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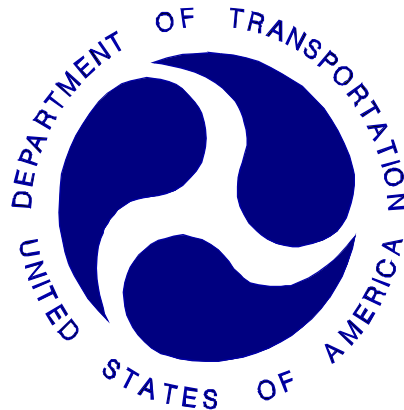
**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

FUJI HEAVY INDUSTRIES, LTD.
2002 SUBARU OUTBACK
4-DOOR WAGON

NHTSA NUMBER: SU5500

VERIDIAN ENGINEERING TEST NUMBER: 8659-01

VERIDIAN ENGINEERING
TRANSPORTATION SCIENCES CENTER
P.O. BOX 400
BUFFALO, NEW YORK 14225



April 19, 2002

FINAL REPORT

U. S. DEPARTMENT OF TRANSPORTATION
National Highway Traffic Safety Administration
Safety Performance Standards
Office of Crashworthiness Standards
Mail Code: NPS-10
400 Seventh Street, SW, Room No. 5313
Washington, DC 20590

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15. Supplementary Notes																																	
16. Abstract A 55/28 kph 90⁰ Impact Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2002 Subaru Outback 4-Door Wagon 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 Veridian Engineering Crash Test Facility in Buffalo, New York, on April 19, 2002. The impact velocity of the Moving Deformable Barrier (MDB) was 61.63 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 203 mm at level 3. The test or target vehicle's performance is given below: <table border="0"> <thead> <tr> <th></th><th align="center"><u>Front SID</u></th><th></th><th align="center"><u>Rear SID</u></th><th></th></tr> </thead> <tbody> <tr> <td>Left Upper Rib Acceleration:</td><td align="center">23.1</td><td align="center">g's</td><td align="center">45.2</td><td align="center">g's</td></tr> <tr> <td>Left Lower Rib Acceleration:</td><td align="center">27.4</td><td align="center">g's</td><td align="center">50.7</td><td align="center">g's</td></tr> <tr> <td>Lower Spine Acceleration:</td><td align="center">40.4</td><td align="center">g's</td><td align="center">58.4</td><td align="center">g's</td></tr> <tr> <td>Thoracic Trauma Index (TTI):</td><td align="center">34</td><td align="center">g's</td><td align="center">55</td><td align="center">g's</td></tr> <tr> <td>Pelvis Acceleration (PEV):</td><td align="center">53</td><td align="center">g's</td><td align="center">52</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</u>		<u>Rear SID</u>		Left Upper Rib Acceleration:	23.1	g's	45.2	g's	Left Lower Rib Acceleration:	27.4	g's	50.7	g's	Lower Spine Acceleration:	40.4	g's	58.4	g's	Thoracic Trauma Index (TTI):	34	g's	55	g's	Pelvis Acceleration (PEV):	53	g's	52	g's
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17. Key Words New Car Assessment Program (NCAP) Side Impact MDB Side Impact Dummy (SID)		18. Distribution Statement <u>Copies of this report are available from:</u> National Highway Traffic Safety Administration Technical Reference Division Room 5108 (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

The purpose of this test was to generate comparative side impact performance in a 2002 Subaru Outback 4-Door Wagon. 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 2002 Subaru Outback 4-Door Wagon 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 61.63 kph (38.3 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 Veridian Engineering Transportation Sciences Center in Buffalo, New York on April 19, 2002. Pre- and post-test photographs of the test vehicle, the moving deformable barrier (MDB), and the side impact dummies (SIDs) are included in Appendix A.

Two restrained Side Impact Dummies (SIDs) 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 9 high-speed cameras. Camera locations and other pertinent camera information are included in this report.

The SIDs 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)

A summary of the side impact dummy (SID) configuration and verification test data can be found in Appendix C. A total of 53 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	Rear SID
TTI (g)	34	55
PEV (g)	53	52

SECTION 3

SUMMARY OF TEST RESULTS

DATA SHEET 1

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2002 Subaru Outback 4-Door Wagon

Vehicle Body Color: Red VIN: 4S3BH686427649744

Vehicle NHTSA No.: SU5500 Month & Year of Manufacture: 2/02

Engine Data: 4 Cylinders; - CID; 2.5 Liters; - cc

Engine Placement: X Longitudinal; or - Lateral

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

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

Odometer Reading 64 km

Options: X A/C; X Power Steering; X Power Brakes; X Power Windows

DATA FROM TIRE PLACARD

Tire Pressure* (at capacity); 30 kPa FRONT
29 kPa REAR

Recommended Tire Size: P225/60R16

Tires on Test Vehicle: P225/60R16 ; Manufacturer: Bridgestone

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 = 408 kg (A)

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

Vehicle Cargo Capacity = 67.8 kg (A-B)

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front =	<u>455.5</u> kg	Left Rear =	<u>370.0</u> kg
Right Front =	<u>433.0</u> kg	Right Rear =	<u>371.0</u> kg
TOTAL FRONT =	<u>888.5</u> kg	TOTAL REAR =	<u>741.0</u> kg
% of Total Weight =	<u>54.5%</u> %	% of Total Weight =	<u>45.47</u> %
TOTAL WEIGHT =	<u>1629.5</u> kg		

* Tire pressure used in test.

DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Max. Fluids	=	<u>1629.5</u>	kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle	=	<u>67.8</u>	kg (B)
Weight of instrumented Side Impact Dummies (2 X 81.2 kg)	=	<u>162.4</u>	kg (C)
TEST VEHICLE TARGET WEIGHT:	=	<u>1859.7</u>	kg (A+B+C)

FULLY LOADED TEST VEHICLE (UDVW + 2 SIDs + CARGO):

Left Front	=	<u>496.5</u>	kg	Left Rear	=	<u>485.0</u>	kg
Right Front	=	<u>446.5</u>	kg	Right Rear	=	<u>432.0</u>	kg
TOTAL FRONT	=	<u>943.0</u>	kg	TOTAL REAR	=	<u>917.0</u>	kg
% of Total Weight	=	<u>50.7%</u>	%	% of Total Weight	=	<u>49.3%</u>	%
TOTAL TEST WEIGHT =		<u>1860.0</u>	kg				

AS TESTED WEIGHT OF TEST VEHICLE (2 SIDs + CARGO + EQUIPMENT & INSTRUMENTATION):

Left Front	=	<u>495.0</u>	kg	Left Rear	=	<u>466.0</u>	kg
Right Front	=	<u>456.0</u>	kg	Right Rear	=	<u>434.0</u>	kg
TOTAL FRONT	=	<u>951.0</u>	kg	TOTAL REAR	=	<u>900.0</u>	kg
% of Total Weight	=	<u>51.4%</u>	%	% of Total Weight	=	<u>48.6%</u>	%
TOTAL TEST WEIGHT =		<u>1851</u>	kg				

TEST VEHICLE ATTITUDE (all dimensions in millimeters):

AS DELIVERED:

Left Front	<u>757</u>	Right Front	<u>753</u>	Left Rear	<u>759</u>	Right Rear	<u>762</u>
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FULLY LOADED:

Left Front	<u>737</u>	Right Front	<u>744</u>	Left Rear	<u>723</u>	Right Rear	<u>736</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

READY FOR TEST:

Left Front	<u>739</u>	Right Front	<u>744</u>	Left Rear	<u>729</u>	Right Rear	<u>736</u>
------------	------------	-------------	------------	-----------	------------	------------	------------

Test Vehicle Wheelbase: 2650 millimeters

C.G. = 1288.49 millimeters rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side =	<u>4630</u>	millimeters
Left Side =	<u>4630</u>	millimeters
Centerline =	<u>4760</u>	millimeters

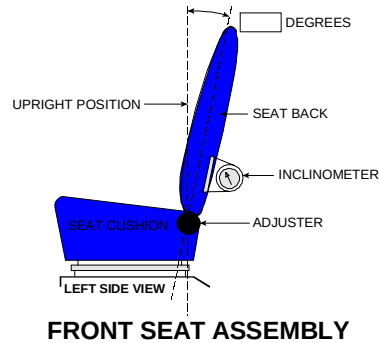
DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500

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 CUSHION PLACEMENT: Mid-Position (115 mm)

Total Length of Adjustment Travel: 230 millimeters

Total Number of Adjustment Positions or Detents: Electronic

FRONT SEAT BACK ADJUSTMENT POSITION: 3 notches rearward of full forward

Seat Back Torso Angle: 6.5 degrees

SECOND POSITION SEAT:

Total Length of Fore/Aft Adjustment Travel: 0 millimeters

Seat Back Adjustment Position: N/A

ADJUSTABLE STEERING COLUMN POSITION: Mid-position

WINDOW POSITIONS: Left Front: Closed Left Rear: Closed

Right Front: Removed Right Rear: Removed

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

AMOUNT OF STODDARD SOLVENT IN FUEL TANK:

64 liters (Fuel Tank Usable Capacity)

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

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

Wheelbase = 2650 millimeters

Impact Point is 385 millimeters rearward of front axle centerline
(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 377 millimeters rearward of front axle centerline

DATA SHEET 2

TEST VEHICLE SUMMARY OF RESULTS

VEHICLE IDENTIFICATION:

Vehicle Year/Make/Model: 2002 Subaru Outback

Body Style: 4-Door Wagon

VIN: 4S3BH686427649744

NHTSA No.: SU5500

Test Date: April 19, 2002

Overall Length = 4760 millimeters; Overall Width = 1750 millimeters

VEHICLE TEST WEIGHT (Pre-Test):

Left Front = 495.0 kg Left Rear = 466.0 kg

Right Front = 456.0 kg Right Rear = 434.0 kg

TOTAL FRONT = 951.0 kg TOTAL REAR = 900.0 kg

TOTAL VEHICLE WEIGHT 1851.0 kg

Wheelbase = 2650 millimeters

Longitudinal C.G. from Center of Front Axle = 1288.49 millimeters

Impact Angle with Respect to Impactor = 90 degrees

ACTUAL IMPACT POINT

Actual Impact Point is 8 mm forward of nominal impact ref. line (Lateral)

Actual Impact Point is 8 mm below nominal impact point (Vertical)

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (271 mm above ground) = 104 millimeters

2. LEVEL 2 (542 mm above ground) = 200 millimeters

3. LEVEL 3 (643 mm above ground) = 203 millimeters

4. LEVEL 4 (884 mm above ground) = 197 millimeters

5. LEVEL 5 (1411 mm above ground) = 31 millimeters

Maximum Post-Test Intrusion = 203 millimeters

OCCUPANTS:

Front Passenger:

Rear Passenger:

Dummy Identification 013

016

Restraints Used 3-Point Safety Belt/Side Airbag

3-Point Safety Belt

INSTRUMENTATION:

Number of Vehicle Data Channels: = 18

Number of Cameras: Onboard = 3

Offboard = 8

TOTAL = 11

DATA SHEET 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500

MDB FACE MANUFACTURER AND SERIAL NUMBER:

Plascore, Inc. 072C1198-2 021C1001

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>61.63</u>	kph				

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A at Center of Bumper Level	=	<u>201</u>	millimeters
2. Row B at Top of Bumper Level	=	<u>149</u>	millimeters
3. Row C at Mid Level	=	<u>150</u>	millimeters
4. Row D at Top of Stack Level	=	<u>158</u>	millimeters

INSTRUMENTATION:

Number of MDB Data Channels	=	<u>5</u>
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DATA SHEET 4**POST-TEST OBSERVATIONS**Vehicle: 2002 Subaru Outback 4-Door WagonNHTSA No. SU5500TEST DUMMY INFORMATION AND CONTACT POINTS:

DESCRIPTION	FRONT SEAT	REAR SEAT
ATD Type/Serial No.	SID/013	SID/016
Head Contact:	Side of head to side window; Back of the head to the headrest	Top and side of the head to the C-Pillar trim panel
Upper Torso Contact:	Side Airbag	Door Trim Panel
Lower Torso Contact:	Side Airbag	Door Trim Panel
Left Knee Contact:	Door Trim Panel	Door Trim Panel
Right Knee Contact:	Left Knee	Left Knee

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

DESCRIPTION	FRONT	REAR
Left Side Doors	Remained Closed and Latched was Inoperable	Remained Closed and Latched was Inoperable
Right Side Doors	Remained Closed, Latched and Operable	Remained Closed, Latched and Operable
Hatch/Other Door	-	Remained Closed, Latched and Operable
Seat Movement (mm)	0	0
Seat Back Failure	None	None

POST TEST STRUCTURAL OBSERVATIONS

CRITICAL AREAS OF PERFORMANCE	
Pillar Performance	Moved inboard during the event; No visible tears or separations
Sill Separation	None
Windshield Damage	None
Window Damage	Side glass shattered upon impact
Other Notable Effects	None

AIR BAG DEPLOYMENT STATUS:

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

MDB LEFT EDGE IMPACT DATA

Measured Parameter	Units	Requirement	Value
Horizontal Offset	mm	± 50 mm	-8 mm
Vertical Offset	mm	± 20 mm	-8 mm

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET 5

SID INSTRUMENTATION DATA

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500

	Front Dummy ID# 013				Rear Dummy ID# 016			
	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	15.3	52.7	-14.3	52.9	15.6	69.8	-43.2	58.0
Lateral Y	21.5	52.7	-0.8	179.6	114.7	56.4	-11.4	70.5
Vertical Z	25.7	60.6	-1.0	16.8	46.6	56.5	-48.9	64.3
Resultant R	29.8	52.7	0.0	-14.3	128.6	56.4	0.0	-9.2
HIC	57.5				722.4			
RIB ACCELERATIONS:								
Upper Rib Lateral Y	23.1	43.8	-5.4	92.5	45.2	56.9	-11.0	101.3
Upper Rib Lateral Y(R)	22.8	43.8	-5.5	92.5	46.0	56.9	-11.7	101.3
Lower Rib Lateral Y	27.4	42.5	-4.8	93.2	50.7	46.9	-10.1	100.7
Lower Rib Lateral Y(R)	27.4	42.5	-5.1	93.2	50.1	46.9	-10.9	101.3
SPINE ACCELERATIONS:								
Lower Lateral Y	40.4	39.4	-5.5	68.2	58.4	52.5	-7.3	81.3
Lower Lateral Y(R)	39.8	39.4	-5.6	98.2	57.4	52.5	-7.0	81.3
PELVIC ACCELERATIONS:								
Lateral Y	53.2	36.9	-3.7	97.5	52.3	46.9	-4.7	103.8
Lateral Y(R)	53.1	36.9	-3.8	98.1	51.5	46.9	-4.6	103.8

REFERENCE: Positive Direction - Longitudinal (X) = forward
 Lateral (Y) = to right
 Vertical (Z) = up
 Negative Direction - Longitudinal (X) = rearward
 Lateral (Y) = to left
 Vertical (Z) = down

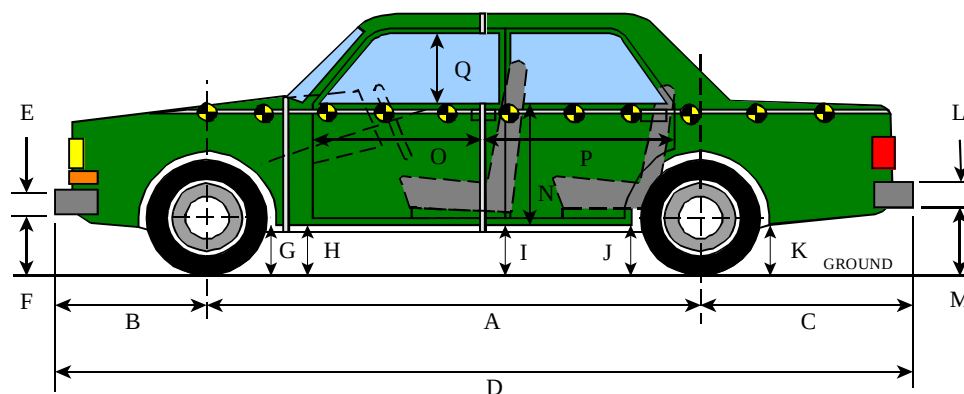
Note: Above data has been FIR filtered, Y(R) denotes redundant Y direction accelerometer.
 Head Accelerations are filtered at SAE Class 1000.

DATA SHEET 6

VEHICLE SIDE MEASUREMENTS

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500



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	2650	2650	2621	-29
B	975	-	1004	1004
C	1135	-	1128	1128
D	4760	-	4753	-7
E	140	-	140	0
F	394	390	428	38
G	227	210	232	22
H	243	223	245	22
I	255	227	242	15
J1	247	214	248	34
J2	250	217	232	15
K	332	293	303	10
L	187	-	187	0
M	413	379	346	-33
N	658	-	654	-4
O	750	-	748	-2
P	1110	-	1038	-72
Q	430	-	443	13
R	4630	-	4632	2
S	4630	-	4603	-27
T	1750	-	1629	-121

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

E&L = Bumper Thickness
J1 = To Pinch Weld

R = Right Side Length
J2 = To Sill

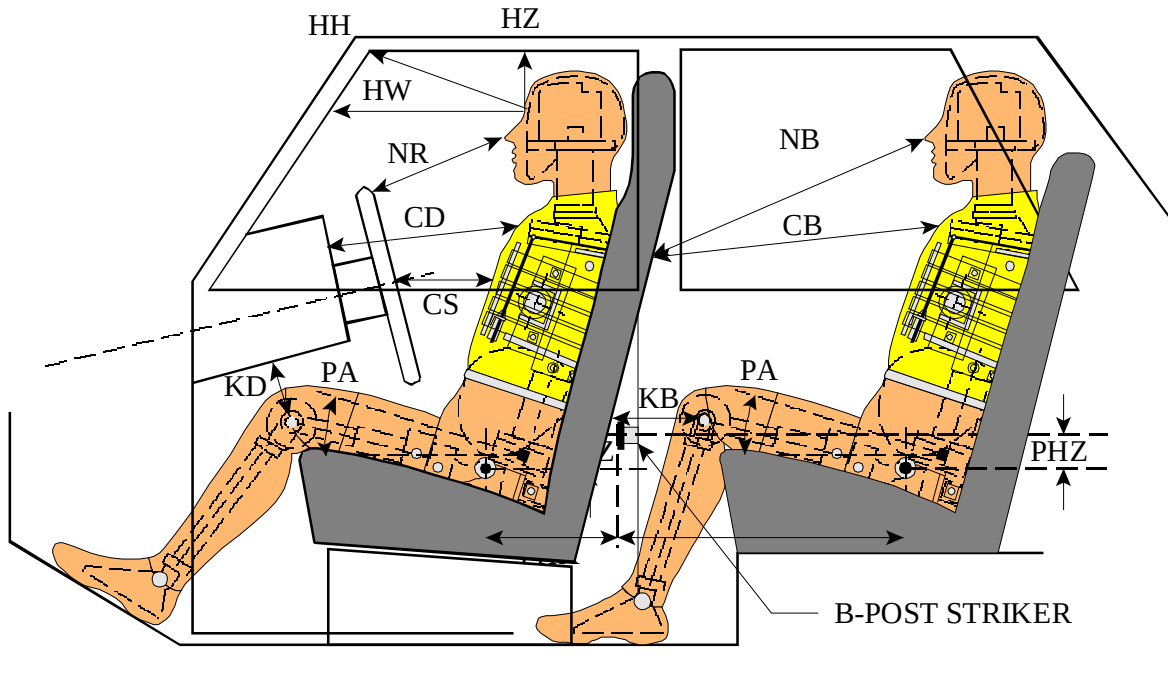
S = Left Side Length

DATA SHEET 7

SID LONGITUDINAL CLEARANCE DIMENSIONS

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500



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# 013	LEFT REAR PASS. ID# 016
HH	355	N/A
HW	571	N/A
HZ	163	157
NR/NB	435	619
CD/CB	505	531
CS	292	N/A
KDL(KDA°)/KBL(KDA°)	157 / (28 °)	217 / (28 °)
KDR(KBA°)/KBR(KBA°)	172 / (19 °)	209 / (29 °)
PA°	23.1 °	24.2 °
PHX	193	243
PHZ	112	273

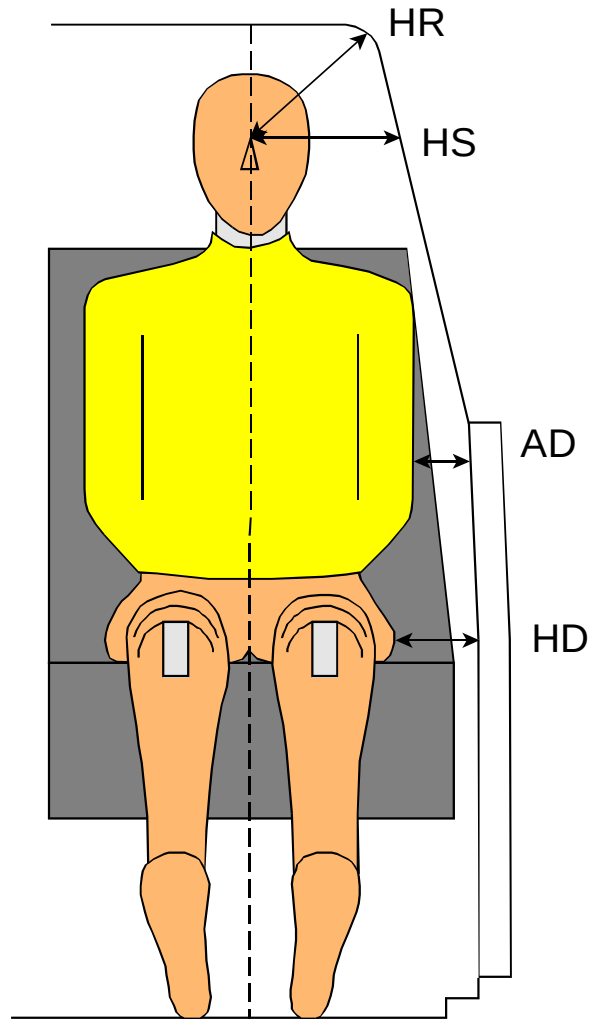
Note: 2-door vehicle shown. Rear dummy PHX & PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

DATA SHEET 8

SID LATERAL CLEARANCE DIMENSIONS

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500



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

	DRIVER ID # 013				LEFT REAR PASS. ID # 016			
HR	188				204			
HS	323				260			
AD*	LOWER:	110	UPPER:	116	LOWER:	131	UPPER:	130
HD	336				161			

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

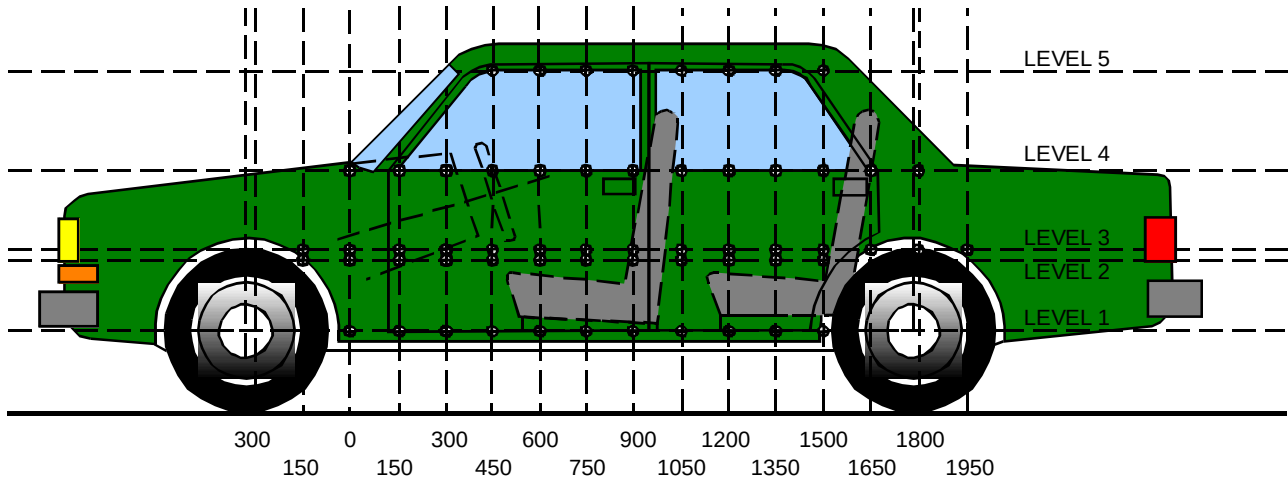
Upper measurement is taken laterally at the center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

DATA SHEET 9

VEHICLE SIDE MEASUREMENTS

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500



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 - SILL TOP HEIGHT

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

Measurements Along the Vertical 750 mm Line Shown Above:

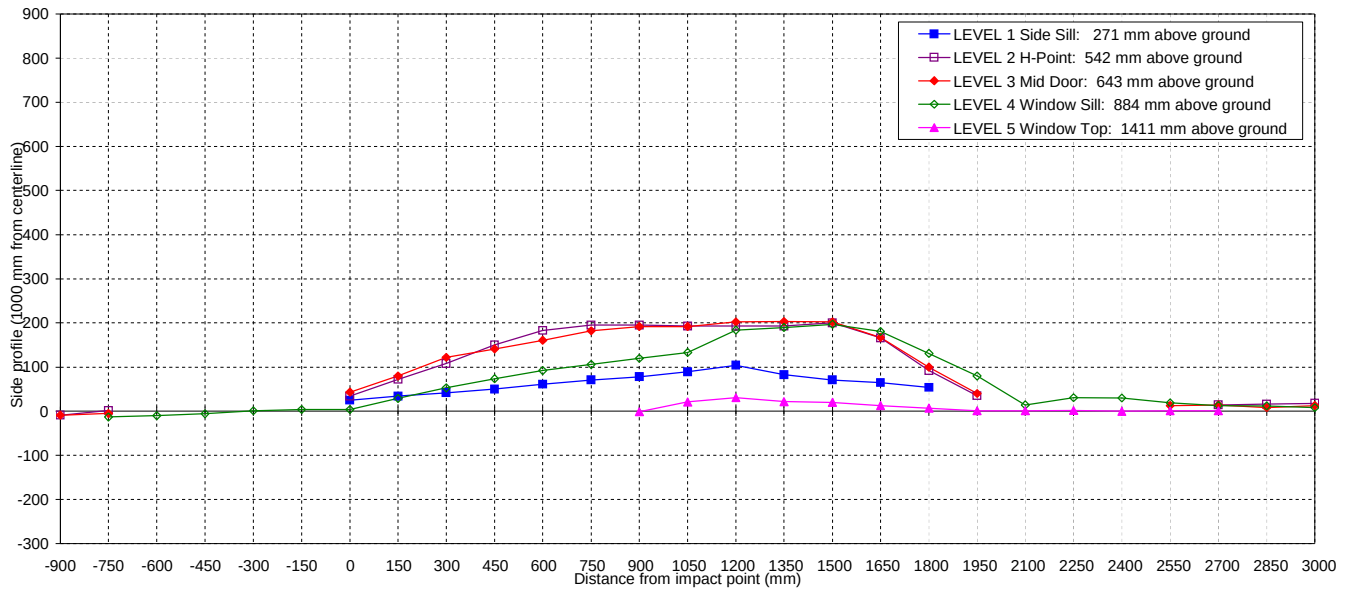
Level 5 @ Window Top	=	<u>1411</u>	millimeters
Level 4 @ Window Sill	=	<u>884</u>	millimeters
Level 3 @ Mid Door	=	<u>643</u>	millimeters
Level 2 @ Occupant H-Point	=	<u>542</u>	millimeters
Level 1 @ Sill Top Height	=	<u>271</u>	millimeters

DATA SHEET 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500



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

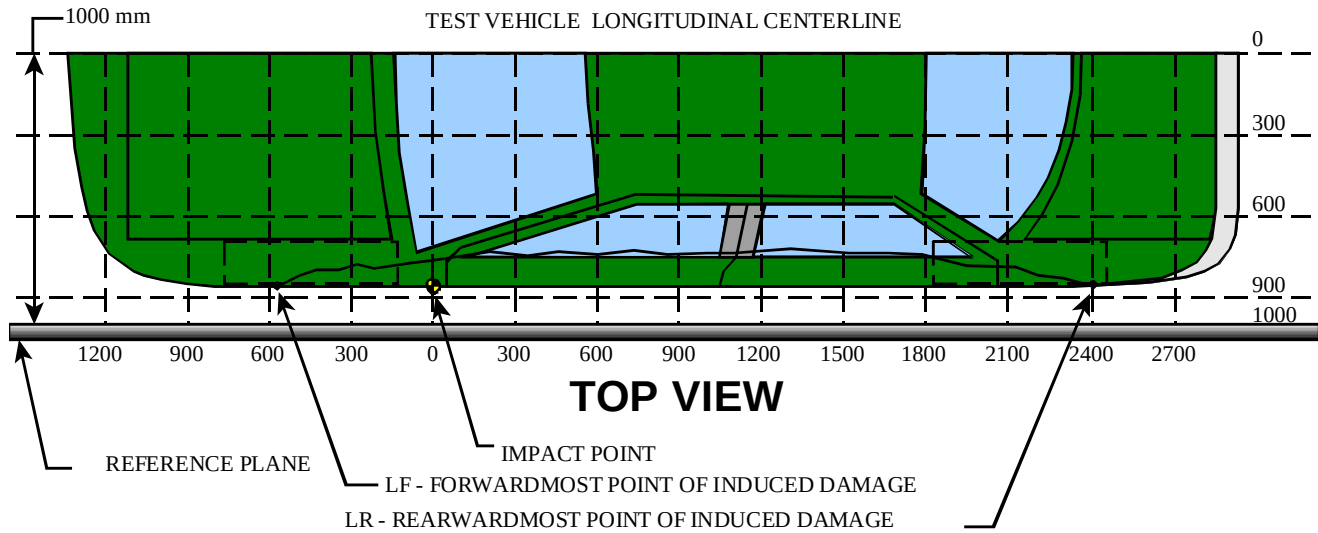
			DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT																											
LEVEL	HEIGHT (mm)		-900	-750	-600	-450	-300	-150	0	150	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700	2850	3000	
LEVEL 1 SIDE SILL	271	PRE	--	--	--	--	--	--	140	173	179	187	191	191	192	193	190	187	187	185	188	--	--	--	--	--	--	--	--	--
		POST	--	--	--	--	--	--	165	207	221	237	252	262	270	282	294	270	258	250	242	--	--	--	--	--	--	--	--	--
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	25	34	42	50	61	71	78	89	104	83	71	65	54	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
LEVEL 2 H POINT	542	PRE	194	155	--	--	--	--	140	150	138	131	130	130	133	135	149	140	138	143	150	152	--	--	--	--	175	184	199	
		POST	185	157	--	--	--	--	174	222	246	281	313	325	328	328	342	333	338	309	242	187	--	--	--	--	189	200	217	
		CRUSH	-9	2	N/A	N/A	N/A	N/A	34	72	108	150	183	195	195	193	193	193	200	166	92	35	N/A	N/A	N/A	N/A	14	16	18	
LEVEL 3 MID DOOR	643	PRE	208	179	--	--	--	--	145	147	149	143	143	144	142	145	147	150	147	149	151	153	--	--	--	159	180	194	213	
		POST	199	174	--	--	--	--	188	227	271	284	304	326	334	337	349	353	349	316	251	193	--	--	--	172	194	202	226	
		CRUSH	-9	-5	N/A	N/A	N/A	N/A	43	80	122	141	161	182	192	192	202	203	202	167	100	40	N/A	N/A	N/A	13	14	8	13	
LEVEL 4 WINDOW SILL	884	PRE	--	447	302	243	221	206	200	193	189	180	176	176	172	170	165	165	165	166	170	173	178	182	190	196	203	213	229	
		POST	--	434	292	237	222	210	204	222	242	254	268	282	292	303	349	355	362	347	301	253	192	213	220	215	216	225	237	
		CRUSH	N/A	-13	-10	-6	1	4	4	29	53	74	92	106	120	133	184	190	197	181	131	80	14	31	30	19	13	12	8	
LEVEL 5 WINDOW TOP	1411	PRE	--	--	--	--	--	--	--	--	--	--	--	--	500	440	435	436	438	440	440	441	442	446	450	458	476	--	--	
		POST	--	--	--	--	--	--	--	--	--	--	--	--	499	461	466	458	458	453	447	442	443	448	450	459	477	--	--	
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	-1	21	31	22	20	13	7	1	1	2	0	1	1	N/A	N/A	

DATA SHEET 11

VEHICLE DAMAGE PROFILE DISTANCES

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500



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.

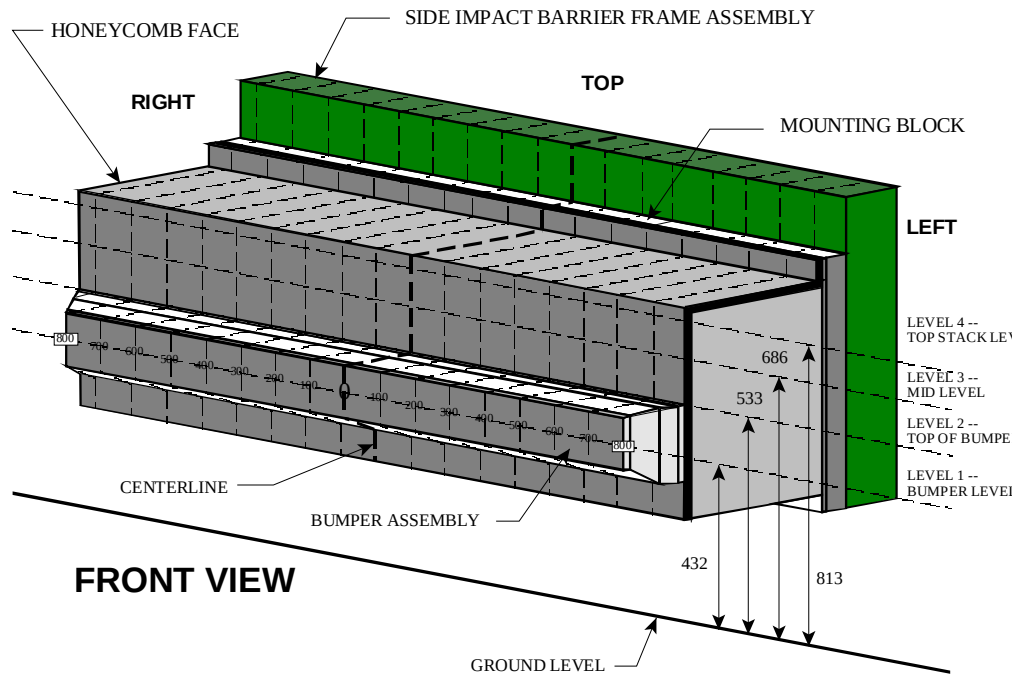
DPD MEASUREMENTS		POST TEST (mm)	PRETEST (mm)	STATIC CRUSH (mm)
1	(LR = <u>2800</u> mm)	199	189	10
2	2200	206	181	25
3	1600	352	166	186
4	1000	336	144	192
5	400	269	133	136
6	(LF = <u>-200</u> mm)	214	211	3

DATA SHEET 12

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500



NOTE: Dimensions are shown in millimeters, 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	673	643	626	620	629	660	688	660	655	656	657	667	679	692	706	724	777		
		CRUSH	54	24	7	1	10	41	69	41	36	37	38	48	60	73	87	105	158		
LEVEL 3 MID LEVEL	686	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619		
		POST	684	653	647	646	653	662	670	658	648	648	652	658	672	688	707	731	769		
		CRUSH	65	34	28	27	34	43	51	39	29	29	33	39	53	69	88	112	150		
LEVEL 2 TOP BUMPER	533	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619		
		POST	761	750	743	742	739	736	733	731	730	728	730	732	733	734	737	748	768		
		CRUSH	142	131	124	123	120	117	114	112	111	109	111	113	114	115	118	129	149		
LEVEL 1 MID BUMPER	432	PRE	535	519	518	518	518	518	518	518	518	518	518	518	518	518	518	519	535		
		POST	733	720	699	681	672	668	664	661	658	657	658	659	659	660	669	682	710		
		CRUSH	198	201	181	163	154	150	146	143	140	139	140	141	141	142	151	163	175		

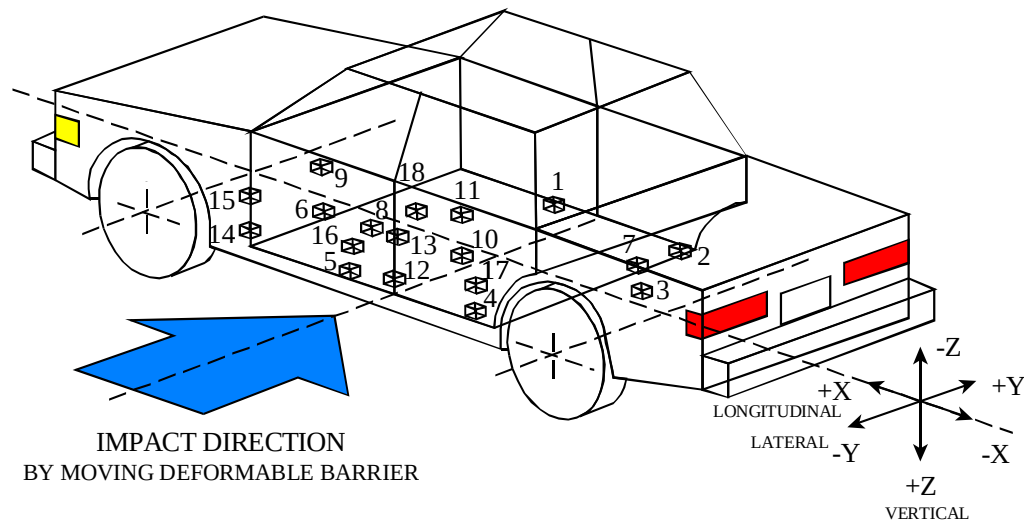
*Heights measured above ground level.

DATA SHEET 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500



- 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: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500

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	3051	561	-299	pos. neg.	2.5 -6.2	56.3 14.4	33.2 -1.9	8.9 143.7	6.2 -11.3	102.3 12.0	33.7 0.0	8.9 -9.9
2	Right Side Sill at Rear Seat	2163	548	-260	pos. neg.	2.4 -5.3	55.4 14.5	34.1 -2.3	9.1 112.1	6.1 -2.5	30.8 27.6	34.3 0.0	9.1 -20.0
3	Rear Floorpan Above Axle	1304	32	-632	pos. neg.	2.2 -5.1	56.0 9.4	31.6 -1.6	8.4 118.7	6.2 -5.3	65.9 27.7	31.9 0.0	8.5 -16.2
4	Left Side Sill at Rear Seat	2002	-365	-377	pos. neg.	- -	- -	50.9 -5.5	6.2 52.5	- -	- -	- -	- -
5	Left Side Sill at Front Seat	3091	-583	-299	pos. neg.	- -	- -	36.6 -1.5	5.6 143.6	- -	- -	- -	- -
6	Left Front Door on Centerline	2725	-720	-719	pos. neg.	- -	- -	198.2 -202.9	16.8 25.5	- -	- -	- -	- -
7	Right Rear Occupant Compartment	2192	366	-261	pos. neg.	- -	- -	33.1 -2.3	8.9 112.4	- -	- -	- -	- -
8	Midrear of Left Front Door	2709	-726	-568	pos. neg.	- -	- -	121.8 -167.3	15.6 25.3	- -	- -	- -	- -
9	Left Front Door Upper Centerline	2678	-688	-918	pos. neg.	- -	- -	139.7 -116.8	5.8 21.8	- -	- -	- -	- -
10	Midrear of Left Rear Door	1566	-676	-779	Pos. neg.	- -	- -	112.9 -62.5	7.6 30.2	- -	- -	- -	- -
11	Left Rear Door Upper Centerline	1956	-679	-871	pos. neg.	- -	- -	132.9 -160.3	14.6 24.0	- -	- -	- -	- -

*Reference: X - Rear Bumper (+ Forward)

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

**Accelerometer was not requested by COTR.

4-11

8659-01

DATA SHEET 13 (continued)

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500

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	2247	-668	-449	pos.	-	-	175.7	6.8	-	-	-	-
					neg.	-	-	-179.0	12.4	-	-	-	-
13	Left Middle B-Pillar	2211	-649	-937	pos.	-	-	139.8	4.9	-	-	-	-
					neg.	-	-	-37.4	9.5	-	-	-	-
14	Left Lower A-Pillar	3303	-630	-431	pos.	-	-	115.4	9.3	-	-	-	-
					neg.	-	-	-109.7	13.6	-	-	-	-
15	Left Middle A-Pillar	3128	-665	-992	pos.	-	-	25.4	6.4	-	-	-	-
					neg.	-	-	-3.3	81.5	-	-	-	-
16	Front Seat Track	2381	-573	-295	pos.	-	-	41.4	6.3	-	-	-	-
					neg.	-	-	-13.2	50.9	-	-	-	-
17	Rear Seat Track	2021	-624	-344	pos.	-	-	138.2	5.7	-	-	-	-
					neg.	-	-	-42.0	9.9	-	-	-	-
18	Vehicle CG	2522	-18	-508	pos.	4.9	29.9	81.2	20.0	21.1	23.5	83.3	19.8
					neg.	-19.0	25.2	-38.4	30.4	-26.9	18.8	0.0	-18.1

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

4-12

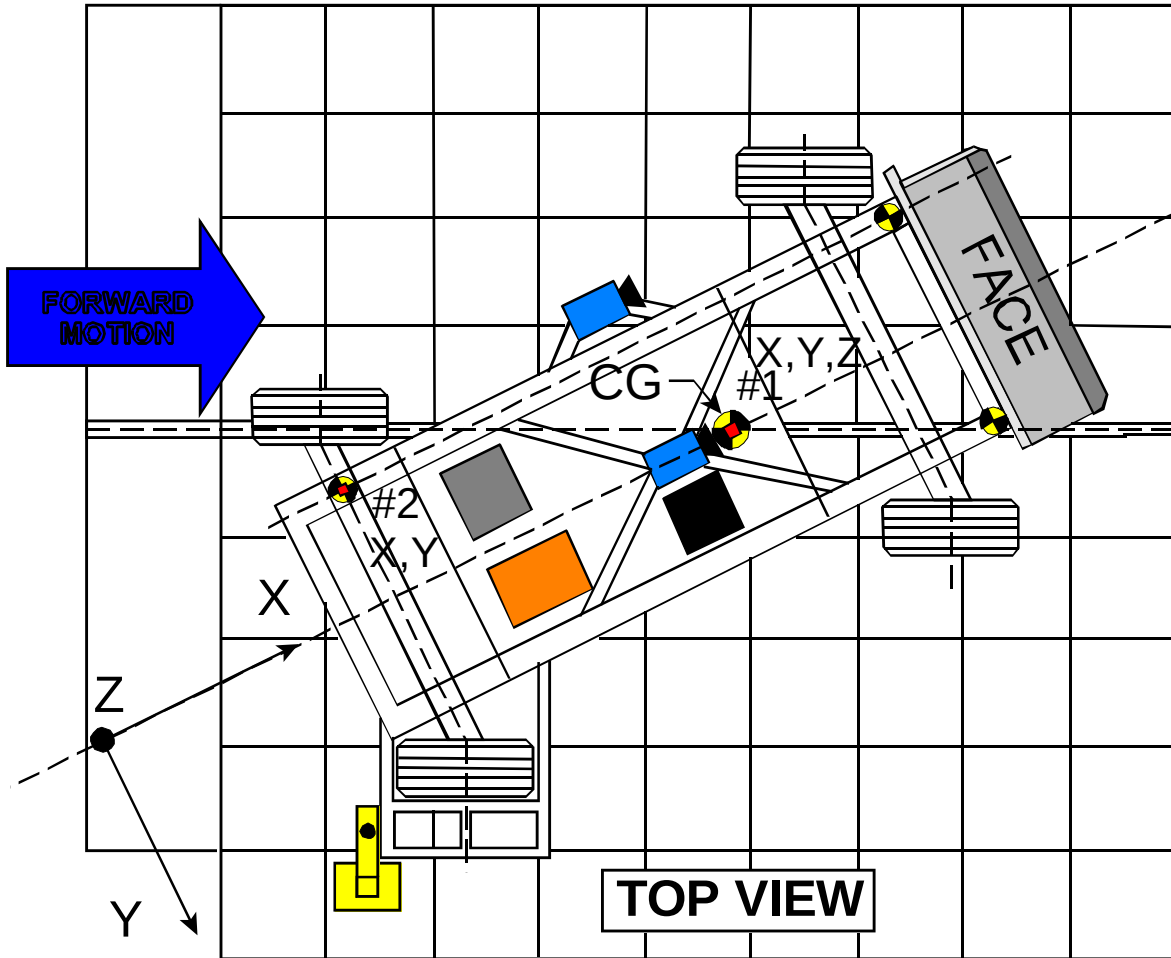
8659-01

DATA SHEET 14

MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500



Accel. No.	Location	Coordinates (millimeters)			Pos. Direct.		Neg. Direct.	
		X*	Y*	Z*	Max (g)	Time (msec)	Max (g)	Time (msec)
1	MDB Center of Gravity							
	Longitudinal... X	1859	0	-330	1.2	127.1	-21.0	27.3
	Lateral..... Y				1.0	62.6	-9.2	29.8
	Vertical..... Z				14.7	15.1	-19.9	22.0
	Resultant..... R				27.4	22.1	0.1	198.0
2	Rear Frame Member							
	Longitudinal... X	386	-660	-660	1.7	87.6	-24.0	30.1
	Lateral..... Y				3.8	29.2	-3.4	59.8

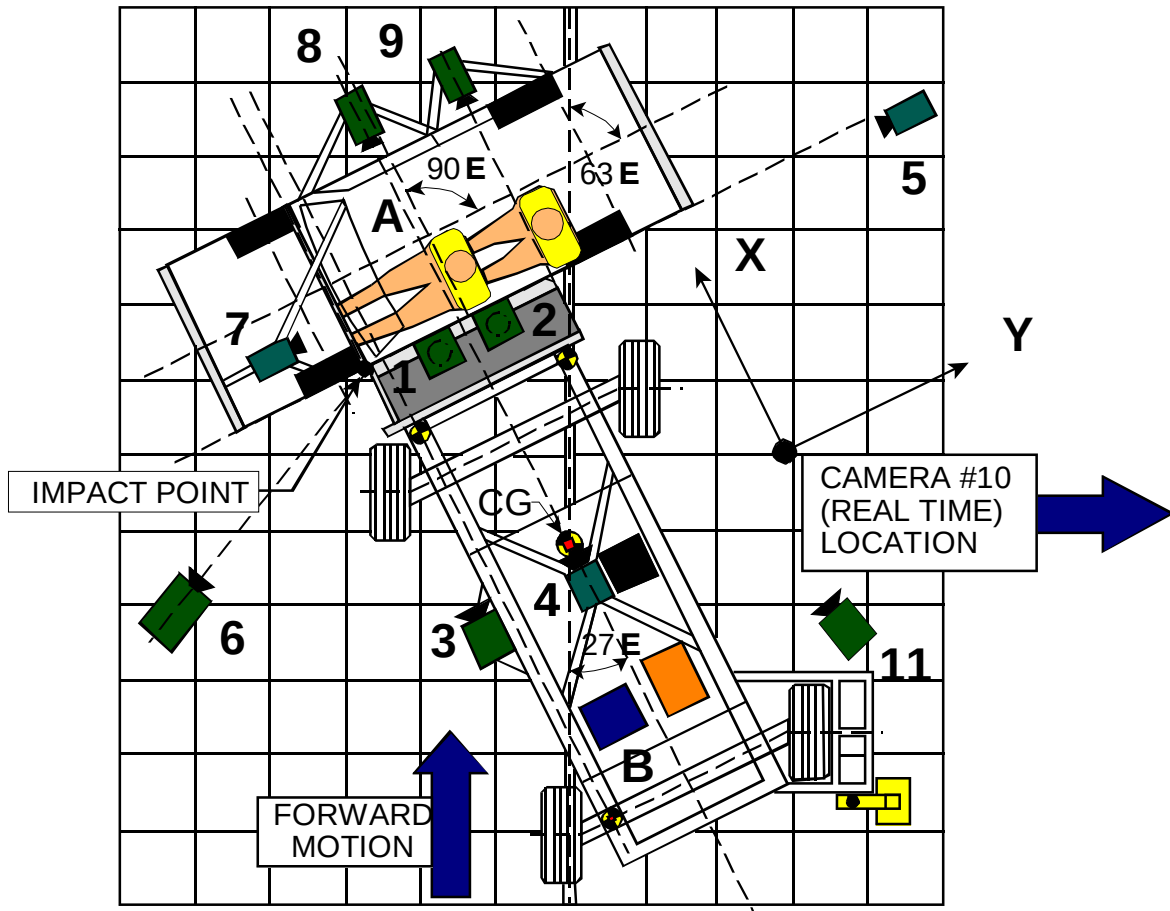
*Reference: X = Rear Bumper (+ Forward)
Y = Vehicle Centerline (+ To Right)
Z = Ground Level (+ Down)
All measurements accurate to within ± 3 mm.

DATA SHEET 15

HIGH SPEED CAMERA LOCATIONS AND DATA SUMMARY

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No. SU5500



Camera No.	View	Coordinates (millimeters)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Overhead view of test vehicle	211	56	-4880	-90	8	
2	Overhead closeup view of impact plane	383	128	-4880	-90	12.5	
3	MDB onboard closeup view of impact point	-1470	0	-847	0	13	
4	MDB onboard view of driver dummy	-1140	838	-1586	-17	7.5	
5	Right side ground level overall view	-61	9062	-1105	-3	25	
6	Left side ground level overall view	-2857	-1297	-1007	-7	13	
7	Test vehicle onboard driver front view	526	-422	-1285	-9	13	
8	Test vehicle onboard driver side view	1758	790	-1048	-11	8	
9	Test vehicle onboard passenger side view	1712	1610	-1087	-10	8	
10	Real time film coverage of test	-	-	-	-	-	24
11	Secondary impact point view	-4314	1800	-1075	-4	25	

* 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

SECTION 5

FUEL SYSTEM INTEGRITY

DATA SHEET 16

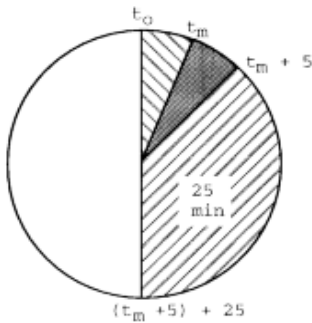
FMVSS 301 FUEL SYSTEM INTEGRITY DATA

NHTSA No.: SU5500 TEST DATE: April 19, 2002
 Vehicle Mfgr./Make/Model: Fuji Heavy Industries, Ltd. 2002 Subaru Outback 4-Door Wagon

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:

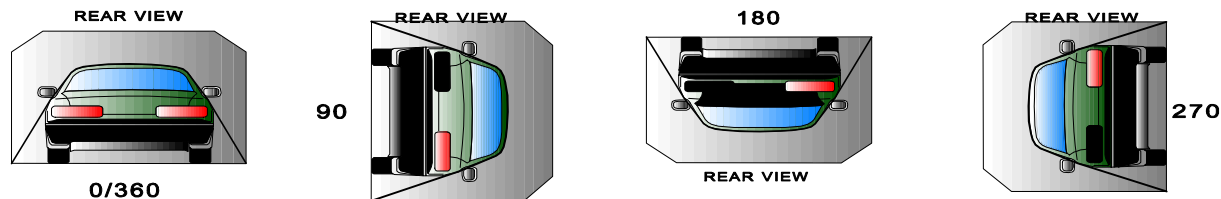
None

DATA SHEET 17

ROLLOVER DATA

Vehicle: 2002 Subaru Outback 4-Door Wagon

NHTSA No.: SU5500



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	12	seconds	5	minutes	6	minutes	12	seconds	7	minutes
90° - 180°	1	minutes	01	seconds	5	minutes	6	minutes	1	seconds	7	minutes
180°-270°	1	minutes	01	seconds	5	minutes	6	minutes	1	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

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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

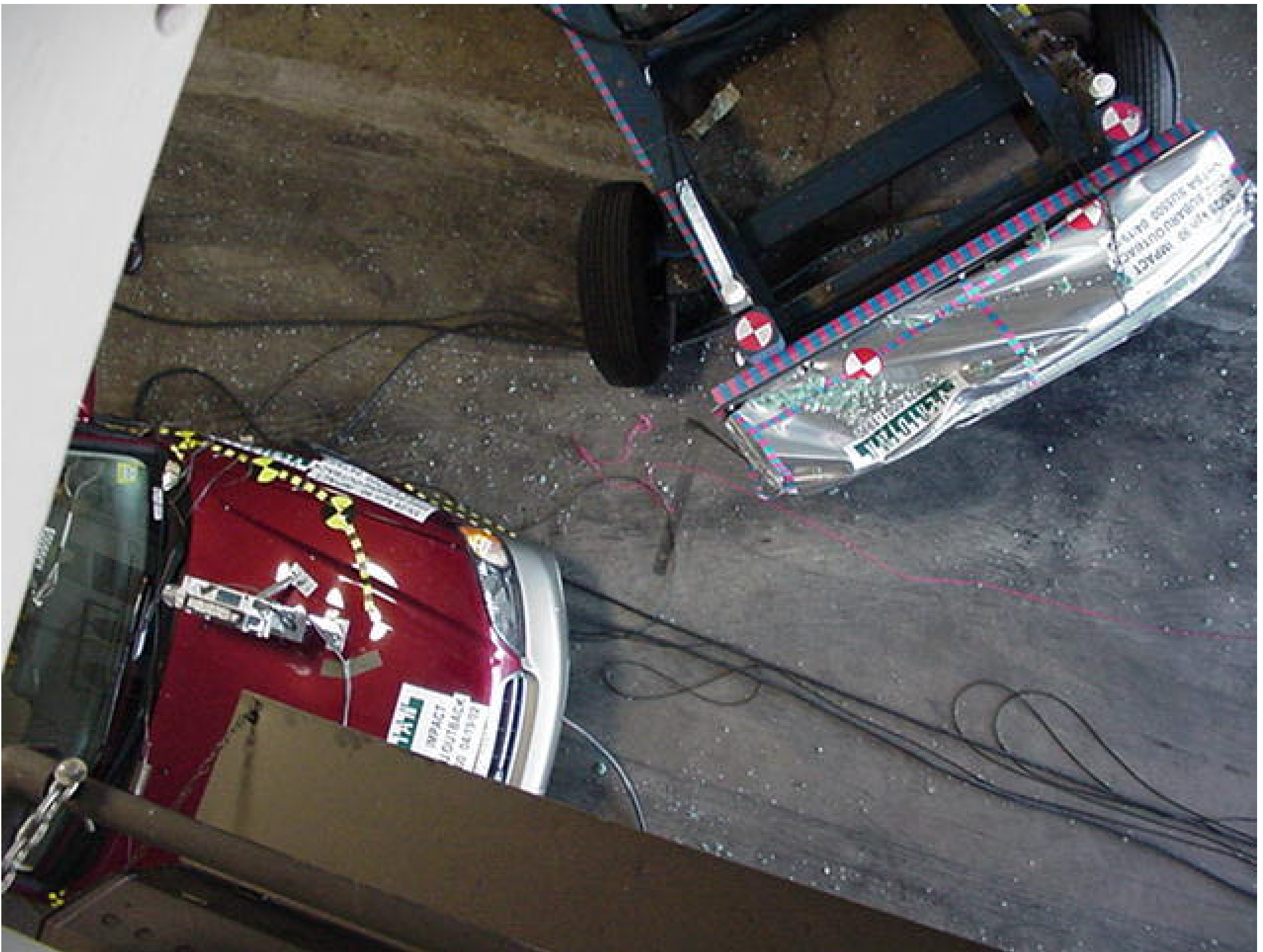


Figure A-24 POST-TEST OVERHEAD VIEW OF MDB AND VEHICLE

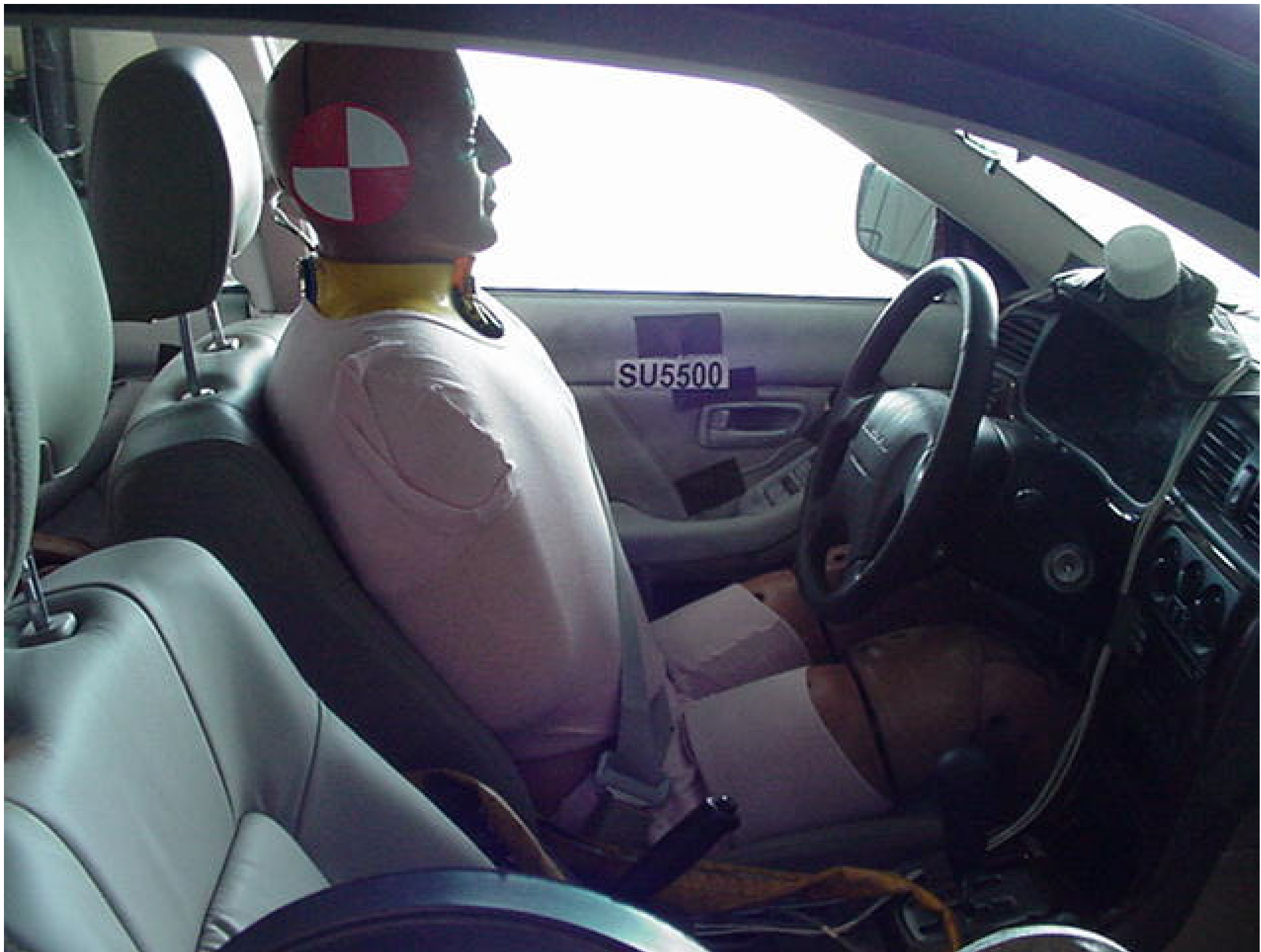


Figure A-25 PRE-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF FRONT SID



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



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

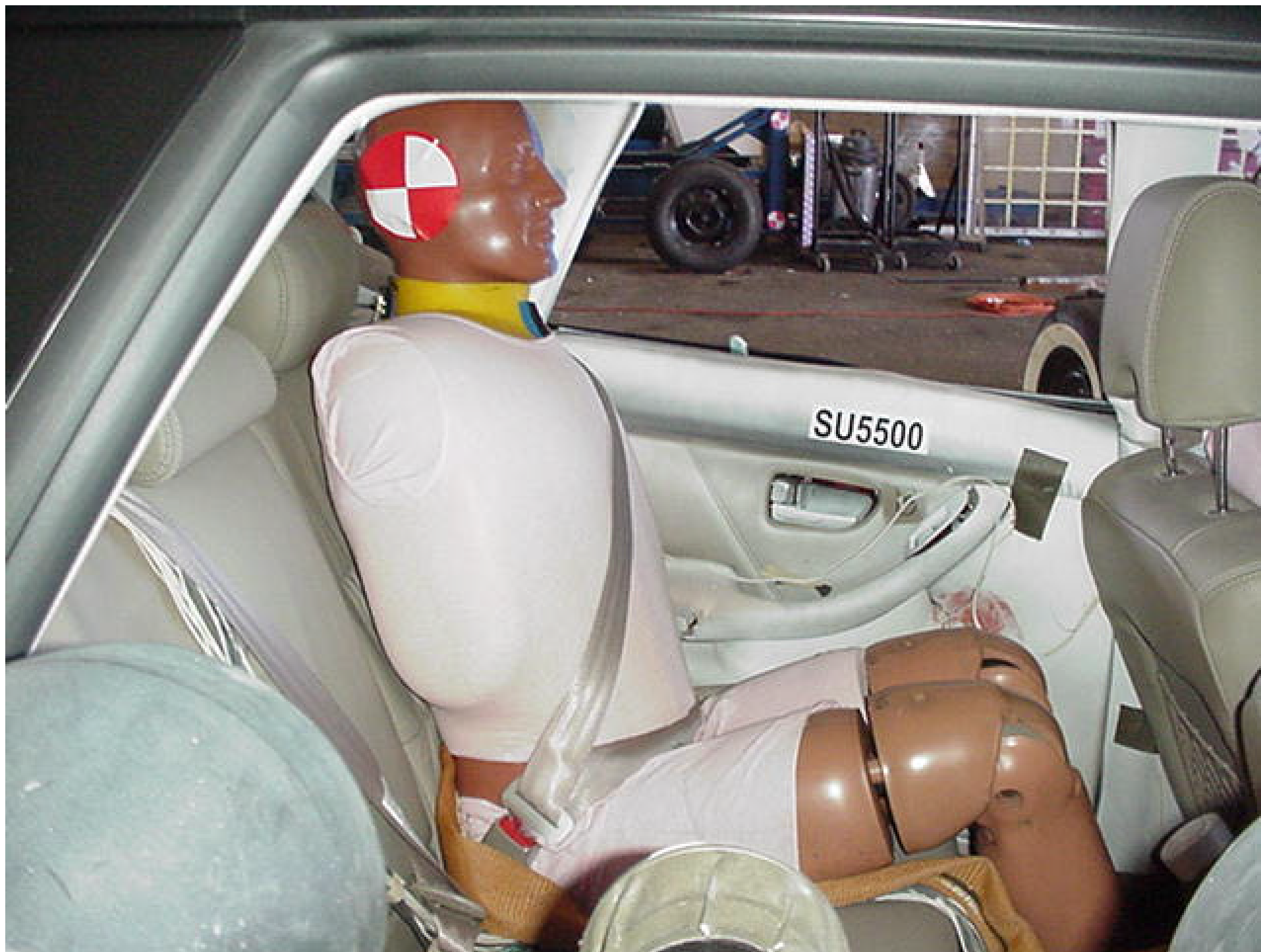


Figure A-28 POST-TEST RIGHT OCCUPANT COMPARTMENT VIEW OF REAR SID



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



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



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



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



Figure A-33 PRE-TEST INTERIOR OF FRONT DOOR



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



Figure A-35 PRE-TEST INTERIOR OF REAR DOOR



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

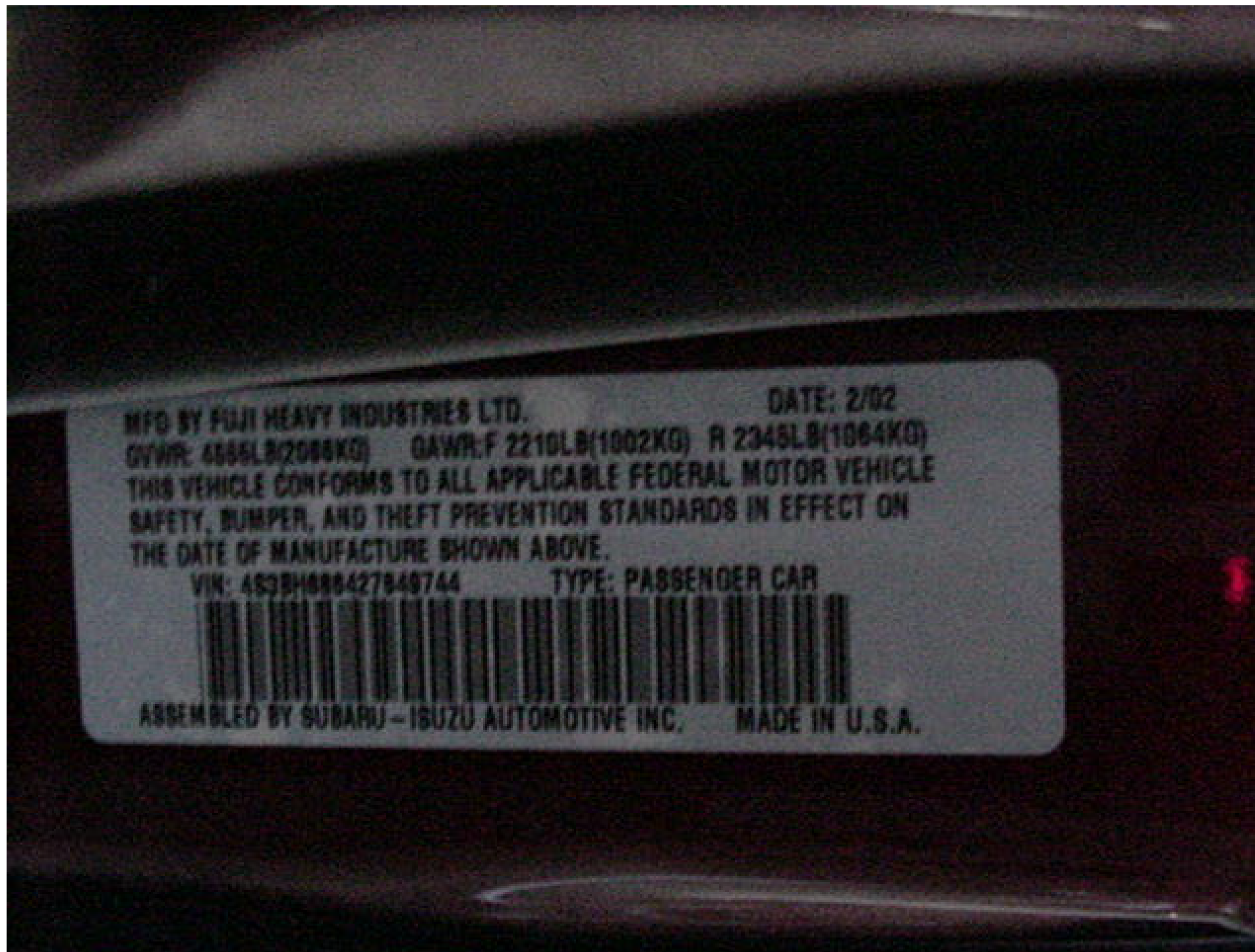


Figure A-40 CLOSE-UP VIEW OF VEHICLE'S CERTIFICATION LABEL



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 RESPONSE DATA

TABLE OF DATA PLOTS

DRIVER AND PASSENGER DUMMY INSTRUMENTATION PLOTS 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>
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 RIB (Y) ACCELERATION VS TIME	B- 13
9	DRIVER UPPER RIB (Y) VELOCITY VS TIME	B- 14
10	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 15
11	DRIVER LOWER RIB (Y) VELOCITY VS TIME	B- 16
12	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 17
13	DRIVER LOWER SPINE (Y) VELOCITY VS TIME	B- 18
14	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 19
15	DRIVER PELVIC (Y) VELOCITY VS TIME	B- 20
16	PASSENGER HEAD (X) ACCELERATION VS TIME	B- 21
17	PASSENGER HEAD (X) VELOCITY VS TIME	B- 22
18	PASSENGER HEAD (Y) ACCELERATION VS TIME	B- 23
19	PASSENGER HEAD (Y) VELOCITY VS TIME	B- 24
20	PASSENGER HEAD (Z) ACCELERATION VS TIME	B- 25
21	PASSENGER HEAD (Z) VELOCITY VS TIME	B- 26
22	PASSENGER HEAD RESULTANT ACCELERATION VS TIME	B- 27
23	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 28
24	PASSENGER UPPER RIB (Y) VELOCITY VS TIME	B- 29
25	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 30
26	PASSENGER LOWER RIB (Y) VELOCITY VS TIME	B- 31
27	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 32
28	PASSENGER LOWER SPINE (Y) VELOCITY VS TIME	B- 33
29	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 34
30	PASSENGER PELVIC (Y) VELOCITY VS TIME	B- 35

DRIVER & PASSENGER DUMMY INSTRUMENTATION PLOTS ACCELERATION DATA - FIR FILTERED

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
31	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 36
32	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 37
33	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 38
34	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 39
35	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 40
36	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 41
37	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 42
38	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 43

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>
39	RIGHT SIDE SILL AT FRONT SEAT (X) ACCELERATION VS TIME	B- 44
40	RIGHT SIDE SILL AT FRONT SEAT (X) VELOCITY VS TIME	B- 45
41	RIGHT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B- 46
42	RIGHT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B- 47
43	RIGHT SIDE SILL AT FRONT SEAT (Z) ACCELERATION VS TIME	B- 48
44	RIGHT SIDE SILL AT FRONT SEAT (Z) VELOCITY VS TIME	B- 49
45	RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION VS TIME	B- 50
46	RIGHT SIDE SILL AT REAR SEAT (X) ACCELERATION VS TIME	B- 51
47	RIGHT SIDE SILL AT REAR SEAT (X) VELOCITY VS TIME	B- 52
48	RIGHT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B- 53
49	RIGHT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B- 54
50	RIGHT SIDE SILL AT REAR SEAT (Z) ACCELERATION VS TIME	B- 55
51	RIGHT SIDE SILL AT REAR SEAT (Z) VELOCITY VS TIME	B- 56
52	RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION VS TIME	B- 57
53	REAR FLOORPAN ABOVE AXLE (X) ACCELERATION VS TIME	B- 58
54	REAR FLOORPAN ABOVE AXLE (X) VELOCITY VS TIME	B- 59
55	REAR FLOORPAN ABOVE AXLE (Y) ACCELERATION VS TIME	B- 60
56	REAR FLOORPAN ABOVE AXLE (Y) VELOCITY VS TIME	B- 61
57	REAR FLOORPAN ABOVE AXLE (Z) ACCELERATION VS TIME	B- 62
58	REAR FLOORPAN ABOVE AXLE (Z) VELOCITY VS TIME	B- 63
59	REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION VS TIME	B- 64
60	LEFT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B- 65
61	LEFT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B- 66
62	LEFT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B- 67
63	LEFT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B- 68
64	LEFT FRONT DOOR ON CENTERLINE (Y) ACCELERATION VS TIME	B- 69
65	LEFT FRONT DOOR ON CENTERLINE (Y) VELOCITY VS TIME	B- 70
66	RIGHT REAR OCCUPANT COMPARTMENT (Y) ACCELERATION VS TIME	B- 71
67	RIGHT REAR OCCUPANT COMPARTMENT (Y) VELOCITY VS TIME	B- 72
68	MID REAR OF LEFT FRONT DOOR (Y) ACCELERATION VS TIME	B- 73
69	MID REAR OF LEFT FRONT DOOR (Y) VELOCITY VS TIME	B- 74
70	LEFT FRONT DOOR UPPER CENTERLINE (Y) ACCELERATION VS TIME	B- 75
71	LEFT FRONT DOOR UPPER CENTERLINE (Y) VELOCITY VS TIME	B- 76
72	MID REAR OF LEFT REAR DOOR (Y) ACCELERATION VS TIME	B- 77
73	MID REAR OF LEFT REAR DOOR (Y) VELOCITY VS TIME	B- 78
74	LEFT REAR DOOR UPPER CENTERLINE (Y) ACCELERATION VS TIME	B- 79
75	LEFT REAR DOOR UPPER CENTERLINE (Y) VELOCITY VS TIME	B- 80
76	LOWER B-POST (Y) ACCELERATION VS TIME	B- 81
77	LOWER B-POST (Y) VELOCITY VS TIME	B- 82
78	UPPER B-POST (Y) ACCELERATION VS TIME	B- 83
79	UPPER B-POST (Y) VELOCITY VS TIME	B- 84
80	LOWER A-POST (Y) ACCELERATION VS TIME	B- 85

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>
81	LOWER A-POST (Y) VELOCITY VS TIME	B- 86
82	UPPER A-POST (Y) ACCELERATION VS TIME	B- 87
83	UPPER A-POST (Y) VELOCITY VS TIME	B- 88
84	FRONT SEAT TRACK (Y) ACCELERATION VS TIME	B- 89
85	FRONT SEAT TRACK (Y) VELOCITY VS TIME	B- 90
86	REAR SEAT TRACK (Y) ACCELERATION VS TIME	B- 91
87	REAR SEAT TRACK (Y) VELOCITY VS TIME	B- 92
88	VEHICLE CENTER OF GRAVITY (X) ACCELERATION VS TIME	B- 93
89	VEHICLE CENTER OF GRAVITY (X) VELOCITY VS TIME	B- 94
90	VEHICLE CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B- 95
91	VEHICLE CENTER OF GRAVITY (Y) VELOCITY ACCELERATION VS TIME	B- 96
92	VEHICLE CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B- 97
93	VEHICLE CENTER OF GRAVITY (Z) VELOCITY VS TIME	B- 98
94	VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B- 99

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>
95	MDB CENTER OF GRAVITY (X) ACCELERATION VS TIME	B- 100
96	MDB CENTER OF GRAVITY (X) VELOCITY VS TIME	B- 101
97	MDB CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B- 102
98	MDB CENTER OF GRAVITY (Y) VELOCITY VS TIME	B- 103
99	MDB CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B- 104
100	MDB CENTER OF GRAVITY (Z) VELOCITY VS TIME	B- 105
101	MDB CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B- 106
102	MDB REAR (X) ACCELERATION VS TIME	B- 107
103	MDB REAR (X) VELOCITY VS TIME	B- 108
104	MDB REAR (Y) ACCELERATION VS TIME	B- 109
105	MDB REAR (Y) VELOCITY VS TIME	B- 110

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>
106	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 111
107	DRIVER UPPER RIB (Y) VELOCITY VS TIME	B- 112
108	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 113
109	DRIVER LOWER RIB (Y) VELOCITY VS TIME	B- 114
110	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 115
111	DRIVER LOWER SPINE (Y) VELOCITY VS TIME	B- 116
112	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 117
113	DRIVER PELVIC (Y) VELOCITY VS TIME	B- 118
114	PASSENGER UPPER RIB (Y) ACCELERATION VS TIME	B- 119
115	PASSENGER UPPER RIB (Y) VELOCITY VS TIME	B- 120
116	PASSENGER LOWER RIB (Y) ACCELERATION VS TIME	B- 121
117	PASSENGER LOWER RIB (Y) VELOCITY VS TIME	B- 122
118	PASSENGER LOWER SPINE (Y) ACCELERATION VS TIME	B- 123
119	PASSENGER LOWER SPINE (Y) VELOCITY VS TIME	B- 124
120	PASSENGER PELVIC (Y) ACCELERATION VS TIME	B- 125
121	PASSENGER PELVIC (Y) VELOCITY VS TIME	B- 126

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

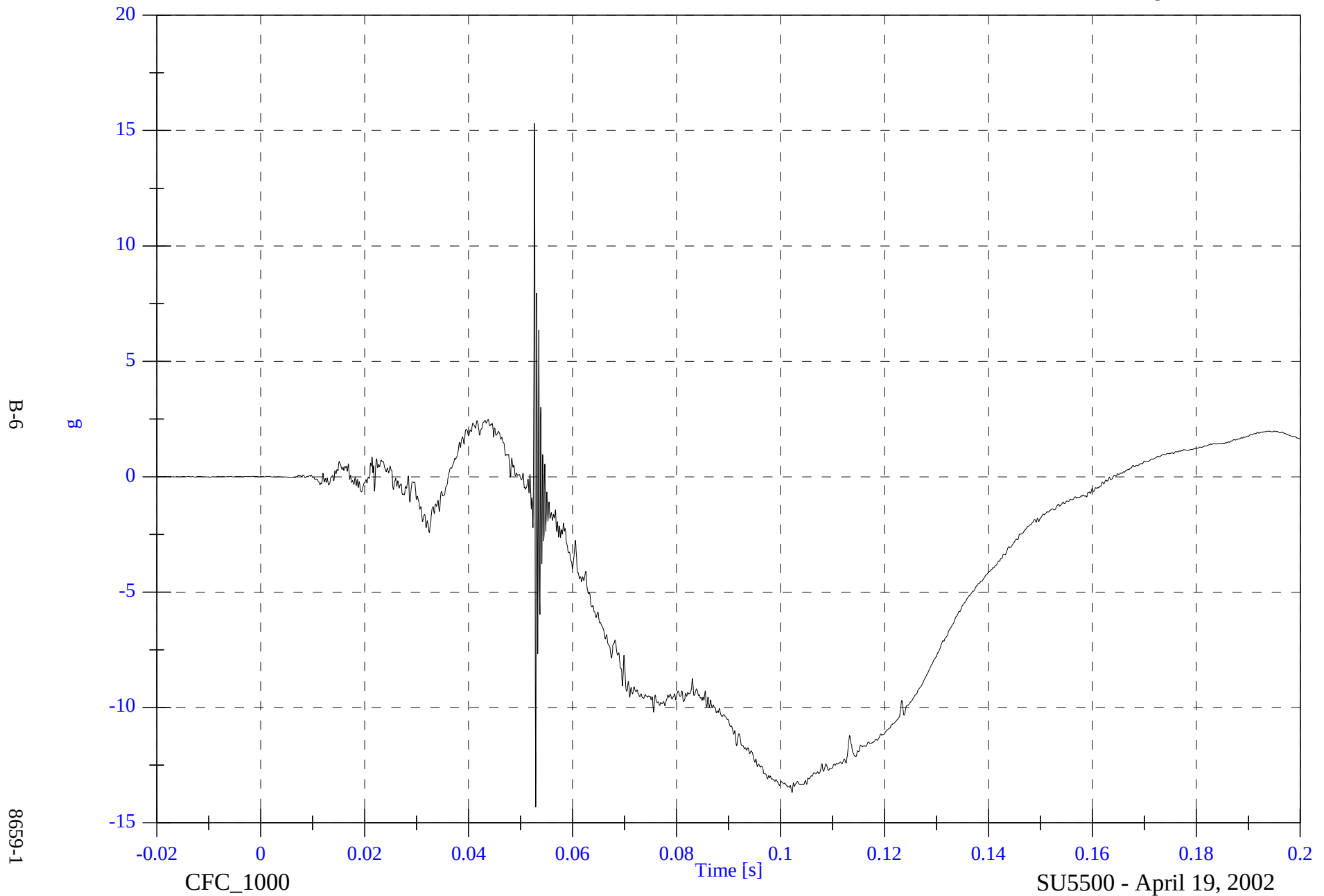
<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
122	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 127
123	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 128
124	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 129
125	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 130
126	PASSENGER UPPER RIB (Y) ACCELERATION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

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Head x

Max: 15.3 [g] at 0.053 [s]

Min: -14.3 [g] at 0.053 [s]



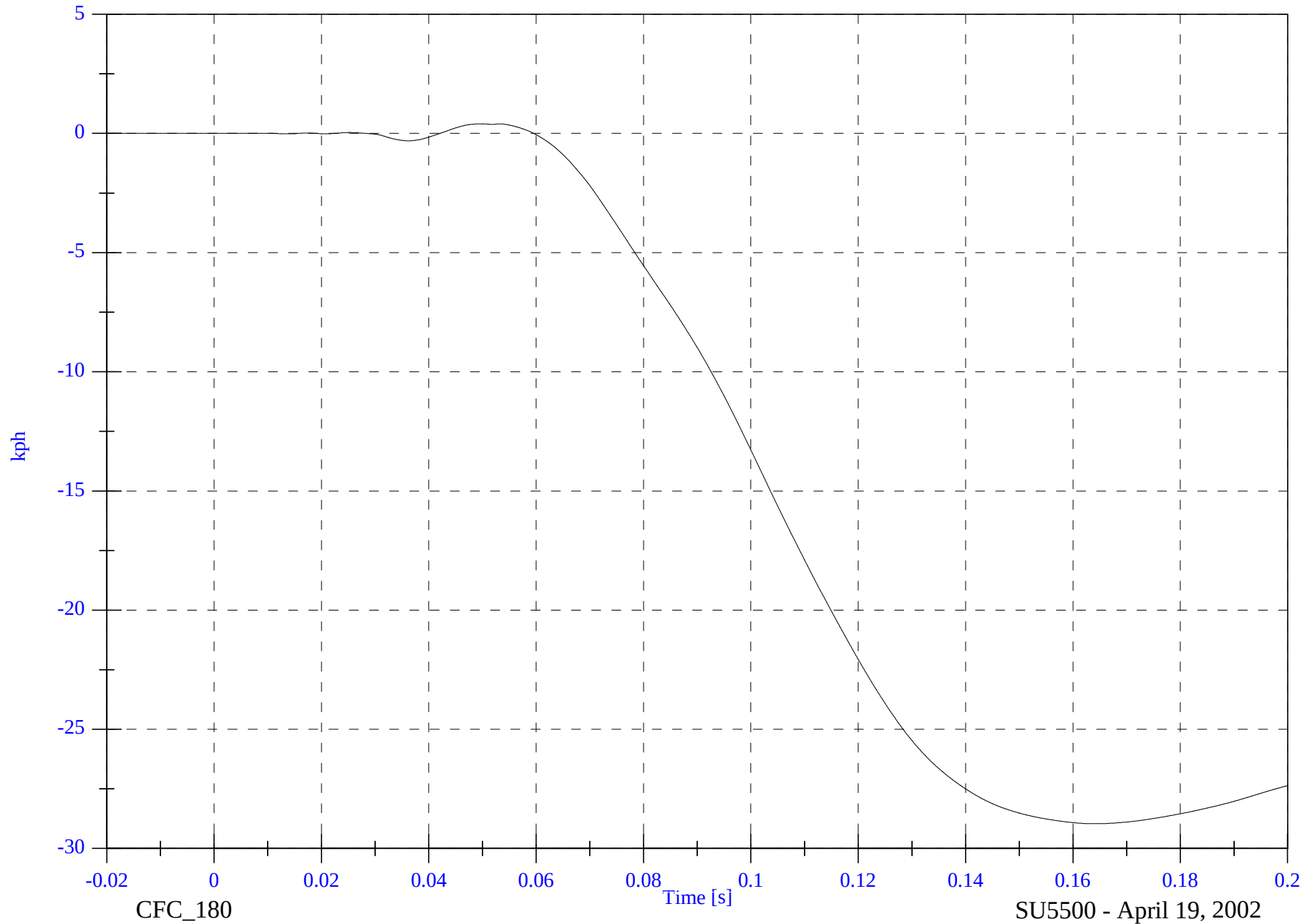
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Head x Velocity

Max: 0.4 [kph] at 0.053 [s]

Min: -29.0 [kph] at 0.164 [s]



B-7

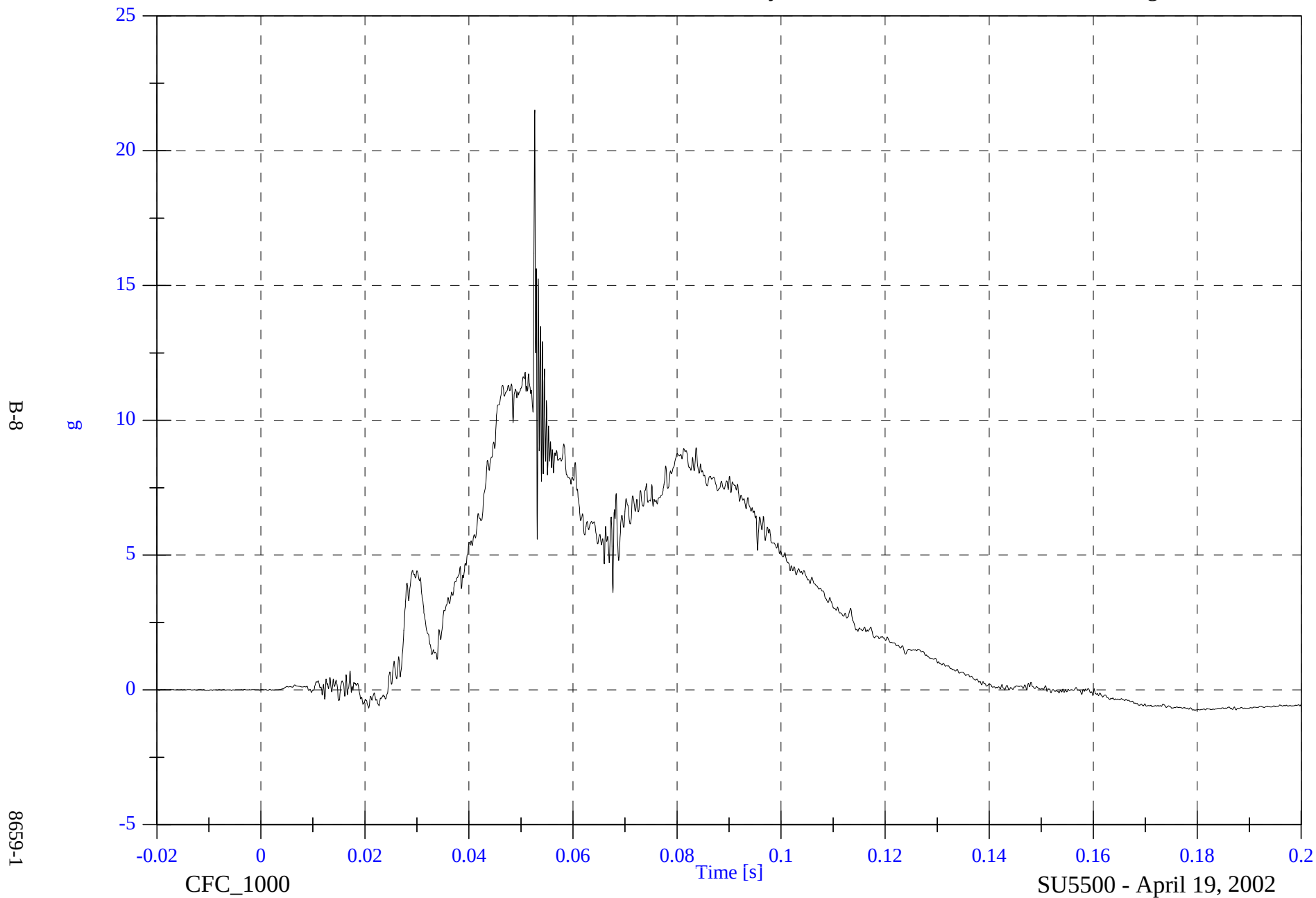
8659-1

CFC_180

SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback
P1 Head y

Max: 21.5 [g] at 0.053 [s]
Min: -0.8 [g] at 0.180 [s]

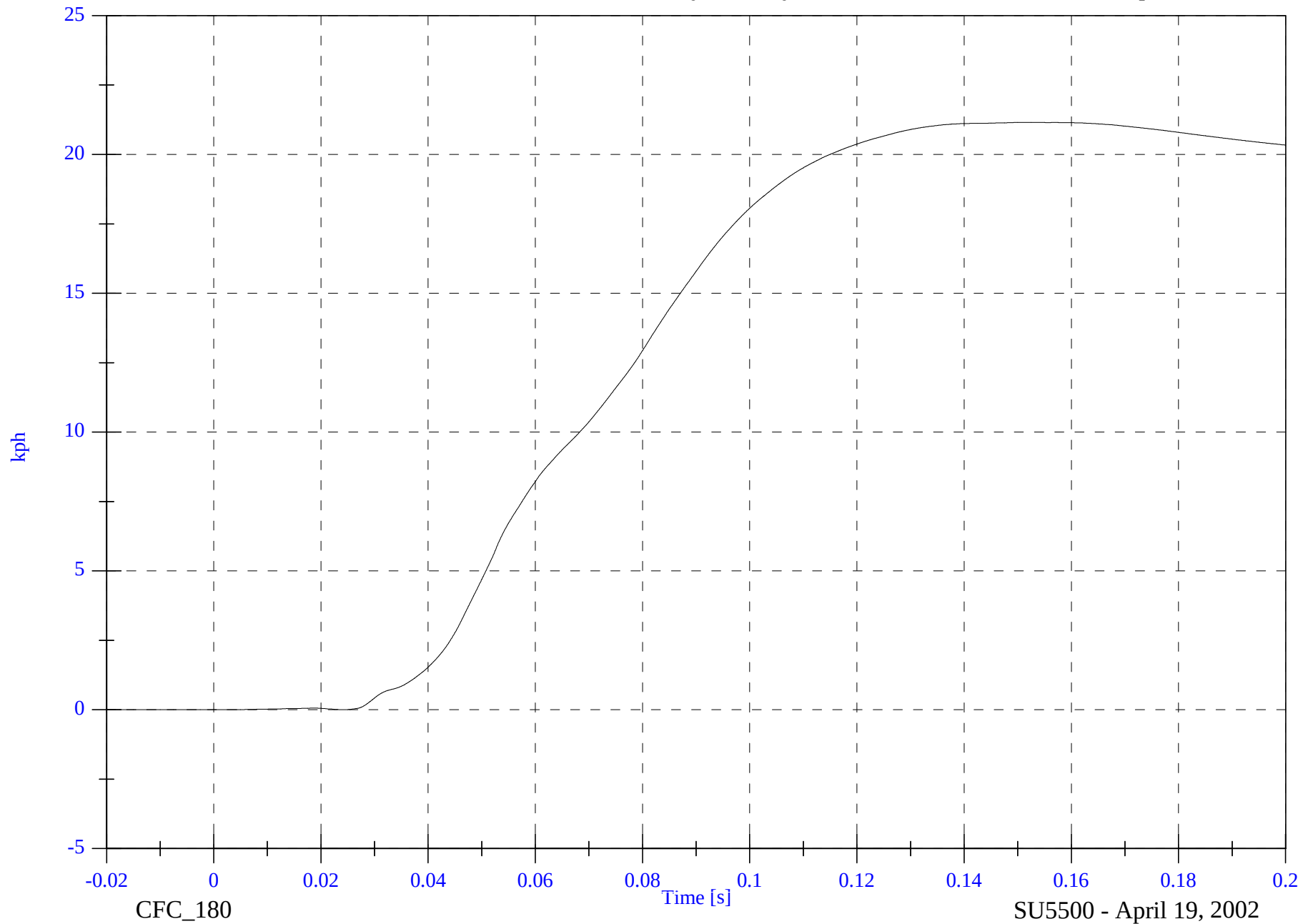


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Head y Velocity

Max: 21.2 [kph] at 0.152 [s]

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



B-9

8659-1

CFC_180

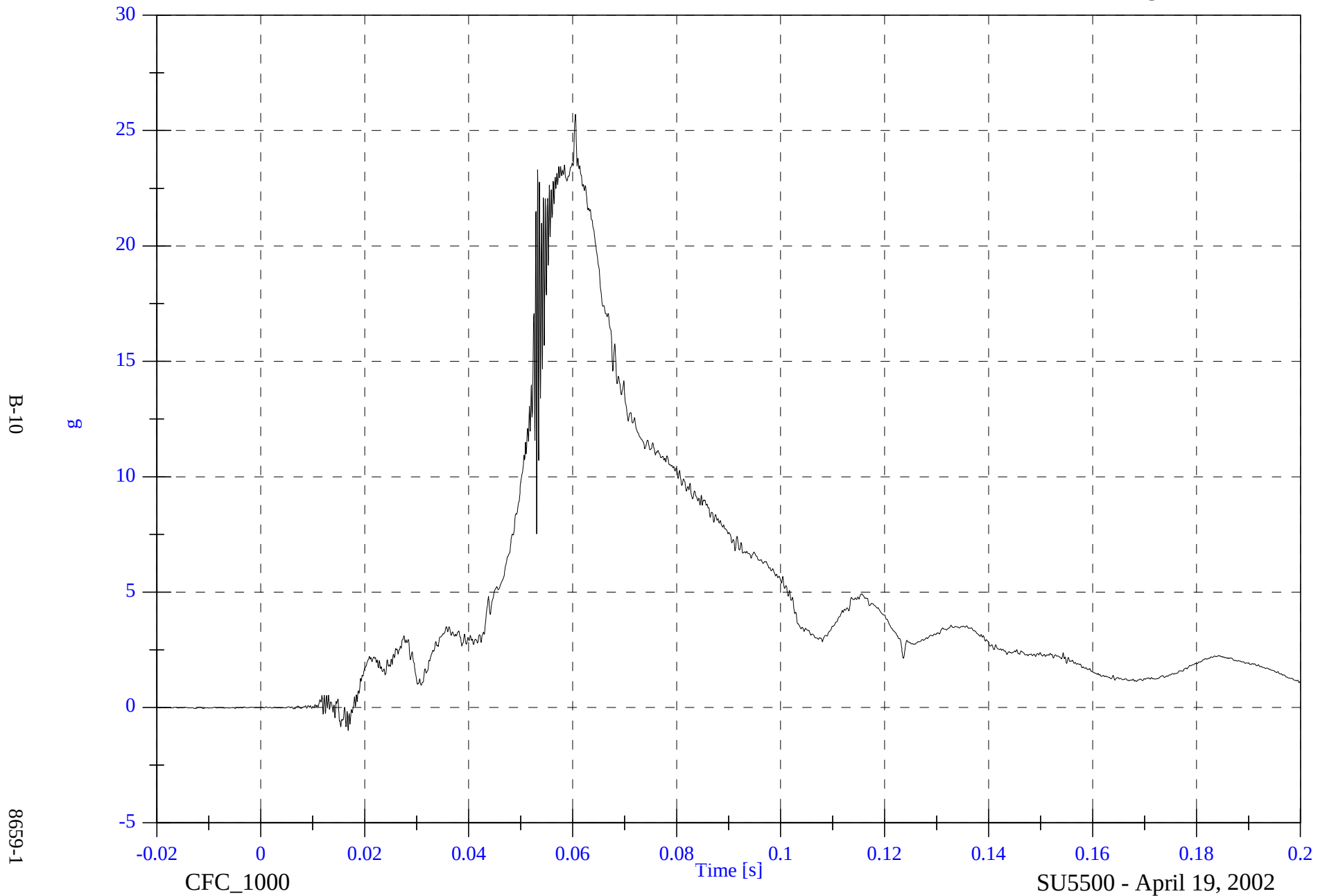
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Head z

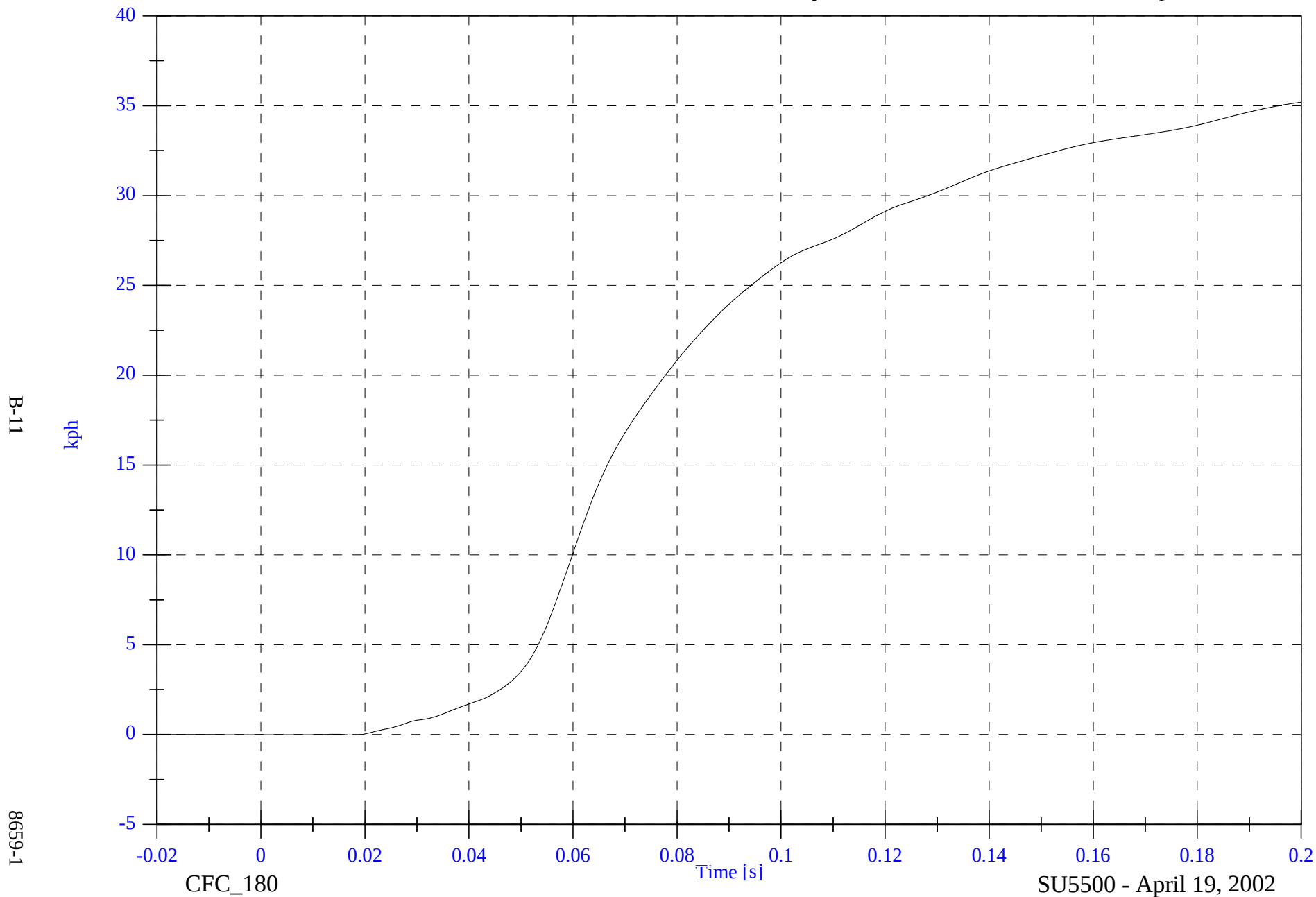
Max: 25.7 [g] at 0.061 [s]

Min: -1.0 [g] at 0.017 [s]



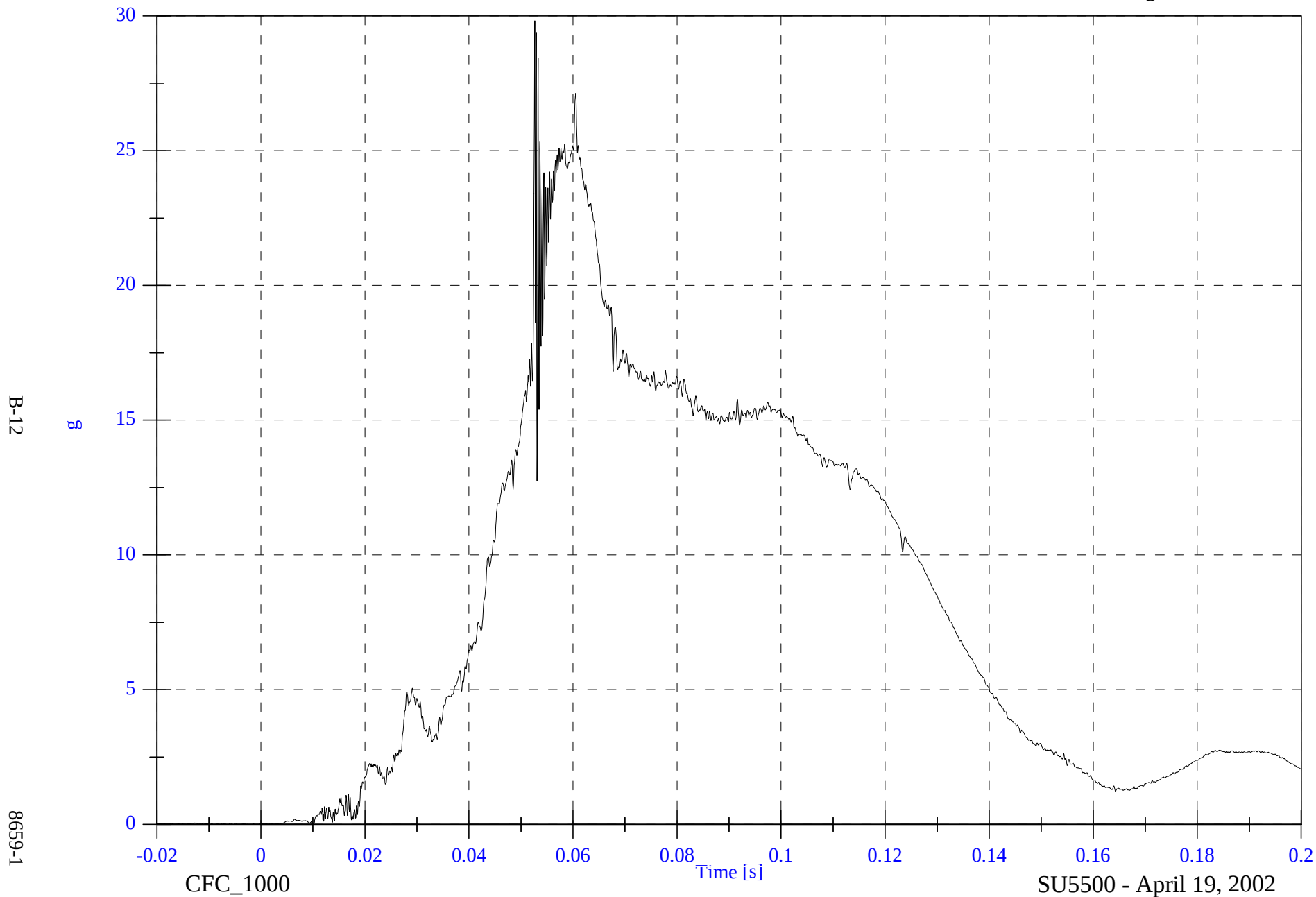
2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback
P1 Head z Velocity

Max: 35.2 [kph] at 0.200 [s]
Min: -0.0 [kph] at 0.018 [s]



2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback
P1 Head Resultant

Max: 29.8 [g] at 0.053 [s]
Min: 0.0 [g] at -0.014 [s]



2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Upper Rib y

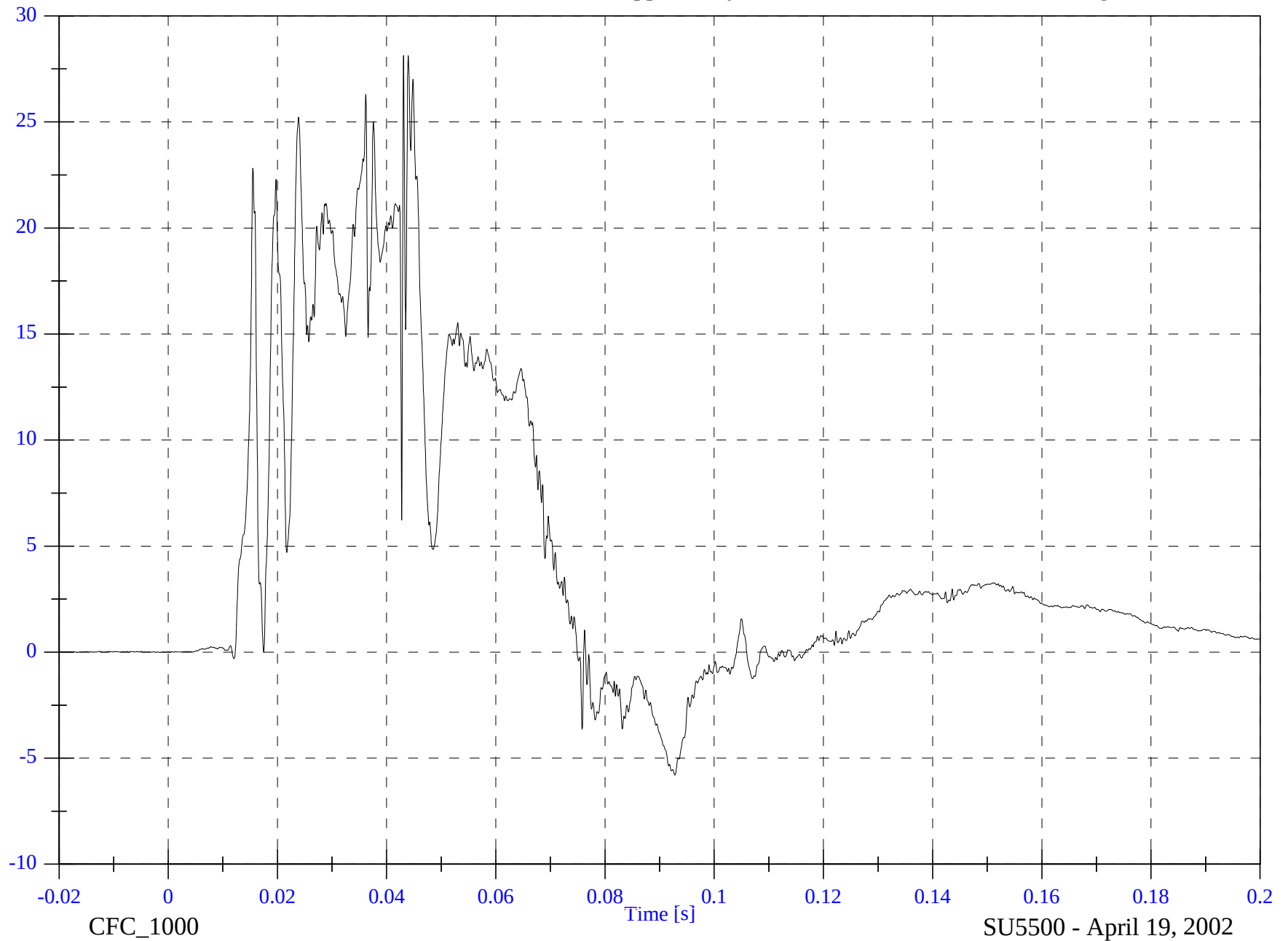
Max: 28.1 [g] at 0.043 [s]

