RAK7243 Environment Test Report

(Raspberry Pi 3B+ LoRa Gateway)

Version V1.0 | November 2019

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1. Production Information

Sample Name	Model	Quantity
LoRa Gateway	RAK7243(Raspberry Pi3B+LTE+RAK2245 EU868)	1

2. Test Project

No.	Test Item	Temperature Conditions
1	Low temperature storage test	-40 ℃
2	Low temperature work test	-40 ℃
3	High temperature storage test	85 ℃
4	High temperature work test	85 ℃

3. Test Equipment

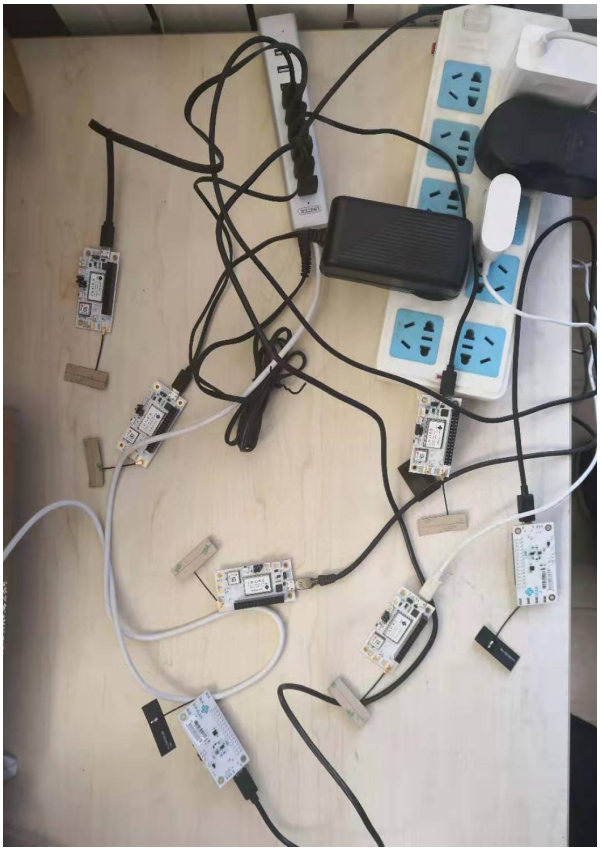
Test Equipment	Model	Quantity
Multi channel temperature tester	WD-08A	1
environmental test chamber	Mini BTC 03	1
Equipment under test	RAK7243(Raspberry Pi3B+LTE+RAK2245 EU868)	1
LoRa Nodes	RAK5205	7

4. Pictures of test equipments

Multi channel tempreture tester

Equipment under test(RAK7243)

