



TEST REPORT

Test item description: Single-channel LoRaWAN GatewayModule

Trademark(s):  

Model/Type reference: RG-03H

Applicant's name: Shenzhen Ai-Thinker Technology Co., Ltd

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Sample Received Date: Mar. 16, 2026

Sample tested Date: Mar. 16, 2026 to Apr. 27, 2026

Issue Date: Apr. 27, 2026

Report No.: CTB26031613702RH04

Test Standards: EN IEC 62311:2020
EN 50665:2017

Test Results: PASS

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Note: If there is any objection to the inspection results in this report, please submit a written report to the company within 15 days from the date of receiving the report. The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen CTB Testing Technology Co., Ltd. this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client. "*" indicates the testing items were fulfilled by subcontracted lab. "#" indicates the items are not in CNAS accreditation scope.

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(Note: N/A means not applicable)

1. VERSION

| Report No. | Issue Date | Description | Approved |
|--------------------|---------------|-------------|----------|
| CTB26031613702RH04 | Apr. 27, 2026 | Original | Valid |

2. PRODUCT INFORMATION AND TEST SETUP

2.1 Product Information

| | |
|-----------------------|---|
| Model/Type reference: | RG-03H |
| Model Difference: | N/A |
| Bluetooth Version: | Bluetooth 5.0 |
| Wi-Fi Specification: | IEEE 802.11b/g/n |
| SRD: | 868.10MHz |
| Receiver Category: | 2 |
| LTE Band(s): | Band1, 3, 7, 8, 20, 28a |
| Power class | 3 |
| Hardware Version: | V1.0 |
| Software Version: | V1.0 |
| Operation Frequency: | Bluetooth: 2402-2480MHz WiFi (2.4G): IEEE 802.11b/g/n 20: 2412-2472MHz/ 13 channel IEEE 802.11n 40: 2422-2462MHz/ 9 channel LTE Band1: Tx:1920-1980 MHz, Rx: 2110-2170 MHz LTE Band3: Tx: 1710-1785MHz, Rx: 1805-1880MHz LTE Band7: Tx: 2500-2570MHz, Rx: 2620-2690MHz LTE Band8: Tx: 880-915MHz, Rx: 925-960MHz LTE Band20: Tx: 832-862MHz, Rx: 791-821MHz LTE Band28a: Tx: 703-733MHz, Rx: 758-788MHz |
| Max. RF output power: | Bluetooth: 3.94dBm WiFi (2.4G): 16.25dBm LTE Band1: 23.11dBm LTE Band3: 23.3dBm LTE Band7: 22.92dBm LTE Band8: 23.37dBm, LTE Band20: 23.7dBm LTE Band28a: 23.19dBm |
| Type of Modulation: | Bluetooth: GFSK WiFi (2.4G): DSSS, OFDM SRD: FSK LTE: QPSK & 16QAM |
| Antenna installation: | External antenna |
| Antenna Gain: | Bluetooth: 1.0dBi WiFi (2.4G): 1.0dBi LTE Band1: 1.0dBi LTE Band3: 1.0dBi LTE Band7: 1.0dBi |

LTE Band8: 1.0dBi

LTE Band20: 1.0dBi

LTE Band28a: 1.0dBi

INPUT:100-240V 50/60Hz

OUTPUT: 12V 1.0A

Ratings:

3. HEALTH REQUIREMENTS

3.1 Limits

According to Council Recommendation: the criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation.

Reference levels for electric, magnetic and electromagnetic fields (0Hz to 300GHz, unperturbed RMS values)

| Frequency range | E-field strength (V/m) | H-field strength (A/m) | B-field (μT) | Equivalent plane wave power density Seq (W/m2) |
|-----------------|------------------------|-------------------------|-----------------------|--|
| 0-1 Hz | - | 3.2×10^4 | 4×10^4 | - |
| 1-8 Hz | 10000 | $3.2 \times 10^4 / f^2$ | $4 \times 10^4 / f^2$ | - |
| 8-25 Hz | 10000 | $4000 / f$ | $5000 / f$ | - |
| 0.025-0.8 kHz | $250 / f$ | $4 / f$ | $5 / f$ | - |
| 0.8-3 kHz | $250 / f$ | 5 | 6.25 | - |
| 3-150 kHz | 87 | 5 | 6.25 | - |
| 0.15-1 MHz | 87 | $0.73 / f$ | $0.92 / f$ | - |
| 1-10 MHz | $87 / f^{1/2}$ | $0.73 / f$ | $0.92 / f$ | - |
| 10-400 MHz | 28 | 0.073 | 0.095 | 2 |
| 400-2000 MHz | $1.375 f^{1/2}$ | $0.0037 f^{1/2}$ | $0.0046 f^{1/2}$ | $f / 200$ |
| 2-300 GHz | 61 | 0.16 | 0.2 | 10 |

