



深圳市奥金瑞科技有限公司  
SHENZHEN OGEMRAY TECHNOLOGY CO.,LTD

IEEE 802.11 a/b/g/n/ac5.8G/2.4GHz  
433Mbps/150Mbps

## PRODUCT DATASHEET

PRODUCT MODULE: GWF-5M01  
VERSION: V1.5  
DATE: 2015-11-18

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※※VERSION HISTORY (CONTAINED CHANGE LOGS) ※ ※

VERSION	CHANGE LOGS	WRITTEN BY	VERIFIED BY	DATE	DEPARTMENT
V1.0	First version	Yanglu	Liujun	2015.08.28	RD
V1.5	PCB Update	Yanglu	Liujun	2015.11.18	RD

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## 1.Product Basic Information

### 1.1Product Introduction

The GWF-5M01 is a WLAN PCB module with 4/6-pin connector supporting USB2.0/1.1 interface, it uses the latest 802.11ac technology and being compliant with IEEE 802.11a/b/g/n/ac specification, offering feature-rich wireless connectivity and reliable throughput from an extended distance. Optimized RF architecture and baseband algorithms provide superb performance and low power consumption. MT7610UN integrates MAC design deploys a high efficient DMA engine and hardware data processing accelerators which offloads the host processor.

The MT7610UN is designed to support standard based features in the areas of security, quality of service and international regulations, giving end users the greatest performance any time and in any circumstance.

This module operates in 2.4GHz and 5GHz ISM frequency band with low power consumption; it applies a highly integrated MAC/BBP and RF single chip MT7610UN with 433Mbps PHY rate supporting. The small form factor and low cost design provide excellent performance for the wireless connectivity, it is ideal for confine space application.

It has a built-in aerial, or an I-PEX receptacle, and operates in dual-frequency, to let users have the chance to choose the faster network environment. This module also supports several encryption patterns, to let users to enjoy fast network speed and clean safe network environment.

GWF-5M01 belongs to the kind of broadband network module, the bandwidth can reach to 80MHz. It prevents the traffic jam and shorten the time delay in network, and it can operate as a mate of many devices, such as IP camera, IP STB, TV, Internet broadcasting equipment.

It is compatible with many kinds of operation system, for example, Windows Vista, XP/7/8/2000, Linux, Mac etc to avoid the problem of OS incompatibility.





## 1.2 Product Features

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- Built in antenna or external antenna
- Support WPS, Wi-Fi direct
- 802.11a: 6,9,12,18,24,36,48,54Mbps
- 802.11b: 1, 2,5.5,11Mbps
- 802.11g: 6, 9,12,18, 24,36,48,54Mbps
- 802.11n: (20MHz)MCS0-7, up to 72Mbps, (40MHz)MCS0-7, up to 150Mbps
- 802.11ac: up to 433Mbps(80MHz)
- Support safe encryption pattern, such as WFA,WPA, WPA2, Personal, WPS2.0, WAPI
- Built-in power consumption management function
- USB2.0/1.1 interface
- Excellent anti-interference ability
- Compatible with many kinds of operation system, for example, Windows Vista, XP/7/8/2000, Linux, and Mac etc.

**NOTICE: WLAN communication channel is the communication channel used for IEEE 802.11(Wi-Fi) wireless network permitted by national laws. It is divided to 2 different independent bands (2.4 GHz and 5.8 GHz) by 802.11 working team. Though each band can be partitioned to several communication channels, every country has its own authority to decide how to use them. You can refer to CHAPTER 5 for detailed information.**

