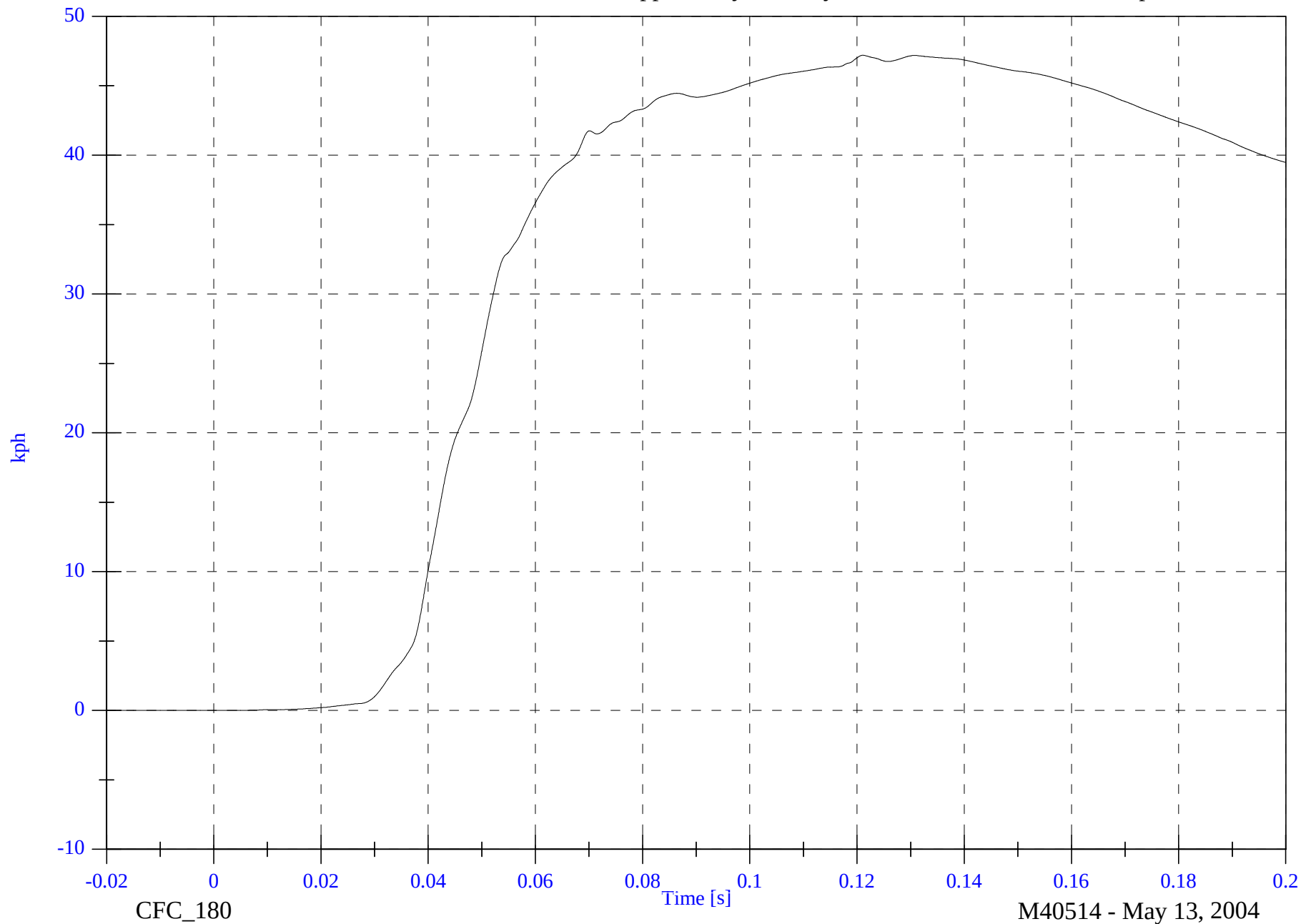


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Upper Rib y Velocity

Max: 47.2 [kph] at 0.121 [s]

Min: -0.0 [kph] at -0.013 [s]



B-45

8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

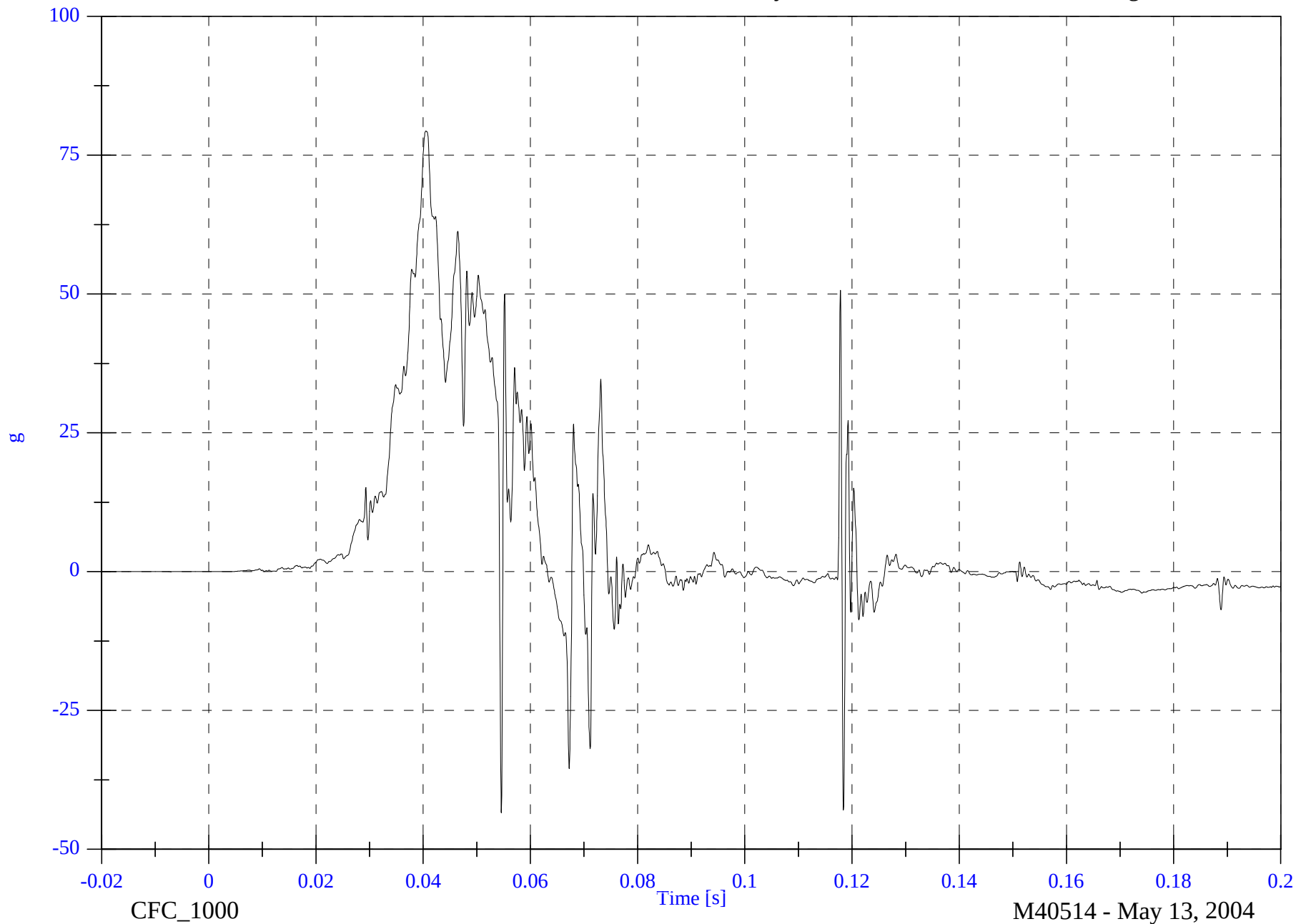
V2P4 Lower Rib y

Max: 79.3 [g] at 0.040 [s]

Min: -43.4 [g] at 0.055 [s]

B-46

8725-SNCAP-04

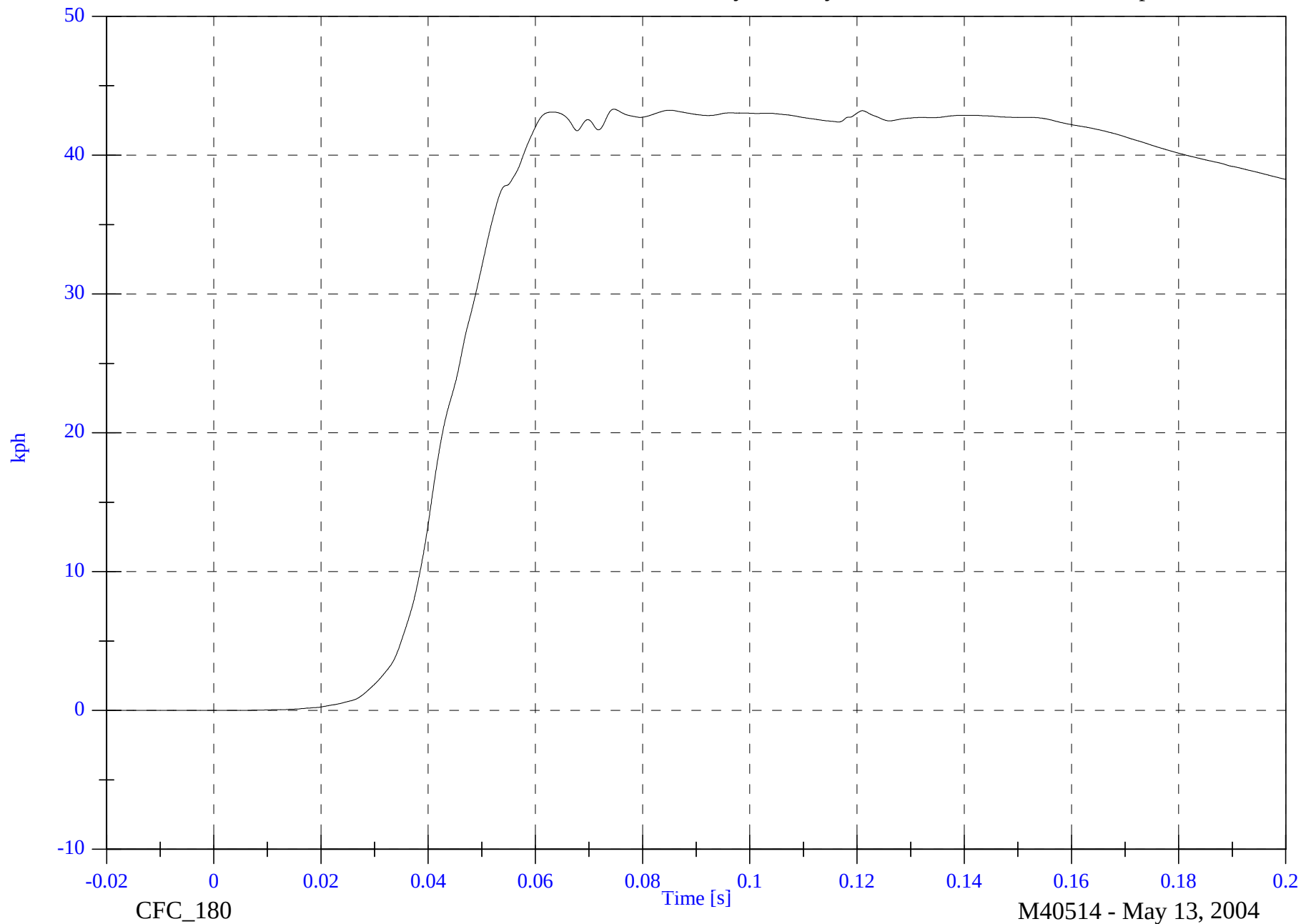


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Lower Rib y Velocity

Max: 43.3 [kph] at 0.075 [s]

Min: -0.0 [kph] at -0.020 [s]



B-47

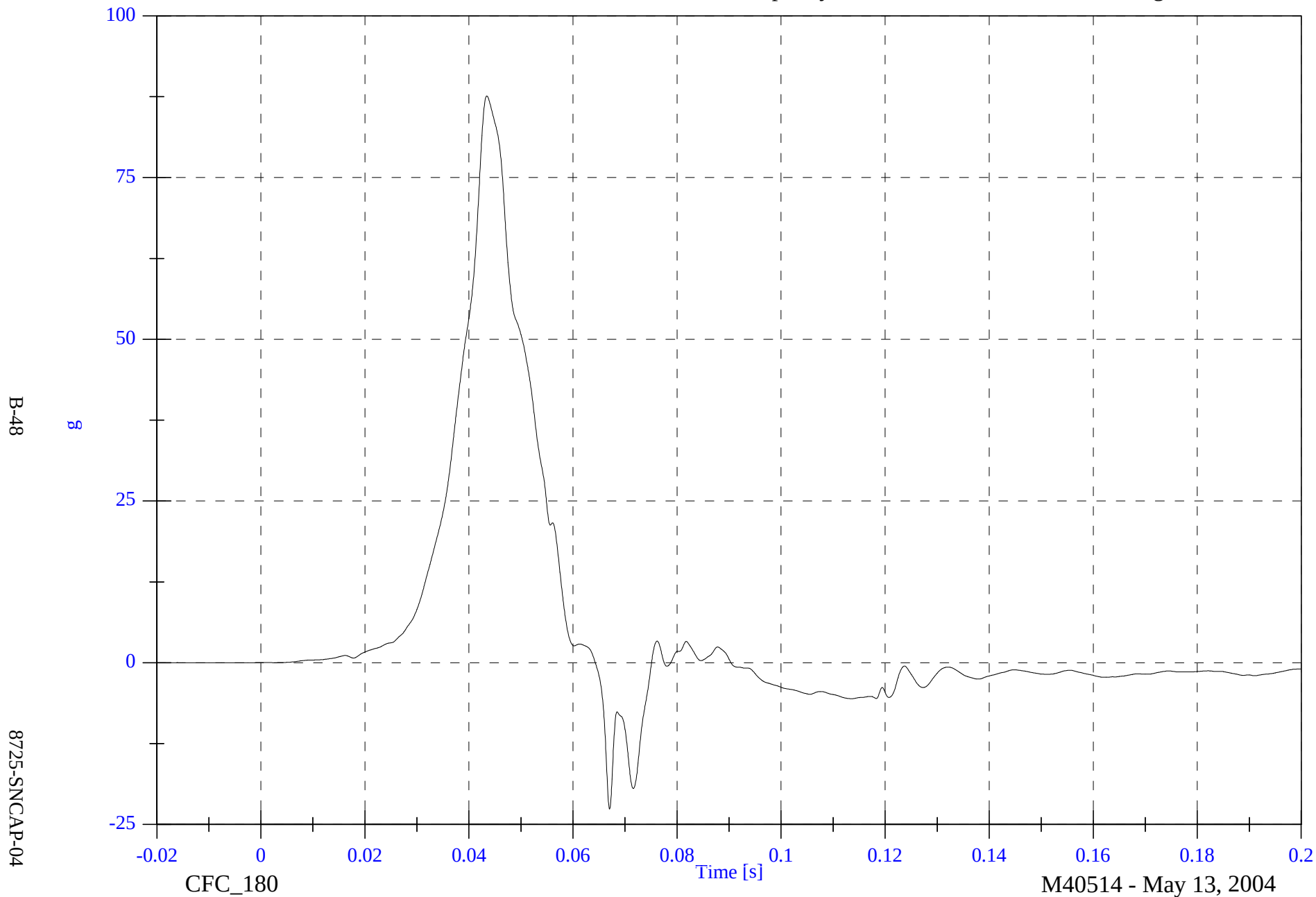
8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Lower Spine y

Max: 87.6 [g] at 0.043 [s]

Min: -22.6 [g] at 0.067 [s]

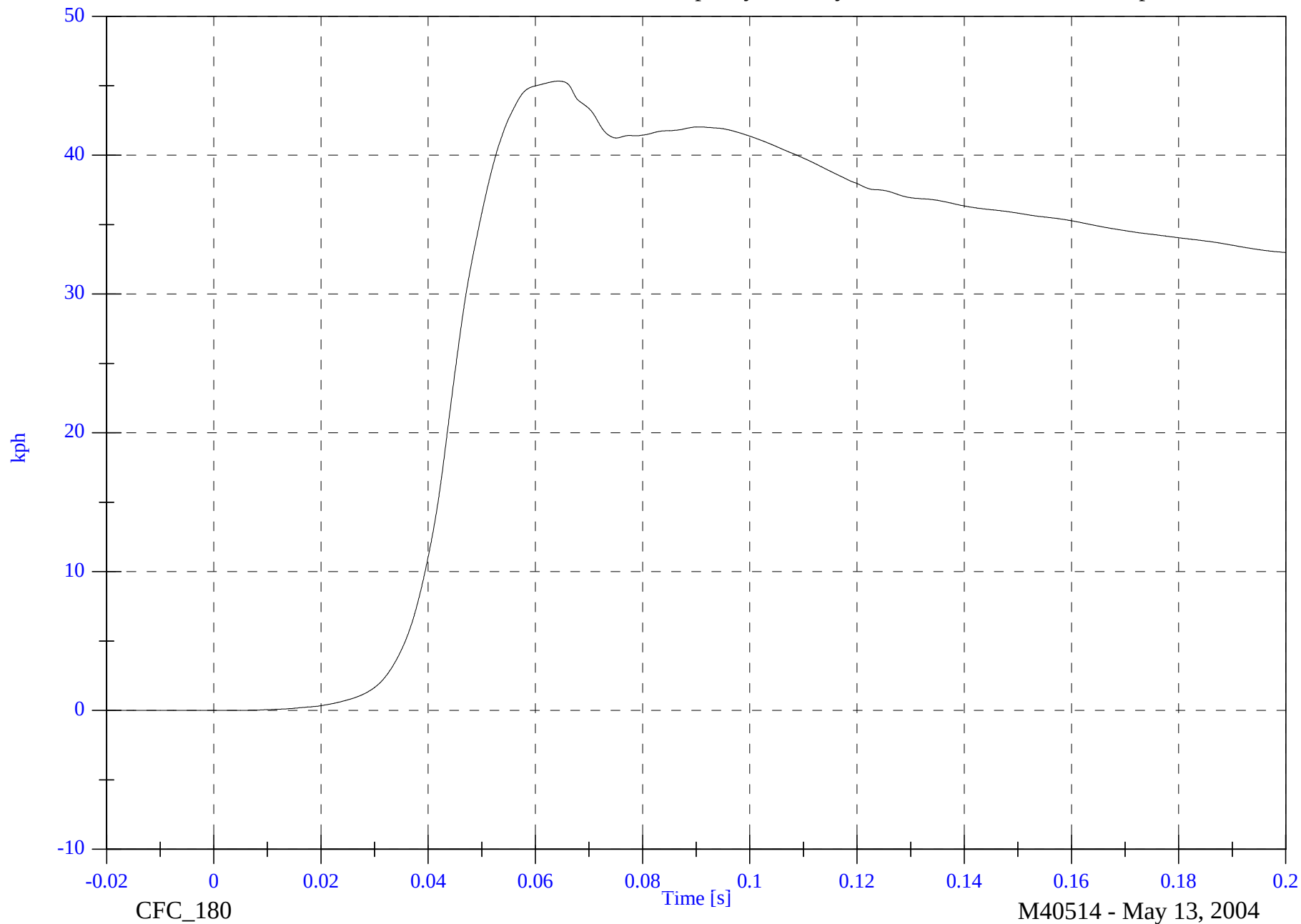


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Lower Spine y Velocity

Max: 45.3 [kph] at 0.064 [s]

Min: -0.0 [kph] at -0.020 [s]



B-49

8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

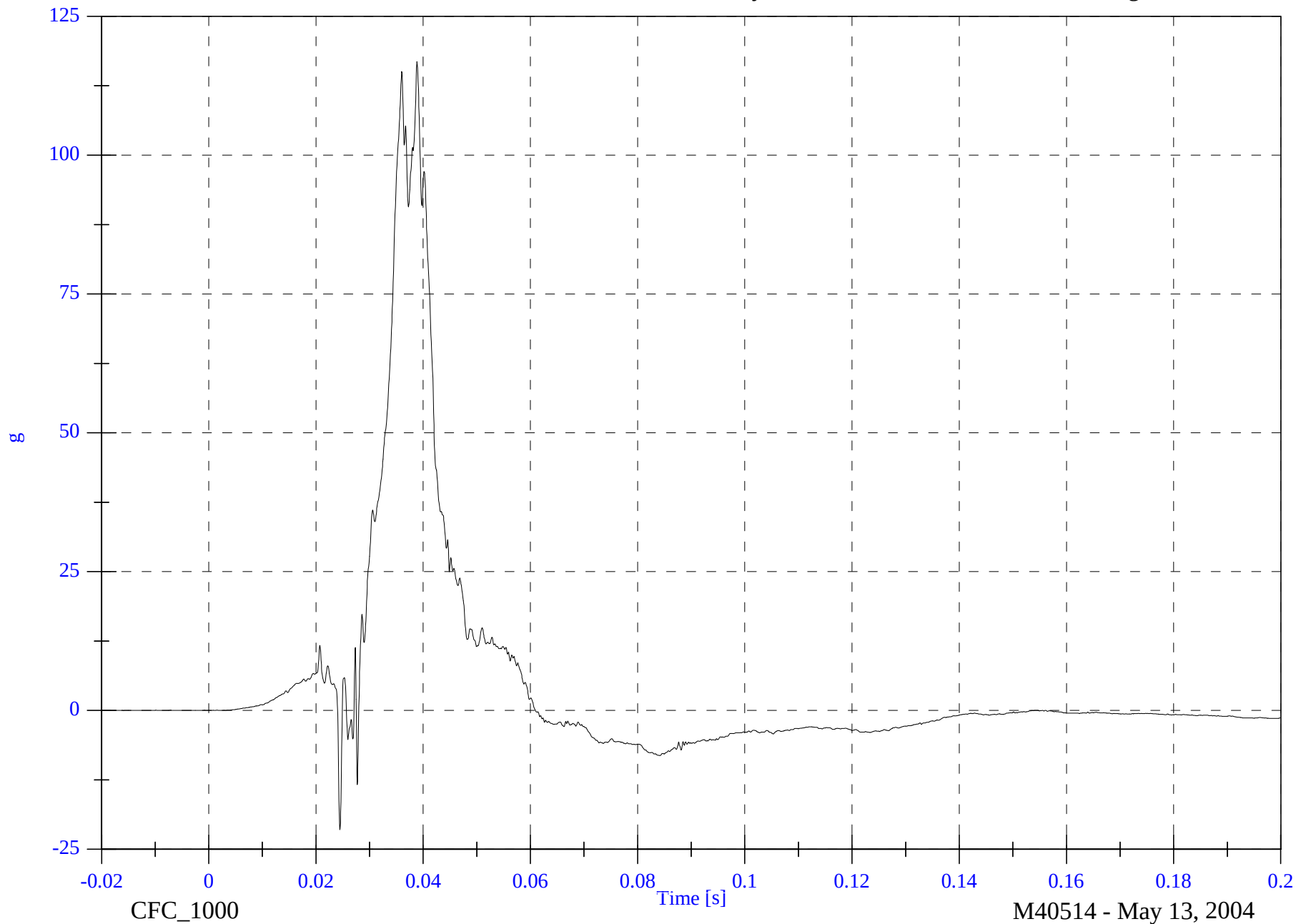
V2P4 Pelvic y

Max: 116.8 [g] at 0.039 [s]

Min: -21.5 [g] at 0.024 [s]

B-50

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

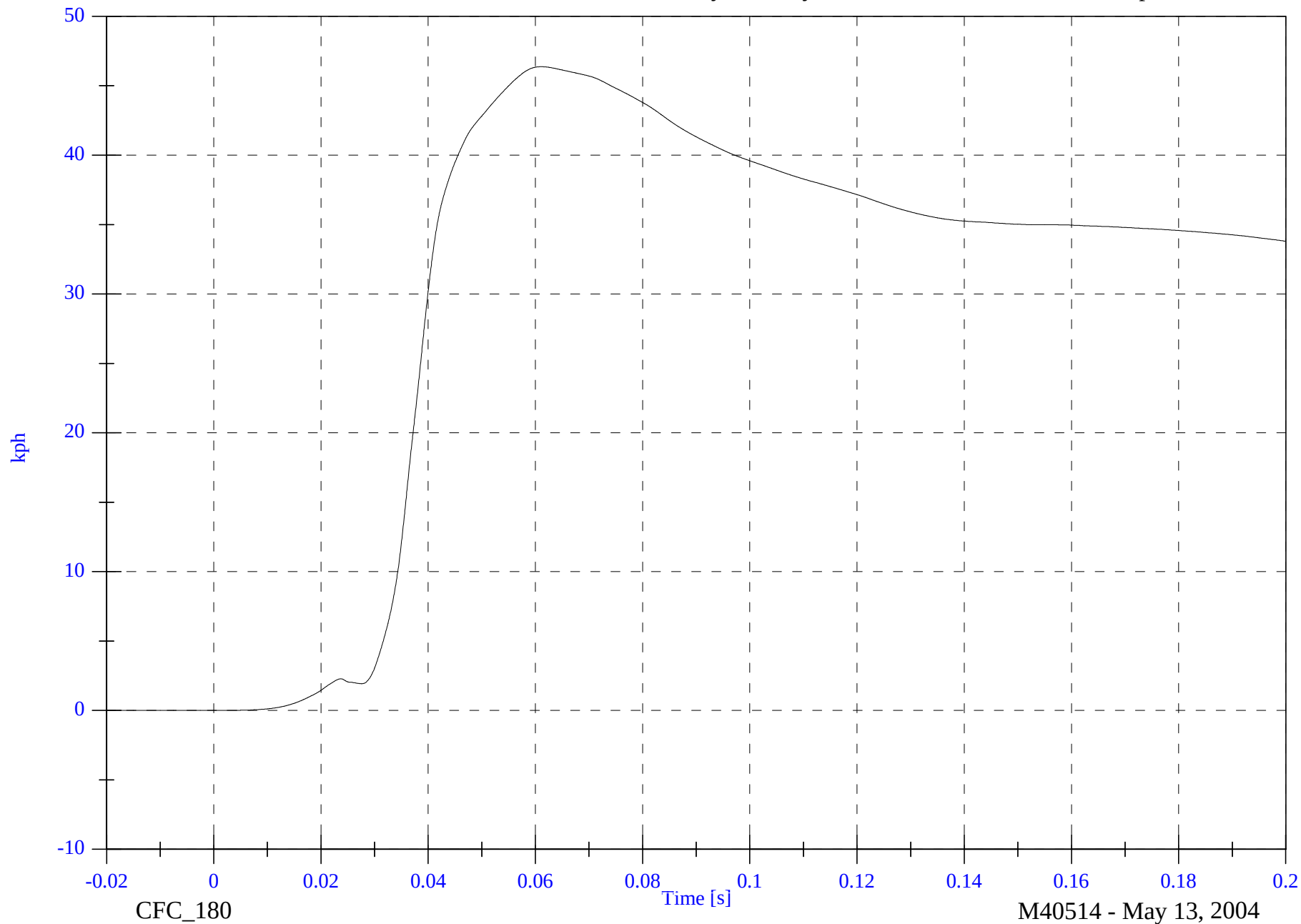
V2P4 Pelvic y Velocity

Max: 46.4 [kph] at 0.061 [s]

Min: -0.0 [kph] at -0.019 [s]

B-51

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

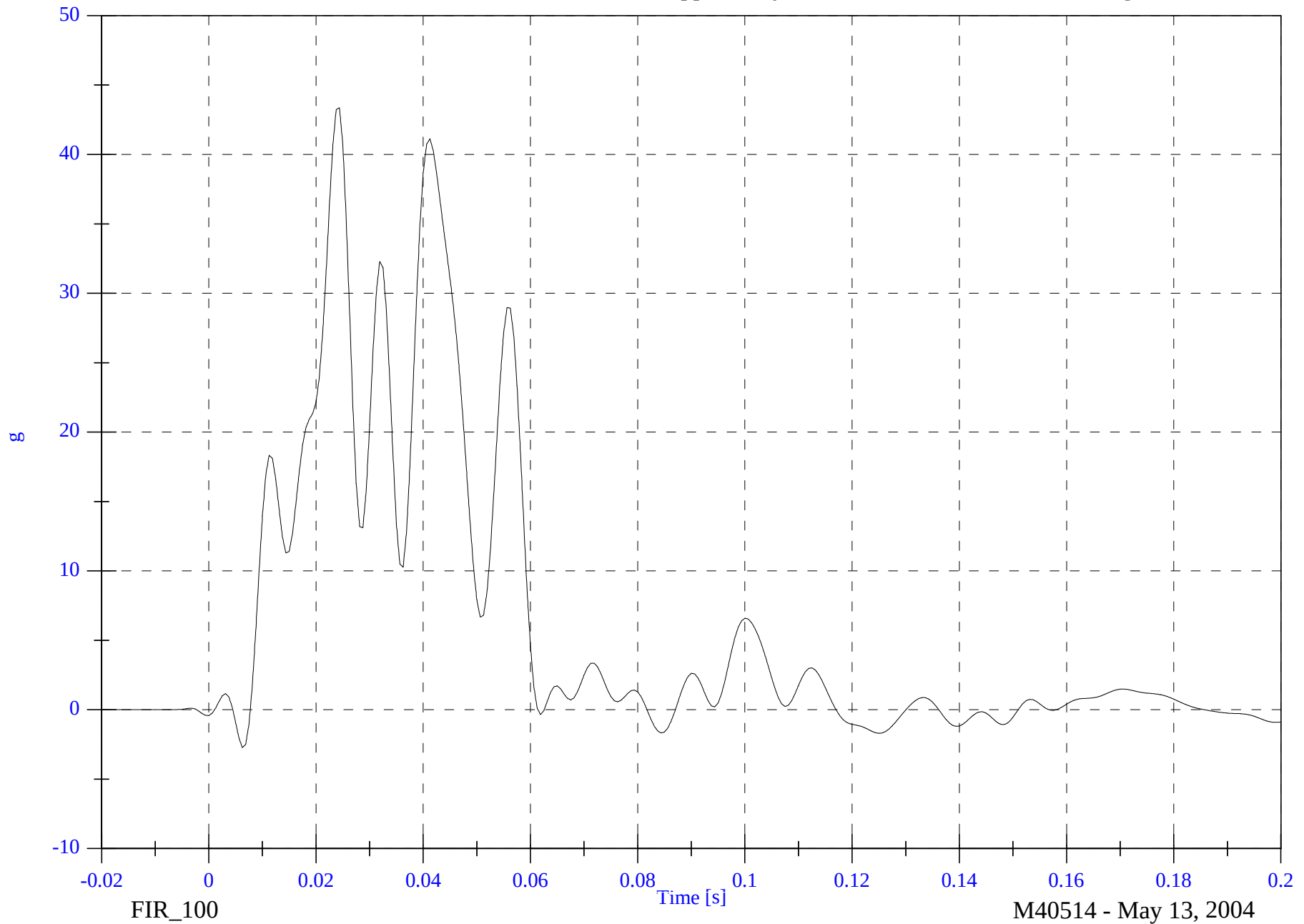
V2P1 Upper Rib y

Max: 43.4 [g] at 0.024 [s]

Min: -2.7 [g] at 0.006 [s]

B-52

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

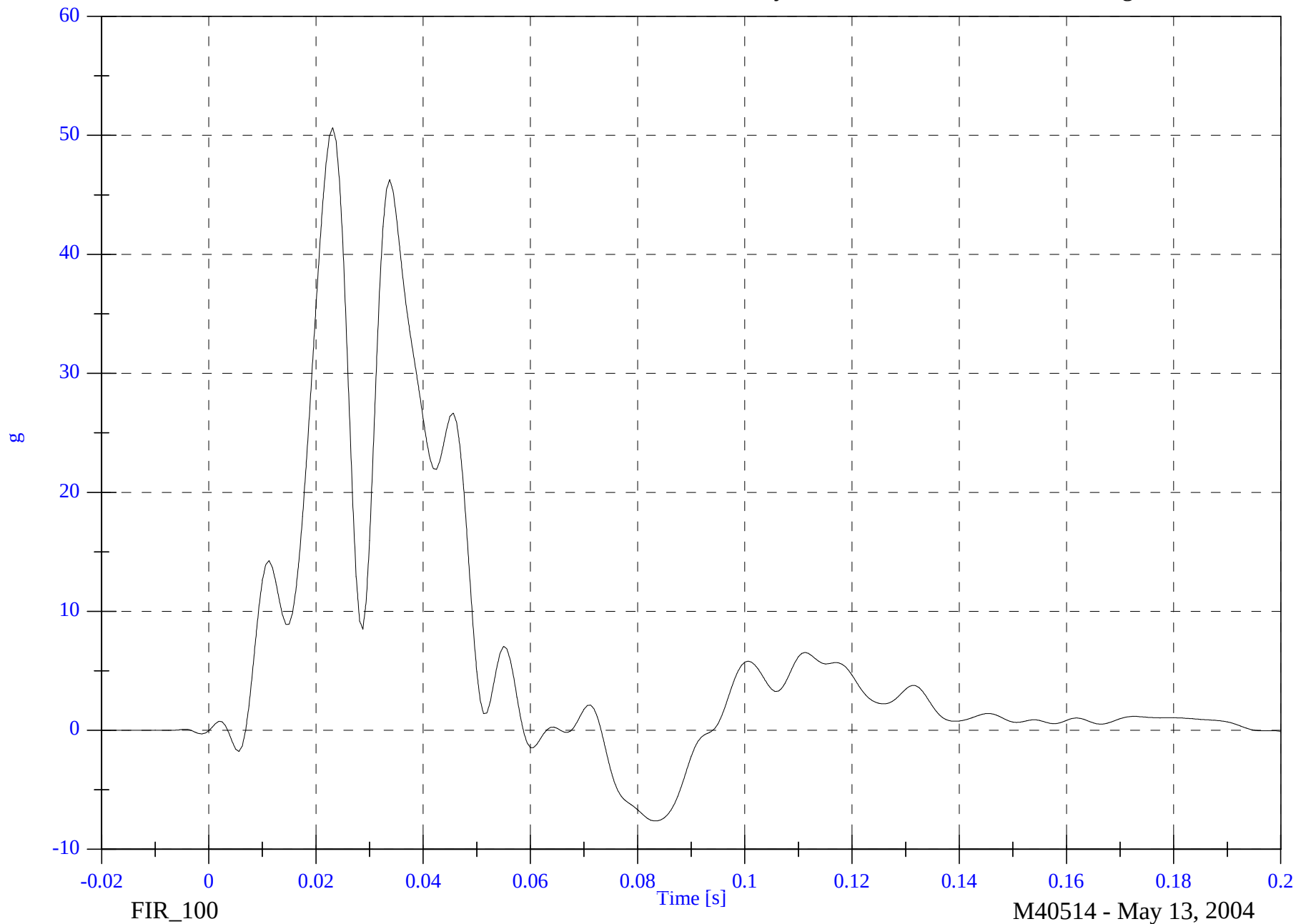
V2P1 Lower Rib y

Max: 50.6 [g] at 0.023 [s]

Min: -7.6 [g] at 0.083 [s]

B-53

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

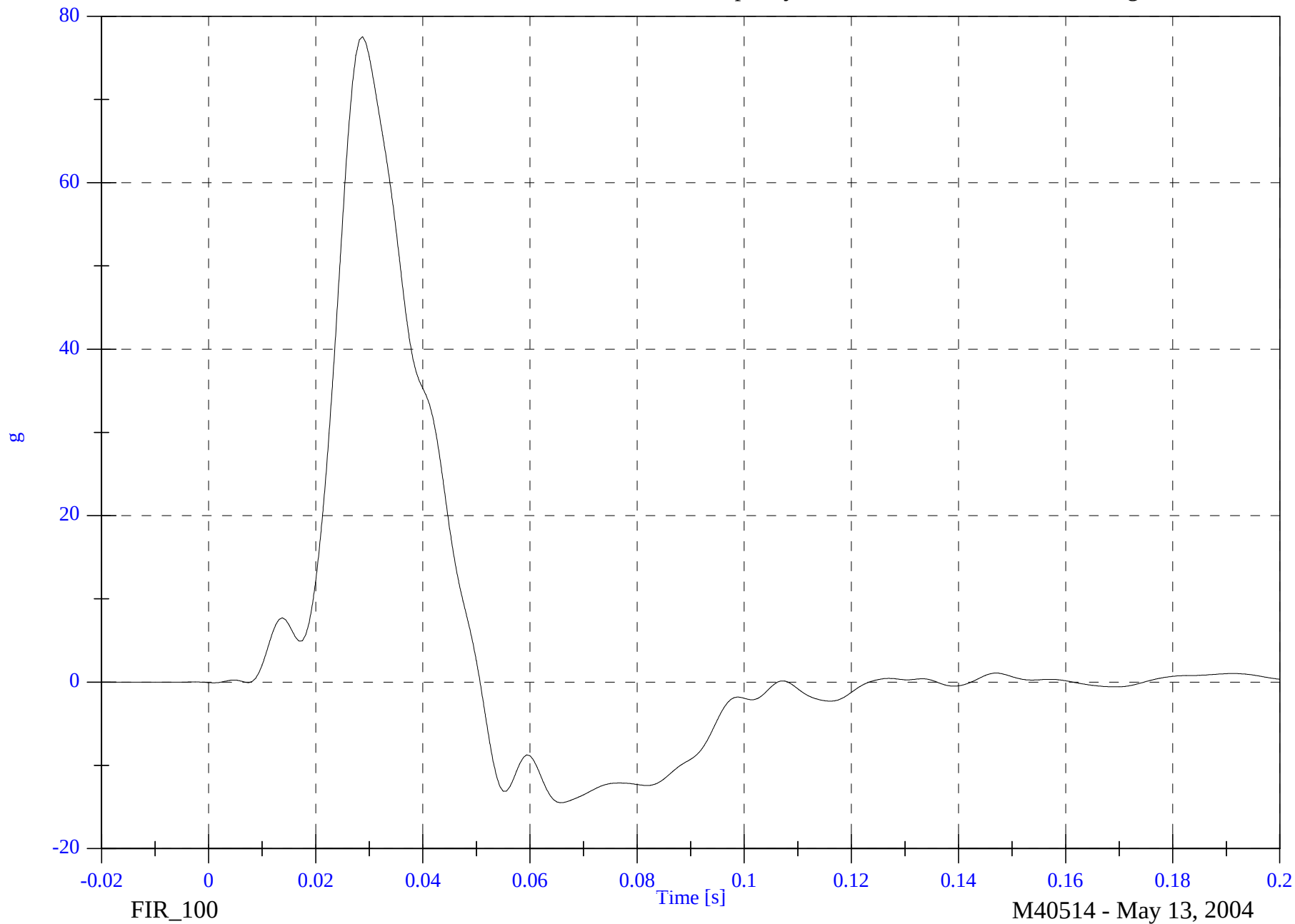
V2P1 Lower Spine y

Max: 77.6 [g] at 0.029 [s]

Min: -14.5 [g] at 0.066 [s]

B-54

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

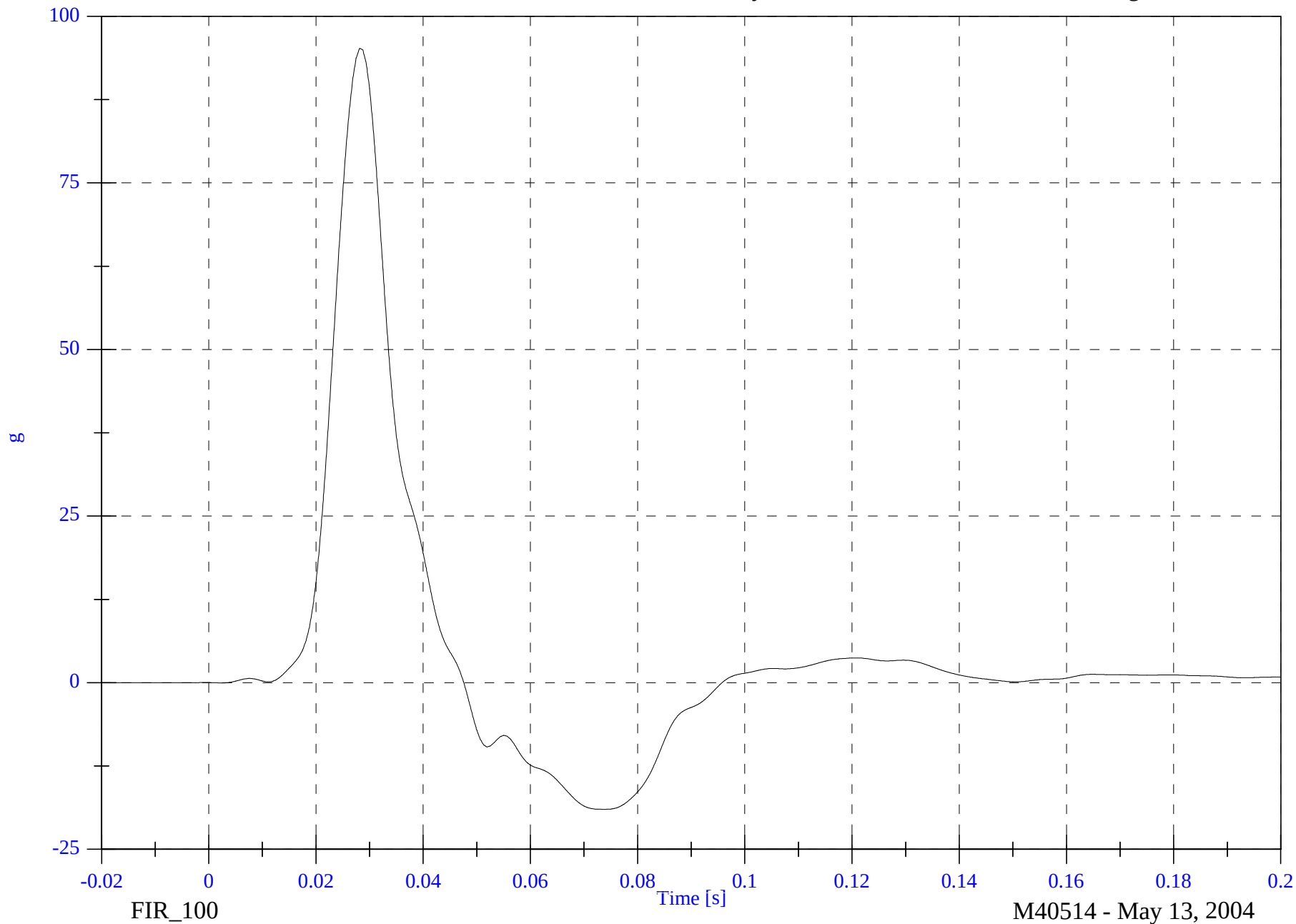
V2P1 Pelvic y

Max: 95.2 [g] at 0.028 [s]

Min: -19.0 [g] at 0.074 [s]

B-55

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

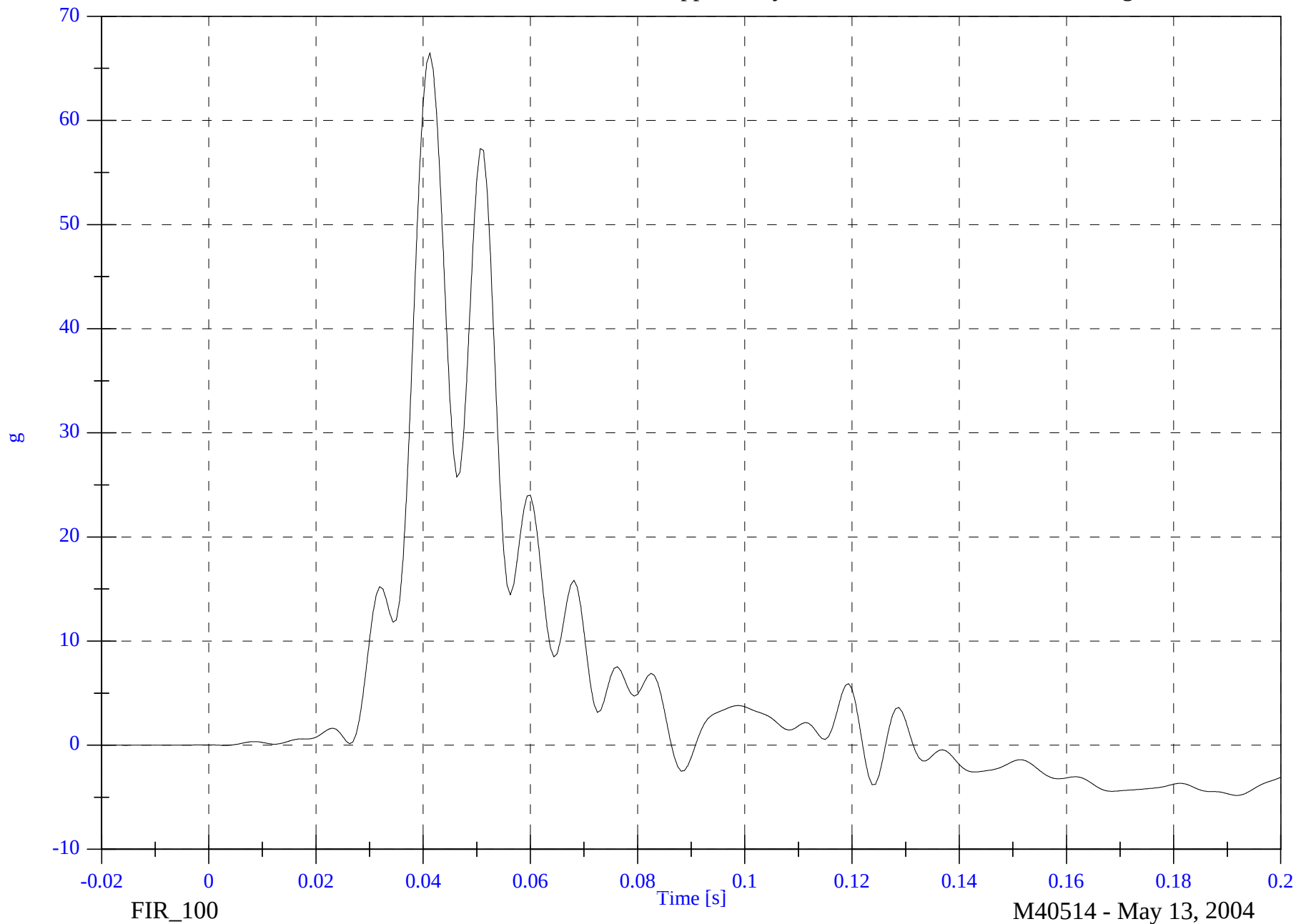
V2P4 Upper Rib y

Max: 66.5 [g] at 0.041 [s]

Min: -4.8 [g] at 0.192 [s]

B-56

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

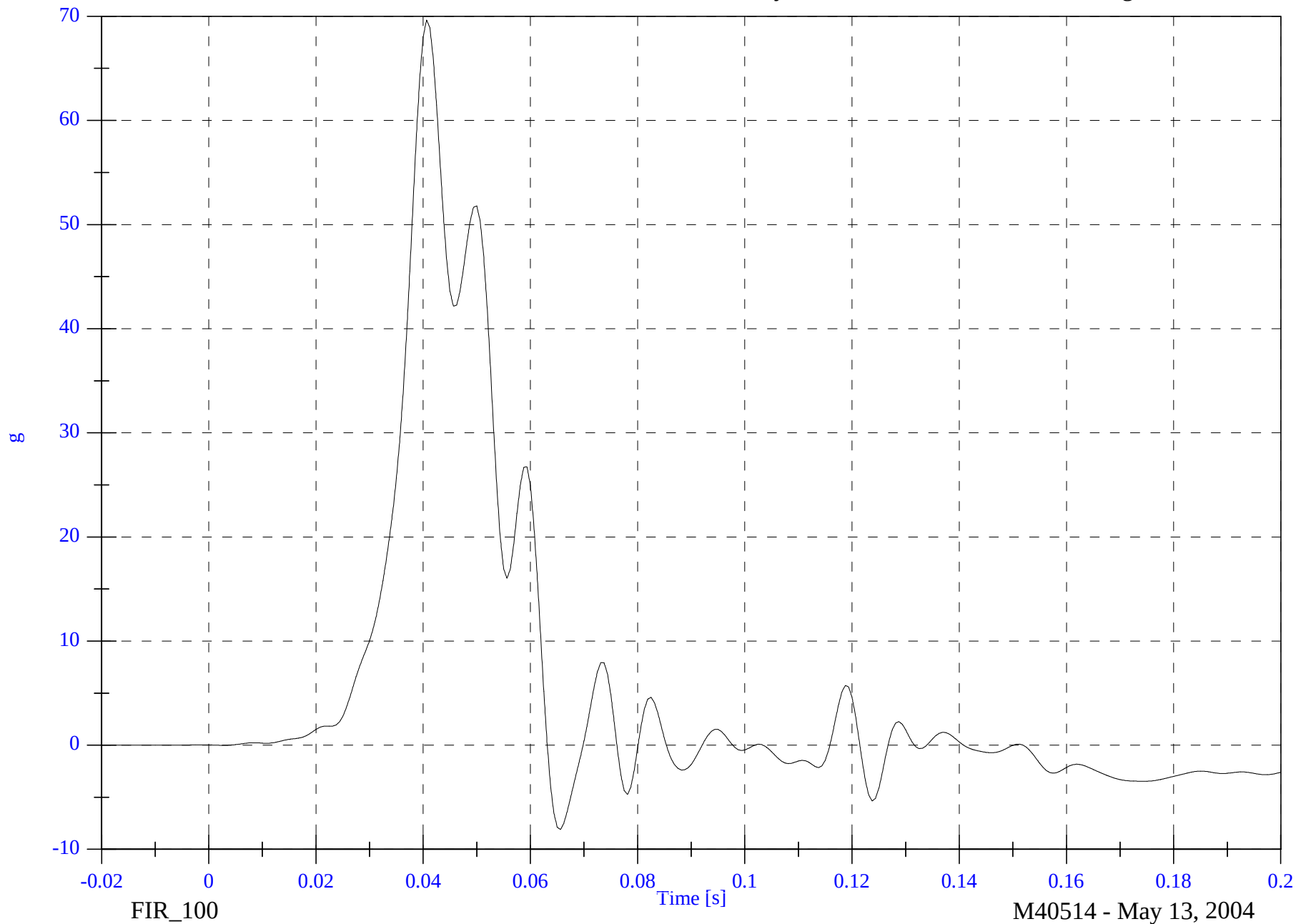
V2P4 Lower Rib y

Max: 69.6 [g] at 0.041 [s]

Min: -8.1 [g] at 0.066 [s]

B-57

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

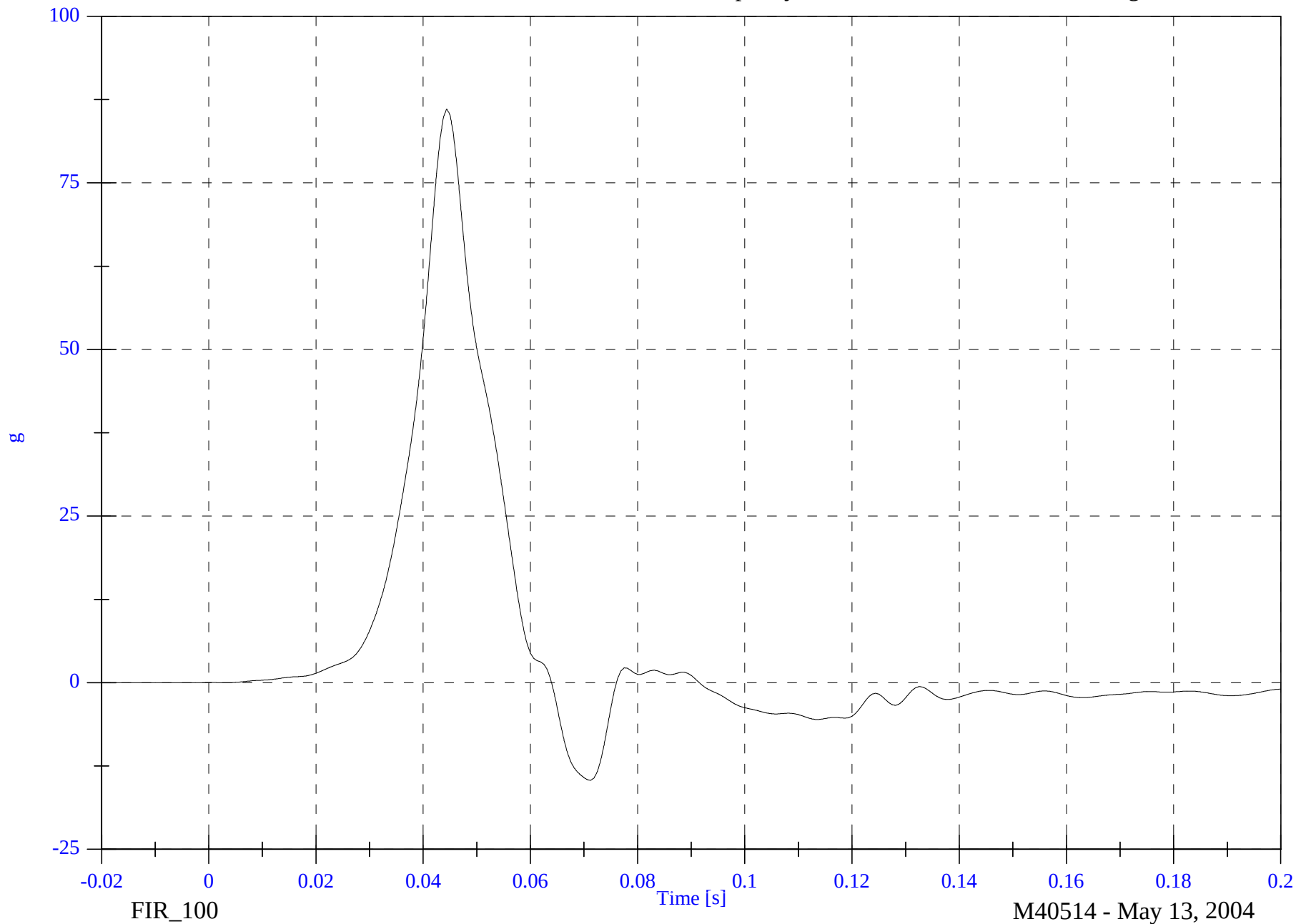
V2P4 Lower Spine y

Max: 86.1 [g] at 0.044 [s]

Min: -14.7 [g] at 0.071 [s]

B-58

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

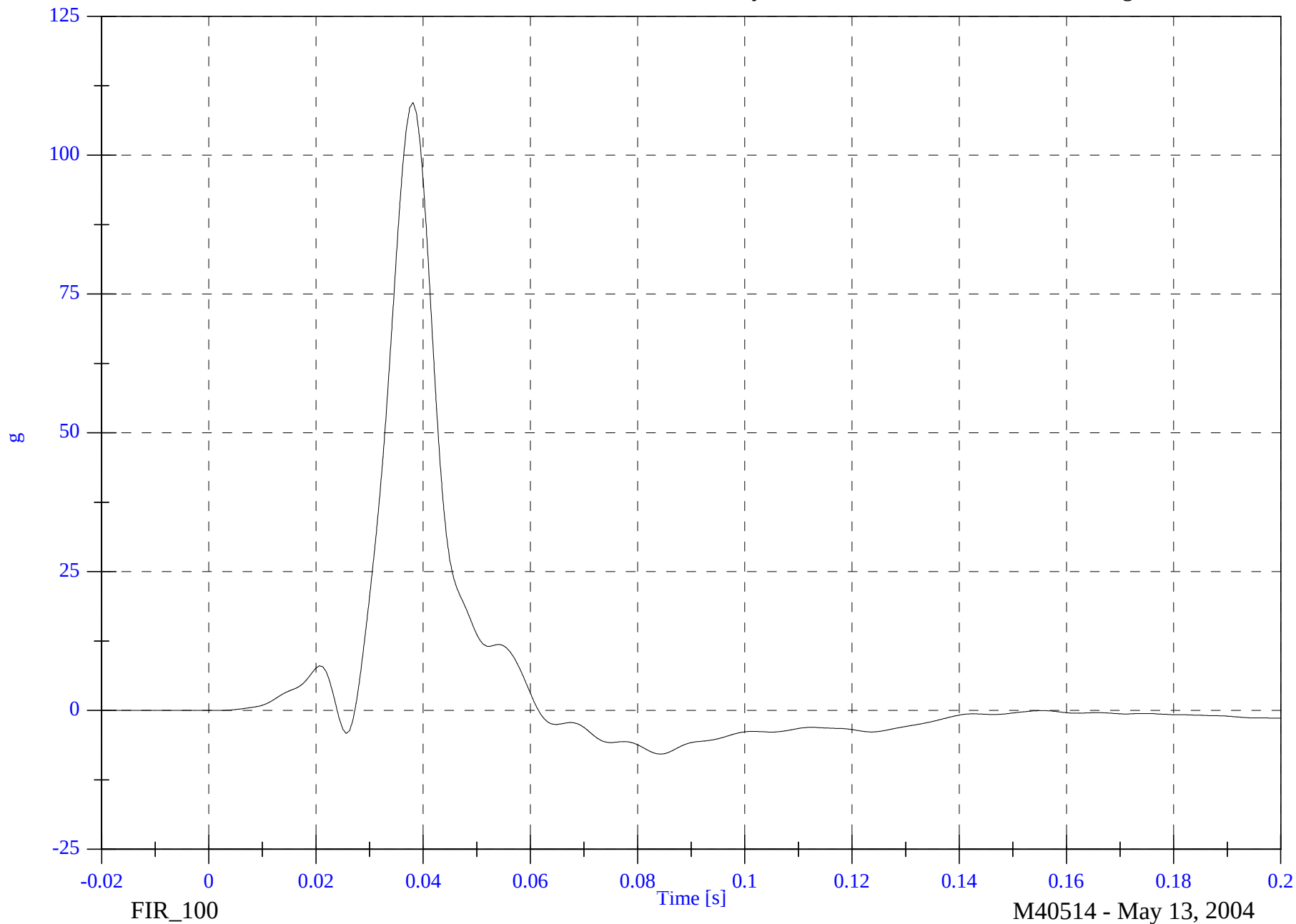
V2P4 Pelvic y

Max: 109.5 [g] at 0.038 [s]

Min: -7.9 [g] at 0.084 [s]

B-59

8725-SNCAP-04

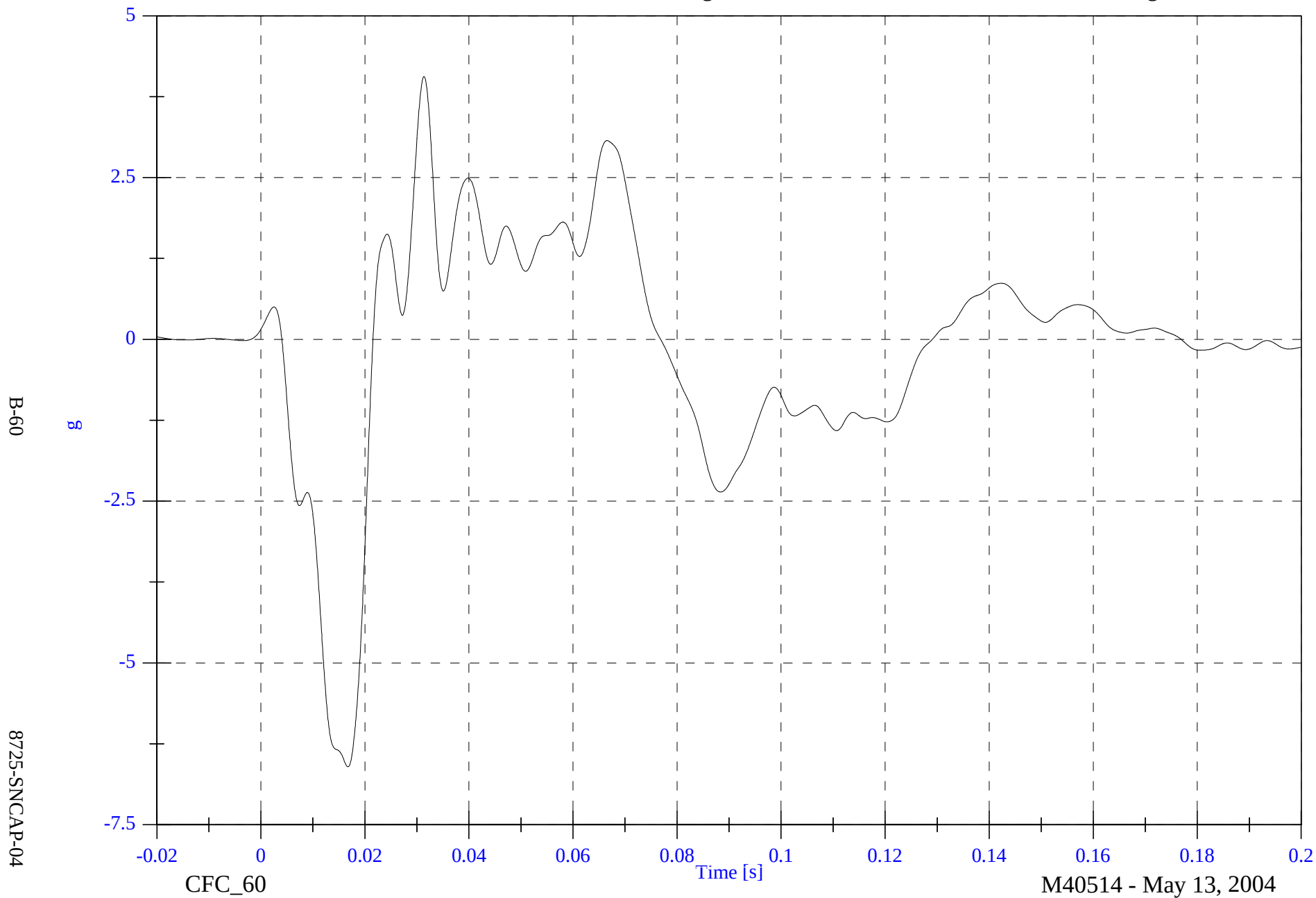


2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A1 Right Front Sill X

Max: 4.1 [g] at 0.031 [s]

Min: -6.6 [g] at 0.017 [s]



2004 SNCAP Test 4 - 2004 Kia Spectra

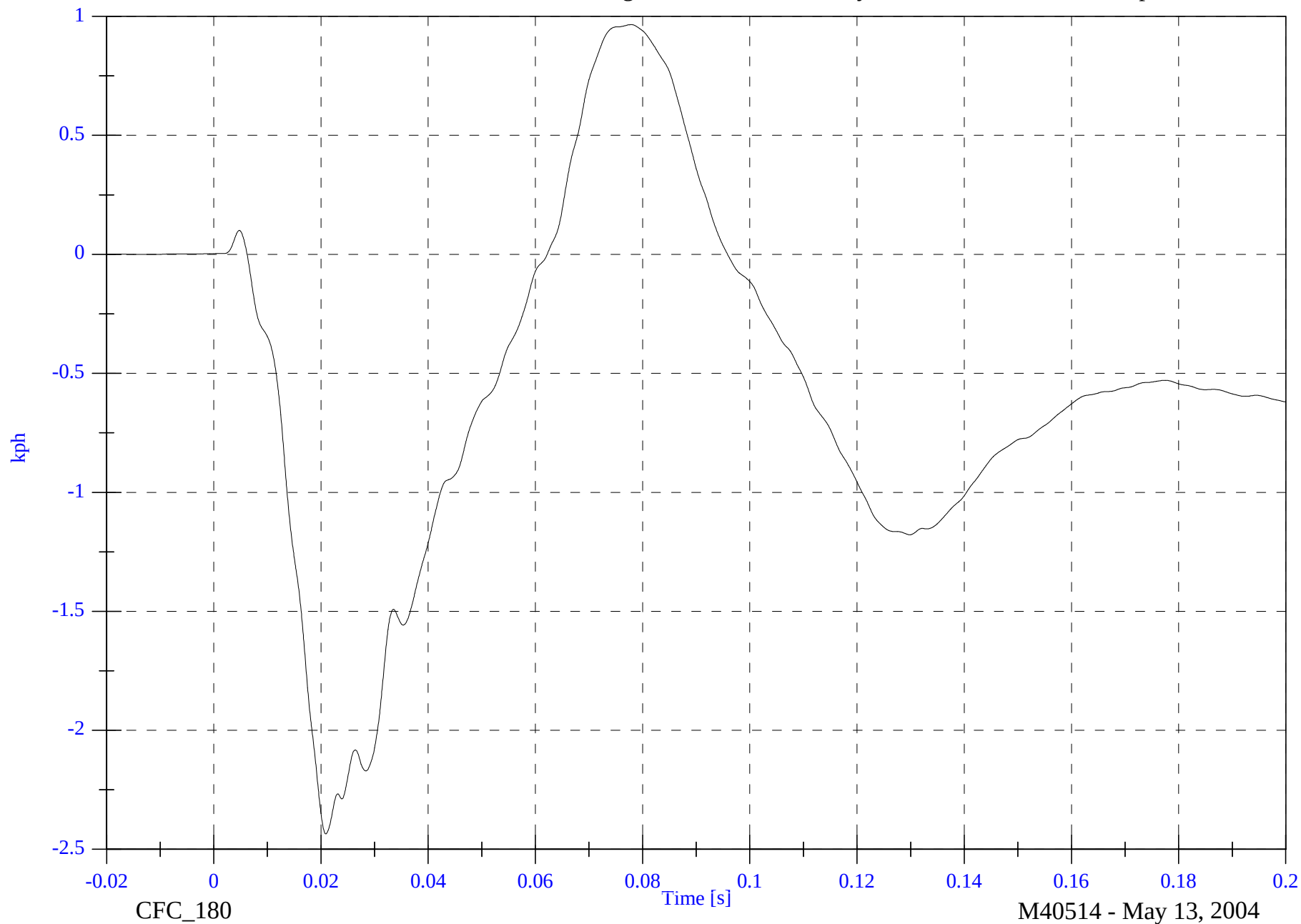
V2 A1 Right Front Sill X Velocity

Max: 1.0 [kph] at 0.078 [s]

Min: -2.4 [kph] at 0.021 [s]

B-61

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

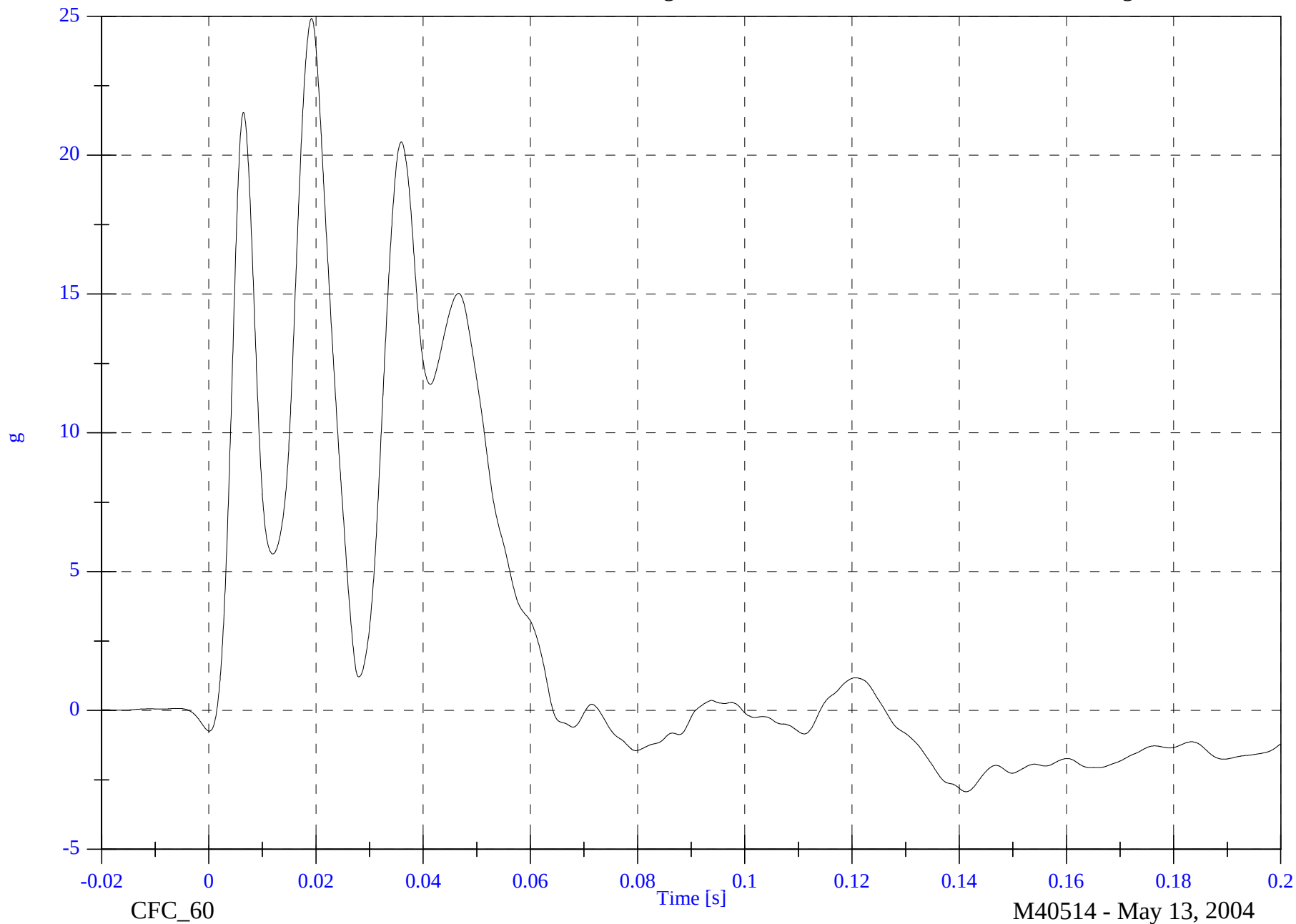
V2 A1 Right Front Sill Y

Max: 24.9 [g] at 0.019 [s]

