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**VIBRATION TEST LABORATORY**<http://www.kdi.tw><http://www.vibration.com.tw>E-mail: [service@kdi.tw](mailto:service@kdi.tw)**TESTING / INSPECTION REPORT**

REPORT NO : VT-161223-1

COMPANY : Apacer Technology Inc.

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New Taipei City 236, Taiwan (R.O.C)

TEL : 886-2-2267-8000

FAX : 886-2-2267-2261

SPECIMEN : SATA Flash Drive

DATE OF RECEIVED : 2016/12/12

DATE OF TESTED : 2016/12/20

TEST / INSPECTION ITEMS : Vibration / Shock

## REMARKS :

- The laboratory is accredited by ISO/IEC 17025 General Requirements for the Competence of Calibration and Testing Laboratory.
- The results only apply to the device under test.
- This report is 26 pages, and no part of it may be abstracted or reproduced.

Test Engineer :

*Peter Peng*

Approval Signatory :

2017.1.5. *David Lee*

Laboratory Head :

*Hsin Zai Chang*

金頓科技實驗室

## TESTING / INSPECTION REPORT

### TESTING EQUIPMENT :

- |                         |   |
|-------------------------|---|
| 1.Vibration Tester      | : KING DESIGN KD-9363EM-600F2K-50N120,<br>S/N : KDS11054986 |
| 2.Controller            | : VCS-913+, S/N : 1312384                                   |
| 3.Control Accelerometer | : Wilcoxon Research WR-777, S/N : 4207                      |
| 4.Shock Testing System  | : KING DESIGN DP-1200-60, S/N : R2110086489                 |
| 5.Controller            | : DAS-105, S/N : 263210255                                  |
| 6.Accelerometer         | : B&K 4398, S/N : 2209044                                   |
| 7.Shock Testing System  | : KING DESIGN DP-1200-18, S/N : KDS02197998                 |
| 8.Controller            | : KING DESIGN DP-1200-03C, S/N : KD674                      |
| 9.Accelerometer         | : DYTRAN Model : 3200B6 S/N : 8594                          |

### TEST ENVIRONMENT :

- |                   |                      |
|-------------------|----------------------|
| Temperature       | : 25°C (25±10°C)     |
| Relative Humidity | : 65% RH (50±25% RH) |

### SPECIMEN :

- |          |            |
|----------|------------|
| Model    | : SM130-25 |
| Quantity | : 1 unit   |

## TESTING / INSPECTION REPORT

### TEST SPECIFICATION(1) :

#### **Comply with MIL-STD 810G 514.6 category 7**

Random Vibration test (Non-Operating)

Frequency : 15 Hz to 2,000 Hz

Accelerate : 4.02 g rms

P.S.D. : 0.01 g<sup>2</sup>/Hz (15Hz)

0.01 g<sup>2</sup>/Hz (105.94Hz)

+6 dB/Oct (105.94Hz to 150Hz)

0.02 g<sup>2</sup>/Hz (150Hz)

0.02 g<sup>2</sup>/Hz (500Hz)

-6 dB/Oct (500Hz to 2,000Hz)

0.0013 g<sup>2</sup>/Hz (2,000Hz)

Test Axis : X, Y, Z axis

Test Time : 1 hr (Each axis)

Total Test Time : 3 hrs

### TEST SPECIFICATION(2) :

#### **Comply with MIL-STD 810G 514.6 category 24**

Random Vibration test (Operating)

Frequency : 20 Hz to 2,000 Hz

Accelerate : 7.69 g rms

P.S.D. : 0.04 g<sup>2</sup>/Hz (20Hz to 1,000Hz)

: -6 dB/Oct (1,000Hz to 2,000Hz)

Test Axis : X, Y, Z axis

Test Time : 1 hr (Each axis)

Total Test Time : 3 hrs

## TESTING / INSPECTION REPORT

### TEST SPECIFICATION(3) :

#### *As per applicant's requirement*

Wave Form : Half sine wave (Non-Operating)  
 Acceleration : 1,500 g  
 Duration Time : 0.5 mS  
 No. of Shock : Each axis 3 times  
 Shock Direction :  $\pm X$ ,  $\pm Y$ ,  $\pm Z$  axis

### TEST SPECIFICATION(4) :

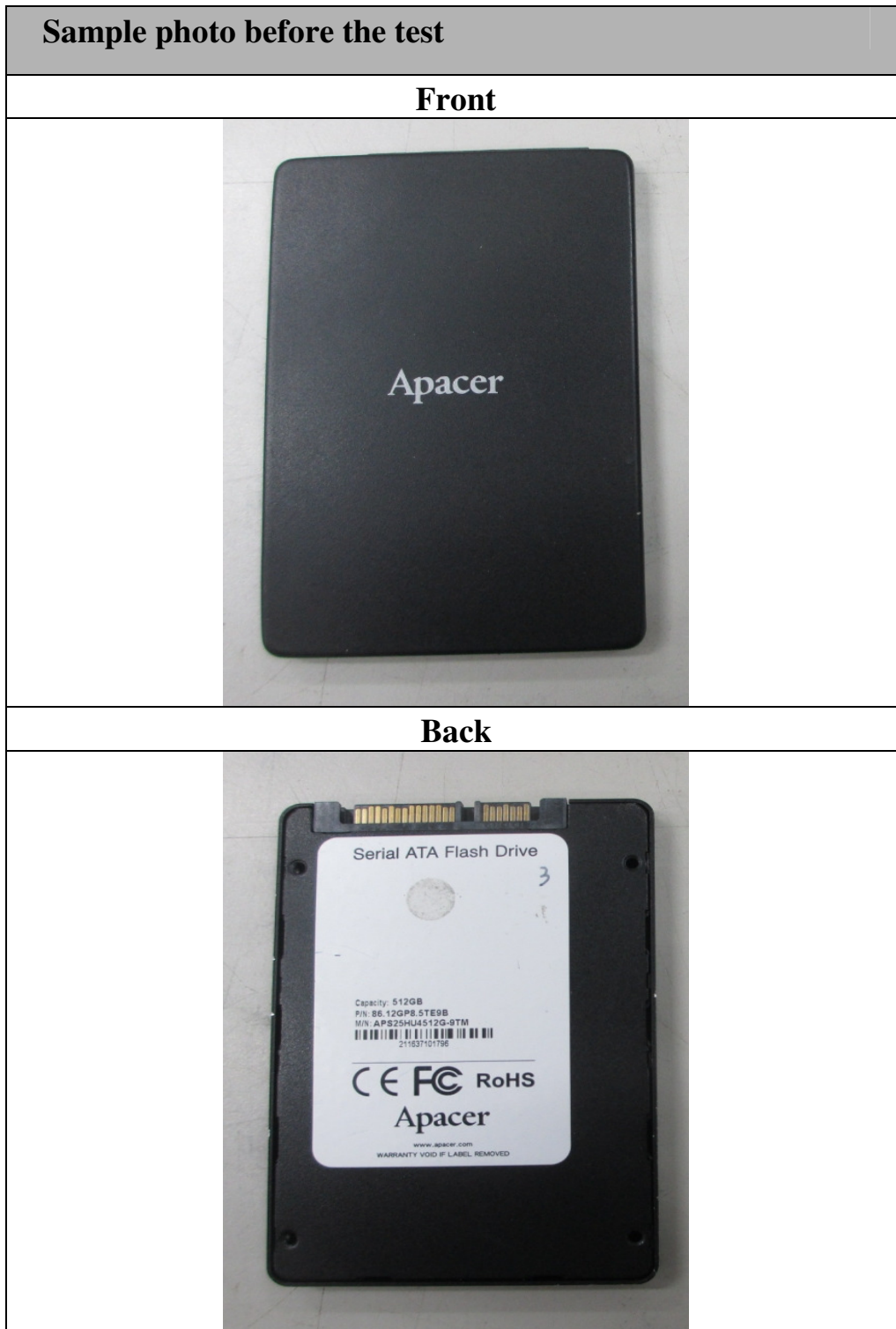
#### *As per applicant's requirement*

Wave Form : Half sine wave (Operating)  
 Acceleration : 50 g  
 Duration Time : 11 mS  
 No. of Shock : Each axis 3 times  
 Shock Direction :  $\pm X$ ,  $\pm Y$ ,  $\pm Z$  axis

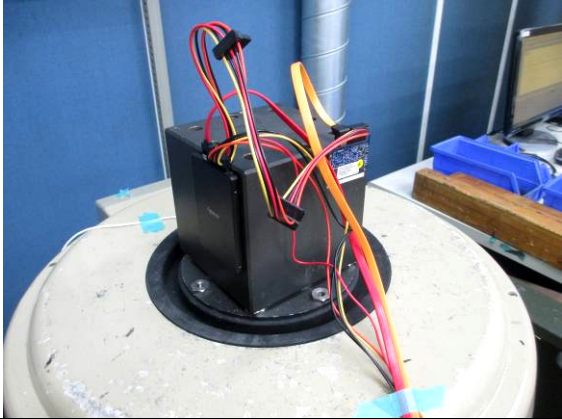





### TEST RESULT :

Describe	PASS	FAIL	Non-Judgment
Function judgment <sup>(1)</sup>	√	---	---
Appearance check <sup>(2)</sup>	√	---	---
(1)--Burn in function was normal after the test.			
(2)--No visible damages were found after the test.			