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## 2 Product Basic Function

### 2.1 Brief Specification

Electronic Specification	
Main Chip	MT7610UN
Interface	USB 2.0/1.1
Protocols and Standards	IEEE802.11/b/g & 802.11n & 802.11ac (1T1R mode)
Working Bands	2.412GHz-2.462GHz, 5.15 GHz- 5.825 GHz (usage condition is depended on different country's supervision)
Antenna	Built-in antenna or an external antenna(via IPEX)
Encryption Pattern	WFA, WPA, WPA2, WPS2.0, WAPI
Transmitting Power (feed point to antenna)	802.11a: 14-16dBm@ 54Mbps (OFDM)
	802.11b: 16-20dBm@ 11Mbps
	802.11g: 14-16dBm@ 54Mbps
	802.11n: 14-16dBm@ 150Mbps
	802.11ac: 12.5-13.5dBm@433Mbps (AC80)
Receiving Sensitivity (feed point from antenna)	802.11a: -66+/-1dBm
	802.11b: -80+/-1dBm
	802.11g: -73+/-1dBm
	802.11n: -70+/-1dBm(HT2); -64+/-1dBm(HT40)
	802.11ac: -80+/-1dBm(MCS0); -56+/-1dBm(MCS9), (AC80)
Working Voltage	5.0VDC± 5%
Power Consumption	RX & TX condition: 220mA(max)
	TX condition: 220mA(max)
	RX condition: 180mA(max)
Mechanical Specification	
Dimension	42*19*8.8mm
Net Weight	3.4g

### 2.2 Hardware Information

1. Block diagram:

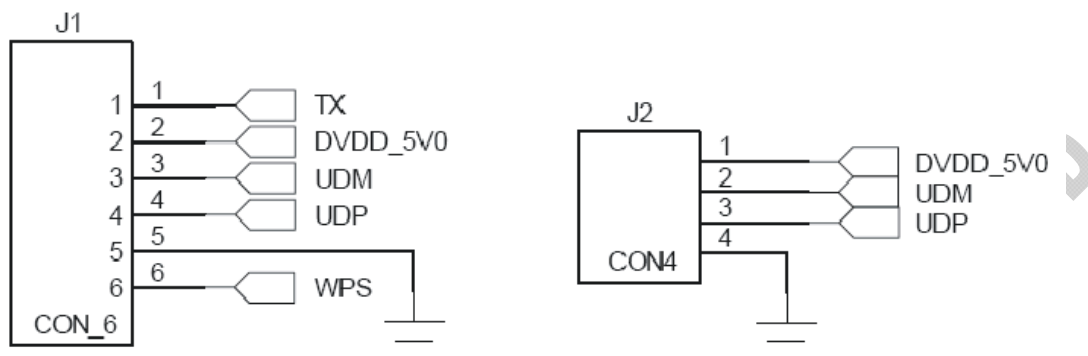
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## 2. Pin diagram of 4/6-pin connector:



## 3. Pin definition and related function description:



LINE 1: J1-1~J1-6

LINE 2: J2-1~J2-4

Pin No.	Definition	Description	Remark
J1-1	TX	RF Transmitter Enable	3.3V, high level
J1-2	DVDD-5V0	USB Power Supply	USB Power supply, DC 5V +/-0.5V
J1-3	UDM	Data-	
J1-4	UDP	Data+	
J1-5	GND	GND	
J1-6	WPS	WPS Buttoninput port	3.3V, low level
J2-1	DVDD-5V0	USB Power Supply	USB Power supply, DC 5V +/-0.5V
J2-2	UDM	Data -	
J2-3	UDP	Data +	
J2-4	GND	GND	

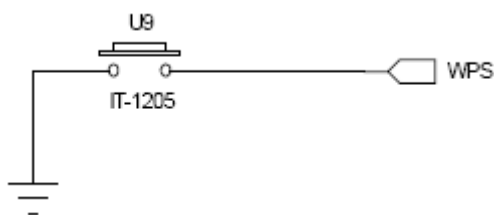
Careful consideration must be paid when selecting pull -up ( or down ) resistors.

J1-1(TX) has a embedded pull-up resistor, and it can be connected directly, 3.3V high level.

