

KING DESIGN INDUSTRIAL CO., LTD.

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

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

REPORT NO : TT-140122-1

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 : SATA Flash Drive

DATE OF RECEIVED : 2013/12/18

DATE OF TESTED : 2014/01/15

TEST / INSPECTION ITEMS : Temperature / 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 34 pages, and no part of it may be abstracted or reproduced.

Test Engineer :	<i>Nigori Wu</i>	
Approval Signatory :	<i>David Lee</i>	Laboratory Head : <i>Hsin Zai Chang</i>

TESTING / INSPECTION REPORT

TESTING EQUIPMENT :

1.Chamber	: KING SON KSON KS-9001, S/N : 001
2.Vibration Tester	: KING DESIGN KD-9363EM-600F2K-50N120, S/N : KDS11054783
3.Controller	: DACTRON COMET USB, S/N : 9478158
4.Control Accelerometer	: Wilcoxon Research WR-777, S/N : 4208.
5.Shock Testing System	: KING DESIGN DP-1200-60, S/N : R2110086489
6.Controller	: KING DESIGN KD-1200-03C, S/N : KD674
7.Accelerometer	: B&K 4398, S/N : 2209044
8.Shock Testing System	: KING DESIGN DP-1200-18, S/N : KDS02197998
9.Controller	: KING DESIGN DP-1200-03C, S/N : KD674
10.Accelerometer	: DYTRAN3200B2T, S/N : 2657

TEST ENVIRONMENT :

Temperature	: 21.2°C (25±10°C)
Relative Humidity	: 71% RH (50±25% RH)

SPECIMEN :

Model	: SFD25H-M
Quantity	: 1 unit

TESTING / INSPECTION REPORT

TEST SPECIFICATION(1) :

As per applicant's requirement

Temperature Test (Non-Operating)

Step	Temperature (°C)	Duration
1	-40	96 hrs

Test Cycle : 1 cycle

Total Test Time : 96 hrs

TEST SPECIFICATION(2) :

As per applicant's requirement

Temperature Test (Non-Operating)

Step	Temperature (°C)	Duration
1	100	96 hrs

Test Cycle : 1 cycle

Total Test Time : 96 hrs

TEST SPECIFICATION(3) :

As per applicant's requirement

Temperature Test (Operating)

Step	Temperature (°C)	Duration
1	-40	96 hrs

Test Cycle : 1 cycle

Total Test Time : 96 hrs

TEST SPECIFICATION(4) :

As per applicant's requirement

Temperature Test (Operating)

Step	Temperature (°C)	Duration
1	85	96 hrs

Test Cycle : 1 cycle

Total Test Time : 96 hrs

TESTING / INSPECTION REPORT

TEST SPECIFICATION(5) :

As per applicant's requirement

Sine Vibration test (Non-Operating)

Frequency	: 10 Hz to 2,000 Hz
Displacement	: 1.52 mm (10Hz to 70Hz)
Accelerate	: 15 g (70Hz to 2,000Hz)
Sweep rate	: 20 min/cycle
Test Axis	: X, Y, Z axis
Test Time	: 1 hr (Each axis)
Total Test Time	: 3 hrs

TEST SPECIFICATION(6) :

Reference to 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

TESTING / INSPECTION REPORT

TEST SPECIFICATION(7) :

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(8) :

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

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TEST SPECIFICATION(9) :

Reference to IEC60068-2-1 Test Ab

Cold Start Test

Step	Temperature (°C)	Duration
1	-40	5 hrs

Temperature Rate : 1 min/°C

Total Test Time : 5 hrs

Test Step :

1. **In BIOS setting: Set "Always On" for "Restore on AC Power Loss".**
2. **Starting OS -- WinXP, SP3.**
3. **When the OS has been fully loaded, then Power off system.**
4. **Down temperature from 25 (°C) to -40 (°C)**
5. **Keep the temperature at -40 (°C) for 4 (hrs)**
6. **Power on the system, when the OS has been fully loaded (2 minutes), then power off.**
7. **Wait for 10minutes, then power on the system again.**
8. **Repeat step6 & step7 for 4 cycles. (Total 5 cycles)**

The total test time is 5(hrs) for -40(°C).

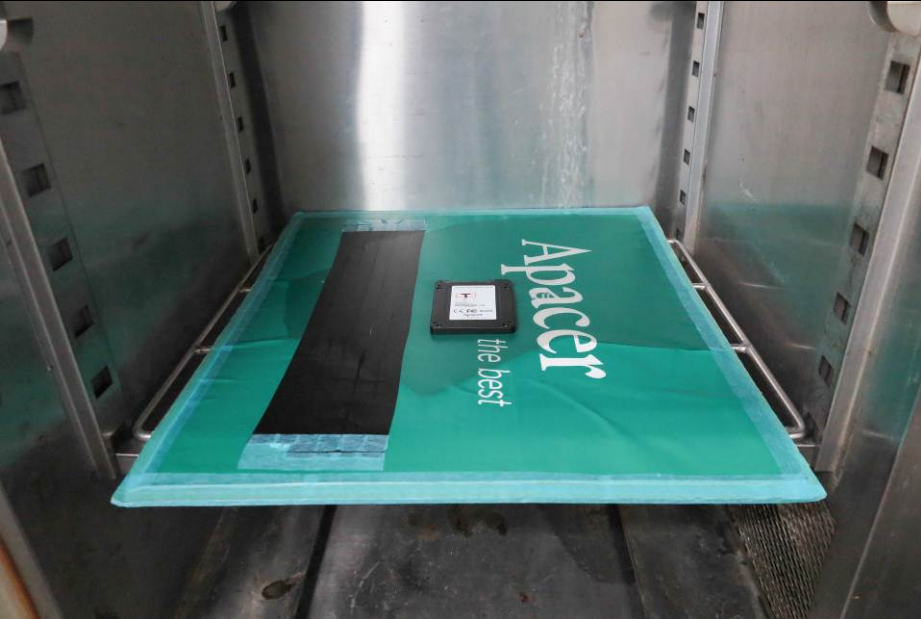

TEST RESULT :

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.			

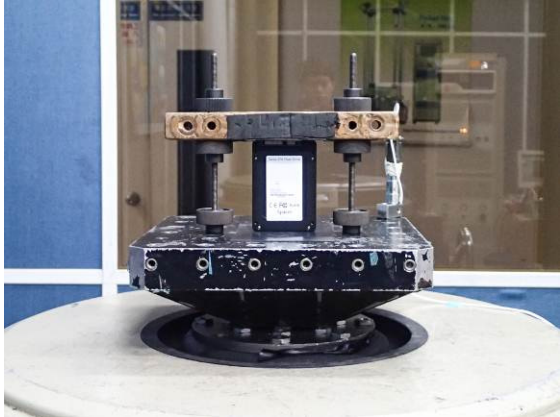



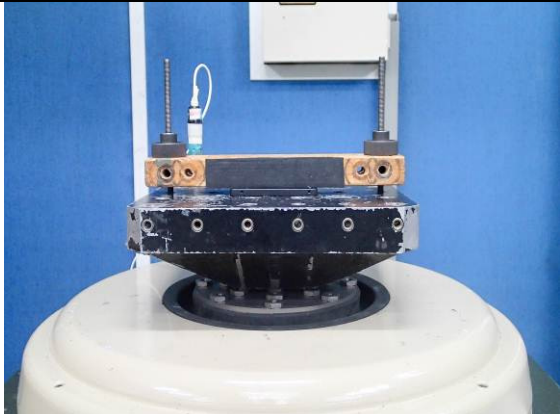
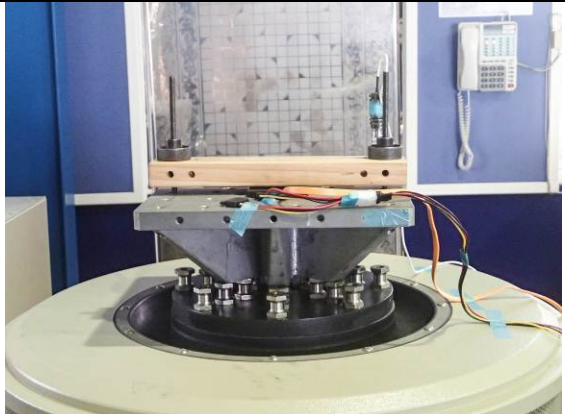
T TESTING / INSPECTION REPORT



