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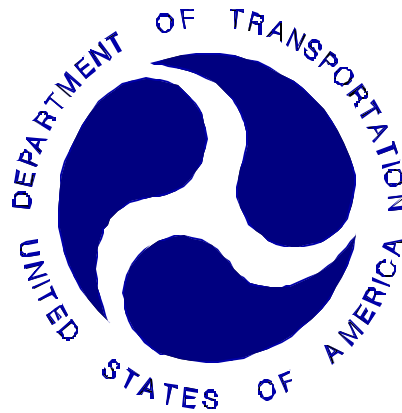
**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

TOYOTA MOTOR MANUFACTURING, INDIANA, INC.
2002 TOYOTA TUNDRA
ACCESS CAB 4X2 PICKUP

NHTSA NUMBER: M25111

VERIDIAN ENGINEERING TEST NUMBER: 8652-SNCAP-05

VERIDIAN ENGINEERING
TRANSPORTATION SCIENCES CENTER
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March 27, 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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				14. Sponsoring Agency Code NPS-10																			
15. Supplementary Notes																							
16. Abstract <p>A 55/28 kph 90⁰ Impact Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject 2002 Toyota Tundra Access Cab 4X2 Pickup 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 March 27, 2002.</p> <p>The impact velocity of the Moving Deformable Barrier (MDB) was 61.64 kph, and the ambient temperature at the struck (driver's) side of the target vehicle at the time of impact was 21.1⁰C. The target vehicle post-test maximum crush was 298 mm at level 1.</p> <p>The test or target vehicle's performance is given below:</p> <table border="0" style="margin-left: 40px;"> <tr> <td></td> <td align="center"><u>Front SID</u></td> <td></td> </tr> <tr> <td>Left Upper Rib Acceleration:</td> <td align="center">26 †</td> <td align="right">g's</td> </tr> <tr> <td>Left Lower Rib Acceleration:</td> <td align="center">22</td> <td align="right">g's</td> </tr> <tr> <td>Lower Spine Acceleration:</td> <td align="center">18</td> <td align="right">g's</td> </tr> <tr> <td>Thoracic Trauma Index (TTI):</td> <td align="center">22</td> <td align="right">g's</td> </tr> <tr> <td>Pelvis Acceleration (PEV):</td> <td align="center">27</td> <td align="right">g's</td> </tr> </table> <p>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.</p> <p>† The primary Left Upper Rib accelerometer cable was damaged during the event. The indicated value is from the Redundant Left Upper Rib accelerometer.</p>							<u>Front SID</u>		Left Upper Rib Acceleration:	26 †	g's	Left Lower Rib Acceleration:	22	g's	Lower Spine Acceleration:	18	g's	Thoracic Trauma Index (TTI):	22	g's	Pelvis Acceleration (PEV):	27	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

This side impact test is part of the FY2001 New Car Assessment Program Side Impact Protection sponsored by the National Highway Traffic Safety Administration (NHTSA) under Contract No. DTNH22-98-C-02001. The purpose of this test was to generate comparative side impact performance in a 2002 Toyota Tundra Access Cab 4X2 Pickup. 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 Toyota Tundra Access Cab 4X2 Pickup 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 61.64 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 March 27, 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.

One restrained Side Impact Dummy (SID) was placed in the driver (Pos. #1) designated seating position 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 SID was 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 42 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
TTI (g)	22†
PEV (g)	27

† The primary Left Upper Rib accelerometer cable was damaged during the event. The indicated value is from the Redundant Left Upper Rib accelerometer.

SECTION 3

SUMMARY OF TEST RESULTS

DATA SHEET 1

GENERAL TEST AND VEHICLE PARAMETER DATA

TEST VEHICLE INFORMATION:

Year/Make/Model/Body Style: 2002 Toyota Tundra Access Cab 4X2 Pickup

Vehicle Body Color: Gray VIN: 5TBRN34192S281074

Vehicle NHTSA No.: M25111 Month & Year of Manufacture: 02/02

Engine Data: 6 Cylinders; - CID; 3.4 Liters; - cc

Engine Placement: X Longitudinal; or - Lateral

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

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

Odometer Reading 37 km

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

DATA FROM TIRE PLACARD

Tire Pressure* (at capacity); 180 kPa FRONT
240 kPa REAR

Recommended Tire Size: P245/70R16

Tires on Test Vehicle: P245/70R16 ; Manufacturer: Dunlop

Vehicle Capacity Data:

Number of Occupants: 3 Front; 3 Rear; - 3rd Seat; 6 Total

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

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

Vehicle Max Capacity Loading = 638.6 kg (A)

No. of Occupants x 68.04 kg. = 408.24 kg (B)

Vehicle Cargo Capacity = 230.36 kg (A-B) **

TEST VEHICLE DELIVERED WEIGHT WITH MAXIMUM FLUIDS:

Left Front =	<u>549.3</u> kg	Left Rear =	<u>445.4</u> kg
Right Front =	<u>509.3</u> kg	Right Rear =	<u>442.3</u> kg
TOTAL FRONT =	<u>1058.6</u> kg	TOTAL REAR =	<u>887.7</u> kg
% of Total Weight =	<u>54.4%</u> %	% of Total Weight =	<u>45.61</u> %
TOTAL WEIGHT =	<u>1946.3</u> kg		

* Tire pressure used in test.

** Maximum of 136.1 kg used for target weight calculation 136.1 kg

DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Total Test Vehicle Delivered Weight with Max. Fluids = 1946.3 kg (A)
Maximum Cargo Carrying Capacity of Test Vehicle = 136.1 kg (B)
Weight of instrumented Side Impact Dummies (2 X 81.2 kg) = 162.4 kg (C)
TEST VEHICLE TARGET WEIGHT: = 2244.8 kg (A+B+C)

FULLY LOADED TEST VEHICLE (UDVW + 1 or 2 SID(s) + CARGO):

Left Front = 612.5 kg Left Rear = 561.5 kg
Right Front = 540.5 kg Right Rear = 531.0 kg
TOTAL FRONT = 1153.0 kg TOTAL REAR = 1092.5 kg
% of Total Weight = 51.3% % % of Total Weight = 48.7% %
TOTAL TEST WEIGHT = 2245.5 kg

AS TESTED WEIGHT OF TEST VEHICLE (1 OR 2 SID(s) + CARGO + EQUIPMENT & INSTRUMENTATION):

Left Front = 569.5 kg Left Rear = 580.0 kg
Right Front = 525.5 kg Right Rear = 564.0 kg
TOTAL FRONT = 1095.0 kg TOTAL REAR = 1144.0 kg
% of Total Weight = 48.9% % % of Total Weight = 51.1% %
TOTAL TEST WEIGHT = 2239 kg

TEST VEHICLE ATTITUDE (all dimensions in millimeters):

AS DELIVERED:

Left Front 885 Right Front 883 Left Rear 921 Right Rear 930

FULLY LOADED:

Left Front 866 Right Front 872 Left Rear 880 Right Rear 898

READY FOR TEST:

Left Front 877 Right Front 875 Left Rear 880 Right Rear 885

Test Vehicle Wheelbase: 3263 millimeters

C.G. = 1667 millimeters rearward of front wheel centerline

TOTAL VEHICLE LENGTH:

Right Side = 5465 millimeters
Left Side = 5464 millimeters
Centerline = 5515 millimeters

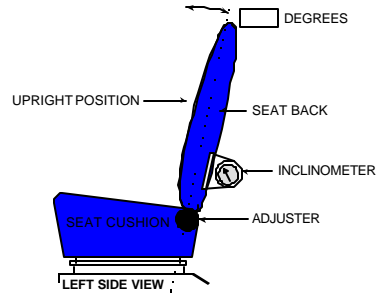
DATA SHEET 1 (continued)

GENERAL TEST VEHICLE PARAMETER DATA

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111

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



FRONT SEAT ASSEMBLY

FRONT SEAT CUSHION PLACEMENT: Mid-position

Total Length of Adjustment Travel: 210 millimeters

Total Number of Adjustment Positions or Detents: 15

FRONT SEAT BACK ADJUSTMENT POSITION: Recline seat so that the head rest post is 87.5° with respect to the rocker panel

Seat Back Torso Angle: 25 degrees

SECOND POSITION SEAT:

Total Length of Fore/Aft Adjustment Travel: 0 millimeters

Seat Back Adjustment Position: Fixed

ADJUSTABLE STEERING COLUMN POSITION: Detent 3, where the uppermost detent is 0 (column 25° with respect to the rocker panel)

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:

99.9 liters (Fuel Tank Usable Capacity)

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

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

Wheelbase = 3263 millimeters

Impact Point is 692 millimeters rearward of front axle centerline
(which is 940 millimeters forward of the wheelbase midpoint)

Actual Impact Point is 694 millimeters rearward of front axle centerline

DATA SHEET 2

TEST VEHICLE SUMMARY OF RESULTS

VEHICLE IDENTIFICATION:

Vehicle Year/Make/Model: 2002 Toyota Tundra

Body Style: Access Cab 4X2 Pickup

VIN: 5TBRN34192S281074

NHTSA No.: M25111

Test Date: March 27, 2002

Overall Length = 5515 millimeters; Overall Width = 1837 millimeters

VEHICLE TEST WEIGHT (Pre-Test):

Left Front = 569.5 kg Left Rear = 580.0 kg

Right Front = 525.5 kg Right Rear = 564.0 kg

TOTAL FRONT = 1095.0 kg TOTAL REAR = 1144.0 kg

TOTAL VEHICLE WEIGHT 2239.0 kg

Wheelbase = 3263 millimeters

Longitudinal C.G. from Center of Front Axle = 1667.21 millimeters

Impact Angle with Respect to Impactor = 90 degrees

ACTUAL IMPACT POINT

Actual Impact Point is 2 mm rearward of nominal impact ref. line (Lateral)

Actual Impact Point is 2 mm below nominal impact point (Vertical)

MAXIMUM EXTERIOR STATIC CRUSH:

1. LEVEL 1 (455 mm above ground) = 298 millimeters

2. LEVEL 2 (826 mm above ground) = 234 millimeters

3. LEVEL 3 (767 mm above ground) = 250 millimeters

4. LEVEL 4 (1110 mm above ground) = 156 millimeters

5. LEVEL 5 (1696 mm above ground) = 5 millimeters

Maximum Post-Test Intrusion = 298 millimeters

OCCUPANTS:

Front Passenger:

Rear Passenger:

Dummy Identification SID / 013 CRABI (P572 R) / 093

Restraints Used 3-point active seat belt 3-point active seat belt

INSTRUMENTATION:

Number of Vehicle Data Channels: = 26

Number of Cameras: Onboard = 5

Offboard = 8

TOTAL = 13

DATA SHEET 3

MOVING DEFORMABLE BARRIER (MDB) SUMMARY

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111

MDB FACE MANUFACTURER AND SERIAL NUMBER:

Plascore: 086B1001-1; 020C1001

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>61.64</u>	kph				

MAXIMUM STATIC CRUSH OF HONEYCOMB IMPACT FACE:

1. Row A at Center of Bumper Level	=	<u>114</u>	millimeters
2. Row B at Top of Bumper Level	=	<u>176</u>	millimeters
3. Row C at Mid Level	=	<u>190</u>	millimeters
4. Row D at Top of Stack Level	=	<u>218</u>	millimeters

INSTRUMENTATION:

Number of MDB Data Channels	=	<u>5</u>
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DATA SHEET 4

POST-TEST OBSERVATIONS

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111

TEST DUMMY INFORMATION AND CONTACT POINTS:

DESCRIPTION	FRONT SEAT	REAR SEAT
ATD Type/Serial No.	SID / 013	CRABI (P572 R) / 093
Head Contact:	Top and side of head to window	Left side of head to left CRS bolster; Right side of head to right CRS bolster
Upper Torso Contact:	Shoulder to window; Arm to rear 1/3 of door trim	Left arm to left CRS bolster; Right arm to right CRS bolster
Lower Torso Contact:	Pelvis to lower rear section of door trim	None
Left Knee Contact:	Left knee to forward section of door trim	Left knee to left CRS bolster
Right Knee Contact:	Right knee to left knee	Right knee to right CRS bolster

POST TEST DOOR OPENING AND SEAT TRACK INFORMATION

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

POST TEST STRUCTURAL OBSERVATIONS

CRITICAL AREAS OF PERFORMANCE	
Pillar Performance	No visible tears or separations
Sill Separation	None
Windshield Damage	None
Window Damage	Left rear quarter window shattered during the event
Other Notable Effects	Both right side tires deflated during the event

AIR BAG DEPLOYMENT STATUS:

	DRIVER	FRONT PASSENGER	REAR PASSENGER
Front Air Bag	None	None	N/A
Side Air Bag	N/A	N/A	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	2
Vertical Offset	mm	? 20 mm	-2

SECTION 4

OCCUPANT AND VEHICLE INFORMATION

DATA SHEET 5

SID INSTRUMENTATION DATA

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111

Front Dummy ID# 013					
		Pos. Direction		Neg. Direction	
		Max (g)	Time (msec)	Max (g)	Time (msec)
HEAD ACCELERATIONS:					
Longitudinal	X	18.5	87.5	-15.8	69.0
Lateral	Y	63.3	88.0	-5.5	47.0
Vertical	Z	51.6	87.9	-13.6	95.6
Resultant	R	83.4	87.9	-	-
HIC		147.1			
RIB ACCELERATIONS:					
Upper Rib Lateral	Y	55.8†	62.5	-3.3†	119.4
Upper Rib Lateral	Y(R)	26.4	62.5	-6.0	103.8
Lower Rib Lateral	Y	21.8	53.1	-4.5	105.0
Lower Rib Lateral	Y(R)	21.8	52.5	-4.8	105.0
SPINE ACCELERATIONS:					
Lower Lateral	Y	18.4	47.5	-5.1	106.3
Lower Lateral	Y(R)	17.8	47.5	-5.2	106.3
PELVIC ACCELERATIONS:					
Lateral	Y	27.0	36.3	-9.5	68.8
Lateral	Y(R)	26.9	36.3	-9.2	68.8

† Data not accurate, cable was damaged during the event. TTI Calculated using Redundant Accelerometer.

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

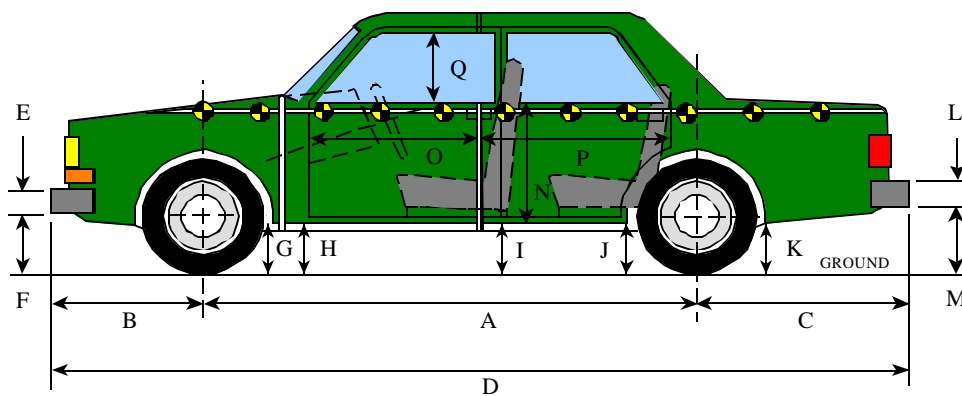
Note: Above data has been FIR filtered, Y(R) denotes redundant Y direction accelerometer.
 Head Accelerations are filtered at SAE Class 1000.

DATA SHEET 6

VEHICLE SIDE MEASUREMENTS

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111



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	3263	3263	3275	12
B	924	-	889	889
C	1328	-	1324	1324
D	5515	-	5488	-27
E	358	-	358	0
F	404	393	362	-31
G	412	392	402	10
H	417	396	401	5
I	435	408	402	-6
J1	426	393	408	15
J2	445	412	427	15
K	477	436	452	16
L	245	-	245	0
M	512	467	410	-57
N	759	-	746	-13
O	843	-	802	-41
P	1052	-	980	-72
Q	518	-	523	5
R	5465	-	5441	-24
S	5464	-	5439	-25
T	1837	-	1586	-251

D = Length at Centerline

E&L = Bumper Thickness

R = Right Side Length

S = Left Side Length

T = Width at B-Pillar

J1 = To Pinch Weld

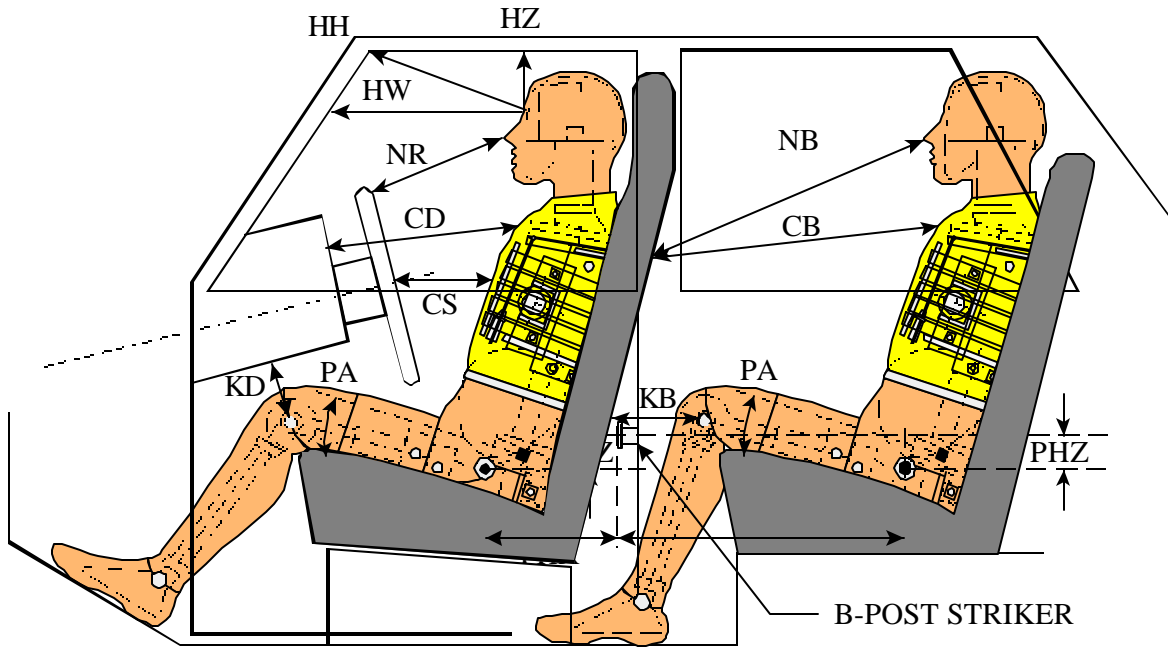
J2 = To Sill

DATA SHEET 7

SID LONGITUDINAL CLEARANCE DIMENSIONS

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111



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
HH	451
HW	597
HZ	213
NR/NB	447
CD/CB	545
CS	294
KDL(KDA°)/KBL(KDA°)	186 / (31 °)
KDR(KBA°)/KBR(KBA°)	169 / (40 °)
PA°	23°
PHX	363
PHZ	125

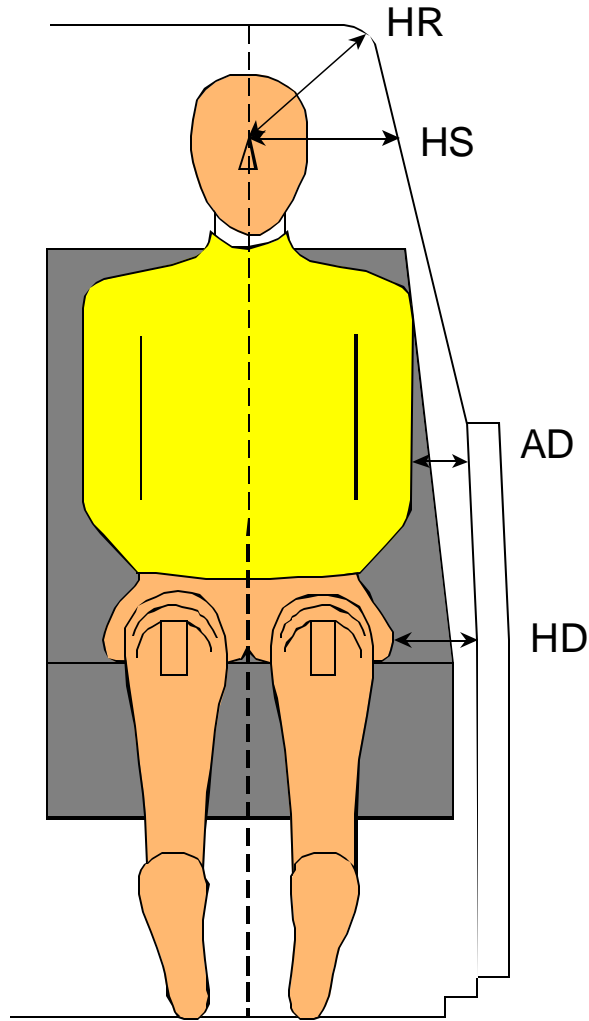
Note: 2-door vehicle shown. Rear dummy PHX & PHZ measurements for 4-door vehicle would use the C-post striker as a reference point.

DATA SHEET 8

SID LATERAL CLEARANCE DIMENSIONS

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111



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

DRIVER ID # 013			
HR	191		
HS	308		
AD*	LOWER:	128	UPPER: 164
HD	195		

*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.

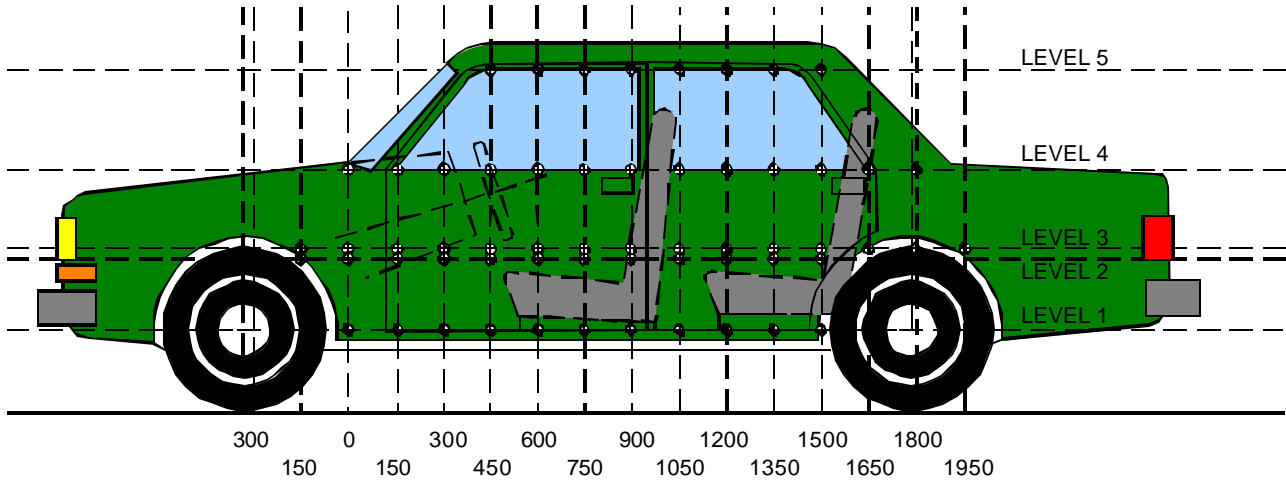
*Upper measurement is taken laterally at the center of the upper rib accelerometer height from the SID arm segment to the closest part of the vehicle side.

DATA SHEET 9

VEHICLE SIDE MEASUREMENTS

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111



LEFT SIDE VIEW

NOTE: All measurements are in millimeters (mm)

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

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

Measurements Along the Vertical 750 mm Line Shown Above:

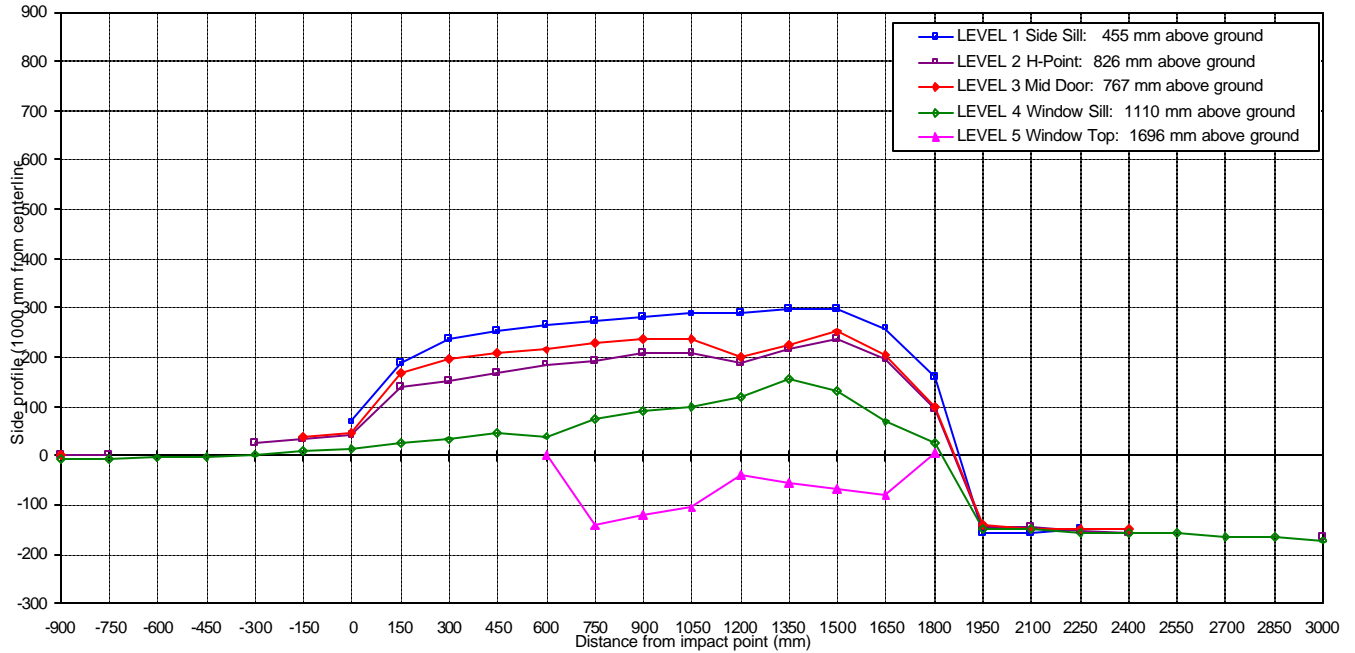
Level 5 @ Window Top	=	<u>1696</u>	millimeters
Level 4 @ Window Sill	=	<u>1110</u>	millimeters
Level 3 @ Mid Door	=	<u>767</u>	millimeters
Level 2 @ Occupant H-Point	=	<u>826</u>	millimeters
Level 1 @ Sill Top Height	=	<u>455</u>	millimeters

DATA SHEET 10

VEHICLE EXTERIOR CRUSH PROFILES - ALL LEVELS

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111



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

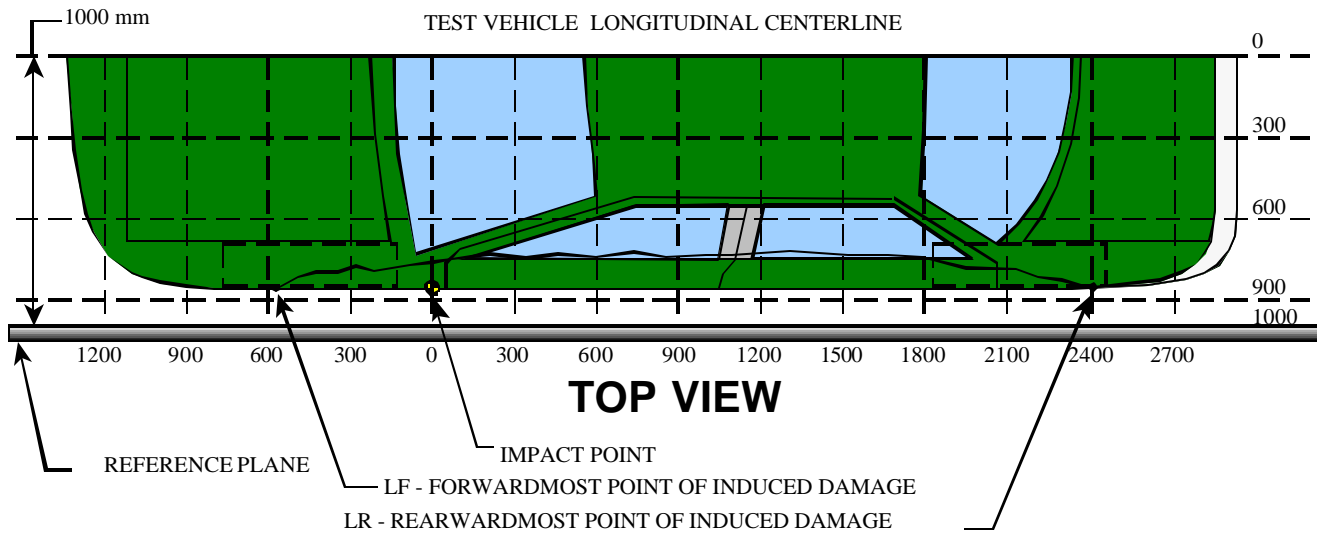
		DISTANCE IN MILLIMETERS (mm) FROM IMPACT POINT																											
LEVEL	HEIGHT (mm)	-900	-750	-600	-450	-300	-150	0	150	300	450	600	750	900	1050	1200	1350	1500	1650	1800	1950	2100	2250	2400	2550	2700	2850	3000	
LEVEL 1 SIDE SILL	455	PRE	--	--	--	--	--	103	114	109	111	109	111	110	112	114	116	119	120	122	127	122	115	--	--	--	--	--	
		POST	--	--	--	--	--	172	303	347	365	374	383	391	399	404	413	417	378	282	-30	-34	-35	--	--	--	--	--	
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	69	189	238	254	265	272	281	287	290	297	298	258	160	-157	-156	-150	N/A	N/A	N/A	N/A	N/A
LEVEL 2 H POINT	826	PRE	80	66	--	--	64	66	72	76	78	79	78	79	77	76	76	77	78	79	81	73	69	62	--	--	--	59	
		POST	79	68	--	--	87	96	114	215	230	246	262	273	286	282	265	290	311	274	172	-64	-73	-85	-95	--	--	--	-109
		CRUSH	-1	2	N/A	N/A	23	30	42	139	152	167	184	194	209	206	189	214	234	196	93	-145	-146	-154	-157	N/A	N/A	N/A	-168
LEVEL 3 MID DOOR	767	PRE	78	--	--	--	67	74	72	75	77	81	80	80	79	80	81	81	82	84	85	81	70	62	--	--	--	--	
		POST	78	--	--	--	104	119	238	271	284	295	308	316	315	282	306	331	286	184	-57	-69	-81	-90	--	--	--	--	
		CRUSH	0	N/A	N/A	N/A	N/A	37	45	166	196	207	214	228	236	236	202	225	250	204	100	-142	-150	-151	-152	N/A	N/A	N/A	N/A
LEVEL 4 WINDOW SILL	1110	PRE	233	192	167	152	140	132	124	119	113	109	124	104	99	103	96	97	97	98	98	101	99	101	99	98	100	95	98
		POST	226	183	162	150	142	139	136	143	145	154	164	176	188	201	214	253	227	167	125	-47	-51	-55	-57	-61	-66	-69	-73
		CRUSH	-7	-9	-5	-2	2	7	12	24	32	45	40	72	89	98	118	156	130	69	27	-148	-150	-156	-156	-159	-166	-164	-171
LEVEL 5 WINDOW TOP	1696	PRE	--	--	--	--	--	--	--	--	--	388	352	341	338	334	333	332	333	357	--	--	--	--	--	--	--	--	
		POST	--	--	--	--	--	--	--	--	--	389	209	218	231	232	277	265	251	362	--	--	--	--	--	--	--	--	--
		CRUSH	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1	-143	-123	-107	-42	-56	-67	-82	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

DATA SHEET 11

VEHICLE DAMAGE PROFILE DISTANCES

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111



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.

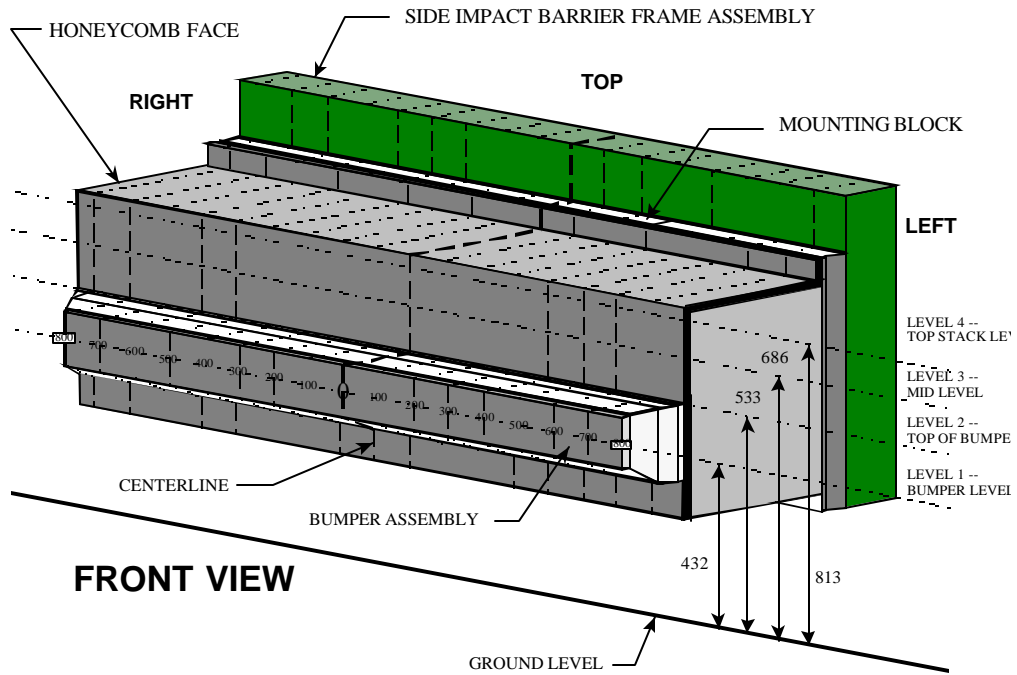
DPD MEASUREMENTS		POST TEST (mm)	PRETEST (mm)	STATIC CRUSH (mm)
1	(LR = 1875 mm)	126	125	1
2	1350	413	116	297
3	825	387	111	276
4	300	347	109	238
5	-225	92	65	27
6	(LF = -750 mm)	68	66	2

DATA SHEET 12

EXTERIOR STATIC CRUSH FOR IMPACTOR FACE

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111



NOTE: Dimensions are shown in millimeters, mm

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

LEVEL	HEIGHT AT CL (mm)*		DISTANCE RIGHT OF CENTER (mm)									DISTANCE LEFT OF CENTER (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	837	767	715	694	710	710	691	661	658	659	661	663	670	683	695	709	743	
		CRUSH	218	148	96	75	91	91	72	42	39	40	42	44	51	64	76	90	124	
LEVEL 3 MID LEVEL	686	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	
		POST	809	736	681	659	652	656	637	634	636	632	632	634	637	645	659	679	716	
		CRUSH	190	117	62	40	33	37	18	15	17	13	13	15	18	26	40	60	97	
LEVEL 2 TOP BUMPER	533	PRE	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	619	
		POST	795	729	705	679	684	687	686	681	671	669	678	684	697	711	710	720	740	
		CRUSH	176	110	86	60	65	68	67	62	52	50	59	65	78	92	91	101	121	
LEVEL 1 MID BUMPER	432	PRE	535	519	518	518	518	518	518	518	518	518	518	518	518	518	519	535	535	
		POST	619	586	564	556	556	557	560	565	568	573	577	583	585	591	602	622	649	
		CRUSH	84	67	46	38	38	39	42	47	50	55	59	65	67	73	84	103	114	

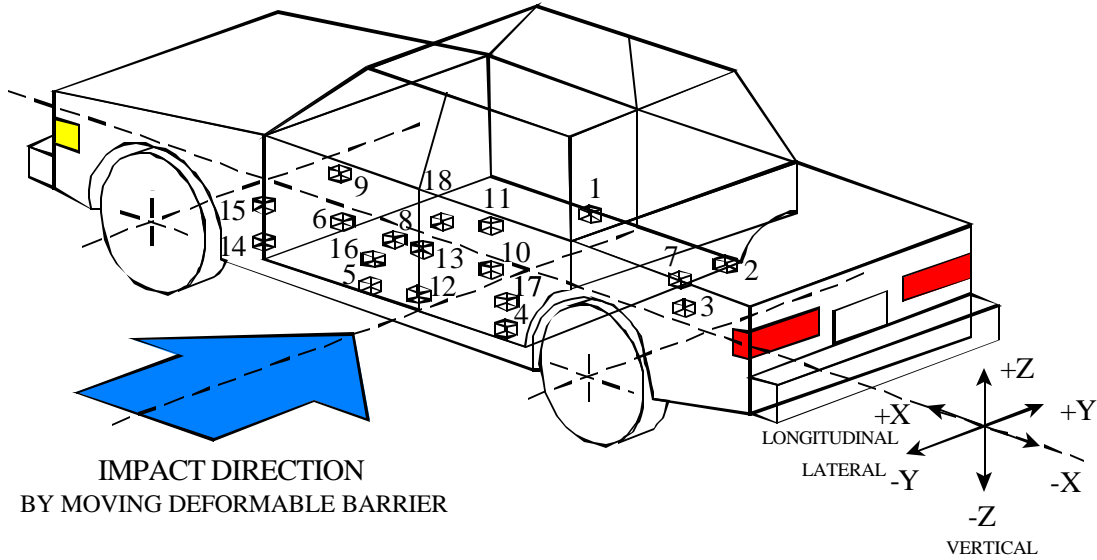
*Heights measured above ground level.

DATA SHEET 13

TEST VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111



- 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 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111

Accel. No.	Location	Coordinates (mm)±3 mm				Long. (x)		Lat. (y)		Vert. (z)		Resultant	
		X*	Y*	Z*		Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
						pos.	neg.	pos.	neg.	pos.	neg.	pos.	neg.
1	Right Side Sill at Front Seat	3824	692	-546	pos.	10.6	15.2	22.5	34.9	8.4	71.3	24.3	13.4
					neg.	-8.4	7.6	-6.8	78.1	-11.8	25.6	-	-
2	Right Side Sill at Rear Seat	2640	618	-553	pos.	9.0	15.6	31.5	7.2	7.9	88.6	34.6	7.6
					neg.	-8.3	7.8	-9.4	77.5	-15.1	8.9	-	-
3	Rear Floorpan Above Axle	1313	-39	-803	pos.	8.3	40.0	13.3	61.2	4.1	31.6	15.7	26.1
					neg.	-10.0	28.2	-2.1	174.2	-7.0	87.3	-	-
4	Left Side Sill at Rear Seat	2924	-643	-557	pos.	-	-	96.2	6.2	-	-	-	-
					neg.	-	-	-17.5	38.2	-	-	-	-
5	Left Side Sill at Front Seat	3829	-613	-541	pos.	-	-	88.4	5.9	-	-	-	-
					neg.	-	-	-11.2	12.4	-	-	-	-
6	Left Front Door on Centerline	3426	-767	-969	pos.	-	-	70.3	11.9	-	-	-	-
					neg.	-	-	-77.4	34.1	-	-	-	-
7	Right Rear Occupant Compartment	3094	519	-573	pos.	-	-	28.2	7.0	-	-	-	-
					neg.	-	-	-9.2	77.2	-	-	-	-
8	Midrear of Left Front Door	3068	-766	-837	pos.	-	-	236.1	8.6	-	-	-	-
					neg.	-	-	-190.5	15.0	-	-	-	-
9	Left Front Door Upper Centerline	3414	-763	-1136	pos.	-	-	138.7	19.1	-	-	-	-
					neg.	-	-	-77.4	30.2	-	-	-	-
10	Midrear of Left Rear Door	2477	-808	-1067	Pos.	-	-	107.8	12.2	-	-	-	-
					neg.	-	-	-77.4	23.5	-	-	-	-
11	Left Rear Door Upper Centerline	2625	-818	-1177	pos.	-	-	127.9	11.2	-	-	-	-
					neg.	-	-	-70.4	22.9	-	-	-	-

*Reference: X - Rear Bumper (+ Forward)

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

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8652-SN/CAP-05

DATA SHEET 13 (continued)

VEHICLE ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111

Accel. No.	Location	Coordinates (mm)±3 mm				Long. (x)		Lat. (y)		Vert. (z)		Resultant	
		X*	Y*	Z*		Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)	Max (g)	Time (msec)
						pos.	neg.	pos.	neg.	pos.	neg.	pos.	neg.
12	Left Lower B-Pillar	2942	-750	-685	pos.	-	-	210.8	4.6	-	-	-	-
					neg.	-	-	-126.9	19.5	-	-	-	-
13	Left Middle B-Pillar	2937	-751	-1047	pos.	-	-	176.3	12.4	-	-	-	-
					neg.	-	-	-156.9	28.4	-	-	-	-
14	Left Lower A-Pillar	4073	-715	-804	pos.	-	-	†	-	-	-	-	-
					neg.	-	-	†	-	-	-	-	-
15	Left Middle A-Pillar	3904	-702	-1281	pos.	-	-	19.6	11.3	-	-	-	-
					neg.	-	-	-1.4	191.3	-	-	-	-
16	Front Seat Track	3215	-607	-562	pos.	-	-	35.7	6.1	-	-	-	-
					neg.	-	-	-59.2	37.8	-	-	-	-
17	Rear Seat Track	2358	-664	-750	pos.	-	-	34.2	9.2	-	-	-	-
					neg.	-	-	-10.9	60.8	-	-	-	-
18	Vehicle CG	3253	33	-669	pos.	13.3††	15.9	46.9††	6.4	41.7††	116.7	63.7	6.3
					neg.	-15.7	7.5	-38.5††	116.6	-41.2	6.1	-	-

*Reference: X - Rear Bumper (+ Forward)

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

† Data is not valid - cable was damaged during the event

†† Data questionable after 19 ms

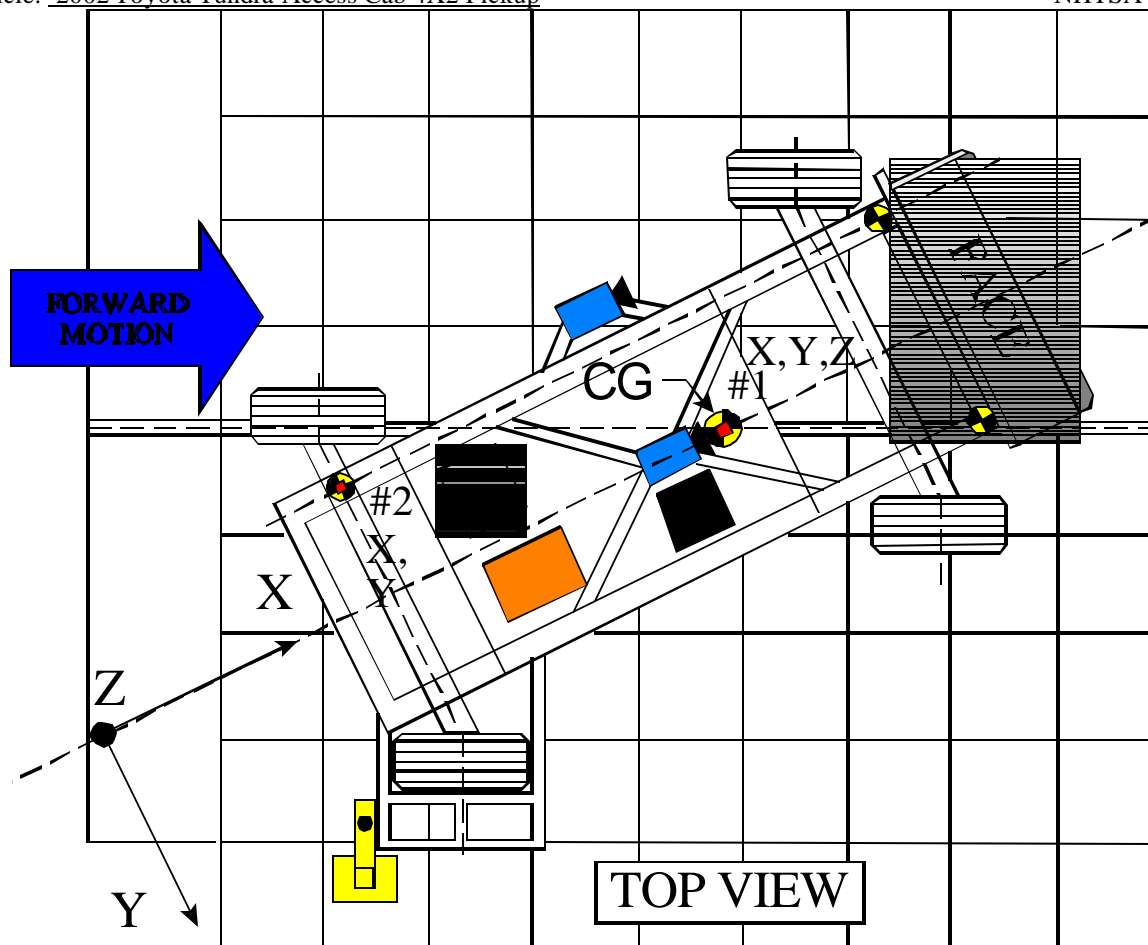
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DATA SHEET 14

MDB ACCELEROMETER LOCATIONS AND DATA SUMMARY

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111



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	0.9	172.8	-18.7	27.1
	Lateral..... Y				0.3	61.1	-9.2	30.6
	Vertical..... Z				11.9	14.9	-12.9	21.4
	Resultant..... R				23.0	31.1	-	-
2	Rear Frame Member							
	Longitudinal... X	386	-660	-660	1.7	178.2	-21.6	28.4
	Lateral..... Y				4.5	50.9	-2.6	95.5

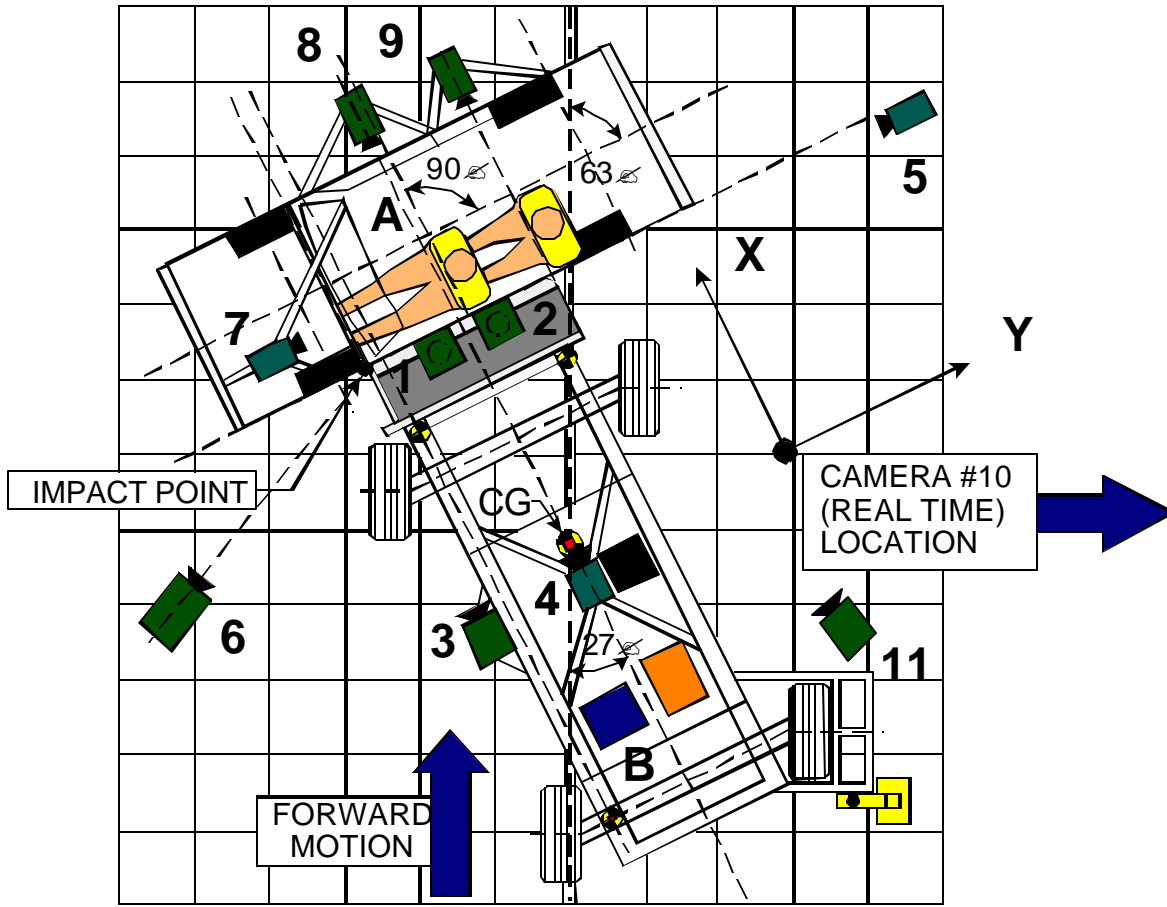
*Reference: X = Rear Bumper (+ Forward)
 Y = Vehicle Centerline (+ To Right)
 Z = Ground Level (+ Down)
 All measurements accurate to within ±3 mm.

DATA SHEET 15

HIGH SPEED CAMERA LOCATIONS AND DATA SUMMARY

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No. M25111



Camera No.	View	Coordinates (millimeters)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1	Overhead view of test vehicle	120	833	-4880	-90	8	1005
2	Overhead closeup view of impact plane	255	900	-4880	-90	12.5	1000
3	MDB onboard closeup view of impact point	-1470	0	-847	0	13	1020
4	MDB onboard view of driver dummy	-1140	838	-1586	-17	7.5	1030
5	Right side ground level overall view	110	9823	-1052	-2	25	1010
6	Left side ground level overall view	2020	-1702	-1066	-3	13	1000
7	Test vehicle onboard driver front view	535	-322	-1553	-12	13	1010
8	Test vehicle onboard driver side view	1948	690	-1268	-1	8	1005
9	Test vehicle onboard passenger side view	1923	1488	-1308	-12	8	840
10	Real time film coverage of test	-	-	-	-	-	24
11	Secondary impact point view	-4758	1527	-1077	-2	25	940

* 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

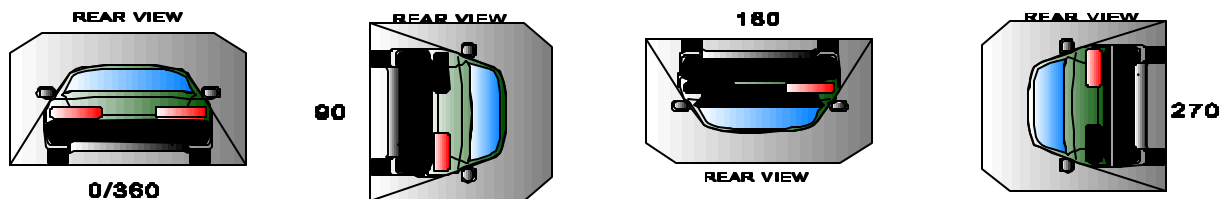
FUEL SYSTEM INTEGRITY

DATA SHEET 17

ROLLOVER DATA

Vehicle: 2002 Toyota Tundra Access Cab 4X2 Pickup

NHTSA No.: M25111



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	
	1	minutes	16	seconds	5	minutes	6	minutes	16	seconds	7	minutes
0° - 90°	1	minutes	6	seconds	5	minutes	6	minutes	6	seconds	7	minutes
90° - 180°	1	minutes	1	seconds	5	minutes	6	minutes	1	seconds	7	minutes
180°-270°	1	minutes	4	seconds	5	minutes	6	minutes	4	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°	-
90° - 180°	-
180°-270°	-
270°-360°	-

APPENDIX A

PHOTOGRAPHS

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



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



A-5

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M25111

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



A-6

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M25111

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



A-10

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M25111

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



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M25111

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



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



A-15

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



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



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8652-SNCAP-05

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



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M25111

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



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8652-SNCAP-05

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

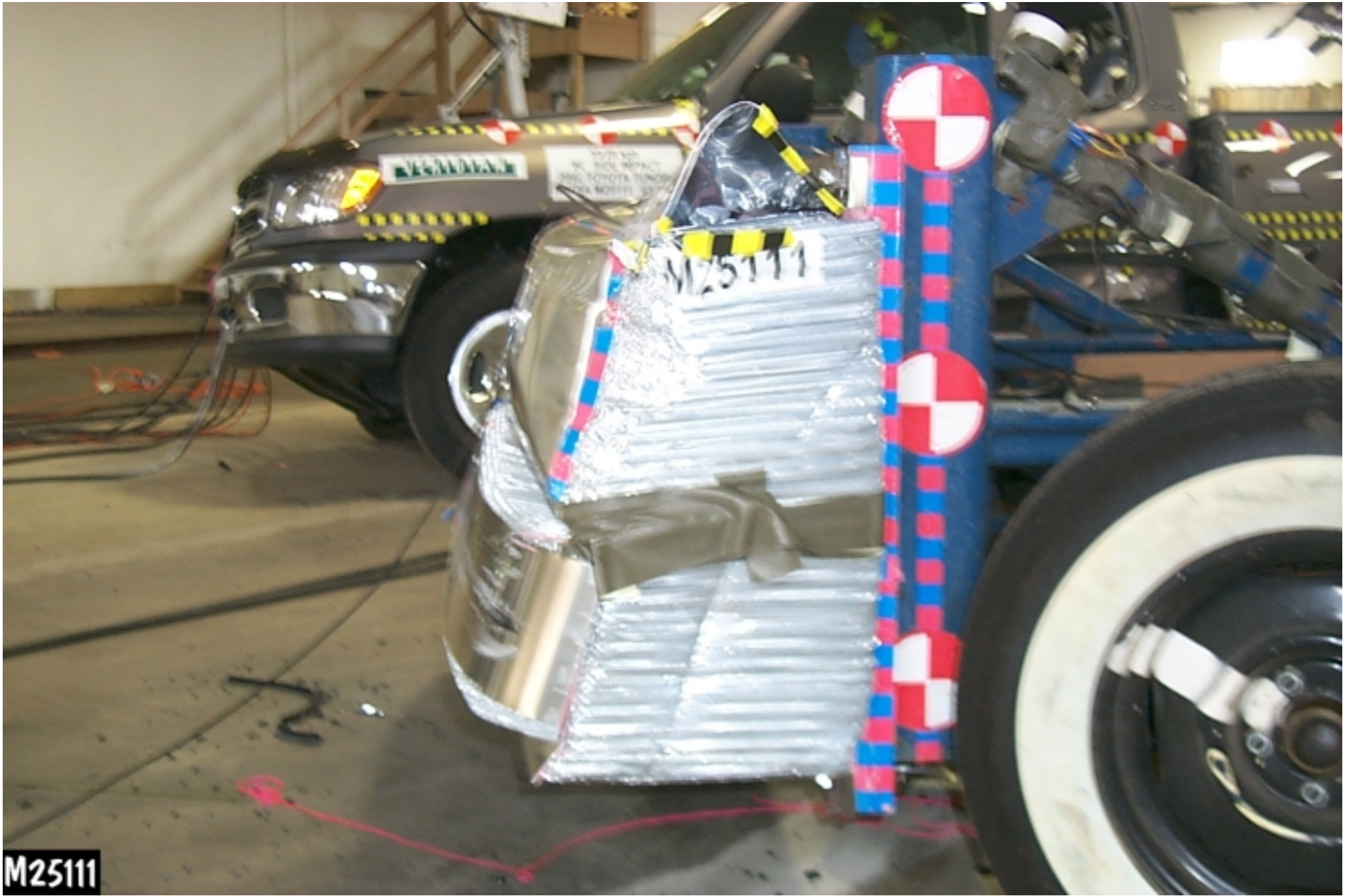


Figure A-18: POST-TEST LEFT SIDE VIEW OF IMPACTOR FACE



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



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M25111

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



M25111

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



M25111

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

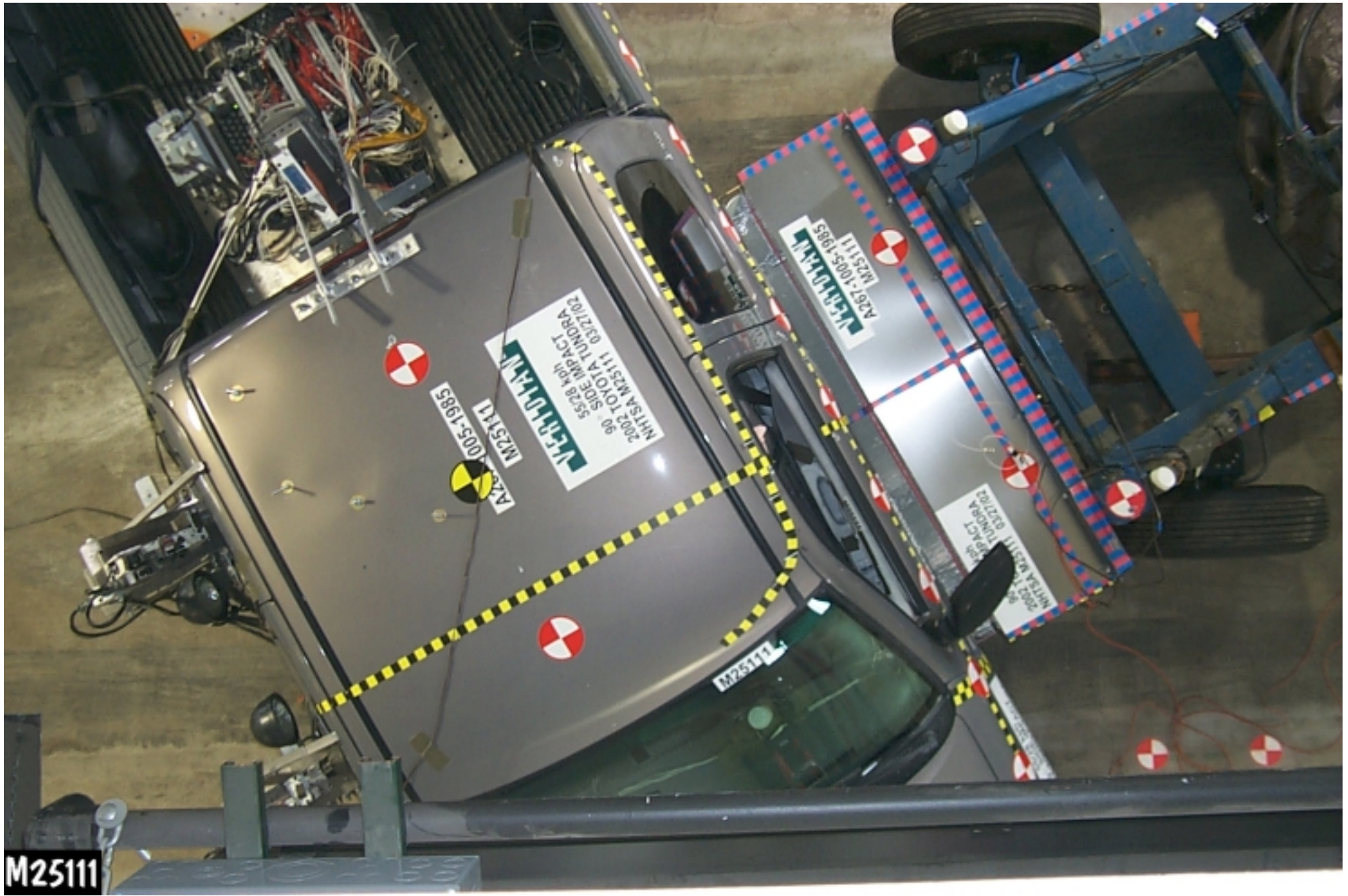


Figure A-23: PRE-TEST OVERHEAD VIEW OF ALIGNED MDB AND VEHICLE



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



A-27

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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 LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID



Figure A-28: POST-TEST LEFT OCCUPANT COMPARTMENT VIEW OF FRONT SID



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Figure A-29: PRE-TEST INTERIOR OF FRONT DOOR



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Figure A-30: POST-TEST INTERIOR OF FRONT DOOR SHOWING SID IMPACT LOCATIONS



Figure A-31: PRE-TEST LEFT SIDE VIEW OF MDB WITH IMPACTOR FACE IN POSITION



Figure A-32: PRE-TEST RIGHT SIDE VIEW OF MDB WITH IMPACTOR FACE IN POSITION



Figure A-33: POST-TEST CLOSE-UP VIEW OF IMPACT POINT TARGET

MFD BY: TOYOTA MOTOR MANUFACTURING, INDIANA, INC.

DATE 02/02 GVWR: 2585KG (5700LB)

GAWR: FRT. 1433KG (3160LB) WITH P245/70R16 TIRES.
16X7JJ RIMS. AT 180KPA (26PSI) COLD.

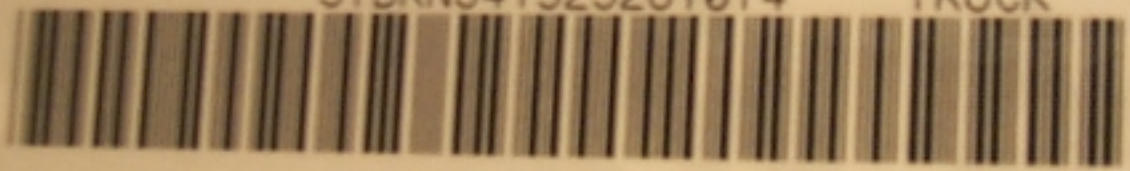
RR. 1579KG (3480LB) WITH P245/70R16 TIRES.
16X7JJ RIMS. AT 240KPA (35PSI) COLD.

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

5TBRN34192S281074

TRUCK

VCK30L ARSSKA
C/TR 1C7/FE11
A/TM A02A/
A340E



NO. 854

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M25111

Figure A-34: CLOSE-UP VIEW OF VEHICLE'S CERTIFICATION LABEL

MFD BY: TOYOTA MOTOR MANUFACTURING, INDIANA, INC.

DATE 02/02 GVWR: 2585KG (5700LB)

GAWR: FRT. 1433KG (3160LB) WITH P245/70R16 TIRES.
16X7JJ RIMS. AT 180KPA (26PSI) COLD.

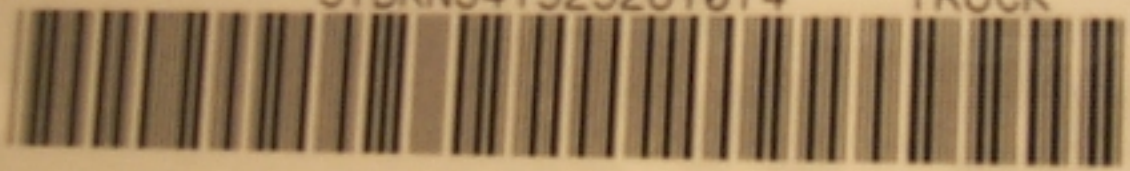
RR. 1579KG (3480LB) WITH P245/70R16 TIRES.
16X7JJ RIMS. AT 240KPA (35PSI) COLD.

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

5TBRN34192S281074

TRUCK

VCK30L ARSSKA
C/TR 1C7/FE11
A/TM A02A/
A340E



NO. 854

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M25111

Figure A-35: CLOSE-UP VIEW OF VEHICLE'S TIRE PLACARD LABEL



Figure A-36: IMPACT PHOTO

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8652-SNCA-P-05



Figure A-37: ROLLOVER 90 DEGREES



A-40

8652-SNCAP-05

Figure A-38: ROLLOVER 180 DEGREES



Figure A-39: ROLLOVER 270 DEGREES



Figure A-40: ROLLOVER 360 DEGREES

APPENDIX B

VEHICLE, MDB AND SID RESPONSE DATA

TABLE OF DATA PLOTS

DRIVER 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

DRIVER DUMMY INSTRUMENTATION PLOTS

ACCELERATION DATA - FIR FILTERED

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
16	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 21
17	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 22
18	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 23
19	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 24

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>
20	RIGHT SIDE SILL AT FRONT SEAT (X) ACCELERATION VS TIME	B- 25
21	RIGHT SIDE SILL AT FRONT SEAT (X) VELOCITY VS TIME	B- 26
22	RIGHT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B- 27
23	RIGHT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B- 28
24	RIGHT SIDE SILL AT FRONT SEAT (Z) ACCELERATION VS TIME	B- 29
25	RIGHT SIDE SILL AT FRONT SEAT (Z) VELOCITY VS TIME	B- 30
26	RIGHT SIDE SILL AT FRONT SEAT RESULTANT ACCELERATION VS TIME	B- 31
27	RIGHT SIDE SILL AT REAR SEAT (X) ACCELERATION VS TIME	B- 32
28	RIGHT SIDE SILL AT REAR SEAT (X) VELOCITY VS TIME	B- 33
29	RIGHT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B- 34
30	RIGHT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B- 35
31	RIGHT SIDE SILL AT REAR SEAT (Z) ACCELERATION VS TIME	B- 36
32	RIGHT SIDE SILL AT REAR SEAT (Z) VELOCITY VS TIME	B- 37
33	RIGHT SIDE SILL AT REAR SEAT RESULTANT ACCELERATION VS TIME	B- 38
34	REAR FLOORPAN ABOVE AXLE (X) ACCELERATION VS TIME	B- 39
35	REAR FLOORPAN ABOVE AXLE (X) VELOCITY VS TIME	B- 40
36	REAR FLOORPAN ABOVE AXLE (Y) ACCELERATION VS TIME	B- 41
37	REAR FLOORPAN ABOVE AXLE (Y) VELOCITY VS TIME	B- 42
38	REAR FLOORPAN ABOVE AXLE (Z) ACCELERATION VS TIME	B- 43
39	REAR FLOORPAN ABOVE AXLE (Z) VELOCITY VS TIME	B- 44
40	REAR FLOORPAN ABOVE AXLE RESULTANT ACCELERATION VS TIME	B- 45
41	LEFT SIDE SILL AT REAR SEAT (Y) ACCELERATION VS TIME	B- 46
42	LEFT SIDE SILL AT REAR SEAT (Y) VELOCITY VS TIME	B- 47
43	LEFT SIDE SILL AT FRONT SEAT (Y) ACCELERATION VS TIME	B- 48
44	LEFT SIDE SILL AT FRONT SEAT (Y) VELOCITY VS TIME	B- 49
45	LEFT FRONT DOOR ON CENTERLINE (Y) ACCELERATION VS TIME	B- 50
46	LEFT FRONT DOOR ON CENTERLINE (Y) VELOCITY VS TIME	B- 51
47	RIGHT REAR OCCUPANT COMPARTMENT (Y) ACCELERATION VS TIME	B- 52
48	RIGHT REAR OCCUPANT COMPARTMENT (Y) VELOCITY VS TIME	B- 53
49	MID REAR OF LEFT FRONT DOOR (Y) ACCELERATION VS TIME	B- 54
50	MID REAR OF LEFT FRONT DOOR (Y) VELOCITY VS TIME	B- 55
51	LEFT FRONT DOOR UPPER CENTERLINE (Y) ACCELERATION VS TIME	B- 56
52	LEFT FRONT DOOR UPPER CENTERLINE (Y) VELOCITY VS TIME	B- 57
53	MID REAR OF LEFT REAR DOOR (Y) ACCELERATION VS TIME	B- 58
54	MID REAR OF LEFT REAR DOOR (Y) VELOCITY VS TIME	B- 59
55	LEFT REAR DOOR UPPER CENTERLINE (Y) ACCELERATION VS TIME	B- 60
56	LEFT REAR DOOR UPPER CENTERLINE (Y) VELOCITY VS TIME	B- 61
57	LOWER B-POST (Y) ACCELERATION VS TIME	B- 62
58	LOWER B-POST (Y) VELOCITY VS TIME	B- 63
59	UPPER B-POST (Y) ACCELERATION VS TIME	B- 64
60	UPPER B-POST (Y) VELOCITY VS TIME	B- 65
61	LOWER A-POST (Y) ACCELERATION VS TIME	B- 66

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>
62	LOWER A-POST (Y) VELOCITY VS TIME	B- 67
63	UPPER A-POST (Y) ACCELERATION VS TIME	B- 68
64	UPPER A-POST (Y) VELOCITY VS TIME	B- 69
65	FRONT SEAT TRACK (Y) ACCELERATION VS TIME	B- 70
66	FRONT SEAT TRACK (Y) VELOCITY VS TIME	B- 71
67	REAR SEAT TRACK (Y) ACCELERATION VS TIME	B- 72
68	REAR SEAT TRACK (Y) VELOCITY VS TIME	B- 73
69	VEHICLE CENTER OF GRAVITY (X) ACCELERATION VS TIME	B- 74
70	VEHICLE CENTER OF GRAVITY (X) VELOCITY VS TIME	B- 75
71	VEHICLE CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B- 76
72	VEHICLE CENTER OF GRAVITY (Y) VELOCITY ACCELERATION VS TIME	B- 77
73	VEHICLE CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B- 78
74	VEHICLE CENTER OF GRAVITY (Z) VELOCITY VS TIME	B- 79
75	VEHICLE CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B- 80

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>
76	MDB CENTER OF GRAVITY (X) ACCELERATION VS TIME	B- 81
77	MDB CENTER OF GRAVITY (X) VELOCITY VS TIME	B- 82
78	MDB CENTER OF GRAVITY (Y) ACCELERATION VS TIME	B- 83
79	MDB CENTER OF GRAVITY (Y) VELOCITY VS TIME	B- 84
80	MDB CENTER OF GRAVITY (Z) ACCELERATION VS TIME	B- 85
81	MDB CENTER OF GRAVITY (Z) VELOCITY VS TIME	B- 86
82	MDB CENTER OF GRAVITY RESULTANT ACCELERATION VS TIME	B- 87
83	MDB REAR (X) ACCELERATION VS TIME	B- 88
84	MDB REAR (X) VELOCITY VS TIME	B- 89
85	MDB REAR (Y) ACCELERATION VS TIME	B- 90
86	MDB REAR (Y) VELOCITY VS TIME	B- 91

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>
87	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 92
88	DRIVER UPPER RIB (Y) VELOCITY VS TIME	B- 93
89	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 94
90	DRIVER LOWER RIB (Y) VELOCITY VS TIME	B- 95
91	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 96
92	DRIVER LOWER SPINE (Y) VELOCITY VS TIME	B- 97
93	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 98
94	DRIVER PELVIC (Y) VELOCITY VS TIME	B- 99

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

<u>Plot No.</u>	<u>Data Plot Title</u>	<u>Page</u>
95	DRIVER UPPER RIB (Y) ACCELERATION VS TIME	B- 100
96	DRIVER LOWER RIB (Y) ACCELERATION VS TIME	B- 101
97	DRIVER LOWER SPINE (Y) ACCELERATION VS TIME	B- 102
98	DRIVER PELVIC (Y) ACCELERATION VS TIME	B- 103

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

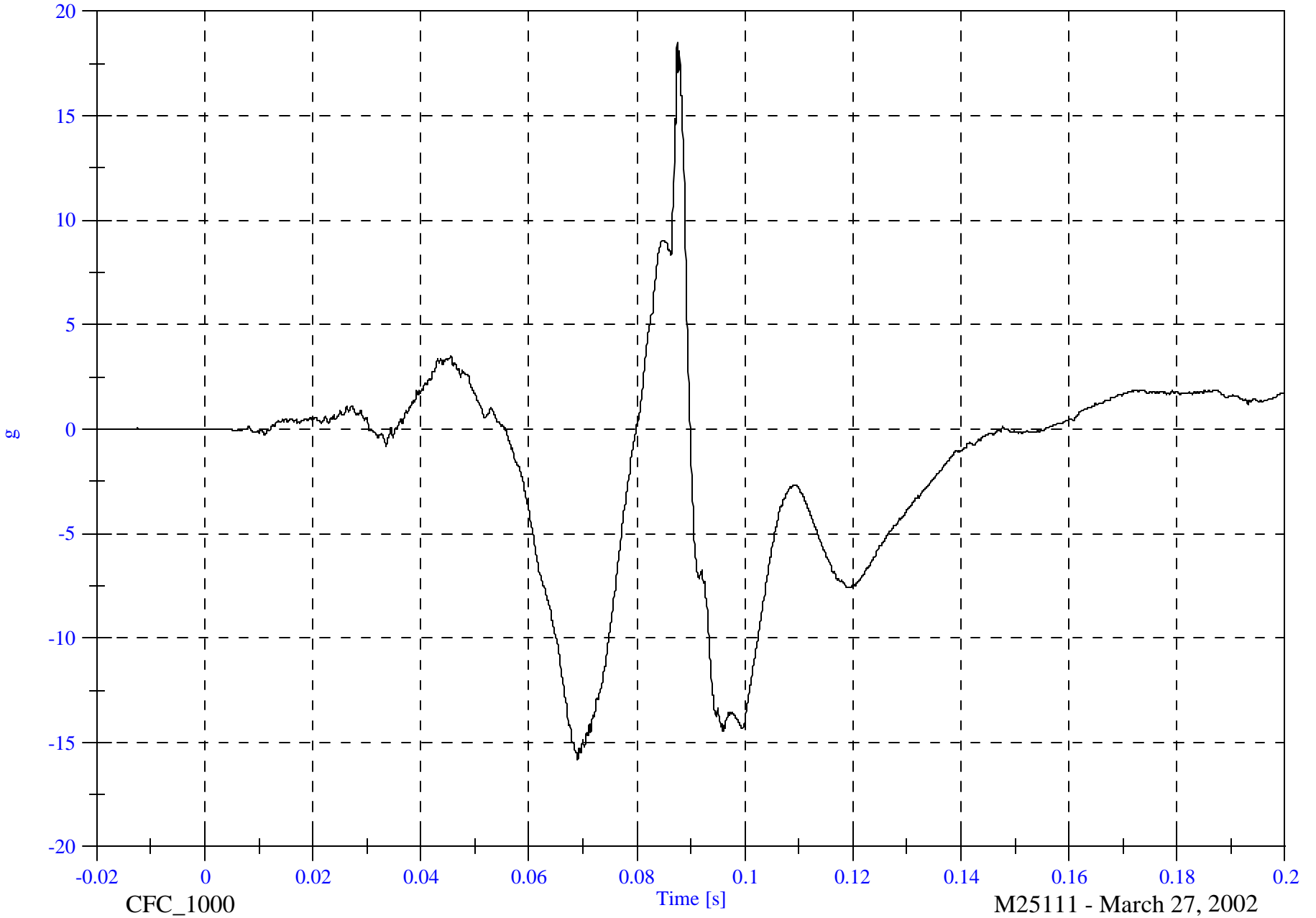
Max: 18.5 [g] at 0.087 [s]

P1 Head x

Min: -15.8 [g] at 0.069 [s]

B-6

8652-SNCAP-05



CFC_1000

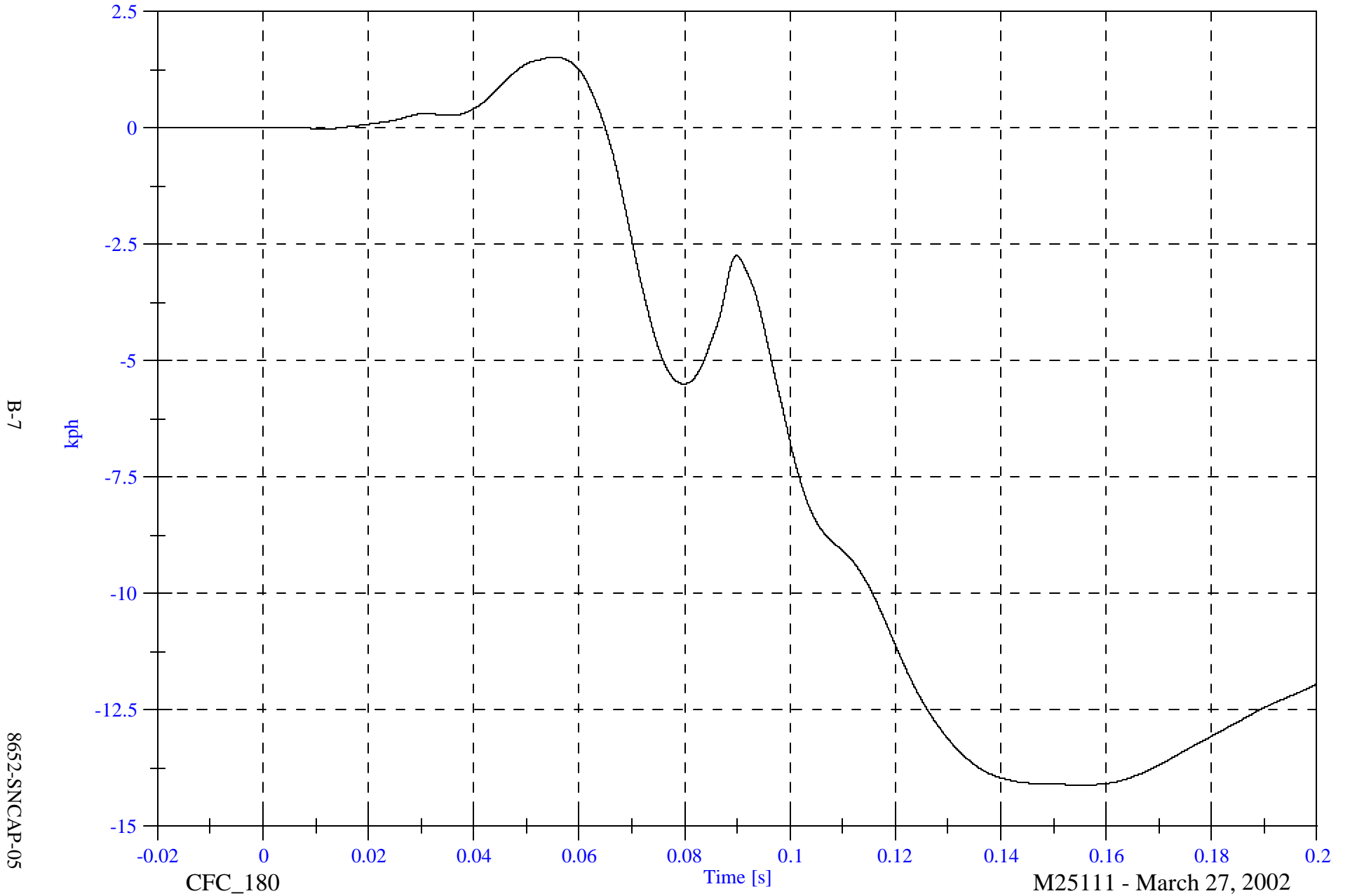
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Max: 1.5 [kph] at 0.055 [s]

P1 Head x Velocity

Min: -14.1 [kph] at 0.156 [s]



B-7

8652-SNCAP-05

CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

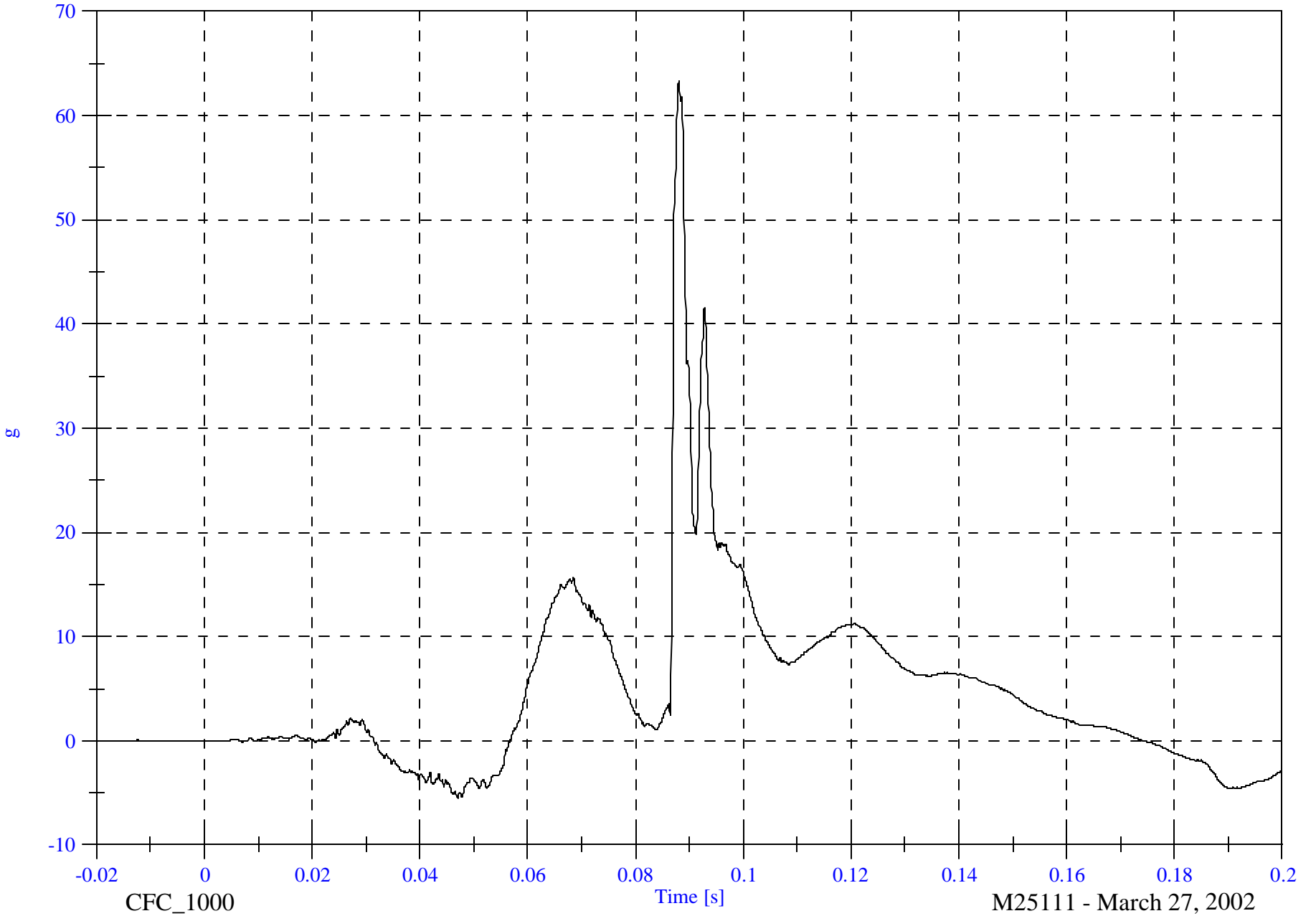
Max: 63.3 [g] at 0.088 [s]

P1 Head y

Min: -5.5 [g] at 0.047 [s]

B-8

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

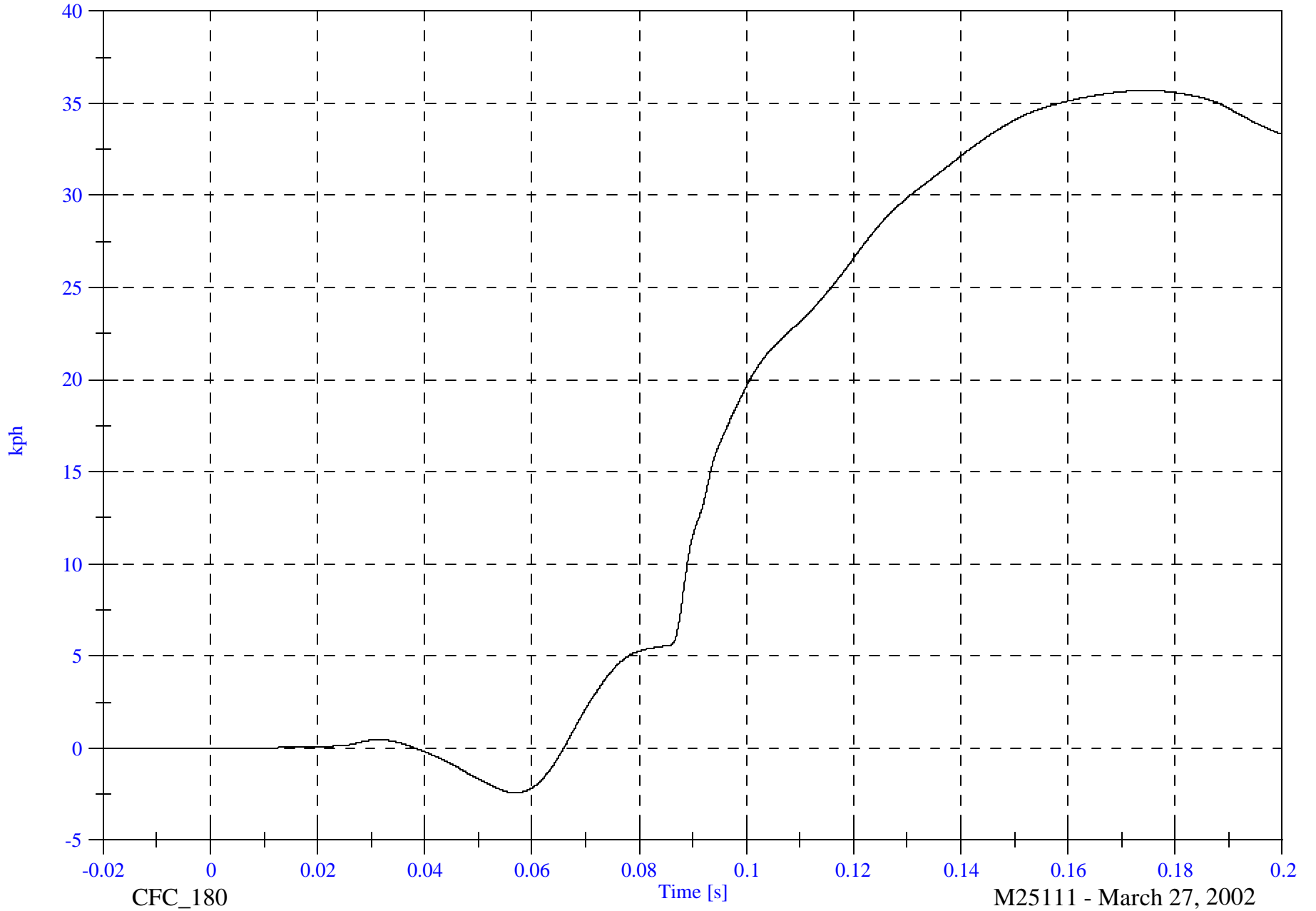
P1 Head y Velocity

Max: 35.7 [kph] at 0.174 [s]

Min: -2.4 [kph] at 0.057 [s]

B-9

8652-SNCAP-05



CFC_180

Time [s]

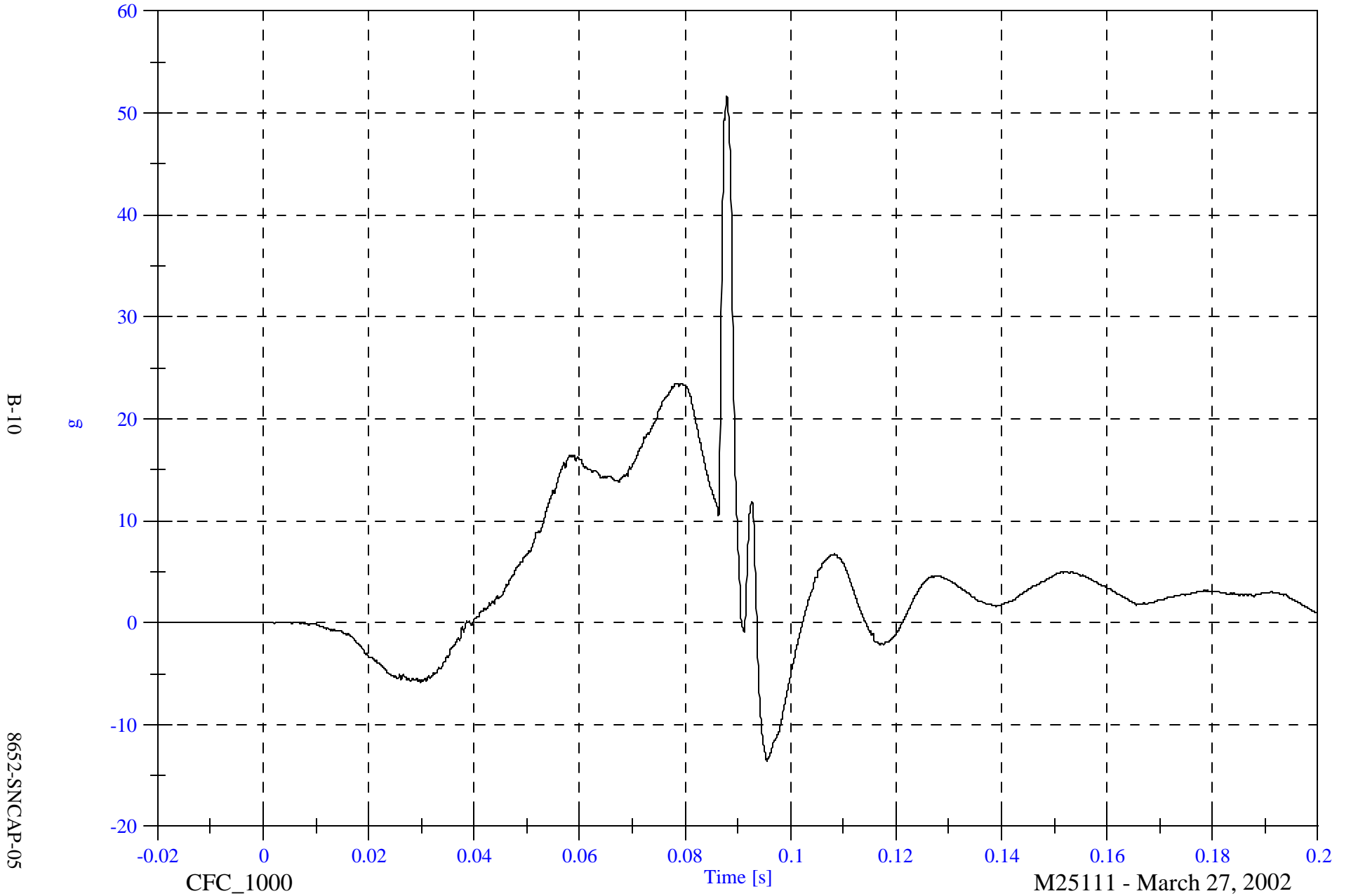
M25111 - March 27, 2002

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Max: 51.6 [g] at 0.088 [s]

P1 Head z

Min: -13.6 [g] at 0.096 [s]



B-10

8652-SNCAP-05

CFC_1000

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

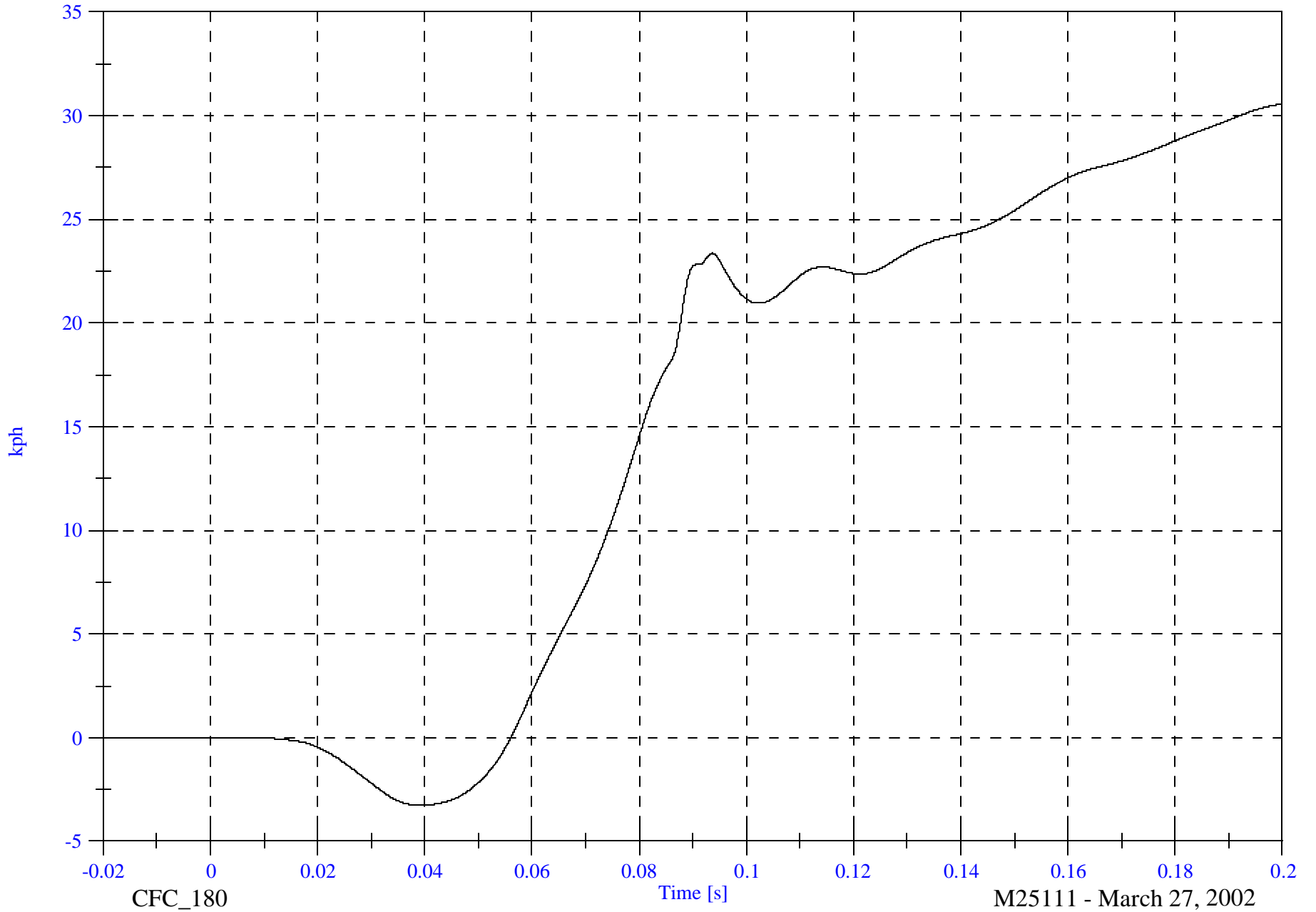
Max: 30.6 [kph] at 0.200 [s]

P1 Head z Velocity

Min: -3.3 [kph] at 0.039 [s]

B-11

8652-SNCAP-05



CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

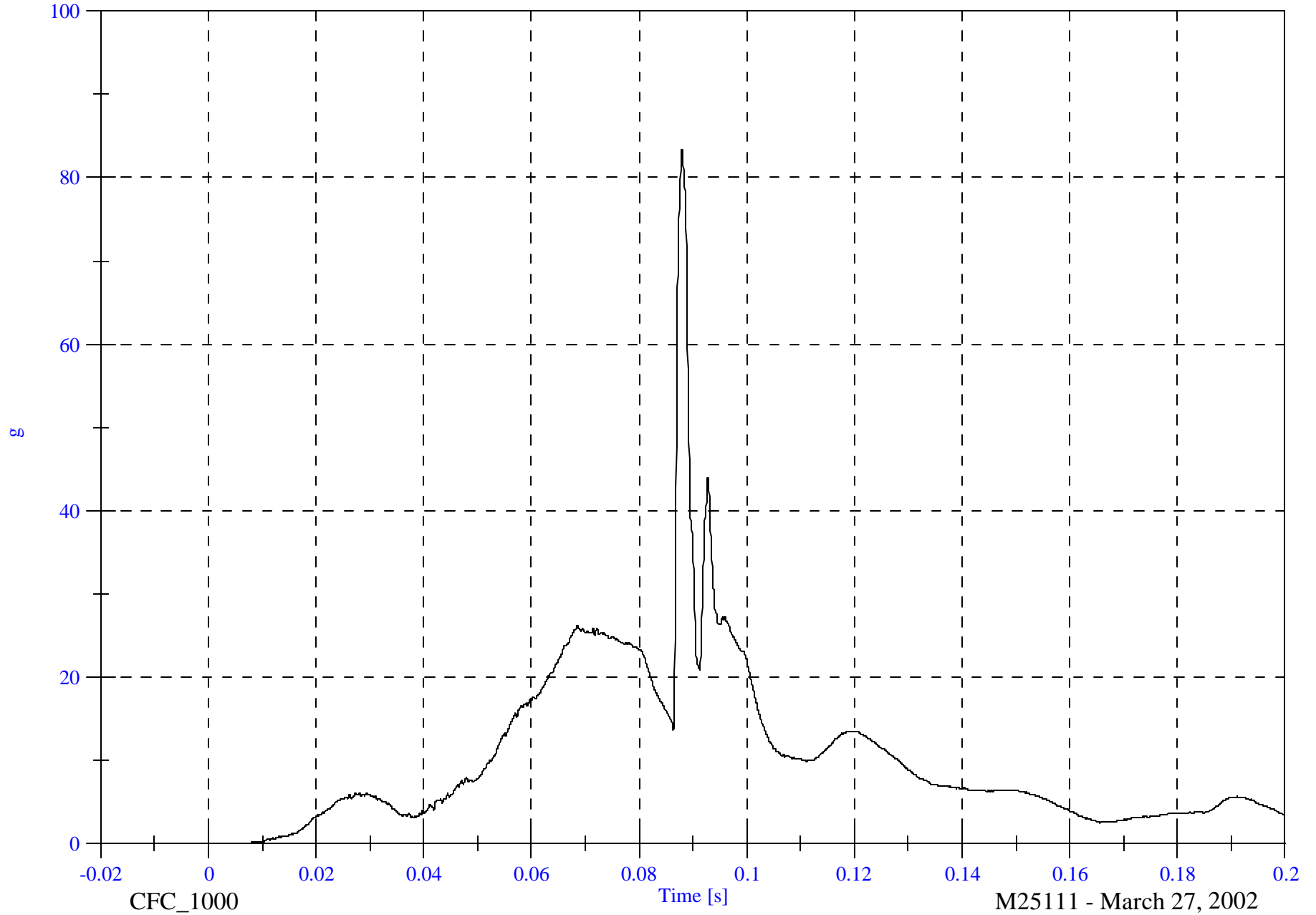
P1 Head Resultant

Max: 83.4 [g] at 0.088 [s]

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

B-12

8652-SNCAP-05



CFC_1000

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

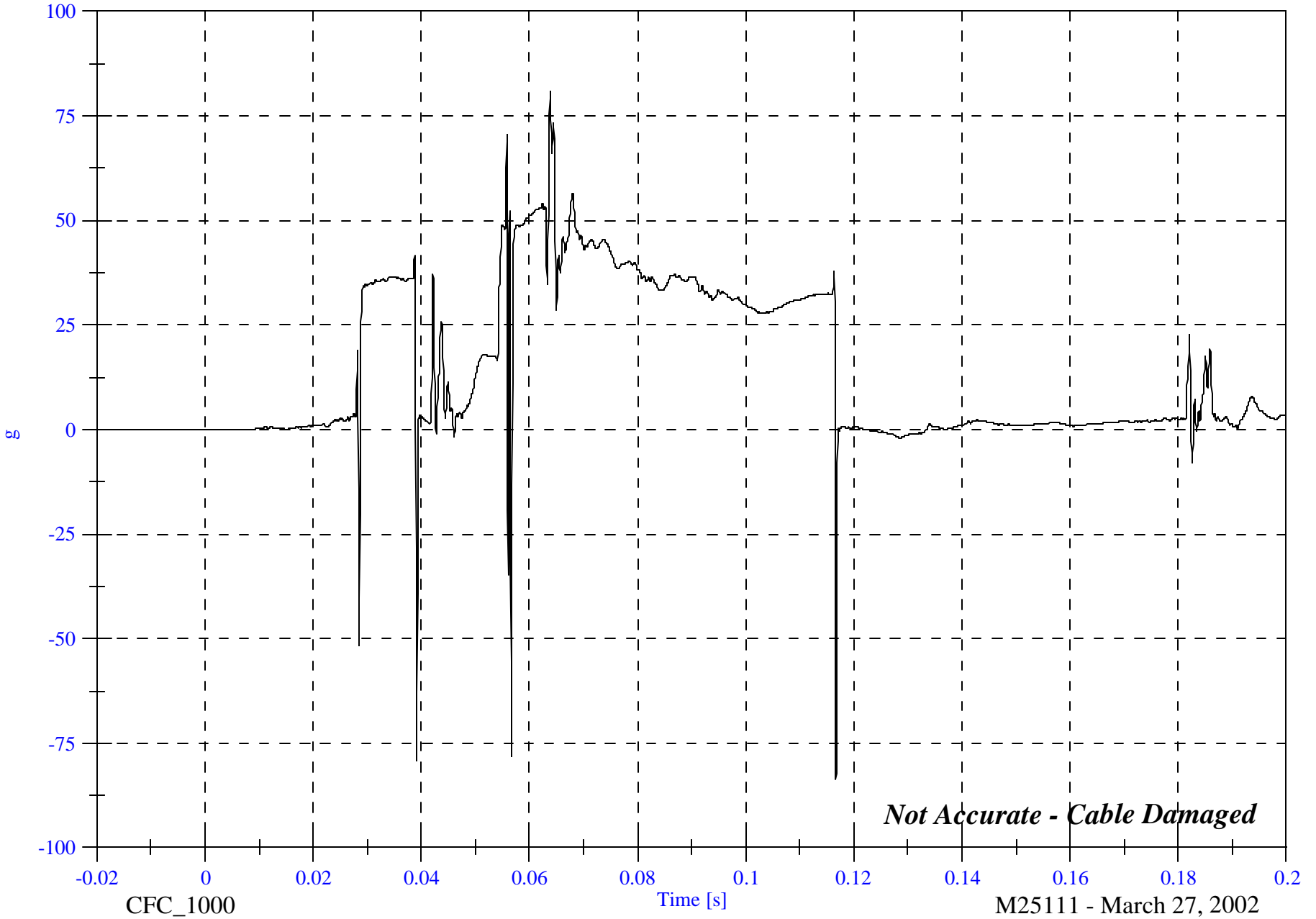
Max: 80.7 [g] at 0.064 [s]

P1 Upper Rib y

Min: -83.7 [g] at 0.117 [s]

B-13

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

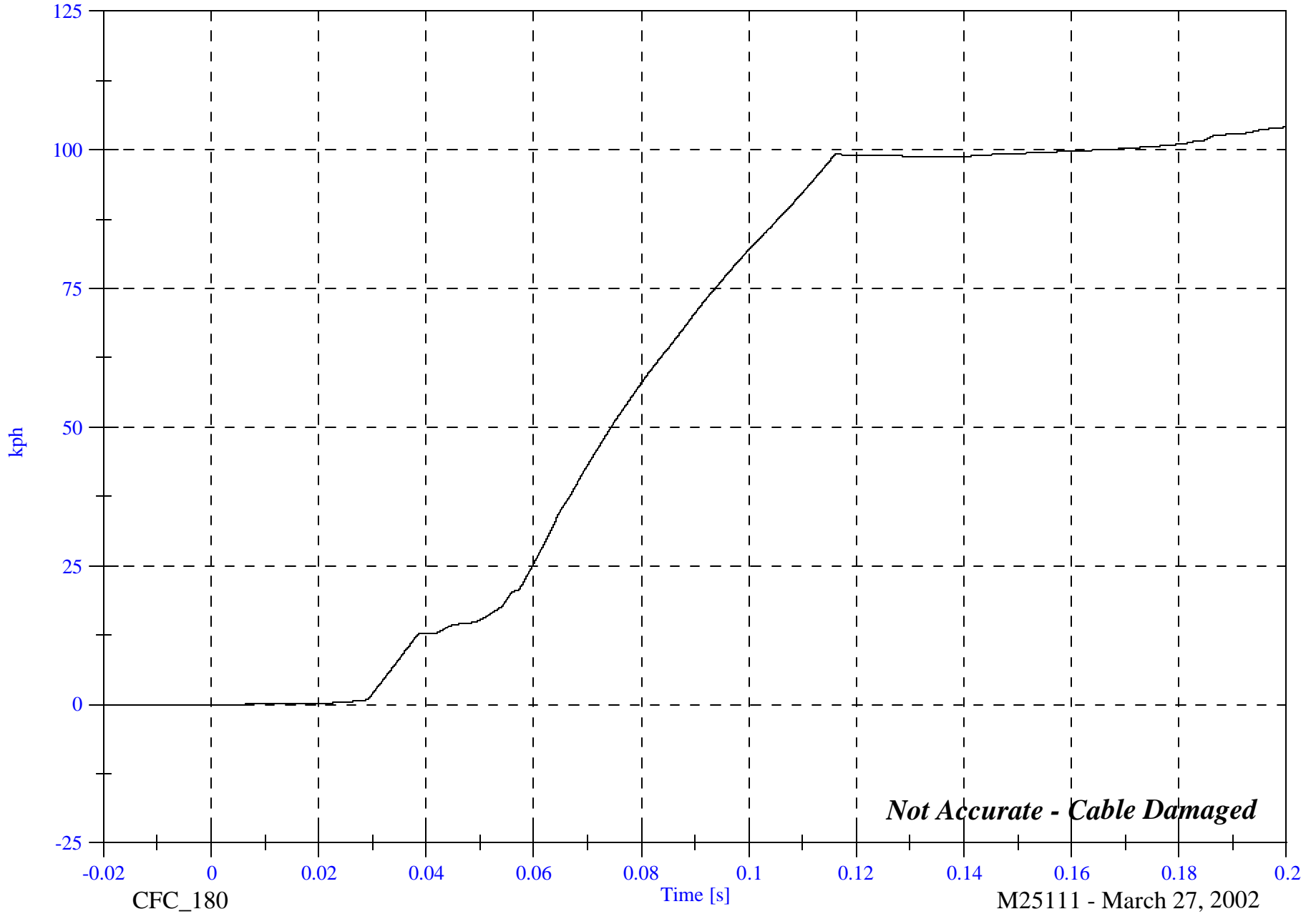
P1 Upper Rib y Velocity

Max: 104.1 [kph] at 0.200 [s]

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

B-14

8652-SNCAP-05



Not Accurate - Cable Damaged

CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

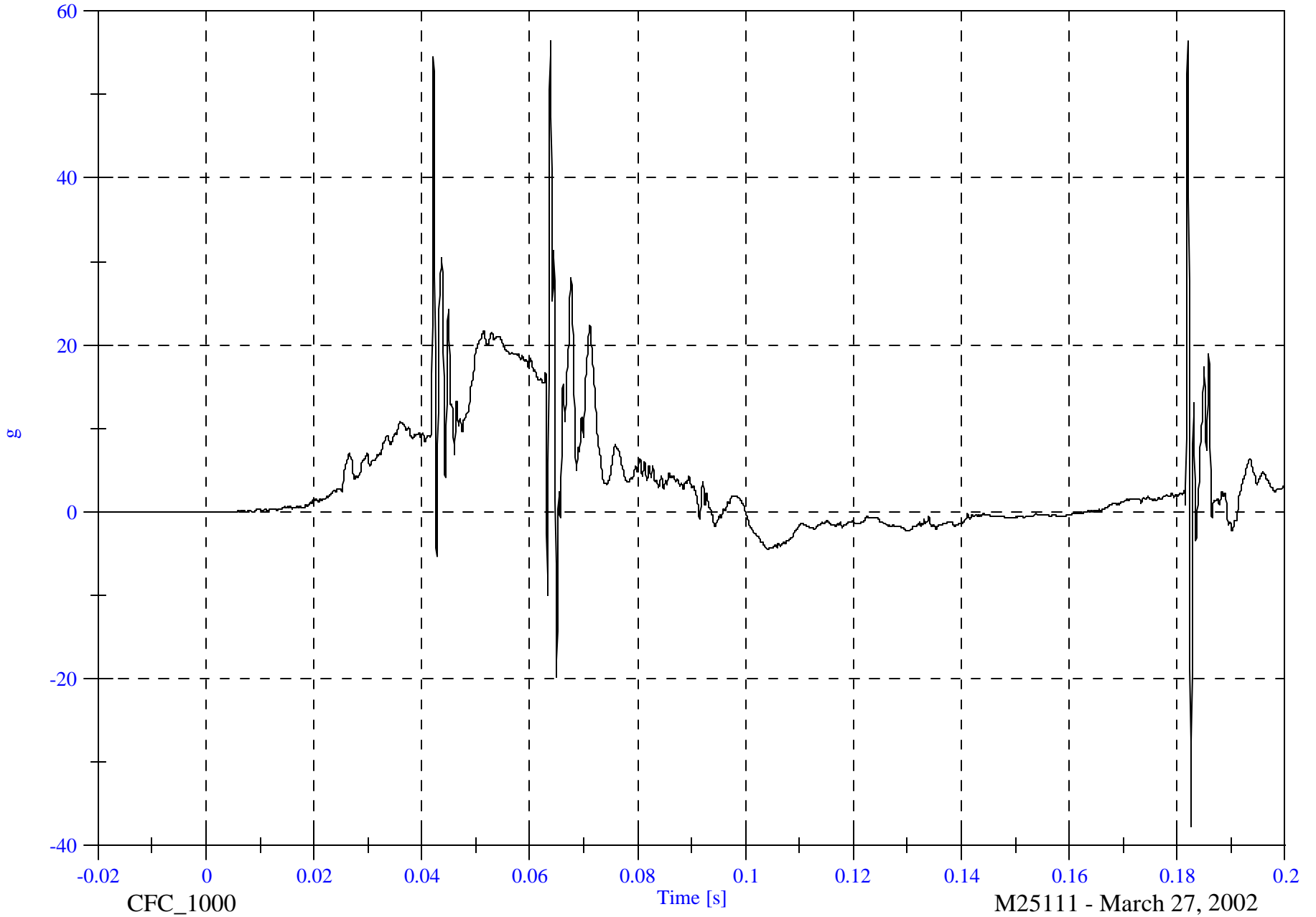
P1 Lower Rib y

Max: 56.5 [g] at 0.064 [s]

Min: -37.6 [g] at 0.183 [s]

B-15

8652-SNCAP-05



CFC_1000

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

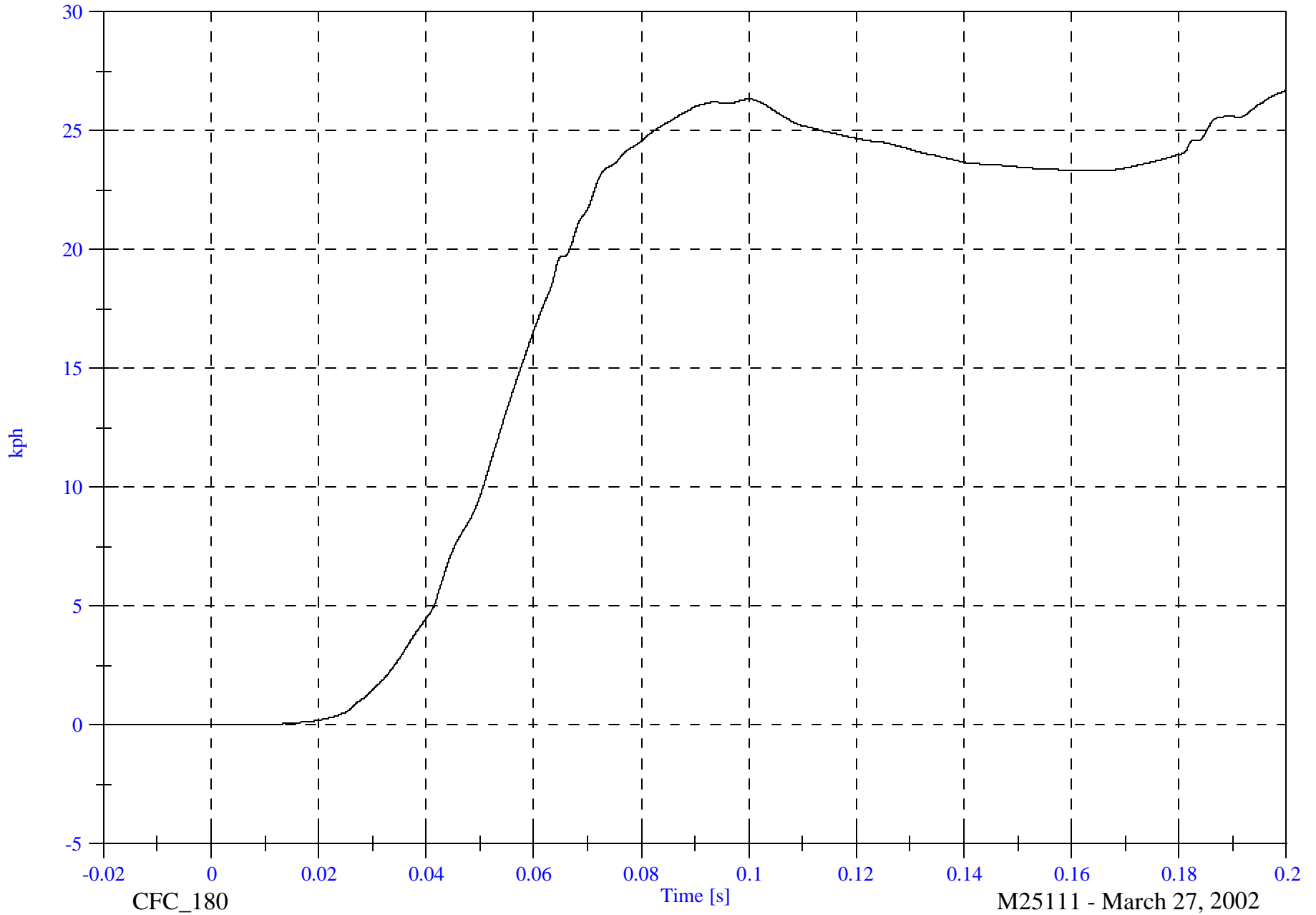
P1 Lower Rib y Velocity

Max: 26.7 [kph] at 0.200 [s]

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

B-16

8652-SNCAP-05



CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

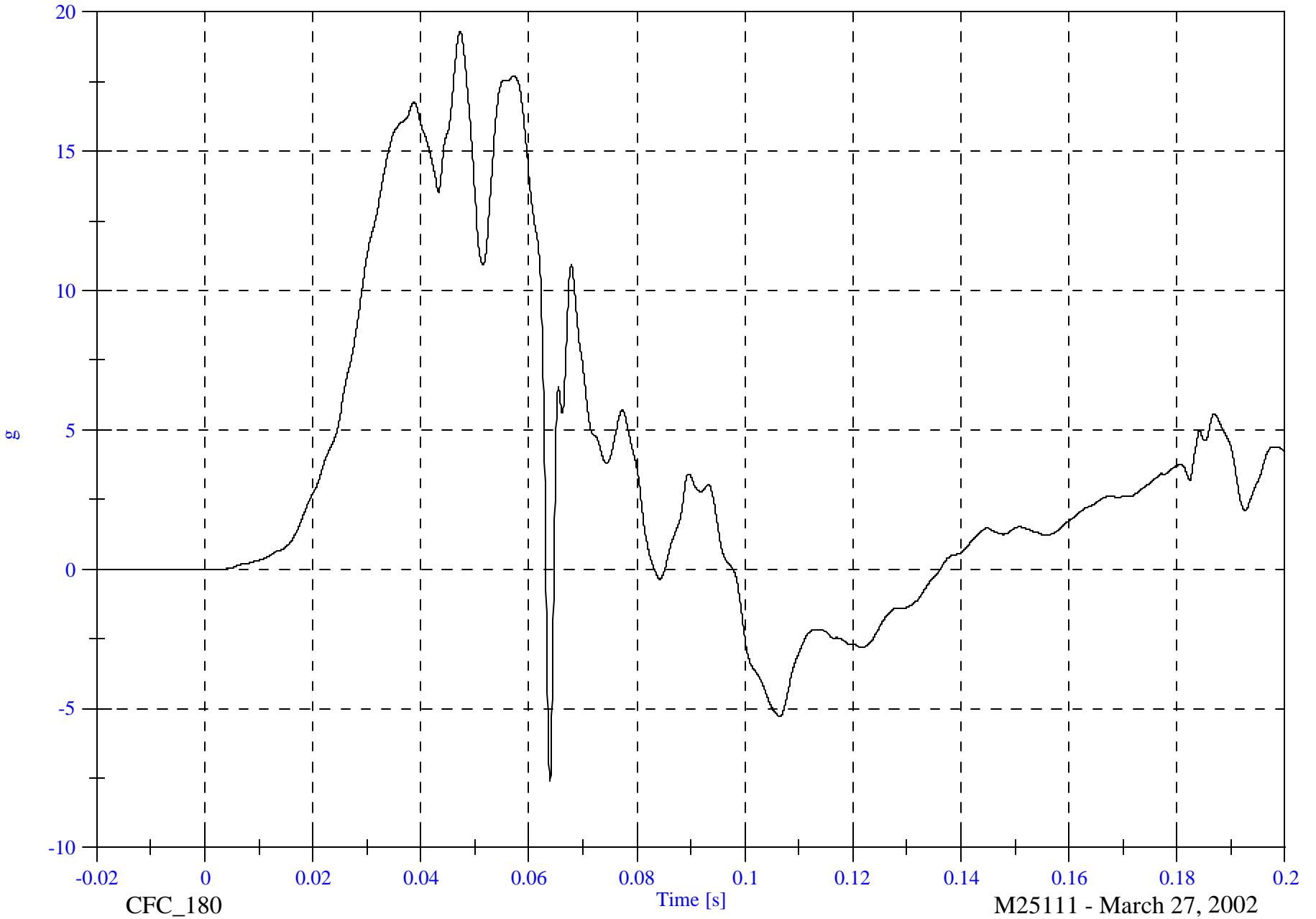
Max: 19.3 [g] at 0.047 [s]

P1 Lower Spine y

Min: -7.6 [g] at 0.064 [s]

B-17

8652-SNCAP-05



CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

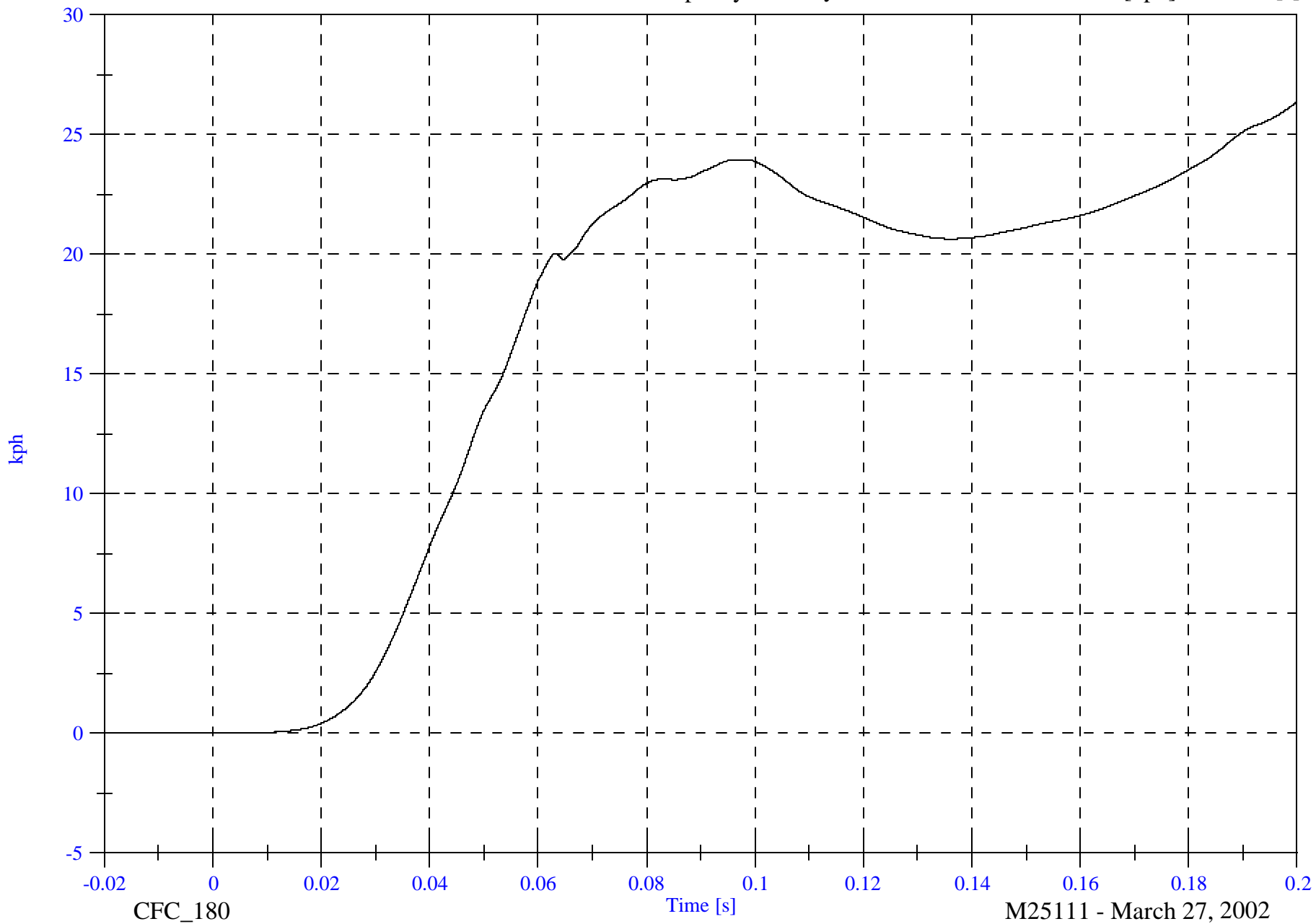
Max: 26.3 [kph] at 0.200 [s]