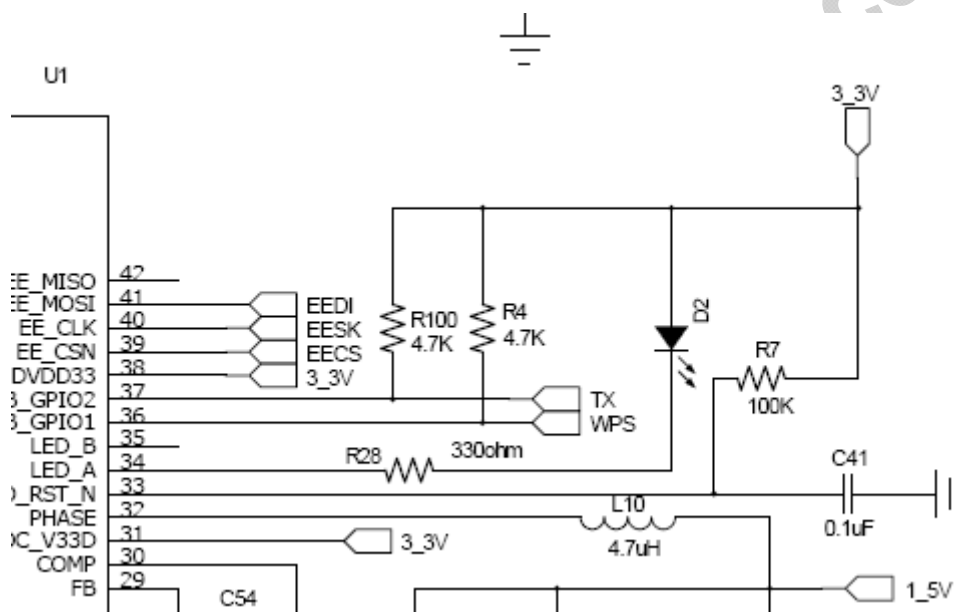




J1-6(WPS) can be grounded by pressing down WPS(U9) button, it is 3.3V low level as the picture below referred:



The following diagram is our recommended circuit connection:



## 2.3 Software Information

The table below is for users to check the available Operation System and its version:

OS	Available	OS Version
Windows	YES	XP
	YES	Win7
	YES	Win8
	YES	Win2000
	YES	Vista
Linux	YES	2.6 or above, only support STA mode
Android	YES	2.6 or above, only support STA mode
Mac	YES	10.3-10.10
WinCE	NO	Invalid

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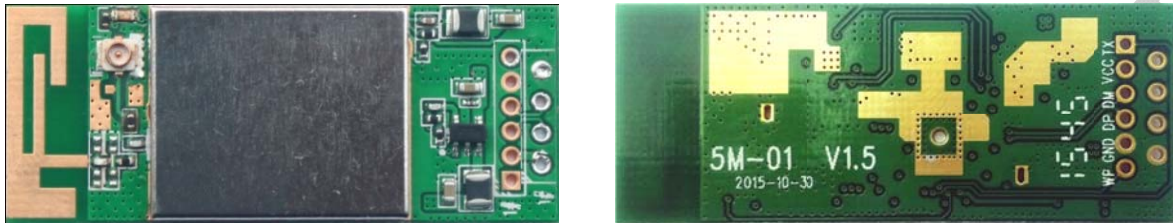