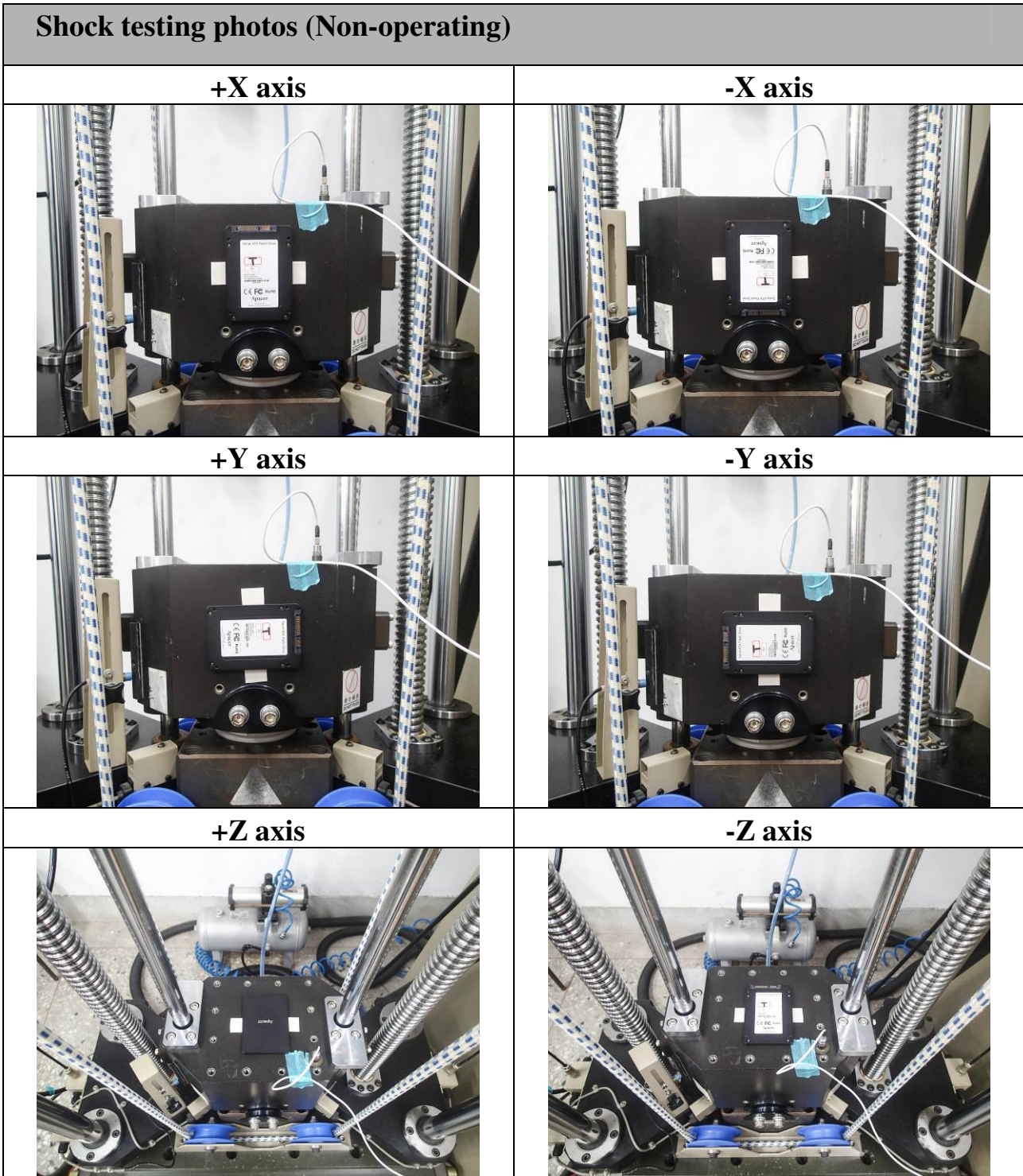
TESTING / INSPECTION REPORT

Temperature testing photos	
Non-Operating	
	
Operating	
	

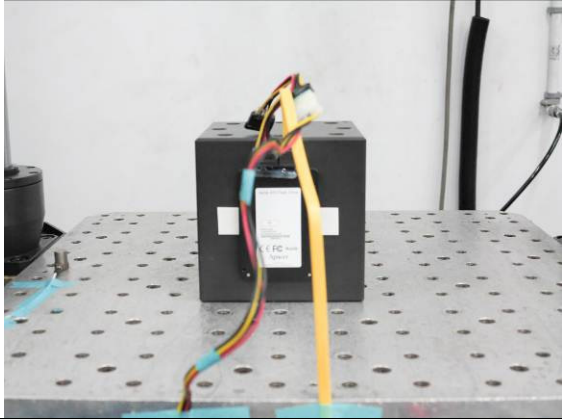
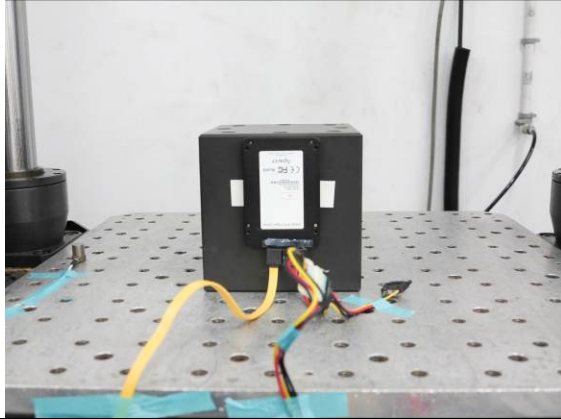
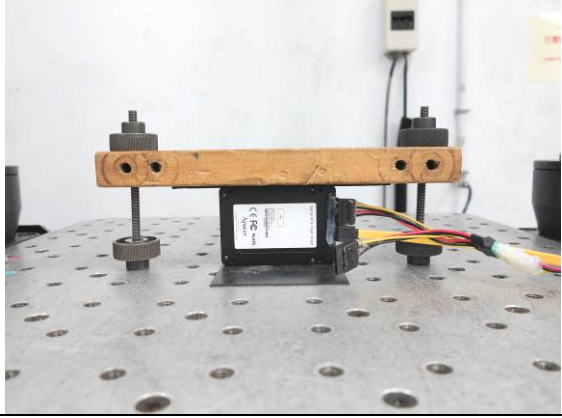
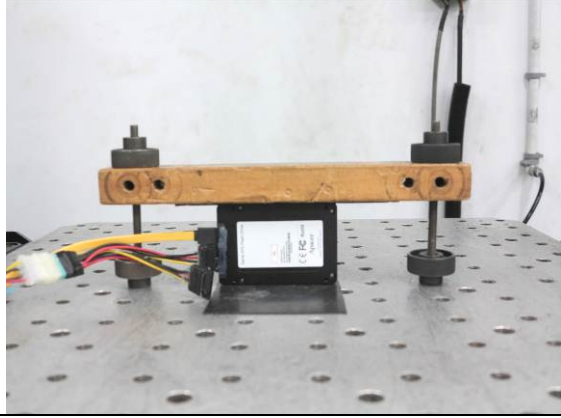
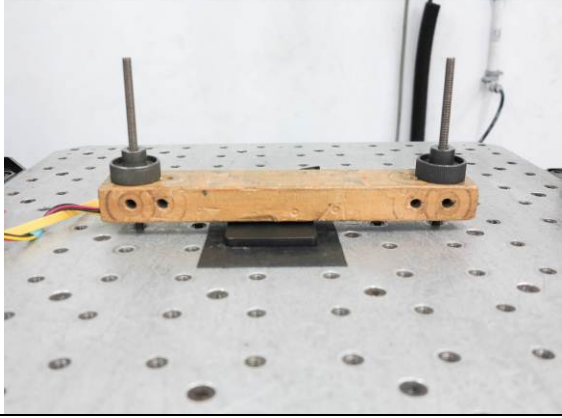
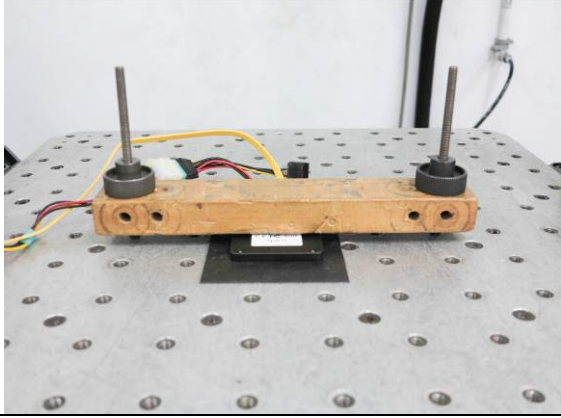
TESTING / INSPECTION REPORT

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

TESTING / INSPECTION REPORT



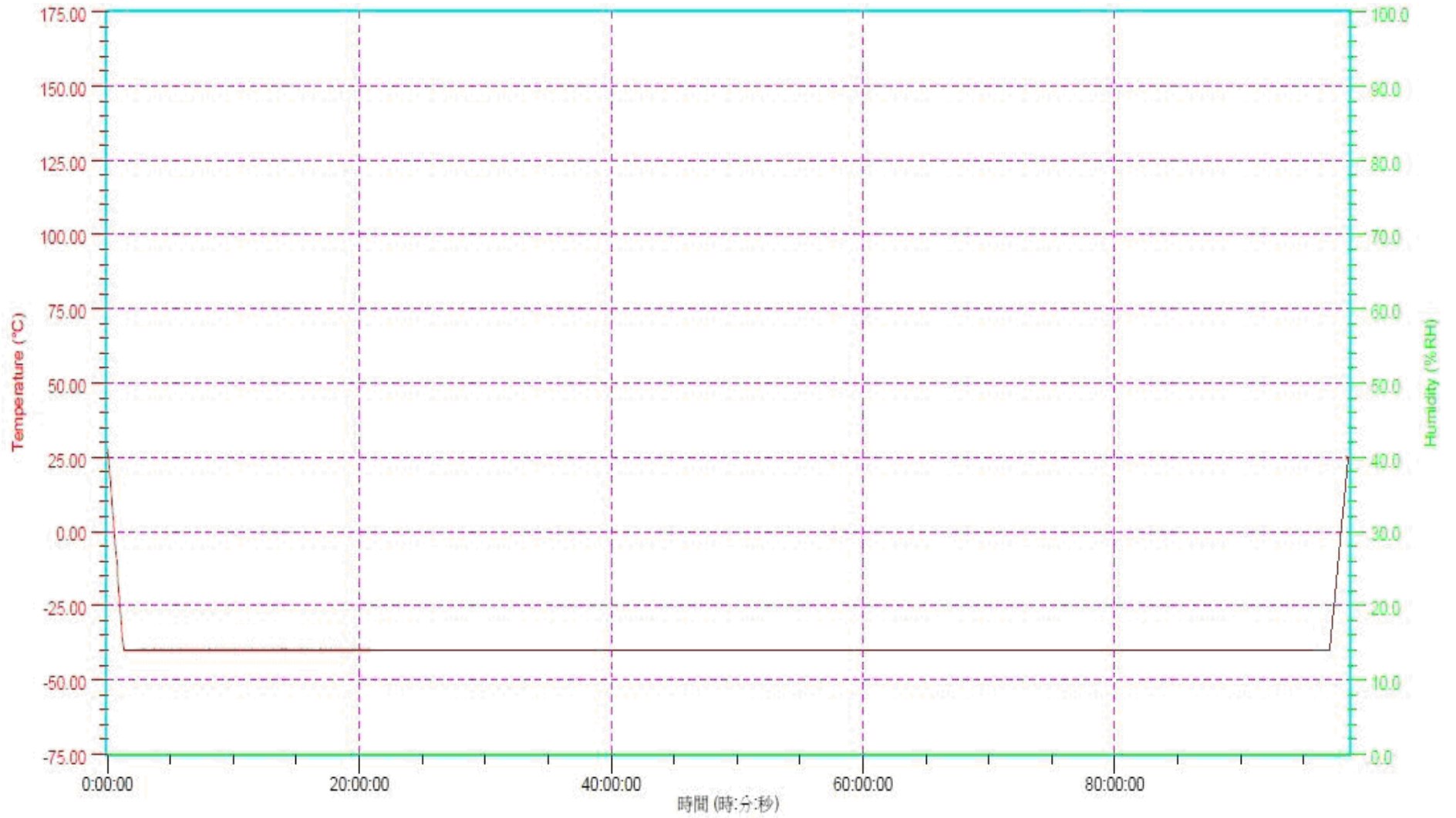
TESTING / INSPECTION REPORT

Shock testing photos (Operating)	
+X axis	-X axis
	
+Y axis	-Y axis
	
+Z axis	-Z axis
	

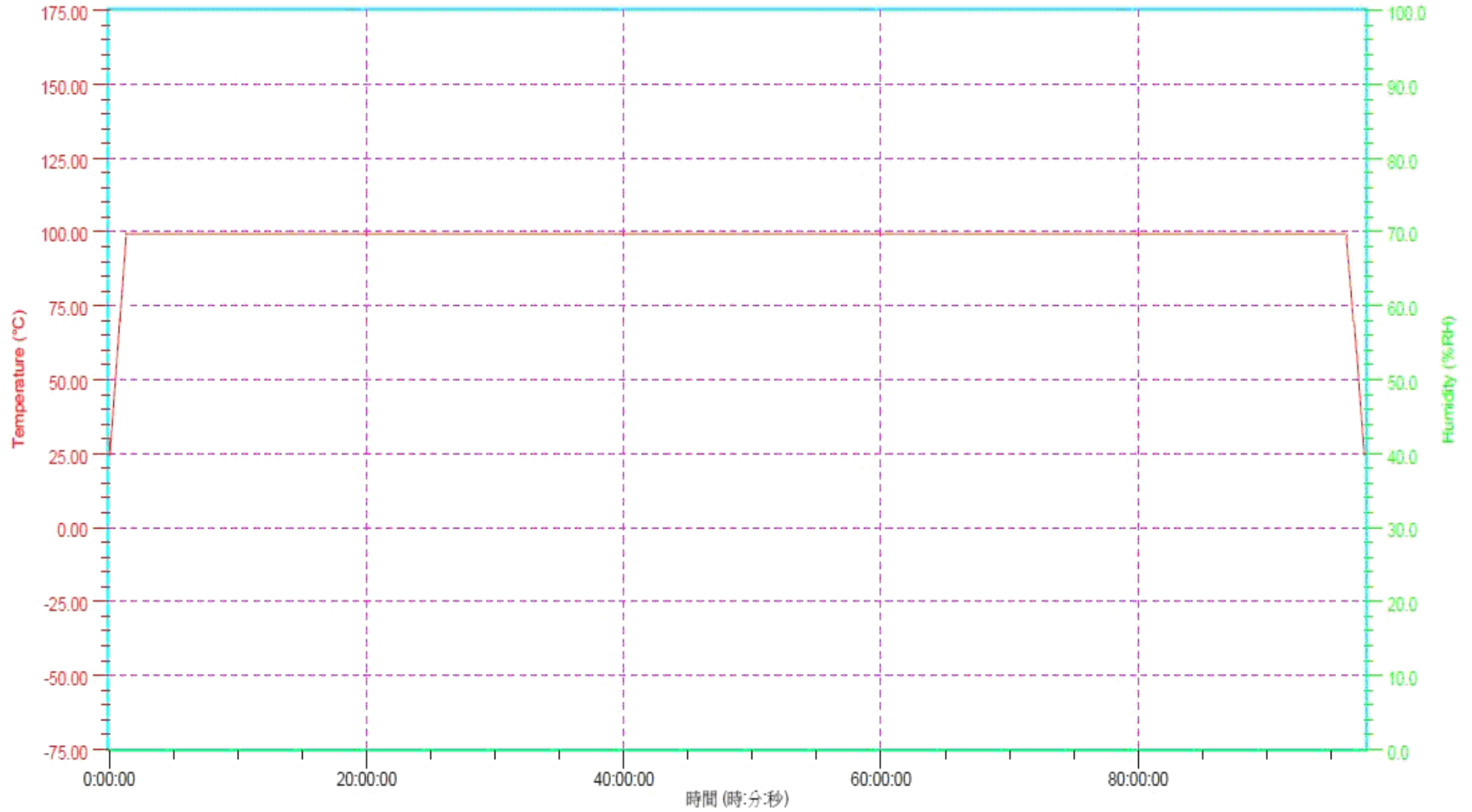
Temperature Test (-40°C Non-Operating Test)

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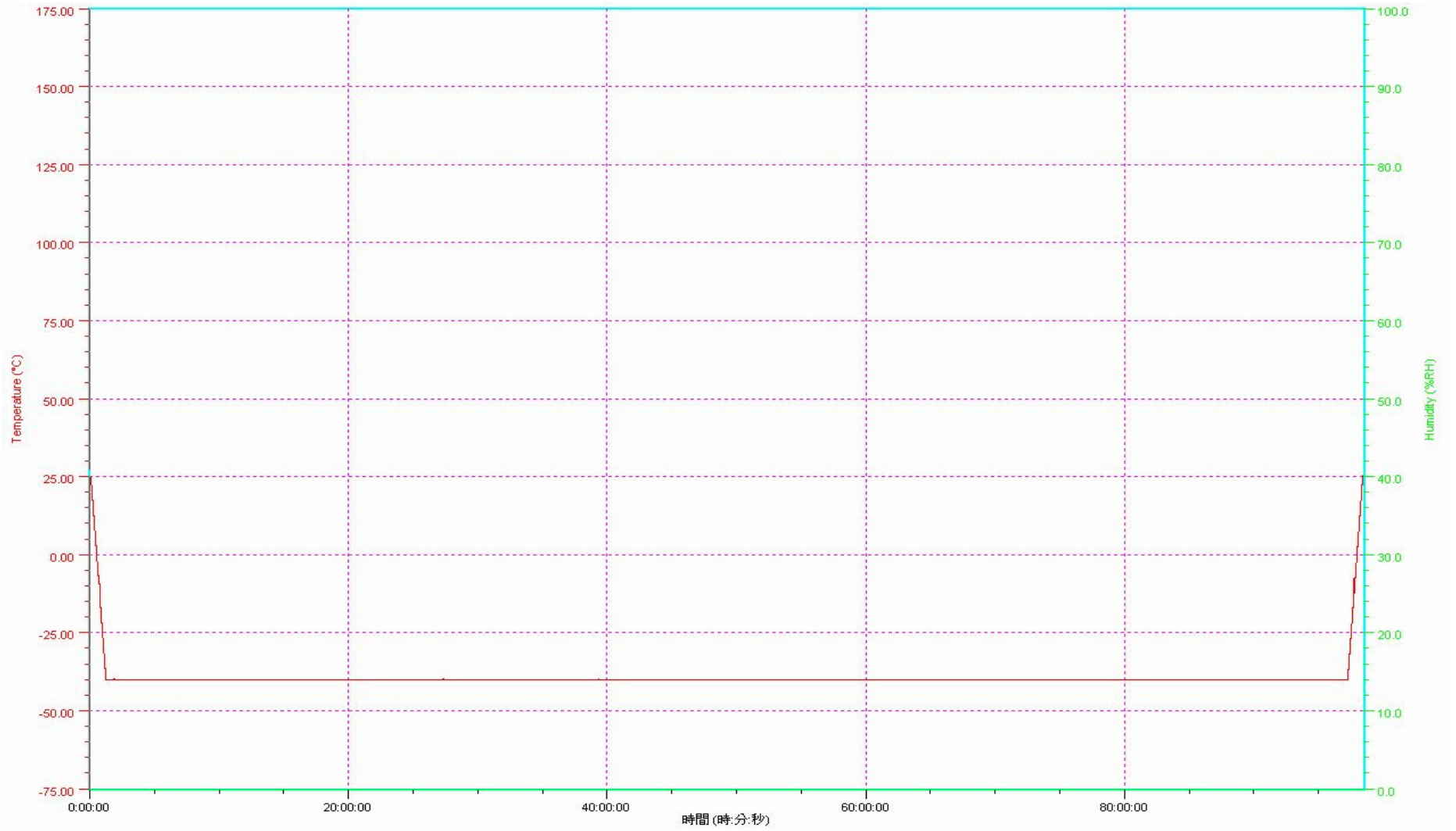
Temperature Test (100°C Non-Operating Test)



