

TESTING / INSPECTION REPORT

DATE : July 29, 2004

REPORT NO : ST-040729-1

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SPECIMEN : AOP-8120 / AEC-6820

TEST / INSPECTION ITEMS : Shock Test (See Page 2)

REMARKS :

- The results only apply to the device under test.
- This report is 24 pages, and no part of it may be abstracted or reproduced.
- Attached pages are controlling pulse of shock test.

Test Engineer :

Approved by :

2004.7.30

Ben Huang
David Lee

Laboratory Head :

Dennis Ting



TESTING / INSPECTION REPORT

TESTING EQUIPMENT :

- | | |
|-------------------------|--|
| 1.Shock Tester | : KING DESIGN (KD-9363EM-1000F2K-50N120,
S/N : GUG02102091) |
| 2.Controller | : DACTRON (FRONT-End Box, S/N:7459933) |
| 3.Control Accelerometer | : Wilcoxon Research (WR-777 , S/N:4207) |
| 4.Shock Testing System | : (KD-DP-1200-60, S/N:KDS11054983) |
| 5.Controller | : (KD-1200-03C, S/N:KD674) |
| 6.Accelerometer | : (B&K 4398, S/N:2209044) |

TEST ENVIRONMENT :

- | | |
|-------------|-------------|
| Temperature | : 24±2°C |
| Humidity | : 70±20% RH |

SPECIMEN :

- | | |
|----------|-----------------------|
| Model | : AOP-8120 / AEC-6820 |
| Quantity | : Each model 1 piece |

SHOCK TEST SPECIFICATION :

- | | |
|-----------------|--|
| (1) Wave Form | : Half sine wave (AOP-8120 / AEC-6820) |
| Acceleration | : 15 g |
| Duration Time | : 11 ms |
| No. of Shock | : Each axis 3 times |
| Shock Direction | : ±X, ±Y, ±Z axis |

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SHOCK TEST SPECIFICATION :

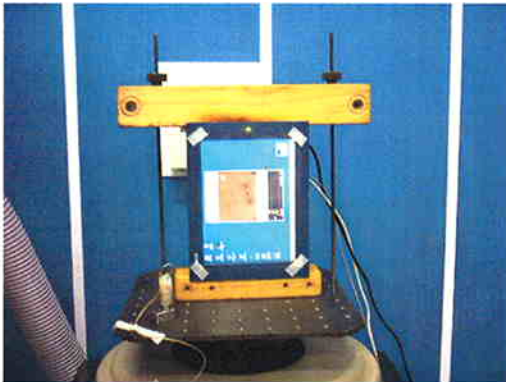
(2) Wave Form	: Half sine wave (AEC-6820)
Acceleration	: 100 g
Duration Time	: 11 ms
No. of Shock	: Each axis 3 times
Shock Direction	: $\pm X$, $\pm Y$, $\pm Z$ axis

TEST RESULT :

Appearance check : No damage
Function check : Normal

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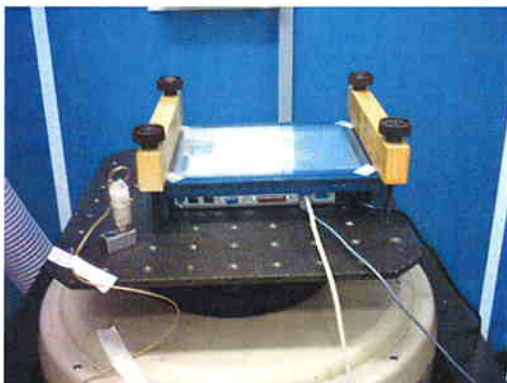
Testing photos
AOP-8120
AXIS $\pm X$



AXIS $\pm Y$

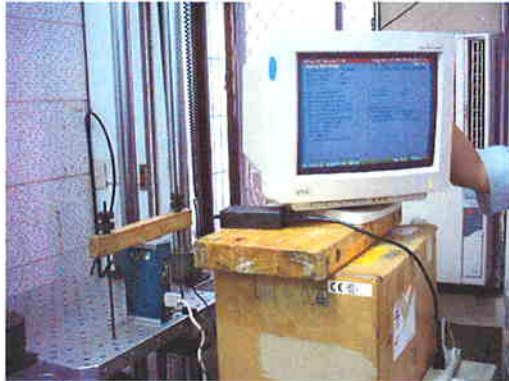


AXIS $\pm Z$



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Testing photos
AEC-6820
AXIS ±X



AXIS ±Y



AXIS ±Z



TESTING / INSPECTION REPORT

Testing photos

After test
AOP-8120



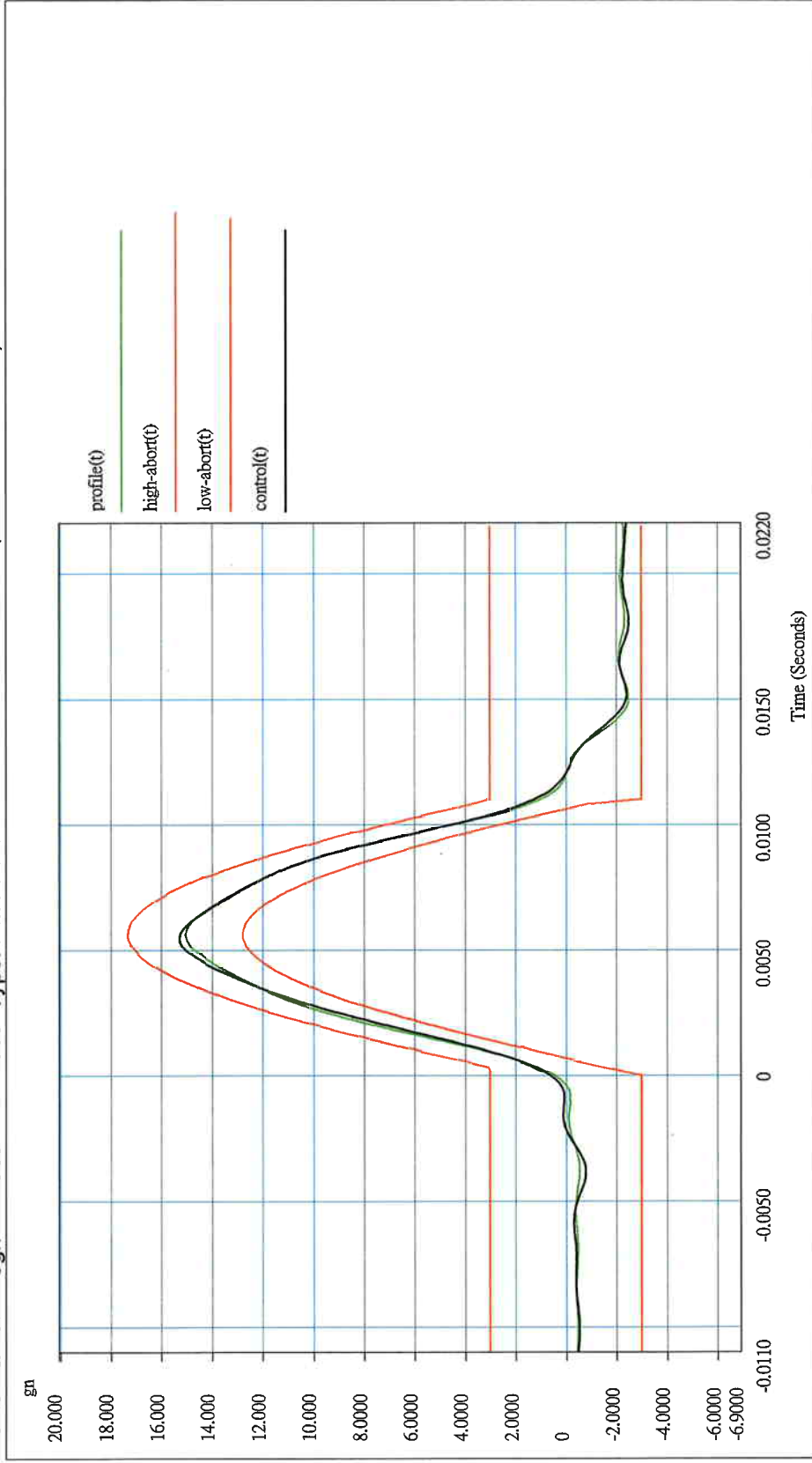
AEC-6820



Axis X AOP-8120

Project File Name: AOP-8120.prj

Profile Name: 15gn 11mSec Test Type: Classical Shock Run Folder: .\RunDefault Jul 27, 2004 14-28-10