Min: -5.8 [g] at 0.093 [s]

B-13

g

8659-1

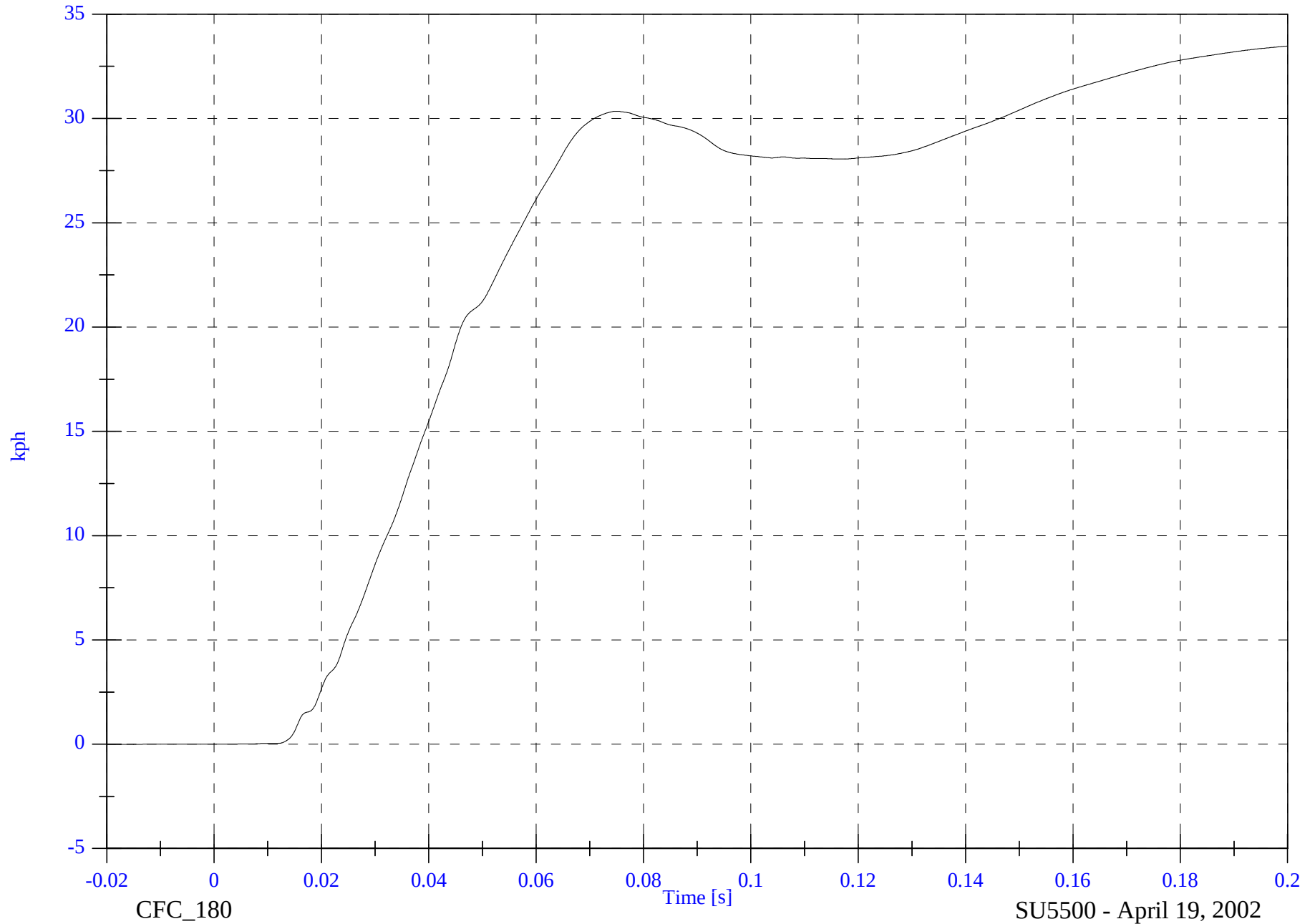


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Upper Rib y Velocity

Max: 33.5 [kph] at 0.200 [s]

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



B-14

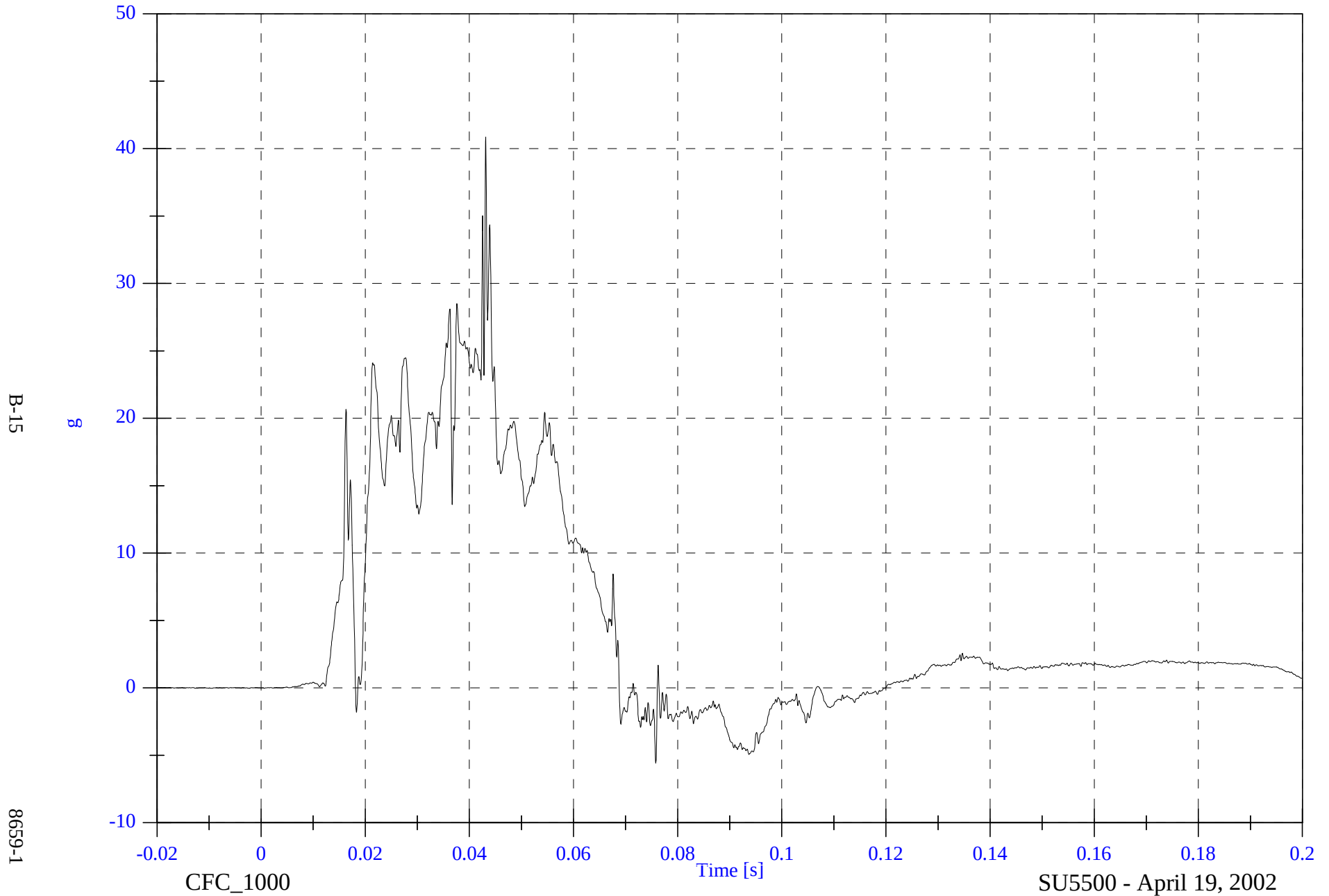
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Lower Rib y

Max: 40.9 [g] at 0.043 [s]

Min: -5.6 [g] at 0.076 [s]

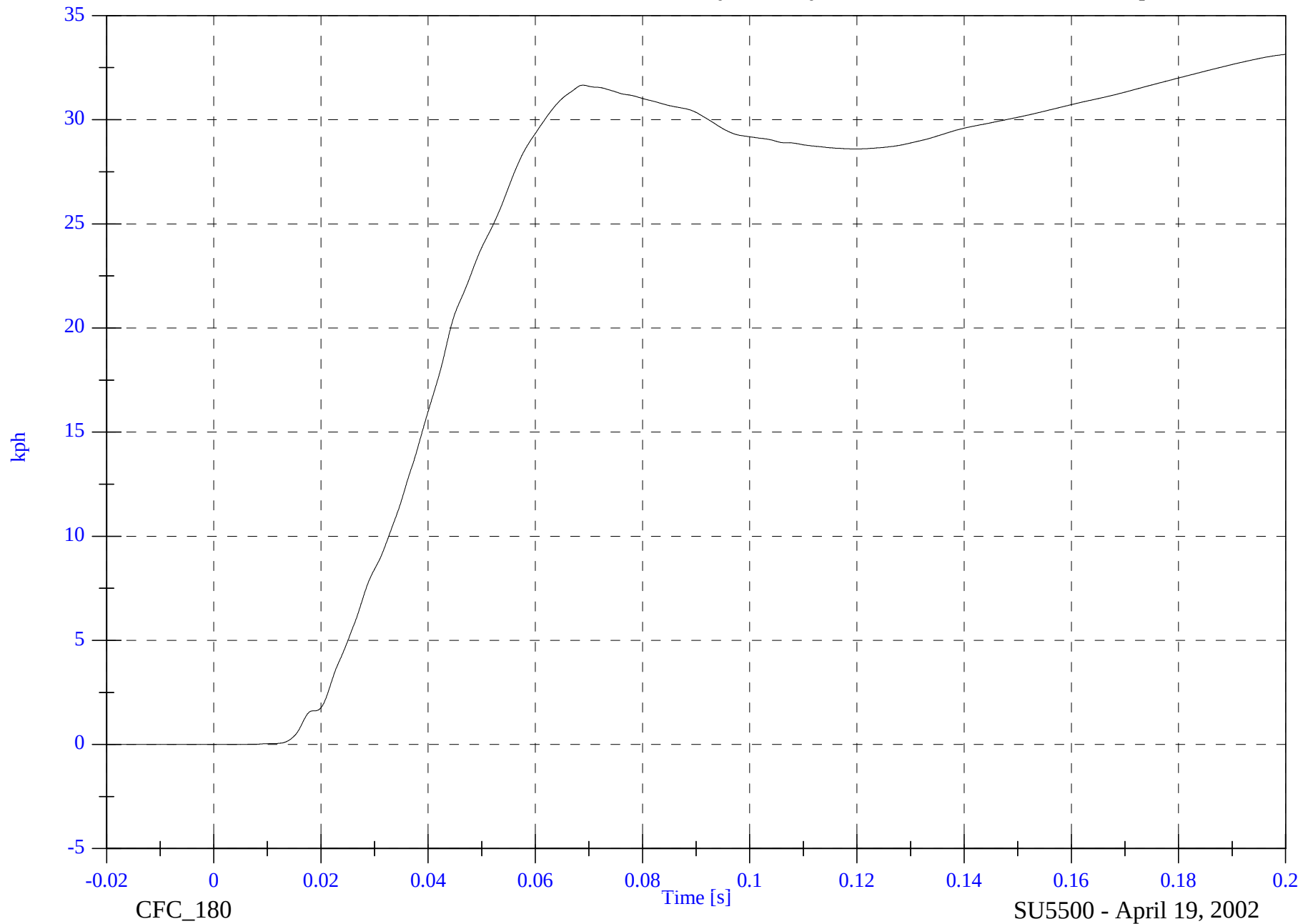


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Lower Rib y Velocity

Max: 33.1 [kph] at 0.200 [s]

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



B-16

8659-1

CFC_180

Time [s]

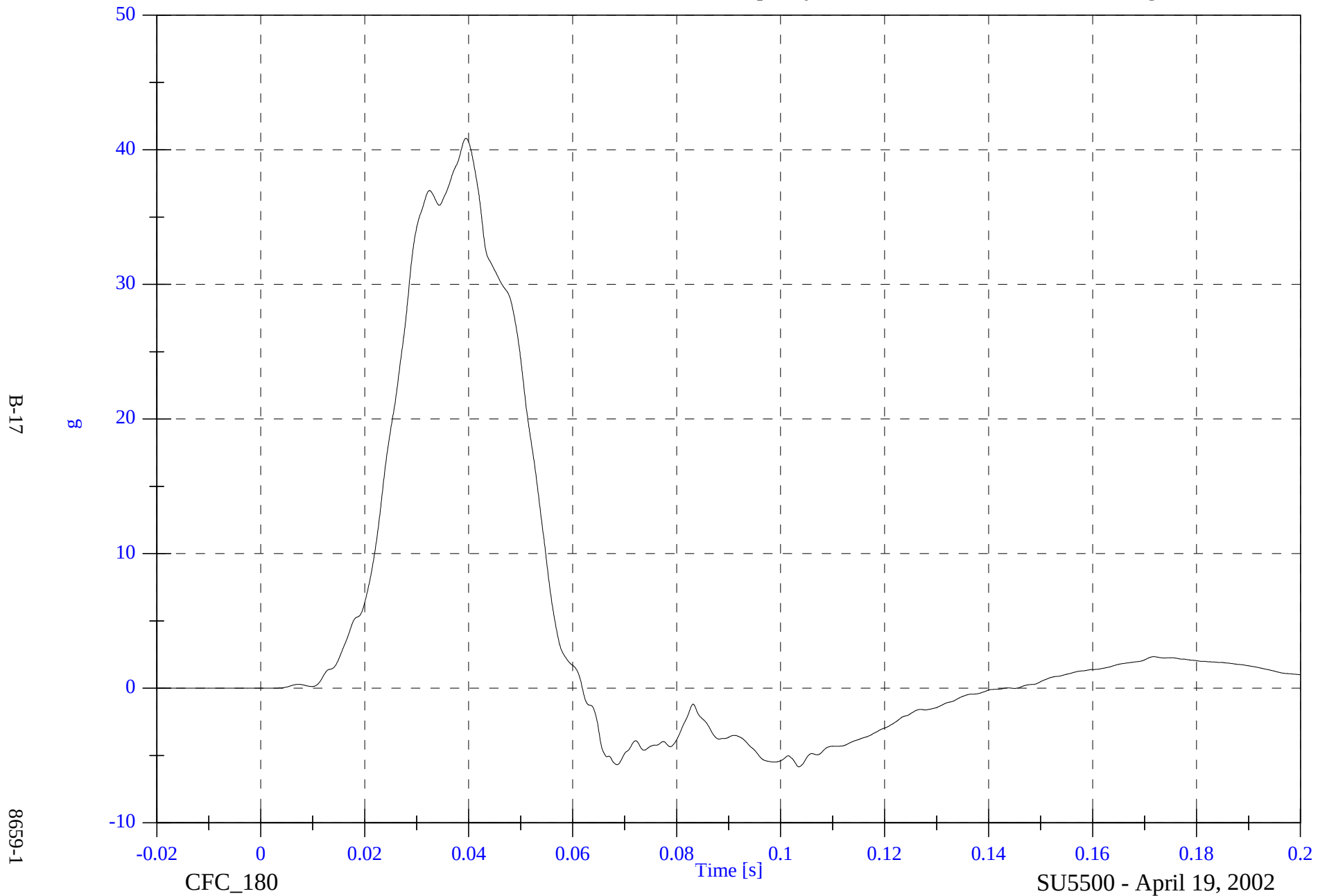
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Lower Spine y

Max: 40.9 [g] at 0.039 [s]

Min: -5.8 [g] at 0.103 [s]

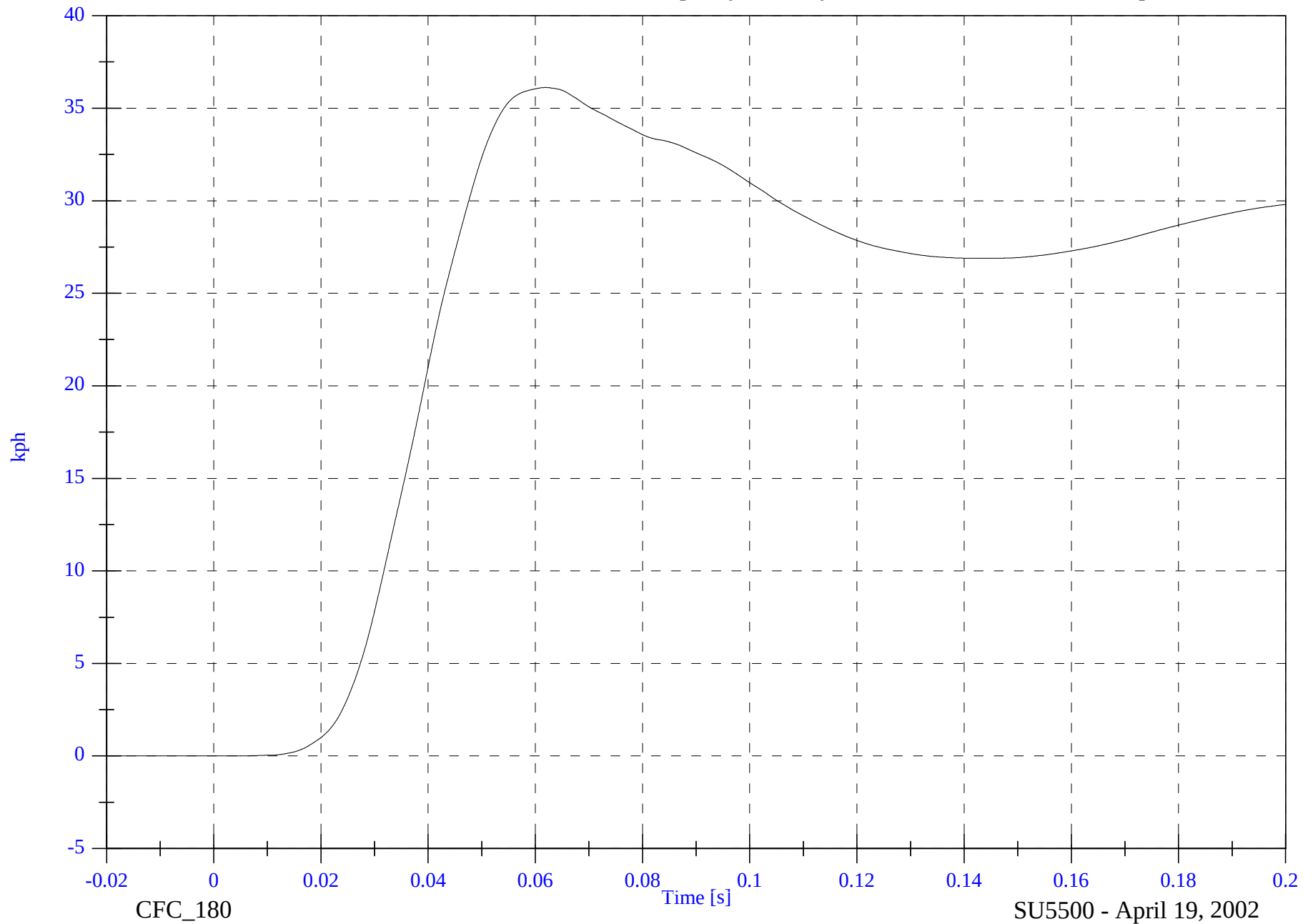


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Lower Spine y Velocity

Max: 36.1 [kph] at 0.062 [s]

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



B-18

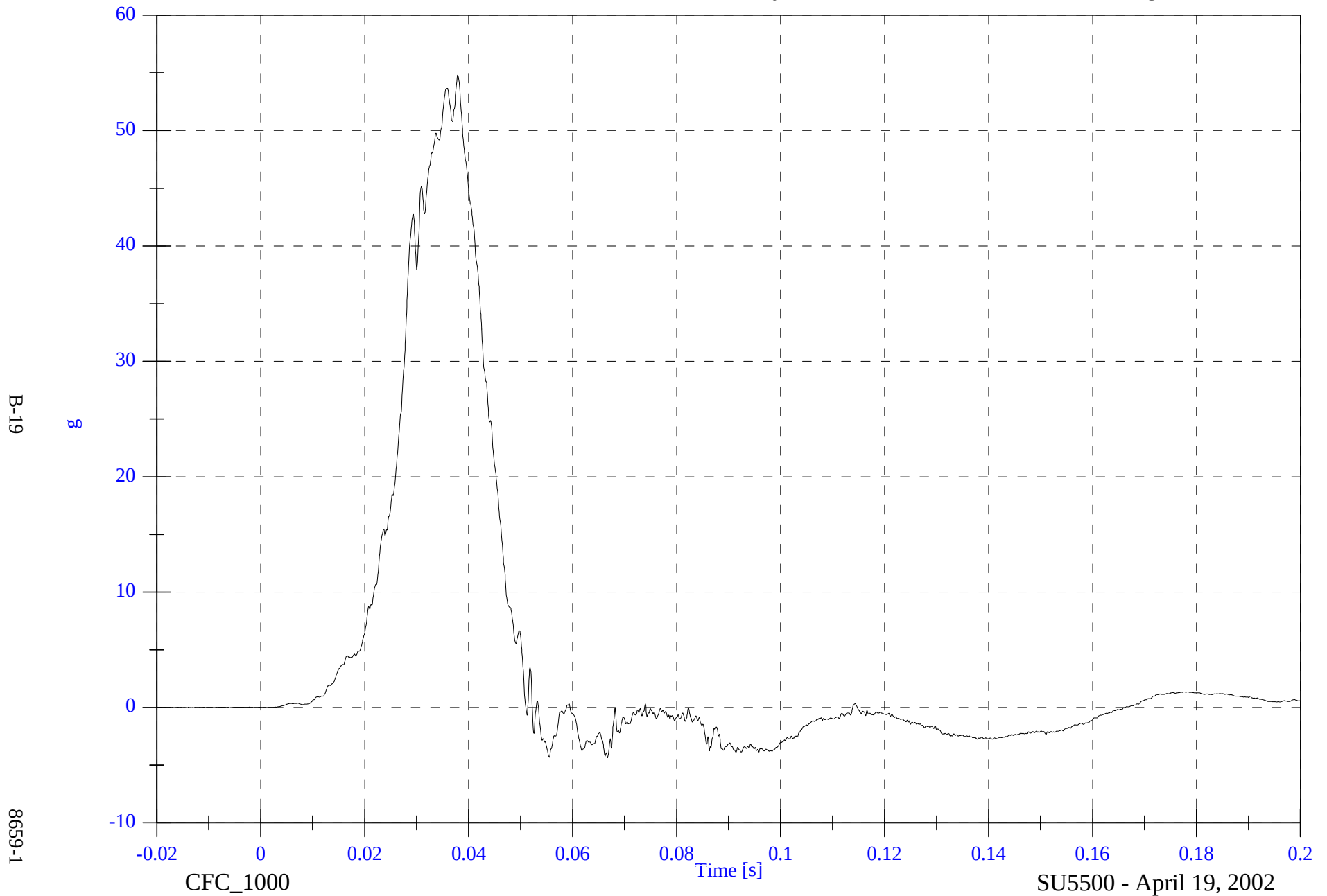
8659-1

CFC_180

SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback
P1 Pelvic y

Max: 54.8 [g] at 0.038 [s]
Min: -4.4 [g] at 0.067 [s]

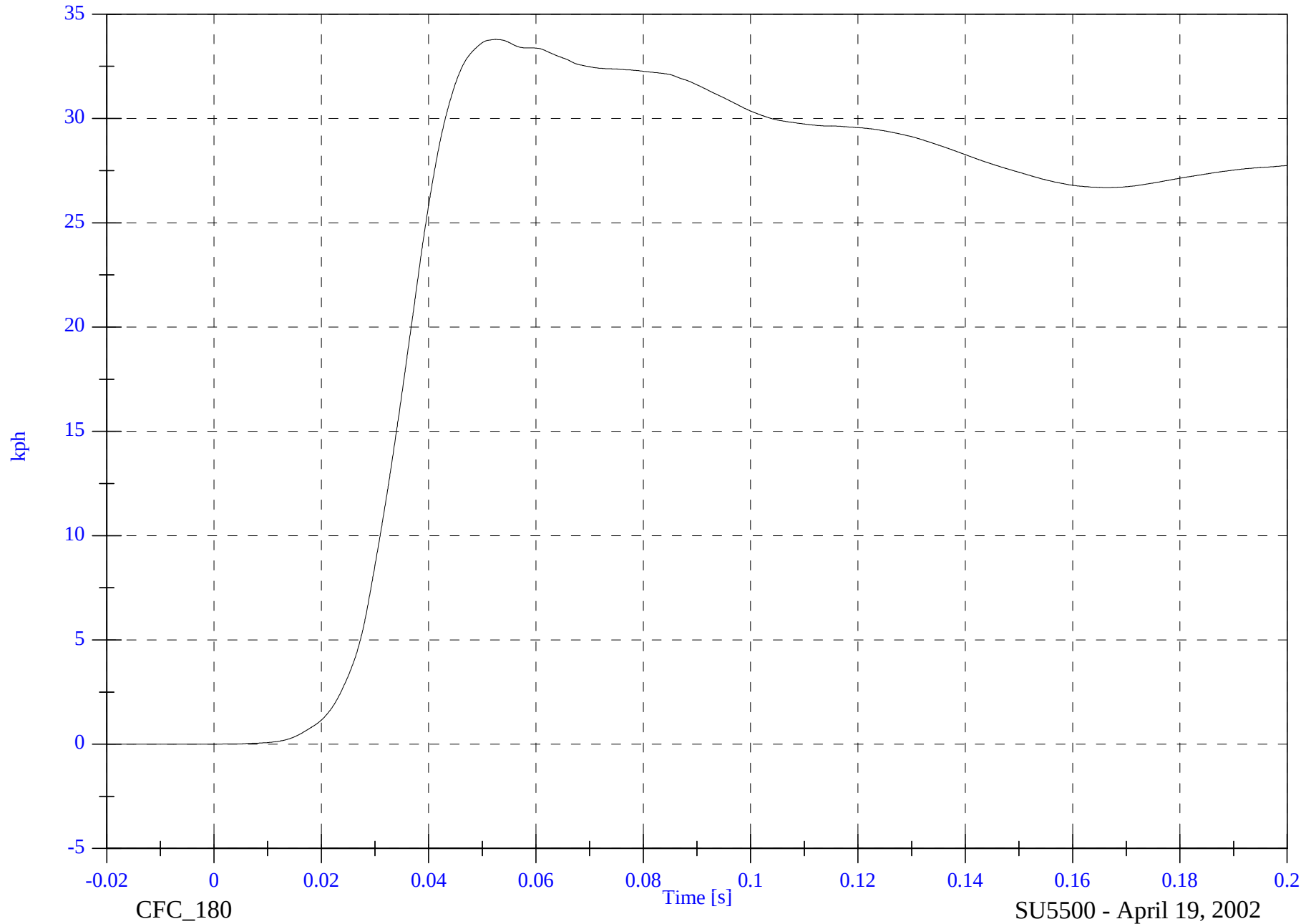


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Pelvic y Velocity

Max: 33.8 [kph] at 0.052 [s]

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



B-20

8659-1

CFC_180

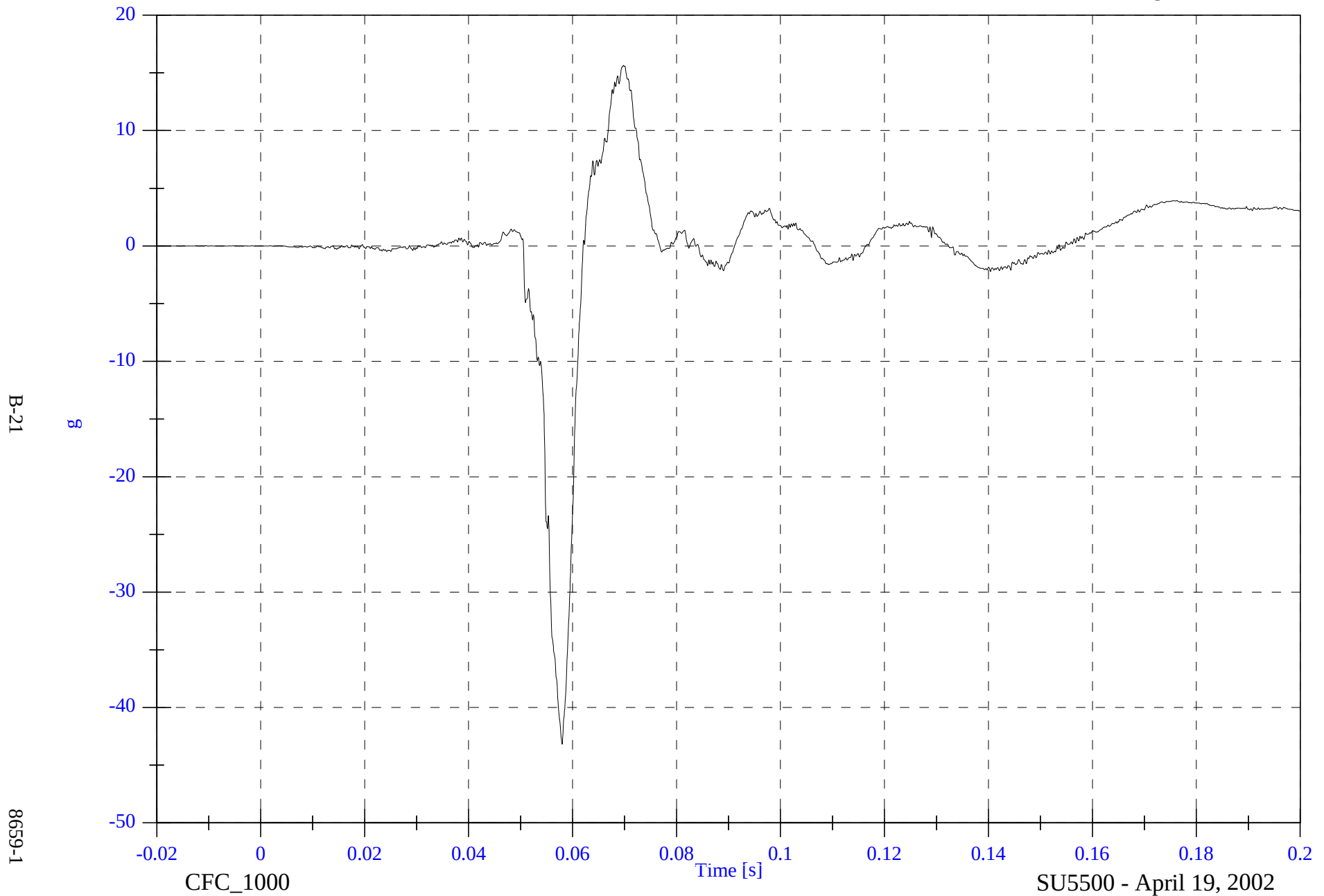
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Head x

Max: 15.6 [g] at 0.070 [s]

Min: -43.2 [g] at 0.058 [s]

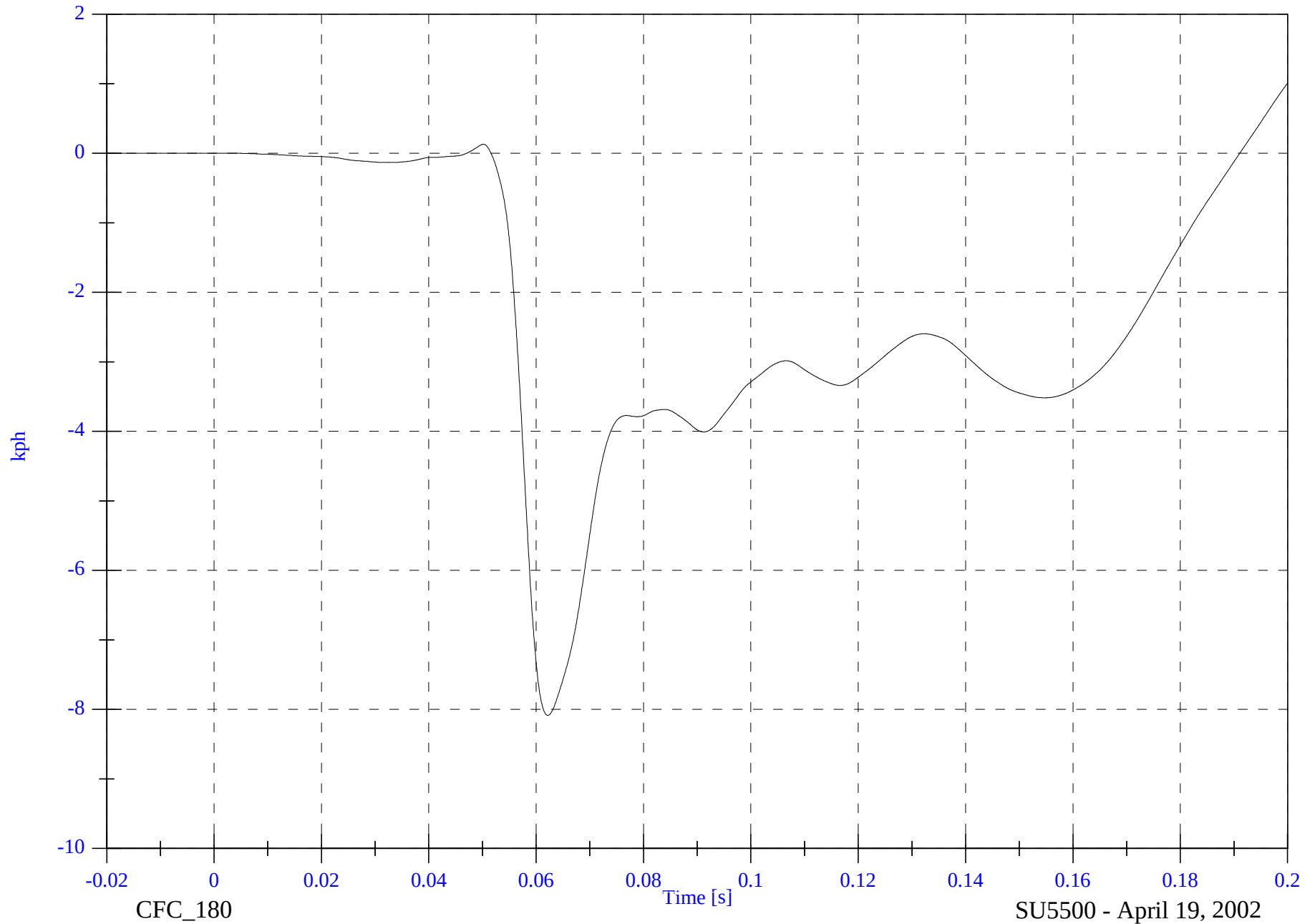


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Head x Velocity

Max: 1.0 [kph] at 0.200 [s]

Min: -8.1 [kph] at 0.062 [s]



B-22

8659-1

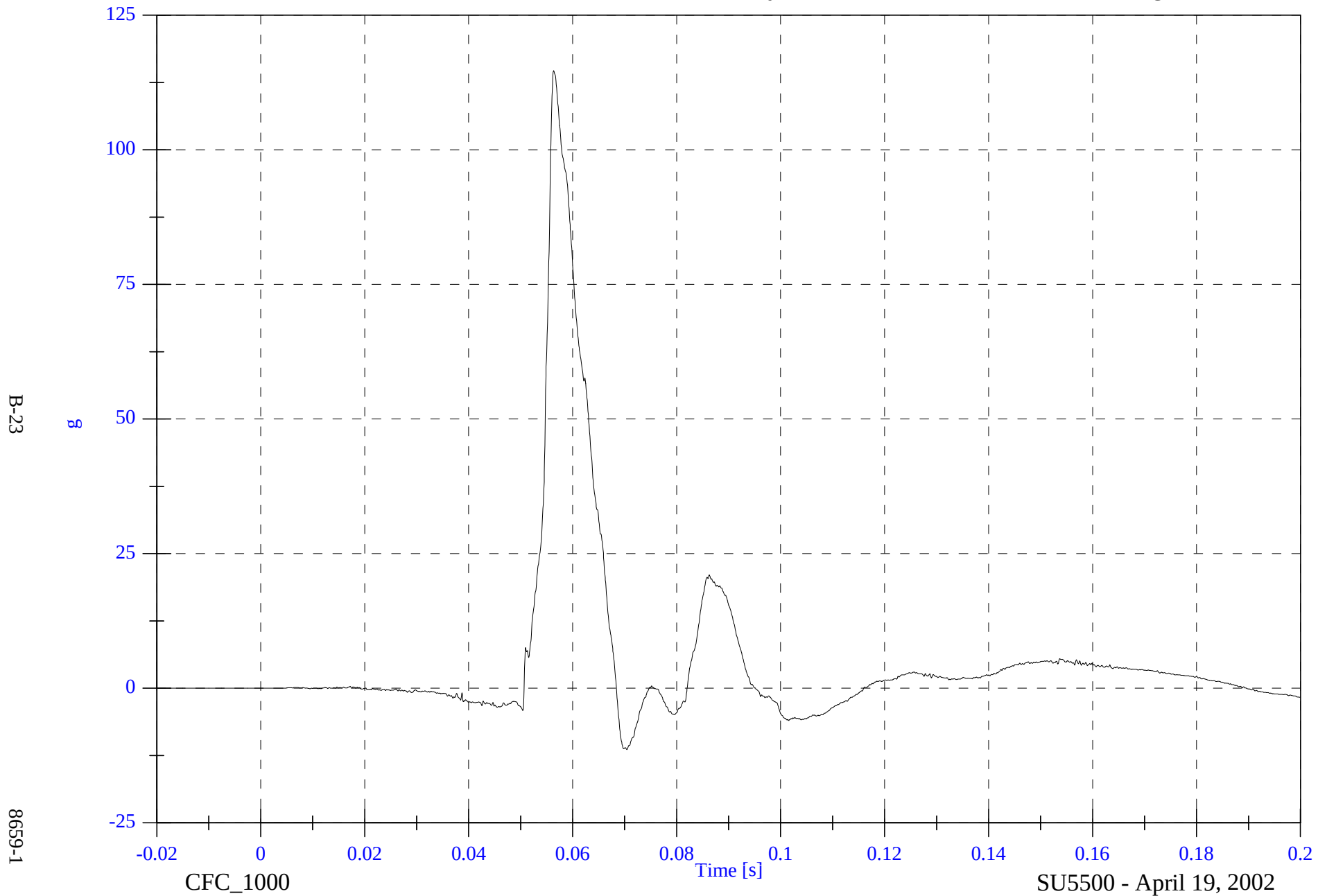
CFC_180

Time [s]

SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback
P4 Head y

Max: 114.7 [g] at 0.056 [s]
Min: -11.4 [g] at 0.070 [s]

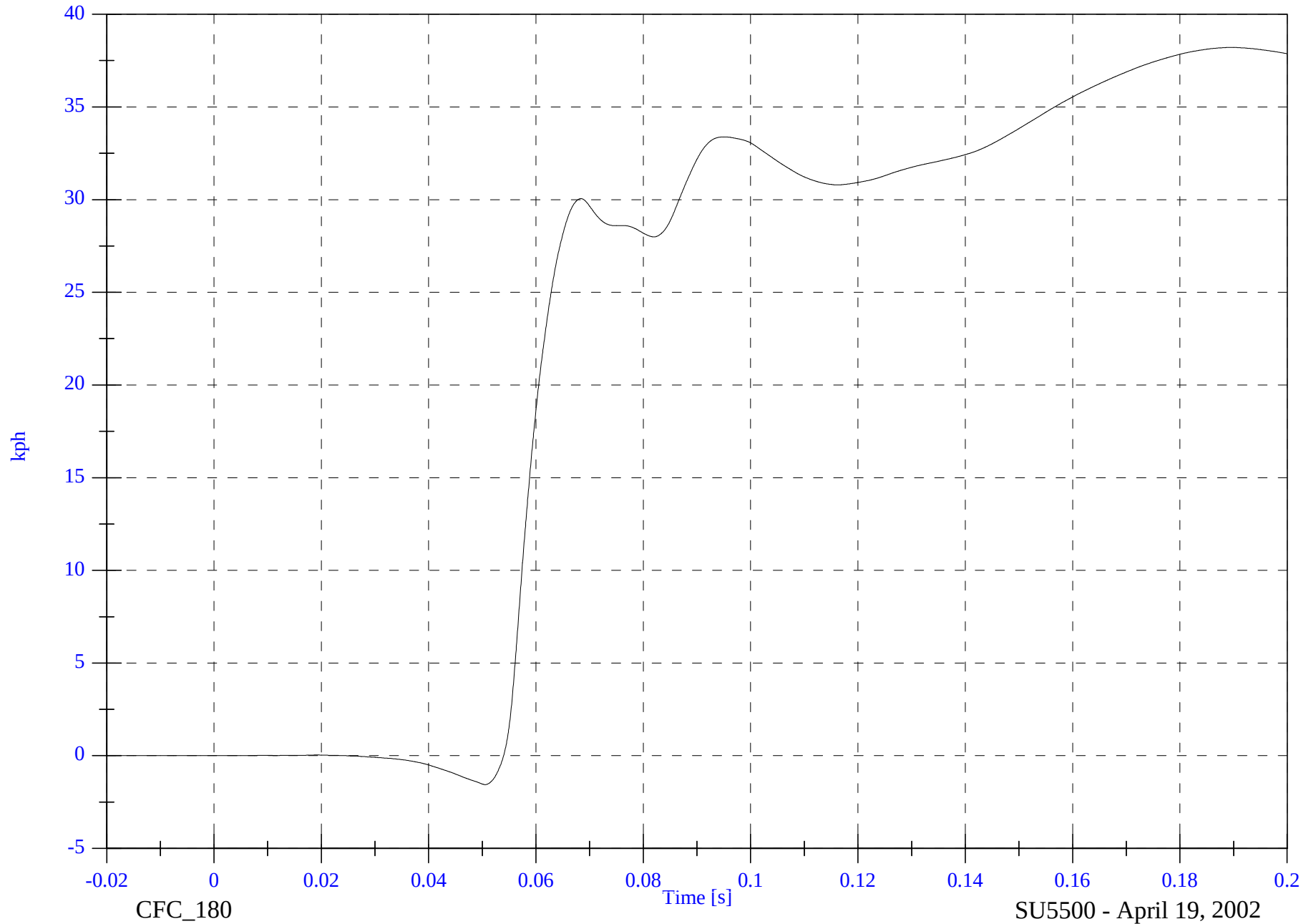


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Head y Velocity

Max: 38.2 [kph] at 0.190 [s]

Min: -1.6 [kph] at 0.051 [s]

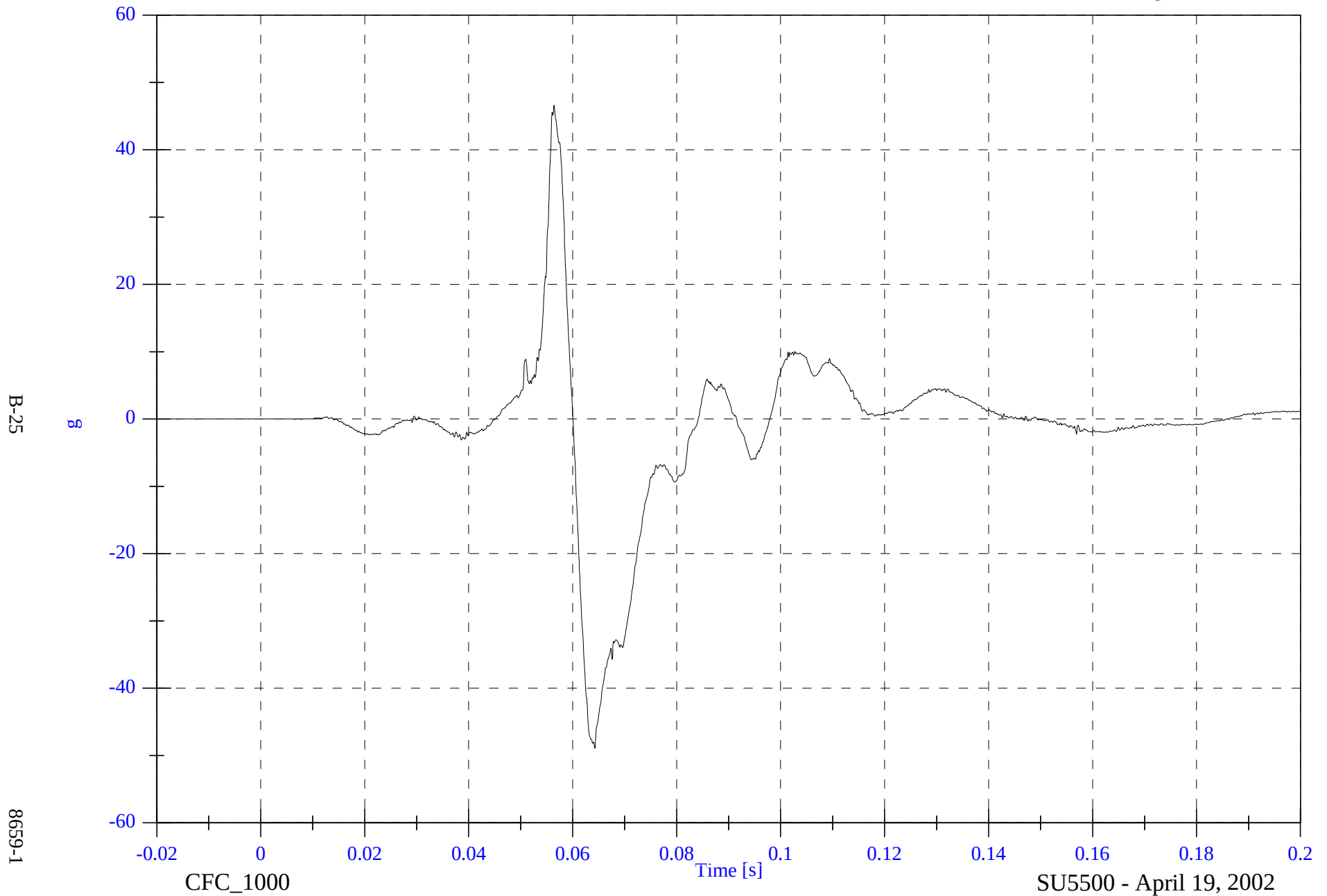


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Head z

Max: 46.6 [g] at 0.056 [s]

Min: -48.9 [g] at 0.064 [s]

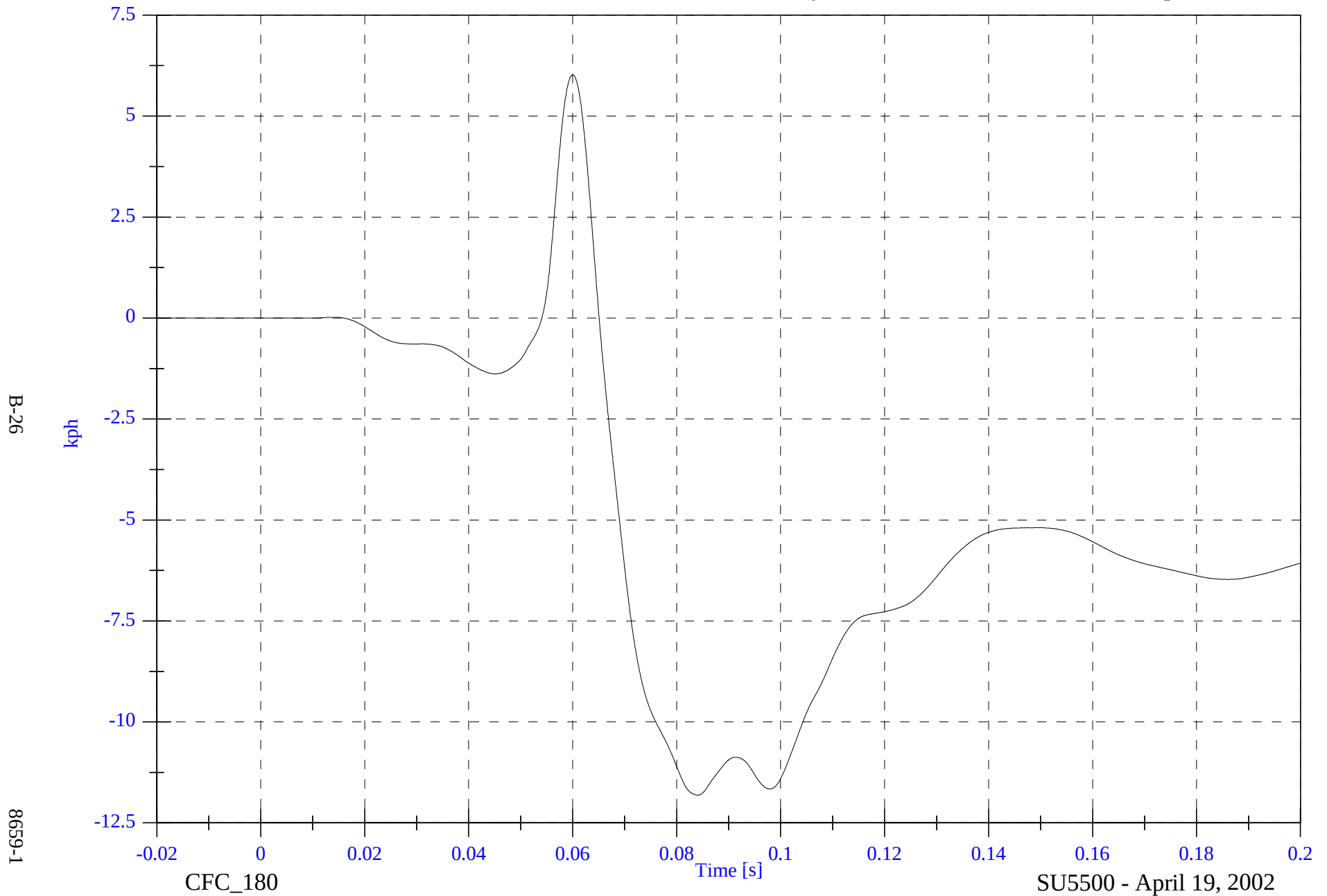


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Head z Velocity

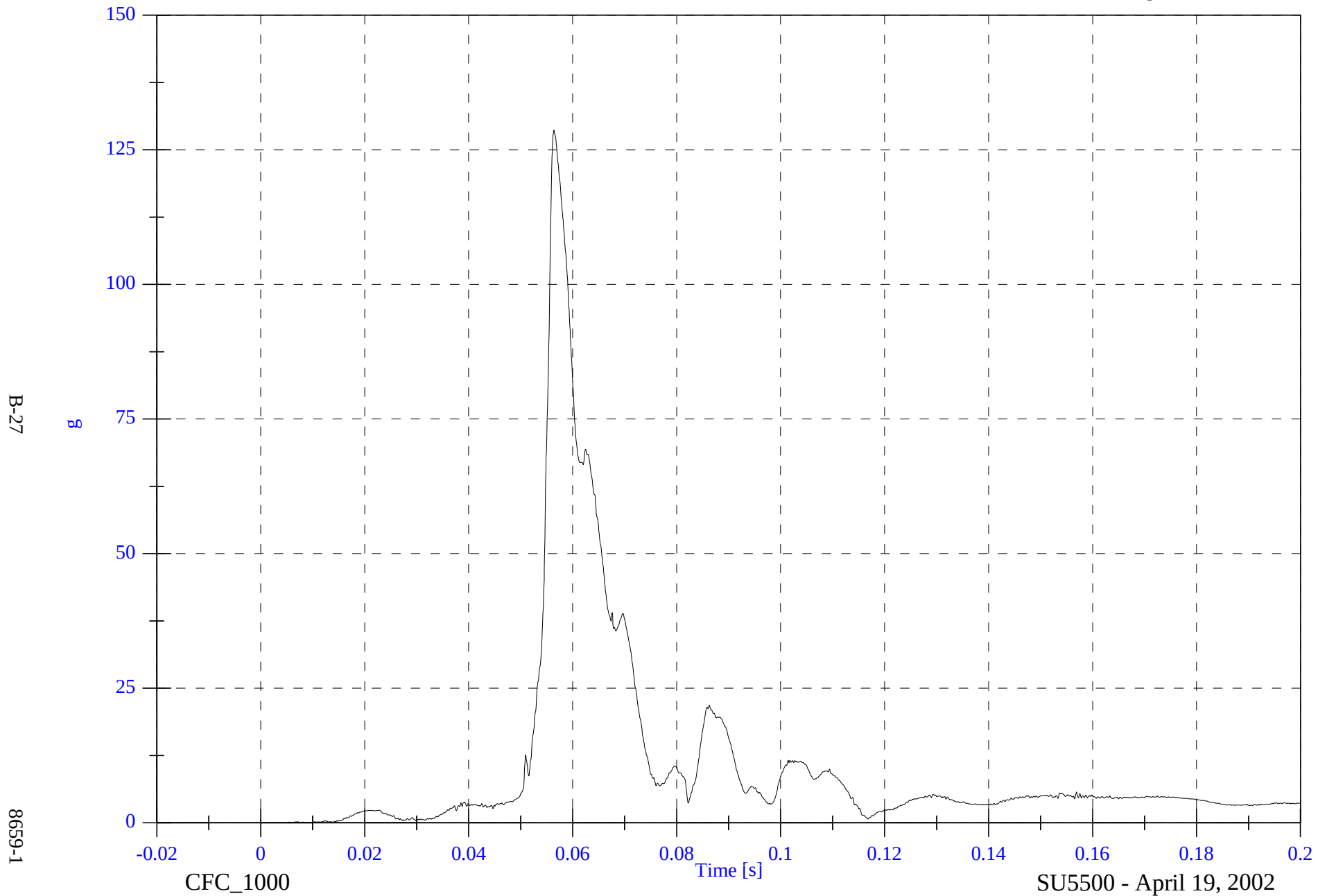
Max: 6.0 [kph] at 0.060 [s]

Min: -11.8 [kph] at 0.084 [s]



2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback
P4 Head Resultant

Max: 128.6 [g] at 0.056 [s]
Min: 0.0 [g] at -0.009 [s]

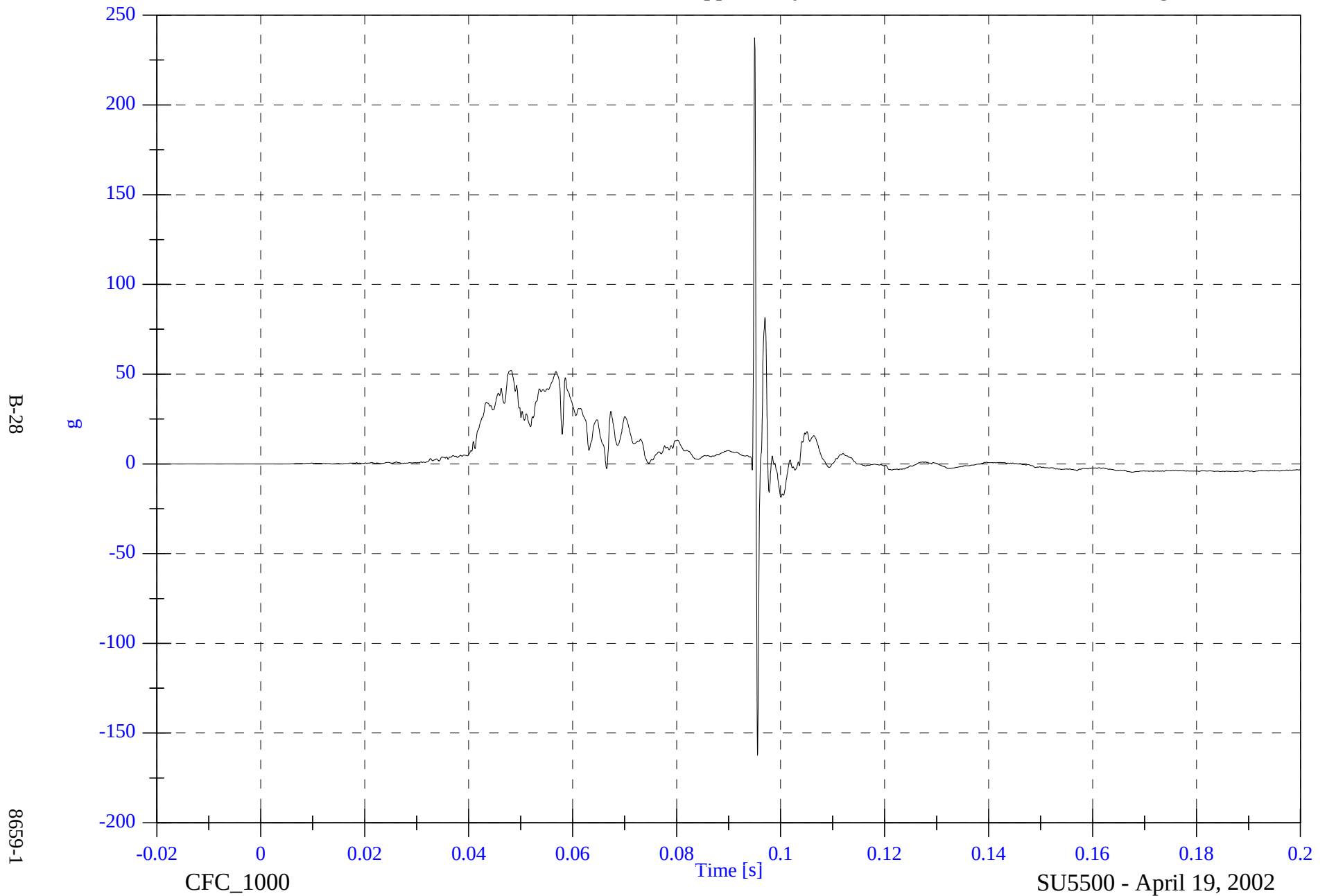


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Upper Rib y

Max: 237.3 [g] at 0.095 [s]

Min: -162.5 [g] at 0.096 [s]



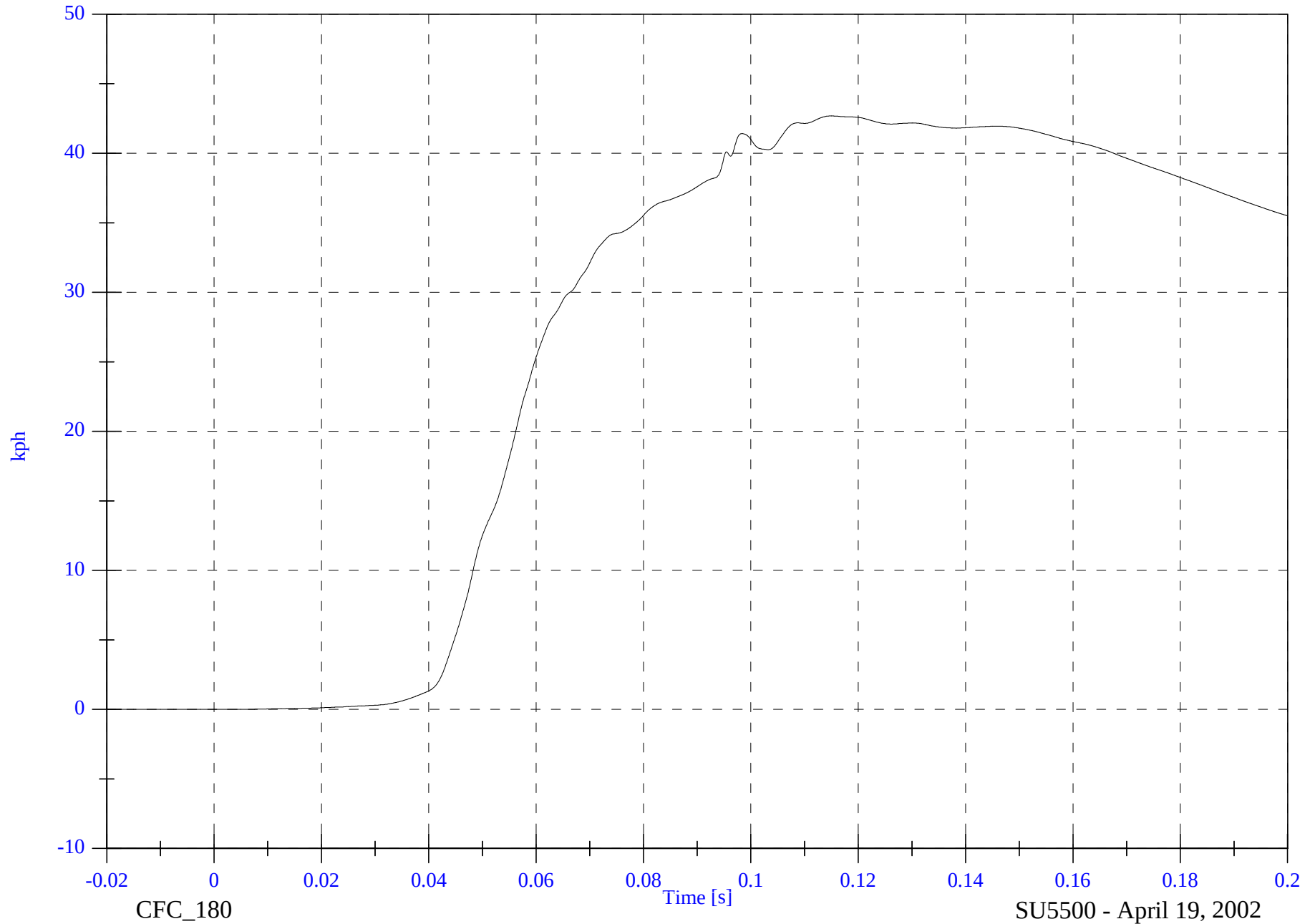
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Upper Rib y Velocity

Max: 42.7 [kph] at 0.115 [s]

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



B-29

8659-1

CFC_180

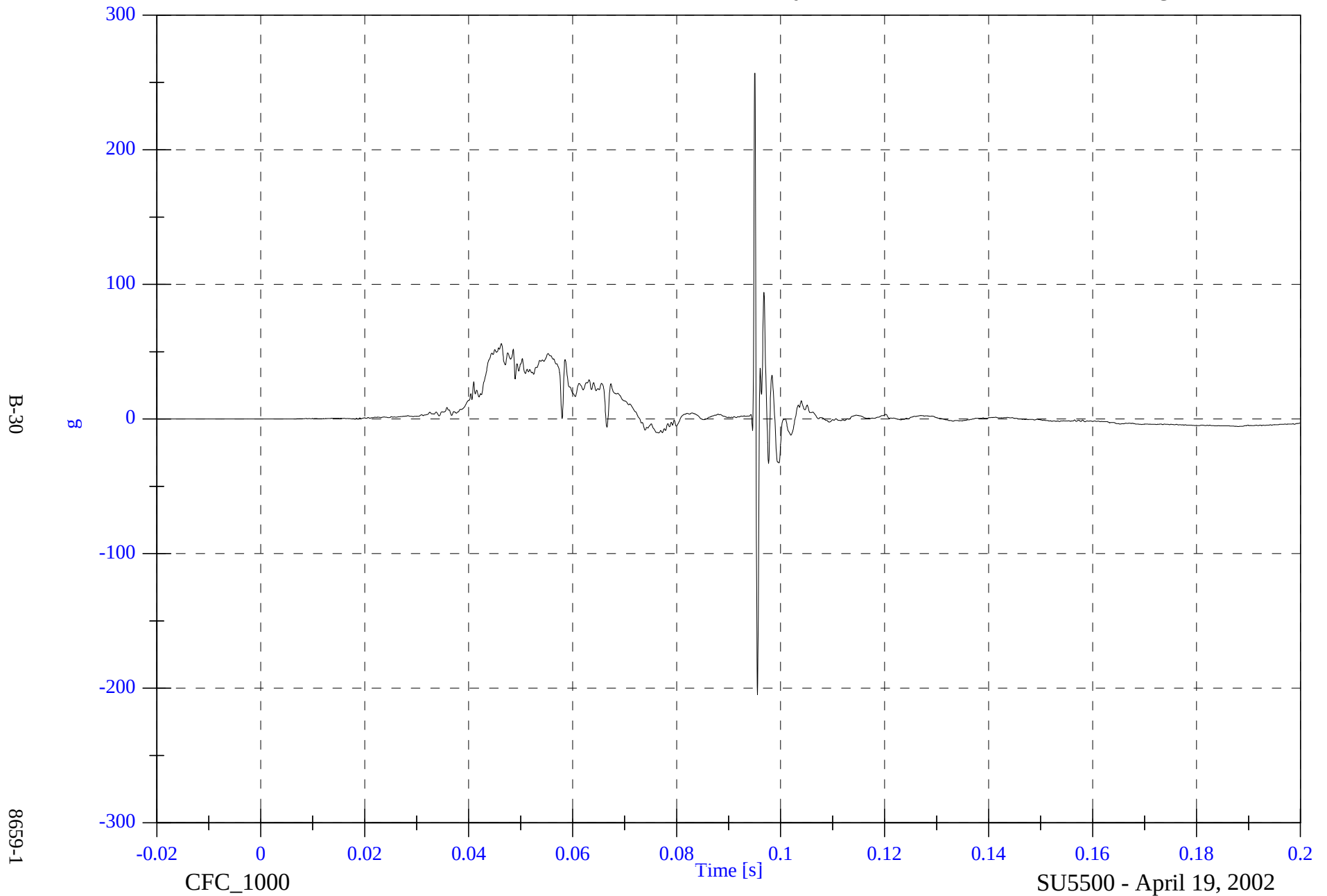
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Lower Rib y

Max: 256.8 [g] at 0.095 [s]

Min: -204.7 [g] at 0.096 [s]



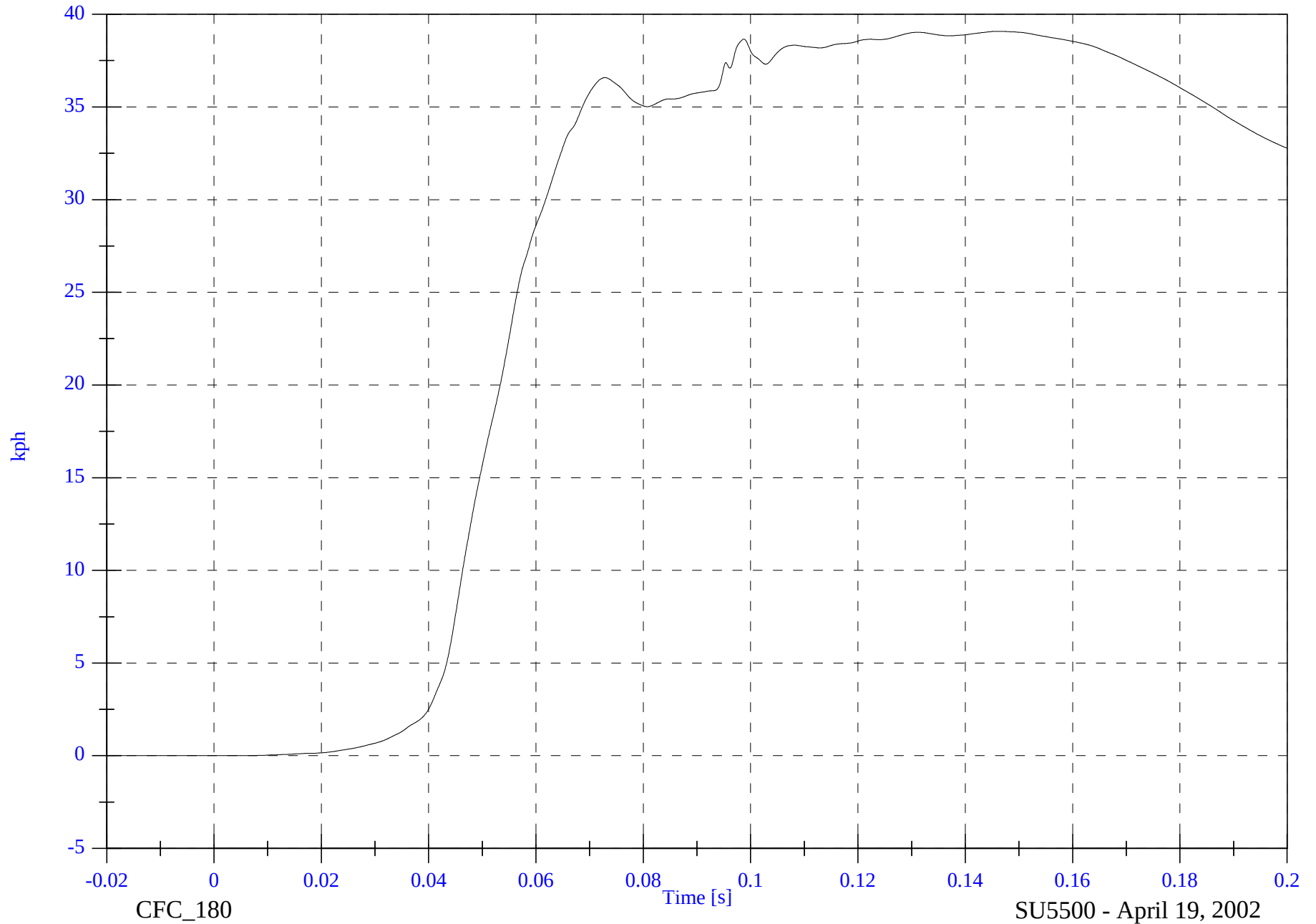
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Lower Rib y Velocity

Max: 39.1 [kph] at 0.146 [s]

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



B-31

8659-1

CFC_180

Time [s]

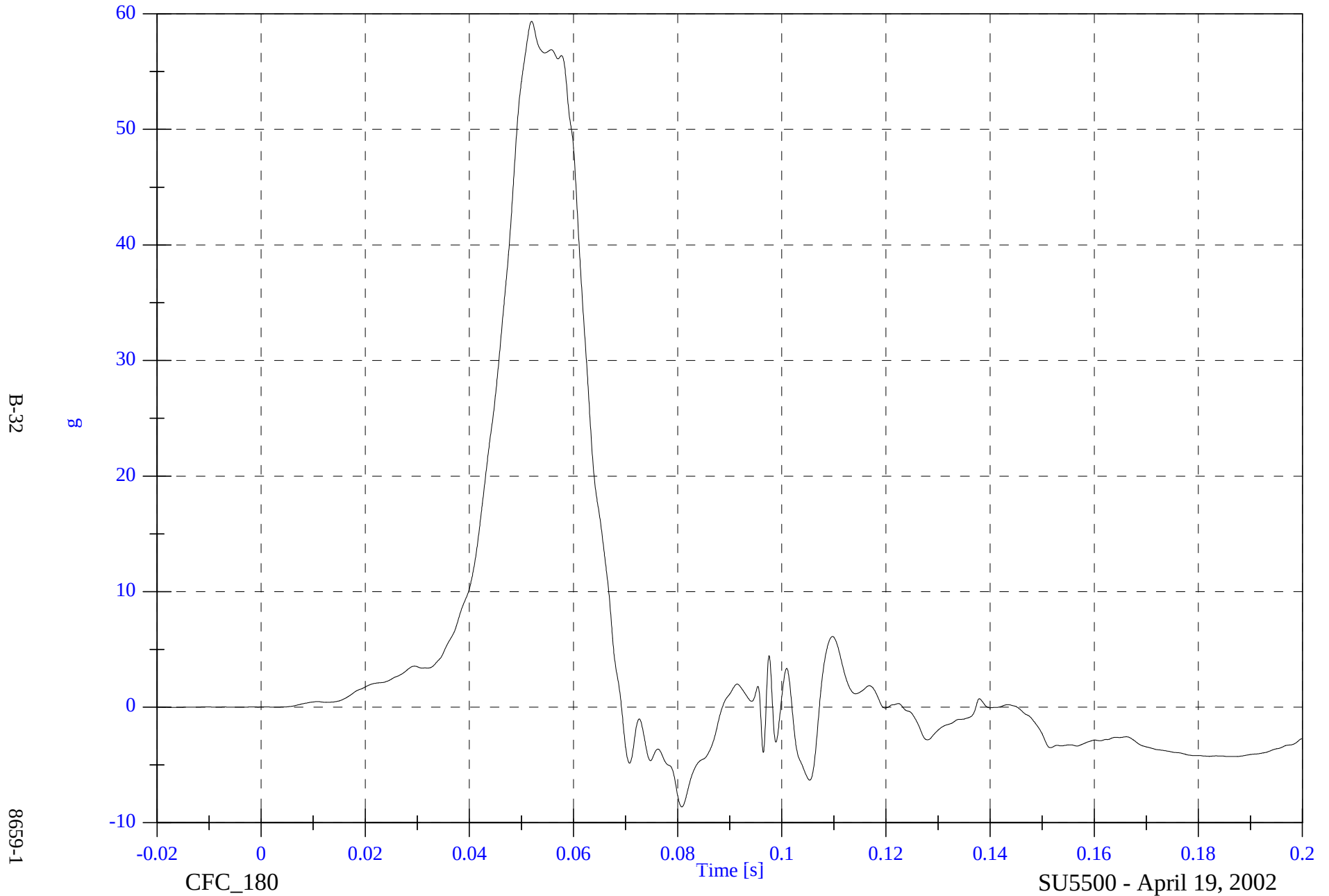
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Lower Spine y

Max: 59.3 [g] at 0.052 [s]

Min: -8.6 [g] at 0.081 [s]

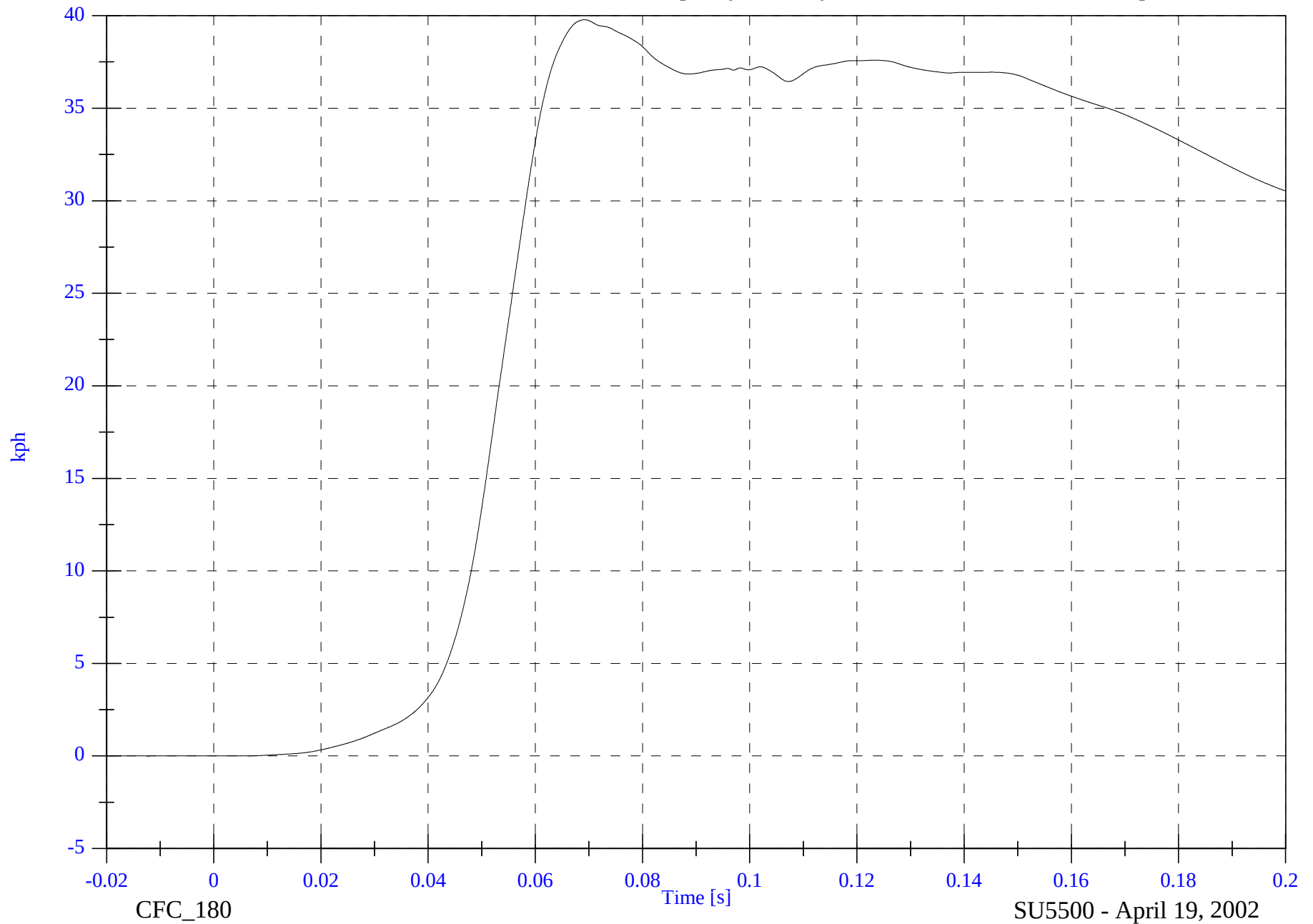


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Lower Spine y Velocity

Max: 39.8 [kph] at 0.069 [s]

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



B-33

8659-1

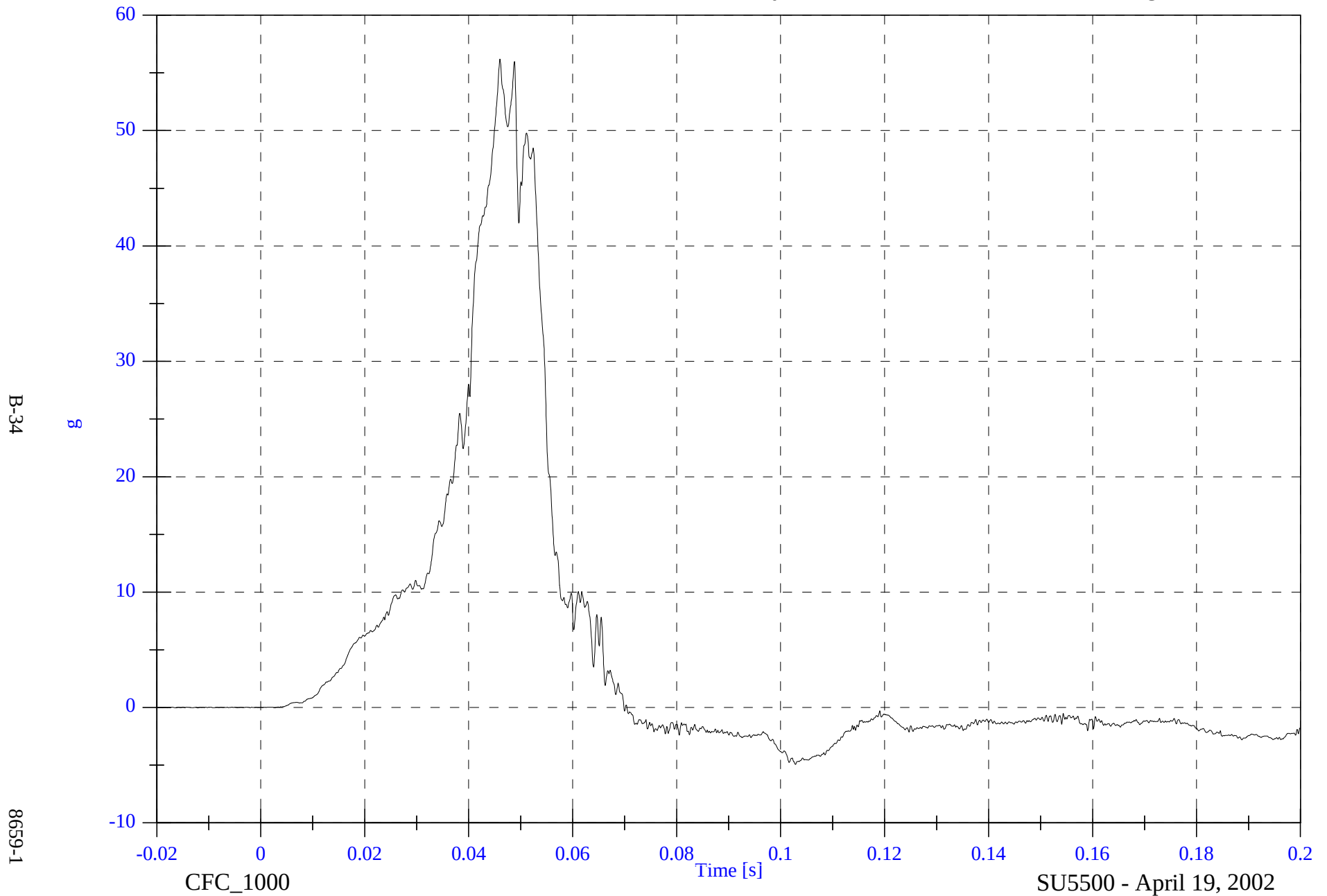
CFC_180

Time [s]

SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback
P4 Pelvic y

Max: 56.2 [g] at 0.046 [s]
Min: -4.9 [g] at 0.103 [s]

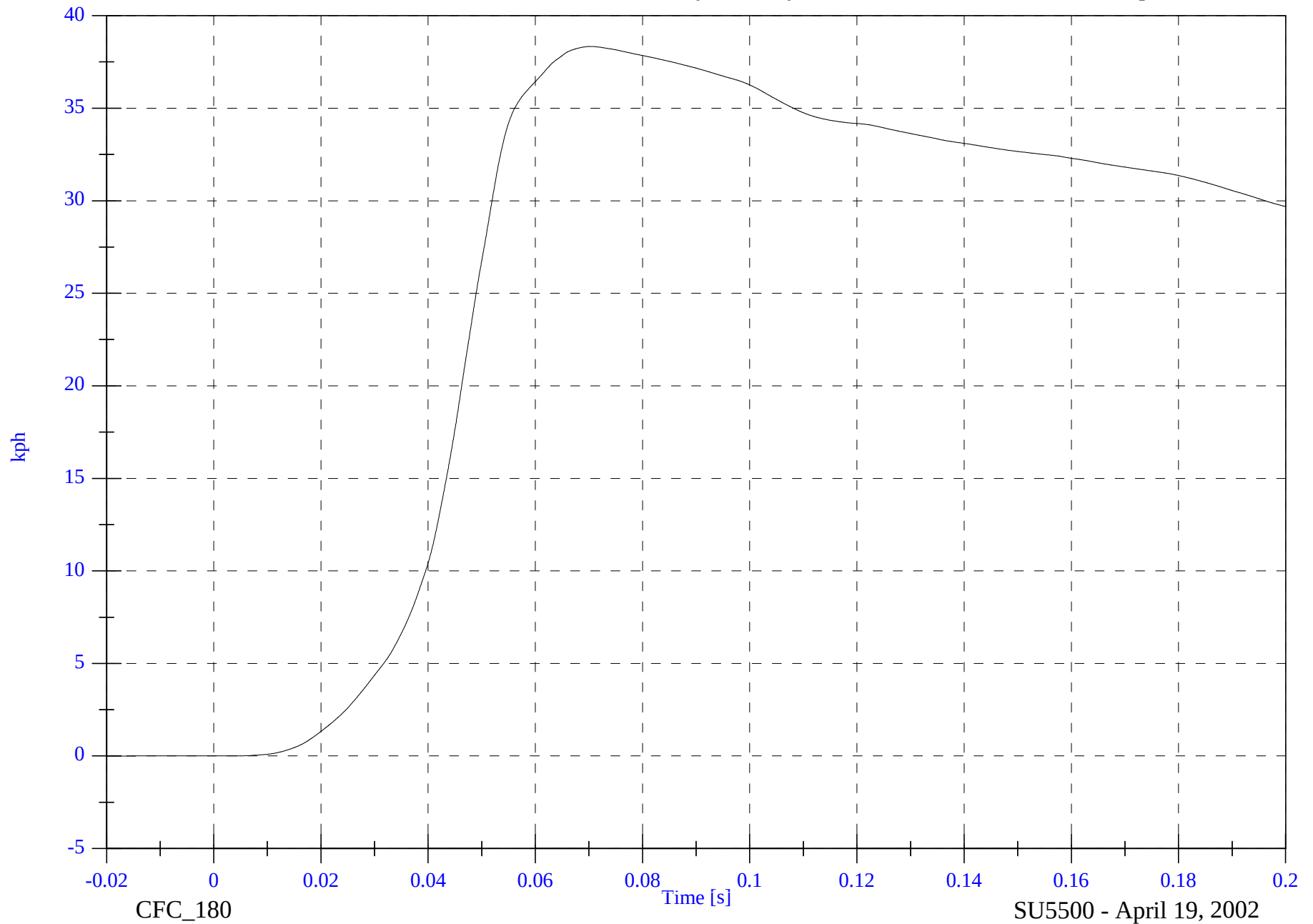


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Pelvic y Velocity

Max: 38.3 [kph] at 0.070 [s]

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



B-35

8659-1

CFC_180

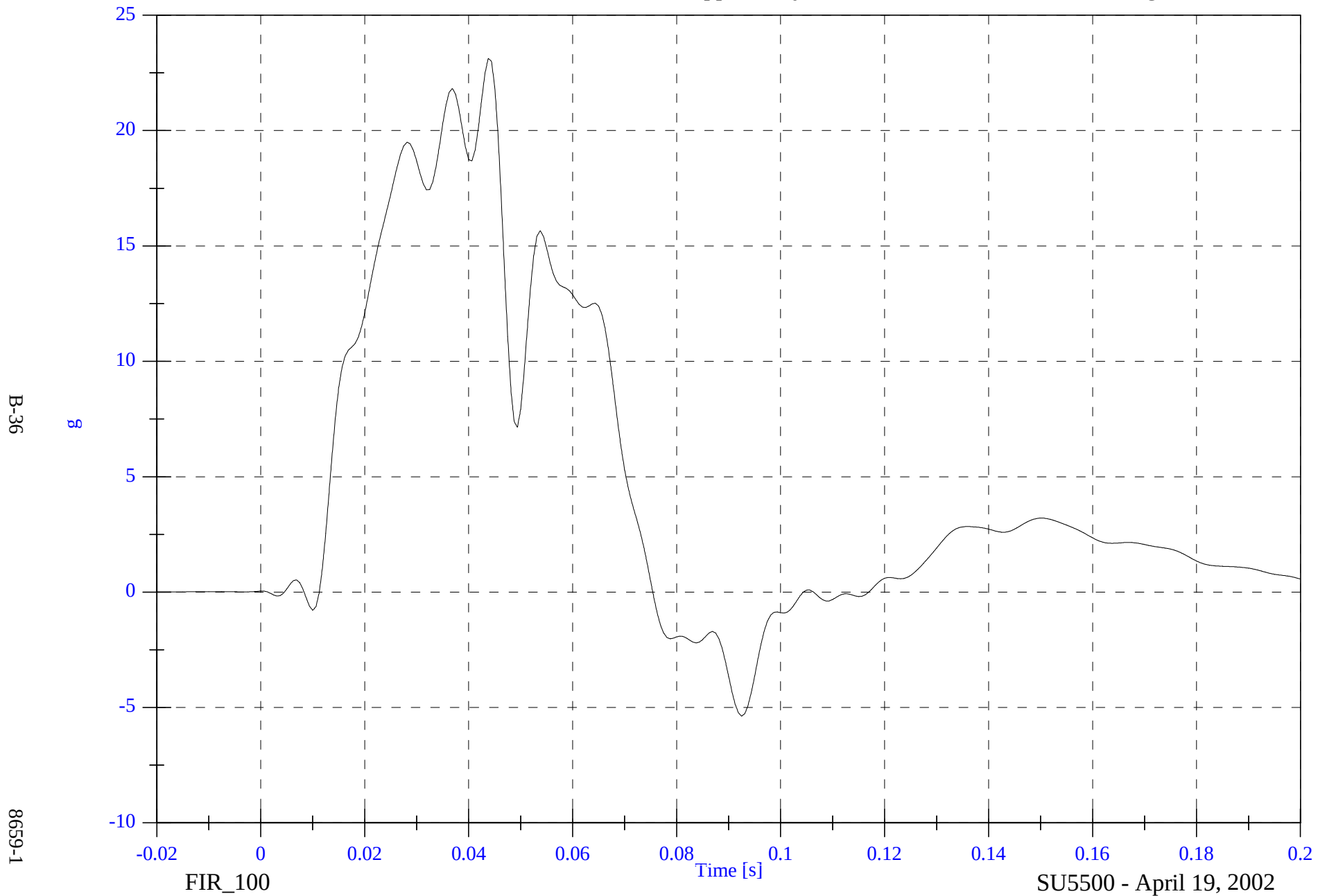
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Upper Rib y

Max: 23.1 [g] at 0.044 [s]

Min: -5.4 [g] at 0.093 [s]

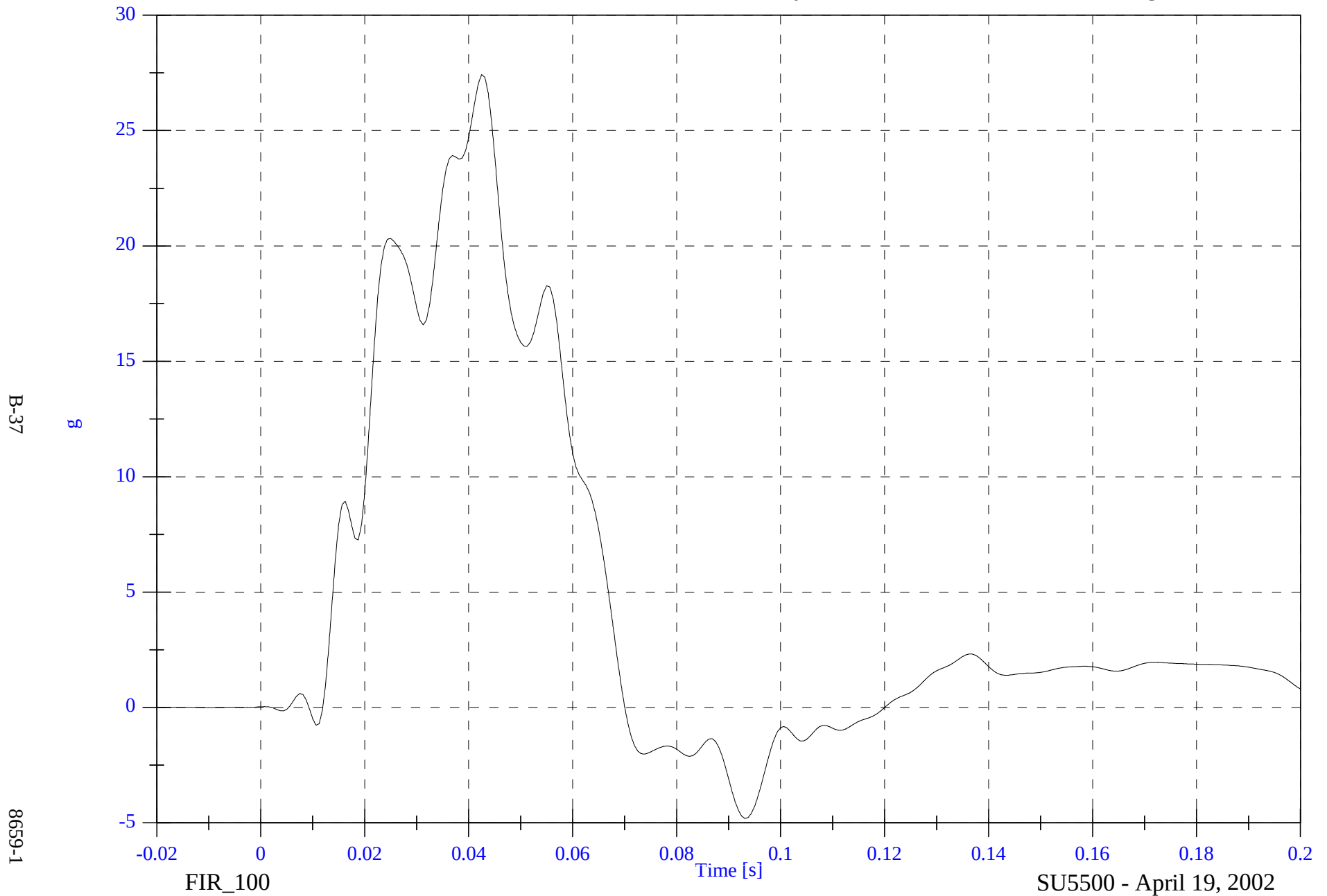


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Lower Rib y

Max: 27.4 [g] at 0.043 [s]

Min: -4.8 [g] at 0.093 [s]

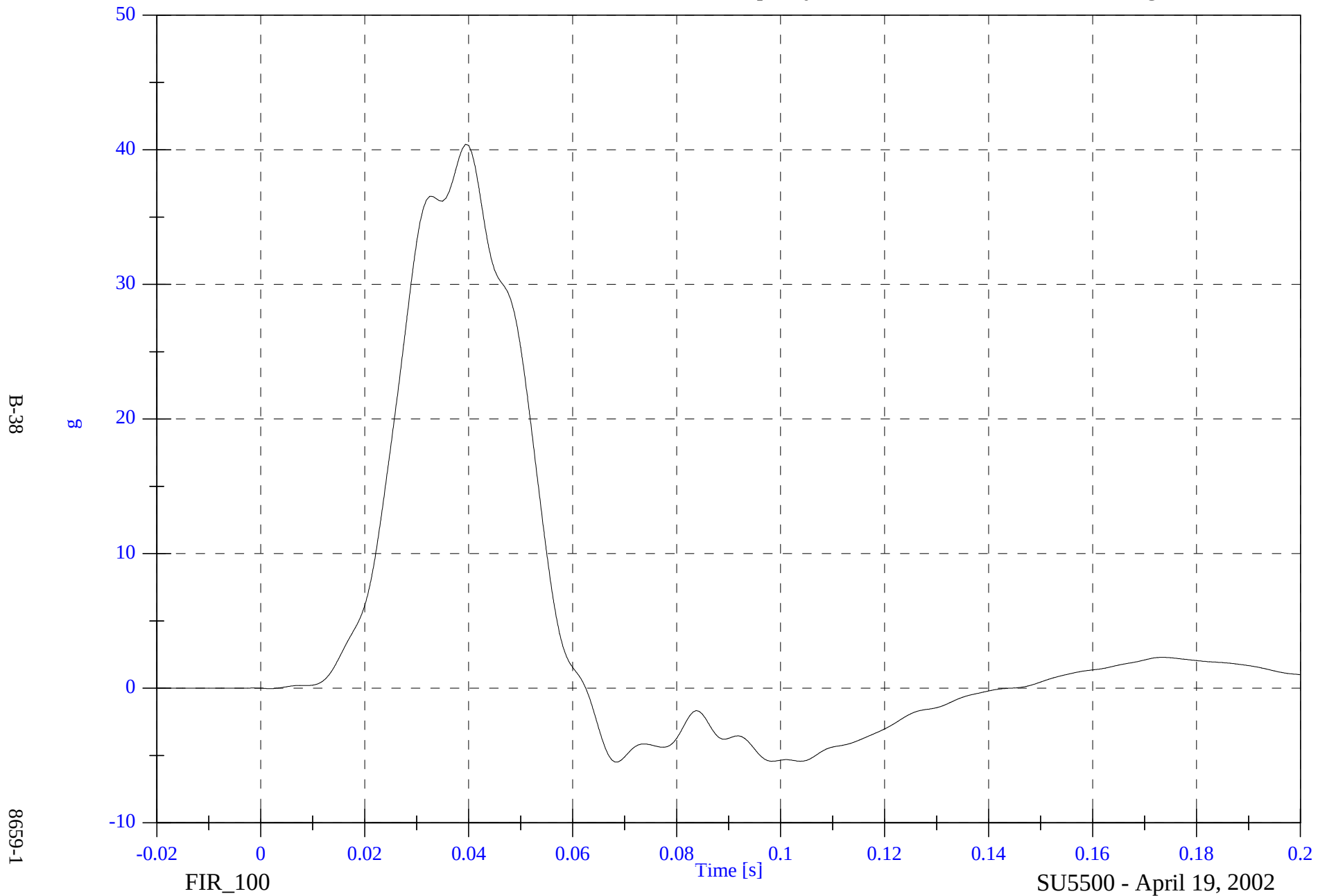


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Lower Spine y

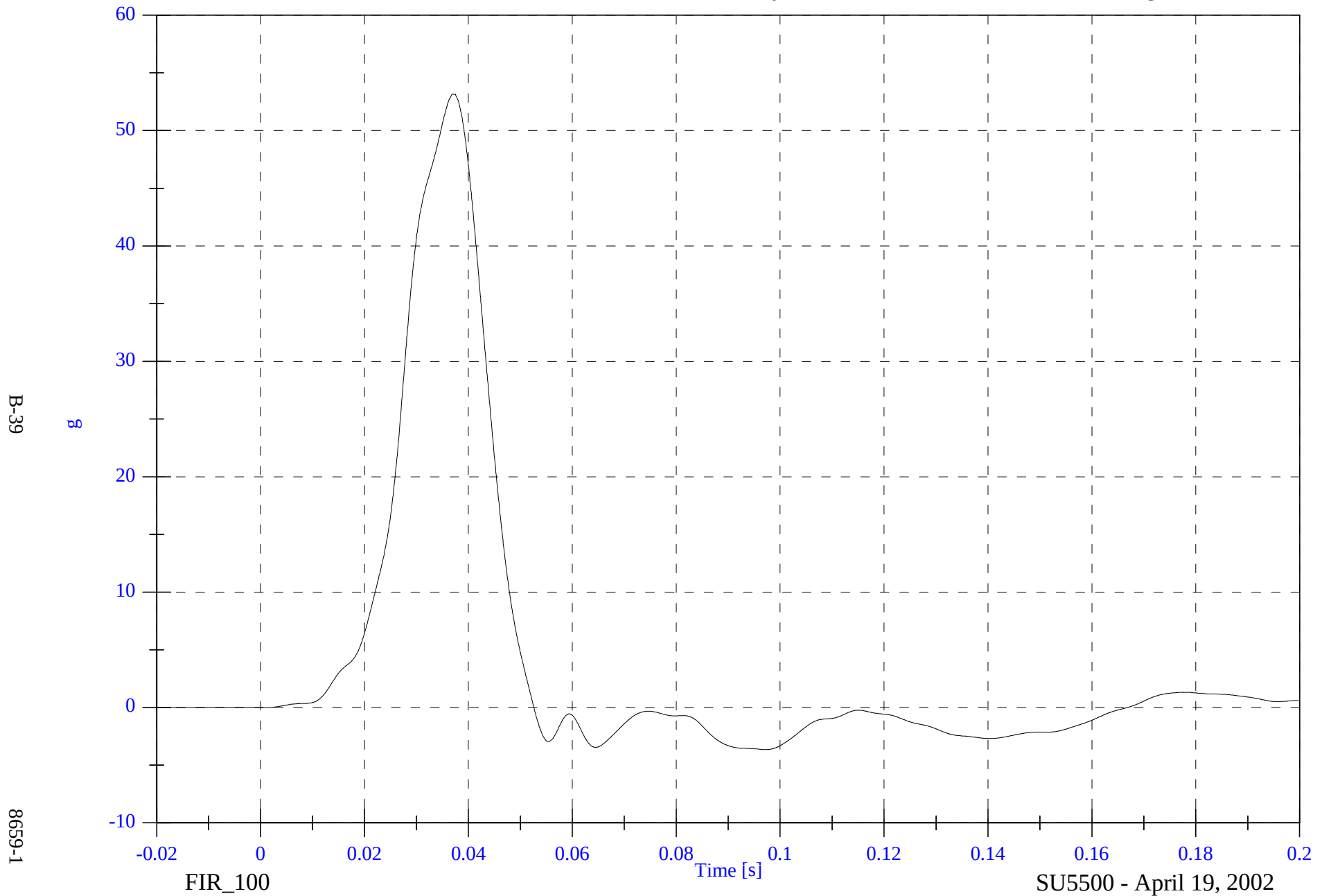
Max: 40.4 [g] at 0.039 [s]

Min: -5.5 [g] at 0.068 [s]



2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback
P1 Pelvic y

Max: 53.2 [g] at 0.037 [s]
Min: -3.7 [g] at 0.098 [s]

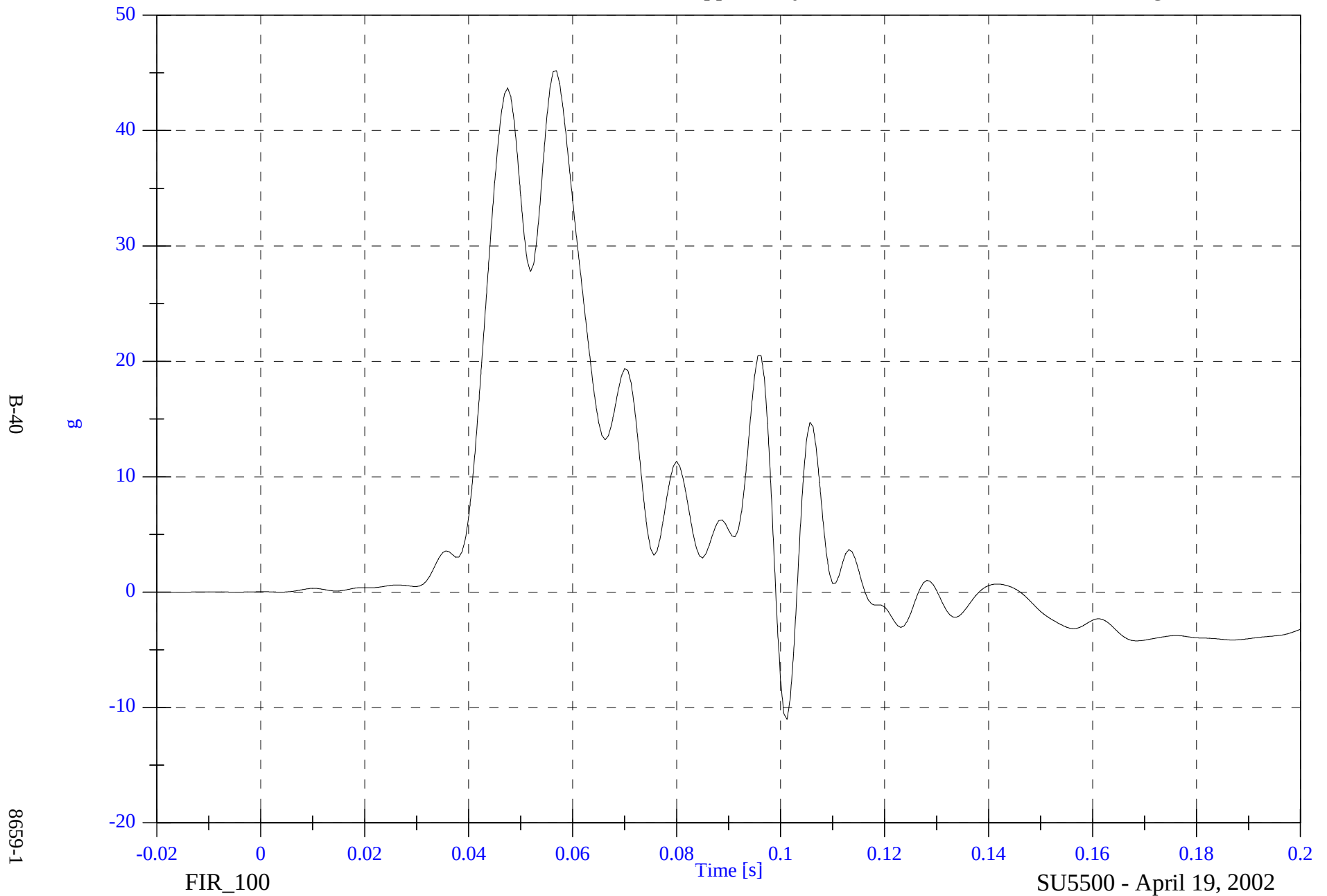


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Upper Rib y

Max: 45.2 [g] at 0.057 [s]

