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Reliability Test Report for BFX-AT100 (TIANMAI Thermal Pad)

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Revision Change History

Revision	Description of Change	Date
1.0	Initial Release	06/14/2019
2.0	2nd Source	01/06/2021
3.0	2nd Source	08/12/2022

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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 version is 06C and S/W revision is 523r06_SD_fac-20220126.

Second source:

1. Remove Top & Bottom Shielding Cover.
2. Change Thermal Pad to TIANMAI, K= 3W.

The summary of test items:

No.	Item	Test Condition	Q'ty	Period	Pass Criteria	Test result
1	High/Low Temperature & Humidity Cycle Test	The process of - 5°C for 12 hrs than to +50°C / 90% R.H. for 12 hrs is defined as cycle. Total 5 cycles.	2	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
2	High Temperature & Humidity Test	Power on, Operation Ta = 50°C, Humi. = 90%R.H. for 72 hours	2	3 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
3	Salt Spray Test	Temperature: 35°C RH: 85% Salt: 5% Test duration: 8 hours salt fog exposure then 8 hours drying conditions Requirement : No mechanical or function damage to the product	2	1 day	1. No failures or major degradation during the functional test. 2. No visual damage to the products during inspection.	PASS

Panel Drawing:

Front



Rear



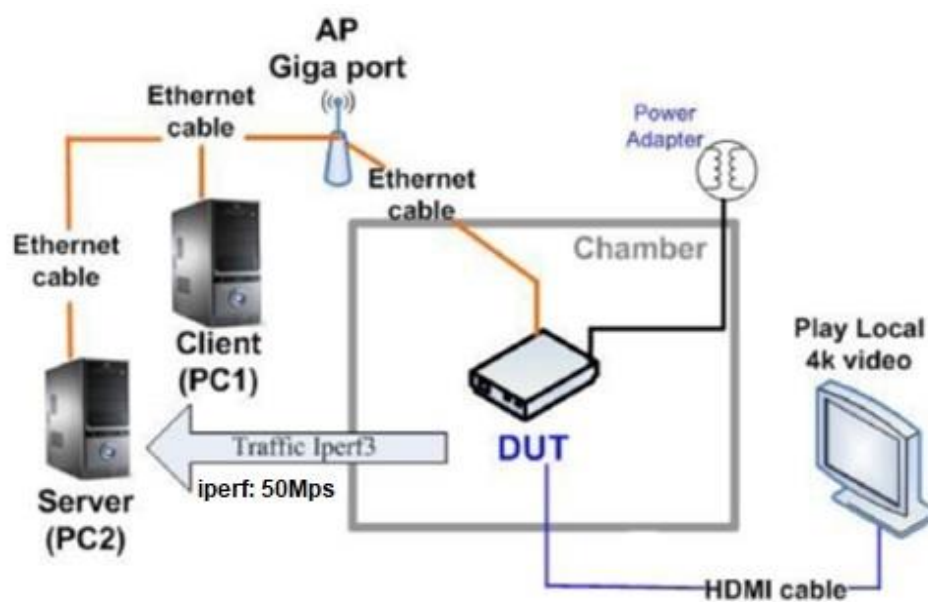
Adapter



RCU



Test setup and function test:



1. High/Low Temperature & Humidity Cycle Test

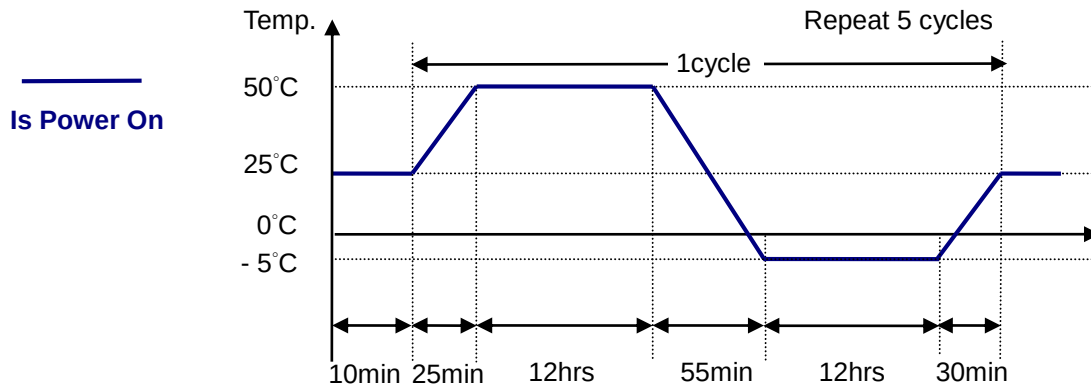
Purpose:

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 high Humidity.

Test Profile:



Test Procedure:

1. Power on, then activated in full function and operation.
2. Start test at 25°C for 10 min.
3. Ramp up the temperature to 50°C for 12 hours.
4. Ramp down the temperature to -5°C for 12 hours.
5. Repeat item 3 ~ 4 for 5 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.

