Reliability Test Report

Product Name: GP-02

Product Model: GPS Series

Test Date: 2021/07/06–2021/07/09

Tested by: Lu Xingui

Reviewed by: Zhou Yuming

1. Inspection Plan

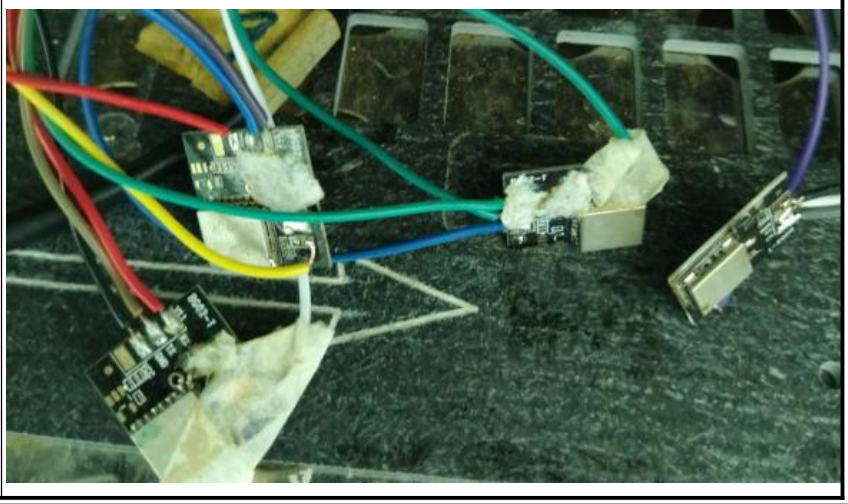
No.	Process Name	Inspection Item	Inspection Equipment	Sampling Level (Refer to GB/T 2828.1-2003)	Acceptable Quality Level		
					CR (Critical Defect)	MA (Major Defect)	MI (Minor Defect)
1	Reliability test	High/low temperature storage; high/room/low temperature power on/off; high/low temperature operation	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 conditions: -40℃ Test duration: 8h After restoring to -25℃ and a 1-hour soak, perform a cold start test.
2	High temperature storage test	Test conditions: 100℃ Test duration: 8h After restoring to 85℃ and a 1-hour soak, perform a hot start test.
3	Low temperature operation test	Test conditions: -20℃ Test duration: 24h
4	High temperature operation test	Test conditions: 85℃ Test duration: 24h
5	AC power on/off test with temperature	A) Temperature: -20℃ B) Temperature: 25℃ C) Temperature: 85℃ Cycle each condition 200 times, with 30s ON and 30s OFF.

3. Test Preparation

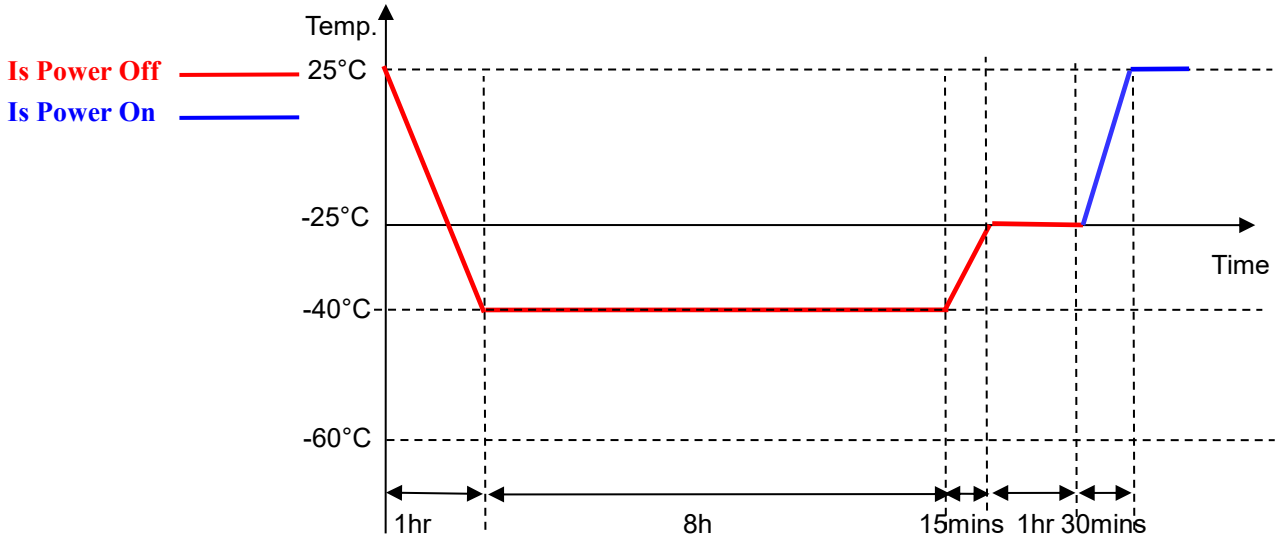
No.	Item	Image/Attachment
1	Reliability documentation	 GP-01、GP-02 可靠性测试说明.d

