WiFi+BLE module manual

Gree Electric Appliances, Inc. of Zhuhai

- Please read this manual carefully before operation and keep it well for future reference.
- Due to product improvement, Gree reserves the right to change contents of this manual without prior notice.
- Gree Electric Appliances, Inc. of Zhuhai reserves the final right to interpret this manual.

1、General Functions

The wireless module is a highly integrated single-chip low power single bands(2.4GHz) Wireless LAN(WLAN) and Bluetooth Low Energy(BLE 5.0) communication controller.It consists of a high performance MCU (Armv8-M,Cortex-M33 instruction set compatible) called Real-M300(or KM4 thereafter) and a lower MCU (Armv8-M,Cortex-M23 instruction set compatible) called Real-M200(or KM0 thereafter),WLAN(802.11b/g/n)MAC,an 1T1R capable WLAN baseband,RF,Bluetooth and peripherals.

This compact module is a total solution for a combination of Wi-Fi 802.11b/g/n technologies with Microcontroller Processor. The module is specifically developed for embedded system devices. Detailed Instruction of WiFi+BLE module.

Hereby, GREE Electric Appliances,Inc. of Zhuhai, declares that this WiFi+BLE module is in compliance with the essential requirements and other relevant provisions of RE Directive 2014/53/EU. A copy of the full DoC is attached.

2、Technique Parameters

Table1. Wireless features

Items	Description
WiFi	802.11b/g/n 1x1,2.4GHz
	Supports 20MHZ/40MHz up to MCS7
	Low power architecture
	Low power Tx/Rx for short range application @1.8V
	Low power beacon listen mode
	Low power Rx mode
	Very low power suspends mode(DLPS)
	Built-in PA,also supports external PA and LNA
	Supports Antenna diversity
	Internal PTA interface for arbitrating data transmission between Wi-Fi and internal Bluetooth or external 2.4G devices
	Transmit frequency: 2412-2472MHz
	Maximum transmit power: < 20dBm
BT	BLE 5.0
	Both central and peripheral modes
	High power mode(8dbm.shares the same PA with Wi-Fi)
	Internal co-existence mechanism betweem Wi-Fi and BT to share the same antenna
	Transmit frequency: 2402-2480MHz
	Maximum transmit power: < 10dBm

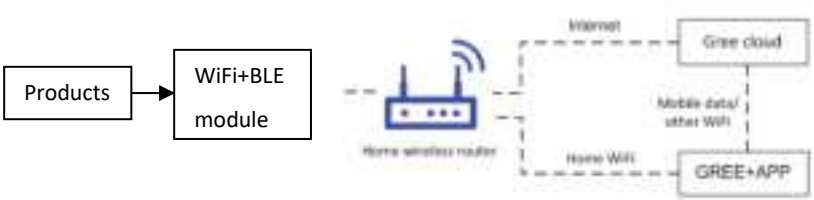
Table2. Temperature limit ratings

	Minimum	Maximun	Unit
Storage Temperature	-55	125	℃
Ambient Operating Temperature	-20	85	℃

3、WiFi+BLE module Function

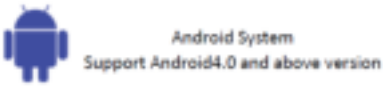
WiFi+BLE module function can be operated by matching with GREE+APP, to realize intelligent control for products.

3.1 Flowchart of System Control



3.2 Download and Installation

Requirements for user's smart phone:



（1）Download the APP and then install it. After that, please register and account. Once devices are added, long-distance control and LAN control for the products can be realized

（2）Scan below QR code to download and install it.

Note
Along with the upgrade of products, the content and the interface of GREE+APP may be different from that on the instruction manual. Please refer to the present APP.

3.3 Connect device to network

Operation method for adding devices: Click icon “+” in the top right corner of the main interface in figure 1, click to select” air conditioner” device in figure 2, reset wireless gateway (click RESET button for 5s), and then click “Next” in the figure 4. Automatically search home WiFi as shown in figure 5, input password of home WiFi, and click “Search device” for configuration. The interface with completed configuration is shown in figure 6.