Temperature Test (-40°C Operating Test)

REPORT NO : TT-140122-1

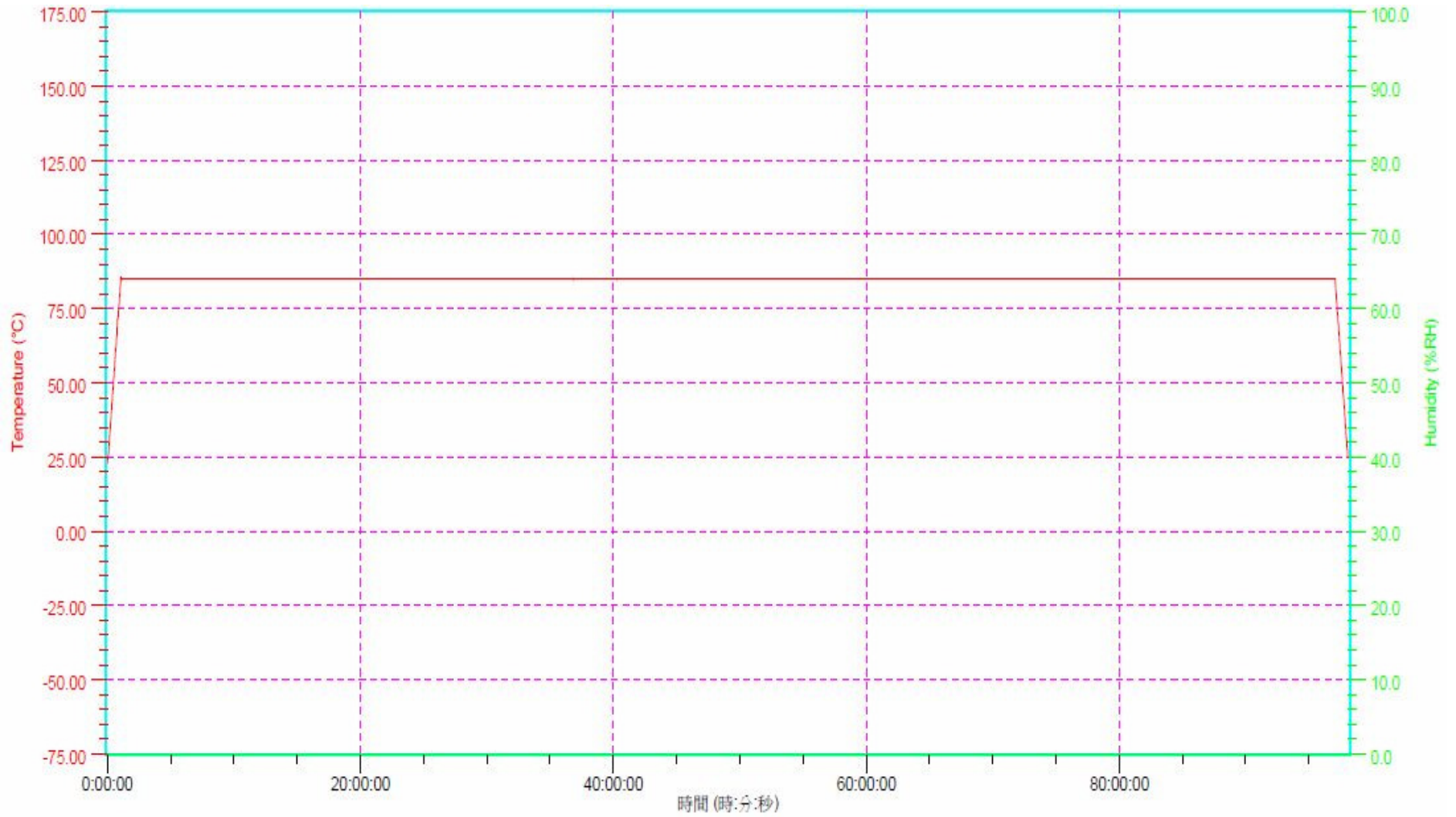
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Temperature Test (85°C Operating Test)

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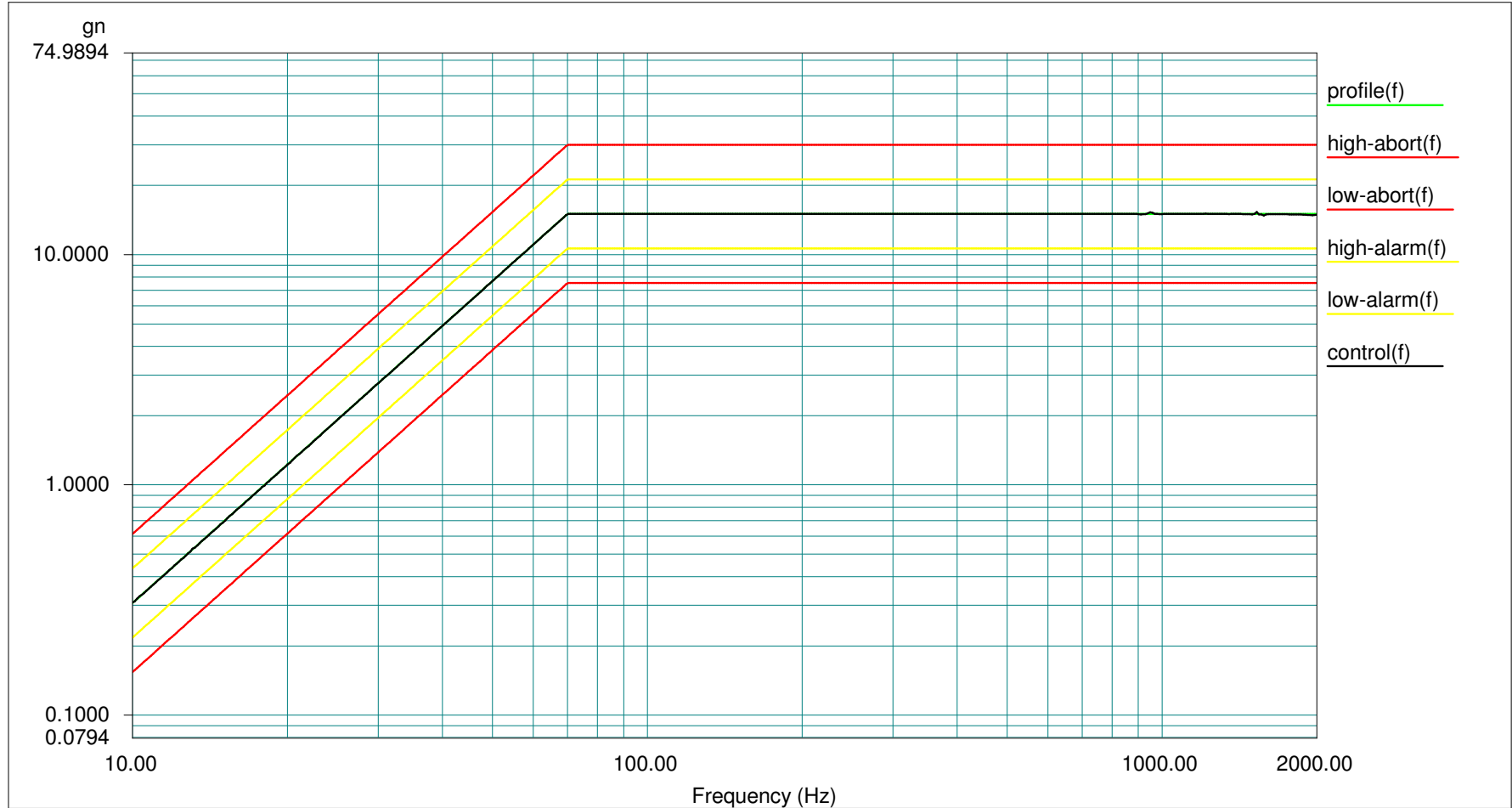
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X Axis

Project File Name: 宇瞻 10-2000Hz 1.52mm 15g.prj

Profile Name: Test Type:Swept Sine

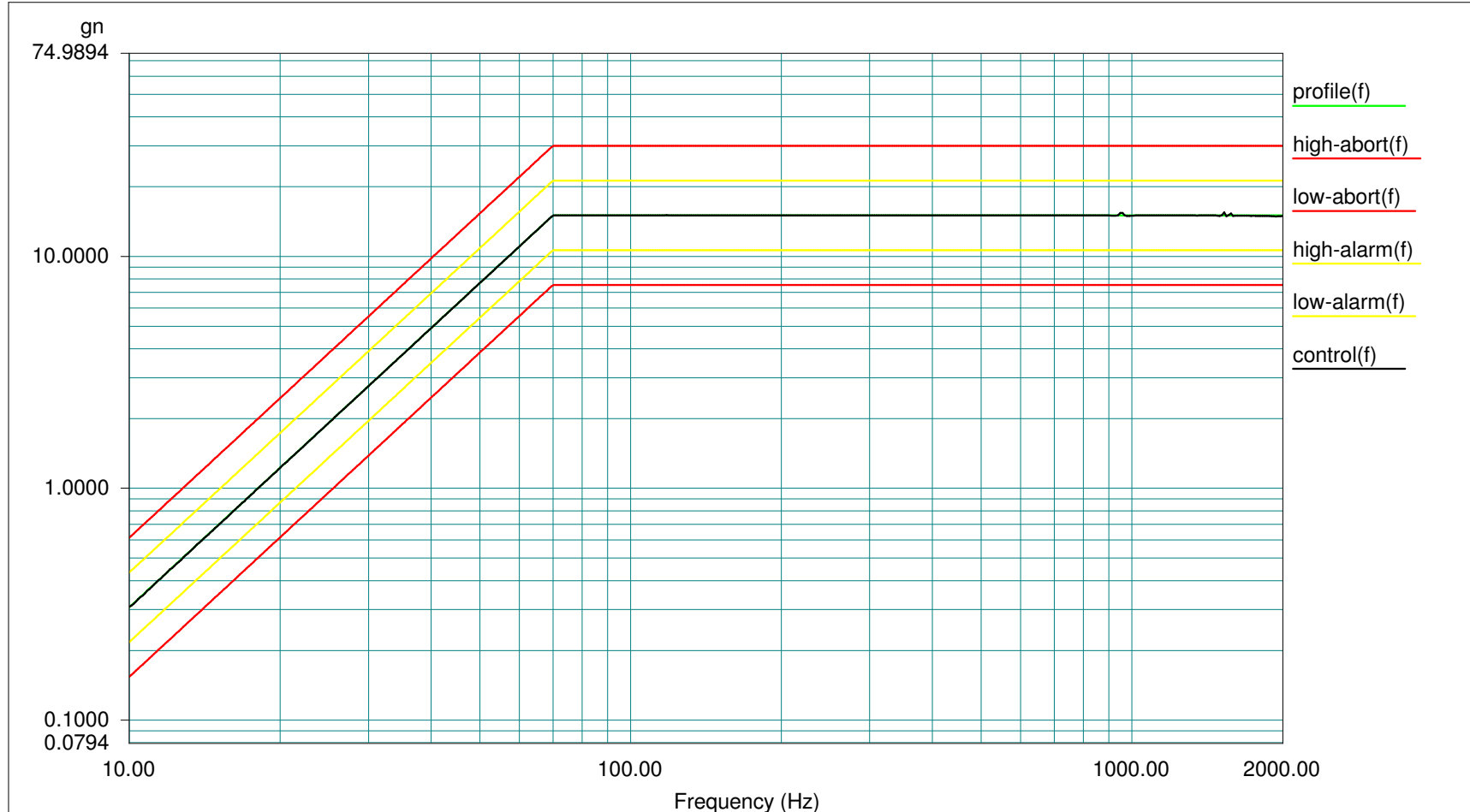


Level: 100 % Full Level Time: 01:00:00 Sweep Type: Logarithmic
 Frequency: 10.002364 Hz Time Remaining: 00:00:00 Sweep Rate: 0.764 Oct/Min

