Reliability Test Report

Product Name	**Ai-WB2-01F**
Product Model	**WB2 Series**
Test Date	**2023.05.22 - 2023.05.26**
Tester	**Liu Qun**
Reviewer	**Lu Xingui**

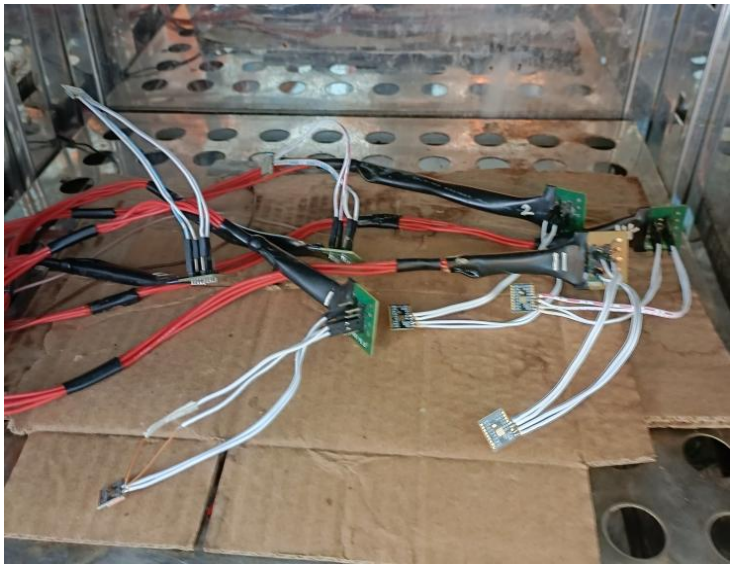
1. Inspection Criteria

No.	Process Name	Inspection Items	Inspection Tool	Sampling Level (Ref. GB/T 2828.1-2012)	Acceptance Quality Limit (AQL)		
					CR (Critical Defect)	MA (Major Defect)	MI (Minor Defect)
1	Reliability Test	High/Low Temperature Storage, High/Room/Low Temperature Power On/Off, High/Low Temperature Operation, Alternating Hot and Humid Test, Thermal Shock Test	Constant Temperature and Humidity Chamber	Normal single sampling, special inspection S-1	0 Accept, 1 Reject		

2. Test Items

No.	Item	Test Conditions
1	Low Temperature Storage Test	Condition: -40 °C Duration: 8 hrs After an 8-hour dwell at -40 °C, perform a cold start test.
2	High Temperature Storage Test	Condition: 100 °C +93% RH Duration: 8 hrs After recovery to 85 °C and a 1-hour dwell, perform a hot start test.
3	Low Temperature Operation Test	Condition: -40 °C Duration: 24 hrs
4	High Temperature Operation Test	Condition: 85 °C +93% RH Duration: 24 hrs
5	AC Power On/Off Test with Temperature	A) Temperature: -40 °C B) Temperature: 25 °C +93% RH C) Temperature: 85 °C +93% RH Cycle 200 times per condition, with 30 sec ON and 30 sec OFF.
6	Alternating Hot and Humid Test	A) Operate at 85 °C +93% RH for 4 hrs B) Operate at 25 °C +93% RH for 4 hrs Cycle between Step A and Step B for a total of 2 cycles.
7	Thermal Shock Test	Condition: -40 °C~100 °C +93% RH Dwell time at each temperature is 30 mins. The transition time is 50 mins for heating and 2 hrs for cooling. Duration: 5 cycles

