

# ***User Manual***

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**Model: WN8711BTAAC-YA**

Table of Contents

1. SPECIFICATION..... 3

    1-1 Basic Specification ..... 3

2. DETAIL SPECIFICATION..... 4

    2-1. Product Specification ..... 4

        2-1-1. Connector Specification..... 4

# 1. SPECIFICATION

## 1-1 Basic Specification

| Item                  | Contents                                        |               |                    |            |
|-----------------------|-------------------------------------------------|---------------|--------------------|------------|
| Manufacture           | Arcadyan                                        |               |                    |            |
| Arcadyan Part Number  |                                                 | FIJYA8711000J |                    |            |
|                       |                                                 |               |                    |            |
| Product Name          | Wireless LAN Network Module                     |               |                    |            |
| Chip                  | SOC                                             |               | Vendor             | Model name |
|                       | CPU                                             |               | Broadcom           |            |
|                       | 2.4GHz MAC/BB/RF                                |               | Cypress            |            |
|                       | 2.4GHz PA(Tx)                                   |               | Cypress            |            |
|                       | 2.4GHz LNA(Rx)                                  |               | Cypress            |            |
|                       | 2.4GHz BPF(Tx/Rx)                               |               | None               |            |
|                       | 5GHz MAC/BB/RF                                  |               | Cypress            |            |
|                       | 5GHz PA(Tx)                                     |               | Cypress            |            |
|                       | 5GHz LNA(Rx)                                    |               | Cypress            |            |
|                       | 5GHz BPF(Rx)                                    |               | None               |            |
|                       | PHY                                             | WAN           | None               | None       |
|                       |                                                 | LAN           | Broadcom           |            |
| Supply Voltage        | 3.7V +/- 100mV, ramp-up time min 100us, max 9ms |               |                    |            |
| Power consumption     | 4.21W                                           |               |                    |            |
| Weight                | 45.34g                                          |               |                    |            |
| Dimensions            | 75mm*50mm*12.2mm                                |               |                    |            |
| Operating Environment | Temperature                                     | 0~70          | Degree C           |            |
|                       | Humidity                                        | 10~80         | % (Non Condensing) |            |
| Storage Environment   | Temperature                                     | -10~75        | Degree C           |            |
|                       | Humidity                                        | 10~80         | % (Non Condensing) |            |
| Design life time      | 1,088,386 hrs at 25 Degree C                    |               |                    |            |
| Factory location      | China                                           |               |                    |            |

## 2. Detail Specification

### 2-1. Product Specification

| Items     |                      | Contents            |          |                 |
|-----------|----------------------|---------------------|----------|-----------------|
| CPU       | Vendor               | Broadcom            |          |                 |
|           | Parts number         |                     |          |                 |
|           | Max. Operating Freq. | 1GHz                |          |                 |
| RAM       | Type                 | DDR3L               |          |                 |
|           | Width                | 16bit               |          |                 |
|           | Max. Operating Freq. | 800MHz              |          |                 |
|           | Capacity             | 256MB               |          |                 |
| ROM       | Type                 | NAND Flash          |          |                 |
|           | I/O speed            | 25ns                |          |                 |
|           | Capacity             | 2Gb                 |          |                 |
| Wired LAN | Number of port       | 1                   |          |                 |
|           | Connector            | Type                | Color    |                 |
|           |                      | PIN stick           | N/A      |                 |
|           | Chip                 |                     | Vendor   | Chip            |
|           |                      | MAC                 | Broadcom |                 |
|           |                      | PHY                 | Broadcom |                 |
|           | Standard             | 10BASE-T/100BASE-TX |          |                 |
| USB       | -                    | Standard            | USB2.0   | Host            |
|           | -                    | Bus power           | 5V       | External supply |

#### 2-1-1. Connector Specification

| Items                | Contents           |
|----------------------|--------------------|
| Box header connector | Female 32x2p @CON1 |
|                      |                    |

