Reliability Test Report

Product Name:	**LoRaWAN Gateway Series**
Product Model:	**RG-03H_V1.1**
Test Date:	**2026.01.25-2026.02.27**
Tested by:	**Lv Xihuan**
Reviewed by:	**An Sanchao**

1.Inspection Criteria

No.	Process Name	Inspection Item	Inspection Equipment	Sampling Level (Refer to GB/T 2828.1-2012)	Acceptable Quality Level		
					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; thermal shock	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	Test condition: -40℃ Test duration: 8h After a 1-hour soak at -20℃, perform a cold start test.
2	High temperature storage test	Test condition: 75℃ + 93% RH Test duration: 8h After restoring to 65℃ and a 1-hour soak, perform a hot start test.
3	Low temperature operation test	Test condition: -20℃ Test duration: 24h
4	High temperature operation test	Test condition: 65℃ + 93% RH Test duration: 24h
5	AC power on/off test with temperature	A) Temperature: -20℃ B) Temperature: 25℃ + 93% RH C) Temperature: 65℃ + 93% RH Cycle each condition 200 times, with 30s ON and 30s OFF
6	Alternating hot and humid test	A) Operate at 65℃ + 93% RH for 4h; B) Operate at 25℃ + 93% RH for 4h; Cycle steps A and B for a total of 2 cycles.
7	Thermal shock test	Test condition: -40℃~75℃ + 93% RH, soak for 30min at each temperature Temperature transition time: 50min for heating, 2h for cooling Test duration: 5 cycles

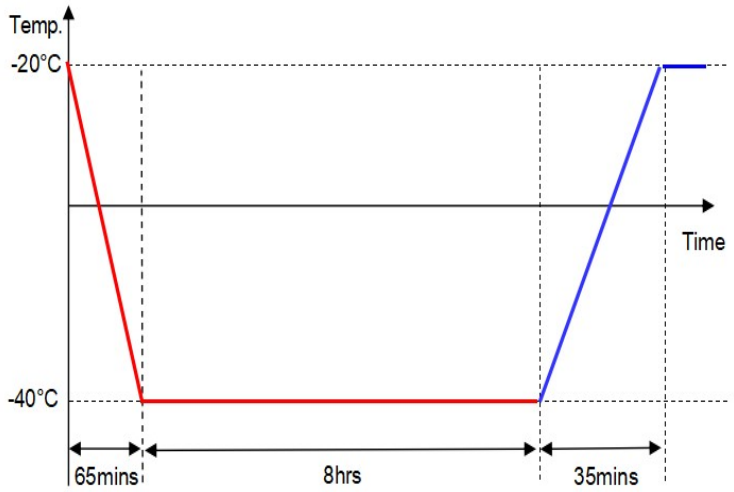
3.Test Preparation

No.	Item	Image/Attachment
1	Reliability documentation	RG-03H+Ai-LoR aWS-1001可靠性
2	Test equipment	
3	Sample placement	
4	Test reason	New product reliability test (93250184, 93250185)

4.Low Temperature Storage Test

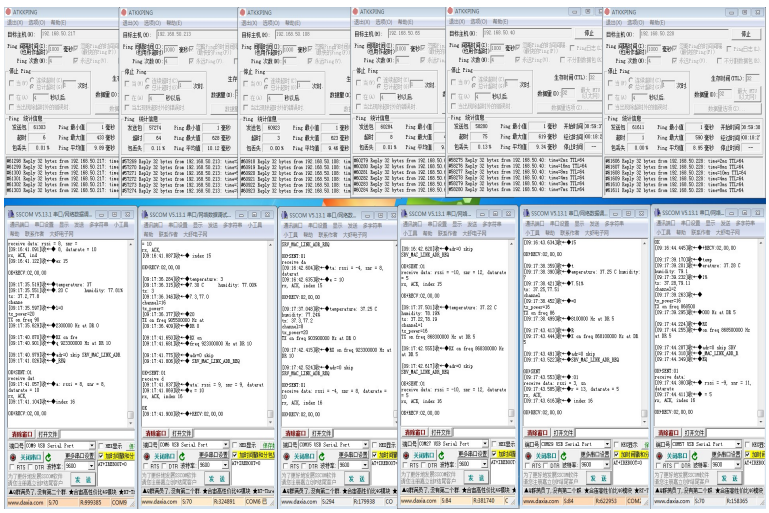
Test Conditions: Power-off test. Store the product at -40°C for 8h, then restore to -20°C and perform a cold start test.
Test Profile:

Is Power Off ———
Is Power On ———



Test Criteria:

1.During the cold start test, the module functions normally. After connecting to the gateway, power on the module and start the test by sending commands. Observe the transmit/receive packet information; if the packet loss rate is less than 1%, the module is considered to be functional.
2. After the test, the product shows no visible damage such as shrinkage, peeling, or discoloration.

Sample Quantity	Test Data	Test Results
6pcs		PASS

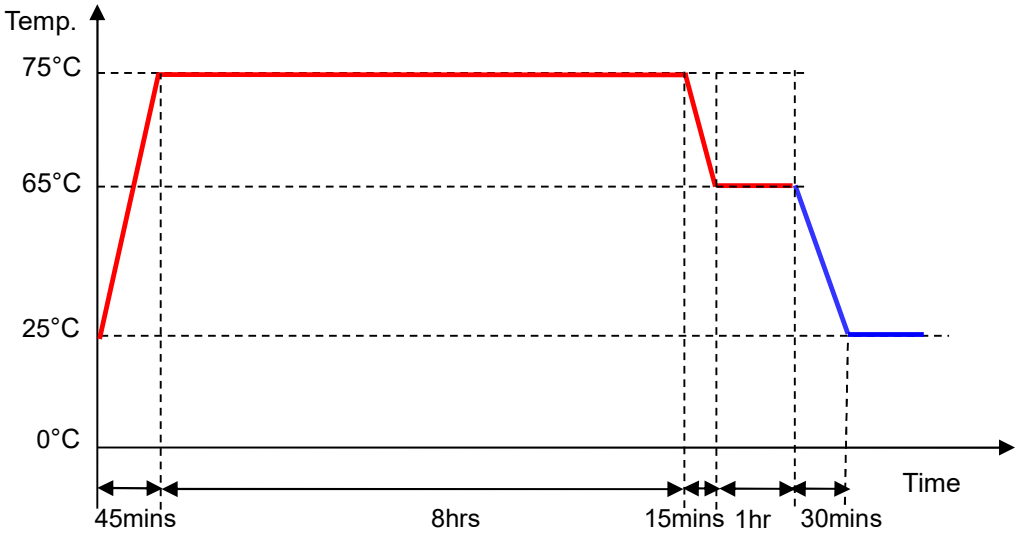
5.High Temperature Storage Test

Test Conditions: Power-off test. Store the product at 75℃ + 93% RH for 8h, then restore to 65℃ + 93% RH for a 1-hour soak, and perform a hot start test.

Test Profile:

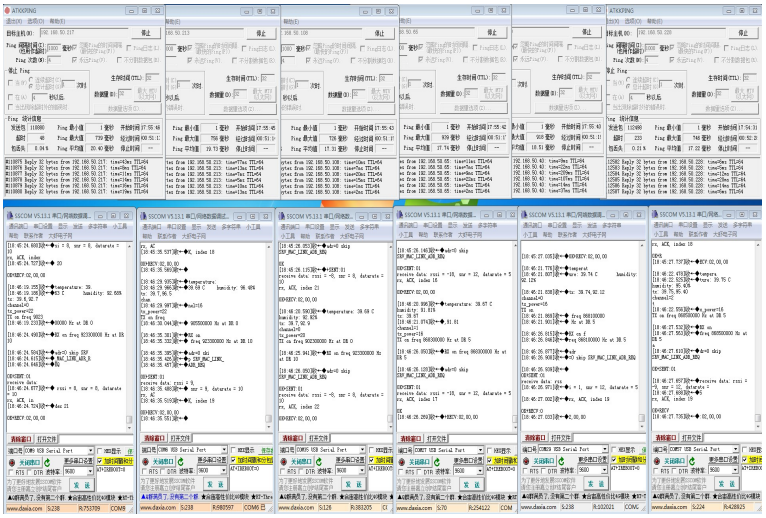
Is Power Off ——

Is Power On ——



Test Criteria:

1. During the hot start test, the module functions normally. After connecting to the gateway, power on the module and start the test by sending commands. Observe the transmit/receive packet information; if the packet loss rate is less than 1%, the module is considered to be functional.
2. After the test, the product shows no visible damage such as shrinkage, peeling, or discoloration.

Sample Quantity	Test Data	Test Results
6PCS		PASS

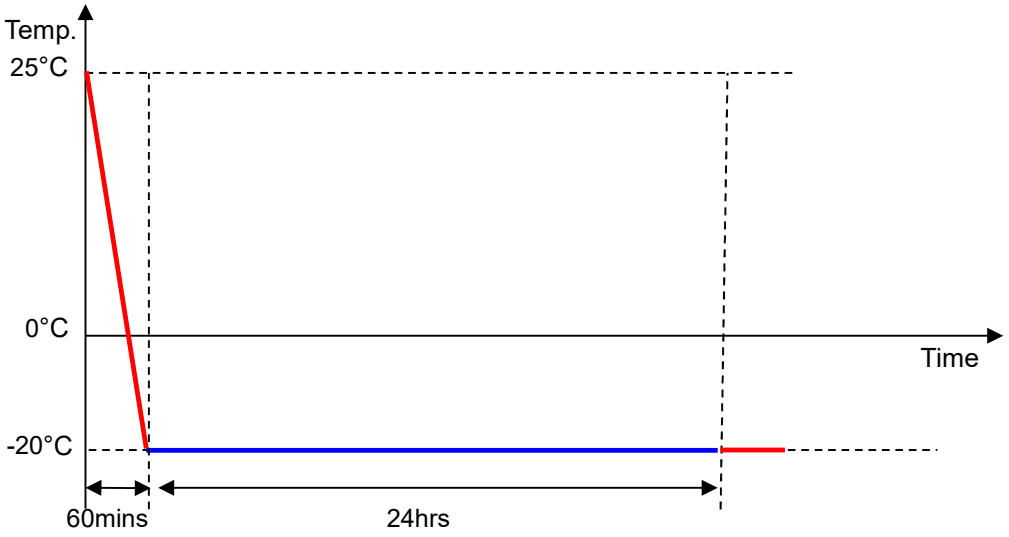
6.Low Temperature Operation Test

Test Conditions: Power-on test. Operate at -20℃ for 24 hours.

Test Profile:

Is Power Off ——

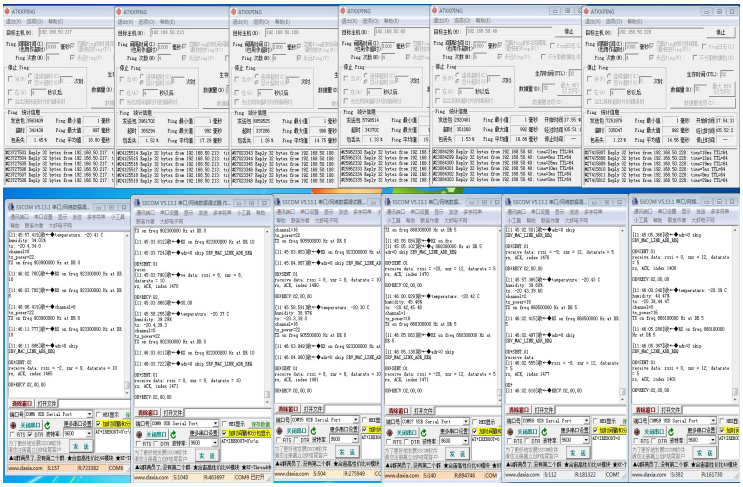
Is Power On ——



Test Criteria:

1. After connecting to the gateway, power on the module and start the test by sending commands. Observe the transmit/receive packet information; if the packet loss rate is less than 1%, the module is considered to be functional.