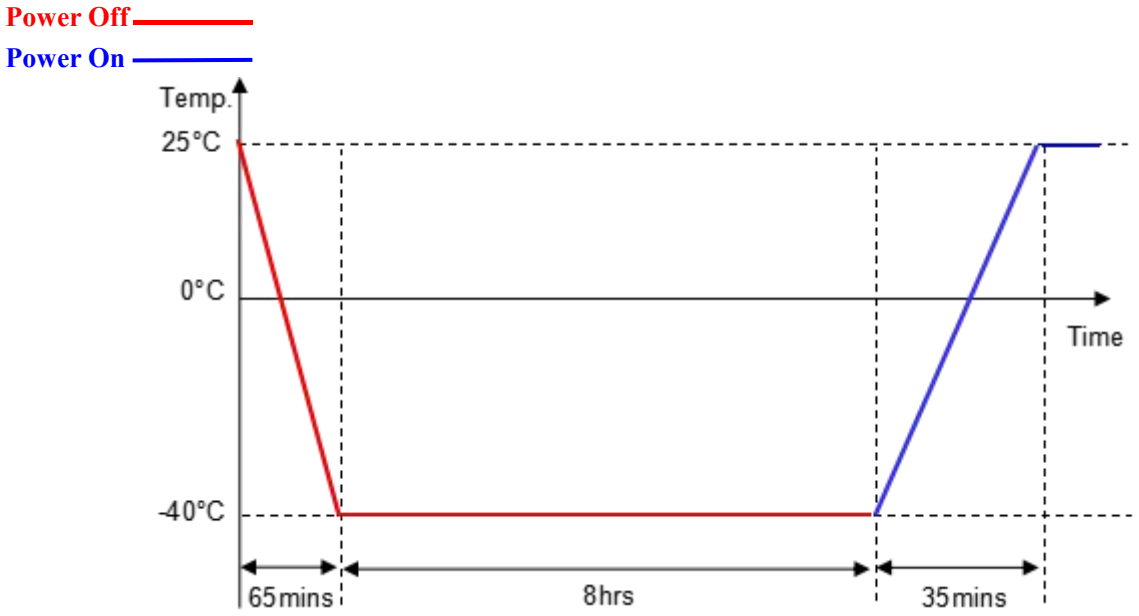
3. Test Preparation

No.	Item	Image/Attachment
1	Reliability Documentation	WB2系列模组 可靠性WIFI&蓝牙
2	Test Equipment	
3	Sample Placement	
4	Test Reason	New Product Trial Production

4. Low Temperature Storage Test

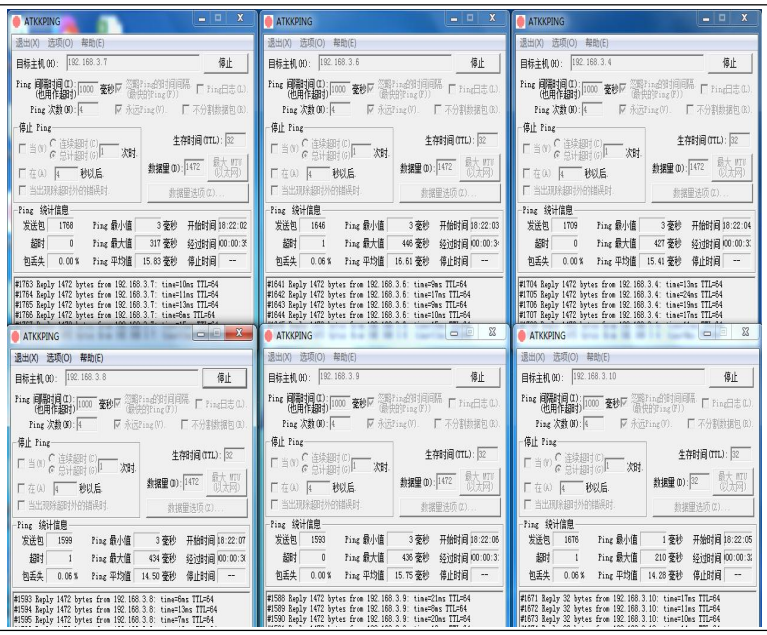
Test Conditions: Power-off test. Store the product at -40 °C for 8 hours, then perform a cold-start test.

Test Curve:



Test Criteria:

1. The device must function normally during cold start. If no packet loss is confirmed during ping tests, the module is considered functional.
2. After product testing, there are no visible damage such as shrinkage, peeling, discoloration, or other similar defects.

