

HON HAI Precision IND.CO.,LTD.

5F-1,5,Hsin-An Road,
Hsinchu Science-Based Industrial Park,
Taiwan, R.O.C.

Tel: 886-3-5784975 Fax: 886-3-5783038

Reliability Test Report

for BFX-UA300 (K18X001T00)

Prepared by Jackson Huang
Test Engineer, HWQA Engineering Dept.

Checked by Kenji Chen
Supervisor, HWQA Engineering Dept.

Approved by Jy Deng
Manager, HWQA Engineering Dept.

Revision Change History

Revision	Description of Change	Date
1.0	Initial Release	12/02/2021

HON HAI PRECISION IND. CO., LTD.

Notice:

All rights reserved. Except for distribution within company that authorized by Foxconn, passing on and copying of this document, use and communication of its contents with the third party is not permitted without written authorization from HON HAI PRECISION IND. CO., LTD.

Table of Contents

Table of Contents 1

Purpose: 2

Scope: 2

The summary of test items: 3

Panel Drawing: 4

Test setup and function test: 4

1. Cold Start Test 5

2. Hot Start Test 6

3. High Temperature and High humidity Test (OP)..... 7

4. Operational Temperature Cycle Test..... 8

5. Power On/Off Test with Temperature 9

Purpose:

1. Provide a formal functional demonstration of the product design reliability.
2. Identify any design discrepancies.
3. Reliability assurance of trial samples which are designed and fabricated in accordance with the customer's product specifications.
4. Conduct robustness testing on early production samples in accordance to customer's product environmental testing specification.

Scope:

This document describes the performance requirements, validation criteria, and the validation tests which focus on BFX-UA300 (K18X001T00) product.

The DUT H/W version is V125 and S/W revision is 19.531.13.

Second Source:

1st Source		2nd Source	
027.01455.005	IC REG 2.5V 500mA SMD SOT23-5 GP/HF	027.01502.005	3PEAK / TPL740F25-5TR
027.01468.005	IC REG 1.8V 500mA SMD SIT25 GP/HF	027.01504.005	3PEAK / TPL740F18-5TR

The summary of test items:

NO.	Item	Test Condition	Q'ty	Period	Pass Criteria	Test result
1	Cold Start Test	Power off, Storage, Ta = - 20°C Storage 48 hours then ramp the temperature to 0°C, power on operation test Power on/off 15 times	2 units	2 days	1. No functional failures both before and after the test. 2. No performance degradation during the functional test 3. No visual damage to the products during inspection, such as warpage, peeling, missing pixels, discoloration, etc.	PASS
2	Hot Start Test	Power off, Storage, Ta = 70°C Storage 48 hours then ramp the temperature to 50°C ,power on operation test Power on/off 15 times	2 units	2 days	1. No functional failures both before and after the test. 2. No performance degradation during the functional test 3. No visual damage to the products during inspection, such as warpage, peeling, missing pixels, discoloration, etc.	PASS
3	High Temperature & High Humidity Test (OP)	Power on, Operation Ta = 50°C, Humi. = 95% R.H. for 72 hours	2 units	3 days	1. No functional failures both before and after the test 2. No performance degradation during the functional test 3. No visual damage to the products after inspection, such as peeling, discoloration, etc.	PASS
4	Operational Temperature Cycle Test	1. Power on, Operation 2. 25°C & R.H. 65% for 1 hour 3. 25°C & R.H. 65% to - 5°C for 2 hours 4. - 5°C for 13 hours 5. - 5°C to 25°C & R.H. 65% for 2 hours. 6. 25°C to R.H. 65% for 1 hour 7. 25°C & R.H. 65% to 50°C & R.H. 95% for 2 hours 8. 50°C & R.H. 95% for 13 hours 9. 50°C & R.H. 95% to 25°C & R.H. 65% for 2 hours 10. Repeat 1~9 for 2 cycles 11. 25°C & R.H. 65% for 48 hours Total for 120 hours	2 units	5 days	1. No functional failures both during and after the test 2. No performance degradation during the functional test 3. No visual damage to the products after inspection, such as peeling, discoloration, etc.	PASS
5	Power On/Off Test with Temperature	1. Power on: 50 sec 2. Power off: 10 sec 3. Temperature: - 5°C and 50°C 4. Cycle: 2,500 cycles per test condition 5. Total 5,000 cycles	2 units	5 days	1. No functional failures both before and after the test. 2. No performance degradation after the functional test. 3. No visual damage to the products after inspection, such as peeling, discoloration, etc.	PASS

