



Test report No:

2430305R-A332250010-B

# Test Report

## LoRa Alliance End Device Certification Requirements

Product Name .....	Module RAK3172
Type of DUT .....	<input checked="" type="checkbox"/> Module <input type="checkbox"/> End Device/Sensor <input type="checkbox"/> others
Model Name .....	RAK3172
Activation possibilities .....	<input type="checkbox"/> Over the air <input type="checkbox"/> by personalization <input checked="" type="checkbox"/> both
Hardware Version.....	v1.0.0
Software Version.....	NA
Firmware version.....	RUI_4.2.0
Manufacturer .....	Shenzhen RAKwireless Technology Co., Ltd. Room 506, Building B, New Compark, Pingshan First Road · Taoyuan Street, XiLi Town Nanshan District, Shenzhen, Guangdong, 51800 China
Test Method Request:.....	Lora Alliance Certification Program
Test Frequency Bands: .....	US915
LoRaWAN Spec. Version .....	<input type="checkbox"/> V1.0.2 <input checked="" type="checkbox"/> V1.0.4
Test Spec.....	LoRaWAN 1.0.4 End Device Certification Requirements for All Regions - Version 1.6
Supported optional features .....	<input checked="" type="checkbox"/> Adaptive Data Rate (ADR) <input type="checkbox"/> SF7BW250 <input type="checkbox"/> FSK50
Summary .....	IN COMPLIANCE
ATH Identifier .....	DEKRA – TWN
Test Engineer .....	Gavin Yang  2024-05-03
Approved by.....	Jimmy Chang Manager  2024-05-03
Date of issue.....	2024-05-03
Report Revision.....	01

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## Competences and guarantees

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In order to assure the traceability to other national and international laboratories, DEKRA Testing and Certification, Co., Ltd. has a calibration and maintenance program for its measurement equipment.

DEKRA Testing and Certification, Co., Ltd. guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at DEKRA Testing and Certification, Co., Ltd. at the time of performance of the test.

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The results presented in this Test Report apply only to the particular item under test established in this document.

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## Uncertainty

N/A

## Usage of samples

Samples undergoing test have been selected by: Shenzhen RAKwireless Technology Co., Ltd

DUT Control ID	PSR-2070602
Model Name	RAK3172
Serial number	NA
Hardware Version	v1.0.0
Software Version	NA
Firmware Version	RUI_4.2.0
Description	RAK3172 is a Low-Power Long Range Transceiver module that is based on STM32WLE5CC chip. It provides an easy to use, small size, low-power solution for long range wireless data applications. This module complies with Class A of LoRaWAN 1.0.4 specifications
Date of DUT reception	2024-03-11

## Details of Company requesting LoRaWAN Certification

Company name	Shenzhen RAKwireless Technology Co., Ltd
Contact Person	Vivian Xu
Address	Room 506, Building B, New Compark, Pingshan First Road · Taoyuan Street, XiLi Town Nanshan District, Shenzhen, Guangdong, 51800 China

## Testing period

Start Date	2024-04-23
Finish Date	2024-04-30

The tests have been performed at DEKRA Testing and Certification, Co., Ltd. (Taiwan)

## Test Environmental conditions

The testing has been performed within the following limits:

Temperature	Min. = 15 °C Max. = 35 °C
Relative humidity	Min. = 20 % Max. = 80 %

## Report Revision History

Revision	Modification Date	Description
01	NA	Initial Report

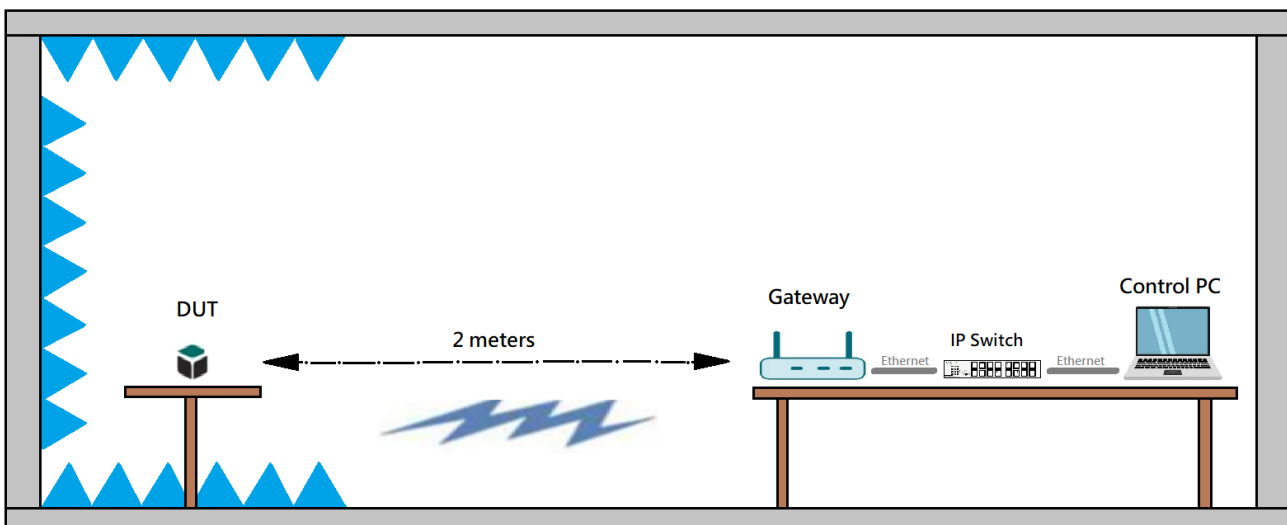
## Means of Testing Identification

Following equipment was used to perform the testing:

Test System	LoRaWAN Certification Test System		
Hardware:	Control No.	Equipment	Serial No.
	0742	Control PC with LCTT installed	GANXCV193086433
	0734	CoreCell Gateway	-
	0735	CoreCell Gateway	-
	0736	CoreCell Gateway	-
	0737	CoreCell Gateway	-
	0738	CoreCell Gateway	-
	0739	CoreCell Gateway	-
	0740	CoreCell Gateway	-
	0741	CoreCell Gateway	-
Software:	0559	LoRaWAN LCTT - UI version: 2.7.0 - Technology Package: LCTT v3.12.0_R1	

## Test setup

The configuration used for Test Cases in nominal temperature conditions was the following one:



# Appendix A – Test result

The abbreviations used in the header row of the test campaign report tables are:

Test Case ID:	Test case identifier.
Description:	Test case description, as it can be found on the referred standard.
Date:	Date of the beginning of the execution.
Verdict:	Records the verdict assigned to each Test case run to completion. Following verdicts are possible: <b>Pass:</b> If the Test case passed. <b>Fail:</b> If the Test case failed. <b>NA:</b> Not applicable. <b>NM:</b> Not measured.
Additional Note.:	Provides a reference to additional information relevant to the test presented in “Test Setup” section.

Test Case ID	Description	Verdict	Date	Additional Notes.
TP_A_US915_ED_MAC_104_BV_000	Activation Pre-test	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_001_A	Over the Air Activation	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_001_B	Activation by Personalization	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_002	Cryptography	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_003	Downlink Sequence Number	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_004	Confirmed Frames	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_005	DevStatusReq MAC command	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_006	NewChannelReq MAC command for Fixed Channel plan devices only	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_007	DIChannelReq for Fixed Channel plan devices only	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_008	RXParameterSetupReq MAC command	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_009	RXTimingSetupReq MAC command	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_010	TxParamSetupReq MAC Command	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_011	LinkCheckReq MAC Command	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_012_A	LinkADRRReq MAC command (Part 1)	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_012_B	LinkADRRReq MAC command (Part 2)	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_013	DutyCycleReq MAC Command	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_014	DeviceTimeReq MAC Command	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_015_A	RX1 Window Test (Part 1)	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_015_B	RX1 Window Test (Part 2)	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_016	RX2 Receive Window Test	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_017	RX1 and RX2 simultaneous frames	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_018	RX Oversized Payload	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_019_A	Maximum Allowed Payload (Part 1)	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_019_B	Maximum Allowed Payload (Part 2)	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_020	MAC Command(s) in App-Payload and/or Frame Options	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_021	Multiple MAC commands prioritization	Pass	2024-04-30	
TP_A_US915_ED_MAC_104_BV_022	FPort 224 Deactivation	Pass	2024-04-30	

## Appendix B – ICS

Item	Name	Value
1	DUT works in USA 915MHz ISM Band	TRUE
2	DUT implements LoRaWAN v1.0.2rB certification requirements	FALSE
3	DUT implements LoRaWAN v1.0.4 certification requirements	TRUE
4	DUT is a Class A Device (All End Devices)	TRUE
5	DUT is a Class B Device (Beacon Mode)	FALSE
6	DUT is a Class C Device (Continuously Listening)	FALSE
7	DUT supports Adaptive Data Rate (ADR) feature	TRUE
8	DUT supports LinkADRReq block	TRUE
9	DUT supports DiChannelReq MAC command	FLASE
10	DUT implements Data Rate Decay	TRUE
11	DUT supports Over-The-Air Activation (OTAA) mechanism	TRUE
12	DUT permanently enabled Class C	FLASE
13	DUT needs a reset after deactivating Test Mode	FLASE
14	DUT supports SCHC	FLASE
15	DUT supports FUOTA	FLASE
16	DUT supports Trigger Join Request command in Test Mode	TRUE

## Appendix C – General Parameters

Item	Name	Value
GW	Default TX Antenna	0
	List of IP address of the GWs	192.168.31.221; 192.168.31.222; 192.168.31.223; 192.168.31.224; 192.168.31.225; 192.168.31.226; 192.168.31.227; 192.168.31.228
	Gateway model	CoreCell
	Number of supported channels in Gateway	64 Channels
	Default TX Power	14 dBm
	Gateway Socket Port	1780
	Gateway supports LR-FHSS	FALSE
	Size of the reception window	100
	Number of GWs	8
TM	General Timer	90 min
	Network Server IP Address	192.168.31.25
	Verbosity level for Logs	TRUE



# Appendix D - Photo of Sample Under Testing

