

Reliability Test Report for BFX-AT100

Prepared by Tommy Chen
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	2019/06/14
2.0	2nd Source	2019/12/05

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. Continuation of temperature cycle 7

 4. Power On/Off Test with Temperature 8

 5. Quick Power On/Off Test 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-AT100 product.

The DUT H/W revision is 02S2 and S/W revision is BFX_AT100-eng 9 PI 20190819 release-keys.

The summary of test items:

No.	Item	Test Condition	Unit	Pass Criteria	Test result
1	Cold Start	1. Power off and storage at -5°C for 24 hours then power on to check function. 2. Repeat test 15 times	2	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
2	Hot Start	1. Power off and storage at -5°C for 24 hours then power on to check function. 2. Repeat test 15 times	2	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
3	Continuation of temperature cycle	1. Operation in high and low temperature environment at 50/-5°C 2. 50°C with 1°C/min, Dwell 3 hrs,	2	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
4	Power On/Off Test with Temperature	1. Power on: 50 sec; off: 10 sec. 2. Temperature: -5°C and 50°C 3. Cycle: 2,500 cycles per test condition 4. Total 5,000 cycles	2	1. No functional failures both before and after the test. 2. No ping failures both during the test and after the test. 3. No performance degradation after the functional test. 4. No visual damage to the products after inspection, such as peeling, discoloration, etc.	Pass
5	Quick Power on/off Test	1. Power on: 120 sec; off 3 sec 2. Temperature: 25°C 3. Cycle: 100	2	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

Panel Drawing:

Front



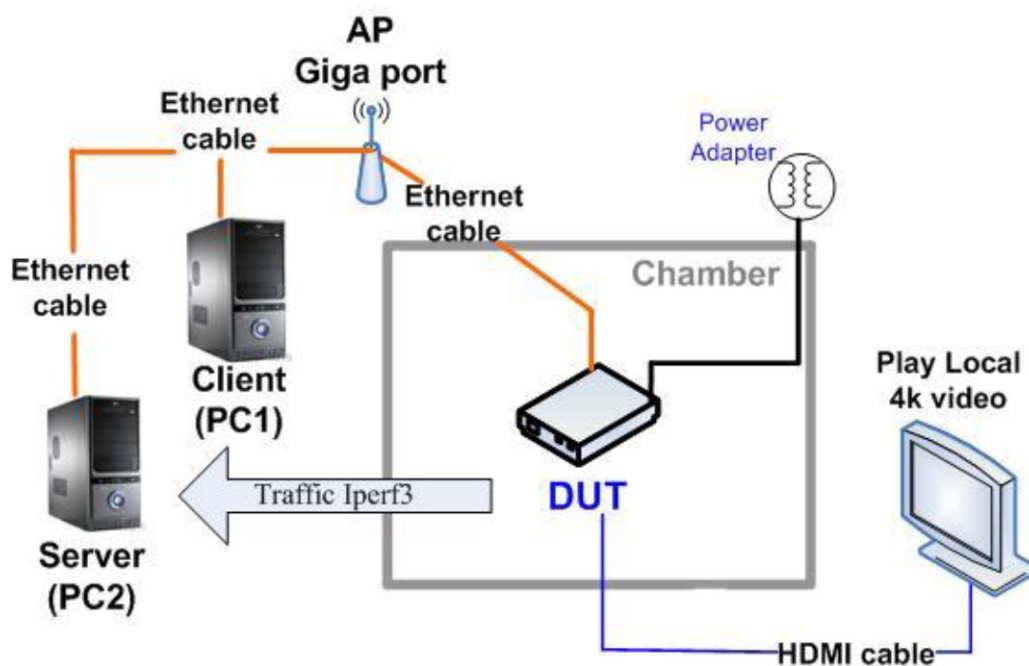
Rear



RCU



Test setup and function test:



1. Cold Start Test

Purpose:

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

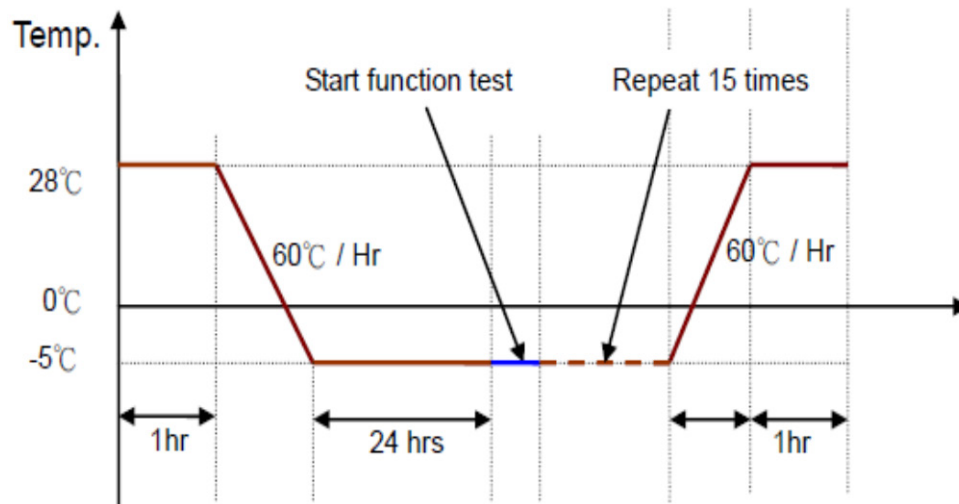
Quantity: 2 units

Test Objective: Power off, and store at -5°C for 24 hours the power on to check function.
Repeat test 15 times.

Test Profile:

Is Power Off

Is Power On



Test Procedure:

1. Start test at 28°C and power on active full function for 1 hour.
2. Turn off the power and decrease the temperature to -5°C and hold for 24 hours.
3. Power on the measure the DUT function for 10 min.
4. Repeat 15 times cold start test.

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.

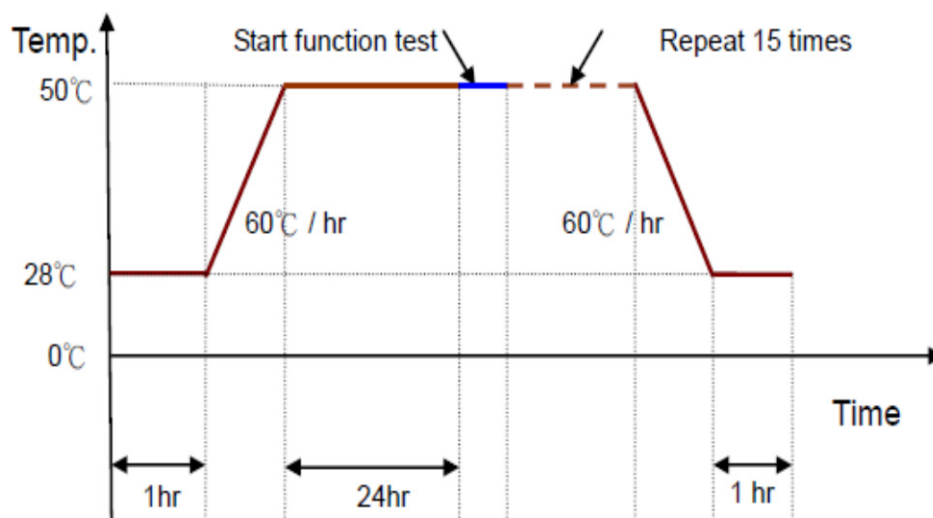
Quantity: 2 units

Test Objective: Power off, and store at 50°C for 24 hours then power on to check function.
Repeat test 15 times.

Test Profile:

Is Power Off

Is Power On



Test Procedure:

1. Start test at 28°C and power on active full function for 1 hour..
2. Turn off the power and decrease the temperature to 50°C and hold for 24 hours.
3. Power on the measure the DUT function for 10 min.
4. Repeat 15 times cold start test.

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. Continuation of temperature cycle

Purpose:

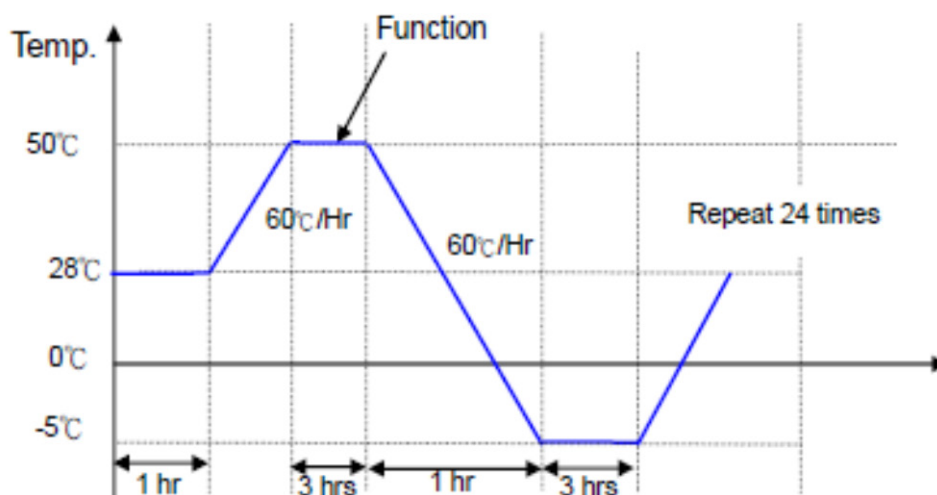
To demonstrate that products can operate in the high/low temperature.

