

# **SPECIFICATIONS**

**IEEE 802.11 b/g/n 2.4 2T2R**

WIFI Module

**WL-UM01EBS-5572**



## **1.Overview**

WL-UM01EBS-5572 is a integrated MAC/BBP and 2.4 GHz RF/PA/LNA single module which supports a 300 Mbps PHY rate. It fully complies with IEEE 802.11n and IEEE 802.11 b/g standards, offering feature-rich wireless connectivity at a high standard, and delivering reliable, cost-effective throughput from an extended distance. Optimized RF architecture and baseband algorithms provide superb performance and low power consumption. Intelligent MAC design deploys a highly efficient DMA engine and hardware data processing accelerators without overloading the host processor. The WL-UM01EBS-5572 is designed to support standard-based features in the areas of security, quality of service, and international regulations, giving end users the greatest performance anytime and in any circumstance.

## **2.Features**

CMOS Technology with an integrated PA, LNA, RF, Baseband, and MAC

2T2R Mode with support for a 300 Mbps Tx/Rx PHY Rate

Legacy and High Throughput Modes

20 MHz/40 MHz Bandwidth

Reverse Direction Grant Data Flow and Frame Aggregation

Multiple BSSID Support

Bluetooth Co-existence

Security: WEP 64/128, WPA, WPA2, TKIP, AES, WAPI

QoS-WMM, WMM-PS

WPS/ WPS2.0: PIN, PBC

Cisco CCX Support

USB 2.0

Low Power with Advanced Power Management

Support for Windows XP 32/64, 2000, Vista 32/64, Windows 7 32/64, Linux, Macintosh

### 3.General Specification

Model	WL-UM01EBS-5572
Major Chipset	RT5572
Standard	802.11b/g/n
Data Transfer Rate	1,2,5.5,6,11,12,18,22,24,30,36,48,54,60,90,120 and maximum of 300Mbps
Modulation Method	QoS-WMM, WMM-PS;WPS/ WPS2.0: PIN, PBC
Frequency Band	2.4 GHz
Spread Spectrum	IEEE 802.11b: DSSS (Direct Sequence Spread Spectrum) IEEE 802.11g/n:OFDM (Orthogonal Frequency Division Multiplexing)
OS Support	Windows XP 32/64, 2000, Vista 32/64, Windows 7 32/64, Linux, Macintosh
Security	WEP 64/128, WPA, WPA2, TKIP, AES, WAPI
Interface	USB 2.0
Power Consumption	DC 3.3V
Operating Channel	11: (Ch. 1-11) – United States 13: (Ch. 1-13) – Europe 14: (Ch. 1-14) – Japan
Main chip surface temperature(Operating )	75° C
Operating Temperature	-20 ~ +60° C ambient temperature
Storage Temperature	-20 ~ 80°C ambient temperature
Humidity	5 to 90 % maximum (non-condensing)
Dimension	27.0 x 17.8537 x 2.8mm (LxWxH) +-0.1MM

## 4. Electrical Specifications

### 1) DC Characteristics

Module	Voltage	Current Consumption (linking)	Current consumption (Runthroughput)
5572	3.3V 2.4G	440MA	MAX:460/MIN:420
	5V 2.4G	413MA	MAX:430/MIN:410

### 2) 2.4G RF Characteristics for IEEE802.11b ( 11Mbps mode unless otherwise specified)

Items	Contents			
Specification	IEEE802.11b (Data Rate 11M CCK)			
Data Rate	11, 5.5, 2, 1 Mbps			
Channel frequency	2412 ~ 2484 MHz			
RX (per $\leq$ -85dBm@8%)	-85 dBm			
TX Characteristics	Min.	Typ.	Max.	Unit
Power Level (17 $\pm$ 2 dBm)		17		dBm
EVM (<-18)		-25		

### 3) 2.4G RF Characteristics for IEEE802.11g ( 54Mbps mode unless otherwise specified)

Items	Contents			
Specification	IEEE802.11g (Data Rate 54M OFDM)			
Data Rate	54, 48, 36, 24, 18, 12, 9, 6 Mbps			
Channel frequency	2412 ~ 2484 MHz			
RX (per $\leq$ -70dBm@10%)	-70 dBm			
TX Characteristics	Min.	Typ.	Max.	Unit
Power Level (14 $\pm$ 2 dBm)		14.6		dBm
EVM (<-27)		-30		dB

