

ISO-9001 Certified
ISO-14000 Certified
ISO-17025 Certified
ADVANTECH CO., LTD.

QA Test Report

IPC-7220

(Product Reliability Test)

Report No : 04S055A0

Report Date : November 22, 2004

Issue Stamp

Charles Chang
Manager of QA Department

Charles Chang
Approval

Jeff Yang
Test Engineer

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www.advantech.com

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Test Item List

QA Lab Reliability test

Num.	Test item	Result	Remark
1	High temperature operation test	Passed	
2	Low temperature operation test	Passed	
3	High temperature & humidity storage test	Passed	
4	Low temperature storage test	Passed	
5	Humidity test	Passed	
6	Temperature cycle test	Passed	
7	Thermal profile test	Passed	
8	Cold start test	Passed	
9	Random vibration test	Passed	
10	Sine vibration test	Passed	
11	Package vibration test	Passed	
12	Drop test	Passed	

 QA Lab Reliability test

IPC-7220 Desktop/Wall Mountable Chassis for ATX motherboard

Num	Item	Specification
1	Driver Bay	Two 5.25" One 3.5"
2	Cooling	Two air filter (one 7 cmx 12cm and one 12 cm x12cm)
3	I/O interface	2 USB PS/2 keyboard and mouse, or PS/2 keyboard depends on the enclosed CPU board
4	Miscellaneous	Indicators---PWR,HDD,TEMP and FAN Switches---- Power and reset Rear panel--- Two D-SUB 9-pin openings
5	Dimensions (Wx Hx D)	200 x 320 x 480 mm (7.9"x 12.6"x 18.9")
6	Weight	11.5 Kg

QA Lab Reliability test

Photo I:



IPC-7220 front side view

Photo II:



IPC-7220 front side view (open front case)

QA Lab Reliability test

Photo III:



IPC-7220 rear side view

QA Lab Reliability test

Photo IV:



IPC-7220 over look

QA Lab Reliability test

Photo V:



IPC-7220 structure photo I

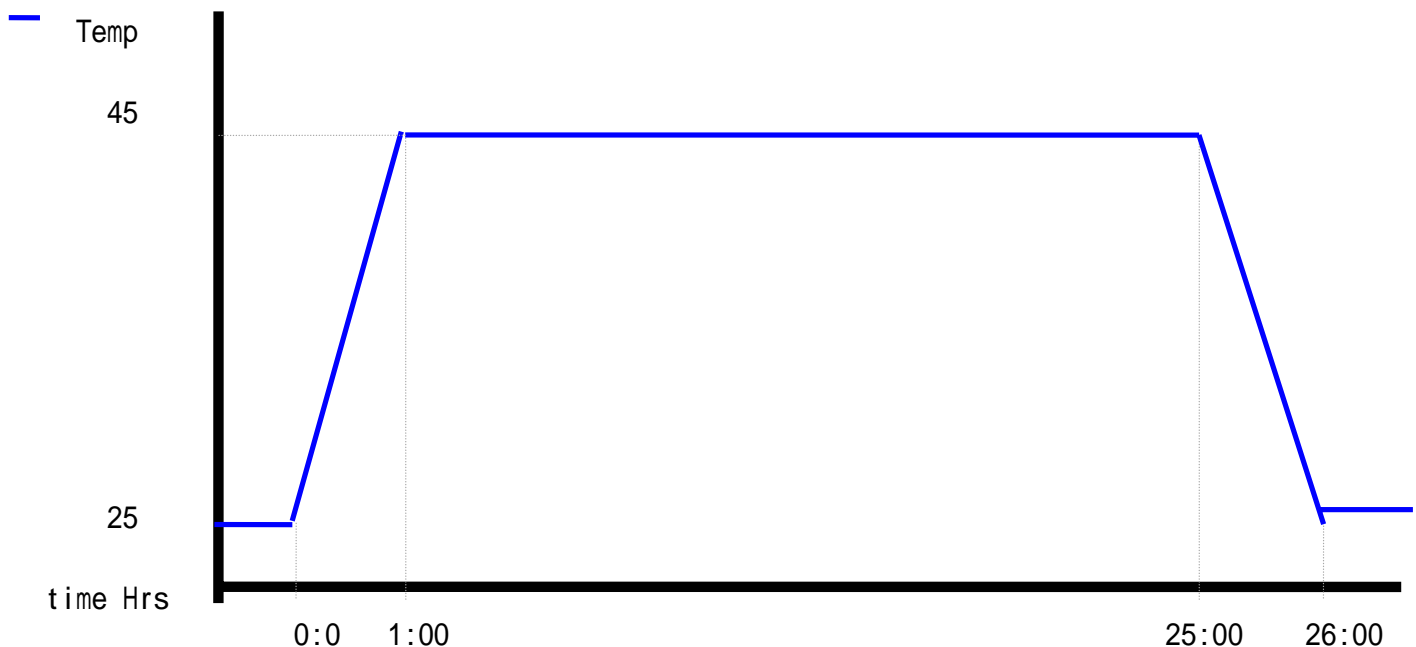
Photo VI:



IPC-7220 structure photo II

*QA Lab Reliability test***Test Date :** September 22, 2004 ~ September 23, 2004**Test Site :** Advantech QA Environment Lab**Performed By :** Jeff Yang**Purpose :** The DVT test**Test Standard :** Reference IEC68-2-2 Testing procedures
Test Bb : Dry Heat Test**Test Condition :**

1. Test Temperature : 45
2. Test Times : 24Hrs
3. Test Software : Running HCT 9.5 in Win2000
4. Test Environment Curve :



QA Lab Reliability test

Test Equipment : Programmable Temperature & Humidity Chamber

K.SON. INS. TECH CORP.

Model : THS-D7S +-150-LN2

Date of Calibration : 04/09/2004

Sample Configuration & Quantity Under Test :

Using one IPC-7220 with the following options installed :

1. M/B: AIMB-742 Rev. A1
2. CPU : Intel Pentium 4 3.2GHz
3. RAM : Apacer DDR400 512MB
4. HDD : Seagate ST340015A
5. FDD : TEAC FD-235HF
6. CD-ROM : Aopen CD-952E/AKV
7. Power supply : FSP300-60PVN 300W
8. Heatsink fan : CoolJag Everflow R127015BU

Performance Criteria :

Electronic function check:

- 1.All system functions must be checked with appropriate testing programs and should pass the inspection.
- 2.Running Win2000 for OS, the system should not have degradation in its performance.

Mechanical function check:

1. The cover and connectors should work properly without any interference.
2. All screws should be tightened up appropriately.

QA Lab Reliability test

Test Result :

There is no damage in electronic and mechanical functions.

Degradation has not been found.

Performance is maintained with no incurable physical damage or degradation.

Conclusion :

Passed.

The IPC-7220 meets high temperature operation test.

QA Lab Reliability test

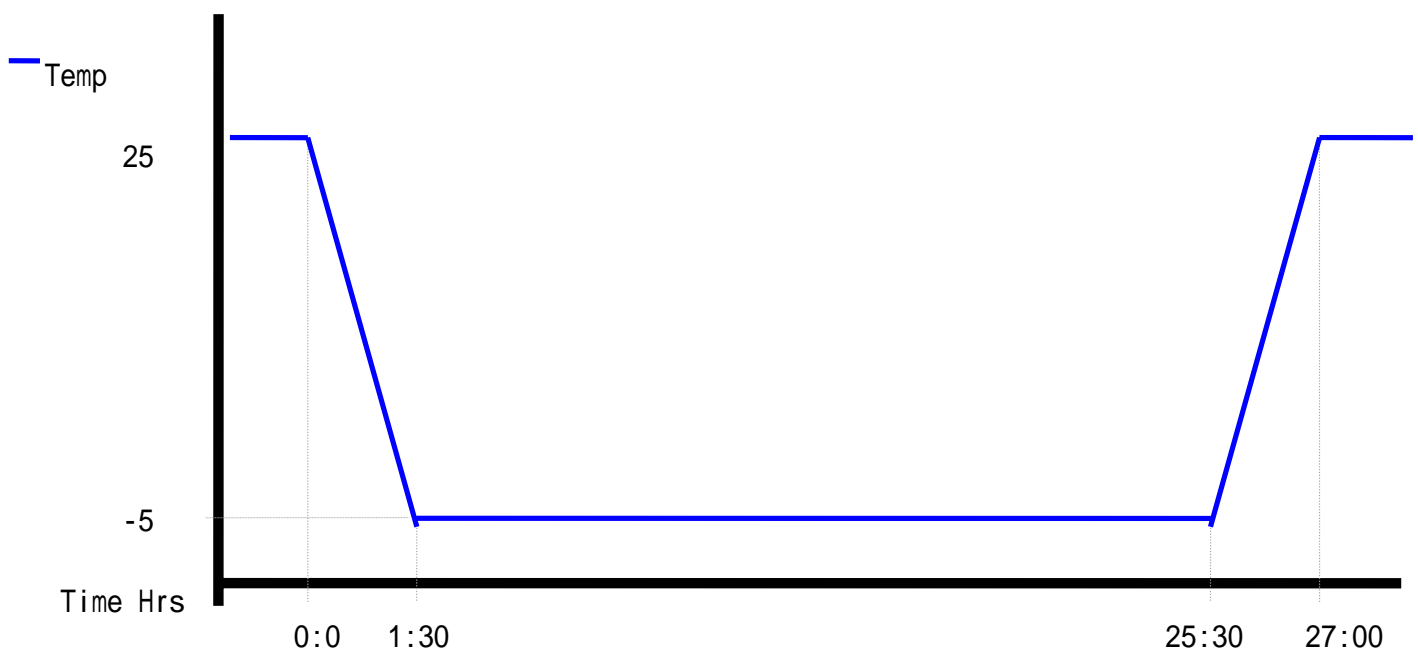
Photo :