Min: -2.9 [g] at 0.141 [s]

B-62

8725-SNCAP-04

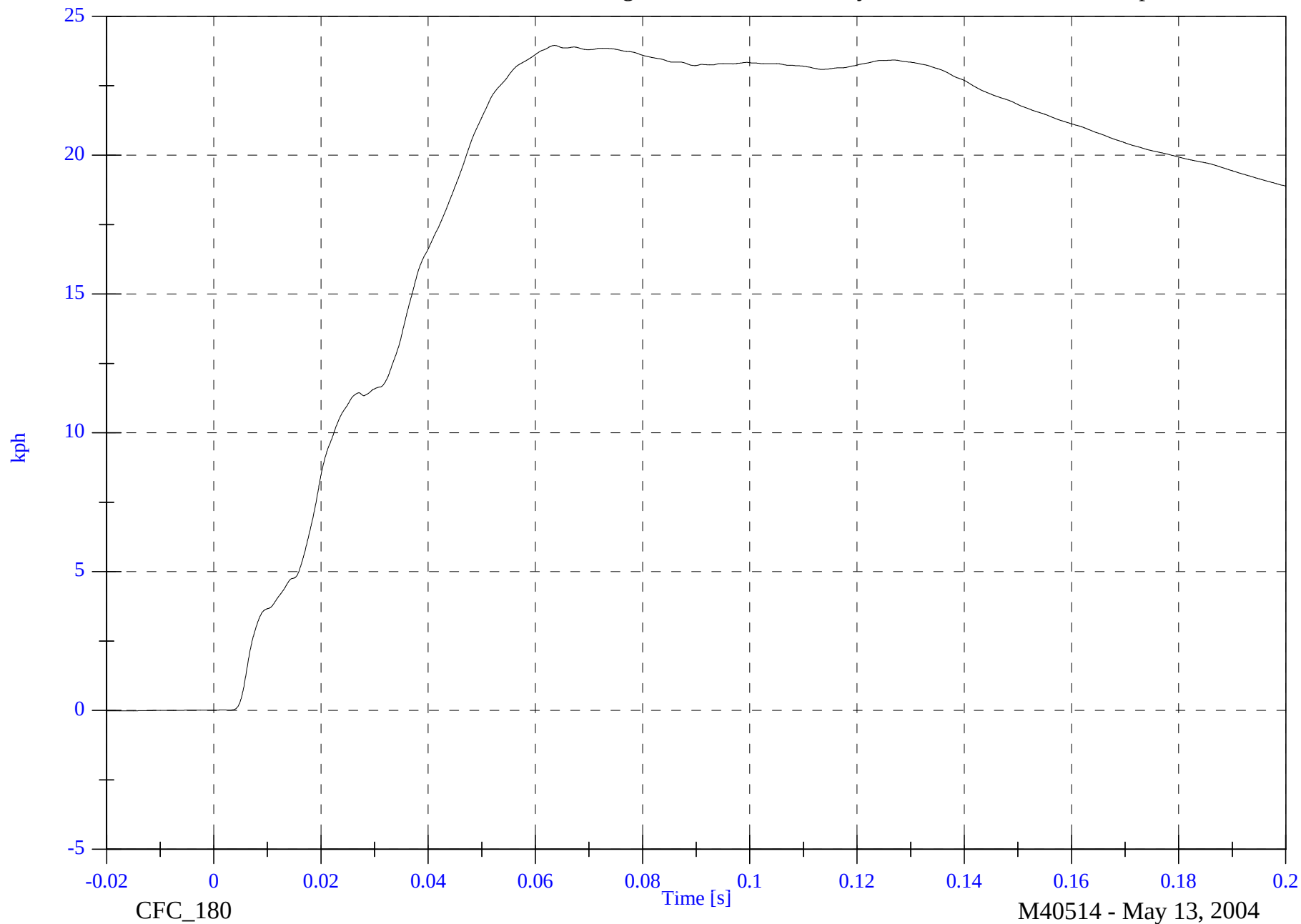


2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A1 Right Front Sill Y Velocity

Max: 24.0 [kph] at 0.064 [s]

Min: -0.0 [kph] at -0.020 [s]



B-63

8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A1 Right Front Sill Z

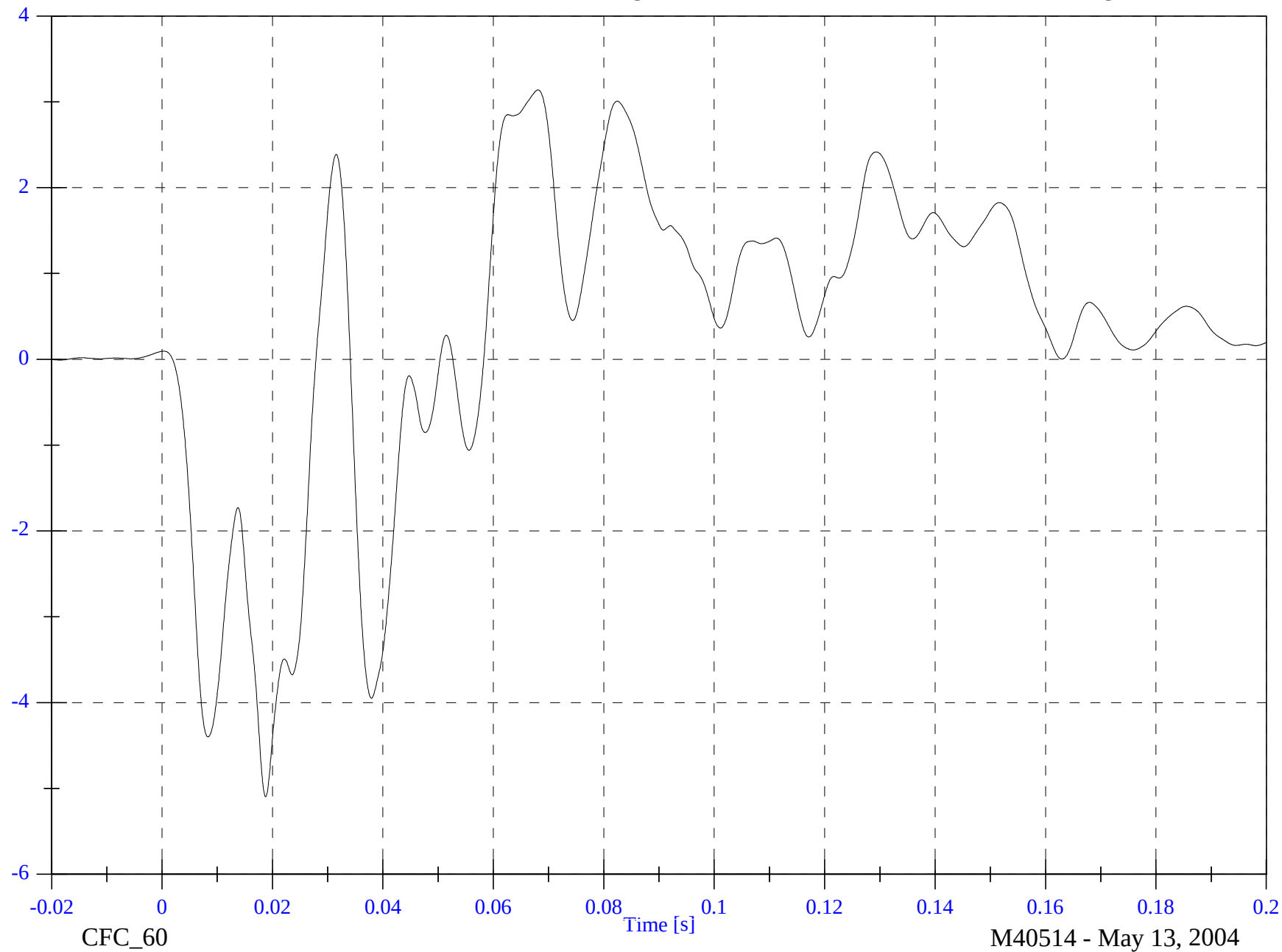
Max: 3.1 [g] at 0.068 [s]

Min: -5.1 [g] at 0.019 [s]

B-64

8725-SNCAP-04

g



2004 SNCAP Test 4 - 2004 Kia Spectra

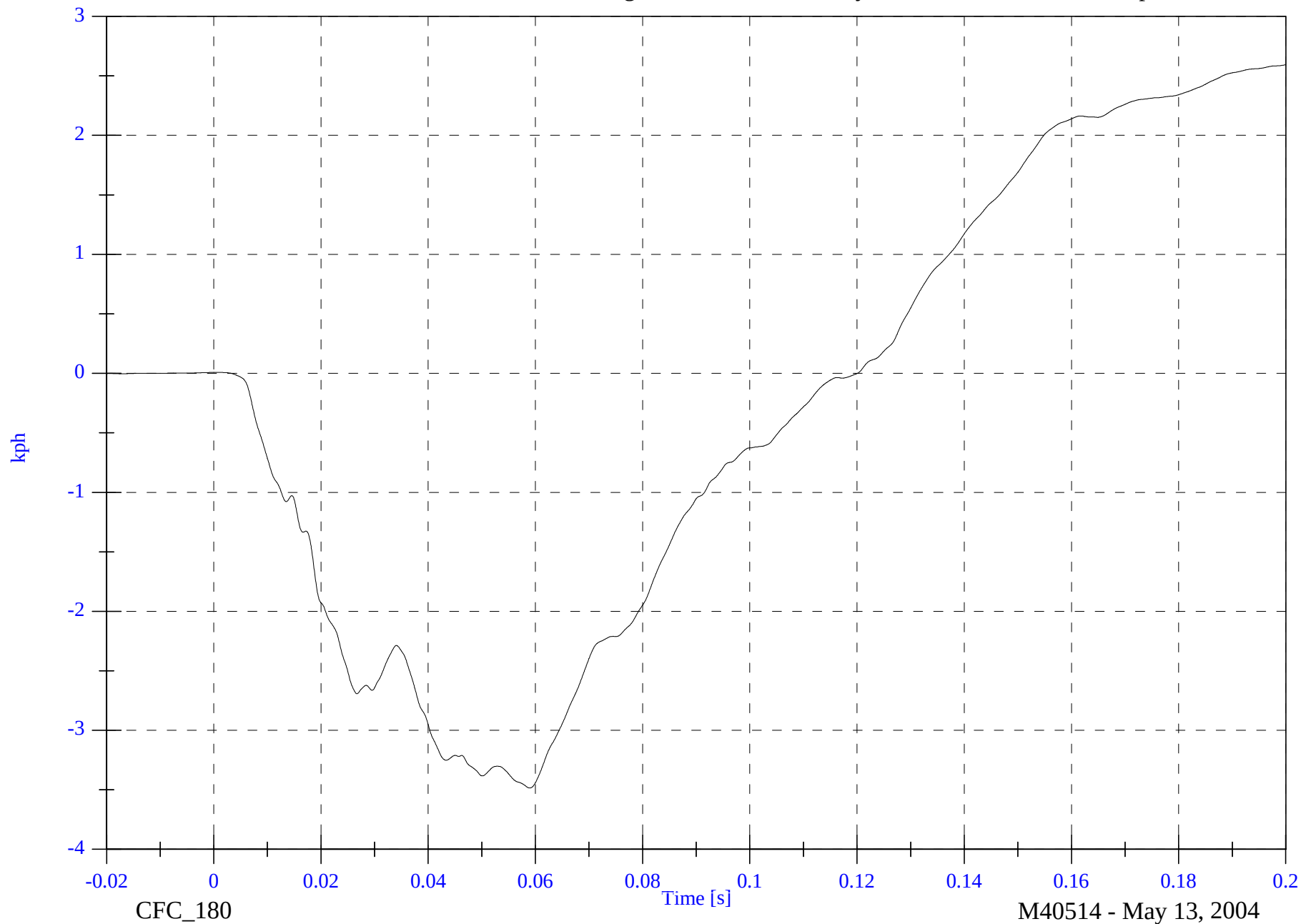
V2 A1 Right Front Sill Z Velocity

Max: 2.6 [kph] at 0.200 [s]

Min: -3.5 [kph] at 0.059 [s]

B-65

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

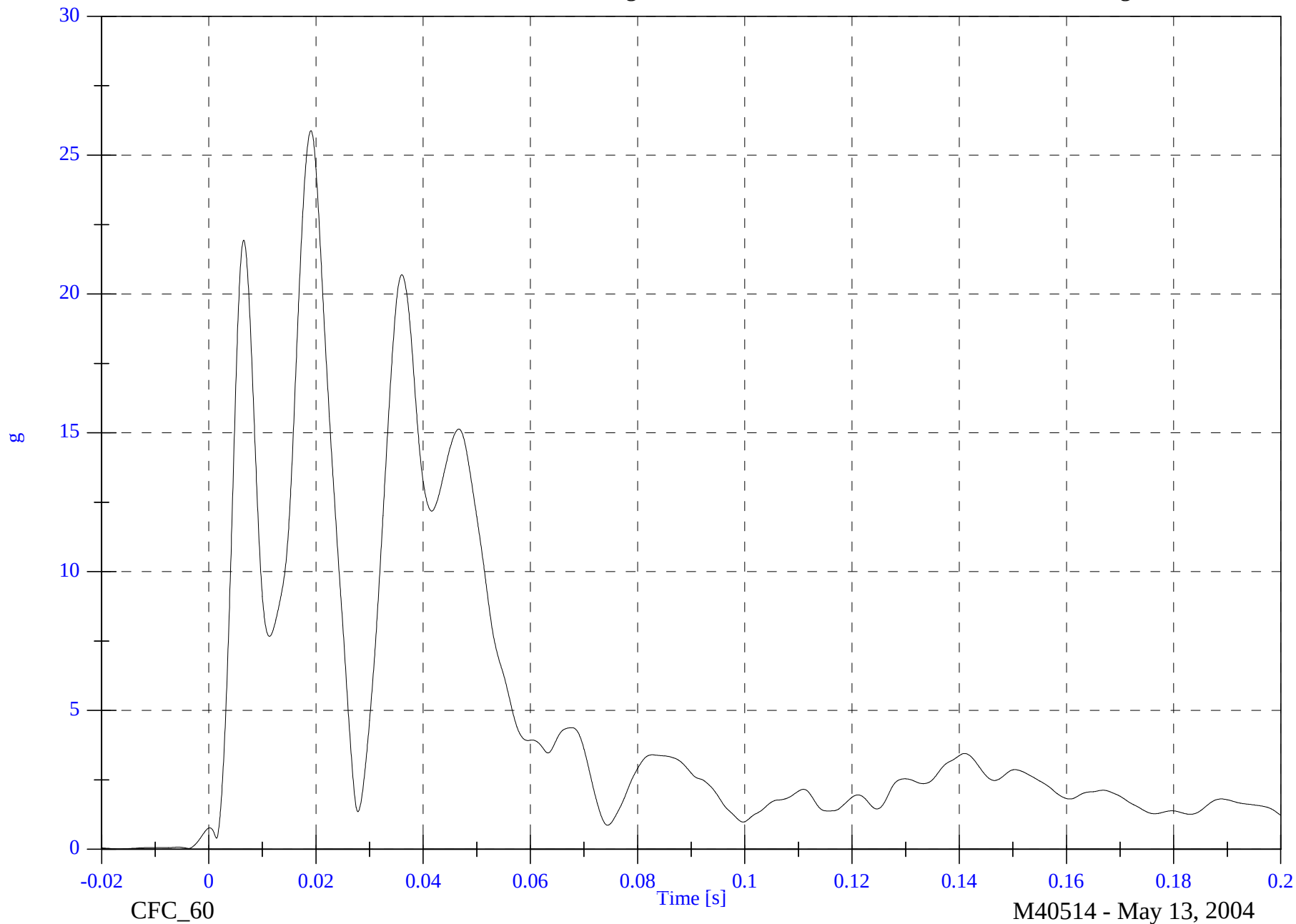
V2 A1 Right Front Sill Resultant

Max: 25.9 [g] at 0.019 [s]

Min: 0.0 [g] at -0.017 [s]

B-66

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

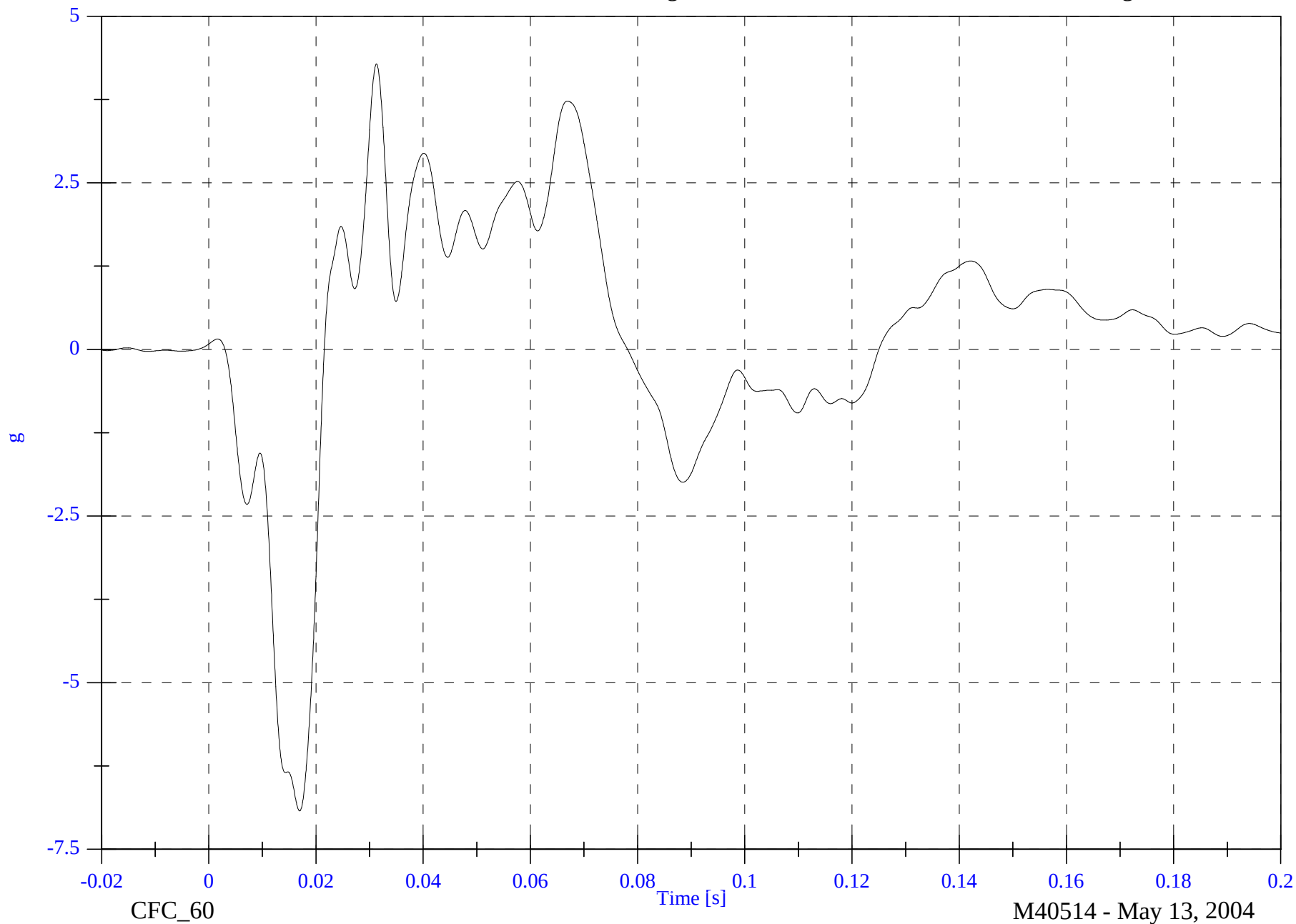
V2 A2 Right Rear Sill X

Max: 4.3 [g] at 0.031 [s]

Min: -6.9 [g] at 0.017 [s]

B-67

8725-SNCAP-04

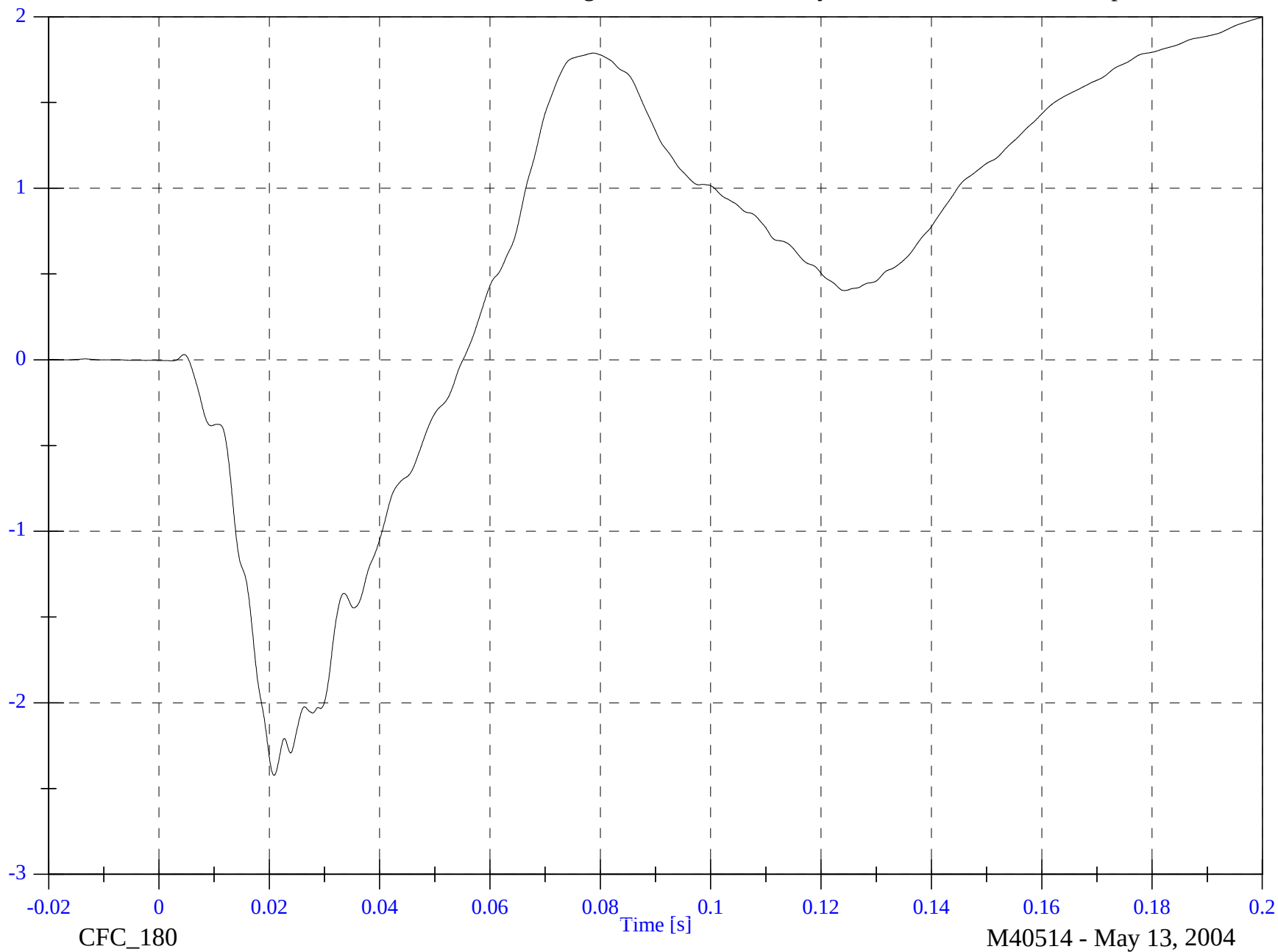


2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A2 Right Rear Sill X Velocity

Max: 2.0 [kph] at 0.200 [s]

Min: -2.4 [kph] at 0.021 [s]



B-68

8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

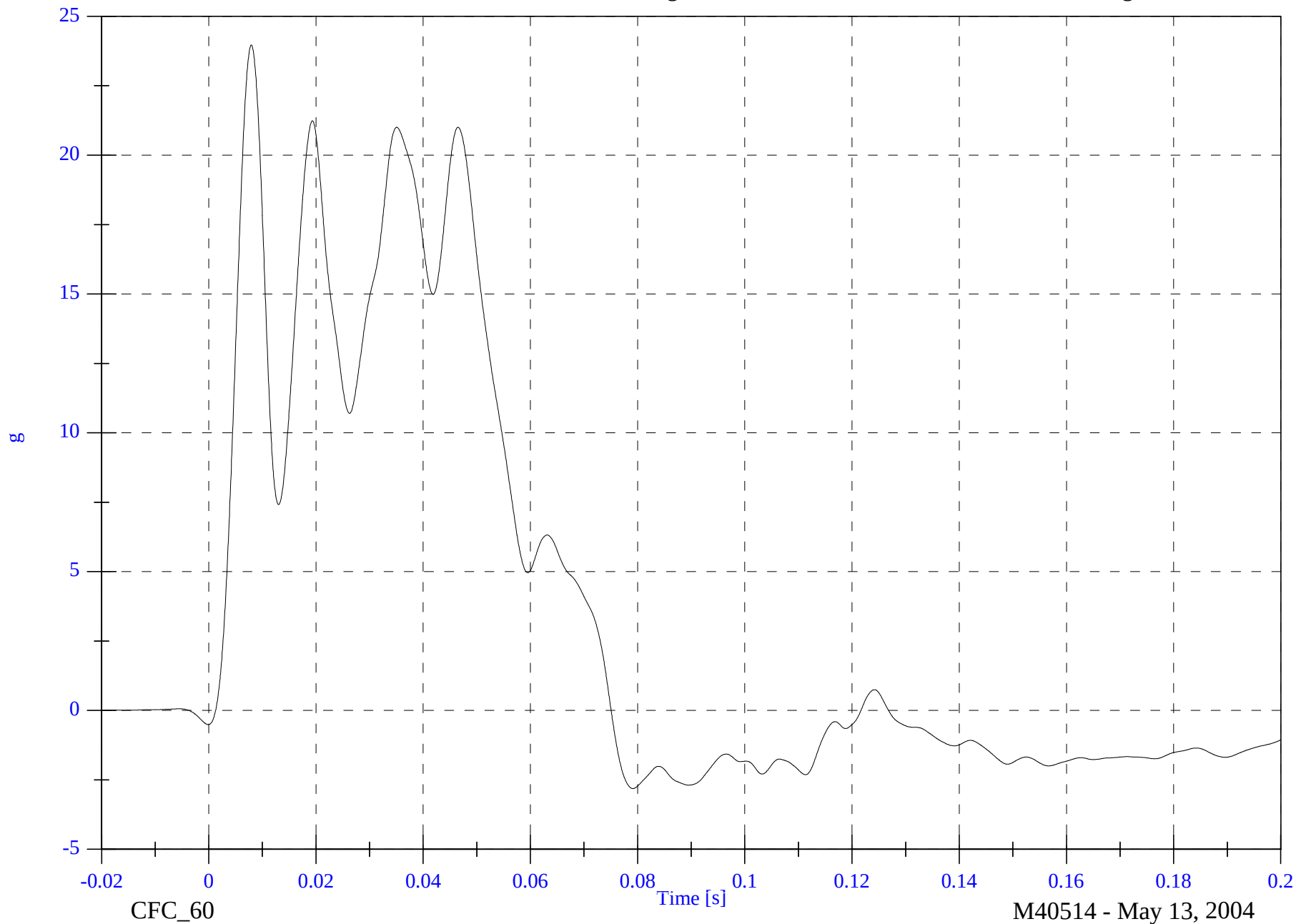
V2 A2 Right Rear Sill Y

Max: 24.0 [g] at 0.008 [s]

Min: -2.8 [g] at 0.079 [s]

B-69

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

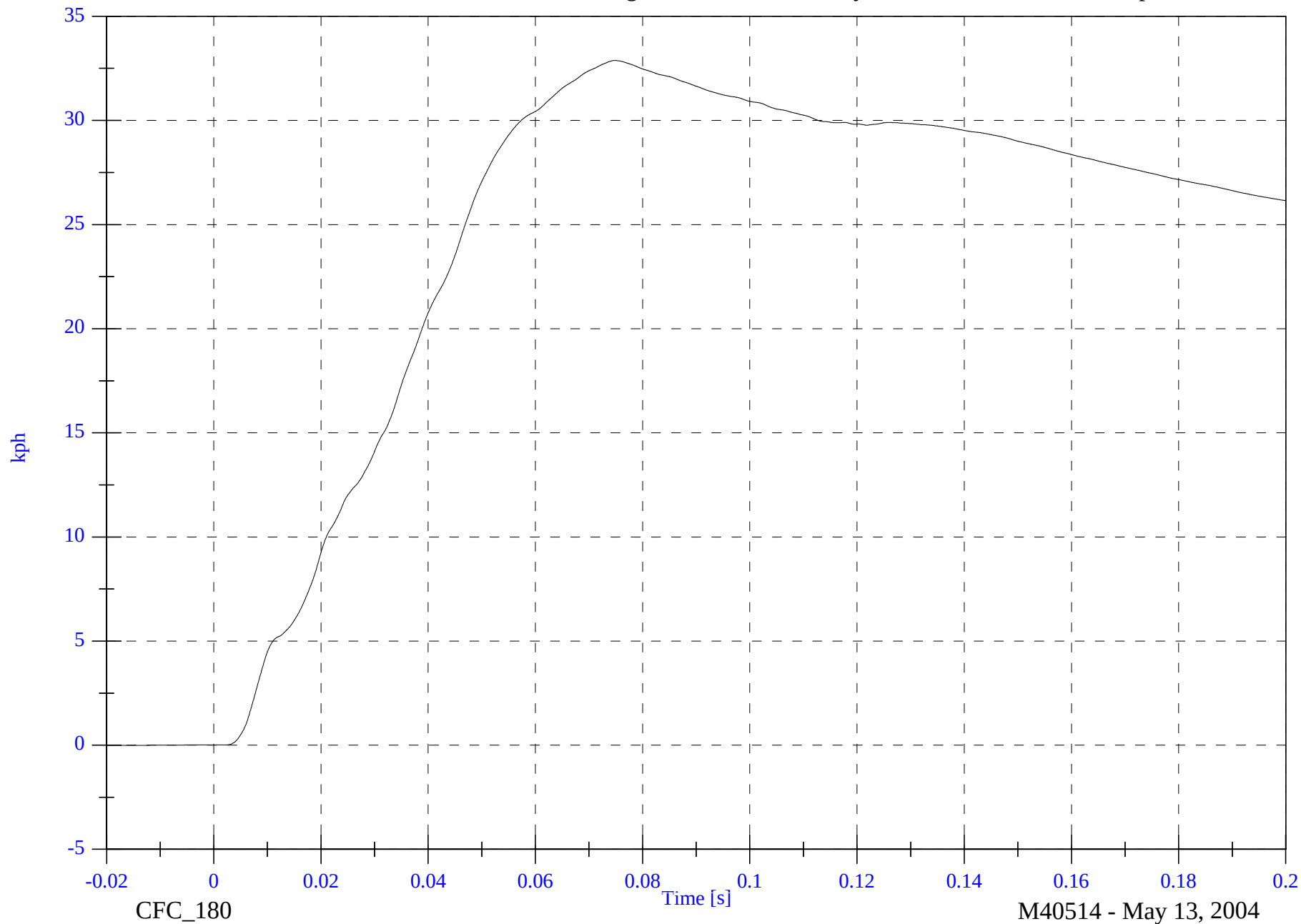
V2 A2 Right Rear Sill Y Velocity

Max: 32.9 [kph] at 0.075 [s]

Min: -0.0 [kph] at -0.019 [s]

B-70

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

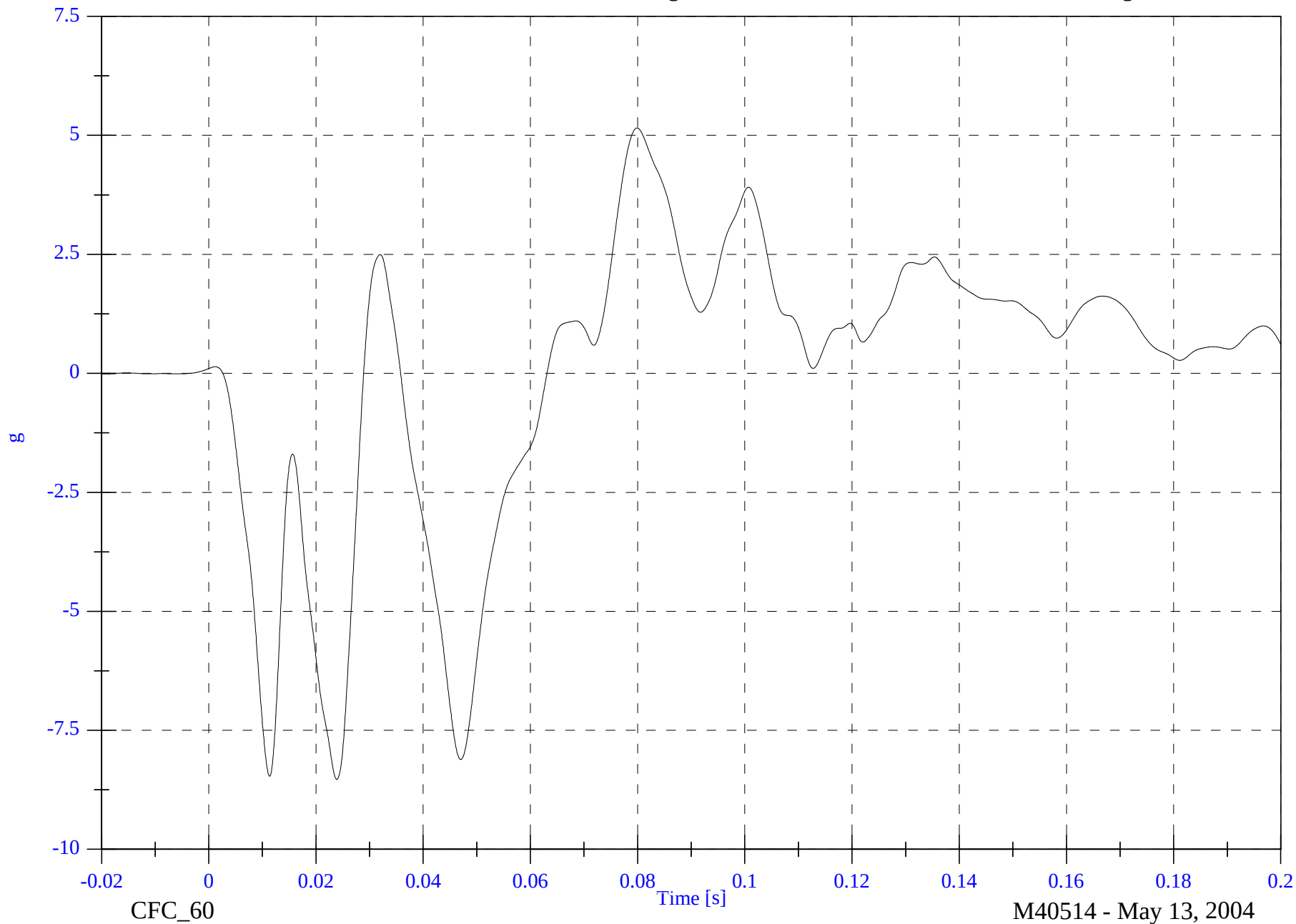
V2 A2 Right Rear Sill Z

Max: 5.2 [g] at 0.080 [s]

Min: -8.5 [g] at 0.024 [s]

B-71

8725-SNCAP-04

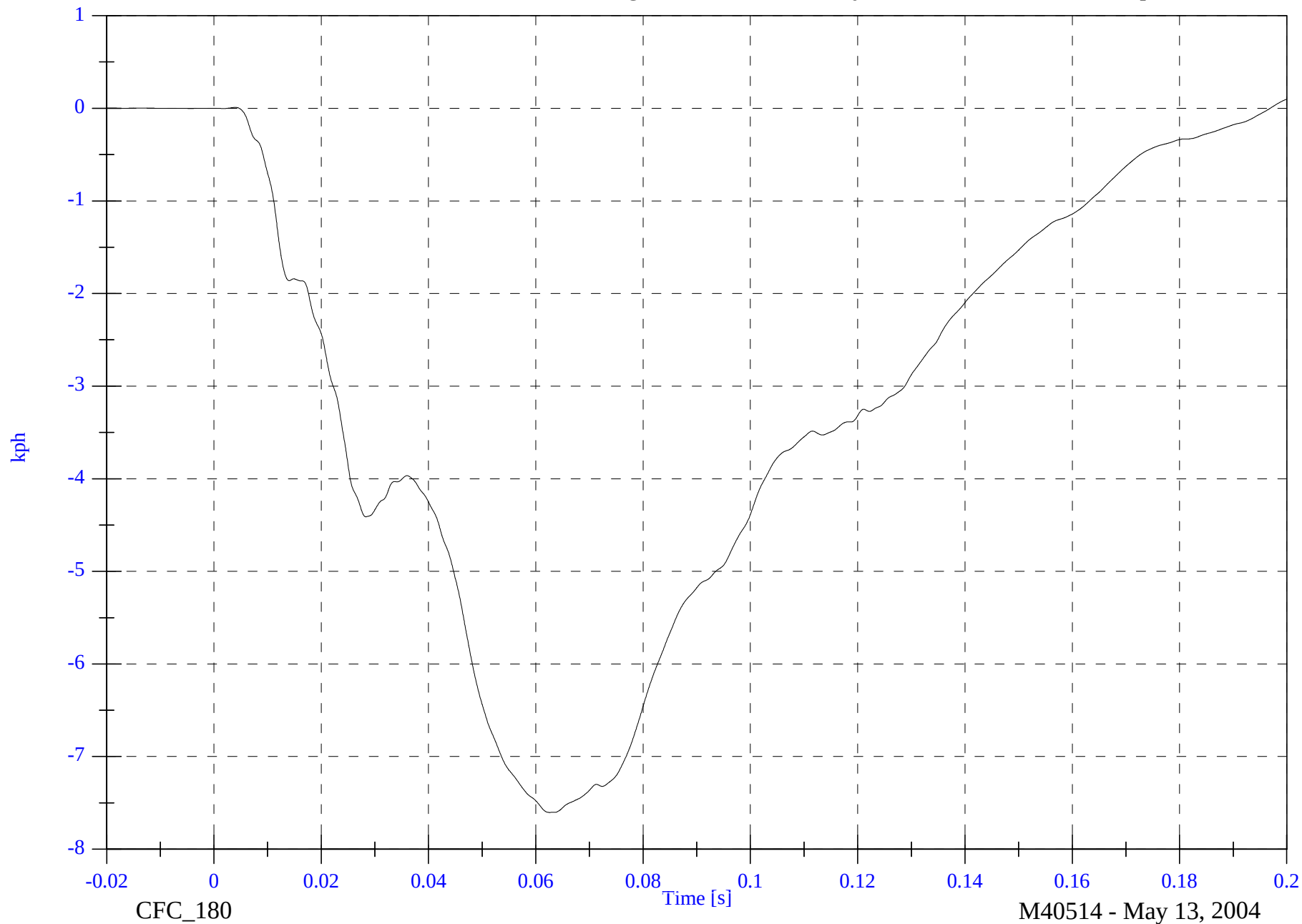


2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A2 Right Rear Sill Z Velocity

Max: 0.1 [kph] at 0.200 [s]

Min: -7.6 [kph] at 0.063 [s]



B-72

8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

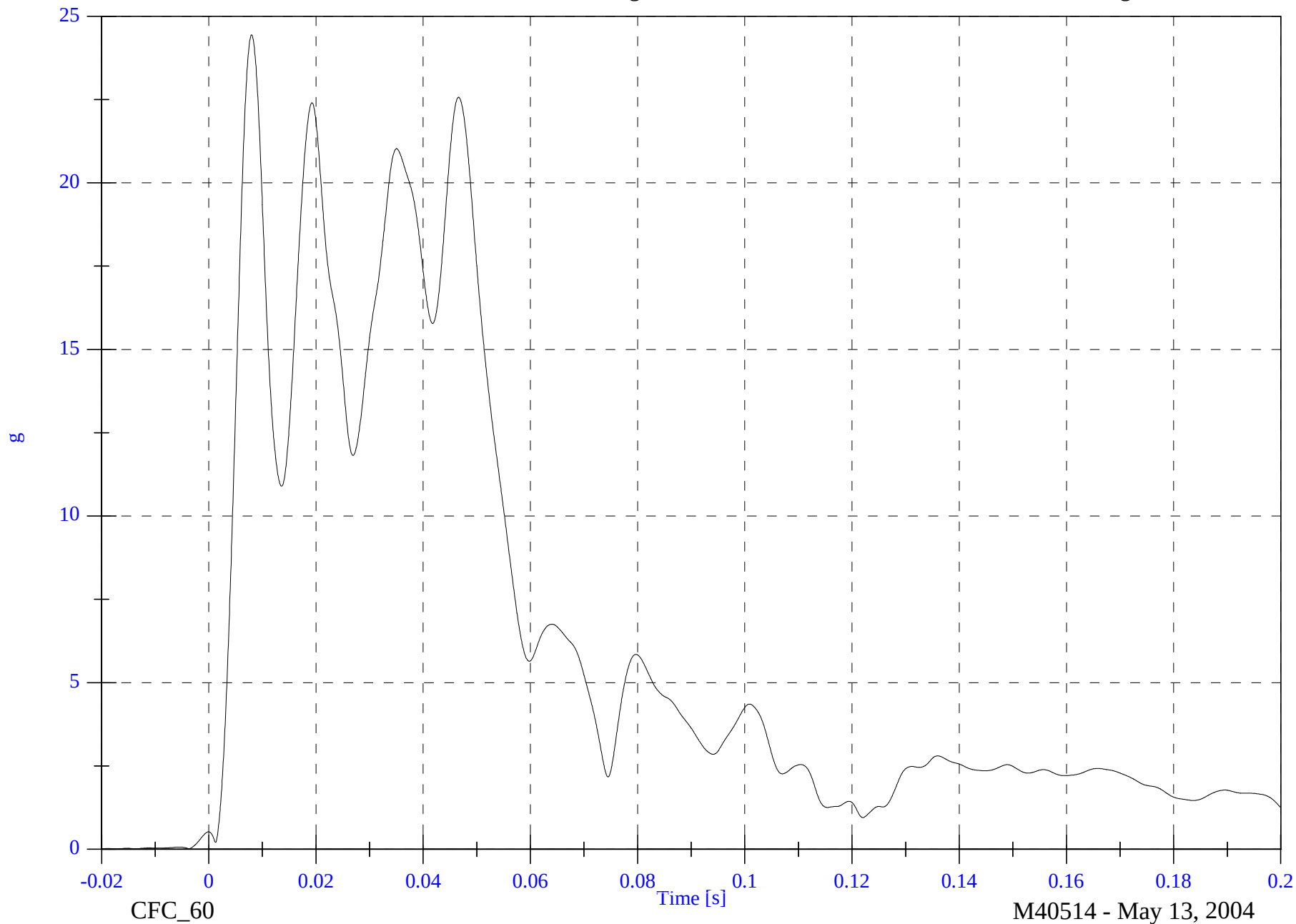
V2 A2 Right Rear Sill Resultant

Max: 24.4 [g] at 0.008 [s]

Min: 0.0 [g] at -0.017 [s]

B-73

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

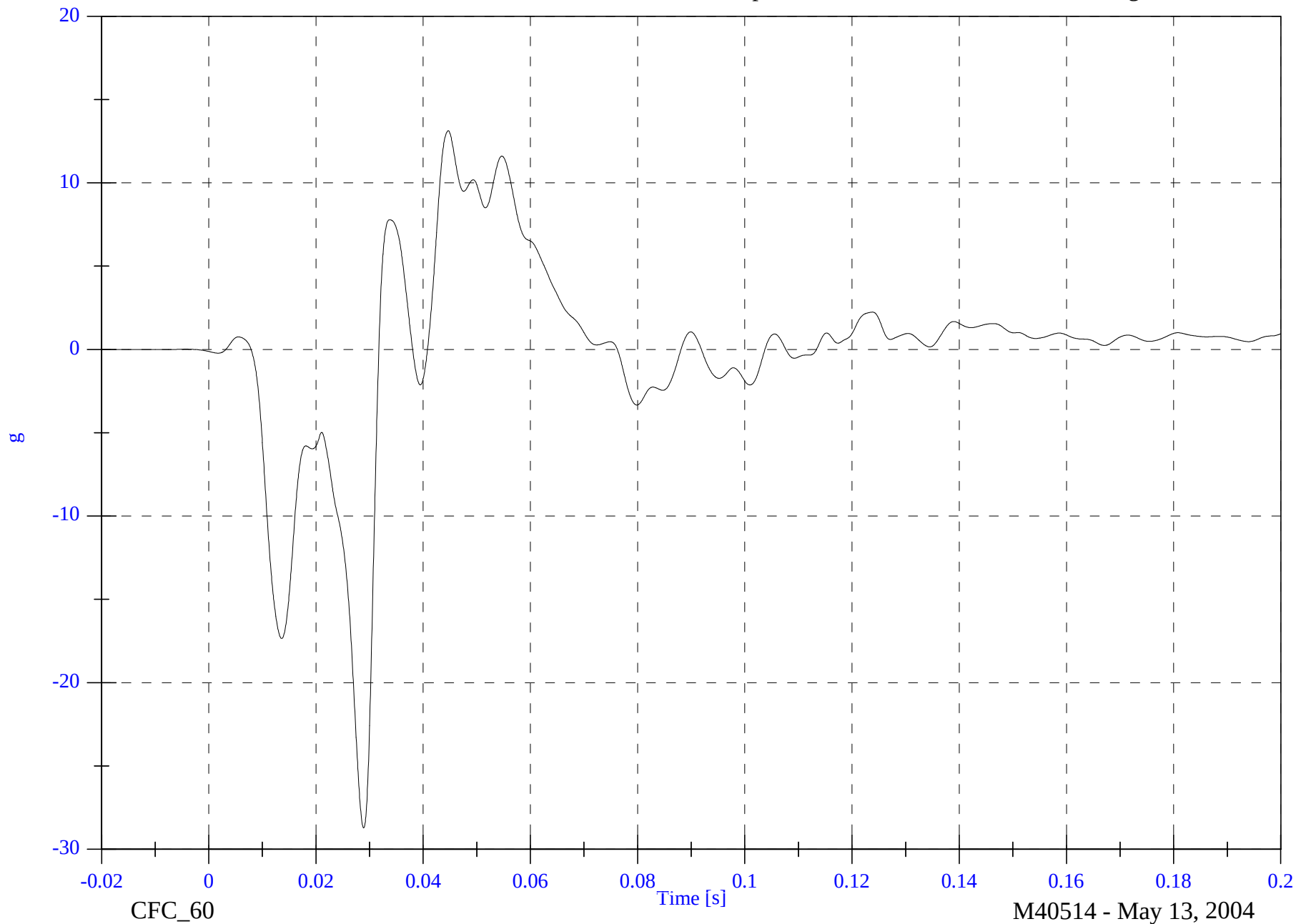
V2 A3 Rear Floorpan X

Max: 13.1 [g] at 0.045 [s]

Min: -28.7 [g] at 0.029 [s]

B-74

8725-SNCAP-04

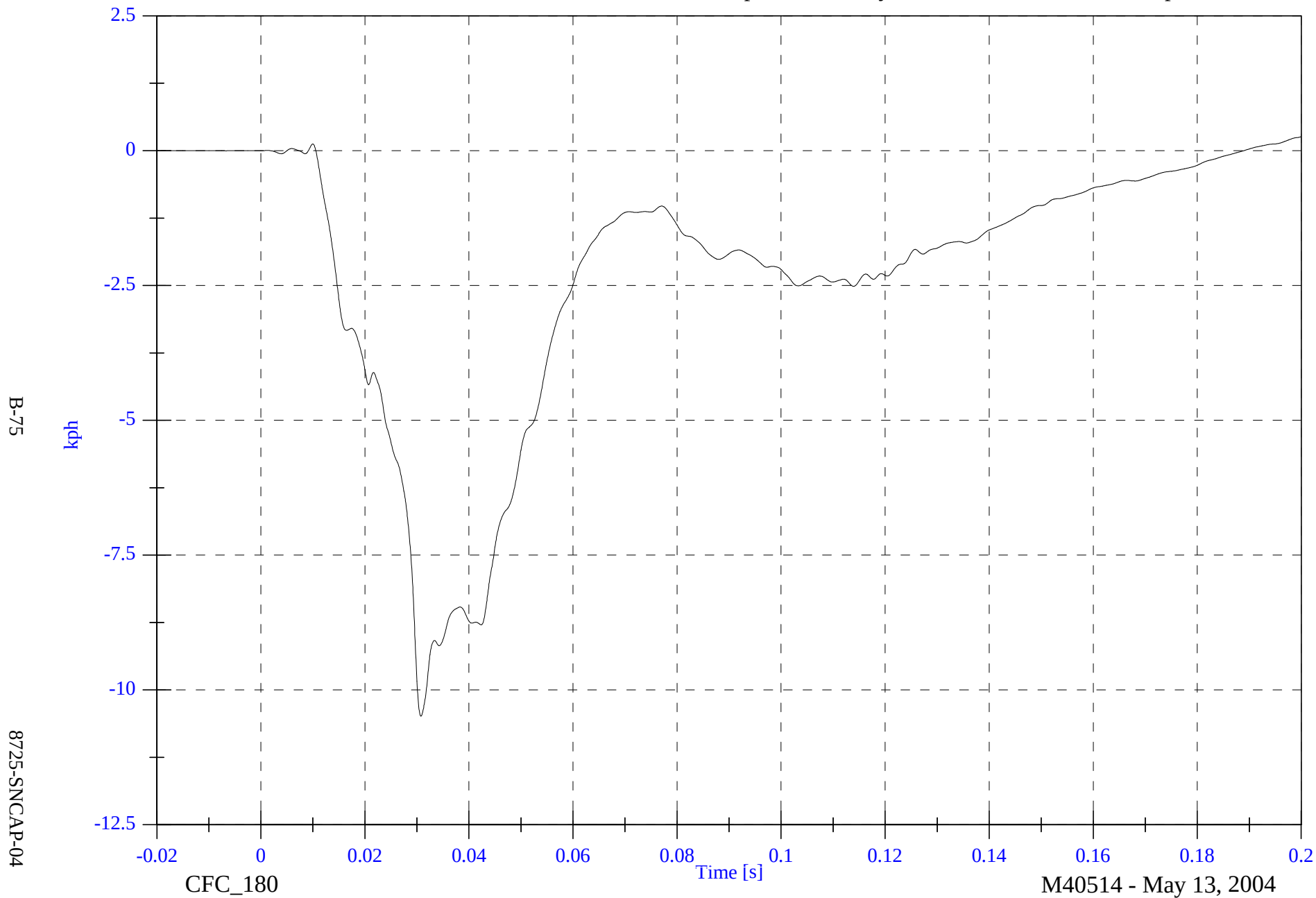


2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A3 Rear Floorpan X Velocity

Max: 0.3 [kph] at 0.200 [s]

Min: -10.5 [kph] at 0.031 [s]



2004 SNCAP Test 4 - 2004 Kia Spectra

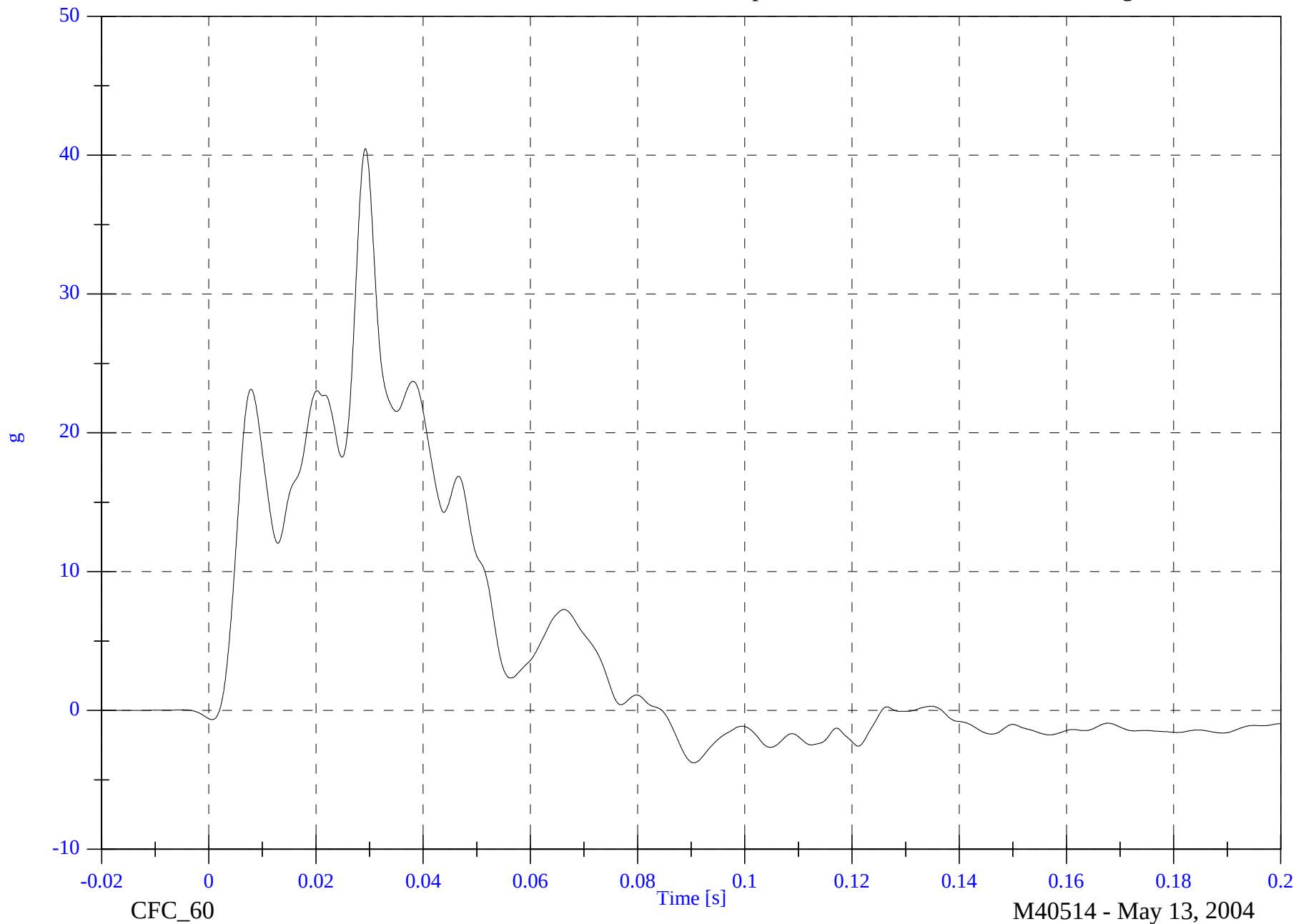
V2 A3 Rear Floorpan Y

Max: 40.5 [g] at 0.029 [s]

Min: -3.8 [g] at 0.090 [s]

B-76

8725-SNCAP-04

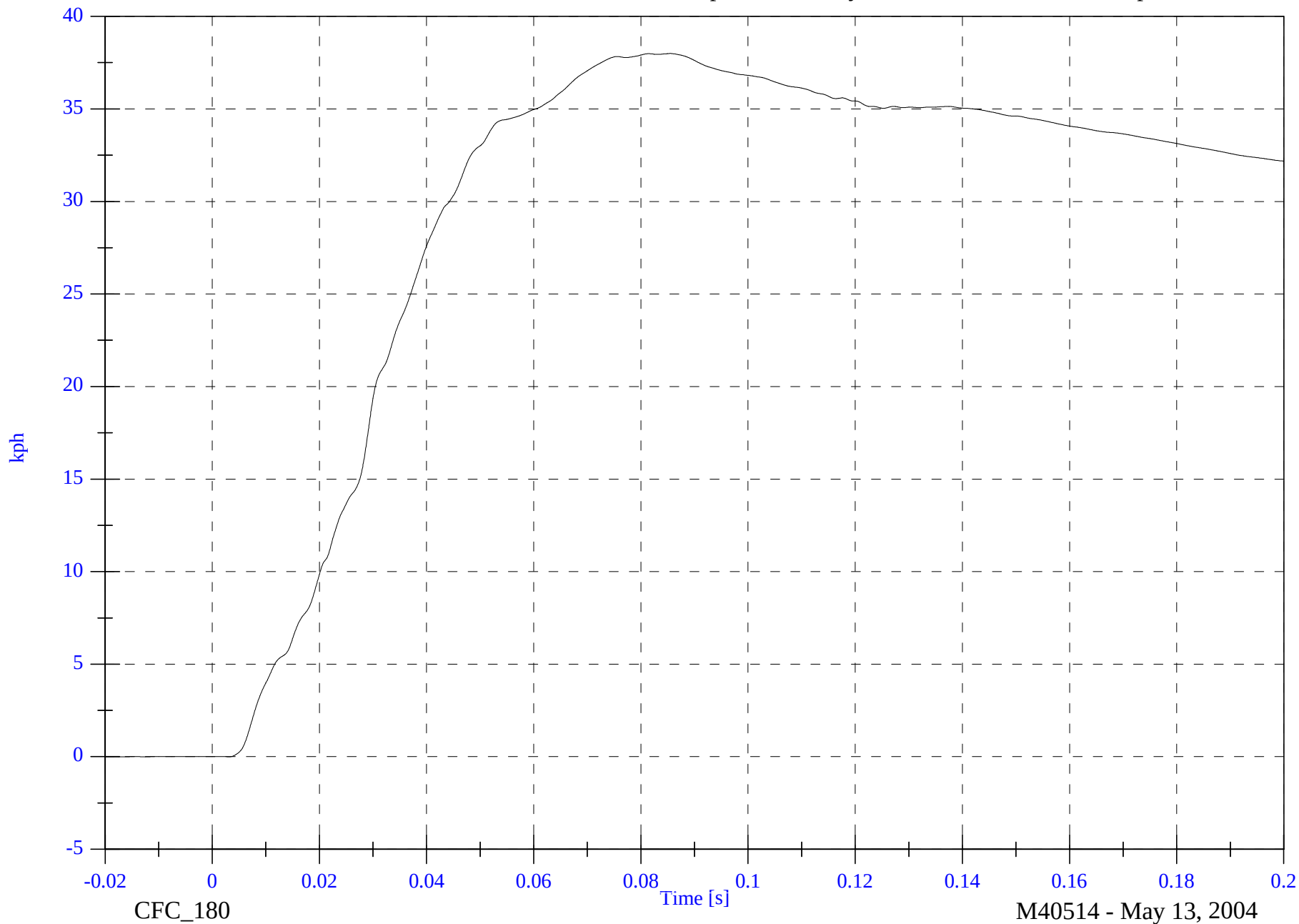


2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A3 Rear Floorpan Y Velocity

Max: 38.0 [kph] at 0.085 [s]

Min: -0.0 [kph] at 0.003 [s]



B-77

8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

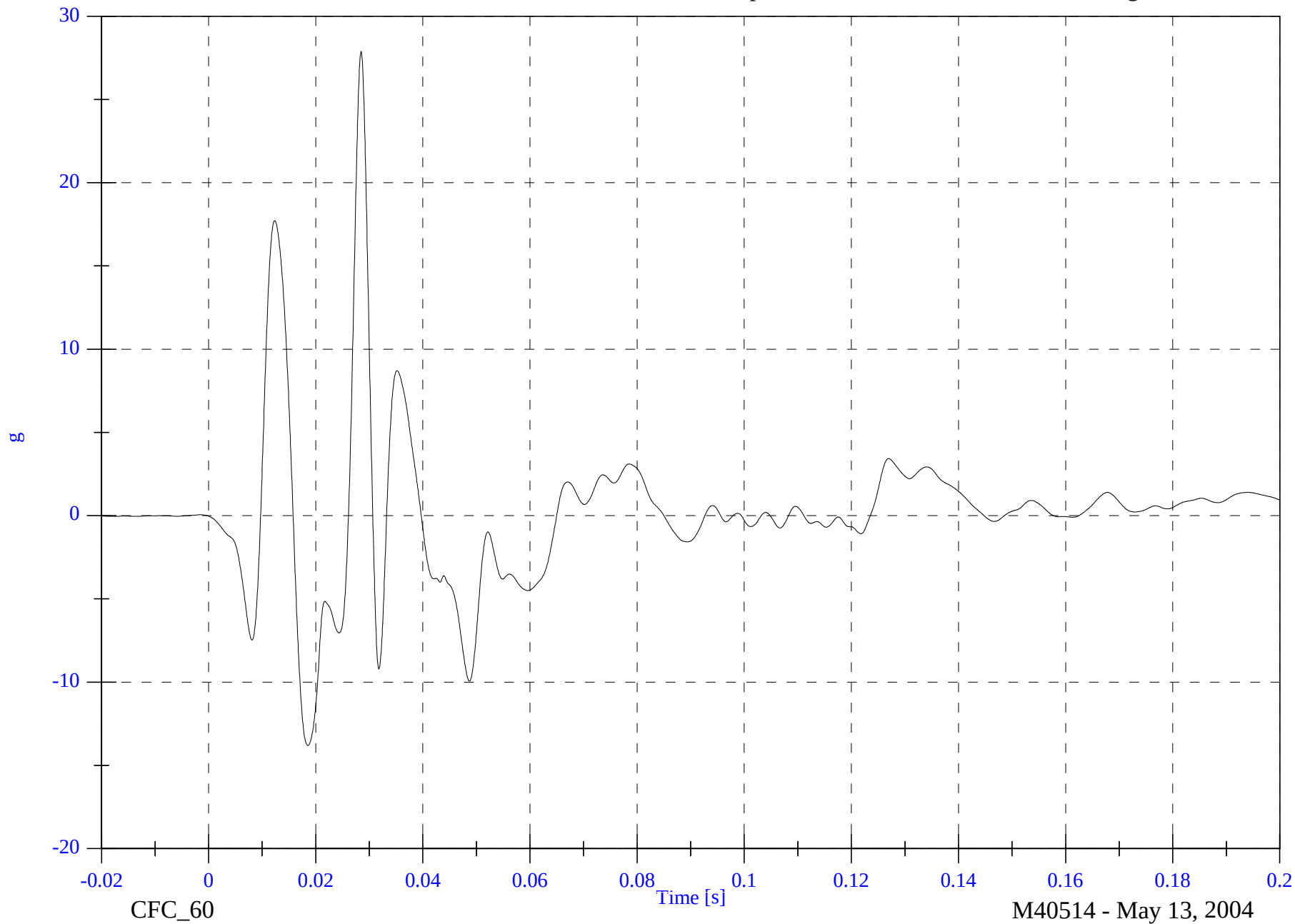
V2 A3 Rear Floorplan Z

Max: 27.9 [g] at 0.028 [s]

Min: -13.8 [g] at 0.018 [s]

B-78

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

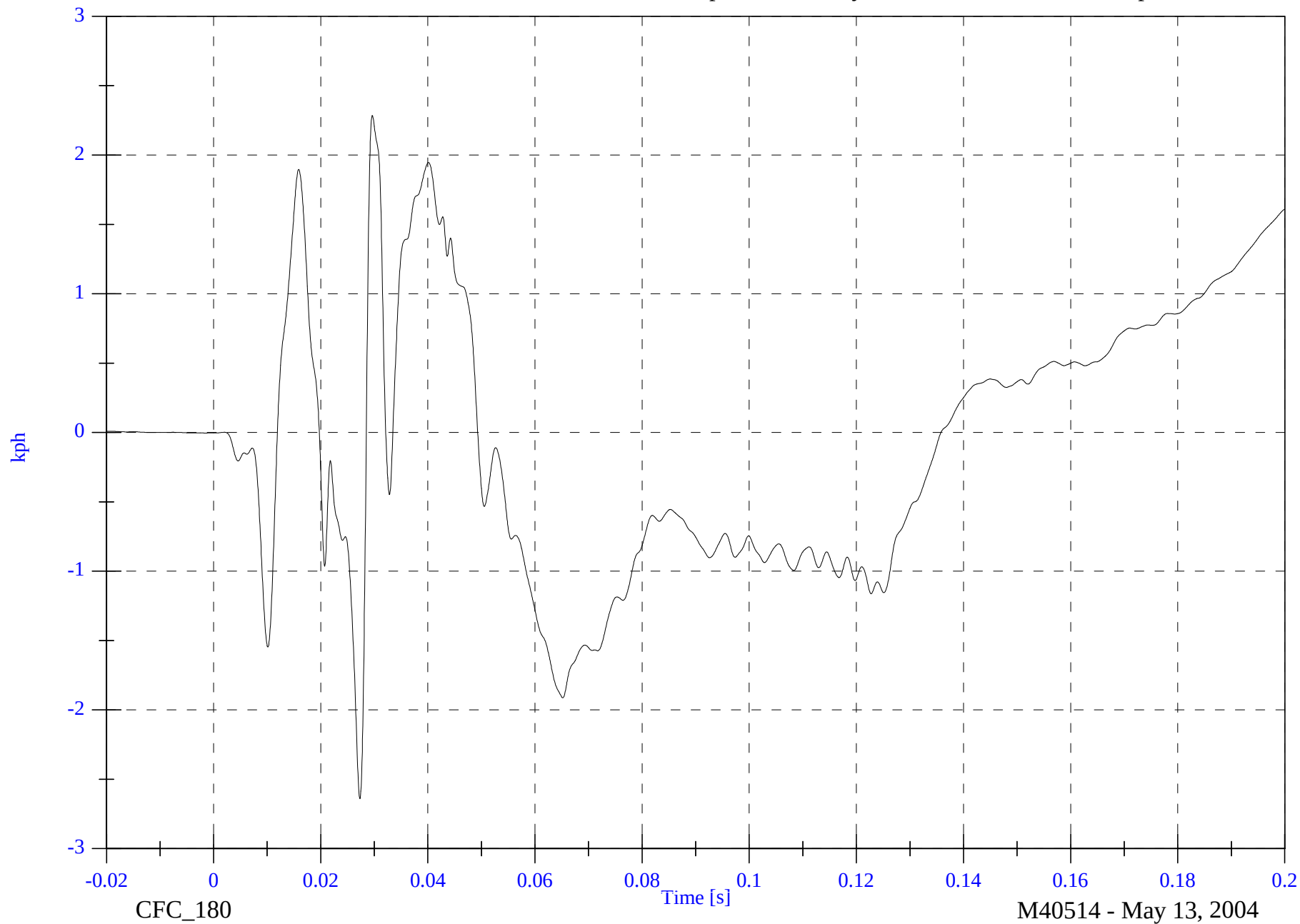
V2 A3 Rear Floorplan Z Velocity

Max: 2.3 [kph] at 0.030 [s]

Min: -2.6 [kph] at 0.027 [s]

B-79

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

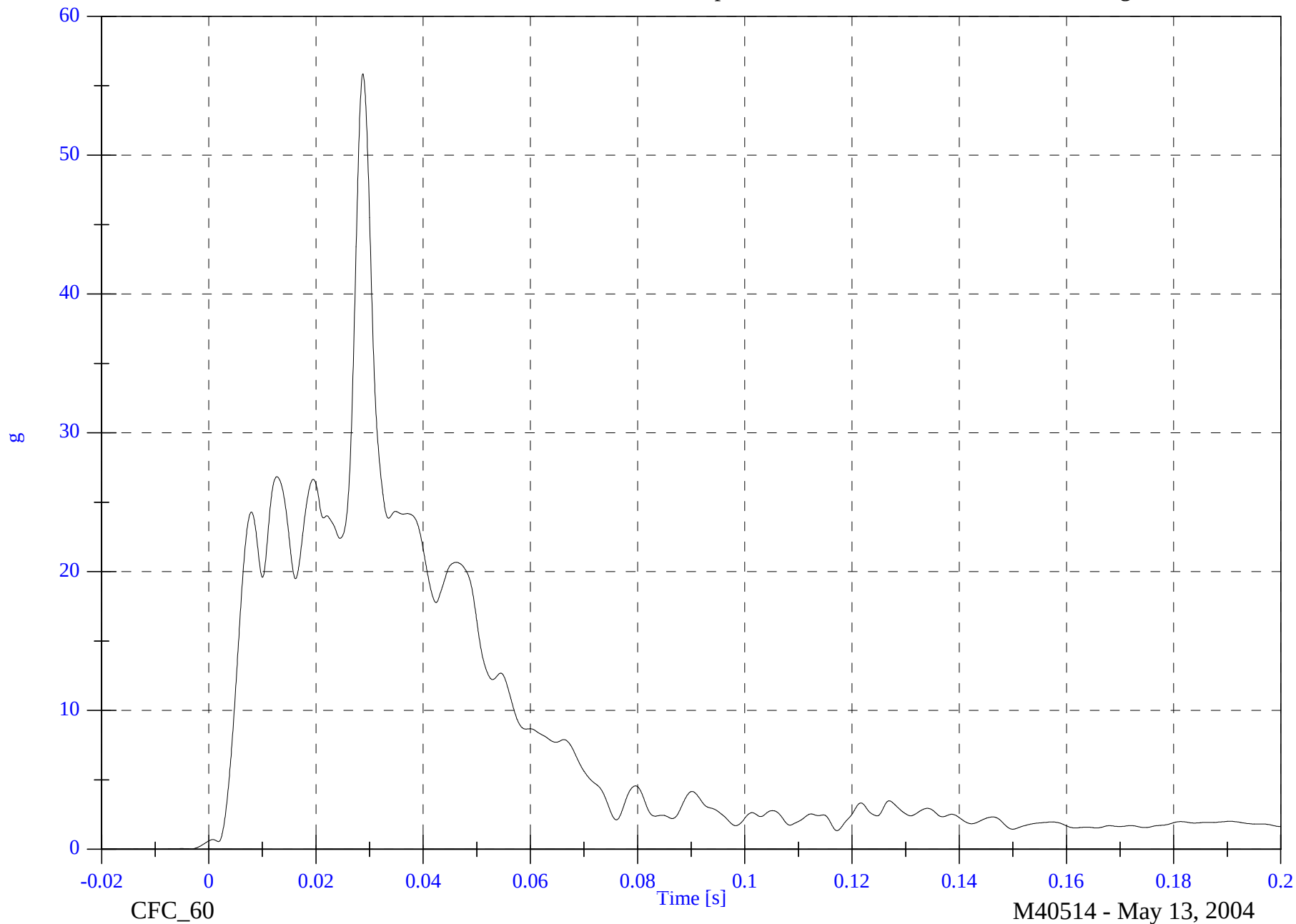
V2 A3 Rear Floorpan Resultant

Max: 55.9 [g] at 0.029 [s]

