

# **AirPrime BX3210 Module User Manual**

Applicable Model No.: AirPrime BX3210 Module

## WiFi

Features	Description
WLAN Standards	IEEE 802.11 b/g/n/a/ac
Antenna Port	Single Antenna
Frequency Band	2.412 GHz – 2.462 GHz 5.180GHz – 5.825 GHz
Number of Sub Channels	1 ~ 11 Channels 36 ~ 165 Channels
Modulation	DSSS, CCK, OFDM, BPSK, QPSK, 16QAM, 64QAM, 256QAM

## Bluetooth

BLE

Features	Description
Frequency Band	2402 MHz ~ 2480 MHz
Number of Sub Channels	40 channels
Modulation	GFSK
Antenna Port	Single Antenna for Wi-Fi- and BT

BDR

Features	Description
Frequency Band	2402 MHz ~ 2480 MHz
Number of Sub Channels	79 channels
Modulation	GFSK, $\pi/4$ DQPSK, 8DPSK
Antenna Port	Single Antenna for Wi-Fi- and BT

## Voltage

Symbol	Parameter	Min.	Typ.	Max.	Unit
VBAT_RF1	3.3 V supply for RF	3.15	3.3	3.465	V
VBAT_BB	3.3V supply for 2.5V OTP regulator	1.71	3.3	3.46	V
VBAT_RF2	For VDD_Xtal	3.15	3.3	3.465	V

# WiFi User Guide

User SIDO interfacr in PC/NB control AirPrime BX3210 Module

1. power supply 3.3V
2. Linux OS (USB dongle)
3. Ctrl+Alt+T => call out terminal window
4. #sudo su
5. #cd /home
6. #Dmesg => check this device is recognized

(mmc0: new high spped SDIO card at address 0001)

7. #./install\_9377-3.sh => the module user mode on
8. connect to WiFi network



9. #ifconfig => check IP.

# Bluetooth User Guide

User UART in PC/NB control AirPrime BX3210 Module

1. power supply 3.3V
2. Linux OS (USB dongle)
3. Ctrl+Alt+T => call out terminal window
4. #sudo su
5. #cd /home
6. #Dmesg => check this device is recognized

```
[ 385.895977] usb 1-1: Detected FT232RL  
[ 385.896196] usb 1-1: FTDI USB Serial Device converter now attached to ttyUSB0
```

7. # ./hciattach /dev/ttyUSB0 qca 3000000 -t120 flow

```
read_vs_hci_event: Wait for HCI-Vendor Specific Event from SOC, count - 0x6  
hci_send_vs_cmd: Received HCI-Vendor Specific Event from SOC  
rome_tlv_dnld_segment: Successfully downloaded patch segment: 8  
qca_soc_init: Download TLV file successfully  
rome_hci_reset_req: HCI RESET  
rome_hci_reset_req: HCI CMD: 0x1 0x3 0xc 0x0  
HCI Reset is done  
set_speed=3000000  
Device setup complete
```

8. #hciconfig

```
root@ubuntu:/home# hciconfig  
hci1: Type: BR/EDR Bus: UART  
BD Address: 61:47:AA:10:31:02 ACL MTU: 1024:7 SCO MTU: 60:8  
UP RUNNING PSCAN  
RX bytes:703 acl:0 sco:0 events:40 errors:0  
TX bytes:1002 acl:0 sco:0 commands:40 errors:0  
  
hci0: Type: BR/EDR Bus: USB  
BD Address: A4:02:B9:63:23:7D ACL MTU: 1021:5 SCO MTU: 96:6  
UP RUNNING PSCAN  
RX bytes:719 acl:0 sco:0 events:52 errors:0  
TX bytes:1575 acl:0 sco:0 commands:51 errors:0
```