IPC-7220 high temperature operation test

*QA Lab Reliability test***Test Date :** September 27, 2004 ~ September 28, 2004**Test Site :** Advantech QA Environment Lab**Performed By :** Jeff Yang**Purpose :** The DVT test**Test Standard :** Reference IEC68-2-1 Testing procedures
Test Ab : Cold Test**Test Condition :**

1. Test Temperature : -5
2. Test Times : 24Hrs
3. Test Software : Running HCT 9.5 in Win2000
4. Test Environment Curve :



QA Lab Reliability test

Test Equipment : Programmable Temperature & Humidity Chamber

K.SON. INS. TECH CORP.

Model : THS-D7S +-150-LN2

Date of Calibration : 04/09/2004

Sample Configuration & Quantity Under Test :

Using one IPC-7220 with the following options installed :

1. M/B: AIMB-742 Rev. A1
2. CPU : Intel Pentium 4 3.2GHz
3. RAM : Apacer DDR400 512MB
4. HDD : Seagate ST340015A
5. FDD : TEAC FD-235HF
6. CD-ROM : Aopen CD-952E/AKV
7. Power supply : FSP300-60PVN 300W
8. Heatsink fan : CoolJag Everflow R127015BU

Performance Criteria :

Electronic function check:

- 1.All system functions must be checked with appropriate testing programs and should pass the inspection.
- 2.Running Win2000 for OS, the system should not have degradation in its performance.

Mechanical function check:

1. The cover and connectors should work properly without any interference.
2. All screws should be tightened up appropriately.

QA Lab Reliability test

Test Result :

There is no damage in electronic and mechanical functions.

Degradation has not been found.

Performance is maintained with no incurable physical damage or degradation.

Conclusion :

Passed.

The IPC-7220 meets low temperature operation test.

QA Lab Reliability test

Test Date : October 29, 2004 ~ November 01, 2004

Test Site : Advantech QA Environment Lab

Performed By : Jeff Yang

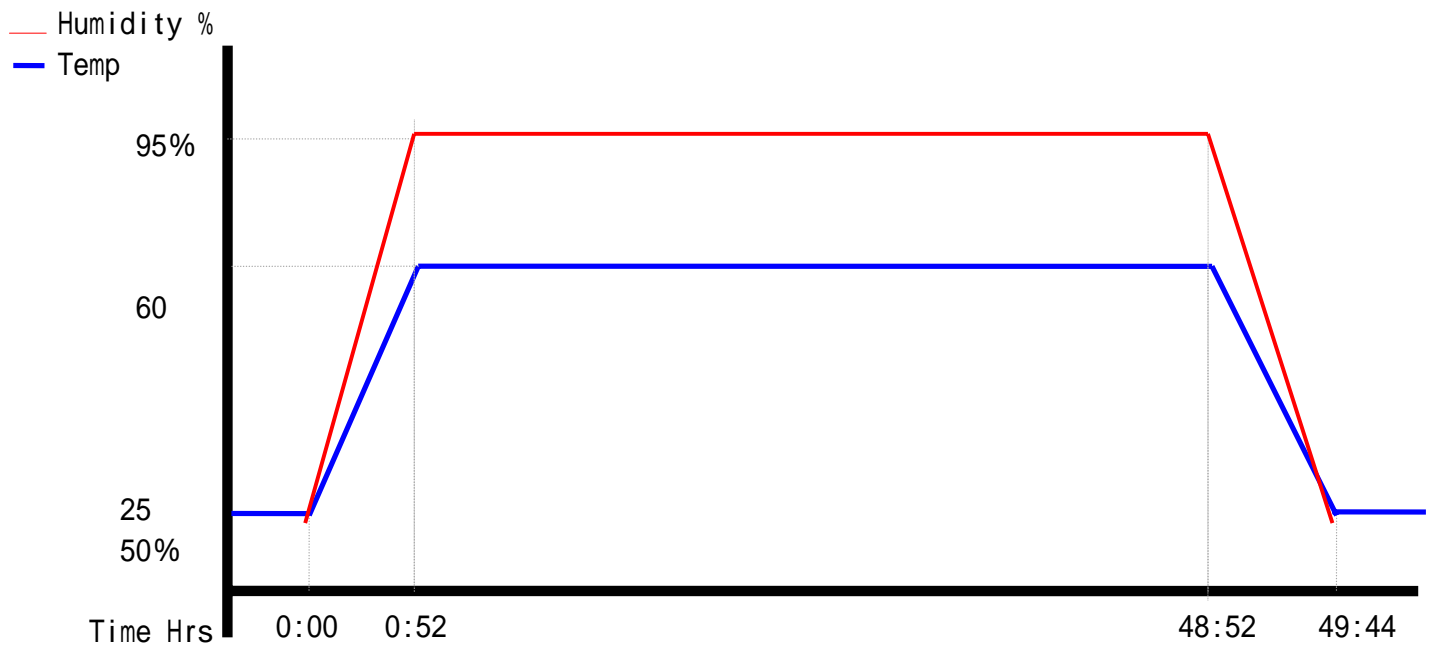
Purpose : The DVT test

Test Standard : Reference IEC68-2-56 Testing procedures

Test Cb : Damp Heat Steady State Test

Test Condition :

1. Test Temperature : 60
2. Test Humidity : 95%
3. Test Times : 48Hrs
4. Test Software : Running HCT 9.5 in Win2000
5. Test Environment Curve :



Test Equipment : Programmable Temperature & Humidity Chamber
K.SON. INS. TECH CORP.
Model : THS-D7S +-150-LN2
Date of Calibration : 04/09/2004

Sample Configuration & Quantity Under Test :

Using one IPC-7220 with the following options installed :

1. M/B: AIMB-742 Rev. A1
2. CPU : Intel Pentium 4 3.2GHz
3. RAM : Apacer DDR400 512MB
4. HDD : Seagate ST340015A
5. FDD : TEAC FD-235HF
6. CD-ROM : Aopen CD-952E/AKV
7. Power supply : FSP300-60PVN 300W
8. Heatsink fan : CoolJag Everflow R127015BU

Performance Criteria :

Electronic function check:

1. All system functions must be checked with appropriate testing programs and should pass the inspection.
2. Running Win2000 for OS, the system should not have degradation in its performance.

Mechanical function check:

1. The cover and connectors should work properly without any interference.
2. All screws should be tightened up appropriately.

QA Lab Reliability test

Test Result :

There is no damage in electronic and mechanical functions.

Degradation has not been found.

Performance is maintained with no incurable physical damage or degradation.

