

# Reliability Demonstration Test Report

## for T99X171.00

Customer Model Name: BFX-AT100

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| Revision Change History |                       |            |
|-------------------------|-----------------------|------------|
| Revision                | Description of Change | Date       |
| 1.0                     | Initial Release       | 06/11/2019 |

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## 1. Purpose

This document describes the RDT test report.

## 2. Scope

The RDT plan details the test items, test coverage, and test equipment. The purpose of RDT (Reliability Demonstration Test) is to do MTBF demonstration stress test.

H/W revision is H/W: V 015, S/W: r13 DVT1

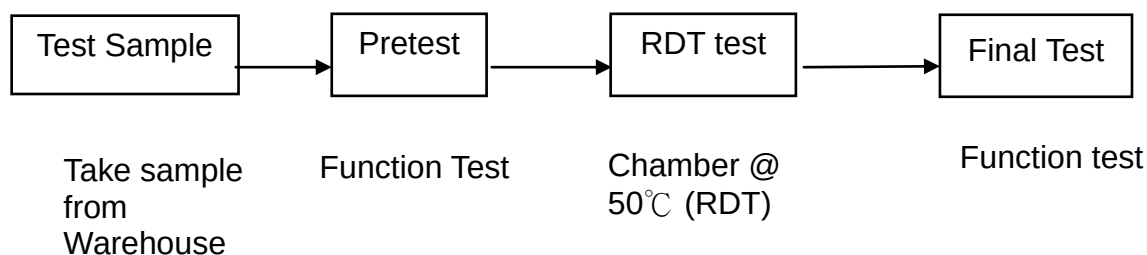
The document refers to "RAD-HCP-2011904002" test plan

## 3. RDT Process Flow

The RDT process includes Pretest, RDT and final test.

### 3.1 Test Flow

The test flow is as below:



Note:

Function Test - Follow 4.1 Test Performance Criteria

### 3.2 RDT test

The RDT (Reliability Demonstration Test) test is necessary to quantify the expected service life of a product. It specifies how the test is to be performed. Demonstrated MTBF (Mean Time Between Failures), the target MTBF is 43,800 hours.

If it is based on the Foxconn standard MTBF calculation formula. Demonstrated MTBF (Mean Time Between Failure) will be based on the methods defined in MIL-STD-781D. The target MTBF is 44,695 hours. Based on 90 % confidence level, it will take **26 days with 20 pieces** of samples under 50 deg C. The formula below shows how the MTBF is defined.

$$\text{MTBF} = \frac{(\text{Testing hours}) * (\text{Acceleration Factor}) * (\text{Number of U.U.T})}{(\text{Confidence Level Factor})}$$

Acceleration factor (A.F):

Ta = Acceleration Temperature=50 Deg.C

Tb = Ambient Temperature=25 Deg.C

$$e^{\frac{0.7}{8.6 \times 10^{-5}} * \left[ \frac{1}{273 + T_b} - \frac{1}{273 + T_a} \right]} = 8.24679727425771$$

Confidence Level Factor = 2.30259 (based on Confidence Level 90% and 0 Defect)

It needs 26 days to test with 0 defects to achieve the goal of 44,695 hours MTBF.

## 4. Test Process

### 4.1 Test Performance Criteria

The information shall be recorded the tests every day.

| Information | Criterion                                                                                                                          |
|-------------|------------------------------------------------------------------------------------------------------------------------------------|
| DUT         | 1. DUT no visible cracks, white marks, deformations, gaps, abrasion, burnishing, scratches.<br>2. Function should be run smoothly. |

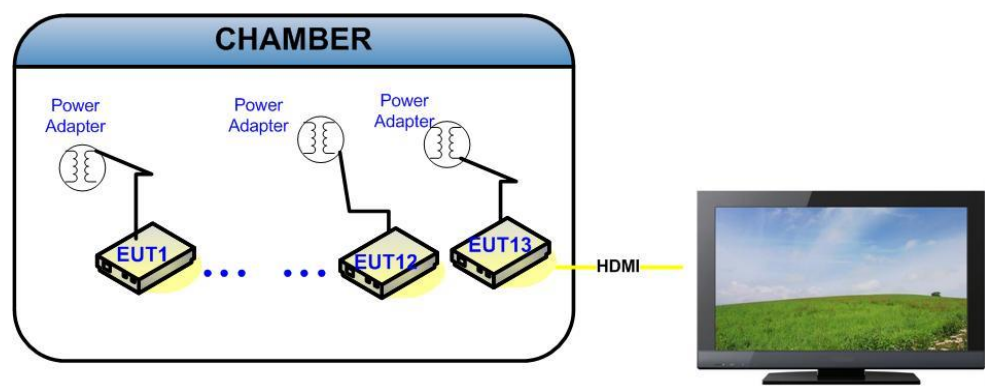
The table shown below is used to record the result of the visual inspection the test every day.

| List of visual inspections           | Criterion   | Remark                               |
|--------------------------------------|-------------|--------------------------------------|
| Mechanical breakage                  | Not allowed | State which place of the EUT is fail |
| Shape change                         | Not allowed | State which place of the EUT is fail |
| Colors change                        | Not allowed | State which place of the EUT is fail |
| Components falling off getting loose | Not allowed | State which place of the EUT is fail |

### 4.2 Test Equipment and Test Capacity

| Description     | Unit     |
|-----------------|----------|
| PC              | 1 Set    |
| Adaptor         | 20 Units |
| DUT             | 20 Units |
| Walking Chamber | 1        |

5. Test Block Diagram



6. Test Result

Test status will be monitored and recorded two times a day at 9:00 am and 4:00 pm. The table below will be used for daily RDT report.

| No. | Video | Test result |
|-----|-------|-------------|
| 1   | OK    | PASS        |
| 2   | OK    | PASS        |
| 3   | OK    | PASS        |
| 4   | OK    | PASS        |
| 5   | OK    | PASS        |
| 6   | OK    | PASS        |
| 7   | OK    | PASS        |
| 8   | OK    | PASS        |
| 9   | OK    | PASS        |
| 10  | OK    | PASS        |
| 11  | OK    | PASS        |
| 12  | OK    | PASS        |
| 13  | OK    | PASS        |
| 14  | OK    | PASS        |
| 15  | OK    | PASS        |
| 16  | OK    | PASS        |
| 17  | OK    | PASS        |
| 18  | OK    | PASS        |
| 19  | OK    | PASS        |
| 20  | OK    | PASS        |