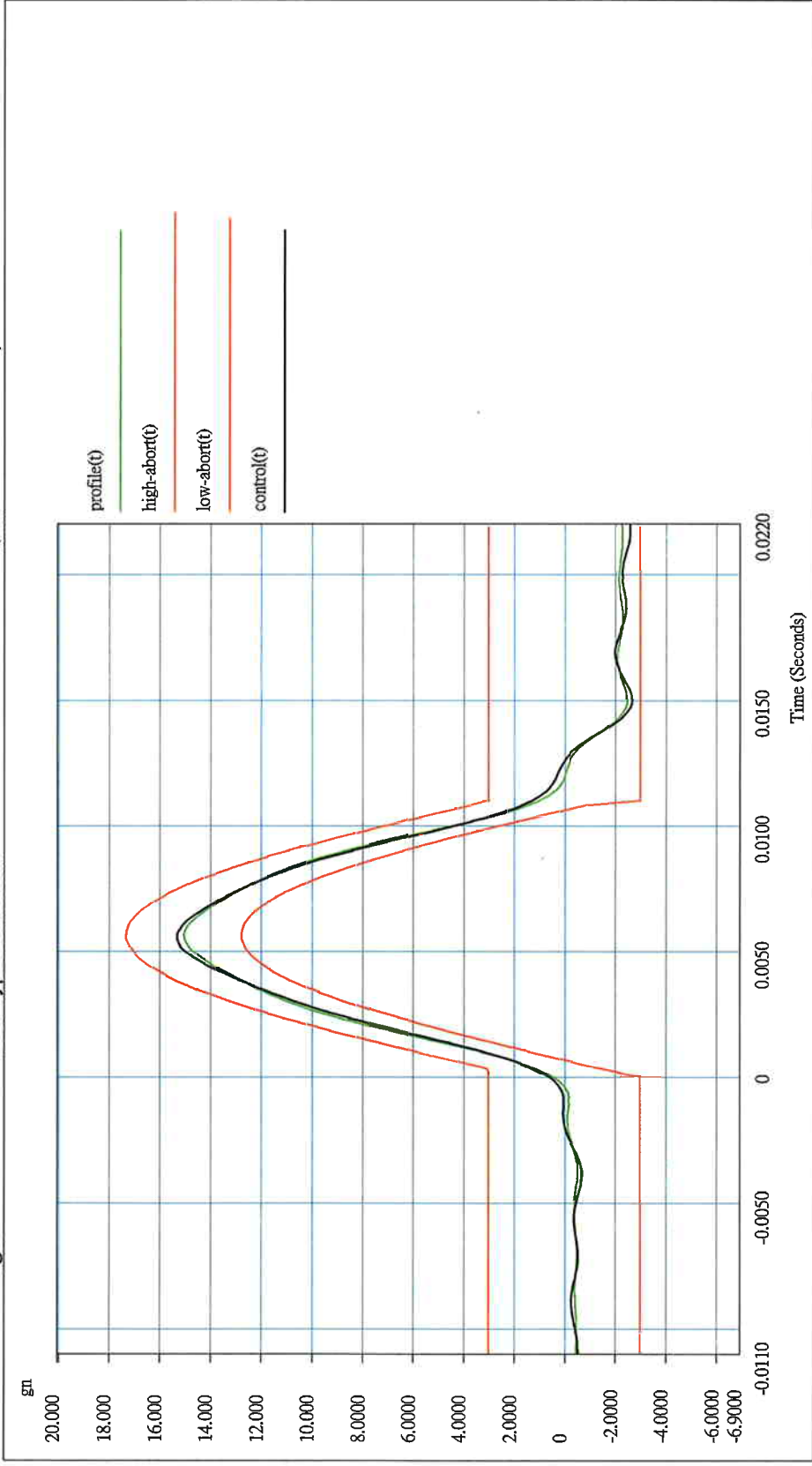


Level: 100 % Block Size: 4096 Elapsed Pulses: 10 Full Level Elapsed Pulses: 3
Frame Time: 0.682667 Seconds Control Peak: 15.243148 gn Control RMS: 1.488149 gn
dT: 0.000167 Seconds Demand Peak: 14.999999 gn Demand RMS: 1.476277 gn Remaining Pulses: 0
Pulse Type: Half Sine Amplitude: 14.999999 gn Pulse Width: 11.000001 ms
Data saved at 02:29:01 PM, Tuesday, July 27, 2004 Report created at 02:29:04 PM, Tuesday, July 27, 2004

Axis -X AOP-8120

Project File Name: AOP-8120.prj

Profile Name: 15gn 11mSec Test Type: Classical Shock Run Folder: .\RunDefault Jul 27,2004 14-30-32

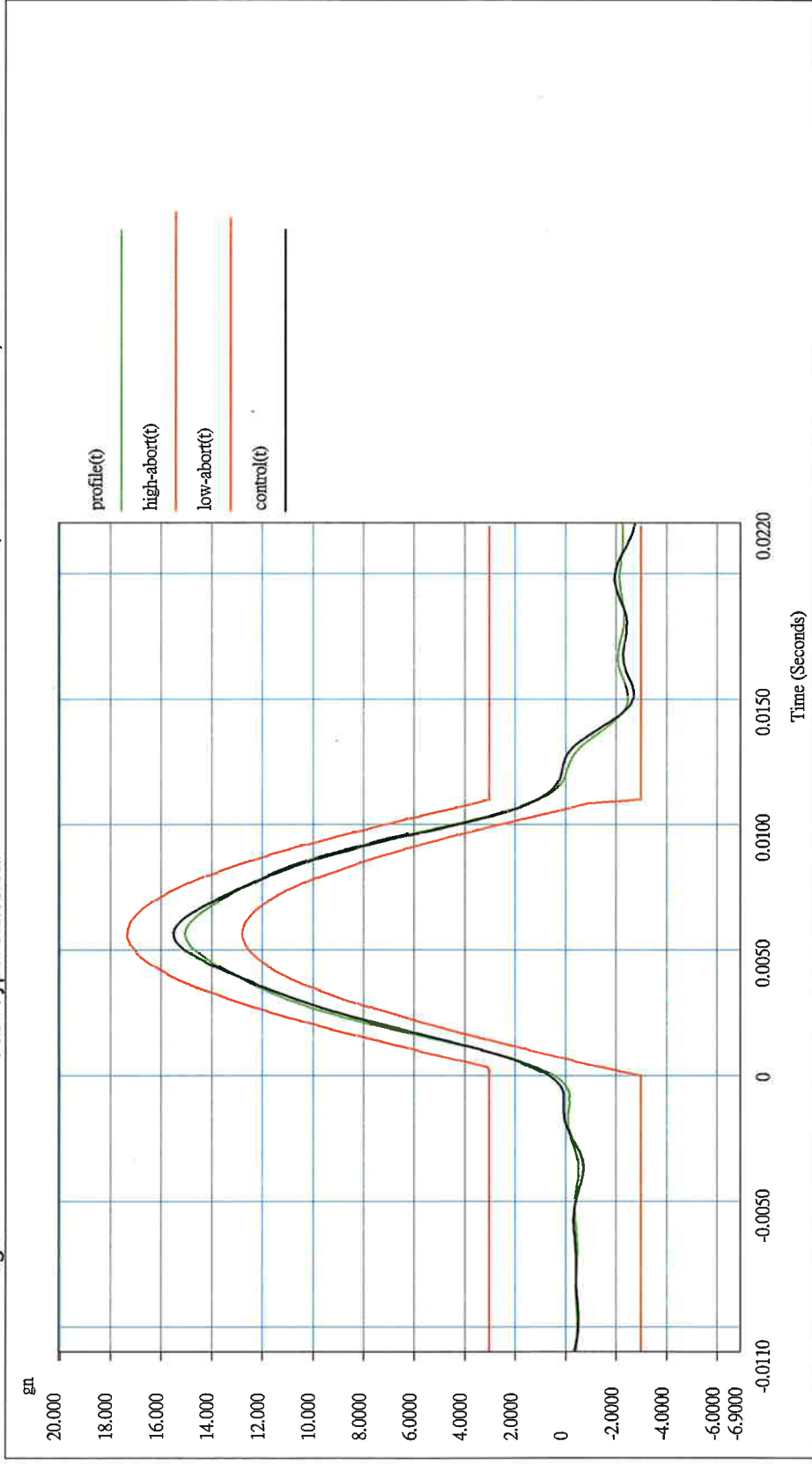


Level: 100 % Block Size: 4096 Elapsed Pulses: 10 Full Level Elapsed Pulses: 3
Frame Time: 0.682667 Seconds Control Peak: 15.283793 gn Control RMS: 1.487550 gn
dT: 0.000167 Seconds Demand Peak: 14.999999 gn Demand RMS: 1.476277 gn Remaining Pulses: 0
Pulse Type: Half Sine Amplitude: 14.999999 gn Pulse Width: 11.000001 ms
Data saved at 02:31:10 PM, Tuesday, July 27, 2004 Report created at 02:31:12 PM, Tuesday, July 27, 2004

Axis Y AOP-8120

Project File Name: AOP-8120.prj

Profile Name: 15gn 11mSec Test Type: Classical Shock Run Folder: .\RunDefault Jul 27, 2004 14-22-26