Min: -11.0 [g] at 0.101 [s]

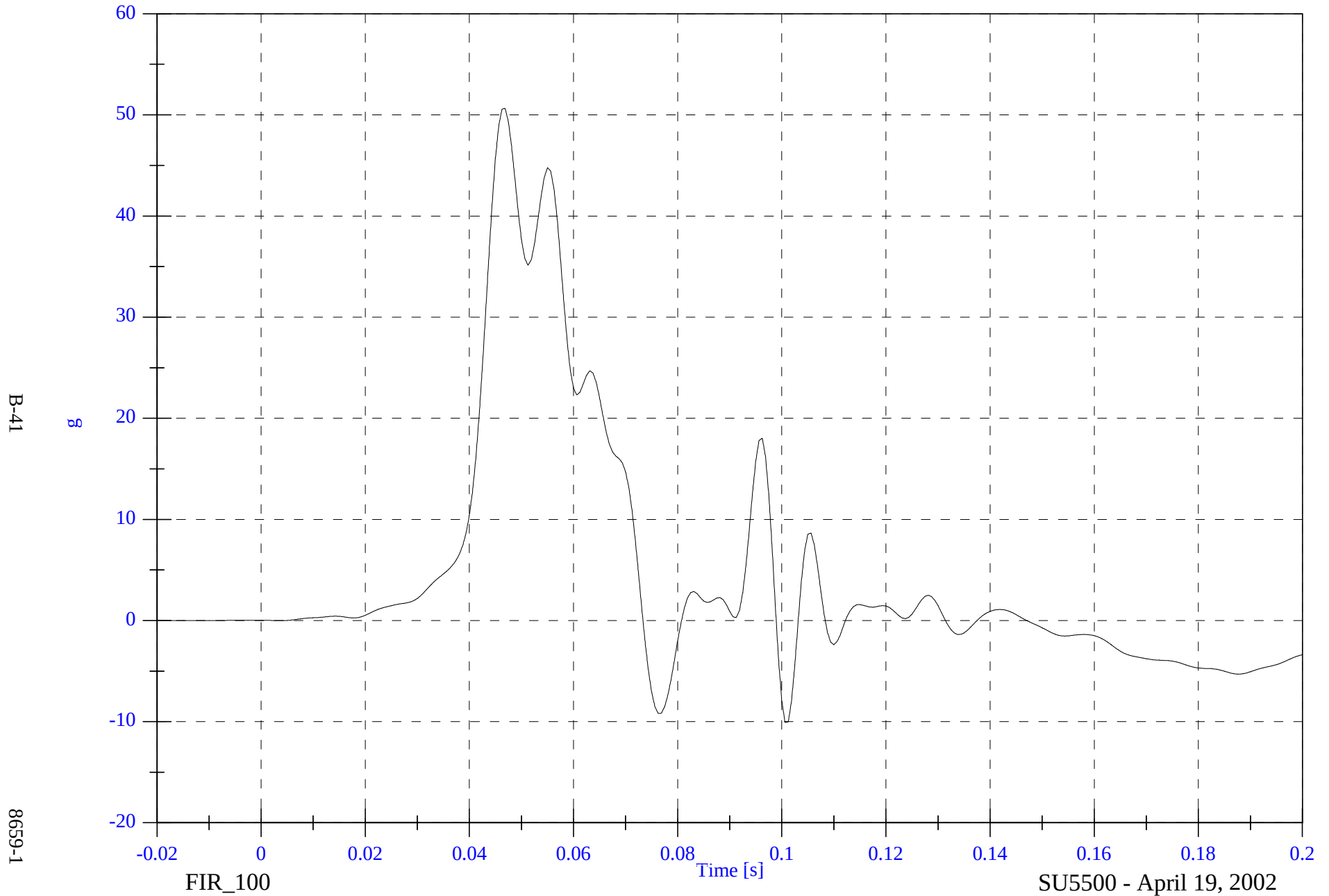


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Lower Rib y

Max: 50.7 [g] at 0.047 [s]

Min: -10.1 [g] at 0.101 [s]

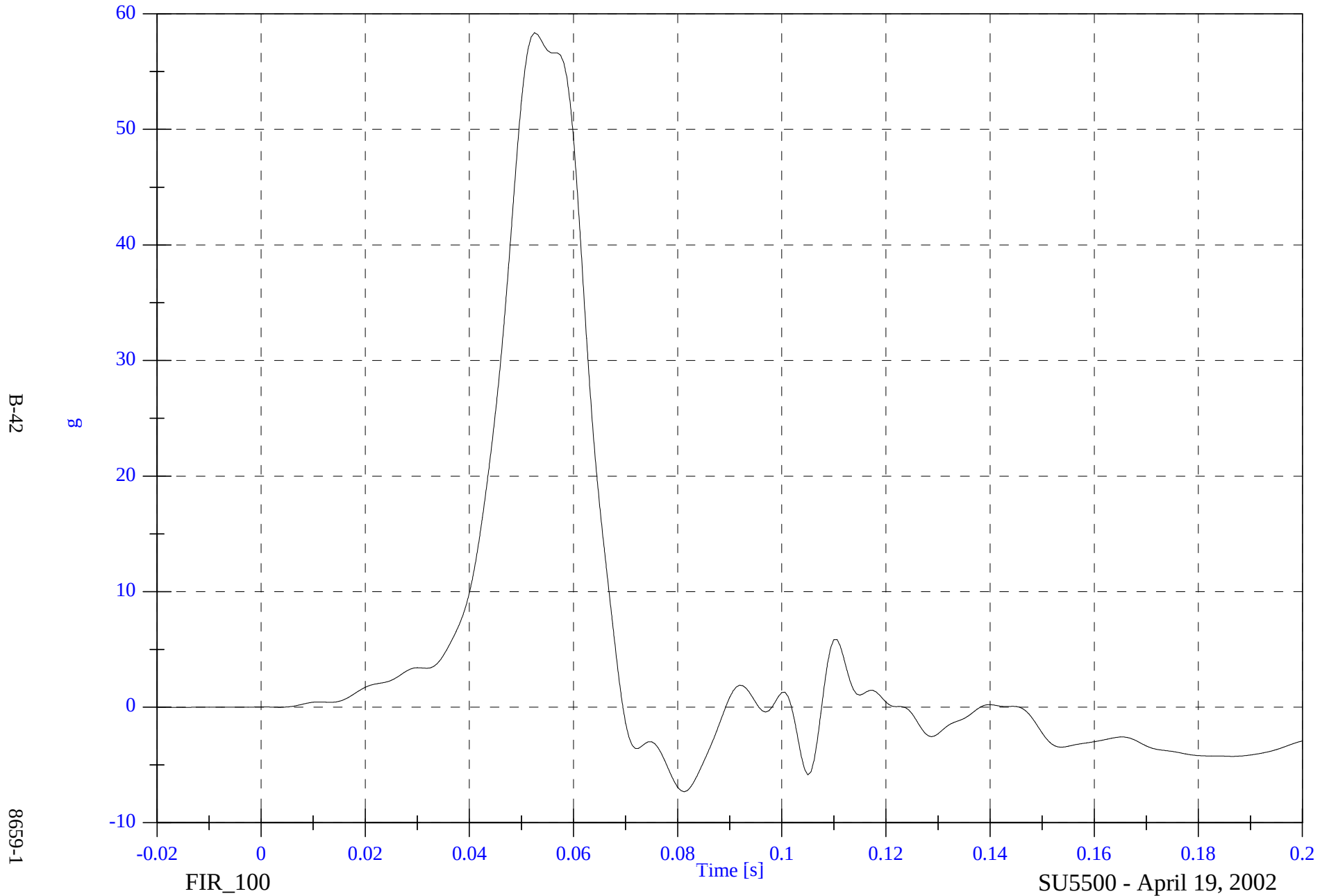


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Lower Spine y

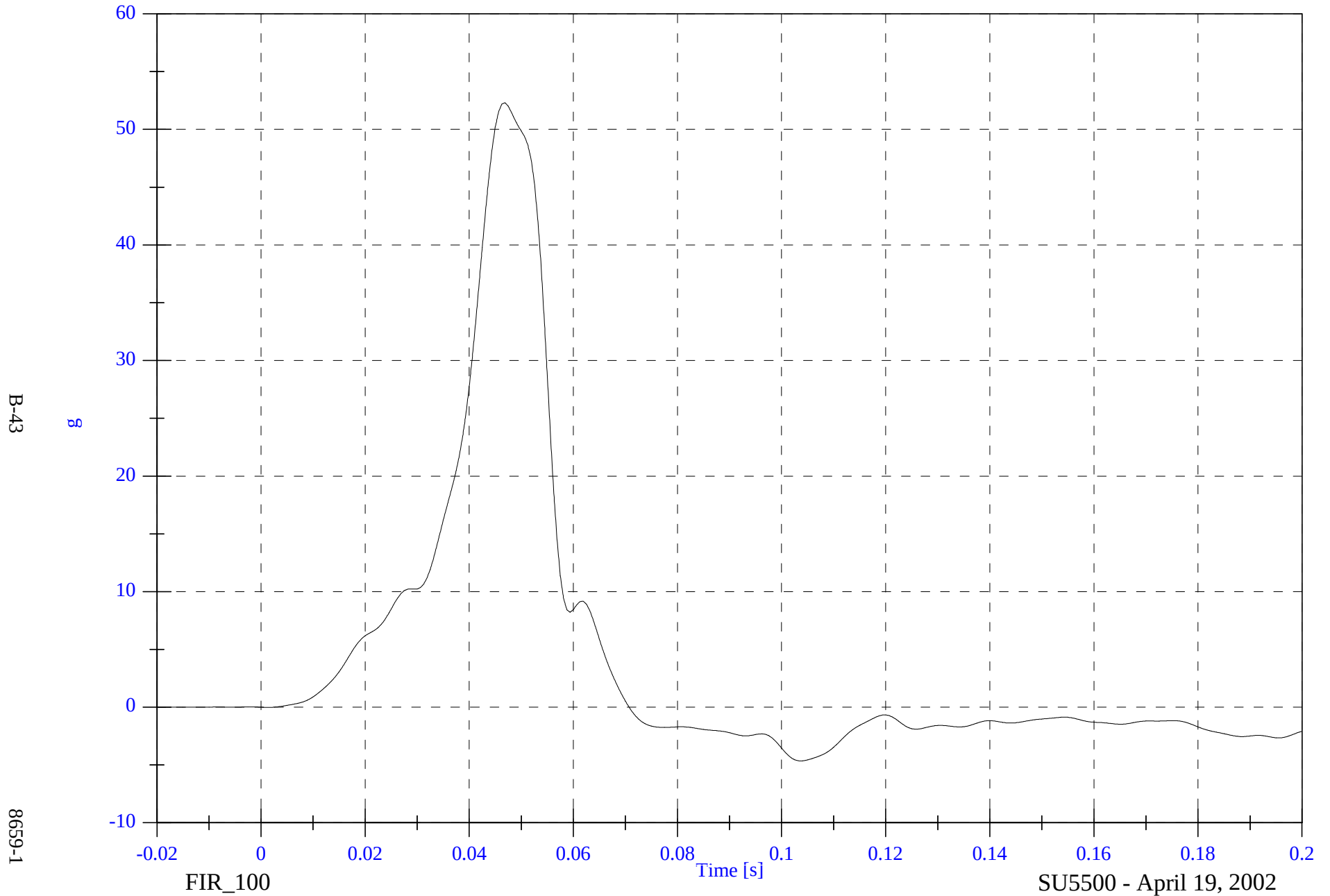
Max: 58.4 [g] at 0.053 [s]

Min: -7.3 [g] at 0.081 [s]



2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback
P4 Pelvic y

Max: 52.3 [g] at 0.047 [s]
Min: -4.7 [g] at 0.104 [s]

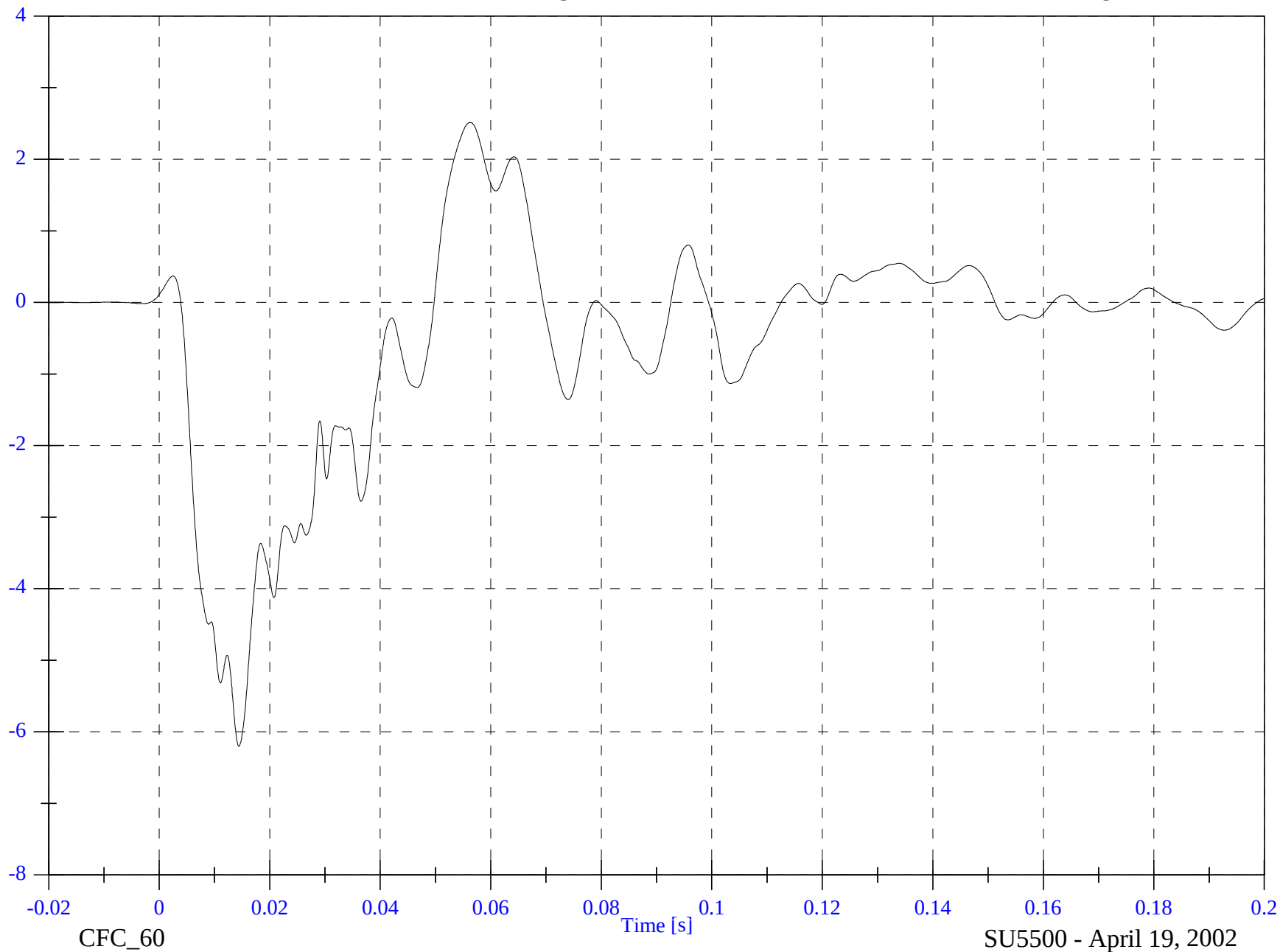


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Max: 2.5 [g] at 0.056 [s]

Acc 1 Right Front Sill at Front Seat x

Min: -6.2 [g] at 0.014 [s]



B-44

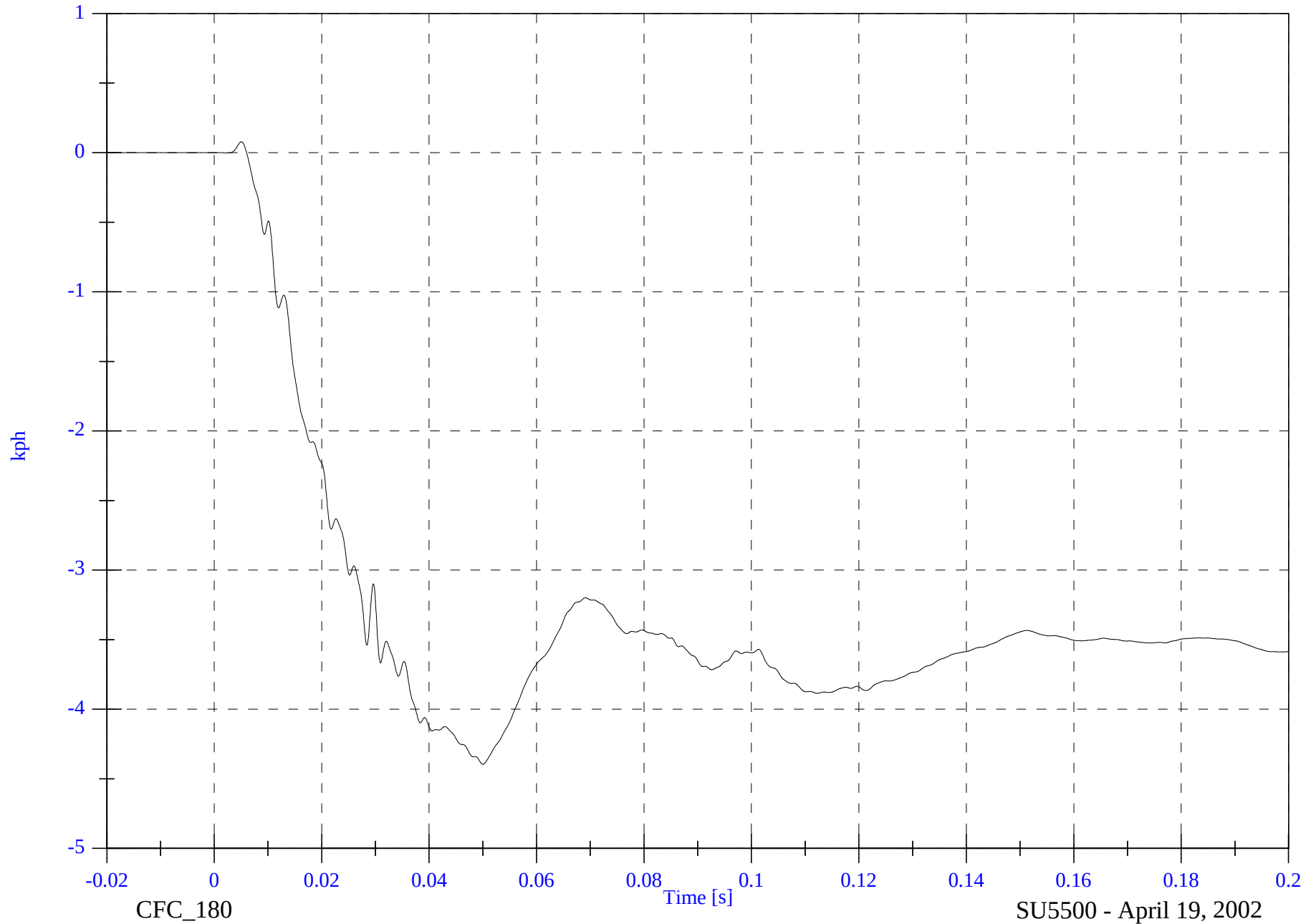
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 1 Right Front Sill at Front Seat x Velocity

Max: 0.1 [kph] at 0.005 [s]

Min: -4.4 [kph] at 0.050 [s]



B-45

8659-1

CFC_180

Time [s]

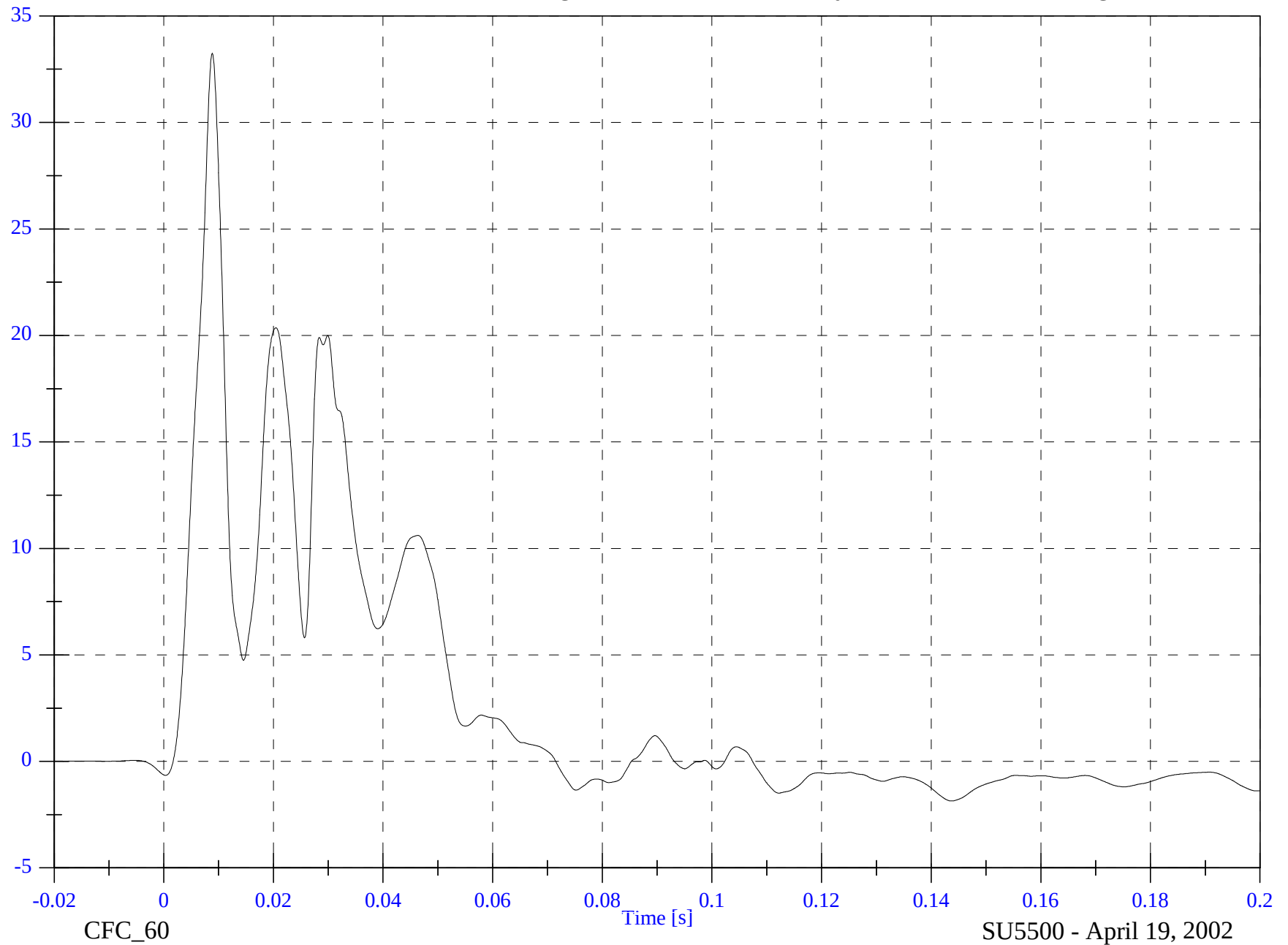
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 1 Right Front Sill at Front Seat y

Max: 33.2 [g] at 0.009 [s]

Min: -1.9 [g] at 0.144 [s]



B-46

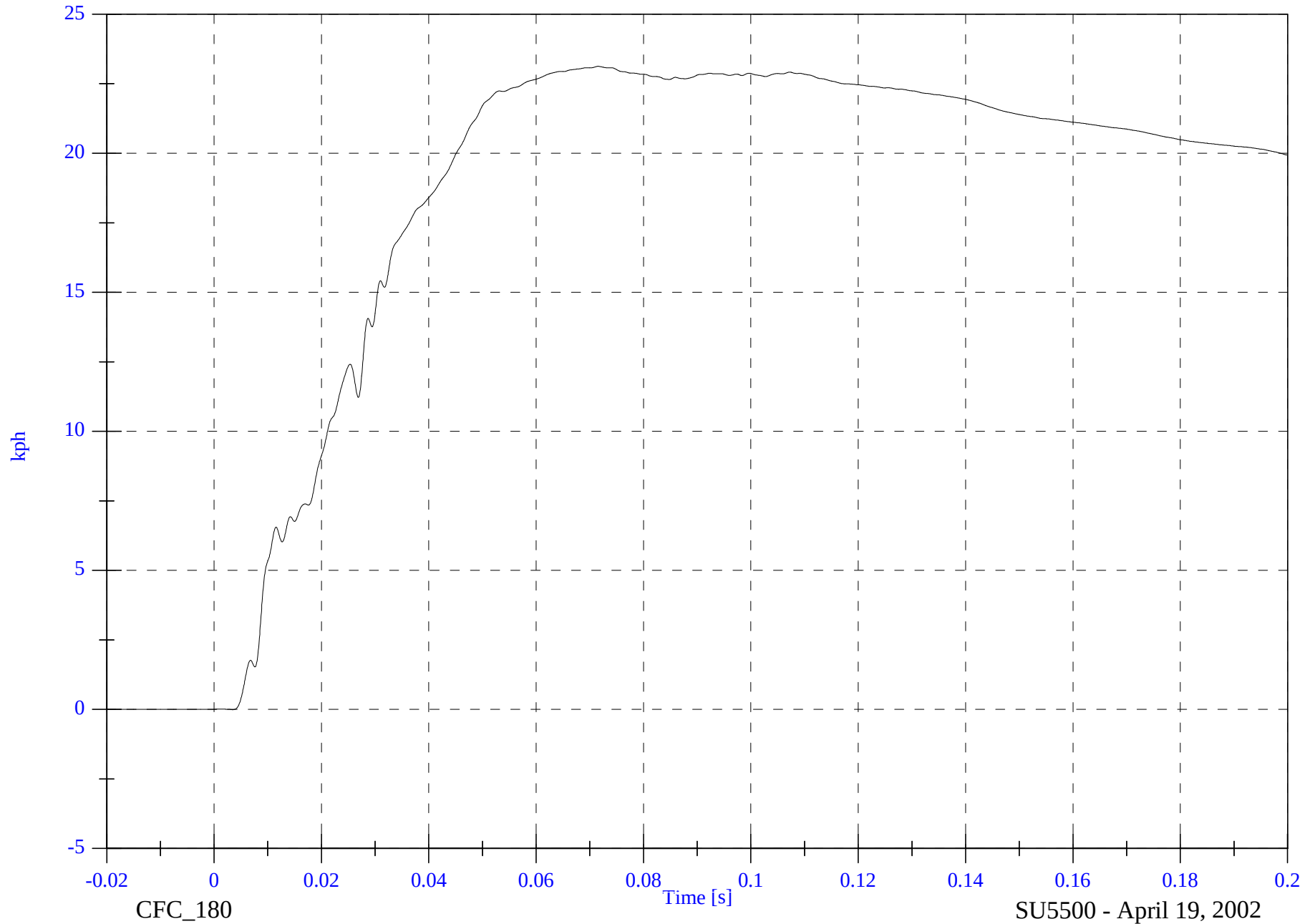
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 1 Right Front Sill at Front Seat y Velocity

Max: 23.1 [kph] at 0.072 [s]

Min: -0.0 [kph] at 0.004 [s]



B-47

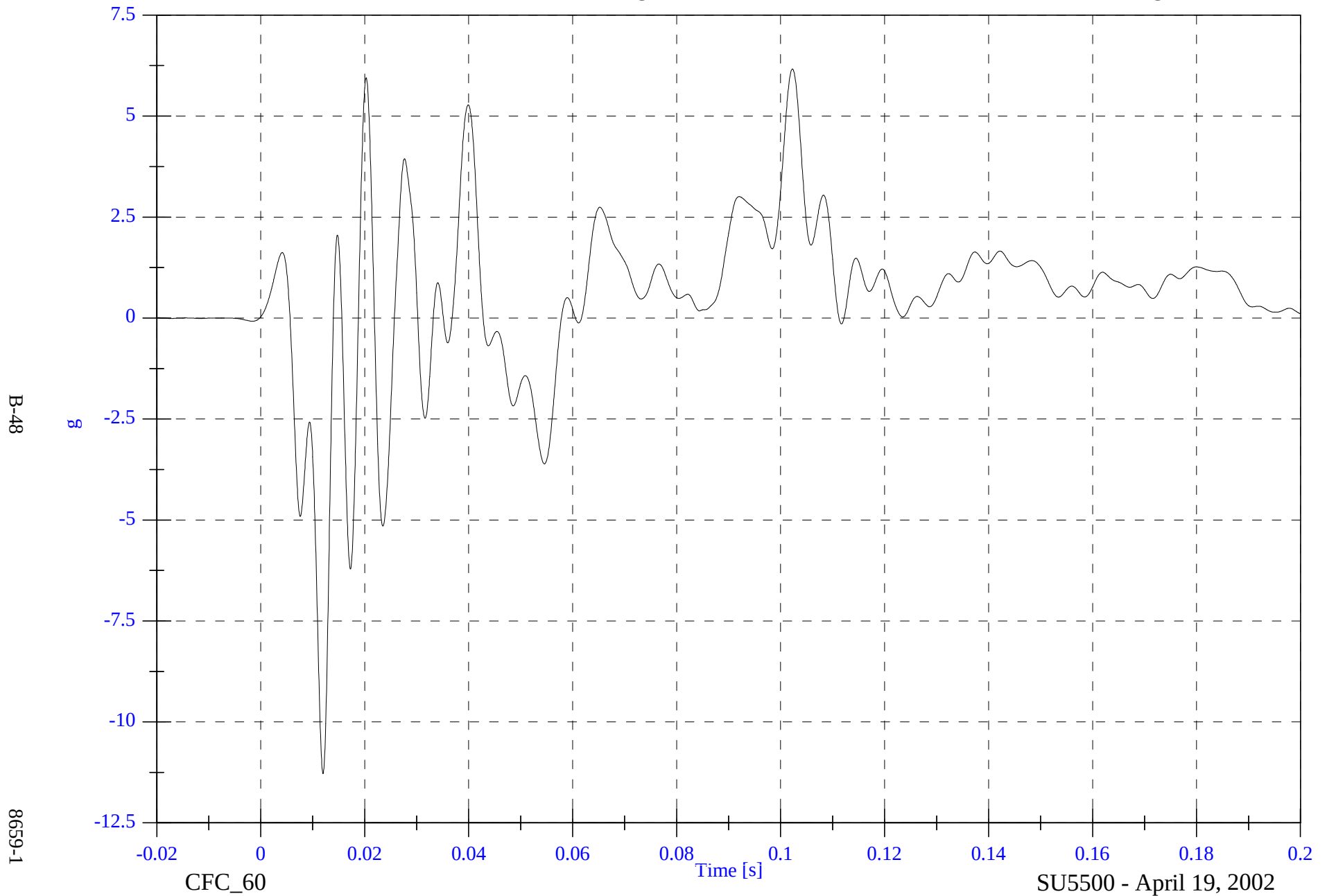
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 1 Right Front Sill at Front Seat z

Max: 6.2 [g] at 0.102 [s]

Min: -11.3 [g] at 0.012 [s]

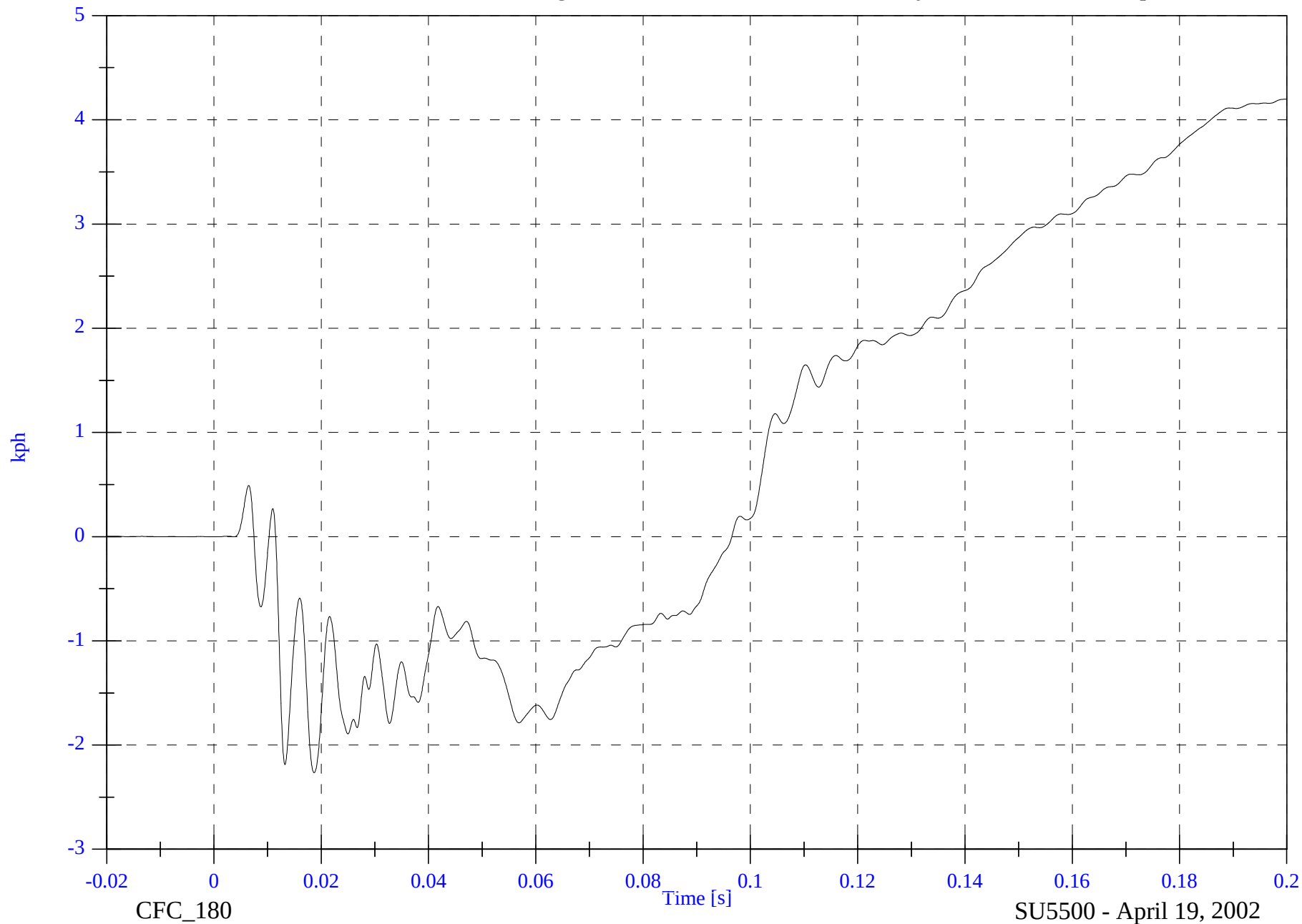


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 1 Right Front Sill at Front Seat z Velocity

Max: 4.2 [kph] at 0.200 [s]

Min: -2.3 [kph] at 0.019 [s]



B-49

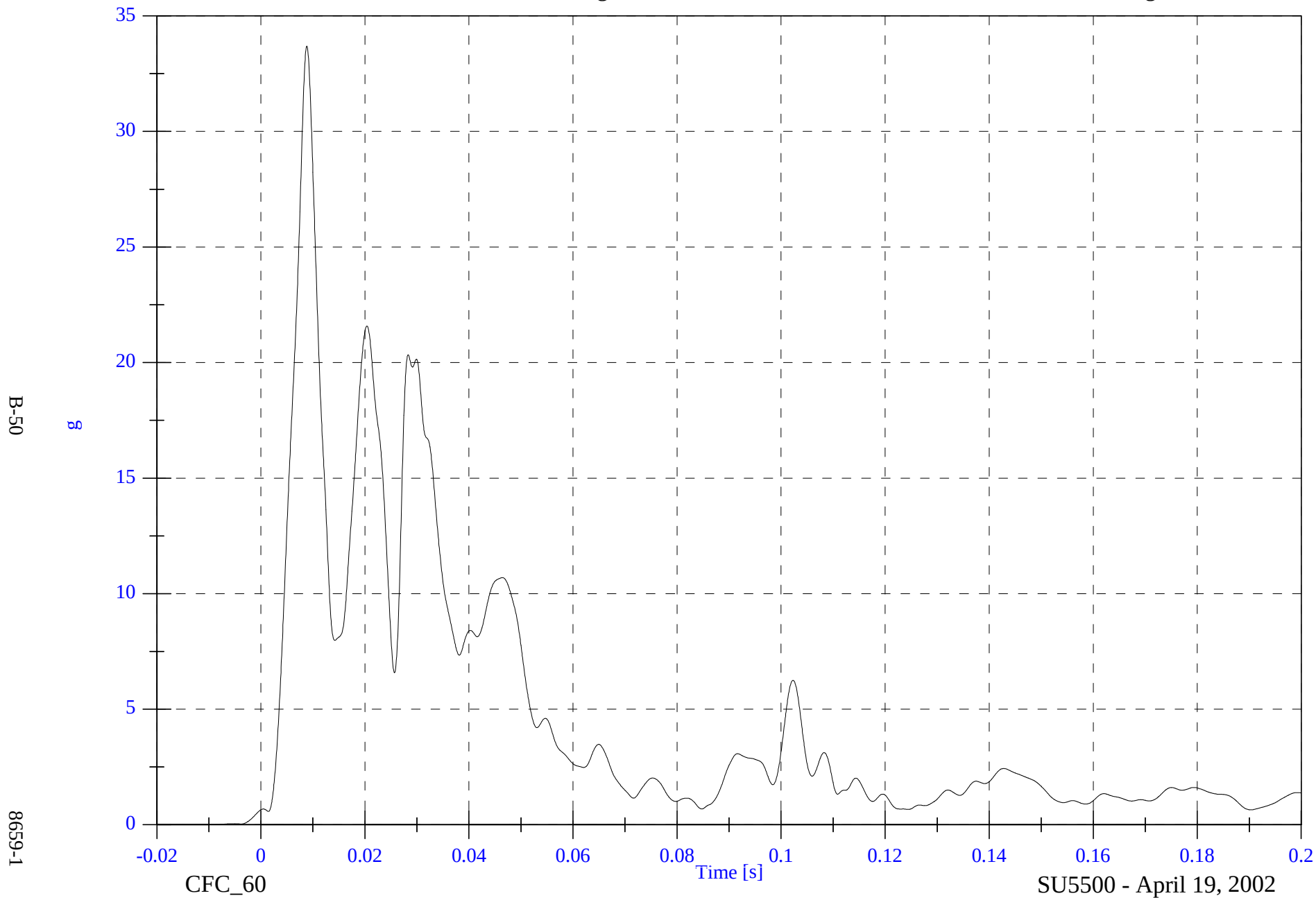
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 1 Right Front Sill at Front Seat Resultant

Max: 33.7 [g] at 0.009 [s]

Min: 0.0 [g] at -0.010 [s]

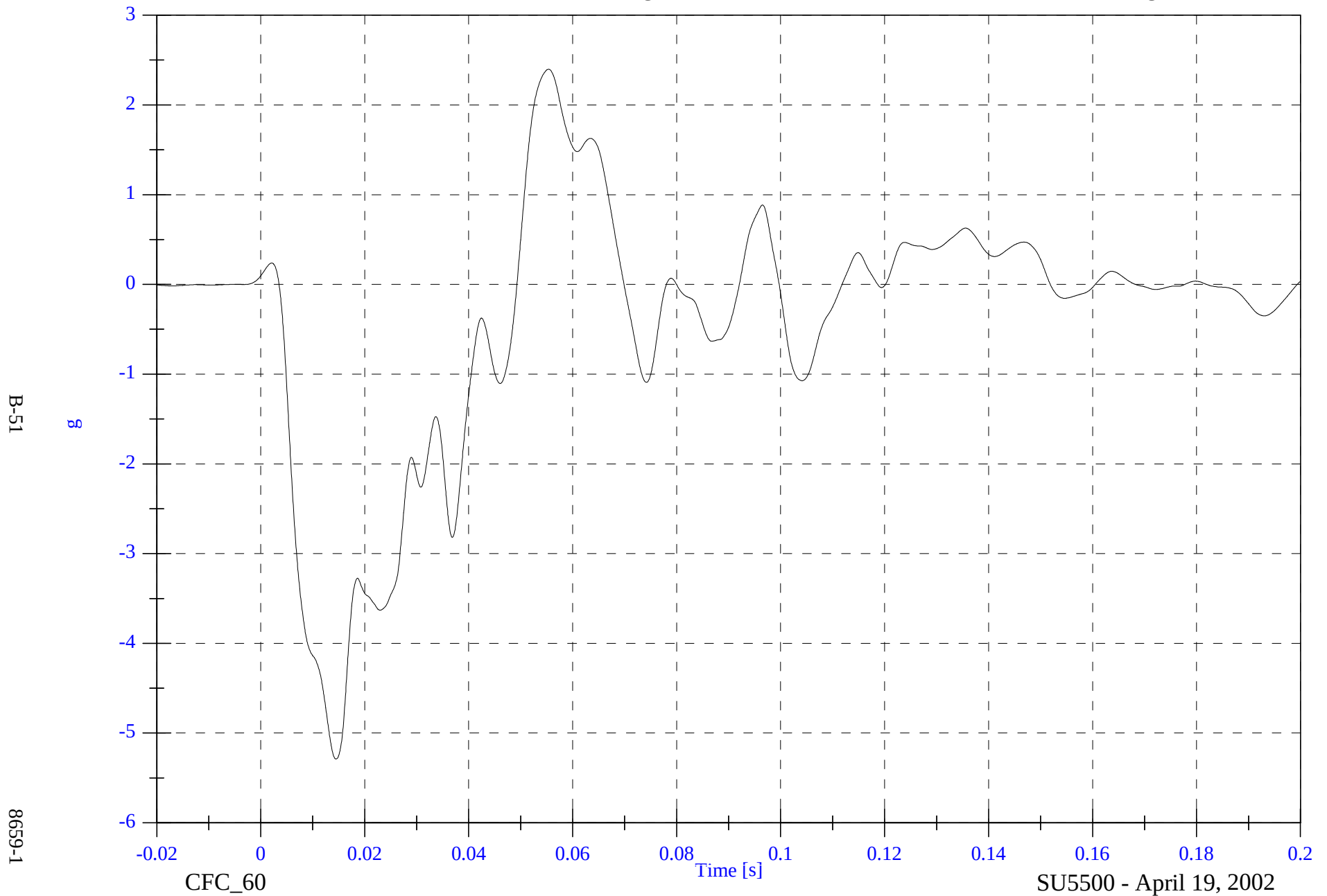


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 2 Right Rear Sill at Rear Seat x

Max: 2.4 [g] at 0.055 [s]

Min: -5.3 [g] at 0.015 [s]



2002 SMCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 2 Right Rear Sill at Rear Seat x Velocity

Max: 0.0 [kph] at 0.005 [s]

Min: -4.2 [kph] at 0.050 [s]



B-52

8659-1

CFC_180

Time [s]

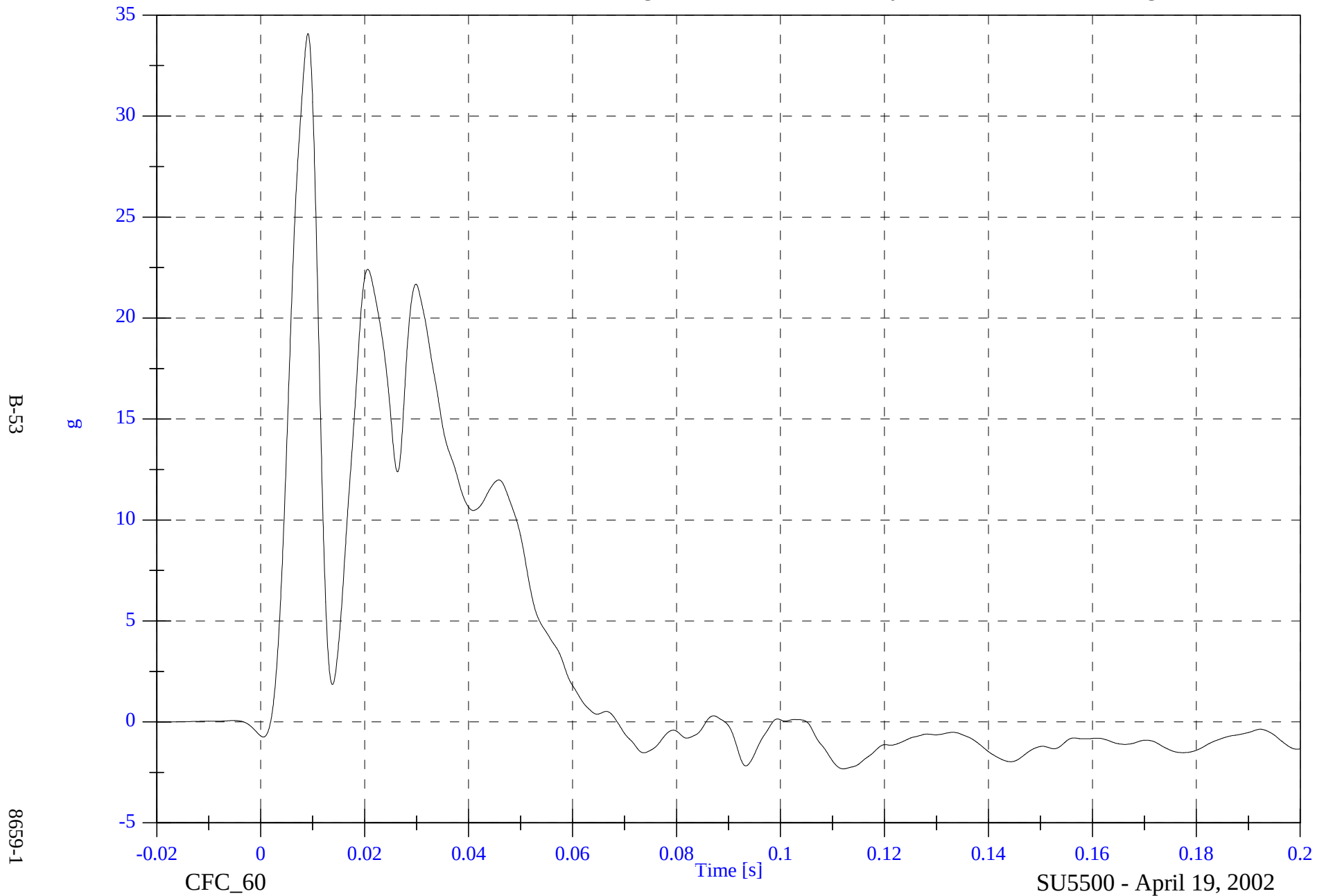
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 2 Right Rear Sill at Rear Seat y

Max: 34.1 [g] at 0.009 [s]

Min: -2.3 [g] at 0.112 [s]



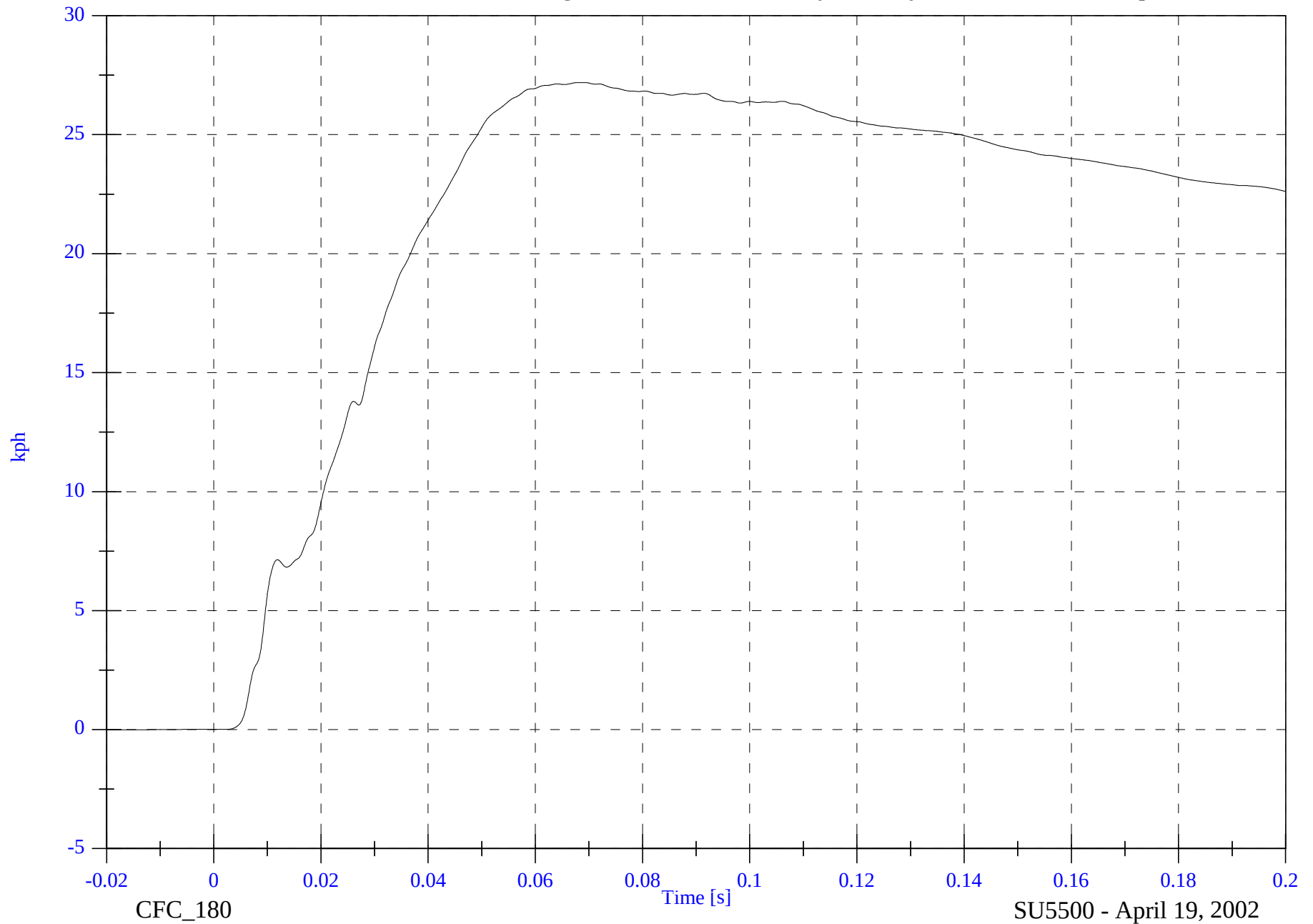
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 2 Right Rear Sill at Rear Seat y Velocity

Max: 27.2 [kph] at 0.068 [s]

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



B-54

8659-1

CFC_180

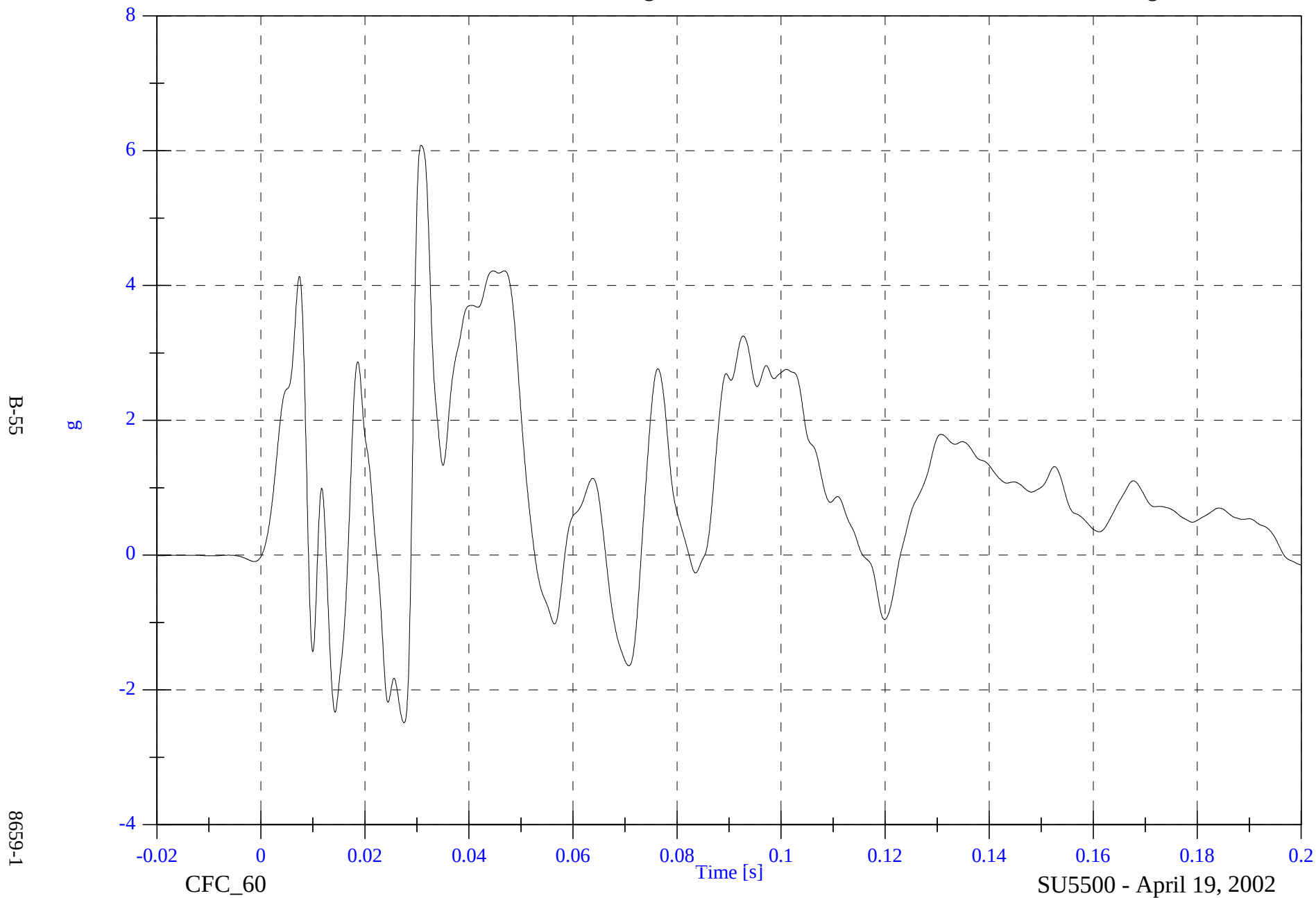
SU5500 - April 19, 2002

2002 SMCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 2 Right Rear Sill at Rear Seat z

Max: 6.1 [g] at 0.031 [s]

Min: -2.5 [g] at 0.028 [s]

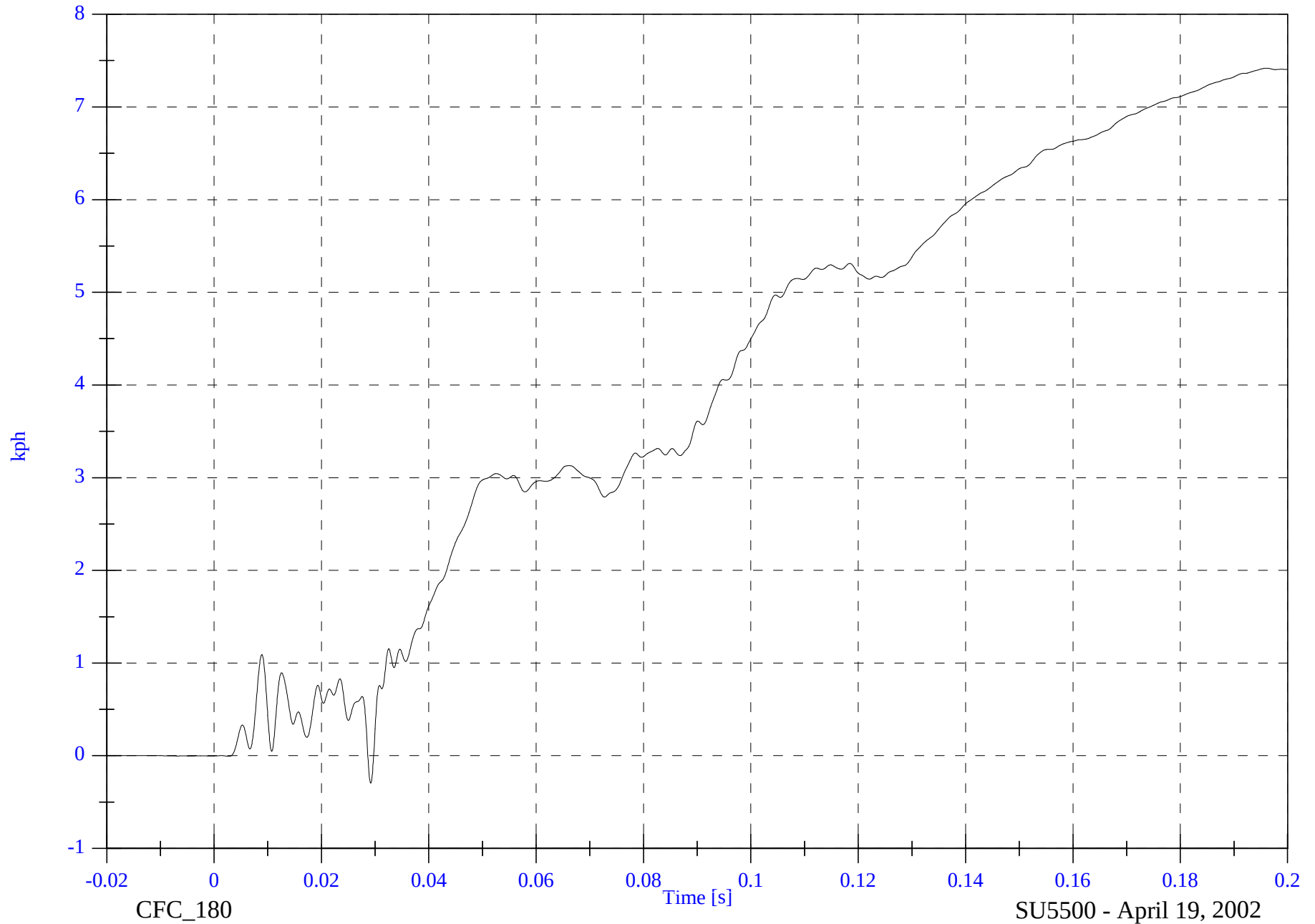


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 2 Right Rear Sill at Rear Seat z Velocity

Max: 7.4 [kph] at 0.196 [s]

Min: -0.3 [kph] at 0.029 [s]



B-56

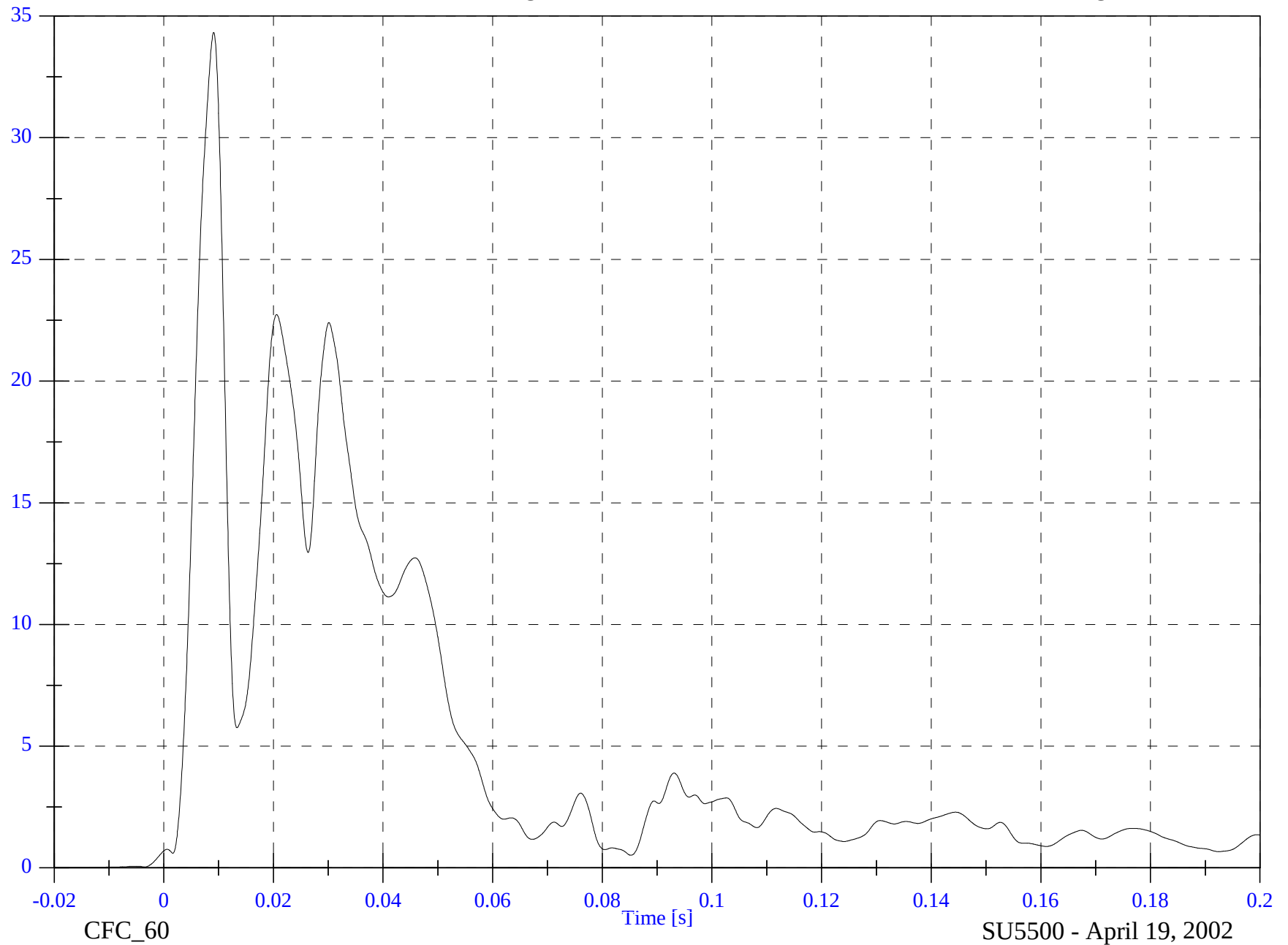
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 2 Right Rear Sill at Rear Seat Resultant

Max: 34.3 [g] at 0.009 [s]

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



B-57

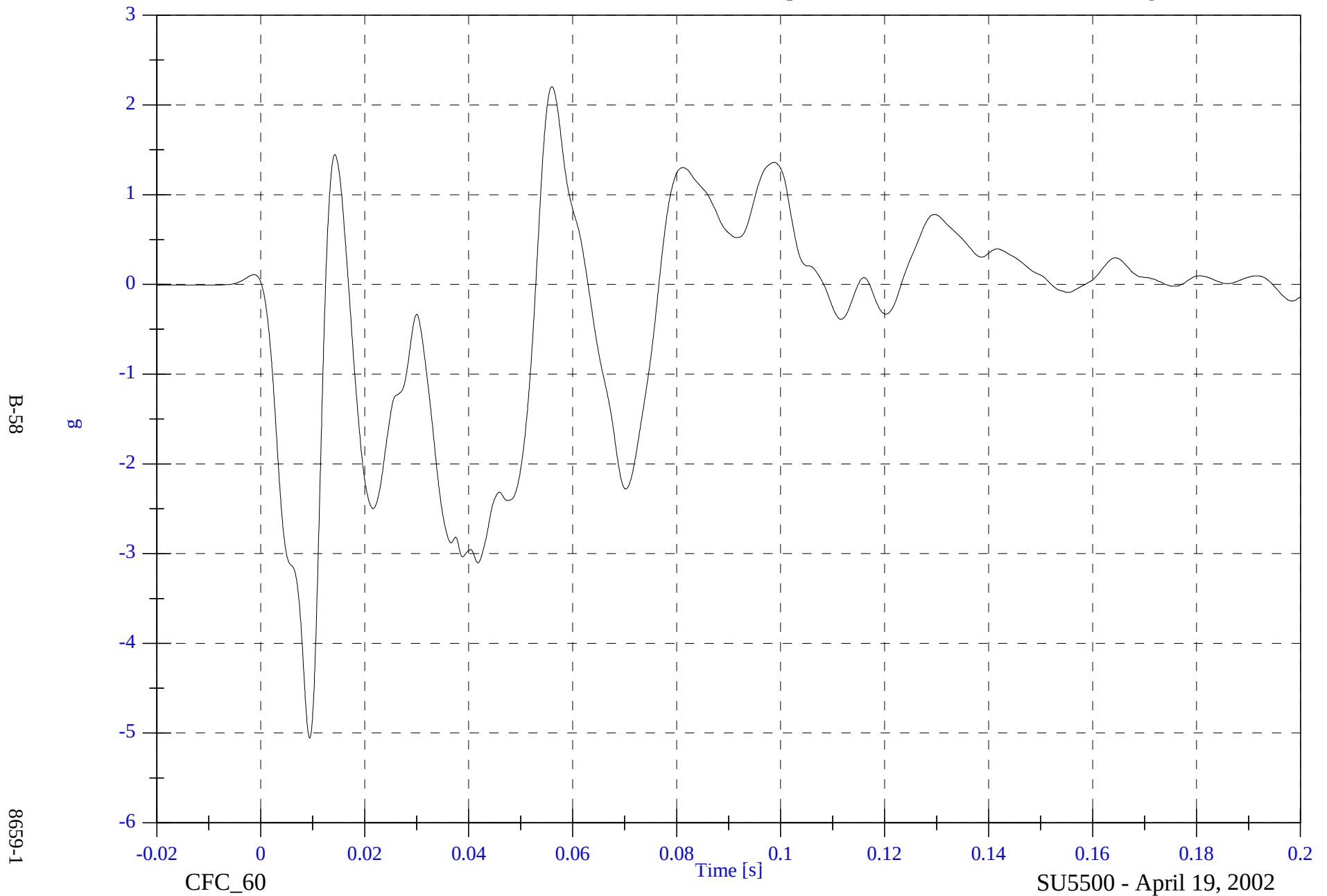
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 3 Rear Floorpan x

Max: 2.2 [g] at 0.056 [s]

Min: -5.1 [g] at 0.009 [s]



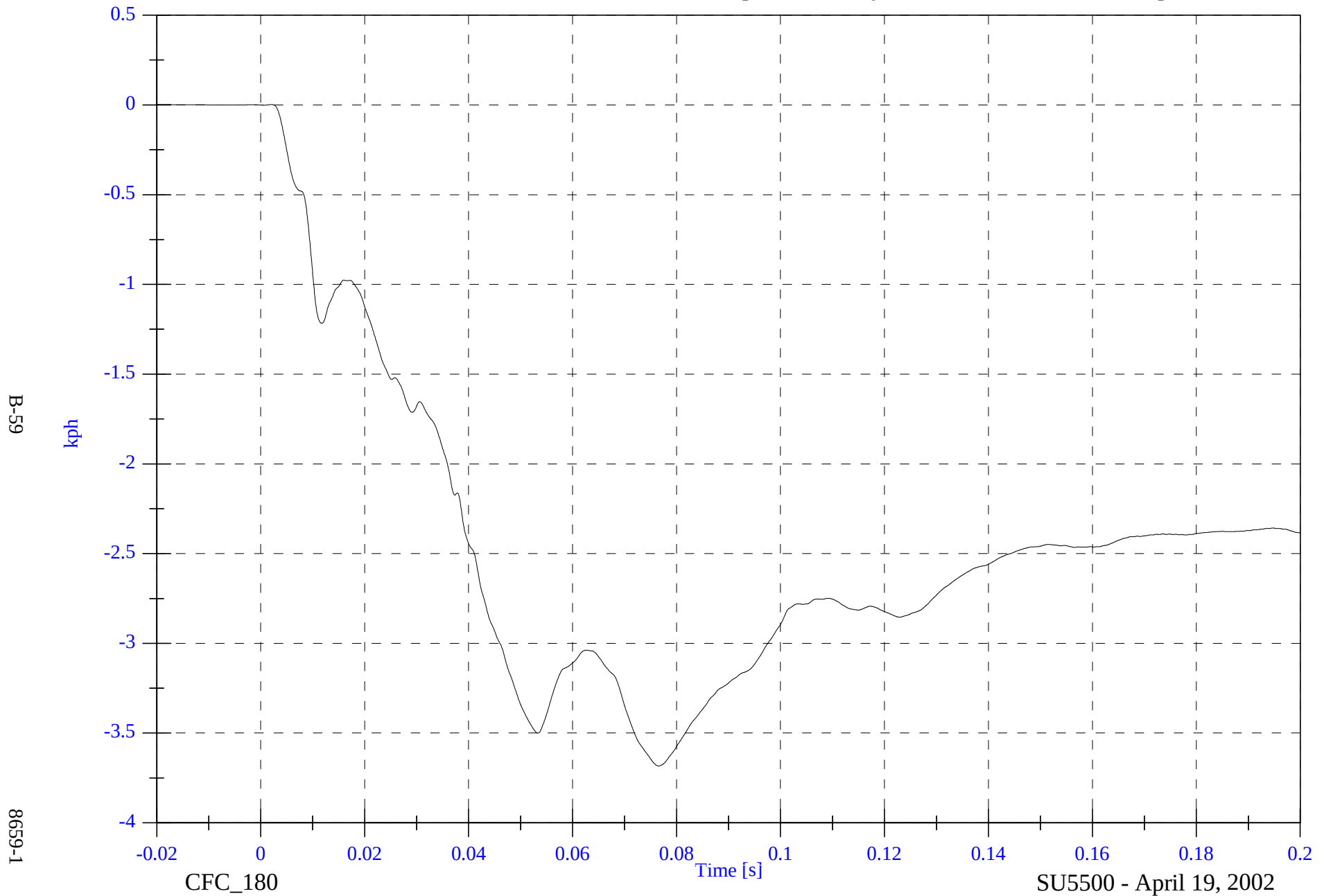
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 3 Rear Floorpan x Velocity

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

Min: -3.7 [kph] at 0.077 [s]

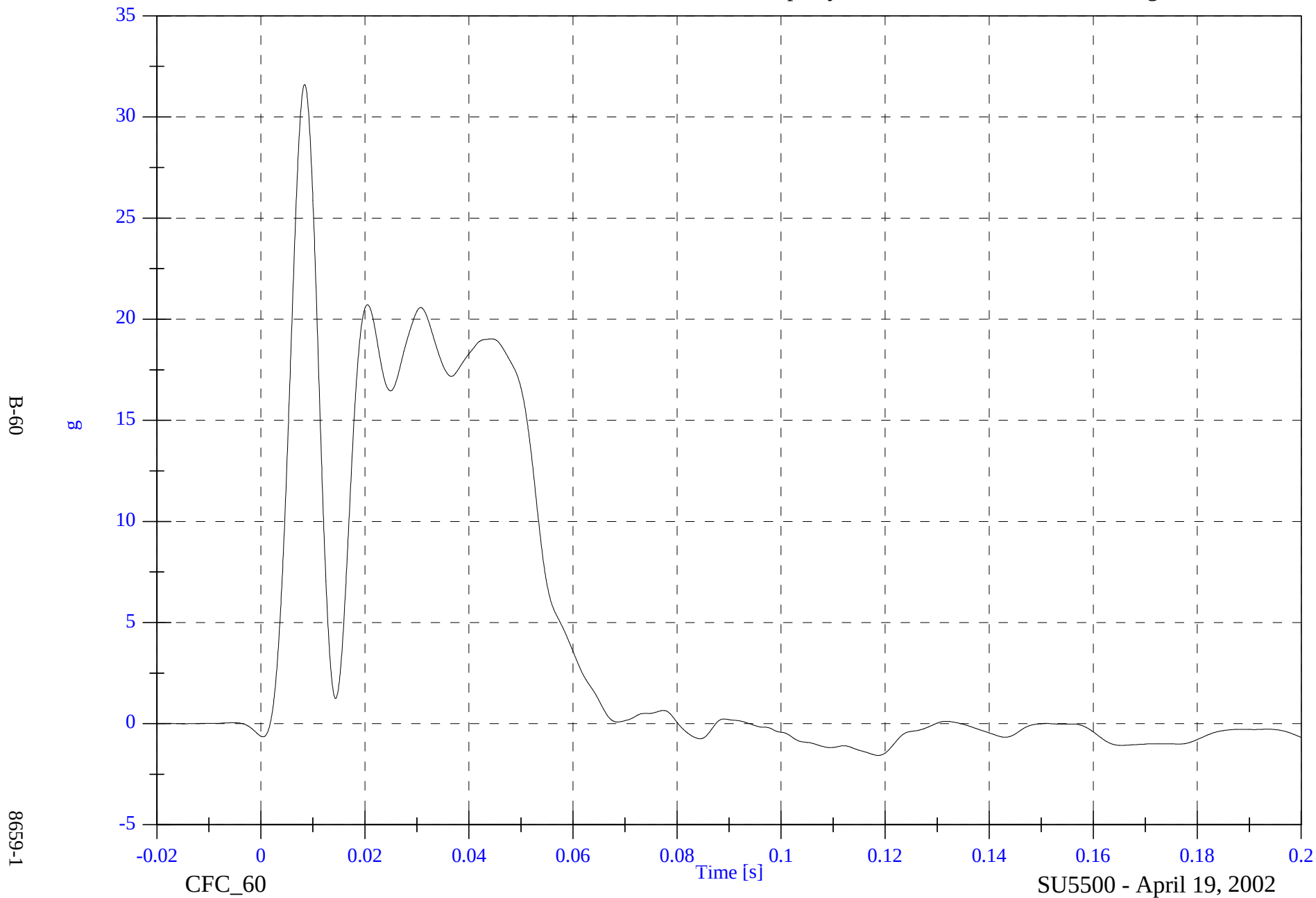


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 3 Rear Floorpan y

Max: 31.6 [g] at 0.008 [s]

Min: -1.6 [g] at 0.119 [s]

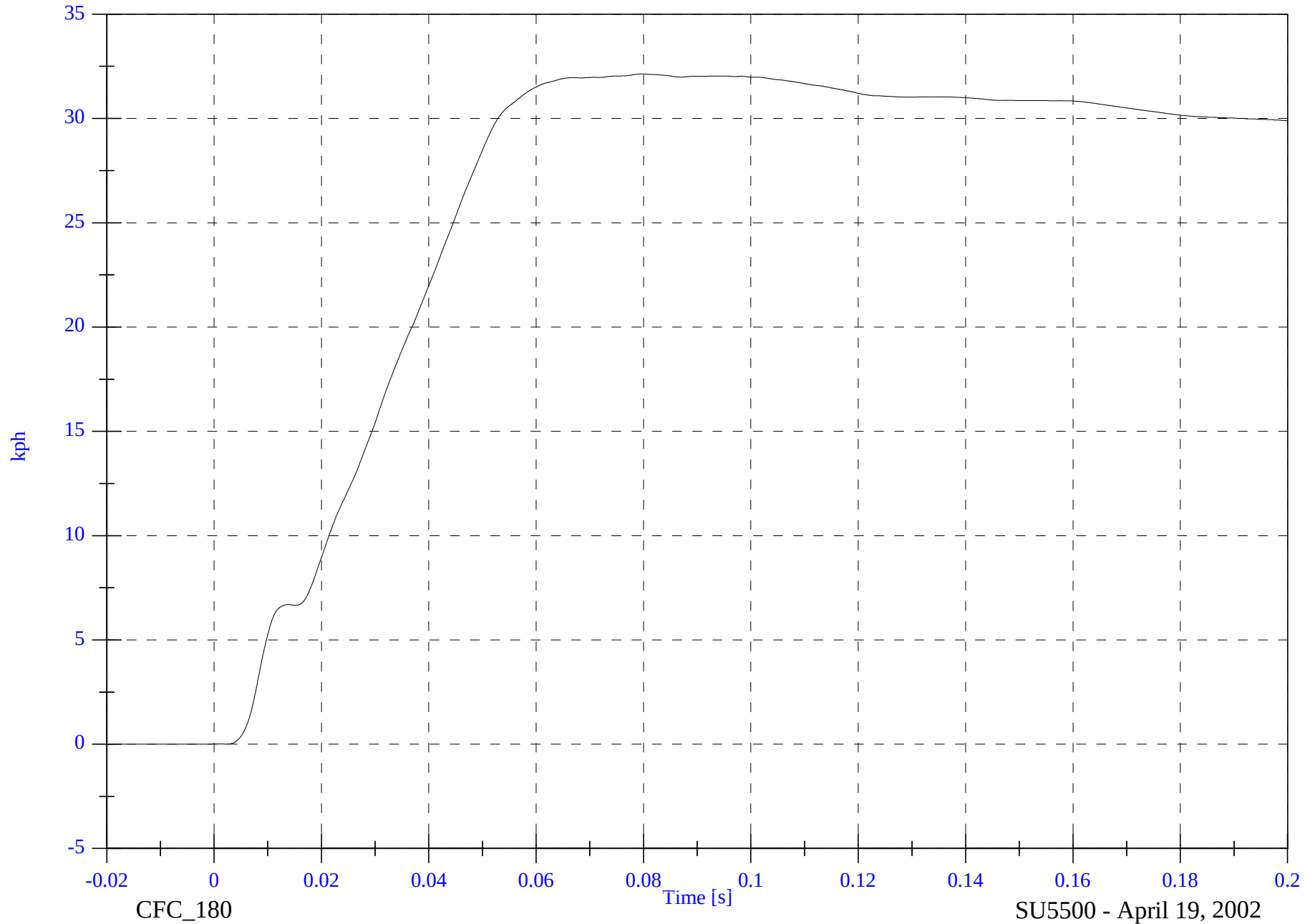


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 3 Rear Floorpan y Velocity

Max: 32.1 [kph] at 0.080 [s]

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



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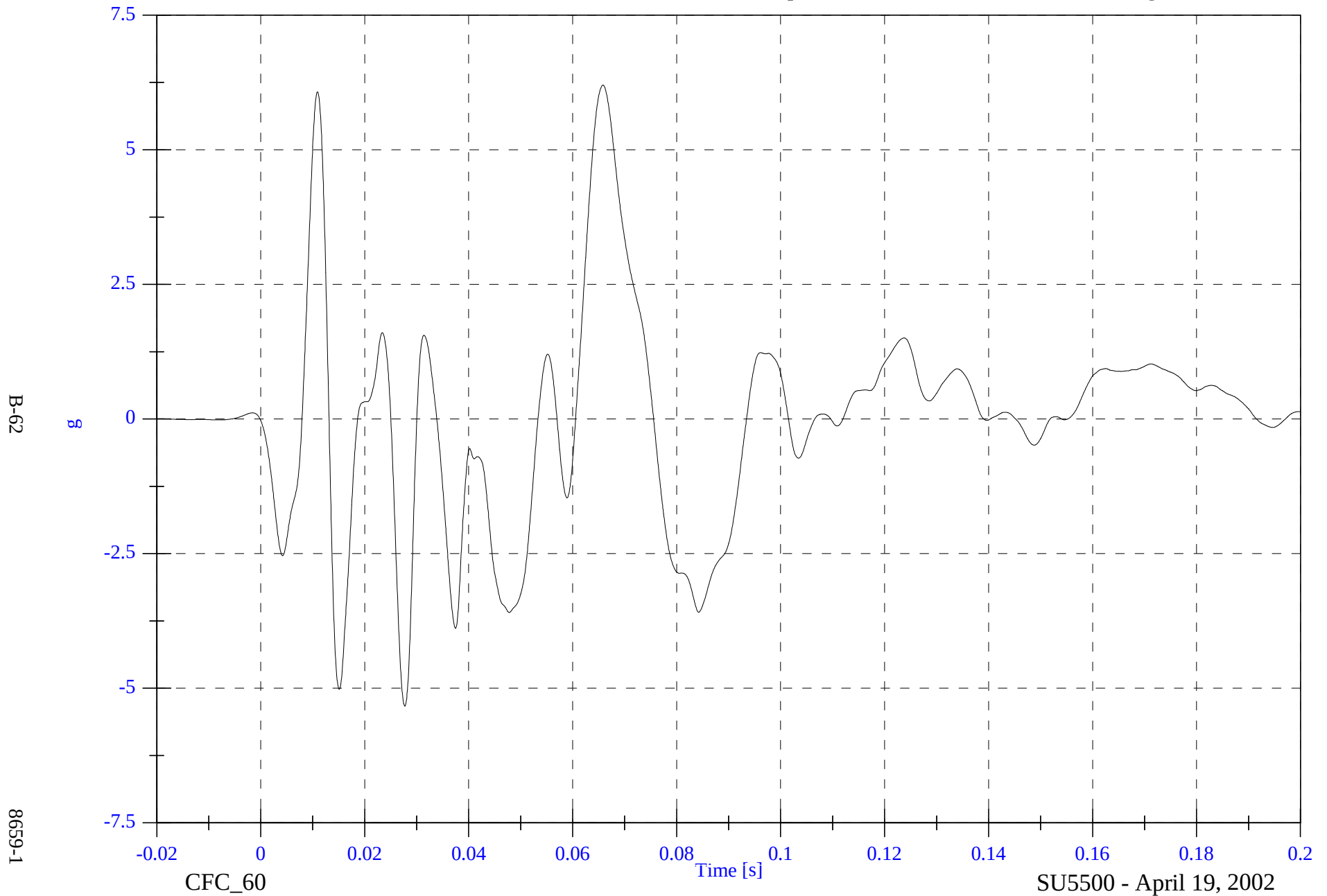
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 3 Rear Floorpan z

Max: 6.2 [g] at 0.066 [s]

Min: -5.3 [g] at 0.028 [s]

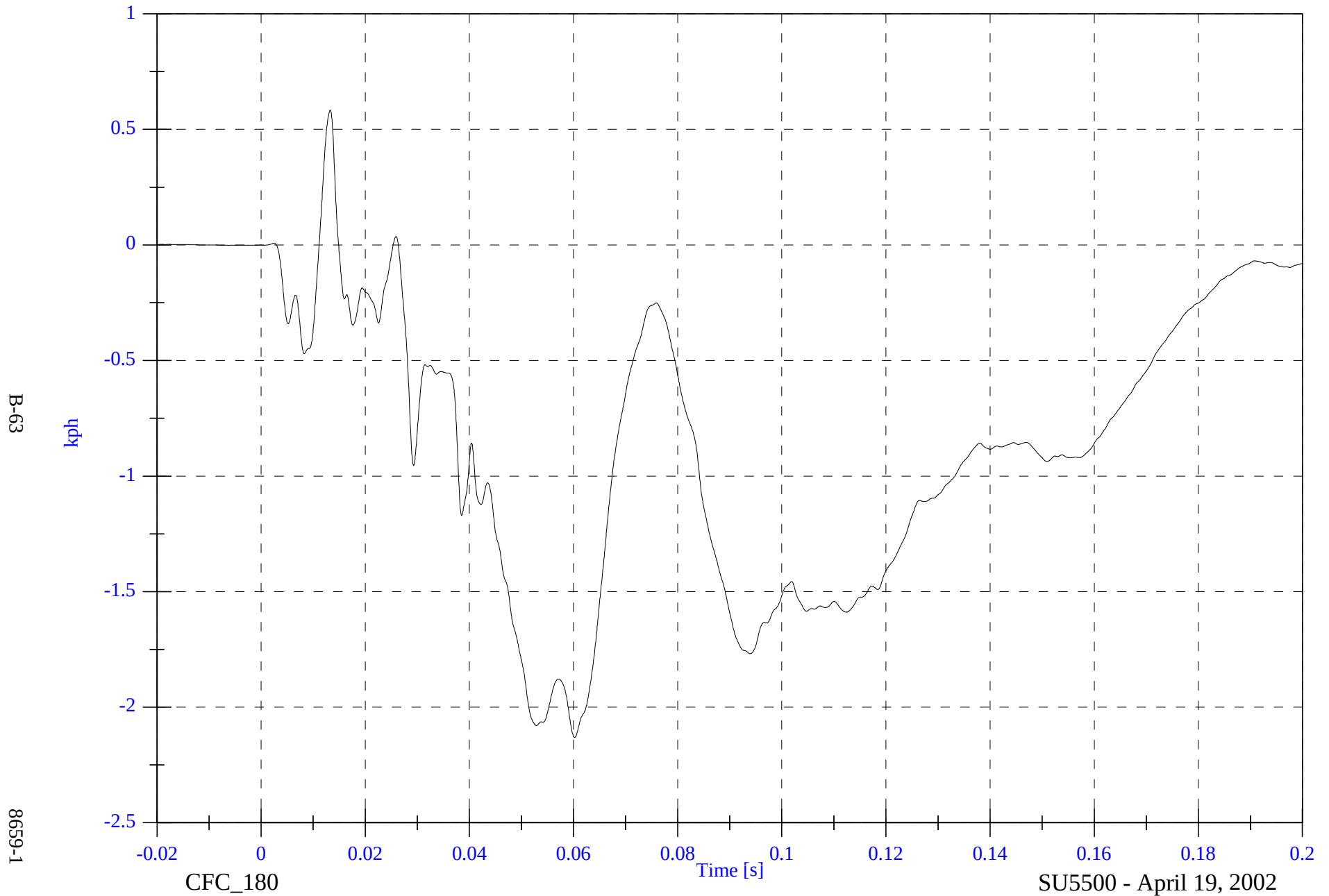


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 3 Rear Floorpan z Velocity

Max: 0.6 [kph] at 0.013 [s]

Min: -2.1 [kph] at 0.060 [s]

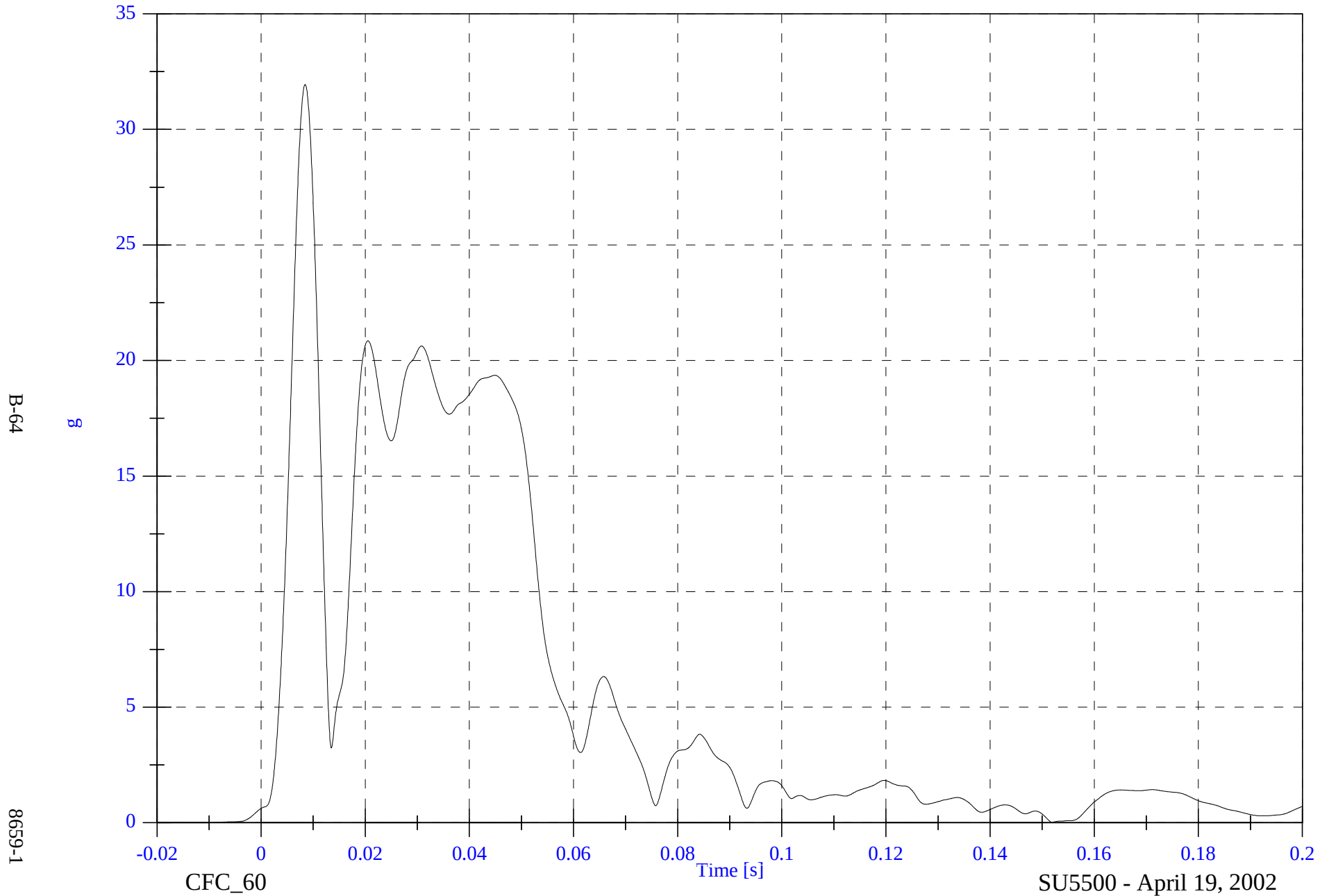


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 3 Rear Floorpan Resultant

Max: 31.9 [g] at 0.008 [s]

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

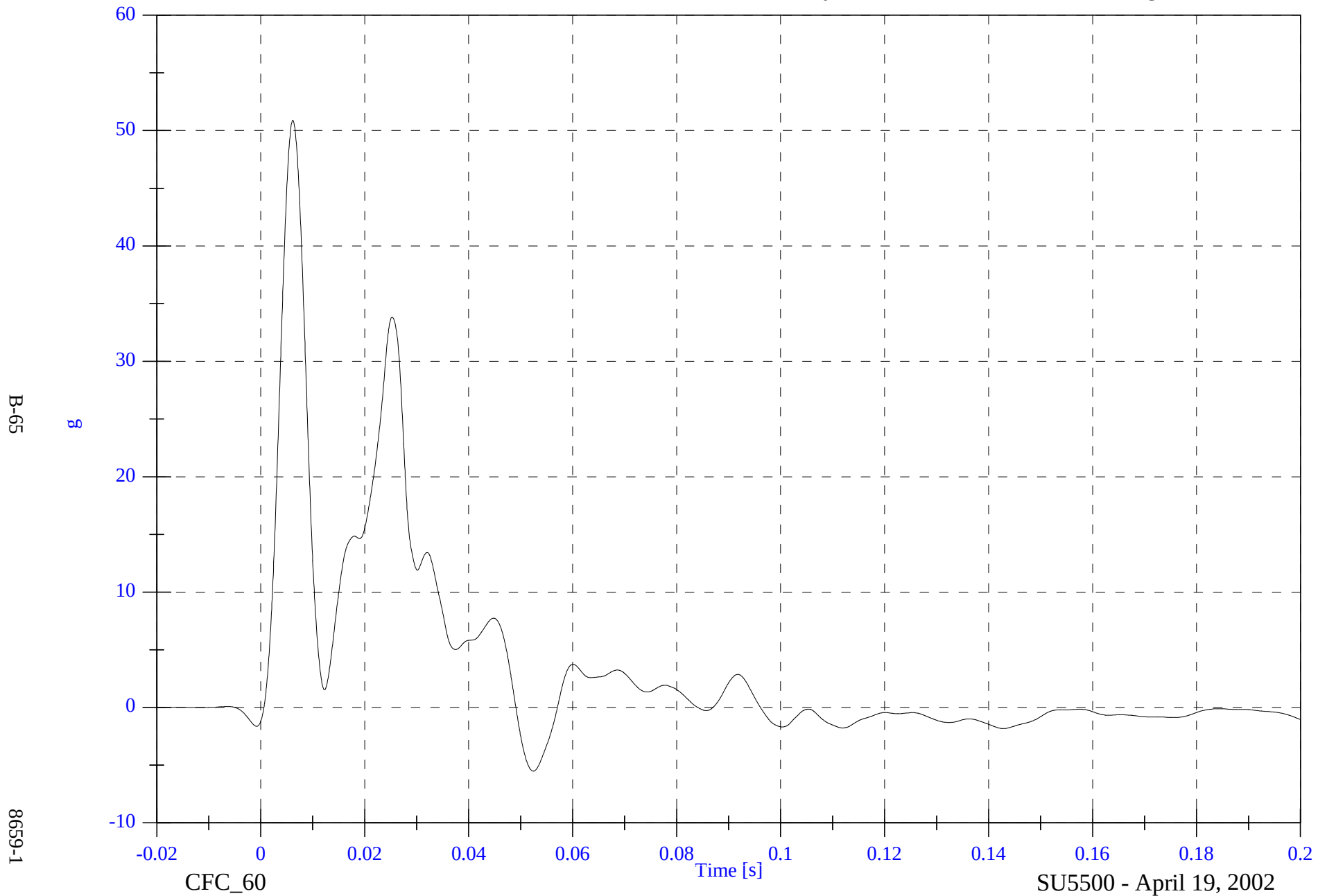


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 4 Left Rear Sill y

Max: 50.9 [g] at 0.006 [s]

Min: -5.5 [g] at 0.052 [s]

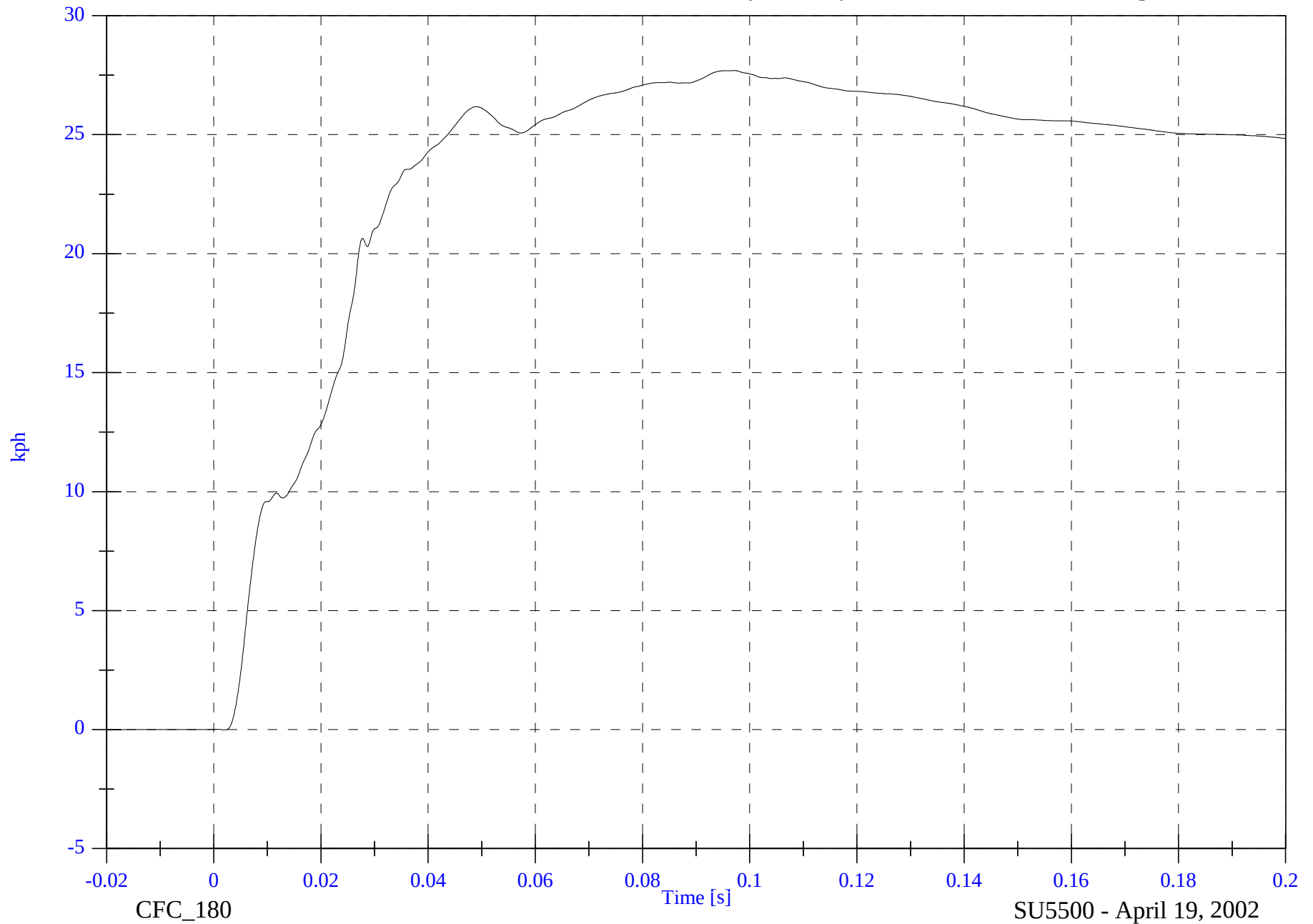


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 4 Left Rear Sill y Velocity

Max: 27.7 [kph] at 0.097 [s]

Min: -0.0 [kph] at 0.002 [s]



B-66

8659-1

CFC_180

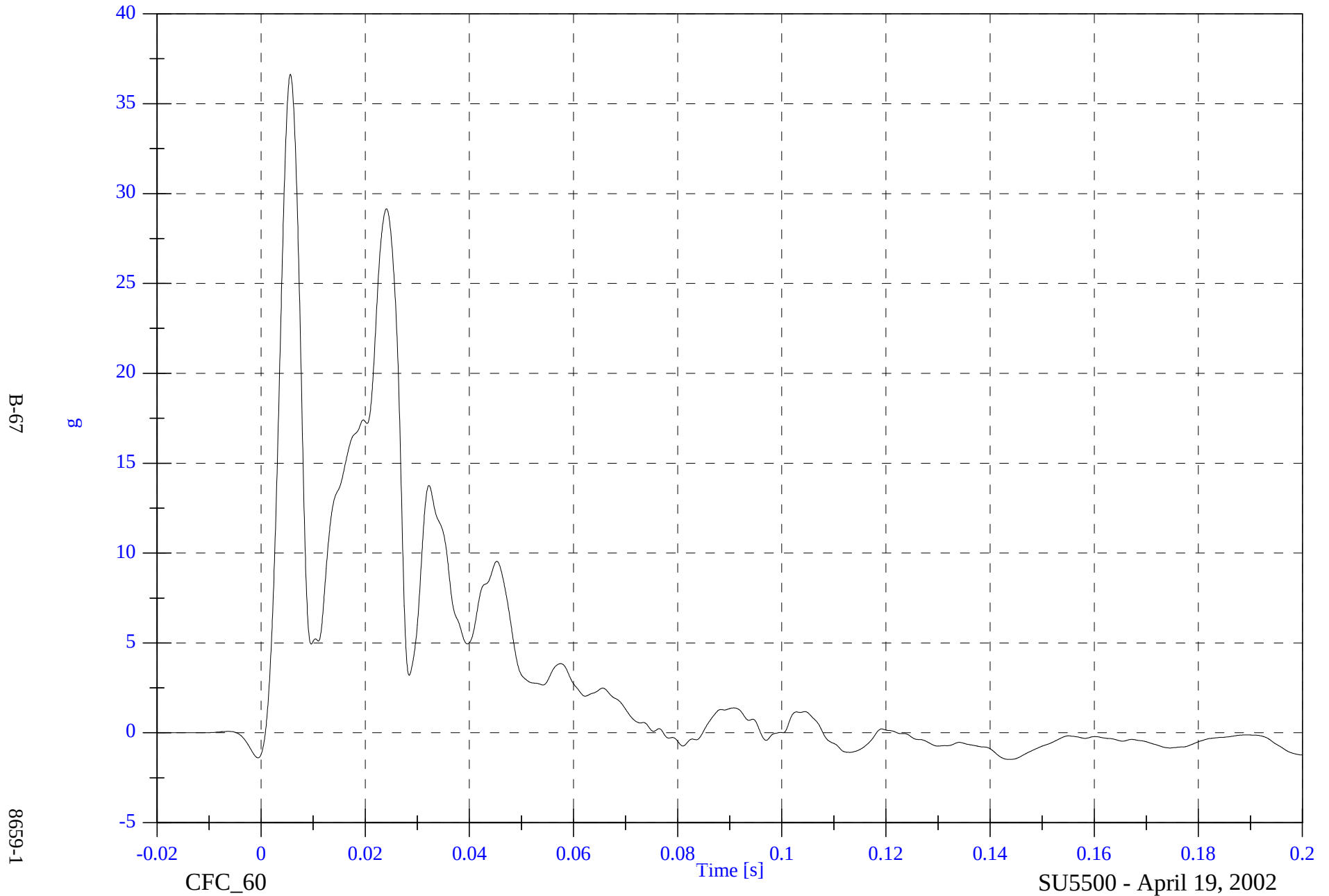
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 5 Left Front Sill y

Max: 36.6 [g] at 0.006 [s]

Min: -1.5 [g] at 0.144 [s]

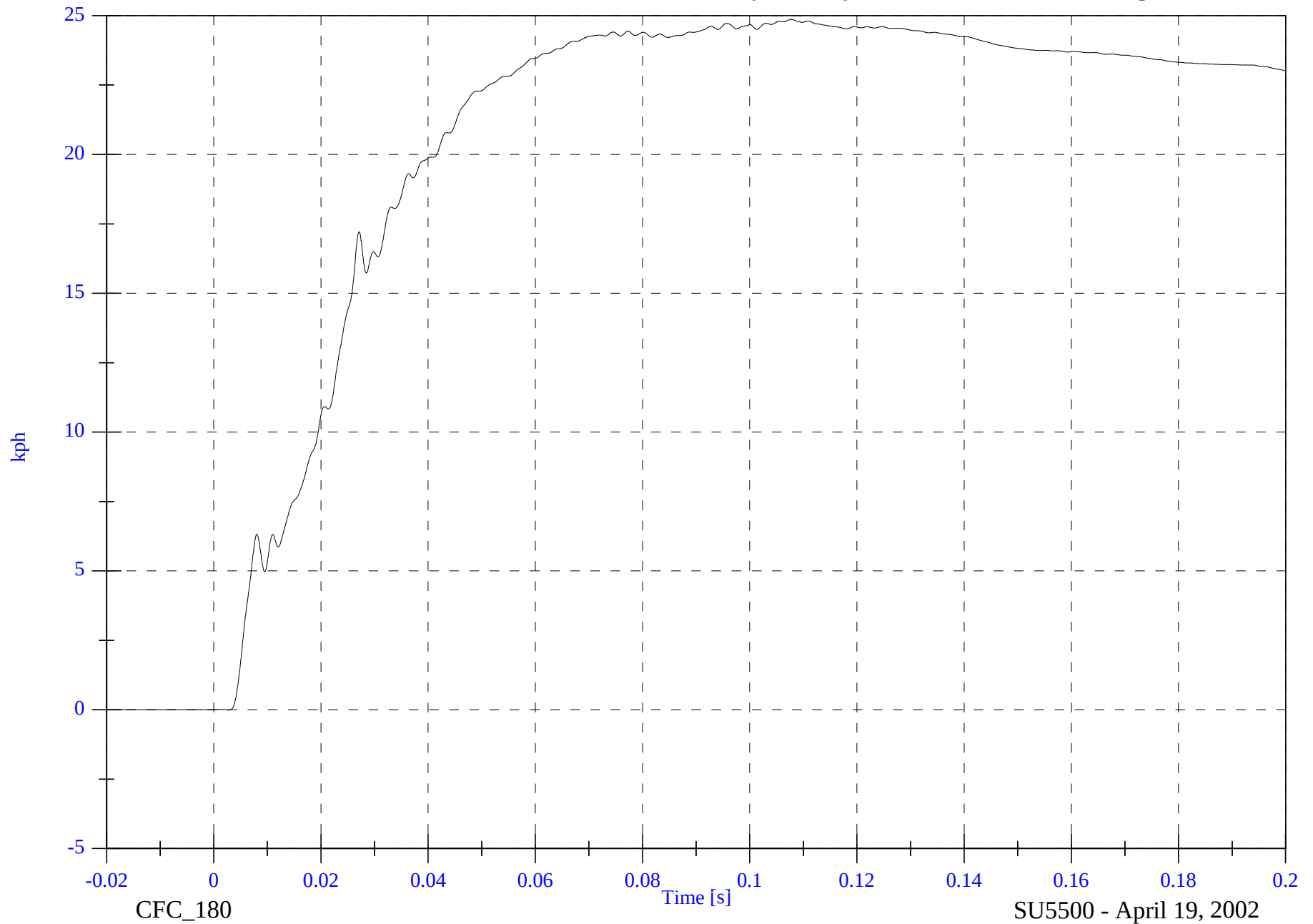


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 5 Left Front Sill y Velocity

Max: 24.9 [kph] at 0.108 [s]

