KEEBOX
P.O. Box 2290, Gardena, CA 90247

User Manual

Model Number: GLM-300

Wireless N module

- Revision History:

Date	Release	Author	Description
2009/9/1	0.1	Steven Chang	➢ Primarily Release
2010/3/18	0.2	Steven Chang	➢ Remove feature to support Antenna diversity
			➢
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Introduction

This module is the wireless networking device based on 802.11b/g technology and compatible for interoperability with 802.11n devices. This device provides up to 300Mbps transfer rate in the wireless network and let users access the Internet resource, sharing file, and email quickly and your wireless communications are protected by up to WPA2 encryption, so your data stays secure.

The extremely small design makes it easy to install into new or existing wireless device and lets you to connect wirelessly to your network. It gives you the ability to roam at home or in the office without wires.

Features

- Compatible with IEEE 802.11b/g and 802.11n Standard for 2.4GHz Wireless
- SoC solution combines 802.11n draft compliant 1T1R MAC/BBP/RF
- Up to 300Mbps High-Speed PHY transfer rate on the wireless LAN interface
- Works with All Existing Network Infrastructure.
- Compatible with Wi-Fi Wireless Products and Services.
- Capable of 64/128-Bit WEP, 256bit WPA and WPA2 Encryption
- One I-PEX Connectors for External Antenna
- Rich hardware interfaces (SPI/I2S/I2C/UART) to enable many possible applications.
- Support IEEE 802.3 full duplex flow control
- Support USB host mode
- Small-sized module with PCI-Express connector interface.

Operating Setup

There are several BAT files for the Ralink testing.
Init_DUT.bat, Cz_24g.bat, continu_tx.bat, BC24g.bat, BCM24gHT20.bat, BCM24gHT40.bat, BCM5g.bat, BCM5gHT20.bat, BCM5gHT40.bat

11b mode:
1. plug MiniPCI
2. executeInit_DUT.bat
3. executeCz_24g.bat channel datarate power antenna. Ex. Cz_24g.bat 1 11 18 0channel 1 datarate=11Mbps, power setting=18, antenna 0
4. continu_tx.bat

11g mode:
1. plug MiniPCI
2. executeBCM24g.bat channel datarate power Ex. BCM24g.bat 7 54 16channel 7 datarate=54Mbps, power setting=16,

11g HT20 mode:
1. plug MiniPCI
2executeBCM24gHT20.bat channel datarate power Ex. BCM24gHT20.bat 11 8 16channel 11 datarate=MCS 8, power setting=16,

11g HT40 mode:
1. plug MiniPCI
2executeBCM24gHT40.bat channel datarate power Ex. BCM24gHT40.bat 3 15 12channel 3 datarate=MCS 15, power setting=12,

System Hardware

- Processor : Ralink RT-3050 Single Chip SoC 320MHz CPU CLK
- MIPS 24KEc 320MHz with 32KB I cache/16KB D cache
- Embedded 1Tx1R 2.4G CMOS RF
- Chipset maximum consumption 1.45W
- 802.11n 1T1R MAC/BBP
- 1 port 10/100Mbps PHY
- 16 bit 106MHz SDRAM
- Support 16 bit NOR FLASH (up-to 8 Mbytes)
- SDRAM: 32M Byte (16Mx16)
- Flash ROM: 4M Byte (2Mx16)
- 3.3V DC switching type power adapter
- Interface : 1x 10/100 Base-T LAN port
- Module with PCI-Express connector interface
- Other interface : UART, JTAG, GPIOs, WPS button, reset button
- Power Requirement:

  Operating Voltage: 3.3V DC

  Output power: 11b: 19.9dBm
  11g: 24.5dBm
  802.11n (20MHz): 24.2dBm
  802.11n (40MHz): 24.2dBm

System Software

STANDARDS

- IEEE 802.11b/g
- IEEE 802.11n draft 2.0
- IEEE 802.3
- IEEE 802.3u
- System use Linux 2.6.

WIRELESS SECURITY

- WEP (64/128 bit)
- WPA / WPA2

Physical dimensions & Environmental

Dimensions: 46mm(L) x 40mm(W) x 5.6mm(H)
Operation Temperature: 0℃~40℃ (32°F to 104°F)
** Recommend operating under the condition of good airflow*
Storage Temperature: -25℃~55℃ (-13°F to 131°F)
Humidity: 5%~95% non-condensing.
** Environmental factors may affect actual range*

Safety and Emission (Base on region and customer's request)
EMI: FCC 15C/ FCC MPE/ NCC LP0002
Safety: UL, TUV

PCB Dimension

PCI-Express dimenstion: 46mm(L)
------END------

Federal Communication Commission Interference Statement

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 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.

This 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.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

IEEE 802.11b or 802.11g operation of this product in the U.S.A. is firmware-limited to channels 1 through 11.

This device is intended only for OEM integrators under the following conditions:

1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and

2) The transmitter module may not be co-located with any other transmitter or antenna,

3) For all products market in US, OEM has to limit the operation channels in CH1 to CH11 for 2.4G band by supplied firmware programming tool. OEM shall not supply any tool or info to the end-user regarding to Regulatory Domain change.

As long as 3 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.).

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: “Contains FCC ID: YC3GLM300”.

Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user’s manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

以下警語適用台灣地區:

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

本模組於取得認證後將依規定於模組本體標示審合格籤，並要求平台上標示「本產品內含射頻模組：ID編號」