Min: 0.0 [g] at -0.011 [s]

B-80

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

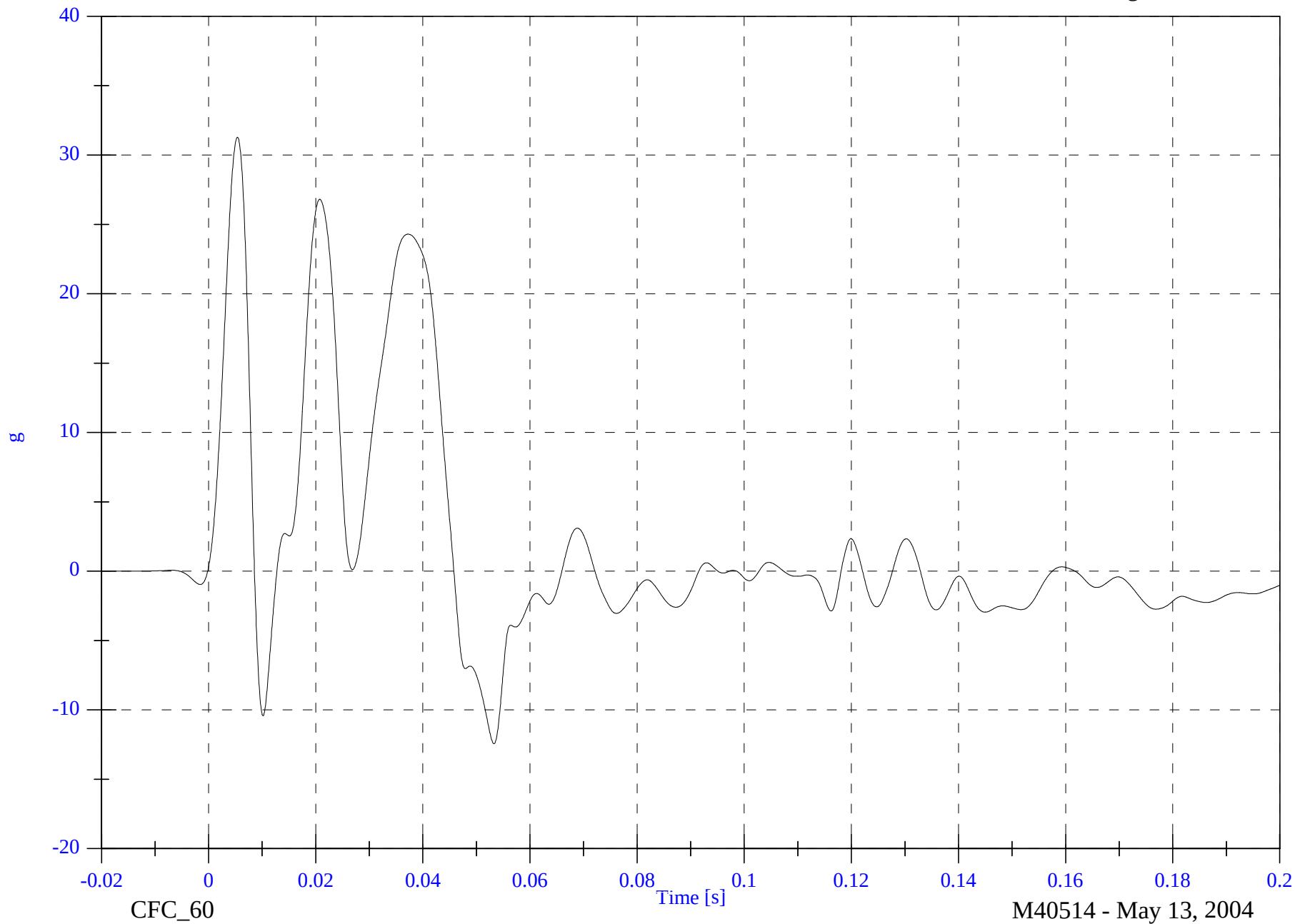
V2 A4 Left Rear Sill Y

Max: 31.3 [g] at 0.005 [s]

Min: -12.4 [g] at 0.053 [s]

B-81

8725-SNCAP-04

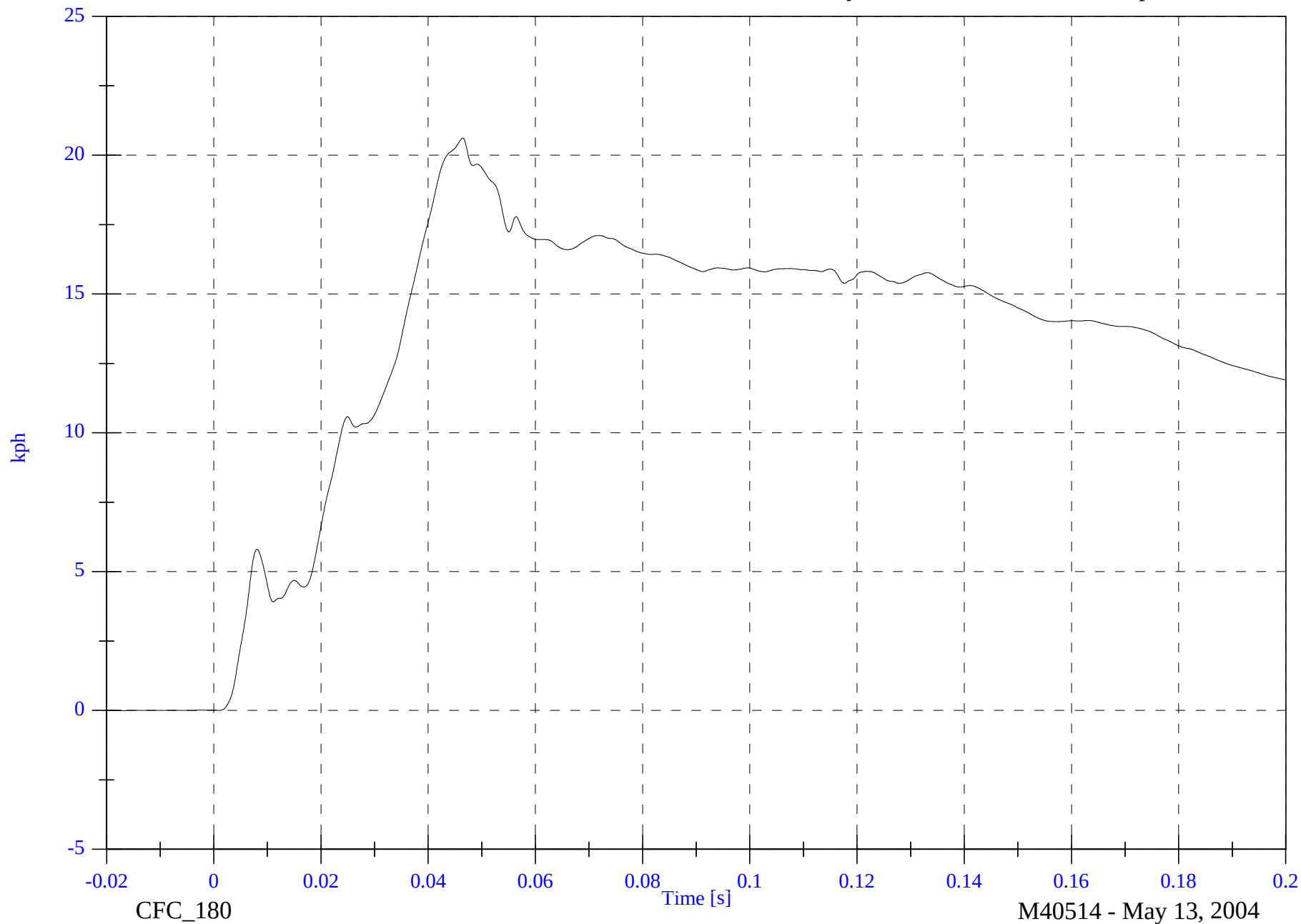


2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A4 Left Rear Sill Y Velocity

Max: 20.6 [kph] at 0.046 [s]

Min: -0.0 [kph] at -0.018 [s]



B-82

8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

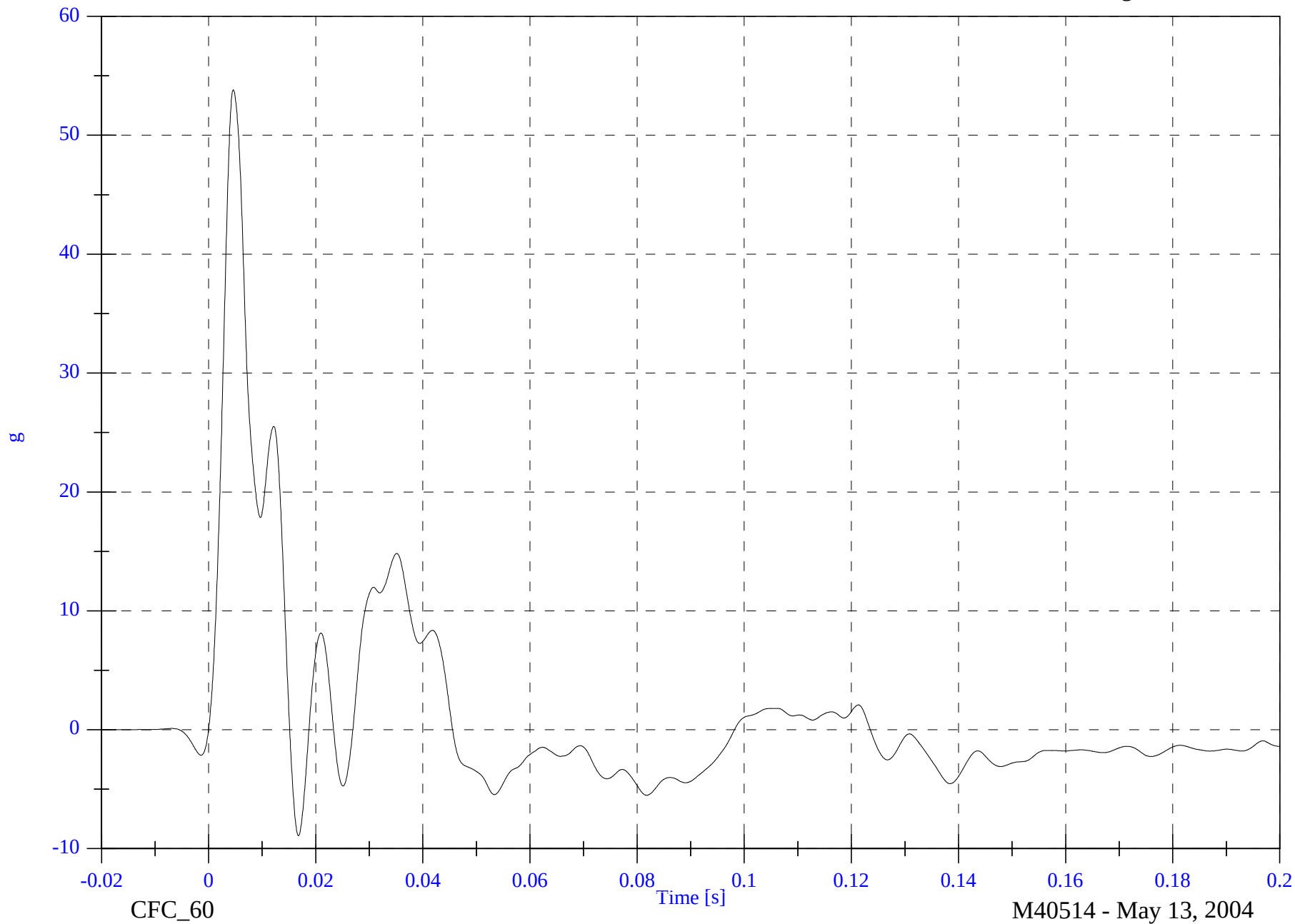
V2 A5 Left Front Sill Y

Max: 53.8 [g] at 0.005 [s]

Min: -8.9 [g] at 0.017 [s]

B-83

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

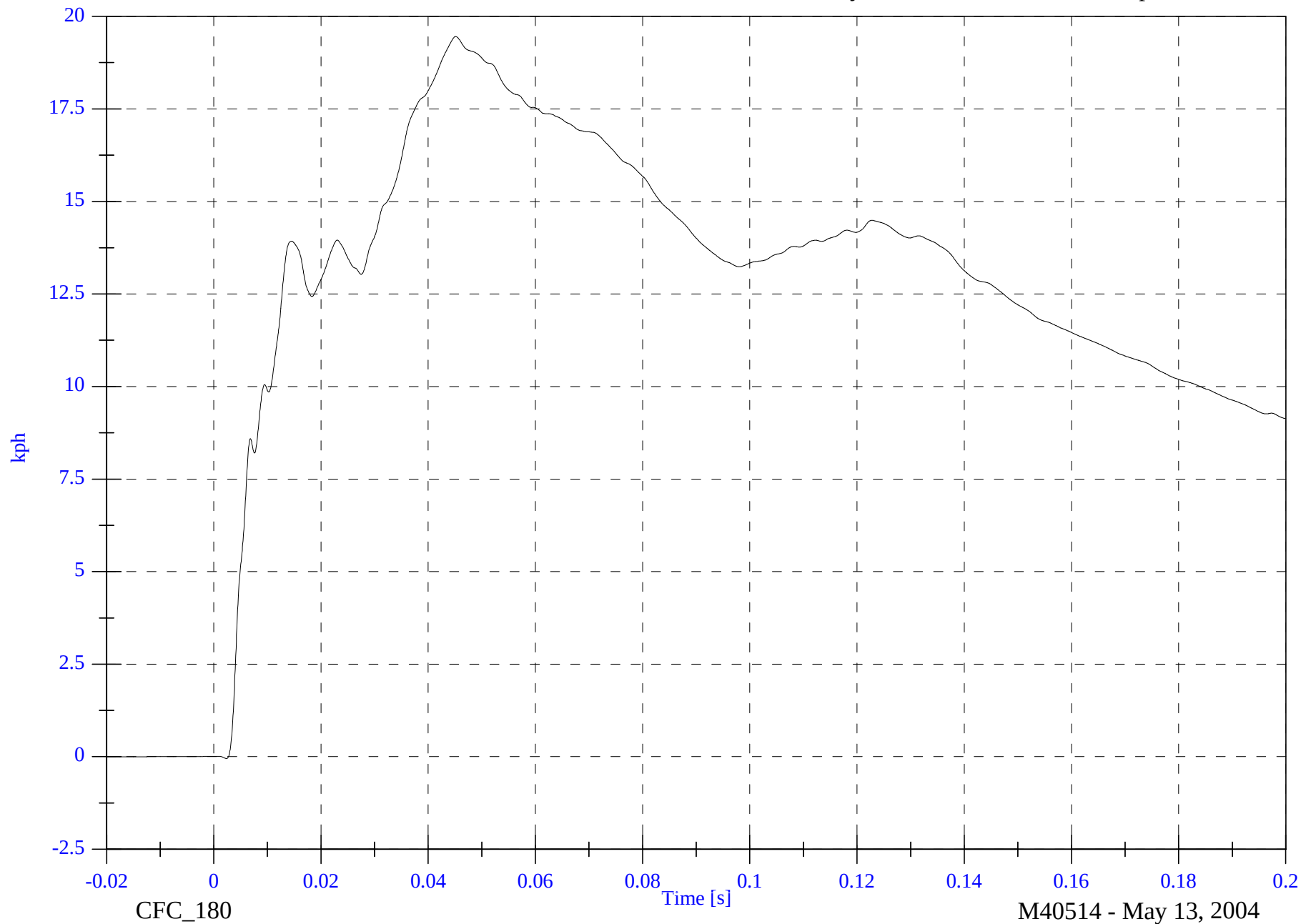
V2 A5 Left Front Sill Y Velocity

Max: 19.5 [kph] at 0.045 [s]

Min: -0.1 [kph] at 0.002 [s]

B-84

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

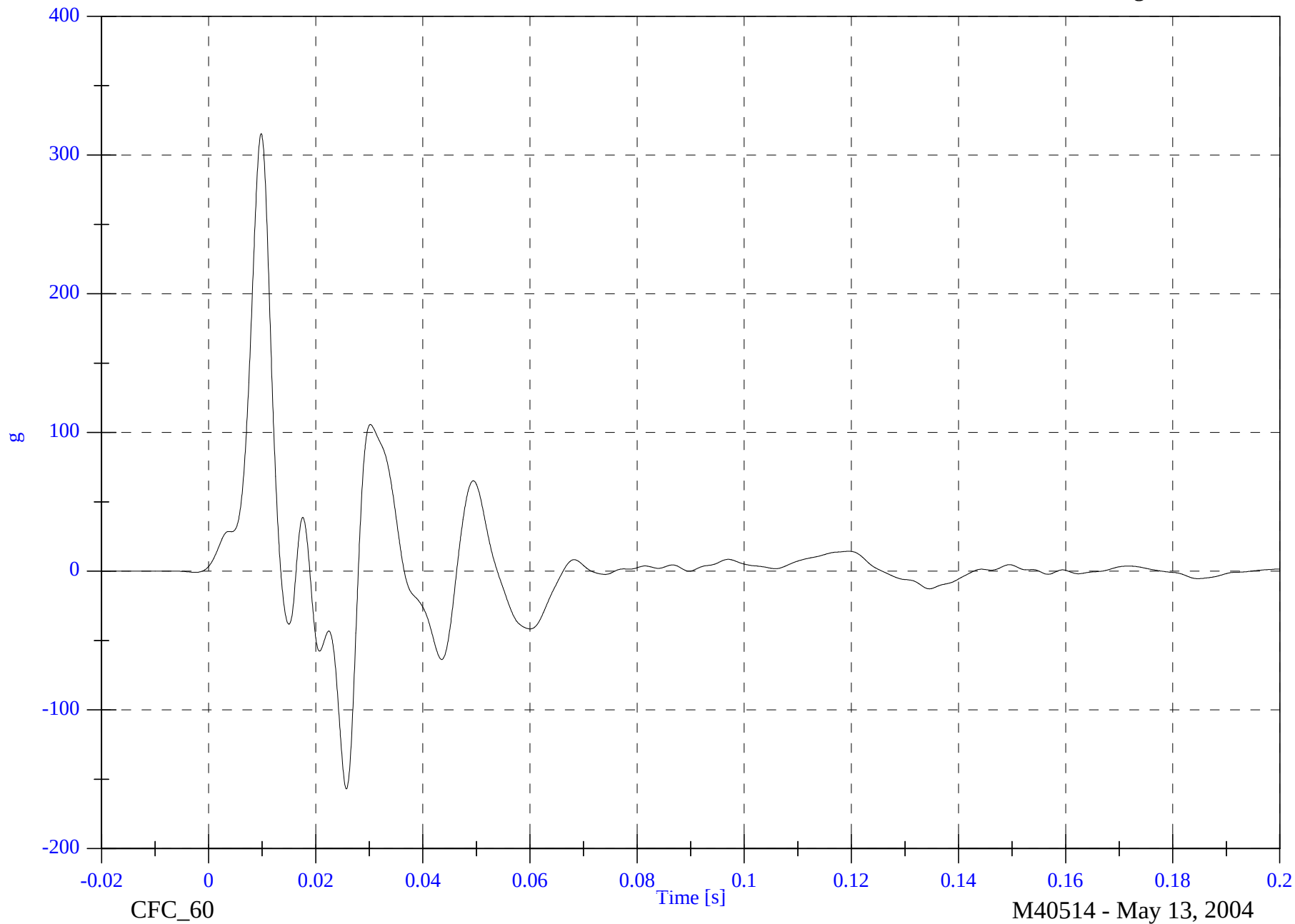
V2 A6 Left Front Door C/L Y

Max: 315.5 [g] at 0.010 [s]

Min: -156.9 [g] at 0.026 [s]

B-85

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

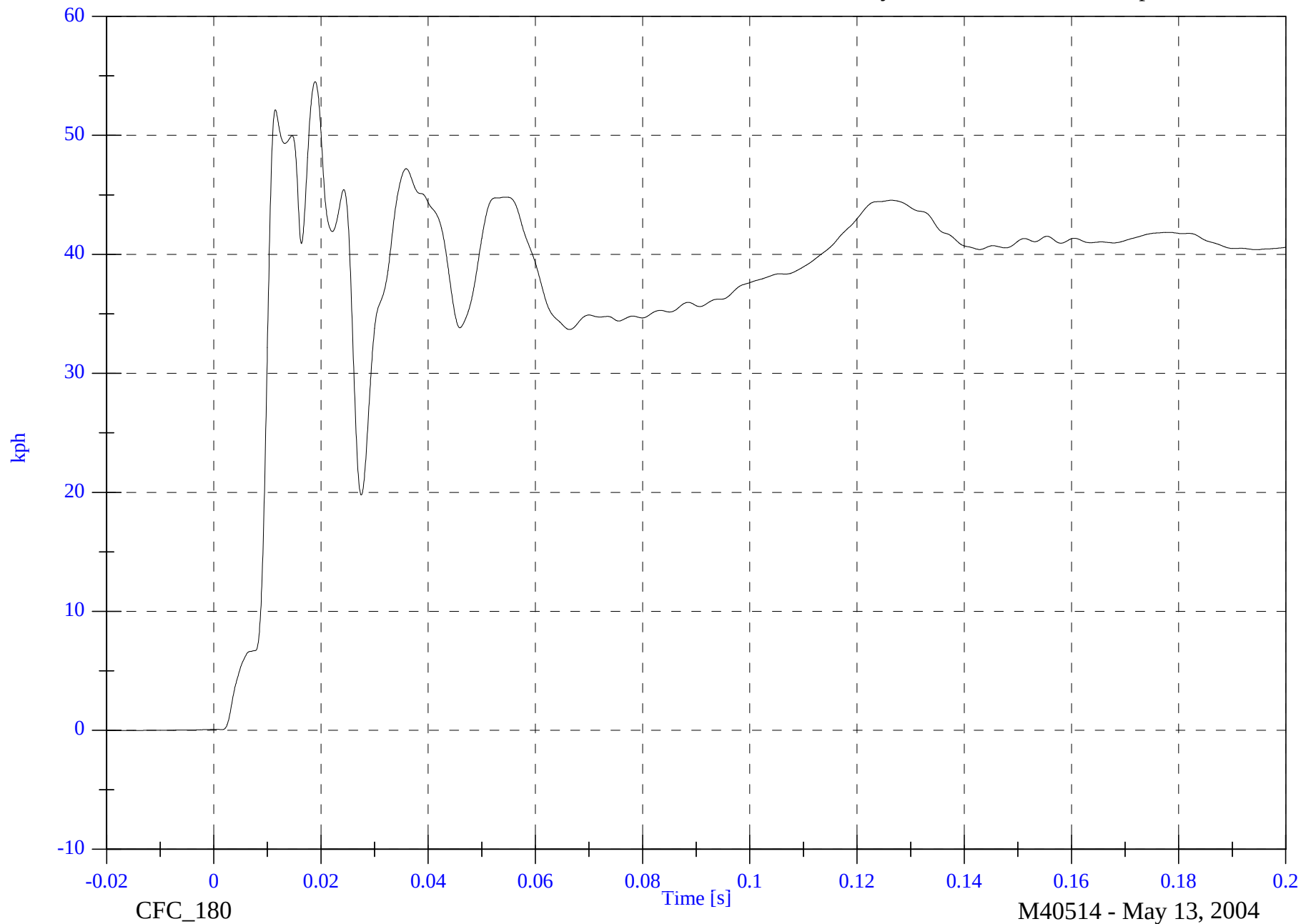
V2 A6 Left Front Door C/L Y Velocity

Max: 54.5 [kph] at 0.019 [s]

Min: -0.0 [kph] at -0.020 [s]

B-86

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

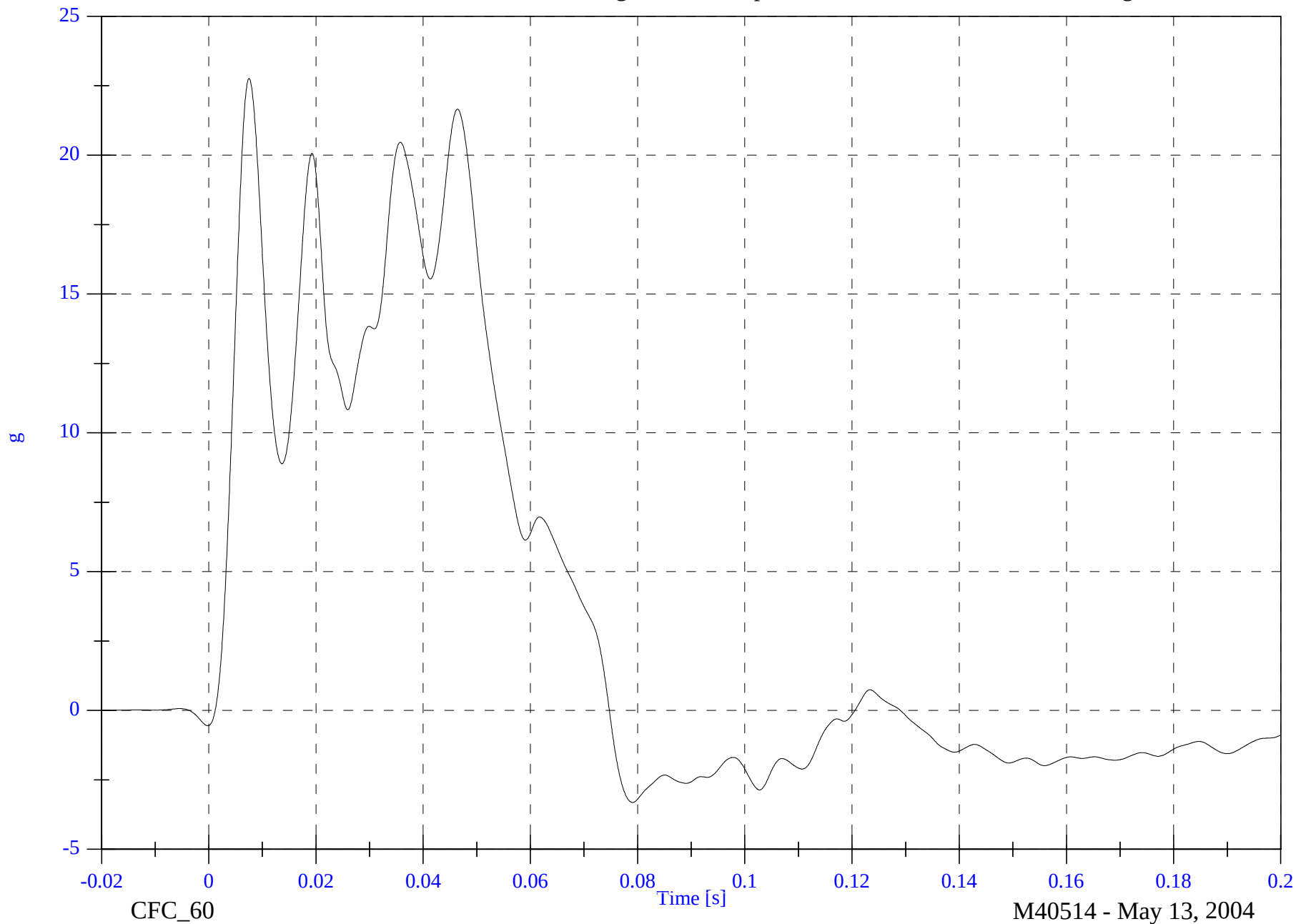
V2 A7 Right Rear Compartment Y

Max: 22.8 [g] at 0.007 [s]

Min: -3.3 [g] at 0.079 [s]

B-87

8725-SNCAP-04

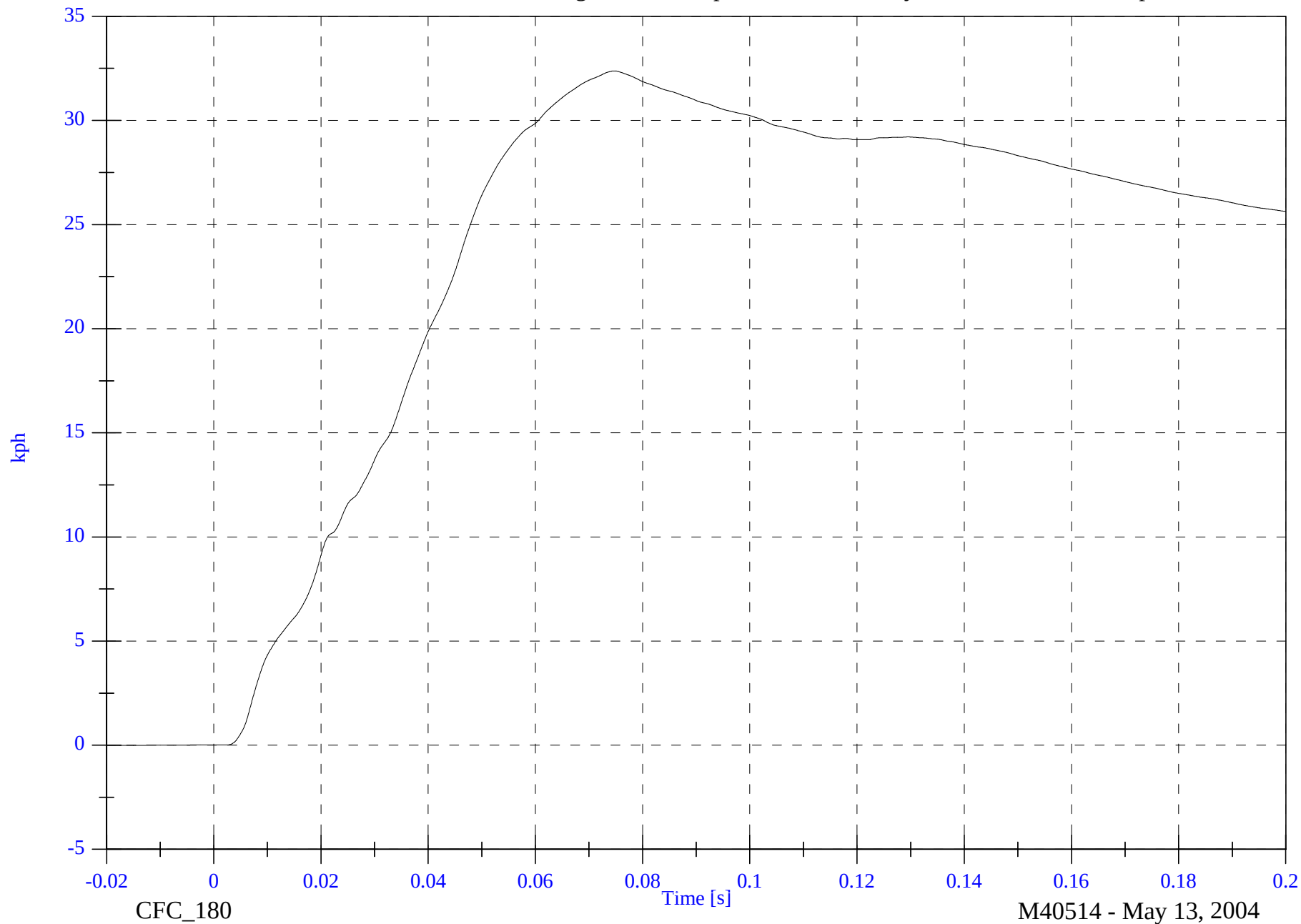


2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A7 Right Rear Compartment Y Velocity

Max: 32.4 [kph] at 0.075 [s]

Min: -0.0 [kph] at -0.020 [s]



B-88

8725-SNCAP-04

CFC_180

M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

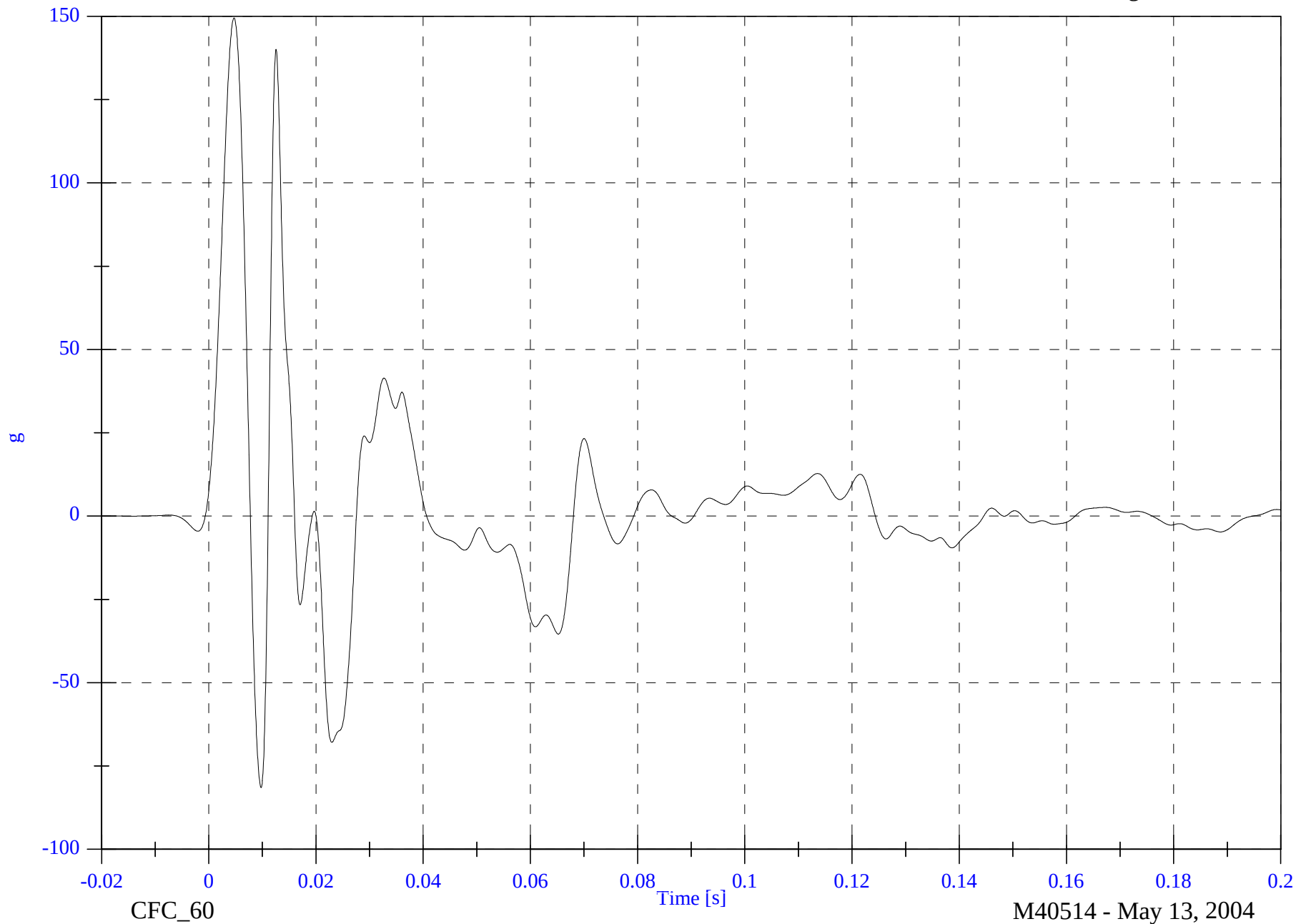
V2 A8 Left Front Door Midrear Y

Max: 149.5 [g] at 0.005 [s]

Min: -81.5 [g] at 0.010 [s]

B-89

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

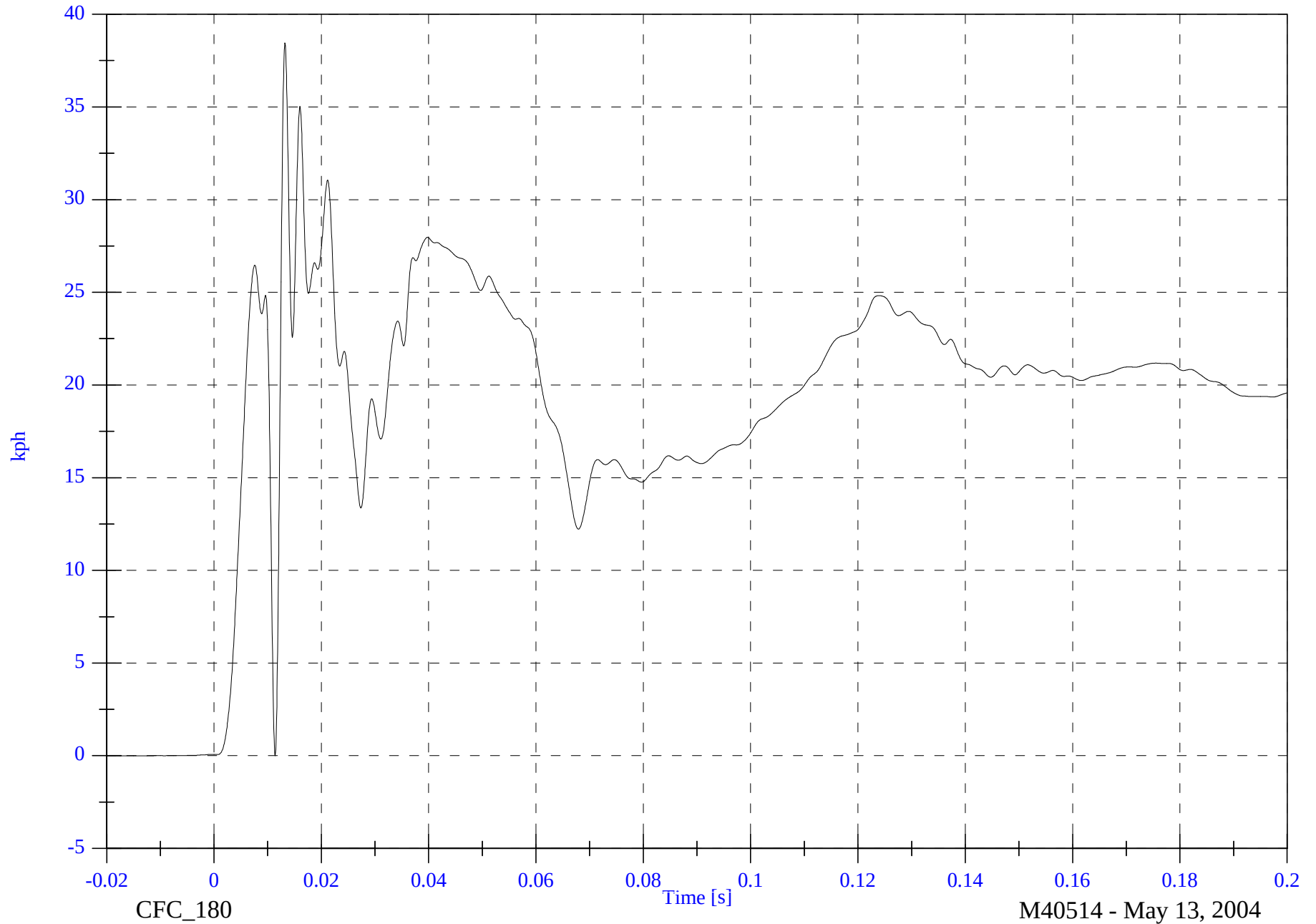
V2 A8 Left Front Door Midrear Y Velocity

Max: 38.5 [kph] at 0.013 [s]

Min: -0.0 [kph] at -0.020 [s]

B-90

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

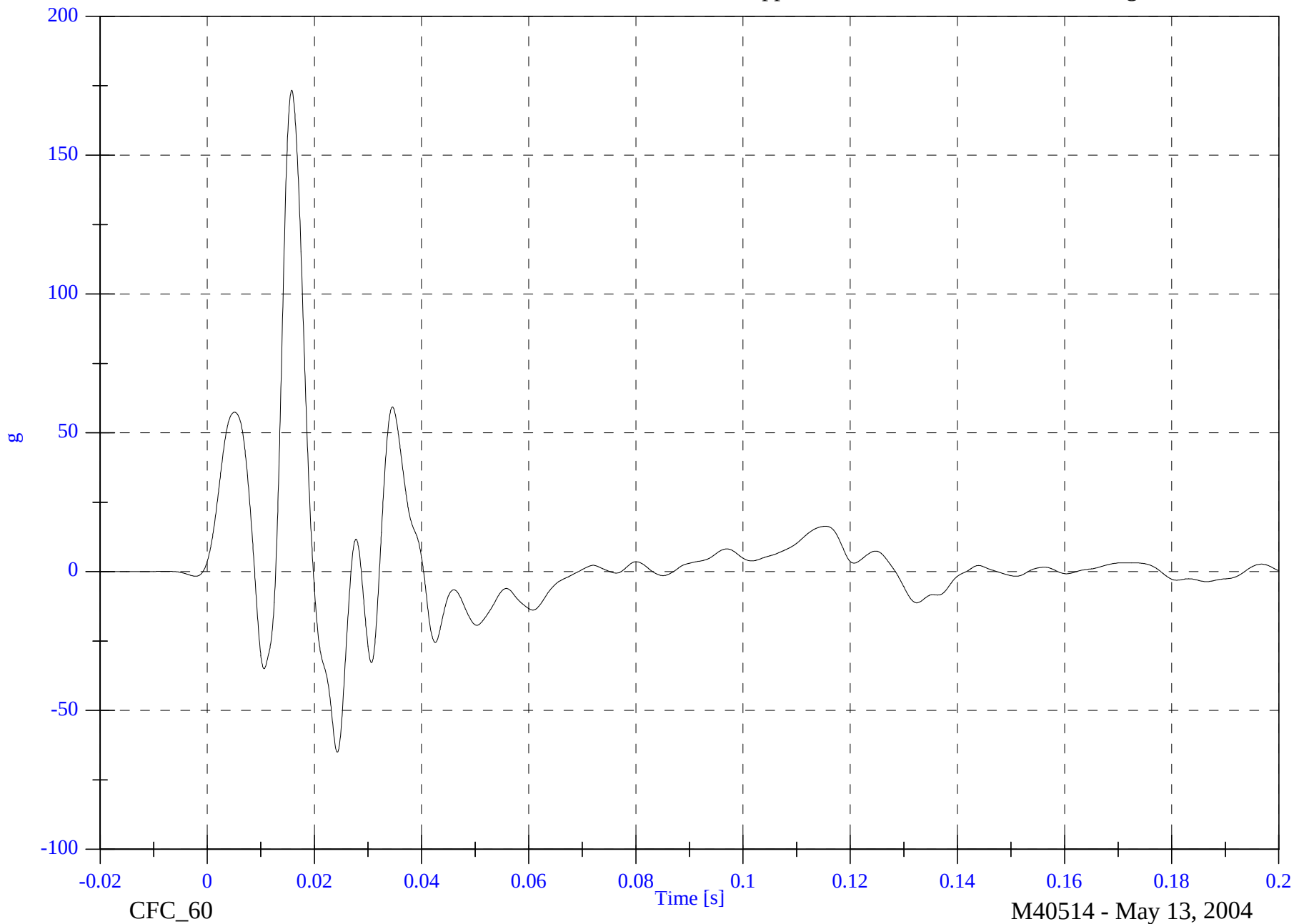
V2 A9 Left Front Door Upper C/L Y

Max: 173.4 [g] at 0.016 [s]

Min: -65.0 [g] at 0.024 [s]

B-91

8725-SNCAP-04

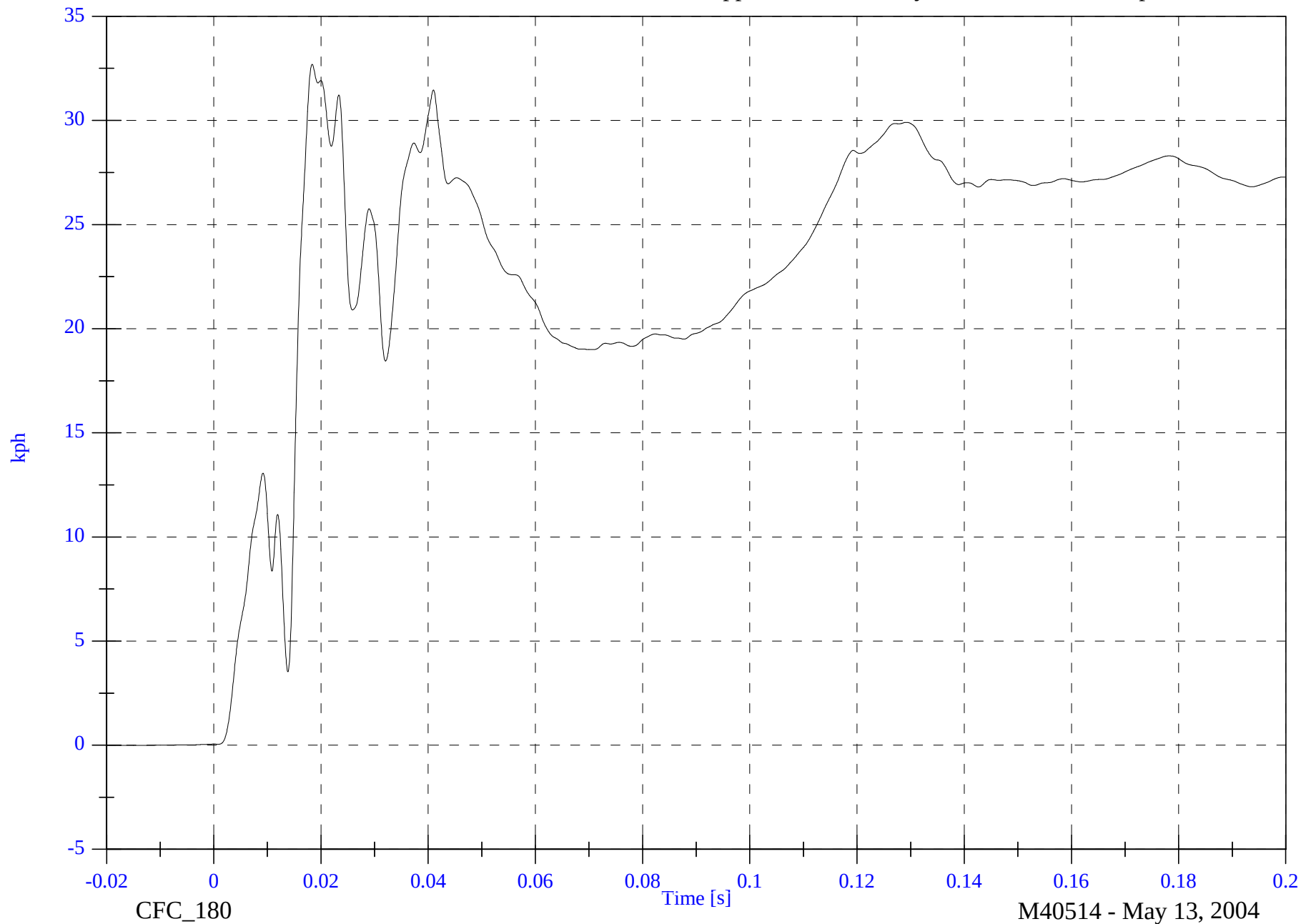


2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A9 Left Front Door Upper C/L Y Velocity

Max: 32.7 [kph] at 0.018 [s]

Min: -0.0 [kph] at -0.020 [s]



B-92

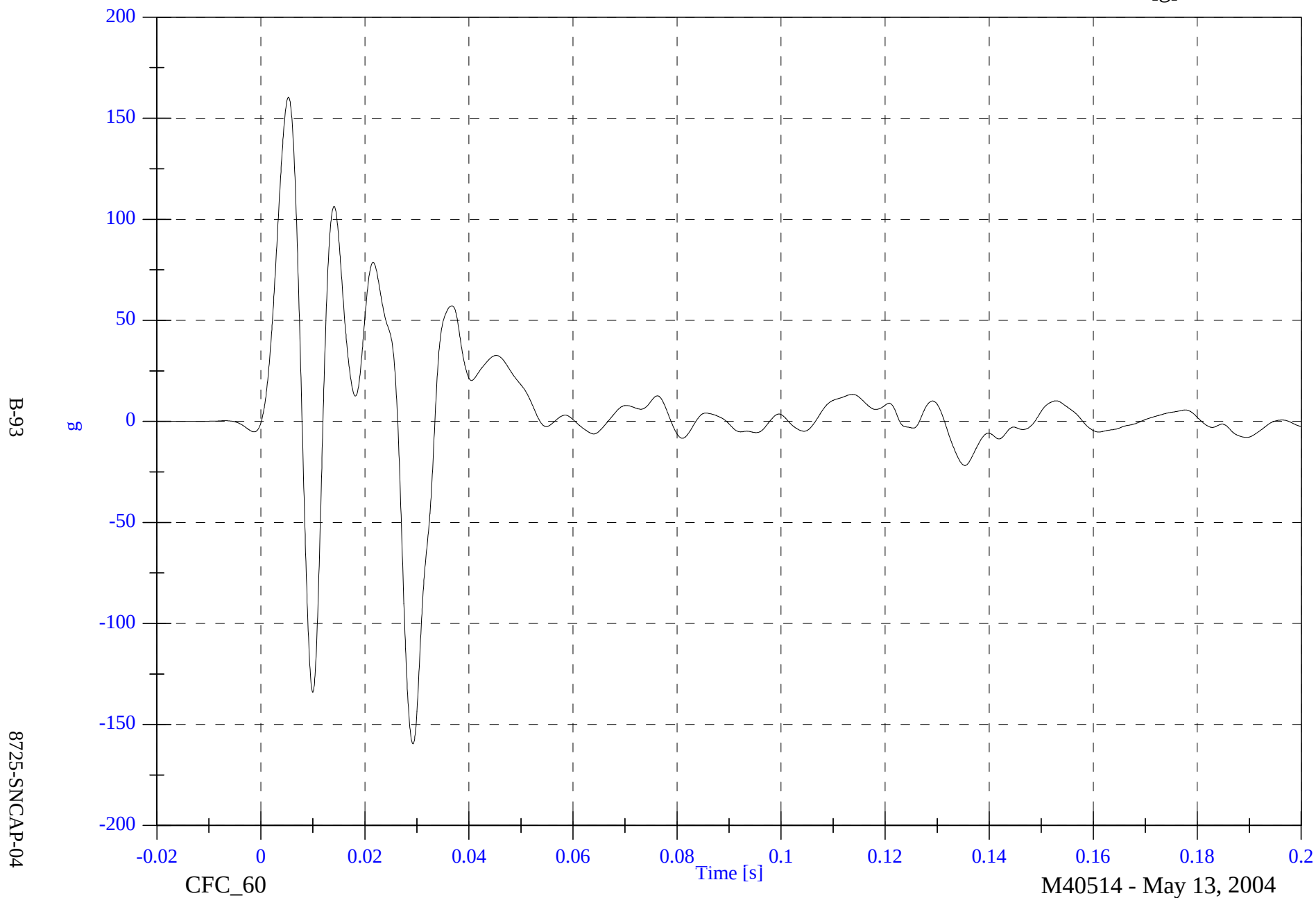
8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A10 Left Rear Door Midrear Y

Max: 160.4 [g] at 0.005 [s]

Min: -159.6 [g] at 0.029 [s]



2004 SNCAP Test 4 - 2004 Kia Spectra

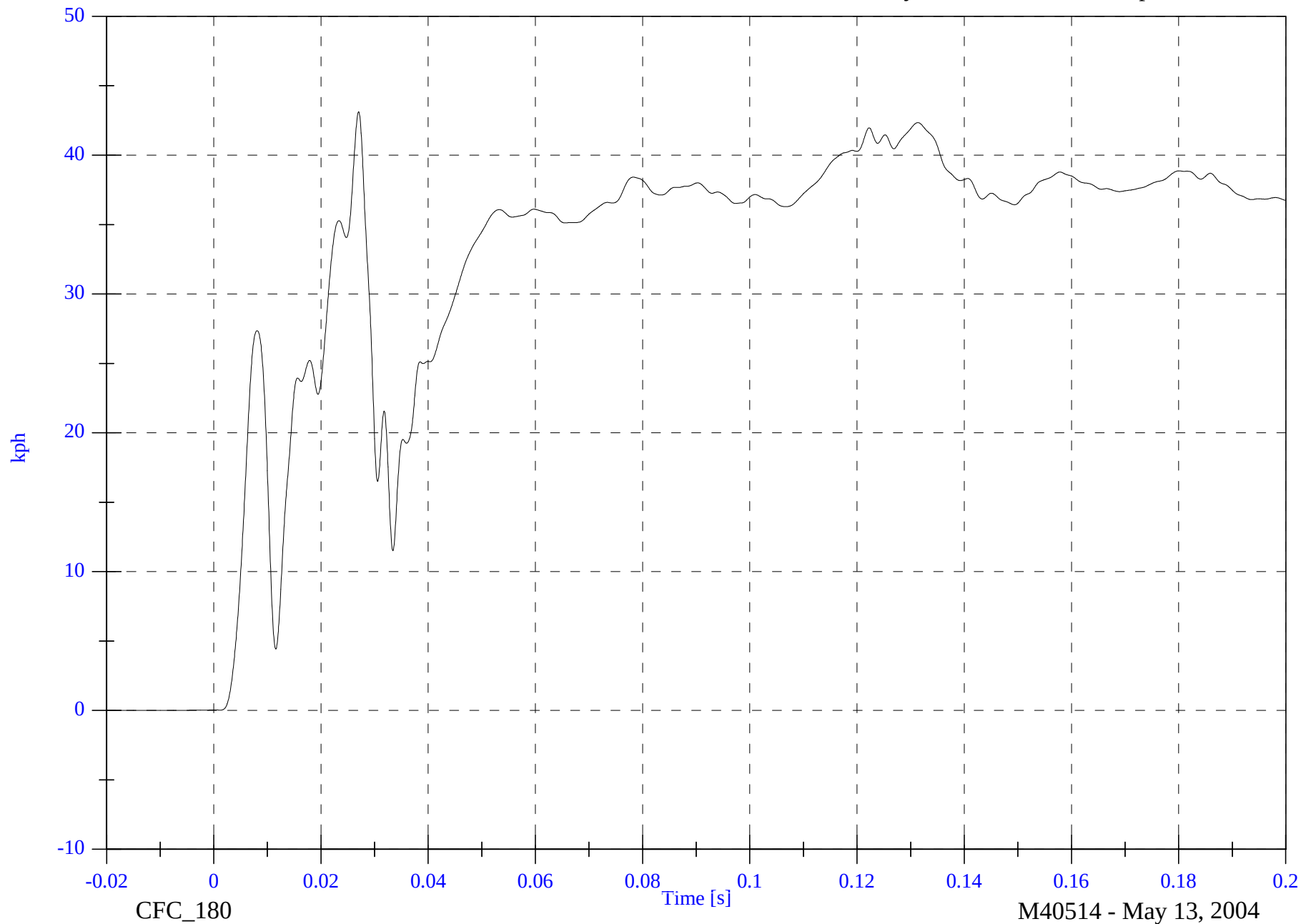
V2 A10 Left Rear Door Midrear Y Velocity

Max: 43.1 [kph] at 0.027 [s]

Min: -0.0 [kph] at -0.018 [s]

B-94

8725-SNCAP-04

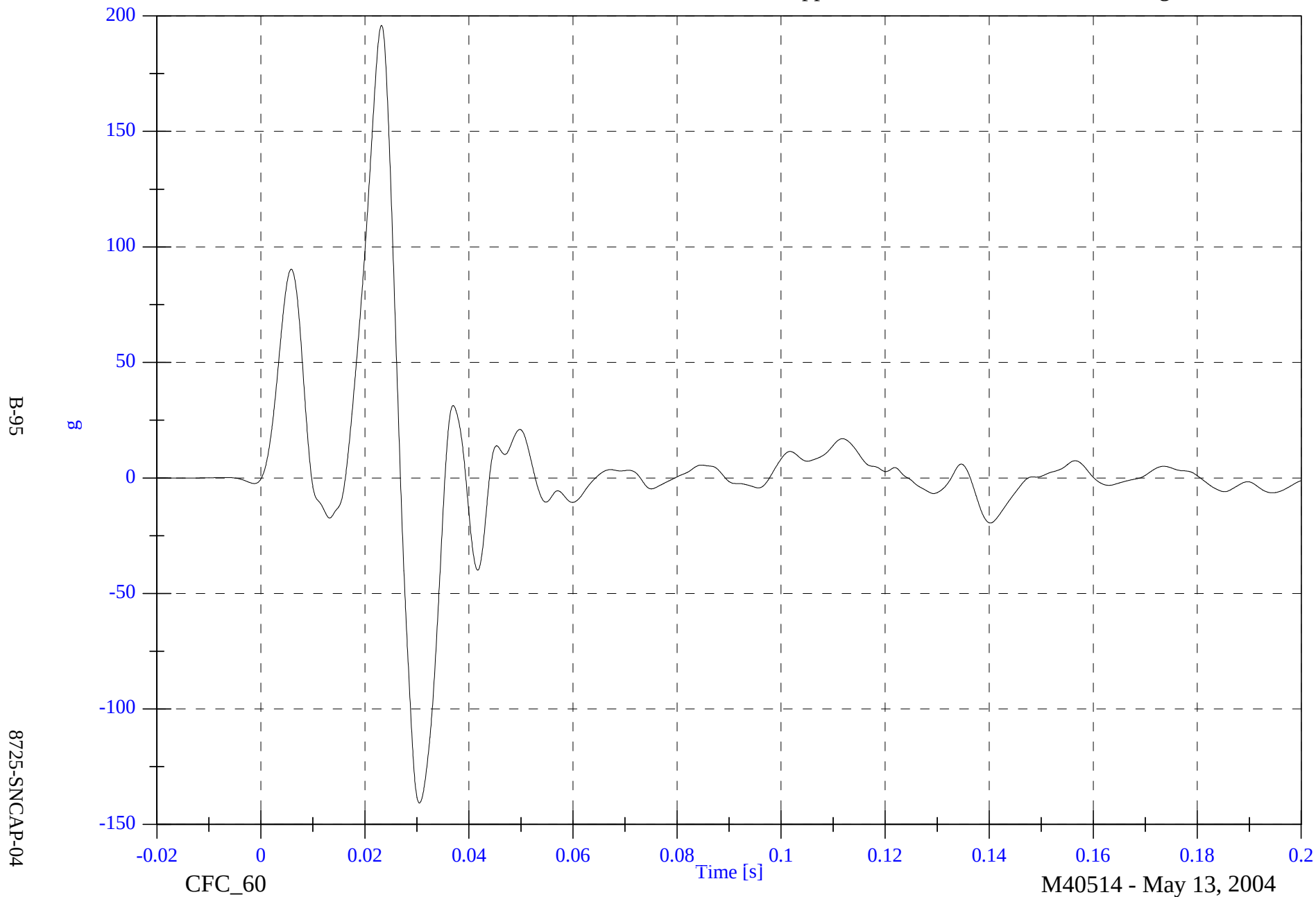


2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A11 Left Rear Door Upper C/L Y

Max: 195.9 [g] at 0.023 [s]

Min: -140.7 [g] at 0.030 [s]



2004 SNCAP Test 4 - 2004 Kia Spectra

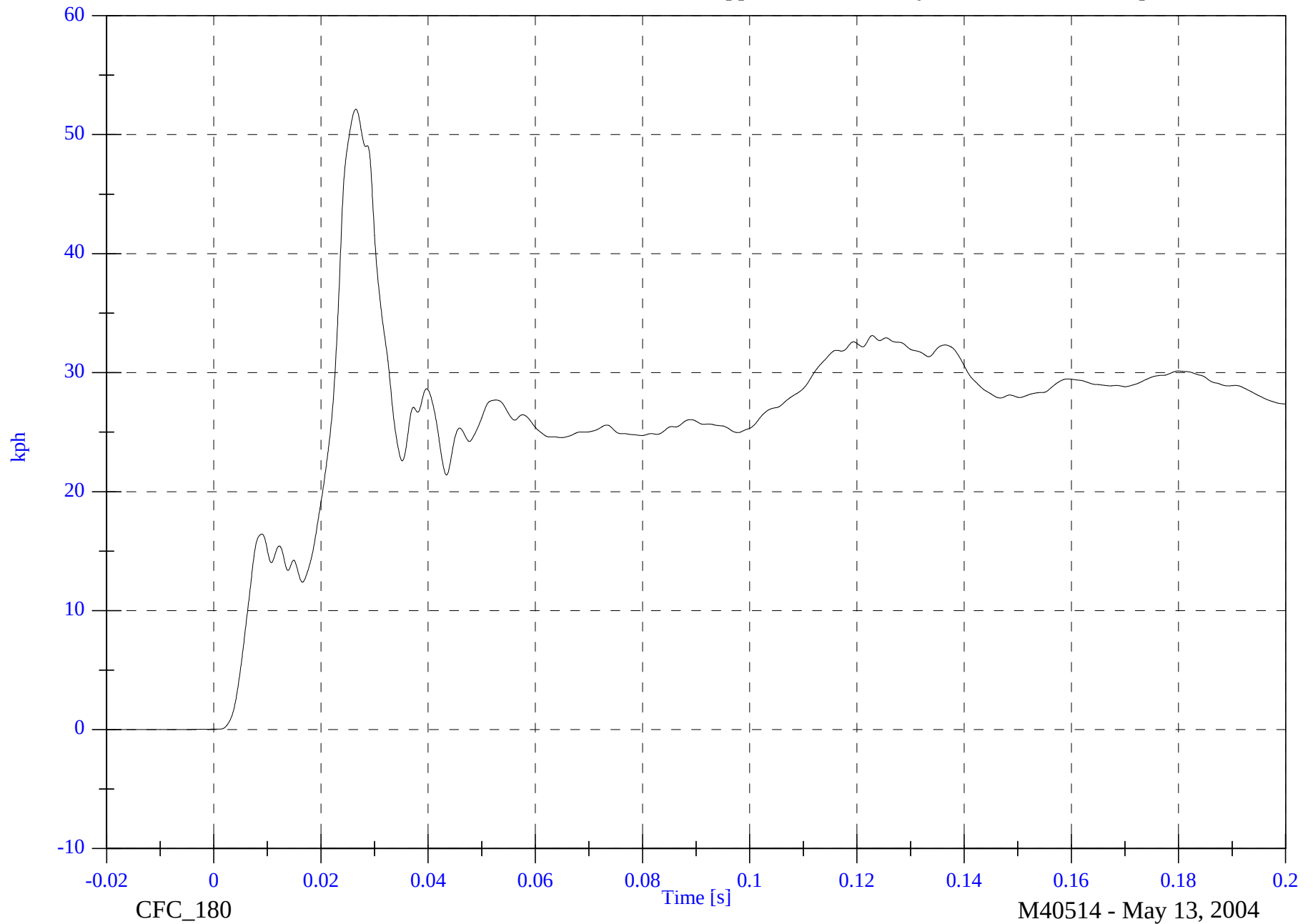
V2 A11 Left Rear Door Upper C/L Y Velocity

Max: 52.1 [kph] at 0.026 [s]

Min: -0.0 [kph] at -0.013 [s]

B-96

8725-SNCAP-04

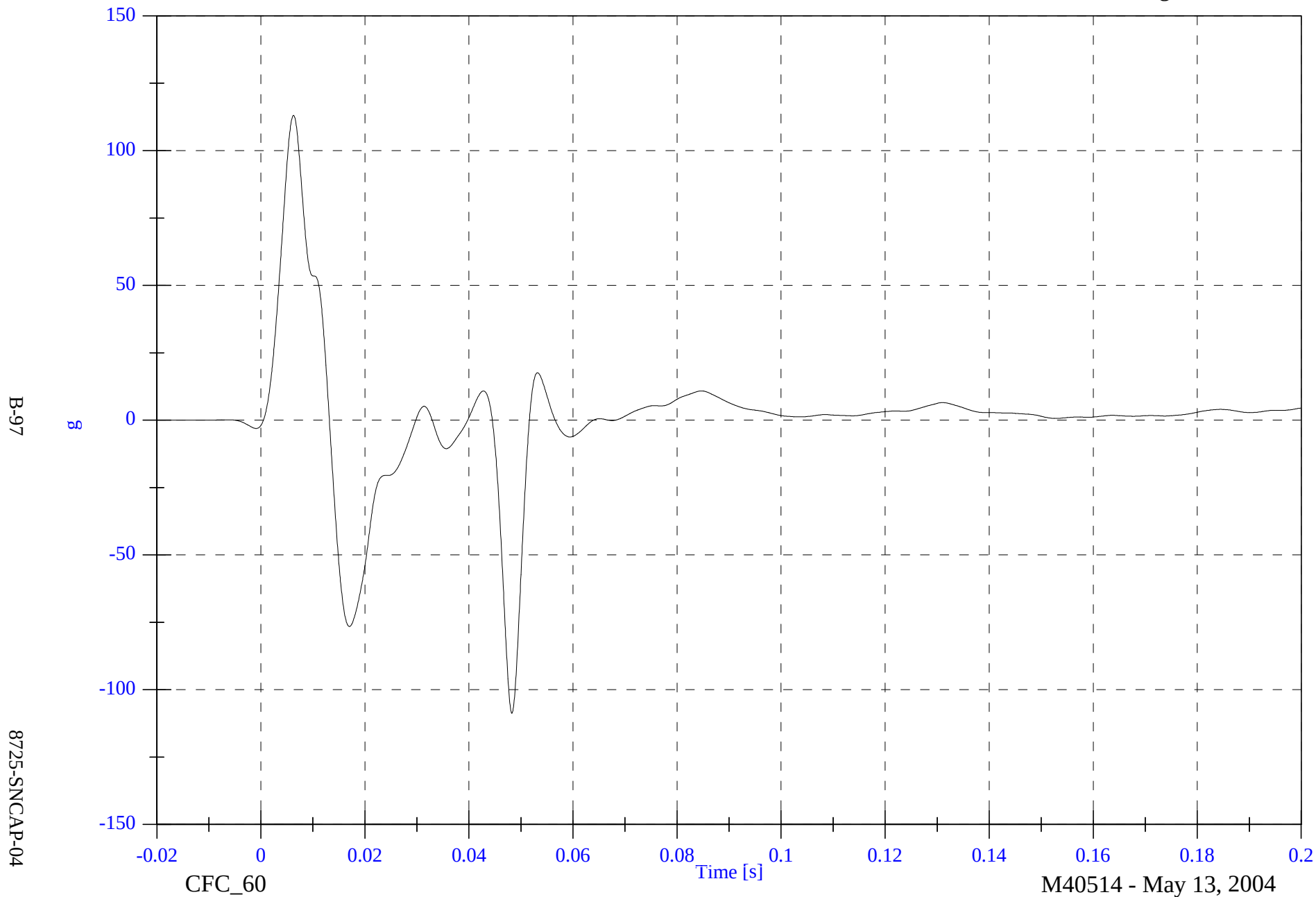


2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A12 Left Lower B Post Y

Max: 113.0 [g] at 0.006 [s]

Min: -108.7 [g] at 0.048 [s]