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



B-68

8659-1

CFC_180

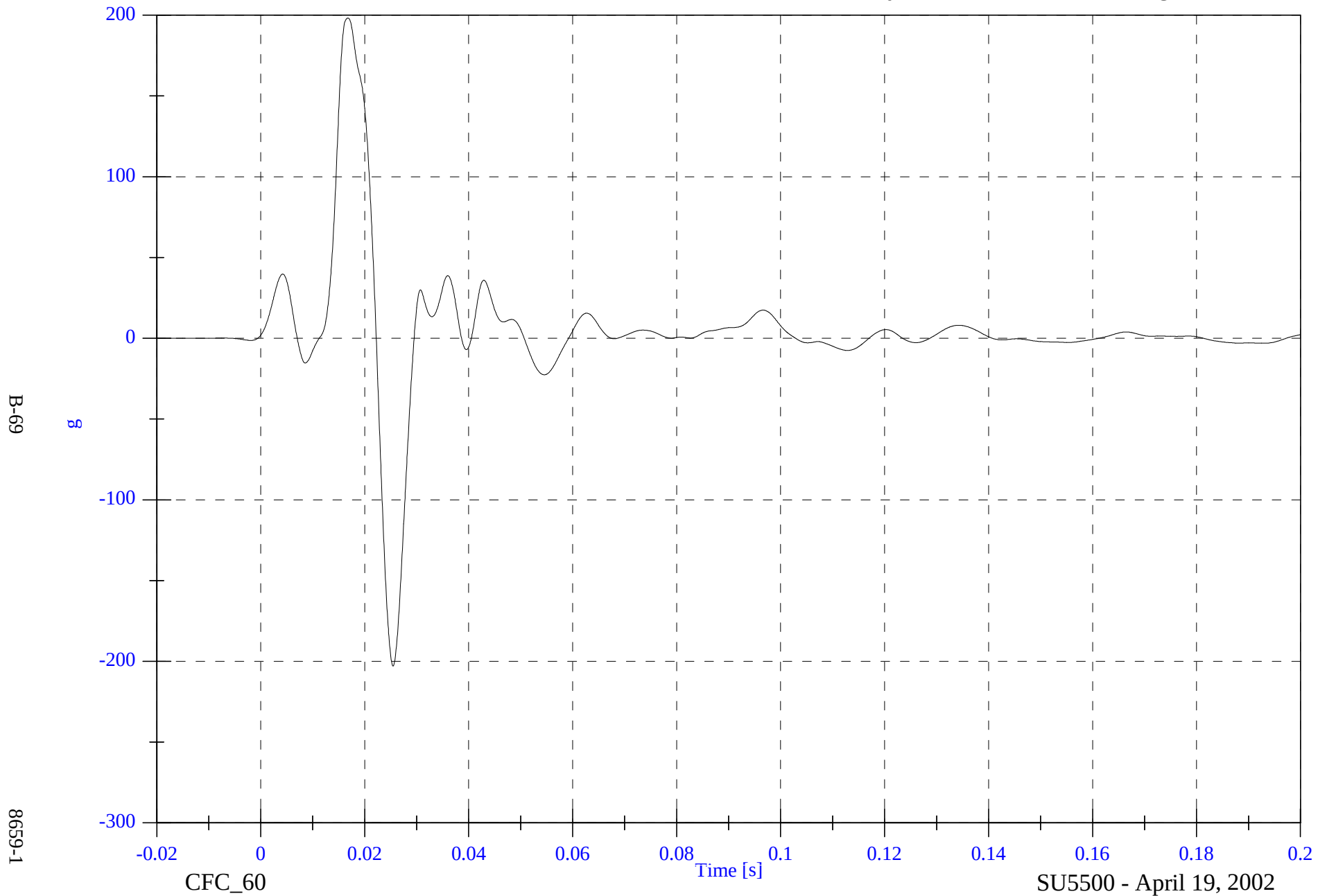
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 6 Left Front Door Centerline y

Max: 198.2 [g] at 0.017 [s]

Min: -202.9 [g] at 0.025 [s]

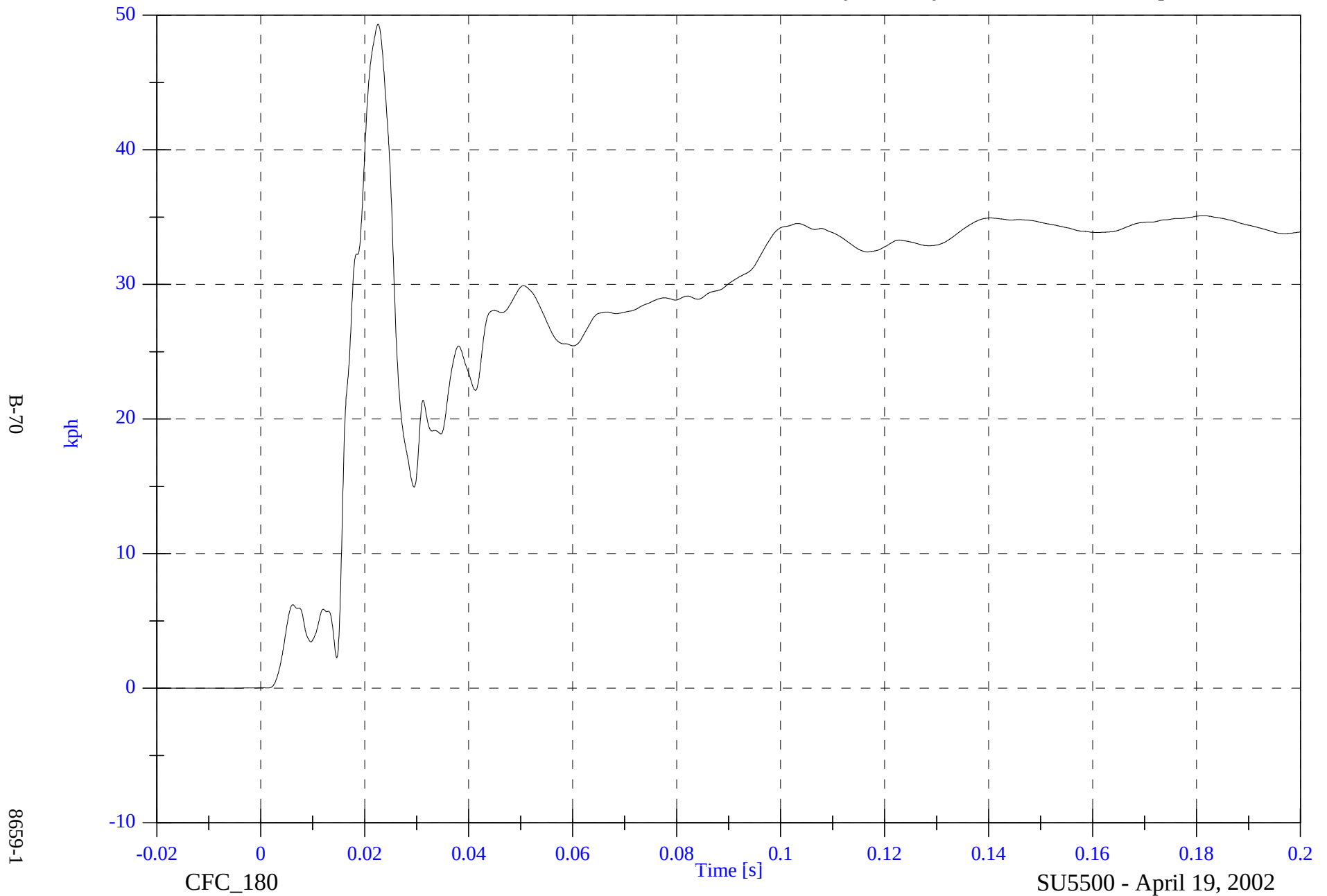


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 6 Left Front Door Centerline y Velocity

Max: 49.3 [kph] at 0.023 [s]

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

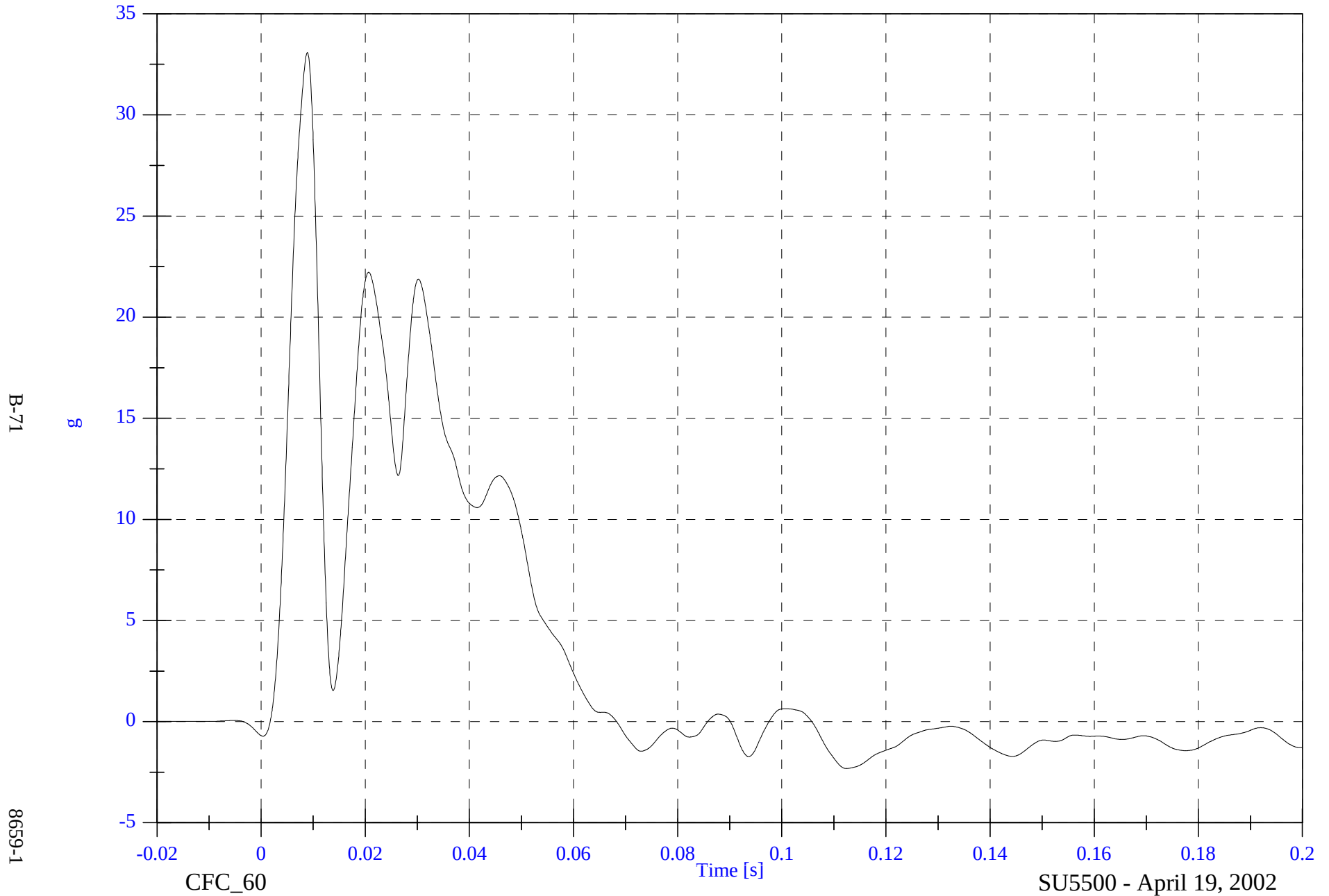


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 7 Right Rear Compartment y

Max: 33.1 [g] at 0.009 [s]

Min: -2.3 [g] at 0.112 [s]



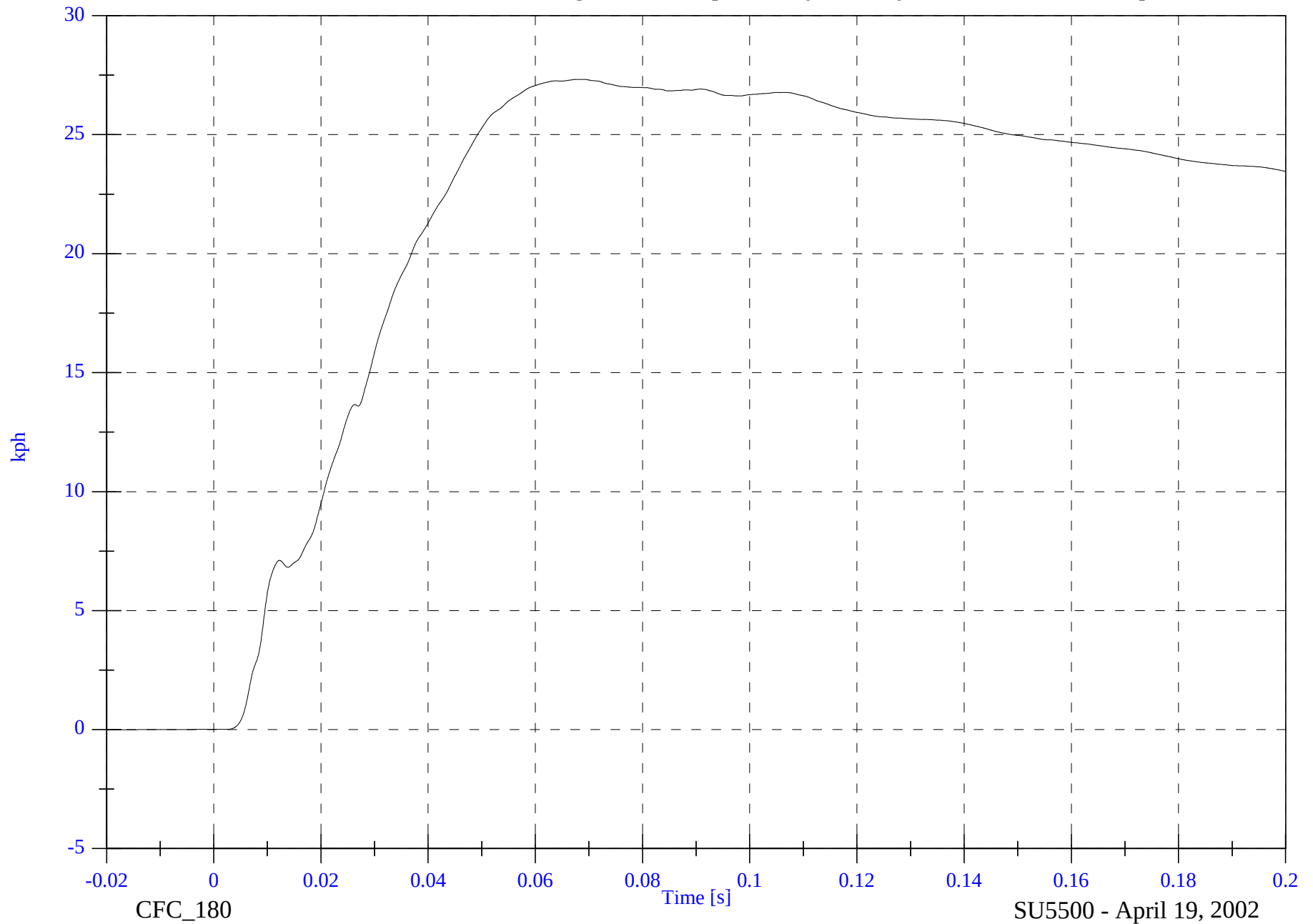
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 7 Right Rear Compartment y Velocity

Max: 27.3 [kph] at 0.069 [s]

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



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8659-1

CFC_180

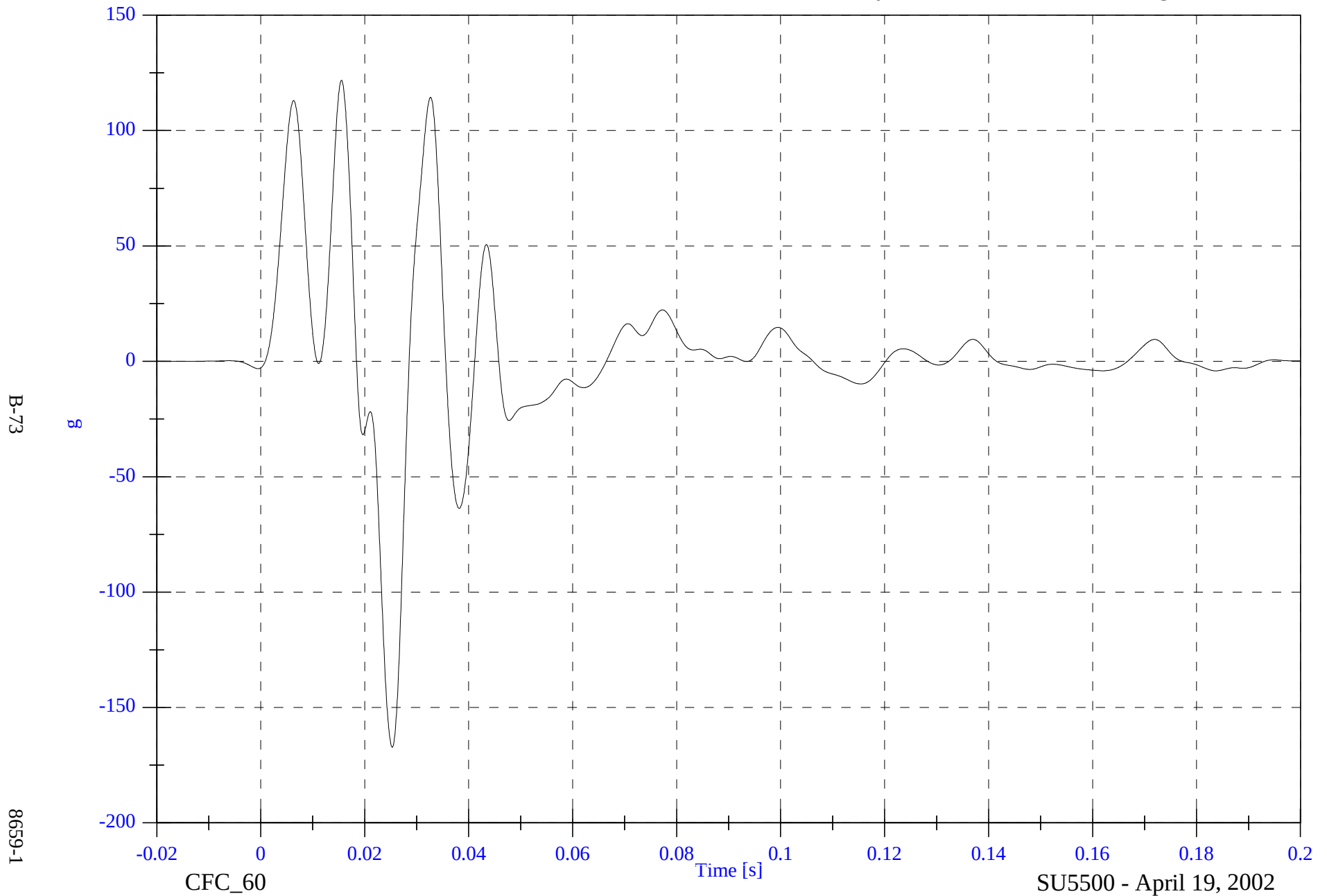
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 8 Left Front Door Midrear y

Max: 121.8 [g] at 0.016 [s]

Min: -167.3 [g] at 0.025 [s]

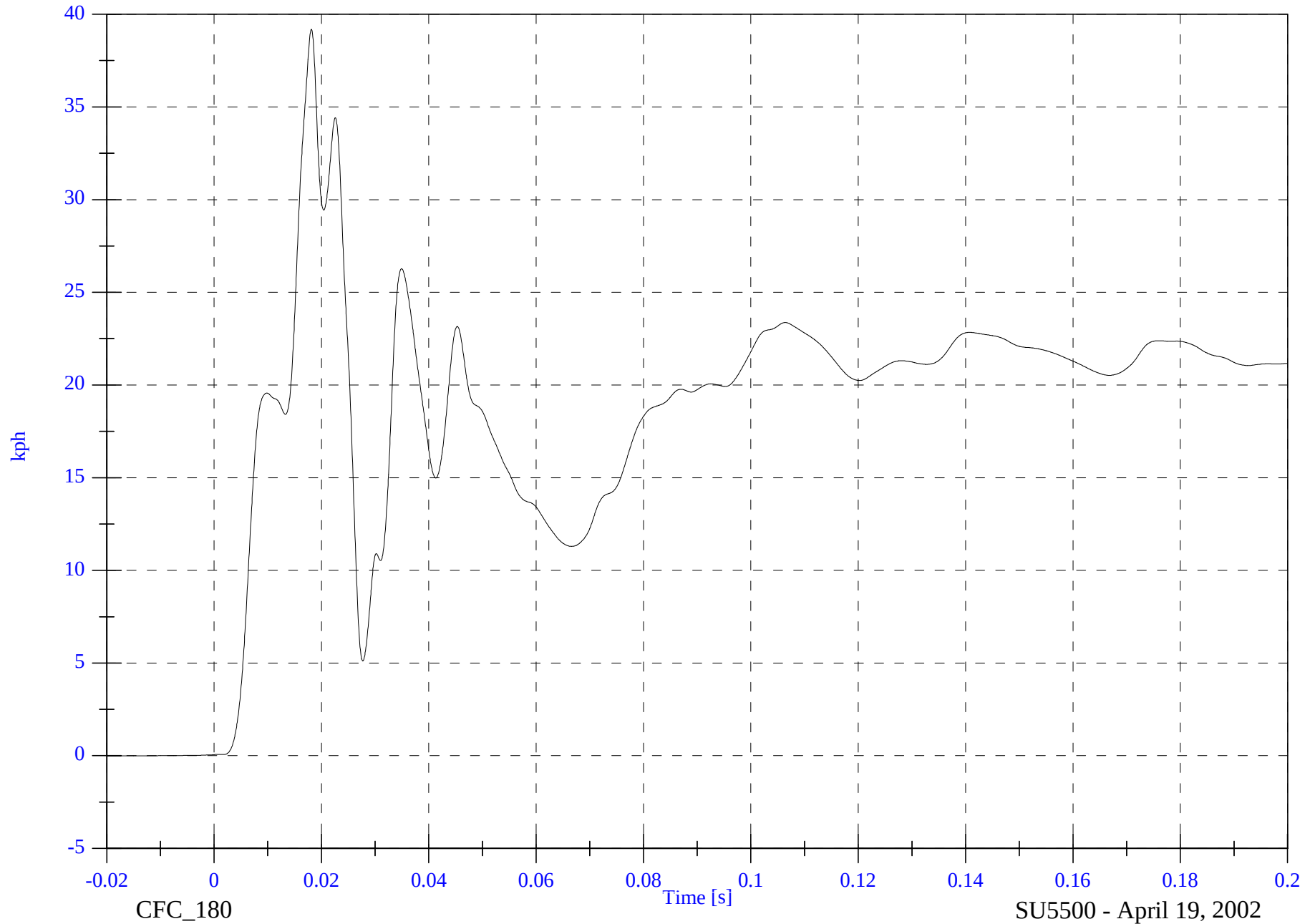


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 8 Left Front Door Midrear y Velocity

Max: 39.2 [kph] at 0.018 [s]

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



B-74

8659-1

CFC_180

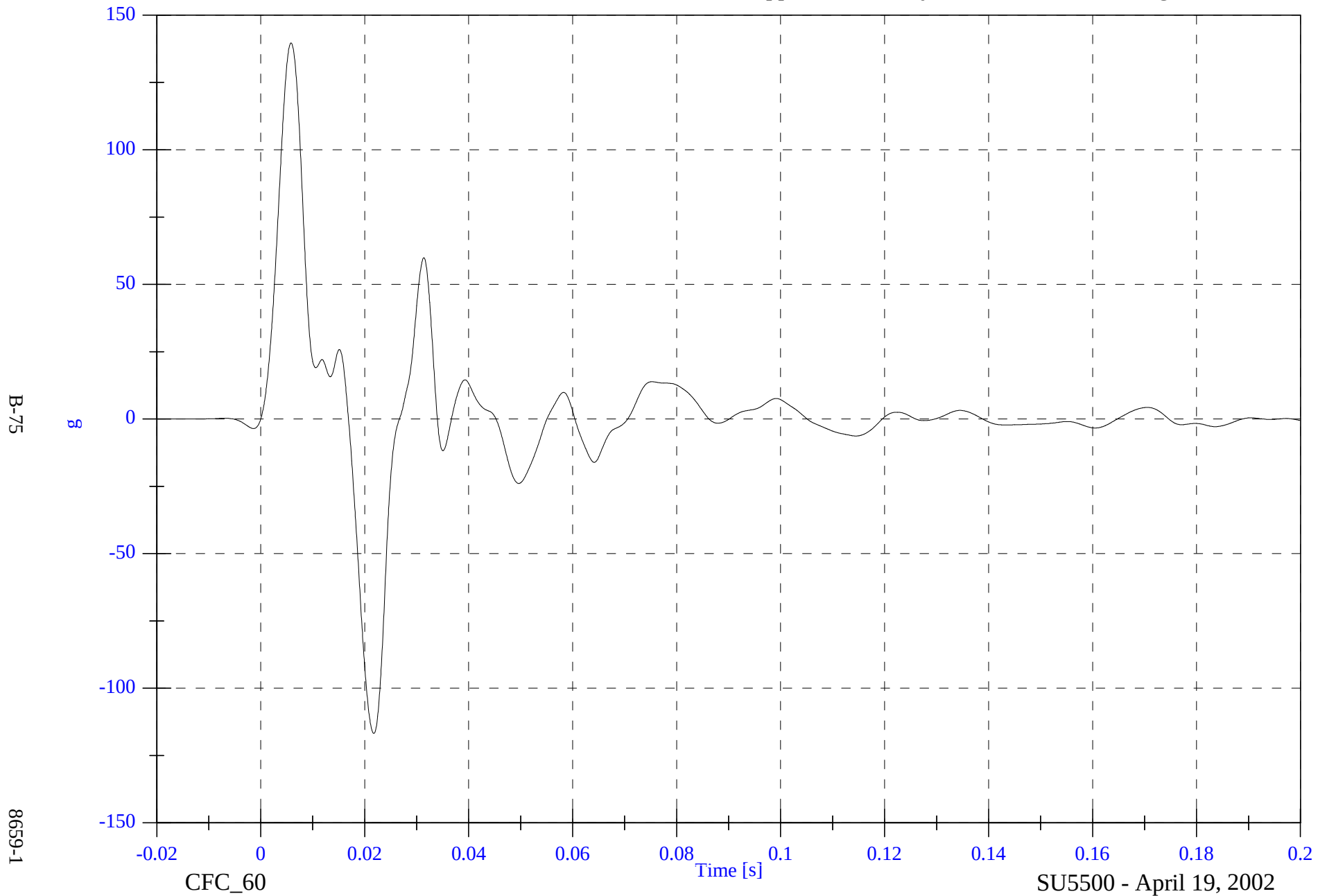
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 9 Left Front Door Upper Centerline y

Max: 139.7 [g] at 0.006 [s]

Min: -116.8 [g] at 0.022 [s]

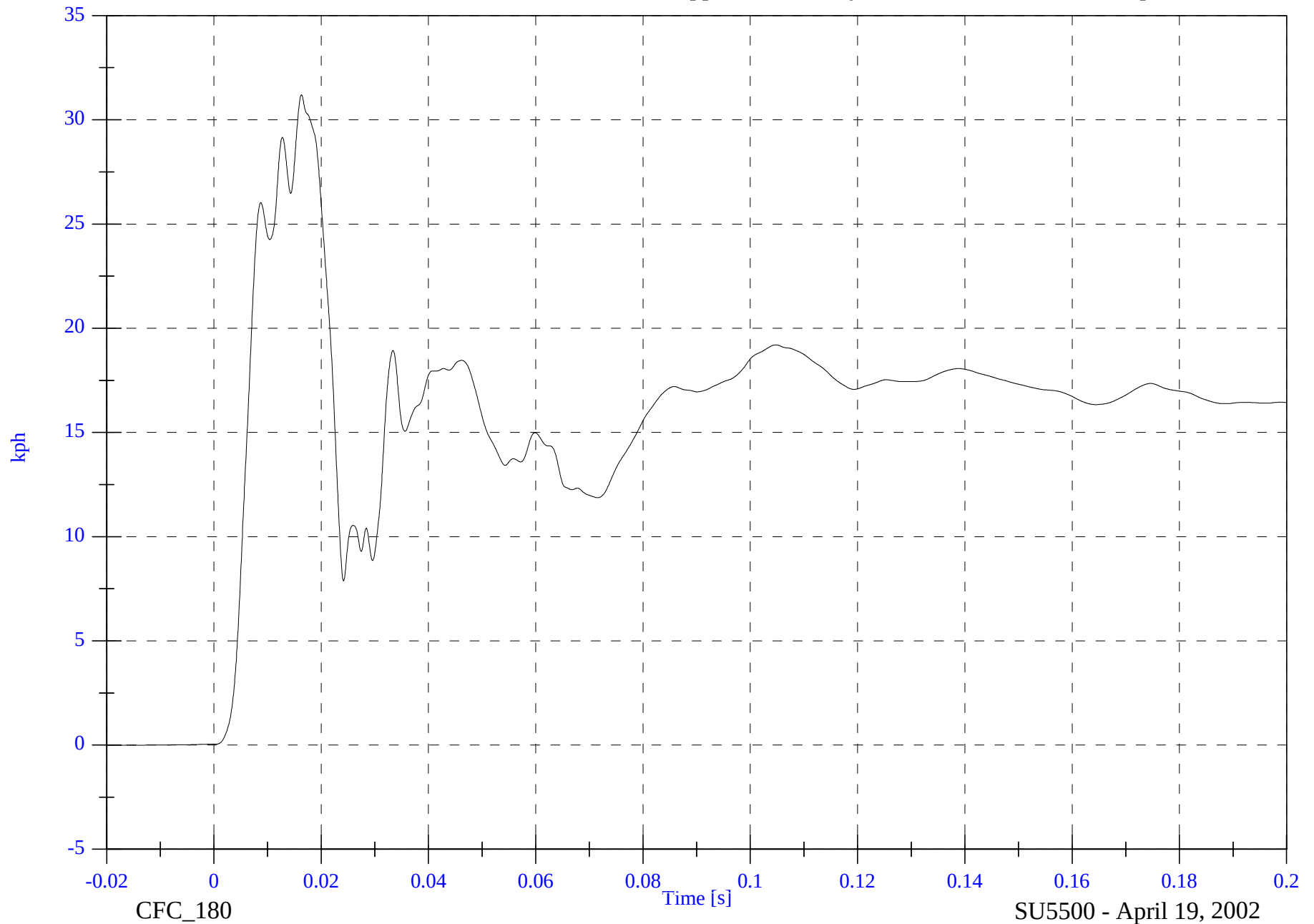


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 9 Left Front Door Upper Centerline y Velocity

Max: 31.2 [kph] at 0.016 [s]

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



B-76

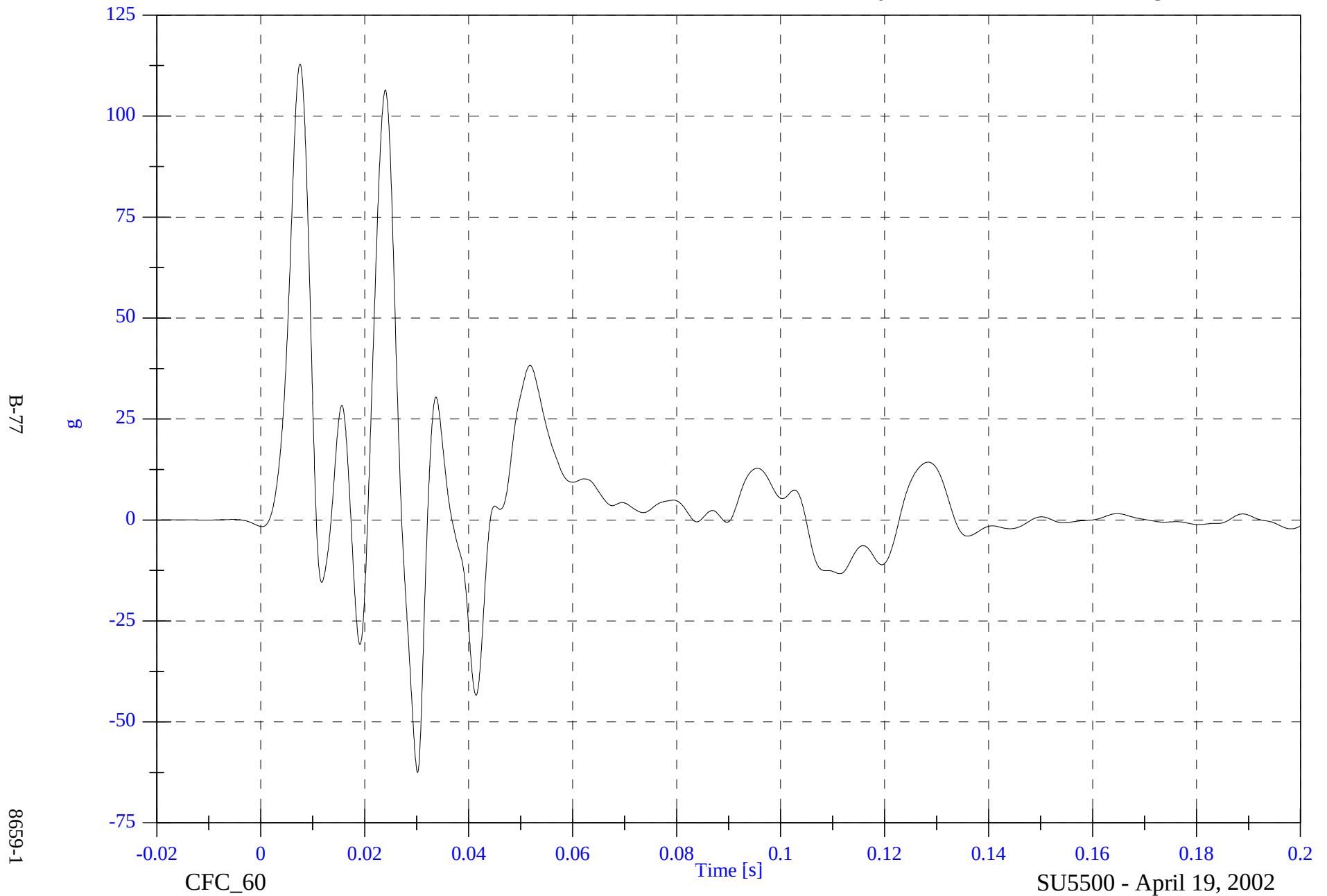
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 10 Left Rear Door Midrear y

Max: 112.9 [g] at 0.008 [s]

Min: -62.5 [g] at 0.030 [s]

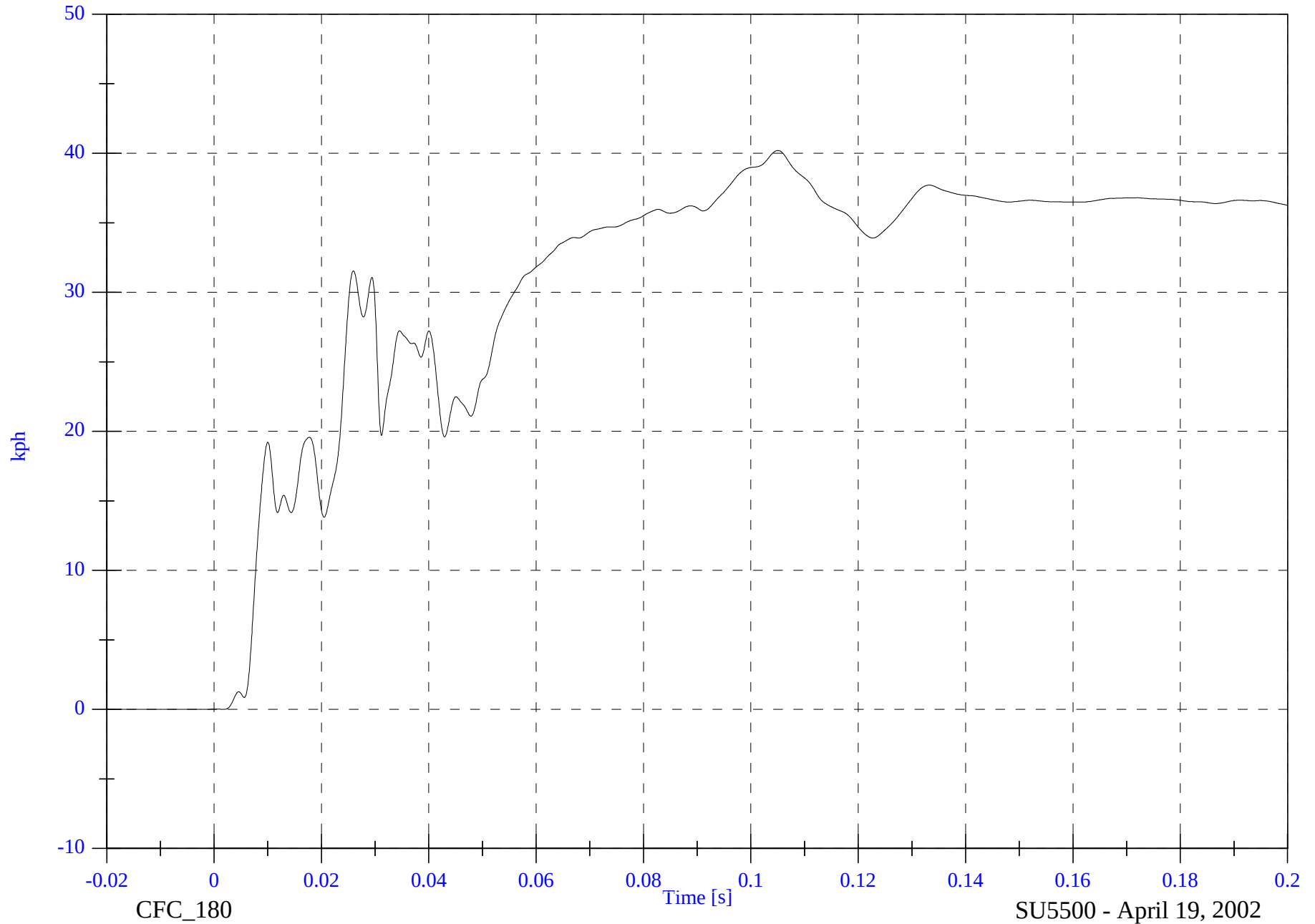


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 10 Left Rear Door Midrear y Velocity

Max: 40.2 [kph] at 0.105 [s]

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



B-78

8659-1

CFC_180

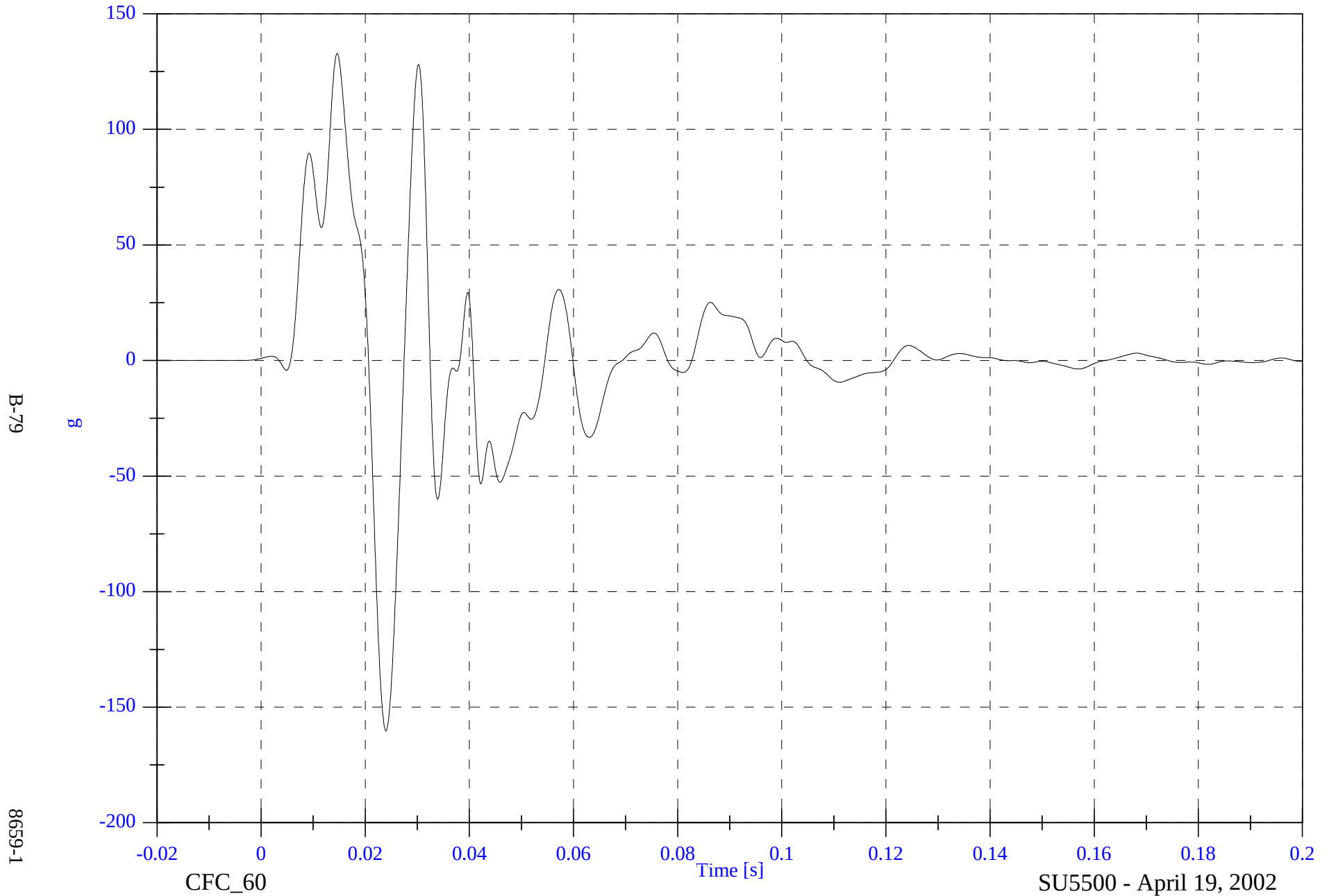
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 11 Left Rear Door Upper Centerline y

Max: 132.9 [g] at 0.015 [s]

Min: -160.3 [g] at 0.024 [s]

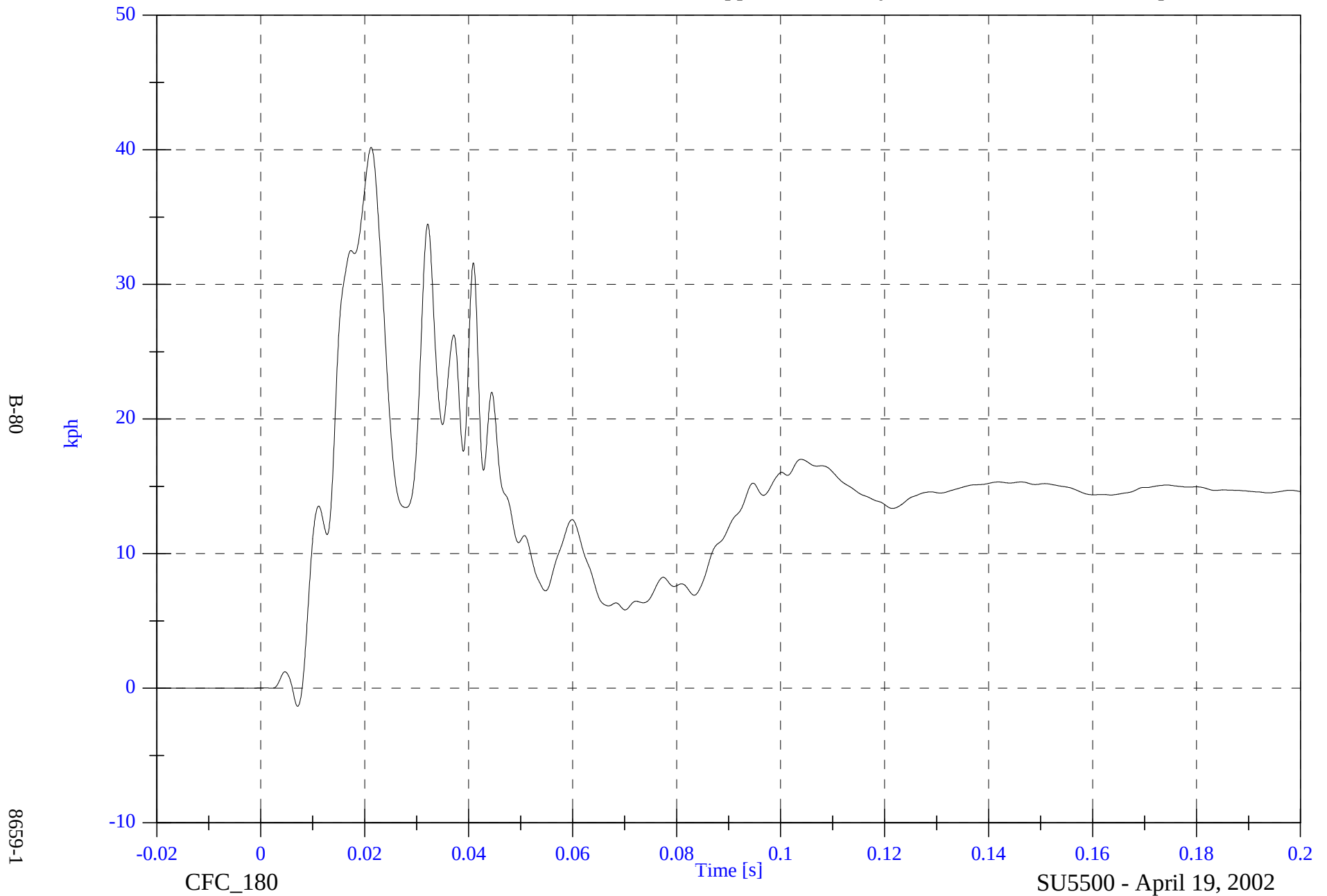


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Max: 40.2 [kph] at 0.021 [s]

Acc 11 Left Rear Door Upper Centerline y Velocity

Min: -1.3 [kph] at 0.007 [s]

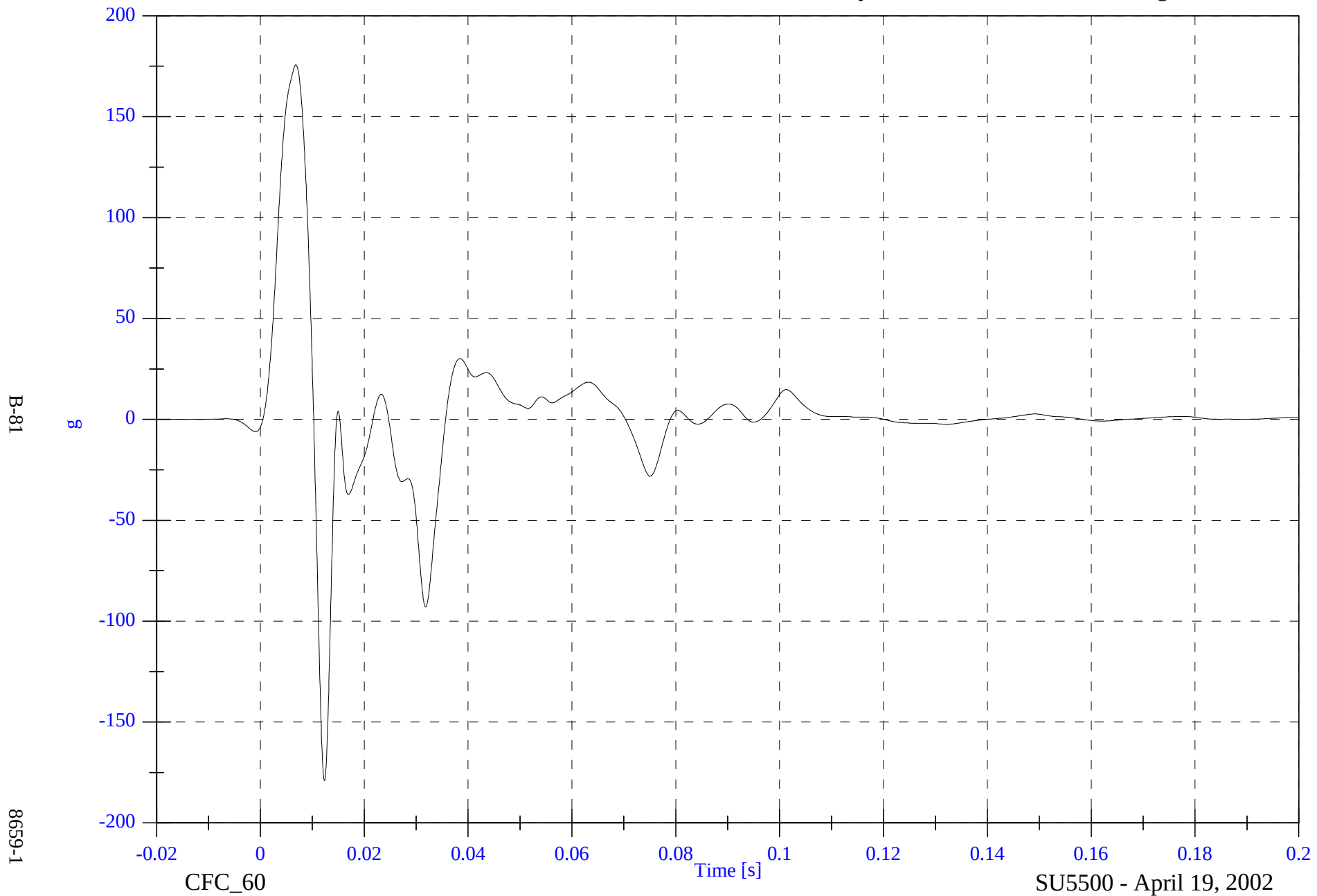


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 12 Left Lower B-Pillar y

Max: 175.7 [g] at 0.007 [s]

Min: -179.0 [g] at 0.012 [s]

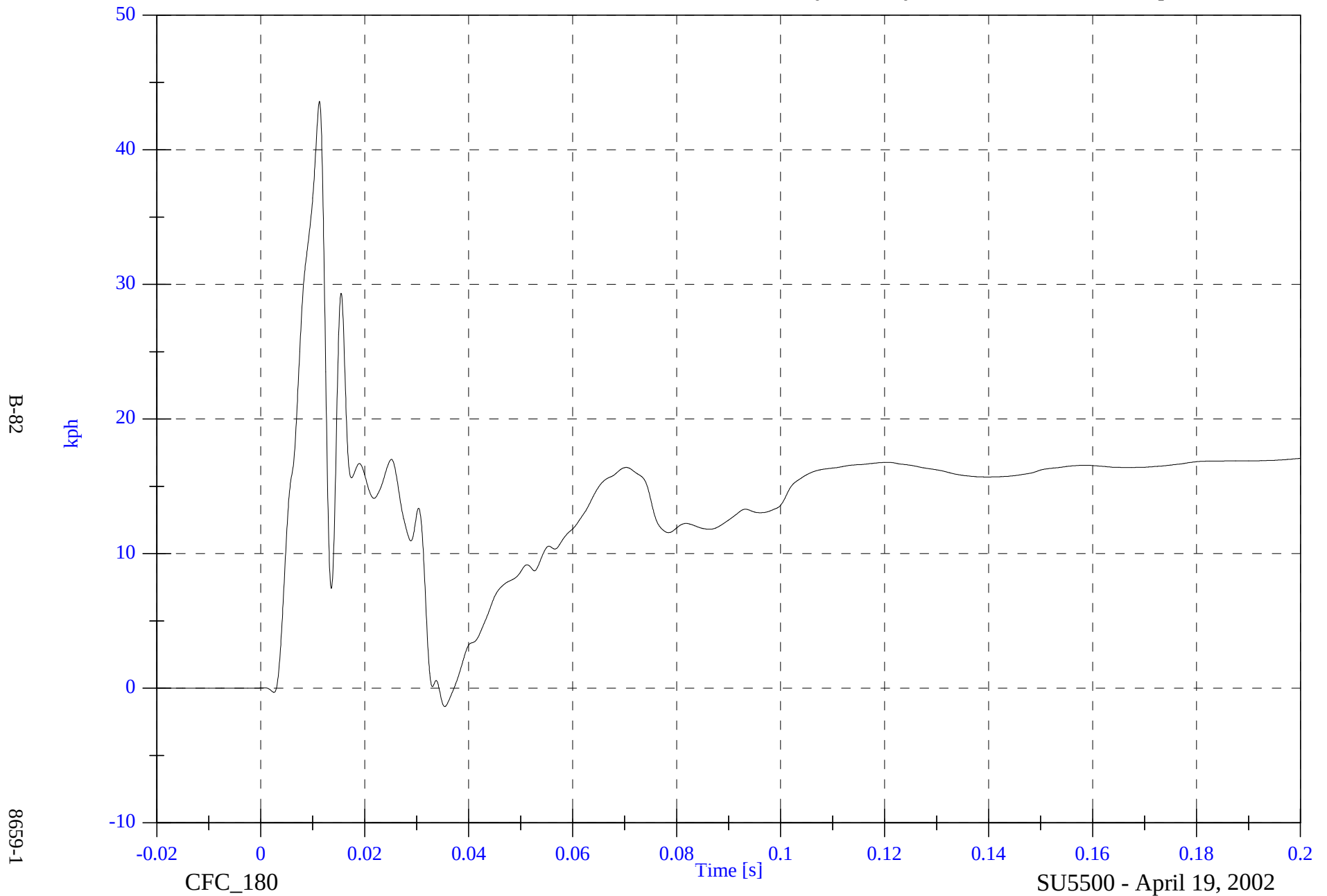


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 12 Left Lower B-Pillar y Velocity

Max: 43.6 [kph] at 0.011 [s]

Min: -1.4 [kph] at 0.035 [s]

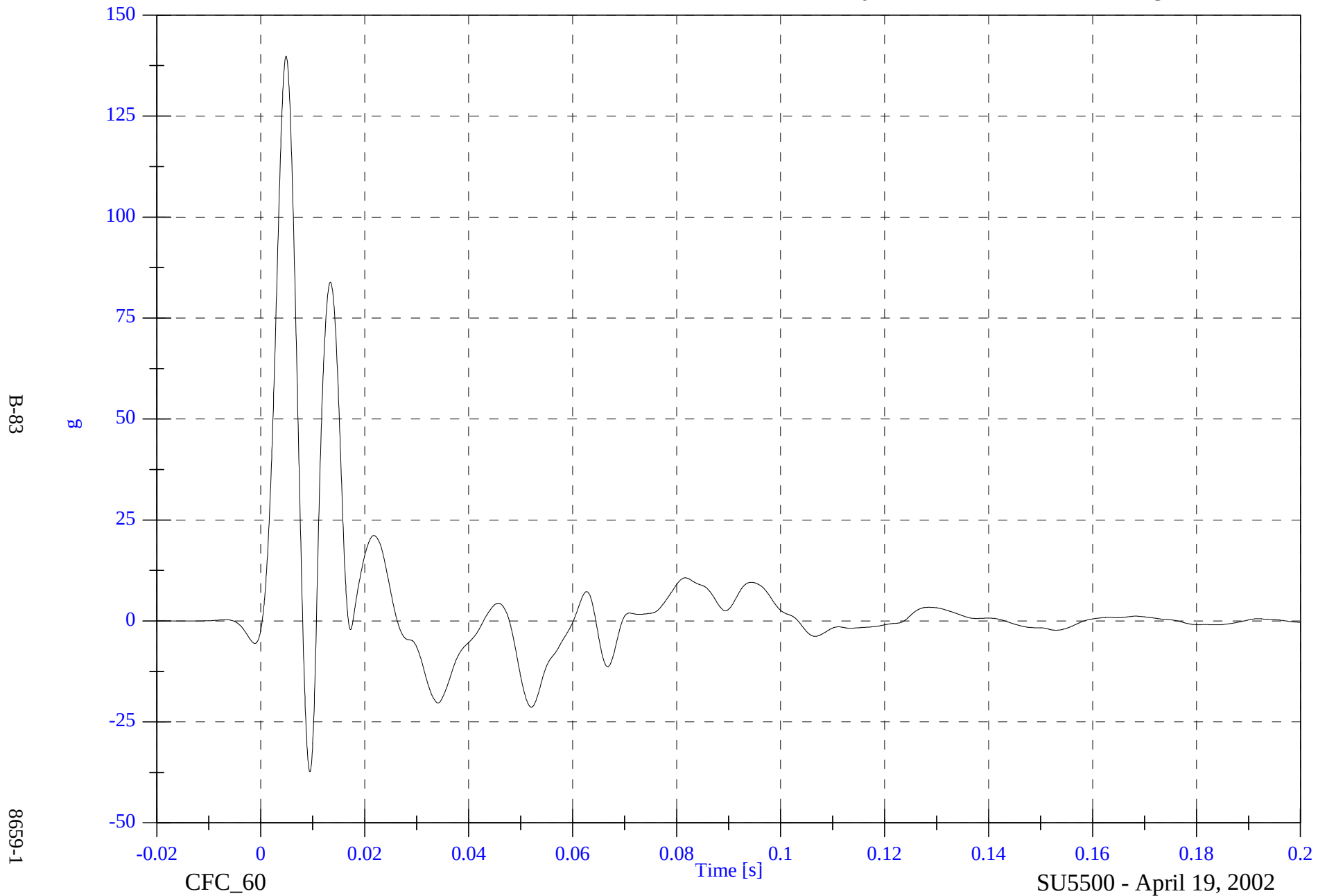


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 13 Left Middle B-Pillar y

Max: 139.8 [g] at 0.005 [s]

Min: -37.4 [g] at 0.009 [s]



2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 13 Left Middle B-Pillar y Velocity

Max: 32.1 [kph] at 0.026 [s]

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



B-84

8659-1

CFC_180

Time [s]

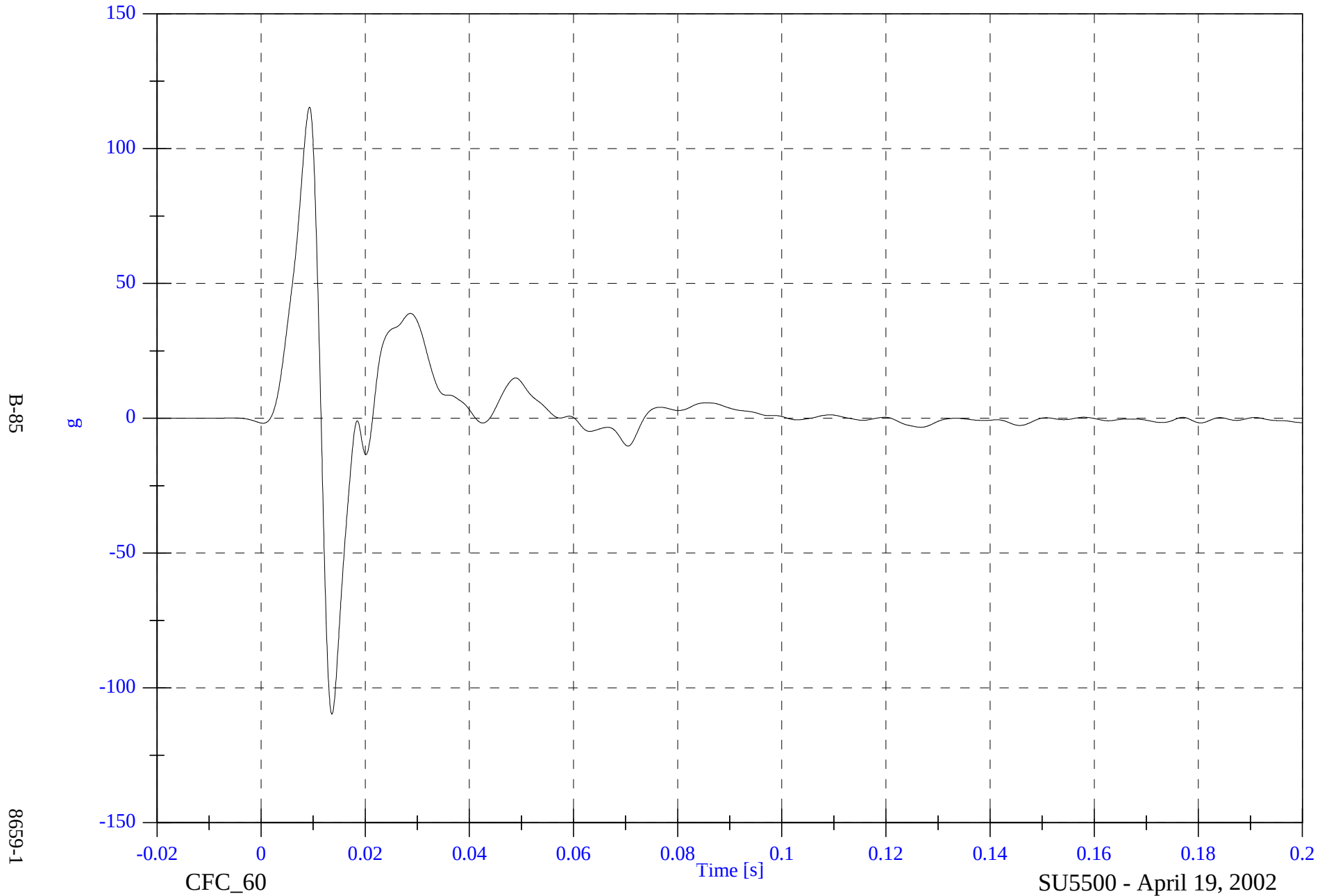
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 14 Left Lower A-Pillar y

Max: 115.4 [g] at 0.009 [s]

Min: -109.7 [g] at 0.014 [s]

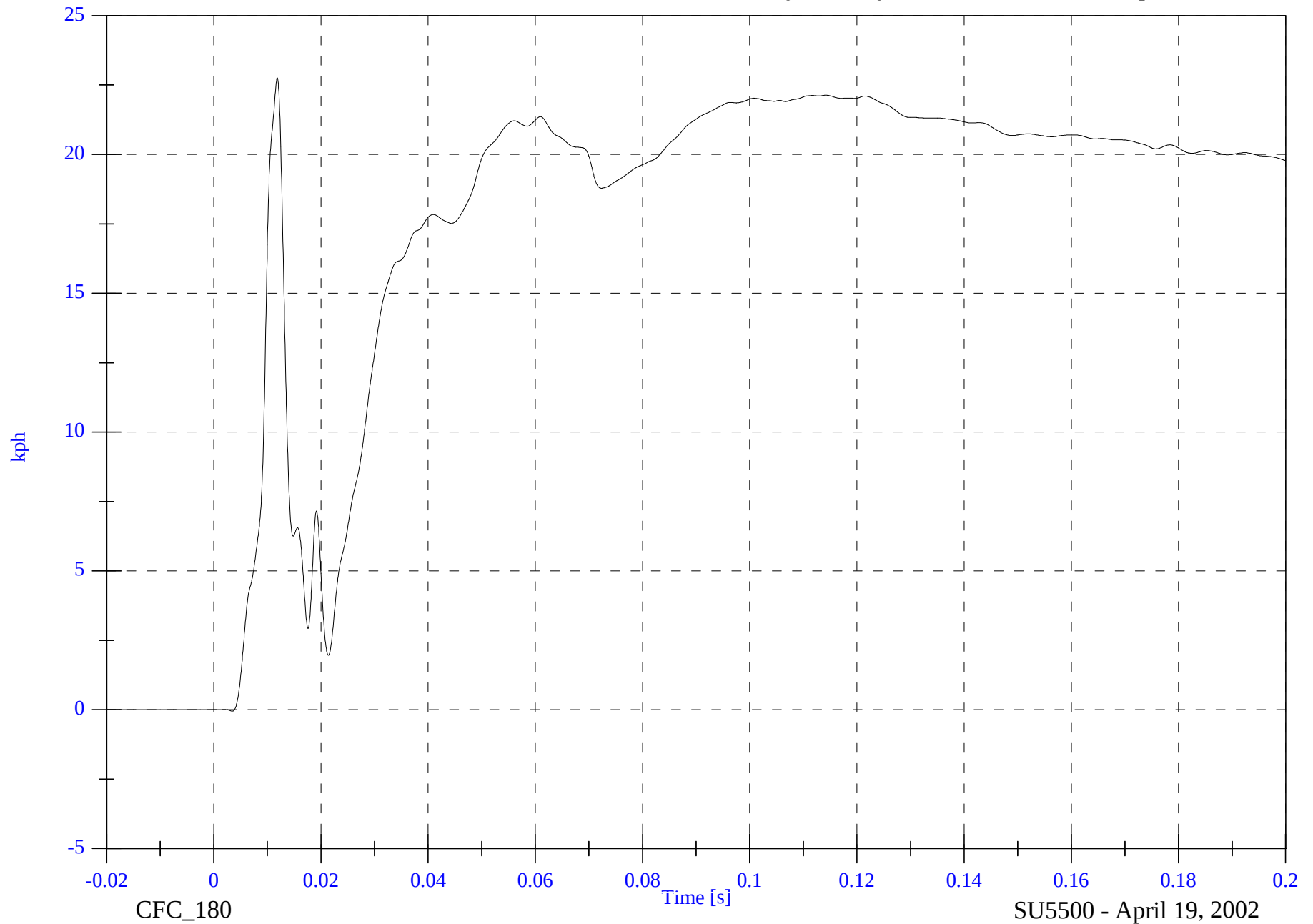


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 14 Left Lower A-Pillar y Velocity

Max: 22.8 [kph] at 0.012 [s]

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



B-86

8659-1

CFC_180

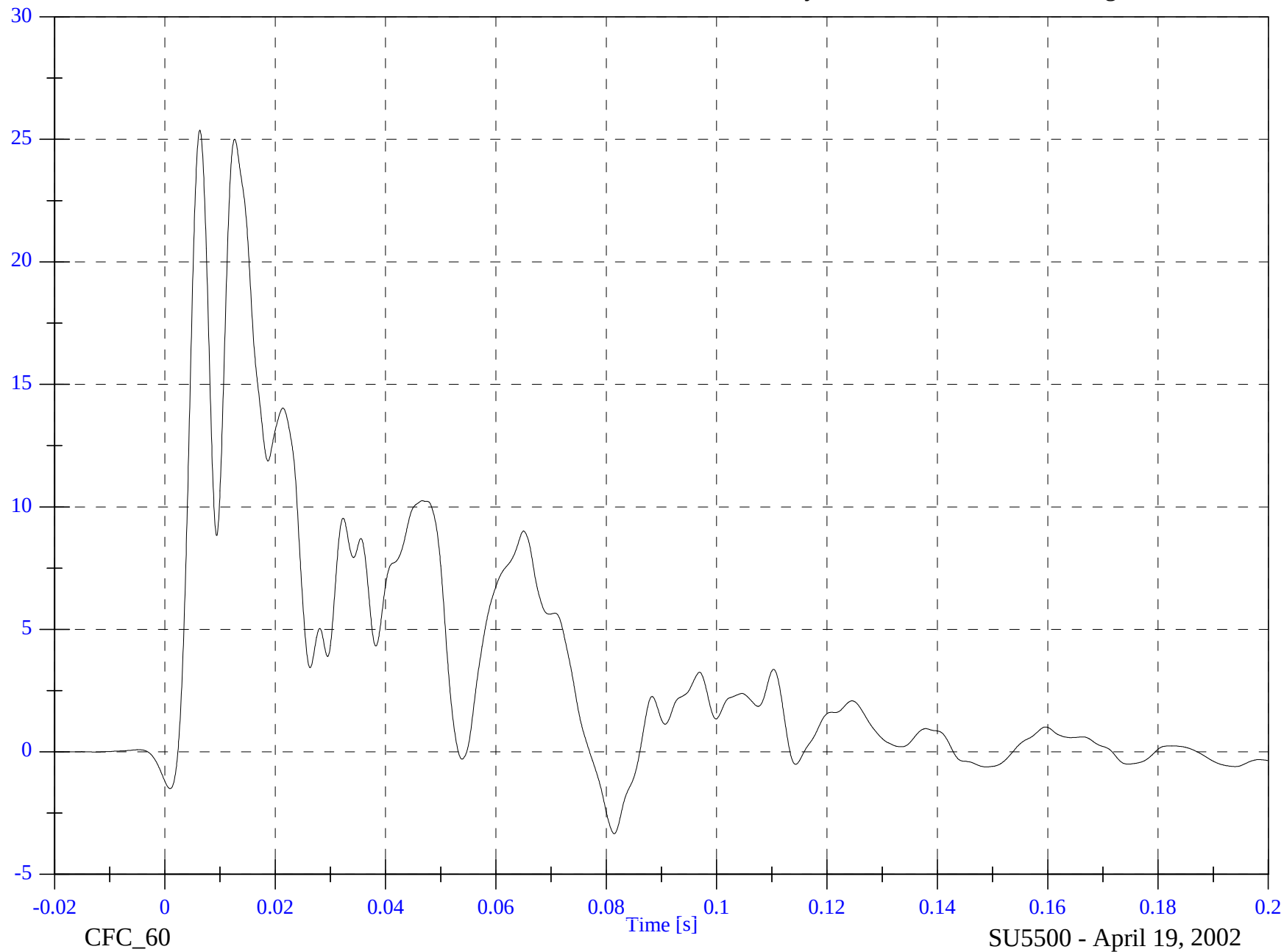
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 15 Left Middle A-Pillar y

Max: 25.4 [g] at 0.006 [s]

Min: -3.3 [g] at 0.081 [s]



B-87

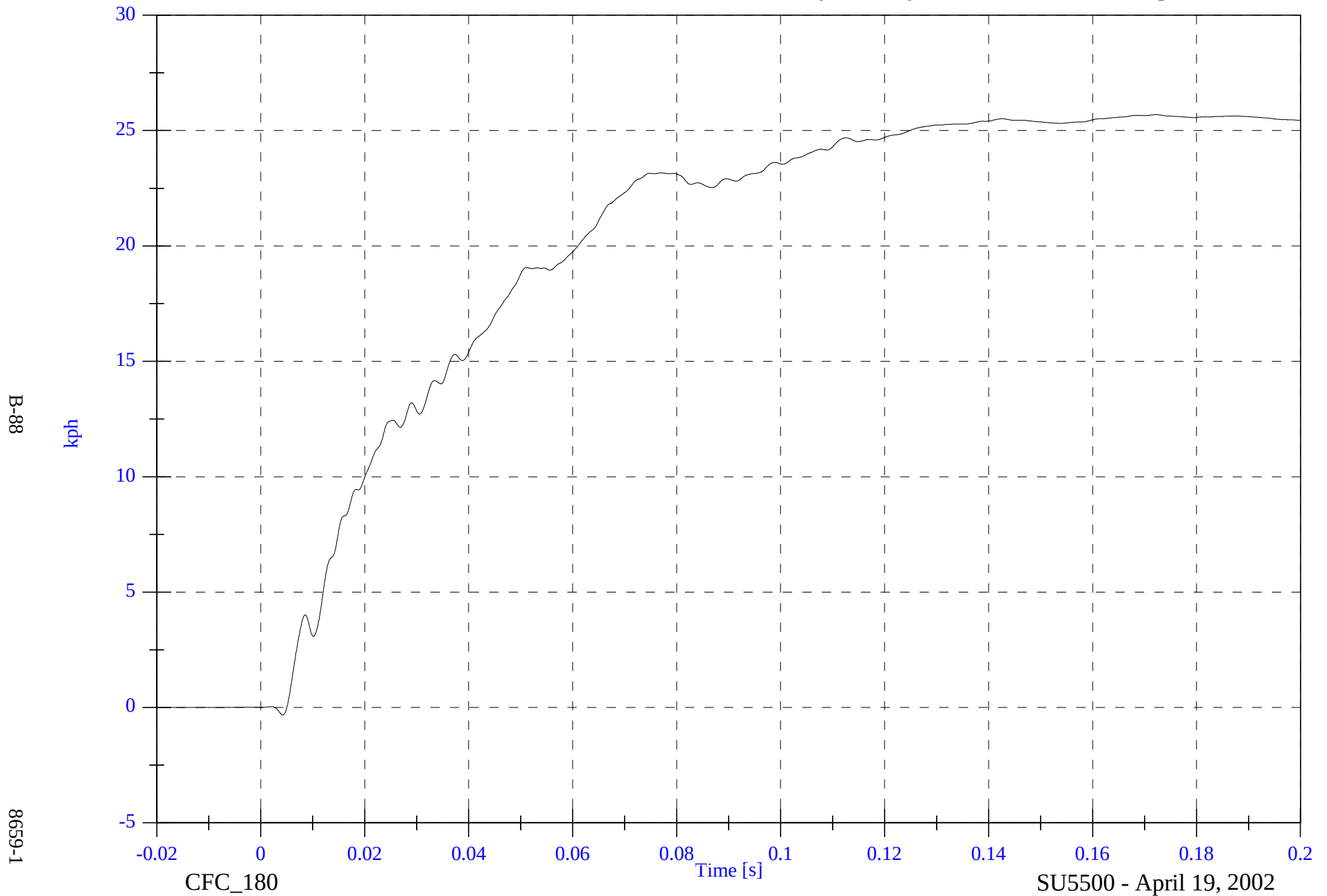
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 15 Left Middle A-Pillar y Velocity

Max: 25.7 [kph] at 0.172 [s]

Min: -0.3 [kph] at 0.004 [s]

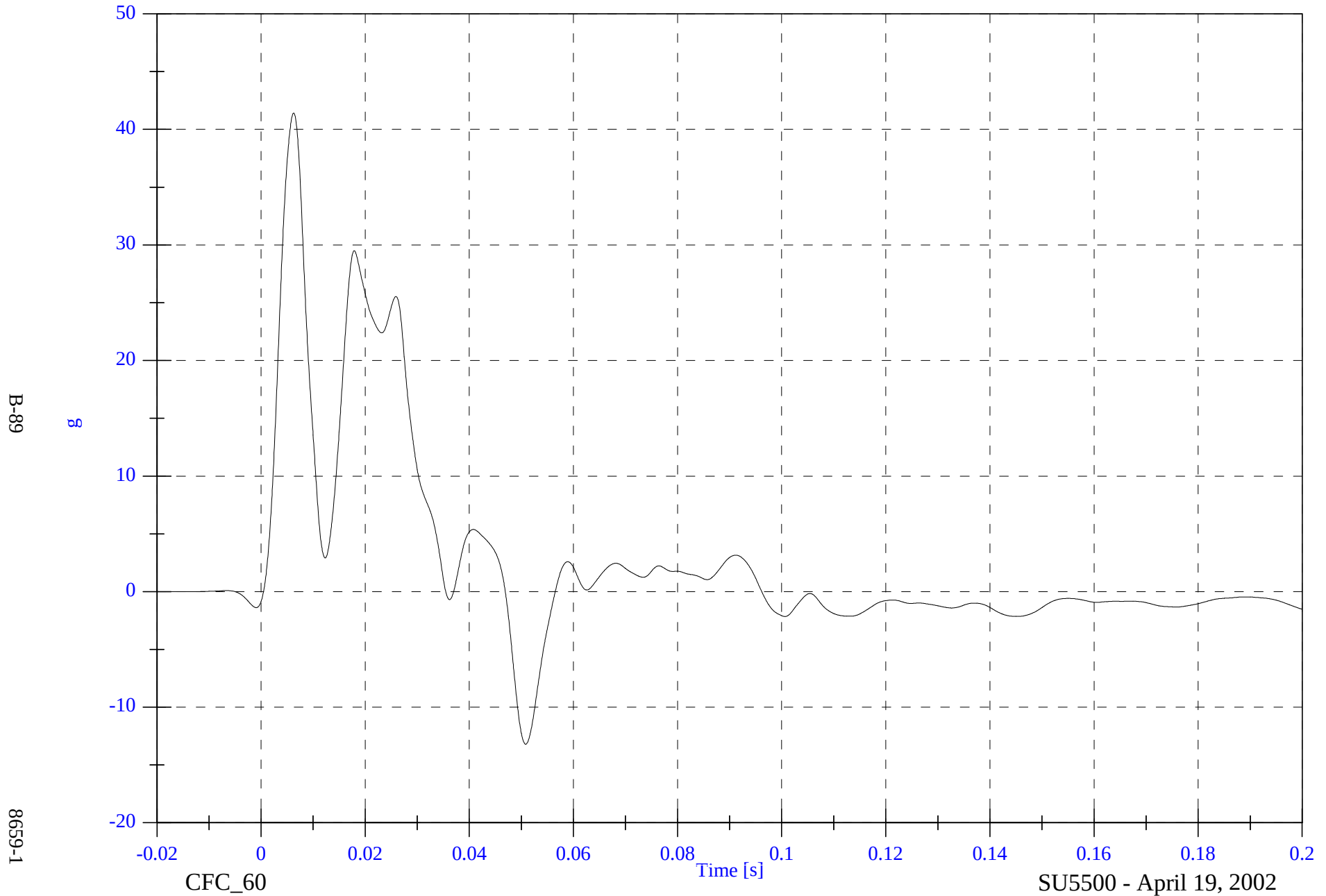


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 16 Front Seat Track y

Max: 41.4 [g] at 0.006 [s]

Min: -13.2 [g] at 0.051 [s]

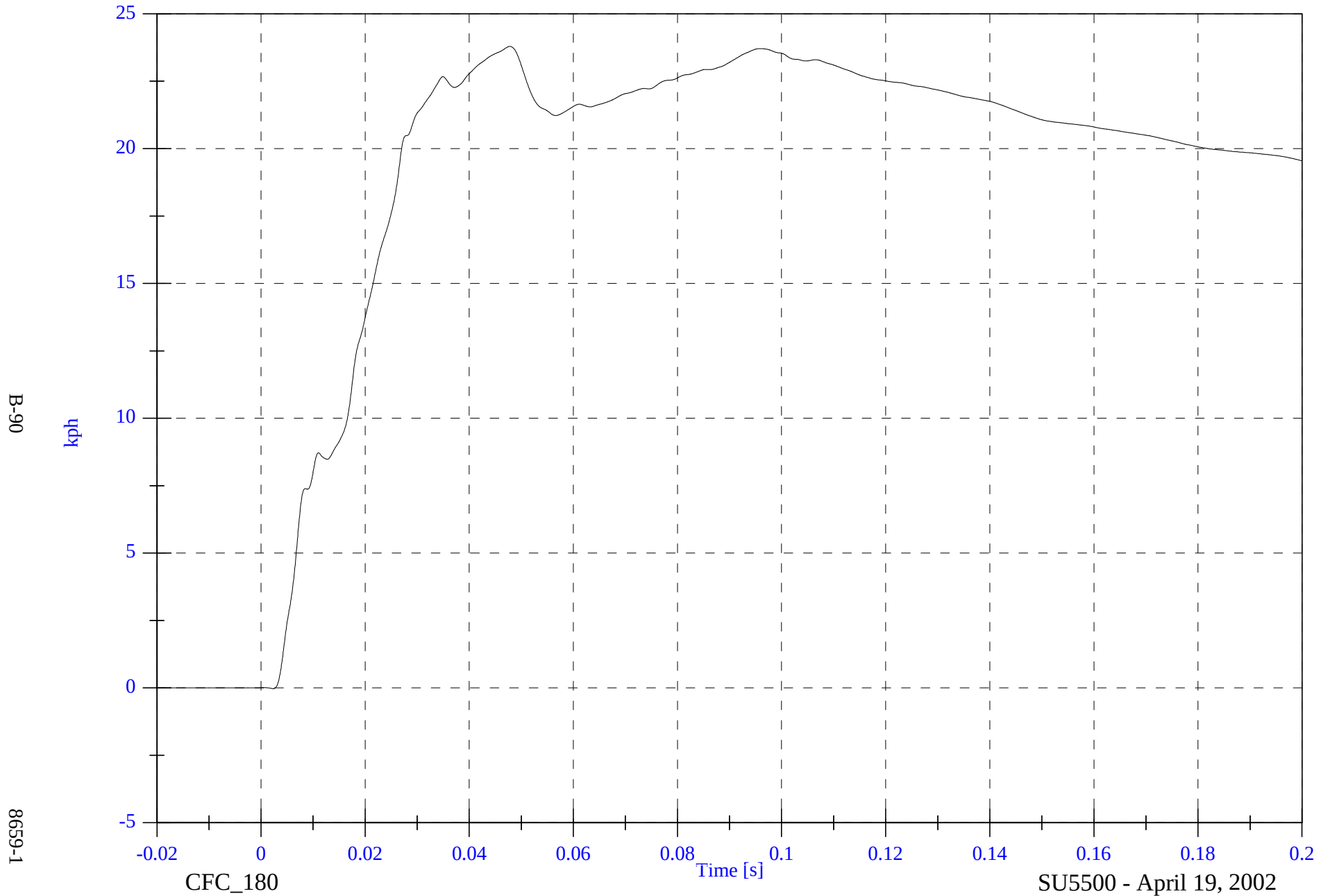


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 16 Front Seat Track y Velocity

Max: 23.8 [kph] at 0.048 [s]

Min: -0.0 [kph] at 0.002 [s]

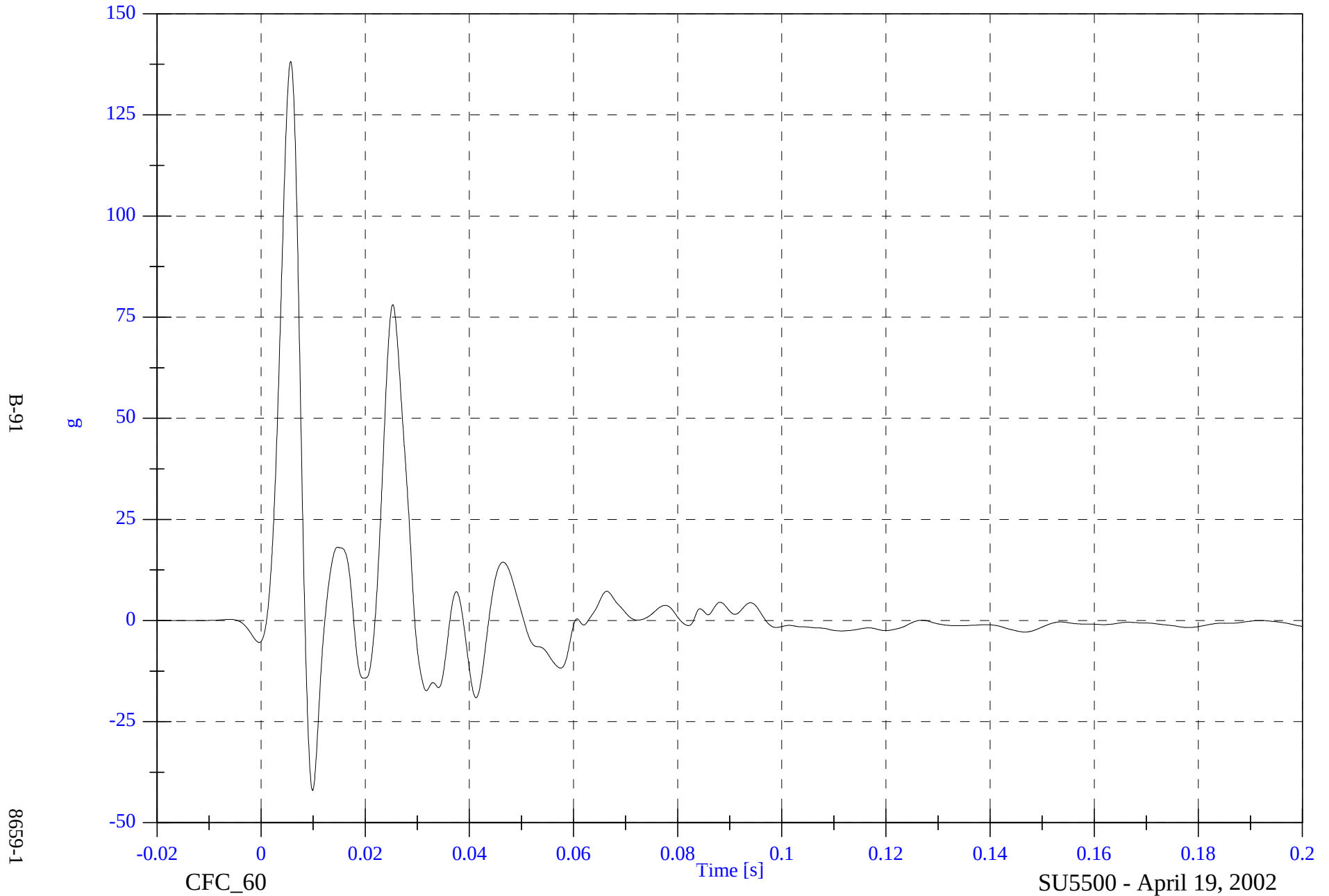


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 17 Rear Seat Track y

Max: 138.2 [g] at 0.006 [s]

Min: -42.0 [g] at 0.010 [s]

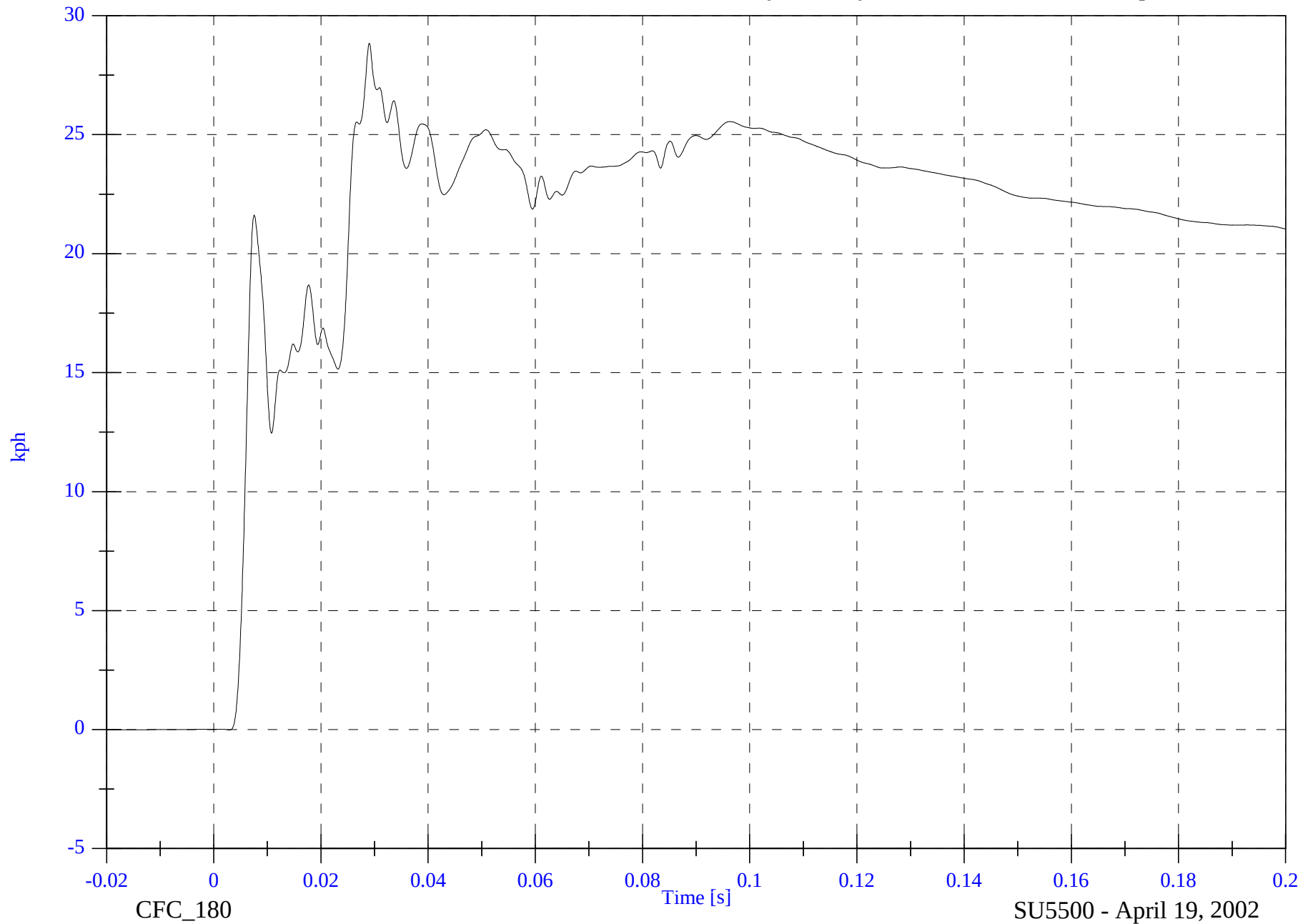


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 17 Rear Seat Track y Velocity

Max: 28.8 [kph] at 0.029 [s]

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



B-92

8659-1

CFC_180

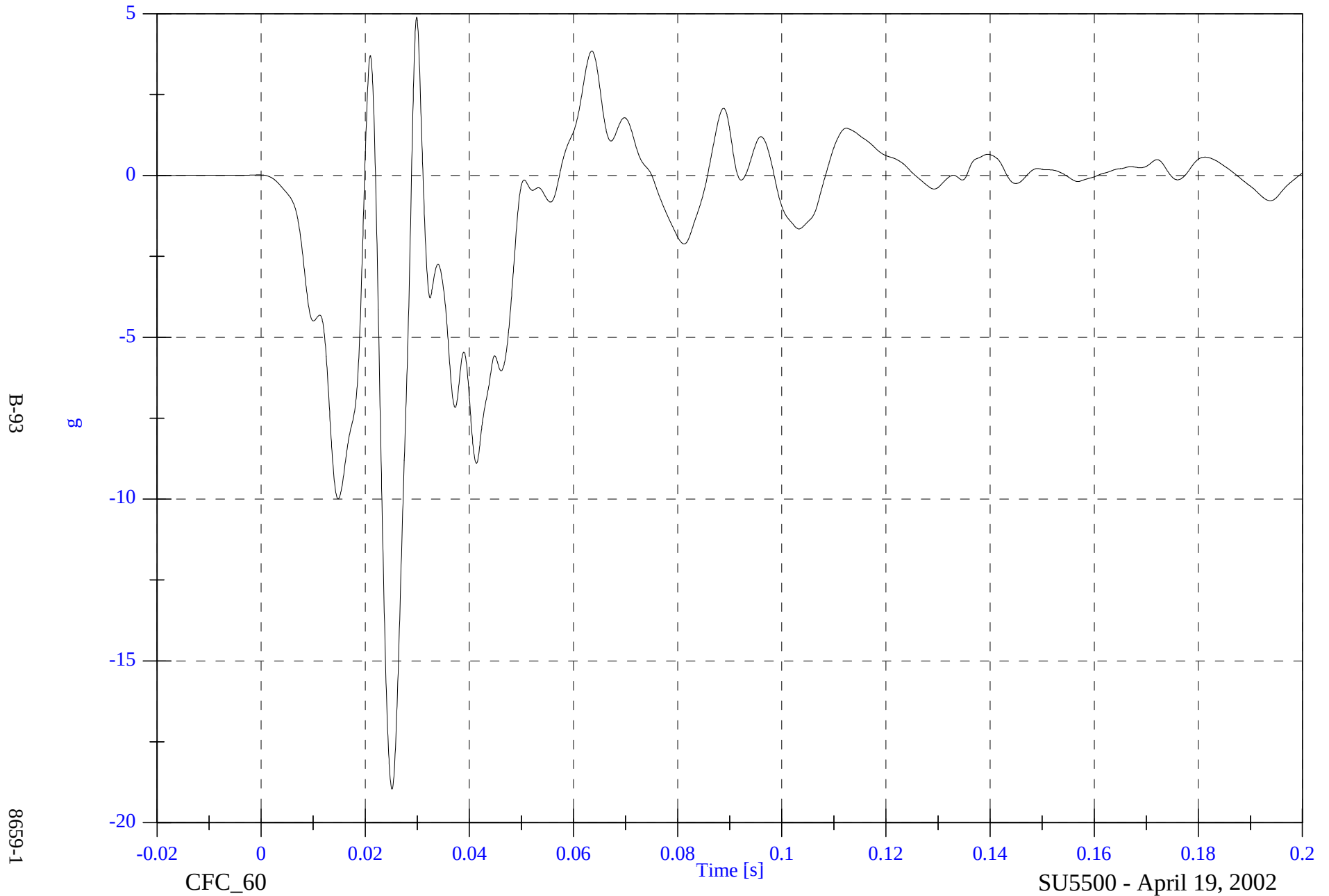
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 18 Target CG x

Max: 4.9 [g] at 0.030 [s]

Min: -19.0 [g] at 0.025 [s]

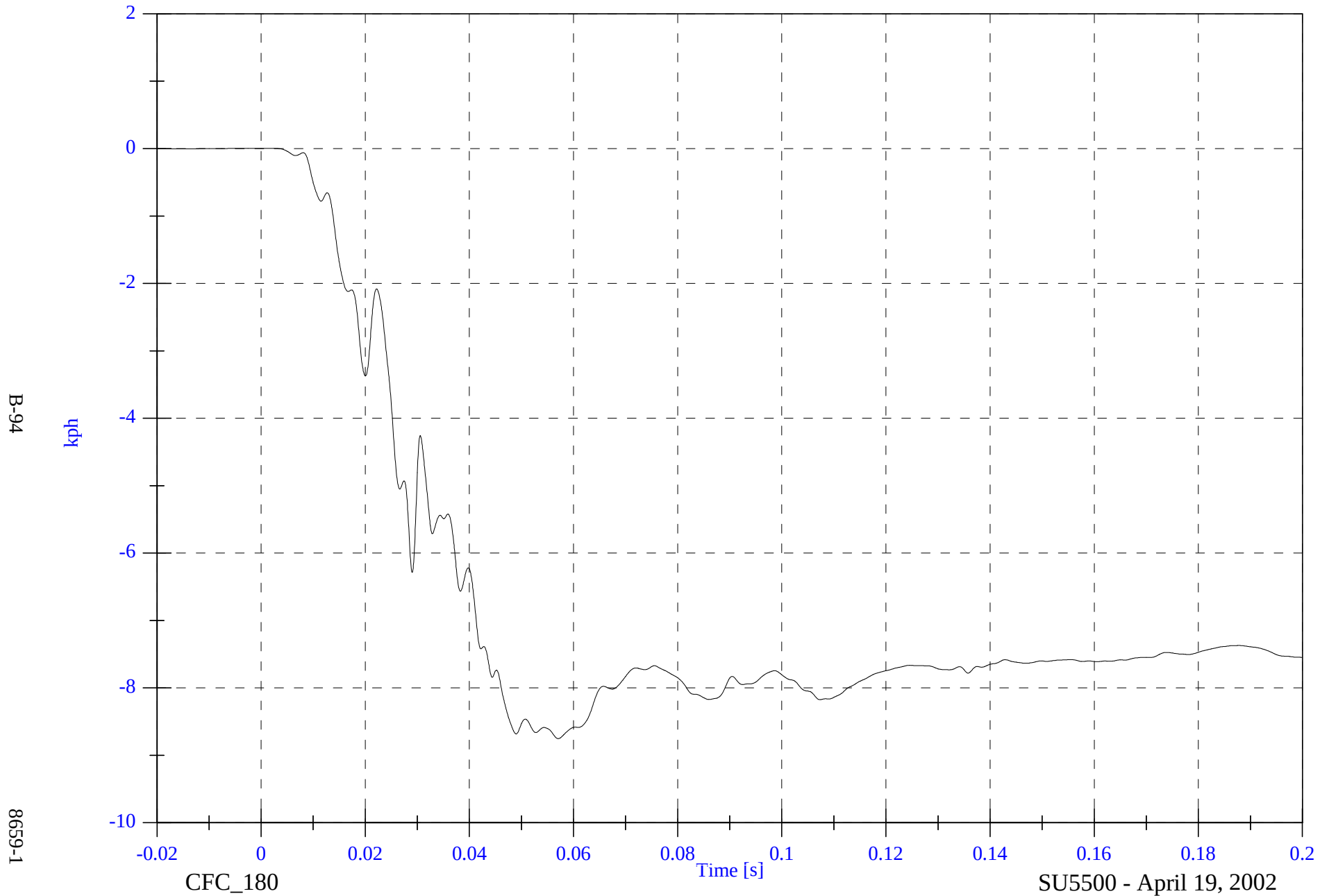


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 18 Target CG x Velocity

Max: 0.0 [kph] at 0.003 [s]

Min: -8.8 [kph] at 0.057 [s]

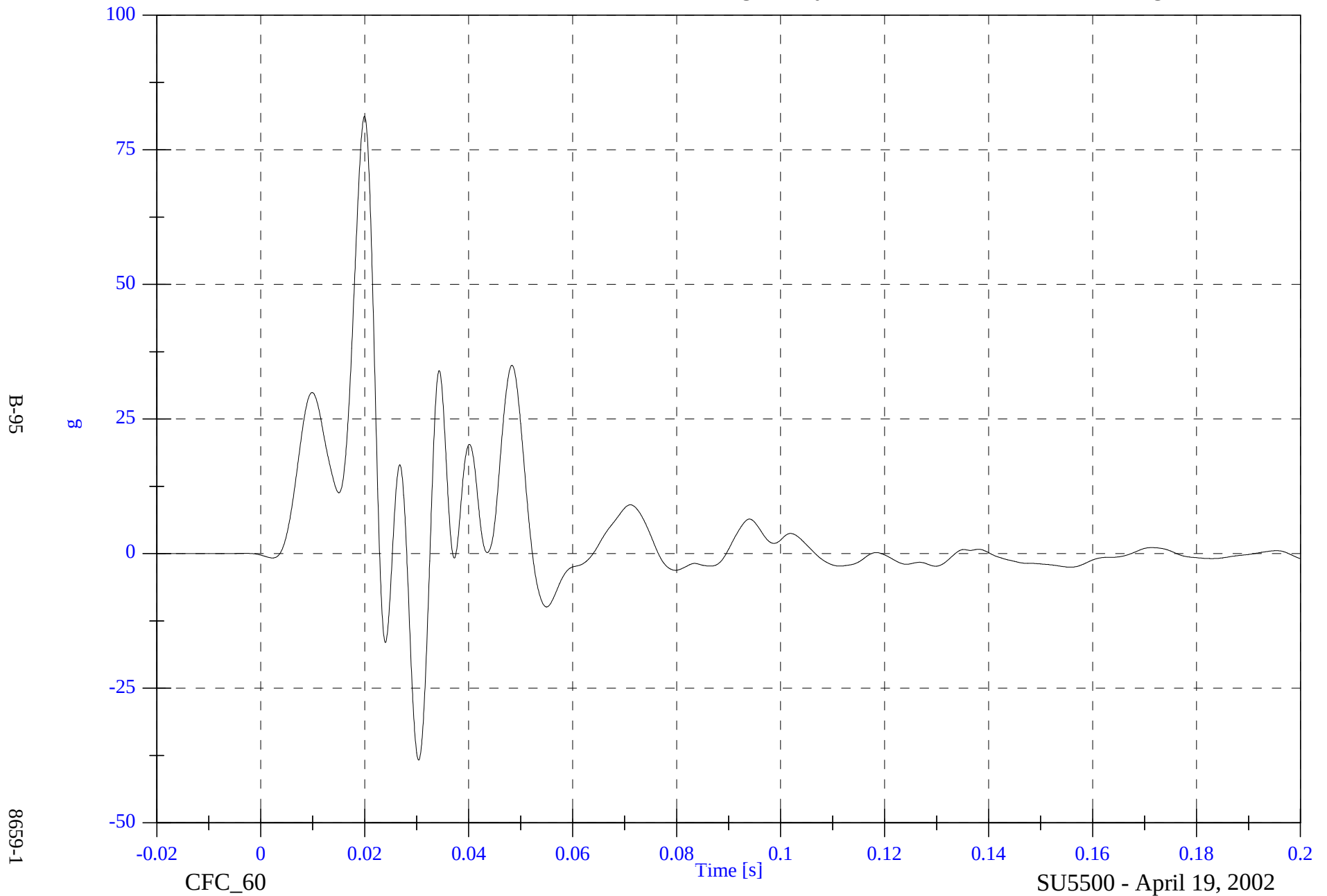


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 18 Target CG y

Max: 81.2 [g] at 0.020 [s]

Min: -38.4 [g] at 0.030 [s]

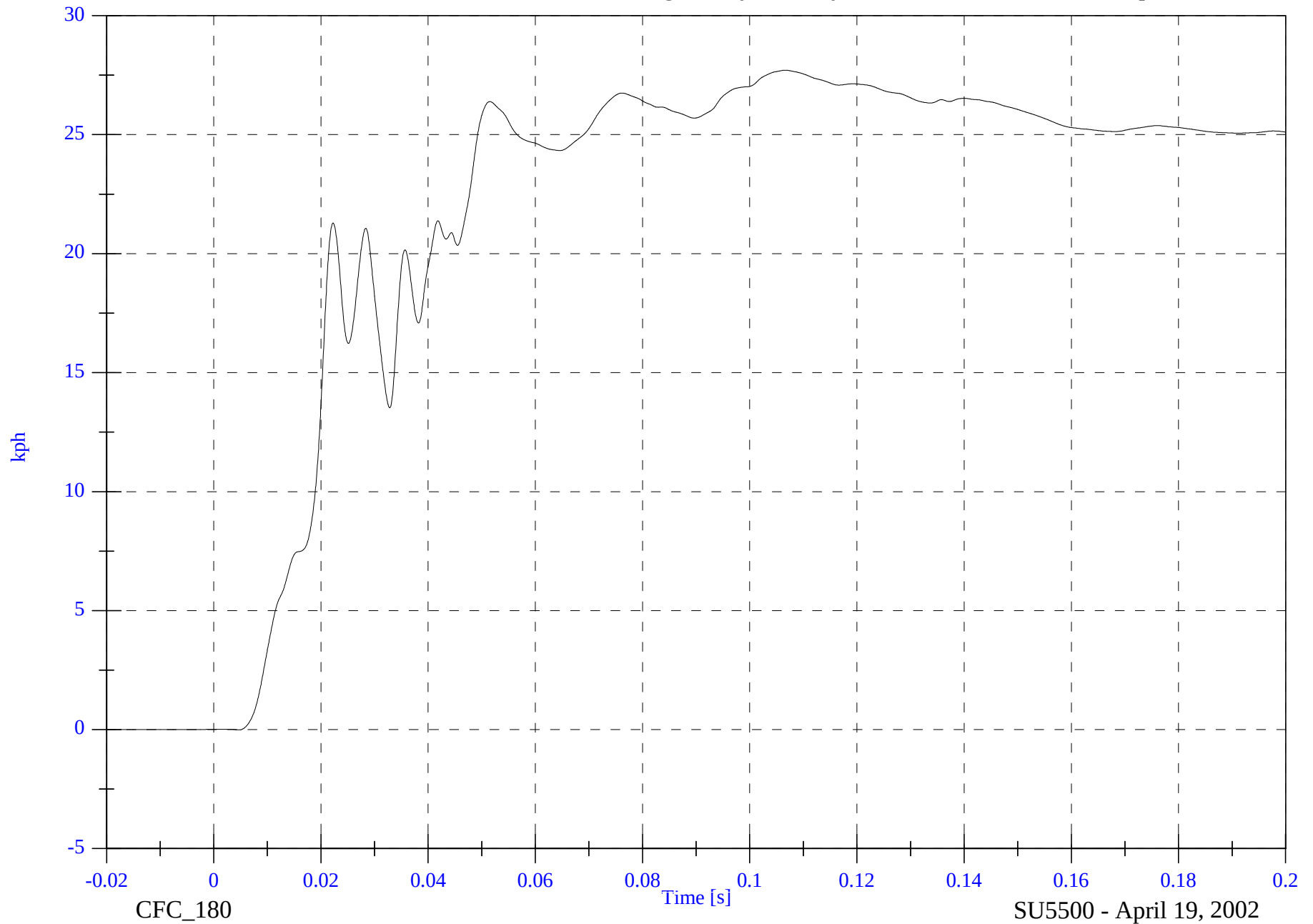


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 18 Target CG y Velocity

Max: 27.7 [kph] at 0.107 [s]

Min: -0.0 [kph] at 0.005 [s]



