

# RAK833 LoRa Gateway

## Mini PCIE Module Reliability Test Report

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After updating new version, this document without prior notice.

# 1. Test sample description

Item	Description	Remarks
Sample type	RAK833 PCIE LoRa Gateway module	RAK833-EVB
Sample qty	2 PCS	
HW version	V1.1	
SW version	ramips-mt7628-mt7628-squashfs-sysu pgrade 2018050-2.bin	
Test applicant	Farce.chen	
Test date	20180611	

# 2. Test Stage

Test unit	
Test stage	<input type="checkbox"/> Sample <input checked="" type="checkbox"/> Small-batch <input type="checkbox"/> Medium-batch <input type="checkbox"/> Mass-batch

# 3. Test Result

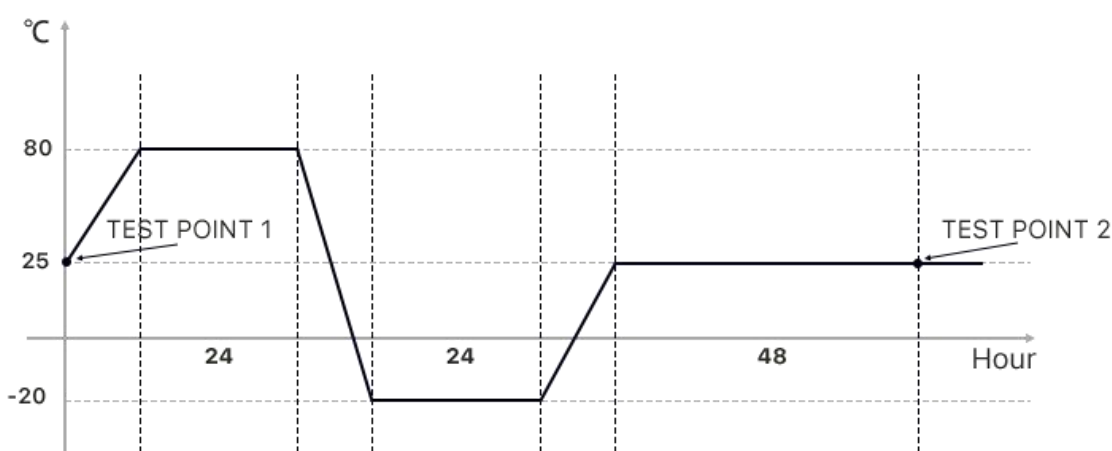
Test Result	<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Not Pass <input type="checkbox"/> Pass Conditionally
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## 4. Test Item

Test Item		Test Result	Remarks
<b>Item 1</b>	High temperature storage	NA	
	Low temperature storage	NA	
	Constant temperature and constant humidity storage	pass	
	High and low temperature test	pass	
	Hygrothermal of alternating	NA	
<b>Item 2</b>	Thermal Shock Test	Pass	
	Vibration test	NA	
	Drop Test	NA	
<b>Item 3</b>	ESD test	NA	
	ROSH test	NA	
	Aging test	pass	
<b>Item 4</b>	Packaging and storage test	NA	
	Packaging pressure test	NA	
	Packaging vibration test	NA	
	Alcohol test adhesion test	NA	
	Fireproof test of material	NA	