Test Unit(s)	Test Data	Test Result
6 PCS		PASS

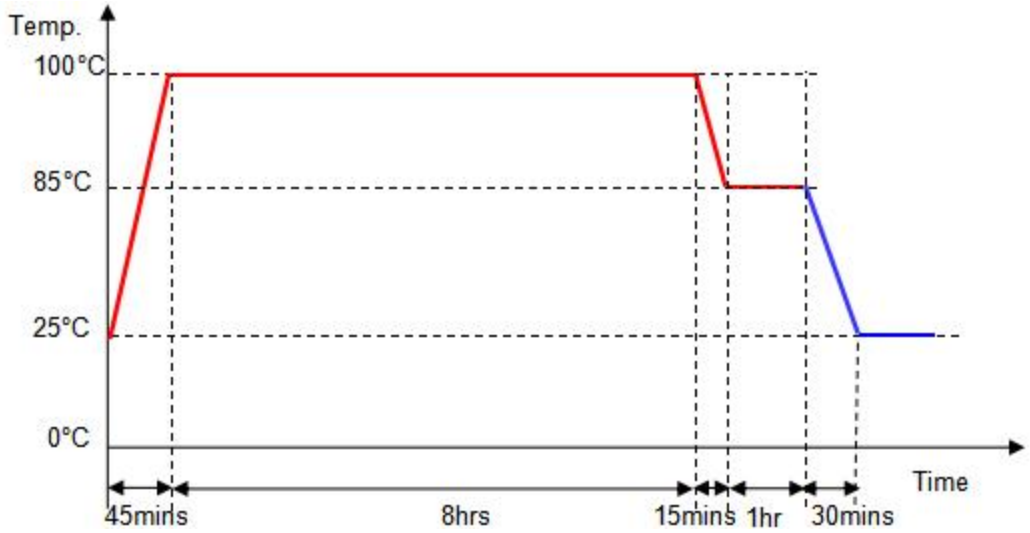
5. High Temperature Storage Test

Test Conditions: Power-off test. Store the product in a high-temperature environment of 100 ℃ +93% RH for 8 hours, then recover to 85 ℃ + 93% RH for 1 hour before performing the hot-start test.

Test Curve:

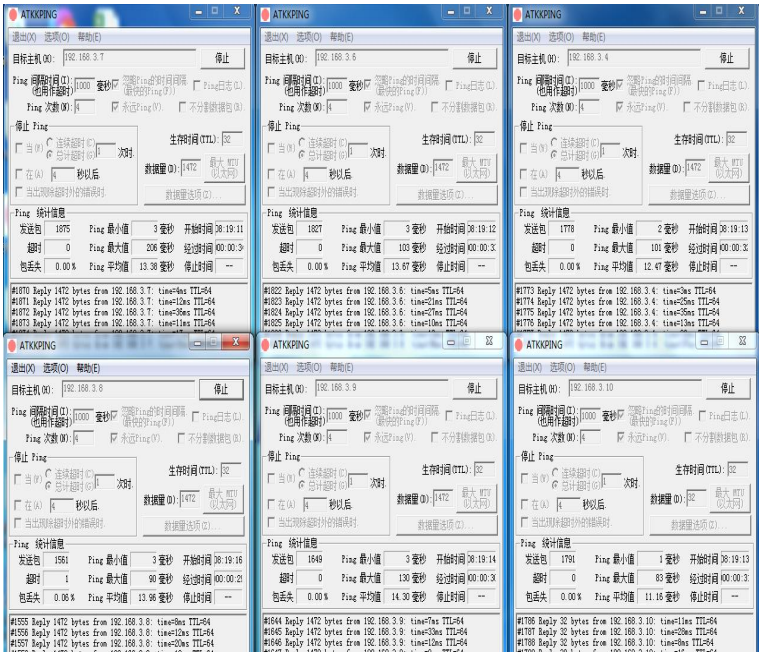
Power Off

Power On



Test Criteria:

1. The device must function normally during hot start. If no packet loss is confirmed during ping tests, the module is considered functional.
2. After product testing, there are no visible damage such as shrinkage, peeling, discoloration, or other similar defects.