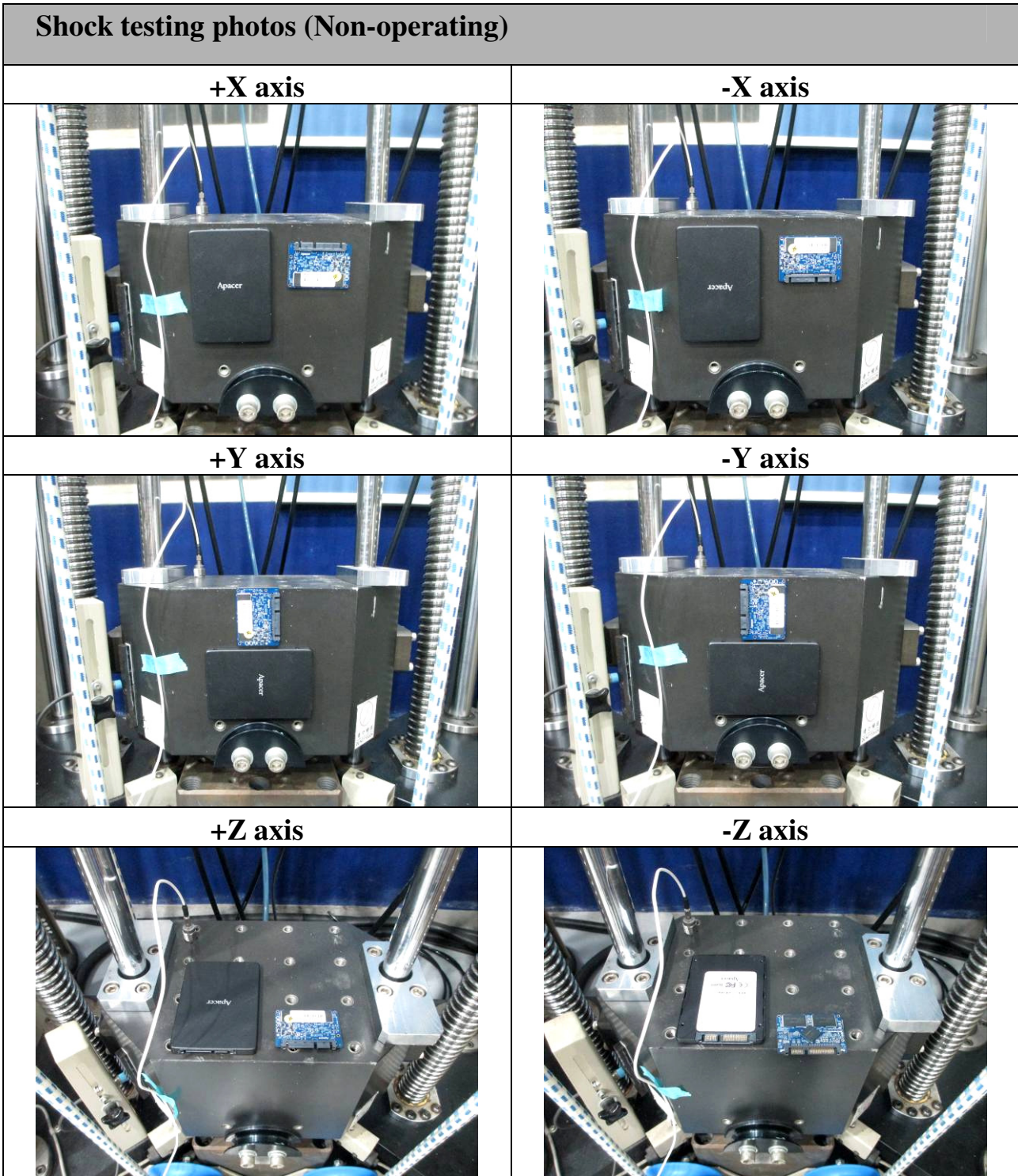
## TESTING / INSPECTION REPORT



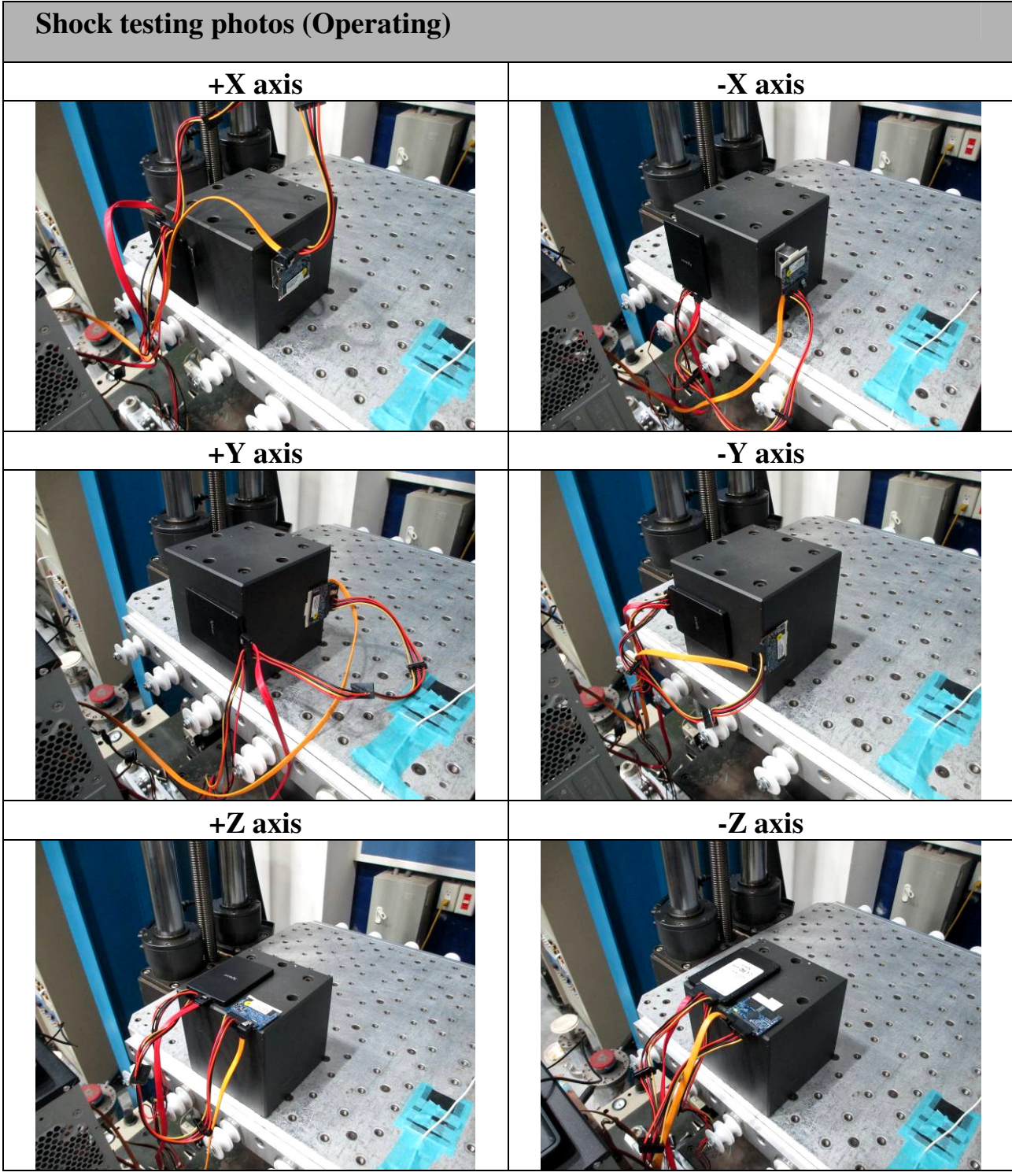
## TESTING / INSPECTION REPORT

<b>Vibration testing photos</b>	
<b>X axis (Operating)</b>	<b>X axis (Non-Operating)</b>
	
<b>Y axis (Operating)</b>	<b>Y axis (Non-Operating)</b>
	
<b>Z axis (Operating)</b>	<b>Z axis (Non-Operating)</b>
	

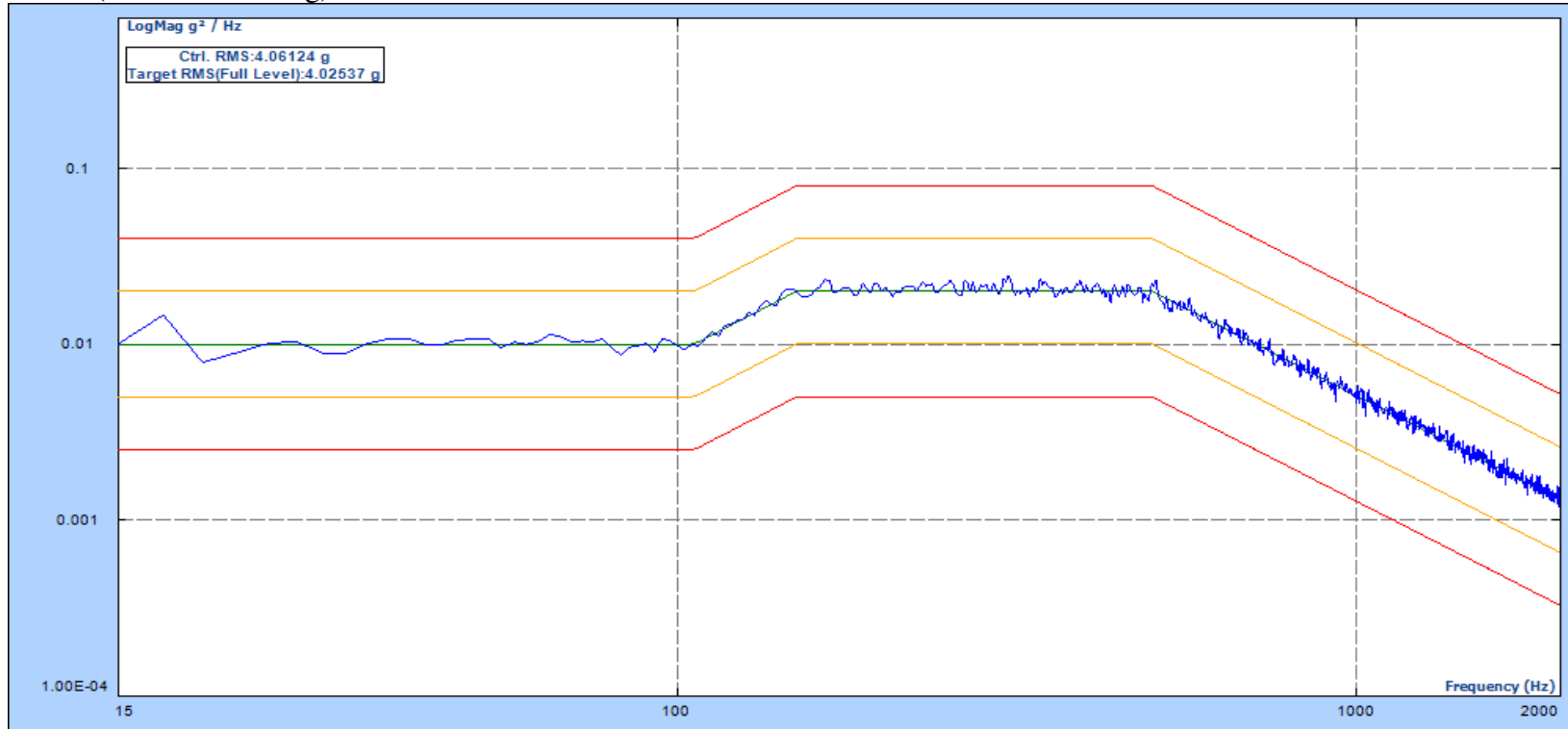
## TESTING / INSPECTION REPORT



## TESTING / INSPECTION REPORT



X axis (15-2000Hz 4.02g)