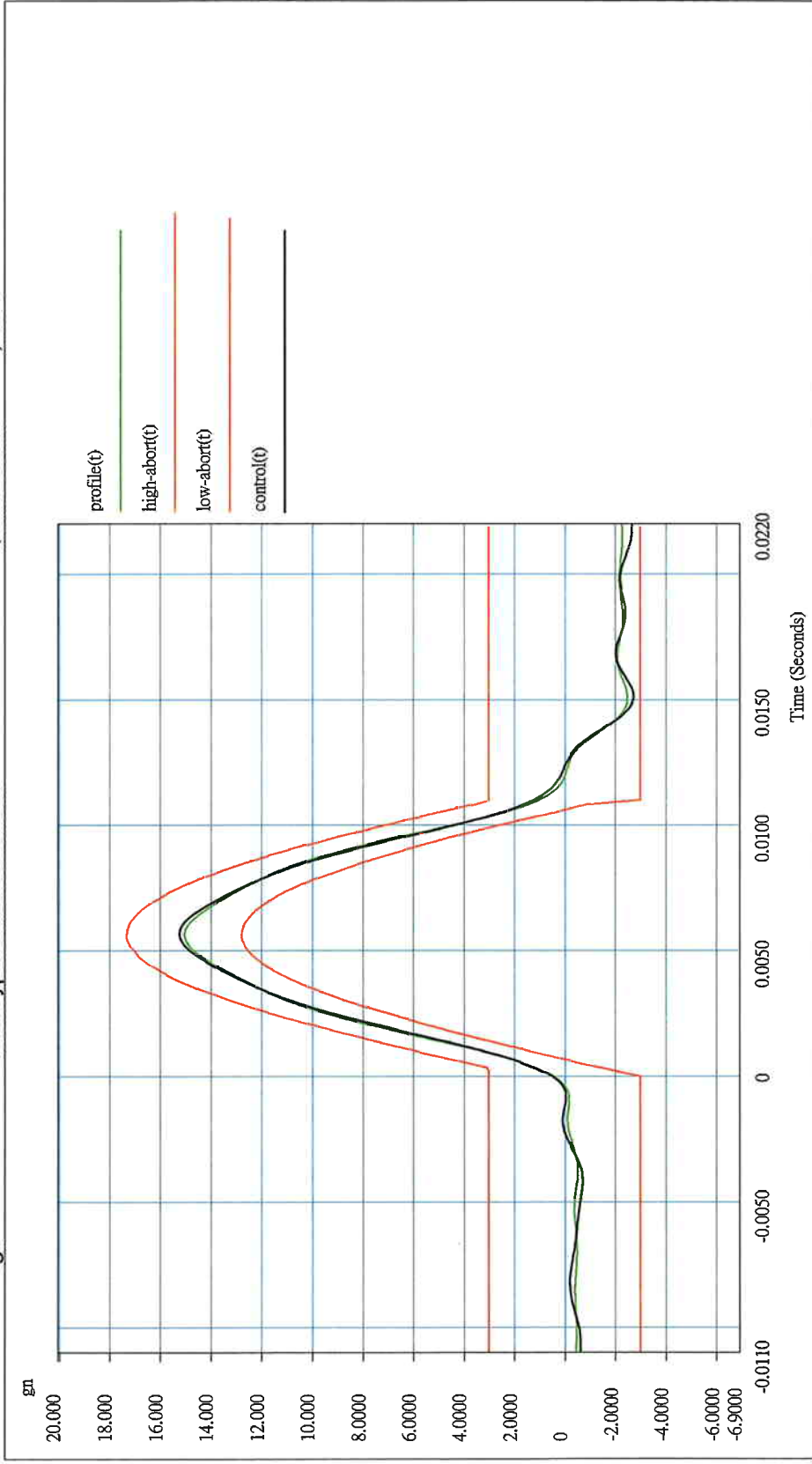


Level: 100 % Block Size: 4096 Elapsed Pulses: 10
Frame Time: 0.682667 Seconds Control Peak: 15.468986 gn Control RMS: 1.491050 gn Full Level Elapsed Pulses: 3
dT: 0.000167 Seconds Demand Peak: 14.999999 gn Demand RMS: 1.476277 gn Remaining Pulses: 0
Pulse Type: Half Sine Amplitude: 14.999999 gn Pulse Width: 11.000001 ms
Data saved at 02:23:00 PM, Tuesday, July 27, 2004 Report created at 02:23:03 PM, Tuesday, July 27, 2004

Axis -Y AOP-8120

Project File Name: AOP-8120.prj

Profile Name: 15gn 11mSec Test Type: Classical Shock Run Folder: .\RunDefault Jul 27, 2004 14-24-57

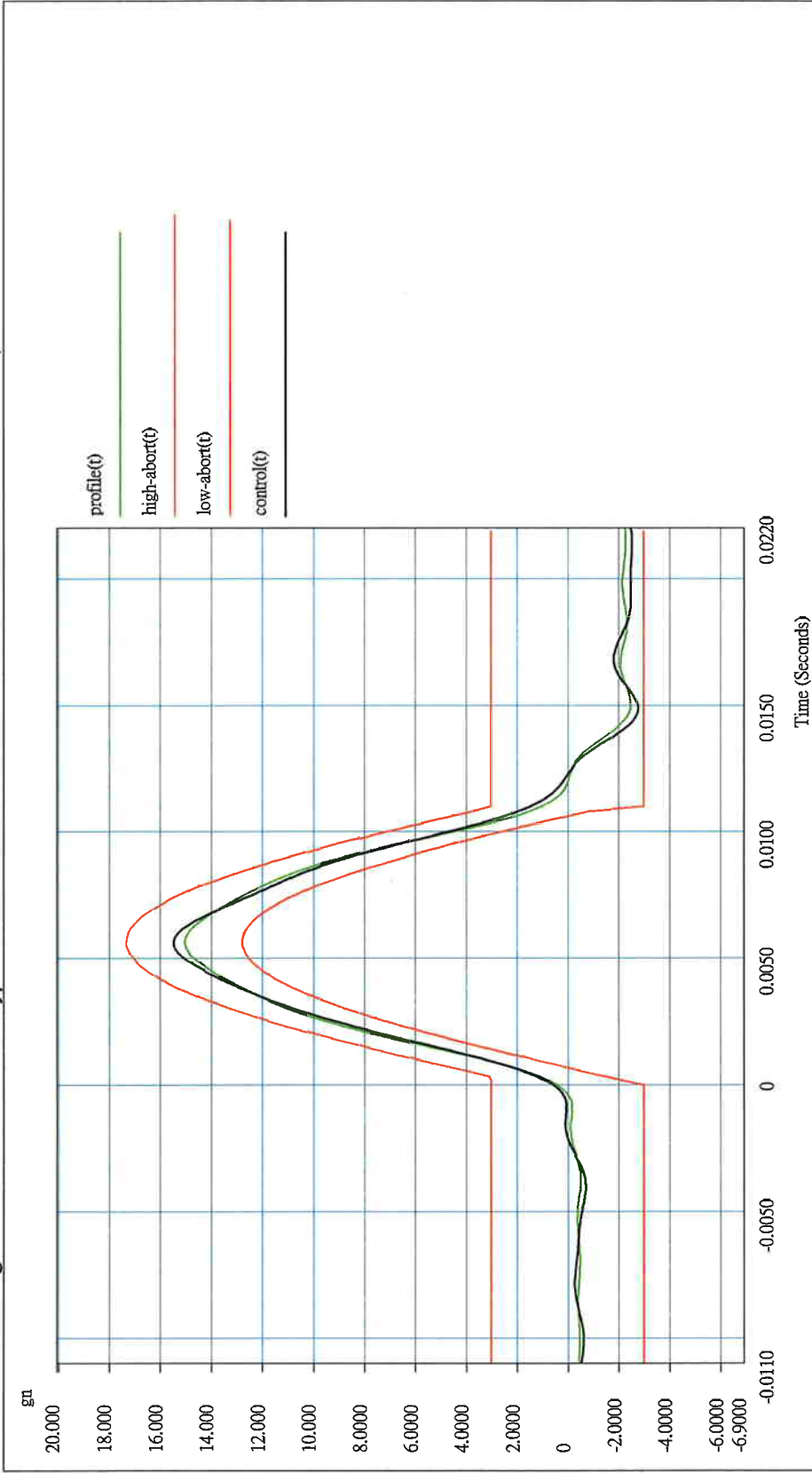


Level: 100 % Block Size: 4096 Elapsed Pulses: 10
Frame Time: 0.682667 Seconds Control Peak: 15.207425 gn Control RMS: 1.489571 gn Full Level Elapsed Pulses: 3
dT: 0.000167 Seconds Demand Peak: 14.999999 gn Demand RMS: 1.476277 gn Remaining Pulses: 0
Pulse Type: Half Sine Amplitude: 14.999999 gn Pulse Width: 11.000001 ms
Data saved at 02:25:26 PM, Tuesday, July 27, 2004 Report created at 02:25:29 PM, Tuesday, July 27, 2004

Axis Z AOP-8120

Project File Name: AOP-8120.prj

Profile Name: 15gn 11mSec Test Type:Classical Shock Run Folder: .\RunDefault Jul 27,2004 14-13-52

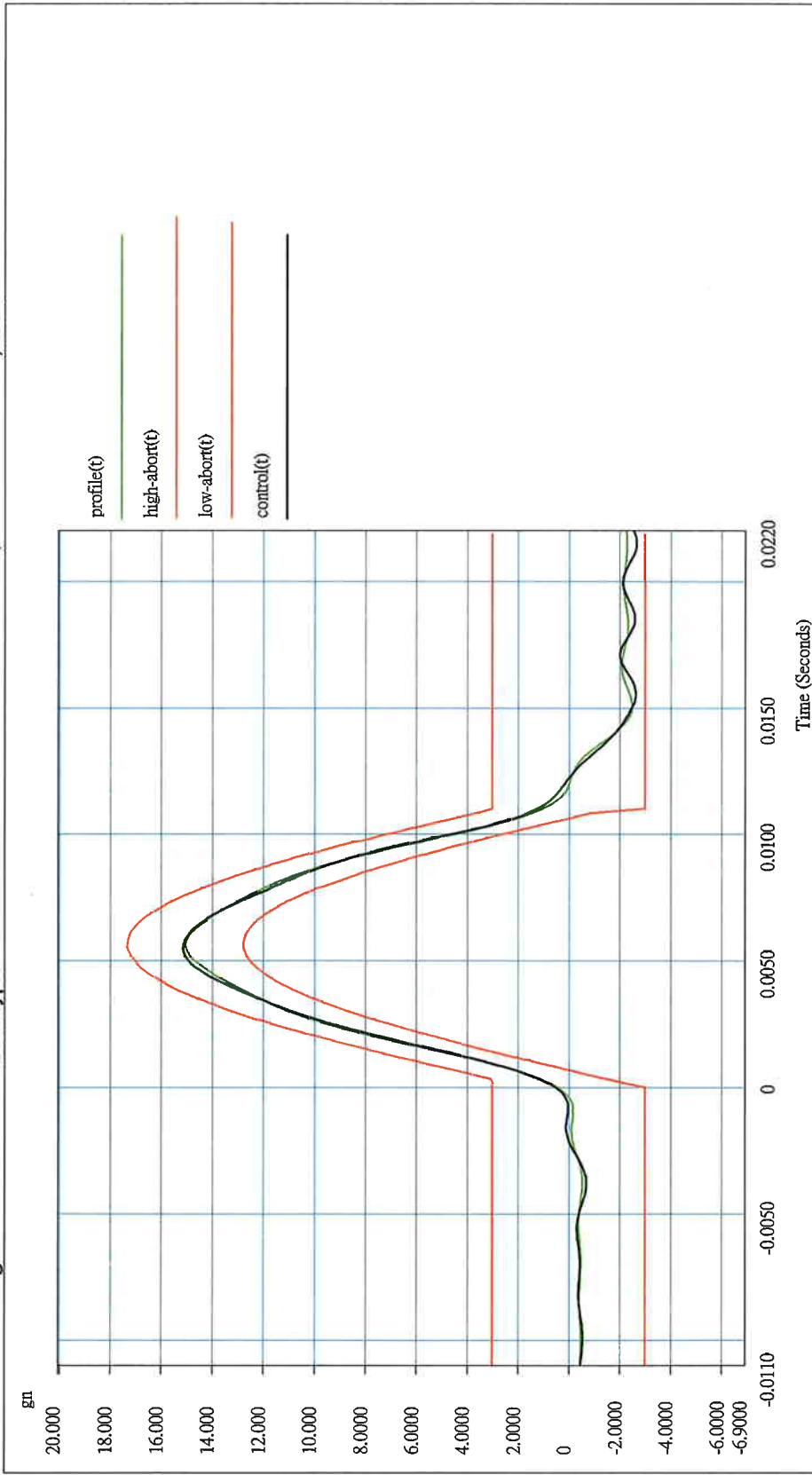


Level: 100 % Block Size: 4096 Elapsed Pulses:10
Frame Time: 0.682667 Seconds Control Peak: 15.438017 gn Control RMS: 1.489345 gn Full Level Elapsed Pulses: 3
dT: 0.000167 Seconds Demand Peak: 14.999999 gn Demand RMS: 1.476277 gn Remaining Pulses: 0
Pulse Type: Half Sine Amplitude: 14.999999 gn Pulse Width: 11.000001 ms
Data saved at 02:14:13 PM, Tuesday, July 27, 2004 Report created at 02:14:30 PM, Tuesday, July 27, 2004

