

# USER MANUAL

## Bluetooth Module

**Model Name: WB116A**

Version 1.0

*Author: Kaysa Lee*

### Change History

Revision	Date	Author	Change List
Version 1.0	2015 / 09 / 11	Kaysa Lee	Preliminary
Version 1.01	2015 / 09 / 11	Kaysa Lee	Add PCB information
Version 1.02	2015 / 09 / 17	Kaysa Lee	Add Silkscreen Information

*\* This document contains confidential proprietary information and is property of LTC. The contents of this document should not be disclosed to unauthorized persons without the written consent of LTC.*

## 1 PRODUCT OVERVIEW

### 1.1 DESCRIPTION

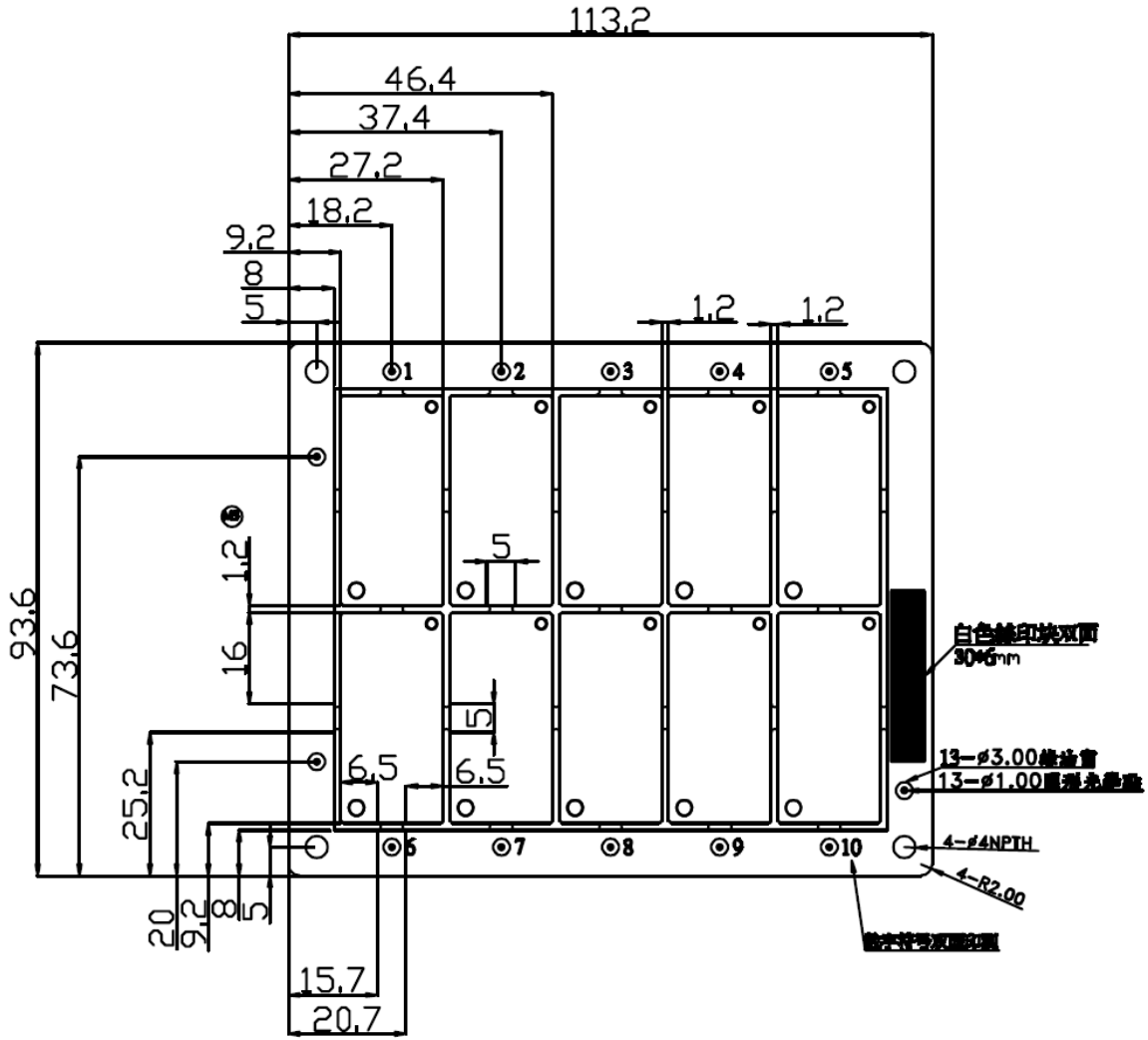
WB116A (X type/Y type) is a Bluetooth module which using Airoha Chipset AB1520H