Y Axis

Project File Name: 宇瞻 10-2000Hz 1.52mm 15g.prj

Profile Name: Test Type:Swept Sine

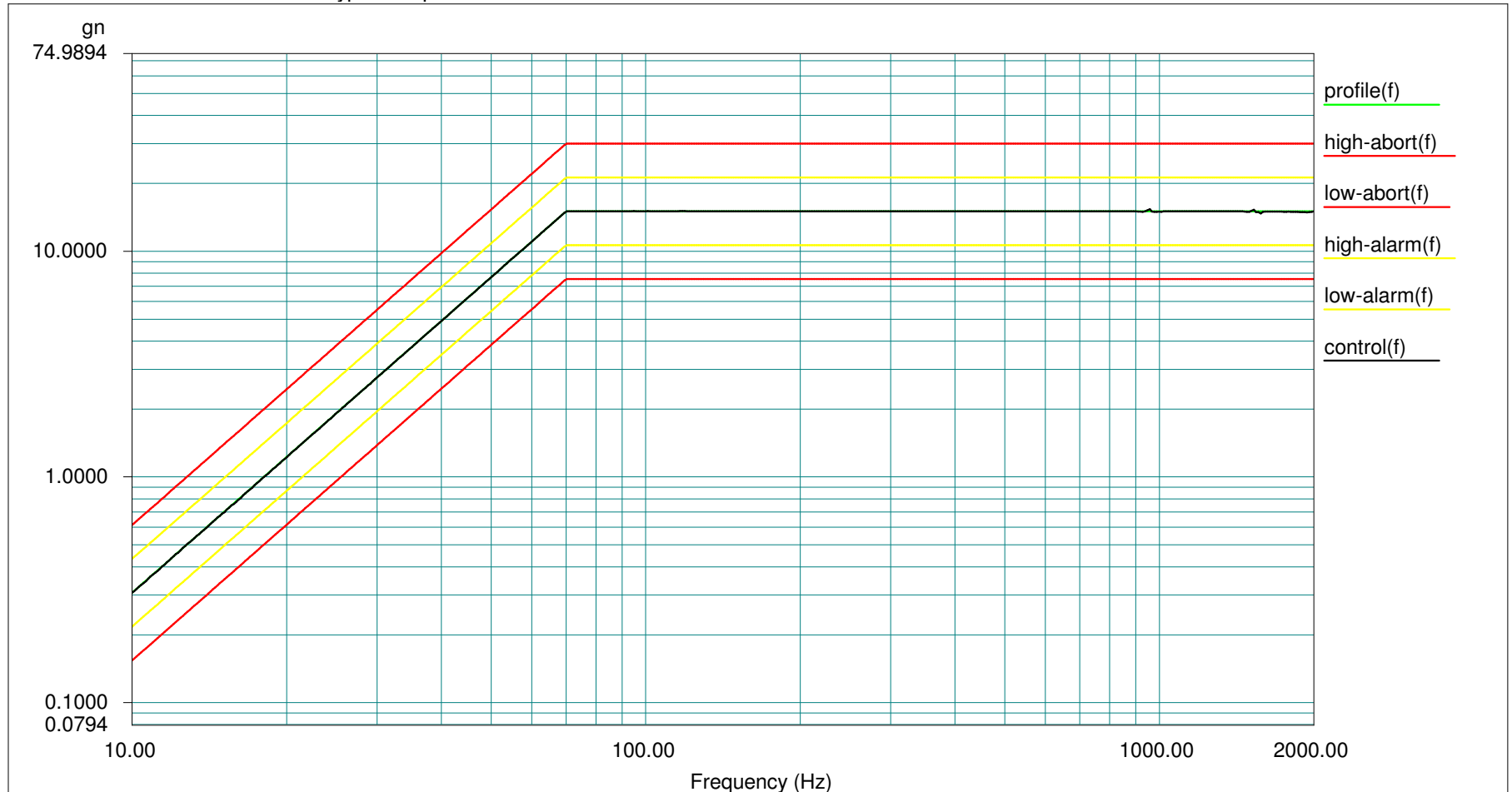


Level: 100 % Full Level Time: 01:00:00 Sweep Type: Logarithmic
 Frequency: 10.004251 Hz Time Remaining: 00:00:01 Sweep Rate: 0.764 Oct/Min

Z Axis

Project File Name: 宇瞻 10-2000Hz 1.52mm 15g.prj

Profile Name: Test Type:Swept Sine

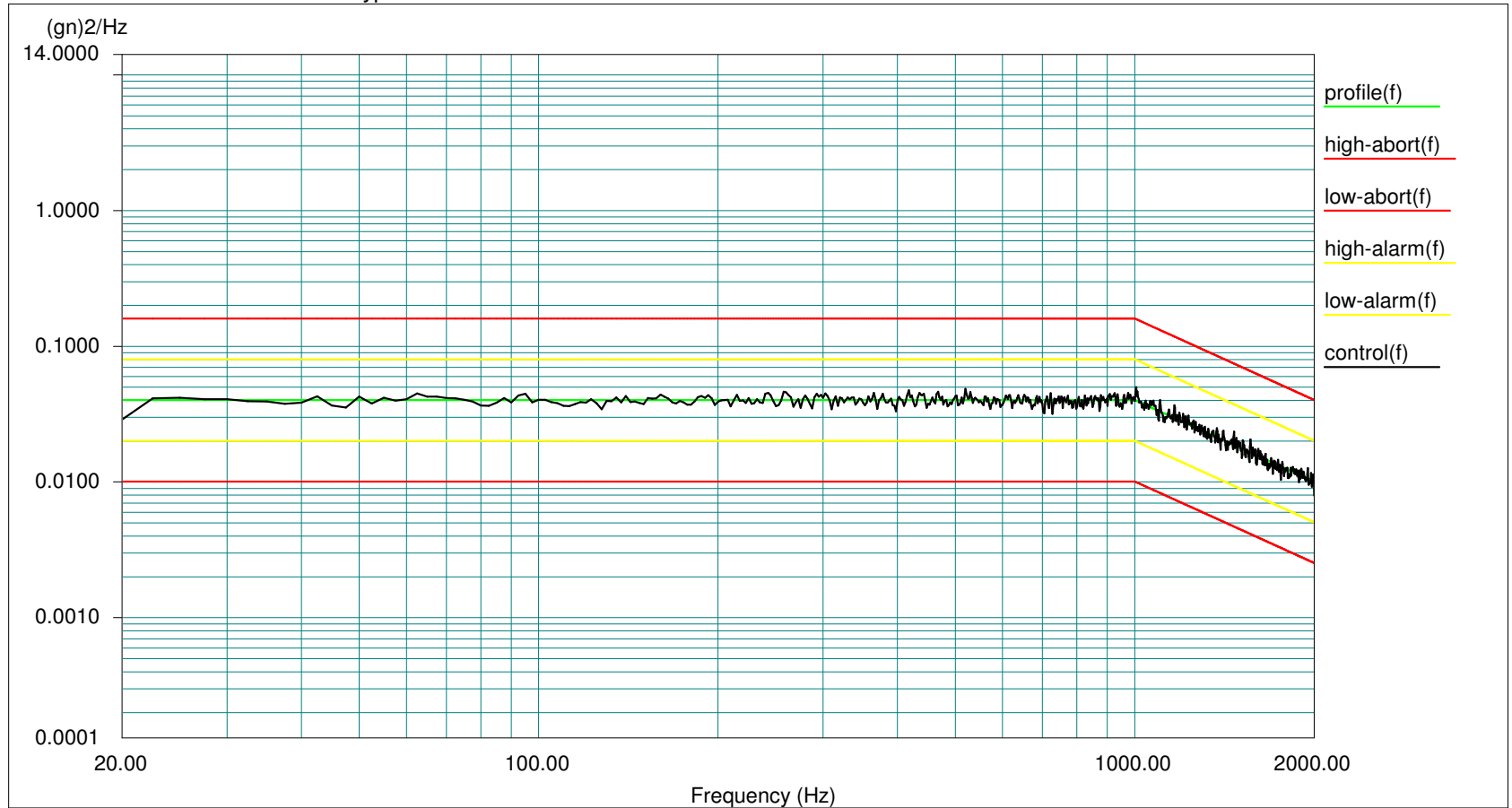


Level: 100 % Full Level Time: 01:00:00 Sweep Type: Logarithmic
 Frequency: 10.002364 Hz Time Remaining: 00:00:00 Sweep Rate: 0.764 Oct/Min

X Axis

Project File Name: MIL-STD 810G Category 24 20-2000Hz 7.69 g rms.prj

Profile Name: Test Type: Random



Level: 100 %

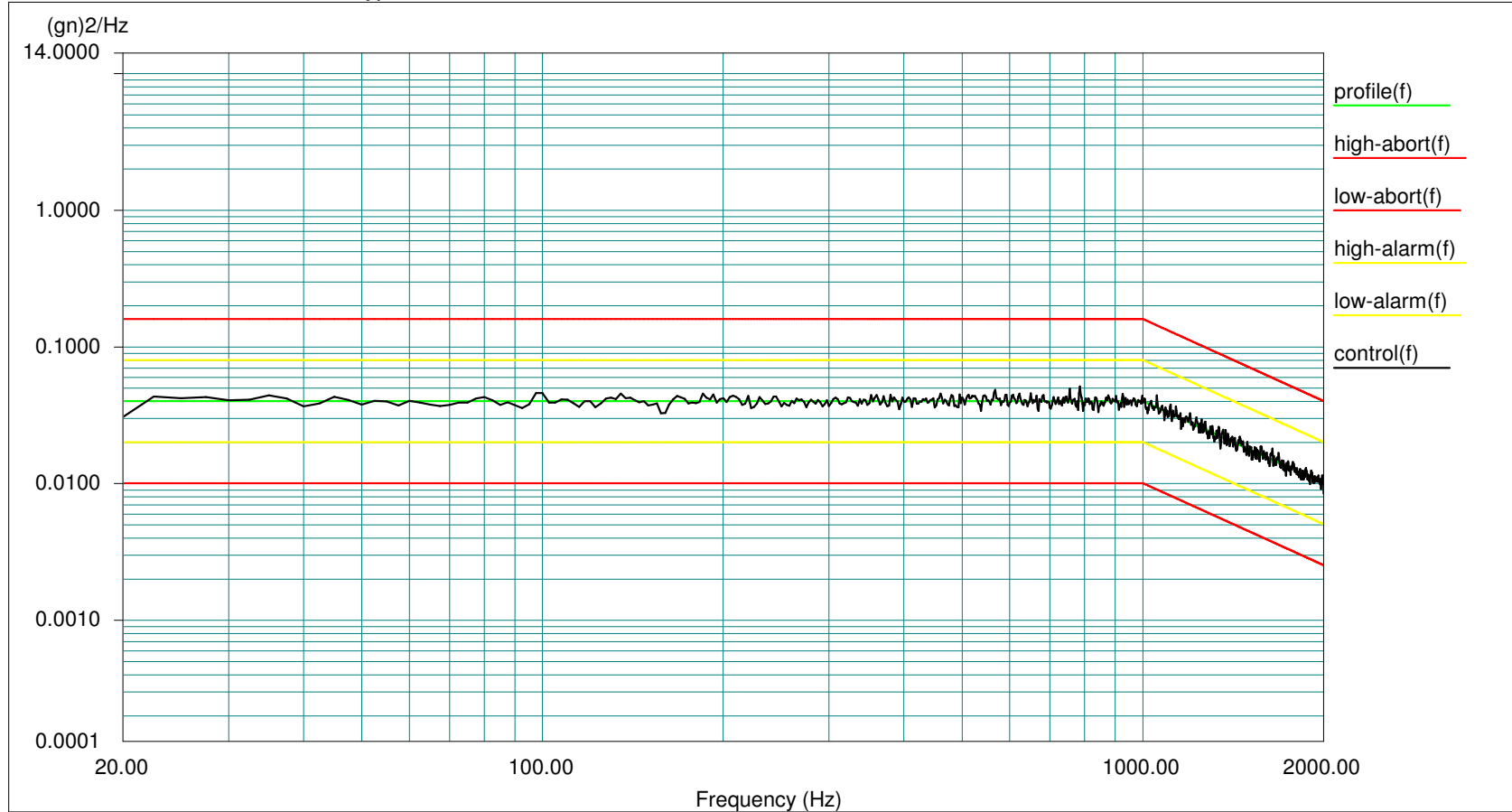
Control RMS: 7.699277 gn Full Level Elapsed Time: 01:00:00 Lines: 800 Frame Time: 0.400000 Seconds

Demand RMS: 7.699169 gn Remaining Time: 00:00:00 DOF: 154 dF: 2.500000 Hz

Y Axis

Project File Name: MIL-STD 810G Category 24 20-2000Hz 7.69 g rms.prj

Profile Name: Test Type: Random



Level: 100 %

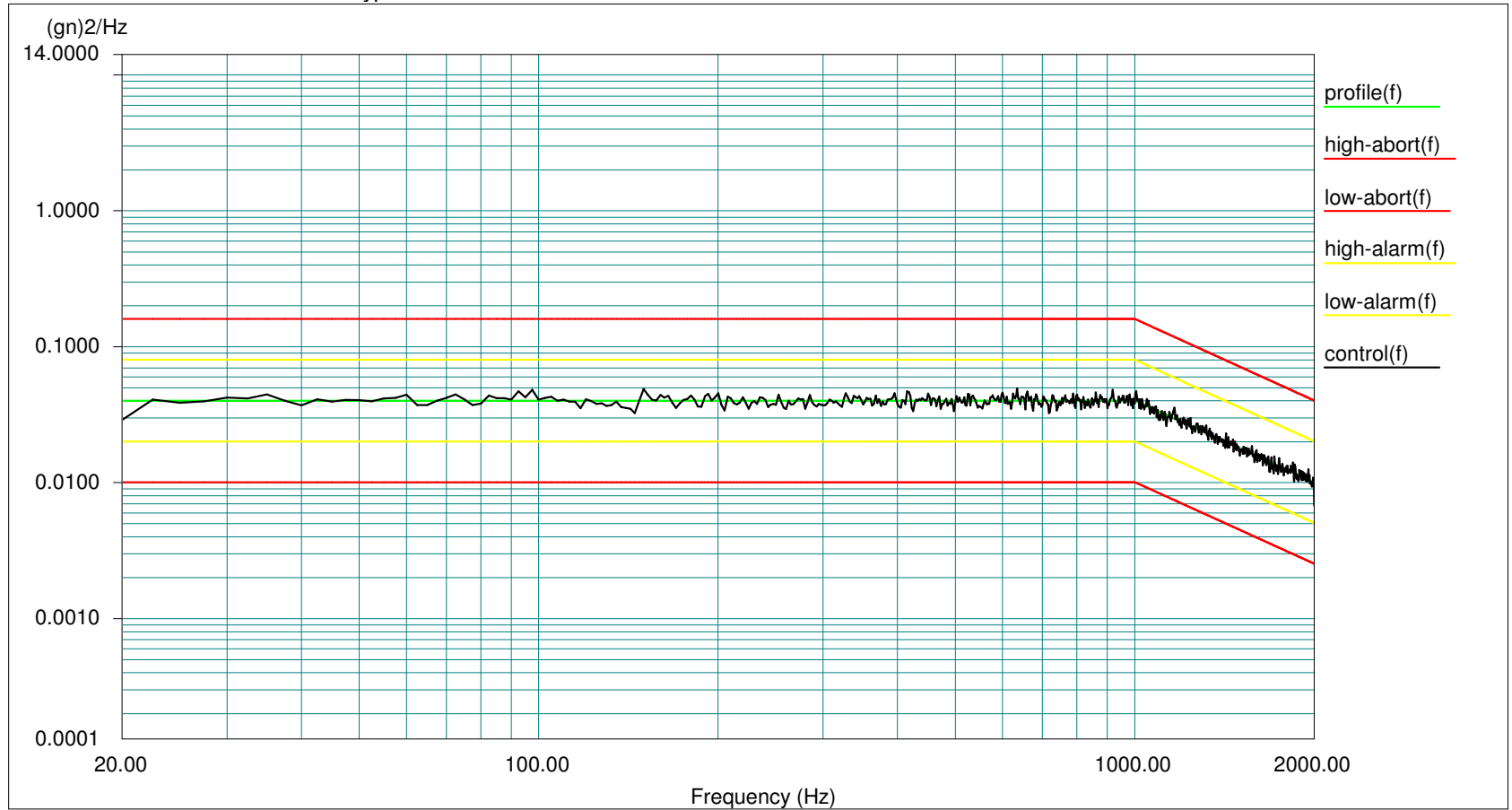
Control RMS: 7.713931 gn Full Level Elapsed Time: 01:00:00 Lines: 800 Frame Time: 0.400000 Seconds