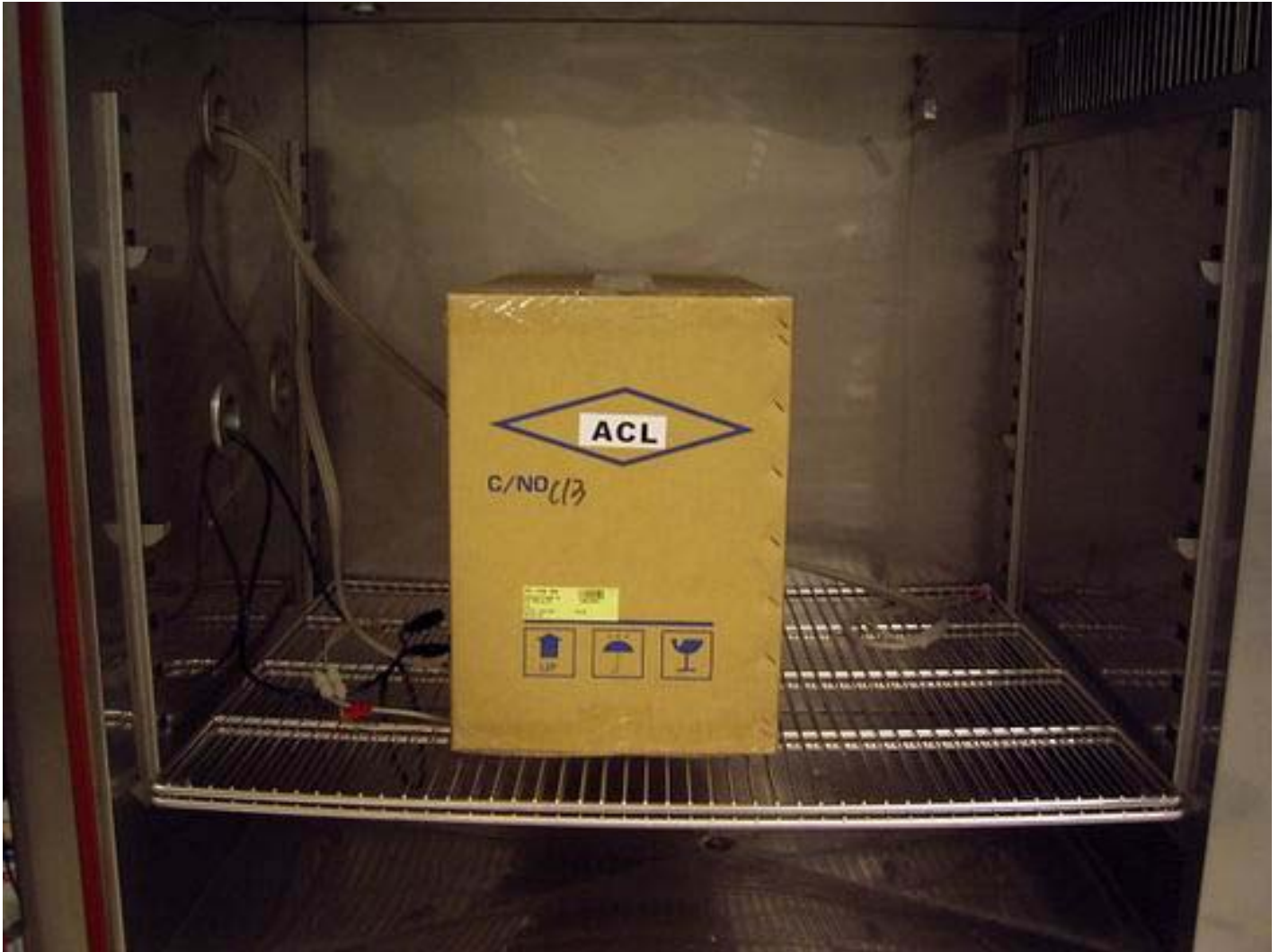
Conclusion :

Passed.

The IPC-7220 meets high temperature & humidity storage test.

QA Lab Reliability test

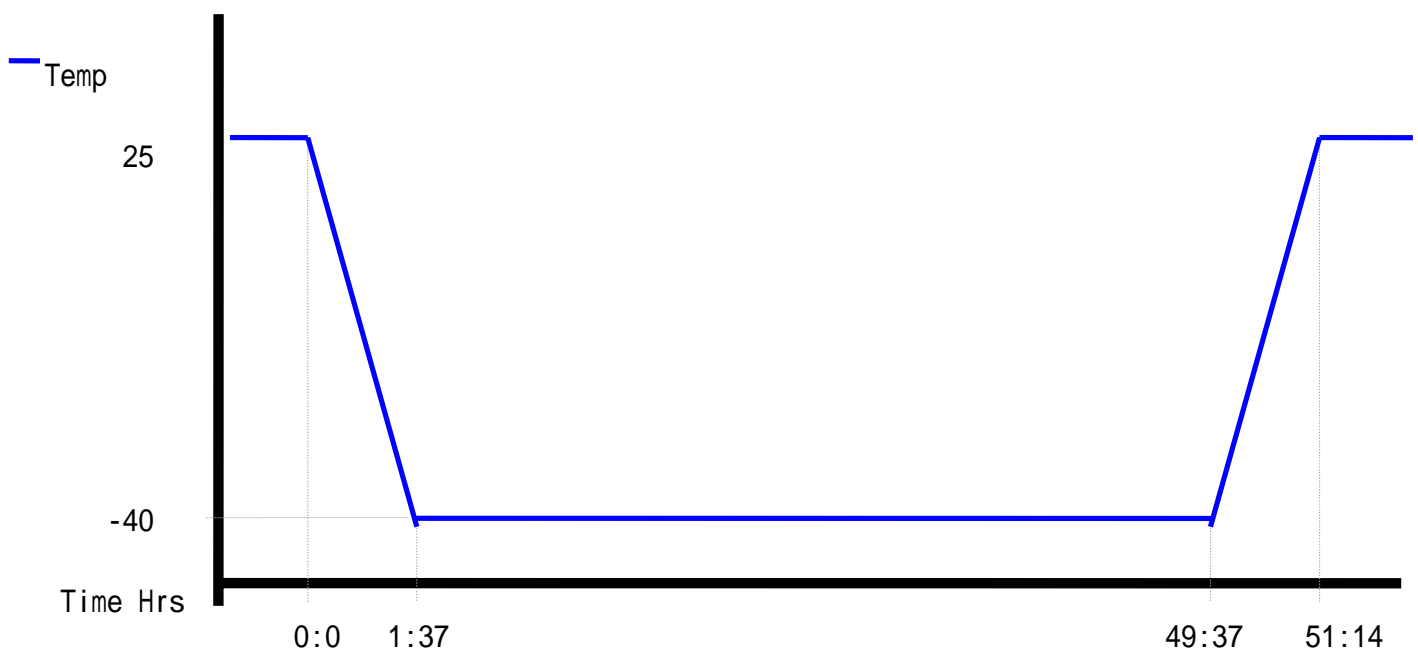
Photo :



IPC-7220 high temperature & humidity storage test

*QA Lab Reliability test***Test Date :** October 01, 2004 ~ October 04, 2004**Test Site :** Advantech QA Environment Lab**Performed By :** Jeff Yang**Purpose :** The DVT test**Test Standard :** Reference IEC68-2-1 Testing procedures
Test Ab : Cold Test**Test Condition :**

1. Test Temperature : -40
2. Test Times : 48Hrs
3. Test Software : Running HCT 9.5 in Win2000
4. Test Environment Curve :



QA Lab Reliability test

Test Equipment : Programmable Temperature & Humidity Chamber
K.SON. INS. TECH CORP.
Model : THS-D7S +-150-LN2
Date of Calibration : 04/09/2004

Sample Configuration & Quantity Under Test :

Using one IPC-7220 with the following options installed :

1. M/B: AIMB-742 Rev. A1
2. CPU : Intel Pentium 4 3.2GHz
3. RAM : Apacer DDR400 512MB
4. HDD : Seagate ST340015A
5. FDD : TEAC FD-235HF
6. CD-ROM : Aopen CD-952E/AKV
7. Power supply : FSP300-60PVN 300W
8. Heatsink fan : CoolJag Everflow R127015BU

Performance Criteria :

Electronic function check:

- 1.All system functions must be checked with appropriate testing programs and should pass the inspection.
- 2.Running Win2000 for OS, the system should not have degradation in its performance.

Mechanical function check:

1. The cover and connectors should work properly without any interference.
2. All screws should be tightened up appropriately.

QA Lab Reliability test

Test Result :

There is no damage in electronic and mechanical functions.

Degradation has not been found.

Performance is maintained with no incurable physical damage or degradation.

Conclusion :

Passed.

The IPC-7220 meets low temperature storage test.