2004 SNCAP Test 4 - 2004 Kia Spectra

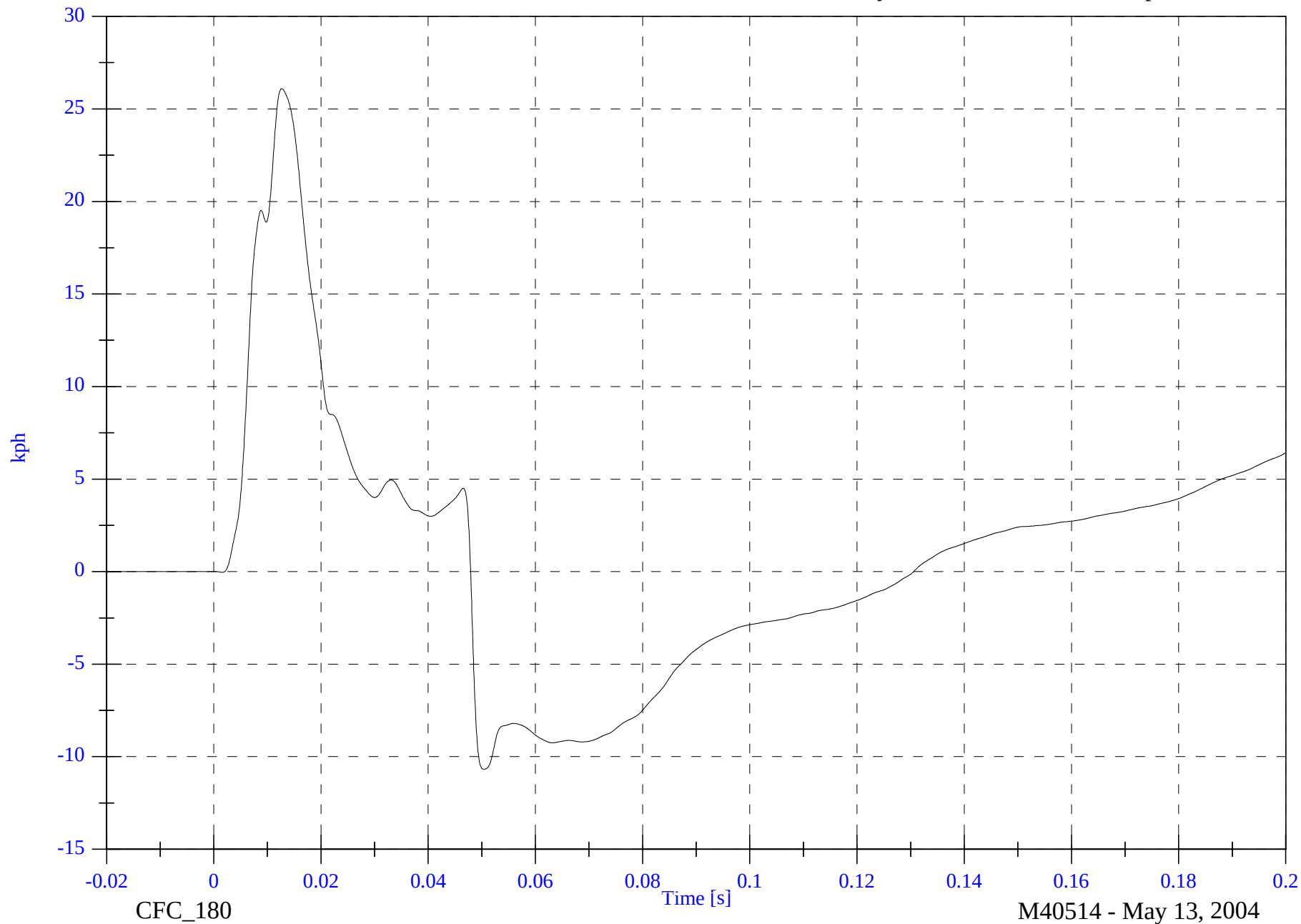
V2 A12 Left Lower B Post Y Velocity

Max: 26.1 [kph] at 0.013 [s]

Min: -10.7 [kph] at 0.050 [s]

B-98

8725-SNCAP-04

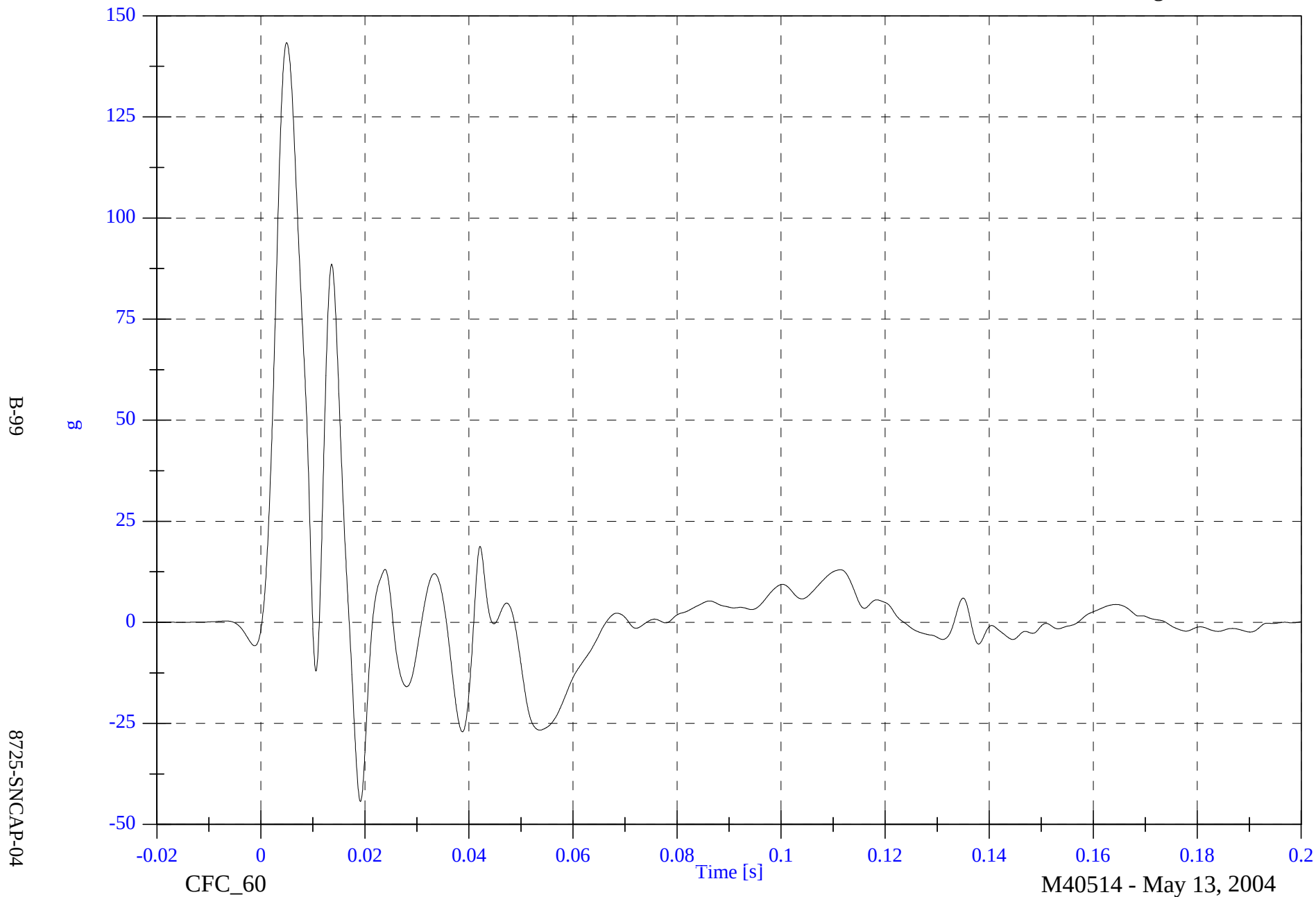


2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A13 Left Mid B Post Y

Max: 143.4 [g] at 0.005 [s]

Min: -44.3 [g] at 0.019 [s]



2004 SNCAP Test 4 - 2004 Kia Spectra

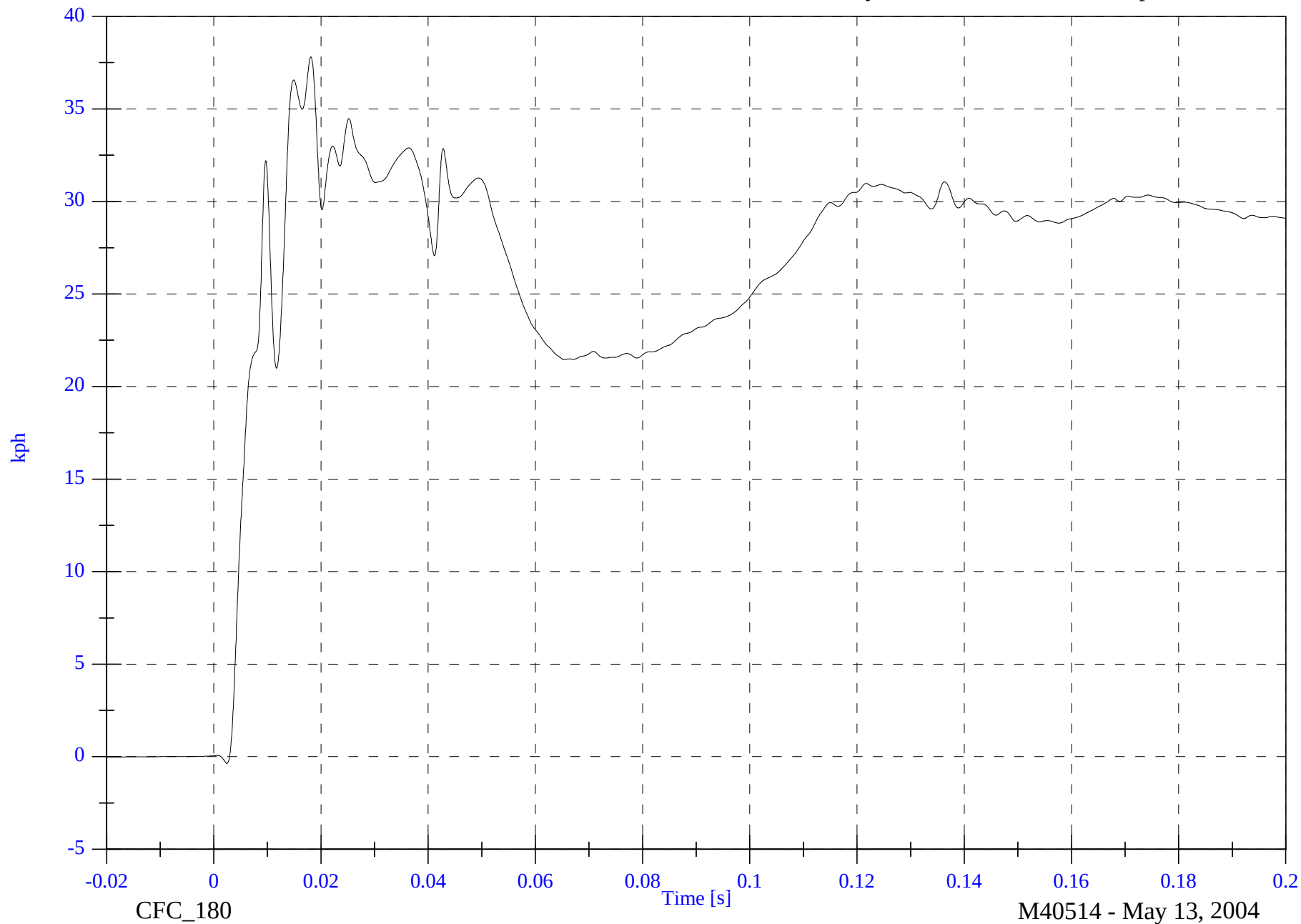
V2 A13 Left Mid B Post Y Velocity

Max: 37.8 [kph] at 0.018 [s]

Min: -0.4 [kph] at 0.002 [s]

B-100

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

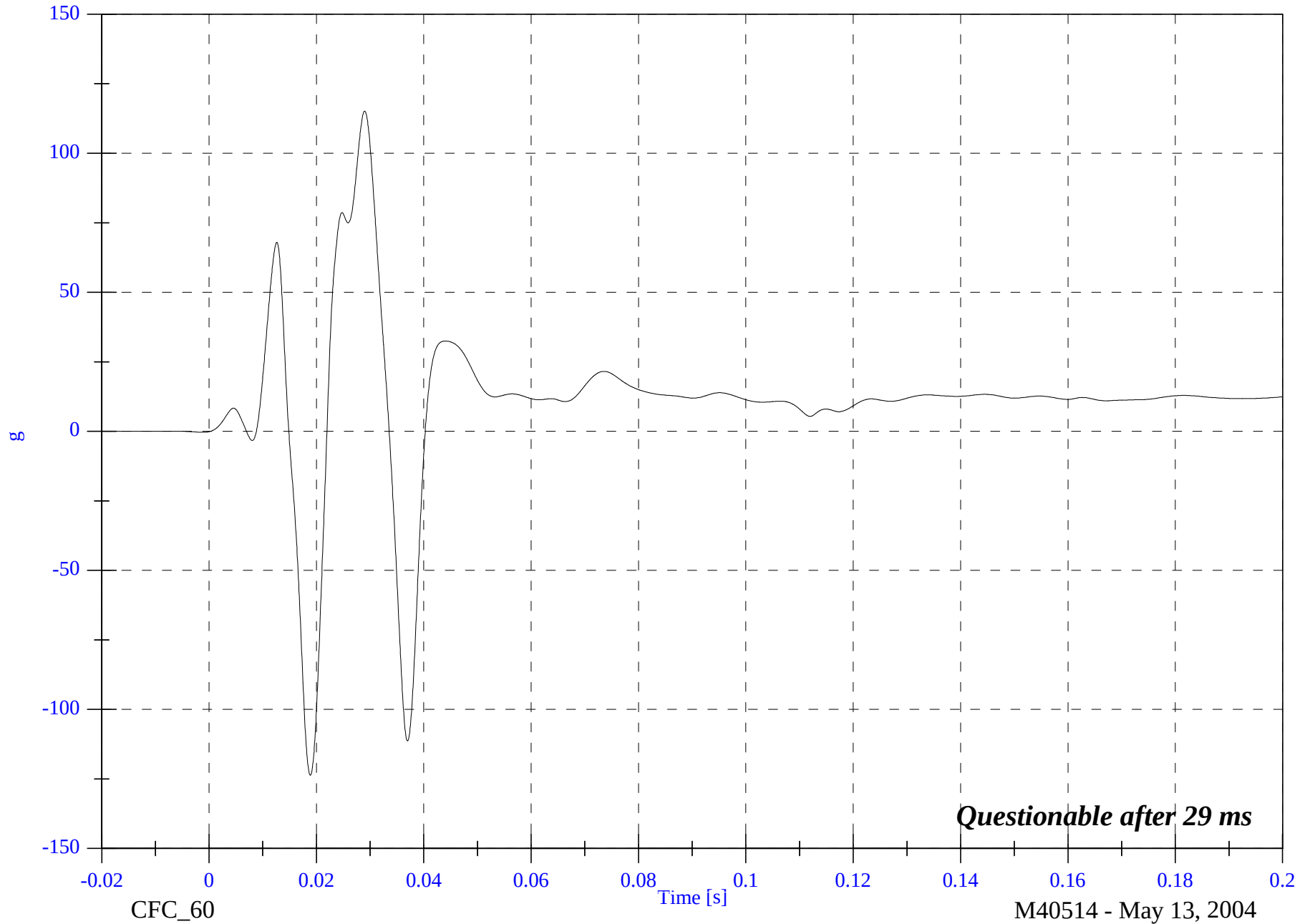
V2 A14 Left Lower A Post Y

Max: 115.2 [g] at 0.029 [s]

Min: -123.7 [g] at 0.019 [s]

B-101

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

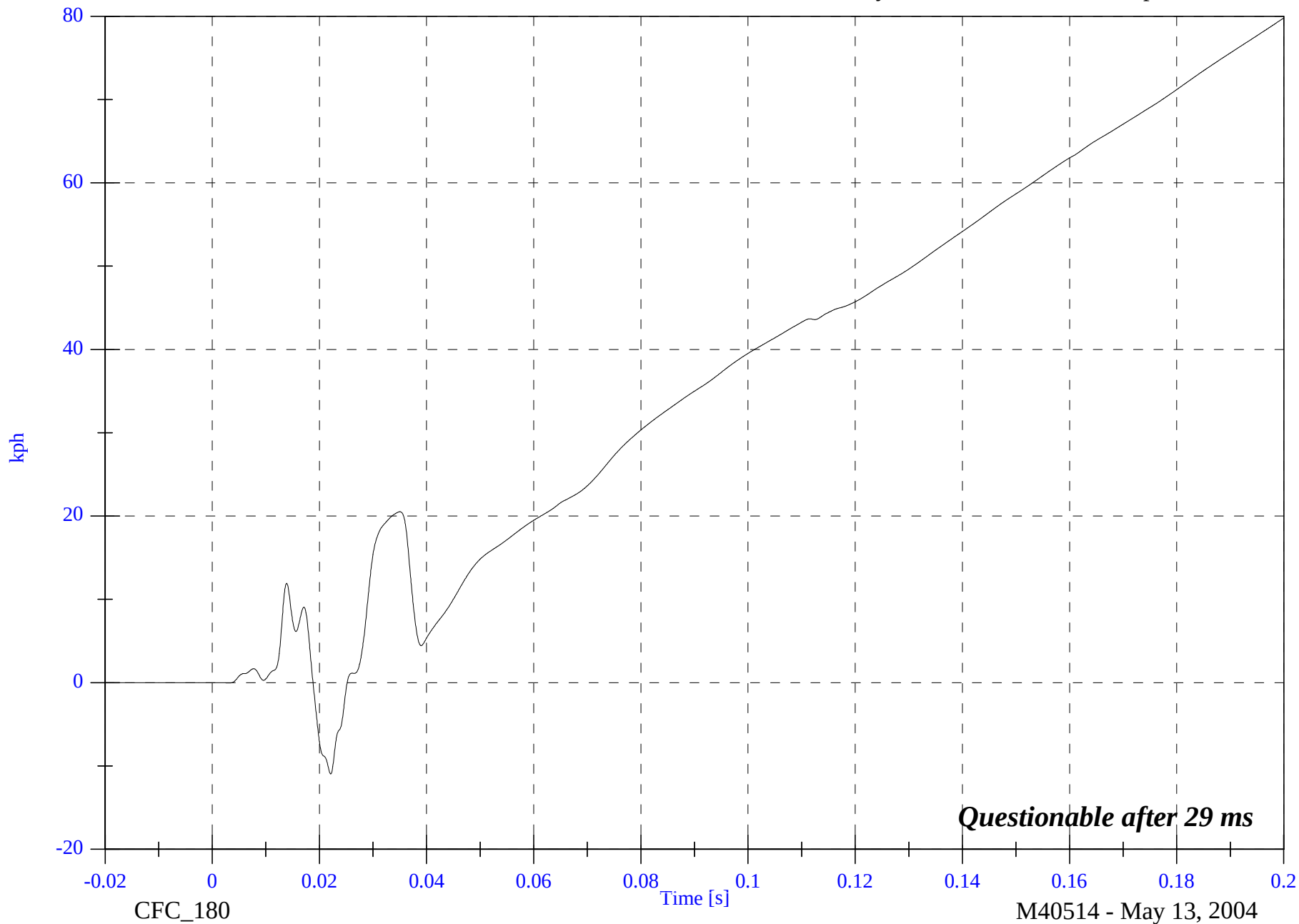
V2 A14 Left Lower A Post Y Velocity

Max: 79.8 [kph] at 0.200 [s]

Min: -11.0 [kph] at 0.022 [s]

B-102

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

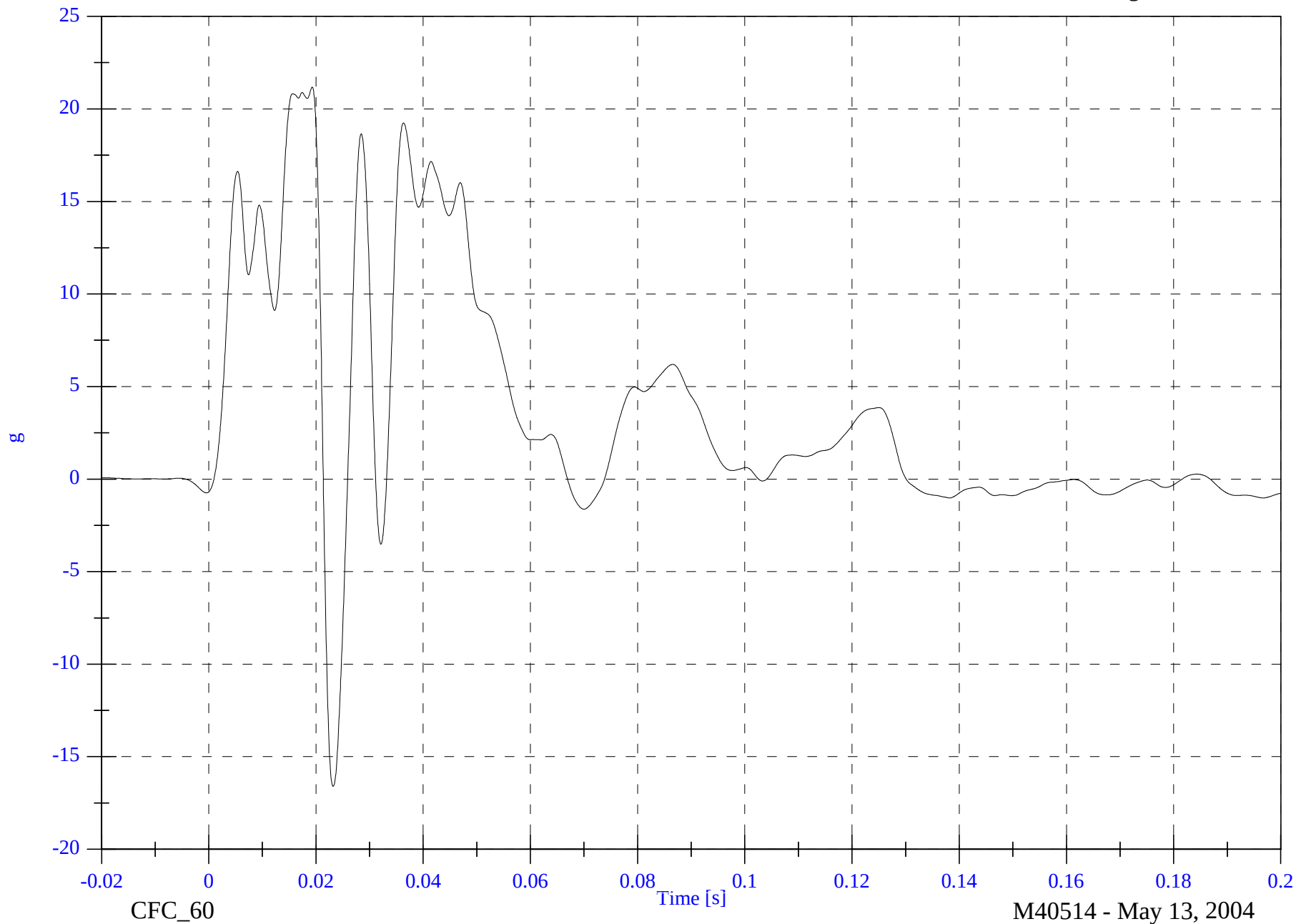
V2 A15 Left Mid A Post Y

Max: 21.2 [g] at 0.019 [s]

Min: -16.6 [g] at 0.023 [s]

B-103

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

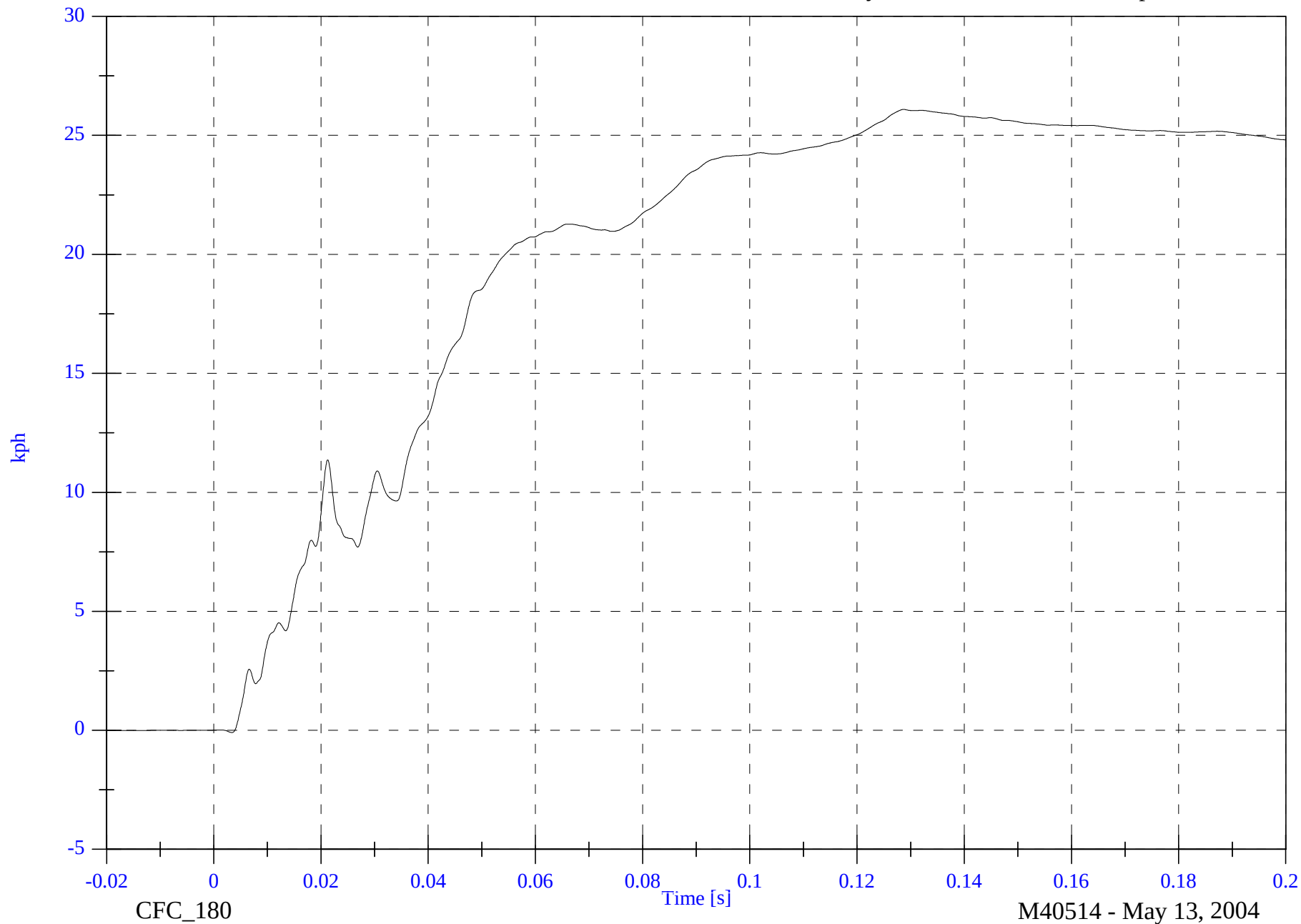
V2 A15 Left Mid A Post Y Velocity

Max: 26.1 [kph] at 0.129 [s]

Min: -0.1 [kph] at 0.003 [s]

B-104

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

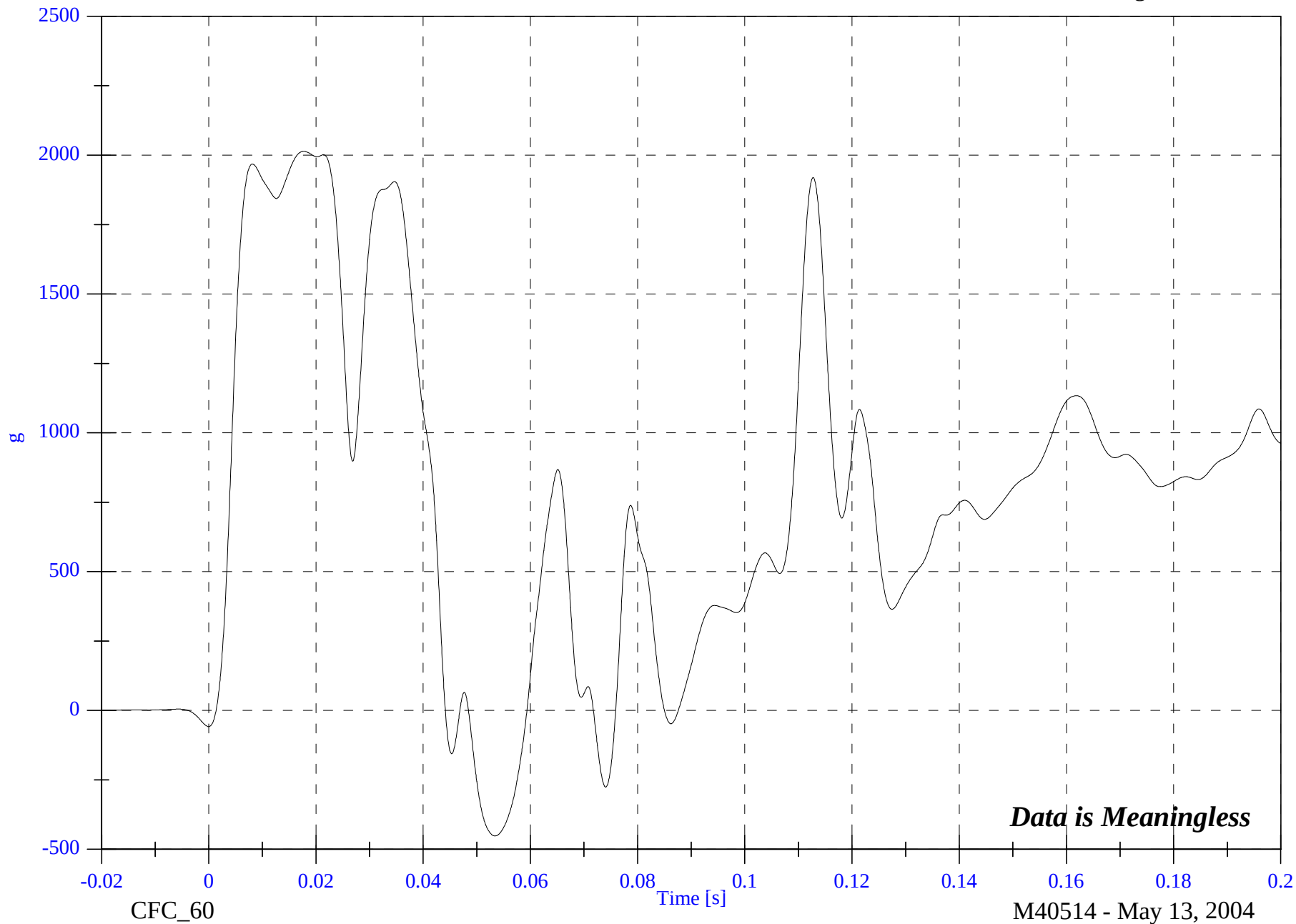
V2 A16 Front Seat Track Y

Max: 2013.9 [g] at 0.018 [s]

Min: -451.9 [g] at 0.053 [s]

B-105

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

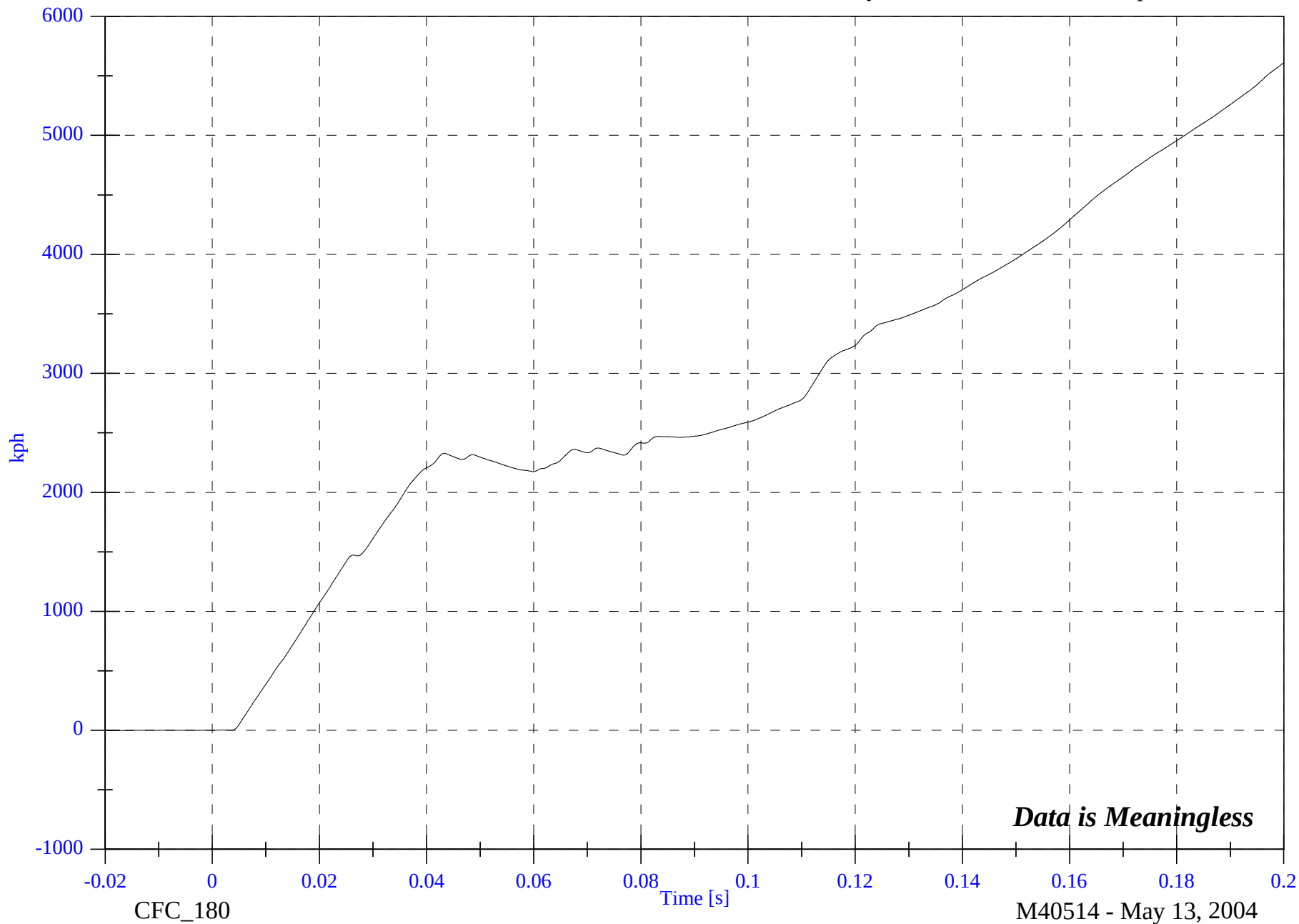
V2 A16 Front Seat Track Y Velocity

Max: 5608.8 [kph] at 0.200 [s]

Min: -0.6 [kph] at -0.020 [s]

B-106

8725-SNCAP-04



Data is Meaningless

2004 SNCAP Test 4 - 2004 Kia Spectra

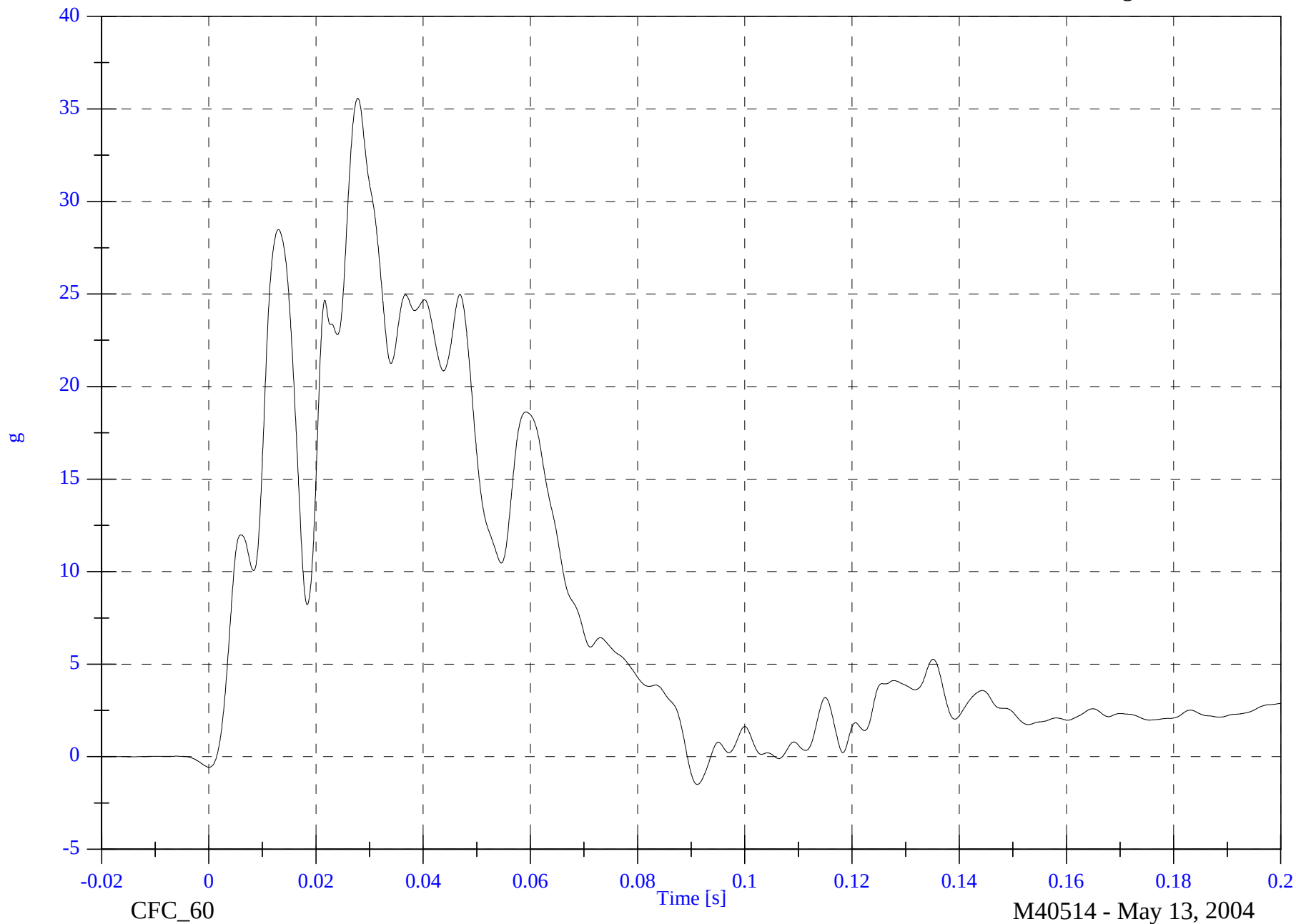
V2 A17 Rear Seat Track Y

Max: 35.6 [g] at 0.028 [s]

Min: -1.5 [g] at 0.091 [s]

B-107

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

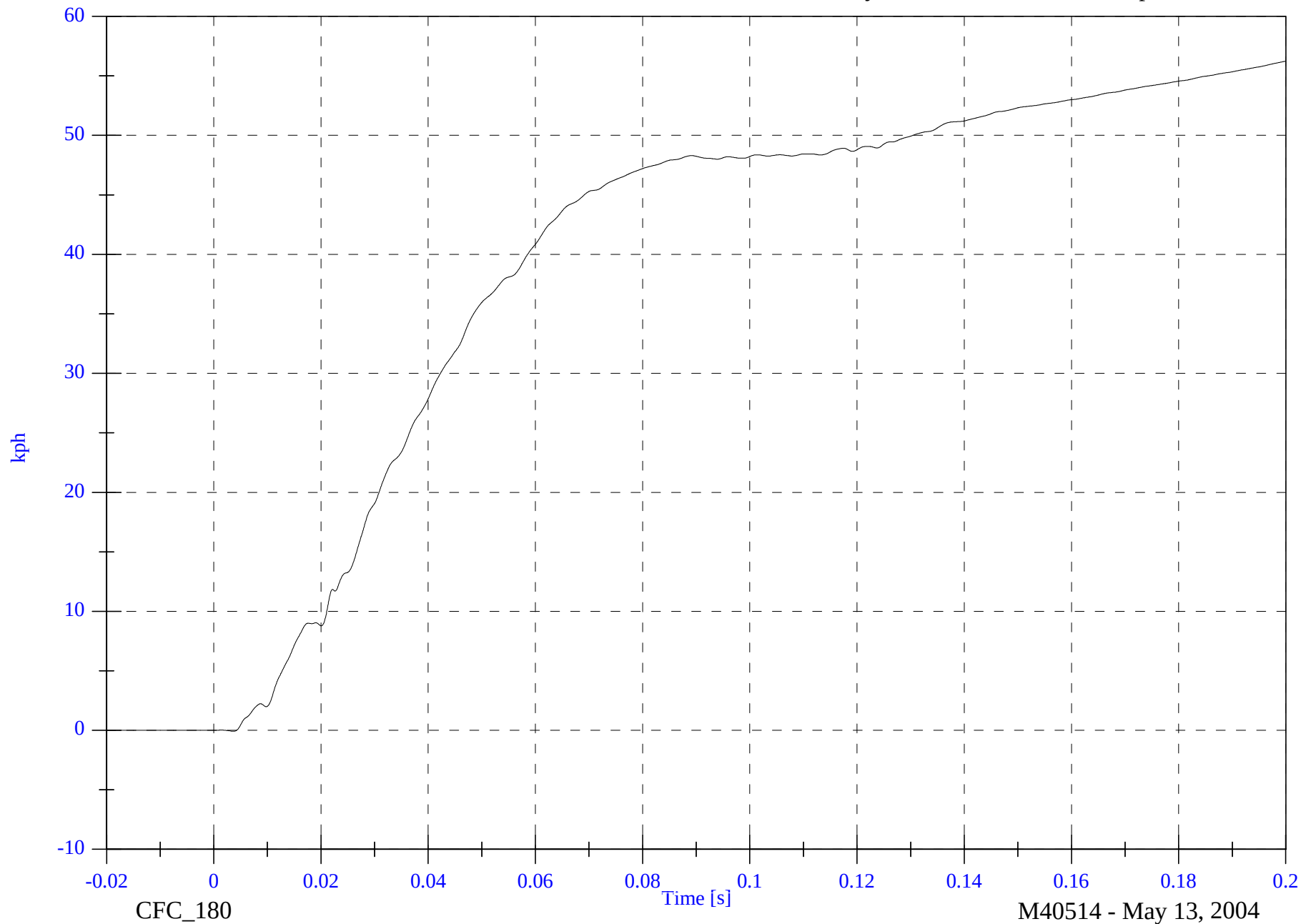
V2 A17 Rear Seat Track Y Velocity

Max: 56.2 [kph] at 0.200 [s]

Min: -0.1 [kph] at 0.004 [s]

B-108

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

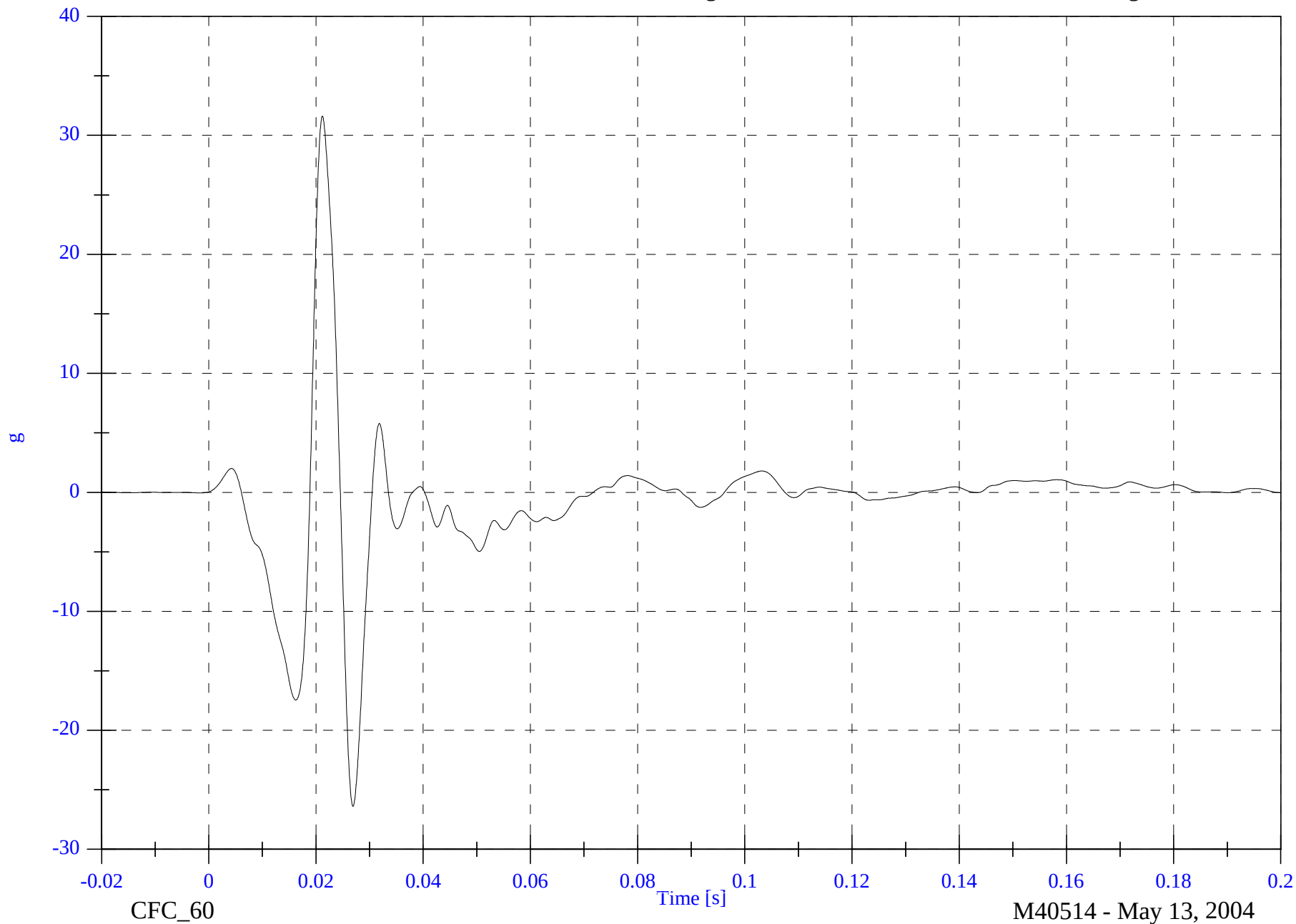
V2 A18 Target CG X

Max: 31.6 [g] at 0.021 [s]

Min: -26.4 [g] at 0.027 [s]

B-109

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

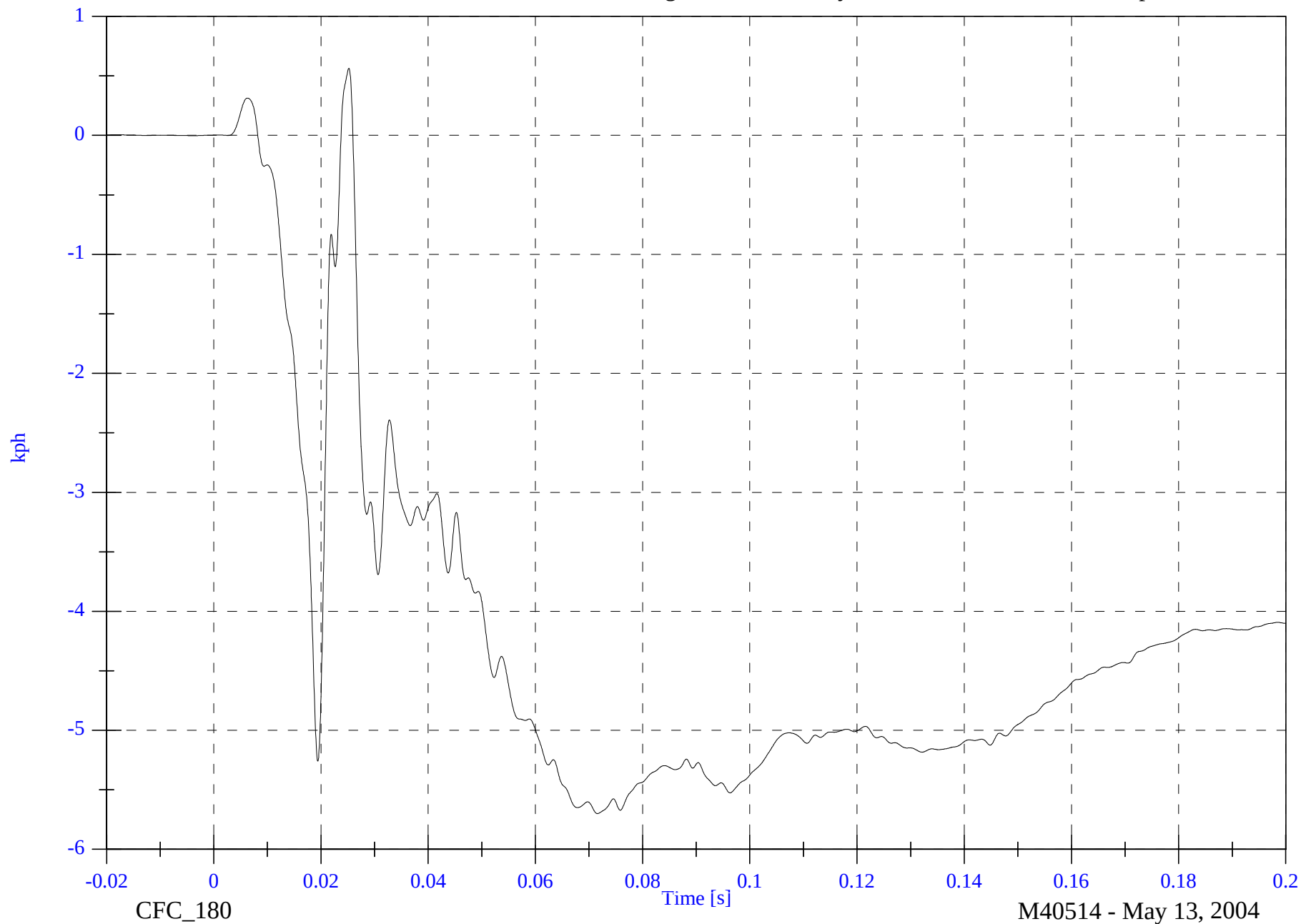
V2 A18 Target CG X Velocity

Max: 0.6 [kph] at 0.025 [s]

Min: -5.7 [kph] at 0.072 [s]

B-110

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

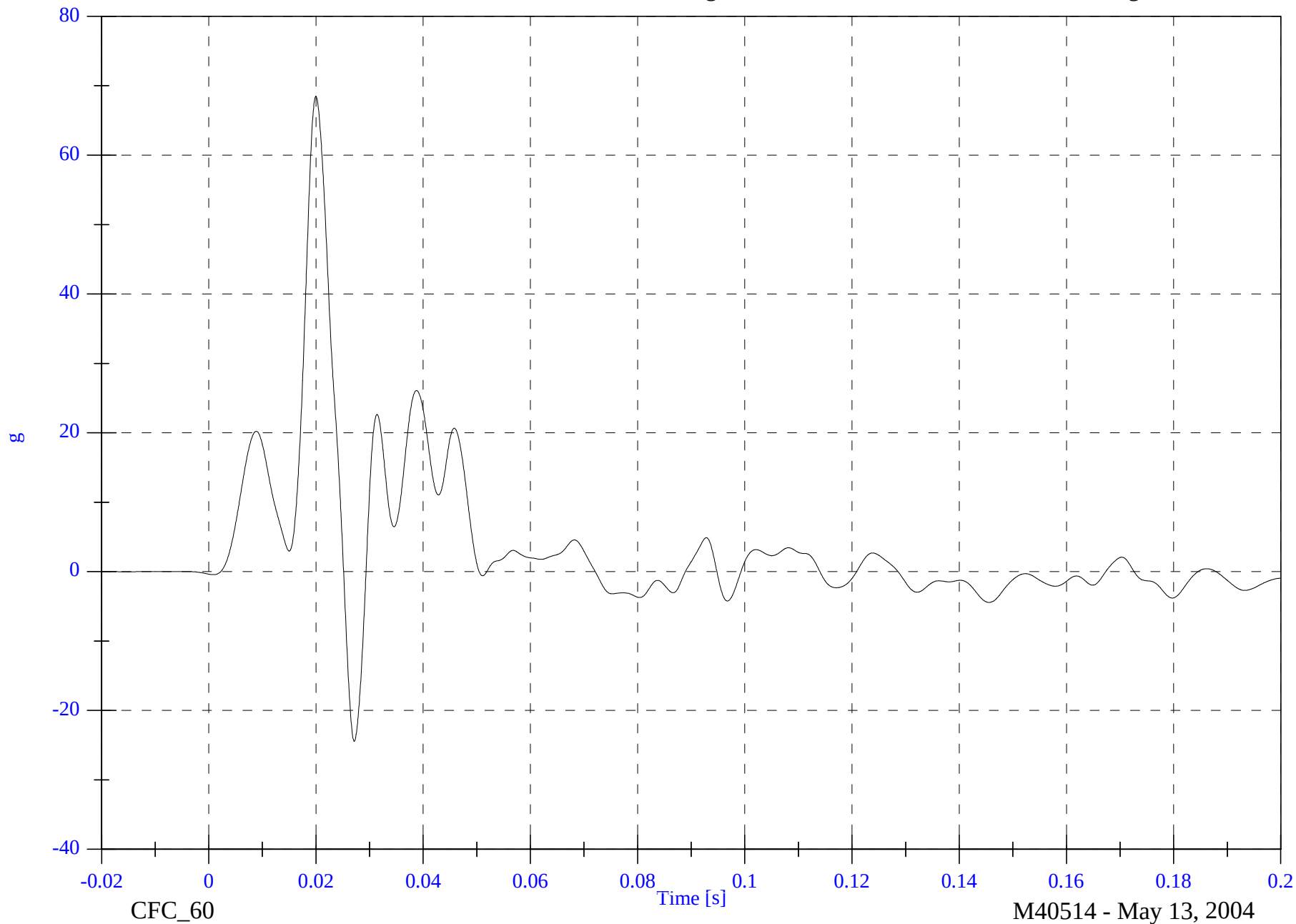
V2 A18 Target CG Y

Max: 68.5 [g] at 0.020 [s]

Min: -24.4 [g] at 0.027 [s]

B-111

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

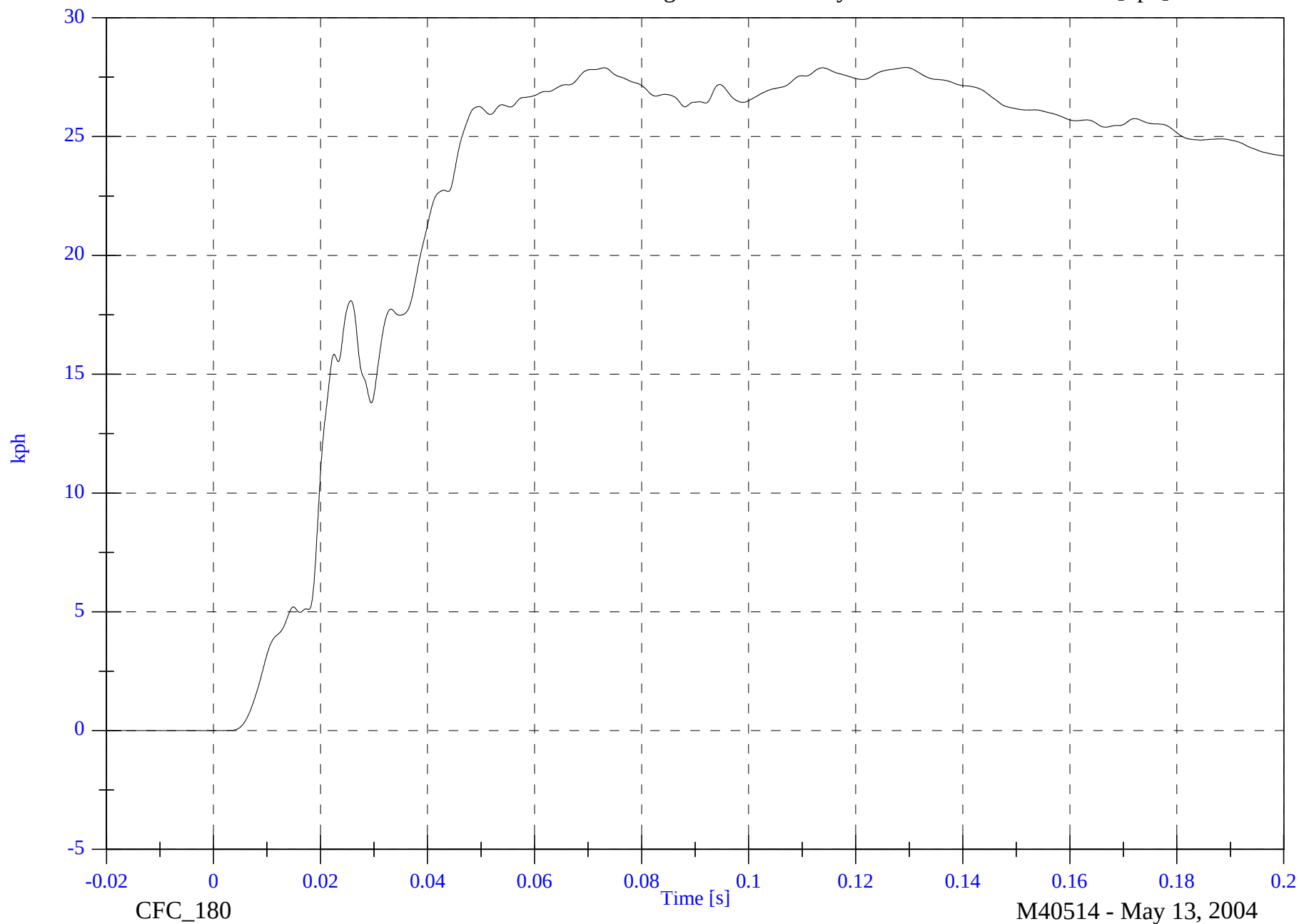
V2 A18 Target CG Y Velocity

Max: 27.9 [kph] at 0.129 [s]

Min: -0.0 [kph] at -0.013 [s]

B-112

8725-SNCAP-04

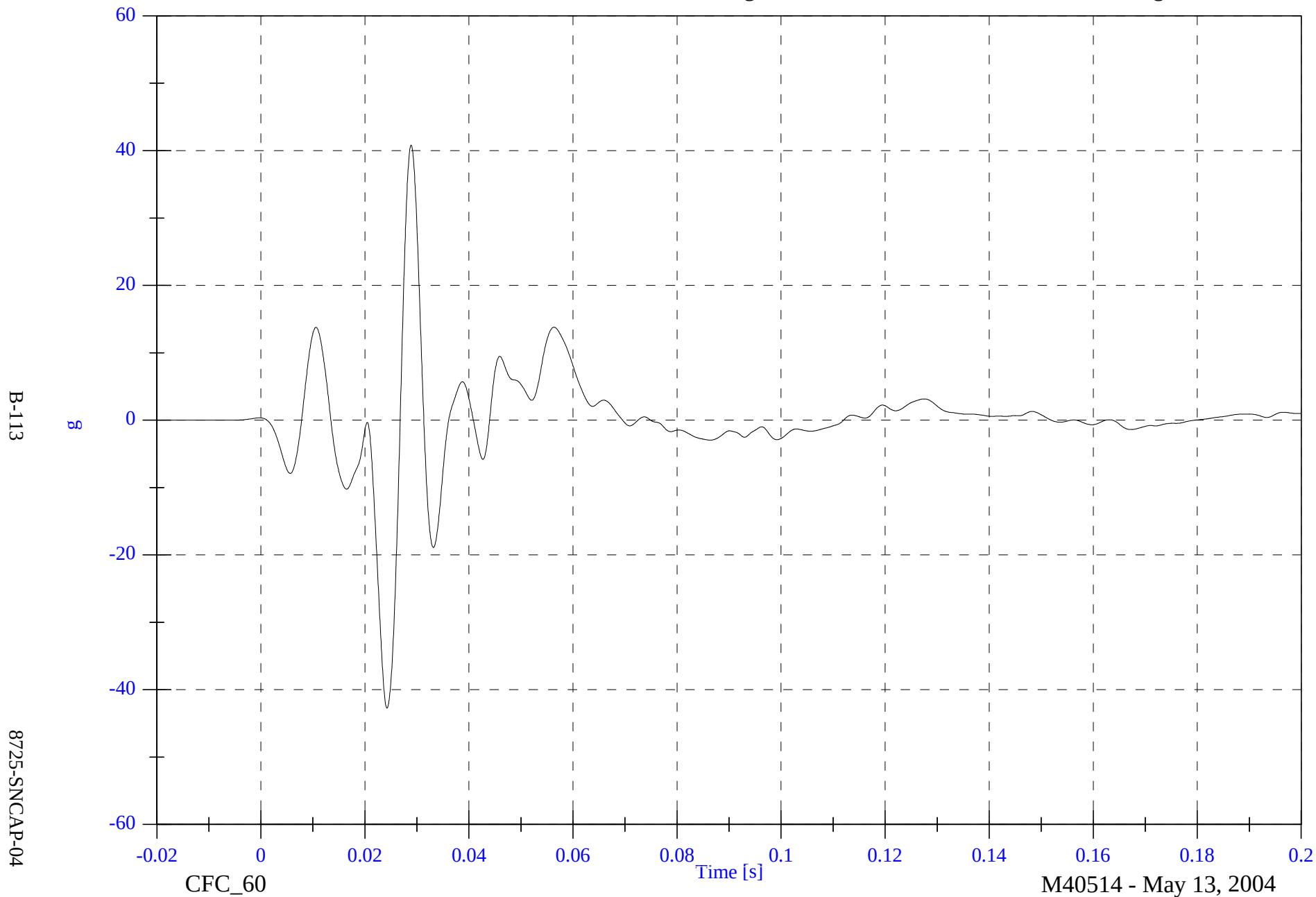


2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A18 Target CG Z

Max: 40.8 [g] at 0.029 [s]

Min: -42.7 [g] at 0.024 [s]

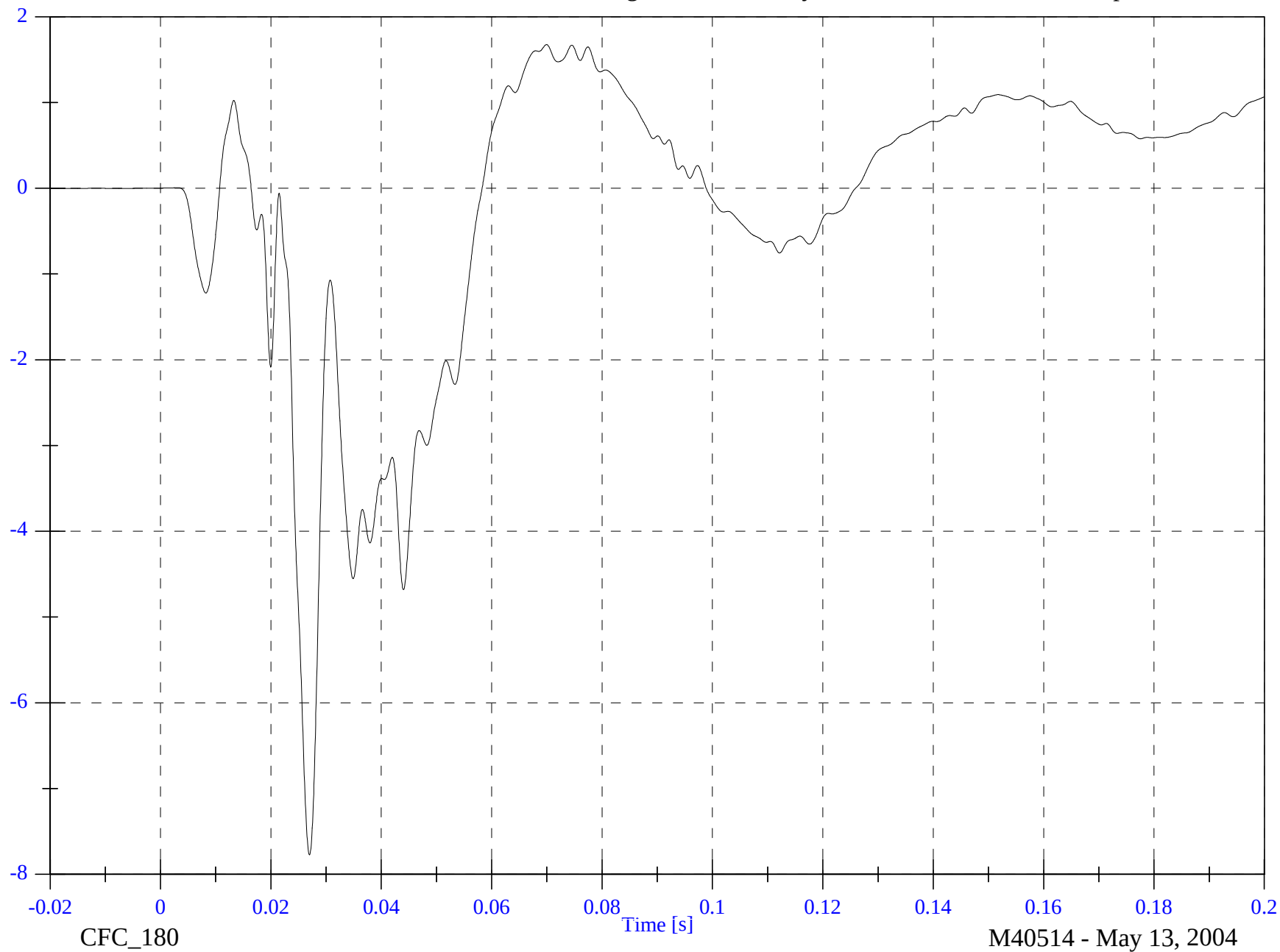


2004 SNCAP Test 4 - 2004 Kia Spectra

V2 A18 Target CG Z Velocity

Max: 1.7 [kph] at 0.070 [s]

Min: -7.8 [kph] at 0.027 [s]



B-114

8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

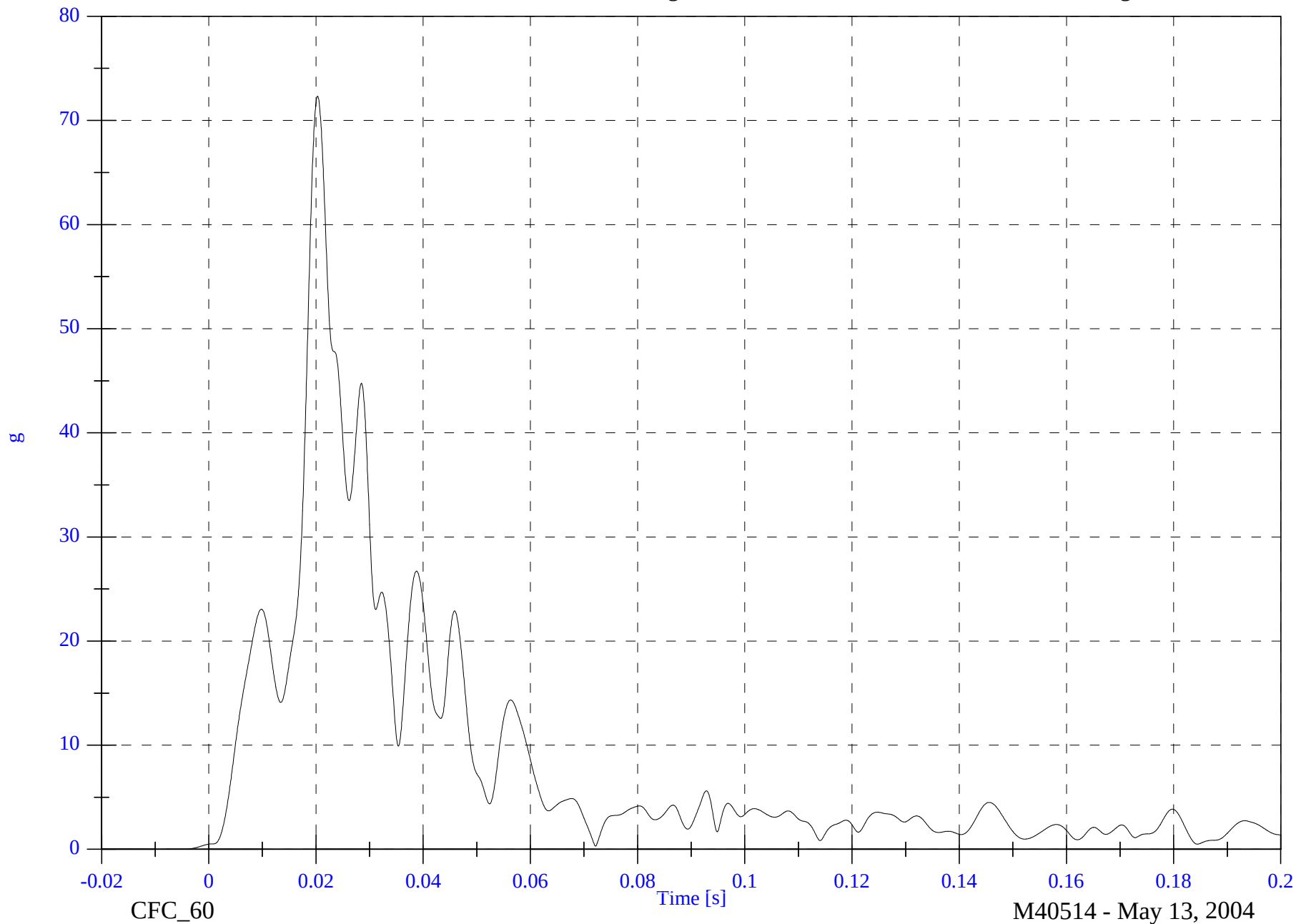
V2 A18 Target CG Resultant

Max: 72.3 [g] at 0.020 [s]

Min: 0.0 [g] at -0.012 [s]