Panel Drawing:

Front



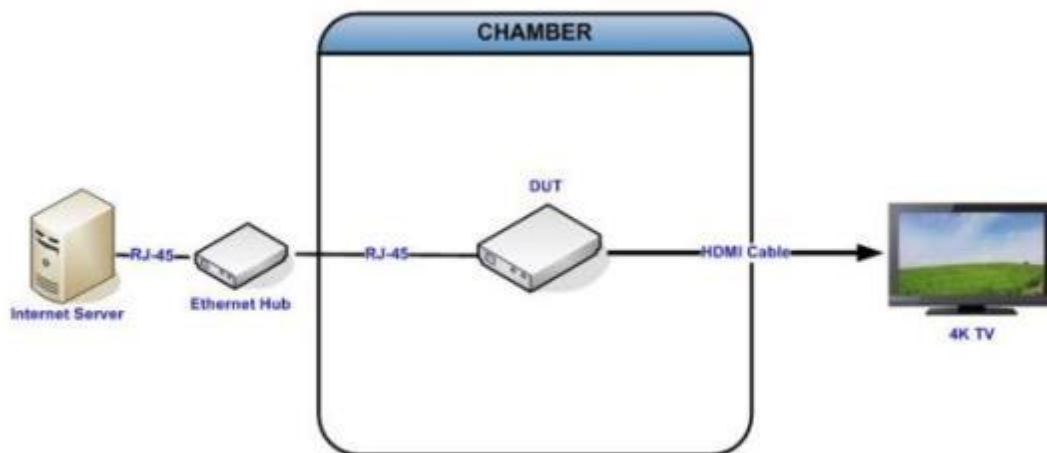
Rear



Adapter



Test setup and function test:



HDMI connects to 4K TV for playing local 4K video.
Ethernet hub is for iperf 50Mbps.

1. Cold Start Test

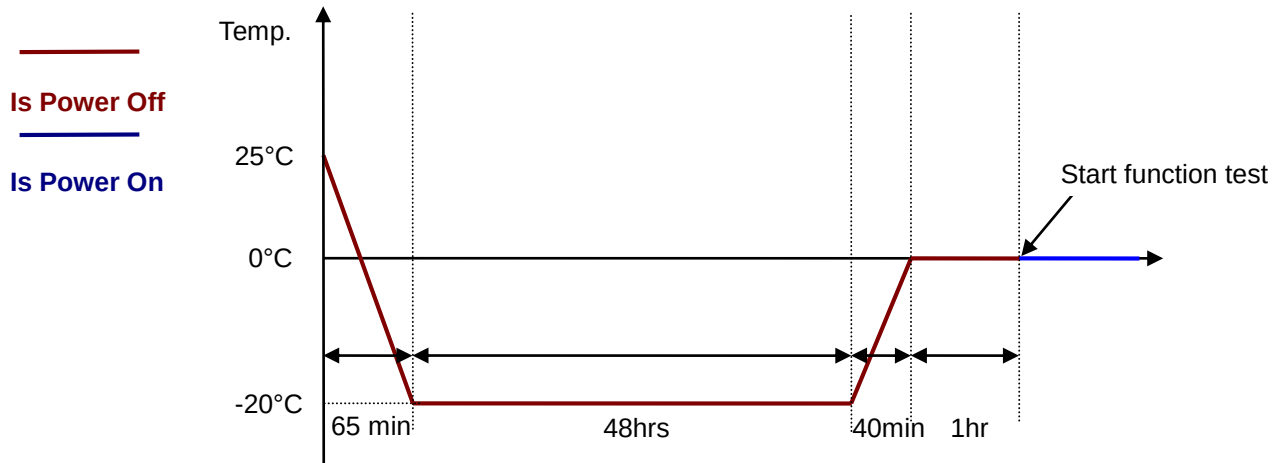
Purpose:

To demonstrate that the product can be stored at low temperature environment.