B-96

8659-1

CFC_180

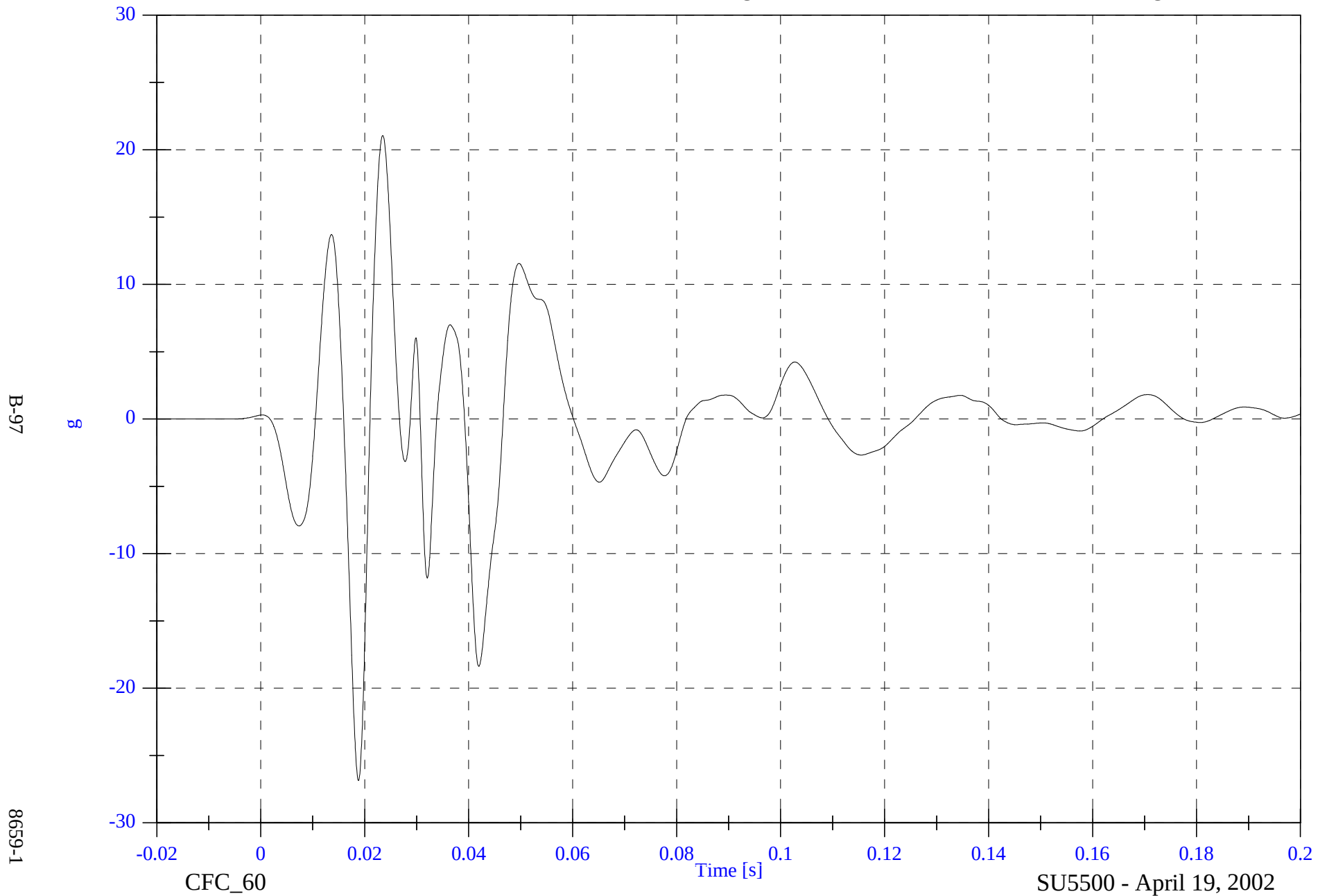
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 18 Target CG z

Max: 21.1 [g] at 0.023 [s]

Min: -26.9 [g] at 0.019 [s]

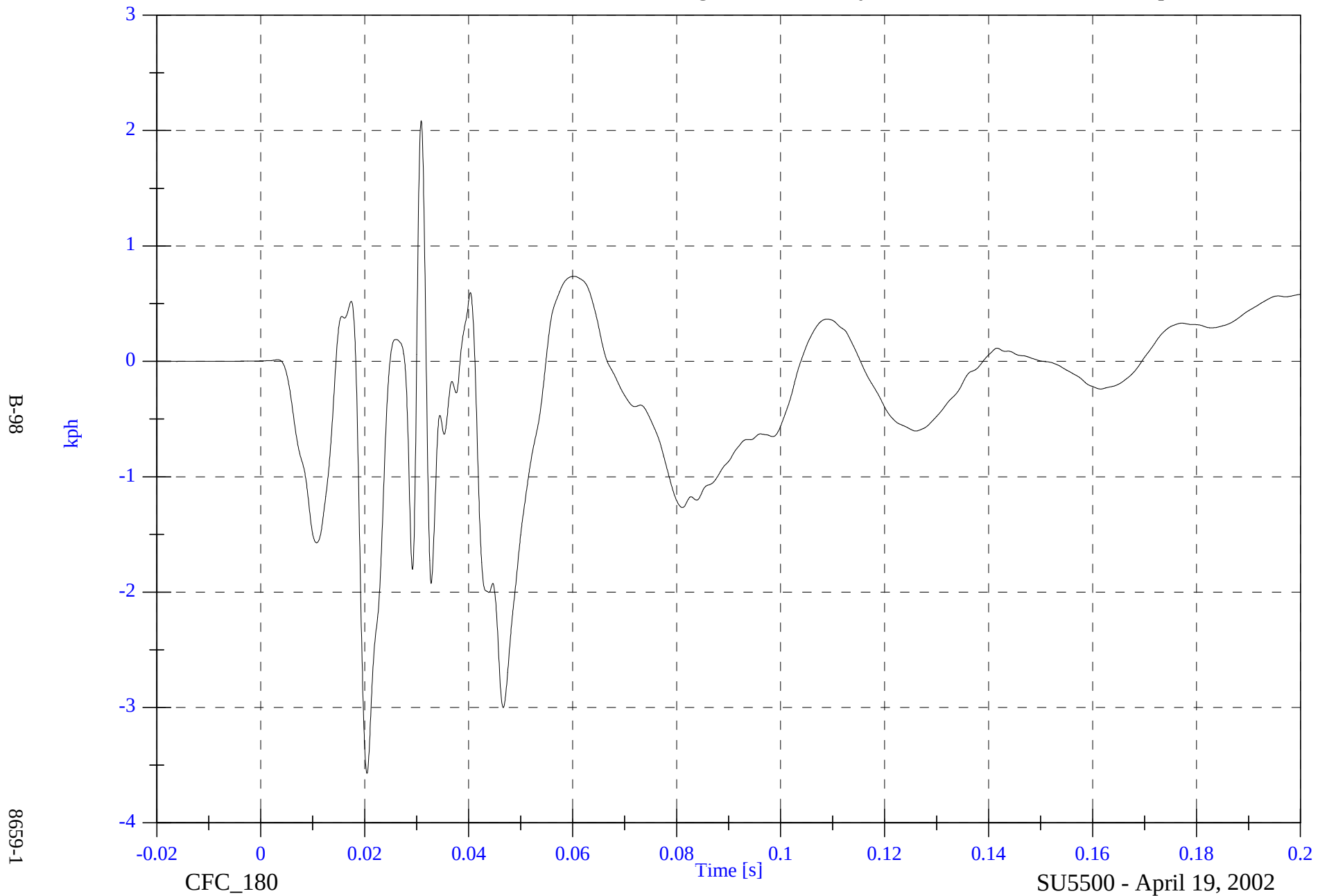


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 18 Target CG z Velocity

Max: 2.1 [kph] at 0.031 [s]

Min: -3.6 [kph] at 0.020 [s]

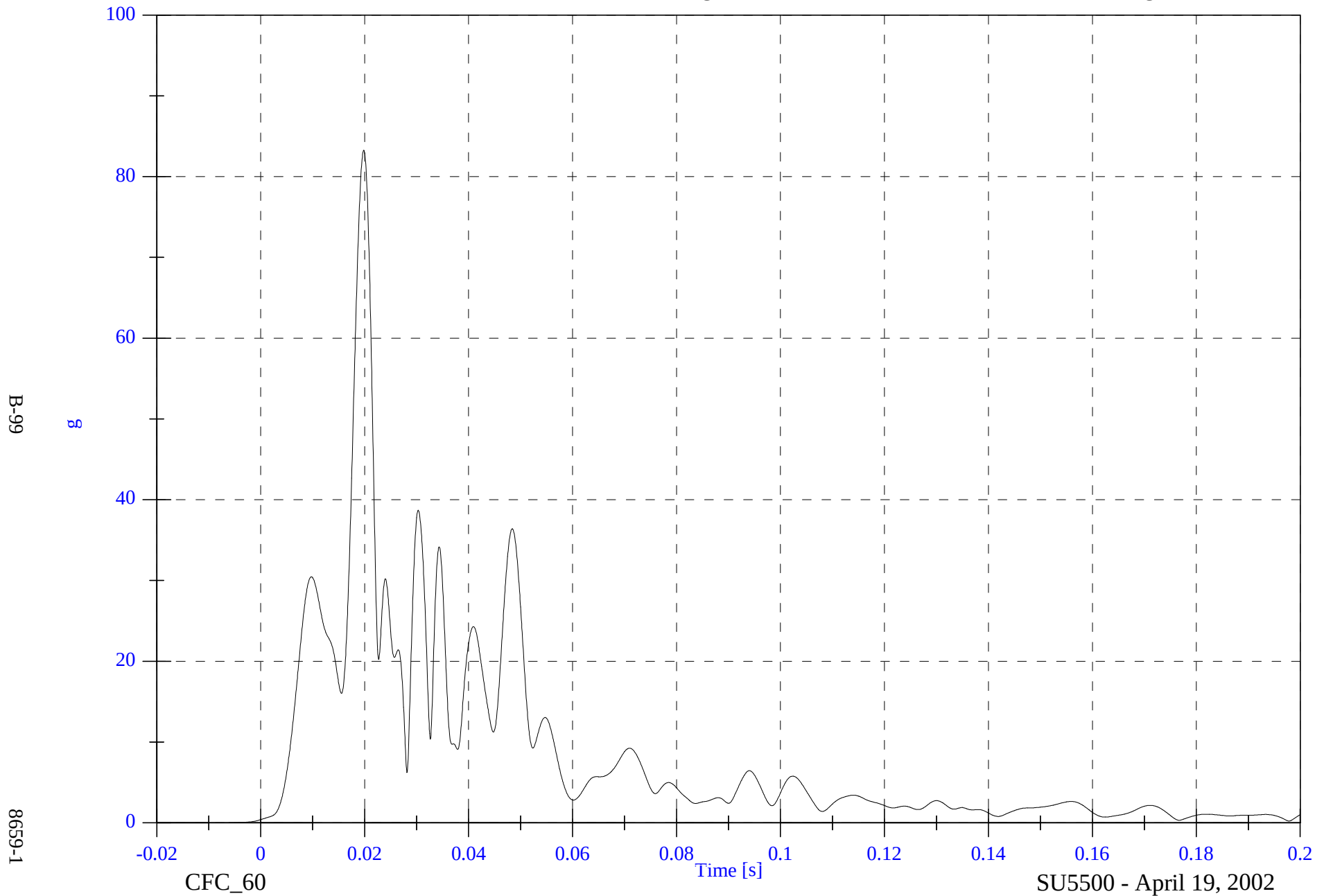


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Acc 18 Target CG Resultant

Max: 83.3 [g] at 0.020 [s]

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

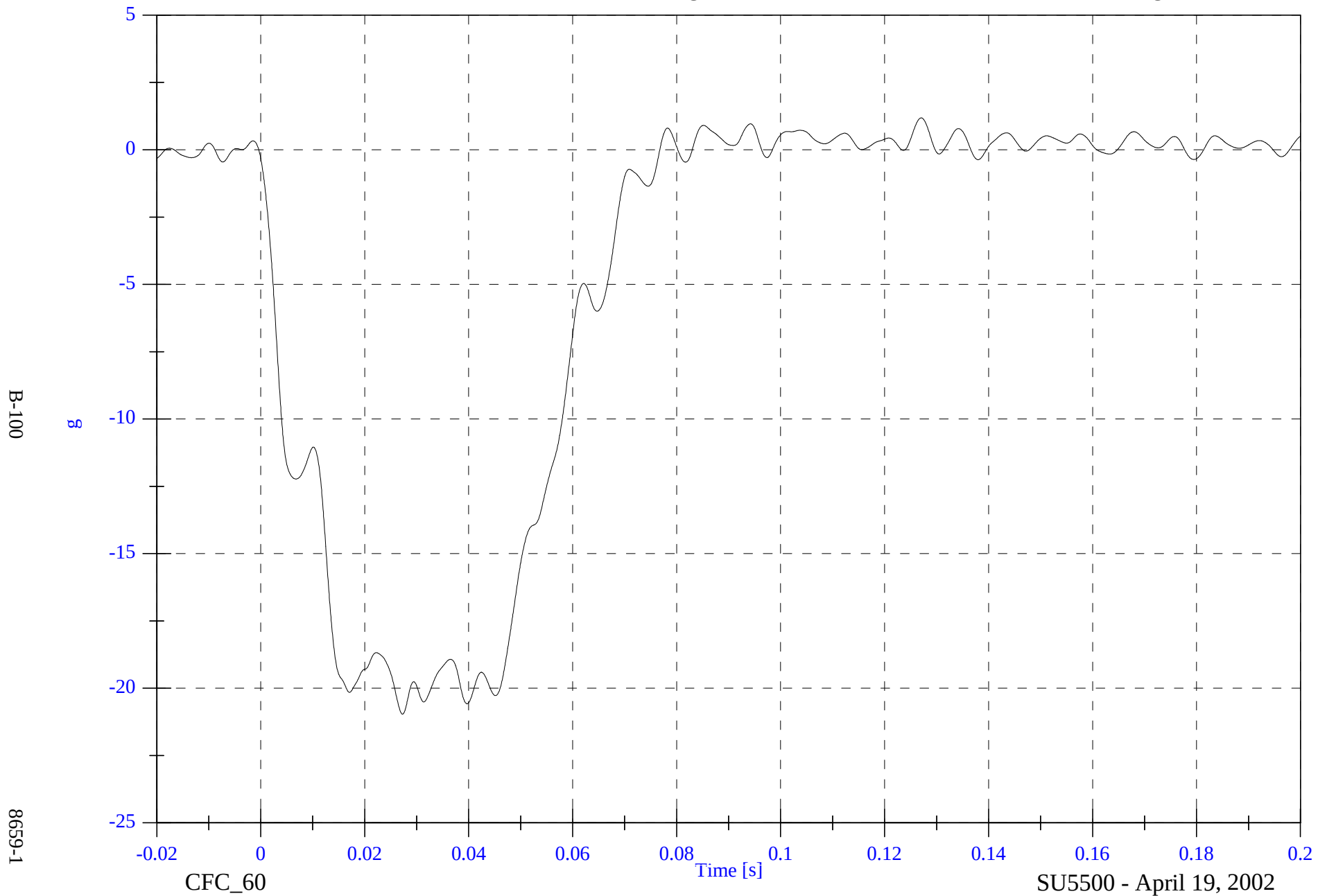


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Moving Barrier CG X

Max: 1.2 [g] at 0.127 [s]

Min: -21.0 [g] at 0.027 [s]



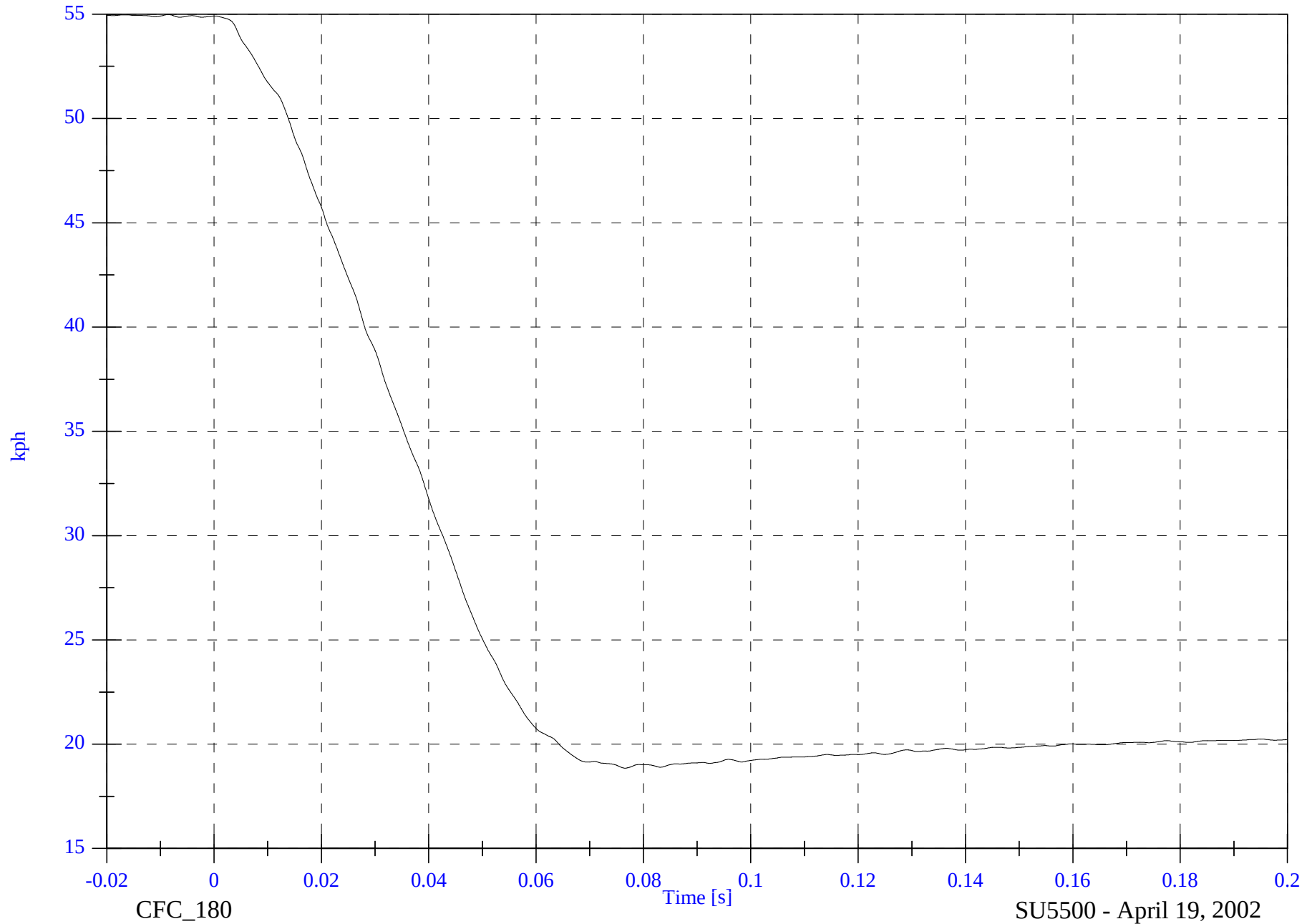
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Moving Barrier CG X Velocity

Max: 55.0 [kph] at -0.009 [s]

Min: 18.9 [kph] at 0.077 [s]



B-101

8659-1

CFC_180

Time [s]

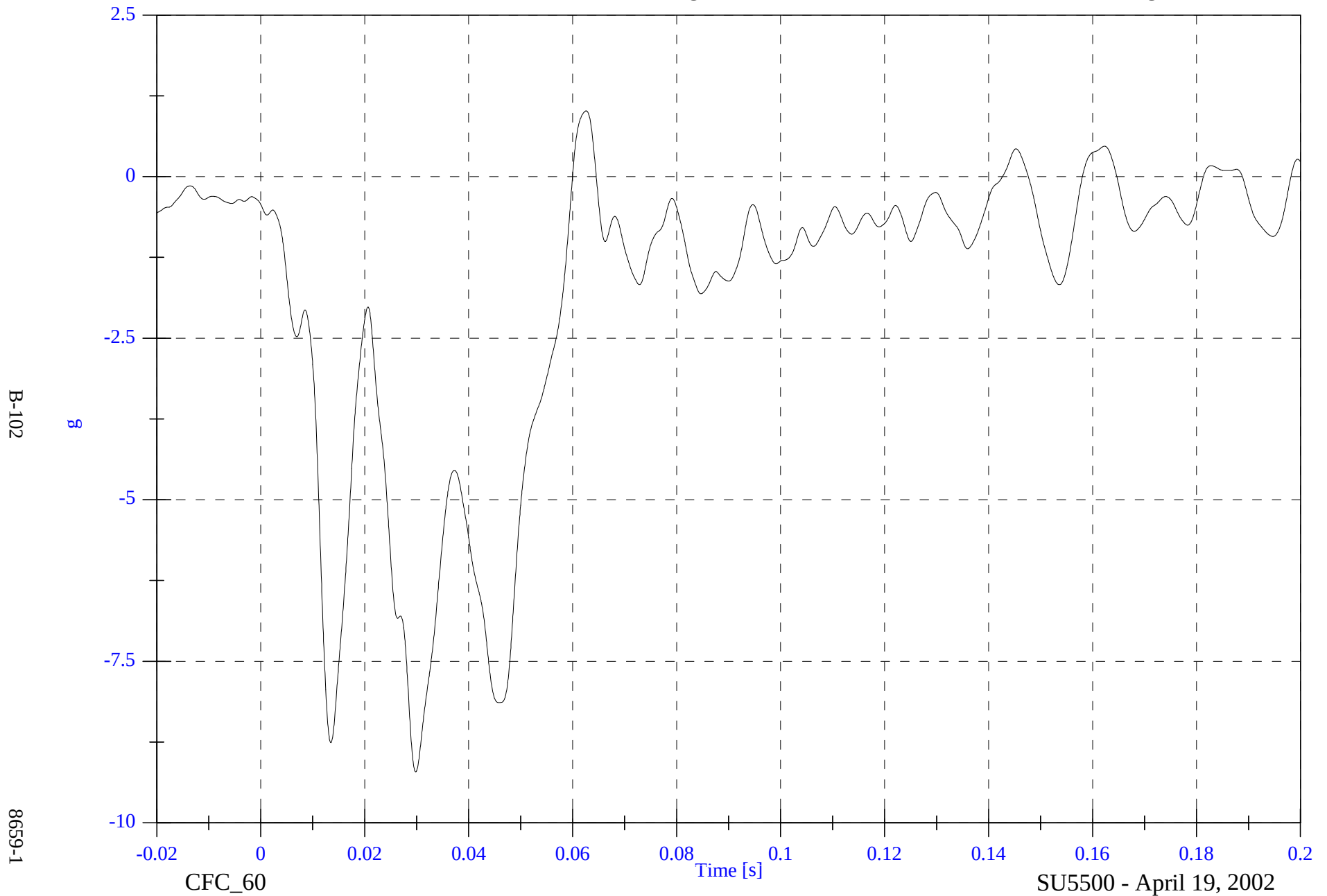
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Moving Barrier CG Y

Max: 1.0 [g] at 0.063 [s]

Min: -9.2 [g] at 0.030 [s]

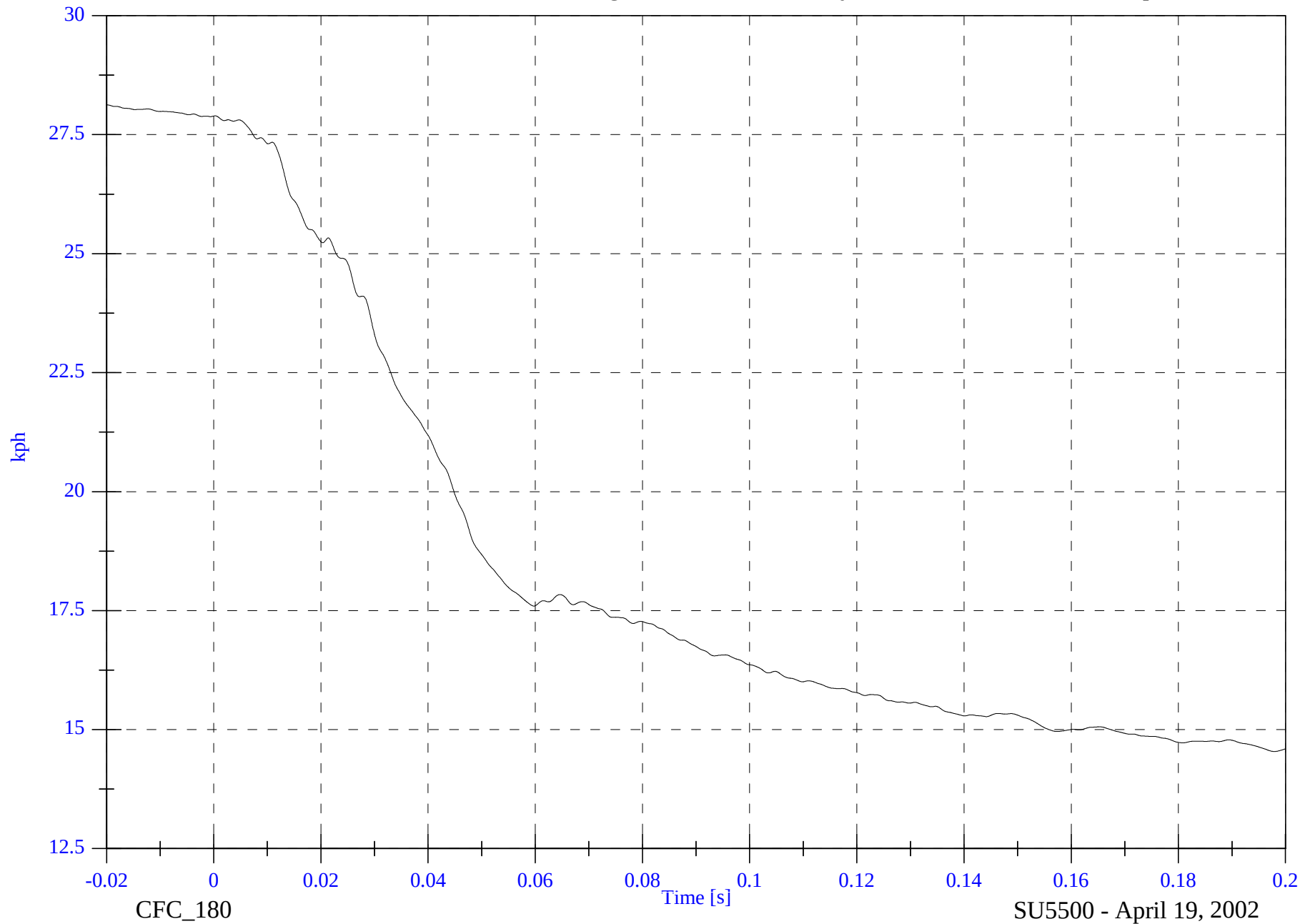


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Moving Barrier CG Y Velocity

Max: 28.1 [kph] at -0.020 [s]

Min: 14.5 [kph] at 0.198 [s]



B-103

8659-1

CFC_180

Time [s]

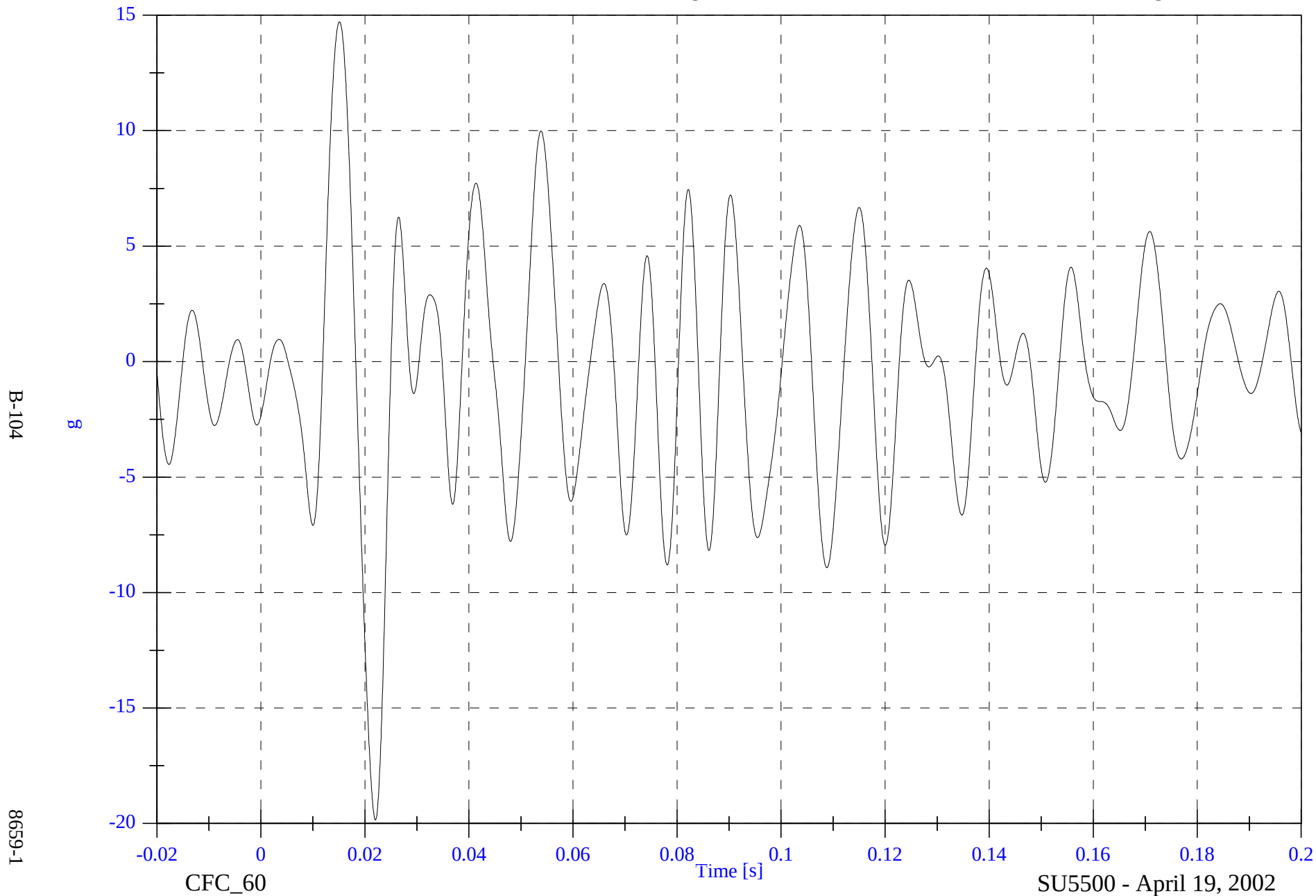
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Moving Barrier CG Z

Max: 14.7 [g] at 0.015 [s]

Min: -19.9 [g] at 0.022 [s]

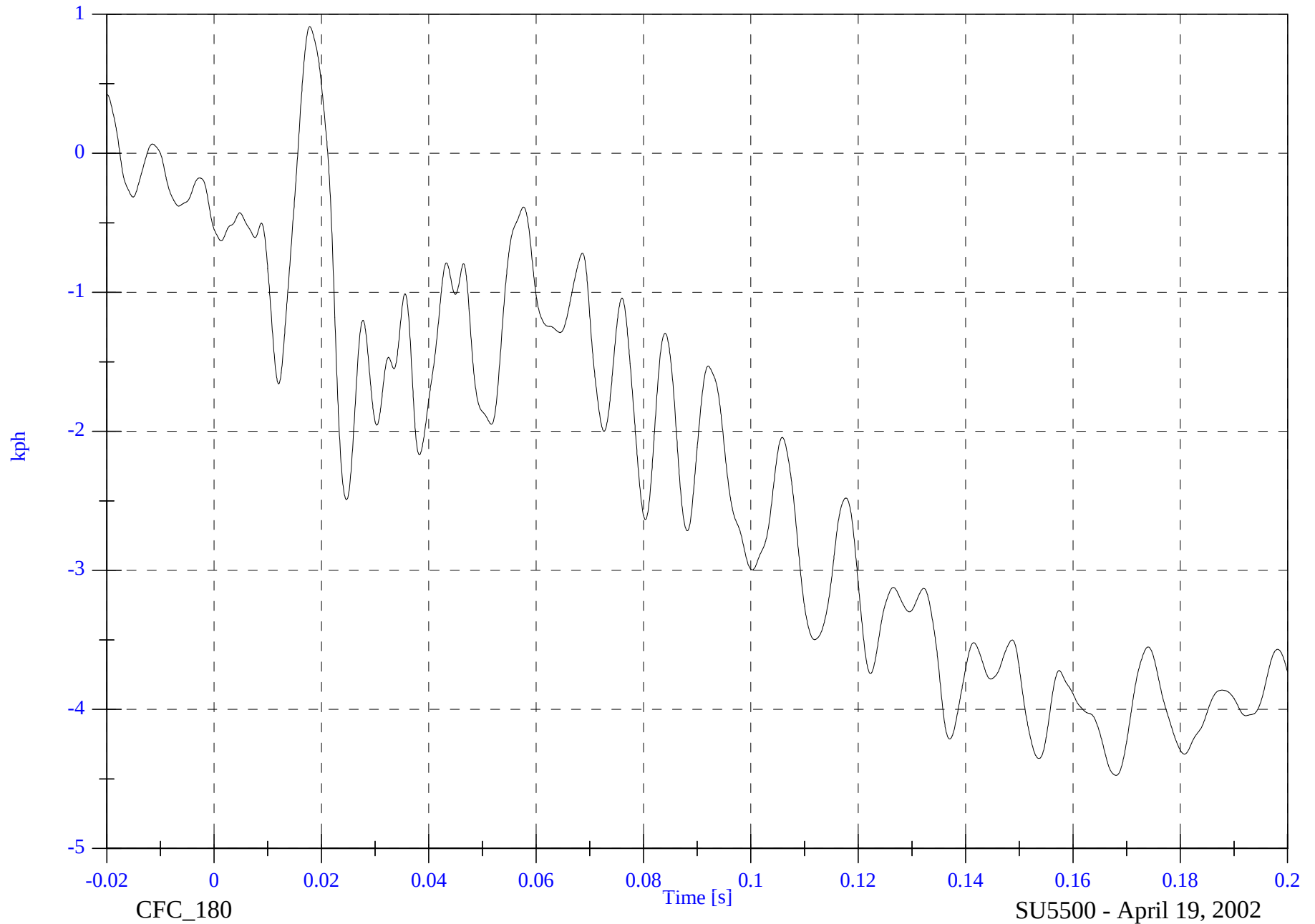


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Moving Barrier CG Z Velocity

Max: 0.9 [kph] at 0.018 [s]

Min: -4.5 [kph] at 0.168 [s]



B-105

8659-1

CFC_180

Time [s]

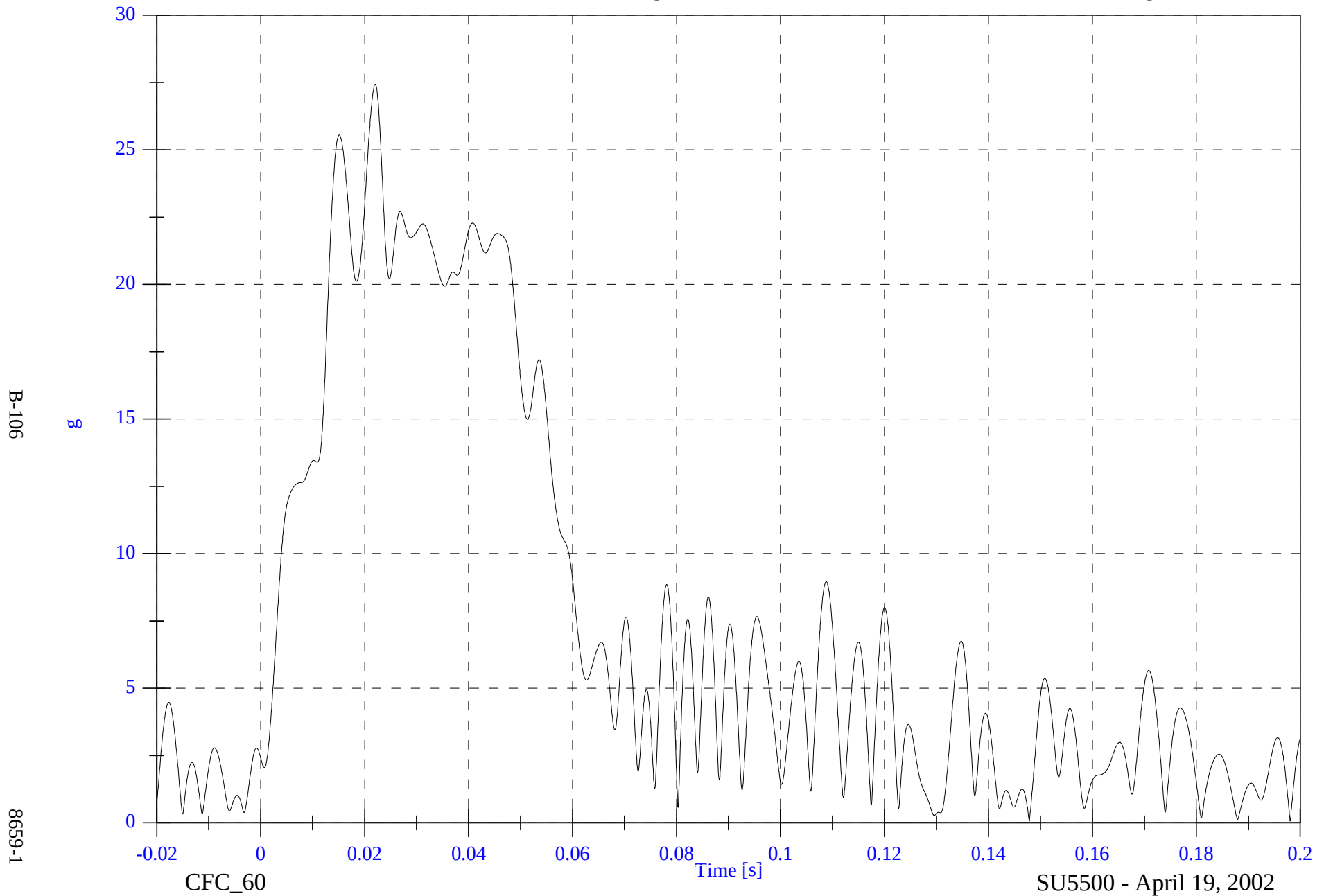
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Moving Barrier CG Resultant

Max: 27.4 [g] at 0.022 [s]

Min: 0.1 [g] at 0.198 [s]

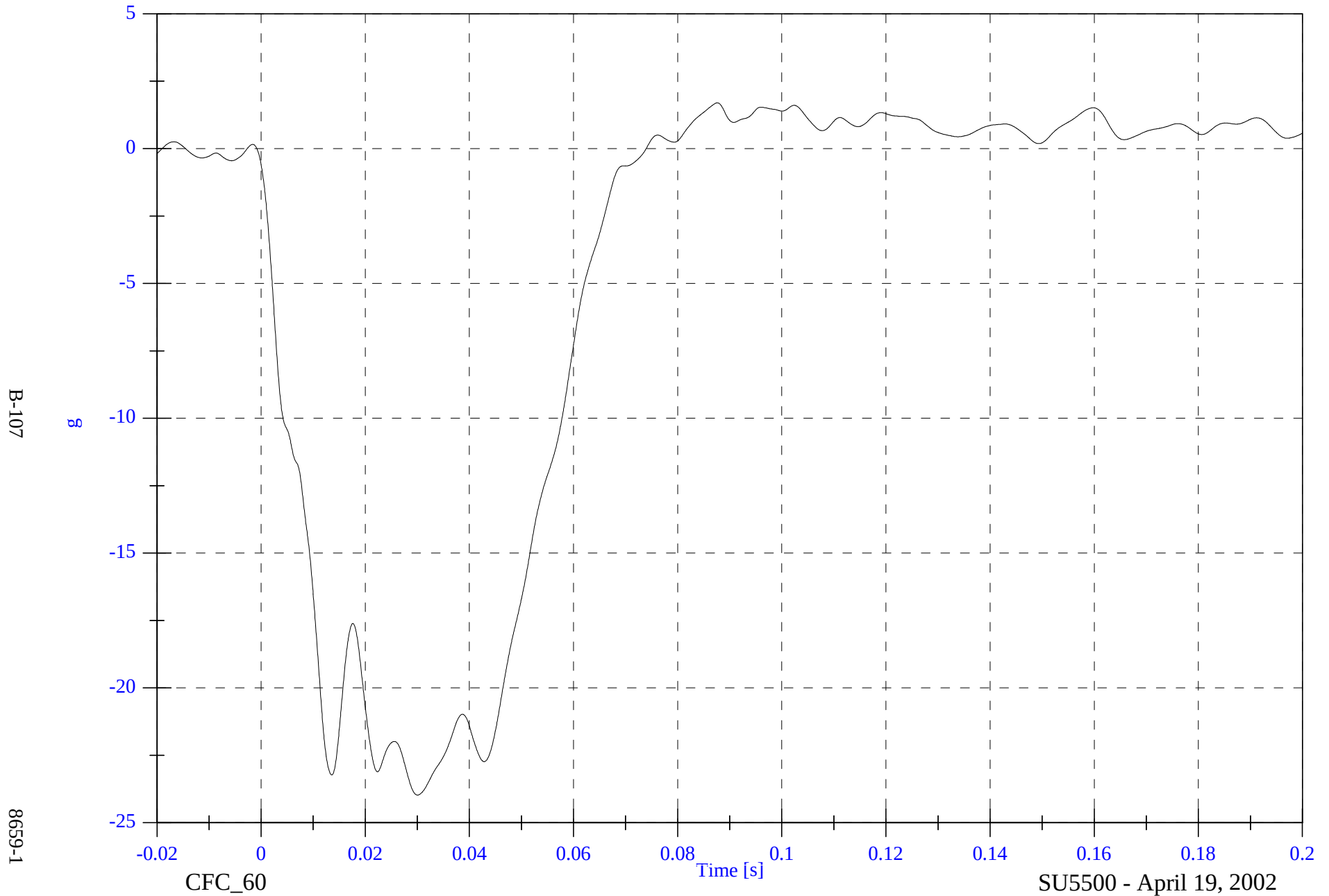


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Moving Barrier Left Rail X

Max: 1.7 [g] at 0.088 [s]

Min: -24.0 [g] at 0.030 [s]

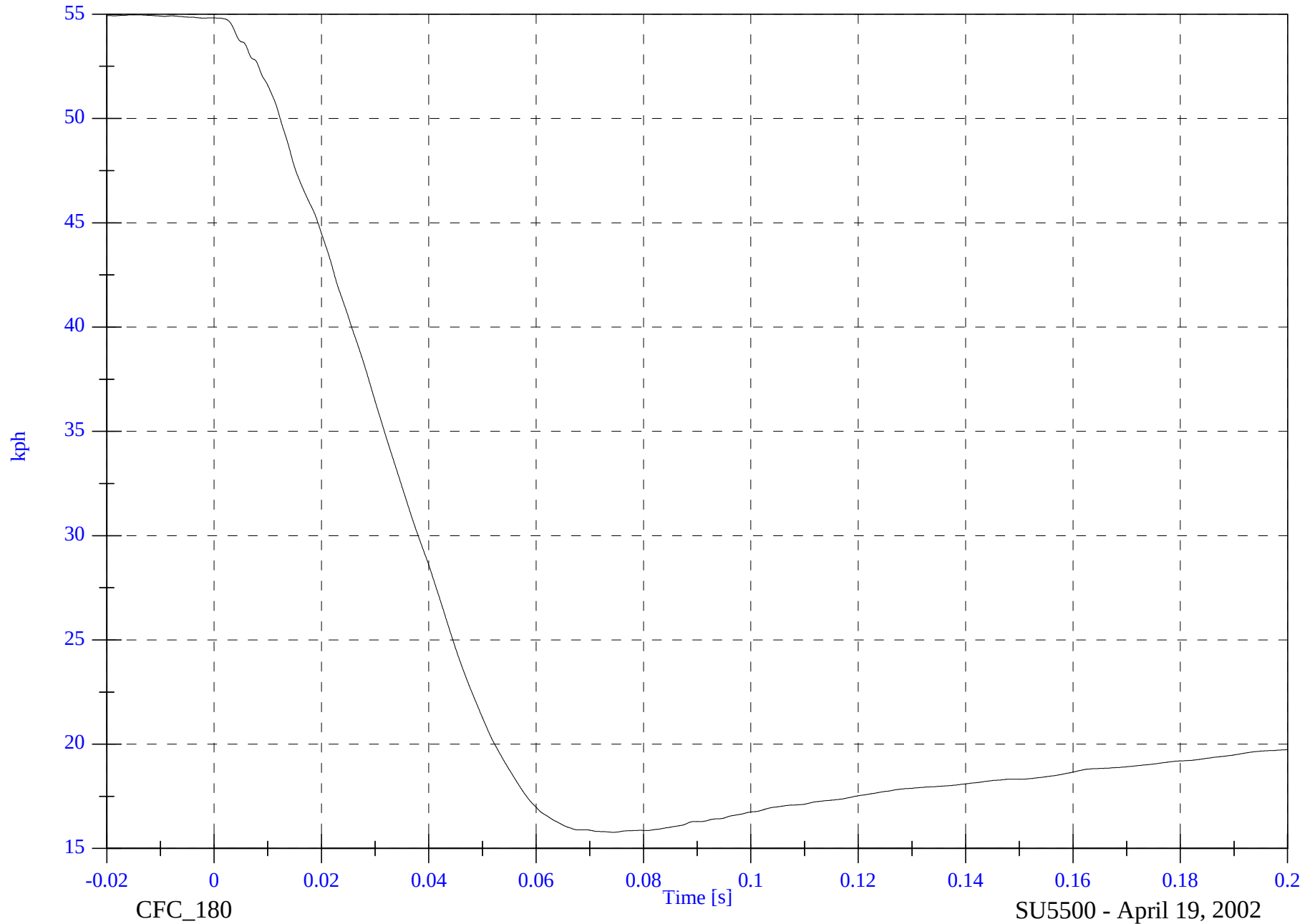


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Moving Barrier Left Rail X Velocity

Max: 55.0 [kph] at -0.015 [s]

Min: 15.8 [kph] at 0.074 [s]



B-108

8659-1

CFC_180

Time [s]

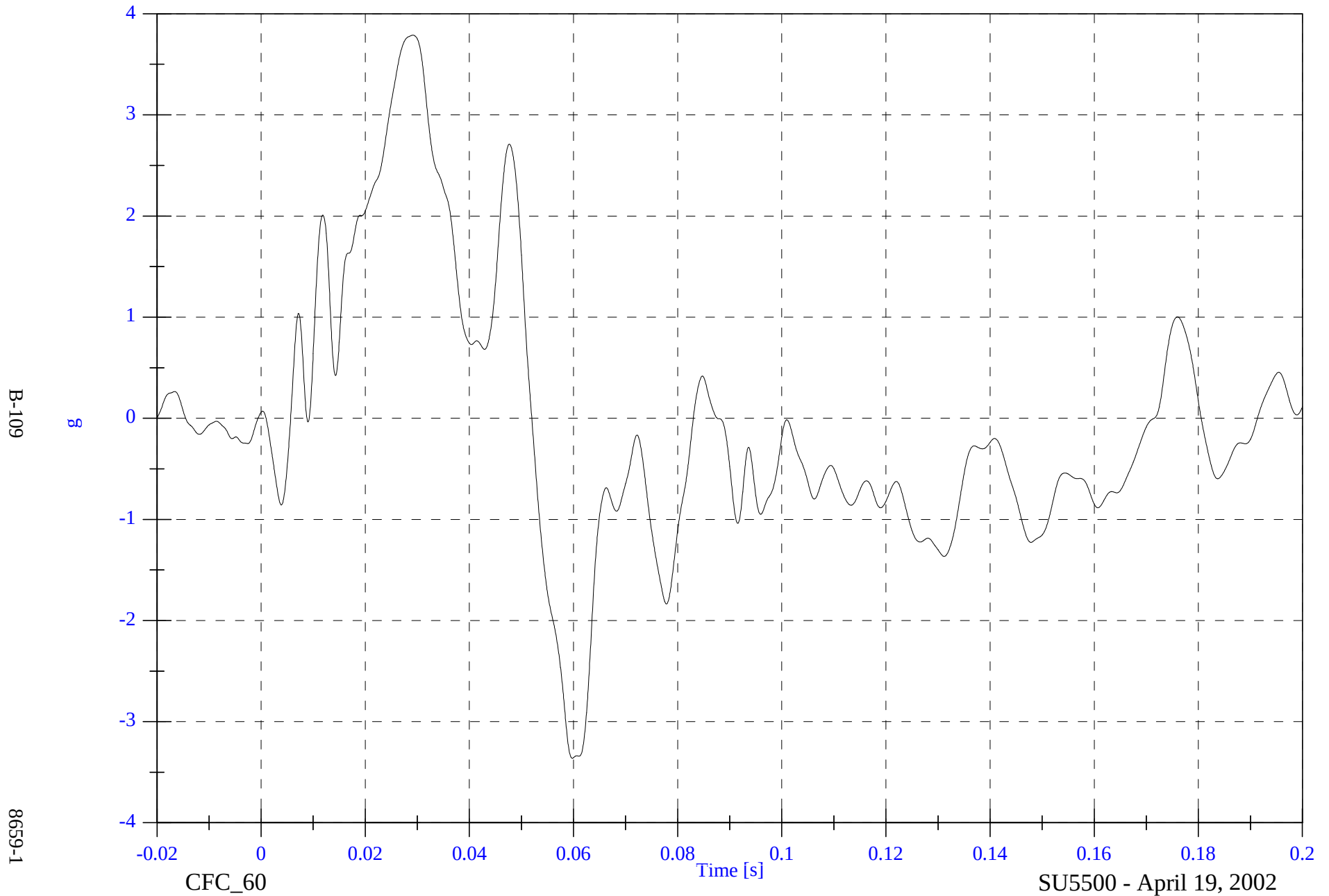
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Moving Barrier Left Rail Y

Max: 3.8 [g] at 0.029 [s]

Min: -3.4 [g] at 0.060 [s]



2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

Moving Barrier Left Rail Y Velocity

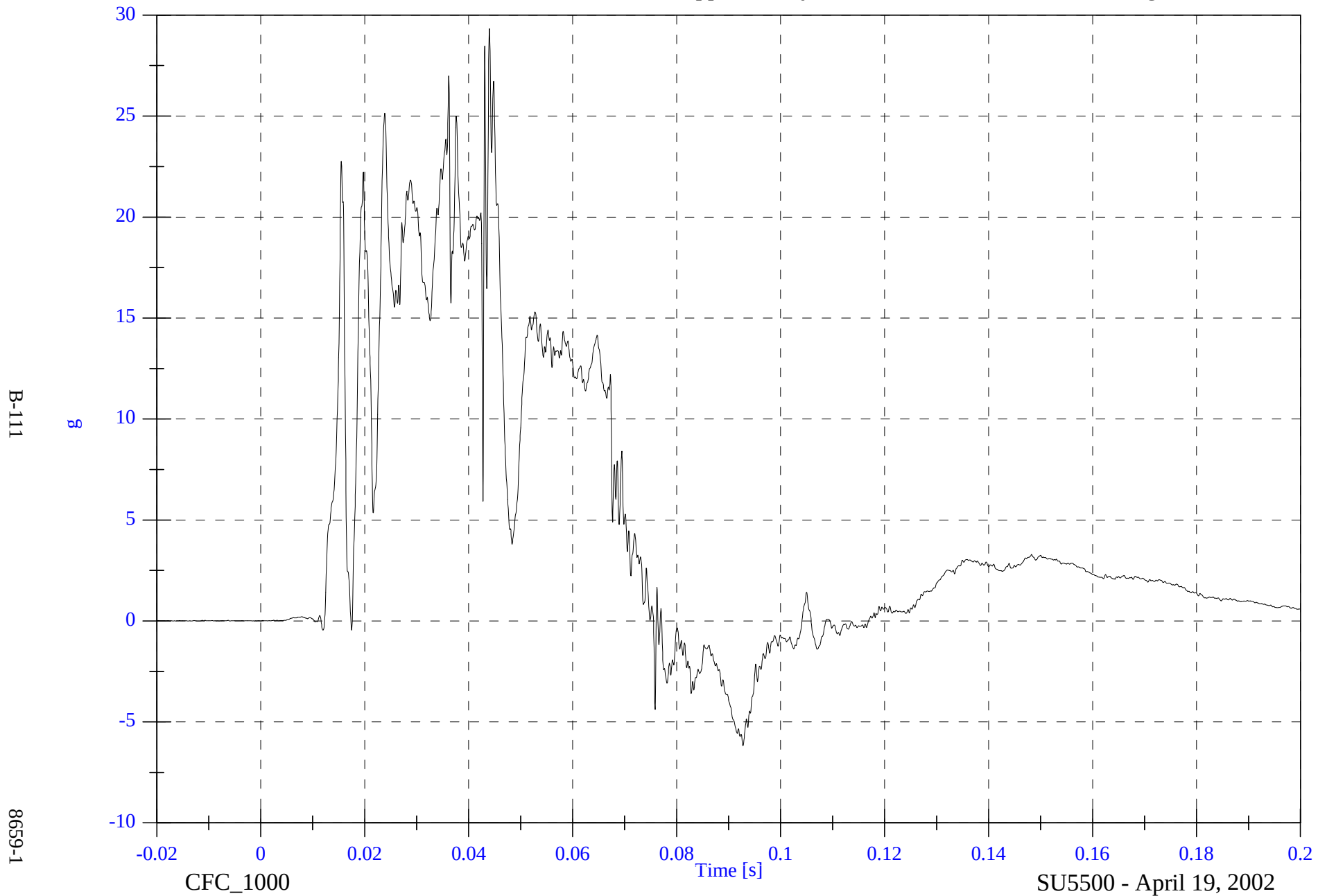
Max: 30.9 [kph] at 0.050 [s]

Min: 27.3 [kph] at 0.173 [s]



2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback
P1 Upper Rib Ry

Max: 29.3 [g] at 0.044 [s]
Min: -6.2 [g] at 0.093 [s]

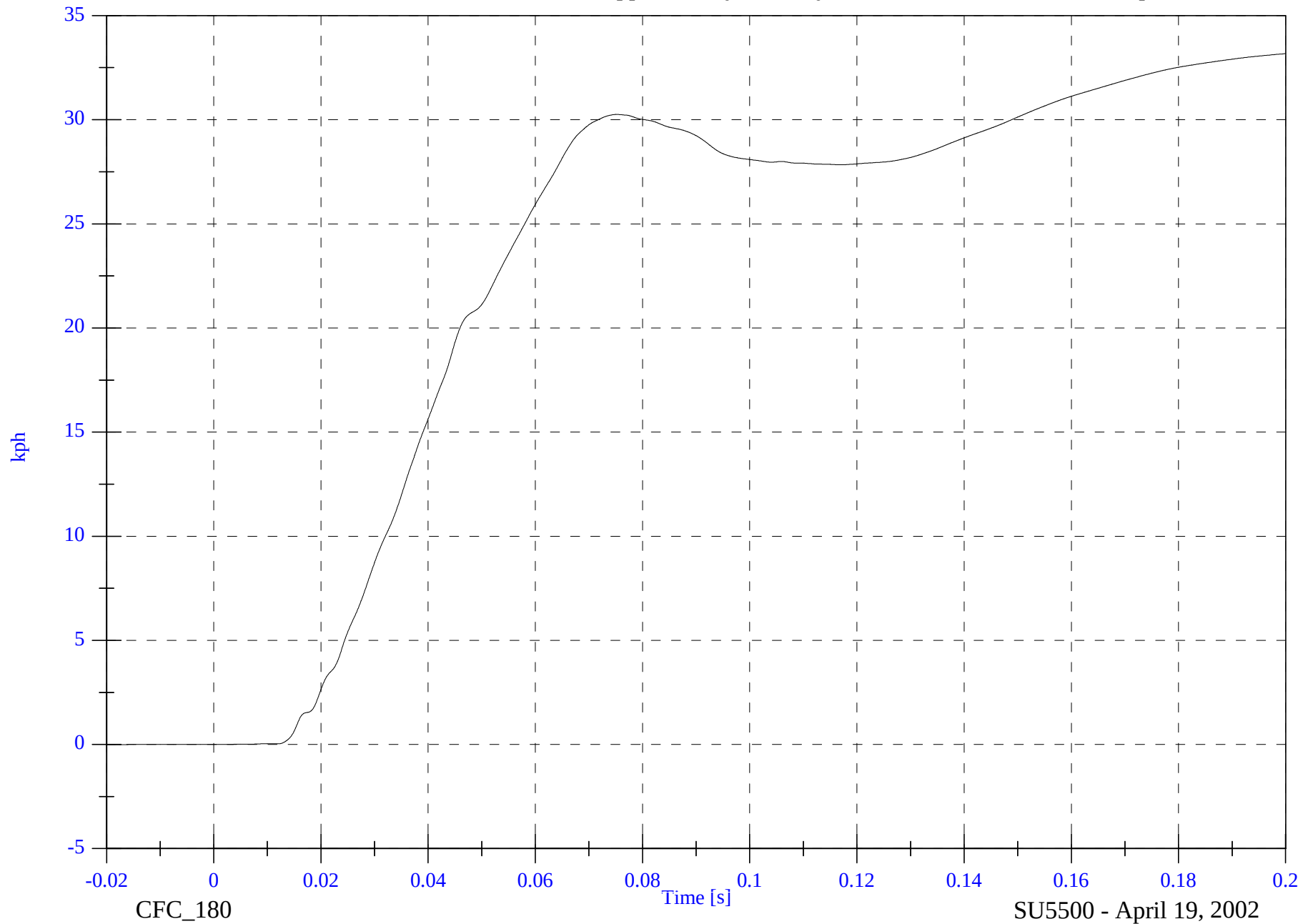


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Upper Rib Ry Velocity

Max: 33.2 [kph] at 0.200 [s]

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



B-112

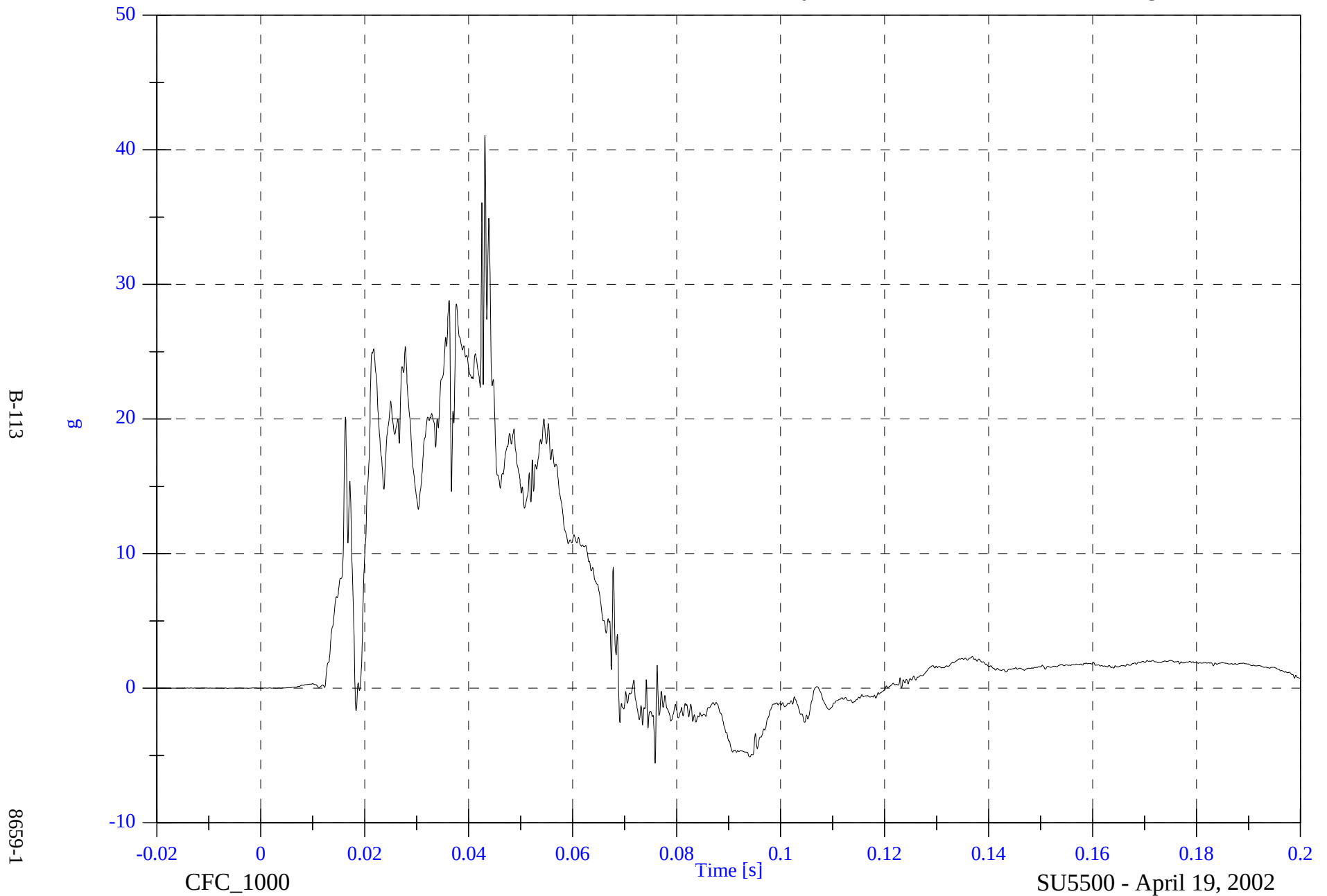
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Lower Rib Ry

Max: 41.1 [g] at 0.043 [s]

Min: -5.6 [g] at 0.076 [s]

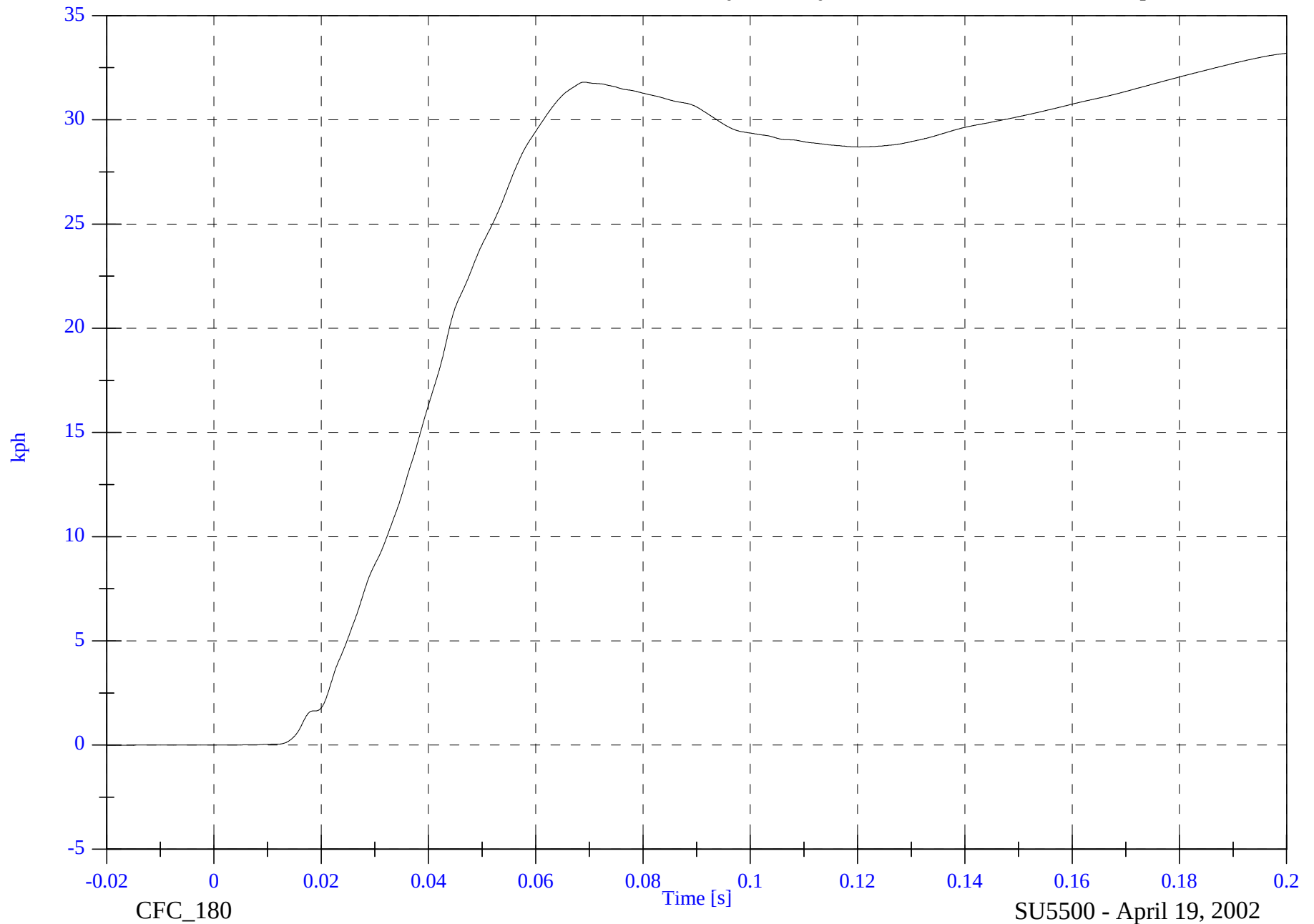


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Lower Rib Ry Velocity

Max: 33.2 [kph] at 0.200 [s]

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



B-114

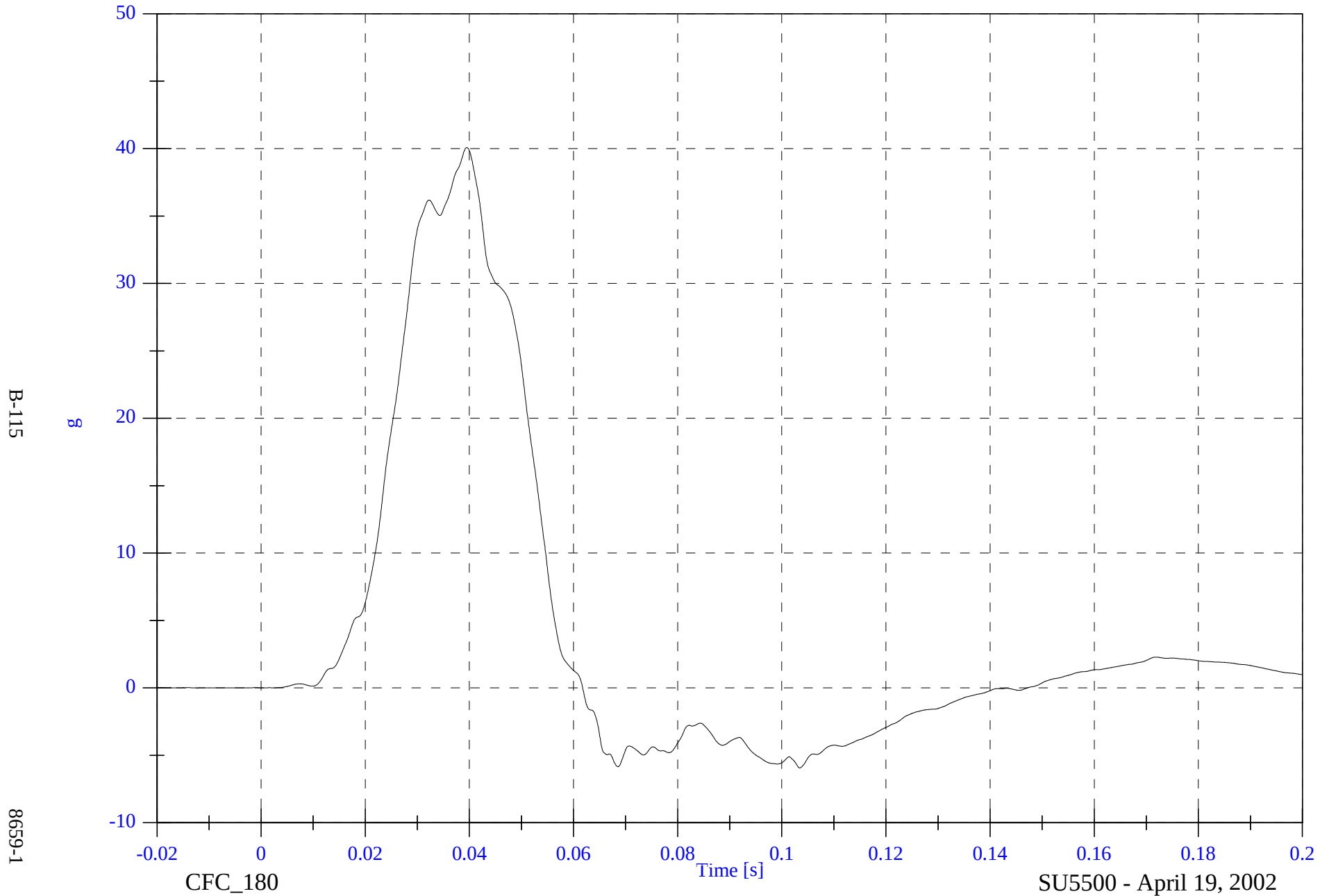
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Lower Spine Ry

Max: 40.1 [g] at 0.040 [s]

Min: -5.9 [g] at 0.103 [s]

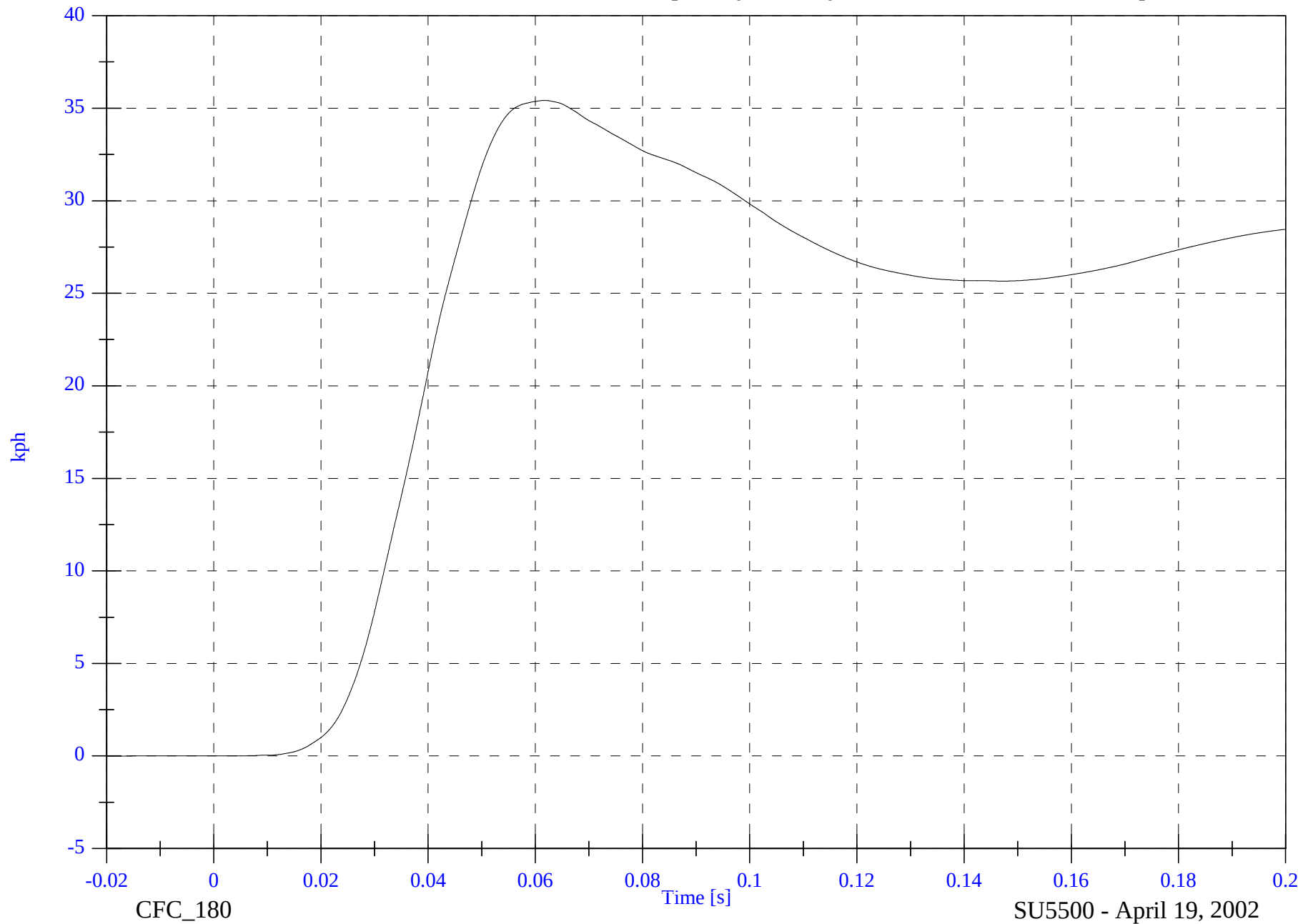


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Lower Spine Ry Velocity

Max: 35.4 [kph] at 0.062 [s]

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



B-116

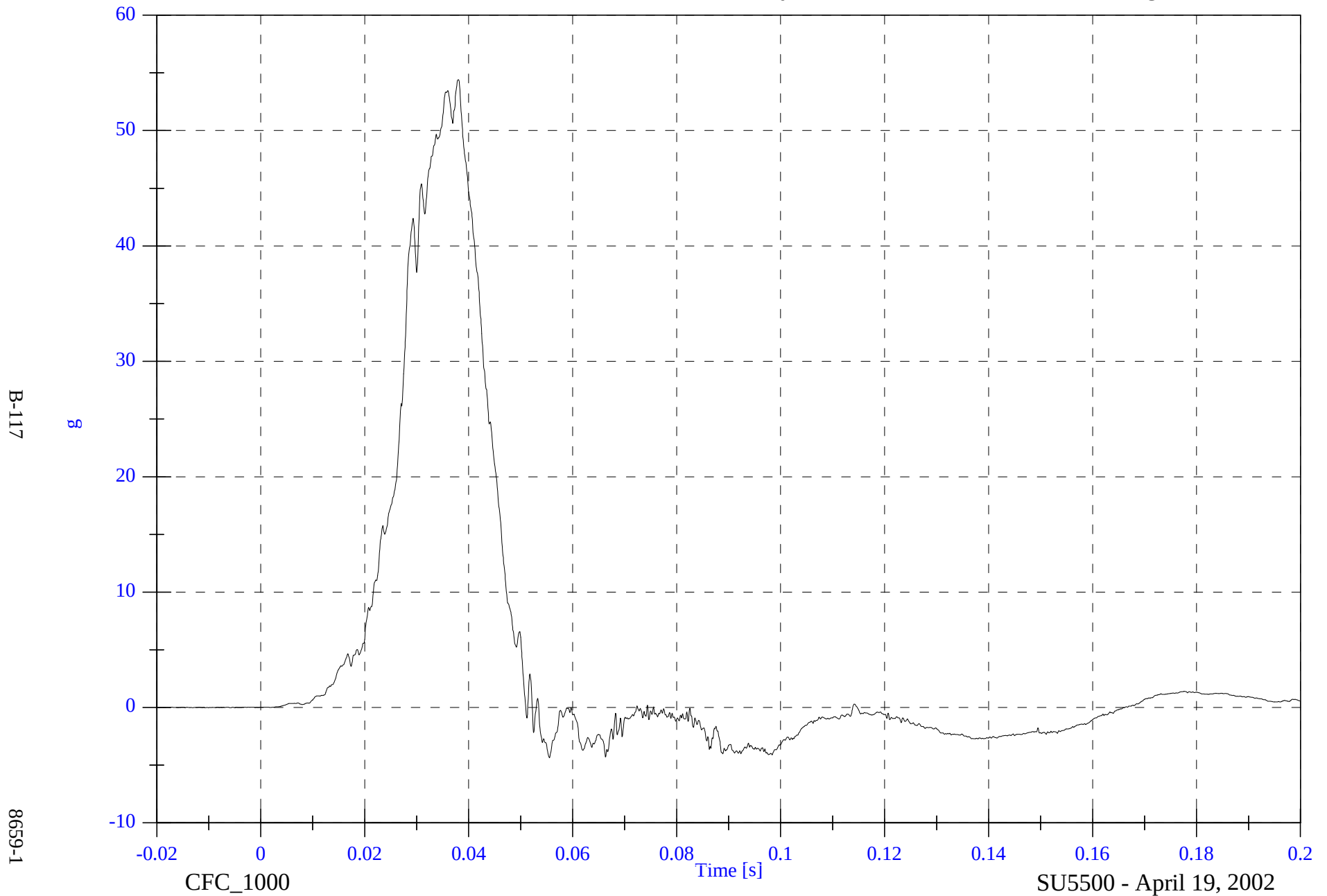
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Pelvic Ry

Max: 54.4 [g] at 0.038 [s]

Min: -4.4 [g] at 0.056 [s]

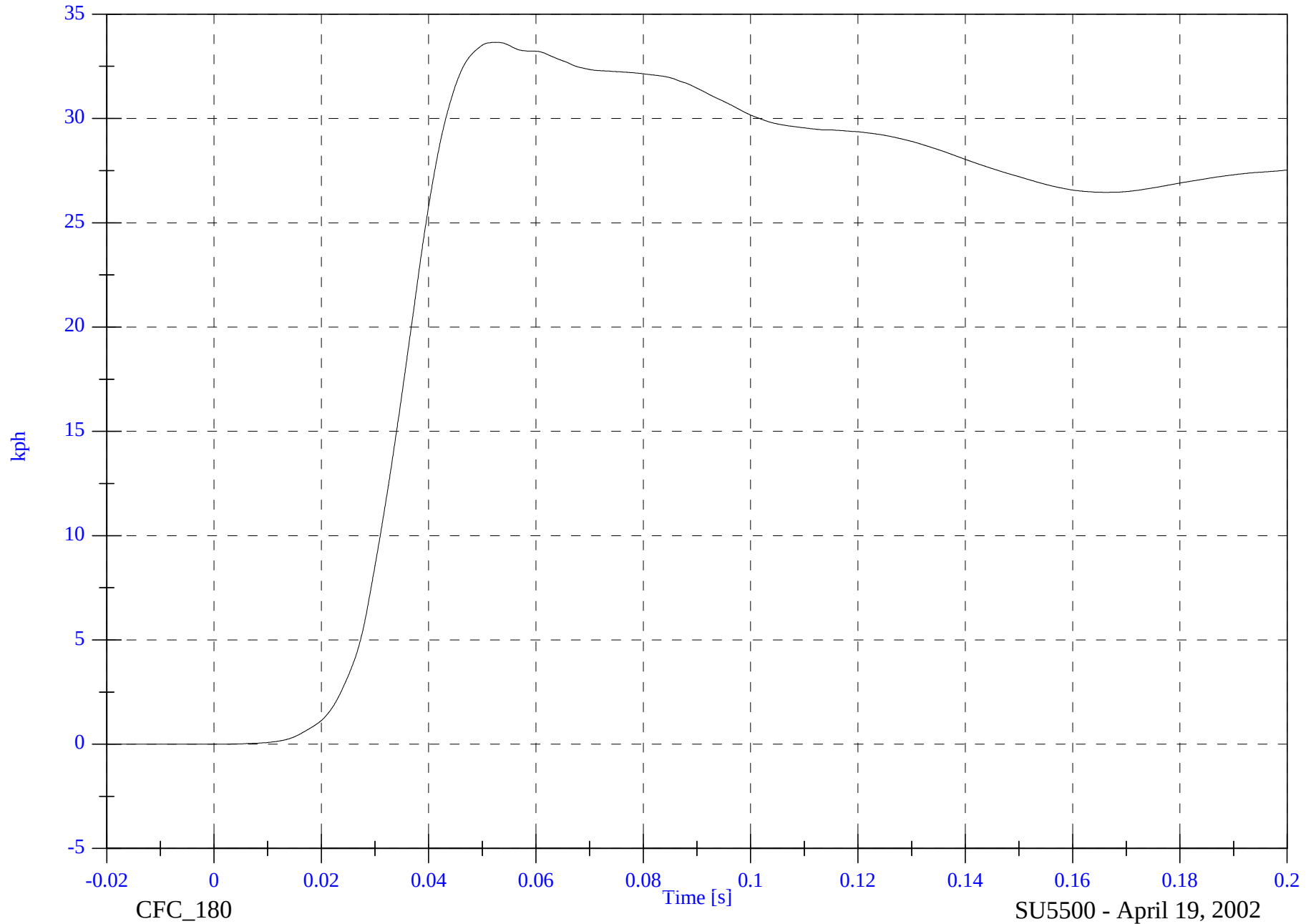


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Pelvic Ry Velocity

Max: 33.7 [kph] at 0.052 [s]

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



B-118

8659-1

CFC_180

Time [s]

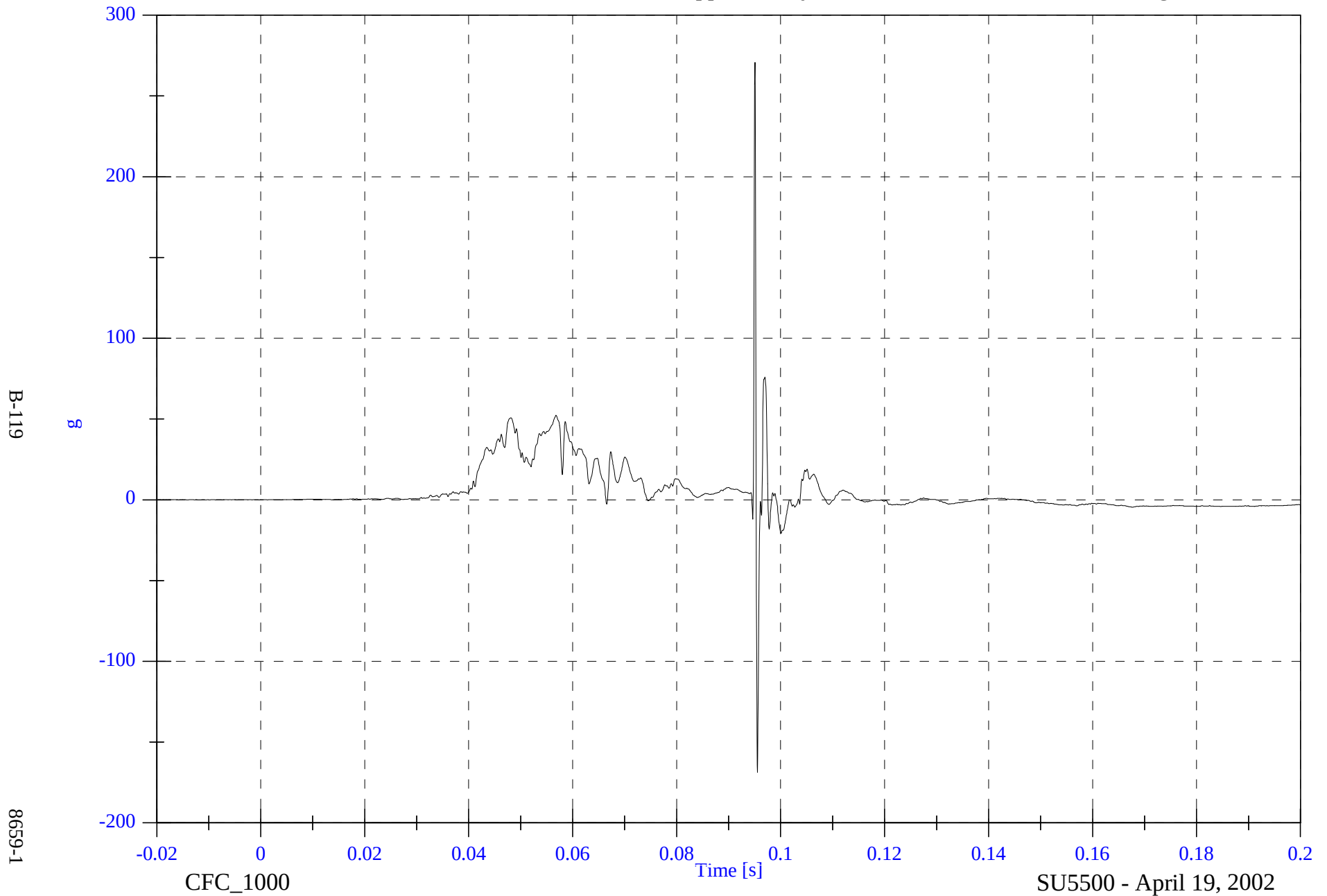
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Upper Rib Ry

Max: 270.8 [g] at 0.095 [s]

Min: -168.8 [g] at 0.096 [s]

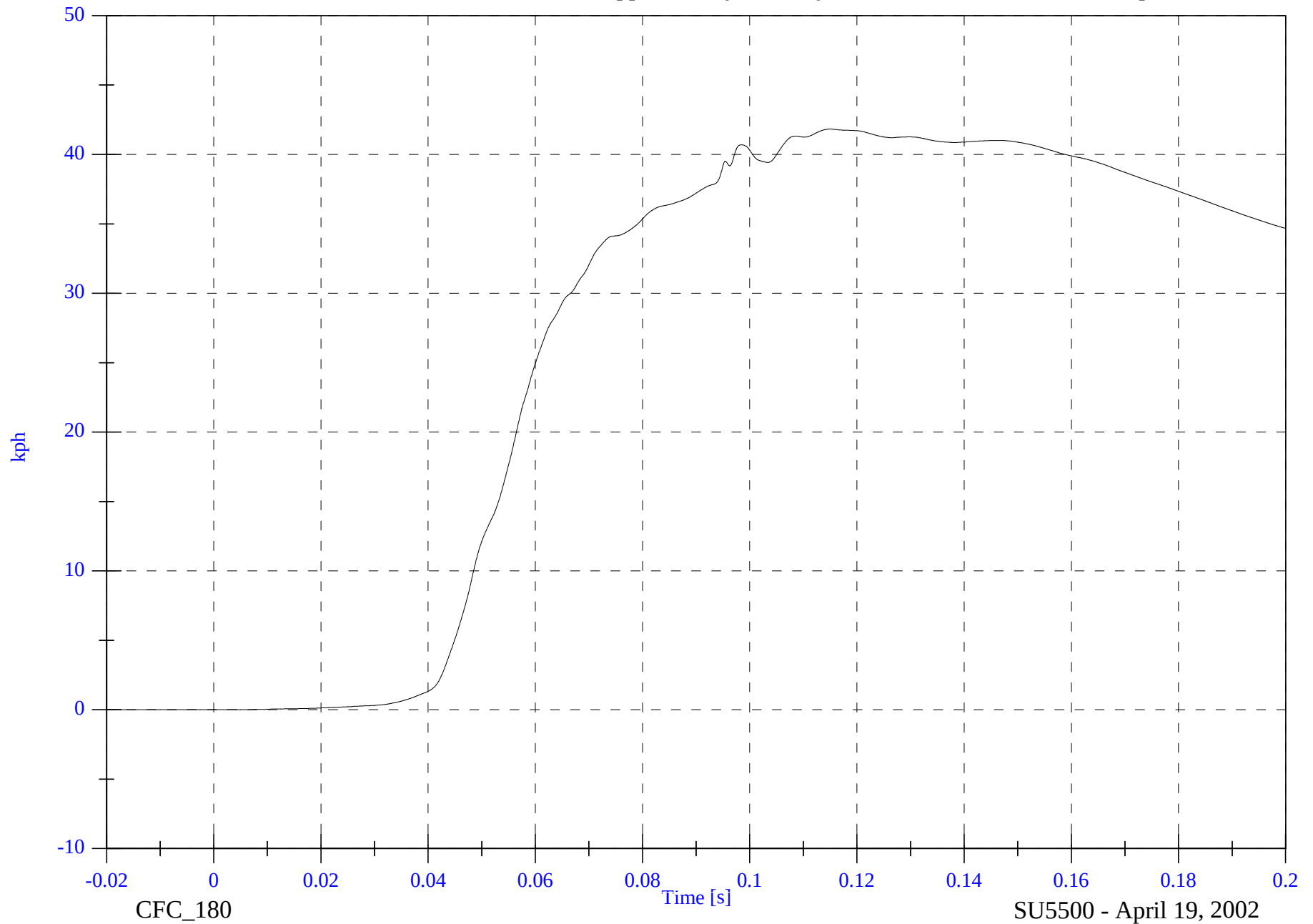


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Upper Rib Ry Velocity

Max: 41.8 [kph] at 0.115 [s]

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



B-120

8659-1

CFC_180

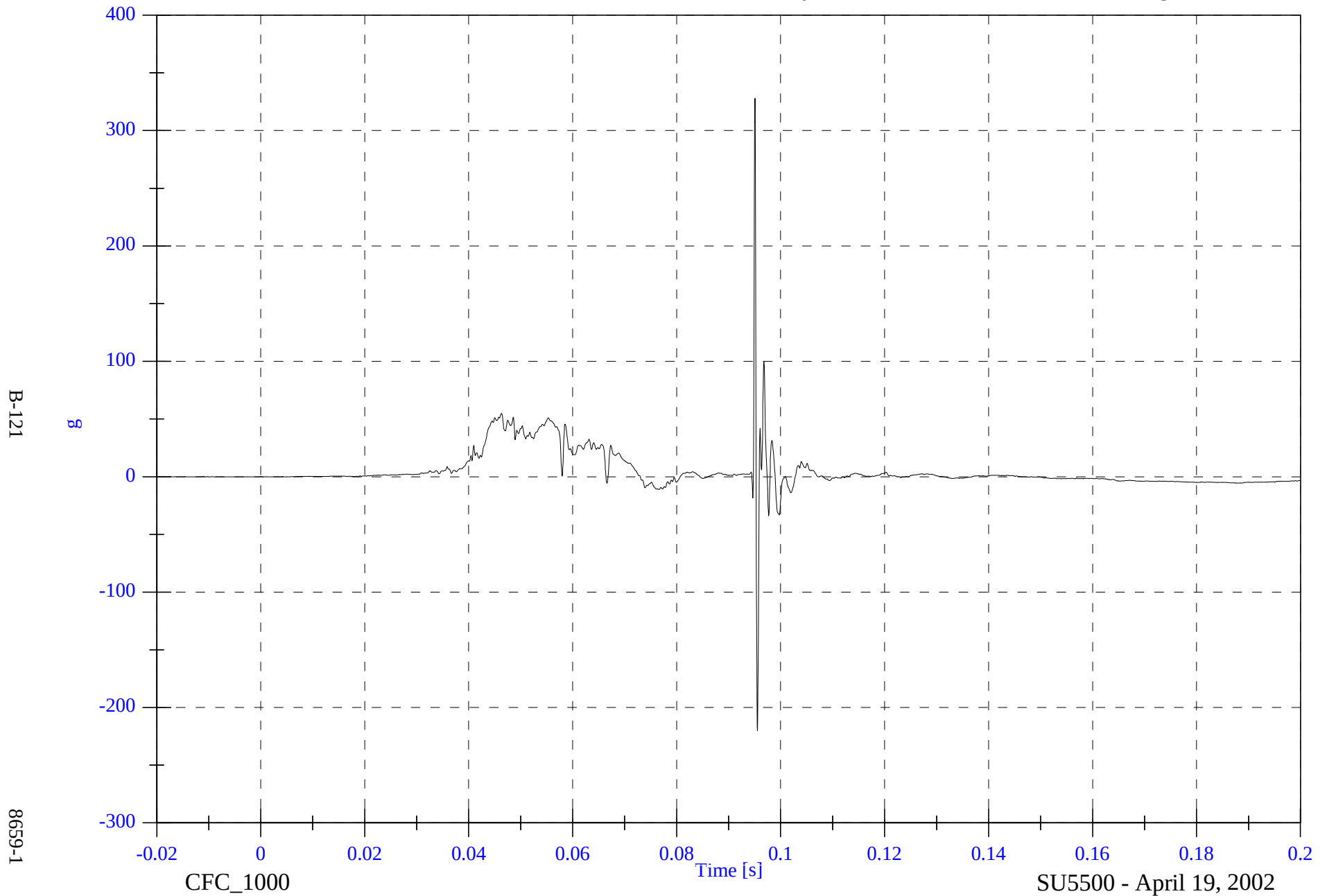
SU5500 - April 19, 2002

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Lower Rib Ry

Max: 328.0 [g] at 0.095 [s]

Min: -220.2 [g] at 0.096 [s]

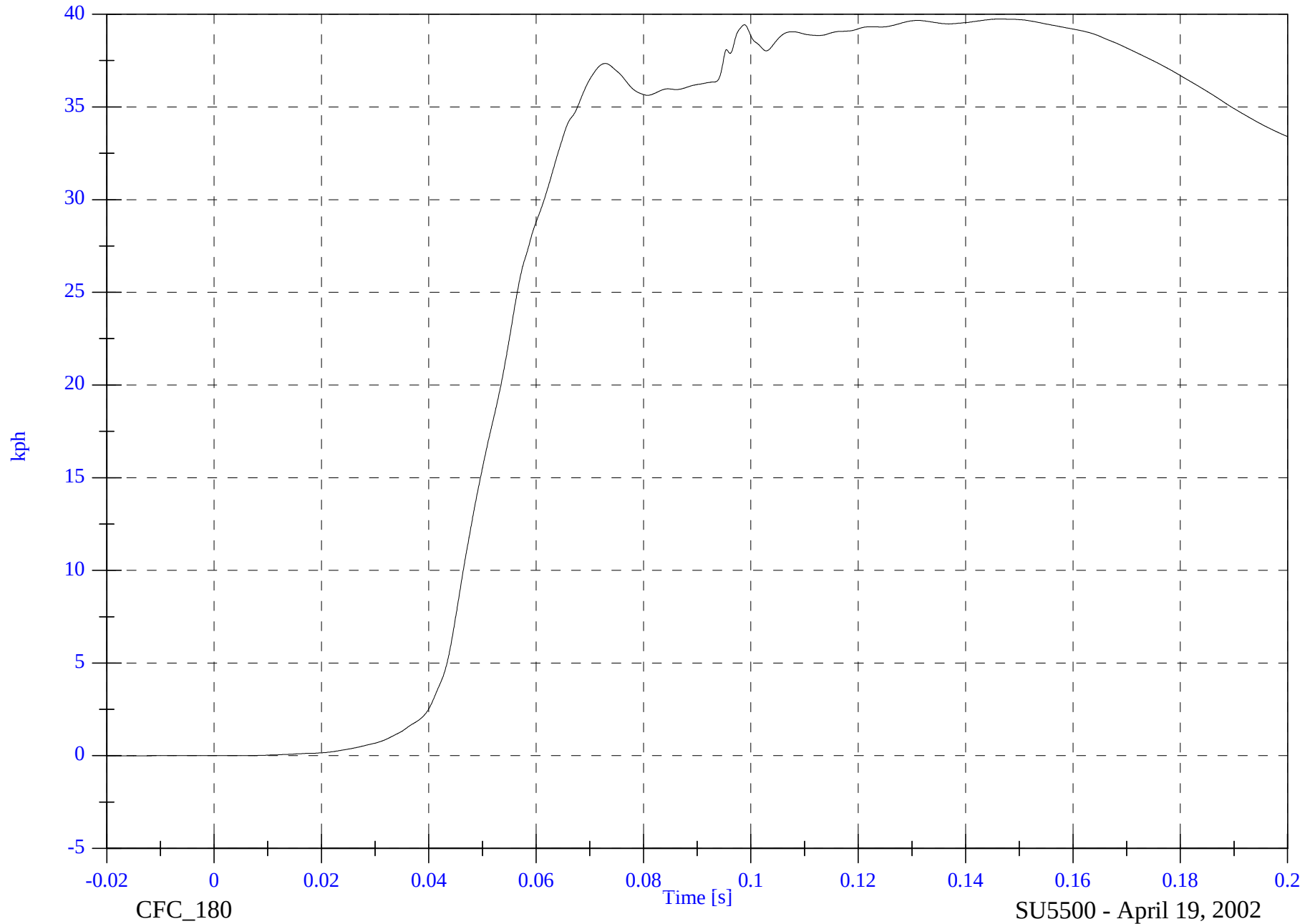


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Lower Rib Ry Velocity

Max: 39.7 [kph] at 0.146 [s]

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



B-122

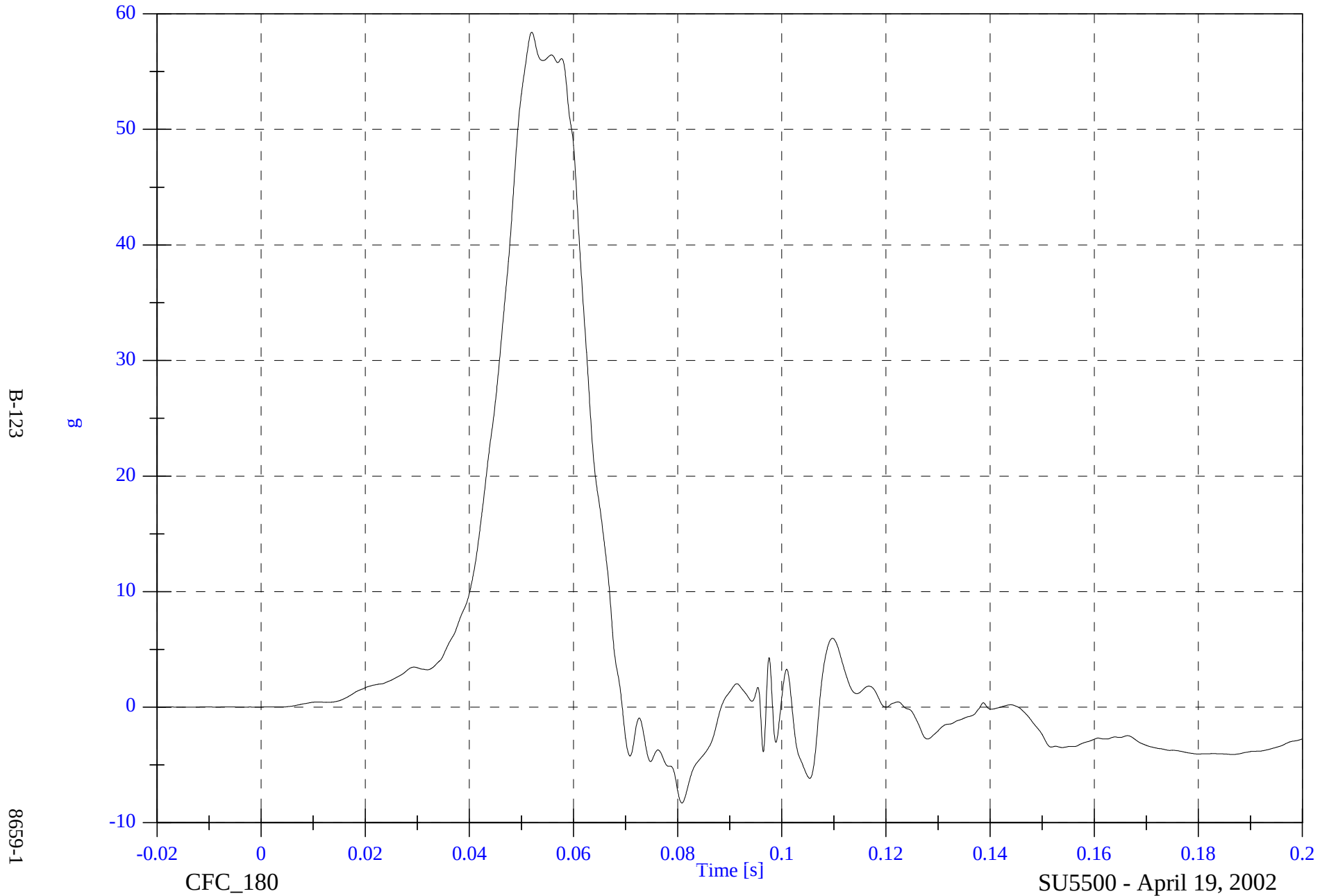
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Lower Spine Ry

Max: 58.4 [g] at 0.052 [s]

Min: -8.3 [g] at 0.081 [s]

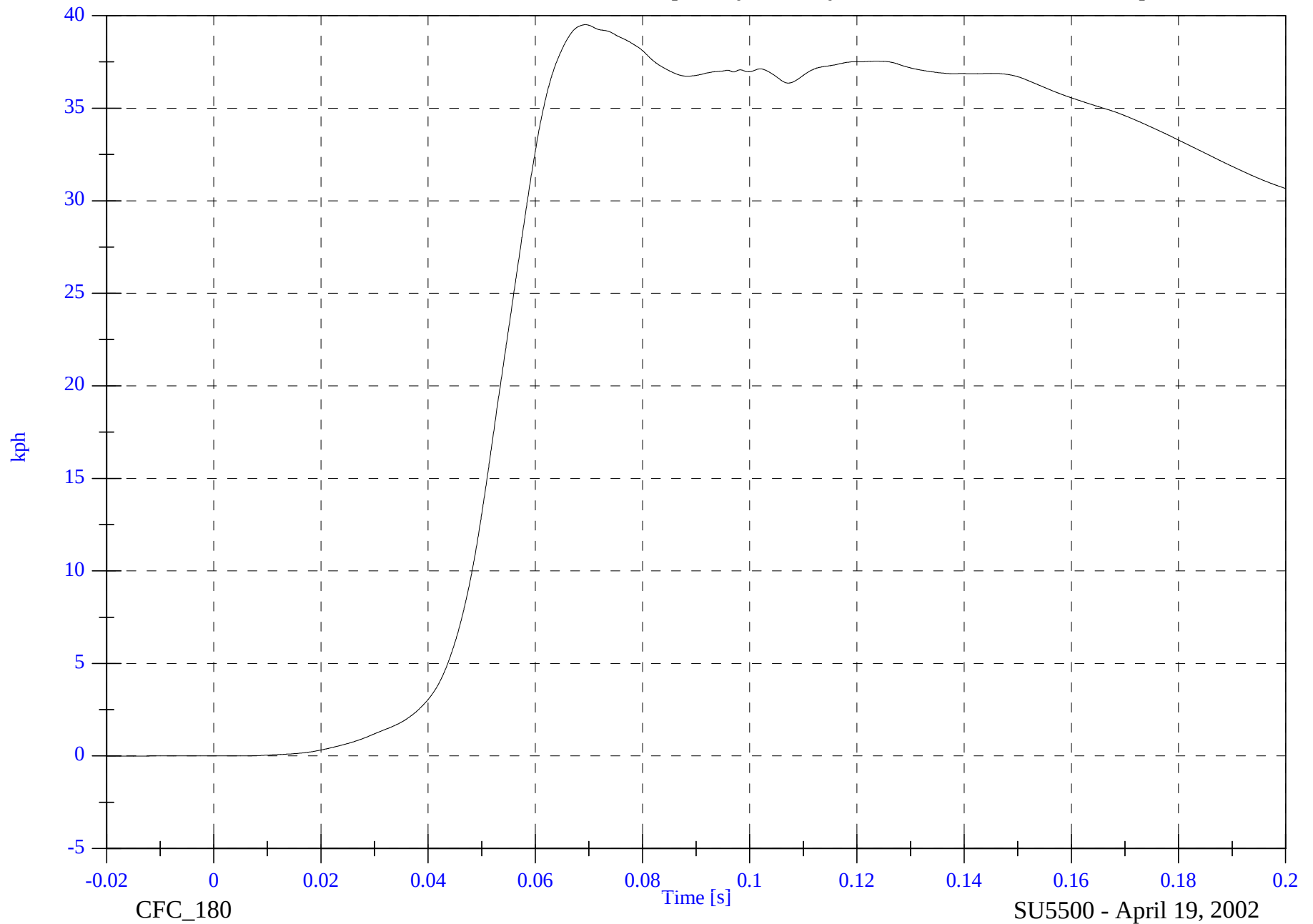


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Lower Spine Ry Velocity

Max: 39.5 [kph] at 0.069 [s]

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



B-124

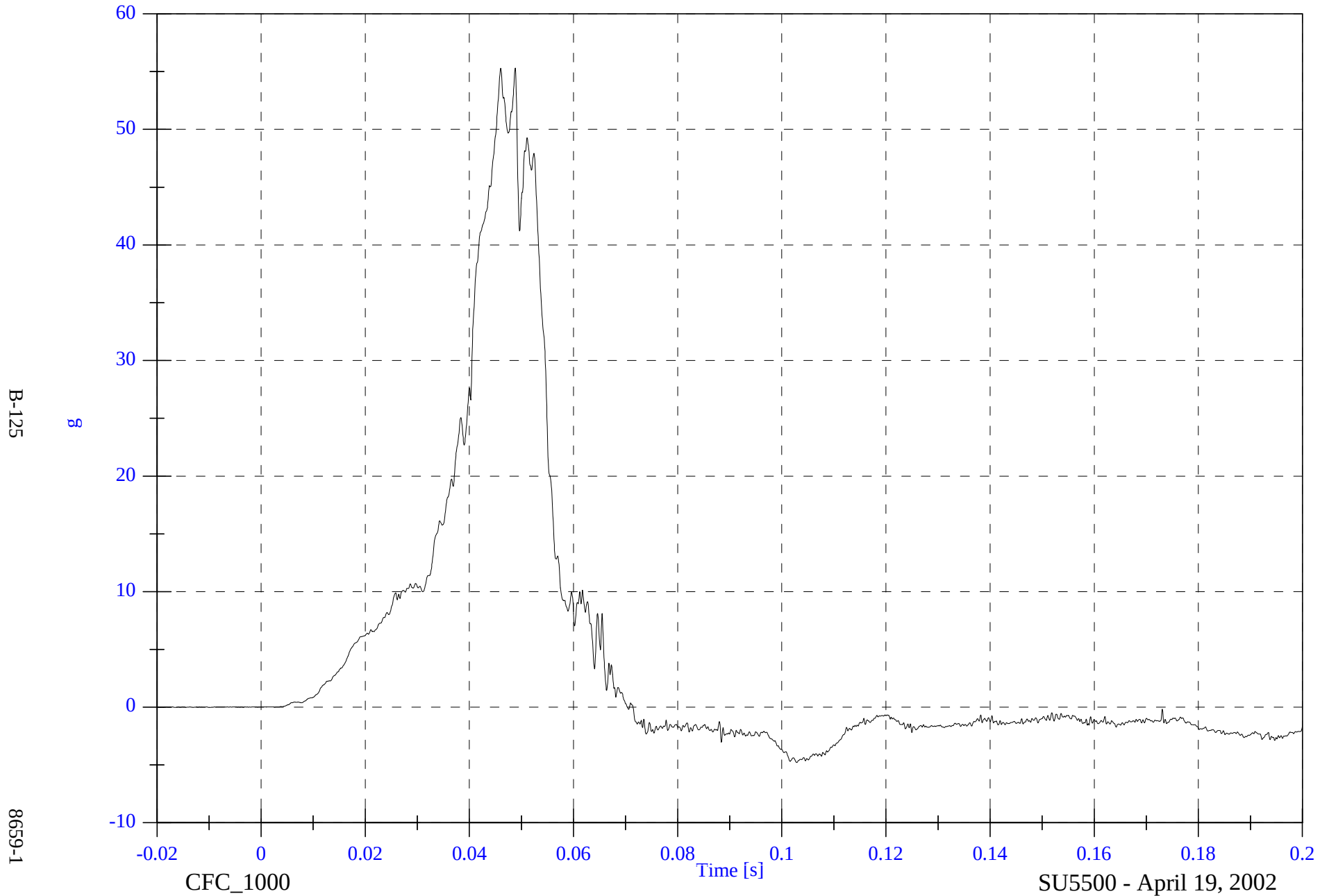
8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Pelvic Ry