QA Lab Reliability test

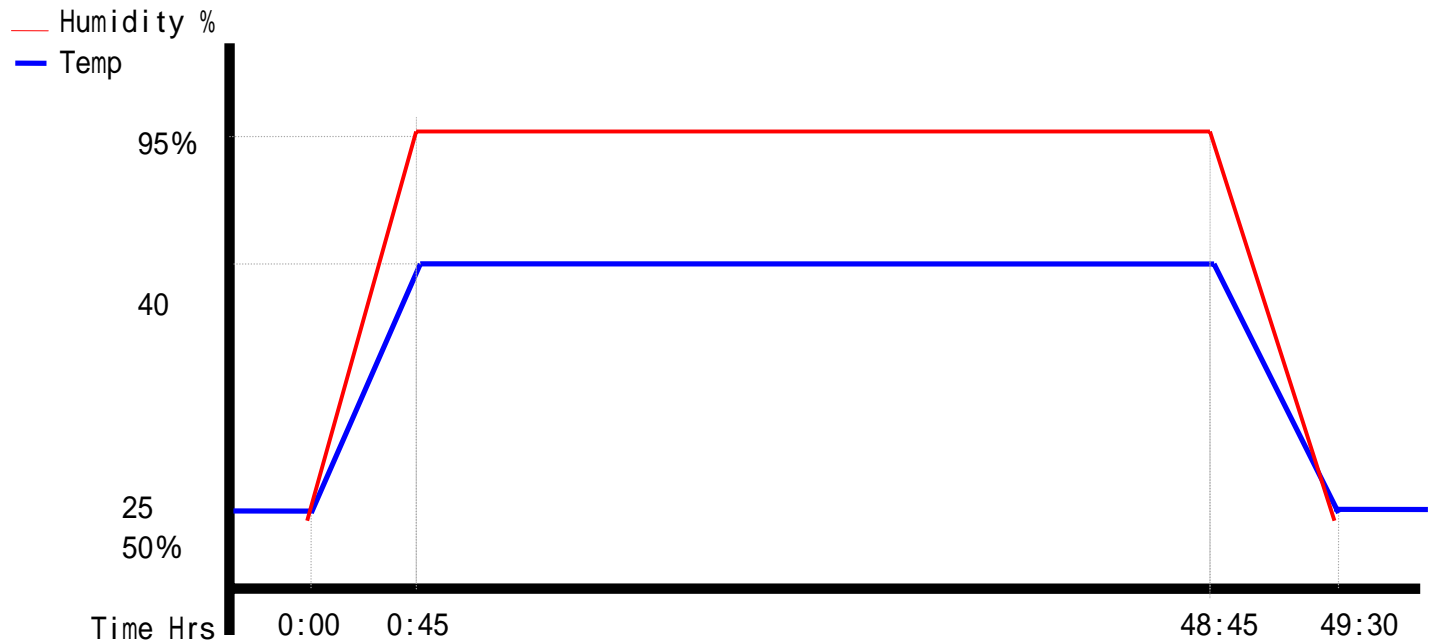
Test Date : September 27, 2004 ~ September 30, 2004
Test Site : Advantech QA Environment Lab
Performed By : Jeff Yang

Purpose : The DVT test.

Test Standard : Reference IEC68-2-3 Testing procedures
Test Ca : Damp Heat steady state Test

Test Condition :

1. Test Temperature : 40
2. Test Humidity : 95%
3. Test Times : 48Hrs
4. Test Software : Running HCT 9.5 in Win2000
5. Test Environment Curve :



QA Lab Reliability test

Test Equipment : Programmable Temperature & Humidity Chamber

K.SON. INS. TECH CORP.

Model : THS-D7S +-150-LN2

Date of Calibration : 04/09/2004

Sample Configuration & Quantity Under Test :

Using one IPC-7220 with the following options installed :

1. M/B: AIMB-742 Rev. A1
2. CPU : Intel Pentium 4 3.2GHz
3. RAM : Apacer DDR400 512MB
4. HDD : Seagate ST340015A
5. FDD : TEAC FD-235HF
6. CD-ROM : Aopen CD-952E/AKV
7. Power supply : FSP300-60PVN 300W
8. Heatsink fan : CoolJag Everflow R127015BU

Performance Criteria :

Electronic function check:

1. All system functions must be checked with appropriate testing programs and should pass the inspection.
2. Running Win2000 for OS, the system should not have degradation in its performance.

Mechanical function check:

1. The cover and connectors should work properly without any interference.
2. All screws should be tightened up appropriately.

QA Lab Reliability test

Test Result :

There is no damage in electronic and mechanical functions.
Degradation has not been found.
Performance is maintained with no incurable physical damage or degradation.

Conclusion :

Passed.
The IPC-7220 meets humidity test.

QA Lab Reliability test

Test Date : September 24 , 2004 ~ September 26, 2004

Test Site : Advantech QA Environment Lab

Performed By : Jeff Yang

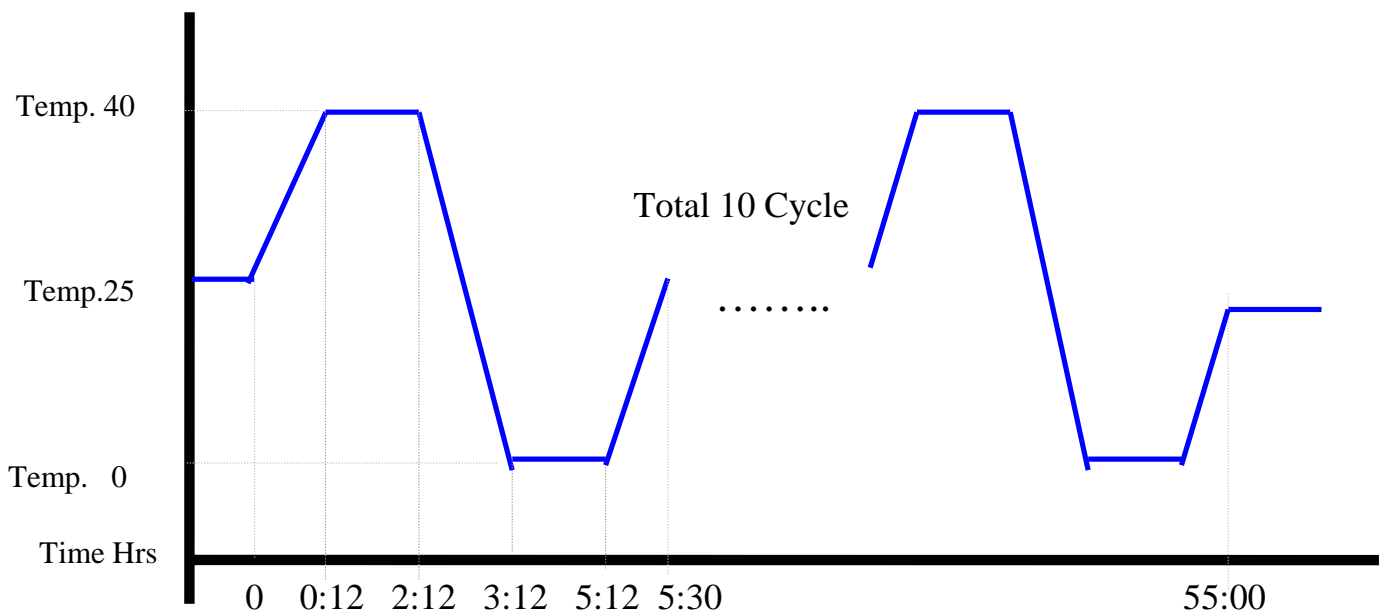
Purpose : The DVT test.

Test Standard : Reference IEC68-2-14 Testing procedures

Test N: Change of temperature Test

Test Condition :

1. Test High Temperature: 40
2. Test Low Temperature: 0
3. Test dwell time: 2Hrs
4. Temperature slope: heating 30 minutes, cooling 1 hour
5. Test cycle: 10 cycles
- 6 Test Software : Running HCT 9.5 in Win2000
7. Test Environment Curve:



QA Lab Reliability test

Test Equipment : Programmable Temperature & Humidity Chamber

K.SON. INS. TECH CORP.

Model : THS-D7S +-150-LN2

Date of Calibration : 04/09/2004

Sample Configuration & Quantity Under Test :

Using one IPC-7220 with the following options installed :

1. M/B: AIMB-742 Rev. A1
2. CPU : Intel Pentium 4 3.2GHz
3. RAM : Apacer DDR400 512MB
4. HDD : Seagate ST340015A
5. FDD : TEAC FD-235HF
6. CD-ROM : Aopen CD-952E/AKV
7. Power supply : FSP300-60PVN 300W
8. Heatsink fan : CoolJag Everflow R127015BU

Performance Criteria :

Electronic function check:

- 1.All system functions must be checked with appropriate testing programs and should pass the inspection.
- 2.Running Win2000 for OS, the system should not have degradation in its performance.

Mechanical function check:

1. The cover and connectors should work properly without any interference.
2. All screws should be tightened up appropriately.

QA Lab Reliability test

Test Result :

There is no damage in electronic and mechanical functions.

Degradation has not been found.

Performance is maintained with no incurable physical damage or degradation.

Conclusion :

Passed.

The IPC-7220 meets temperature cycle test.

QA Lab Reliability test

Test Date : November 09 ,2004 ~ November 10, 2004
Test Site : Advantech QA Environment Lab
Performed By : Jeff Yang

Purpose : The DVT test

Test Standard : Reference IEC68-2-2 Testing procedures
Test Bb : Dry Heat Test

Test Condition :

1. Test Temperature : 25 /40 /45
2. Test Times : Each temperature 6 Hrs
3. Test Program: Running HCT 9.5 in Win2000

Test Equipment : Programmable Temperature & Humidity Chamber
K.SON. INS. Tech. Corp..
Model : THS-D4L+-100
Date of Calibration : 06/01/2004

DATA LOGGER
YOKOGAWA CO. LTD.
Model : uP-1800
S/N : 47XS0063
Date of Calibration : 08/09/2004

Sample Configuration & Quantity Under Test :

Using one IPC-7220 with the following options installed :

1. M/B: AIMB-742 Rev. A1
2. CPU : Intel Pentium 4 3.2GHz
3. RAM : Apacer DDR400 512MB
4. HDD : Seagate ST340015A
5. FDD : TEAC FD-235HF
6. CD-ROM : Aopen CD-952E/AKV
7. Power supply : FSP300-60PVN 300W
8. Heatsink fan : CoolJag Everflow R127015BU

Performance Criteria :

Electronic function check:

- 1.All system functions must be checked with appropriate testing programs and should pass the inspection.
- 2.Running Win2000 for OS, the system should not have degradation in its performance.