2. After the test, the product shows no visible damage such as shrinkage, peeling, or discoloration.

Sample Quantity	Test Data	Test Results
6PCS		PASS

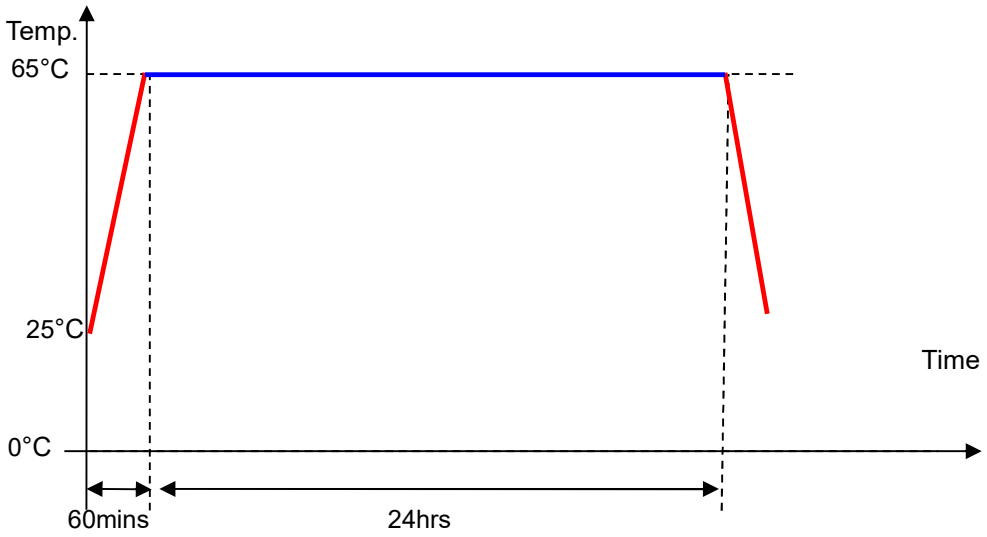
7.High Temperature Operation Test

Test Conditions: Power-on test. Operate at 65℃ + 93% RH for 24 hours.

Test Profile:

Is Power Off ——

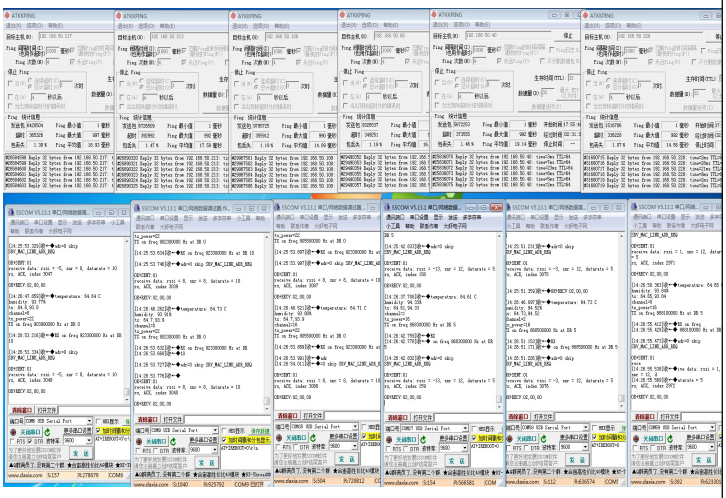
Is Power On ——



Test Criteria:

1. After connecting to the gateway, power on the module and start the test by sending commands. Observe the transmit/receive packet information; if the packet loss rate is less than 1%, the module is considered to be functional.