CON1 – 32x2 pin connector

| Pin NO. | Define             | Pin NO. | Define   |
|---------|--------------------|---------|----------|
| 63      | B2B PWR            | 64      | B2B PWR  |
| 61      | B2B PWR            | 62      | GND      |
| 59      | GND                | 60      | GND      |
| 57      | GPIO1/I2S_2_SDOUT  | 58      | UART3_TX |
| 55      | GPIO2/I2S_2_SDIN   | 56      | UART3_RX |
| 53      | GPIO4/I2S_2_MCLK   | 54      | GND      |
| 51      | GPIO3/I2S_2_BITCLK | 52      | UART1_RX |

|    |                            |    |                         |
|----|----------------------------|----|-------------------------|
| 49 | GPIO0/I2S_2_WS             | 50 | UART1_TX                |
| 47 | GND                        | 48 | GND                     |
| 45 | SC0_IO/ BCLK_I2S_0         | 46 | SPI0_MISO/ SPI0_RXD     |
| 43 | SC0_FCB/ MCLK_I2S_0        | 44 | SPI0_SS/ SPI0_CS        |
| 41 | SC0_CLK/ WS_I2S_0          | 42 | SPI0_CLK                |
| 39 | SC0_DETECT/ SDIN_I2S_0     | 40 | SPI0_MOSI/ SPI0_TXD     |
| 37 | SC0_CMDVCC/ SDOUT_I2S_0    | 38 | GND                     |
| 35 | GND                        | 36 | SC1_CLK/ WS_I2S_1       |
| 33 | FW_upgrade                 | 34 | SC1_FCB/ MCLK_I2S_1     |
| 31 | GPIO159/ lookback          | 32 | SC1_DETECT/ SDIN_I2S_1  |
| 29 | Ether_LINK GPIO71/SPI3_CLK | 30 | SC1_CMDVCC/ SDOUT_I2S_1 |
| 27 | Ether_ACT GPIO72/SPI3_RXD  | 28 | SC1_IO/ BCLK_I2S_1      |
| 25 | USB_VBUS_EN GPIO7          | 26 | GND                     |
| 23 | GPIO70/SPI2_SS TDM0_GPIO   | 24 | 3.3V                    |
| 21 | GPIO66/SPI1_RXD/ TDM1_GPIO | 22 | GND                     |
| 19 | DIAG GPIO67/SPI1_SS        | 20 | BSC1_SCL                |
| 17 | MUTE GPIO65/SPI1_CLK       | 18 | BSC1_SDA                |
| 15 | HW_RESET                   | 16 | GND                     |
| 13 | GND                        | 14 | BSC0_SDA                |
| 11 | TDP_PHY0_CH0               | 12 | BSC0_SCL                |
| 9  | TDN_PHY0_CH0               | 10 | GND                     |
| 7  | GND                        | 8  | USB2_P0_DP              |
| 5  | TDP_PHY0_CH1               | 6  | USB2_P0_DM              |
| 3  | TDN_PHY0_CH1               | 4  | GND                     |
| 1  | GND                        | 2  | GND                     |

## FCC Statement

### **Federal Communication Commission Interference Statement**

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.

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.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other  
Arcadyan Corporation

Ver.0.1

channels is not possible.

This device is restricted for indoor use.

**IMPORTANT NOTE:**

**FCC Radiation Exposure Statement:**

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 & your body.

This module is intended for OEM integrator only. The OEM integrator is responsible for the compliance to all the rules that apply to the product into which this certified RF module is integrated.

Additional testing and certification may be necessary when multiple modules are used.

OEM integrators are responsible for ensuring that the end-user has no manual instructions to remove or install module

The module is limited to installation in mobile or fixed applications, according to Part 2.1091(b).

**USERS MANUAL OF THE END PRODUCT:**

In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the FCC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied.

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 labelling area is small than the palm of the hand, then additional FCC part 15.19 statement is required to be available in the users 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: RAXWN8711 ".

If the labelling area is larger than the palm of the hand, 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.