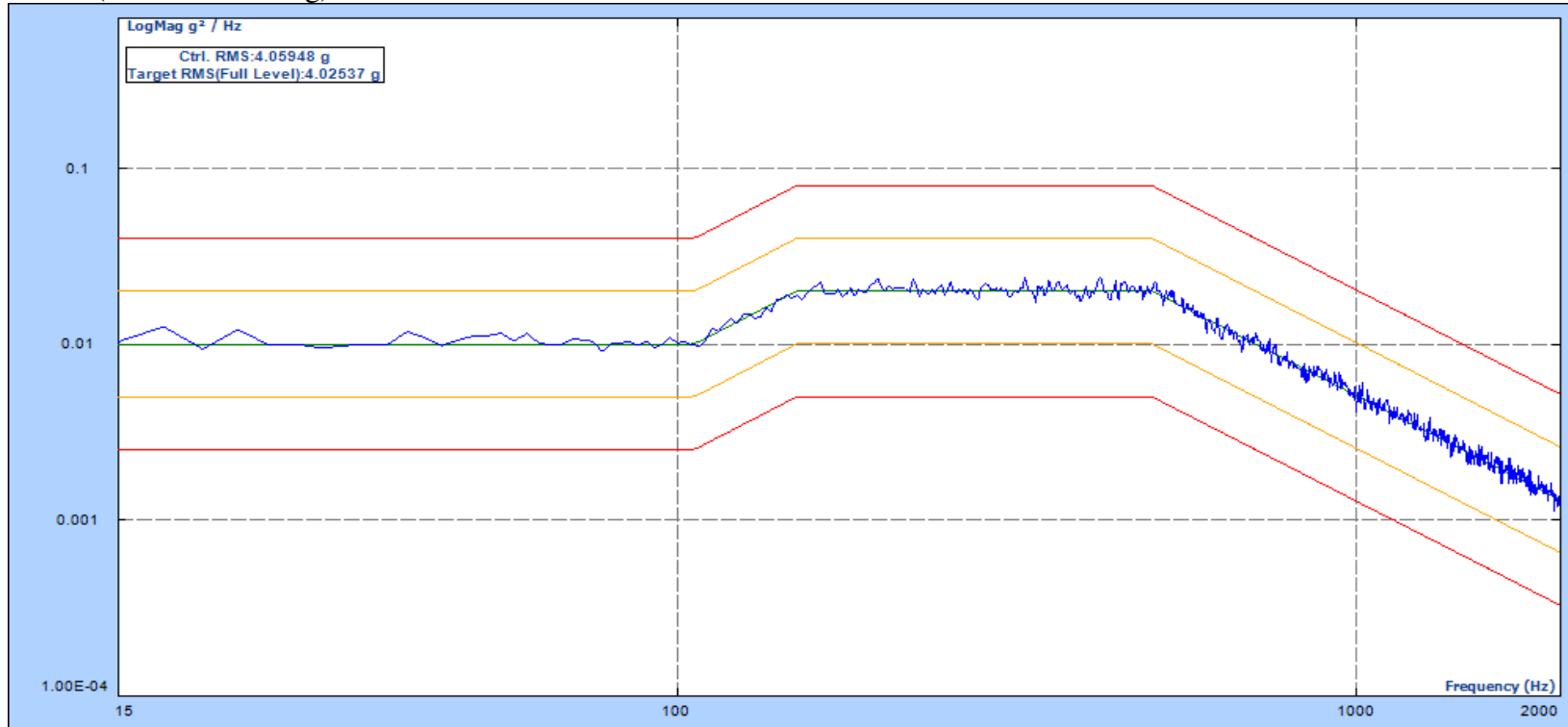


Level: 100.00 %  
Velocity Pk: 133.0 mm/s  
Remaining: 00:00:00

Drive Pk: 1.133V  
Control RMS: 4.061 g  
Total Elapsed: 01:01:02

Est. Disp. : 1.736 mm Pk-Pk  
Target RMS: 4.020 g  
Full Level Elapsed: 01:00:00

Y axis (15-2000Hz 4.02g)



Level: 100.00 %

Velocity Pk: 134.3 mm/s

Remaining: 00:00:00

Drive Pk: 1.281V

Control RMS: 4.059 g

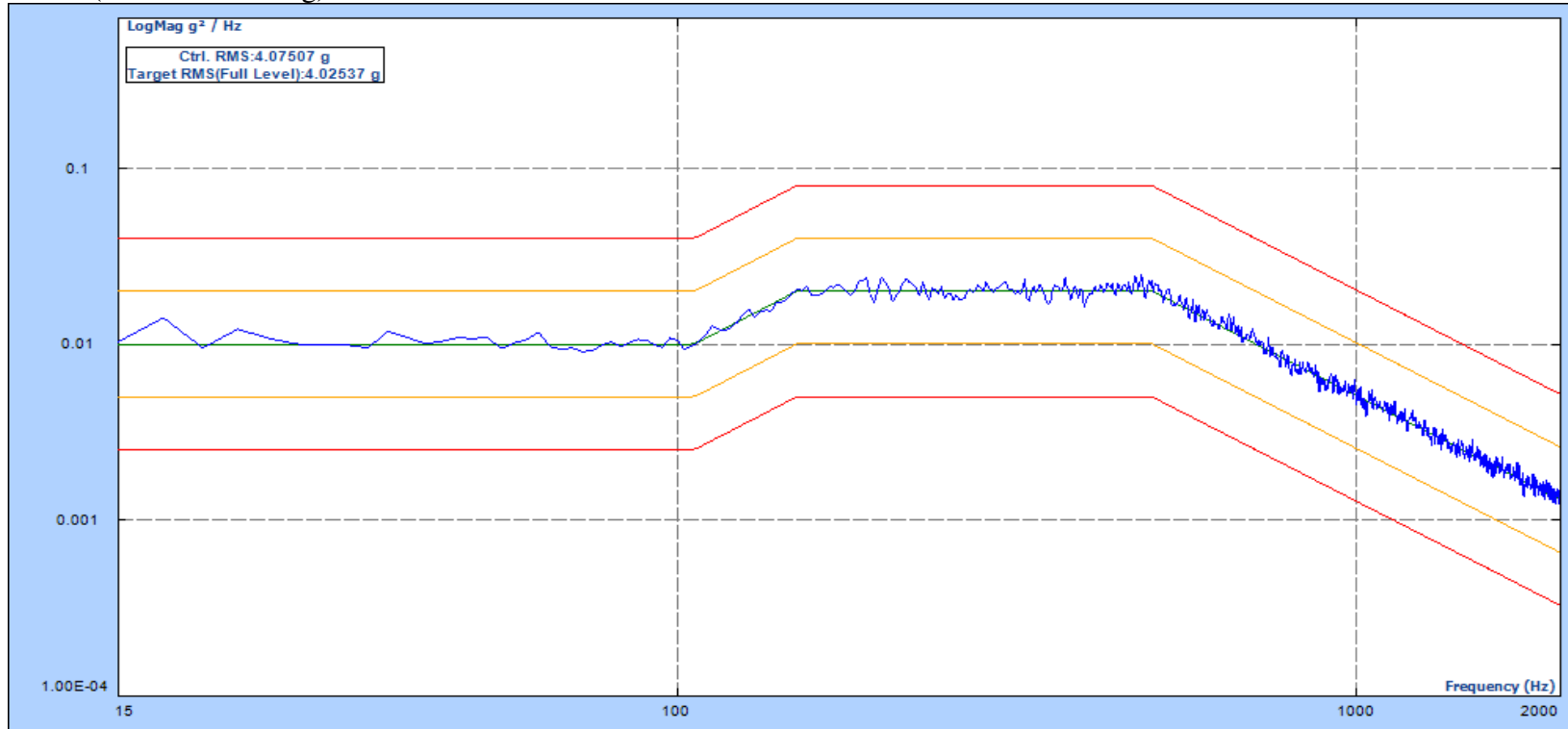
Total Elapsed: 01:01:02

Est. Disp. : 1.746 mm Pk-Pk

Target RMS: 4.020 g

Full Level Elapsed: 01:00:00

Z axis (15-2000Hz 4.02g)

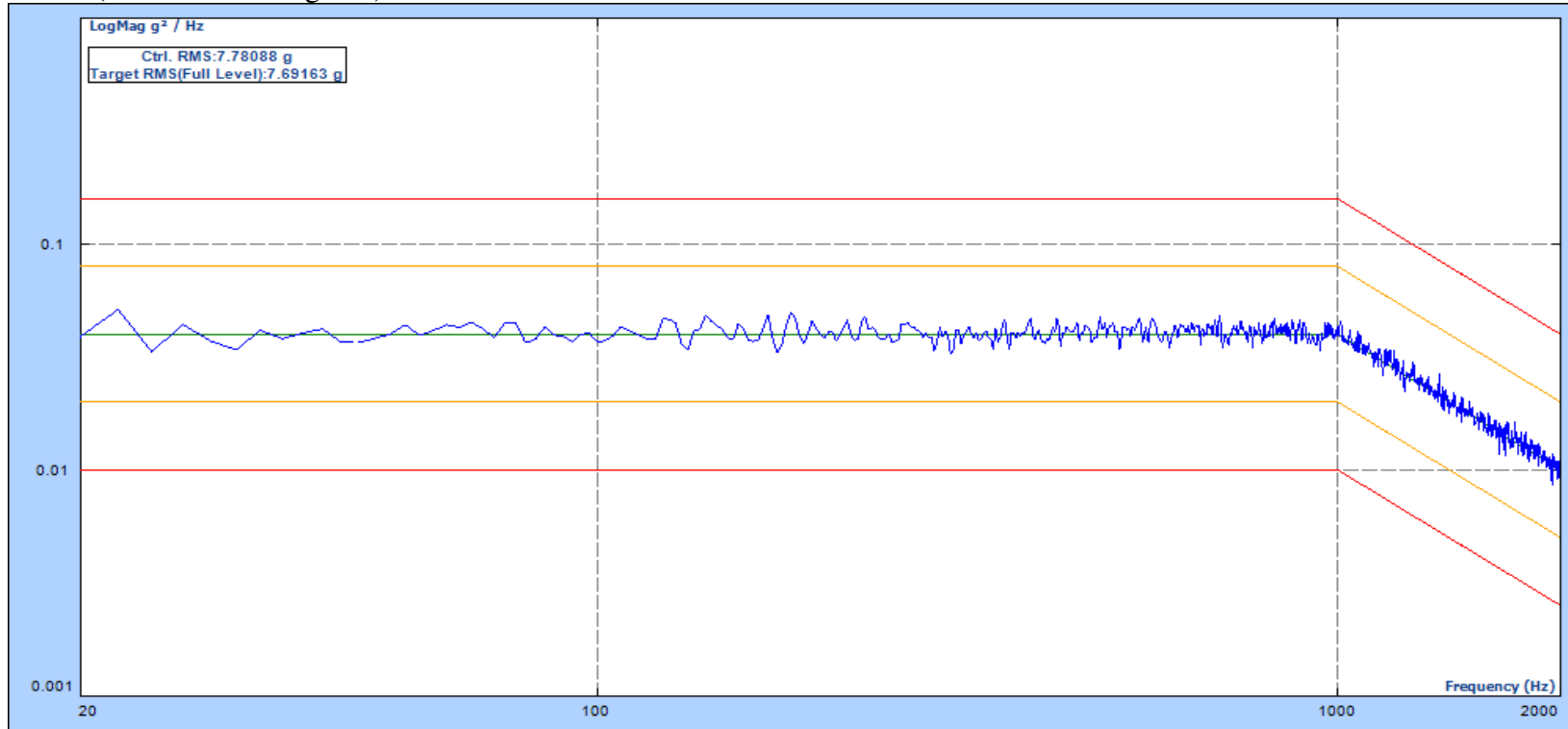


Level: 100.00 %  
Velocity Pk: 135.6 mm/s  
Remaining: 00:00:00

Drive Pk: 1.100V  
Control RMS: 4.075 g  
Total Elapsed: 01:01:02

Est. Disp. : 1.777 mm Pk-Pk  
Target RMS: 4.020 g  
Full Level Elapsed: 01:00:00

X axis (20-2000Hz 7.69g rms)

