KING DESIGN®
Reliability & Communication Testing Instruments
KING DESIGN INDUSTRIAL CO., LTD.
VIBRATION TEST LABORATORY
4F,NO. 3, Lane 270, Pei Shen Road Sec. 3,
Shen Keng Dist., New Taipei City, 222, Taiwan, R.O.C
TEL: 886-2-2662-5100 FAX: 886-2-2662-3094
http: //www.kdi.tw
http://www.vibration.com.tw
E-mail:service@kdi.tw

TESTING / INSPECTION REPORT

REPORT NO：VT-190625-4

COMPANY ：Apacer Technology Inc.
ADDRESS ：1F., No.32, Zhongcheng Rd., Tucheng Dist.,
New Taipei City 236, Taiwan (R.O.C)
TEL ：886-2-2267-8000
FAX ：886-2-2267-2261
SPECIMEN ：M.2(NGFF) Solid State Drive
DATE OF RECEIVED ：2019/06/13
DATE OF TESTED ：2019/06/17

TEST / INSPECTION ITEMS：Vibration / Shock Test

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.

金頓科技

Test Engineer：Peter Peng	
Approval Signatory：2019.7.1 David Lee	Laboratory Head：Hsin Tai Chang

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TESTING EQUIPMENT：

1.Vibration Tester	：KING DESIGN KD-9363EM-600F2K-50N120, S/N：KDS11054783
2.Controller	：VCS-913+, S/N：1312416
3.Control Accelerometer	：Wilcoxon Research WR-777, S/N：4208
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	：DAS-105, S/N：263210255
9.Accelerometer	：DYTRAN Model：3200B6 S/N：8594

TEST ENVIRONMENT：

Temperature	：25℃ (25±10℃)
Relative Humidity	：65% RH (50±25% RH)

SPECIMEN：

Model	：SX230-M280
Quantity	：1 unit

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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^2/Hz (15Hz)
	0.01 g^2/Hz (105.94Hz)
	+6 dB/Oct (105.94Hz to 150Hz)
	0.02 g^2/Hz (150Hz)
	0.02 g^2/Hz (500Hz)
	-6 dB/Oct (500Hz to 2,000Hz)
	0.0013 g^2/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^2/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

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TEST SPECIFICATION(3)：

Comply with MIL-STD-883K Method 2002.5

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 ：±X, ±Y, ±Z axis

TEST SPECIFICATION(4)：

Comply with MIL-STD-202G,Method 213B

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

TEST RESULT：

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

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TESTING / INSPECTION REPORT

Sample photo before the test
Front

Back


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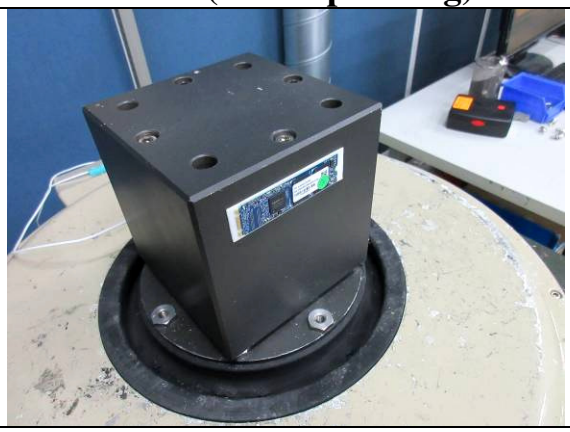
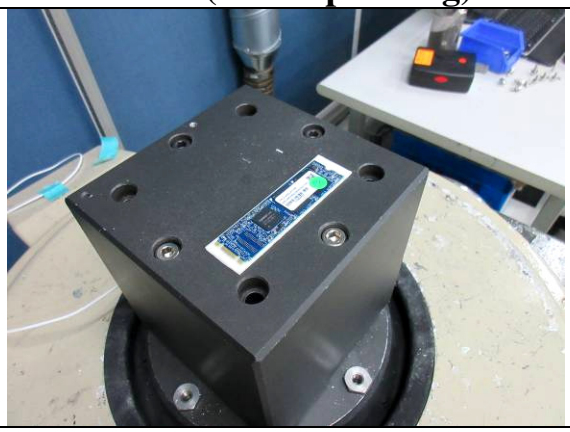
TESTING / INSPECTION REPORT

Vibration testing photos	
X axis (Operating)	X axis (Non-Operating)
	
Y axis (Operating)	Y axis (Non-Operating)
	
Z axis (Operating)	Z axis (Non-Operating)
	

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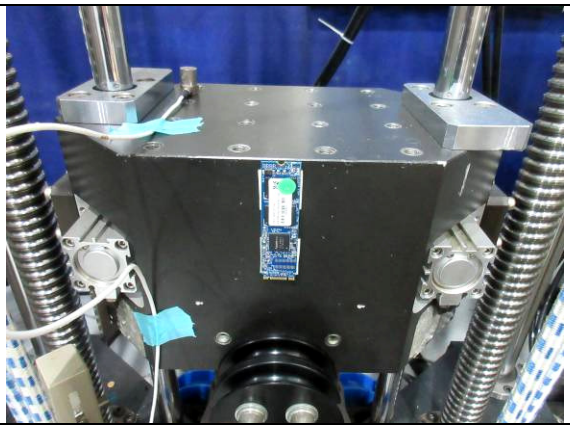
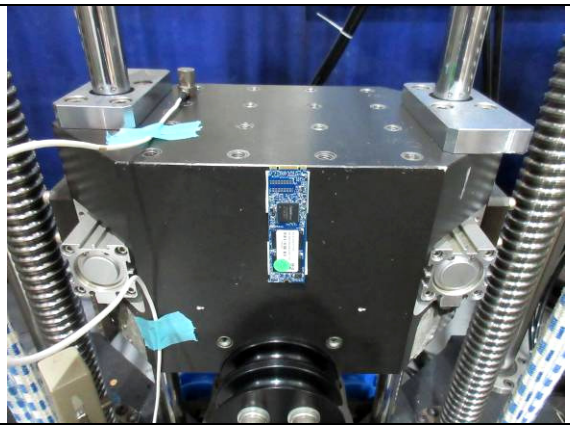
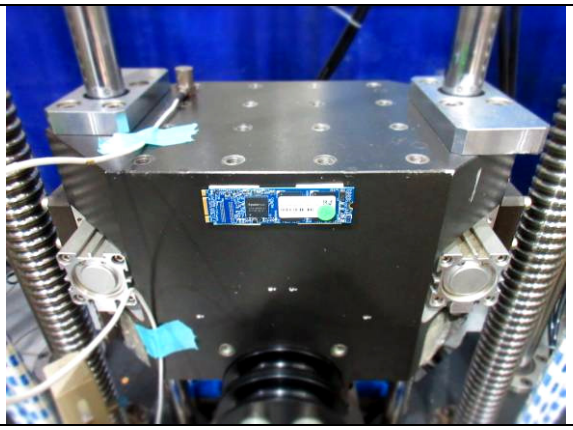
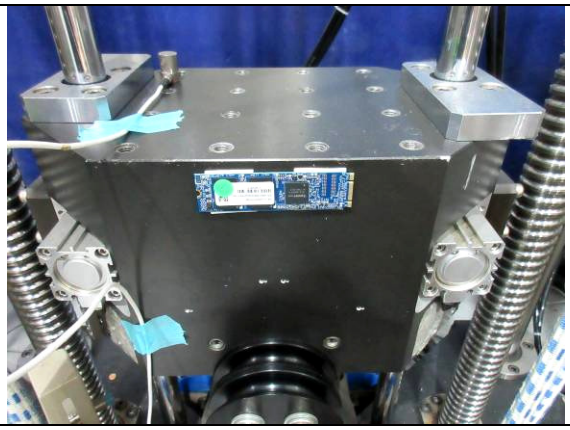
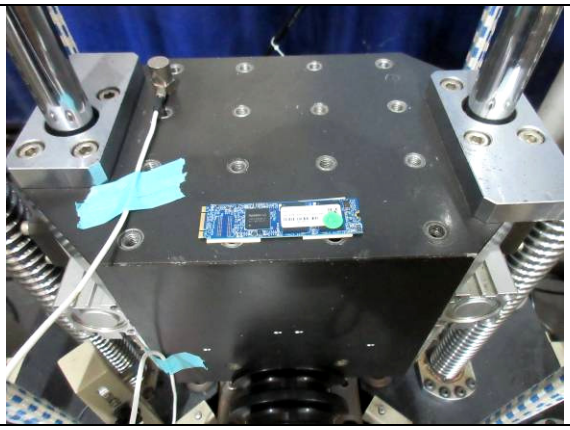
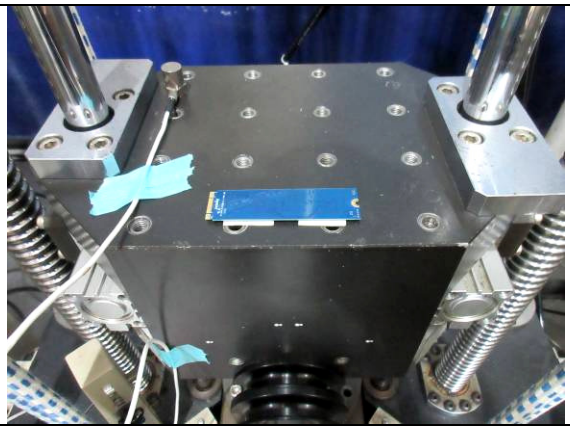
TESTING / INSPECTION REPORT