## 2.4 Mechanical Information

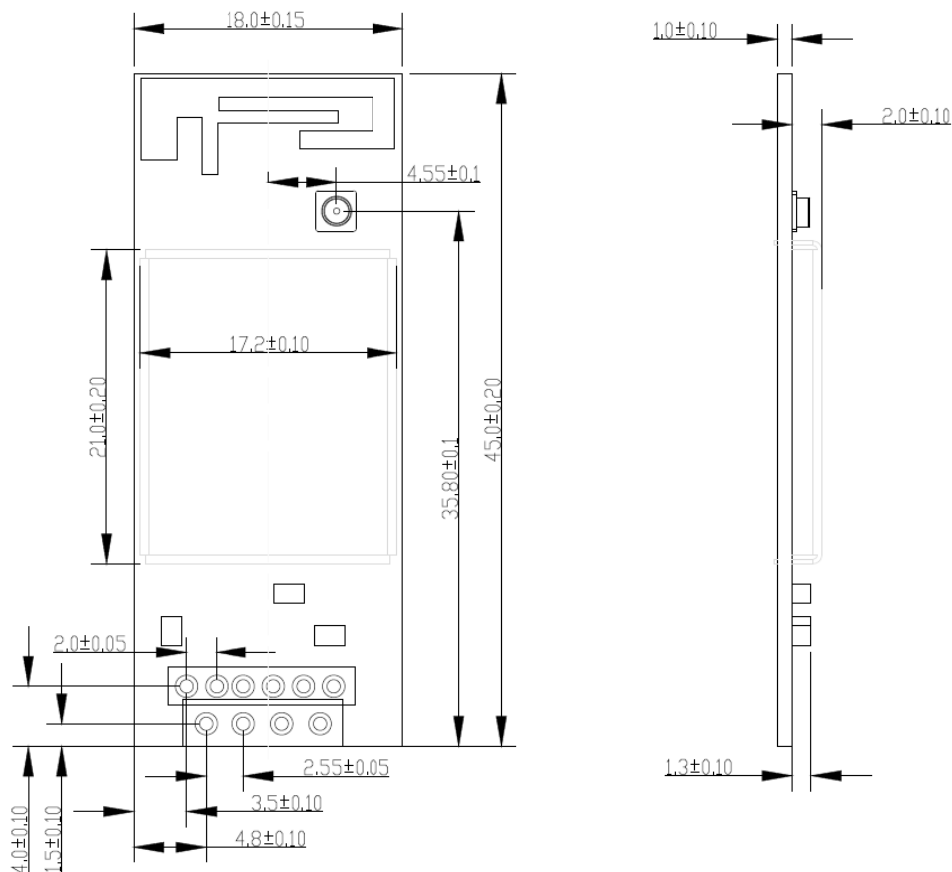
### 2.4.1 Product Appearance

The view of top and bottom layer of GWF-5M01 can be displayed in the following pictures:



### 2.4.2 Product Dimension

The dimension of GWF-5M01 can be referred by the following picture:



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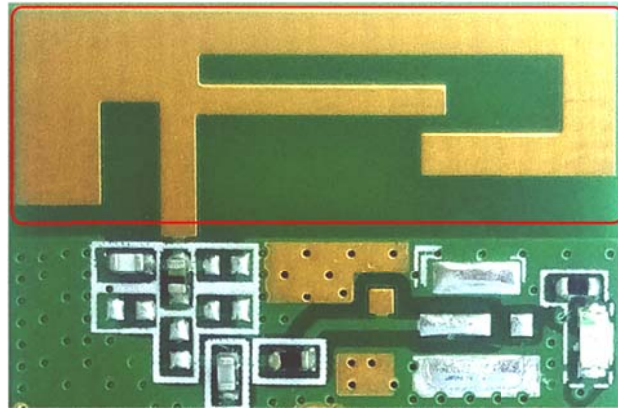
<http://www.ogemray.com>



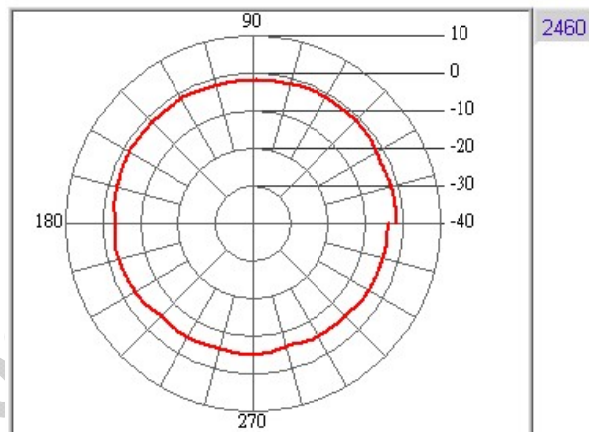


### B. Onboard PCB antenna

The onboard antenna is designed with tiny space which affects the signal performance. If the onboard antenna does not satisfy user's application, please use other external antenna.



