

AW-NU240

IEEE 802.11b/g/n USB Wireless Module

AMTRAN: CUS233

User's Manual

Inspired by wireless

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Document release	Date	Modification	initials	Approved
Version 0.1	2012/07/27	Initial release	Johnny Wei	Antonio Chu
Version 0.2	2012/09/18	Update general spec	Johnny Wei	Antonio Chu
Version 0.3	2012/09/28	Update note/label	Amber Tseng	Ray Lee

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1. Introduction

AzureWave Technologies, Inc. introduces IEEE 802.11b/g/n USB wireless module, AW-NU240. This USB wireless module is a highly integrated wireless local area network (WLAN) solution to let users enjoy the digital content through the latest wireless technology without using the extra cables and cords. It enables a high performance, cost effective, low power, compact solution that easily fits onto one side of a USB.

Compliant with the IEEE 802.11b/g/n standard, the AW-NU240 uses Direct Sequence Spread Spectrum (DSSS), Orthogonal Frequency Division Multiplexing (OFDM), BPSK, QPSK, CCK and QAM baseband modulation technologies. A high level of integration and full implementation of the power management functions specified in the IEEE 802.11 standard minimize system power requirements by using AW-NU240.

Longer Range and Faster Speed

Comparing to 802.11g technology, 802.11n standard make big improvement on speed and range. It increases wireless range by up to 2 times and reduces dead spots in coverage area. The robust signal travels farther, maintaining wireless connections more farther than standard 802.11g. The data rate can up to 150Mbps data rate.

2. Features

- ◆ **USB module**
- ◆ **Compliant with IEEE802.11n standard**
- ◆ **Antenna to support 1(Transmit)* 1 (Receive) technology**
- ◆ **High speed wireless connection up to 150Mbps**
- ◆ **Low power consumption and high performance**
- ◆ **Enhanced wireless security**

3. General Specifications

Model Name	AW-NU240
Product Description	IEEE 802.11 b/g/n USB wireless module
WLAN Standard	IEEE 802.11b/g/n, Wi-Fi compliant
Host Interface	USB
Major Chipset	Atheros AR9271L (MAC/Baseband/RF) Single chip
Dimension	50 x 17 x 9.6 mm
Weight	8 g
Antenna	Metal Antenna on PCB 1. Main: TX/RX
USB Connector	JS-1125R-05
RF Connector	Murata MM8430-2610
Operating Conditions	
Voltage	3.3V +/- 5%
Temperature	0~80°C
Cold start	Turn on after storage at 0°C for 6hrs
Long time connection	Keep operating at 60°C after 168hrs
Electrical Specifications	
Frequency Range	2.4 GHz ISM Bands 2.412-2.472 GHz, 2.484 GHz /
Modulation	802.11 g/n: OFDM 802.11b: CCK(11, 5.5Mbps), QPSK(2Mbps), BPSK(1Mbps)
Receive Sensitivity	802.11b: 11M less then -76dBm (High data rate) 802.11g: 54M less then -65dBm (High data rate) 802.11n: HT20 MCS7 less then -64dBm (High data rate) HT40 MCS7 less then -61dBm (High data rate)
Operating Range	Open Space: 300M (The transmission speed may vary according to the environment)
Operating System Compatibility	Windows Linux
Regulatory (EMI)	FCC (For USA)
Part De-rating test	Follows the current spec of each component

4-1. Absolute Maximum Ratings

Symbol	Parameter	Max. Rating	Unit
$V_{dd3.3V}$	Maximum I/O supply voltage	-0.3 to 3.465	V
RF_{in}	Maximum RF input (reference to 50 Ω)	+10	dBm
T_{store}	Storage temperature	-20 to 85	$^{\circ}C$

4-2. Power Consumption

Test Bed		DELL VOSTRO 3450		
Test OS		Windows 7 Ultimate x64 SP1		
Test AP		D-LINK DIR-855		
Driver Version		AZ_AR9271_XP_7.7.0.98_VT_8.0.0.80_WIN7_2.0.0.5 7_20101105		
Test Voltage		3.3V		
Item		L0 Mode	L1 Mode	NOTE
WLAN Modul No Connect AP	AVG	44.4 mA	N/A	
	MAX	212.0 mA	N/A	
	MIN	39.8 mA	N/A	
WLAN Modul Connect to th AP	AVG	209.2 mA	N/A	
	MAX	250.1 mA	N/A	
	MIN	105.4 mA	N/A	
WLAN RF OFF		N/A	N/A	
Transmit Packet Test 11Mbps*		328.1 mA	N/A	
Receiver Packet Test 11Mbps*		192.0 mA	N/A	
Transmit Packet Test 54Mbps*		271.5 mA	N/A	
Receiver Packet Test 54Mbps*		190.6 mA	N/A	
Transmit Packet Test HT 20*		334.7 mA	N/A	
Receiver Packet Test HT 20*		193.5 mA	N/A	
Transmit Packet Test HT		358.0 mA	N/A	