Axis -Z AOP-8120

Project File Name: AOP-8120.prj

Profile Name: 15gn 11mSec Test Type: Classical Shock Run Folder: .\RunDefault Jul 27, 2004 14-18-47



Level: 100 % Block Size: 4096 Elapsed Pulses: 10

Frame Time: 0.682667 Seconds Control Peak: 15.096077 gn Control RMS: 1.490068 gn Full Level Elapsed Pulses: 3

dT: 0.000167 Seconds Demand Peak: 14.999999 gn Demand RMS: 1.476277 gn Remaining Pulses: 0

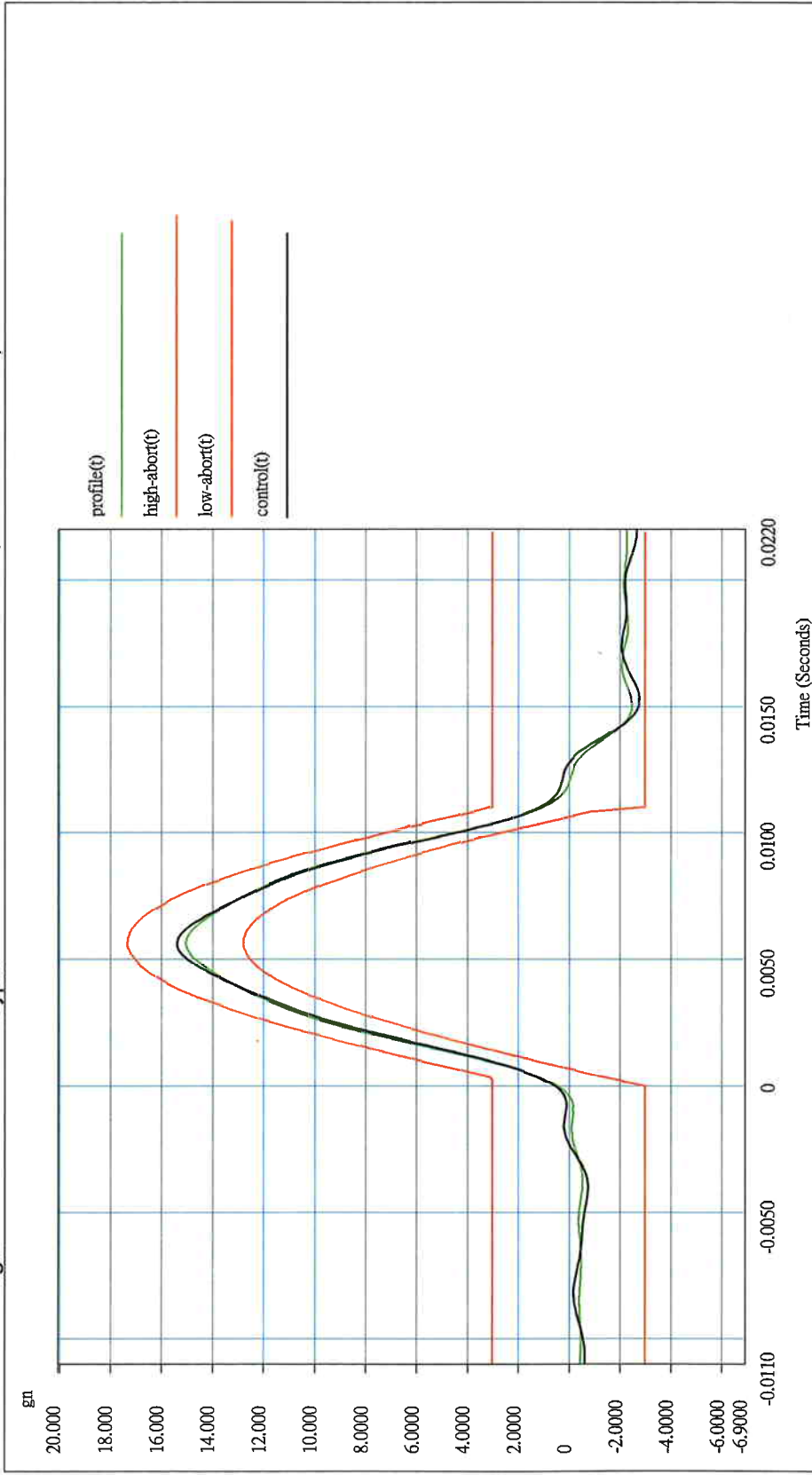
Pulse Type: Half Sine Amplitude: 14.999999 gn Pulse Width: 11.000001 ms

Data saved at 02:19:10 PM, Tuesday, July 27, 2004 Report created at 02:19:13 PM, Tuesday, July 27, 2004

Axis X AEC-6820

Project File Name: AEC-6820.prj

Profile Name: 15gn 11mSec Test Type: Classical Shock Run Folder: .\RunDefault Jul 27, 2004 14-49-29

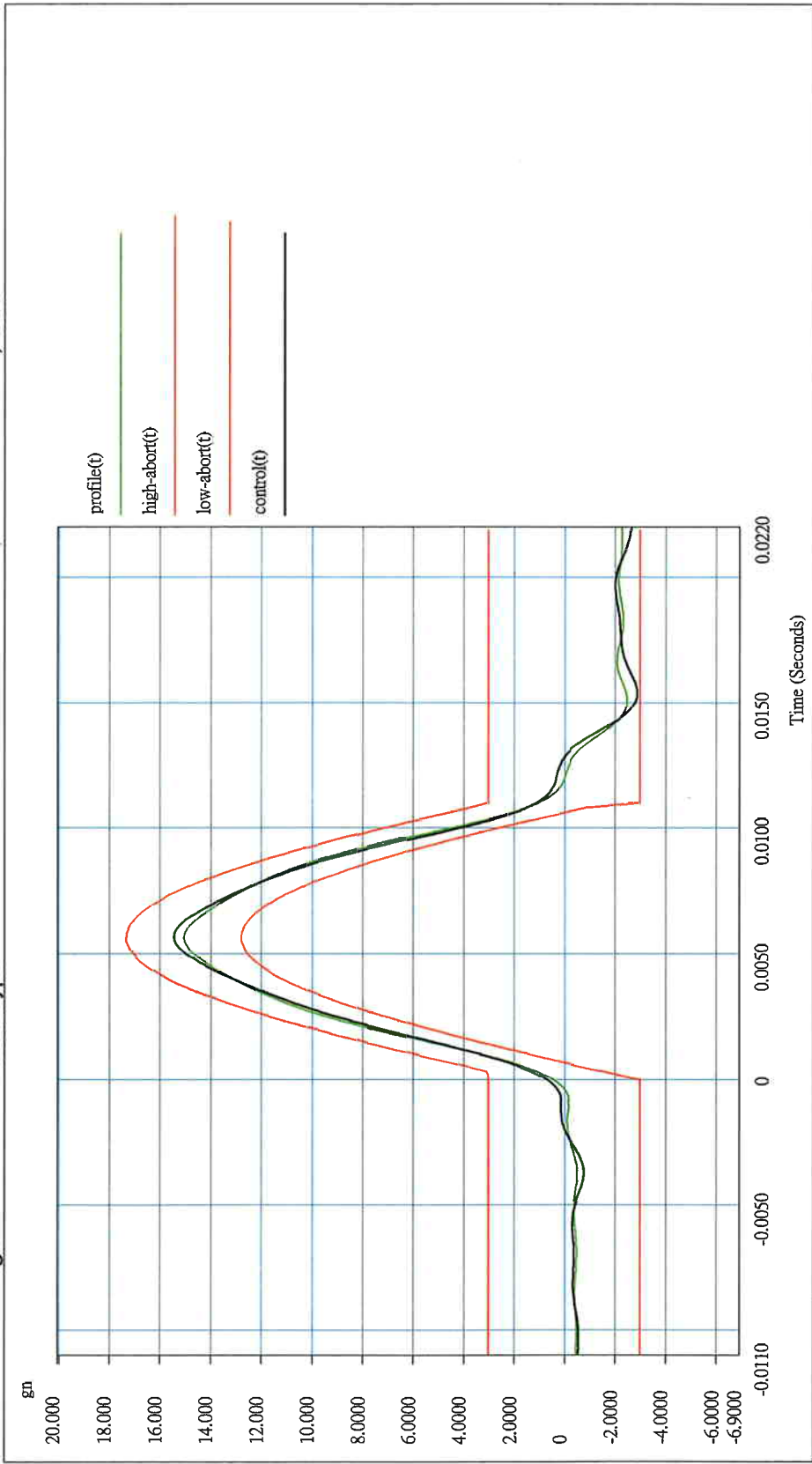


Level: 100 % Block Size: 4096 Elapsed Pulses: 10 Full Level Elapsed Pulses: 3
Frame Time: 0.682667 Seconds Control Peak: 15.350000 gn Control RMS: 1.489077 gn
dT: 0.000167 Seconds Demand Peak: 14.999999 gn Demand RMS: 1.476277 gn Remaining Pulses: 0
Pulse Type: Half Sine Amplitude: 14.999999 gn Pulse Width: 11.000001 ms
Data saved at 02:50:04 PM, Tuesday, July 27, 2004 Report created at 02:50:08 PM, Tuesday, July 27, 2004