Max: 55.3 [g] at 0.049 [s]

Min: -4.8 [g] at 0.103 [s]

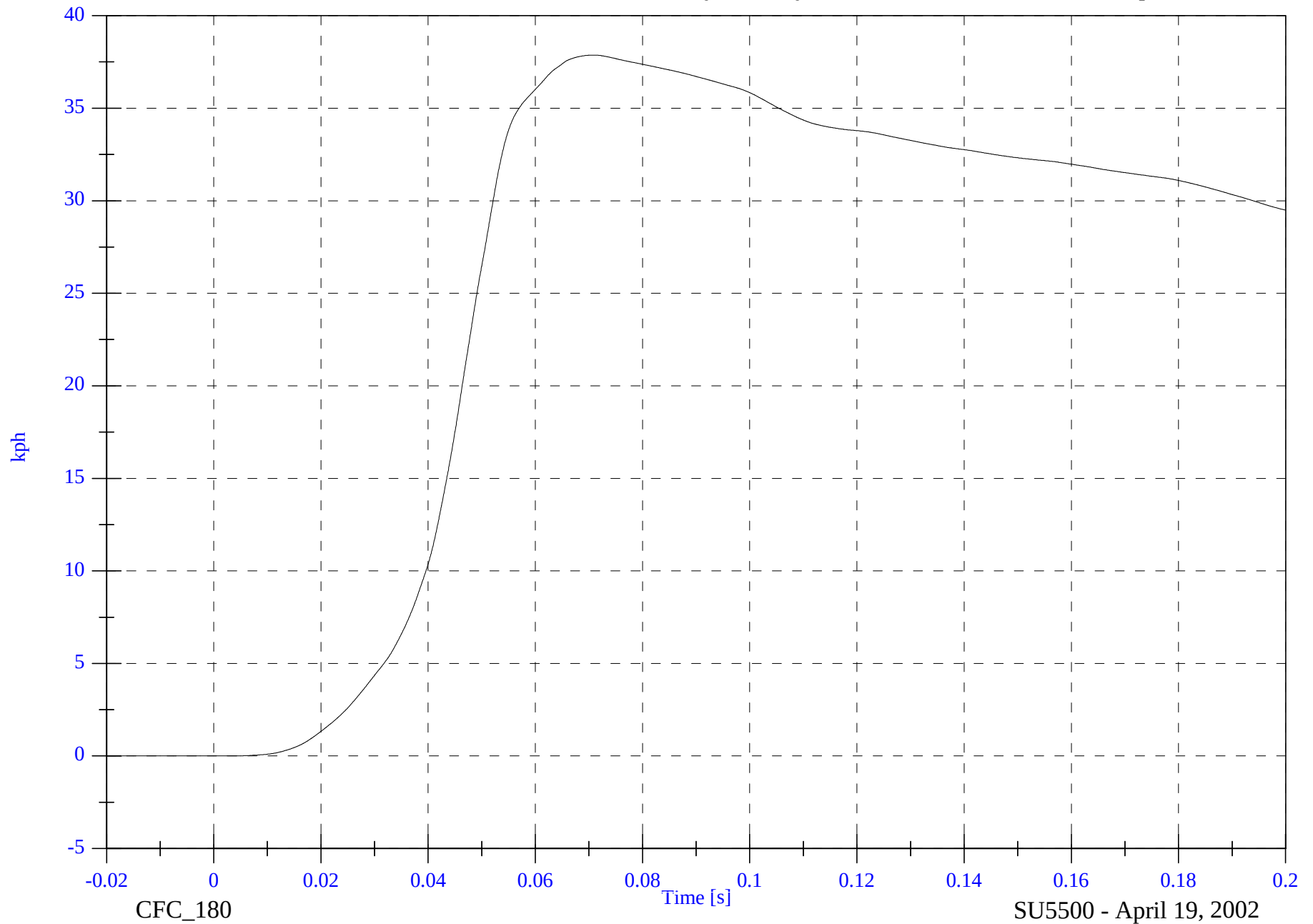


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Pelvic Ry Velocity

Max: 37.9 [kph] at 0.071 [s]

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

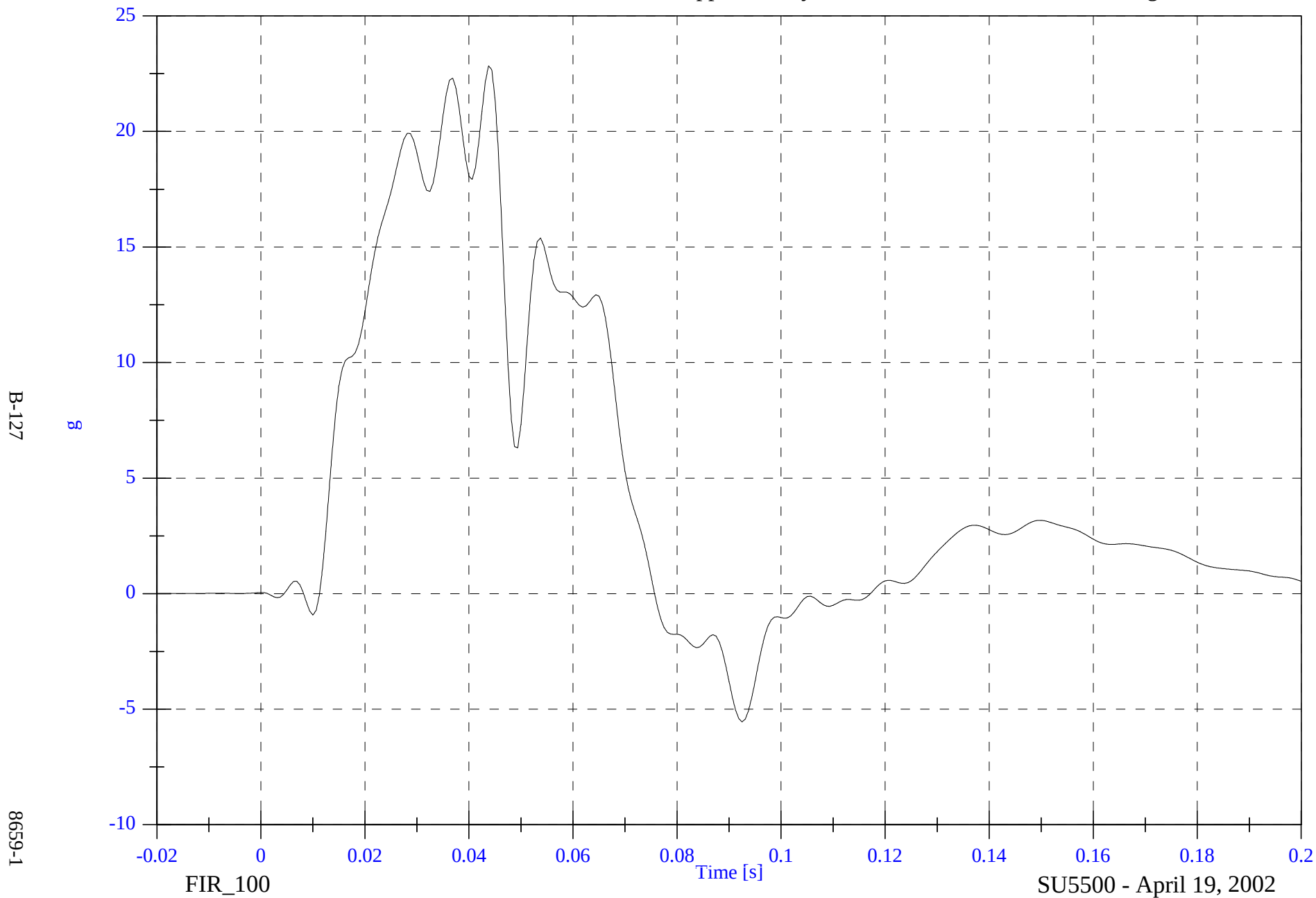


B-126

8659-1

2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback
P1 Upper Rib Ry

Max: 22.8 [g] at 0.044 [s]
Min: -5.5 [g] at 0.093 [s]

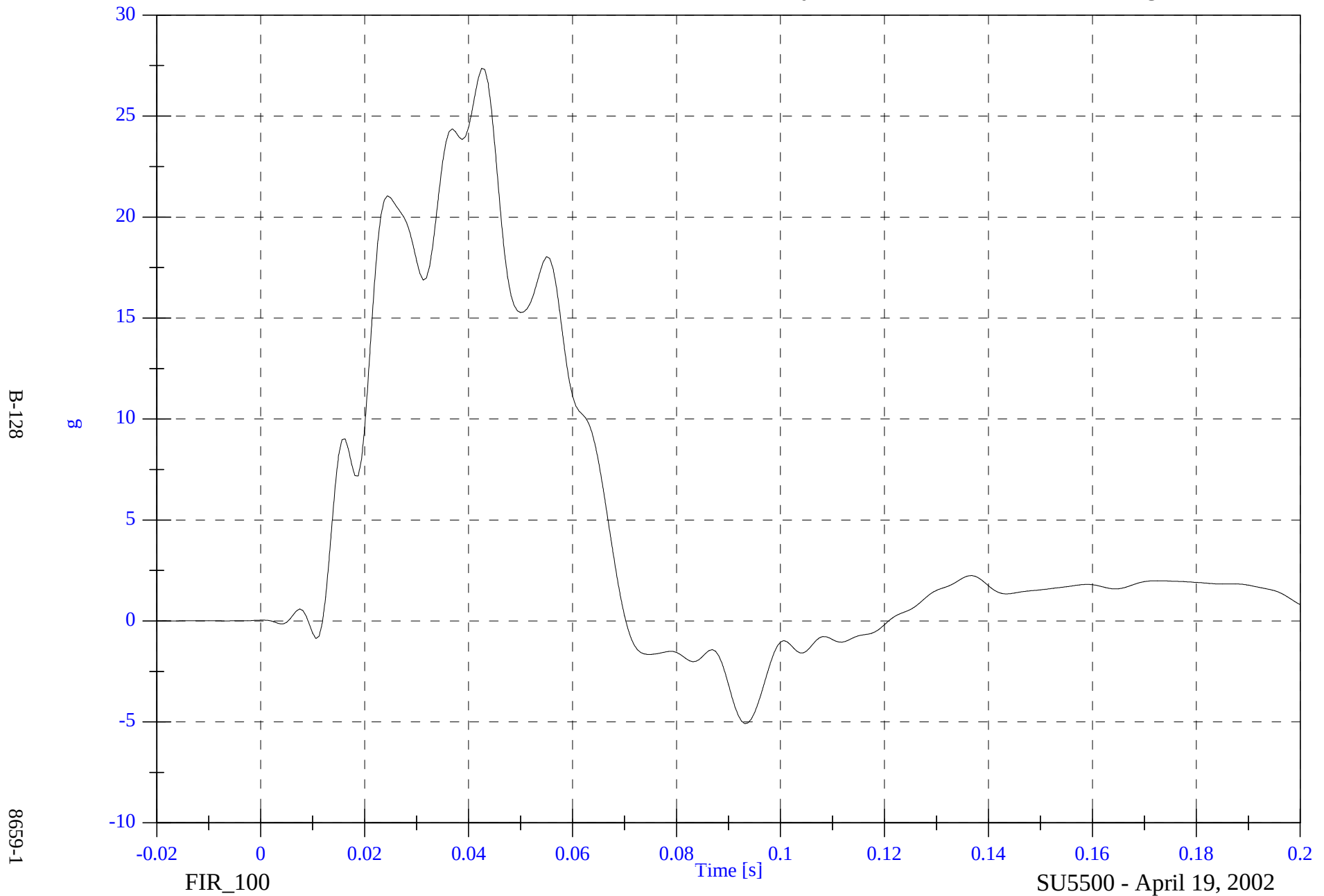


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Lower Rib Ry

Max: 27.4 [g] at 0.043 [s]

Min: -5.1 [g] at 0.093 [s]



2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

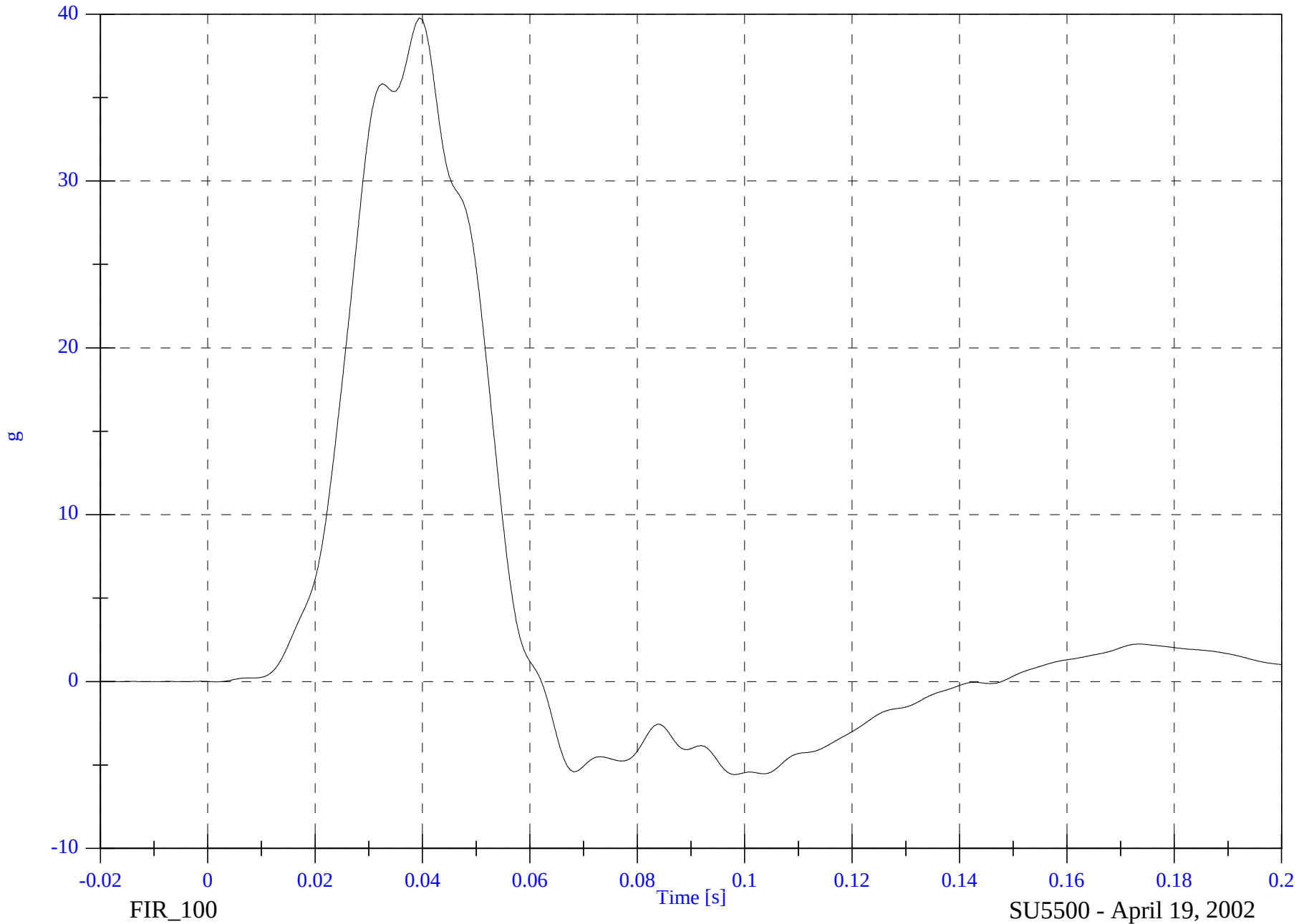
P1 Lower Spine Ry

Max: 39.8 [g] at 0.039 [s]

Min: -5.6 [g] at 0.098 [s]

B-129

8659-1

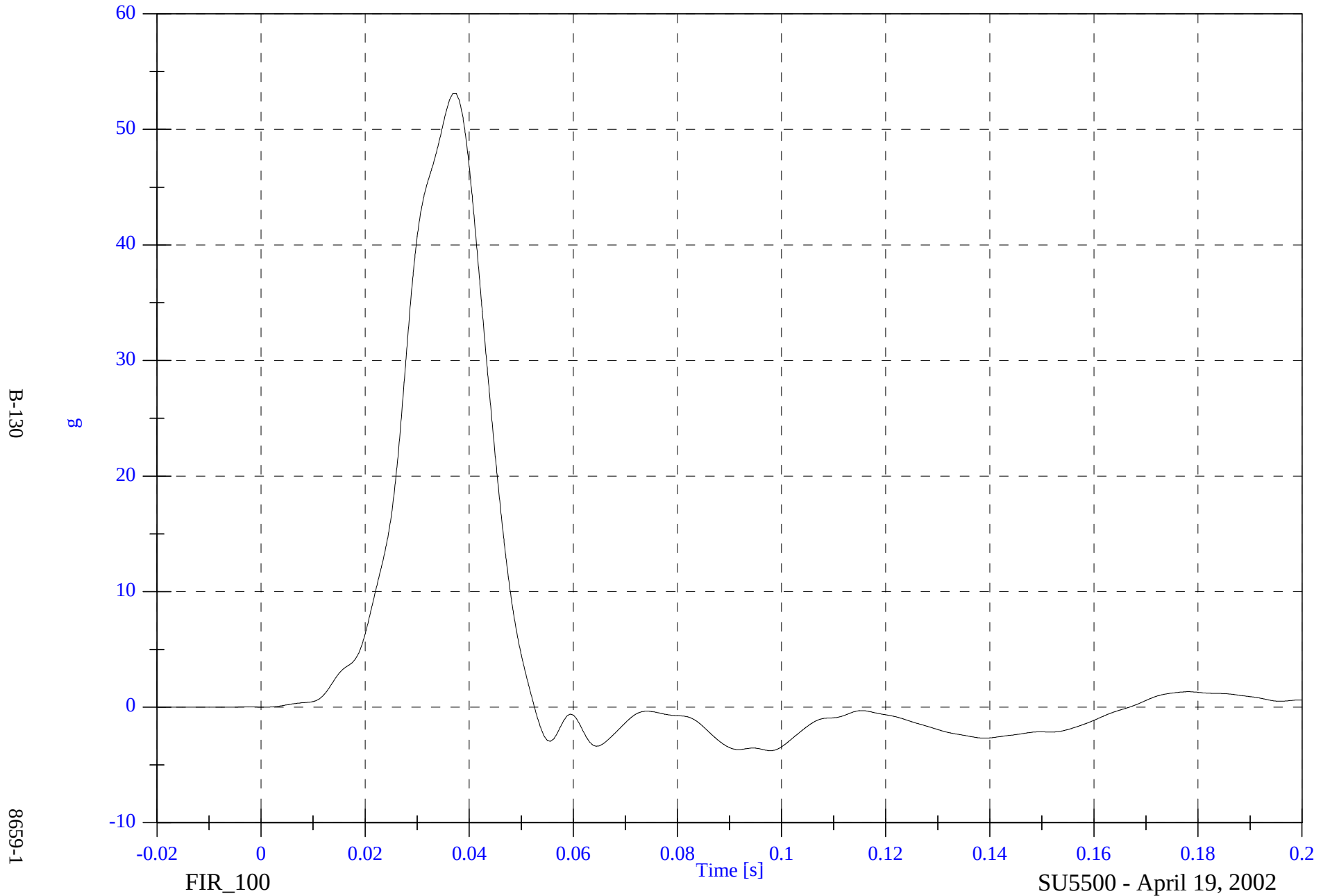


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P1 Pelvic Ry

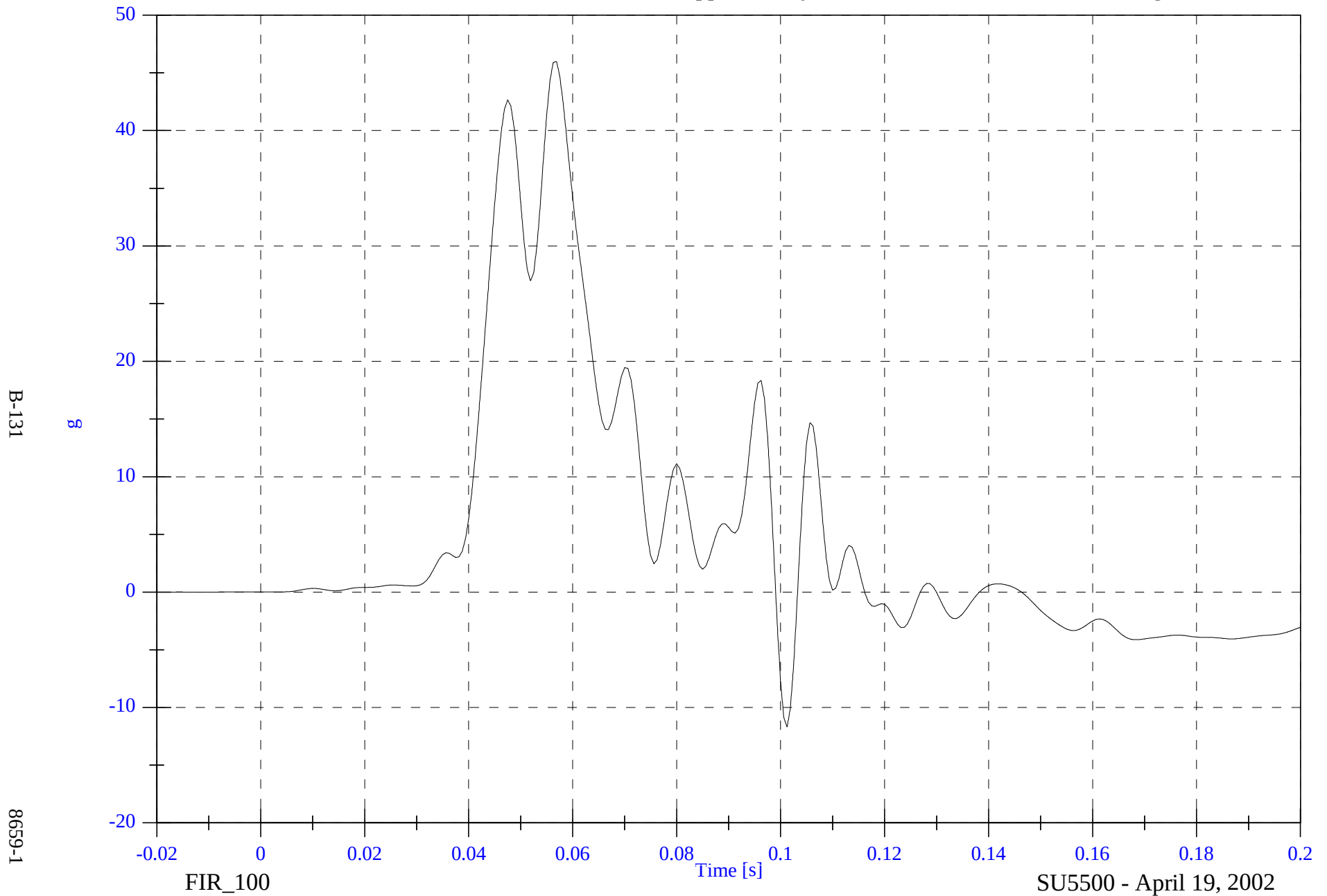
Max: 53.1 [g] at 0.037 [s]

Min: -3.8 [g] at 0.098 [s]



2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback
P4 Upper Rib Ry

Max: 46.0 [g] at 0.057 [s]
Min: -11.7 [g] at 0.101 [s]

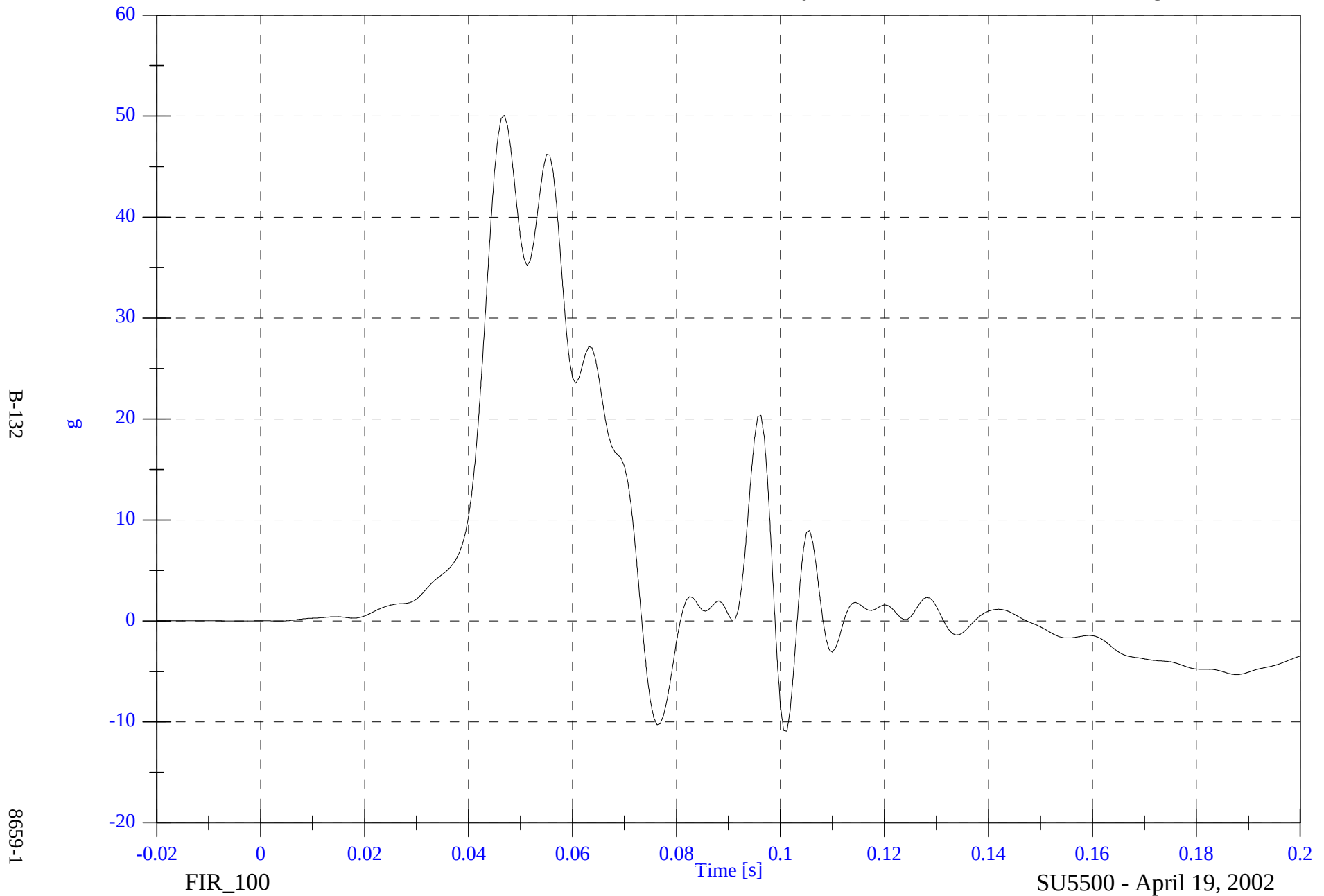


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Lower Rib Ry

Max: 50.1 [g] at 0.047 [s]

Min: -10.9 [g] at 0.101 [s]

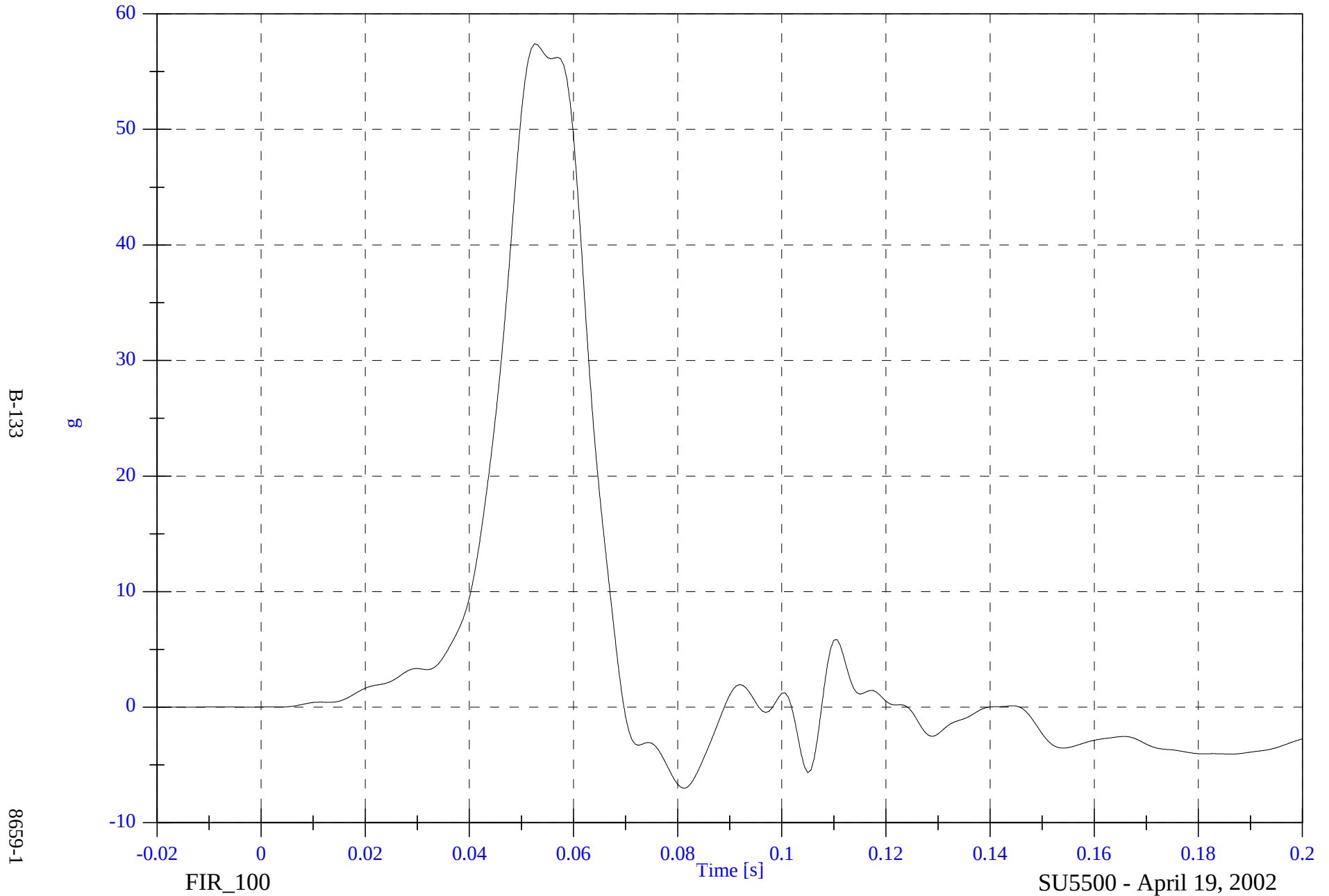


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Lower Spine Ry

Max: 57.4 [g] at 0.053 [s]

Min: -7.0 [g] at 0.081 [s]

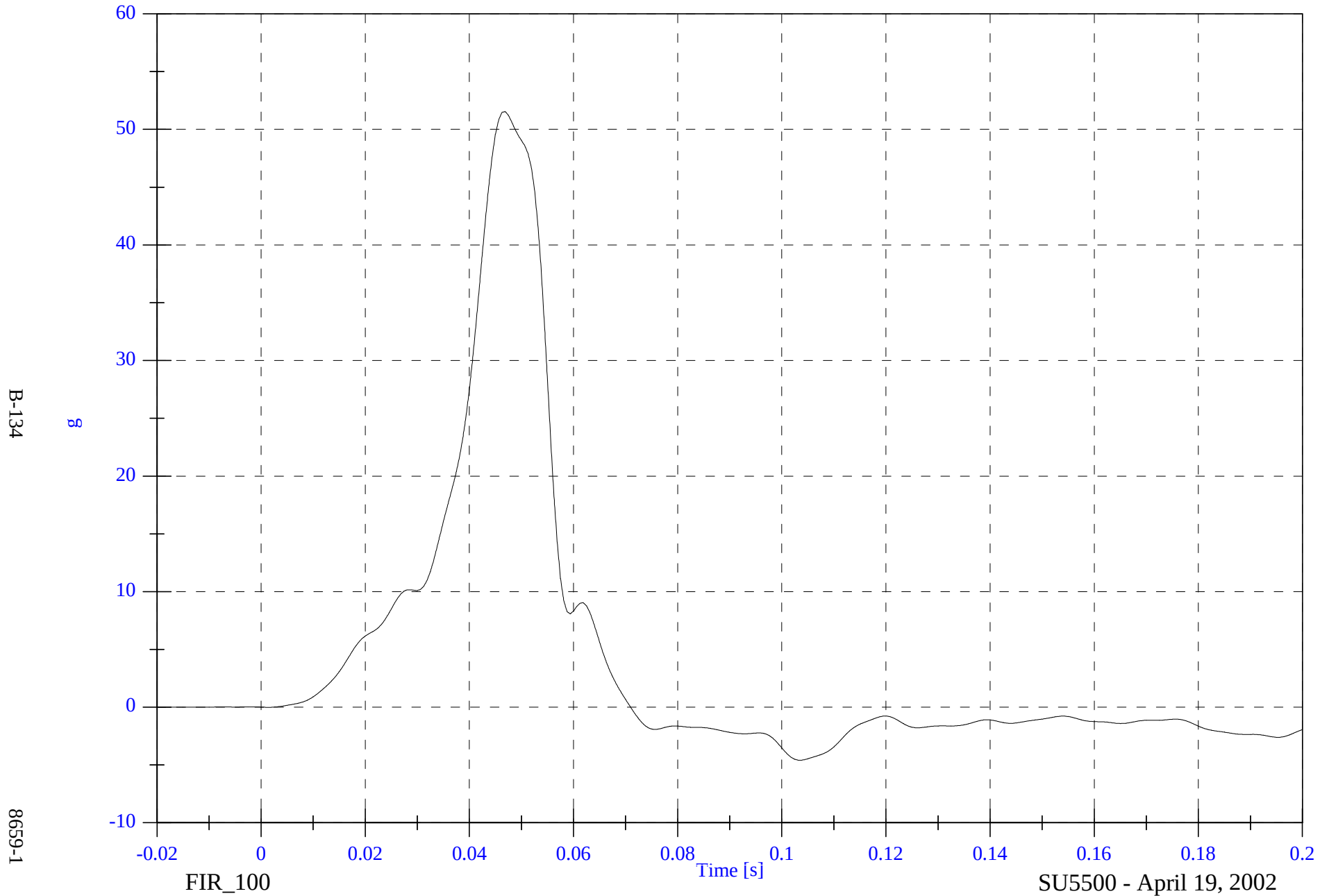


2002 SNCAP Optional Test 1 - 2002 Subaru Legacy Outback

P4 Pelvic Ry

Max: 51.5 [g] at 0.047 [s]

Min: -4.6 [g] at 0.104 [s]



APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

SUMMARY
SID PRE & POST TEST CALIBRATION

CONFIGURED FOR LEFT SIDE IMPACT

Date: April 17, 2002; June 13, 2002

Sequential Test Number:

1,5; 2,1

Laboratory Technician:

B. Swiecicki

TEST PARAMETER	SPECIFICATION	SID NO.: 013		SID NO.: 016	
		PRE TEST	POST TEST	PRE TEST	POST TEST
SH- Seated Height (mm)	889 - 909	902	899	902	902
RH- Rib Height (mm)	501 - 521	511	508	513	511
HP- Hip Pivot Height (mm)	99 ref.	99	99	99	99
RD- Rib from Back Line (mm)	229 - 241	236	236	239	239
KV- Knee Pivot from Back Line (mm)	511 - 526	518	518	526	526
SW- Knee Pivot to Floor (mm)	490 - 505	493	493	495	495
HW- Hip Width (mm)	356 - 391	378	378	366	368
THORAX IMPACTS					
TEMPERATURE (EC)	18.9 - 25.5	23.3	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 -70	51	41	29	40
PROBE SPEED (m/s)	4.27 - 4.33	4.29	4.3	4.32	4.32
UPPER RIB (g's)	37 - 46	42.74	43.39	40.6	40.8
LOWER RIB (g's)	37 - 46	45.36	45.83	40.27	41.09
LOWER SPINE (g's)	15 -22	19.38	20.29	21.15	21.85
PELVIS IMPACT					
TEMPERATURE (EC)	18.9 - 25.5	23.7	21.1	21.1	21.1
RELATIVE HUMIDITY (%)	10 - 70	62	41	29	40
PROBE SPEED (m/s)	4.27 - 4.33	4.29	4.29	4.32	4.33
PELVIS (g's)	40 -60	40.62	48.83	49.29	42.2

REMARKS: None

CALIBRATION TEST RESULTS

PRE-TEST

SID NO.: 013

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 1
Date: April 17, 2002 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.
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 Serial No.: 013 Sequential Test Number: 1
Date: April 17, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 – 909	902
RH- Rib Height (mm)	502 – 520	511
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 – 241	236
KH- Knee Pivot from Back Line (mm)	511 – 526	518
KV- Knee Pivot to Floor (mm)	490 – 505	493
HW- Hip Width (mm)	356 - 391	378

REMARKS: None

**THORACIC SHOCK ABSORBER TESTS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

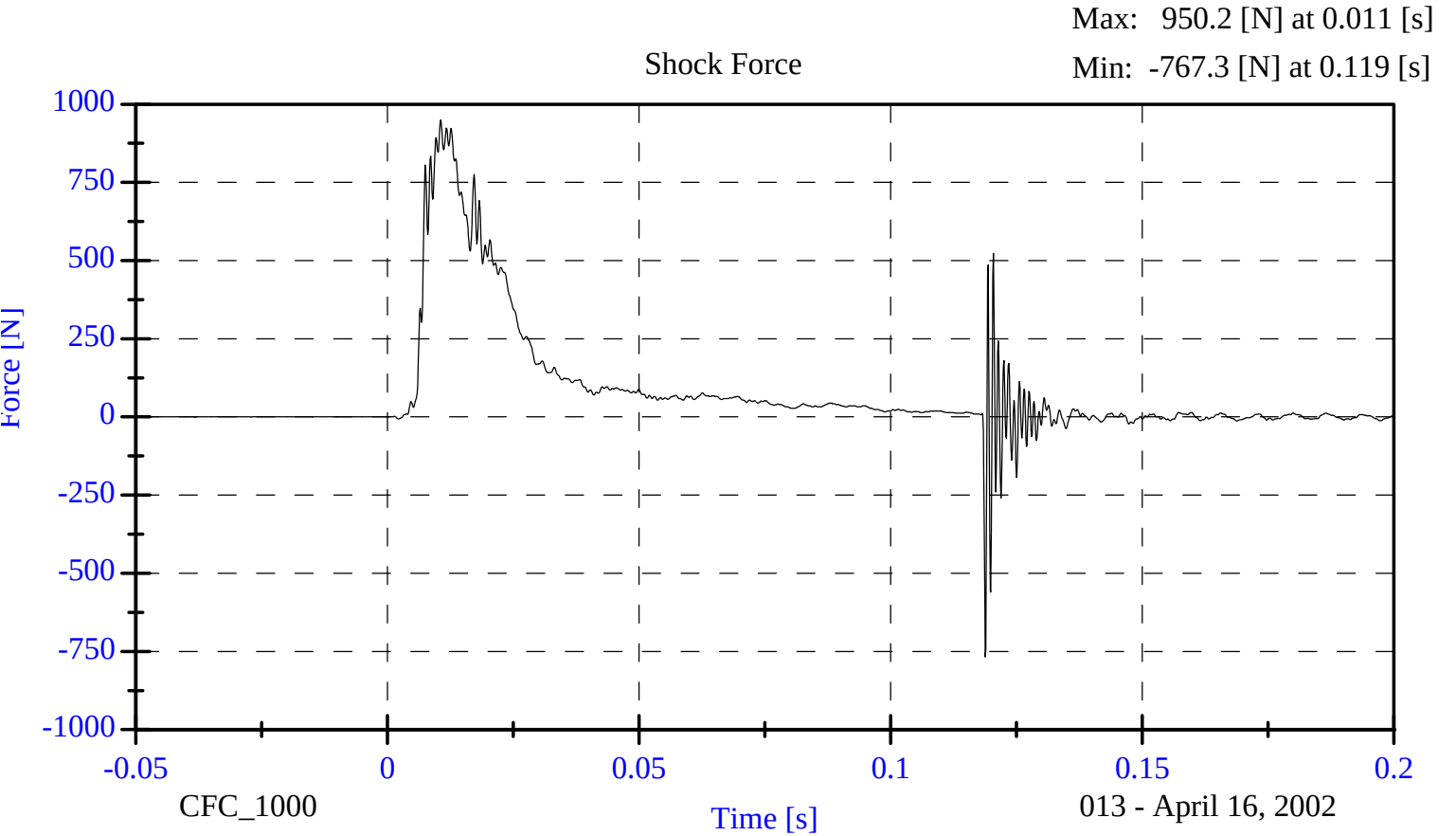
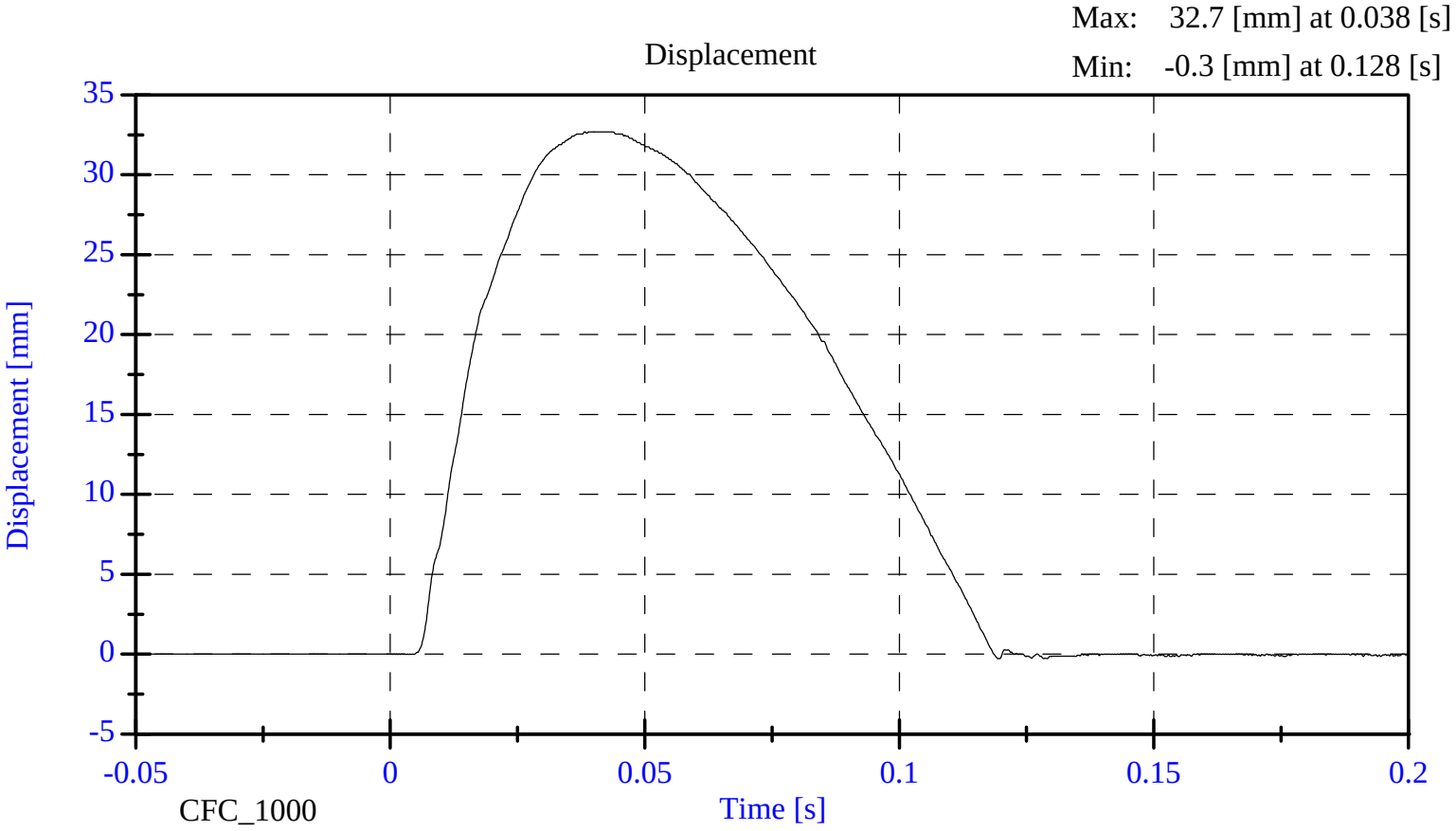
SID Serial No.: 013 Sequential Test Number: 1
 Date: April 16, 2002 Laboratory Technician: B. Swiecicki

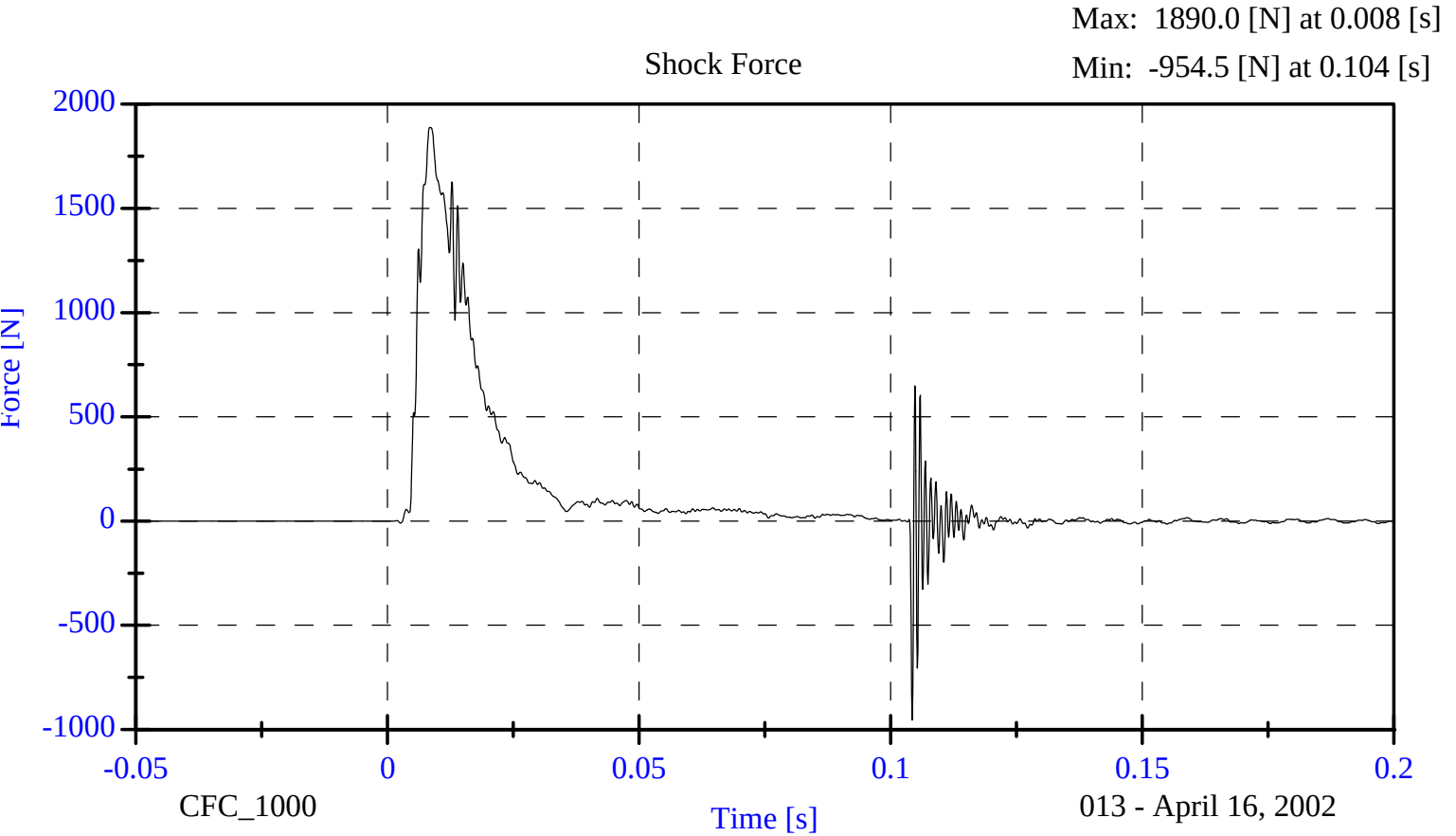
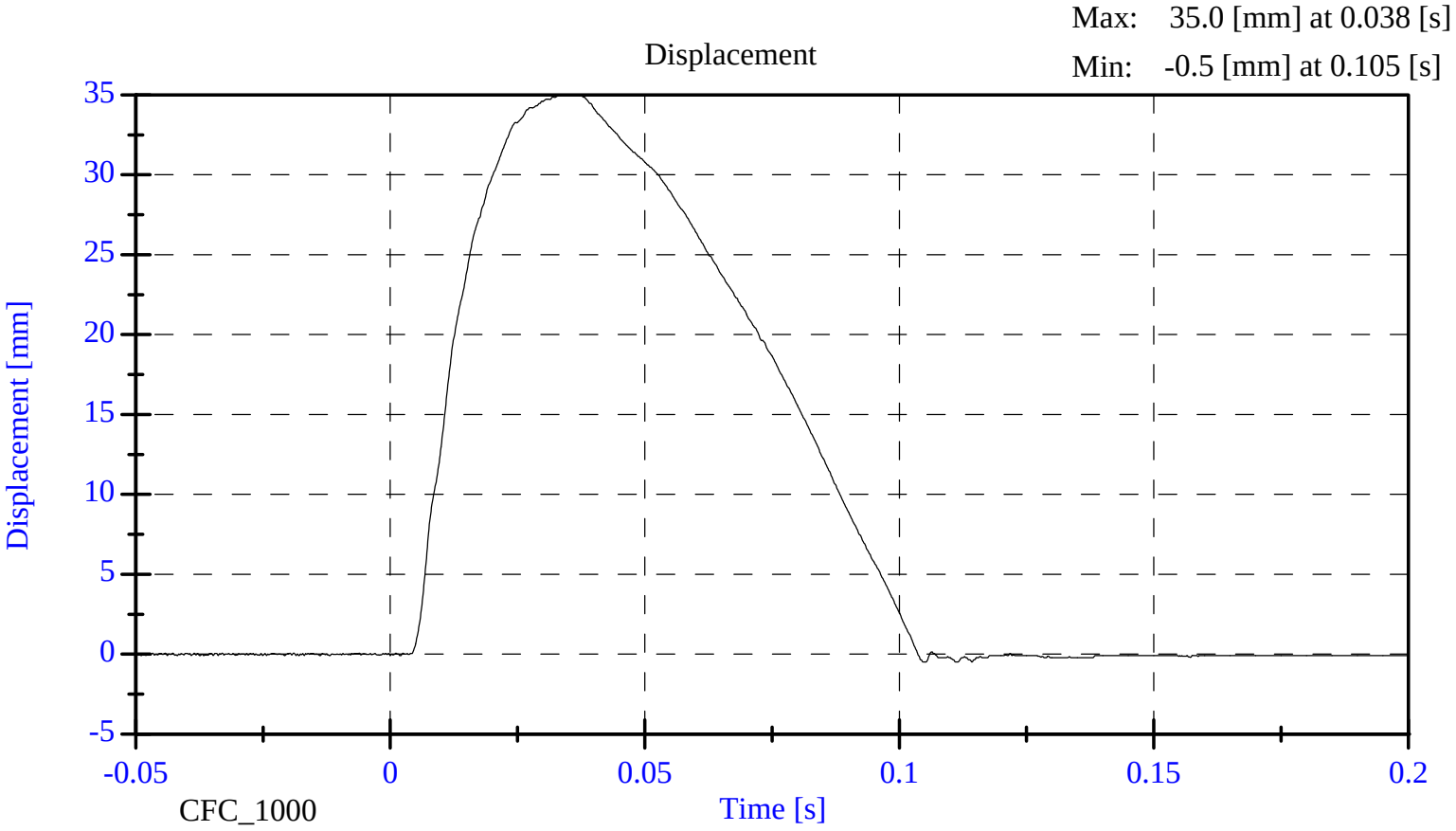
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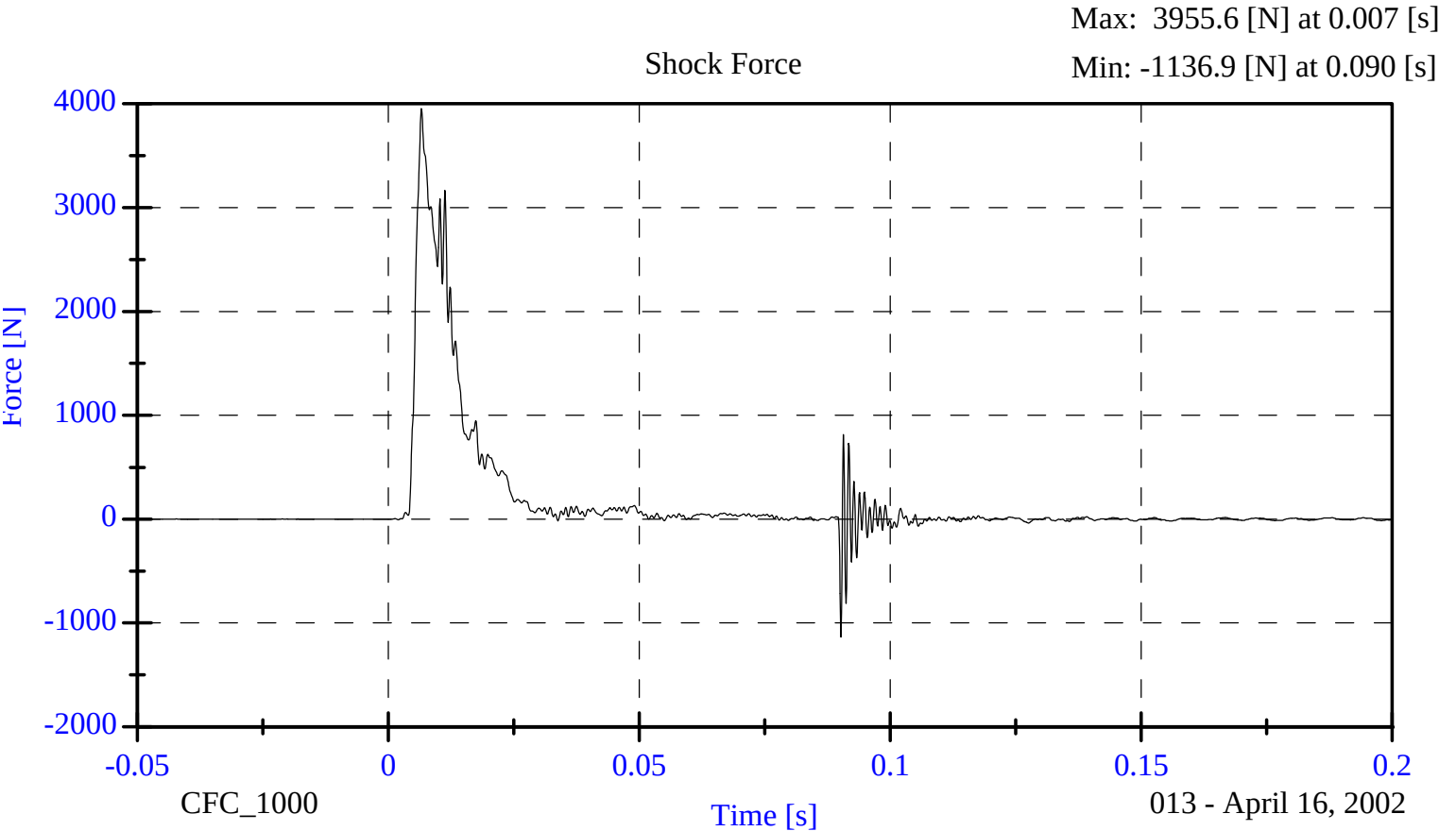
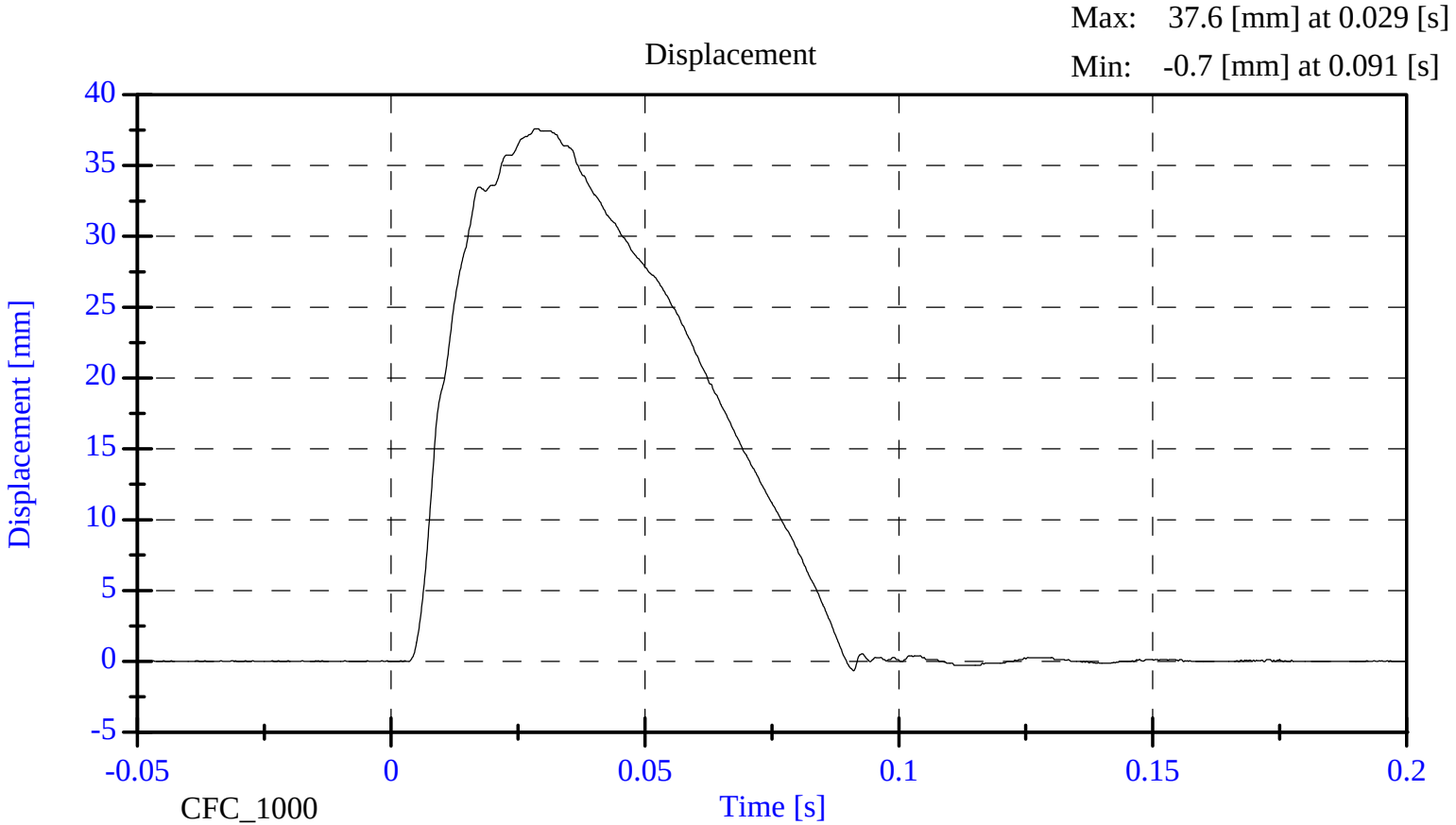
TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)		18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)		10 - 70	35.0
VELOCITY 3.05 m/s	FORCE (N)	836 - 1125	950.21
	DISPLACEMENT (mm)	30 - 35	32.70
VELOCITY 4.27 m/s	FORCE (N)	1730 - 2099	1889.99
	DISPLACEMENT (mm)	32 - 37	35.00
VELOCITY 6.10 m/s	FORCE (N)	3741 - 4448	3955.59
	DISPLACEMENT (mm)	33 - 40	37.58

DAMPER SETTING: 5

REMARKS: None







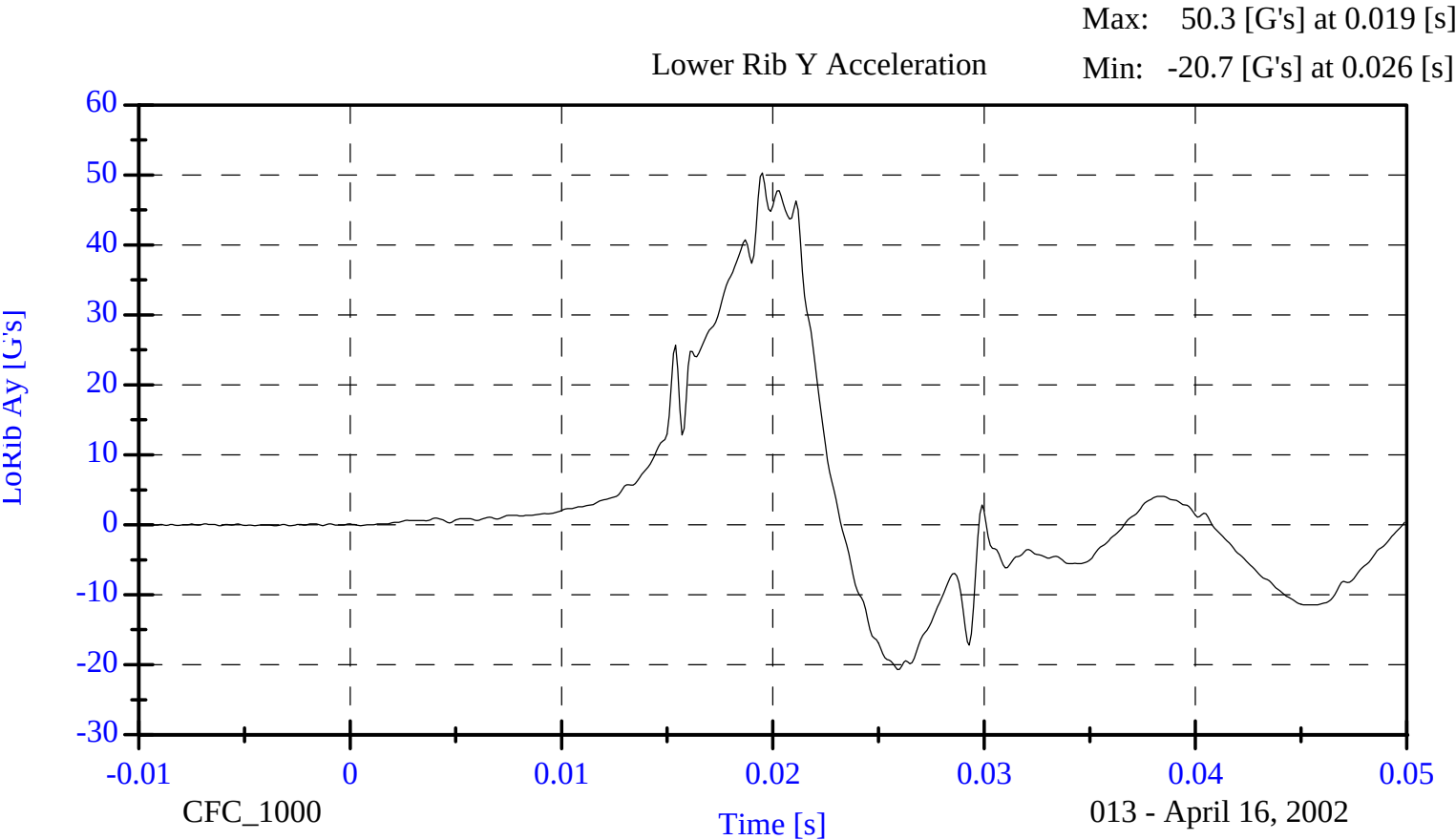
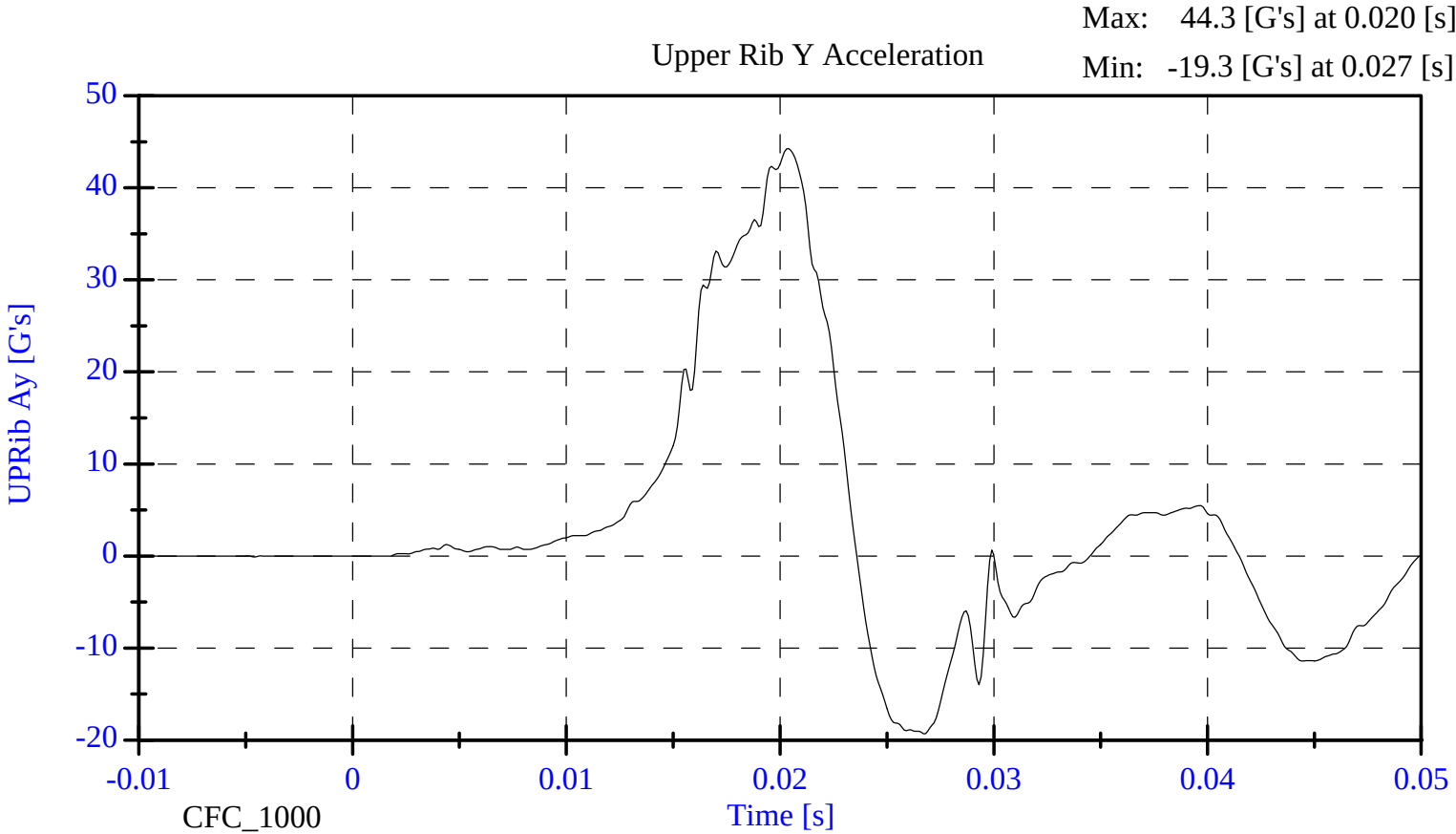
**LATERAL THORAX IMPACT TEST
PRE-TEST**

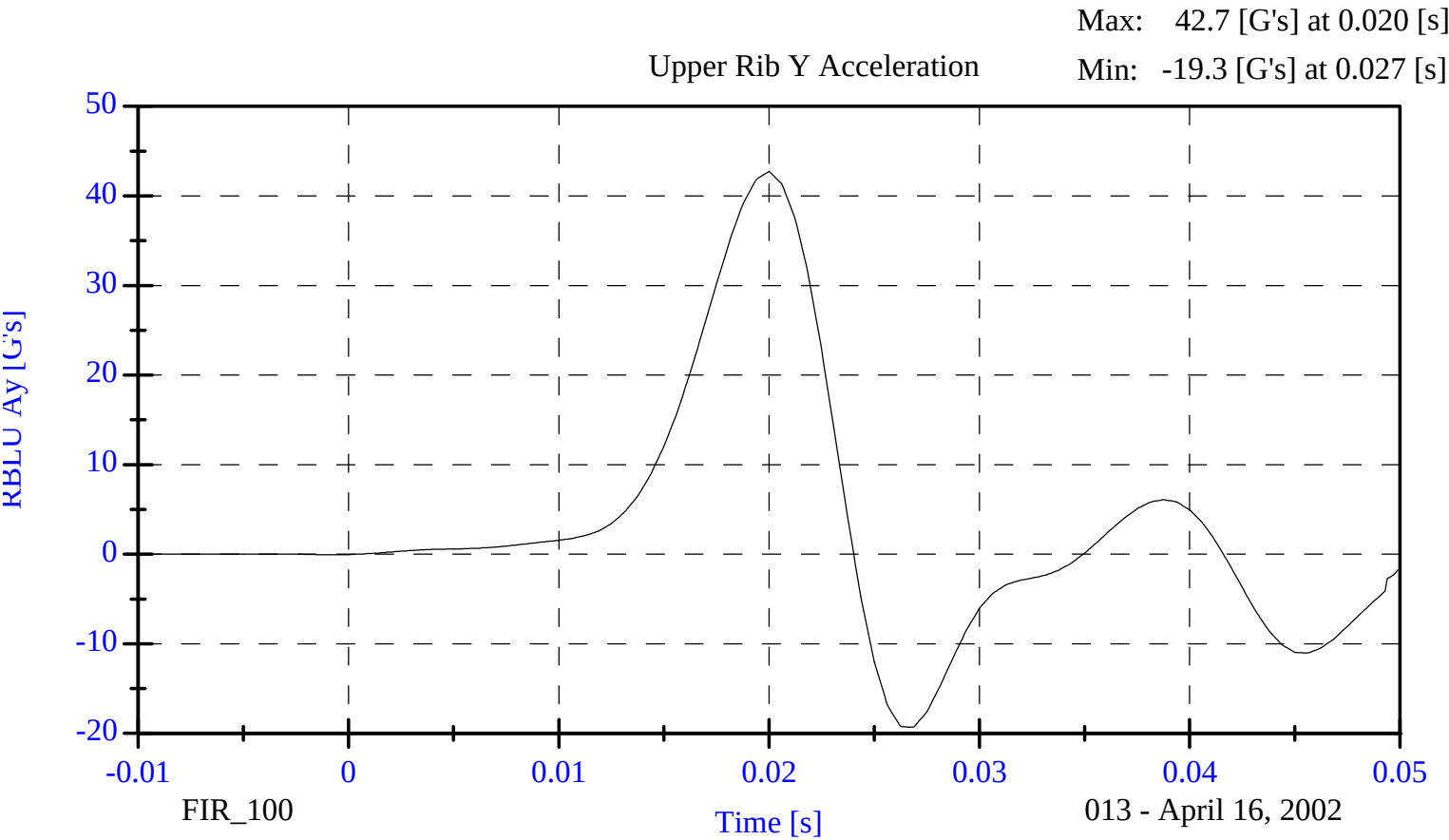
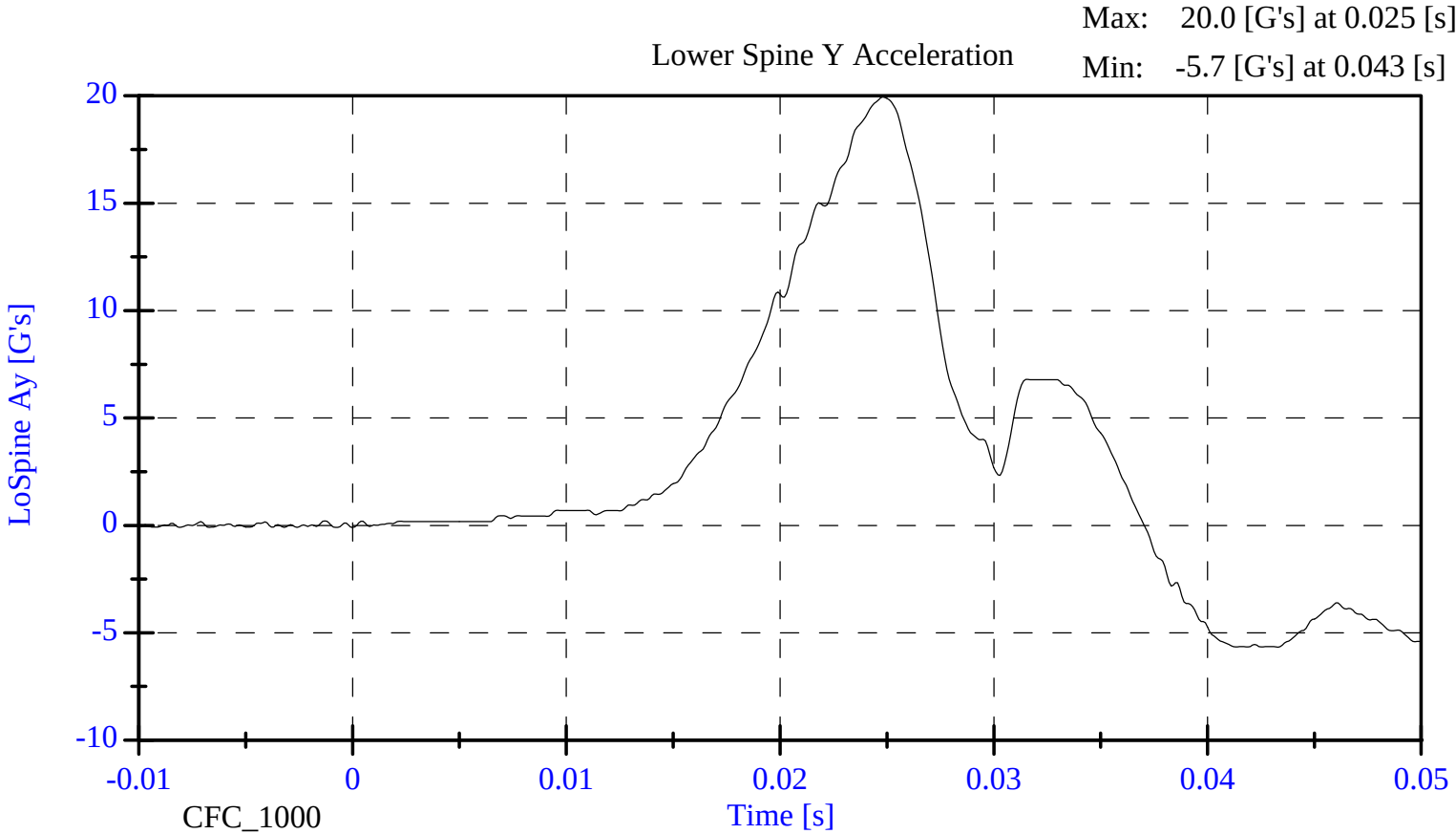
CONFIGURED FOR LEFT SIDE IMPACT

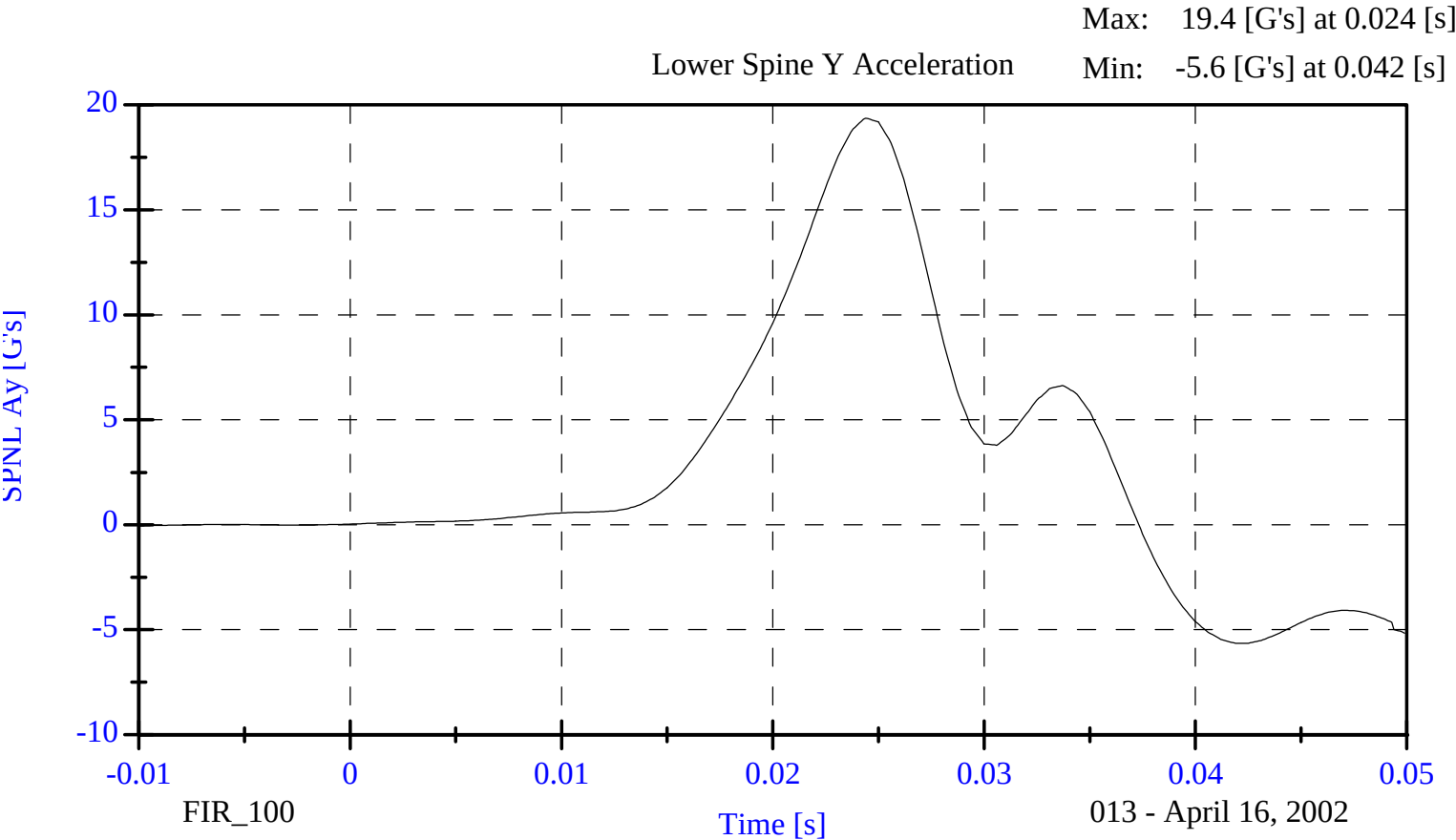
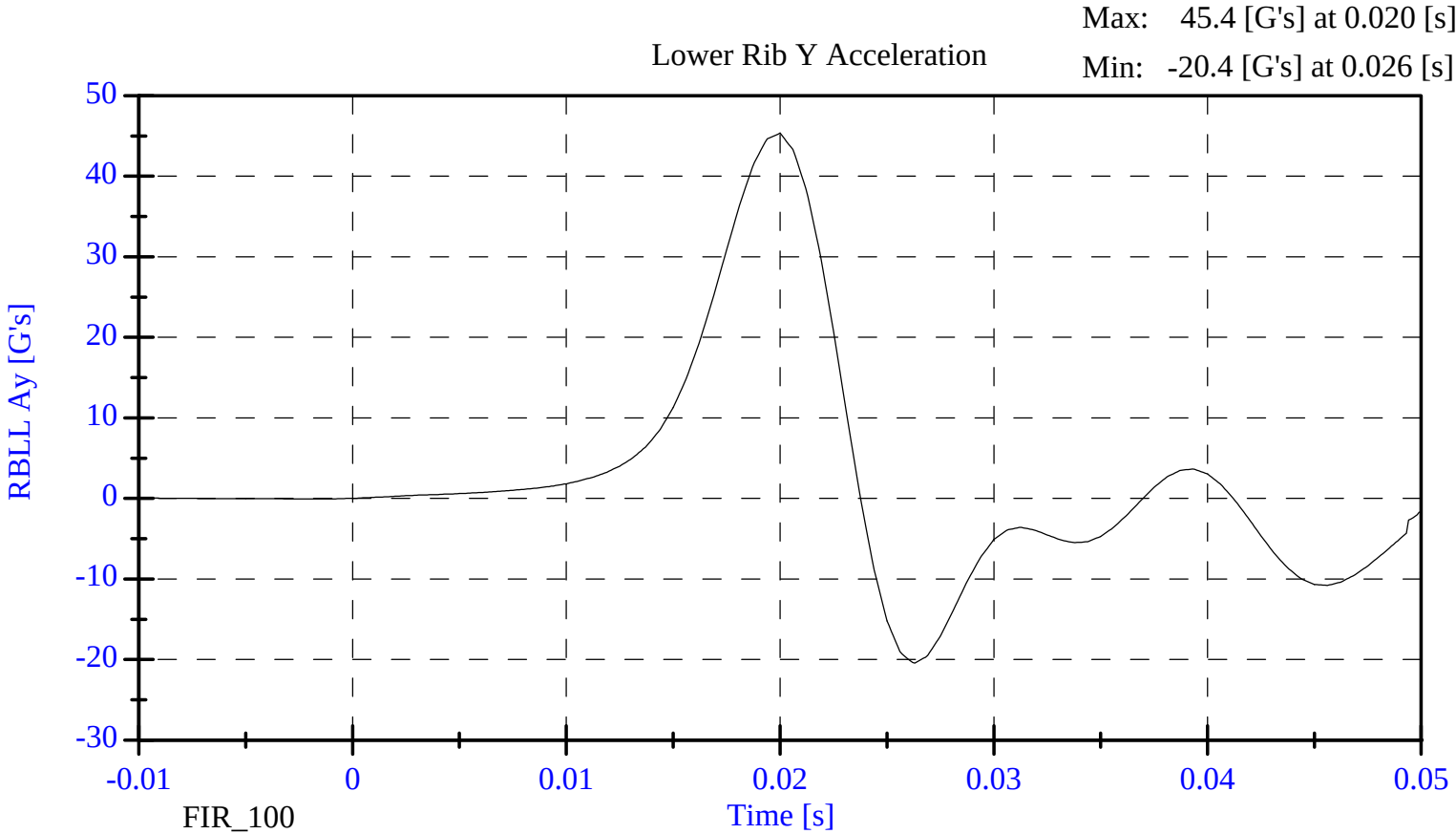
SID Serial No.: 013 Sequential Test Number: 1
Date: April 16, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	23.3
RELATIVE HUMIDITY (%)	10 - 70	51.0
PROBE SPEED (m/s)	4.27 - 4.33	4.29
UPPER RIB (g's)	37 - 46	42.74
LOWER RIB (g's)	37 - 46	45.36
LOWER SPINE (g's)	15 - 22	19.38

REMARKS: None







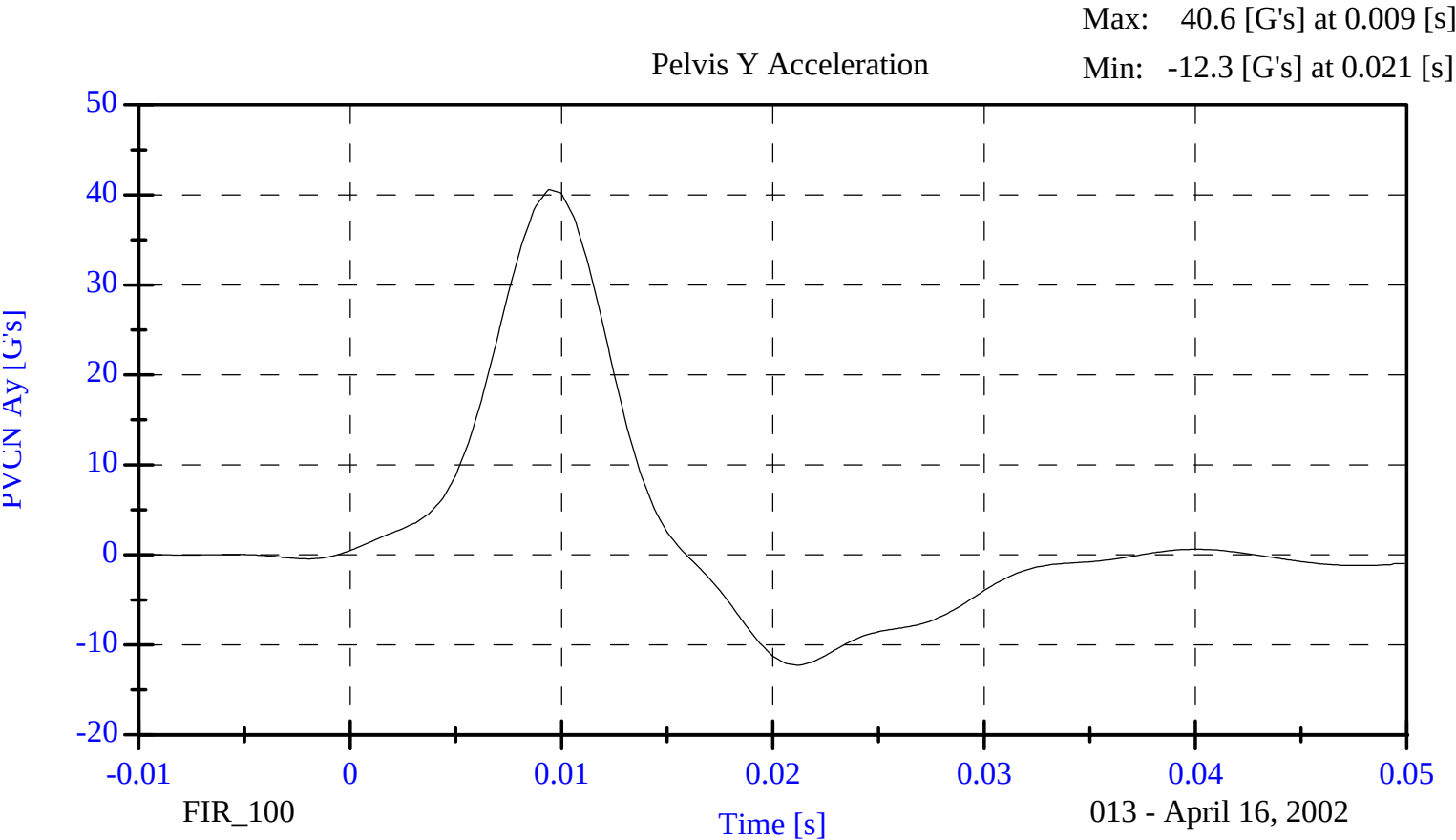
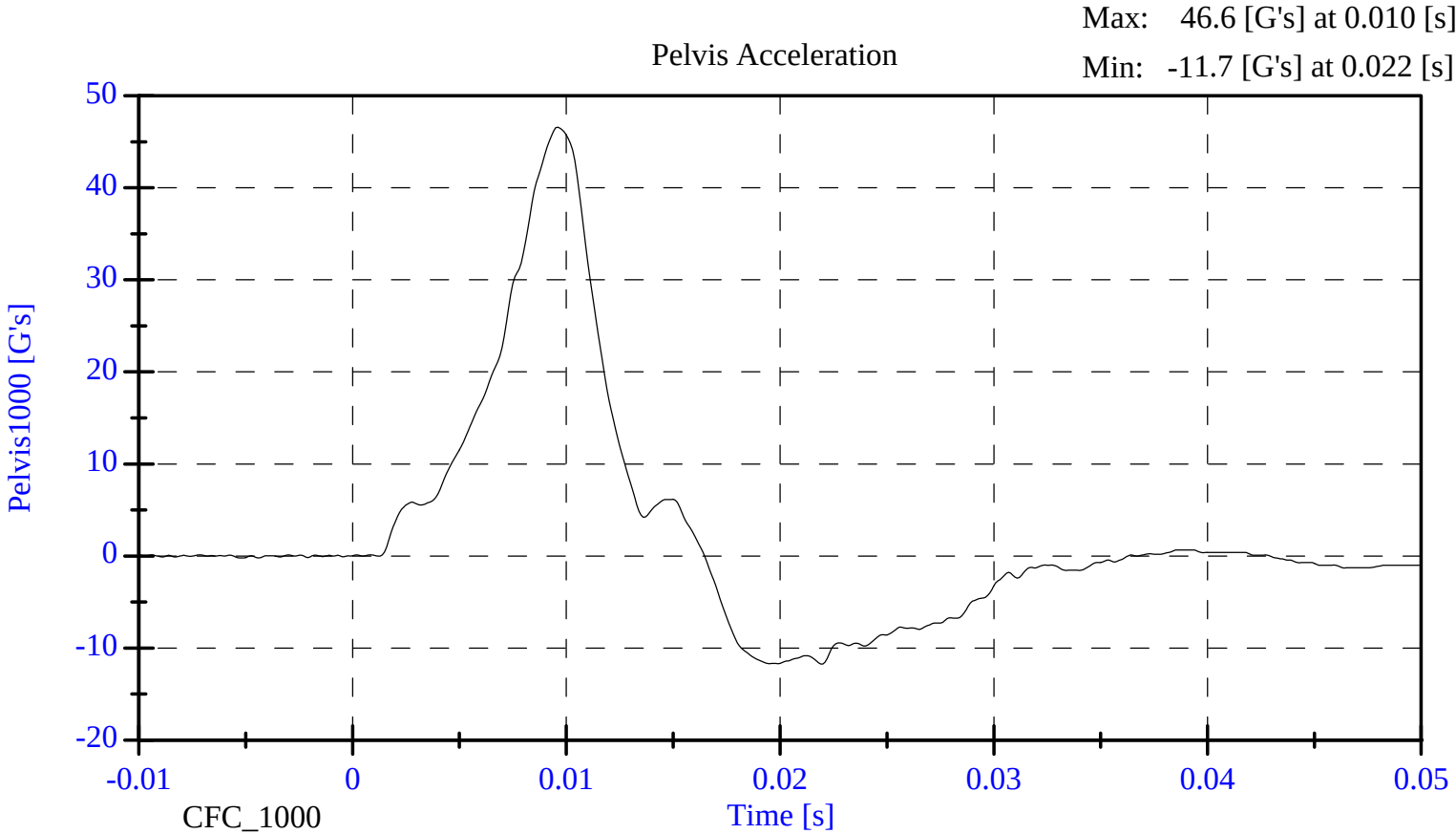
**LATERAL PELVIS IMPACT TEST
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 1
Date: April 16, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	23.7
RELATIVE HUMIDITY (%)	10 - 70	62.0
PROBE SPEED (m/s)	4.27 - 4.33	4.29
PELVIS ACCELERATION (g's)	40 - 60	40.62

REMARKS: None



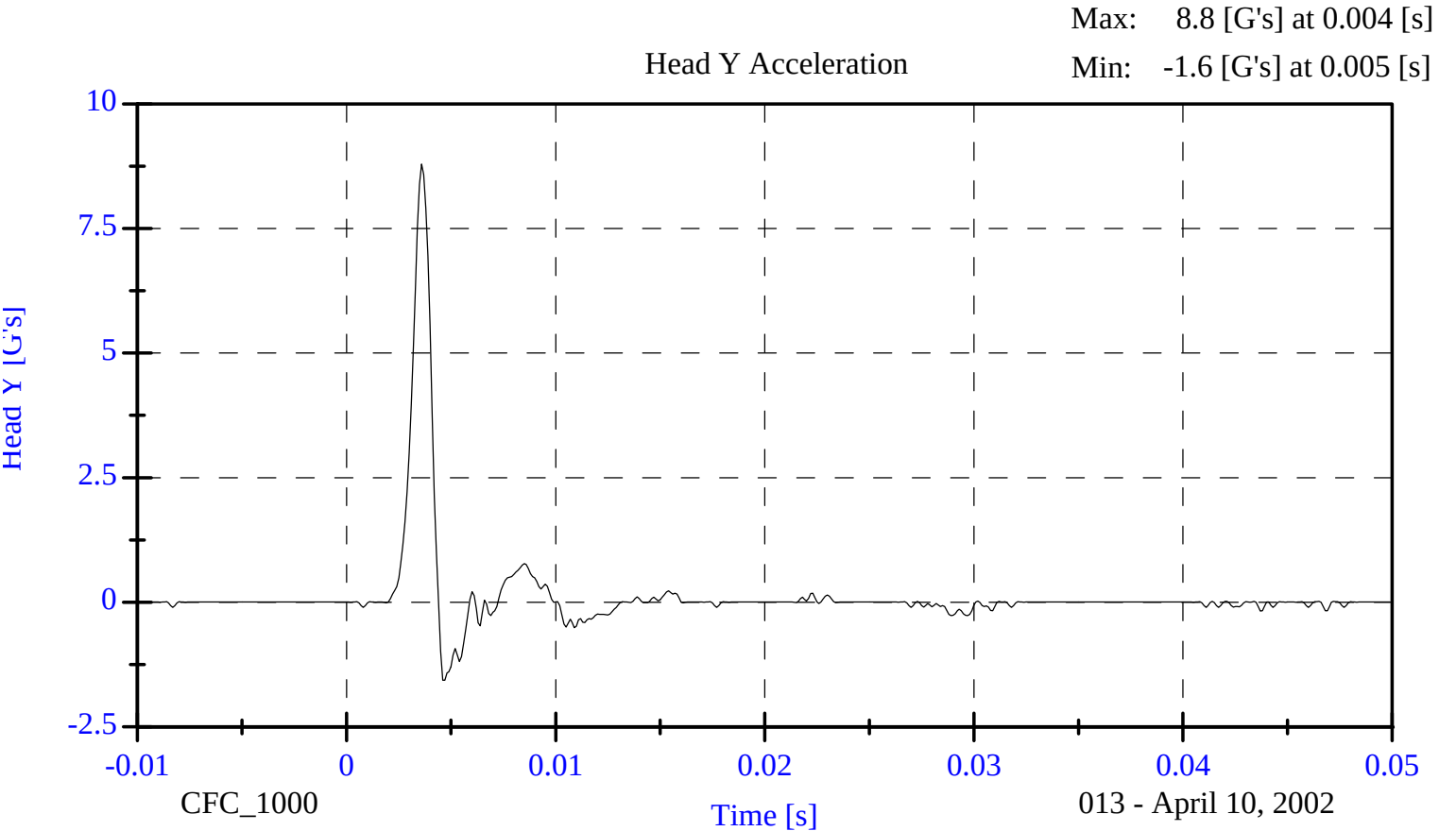
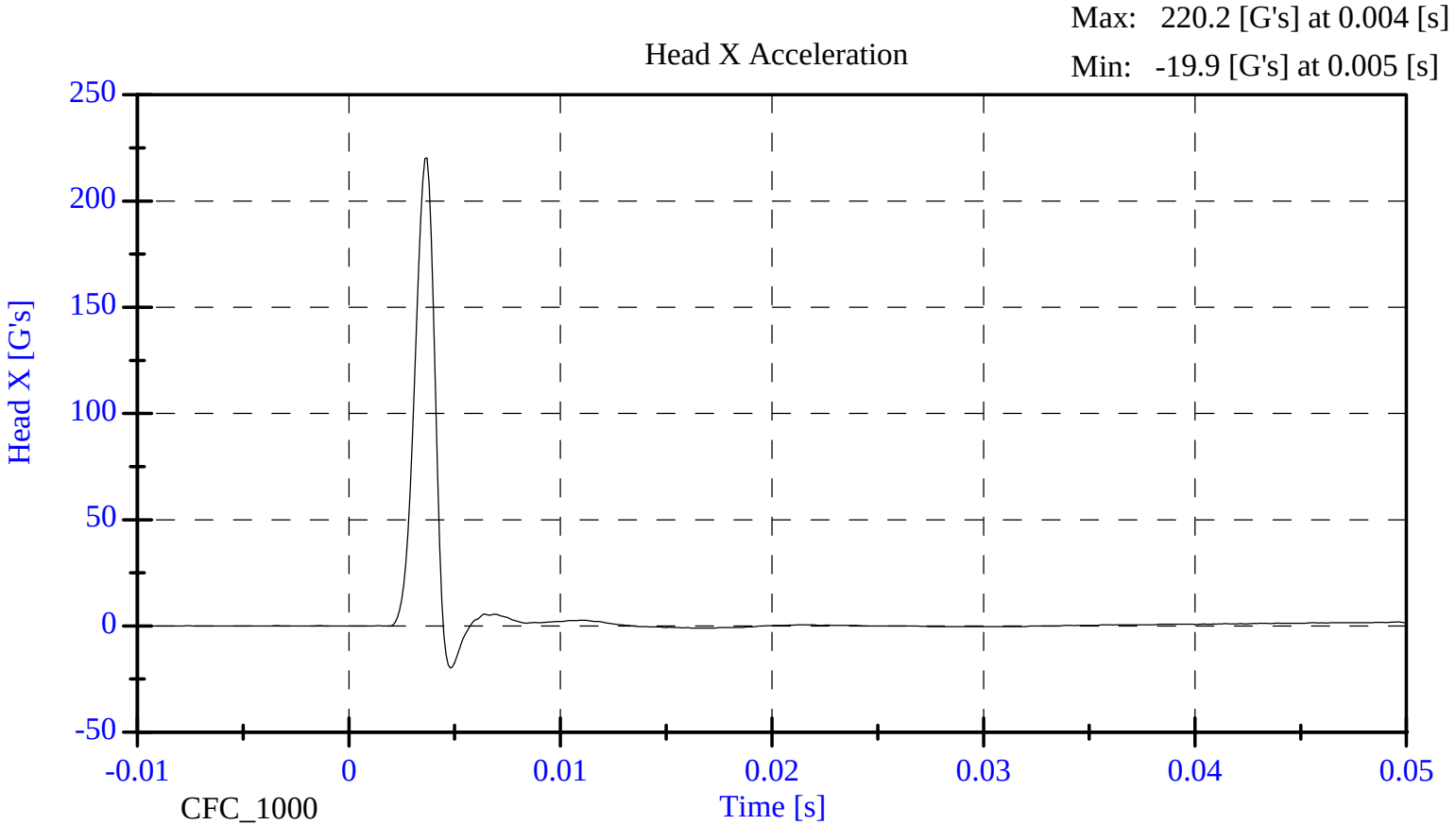
**HEAD DROP TEST
PRE-TEST**
(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

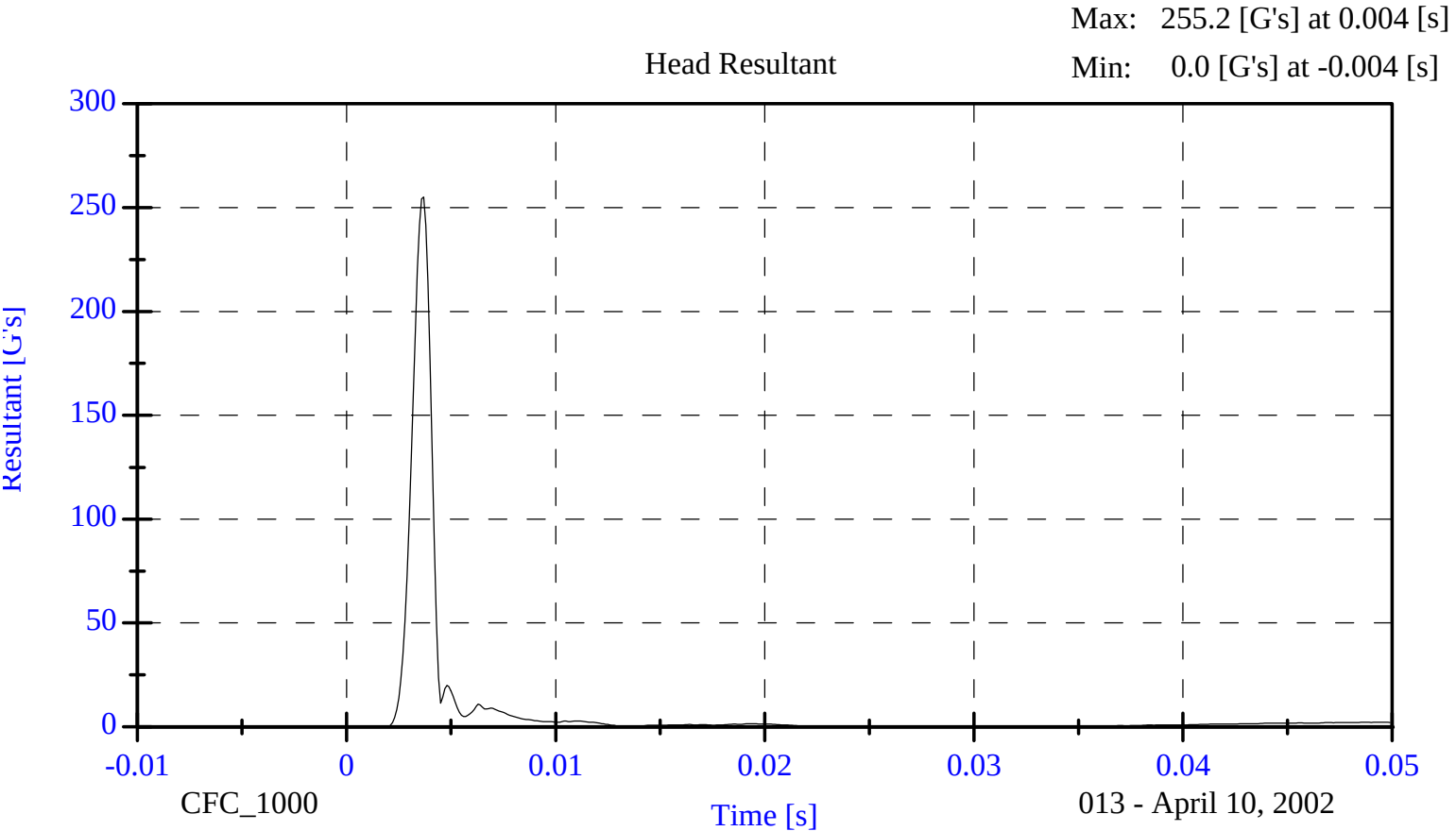
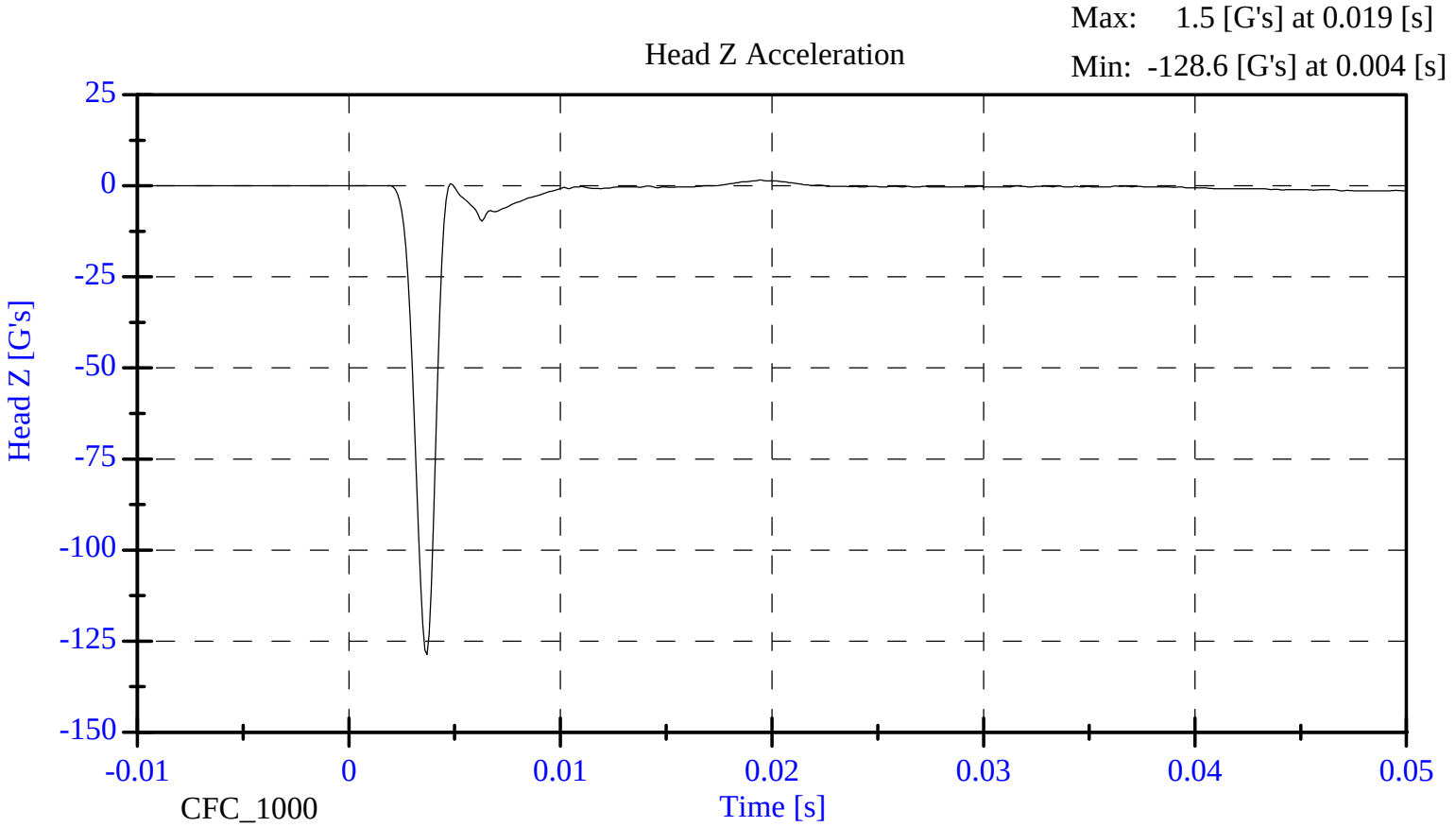
SID Serial No.: 013 Sequential Test Number: 1
Date: April 10, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	30.0
PEAK RESULTANT ACCELERATION (Gs)	210 - 260	255.17
PEAK LATERAL ACCELERATION (Gs)	Not to Exceed 10	8.79
UNIMODAL CRITERIA ABOVE 100 Gs (ms)	0.9 - 1.5	1.17