## 5. Test standard

### Product reliability test report

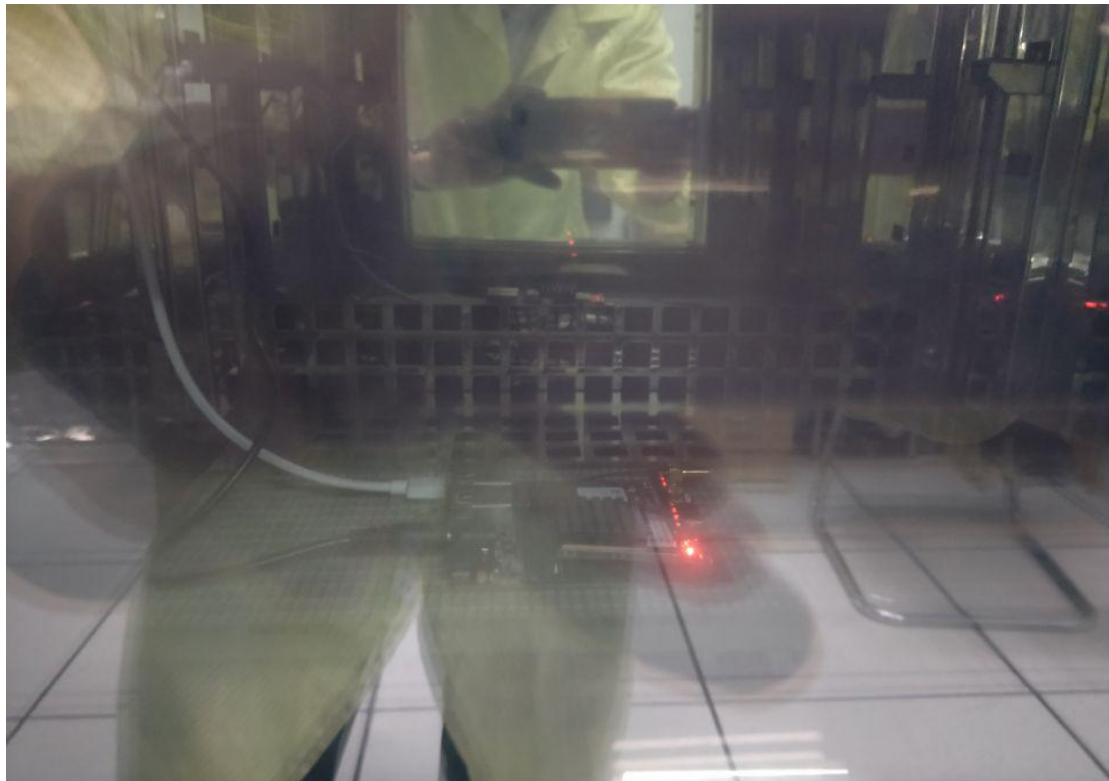
<b>Product stage</b>				<input type="checkbox"/> Sample <input checked="" type="checkbox"/> Small-batch <input type="checkbox"/> Medium-batch <input type="checkbox"/> Mass-batch			
<b>Start time</b>		<b>Close time</b>		<b>Test item name</b>			
2018-06-11		2018-06-13		High and low temperature reliability test			
<b>Product name</b>		<b>Product model</b>		<b>Test qty</b>		<b>Test applicant</b>	
LoRa Gateway		RAK833		2		Farce.chen	
<b>Test Result</b>				<input checked="" type="checkbox"/> Pass <input type="checkbox"/> Not Pass <input type="checkbox"/> Pass Conditionally			
<b>Test purpose</b>				Verify the electrical performance reliability of products in high and low temperature environment.			
<b>Test condition</b>				Put the normal position into the high and low temperature box; 1. High temperature test: the heating rate is 1 degrees /MIN, so that the external environment temperature of the product reaches 80 degrees centigrade, and the 24H is continuously tested after the temperature is stable.  2. Low temperature test: set at low temperature from 80 C to -20 C, so that the external temperature of the product reaches -20 C, and the 24H will be tested continuously after the temperature is stable.			
<b>Test condition</b>				 <p>The graph shows a temperature profile over time. The y-axis is temperature in degrees Celsius (°C) with markers at 25, 80, and -20. The x-axis is time in hours (Hour). The profile starts at 25°C (labeled TEST POINT 1). It rises to 80°C, where it remains for 24 hours. It then falls to -20°C, where it remains for 24 hours. It then rises back to 25°C, where it remains for 48 hours. A second TEST POINT 2 is marked at the end of the 48-hour high-temperature hold.</p>			
<b>Apparatus / equipment</b>				High and low temperature box / Notebook computer			
<b>Test result judgment</b>				After testing, the appearance, mechanical properties, electrical properties, and other properties of the samples are normal.			

## 6. Test process

1. Put the module into the test box:



2. Module in running state:



3. Running test results:

```

1 COM35 x +
status -> 4:2:
TX finished
INFO: tx_start_delay=1495 (1495.500000) - (1497, bw_delay=1.500000, notch_delay=0.000000)
+++
Sending packet #127, rf path 0, return 0
status -> 4:2:
TX finished
INFO: tx_start_delay=1495 (1495.500000) - (1497, bw_delay=1.500000, notch_delay=0.000000)
+++
Sending packet #128, rf path 0, return 0
status -> 4:2:
TX finished
INFO: tx_start_delay=1495 (1495.500000) - (1497, bw_delay=1.500000, notch_delay=0.000000)
+++
Sending packet #129, rf path 0, return 0
status -> 4:2:
TX finished
INFO: tx_start_delay=1495 (1495.500000) - (1497, bw_delay=1.500000, notch_delay=0.000000)
+++
Sending packet #130, rf path 0, return 0
status -> 4:2:
TX finished
INFO: tx_start_delay=1495 (1495.500000) - (1497, bw_delay=1.500000, notch_delay=0.000000)
+++
Sending packet #131, rf path 0, return 0
status -> 4:2:
TX finished
INFO: tx_start_delay=1495 (1495.500000) - (1497, bw_delay=1.500000, notch_delay=0.000000)
+++
Sending packet #132, rf path 0, return 0
status -> 4:2:
TX finished

```

4. High temperature test chart:



5. Low temperature test chart:



## 7. Version update

Version Number	Date	Modifies the content	Author
V1.0	2018-06-21	Create the document	Farce