B-115

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

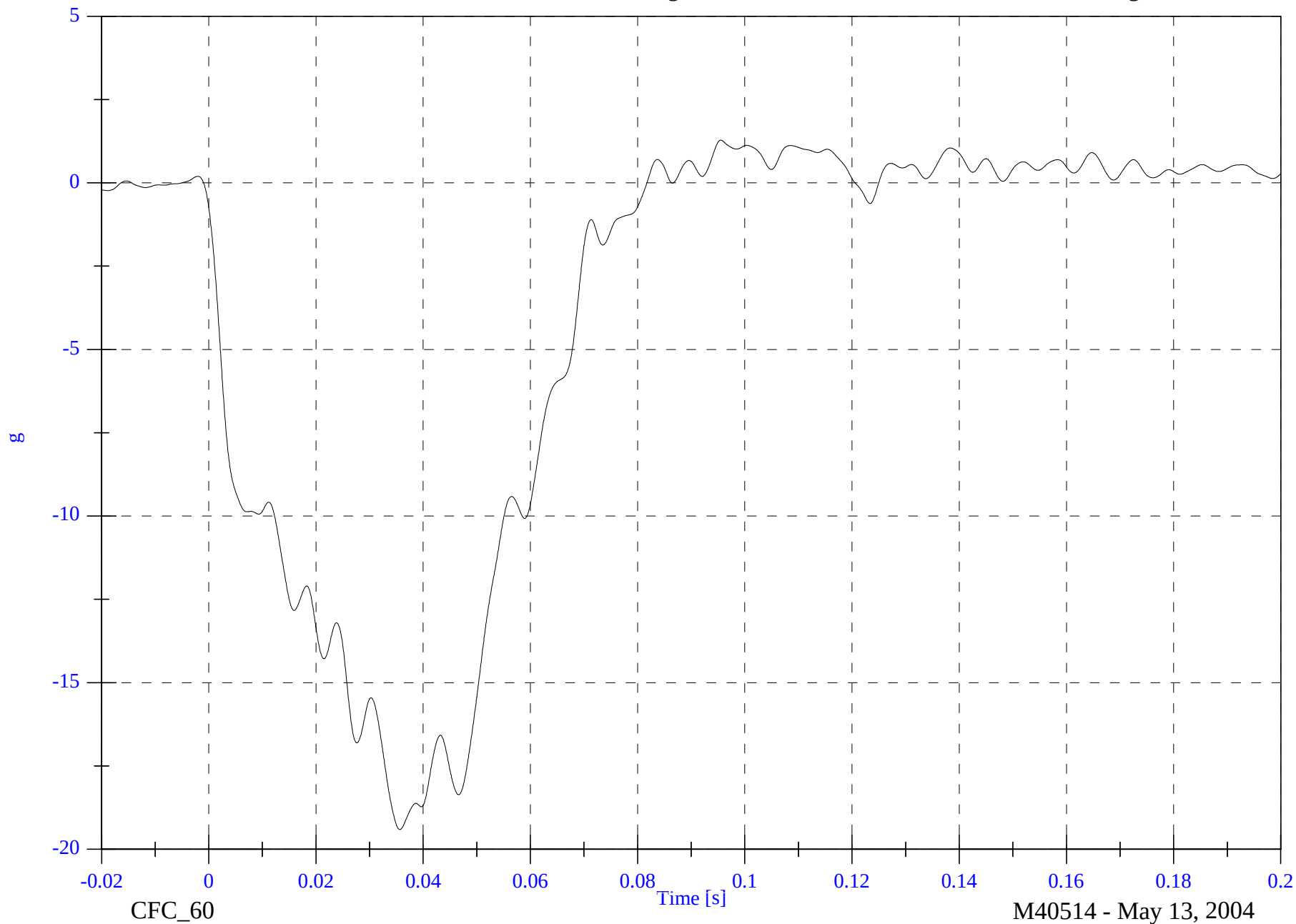
V1 Moving Barrier CG X

Max: 1.3 [g] at 0.095 [s]

Min: -19.4 [g] at 0.036 [s]

B-116

8725-SNCAP-04

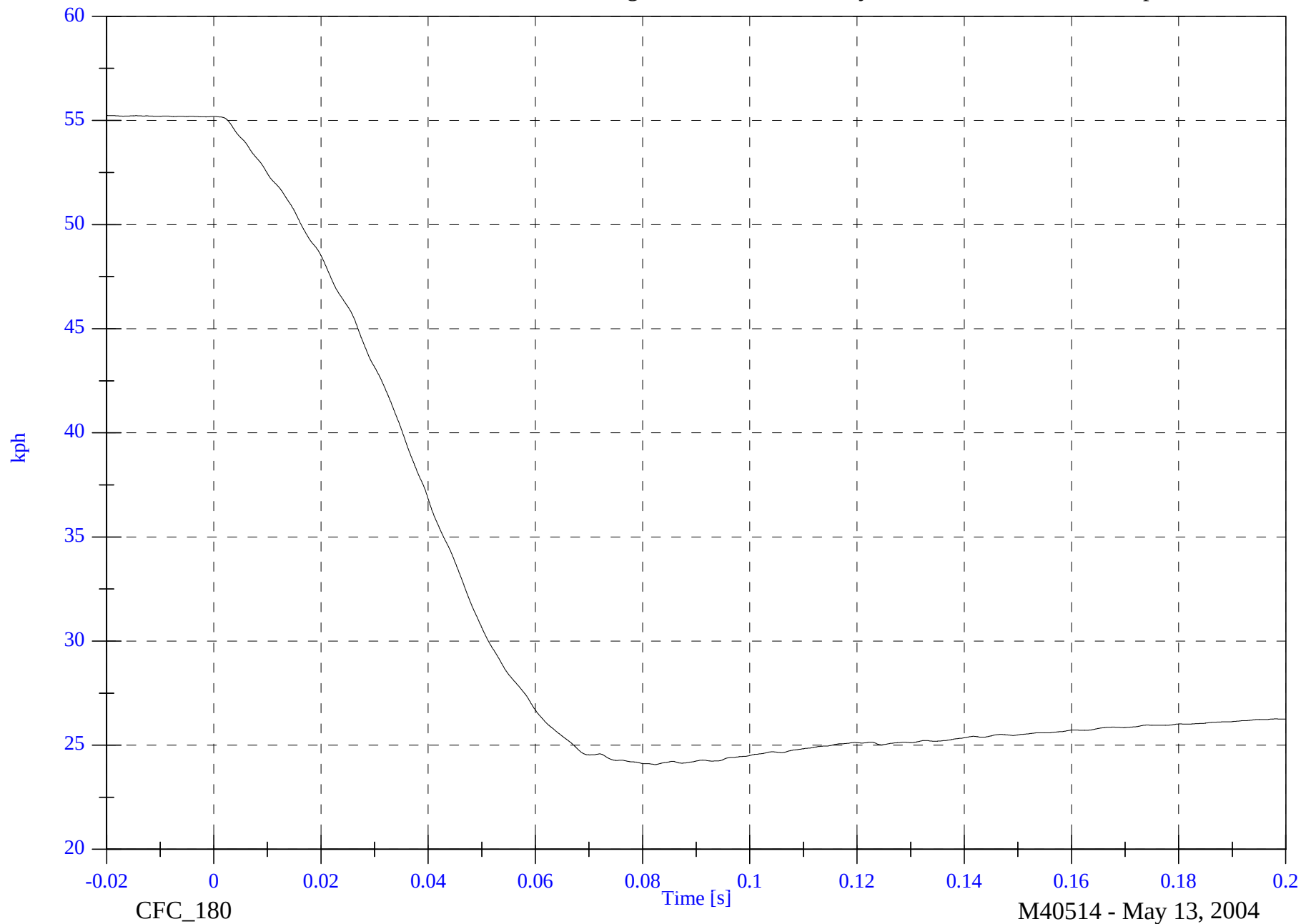


2004 SNCAP Test 4 - 2004 Kia Spectra

V1 Moving Barrier CG X Velocity

Max: 55.2 [kph] at -0.020 [s]

Min: 24.1 [kph] at 0.082 [s]



B-117

8725-SNCAP-04

CFC_180

M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

V1 Moving Barrier CG Y

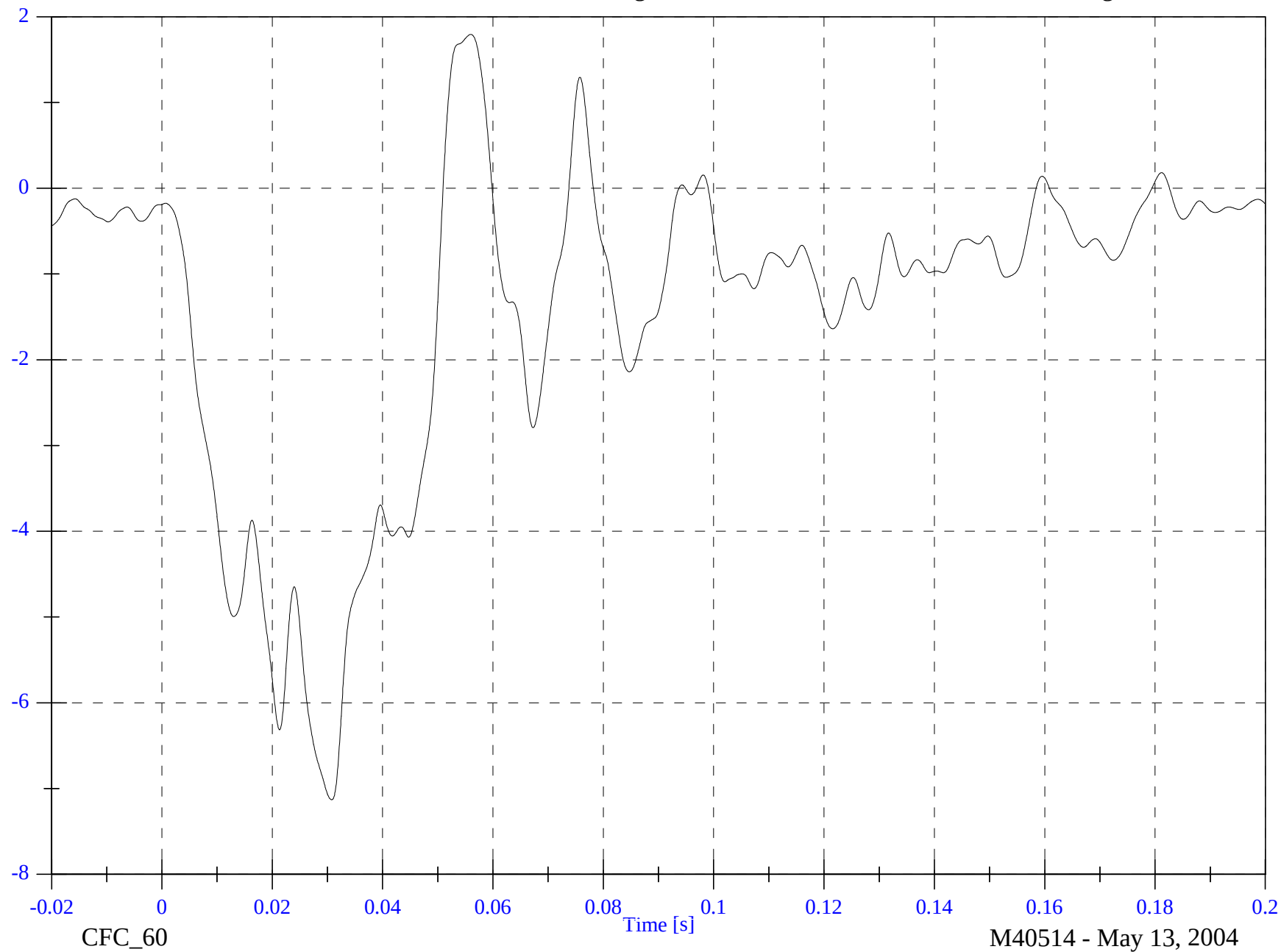
Max: 1.8 [g] at 0.056 [s]

Min: -7.1 [g] at 0.031 [s]

B-118

8725-SNCAP-04

g



CFC_60

Time [s]

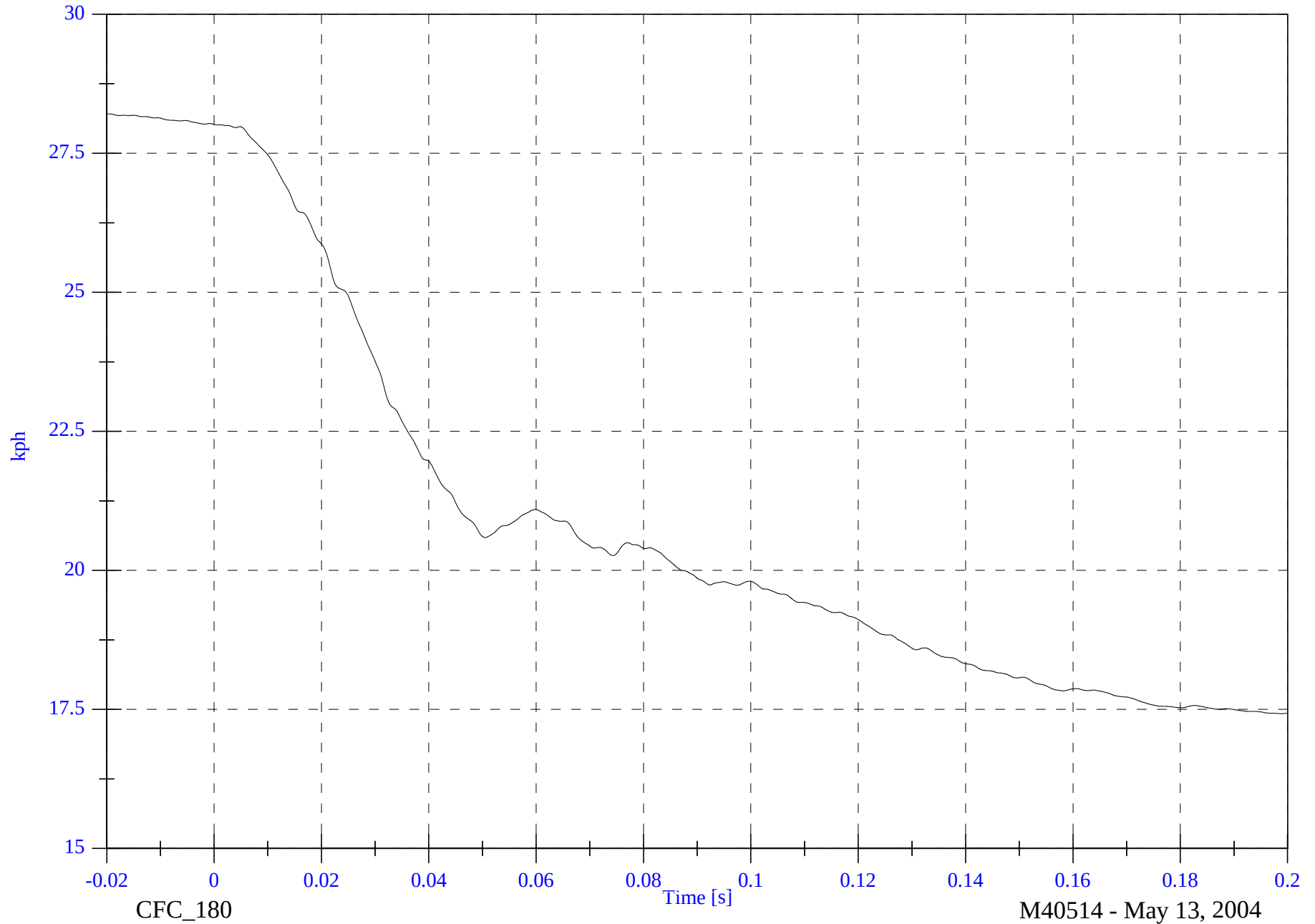
M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

V1 Moving Barrier CG Y Velocity

Max: 28.2 [kph] at -0.020 [s]

Min: 17.4 [kph] at 0.199 [s]



B-119

8725-SNCAP-04

CFC_180

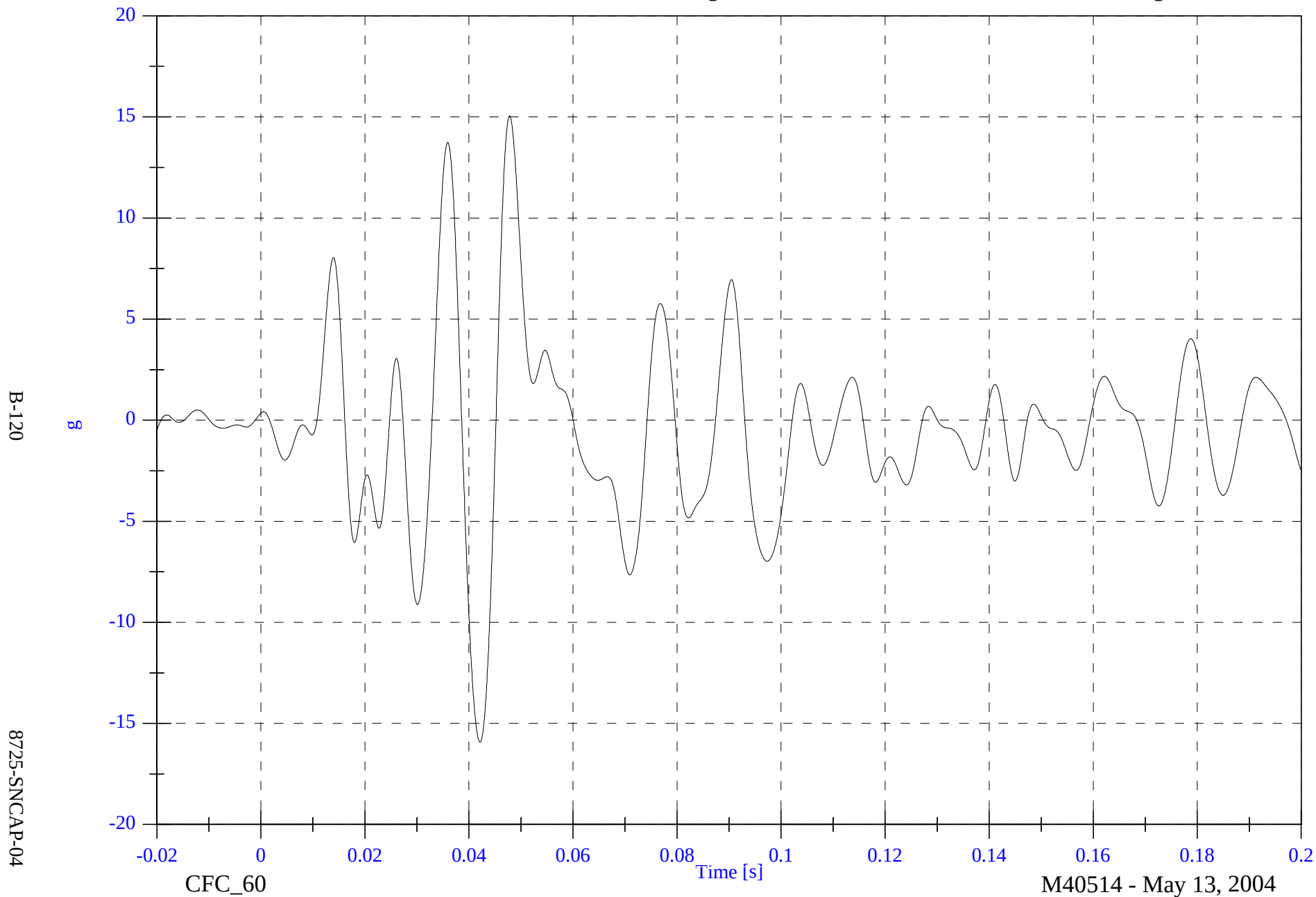
M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

V1 Moving Barrier CG Z

Max: 15.1 [g] at 0.048 [s]

Min: -15.9 [g] at 0.042 [s]

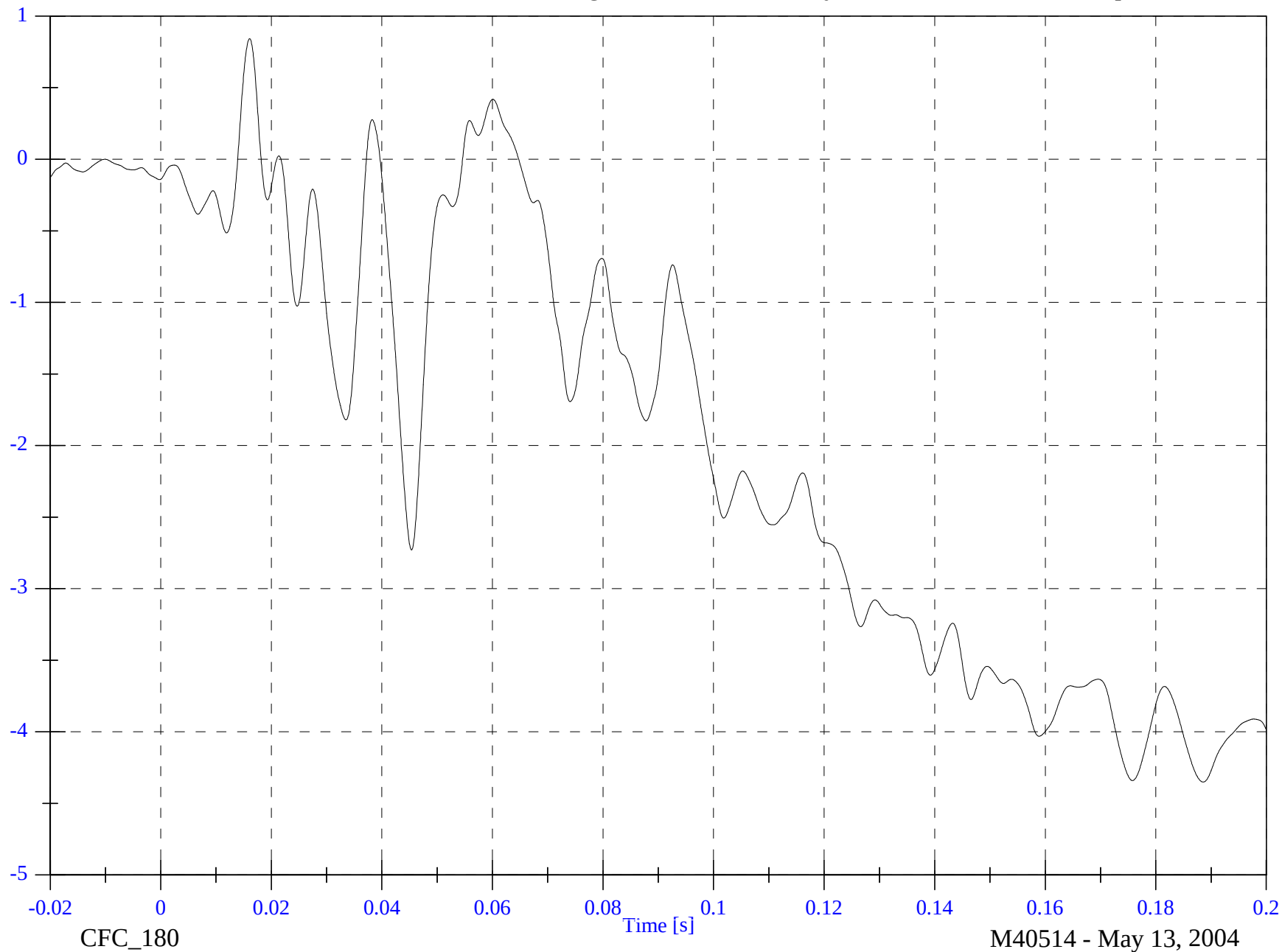


2004 SNCAP Test 4 - 2004 Kia Spectra

V1 Moving Barrier CG Z Velocity

Max: 0.8 [kph] at 0.016 [s]

Min: -4.4 [kph] at 0.189 [s]



B-121

8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

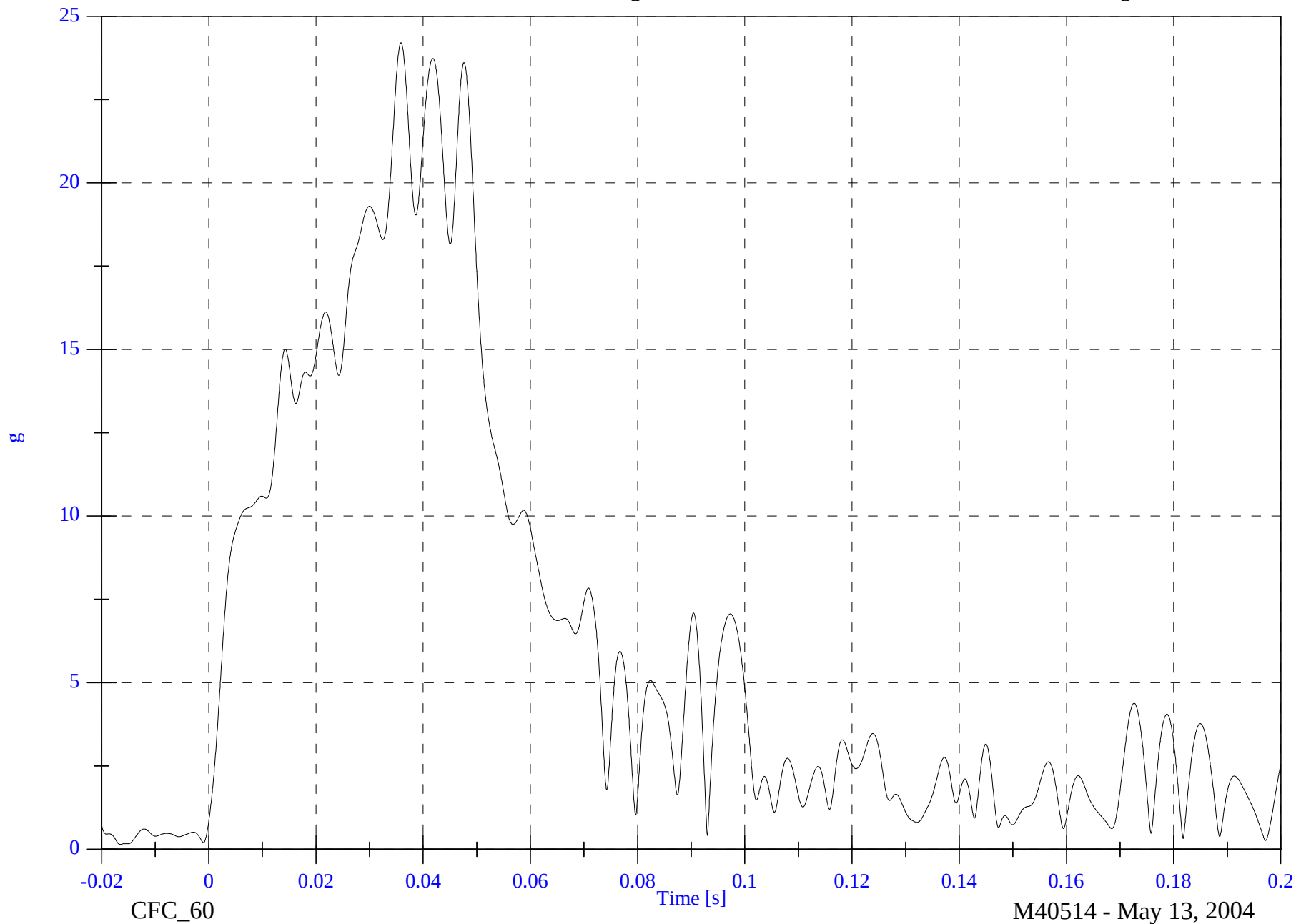
V1 Moving Barrier CG Resultant

Max: 24.2 [g] at 0.036 [s]

Min: 0.1 [g] at -0.016 [s]

B-122

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

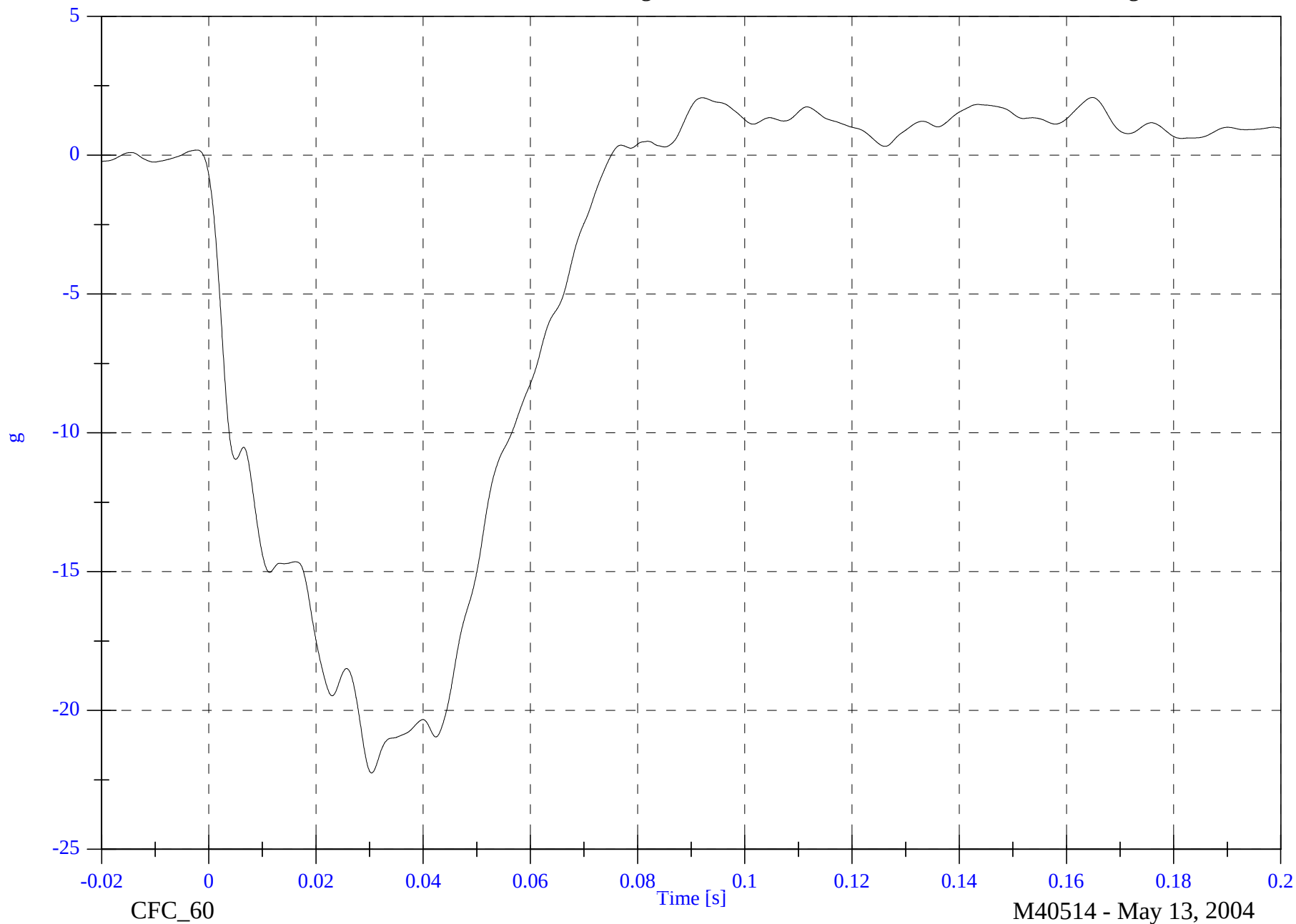
V1 Moving Barrier Left Rail X

Max: 2.1 [g] at 0.165 [s]

Min: -22.3 [g] at 0.030 [s]

B-123

8725-SNCAP-04

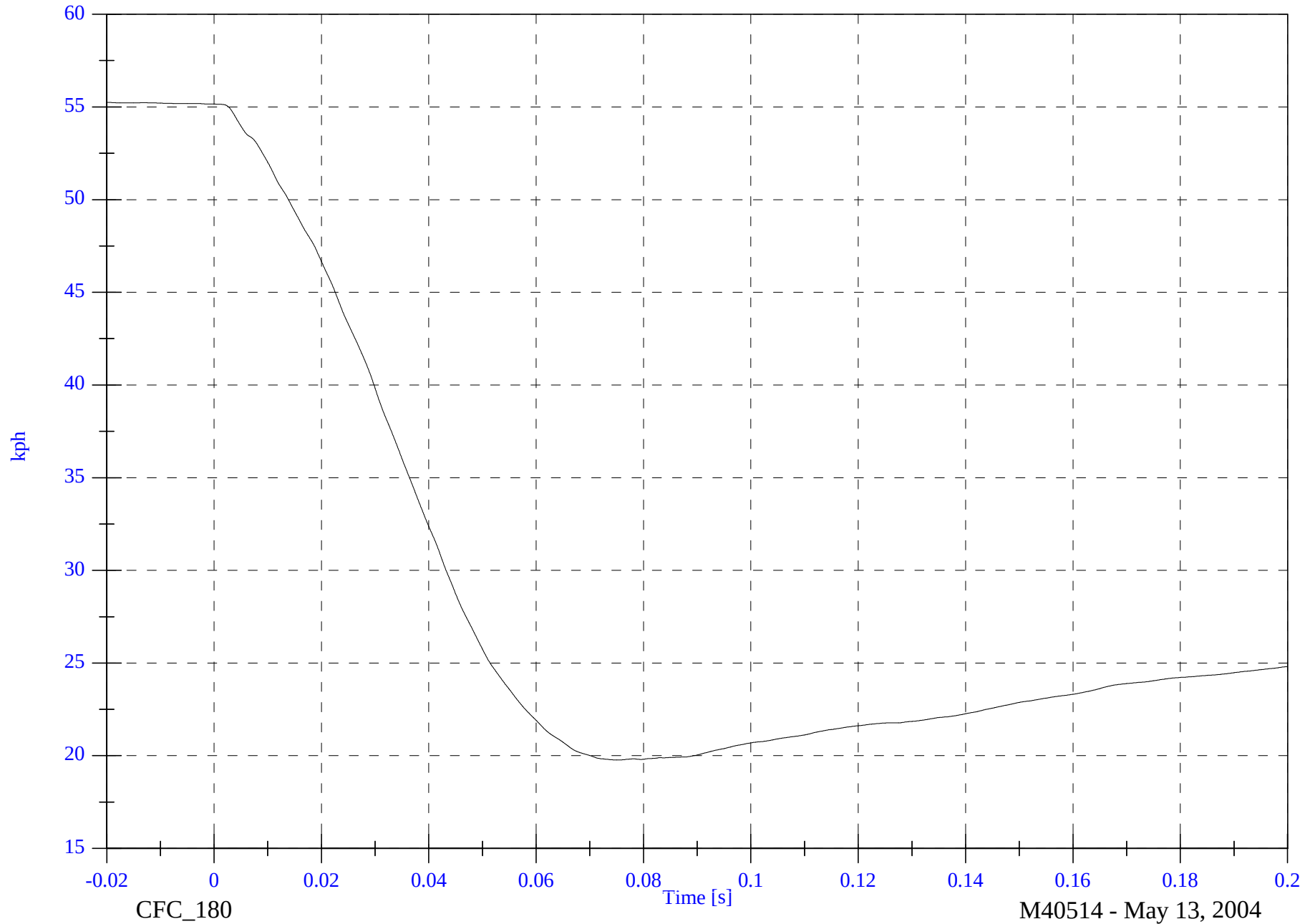


2004 SNCAP Test 4 - 2004 Kia Spectra

V1 Moving Barrier Left Rail X Velocity

Max: 55.2 [kph] at -0.020 [s]

Min: 19.8 [kph] at 0.075 [s]



B-124

8725-SNCAP-04

CFC_180

M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

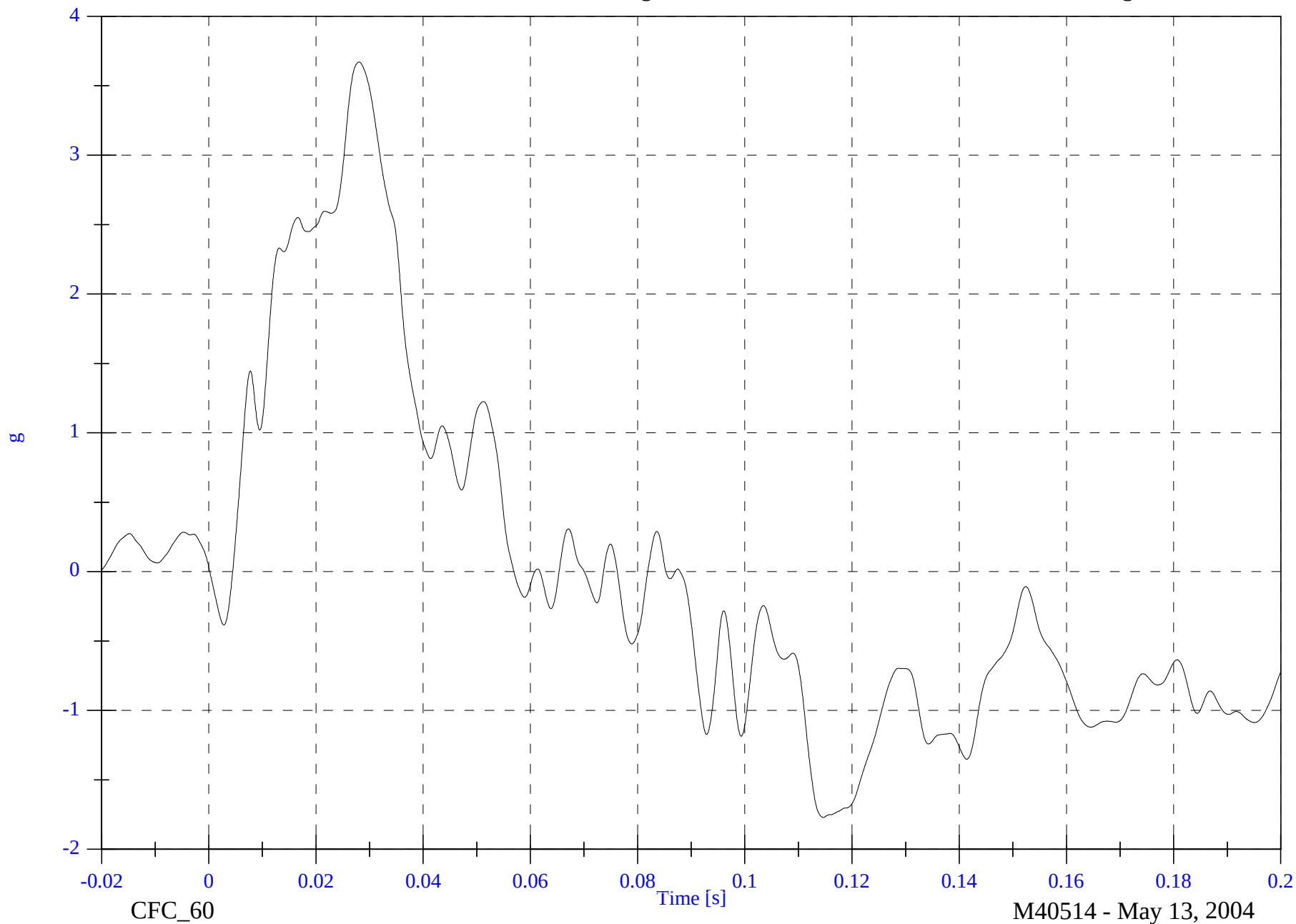
V1 Moving Barrier Left Rail Y

Max: 3.7 [g] at 0.028 [s]

Min: -1.8 [g] at 0.115 [s]

B-125

8725-SNCAP-04

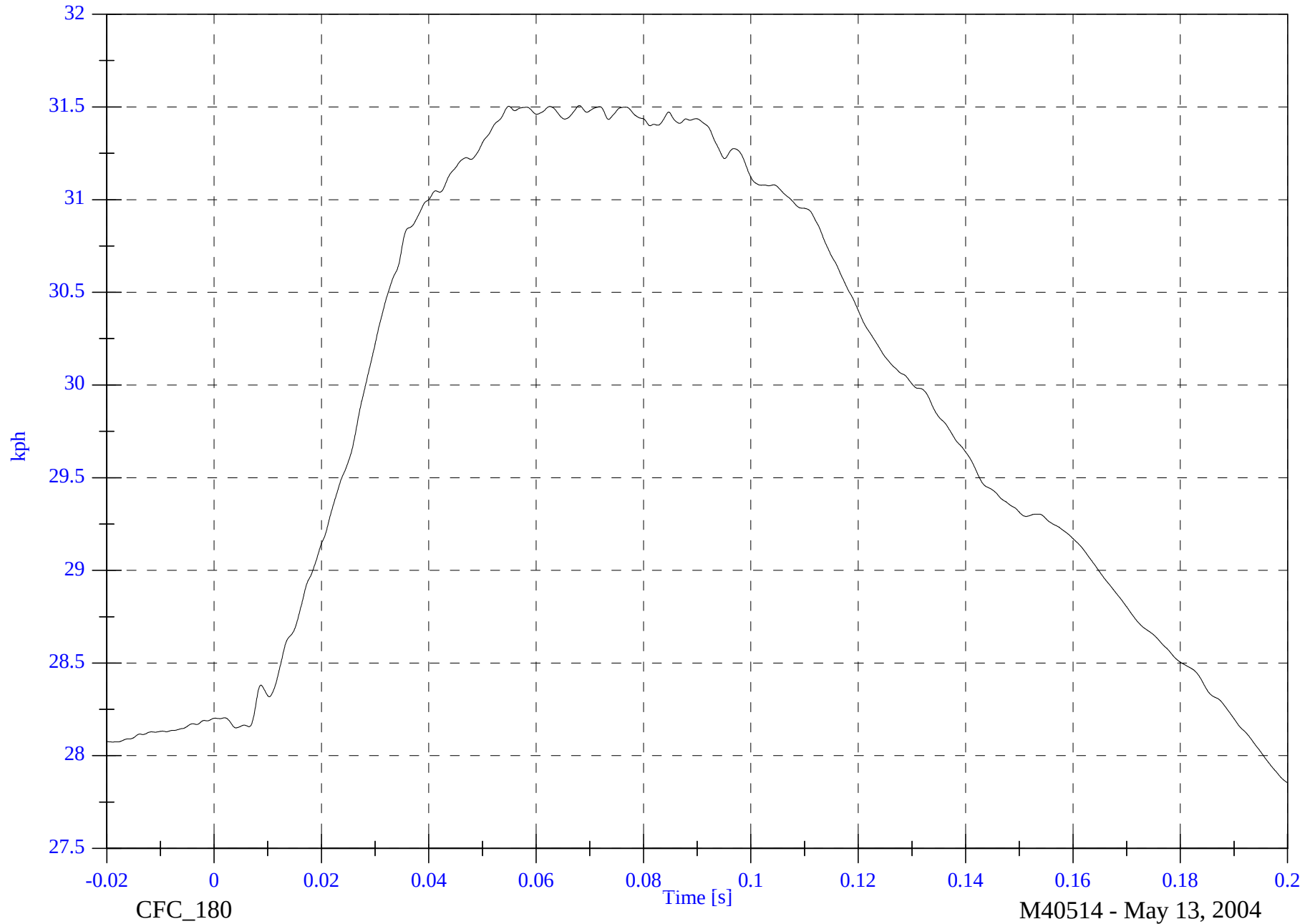


2004 SNCAP Test 4 - 2004 Kia Spectra

V1 Moving Barrier Left Rail Y Velocity

Max: 31.5 [kph] at 0.068 [s]

Min: 27.9 [kph] at 0.200 [s]



B-126

8725-SNCAP-04

CFC_180

M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Upper Rib Ry

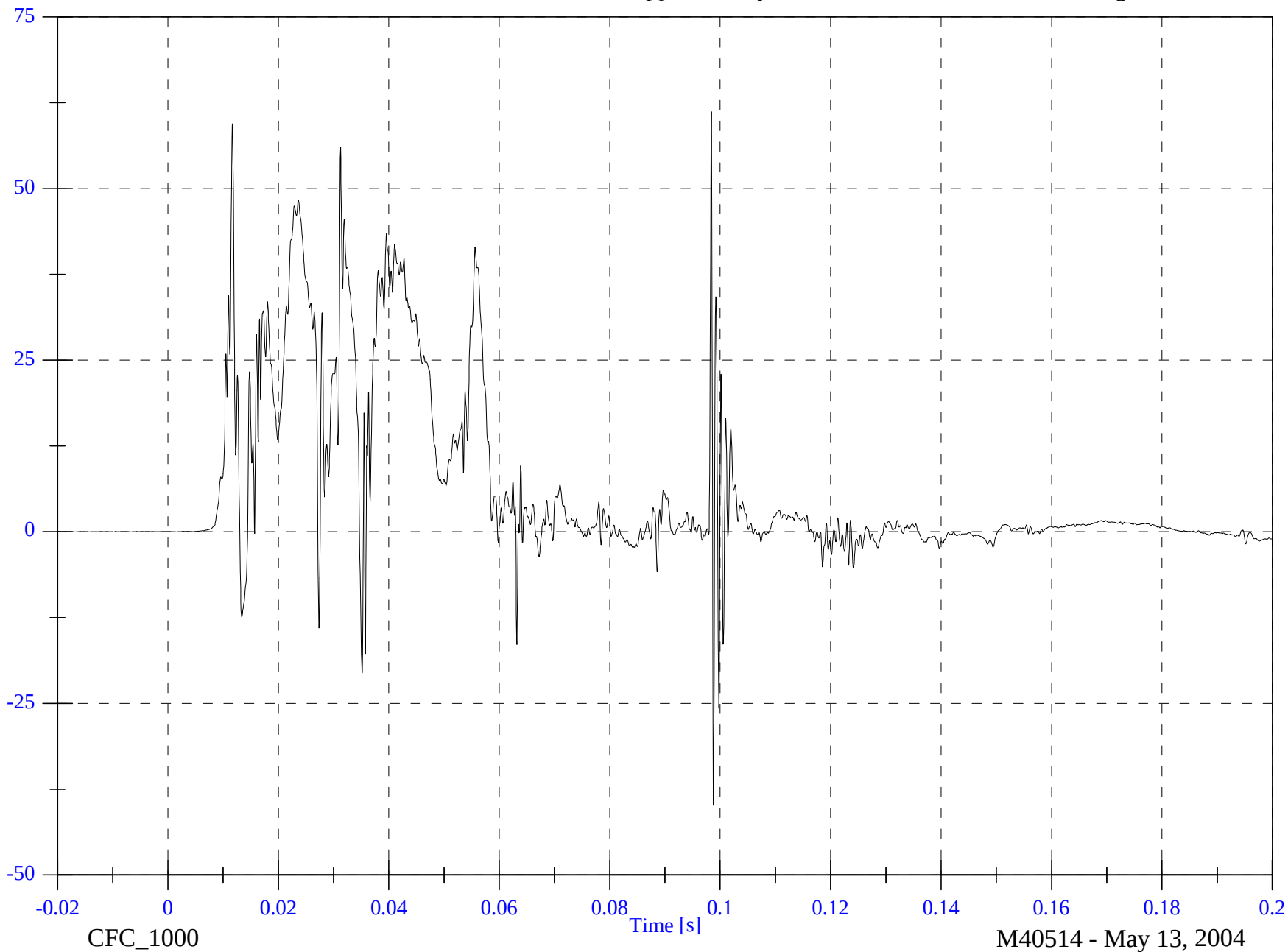
Max: 61.2 [g] at 0.098 [s]

Min: -39.9 [g] at 0.099 [s]

B-127

8725-SNCAP-04

g

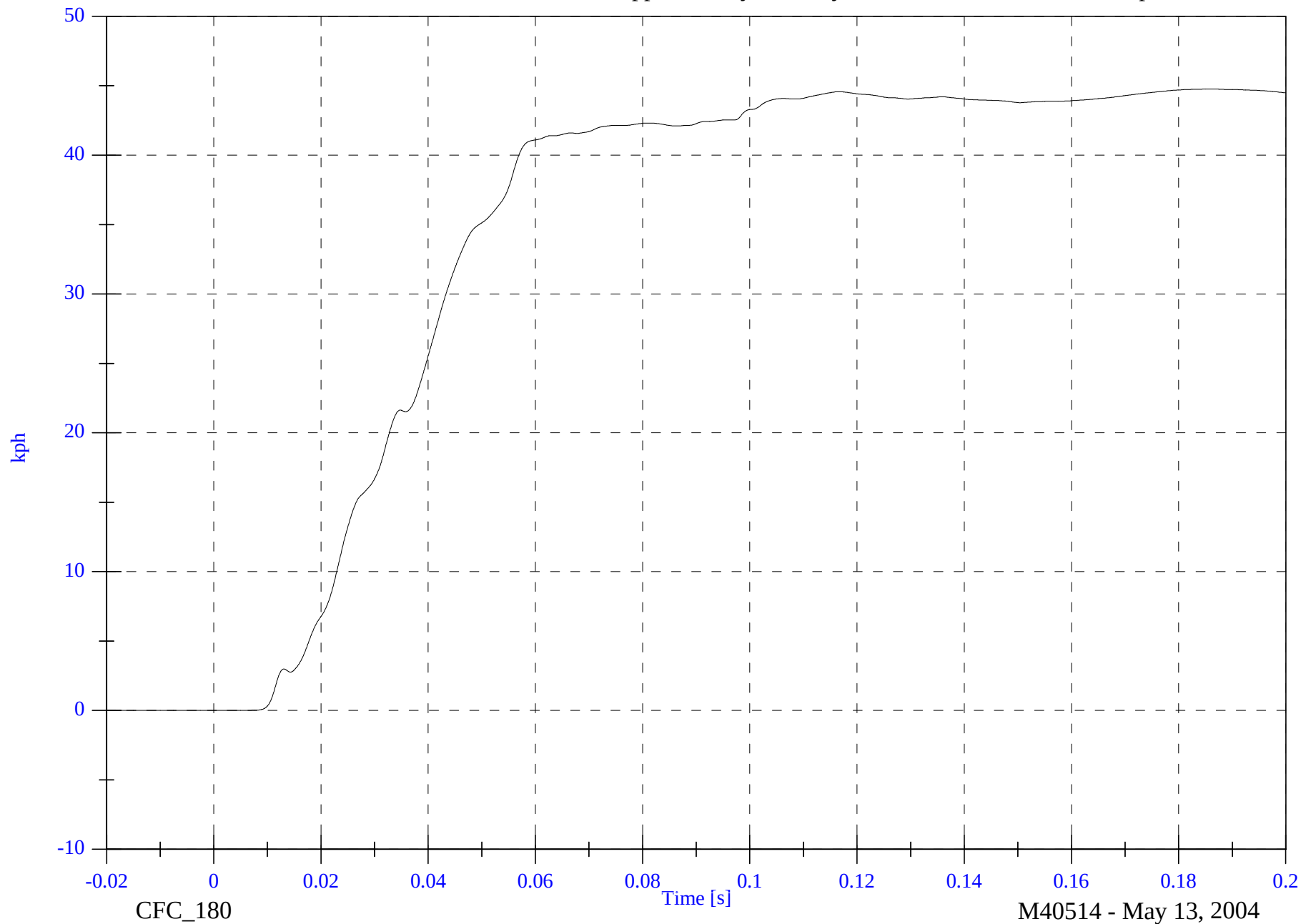


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Upper Rib Ry Velocity

Max: 44.8 [kph] at 0.187 [s]

Min: -0.0 [kph] at -0.011 [s]



B-128

8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

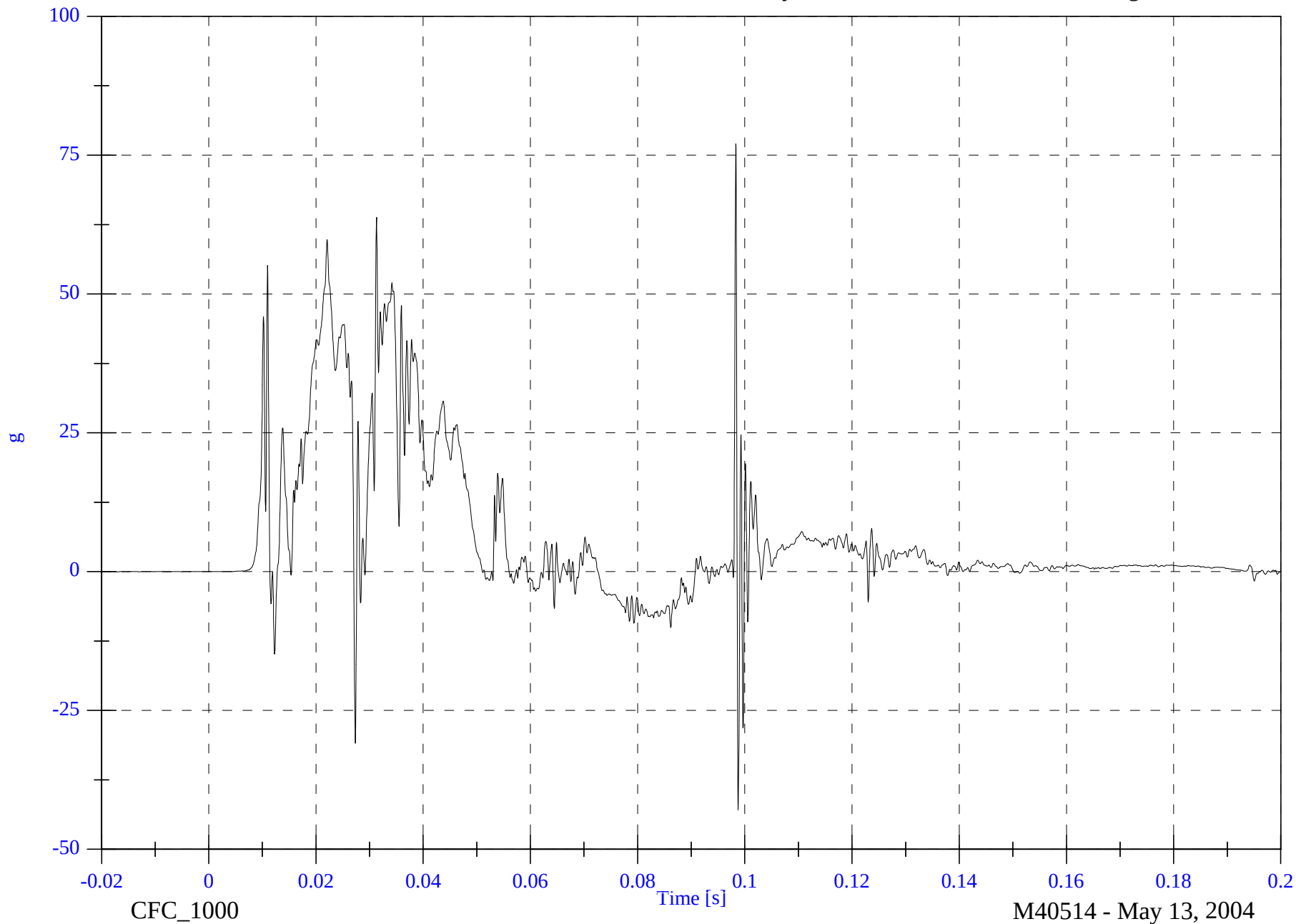
V2P1 Lower Rib Ry

Max: 77.1 [g] at 0.098 [s]

Min: -42.9 [g] at 0.099 [s]

B-129

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Lower Rib Ry Velocity

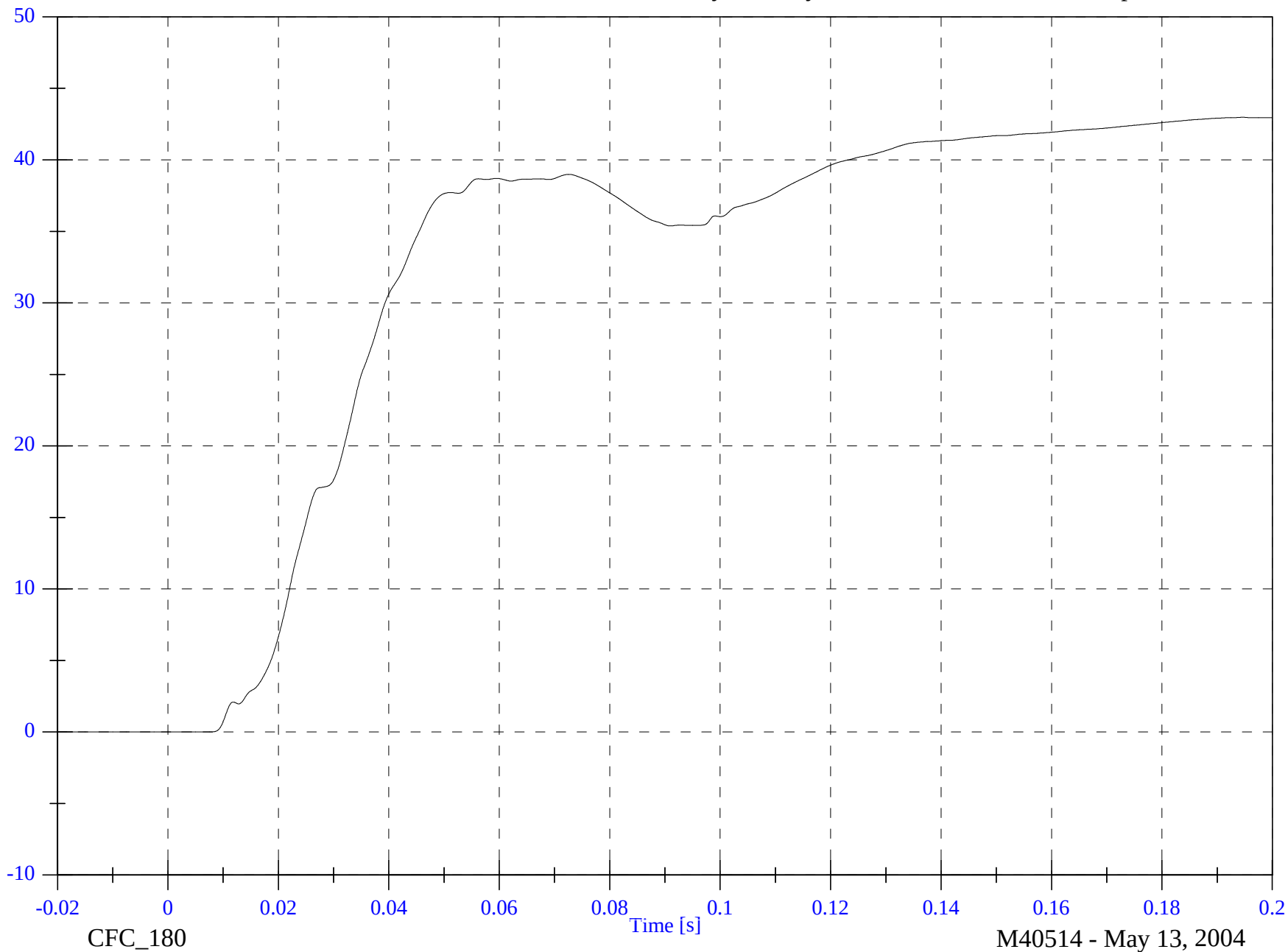
Max: 43.0 [kph] at 0.195 [s]

Min: -0.0 [kph] at -0.015 [s]

B-130

8725-SNCAP-04

kph



CFC_180

Time [s]

M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

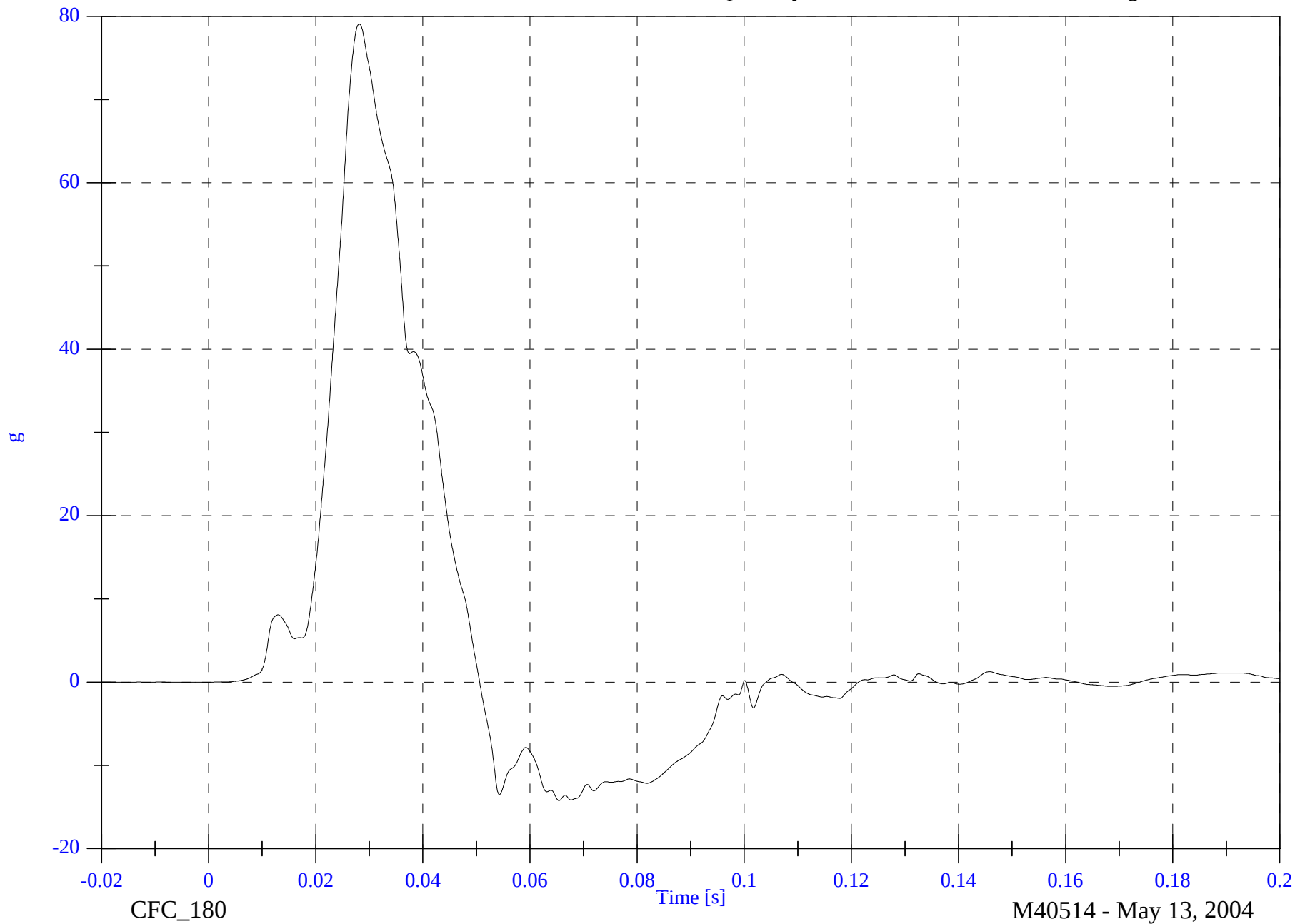
V2P1 Lower Spine Ry

Max: 79.1 [g] at 0.028 [s]

Min: -14.2 [g] at 0.065 [s]

B-131

8725-SNCAP-04

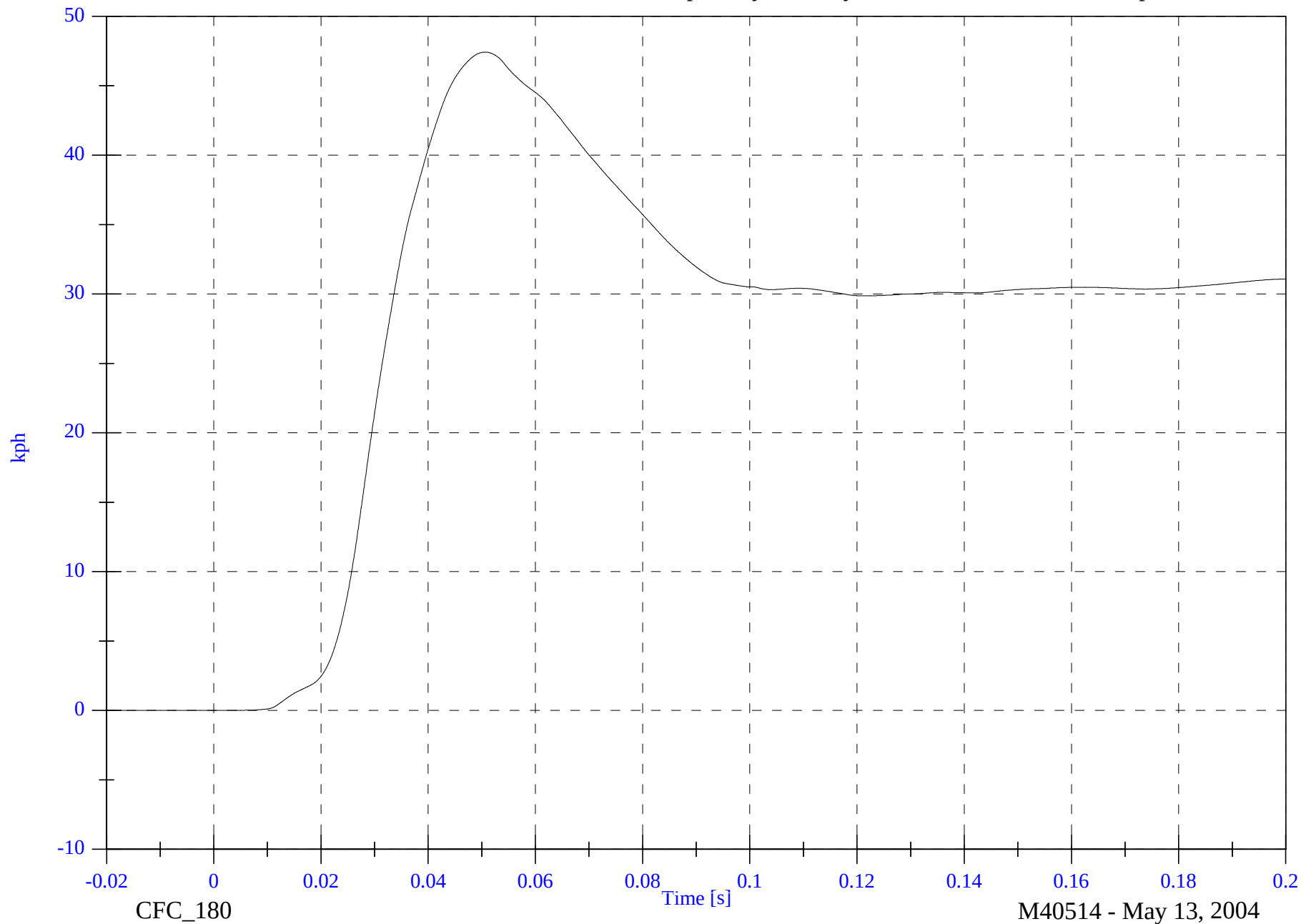


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Lower Spine Ry Velocity

Max: 47.4 [kph] at 0.051 [s]

Min: -0.0 [kph] at -0.020 [s]



B-132

8725-SNCAP-04

CFC_180

M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

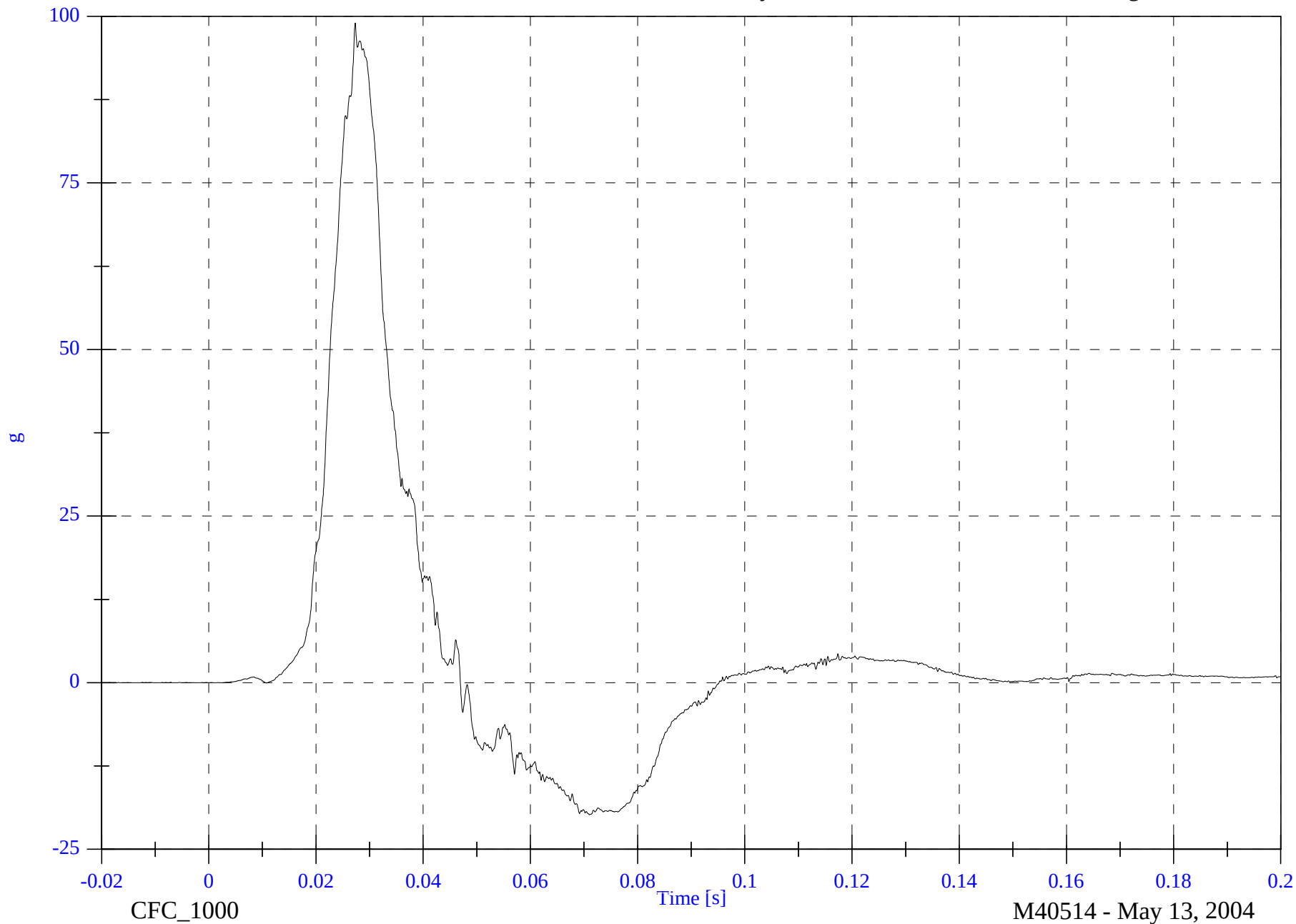
V2P1 Pelvic Ry

Max: 99.0 [g] at 0.027 [s]