Axis -X AEC-6820

Project File Name: AEC-6820.prj

Profile Name: 15gn 11mSec Test Type: Classical Shock Run Folder: .\RunDefault Jul 27, 2004 14-51-22



Level: 100 % Block Size: 4096 Elapsed Pulses: 10

Frame Time: 0.682667 Seconds Control Peak: 15.396618 gn Control RMS: 1.489166 gn Full Level Elapsed Pulses: 3

dT: 0.000167 Seconds Demand Peak: 14.999999 gn Demand RMS: 1.476277 gn Remaining Pulses: 0

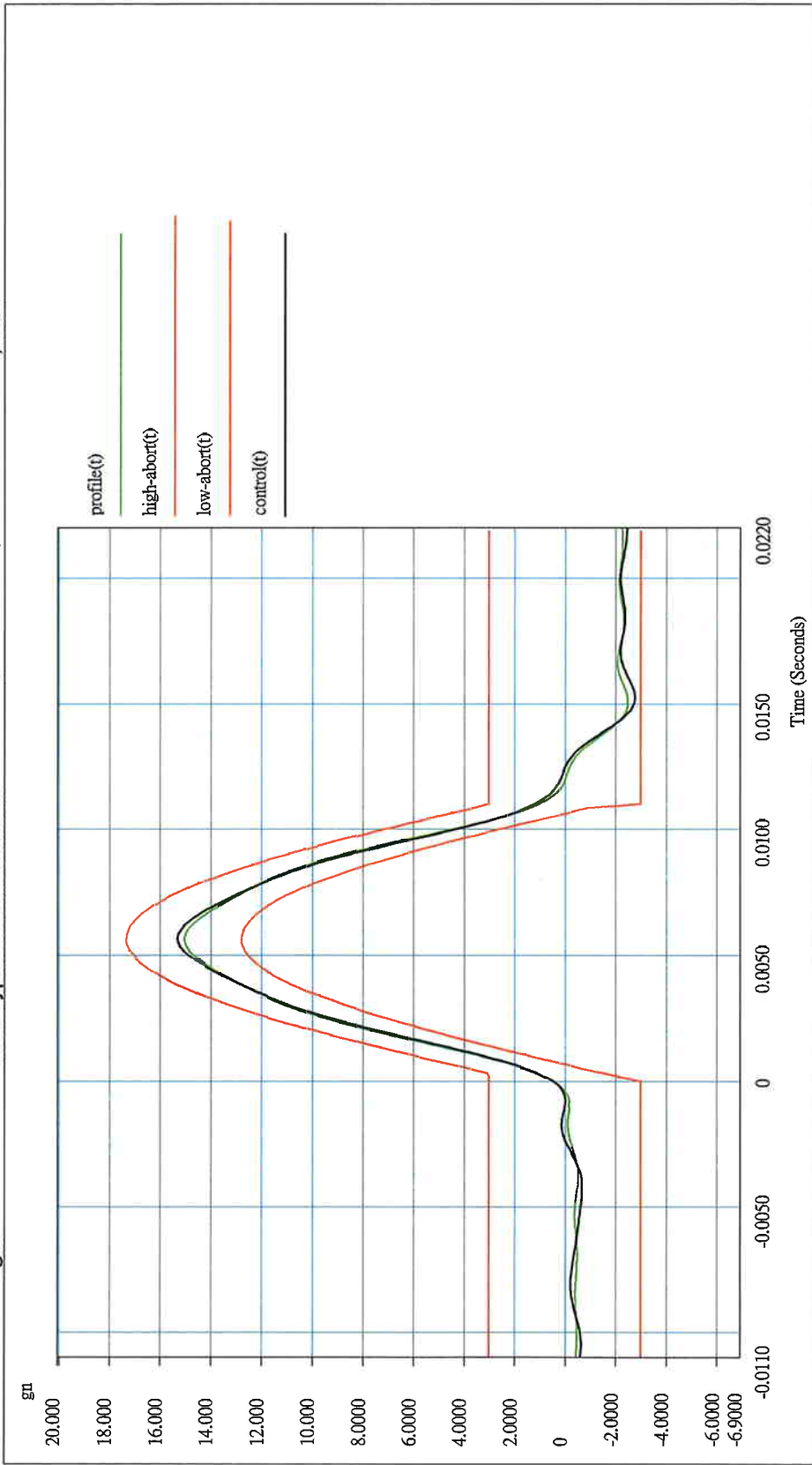
Pulse Type: Half Sine Amplitude: 14.999999 gn Pulse Width: 11.000001 ms

Data saved at 02:51:54 PM, Tuesday, July 27, 2004 Report created at 02:51:57 PM, Tuesday, July 27, 2004

Axis Y AEC-6820

Project File Name: AEC-6820.prj

Profile Name: 15gn 11mSec Test Type: Classical Shock Run Folder: .\RunDefault Jul 27, 2004 14-54-27

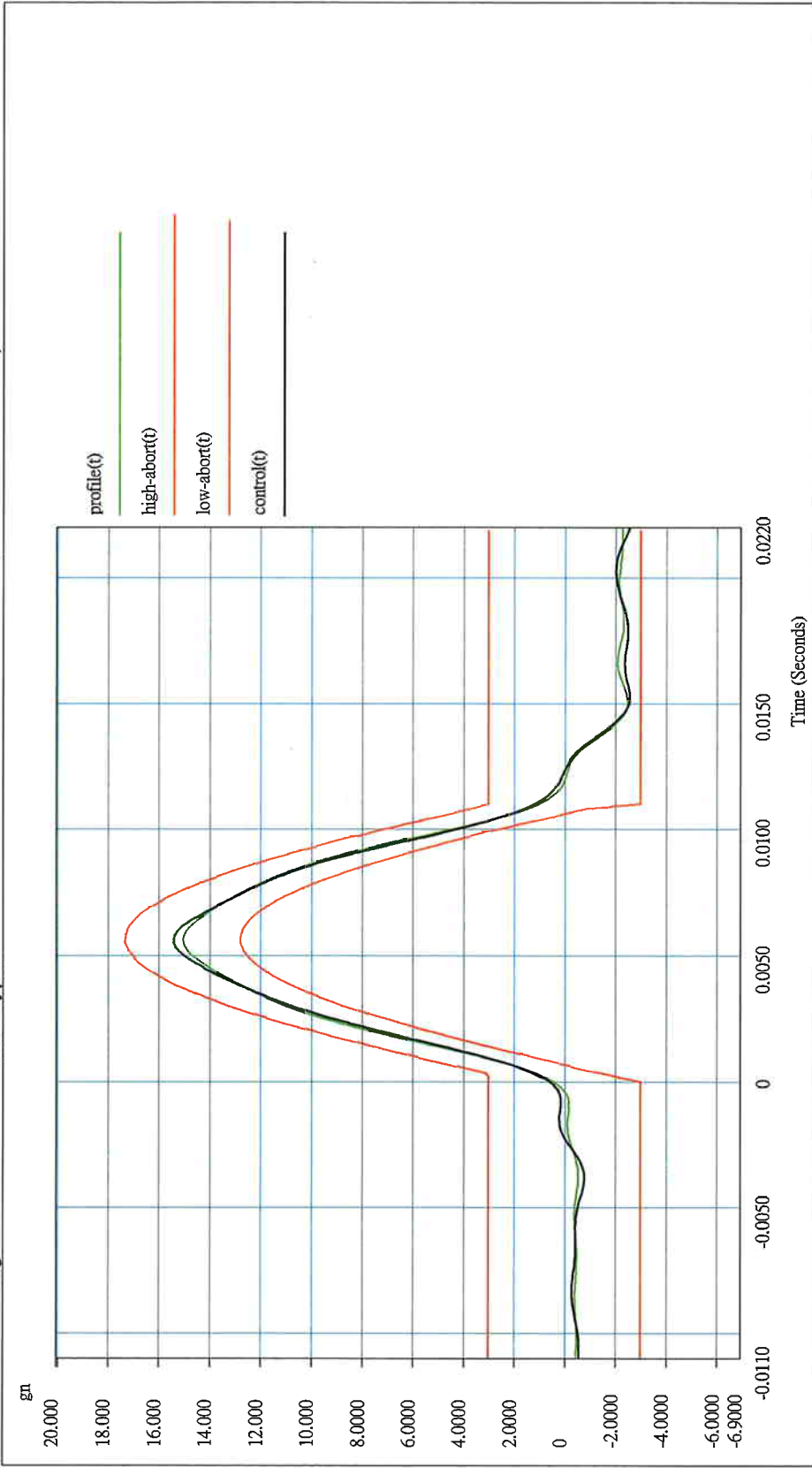


Level: 100 % Block Size: 4096 Elapsed Pulses: 10
Frame Time: 0.682667 Seconds Control Peak: 15.272120 gn Control RMS: 1.490514 gn Full Level Elapsed Pulses: 3
dT: 0.000167 Seconds Demand Peak: 14.999999 gn Demand RMS: 1.476277 gn Remaining Pulses: 0
Pulse Type: Half Sine Amplitude: 14.999999 gn Pulse Width: 11.000001 ms
Data saved at 02:54:49 PM, Tuesday, July 27, 2004 Report created at 02:54:52 PM, Tuesday, July 27, 2004

Axis -Y AEC-6820

Project File Name: AEC-6820.prj

Profile Name: 15gn 11mSec Test Type: Classical Shock Run Folder: .\RunDefault Jul 27, 2004 15-00-03