Shock testing photos (Non-operating)	
+X axis	-X axis
	
+Y axis	-Y axis
	
+Z axis	-Z axis
	

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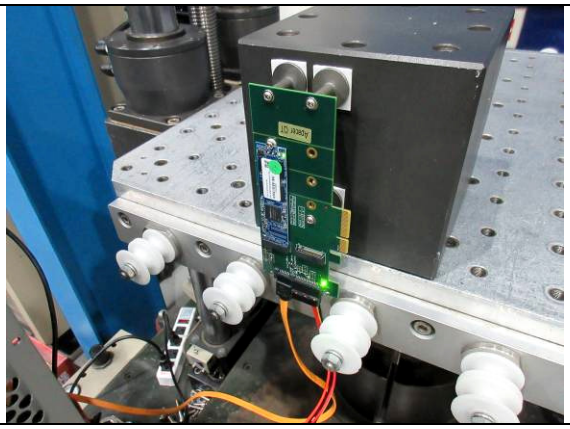
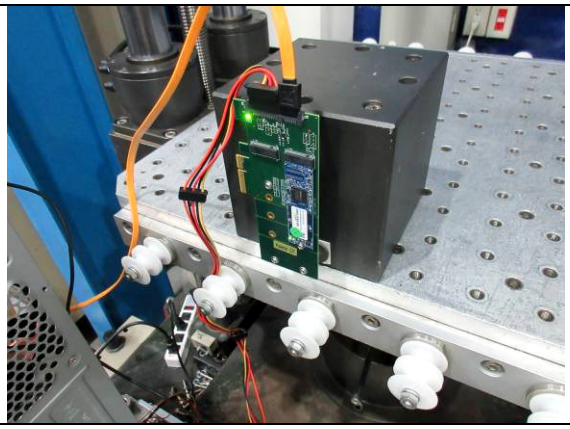
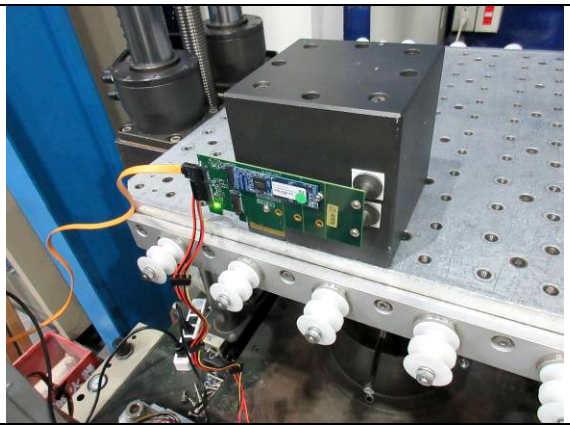
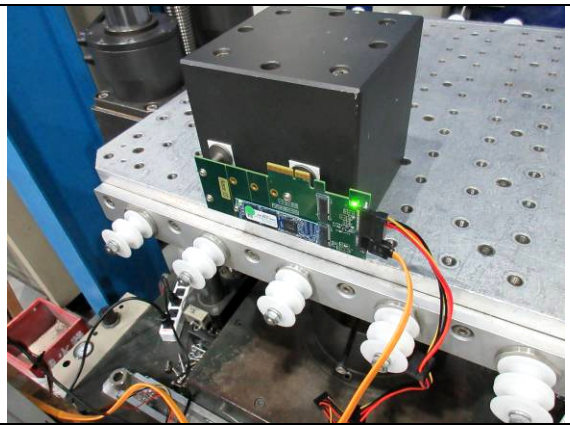
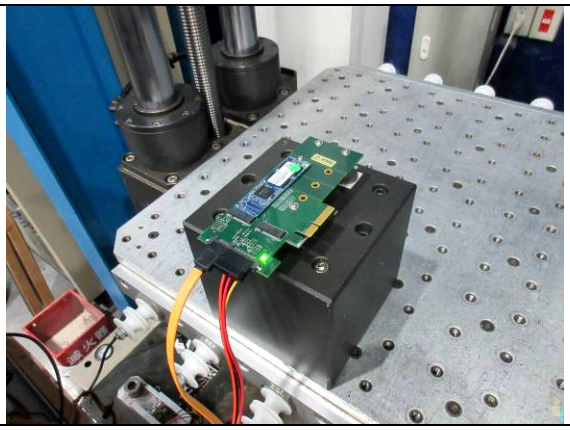
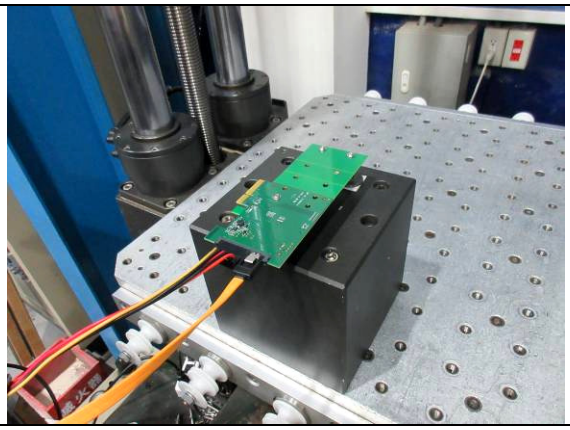
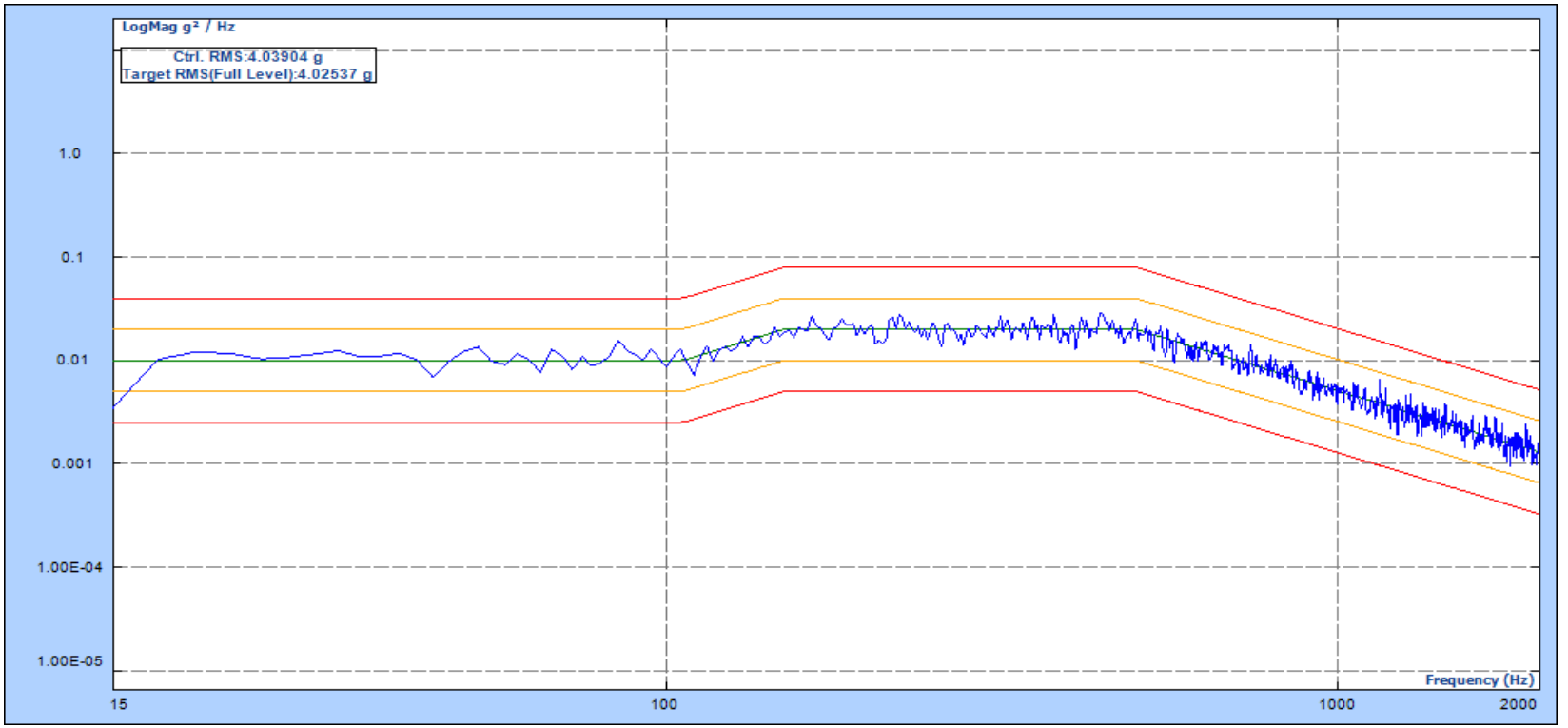
Shock testing photos (Operating)