Demand RMS: 7.699169 gn Remaining Time: 00:00:00 DOF: 154 dF: 2.500000 Hz

Z Axis

Project File Name: MIL-STD 810G Category 24 20-2000Hz 7.69 g rms.prj

Profile Name: Test Type: Random



Level: 100 %

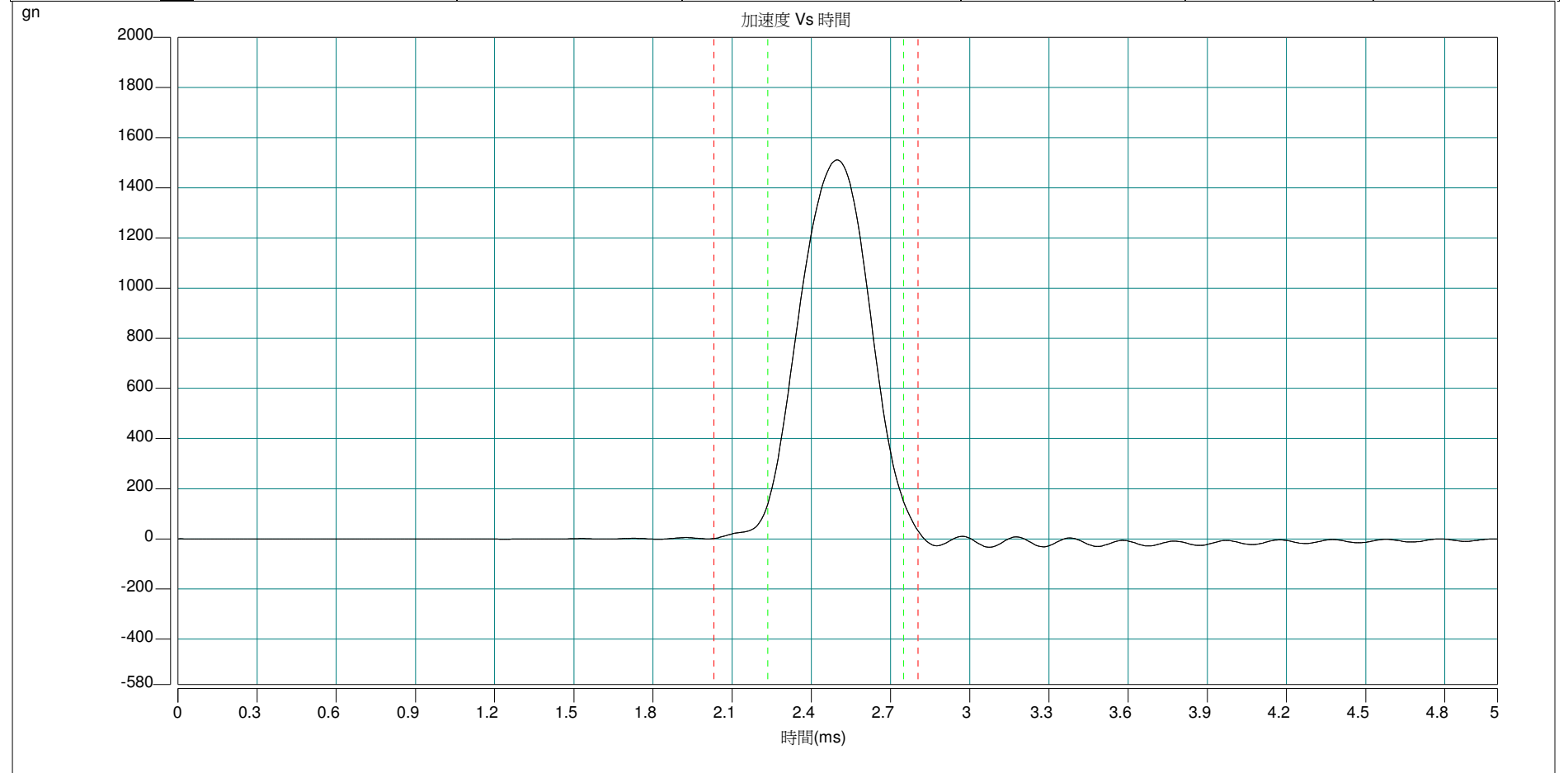
Control RMS: 7.691822 gn Full Level Elapsed Time: 01:00:00 Lines: 800 Frame Time: 0.400000 Seconds

Demand RMS: 7.699169 gn Remaining Time: 00:00:00 DOF: 154 dF: 2.500000 Hz

+X axis

加速度 Vs 時間

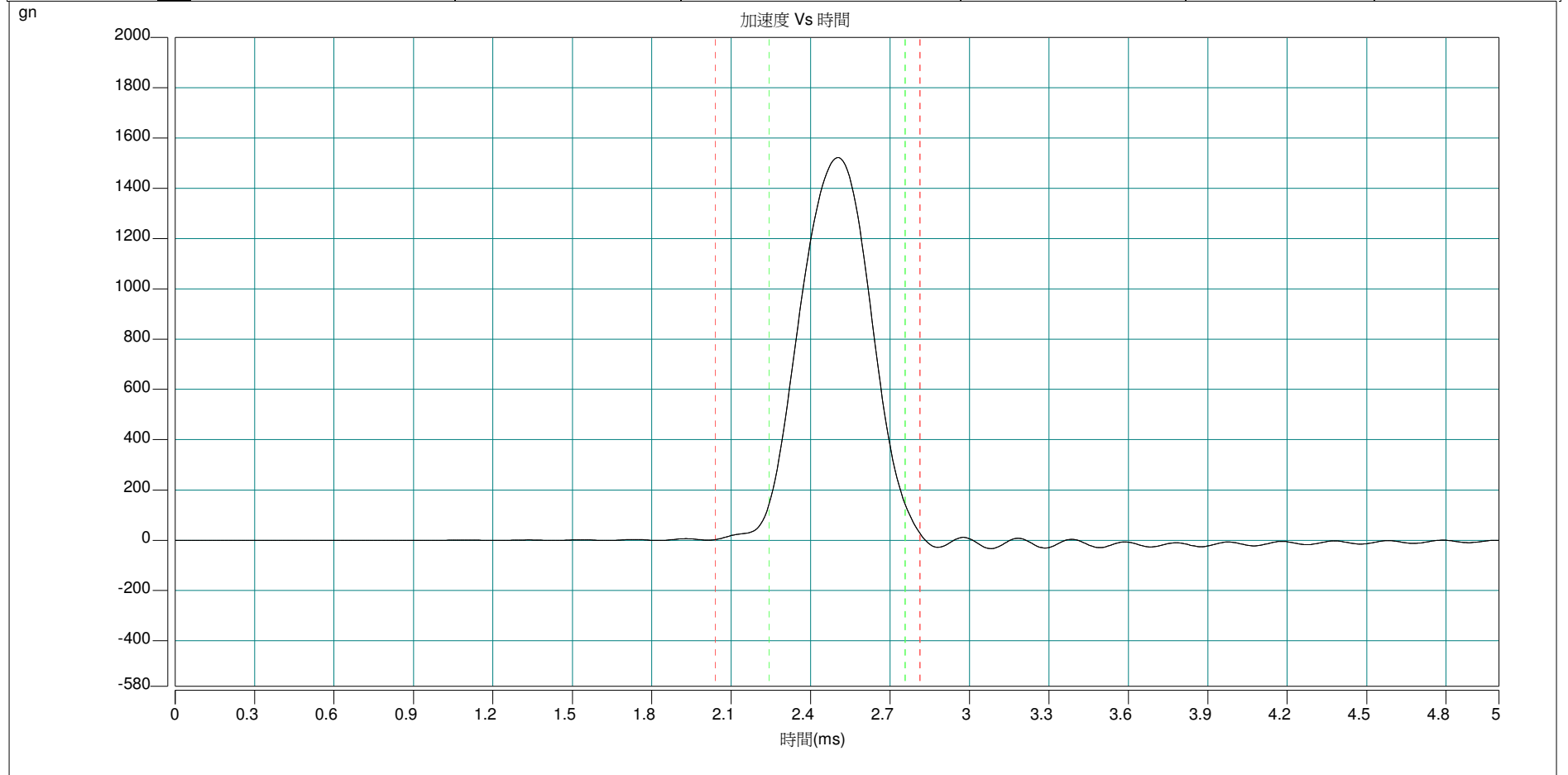
訊號名稱	加速度 (gn)	作動時間 (ms)	速度變化率 (m/s)	低通濾波 (Hz)	最大加速度	最小加速度
Input1 (t)	1511.39	0.51	4.68	5000.00	1511.39	-33.27



-X axis

加速度 Vs 時間

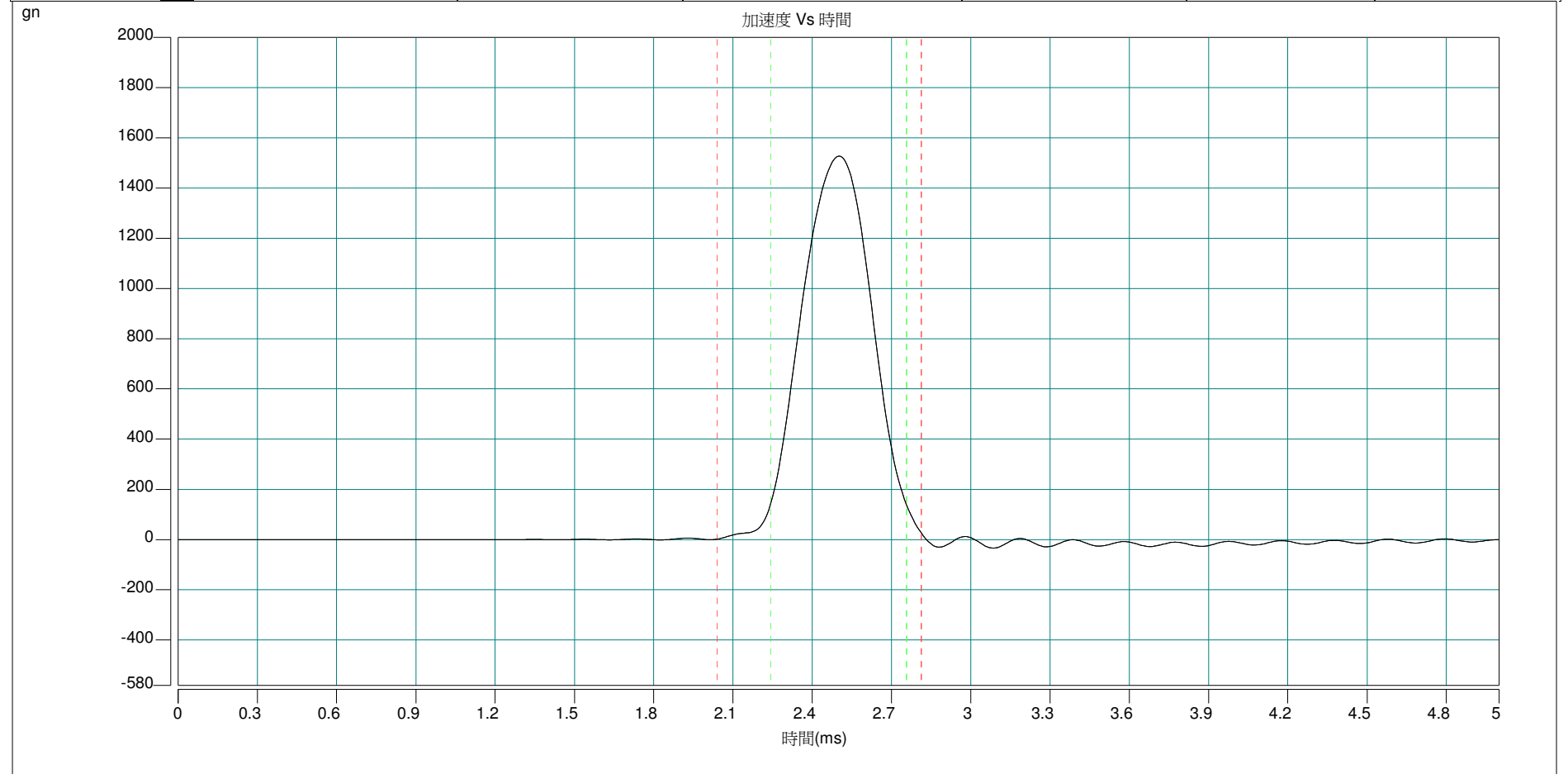
訊號名稱	加速度 (gn)	作動時間 (ms)	速度變化率 (m/s)	低通濾波 (Hz)	最大加速度	最小加速度
Input1 (t)	1522.23	0.51	4.70	5000.00	1522.23	-33.00