P1 Lower Spine y Velocity

Min: -0.0 [kph] at -0.008 [s]

B-18

8652-SNCAP-05



CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

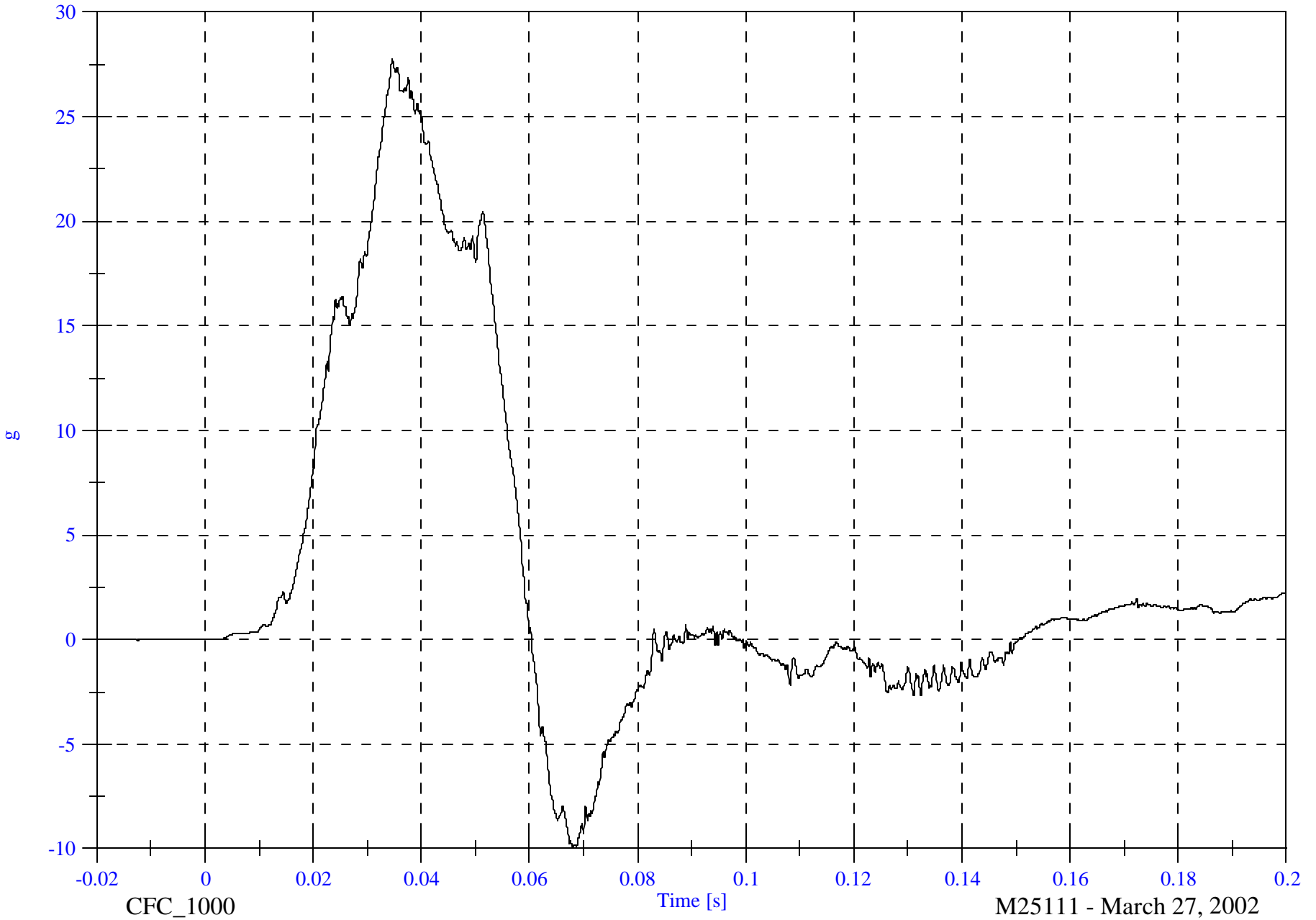
Max: 27.8 [g] at 0.035 [s]

P1 Pelvic y

Min: -9.9 [g] at 0.068 [s]

B-19

8652-SNCAP-05



CFC_1000

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

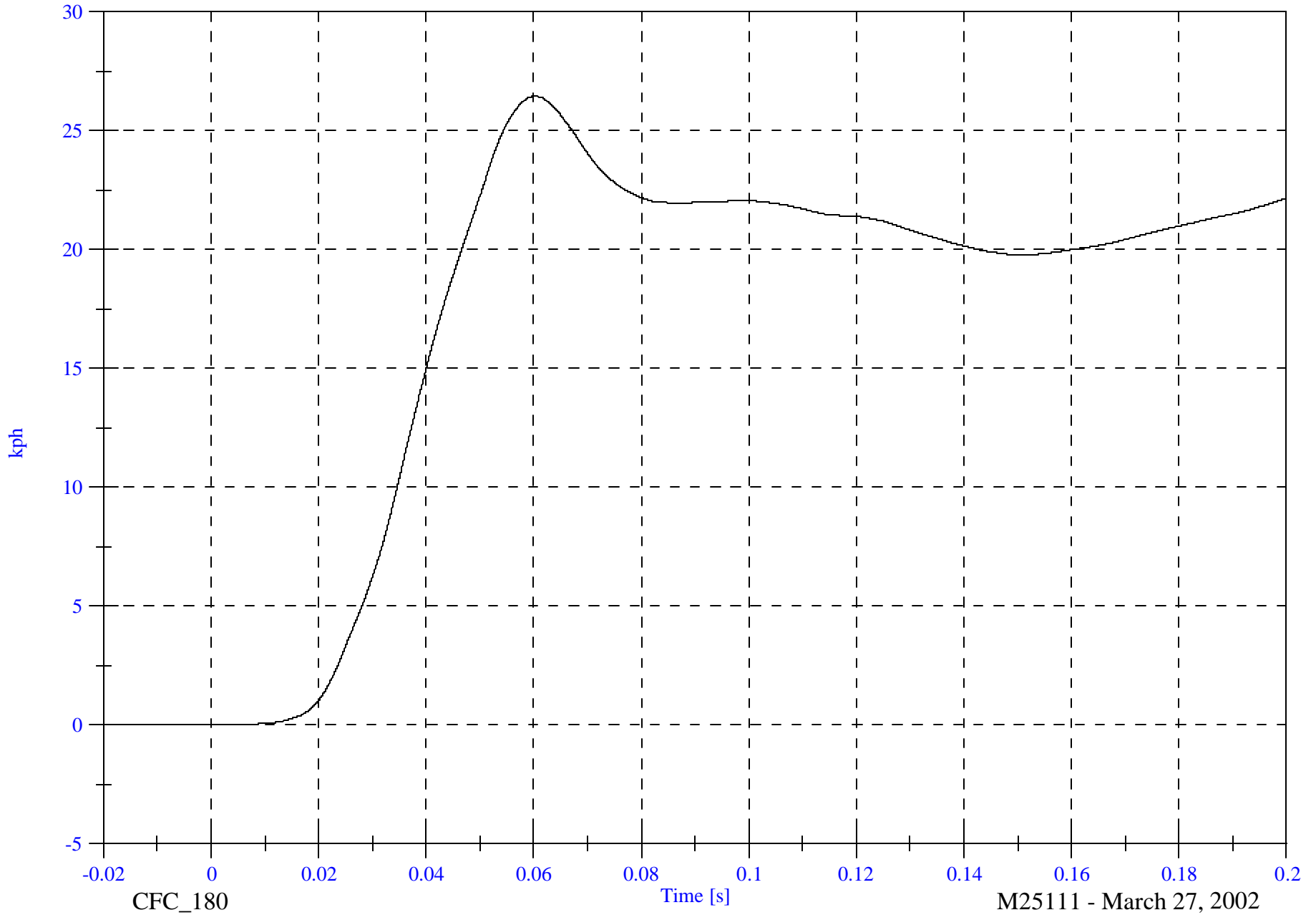
P1 Pelvic y Velocity

Max: 26.4 [kph] at 0.060 [s]

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

B-20

8652-SNCAP-05



CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Max: 55.8 [g] at 0.063 [s]

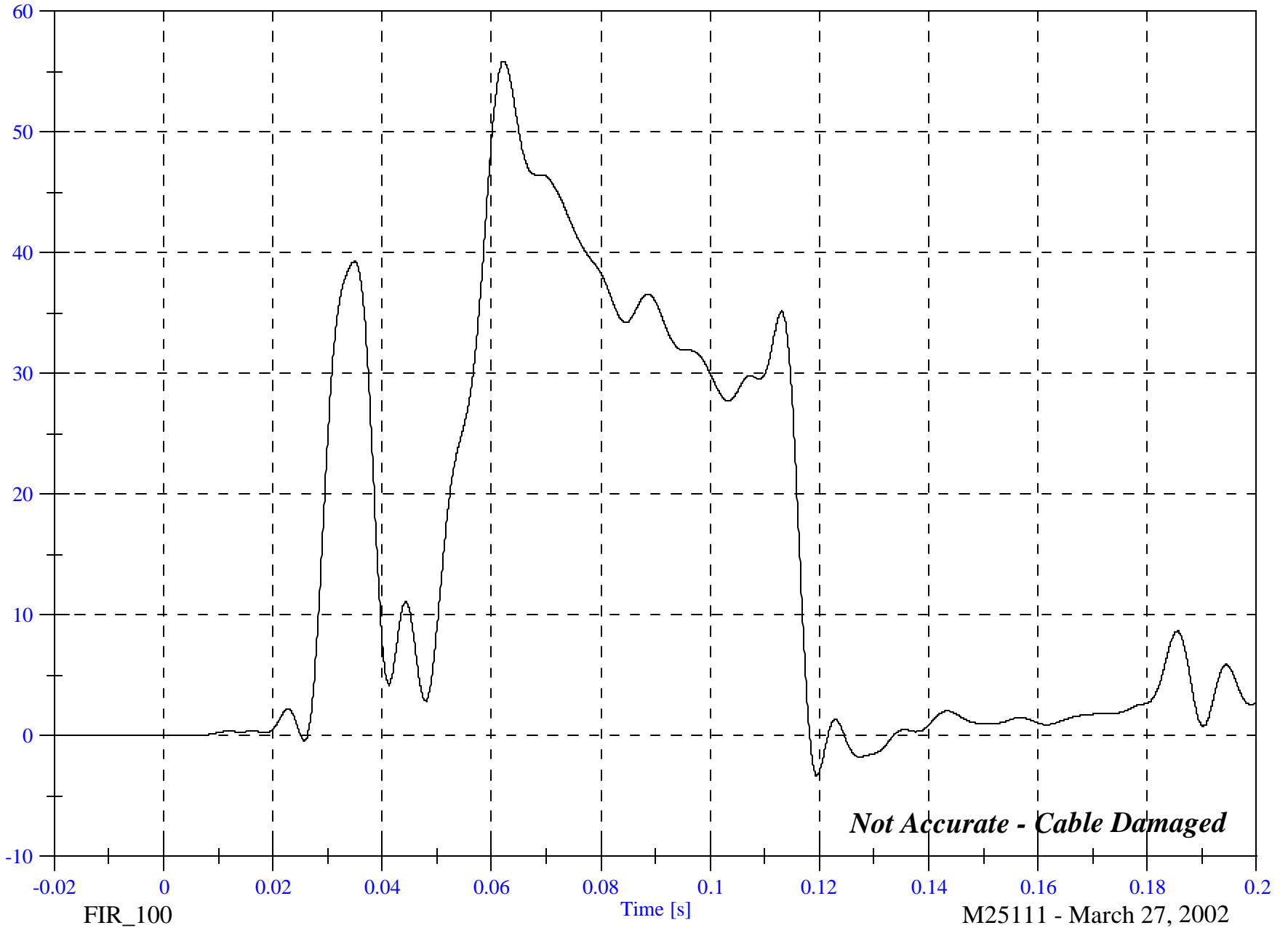
P1 Upper Rib y

Min: -3.3 [g] at 0.119 [s]

B-21

g

8652-SNCAP-05



Not Accurate - Cable Damaged

FIR_100

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P1 Lower Rib y

Max: 21.8 [g] at 0.053 [s]

Min: -4.5 [g] at 0.105 [s]

B-22

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SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

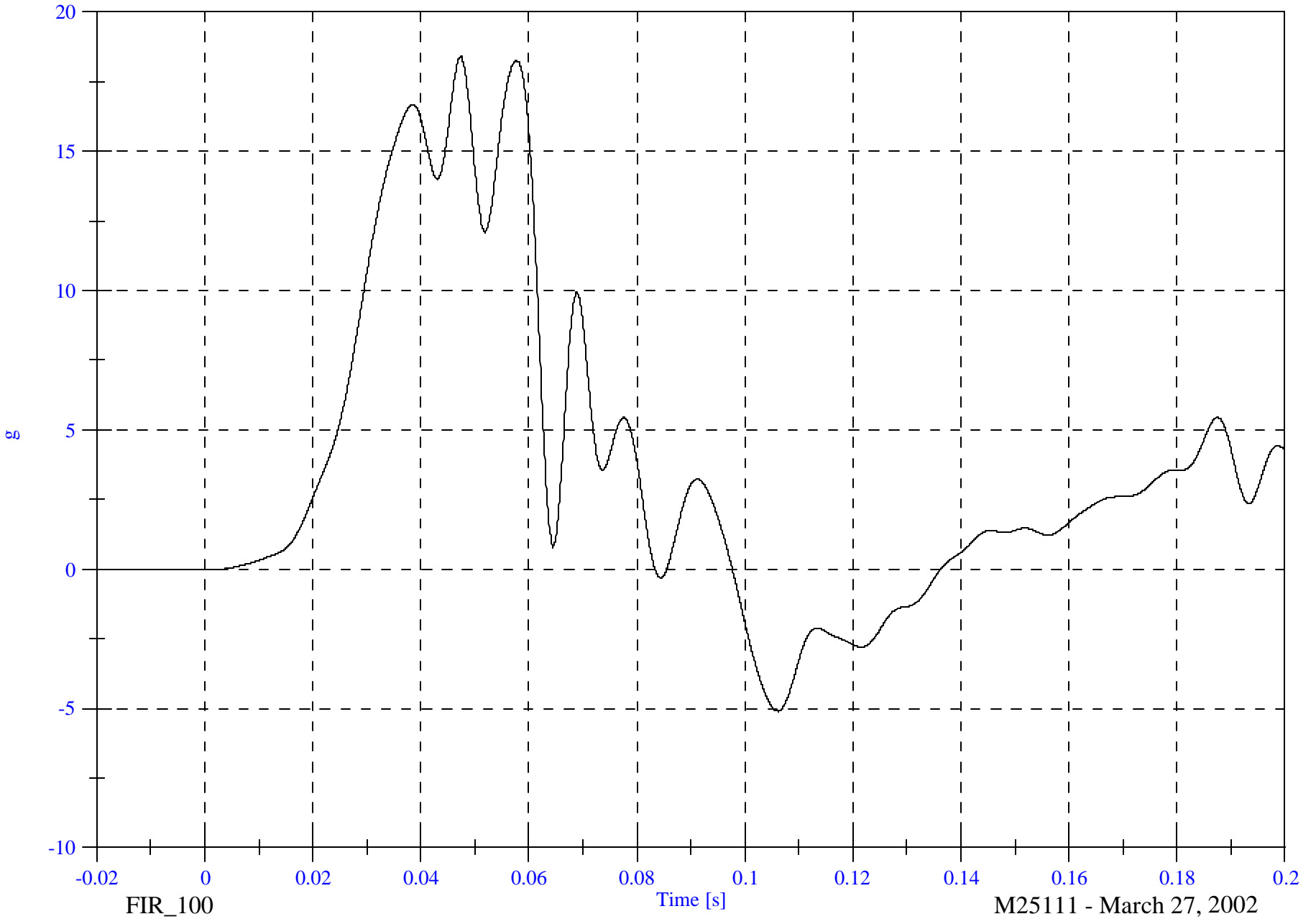
Max: 18.4 [g] at 0.047 [s]

P1 Lower Spine y

Min: -5.1 [g] at 0.106 [s]

B-23

8652-SNCAP-05



FIR_100

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

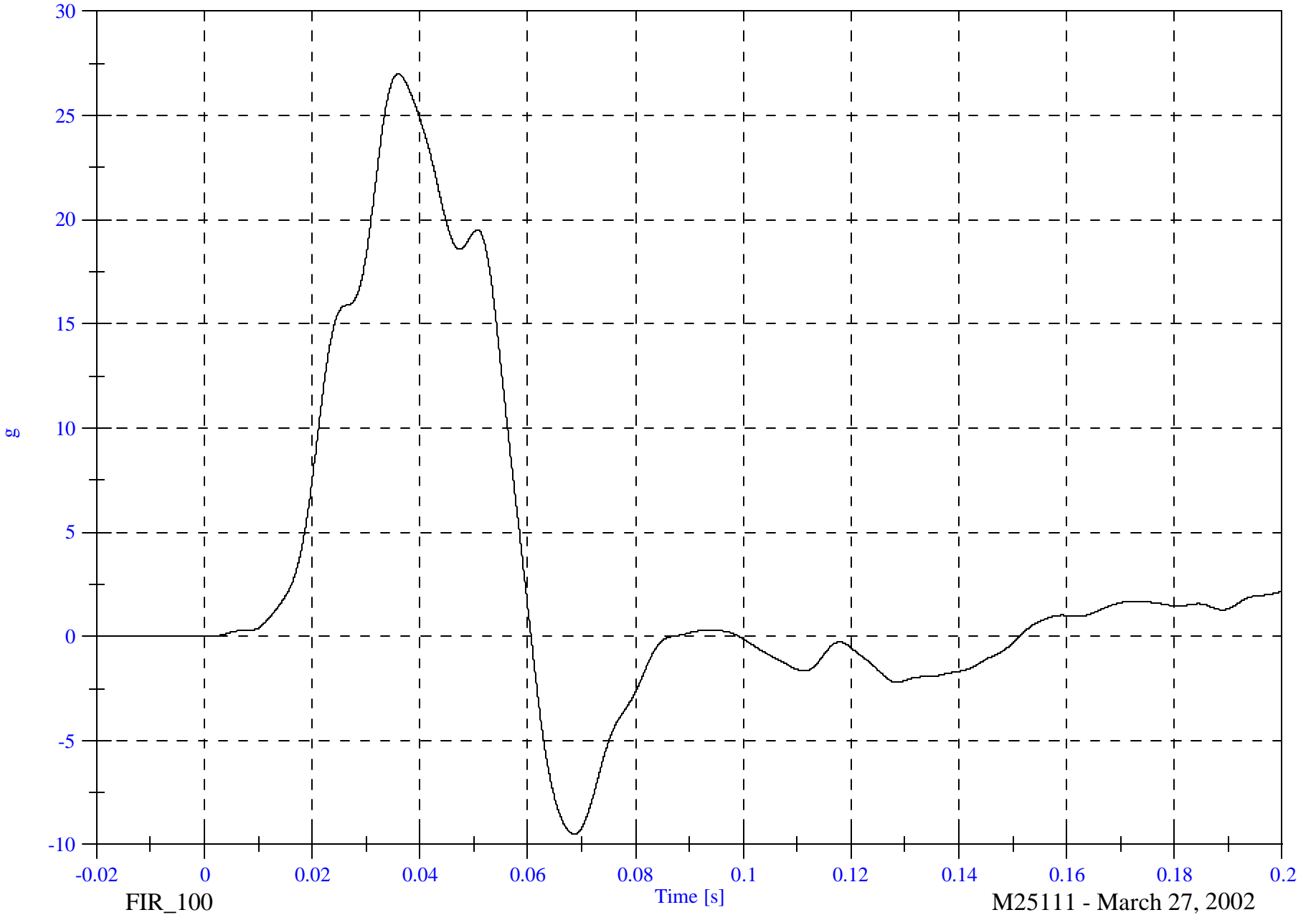
Max: 27.0 [g] at 0.036 [s]

P1 Pelvic y

Min: -9.5 [g] at 0.069 [s]

B-24

8652-SNCAP-05



FIR_100

Time [s]

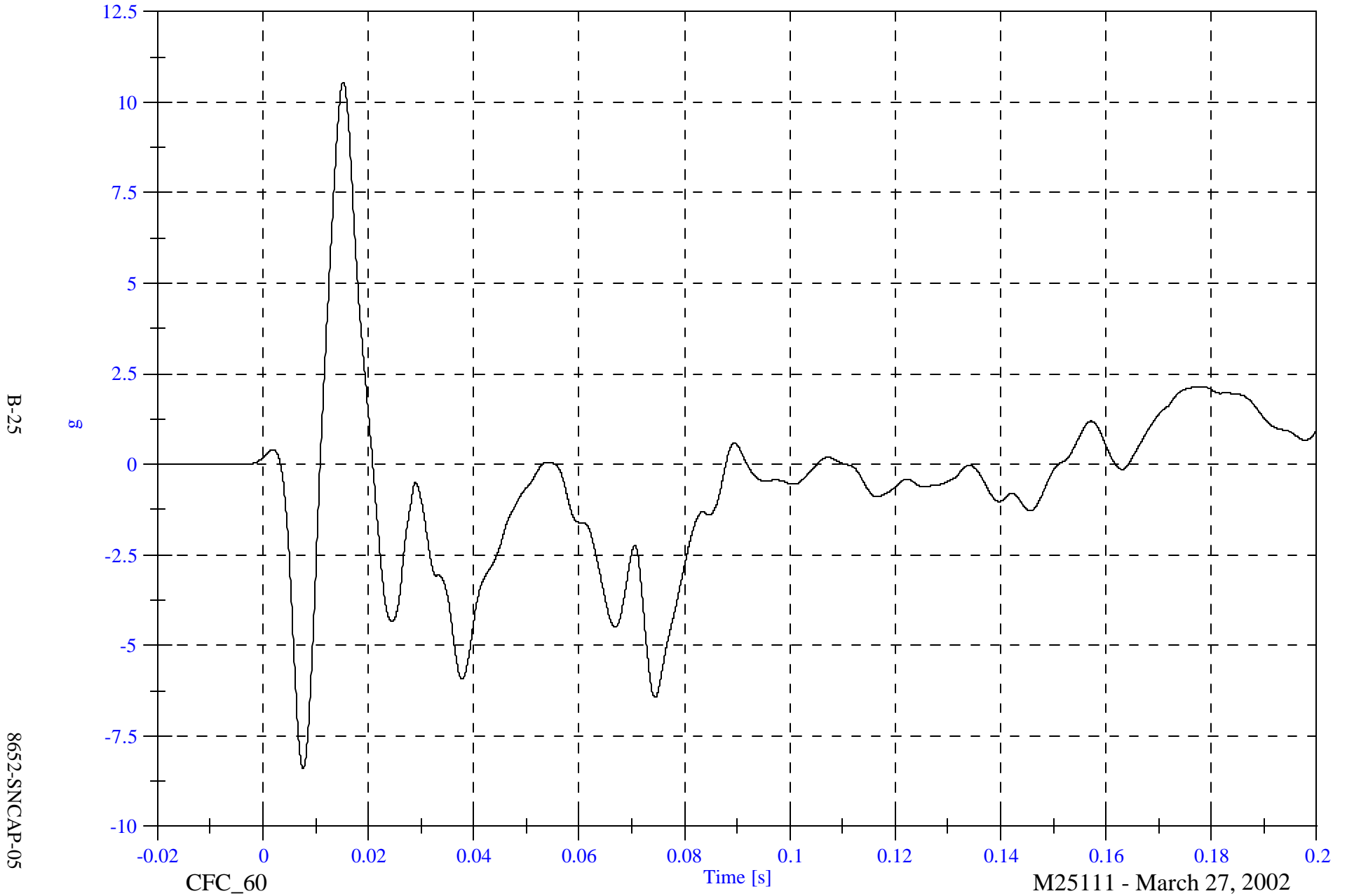
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 1 Right Front Sill at Front Seat x

Max: 10.6 [g] at 0.015 [s]

Min: -8.4 [g] at 0.008 [s]



B-25

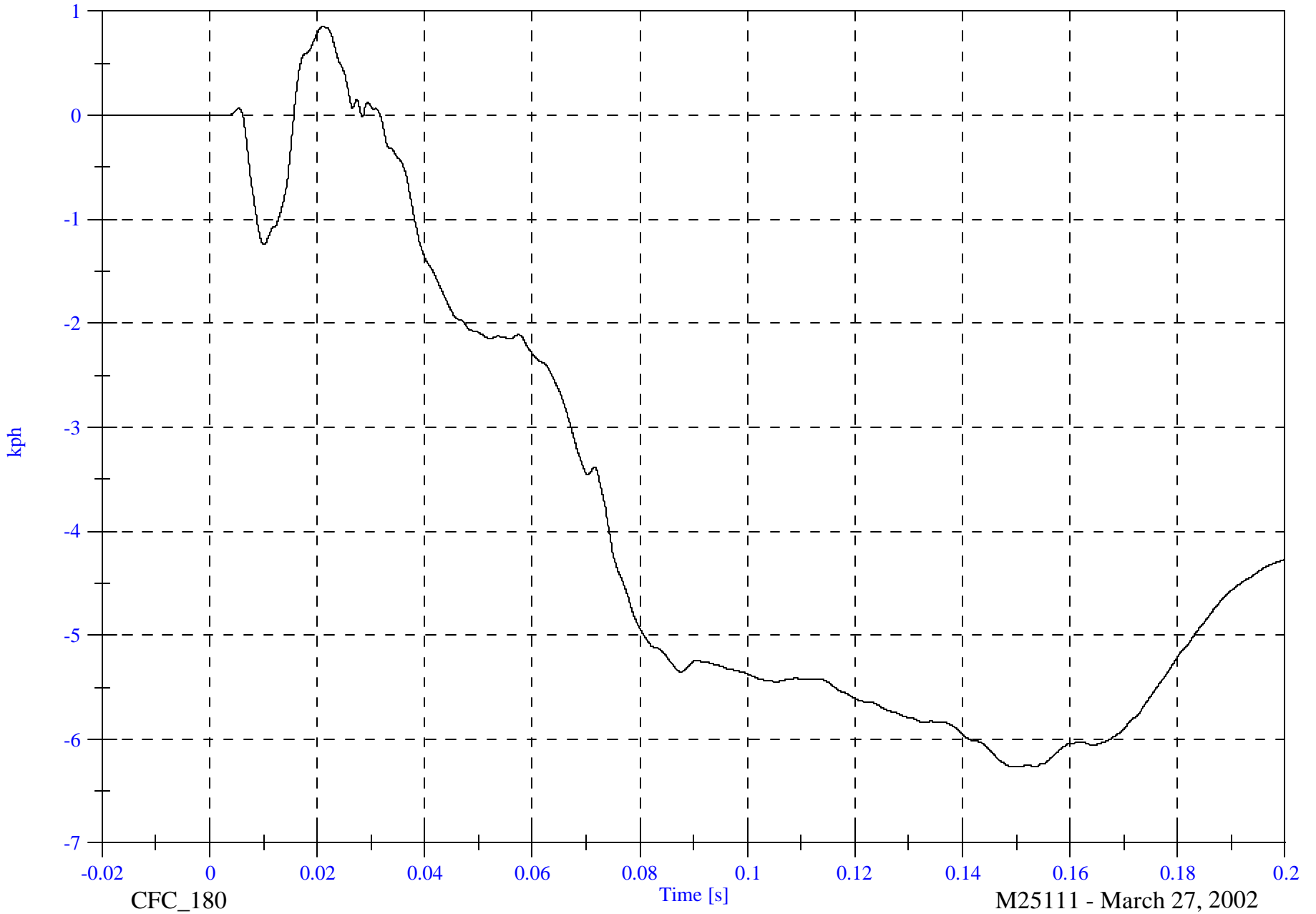
8652-SNCAP-05

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 1 Right Front Sill at Front Seat x Velocity

Max: 0.9 [kph] at 0.021 [s]

Min: -6.3 [kph] at 0.153 [s]



B-26

8652-SNCAP-05

CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

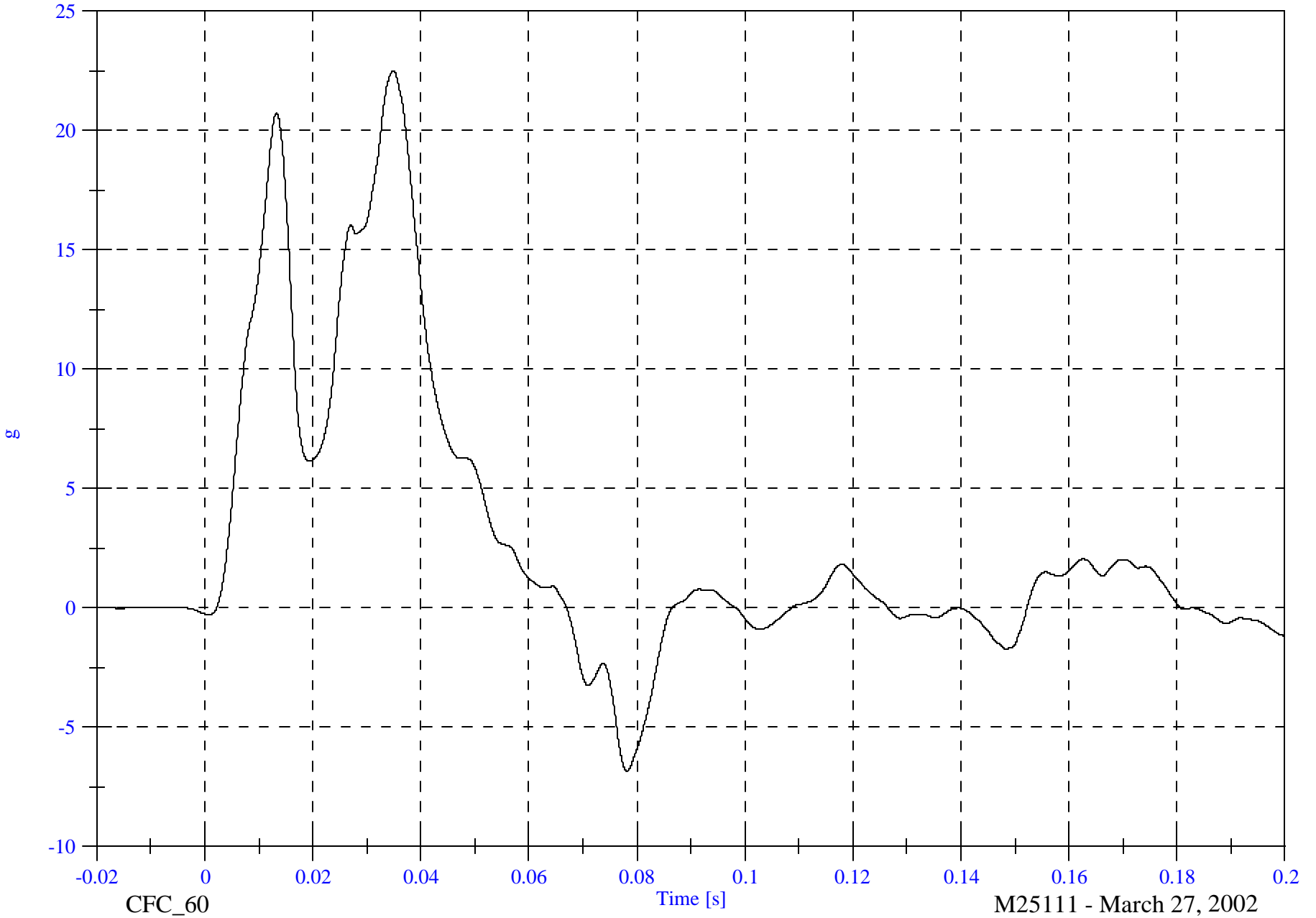
Acc 1 Right Front Sill at Front Seat y

Max: 22.5 [g] at 0.035 [s]

Min: -6.8 [g] at 0.078 [s]

B-27

8652-SNCAP-05



CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

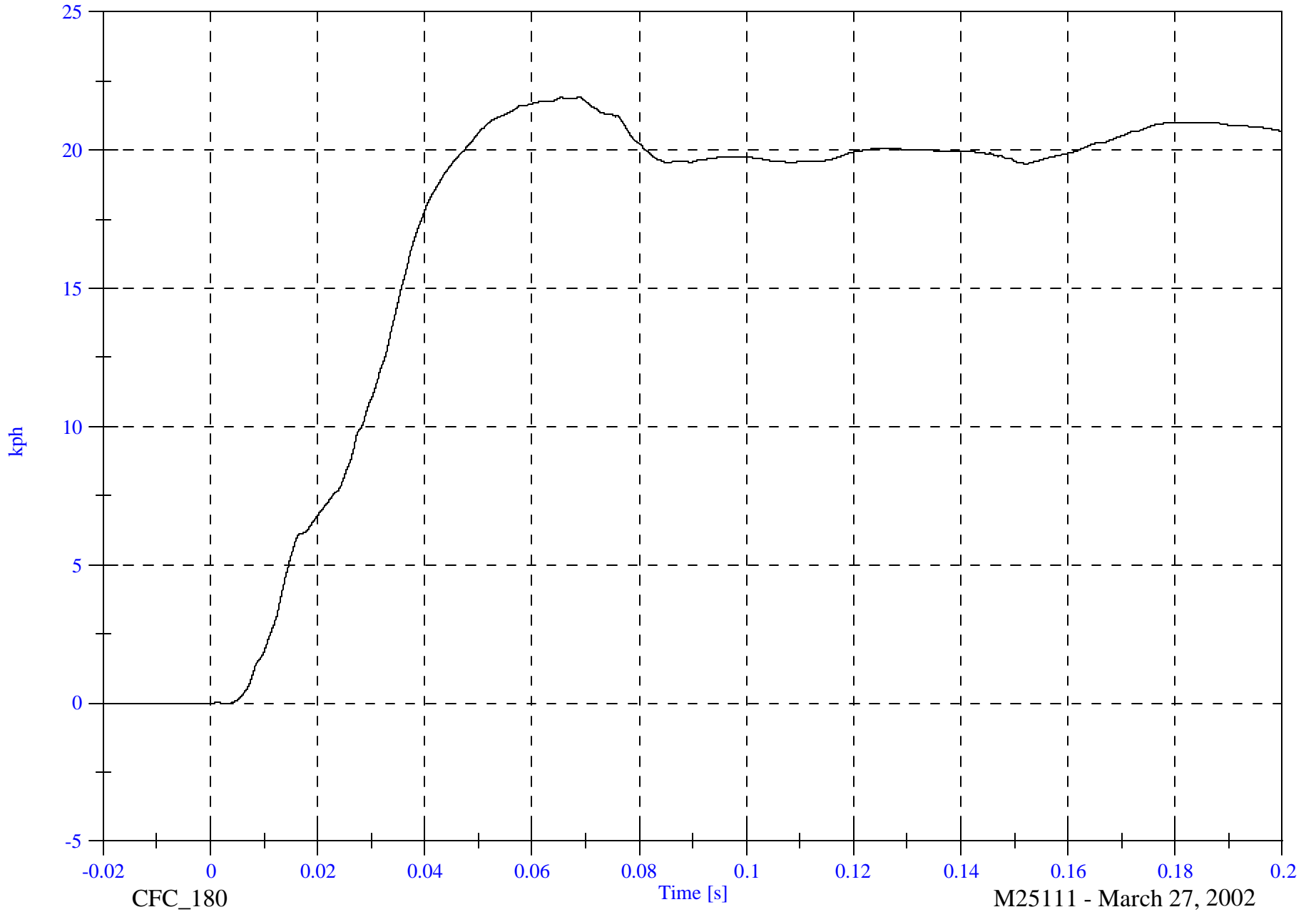
Max: 21.9 [kph] at 0.069 [s]

Acc 1 Right Front Sill at Front Seat y Velocity

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

B-28

8652-SNCAP-05



CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

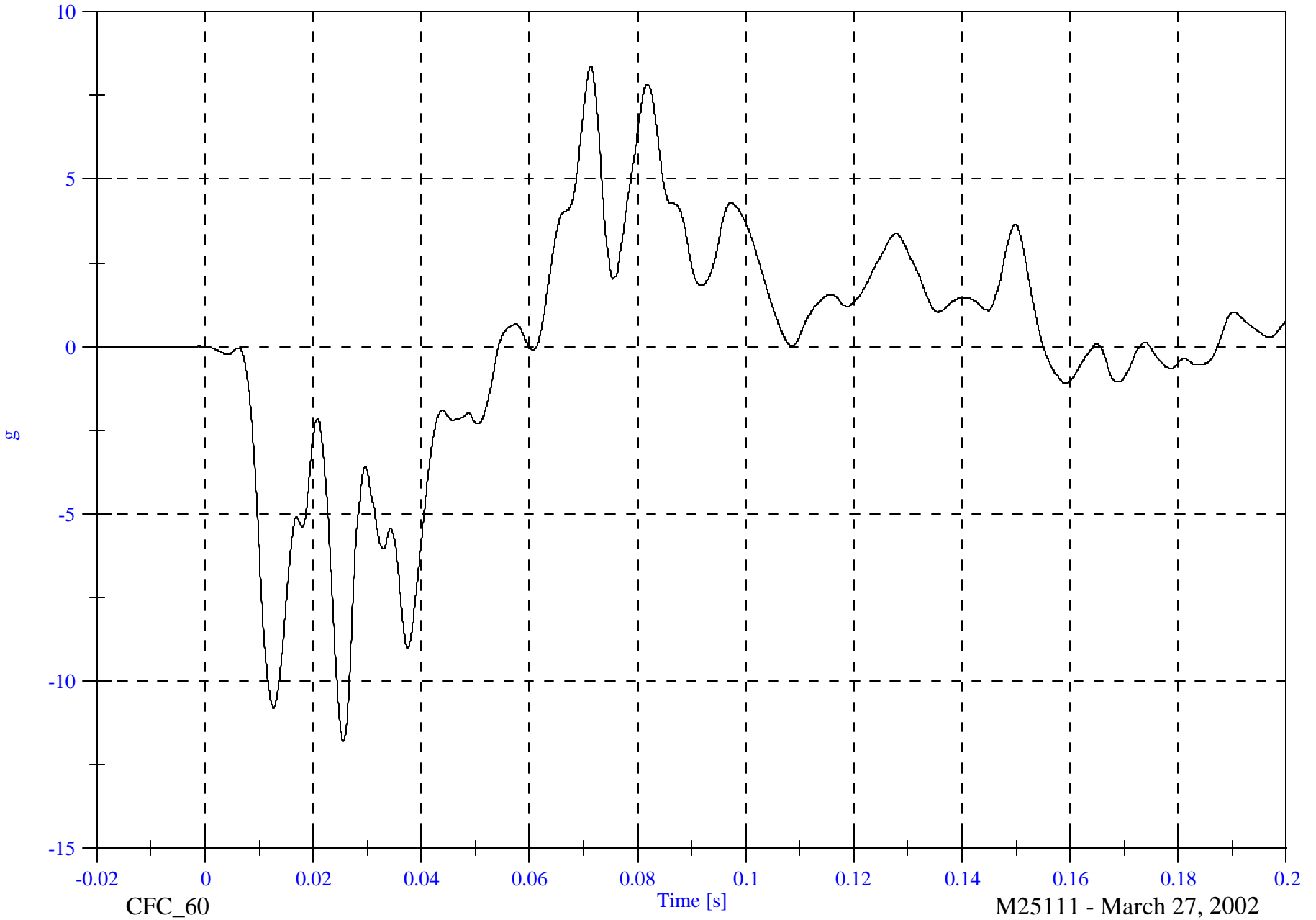
Acc 1 Right Front Sill at Front Seat z

Max: 8.4 [g] at 0.071 [s]

Min: -11.8 [g] at 0.026 [s]

B-29

8652-SNCAP-05



CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

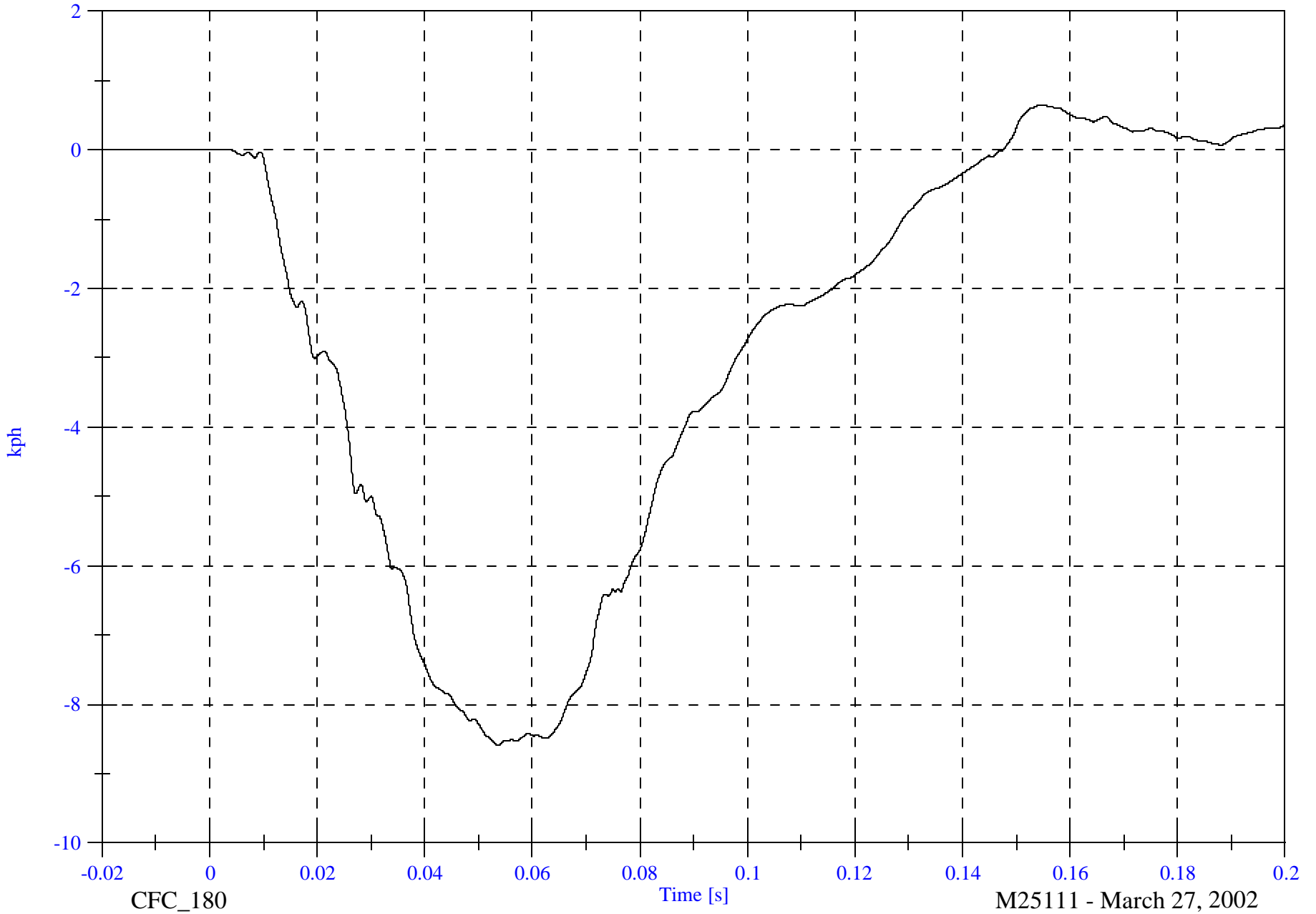
Acc 1 Right Front Sill at Front Seat z Velocity

Max: 0.6 [kph] at 0.155 [s]

Min: -8.6 [kph] at 0.054 [s]

B-30

8652-SNCAP-05



CFC_180

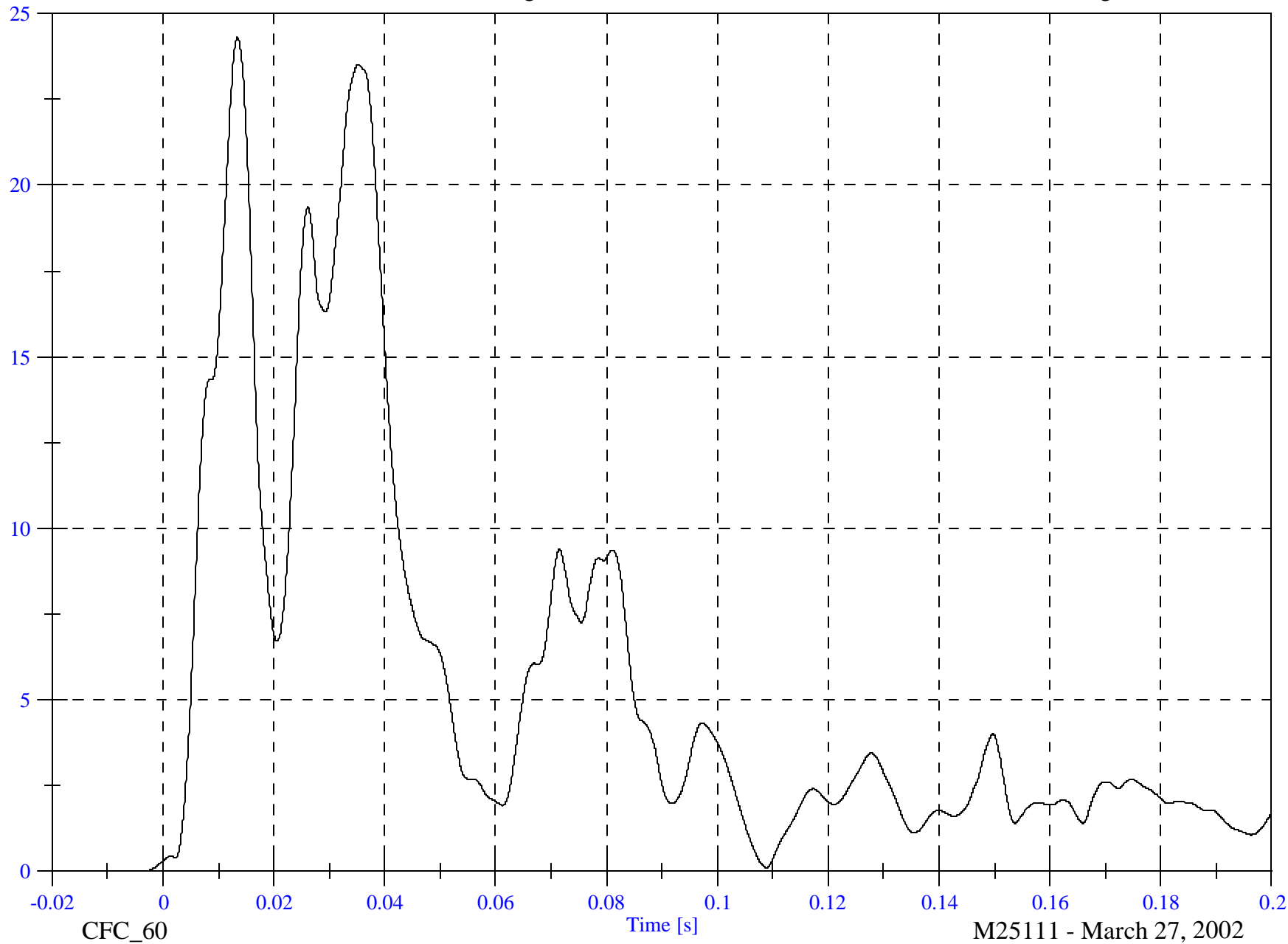
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 1 Right Front Sill at Front Seat Resultant

Max: 24.3 [g] at 0.013 [s]

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



B-31

8652-SNCAP-05

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

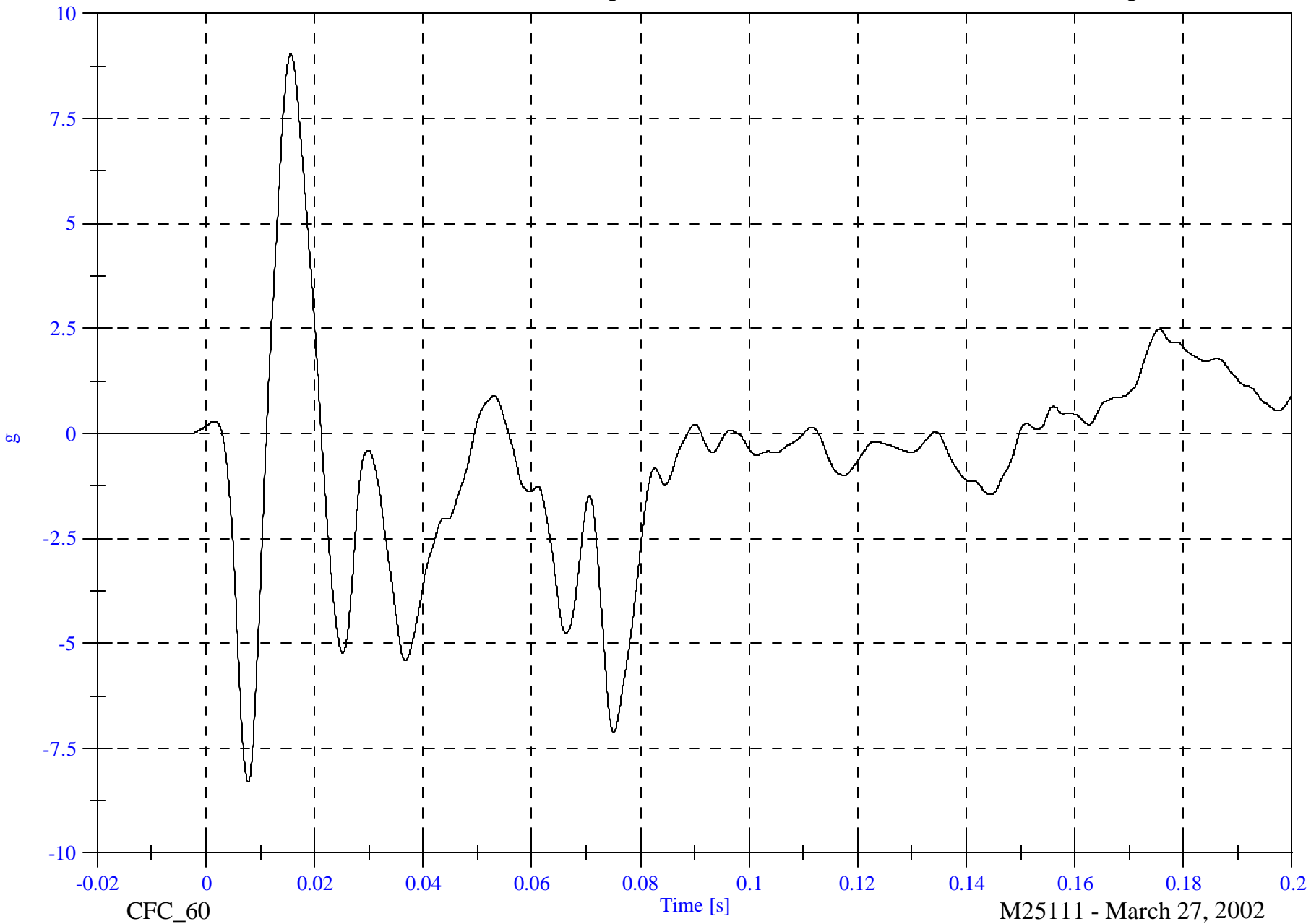
Acc 2 Right Rear Sill at Rear Seat x

Max: 9.0 [g] at 0.016 [s]

Min: -8.3 [g] at 0.008 [s]

B-32

8652-SNCAP-05



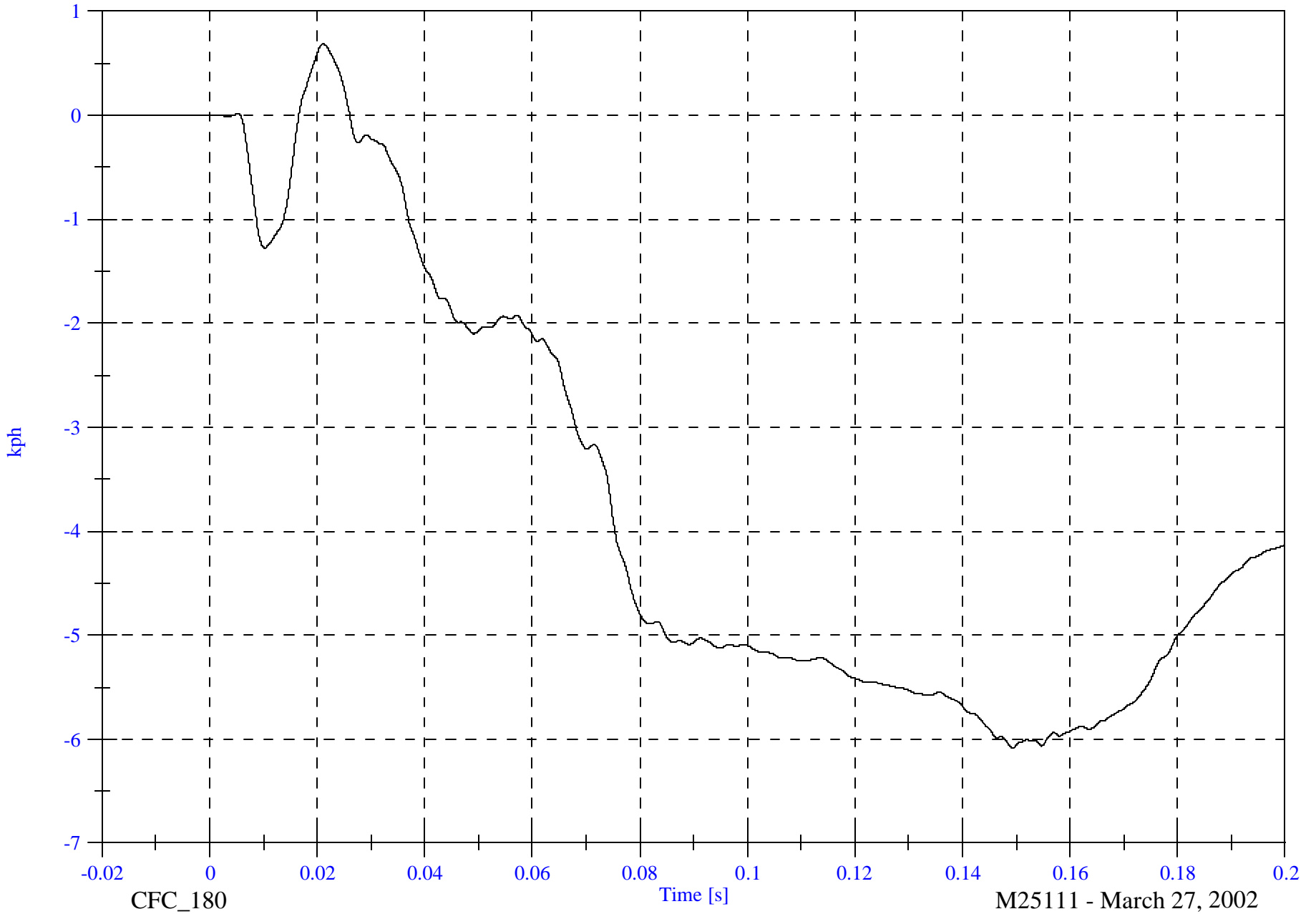
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 2 Right Rear Sill at Rear Seat x Velocity

Max: 0.7 [kph] at 0.021 [s]

Min: -6.1 [kph] at 0.149 [s]



B-33

8652-SNCAP-05

CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

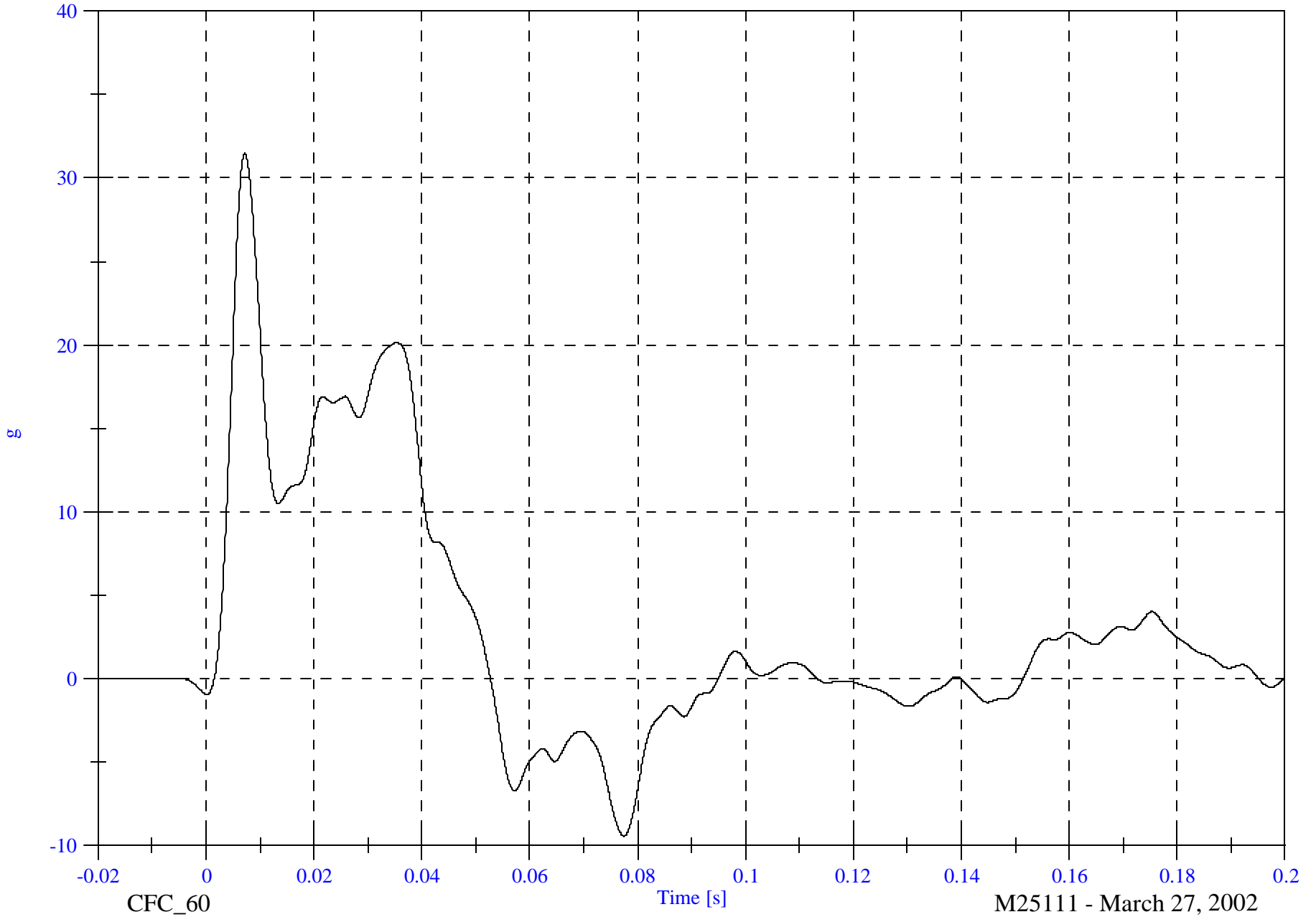
Acc 2 Right Rear Sill at Rear Seat y

Max: 31.5 [g] at 0.007 [s]

Min: -9.4 [g] at 0.077 [s]

B-34

8652-SNCAP-05



CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

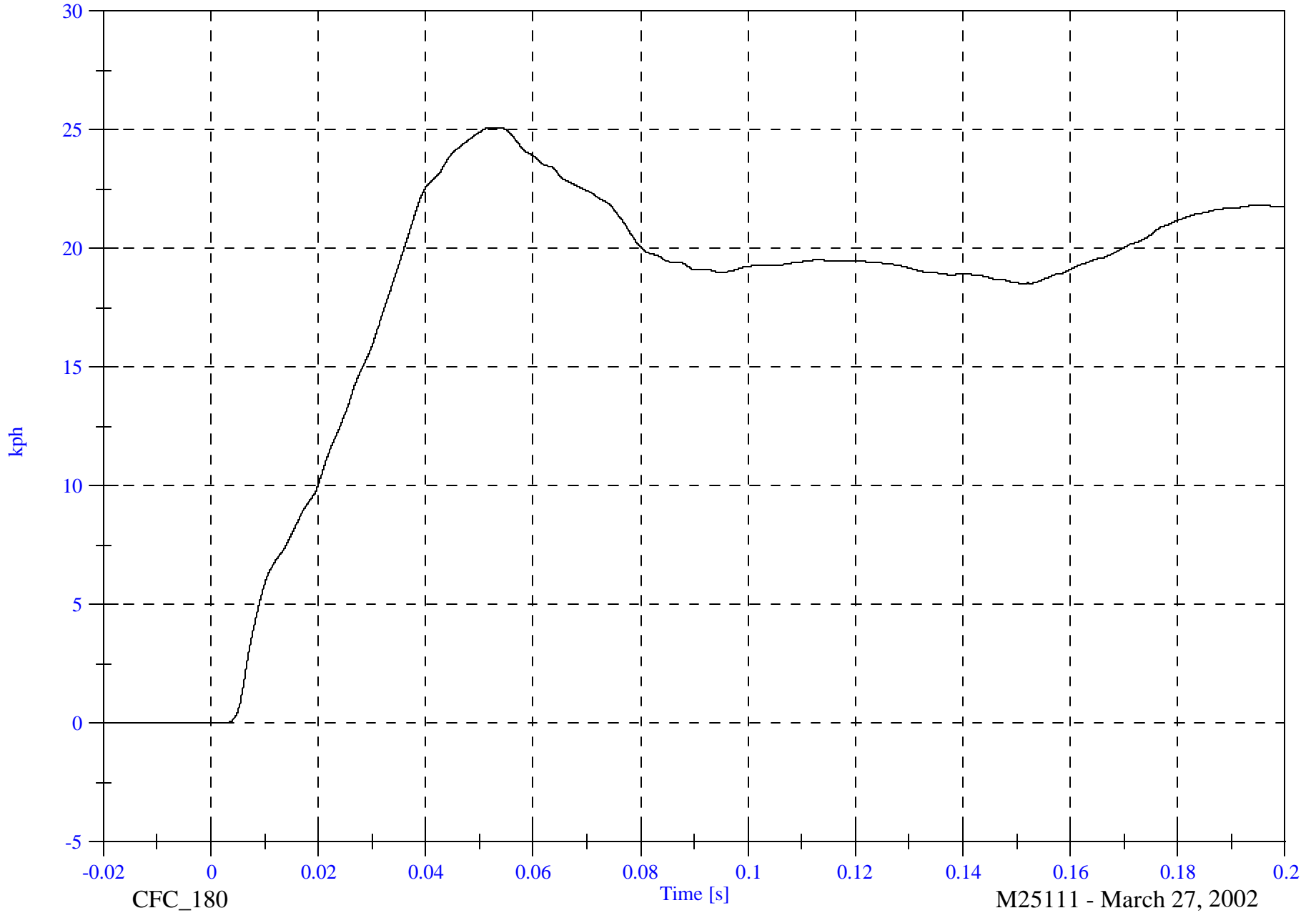
Acc 2 Right Rear Sill at Rear Seat y Velocity

Max: 25.1 [kph] at 0.052 [s]

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

B-35

8652-SNCAP-05



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

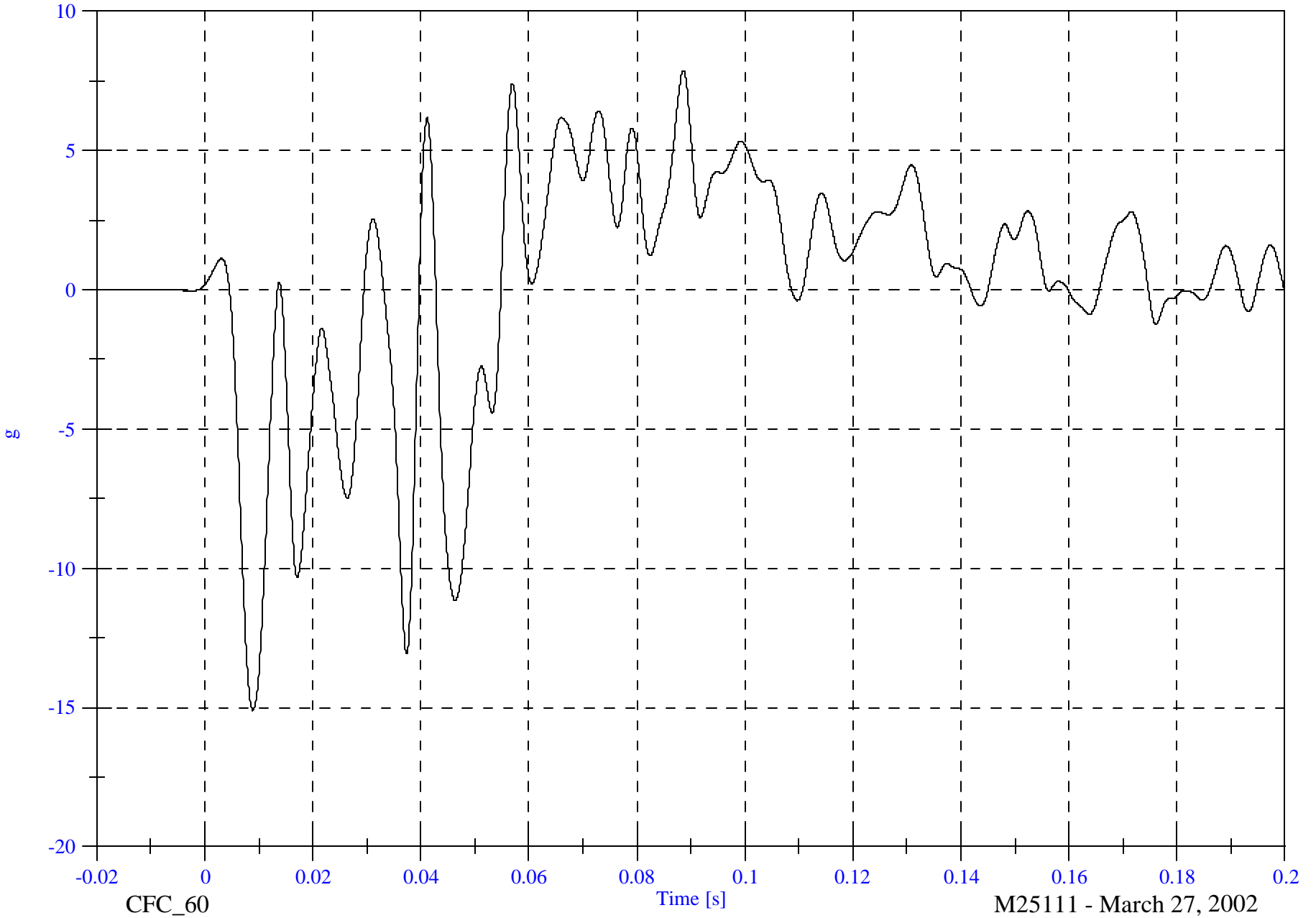
Acc 2 Right Rear Sill at Rear Seat z

Max: 7.9 [g] at 0.089 [s]

Min: -15.1 [g] at 0.009 [s]

B-36

8652-SNCAP-05



CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 2 Right Rear Sill at Rear Seat z Velocity

Max: 2.5 [kph] at 0.199 [s]

Min: -9.2 [kph] at 0.055 [s]

B-37

8652-SNCAP-05



CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

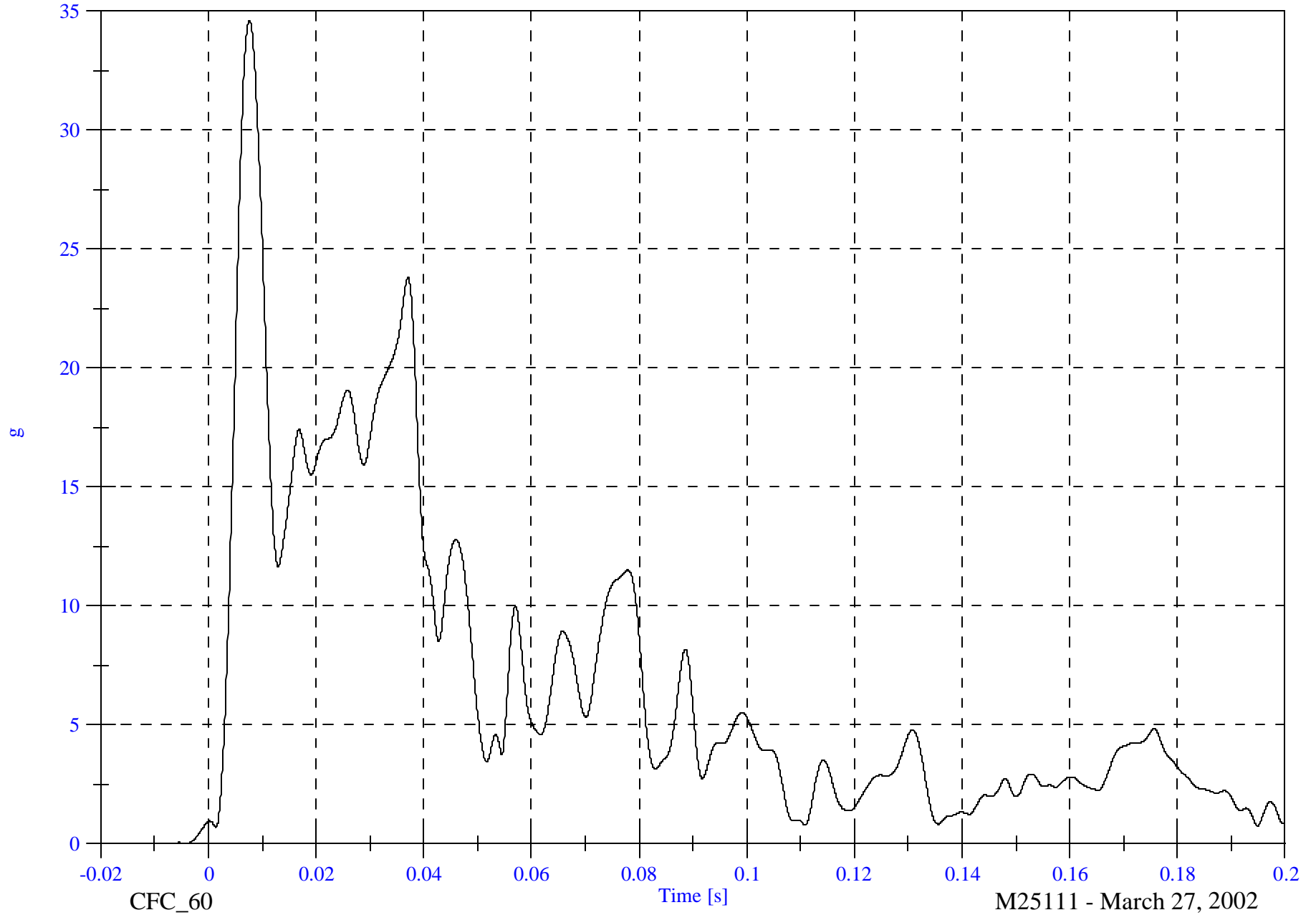
Acc 2 Right Rear Sill at Rear Seat Resultant

Max: 34.6 [g] at 0.008 [s]

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

B-38

8652-SNCAP-05



CFC_60

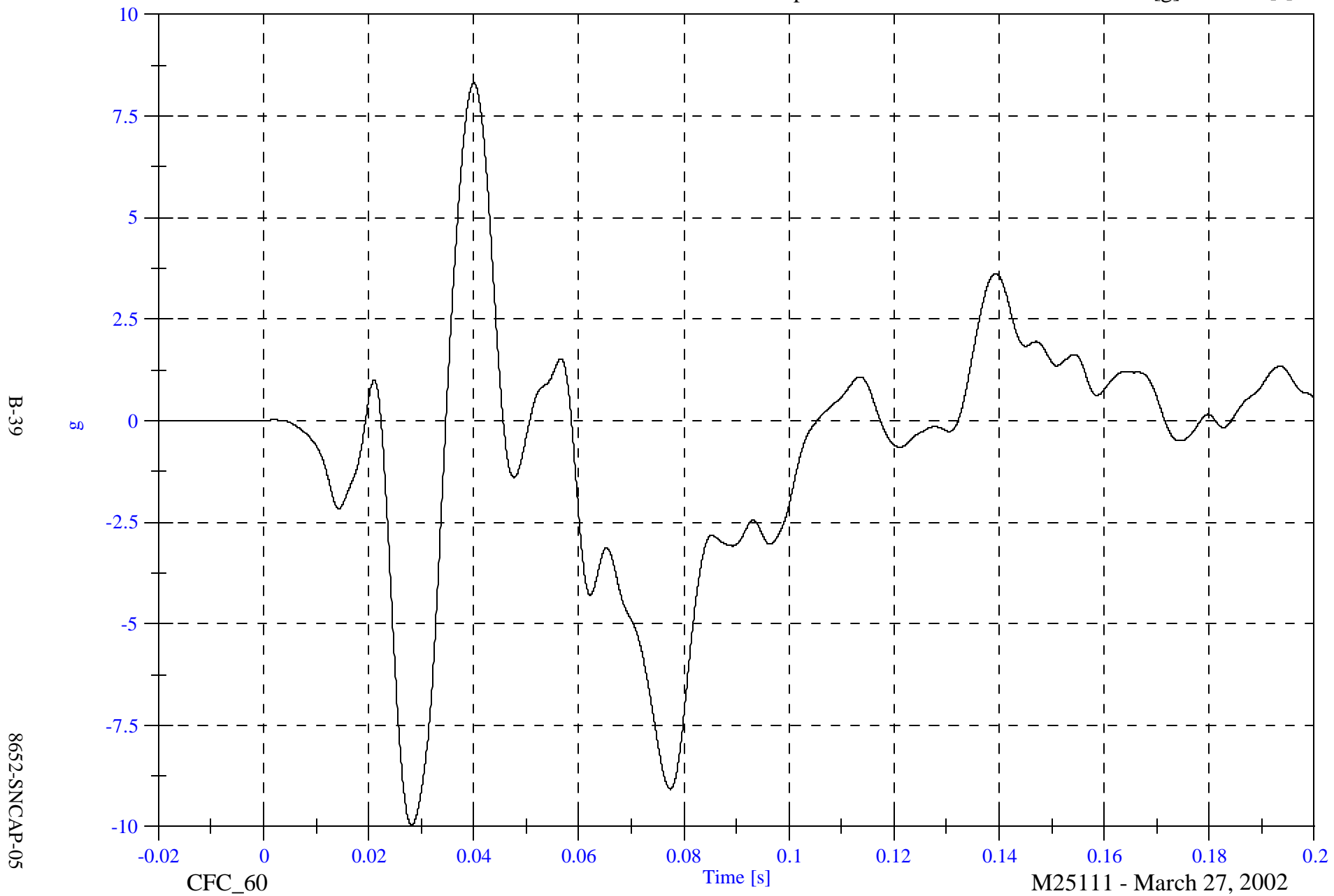
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 3 Rear Floorpan x

Max: 8.3 [g] at 0.040 [s]

Min: -10.0 [g] at 0.028 [s]



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

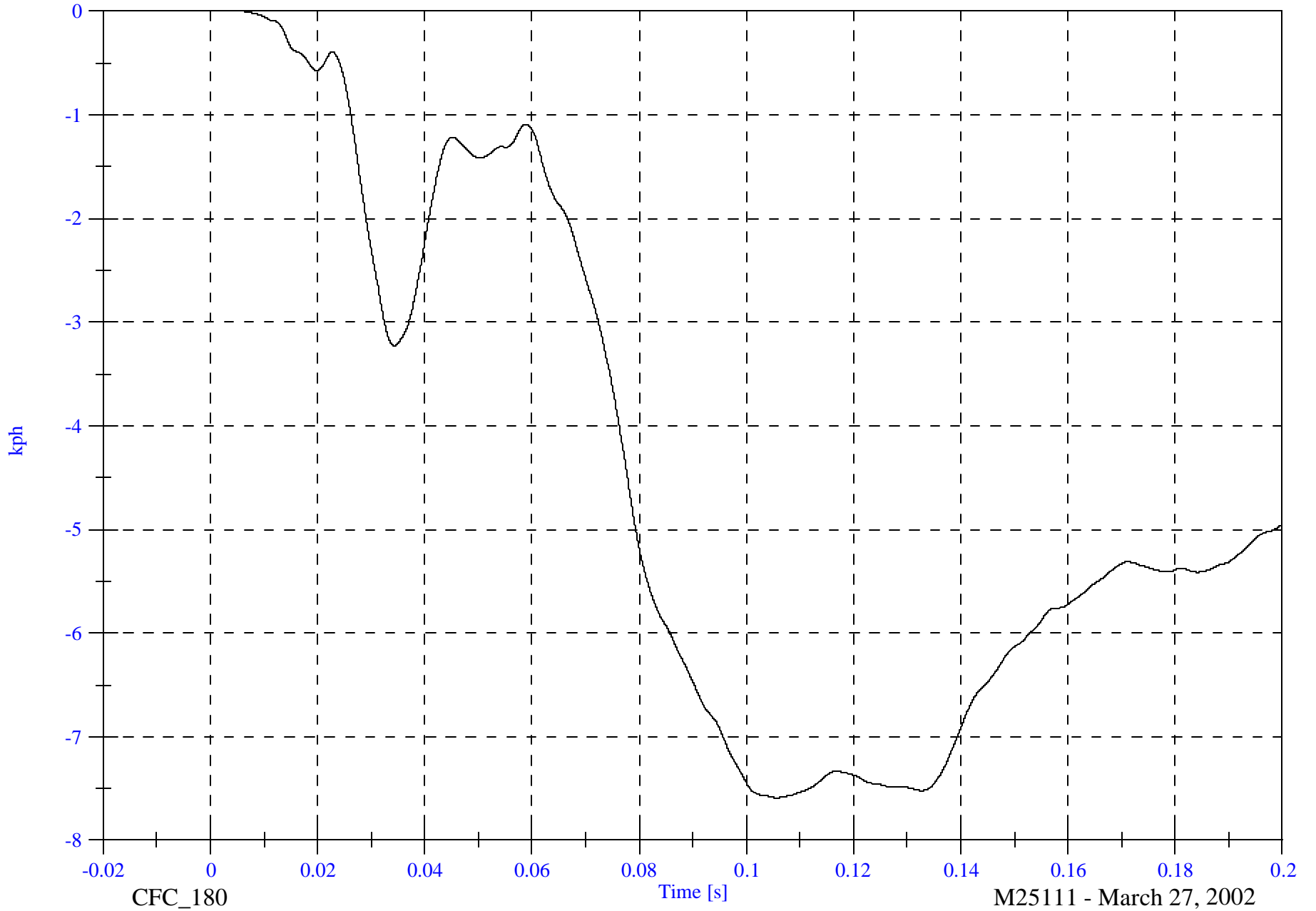
Acc 3 Rear Floorpan x Velocity

Max: 0.0 [kph] at -0.010 [s]

Min: -7.6 [kph] at 0.106 [s]

B-40

8652-SNCAP-05



CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 3 Rear Floorpan y

Max: 13.3 [g] at 0.061 [s]

Min: -2.1 [g] at 0.174 [s]

B-41

8652-SNCAP-05



CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

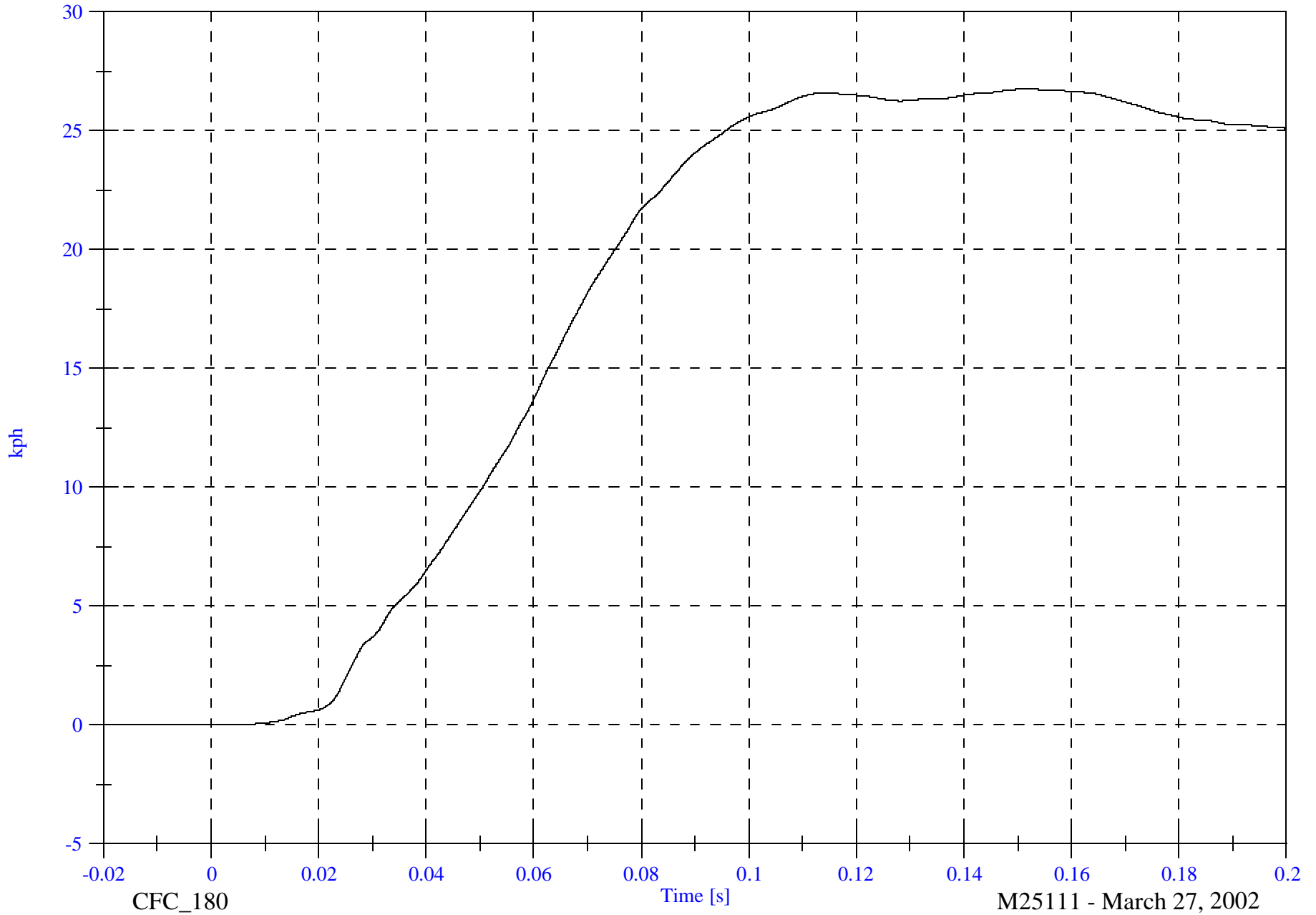
Max: 26.8 [kph] at 0.152 [s]

Acc 3 Rear Floorpan y Velocity

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

B-42

8652-SNCAP-05



CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

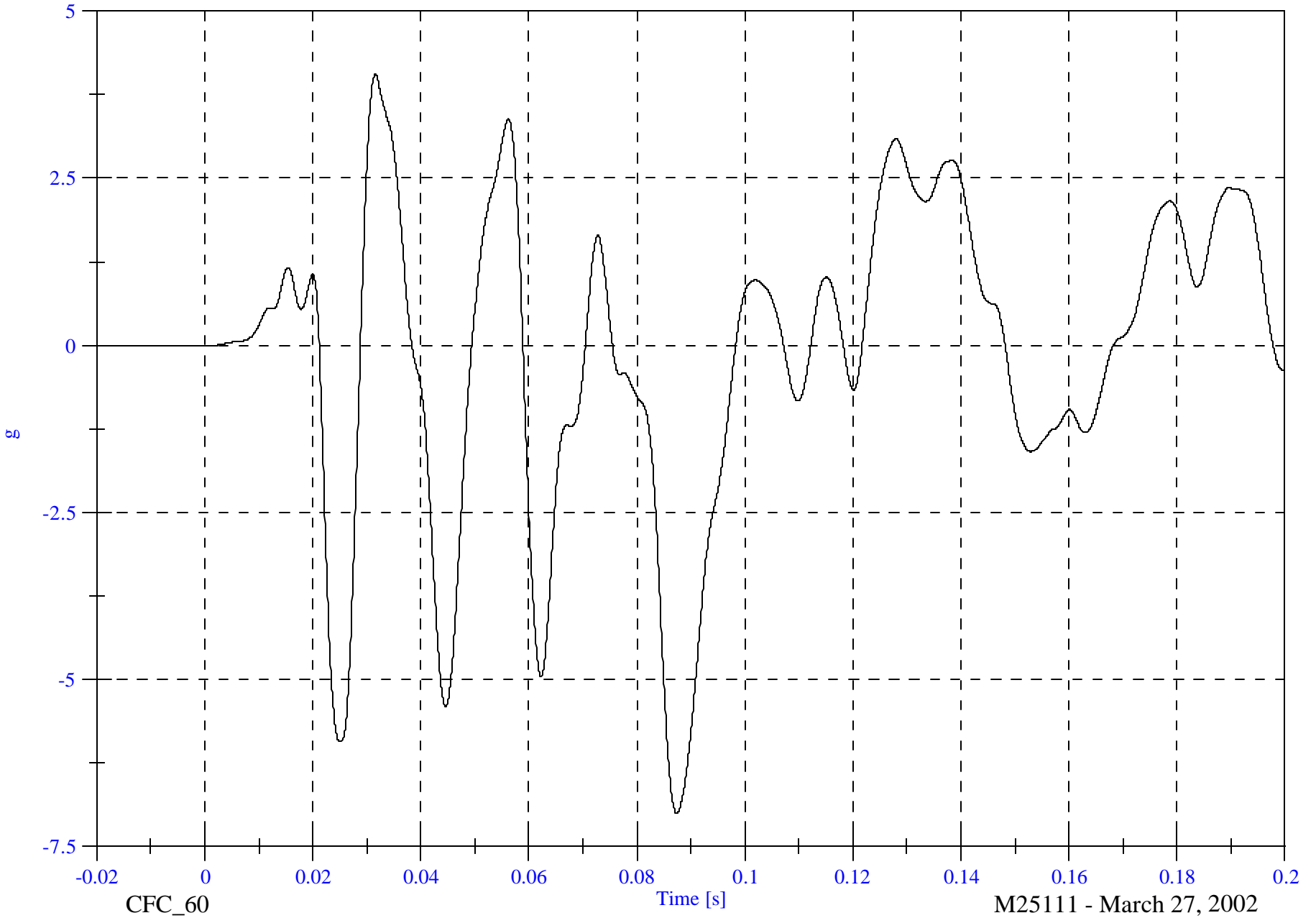
Acc 3 Rear Floorpan z

Max: 4.1 [g] at 0.032 [s]

Min: -7.0 [g] at 0.087 [s]

B-43

8652-SNCAP-05



CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

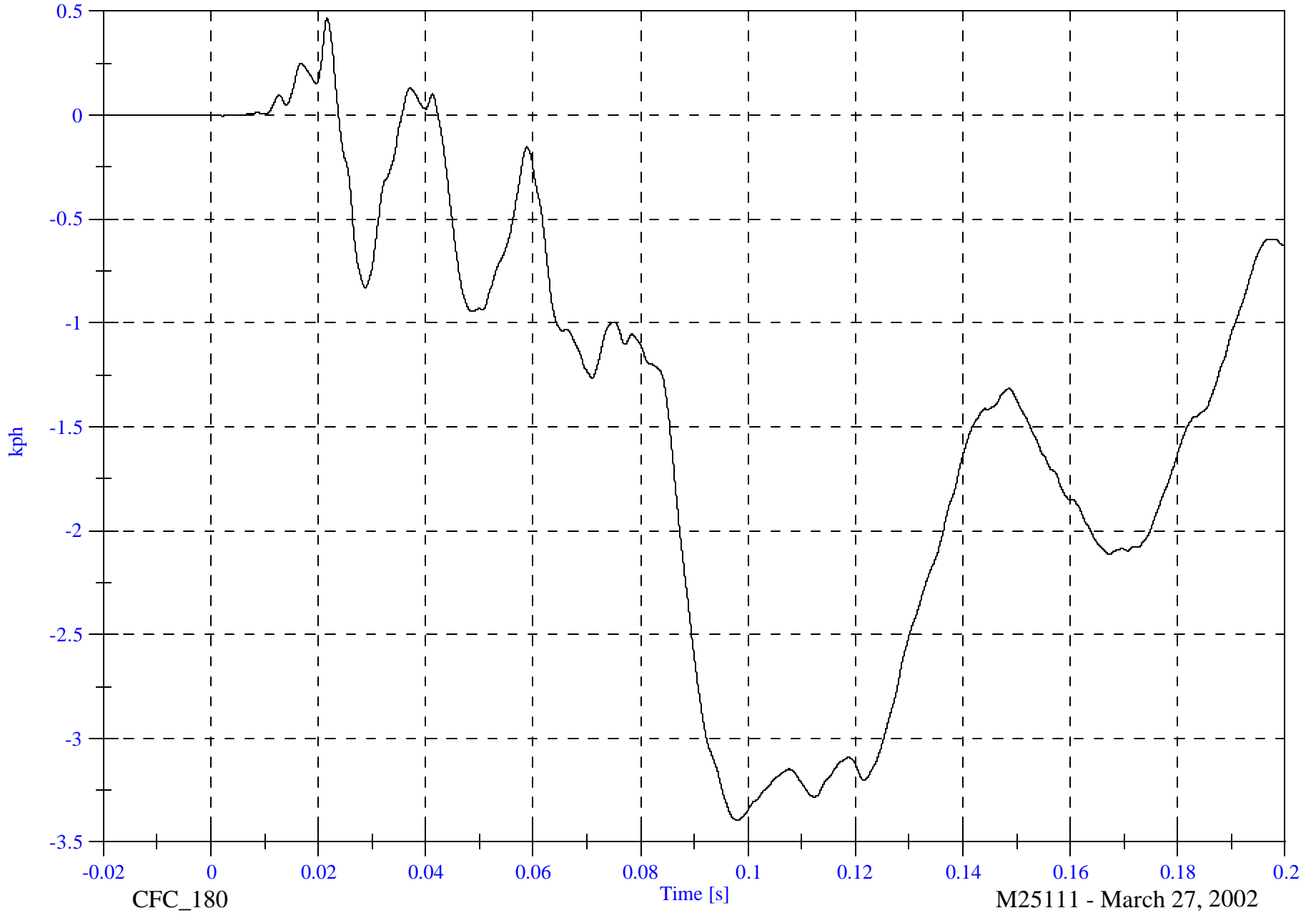
Acc 3 Rear Floorpan z Velocity

Max: 0.5 [kph] at 0.022 [s]

Min: -3.4 [kph] at 0.098 [s]

B-44

8652-SNCAP-05



CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

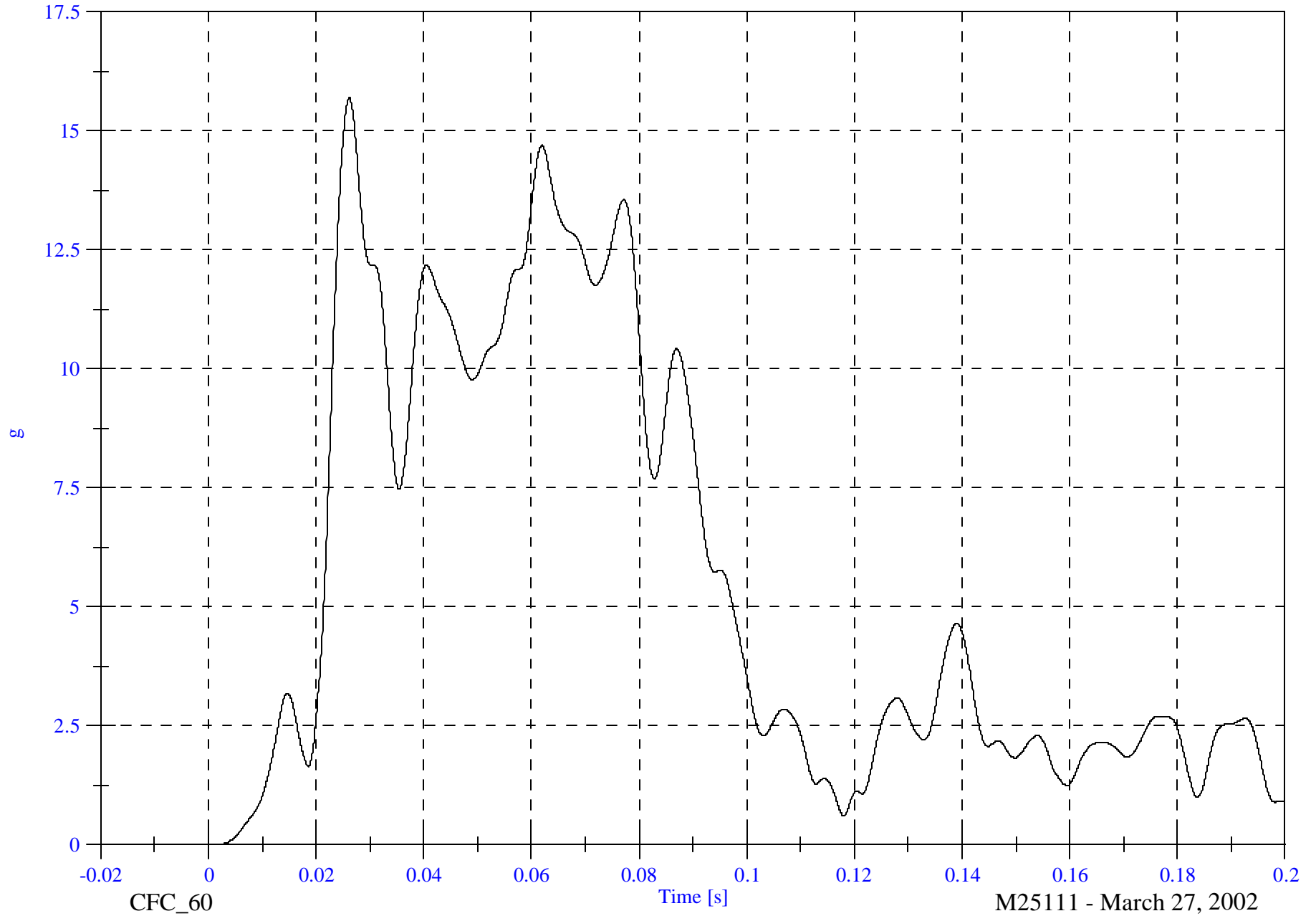
Acc 3 Rear Floorpan Resultant

Max: 15.7 [g] at 0.026 [s]

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

B-45

8652-SNCAP-05



CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

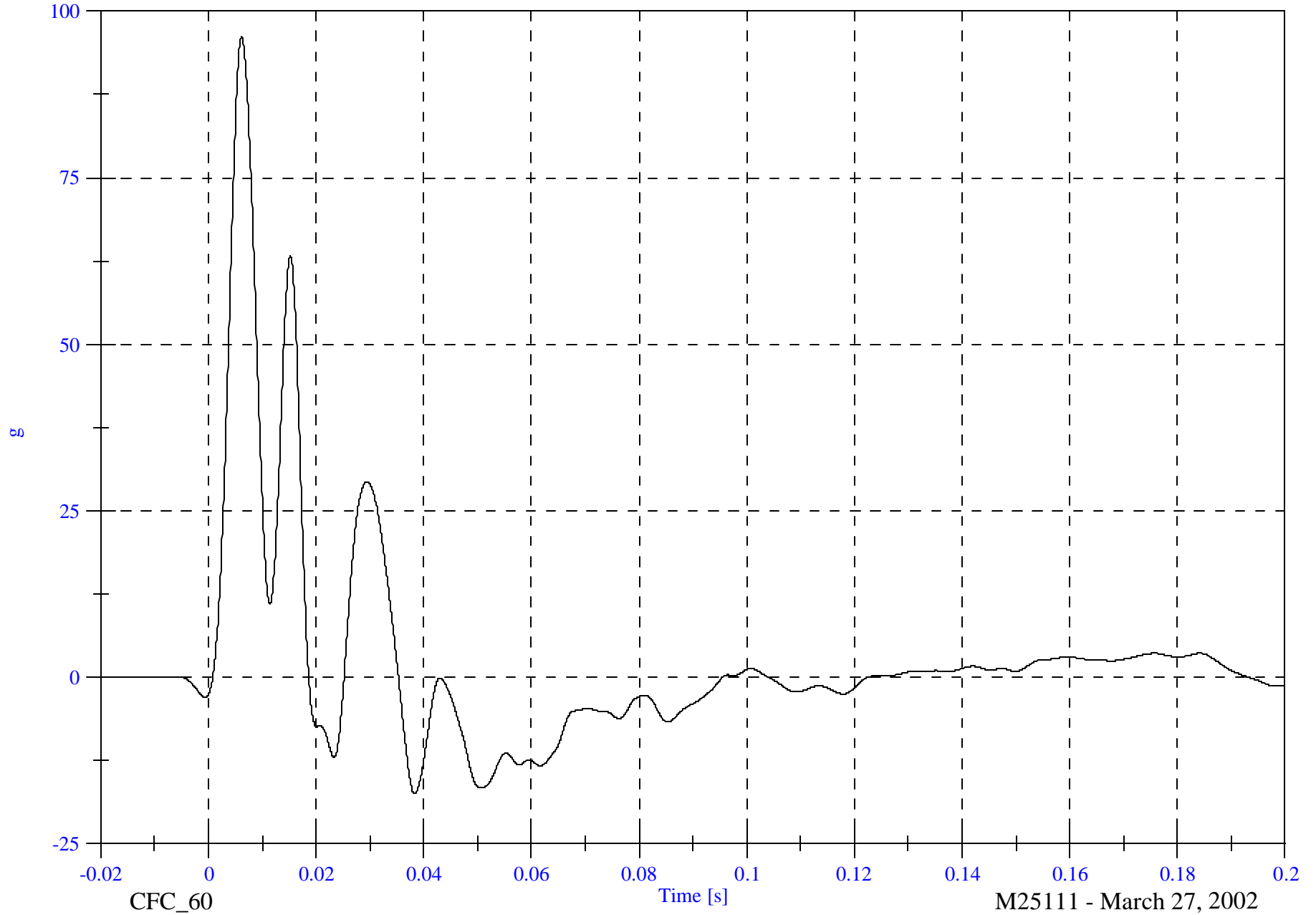
Acc 4 Left Rear Sill y

Max: 96.2 [g] at 0.006 [s]

Min: -17.5 [g] at 0.038 [s]

B-46

8652-SNCAP-05



CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

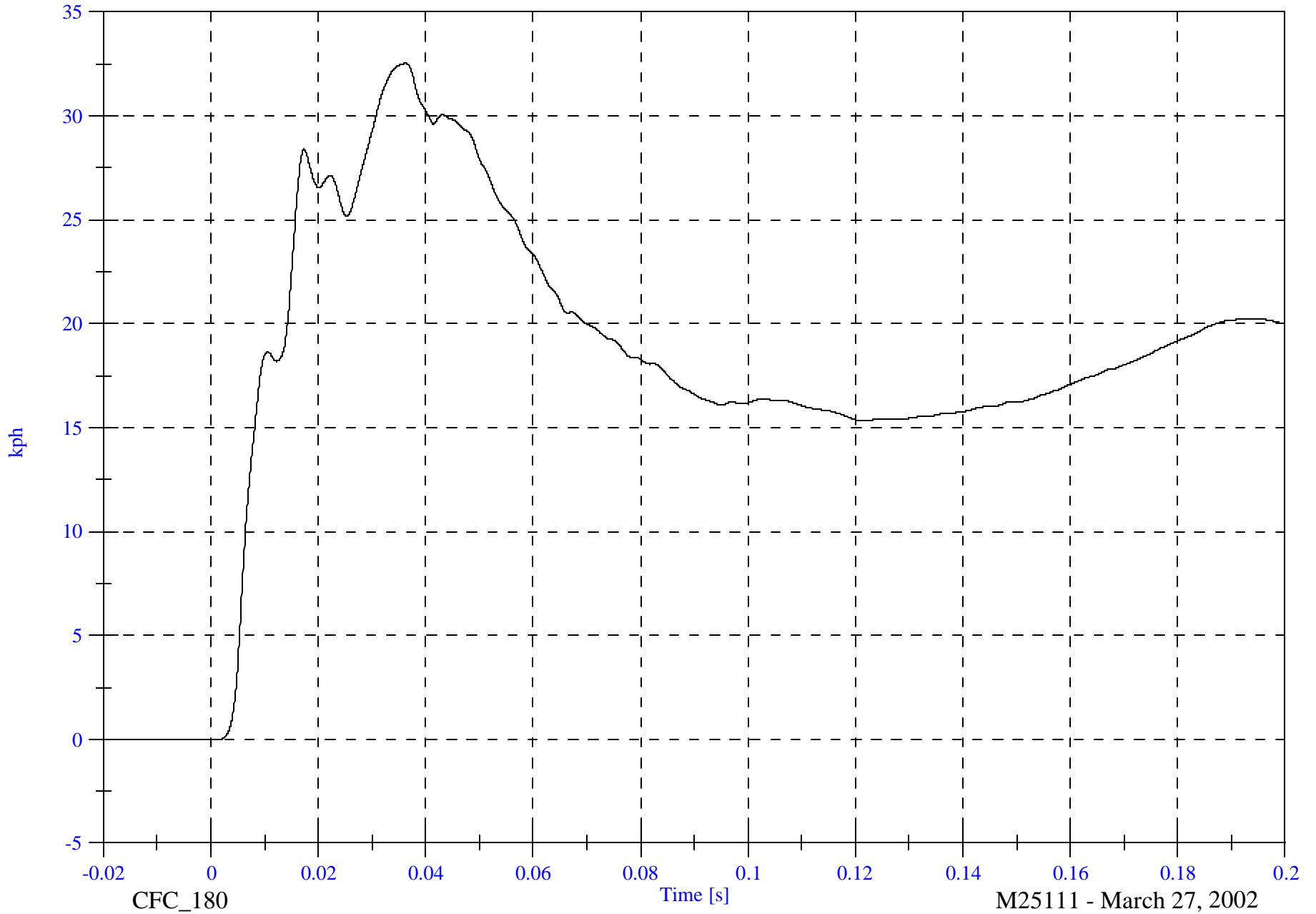
Acc 4 Left Rear Sill y Velocity

Max: 32.5 [kph] at 0.036 [s]

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

B-47

8652-SNCAP-05



CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

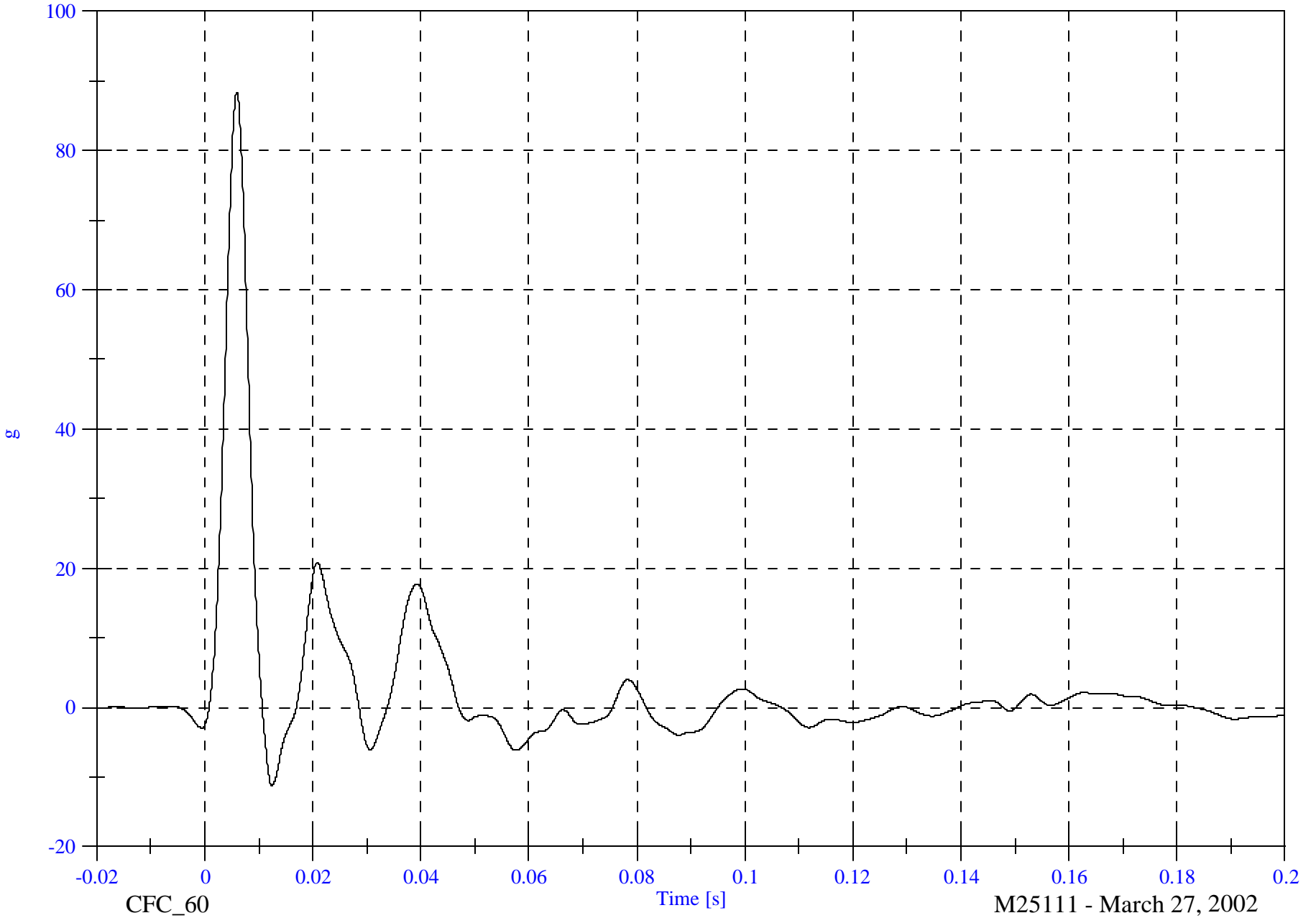
Max: 88.4 [g] at 0.006 [s]

Acc 5 Left Front Sill y

Min: -11.2 [g] at 0.012 [s]

B-48

8652-SNCAP-05



CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

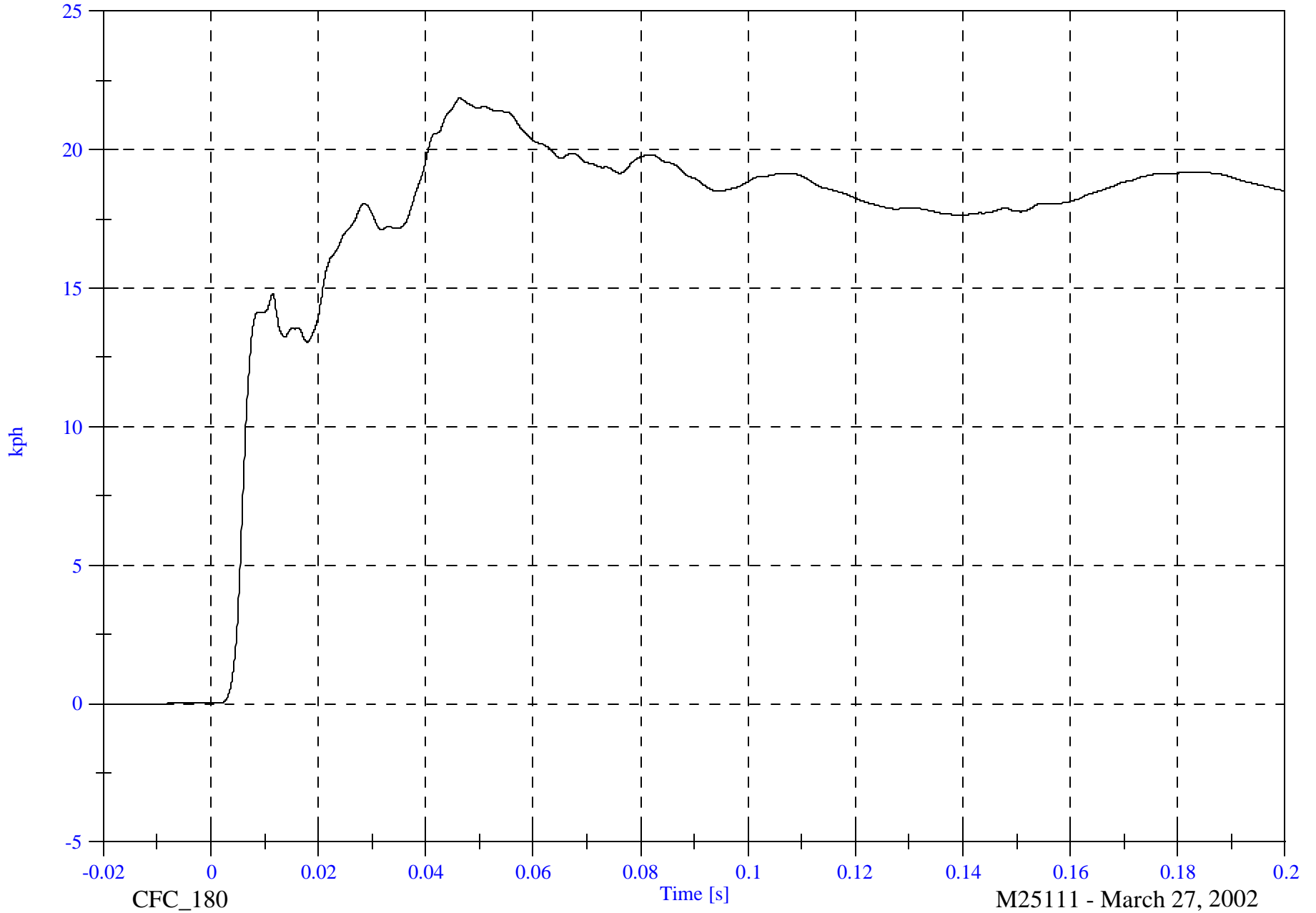
Acc 5 Left Front Sill y Velocity

Max: 21.9 [kph] at 0.046 [s]

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

B-49

8652-SNCAP-05



CFC_180

Time [s]

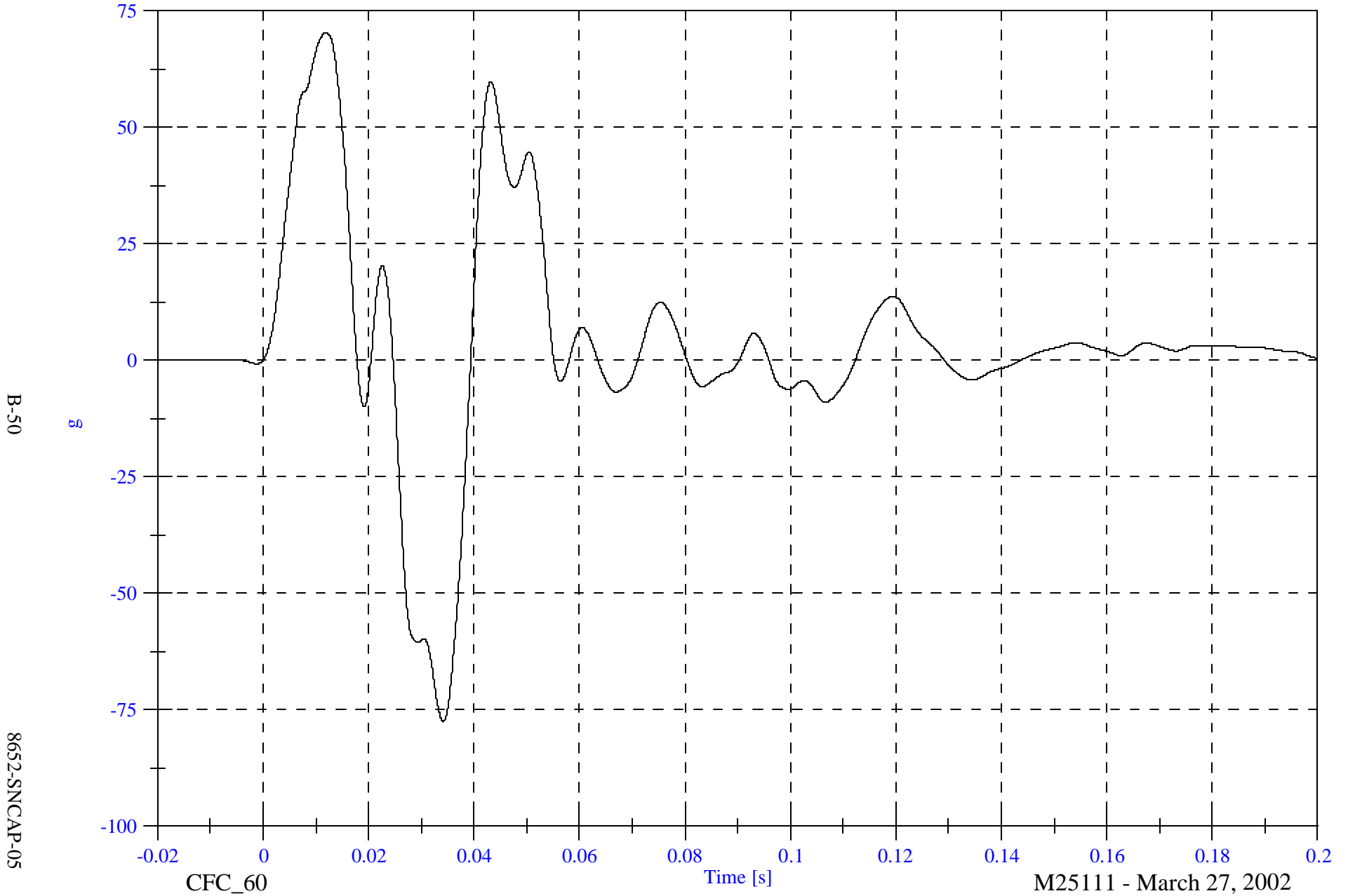
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 6 Left Front Door Centerline y

Max: 70.3 [g] at 0.012 [s]

Min: -77.4 [g] at 0.034 [s]



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

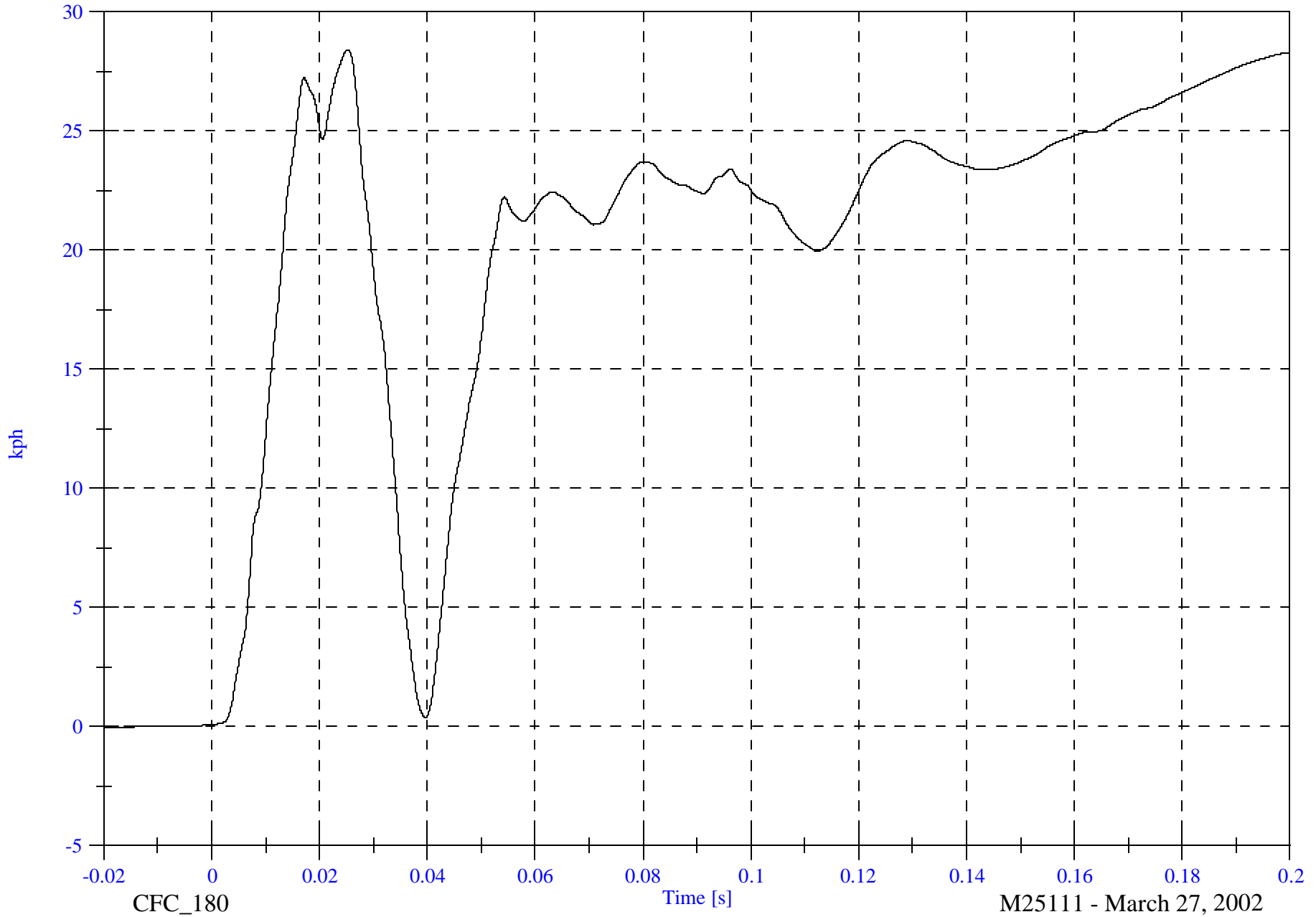
Acc 6 Left Front Door Centerline y Velocity

Max: 28.4 [kph] at 0.025 [s]

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

B-51

8652-SNCAP-05



CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 7 Right Rear Compartment y

Max: 28.2 [g] at 0.007 [s]

Min: -9.2 [g] at 0.077 [s]

