

Shenzhen Uascent Technology Co., Ltd

UAW192

Wi-Fi Single-band 1T1R 802.11b/g/n

Module Datasheet

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Revision History.

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1 Overview.

1.1 Introduction.

UAW192 is a cost-effective WIFI+BLE low-power module developed by Uascent Technology, supporting IEEE 802.11 b/g/n and BLE 4.2 protocol standards, as well as STA, AP, and Direct modes. Users can use this module to add networking functions to existing devices or build independent network controllers.

1.2 Features.

- Support 20 MHz channel.
- Standard IEEE 802.11b/g/n.
- Support BLE 1 Mbps

1.3 Recommended Operating Rating.

Description	Min	Typ	Max	Unit
Ambient Temperature (TA)	-10	25	85	deg.C
Vcc	5	12	12	V

1.4 Reference power consumption for conventional continuous operation.

Parameter	Condition / Notes	Typ.	Unit
TX Mode			
I _{RF}	11b 11M	225	mA
I _{RF}	11g 54M	166	mA
I _{RF}	11n HT20 MCS7	160	mA
RX Mode			
I _{RF}	11b 11M	46	mA
I _{RF}	11g 54M	46	mA
I _{RF}	11n HT20 MCS7	46	mA

1.5 ESD Specifications

Item	Description	Value	Unit
Human Body Mode (HBM)	Electrostatic Discharge Tolerance under Human Body Model	±2	KV
CDM	Electrostatic Discharge Tolerance under Charged Device Model	±0.5	KV

2 Module use precautions.

When using the WIFI module of Uascent Technology, a certain tolerance should be reserved for the output current of the power supply. It is recommended that the output current of the power supply be $\geq 500\text{mA}$, and a suitable power supply IC packaging should be selected. When using LDO power, attention should be paid to the issue of thermal, and when using DC-DC power, attention should be paid to the issue of overshoot at the moment of power on.

3 WiFi Specification.

Features	Descriptions
Main Chipset	REALTEK : RTL8720CF
Operating Frequency	2400~2483.5MHz
Operating Voltage	5~12V
WIFI Standard	IEEE 802.11b/g/n
PHY Data rates	Wi-Fi: 802.11b: 11, 5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps HT20 MCS0-MCS7
Transmit Output Power	Wi-Fi: 802.11b@11Mbps $16\pm 2\text{dBm}$ 802.11g@54Mbps $15\pm 2\text{dBm}$ 802.11n@HT20 MCS7 $14\pm 2\text{dBm}$
EVM	802.11b /11Mbps: $\text{EVM} \leq -10\text{dB}$ 802.11g /54Mbps: $\text{EVM} \leq -25\text{dB}$ 802.11n /HT20 MCS7: $\text{EVM} \leq -27\text{dB}$
Receiver Sensitivity (HT20)	802.11b@8% PER 11Mbps $\leq -89\text{dBm}$
	802.11g@10% PER 54Mbps $\leq -76\text{dBm}$
	802.11n@10% PER MCS 7 $\leq -73\text{dBm}$
Operating Channel	Wi-Fi 2.4GHz: 11: (Ch. 1-11) – United States(North America) 13: (Ch. 1-13) – Europe 14: (Ch. 1-14) – Japan
Antenna	PCB onboard antenna

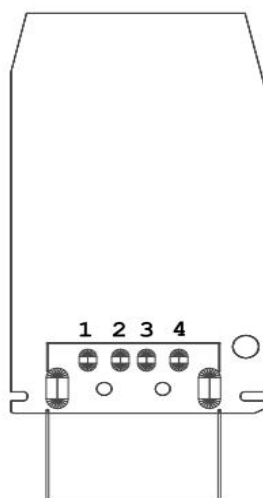
4 Bluetooth Specification.

Features	Descriptions
Operating Frequency	2.402~2.480GHz
BLE version	4.2

Data rate	Typical : 1Mbps
Tx output power	6.5dBm(Max)
Rx sensitivity (PER 1500 packet data $\leq$ 30.8%)	-96dBm