+Y Axis

加速度 Vs 時間

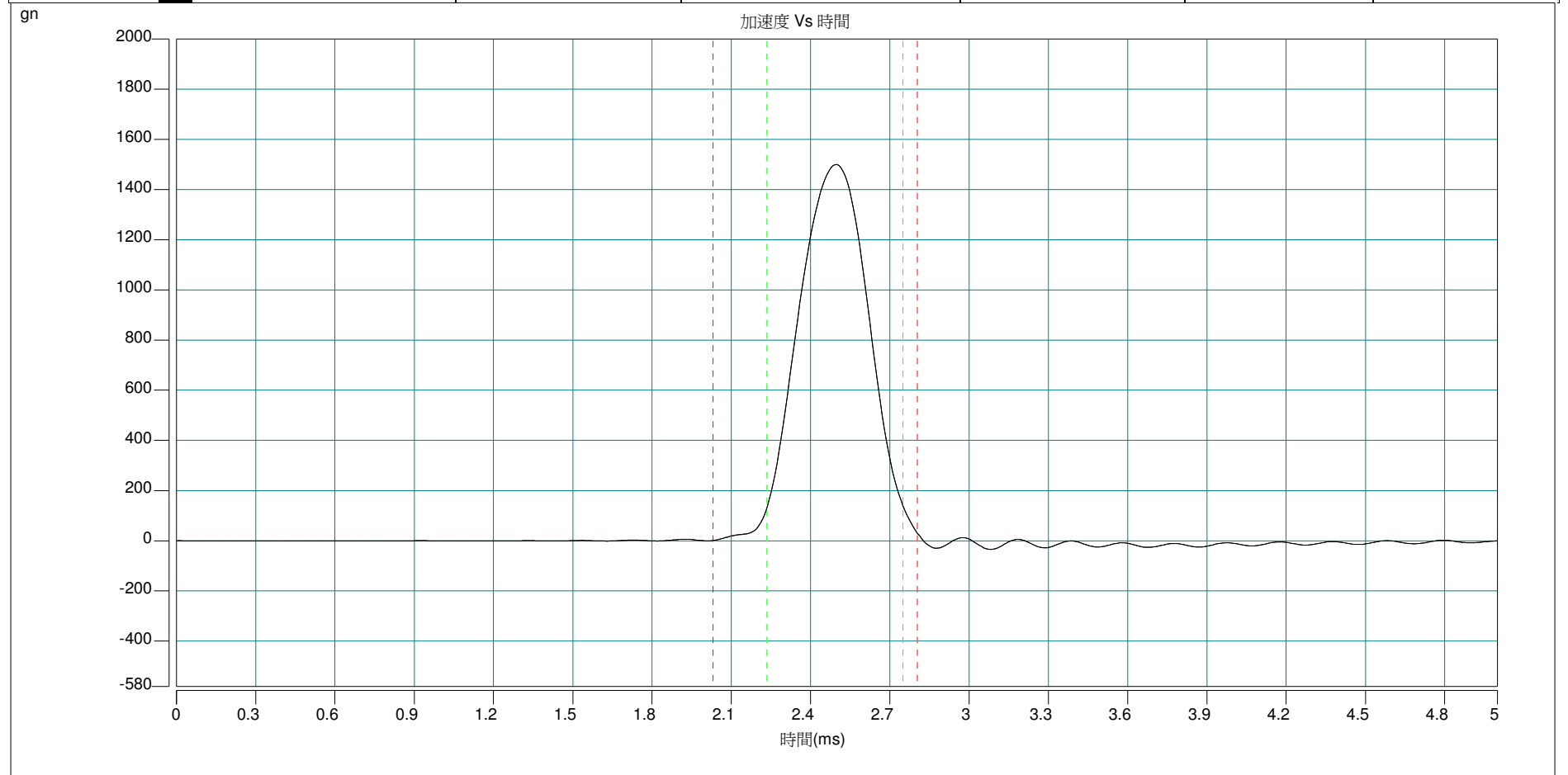
訊號名稱	加速度 (gn)	作動時間 (ms)	速度變化率 (m/s)	低通濾波 (Hz)	最大加速度	最小加速度
Input1 (t)	1527.40	0.51	4.70	5000.00	1527.40	-33.85



-Y Axis

加速度 Vs 時間

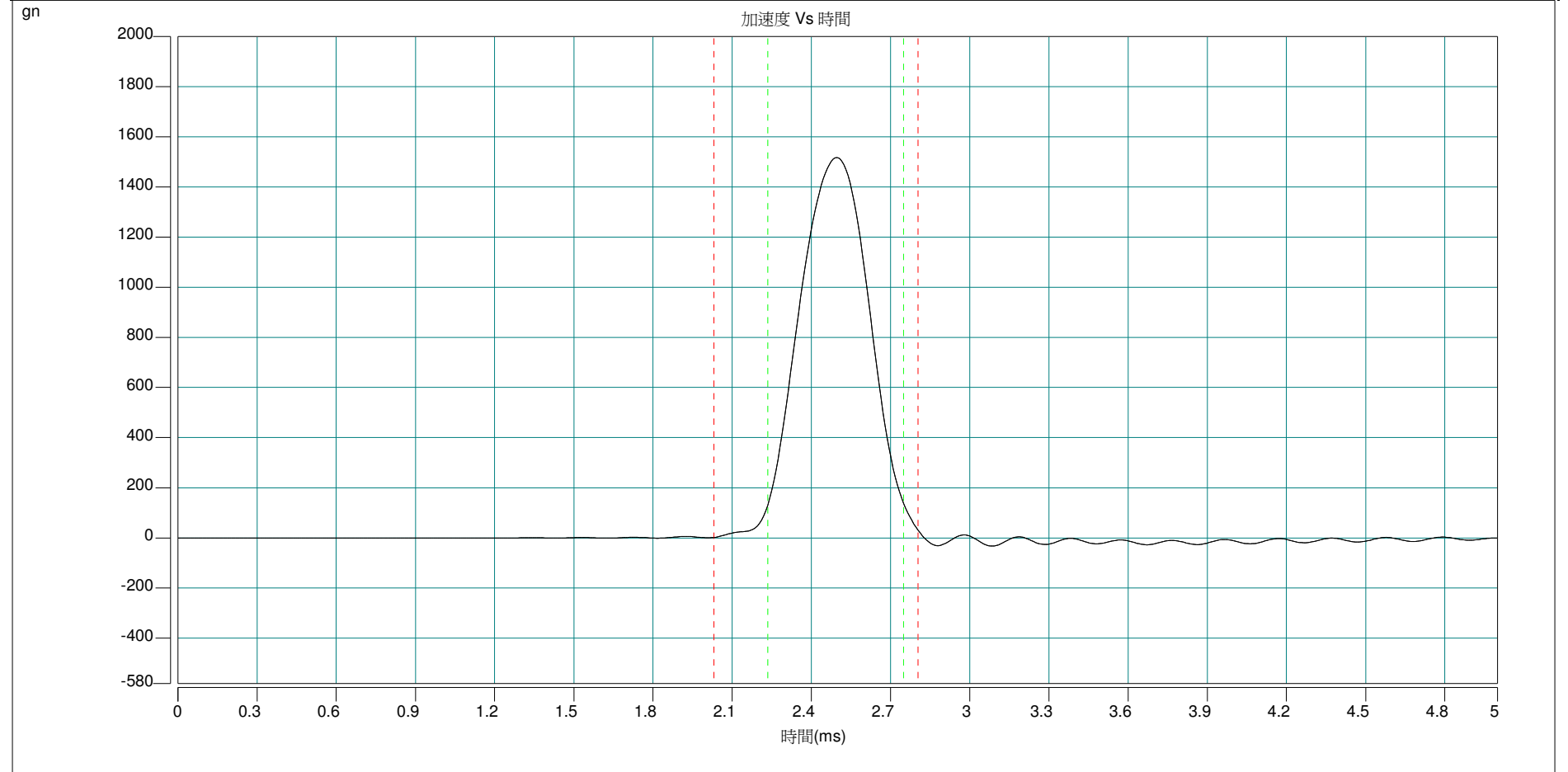
訊號名稱	加速度 (gn)	作動時間 (ms)	速度變化率 (m/s)	低通濾波 (Hz)	最大加速度	最小加速度
Input1 (t)	1500.89	0.51	4.62	5000.00	1499.89	-34.26



+Z Axis

加速度 Vs 時間

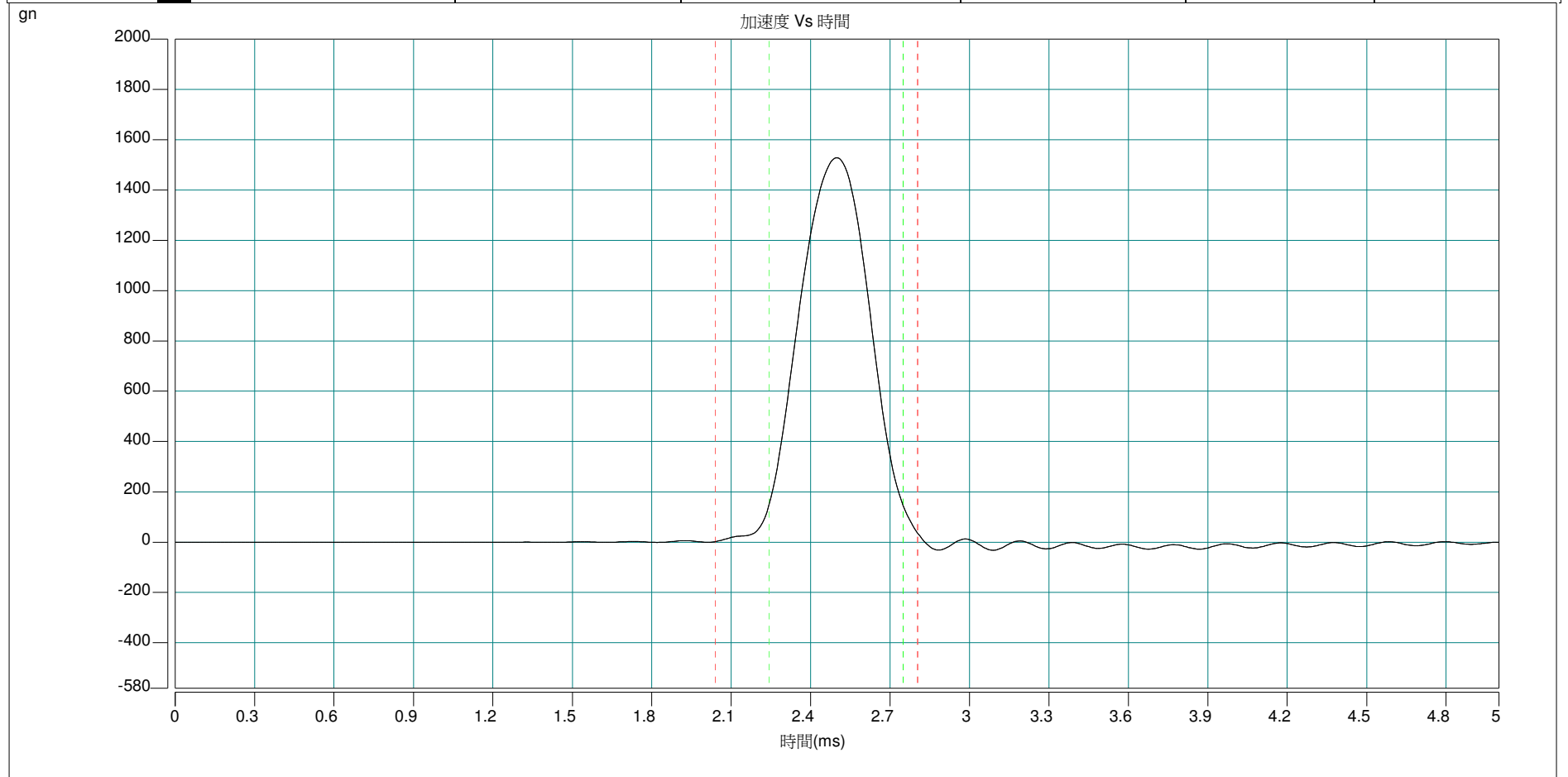
訊號名稱	加速度 (gn)	作動時間 (ms)	速度變化率 (m/s)	低通濾波 (Hz)	最大加速度	最小加速度
Input1 (t)	1516.74	0.50	4.66	5000.00	1516.74	-32.42