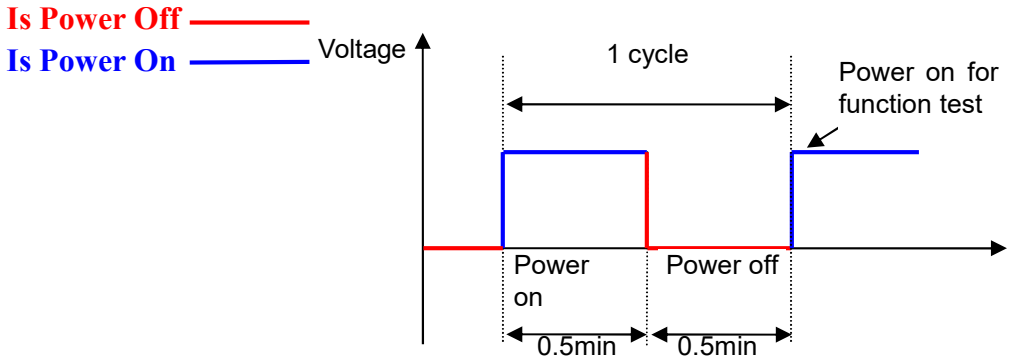
2. After the test, the product shows no visible damage such as shrinkage, peeling, or discoloration.

Sample Quantity	Test Data	Test Results
6PCS		PASS

8.AC Power On/Off Test with Temperature

Test Conditions: 1. Power on: 30 seconds; Power off: 30 seconds.
2. Temperature: -20℃, 25℃ + 93% RH, 65℃ + 93% RH.
3. Cycle: Each test condition cycles 200 times.

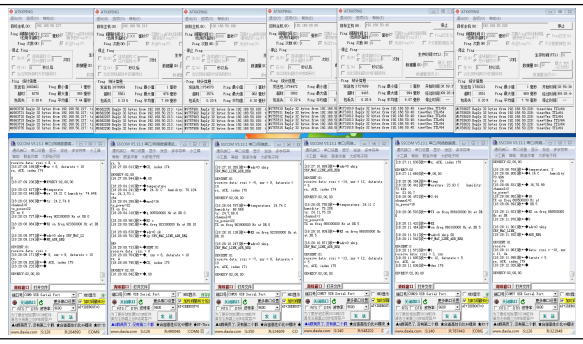
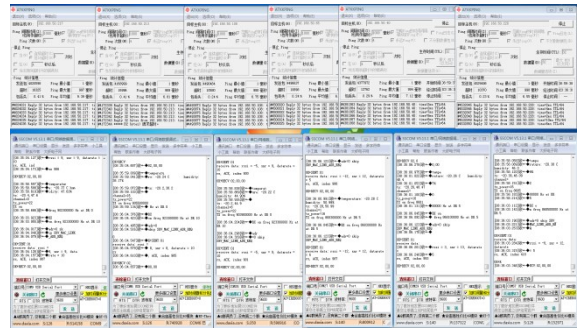
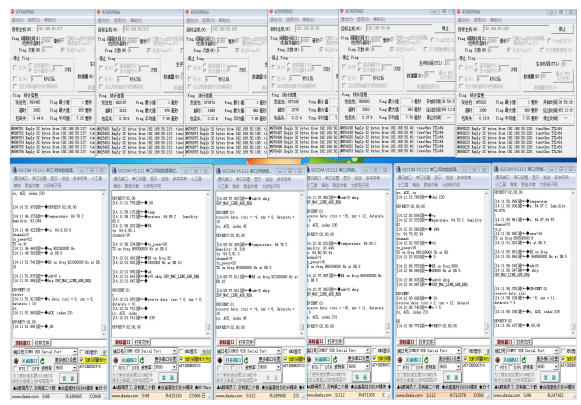
Test Profile:



Test Criteria:

1. After connecting to the gateway, power on the module and start the test by sending commands. Observe the transmit/receive packet information; if the packet loss rate is less than 1%, the module is considered to be functional.