2	Test equipment	
3	Sample placement	

4. Low Temperature Storage Test

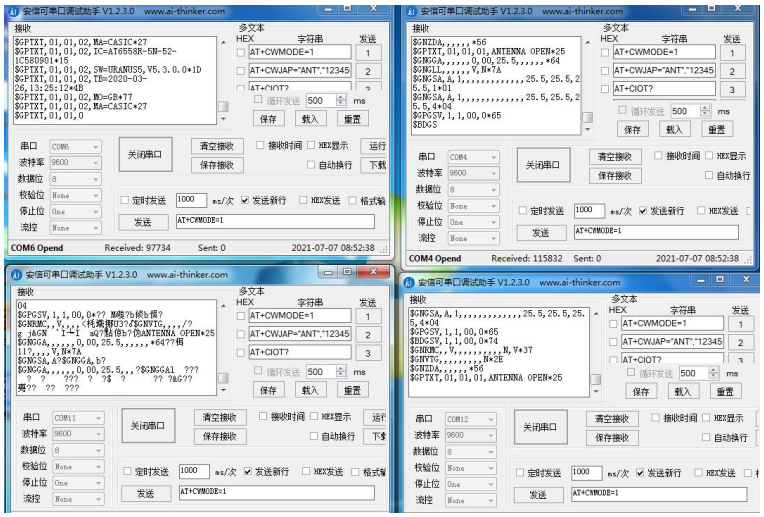
Test Conditions: Power-off test. Store the product at -40℃ for 8h, then restore it to -25℃ for a 1-hour soak, and perform a cold start test.

Test Profile:



Test Criteria:

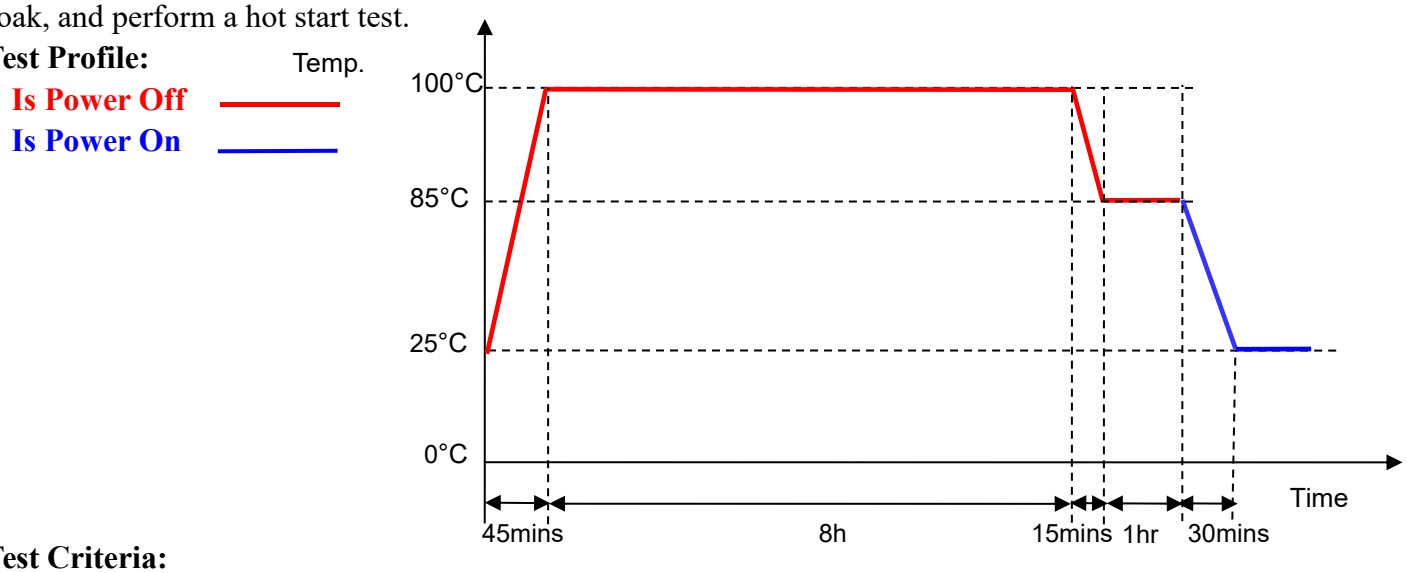
1. During the cold start test, the module functions normally. If ping packets are confirmed not to be lost, the module is considered to be functional.
2. After the test, the product shows no visible damage such as shrinkage, peeling, or discoloration.