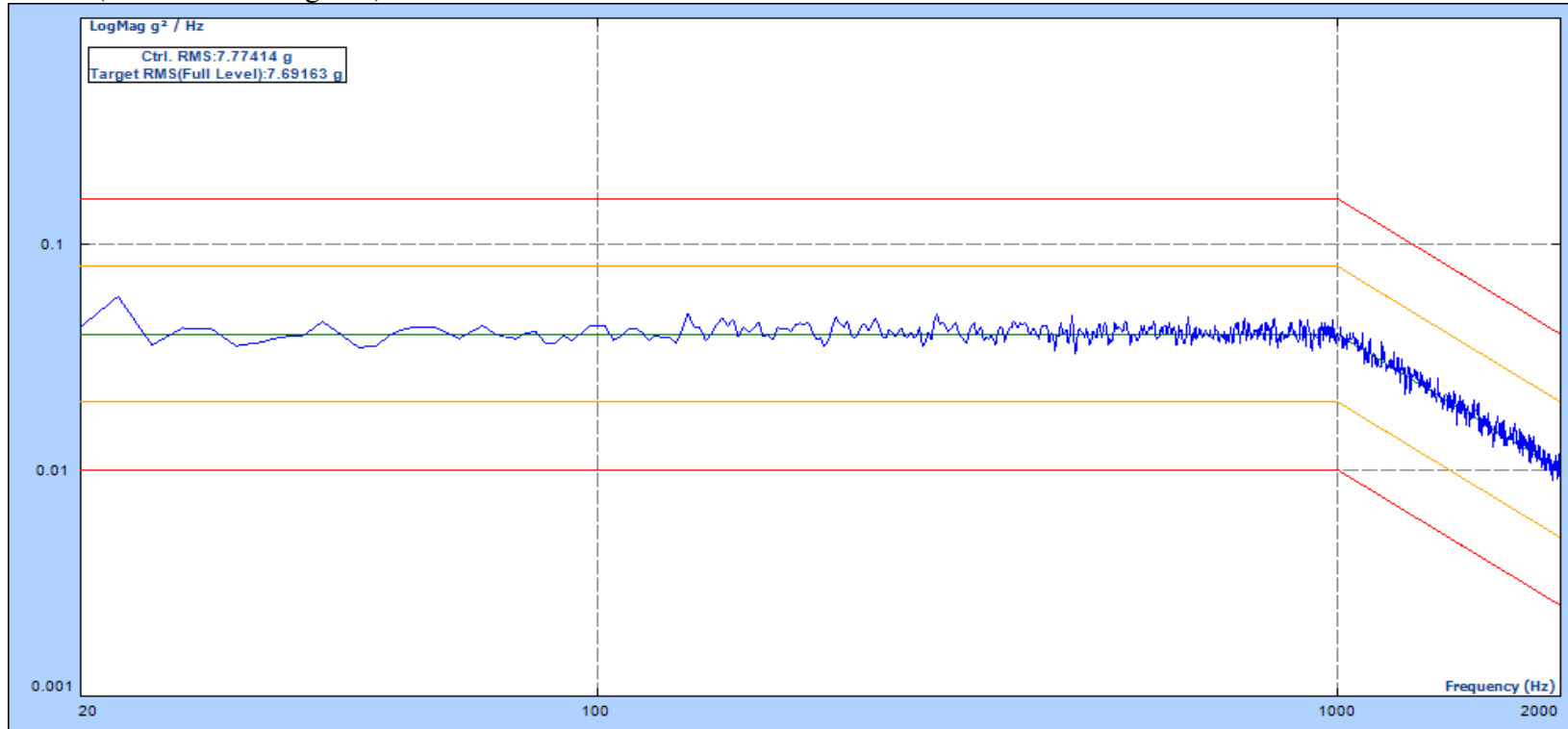


Level: 100.00 %  
 Velocity Pk: 217.0 mm/s  
 Remaining: 00:00:00

Drive Pk: 2.269V  
 Control RMS: 7.781 g  
 Total Elapsed: 01:01:03

Est. Disp. : 2.156 mm Pk-Pk  
 Target RMS: 7.690 g  
 Full Level Elapsed: 01:00:00

Y axis (20-2000Hz 7.69g rms)

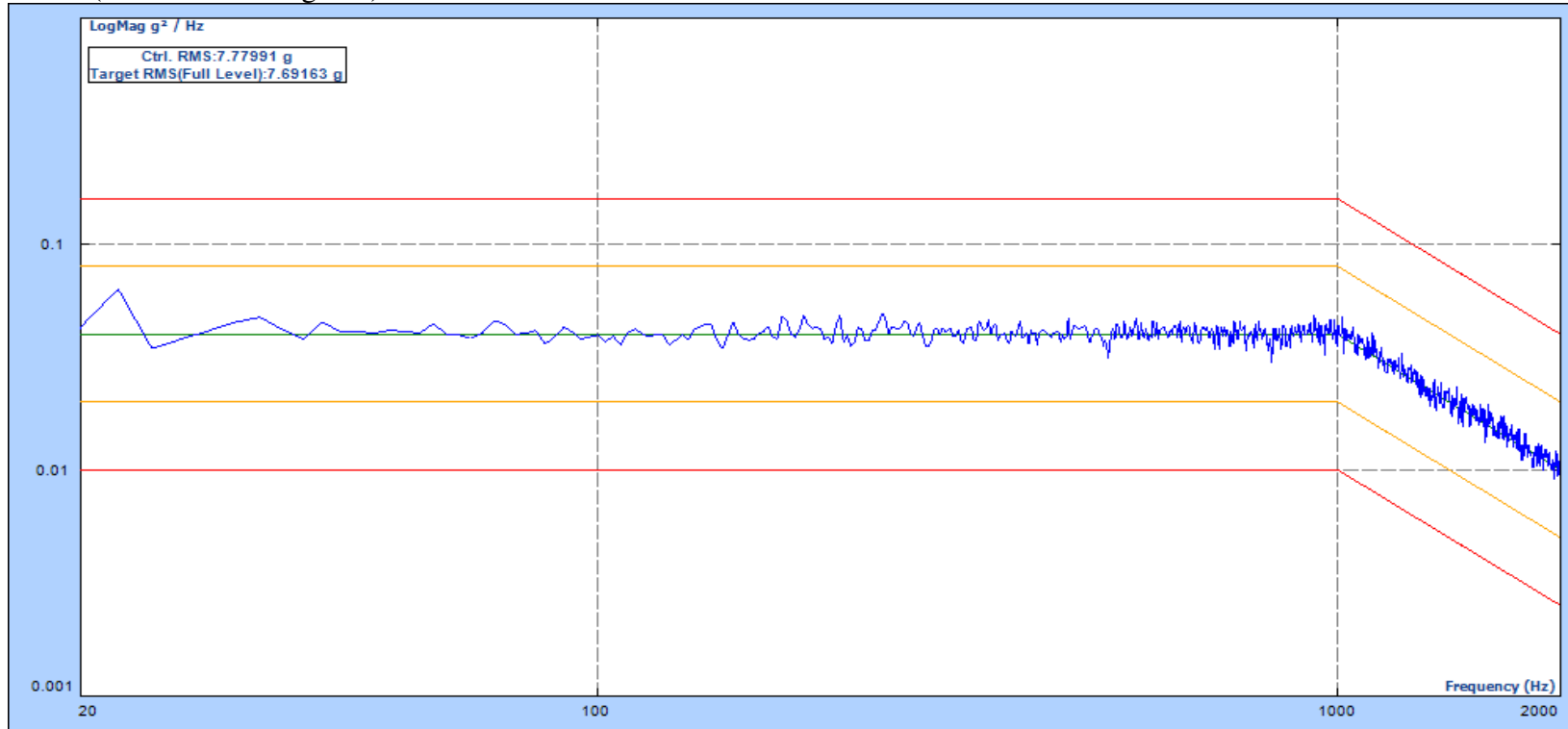


Level: 100.00 %  
 Velocity Pk: 220.8 mm/s  
 Remaining: 00:00:00

Drive Pk: 2.215V  
 Control RMS: 7.774 g  
 Total Elapsed: 01:01:03

Est. Disp. : 2.233 mm Pk-Pk  
 Target RMS: 7.690 g  
 Full Level Elapsed: 01:00:00

Z axis (20-2000Hz 7.69g rms)



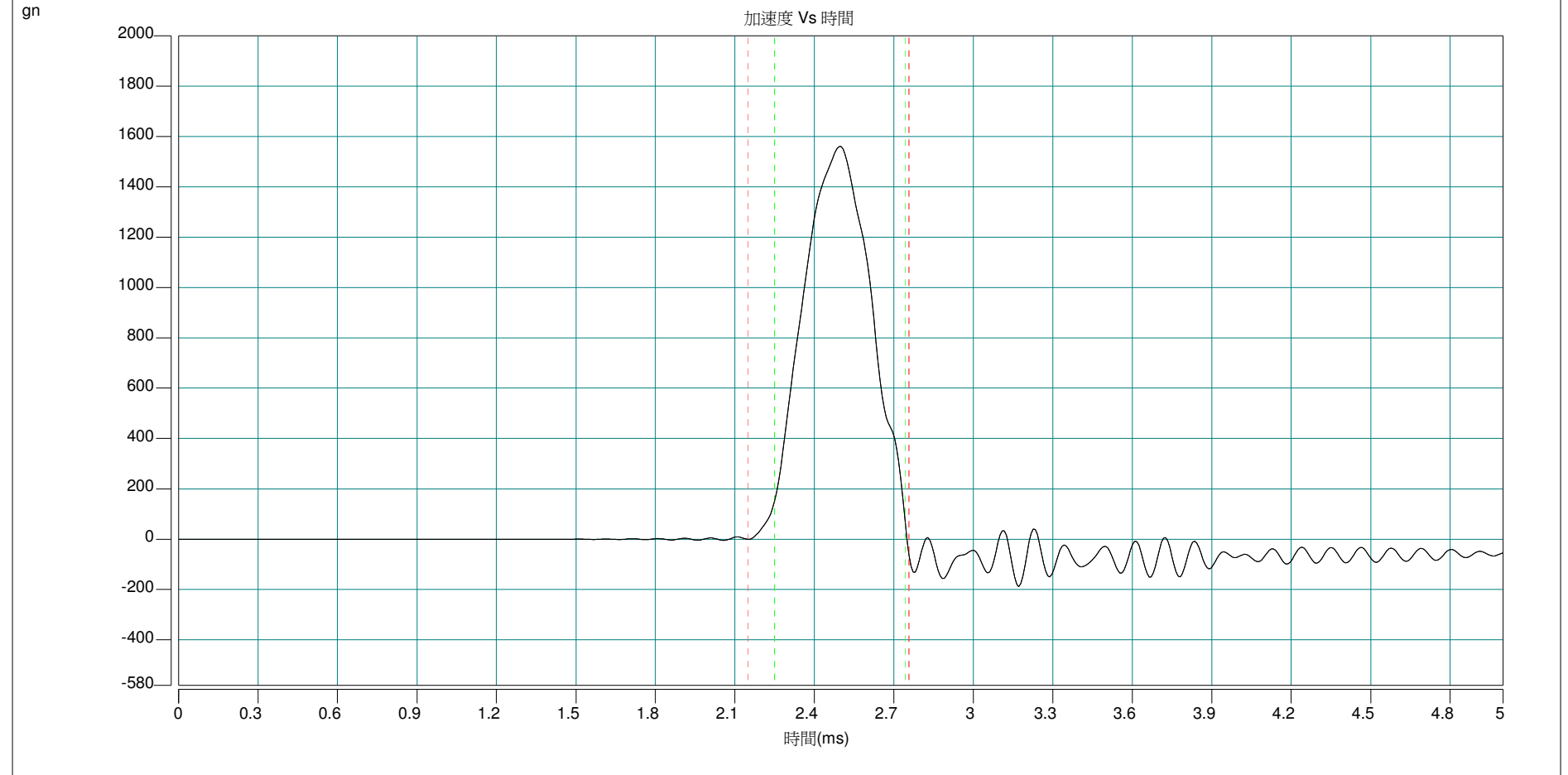
Level: 100.00 %  
 Velocity Pk: 223.2 mm/s  
 Remaining: 00:00:00