9. #hciconfig hci0 down

10. #bt-adapter -a hci1 -d => search BT device

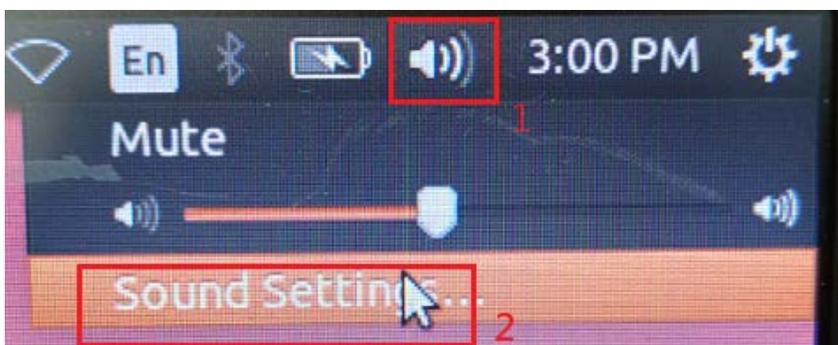
11. #bt-device -a hci1 -c B8:D5:0B:2E:07 => connect BT

```
root@ubuntu:/home# hciconfig hci0 down
root@ubuntu:/home# bt-device -a hci1 -c B8:D5:0B:2E:B3:07
Connecting to: B8:D5:0B:2E:B3:07
Agent registered
Agent released
Done
```

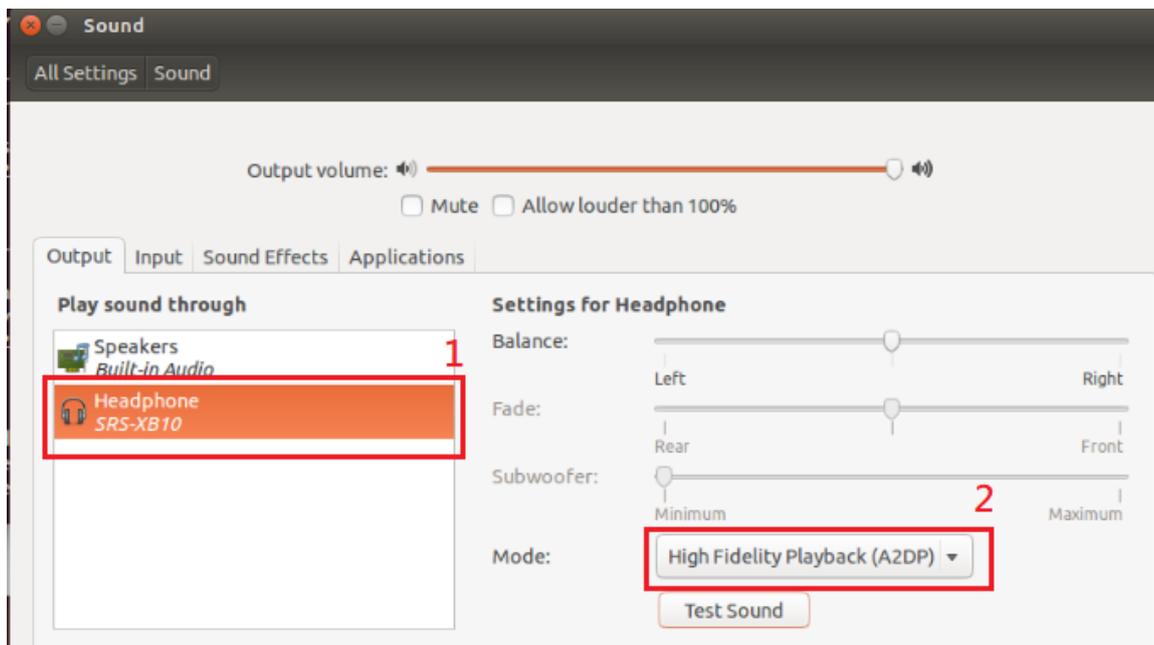
12. #bt-audio -a hci1 -c B8:D5:0B:2E:B3:07

```
root@ubuntu:/home# bt-audio -a hci1 -c B8:D5:0B:2E:B3:07
Connecting to an audio service
Audio service is connected
```