Sample Quantity	Test Data	Test Results
Unit 1 Unit 2 Unit 3 Unit 4		PASS

5. High Temperature Storage Test

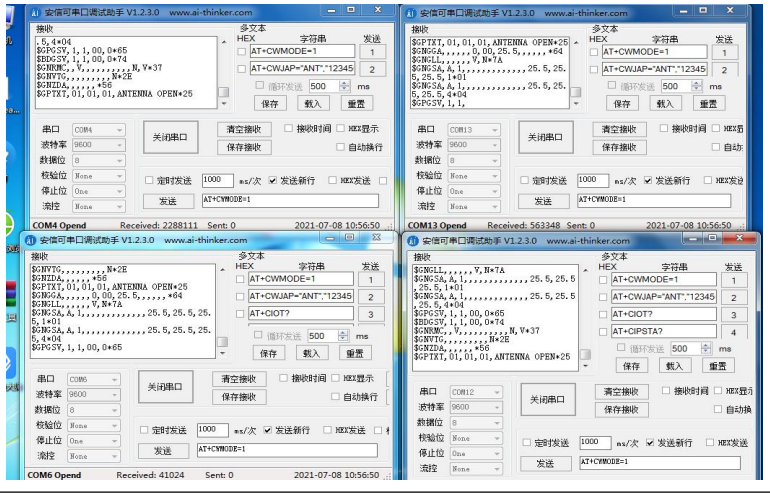
Test Conditions: Power-off test. Store the product at 100℃ for 8h, then restore it to 85℃ for a 1-hour soak, and perform a hot start test.

Test Profile:



Test Criteria:

1. During the hot start test, the module functions normally. If ping packets are confirmed not to be lost, the module is considered to be functional.
2. After the test, the product shows no visible damage such as shrinkage, peeling, or discoloration.

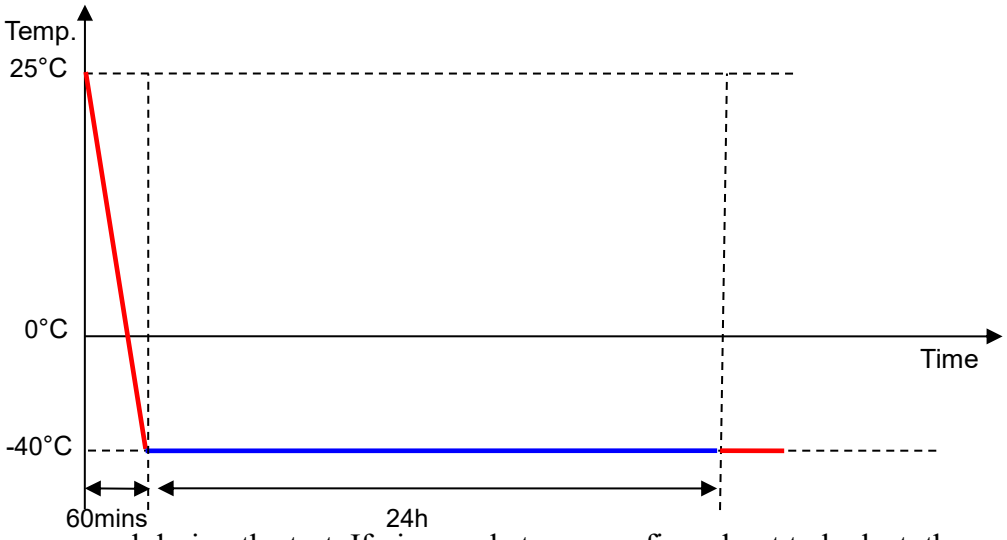
Sample Quantity	Test Data	Test Results
Unit 1 Unit 2 Unit 3 Unit 4		PASS