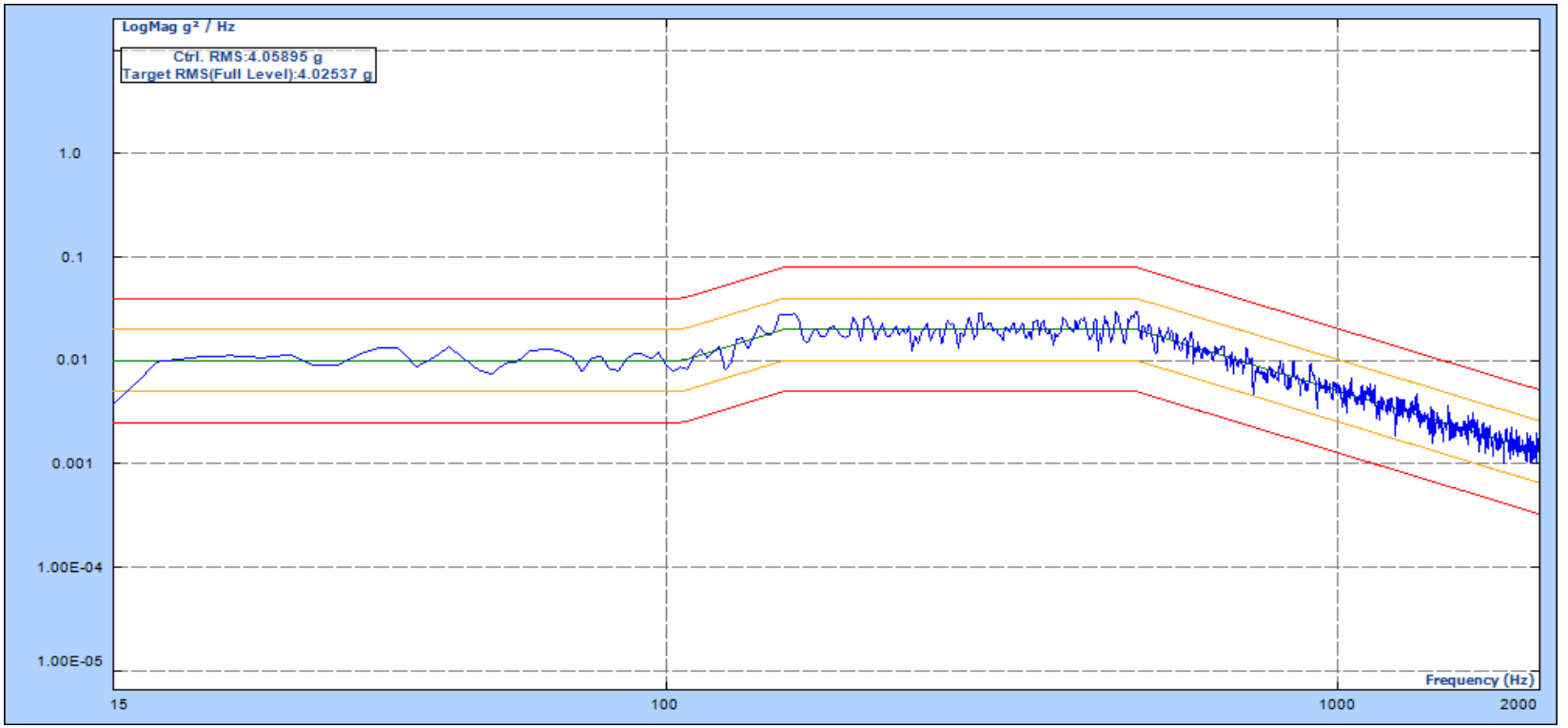
+X axis	-X axis
	
+Y axis	**-Y axis**
	
+Z axis	**-Z axis**
	

X axis



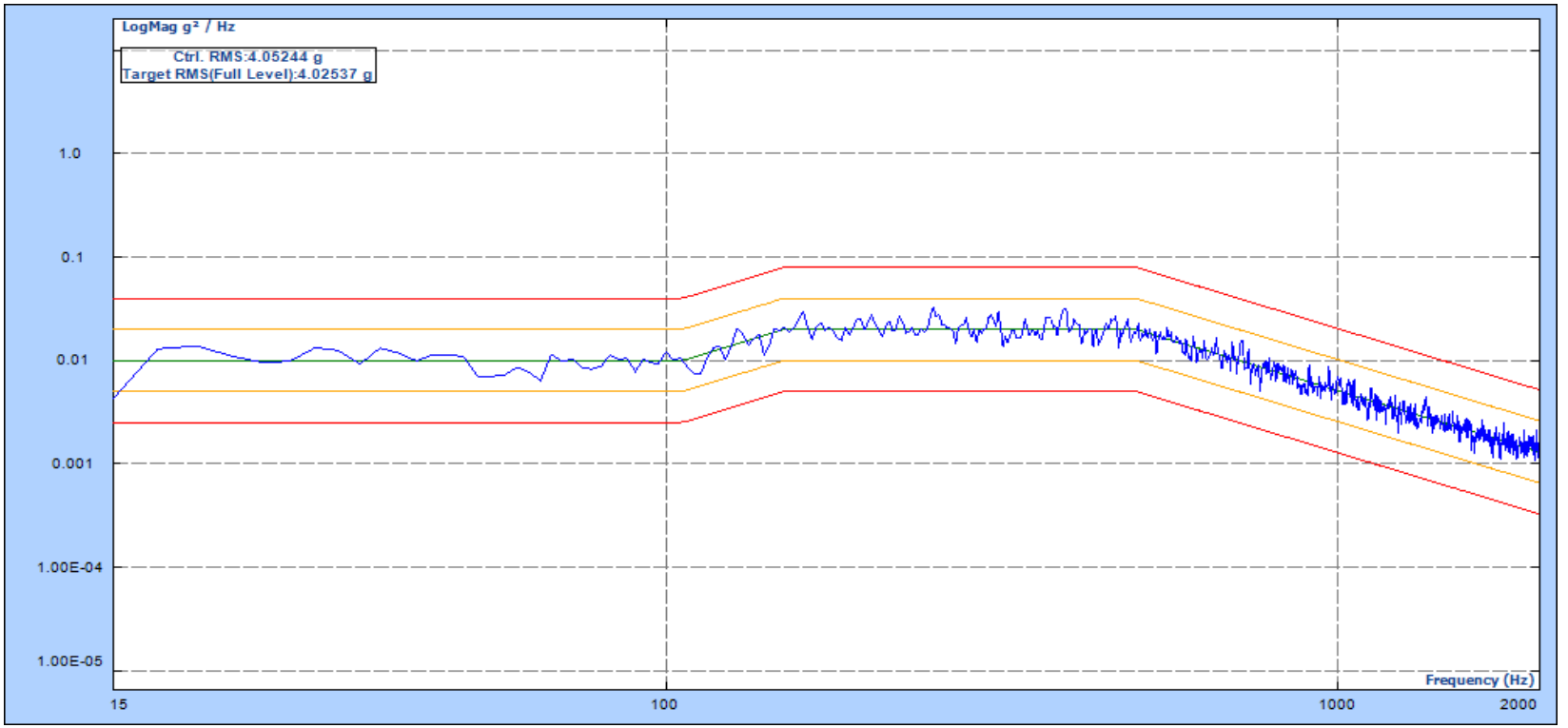
Level: 100.00 %
Drive Pk: 0.862V
Est. Disp. : 1.511 mm Pk-Pk
Velocity Pk: 0.129 m/s
Control RMS: 4.039 g
Target RMS: 4.020 g
Remaining: 00:00:00
Total Elapsed: 01:00:59
Full Level Elapsed: 01:00:00

Y axis



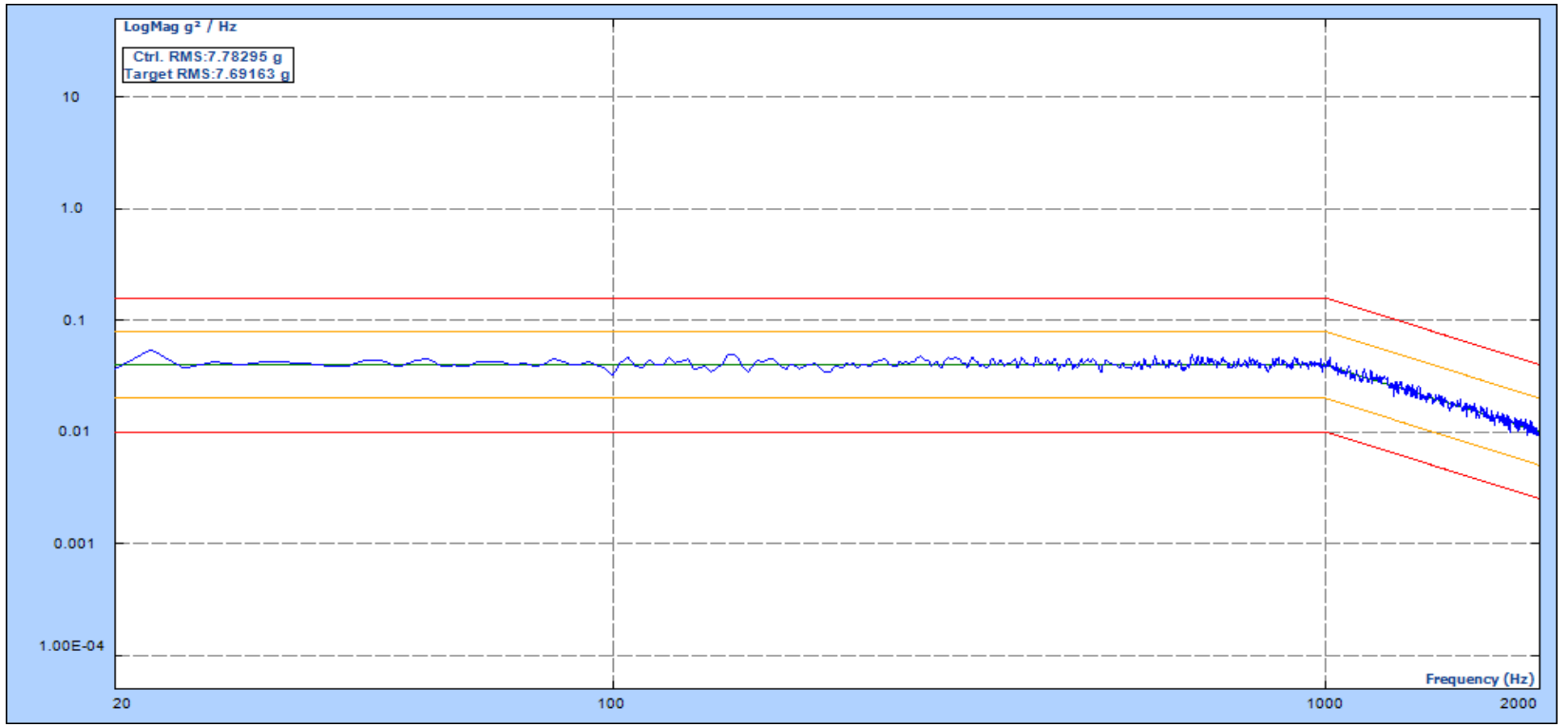
Level: 100.00 %
Drive Pk: 0.925V
Est. Disp. : 1.587 mm Pk-Pk
Velocity Pk: 0.132 m/s
Control RMS: 4.059 g
Target RMS: 4.020 g
Remaining: 00:00:00
Total Elapsed: 01:00:59
Full Level Elapsed: 01:00:00

Z axis



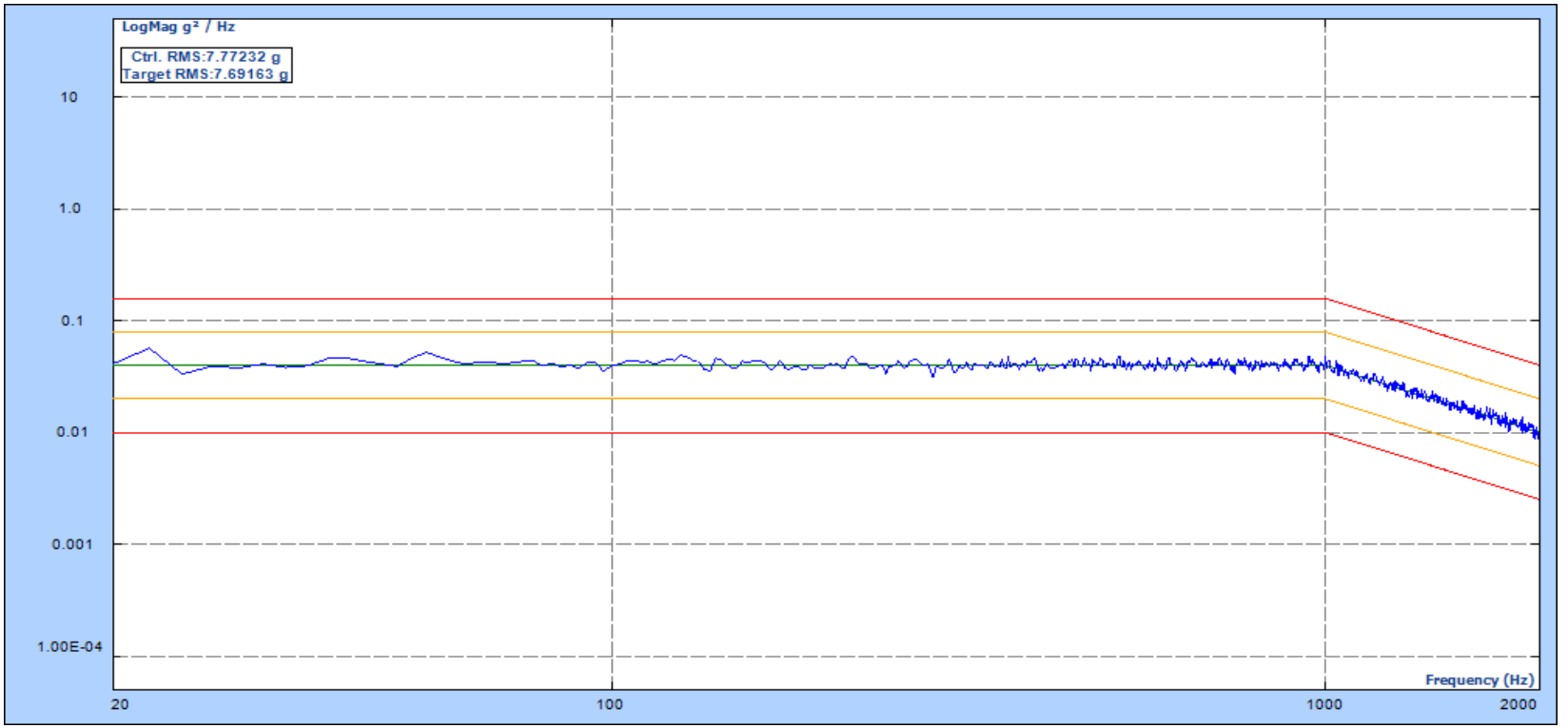
Level: 100.00 %
Drive Pk: 0.927V
Est. Disp. : 1.600 mm Pk-Pk
Velocity Pk: 0.131 m/s
Control RMS: 4.052 g
Target RMS: 4.020 g
Remaining: 00:00:00
Total Elapsed: 01:00:59
Full Level Elapsed: 01:00:00