13. choice sound setting



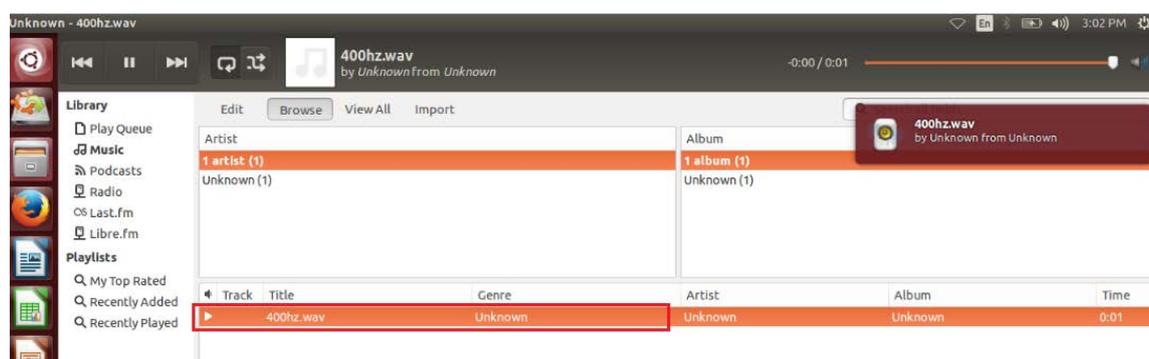
14. choice BT device and A2DP



15. open Rhythmbox Music player



16. play music



## FCC ID: N7NBX3210

### Federal Communication Commission Interference Statement

**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.

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

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

#### **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.

**(KDB 996369 D03 OEM Manual 2019 Feb. 01)**

**This module is intended for OEM integrators under the following conditions:**

**FCC:** This module is certified pursuant to two Part 15 rules sections(**15.407, 15.247**).

This module has been approved to operate with the antenna types listed below, with the maximum permissible gain indicated, and must include 0.5 dB (2.4GHz) and 1.4 dB (5GHz) cable loss compensation.

Technology	Frequency Band	Antenna Type	Model Number	Gain(dBi)
Bluetooth	2400-2483.5MHz	Dipole	USI05-220170	2.5
Wi-Fi	2400-2483.5MHz			2.5
Wi-Fi	5150-5850MHz			5

The OEM integrator is still responsible for

1. ensuring that the end-user has no manual instructions to remove or install module
2. the FCC compliance requirement of the end product, which integrates this module.

### **Information on test modes and additional testing requirements**

1. This module is restricted to integration into hosts for indoor use only.
2. This module has been approved under stand-alone configuration.
3. OEM integrator has be limited the operation channels in channel 1-11 for 2.4GHz band.
4. The separate approval is required for all other operating configurations, including portable configurations with respect to Part 2.1093 and different antenna configurations.
5. The information on how to configure test modes for host product evaluation for different operational conditions for a stand-alone modular transmitter in a host, versus with multiple, simultaneously transmitting modules or other transmitters in a host can be found at KDB Publication 996369 D04.

### **Additional testing, Part 15 Subpart B disclaimer**

Appropriate measurements (e.g. 15 B compliance) and if applicable additional equipment authorizations (e.g. SDoC) of the host product to be addressed by the integrator/manufacturer.

This module is only FCC authorized for the specific rule parts 15.247, 15.407 listed on the grant, and the host product manufacturer is responsible for compliance to any other FCC rules that apply to the host product as being Part 15 Subpart B compliant.

### **Label of the end product:**

The host product must be labeled in a visible area with the following "Contains TX FCC ID: **N7NBX3210**".

The end product shall bear the following 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.

### **The user manual of the end product should include:**

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

The antenna(s) used for this transmitter must be installed to provide a separation distance of

at least 20 cm from all persons.

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 is restricted to indoor use.

The antenna(s) used for this transmitter must not transmit simultaneously with any other antenna or transmitter.

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**Communication Business Group / Product Development Division**

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Document No.		Rev.	1.0
Product No.			
Project Code	BX3210 EVB		
Model No.			