Drive Pk: 2.060V  
 Control RMS: 7.780 g  
 Total Elapsed: 01:01:04

Est. Disp. : 2.252 mm Pk-Pk  
 Target RMS: 7.690 g  
 Full Level Elapsed: 01:00:00

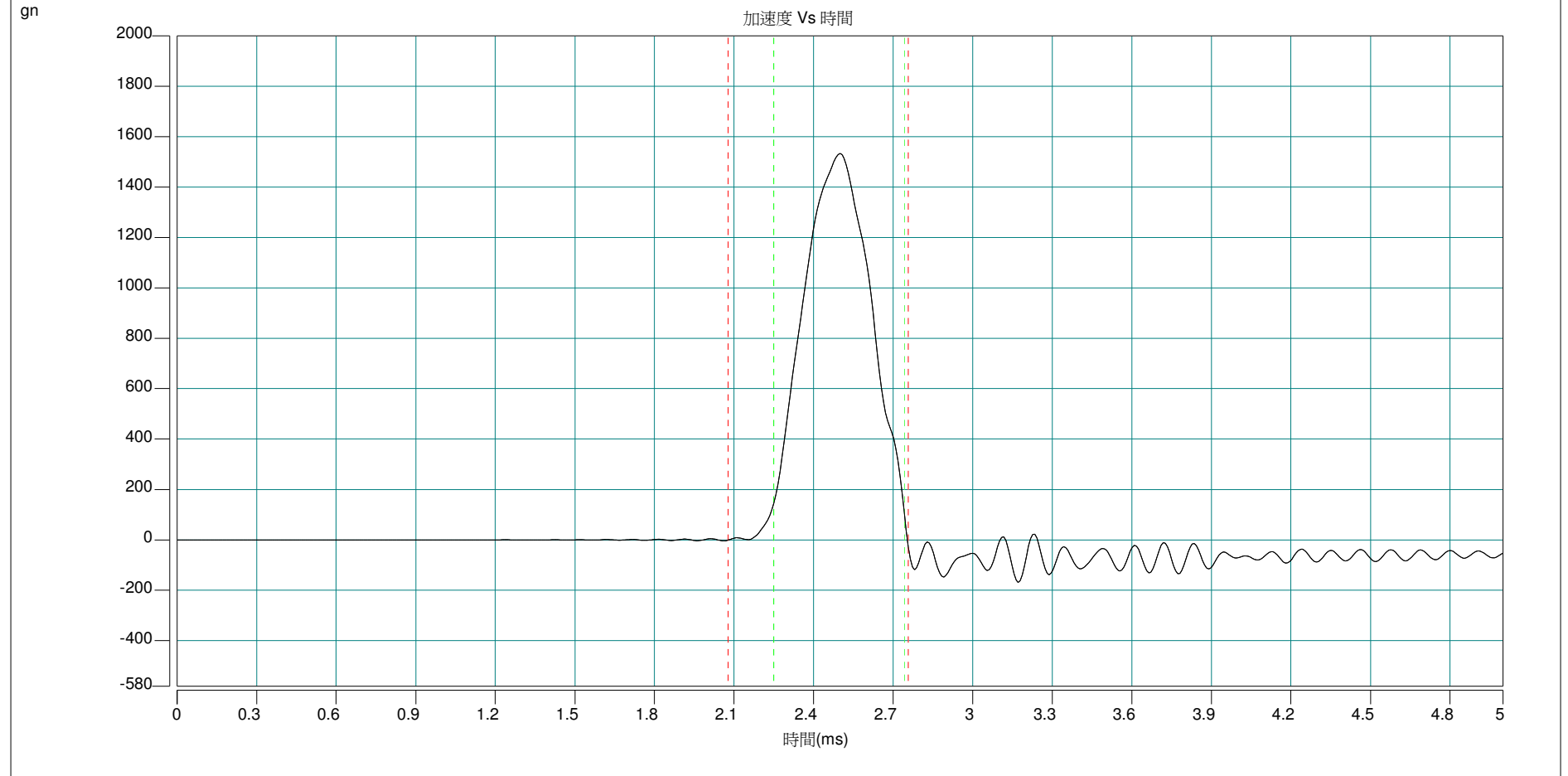
+X axis

訊號名稱	加速度(gn)	作動時間(ms)	速度變化率(In/s)	低通濾波(Hz)	最大加速度	最小加速度
Input1(t)	1561.16	0.48	182.16	10000.00	1561.16	-188.16



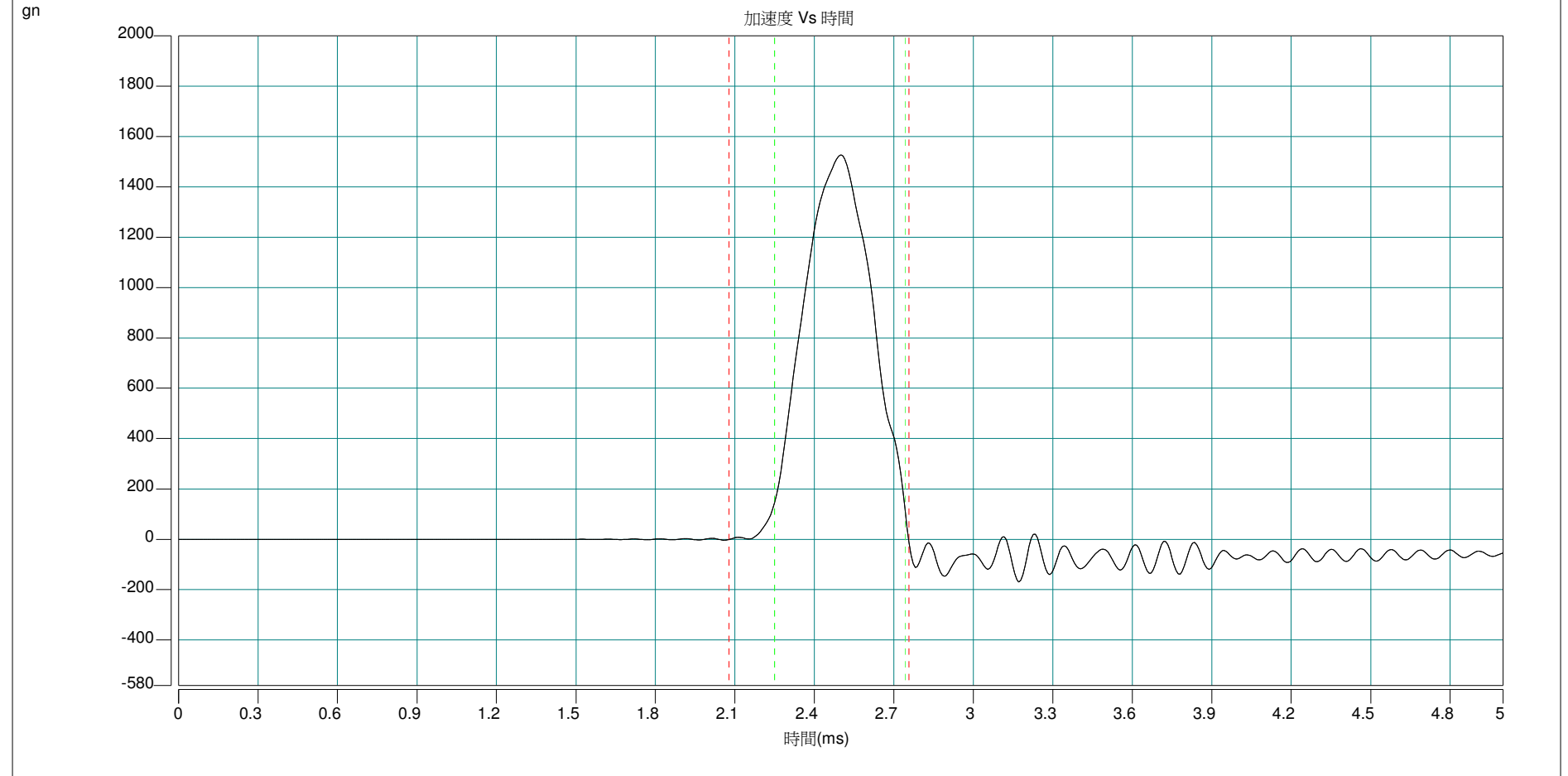
-X axis

訊號名稱	加速度(gn)	作動時間(ms)	速度變化率(In/s)	低通濾波(Hz)	最大加速度	最小加速度
Input1(t)	1533.20	0.49	179.87	10000.00	1533.20	-168.54



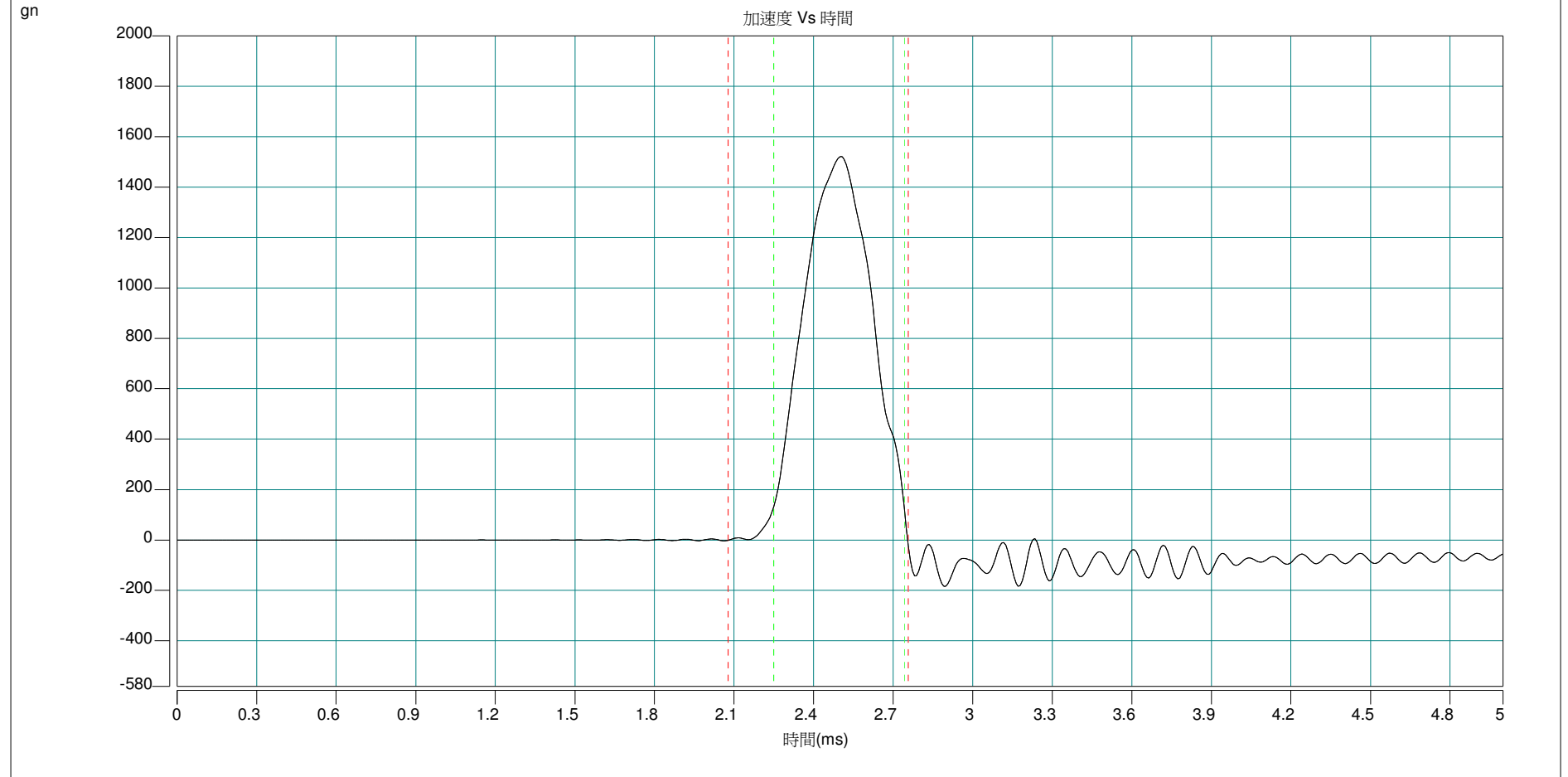
+Y axis

訊號名稱	加速度(gn)	作動時間(ms)	速度變化率(In/s)	低通濾波(Hz)	最大加速度	最小加速度
Input1(t)	1527.12	0.49	179.90	10000.00	1527.12	-169.44