environmental test chamber

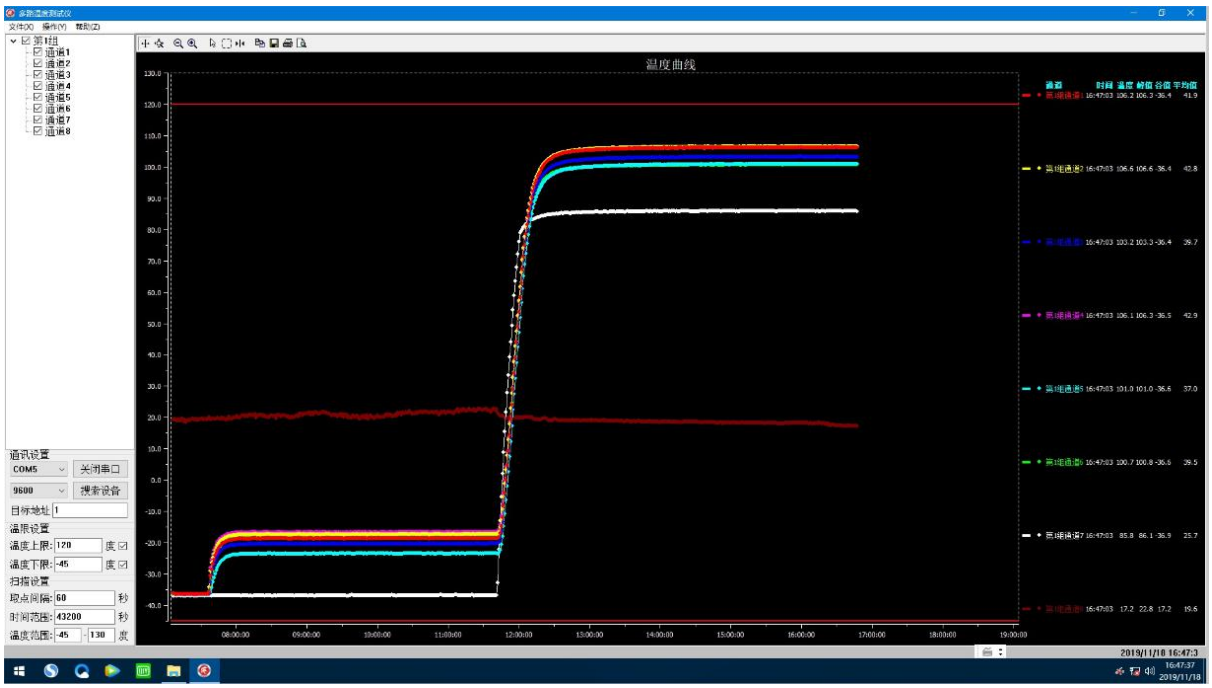


LoRa Nodes

5. Test requirements

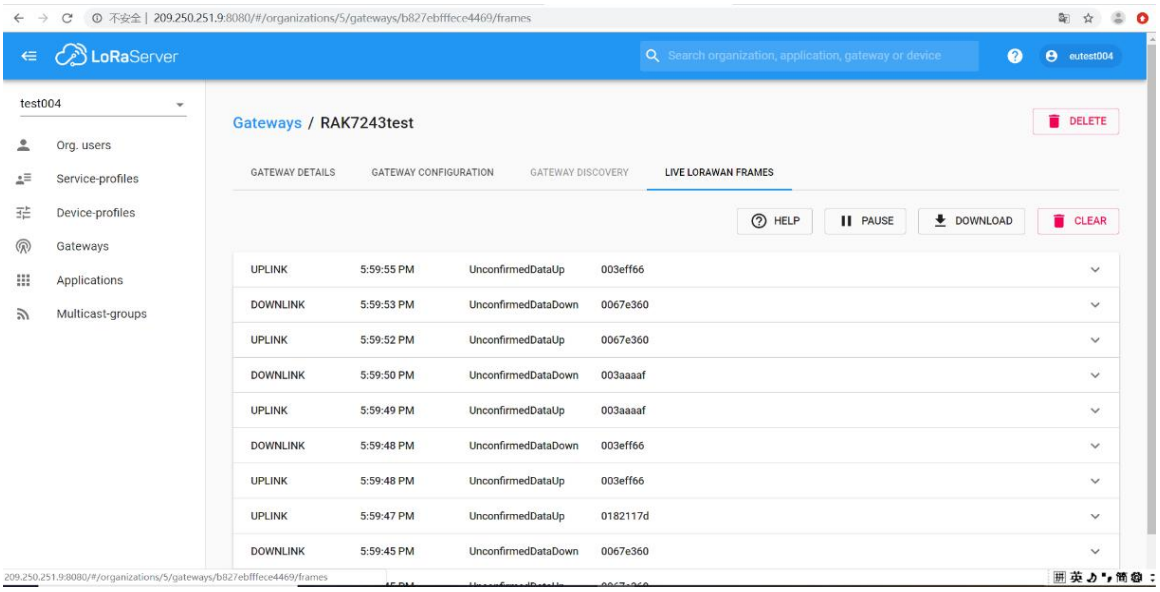
Low temperature storage test
Place the DUT in the temperature chamber and set the low temperature to -40℃,The DUT can power up and login via SSH when all temperature monitoring points reach to -40℃.
Low temperature work test
When all test points reach to -40℃,The DUT can power up and login via SSH.
It can connect to the cloud server to send and receive Lora packets.
The LAN port and WIFI can work well.
High temperature storage test
Place the DUT in the temperature chamber and set the high temperature to 85℃,The DUT can power up and login via SSH when all temperature monitoring points reach to 85℃.
High temperature work test
a. When all test points reach to 85℃,The DUT can power up and login via SSH.
b. It can connect to the cloud server to send and receive Lora packets.
c. The LAN port and WIFI can work well.
Temperature monitoring points of RAK7243

chains	monitoring point	Color	Max temperature
ch1	Raspberry pi3 B+'CPU	RED	106.7℃
ch2	Raspberry pi3 B+' power chip	YELLOW	107℃
ch3	Raspberry pi3 B+' wifi module	BLUE	104.1℃
ch4	Raspberry pi3 B+' PHY chip	PURPLE	106.5℃
ch5	RAK2013 LTE module	CYAN	101℃
ch6	Heat dissipation aluminum of RAK2245	GREEN	100.9℃
ch7	Internal temperature of environmental test chamber	WHITE	85.6℃