## Euclid BX3210 PCB Specification for EV Board

SOURCE ORGANIZATION : WP/RD/WM/HW

Prepared by : Cren Yen

Date : 2018-08-09

Checked by :

Date :

Approved by :

Date :

Concurrence :

Date :

<b>Doc No.</b>		<b>Rev</b>	1.0
<b>Date.</b>	2018-08-09	<b>Page</b>	2

Document released by WP/RD/WM/HW

**Description** Euclid BX3210 EVB PCB Spec.

<b>Revision History</b>				
<b>Version No.</b>	<b>Revised Date</b>	<b>Revised by</b>	<b>Description</b>	<b>Notes</b>
1.0	2018.08.09	Cren Yen	Preliminary Release	

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Description Euclid BX3210 EVB PCB Spec.

1. Scope: This PCB SPEC is for [EV board of BX3210 EVB](#). This document define the PCB (Printed Circuit Board) manufacturing SPEC. Due to this product are applied in wireless communication field, so all the SPEC defined in this document should be followed strictly in order to control the line impedance and parasitic effects. Any changes or modification must have written agreement of USI's engineer.
2. PCB Thickness: 1400 um +/- 100um
3. PCB size: follow gerber file
4. Four Layer PCB
5. PCB Material: FR4, ,  $\epsilon_r$ : 4.25 +/-0.2, Color Green, both sides.
6. Layer Stack:
  - Layer 1: Component Top
  - Layer 2: GND layer
  - Layer 3: POWER layer
  - Layer 4: Component Bottom
7. The PCB stack is as follows: (unit :um)

Layer	Thickness	Tolerance
Solder Mask	30	+/- 15
L1	30	+/- 10
P.P	250	+/- 15
L2	30	+/- 10
Core	720	+/- 50
L3	30	+/- 10
P.P	250	+/- 15
L4	30	+/- 10
Solder mask	30	+/- 15

Total Thickness: 1400 um +/- 100 um

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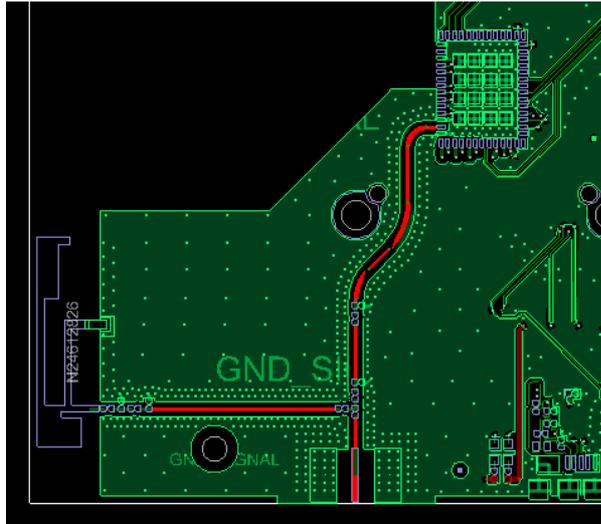
Description Euclid BX3210 EVB PCB Spec.

8. PCB pad : 化金  $0.0762\mu\text{m} \pm 0.0457\mu\text{m}$ , Nickel min 3 $\mu\text{m}$ .

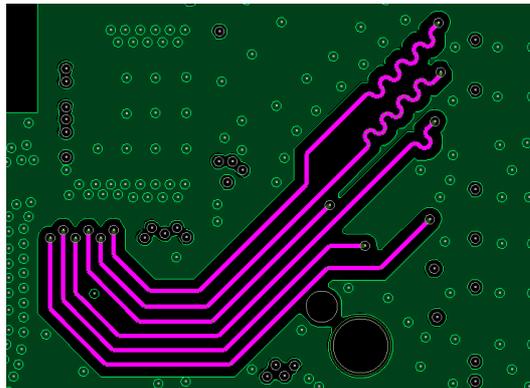
9. Via type : L1-L4 , PTH , minimum via : 10mil hole / 20mil ring

Impedance control is required for the following picture.

**RF traces @ LAYER 1 reference to Layer 2 , width: 17mil ,  
Please adjust the trace width to fit 50 ohm. (in Red)**



**==RF traces @ LAYER 2 reference to Layer 1, 3, width: 9mil  
Please adjust the trace width to fit 50 ohm. (in Purple)**



10. Panel

Attached

PCB area : Tolerance:  $\pm 0.2\text{mm}$