REMARKS: None



013 - April 10, 2002



013 - April 10, 2002

**ABDOMINAL COMPRESSION TEST
PRE-TEST**

(Test not required for SID certification)

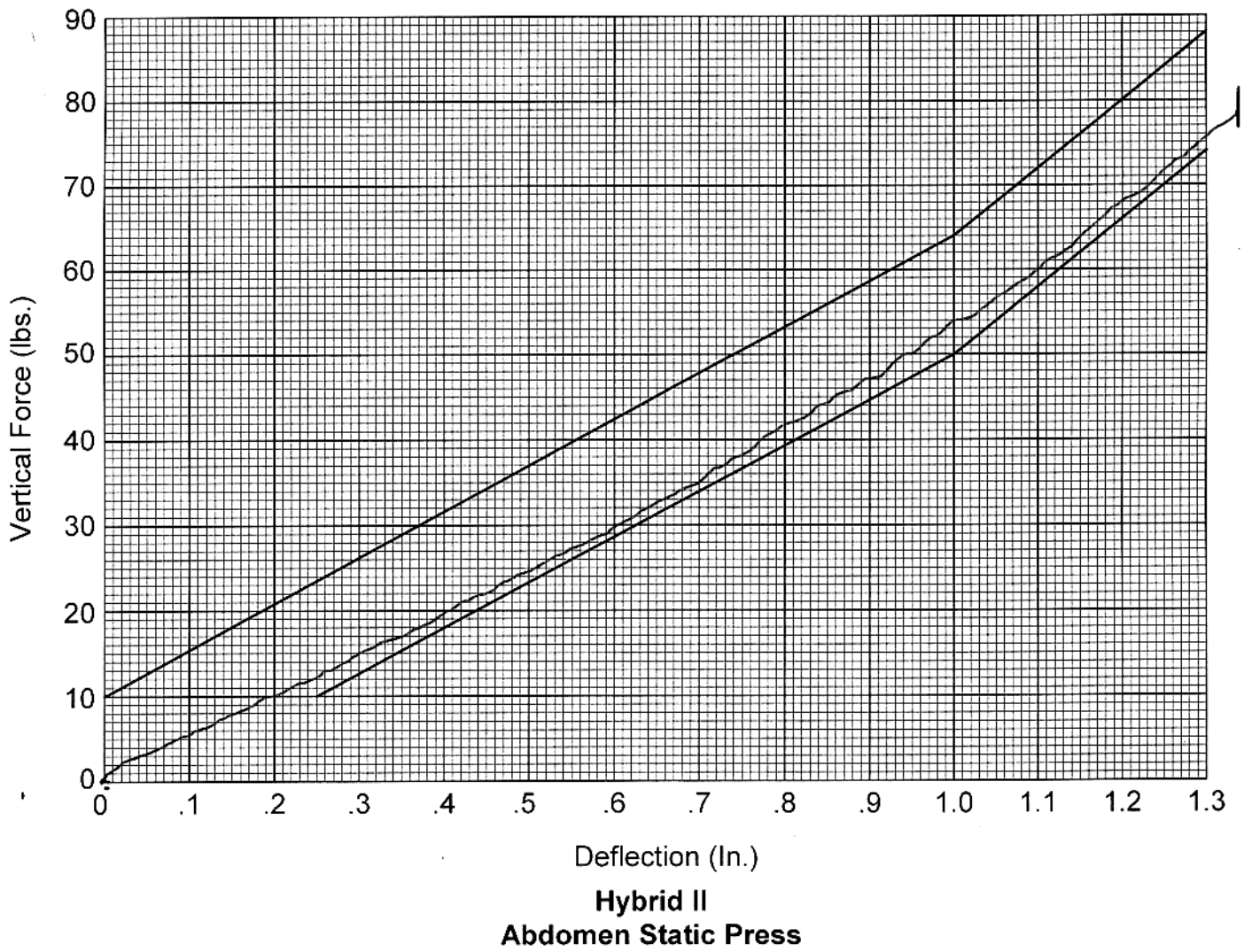
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 1
Date: April 16, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	23.3
RELATIVE HUMIDITY (%)	10 - 70	50.0
FORCE @ 13 mm (N)	104 - 162	111.7
FORCE @ 19 mm (N)	163 - 221	169.0
FORCE @ 25 mm (N)	222 - 280	240.2
FORCE @ 33 mm (N)	325 - 391	335.8

REMARKS: None

Dummy S/N 013
W/A _____
Date 4/16/02
Performed By [Signature]
Temp. 74°
Humidity 50%



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

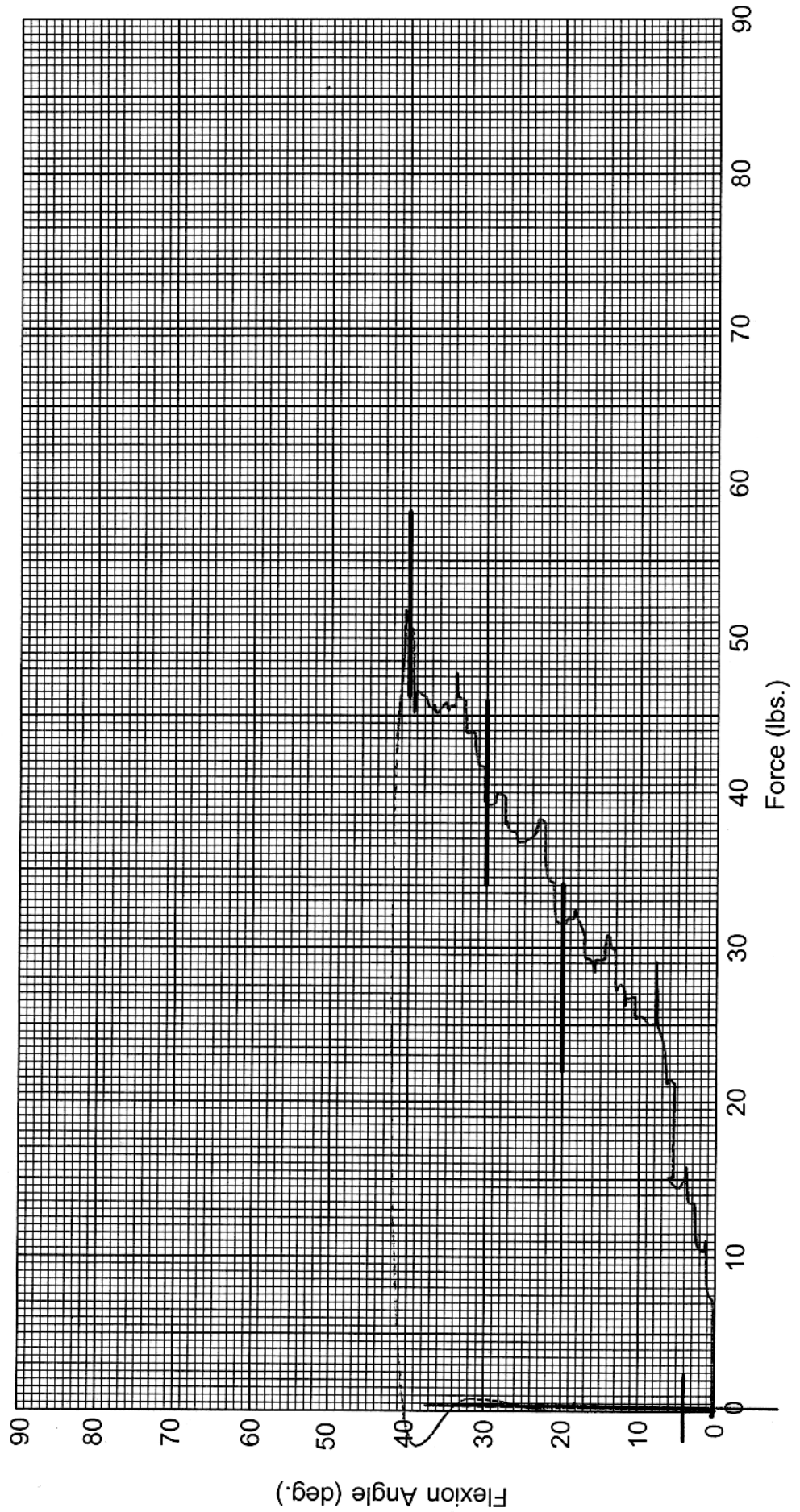
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 1
Date: April 16, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	23.3
RELATIVE HUMIDITY (%)	10 - 70	49.0
FORCE @ 0E (N)	0 - 26.7	0
FORCE @ 20E (N)	97.8 - 151.2	140.1
FORCE @ 30E (N)	151.2 - 204.6	174.4
FORCE @ 40E (N)	204.6 - 258	226.9
RETURN ANGLE	12E max.	4°

REMARKS: None

Dummy S/N 013
W/A _____
Date 4-15-02
Performed By RS
Temp. 73°
Humidity 49%



Hybrid II Lumbar Spine Flexion Test

PRE-TEST DUMMY INSPECTION LIST

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 1
Date: April 17, 2002 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 NO.: 016

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 016 Sequential Test Number: 5
Date: April 17, 2002 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.
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 Serial No.: 016 Sequential Test Number: 5
Date: April 17, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	902
RH- Rib Height (mm)	502 - 520	513
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	239
KH- Knee Pivot from Back Line (mm)	511 - 526	526
KV- Knee Pivot to Floor (mm)	490 - 505	495
HW- Hip Width (mm)	356 - 391	366

REMARKS: None

**THORACIC SHOCK ABSORBER TESTS
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 016 Sequential Test Number: 1.5
Date: September 19, 2001 Laboratory Technician: B. Swiecicki

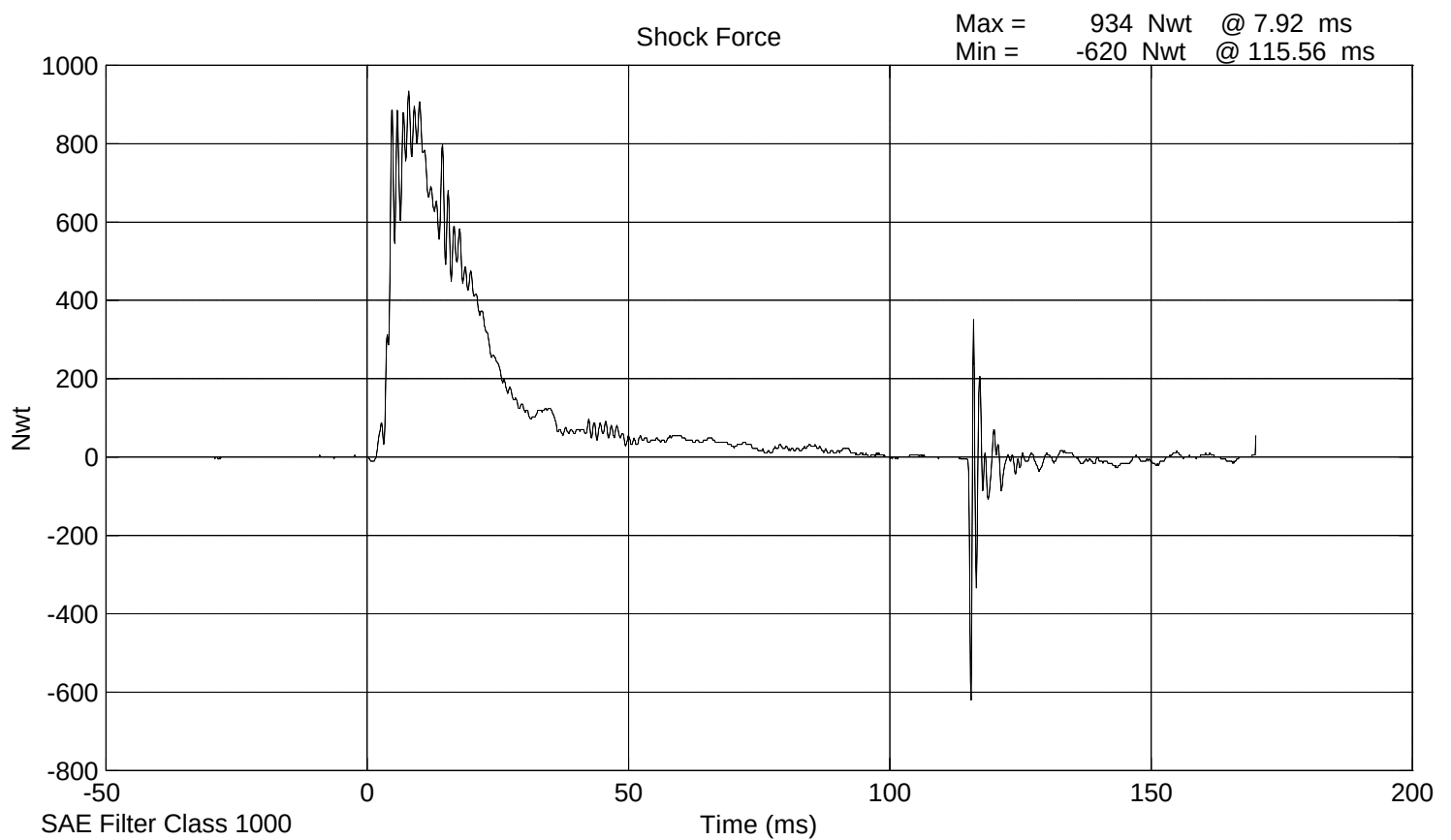
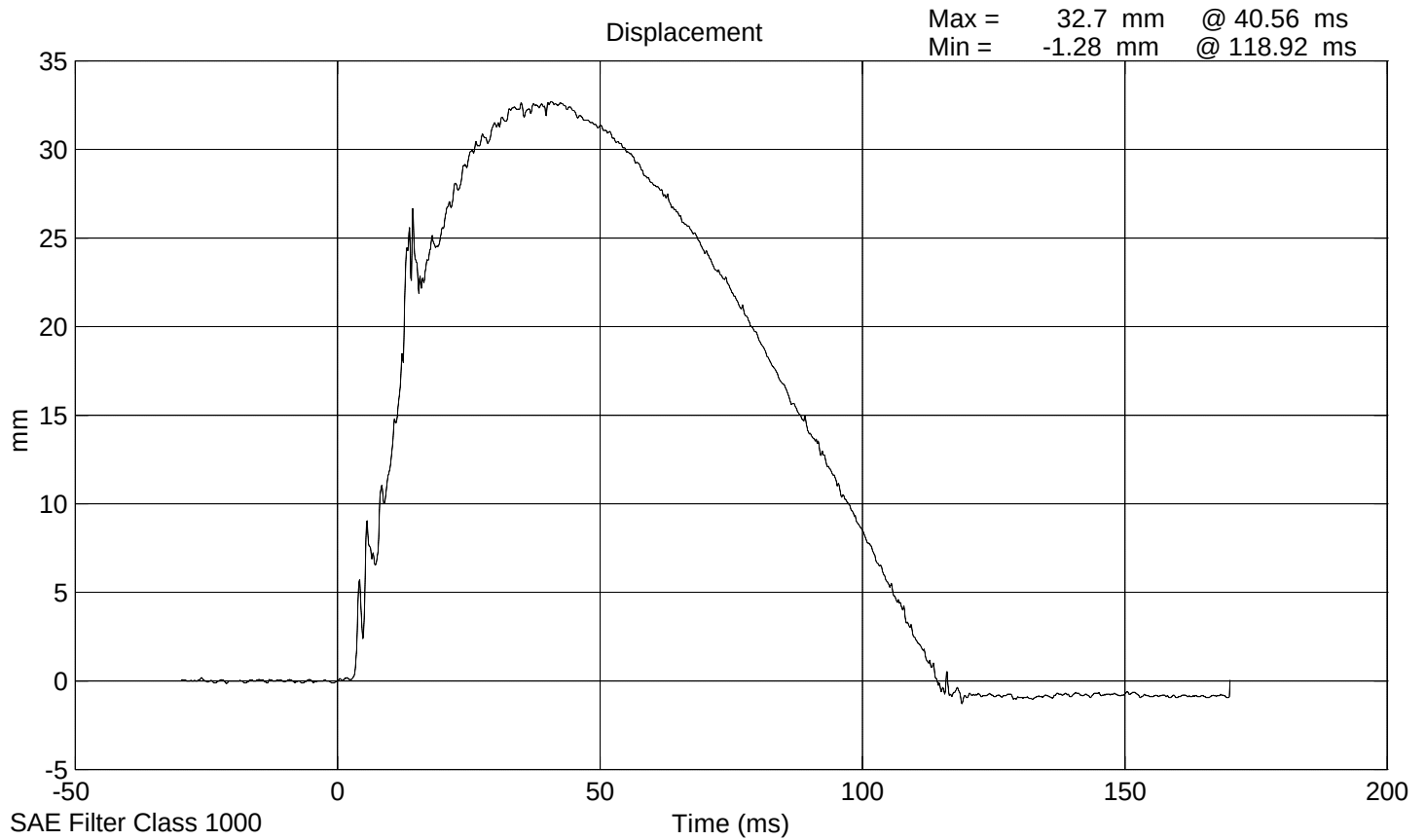
DAMPER IDENTIFICATION: _____

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)		18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)		10 - 70	30.0
VELOCITY 3.05 m/s	FORCE (N)	836 - 1125	934
	DISPLACEMENT (mm)	30 - 35	32.7
VELOCITY 4.27 m/s	FORCE (N)	1730 - 2099	1830
	DISPLACEMENT (mm)	32 - 37	36.1
VELOCITY 6.10 m/s	FORCE (N)	3741 - 4448	3880
	DISPLACEMENT (mm)	33 - 40	36.7

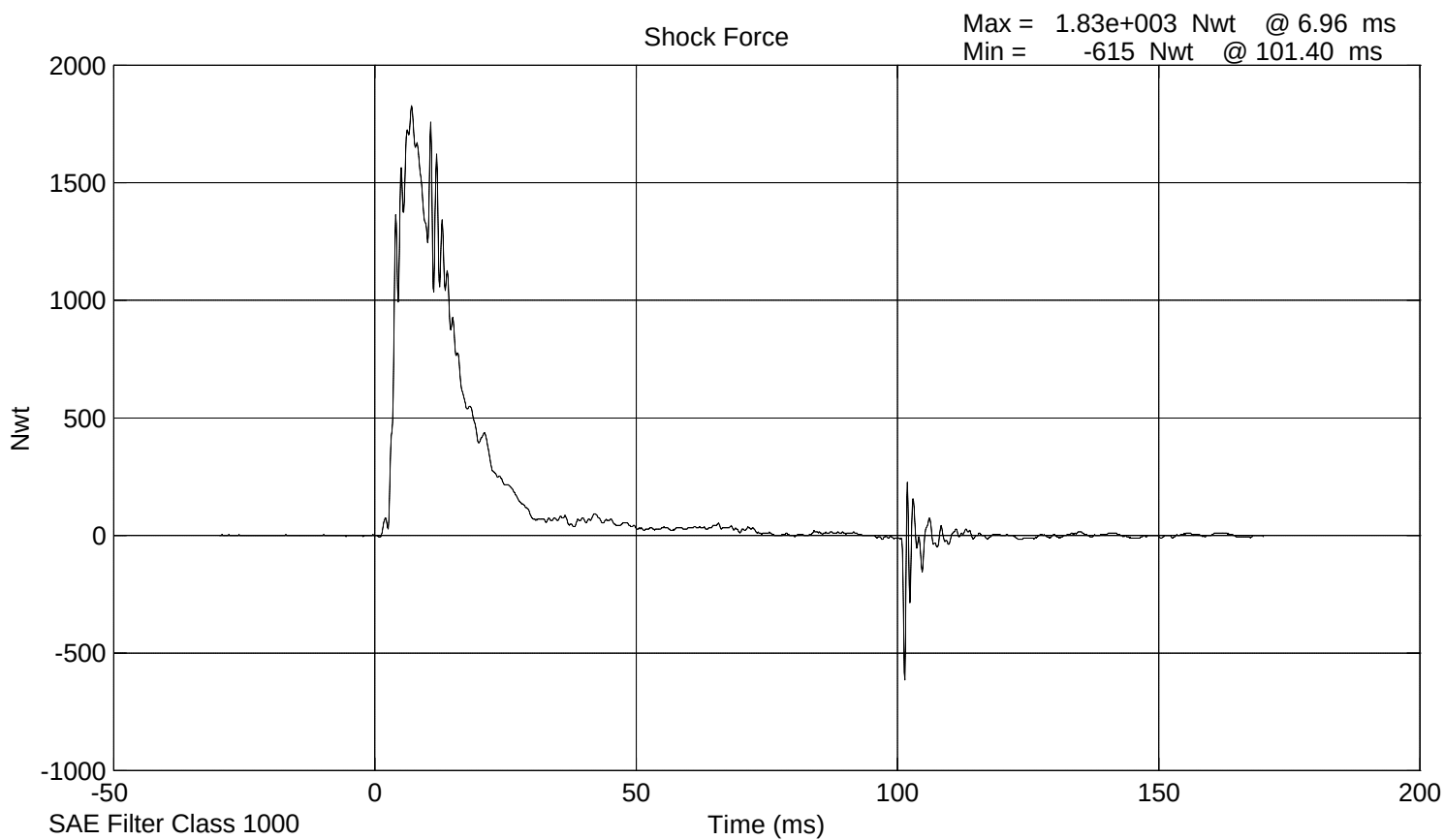
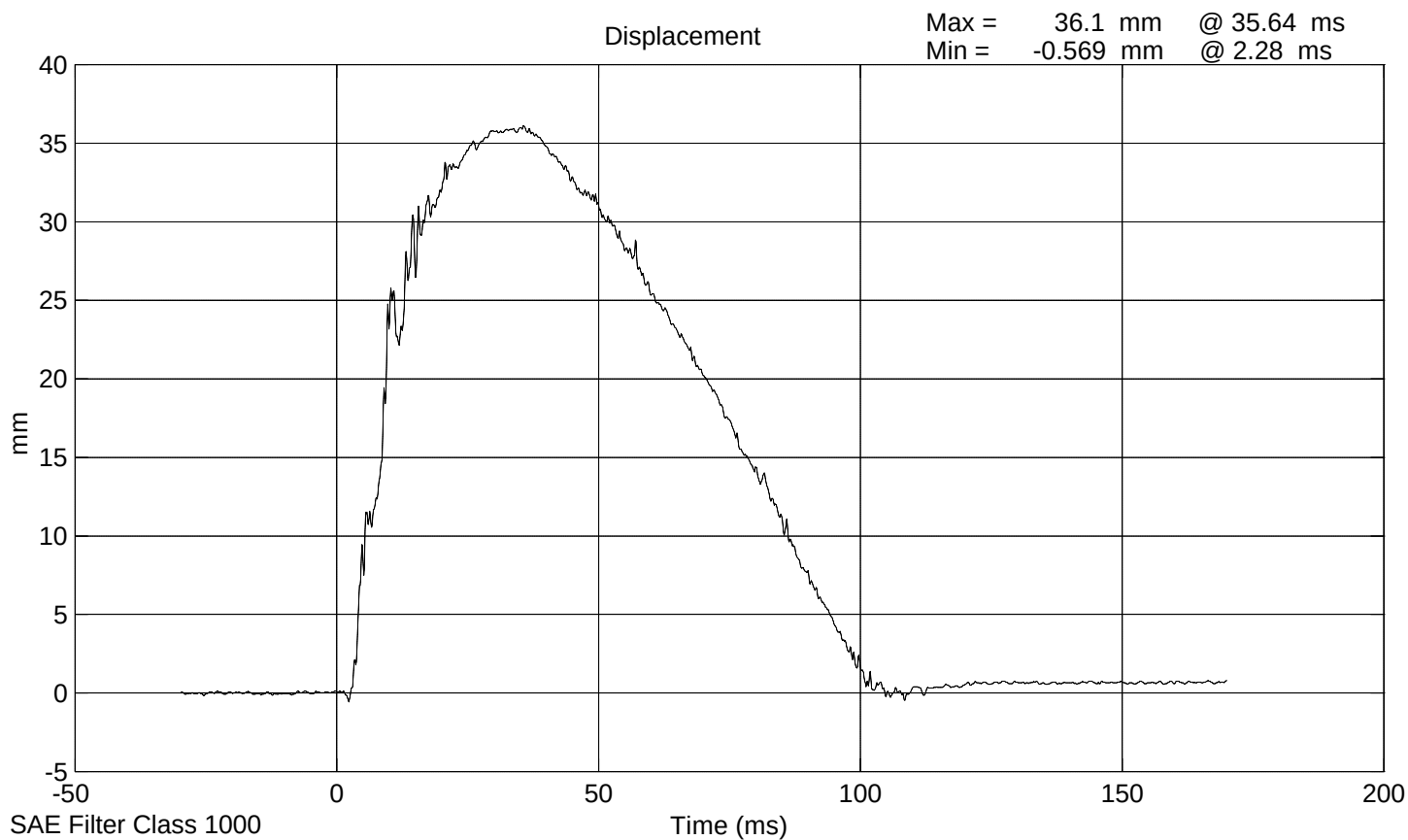
DAMPER SETTING: 5

REMARKS: None

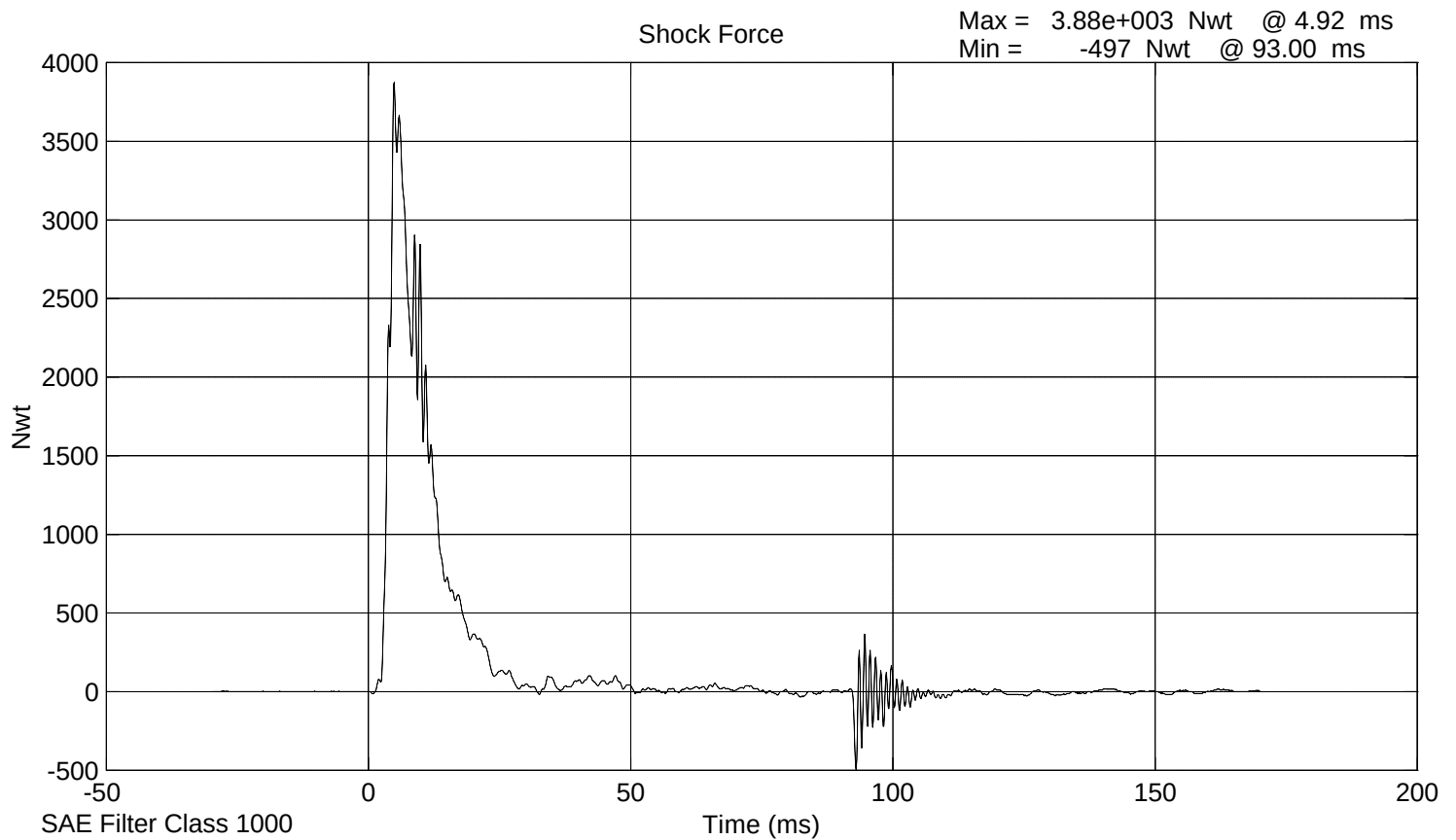
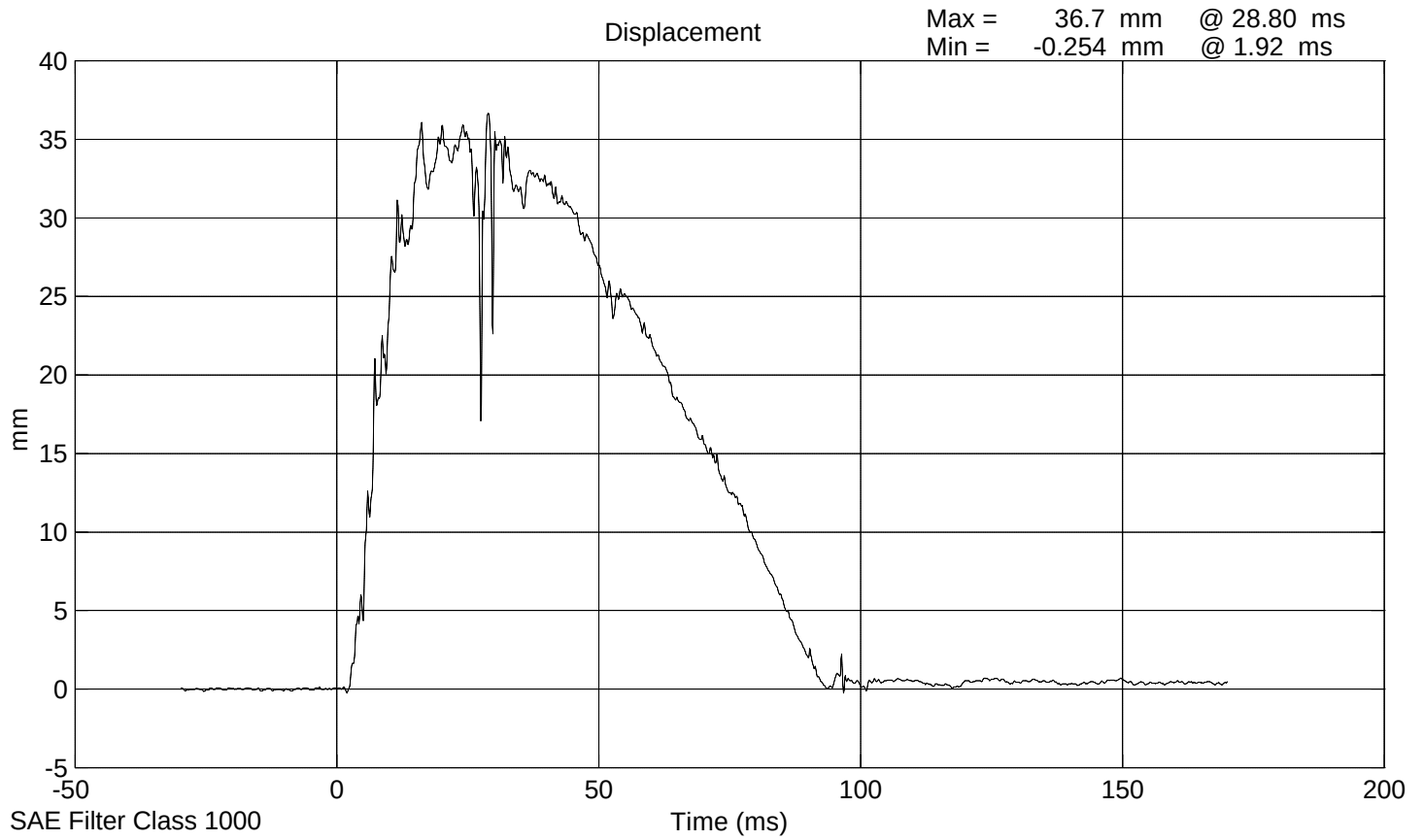
SID 016 Shock Absorber Impact Test @ 3.048 m/s



SID 016 Shock Absorber Impact Test @ 4.267 m/s



SID 016 Shock Absorber Impact Test @ 6.096 m/s



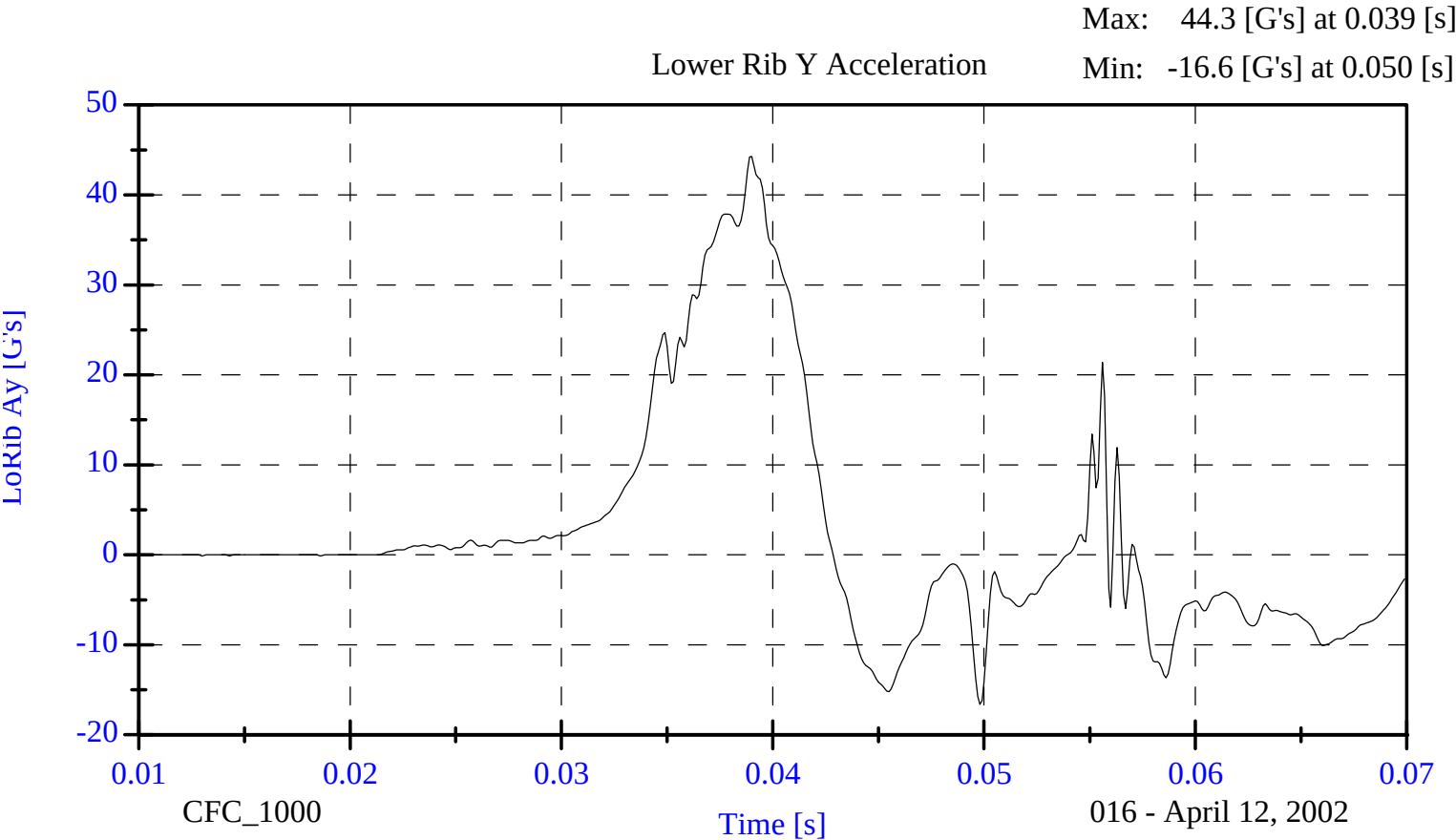
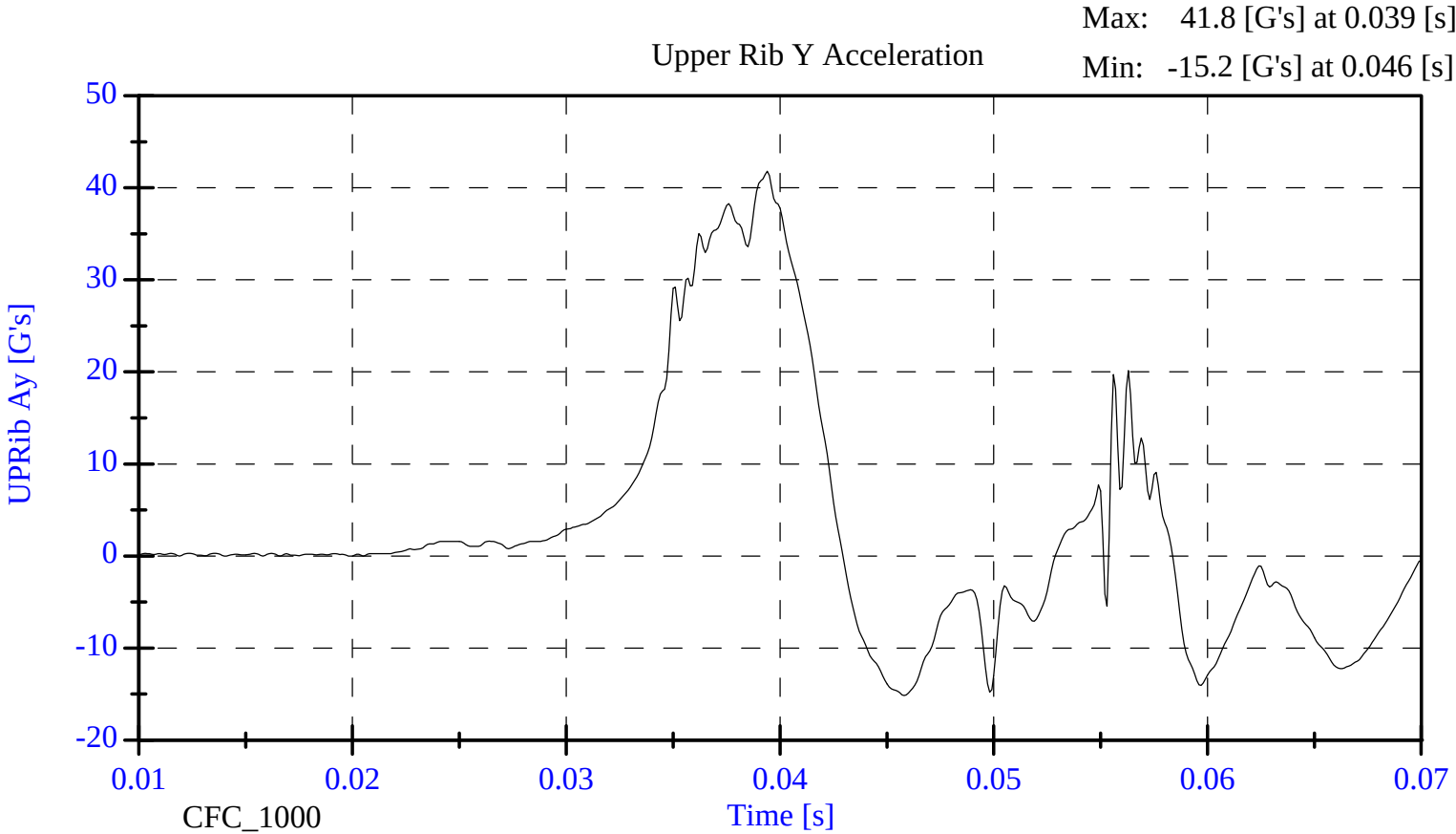
**LATERAL THORAX IMPACT TEST
PRE-TEST**

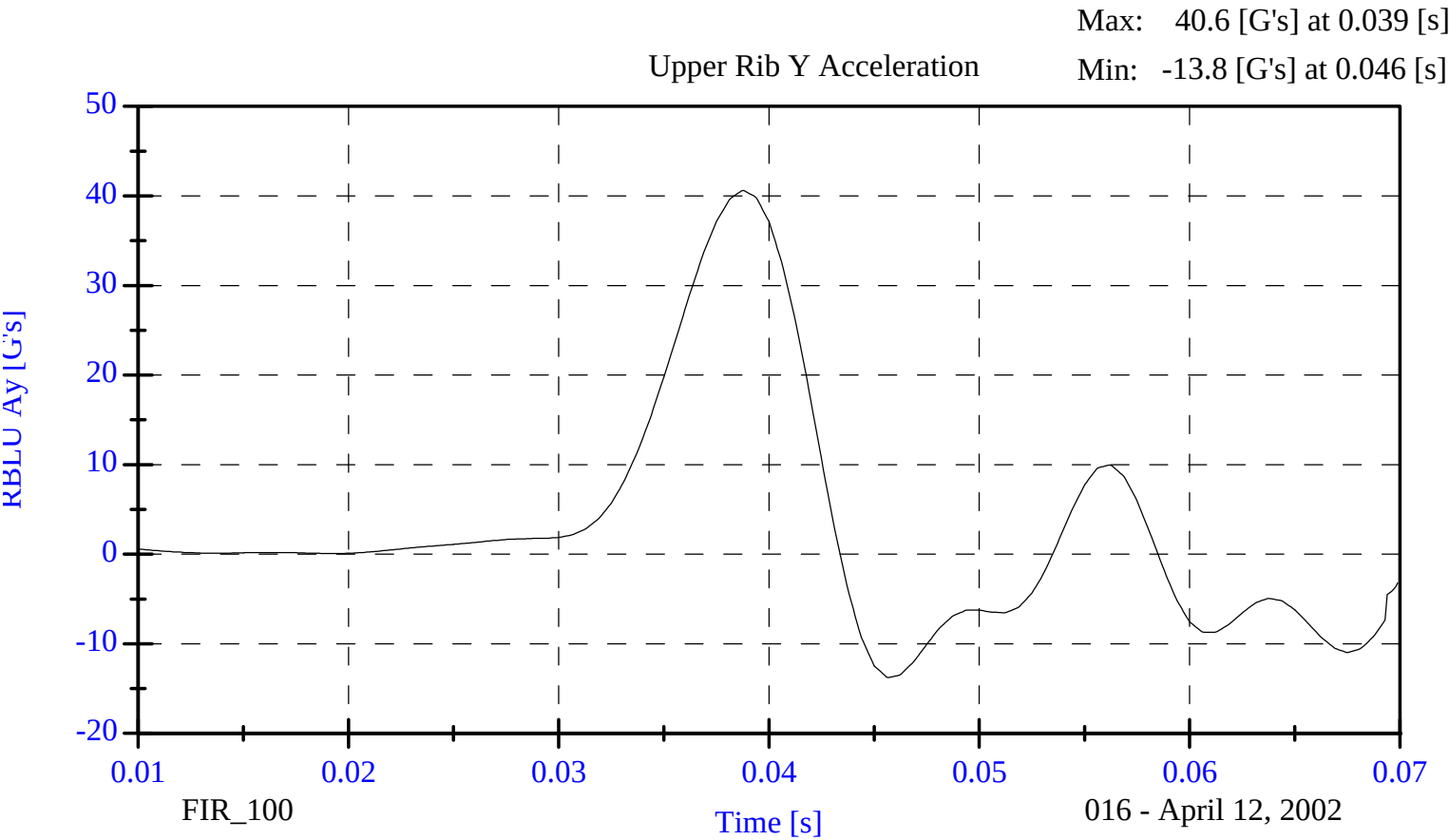
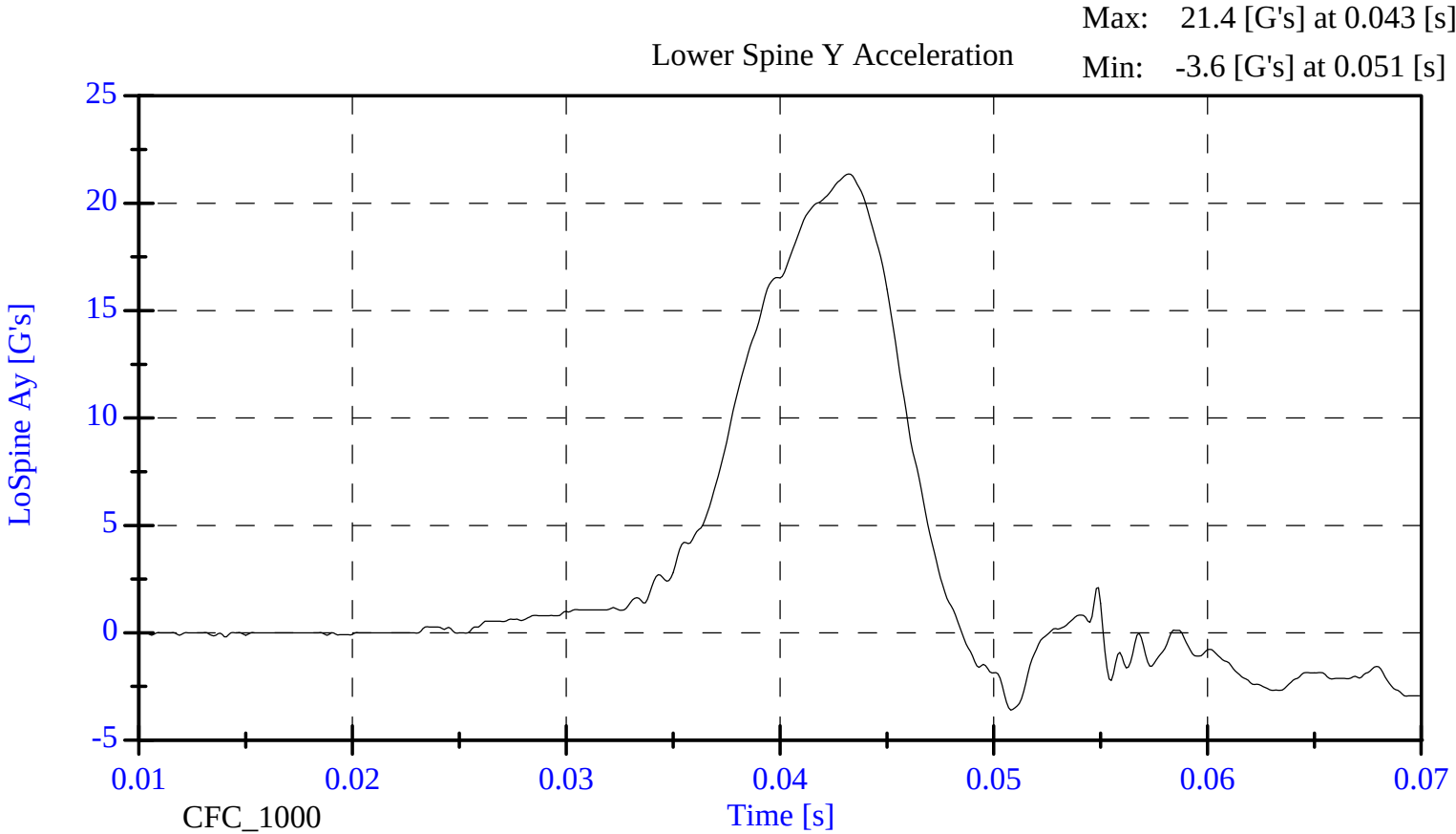
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 016 Sequential Test Number: 5
Date: April 12, 2002 Laboratory Technician: B. Swiecicki

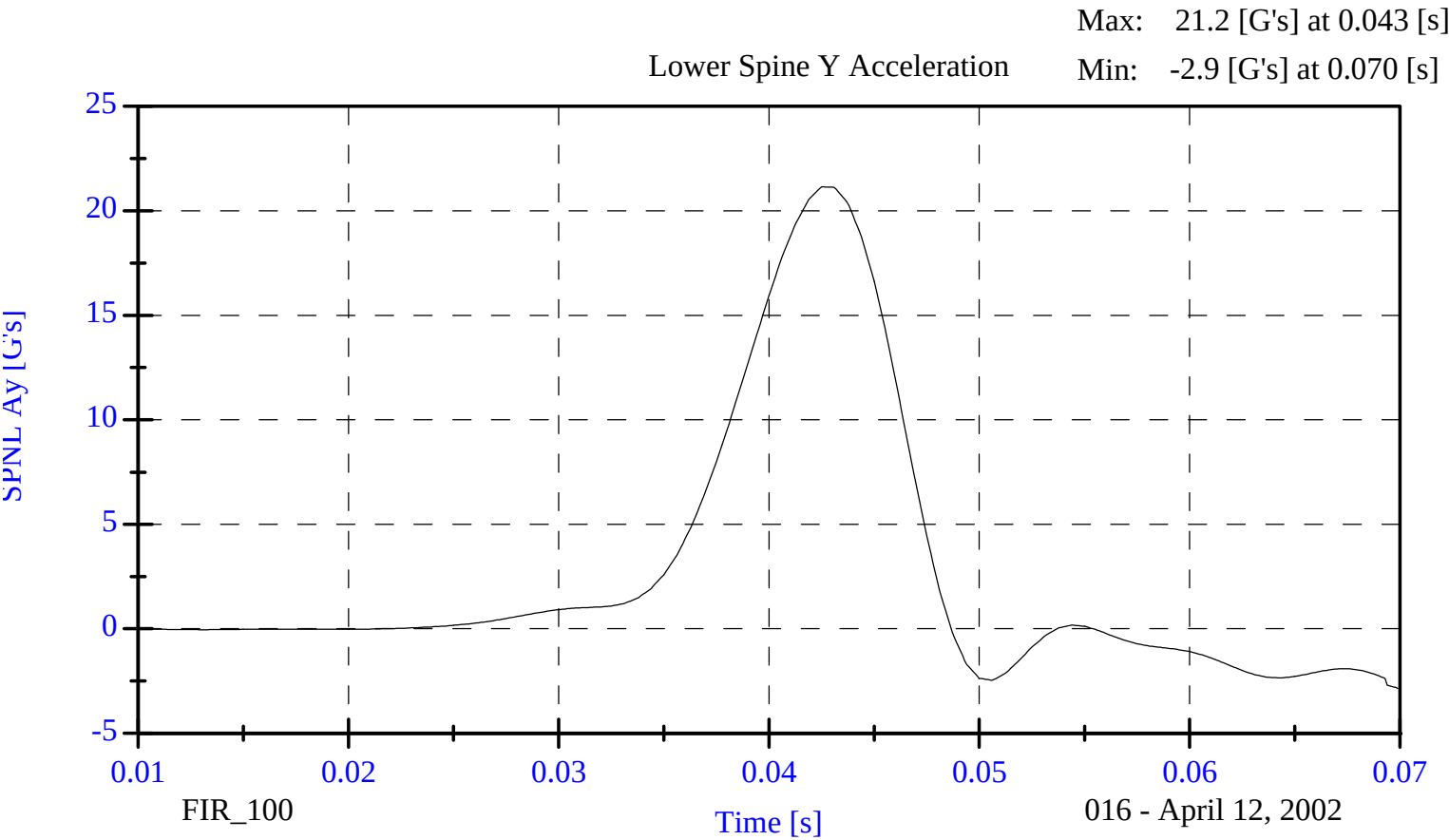
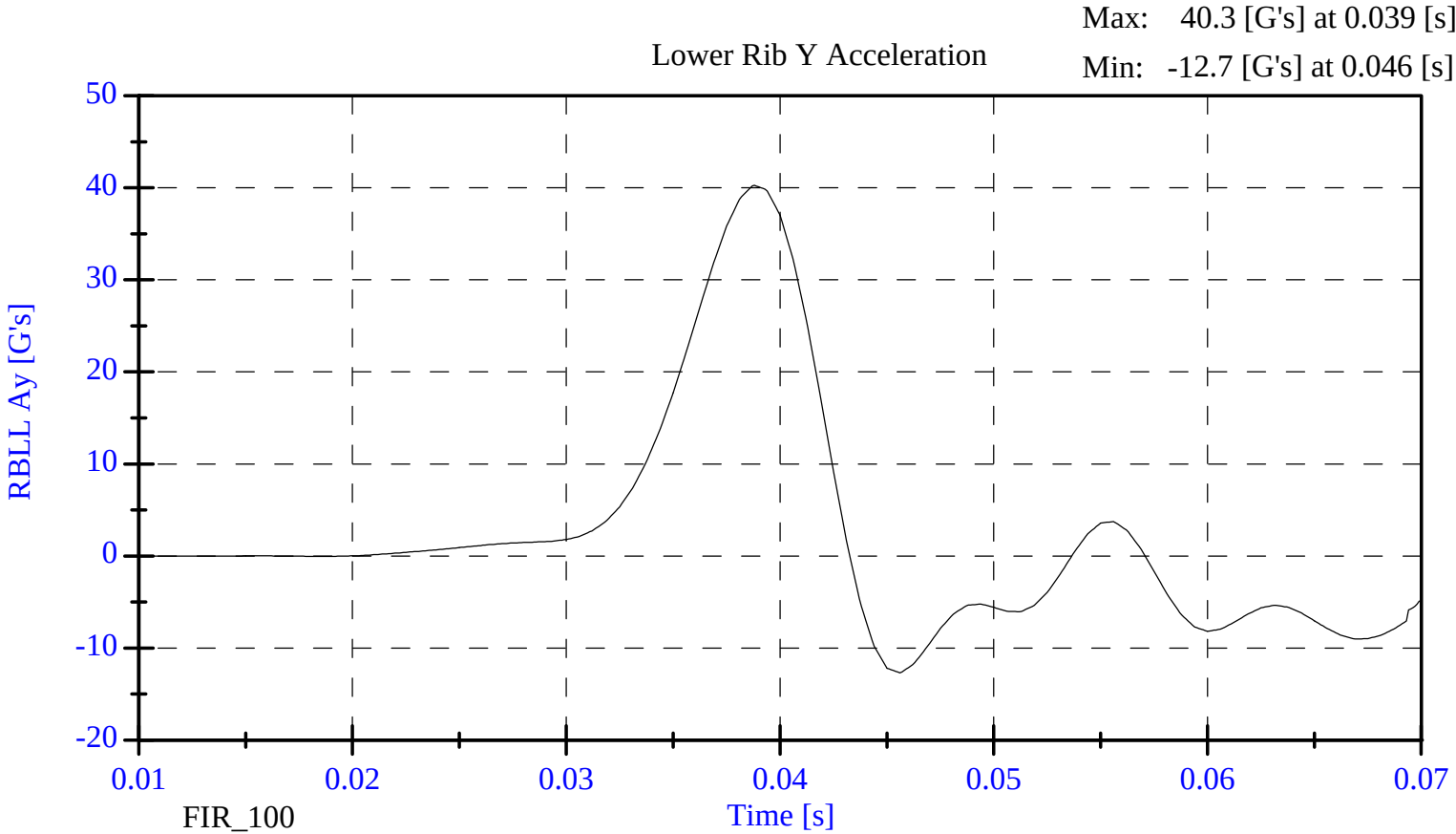
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	29.0
PROBE SPEED (m/s)	4.27 - 4.33	4.32
UPPER RIB (g's)	37 - 46	40.60
LOWER RIB (g's)	37 - 46	40.27
LOWER SPINE (g's)	15 - 22	21.15

REMARKS: None





016 - April 12, 2002



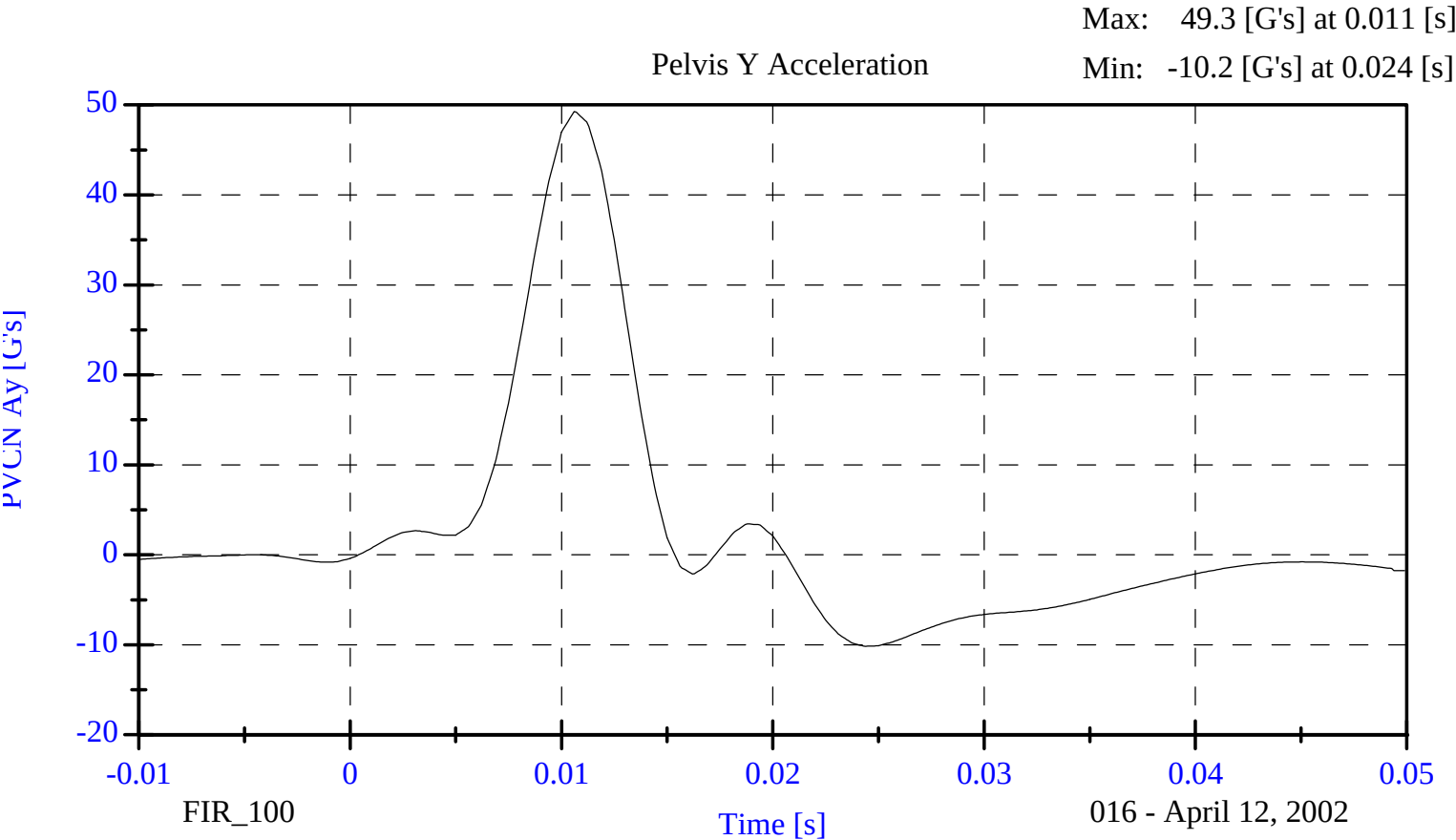
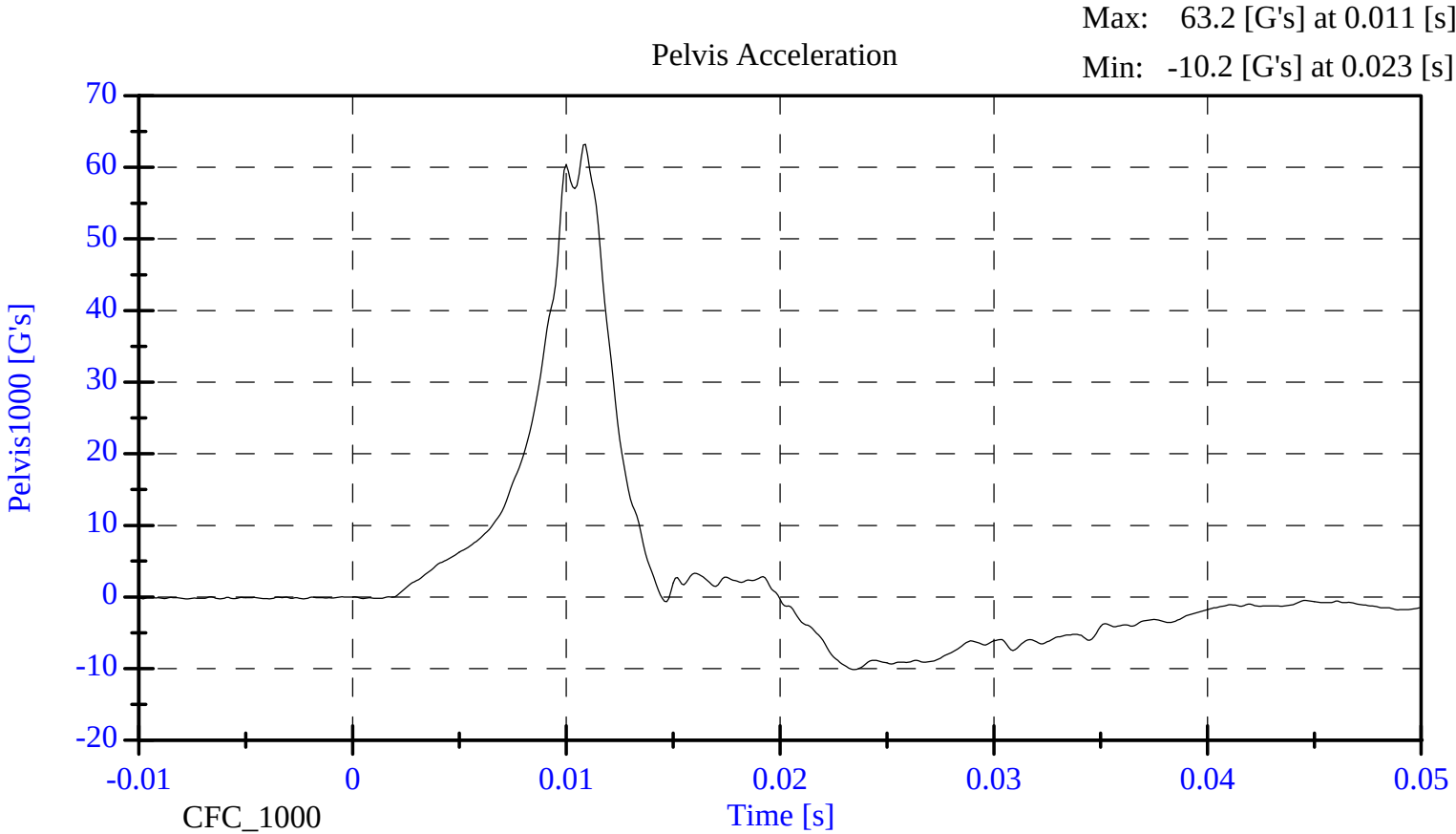
**LATERAL PELVIS IMPACT TEST
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 016 Sequential Test Number: 5
Date: April 12, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	29.0
PROBE SPEED (m/s)	4.27 - 4.33	4.32
PELVIS ACCELERATION (g's)	40 - 60	49.29

REMARKS: None



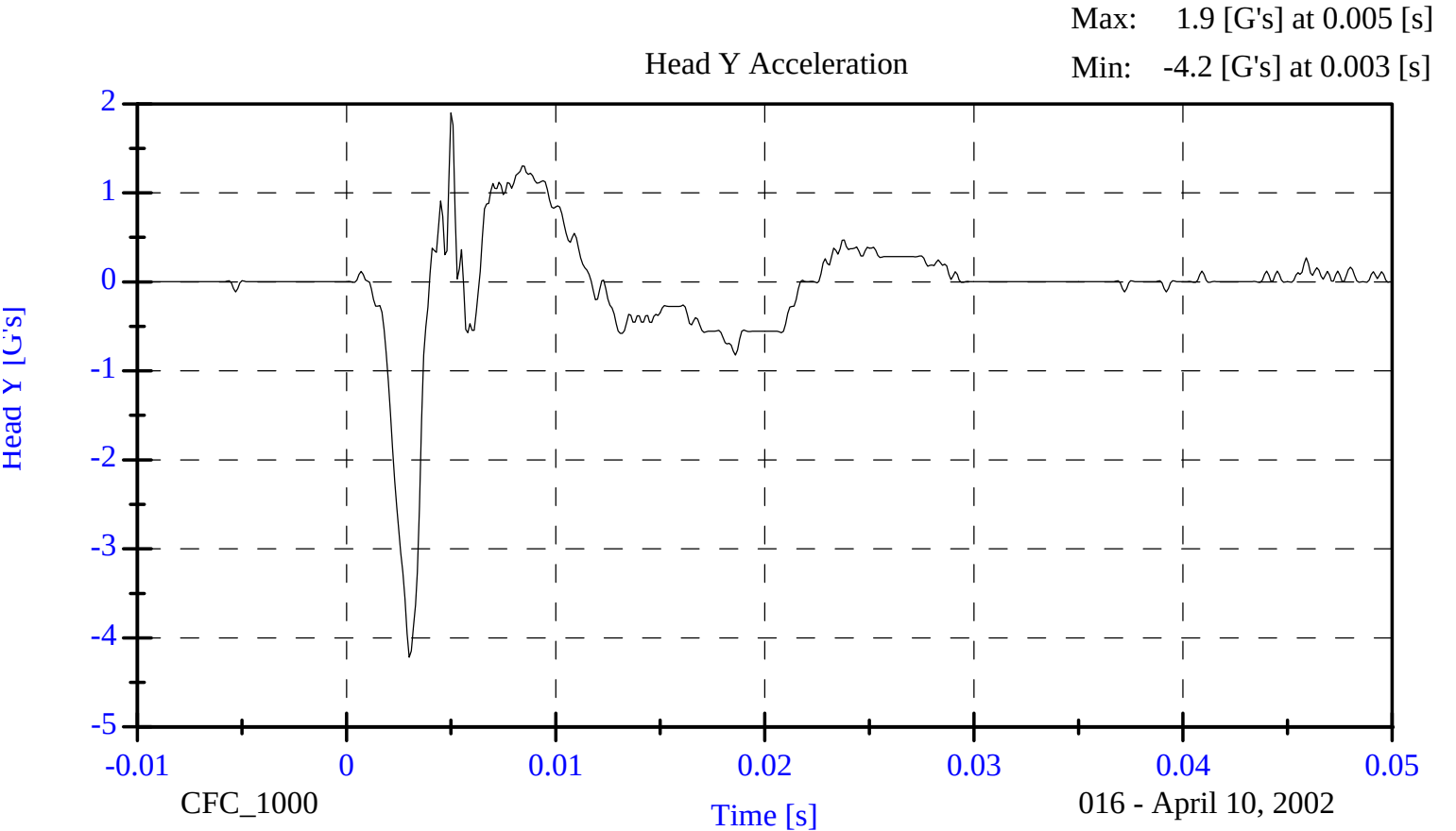
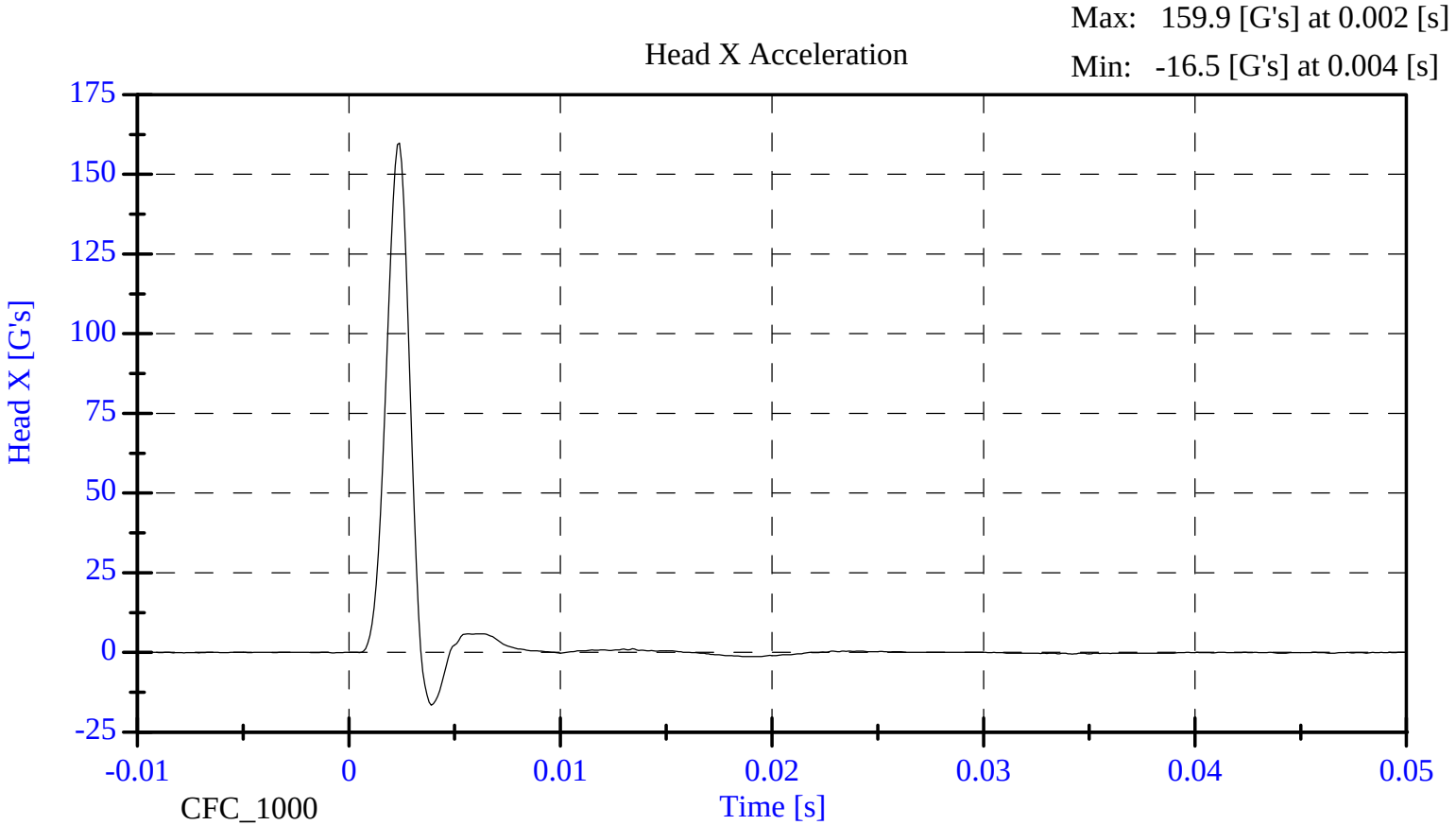
**HEAD DROP TEST
PRE-TEST**
(Test not required for SID certification)

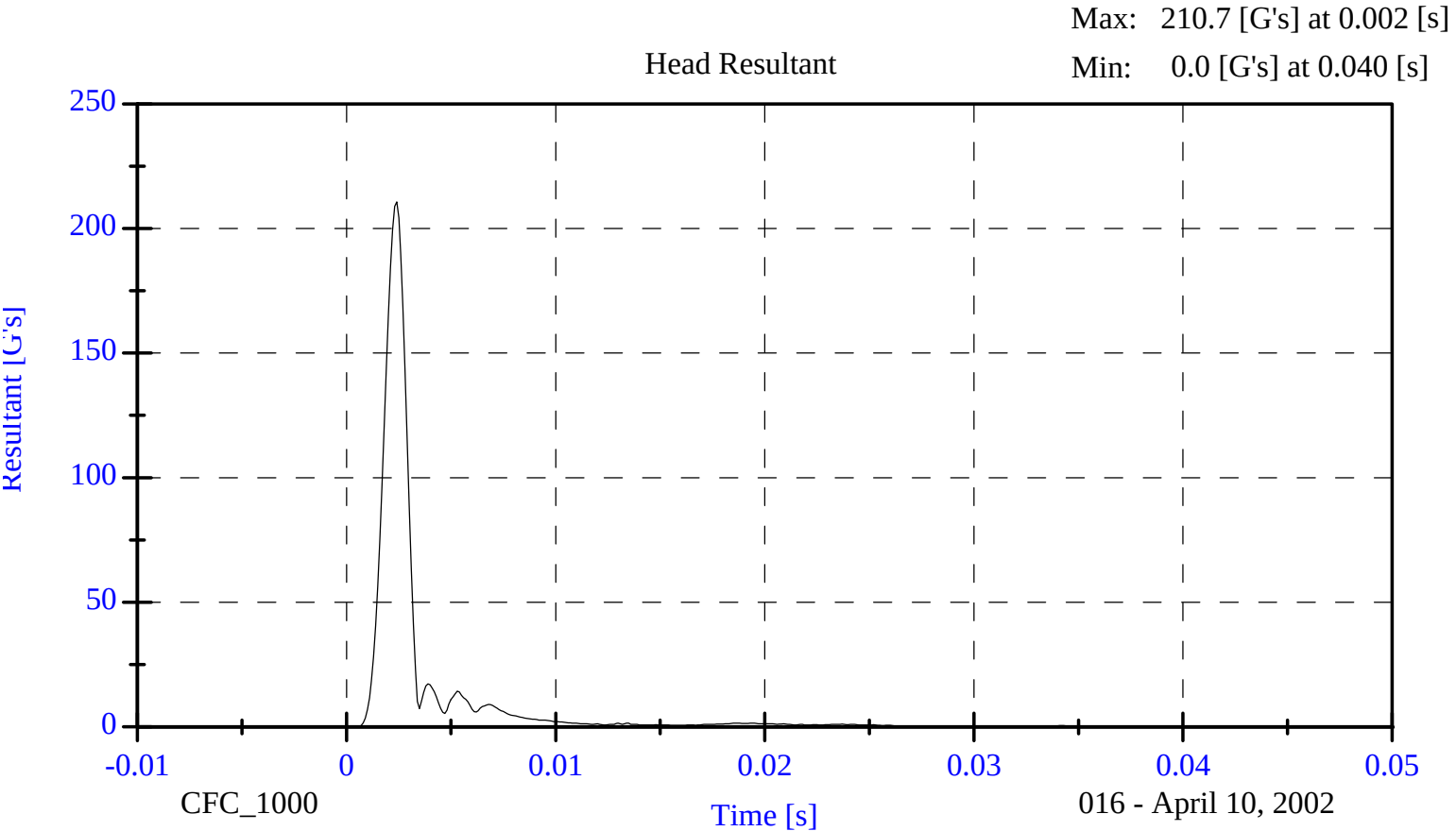
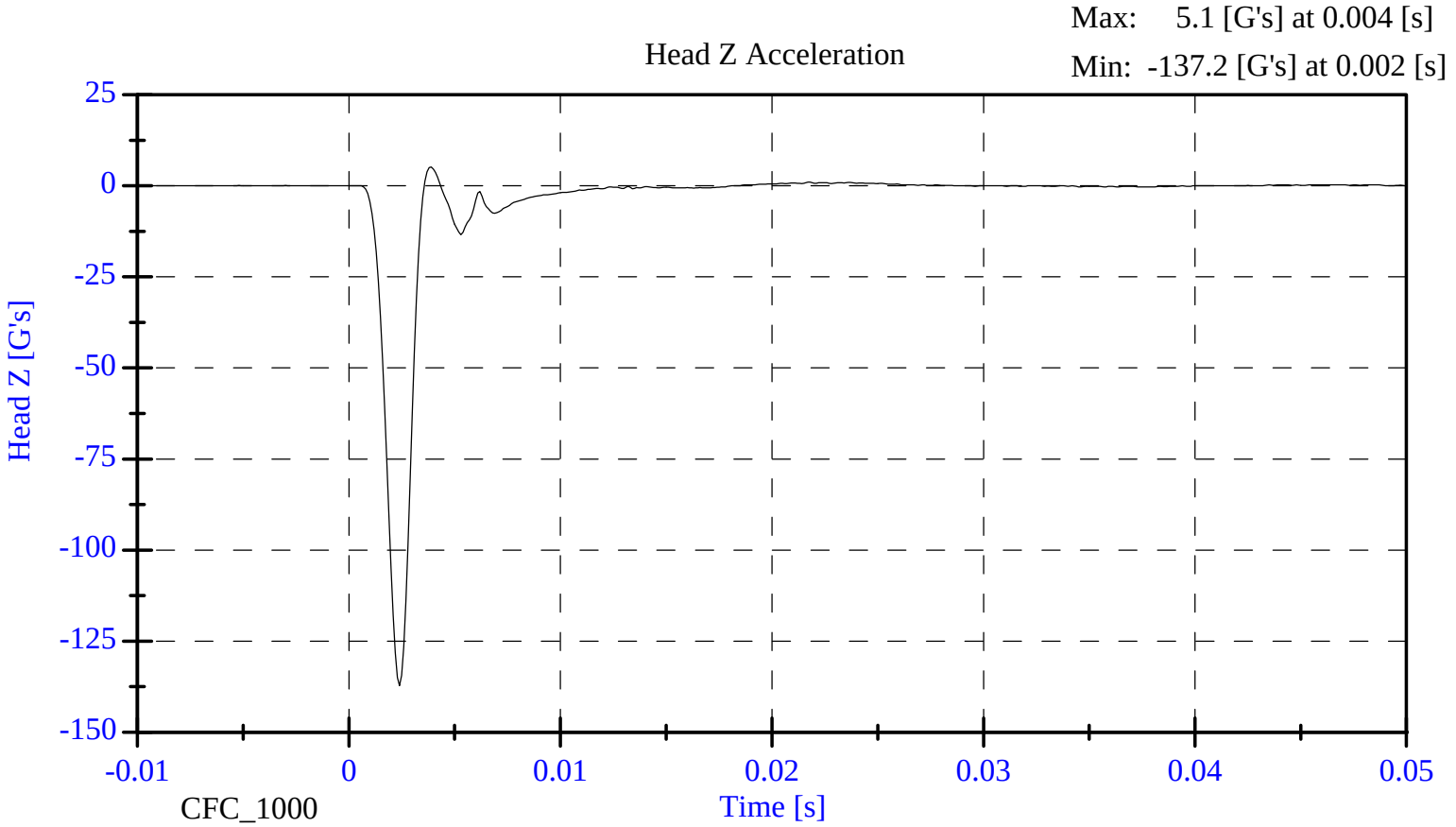
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 016 Sequential Test Number: 5
Date: April 10, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	30.0
PEAK RESULTANT ACCELERATION (Gs)	210 - 260	210.68
PEAK LATERAL ACCELERATION (Gs)	Not to Exceed 10	4.22
UNIMODAL CRITERIA ABOVE 100 Gs (ms)	0.9 - 1.5	1.24

REMARKS: None





**ABDOMINAL COMPRESSION TEST
PRE-TEST**

(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 016 Sequential Test Number: 5
Date: April 15, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	23.9
RELATIVE HUMIDITY (%)	10 - 70	50
FORCE @ 13 mm (N)	104 - 162	109.0
FORCE @ 19 mm (N)	163 - 221	173.5
FORCE @ 25 mm (N)	222 - 280	249.5
FORCE @ 33 mm (N)	325 - 391	370.1

REMARKS: None

Dummy S/N 016

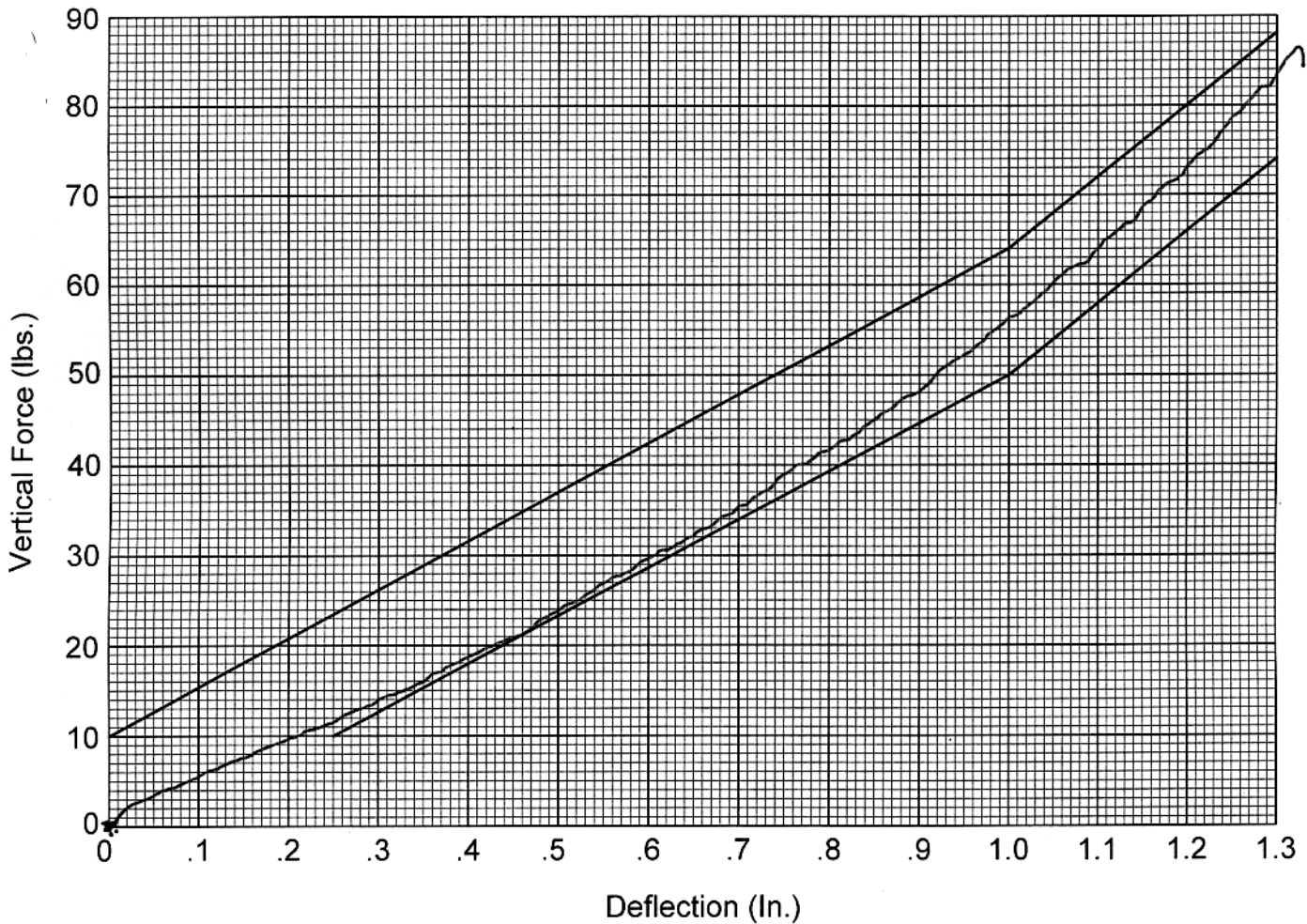
W/A _____

Date 4/15/02

Performed By B. S.

Temp. 75°

Humidity 50%



Hybrid II
Abdomen Static Press

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

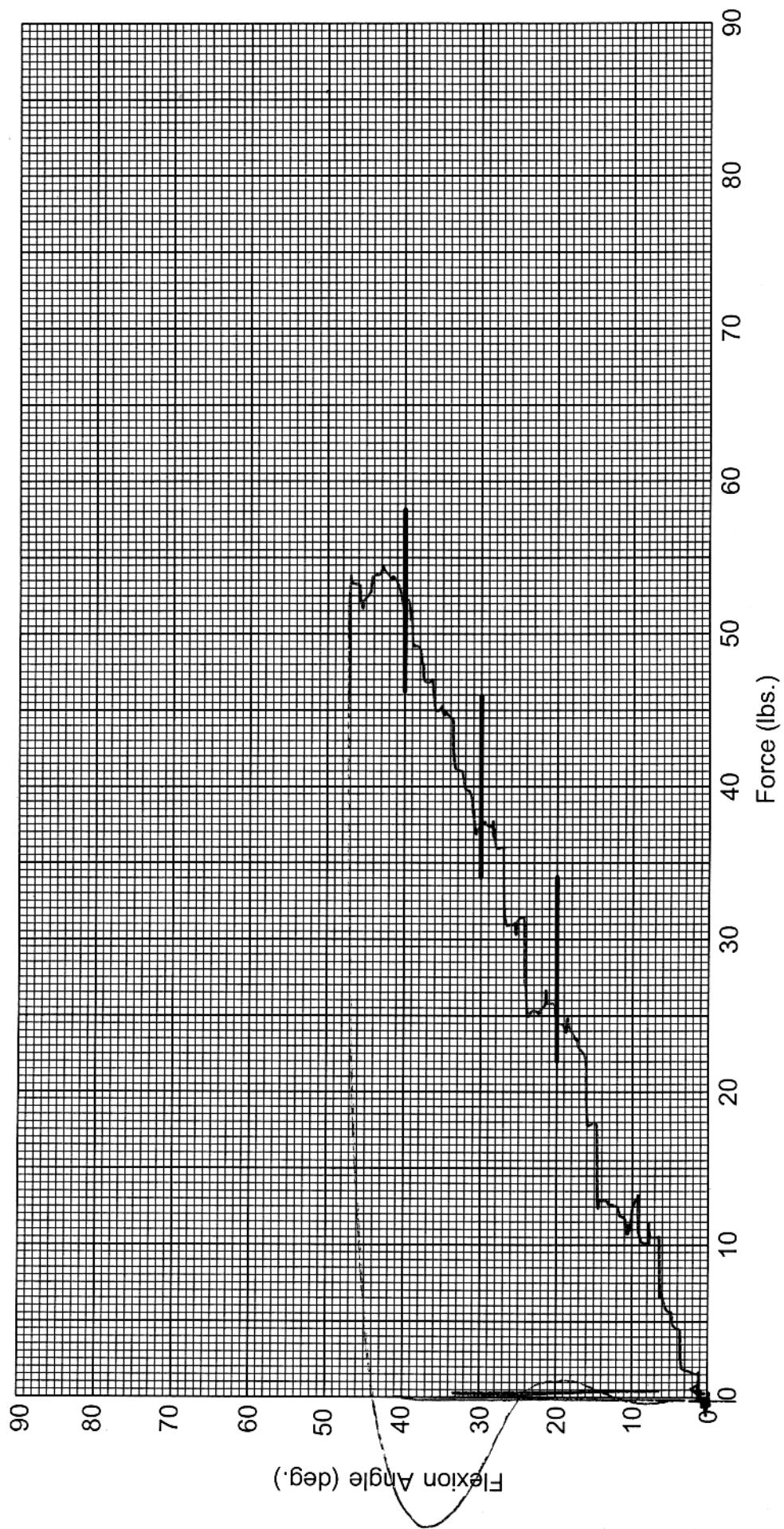
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 016 Sequential Test Number: 5
Date: April 15, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	23.9
RELATIVE HUMIDITY (%)	10 - 70	50.0
FORCE @ 0E (N)	0 - 26.7	0
FORCE @ 20E (N)	97.8 - 151.2	109.0
FORCE @ 30E (N)	151.2 - 204.6	169.0
FORCE @ 40E (N)	204.6 - 258	233.5
RETURN ANGLE	12E max.	1°

REMARKS: None

Dummy S/N 016
 W/A _____
 Date 4/13/02
 Performed By B.S.
 Temp. 75°
 Humidity 50%



Hybrid II Lumbar Spine Flexion Test

PRE-TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 016 Sequential Test Number: 5
Date: April 17, 2002 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 NO.: 013

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 2
Date: June 13, 2002 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.
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 Serial No.: 013 Sequential Test Number: 2
Date: June 13, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	899
RH- Rib Height (mm)	502 - 520	508
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	236
KH- Knee Pivot from Back Line (mm)	511 - 526	518
KV- Knee Pivot to Floor (mm)	490 - 505	493
HW- Hip Width (mm)	356 - 391	378

REMARKS: None

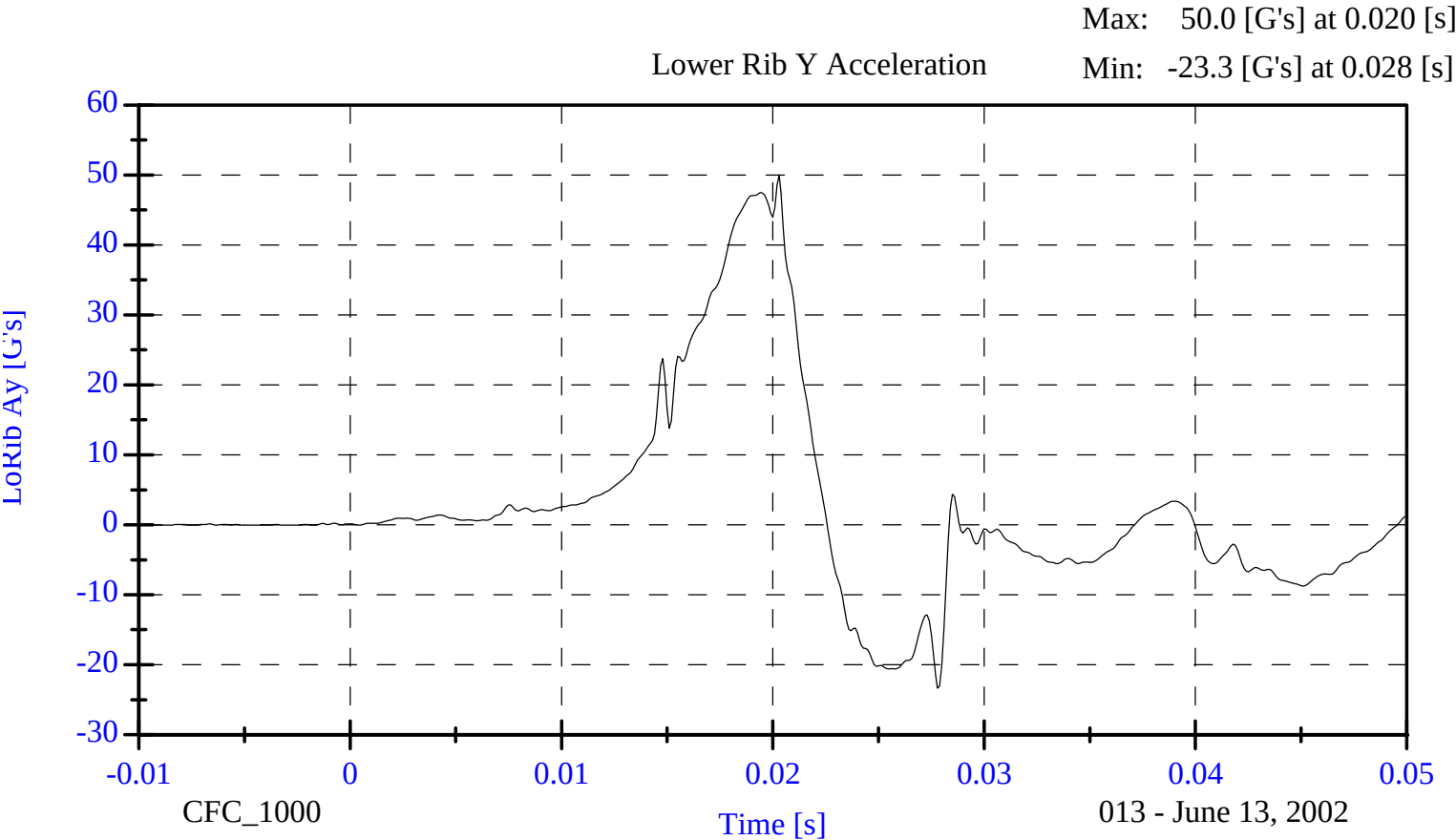
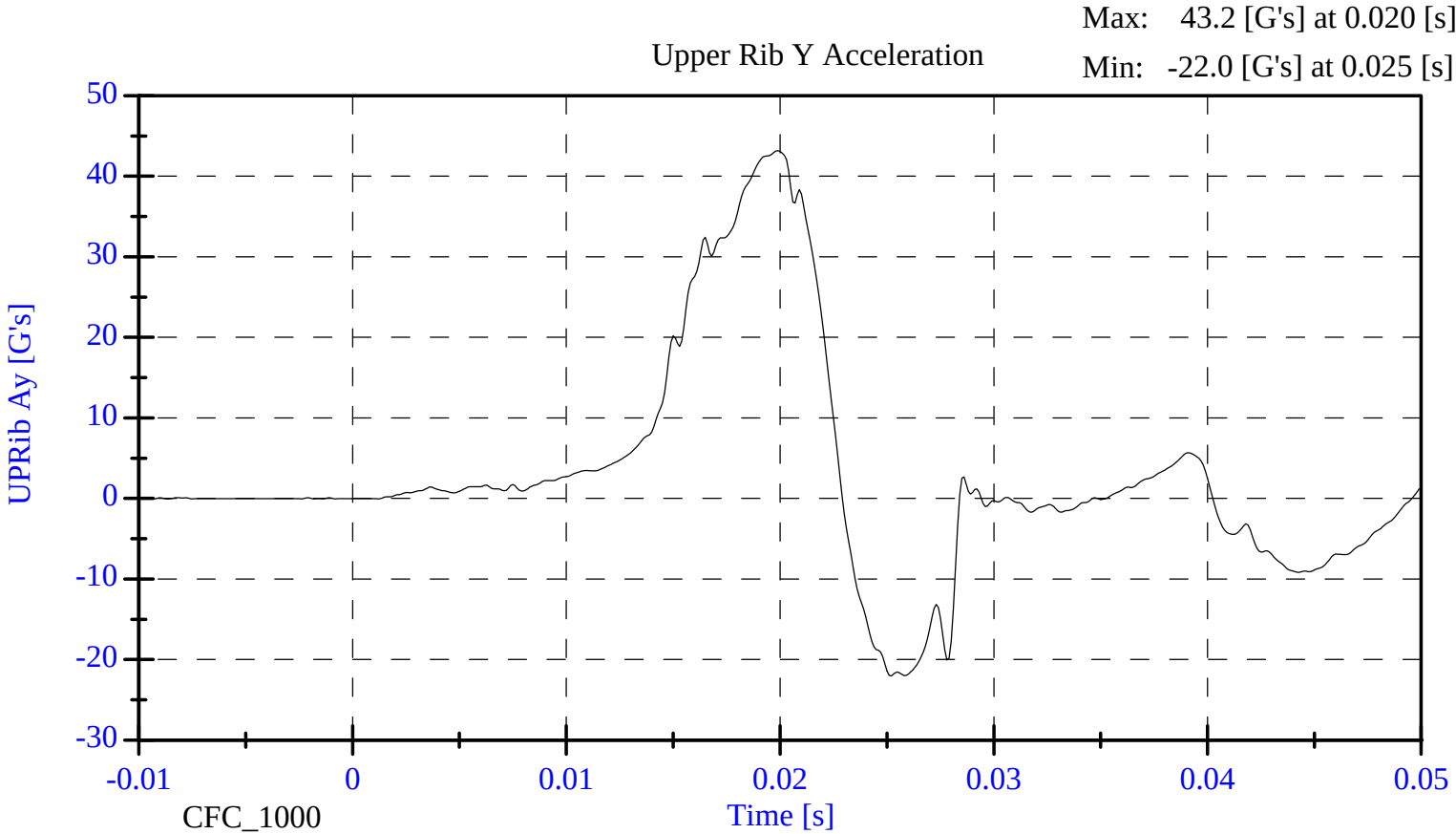
**LATERAL THORAX IMPACT TEST
POST TEST**

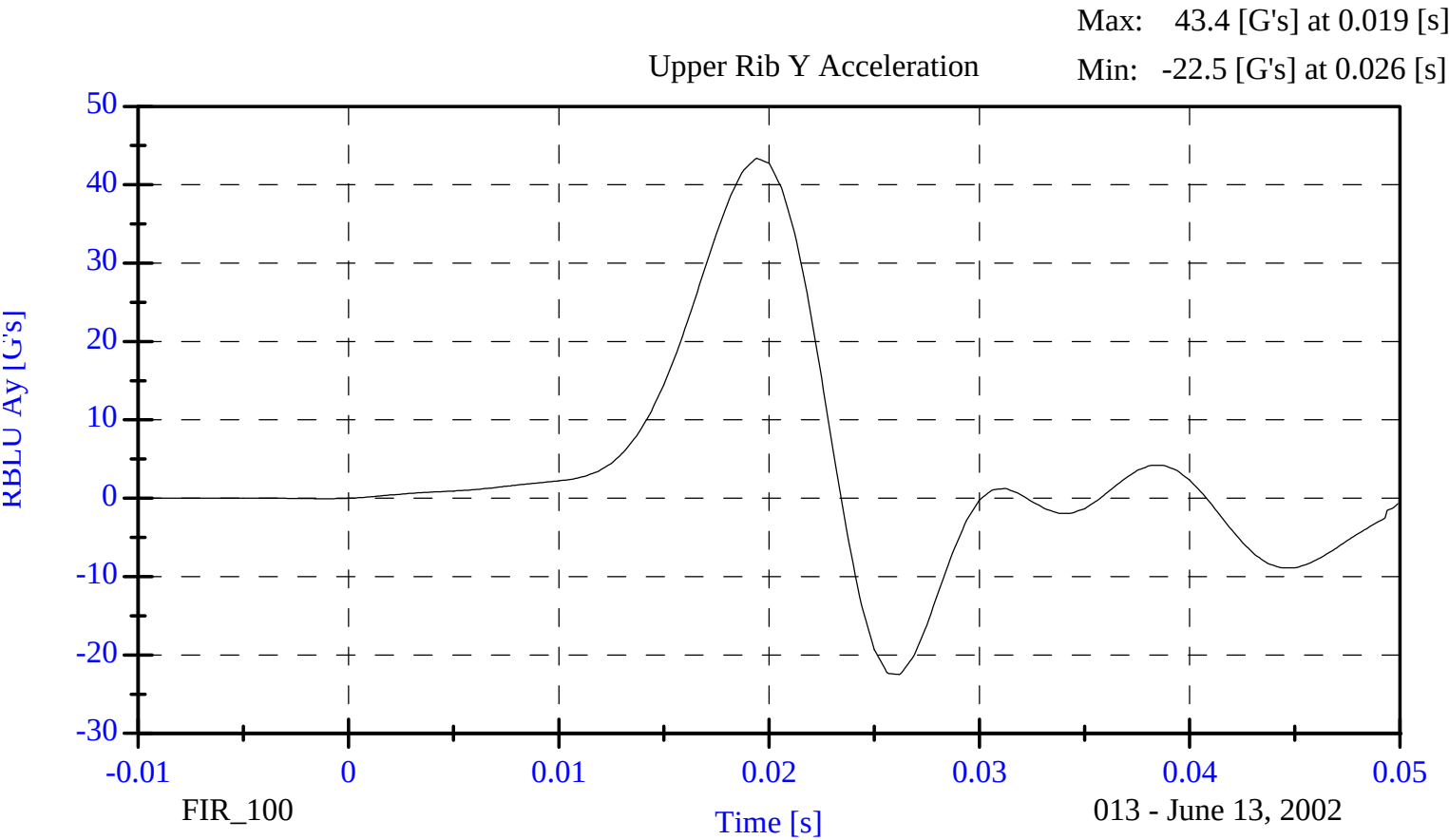
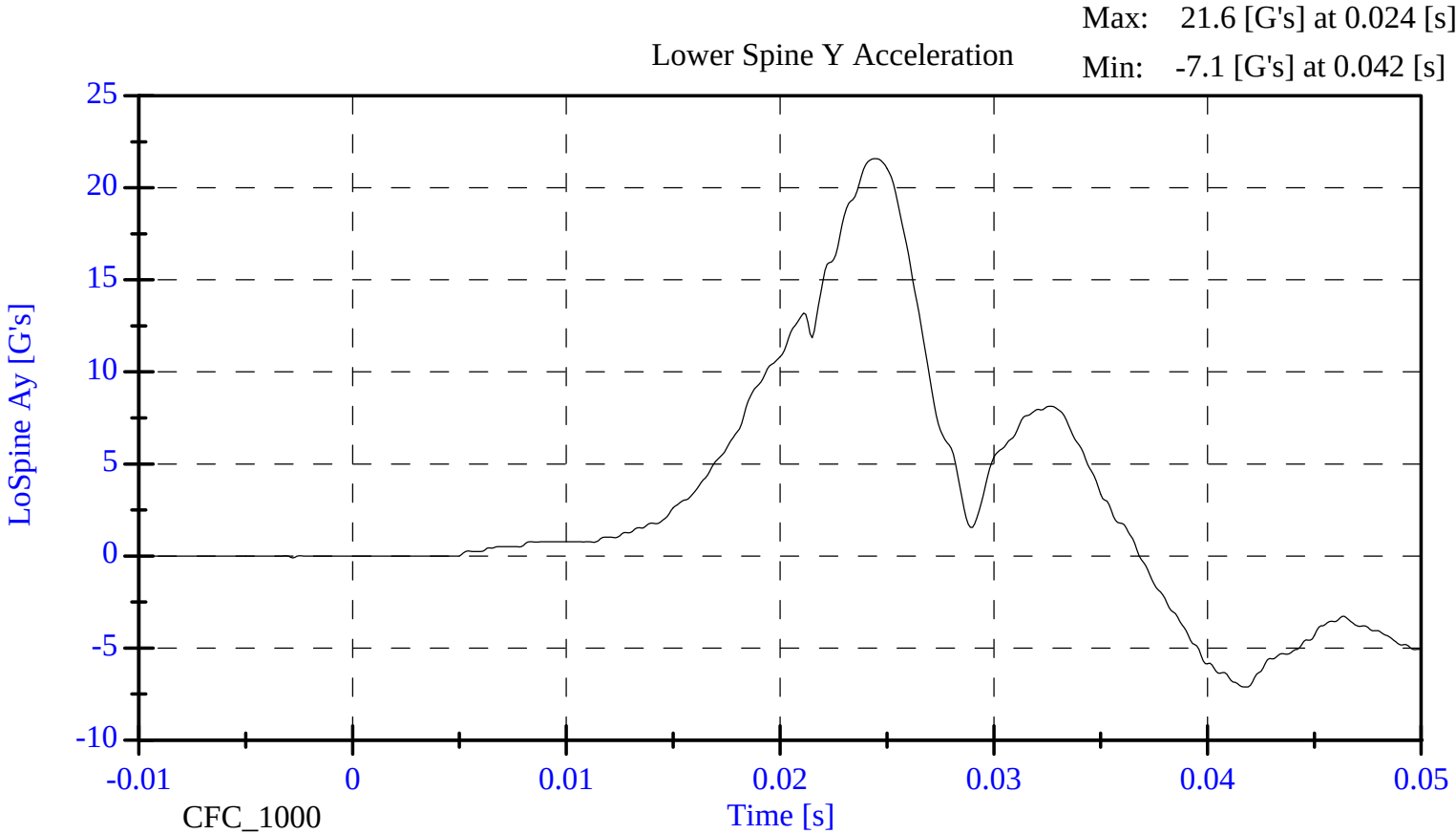
CONFIGURED FOR LEFT SIDE IMPACT