2. After the test, the product shows no visible damage such as shrinkage, peeling, or discoloration.

Item	Sample Quantity	Test Data	Test Results
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 at 65℃ + 93% RH for 4h;

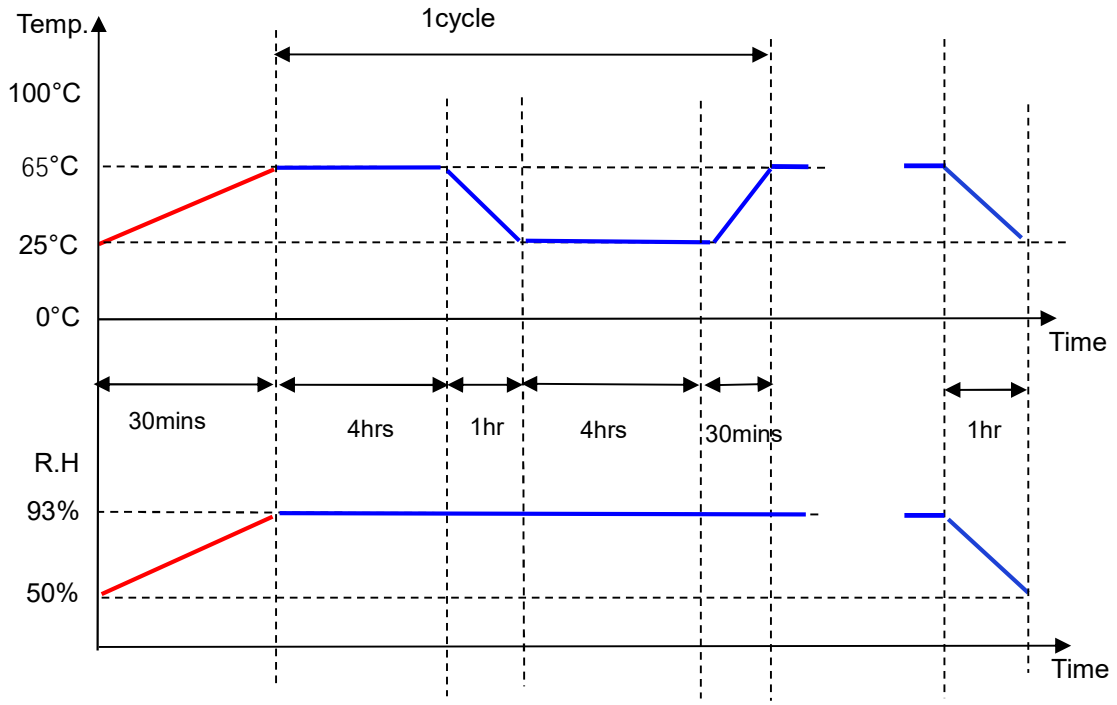
2.Operate at 25℃ + 93% RH for 4h;

Cycle step 1 and step 2, a total of 2 cycles.

Test Profile:

Is Power Off ——

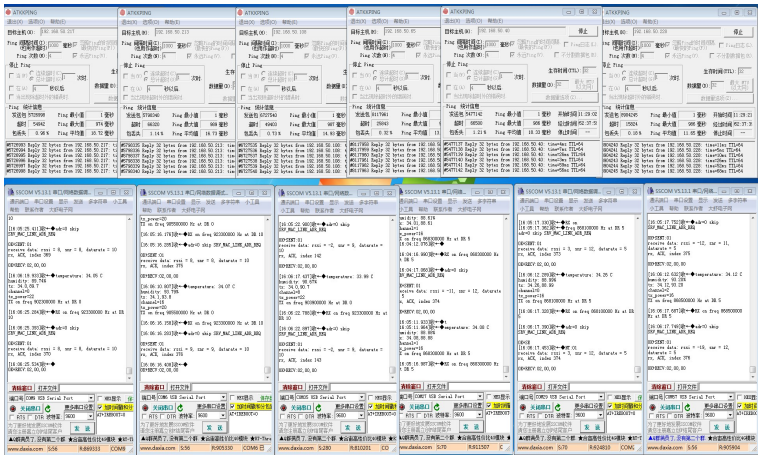
Is Power On ——



Test Criteria:

1. After connecting to the gateway, power on the module and start the test by sending commands. Observe the transmit/receive packet information; if the packet loss rate is less than 1%, the module is considered to be functional.