Quantity: 2 units

Test Objective: Operating in high and low temperature environment at 50/-5°C, 50°C with 1°C /min, Dwell 3 hours; -5°C with 1°C/min, dwell 3 hours, total 72 hours.

Test Profile:

Is Power On

**Test Procedure:**

1. Run 2 units for 1 hour at 28°C to make sure there is no obvious errors in setup.
2. Set the temperature to 50°C with 1°C/min transition rate.
3. Continue to run at 50°C for 3 hours.
4. Constantly monitor the traffic performance and record any anomalies.
5. After 3 hours bring the temp down to -5°C temp with 1°C/min for 3 hours.
6. Dwell for 1 hour at 28°C then take a detailed picture of the setup, including DUT and support equipment, cabling and take a screen snapshot from the main traffic monitor.

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 60068-2-2

Test Result: Pass

4. Power On/Off Test with Temperature

Purpose:

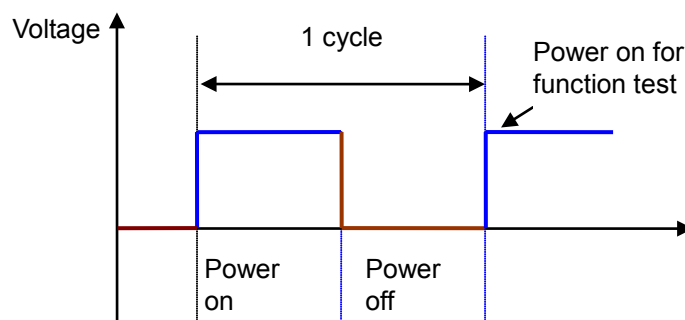
The purpose of this specification is to define the power on/off test. This test is to assure the product will meet customer's specification.

Quantity: 2 units

Test Objective:

1. Power on: 50 sec. (follow product characteristic)
2. Power off: 10 sec. (follow product characteristic)
3. Temperature: -5°C and 50°C
4. Cycle: 2500 cycles per test condition
5. Total 5000 cycles

Test Profile:



Test Procedure:

1. Base on test setup and function test to check DUT function then put the DUT into chamber.
2. Temperature: -5°C and 50°C.
3. Control the power on/off frequency, temperature and input voltage as below.
Power on/off frequency: Power on: 50 seconds/ Power off: 10seconds.
4. Cycle: 2,500 cycles per test condition, Total: 5,000 cycles

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.

Test Result: Pass

5. Quick Power On/Off Test

Purpose:

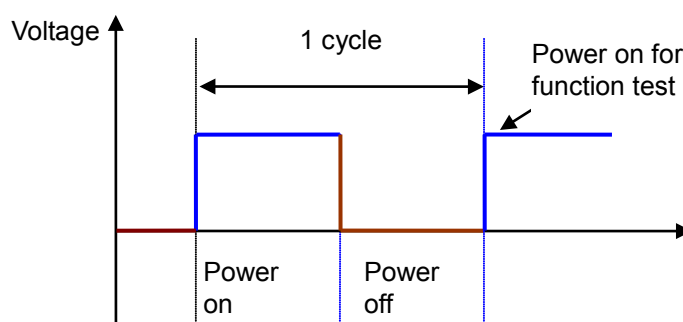
The purpose of this specification is to define the power on/off test. This test is to assure the product will meet customer's specification.

Quantity: 20 units

Test Objective:

1. Base on test setup and function test to check DUT function.
2. Power off: 20 sec.
3. Power off: 10 sec.
4. Temperature: 25°C
5. Cycle: 100 cycles test condition.

Test Profile:



Test Procedure:

1. Base on test setup and function test to check DUT function.
2. Temperature: 25°C.
3. Control the power on/off frequency, temperature and input voltage as below.
Power on/off frequency: Power on: 20 seconds/ Power off: 10seconds.
4. Cycle: 100 cycles.

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.

Test Result: Pass