Basis for Profile: IEC 60068-2-30

Test Result: **PASS**



2. High Temperature and Humidity Test

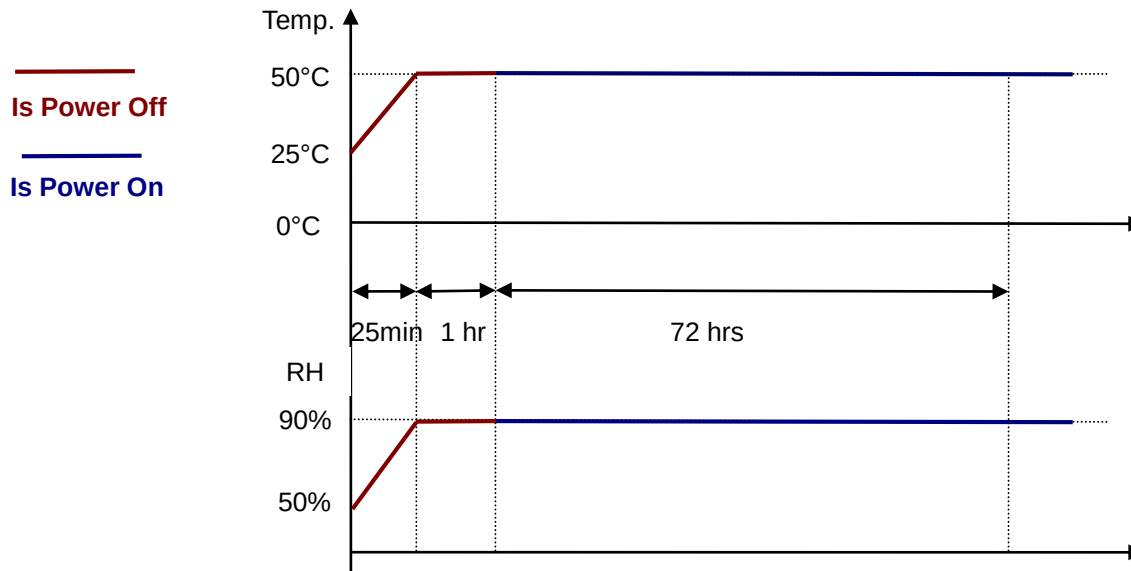
Purpose:

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 RH 90%, Duration: 72 hours.

Test Profile:



Test Procedure:

1. Power off.
2. Start test at 25°C and RH 50%.
3. Ramp the temperature to 50°C and RH 90% in 25 minutes, then hold for 1 hour.
4. Power on the test units.
5. Hold 50°C, RH 90% 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: MIL-STD-202F Method 103B

Test Result: **PASS**



3. Salt Spray Test

Purpose:

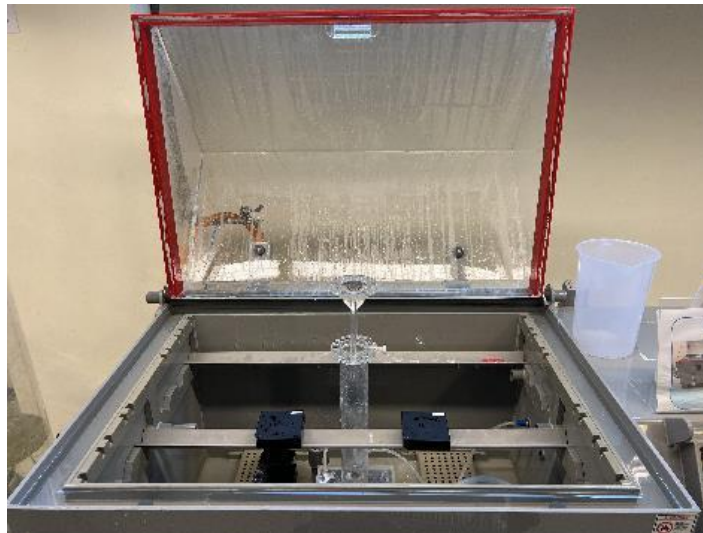
To ensure the DUT can operate properly after exposure in salt spray environment.

Quantity: 2 units

Test Objective:

1. Salt: 5%, Temp. : 35°C and Humidity: 85%.
2. Test duration: 8 hours salt spray exposure.

Test Profile:



Test Procedure:

1. Place the test samples into the salt spray chamber, after the visually inspected and function checked.
2. Ramp the chamber temperature to +35°C, humidity to 85%, salt to 5% and PH to 7.0, then storage the samples for 8 hours.
3. Remove the samples from the chamber for inspection.
4. Clean the samples with distilled water then dry the samples for 8 hours.
5. After the visually inspected and function checked.

Pass Criteria:

1. No failures or major degradation during the functional test.
2. No visual damage to the products during inspection.

Basis for Profile:

In developing this profile, the concepts and ideas expressed in the following sources have been reviewed: IEC 60068-2-11.

Test Result: **PASS**

Cosmetic Check:

Item	Top	Bottom	Function	Test result
Sample 1			PASS	PASS
Sample 2			PASS	PASS