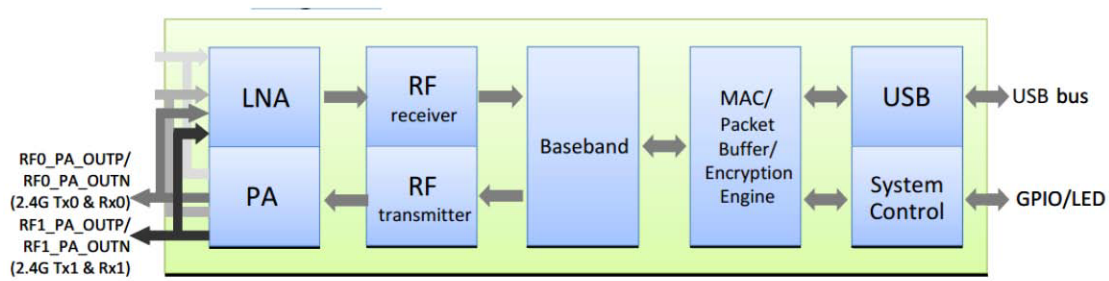
### 4) 2.4G RF Characteristics for IEEE802.11n ( MCS 0 to 7 for HT20MHz )

Items	Contents			
Specification	IEEE802.11n ( MCS 0 to 7 for HT20MHz )			
Data Rate	65 Mbps			
Channel frequency	2412 ~ 2484 MHz			
RX (per $\leq$ -65dBm@10%)	-65 dBm			
TX Characteristics	Min.	Typ.	Max.	Unit
Power Level (13 $\pm$ 2 dBm)		14.6		dBm
EVM (<-28)		-30		dB

### 5) 2.4G RF Characteristics for IEEE802.11n (MCS 0 to 7 for HT40MHz )

Items	Contents			
Specification	IEEE802.11n (MCS 0 to 7 for HT40MHz )			
Mode	64 QAM, 16 QAM, QPSK, BPSK			
Data Rate	135 Mbps			
Channel frequency	2412 ~ 2484 MHz			
RX (per≤-65dBm@10%)	-65 dBm			
TX Characteristics	Min.	Typ.	Max.	Unit
Power Level (13±2 dBm)		14		dBm
EVM (<-28)		-30		dB

