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ENVIRONMENTAL/RELIABILITY ENGINEERING

TEST REPORT

ATARI 1064 "B" TEST PLAN

**ENGINEERING RELEASED**

		DRAWN BY	DATE	 <p align="right">Atari, Inc. 30 E. Plumeria Drive San Jose, CA 95134</p> <p align="right"> A Warner Communications Company</p>	
NEXT ASSY	USED ON	CHECKED			
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				ENGINEER	ATARI 1064 "B" TEST PLAN
				APPROVED	SIZE
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## 1.0 PURPOSE

The purpose of this "B" test is to find out whether or not the pre-production samples meet the design specifications. By executing this test, it is possible to isolate problems which may require a design change before mass production is commenced.

## 2.0 SCOPE

This test plan applies to all "1064" sample boards being used for the "B" test. The "600XL" computers being used will include both domestic and international versions.

## 3.0 RESPONSIBILITY

- 3.1 Environmental/Reliability Engineering will administer the "1064" "B" test plan.
- 3.2 Environmental/Reliability Engineering also has the responsibility of providing personnel, test equipment and instrumentation for implementing the test.
- 3.3 Environmental/Reliability Engineering will be responsible for publishing the Final Test Report, within seven days after the end of the test.
- 3.4 Product Reliability Assurance (QA) will provide supporting data and failure analysis.

## 4.0 TEST OBJECTIVES

The "B" test objectives include the following tests:

### 4.1 Functional Performance Tests

- 4.1.1 Buffered phase-2 clock margins and PBI timing requirements. The shift with temperature from 30 degrees C to 60 degrees C also will be monitored.
- 4.1.2 Thermal mapping - A thermal mapping will be conducted to characterize the heat dissipation and temperature rise properties.



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- 4.1.3 DC input power margins and PBI signals verification - Current demand at several loadings, as well as drop-out voltage will be measured. The effect of 50 mv. ripple on DC power supply also will be determined.
- 4.1.4 48-hour burn-in test - To determine the design maturity, the 48-hour burn-in will be conducted to establish product infant mortality as a function of time. The dramex disk will be used to exercise the unit for 48 hours at 40 degrees C.
- 4.1.5 Power Cycling/Supplemental RAM Test - To induce typical voltage and thermal stresses, the power will be turned "on" and "off" at a predetermined schedule (15 min. on/off) while the supplemental RAM test is being conducted with Ramex cartridge.
- 4.1.6 Operating Life Demonstration - To determine the projected failure rate after burn-in, the units will be exercised for 3,000 hours at 40 degrees C.

4.2 Hardware Regression Test

- 4.2.1 The "600XL" computer systems containing the "1064" boards under test will be used to operate the Atari peripherals. The systems will also run both the AtariWriter and VisiCalc software plus some game cartridges.

The programs utilized will be capable of exercising most of the 16K plus 48K memory capacity.

Peripherals: The peripherals will include:

- The 810 and 1050 disk drives
- The 825, 1020, 1025 and the 1027 printers
- The 410 and 1010 program recorders
- The 835 and 1030 direct connect modems

4.3 PBI Test

The sample units under test will be tested with the Super Salt as well as a PBI test. This will be followed by both voltage and current tests on PBI pins. Care will be taken not to exceed the one ALS load permitted per specification.



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#### 4.4 Environmental Tests

The environmental tests will include the following tests:

- 4.4.1 Temperature Operating Test - The units will be operated in an environmental chamber while the temperature of the chamber is varied between 10 degrees C and 40 degrees C.
- 4.4.2 Humidity Operating Test - The units will be operated in the environmental chamber, while the relative humidity of the chamber is varied between 10% and 90%.
- 4.4.3 Altitude Test - Two units will be subjected to the altitude test. The maximum will be 9840 feet, while the minimum will be -197 feet.
- 4.4.4 Temperature/Humidity Storage Tests - Two units will be subjected to temperature storage tests. The maximum temperature will be 60 degrees C while the minimum will be -30 degrees C.

The same units will be subjected to the Relative Humidity of between 10% and 90%.

- 4.4.5 Vibration Test - Two units will be subjected to the following test:

The resonance search will be .1g plus or minus ten percent at the frequency of between 5 and 500 Hz. Sine scan of 5-100 Hz., dwell on resonance or at 30Hz. 1.0g for ten minutes.

Random vibration will be 0.04g/Hz for .15 minutes. Then 6.3g RMS, at the frequency of 10 to 1000 Hz.

- 4.4.6 Transportation Test (Packaged)

Four units will be subjected to vibration of between 100 and 300 cycles per minute in two directions, 90 degrees apart, for thirty minutes, with displacement of 0.06 inches. The acceleration will be 1g minimum without damage to the units.

- 4.4.7 Thermal Shock - Two units will be subjected to the following test. Minimum temperature will be 10 degrees C, maximum temperature will be 45 degrees C. Increment will be 5 degrees per minute.



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4.4.8 Electrostatic discharge test - Two units will be subjected to the following test. The range will be between 15KV (softdata loss) and 25KV (hard component failure) at any point that is accessible to the user. No loss of data or damage to the product should result.

#### 5.0 OPERATING LIFE

The required operating life for "1064" is 3,000 hours continuous power-on at 40 degrees C.

#### 6.0 REFERENCES

- 6.1 Atari "600XL" Computer Product Specification C061611
- 6.2 Environmental Engineering Manual C061616
- 6.3 Parallel Bus Expansion Memory Specifications



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