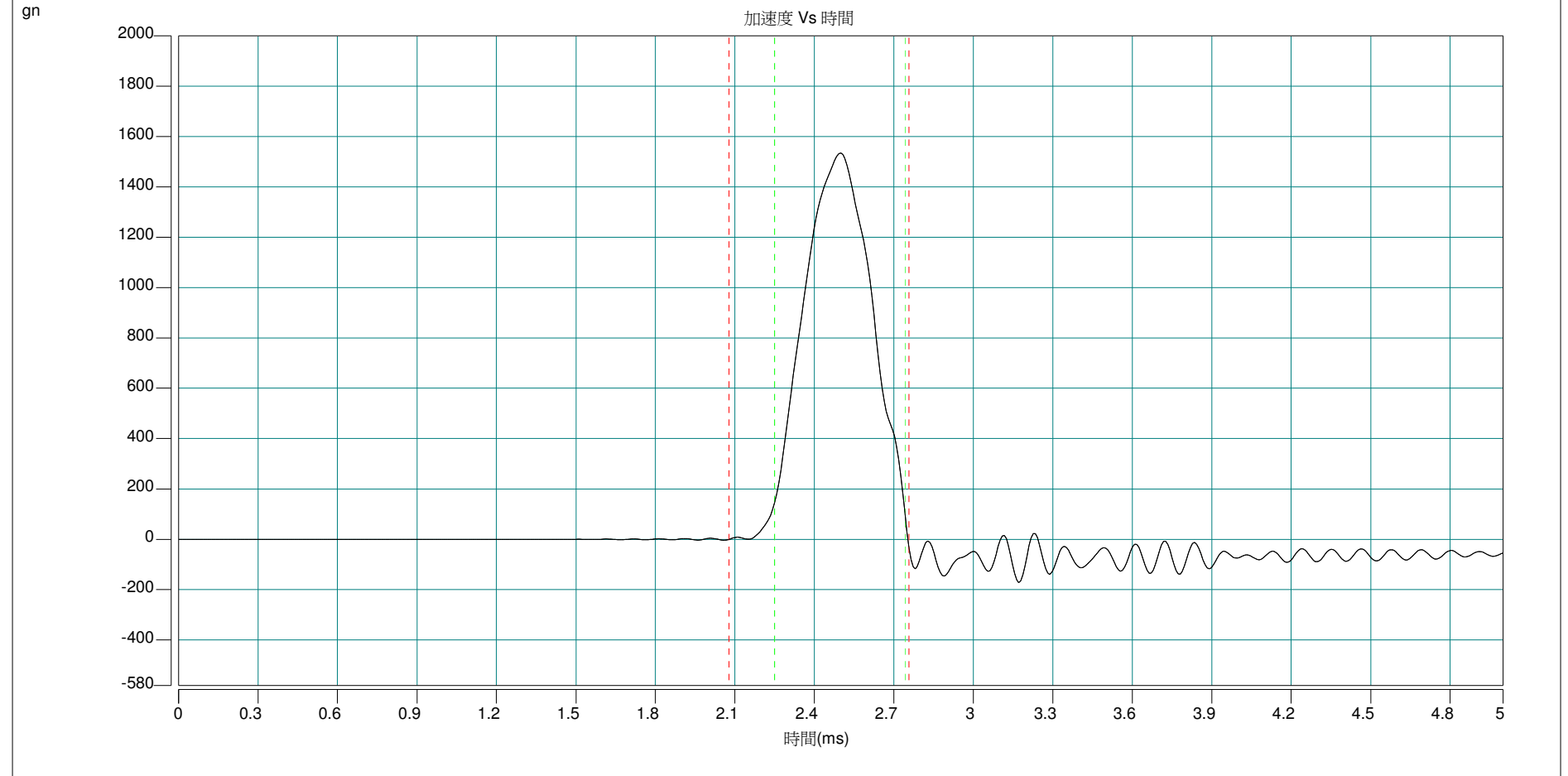
-Y axis

訊號名稱	加速度(gn)	作動時間(ms)	速度變化率(In/s)	低通濾波(Hz)	最大加速度	最小加速度
Input1(t)	1521.61	0.49	178.60	10000.00	1521.61	-184.18



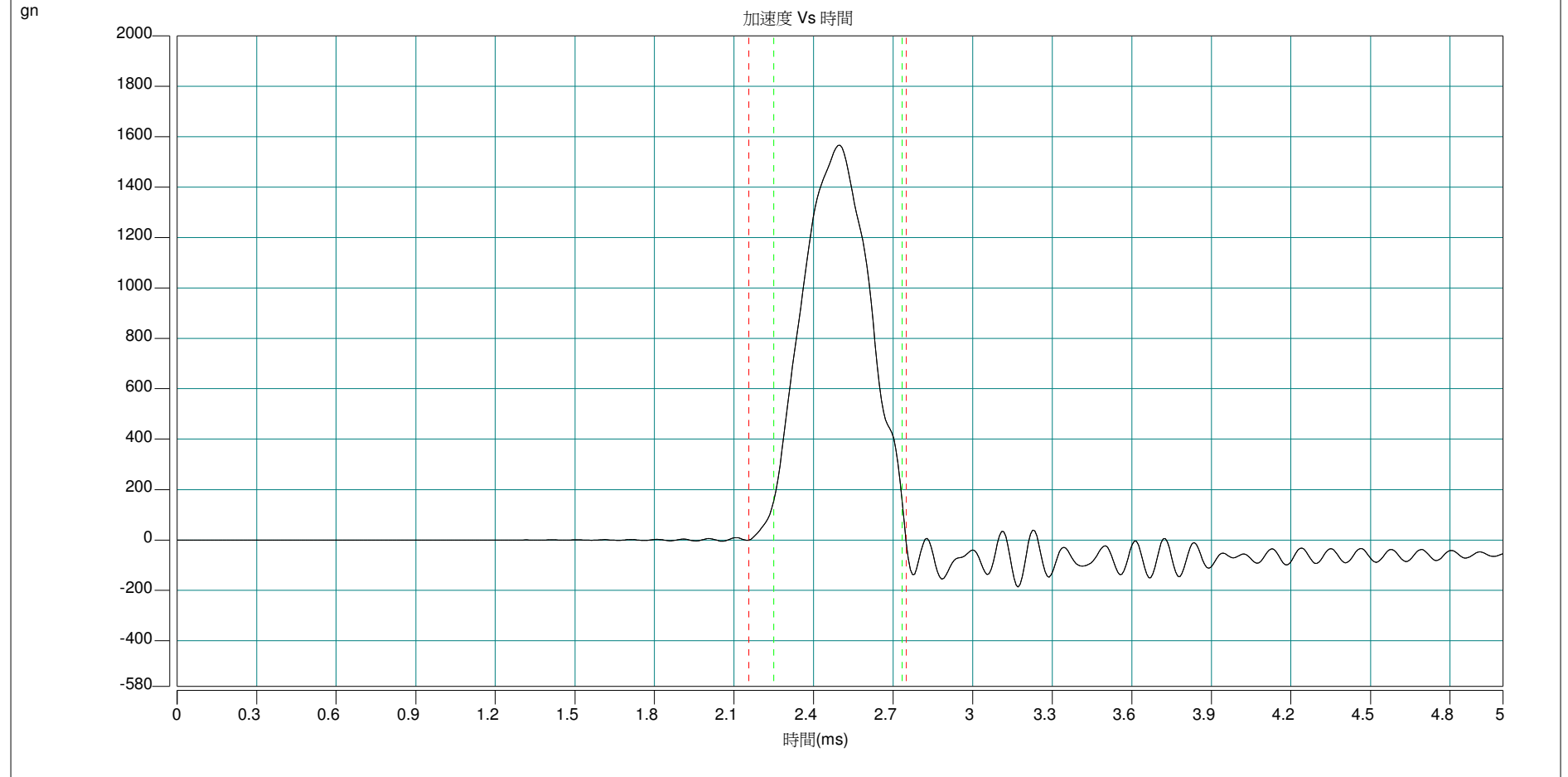
+Z axis

訊號名稱	加速度(gn)	作動時間(ms)	速度變化率(In/s)	低通濾波(Hz)	最大加速度	最小加速度
Input1(t)	1535.38	0.49	180.37	10000.00	1535.38	-171.79