B-52

8652-SNCAP-05



CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

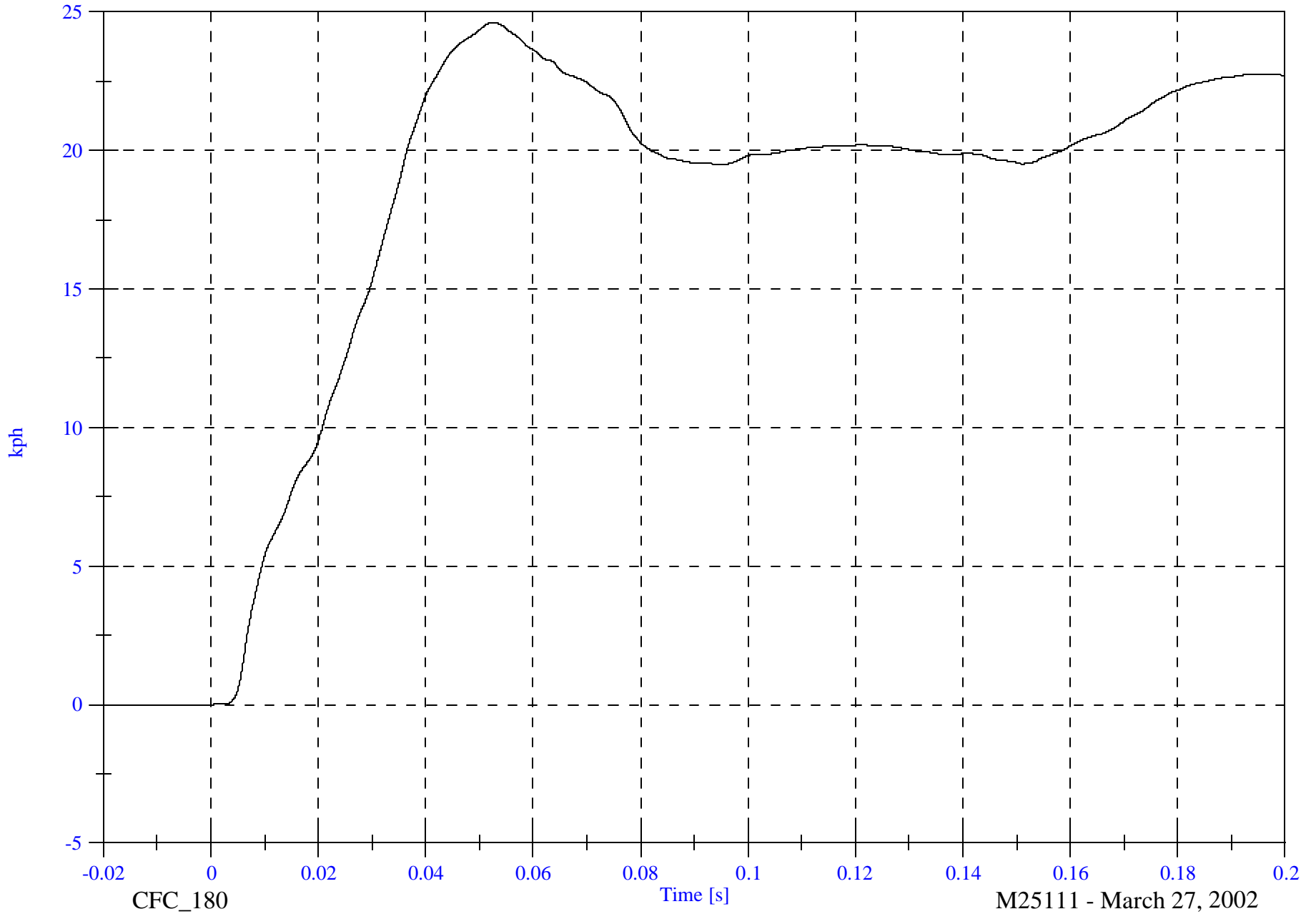
Max: 24.6 [kph] at 0.053 [s]

Acc 7 Right Rear Compartment y Velocity

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

B-53

8652-SNCAP-05



CFC_180

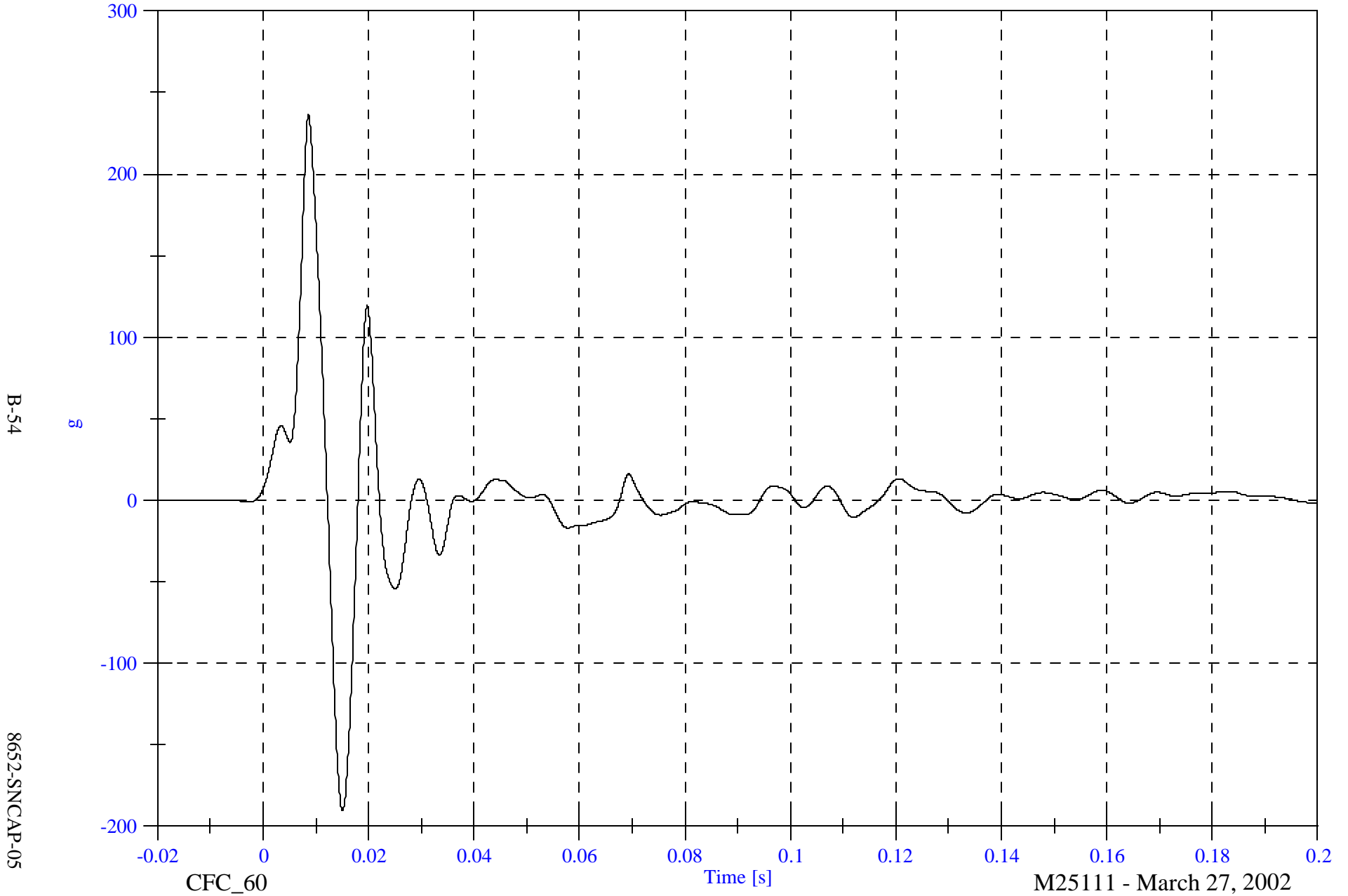
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 8 Left Front Door Midrear y

Max: 236.1 [g] at 0.009 [s]

Min: -190.5 [g] at 0.015 [s]



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

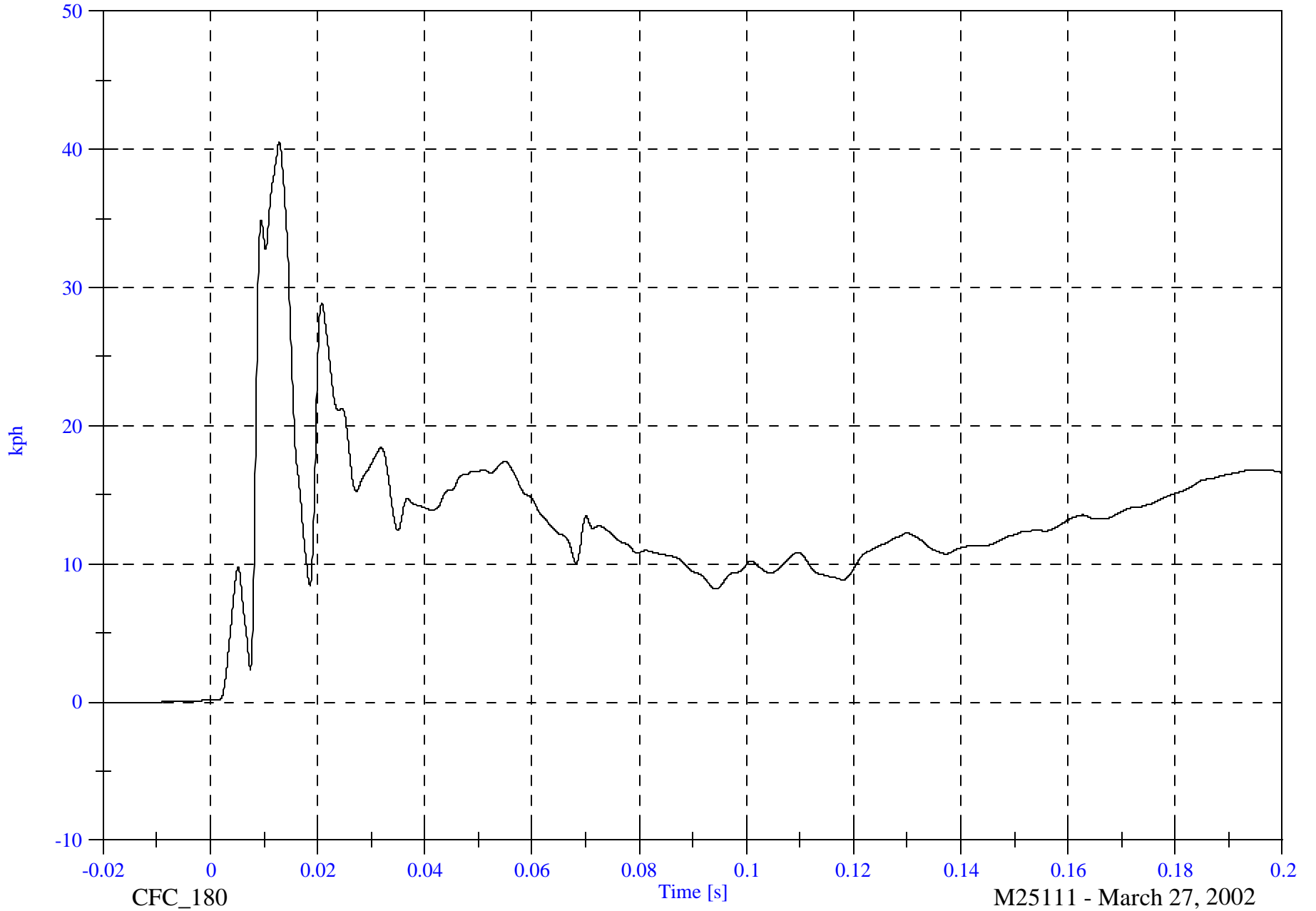
Acc 8 Left Front Door Midrear y Velocity

Max: 40.5 [kph] at 0.013 [s]

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

B-55

8652-SNCAP-05



CFC_180

Time [s]

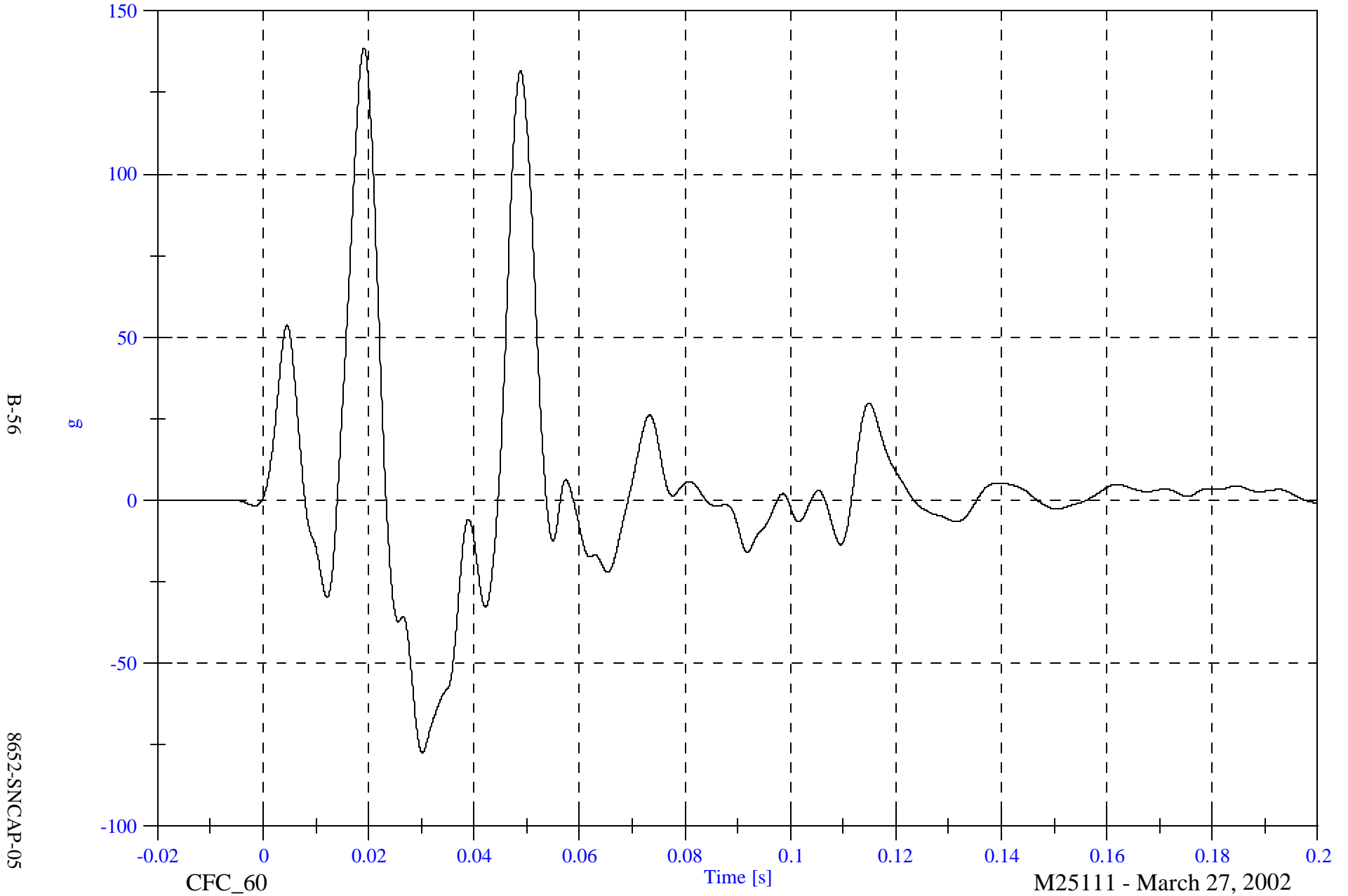
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 9 Left Front Door Upper Centerline y

Max: 138.7 [g] at 0.019 [s]

Min: -77.4 [g] at 0.030 [s]



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

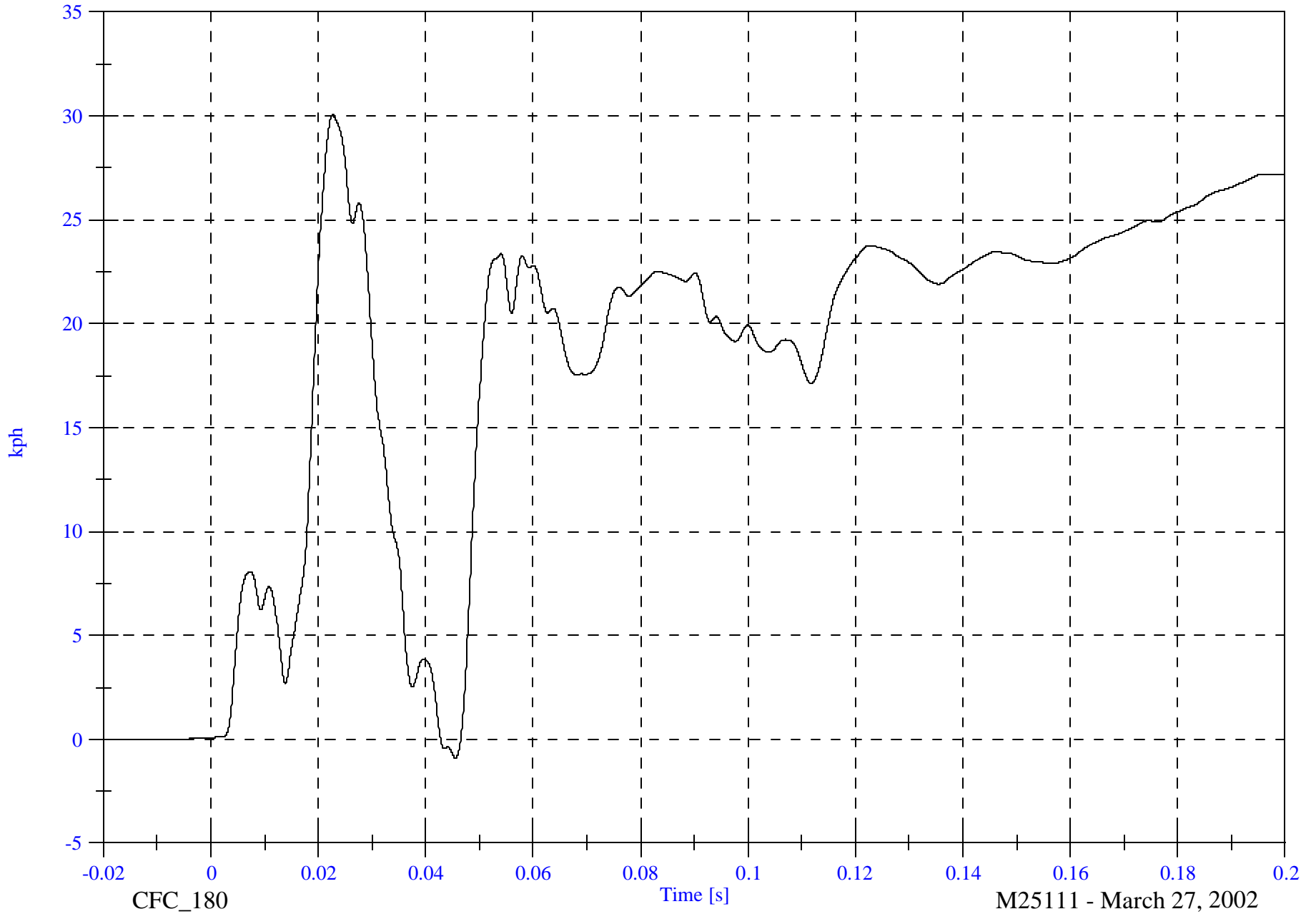
Max: 30.0 [kph] at 0.023 [s]

Acc 9 Left Front Door Upper Centerline y Velocity

Min: -0.9 [kph] at 0.046 [s]

B-57

8652-SNCAP-05



CFC_180

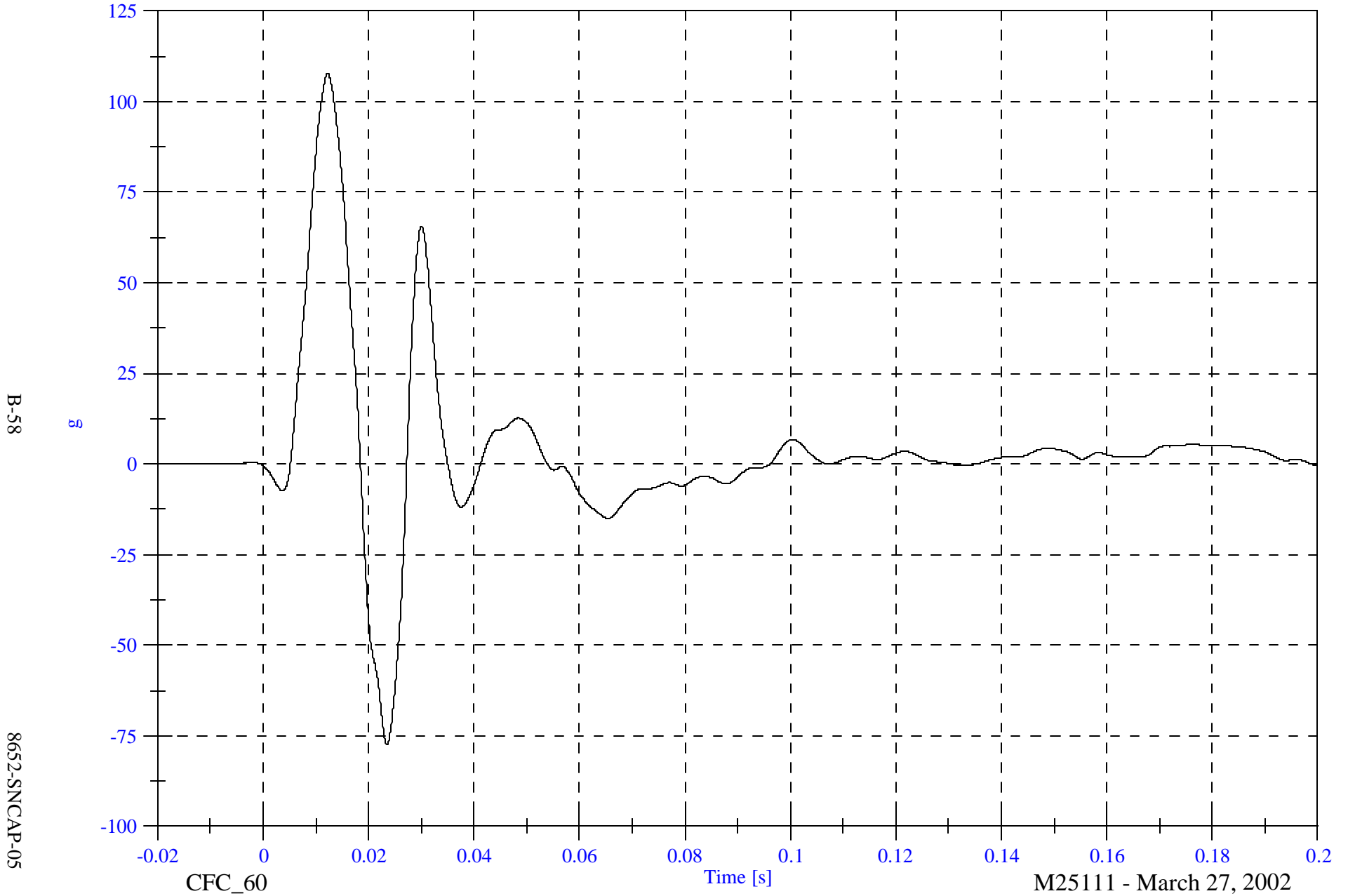
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 10 Left Rear Door Midrear y

Max: 107.8 [g] at 0.012 [s]

Min: -77.4 [g] at 0.023 [s]



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 10 Left Rear Door Midrear y Velocity

Max: 30.0 [kph] at 0.019 [s]

Min: -1.5 [kph] at 0.006 [s]

B-59

8652-SNCAP-05



CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

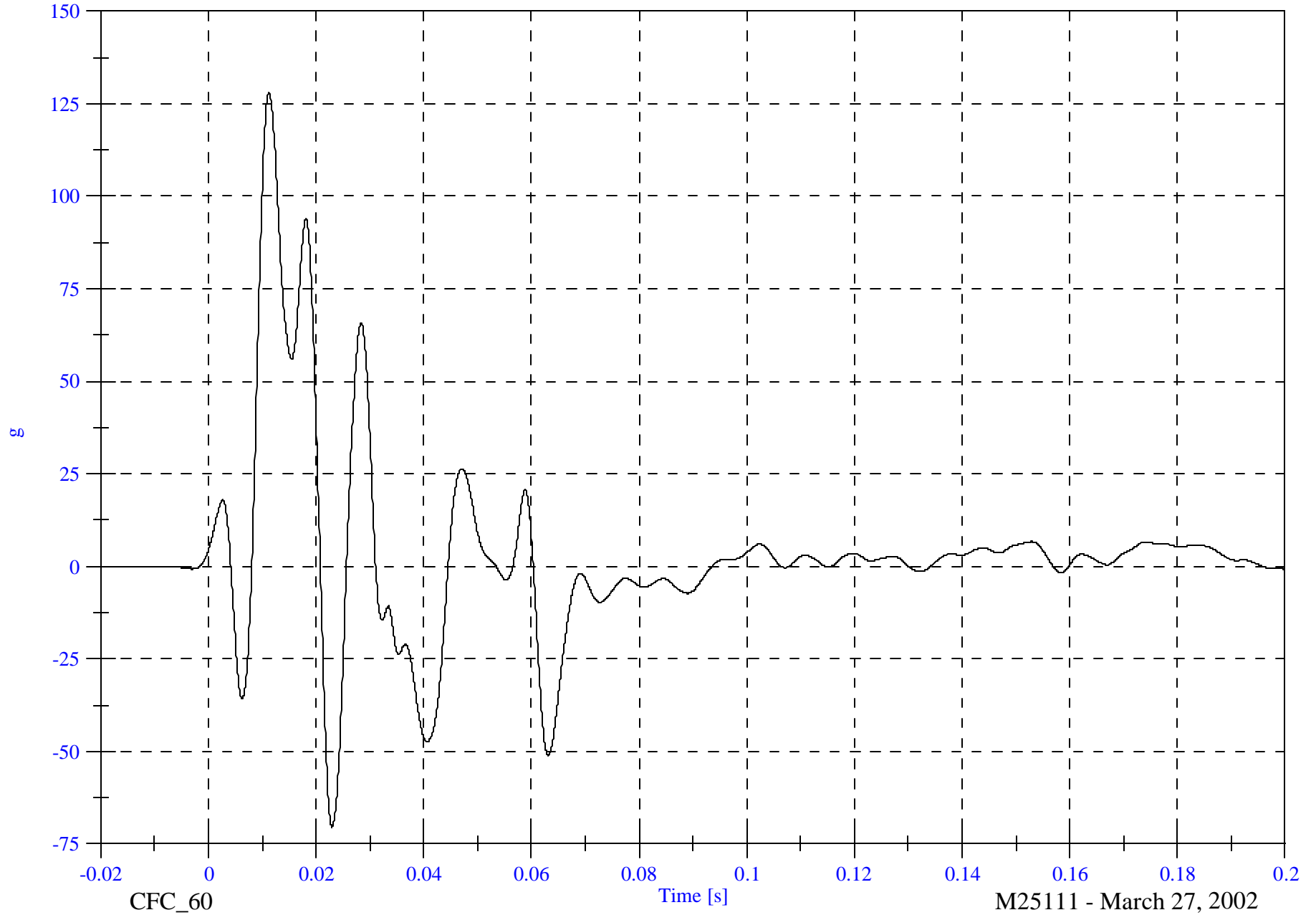
Acc 11 Left Rear Door Upper Centerline y

Max: 127.9 [g] at 0.011 [s]

Min: -70.4 [g] at 0.023 [s]

B-60

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Max: 35.5 [kph] at 0.030 [s]

Acc 11 Left Rear Door Upper Centerline y Velocity

Min: -3.8 [kph] at 0.009 [s]

B-61

8652-SNCAP-05



CFC_180

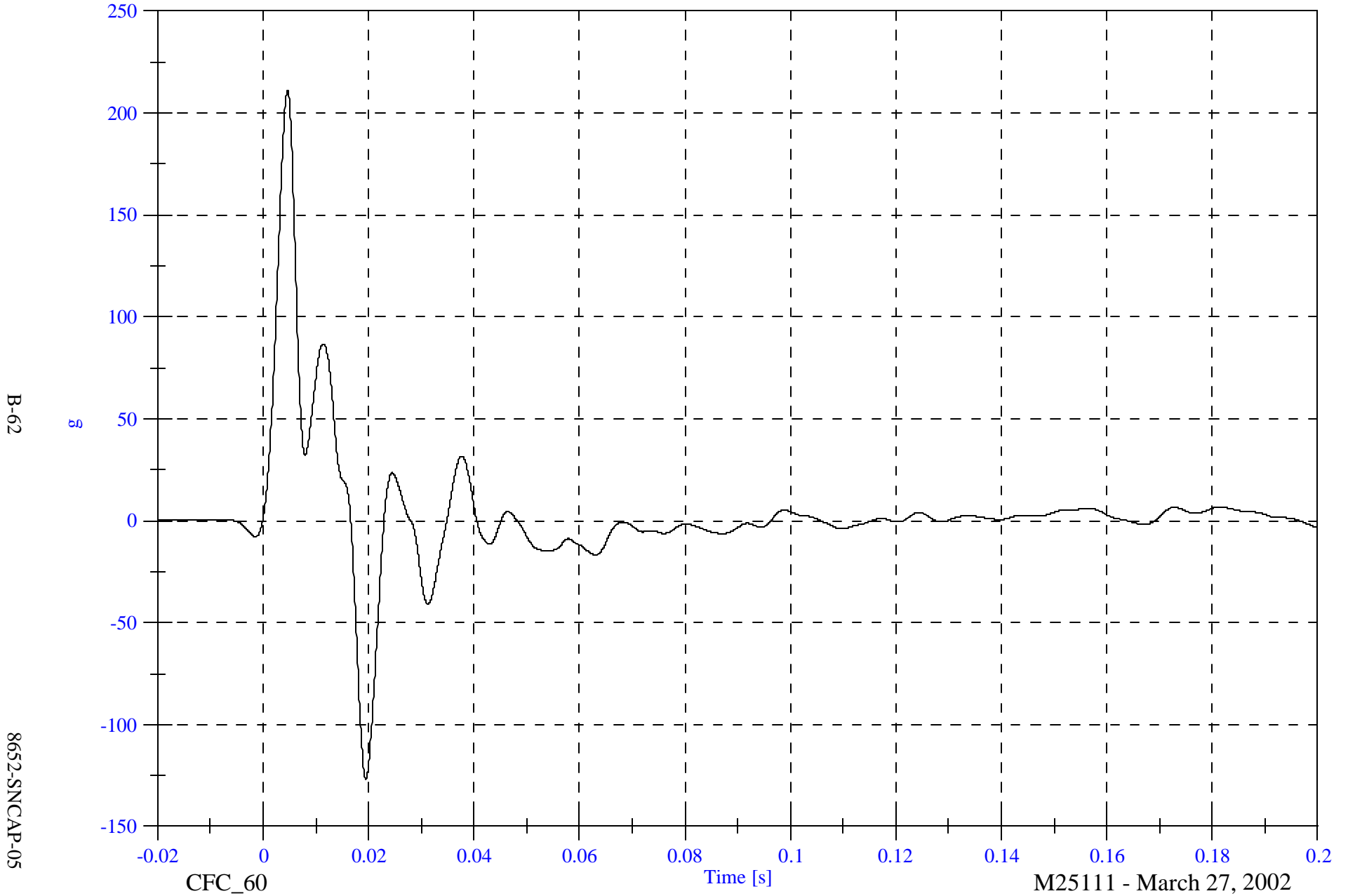
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 12 Left Lower B-Pillar y

Max: 210.8 [g] at 0.005 [s]

Min: -126.9 [g] at 0.019 [s]



B-62

8652-SNCAP-05

CFC_60

Time [s]

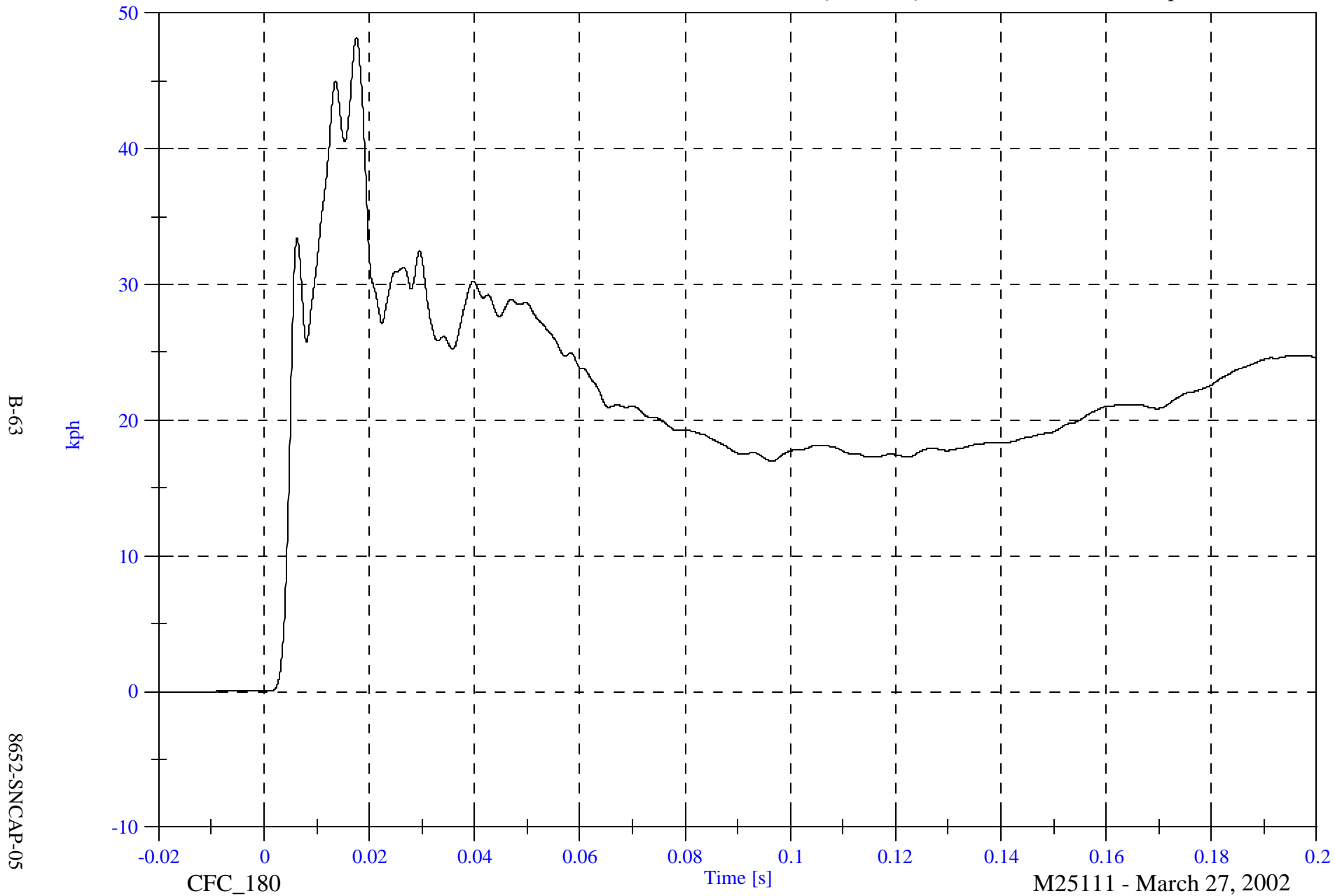
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Max: 48.2 [kph] at 0.018 [s]

Acc 12 Left Lower B-Pillar y Velocity

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



B-63

8652-SNCAP-05

CFC_180

Time [s]

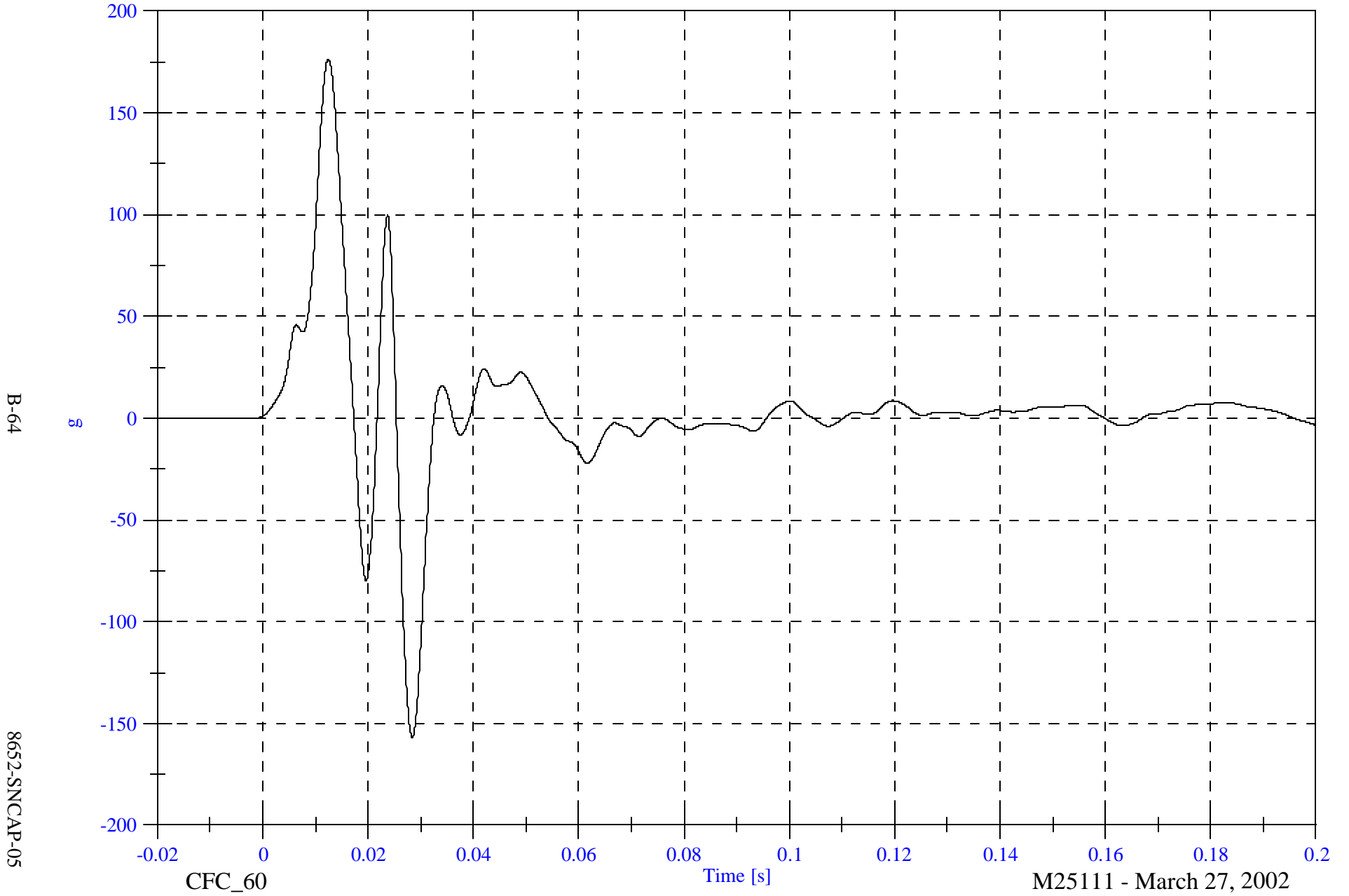
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 13 Left Middle B-Pillar y

Max: 176.3 [g] at 0.012 [s]

Min: -156.9 [g] at 0.028 [s]

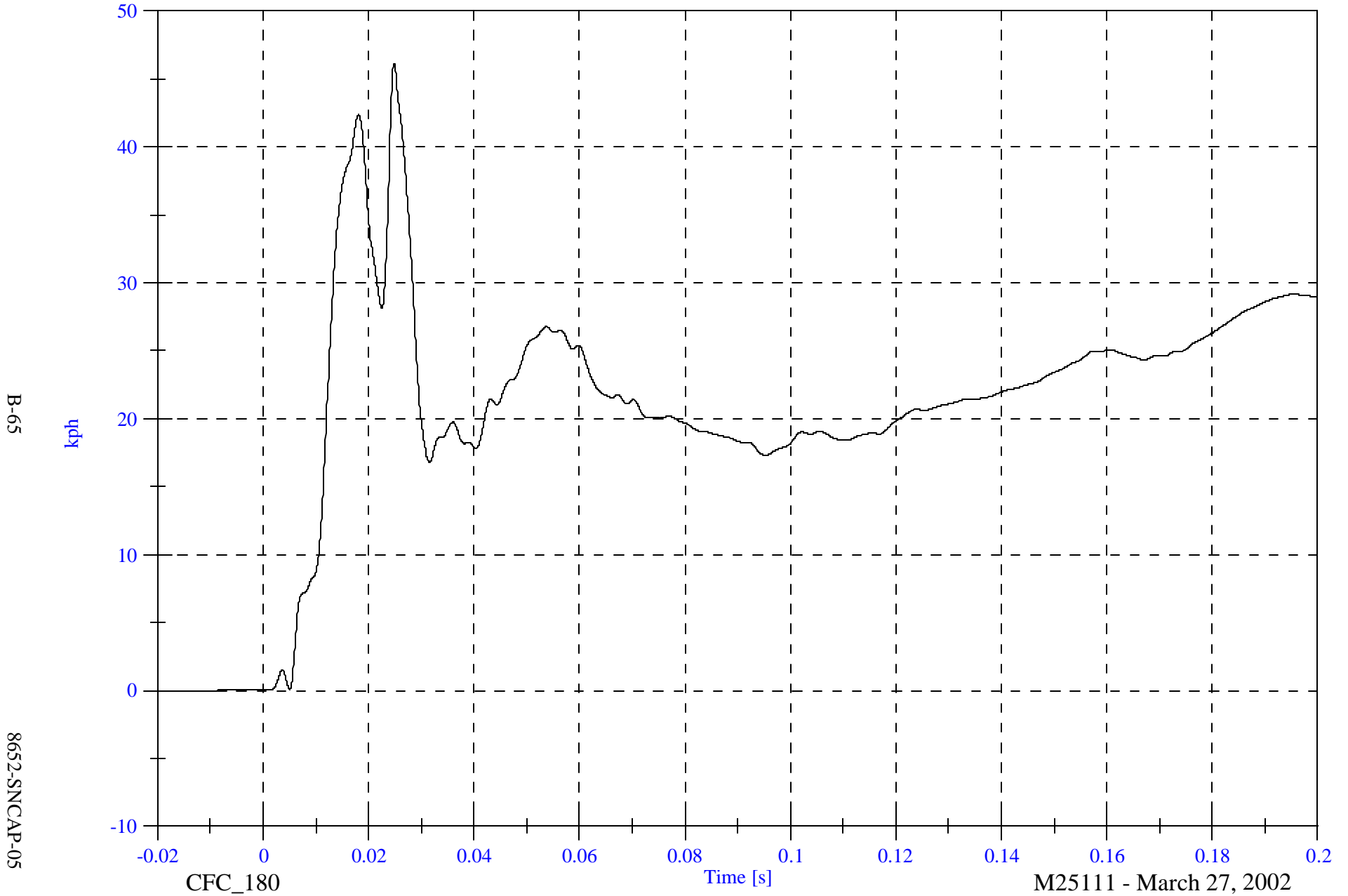


SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Max: 46.2 [kph] at 0.025 [s]

Acc 13 Left Middle B-Pillar y Velocity

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



B-65

8652-SNCAP-05

CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

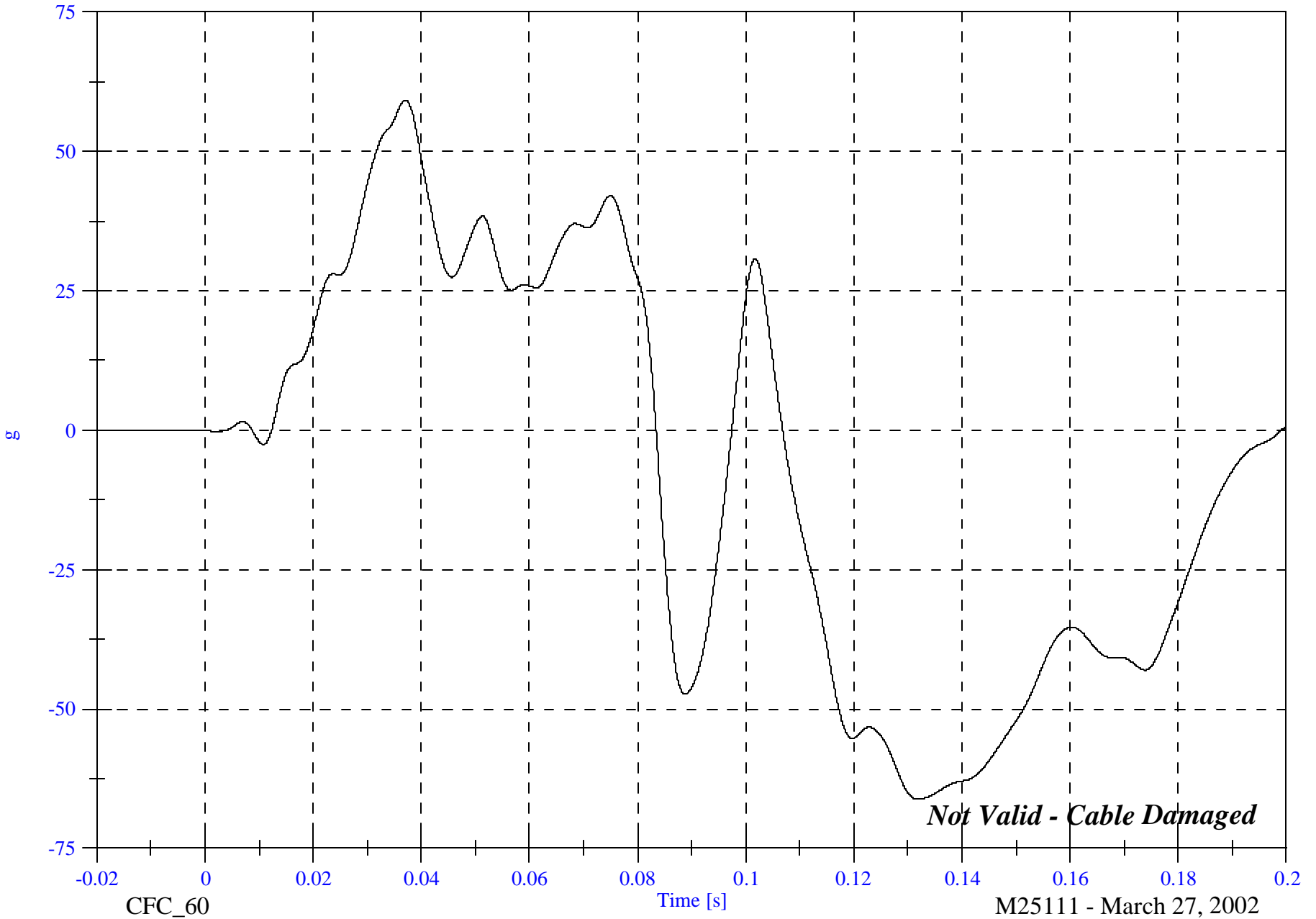
Acc 14 Left Lower A-Pillar y

Max: 59.2 [g] at 0.037 [s]

Min: -66.2 [g] at 0.132 [s]

B-66

8652-SNCAP-05



Not Valid - Cable Damaged

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

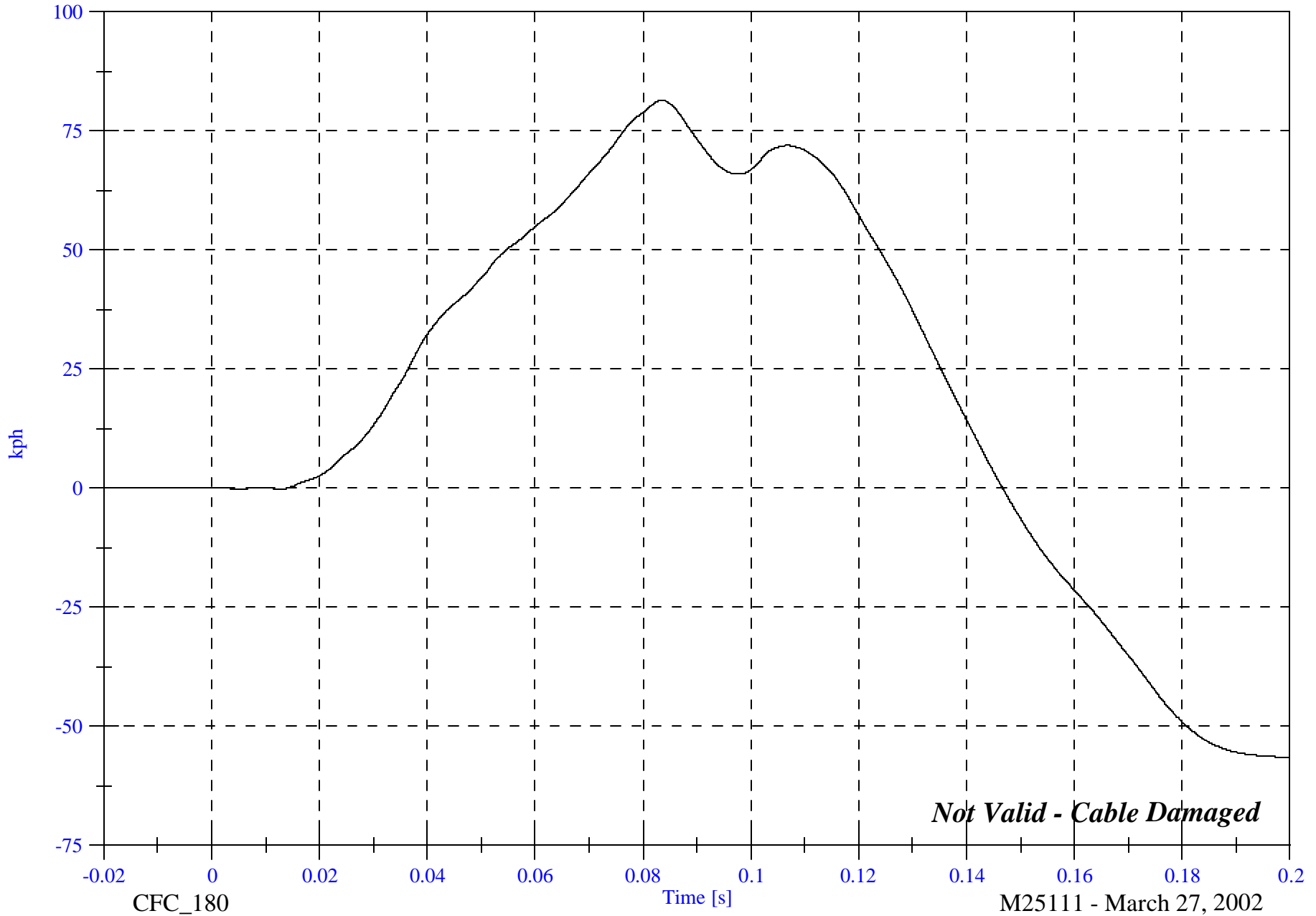
Max: 81.5 [kph] at 0.083 [s]

Acc 14 Left Lower A-Pillar y Velocity

Min: -56.4 [kph] at 0.198 [s]

B-67

8652-SNCAP-05



Not Valid - Cable Damaged

CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

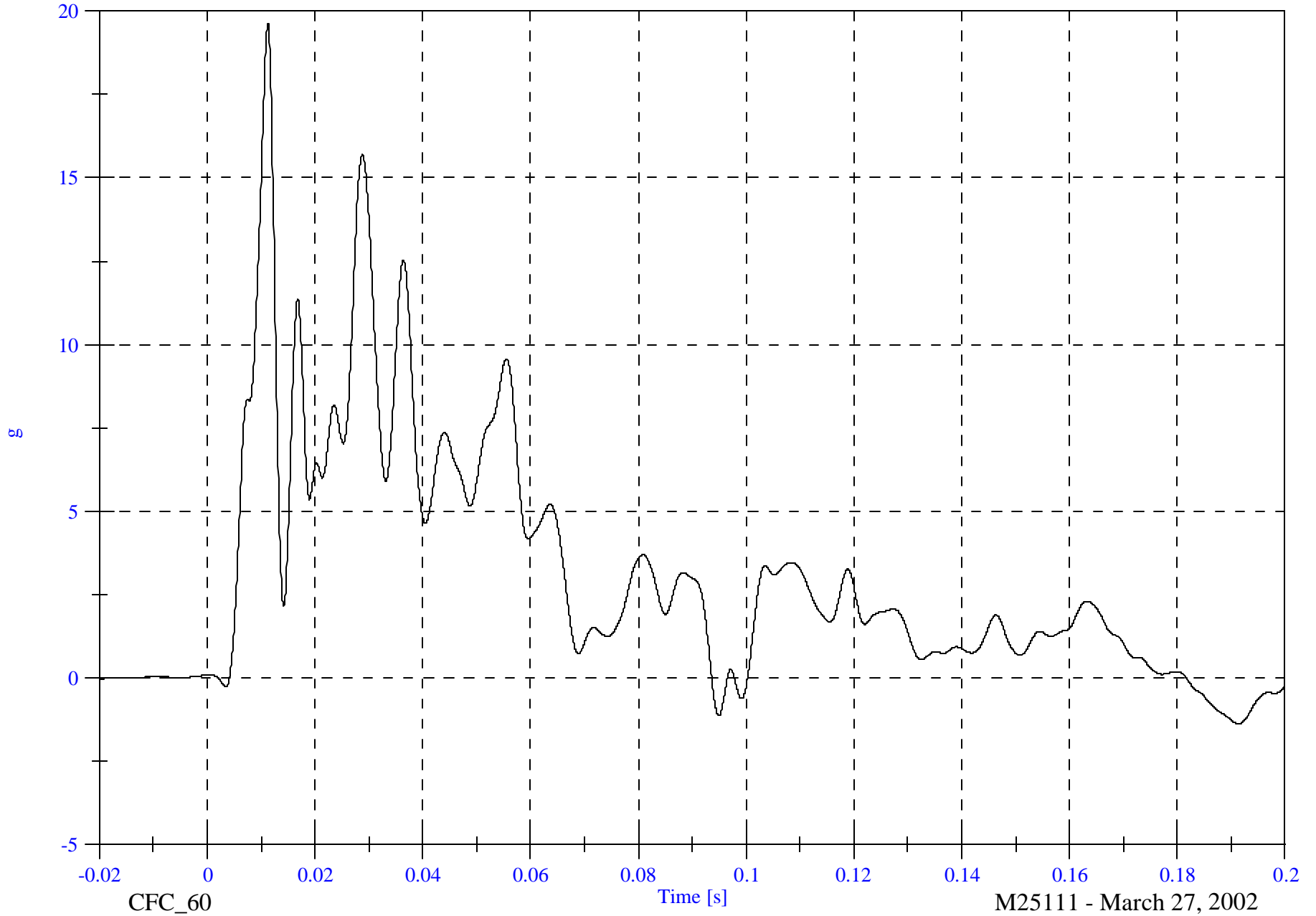
Acc 15 Left Middle A-Pillar y

Max: 19.6 [g] at 0.011 [s]

Min: -1.4 [g] at 0.191 [s]

B-68

8652-SNCAP-05



CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

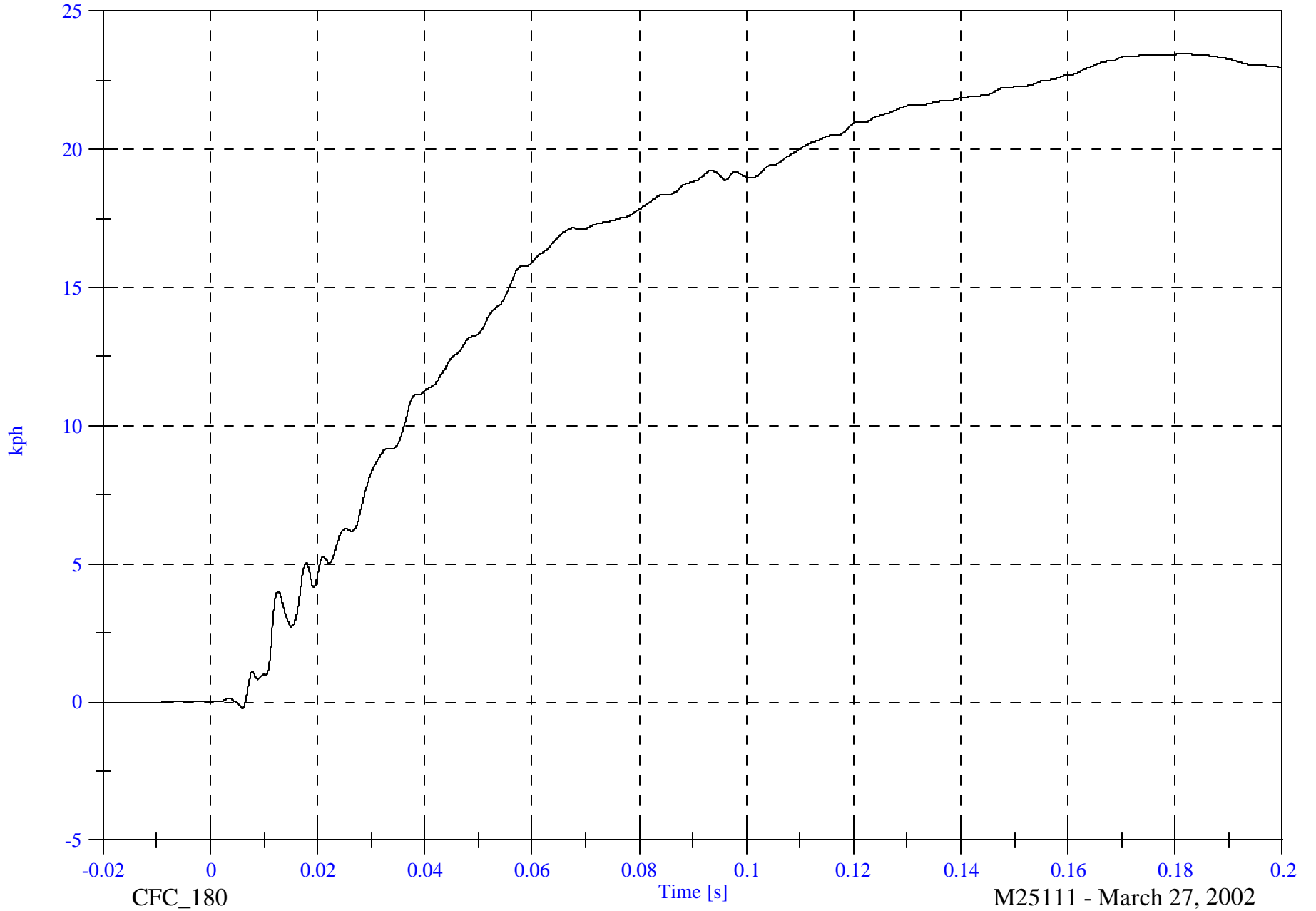
Max: 23.5 [kph] at 0.182 [s]

Acc 15 Left Middle A-Pillar y Velocity

Min: -0.2 [kph] at 0.006 [s]

B-69

8652-SNCAP-05



CFC_180

Time [s]

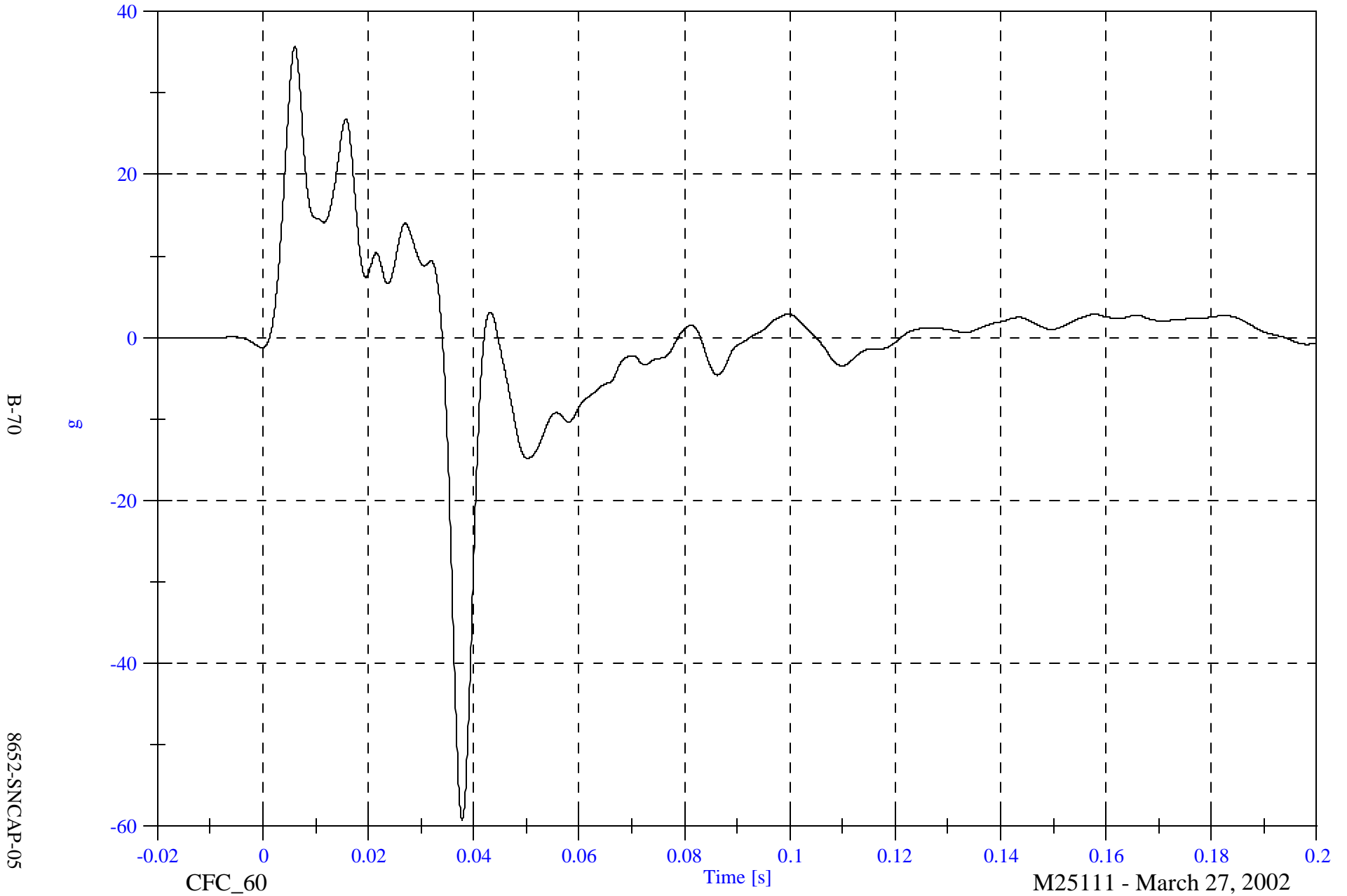
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Max: 35.7 [g] at 0.006 [s]

Acc 16 Front Seat Track y

Min: -59.2 [g] at 0.038 [s]



B-70

8652-SNCAP-05

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

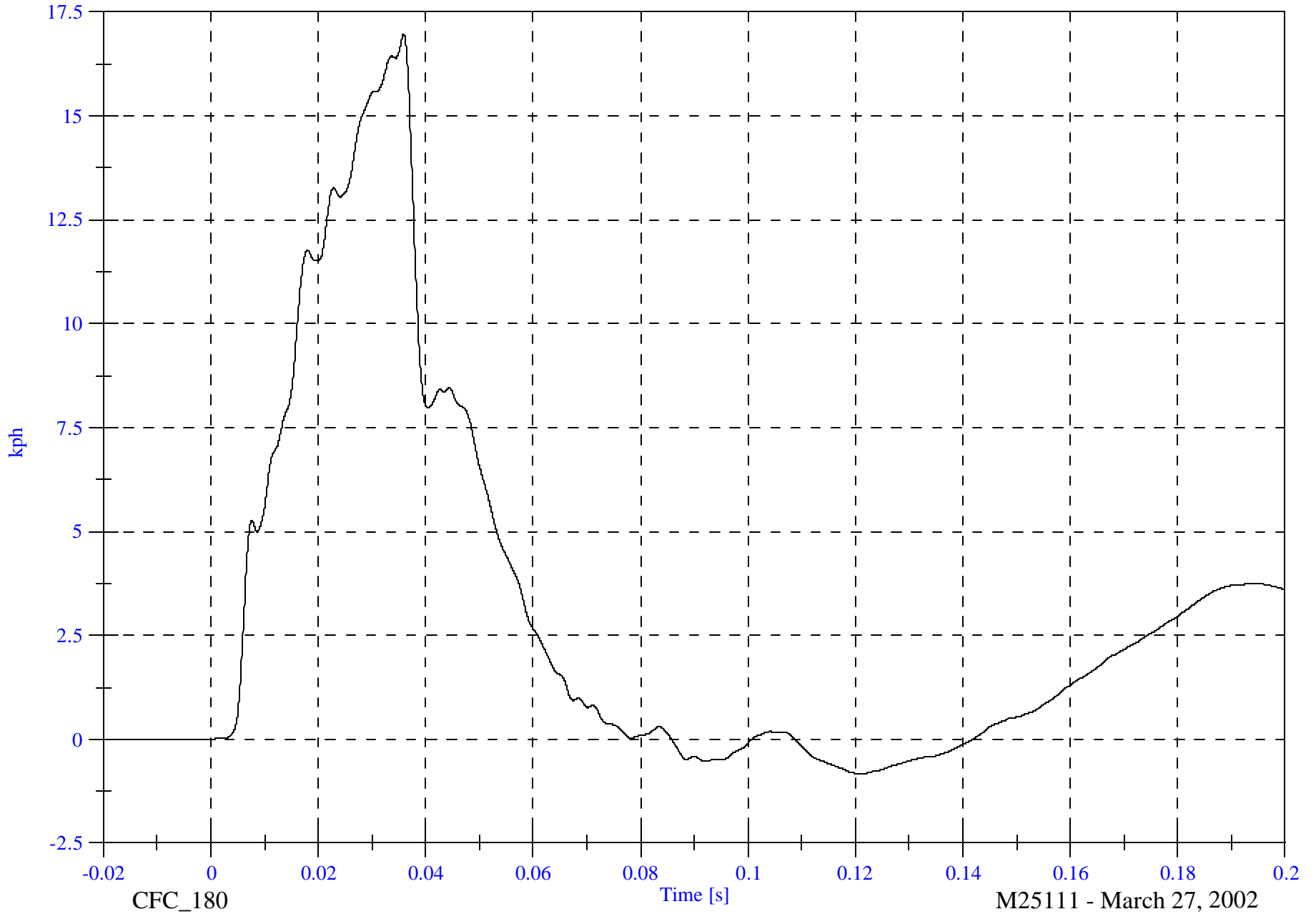
Acc 16 Front Seat Track y Velocity

Max: 17.0 [kph] at 0.036 [s]

Min: -0.8 [kph] at 0.121 [s]

B-71

8652-SNCAP-05



CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 17 Rear Seat Track y

Max: 34.2 [g] at 0.009 [s]

Min: -10.9 [g] at 0.061 [s]

B-72

8652-SNCAP-05



CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

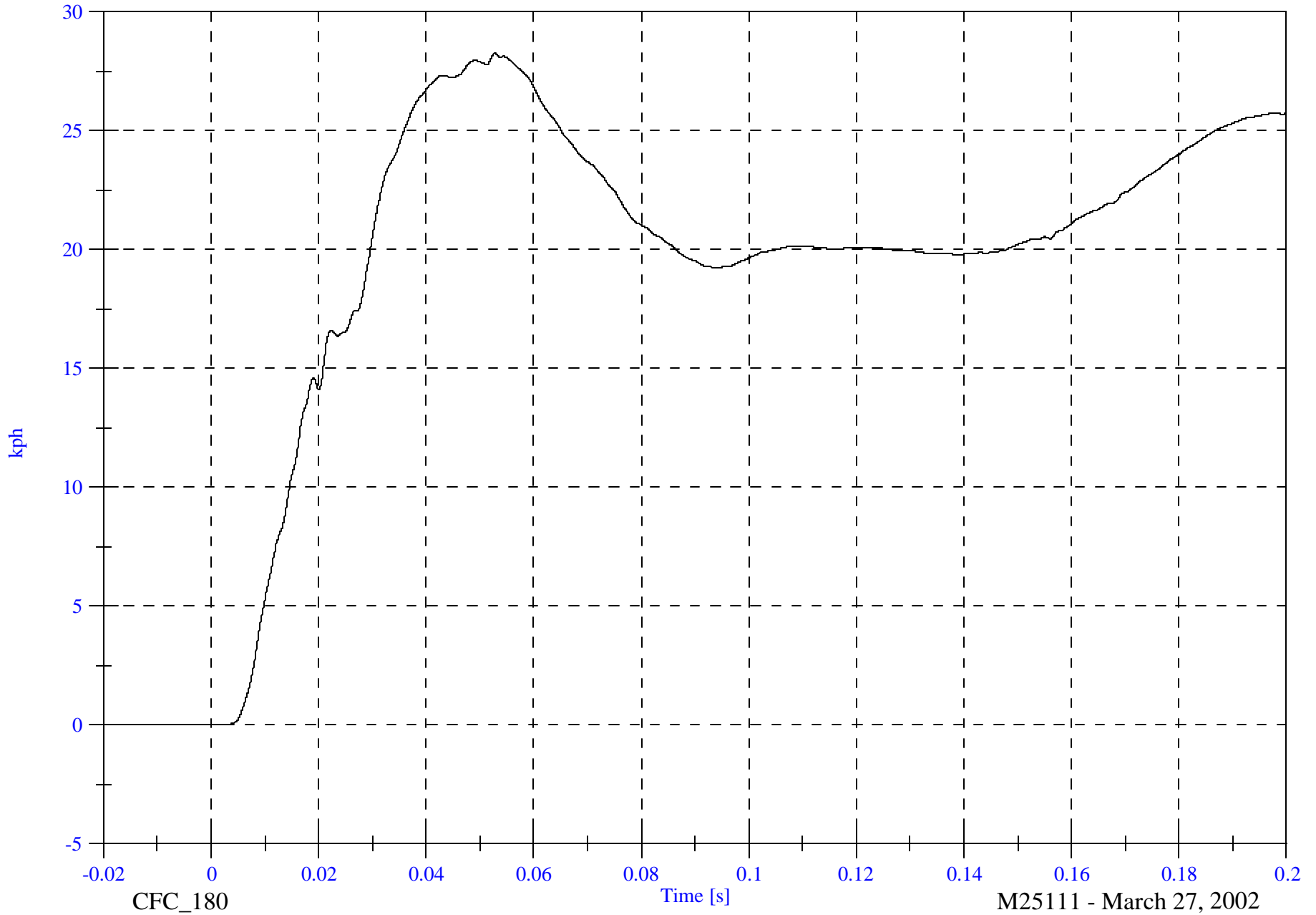
Acc 17 Rear Seat Track y Velocity

Max: 28.3 [kph] at 0.053 [s]

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

B-73

8652-SNCAP-05



CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

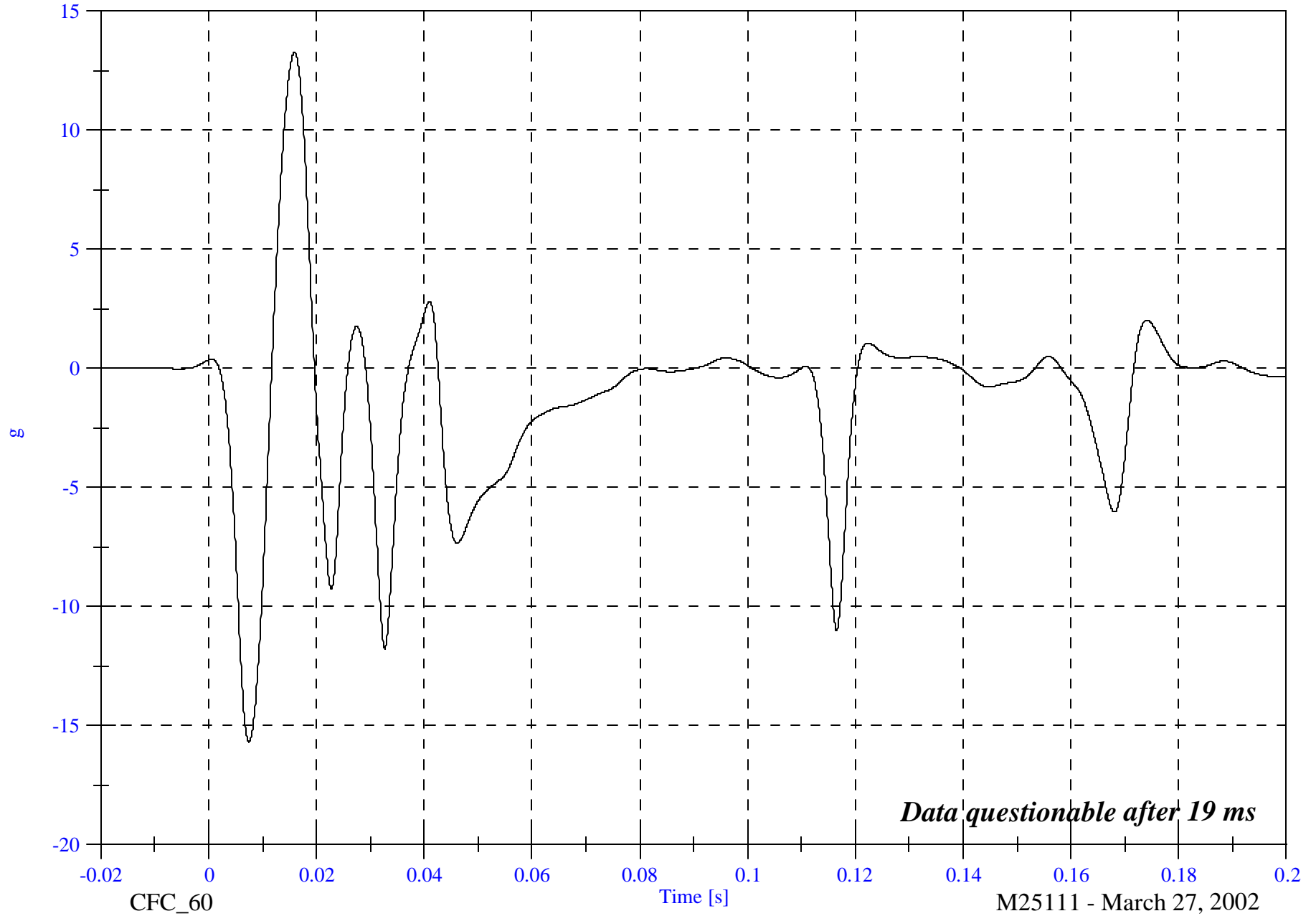
Acc 18 Target CG x

Max: 13.3 [g] at 0.016 [s]

Min: -15.7 [g] at 0.007 [s]

B-74

8652-SNCAP-05



Data questionable after 19 ms

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

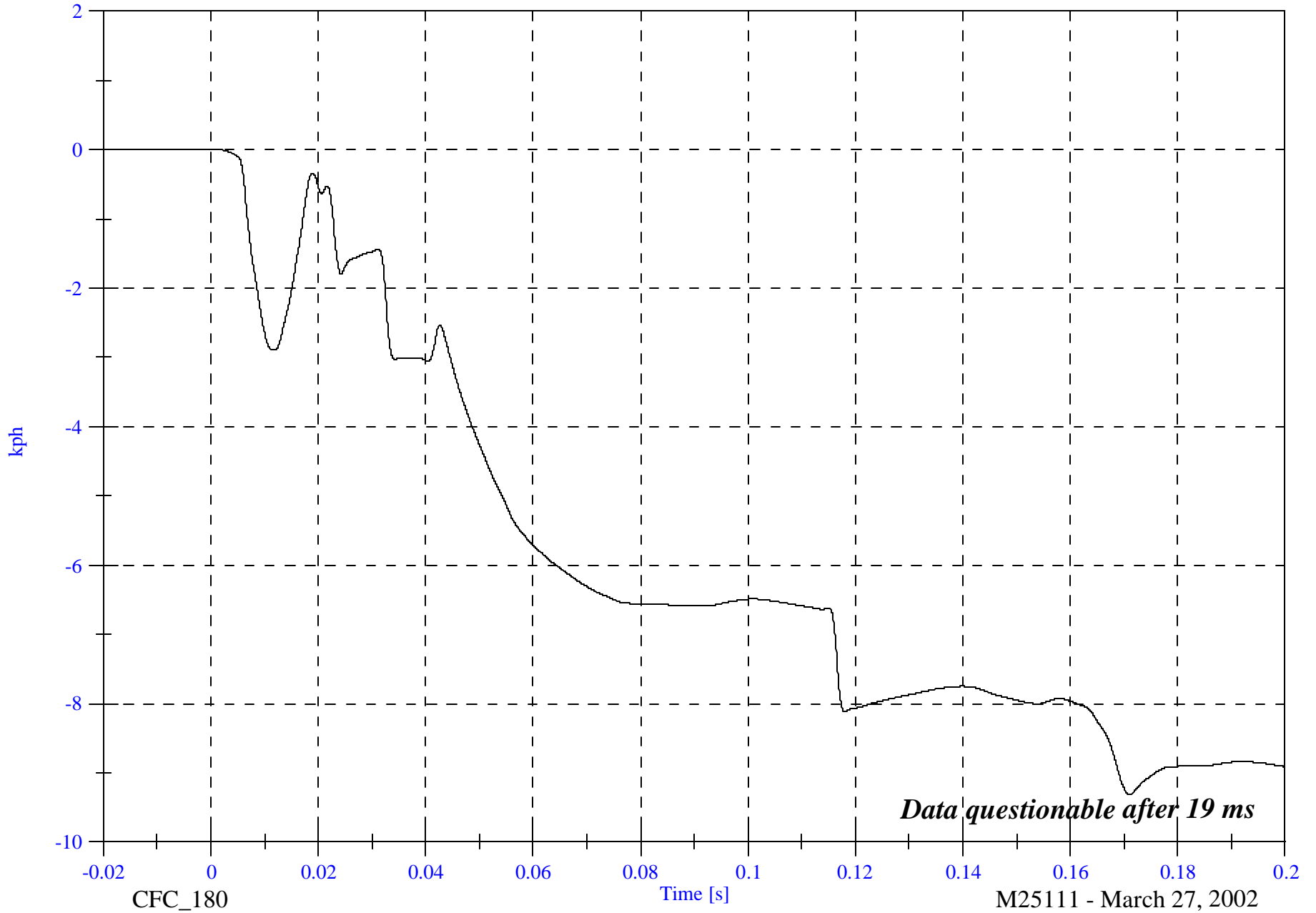
Acc 18 Target CG x Velocity

Max: 0.0 [kph] at -0.001 [s]

Min: -9.3 [kph] at 0.171 [s]

B-75

8652-SNCAP-05



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

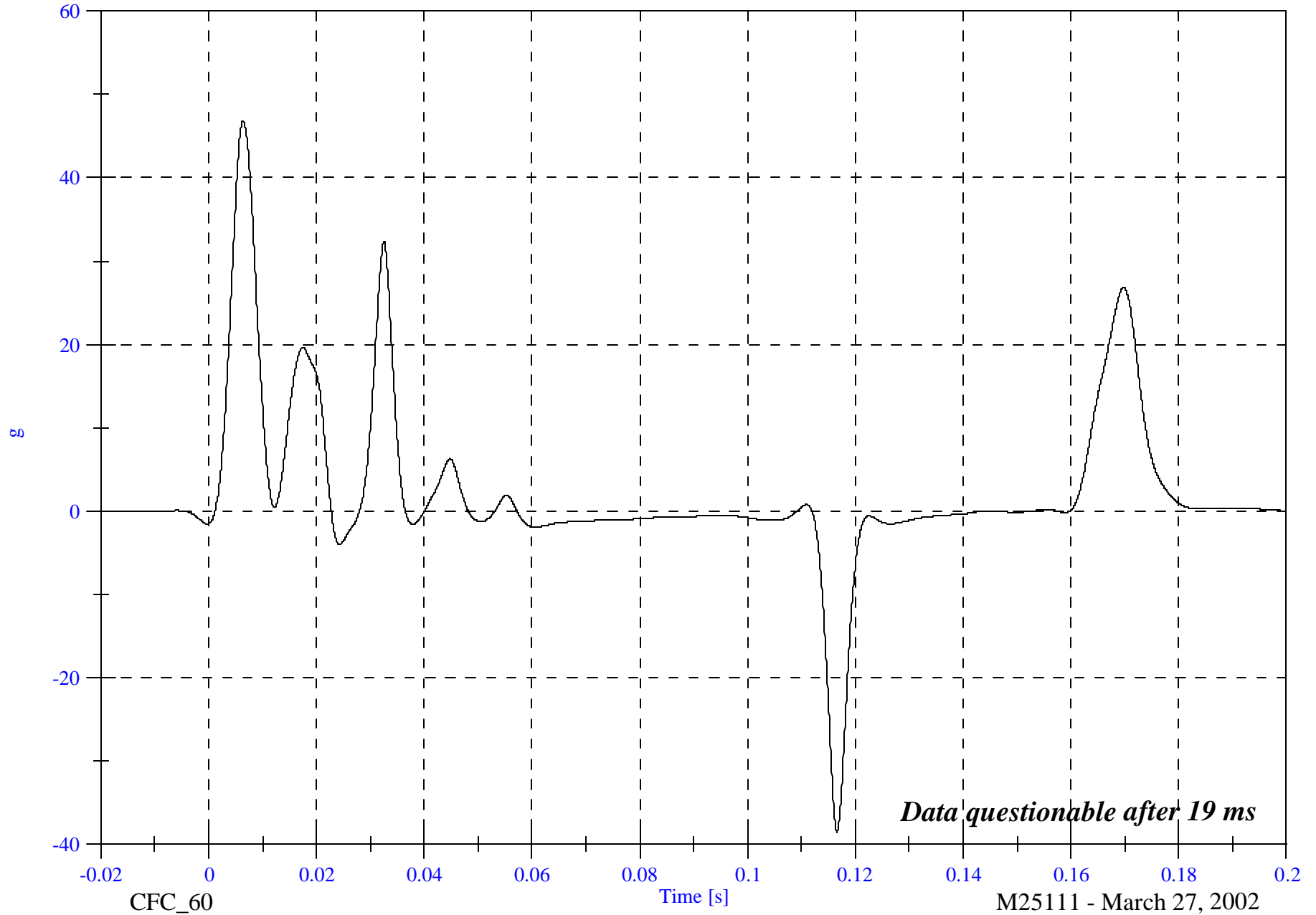
Acc 18 Target CG y

Max: 46.9 [g] at 0.006 [s]

Min: -38.5 [g] at 0.117 [s]

B-76

8652-SNCAP-05



Data questionable after 19 ms

CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

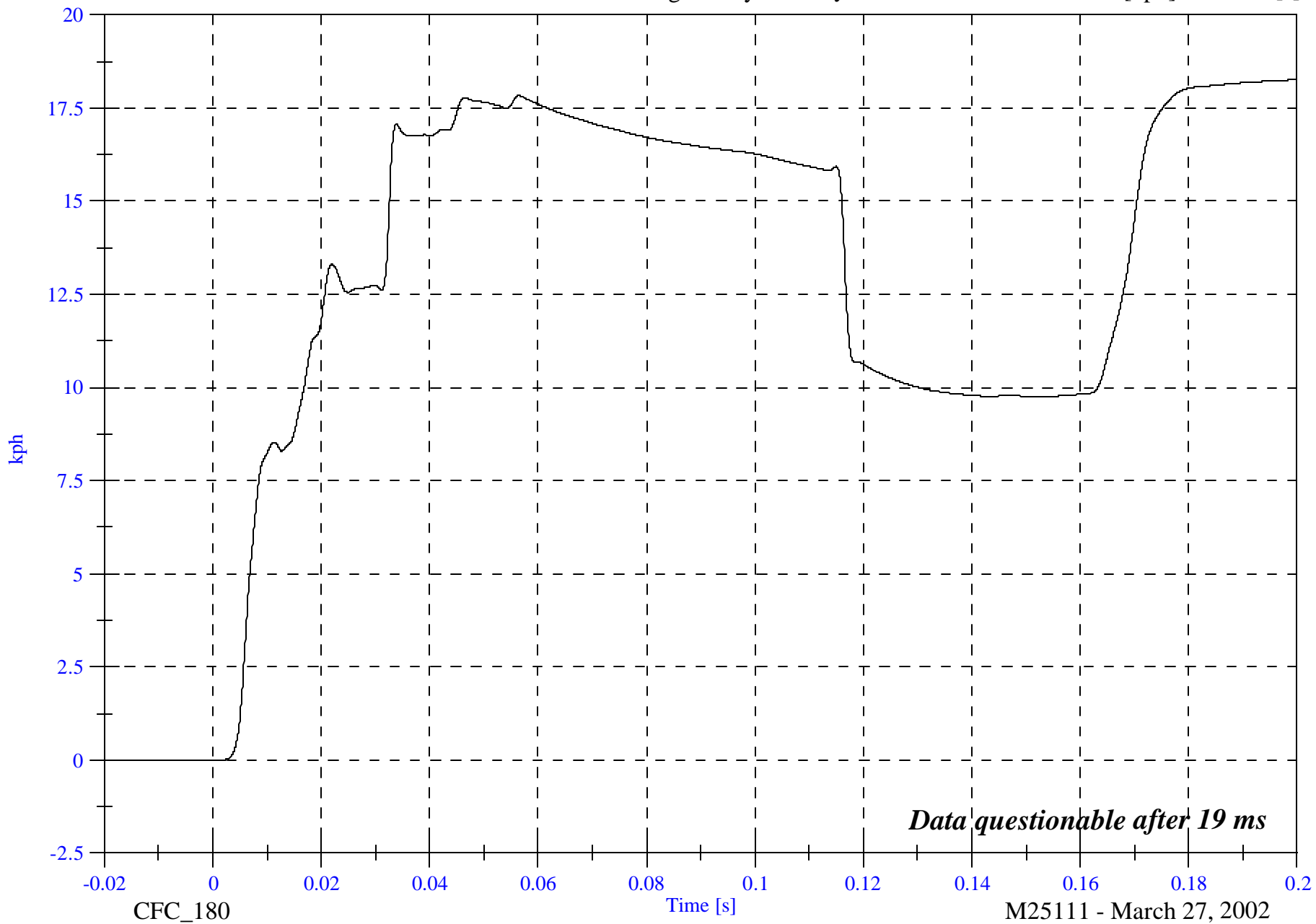
Acc 18 Target CG y Velocity

Max: 18.3 [kph] at 0.200 [s]

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

B-77

8652-SNCAP-05



Data questionable after 19 ms

CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

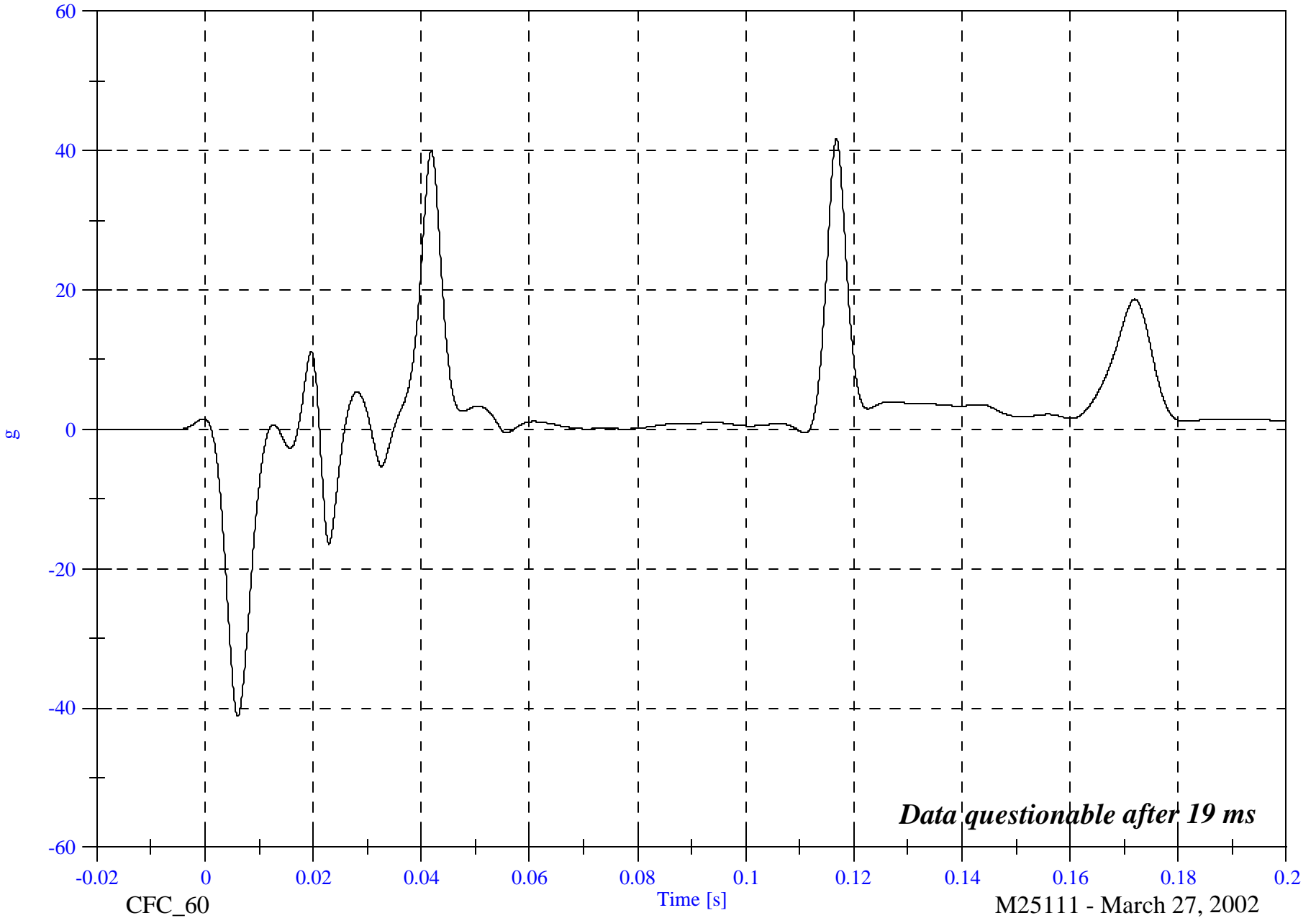
Acc 18 Target CG z

Max: 41.7 [g] at 0.117 [s]

Min: -41.2 [g] at 0.006 [s]

B-78

8652-SNCAP-05



Data questionable after 19 ms

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

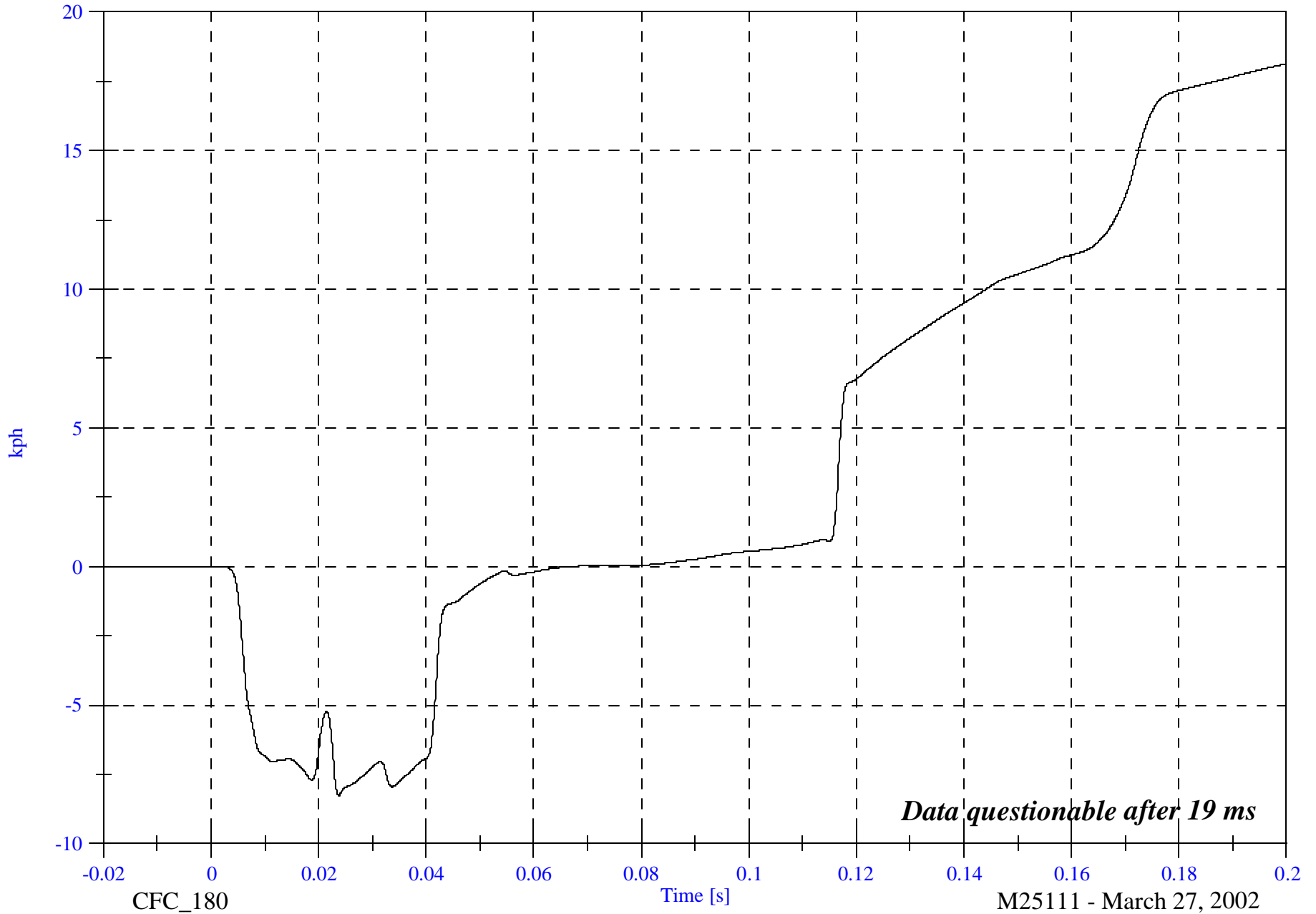
Acc 18 Target CG z Velocity

Max: 18.1 [kph] at 0.200 [s]

Min: -8.3 [kph] at 0.024 [s]

B-79

8652-SNCAP-05



Data questionable after 19 ms

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

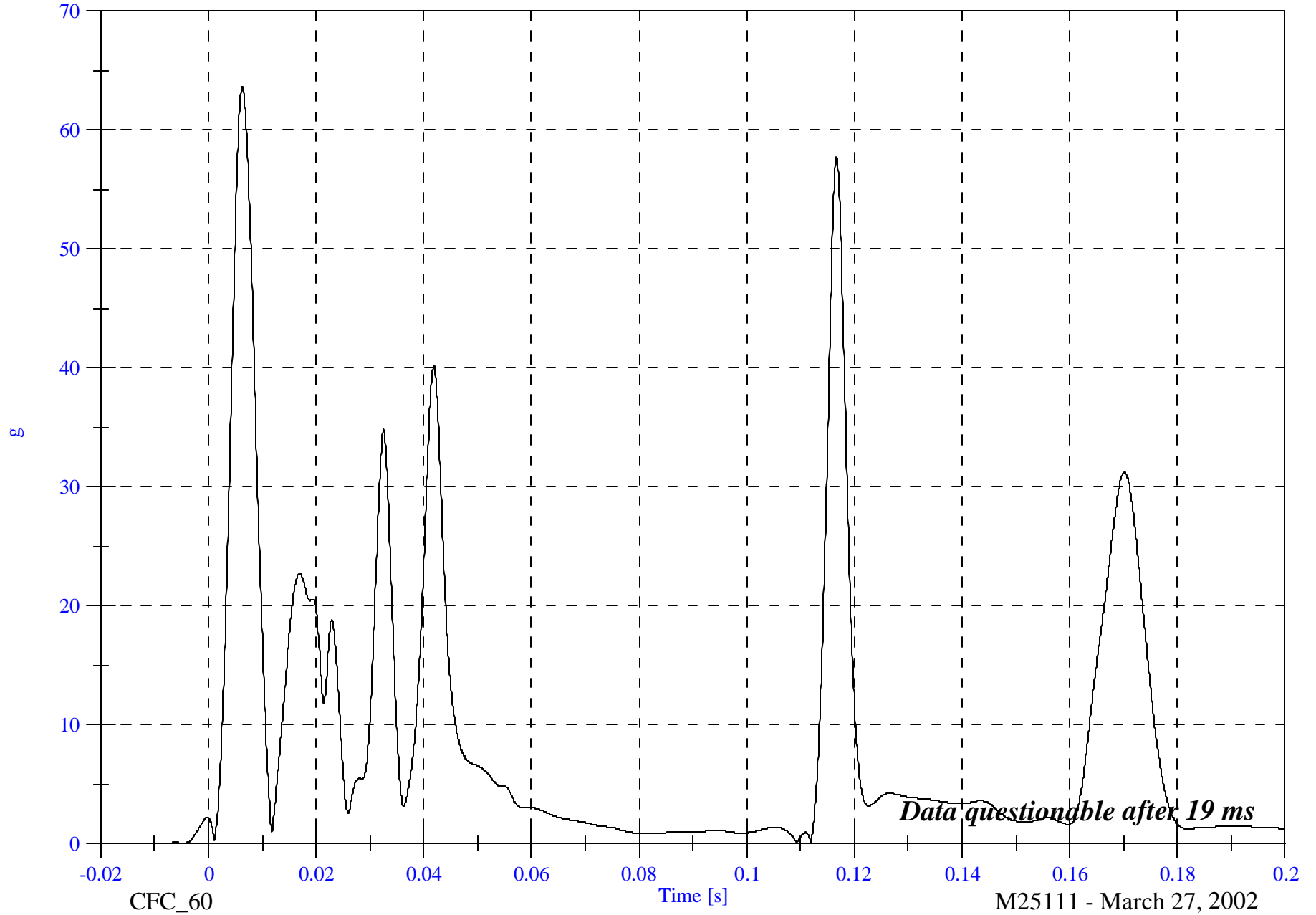
Acc 18 Target CG Resultant

Max: 63.7 [g] at 0.006 [s]

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

B-80

8652-SNCAP-05



Data questionable after 19 ms

CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

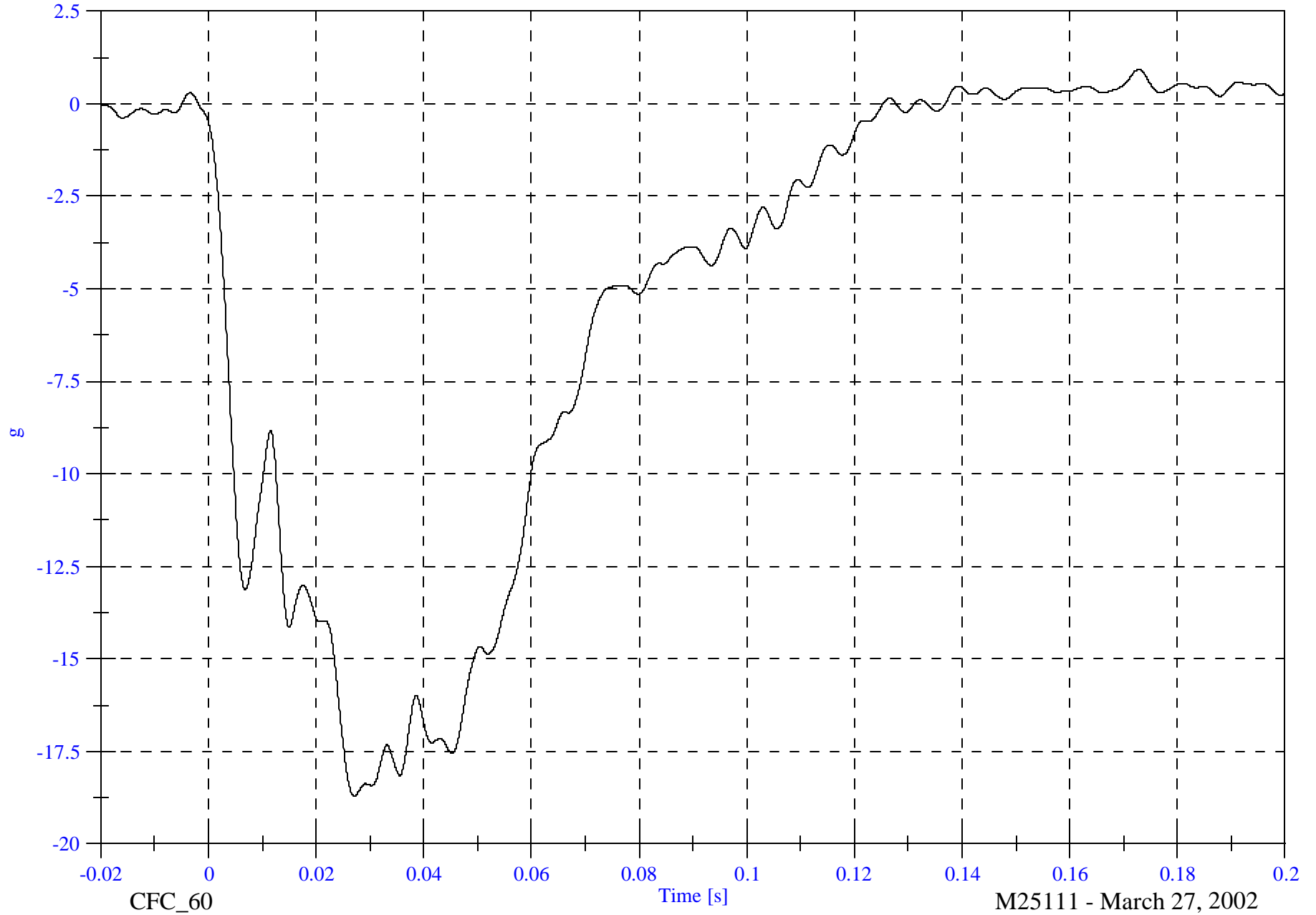
Moving Barrier CG X

Max: 0.9 [g] at 0.173 [s]

Min: -18.7 [g] at 0.027 [s]

B-81

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

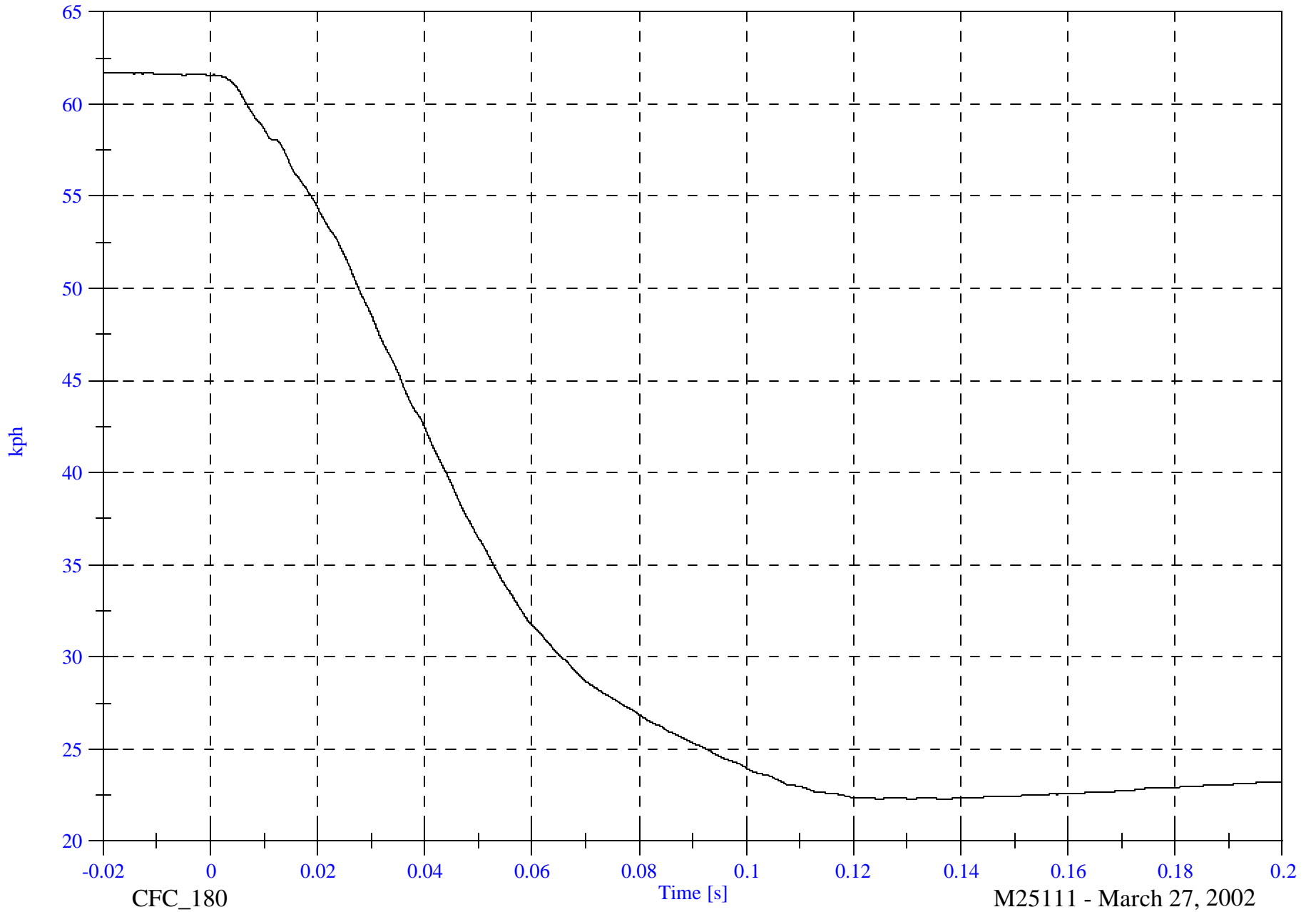
Moving Barrier CG X Velocity

Max: 61.7 [kph] at -0.017 [s]

Min: 22.3 [kph] at 0.137 [s]

B-82

8652-SNCAP-05



CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

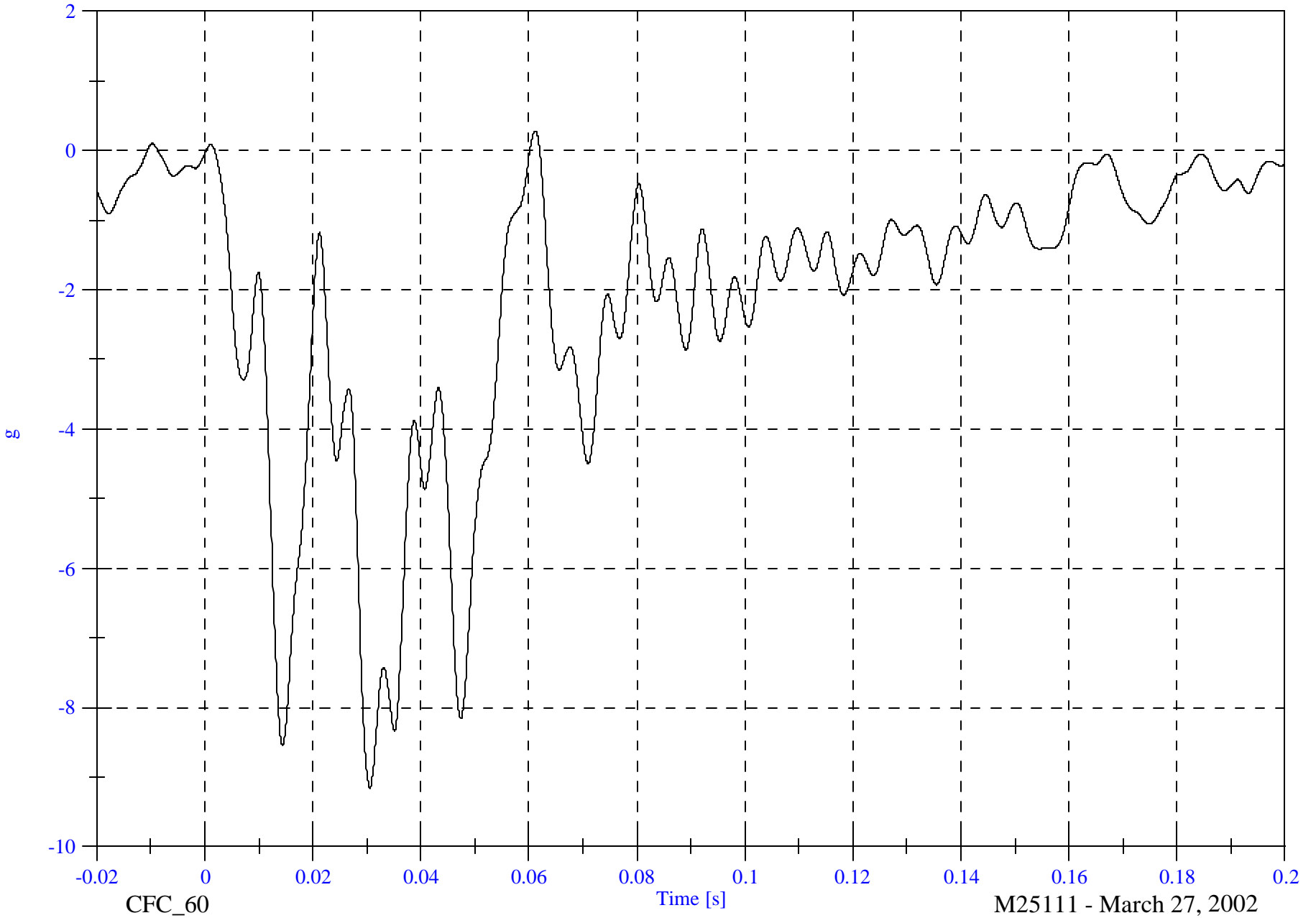
Max: 0.3 [g] at 0.061 [s]

Moving Barrier CG Y

Min: -9.2 [g] at 0.031 [s]

B-83

8652-SNCAP-05



CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

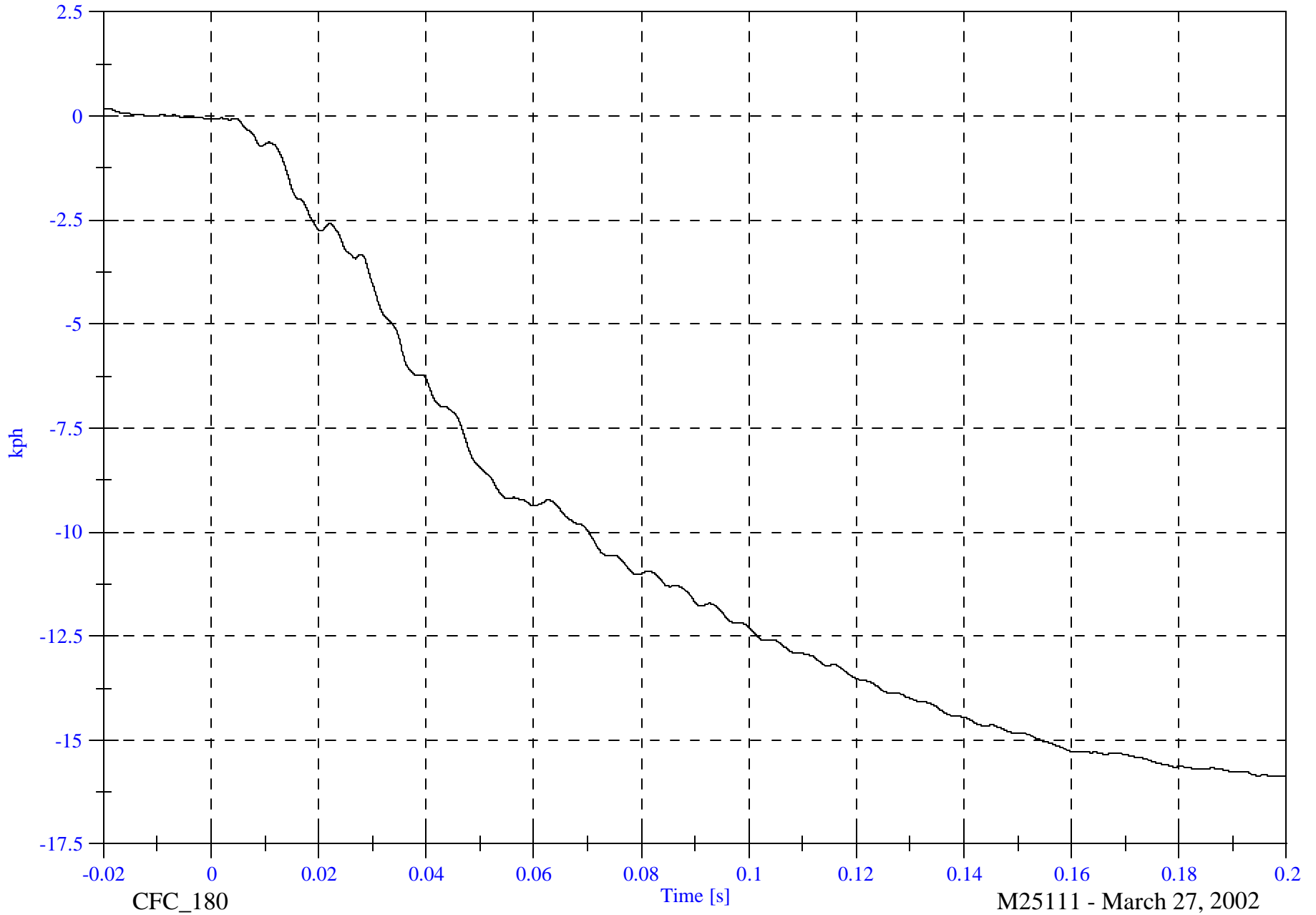
Moving Barrier CG Y Velocity

Max: 0.2 [kph] at -0.020 [s]

Min: -15.9 [kph] at 0.200 [s]

B-84

8652-SNCAP-05



CFC_180

Time [s]

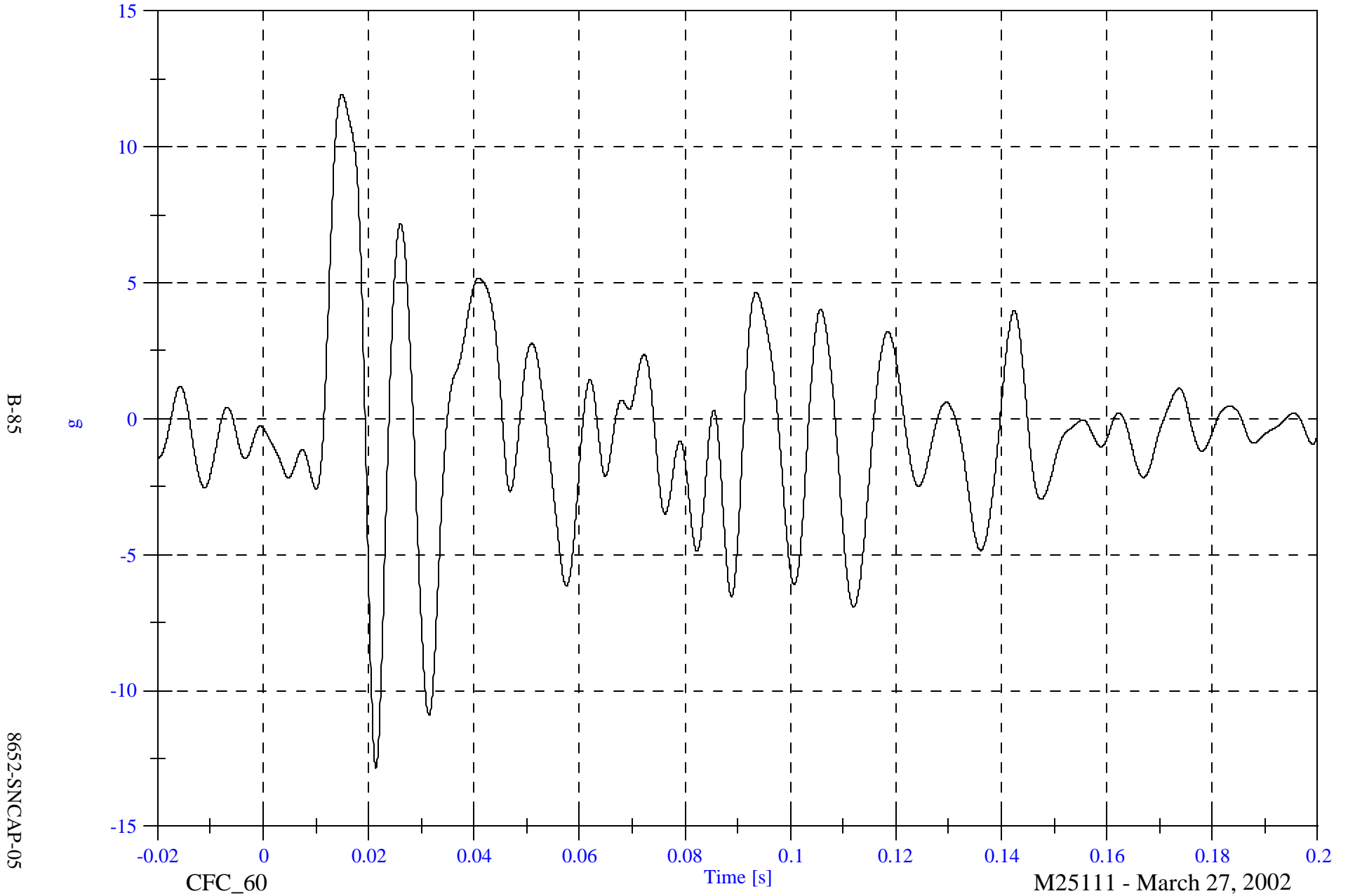
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Moving Barrier CG Z

Max: 11.9 [g] at 0.015 [s]

Min: -12.9 [g] at 0.021 [s]



B-85

8652-SNCAP-05

CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

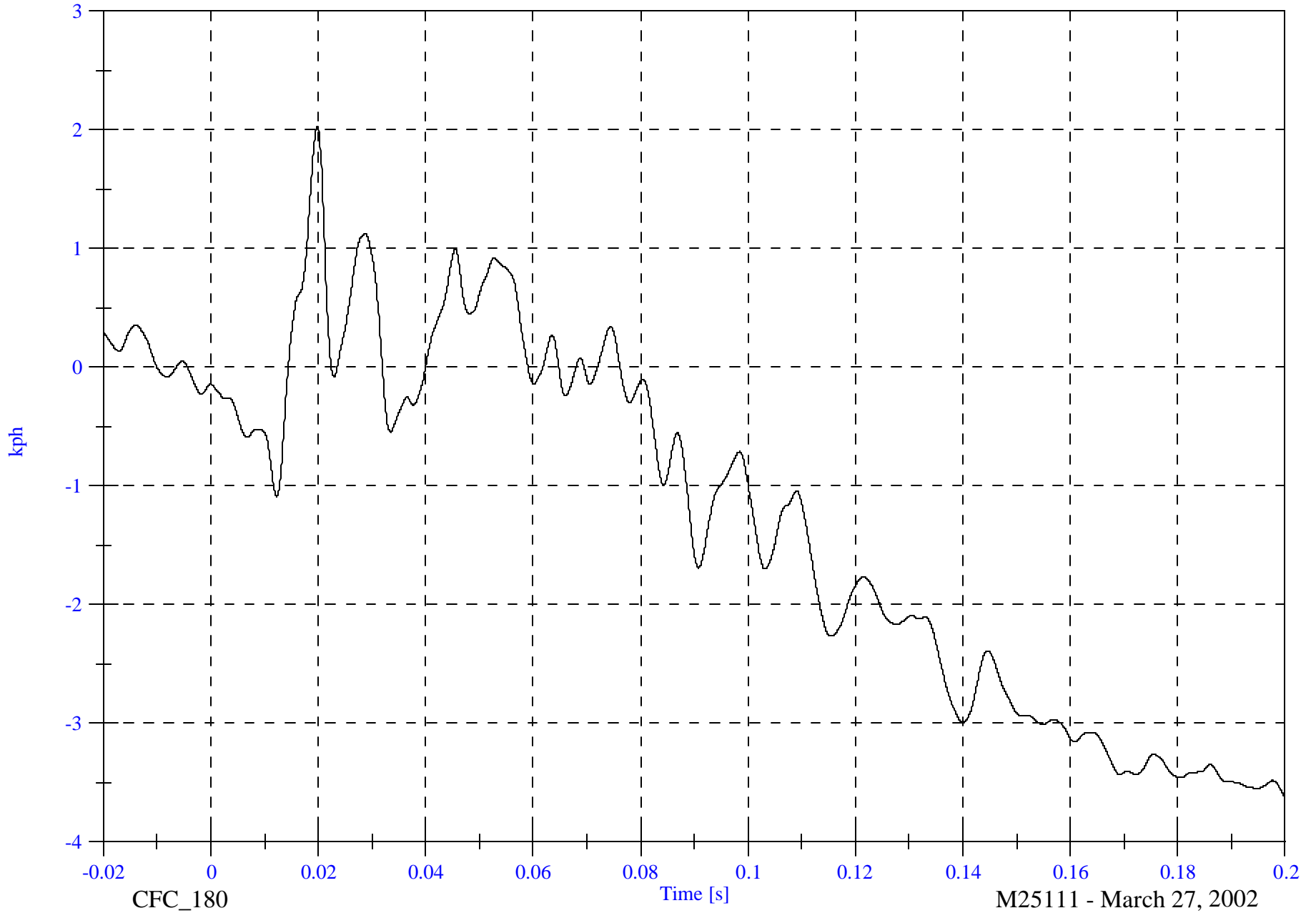
Moving Barrier CG Z Velocity

Max: 2.0 [kph] at 0.020 [s]