Test Unit(s)	Test Data	Test Result
6PCS		PASS

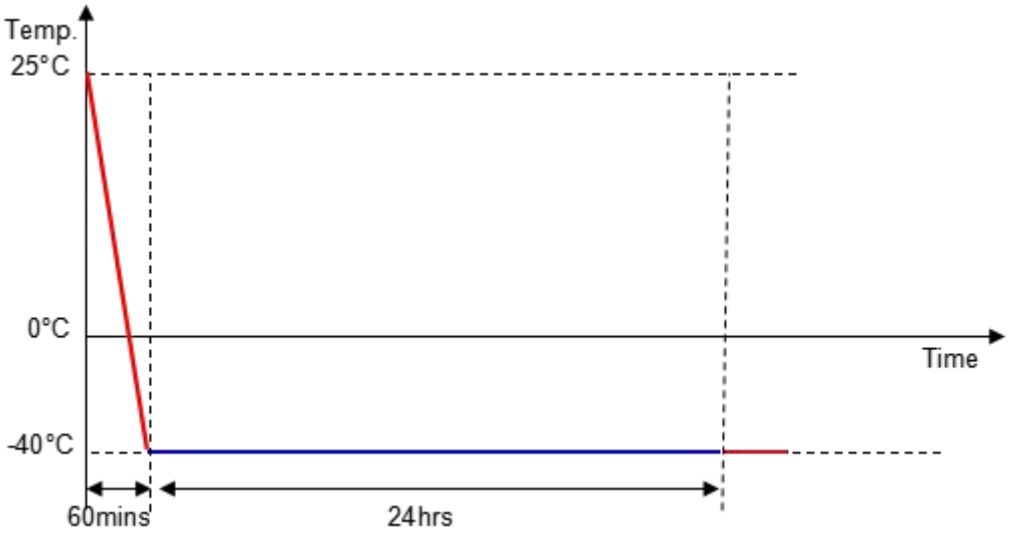
6. Low Temperature Operation Test

Test Conditions: Power-on test. Operate for 24 hours at -40 ℃.

Test Curve:

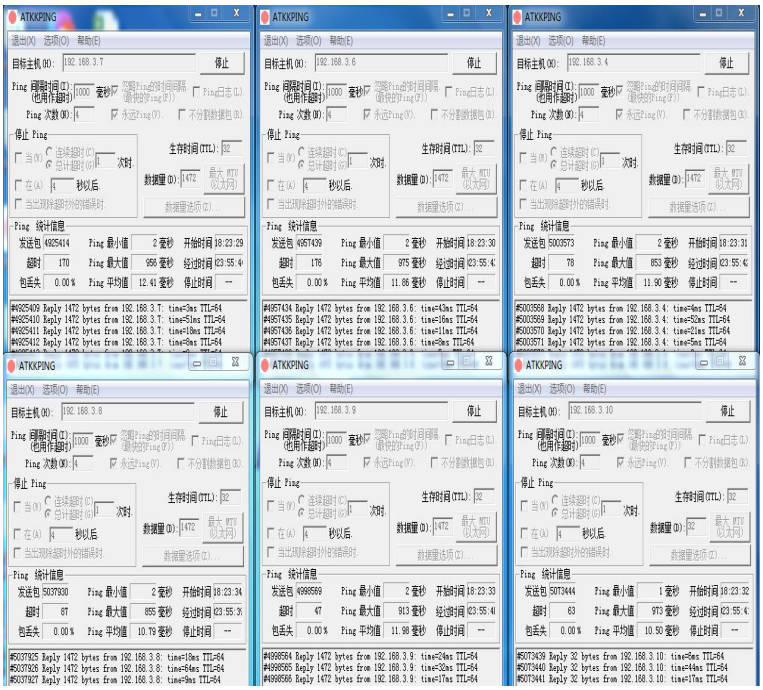
Power Off

Power On



Test Criteria:

1. During testing, if there are no issues such as network disconnection and no packet loss is confirmed during ping tests, the module is considered functional.
2. After product testing, there are no visible damage such as shrinkage, peeling, discoloration, or other similar defects.