Mechanical function check:

1. The cover and connectors should work properly without any interference.
2. All screws should be tightened up appropriately.

Test Data :

Num	Parts List	25	40	45
1.	CPU heatsink temperature	48.2	64.3	68.4
2.	Northbridge heatsink temperature	39.5	52.7	57.3
3.	U16	51.6	65.8	70.4
4.	Lan chip (U14)	47.8	62.7	67.0
5.	Southbridge case temperature (U30)	57.7	73.2	77.5
6.	(U7)	32.4	46.5	50.7
7.	(U4)	41.2	55.1	58.9
8.	HDD-	33.5	47.8	51.6
9.	System air temperature (below power supply)	42.7	59.9	63.7
10.	System air temperature (near PCI slot)	32.1	45.6	49.6
11.	System air temperature (back the HDD)	32.0	46.1	50.8

Test Result :

The system specification of thermal profile is 40 degree C.
The Pentium4 3.2GHz CPU thermal specification is 70 degree C.
There is no damage in electronic and mechanical functions.
Degradation has not been found.
Performance is maintained with no incurable physical damage or degradation.

Conclusion :

Passed.

The IPC-7220 meets thermal profile test.

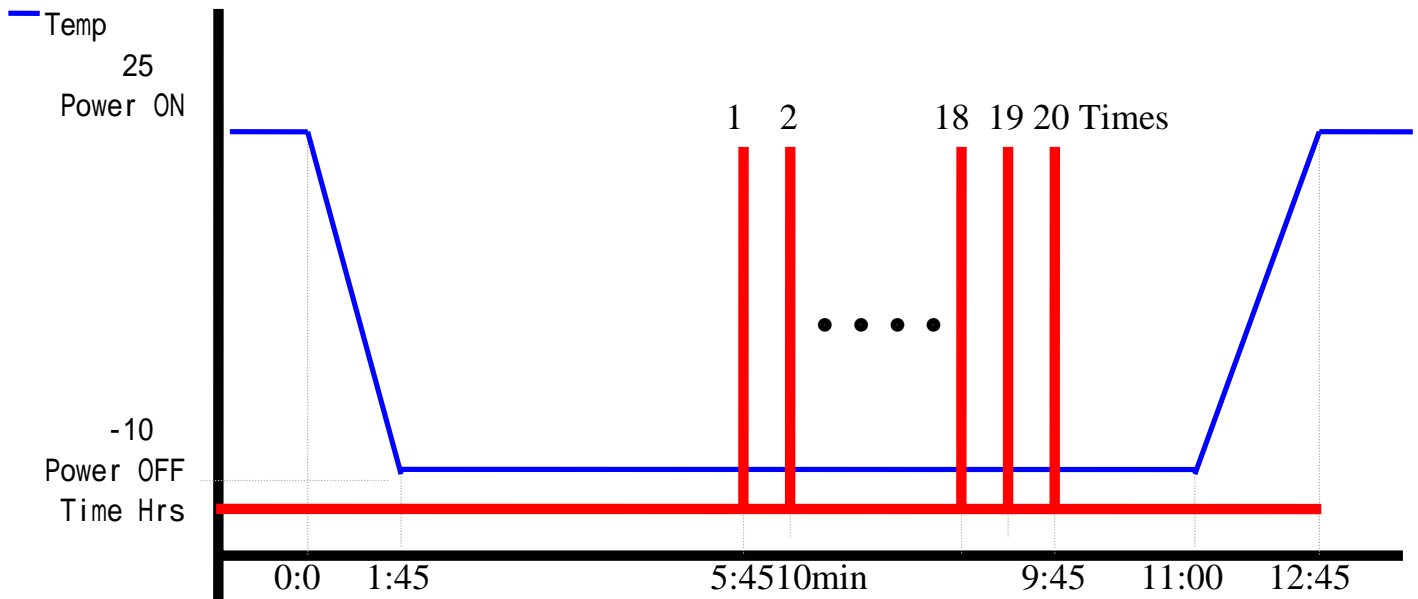
QA Lab Reliability test

Test Date : November 27, 2004 ~ November 28, 2004
Test Site : Advantech QA Environment Lab
Performed By : Jeff Yang

Purpose : The DVT test.

Test Condition :

1. Test Temperature : -10
2. Test Times : 8Hrs
 - Step: A. System power off 4 hours.
 - B. System power on , then 2 minutes later, system power off.
 - C. After 10 minutes, system power on again.
 - D. Two minutes later, system power off again.
 - E. Recycle step C& D for 20 times.
3. Number of test : 20 times
4. Test Software : Win2000
5. Test Environment Curve:



QA Lab Reliability test

Test Equipment : Programmable Temperature & Humidity Chamber

K.SON. INS. TECH CORP.

Model : THS-D7S +-150-LN2

Date of Calibration : 04/09/2004

Sample Configuration & Quantity Under Test :

Using one IPC-7220 with the following options installed :

1. M/B: AIMB-742 Rev. A1
2. CPU : Intel Pentium 4 3.2GHz
3. RAM : Apacer DDR400 512MB
4. HDD : Seagate ST340015A
5. FDD : TEAC FD-235HF
6. CD-ROM : Aopen CD-952E/AKV
7. Power supply : FSP300-60PVN 300W
8. Heatsink fan : CoolJag Everflow R127015BU

Performance Criteria :

Electronic function check:

- 1.All system functions must be checked with appropriate testing programs and should pass the inspection.
- 2.Running Win2000 for OS, the system should not have degradation in its performance.

Mechanical function check:

1. The cover and connectors should work properly without any interference.
2. All screws should be tightened up appropriately.

QA Lab Reliability test

Test Result :

There is no damage in electronic and mechanical functions.
Degradation has not been found.
Performance is maintained with no incurable physical damage or degradation.

Conclusion :

Passed.
The IPC-7220 meets cold start test.

QA Lab Reliability test

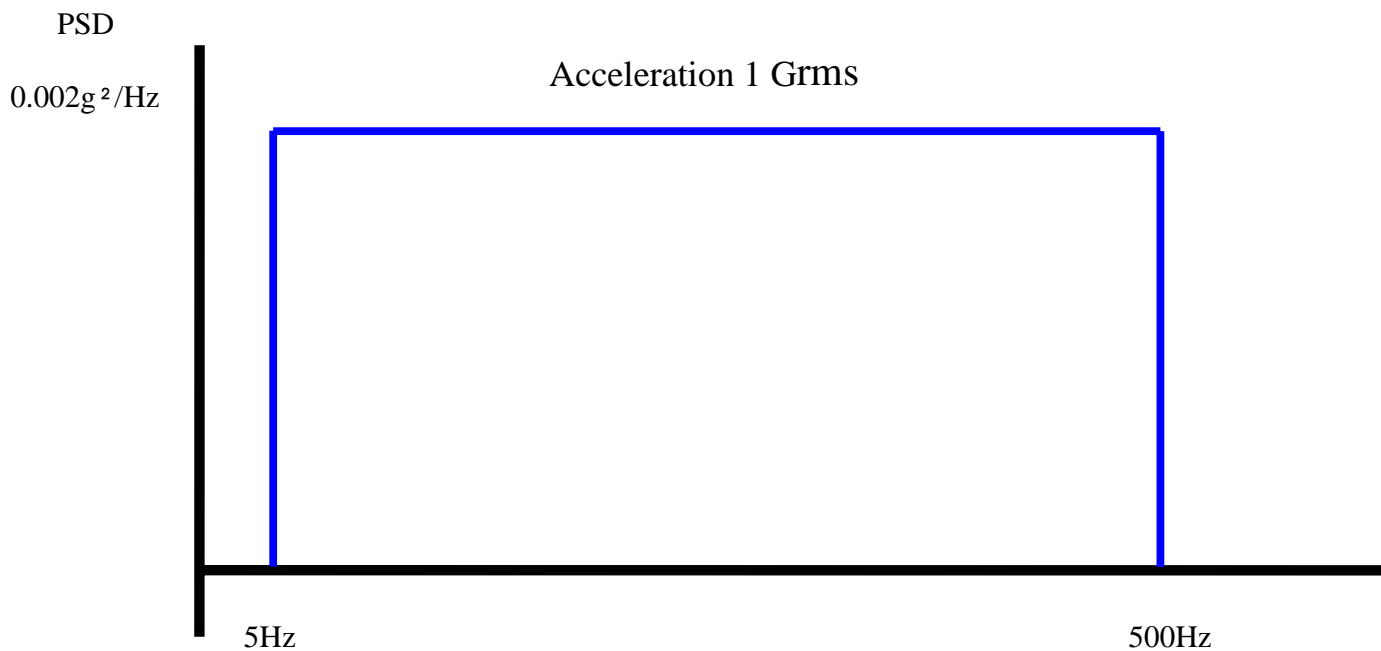
Test Date : September 08, 2004
Test Site : Advantech QA Environment Lab
Performed By : Jeff Yang

Test Standard : Reference IEC68-2-64 Testing procedures
Test Fh : Vibration boardband random test

Purpose : The DVT test.