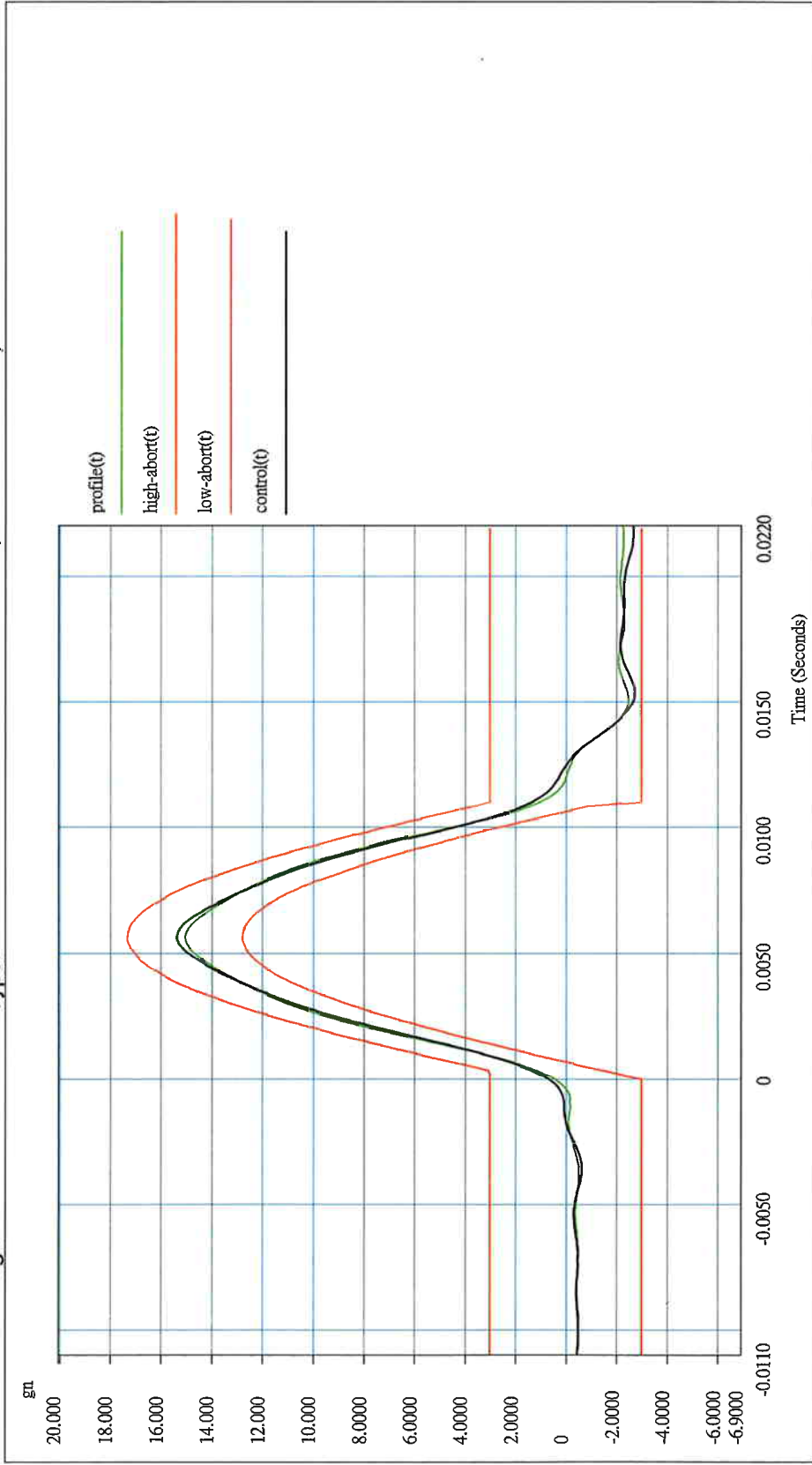


Level: 100 % Block Size: 4096 Elapsed Pulses: 10
Frame Time: 0.682667 Seconds Control Peak: 15.368176 gn Control RMS: 1.489348 gn Full Level Elapsed Pulses: 3
dT: 0.000167 Seconds Demand Peak: 14.999999 gn Demand RMS: 1.476277 gn Remaining Pulses: 0
Pulse Type: Half Sine Amplitude: 14.999999 gn Pulse Width: 11.000001 ms
Data saved at 03:00:24 PM, Tuesday, July 27, 2004 Report created at 03:00:27 PM, Tuesday, July 27, 2004

Axis Z AEC-6820

Project File Name: AEC-6820.prj

Profile Name: 15gn 11mSec Test Type: Classical Shock Run Folder: .\RunDefault Jul 27, 2004 14-43-02

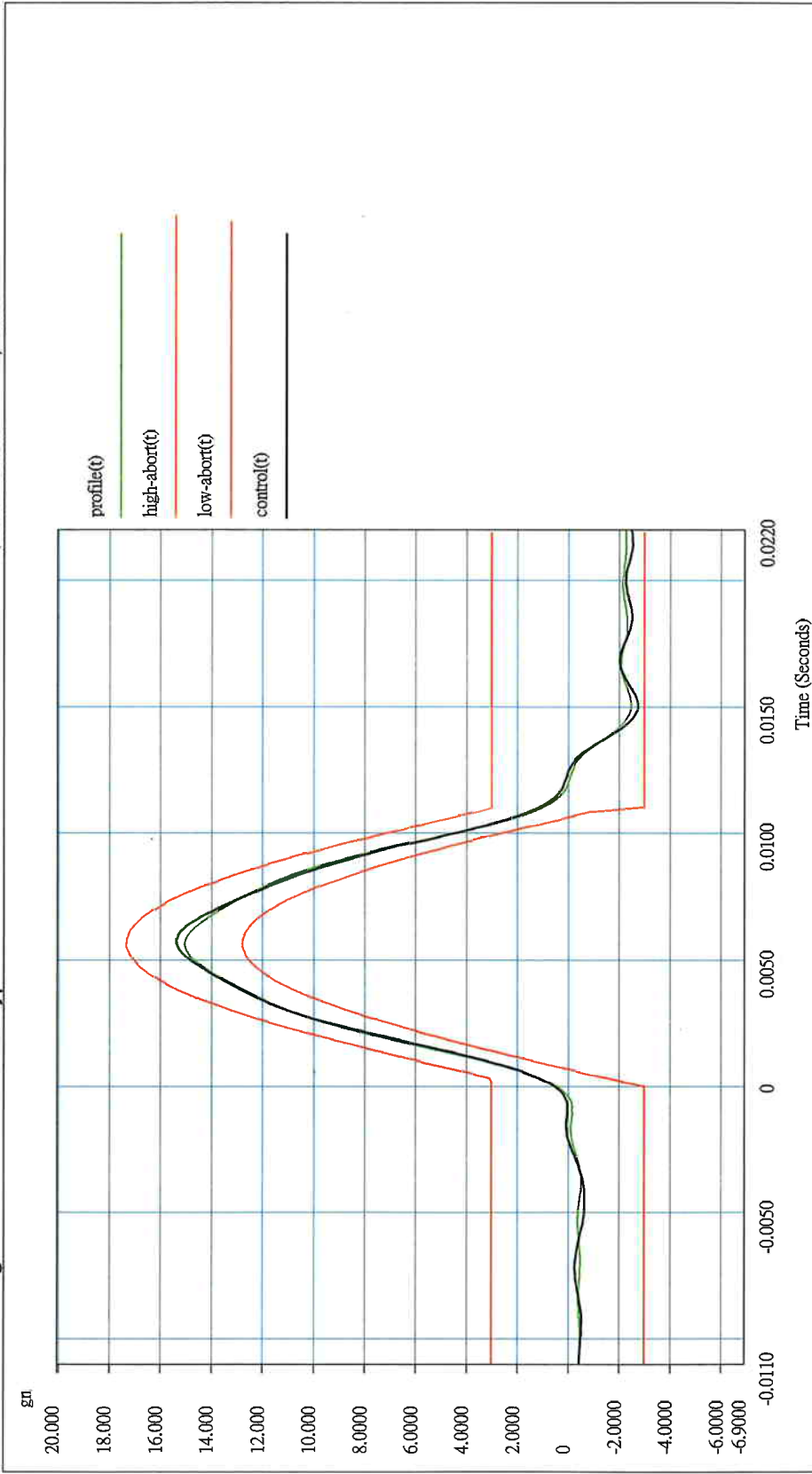


Level: 100 % Block Size: 4096 Elapsed Pulses: 10
Frame Time: 0.682667 Seconds Control Peak: 15.321335 gn Control RMS: 1.489387 gn Full Level Elapsed Pulses: 3
dT: 0.000167 Seconds Demand Peak: 14.999999 gn Demand RMS: 1.476277 gn Remaining Pulses: 0
Pulse Type: Half Sine Amplitude: 14.999999 gn Pulse Width: 11.000001 ms
Data saved at 02:43:23 PM, Tuesday, July 27, 2004 Report created at 02:43:28 PM, Tuesday, July 27, 2004

