ATBM6441 Module User Manual

Ver. 0.1

1. Overview

The ATBM6441 module can be used in battery powered Wireless cameras, Smart bells and other devices that need to connect Wi-Fi networks. In order to allow you to install and use the product easier, please read this manual carefully.

2. Product characteristics

1) Support Wi-Fi 2.4GHz IEEE 802.11b/g/n, 1T1R
2) Operating frequency: 2.412 ~ 2.462GHz
3) Modulation
   - 802.11b: CCK (11, 5.5Mbps), QPSK (2Mbps), BPSK (1Mbps)
   - 802.11g/n: OFDM
4) PHY data rates
   - 802.11b: 11, 5.5, 2, 1Mbps
   - 802.11g: 54, 48, 36, 24, 18, 12, 9, 6Mbps
   - 802.11 n: up to 150Mbps
5) SDIO 2.0 interface

3. Product parameters

1) Operation voltage: 3.3VDC
2) SDIO 2.0 compliant
3) Security: WEP, TKIP, AES, WPA, WPA2, WPA3
4) OS support: Linux/Android/RTOS
5) Power consumption: 3.3VDC 200mA@802.11n Max

6) Operating temperature: -40 to +85℃

7) Storage temperature: -60 to +150℃

8) Humidity: 5% to 90% maximum
9) Dimension: 12.0mm*12.0mm (L*W)

4. Pin definition
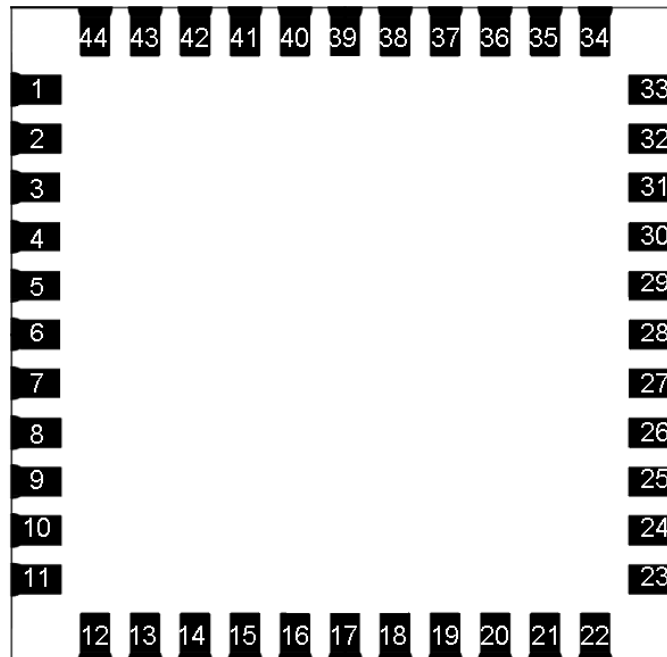
Pin Number	Pin Name	Pin Description
1	GND	Ground
2	WL_ANT	External Antenna (2.4GHz 50ohm)
3	GND	Ground
4	MEAS2	Two channels 10bits ADC input, input range is 0 to 1.1V. Detect battery power.
5	MEAS1	Two channels 10bits ADC input, input range is 0 to 1.1V. Detect battery power.
6	GPIO10	GPIO
7	GPIO11	GPIO
8	NC/BOOT	BOOT_SEL pin for firmware download control, NC is default for normal operation.
9	VDD33	3.3V DC power supply input
10	GPIO9	GPIO
11	GPIO7	GPIO
12	POWER_ON	Hardware reset and internal regulator disable pin, low level is chip power down.
13	GPIO5	GPIO
14	SDIO D2	SDIO data line 2
15	SDIO_D3	SDIO data line 3
16	SDIO_CMD	SDIO command line
17	SDIO_CLK	SDIO clock line
18	SDIO_D0	SDIO data line 0

Pin Number	Pin Name	Pin Description
19	SDIO_D1	SDIO data line 1
20	GND	Ground
21	NC	
22	VDDIO	3.3V DC power supply input for I/O. Doesn't support 1.8V I/O.
23	NC	
24	NC	
25	NC	
26	NC	
27	NC	
28	NC	
29	32K_IN	External 32.768K crystal
30	32K_OUT	External 32.768K crystal
31	GND	Ground
32	NC	
33	GND	Ground
34	GPIO12	GPIO
35	NC	
36	GND	Ground
37	UART_TXD	GPIO0/UART_TXD
38	UART_RXD	GPIO1/UART_RXD
39	GPIO19	GPIO
40	GPIO20	GPIO
41	NC	
42	NC	
43	NC	
44	NC	

5. FAQ

Q: Why SDIO cannot be connected?

A: a) Please check if 3.3V DC power of module is supplied.

b) Please check if SDIO lines are connected correctly.

Q: Why cannot connect to wireless router?

A: Please check if antenna is connected.

6. Warning

1. Do not use this product under humid or hot conditions.

2. Do not use overloaded.

3. FCC compliance 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.

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

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 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. This module has been approved to operate with the antenna types listed below, with the maximum permissible gain indicated.

● **List of applicable FCC rules:**

47 CFR Part 15, Subpart C 15.247

● **Summarize the specific operational use conditions**

This module can be used in household electrical appliances as well as IP camera and Smart door bell. The input voltage of module should be 3.0-3.6V.

● **Limited module procedures**

This module is a limited module.

● **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**

No antenna on the module, Dipole antenna with 3dBi gain was used during the test.

● **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: 2AOXX-ATBM6441" 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.

● **Test software**

This module can use AT command via UART interface to do test.

● Additional testing, Part 15 Subpart B disclaimer

This transmitter module is tested as a subsystem and its certification does not cover the FCC Part 15 Subpart B (unintentional radiator) rule requirement applicable to the final host. The final host will still need to be reassessed for compliance to this portion of rule requirements if applicable. As long as all 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.