### 5.Diagram



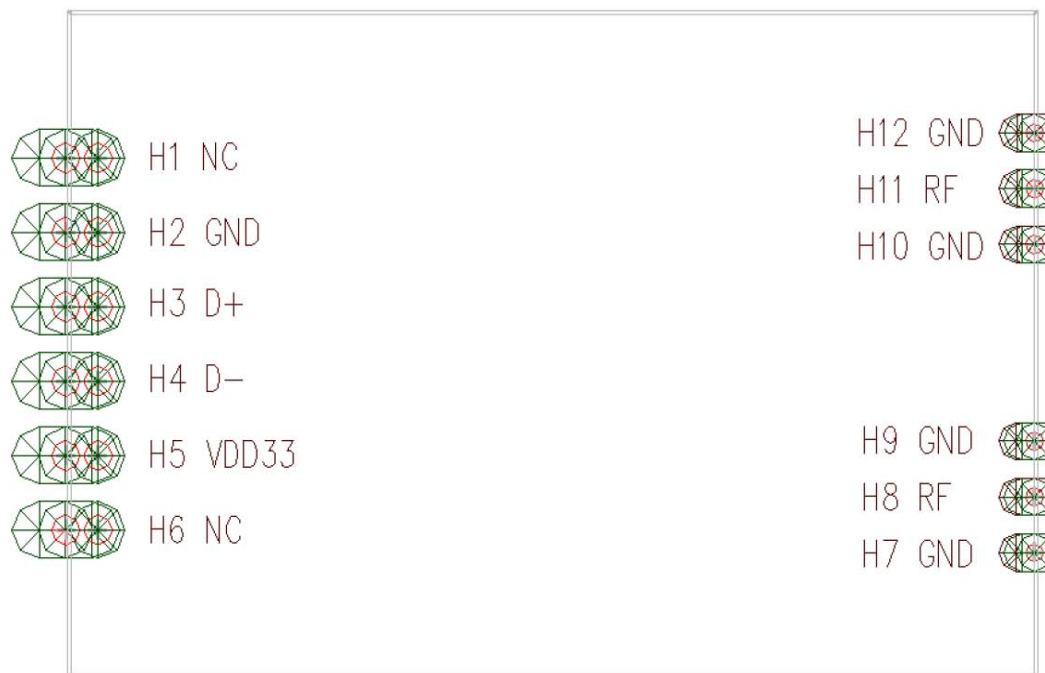
### 6.Dimensions

#### Mechanical

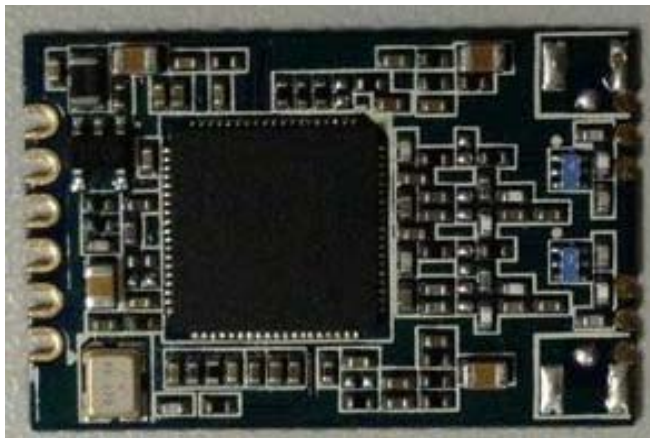
Dimensions (mm)	Length	Width	Height
	27.000 (Tolerance:±0.1mm)	17.8537 (Tolerance:±0.1mm)	2.8 (Tolerance:±0.1mm)

## MODULE PIN ASSIGNMENT

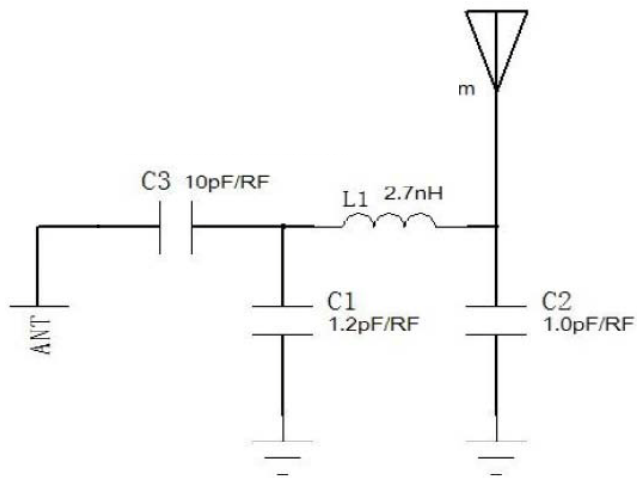
Pin	Function	Pin	Function
H1	NC	H7	GND
H2	GND	H8	RF
H3	D+	H9	GND
H4	D-	H10	GND
H5	VDD33	H11	RF
H6	NC	H12	GND



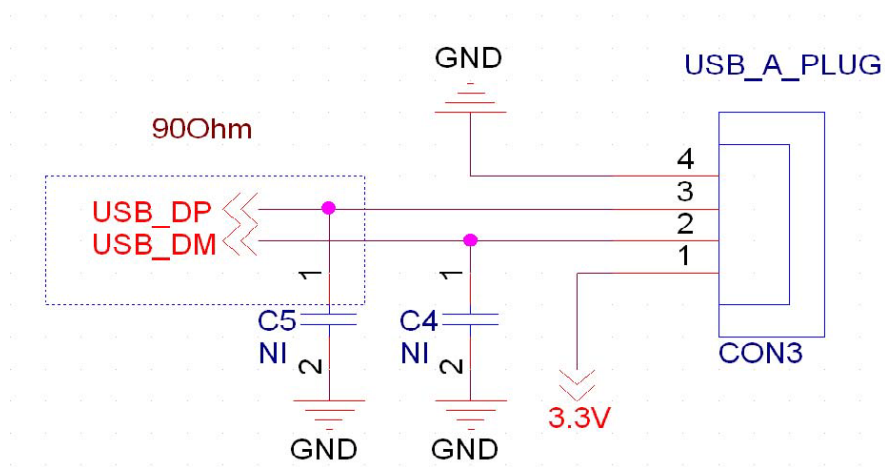
## 7.Physical map



## 8.External antenna reference design



## 9.USB interface electrical characteristics



Note:1.Two root go line do difference , but also required to make 90Ohm the impedance test.e get lock can do