X axis



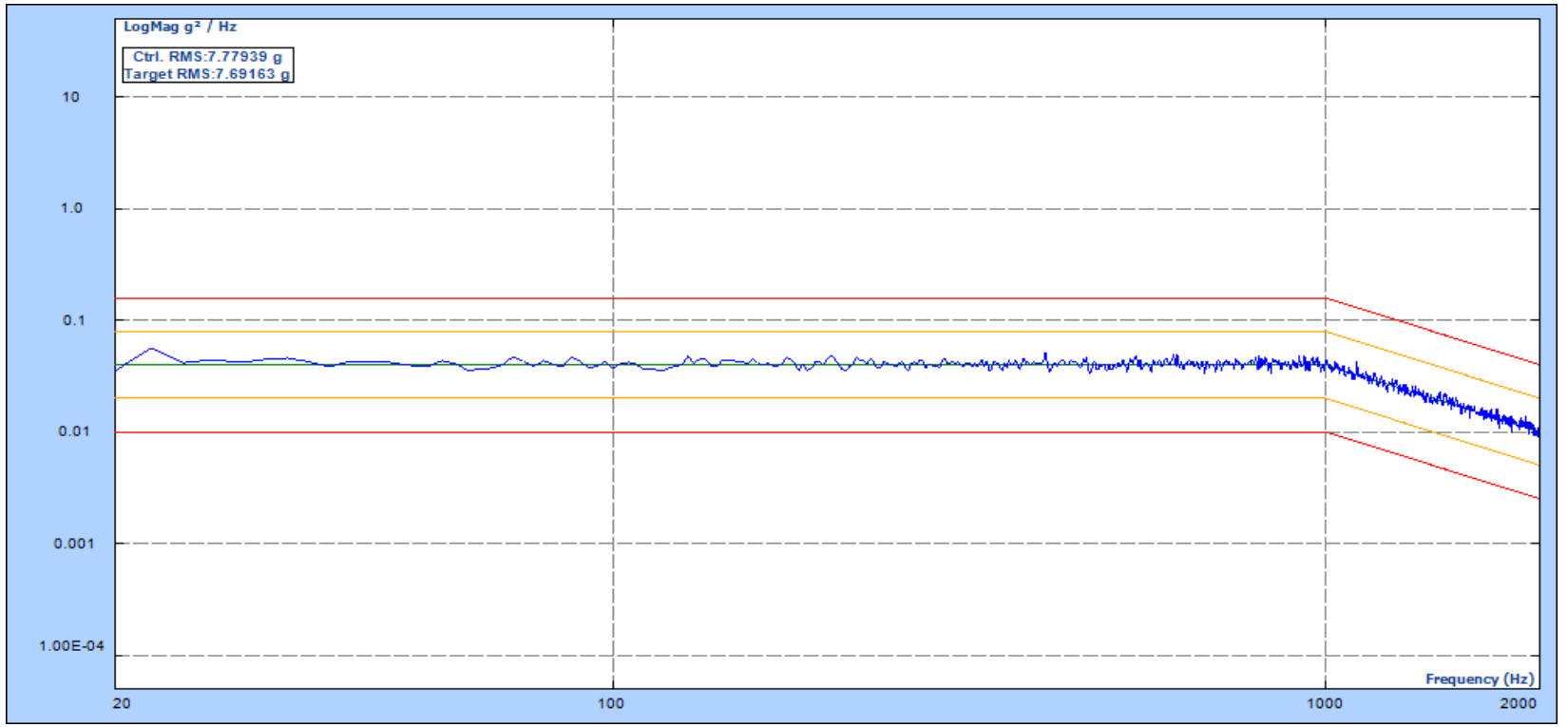
Level: 100.00 %
Drive Pk: 2.149V
Est. Disp. : 2.166 mm Pk-Pk
Velocity Pk: 0.219 m/s
Control RMS: 7.783 g
Target RMS: 7.690 g
Remaining: 00:00:00
Total Elapsed: 01:01:08
Full Level Elapsed: 01:00:00

Y axis



Level: 100.00 %
Drive Pk: 2.405V
Est. Disp. : 2.194 mm Pk-Pk
Velocity Pk: 0.221 m/s
Control RMS: 7.772 g
Target RMS: 7.690 g
Remaining: 00:00:00
Total Elapsed: 01:31:09
Full Level Elapsed: 01:00:00

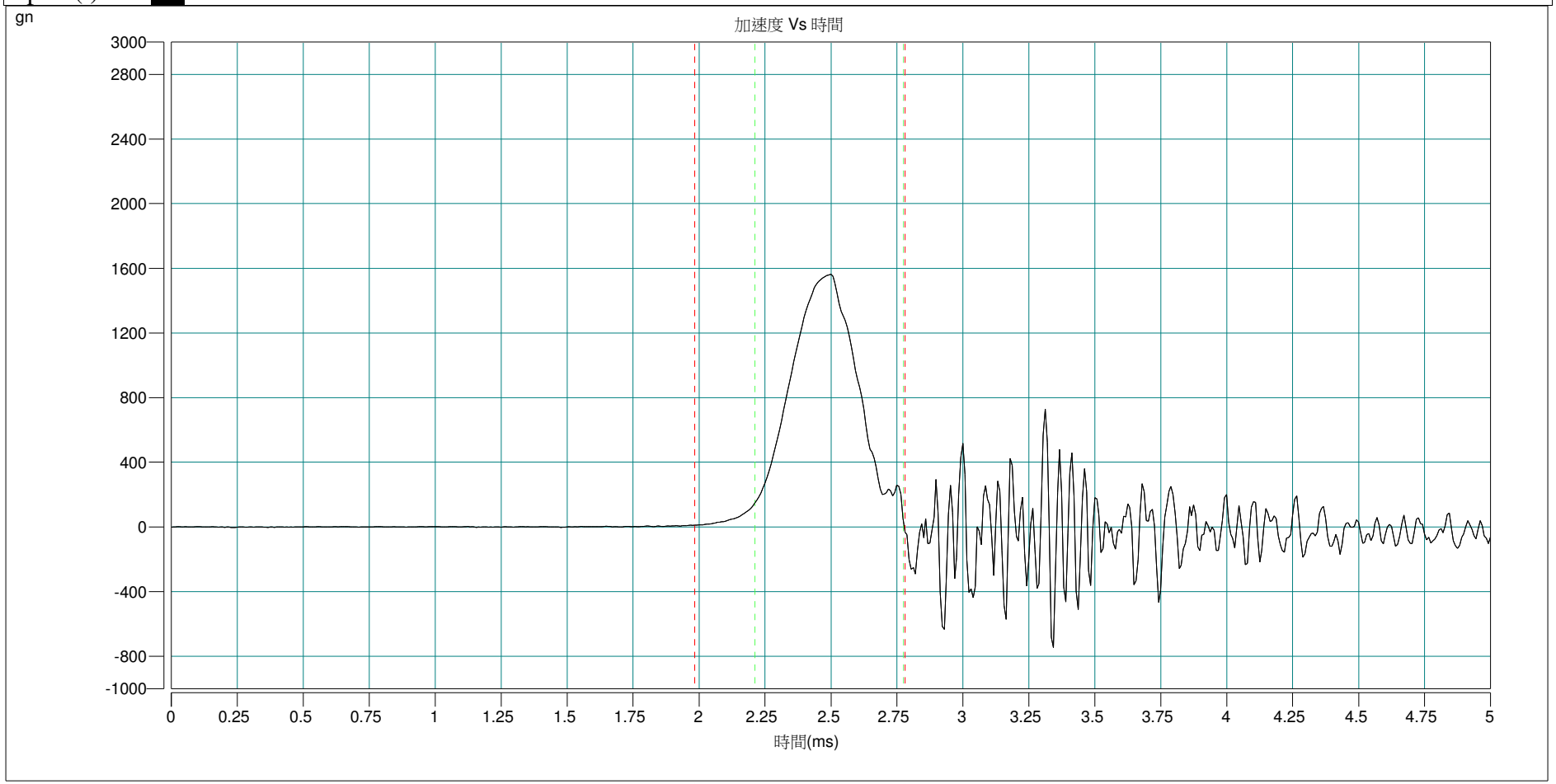
Z axis



Level: 100.00 %
Drive Pk: 2.368V
Est. Disp. : 2.191 mm Pk-Pk
Velocity Pk: 0.221 m/s
Control RMS: 7.779 g
Target RMS: 7.690 g
Remaining: 00:00:00
Total Elapsed: 01:01:09
Full Level Elapsed: 01:00:00