Test Unit(s)	Test Data	Test Result
6 PCS		PASS

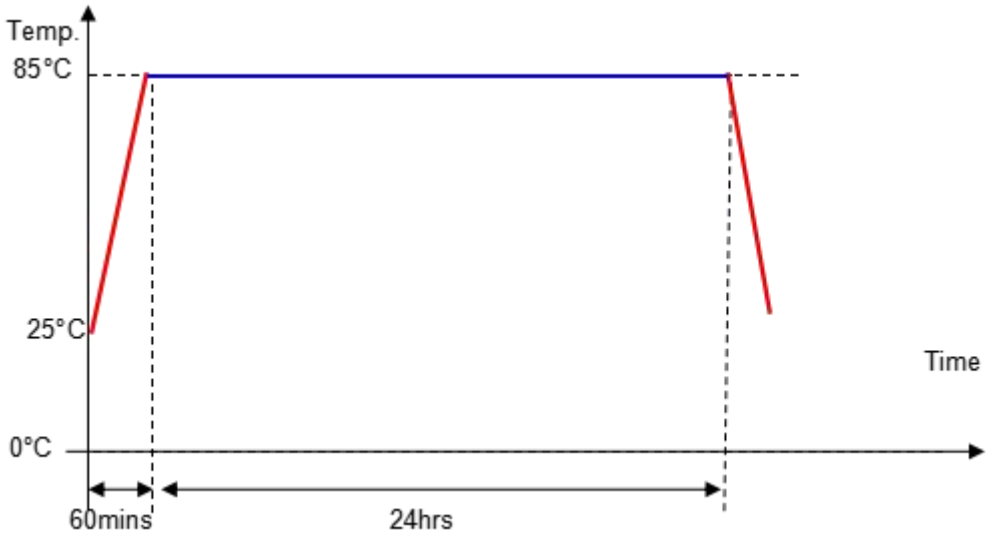
7. High Temperature Operation Test

Test Conditions: Power-on test. Operate for 24 hours at 85 ℃ +93% RH.

Test Curve:

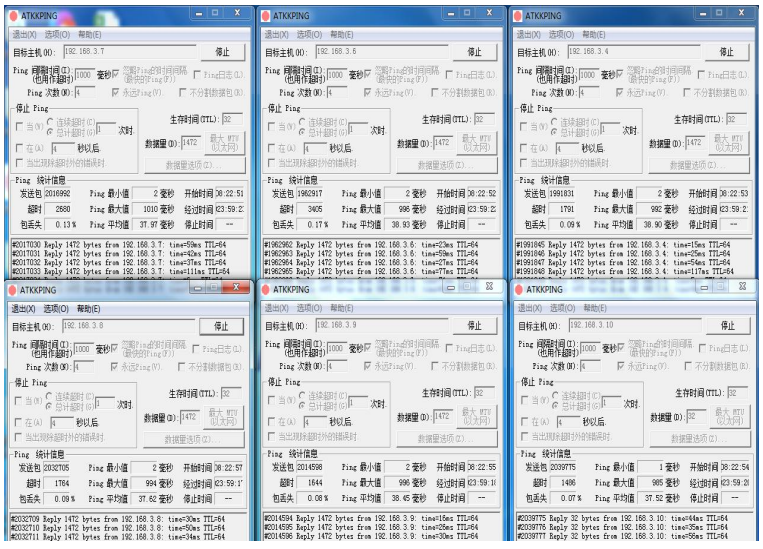
Power Off

Power On



Test Criteria:

1. During testing, if there are no issues such as network disconnection and no packet loss is confirmed during ping tests, the module is considered functional.
2. After product testing, there are no visible damage such as shrinkage, peeling, discoloration, or other similar defects.