5 Pin Descriptions.

5.1 Pin Outline.



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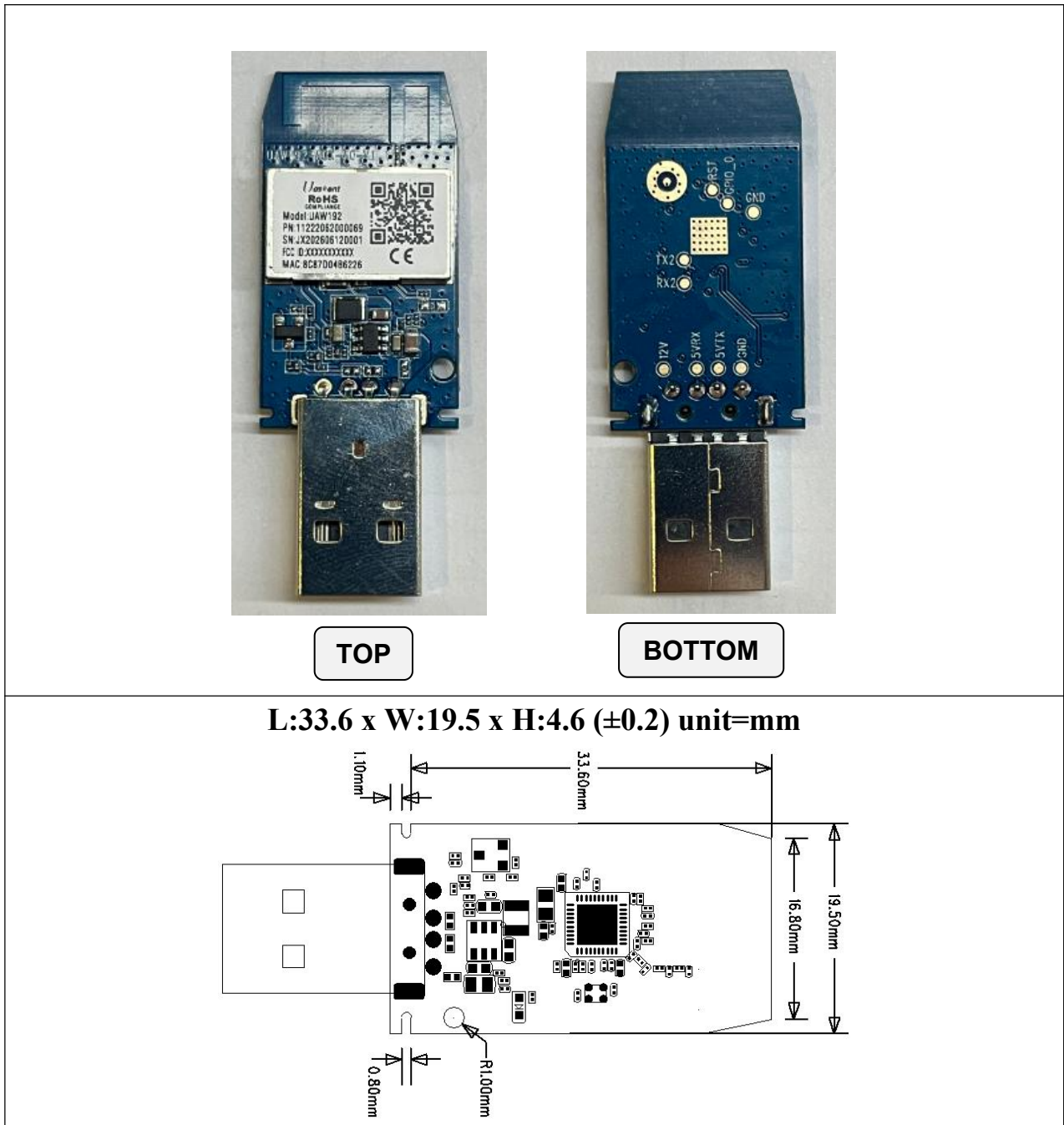
5.2 Pin Definition.

Pin No.	Name	Type	Description	Voltage
1	GND	P	Ground	3.3V
2	TX	O	WiFi UART TX	
3	RX	I	WiFi UART RX	
4	VDD	I/O	Supply 12V	

※ P:POWER I:INPUT O:OUTPUT

6 Dimensions.

6.1 Module Picture.



7 Antenna Information.

7.1 Antenna type.

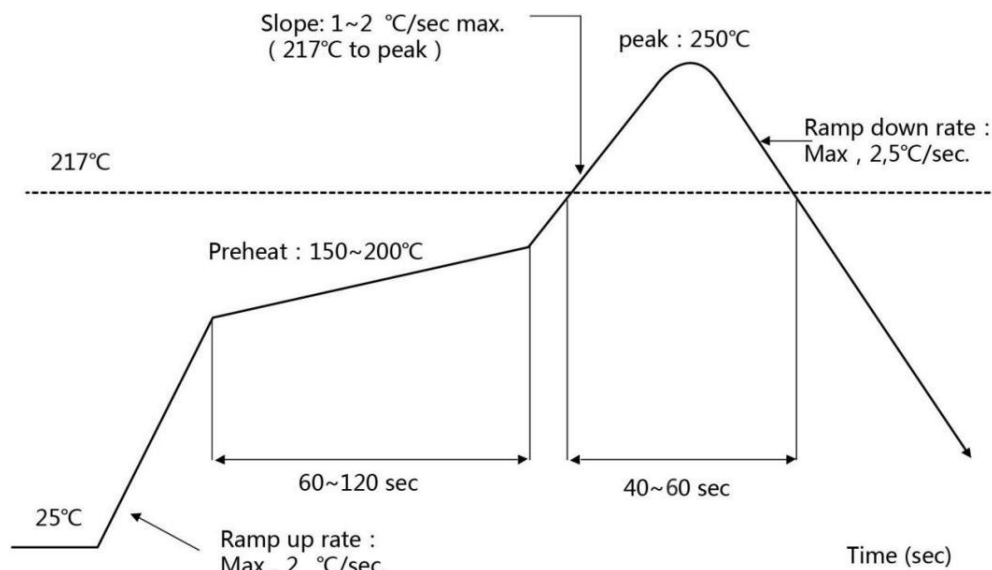
This module antenna type is PCB on-board antenna with antenna gain of 1.36dBi (MAX)