40*			
Receiver Packet Test HT 40*	239.6 mA	N/A	

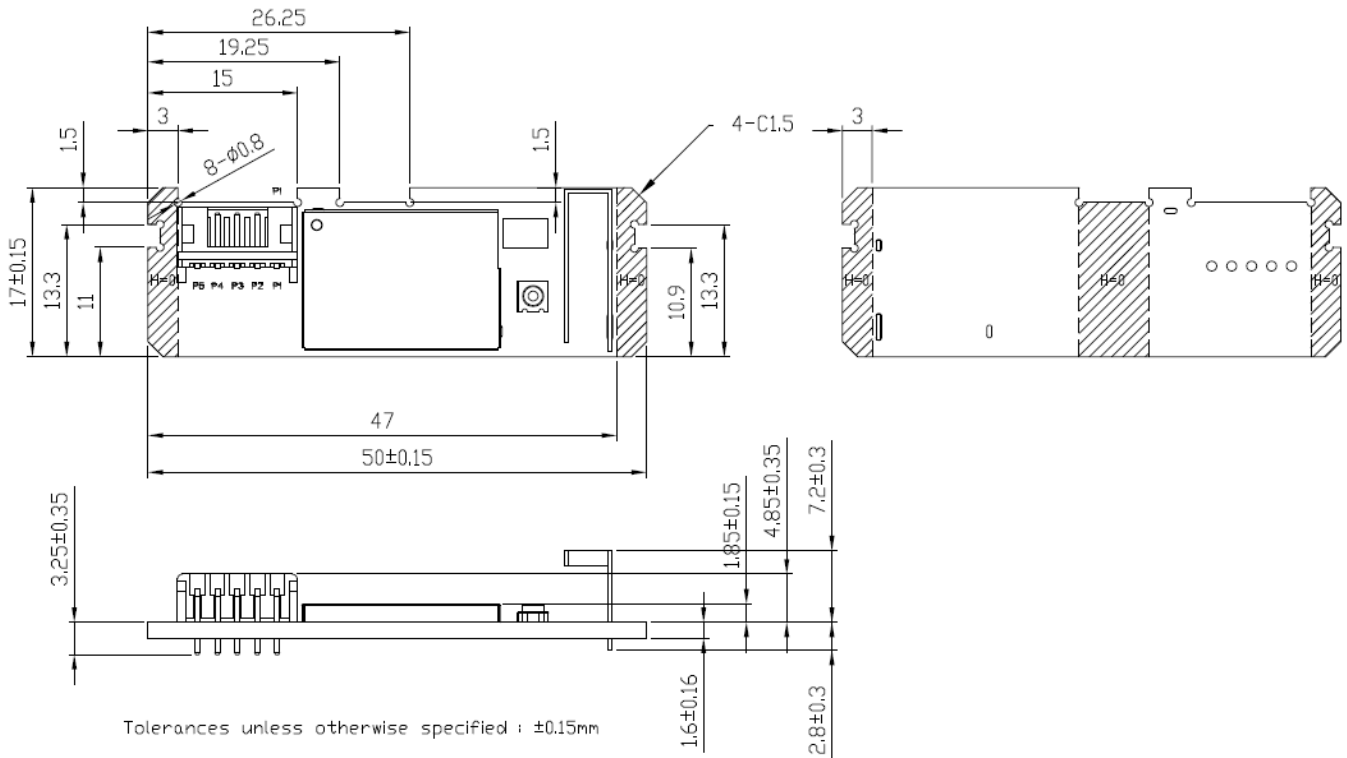
Note. 1. The power consumption data were measured when NB operated in DC (battery) mode.

2. Device not support L1 mode.

5. Connector Pin-out Definitions

Pin No.	Definition	Basic Description	Type
1	GND	Ground.	GND
2	USB_D+	USB Differential signal.	Digital
3	USB_D-	USB Differential signal.	Digital
4	Power	3.3V power supply.	Vcc
5	Reset_B	Reset if low.	Input

6. Mechanical drawing



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 channels is not possible.

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

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.

IMPORTANT NOTE:

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

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.

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: **MDZAZW9271-240**". 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.