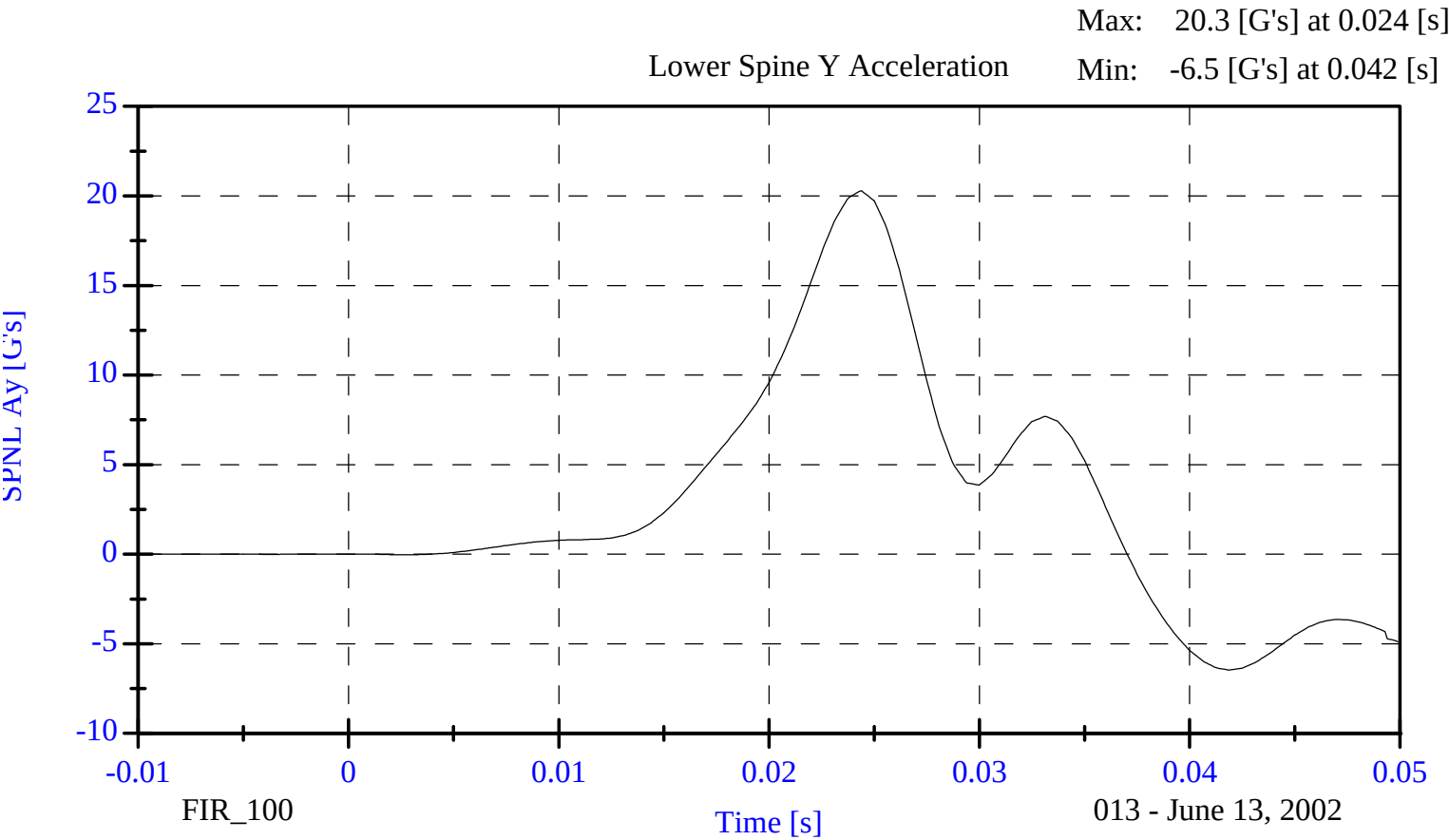
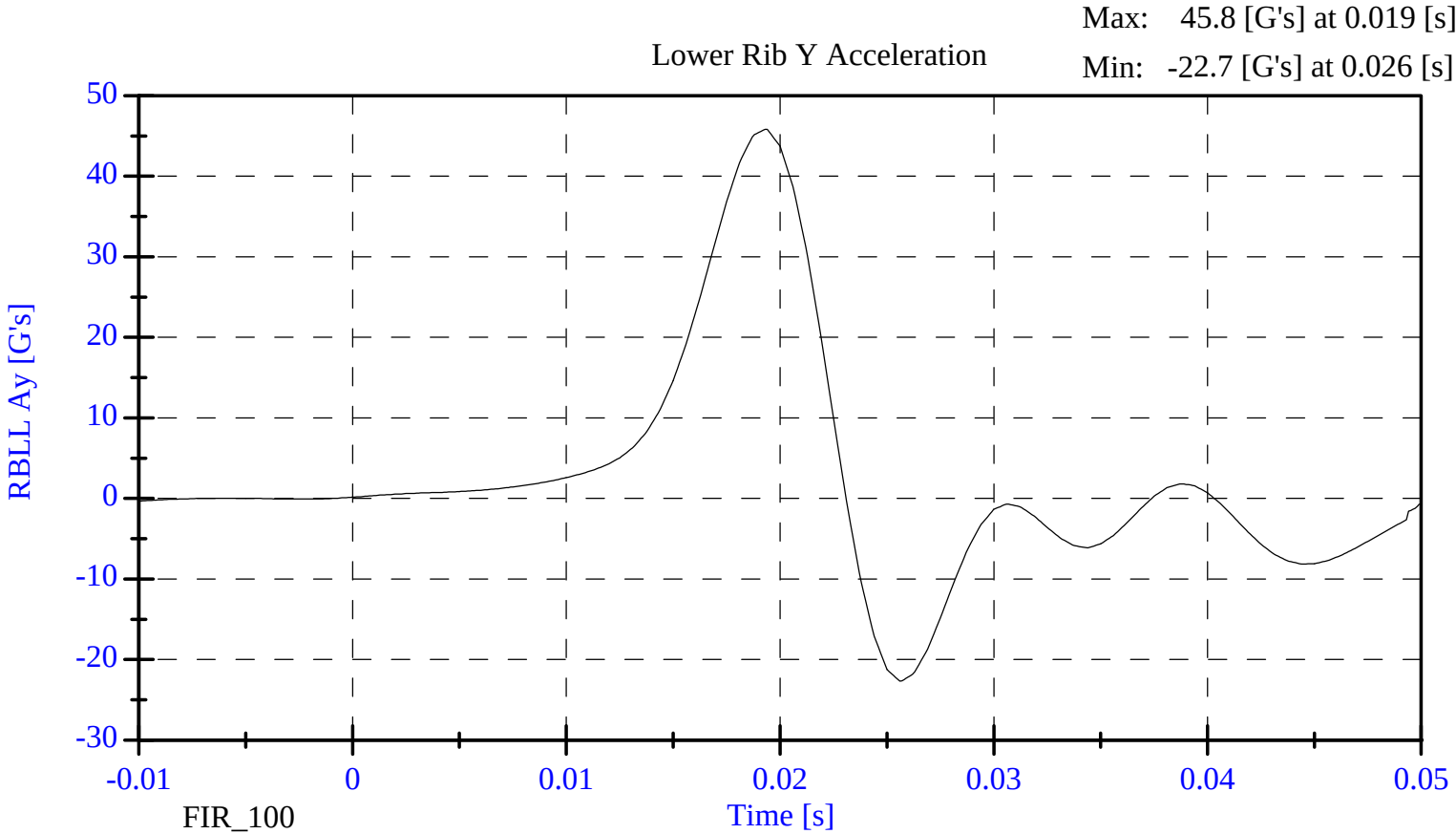
SID Serial No.: 013 Sequential Test Number: 2
Date: June 13, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	41.0
PROBE SPEED (m/s)	4.27 - 4.33	4.30
UPPER RIB (g's)	37 - 46	43.39
LOWER RIB (g's)	37 - 46	45.83
LOWER SPINE (g's)	15 - 22	20.29

REMARKS: None







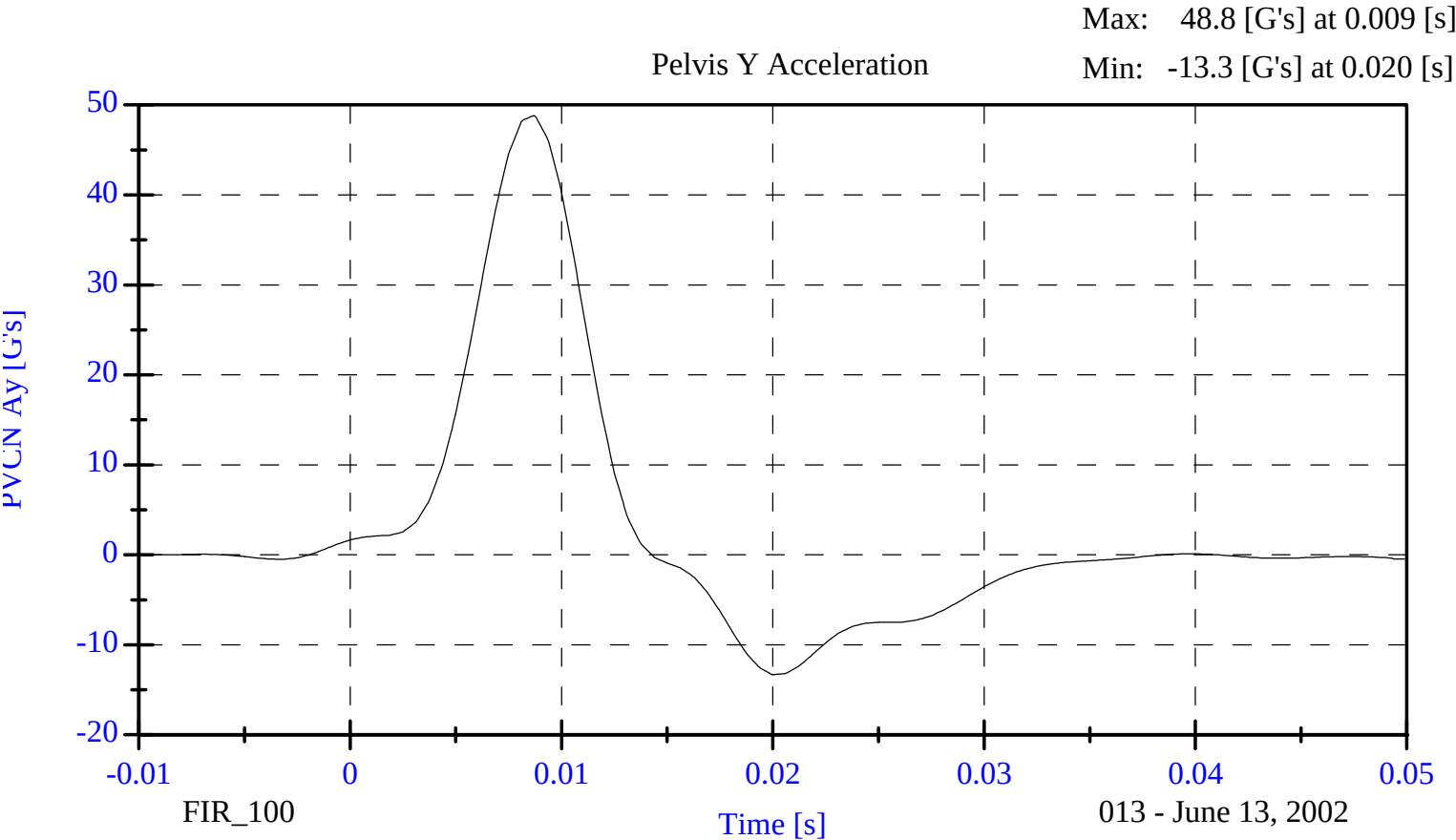
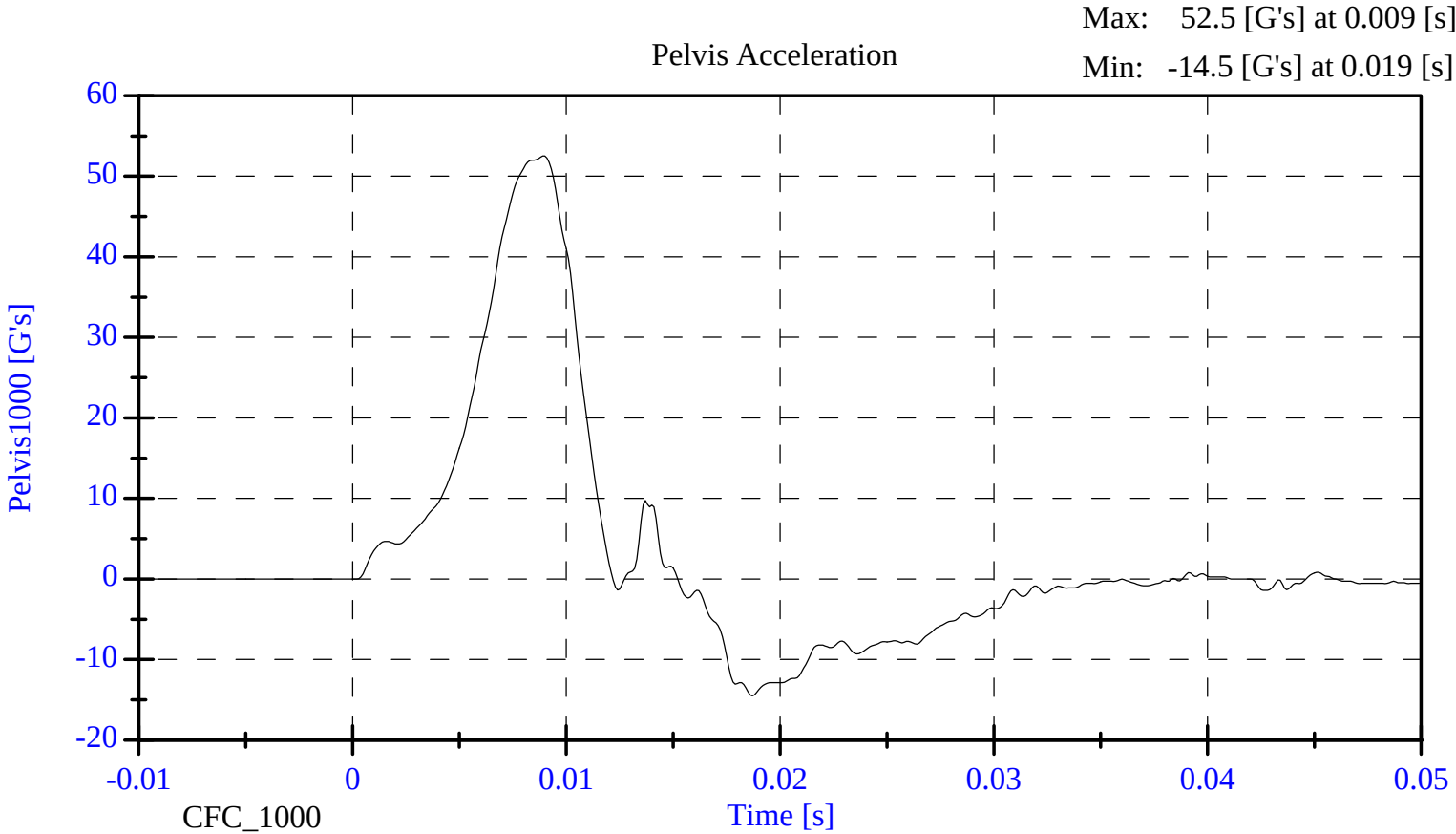
**LATERAL PELVIS IMPACT TEST
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 2
Date: June 13, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	41.0
PROBE SPEED (m/s)	4.27 - 4.33	4.29
PELVIS ACCELERATION (g's)	40 - 60	48.83

REMARKS: None



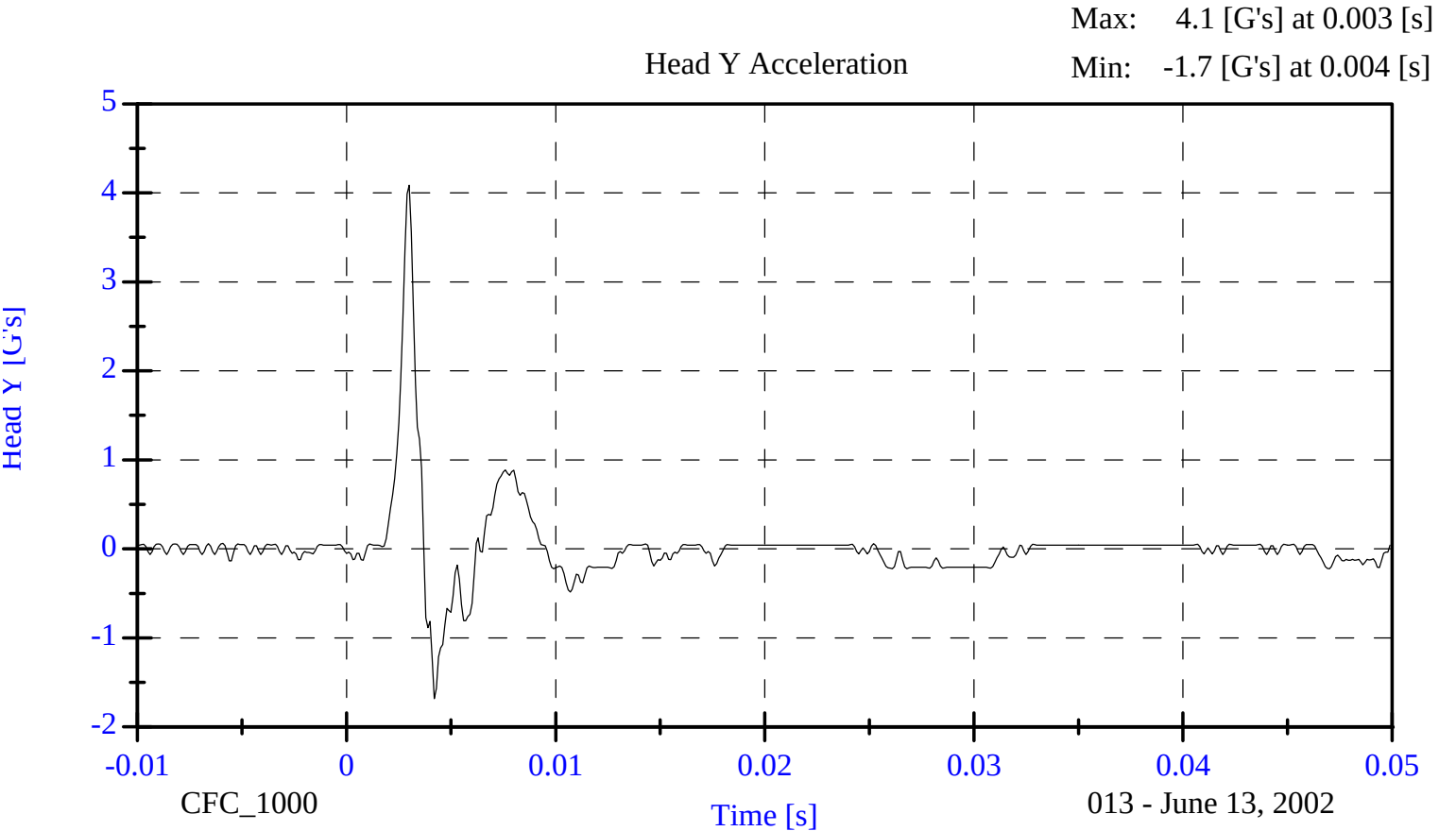
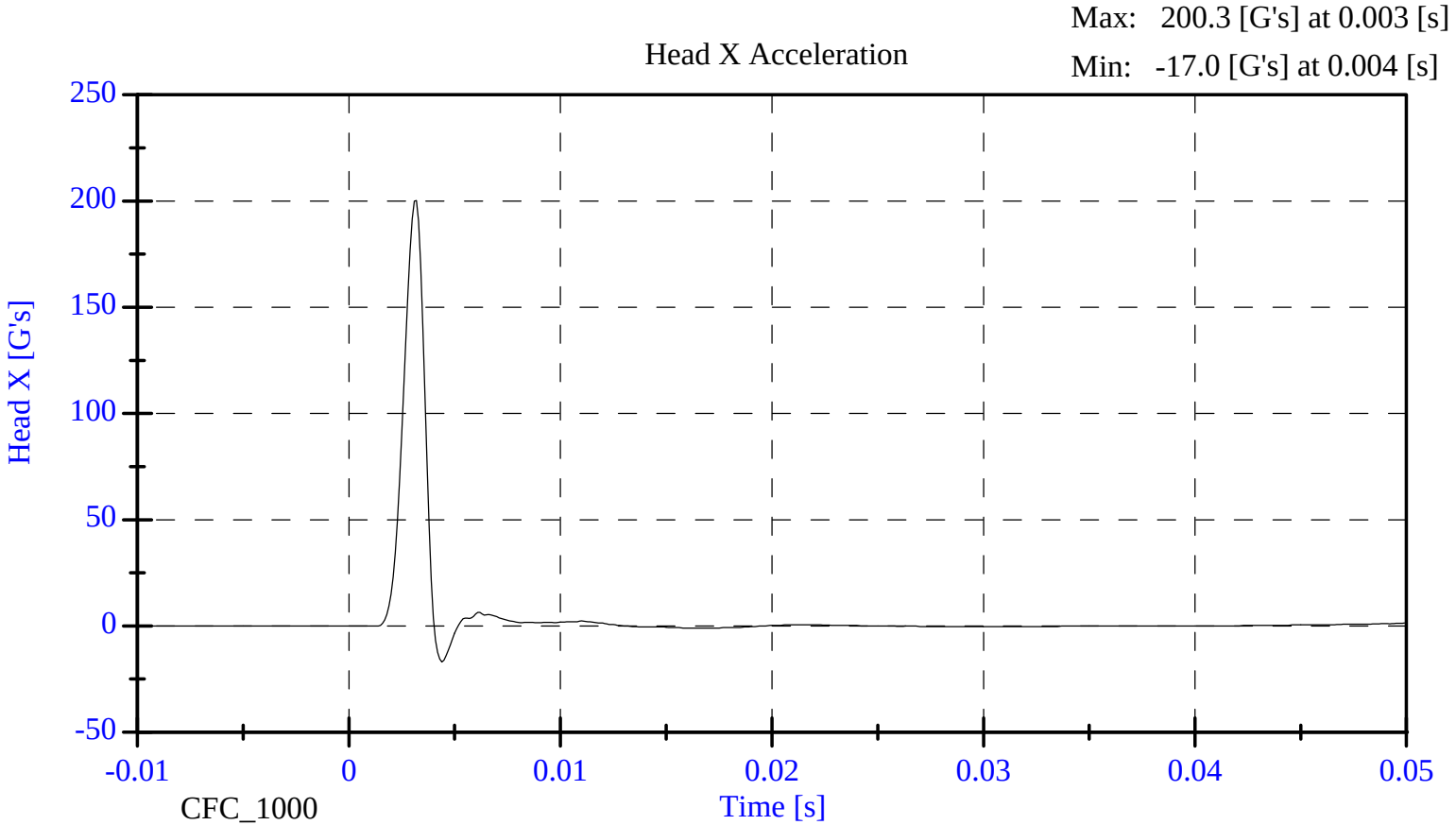
**HEAD DROP TEST
POST-TEST**
(Test not required for SID certification)

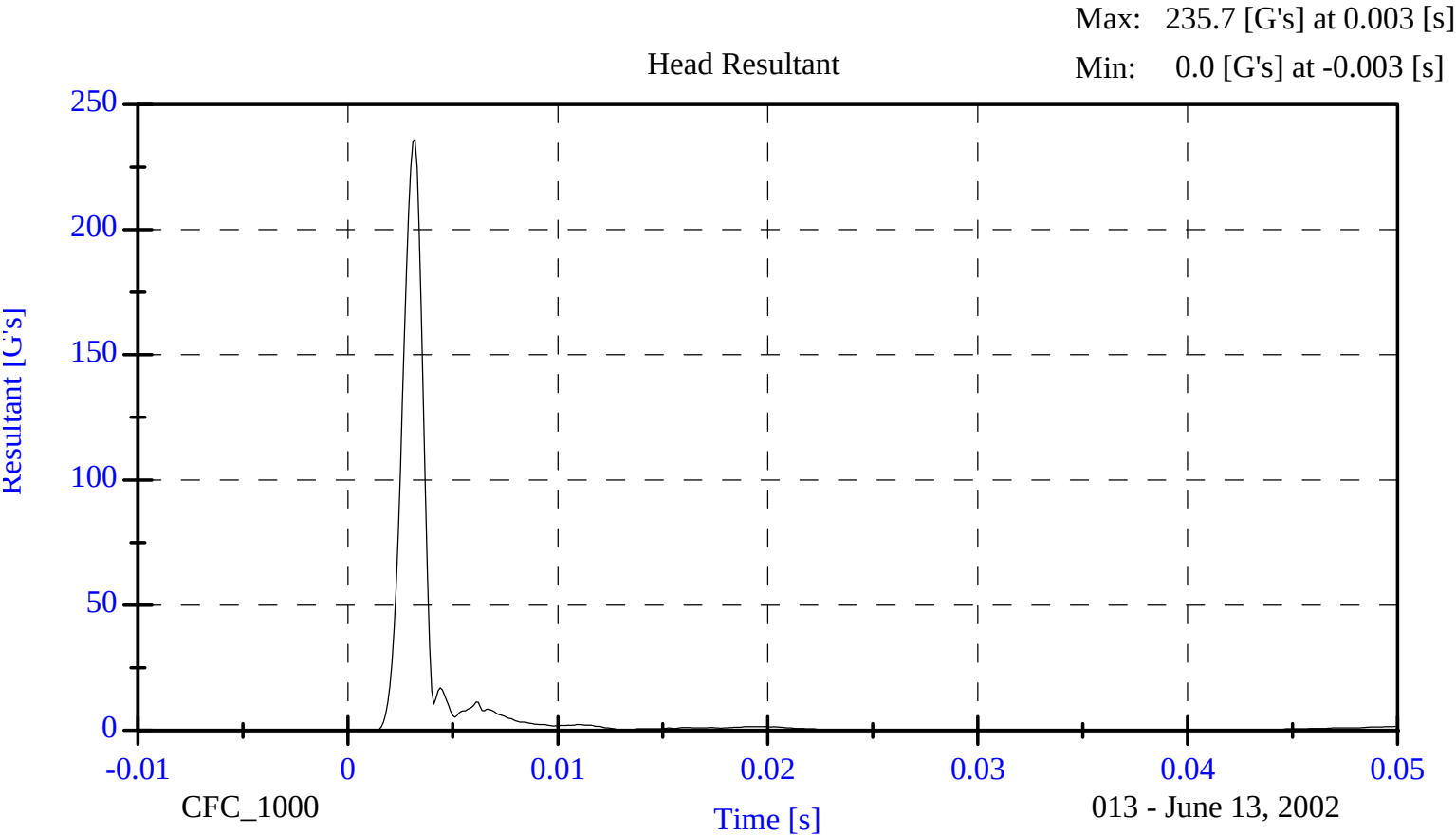
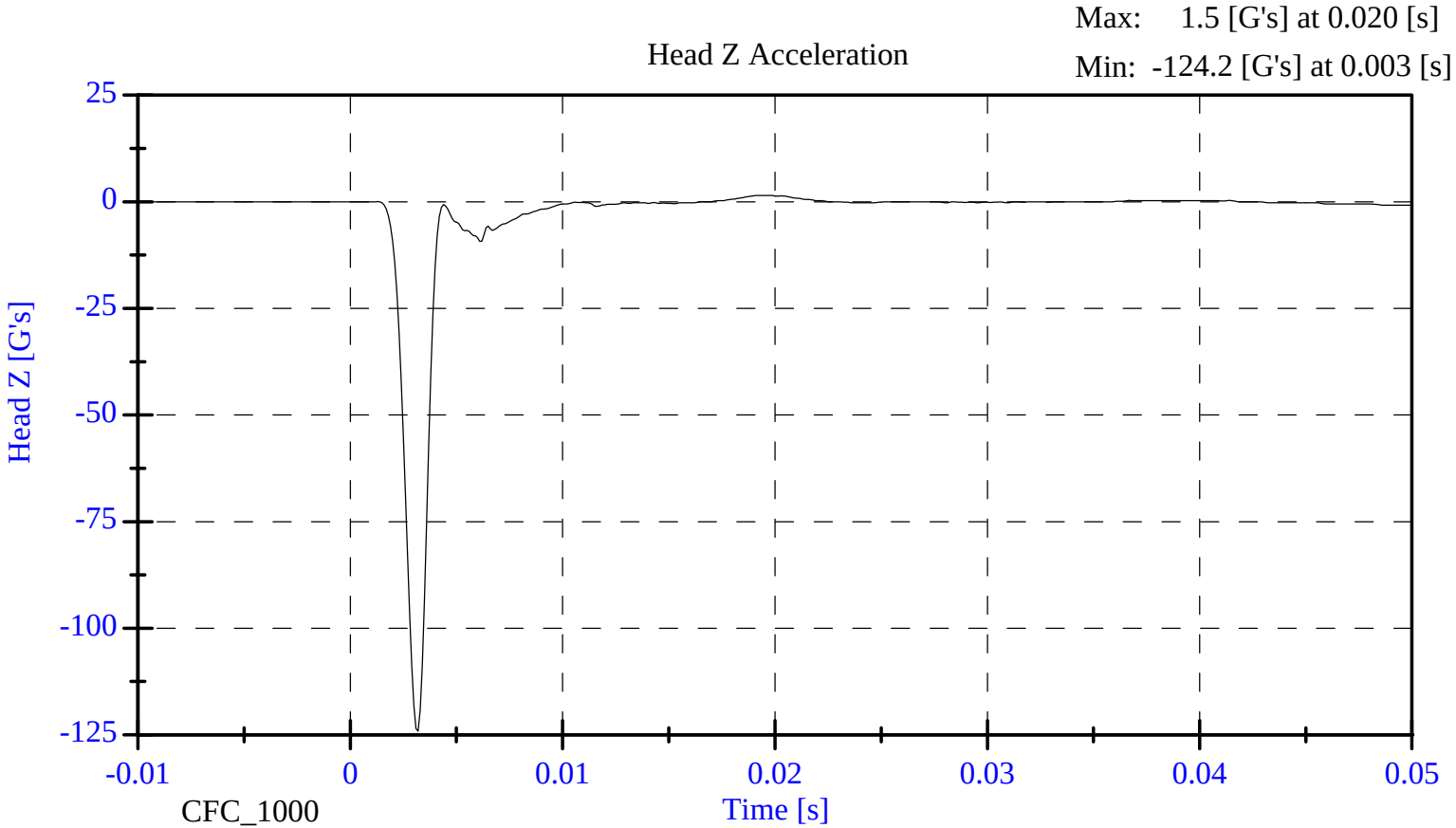
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 2
Date: June 13, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	38.0
PEAK RESULTANT ACCELERATION (Gs)	210 - 260	235.66
PEAK LATERAL ACCELERATION (Gs)	Not to Exceed 10	4.09
UNIMODAL CRITERIA ABOVE 100 Gs (ms)	0.9 - 1.5	1.21

REMARKS: None





**ABDOMINAL COMPRESSION TEST
POST TEST**

(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 2
Date: June 13, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	40.0
FORCE @ 13 mm (N)	104 - 162	124.6
FORCE @ 19 mm (N)	163 - 221	186.8
FORCE @ 25 mm (N)	222 - 280	262.4
FORCE @ 33 mm (N)	325 - 391	373.7

REMARKS: None

Dummy S/N 013

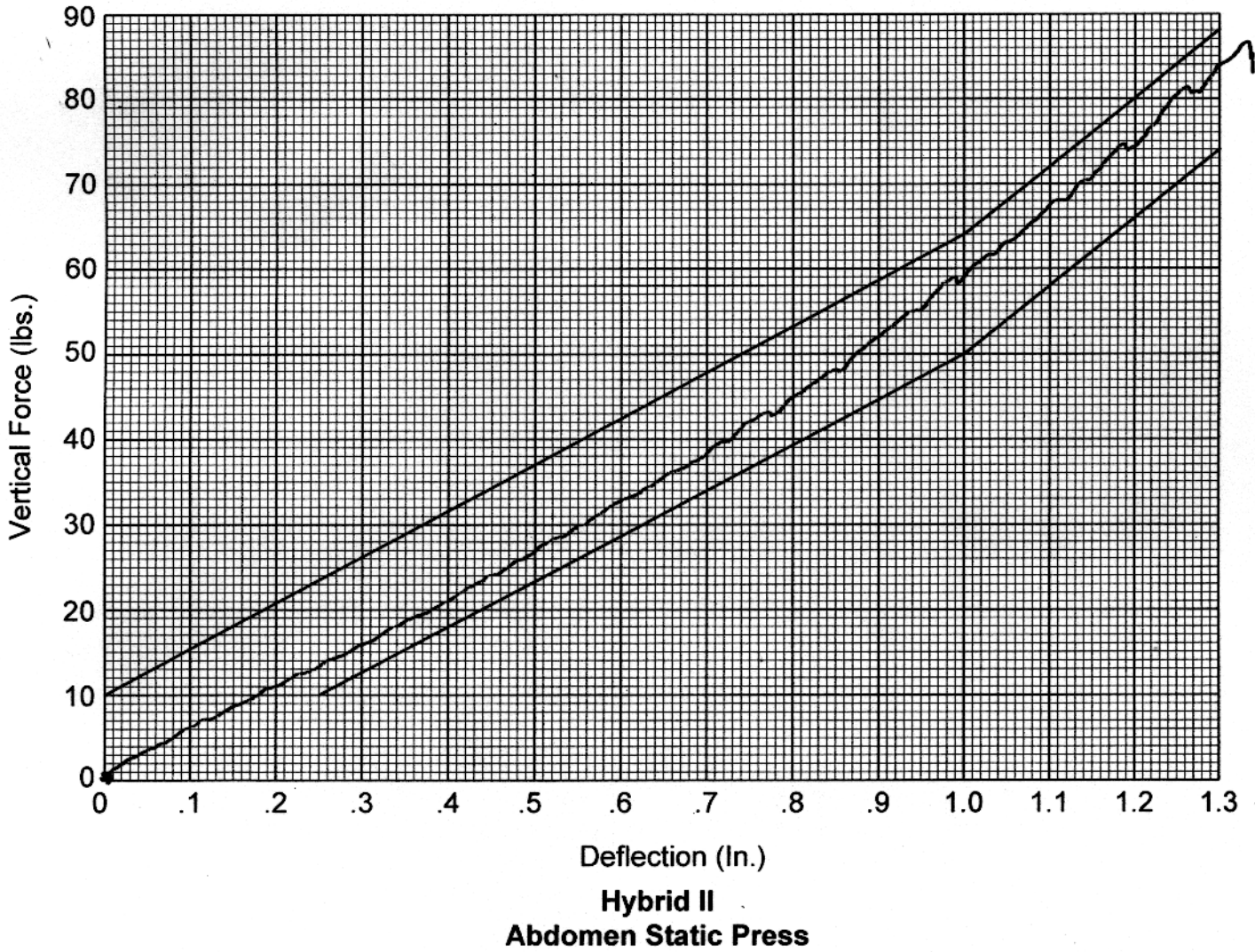
W/A _____

Date 6-13-02

Performed By [Signature]

Temp. 70°

Humidity 40%



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

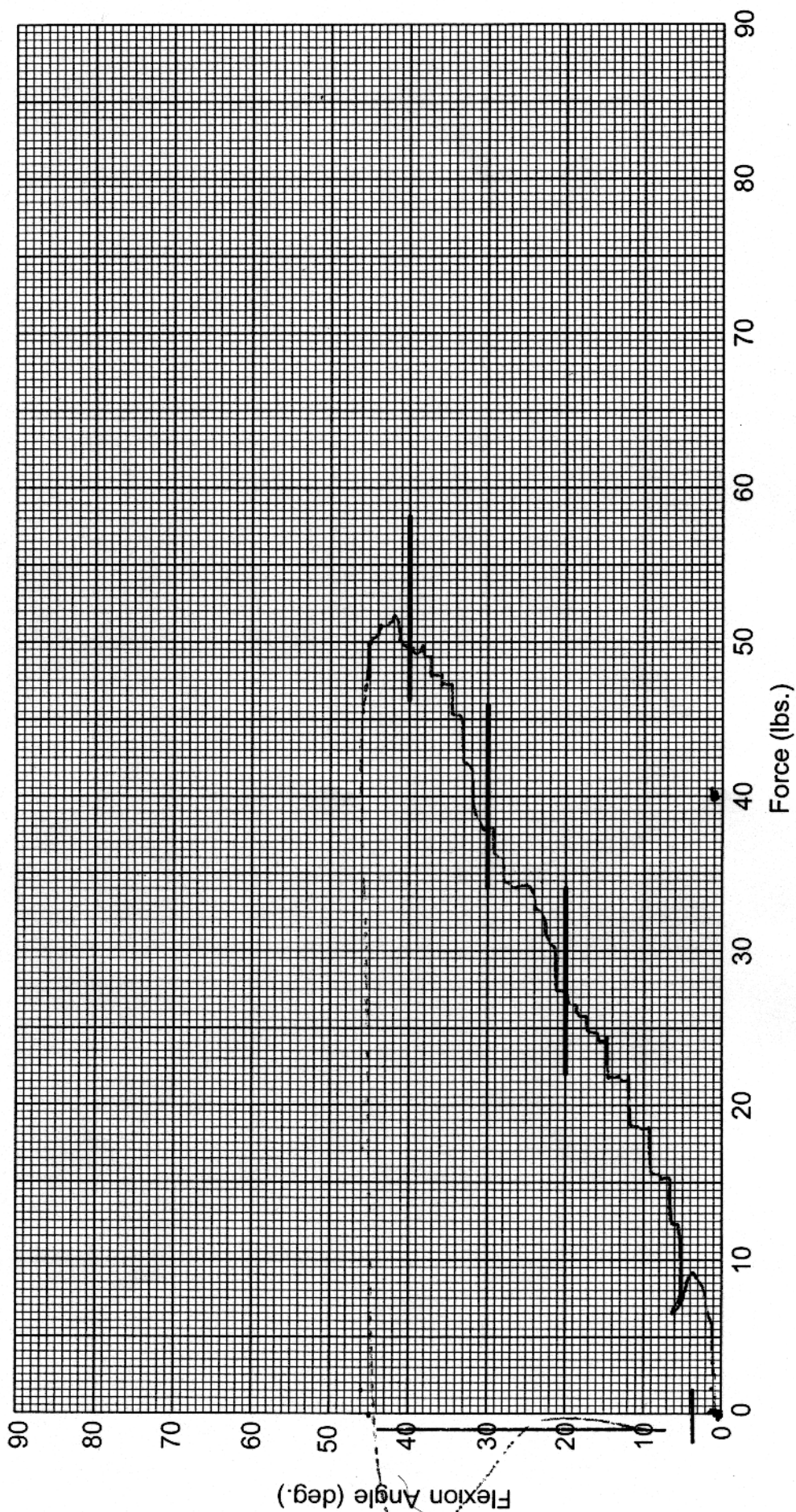
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 2
Date: June 13, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	41.0
FORCE @ 0E (N)	0 - 26.7	0
FORCE @ 20E (N)	97.8 - 151.2	121.9
FORCE @ 30E (N)	151.2 - 204.6	169.0
FORCE @ 40E (N)	204.6 - 258	220.2
RETURN ANGLE	12E max.	3.7°

REMARKS: None

Dummy S/N 013
W/A _____
Date 6-13-02
Performed By [Signature]
Temp. 71
Humidity 41%



Hybrid II Lumbar Spine Flexion Test

POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 2
Date: June 13, 2002 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 NO.: 016

CONFIGURED FOR LEFT SIDE IMPACT

**CALIBRATION TEST RESULTS SUMMARY
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.:	<u>016</u>	Sequential Test Number:	<u>1</u>
Date:	<u>June 13, 2002</u>	Laboratory Technician:	<u>B. Swiecicki</u>

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.
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 Serial No.: 016 Sequential Test Number: 1
Date: June 13, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
SH- Seated Height (mm)	889 - 909	902
RH- Rib Height (mm)	502 - 520	511
HP- Hip Pivot Height (mm)	99 ref.	99
RD- Rib from Back Line (mm)	229 - 241	239
KH- Knee Pivot from Back Line (mm)	511 - 526	526
KV- Knee Pivot to Floor (mm)	490 - 505	495
HW- Hip Width (mm)	356 - 391	368

REMARKS: None

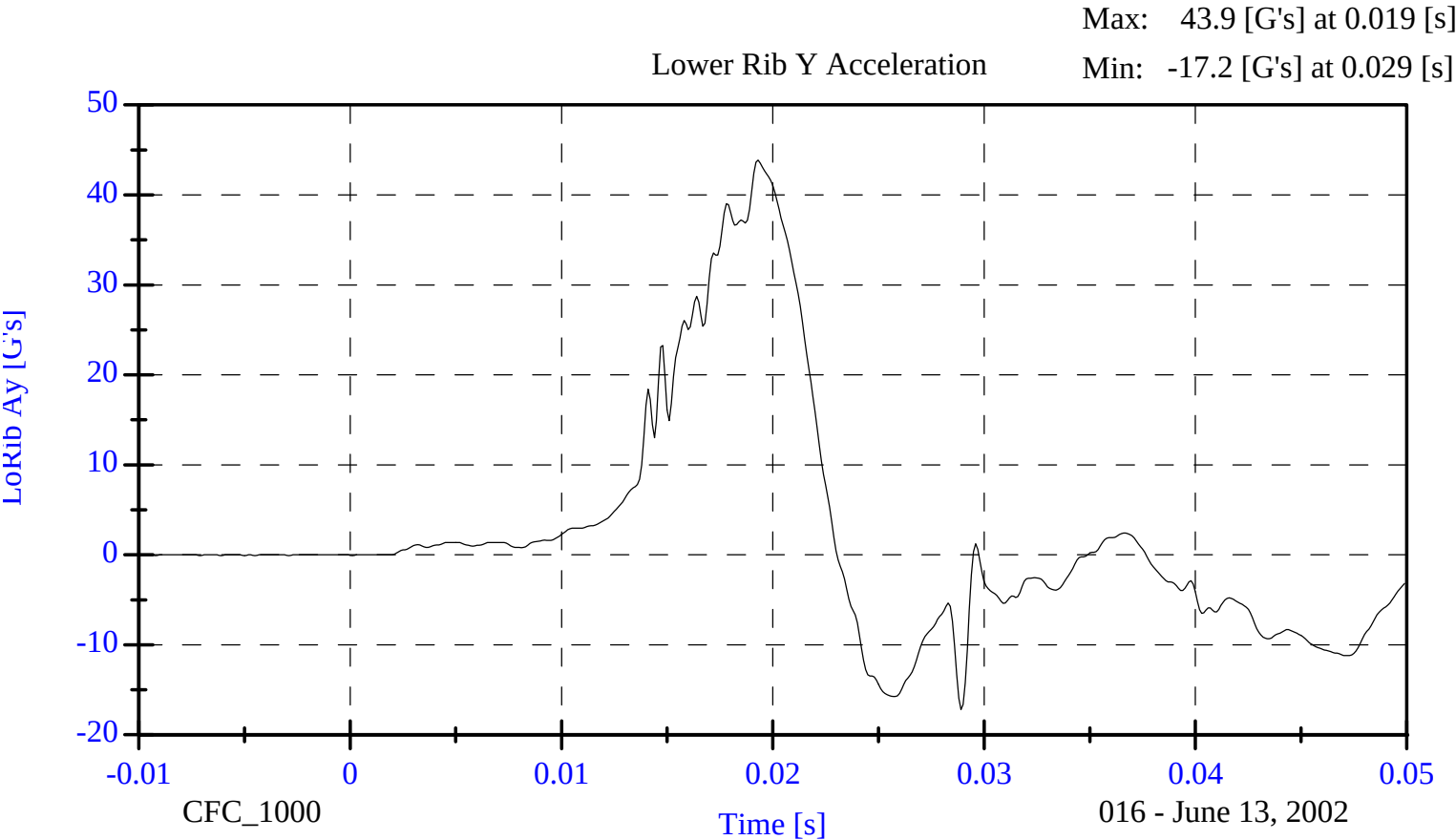
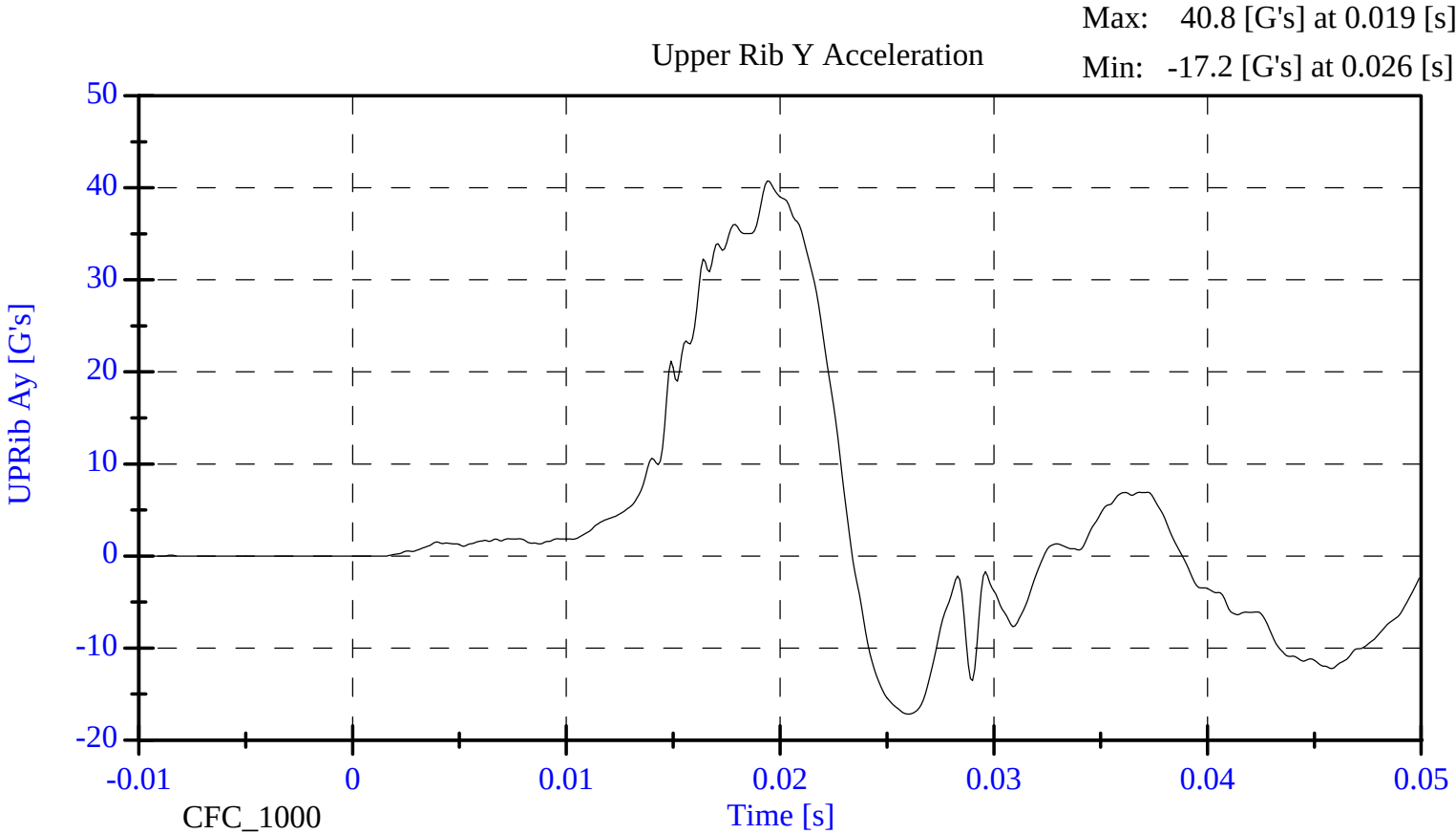
**LATERAL THORAX IMPACT TEST
POST TEST**

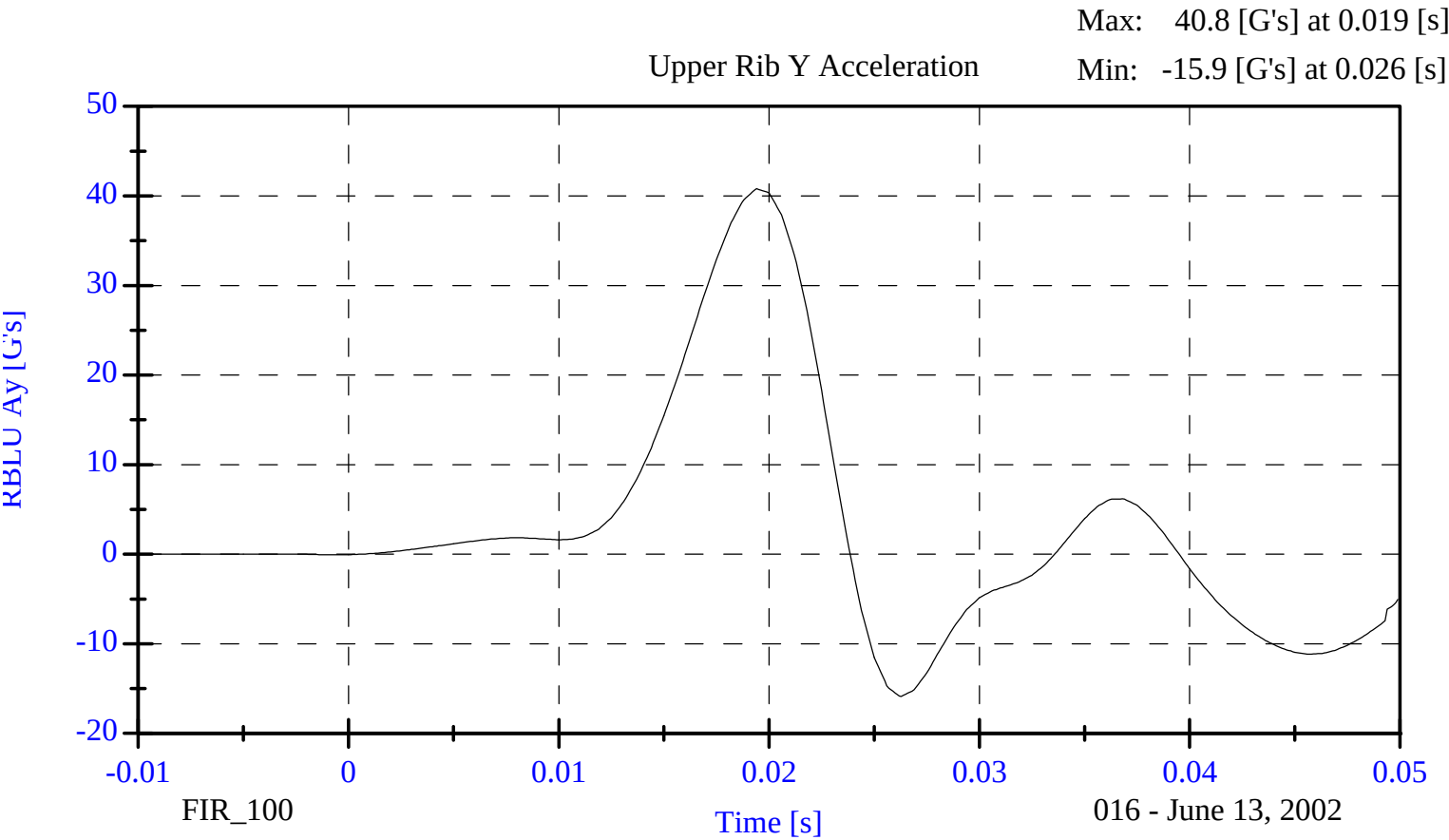
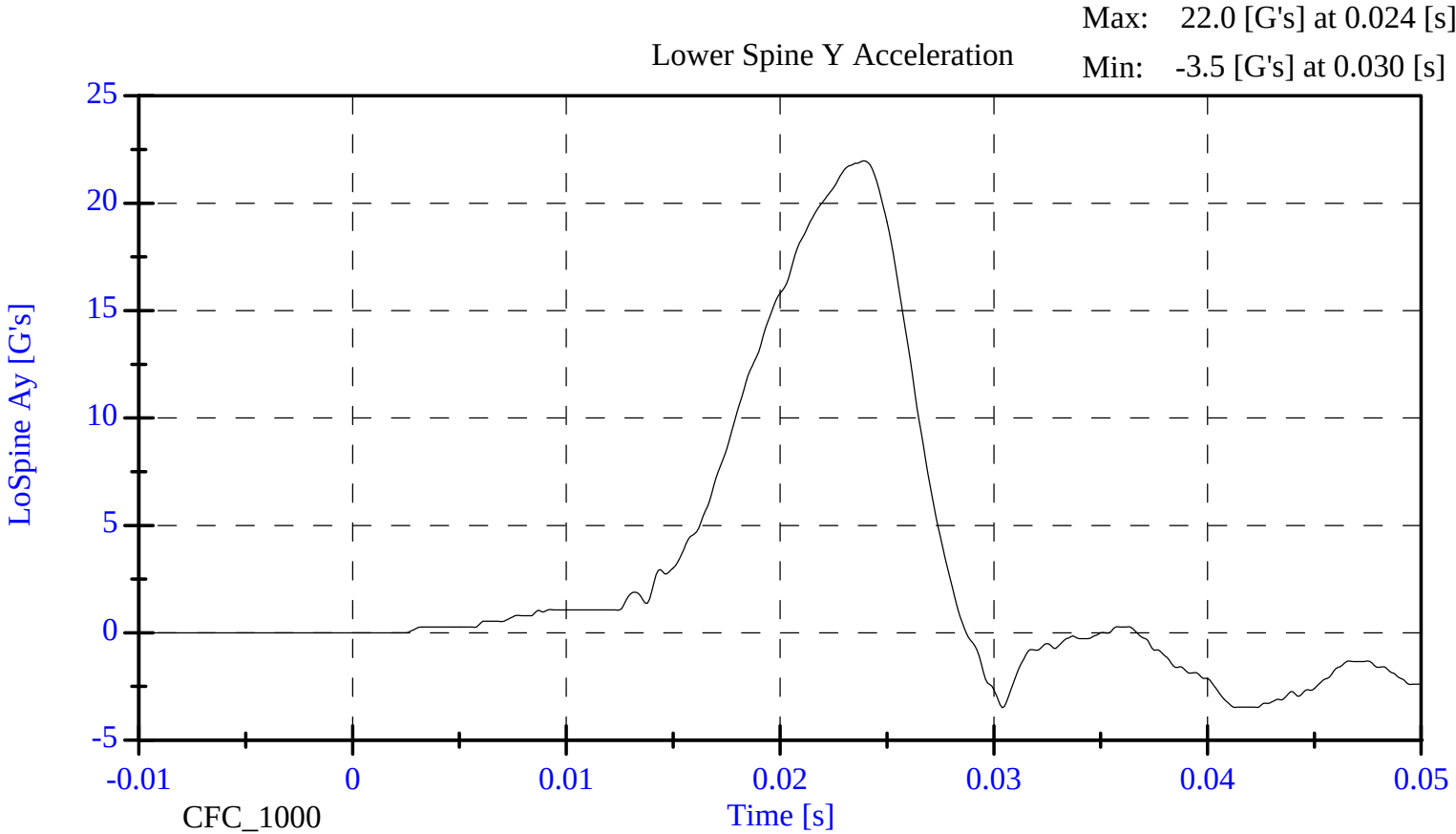
CONFIGURED FOR LEFT SIDE IMPACT

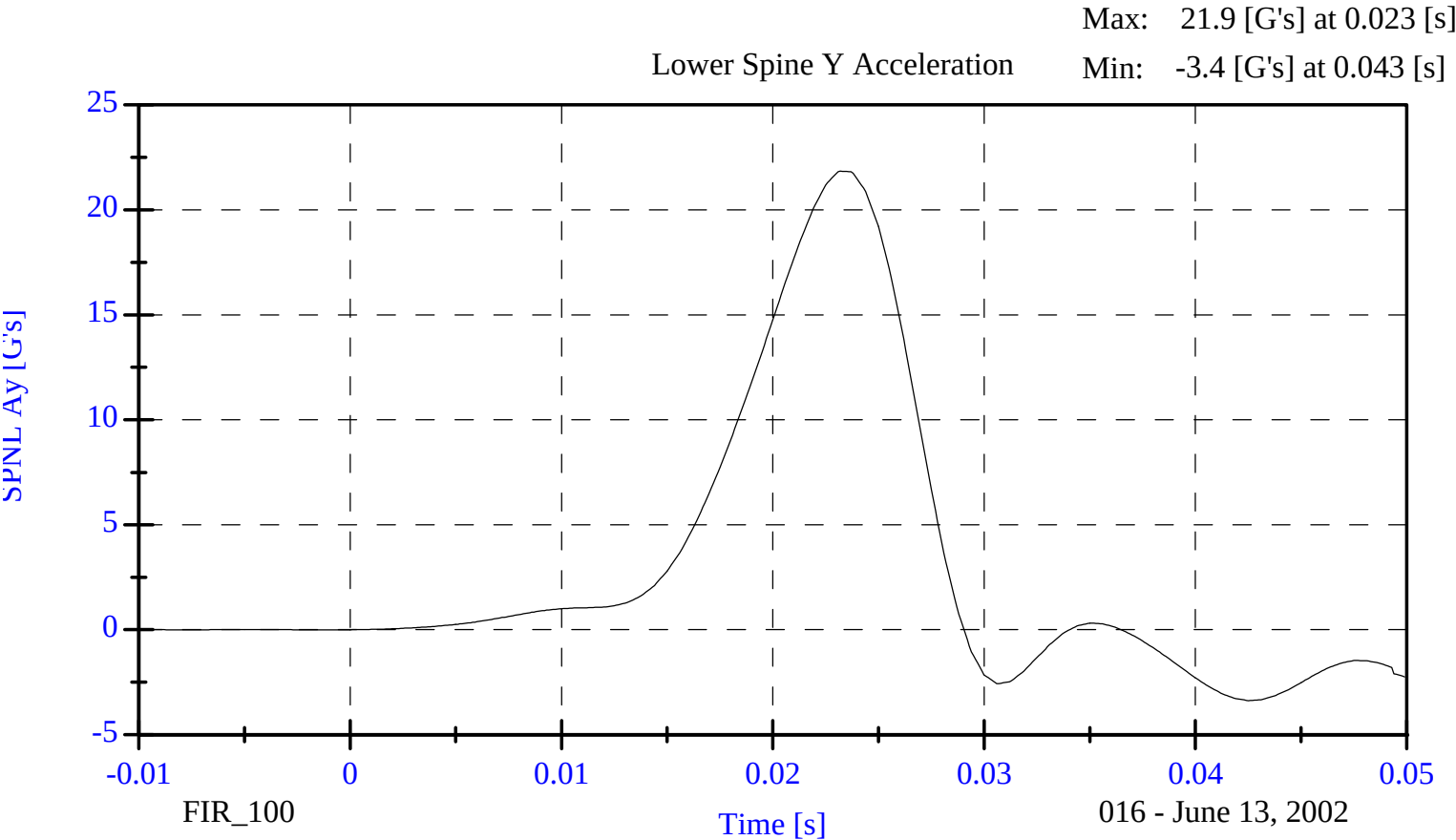
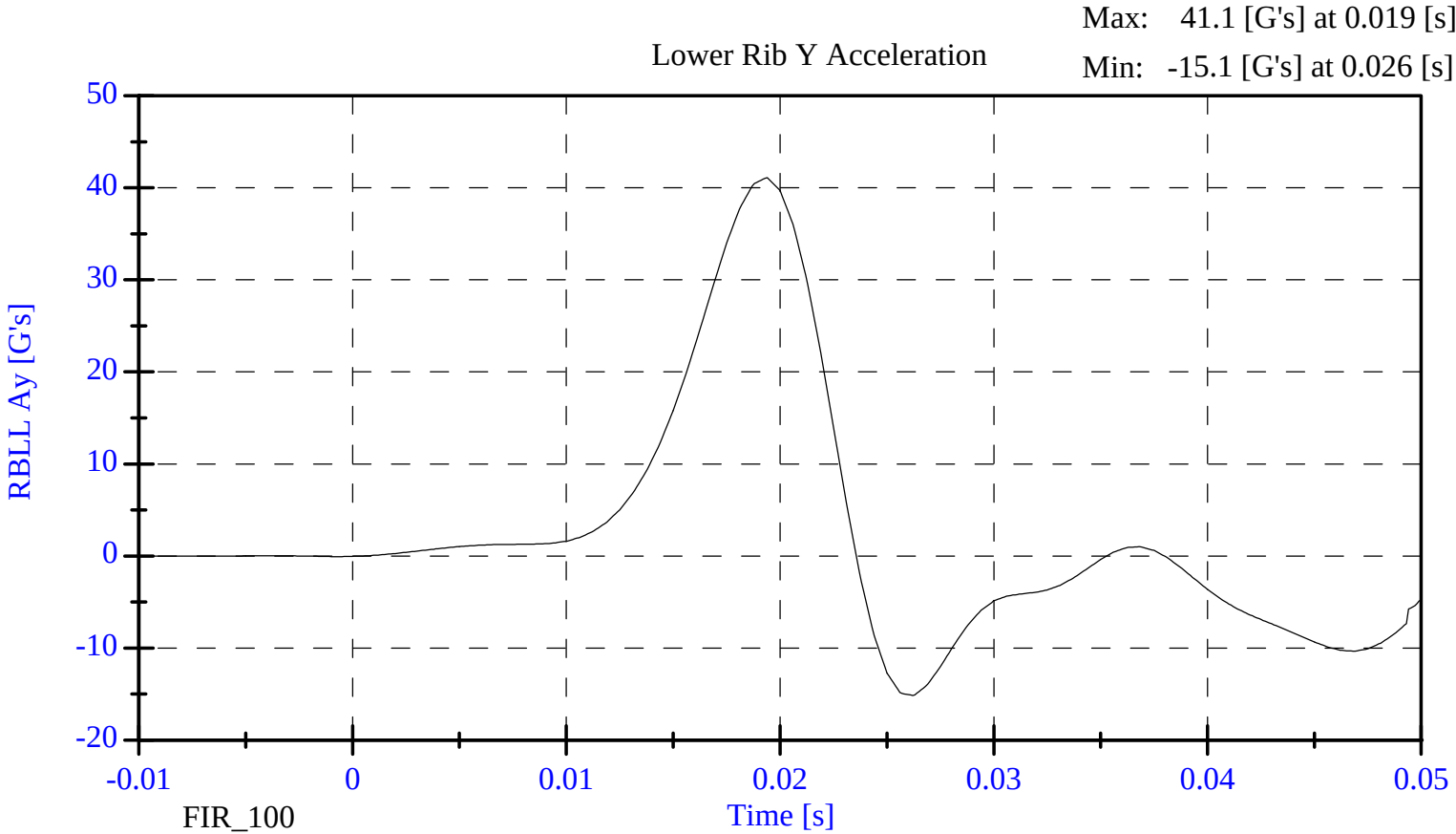
SID Serial No.: 016 Sequential Test Number: 1
Date: June 13, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	40.0
PROBE SPEED (m/s)	4.27 - 4.33	4.32
UPPER RIB (g's)	37 - 46	40.80
LOWER RIB (g's)	37 - 46	41.09
LOWER SPINE (g's)	15 - 22	21.85

REMARKS: None







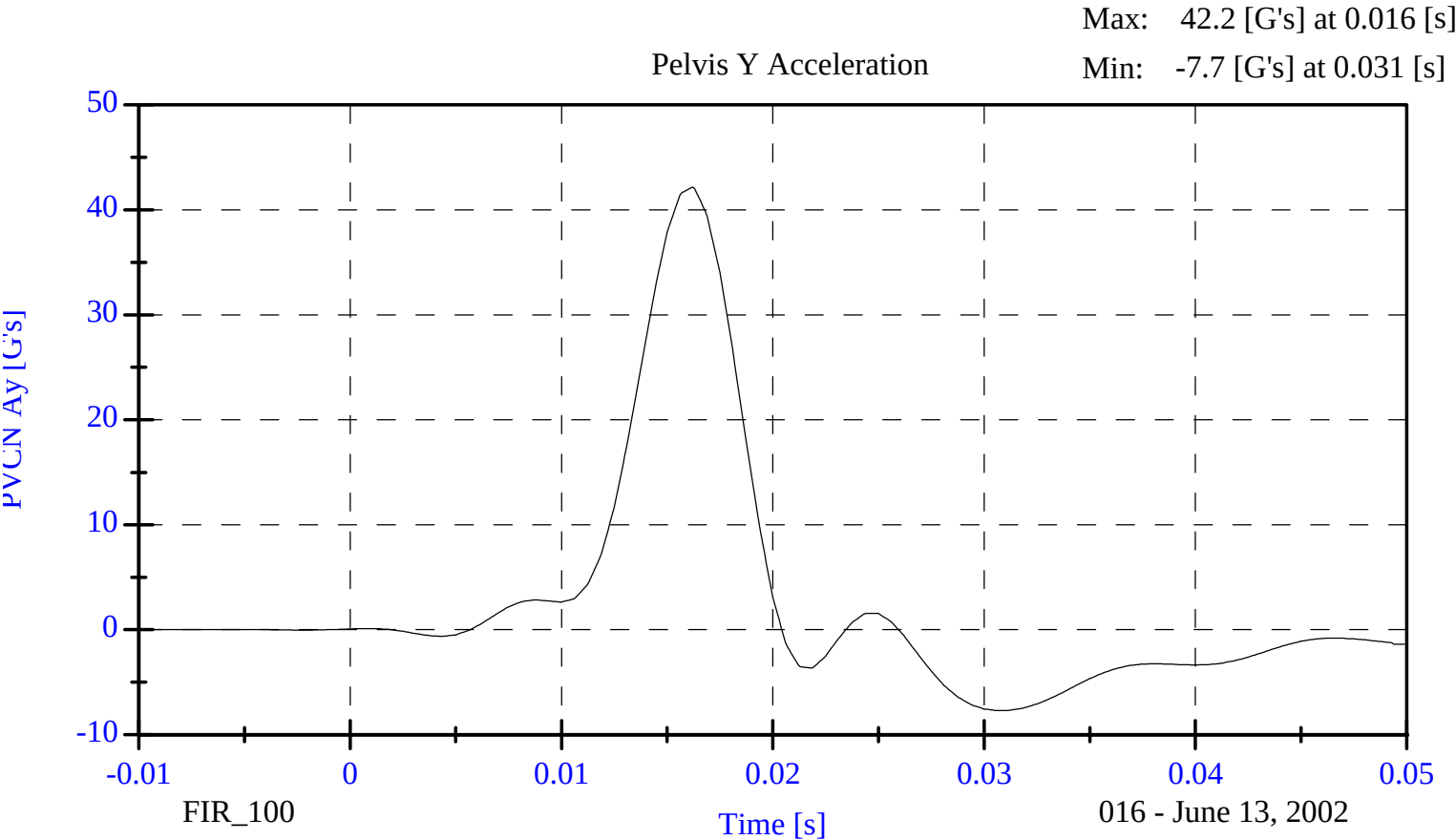
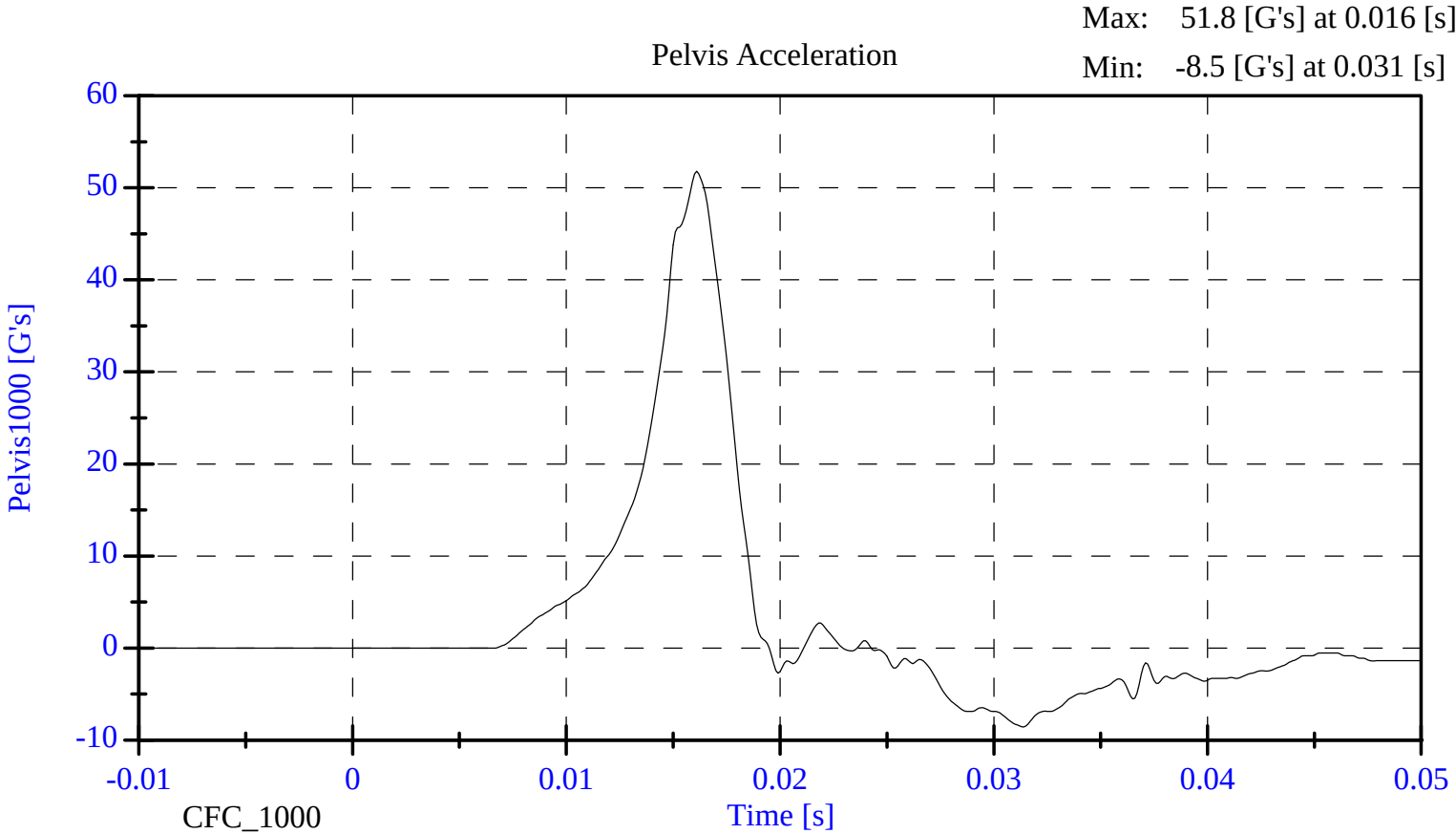
**LATERAL PELVIS IMPACT TEST
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.:	<u>016</u>	Sequential Test Number:	<u>1</u>
Date:	<u>June 13, 2002</u>	Laboratory Technician:	<u>B. Swiecicki</u>

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	40.0
PROBE SPEED (m/s)	4.27 - 4.33	4.33
PELVIS ACCELERATION (g's)	40 - 60	42.20

REMARKS: None



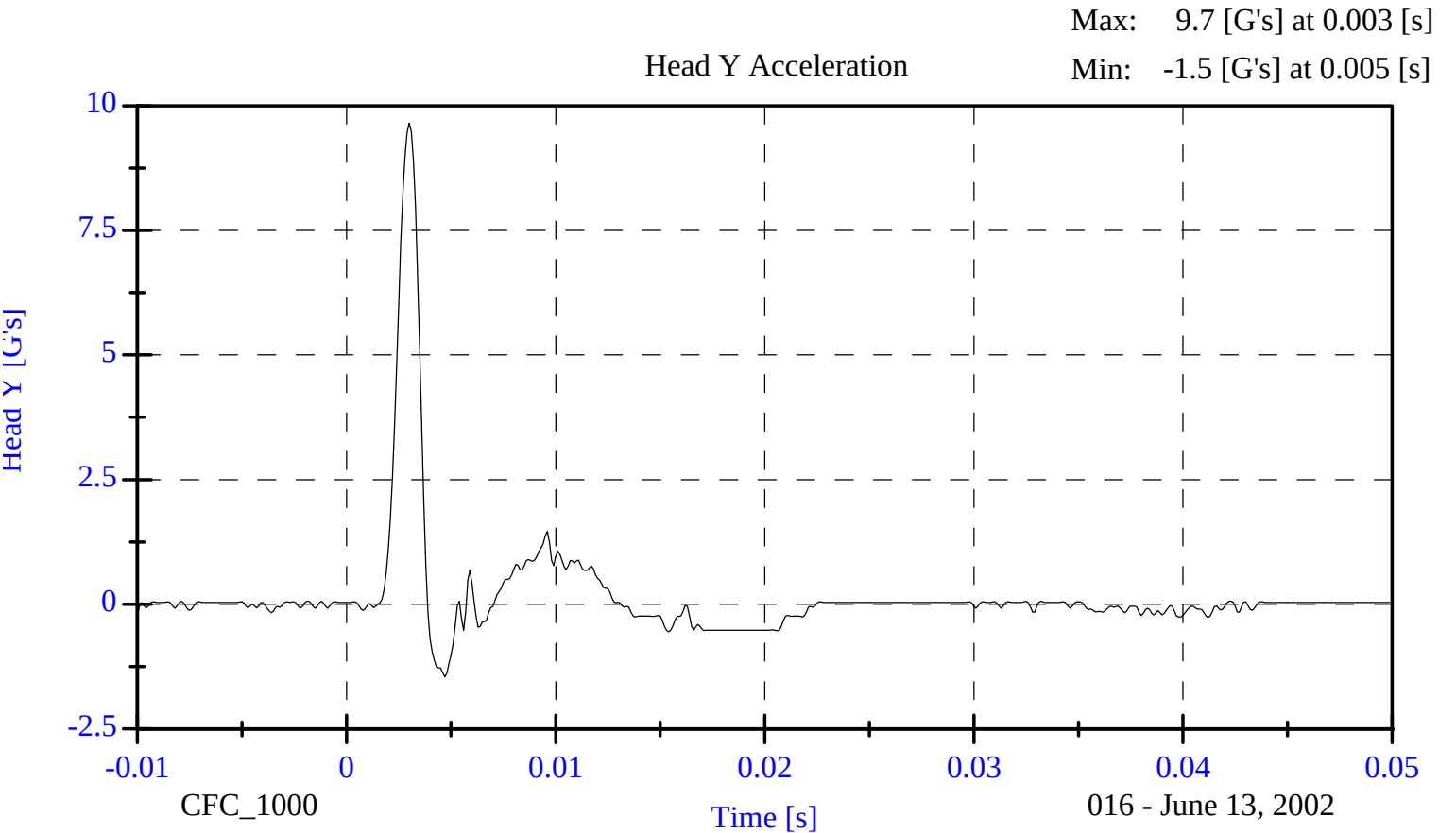
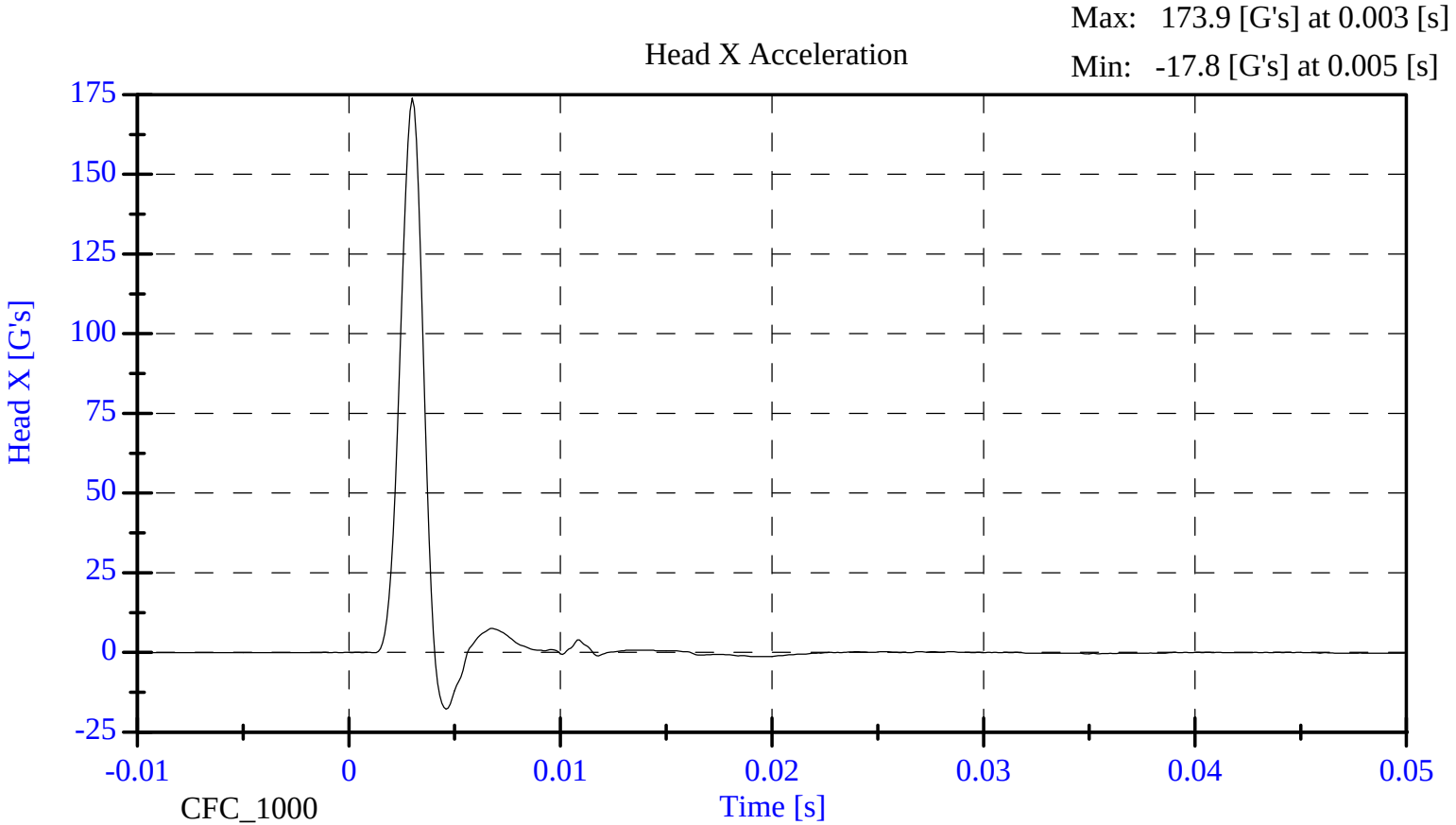
HEAD DROP TEST
POST-TEST
(Test not required for SID certification)

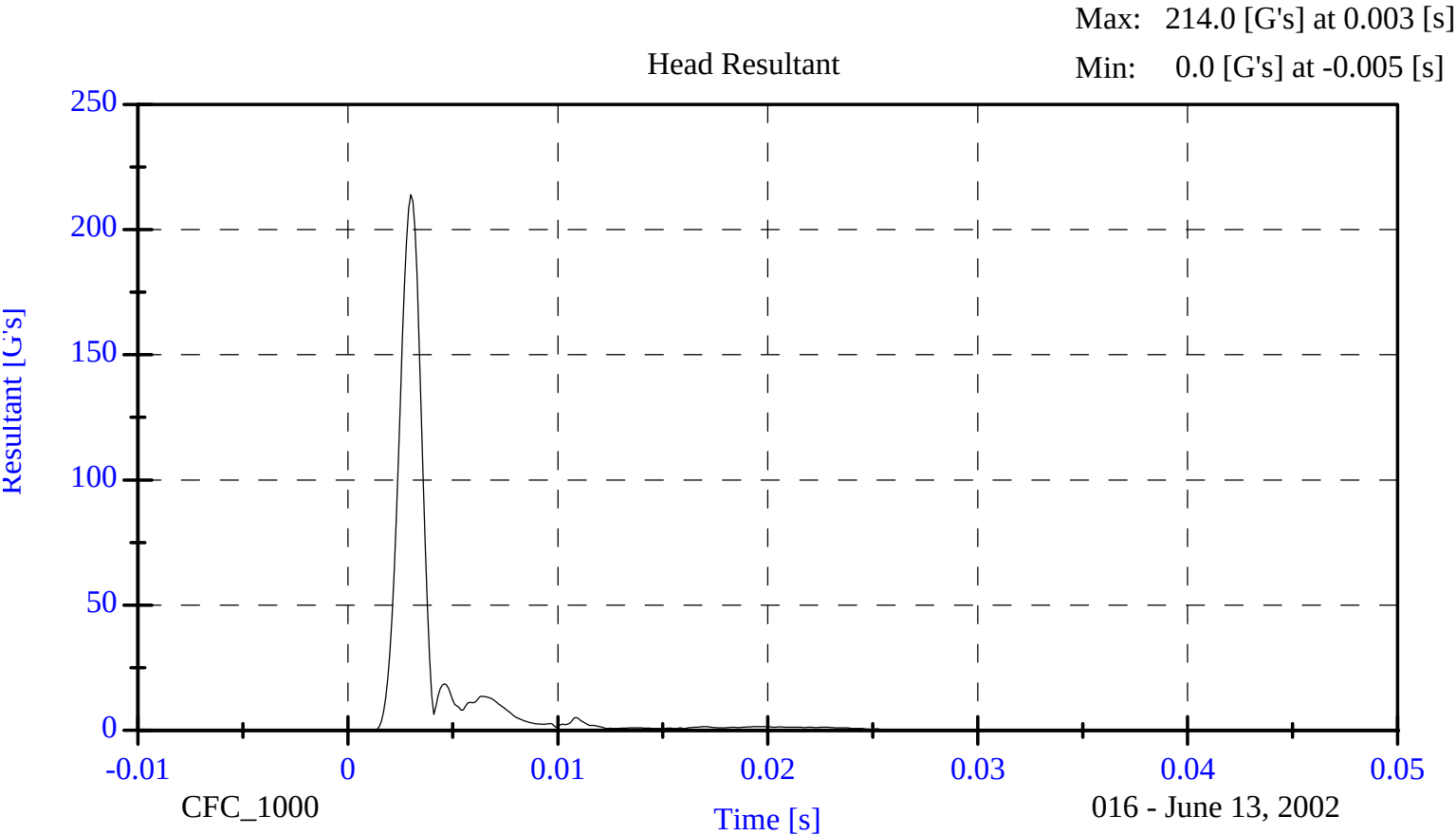
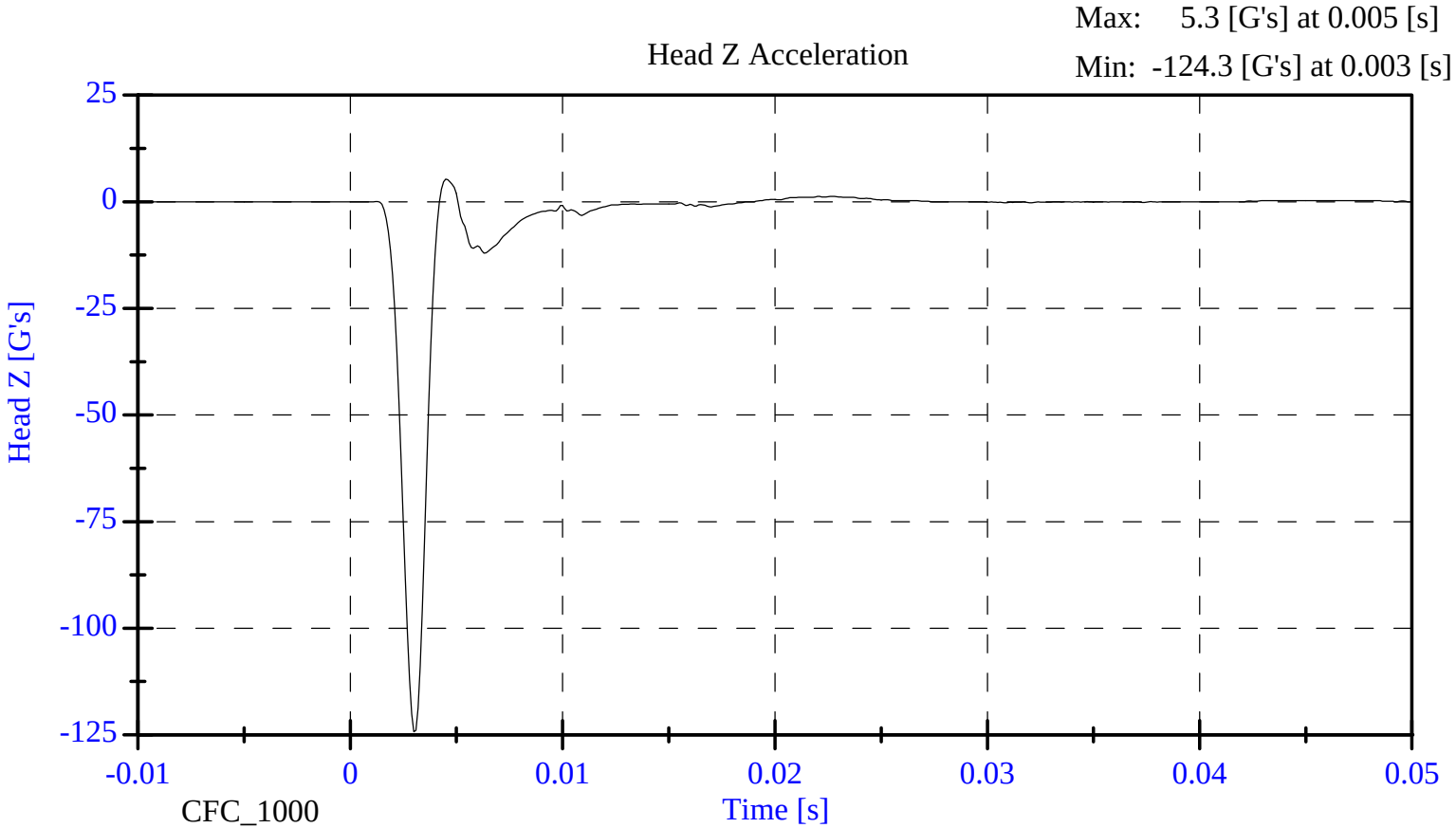
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 016 Sequential Test Number: 1
Date: June 13, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	38.00
PEAK RESULTANT ACCELERATION (Gs)	210 - 260	213.99
PEAK LATERAL ACCELERATION (Gs)	Not to Exceed 10	9.65
UNIMODAL CRITERIA ABOVE 100 Gs (ms)	0.9 - 1.5	1.23

REMARKS: None





**ABDOMINAL COMPRESSION TEST
POST TEST**

(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 016 Sequential Test Number: 1
Date: June 13, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	40.0
FORCE @ 13 mm (N)	104 - 162	116.1
FORCE @ 19 mm (N)	163 - 221	177.9
FORCE @ 25 mm (N)	222 - 280	258.0
FORCE @ 33 mm (N)	325 - 391	342.5

REMARKS: None

Dummy S/N 016

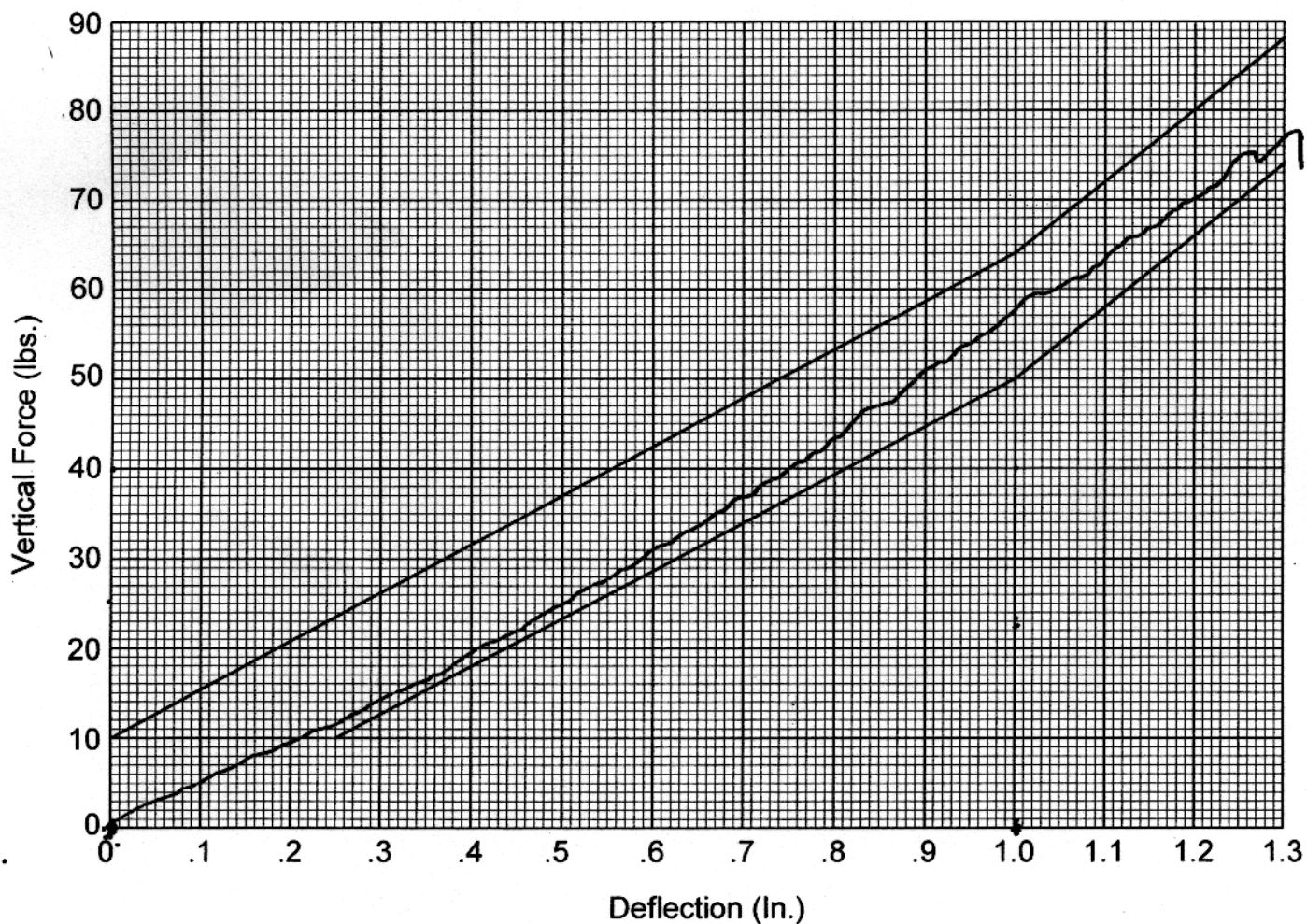
W/A _____

Date 6-13-02

Performed By [Signature]

Temp. 70°

Humidity 40%



Hybrid II
Abdomen Static Press

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

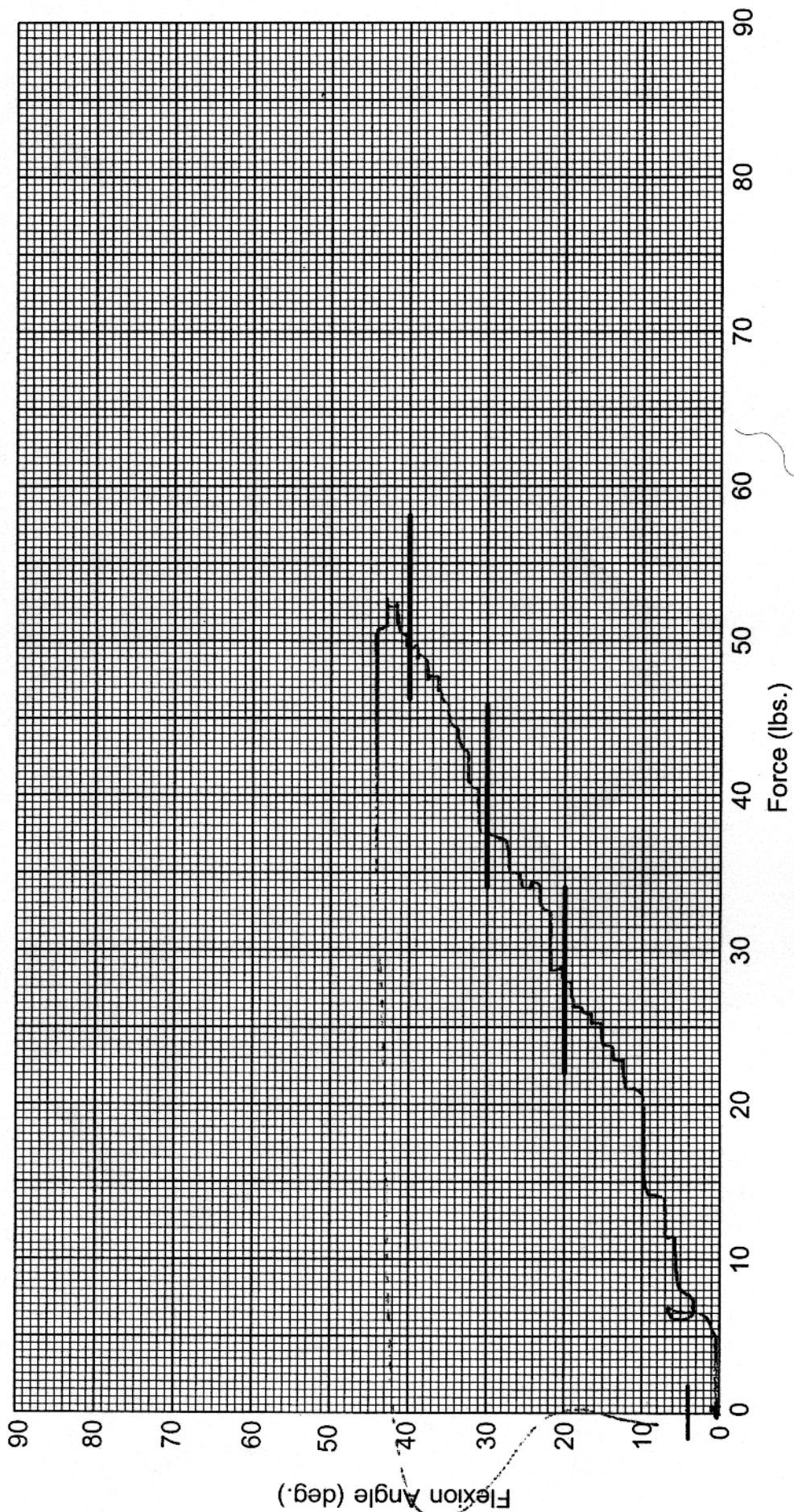
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 016 Sequential Test Number: 1
Date: June 13, 2002 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (EC)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	41.0
FORCE @ 0E (N)	0 - 26.7	0
FORCE @ 20E (N)	97.8 - 151.2	124.6
FORCE @ 30E (N)	151.2 - 204.6	166.8
FORCE @ 40E (N)	204.6 - 258	220.2
RETURN ANGLE	12E max.	4°

REMARKS: None

Dummy S/N 016
W/A _____
Date 6-13-02
Performed By BR
Temp. 71°
Humidity 41%



Hybrid II Lumbar Spine Flexion Test

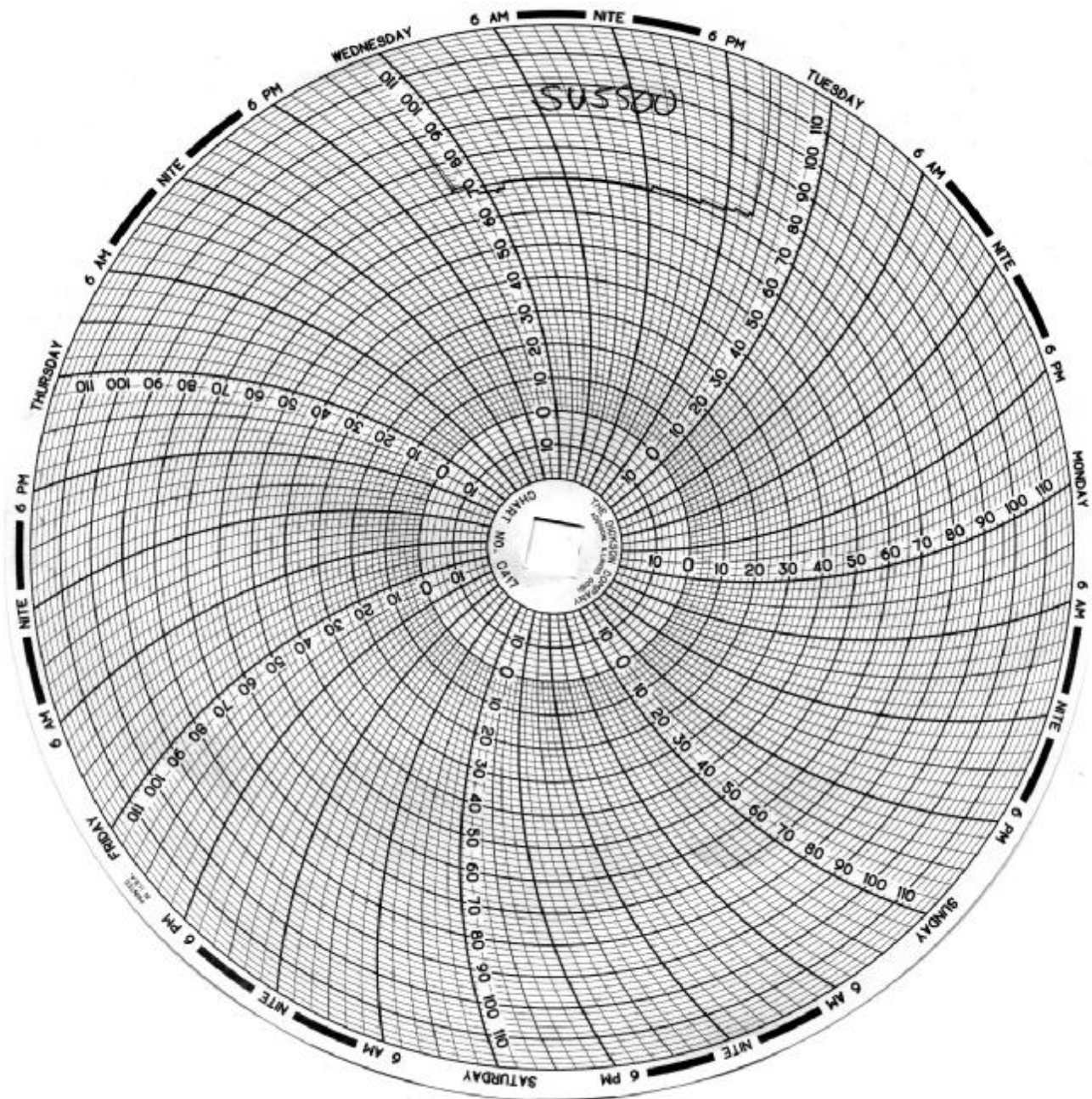
POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 016 Sequential Test Number: 1
Date: June 13, 2002 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.: 013		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P16813	ENDEVCO	26-Feb-02
HEAD AY	AC-P17255	ENDEVCO	26-Feb-02
HEAD AZ	AC-P17145	ENDEVCO	26-Feb-02
UPPER RIB	AC-P16761	ENDEVCO	26-Feb-02
LOWER RIB	AC-P17131	ENDEVCO	26-Feb-02
LOWER SPINE	AC-P15736	ENDEVCO	26-Feb-02
PELVIS	AC-P16628	ENDEVCO	26-Feb-02
UPPER RIB REDUNDANT	AC-P23178	ENDEVCO	04-Apr-02
LOWER RIB REDUNDANT	AC-P16616	ENDEVCO	26-Feb-02
LOWER SPINE REDUNDANT	AC-P16289	ENDEVCO	26-Feb-02
PELVIS REDUNDANT	AC-P16575	ENDEVCO	26-Feb-02

	REAR SID NO.: 016		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P18785	ENDEVCO	21-Feb-02
HEAD AY	AC-P18516	ENDEVCO	21-Feb-02
HEAD AZ	AC-P18537	ENDEVCO	21-Feb-02
UPPER RIB	AC-P18524	ENDEVCO	25-Feb-02
LOWER RIB	AC-P18533	ENDEVCO	25-Feb-02
LOWER SPINE	AC-P18514	ENDEVCO	21-Feb-02
PELVIS	AC-P18519	ENDEVCO	27-Feb-02
UPPER RIB REDUNDANT	AC-P18528	ENDEVCO	25-Feb-02
LOWER RIB REDUNDANT	AC-P18518	ENDEVCO	25-Feb-02
LOWER SPINE REDUNDANT	AC-P18688	ENDEVCO	21-Feb-02
PELVIS REDUNDANT	AC-P18531	ENDEVCO	27-Feb-02

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-B10827	ENDEVCO	14-Feb-02
RIGHT FRONT SILL (Y)	AC-A13513	ENDEVCO	14-Feb-02
RIGHT FRONT SILL (Z)	AC-B11408	ENDEVCO	14-Feb-02
RIGHT REAR SILL (X)	AC-J32143	ENDEVCO	07-Jan-02
RIGHT REAR SILL (Y)	AC-J32838	ENDEVCO	07-Jan-02
RIGHT REAR SILL (Z)	AC-J32174	ENDEVCO	07-Jan-02
REAR FLOORPAN ABOVE AXLE (X)	AC-J27927	ENDEVCO	25-Feb-02
REAR FLOORPAN ABOVE AXLE (Y)	AC-J27941	ENDEVCO	18-Feb-02
REAR FLOORPAN ABOVE AXLE (Z)	AC-ACC06	ENDEVCO	18-Feb-02
LEFT REAR SILL (Y)	AC-D84	ICS	15-Jan-02
LEFT FRONT SILL (Y)	AC-Y05	ICS	30-Oct-01
LEFT FRONT DOOR CENTERLINE (Y)	AC-P18532	ENDEVCO	27-Feb-02
RIGHT REAR SEAT OCCUPANT COMP. (Y)	AC-X83	ICS	15-Jan-02
MID REAR OF LEFT FRONT DOOR (Y)	AC-P18525	ENDEVCO	27-Feb-02
LEFT FRONT DOOR UPPER C/L (Y)	AC-P18682	ENDEVCO	27-Feb-02
MID REAR OF LEFT REAR DOOR (Y)	AC-P18545	ENDEVCO	27-Feb-02
LEFT REAR DOOR UPPER C/L (Y)	AC-P18792	ENDEVCO	27-Feb-02
LOWER LEFT B- PILLAR (Y)	AC-P16665	ENDEVCO	15-Jan-02
MIDDLE LEFT B-PILLAR (Y)	AC-P18536	ENDEVCO	27-Feb-02
LOWER LEFT A-PILLAR (Y)	AC-J26604	ENDEVCO	05-Nov-01
UPPER LEFT A-PILLAR (Y)	AC-P23276	ENDEVCO	01-Nov-01
FRONT SEAT TRACK (Y)	AC-P17247	ENDEVCO	26-Feb-02
REAR SEAT TRACK (Y)	AC-B10955	ENDEVCO	11-Feb-02
VEHICLE CG (X)	AC-P18948	ENDEVCO	26-Feb-02
VEHICLE CG (Y)	AC-P23471	ENDEVCO	26-Feb-02
VEHICLE CG (Z)	AC-P22943	ENDEVCO	26-Feb-02
MDB CG (X)	AC-C16682	ENDEVCO	15-Mar-02
MDB CG (Y)	AC-CJ54	ENDEVCO	15-Mar-02
MDB CG (Z)	AC-GK12	ENDEVCO	15-Mar-02
MDB REAR FRAME MEMBER (X)	AC-CX05	ENDEVCO	15-Mar-02
MDB REAR FRAME MEMBER (Y)	AC-C16685	ENDEVCO	15-Mar-02

REMARKS: None