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Reliability Test Report for T99X171.00

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Revision Change History		
Revision	Description of Change	Date
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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 T99X171.00 product.

The DUT H/W version is V025 and S/W revision is 15.534.28(Android 10)

ALT Eagle Eagle 2nd source

1	AWINIC/AW35019DNR
2	Everlight/IRM-V838J12-S/TR1
3	ETA-semi/ETA5056V18S2F ETA-semi/ETA5056V25S2F
4	POWERWAY/ST39-NPM20-B3RQ-L
5	APM/AR0506PAL
6	Faith Long/3S250F1057 Faith Long/2S200F1002
7	ETA-semi/ETA6027S2G

The summary of test items:

No.	Item	Test Condition	Q'ty	Period	Pass Criteria	Test result
1	Cold Start Test	1. Power off, and store at - 5°C for 24 hours then power on to check function. 2. Repeat test 15 times	2	2 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
2	Hot Start Test	1. Power off, and store at 50°C for 24 hours then power on to check function. 2. Repeat test 15 times	2	2 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	Continuation of temperature cycle	1. Operating in high and low temperature environment at 50/-5°C 2. 50°C with 1°C/min, Dwell 3 hrs ; -5°C with 1°C/min, Dwell 3 Hrs, total 72 hrs	2	4 day	"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	Thermal Shock	Power off , non-OP, Ta= -20C (30min) ~ 70C (30min) 15 cycles, Transfer time : 5 min	2	1 day	"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
5	Power On/Off Test with Temperature	1.Power on: 50 sec; off 10 sec. (follow product characteristic) 2..Vin: follow customer's spec or MRS, 2,500 cycle, total 5,000 3. Test Temp at -5/50 °C	2	5 days	No functional failures both during and after the test	PASS
6	Tact switch Life Test	Test Cycles: 20,000 Cycles Test Speed: 50 times/min Functional check every 1,000 cycles.	2	4 day	No physical defect and functional failure after this test.	PASS

Panel Drawing:

Front



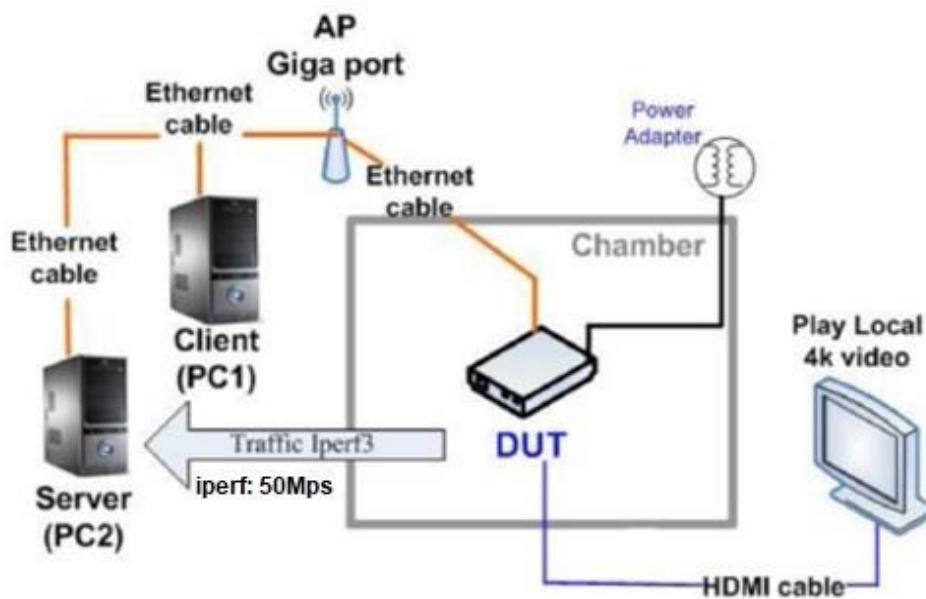
Rear



Adapter



Test setup and function test:



1. Cold Start Test

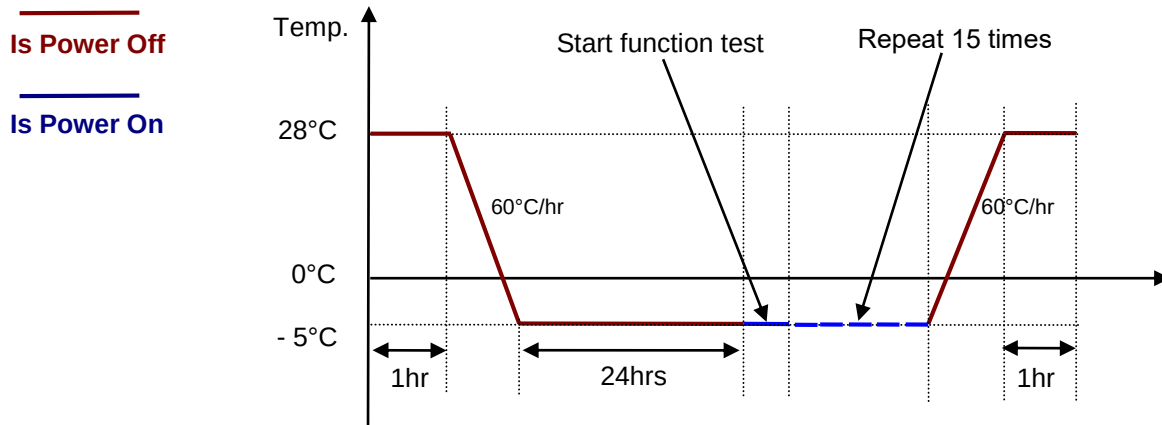
Purpose:

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

Quantity: 2 units(S/N:2149688001202499000015,2149688001202499000013)

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

Test Profile:



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

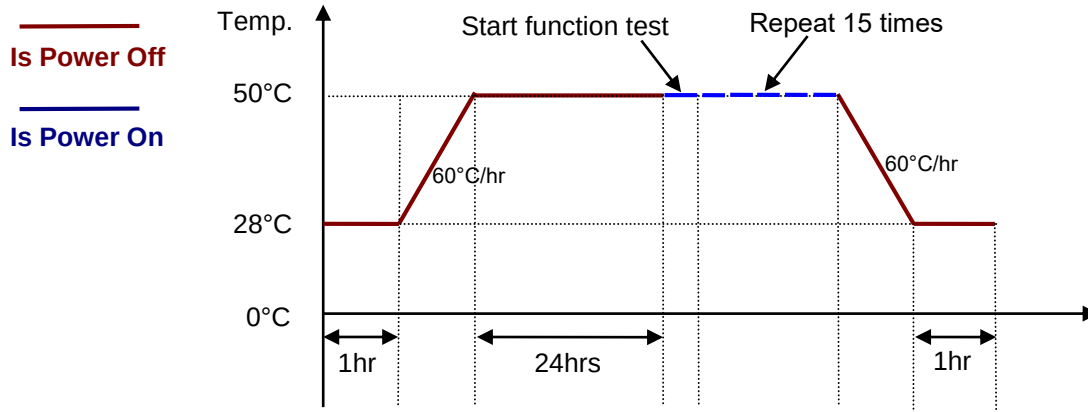
Purpose:

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

Quantity: 2 units(S/N: 2149688001202499000015,2149688001202499000013)

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

Test Profile:



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**



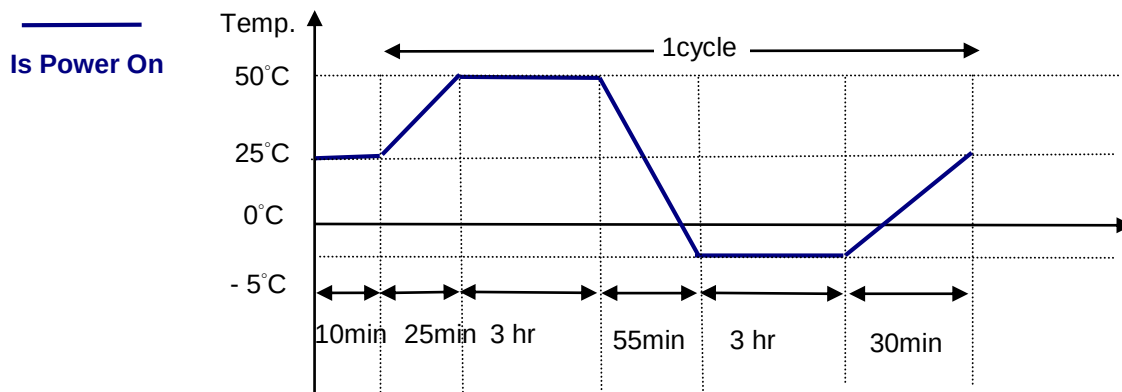
3. Continuation of temperature cycle

Purpose:

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

Quantity: 2 units(S/N: 2149688001202499000015,2149688001202499000013)

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 the temperature to 50°C in 25 minutes
4. Ramp the temperature to 50°C for 3hours.
5. Ramp the temperature to -5°C in 55 minutes.
6. Ramp the temperature to - 5°C for 3hours.
7. Ramp the temperature to 25°C in 30 minutes.
5. Repeat item 3 ~ 7 for 9 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**