Min: -3.6 [kph] at 0.200 [s]

B-86

8652-SNCAP-05



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

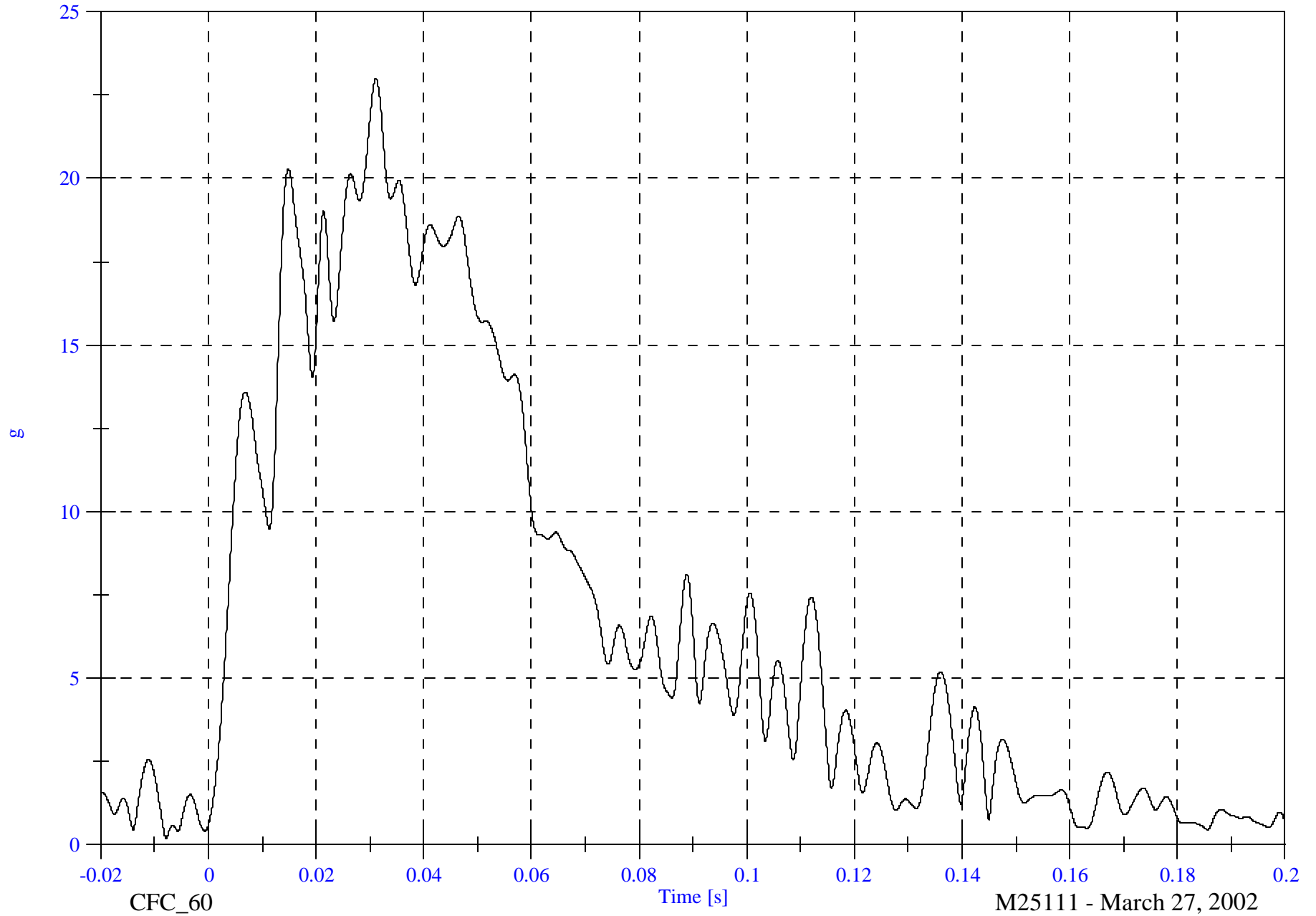
Moving Barrier CG Resultant

Max: 23.0 [g] at 0.031 [s]

Min: 0.2 [g] at -0.008 [s]

B-87

8652-SNCAP-05



CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

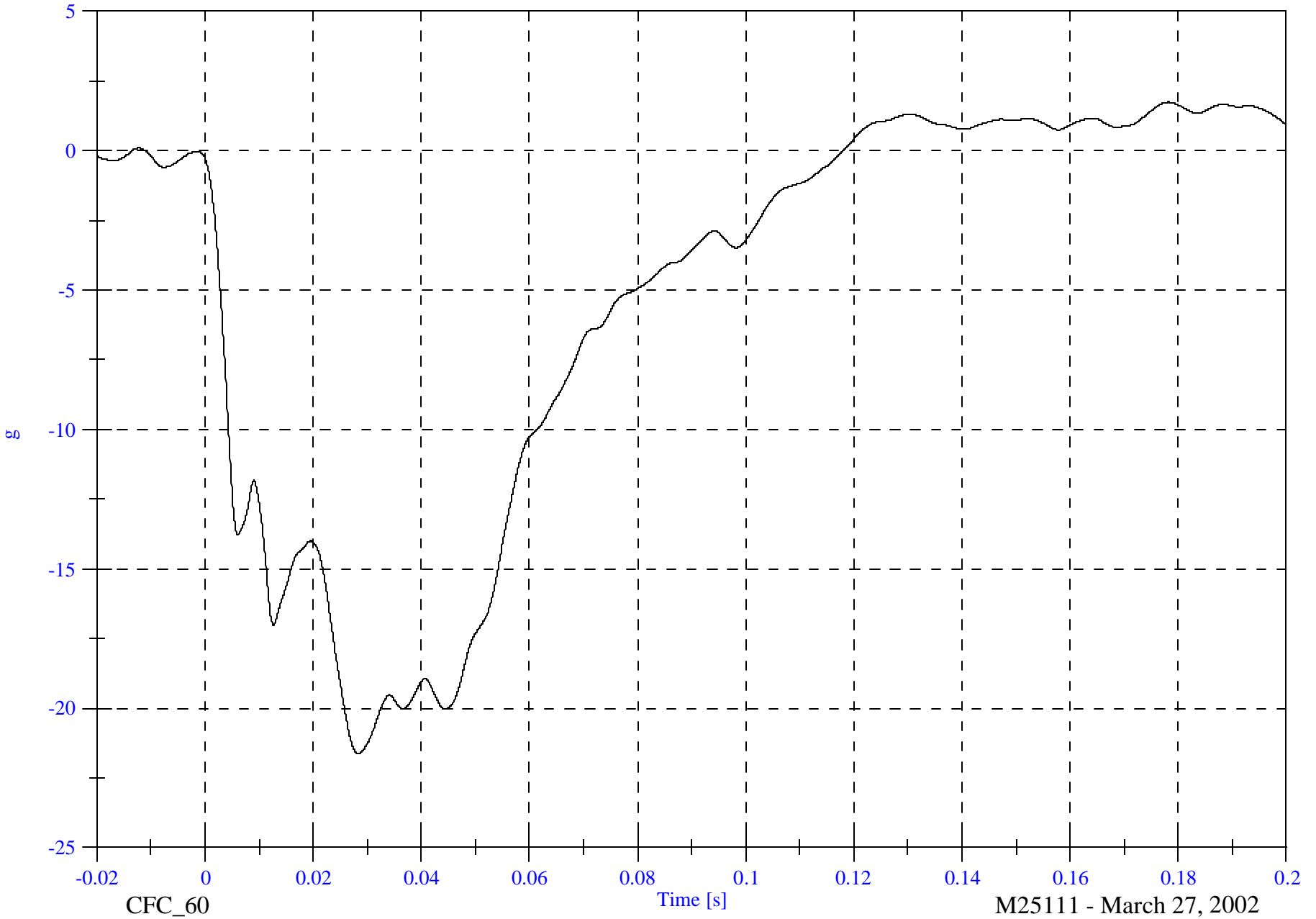
Moving Barrier Left Rail X

Max: 1.7 [g] at 0.178 [s]

Min: -21.6 [g] at 0.028 [s]

B-88

8652-SNCAP-05



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

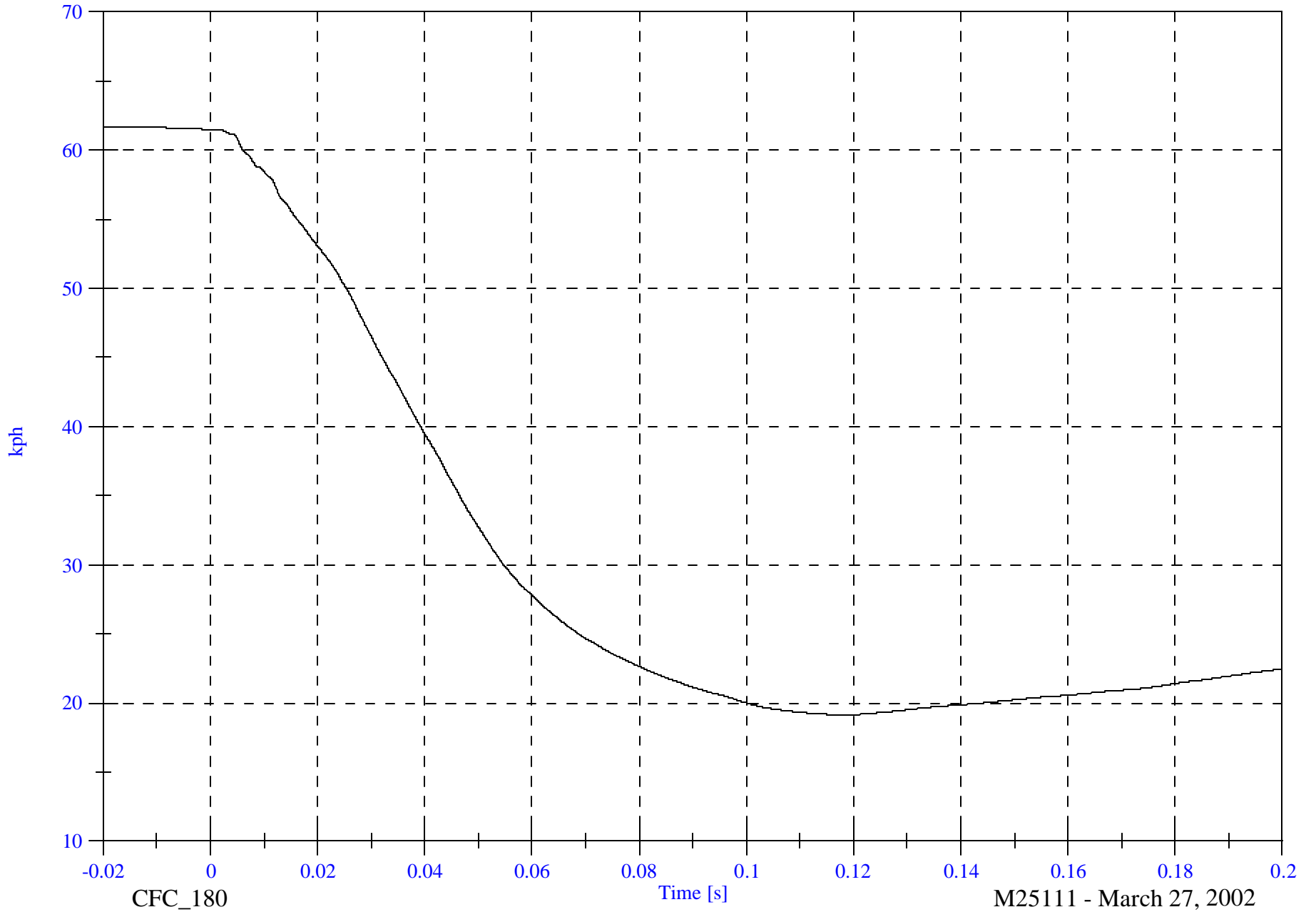
Max: 61.7 [kph] at -0.020 [s]

Moving Barrier Left Rail X Velocity

Min: 19.1 [kph] at 0.118 [s]

B-89

8652-SNCAP-05



CFC_180

Time [s]

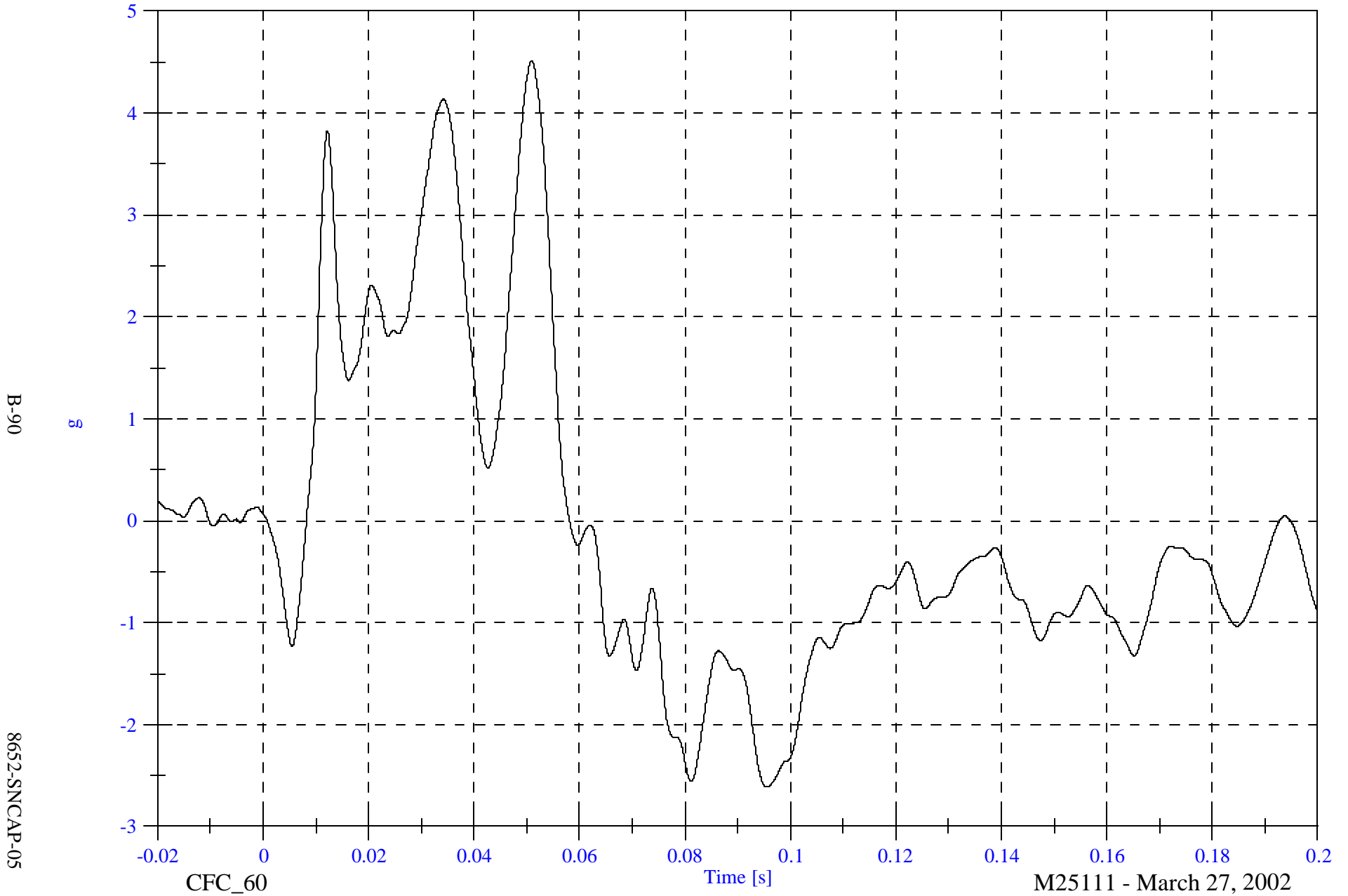
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Moving Barrier Left Rail Y

Max: 4.5 [g] at 0.051 [s]

Min: -2.6 [g] at 0.095 [s]



B-90

8652-SNCAP-05

CFC_60

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

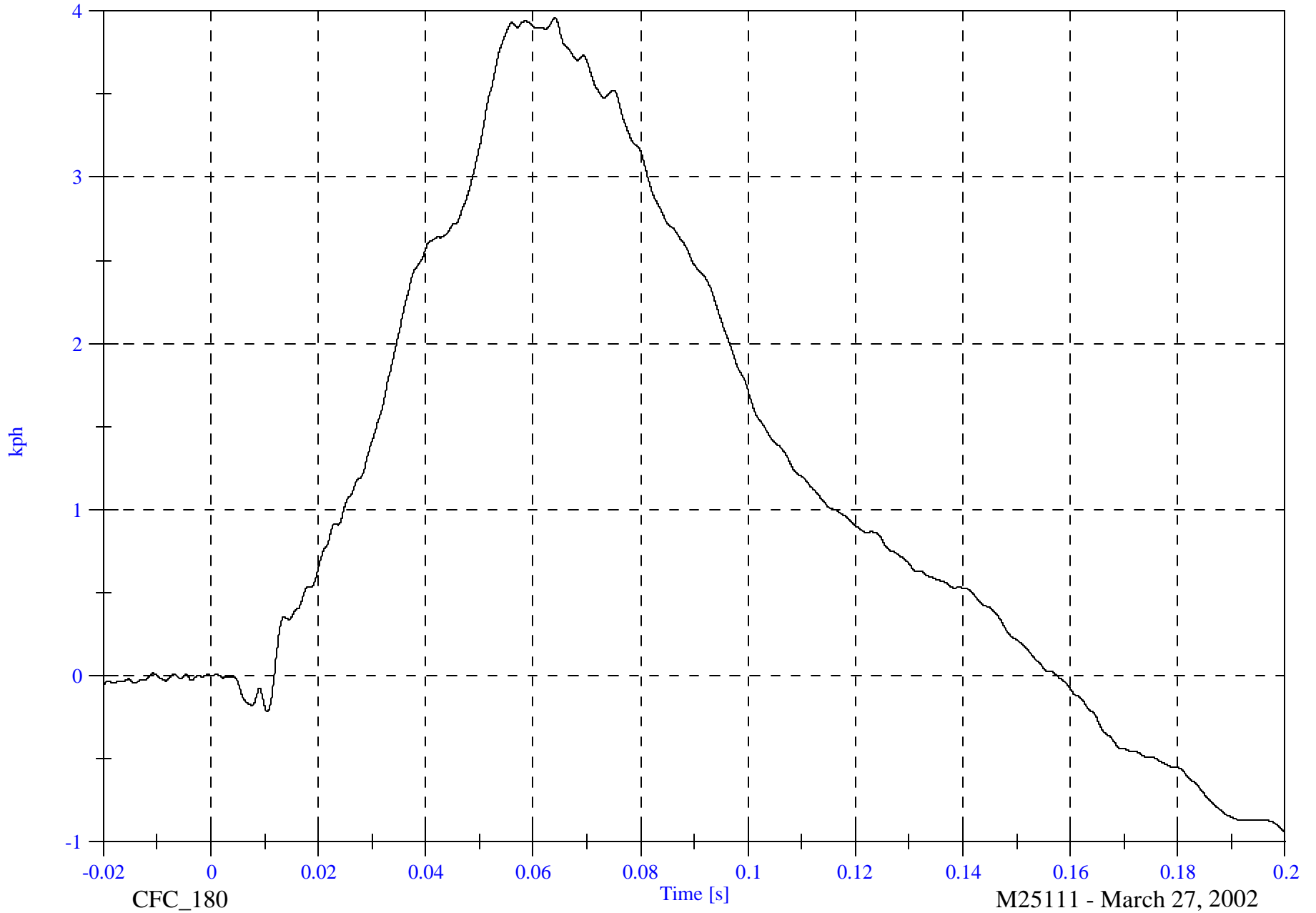
Max: 4.0 [kph] at 0.064 [s]

Moving Barrier Left Rail Y Velocity

Min: -0.9 [kph] at 0.200 [s]

B-91

8652-SNCAP-05



CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

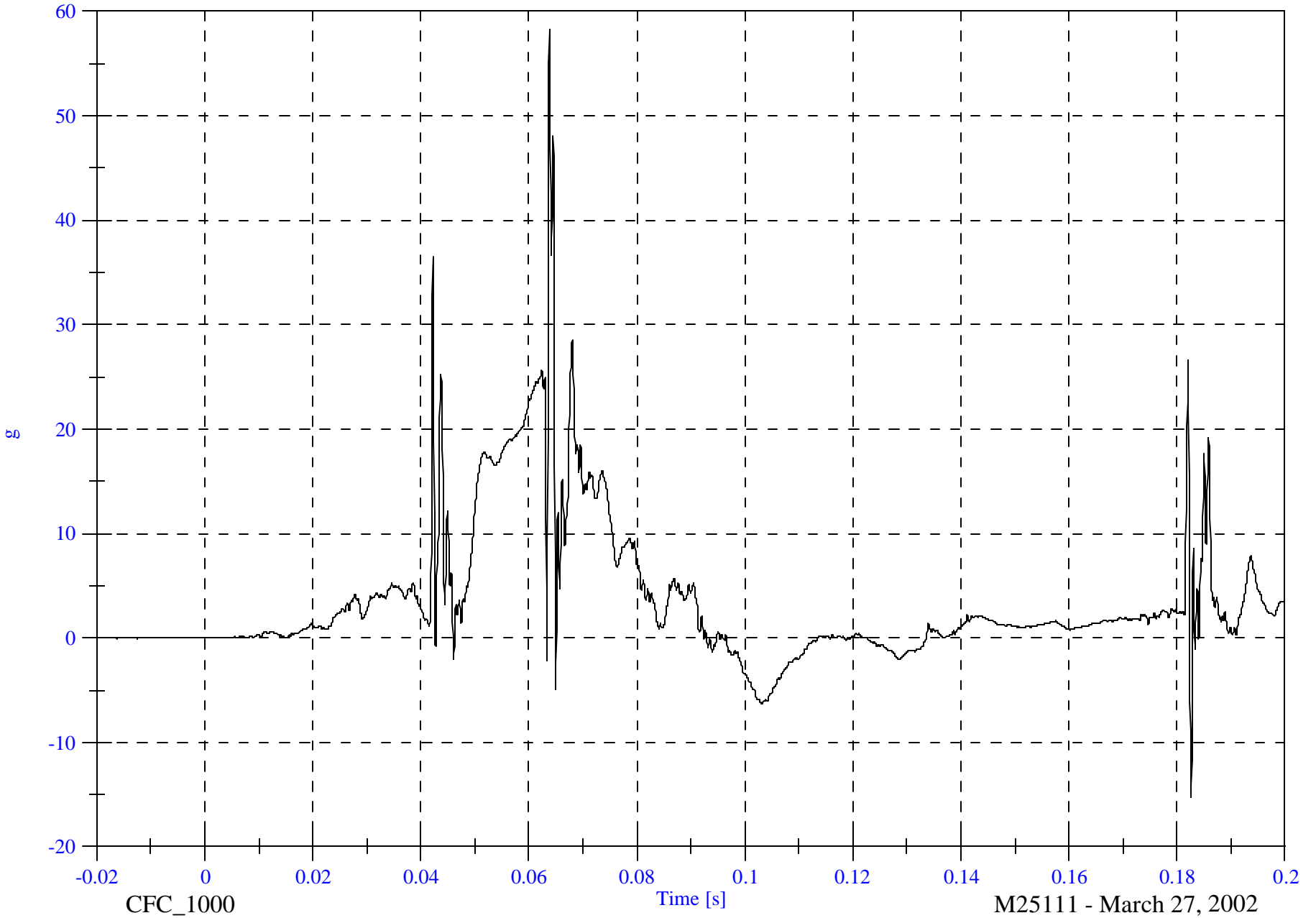
P1 Upper Rib Ry

Max: 58.3 [g] at 0.064 [s]

Min: -15.2 [g] at 0.183 [s]

B-92

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

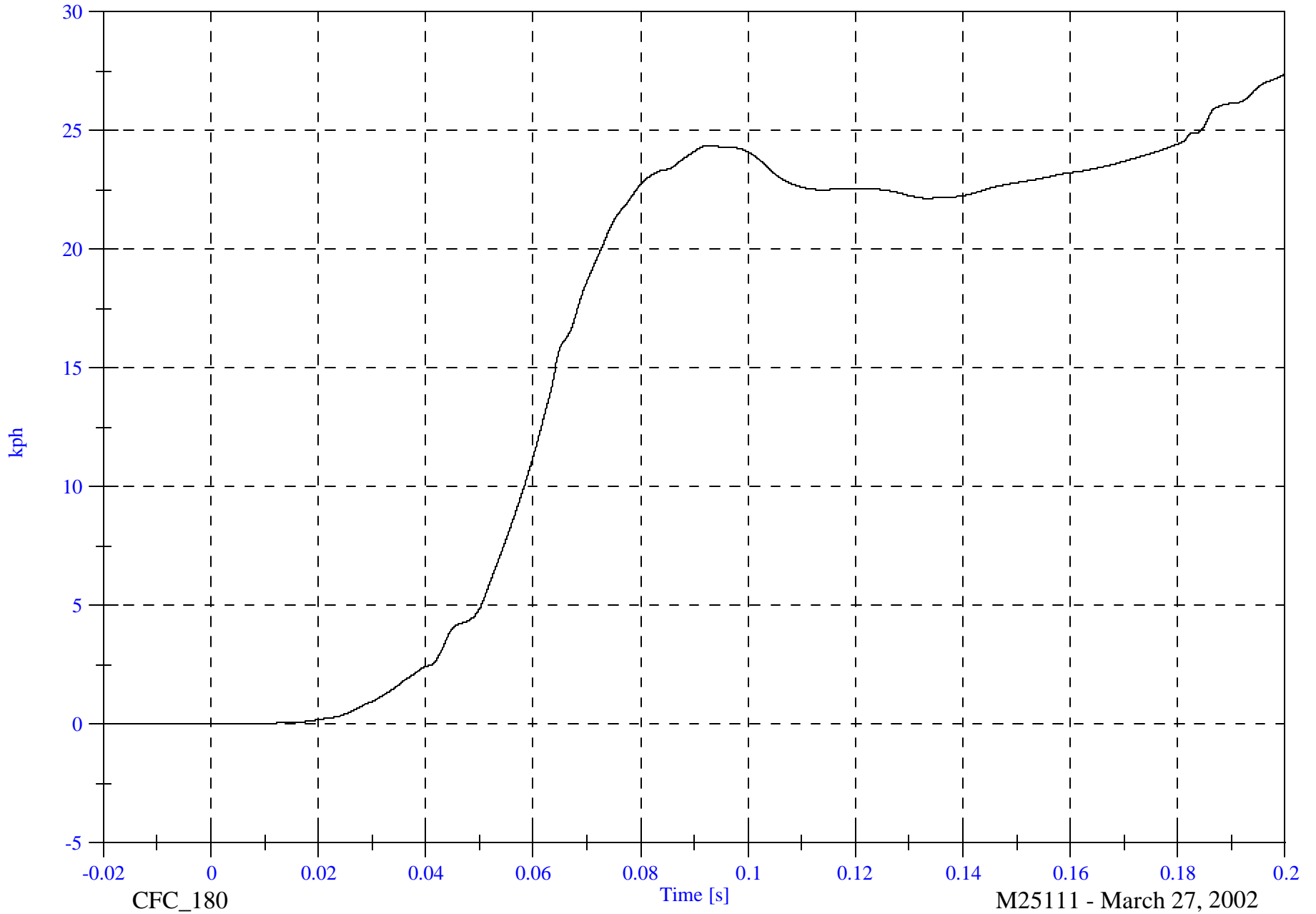
Max: 27.4 [kph] at 0.200 [s]

P1 Upper Rib Ry Velocity

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

B-93

8652-SNCAP-05



CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

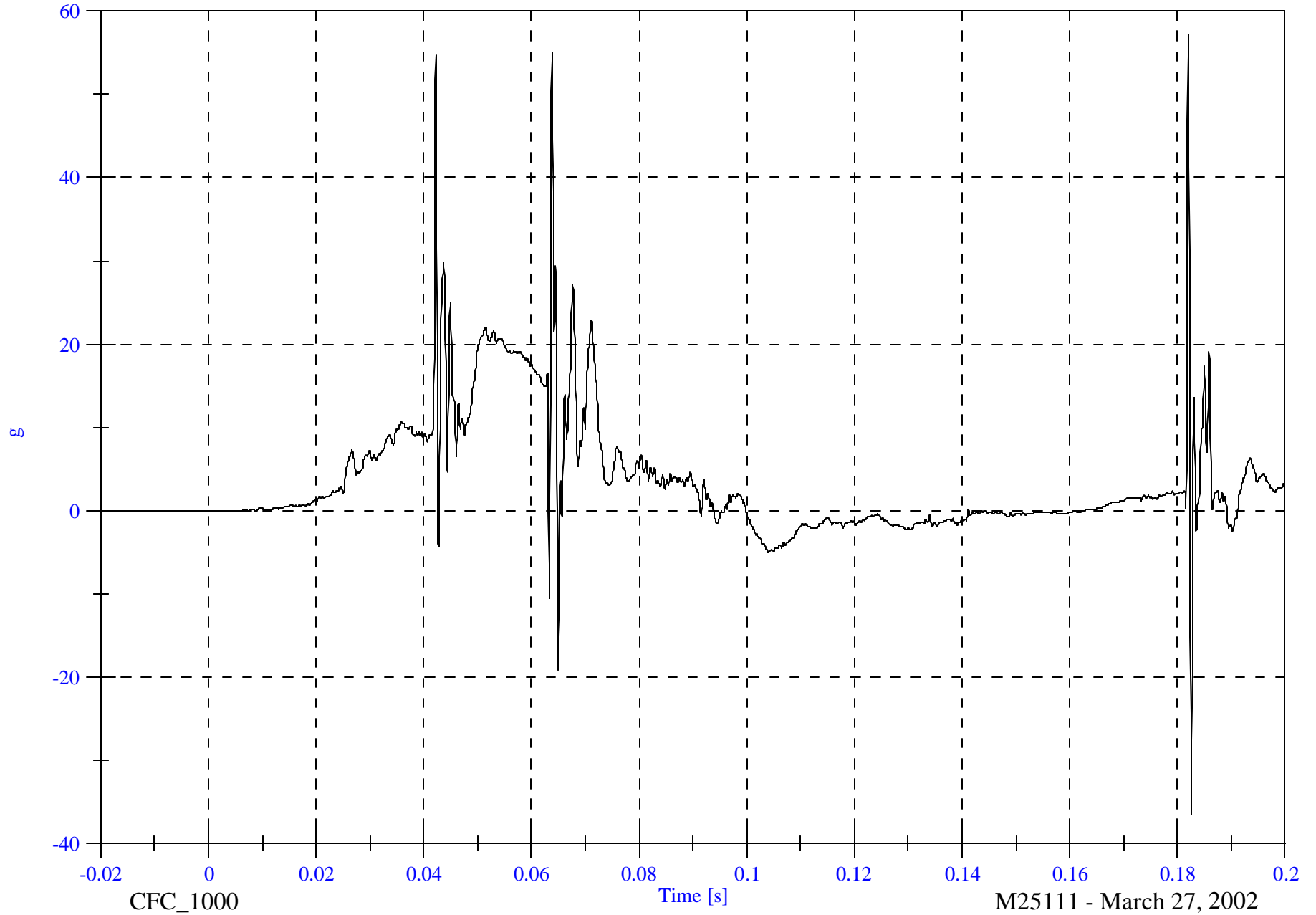
P1 Lower Rib Ry

Max: 57.1 [g] at 0.182 [s]

Min: -36.5 [g] at 0.183 [s]

B-94

8652-SNCAP-05



CFC_1000

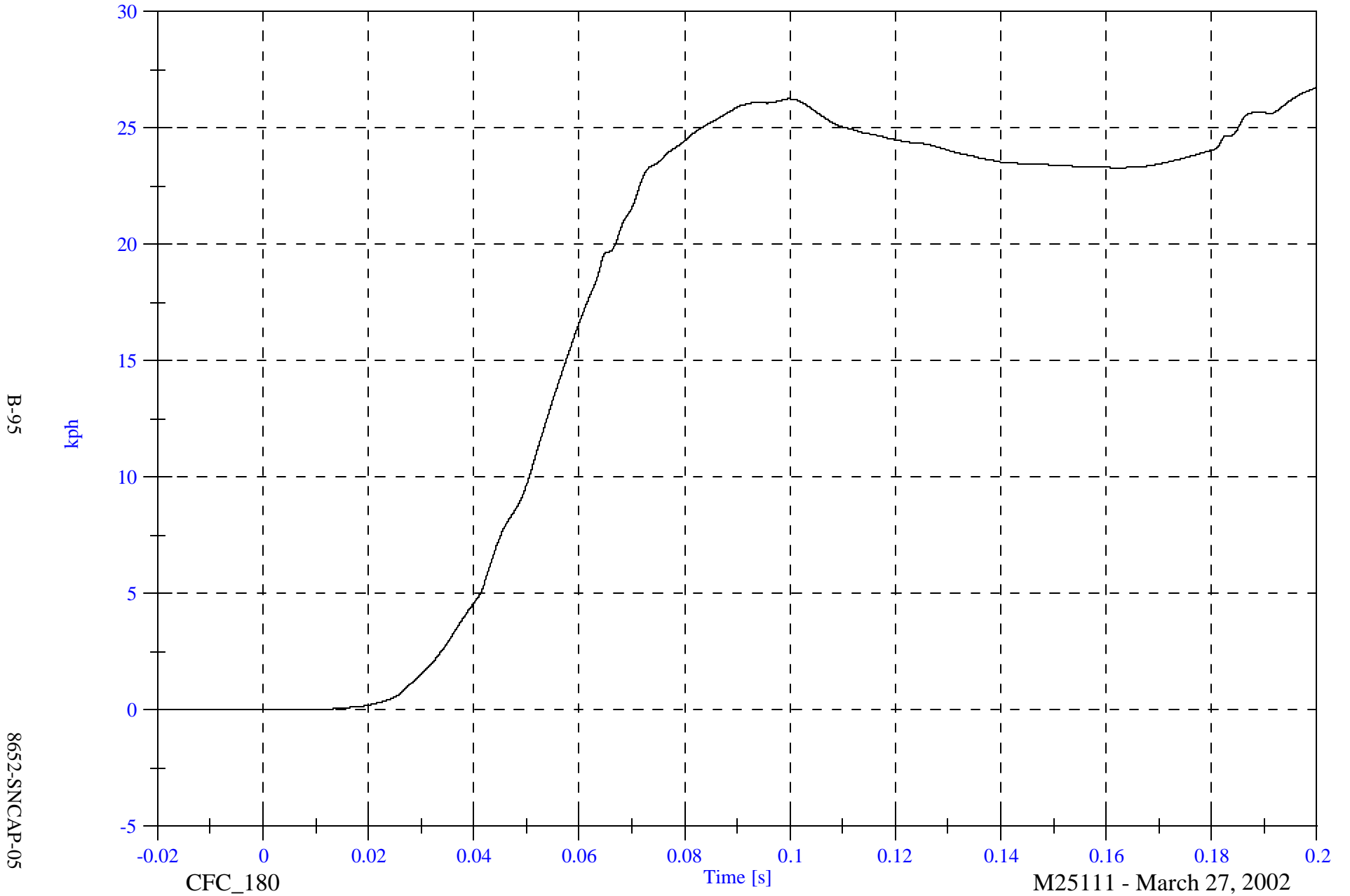
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Max: 26.8 [kph] at 0.200 [s]

P1 Lower Rib Ry Velocity

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



B-95

8652-SNCAP-05

CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

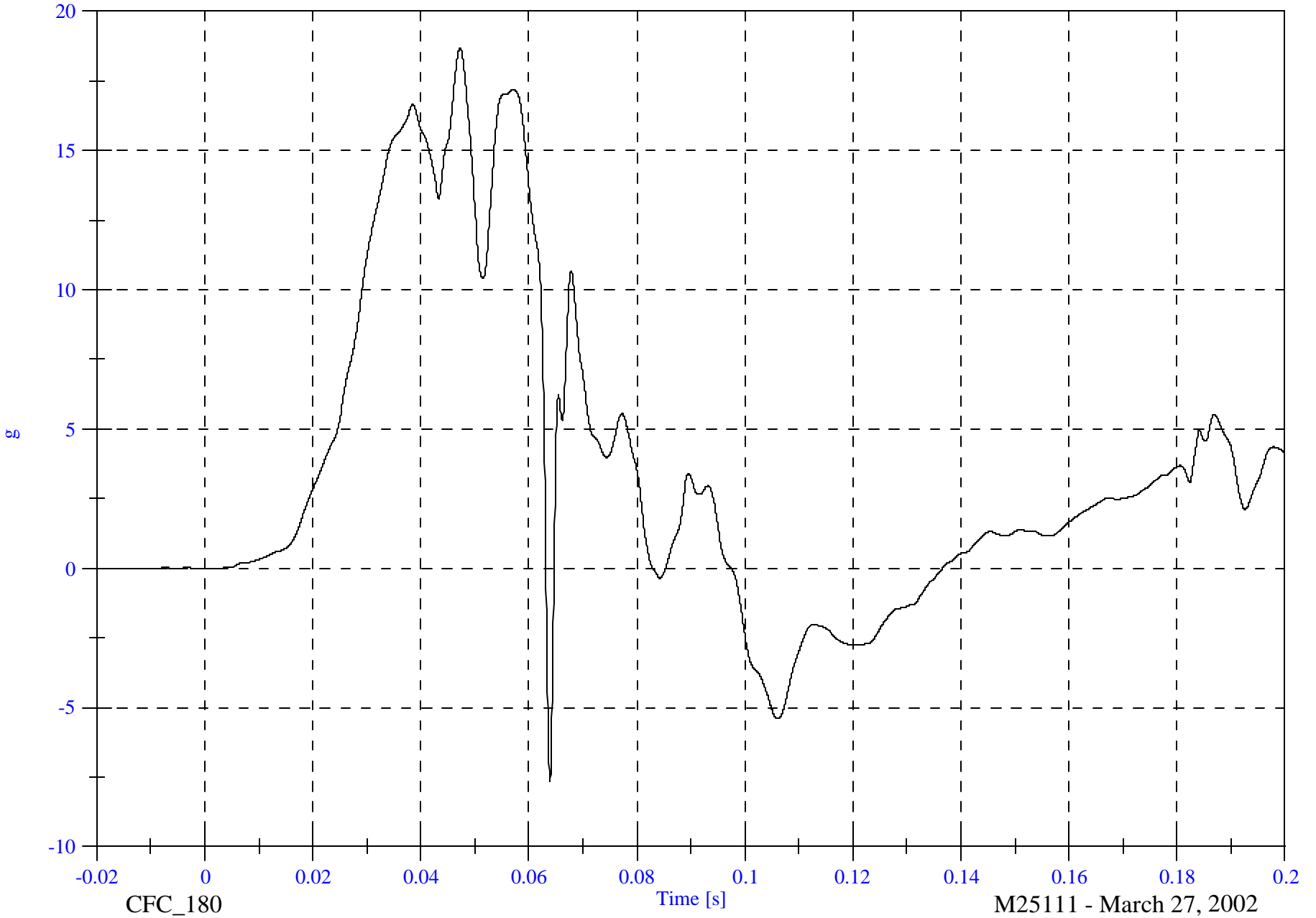
P1 Lower Spine Ry

Max: 18.7 [g] at 0.047 [s]

Min: -7.6 [g] at 0.064 [s]

B-96

8652-SNCAP-05



CFC_180

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

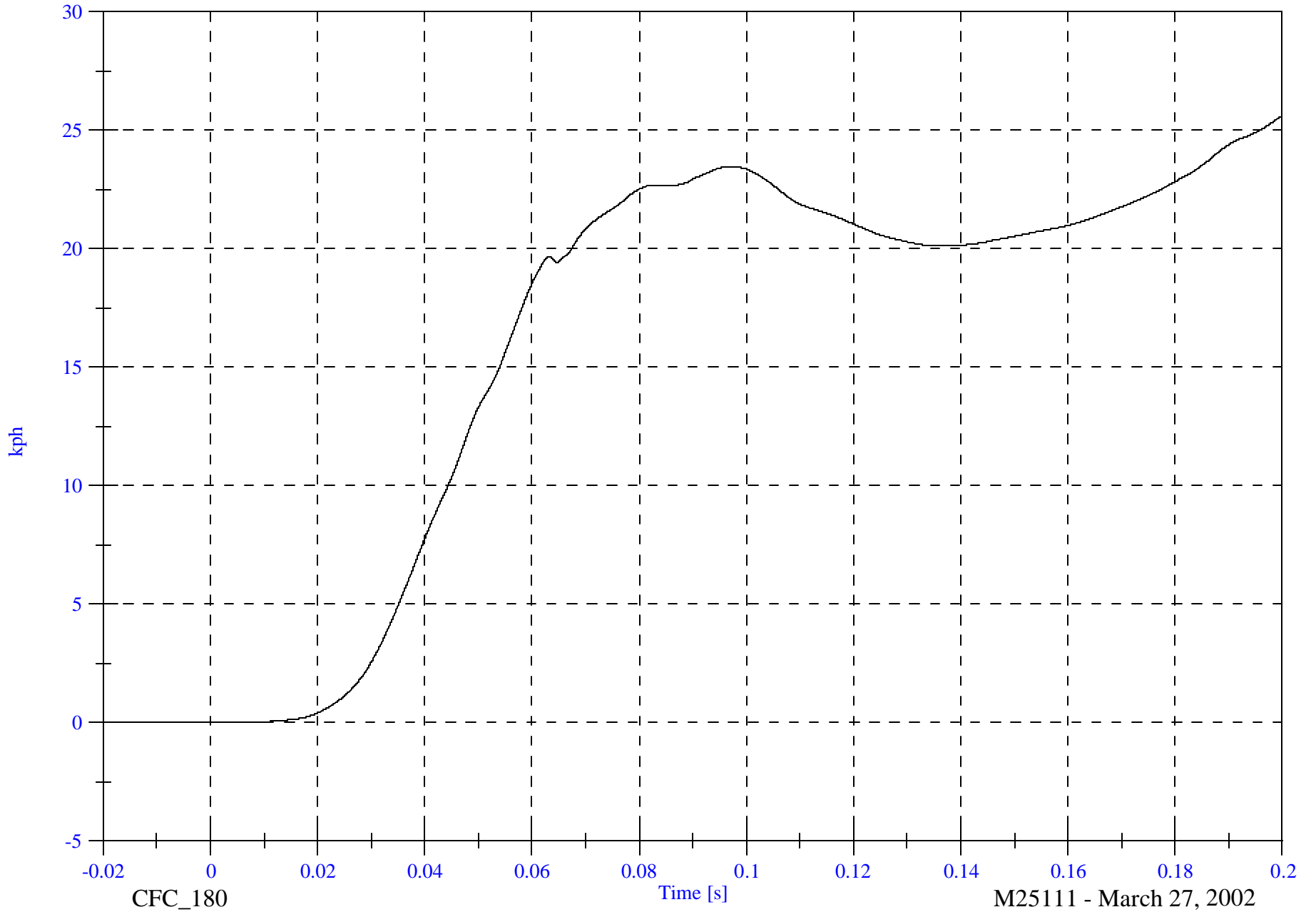
Max: 25.6 [kph] at 0.200 [s]

P1 Lower Spine Ry Velocity

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

B-97

8652-SNCAP-05



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

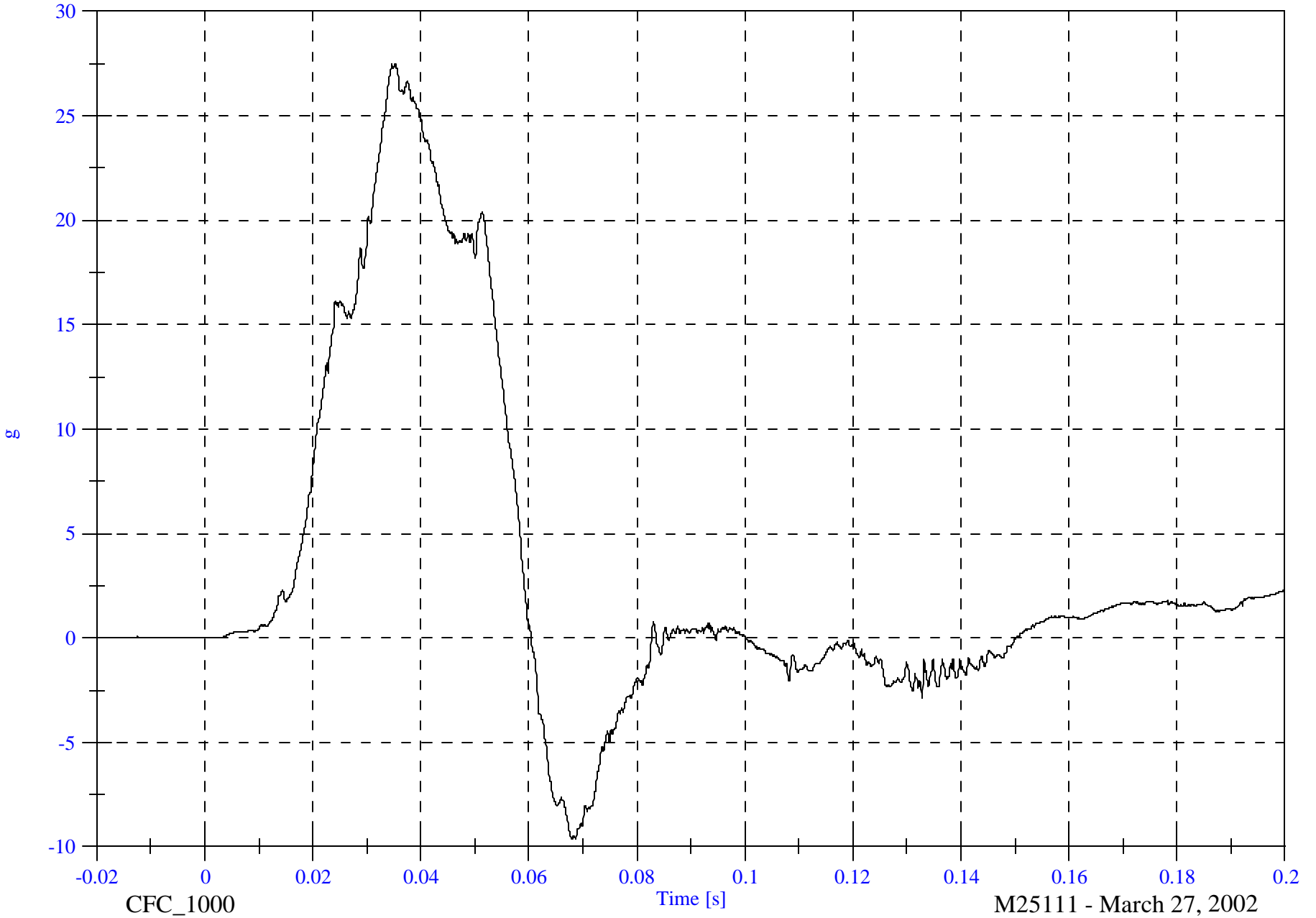
P1 Pelvic Ry

Max: 27.5 [g] at 0.035 [s]

Min: -9.6 [g] at 0.069 [s]

B-98

8652-SNCAP-05



CFC_1000

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

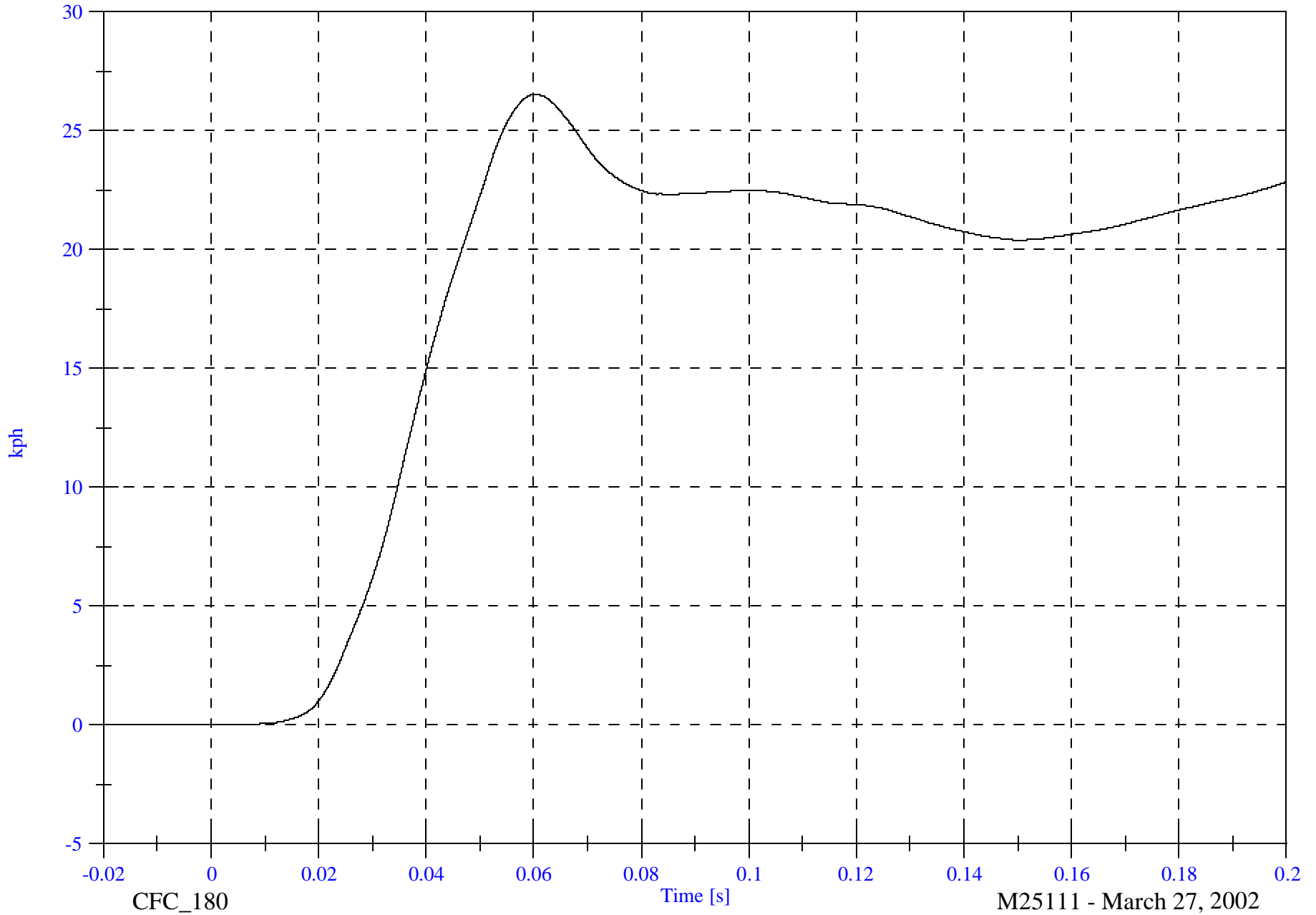
Max: 26.5 [kph] at 0.060 [s]

P1 Pelvic Ry Velocity

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

B-99

8652-SNCAP-05



CFC_180

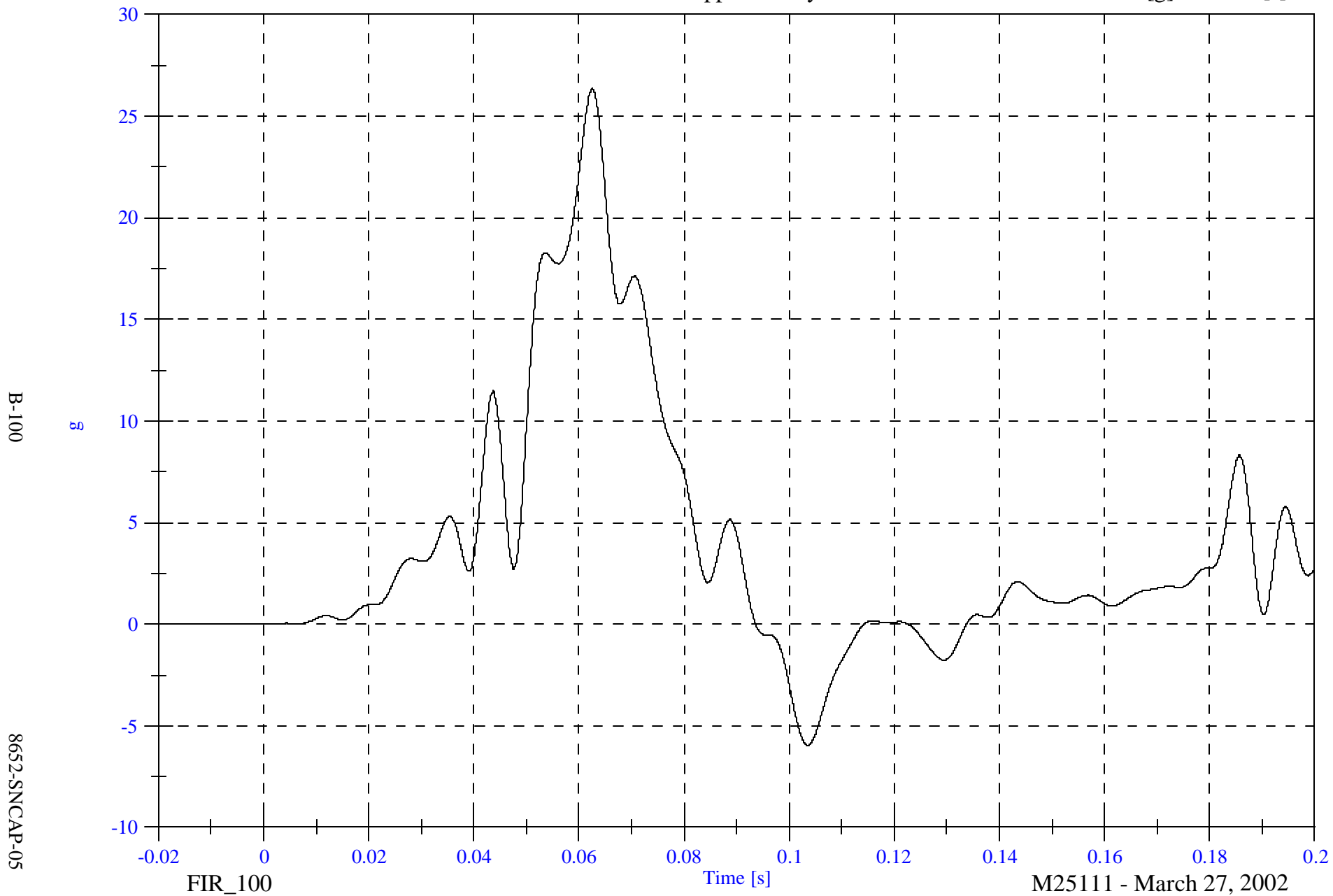
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P1 Upper Rib Ry

Max: 26.4 [g] at 0.063 [s]

Min: -6.0 [g] at 0.104 [s]



B-100

8652-SNCAP-05

FIR_100

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P1 Lower Rib Ry

Max: 21.8 [g] at 0.053 [s]

Min: -4.8 [g] at 0.105 [s]



B-101

8652-SNCAP-05

FIR_100

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

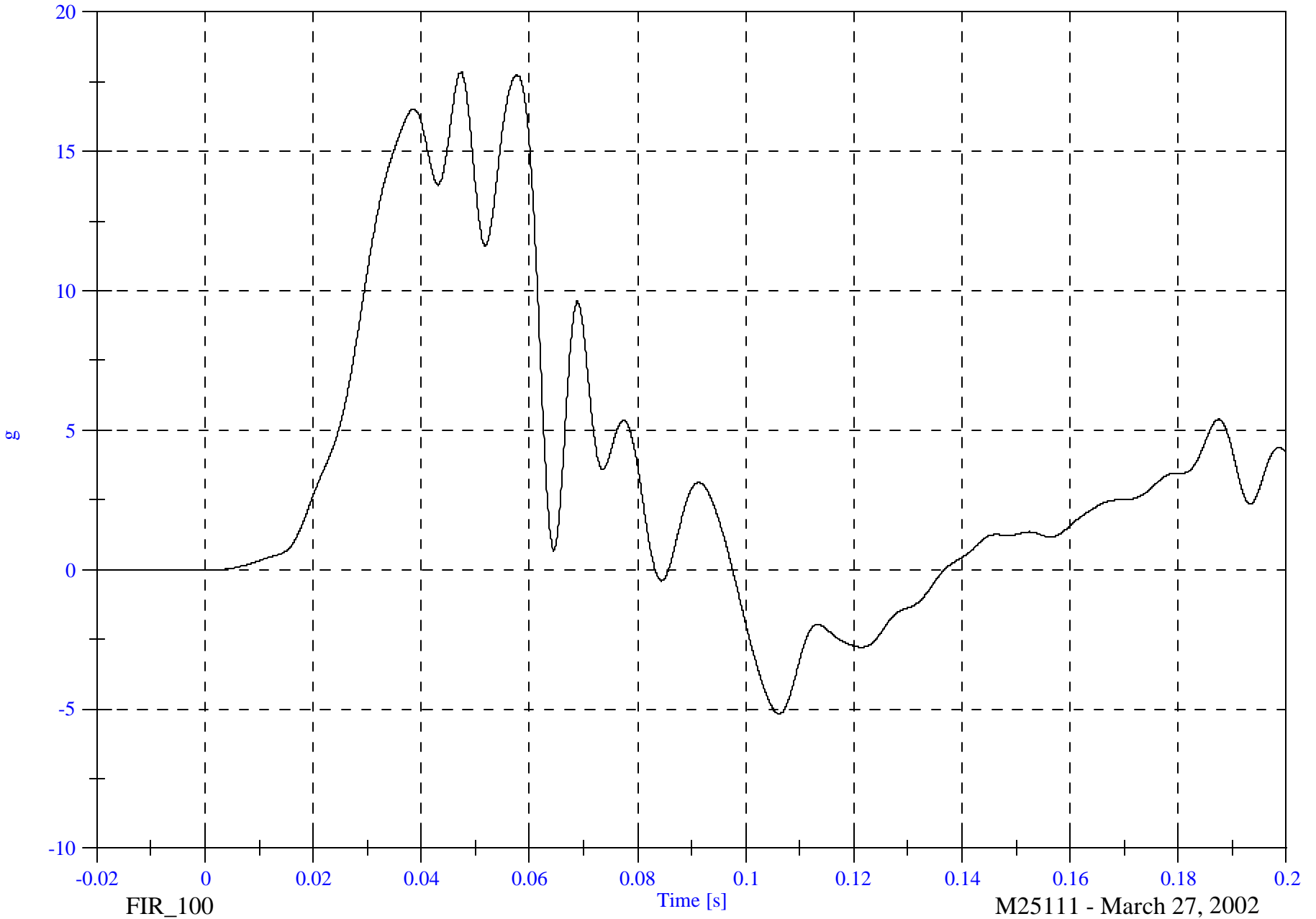
P1 Lower Spine Ry

Max: 17.8 [g] at 0.047 [s]

Min: -5.2 [g] at 0.106 [s]

B-102

8652-SNCAP-05



FIR_100

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

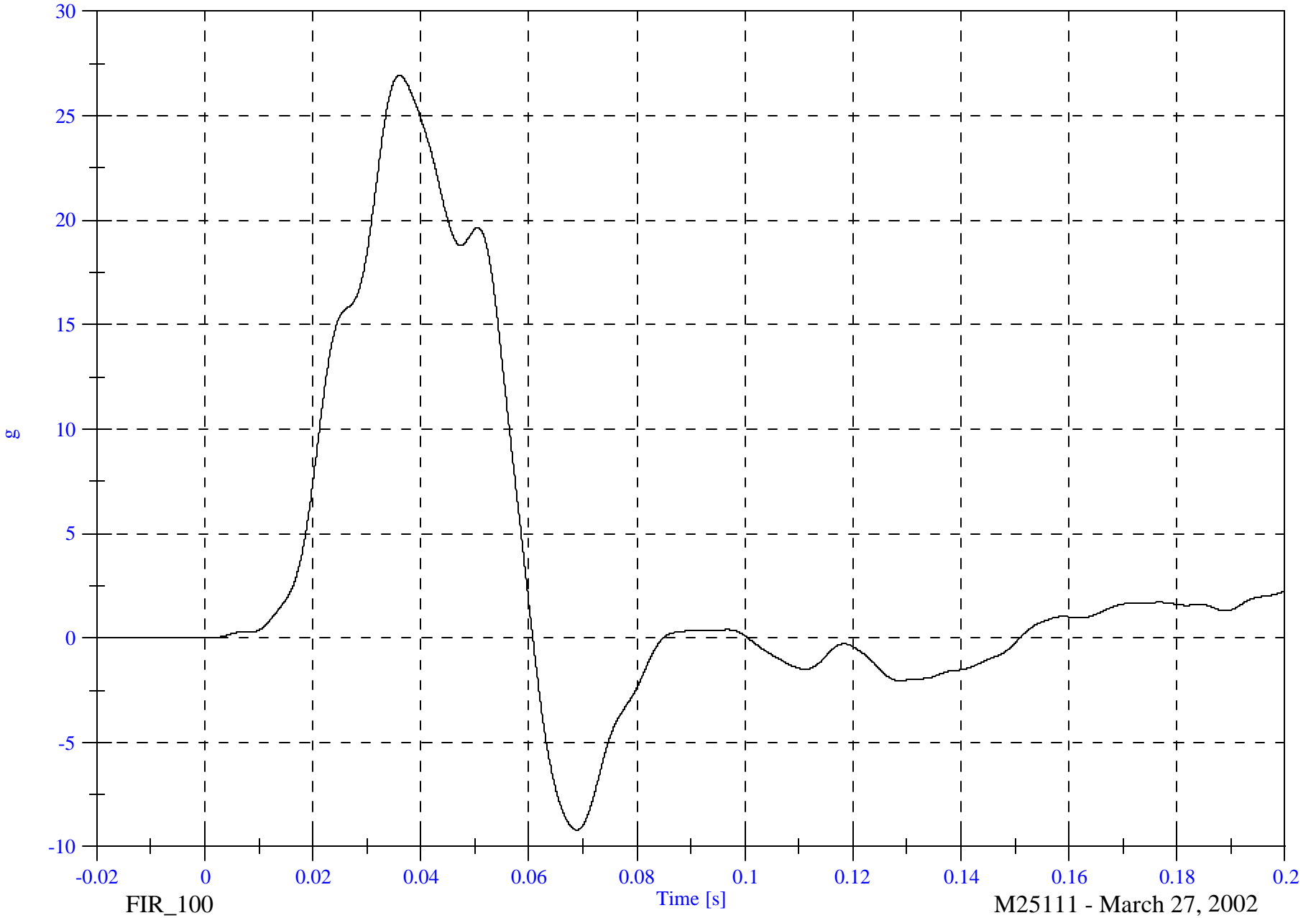
P1 Pelvic Ry

Max: 26.9 [g] at 0.036 [s]

Min: -9.2 [g] at 0.069 [s]

B-103

8652-SNCAP-05



FIR_100

Time [s]

M25111 - March 27, 2002

APPENDIX C

SID CONFIGURATION AND PERFORMANCE VERIFICATION DATA

**SUMMARY
SID PRE & POST TEST CALIBRATION**

CONFIGURED FOR LEFT SIDE IMPACT

Date: March 8, 2002; April 17, 2002

Sequential Test Number:

5, 1

Laboratory Technician:

B. Swiecicki

TEST PARAMETER	SPECIFICATION	SID NO.: 013	
		PRE TEST	POST TEST
SH- Seated Height (mm)	889 - 909	902	902
RH- Rib Height (mm)	501 - 521	511	511
HP- Hip Pivot Height (mm)	99 ref.	99	99
RD- Rib from Back Line (mm)	229 - 241	236	236
KV- Knee Pivot from Back Line (mm)	511 - 526	518	518
SW- Knee Pivot to Floor (mm)	490 - 505	493	493
HW- Hip Width (mm)	356 - 391	378	378
THORAX IMPACTS			
TEMPERATURE (? C)	18.9 - 25.5	21.1	23.3
RELATIVE HUMIDITY (%)	10 - 70	29	51
PROBE SPEED (m/s)	4.27 - 4.33	4.28	4.29
UPPER RIB (g's)	37 - 46	43.25	42.74
LOWER RIB (g's)	37 - 46	43.25	45.36
LOWER SPINE (g's)	15 - 22	18.33	19.38
PELVIS IMPACT			
TEMPERATURE (? C)	18.9 - 25.5	21.7	23.7
RELATIVE HUMIDITY (%)	10 - 70	31	62
PROBE SPEED (m/s)	4.27 - 4.33	4.3	4.29
PELVIS (g's)	40 - 60	47.56	40.62

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: 3/8/02 Laboratory Technician: B. Swiecicki

TEST	COMMENTS
EXTERNAL DIMENSIONS	Passed all requirements.
THORACIC SHOCK ABSORBER TEST	Passed all requirements.
LATERALTHORAX 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: 5
Date: 3/6/02 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: 1.5
 Date: 8/29/01 Laboratory Technician: B. Swiecicki

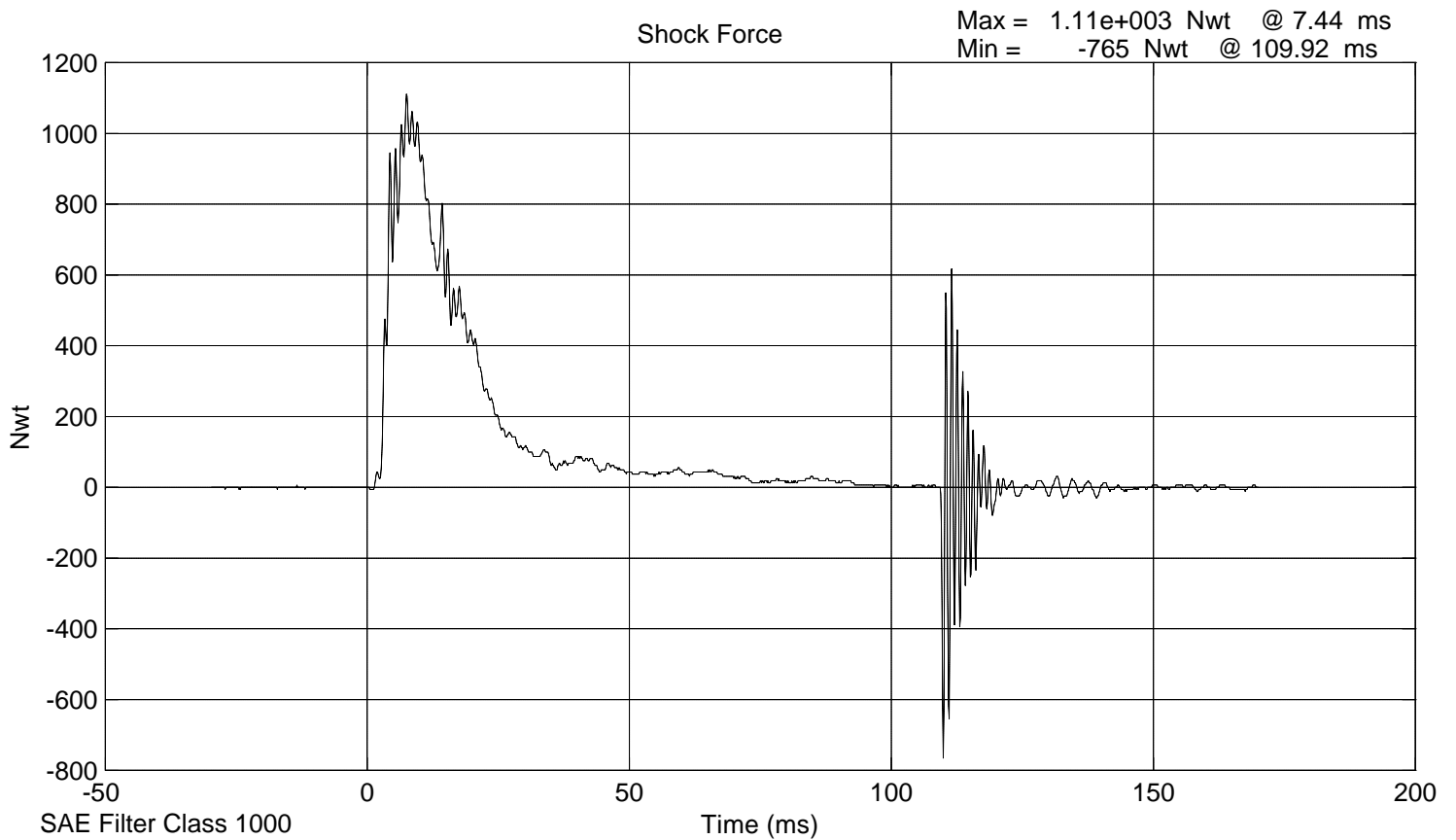
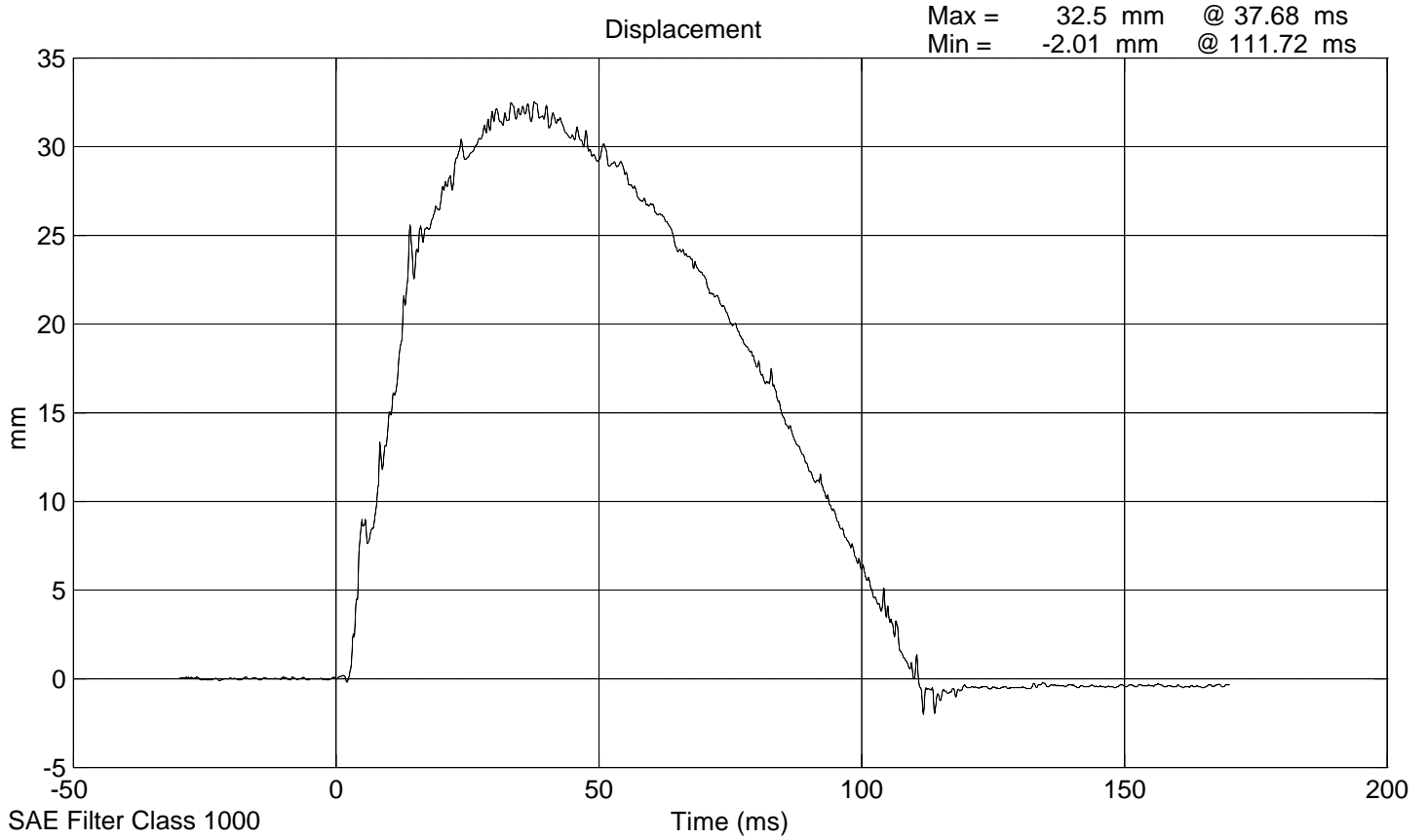
DAMPER IDENTIFICATION: 013

TEST PARAMETER		SPECIFICATION	TEST RESULTS
TEMPERATURE (? C)		18.9 - 25.5	20.1
RELATIVE HUMIDITY (%)		10 - 70	30
VELOCITY 3.05 m/s	FORCE (N)	836 - 1125	1111.4
	DISPLACEMENT (mm)	30 - 35	32.5
VELOCITY 4.27 m/s	FORCE (N)	1730 - 2099	2047.4
	DISPLACEMENT (mm)	32 - 37	35.0
VELOCITY 6.10 m/s	FORCE (N)	3741 - 4448	4100.5
	DISPLACEMENT (mm)	33 - 40	36.5

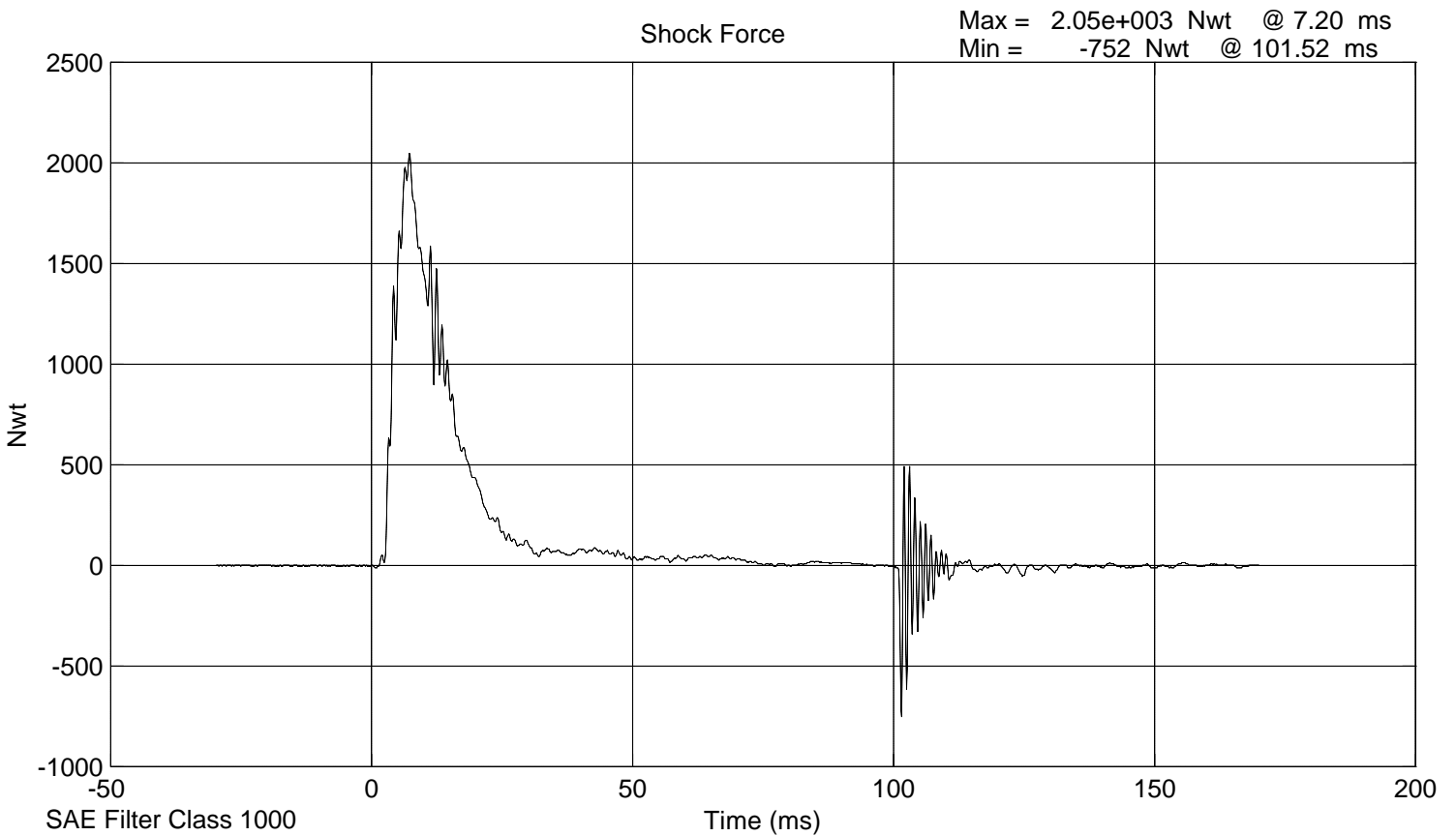
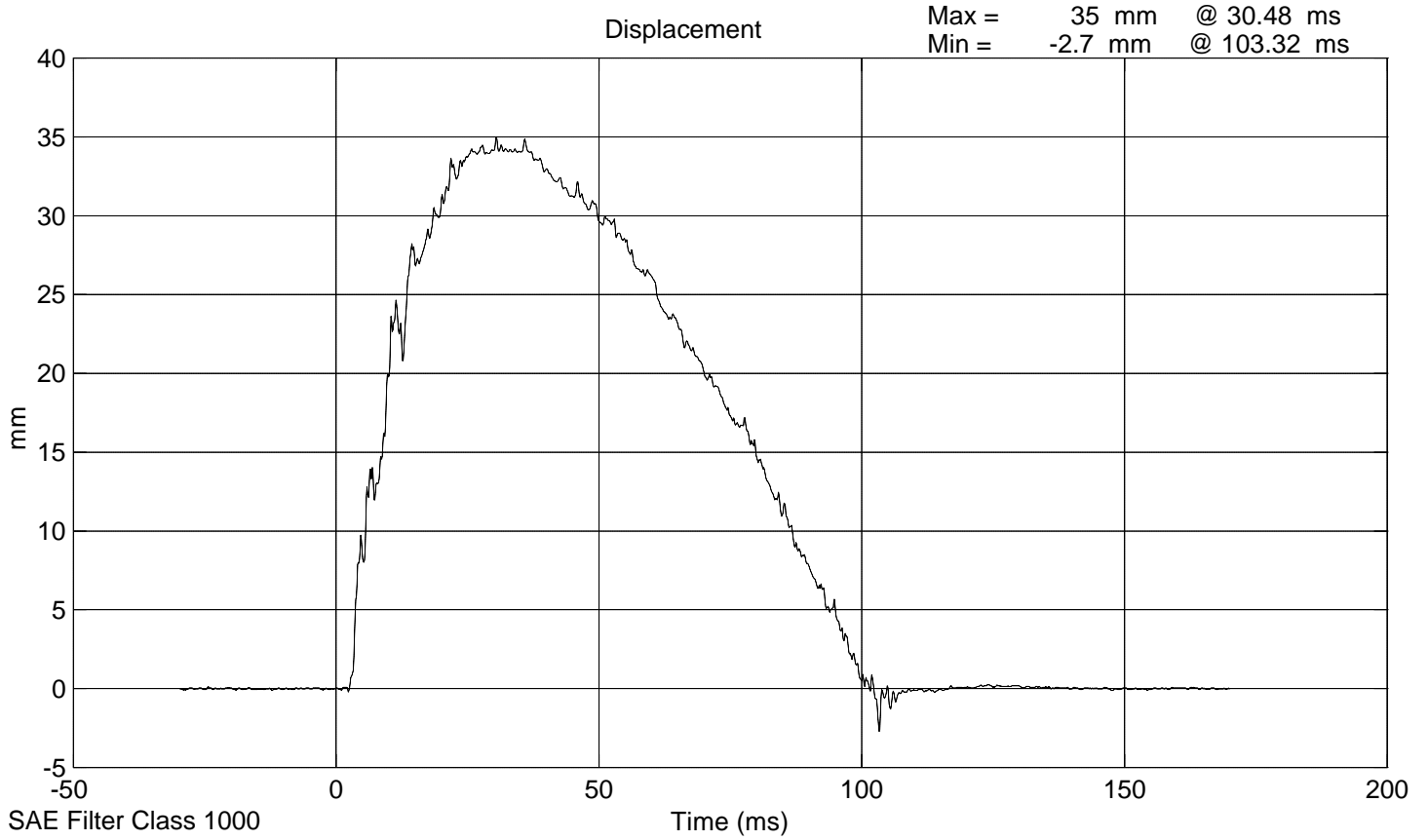
DAMPER SETTING: 5

REMARKS: None

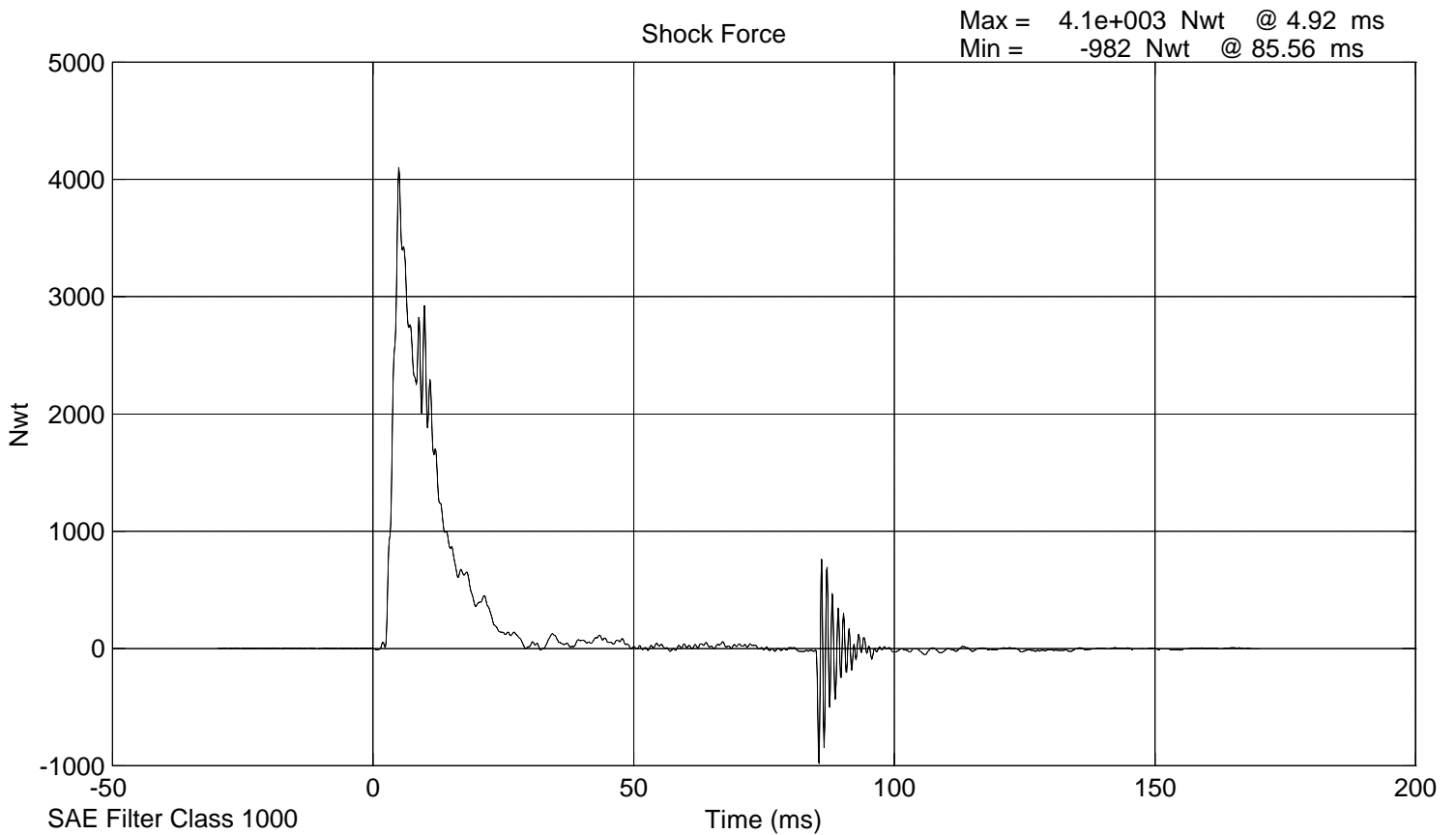
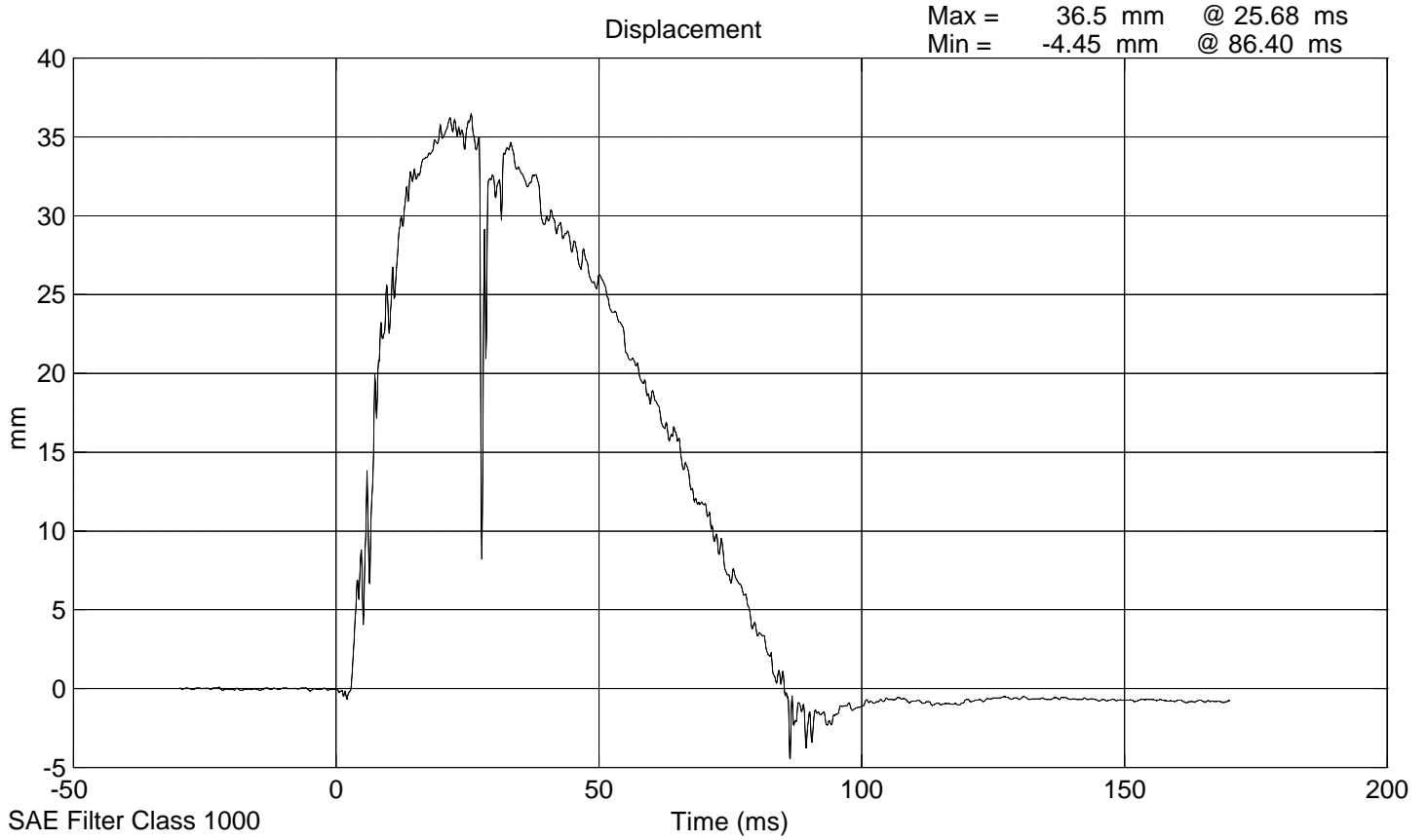
SID 013 Shock Absorber Impact Test @ 3.048 m/s



SID 013 Shock Absorber Impact Test @ 4.2672 m/s



SID 013 Shock Absorber Impact Test @ 6.096 m/s



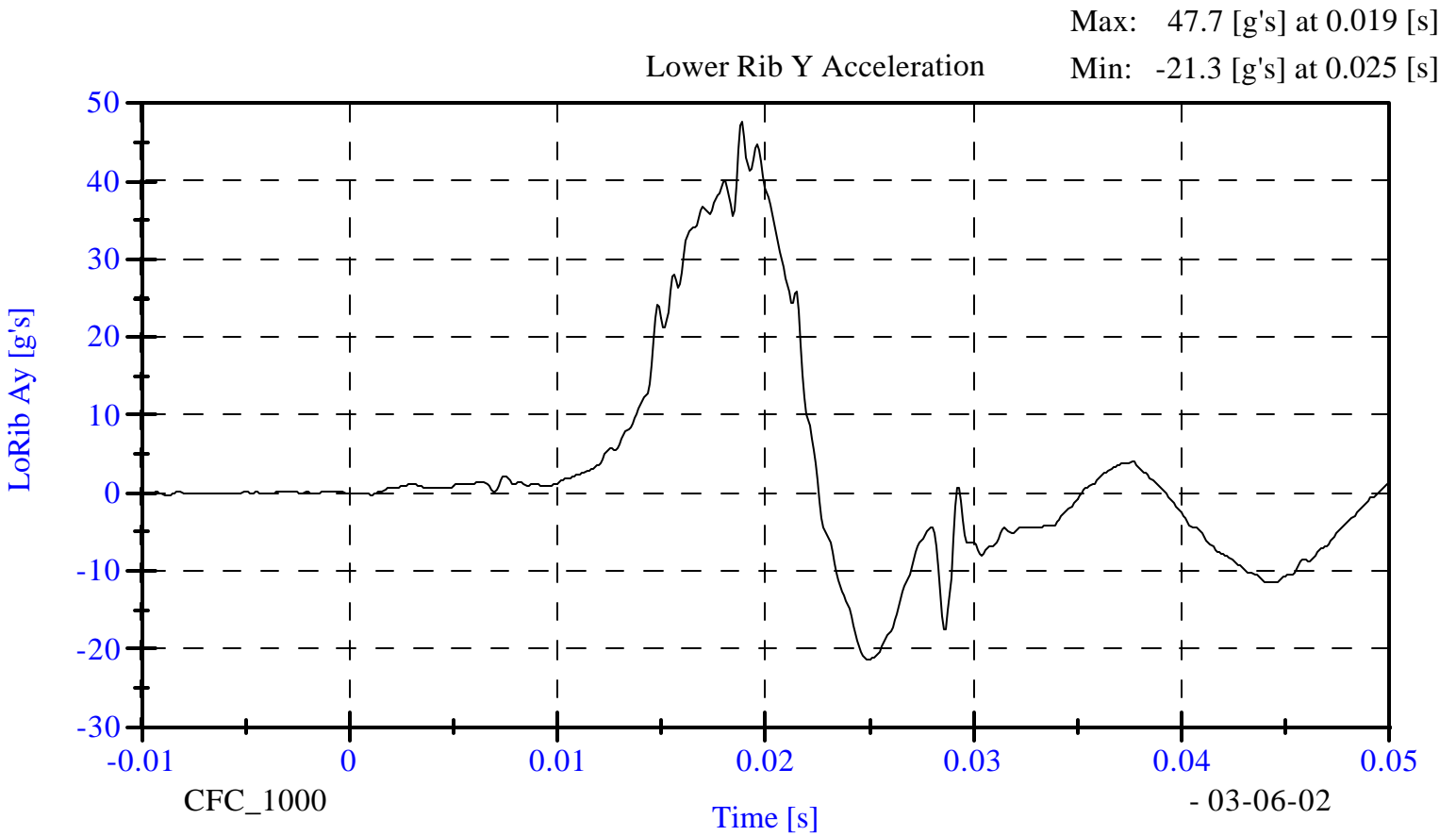
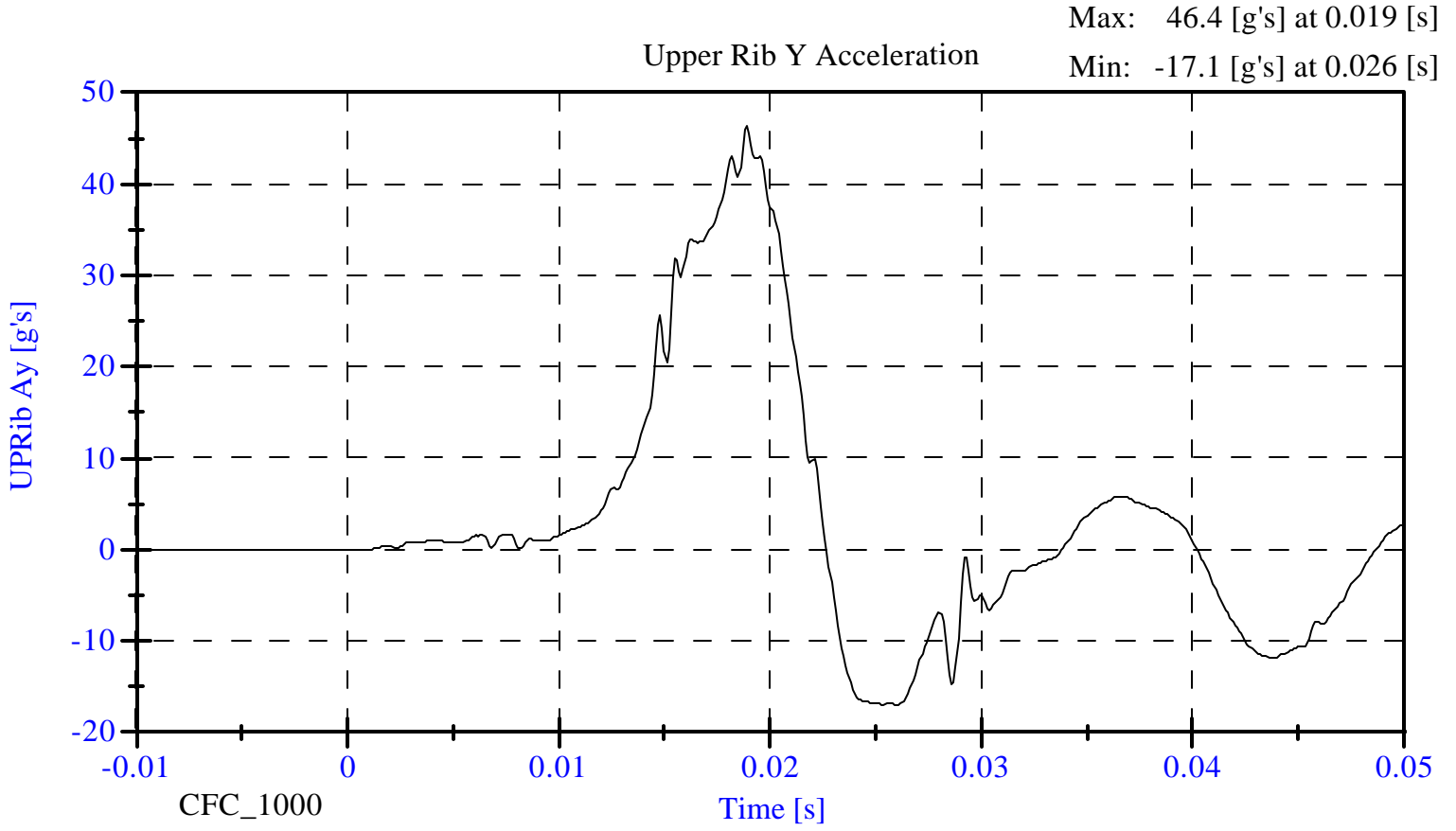
**LATERAL THORAX IMPACT TEST
PRE-TEST**

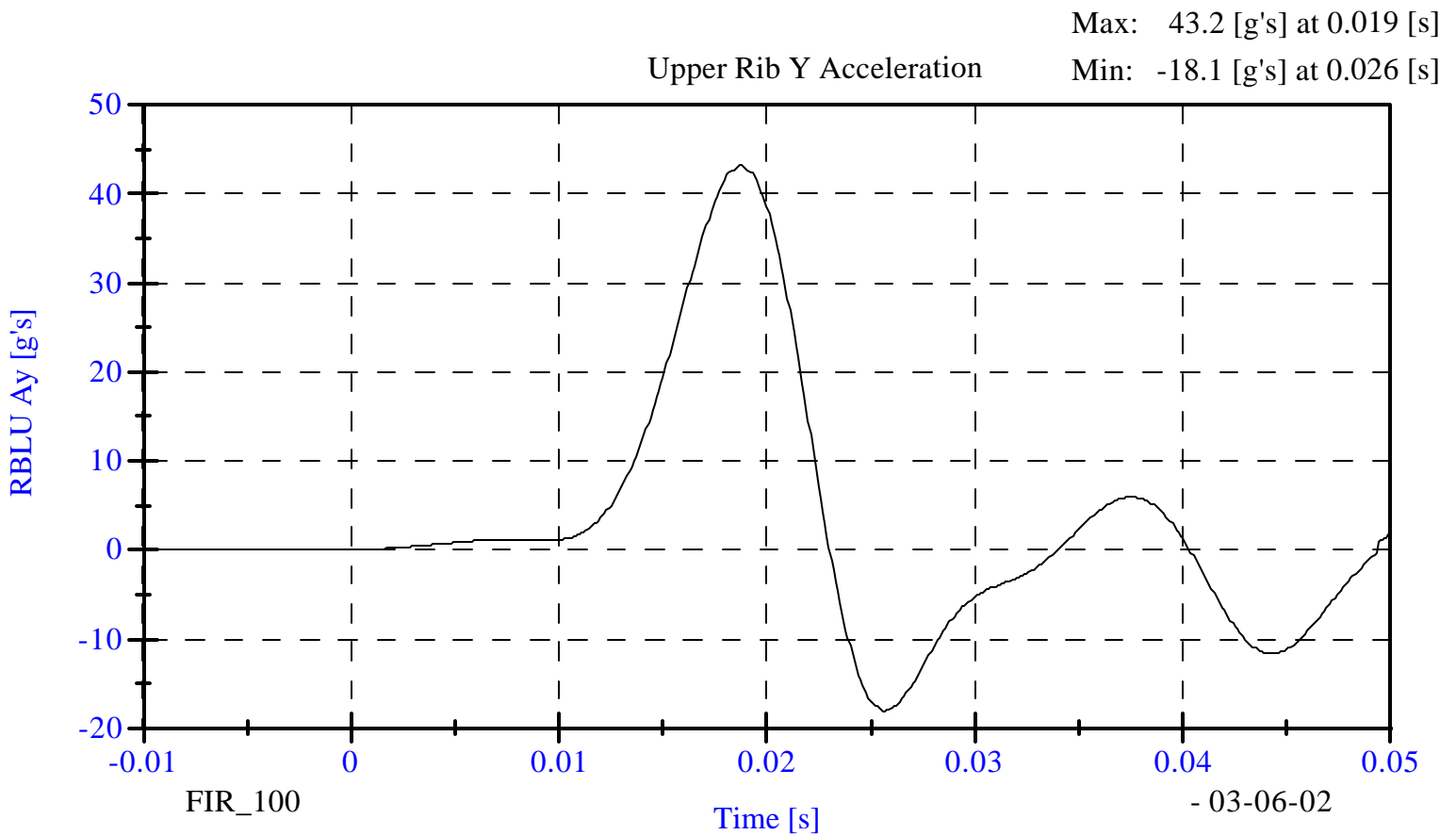
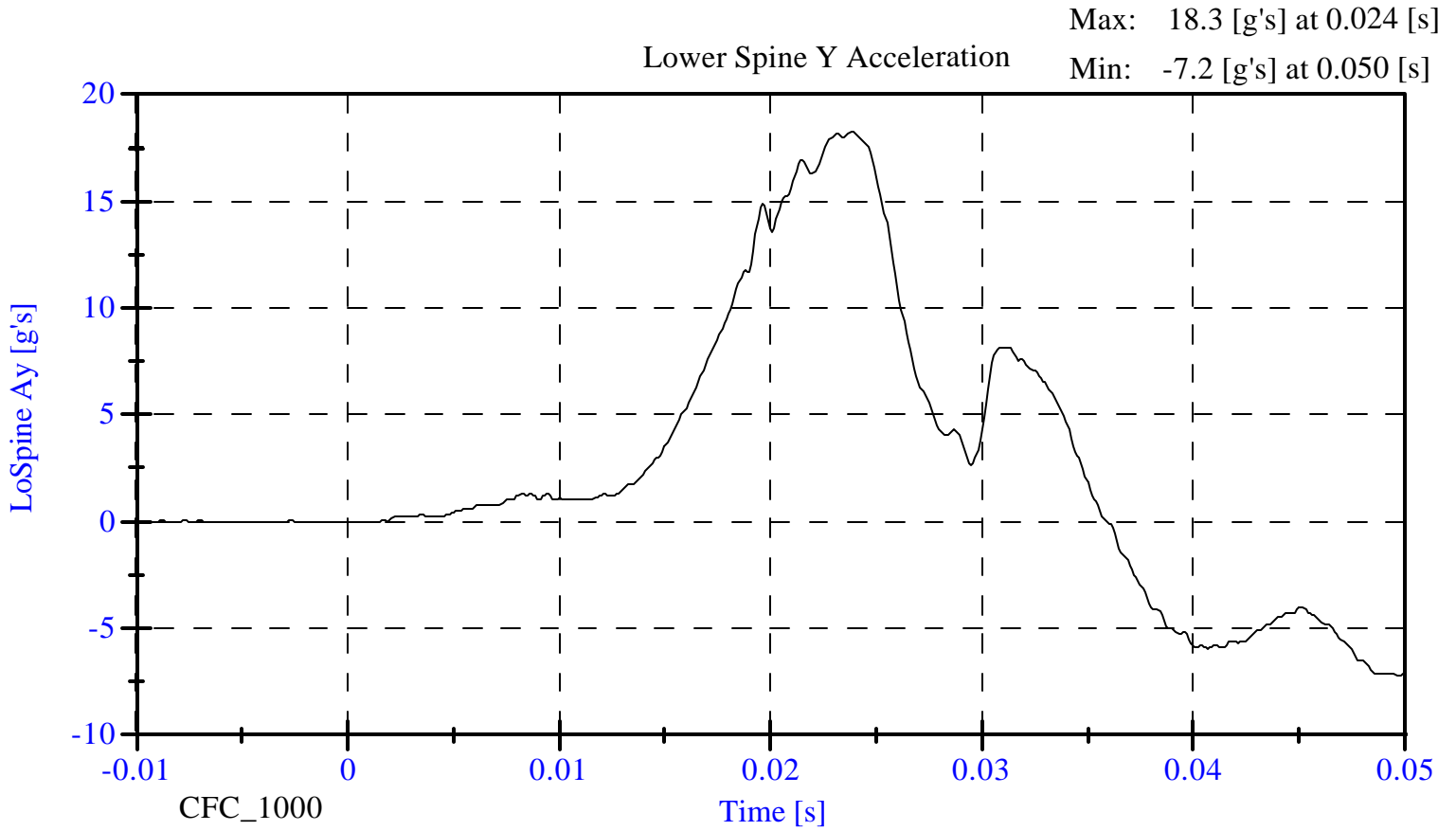
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 5
Date: 3/6/02 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (? C)	18.9 - 25.5	21.1
RELATIVE HUMIDITY (%)	10 - 70	29
PROBE SPEED (m/s)	4.27 - 4.33	4.28
UPPER RIB (g's)	37 - 46	43.25
LOWER RIB (g's)	37 - 46	43.25
LOWER SPINE (g's)	15 - 22	18.33

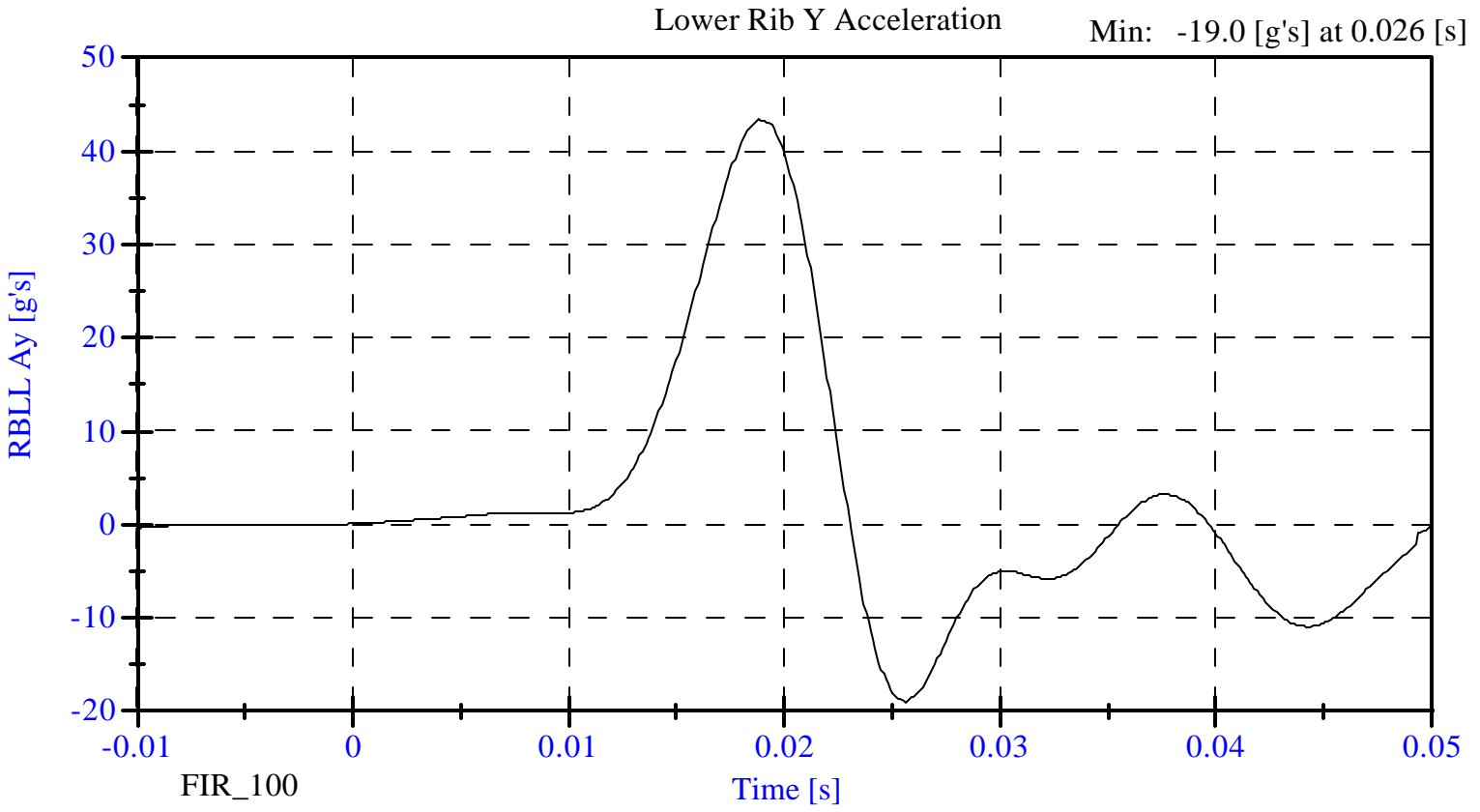
REMARKS: None





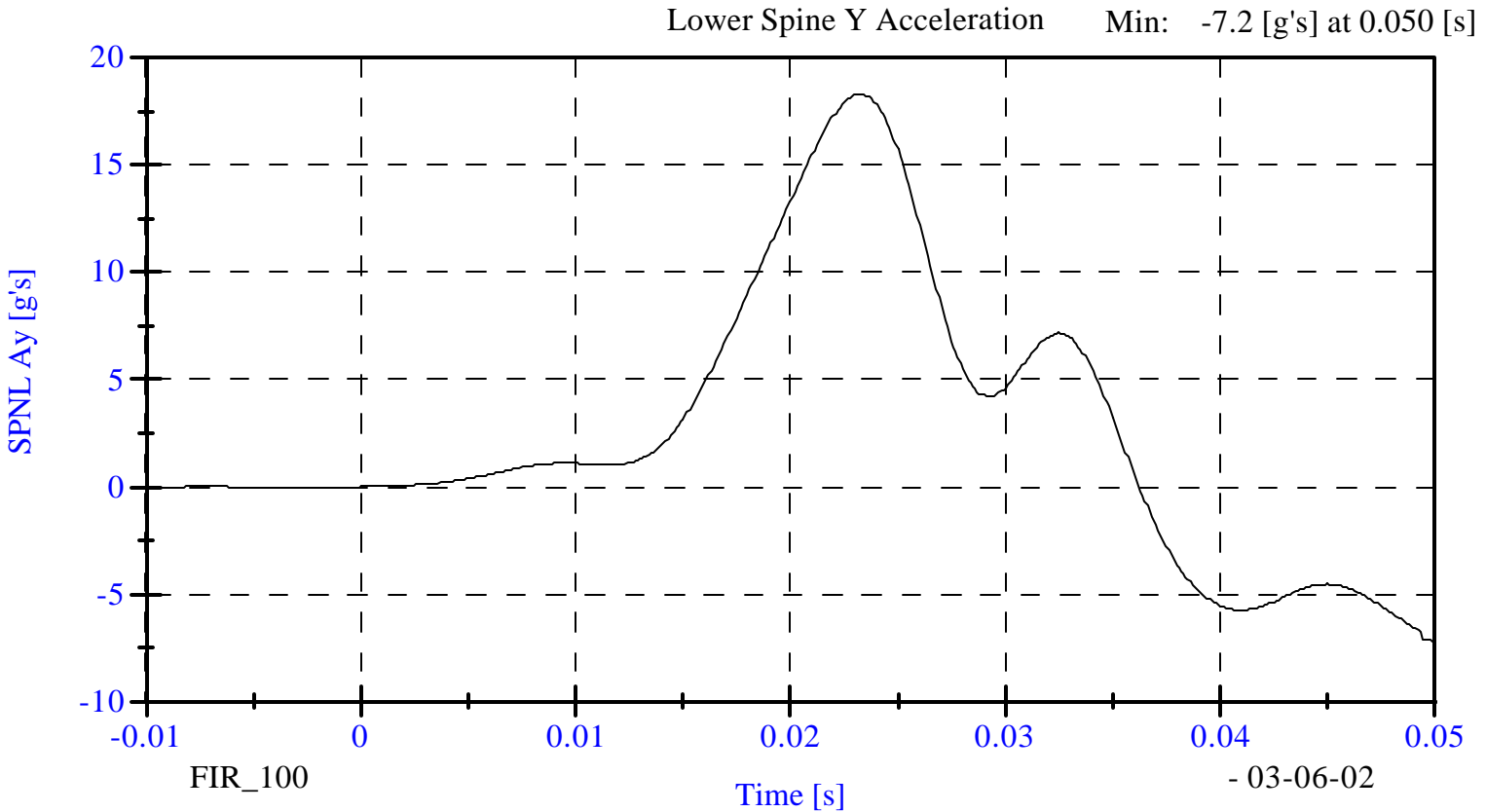
Max: 43.4 [g's] at 0.019 [s]

Min: -19.0 [g's] at 0.026 [s]



Max: 18.3 [g's] at 0.023 [s]

Min: -7.2 [g's] at 0.050 [s]



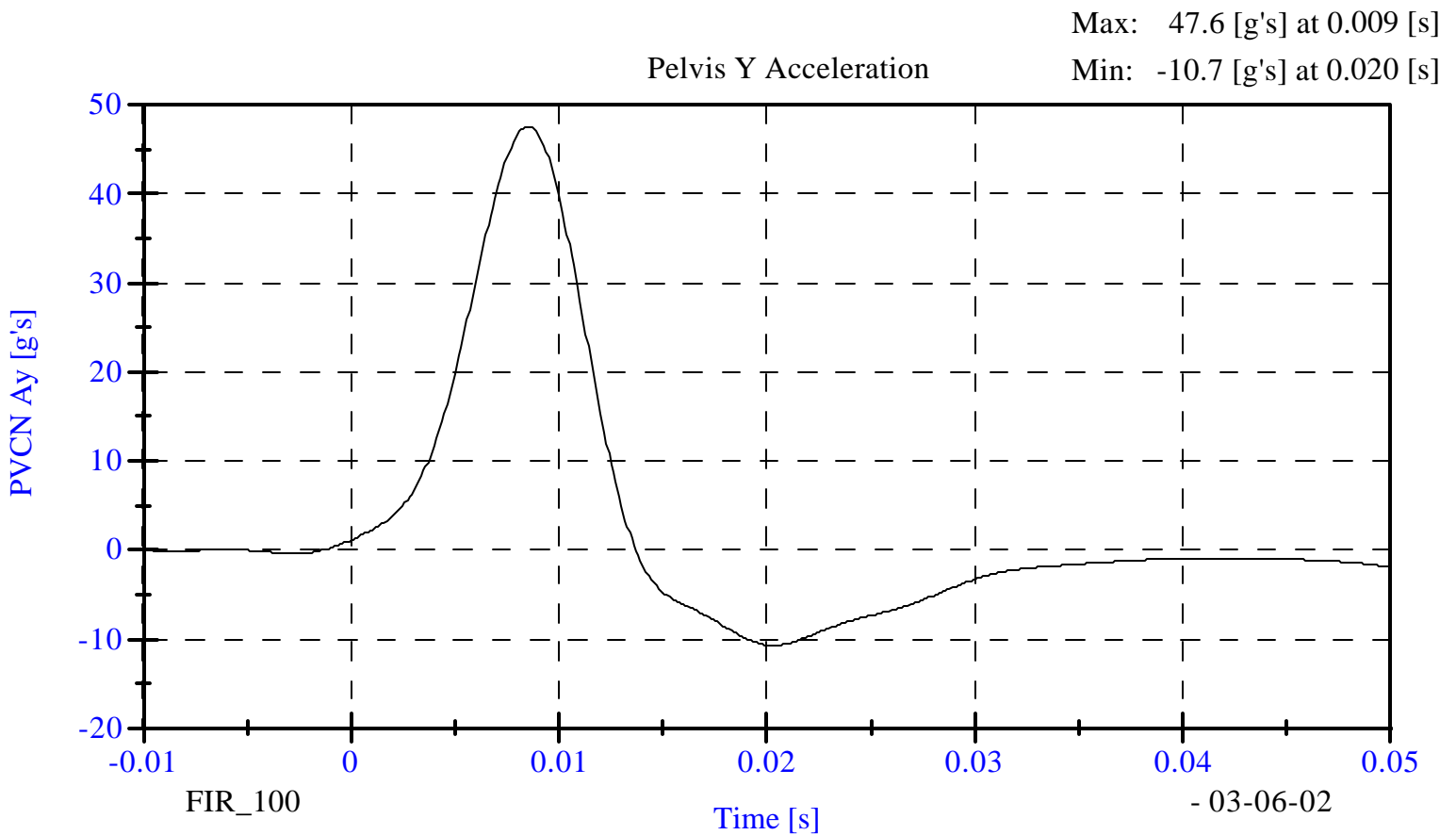
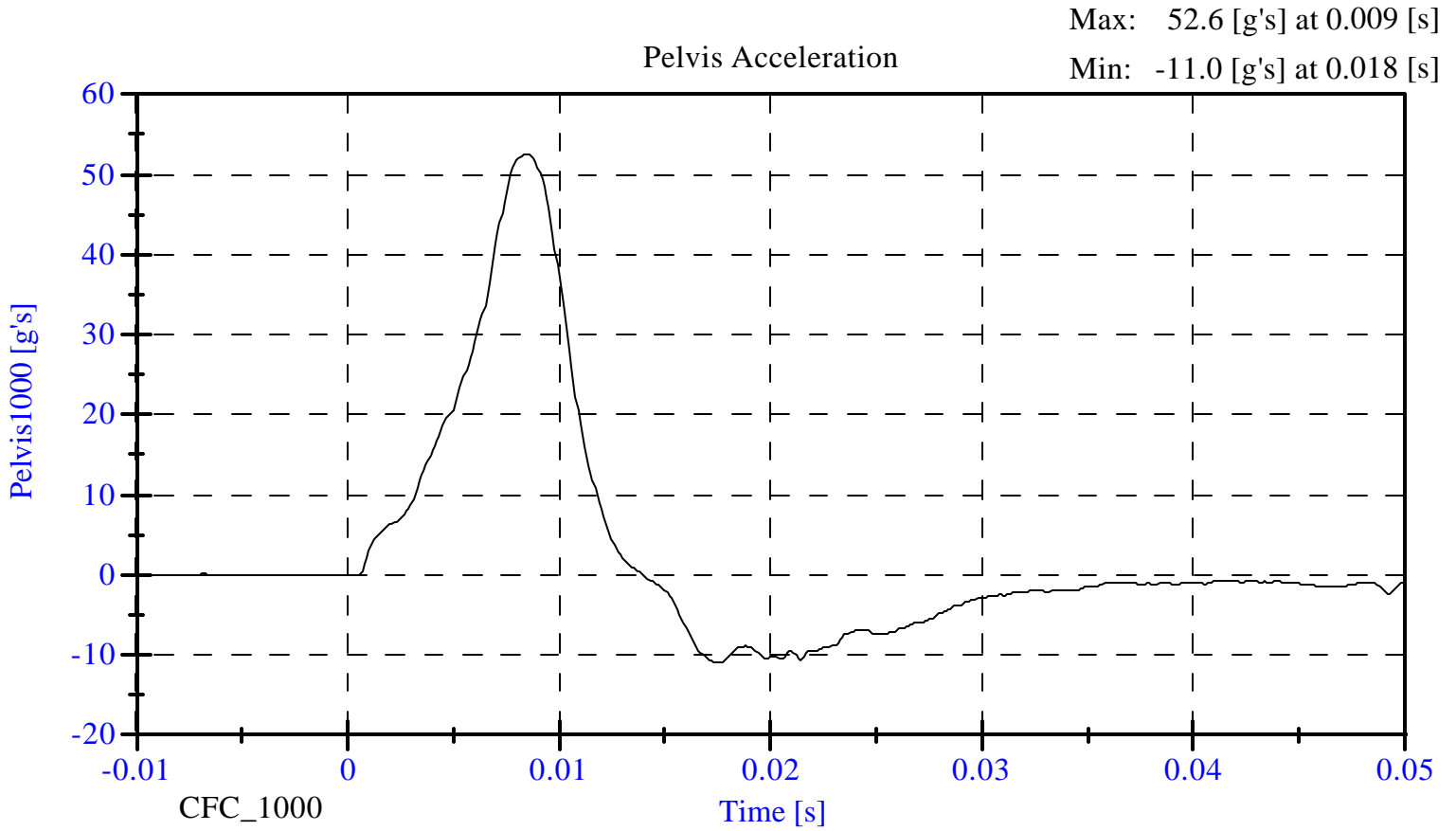
**LATERAL PELVIS IMPACT TEST
PRE-TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 5
Date: 3/6/02 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (? C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	31
PROBE SPEED (m/s)	4.27 - 4.33	4.30
PELVIS ACCELERATION (g's)	40 - 60	47.56