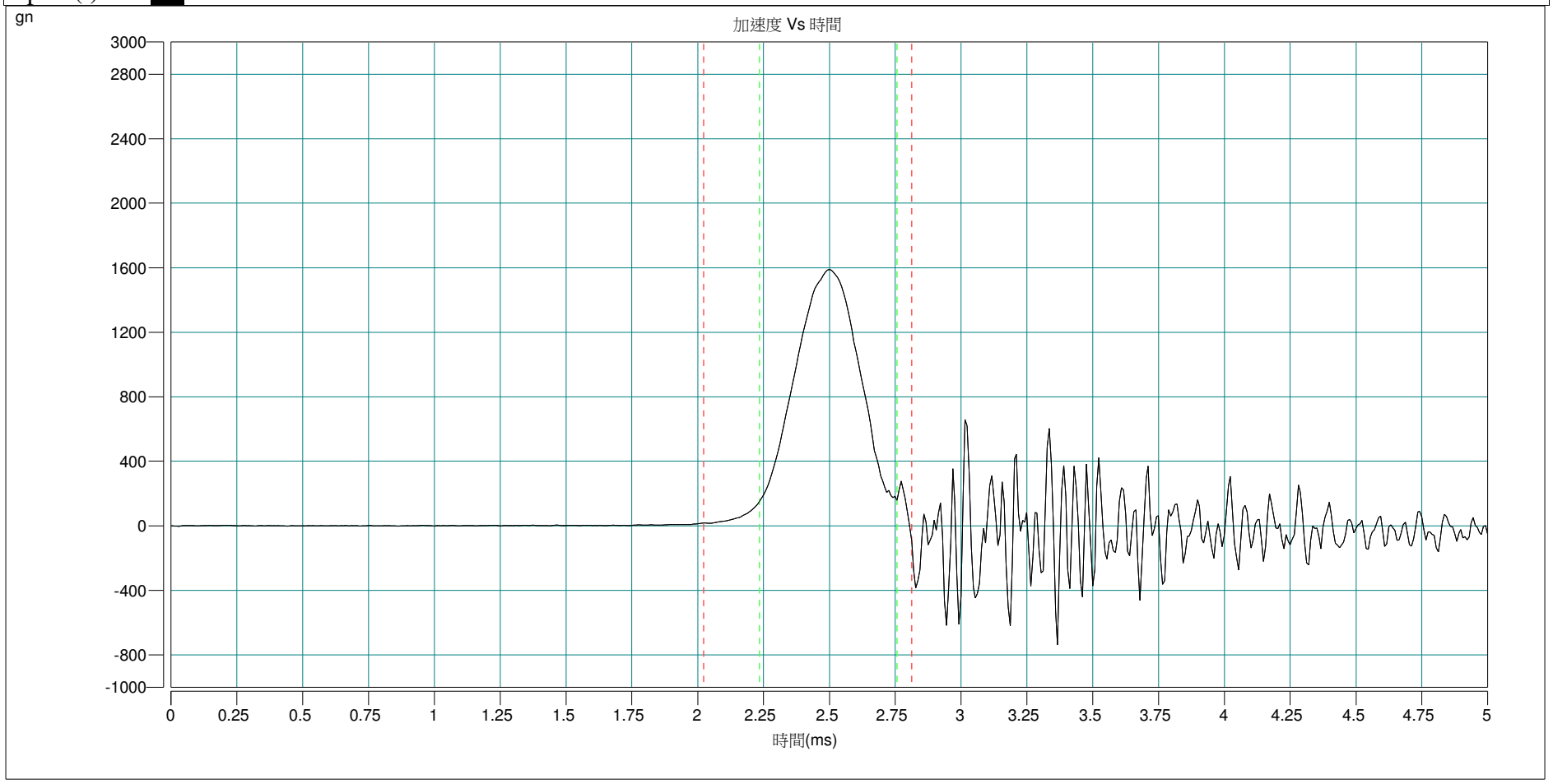
+X axis

Signal	Acceleration (gn)	Duration (ms)	Velocity (In/s)	Filter (Hz)	Max Acc (gn)	Min Acc (gn)
Input1(t)	1563.34	0.55	4.68	10000.00	1563.34	-745.04



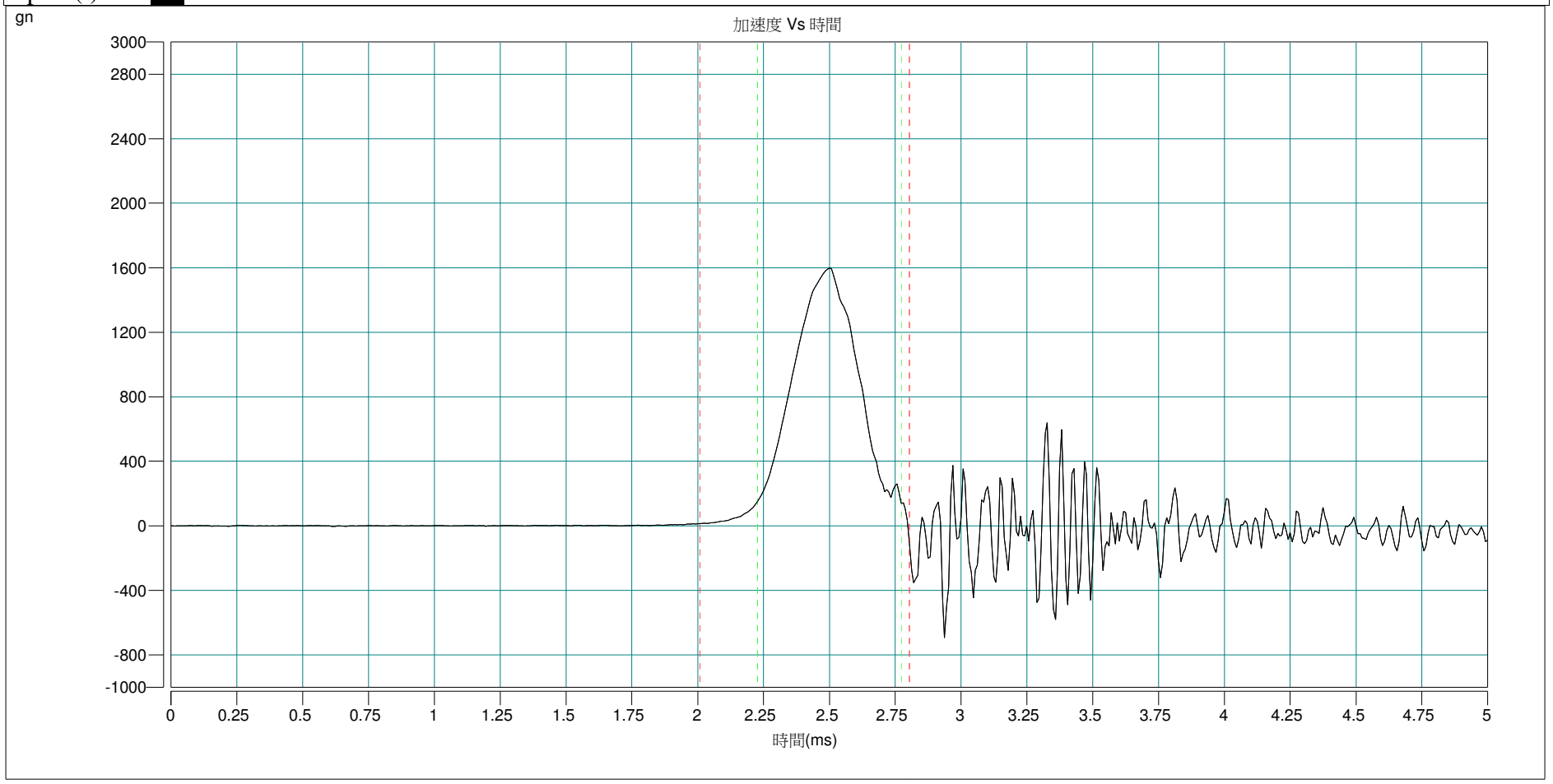
-X axis

Signal		Acceleration (gn)	Duration (ms)	Velocity (In/s)	Filter (Hz)	Max Acc (gn)	Min Acc (gn)
Input1(t)	■	1590.29	0.52	4.75	10000.00	1590.29	-737.39



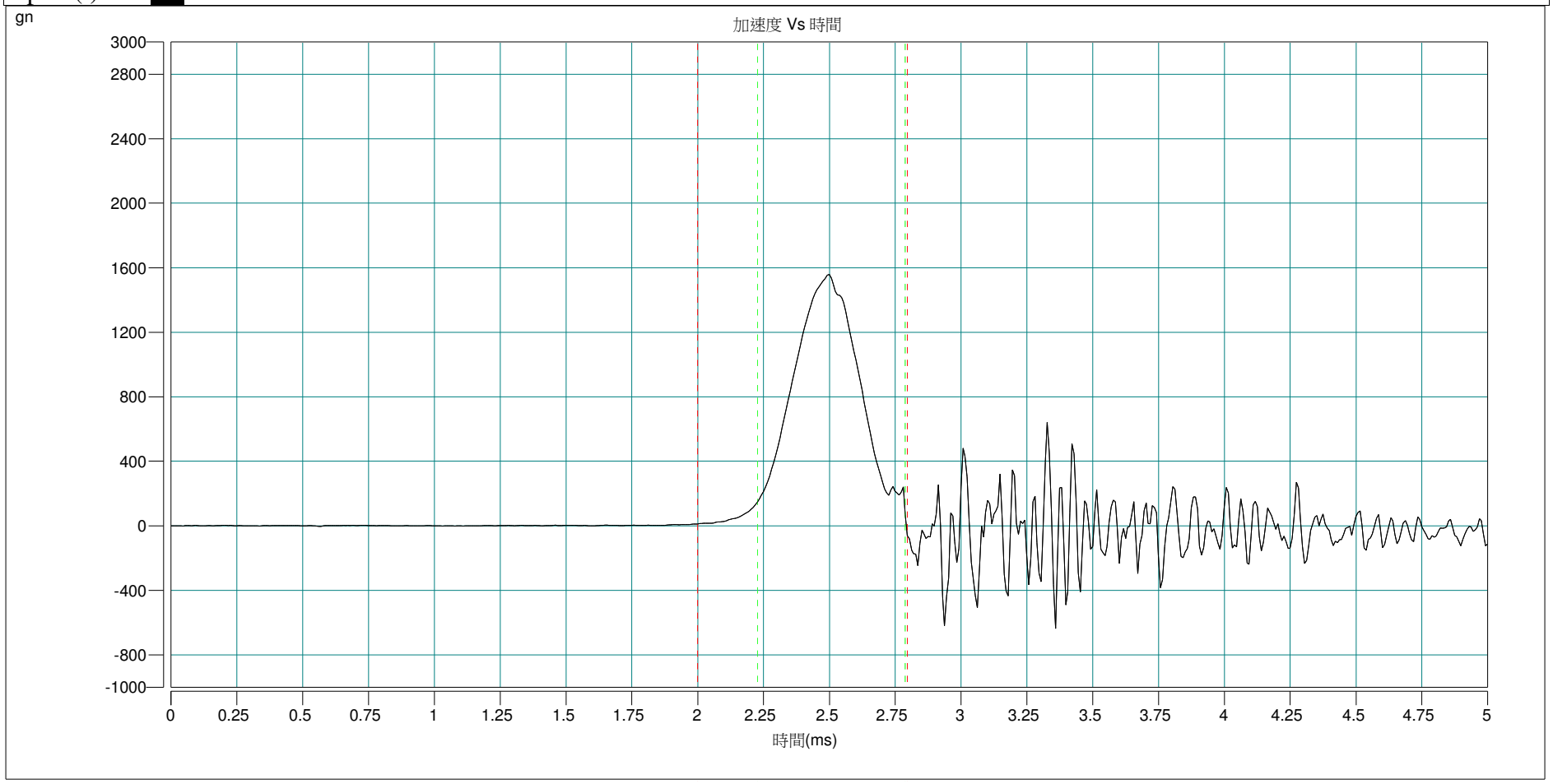
+Y axis

Signal		Acceleration (gn)	Duration (ms)	Velocity (In/s)	Filter (Hz)	Max Acc (gn)	Min Acc (gn)
Input1(t)	■	1597.99	0.54	4.72	10000.00	1597.99	-693.25