Note:

1. f as indicated in the frequency range column.
2. For frequencies between 100 kHz and 10 GHz, Seq, E², H² and B² are to be averaged over any six-minute period.
3. For frequencies exceeding 10 GHz, Seq, E², H² and B² are to be averaged over any $68 / f^{1.05}$ minute period (f in GHz).

3.2 Exposure Evaluation

From Council Recommendation 1999/519/EC table 2, the maximum power density is 10 W/m².

Power density (S) is calculated by the following formula:

$$S = PG * \text{Duty factor} / 4\pi R^2$$

P = Peak Power Input to antenna (Watts)

G = Antenna Gain (numeric)

R = distance to the center of radiation of antenna (in meter) = 0.2 m

Note:

1) $P \text{ (Watts)} = (10^{(\text{dBm} / 10)}) / 1000$

2) $G \text{ (Antenna gain in numeric)} = 10^{(\text{Antenna gain in dBi} / 10)}$

3) Duty factor = 1.0

4) $\pi = 3.142$

Bluetooth

| Antenna Gain (dBi) | Antenna Gain (numeric) | Max. Output Power (dBm) | Max. Output Power (W) | Duty factor | Calculated RF Exposure (W/ m ²) | Limit (W/ m ²) |
|--------------------|------------------------|-------------------------|-----------------------|-------------|---|----------------------------|
| 1 | 1.25892541 | 2.94 | 0.0019679 | 1 | 0.0049 | 10 |

2.4G WIFI

| Antenna Gain (dBi) | Antenna Gain (numeric) | Max. Output Power (dBm) | Max. Output Power (W) | Duty factor | Calculated RF Exposure (W/ m ²) | Limit (W/ m ²) |
|--------------------|------------------------|-------------------------|-----------------------|-------------|---|----------------------------|
| 1 | 1.25892541 | 15.25 | 0.0334965 | 1 | 0.0839 | 10 |

G ANT1:

| | Antenna Gain (dBi) | Antenna Gain (numeric) | Max. Output Power (dBm) | Max. Output Power (W) | Duty factor | Calculated RF Exposure (W/ m ²) | Limit (W/ m ²) |
|-------------|--------------------|------------------------|-------------------------|-----------------------|-------------|---|----------------------------|
| LTE Band1 | 1 | 1.25892541 | 23.11 | 0.2046445 | 1 | 0.5128 | 9.6 |
| LTE Band3 | 1 | 1.25892541 | 23.3 | 0.2137962 | 1 | 0.5357 | 8.55 |
| LTE Band7 | 1 | 1.25892541 | 22.92 | 0.1958845 | 1 | 0.4909 | 10 |
| LTE Band8 | 1 | 1.25892541 | 23.37 | 0.2172701 | 1 | 0.5444 | 4.4 |
| LTE Band20 | 1 | 1.25892541 | 23.7 | 0.2344229 | 1 | 0.5874 | 4.16 |
| LTE Band28a | 1 | 1.25892541 | 23.19 | 0.2084491 | 1 | 0.5223 | 3.51 |

BT+WIFI/4G supported simultaneous transmission:

$$\text{BT}+2.4\text{GWIFI MIMO:MPE Ratio} = 0.0049/10 + 0.0839/10 = 0.01996 \leq 1$$

$$\text{BT}+4\text{G MIMO:MPE Ratio} = 0.0049/10 + 0.5874/4.16 = 0.14169 \leq 1$$

WIFI+4G supported simultaneous transmission:

$$2.4\text{GWIFI} + 4\text{G MIMO:MPE Ratio} = 0.0839/10 + 0.5874/4.16 = 0.14959 \leq 1$$

4. EUT PHOTOGRAPHS

Refer to Report No.: CTB26031613702RE05 for EUT external and internal photos.

.*** END OF REPORT *******