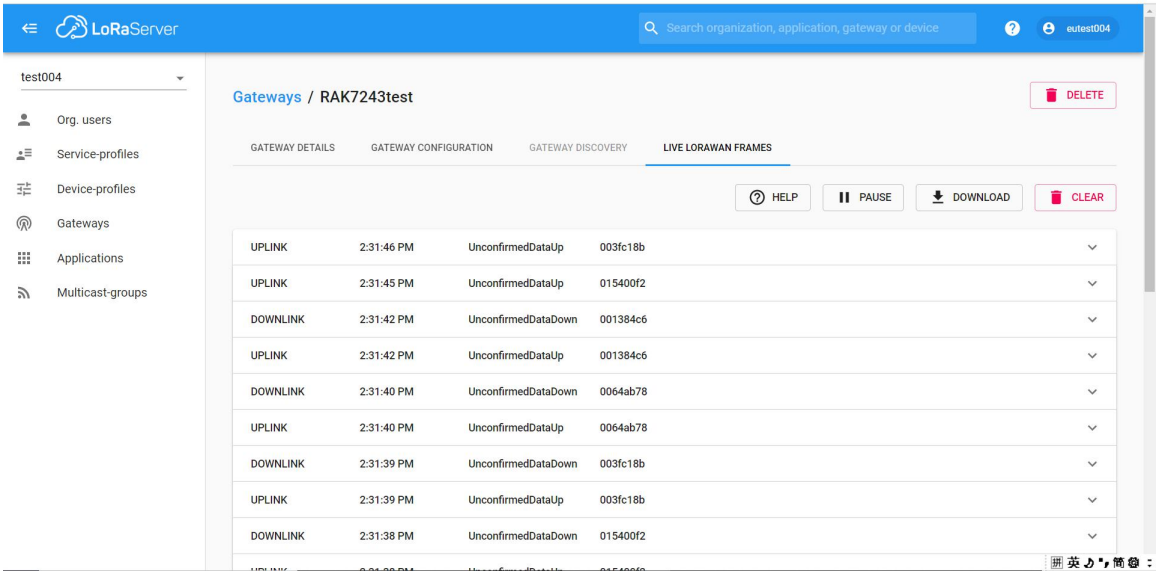


6. Test Result

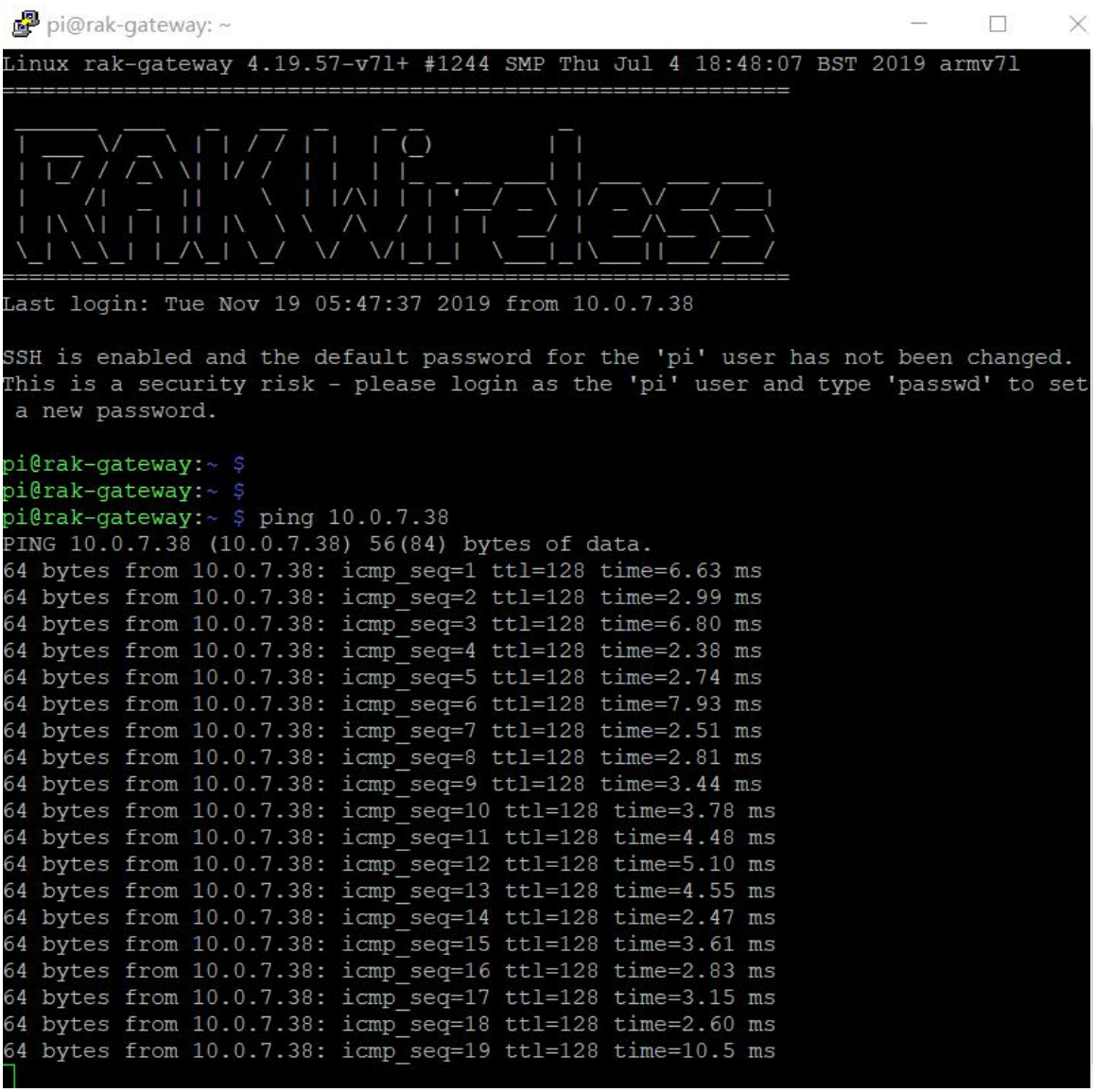
Test Project	Test Result	Conclusion
Low temperature storage	The DUT can power up and login via SSH	PASS
Low temperature work	Can send and receive lora packages normally and the wifi work well also.	PASS
High temperature storage	The DUT can power up and login via SSH	PASS
High temperature work	Can send and receive lora packages normally and the wifi work well also.	PASS