REMARKS: None



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

CONFIGURED FOR LEFT SIDE IMPACT

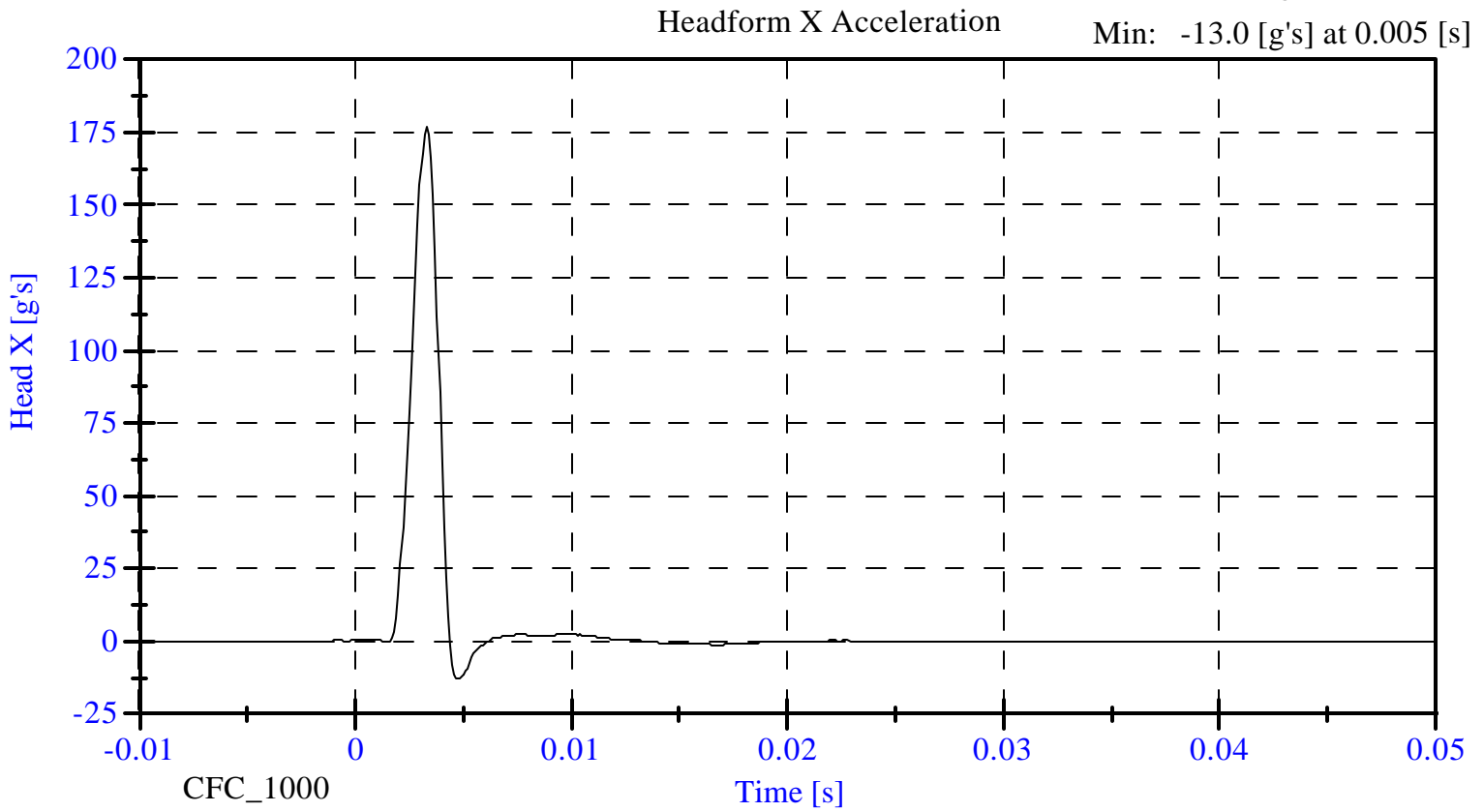
SID Serial No.: 013 Sequential Test Number: 5
Date: 2/27/02 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (? C)	18.9 - 25.5	20.6
RELATIVE HUMIDITY (%)	10 - 70	32
PEAK RESULTANT ACCELERATION (Gs)	210 - 260	216.98
PEAK LATERAL ACCELERATION (Gs)	Not to Exceed 10	9.83
UNIMODAL CRITERIA ABOVE 100 Gs (ms)	0.9 - 1.5	1.42

REMARKS: None

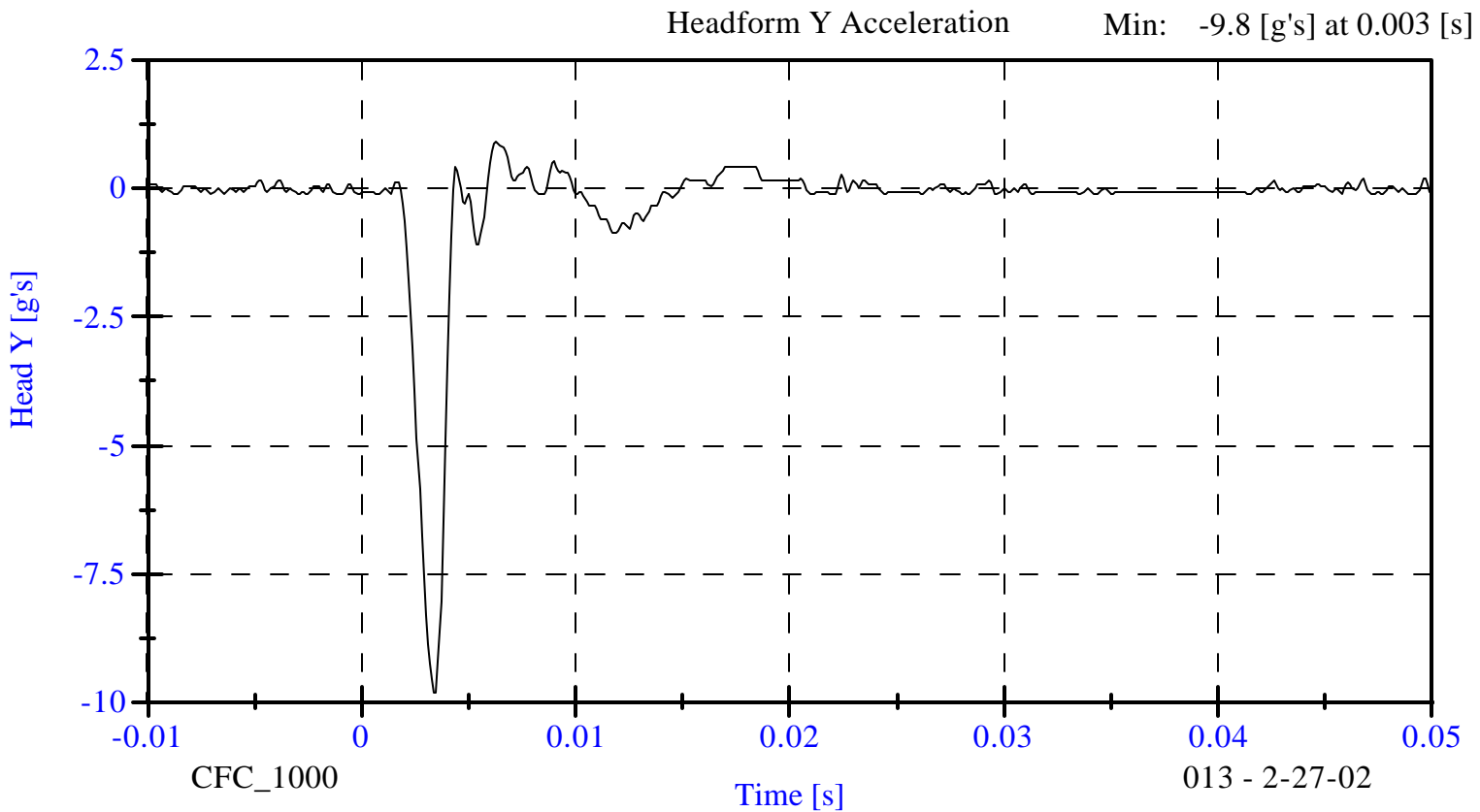
Max: 176.7 [g's] at 0.003 [s]

Min: -13.0 [g's] at 0.005 [s]

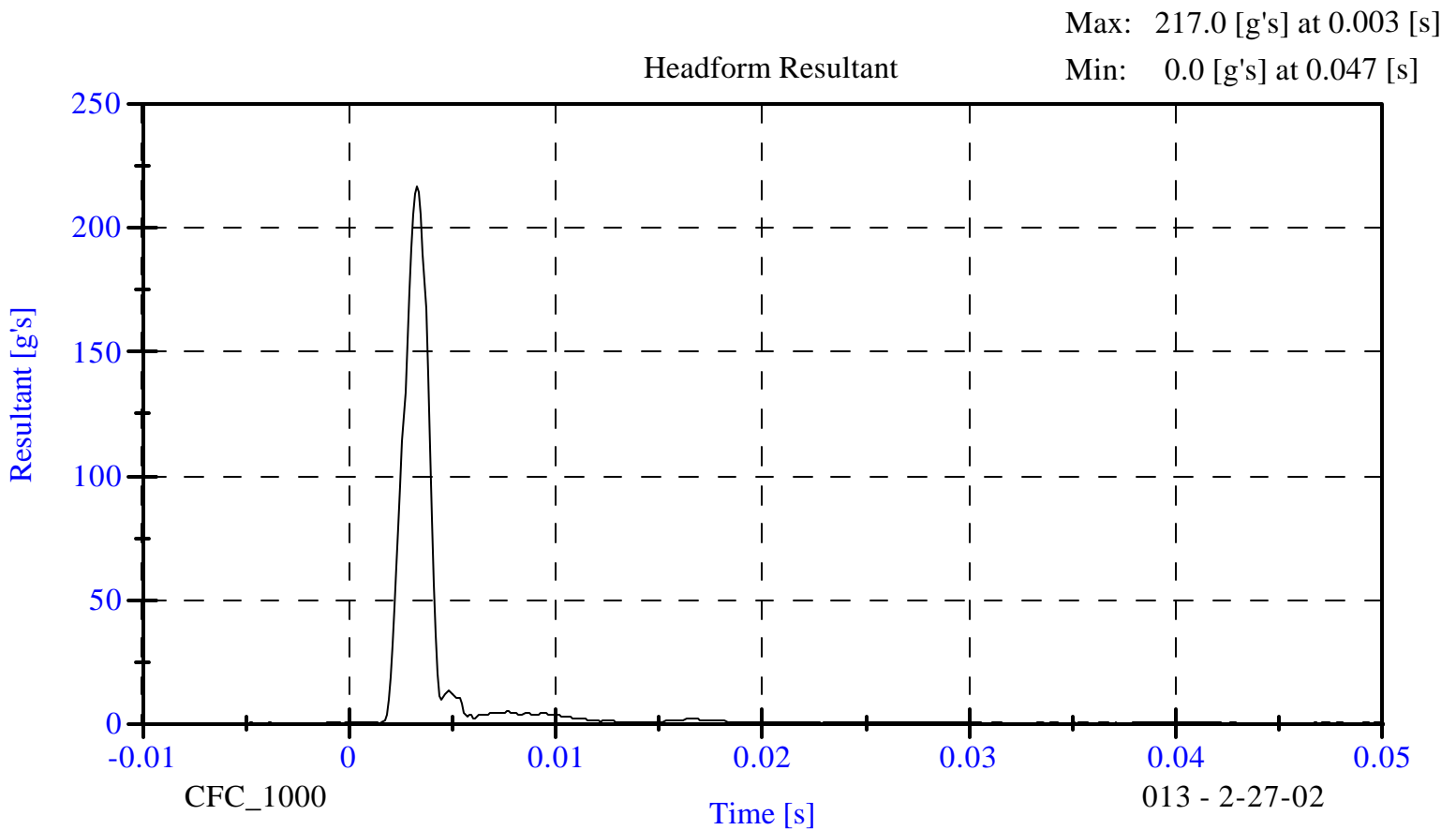
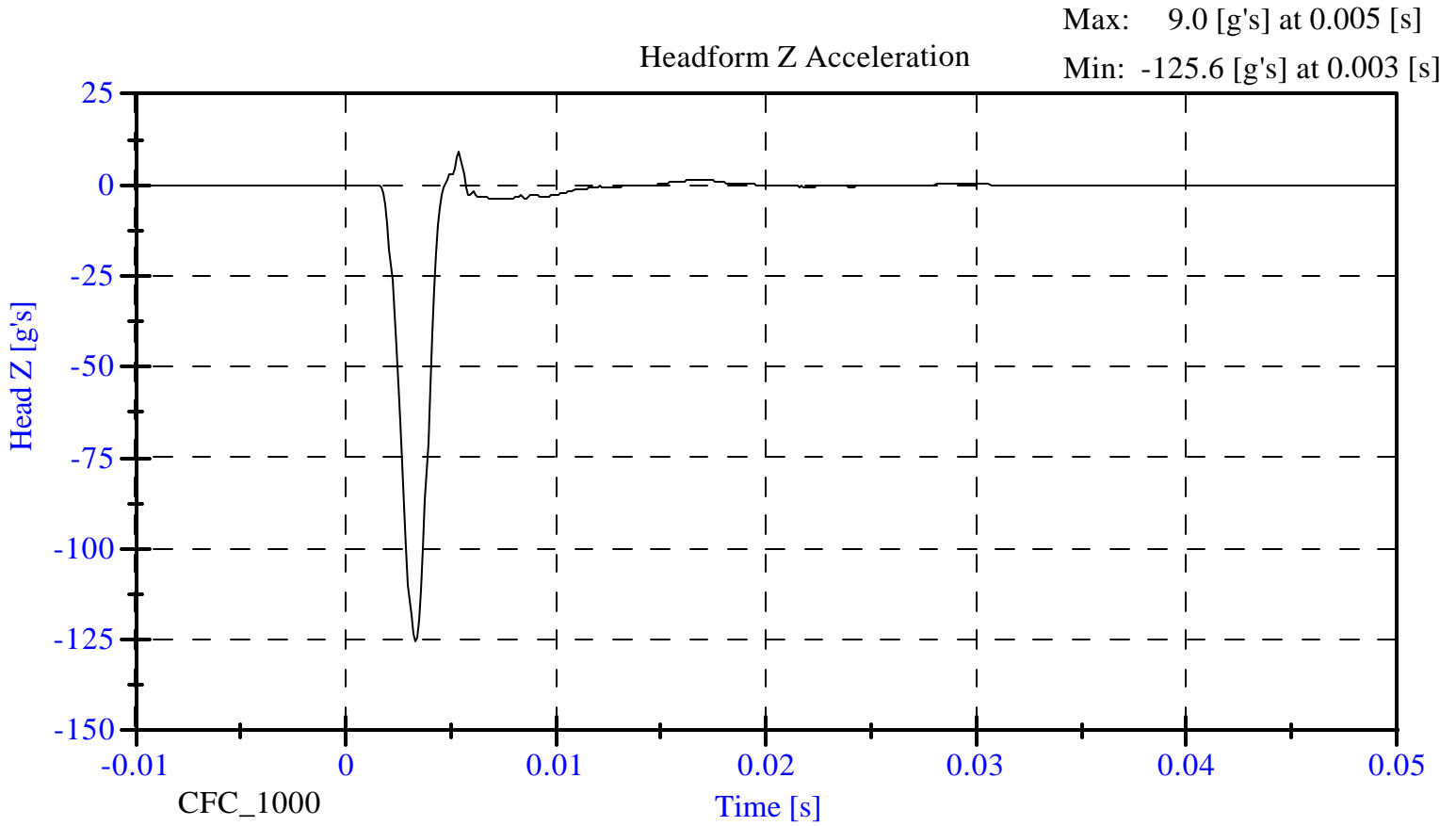


Max: 0.9 [g's] at 0.006 [s]

Min: -9.8 [g's] at 0.003 [s]



013 - 2-27-02



**ABDOMINAL COMPRESSION TEST
PRE-TEST**

(Test not required for SID certification)

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 5
Date: 3/7/02 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (? C)	18.9 - 25.5	21.7
RELATIVE HUMIDITY (%)	10 - 70	31
FORCE @ 13 mm (N)	104 - 162	111.2
FORCE @ 19 mm (N)	163 - 221	182.4
FORCE @ 25 mm (N)	222 - 280	252.7
FORCE @ 33 mm (N)	325 - 391	353.6

REMARKS: None

Dummy S/N 013

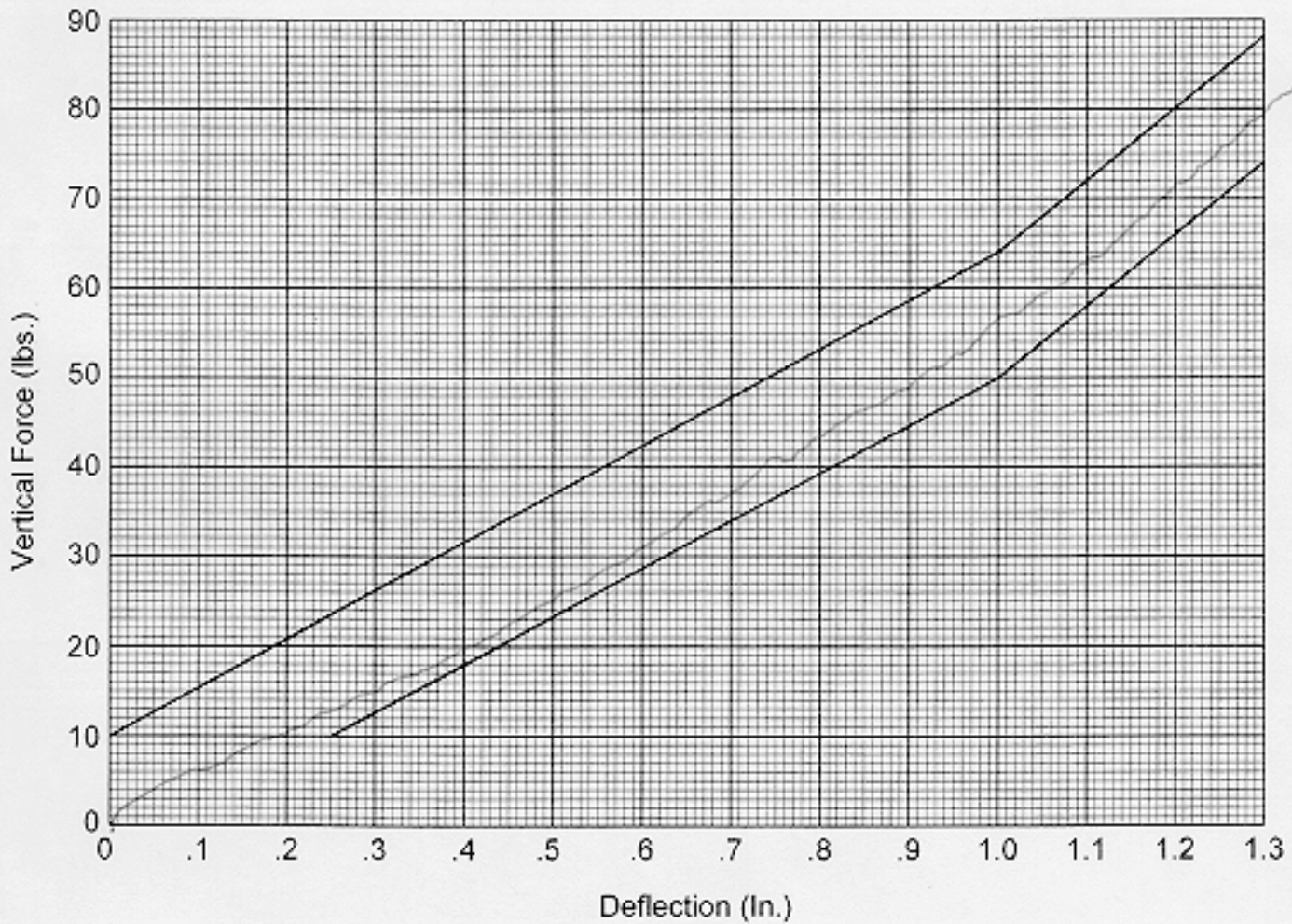
W/A _____

Date 3-7-02

Performed By [Signature]

Temp. 71

Humidity 31%



Hybrid II
Abdomen Static Press

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

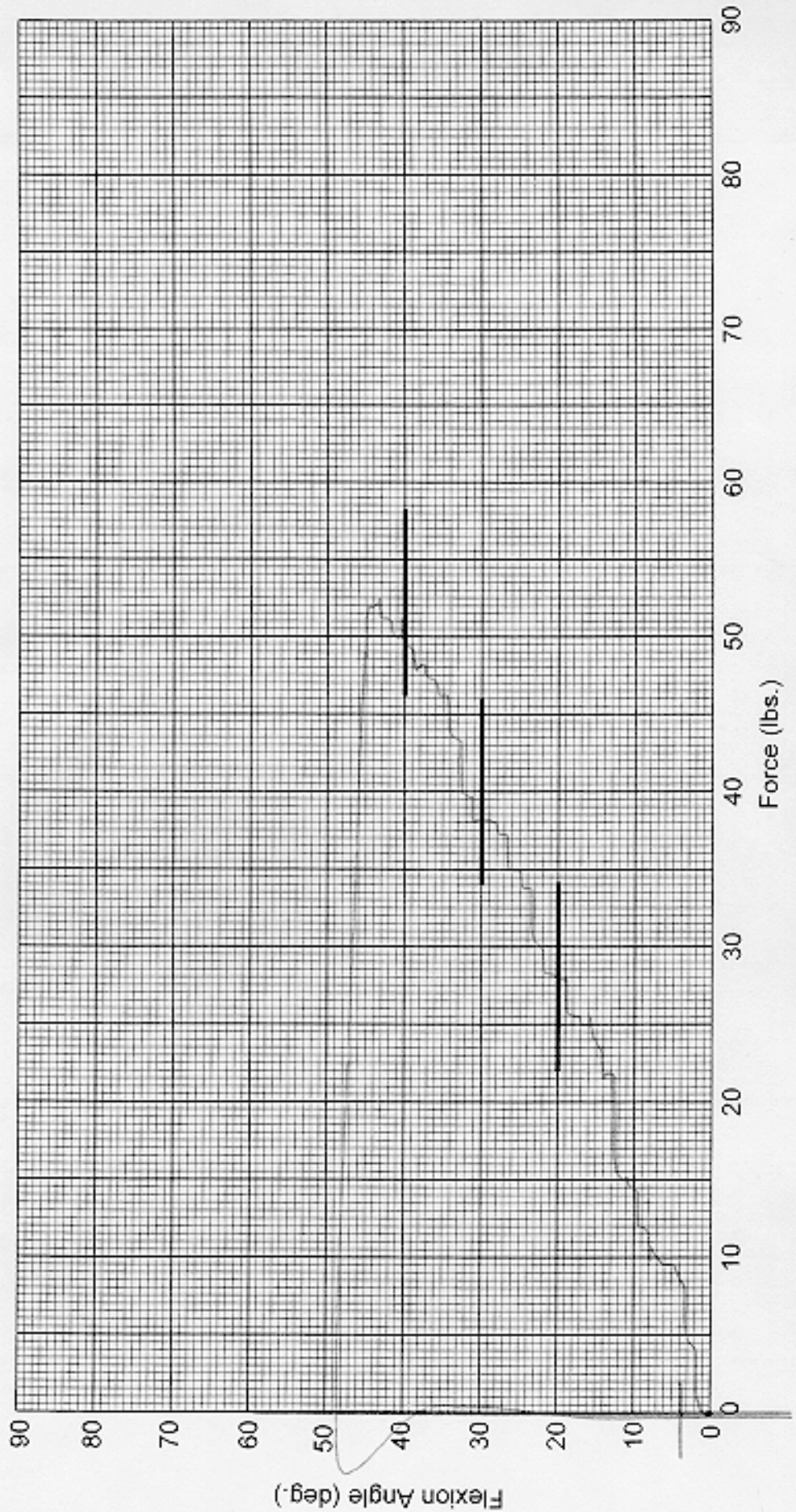
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 5
Date: 3/8/02 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (? C)	18.9 - 25.5	20.6
RELATIVE HUMIDITY (%)	10 - 70	31
FORCE @ 0? (N)	0 - 26.7	0.0
FORCE @ 20? (N)	97.8 - 151.2	126.8
FORCE @ 30? (N)	151.2 - 204.6	169.5
FORCE @ 40? (N)	204.6 - 258	222.4
RETURN ANGLE	12 [?] max.	4 [?]

REMARKS: None

Dummy S/N 013
 W/A _____
 Date 3-8-02
 Performed By [Signature]
 Temp. 69'
 Humidity 31%



Hybrid II Lumbar Spine Flexion Test

PRE-TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 5
 Date: 3/8/02 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: 1
Date: April 17, 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: 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

**LATERAL THORAX IMPACT TEST
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

SID Serial No.: 013 Sequential Test Number: 1
Date: 4/16/02 Laboratory Technician: B. Swiecicki

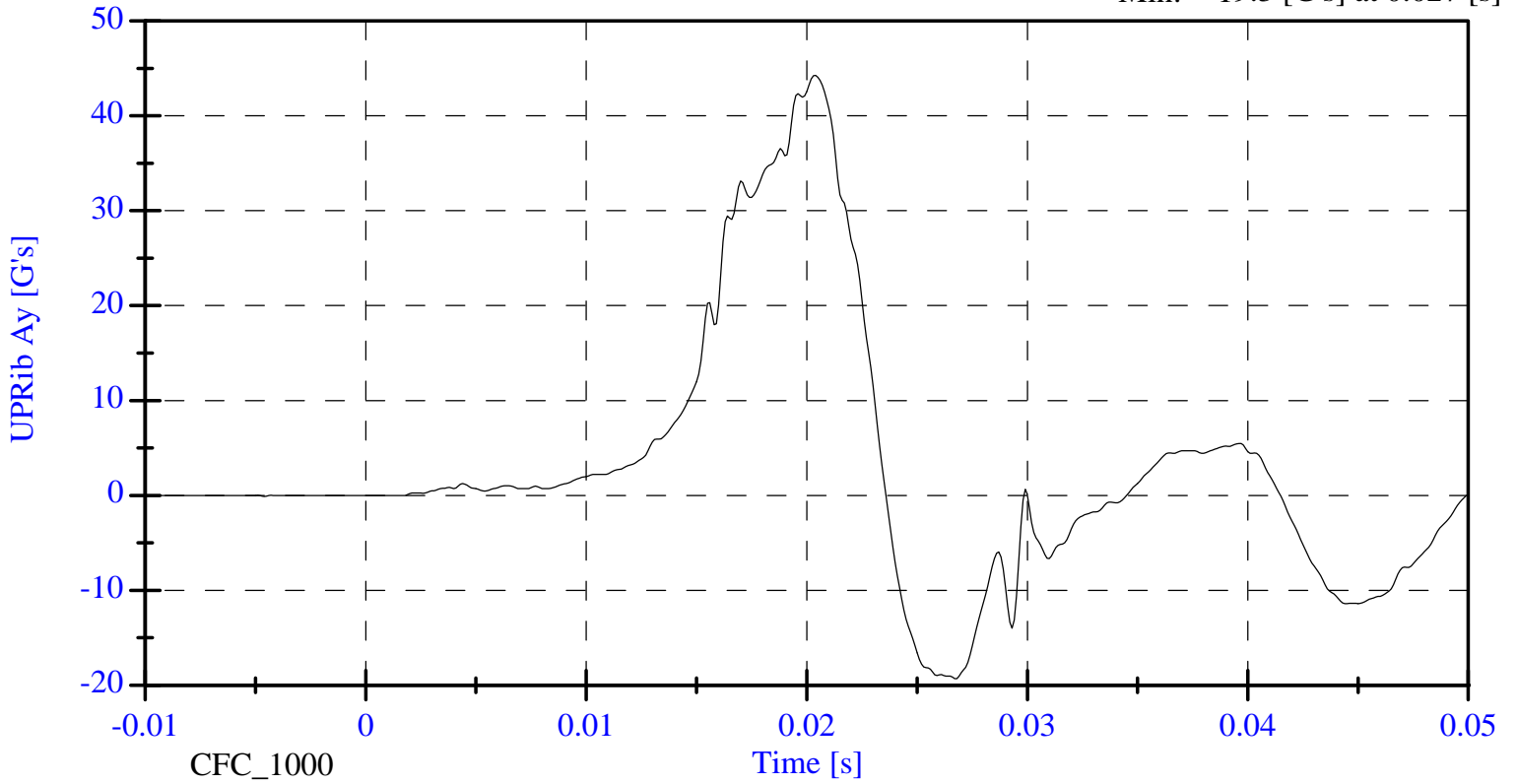
TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (? C)	18.9 - 25.5	23.3
RELATIVE HUMIDITY (%)	10 - 70	51.0
PROBE SPEED (m/s)	4.27 - 4.33	4.29
UPPER RIB (g's)	37 - 46	42.74
LOWER RIB (g's)	37 - 46	45.36
LOWER SPINE (g's)	15 - 22	19.38

REMARKS: None

Upper Rib Y Acceleration

Max: 44.3 [G's] at 0.020 [s]

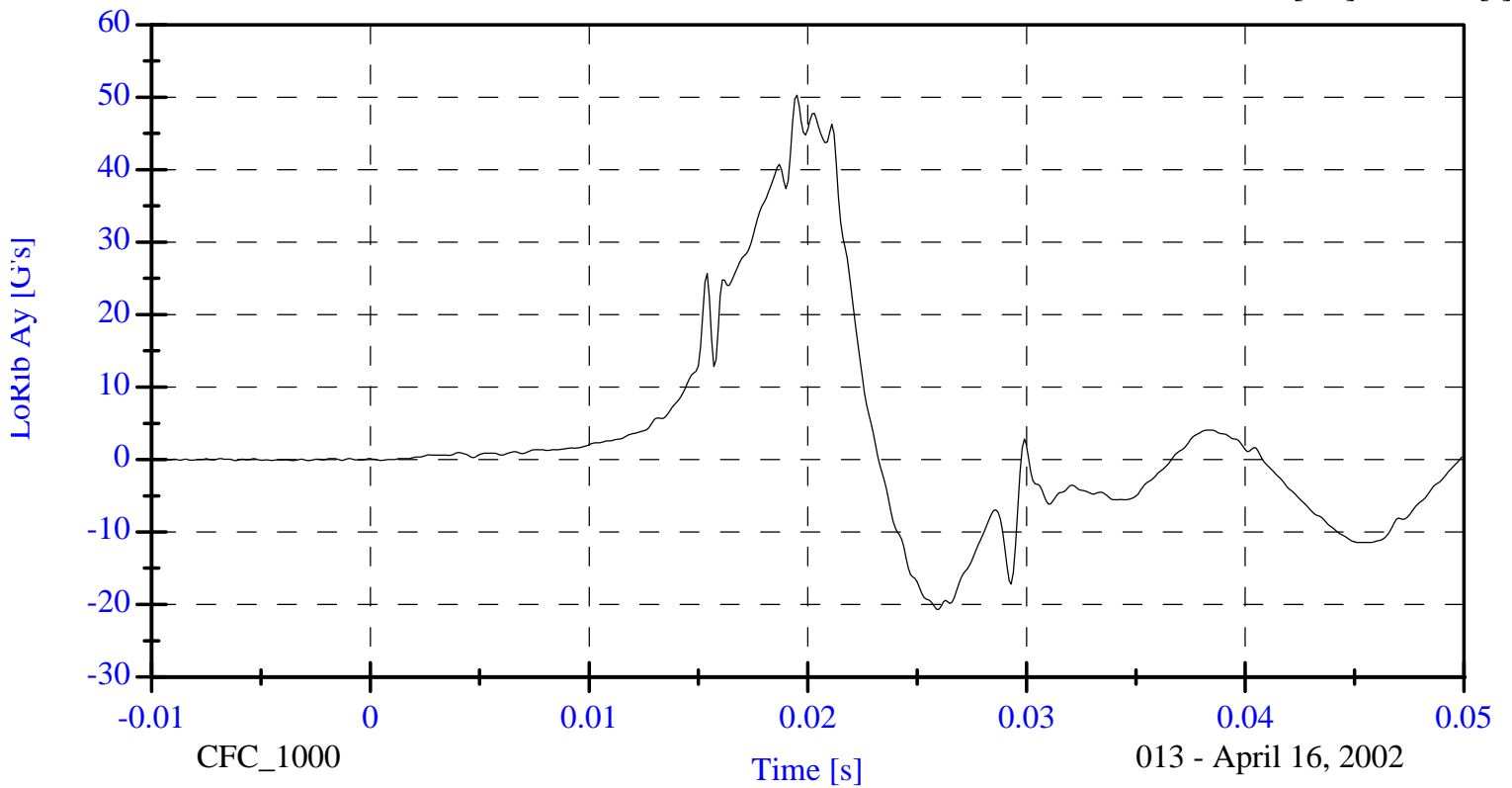
Min: -19.3 [G's] at 0.027 [s]



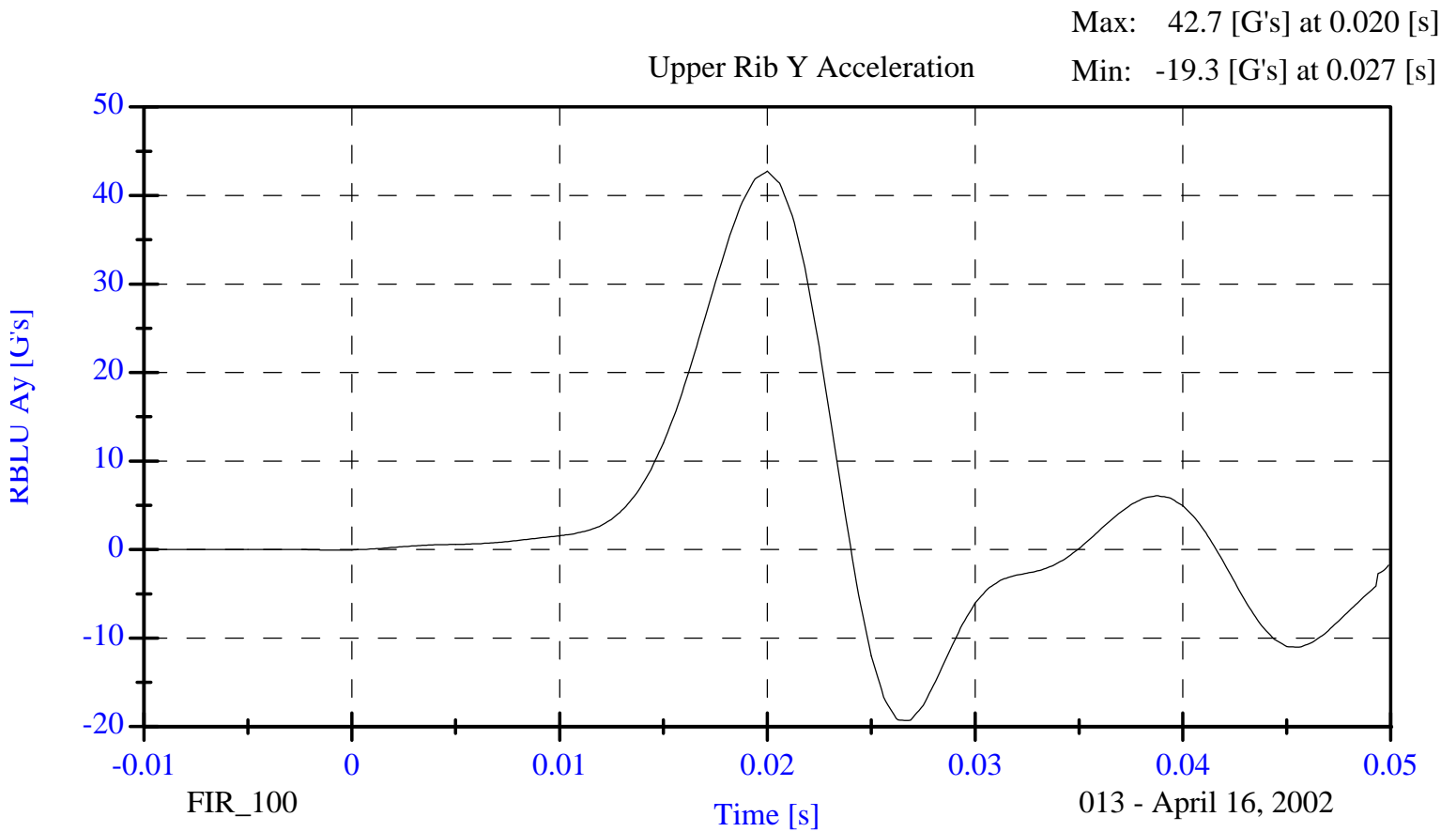
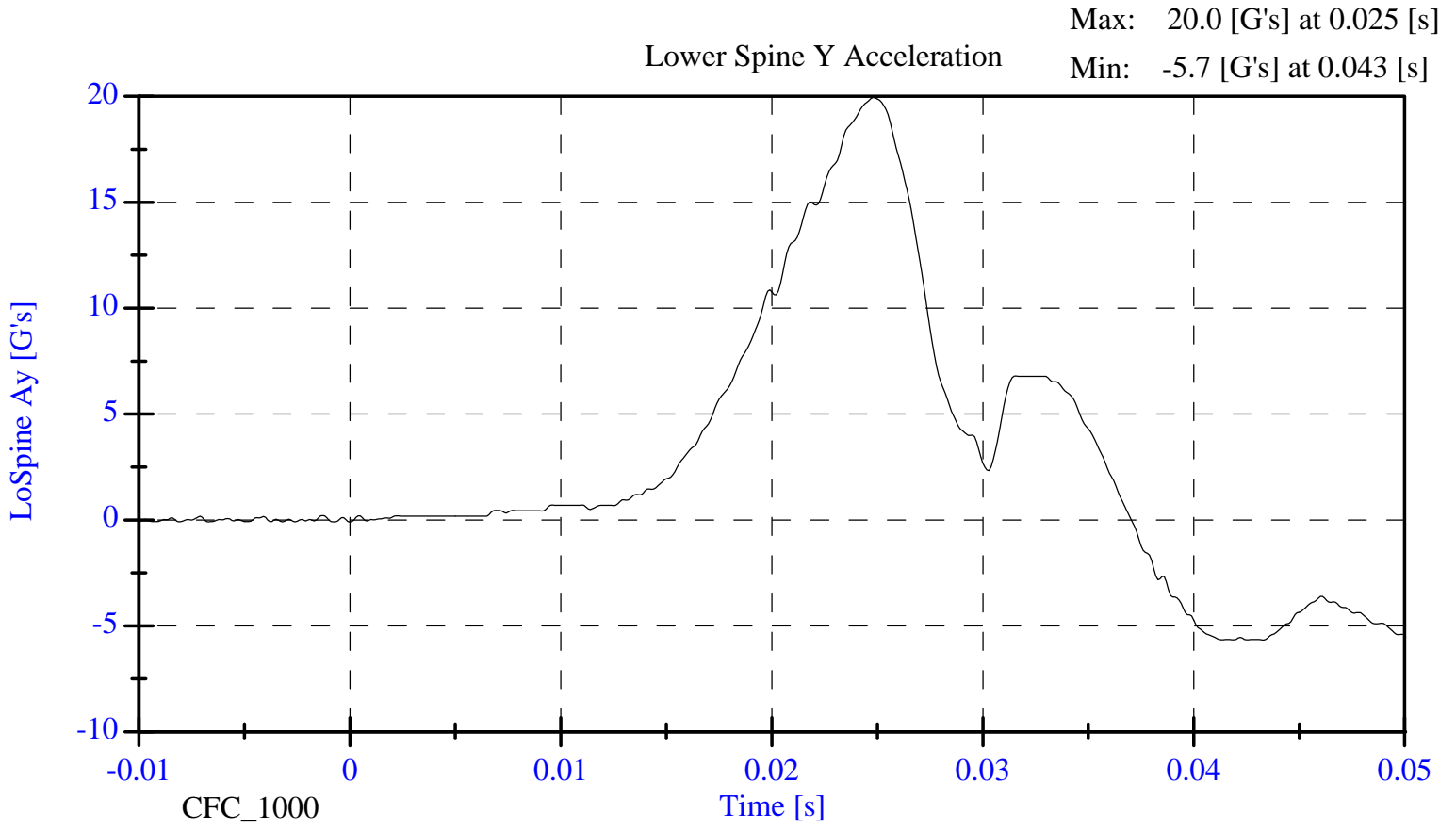
Lower Rib Y Acceleration

Max: 50.3 [G's] at 0.019 [s]

Min: -20.7 [G's] at 0.026 [s]



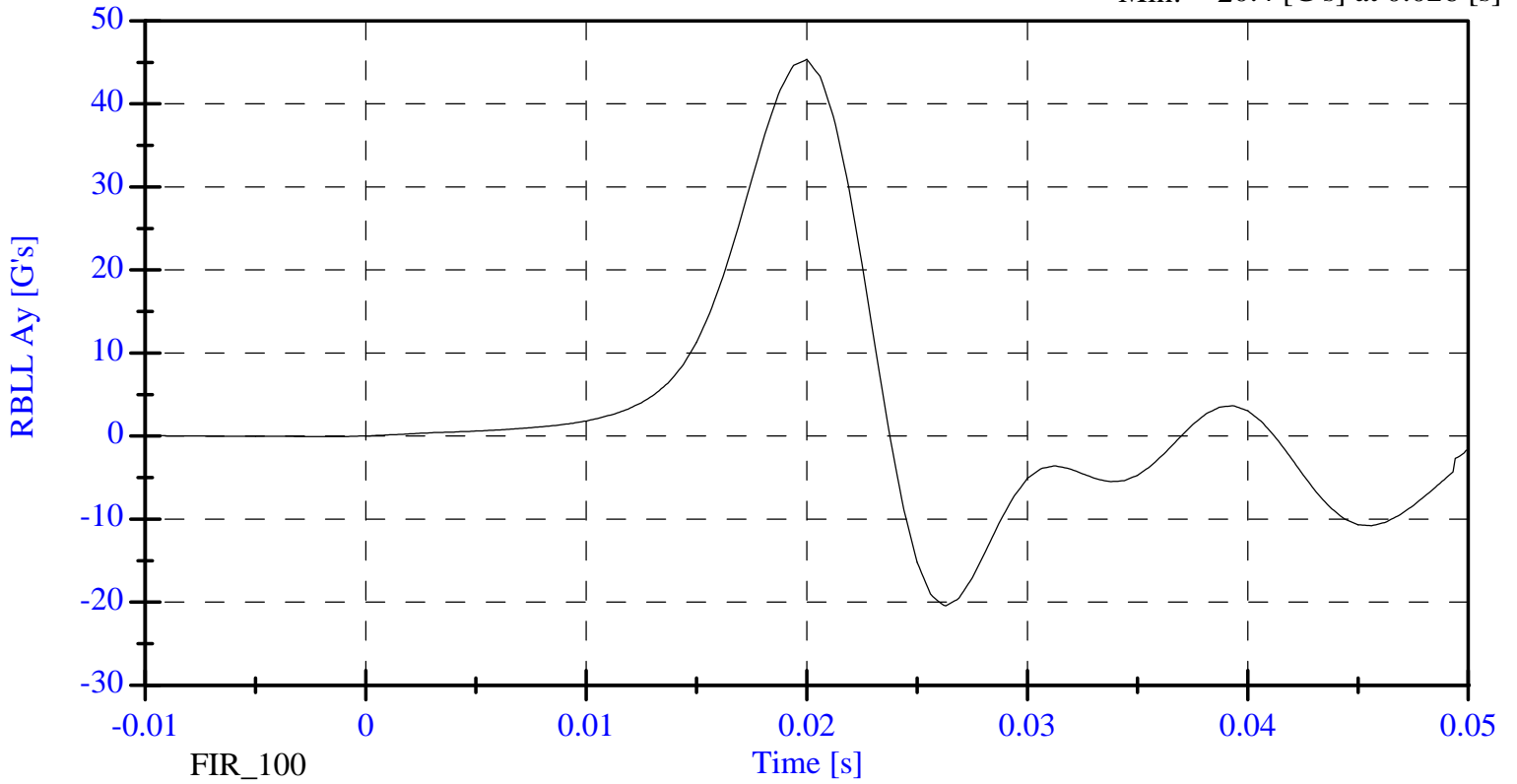
013 - April 16, 2002



Max: 45.4 [G's] at 0.020 [s]

Min: -20.4 [G's] at 0.026 [s]

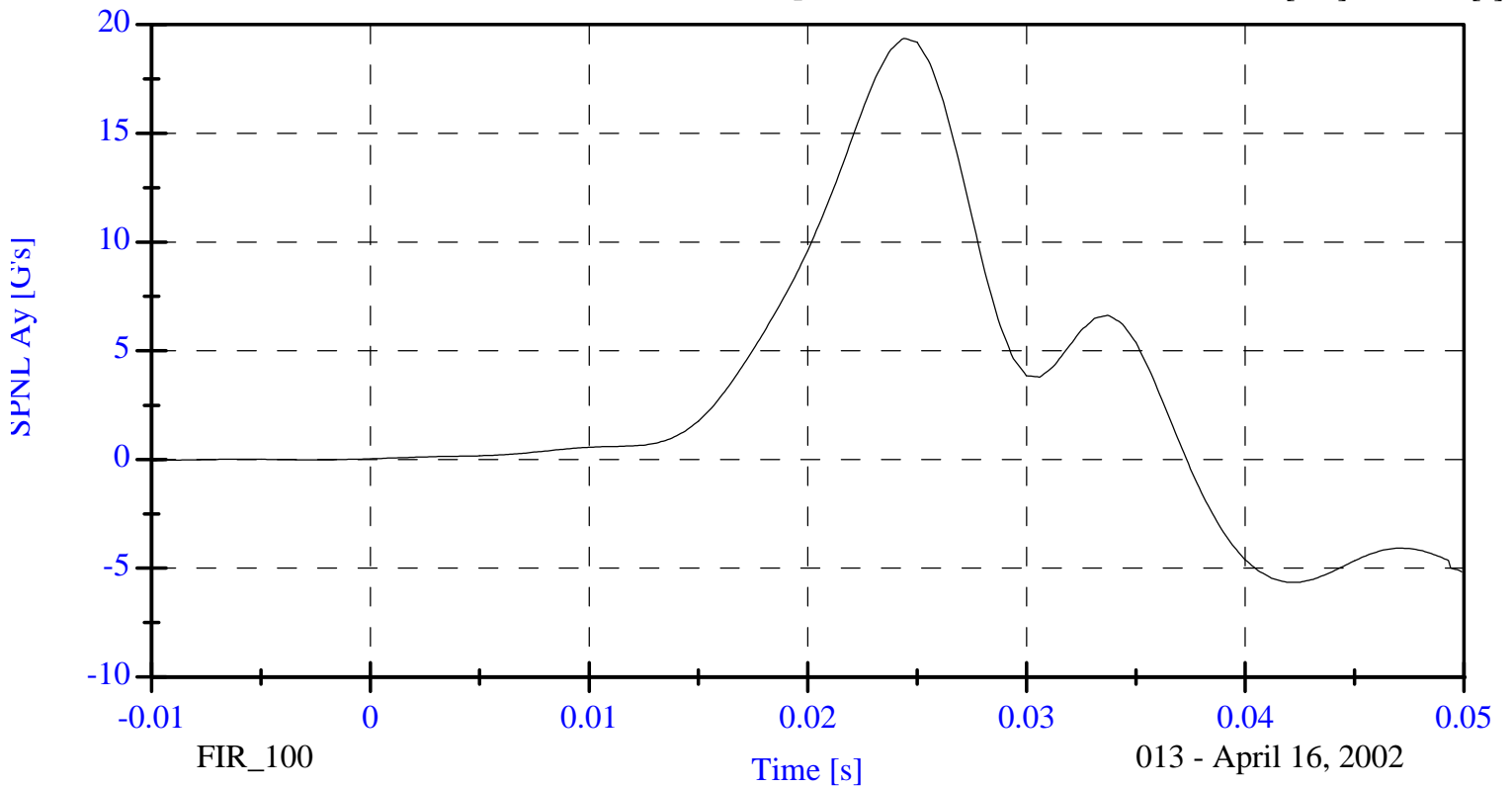
Lower Rib Y Acceleration



Max: 19.4 [G's] at 0.024 [s]

Min: -5.6 [G's] at 0.042 [s]

Lower Spine Y Acceleration



013 - April 16, 2002

**LATERAL PELVIS IMPACT TEST
POST TEST**

CONFIGURED FOR LEFT SIDE IMPACT

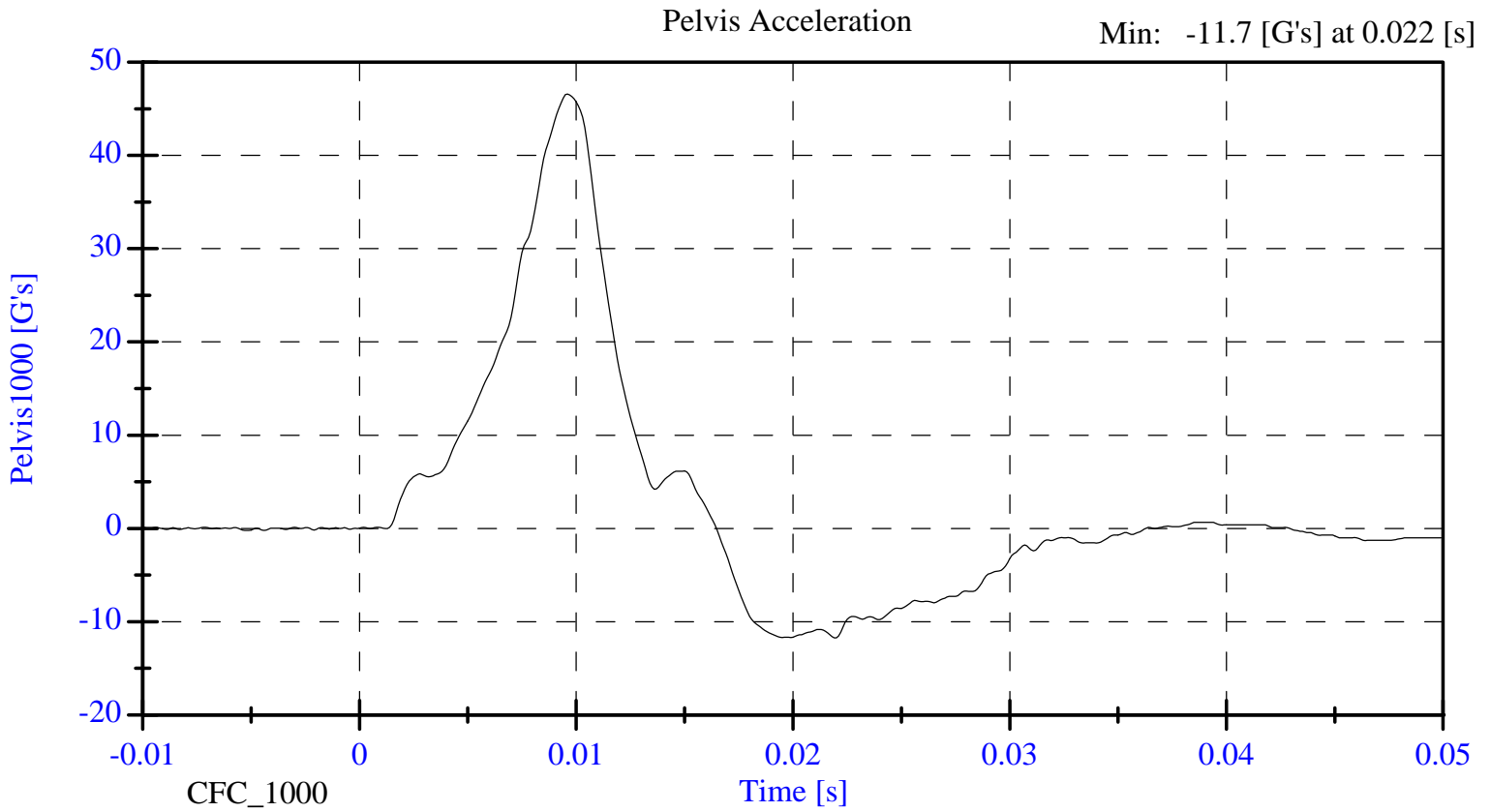
SID Serial No.: 013 Sequential Test Number: 1
Date: 4/16/02 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (? C)	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

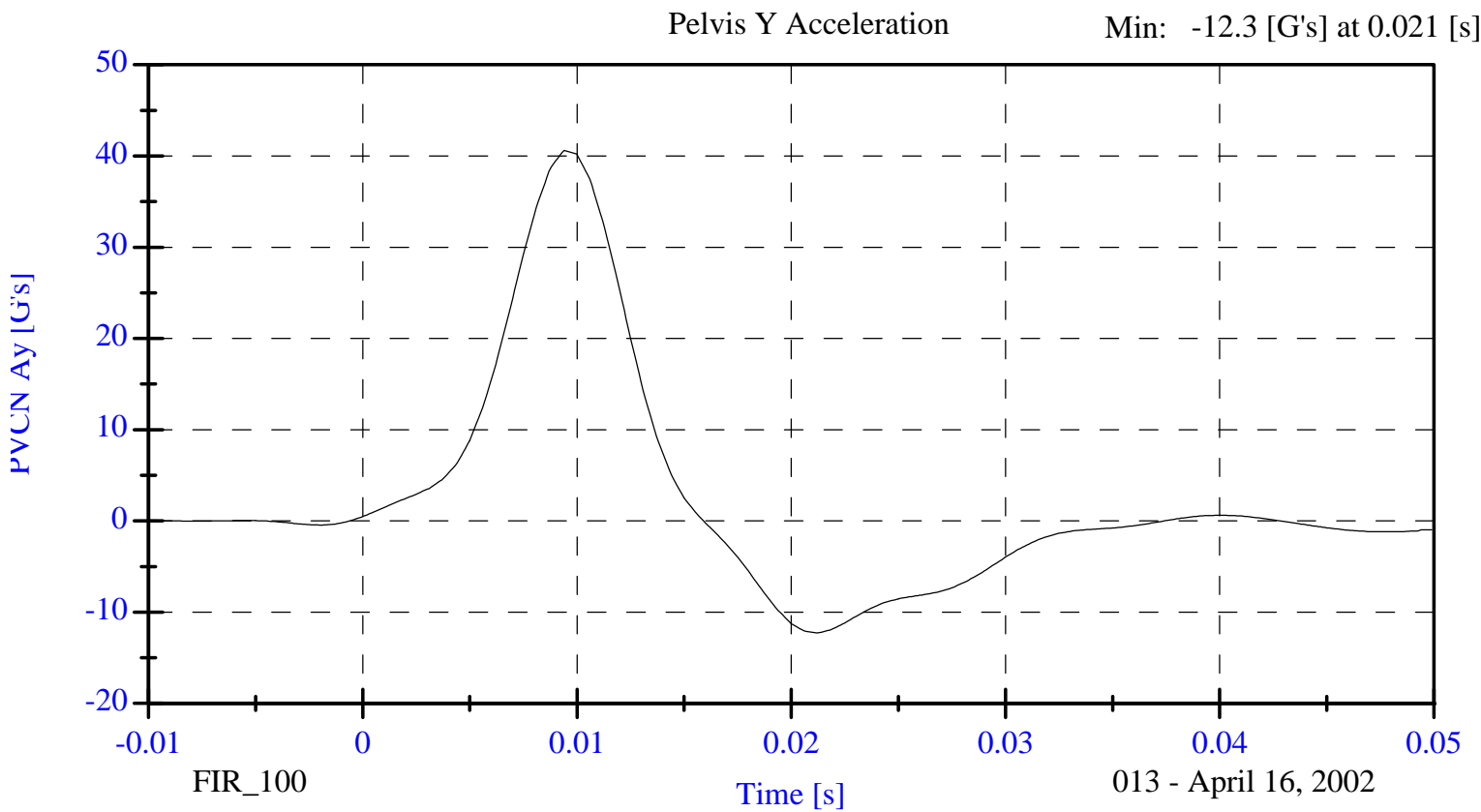
Max: 46.6 [G's] at 0.010 [s]

Min: -11.7 [G's] at 0.022 [s]



Max: 40.6 [G's] at 0.009 [s]

Min: -12.3 [G's] at 0.021 [s]



013 - April 16, 2002

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

CONFIGURED FOR LEFT SIDE IMPACT

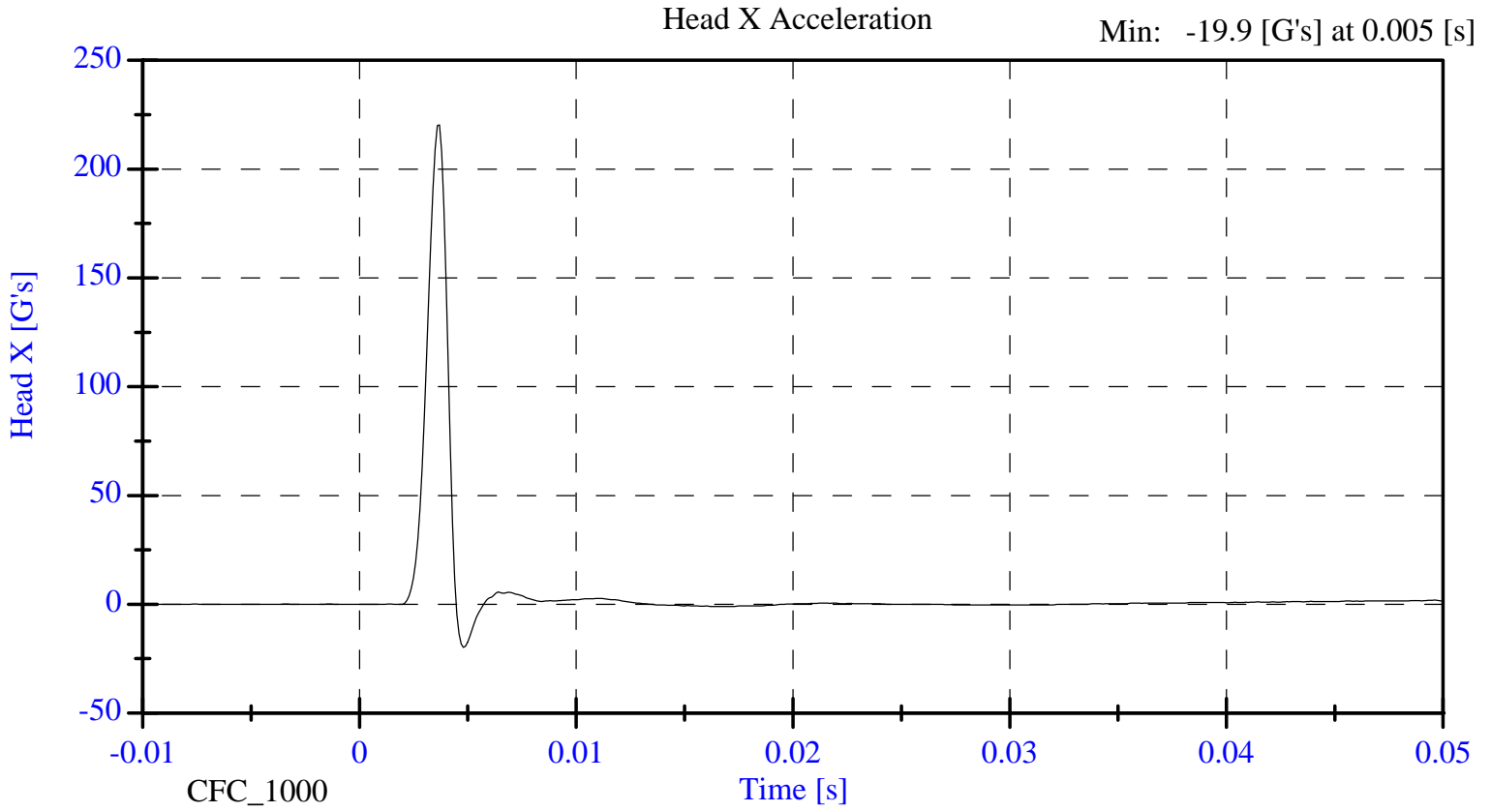
SID Serial No.: 013 Sequential Test Number: 1
 Date: 4/10/02 Laboratory Technician: B. Swiecicki

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (? C)	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

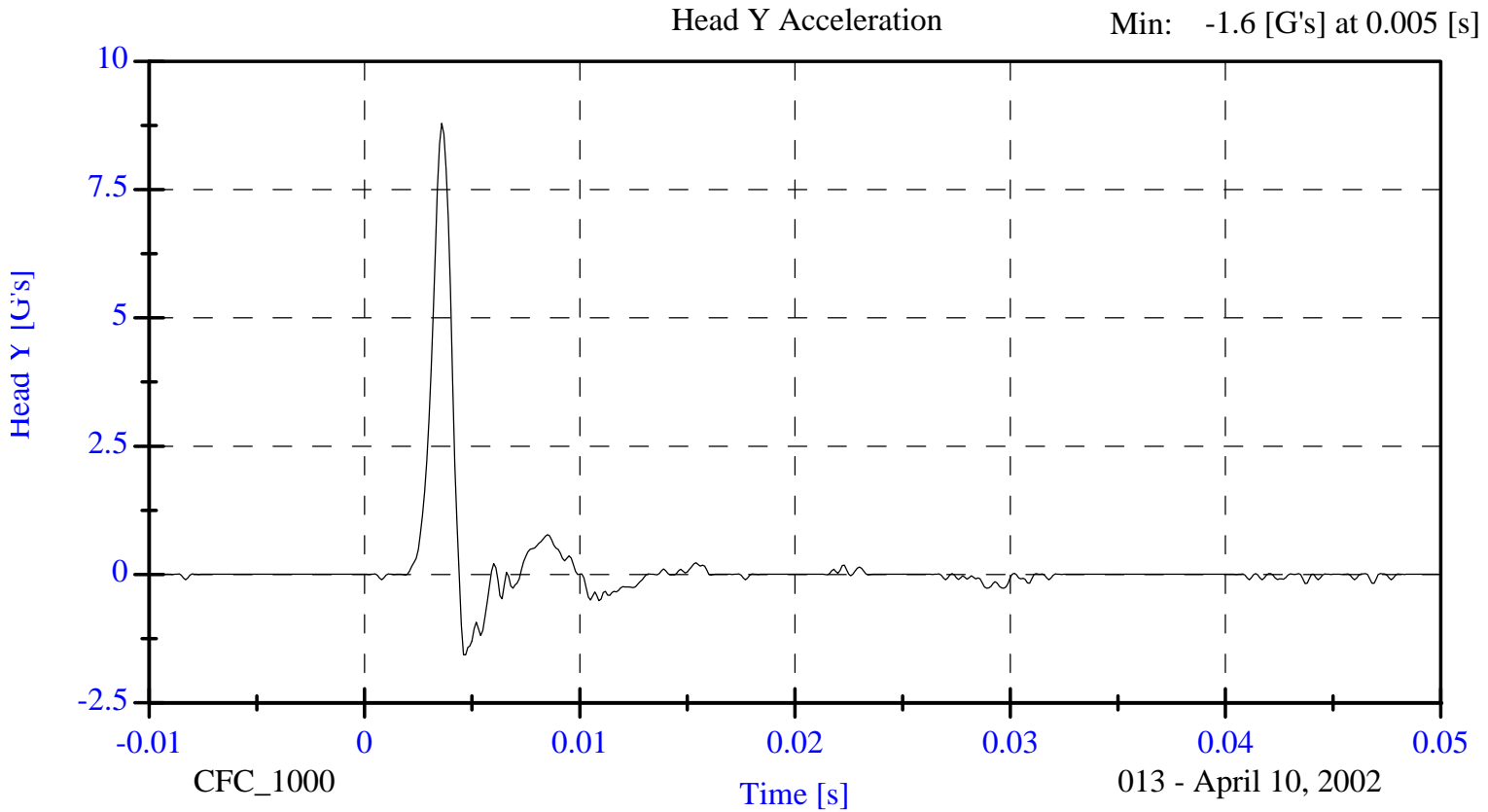
Max: 220.2 [G's] at 0.004 [s]

Min: -19.9 [G's] at 0.005 [s]



Max: 8.8 [G's] at 0.004 [s]

Min: -1.6 [G's] at 0.005 [s]

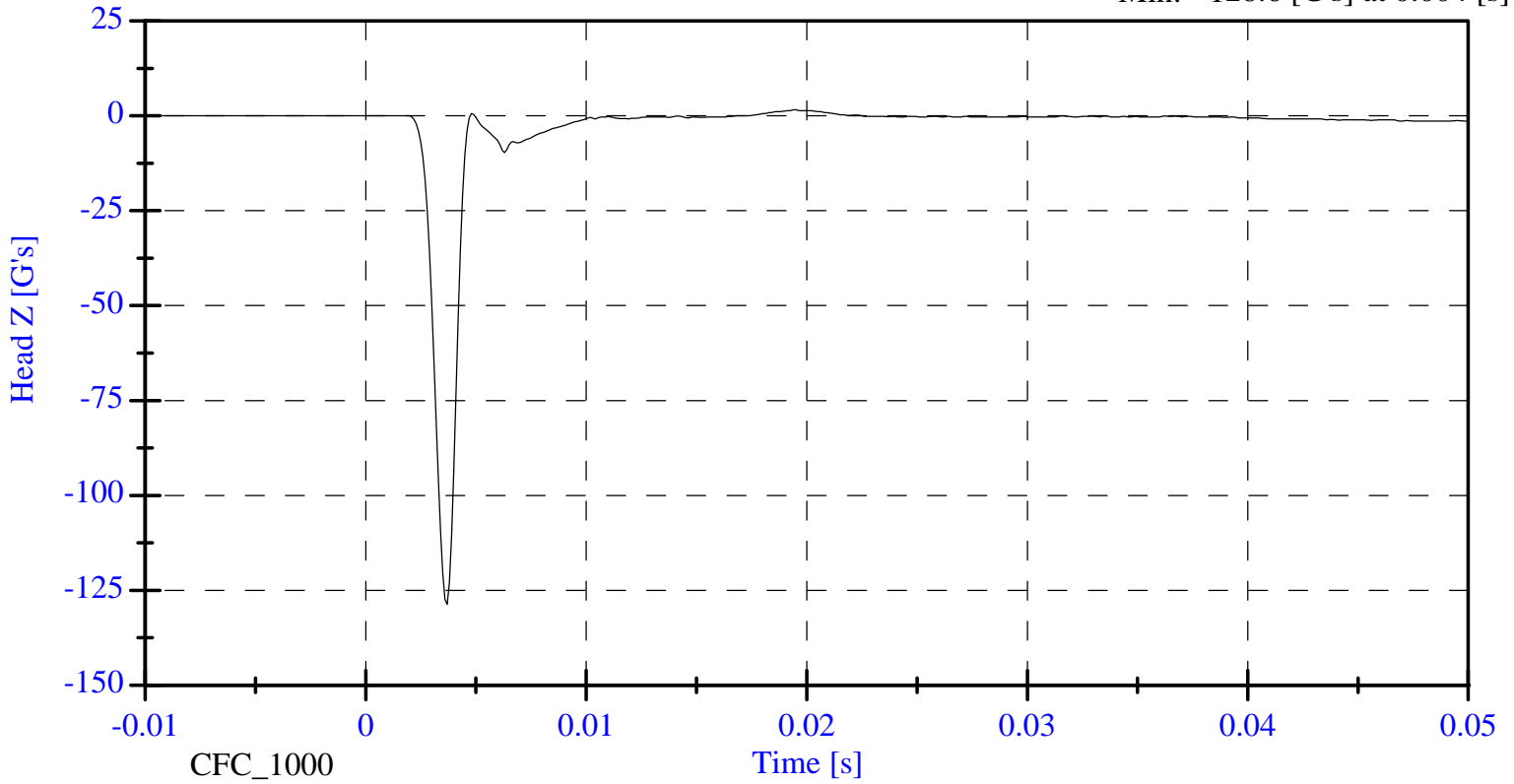


013 - April 10, 2002

Head Z Acceleration

Max: 1.5 [G's] at 0.019 [s]

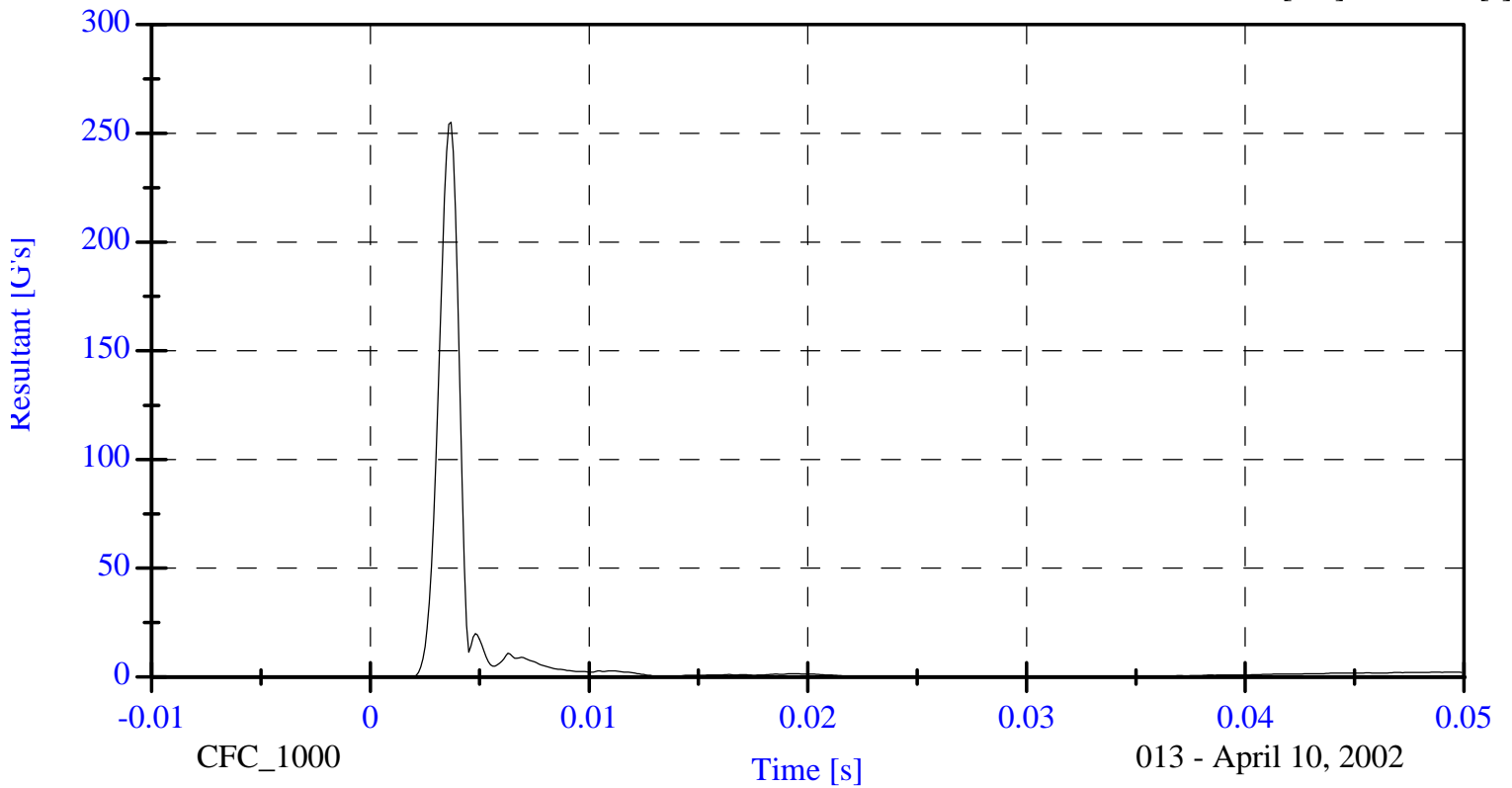
Min: -128.6 [G's] at 0.004 [s]



Head Resultant

Max: 255.2 [G's] at 0.004 [s]

Min: 0.0 [G's] at -0.004 [s]



013 - April 10, 2002

**ABDOMINAL COMPRESSION TEST
POST TEST**

(Test not required for SID certification)

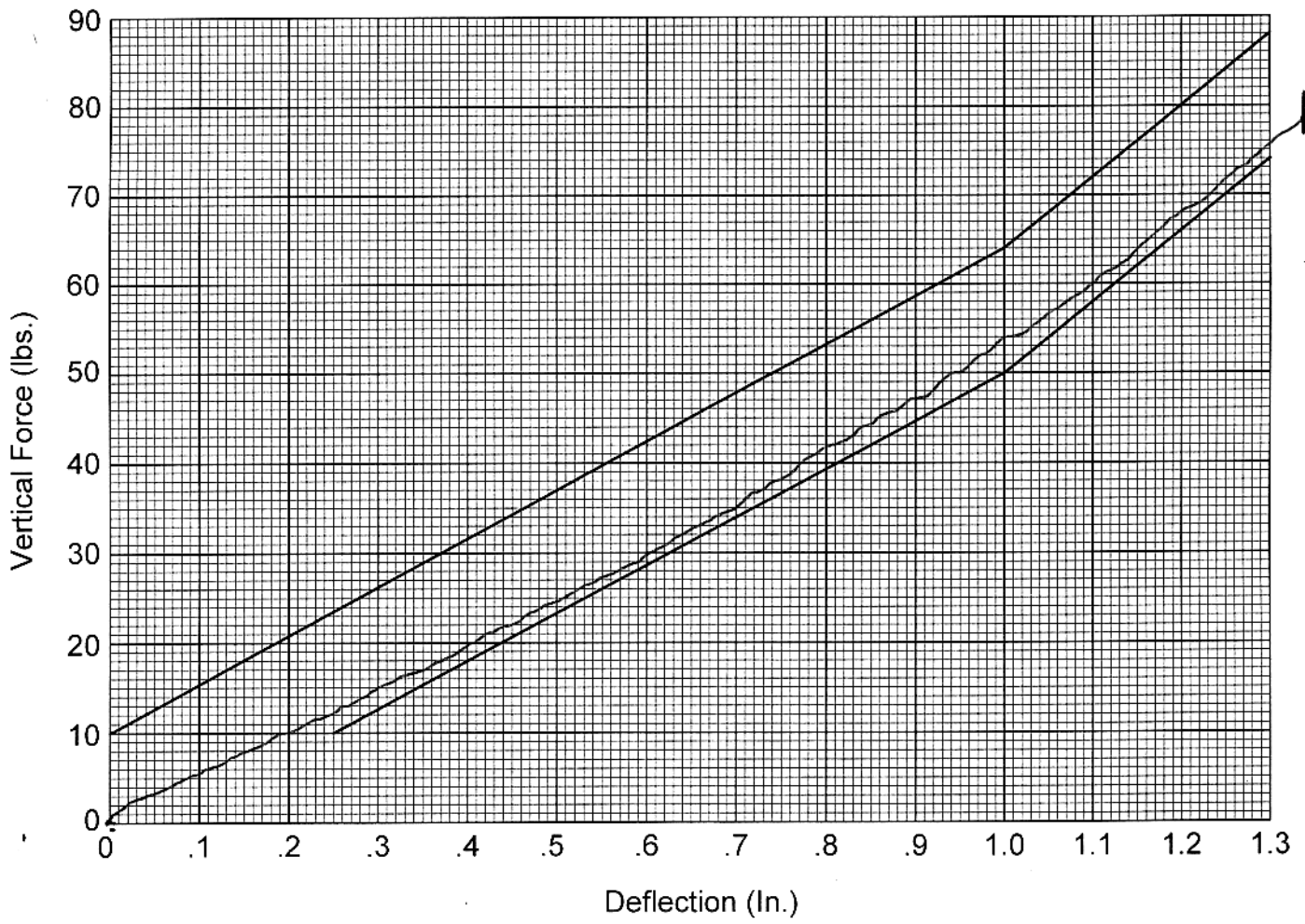
CONFIGURED FOR LEFT SIDE IMPACT

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

TEST PARAMETER	SPECIFICATION	TEST RESULTS
TEMPERATURE (? C)	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%



**Hybrid II
Abdomen Static Press**

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

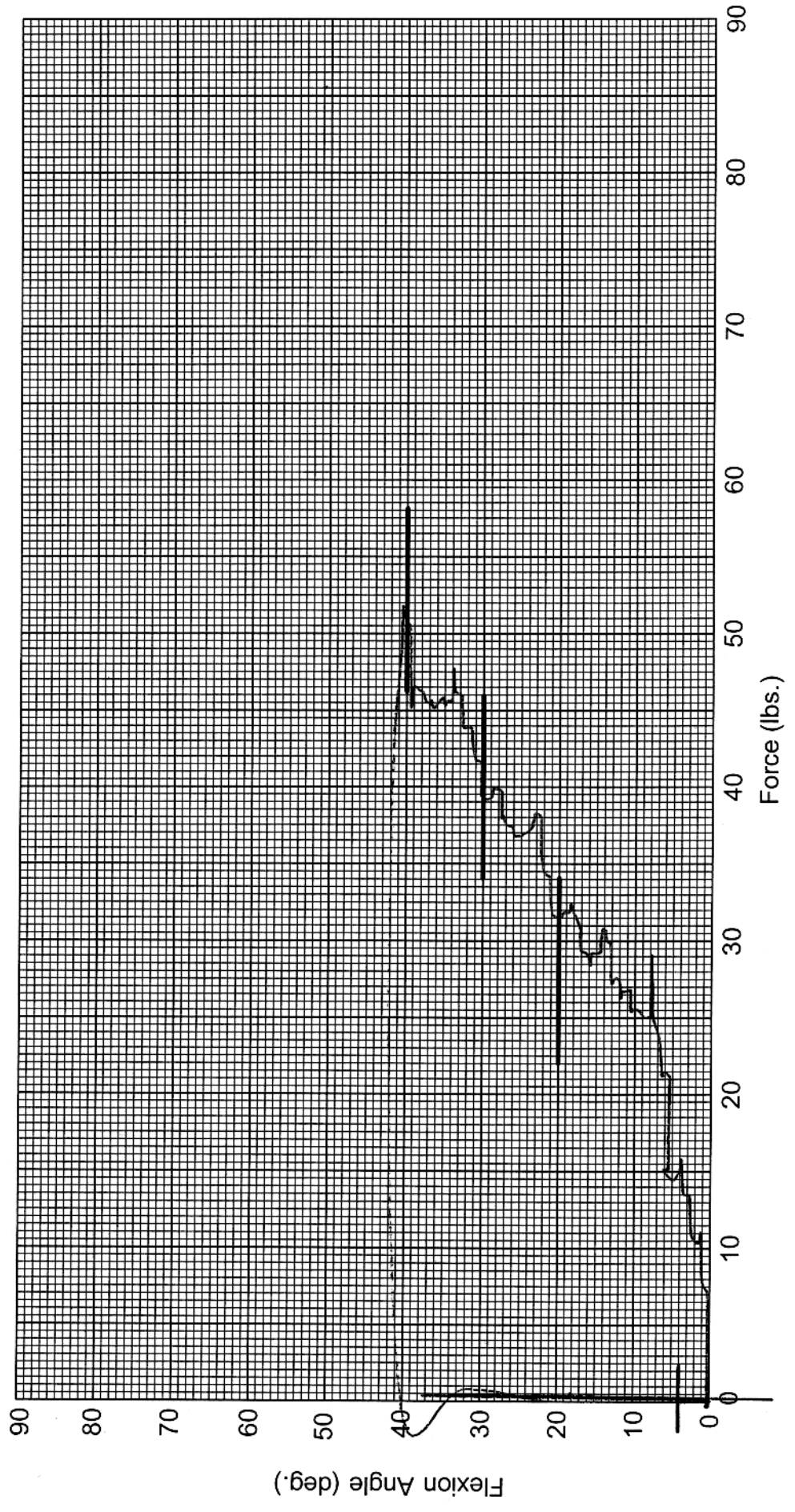
CONFIGURED FOR LEFT SIDE IMPACT

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

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

REMARKS: None

Dummy S/N 013
 W/A _____
 Date 4-15-02
 Performed By [Signature]
 Temp. 73'
 Humidity 49%



Hybrid II Lumbar Spine Flexion Test

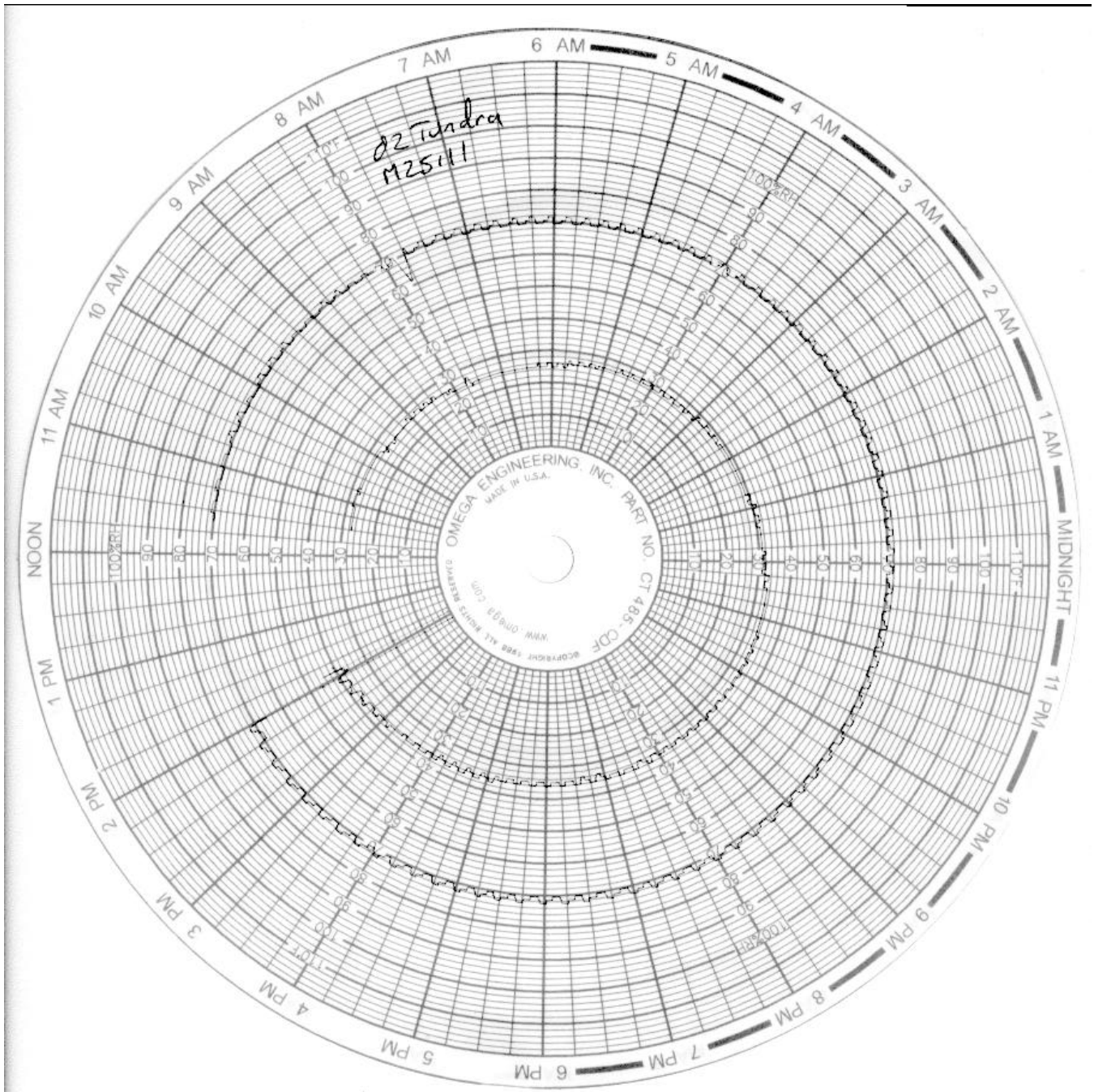
POST TEST DUMMY INSPECTION LIST
CONFIGURED FOR LEFT SIDE IMPACT

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

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-P18785	ENDEVCO	02/21/02
HEAD AY	AC-P18516	ENDEVCO	02/21/02
HEAD AZ	AC-P18537	ENDEVCO	02/21/02
UPPER RIB	AC-P18524	ENDEVCO	02/25/02
LOWER RIB	AC-P18533	ENDEVCO	02/25/02
LOWER SPINE	AC-P18514	ENDEVCO	02/21/02
PELVIS	AC-P18515	ENDEVCO	02/21/02
UPPER RIB REDUNDANT	AC-P18528	ENDEVCO	02/25/02
LOWER RIB REDUNDANT	AC-P18518	ENDEVCO	02/25/02
LOWER SPINE REDUNDANT	AC-P18688	ENDEVCO	02/21/02
PELVIS REDUNDANT	AC-P18529	ENDEVCO	02/21/02

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-J32143	ENDEVCO	01/07/02
RIGHT FRONT SILL (Y)	AC-J32838	ENDEVCO	01/07/02
RIGHT FRONT SILL (Z)	AC-J32174	ENDEVCO	01/07/02
RIGHT REAR SILL (X)	AC-B10827	ENDEVCO	02/14/02
RIGHT REAR SILL (Y)	AC-A13513	ENDEVCO	02/14/02
RIGHT REAR SILL (Z)	AC-B11408	ENDEVCO	02/14/02
REAR FLOORPAN ABOVE AXLE (X)	AC-J32782	ENDEVCO	02/25/02
REAR FLOORPAN ABOVE AXLE (Y)	AC-J33019	ENDEVCO	02/14/02
REAR FLOORPAN ABOVE AXLE (Z)	AC-J33127	ENDEVCO	02/14/02
LEFT REAR SILL (Y)	AC-J26604	ENDEVCO	10/05/01
LEFT FRONT SILL (Y)	AC-AP064	ENDEVCO	02/11/02
LEFT FRONT DOOR CENTERLINE (Y)	AC-P23134	ENDEVCO	02/19/02
RIGHT REAR SEAT OCCUPANT COMP. (Y)	AC-J32383	ENDEVCO	02/14/02
MID REAR OF LEFT FRONT DOOR (Y)	AC-B10955	ENDEVCO	02/11/02
LEFT FRONT DOOR UPPER C\L (Y)	AC-P23276	ENDEVCO	10/01/01
MID REAR OF LEFT REAR DOOR (Y)	AC-P16665	ENDEVCO	01/15/02
LEFT REAR DOOR UPPER C\L (Y)	AC-J33156	ENDEVCO	02/14/02
LOWER LEFT B- PILLAR (Y)	AC-J24754	ENDEVCO	02/25/02
MIDDLE LEFT B-PILLAR (Y)	AC-P23288	ENDEVCO	10/01/01
LOWER LEFT A-PILLAR (Y)	AC-J33032	ENDEVCO	02/11/02
UPPER LEFT A-PILLAR (Y)	AC-P23465	ENDEVCO	02/19/02
FRONT SEAT TRACK (Y)	AC-B11073	ENDEVCO	01/07/02
REAR SEAT TRACK (Y)	AC-J32186	ENDEVCO	02/11/02
VEHICLE CG (X)	AC-J27927	ENDEVCO	02/25/02
VEHICLE CG (Y)	AC-J27941	ENDEVCO	02/18/02
VEHICLE CG (Z)	AC-ACC06	ENDEVCO	02/18/02
MDB CG (X)	AC-C16682	ENDEVCO	09/06/01
MDB CG (Y)	AC-CJ54	ENDEVCO	09/06/01
MDB CG (Z)	AC-GK12	ENDEVCO	09/06/01
MDB REAR FRAME MEMBER (X)	AC-CX05	ENDEVCO	09/06/01
MDB REAR FRAME MEMBER (Y)	AC-C16685	ENDEVCO	09/06/01

REMARKS: None

REPORT NUMBER: SNCAP-CAL-02-5

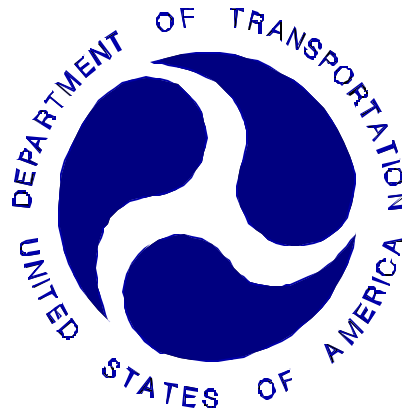
**NEW CAR ASSESSMENT PROGRAM
SIDE IMPACT TEST**

SAFETYFIRST FORERUNNER USING VEHICLE ALR BELT

NHTSA NUMBER: M25111

VERIDIAN ENGINEERING TEST NUMBER: 8652-SNCAP-05

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



March 27, 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

This Final Test Report was prepared for the U.S. Department of Transportation, National Highway Traffic Safety Administration, under Contract No. DTNH22-01-D-32005. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

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David J. Travale, Program Manager
Transportation Sciences Center

Approval Date:

FINAL REPORT ACCEPTANCE BY:

Accepted By:

Acceptance Date:

TECHNICAL REPORT STANDARD TITLE PAGE

1. Report No. SNCAP-CAL-02-5	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Final Report of Safetyfirst Forerunner ALR using vehicle belt NHTSA No.: M25111		5. Report Date March 27, 2002	
		6. Performing Organization Code CAL	
7. Author(s) Lawrence Q. Valvo, Project Engineer David J. Travale, Program Manager		8. Performing Organization Report No. 8652-SNCAP-05	
9. Performing Organization Name and Address Veridian Engineering Transportation Sciences Center P.O. Box 400 Buffalo, New York 14225		10. Work Unit No.	
		11. Contract or Grant No. DTNH22-01-D-32005	
12. Sponsoring Agency Name and Address U.S. Department of Transportation National Highway Traffic Safety Administration Office of Crashworthiness Standards Mail Code: NPS-10 400 Seventh SW, Room 5313 Washington, D.C. 20590		13. Type of Report and Period Covered Final Report, April 2002 – May 2002	
		14. Sponsoring Agency Code NPS-10	
15. Supplementary Notes			
16. Abstract A 55/28 kph 90 ⁰ Impact Moving Deformable Barrier NCAP Side Impact Test was conducted on the subject CRS Safetyfirst Forerunner ALR using vehicle belt in accordance with the specifications of the Office of Crashworthiness Standards Test Procedure for the determination of CRS crashworthiness. This test was conducted at the Veridian Engineering Crash Test Facility in Buffalo, New York, on March 27, 2002.			
17. Key Words New Car Assessment Program (NCAP) Side Impact		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	
19. Security Classification of Report UNCLASSIFIED	20. Security Classification of Page UNCLASSIFIED	21. No. of Pages 223	22. Price

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SECTION 1

PURPOSE AND SUMMARY OF TEST M25111

The purpose of this test was to obtain CRS performance data in a side impact NCAP condition.

The 61.64 kph side impact NCAP moving deformable barrier (MDB) test was conducted in accordance with the Office of Crashworthiness Standards (OCS) Side Impact NCAP Laboratory Test Procedure.

SUMMARY

Both child dummies were instrumented with head, chest, and pelvic triaxial accelerometers. In addition, redundant head z acceleration, chest displacement and upper and lower six axial neck force and moment load cell sensors were utilized.

The right rear (Position 3) child dummy (serial no. 017) and left rear (Position 4) child dummy (serial no. 093) were calibrated previous to this test. Child dummy certification information is found in section 5.

The right rear child dummy's HIC was 54.4, maximum chest deceleration over 3 ms was 23.3 g's. The left rear child dummy's HIC was 107.6, maximum chest deceleration over 3 ms was 38.4 g's.

SECTION 2
DATA SHEET NO. 1
CRASH TEST SUMMARY

TEST DUMMY INFORMATION:

DESCRIPTION	Position #3 CRS	Position #4 CRS
ATD Type/Serial No.	Hybrid III CRABI (P572 R) / 017	Hybrid III CRABI (P572 R) / 093
Restraint System:	Safetyfirst Forerunner ALR using vehicle belt	Safetyfirst Forerunner ALR using vehicle belt

Number of Data Channels _____ 57 _____
Number of Cameras: _____ 1 _____ Real Time
_____ 3 _____ High Speed

POST TEST DOOR OPENING

DESCRIPTION	FRONT	REAR
Left Side Doors	Closed/Latched/Inoperable	Closed/Latched/Inoperable
Right Side Doors	Closed/Latched/Operable	Closed/Latched/Operable
Hatch/Other Door	NA	NA

POST TEST SEAT DATA

LOCATION	SEAT MOVEMENT (mm)	SEAT BACK FAILURE
P1 (Left Front)	0	None
P2 (Right Front)	0	None
P3 (Right Rear)	0	None
P4 (Left Rear)	0	None

VISIBLE DUMMY CONTACT POINTS

	Position #3 CRS	Position #4 CRS
Head Contact:	The left side of the head to the left bolster; The right side of the head to the right bolster	The left side of the head to the left bolster; The right side of the head to the right bolster
Upper Torso Contact:	The left side to the left bolster; The right side to the right bolster	The left side to the left bolster; The right side to the right bolster
Lower Torso Contact:	The left side to the left bolster; The right side to the right bolster	The left side to the left bolster; The right side to the right bolster
Left Knee Contact:	Left side seat bolster	Left side seat bolster
Right Knee Contact:	Right side seat bolster	Right side seat bolster

DATA SHEET NO. 2

CRS PARAMETER DATA

CRS: _Safetyfirst Forerunner ALR using vehicle belt

NHTSA No. M25111

CALCULATION OF VEHICLE'S TARGET TEST WEIGHT:

Delivered Weight of Vehicle with Maximum Fluids = 1946.4 kg (A)

AS TESTED WEIGHT OF VEHICLE (1 SID + 2 P572 R w/ CRS +CARGO + EQUIPMENT & INSTRUMENTATION):

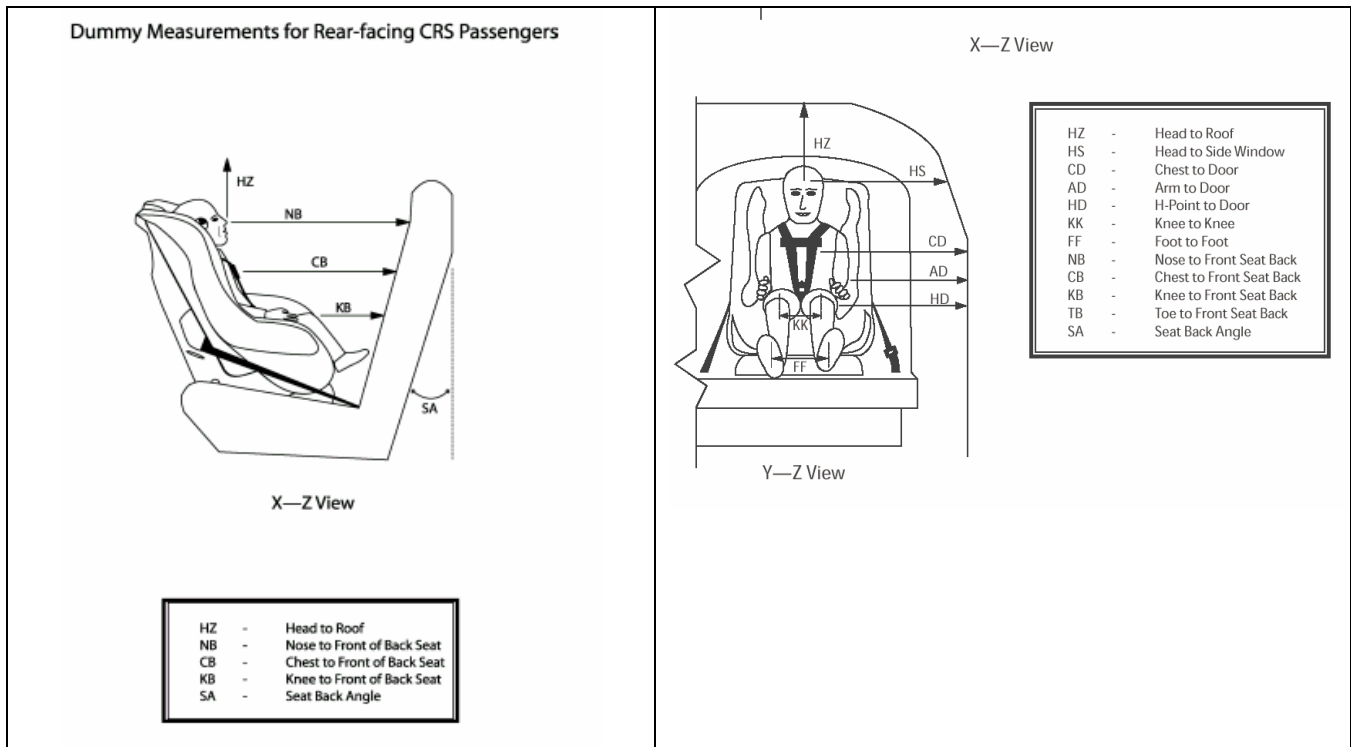
Left Front	=	<u>569.5</u>	kg	Left Rear	=	<u>580.0</u>	kg
Right Front	=	<u>525.5</u>	kg	Right Rear	=	<u>564.0</u>	kg
TOTAL FRONT	=	<u>1095.0</u>	kg	TOTAL REAR	=	<u>1144.0</u>	kg
TOTAL TEST WEIGHT =		<u>2239.0</u>	kg				

DATA SHEET NO. 3

CHILD DUMMY POSITIONING IN VEHICLE

CRS: Safetyfirst Forerunner ALR using vehicle belt

NHTSA No. M25111



Measurement	Pre-Test (mm)		Post Test (mm)	
	P3 CRS (017)	P4 CRS (093)	P3 CRS (017)	P4 CRS (093)
SA	7°	7°	6°	6°
HS	387	397	545	526
CD	388	392	468	426
AD	242	258	285	270
HD	285	298	317	245
HZ	455	466	445	421
NB	339	338	293	277
CB	292	290	273	252
KK	102	110	98	85
FF	104	104	90	70
KB – LEFT	114	110	125	90
KB – RIGHT	114	108	120	145
TB – LEFT	52	60	45	45
TB – RIGHT	56	59	40	45

All dimensions in mm (unless noted)
P3 – Right Rear Passenger (CRS #1)
P4 – Left Rear Passenger (CRS #2)

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES

CRS: Safetyfirst Forerunner ALR using vehicle belt

NHTSA No. M25111

DESCRIPTION	Unit	MAXIMUM VALUE							
		Position #3				Position #4			
		Pos	msec	Neg	msec	Pos	msec	Neg	msec
Head X	g	1.6	199.0	-16.5	88.3	5.1	44.2	-19.2	57.0
Head Y	g	1.5	199.0	-18.2	82.9	4.2	183.2	-45.2	62.6
Head Z	g	15.6	81.3	-5.3	26.0	6.6	40.8	-15.2	26.4
Head Resultant	g	24.9	82.6	-	-	48.7	62.7	-	-
Redundant Head Z	g	15.0	94.9	-6.5	26.1	19.3	45.8	-11.5	28.5
Upper Neck Fx	N	17.2	24.5	-172.2	83.8	75.4	43.6	-385.1	57.6
Upper Neck Fy	N	51.3	199.9	-101.3	84.0	97.5	191.6	-185.0	54.9
Upper Neck Fz	N	524.1	73.6	-109.9	27.5	953.1	55.9	-181.2	29.2
Upper Neck F Resultant	N	542.9	73.6	-	-	1031.4	55.9	-	-
Upper Neck Mx	N-m	5.9	57.5	-2.7	81.3	5.2	52.3	-2.9	61.0
Upper Neck My	N-m	2.4	133.0	-4.9	81.1	4.5	42.4	-13.5	57.5
Upper Neck Mz	N-m	1.7	199.9	-7.6	90.7	3.6	142.3	-4.5	73.2
Upper Neck M Resultant	N-m	8.2	86.4	-	-	13.9	57.4	-	-
Lower Neck Fx	N	9.3	42.4	-59.2	82.9	27.8	44.2	-155.4	57.4
Lower Neck Fy	N	21.2	35.8	-159.0	81.2	54.1	180.3	-407.6	55.6
Lower Neck Fz	N	562.3	72.9	-135.3	27.1	985.0	56.2	-226.2	29.1
Lower Neck F Resultant	N	578.5	72.9	-	-	1073.3	56.2	-	-
Lower Neck Mx	N-m	5.8	197.0	-14.8	84.0	9.5	191.4	-17.4	56.3
Lower Neck My	N-m	2.8	117.5	-1.5	72.7	6.6	131.6	-2.0	45.3
Lower Neck Mz	N-m	0.3	199.9	-4.9	91.7	2.0	143.4	-3.0	86.3
Lower Neck M Resultant	N-m	15.3	84.4	-	-	18.0	56.3	-	-
Chest X	g	9.1	48.0	-2.5	73.7	13.2	40.4	-6.7	63.8
Chest Y	g	5.4	85.4	-22.7	49.2	3.5	70.3	-38.6	50.8
Chest Z	g	9.8	89.3	-5.2	26.3	11.3	63.4	-9.0	27.8
Chest Resultant	g	24.5	49.0	-	-	39.1	42.9	-	-
Lumbar Fx	N	31.0	26.7	-28.3	58.8	65.2	29.6	-92.4	46.1
Lumbar Fy	N	13.6	140.7	-125.7	46.3	25.9	58.2	-70.4	80.9
Lumbar Fz	N	196.9	70.3	-203.6	27.1	167.6	49.4	-174.7	28.8
Lumbar F Resultant	N	206.0	27.1	-	-	187.1	49.2	-	-
Lumbar Mx	N-m	5.2	43.1	-2.5	91.4	4.7	40.5	-4.8	93.8
Lumbar My	N-m	0.9	145.4	-1.3	41.1	2.2	45.9	-0.2	31.2
Lumbar Mz	N-m	0.6	197.4	-1.2	67.3	1.3	136.9	-1.5	51.7
Lumbar M Resultant	N-m	5.3	43.1	-	-	4.9	93.5	-	-
Pelvic X	g	4.7	32.3	-5.2	42.2	10.9	28.7	-33.8	56.3
Pelvic Y	g	15.7	104.0	-41.2	40.7	18.2	85.3	-68.0	40.6
Pelvic Z	g	8.4	90.4	-5.9	70.8	11.8	43.1	-8.5	54.2
Pelvic Resultant	g	41.5	44.2	-	-	69.0	40.6	-	-
Lap Belt Load	N	1315.7	47.0	-119.2	165.7	-	-	-	-
Shoulder Belt Load	N	45.0	120.0	-98.2	181.6	-	-	-	-

DATA SHEET 4

CHILD DUMMY INJURY CRITERIA VALUES (CONTINUED)

CRS: Safetyfirst Forerunner ALR using vehicle belt

NHTSA No. M25111

	HEAD INJURY CRITERIA (HIC)			
	HIC**	t ₁ (msec)	t ₂ (msec)	Average Acceleration (g's) t ₁ to t ₂
Position #3 - Right	54.4	64.4	100.4	18.7
Position #4 - Left	107.6	55.7	68.2	37.5

** HIC is as defined in FMVSS 208. The maximum time interval from t₁ to t₂ is 36 milliseconds.

	CLIP SUMMARY*			
	CLIP (g's)	t ₁ (msec)	t ₂ (msec)	CSI
Position #3 - Right	23.3	47.1	50.1	47.1
Position #4 - Left	38.4	42.0	46.8	158.2

* The maximum chest resultant acceleration is defined as the maximum acceleration which exceeds 0.003 seconds in duration.

Position 3 Neck Injury Summary (CRABI – In Position)

Nij V10	Nij	Time (ms)	Z Force (N)	X Force (N)	Y Moment (N-m)
Ntf	0.1	53.5	162.0	1.1	0.0
Nte	0.6	73.6	520.9	-123.2	-3.3
Ncf	0.1	27.6	-109.8	11.4	1.3
Nce	0.1	109.0	-75.6	-4.4	-0.3

Peak Tension (CFC1000) 524.1 N

Peak Compression (CFC1000) 109.9 N

Critical Values

Nij Intercepts				Peak Limits	
Tension (CVt)	1460 N	Extension (mCVe)	17 N-m	Tension	780 N
Compression (CVc)	1460 N	Flexion (mCVf)	43 N-m	Compression	-960 N

Condyle Offset -0.0058

Position 4 Neck Injury Summary (CRABI – In Position)

Nij V10	Nij	Time (ms)	Z Force (N)	X Force (N)	Y Moment (N-m)
Ntf	0.3	47.7	409.4	31.5	0.0
Nte	1.3	56.4	938.3	-371.5	-11.0
Ncf	0.2	29.3	-180.7	17.0	1.8
Nce	0.2	98.1	-42.3	-61.1	-2.9

Peak Tension (CFC1000) 953.1 N

Peak Compression (CFC1000) 181.2 N

Critical Values

Nij Intercepts				Peak Limits	
Tension (CVt)	1460 N	Extension (mCVe)	17 N-m	Tension	780 N
Compression (CVc)	1460 N	Flexion (mCVf)	43 N-m	Compression	-960 N

Condyle Offset -0.0058

DATA SHEET NO. 5

CRS PERFORMANCE DATA

CRS: Safetyfirst Forerunner ALR using vehicle belt

NHTSA No. M25111

		MAXIMUM VALUE			
DESCRIPTION	Unit	Positive	Time (ms)	Negative	Time (ms)
Right Rear Compartment YR	g	28.1	7.0	-9.0	77.2
Right Rear Compartment X	g	7.9	15.3	-8.4	7.8
Right Rear Compartment. Ang 63°	g	29.3	7.2	-6.4	77.5
Right Rear Compartment. Ang 45°	g	27.8	7.3	-4.4	56.6
P3 CRS X	g	6.3	78.1	-5.1	17.1
P3 CRS Y	g	32.4	29.7	-14.8	78.4
P3 CRS Z	g	11.9	106.8	-11.6	31.7
P3 CRS Resultant	g	34.3	30.2	-	-
P4 CRS X	g	4.1	32.3	-12.8	39.0
P4 CRS Y	g	47.4	24.3	-20.5	66.7
P4 CRS Z	g	7.0	31.1	-32.3	21.2
P4 CRS Resultant	g	51.0	23.4	-	-

DATA SHEET NO. 5

CRS PERFORMANCE DATA (CONTINUED)

CRS: Safetyfirst Forerunner ALR using vehicle belt

NHTSA No. M25111

POSITION #3 CRS POST-TEST INSPECTION (Serial No. 02-925-BRD)

LOCATION	DAMAGE	REMARKS
Upper Tether Strap	NA	NA
Upper Tether Buckle	NA	NA
Upper Tether Hook	NA	NA
Vehicle Upper Tether Anchor	NA	NA
Lower Anchor Strap	NA	NA
Lower Anchor Buckle	NA	NA
Lower Anchor Hooks	NA	NA
Vehicle Lower CRS Anchors	NA	NA
Five Point Harness Connections	No	None
Cracks on CRS	No	None
Fabric Tears on CRS	No	None
Vehicle Seat Structure	No	None
Vehicle Seat Fabric Tears	No	None
Child Dummy	No	None

POSITION #4 CRS POST-TEST INSPECTION (Serial No. 02-925-BRD)

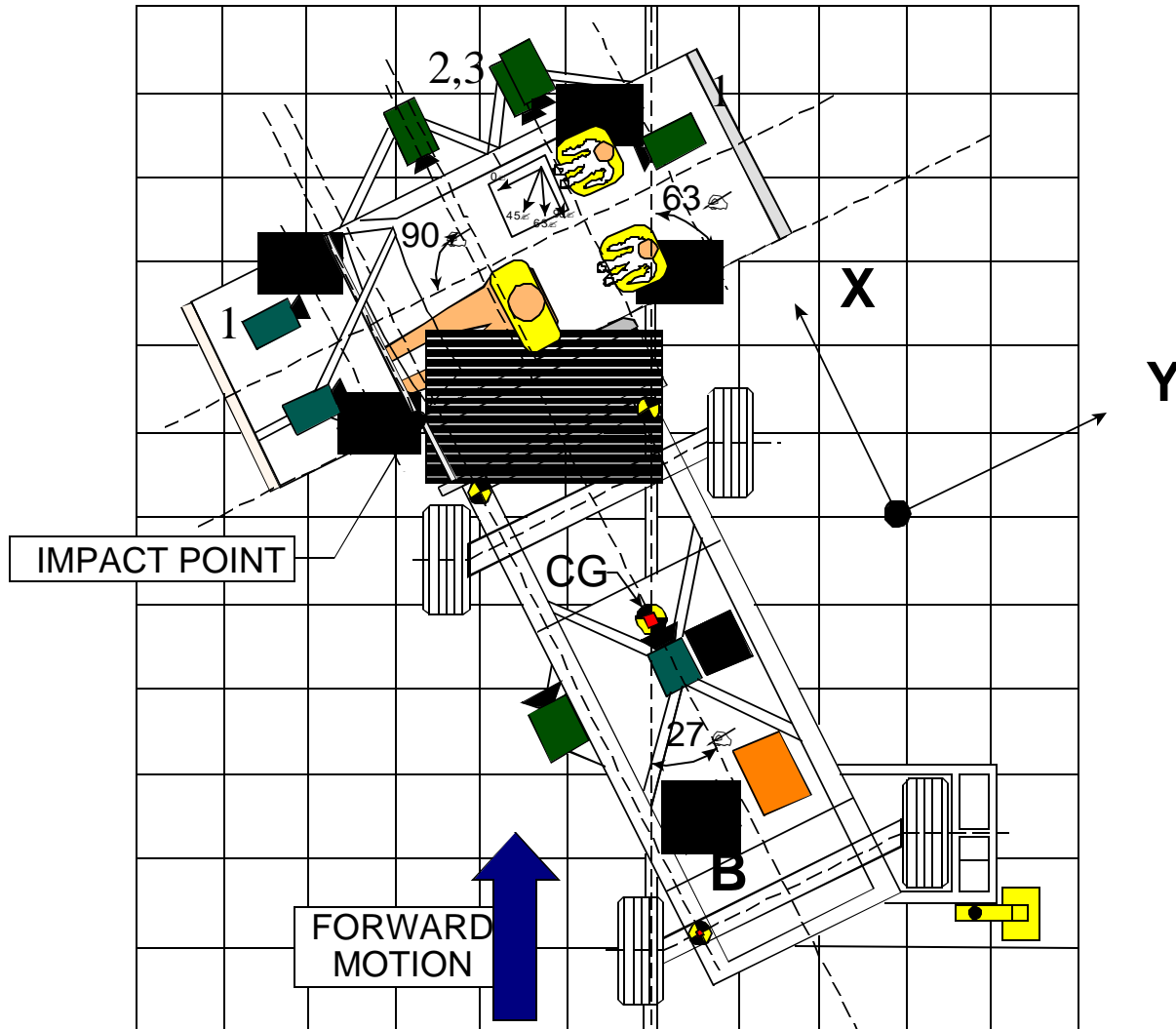
LOCATION	DAMAGE	REMARKS
Upper Tether Strap	NA	NA
Upper Tether Buckle	NA	NA
Upper Tether Hook	NA	NA
Vehicle Upper Tether Anchor	NA	NA
Lower Anchor Strap	NA	NA
Lower Anchor Buckle	NA	NA
Lower Anchor Hooks	NA	NA
Vehicle Lower CRS Anchors	NA	NA
Five Point Harness Connections	No	None
Cracks on CRS	No	None
Fabric Tears on CRS	No	None
Vehicle Seat Structure	No	None
Vehicle Seat Fabric Tears	No	None
Child Dummy	No	None

DATA SHEET NO. 6

CRS CAMERA DATA

CRS: Safetyfirst Forerunner ALR using vehicle belt

NHTSA No. M25111



Camera No.	View	Coordinates (millimeters)			Angle (deg.)	Lens (mm)	Film Speed (fps)
		X*	Y*	Z*			
1**	Overall longitudinal view of child restraints	923	2075	-1596	-37	8	1005
2	Right side CRS lower lateral view	1923	1488	-1308	-12	8	840
3	Right side CRS upper lateral view	1759	1488	-1510	-48	8	1000

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

X = (Impact Point) + Forward

Y = (Impact Point) + To Right

Z = (Ground Level) + Down

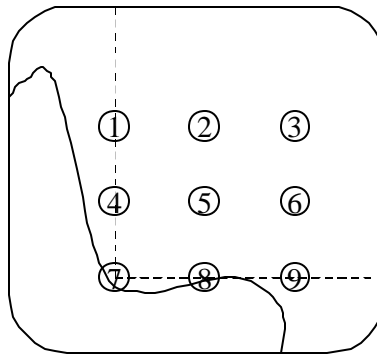
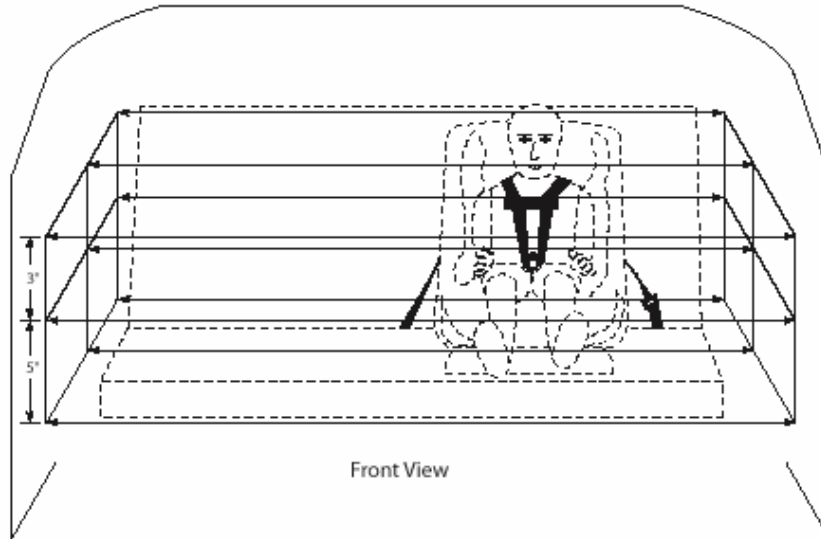
** Camera can be mounted for front or rear view

DATA SHEET NO. 7

REAR SEAT LATERAL DIMENSIONS

CRS: Safetyfirst Forerunner ALR using vehicle belt

NHTSA No. M25111



Side View

Location	Pre-Test (mm)	Post-Test (mm)	Crush (mm)
1	1570	1542	28
2	1624	1508	116
3	1522	1450	72
4	1580	1526	54
5	1622	1528	94
6	1552	1439	113
7	1535	1452	83
8	1520	1405	115
9	1533	1378	155

? Origin taken from intersection of seat bight and horizontal of uppermost point on bottom seat cushion.