8 Environmental Requirements.

8.1 Recommended Reflow Profile.

Referred to IPC/JEDEC standard.

Peak Temperature : $<250^{\circ}\text{C}$ Number
of Times : ≤ 2 times



8.2 Note.

Note: Take and use the module, please insure the electrostatic protective measures.

1. Reflow soldering temperature should be according to the customer the main size of the products, such as the temperature set at $250 + 5^{\circ}\text{C}$ for the MID motherboard. About the module packaging, storage and use of matters needing attention are as follows:
2. The module of the reel and storage life of vacuum packing: 1). Shelf life: 8 months, storage environment conditions: temperature in: $< 40^{\circ}\text{C}$, relative humidity: $< 90\%$ r.h.
3. The module vacuum packing once opened, time limit of the assembly:
Card: 1) check the humidity display value should be less than 30% (in blue), such as: 30% ~ 40% (pink), or greater than 40% (red) the module have been moisture absorption. 2.) factory environmental temperature humidity control: $\leq -30^{\circ}\text{C}$, $\leq 60\%$ r.h..
- 3). Once opened, the workshop the preservation of life for 168 hours.
4. Once opened, such as when not used up within 168 hours:
 - 1). The module must be again to remove the module moisture absorption. 2). The baking temperature: 125°C , 8 hours.
 - 3). After baking, put the right amount of desiccant to seal packages.

Humidity sensitive control.

	CAUTION This bag contains MOISTUR-SENSITIVE DEICES	LEVEL 3 If blank, see adjacent bar code label
1. Calculatied shelf life an sealed bag: 12 months at < 40℃ and <90% relative humidity(RH)		
2. Peak package body temperature : _____ 260 _____℃		
3. After bag is opened ,devices that will be subjected to reflow solder of other high temperature process must a) Mounted within: _____ 168 _____hrs. of factory confitions ≤30℃/60%RH, OR b) Stored at<10% RH		
4. Devices require bake,before mounting, if: a) Humidity Indicator Care is > 10% when read at 23 ± 5℃ b) 3a or 3b not met.		
5. If baking is required , devices may be baked for 48 hrs. at 125 ± 5℃		
Note : If device containers cannot be subjected to high temperature of shorted bake times are desired, reference IPC/JDEC J-STD-033 for bake procedure		
bag Seal Date : _____		
Note : level and body temperature defined by IPC/JEDEC J-STD-020		

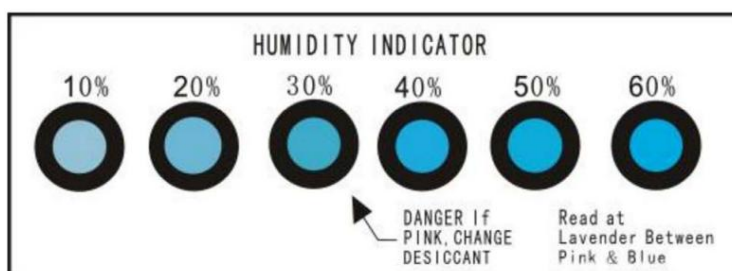
9 Package.

9.1 Packaging Detail.

The module and the humidity indicator card are placed together in vacuum anti-static packaging, separated by a certain amount of paper, and neatly placed in the packaging box. The packaging must have reliable moisture-proof and anti-collision measures.

Note1:

There is a "triangular arrow" on the humidity indicator card indicating at 30%RH (as shown in the picture below). If the chemical changes to pink in the circle it points to, the element is damp and needs baking.



Note2:

Please confirm the packaging style with our sales staff before purchasing this product. If no packing style is specified before purchase, we will ship the goods by our own choice of packing method.

10 Transport regulations.

In the process of logistics or express transportation, attention should be paid to handling with care to avoid direct rain and snow.

11 Disclaimer and copyright notice.

All information in this document is provided according to the product status quo and subject to change without notice.