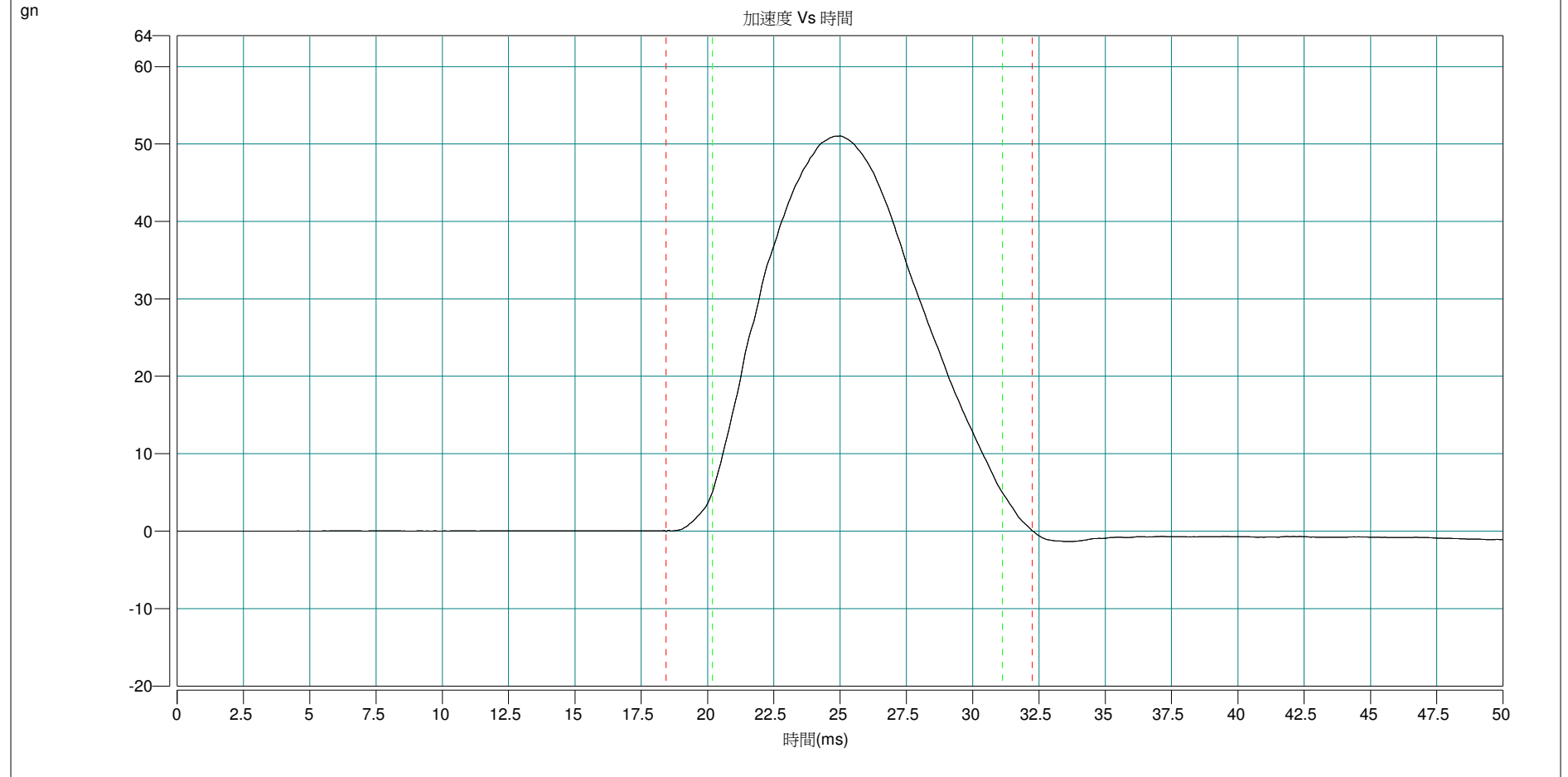
-Z axis

訊號名稱	加速度(gn)	作動時間(ms)	速度變化率(In/s)	低通濾波(Hz)	最大加速度	最小加速度
Input1(t)	1566.24	0.48	182.41	10000.00	1566.24	-186.97



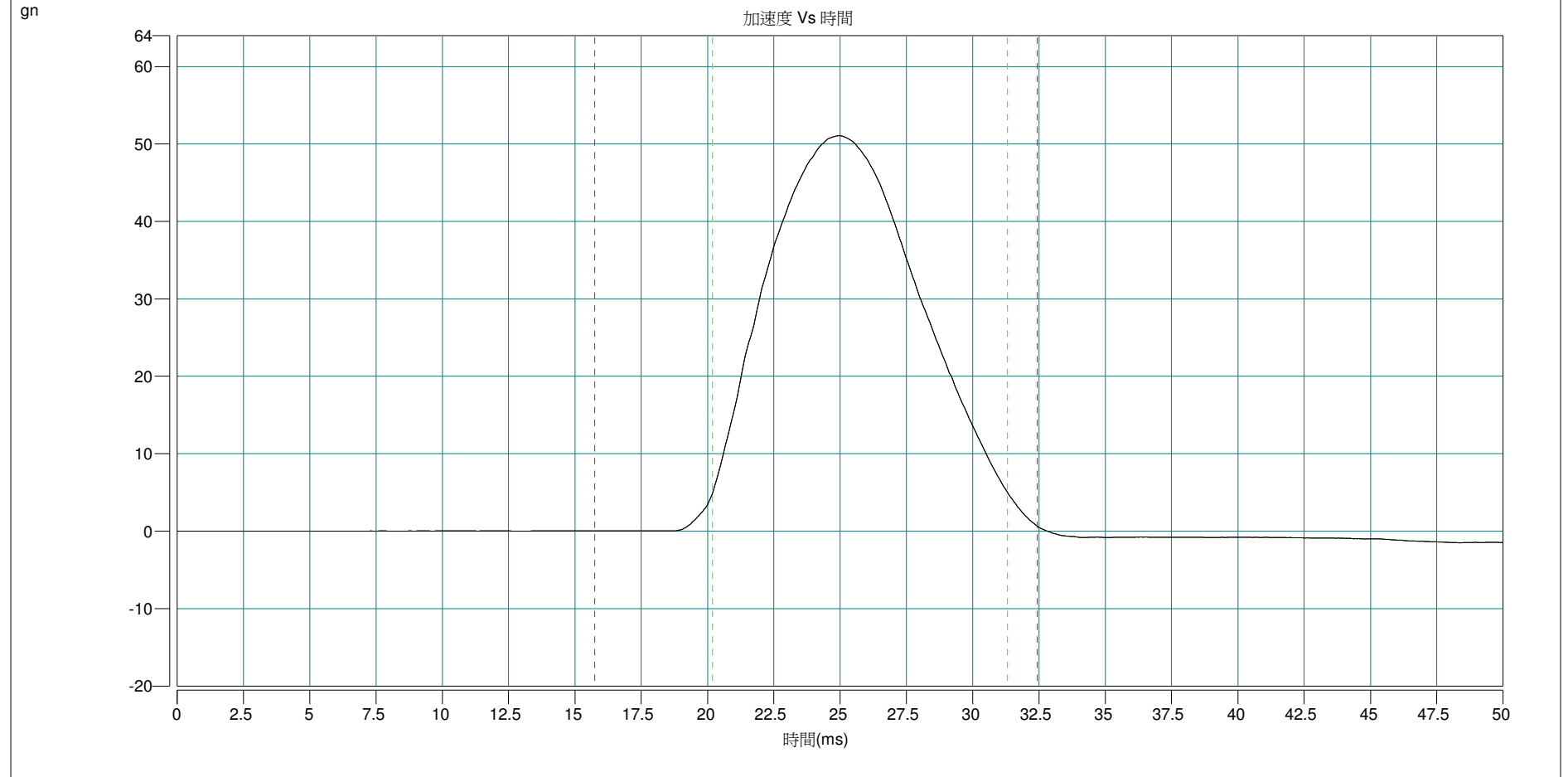
+X axis

訊號名稱	加速度(gn)	作動時間(ms)	速度變化率(In/s)	低通濾波(Hz)	最大加速度	最小加速度
Input1(t)	51.04	10.91	135.20	500.00	51.04	-1.34



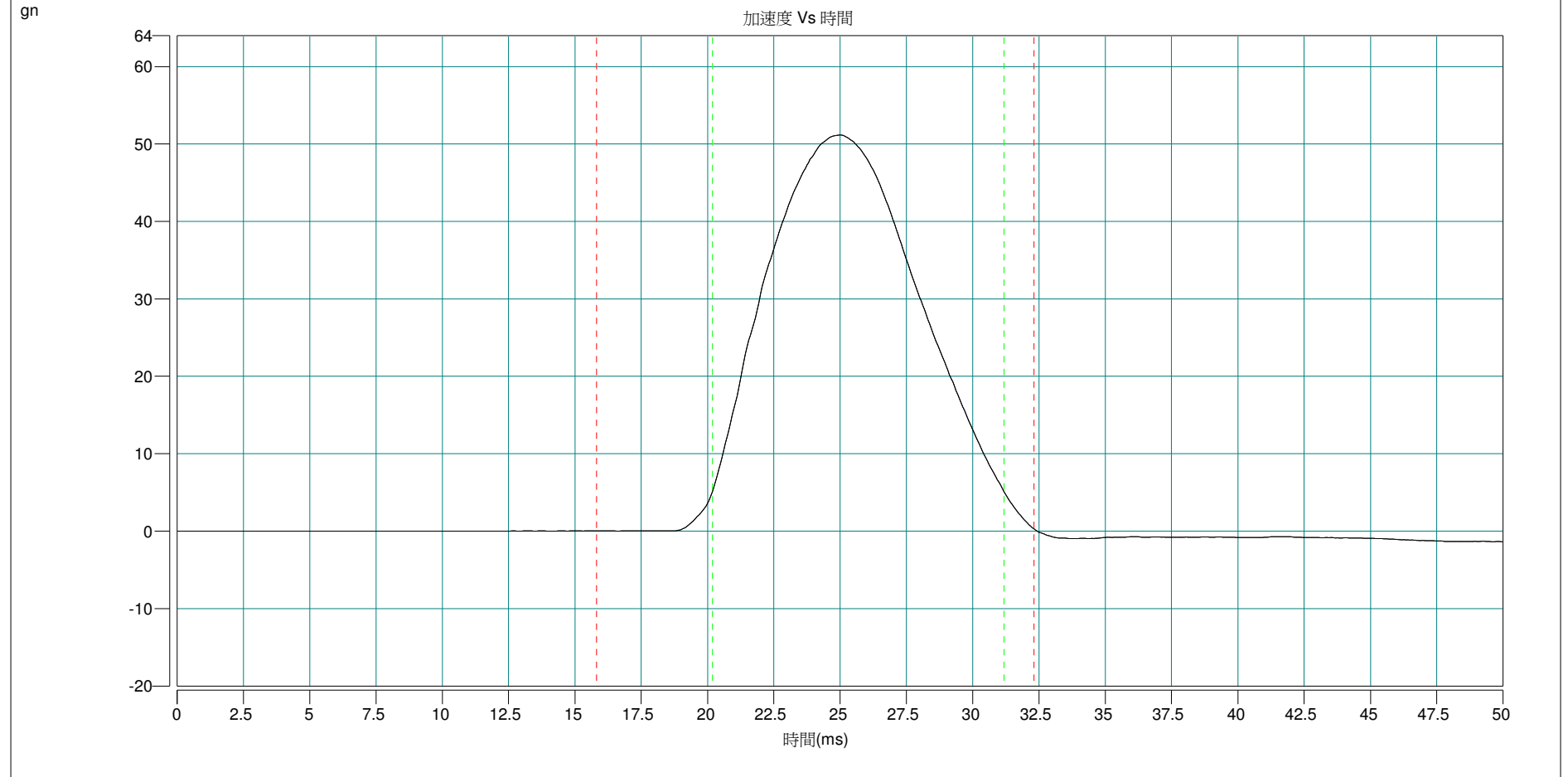
-X axis

訊號名稱	加速度(gn)	作動時間(ms)	速度變化率(In/s)	低通濾波(Hz)	最大加速度	最小加速度
Input1(t)	51.09	11.08	136.61	500.00	51.09	-1.50