Peak gain value is: -1dBi, and the average gain value is: -3dBi.



### 3. Agency Approval

Our products are strictly confirmed to these certificates:

Agency	Approval
FCC	Undergoing
CE	Undergoing
RoHS	Undergoing

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## 4.Environment Requirements

### 4.1 Suitable Temperature

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Working Temperature:  $-5^{\circ}\text{C} \sim +50^{\circ}\text{C}$

Storage Temperature:  $-20^{\circ}\text{C} \sim +85^{\circ}\text{C}$

### 4.2 Suitable Humidity

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Working Humidity: 20%~85%

Storage Humidity: 20%~90%

**Notice: To keep the normal service life and ensure the excellent working performance of our device, please use it and store it abide by environment requirements strictly.**



## 6. Disclaimer

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This **DATA SHEET** document is the guidance of the installation and tentative usage of our products. Before operating the product, please read this data sheet carefully.

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## **Regulatory information for the OEMs and Integrators**

The guidelines described within this document are provided to OEM integrators installing 5G module in notebook and tablet PC host platforms. Adherence to these requirements is necessary to meet the conditions of compliance with FCC rules, including RF exposure. When all antenna type and placement guidelines described herein are fulfilled the 5G Module may be incorporated into notebook and tablet PC host platforms with no further restrictions. If any of the guidelines described herein are not satisfied it may be necessary for the OEM or integrator to perform additional testing and/or obtain additional approval. The OEM or integrator is responsible to determine the required host regulatory testing and/or obtaining the required host approvals for compliance

. 5G module are intended for OEMs and host integrators only.

. The 5G Module must be operated with an access point that has been approved for the country of operation.

. Changes or modification to 5G Module by OEMs, integrators or other third parties is not permitted. Any changes or modification to 5G Module by OEMs, integrators or other third parties will void authorization to operate This module is not masked, and the end user needs to increase the mask.

### **Information to Be Supplied to the End User by the OEM or Integrator**

The following regulatory and safety notices must be published in documentation supplied to the end user of the product or system incorporating the Amplified 5G Module, in compliance with local regulations.

Host system must be labeled with "Contains FCC ID: YWTGWF-5M01 ", FCC ID displayed on label.

The 5G Module must be installed and used in strict accordance with the manufacturer's instructions as described in the user documentation that comes with the product. Intel Corporation is not responsible for any radio or television interference caused by unauthorized modification of the devices included with the wireless adapter kit or the substitution or attachment of connecting cables and equipment other than that specified by Intel Corporation. The correction of interference caused by such unauthorized modification, substitution or attachment is the responsibility of the user. Intel Corporation and authorized resellers or distributors are not liable for any damage or violation of government regulations that may arise from the user failing to comply with these guidelines.

This device has been evaluated and shown compliant with the FCC RF Exposure limits under fixed exposure conditions (antennas are greater than 20cm from a person's body)when installed in certain specific configurations.

The host system shall have a label showing: Contains FCC ID: YWTGWF-5M01

This product only used external antenna, The gain of antenna : -1.0dBi

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.

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.

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna

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or transmitter.

15.105 Information to the user.

(b) For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual:

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.

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 and your body.

**Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

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

The availability of some specific channels and/or operational frequency bands are country dependent and are

firmware programmed at the factory to match the intended destination.

The firmware setting is not accessible by the end user.

For 5180~5240MHz, this device is only used for indoor.