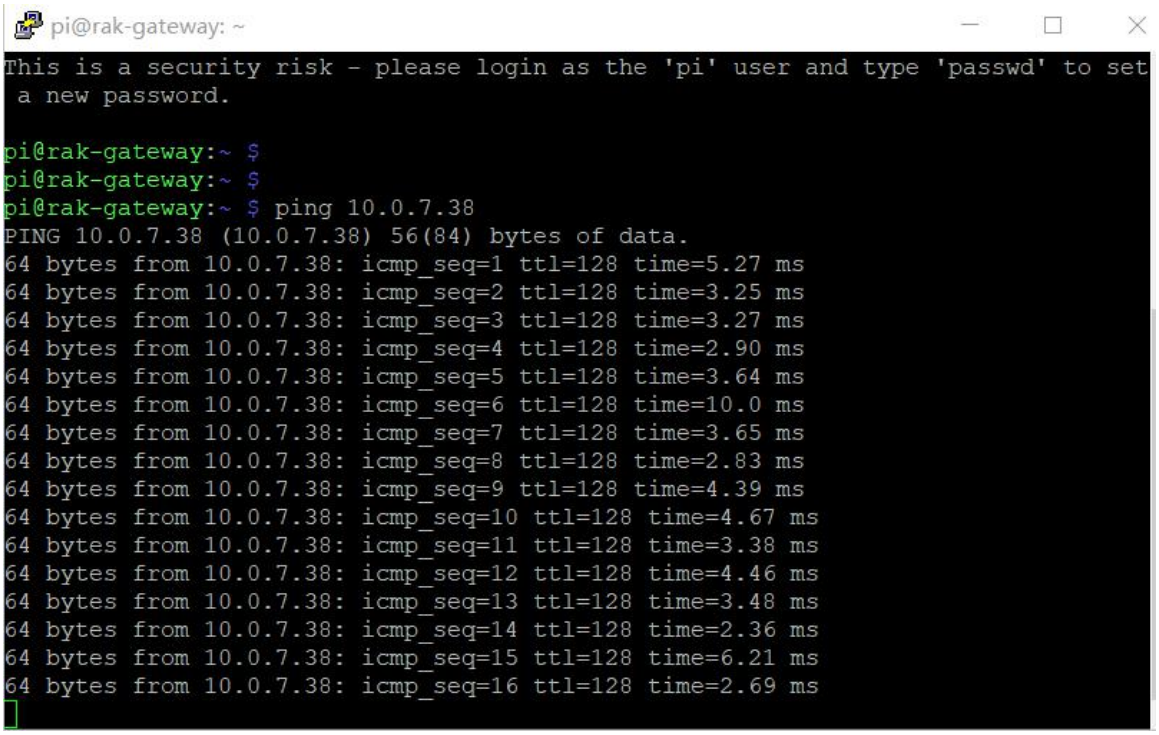
Send and receive lora packages at -40C°



Send and receive lora packages at 85℃



WIFI can work well at -40℃



WIFI can work well at 85℃

7. Test date and Operator

test date:	Nov.18 /2019
operator:	Hairui Tao
test location:	Room 307, building 3, guofeng meitang building, huilongguan town, Beijing

8. Revision History

Revision	Description	Date
1.0	Initial version	2019-11-21

9. Document Summary

Prepared by	Checked by	Approved by
Hairui	Penn	