? Rows heights and column widths are at 200 mm intervals

SECTION 3

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Figure 3-1: CLOSE-UP VIEW OF POSITION 3 CRS LABEL



Figure 3-2: PRE-TEST FRONTAL VIEW OF POSITION 3 CRS



Figure 3-3: POST-TEST FRONTAL VIEW OF POSITION 3 CRS



Figure 3-4: PRE-TEST REAR VIEW OF POSITION 3 CRS



Figure 3-5: POST-TEST REAR VIEW OF POSITION 3 CRS



Figure 3-6: PRE-TEST LEFT SIDE VIEW OF POSITION 3 CRS



Figure 3-7: POST-TEST LEFT SIDE VIEW OF POSITION 3 CRS



Figure 3-8: PRE-TEST RIGHT SIDE VIEW OF POSITION 3 CRS



Figure 3-9: POST-TEST RIGHT SIDE VIEW OF POSITION 3 CRS

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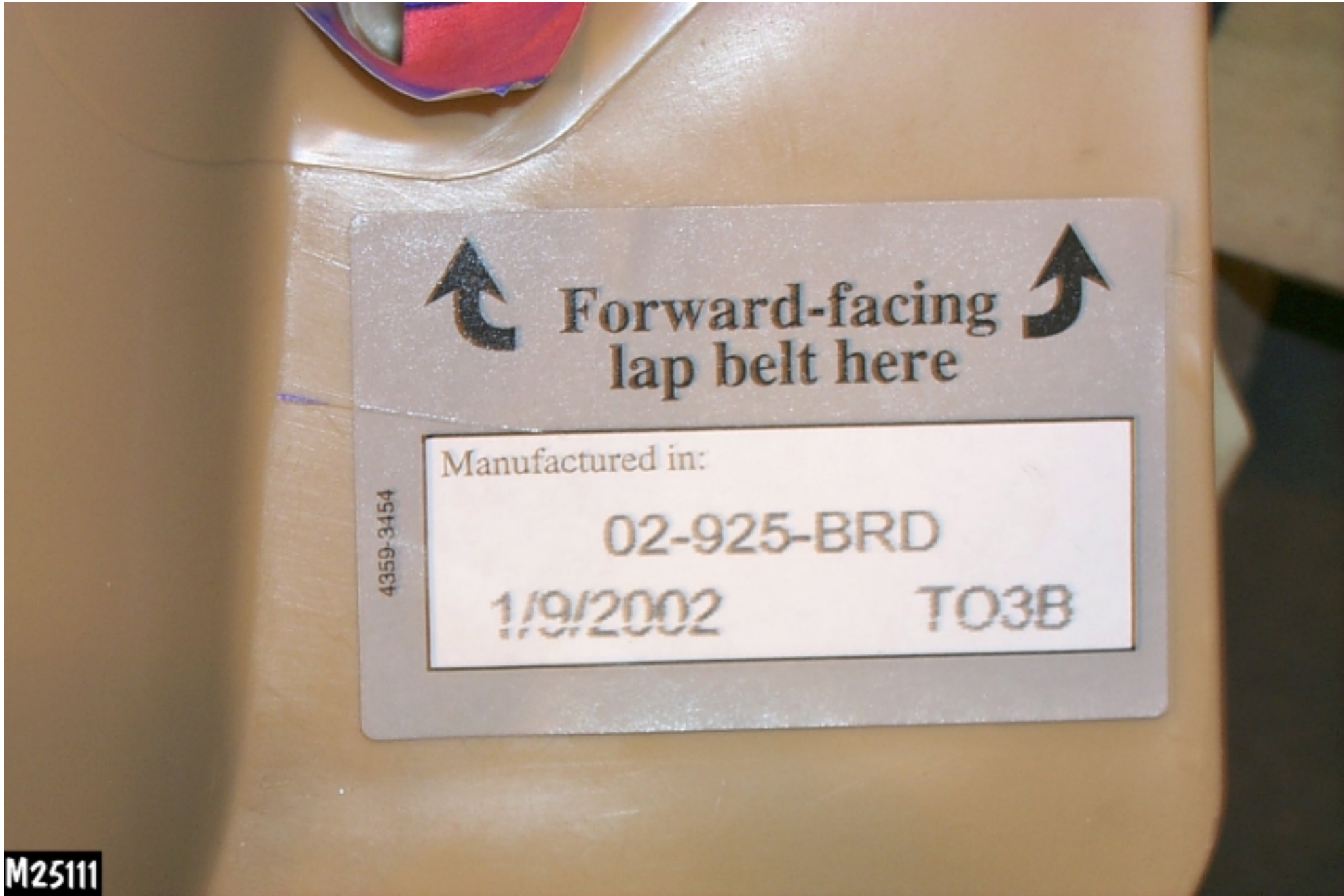


Figure 3-10: CLOSE-UP VIEW OF POSITION 4 CRS LABEL



Figure 3-11: PRE-TEST FRONTAL VIEW OF POSITION 4 CRS



Figure 3-12: POST-TEST FRONTAL VIEW OF POSITION 4 CRS

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Figure 3-13: PRE-TEST REAR VIEW OF POSITION 4 CRS



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Figure 3-14: POST-TEST REAR VIEW OF POSITION 4 CRS



Figure 3-15: PRE-TEST LEFT SIDE VIEW OF POSITION 4 CRS



Figure 3-16: POST-TEST LEFT SIDE VIEW OF POSITION 4 CRS



Figure 3-17: PRE-TEST RIGHT SIDE VIEW OF POSITION 4 CRS



Figure 3-18: POST-TEST RIGHT SIDE VIEW OF POSITION 4 CRS

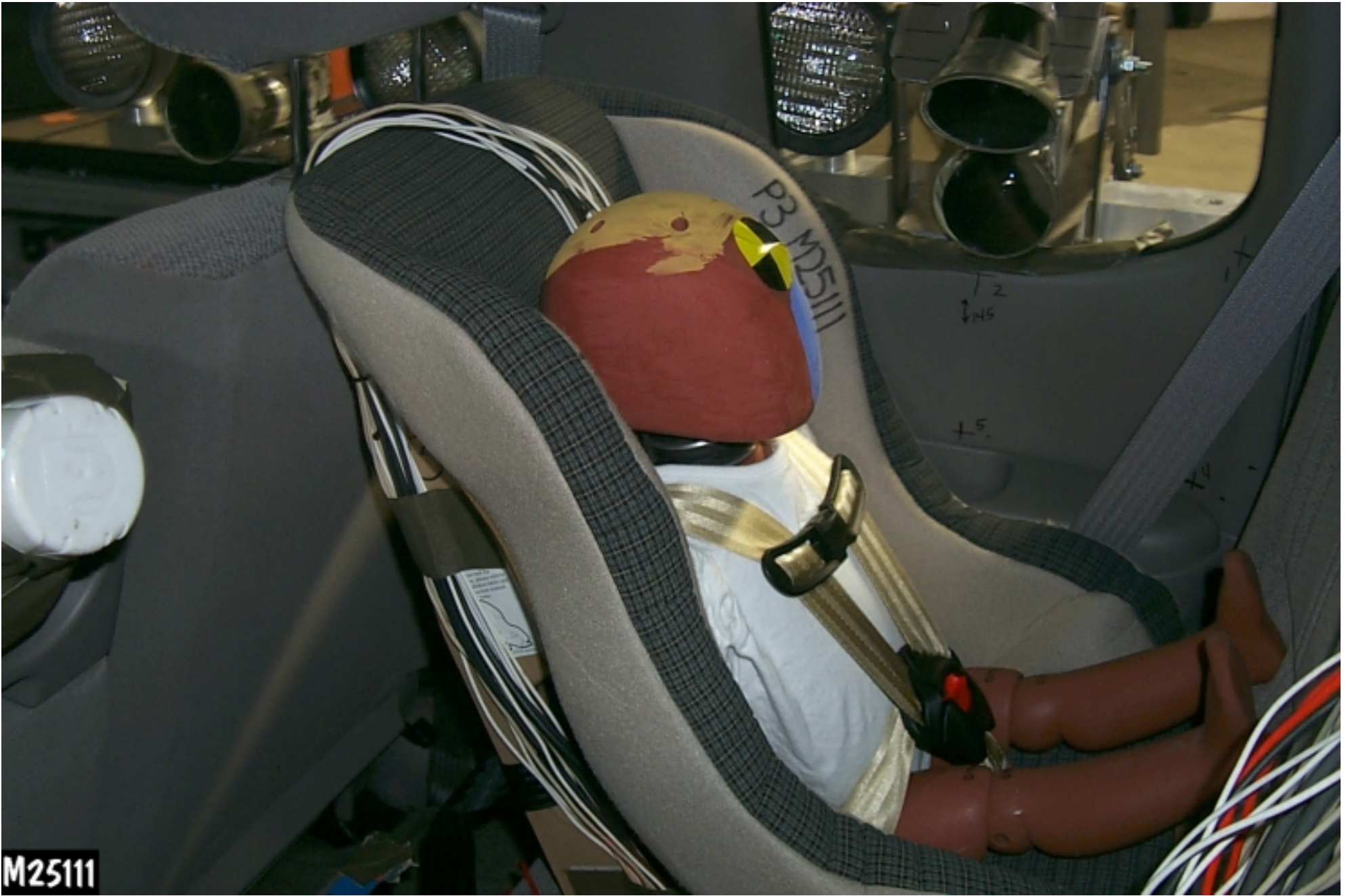


Figure 3-19: PRE-TEST POSITION 3 LEFT SIDE VIEW



Figure 3-20: POST-TEST POSITION 3 LEFT SIDE VIEW



Figure 3-21: PRE-TEST POSITION 4 LEFT SIDE VIEW



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Figure 3-22: POST-TEST POSITION 4 LEFT SIDE VIEW



Figure 3-23: PRE-TEST POSITION 3 RIGHT SIDE VIEW



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Figure 3-24: POST-TEST POSITION 3 RIGHT SIDE VIEW



Figure 3-25: PRE-TEST POSITION 4 RIGHT SIDE VIEW



Figure 3-26: POST-TEST POSITION 4 RIGHT SIDE VIEW



Figure 3-27: PRE-TEST POSITION 3 REAR VIEW



Figure 3-28: POST-TEST POSITION 3 REAR VIEW



Figure 3-29: PRE-TEST POSITION 4 REAR VIEW



Figure 3-30: POST-TEST POSITION 4 REAR VIEW

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SECTION 4

CHILD DUMMY RESPONSE AND CRS DATA TRACES

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79	Acc 20 Right Rear Compartment x [g, CFC_60]	4-82
80	Acc 20 Right Rear Compartment x Velocity [kph, CFC_180]	4-83
81	Acc 21 Right Rear Compartment Angular 63y [g, CFC_60]	4-84
82	Acc 21 Right Rear Compartment Angular 63y Velocity [kph, CFC_180]	4-85
83	Acc 22 Right Rear Compartment Angular 45y [g, CFC_60]	4-86
84	Acc 22 Right Rear Compartment Angular 45y Velocity [kph, CFC_180]	4-87
85	P3 Child Seat x [g, CFC_60]	4-88
86	P3 Child Seat x Velocity [kph, CFC_180]	4-89
87	P3 Child Seat y [g, CFC_60]	4-90
88	P3 Child Seat y Velocity [kph, CFC_180]	4-91
89	P3 Child Seat z [g, CFC_60]	4-92
90	P3 Child Seat z Velocity [kph, CFC_180]	4-93
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92	P4 Child seat x [g, CFC_60]	4-95
93	P4 Child seat x Velocity [kph, CFC_180]	4-96
94	P4 Child Seat y [g, CFC_60]	4-97
95	P4 Child Seat y Velocity [kph, CFC_180]	4-98
96	P4 Child Seat z [g, CFC_60]	4-99
97	P4 Child Seat z Velocity [kph, CFC_180]	4-100
98	P4 Child seat Resultant [g, CFC_60]	4-101

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

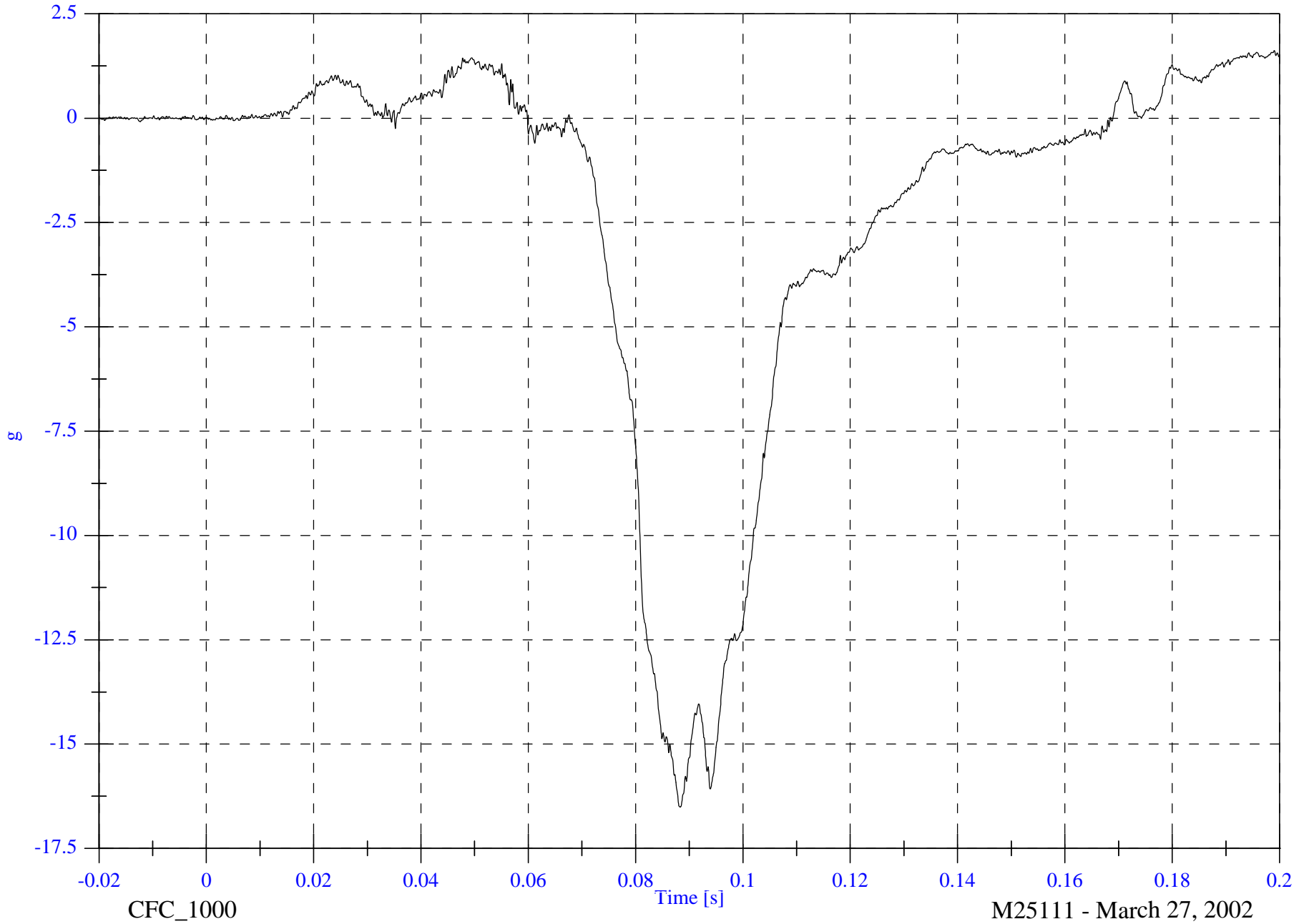
P3 Head x

Max: 1.6 [g] at 0.199 [s]

Min: -16.5 [g] at 0.088 [s]

4-4

8652-SNCAP-05



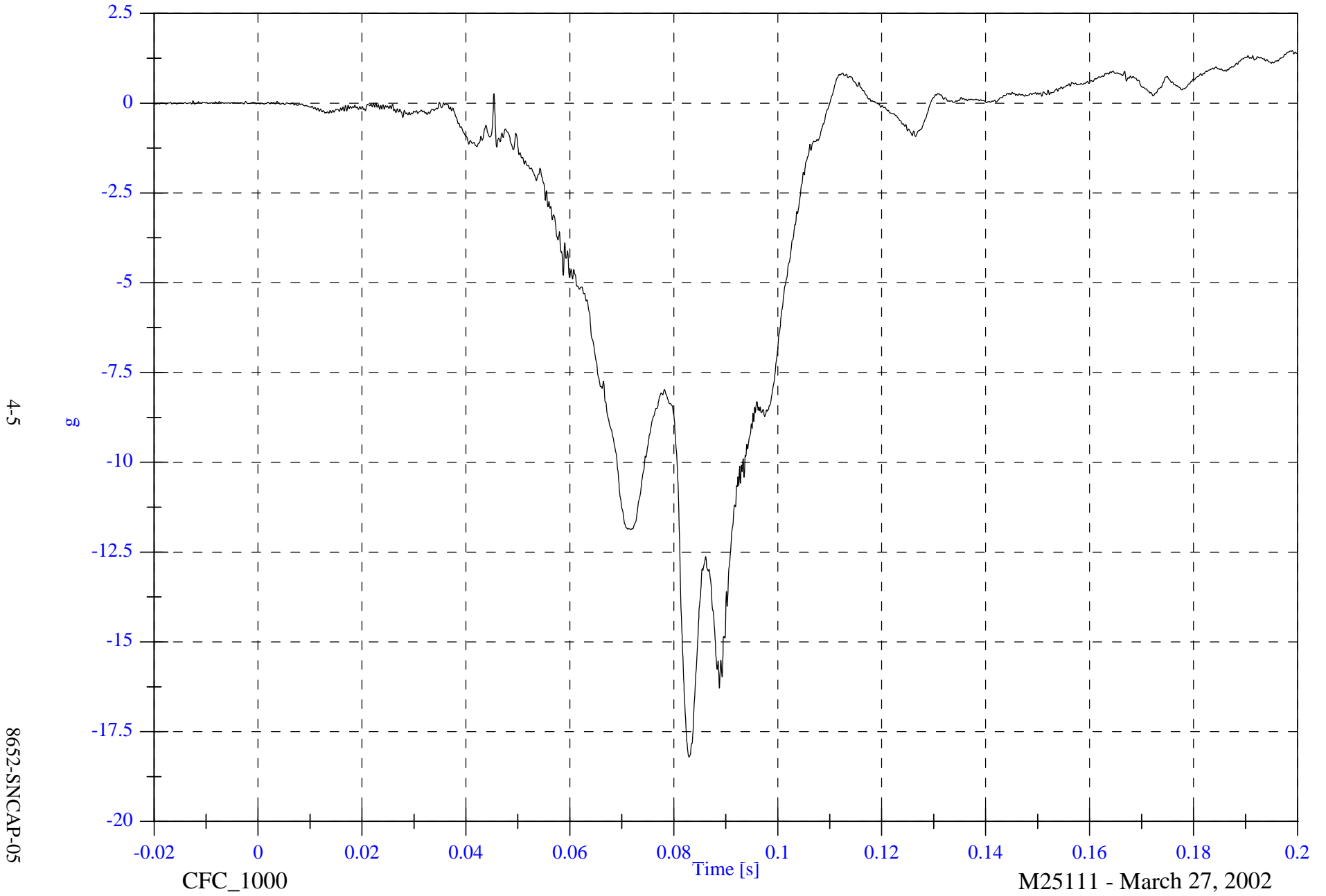
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Head y

Max: 1.5 [g] at 0.199 [s]

Min: -18.2 [g] at 0.083 [s]



4-5

8652-SNCAP-05

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Head z

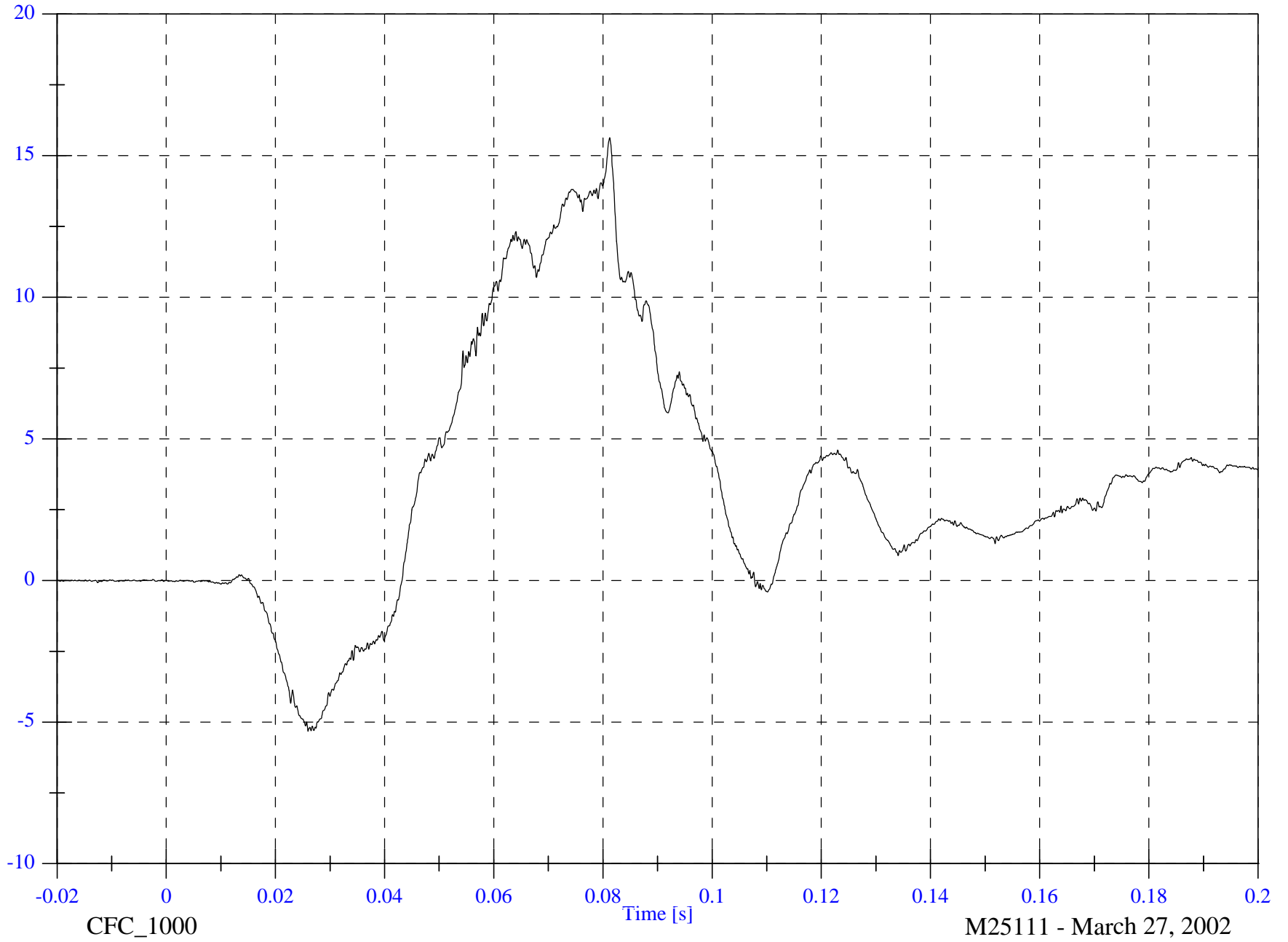
Max: 15.6 [g] at 0.081 [s]

Min: -5.3 [g] at 0.026 [s]

4-6

g

8652-SNCAP-05



CFC_1000

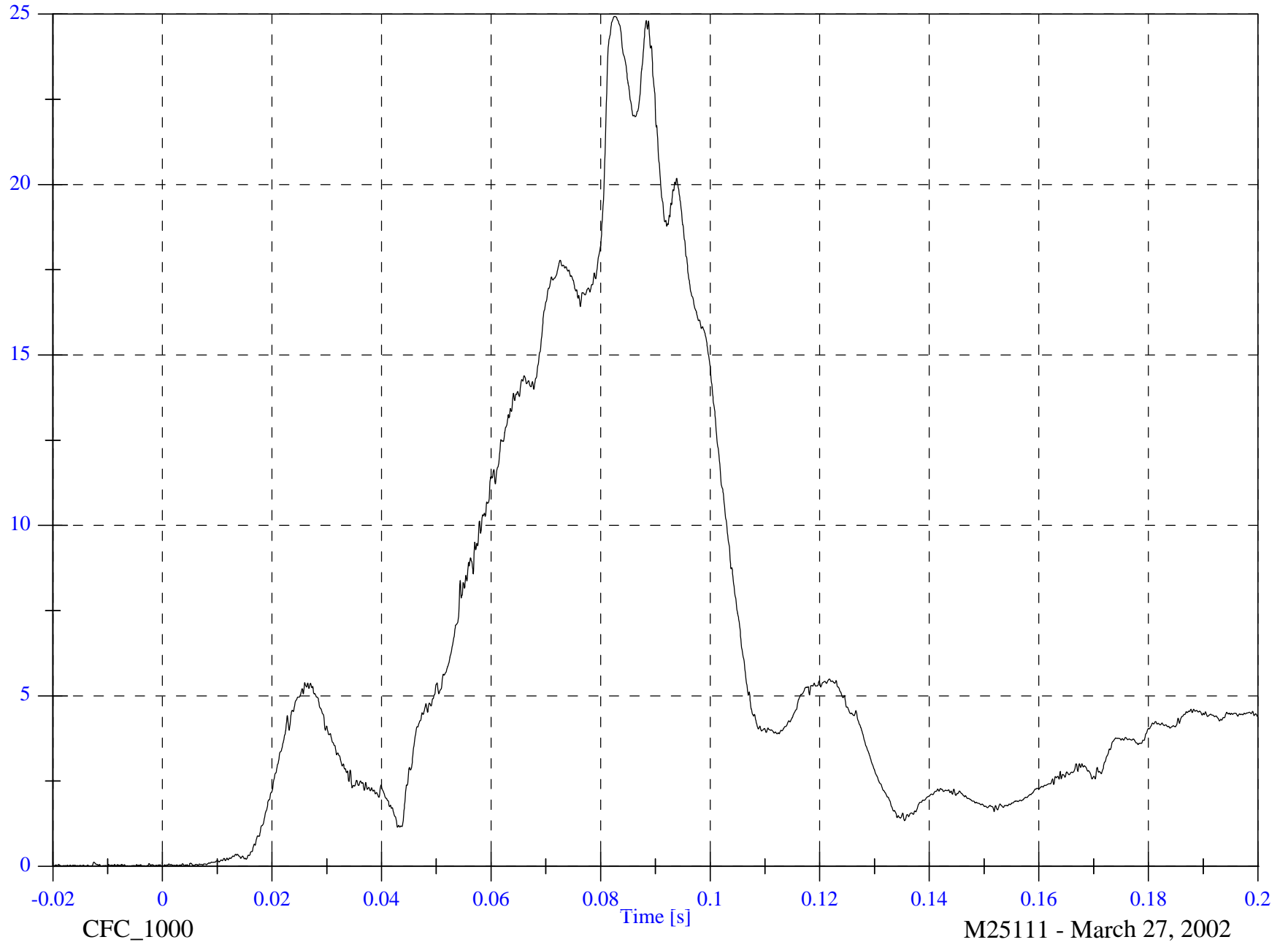
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Head Resultant

Max: 24.9 [g] at 0.083 [s]

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



4-7

8652-SNCAP-05

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Head Red z

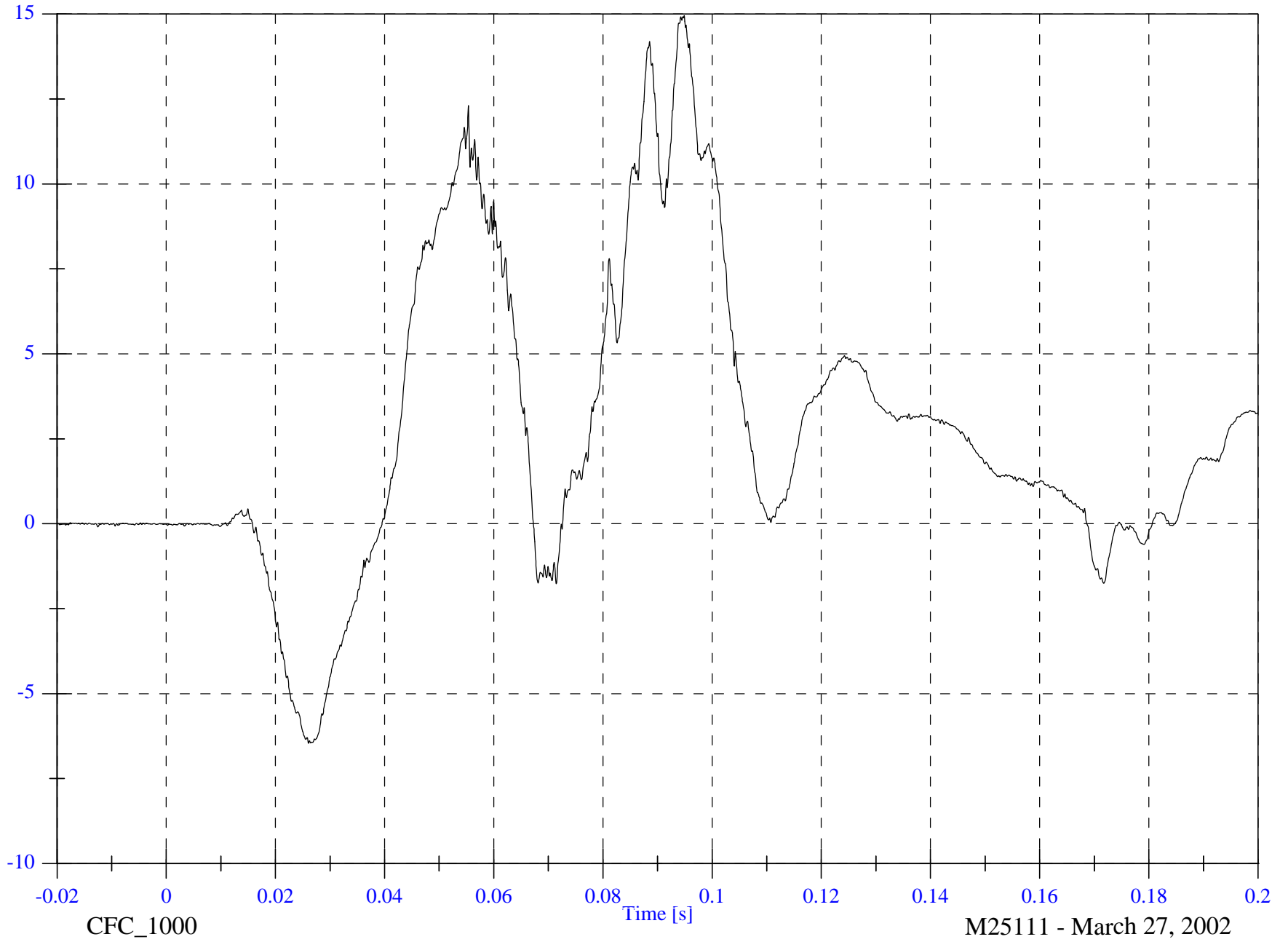
Max: 15.0 [g] at 0.095 [s]

Min: -6.5 [g] at 0.026 [s]

4-8

g

8652-SNCAP-05



CFC_1000

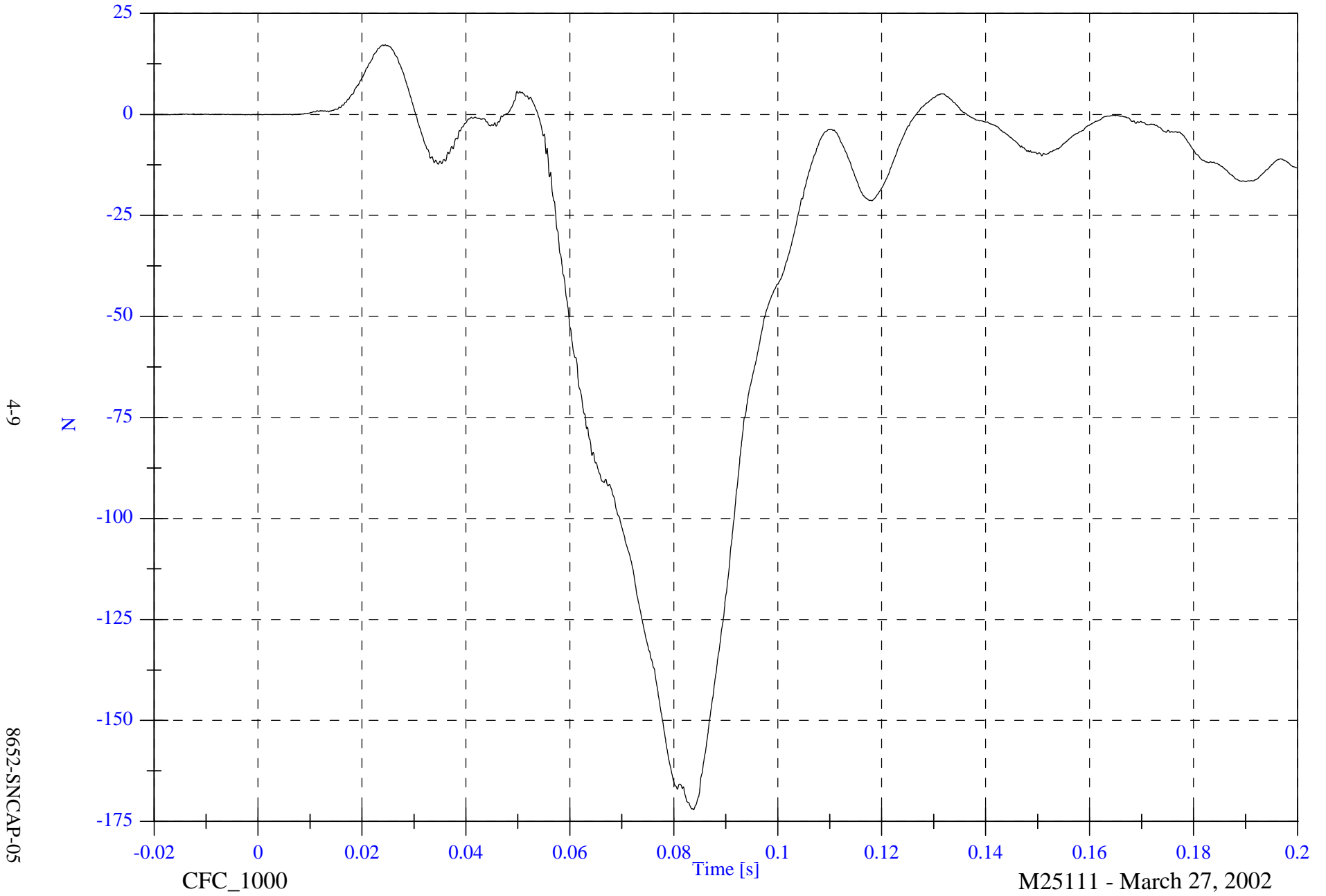
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Upper Neck Fx

Max: 17.2 [N] at 0.025 [s]

Min: -172.2 [N] at 0.084 [s]



4-9

8652-SNCAP-05

CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Upper Neck Fy

Max: 51.3 [N] at 0.200 [s]

Min: -101.3 [N] at 0.084 [s]



4-10

8652-SNCAP-05

CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

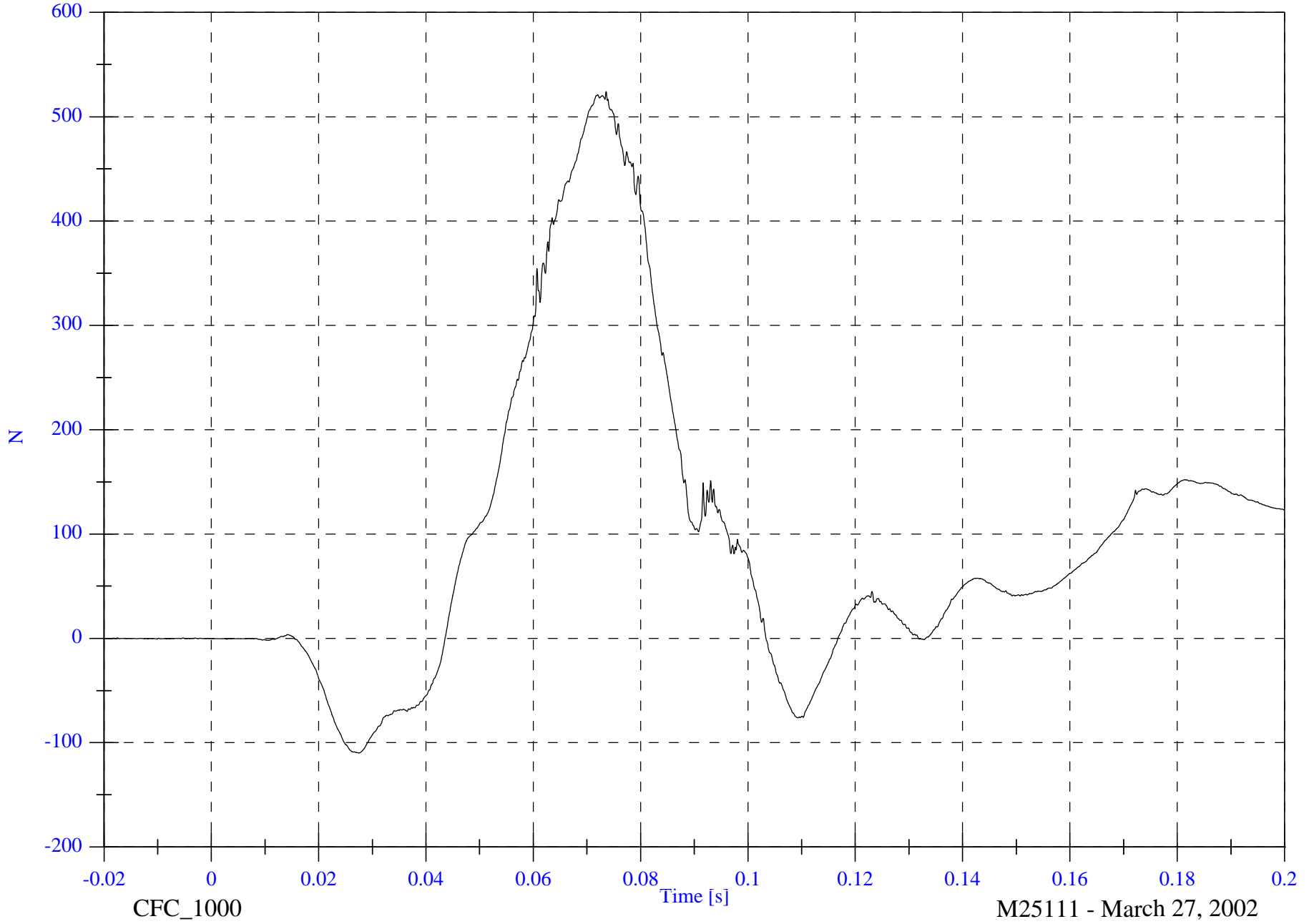
P3 Upper Neck Fz

Max: 524.1 [N] at 0.074 [s]

Min: -109.9 [N] at 0.027 [s]

4-11

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

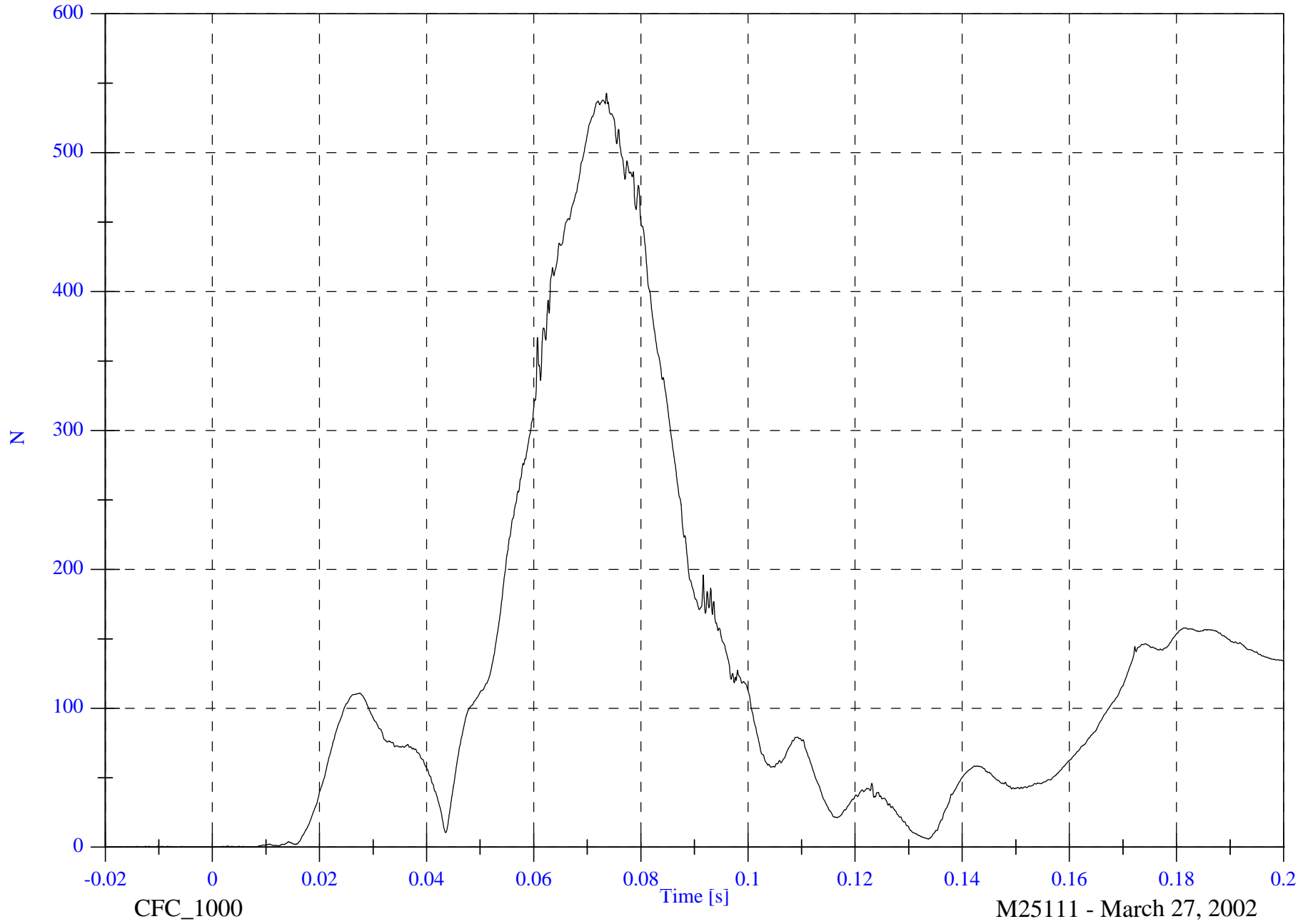
P3 Upper Neck F Resultant

Max: 542.9 [N] at 0.074 [s]

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

4-12

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

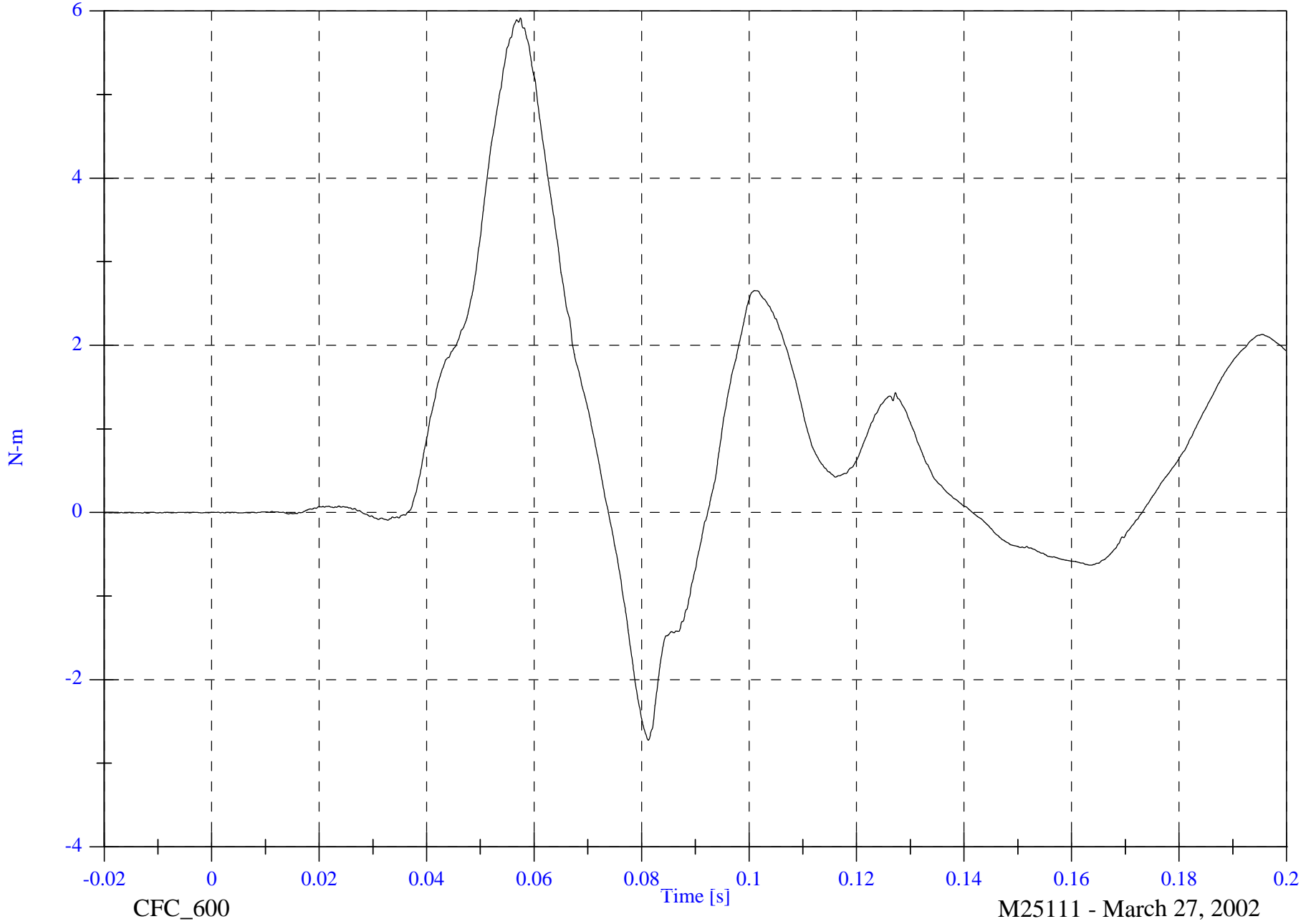
P3 Upper Neck Mx

Max: 5.9 [N-m] at 0.057 [s]

Min: -2.7 [N-m] at 0.081 [s]

4-13

8652-SNCAP-05



CFC_600

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

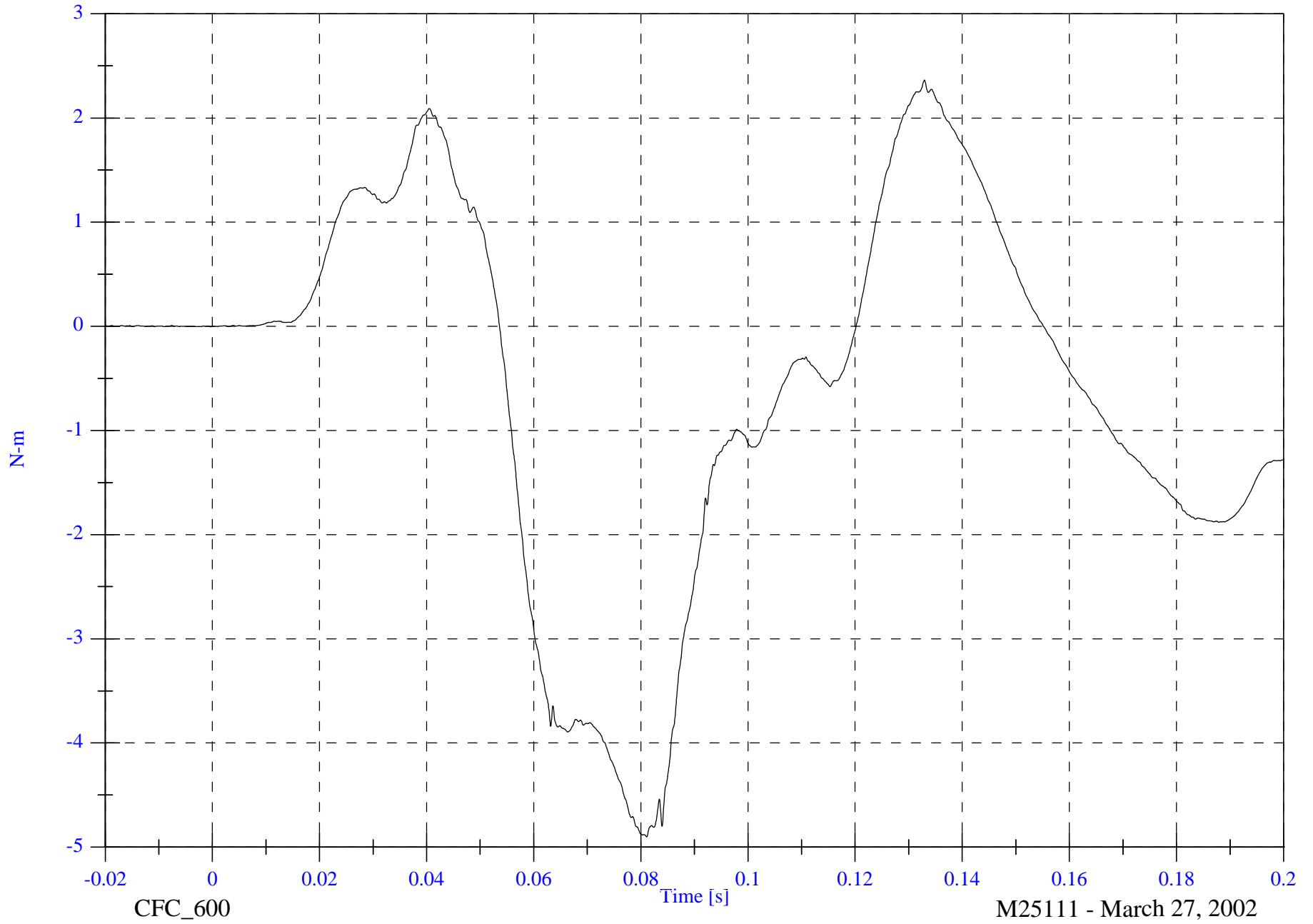
P3 Upper Neck My

Max: 2.4 [N-m] at 0.133 [s]

Min: -4.9 [N-m] at 0.081 [s]

4-14

8652-SNCAP-05



CFC_600

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

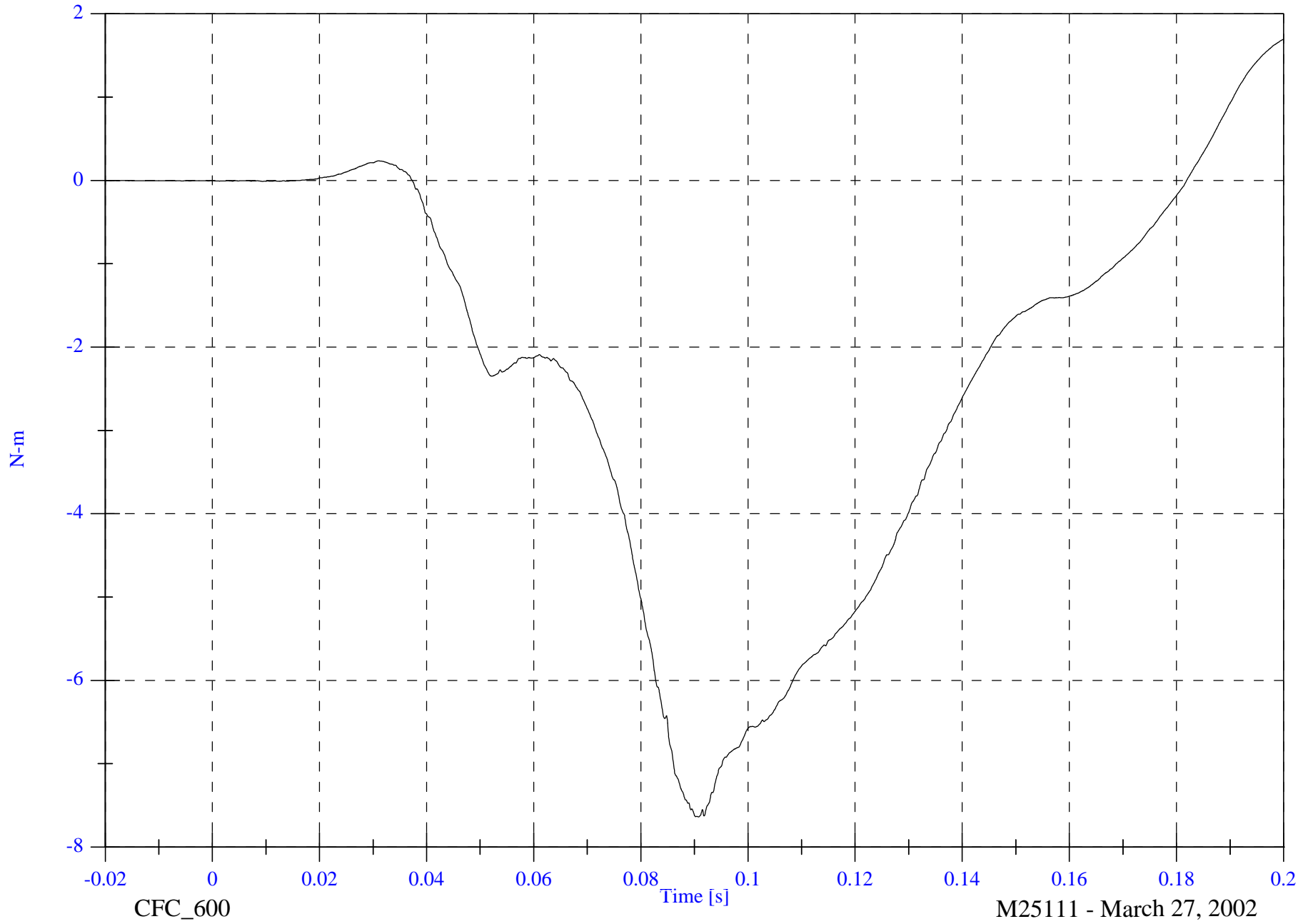
P3 Upper Neck Mz

Max: 1.7 [N-m] at 0.200 [s]

Min: -7.6 [N-m] at 0.091 [s]

4-15

8652-SNCAP-05



CFC_600

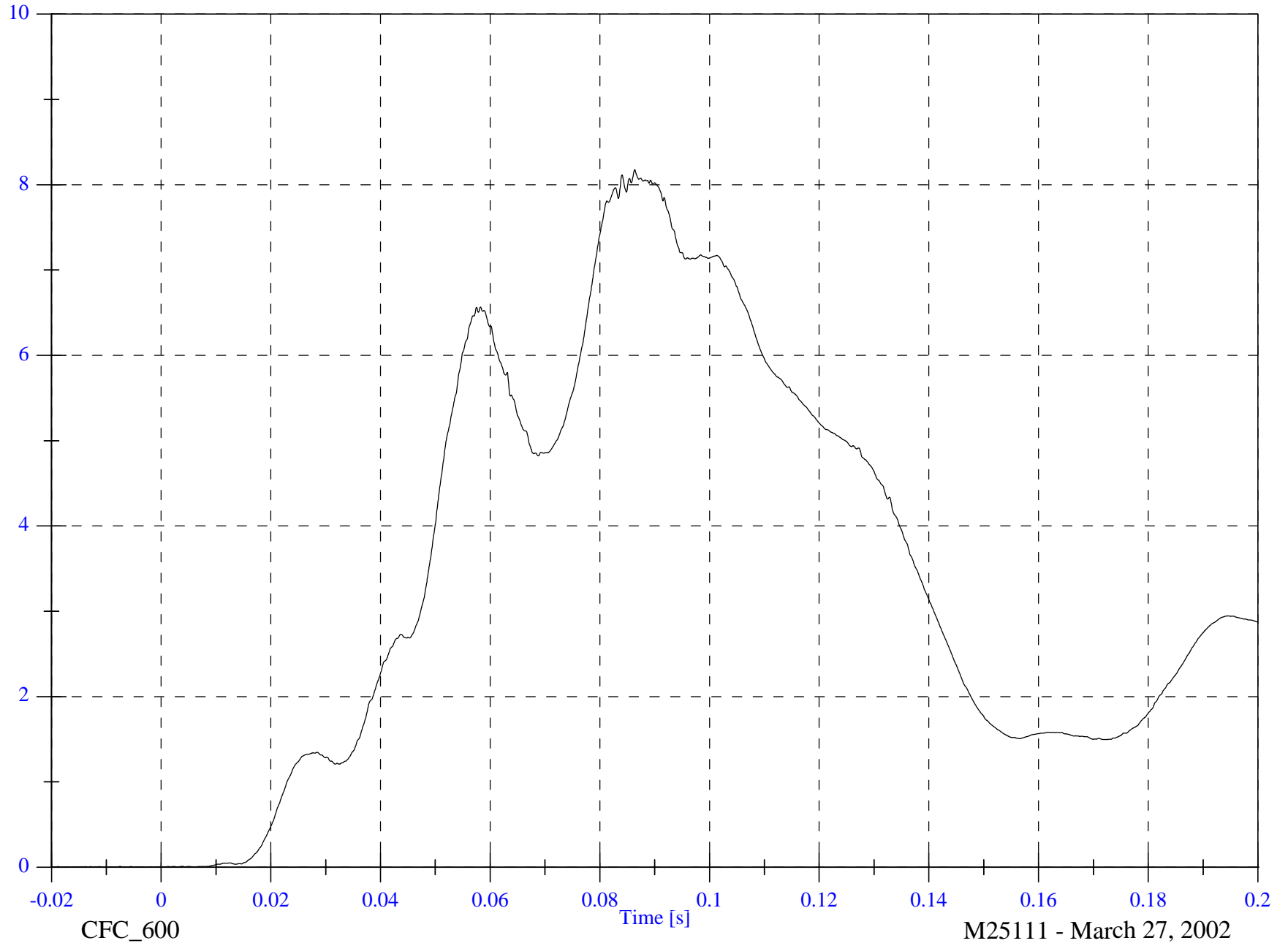
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Upper Neck M Resultant

Max: 8.2 [N-m] at 0.086 [s]

Min: 0.0 [N-m] at -0.015 [s]



4-16

8652-SNCAP-05

CFC_600

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

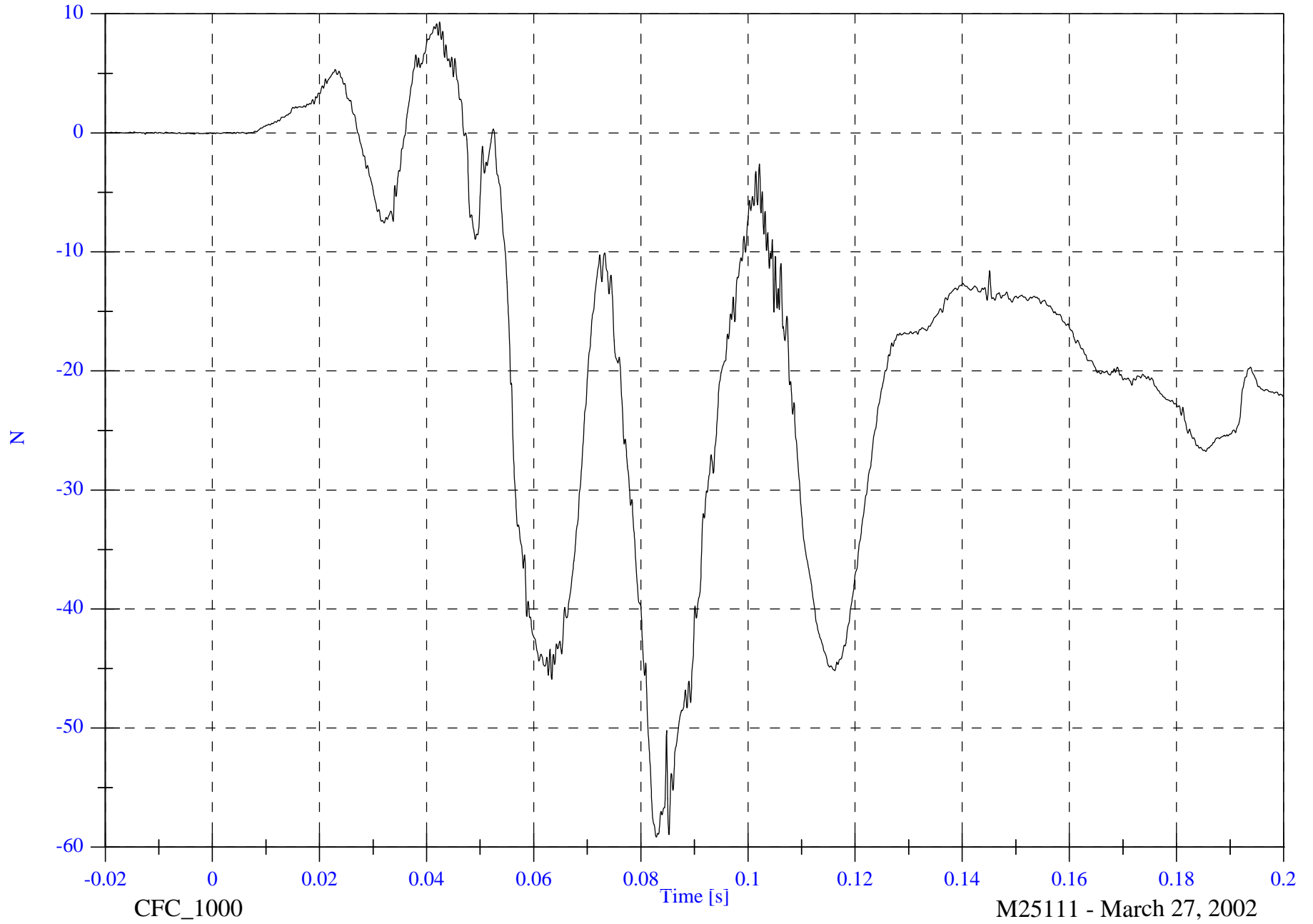
P3 Lower Neck Fx

Max: 9.3 [N] at 0.042 [s]

Min: -59.2 [N] at 0.083 [s]

4-17

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

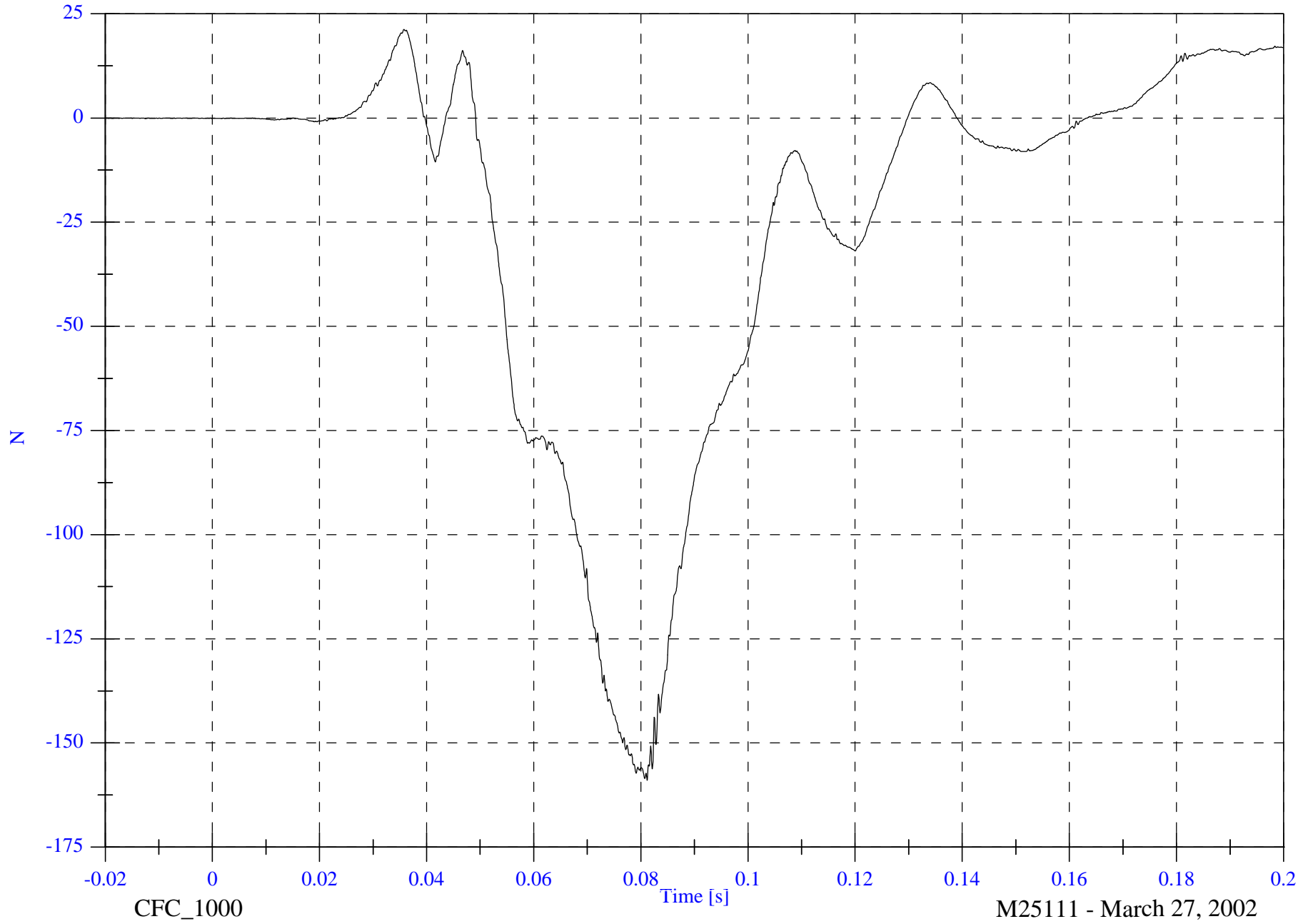
P3 Lower Neck Fy

Max: 21.2 [N] at 0.036 [s]

Min: -159.0 [N] at 0.081 [s]

4-18

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

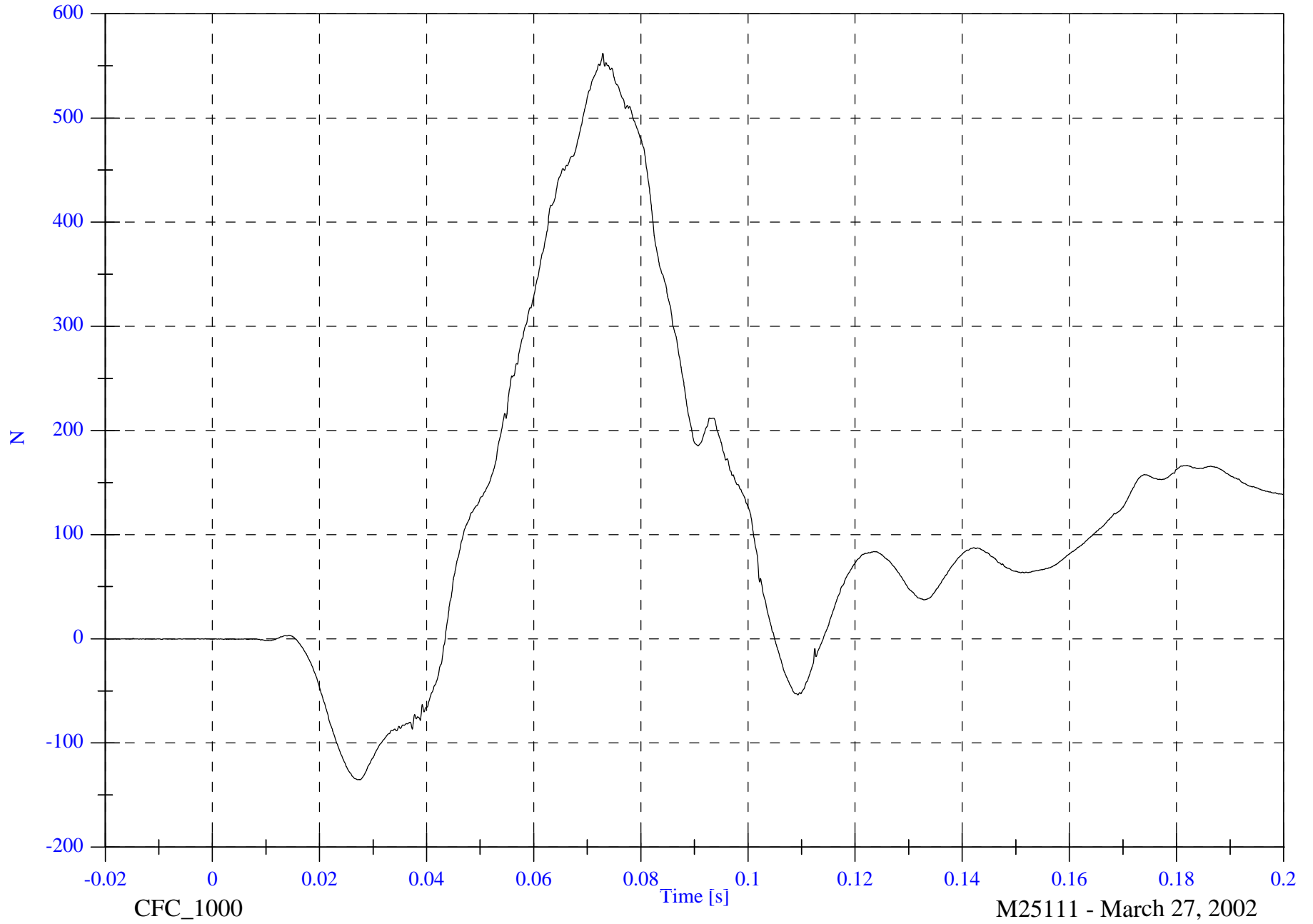
P3 Lower Neck Fz

Max: 562.3 [N] at 0.073 [s]

Min: -135.3 [N] at 0.027 [s]

4-19

8652-SNCAP-05



CFC_1000

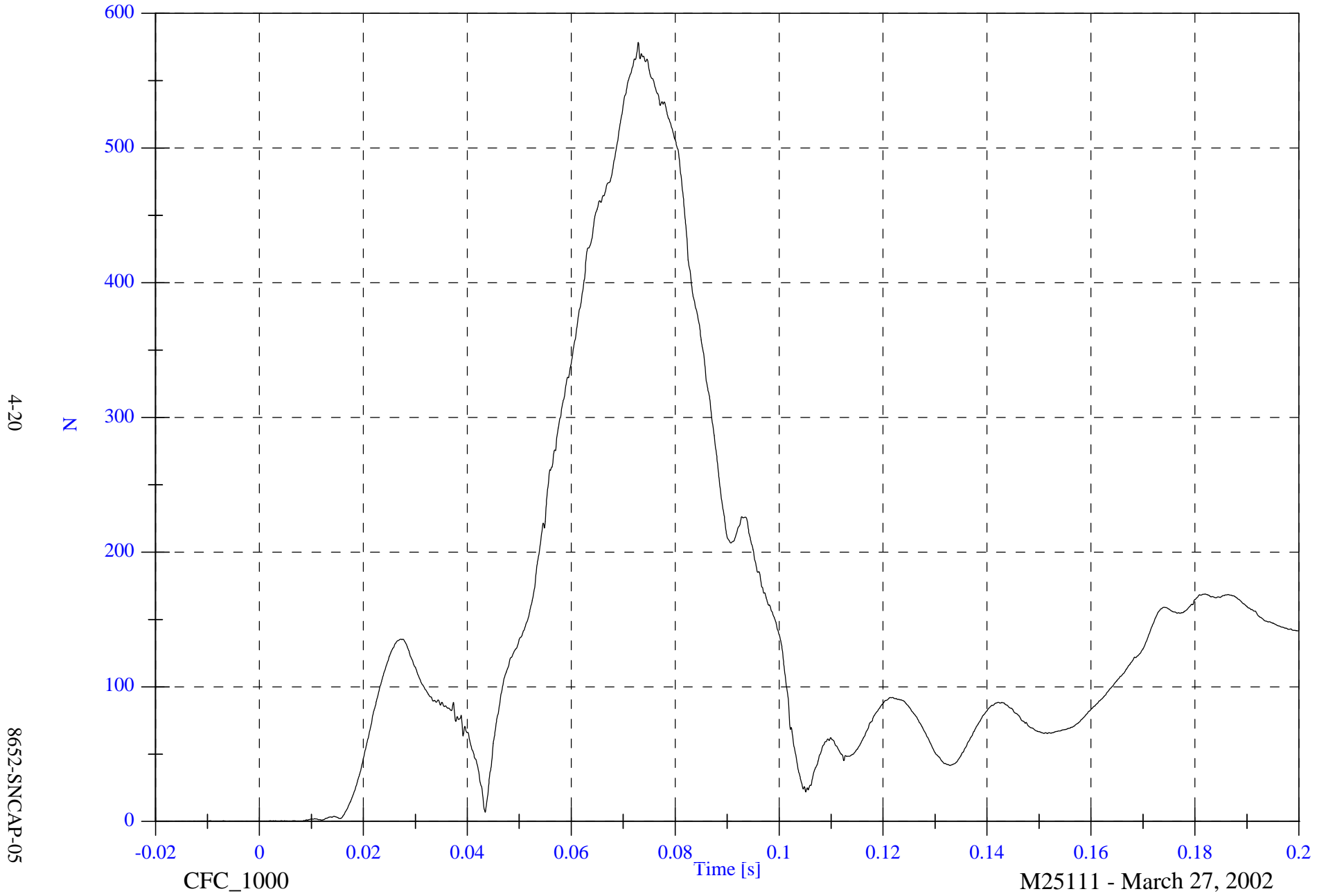
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Lower Neck F Resultant

Max: 578.5 [N] at 0.073 [s]

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



4-20

8652-SNCAP-05

CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

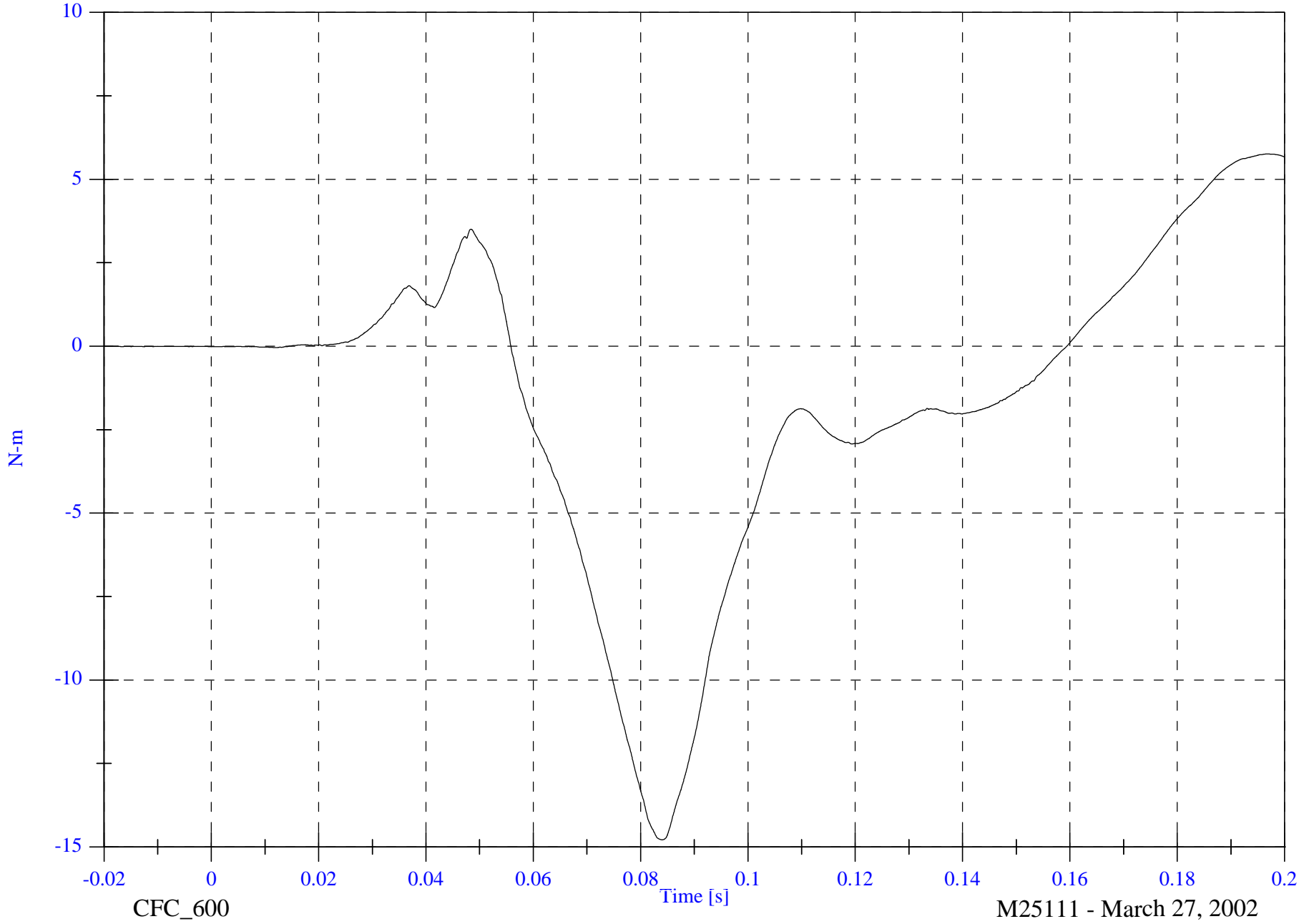
P3 Lower Neck Mx

Max: 5.8 [N-m] at 0.197 [s]

Min: -14.8 [N-m] at 0.084 [s]

4-21

8652-SNCAP-05



CFC_600

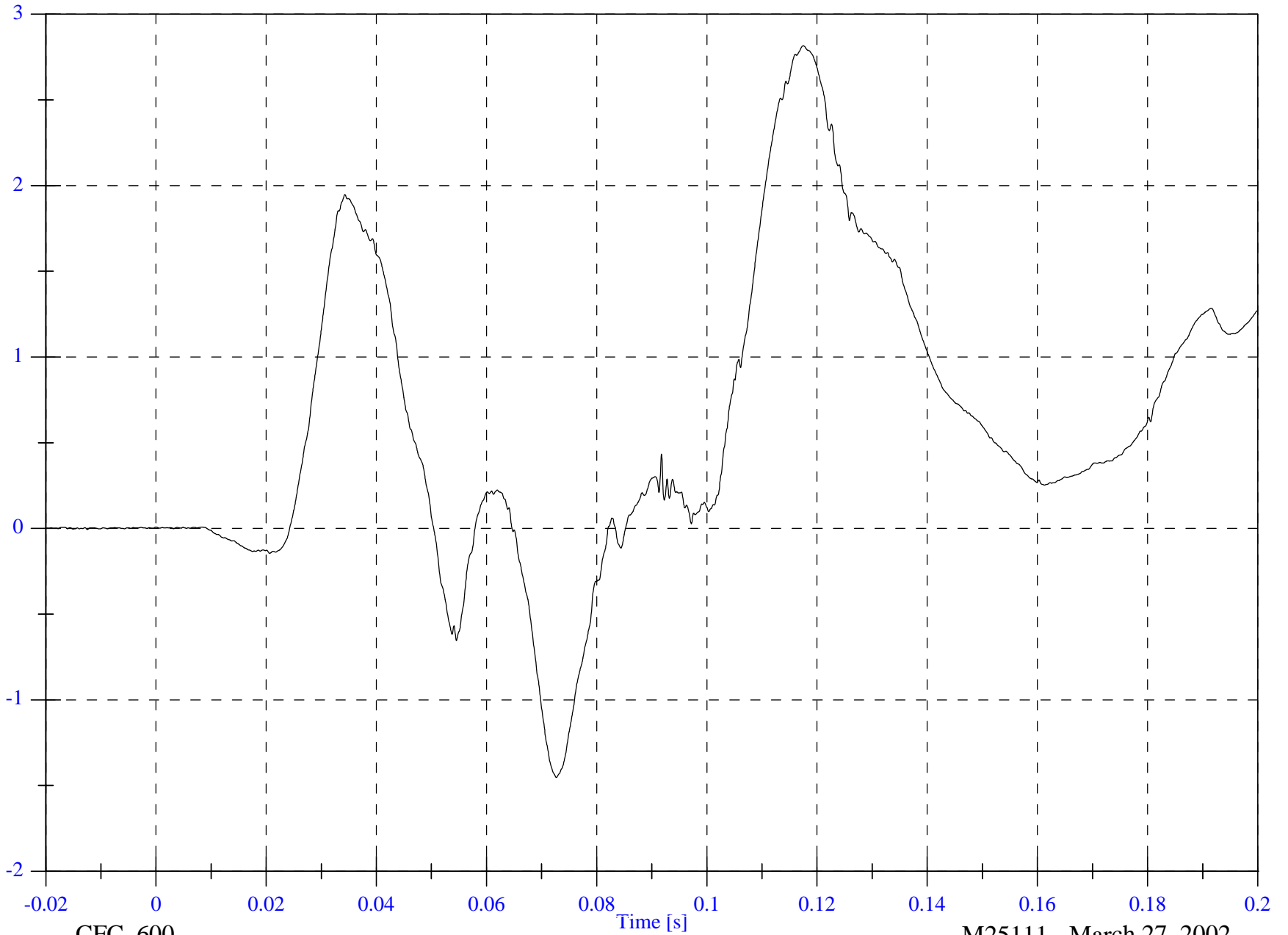
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Lower Neck My

Max: 2.8 [N-m] at 0.117 [s]

Min: -1.5 [N-m] at 0.073 [s]



4-22

8652-SNCAP-05

CFC_600

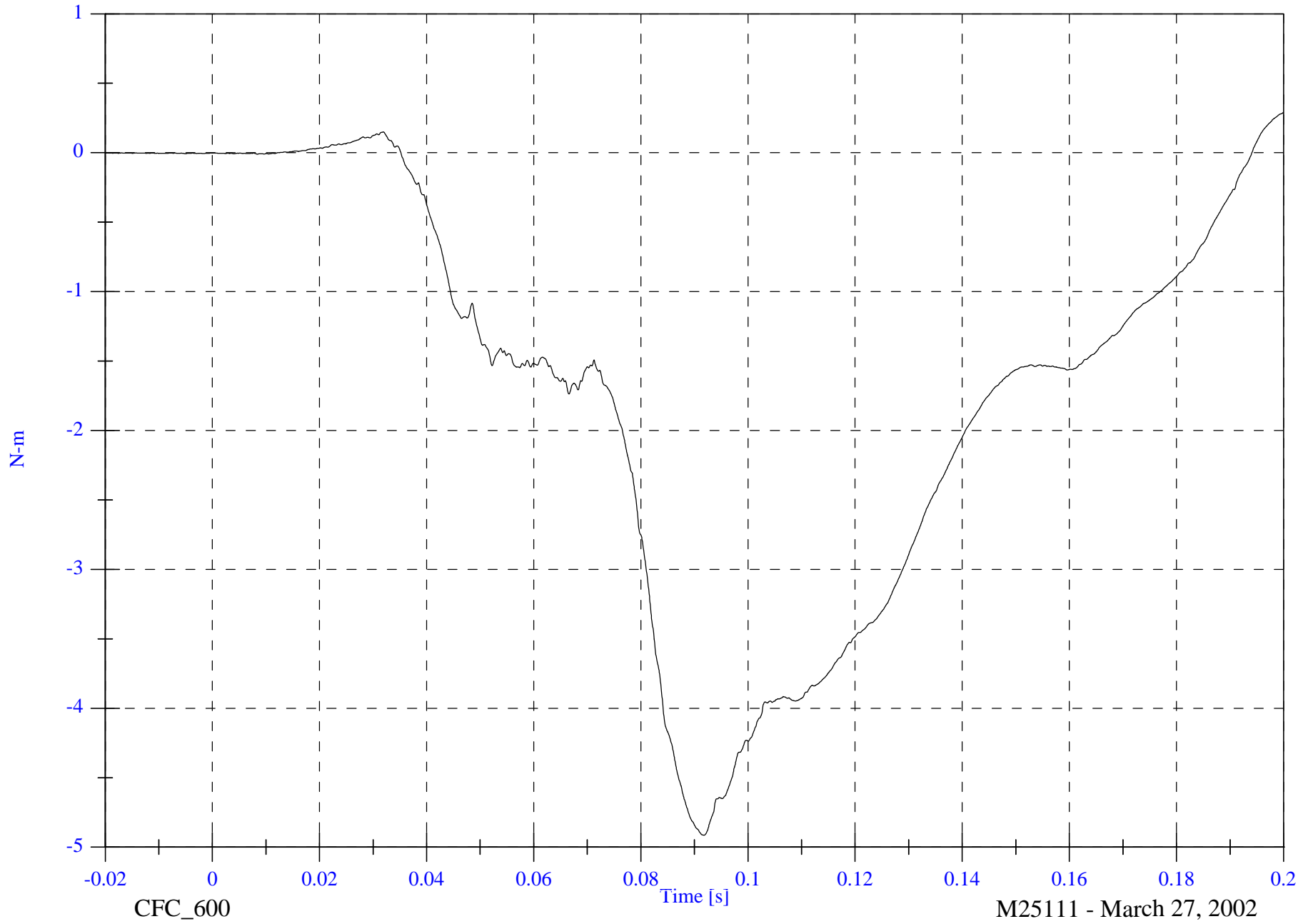
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Lower Neck Mz

Max: 0.3 [N-m] at 0.200 [s]

Min: -4.9 [N-m] at 0.092 [s]



4-23

8652-SNCAP-05

CFC_600

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

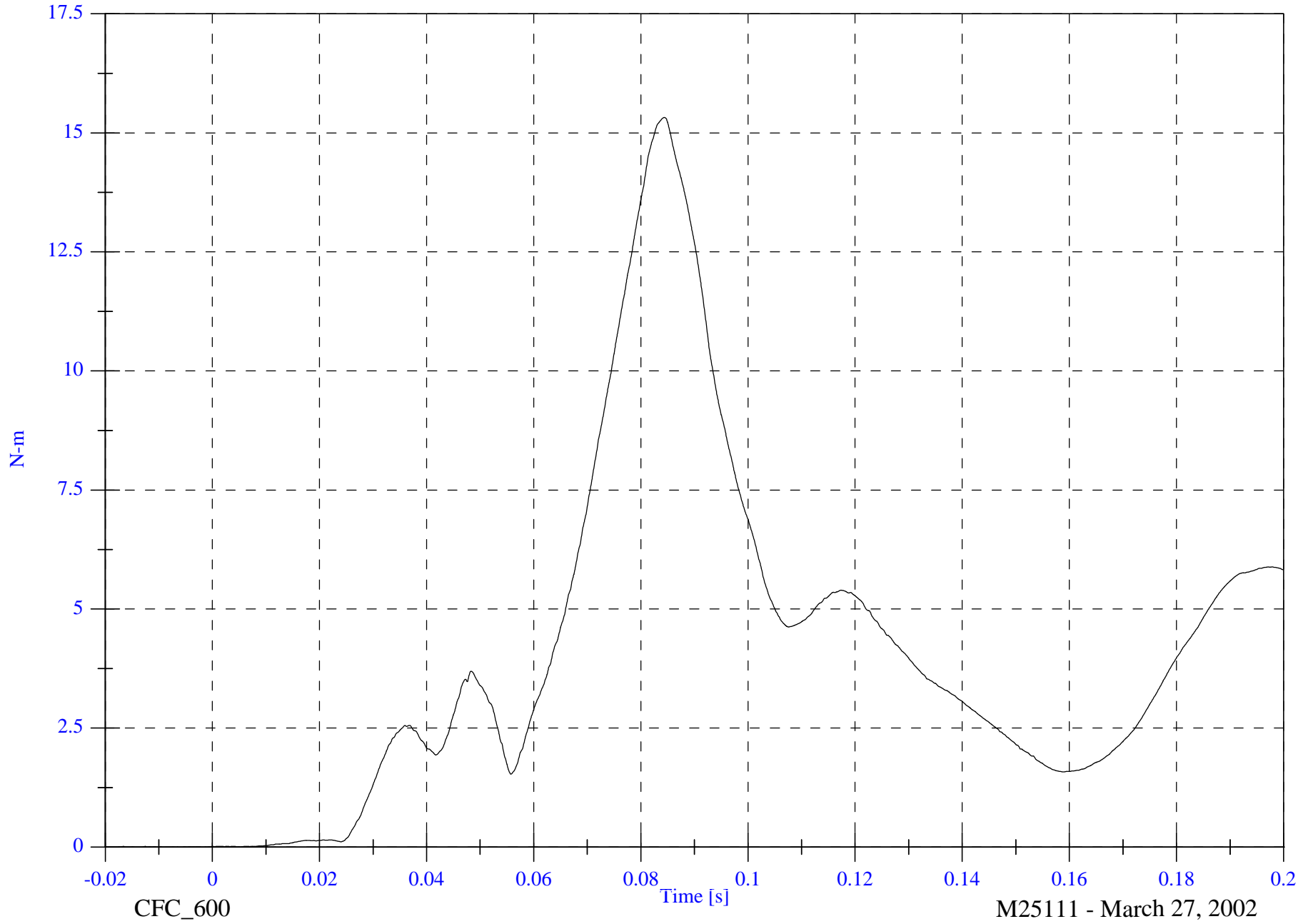
P3 Lower Neck M Resultant

Max: 15.3 [N-m] at 0.084 [s]

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

4-24

8652-SNCAP-05



CFC_600

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

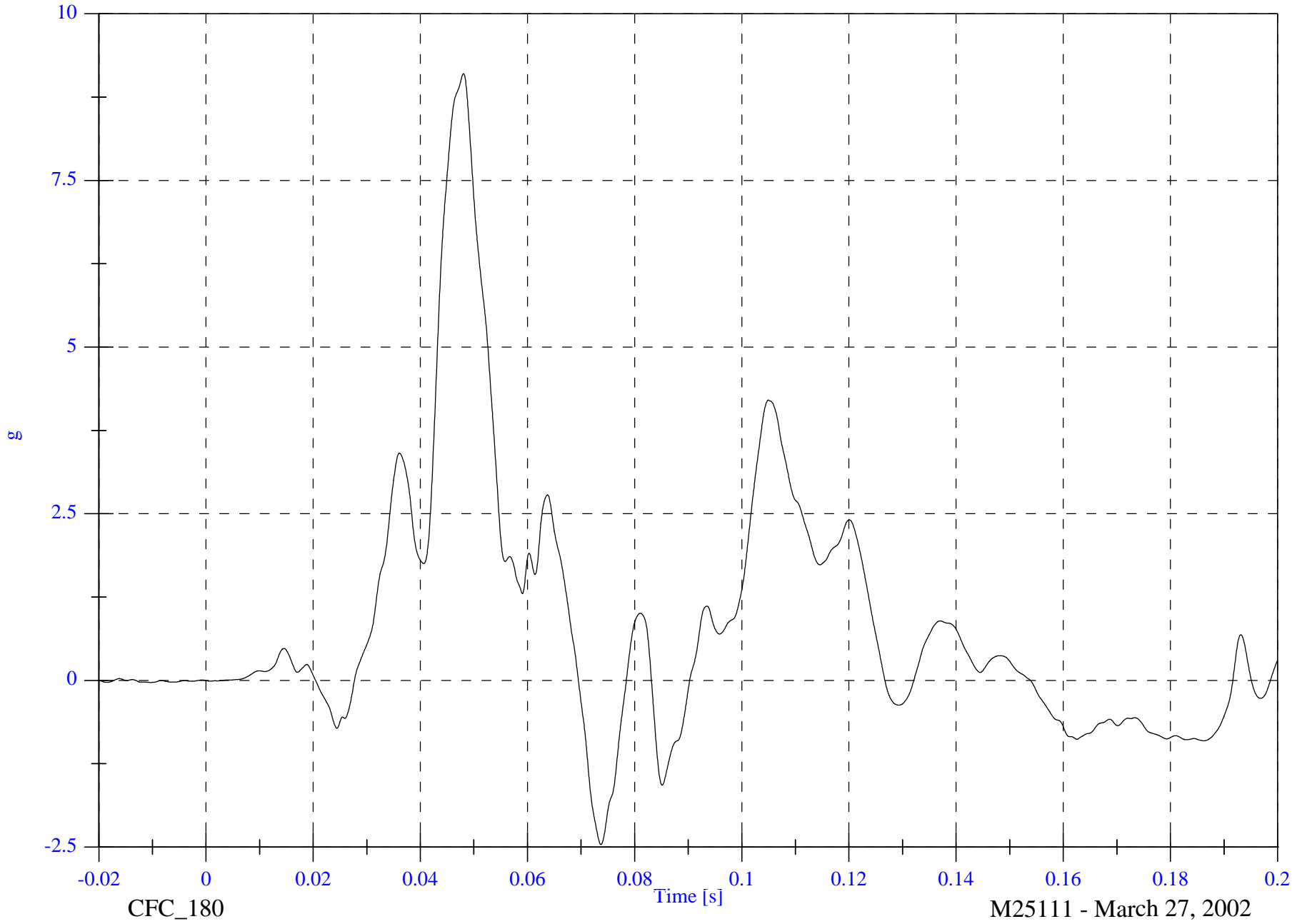
Max: 9.1 [g] at 0.048 [s]

P3 Chest x

Min: -2.5 [g] at 0.074 [s]

4-25

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

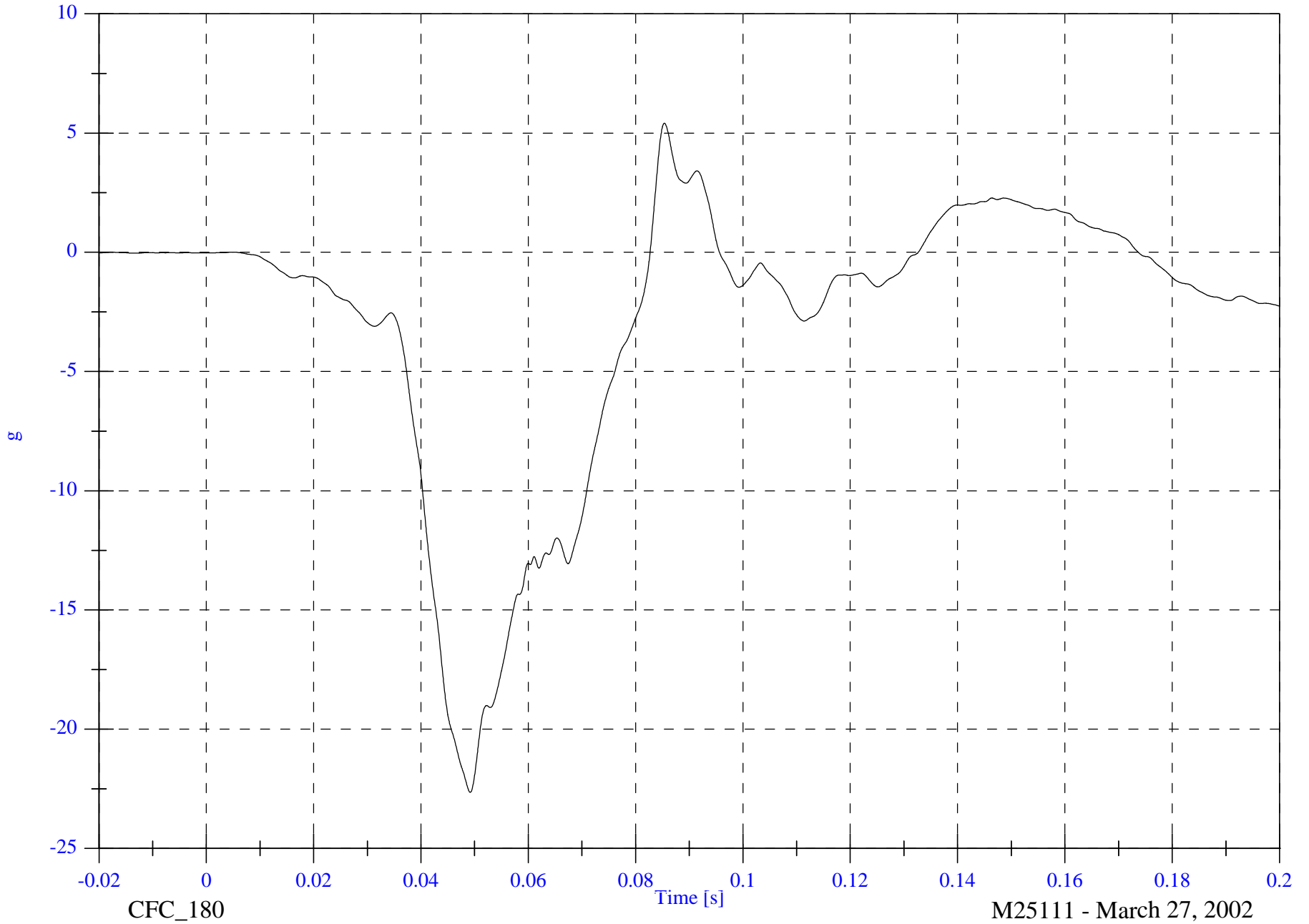
Max: 5.4 [g] at 0.085 [s]

P3 Chest y

Min: -22.7 [g] at 0.049 [s]

4-26

8652-SNCAP-05



CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

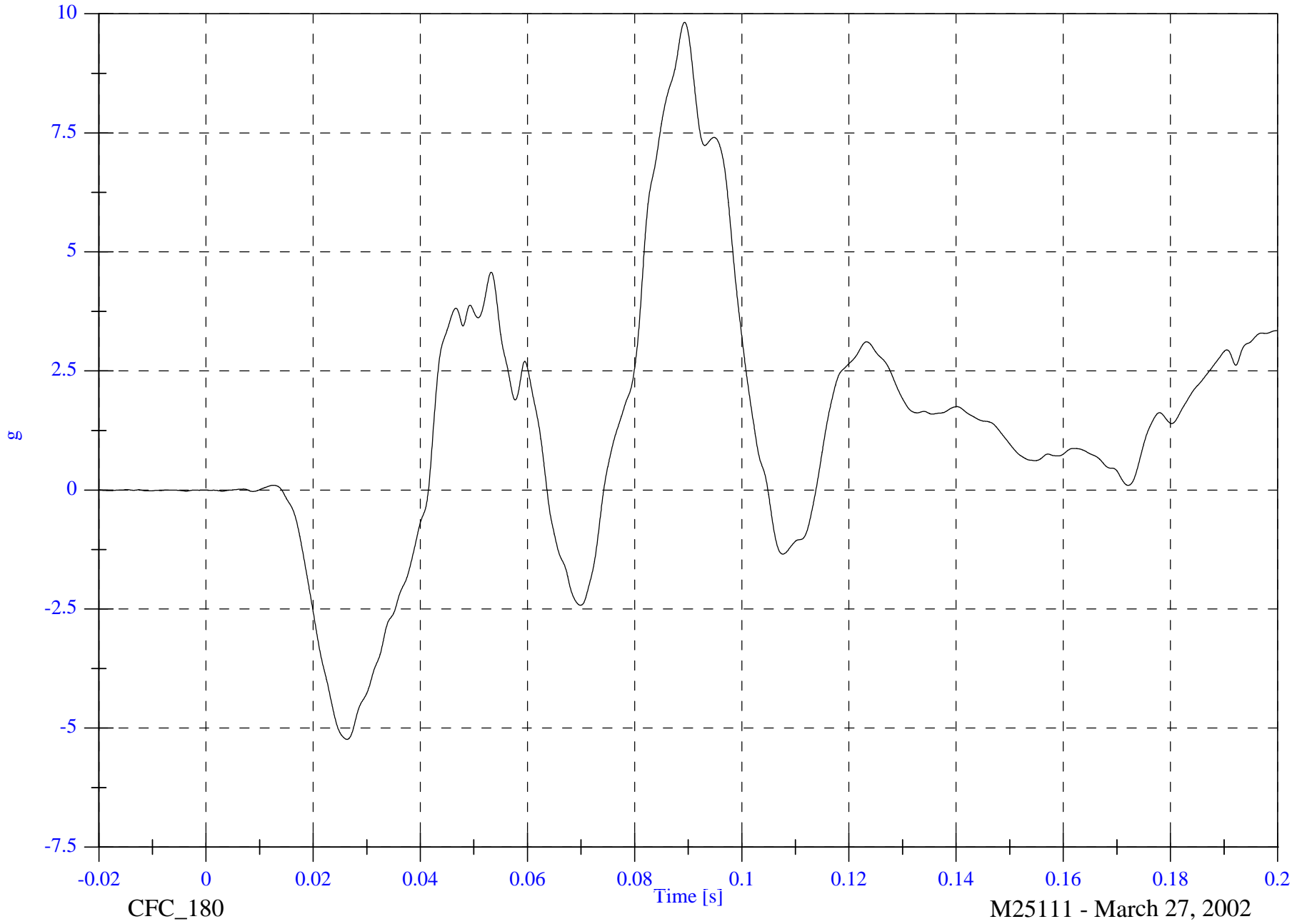
Max: 9.8 [g] at 0.089 [s]

P3 Chest z

Min: -5.2 [g] at 0.026 [s]

4-27

8652-SNCAP-05



CFC_180

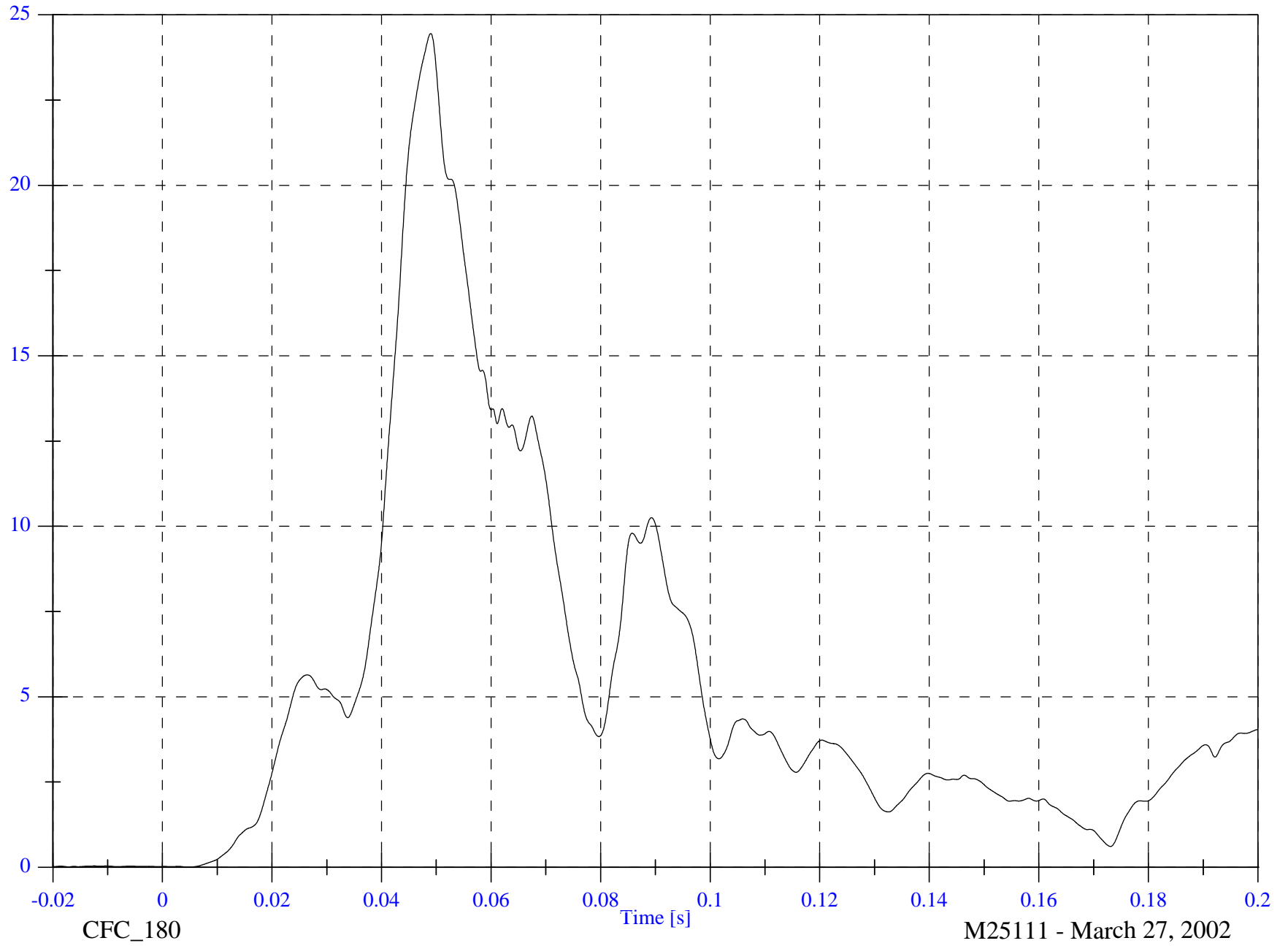
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Chest Resultant

Max: 24.5 [g] at 0.049 [s]

Min: 0.0 [g] at 0.004 [s]



4-28

8652-SNCAP-05

CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

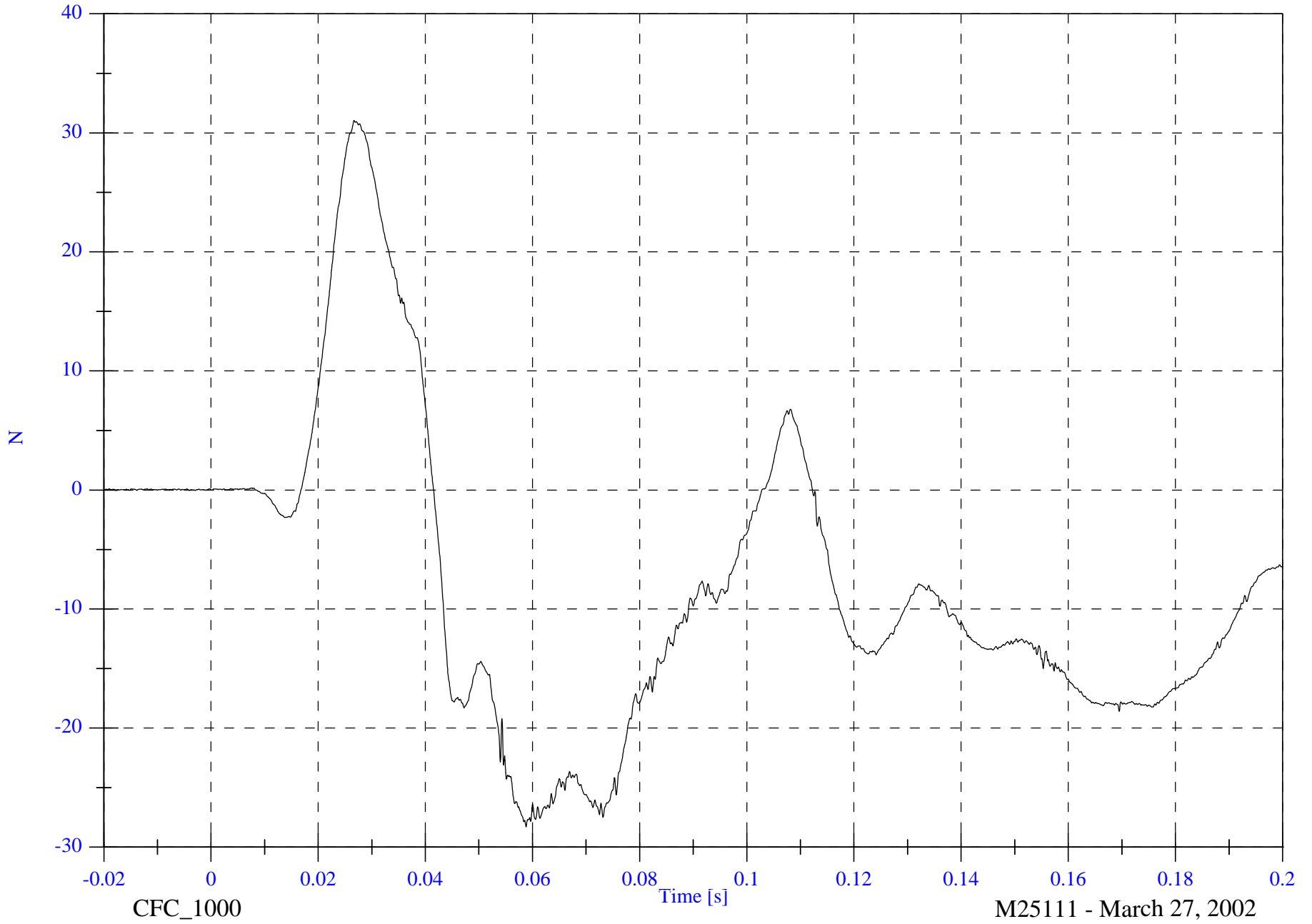
P3 Lumbar Fx

Max: 31.0 [N] at 0.027 [s]

Min: -28.3 [N] at 0.059 [s]

4-29

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Lumbar Fy

Max: 13.6 [N] at 0.141 [s]

Min: -125.7 [N] at 0.046 [s]



4-30

8652-SNCAP-05

CFC_1000

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

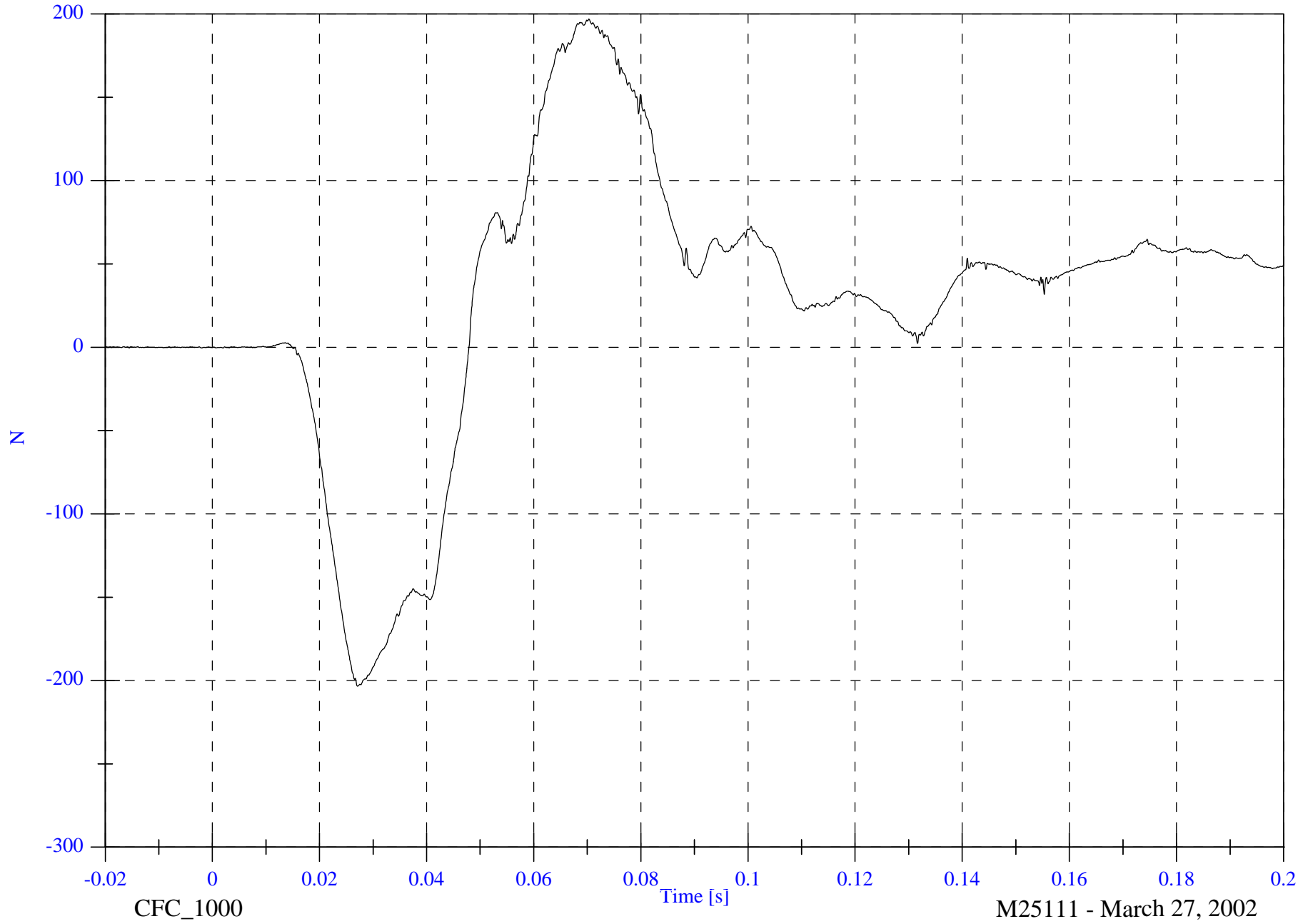
Max: 196.9 [N] at 0.070 [s]

P3 Lumbar Fz

Min: -203.6 [N] at 0.027 [s]

4-31

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

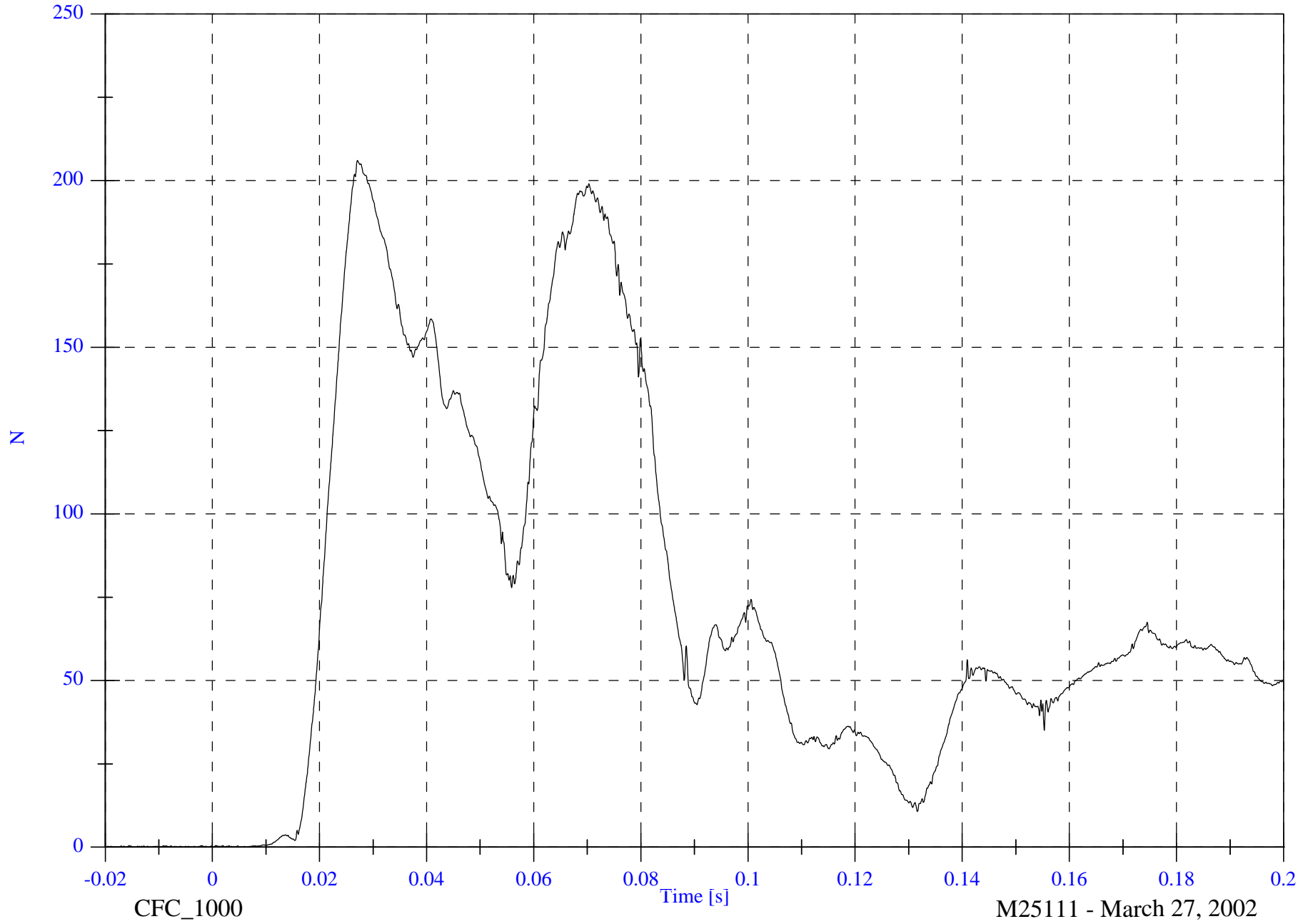
P3 Lumbar F Resultant

Max: 206.0 [N] at 0.027 [s]

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

4-32

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Lumbar Mx

Max: 5.2 [N-m] at 0.043 [s]

Min: -2.5 [N-m] at 0.091 [s]



4-33

8652-SNCAP-05

CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

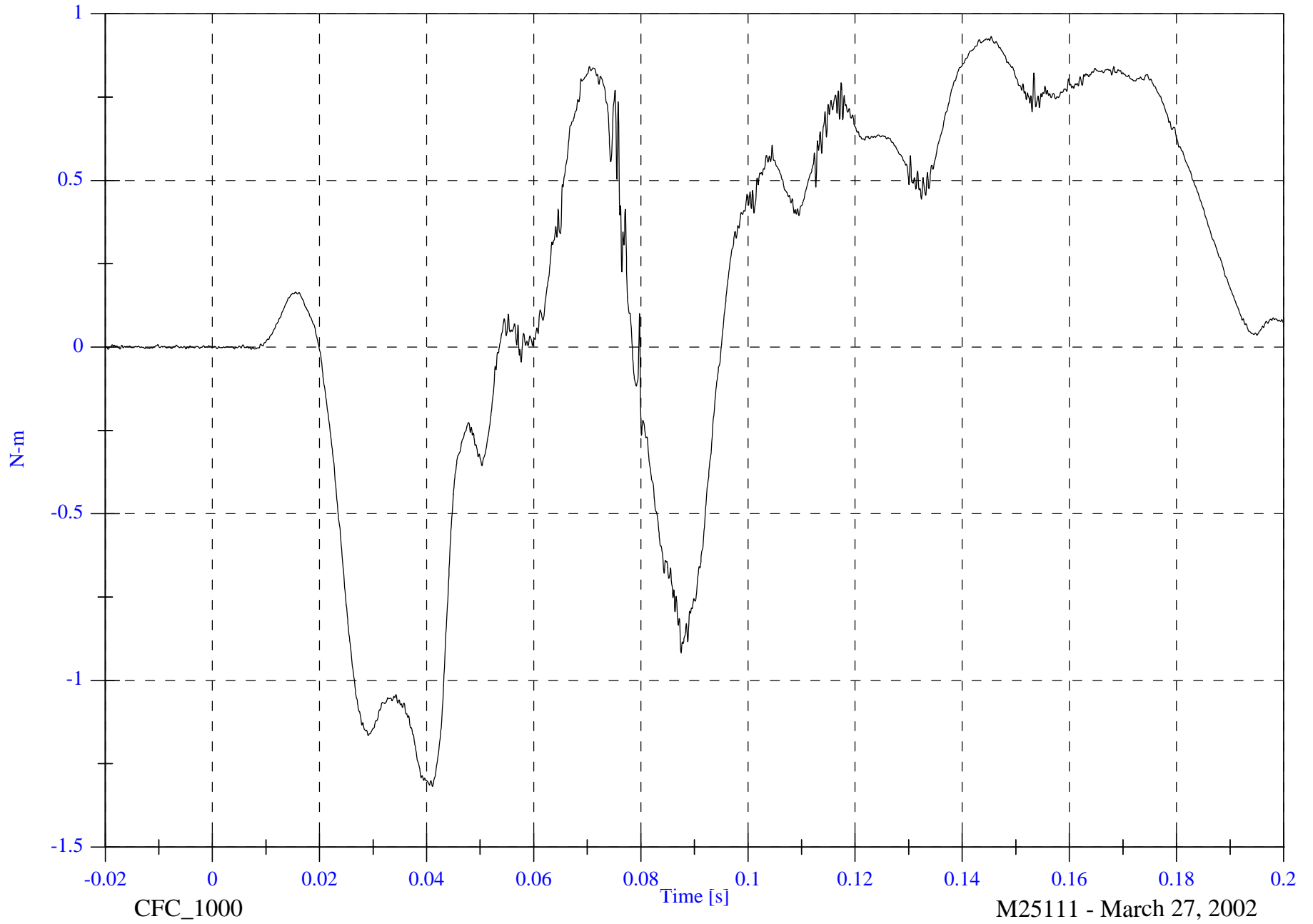
P3 Lumbar My

Max: 0.9 [N-m] at 0.145 [s]

Min: -1.3 [N-m] at 0.041 [s]

4-34

8652-SNCAP-05



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

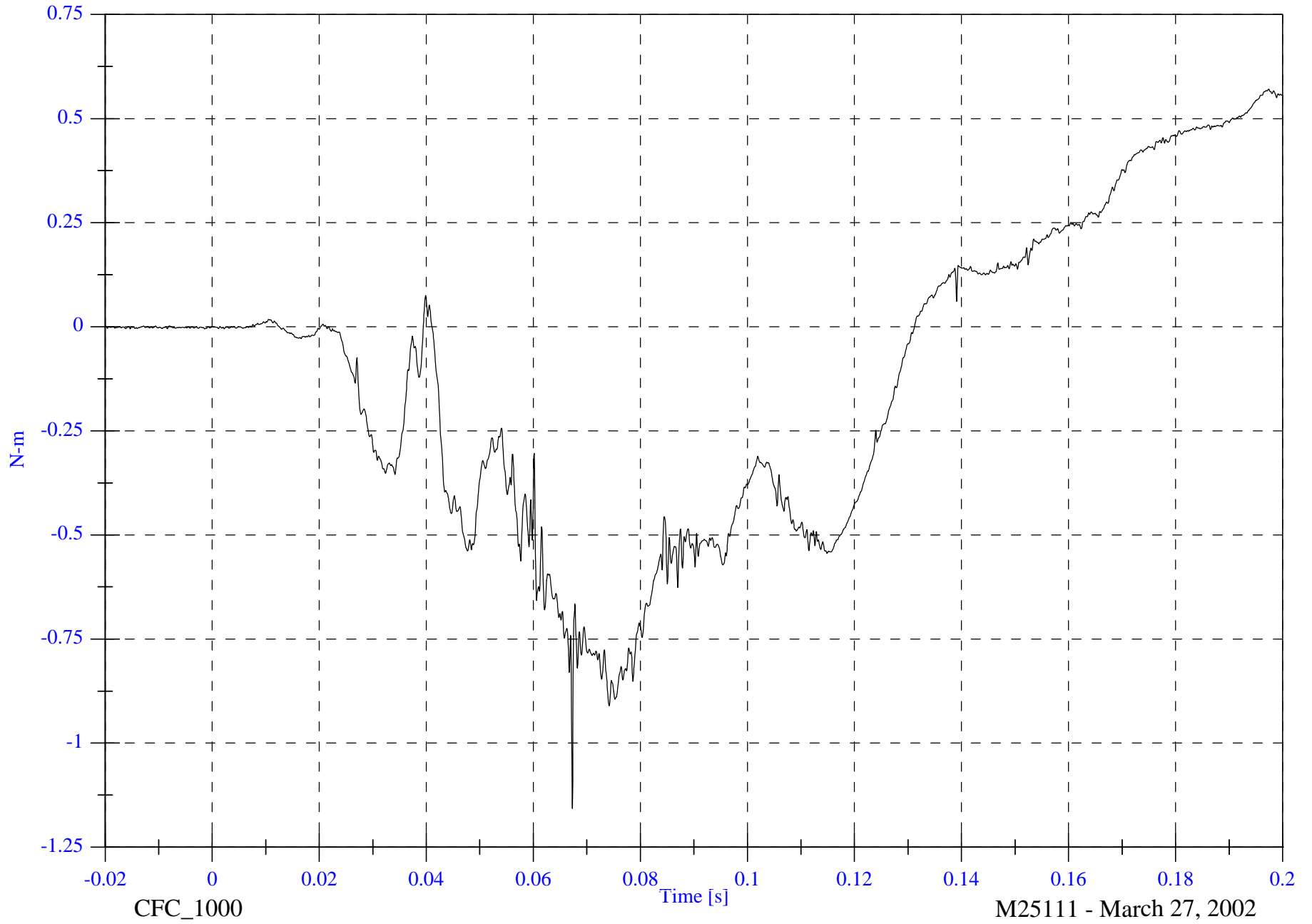
P3 Lumbar Mz

Max: 0.6 [N-m] at 0.197 [s]

Min: -1.2 [N-m] at 0.067 [s]