6. Low Temperature Operation Test

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

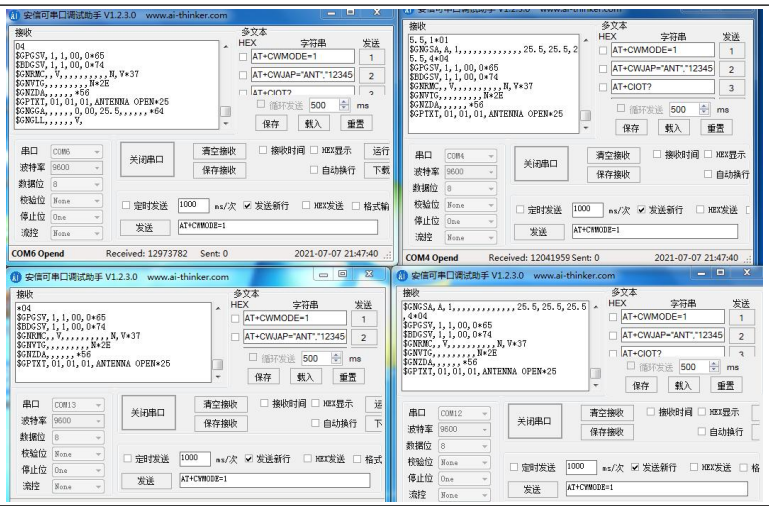
Test Profile:

Is Power Off
Is Power On



Test Criteria:

1. No network disconnections occurred during the test. If ping packets are confirmed not to be lost, the module is considered to be functional.
2. After the test, the product shows no visible damage such as shrinkage, peeling, or discoloration.

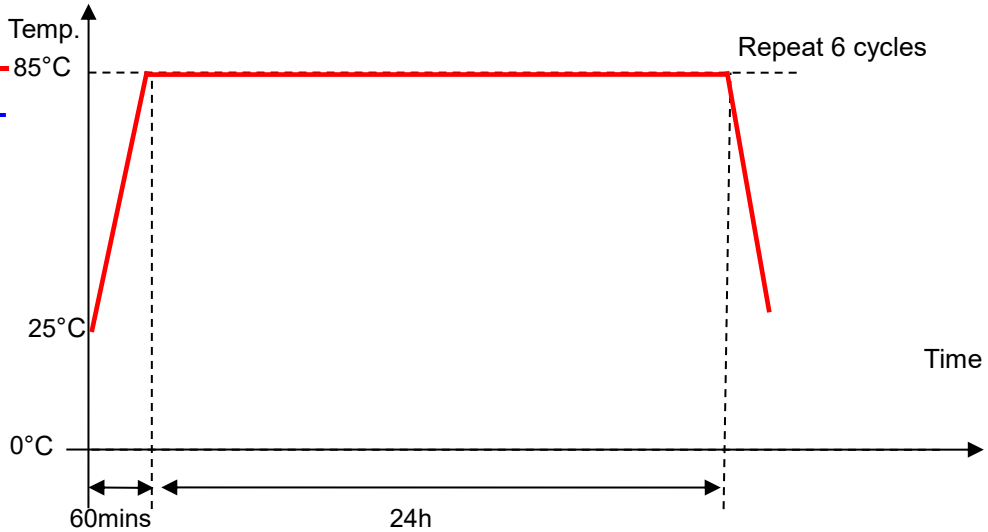
Sample Quantity	Test Data	Test Results
Unit 1 Unit 2 Unit 3 Unit 4		PASS

7. High Temperature Operation Test

Test Conditions: Operate at 85℃ for 24h.

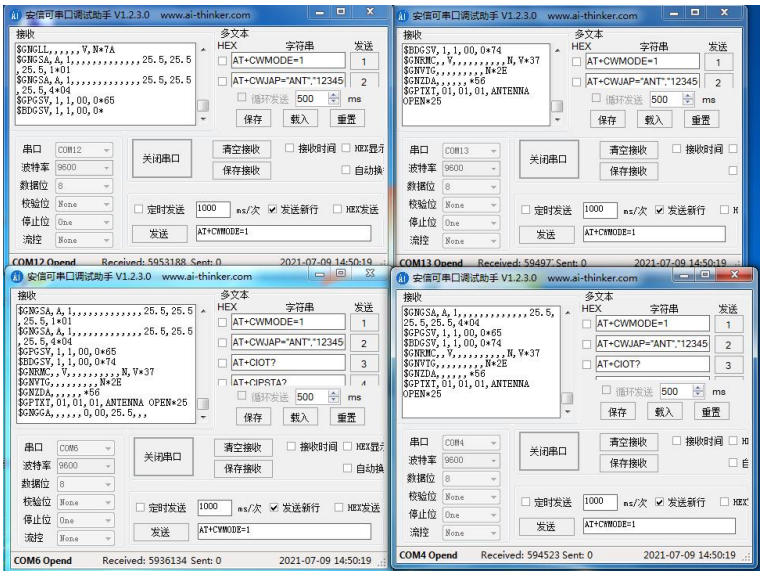
Test Profile:

Is Power Off
Is Power On



Test Criteria:

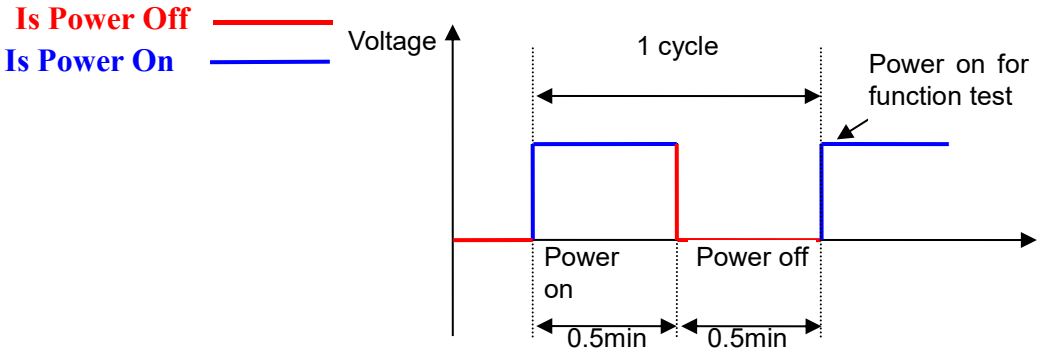
1. No network disconnections occurred during the test. If ping packets are confirmed not to be lost, the module is considered to be functional.
2. After the test, the product shows no visible damage such as shrinkage, peeling, or discoloration.

Sample Quantity	Test Data	Test Results
Unit 1 Unit 2 Unit 3 Unit 4		PASS

8. AC Power On/Off Test with Temperature

Test Conditions: 1. Power on: 30s; power off: 30s.
2. Temperature: -20℃, 25℃, 85℃.
3. Cycle: Each test condition cycles 200 times.

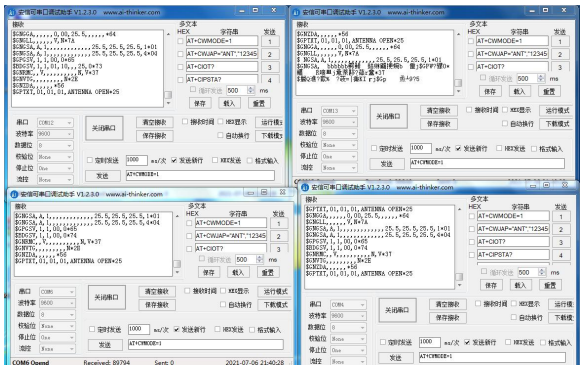
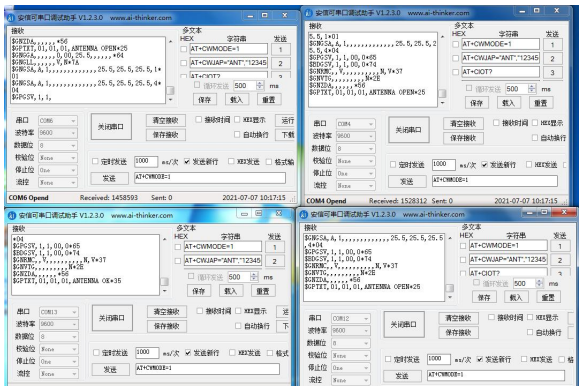
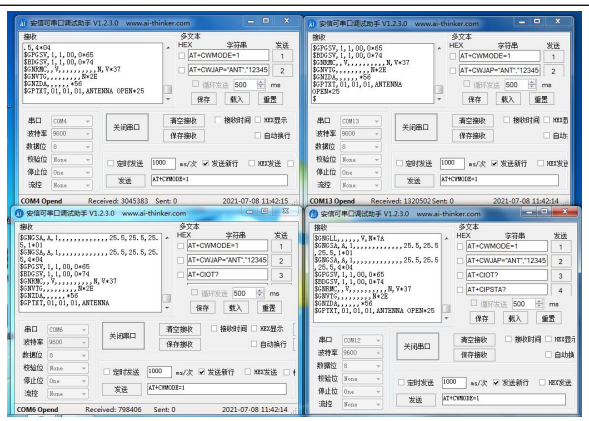
Test Profile:



Test Criteria:

1. After power-up, the module boots normally. If ping packets are confirmed not to be lost, 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	Unit 1 Unit 2 Unit 3 Unit 4		PASS
Power on/off at low temperature	Unit 1 Unit 2 Unit 3 Unit 4		PASS
Power on/off at high temperature	Unit 1 Unit 2 Unit 3 Unit 4		PASS