Or click “Manual Add” in the top right corner and then reset the air conditioner according to the prompt. After energization, select the wireless network of control device, confirm home WiFi and then configure the network.

figure 1

figure 2

figure 3

figure 4

figure 5

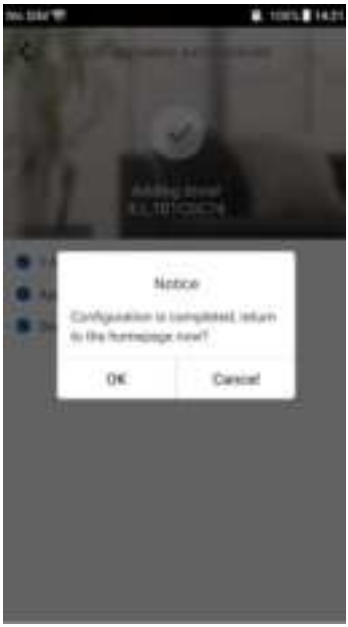


figure 6

When device is added successfully, pull down the device list page on GREE+APP to refresh it and then the added devices will be displayed. If it's not displayed, please check the network and confirm whether the device is added successfully. On the device list page, simple management and control for the device is available. As for configuration method for adding devices, you can also refer to official instruction of GREE+APP http://www.gree.com/greeplus/index.html?from=timeline.

FCC KDB 996369 D03 for module certification:

1. List of applicable FCC rules and Canada rules:
The module complies with FCC Part 15.247, and Canada RSS-247.

2. Summarize the specific operational use conditions:
The module has been certified for Fix/Mobile applications. The host product operating conditions must be such that there is a minimum separation distance of 20 cm (or possibly greater than 20 cm) between the antenna radiating structures and nearby persons. The host manufacturer is obligated to confirm the use conditions of the host product to ensure that distance specified in the instructions is met. In this case the host product is classified as either a mobile device or a fixed device for RF exposure purposes. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

3. Limited module procedures:
Not applicable.

4. Trace antenna designs:
Not applicable.

5. RF exposure considerations: This equipment complies with FCC's and IC's RF radiation exposure limits set forth for an uncontrolled environment. The antenna(s) used for this transmitter must be installed and operated to provide a separation distance of at least 20 cm from all persons and must not be collocated or operating in conjunction with any other antenna or transmitter. Installers must ensure that 20cm separation distance will be maintained between the device and users.

DÉCLARATION D'IC SUR L'EXPOSITION AUX RADIATIONS:

Cet appareil est conforme aux limites d'exposition au rayonnement RF stipulées par la FCC et l'IC pour une utilisation dans un environnement non contrôlé. Les antennes utilisées pour cet émetteur doivent être installées et doivent fonctionner à au moins 20 cm de distance des utilisateurs et ne doivent pas être placées près d'autres antennes ou émetteurs ou fonctionner avec ceux-ci. Les installateurs doivent s'assurer qu'une distance de 20 cm sépare l'appareil des utilisateurs.
Note: the OEM product manuals must include a statement in order to alert the users of FCC RF exposure compliance.

6. Antennas:

Type	Gain	Impedance	Application	Min Separation
PCB type Antenna	1.57dBi	50 Ω	Fixed	20 cm

The antenna is permanently attached, can't be replaced.

7. Label and compliance information: his device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:
(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications or changes to this equipment. Such modifications or changes could void the user's authority to operate the equipment.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could voidthe user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause

harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

ISED statements:
This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to
the following two conditions:
(1) This device may not cause interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.
L'é metteur/r é cepteur exempt de licence contenu dans le pr é sent appareil est conforme aux CNRd' Innovation, Sciences et D é veloppement é conomique Canada applicables aux appareils radio exempts de licence. L' exploitation est autoris é e aux deux conditions suivantes :
1) L' appareil ne doit pas produire de brouillage;
2) L' appareil doit accepter tout brouillage radio é lectrique subi, m ê me si le brouillage est susceptibled en compromettre le fonctionnement.

The system integrator must place an exterior label on the outside of the final product housing theGRJW05-J3 Modules. Below is the contents that must be included on this label.
OEM Labeling Requirements:
NOTICE: The OEM must make sure that FCC labeling requirements are met. This includes a clearly visible exterior label on the outside of the final product housing that displays the contents shown in below:

Contains FCC ID: 2ADAP-GRJW05J6
Contains IC: 12478A- GRJW05J6

8. Information on test modes and additional testing requirements:

When testing host product, the host manufacture should follow FCC KDB Publication 996369 D04 Module Integration Guide for testing the host products. The host manufacturer may operate their product during the measurements. In setting up the configurations, if the pairing and call box options for testing does not work, then the host product manufacturer should coordinate with the module manufacturer for access to test mode software. For wireless LAN, the product under test is set into a link/association with a partnering WLAN device, as per the normal intended use of the product. To ease testing, the product under test is set to transmit at a high duty cycle, such as by sending a file or streaming some media content. Alternatively, a Wi-Fi test set may be used. Simultaneously transmitting modules installed in the host should be all active.

9. Additional testing, Part 15 Subpart B disclaimer:
The modular transmitter is only FCC authorized for the specific rule parts (FCC Part 15.247) list on the grant, and that the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host not covered by the modular transmitter grant of certification. The final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed when contains digital circuity

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