4-35

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

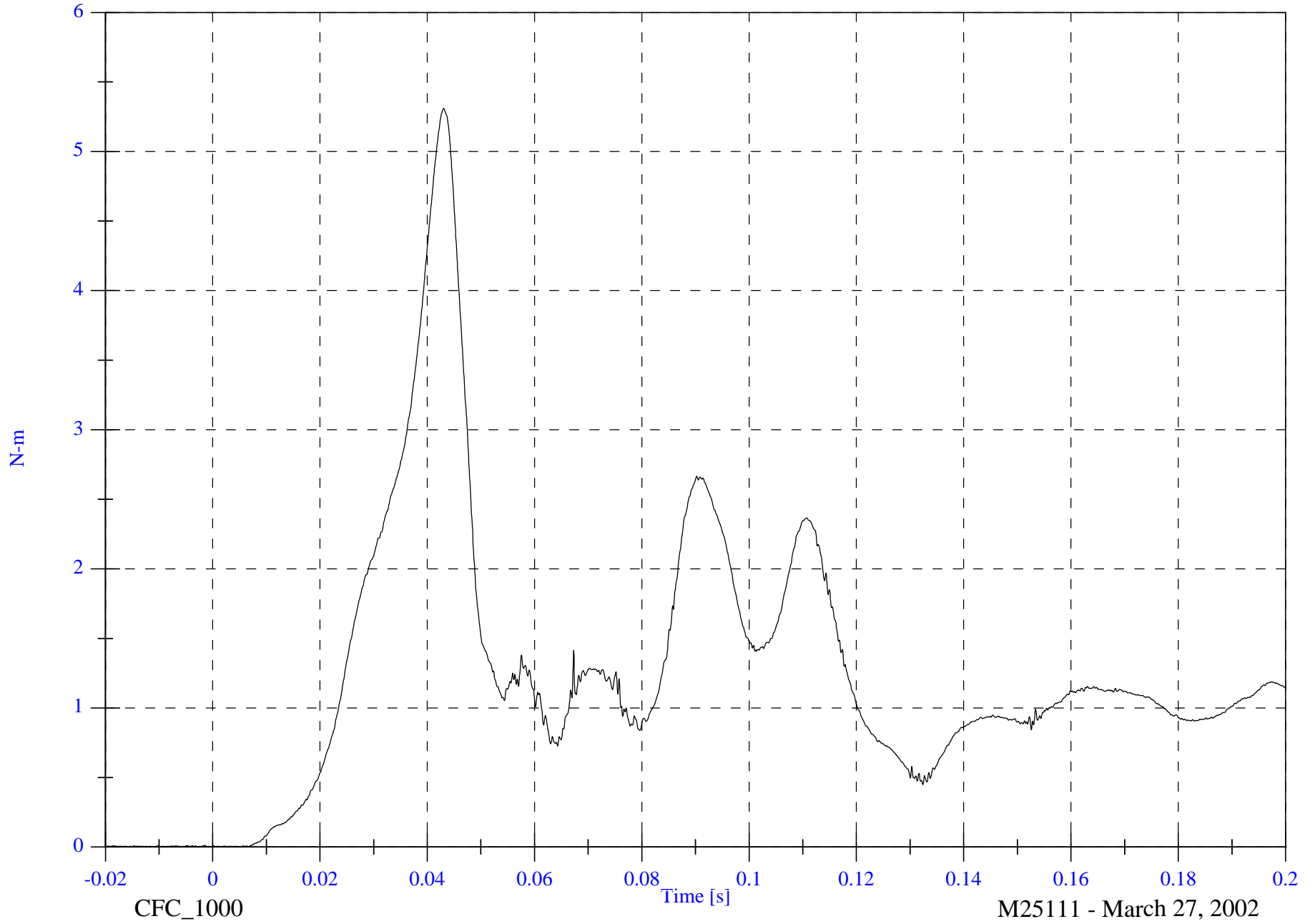
P3 Lumbar M Resultant

Max: 5.3 [N-m] at 0.043 [s]

Min: 0.0 [N-m] at -0.013 [s]

4-36

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

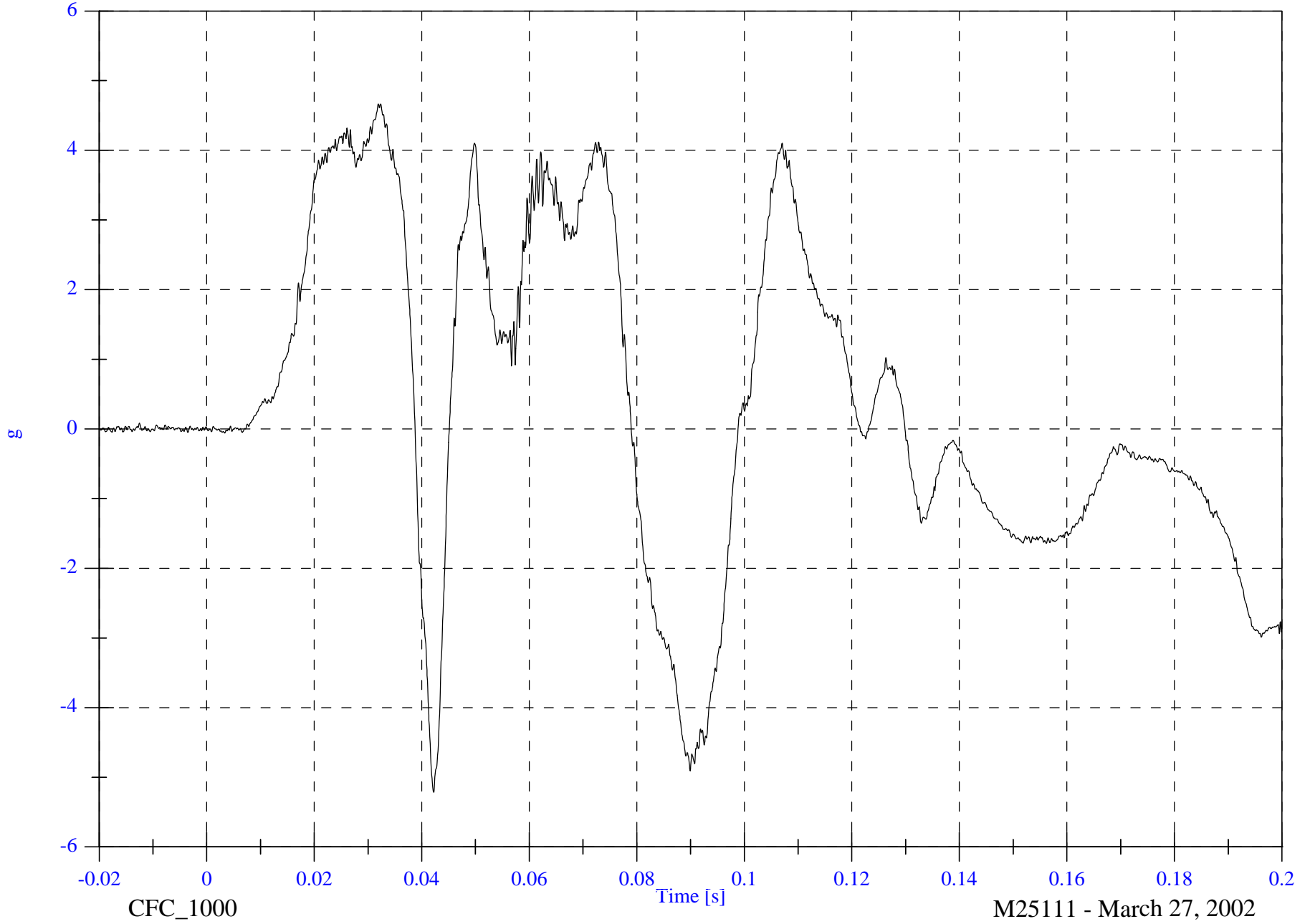
Max: 4.7 [g] at 0.032 [s]

P3 Pelvic x

Min: -5.2 [g] at 0.042 [s]

4-37

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Max: 15.7 [g] at 0.104 [s]

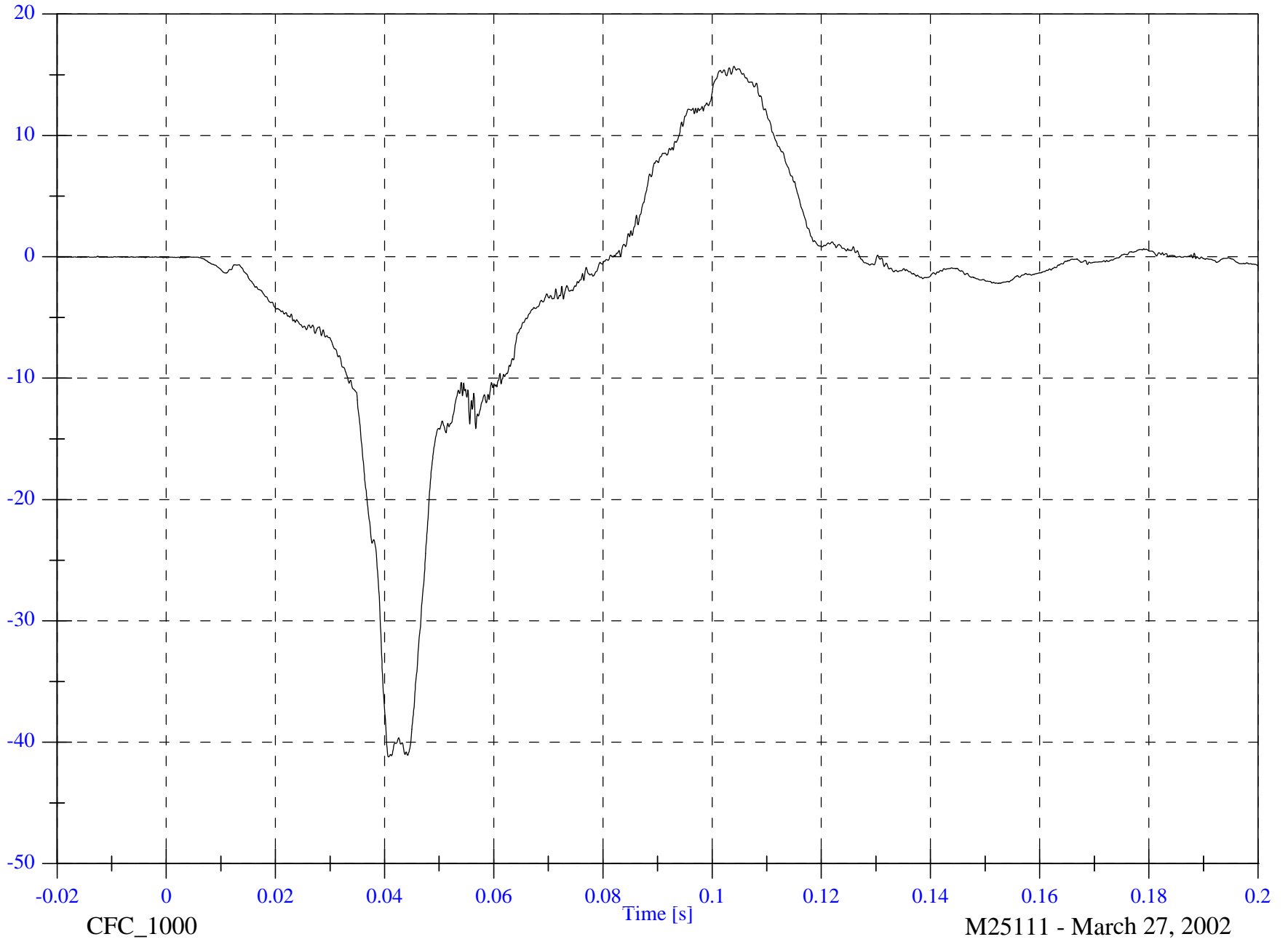
P3 Pelvic y

Min: -41.2 [g] at 0.041 [s]

4-38

g

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

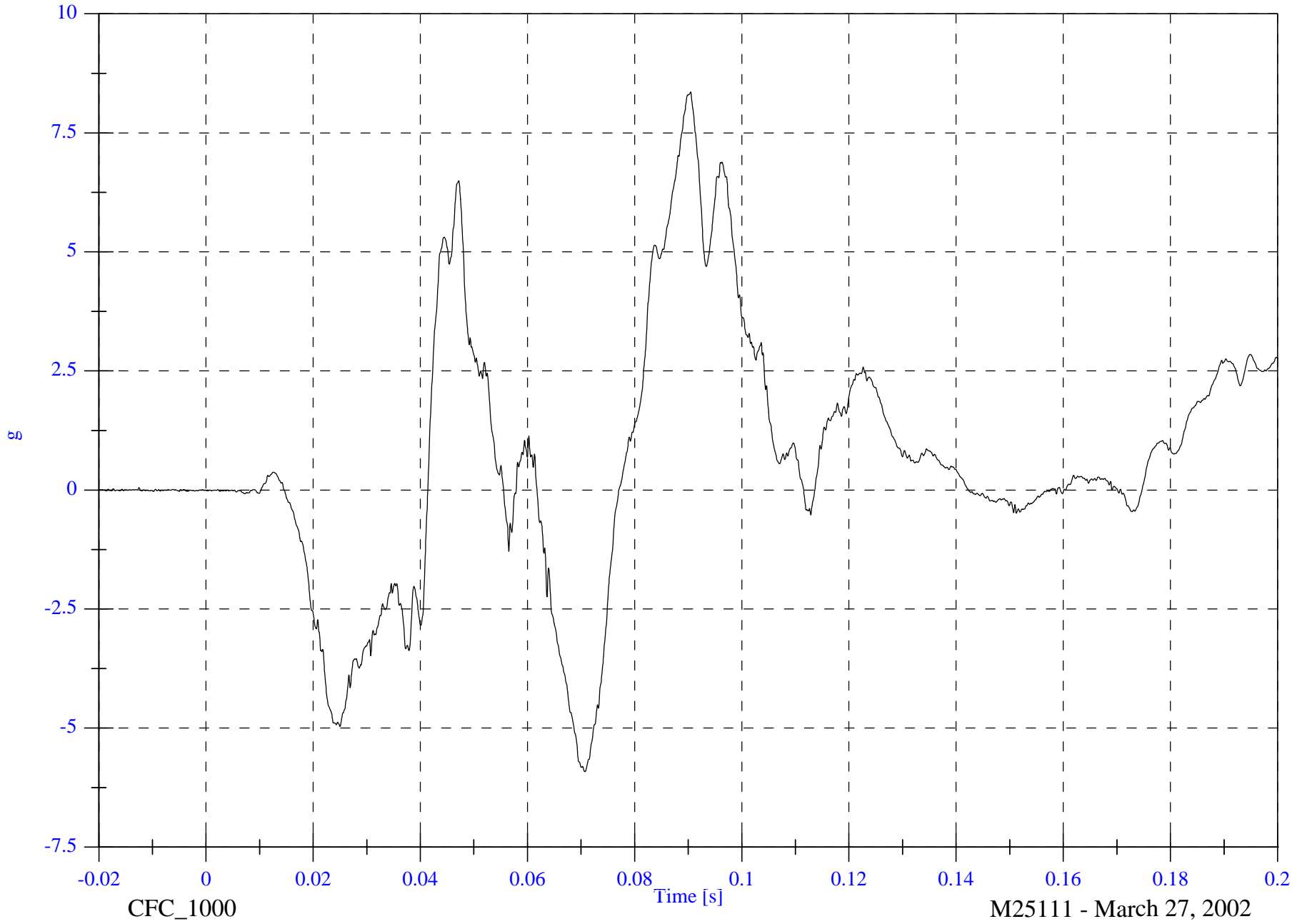
Max: 8.4 [g] at 0.090 [s]

P3 Pelvic z

Min: -5.9 [g] at 0.071 [s]

4-39

8652-SNCAP-05



CFC_1000

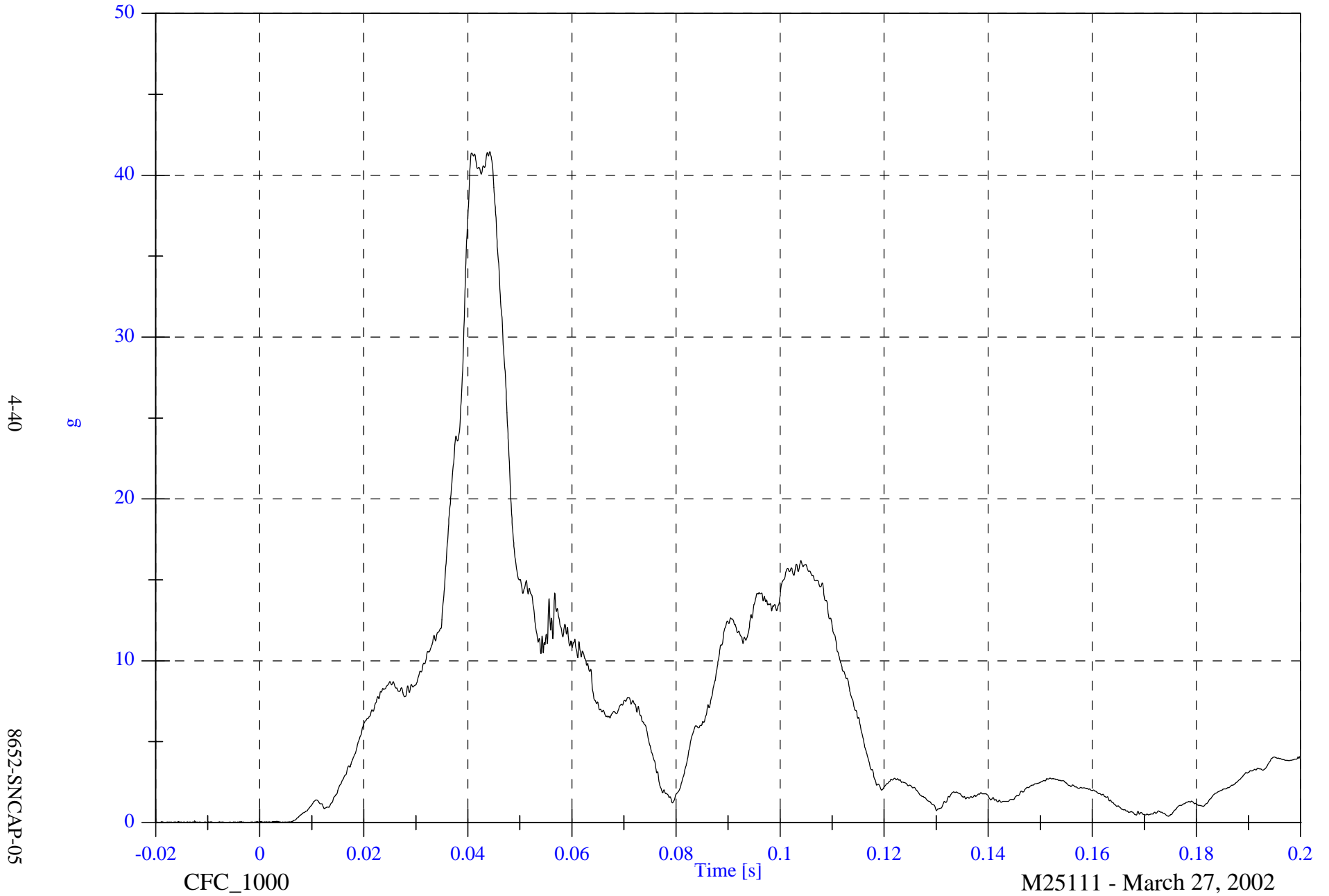
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Pelvic Resultant

Max: 41.5 [g] at 0.044 [s]

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



4-40

8652-SNCAP-05

CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Lap Belt Load

Max: 1315.7 [N] at 0.047 [s]

Min: -119.2 [N] at 0.166 [s]

4-41

8652-SNCAP-05



CFC_60

Time [s]

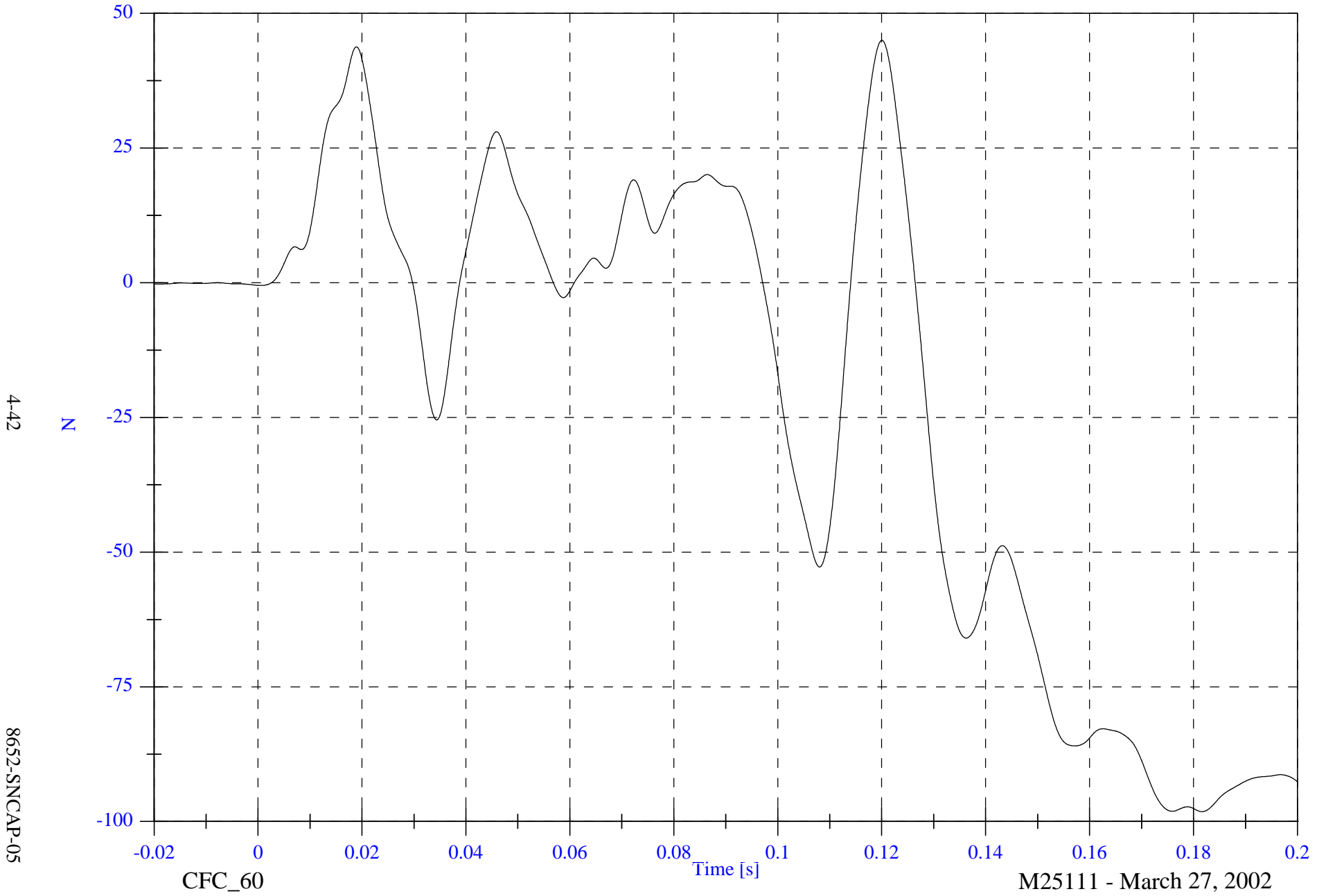
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Shoulder Belt Load

Max: 45.0 [N] at 0.120 [s]

Min: -98.2 [N] at 0.182 [s]



4-42

8652-SNCAP-05

CFC_60

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Max: 5.1 [g] at 0.044 [s]

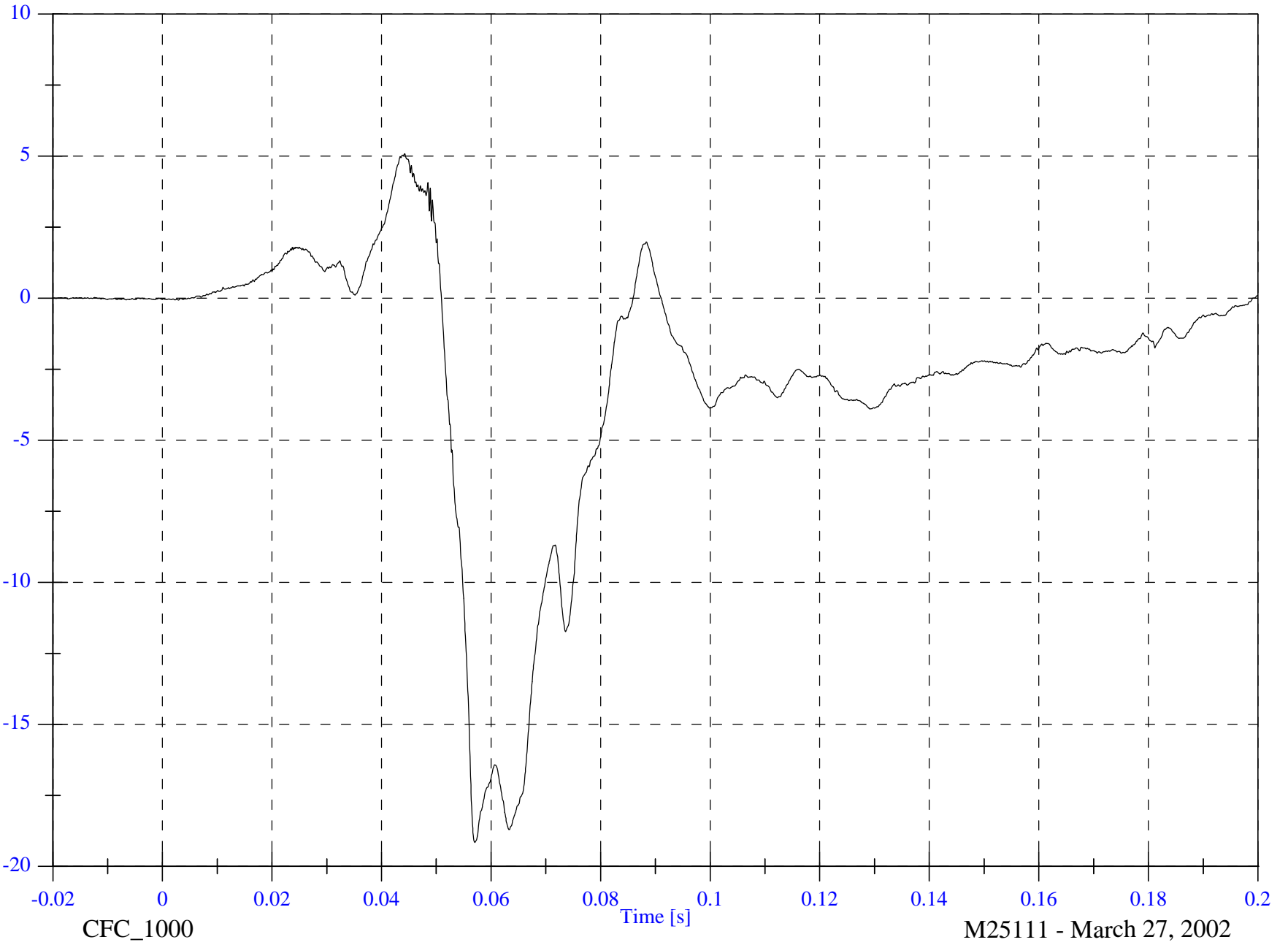
P4 Head x

Min: -19.2 [g] at 0.057 [s]

4-43

g

8652-SNCAP-05



CFC_1000

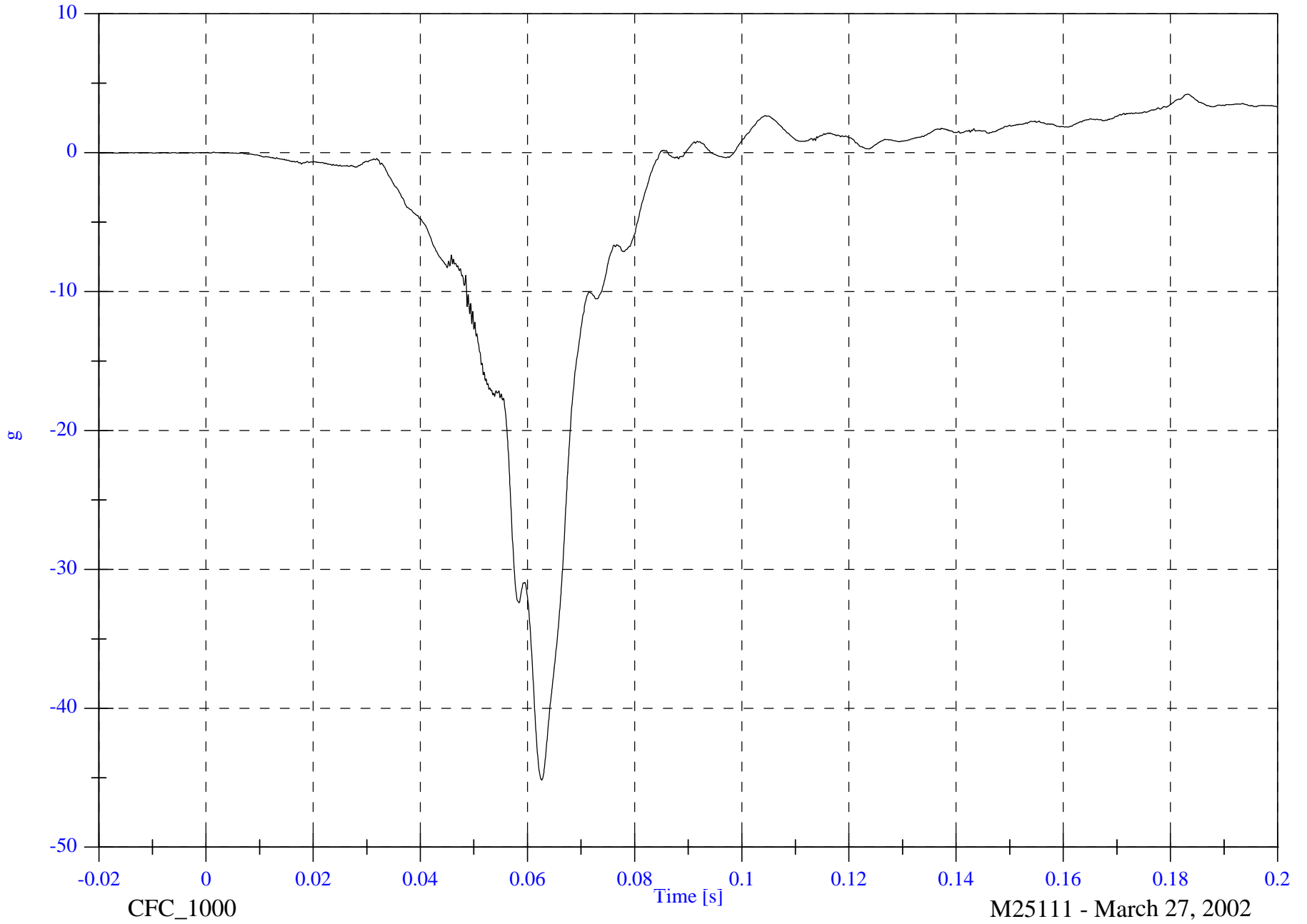
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Max: 4.2 [g] at 0.183 [s]

P4 Head y

Min: -45.2 [g] at 0.063 [s]



4-44

8652-SNCAP-05

CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

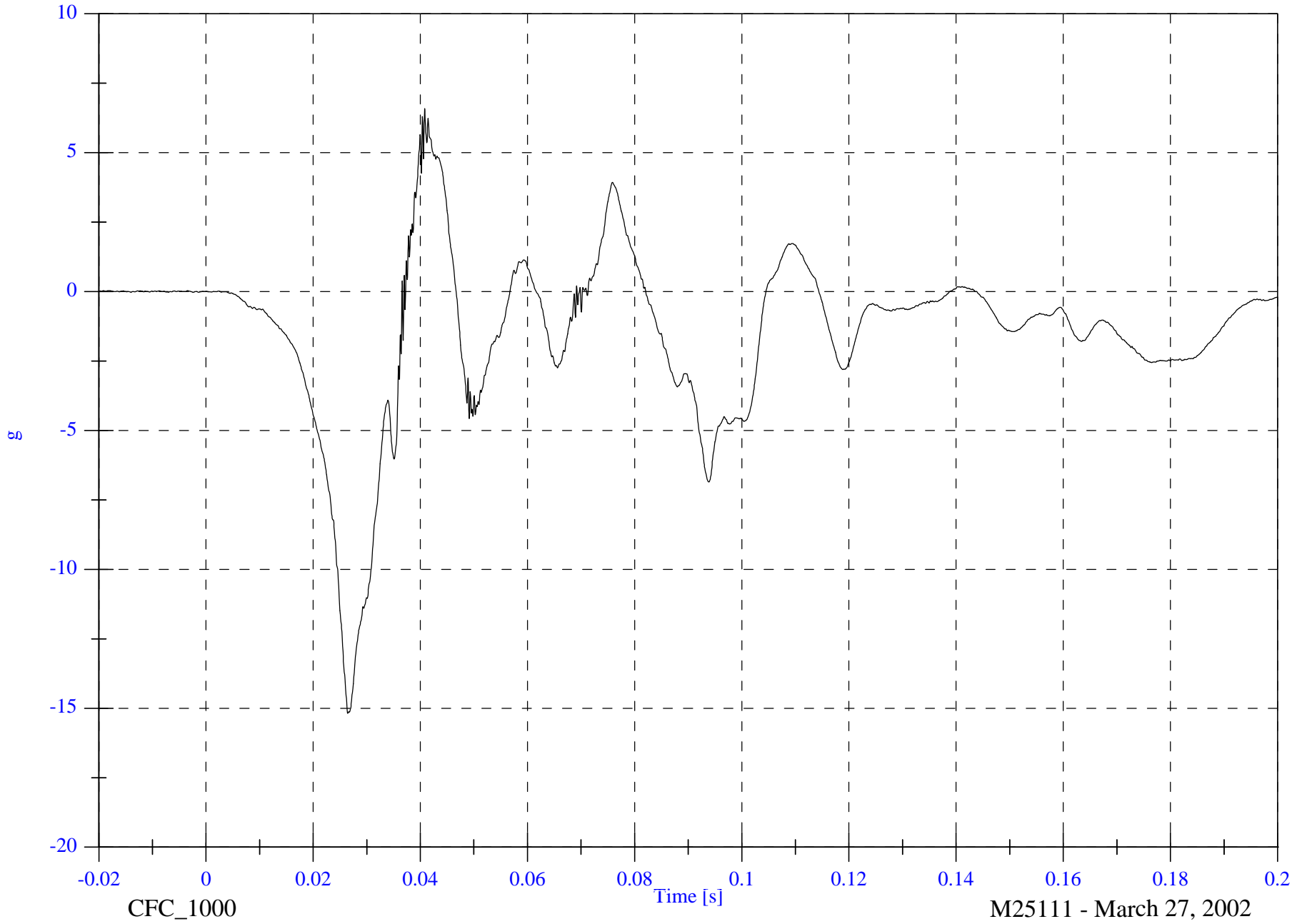
P4 Head z

Max: 6.6 [g] at 0.041 [s]

Min: -15.2 [g] at 0.026 [s]

4-45

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

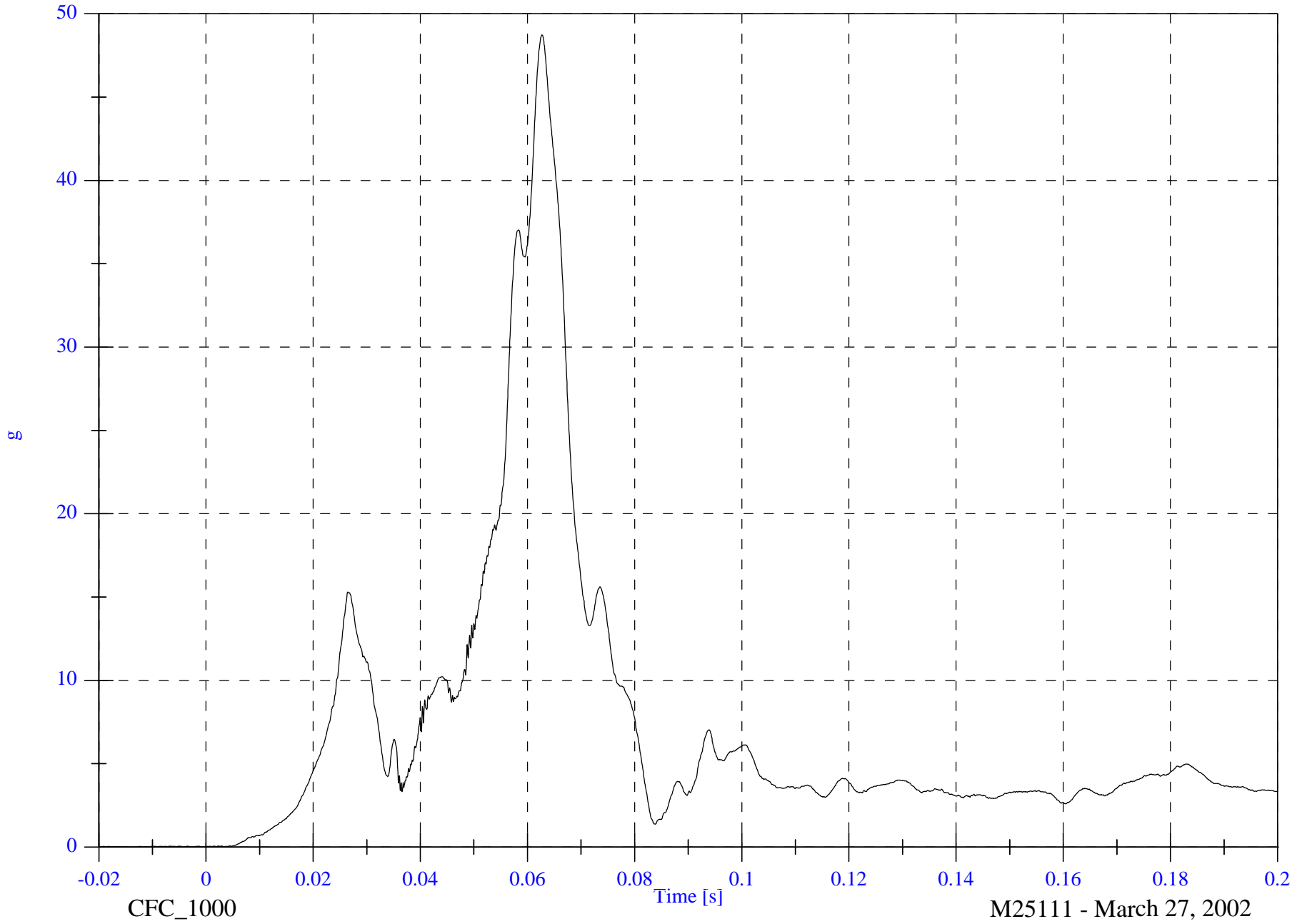
P4 Head Resultant

Max: 48.7 [g] at 0.063 [s]

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

4-46

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

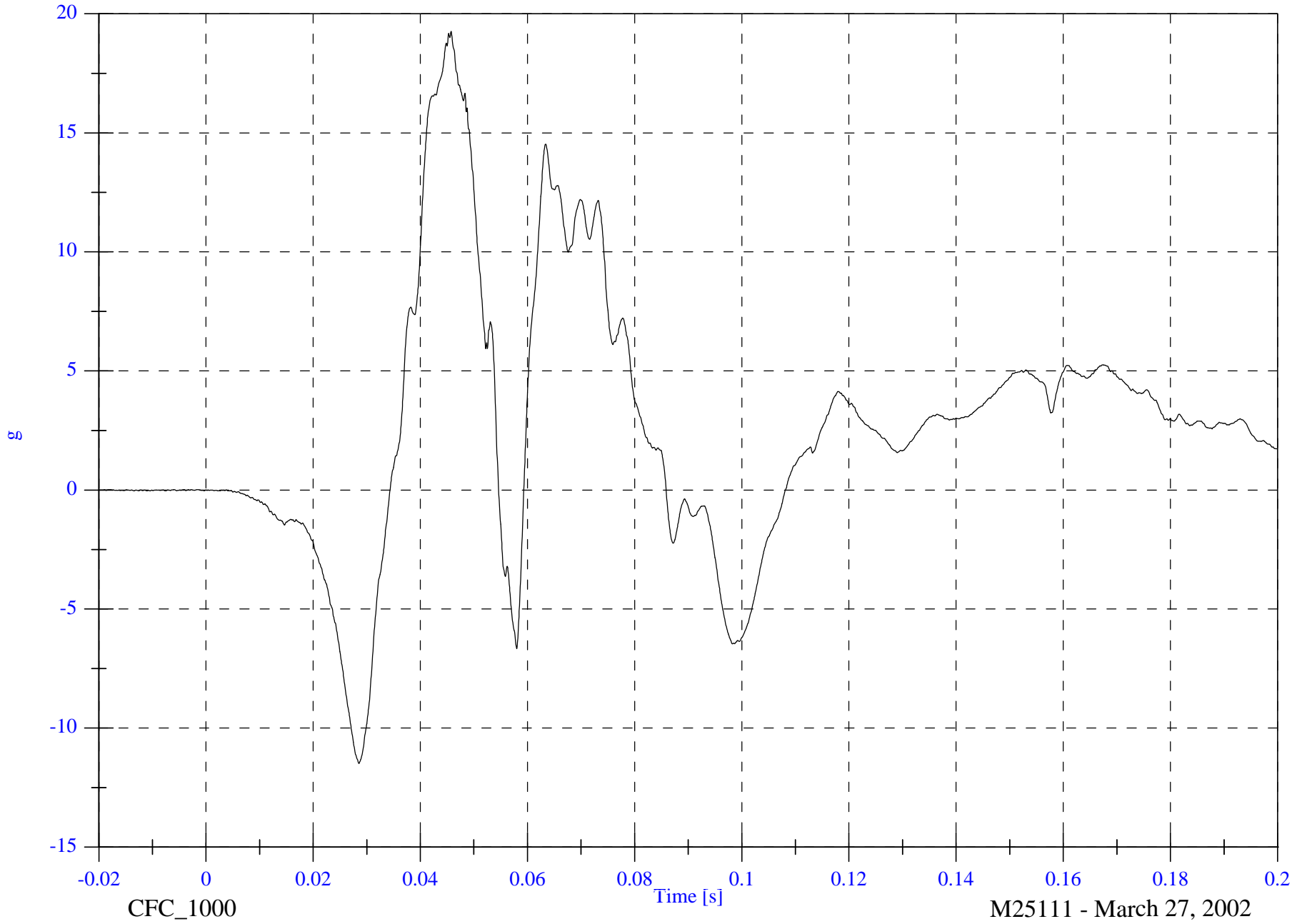
P4 Head Red z

Max: 19.3 [g] at 0.046 [s]

Min: -11.5 [g] at 0.029 [s]

4-47

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P4 Upper Neck Fx

Max: 75.4 [N] at 0.044 [s]

Min: -385.1 [N] at 0.058 [s]



4-48

8652-SNCAP-05

CFC_1000

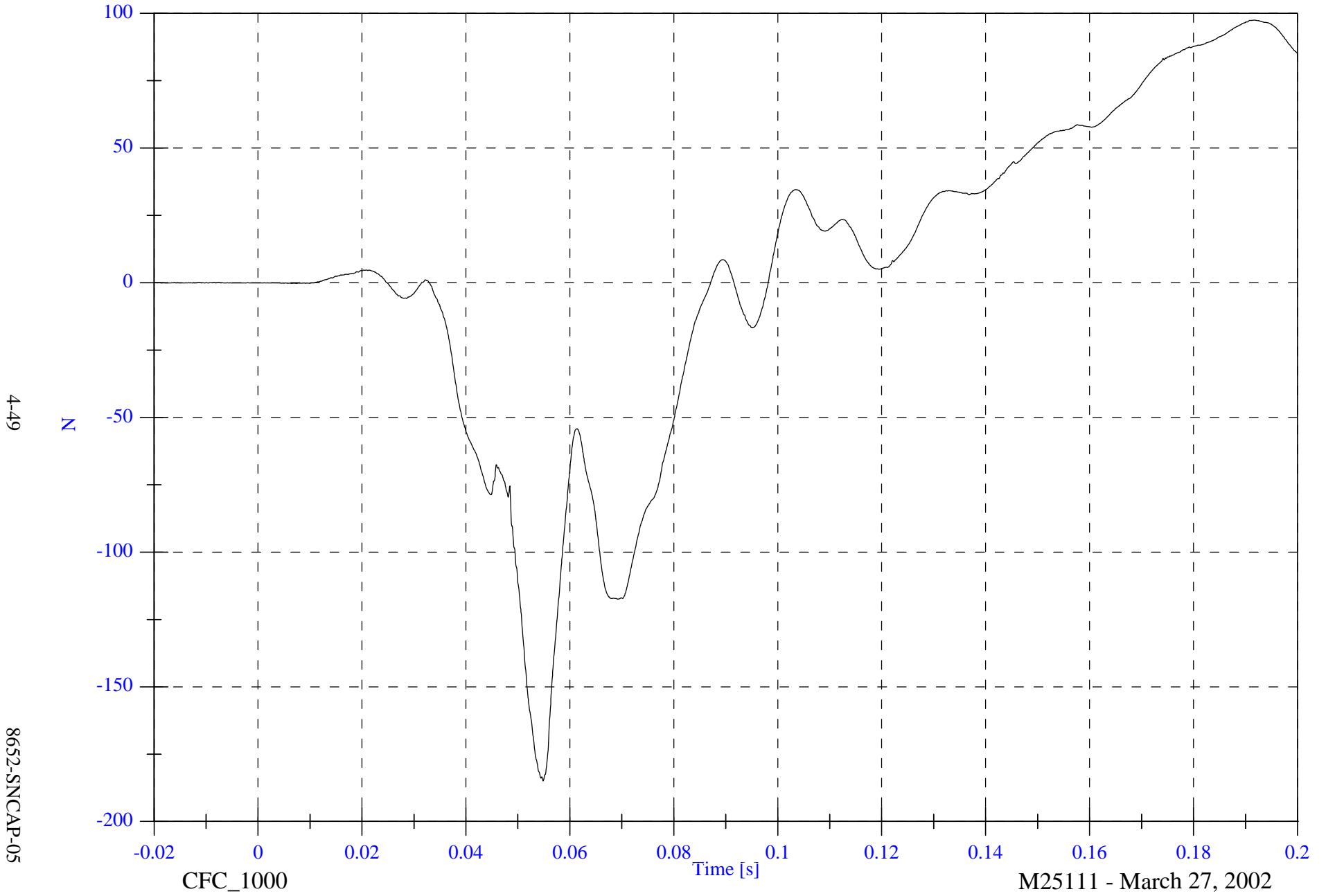
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P4 Upper Neck Fy

Max: 97.5 [N] at 0.192 [s]

Min: -185.0 [N] at 0.055 [s]



4-49

8652-SNCAP-05

CFC_1000

Time [s]

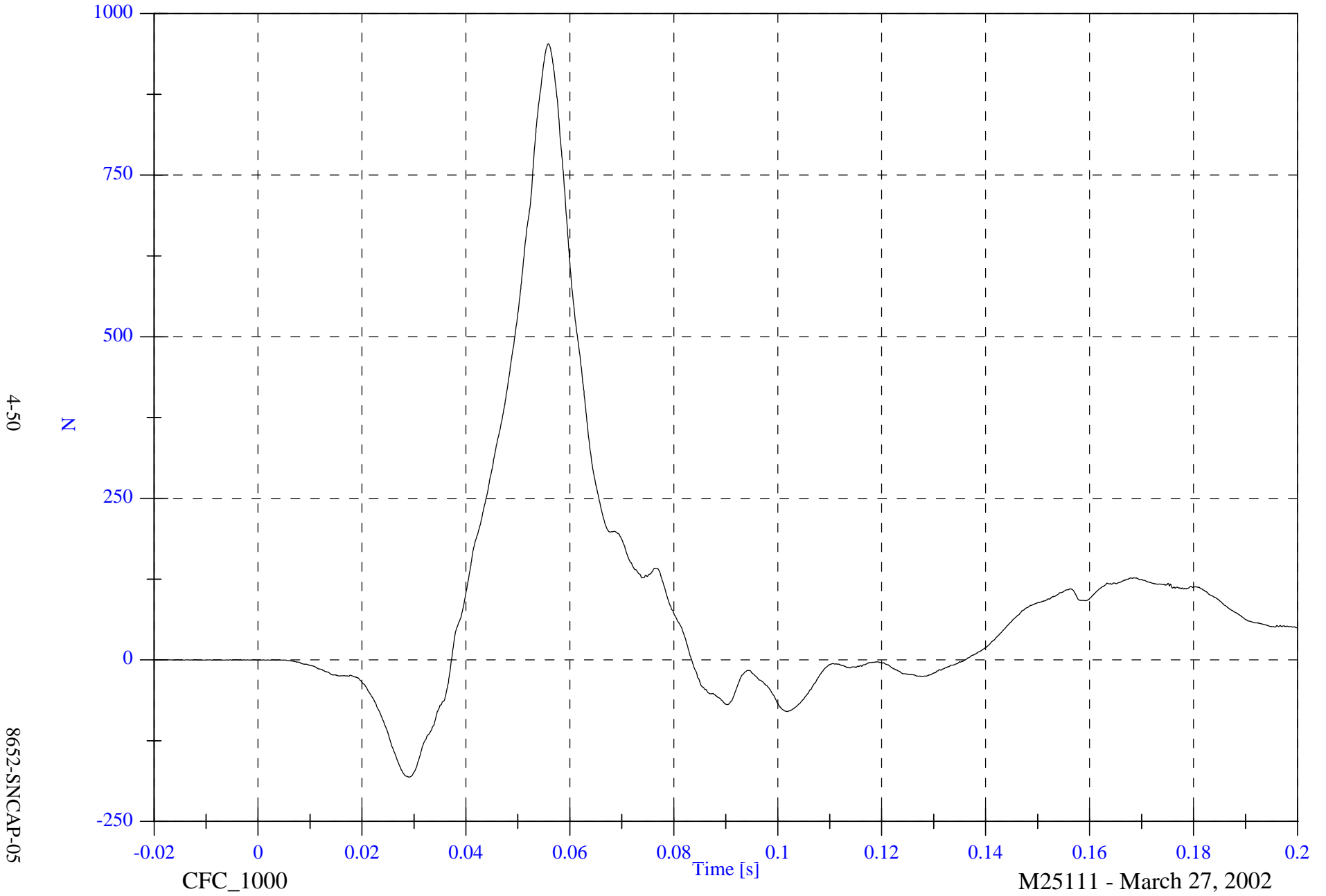
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P4 Upper Neck Fz

Max: 953.1 [N] at 0.056 [s]

Min: -181.2 [N] at 0.029 [s]



4-50

8652-SNCAP-05

CFC_1000

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

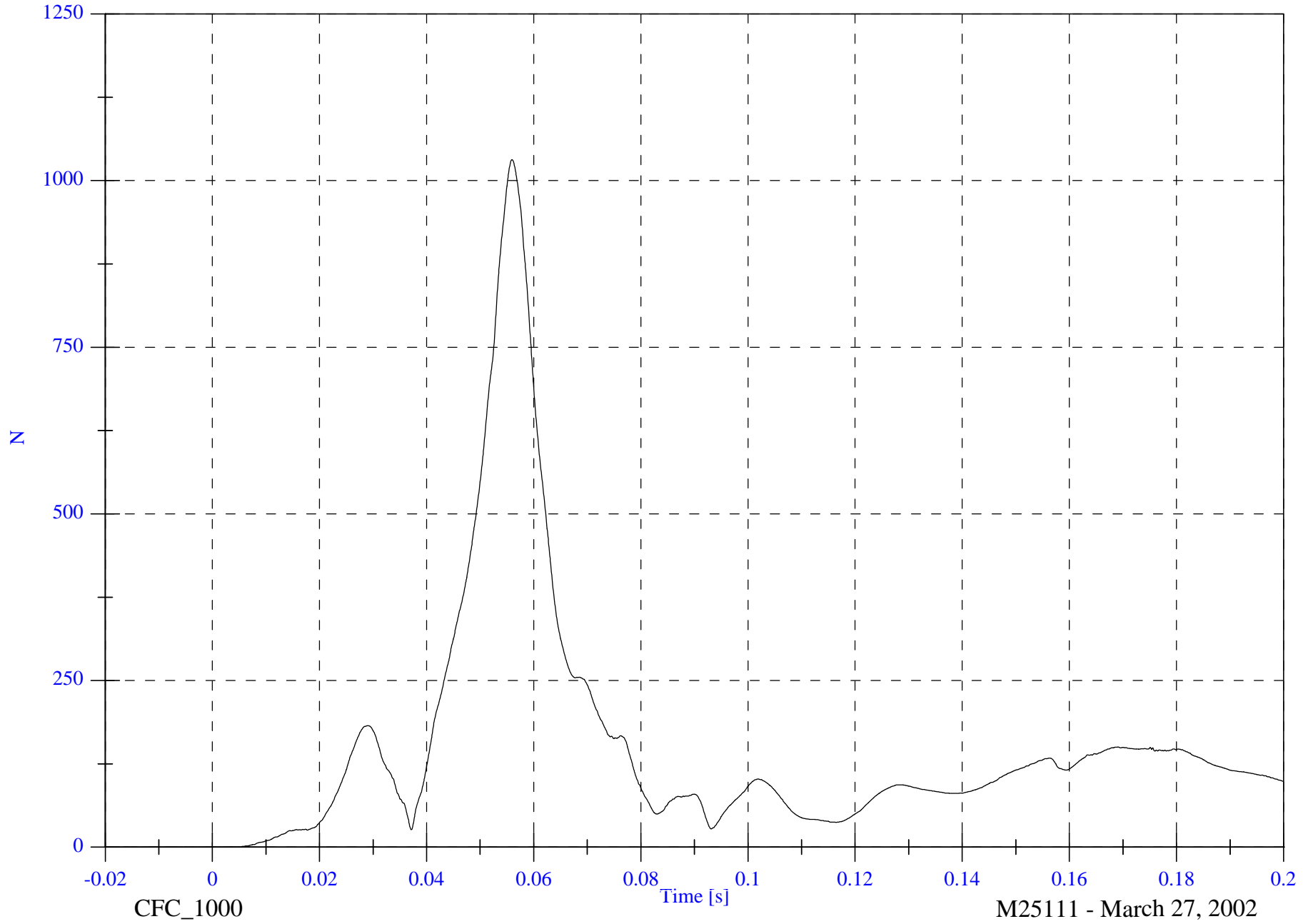
P4 Upper Neck F Resultant

Max: 1031.4 [N] at 0.056 [s]

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

4-51

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

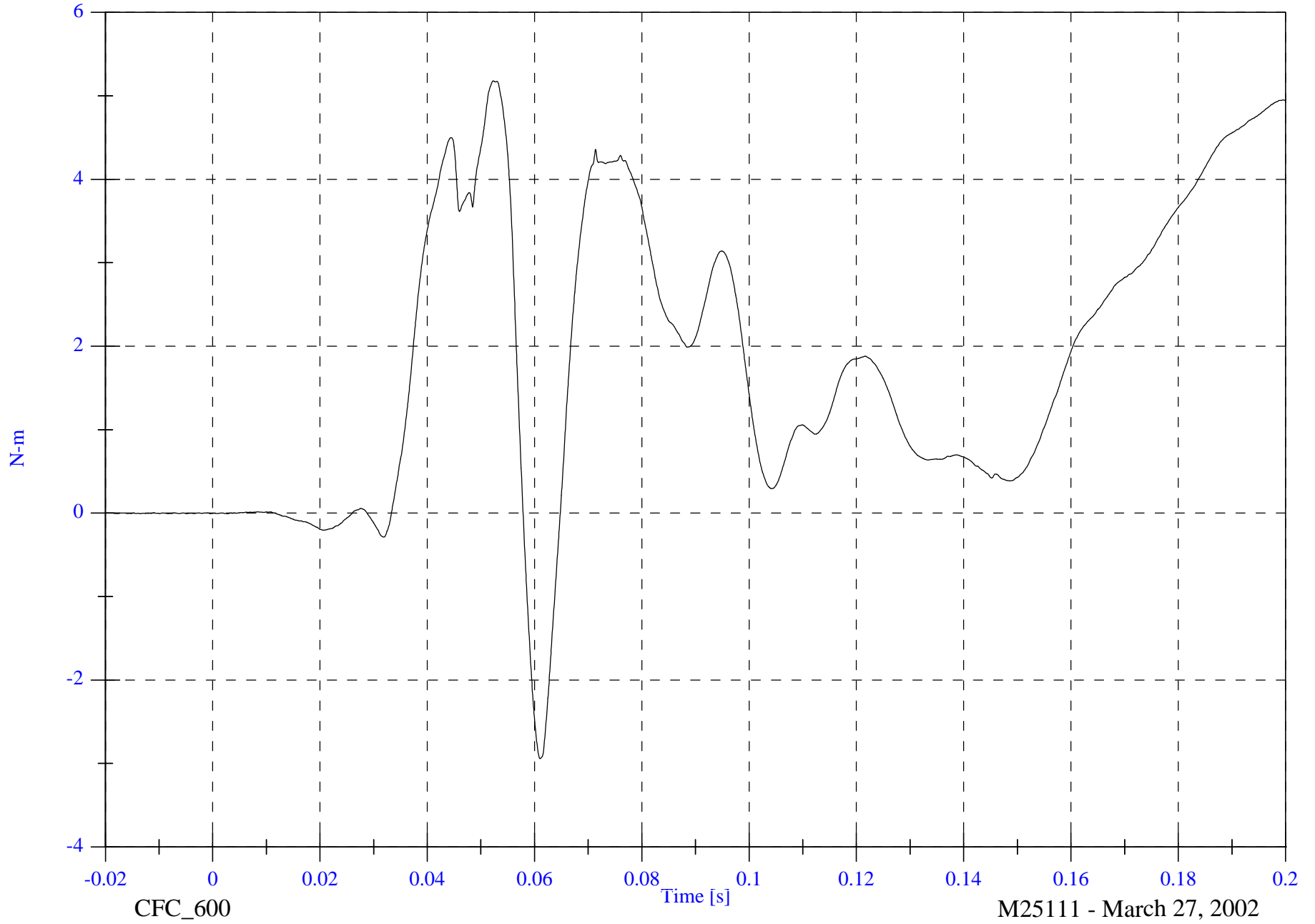
P4 Upper Neck Mx

Max: 5.2 [N-m] at 0.052 [s]

Min: -2.9 [N-m] at 0.061 [s]

4-52

8652-SNCAP-05



CFC_600

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

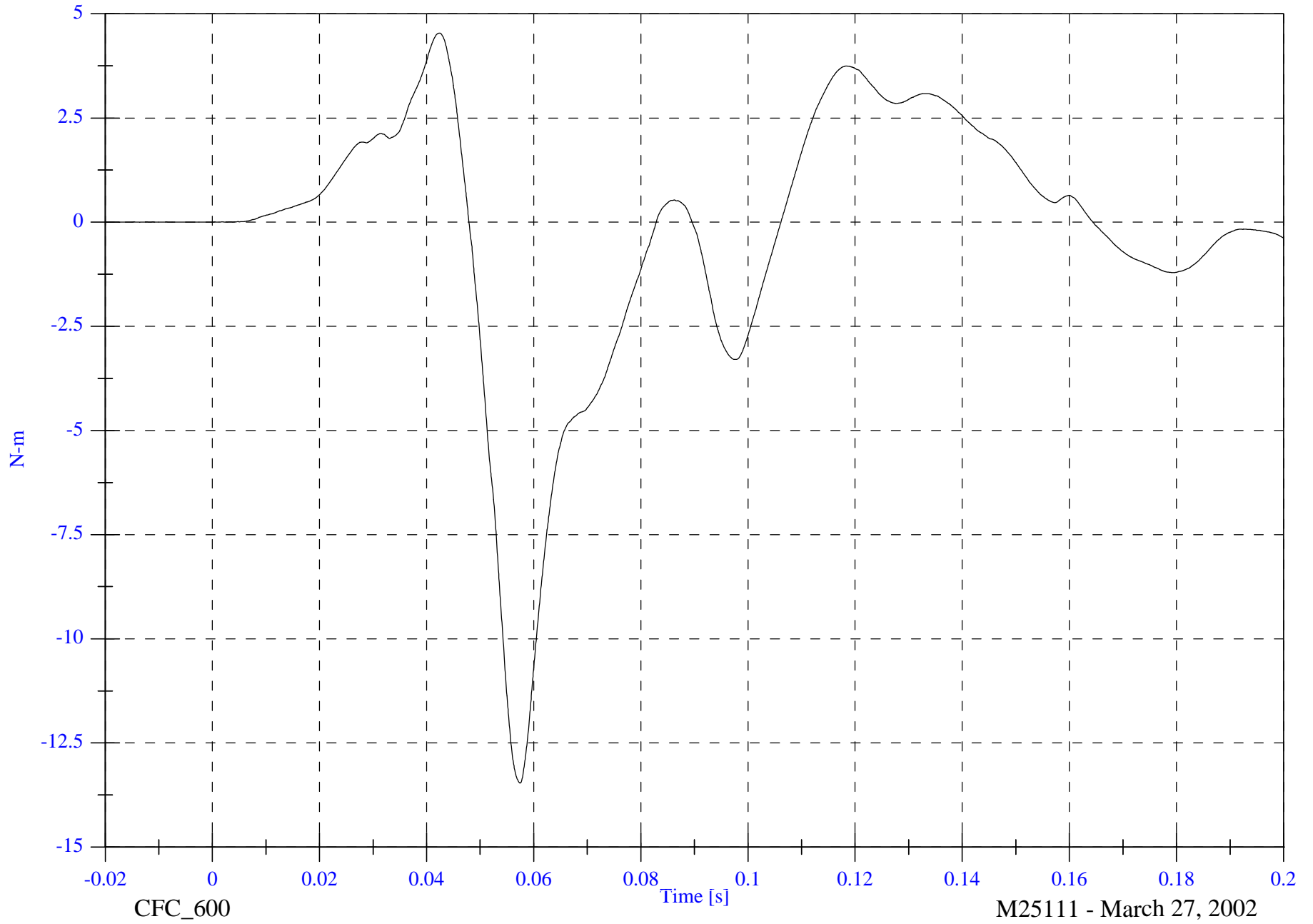
P4 Upper Neck My

Max: 4.5 [N-m] at 0.042 [s]

Min: -13.5 [N-m] at 0.057 [s]

4-53

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

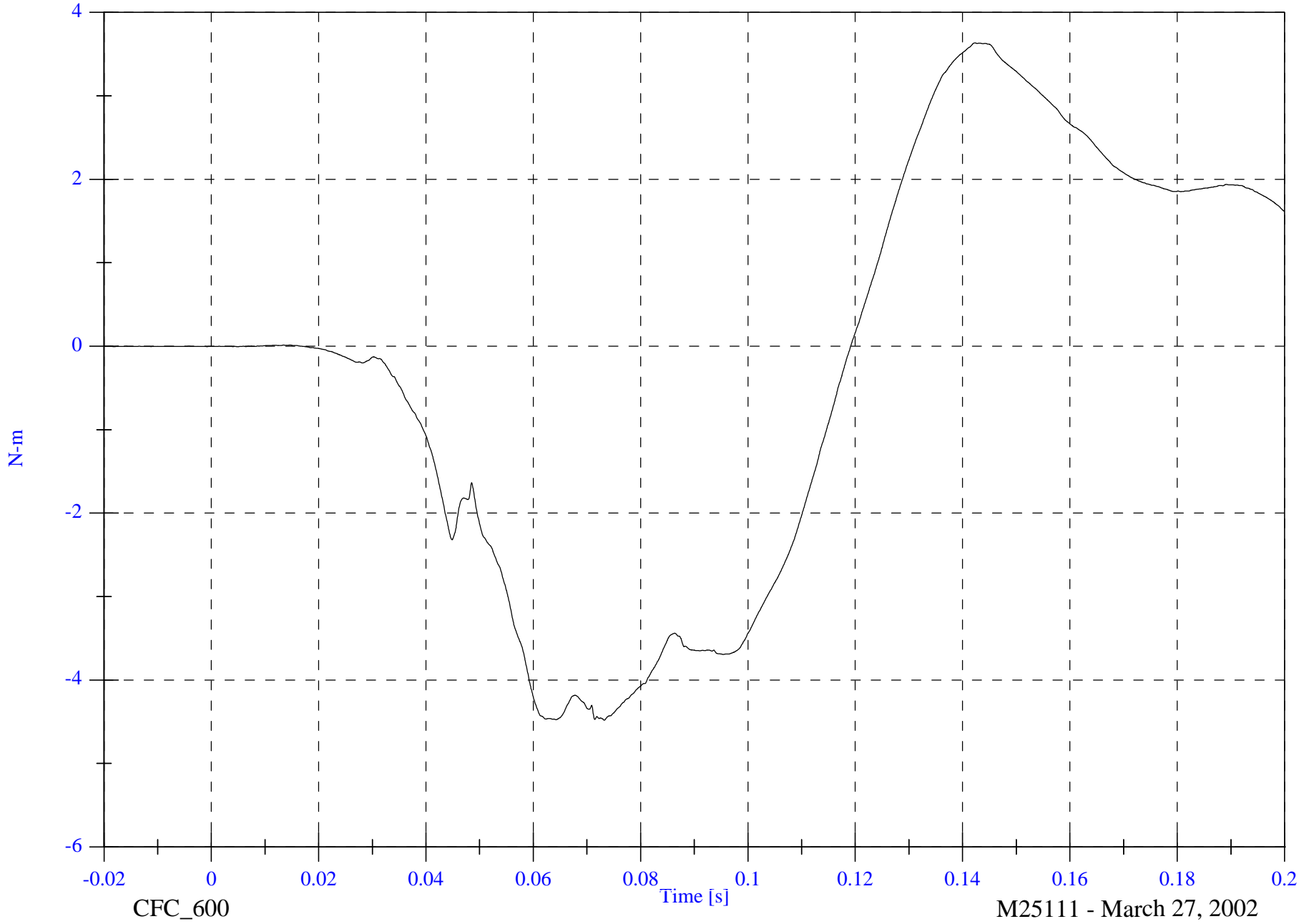
P4 Upper Neck Mz

Max: 3.6 [N-m] at 0.142 [s]

Min: -4.5 [N-m] at 0.073 [s]

4-54

8652-SNCAP-05



CFC_600

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

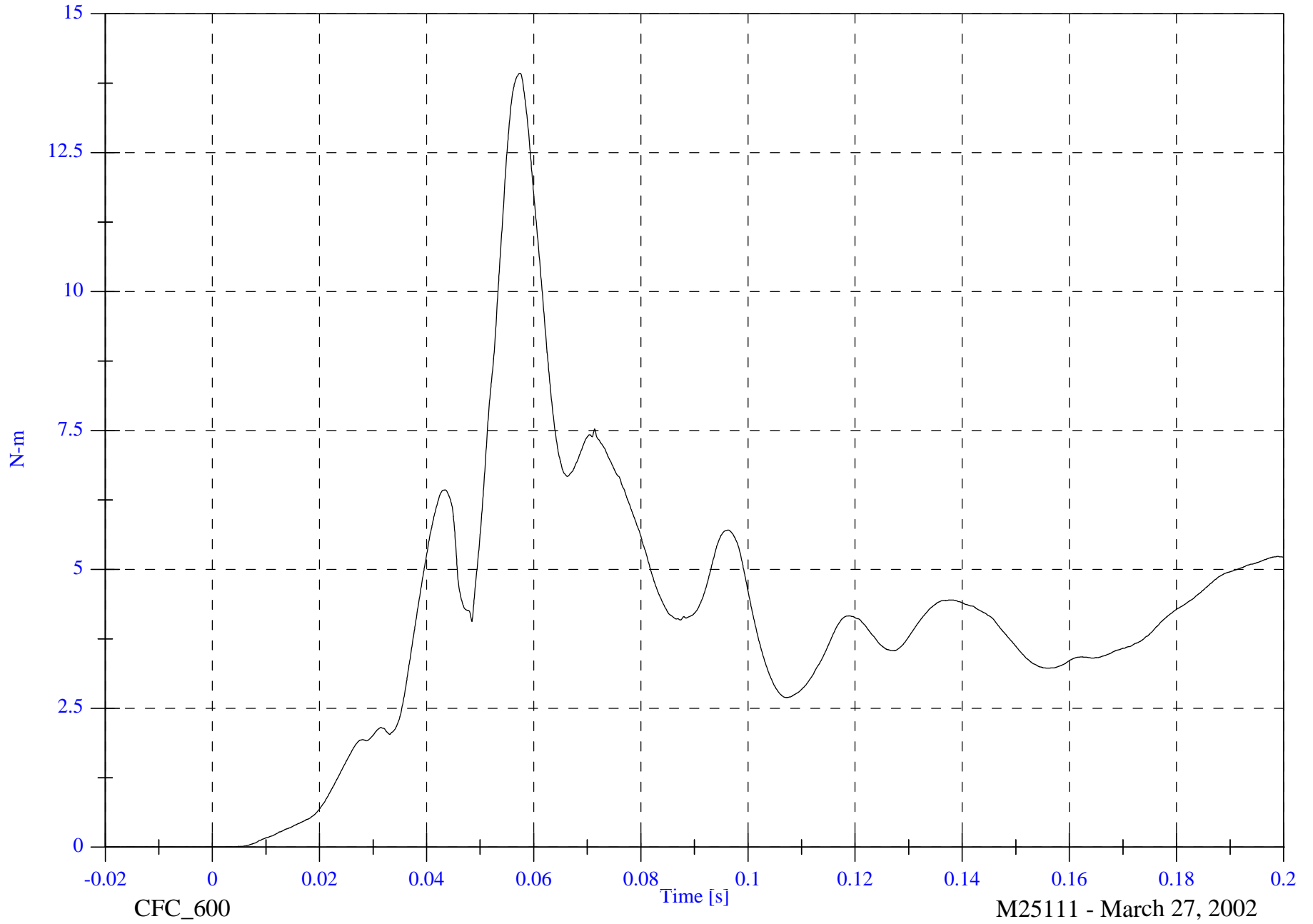
P4 Upper Neck M Resultant

Max: 13.9 [N-m] at 0.057 [s]

Min: 0.0 [N-m] at -0.004 [s]

4-55

8652-SNCAP-05



CFC_600

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P4 Lower Neck Fx

Max: 27.8 [N] at 0.044 [s]

Min: -155.4 [N] at 0.057 [s]



4-56

8652-SNCAP-05

CFC_1000

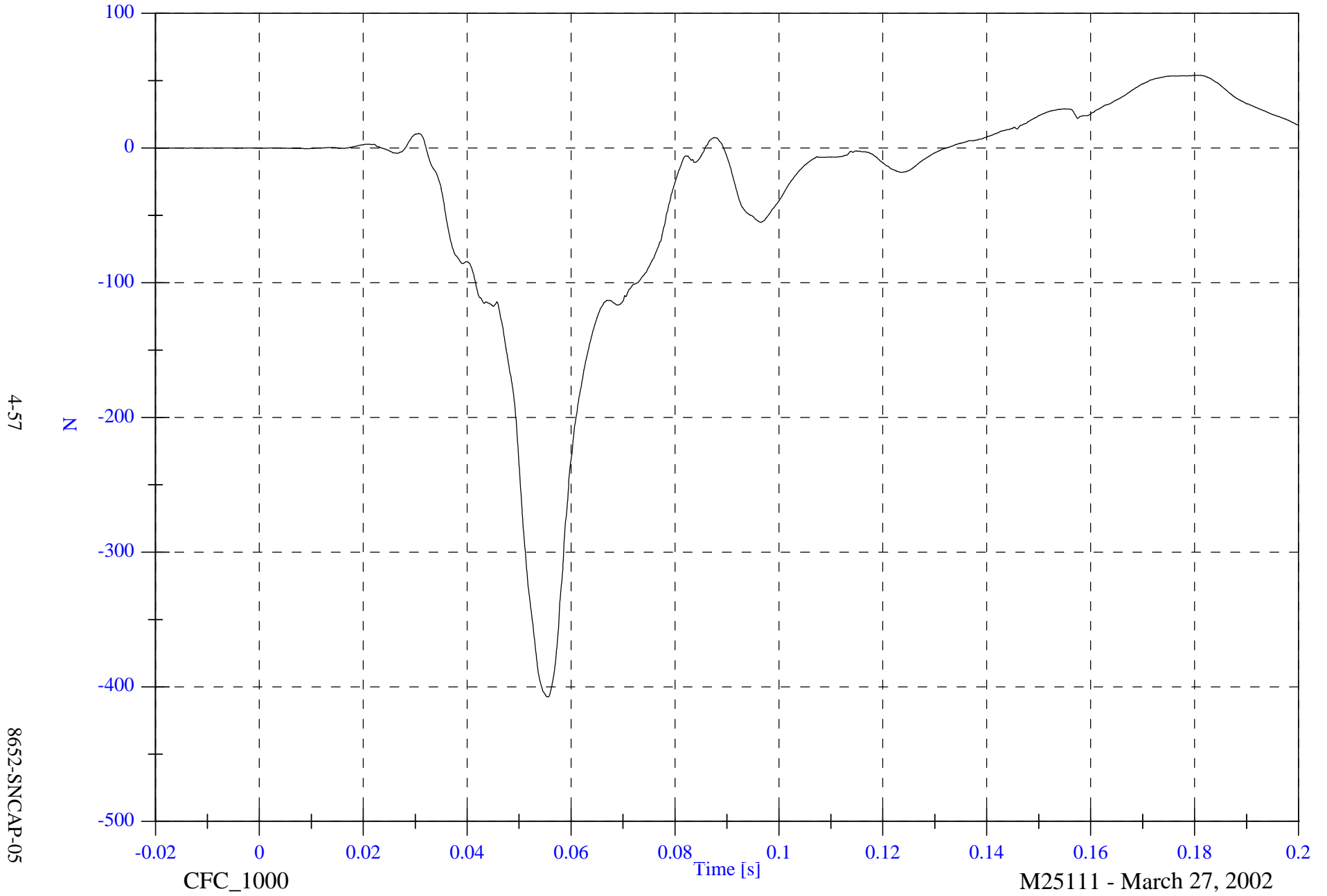
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P4 Lower Neck Fy

Max: 54.1 [N] at 0.180 [s]

Min: -407.6 [N] at 0.056 [s]



4-57

8652-SNCAP-05

CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

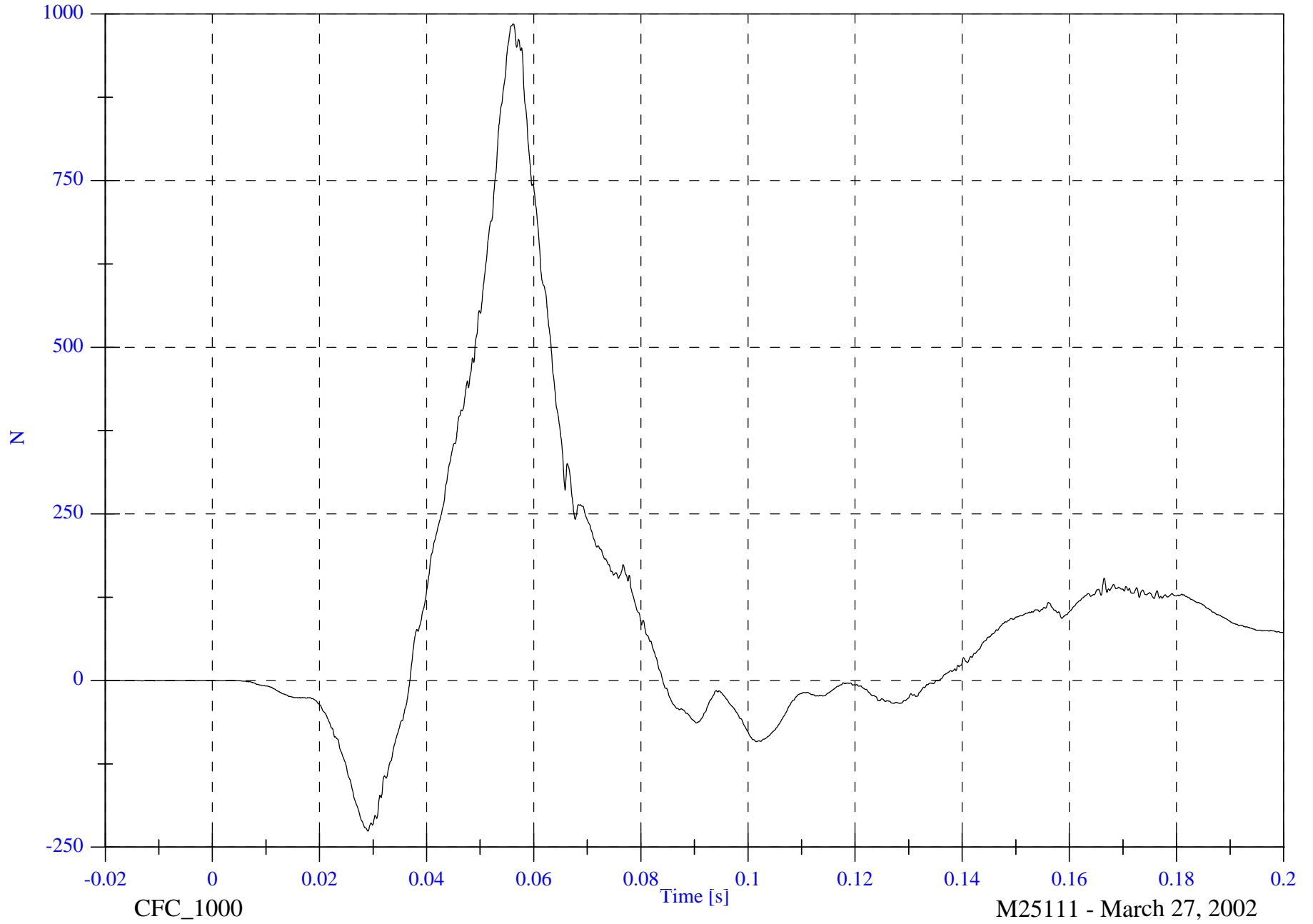
P4 Lower Neck Fz

Max: 985.0 [N] at 0.056 [s]

Min: -226.2 [N] at 0.029 [s]

4-58

8652-SNCAP-05



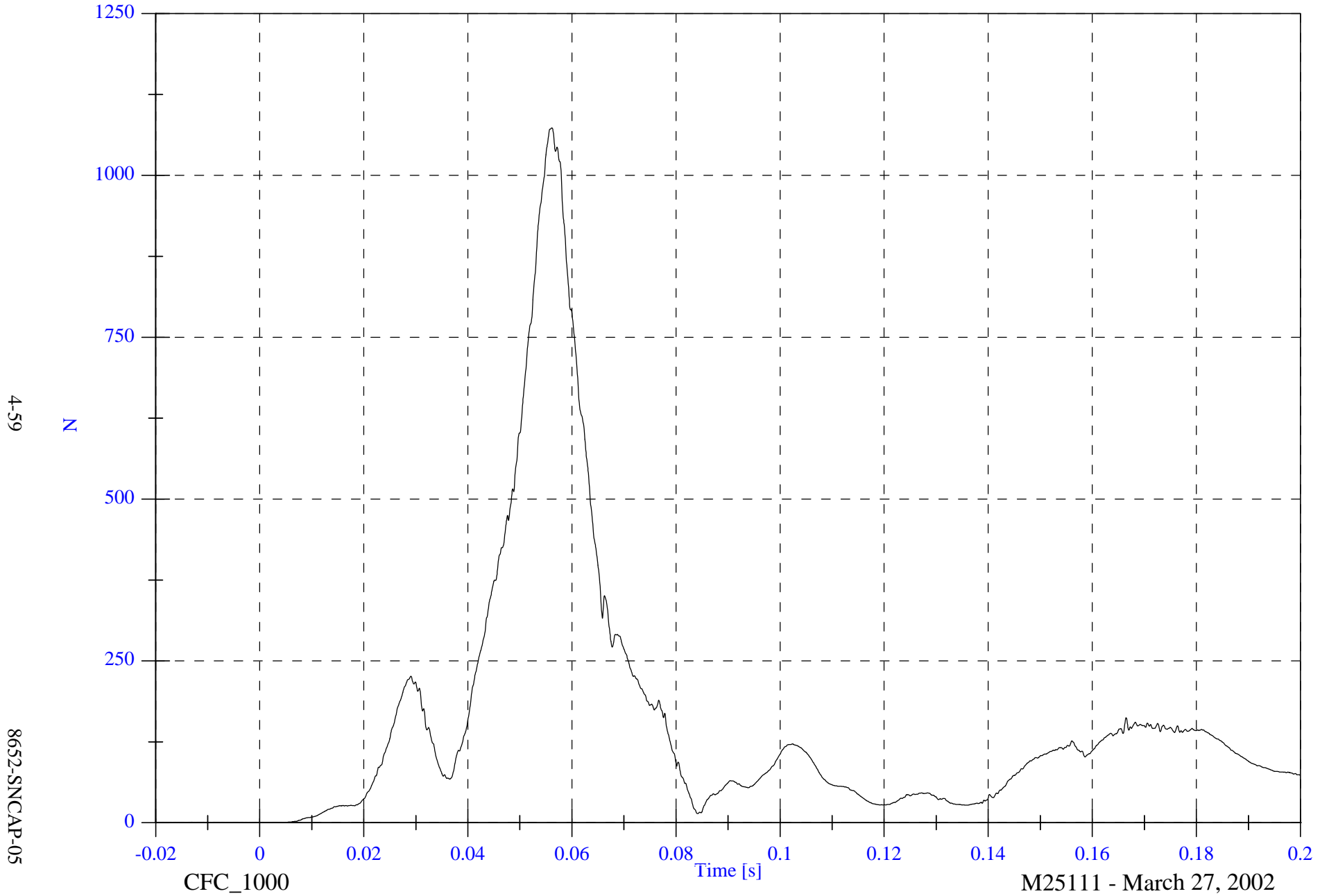
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P4 Lower Neck F Resultant

Max: 1073.3 [N] at 0.056 [s]

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



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

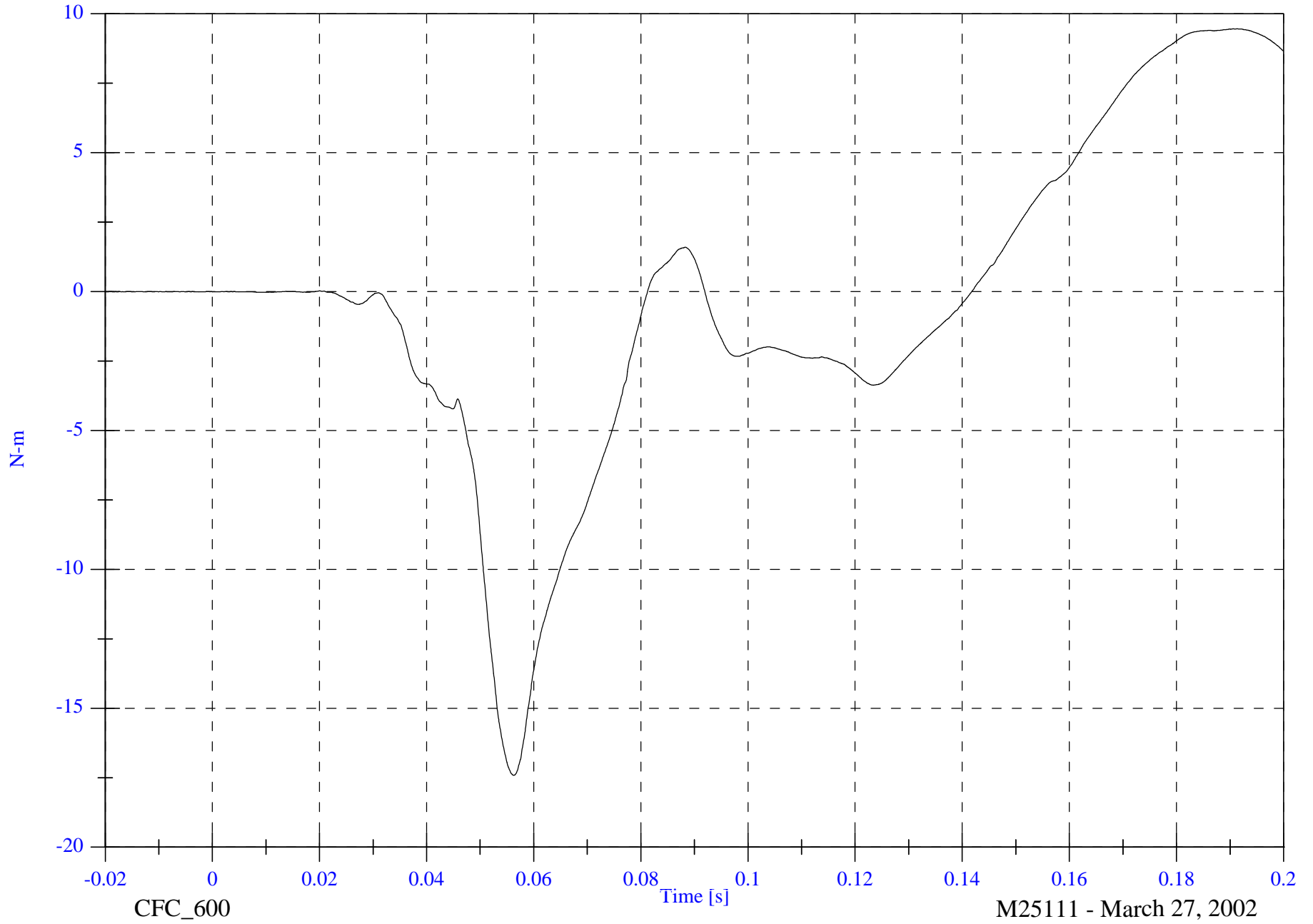
P4 Lower Neck Mx

Max: 9.5 [N-m] at 0.191 [s]

Min: -17.4 [N-m] at 0.056 [s]

4-60

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

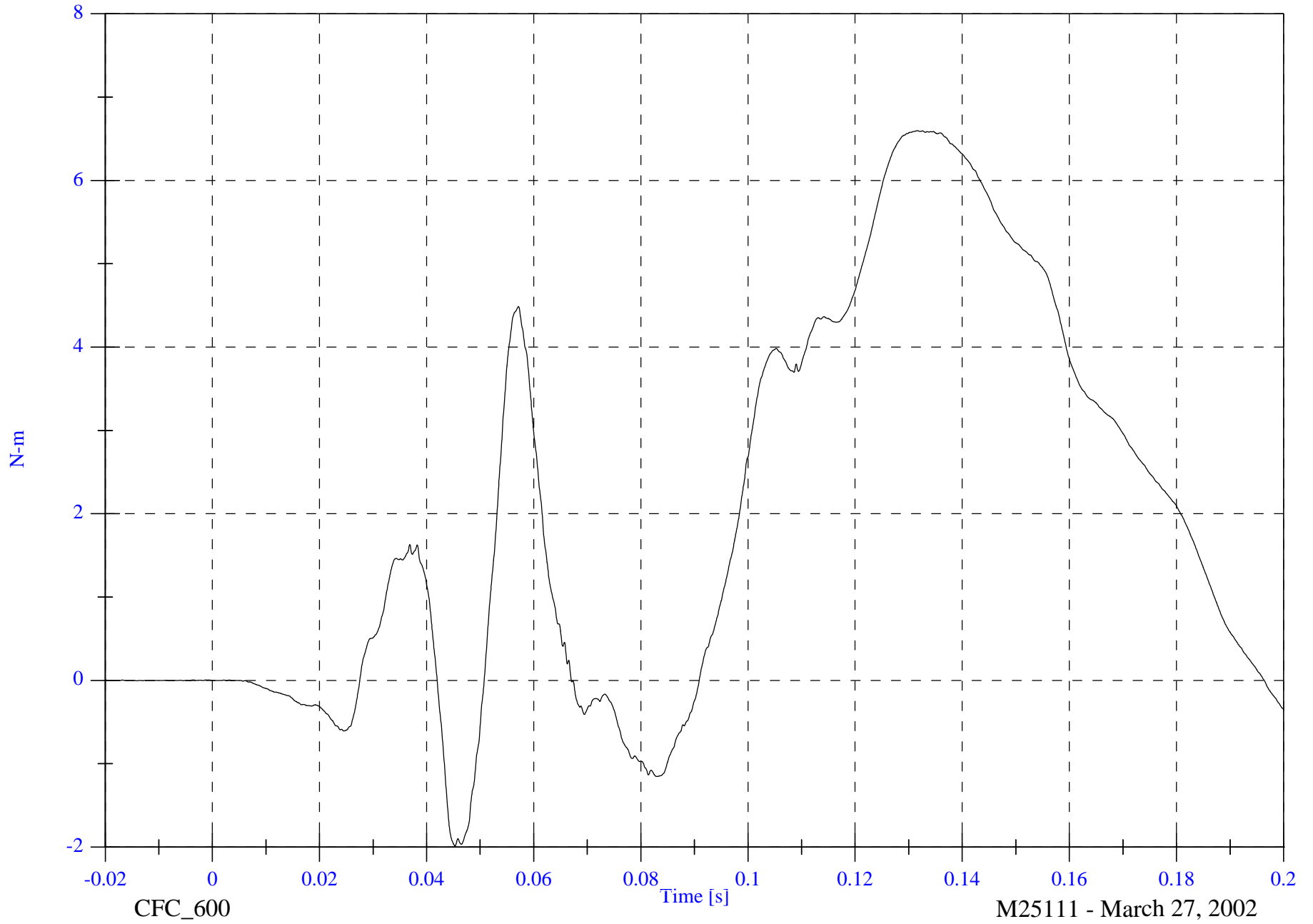
P4 Lower Neck My

Max: 6.6 [N-m] at 0.132 [s]

Min: -2.0 [N-m] at 0.045 [s]

4-61

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

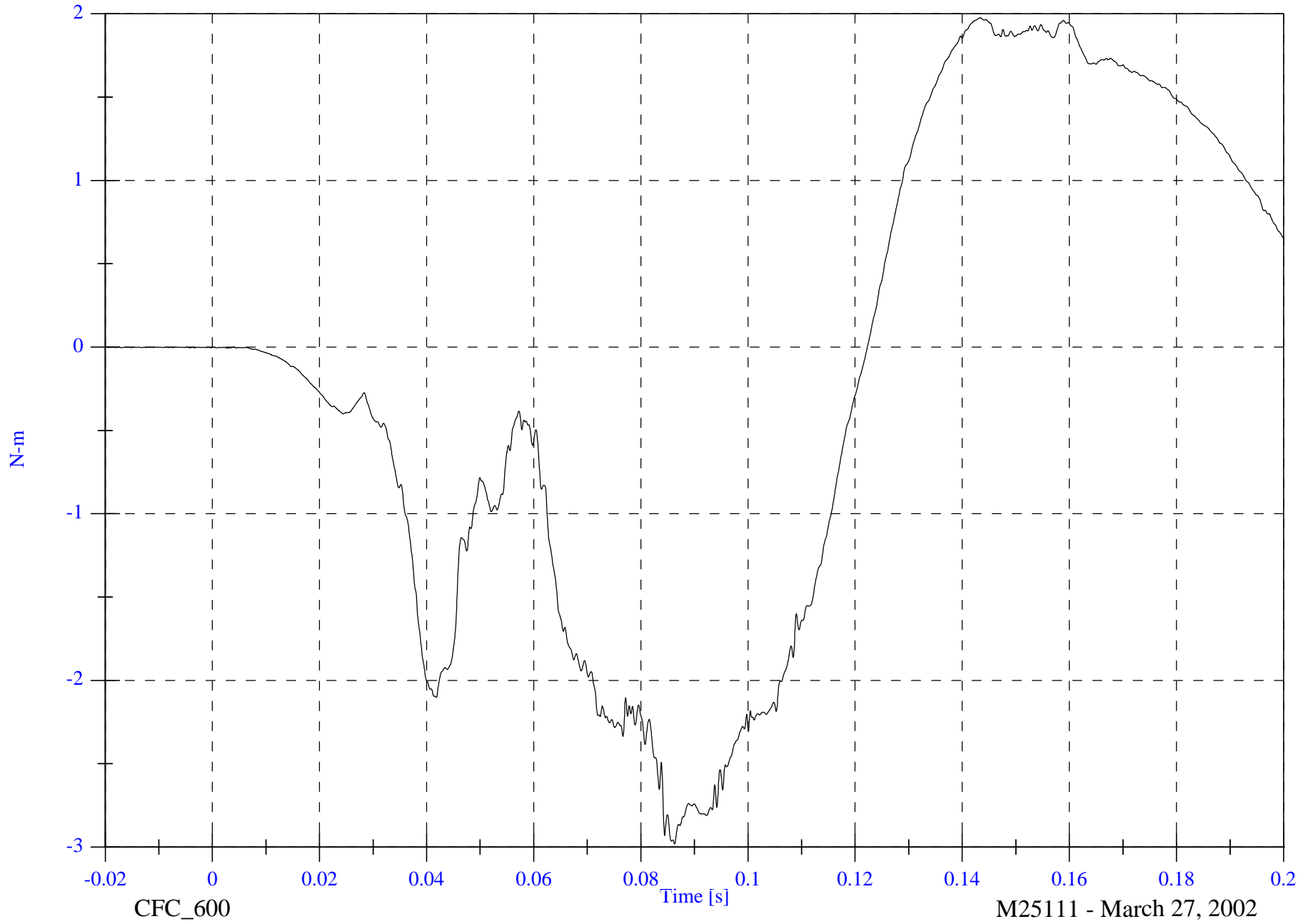
P4 Lower Neck Mz

Max: 2.0 [N-m] at 0.143 [s]

Min: -3.0 [N-m] at 0.086 [s]

4-62

8652-SNCAP-05



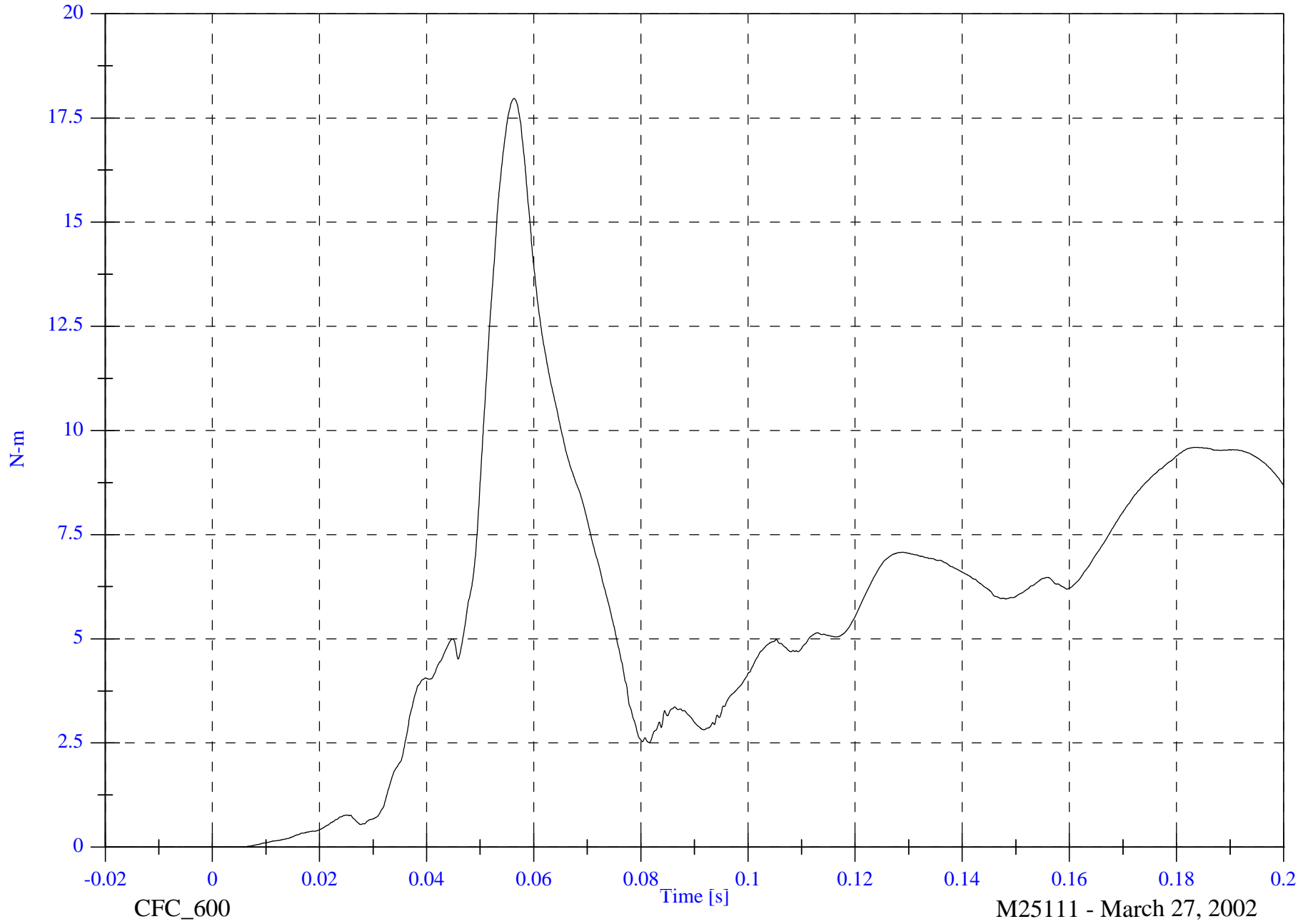
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P4 Lower Neck M Resultant

Max: 18.0 [N-m] at 0.056 [s]

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



4-63

8652-SNCAP-05

CFC_600

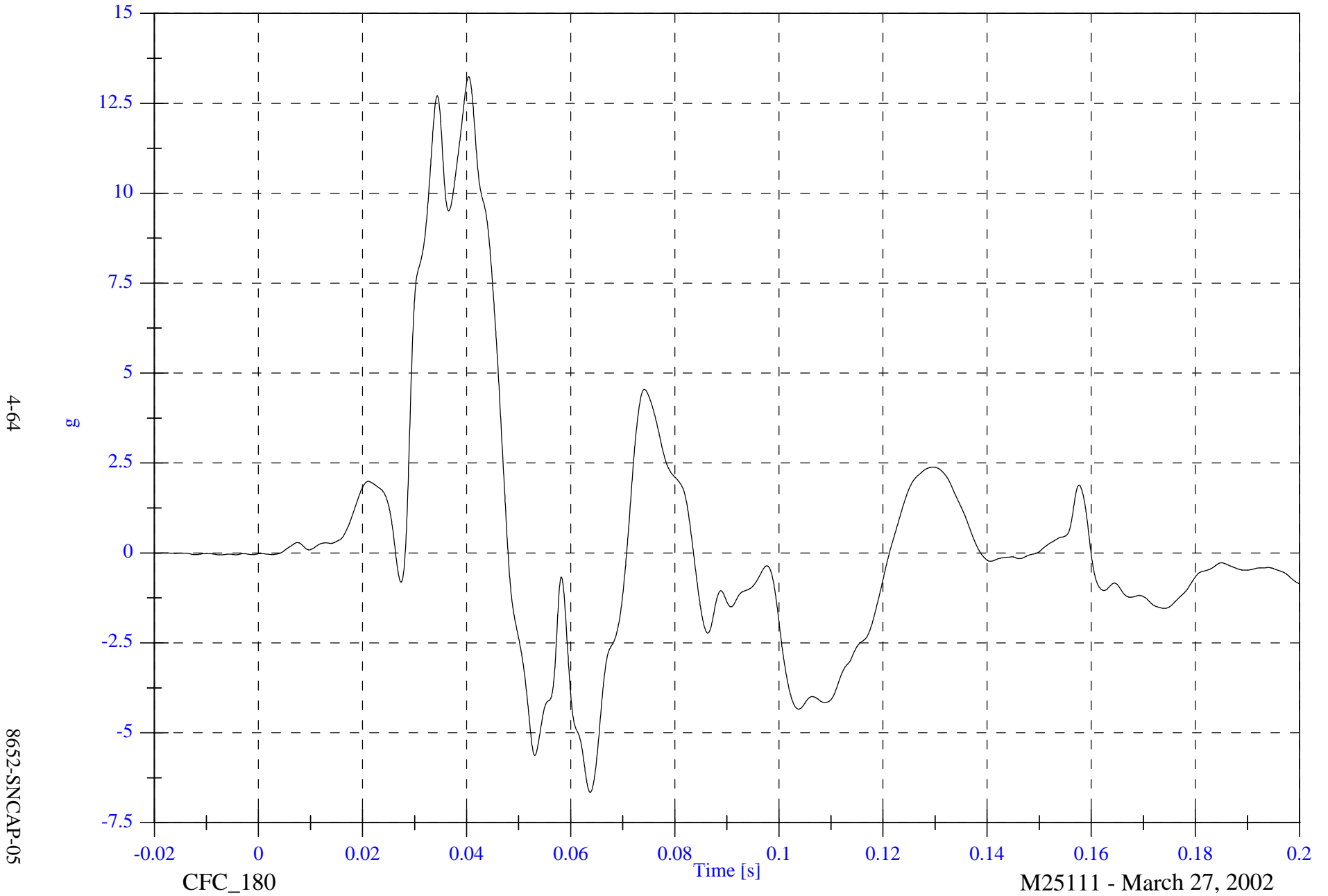
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Max: 13.2 [g] at 0.040 [s]

P4 Chest x

Min: -6.7 [g] at 0.064 [s]



4-64

8652-SNCAP-05

CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Max: 3.5 [g] at 0.070 [s]

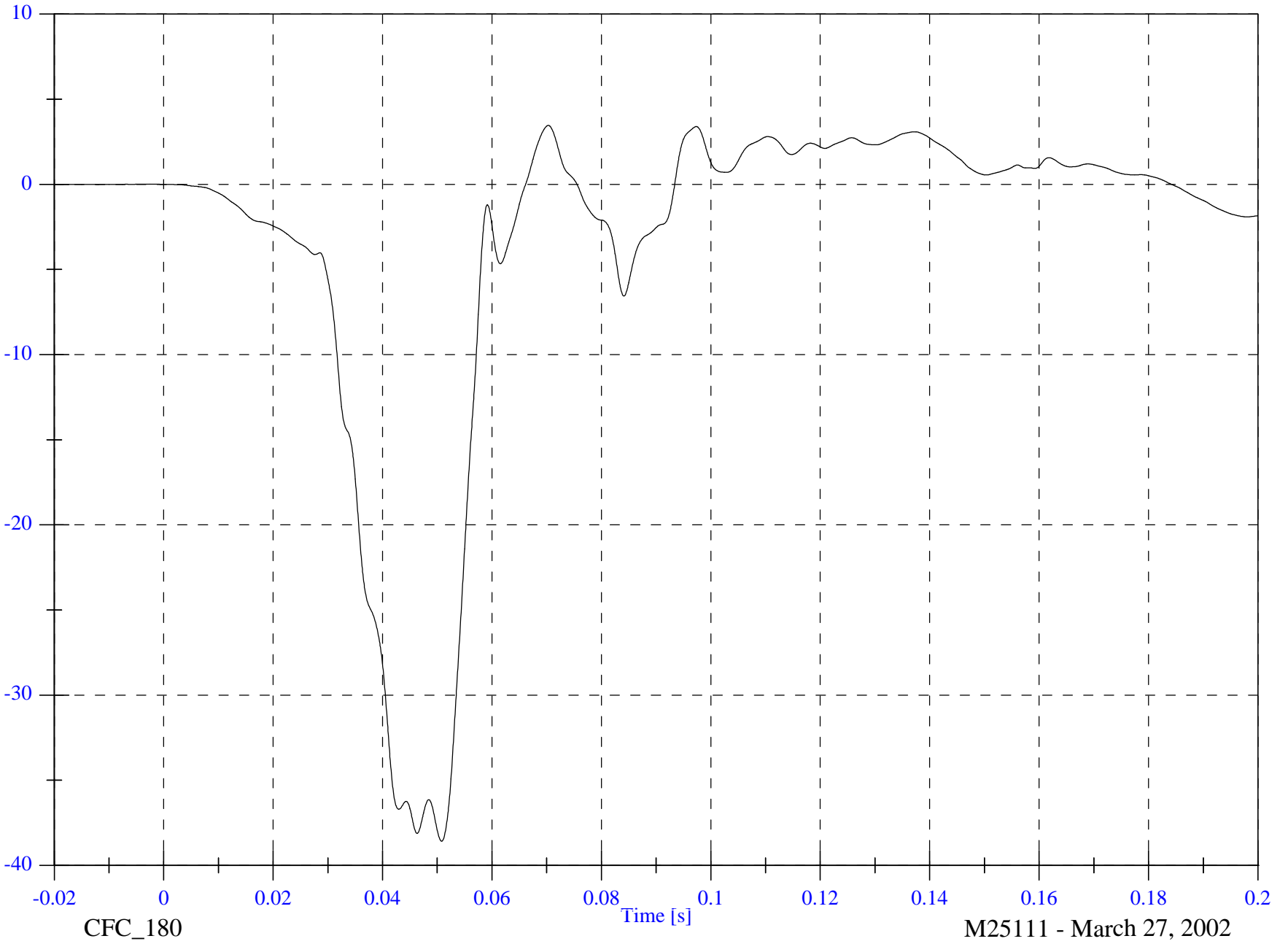
P4 Chest y

Min: -38.6 [g] at 0.051 [s]

4-65

g

8652-SNCAP-05



CFC_180

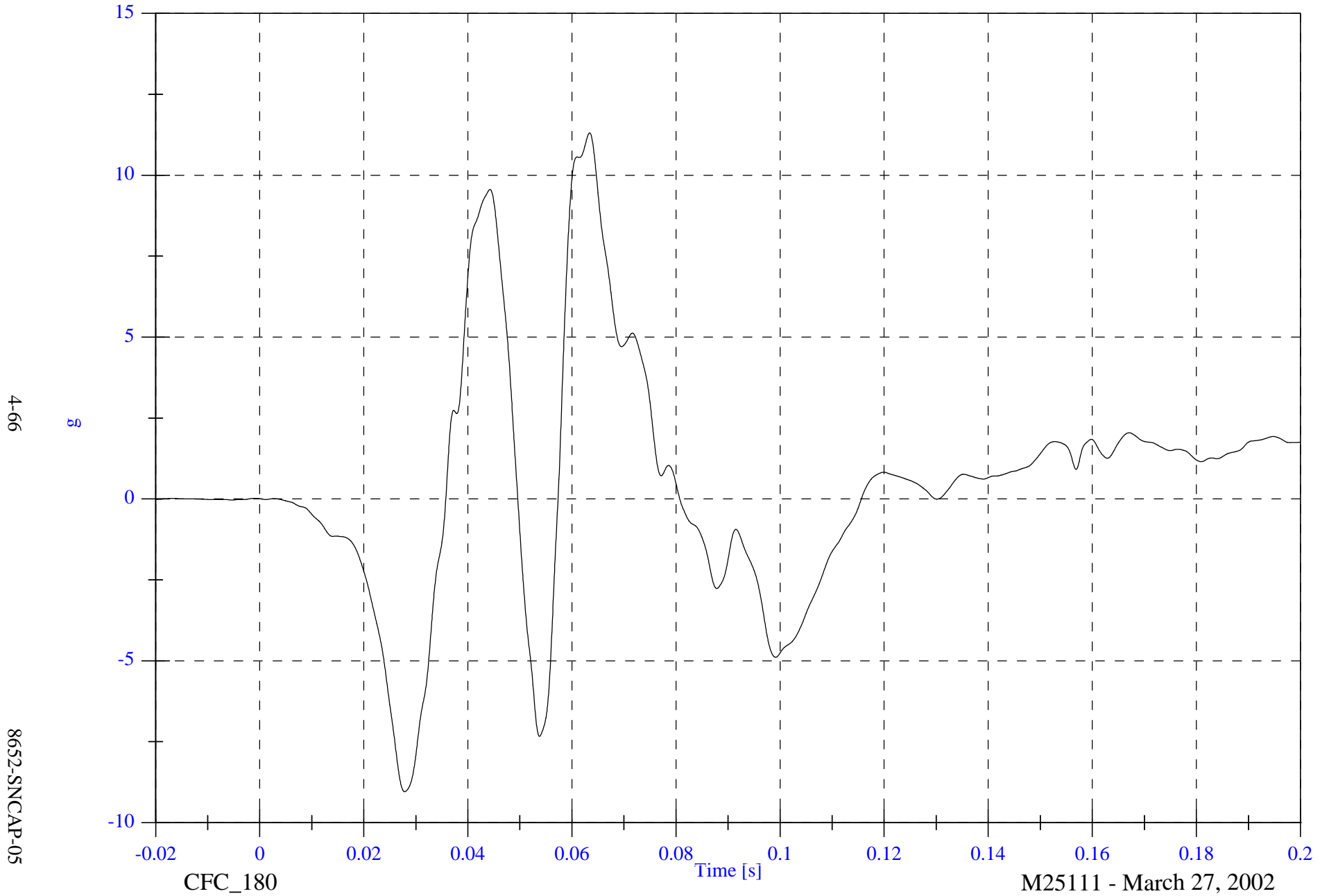
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P4 Chest z

Max: 11.3 [g] at 0.063 [s]

Min: -9.0 [g] at 0.028 [s]



4-66

8652-SNCAP-05

CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

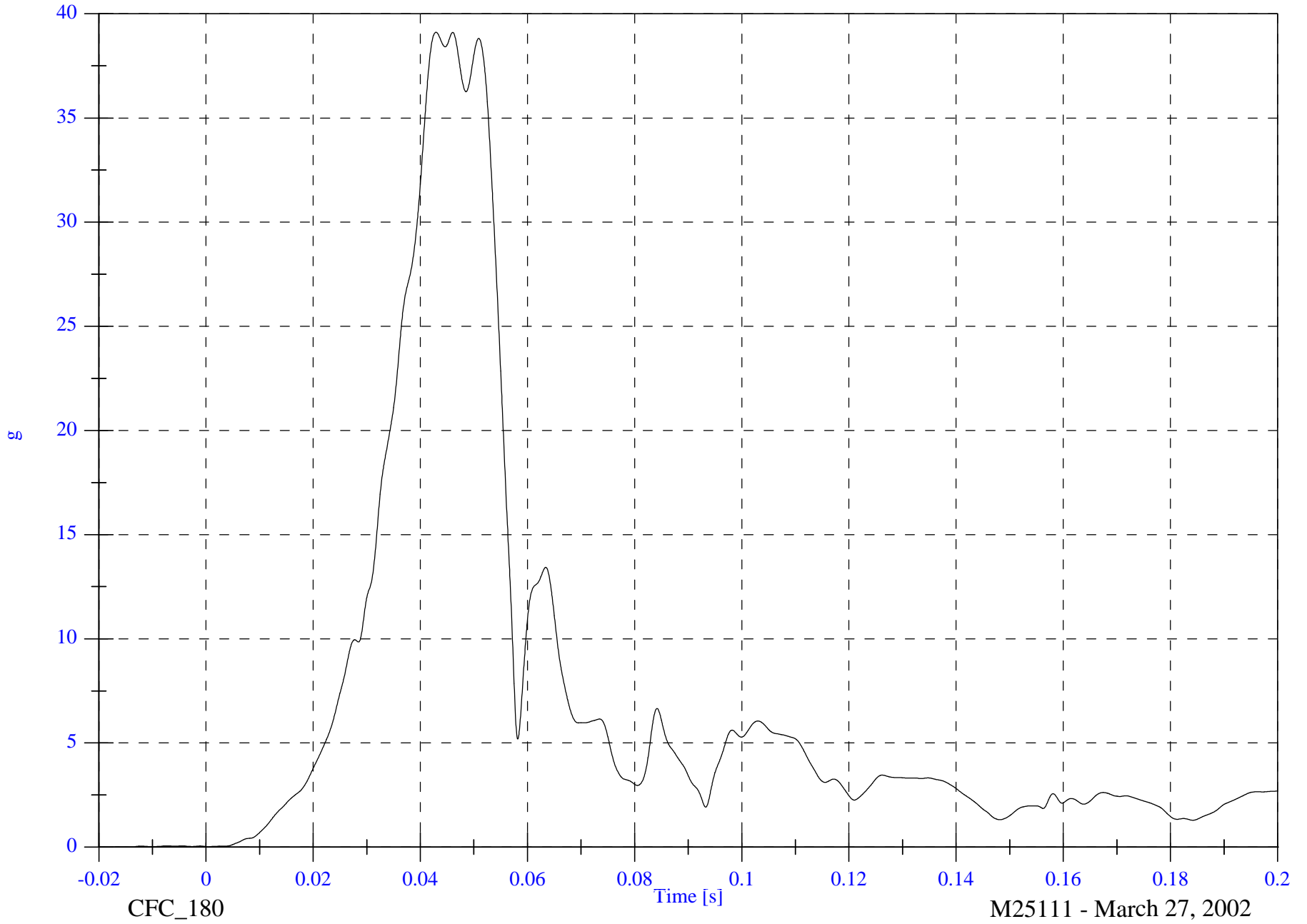
P4 Chest Resultant

Max: 39.1 [g] at 0.043 [s]

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

4-67

8652-SNCAP-05



CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

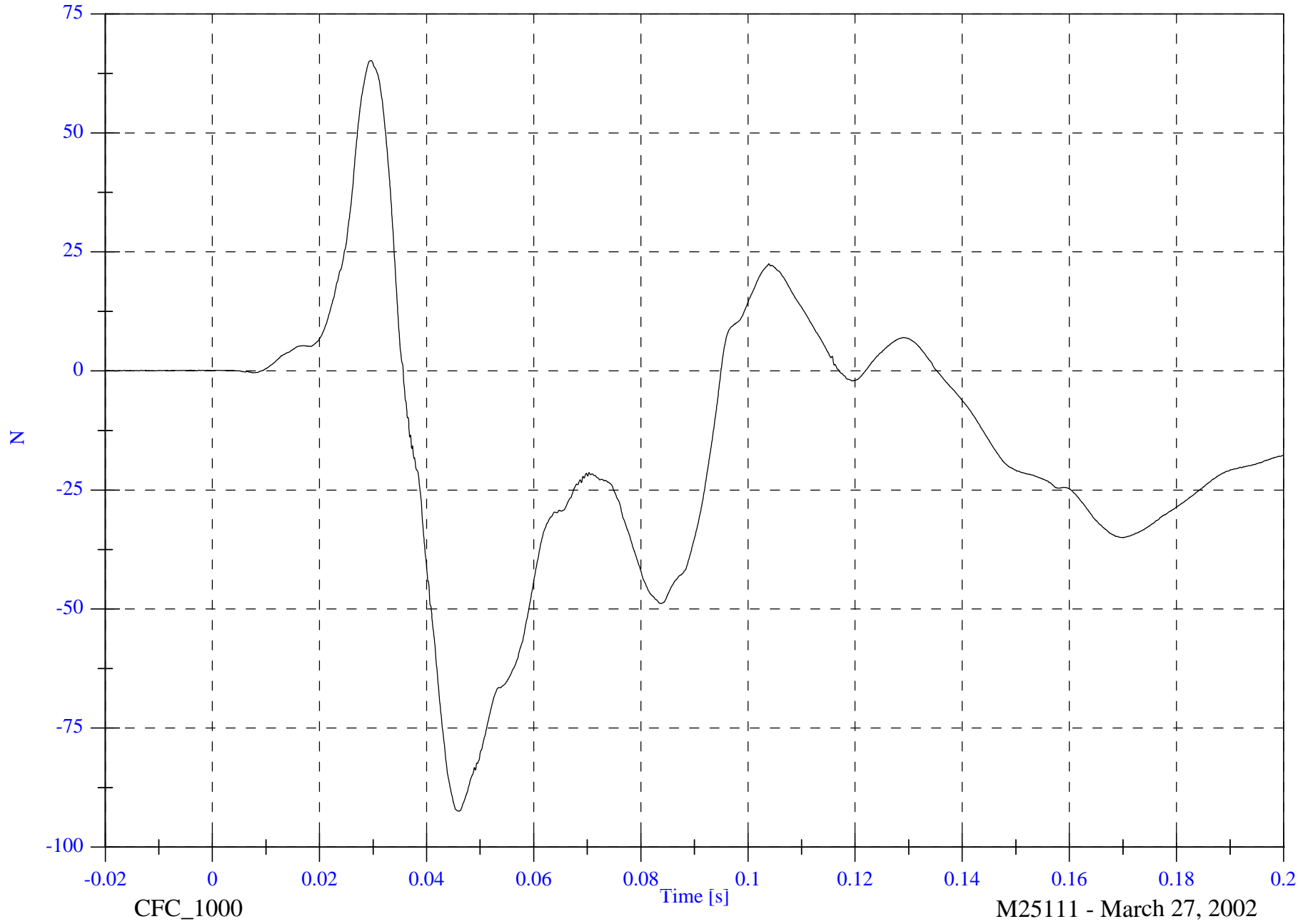
P4 Lumbar Fx

Max: 65.2 [N] at 0.030 [s]

Min: -92.4 [N] at 0.046 [s]

4-68

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

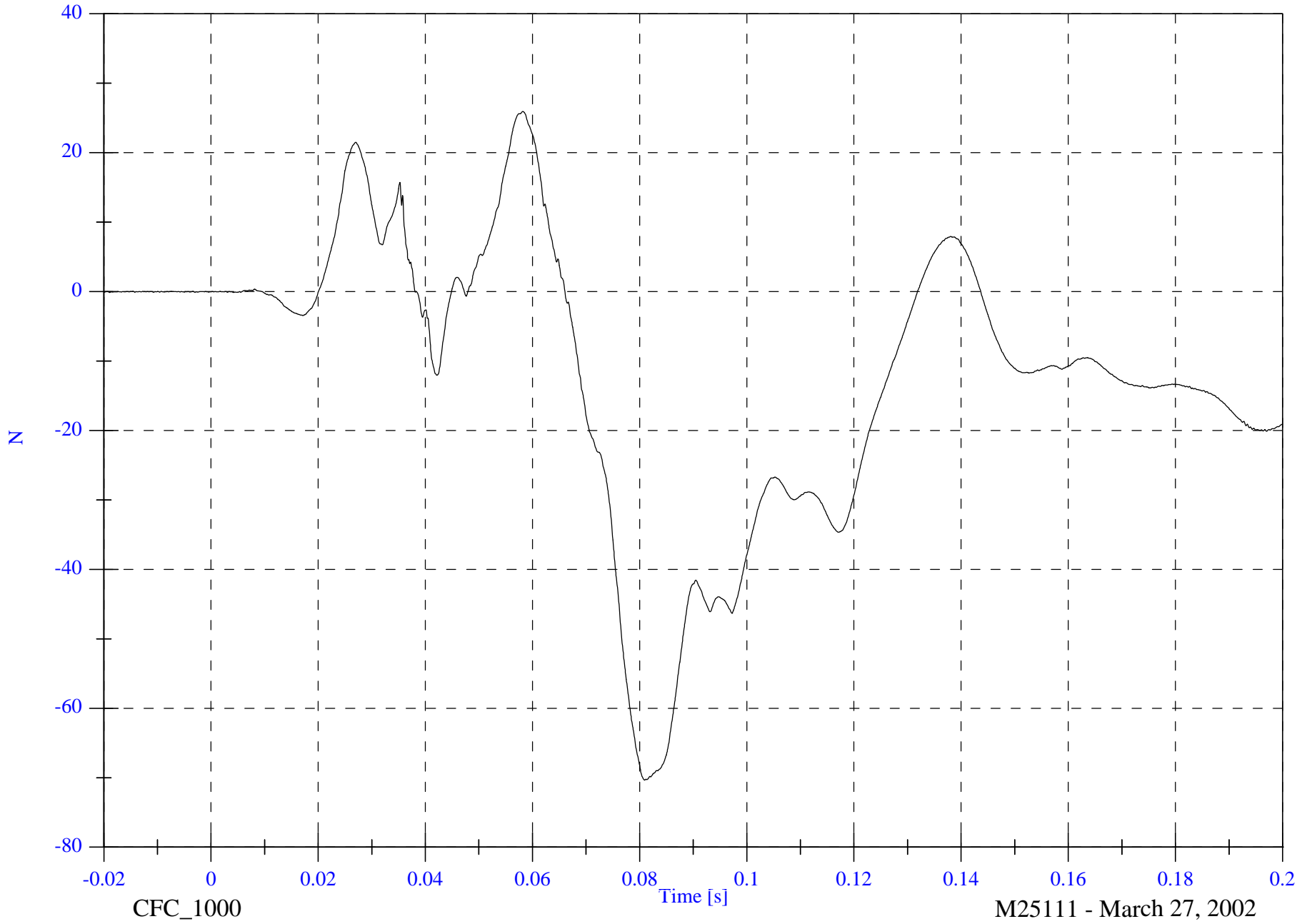
P4 Lumbar Fy

Max: 25.9 [N] at 0.058 [s]