Quantity: 2 units.

Test Objective: Power off, and store at - 20°C. After 48 hours, ramp to 0°C and function test.
Power on/off 15 times.

Test Profile:



Test Procedure:

1. Power off.
2. Start test at 25°C.
3. Ramp the temperature to - 20°C and hold for 48 hours.
4. Ramp the temperature to 0°C and hold for 1 hour.
5. Rate: 1°C/minute.
6. Repeat 15 times to power on and activated in full function and operation.

Pass Criteria:

1. No functional failures both before and after the test.
2. No performance degradation after the functional test.
3. No visual damage to the products after inspection, such as peeling, discoloration, etc.

Basis for Profile: IEC 60068-2-01.

Test Result: **PASS**



2. Hot Start Test

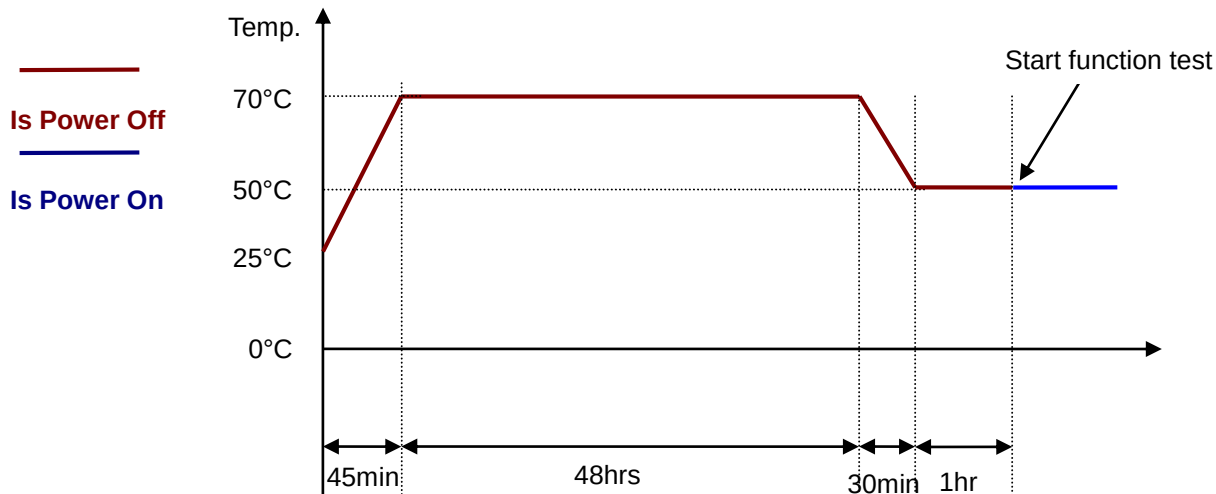
Purpose:

To demonstrate that the product can be stored at high temperature environment.

Quantity: 2 units.

Test Objective: Power off, and store at 70°C. After 48 hours, ramp to 50°C and function test.
Power on/off 15 times.

Test Profile:



Test Procedure:

1. Power off.
2. Start test at 25°C.
3. Ramp the temperature to 70°C and hold for 48 hours.
4. Ramp the temperature to 50°C and hold for 1 hour.
5. Rate: 1°C/minute.
6. Repeat 15 times to power on and activated in full function and operation.

Pass Criteria:

1. No functional failures both before and after the test.
2. No performance degradation after the functional test.
3. No visual damage to the products after inspection, such as peeling, discoloration, etc.

Basis for Profile: IEC 60068-2-02.