Test Condition :

1. Test PSD : 0.002G²/Hz , 1 Grms
2. System condition : Operation mode
3. Test Program: Running soft- MPEG file in Win2000
4. Test Frequency : 5-500Hz
5. Test Axis : X,Y and Z axis
6. Test Time : 1hr per each axis
7. Test curve:



QA Lab Reliability test

Test Equipment : Vibration Simulator System
KING DESIGN Co. LTD.
Model : 9363EM-600F2K-40N120
S / N : UC107142493
Date of Calibration : 09/20/2004

Sample Configuration & Quantity Under Test :

Using one IPC-7220 with the following options installed :

1. M/B: AIMB-742 Rev. A1
2. CPU : Intel Pentium 4 3.2GHz
3. RAM : Apacer DDR400 512MB
4. HDD : Seagate ST340015A
5. FDD : TEAC FD-235HF
6. CD-ROM : Aopen CD-952E/AKV
7. Power supply : FSP300-60PVN 300W
8. Heatsink fan : CoolJag Everflow R127015BU

Performance Criteria :

Electronic function check:

1. All system functions must be checked with appropriate testing programs and should pass the inspection.
2. Running Win2000 for OS, the system should not have degradation in its performance.

Mechanical function check:

1. The cover and connectors should work properly without any interference.
2. All screws should be tightened up appropriately.
3. All gaps on the surface are appropriately.
4. The assembling/disassembling of the system enclosure or mechanical parts must be smooth ,and no deformed parts should be found.

QA Lab Reliability test

Test Result :

There is no damage in electronic and mechanical functions.

Degradation has not been found.

Performance is maintained with no incurable physical damage or degradation.

Conclusion :

Passed.

The IPC-7220 meets random operation vibration test.

Photo I:



IPC-7220 random vibration test for X-axis

Photo II:



IPC-7220 random vibration test for Y-axis

Photo III:



IPC-7220 random vibration test for Z-axis

QA Lab Reliability test

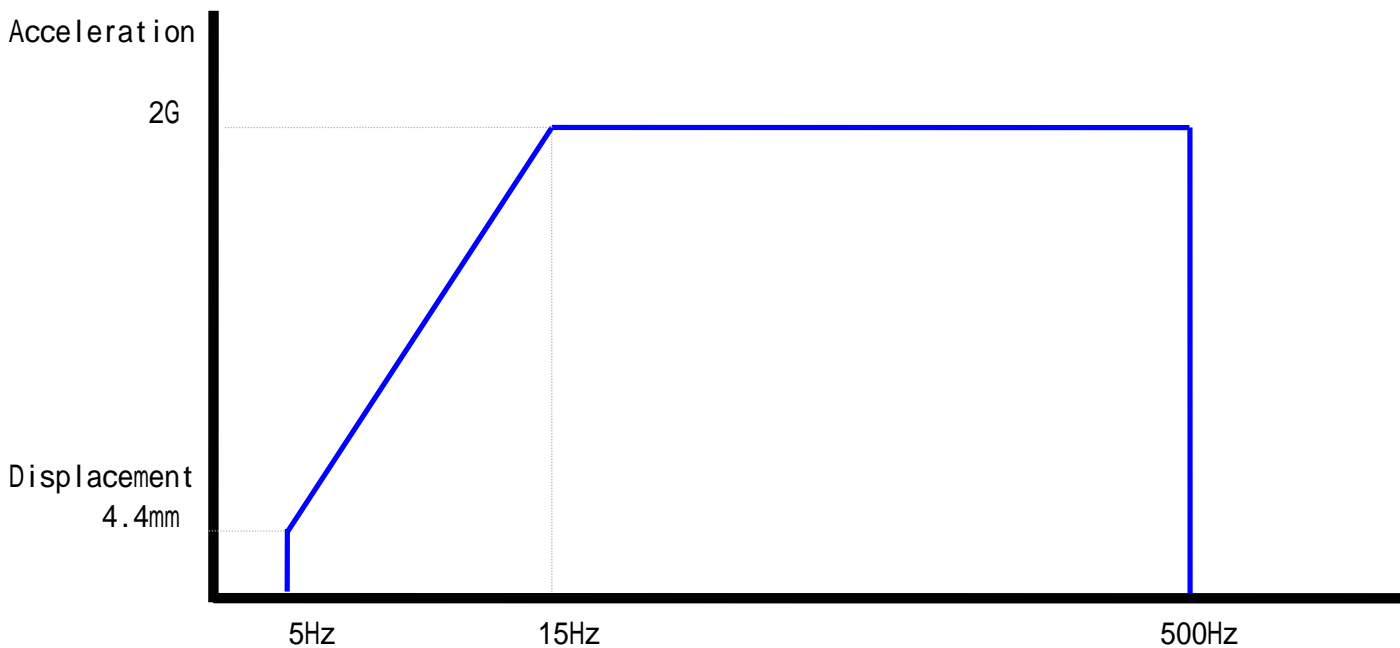
Test Date : September 09, 2004
Test Site : Advantech QA Environment Lab
Performed By : Jeff Yang

Purpose : The DVT test.

Test Standard : Reference IEC68-2-6 Testing procedures
Test Fc : Vibration Sinusoidal Test

Test Condition :

1. Test Acceleration : 2G
2. System condition : Non-operation
3. Test Frequency : 5-500Hz
4. Test Velocity : 1 Octave / min
5. Test Axis : X,Y,Z axis
6. Test Time : 1 hour pre axis
7. Test Vibration Curve :



QA Lab Reliability test

Test Equipment : Vibration Simulator System
KING DESIGN Co. LTD.
Model : 9363EM-600F2K-40N120
S / N : UC107142493
Date of Calibration : 09/20/2004

Sample Configuration & Quantity Under Test :

Using one IPC-7220 with the following options installed :

1. M/B: AIMB-742 Rev. A1
2. CPU : Intel Pentium 4 3.2GHz
3. RAM : Apacer DDR400 512MB
4. HDD : Seagate ST340015A
5. FDD : TEAC FD-235HF
6. CD-ROM : Aopen CD-952E/AKV
7. Power supply : FSP300-60PVN 300W
8. Heatsink fan : CoolJag Everflow R127015BU

Performance Criteria :

Electronic function check:

1. All system functions must be checked with appropriate testing programs and should pass the inspection.
2. Running Win2000 for OS, the system should not have any incurable physical damage.

Mechanical function check:

1. The cover and connectors should work properly without any interference.
2. All screws should be tightened up appropriately.
3. All gaps on the surface are appropriately.
4. The assembling/disassembling of the system enclosure or mechanical parts must be smooth ,and no deformed parts should be found.

QA Lab Reliability test

Test Result :

There is no damage in electronic and mechanical functions.

Degradation has not been found.