2.Suggested that leave a power switch power supply input terminal ,every tim a electric power is on



## **10.Patch WIFI module installed before the Note:**

1. customers must open stencil WIFI module pad holes open, press 1 to 1 0.7mm proportion to open outward expansion, thickness 0.12MM.
2. there is need to take a WIFI mode must not bare hands to pick up the WIFI module, be sure to wear gloves and a wrist strap.
3. the furnace temperature according to the size of the customer's motherboard, usually like stickers on a tablet 250 + -5 degrees.
4. Module vacuum packaging, storage and use of controls should note the following:
  - module reel plus vacuum packaging storage period:  
Shelf life: 12 months Storage Conditions: Temperature in: <40 ° C,Relative Humidity: <90% R.H
  - The module vacuum packaging unpacking, assembly time frame:  
Check the humidity indicator card: display value should be less than 30% (blue), such as: 30% ~ 40% (pink) or greater than 40% (red) indicates that the module has the absorbent gas.
  - the factory environment temperature and humidity control: <30% ° C, <60% RH.
  - After unpacking, the the workshop shelf life of 168 hours.
  - Module vacuum packing once opened , if not used within 168 hours End: module to be re-baking, remove the module moisture problems.
  - Baking temperature: 125 ° C, 8 hours.
  - After baking, put the right amount of desiccant resealable packaging.
- 5.Module vacuum packaging for 2000 PCS per disk.
  - The reel module packaging items as below
  - Reel packing 2000 PCS per disk
  - Reel packing after opening,If not used up within 48 hours,module to be re-baking, remove the module moisture problems. Baking temperature: 125 ° C, 8 hours.
- 6.Module pallet packaging considerations are as follows.
  - Pallet packaging each plate is 100 pcs
  - If not used up within 48 hours,module to be re-baking, remove the module moisture problems. Baking temperature: 125 ° C, 8 hours.

Note: the above packaging according to customer requirements, the packaging will be subject to actual material.

## **11.FCC Statement**

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.

**CAUTION:** Any changes or modifications not expressly approved by the grantee of this device could void the 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.

FCC Radiation Exposure Statement:

“To comply with FCC RF exposure compliance requirements, the antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.”

## **Specification**

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

- (1) According to FCC Part 15 Subpart C Section 15.212, the radio elements of the modular transmitter must have their own shielding. This module is granted as a Limited Modular Approval.
- (2) This device has been designed to operate with two omni-directional antennas which having a maximum gain of 3.72dBi. Only this type of antenna may be used.
- (3) Integration is typically strictly restricted to Grantee himself or dedicated OEM integrators under control of the Grantee.

However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

**IMPORTANT NOTE:** If the module which installed in the end product has no shielding, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

This module is intended for OEM integrator. The OEM integrator is still responsible for the FCC compliance requirement of the end product, which integrates this module. Due to missing shielding the module is strictly limited to integration by the Grantee himself or his dedicated OEM Integrator.

**USER MANUAL OF THE END PRODUCT:**

In the user manual of the end product, the end user has to be informed that the equipment complies with FCC radio-frequency exposure guidelines set forth for an uncontrolled environment.

The end user has to also be informed that any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

If the size of the end product is smaller than 8x10cm, then additional FCC part 15.19 statement is required to be available in the user manual: This device complies with Part 15 of 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.

**LABEL OF THE END PRODUCT:**

The final end product must be labeled in a visible area with the following " Contains TX FCC ID: 2ADQS-RF001 ". If the size of the end product is larger than 8x10cm, then the following FCC part 15.19 statement has to also be available on the label: This device complies with Part 15 of 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.