2. After the test, the product shows no visible damage such as shrinkage, peeling, or discoloration.

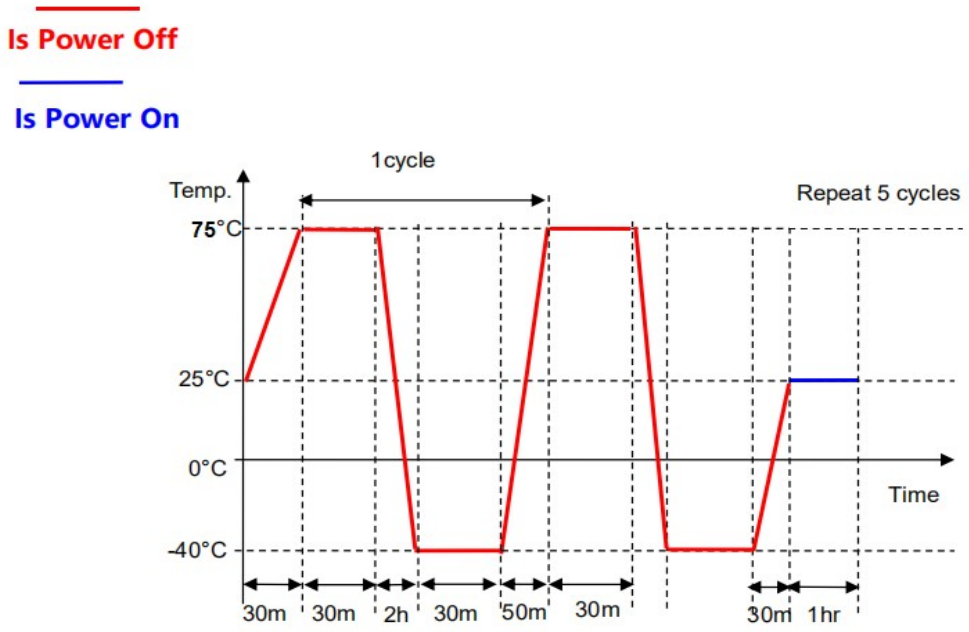
Sample Quantity	Test Data	Test Results
6PCS		PASS

10.Thermal Shock Test

Test Conditions:

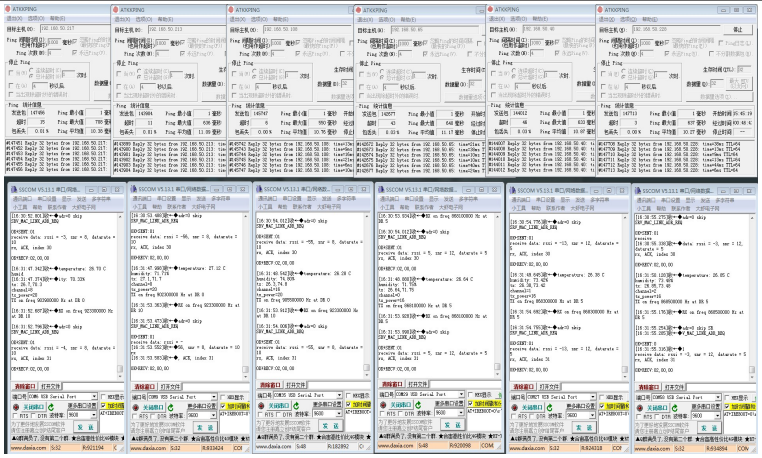
Power-off test. Ramp between -40℃~75℃ + 93% RH. Temperature transition time: 50min for heating, 2h for cooling. Soak for 30min at each stage. Operate for 5 cycles.

Test Profile:



Test Criteria:

1. After connecting to the gateway, power on the module and start the test by sending commands. Observe the transmit/receive packet information; if the packet loss rate is less than 1%, the module is considered to be functional.
2. After the test, the product shows no visible damage such as shrinkage, peeling, or discoloration.

Sample Quantity	Test Data	Test Results
6PCS		PASS