Test Unit(s)	Test Data	Test Result
6 PCS		PASS

8. AC Power On/Off Test with Temperature

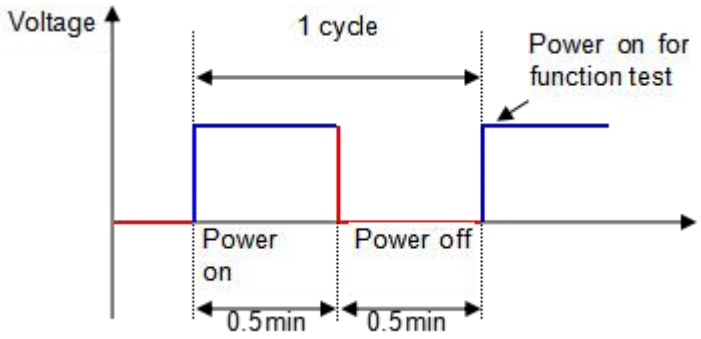
Test Conditions:

1. Power on: 30 seconds, Power off: 30 seconds.
2. Temperature: -40 ℃, 25 ℃ +93% RH, 85 ℃ +93% RH.
3. Cycle: Each set of test conditions shall be cycled 200 times.

Test Curve:

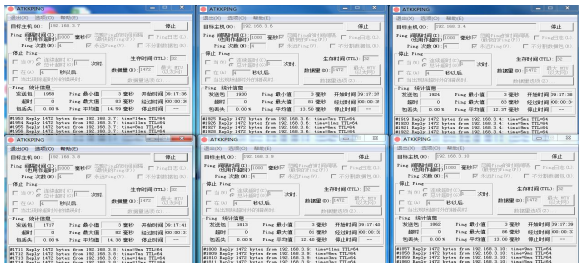
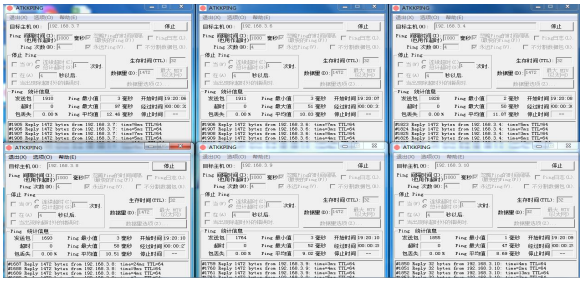
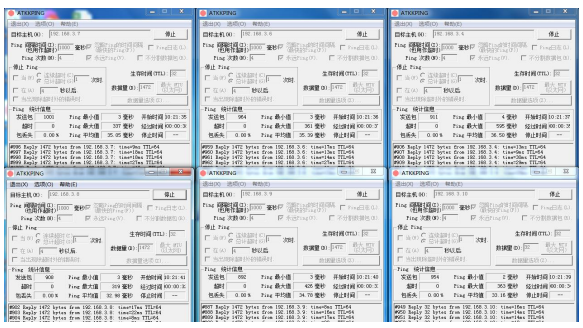
Power Off

Power On



Test Criteria:

1. If it starts up normally after power-on with no packet loss during ping tests, the module is considered functional.
2. After product testing, there are no visible damage such as shrinkage, peeling, discoloration, or other similar defects.

Item	Test Unit (s)	Test Data	Test Result
Power On/Off at Room Temperature	6PCS		PASS
Power On/Off at Low Temperature	6PCS		PASS
Power On/Off at High Temperature	6PCS		PASS

9. Alternating Hot and Humid Test

Test Conditions:

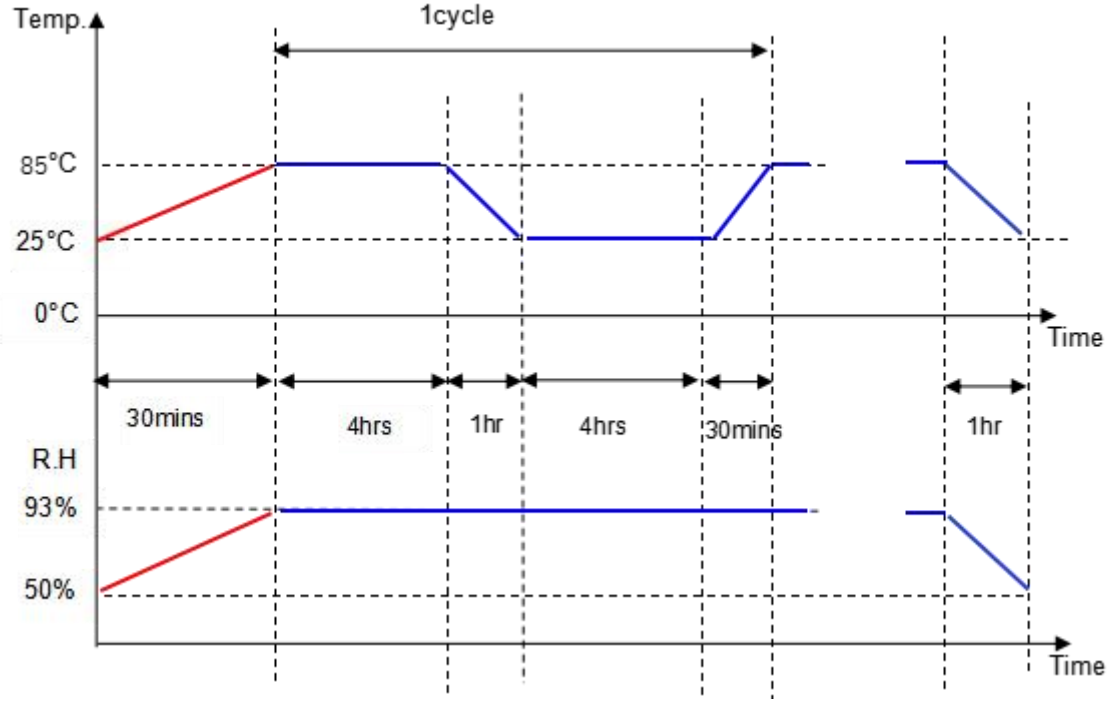
1. Operate for 4 hours at 85 ℃ +93% RH.
2. Operate for 4 hours at 25 ℃ +93% RH.

Cycle between Step 1 and Step 2 for a total of two cycles.

Test Curve:

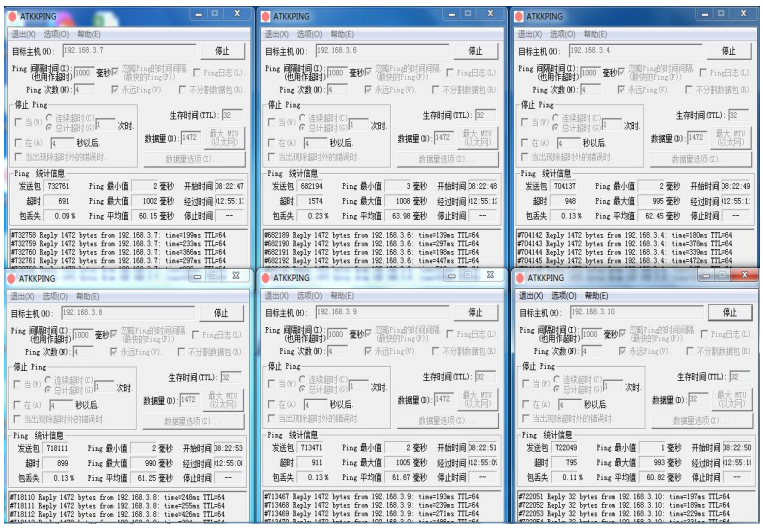
Power Off

Power On



Test Criteria:

1. During testing, if there are no issues such as network disconnection and no packet loss is confirmed during ping tests, the module is considered functional.
2. After product testing, there are no visible damage such as shrinkage, peeling, discoloration, or other similar defects.