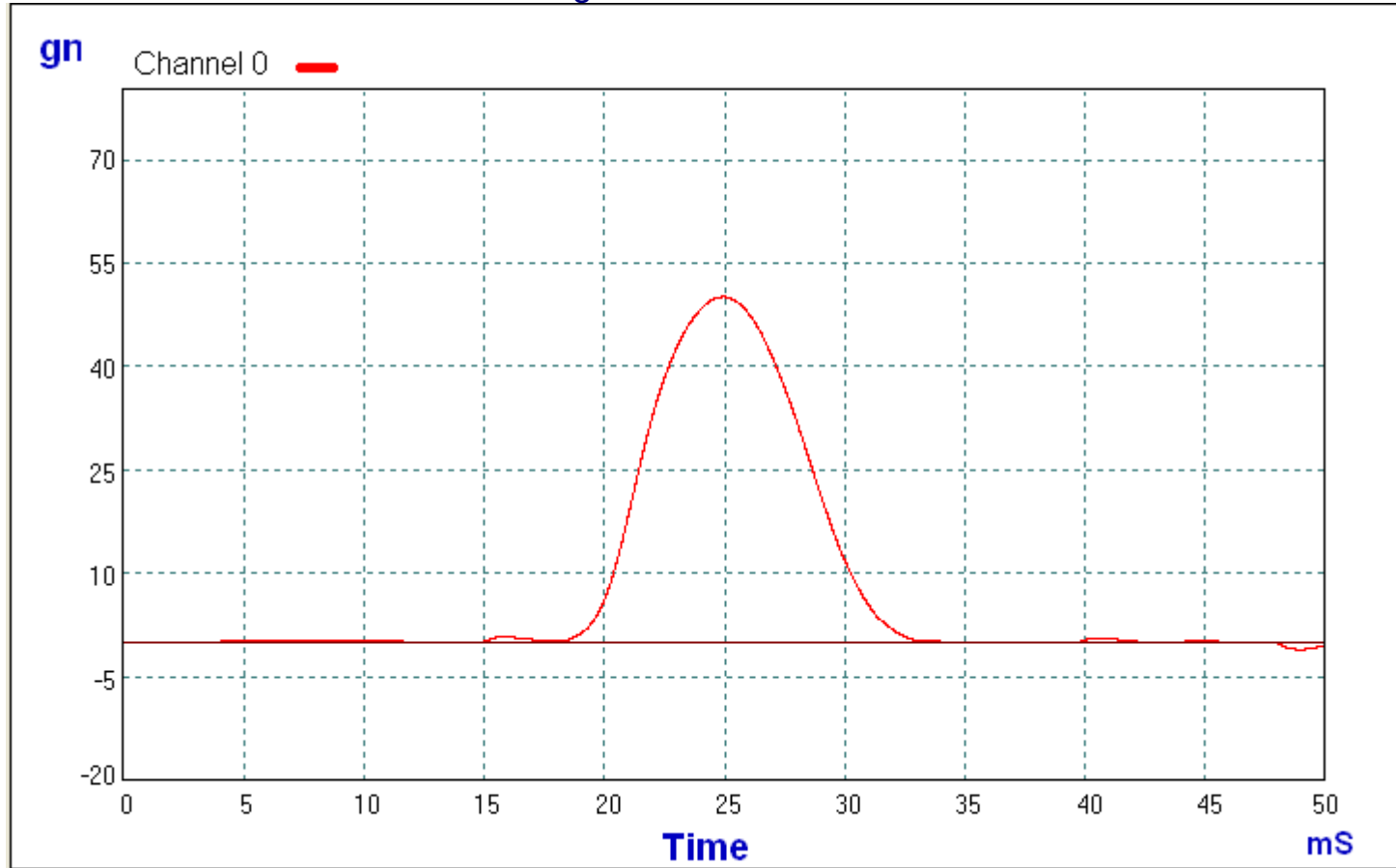
-Z Axis

加速度 Vs 時間

訊號名稱	加速度 (gn)	作動時間 (ms)	速度變化率 (m/s)	低通濾波 (Hz)	最大加速度	最小加速度
Input1 (t)	1529.29	0.50	4.69	5000.00	1529.29	-31.48

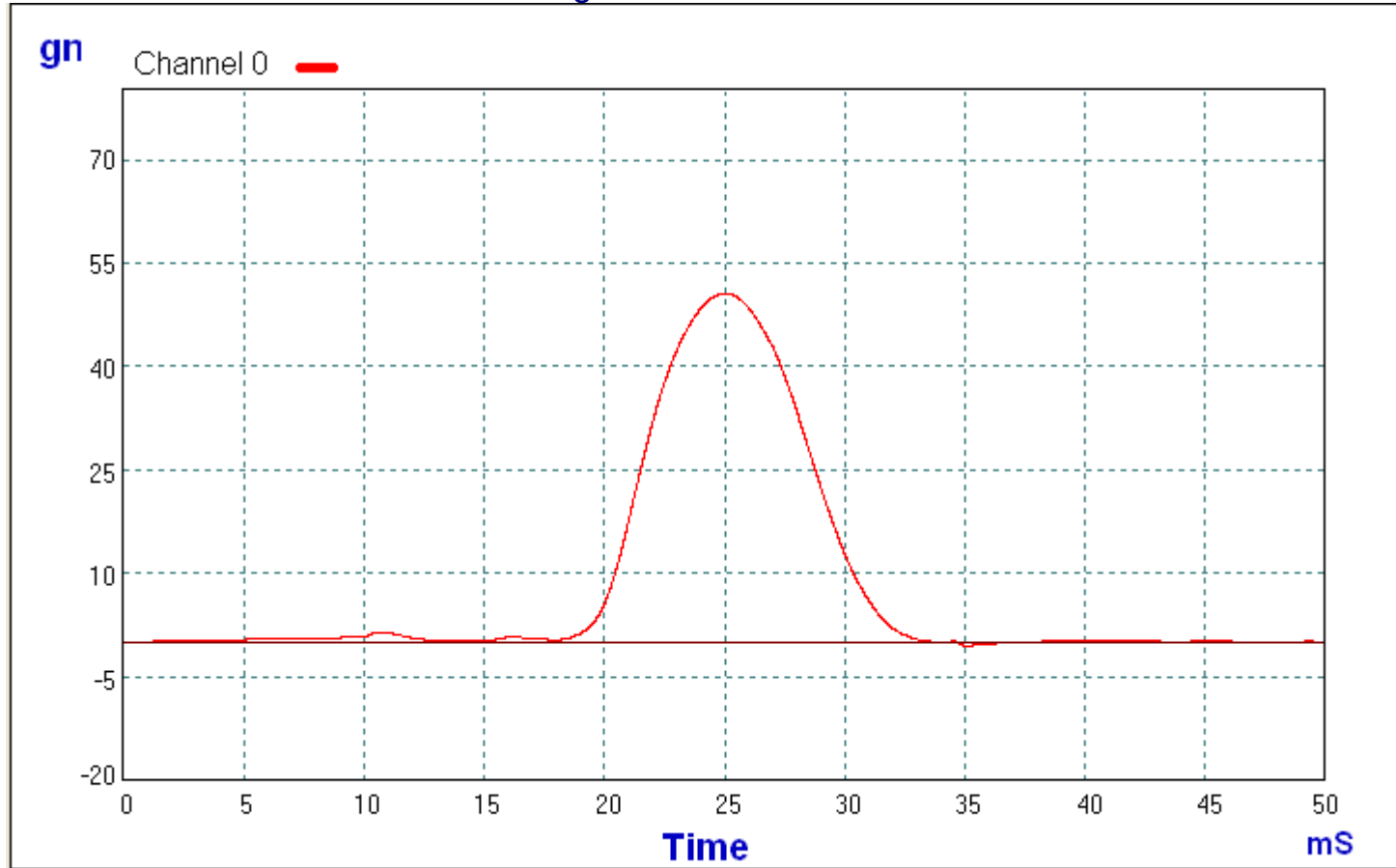


SHOCK TEST SPECIFICATION : 50 g 11 mS HEIGHT : 240 mm CYCLE OF TEST : 3/3



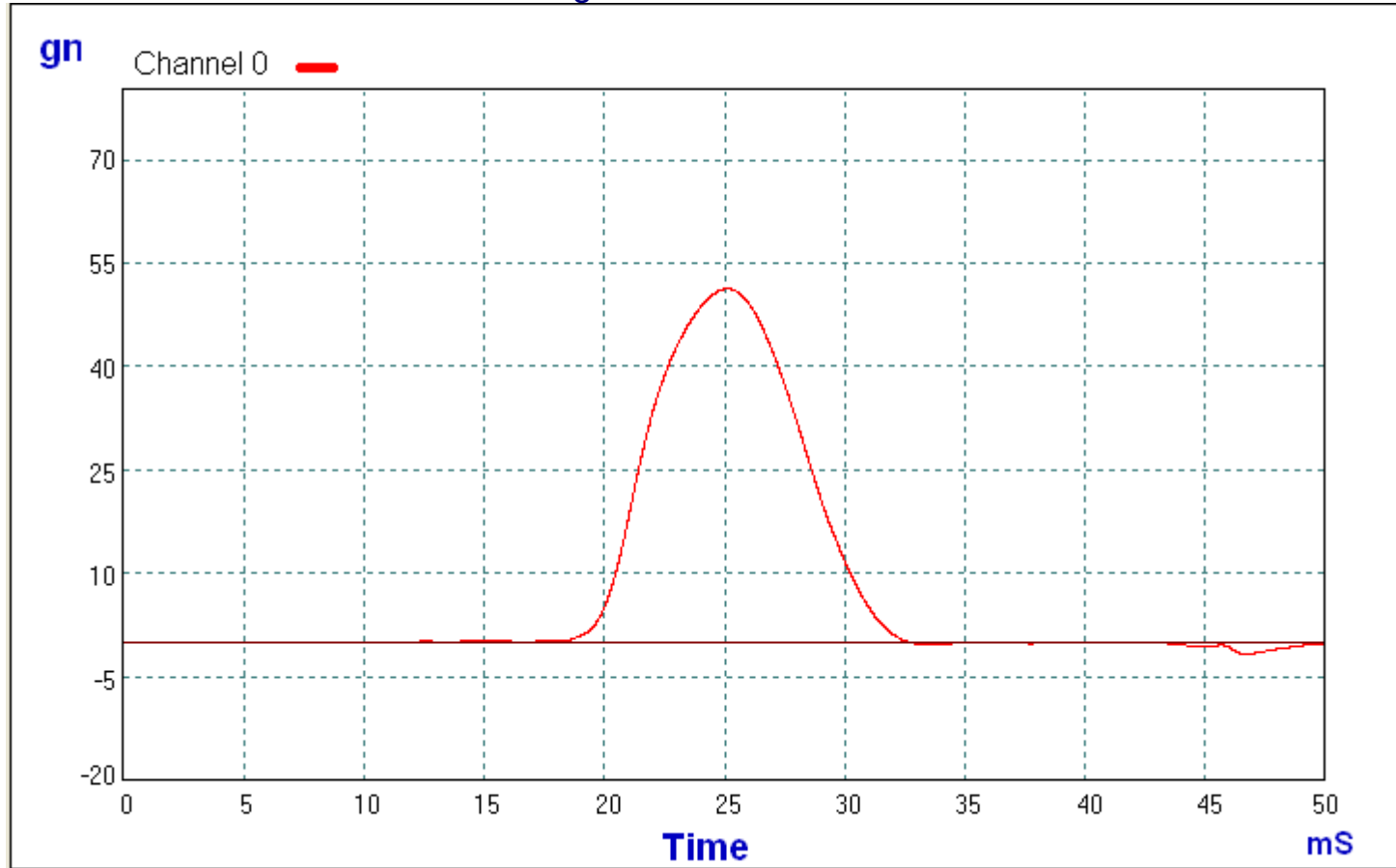
	Acceleration(gn)	Duration time(ms)	Velocity(m/sec)	Filter(Hz)
+X Axis (Ch 0)	50.09	11.23	3.523	500

SHOCK TEST SPECIFICATION : 50 g 11 mS HEIGHT : 240 mm CYCLE OF TEST : 3/3



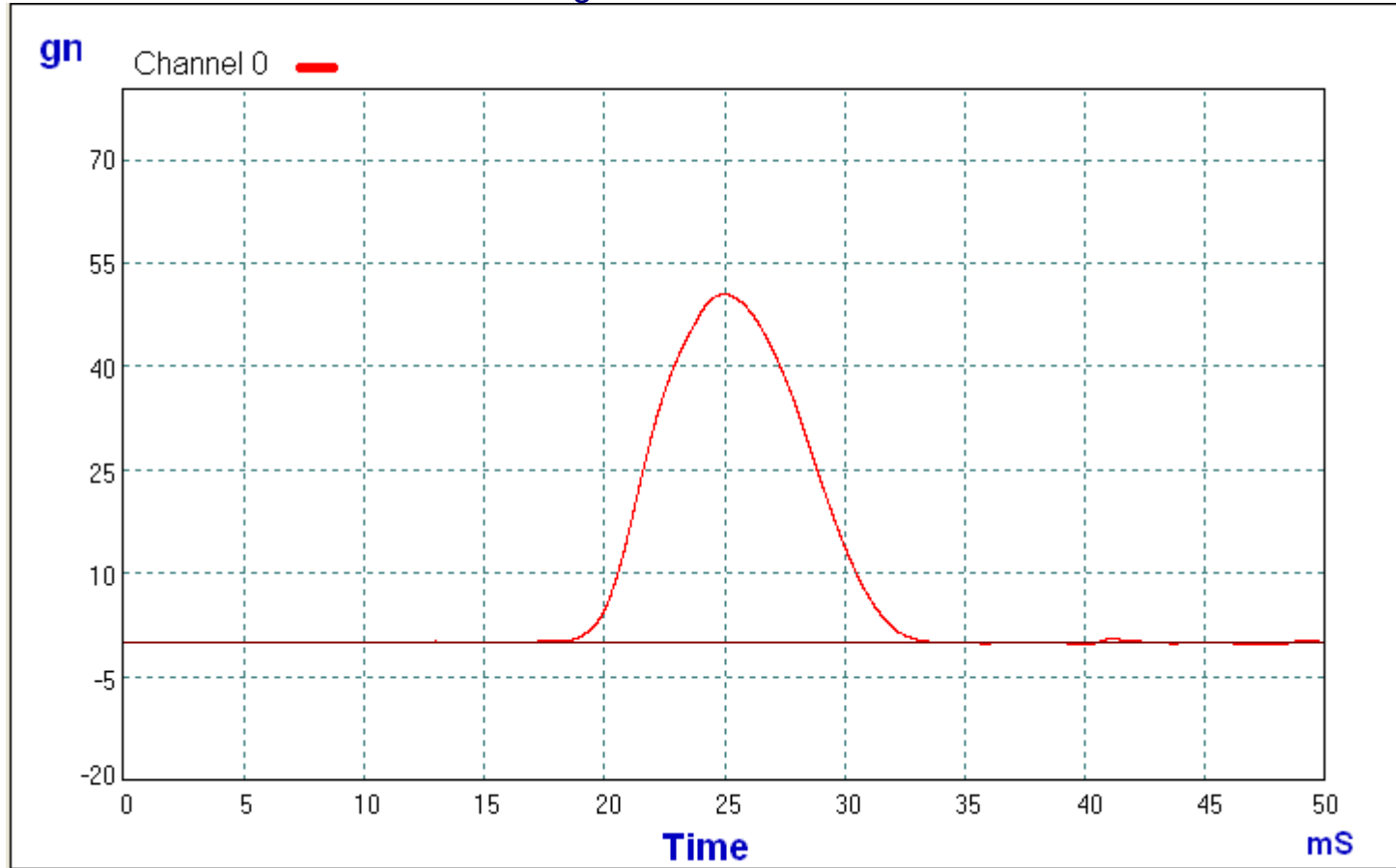
	Acceleration(gn)	Duration time(ms)	Velocity(m/sec)	Filter(Hz)
-X Axis (Ch 0)	50.58	11.28	3.566	500