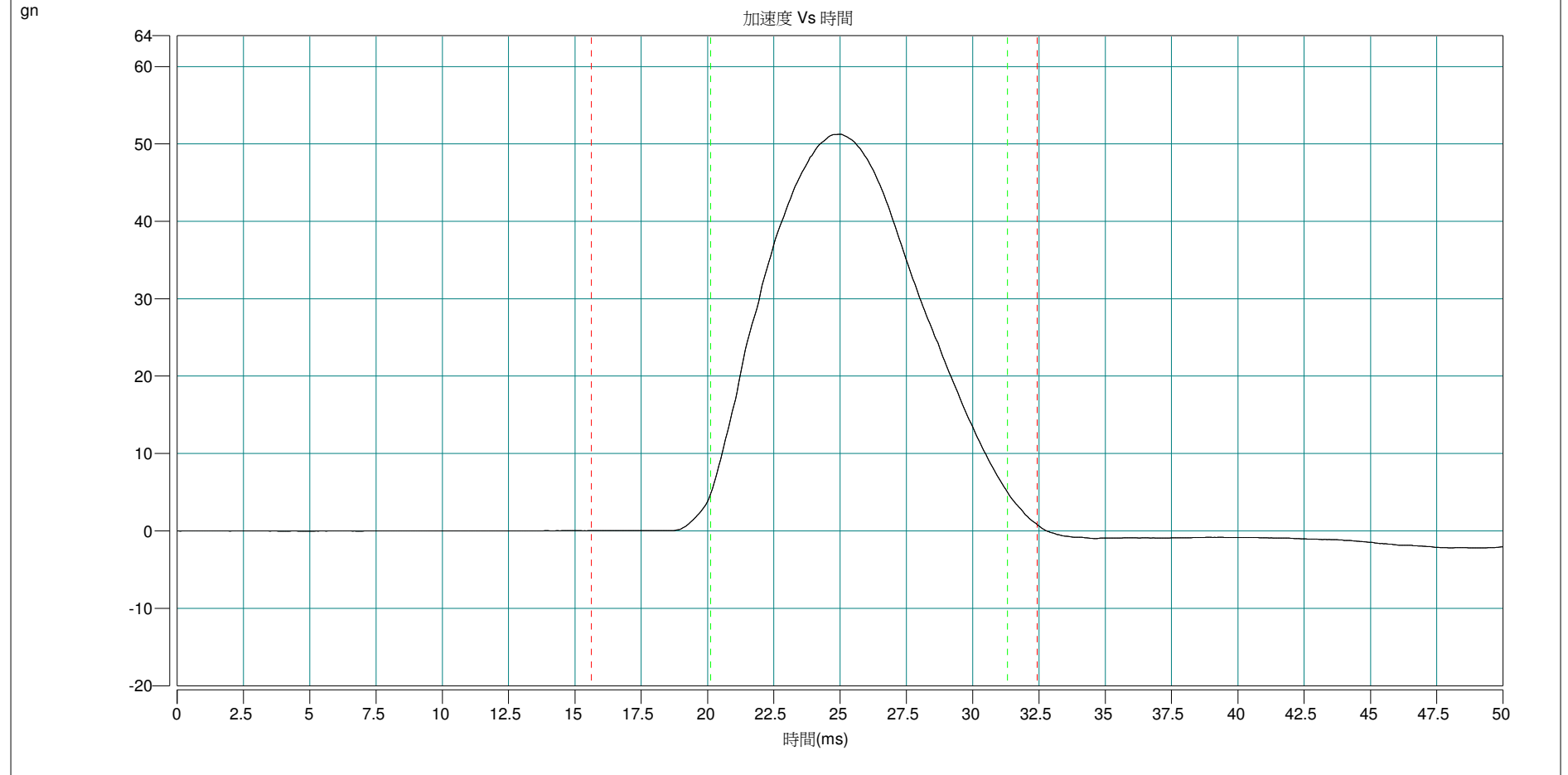
+Y axis

訊號名稱	加速度(gn)	作動時間(ms)	速度變化率(In/s)	低通濾波(Hz)	最大加速度	最小加速度
Input1(t)	51.19	11.00	135.96	500.00	51.19	-1.36



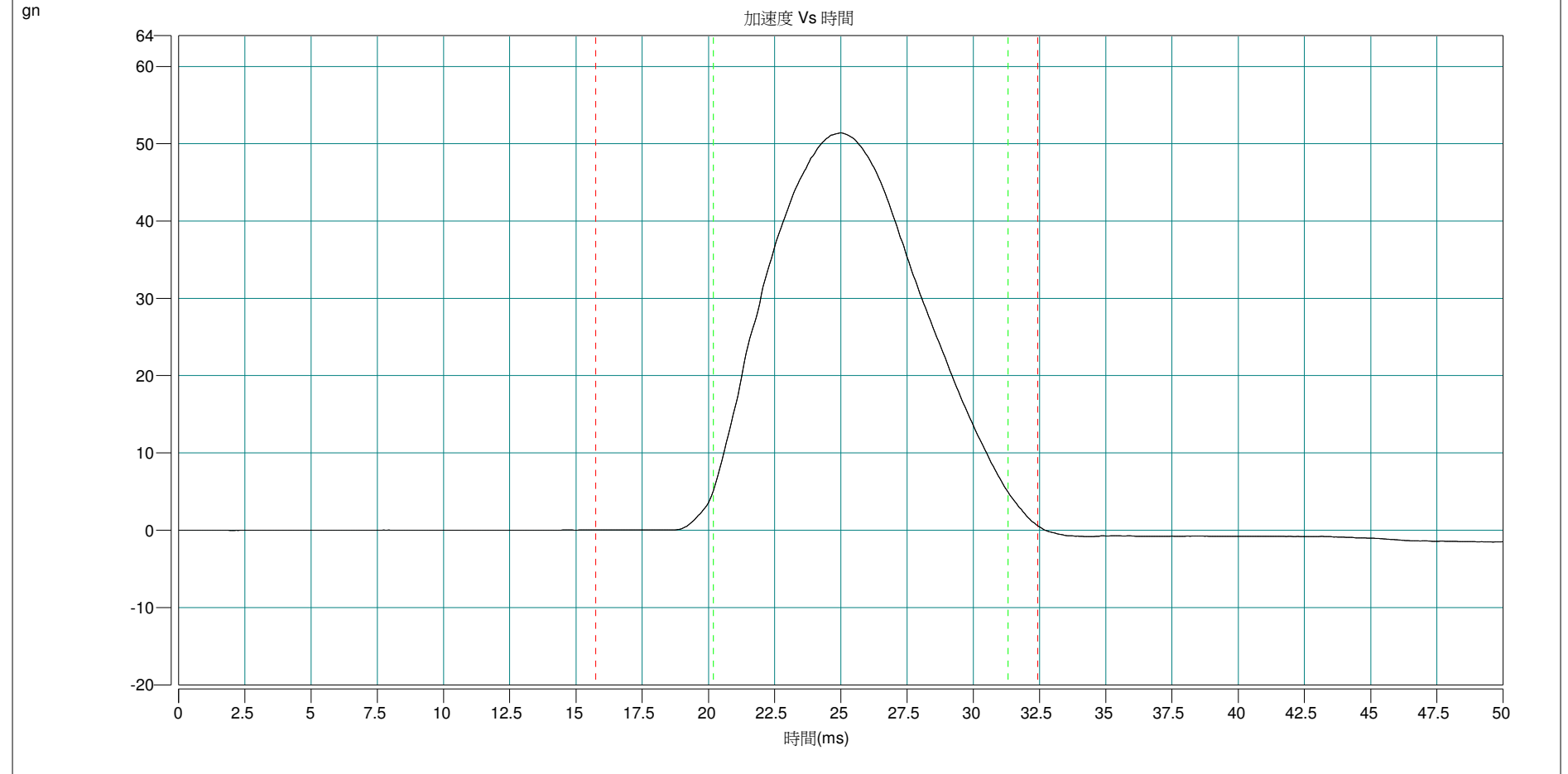
-Y axis

訊號名稱	加速度(gn)	作動時間(ms)	速度變化率(In/s)	低通濾波(Hz)	最大加速度	最小加速度
Input1(t)	51.28	11.13	137.32	500.00	51.28	-2.21



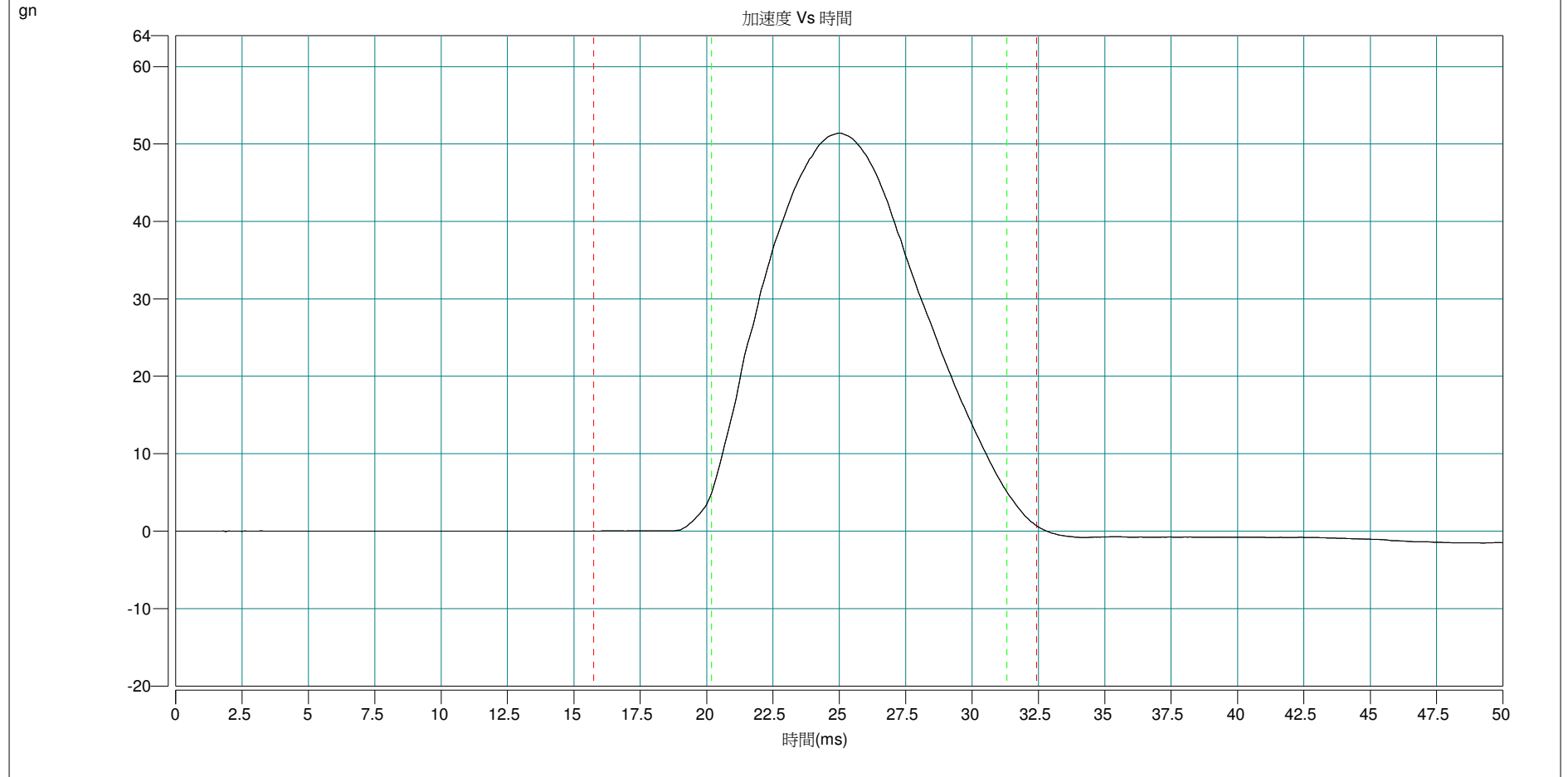
+Z axis

訊號名稱	加速度(gn)	作動時間(ms)	速度變化率(In/s)	低通濾波(Hz)	最大加速度	最小加速度
Input1(t)	51.43	11.08	137.24	500.00	51.43	-1.53



-Z axis

訊號名稱	加速度(gn)	作動時間(ms)	速度變化率(In/s)	低通濾波(Hz)	最大加速度	最小加速度
Input1(t)	51.42	11.09	137.29	500.00	51.42	-1.53



-END-