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1. Product Overview

The YW-03/YW-03L/YW-03S/ is a WIFI module based on the embedded WIFI SoC W800 chip design, Provides a way to quickly connect user devices to WIFI wireless networks via Bluetooth distribution.

The module has built-in 2MBFlash memory, as well as a variety of fast operations and secure encryption engines. The module supports 2.4G IEEE802.1b/g/n WIFI communication protocol, The module supports standard serial protocols, transmission data protocols, and Open CPU custom firmware development to meet the needs of customers in a variety of scenarios.

The module is packaged in SMD and can be produced quickly through standard SMT equipment, providing customers with a high and reliable connection; it can be widely used in a variety of Internet of Things applications, suitable for smart home, smart home appliances, smart hardware, smart business, smart industry, medical monitoring and other Internet of Things applications.

1.1. Product Features

- ✓ Provide WIFI operating mode
- ✓ Provide match the network, AP match the network, one-click match the network
- ✓ Provide serial instructions and transmission data patterns
- ✓ Provide Working mode and Sleep mode

- ✓ Stamp hole interface, PCB Antenna
- ✓ 16bit high-precision ADC with a maximum sampling frequency of 1KHz
- ✓ UART/GPIO/PWM/SPI/ADC/I²C/I²S Port
- ✓ DC 3.3V Power supply

2. Product Specifications

	Items	parameter
Wireless part	Wi-Fi mode	IEEE802.11b/g/n
	RF impedance	50Ω
	SWR	<-10dB
	Frequency range	2.4~2.4835 GHz
	Receive sensitivity	20MHz MCS7@-71dBm ; 40MHz MCS7@-68dBm ; 54Mbps@-73dBm ; 11Mbps@-87dBm ; 1Mbps@-95dBm ;
	Data rate	802.11n MCS 0~7 150Mbps
	Modulation	DSSS、 OFDM、 DBPSK、 DQPSK、 CCK、 QAM16/64
	Power Grade	IEEE802.11b, DSSS 1Mbps, POUT = +17dBm ; IEEE802.11g, OFDM 54Mbps, POUT = +12dBm ; IEEE802.11n, OFDM MCS7, POUT = +10dBm ;
Hardware part	Interface port	UART、GPIO、PWM、SPI、ADC、I²C、I²S
	Interface rate	2Mbps@UART (Max) 50Mbps@SPI (Max)
	Operating voltage	DC 3.3V
	Operating current	110mA
	Operating humidity	5%~90% (No condensation)
	Store temperature	-40~+125 ℃
	Operating temperature	-40~+85℃

Software section	Network type	STA/AP/AP+STA/Wi-Fi Direct
	Type of Modulation	WEP/WPA-PSK/WPA2-PSK
	Encryption	WEP64/WEP128/TKIP/CCMP(AES)
	Network protocols	TCP/UDP/ARP/ICMP/DHCP/DNS/HTTP
	Interface protocol	AT+ Instruction set

FCC WARNING

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.

Any changes or modifications not expressly approved by the party responsible for compliance 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.

To maintain compliance with FCC’s RF Exposure guidelines, This equipment should be installed and operated with minimum distance between 20cm the radiator your body: Use only the supplied antenna.

Integration instructions for host product manufacturers according to KDB 996369 D03 OEM Manual v01

List of applicable FCC rules

FCC Part 15 Subpart C 15.247 & 15.209

Specific operational use conditions

The module is a WIFI module with WIFI function.
Operation Frequency: 2412-2462MHz
Number of Channel: 11
Modulation:
DSSS,OFDM
Type: PCB Antenna
Gain: 1.5 dBi Max.
The module can be used for mobile or portable applications with a maximum 1.5dBi antenna. The host manufacturer installing this module into their product must ensure that the final composit product complies with the FCC requirements by a technical assessment or evaluation to the FCC rules, including the transmitter operaition. The host manufacturer 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.

Limited module procedures

Not applicable. The module is a Single module and complies with the requirement of FCC Part 15.212.

Trace antenna designs

Not applicable. The module has its own antenna, and doesn't need a host's printed board microstrip trace antenna etc.

RF exposure considerations

The module must be installed in the host equipment such that at least 20cm is maintained between the antenna and users' body; and if RF exposure statement or module layout is changed, then the host product manufacturer required to take responsibility of the module through a change in FCC ID or new application. The FCC ID of the module cannot be used on the final product. In these circumstances, the host manufacturer will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

Antennas

Antenna Specification are as follows:
Type: PCB Antenna
Gain: 1.5 dBi
This device is intended only for host manufacturers under the following conditions:
The transmitter module may not be co-located with any other transmitter or antenna;
The module shall be only used with the internal antenna(s) that has been originally tested and certified with this module. The antenna must be either permanently attached or employa 'unique' antenna coupler.

As long as the conditions above are met, further transmitter test will not be required. However, the host manufacturer 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.).

Label and compliance information

Host product manufacturers need to provide a physical or e-label stating “Contains FCC ID: **2AZ6T-YW-03**” with their finished product.

Information on test modes and additional testing requirements

Operation Frequency: 2412-2462MHz
Number of Channel: 11
Modulation: DSSS,OFDM
Host manufacturer must perfom test of radiated & conducted emission and spurious emission, etc according to the actual test modes for a stand-alone modular transmitter in a host, as well as for multiple simultaneously transmitting modules or other transmitters in a host product.
Only when all the test results of test modes comply with FCC requirements, then the end product can be sold legally.

Additional testing, Part 15 Subpart B disclaimer

The modular transmitter is **only** FCC authorized for FCC Part 15 Subpart C 15.247 & 15.209 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. If the grantee markets their product as being Part 15 Subpart B compliant (when it also contains unintentional-radiator digital circuity), then the grantee shall provide a notice stating that the final host product still requires Part 15 Subpart B compliance testing with the modular transmitter installed.

Federal Communication Commission Statement (FCC, U.S.)

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 NOTES

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

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

The transmitter module may not be co-located with any other transmitter or antenna. The module shall be only used with the external antenna(s) that has been originally tested and certified with this module.

As long as the 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.).

Validity of using the module certification:
In the event that these conditions cannot be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization for this module in combination with the host equipment is no longer considered valid and the FCC ID of the module cannot 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:
The final end product must be labeled in a visible area with the following: “Contains Transmitter Module FCC ID: 2AZ6T-YW-03”.

Information that must be placed in the end user manual:
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.