Test Unit(s)	Test Data	Test Result
6 PCS		PASS

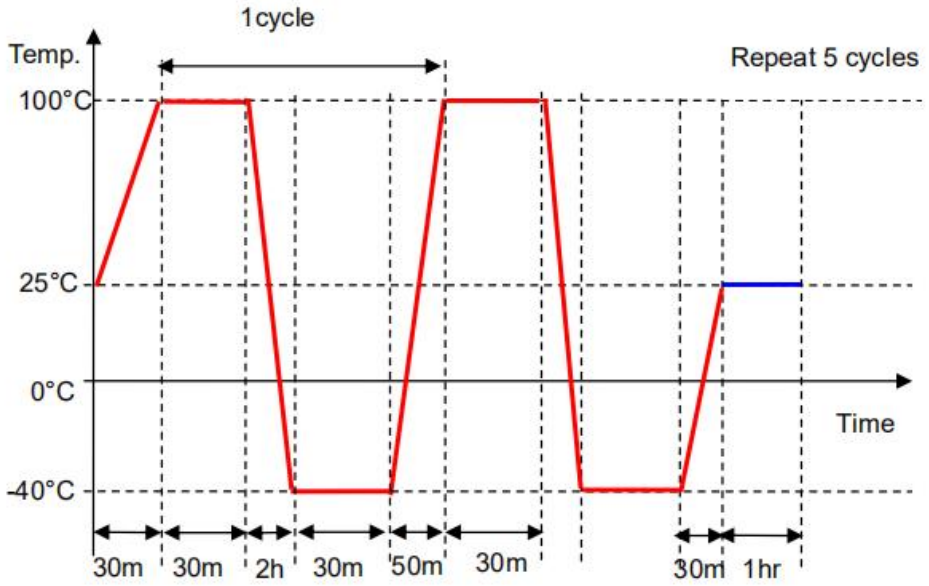
10. Thermal Shock Test

Test Conditions: Power-off test. Perform temperature conversion between -40 ℃ and 100 ℃ +93% RH. The transition time is 50 minutes for heating and 2 hours for cooling. Maintain for 30 minutes at each temperature stage. Run for 5 cycles.

Test Curve:

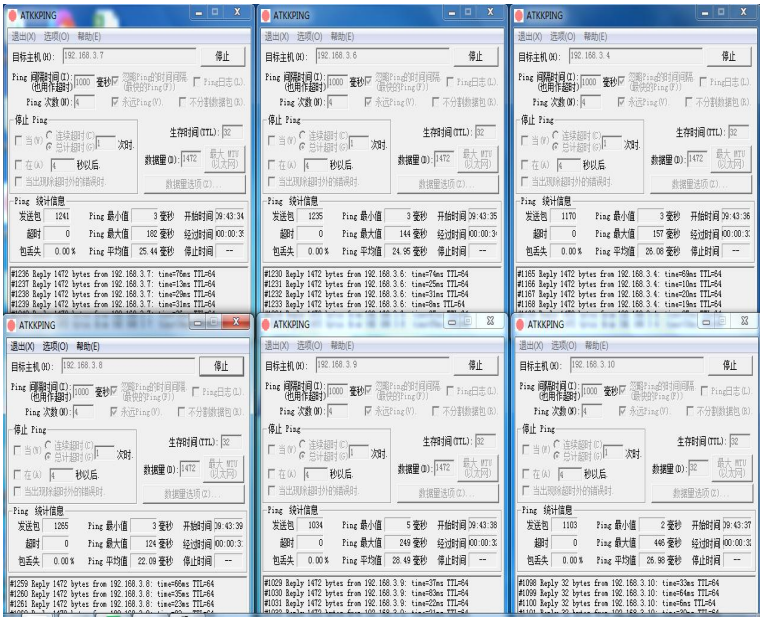
Power Off ——

Power On ——



Test Criteria:

1. If it starts up normally after power-on with no packet loss during ping tests, the module is considered functional.
2. After product testing, there are no visible damage such as shrinkage, peeling, discoloration, or other similar defects.

Test Unit(s)	Test Data	Test Result
6 PCS		PASS