### 1.2 FEATURES

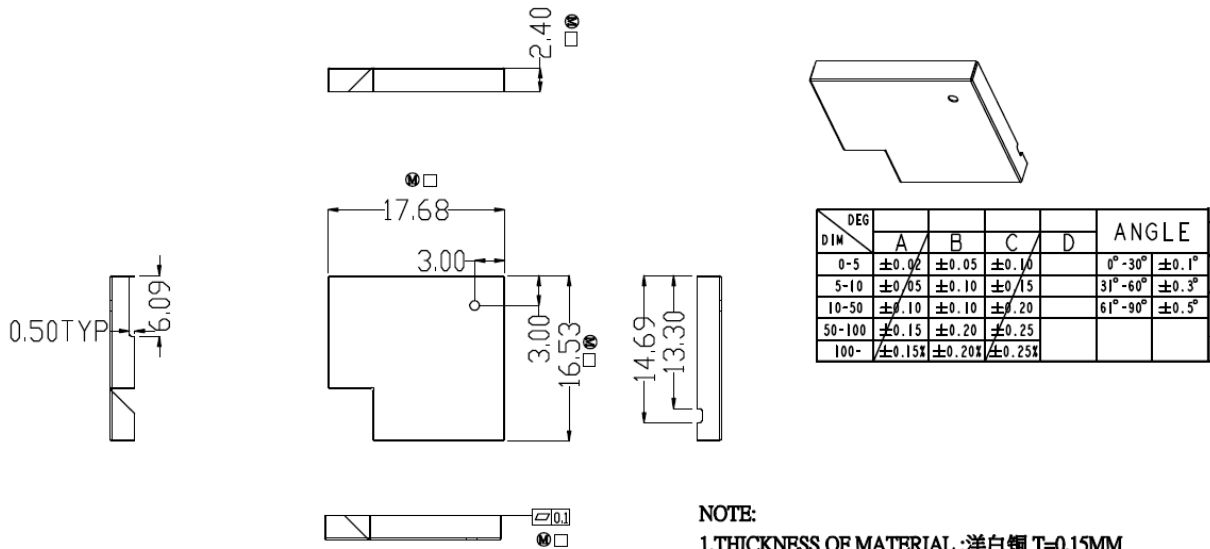
- Fully qualified Bluetooth<sup>®</sup> v3.0 system
- Class I (Max +5 dBm)
- Codec: SBC / AAC
- Content Protection: SCMS-T
- RoHS compliance
- Low Halogen compliance

### 1.3 GENERAL SPECIFICATIONS

<b>Main Chipset</b>	AB1520H
<b>Standard</b>	Bluetooth V3.0
<b>Profiles</b>	A2DP Sink / AVRCP / SPP / DID
<b>Bus Interface</b>	Digital Audio Output (I2S/SPDIF) Digital Audio Input (I2S) + UART
<b>Form Factor</b>	37mm x 18mm x 3.2mm
<b>Weight</b>	2g(typ.)
<b>Data Rate</b>	1 Mbps, 2Mbps and Up to 3Mbps
<b>Frequency Range</b>	2.400 ~ 2.4835 GHz
<b>Transmit Output Power</b>	+1 ~ +5 dBm Class 1 Device
<b>Receive Sensitivity</b>	BDR < 0.1% BER at -70 dBm EDR < 0.007% BER at -70 dBm
<b>Temperature &amp; Humidity</b>	Normal Test Condition: 25 +/- 2deg.C , 65 +/- 2% RH Operating: -10 to 70 deg.C Storage: -40 to 85 deg.C
<b>Operating Voltage</b>	3.3V ±10% I/O supply voltage
<b>Power Consumption</b>	165mW .max
<b>Antenna Type</b>	Printed Antenna(0.24dBi)