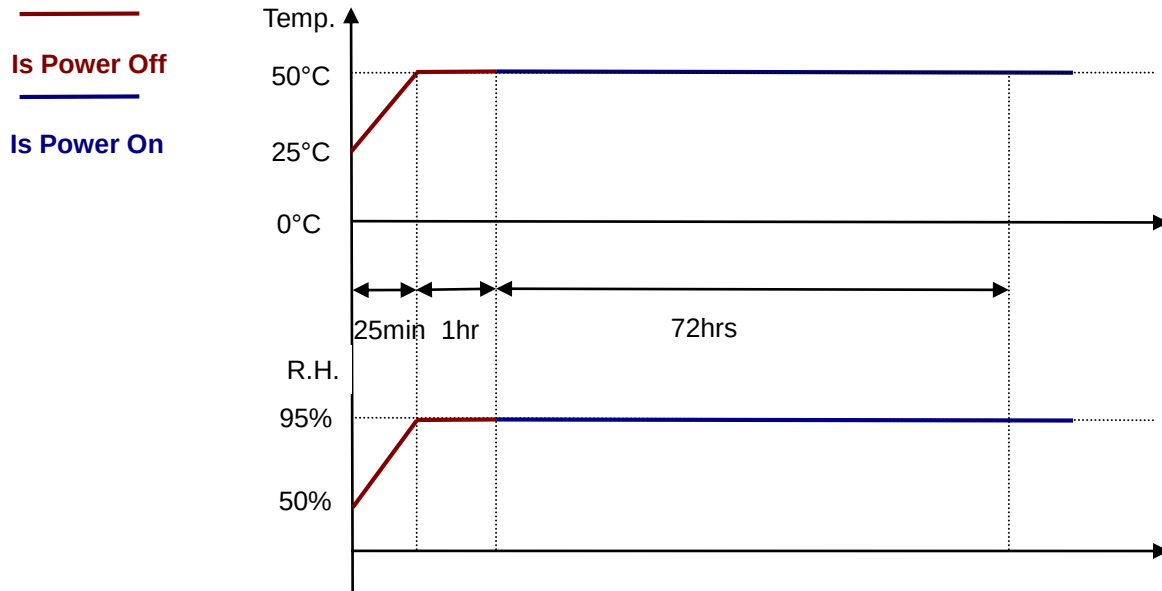
Test Result: **PASS**



3. High Temperature and High humidity Test (OP)

Purpose:

To demonstrate that products can withstand the high limit temperature and the high limit humidity of an operating environment.

Quantity: 2 units**Test Objective:** Operating Temperature and Humidity: Temp. + 50°C and R.H. 95%, Duration: 3 days**Test Profile:****Test Procedure:**

1. Power off.
2. Start test at 25°C and RH 50%.
3. Ramp the temperature to 50°C and R.H. 95% in 25 minutes, then hold for 1 hour.
4. Power on the test units.
5. Hold 50°C, RH 95% for 72 hours.

Pass Criteria:

1. No functional failures both during and after the test.
2. No performance degradation during the functional test.
3. No visual damage to the products after inspection, such as peeling, discoloration, etc.

Basis for Profile: IEC 60068-2-30**Test Result:** **PASS**

4. Operational Temperature Cycle Test

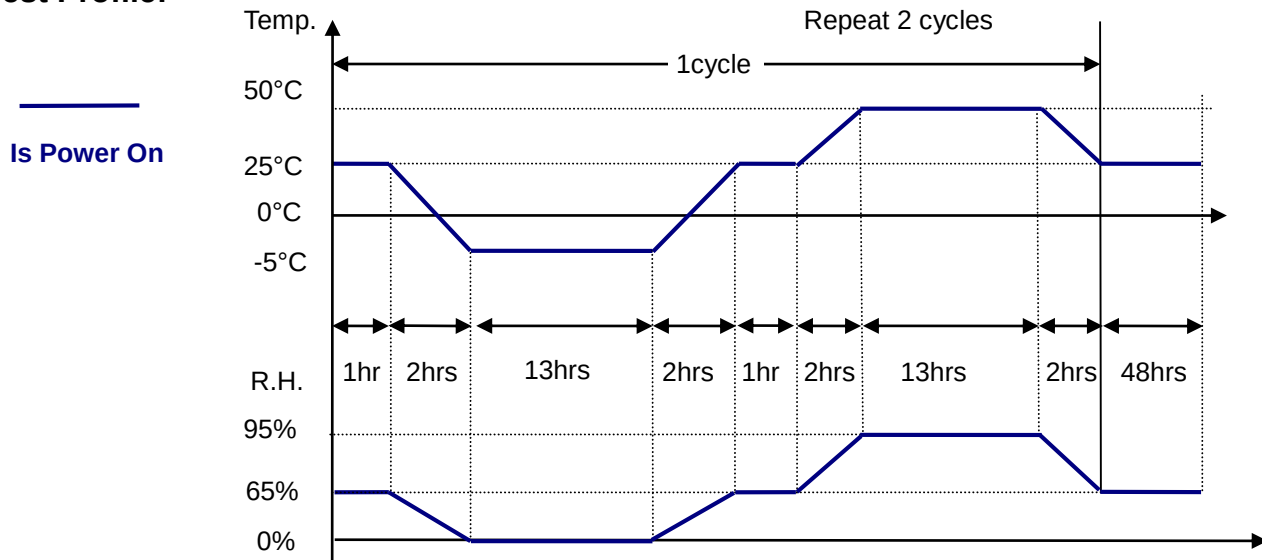
Purpose:

To demonstrate that products can operate in the high/low temperature and high humidity environment.

Quantity: 2 units.

Test Objective: Operating in high/low Temperature and Humidity.

Test Profile:



Test Procedure:

1. Power on, then activated in full function and operation.
 2. 25°C & R.H. 65% for 1 hour
 3. 25°C & R.H. 65% to - 5°C for 2 hours
 4. - 5°C for 13 hours
 5. - 5°C to 25°C & R.H. 65% for 2 hours.
 6. 25°C to R.H. 65% for 1 hour
 7. 25°C & R.H. 65% to 50°C & R.H. 95% for 2 hours
 8. 50°C & R.H. 95% for 13 hours
 9. 50°C & R.H. 95% to 25°C & R.H. 65% for 2 hours
 10. Repeat 1~9 for 2 cycles
 11. 25°C & R.H. 65% for 48 hours
- Total for 120 hours

Pass Criteria:

1. No functional failures both during and after the test.
2. No performance degradation during the functional test.
3. No visual damage to the products after inspection, such as peeling, discoloration, etc.

Basis for Profile: IEC 60068-2-30.

Test Result: **PASS**



5. Power On/Off Test with Temperature

Purpose:

The purpose of this specification is to define the power on / off test. This test is to assure the product will meet customer's specification.

Quantity: 2 units.

Test Objective: 1. Power on: 50 sec.

2. Power off: 10 sec.

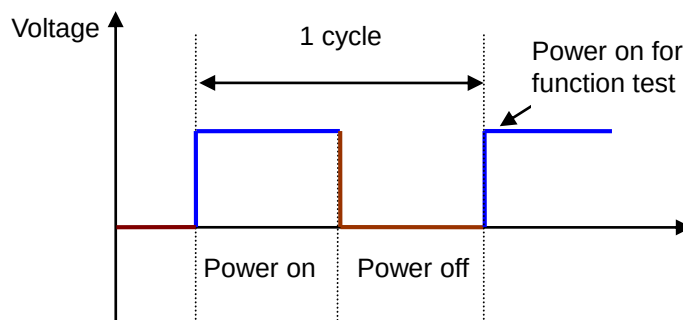
3. Temperature: - 5°C and 50°C .

4. AC Source Voltage: 220V, Frequent: 60Hz.

5. Cycle: 2,500 cycles per test condition.

6. Total 5,000 cycles.

Test Profile:



Test Procedure:

1. Temperature: - 5°C and 50°C .

2. Control the power on/off and input voltage as below.

Power on/off frequency: Power on: 50 seconds / Power off: 10 seconds.

AC Source Voltage: 220V, Frequent: 60Hz.

3. Cycle: 2,500 cycles per test condition.

4. Total: 5,000 cycles.

Pass Criteria:

1. No functional failures both during and after the test.

2. No performance degradation during the functional test.

3. No visual damage to the products after inspection, such as peeling, discoloration, etc.

Test Result: **PASS**