| Ant. | Brand | Model Name  | Antenna Type   | Connector    | Gain (dBi) |      |
|------|-------|-------------|----------------|--------------|------------|------|
|      |       |             |                |              | 2.4GHz     | 5GHz |
| 1    | ACON  | AEMEE-10000 | Dipole Antenna | Reversed-SMA | 3.24       | 4.54 |

| Cable | Brand | Model Name            | Cable Length (mm) | Cable Loss (dB) |      | True Gain (dBi) |      |
|-------|-------|-----------------------|-------------------|-----------------|------|-----------------|------|
|       |       |                       |                   | 2.4GHz / BT     | 5GHz | 2.4GHz / BT     | 5GHz |
| 1     | ACON  | AEC8P-1000001 (Black) | 30                | 0.08            | 0.12 | 3.16            | 4.42 |
| 2     | ACON  | AEC8P-1000003 (Black) | 50                | 0.13            | 0.19 | 3.11            | 4.35 |
| 3     | ACON  | AEC8P-1000005 (Black) | 70                | 0.19            | 0.27 | 3.05            | 4.27 |
| 4     | ACON  | AEC8P-1000007 (Black) | 90                | 0.24            | 0.35 | 3.00            | 4.19 |
| 5     | ACON  | AEC8P-1000009 (Black) | 120               | 0.32            | 0.46 | 2.92            | 4.08 |
| 6     | ACON  | AEC8P-1000011 (Black) | 160               | 0.43            | 0.62 | 2.81            | 3.92 |
| 7     | ACON  | AEC8P-1000013 (Black) | 200               | 0.54            | 0.77 | 2.70            | 3.77 |
| 8     | ACON  | AEC8P-1000015 (Black) | 240               | 0.64            | 0.93 | 2.60            | 3.61 |
| 9     | ACON  | AEC8P-1000017 (Black) | 280               | 0.75            | 1.08 | 2.49            | 3.46 |
| 10    | ACON  | AEC8P-1000019 (Black) | 320               | 0.86            | 1.24 | 2.38            | 3.30 |
| 11    | ACON  | AEC8P-1000021 (Black) | 360               | 0.96            | 1.39 | 2.28            | 3.15 |
| 12    | ACON  | AEC8P-1000023 (Black) | 400               | 1.07            | 1.54 | 2.17            | 3.00 |
| 13    | ACON  | AEC8P-1000025 (Black) | 450               | 1.21            | 1.74 | 2.03            | 2.80 |
| 14    | ACON  | AEC8P-1000027 (Black) | 500               | 1.34            | 1.93 | 1.90            | 2.61 |

## IC Statement

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

*Le présent appareil est conforme aux CNR d'Industrie 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, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

Dynamic Frequency Selection (DFS) for devices operating in the bands 5250- 5350 MHz, 5470-5600 MHz and 5650-5725 MHz.

*Sélection dynamique de fréquences (DFS) pour les dispositifs fonctionnant dans les bandes 5250-5350 MHz, 5470-5600 MHz et 5650-5725 MHz.*

The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

*les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.*

The maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall be such that the equipment still complies with the e.i.r.p. limit.

*le gain maximal d'antenne permis pour les dispositifs utilisant les bandes 5250-5350 MHz et 5470-5725 MHz doit se conformer à la limite de p.i.r.e.*

The maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate.

*le gain maximal d'antenne permis (pour les dispositifs utilisant la bande 5725-5850 MHz) doit se conformer à la limite de p.i.r.e. spécifiée pour l'exploitation point à point et non point à point, selon le cas.*

Users should also be advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

*De plus, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5250-5350 MHz et 5650-5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.*

For indoor use only.

*Pour une utilisation en intérieur uniquement.*

**IC 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 20cm between the radiator & your body.

Cet équipement est conforme aux limites d'exposition aux rayonnements IC établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20 cm de distance entre la source de rayonnement et votre corps.

**For product available in the USA/Canada market, only channel 1~11 can be operated.  
Selection of other channels is not possible.**

*Pour les produits disponibles aux États-Unis / Canada du marché, seul le canal 1 à 11 peuvent être exploités. Sélection d'autres canaux n'est pas possible.*

This radio transmitter (IC: 4711A-WN8711) has been approved by Industry Canada to operate with the antenna types listed below with the maximum permissible gain indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

*Le présent émetteur radio (IC: 4711A-WN8711) a été approuvé par Industrie Canada pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.*

**IMPORTANT NOTE:**

This module is intended for OEM integrator. The OEM integrator is responsible for the compliance to all the rules that apply to the product into which this certified RF module is integrated.

Additional testing and certification may be necessary when multiple modules are used.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

**USERS MANUAL OF THE END PRODUCT:**

In the users manual of the end product, the end user has to be informed to keep at least 20cm separation with the antenna while this end product is installed and operated. The end user has to be informed that the IC radio-frequency exposure guidelines for an uncontrolled environment can be satisfied.