SHOCK TEST SPECIFICATION : 50 g 11 mS HEIGHT : 240 mm CYCLE OF TEST : 3/3



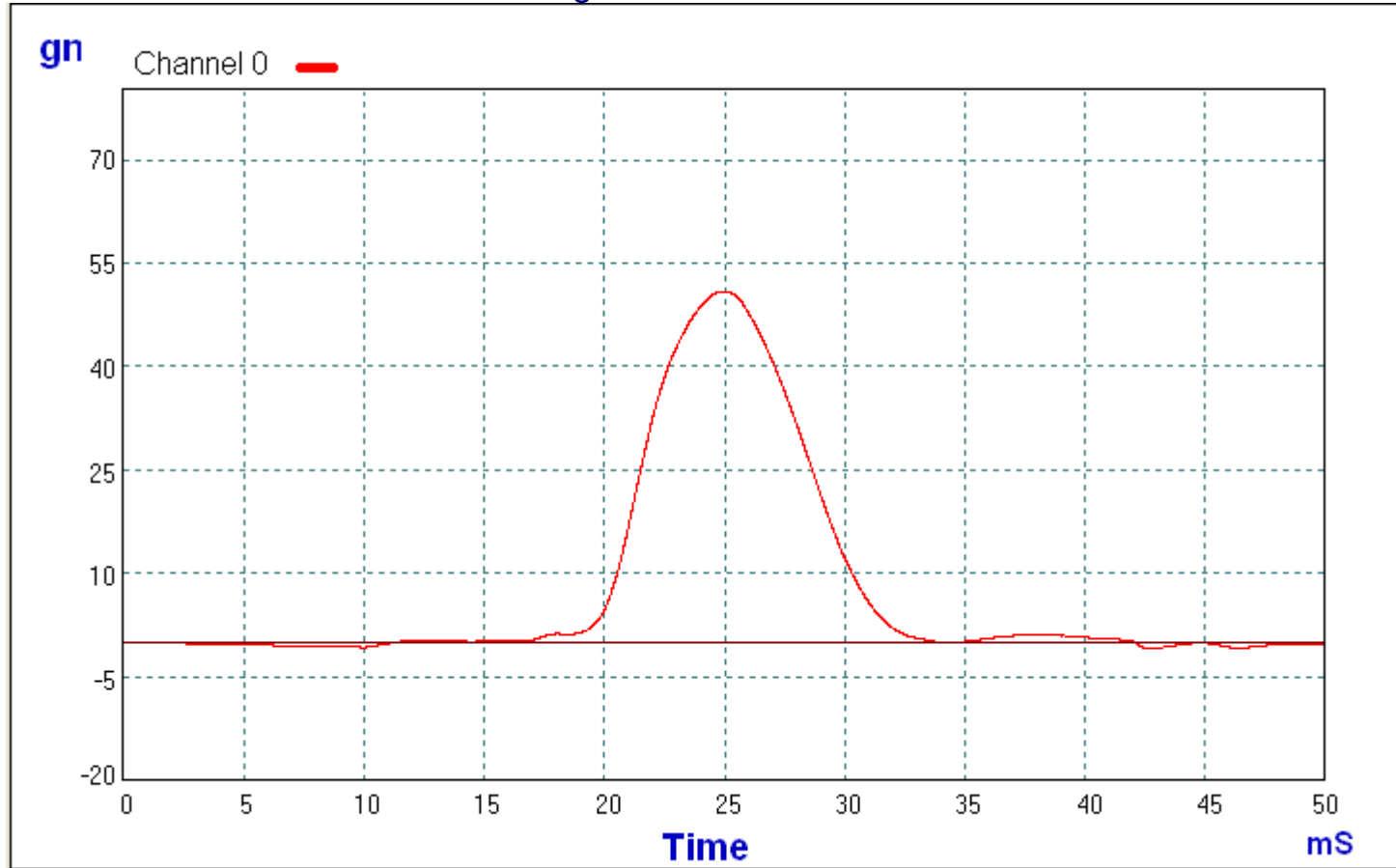
	Acceleration(gn)	Duration time(ms)	Velocity(m/sec)	Filter(Hz)
+Y Axis (Ch 0)	51.30	11.01	3.533	500

SHOCK TEST SPECIFICATION : 50 g 11 mS HEIGHT : 240 mm CYCLE OF TEST : 3/3



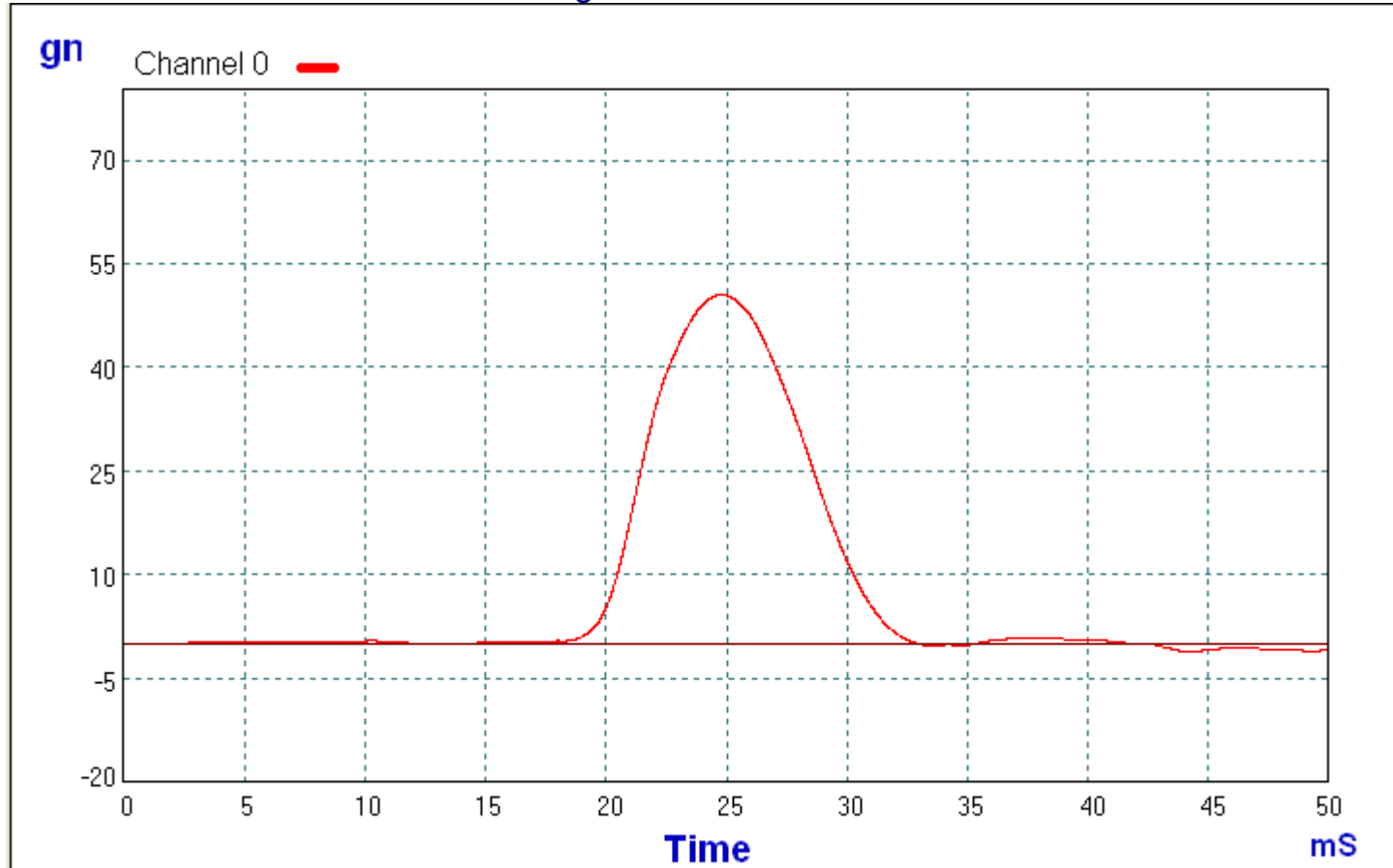
	Acceleration(gn)	Duration time(ms)	Velocity(m/sec)	Filter(Hz)
-Y Axis (Ch 0)	50.47	11.26	3.526	500

SHOCK TEST SPECIFICATION : 50 g 11 mS HEIGHT : 240 mm CYCLE OF TEST : 3/3



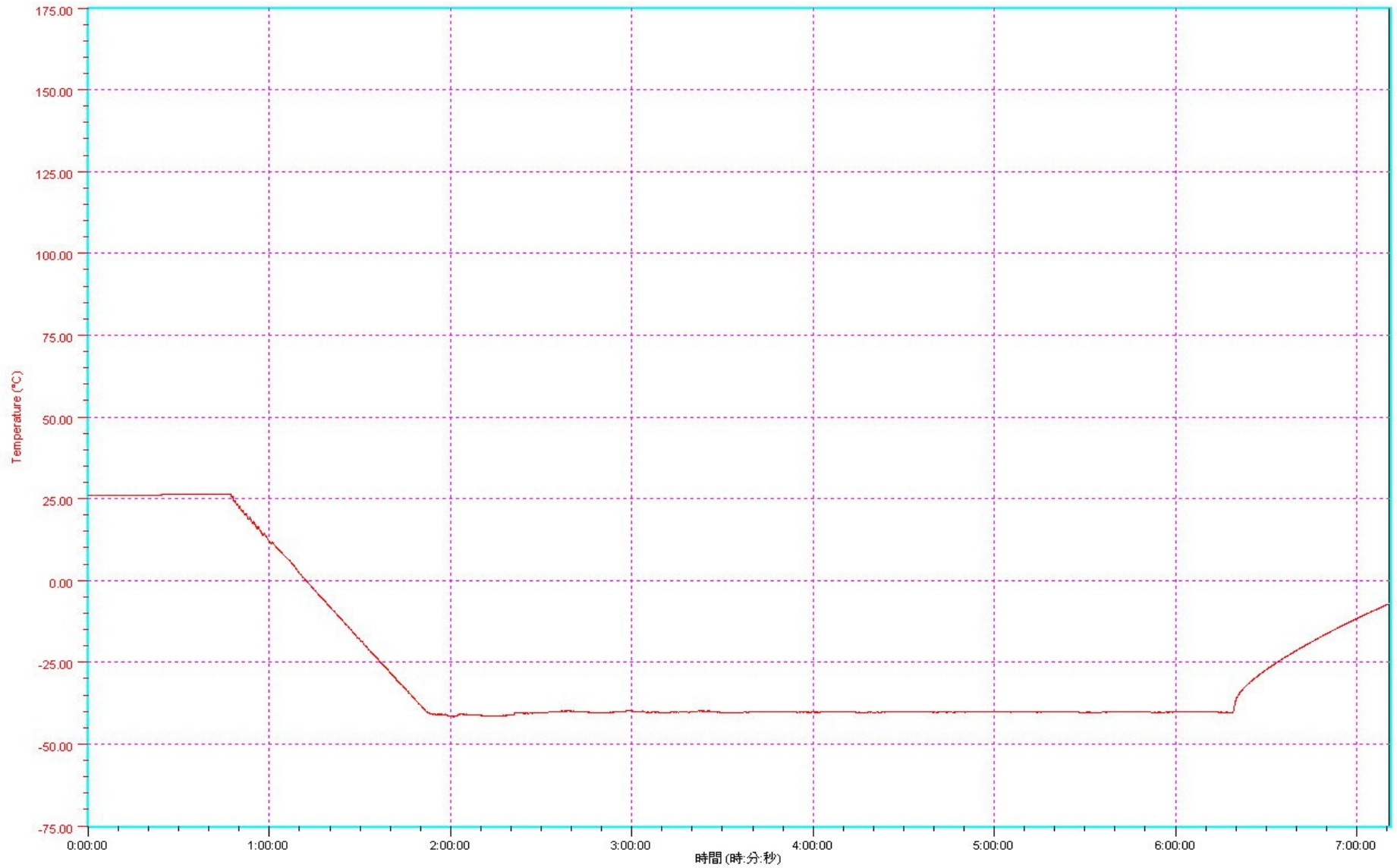
	Acceleration(gn)	Duration time(ms)	Velocity(m/sec)	Filter(Hz)
+Z Axis (Ch 0)	50.88	11.11	3.500	500

SHOCK TEST SPECIFICATION : 50 g 11 mS HEIGHT : 240 mm CYCLE OF TEST : 3/3



	Acceleration(gn)	Duration time(ms)	Velocity(m/sec)	Filter(Hz)
-Z Axis (Ch 0)	50.49	11.12	3.502	500

Cold Start Test



-END-