Min: -70.4 [N] at 0.081 [s]

4-69

8652-SNCAP-05



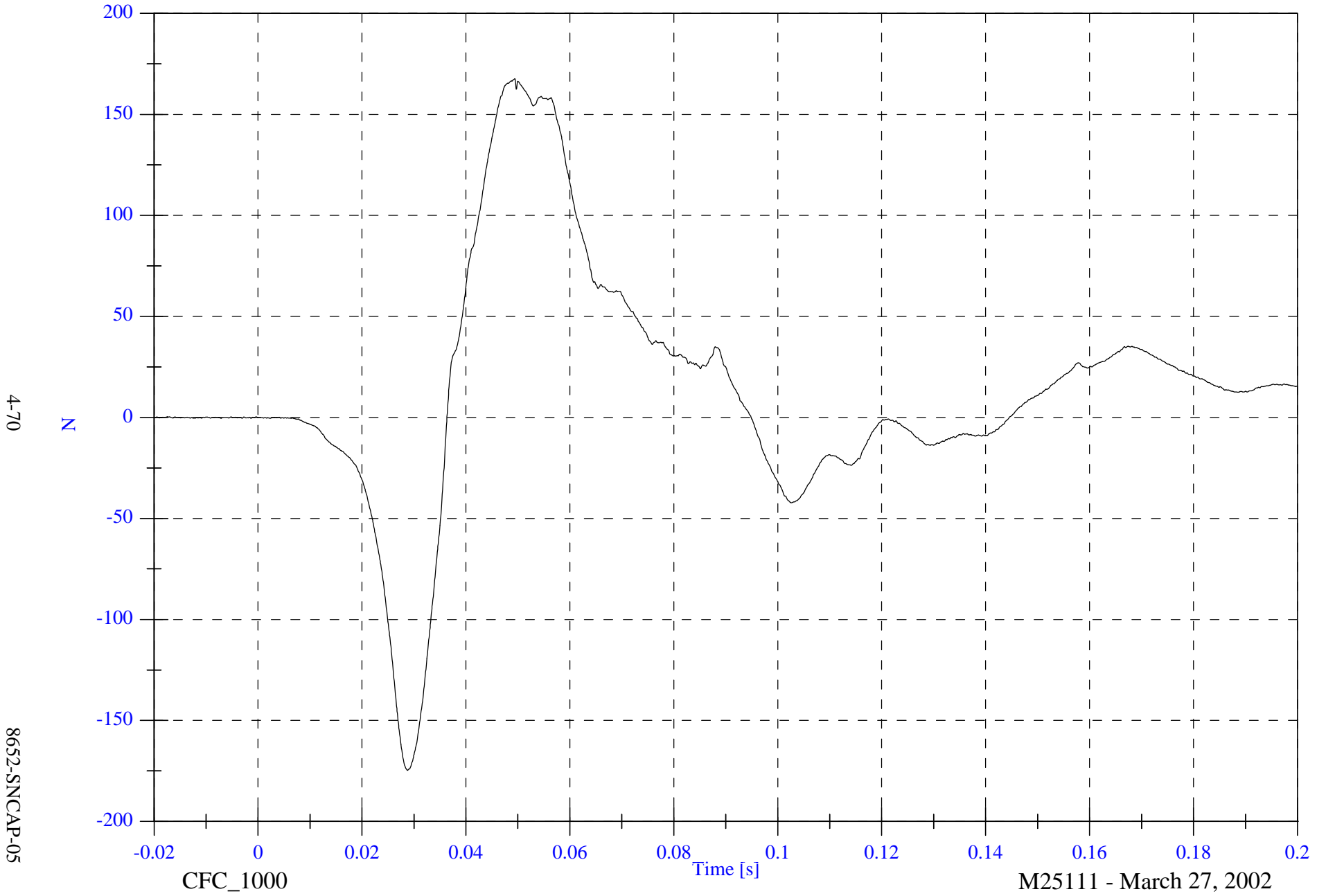
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P4 Lumbar Fz

Max: 167.6 [N] at 0.049 [s]

Min: -174.7 [N] at 0.029 [s]



4-70

8652-SNCAP-05

CFC_1000

Time [s]

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

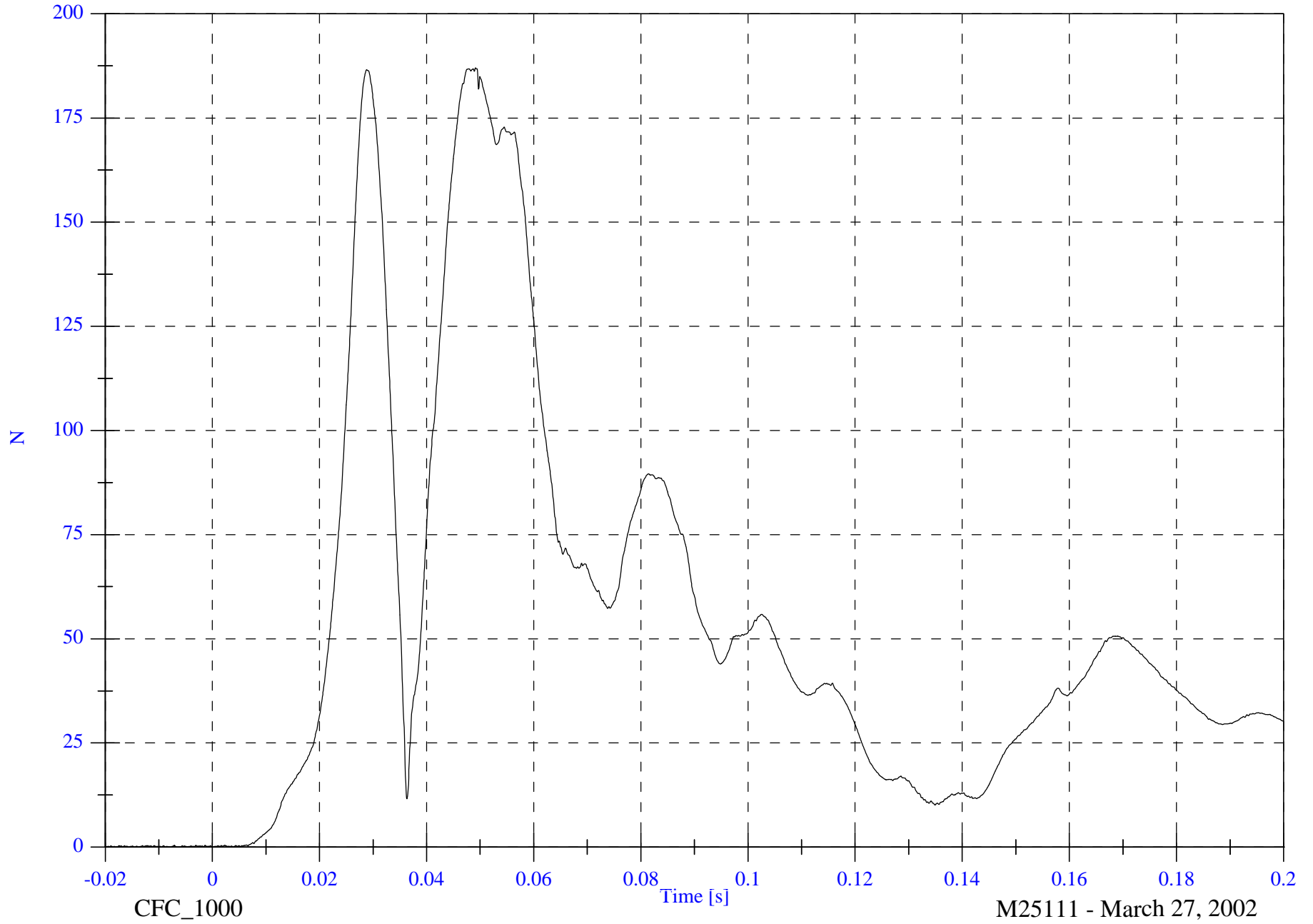
P4 Lumbar F Resultant

Max: 187.1 [N] at 0.049 [s]

Min: 0.0 [N] at -0.008 [s]

4-71

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P4 Lumbar Mx

Max: 4.7 [N-m] at 0.040 [s]

Min: -4.8 [N-m] at 0.094 [s]

4-72

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

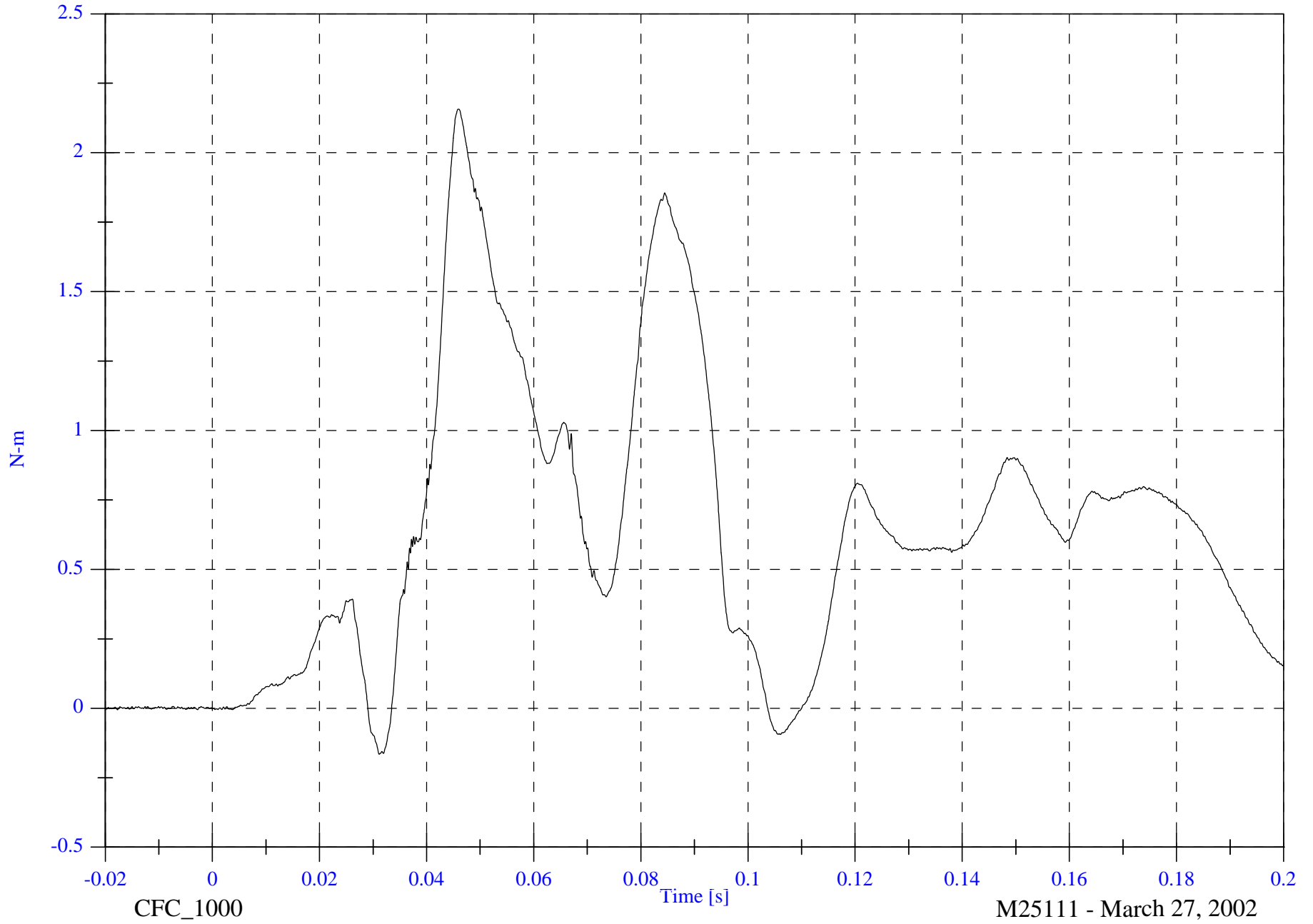
P4 Lumbar My

Max: 2.2 [N-m] at 0.046 [s]

Min: -0.2 [N-m] at 0.031 [s]

4-73

8652-SNCAP-05



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

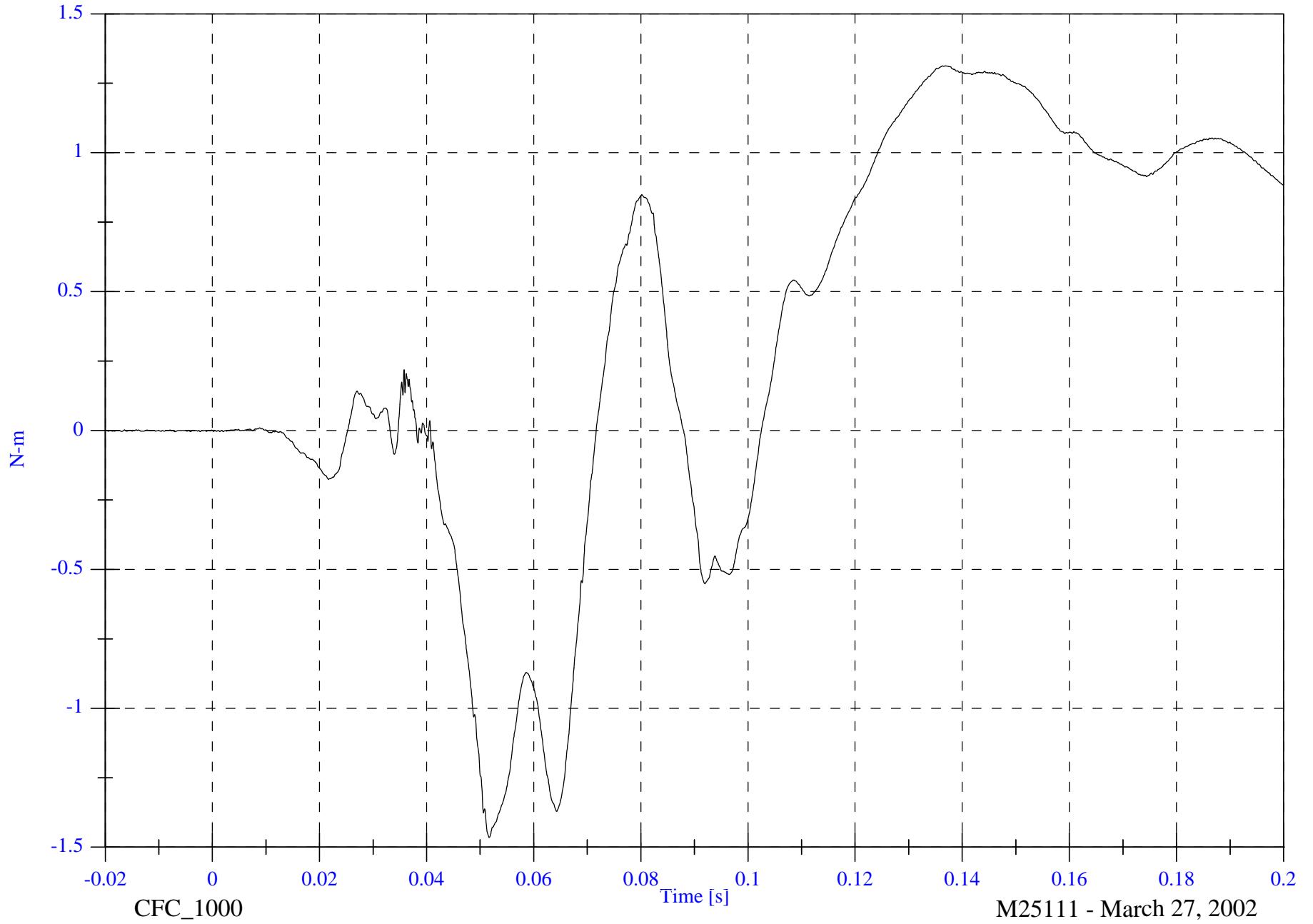
P4 Lumbar Mz

Max: 1.3 [N-m] at 0.137 [s]

Min: -1.5 [N-m] at 0.052 [s]

4-74

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

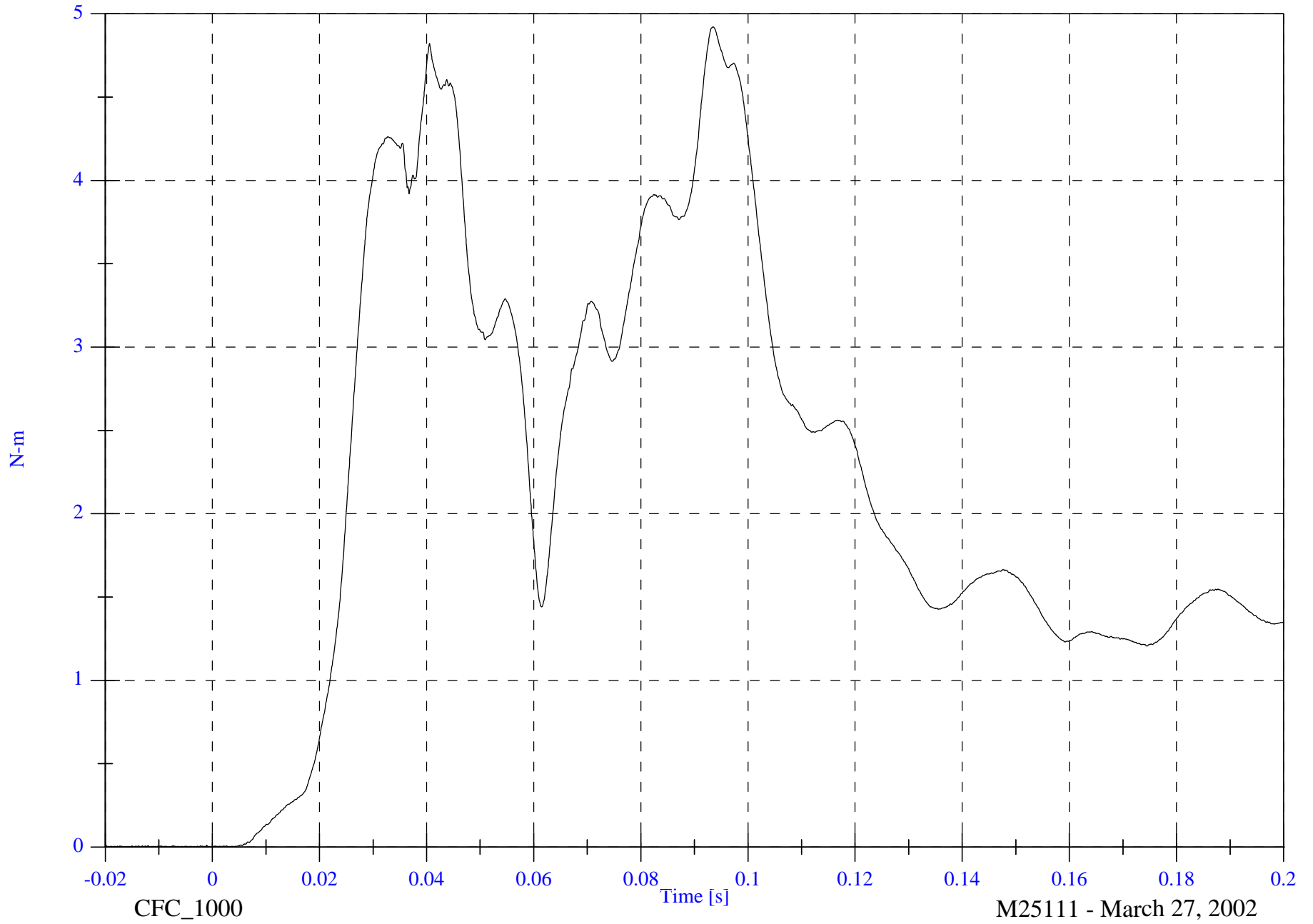
P4 Lumbar M Resultant

Max: 4.9 [N-m] at 0.094 [s]

Min: 0.0 [N-m] at -0.012 [s]

4-75

8652-SNCAP-05



CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

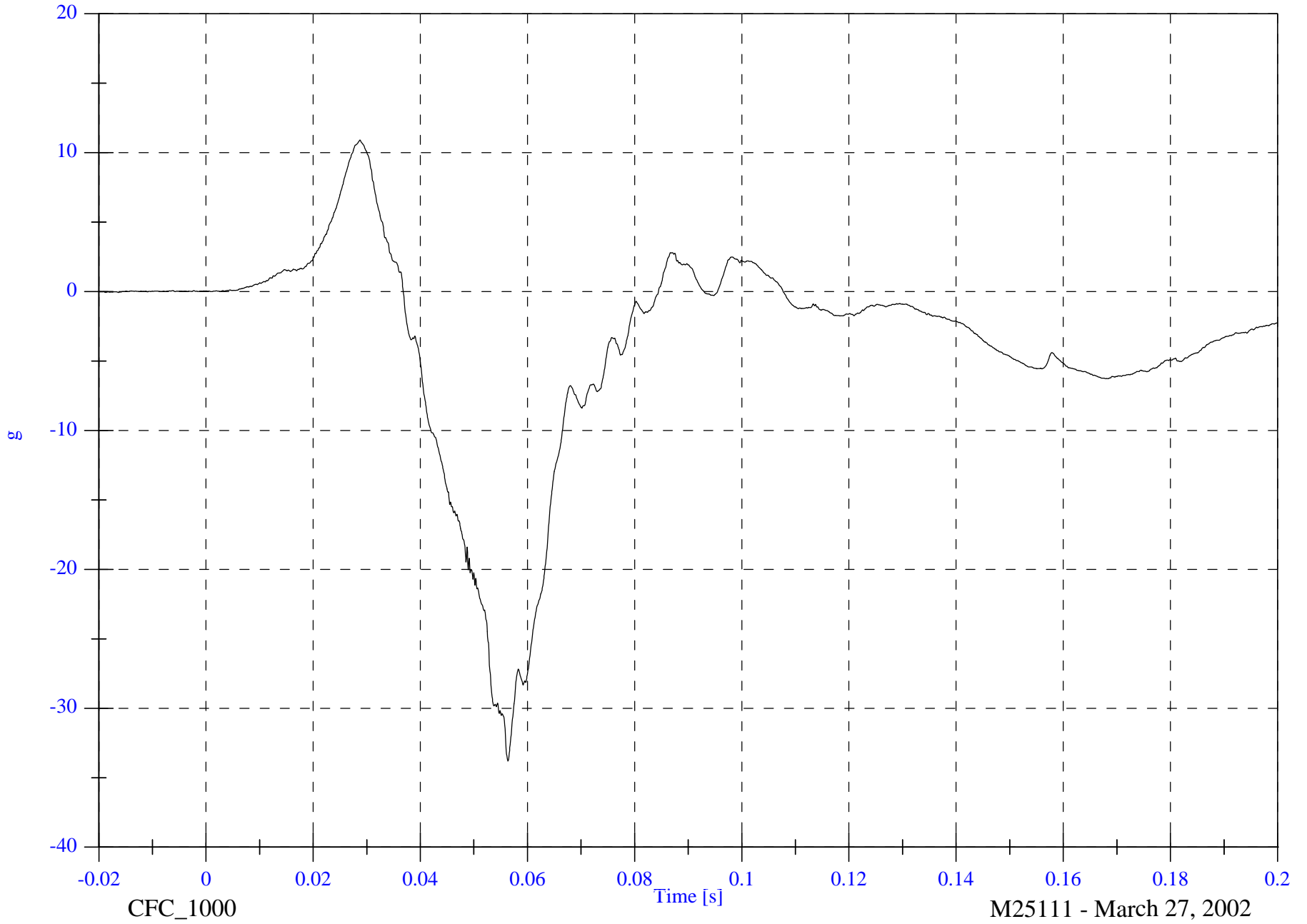
Max: 10.9 [g] at 0.029 [s]

P4 Pelvic x

Min: -33.8 [g] at 0.056 [s]

4-76

8652-SNCAP-05



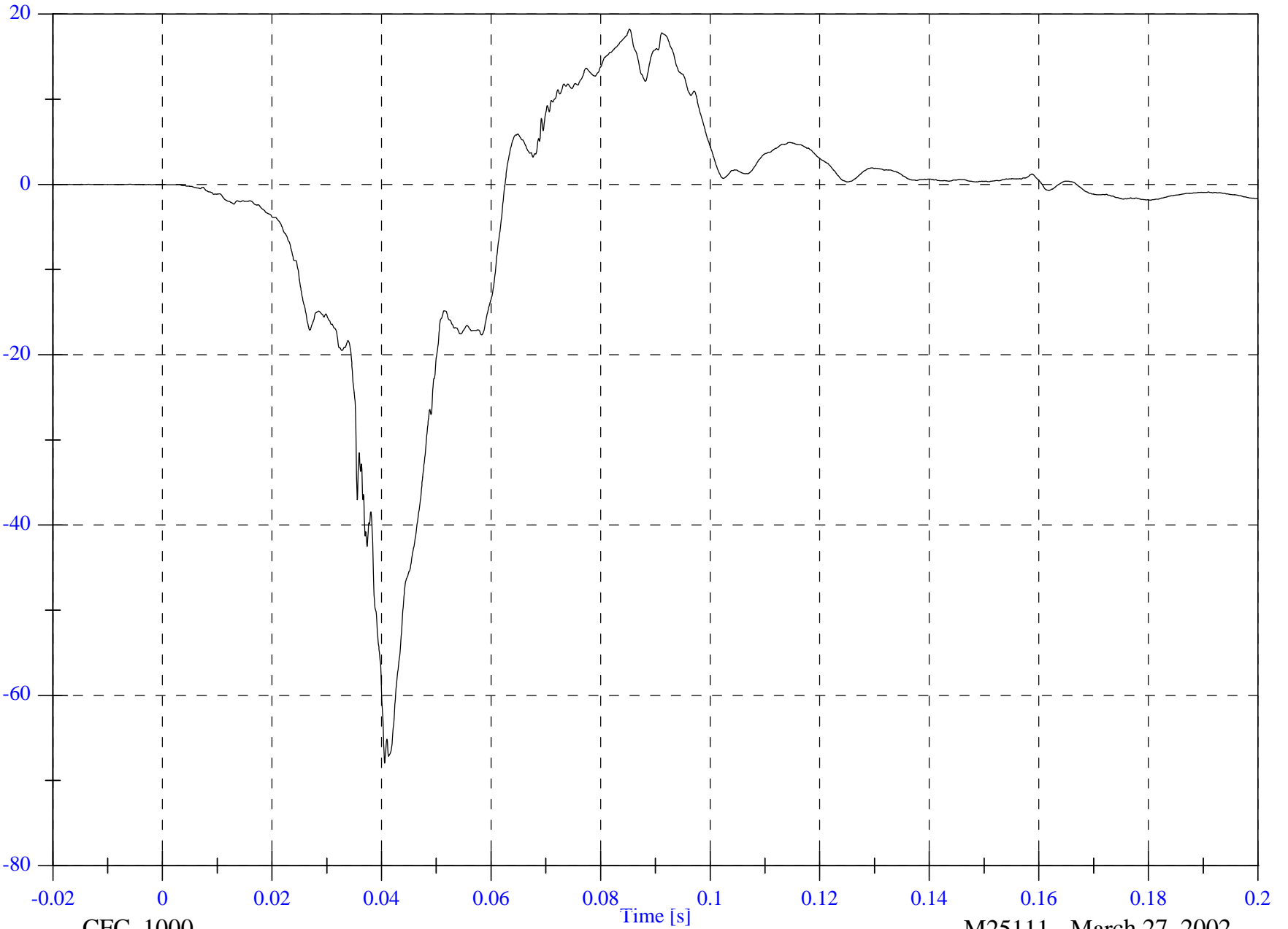
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Max: 18.2 [g] at 0.085 [s]

P4 Pelvic y

Min: -68.0 [g] at 0.041 [s]



4-77

g

8652-SNCAP-05

CFC_1000

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

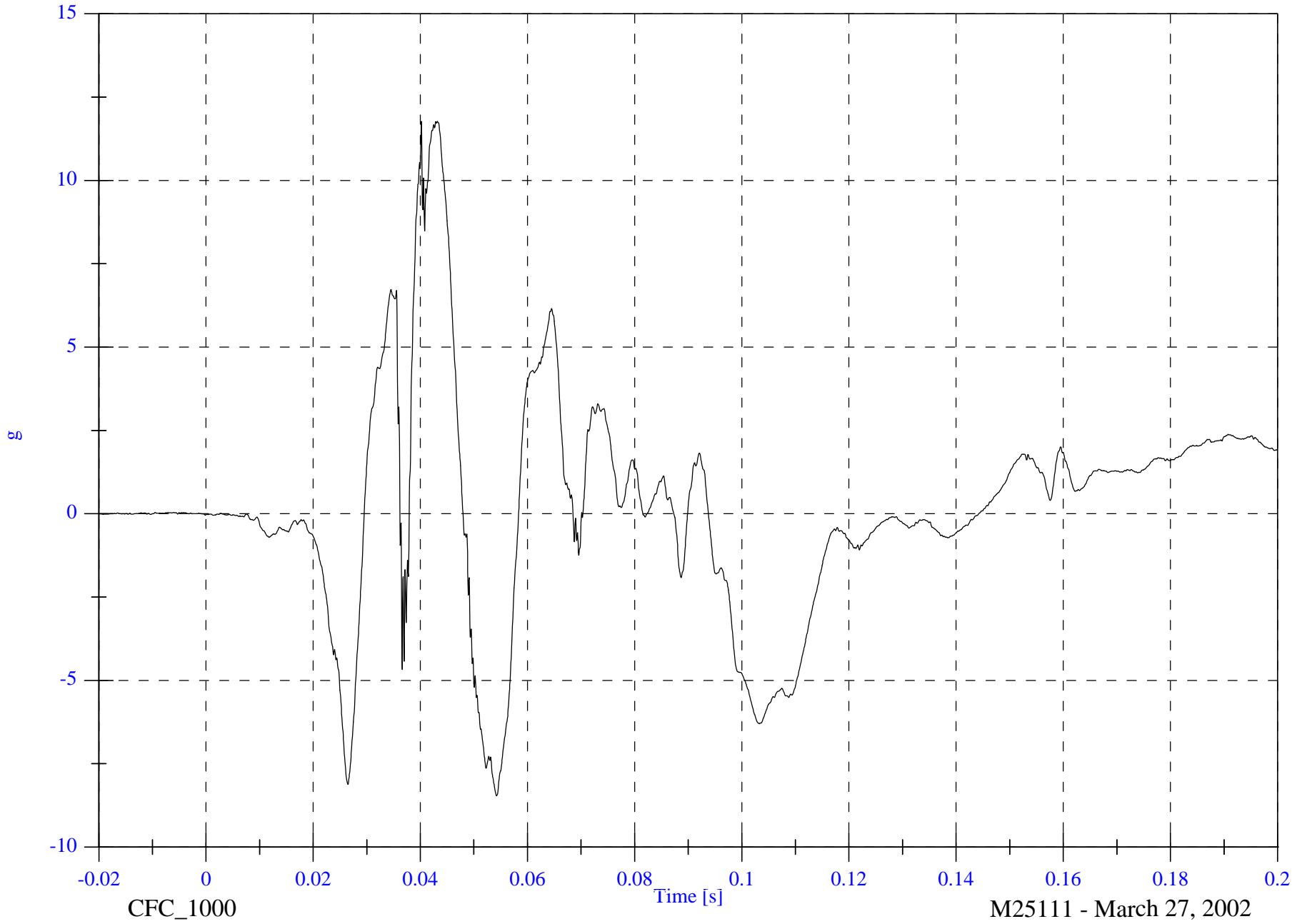
Max: 11.8 [g] at 0.043 [s]

P4 Pelvic z

Min: -8.5 [g] at 0.054 [s]

4-78

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

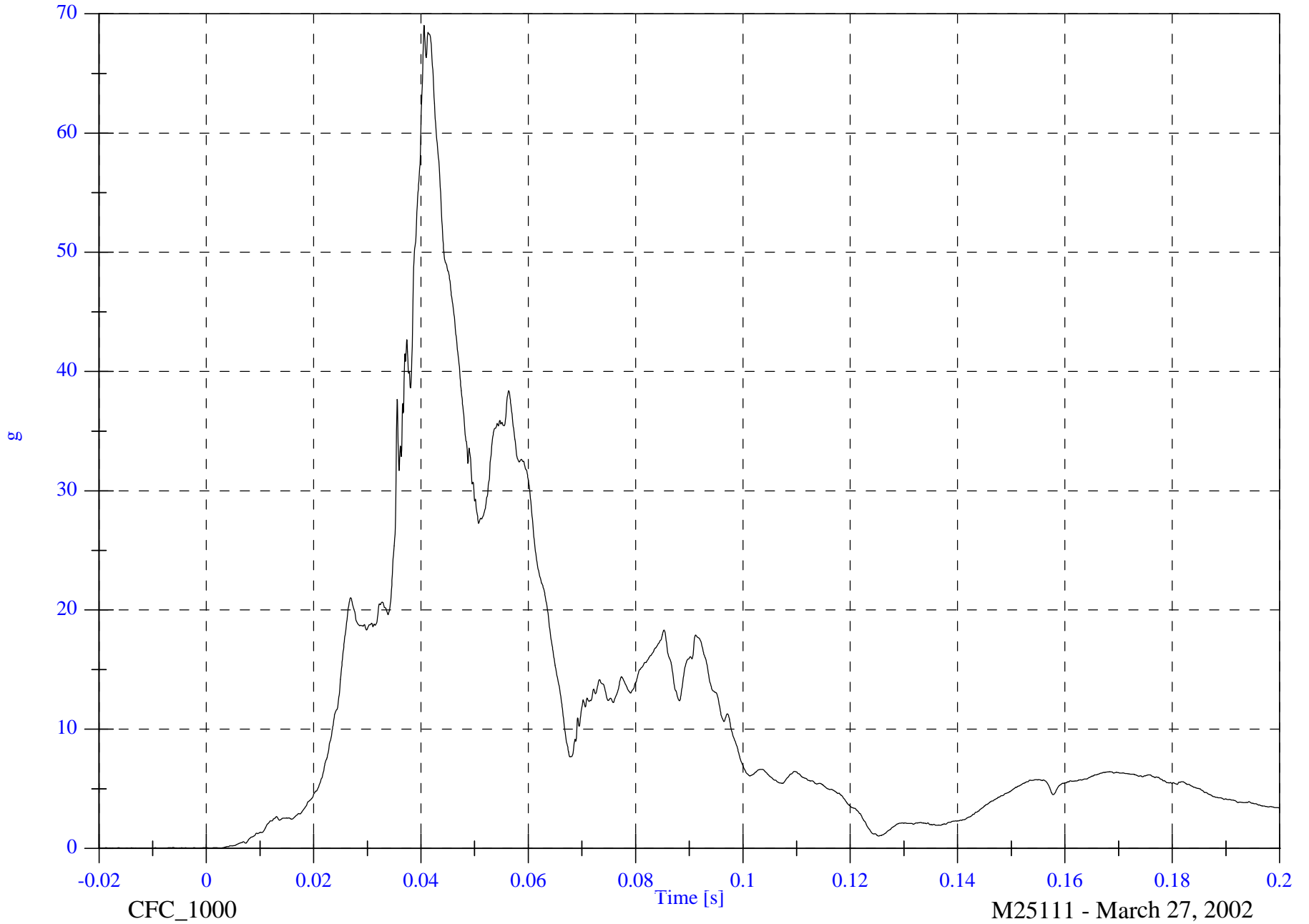
P4 Pelvic Resultant

Max: 69.0 [g] at 0.041 [s]

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

4-79

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 19 Right Rear Compartment Red y

Max: 28.1 [g] at 0.007 [s]

Min: -9.0 [g] at 0.077 [s]

4-80

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

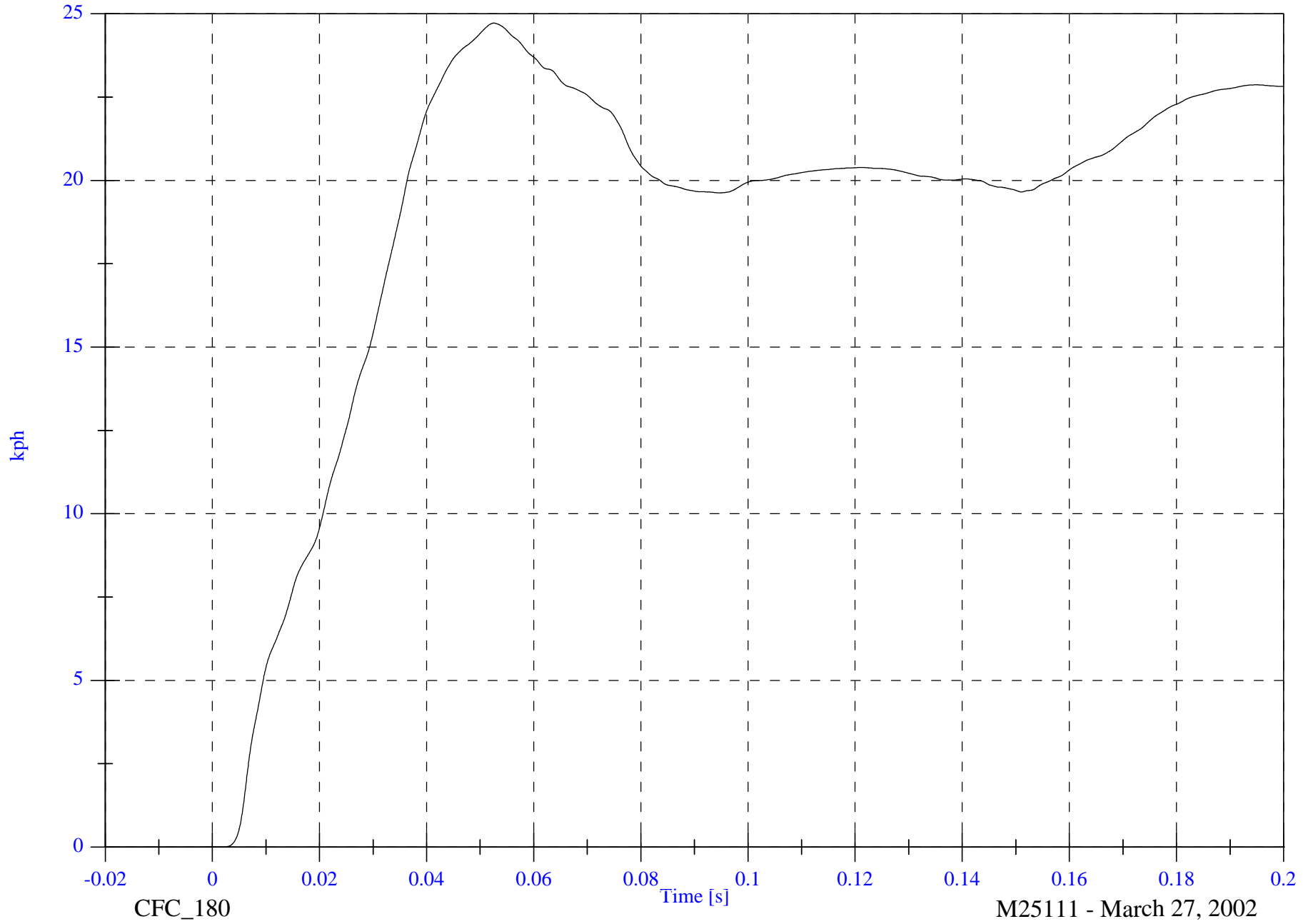
Acc 19 Right Rear Compartment Red y Velocity

Max: 24.7 [kph] at 0.053 [s]

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

4-81

8652-SNCAP-05



CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

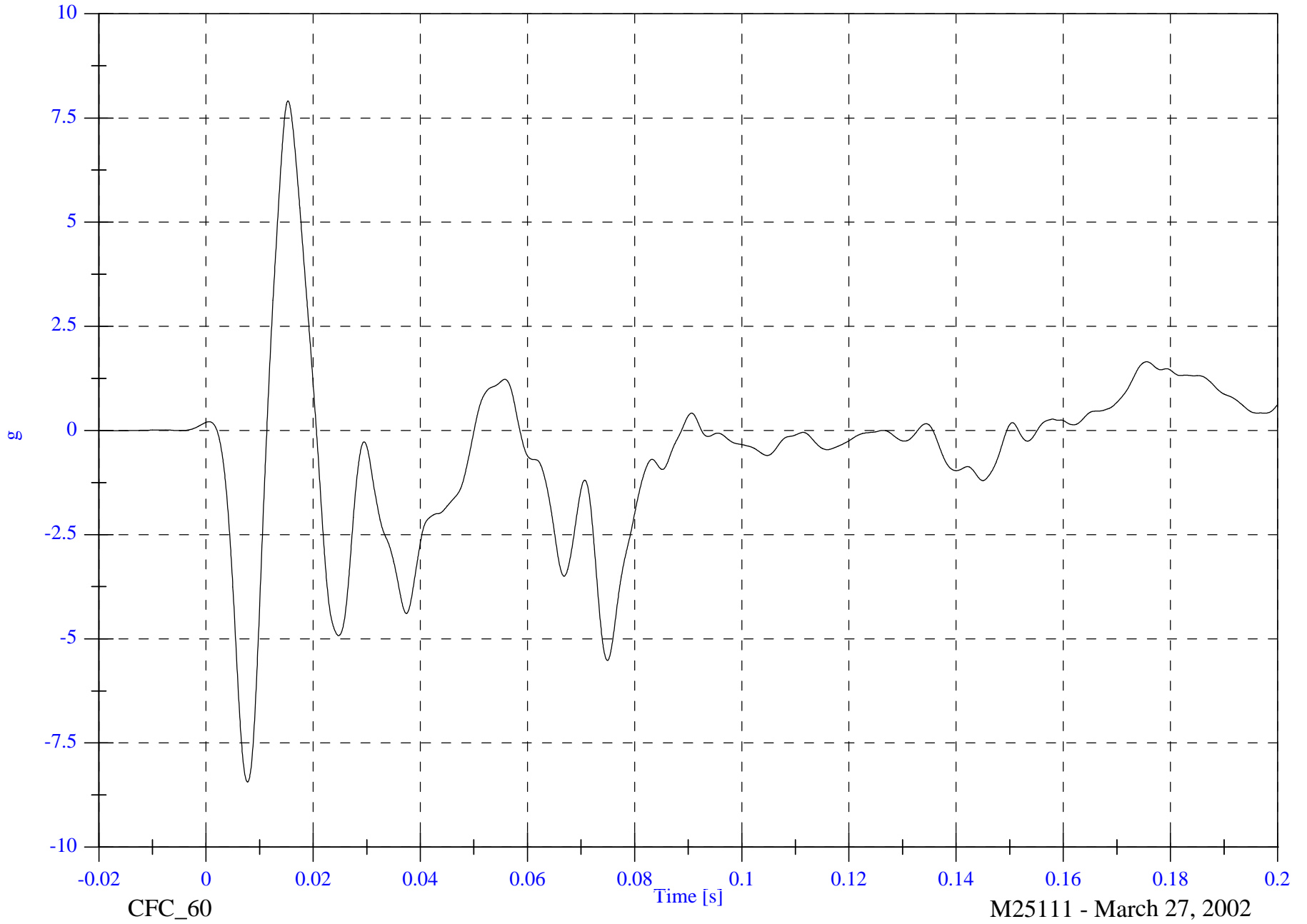
Acc 20 Right Rear Compartment x

Max: 7.9 [g] at 0.015 [s]

Min: -8.4 [g] at 0.008 [s]

4-82

8652-SNCAP-05



CFC_60

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

Acc 20 Right Rear Compartment x Velocity

Max: 0.1 [kph] at 0.021 [s]

Min: -5.1 [kph] at 0.155 [s]



4-83

8652-SNCAP-05

CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

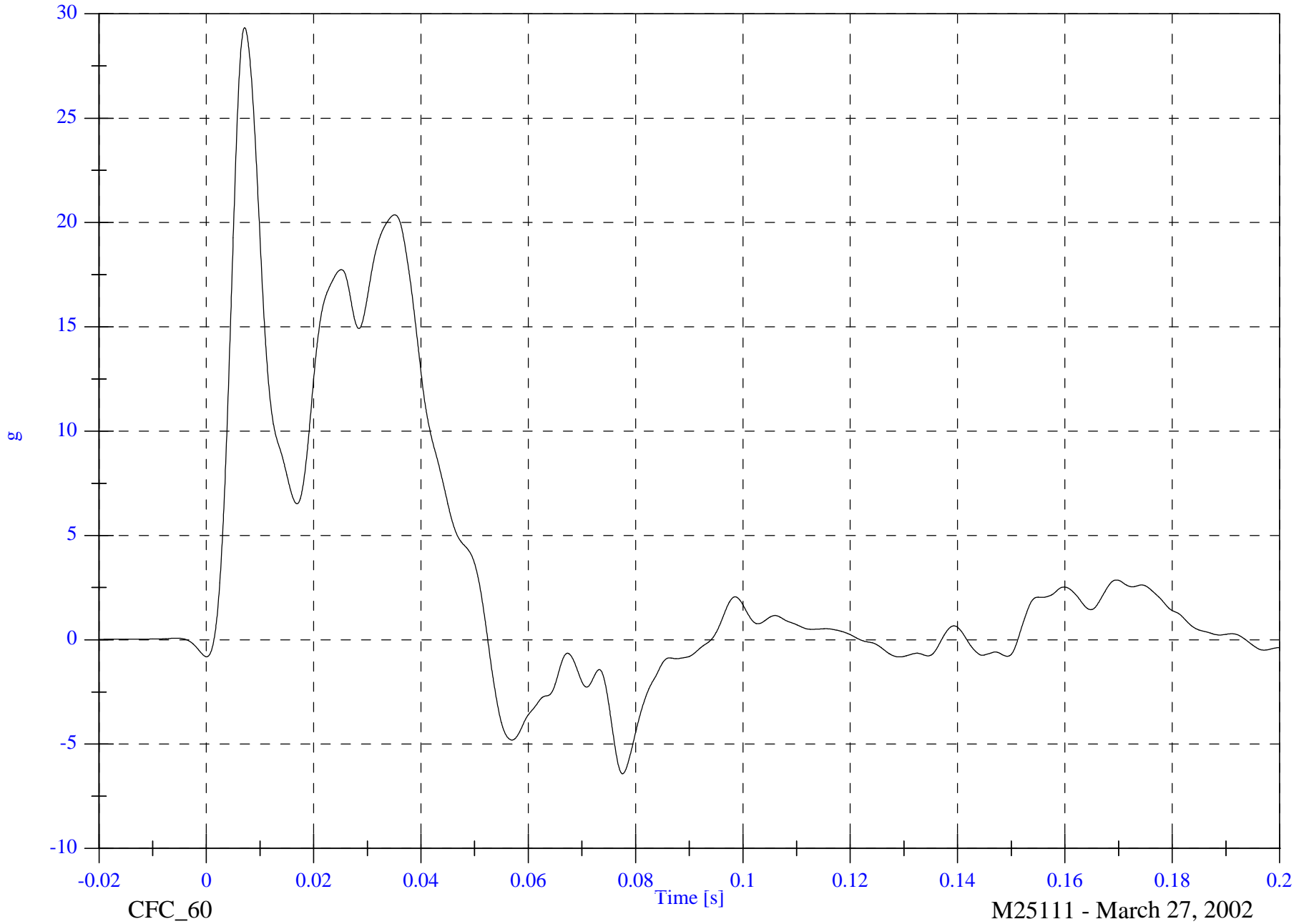
Acc 21 Right Rear Compartment Angular 63y

Max: 29.3 [g] at 0.007 [s]

Min: -6.4 [g] at 0.078 [s]

4-84

8652-SNCAP-05



CFC_60

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

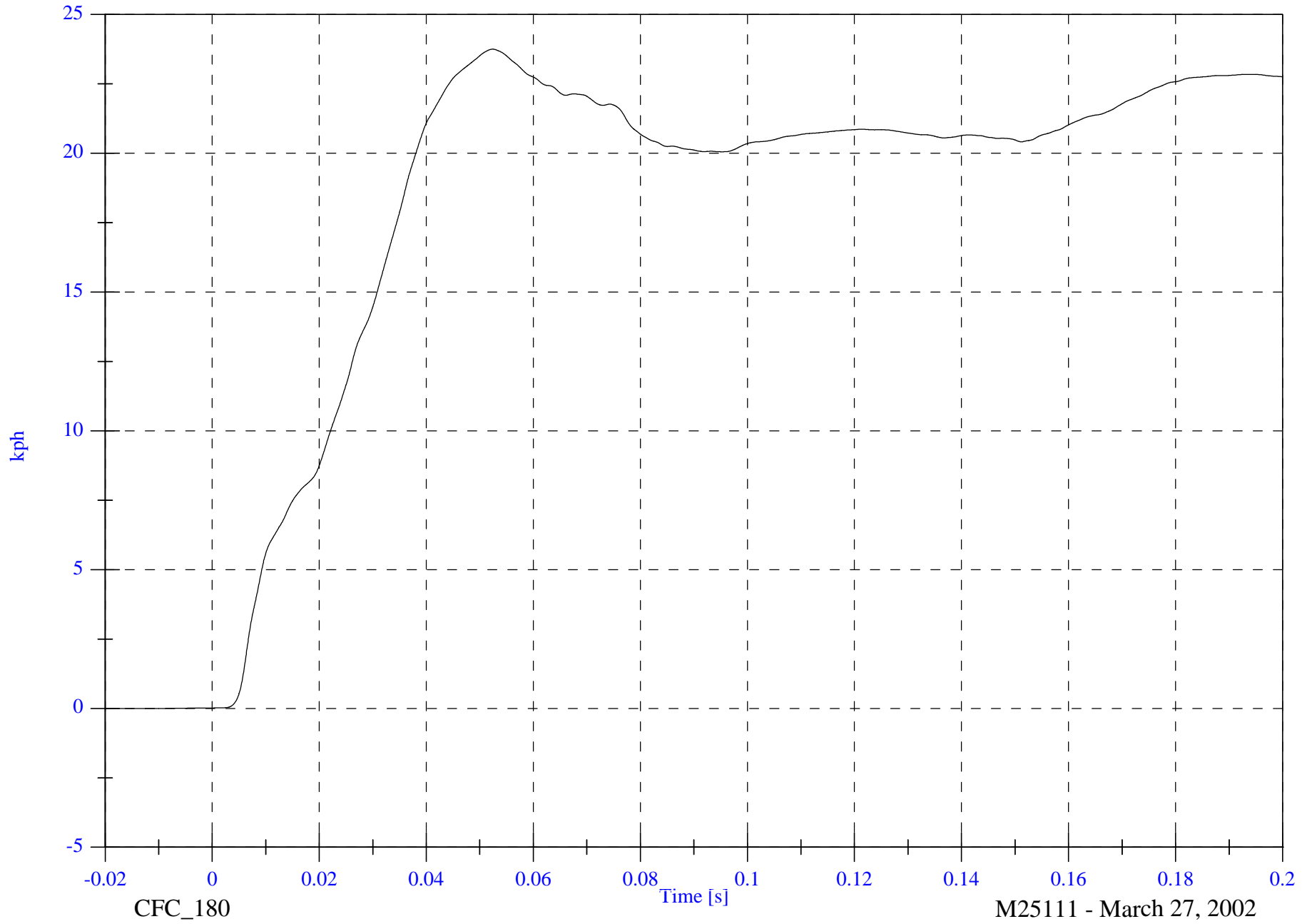
Max: 23.8 [kph] at 0.052 [s]

Acc 21 Right Rear Compartment Angular 63y Velocity

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

4-85

8652-SNCAP-05



CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

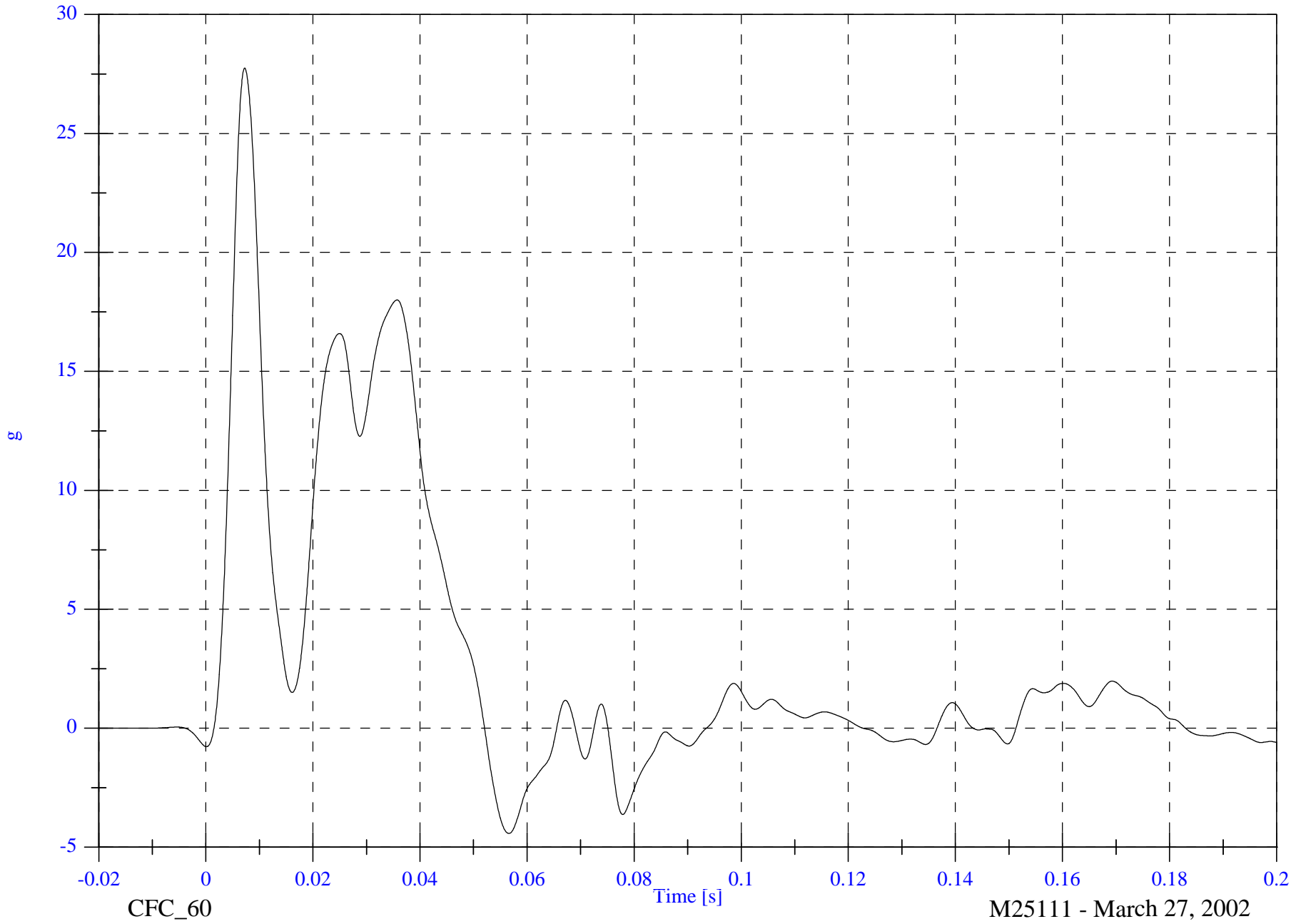
Acc 22 Right Rear Compartment Angular 45y

Max: 27.8 [g] at 0.007 [s]

Min: -4.4 [g] at 0.057 [s]

4-86

8652-SNCAP-05



CFC_60

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

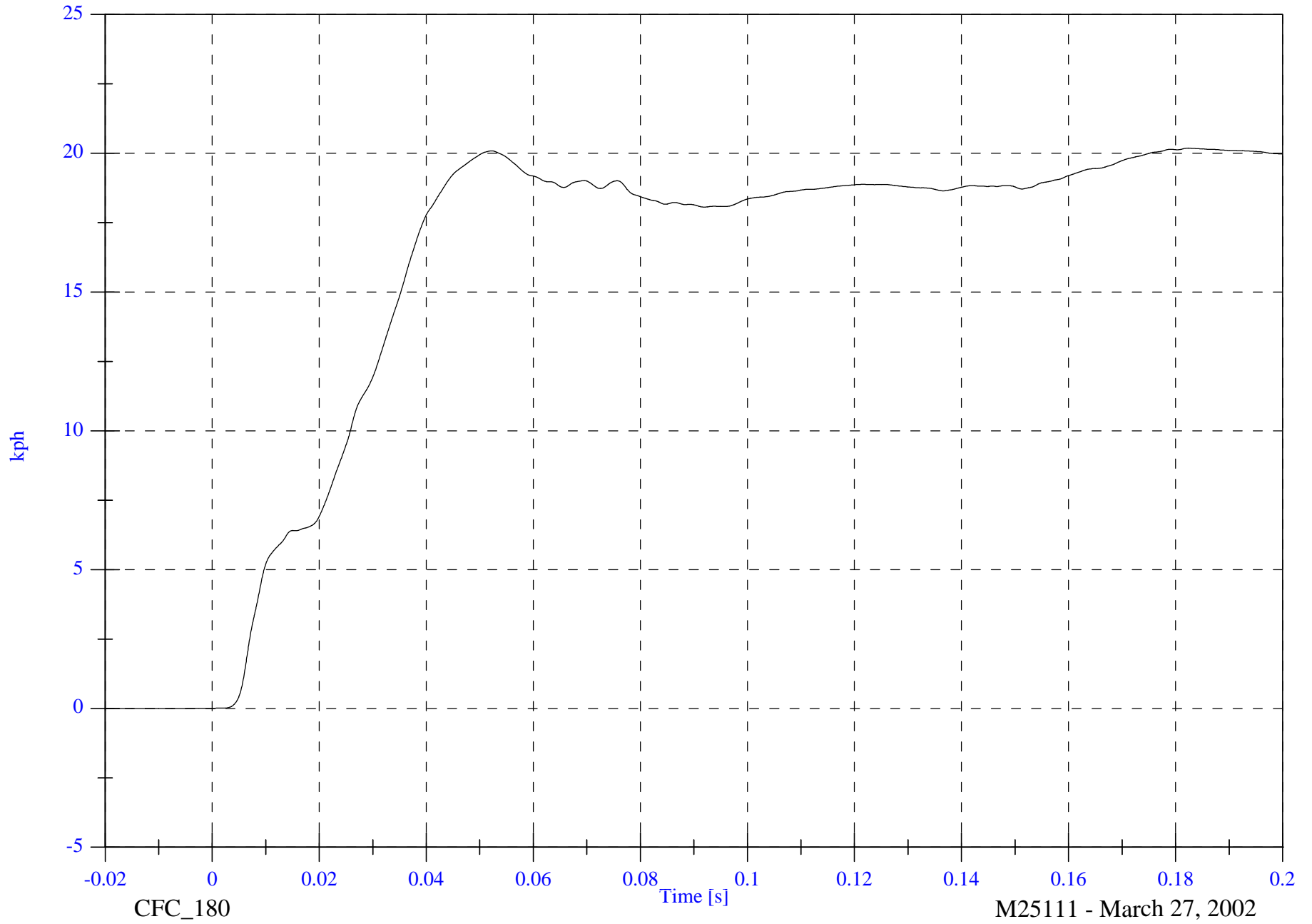
Max: 20.2 [kph] at 0.182 [s]

Acc 22 Right Rear Compartment Angular 45y Velocity

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

4-87

8652-SNCAP-05



CFC_180

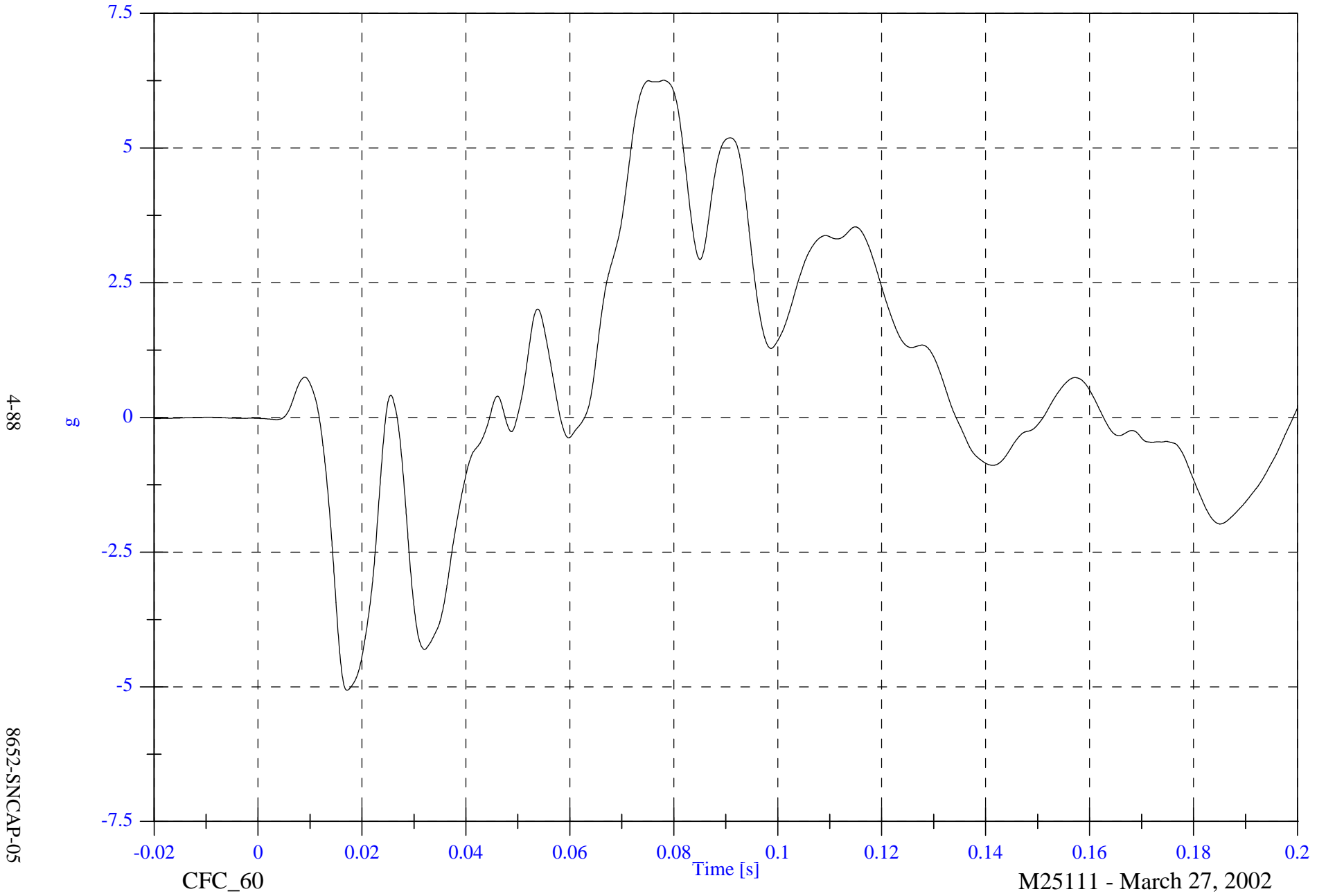
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Child Seat x

Max: 6.3 [g] at 0.078 [s]

Min: -5.1 [g] at 0.017 [s]



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

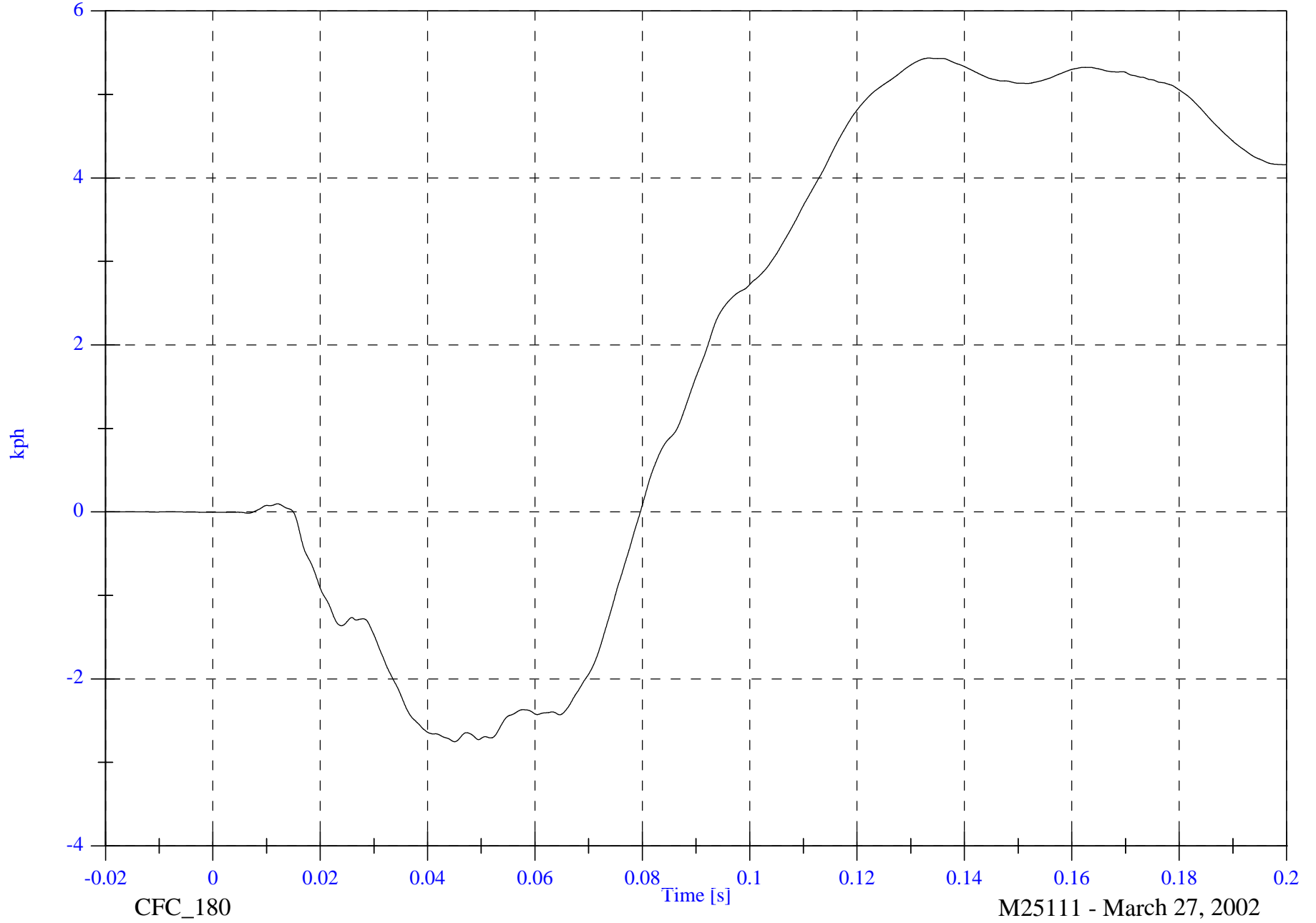
P3 Child Seat x Velocity

Max: 5.4 [kph] at 0.133 [s]

Min: -2.8 [kph] at 0.045 [s]

4-89

8652-SNCAP-05



CFC_180

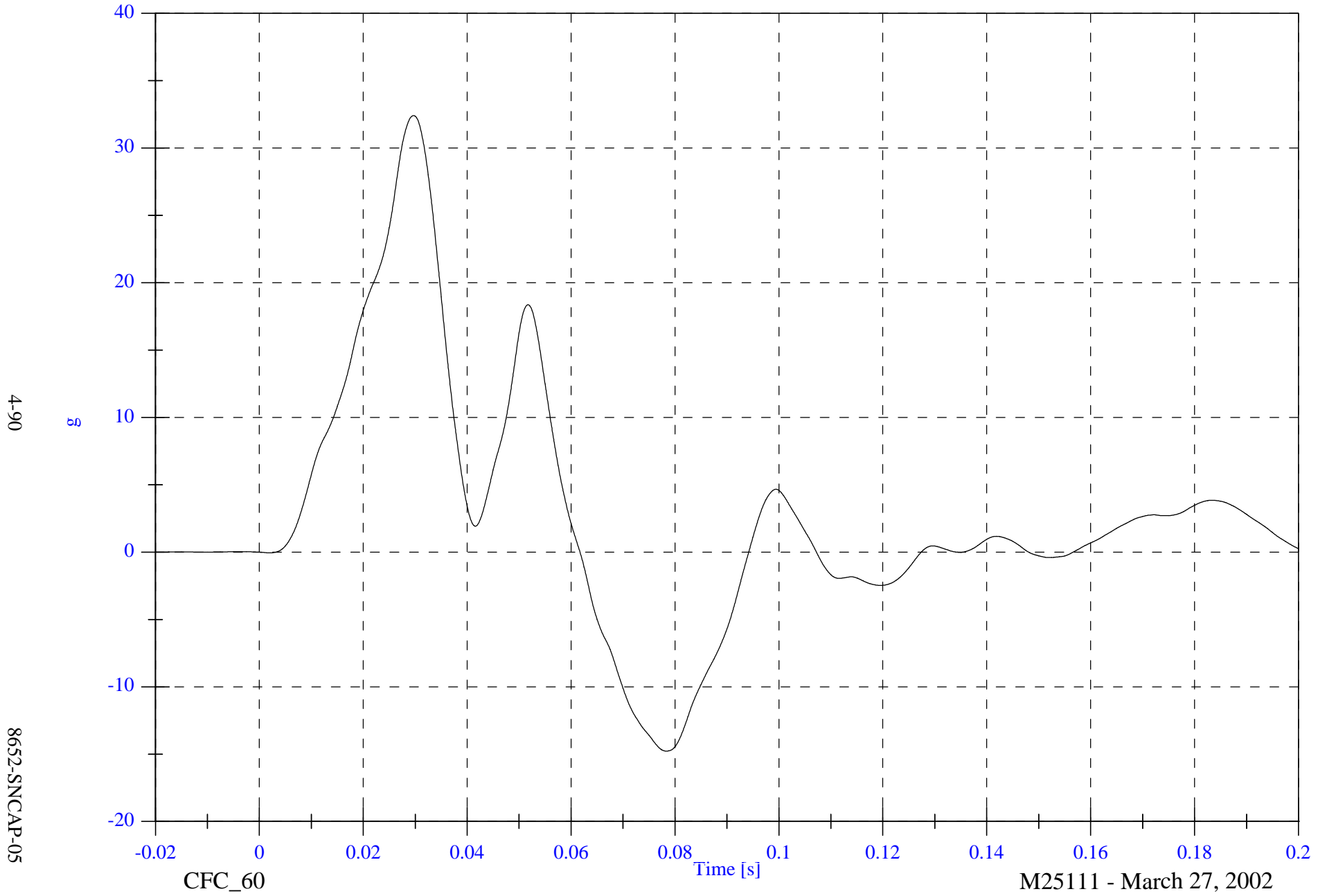
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P3 Child Seat y

Max: 32.4 [g] at 0.030 [s]

Min: -14.8 [g] at 0.078 [s]



4-90

8652-SNCAP-05

CFC_60

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

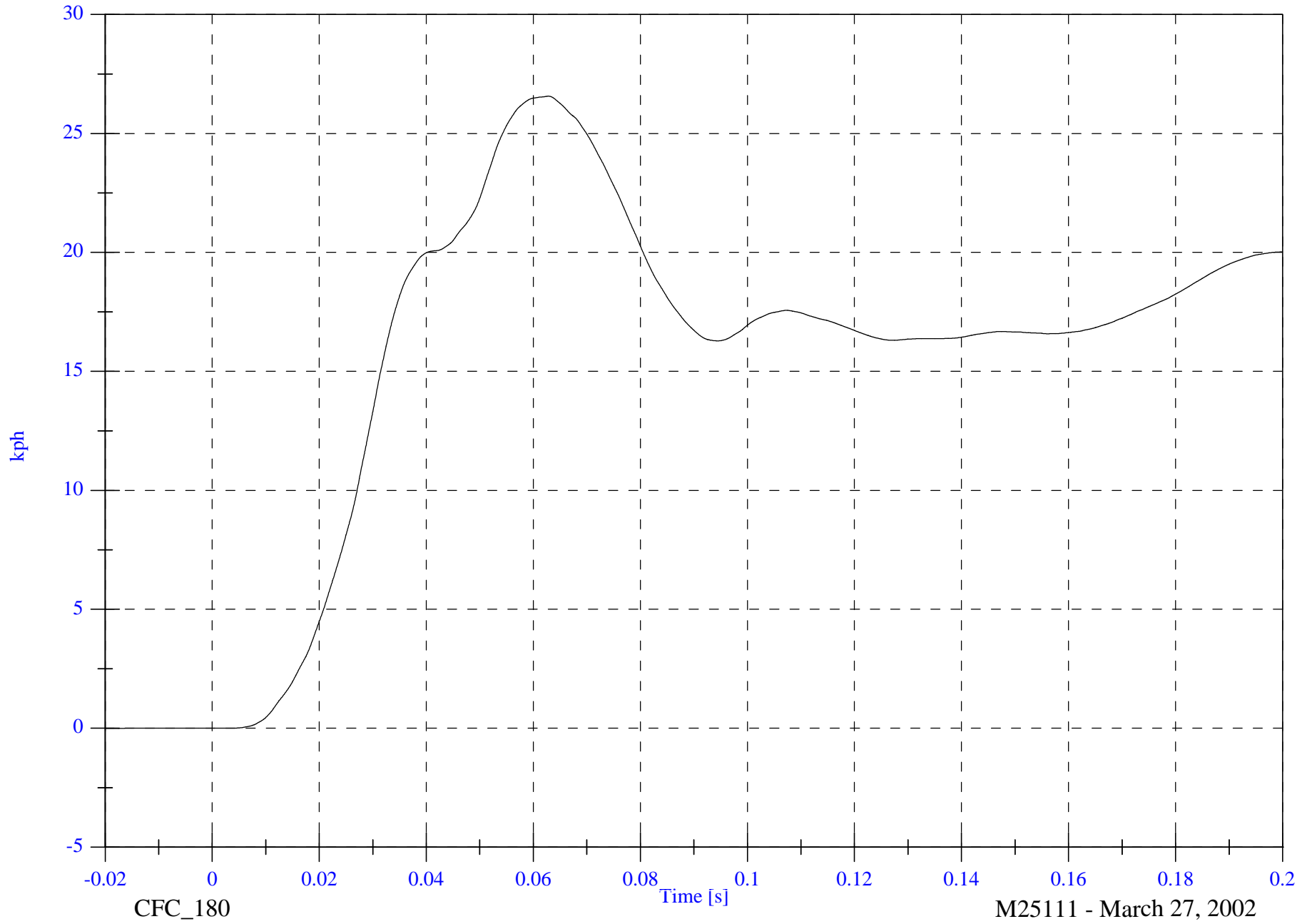
P3 Child Seat y Velocity

Max: 26.6 [kph] at 0.063 [s]

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

4-91

8652-SNCAP-05



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

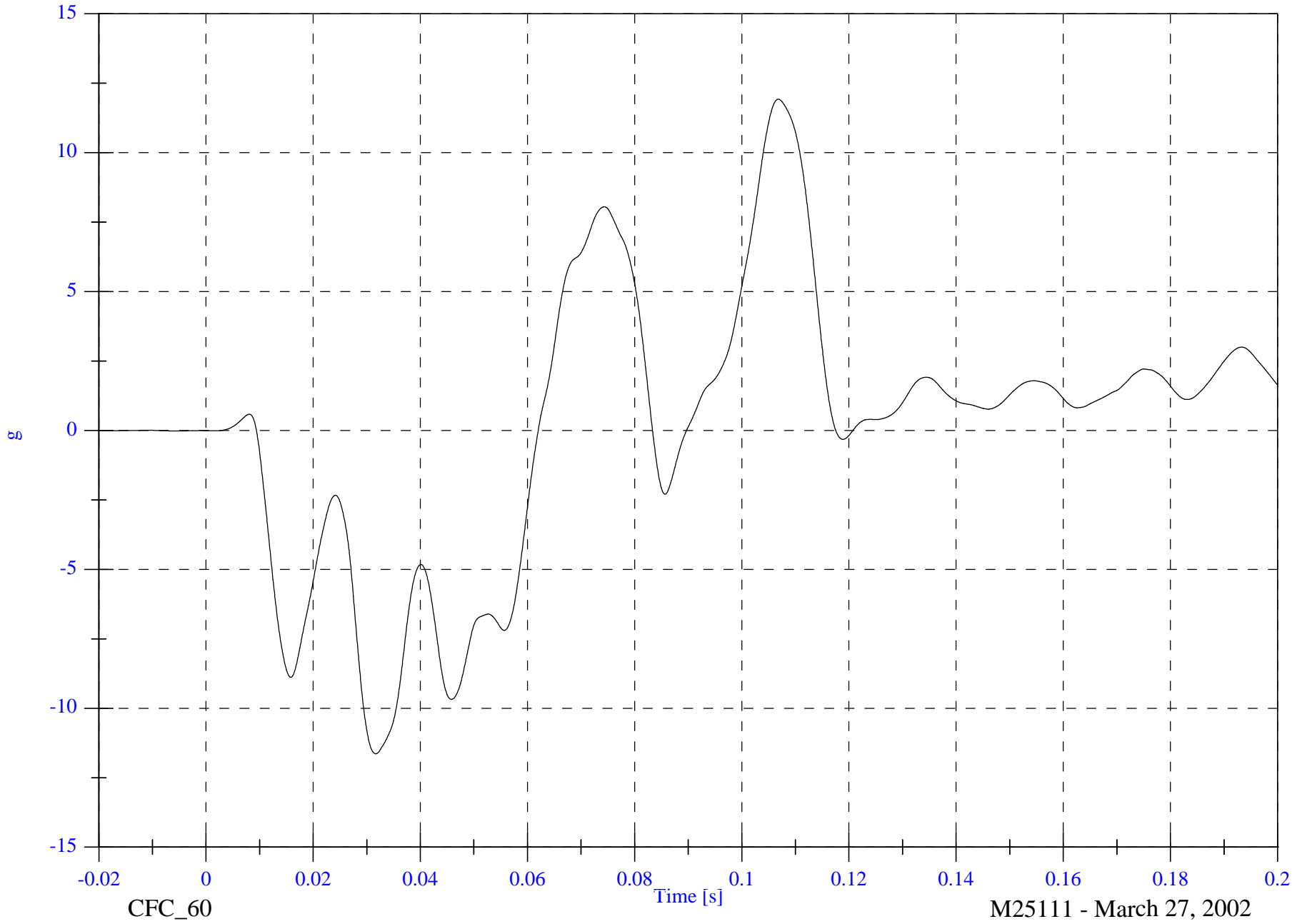
P3 Child Seat z

Max: 11.9 [g] at 0.107 [s]

Min: -11.6 [g] at 0.032 [s]

4-92

8652-SNCAP-05



CFC_60

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

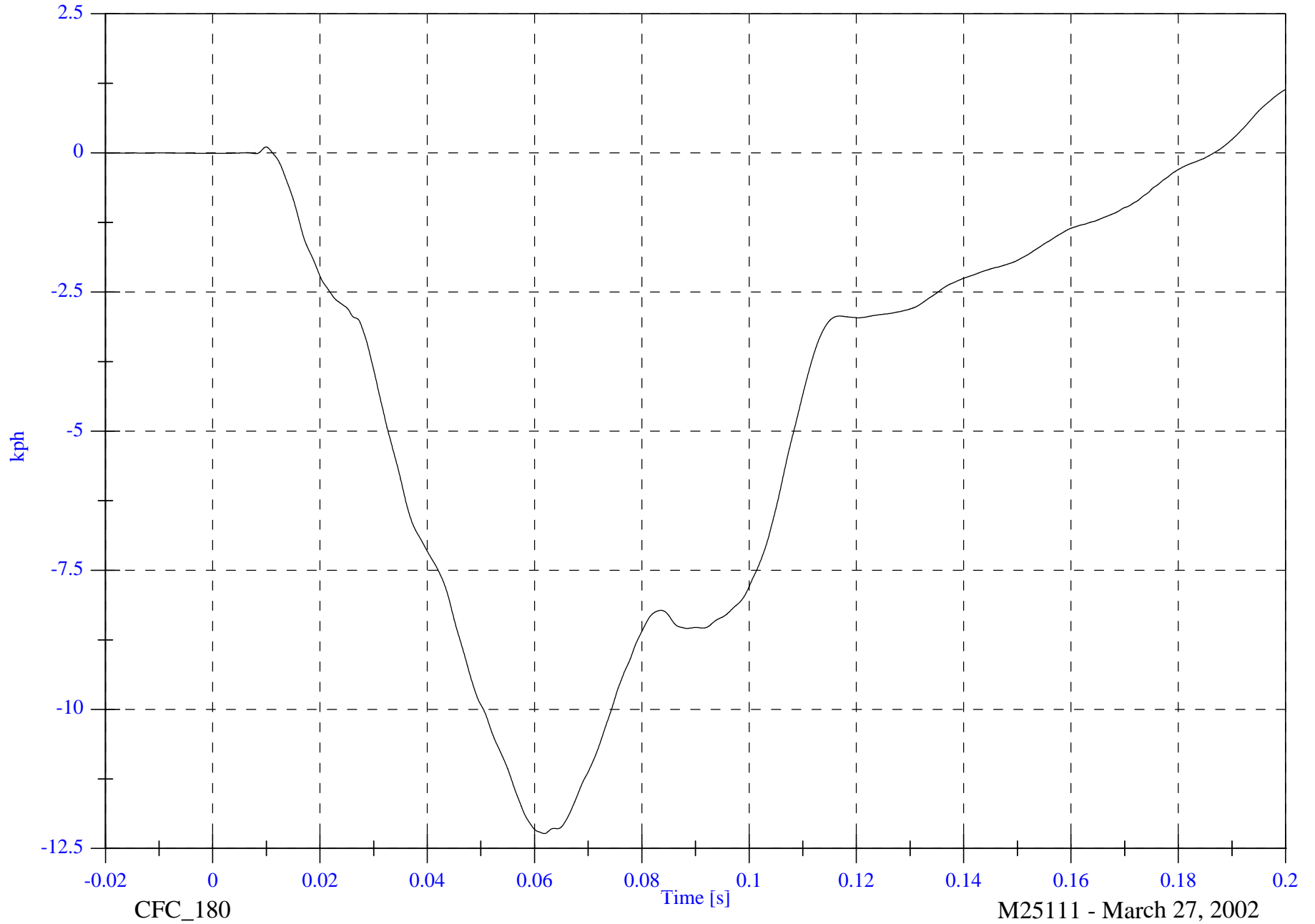
P3 Child Seat z Velocity

Max: 1.1 [kph] at 0.200 [s]

Min: -12.2 [kph] at 0.062 [s]

4-93

8652-SNCAP-05



CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

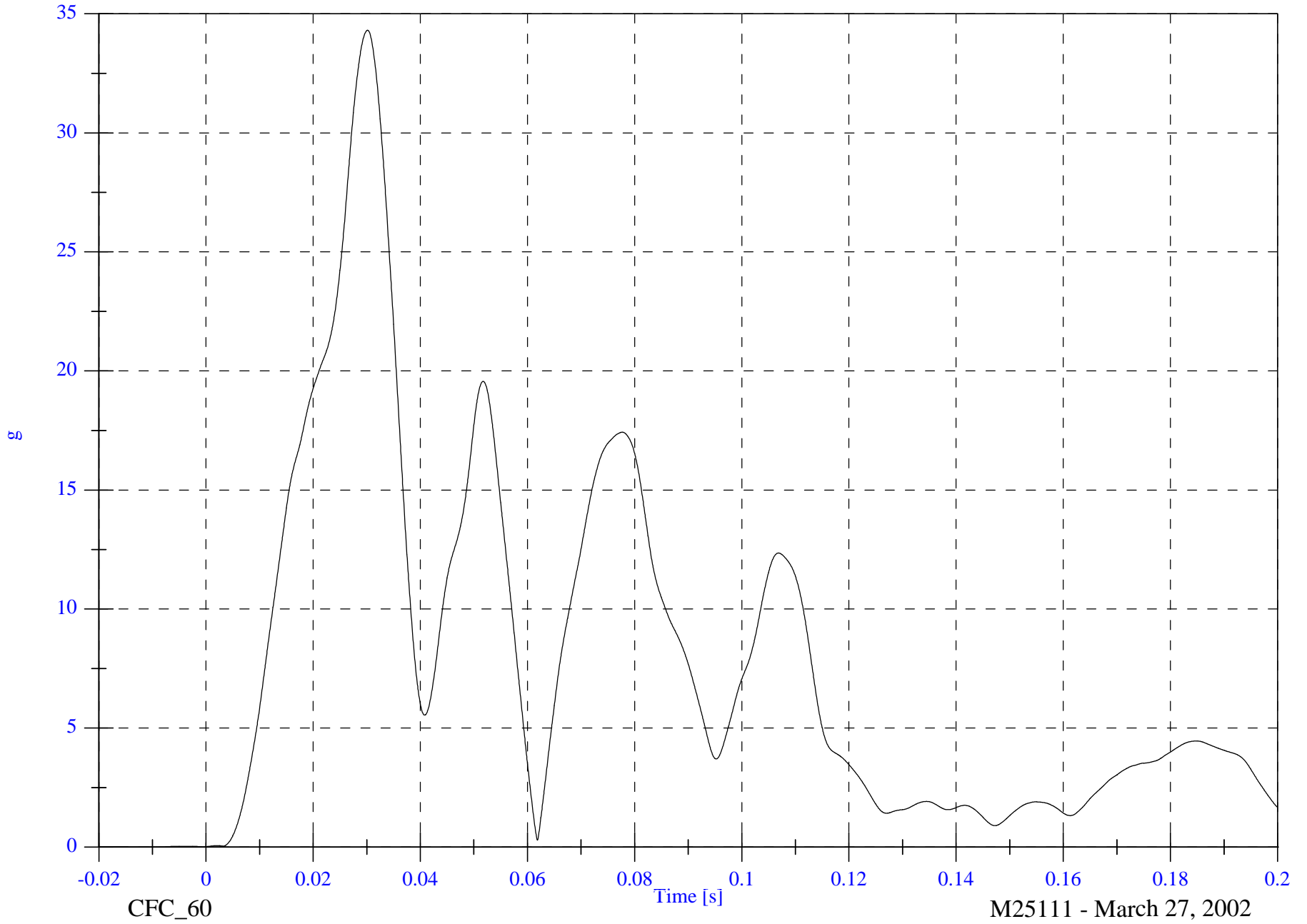
P3 Child Seat Resultant

Max: 34.3 [g] at 0.030 [s]

Min: 0.0 [g] at -0.009 [s]

4-94

8652-SNCAP-05



CFC_60

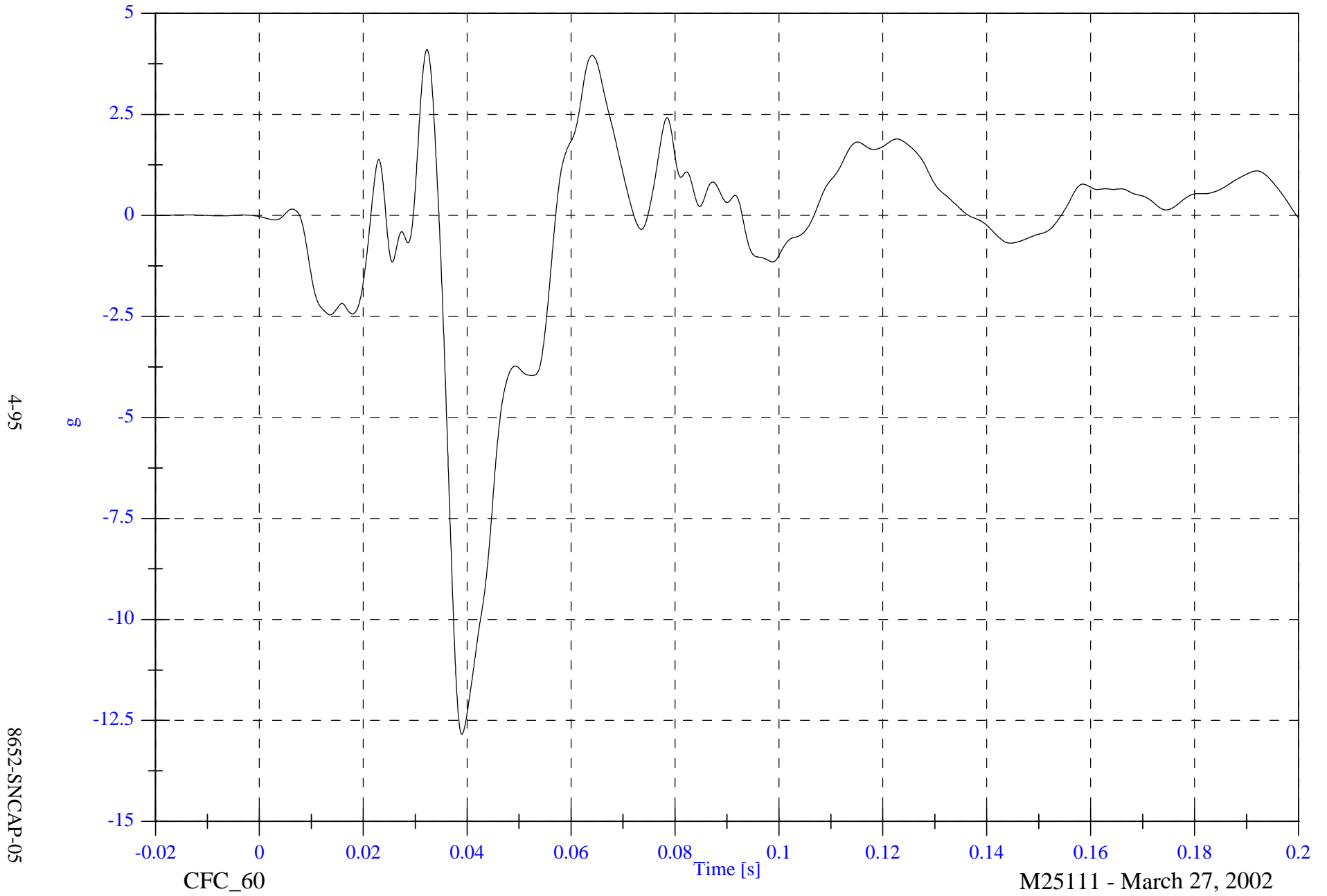
M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

P4 Child seat x

Max: 4.1 [g] at 0.032 [s]

Min: -12.8 [g] at 0.039 [s]



SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

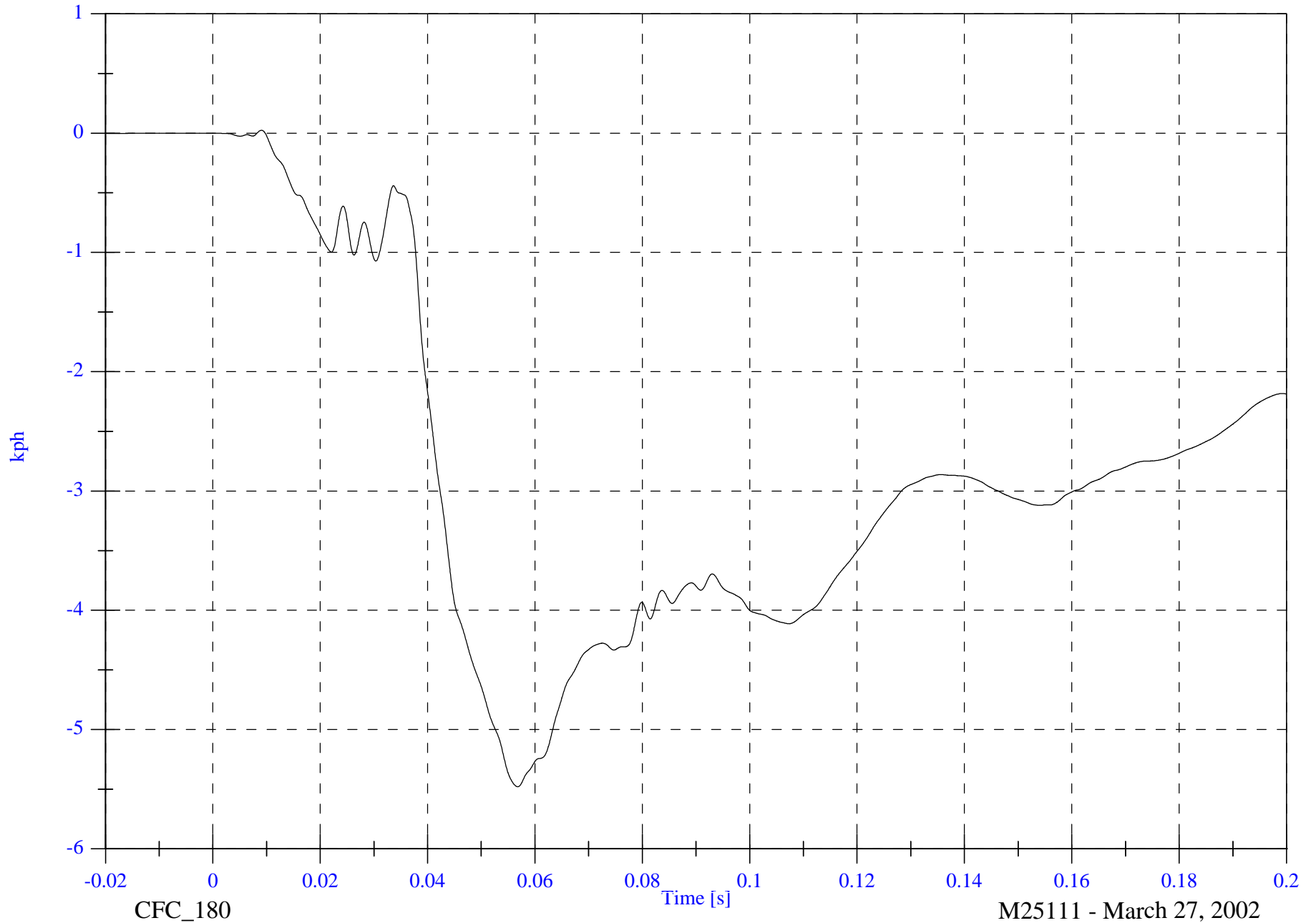
P4 Child seat x Velocity

Max: 0.0 [kph] at 0.009 [s]

Min: -5.5 [kph] at 0.057 [s]

4-96

8652-SNCAP-05



CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

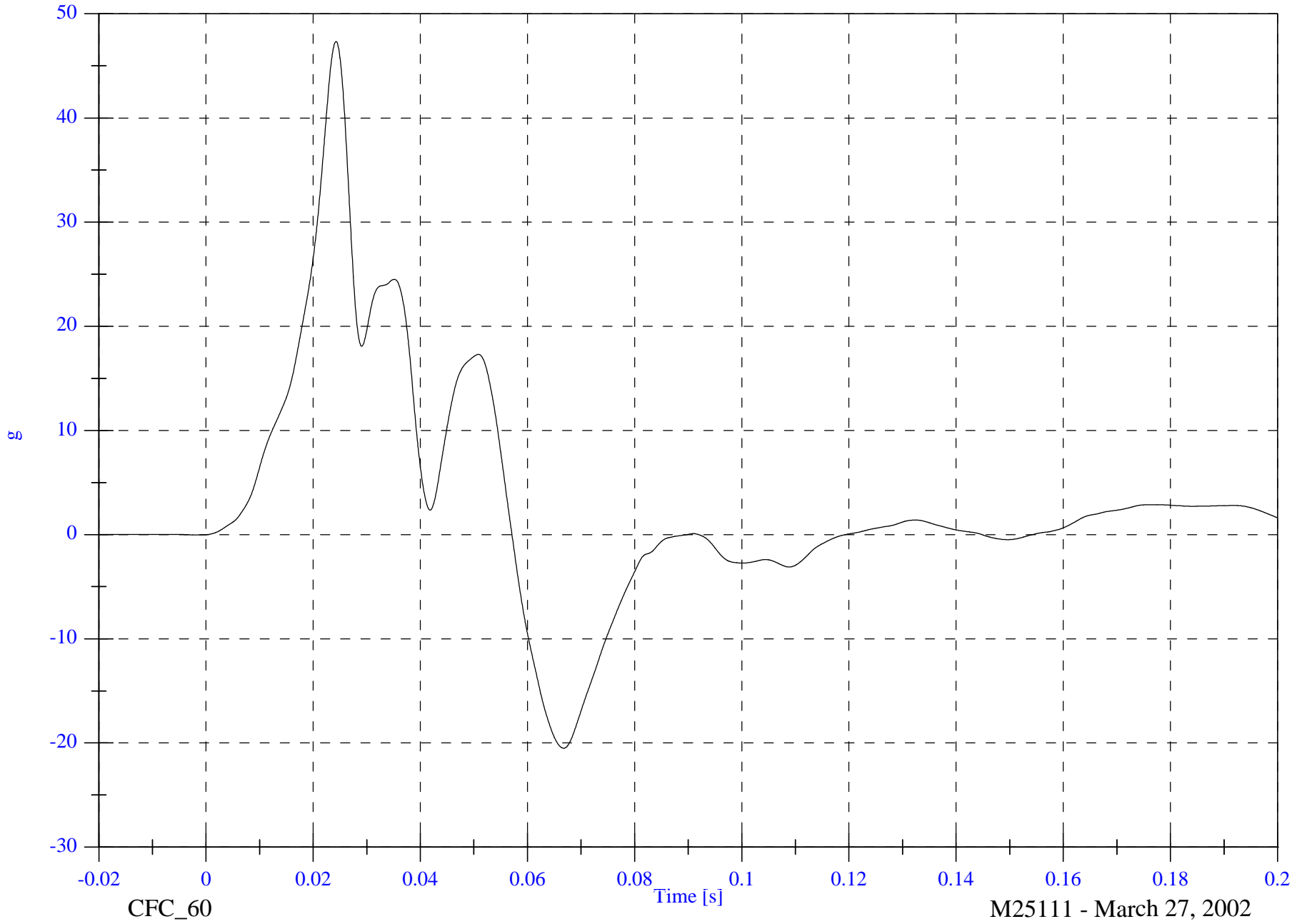
P4 Child Seat y

Max: 47.4 [g] at 0.024 [s]

Min: -20.5 [g] at 0.067 [s]

4-97

8652-SNCAP-05



CFC_60

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

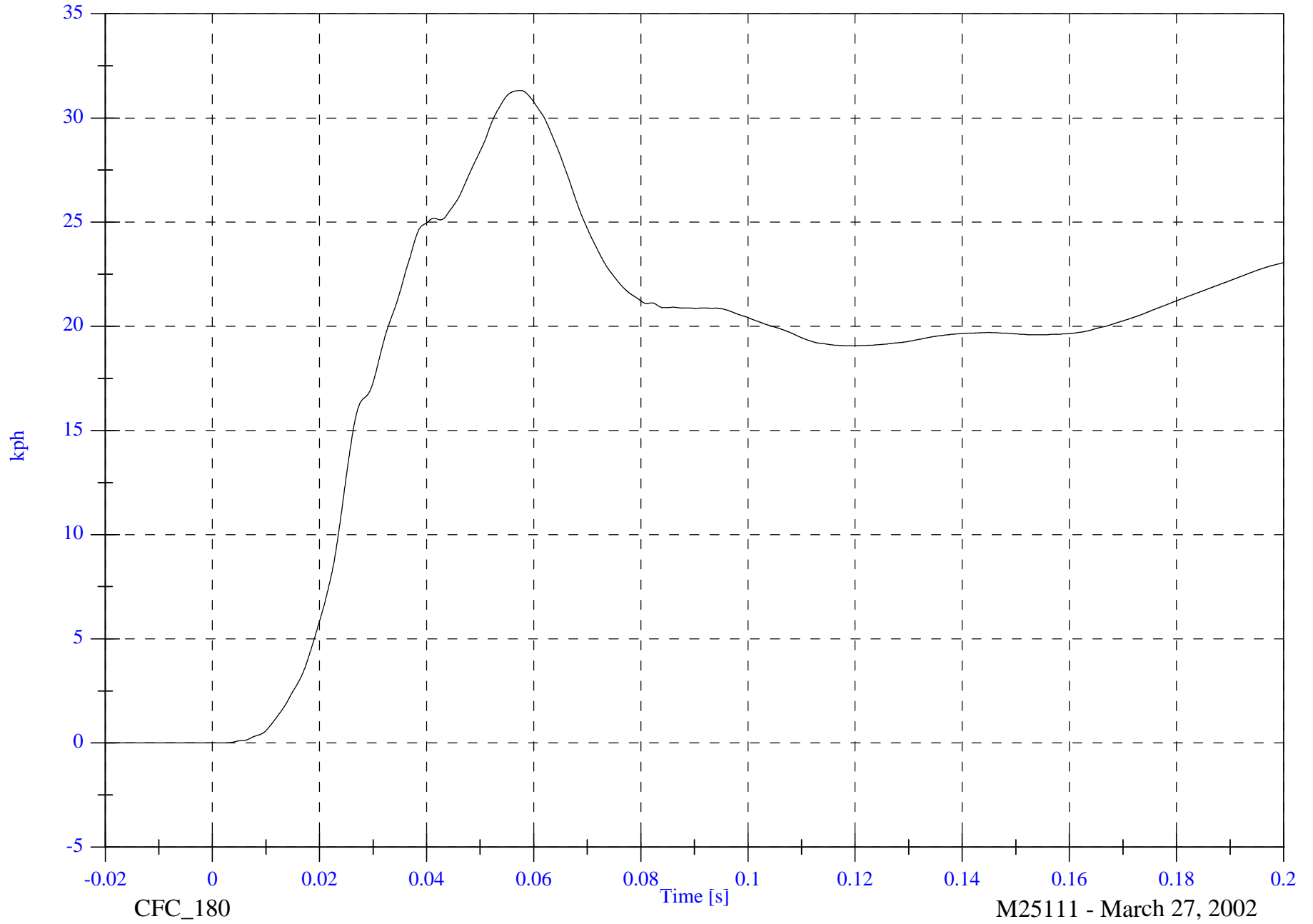
P4 Child Seat y Velocity

Max: 31.3 [kph] at 0.057 [s]

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

4-98

8652-SNCAP-05



CFC_180

M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

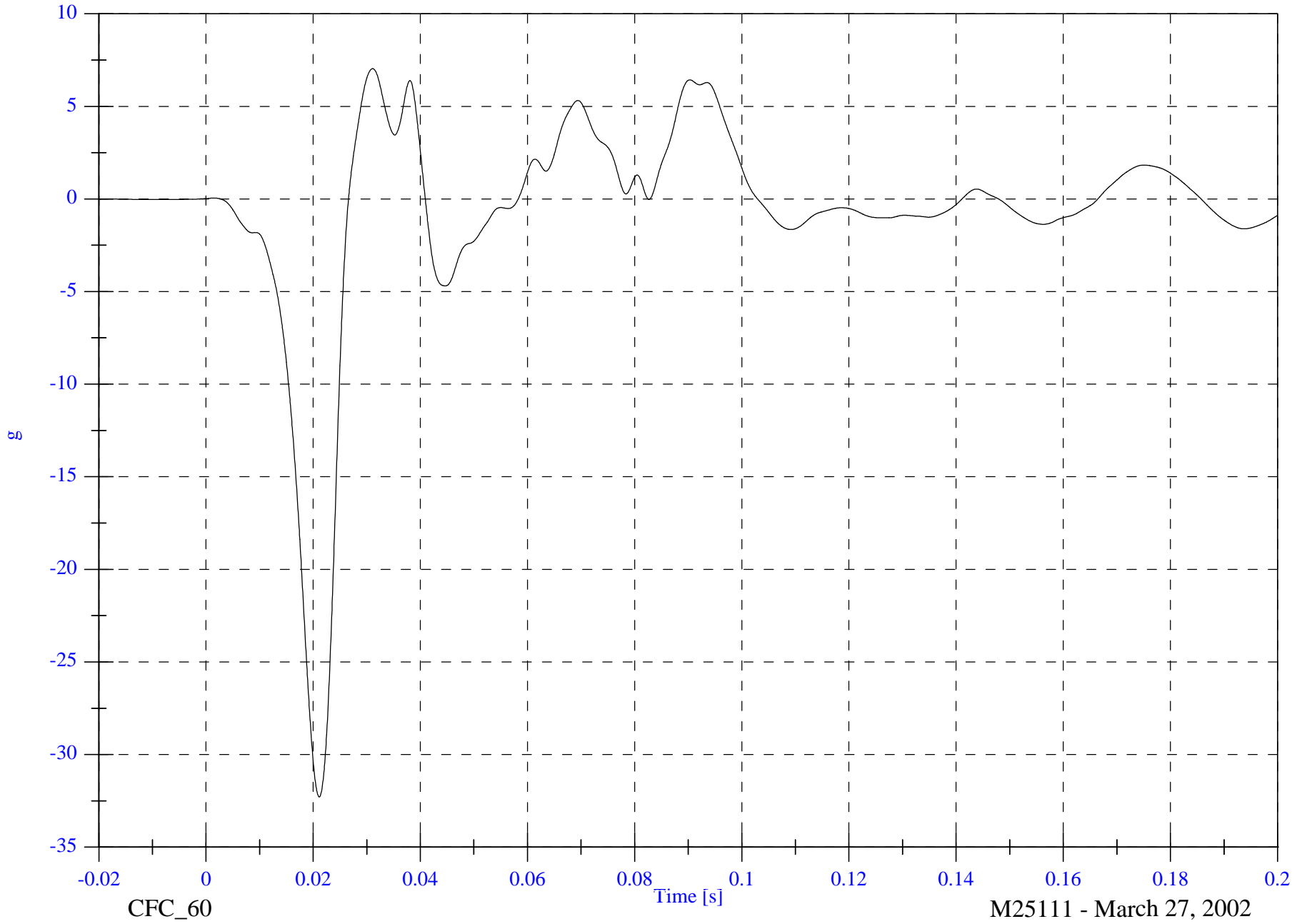
P4 Child Seat z

Max: 7.0 [g] at 0.031 [s]

Min: -32.3 [g] at 0.021 [s]

4-99

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

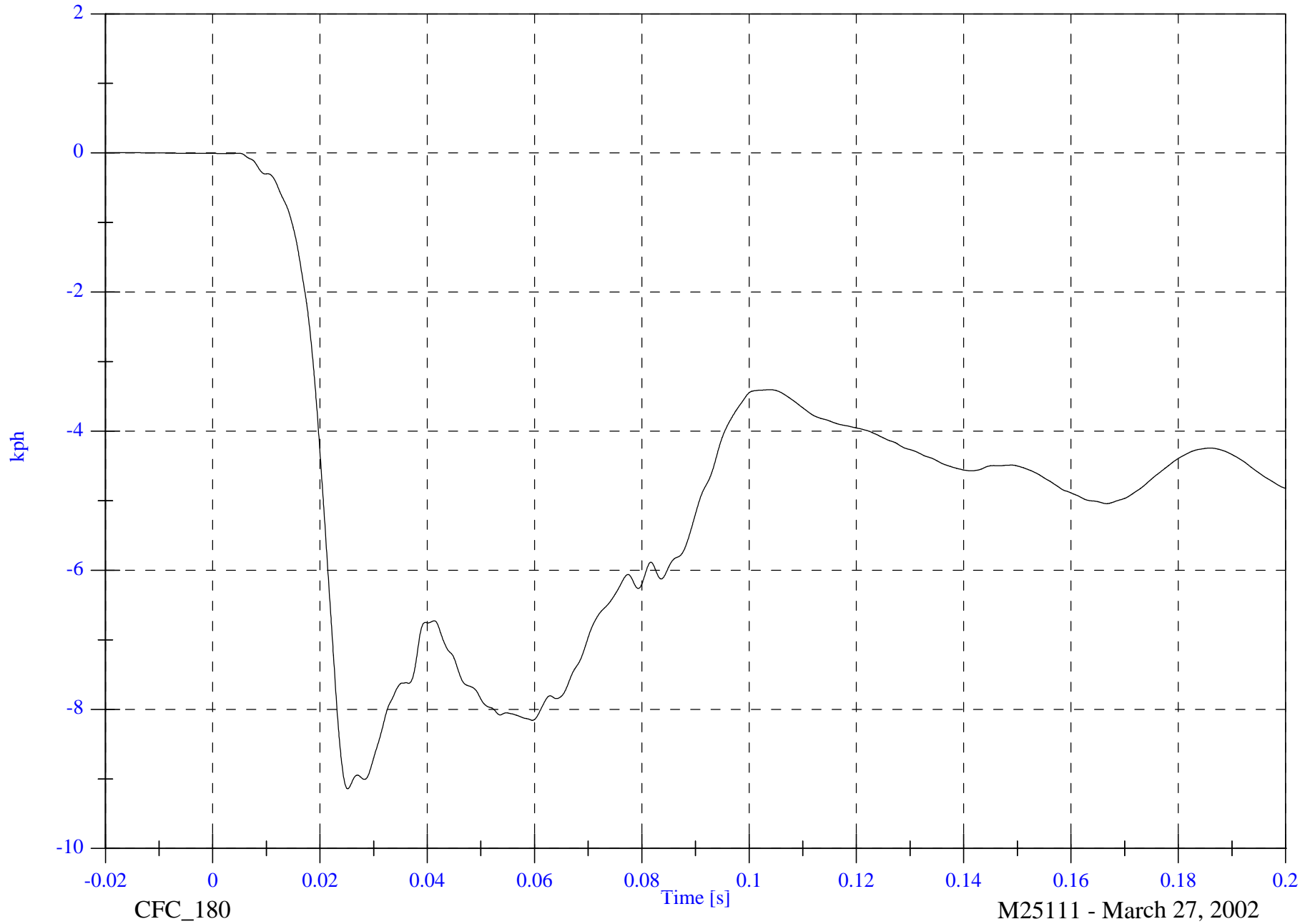
P4 Child Seat z Velocity

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

Min: -9.1 [kph] at 0.025 [s]

4-100

8652-SNCAP-05



M25111 - March 27, 2002

SNCAP Test #5 - 2002 Toyota Tundra Extended Cab

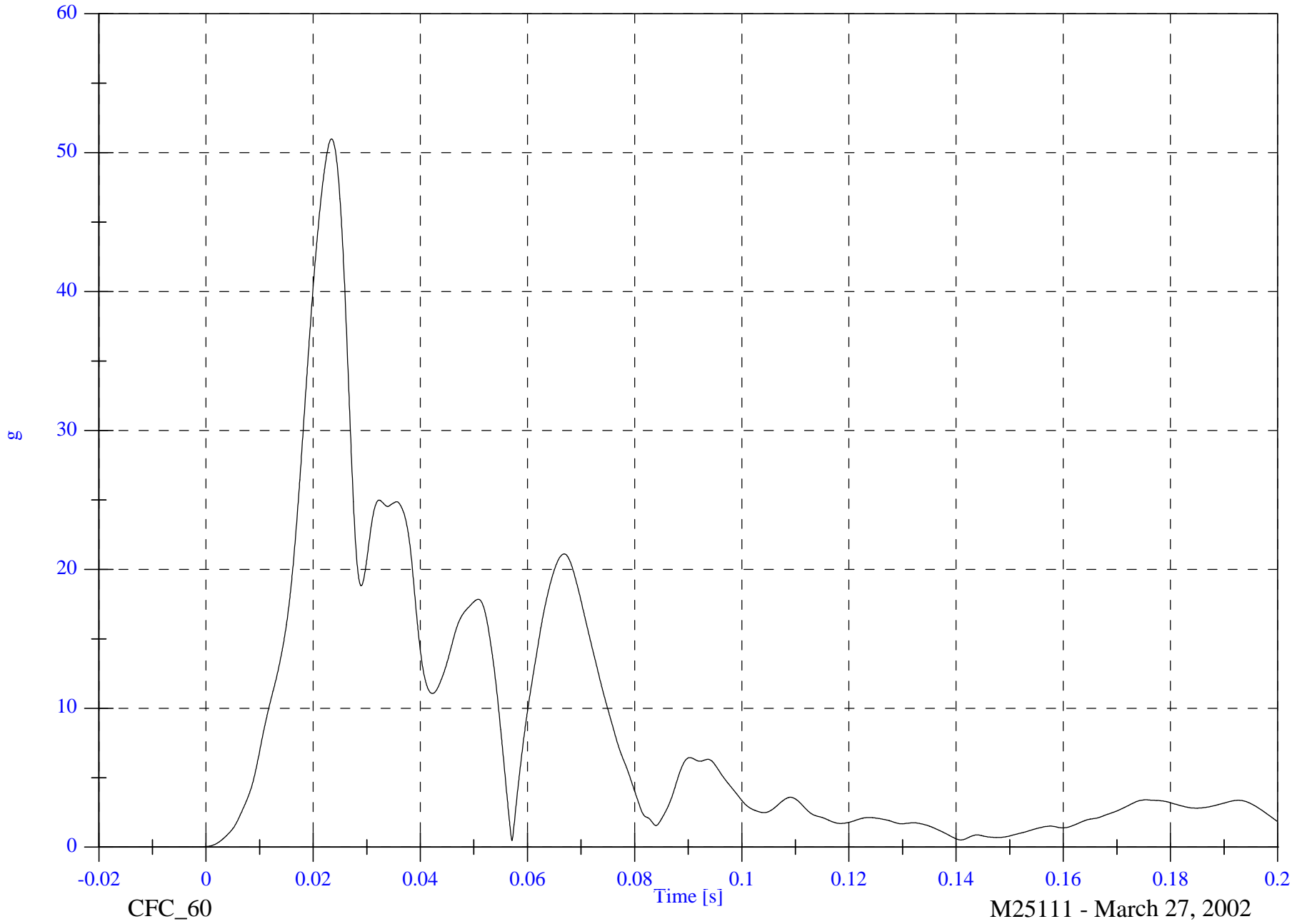
P4 Child seat Resultant

Max: 51.0 [g] at 0.023 [s]

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

4-101

8652-SNCAP-05



M25111 - March 27, 2002

SECTION 5

CHILD DUMMY CALIBRATION INFORMATION

The child ATDs were calibrated by the VRTC prior to the test program. Certification details can be found in the copy of the bound report.

SECTION 6

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

P572 R INSTRUMENTATION

	POSITION #3 (RIGHT) SERIAL NO.: 017		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-P16194	ENDEVCO	14-Jan-02
HEAD AY	AC-P16428	ENDEVCO	14-Jan-02
HEAD AZ	AC-P16517	ENDEVCO	14-Jan-02
HEAD RAZ	AC-99H30-Z07	ENTRAN	14-Jan-02
UPPER NECK FX	LC-277-FX	DENTON	14-Jan-02
UPPER NECK FY	LC-277-FY	DENTON	14-Jan-02
UPPER NECK FZ	LC-277-FZ	DENTON	14-Jan-02
UPPER NECK MX	LC-277-MX	DENTON	14-Jan-02
UPPER NECK MY	LC-277-MY	DENTON	14-Jan-02
UPPER NECK MZ	LC-277-MZ	DENTON	14-Jan-02
LOWER NECK FX	LC-280-FX	DENTON	15-Jan-02
LOWER NECK FY	LC-280-FY	DENTON	16-Jan-02
LOWER NECK FZ	LC-280-FZ	DENTON	15-Jan-02
LOWER NECK MX	LC-280-MX	DENTON	15-Jan-02
LOWER NECK MY	LC-280-MY	DENTON	15-Jan-02
LOWER NECK MZ	LC-280-MZ	DENTON	15-Jan-02
CHEST AX	AC-J27467	ENDEVCO	14-Jan-02
CHEST AY	AC-AJ4Y5	ENDEVCO	14-Jan-02
CHEST AZ	AC-P17559	ENDEVCO	14-Jan-02
LOWER SPINE FX	LC-283-FX	DENTON	16-Jan-02
LOWER SPINE FY	LC-283-FY	DENTON	16-Jan-02
LOWER SPINE FZ	LC-283-FZ	DENTON	16-Jan-02
LOWER SPINE MX	LC-283-MX	DENTON	16-Jan-02
LOWER SPINE MY	LC-283-MY	DENTON	16-Jan-02
LOWER SPINE MZ	LC-283-MZ	DENTON	16-Jan-02
PELVIS AX	AC-P15856	ENDEVCO	14-Jan-02
PELVIS AY	AC-J27496	ENDEVCO	14-Jan-02
PELVIS AZ	AC-P15638	ENDEVCO	14-Jan-02
LAP BELT LOAD	LC-706	LEBOW	12-Feb-02
TORSO BELT LOAD	LC-707	LEBOW	12-Feb-02

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

P572 R INSTRUMENTATION

	POSITION #4 (LEFT) SERIAL NO.: 093		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
HEAD AX	AC-B02A25-N05	ENTRAN	8-Feb-02
HEAD AY	AC-B02A18-N13	ENTRAN	8-Feb-02
HEAD AZ	AC-B02A18-N03	ENTRAN	11-Feb-02
HEAD RAZ	AC-B02A25-N01	ENTRAN	8-Feb-02
UPPER NECK FX	LC-282-FX	DENTON	15-Jan-02
UPPER NECK FY	LC-282-FY	DENTON	15-Jan-02
UPPER NECK FZ	LC-282-FZ	DENTON	15-Jan-02
UPPER NECK MX	LC-282-MX	DENTON	15-Jan-02
UPPER NECK MY	LC-282-MY	DENTON	15-Jan-02
UPPER NECK MZ	LC-282-MZ	DENTON	15-Jan-02
LOWER NECK FX	LC-279-FX	DENTON	15-Jan-02
LOWER NECK FY	LC-279-FY	DENTON	15-Jan-02
LOWER NECK FZ	LC-279-FZ	DENTON	15-Jan-02
LOWER NECK MX	LC-279-MX	DENTON	15-Jan-02
LOWER NECK MY	LC-279-MY	DENTON	15-Jan-02
LOWER NECK MZ	LC-279-MZ	DENTON	15-Jan-02
CHEST AX	AC-B02A09-F05	ENTRAN	8-Feb-02
CHEST AY	AC-02A16-A13	ENTRAN	30-Jan-02
CHEST AZ	AC-B02A09-F04	ENTRAN	8-Feb-02
LOWER SPINE FX	LC-211-FX	DENTON	5-Jan-02
LOWER SPINE FY	LC-211-FY	DENTON	5-Jan-02
LOWER SPINE FZ	LC-211-FZ	DENTON	5-Jan-02
LOWER SPINE MX	LC-211-MX	DENTON	5-Jan-02
LOWER SPINE MY	LC-211-MY	DENTON	5-Jan-02
LOWER SPINE MZ	LC-211-MZ	DENTON	5-Jan-02
PELVIS AX	AC-02A18-N03	ENTRAN	1-Feb-02
PELVIS AY	AC-B02A25-N04	ENTRAN	8-Feb-02
PELVIS AZ	AC-B02A18-N14	ENTRAN	8-Feb-02

TEST EQUIPMENT LIST AND CALIBRATION INFORMATION

VEHICLE AND MDB INSTRUMENTATION

	VEHICLE AND MDB INSTRUMENTS		
	SERIAL NUMBER	MANUFACTURER	CALIBRATION DATE
RIGHT REAR COMPARTMENT (Y)	AC-J31050	ENDEVCO	14-Feb-02
RIGHT REAR COMPARTMENT (X)	AC-J32787	ENDEVCO	14-Feb-02
RIGHT REAR COMPARTMENT ANGLED	AC-J32098	ENDEVCO	14-Feb-02
RIGHT REAR COMPARTMENT ANGLED	AC-P17286	ENDEVCO	11-Feb-02
P3 CRS (X)	AC-J33019	ENDEVCO	14-Feb-02
P3 CRS (Y)	AC-J33127	ENDEVCO	14-Feb-02
P3 CRS (Z)	AC-J32782	ENDEVCO	25-Feb-02
P4 CRS (X)	AC-J27941	ENDEVCO	18-Feb-02
P4 CRS (Y)	AC-ACC06	ENDEVCO	18-Feb-02
P4 CRS (Z)	AC-J27927	ENDEVCO	25-Feb-02

REMARKS: None