Min: -19.8 [g] at 0.071 [s]

B-133

8725-SNCAP-04

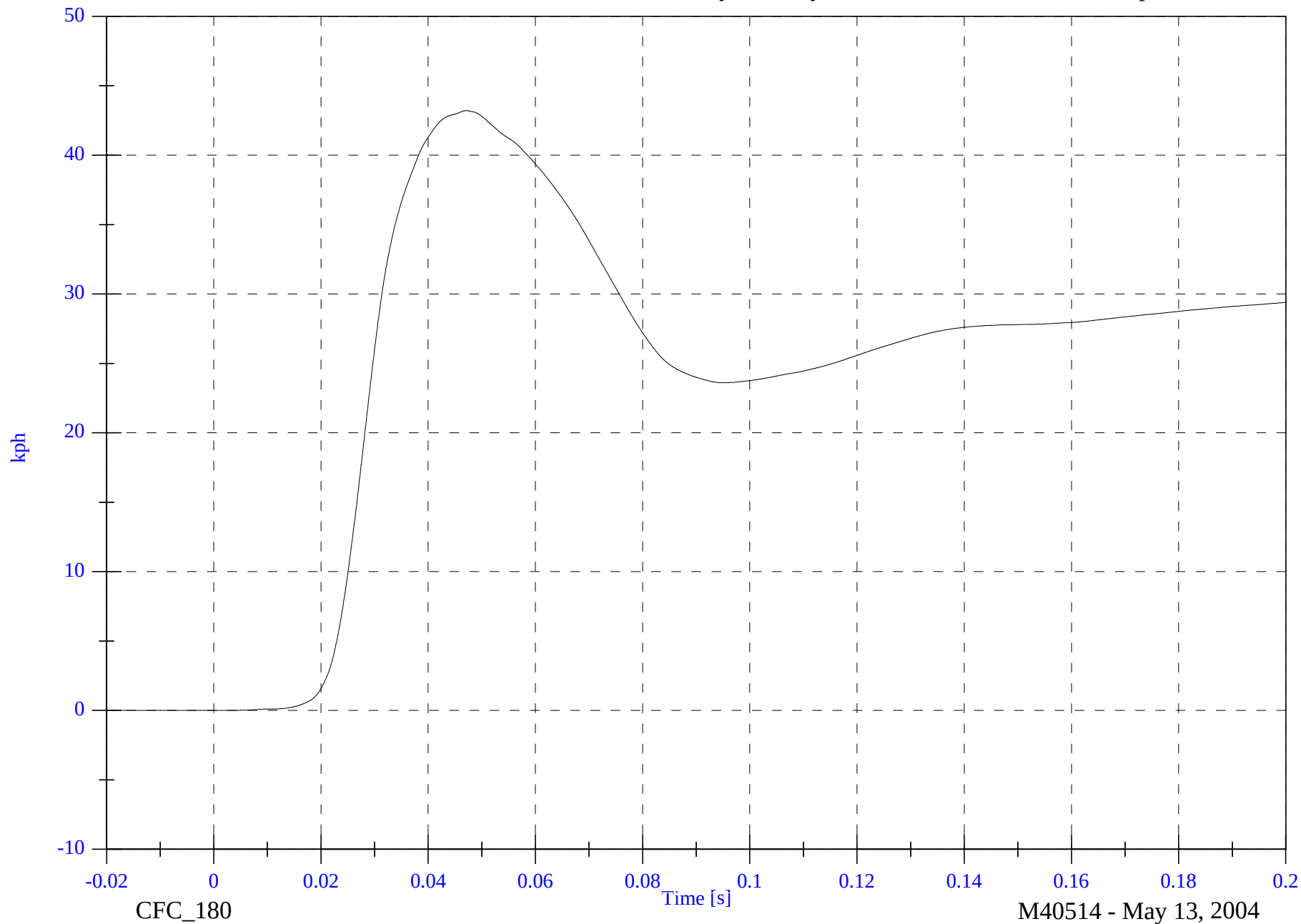


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P1 Pelvic Ry Velocity

Max: 43.2 [kph] at 0.047 [s]

Min: -0.0 [kph] at -0.019 [s]



B-134

8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

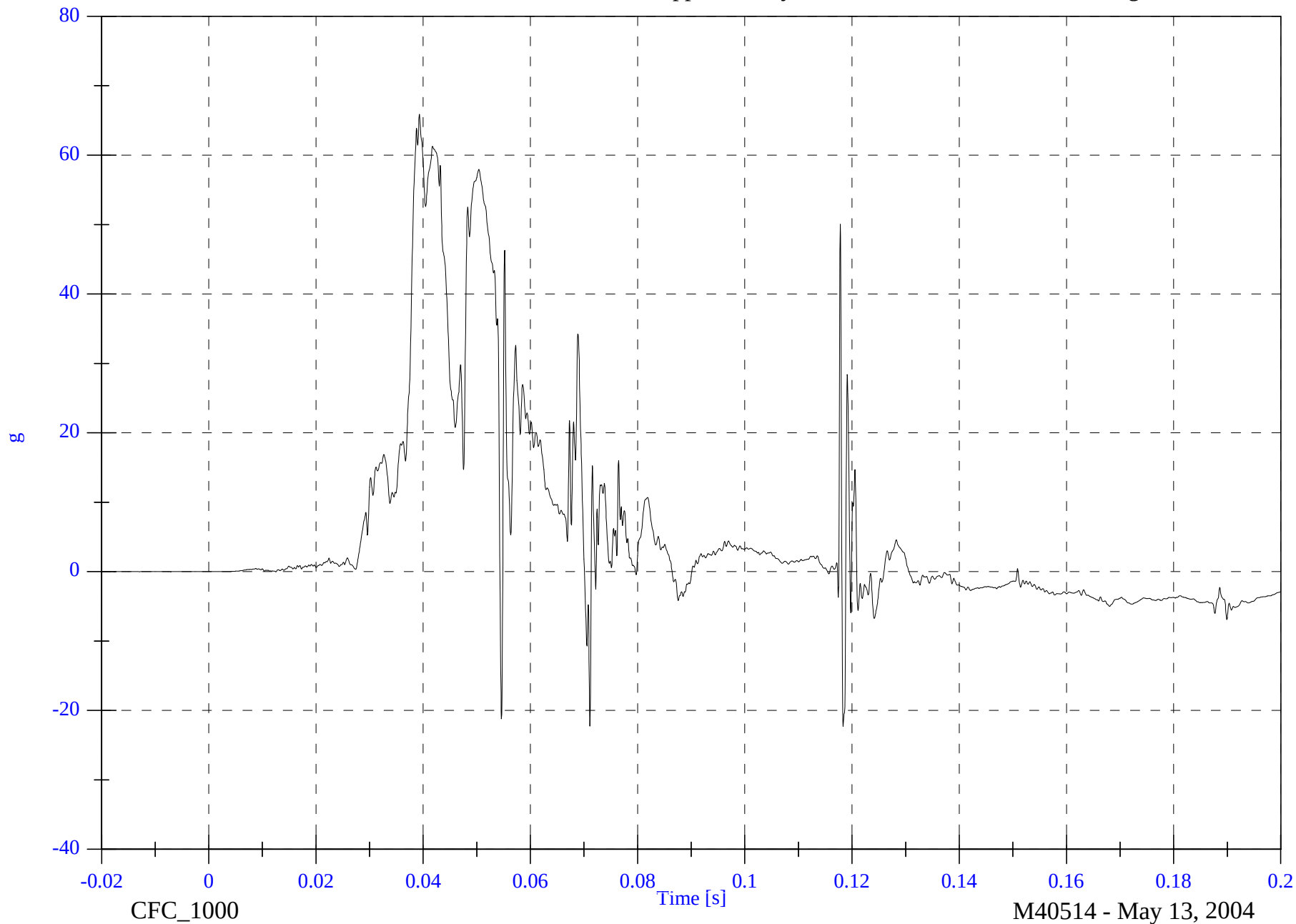
V2P4 Upper Rib Ry

Max: 65.9 [g] at 0.039 [s]

Min: -22.3 [g] at 0.118 [s]

B-135

8725-SNCAP-04

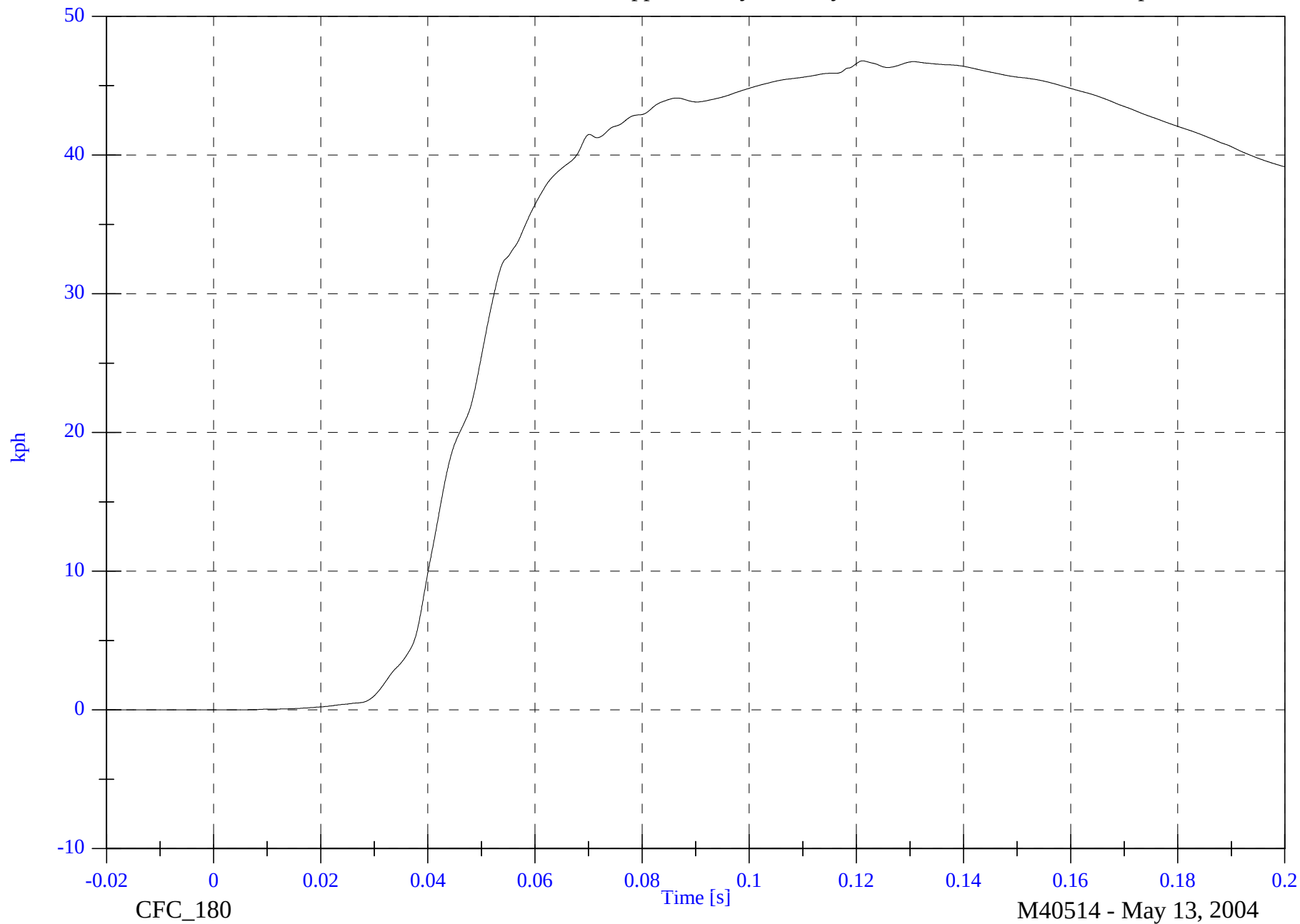


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Upper Rib Ry Velocity

Max: 46.8 [kph] at 0.121 [s]

Min: -0.0 [kph] at -0.020 [s]



B-136

8725-SNCAP-04

2004 SNCAP Test 4 - 2004 Kia Spectra

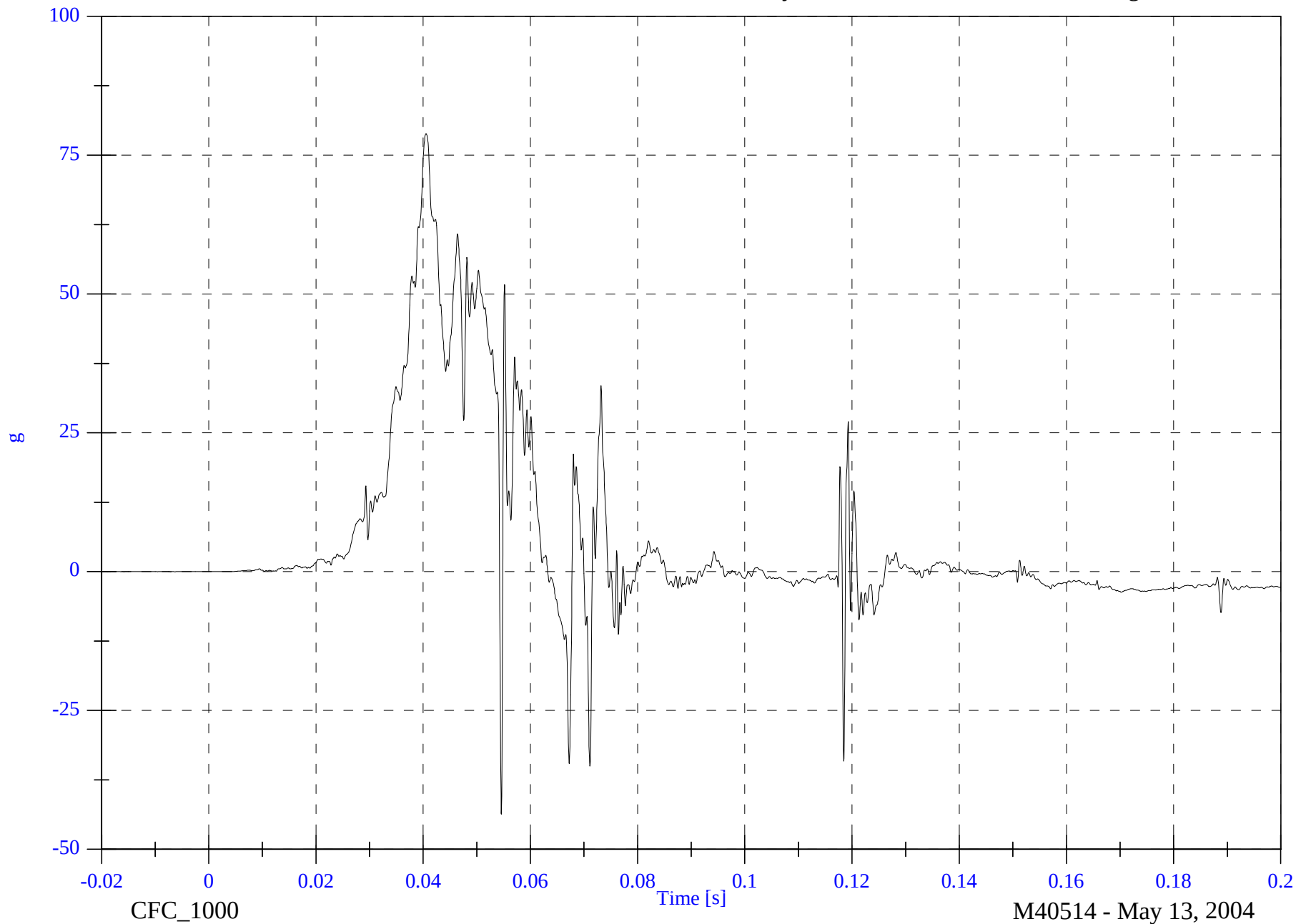
V2P4 Lower Rib Ry

Max: 78.9 [g] at 0.041 [s]

Min: -43.7 [g] at 0.055 [s]

B-137

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Lower Rib Ry Velocity

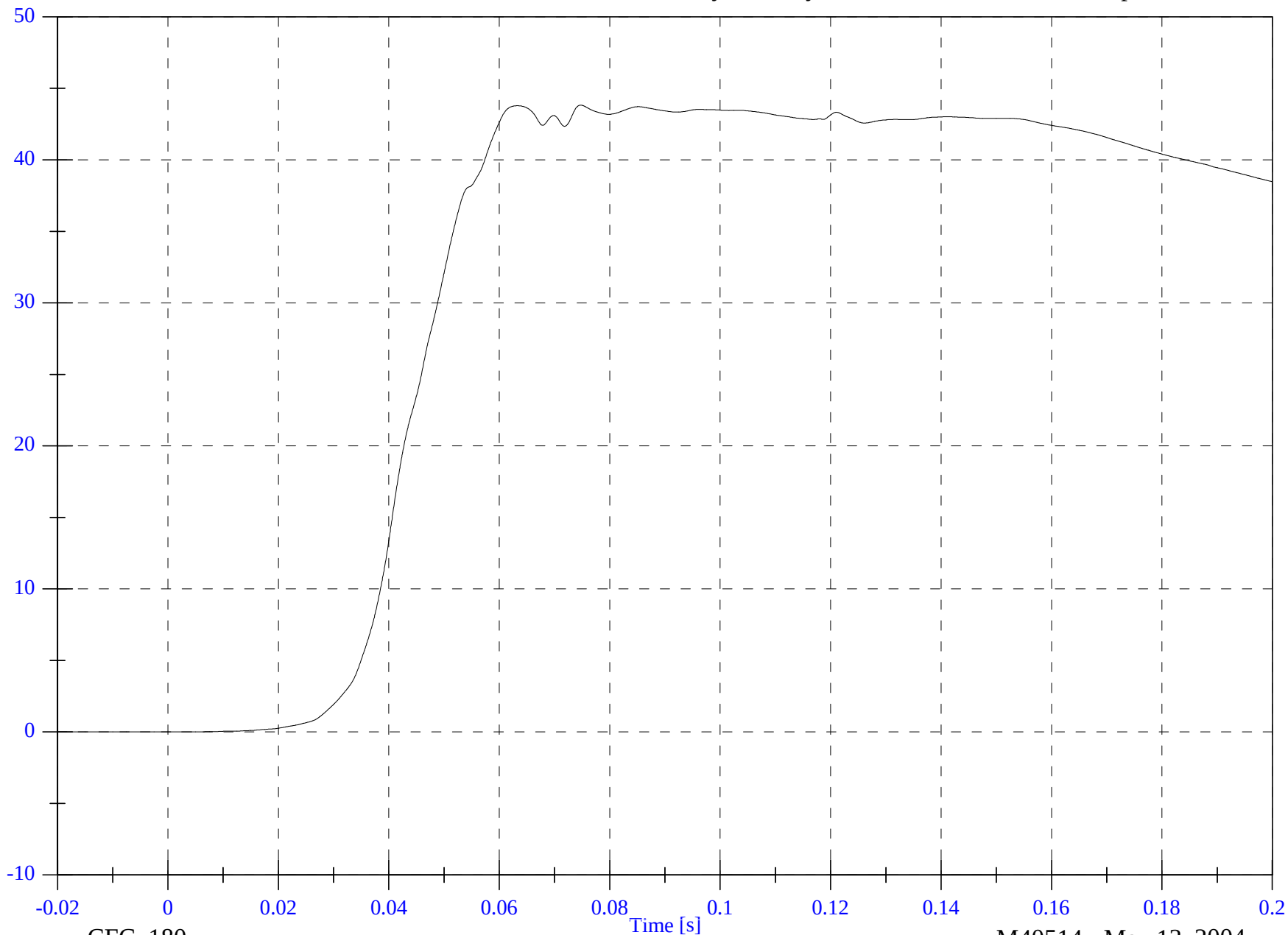
Max: 43.8 [kph] at 0.075 [s]

Min: -0.0 [kph] at -0.020 [s]

B-138

8725-SNCAP-04

kph



CFC_180

M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

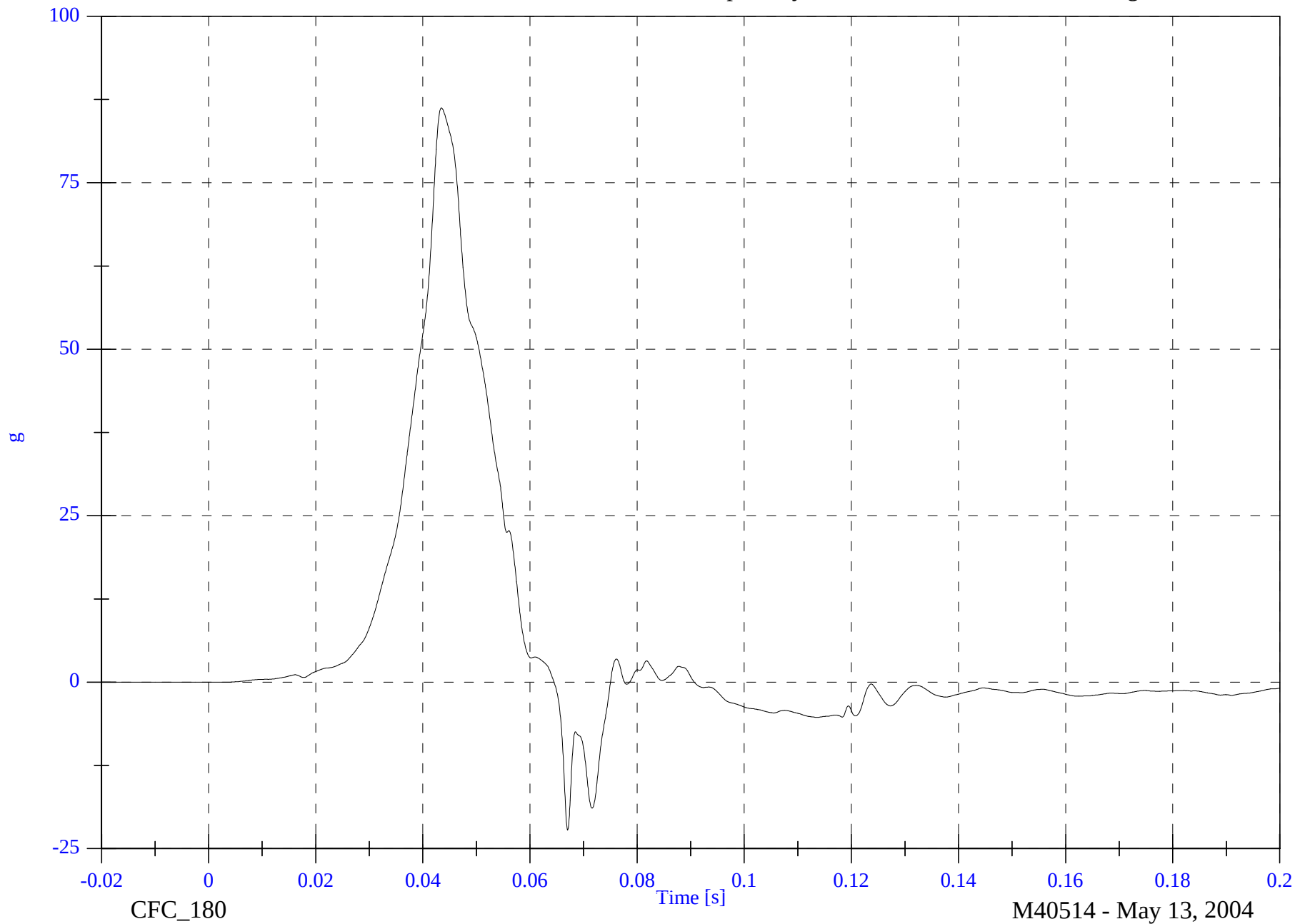
V2P4 Lower Spine Ry

Max: 86.2 [g] at 0.043 [s]

Min: -22.2 [g] at 0.067 [s]

B-139

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Lower Spine Ry Velocity

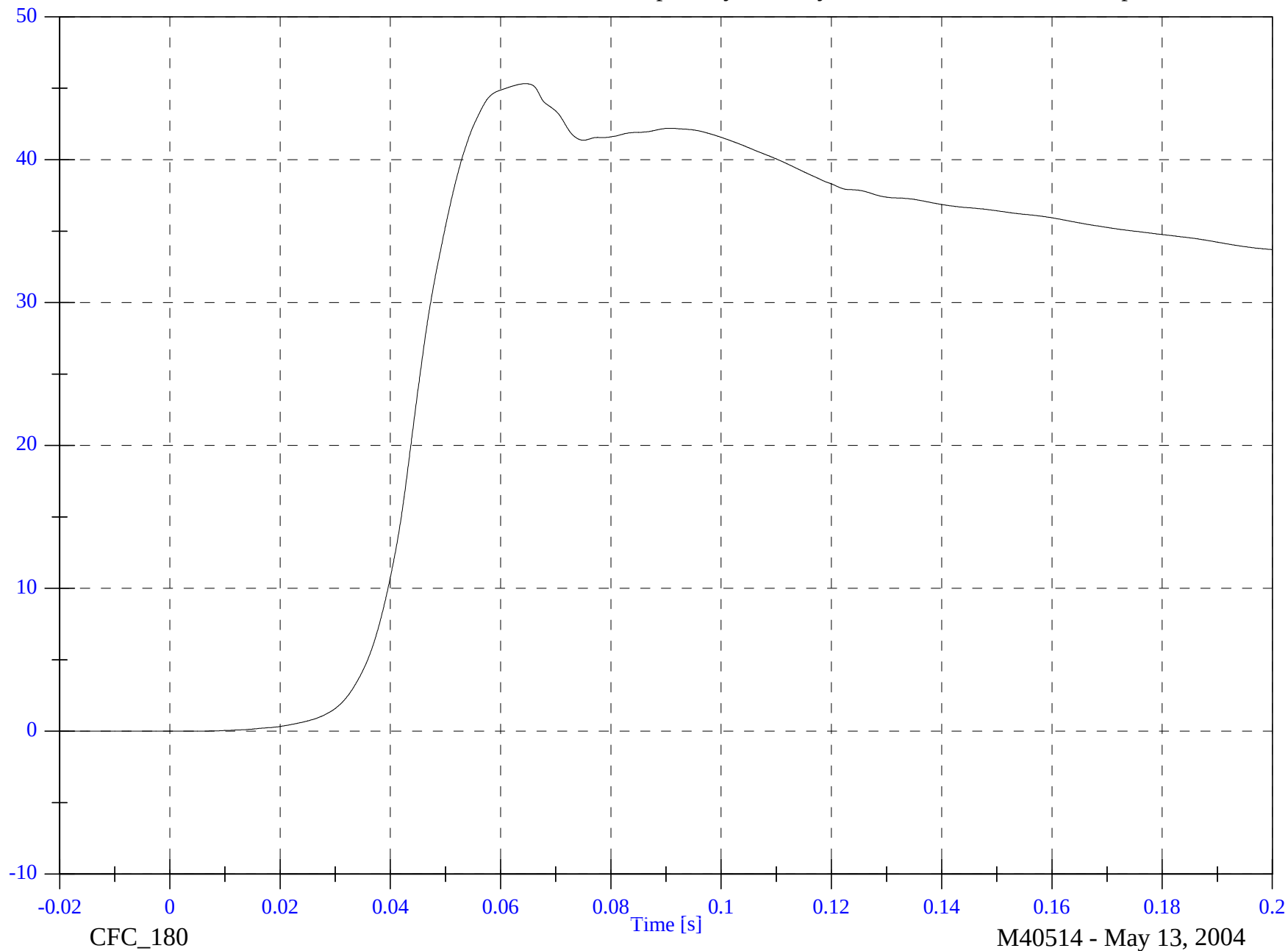
Max: 45.3 [kph] at 0.064 [s]

Min: -0.0 [kph] at -0.020 [s]

B-140

8725-SNCAP-04

kph



2004 SNCAP Test 4 - 2004 Kia Spectra

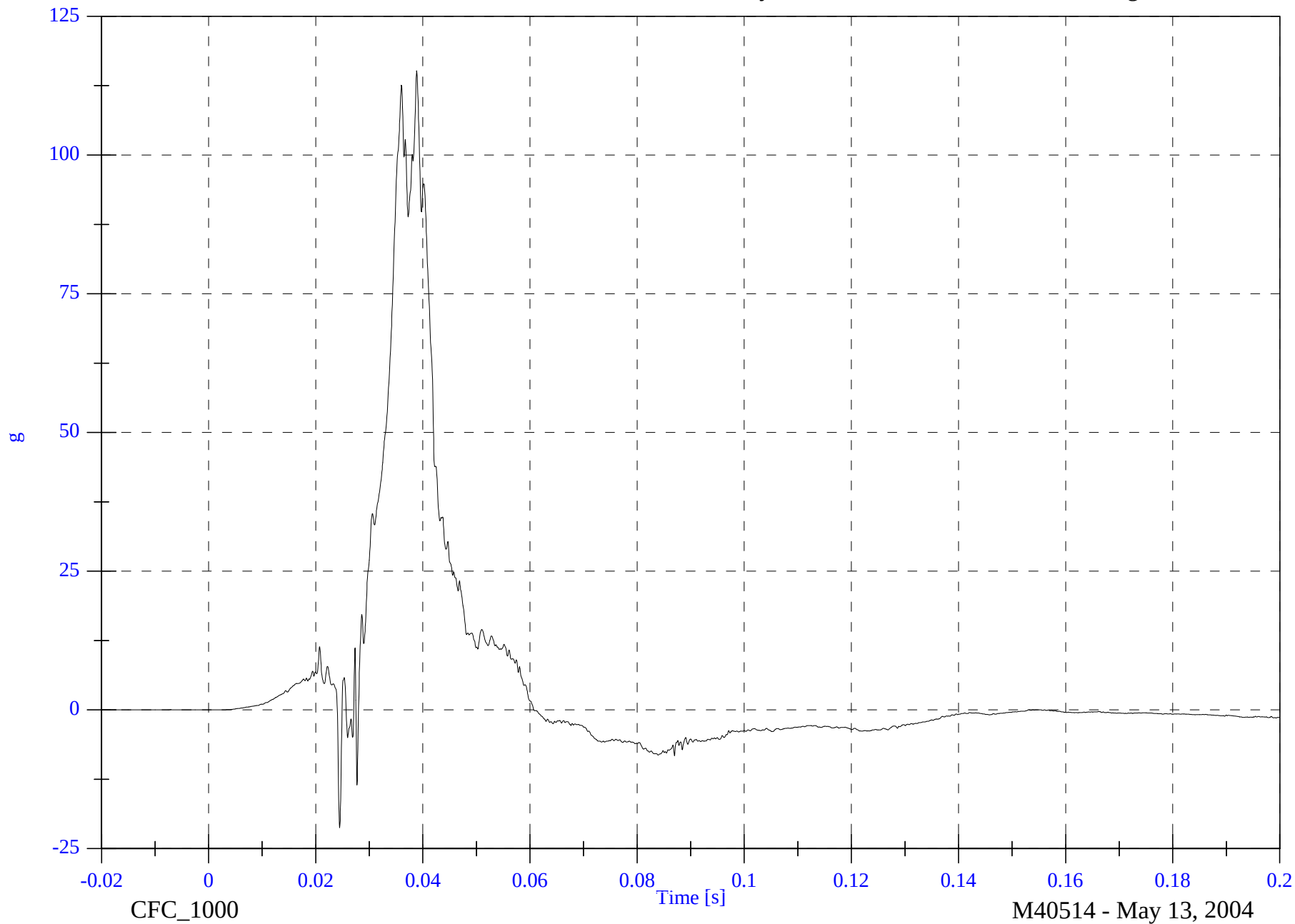
V2P4 Pelvic Ry

Max: 115.2 [g] at 0.039 [s]

Min: -21.2 [g] at 0.024 [s]

B-141

8725-SNCAP-04

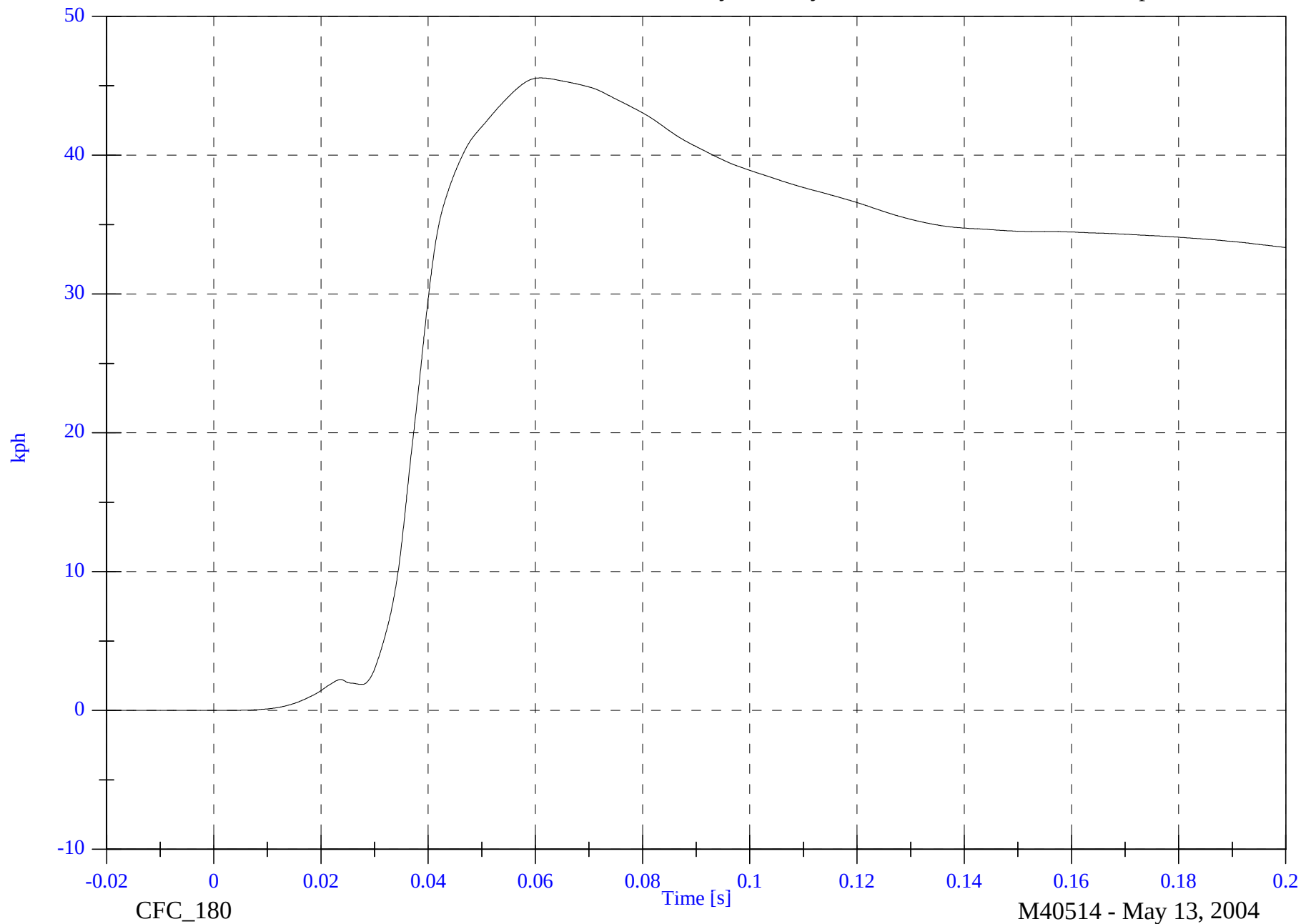


2004 SNCAP Test 4 - 2004 Kia Spectra

V2P4 Pelvic Ry Velocity

Max: 45.6 [kph] at 0.061 [s]

Min: -0.0 [kph] at -0.020 [s]



B-142

8725-SNCAP-04

CFC_180

M40514 - May 13, 2004

2004 SNCAP Test 4 - 2004 Kia Spectra

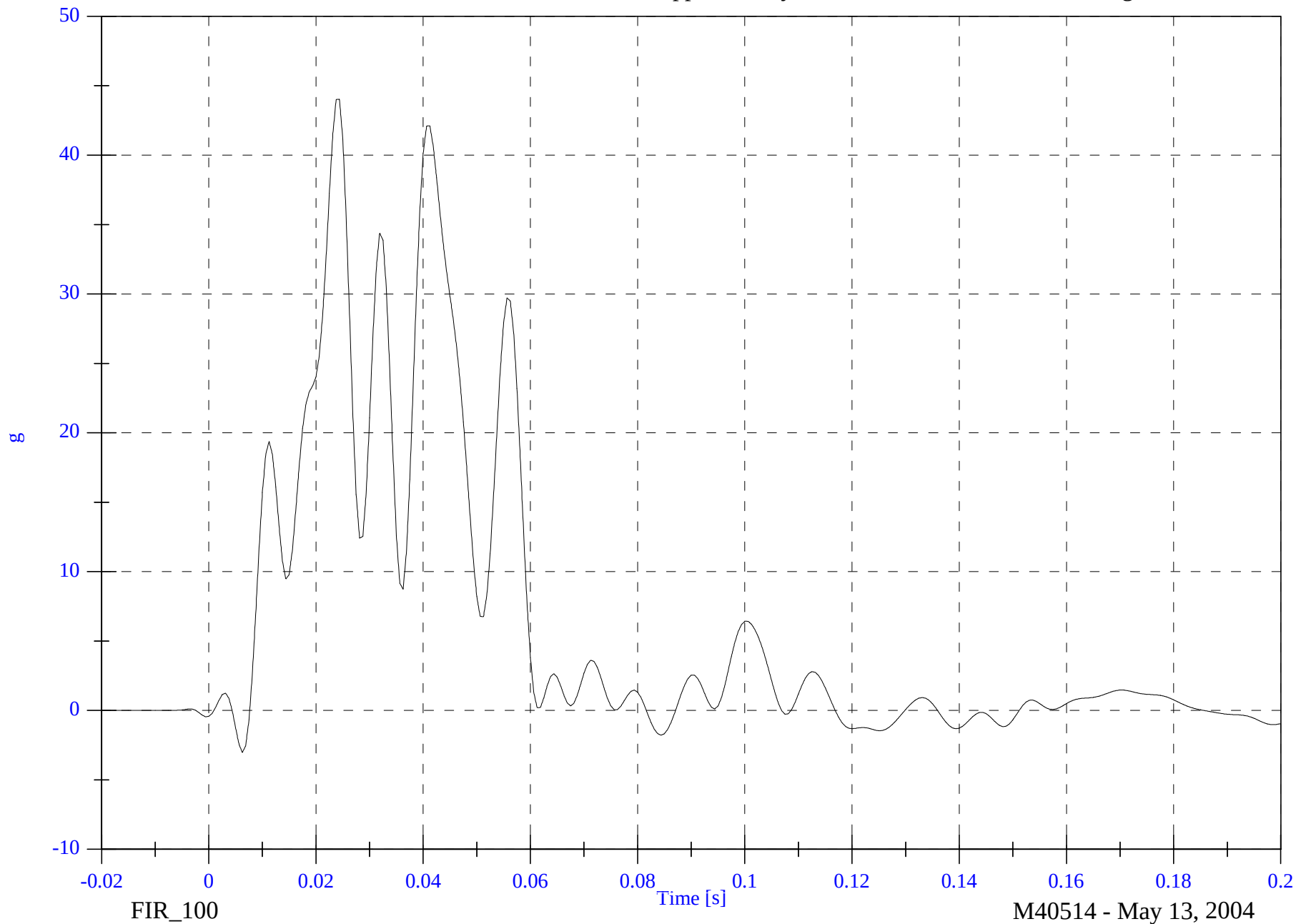
V2P1 Upper Rib Ry

Max: 44.0 [g] at 0.024 [s]

Min: -3.0 [g] at 0.006 [s]

B-143

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

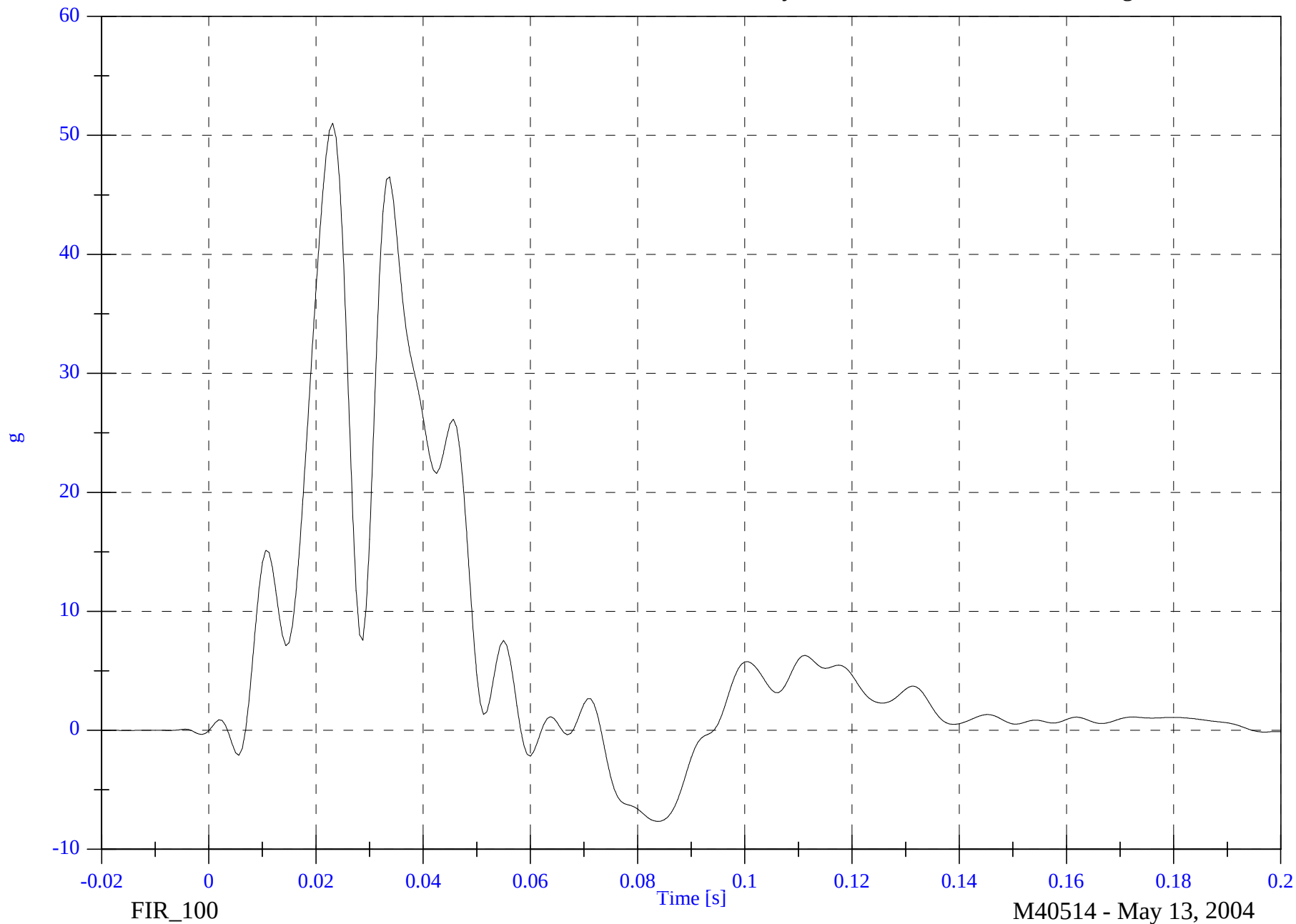
V2P1 Lower Rib Ry

Max: 51.0 [g] at 0.023 [s]

Min: -7.7 [g] at 0.084 [s]

B-144

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

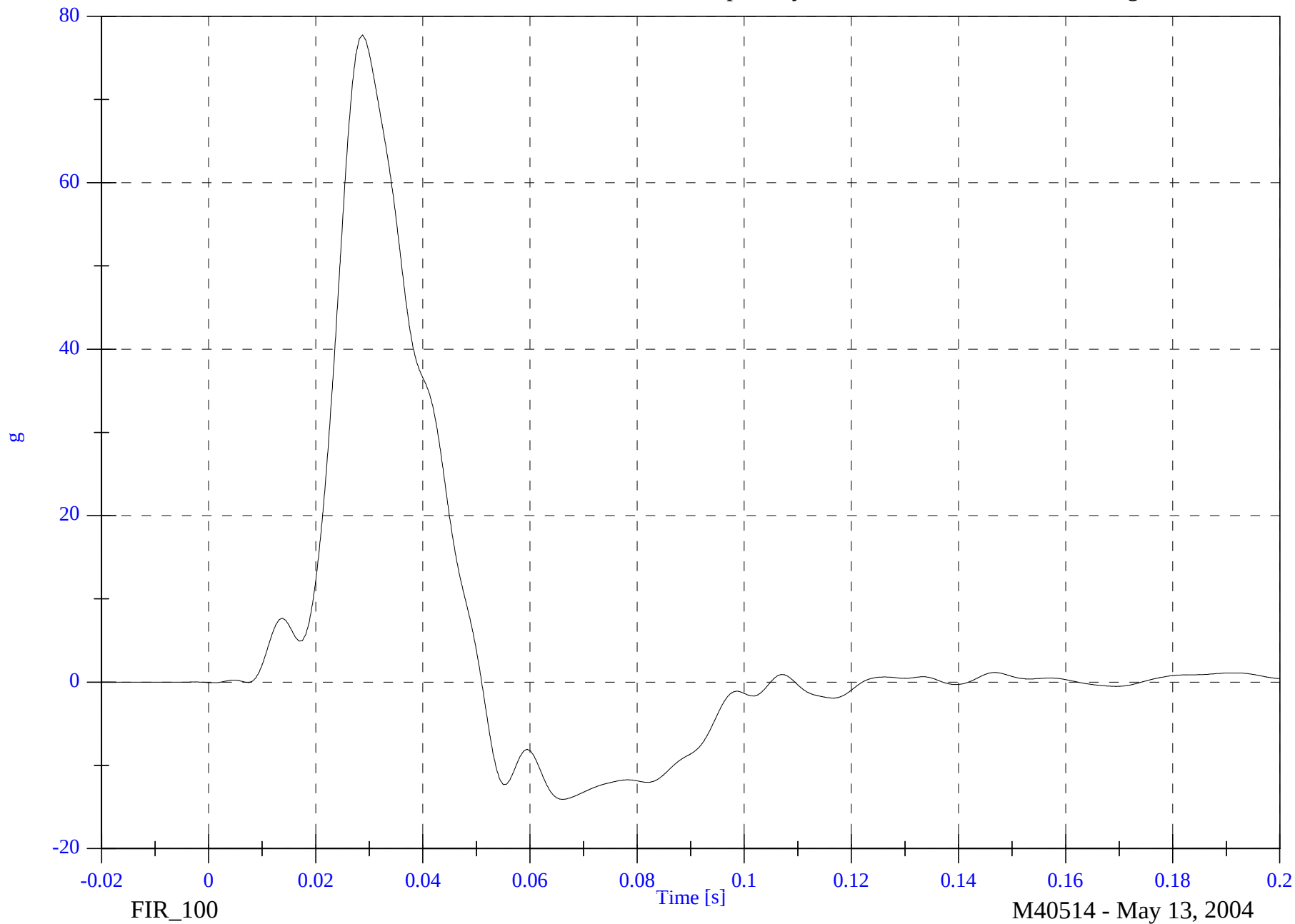
V2P1 Lower Spine Ry

Max: 77.8 [g] at 0.029 [s]

Min: -14.1 [g] at 0.066 [s]

B-145

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

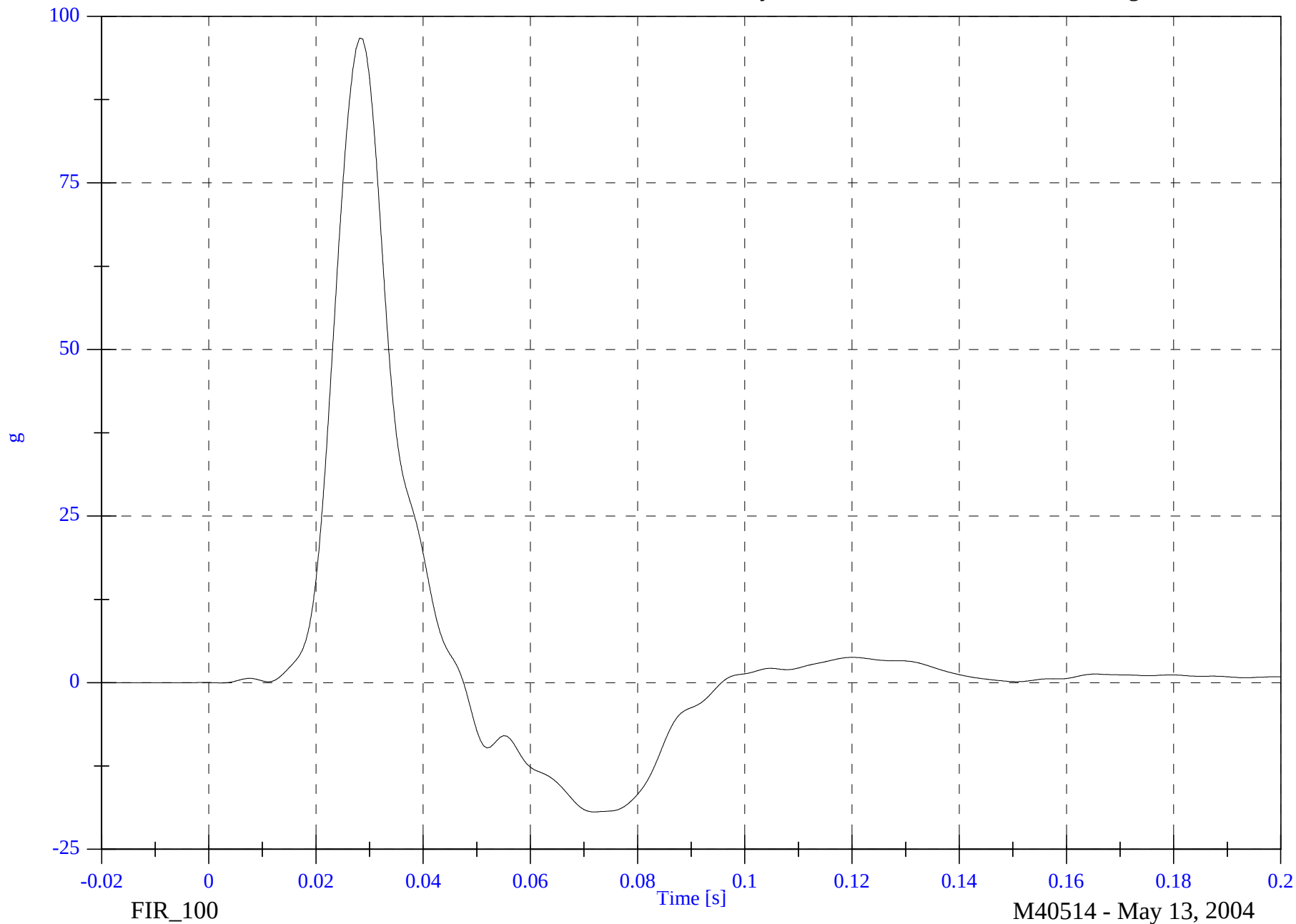
V2P1 Pelvic Ry

Max: 96.7 [g] at 0.028 [s]

Min: -19.4 [g] at 0.072 [s]

B-146

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

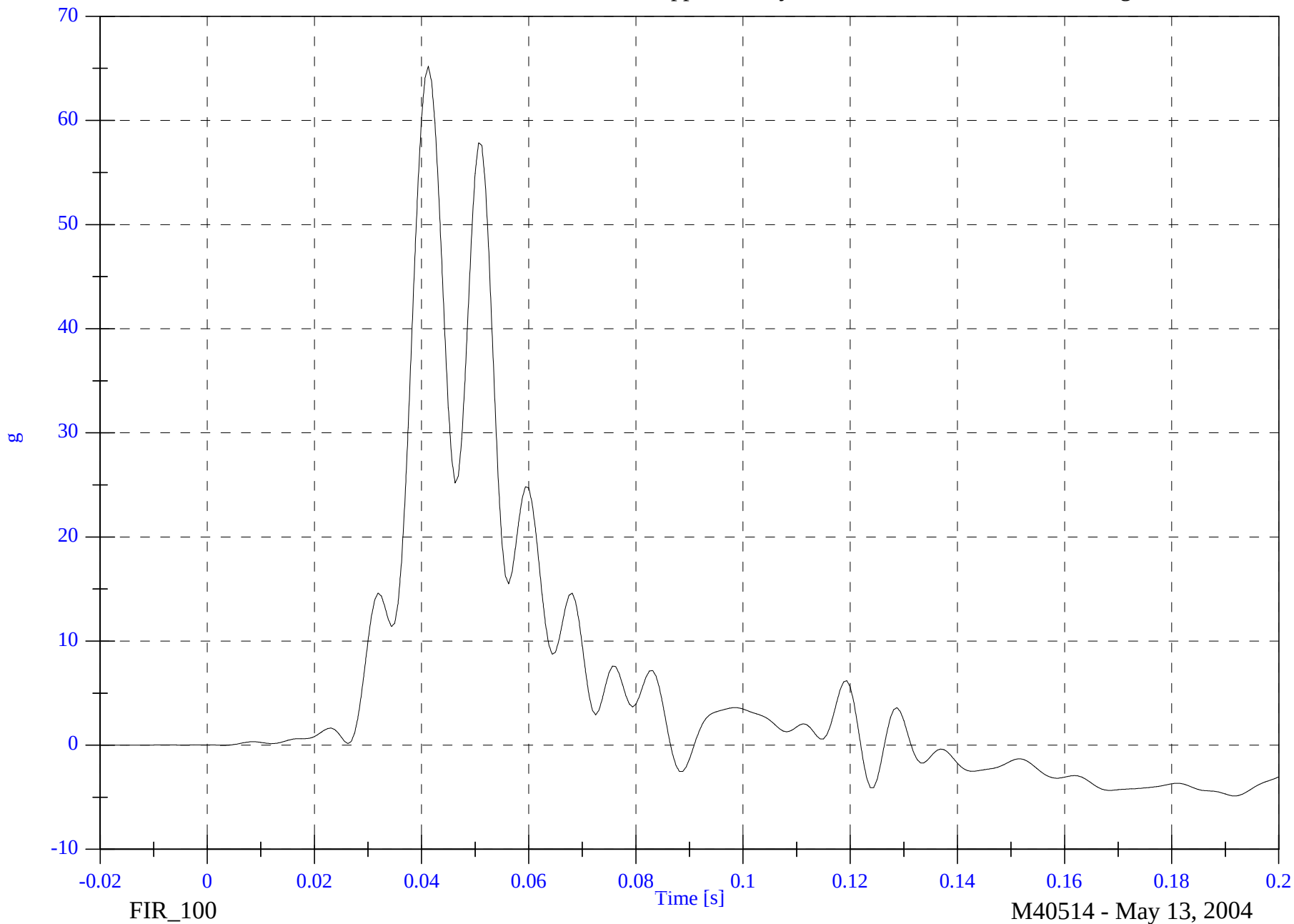
V2P4 Upper Rib Ry

Max: 65.2 [g] at 0.041 [s]

Min: -4.9 [g] at 0.192 [s]

B-147

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

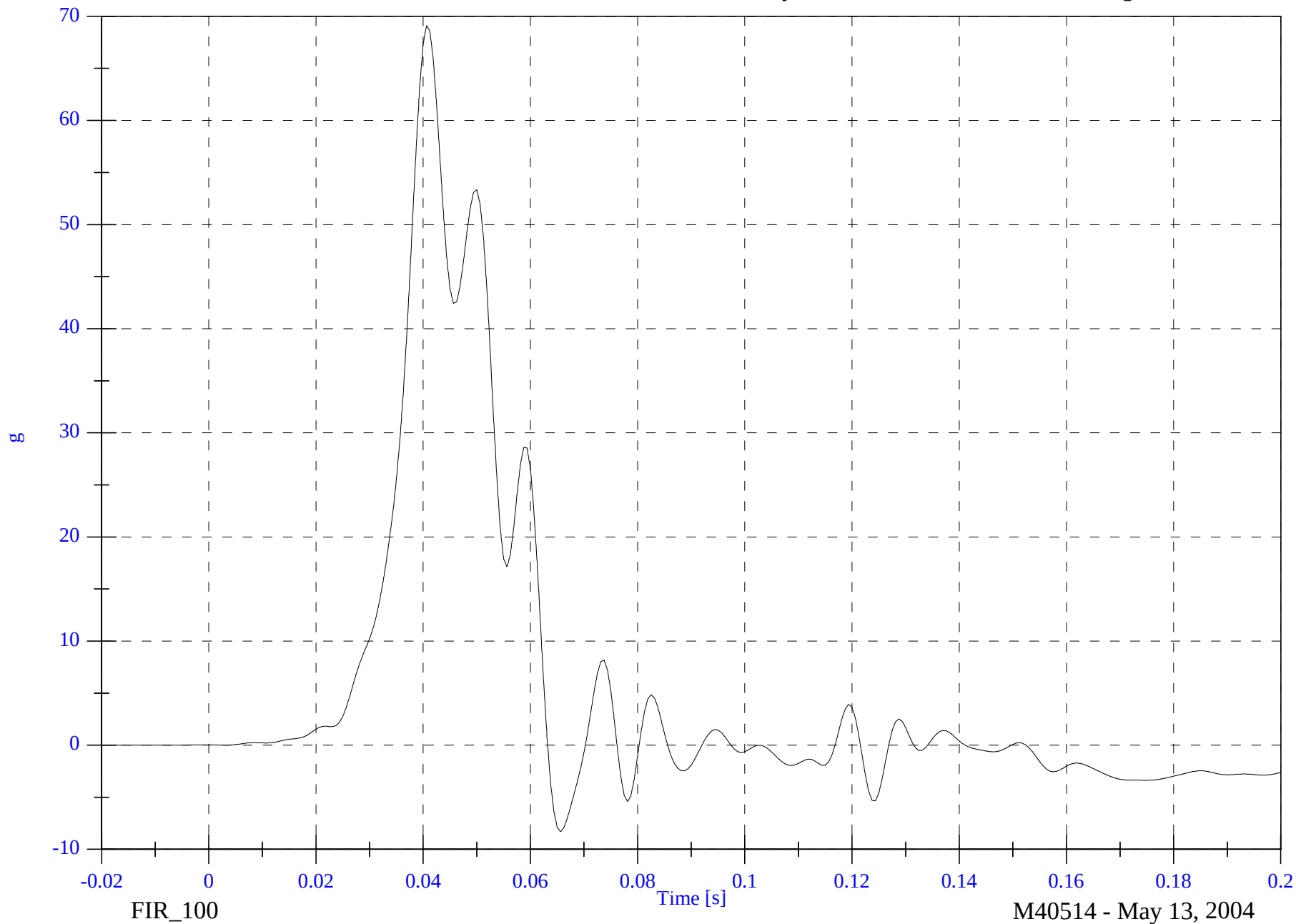
V2P4 Lower Rib Ry

Max: 69.1 [g] at 0.041 [s]

Min: -8.3 [g] at 0.066 [s]

B-148

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

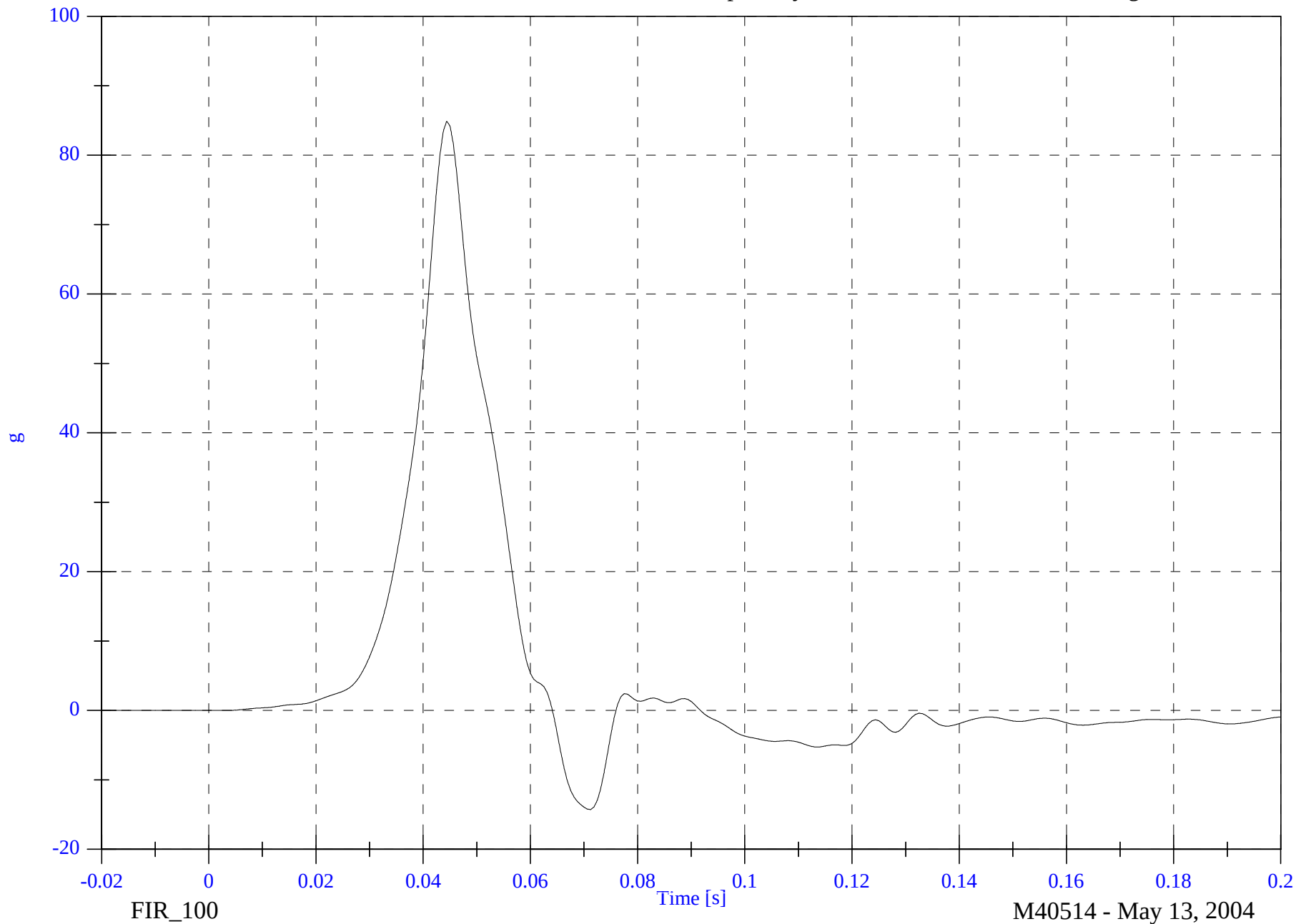
V2P4 Lower Spine Ry

Max: 84.9 [g] at 0.044 [s]

Min: -14.3 [g] at 0.071 [s]

B-149

8725-SNCAP-04



2004 SNCAP Test 4 - 2004 Kia Spectra

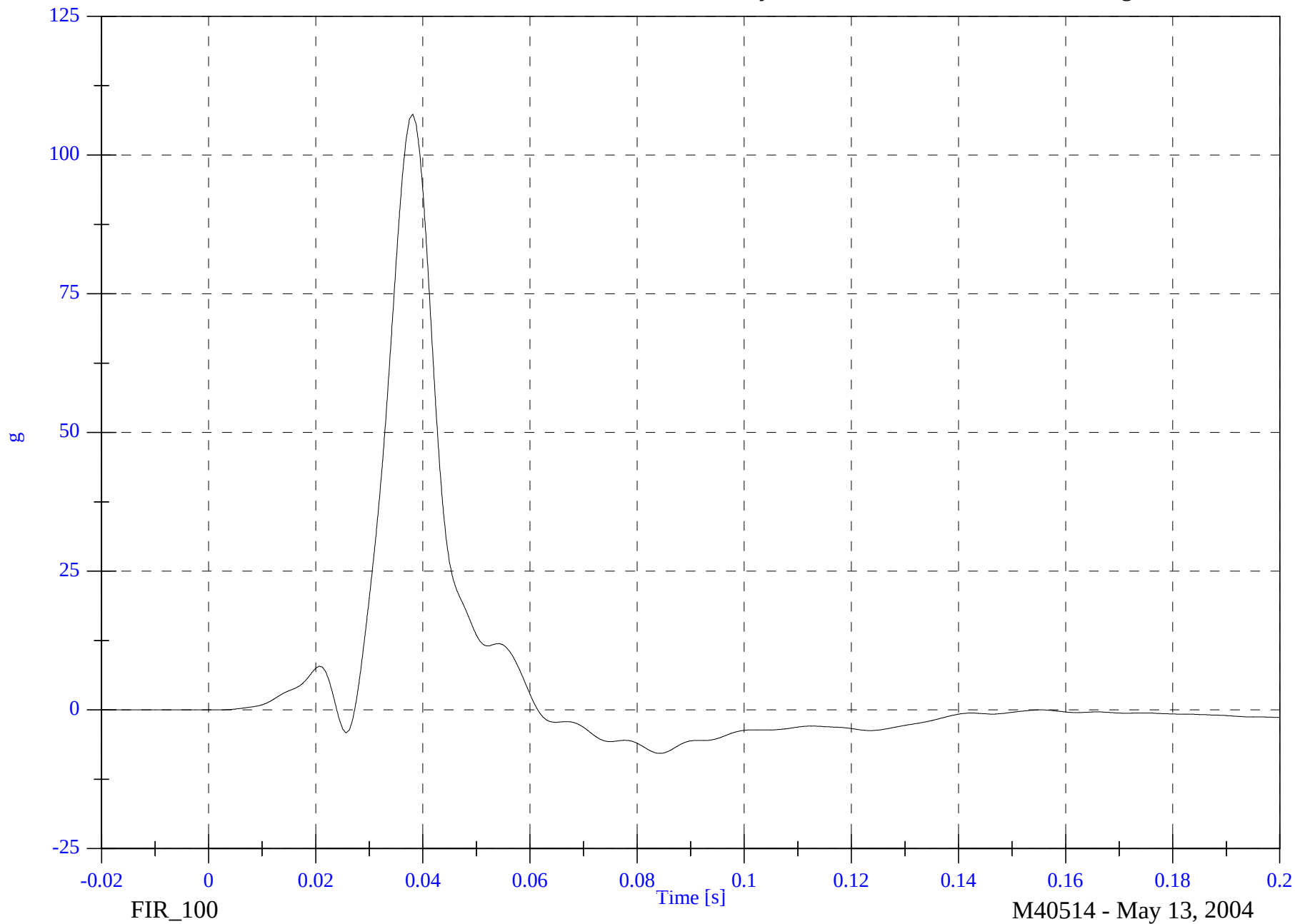
V2P4 Pelvic Ry

Max: 107.4 [g] at 0.038 [s]

Min: -7.8 [g] at 0.084 [s]

B-150

8725-SNCAP-04



APPENDIX C

SID HYBRID III CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID H3 PRE & POST TEST CALIBRATION
CONFIGURED FOR LEFT SIDE IMPACT

Date: May 12, 2004; May 19, 2004

Sequential Test Number:

2,4; 3,5

Laboratory Technician:

B. Swiecicki

TEST PARAMETER	SPECIFICATION	SID H3 269 NO.:		SID H3 270 NO.:	
		PRE TEST	POST TEST	PRE TEST	POST TEST
SH- Seated Height (mm)	889 - 909	904	904	902	902
RH- Rib Height (mm)	501 - 521	503	503	505	505
HP- Hip Pivot Height (mm)	99 ref.	99	99	99	99
RD- Rib from Back Line (mm)	229 - 241	234	234	234	234
KV- Knee Pivot from Back Line (mm)	511 - 526	518	518	516	516
SW- Knee Pivot to Floor (mm)	490 - 505	495	495	495	495
HW- Hip Width (mm)	356 - 391	371	371	376	376
THORAX IMPACTS					
TEMPERATURE (°C)	18.9 - 25.5	21.1	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	29.00	31.00	29.00	31.00
PROBE SPEED (m/s)	4.27 - 4.33	4.32	4.31	4.27	4.31
UPPER RIB (g's)	37 - 46	38.70	37.93	38.18	38.05
LOWER RIB (g's)	37 - 46	39.67	38.31	38.40	38.88
LOWER SPINE (g's)	15 - 22	19.49	19.62	19.50	18.60
PELVIS IMPACT					
TEMPERATURE (°C)	18.9 - 25.5	21.1	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	29.00	31.00	37.00	31.00
PROBE SPEED (m/s)	4.27 - 4.33	4.32	4.32	4.31	4.31
PELVIS (g's)	40 - 60	51.00	47.35	42.65	56.57