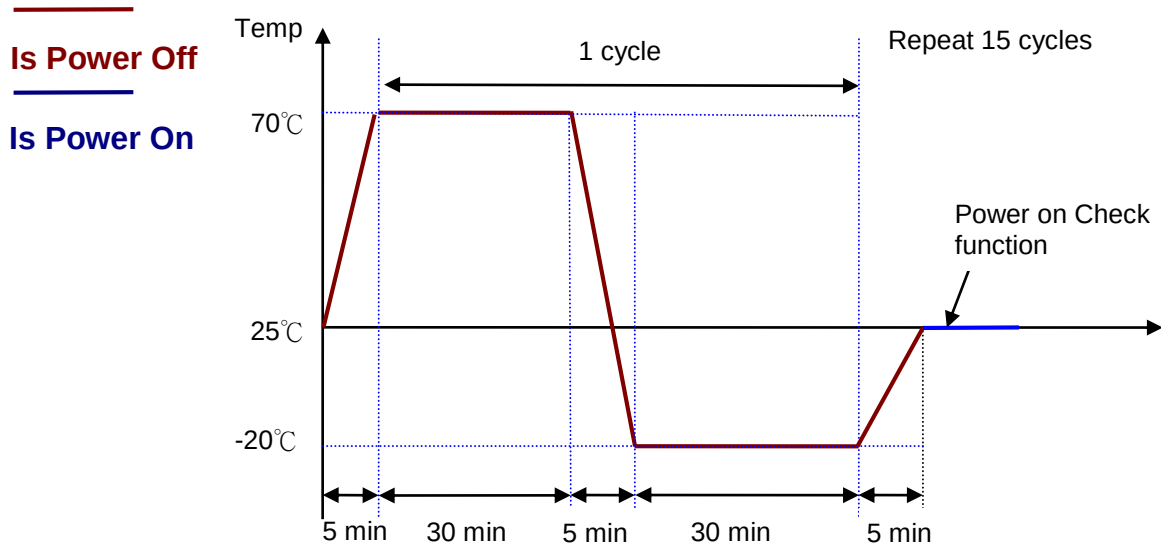
4. Thermal Shock

Purpose:

To demonstrate that the product can be operated after high & low temperature shock environment.

Quantity: 2 units(S/N: 2149688001202499000015,2149688001202499000013)

Test Objective: Ta= - 20°C (30minues) ~ 70°C (30minutes), Cycle: 15 cycles,
Transfer time: 5 minutes.

Test Profile:**Test Procedure:**

Power off , non-OP, Ta= -20C (30min) ~ 70C (30min)15 cycles, Transfer time : 5 min

Pass Criteria:

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.

Basis for Profile: MIL-810

Test Result: **PASS**



5. Power on/off Test with Temperature

Purpose:

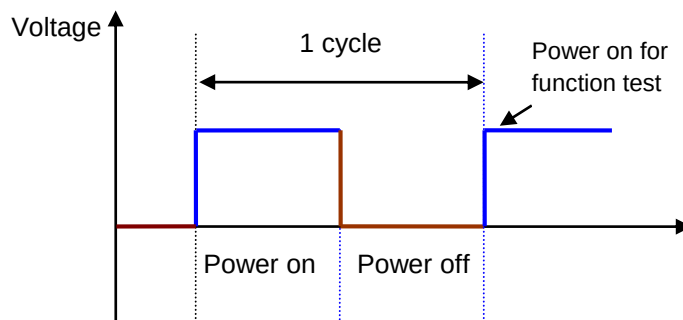
The purpose of this specification is to define the power on / off test. This test is to assure the product will meet customer's specification.

Quantity: 2 units(S/N: 2149688001202499000015,2149688001202499000013)

Test Objective:

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.

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: 10 seconds.
4. Cycle: 2,500 cycles per test condition, Total: 5,000 cycles

Pass Criteria:

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

Basis for Profile: Foxconn Spec.

Test Result: **PASS**



6. Test Tact switch Life Test

Purpose:

Verify the extract force of Power Jack

Quantity: 2 units(S/N: 2149688001202499000015,2149688001202499000013)

Test Objective: 1. Power Jack Connector: 5,000 times

2.Test Speed: 10 cycles/min

Test Profile:

Power Jack



Test Procedure:

1. Measure the loading of insertion and extraction after the visually inspected and function checked.
2. Fix the test samples into the life-cycle tester.
3. Check the function every 1,000 times.

Pass Criteria:

No physical defect and functional failure after this test.

Basis for Profile: Product Spec.

Test Result: **PASS**