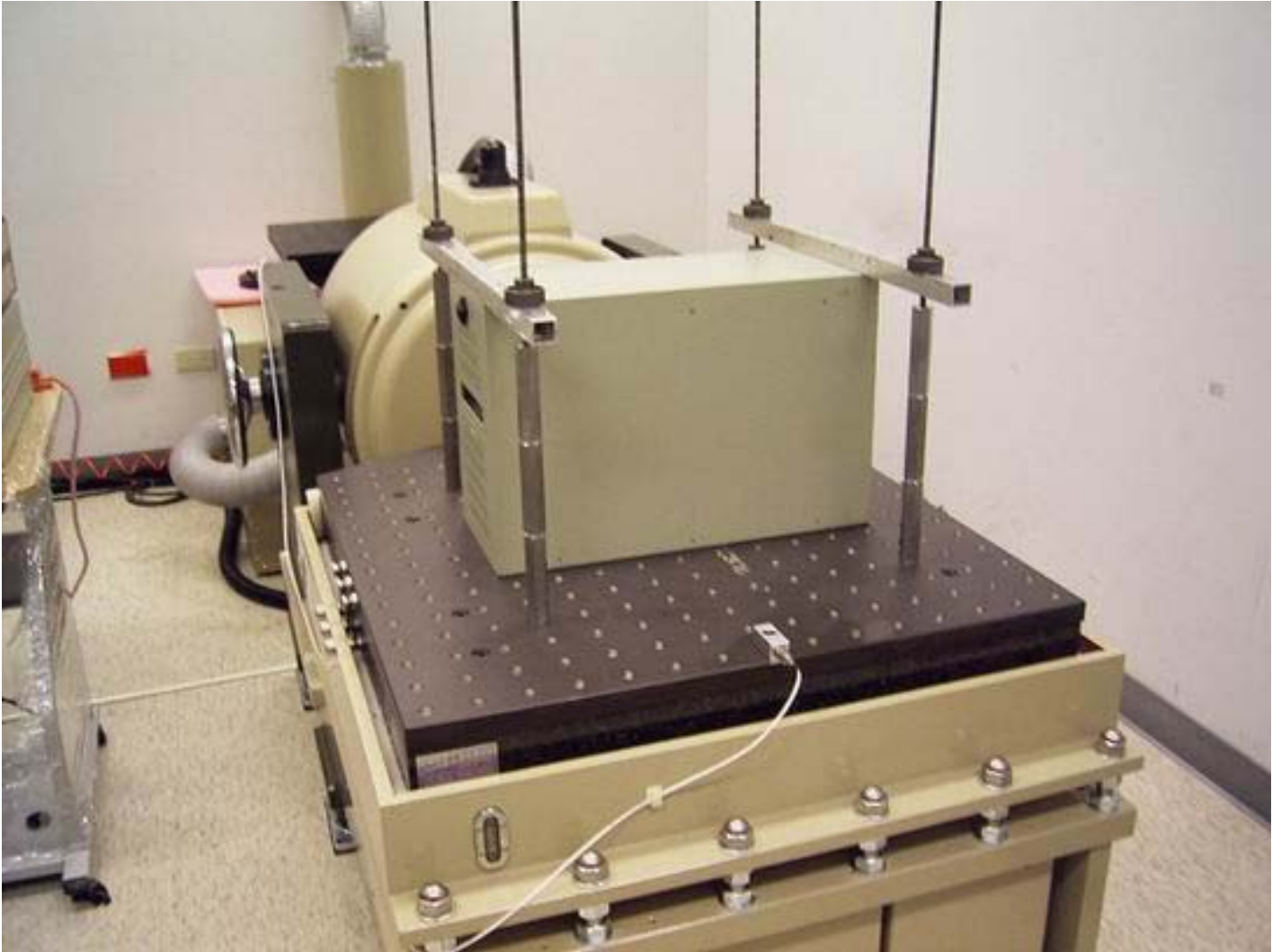
Performance is maintained with no incurable physical damage or degradation.

Conclusion :

Passed.

The IPC-7220 meets sine non-operation vibration test.

Photo I:



IPC-7220 sine vibration test for X-axis

Photo II:



IPC-7220 sine vibration test for Y-axis

Photo III:



IPC-7220 sine vibration test for Z-axis

QA Lab Reliability test

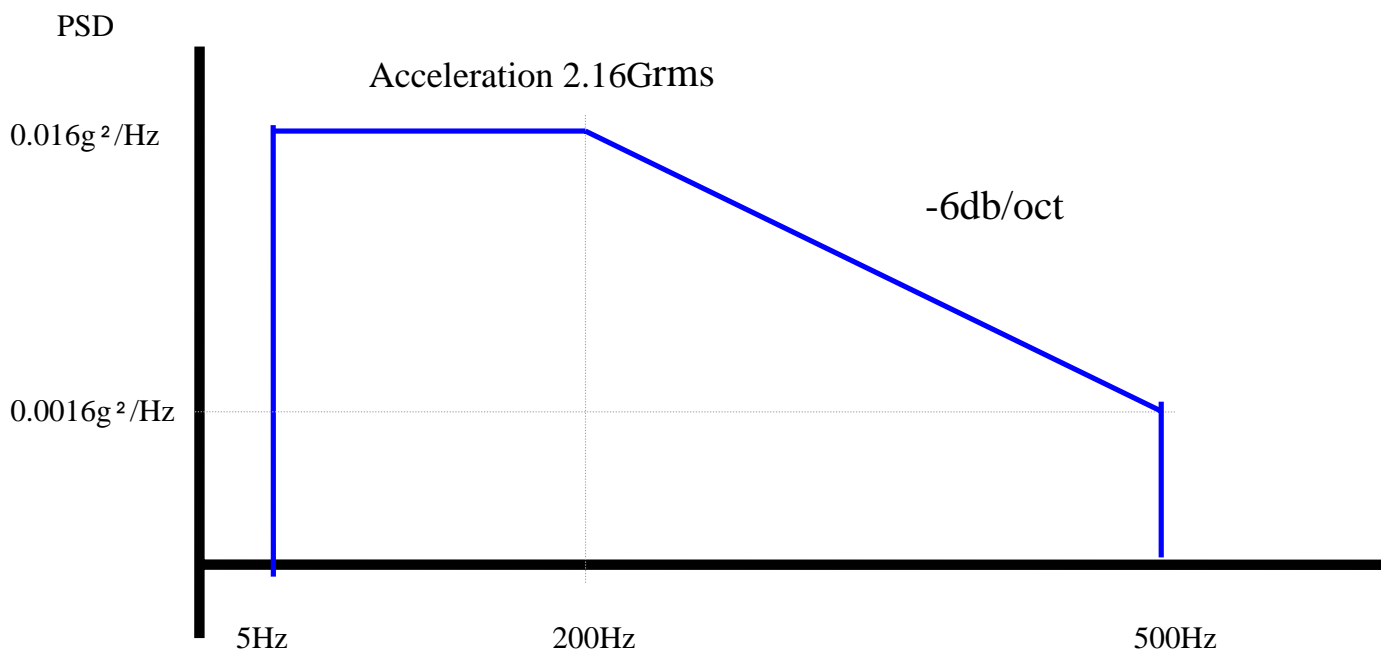
Test Date : November 10, 2004
Test Site : Advantech QA Environment Lab
Performed By : Jeff Yang

Test purpose : The DVT test

Test Standard : Reference IEC68-2-64 Testing procedures
Test Fh : Vibration boardband random test

Test Condition :

1. Test PSD : 0.016G²/Hz, 2.16Grms
2. Test Frequency : 5-500Hz
3. Test Axis : X,Y,Z three axes
4. Test Time : 1 hour each axis
5. Test Curve :



QA Lab Reliability test

Test Equipment : Vibration Simulator System
KING DESIGN Co. LTD.
Model : 9363EM-600F2K-40N120
S / N : UC107142493
Date of Calibration : 09/20/2004

Sample Configuration & Quantity Under Test :

Using one IPC-7220 with the following options installed :

1. M/B: AIMB-742 Rev. A1
2. CPU : Intel Pentium 4 3.2GHz
3. RAM : Apacer DDR400 512MB
4. HDD : Seagate ST340015A
5. FDD : TEAC FD-235HF
6. CD-ROM : Aopen CD-952E/AKV
7. Power supply : FSP300-60PVN 300W
8. Heatsink fan : CoolJag Everflow R127015BU

Performance Criteria :

Electronic function check:

1. All system functions must be checked with appropriate testing programs and should pass the inspection.
2. Running Win2000 for OS, the system should not have degradation in its performance.

Mechanical function check:

1. The cover and connectors should work properly without any interference.
2. All screws should be tightened up appropriately.
3. All gaps on the surface are appropriately.
4. The assembling/disassembling of the system enclosure or mechanical parts must be smooth ,and no deformed parts should be found.

QA Lab Reliability test

Test Result :

There is no damage in electronic and mechanical functions.

Degradation has not been found.

Performance is maintained with no incurable physical damage or degradation.

Conclusion :

Passed.

The IPC-7220 meets package vibration test.