REMARKS: None

CALIBRATION TEST RESULTS

PRE-TEST

SID H3 NO.: 269

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 2
Date: May 12, 2004 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
THORACIC SHOCK ABSORBER TEST	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 2
Date: May 12, 2004 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 – 909	904
RH- Rib Height (mm)	502 – 520	503
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 – 241	234
KH- Knee Pivot from Back Line (mm)	511 – 526	518
KV- Knee Pivot to Floor (mm)	490 – 505	495
HW- Hip Width (mm)	356 - 391	371

REMARKS: None

Shock Impact - Low (3.05 m/s)

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

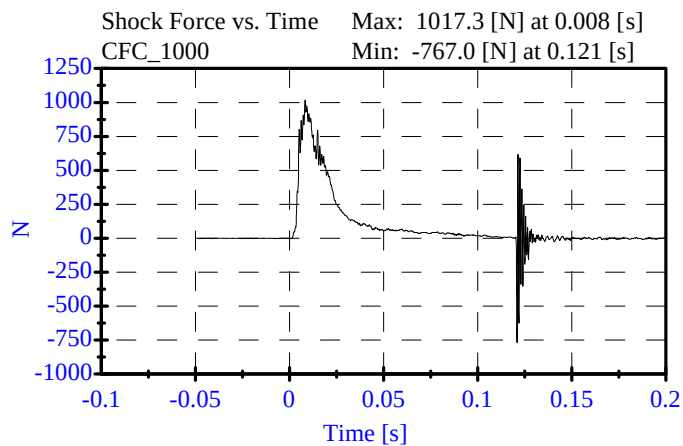
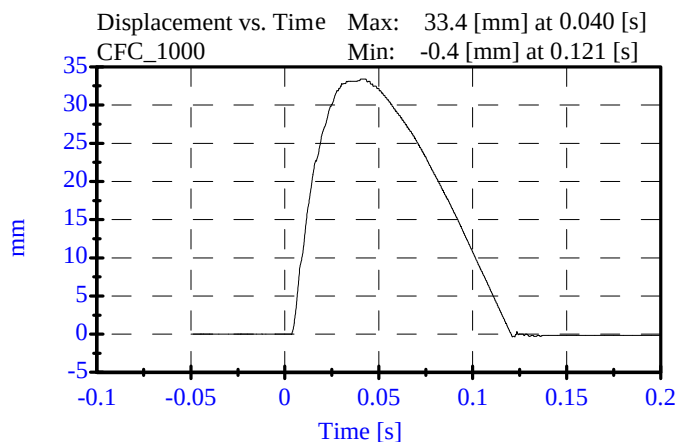
ATD Serial No: 269

Date: April 22, 2004

Sequential Test Number: 1 File: 269SL 04-22-04

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Displacement:	30.00-35.00 mm	33.40 mm	Passed
Maximum Force:	836.00-1125.00 N	1017.34 N	Passed
Impact Test Velocity:	3.05 m/s		
Damper Identification:	269		
Damper Setting:	5		



Shock Impact - Med (4.27 m/s)

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

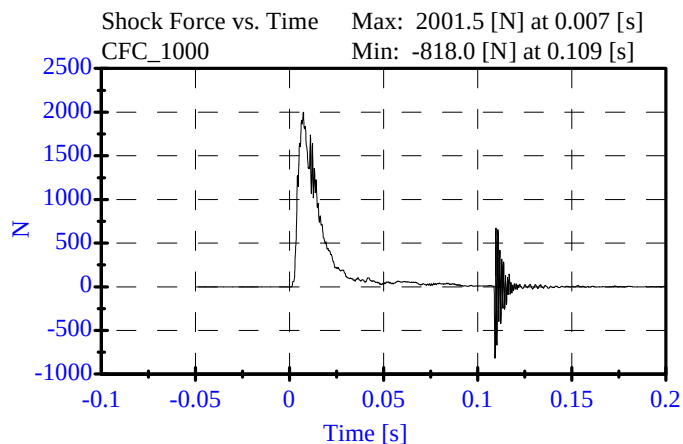
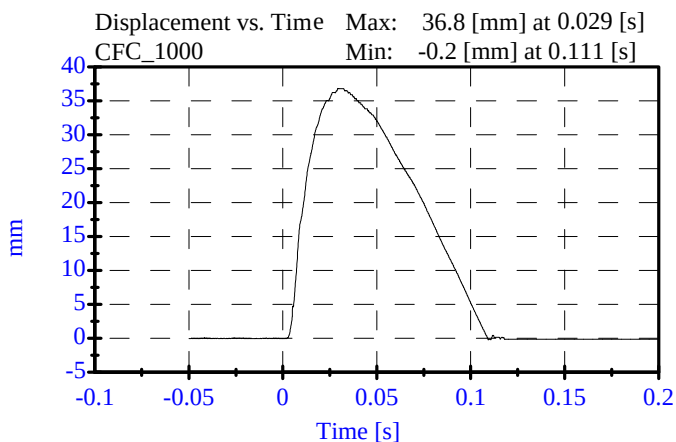
ATD Serial No: 269

Date: April 22, 2004

Sequential Test Number: 1 File: 269SM 04-22-04

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Displacement:	32.00-37.00 mm	36.83 mm	Passed
Maximum Force:	1730.00-2099.00 N	2001.46 N	Passed
Impact Test Velocity:	4.27 m/s		
Damper Identification:	269		
Damper Setting:	5		



Shock Impact - High (6.10 m/s)

PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

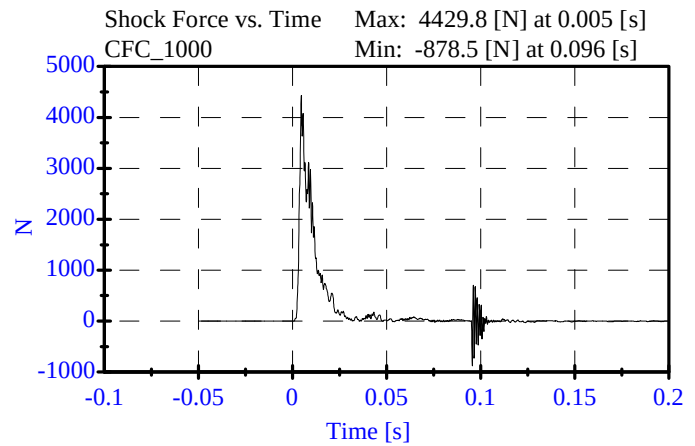
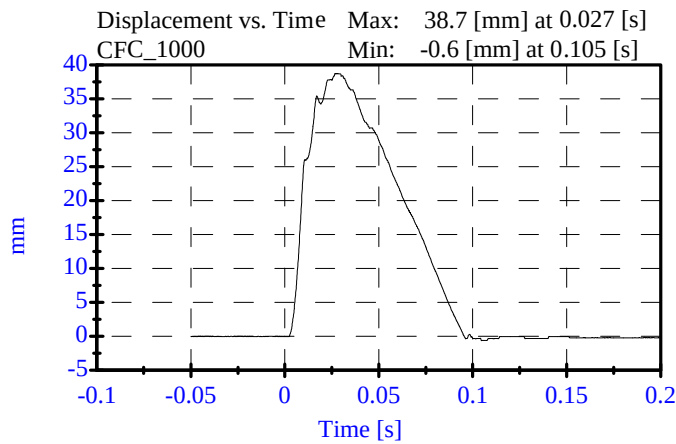
ATD Serial No: 269

Date: April 22, 2004

Sequential Test Number: 1 File: 269SH1 04-22-04

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Displacement:	33.00-40.00 mm	38.73 mm	Passed
Maximum Force:	3741.00-4448.00 N	4429.82 N	Passed
Impact Test Velocity:	6.10 m/s		
Damper Identification:	269		
Damper Setting:	5		

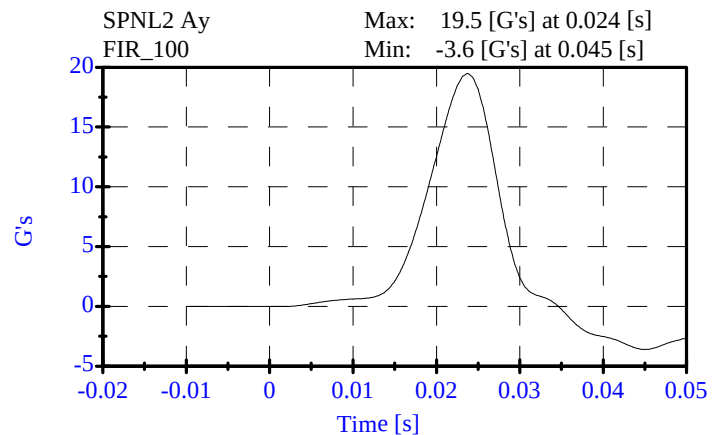
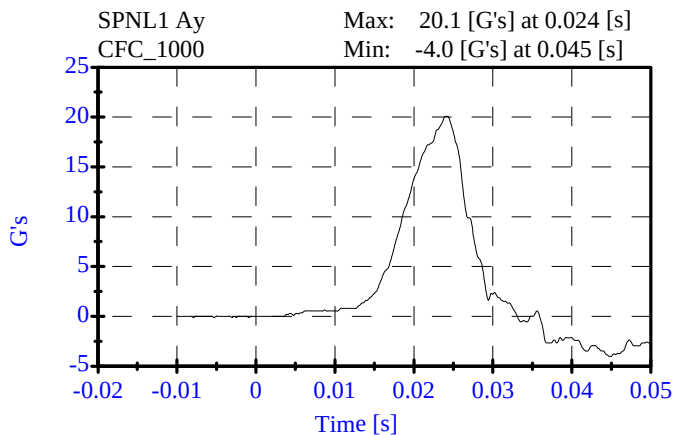
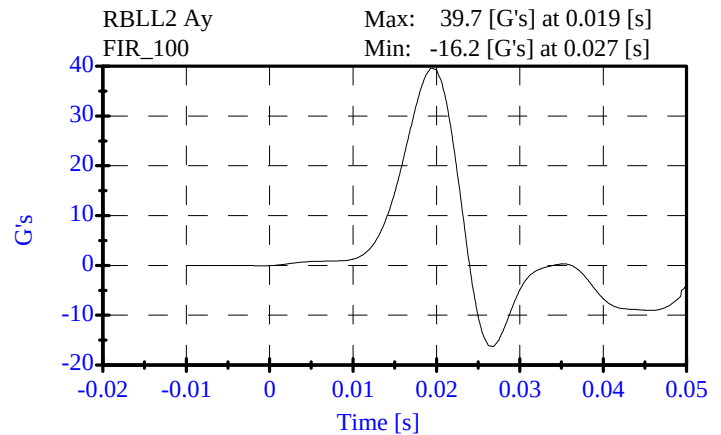
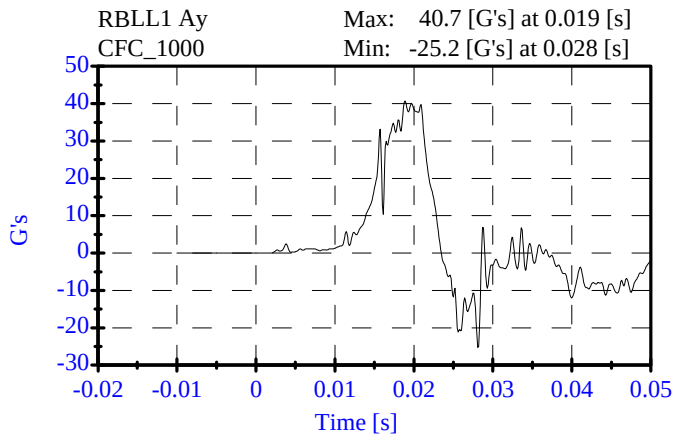
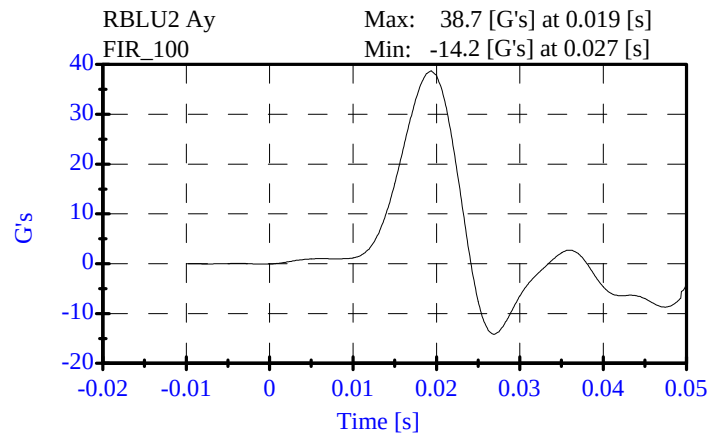
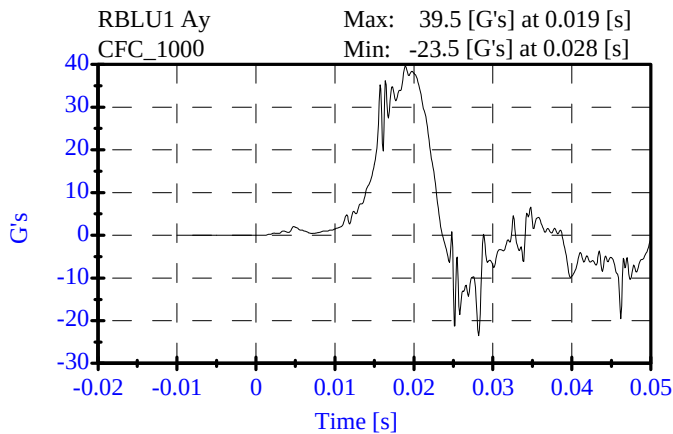


Thorax Impact
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: May 11, 2004

Sequential Test Number: 1 File: 269T 05-11-04
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	29.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.32 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	38.70 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	39.67 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	19.49 G's	Passed



Pelvic Impact

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

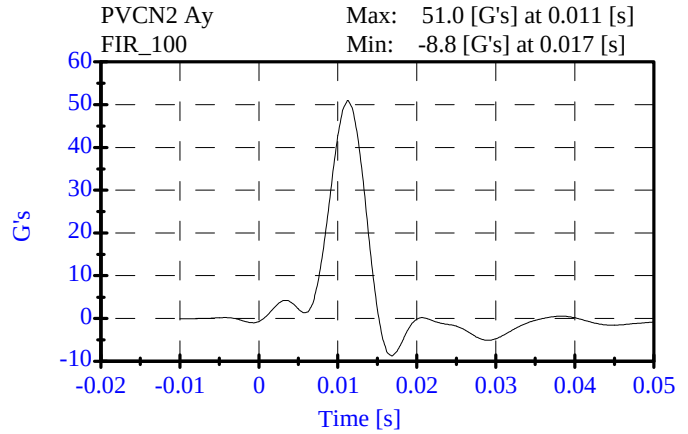
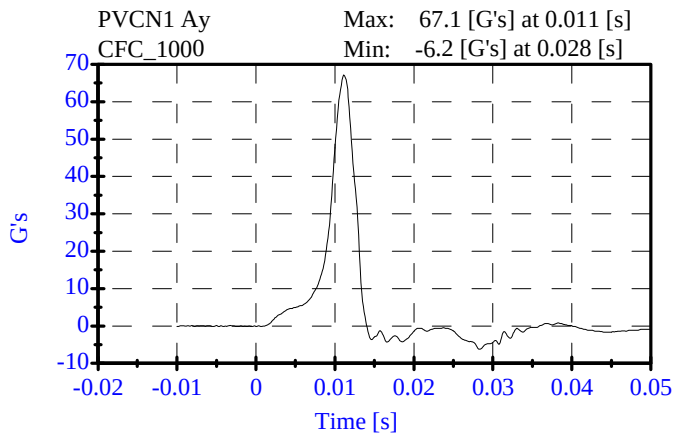
ATD Serial No: 269

Date: May 11, 2004

Sequential Test Number: 1 File: 269P 05-11-04

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	29.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.32 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	51.00 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.4 ms	Passed



Head Drop

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

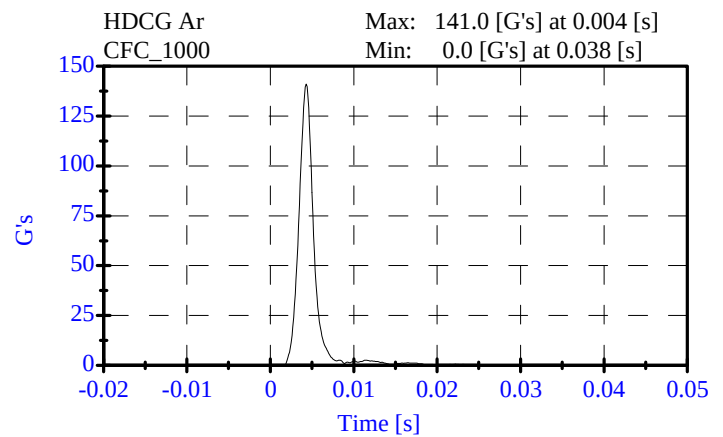
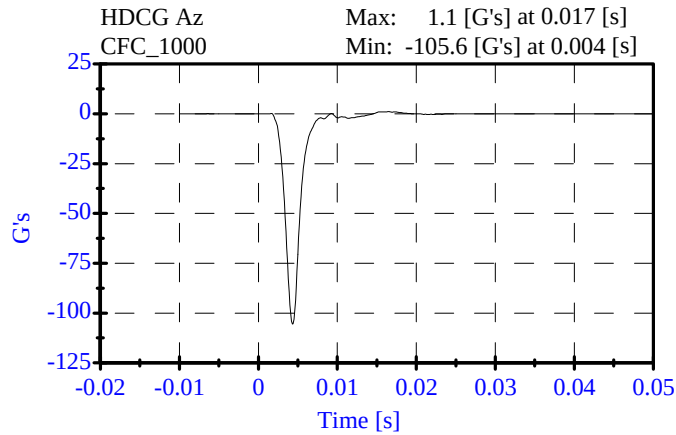
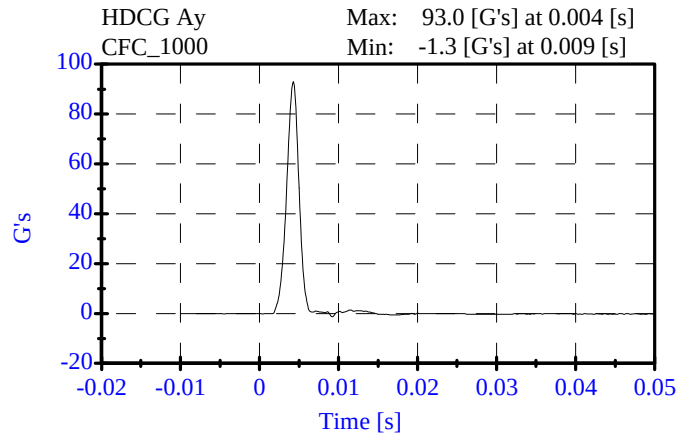
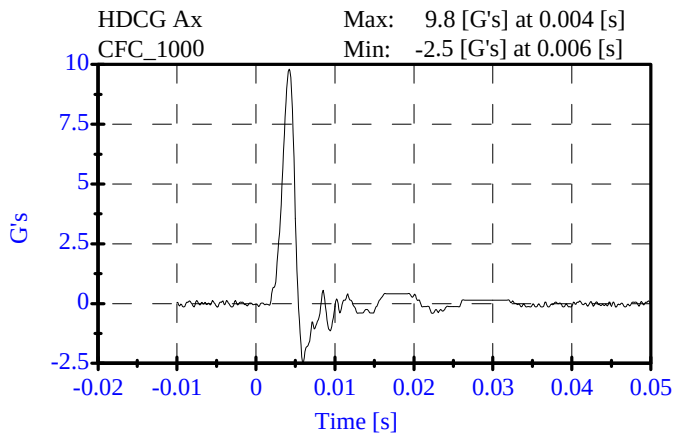
ATD Serial No: 269

Date: May 7, 2004

Sequential Test Number: 1 File: 269H1 05-07-04

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	141.03 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	9.80 Gs	Passed
Curve PerCent NonModal:	< 15%	1.89 %	Passed



Neck Test**Pre-Test****CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 269

Date: May 10, 2004

Sequential Test Number: 1 File: 269N 05-10-04

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	38.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.01 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	1.97 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.16 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	5.78 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.04 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	64.0-78.0 Deg	73.55 Deg	Passed
Rotation Angle Decay:	50.0-70.0 ms	61.90 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	88.00-108.00 N-m	89.67 N-m	Passed
Occipital Moment Decay:	40.0-60.0 ms	53.00 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	0.0-20.0 ms	6.50 ms	Passed

Neck Test

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

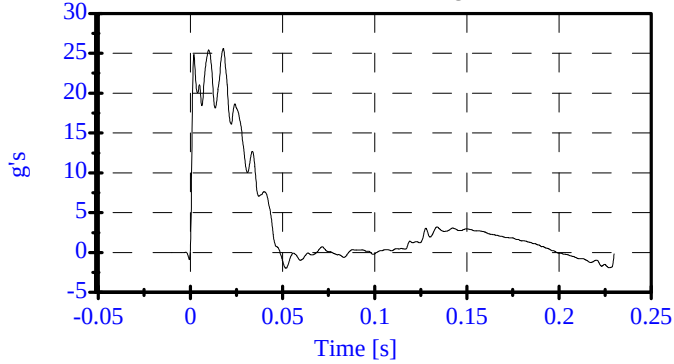
ATD Serial No: 269

Date: May 10, 2004

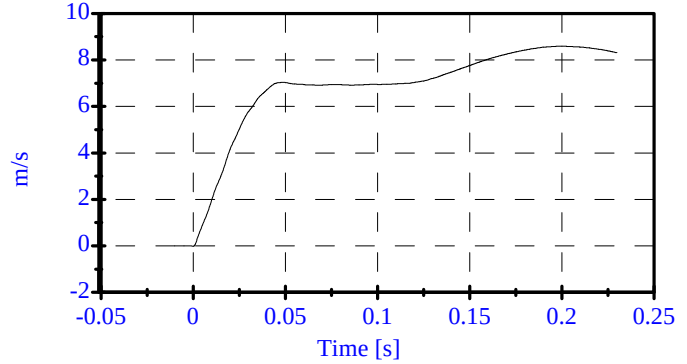
Sequential Test Number: 1 File: 269N 05-10-04

Laboratory Technician: B. Swiecicki

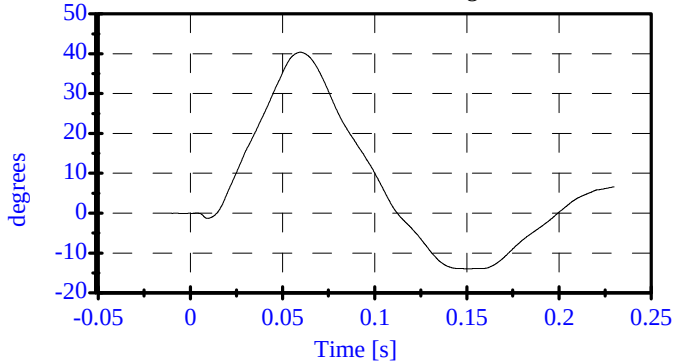
Pend Ax
CFC_180
Max: 25.6 [g's] at 0.018 [s]
Min: -2.0 [g's] at 0.052 [s]



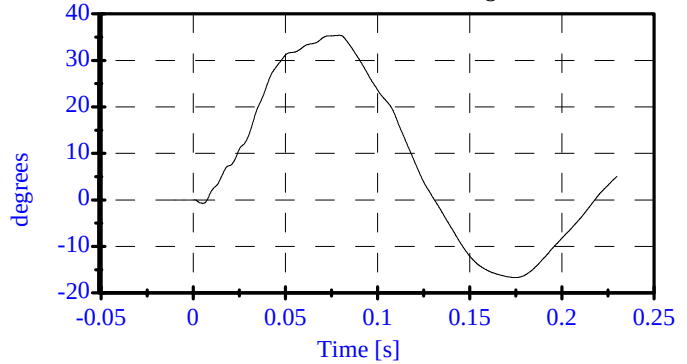
Pend Vx
CFC_180
Max: 8.6 [m/s] at 0.199 [s]
Min: -0.0 [m/s] at -0.000 [s]



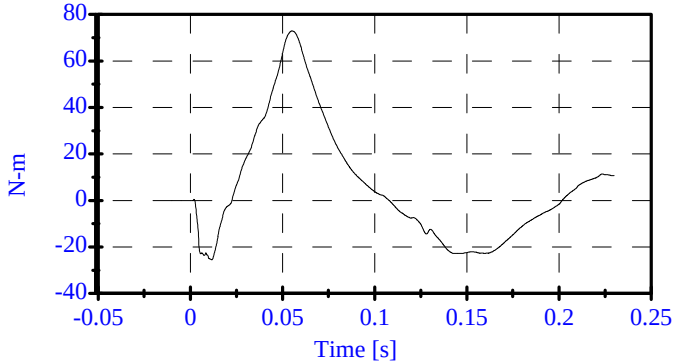
Head Rot
CFC_180
Max: 40.4 [degrees] at 0.060 [s]
Min: -13.9 [degrees] at 0.149 [s]



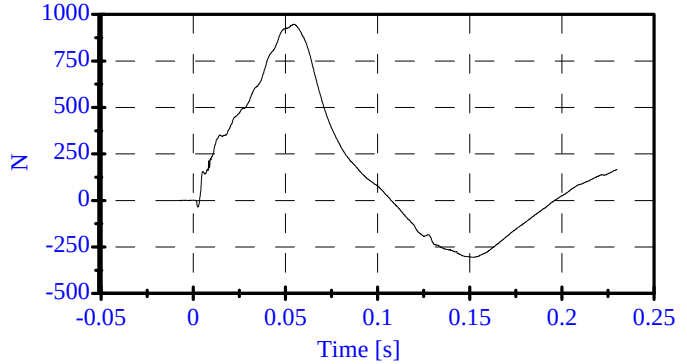
Arm Rot
CFC_180
Max: 35.4 [degrees] at 0.079 [s]
Min: -16.7 [degrees] at 0.175 [s]



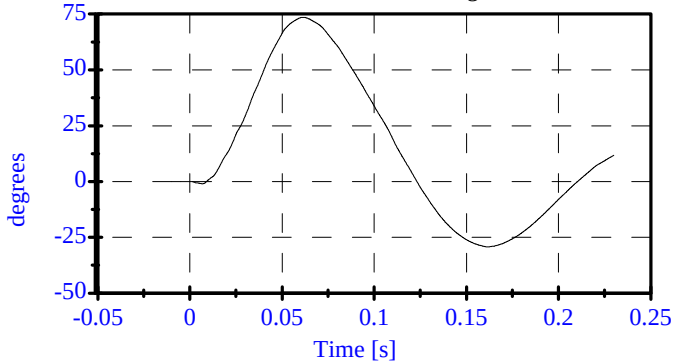
Neck Mx
CFC_600
Max: 72.8 [N-m] at 0.055 [s]
Min: -25.5 [N-m] at 0.012 [s]



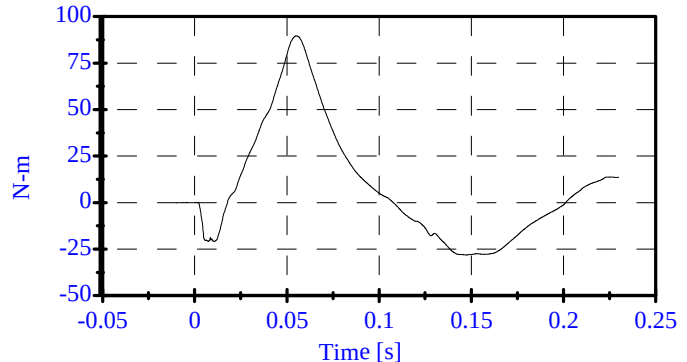
Neck Fy
CFC_1000
Max: 947.1 [N] at 0.055 [s]
Min: -305.9 [N] at 0.153 [s]



Tot Rot
CFC_180
Max: 73.5 [degrees] at 0.061 [s]
Min: -29.2 [degrees] at 0.161 [s]



Mocy
Max: 89.7 [N-m] at 0.055 [s]
Min: -28.1 [N-m] at 0.147 [s]



**ABDOMINAL COMPRESSION TEST
PRE-TEST**

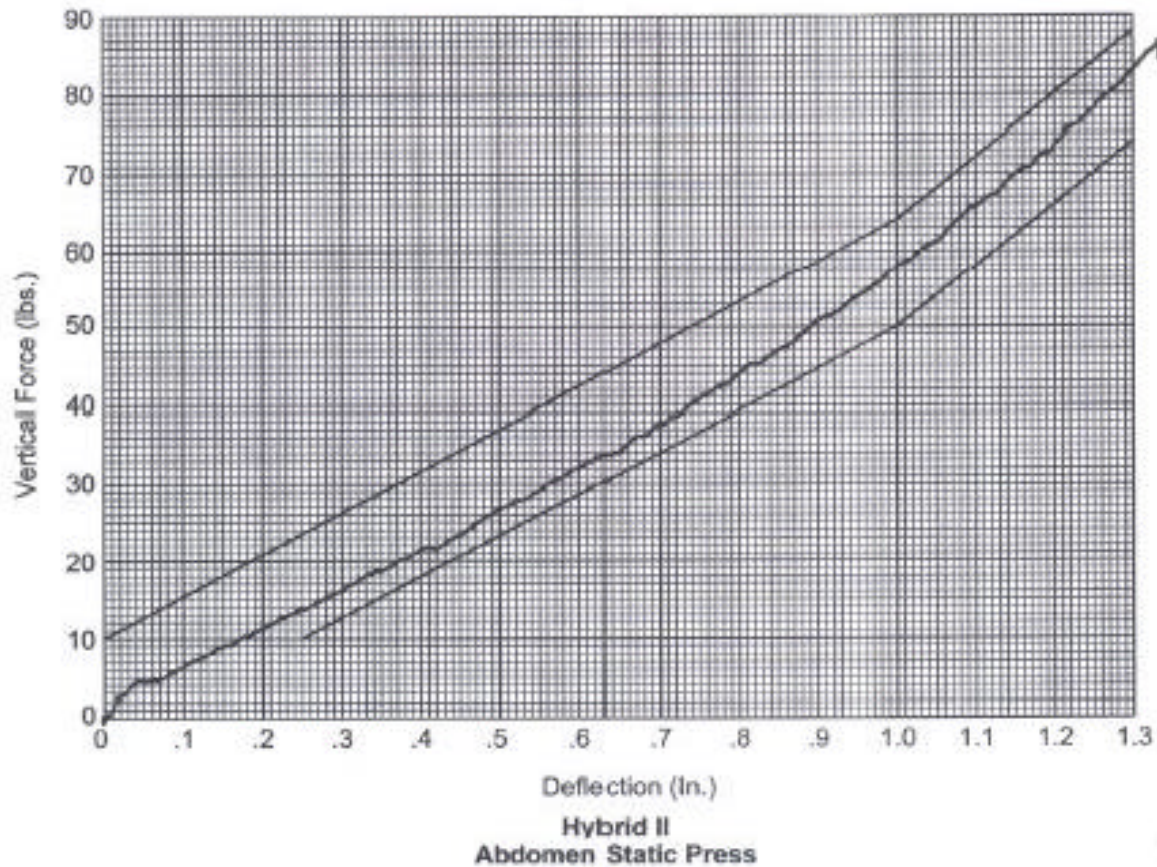
(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.:	<u>269</u>	Sequential Test Number:	<u>2</u>
Date:	<u>May 11, 2004</u>	Laboratory Technician:	<u>B. Swiecicki</u>

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	38.00
FORCE @ 13 mm (N)	104 - 162	121.21
FORCE @ 19 mm (N)	163 - 221	181.48
FORCE @ 25 mm (N)	222 - 280	258.00
FORCE @ 33 mm (N)	325 - 391	368.31

REMARKS: None



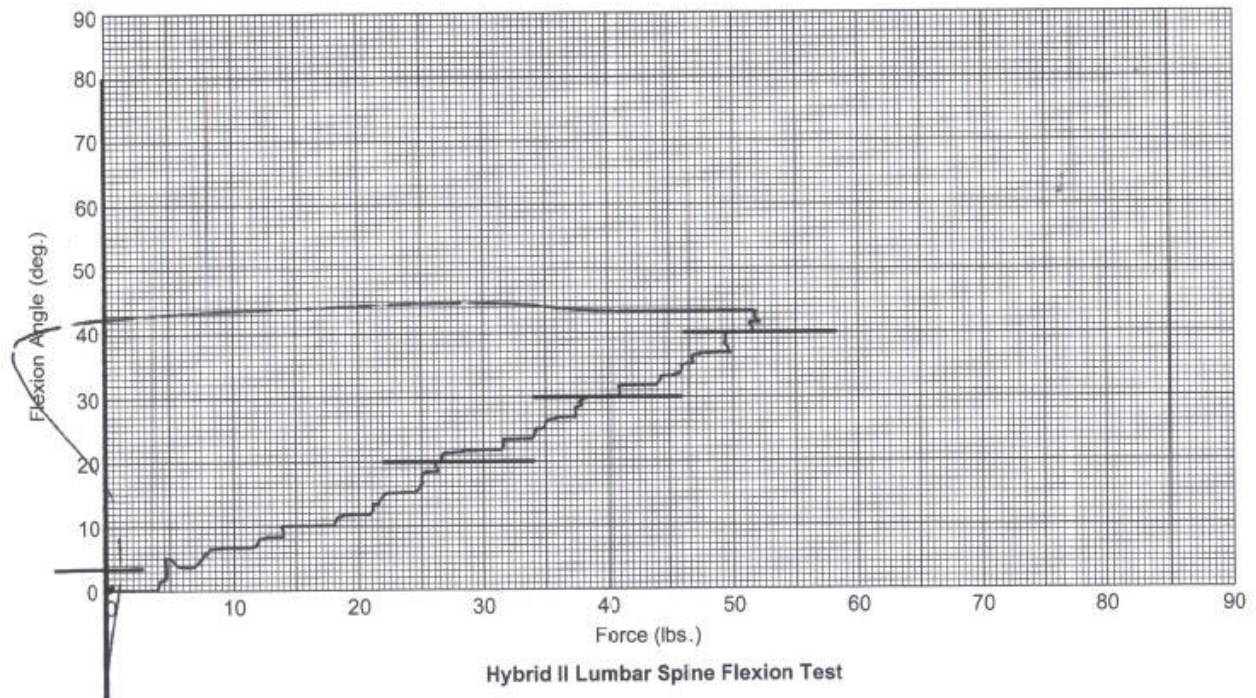
LUMBAR FLEXION TEST
PRE-TEST
(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: <u>269</u>	Sequential Test Number: <u>2</u>	
Date: <u>May 11, 2004</u>	Laboratory Technician: <u>B. Swiecicki</u>	

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	38.00
FORCE @ 0° (N)	0 - 26.7	0.00
FORCE @ 20° (N)	97.8 - 151.2	115.65
FORCE @ 30° (N)	151.2 - 204.6	182.38
FORCE @ 40° (N)	204.6 - 258	229.08
RETURN ANGLE	12° max.	3.5°

REMARKS: None



PRE-TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 2
 Date: May 12, 2004 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

CALIBRATION TEST RESULTS

PRE-TEST

SID H3 NO.: 270

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 4
Date: May 12, 2004 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
THORACIC SHOCK ABSORBER TEST	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 4
Date: May 12, 2004 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	902
RH- Rib Height (mm)	502 - 520	505
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	234
KH- Knee Pivot from Back Line (mm)	511 - 526	516
KV- Knee Pivot to Floor (mm)	490 - 505	495
HW- Hip Width (mm)	356 - 391	376

REMARKS: None

Shock Impact (3.05 m/s)

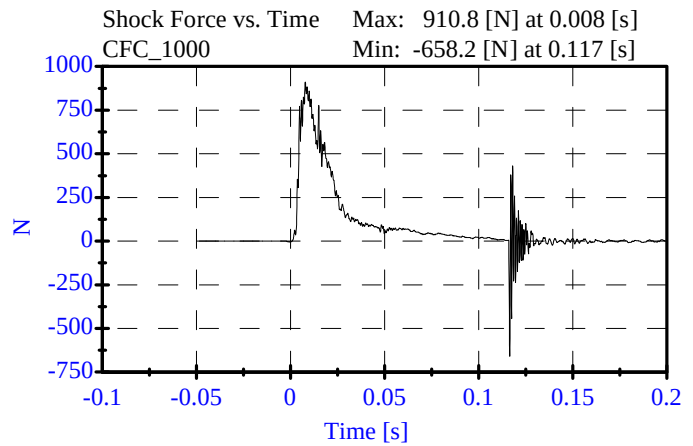
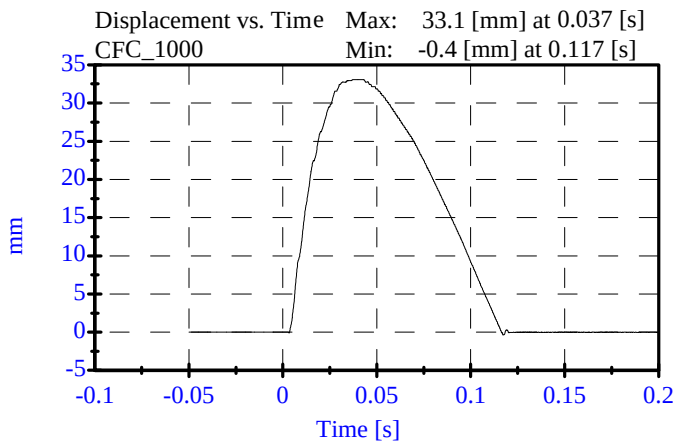
PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: March 18, 2004

Sequential Test Number: 1 File: 270SL 03-18-04
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Displacement:	30.00-35.00 mm	33.07 mm	Passed
Maximum Force:	836.00-1125.00 N	910.80 N	Passed
Impact Test Velocity:	3.05 m/s		
Damper Identification:	270		
Damper Setting:	5		



Shock Impact (4.27 m/s)

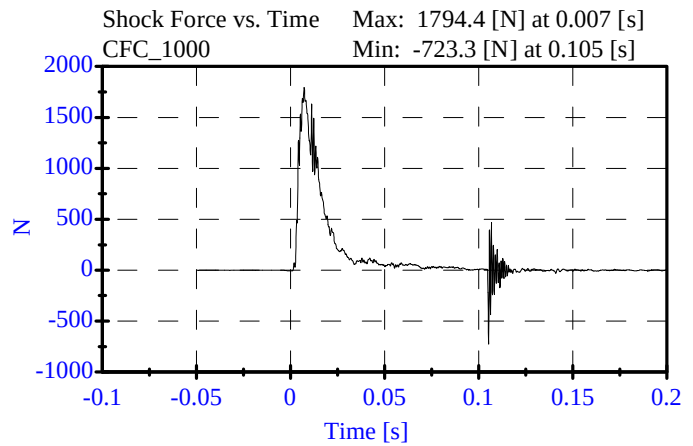
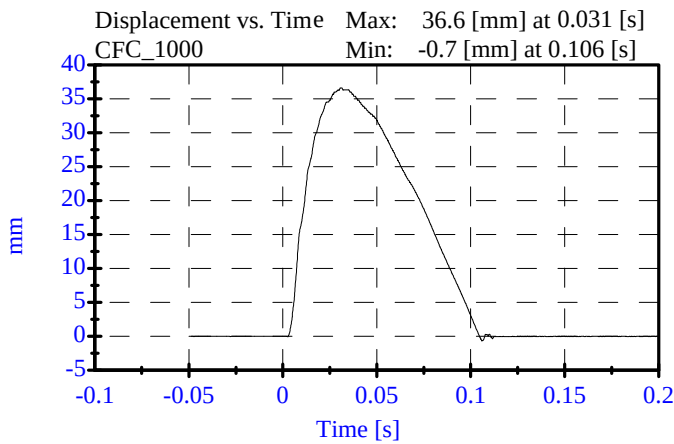
PRE TEST

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: March 18, 2004

Sequential Test Number: 1 File: 270SM 03-18-04
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Displacement:	32.00-37.00 mm	36.64 mm	Passed
Maximum Force:	1730.00-2099.00 N	1794.45 N	Passed
Impact Test Velocity:	4.27 m/s		
Damper Identification:	270		
Damper Setting:	5		

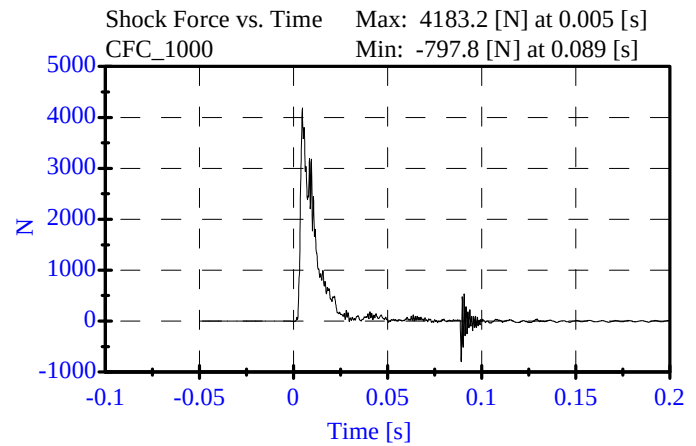
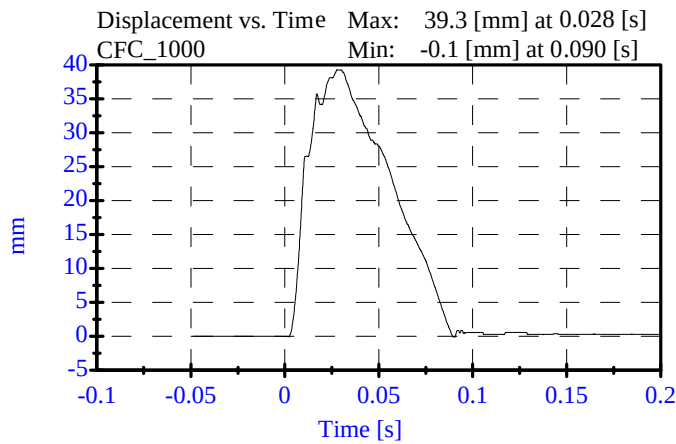


Shock Impact (6.10 m/s)
PRE TEST
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: March 18, 2004

Sequential Test Number: 1 File: 270SH 03-18-04
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	35.00 %	Passed
Displacement:	33.00-40.00 mm	39.29 mm	Passed
Maximum Force:	3741.00-4448.00 N	4183.25 N	Passed
Impact Test Velocity:	6.10 m/s		
Damper Identification:	270		
Damper Setting:	5		

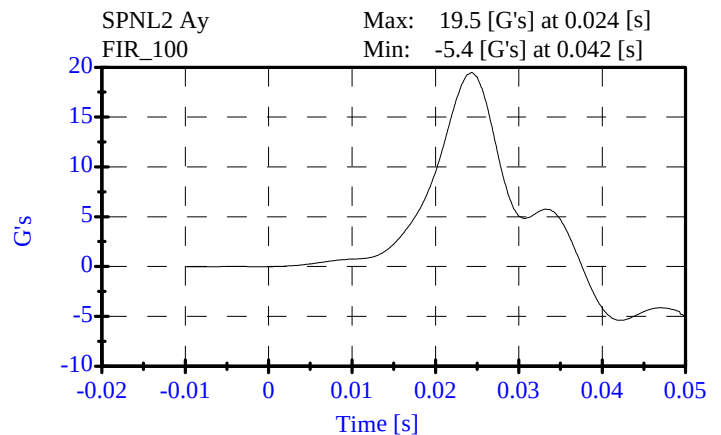
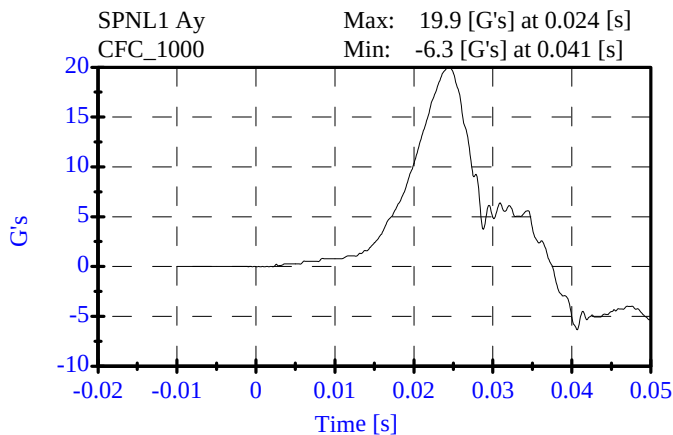
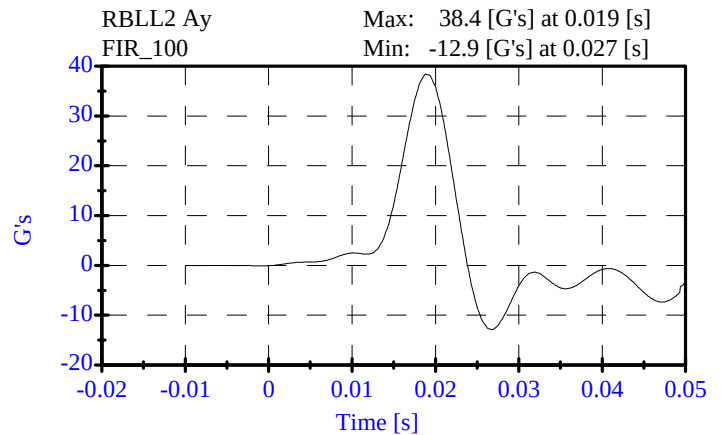
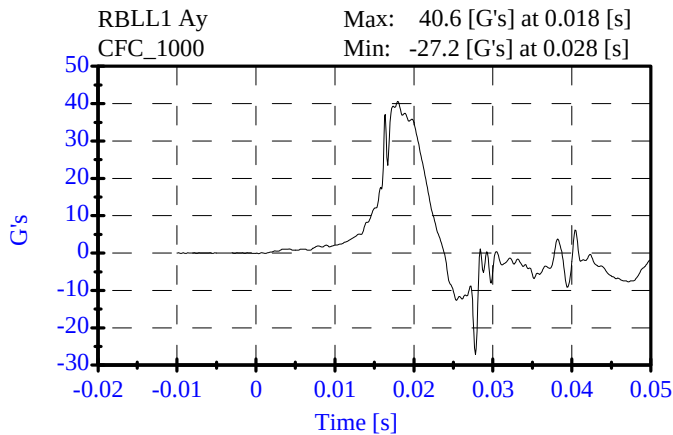
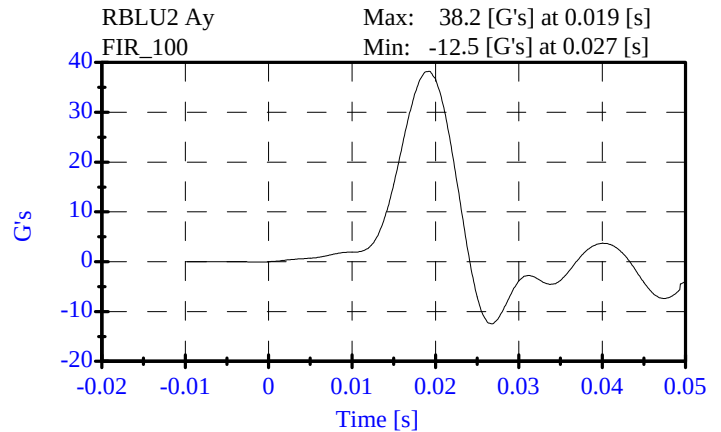
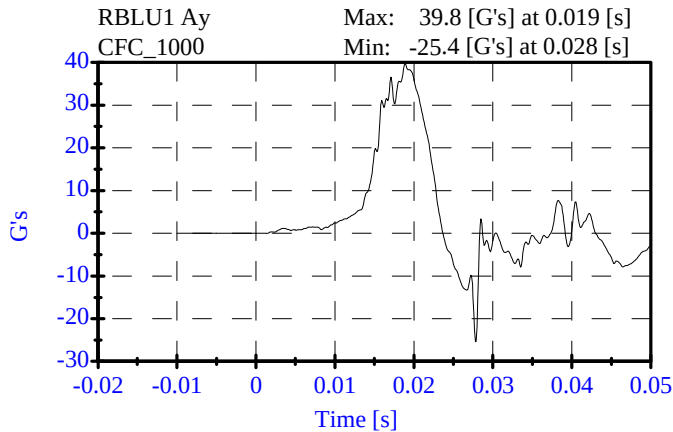


Thorax Impact
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: May 11, 2004

Sequential Test Number: 1 File: 270T2 05-11-04
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	29.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.27 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	38.18 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	38.40 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	19.50 G's	Passed



Pelvic Impact

Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

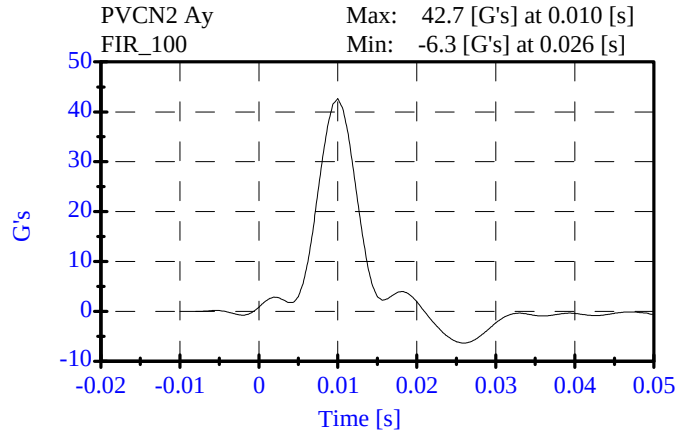
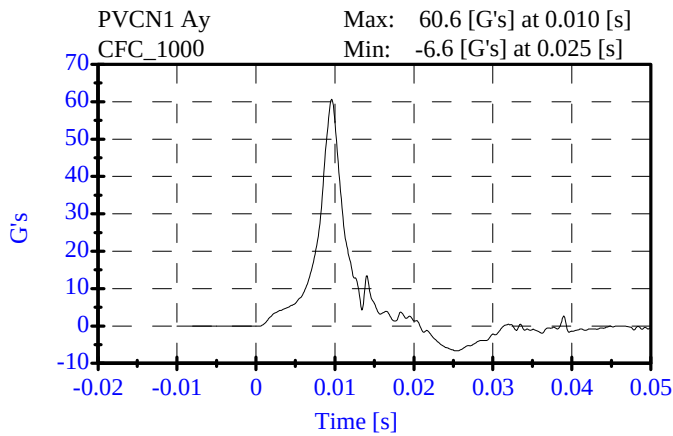
ATD Serial No: 270

Date: May 12, 2004

Sequential Test Number: 1 File: 270P1 05-12-04

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	37.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.31 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	42.65 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.5 ms	Passed



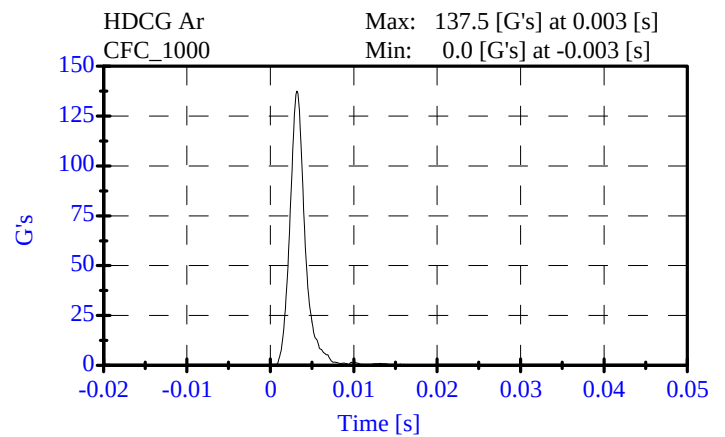
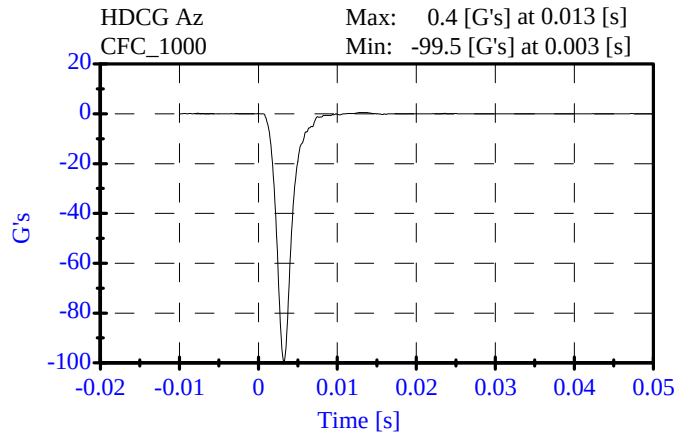
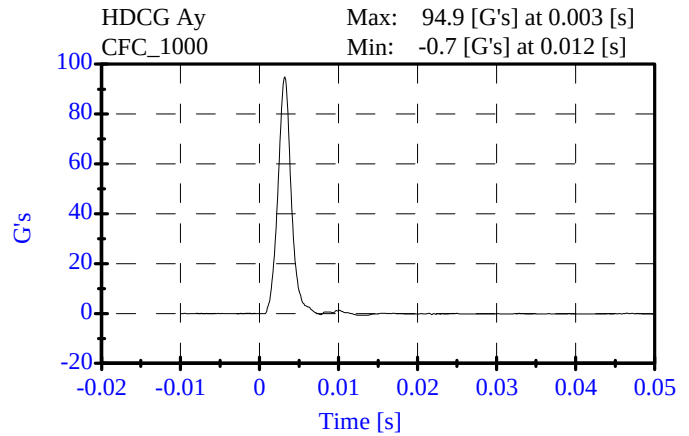
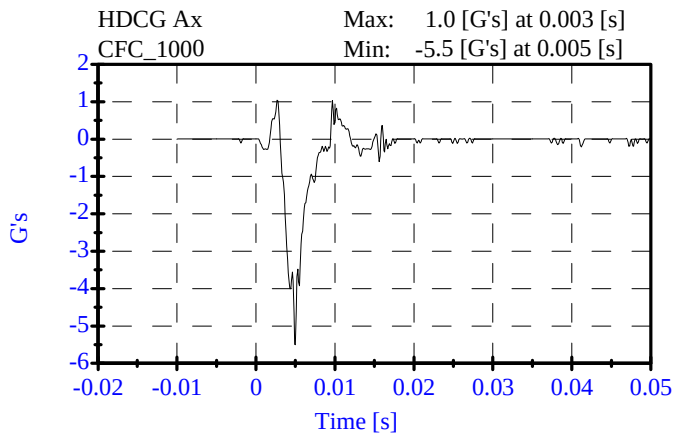
Head Drop Pre-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: May 7, 2004

Sequential Test Number: 1 File: 270H1 05-07-04
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	137.51 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	1.04 Gs	Passed
Curve PerCent NonModal:	< 15%	1.23 %	Passed



Neck Test**Pre-Test****CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 270

Date: May 10, 2004

Sequential Test Number: 1 File: 270N 05-10-04

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	38.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.01 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.14 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.41 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.04 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.16 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	64.0-78.0 Deg	74.63 Deg	Passed
Rotation Angle Decay:	50.0-70.0 ms	60.00 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	88.00-108.00 N-m	89.48 N-m	Passed
Occipital Moment Decay:	40.0-60.0 ms	52.30 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	0.0-20.0 ms	8.20 ms	Passed

Neck Test
Pre-Test
CONFIGURED FOR LEFT SIDE IMPACT

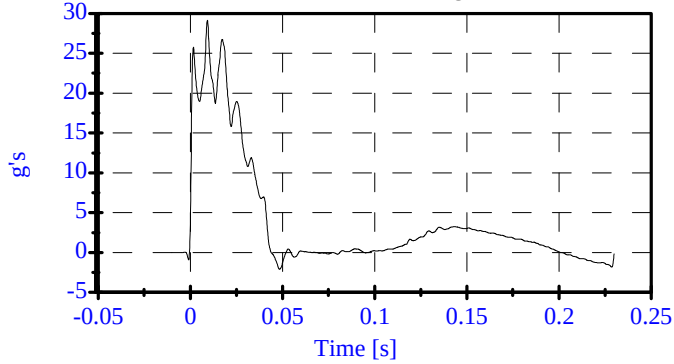
ATD Serial No: 270

Date: May 10, 2004

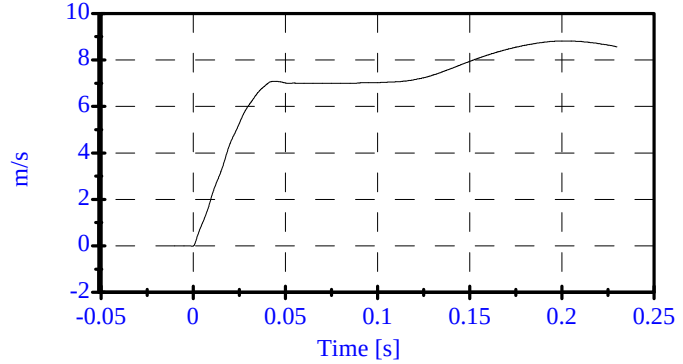
Sequential Test Number: 1 File: 270N 05-10-04

Laboratory Technician: B. Swiecicki

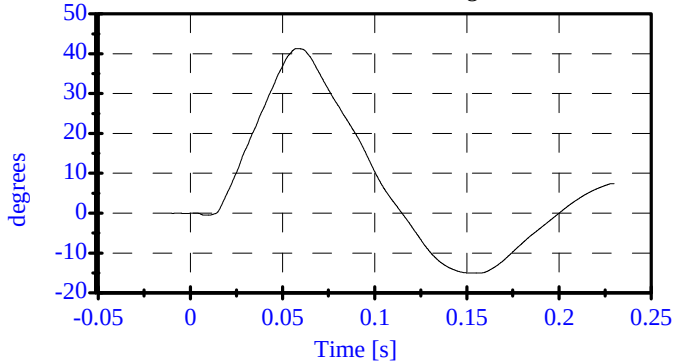
Pend Ax
CFC_180
Max: 29.1 [g's] at 0.009 [s]
Min: -2.1 [g's] at 0.048 [s]



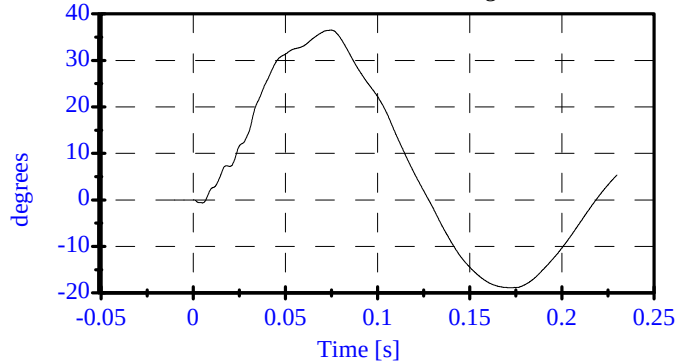
Pend Vx
CFC_180
Max: 8.8 [m/s] at 0.201 [s]
Min: -0.0 [m/s] at -0.000 [s]



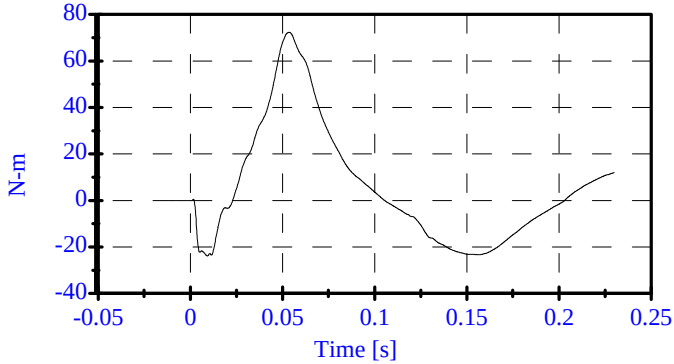
Head Rot
CFC_180
Max: 41.3 [degrees] at 0.058 [s]
Min: -15.0 [degrees] at 0.153 [s]



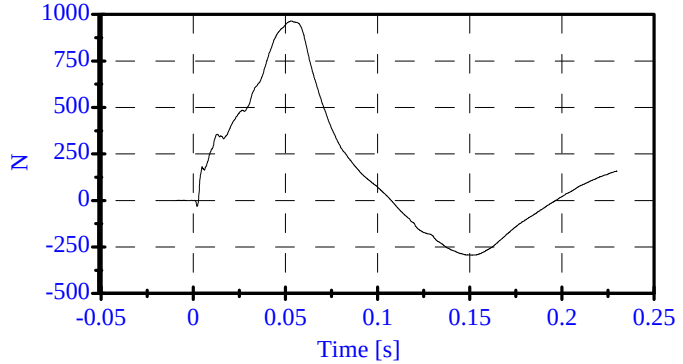
Arm Rot
CFC_180
Max: 36.5 [degrees] at 0.075 [s]
Min: -18.9 [degrees] at 0.172 [s]



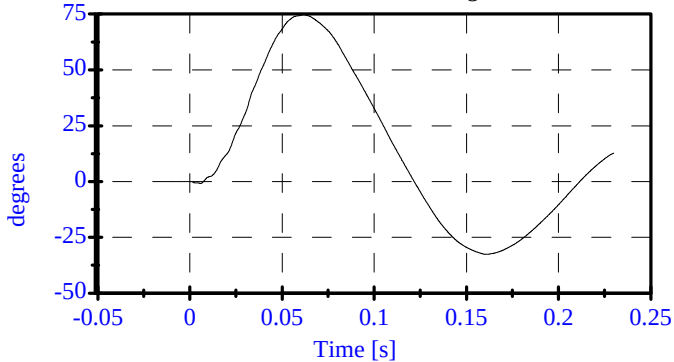
Neck Mx
CFC_600
Max: 72.3 [N-m] at 0.054 [s]
Min: -24.0 [N-m] at 0.009 [s]



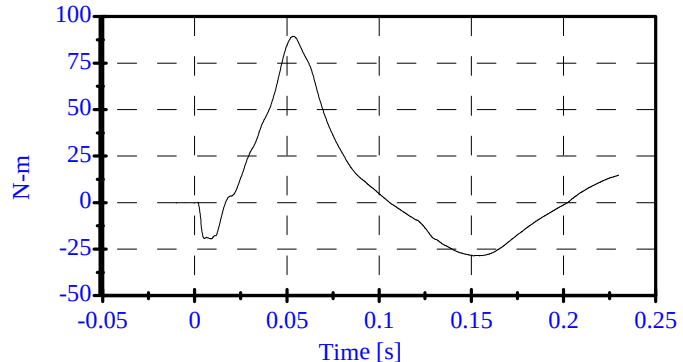
Neck Fy
CFC_1000
Max: 965.0 [N] at 0.053 [s]
Min: -295.1 [N] at 0.151 [s]



Tot Rot
CFC_180
Max: 74.6 [degrees] at 0.062 [s]
Min: -32.5 [degrees] at 0.161 [s]



Mocy
Max: 89.5 [N-m] at 0.053 [s]
Min: -28.5 [N-m] at 0.155 [s]



**ABDOMINAL COMPRESSION TEST
PRE-TEST**

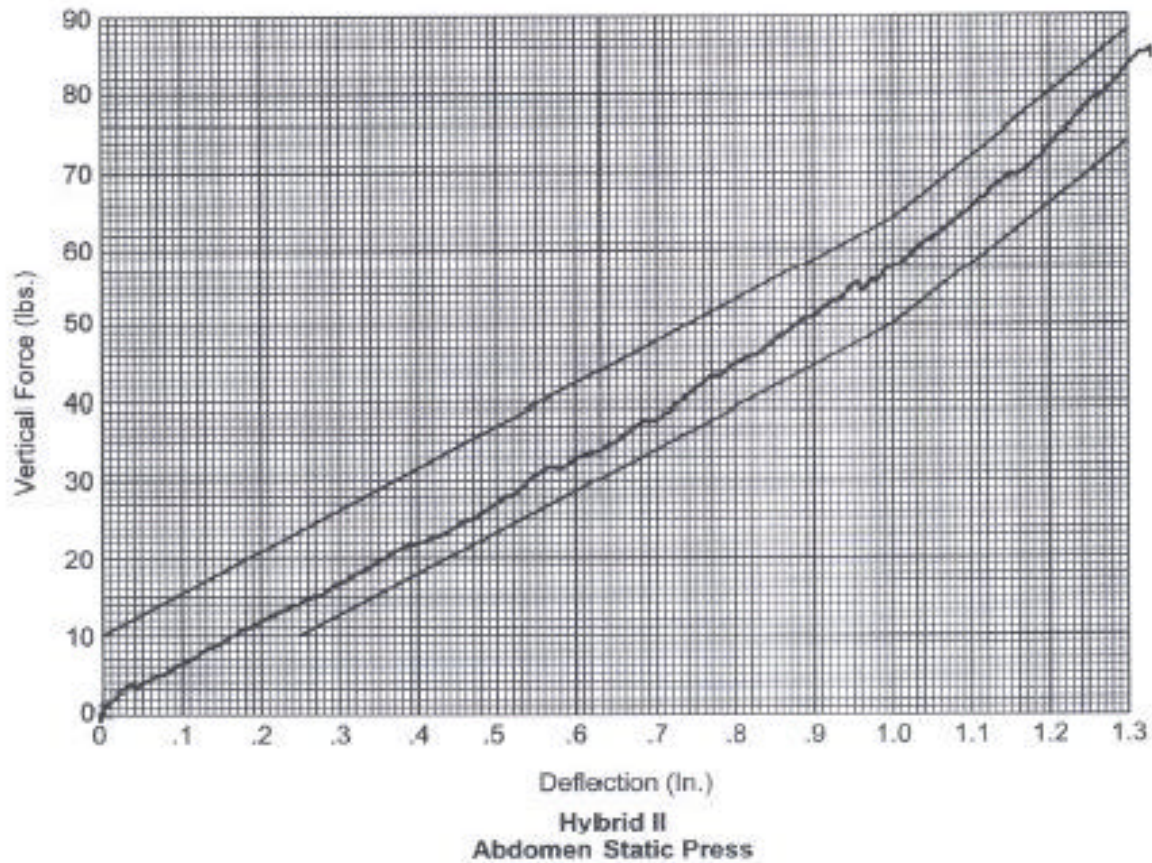
(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: <u>270</u>	Sequential Test Number: <u>4</u>	
Date: <u>May 11, 2004</u>	Laboratory Technician: <u>B. Swiecicki</u>	

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	38.00
FORCE @ 13 mm (N)	104 - 162	124.55
FORCE @ 19 mm (N)	163 - 221	185.94
FORCE @ 25 mm (N)	222 - 280	257.11
FORCE @ 33 mm (N)	325 - 391	369.20

REMARKS: None



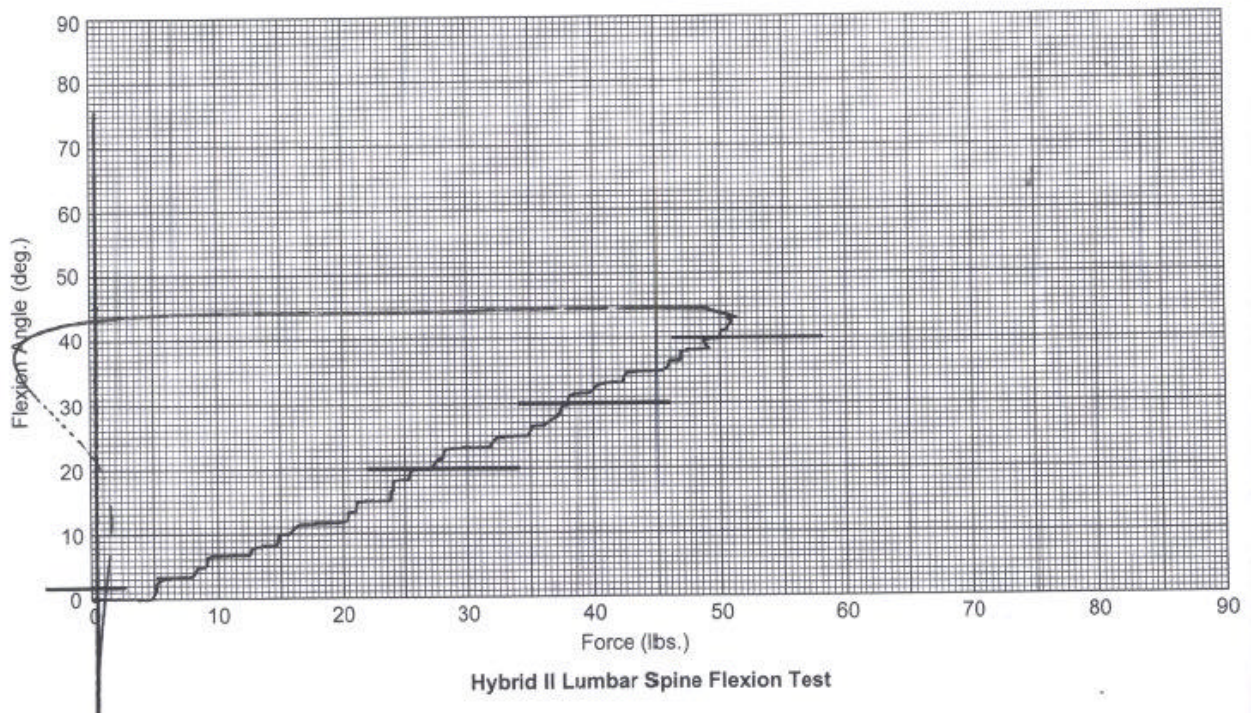
LUMBAR FLEXION TEST
PRE-TEST
(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270	Sequential Test Number: 4	
Date: May 11, 2004	Laboratory Technician: B. Swiecicki	