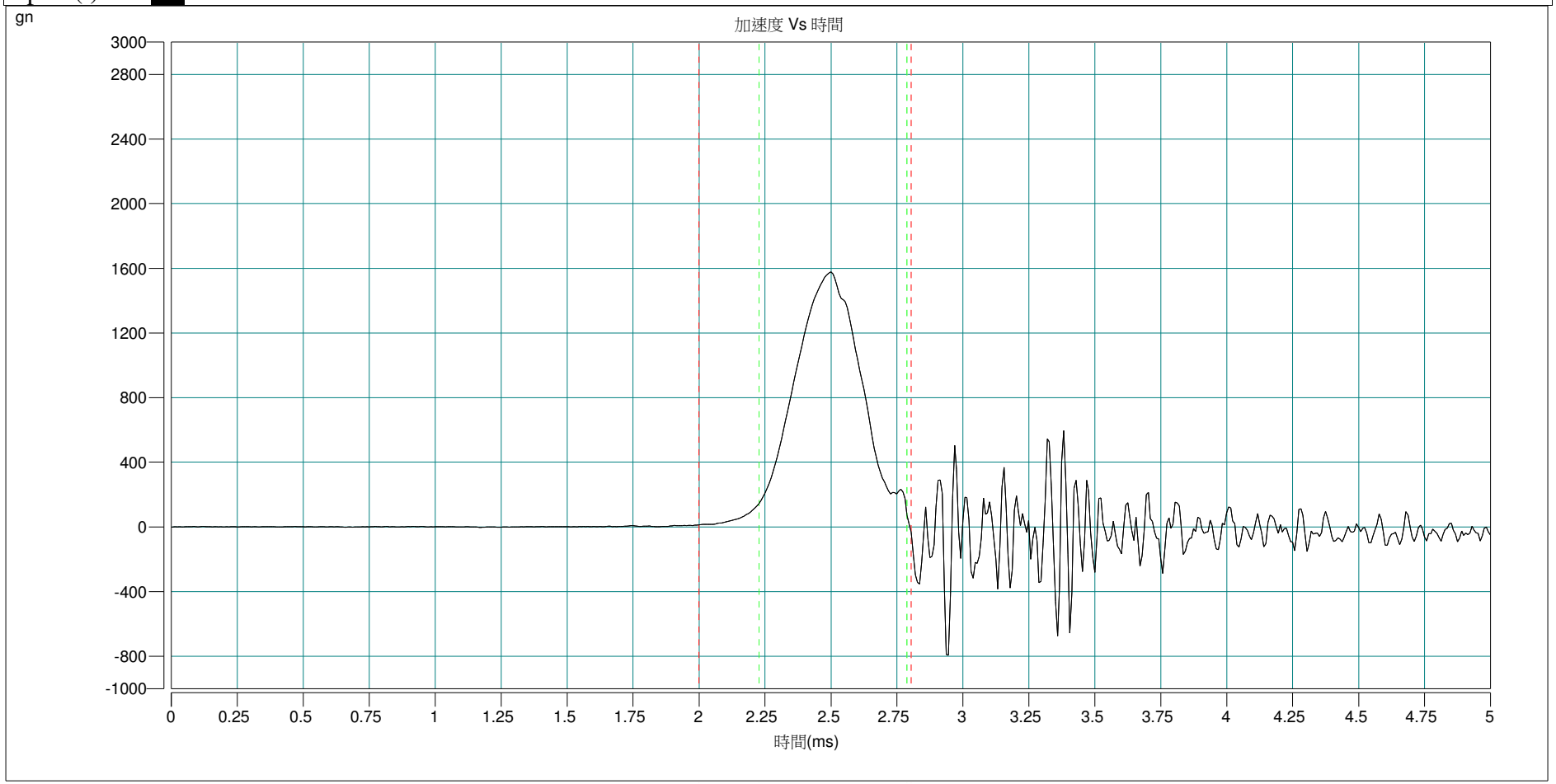
-Y axis

Signal		Acceleration (gn)	Duration (ms)	Velocity (In/s)	Filter (Hz)	Max Acc (gn)	Min Acc (gn)
Input1(t)	■	1558.82	0.56	4.64	10000.00	1558.82	-636.53



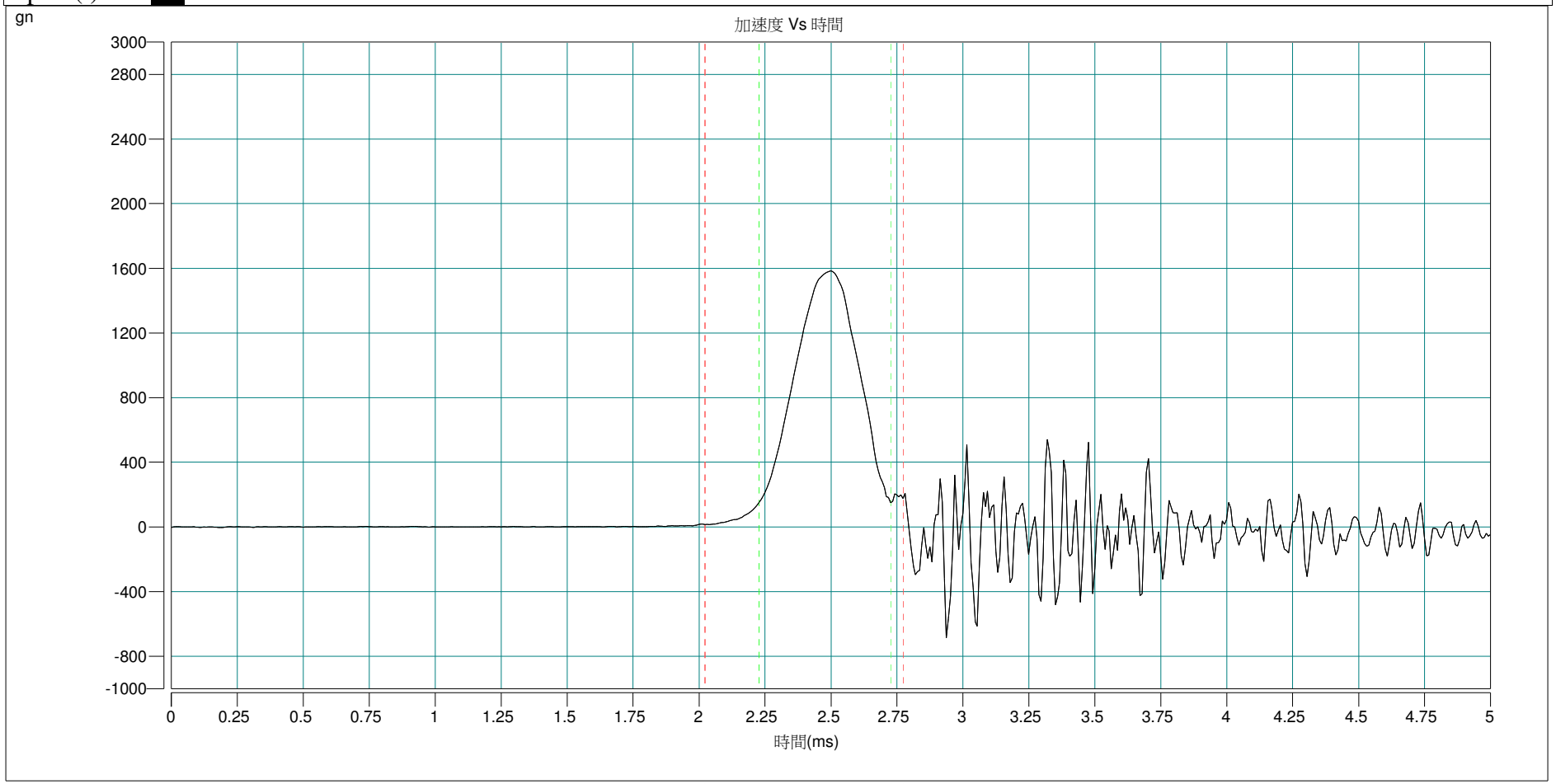
+Z axis

Signal		Acceleration (gn)	Duration (ms)	Velocity (In/s)	Filter (Hz)	Max Acc (gn)	Min Acc (gn)
Input1(t)	■	1577.94	0.55	4.68	10000.00	1577.94	-793.70



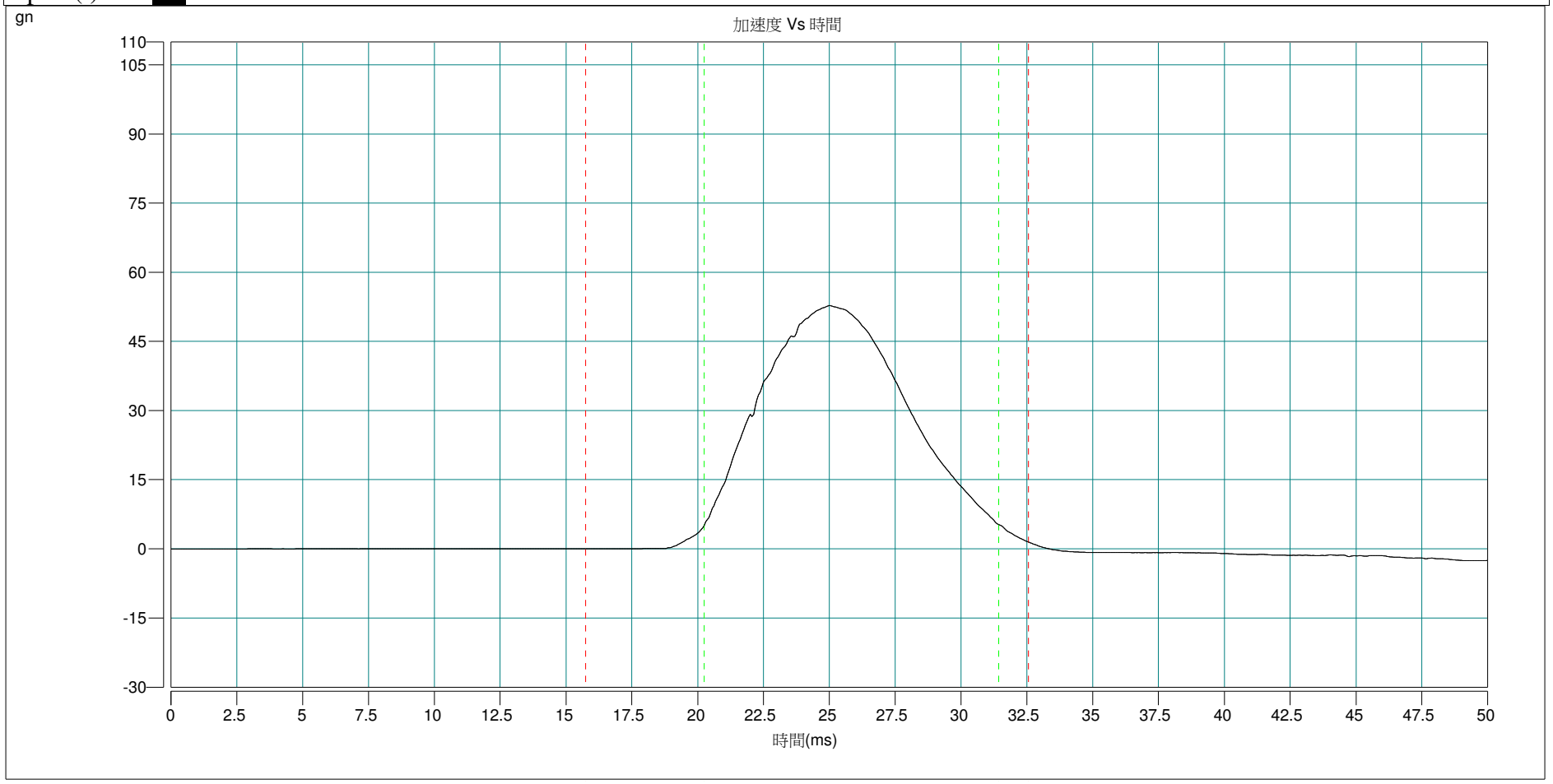
-Z axis

Signal		Acceleration (gn)	Duration (ms)	Velocity (In/s)	Filter (Hz)	Max Acc (gn)	Min Acc (gn)
Input1(t)	■	1584.39	0.49	4.69	10000.00	1584.39	-686.94