Photo I:



IPC-7220 package vibration test for X-axis

Photo II:



IPC-7220 package vibration test for Y-axis

Photo III:



IPC-7220 package vibration test for Z-axis

QA Lab Reliability test

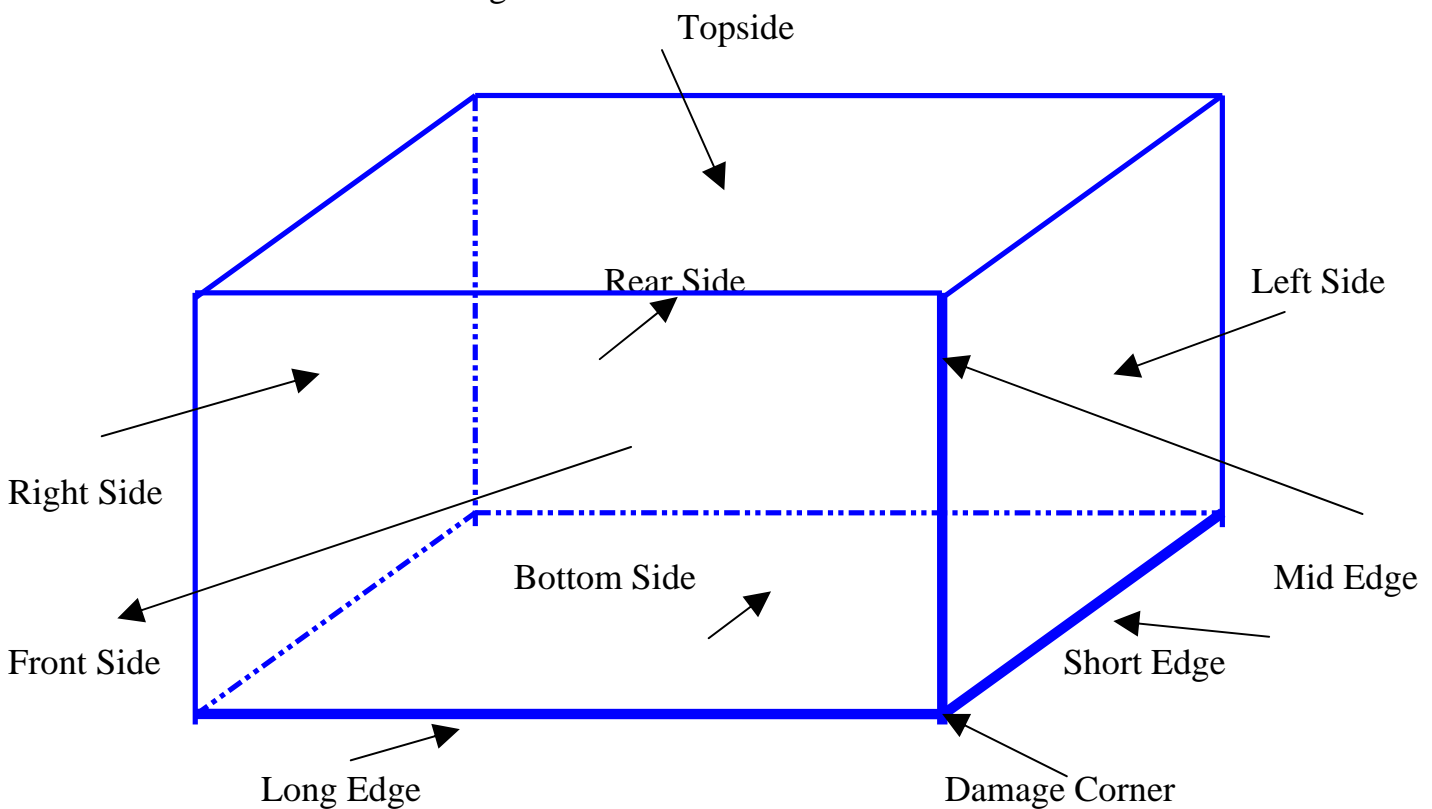
Test Date : September 14, 2004
Test Site : Advantech QA Environment Lab
Performed By : Jeff Yang

Purpose : The DVT test.

Test Standard : Reference Federal Standard 101 Method 5007 Testing procedure B
Test Ea : Drop Test

Test Condition :

1. Test Phase : One corner
Three edges
Six faces
2. Test Height : 76cm
3. Package Weight : 19.0Kg
4. Package Dimension : 58.0cm×32.4cm×45.6cm
5. Test Drawing :



QA Lab Reliability test

Test Equipment : Drop Tester machine
YOSHIDA SEIKI Co. LTD.
Model: DT-100B

Sample Configuration & Quantity Under Test :

Using one IPC-7220 with the following options installed :

1. M/B: AIMB-742 Rev. A1
2. CPU : Intel Pentium 4 3.2GHz
3. RAM : Apacer DDR400 512MB
4. HDD : Seagate ST340015A
5. FDD : TEAC FD-235HF
6. CD-ROM : Aopen CD-952E/AKV
7. Power supply : FSP300-60PVN 300W
8. Heatsink fan : CoolJag Everflow R127015BU

Performance Criteria :

Electronic function check:

1. All system functions must be checked with appropriate testing programs and should pass the inspection.
2. Running Win2000 for OS, the system should not have degradation in its performance.

Mechanical function check:

1. The cover and connectors should work properly without any interference.
2. All screws should be tightened up appropriately.
3. All gaps on the surface are appropriately.
4. The assembling/disassembling of the system enclosure or mechanical parts must be smooth ,and no deformed parts should be found.

Test Data:

Side	Acceleration
Front	43.0G
Rear	42.9G
Right	43.0G
Left	42.3G
Top	40.1G
Bottom	40.3G

Test Result :

There is no damage in electronic and mechanical functions.
Degradation has not been found.
Performance is maintained with no incurable physical damage or degradation.

Conclusion :

Passed.
The IPC-7220 meets drop test.

Photo I:



IPC-7220 drop test for one corner

Photo II:



IPC-7220 drop test for three edges

Photo III:



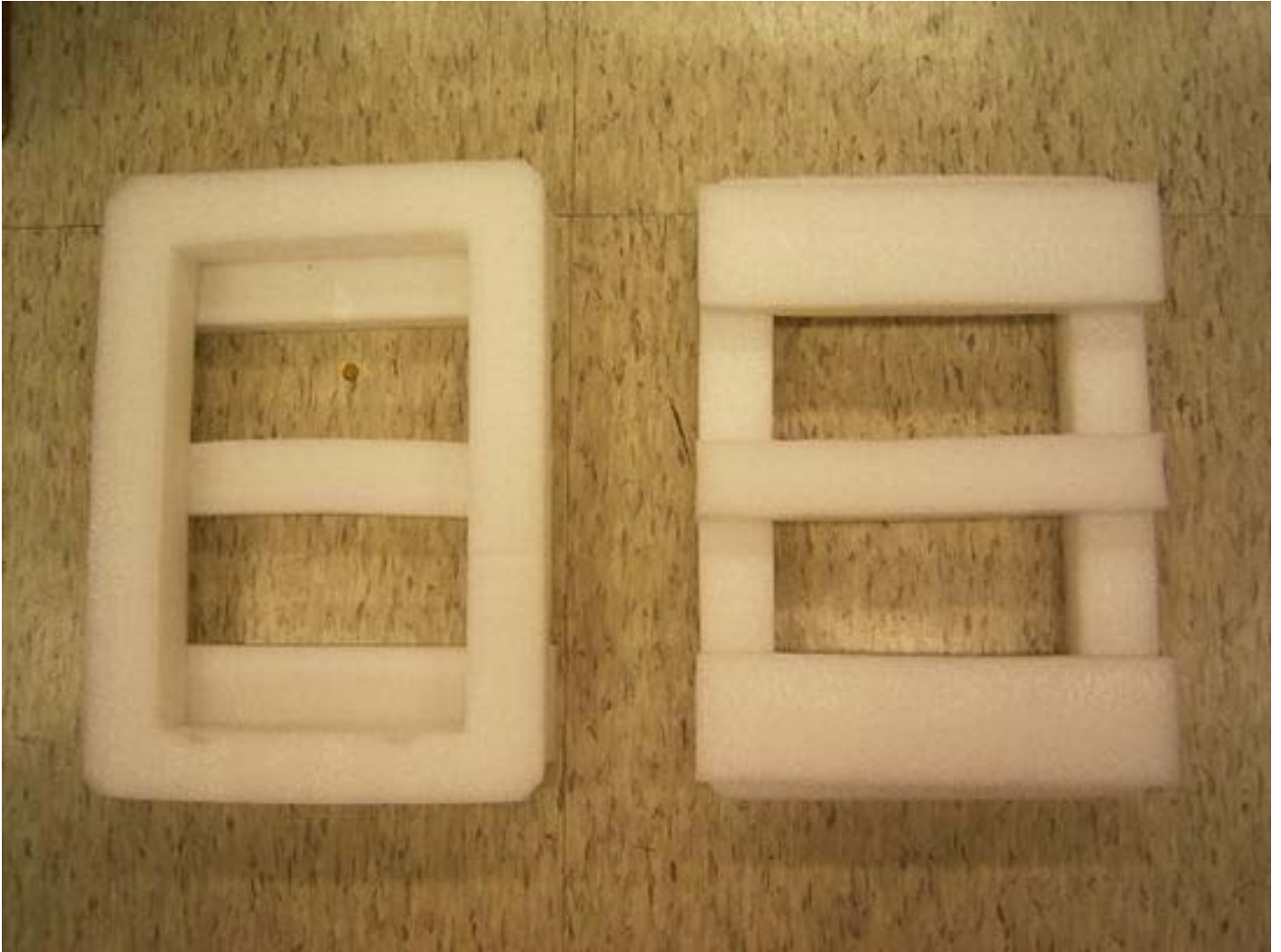
IPC-7220 drop test for six faces

Photo IV:



IPC-7220 drop test for structure photo

Photo V:



PE form