**1.4 SHIELDING COVER**











**NOTE:**  
 1. THICKNESS OF MATERIAL :洋白銅 T=0.15MM  
 2. MARKED □ IS CONTROL DIMENSIONS AND CTF ITEMS  
 3. MARKED ⊗ IS THE CRITICAL DIMENSION  
 4. TOLERANCE LEVEL: B

## 1.5 CERTIFICATION

Country	Regulatory	Approval ID	Remarks
United States	FCC Part15C	PPQ-WB116A	FCC ID: PPQ-WB116A
Canada	RSS-247	4491A-WB116A	IC:4491A-WB116A
Europe	EN300 328 v1.9.1 EN301 489-1/-17 EN60950 EN62311	CE logo + NB number	<b>CE0560</b>
Japan	TELEC		
Taiwan	NCC		
Russia	FAC		
China	SRRC		
UAE	TRA		
Argentina	CNC		

## 1.6 SILKSCREEN INFORMATION

TOP Side	Design	Marking	Description
		Lead-Free	Min Height 3mm
		Halogen-Free	Min Height 3mm
	> EP-GW <	PWB Material	FR-4
Bottom Side			
		Board Number	Specify the PWB Board position of the work area.
		UL Direct Support	These three marks should be located in the same area. Minimum Mark Height is 1.8mm. Minimum Text Height is 1.2mm.
		UL Recognized Component	
	E220370 (PIOTEK) E85792 (APCB)	UL Identification	
	WB116A	Model name	Minimum Text Height is 1.2mm.
	PPQ-WB116A	FCC ID	Minimum Text Height is 1.2mm.
	4491A-WB116A	IC Number	Minimum Text Height is 1.2mm.
	<b>CE0560</b>	CE Mark and NB Number	Minimum Text Height is 3mm.
		NCC ID and Logo	
CMIIT ID: XXXXXXXXXXXX	China CMIIT ID		

**REGULATORY STATEMENTS****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.

**CAUTION**

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.

This device and its antenna(s) must not be co-located with any other transmitters except in accordance with FCC multi-transmitter product procedures.

Referring to the multi-transmitter policy, multiple-transmitter(s) and module(s) can be operated simultaneously without C2P.

**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 20 cm between the radiator & your body.

**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.

20cm minimum distance has to be able to be maintained between the antenna and the users for the host this module is integrated into. Under such configuration, the FCC radiation exposure limits set forth for an population/uncontrolled environment can be satisfied.

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

**CAUTION****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 size of the end product is smaller than 8x10cm, 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: PPQ-WB116A ". 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.

**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.

This device and its antenna(s) must not be co-located with any other transmitters except in accordance with IC multi-transmitter product procedures.

Referring to the multi-transmitter policy, multiple-transmitter(s) and module(s) can be operated simultaneously without reassessment permissive change.

Cet appareil et son antenne (s) ne doit pas être co-localisés ou fonctionner en association avec une autre antenne ou transmetteur.

**IMPORTANT NOTE:****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.



This module is intended for OEM integrator. The OEM integrator is still responsible for the IC compliance requirement of the end product, which integrates this module.

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 TX IC : 4491A-WB116A ".

#### Antenna list:

<b>Ant.</b>	<b>Brand Holder</b>	<b>Model Name</b>	<b>Antenna Type</b>	<b>Connector</b>	<b>Gain (dBi)</b>
1	SONY Corporation	WB116A	Printed Antenna	N/A	0.24

Note: The EUT has one antenna.

## INTRODUCTION

The **Bluetooth Module** is a device that allows you connect your computer to a wireless local area network (LAN). A wireless LAN allows your system to use wireless Radio Frequency (RF) technology to transmit and receive data without physically attaching to the network. The Wireless protocols that come with this product ensure data security and isolation from interference generated by other radio frequencies.

This card also allows you to take full advantage of your computer's mobility with access to real-time information and online services anytime and anywhere. In addition, this device eliminates the bother of pulling cable through walls and under furniture. It even allows you to place your system in locations where cabling is impossible. Modifying and augmenting networks has never been so easy.

**OEM integrators are instructed to ensure that the end user has no manual instructions to remove or install the device.**