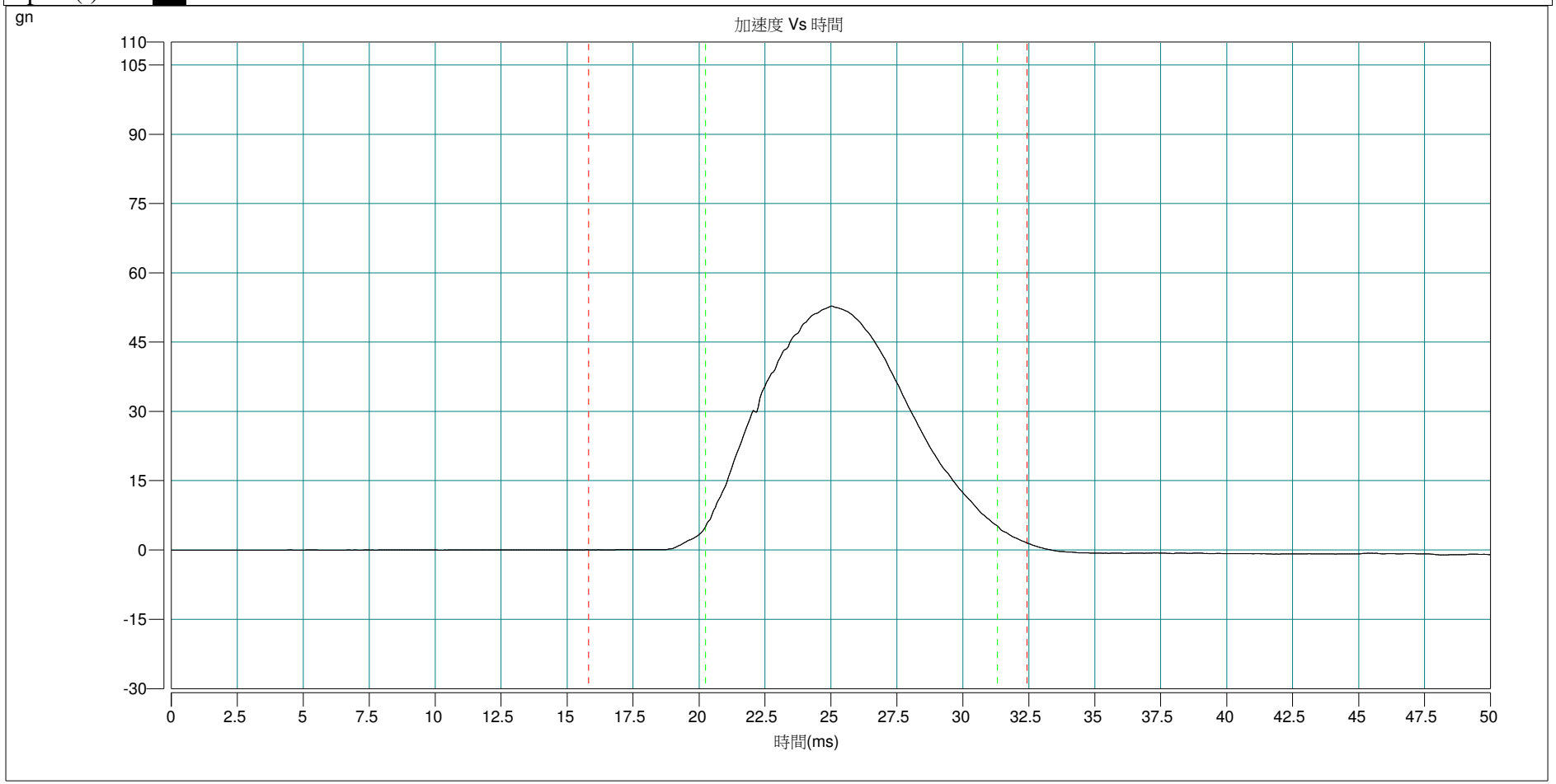
+X axis

Signal		Acceleration (gn)	Duration (ms)	Velocity (In/s)	Filter (Hz)	Max Acc (gn)	Min Acc (gn)
Input1(t)	■	52.82	11.17	3.51	500.00	52.82	-2.56



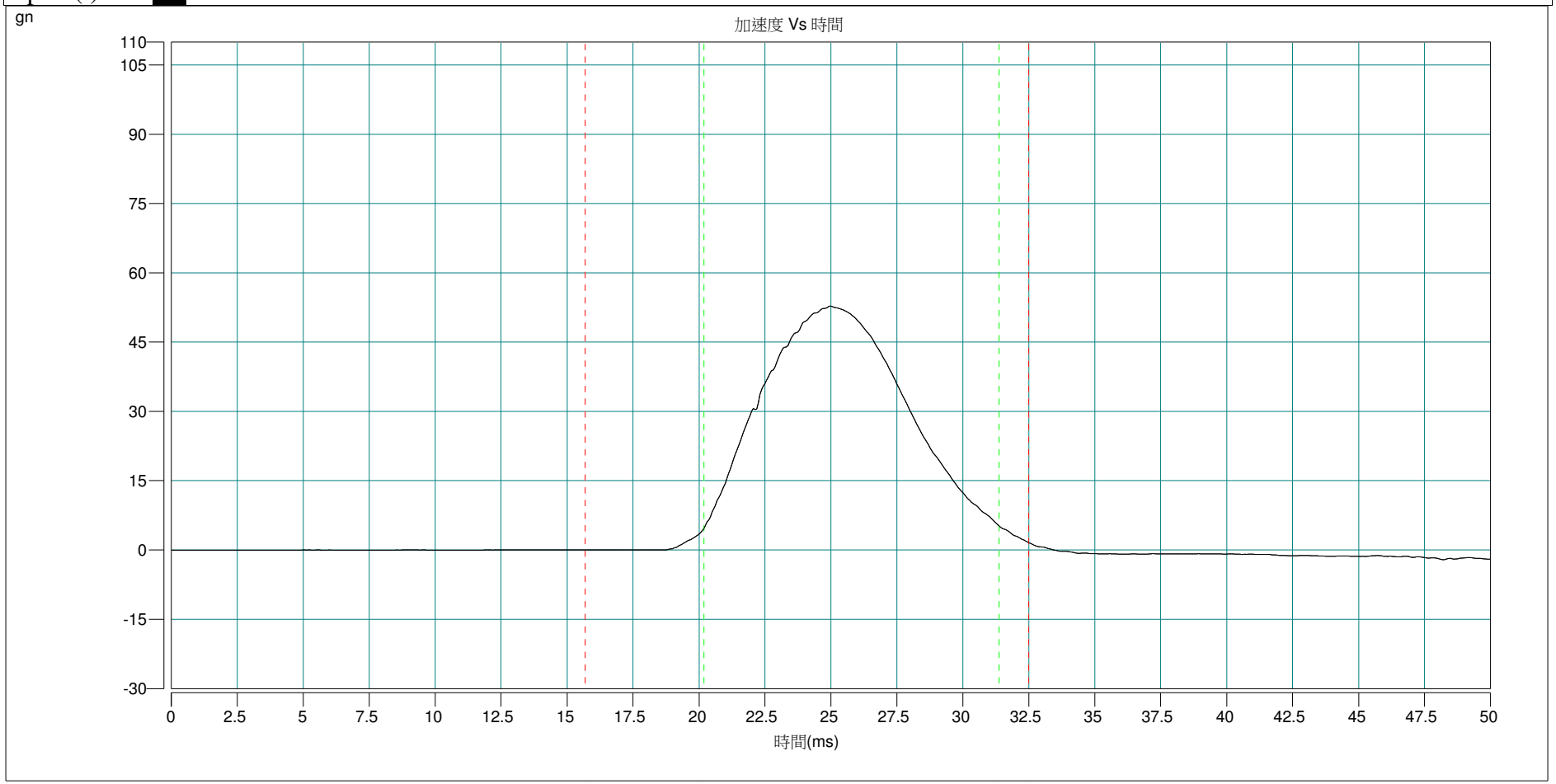
-X axis

Signal		Acceleration (gn)	Duration (ms)	Velocity (In/s)	Filter (Hz)	Max Acc (gn)	Min Acc (gn)
Input1(t)	■	52.81	11.04	3.46	500.00	52.81	-1.05