The contents of this document disclaim any warranties, including any warranties of fitness for sale, fitness for a particular purpose or non-infringement, and any warranties mentioned elsewhere in any proposal, specification or sample.

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This document does not grant any license, express or implied, to use any intellectual property rights, estoppel or otherwise.

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12 Attention.

Due to product version upgrade or other reasons, the content of this manual may be changed. Shenzhen Uascent Technology Co., Ltd. reserves the right to modify the content of this manual without any notice or prompt. If users need to obtain the latest product information, please apply for the final document with our company. This manual is only used as a guide. Shenzhen Uascent Technology Co., Ltd. tries its best to provide the latest information in this manual, but does not guarantee that the content of the manual is completely accurate.

None of the statements, information and recommendations contained in this manual constitute any warranty, express or implied.

13 FCC regulatory compliance statement:

§15.19 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.

§15.21 Information to user

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

RF Exposure Compliance

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. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

- List of applicable FCC rules:

47 CFR Part 15.247

- Summarize the specific operational use conditions

This module can be used in IOT devices, the input voltage to the module is nominally 12V.

- Limited module procedures

This module is a Single Modular.

- Trace antenna designs

The antenna is not a trace antenna.

- RF exposure considerations

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

This equipment should be installed and operated with a minimum distance of 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

- Antennas

If you desire to increase antenna gain and either change antenna type or use same antenna type certified, a Class II permissive change application is required to be filed by us, or you (host manufacturer) can take responsibility through the change in FCC ID (new application) procedure followed by a Class II

permissive change application.

- Label and compliance information

Please notice that if the FCC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains FCC ID: 2A68E-UAW192” any similar wording that expresses the same meaning may be used.

§ 15.19 Labelling requirements shall be complied on end user device.

Labelling rules for special device, please refer to §2.925, § 15.19 (a)(5) and relevant KDB publications. For E-label, please refer to §2.935.

- Information on test modes and additional testing requirements

The OEM integrator is responsible for ensuring that the end-user has no manual instruction to remove or install module. The module is limited to installation in mobile application, a separate approval is required for all other operating configurations, including portable configurations with respect to §2.1093 and difference antenna configurations.

- FCC other Parts, Part 15B Compliance Requirements for Host product manufacturer

This modular transmitter is only FCC authorized for the specific rule parts listed on our grant, 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. Host manufacturer in any case shall ensure host product which is installed and operating with the module is in compliant with Part 15B requirements. Please note that For a Class B or Class A digital device or peripheral, the instructions furnished the user manual of the end-user product shall include statement set out in §15.105 Information to the user or such similar statement and place it in a prominent location in the text of host product manual. Original texts as following:

For Class B

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.

For Class A

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

- EMI Considerations

As best practice per FCC D04 Module Integration Guide, host manufacturer shall perform RF design test & evaluation. Non linear coupling between module and host components may cause EMI non compliance. Stand alone operation follows D04 guidance; for simultaneous multi transmitter operation,

refer to FCC D02 Q&A Question12 for host compliance confirmation.

- How to make changes

Only the FCC grant holder is authorized to perform permissive changes to this module. If host intends to use the module under conditions different from original grant approval, host shall contact module grant holder for guidance.

14 ANATEL statements:

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados. Para mais informações, consulte o site da ANATEL – <https://www.gov.br/anatel/pt-br>

15 IC statements:

ISED compliance statement

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'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

- (1) L'appareil ne doit pas produire de brouillage;
- (2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

ISED Radiation Exposure statement

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body.

Cet équipement est conforme aux limites d'exposition aux radiations IC CNR-102 établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec une distance minimale de 20 cm entre le radiateur et votre corps. Cet émetteur ne doit pas être colocalisé ou fonctionner en conjonction avec une autre antenne ou un autre émetteur.

Please notice that if the IC identification number is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: "Contains IC:31130-UAW192" any similar wording that expresses the same meaning may be used.

L'étiquette d'homologation d'un module d'Innovation, Sciences et Développement économique Canada devra être posée sur le produit hôte à un endroit bien en vue, en tout temps. En l'absence d'étiquette, le produit hôte doit porter une étiquette sur laquelle figure le numéro d'homologation du module d'Innovation, Sciences et Développement économique Canada, précédé du mot « contient », ou d'une formulation similaire allant dans le même sens et qui va comme suit :

Contient IC:31130-UAW192 est le numéro d'homologation du module

This radio transmitter [IC:31130-UAW192] has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below, with the maximum permissible gain indicated. Antenna types not included in this list that have a gain greater than the maximum gain indicated for any type listed are strictly prohibited for use with this device.

a list of all antenna types

Antenna Type	Brand/ manufacturer	Model No.	Max. Antenna Gain
On-board PCB antenna	Uascent	2.4G-WIFI-ANT	1.36dBi