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. 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 IC: 4711A-WN8711 ".

The Host Model Number (HMN) must be indicated at any location on the exterior of the end product or product packaging or product literature which shall be available with the end product or online.

| Ant. | Brand | Model Name  | Antenna Type   | Connector    | Gain (dBi) |      |
|------|-------|-------------|----------------|--------------|------------|------|
|      |       |             |                |              | 2.4GHz     | 5GHz |
| 1    | ACON  | AEMEE-10000 | Dipole Antenna | Reversed-SMA | 3.24       | 4.54 |

| Cable | Brand | Model Name            | Cable Length (mm) | Cable Loss (dB) |      | True Gain (dBi) |      |
|-------|-------|-----------------------|-------------------|-----------------|------|-----------------|------|
|       |       |                       |                   | 2.4GHz / BT     | 5GHz | 2.4GHz / BT     | 5GHz |
| 1     | ACON  | AEC8P-1000001 (Black) | 30                | 0.08            | 0.12 | 3.16            | 4.42 |
| 2     | ACON  | AEC8P-1000003 (Black) | 50                | 0.13            | 0.19 | 3.11            | 4.35 |
| 3     | ACON  | AEC8P-1000005 (Black) | 70                | 0.19            | 0.27 | 3.05            | 4.27 |
| 4     | ACON  | AEC8P-1000007 (Black) | 90                | 0.24            | 0.35 | 3.00            | 4.19 |
| 5     | ACON  | AEC8P-1000009 (Black) | 120               | 0.32            | 0.46 | 2.92            | 4.08 |
| 6     | ACON  | AEC8P-1000011 (Black) | 160               | 0.43            | 0.62 | 2.81            | 3.92 |
| 7     | ACON  | AEC8P-1000013 (Black) | 200               | 0.54            | 0.77 | 2.70            | 3.77 |
| 8     | ACON  | AEC8P-1000015 (Black) | 240               | 0.64            | 0.93 | 2.60            | 3.61 |
| 9     | ACON  | AEC8P-1000017 (Black) | 280               | 0.75            | 1.08 | 2.49            | 3.46 |
| 10    | ACON  | AEC8P-1000019 (Black) | 320               | 0.86            | 1.24 | 2.38            | 3.30 |
| 11    | ACON  | AEC8P-1000021 (Black) | 360               | 0.96            | 1.39 | 2.28            | 3.15 |
| 12    | ACON  | AEC8P-1000023 (Black) | 400               | 1.07            | 1.54 | 2.17            | 3.00 |
| 13    | ACON  | AEC8P-1000025 (Black) | 450               | 1.21            | 1.74 | 2.03            | 2.80 |
| 14    | ACON  | AEC8P-1000027 (Black) | 500               | 1.34            | 1.93 | 1.90            | 2.61 |

## Telec Statement

5GHz band (W52, W53): Indoor use only

## CE Statement

### For MPE Statement – Mobile device

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

All operational modes:

2.4GHz: 802.11b, 802.11g, 802.11n (HT20), 802.11n (HT40), Bluetooth(BR/EDR, LE)

5GHz: 802.11a, 802.11n (HT20), 802.11n (HT40), 802.11ac (VHT20), 802.11ac (VHT40), 802.11ac (VHT80)

The frequency and the maximum transmitted power in EU are listed below:

2412-2472MHz: 19.99 dBm

2402-2480MHz (BR/EDR): 7.27 dBm

2402-2480MHz (LE): 5.33 dBm

5180-5240MHz: 22.77 dBm

5260-5320MHz: 22.84 dBm

5500-5700MHz: 23.88 dBm

5745-5825 MHz: 13.96 dBm

|                                                                                     |    |    |    |    |    |    |    |
|-------------------------------------------------------------------------------------|----|----|----|----|----|----|----|
|  | AT | BE | BG | HR | CY | CZ | DK |
|                                                                                     | EE | FI | FR | DE | EL | HU | IE |
|                                                                                     | IT | LV | LT | LU | MT | NL | PL |
|                                                                                     | PT | RO | SK | SI | ES | SE |    |

*WLAN: restricted to indoor use only when operating in 5150-5350 MHz band.*