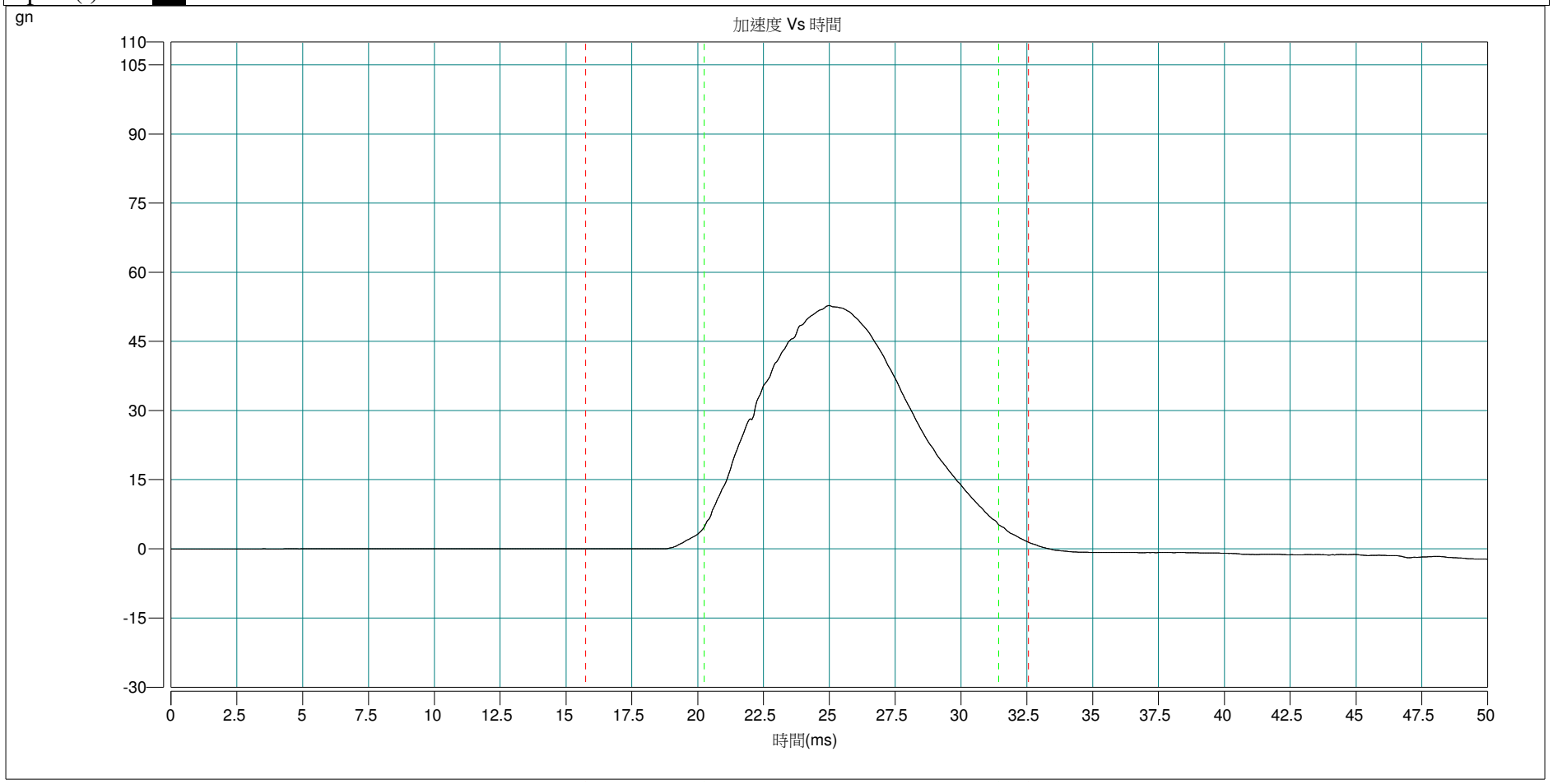
+Y axis

Signal		Acceleration (gn)	Duration (ms)	Velocity (In/s)	Filter (Hz)	Max Acc (gn)	Min Acc (gn)
Input1(t)	■	52.83	11.12	3.49	500.00	52.83	-2.09



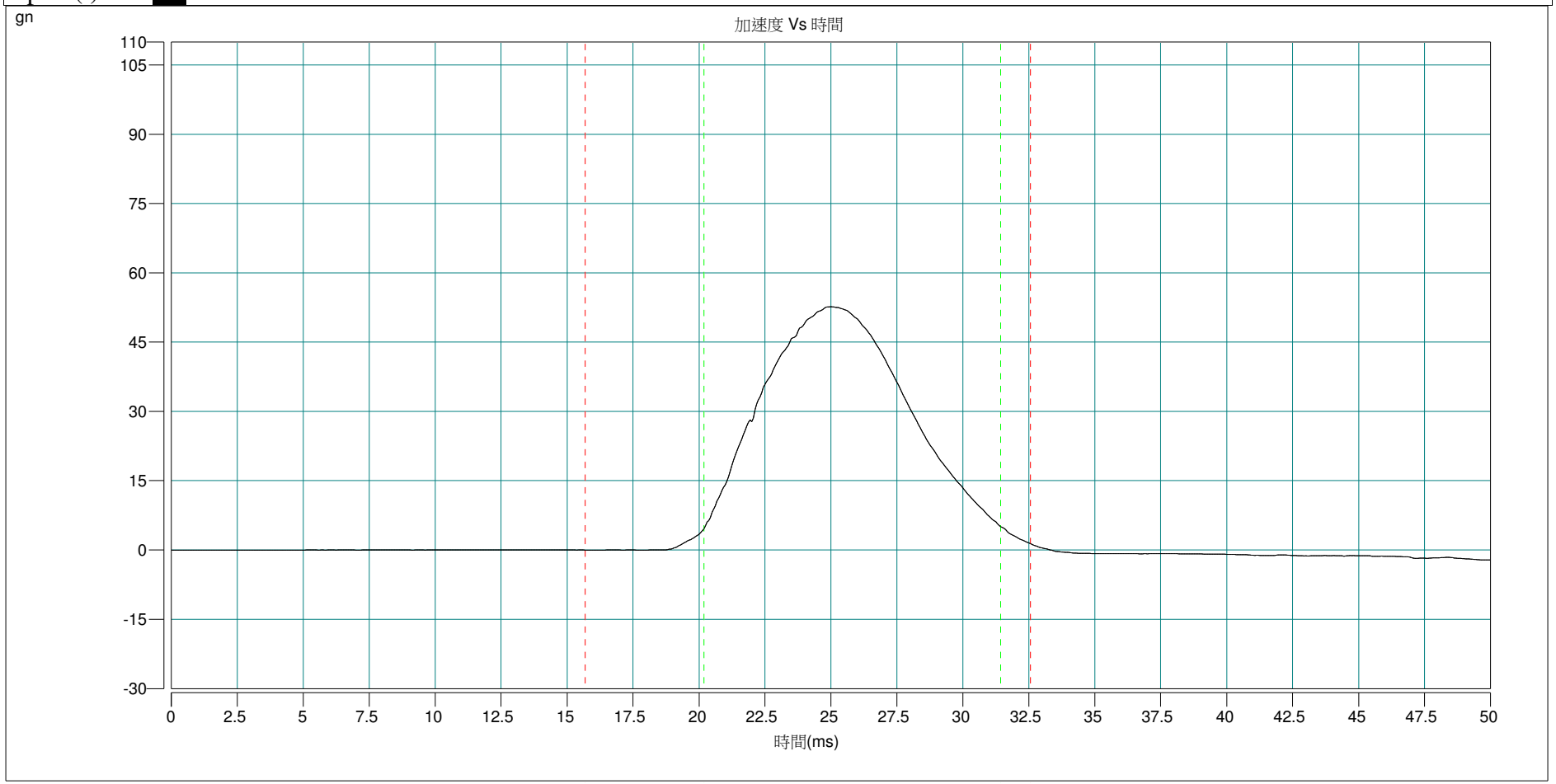
-Y axis

Signal		Acceleration (gn)	Duration (ms)	Velocity (In/s)	Filter (Hz)	Max Acc (gn)	Min Acc (gn)
Input1(t)	■	52.81	11.13	3.50	500.00	52.81	-2.24



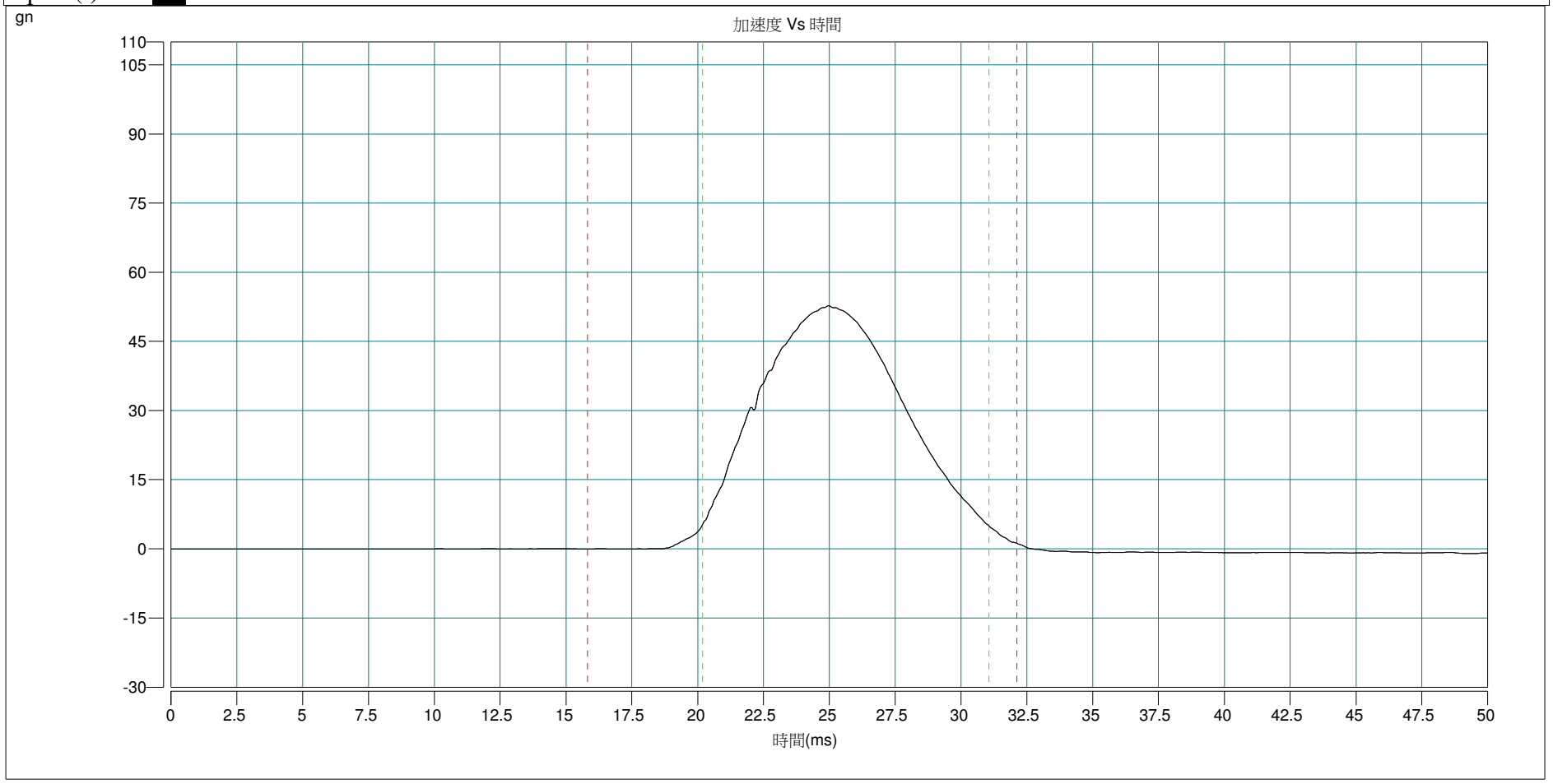
+Z axis

Signal		Acceleration (gn)	Duration (ms)	Velocity (In/s)	Filter (Hz)	Max Acc (gn)	Min Acc (gn)
Input1(t)	■	52.69	11.14	3.50	500.00	52.69	-2.16



-Z axis

Signal		Acceleration (gn)	Duration (ms)	Velocity (In/s)	Filter (Hz)	Max Acc (gn)	Min Acc (gn)
Input1(t)	■	52.76	10.82	3.43	500.00	52.76	-0.99



-END-