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	38.00
FORCE @ 0° (N)	0 - 26.7	0.00
FORCE @ 20° (N)	97.8 - 151.2	121.21
FORCE @ 30° (N)	151.2 - 204.6	169.03
FORCE @ 40° (N)	204.6 - 258	222.41
RETURN ANGLE	12° max.	1.8°

REMARKS: None



PRE-TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 4
Date: May 12, 2004 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

CALIBRATION TEST RESULTS

POST TEST

SID H3 NO.: 269

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 3
Date: May 19, 2004 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 3
Date: May 19, 2004 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	904
RH- Rib Height (mm)	502 - 520	503
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	234
KH- Knee Pivot from Back Line (mm)	511 - 526	518
KV- Knee Pivot to Floor (mm)	490 - 505	495
HW- Hip Width (mm)	356 - 391	371

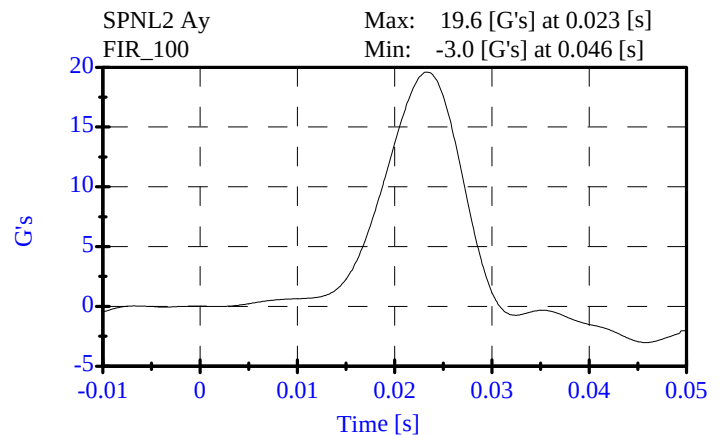
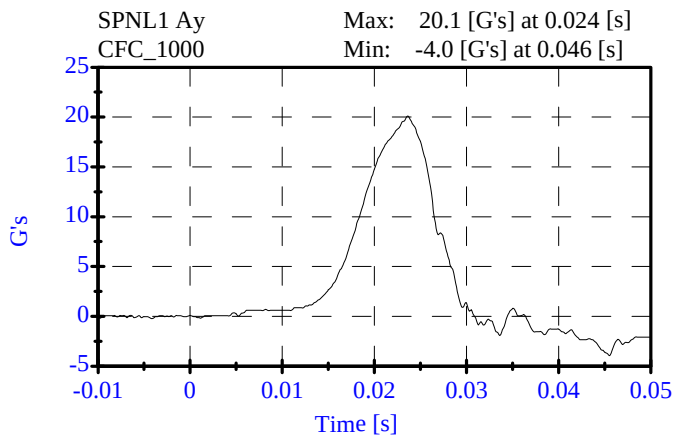
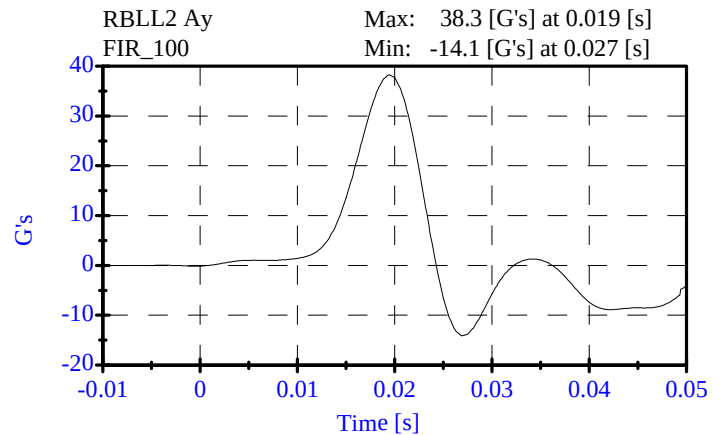
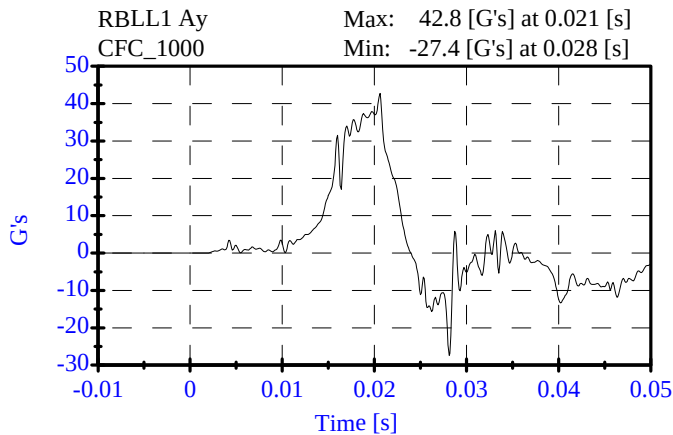
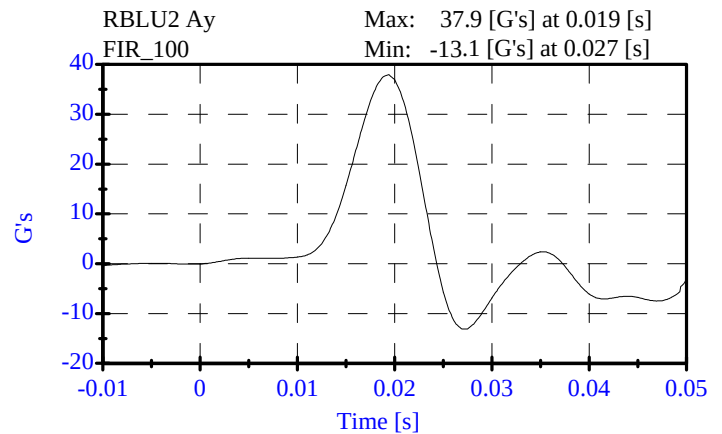
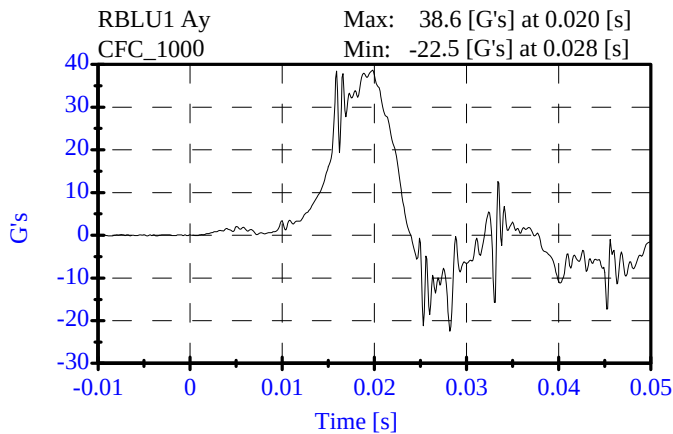
REMARKS: None

Thorax Impact
Post-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: May 18, 2004

Sequential Test Number: 1 File: 269T 05-18-04
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.31 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	37.93 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	38.31 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	19.62 G's	Passed



Pelvic Impact

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

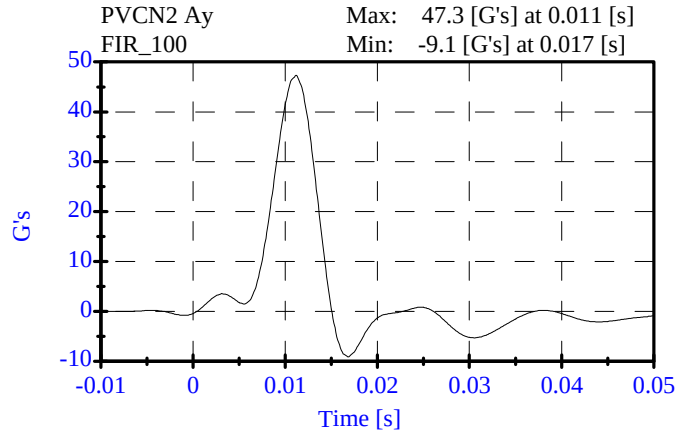
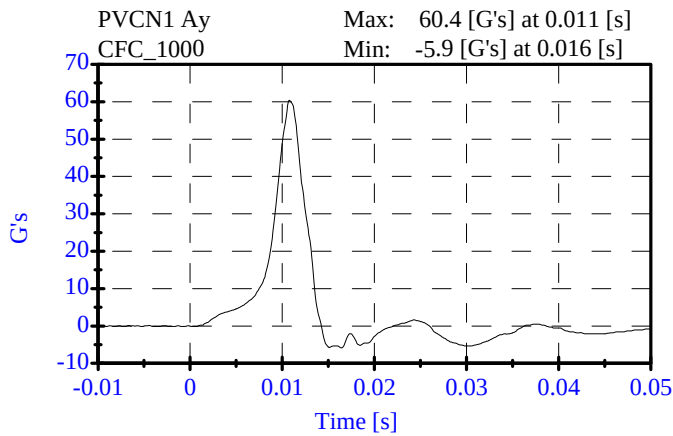
ATD Serial No: 269

Date: May 18, 2004

Sequential Test Number: 1 File: 269P 05-18-04

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.32 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	47.35 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.3 ms	Passed



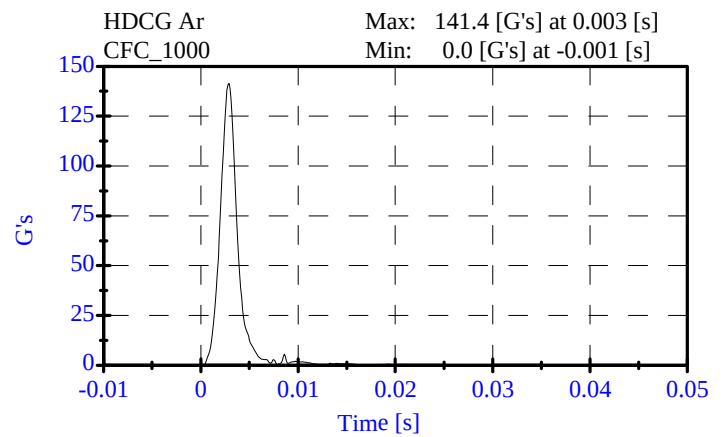
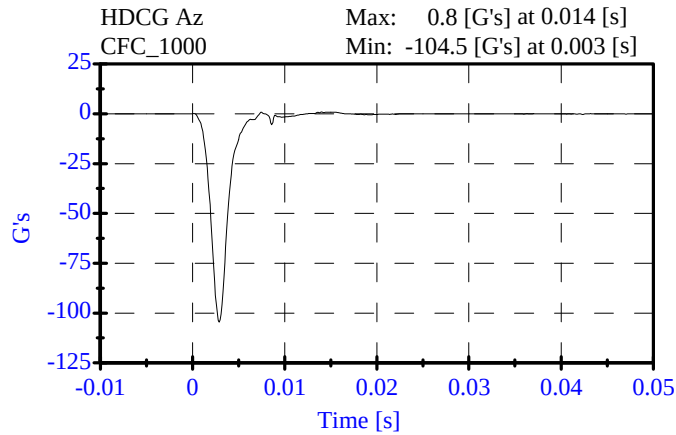
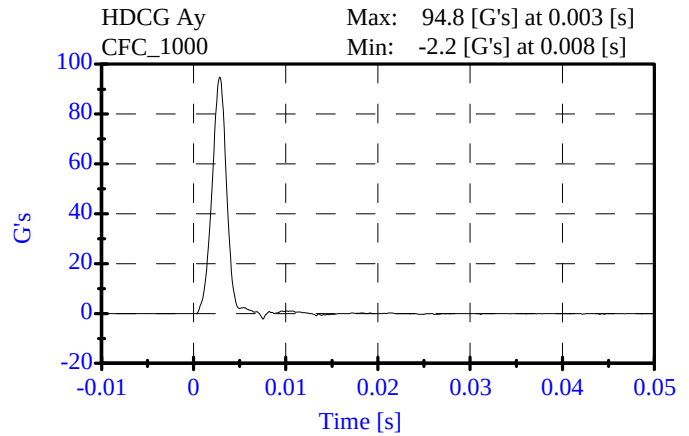
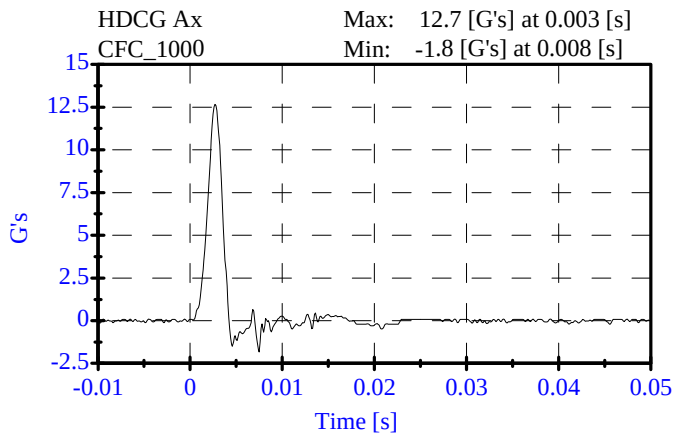
Head Drop Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 269
Date: May 18, 2004

Sequential Test Number: 1 File: 269H 05-18-04
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	141.42 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	12.66 Gs	Passed
Curve PerCent NonModal:	< 15%	3.91 %	Passed



Neck Test**Post-Test****CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 269

Date: May 18, 2004

Sequential Test Number: 1 File: 269N 05-18-04

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.01 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.04 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.30 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.22 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.09 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	73.79 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	59.60 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	87.59 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	54.50 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	10.40 ms	Passed

Neck Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

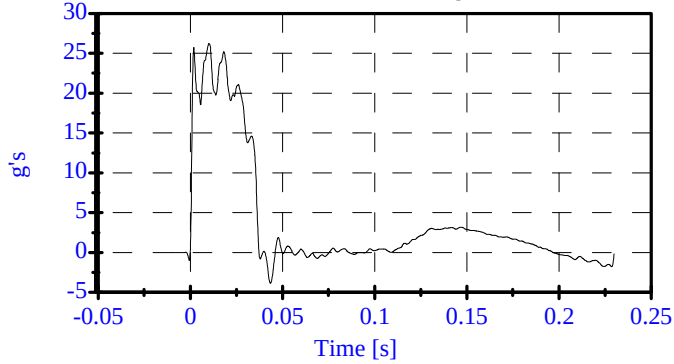
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Date: May 18, 2004

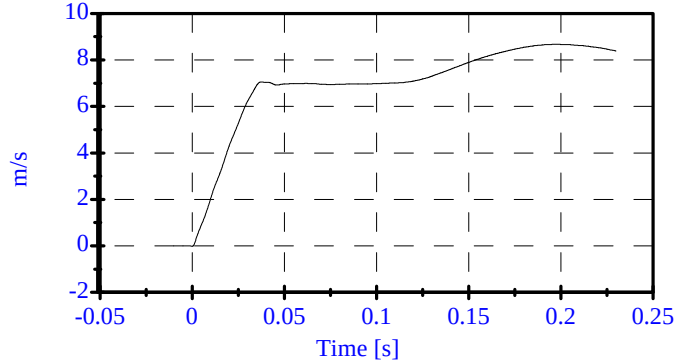
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Laboratory Technician: B. Swiecicki

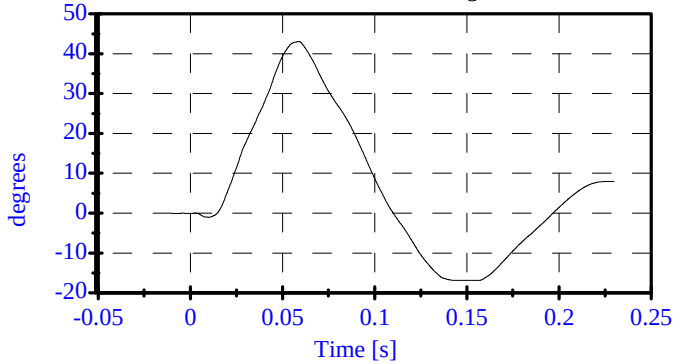
Pend Ax
CFC_180
Max: 26.2 [g's] at 0.010 [s]
Min: -3.9 [g's] at 0.044 [s]



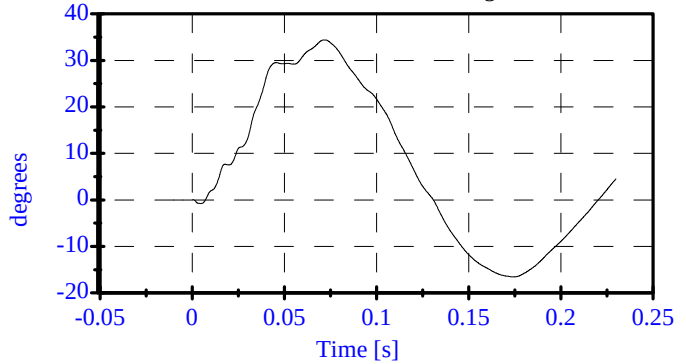
Pend Vx
CFC_180
Max: 8.7 [m/s] at 0.197 [s]
Min: -0.0 [m/s] at -0.000 [s]



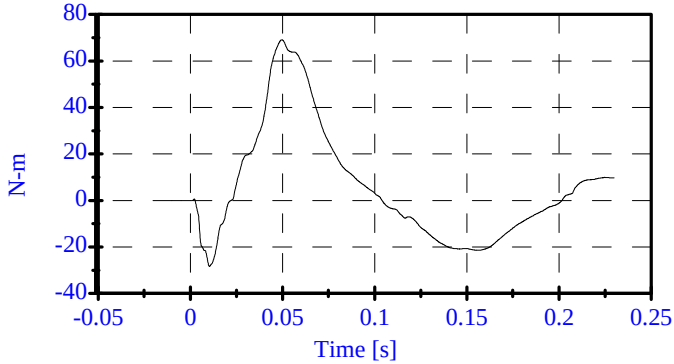
Head Rot
CFC_180
Max: 43.1 [degrees] at 0.059 [s]
Min: -16.9 [degrees] at 0.156 [s]



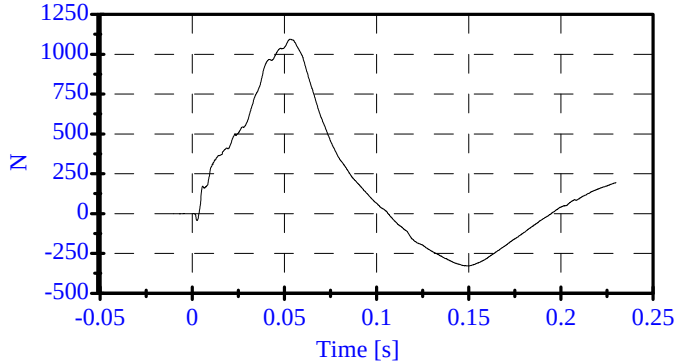
Arm Rot
CFC_180
Max: 34.4 [degrees] at 0.072 [s]
Min: -16.5 [degrees] at 0.174 [s]



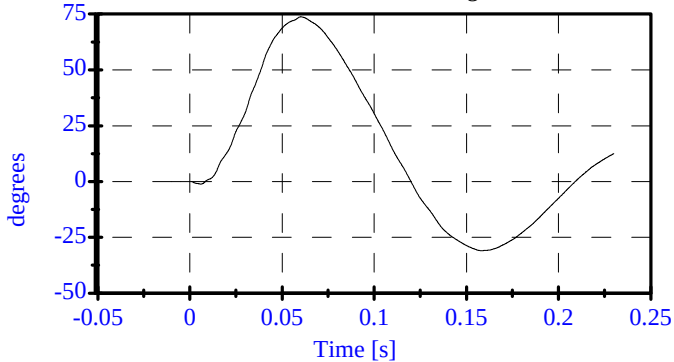
Neck Mx
CFC_600
Max: 69.1 [N-m] at 0.050 [s]
Min: -28.4 [N-m] at 0.010 [s]



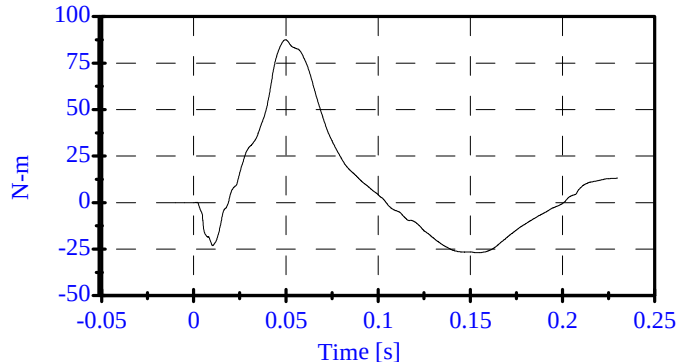
Neck Fy
CFC_1000
Max: 1094.3 [N] at 0.053 [s]
Min: -328.4 [N] at 0.150 [s]



Tot Rot
CFC_180
Max: 73.8 [degrees] at 0.060 [s]
Min: -31.0 [degrees] at 0.158 [s]



MOCX
Max: 87.6 [N-m] at 0.050 [s]
Min: -26.9 [N-m] at 0.153 [s]



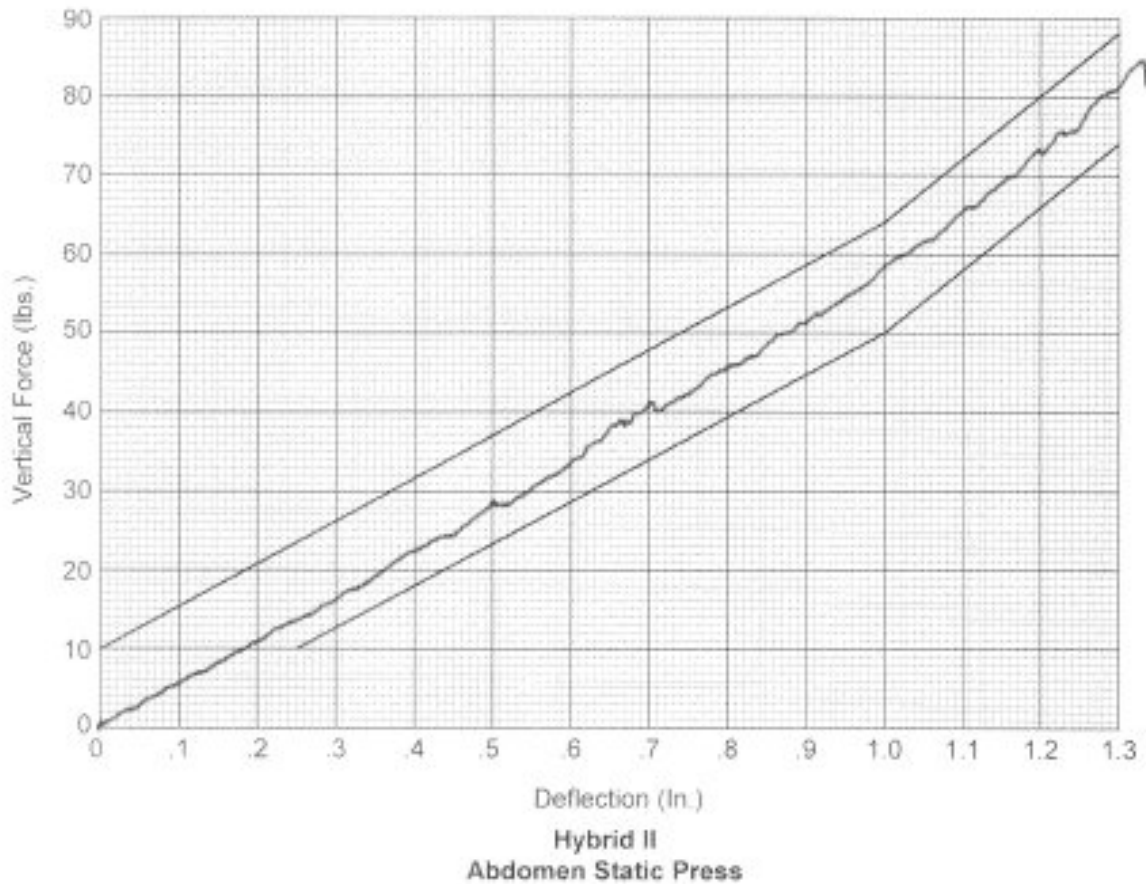
**ABDOMINAL COMPRESSION TEST
POST TEST**
(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269	Sequential Test Number: 3
Date: May 19, 2004	Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	35.00
FORCE @ 13 mm (N)	104 - 162	112.32
FORCE @ 19 mm (N)	163 - 221	187.94
FORCE @ 25 mm (N)	222 - 280	260.22
FORCE @ 33 mm (N)	325 - 391	362.09

REMARKS: None



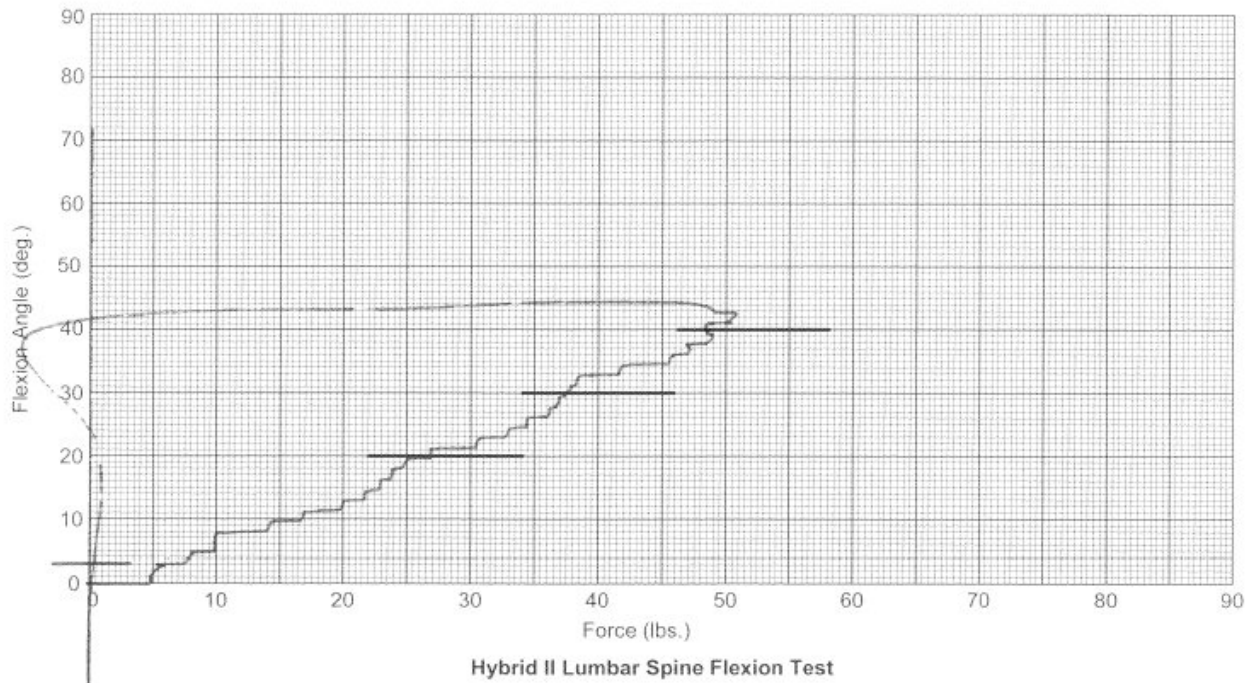
LUMBAR FLEXION TEST
POST TEST
 (Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: <u>269</u>	Sequential Test Number: <u>3</u>	
Date: <u>May 19, 2004</u>	Laboratory Technician: <u>B. Swiecicki</u>	

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	35.00
FORCE @ 0° (N)	0 - 26.7	0.00
FORCE @ 20° (N)	97.8 - 151.2	120.10
FORCE @ 30° (N)	151.2 - 204.6	166.81
FORCE @ 40° (N)	204.6 - 258	213.51
RETURN ANGLE	12° max.	3.2°

REMARKS: None



POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 269 Sequential Test Number: 3
Date: May 19, 2004 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

CALIBRATION TEST RESULTS

POST TEST

SID H3 NO.: 270

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 5
Date: May 19, 2004 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
LATERAL THORAX IMPACT TEST	Passed all requirements.
LATERAL PELVIS IMPACT TEST	Passed all requirements.
HEAD DROP TEST*	Passed all requirements.
LATERAL NECK BEND TEST*	Passed all requirements.
ABDOMINAL COMPRESSION TEST*	Passed all requirements.
LUMBAR FLEXION TEST*	Passed all requirements.

* Test not required for SID certification.

REMARKS: None

**EXTERNAL DIMENSIONS
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 5
Date: May 19, 2004 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	902
RH- Rib Height (mm)	502 - 520	505
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	234
KH- Knee Pivot from Back Line (mm)	511 - 526	516
KV- Knee Pivot to Floor (mm)	490 - 505	495
HW- Hip Width (mm)	356 - 391	376

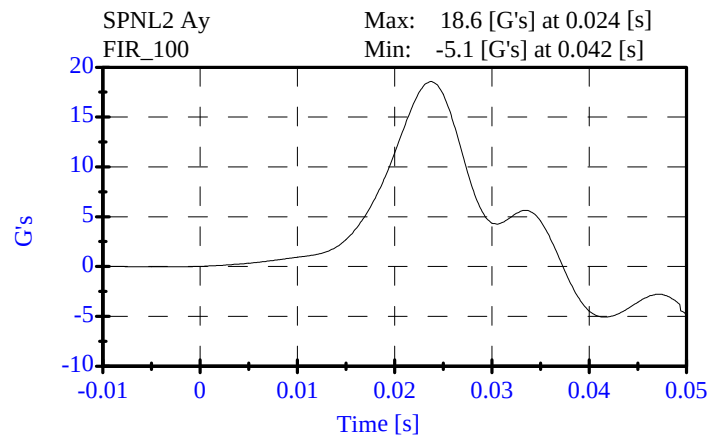
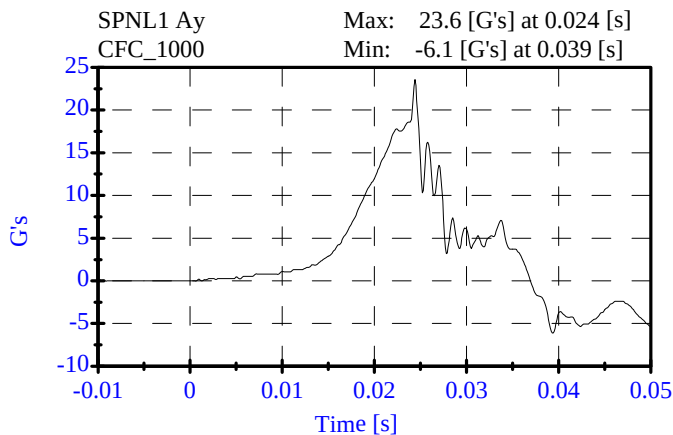
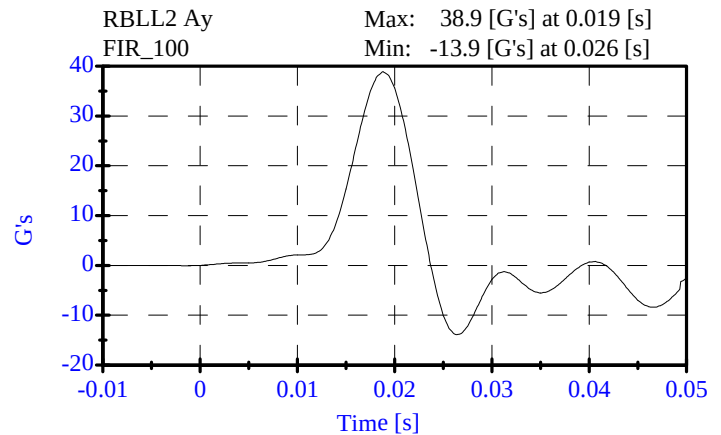
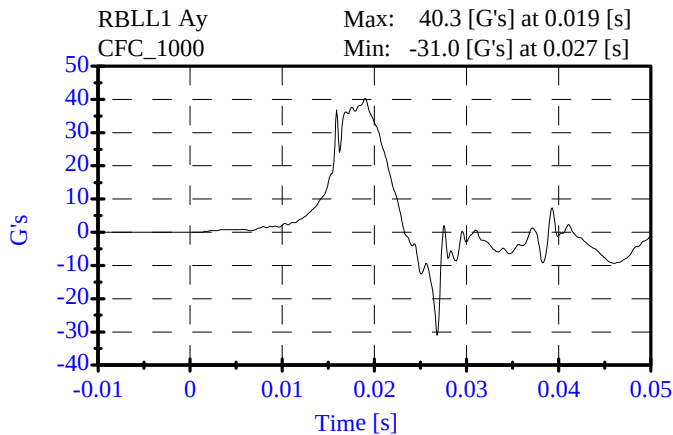
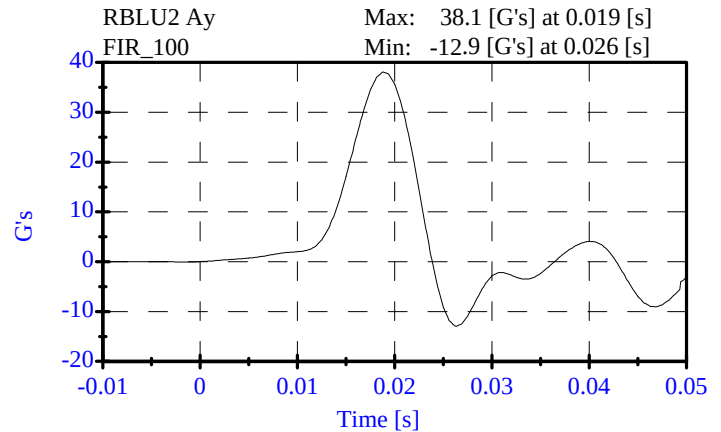
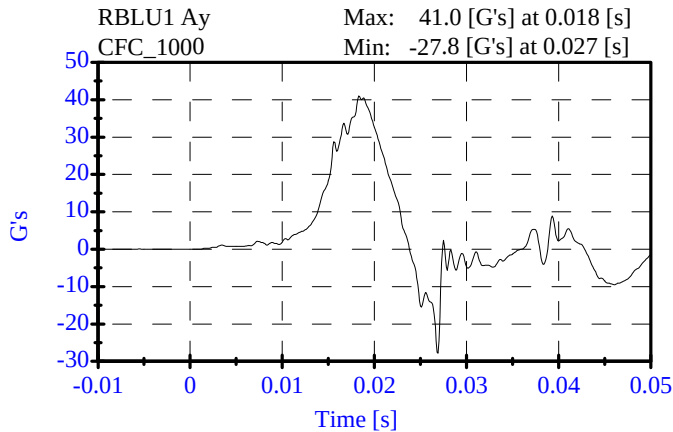
REMARKS: None

Thorax Impact
Post-Test
CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: May 18, 2004

Sequential Test Number: 1 File: 270T 05-18-04
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.31 m/s	Passed
Upper Rib Acceleration:	37.00-46.00 G's	38.05 G's	Passed
Lower Rib Acceleration:	37.00-46.00 G's	38.88 G's	Passed
Lower Spine Acceleration:	15.00-22.00 G's	18.60 G's	Passed



Pelvic Impact

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

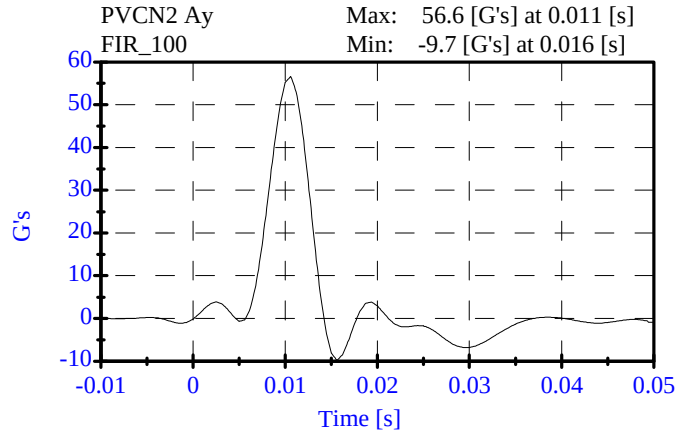
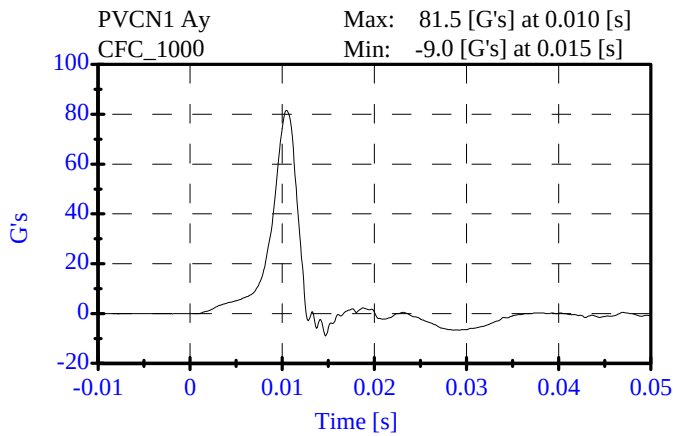
ATD Serial No: 270

Date: May 18, 2004

Sequential Test Number: 1 File: 270P 05-18-04

Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.5 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Probe Velocity:	4.27- 4.33 m/s	4.31 m/s	Passed
Pelvis Y Acceleration:	40.00-60.00 G's	56.57 G's	Passed
Time Above 20 Gs	3.0-7.0 ms	5.4 ms	Passed



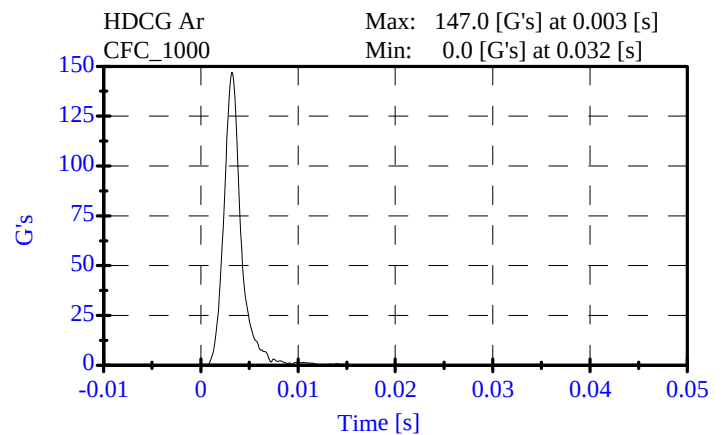
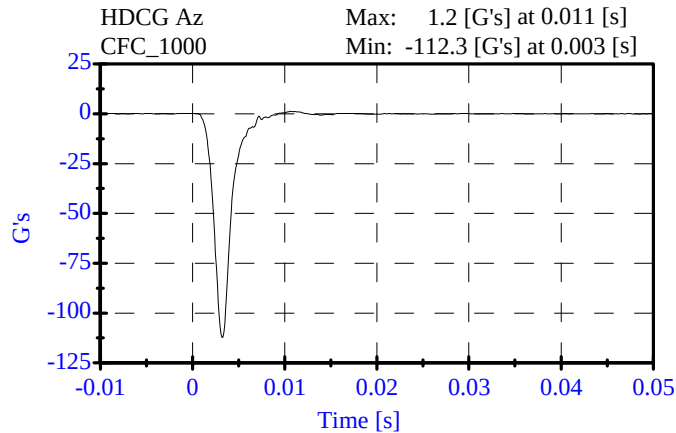
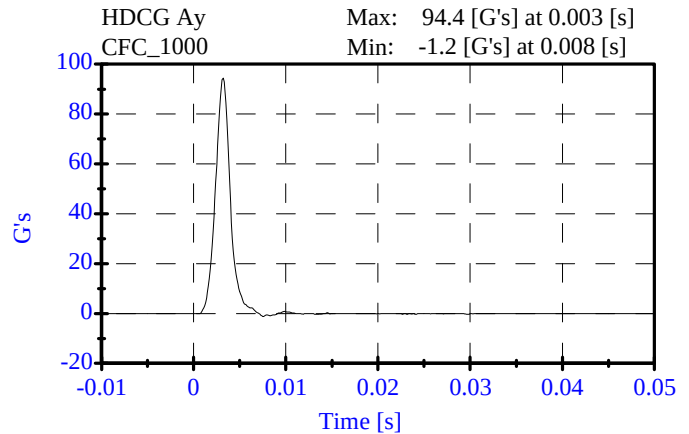
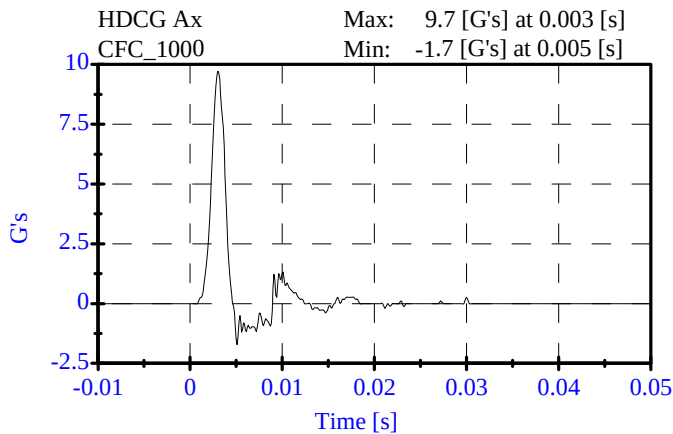
Head Drop Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

ATD Serial No: 270
Date: May 18, 2004

Sequential Test Number: 1 File: 270H 05-18-04
Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS	STATUS
Lab Temperature:	18.9-25.6 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Peak Resultant Accel.:	120-150 Gs	147.01 Gs	Passed
Peak Lateral Accel.:	15 Gs Max	9.70 Gs	Passed
Curve PerCent NonModal:	< 15%	5.23 %	Passed



Neck Test**Post-Test****CONFIGURED FOR LEFT SIDE IMPACT**

ATD Serial No: 270

Date: May 18, 2004

Sequential Test Number: 1 File: 270N 05-18-04

Laboratory Technician: B. Swiecicki

<u>TEST PARAMETER</u>	<u>SPECIFICATION</u>	<u>TEST RESULTS</u>	<u>STATUS</u>
Lab Temperature:	20.6-22.2 C	21.1 C	Passed
Lab Humidity:	10-70 %	31.00 %	Passed
Impact Velocity:	6.89- 7.13 m/s	7.02 m/s	Passed
PENDULUM DELTA V			
Delta V at 10 ms:	1.96- 2.55 m/s	2.04 m/s	Passed
Delta V at 20 ms:	4.12- 5.10 m/s	4.28 m/s	Passed
Delta V at 30 ms:	5.73- 7.01 m/s	6.10 m/s	Passed
Delta V between 40-70 ms:	6.27- 7.64 m/s	7.02 m/s	Passed
D PLANE ROTATION			
Maximum Rotation:	66.0-82.0 Deg	74.92 Deg	Passed
Rotation Angle Decay:	58.0-67.0 ms	59.00 ms	Passed
MOMENT ABOUT THE OCCIPITAL CONDYLE			
Max Occipital Moment:	73.00- 88.00 N-m	87.52 N-m	Passed
Occipital Moment Decay:	49.0-64.0 ms	55.40 ms	Passed
HEAD ROTATION TIME WITH RESPECT TO THE OCCIPITAL CONDYLE MOMENT			
Moment to Rotation Peak:	2.0-16.0 ms	12.30 ms	Passed

Neck Test

Post-Test

CONFIGURED FOR LEFT SIDE IMPACT

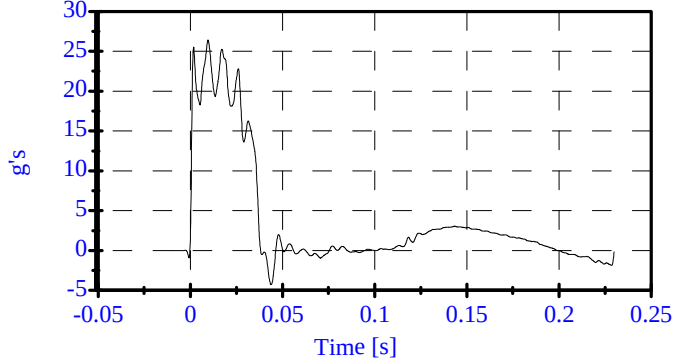
ATD Serial No: 270

Date: May 18, 2004

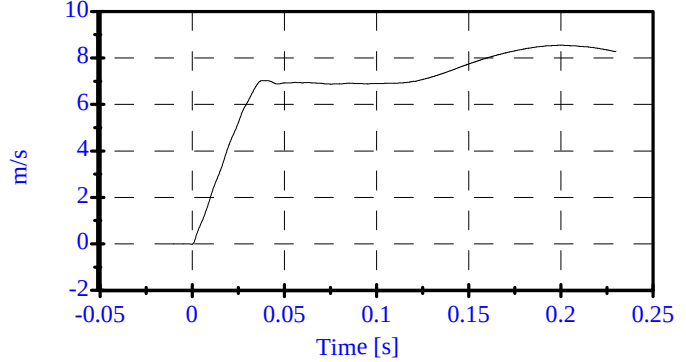
Sequential Test Number: 1 File: 270N 05-18-04

Laboratory Technician: B. Swiecicki

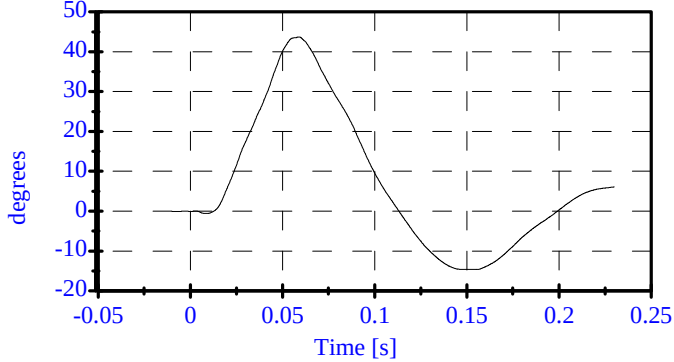
Pend Ax
CFC_180
Max: 26.4 [g's] at 0.010 [s]
Min: -4.3 [g's] at 0.044 [s]



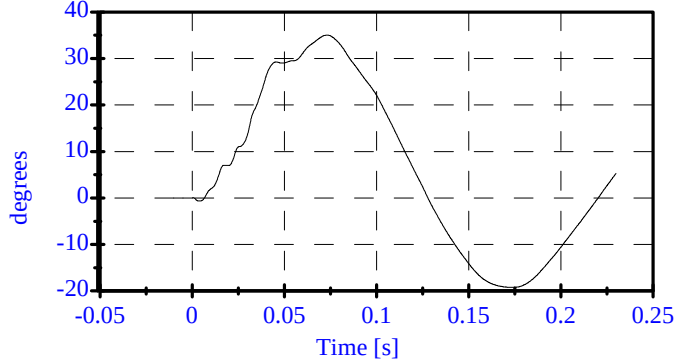
Pend Vx
CFC_180
Max: 8.5 [m/s] at 0.200 [s]
Min: -0.0 [m/s] at -0.000 [s]



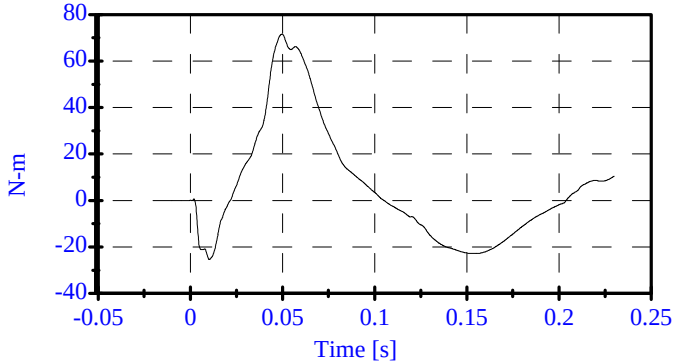
Head Rot
CFC_180
Max: 43.7 [degrees] at 0.059 [s]
Min: -14.6 [degrees] at 0.149 [s]



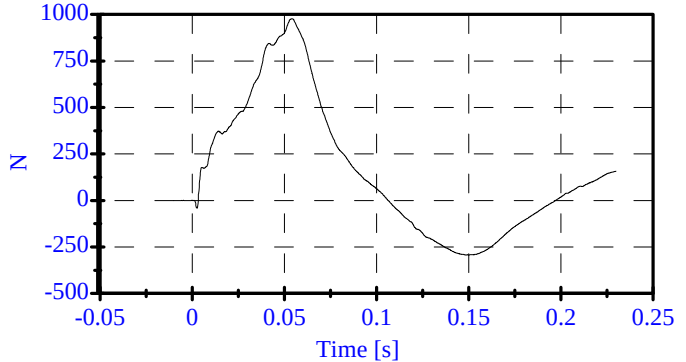
Arm Rot
CFC_180
Max: 35.0 [degrees] at 0.073 [s]
Min: -19.2 [degrees] at 0.173 [s]



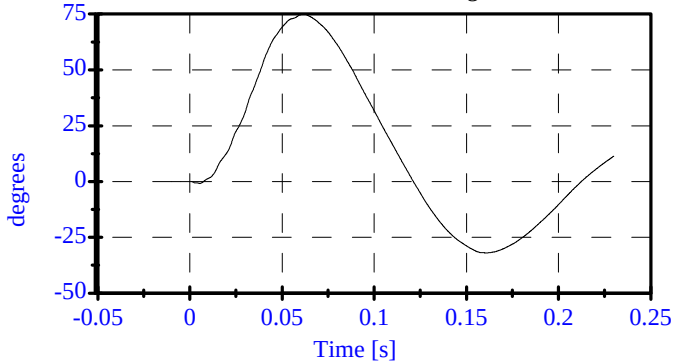
Neck Mx
CFC_600
Max: 71.5 [N-m] at 0.050 [s]
Min: -25.4 [N-m] at 0.010 [s]



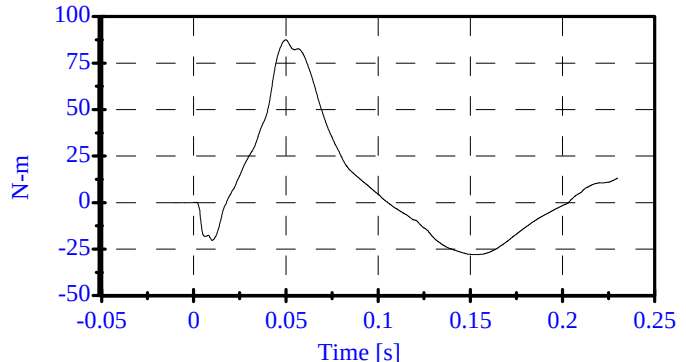
Neck Fy
CFC_1000
Max: 977.4 [N] at 0.054 [s]
Min: -294.8 [N] at 0.150 [s]



Tot Rot
CFC_180
Max: 74.9 [degrees] at 0.062 [s]
Min: -31.9 [degrees] at 0.161 [s]



MOCX
Max: 87.5 [N-m] at 0.050 [s]
Min: -28.0 [N-m] at 0.151 [s]



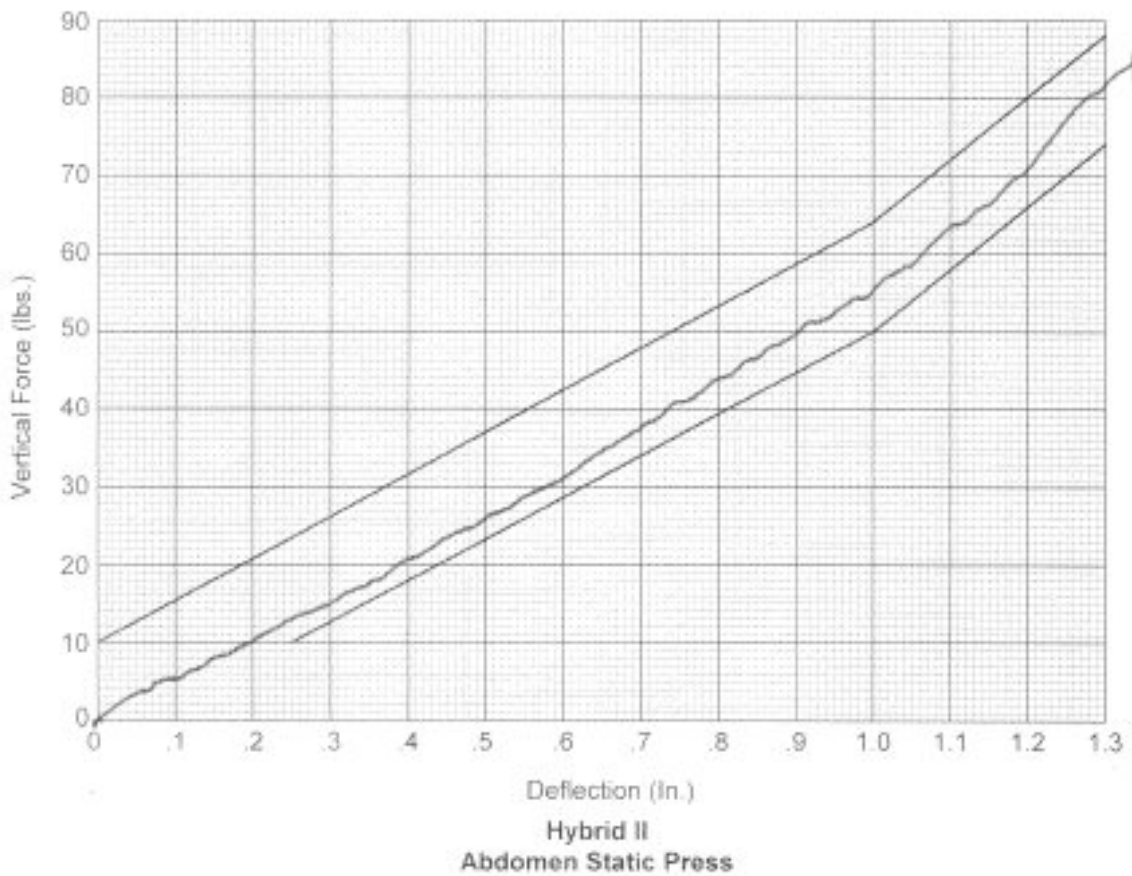
ABDOMINAL COMPRESSION TEST
POST TEST
 (Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: <u>270</u>	Sequential Test Number: <u>5</u>	
Date: <u>May 19, 2004</u>	Laboratory Technician: <u>B. Swiecicki</u>	

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	35.00
FORCE @ 13 mm (N)	104 - 162	118.99
FORCE @ 19 mm (N)	163 - 221	182.38
FORCE @ 25 mm (N)	222 - 280	249.10
FORCE @ 33 mm (N)	325 - 391	364.75

REMARKS: None



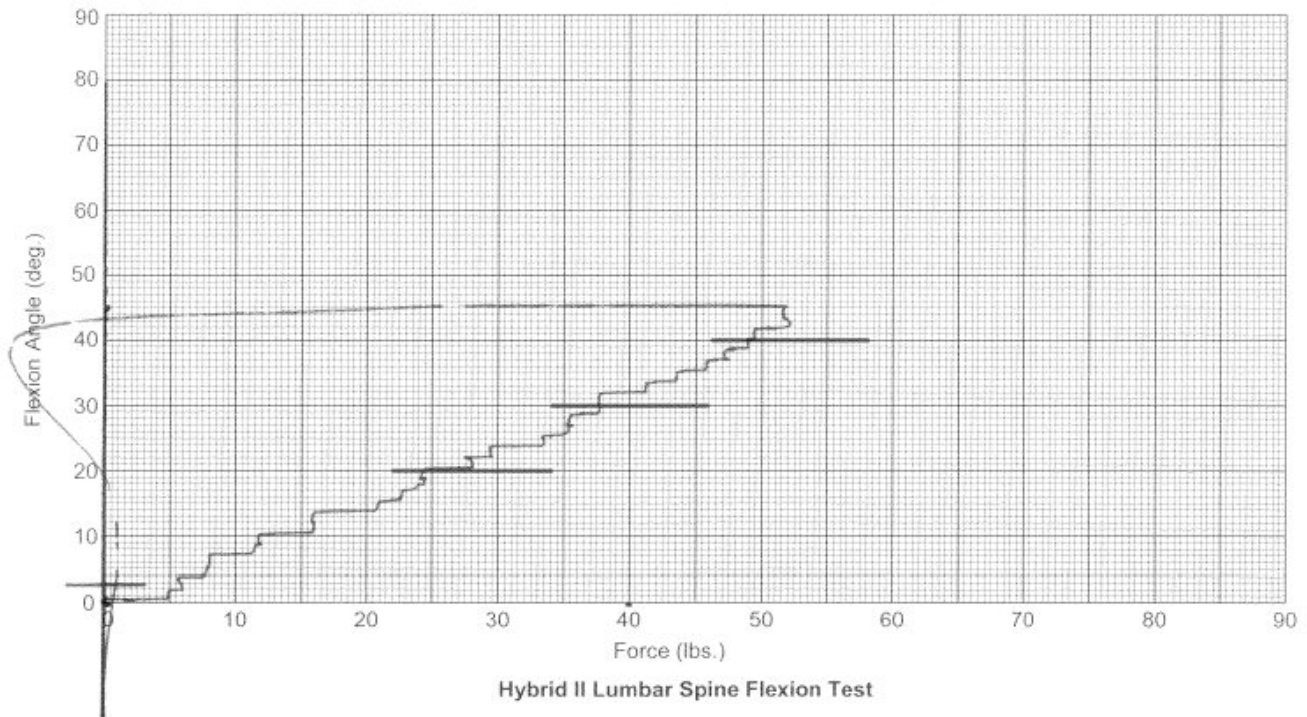
LUMBAR FLEXION TEST
POST TEST
 (Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: <u>270</u>	Sequential Test Number: <u>5</u>	
Date: <u>May 19, 2004</u>	Laboratory Technician: <u>B. Swiecicki</u>	

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (°C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	35.00
FORCE @ 0° (N)	0 - 26.7	0.00
FORCE @ 20° (N)	97.8 - 151.2	122.33
FORCE @ 30° (N)	151.2 - 204.6	169.03
FORCE @ 40° (N)	204.6 - 258	217.96
RETURN ANGLE	12° max.	3.0°

REMARKS: None



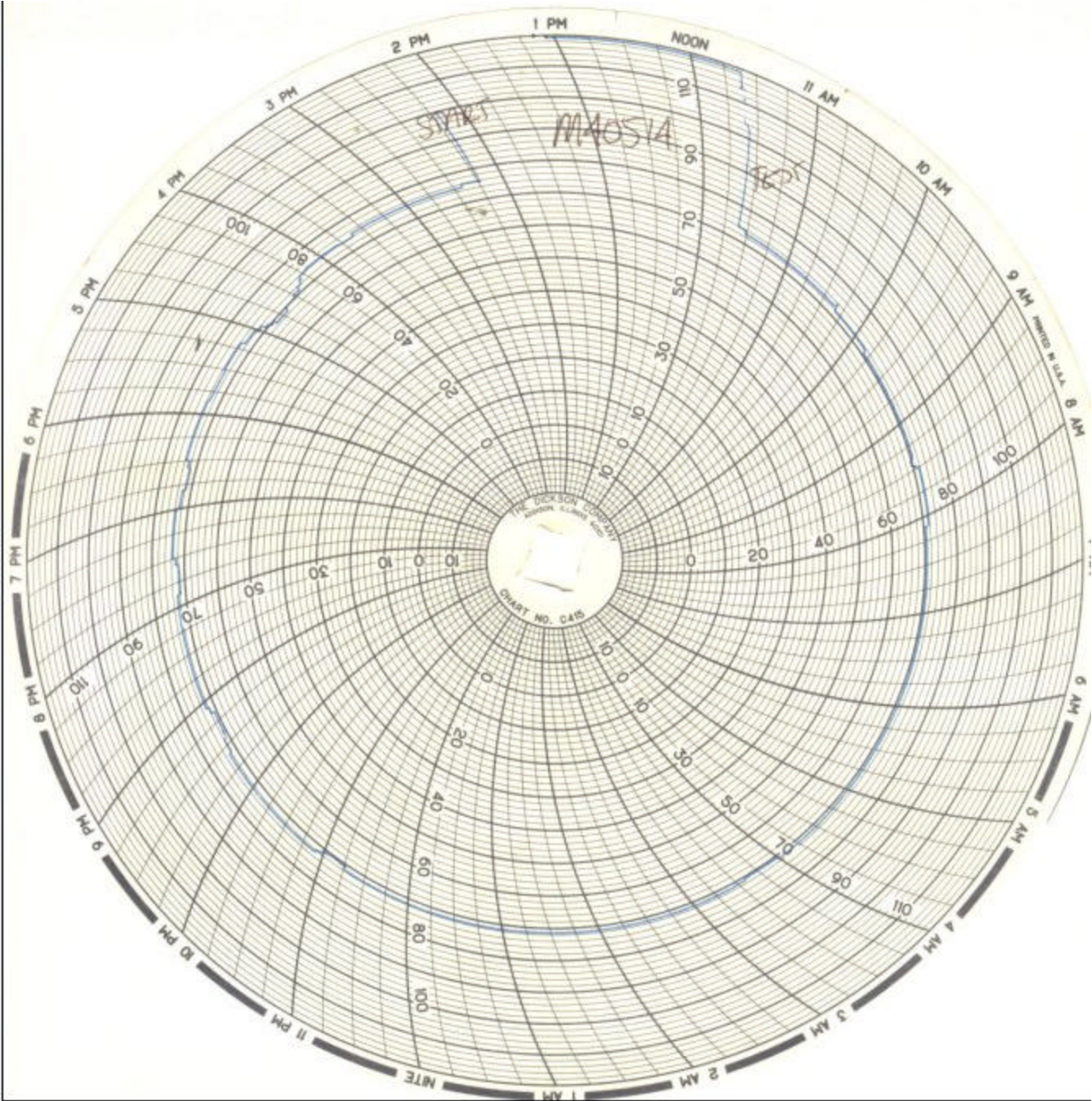
POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID H3 Serial No.: 270 Sequential Test Number: 5
 Date: May 19, 2004 Laboratory Technician: B. Swiecicki

PART	ITEMS CHECKED	COMMENTS
SKIN	VISUAL INSPECTION	OK
HEAD	VISUAL, BALLAST, ACCELEROMETER MOUNT	OK
NECK	VISUAL, CABLE TORQUE	OK
SPINE BOX	VISUAL, BALLAST, WELDMENT, ACCELEROMETER MOUNT	OK
RIB CAGE	VISUAL, MEASURE, STIFFENERS	OK
STERNUM	VISUAL	OK
LUMBAR SPINE	VISUAL	OK
ABDOMEN	VISUAL	OK
PELVIS	VISUAL, PALPATE, ACCELEROMETER MOUNT	OK
UPPER LEGS	VISUAL	OK
KNEES	VISUAL, STOPS, INSERTS	OK
LOWER LEGS	VISUAL, RANGE OF MOTION	OK
ANKLES	VISUAL, RANGE OF MOTION	OK
FEET	VISUAL, RANGE OF MOTION	OK
JOINTS	1 TO 2 g RANGE	OK
OTHER	NONE	-

REMARKS: None

TEMPERATURE TRACE



APPENDIX D

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

SID INSTRUMENTATION

	FRONT SID NO.: 269		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P23161	ENDEVCO	30-Mar-04
HEAD AY	AC-P24011	ENDEVCO	30-Mar-04
HEAD AZ	AC-P19111	ENDEVCO	30-Mar-04
UPPER NECK FX	LC-440Fx	DENTON	18-Jun-03
UPPER NECK FY	LC-440Fy	DENTON	18-Jun-03
UPPER NECK FZ	LC-440Fz	DENTON	18-Jun-03
UPPER NECK MX	LC-440Mx	DENTON	18-Jun-03
UPPER NECK MY	LC-440My	DENTON	18-Jun-03
UPPER NECK MZ	LC-440Mz	DENTON	18-Jun-03
UPPER RIB	AC-P16862	ENDEVCO	30-Mar-04
LOWER RIB	AC-P16656	ENDEVCO	30-Mar-04
LOWER SPINE	AC-P16866	ENDEVCO	30-Mar-04
PELVIS	AC-P16676	ENDEVCO	30-Mar-04
UPPER RIB REDUNDANT	AC-P23156	ENDEVCO	30-Mar-04
LOWER RIB REDUNDANT	AC-P16645	ENDEVCO	30-Mar-04
LOWER SPINE REDUNDANT	AC-P19343	ENDEVCO	30-Mar-04
PELVIS REDUNDANT	AC-P16843	ENDEVCO	30-Mar-04

	REAR SID NO.: 270		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P23139	ENDEVCO	30-Mar-04
HEAD AY	AC-P13323	ENDEVCO	30-Mar-04
HEAD AZ	AC-P22943	ENDEVCO	25-Mar-04
UPPER NECK FX	LC-205Fx	DENTON	18-Jun-03
UPPER NECK FY	LC-205Fy	DENTON	18-Jun-03
UPPER NECK FZ	LC-205Fz	DENTON	18-Jun-03
UPPER NECK MX	LC-205Mx	DENTON	18-Jun-03
UPPER NECK MY	LC-205My	DENTON	18-Jun-03
UPPER NECK MZ	LC-205Mz	DENTON	18-Jun-03
UPPER RIB	AC-P18524	ENDEVCO	25-Mar-04
LOWER RIB	AC-P18533	ENDEVCO	25-Mar-04
LOWER SPINE	AC-P18514	ENDEVCO	25-Mar-04
PELVIS	AC-P18519	ENDEVCO	30-Mar-04
UPPER RIB REDUNDANT	AC-P18528	ENDEVCO	25-Mar-04
LOWER RIB REDUNDANT	AC-P18518	ENDEVCO	25-Mar-04
LOWER SPINE REDUNDANT	AC-P18688	ENDEVCO	25-Mar-04
PELVIS REDUNDANT	AC-P18531	ENDEVCO	30-Mar-04

REMARKS: None

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

VEHICLE AND MDB INSTRUMENTATION

	VEHICLE AND MDB INSTRUMENTS		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
RIGHT FRONT SILL (X)	AC-J37854	ENDEVCO	22-Mar-04
RIGHT FRONT SILL (Y)	AC-J38127	ENDEVCO	22-Mar-04
RIGHT FRONT SILL (Z)	AC-J37980	ENDEVCO	22-Mar-04
RIGHT REAR SILL (X)	AC-P19246	ENDEVCO	16-Jan-04
RIGHT REAR SILL (Y)	AC-J31034	ENDEVCO	22-Jan-04
RIGHT REAR SILL (Z)	AC-P23873	ENDEVCO	16-Jan-04
REAR FLOORPAN ABOVE AXLE (X)	AC-P23939	ENDEVCO	22-Mar-04
REAR FLOORPAN ABOVE AXLE (Y)	AC-P23993	ENDEVCO	22-Mar-04
REAR FLOORPAN ABOVE AXLE (Z)	AC-P23999	ENDEVCO	22-Mar-04
LEFT REAR SILL (Y)	AC-9440-006	GS SENSORS	16-Dec-03
LEFT FRONT SILL (Y)	AC-9440-034	GS SENSORS	03-Dec-03
LEFT FRONT DOOR CENTERLINE (Y)	AC-J32787	ENDEVCO	29-Apr-04
RIGHT REAR SEAT OCCUPANT COMP. (Y)	AC-F53	ICS	01-Dec-03
MID REAR OF LEFT FRONT DOOR (Y)	AC-J30041	ENDEVCO	29-Apr-04
LEFT FRONT DOOR UPPER C/L (Y)	AC-J33071	ENDEVCO	29-Apr-04
MID REAR OF LEFT REAR DOOR (Y)	AC-B11408	ENDEVCO	31-Mar-04
LEFT REAR DOOR UPPER C/L (Y)	AC-A13513	ENDEVCO	31-Mar-04
LOWER LEFT B- PILLAR (Y)	AC-9440-024	GS SENSORS	02-Dec-03
MIDDLE LEFT B-PILLAR (Y)	AC-J33198	ENDEVCO	22-Mar-04
LOWER LEFT A-PILLAR (Y)	AC-A13131A	ENDEVCO	03-May-04
UPPER LEFT A-PILLAR (Y)	AC-J33843	ENDEVCO	22-Mar-04
FRONT SEAT TRACK (Y)	AC-AN25	ENDEVCO	24-Feb-04
REAR SEAT TRACK (Y)	AC-P32269	ENDEVCO	17-Feb-04
VEHICLE CG (X)	AC-P21135	ENDEVCO	18-Mar-04
VEHICLE CG (Y)	AC-P16575	ENDEVCO	17-Mar-04
VEHICLE CG (Z)	AC-P14388	ENDEVCO	18-Mar-04
MDB CG (X)	AC-C16433	ENDEVCO	12-Feb-04
MDB CG (Y)	AC-C16416	ENDEVCO	12-Feb-04
MDB CG (Z)	AC-C16499	ENDEVCO	12-Feb-04
MDB REAR FRAME MEMBER (X)	AC-C14948	ENDEVCO	12-Feb-04
MDB REAR FRAME MEMBER (Y)	AC-C16680	ENDEVCO	12-Feb-04

REMARKS: None