Axis -Z AEC-6820

Project File Name: AEC-6820.prj

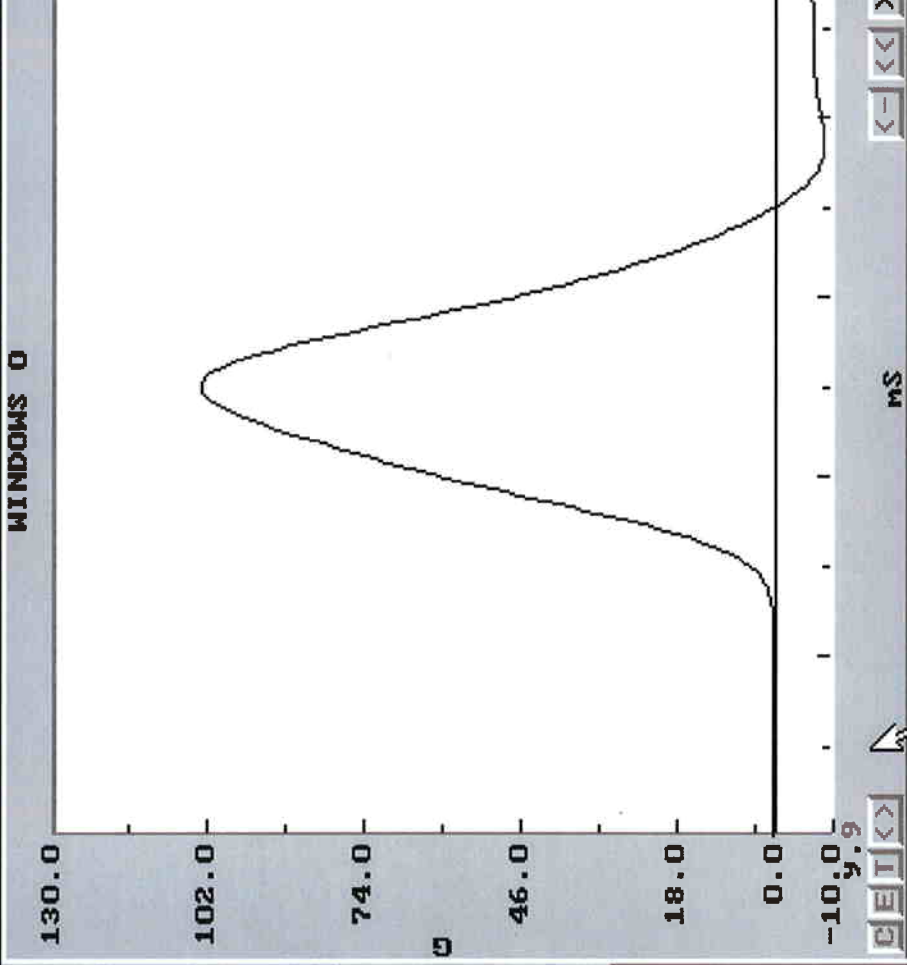
Profile Name: 15gn 11mSec Test Type: Classical Shock Run Folder: .\RunDefault Jul 27, 2004 14-47-01



Level: 100 % Block Size: 4096 Elapsed Pulses: 10
 Frame Time: 0.682667 Seconds Control Peak: 15.309301 gn Control RMS: 1.491724 gn Full Level Elapsed Pulses: 3
 dT: 0.000167 Seconds Demand Peak: 14.999999 gn Demand RMS: 1.476277 gn Remaining Pulses: 0
 Pulse Type: Half Sine Amplitude: 14.999999 gn Pulse Width: 11.000001 ms
 Data saved at 02:47:35 PM, Tuesday, July 27, 2004 Report created at 02:47:38 PM, Tuesday, July 27, 2004

Axis X
XDP-1200

WINDOWS 0



130.0

102.0

74.0

46.0

18.0

0.0

-10.0

G

ms

39.9

0

mm

0

1

2

3

0

1

2

3

0

1

2

3

0

1

2

3

0

1

2

3

0

1

2

3

0

1

2

3

0

1

2

3

100g 11ms

DURATION TIME: mS

10.70

SHOCK LEVEL: G

103.24

控制模式: 高度

+1100 mm

+3

LOCK

RELEASE

待命正常狀態

F1: 輔助說明

F2: 開始

F3: 停止

F4: 暫停

F5: 平台上升

F6: 波形存檔

F7: 畫面印表

F8: 特性測試

F9: 更換試塊

F10: 平台下降

測試參數檔:

04072002.PRA

報告輸出檔:

04072000.REP

Bchannel

0 - ON 1 - OFF 2 - OFF 3 - OFF

Title: CONTROL 1

Max Acc: 103.24

Min Acc: -8.57

Dur. T: 10.70

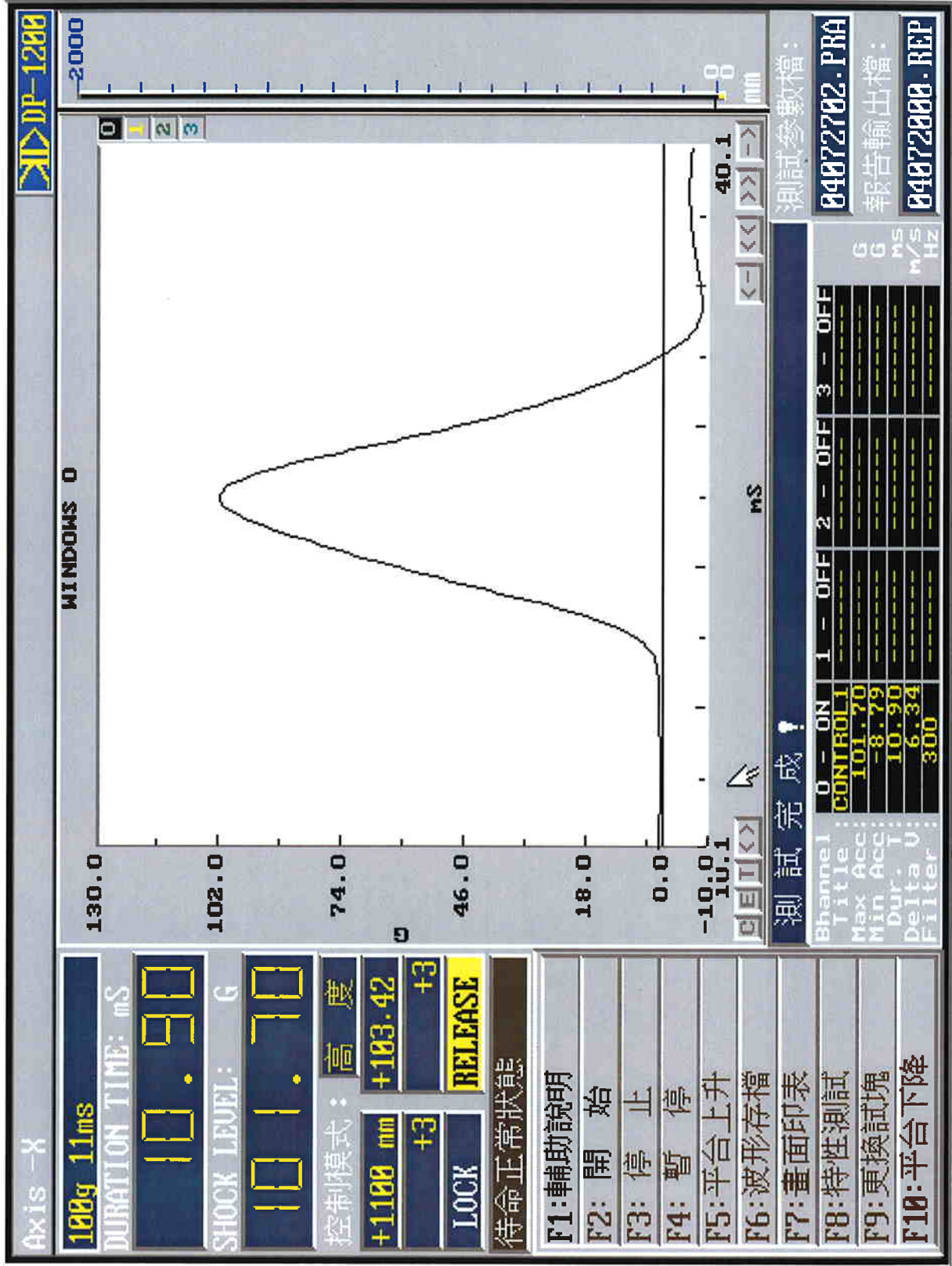
Delta U: 6.29

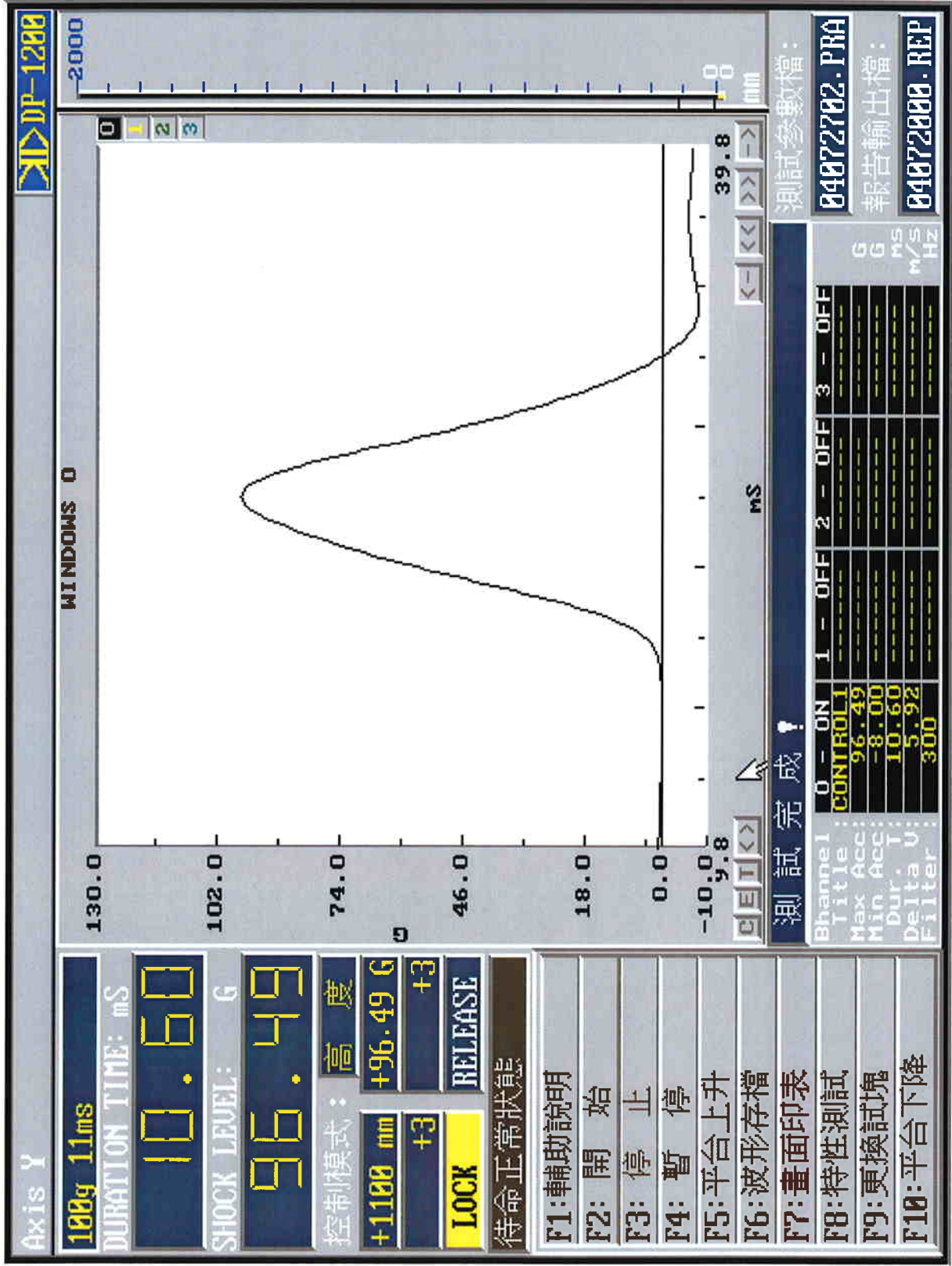
Filter: 300

G

mS

Hz





Axis -Y

100g 11ms

DURATION TIME: ms

11.50

SHOCK LEVEL: G

109.15

控制模式: 高度

+1100 mm

+112.92

+3

+3

LOCK

RELEASE

待命正常狀態

F1: 輔助說明

F2: 開始

F3: 停止

F4: 暫停

F5: 平台上升

F6: 波形存檔

F7: 畫面印表

F8: 特性測試

F9: 更換試塊

F10: 平台下降

WINDOWS 0

130.0

102.0

74.0

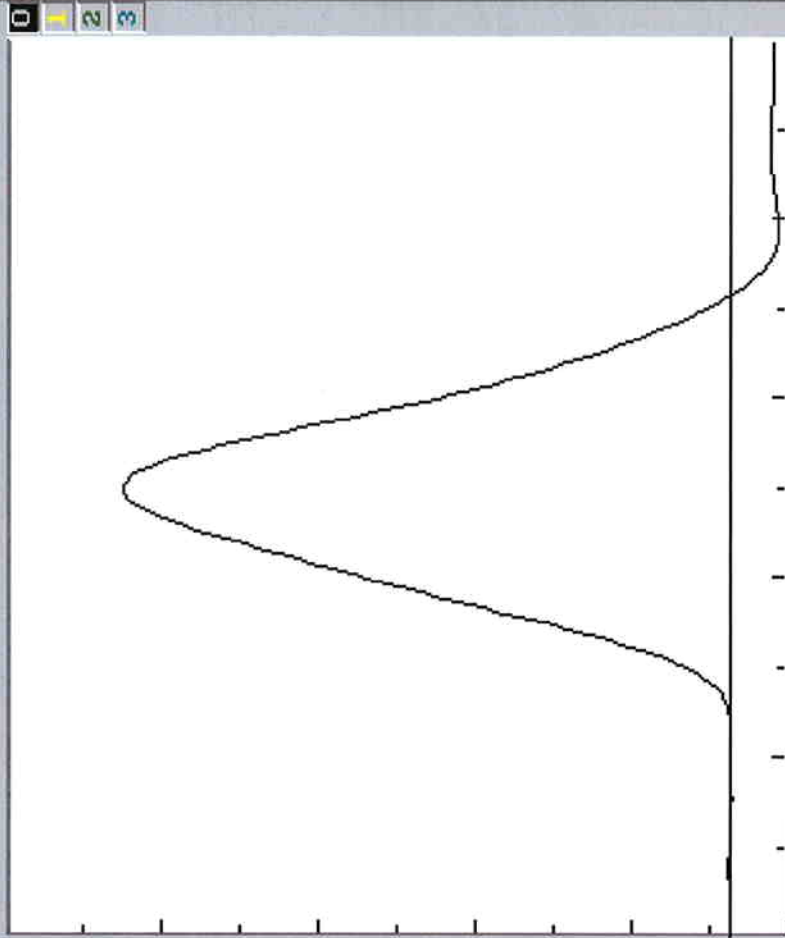
46.0

18.0

0.0

-10.0

1u.4



[-] [0] [1] [2] [3] [1] [2] [3]

40.4

mm

[<] [0] [1] [2] [3] [1] [2] [3] [1] [2] [3]

測試完成!

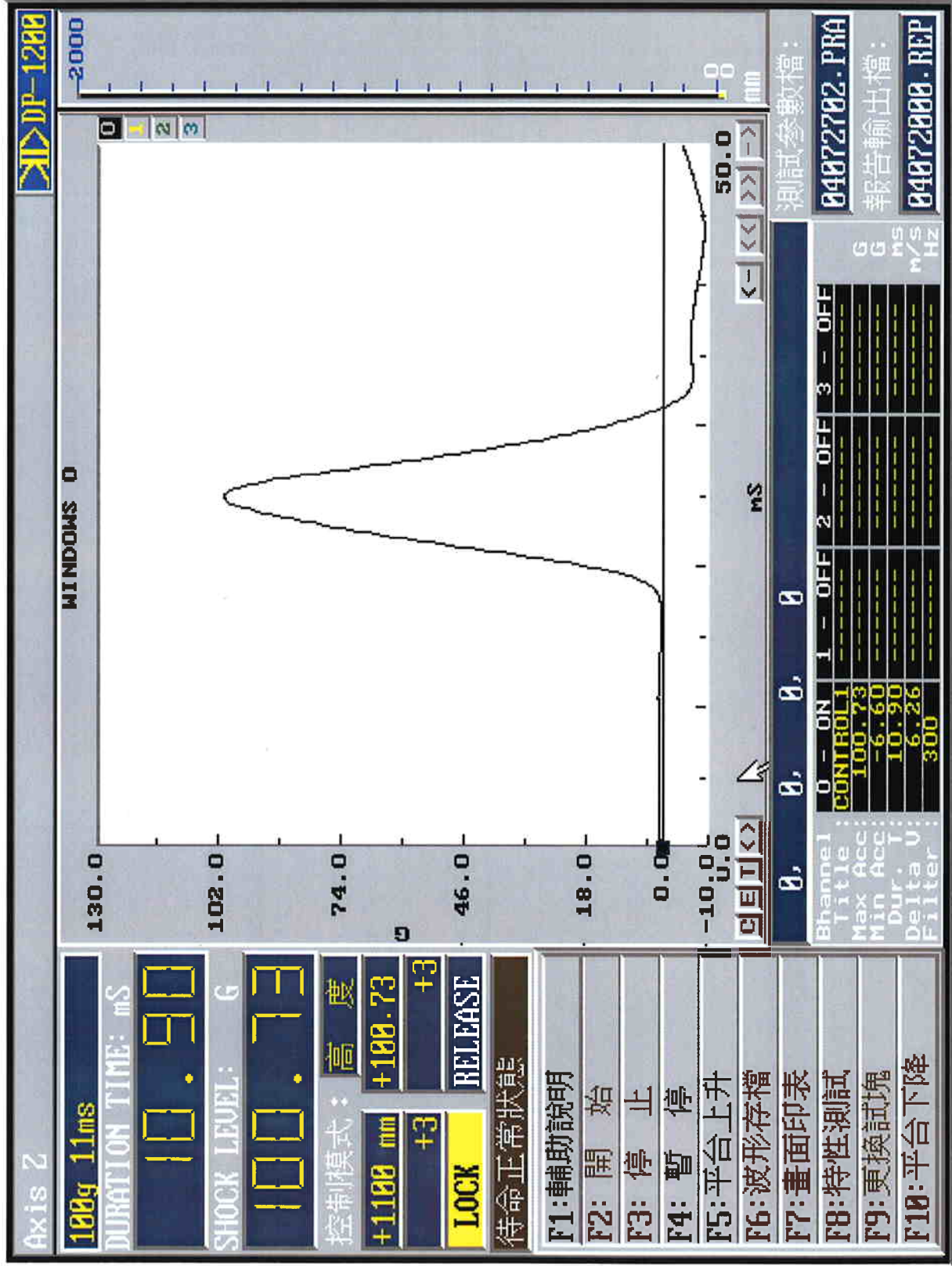
Bchannel	0 - ON	1 - OFF	2 - OFF	3 - OFF
Title	CONTROL			
Max Acc:	109.15			
Min Acc:	-8.44			
Dur. T:	11.50			
Delta U:	6.99			
Filter:	300			

測試參數檔:

04072702.PRA

報告輸出檔:

04072000.REP



Axis Z

100g 11ms

DURATION TIME: ms

10.90

SHOCK LEVEL: G

100.73

控制模式: 高度

+1100 mm

+3

LOCK

待命正常狀態

F1: 輔助說明

F2: 開始

F3: 停止

F4: 暫停

F5: 平台上升

F6: 波形存檔

F7: 畫面印表

F8: 特性測試

F9: 更換試塊

F10: 平台下降

WINDOWS 0

130.0

102.0

74.0

46.0

18.0

0.0

-10.0

0.0

ms

50.0

mm

測試參數檔:

04072702.PRA

報告輸出檔:

04072000.REP

Bhannel	0	ON	1	OFF	2	OFF	3	OFF
Title	CONTROL 1							
Max Acc:	100.73							
Min Acc:	-6.60							
Dur. T:	10.90							
Delta U:	6.26							
Filter:	300							

Axis -Z

DP-1200

100g 11ms

DURATION TIME: ms

10.90

SHOCK LEVEL: G

101.70

控制模式: 高度

+100 mm

+100.59

+3

+3

LOCK

RELEASE

待命正常狀態

F1:輔助說明

F2:開始

F3:停止

F4:暫停

F5:平台上升

F6:波形存檔

F7:畫面印表

F8:特性測試

F9:更換試塊

F10:平台下降

WINDOWS 0

130.0

102.0

74.0

46.0

18.0

0.0

-10.0

10.1

2000

0

1

2

3

4

40.1

0

mm

ms

CE

測試參數檔:

04072002.PRA

報告輸出檔:

04072000.REP

Channel 0 - ON 1 - OFF 2 - OFF 3 - OFF

Title CONTROL1

Max Acc: 101.70

Min Acc: -7.72

Dur: 10.90

Delta U: 6.32

Filter: 300

G

G

ms

m/s

Hz