

# AW-NE785H

IEEE 802.11b/g/n

PCIE half size Mini-Card Wireless Module

## Datasheet

Version draft 0.4

Document release	Date	Modification	initials	Approved
Version 0.1	2008 /10 /28	Initial release	Antonio Chu	Eric Lee
Version 0.2	2008 /12 /2	Update Mechanical	Antonio Chu	Antonio Chu
Version 0.3	2008 /12 /25	Update RF power	Antonio Chu	Antonio Chu
Version 0.4	2008 /12 /30	Update RF power	Antonio Chu	Antonio Chu

## 1. Introduction

AzureWave Technologies, Inc. introduces the pioneer of the IEEE 802.11b/g/n PCIE half size Mini-Card wireless module ---AW-NE785H. The AW-NE785H PCIE half size Mini-Card 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 PCIE half size Mini-Card.

Compliant with the IEEE 802.11b/g/n standard, the AW-NE785H 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-NE785H.

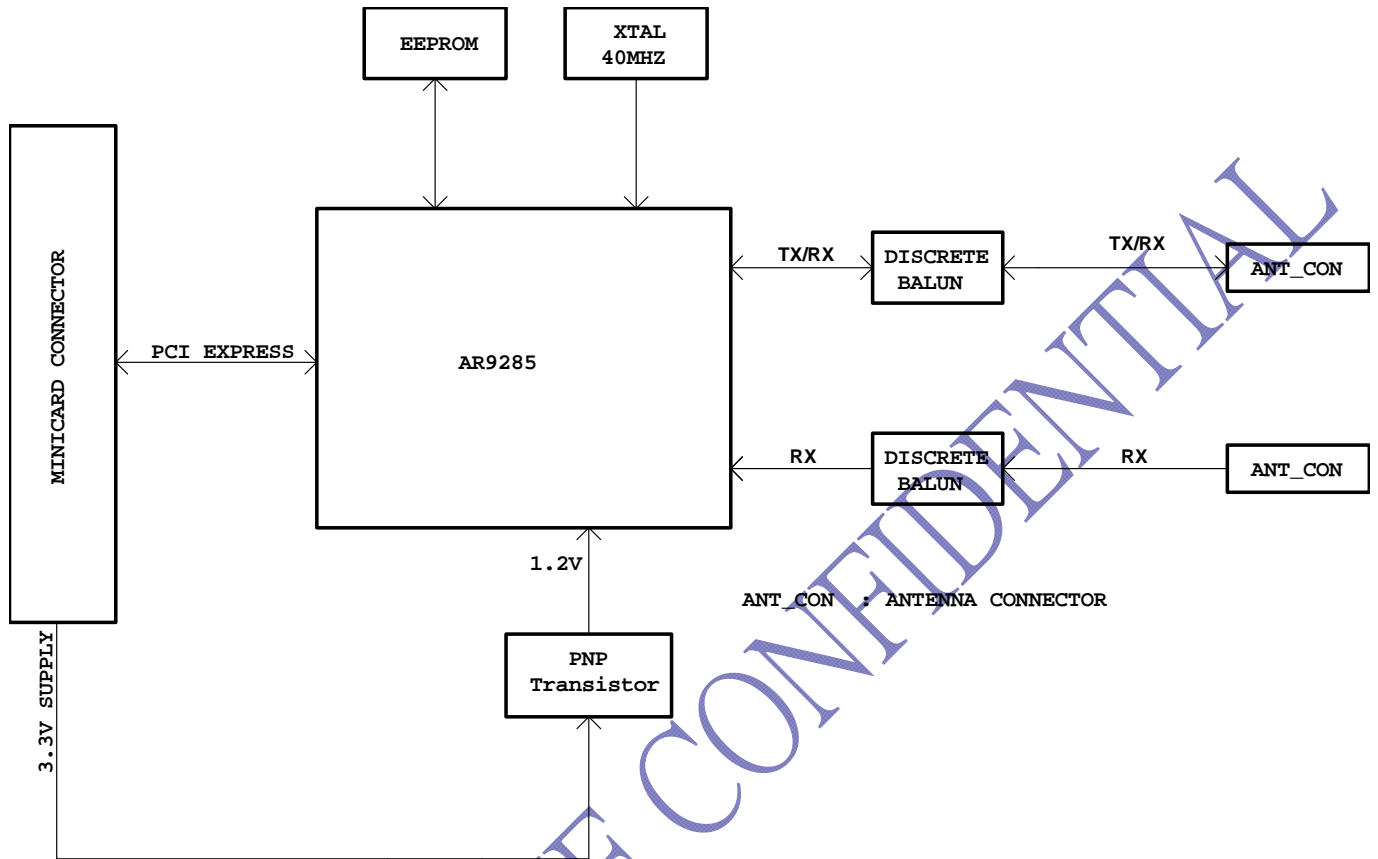
### Longer Range and Faster Speed

Comparing to 802.11g technology, 802.11n draft 2.0 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 device adopt Multiple In, Multiple Out” (MIMO) technology, it effectively doubles the data rate. Unlike ordinary wireless networking technologies that are confused by signal reflections, MIMO actually uses these reflections to increase the range and reduce “dead spots” in the wireless 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

- ✦ **PCIE half size Mini-Card**
- ✦ **Compliant with IEEE802.11n Draft 2.0 standard**
- ✦ **Antenna to support 1(Transmit) × 1 (Receive) MIMO technology**
- ✦ **Antenna RX diversity**
- ✦ **High speed wireless connection up to 150Mbps**
- ✦ **Low power consumption and high performance**
- ✦ **Enhanced wireless security**

### 3. Block Diagram



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## 4. General Specifications

<b>Model Name</b>	<b>AW-NE785H</b>
<b>Product Description</b>	<b>PCIE half size Mini-Card wireless module</b>
<b>WLAN Standard</b>	IEEE 802.11 b/g/n, Wi-Fi compliant
<b>Host Interface</b>	PCIE half size Mini-Card
<b>Major Chipset</b>	Atheros AR9285 ( MAC/Baseband/RF ) Single chip
<b>Dimension</b>	29.85 X 26.65 x 3.25 mm
<b>Weight</b>	3.8g
<b>Antenna Connector</b>	Hirose U.FL-R-SMT 1:TX / RX 2:RX
<b>Operating Conditions</b>	
<b>Voltage</b>	3.3V±10%
<b>Temperature</b>	Operating: Storage:
<b>Electrical Specifications</b>	
<b>Frequency Range</b>	2.4 GHz ISM Bands 2.412-2.472 GHz, 2.484 GHz
<b>Modulation</b>	802.11 g/n: OFDM 802.11b: CCK(11, 5.5Mbps), QPSK(2Mbps), BPSK(1Mbps)
<b>Output Power</b>	802.11b: 17dBm +/-1.5dBm 802.11g: 16dBm +/-1.5dBm 802.11n(HT20): 15dBm +/-1.5dBm 802.11n(HT40): 12dBm +/-1.5dBm
<b>Receive Sensitivity</b>	802.11b: less than -80 dBm (11Mbps) 802.11g: less than -70 dBm (54Mbps) 802.11n: less than -61 dBm at HT40 MCS7 less than -64 dBm at HT20 MCS7
<b>Data Rates</b>	802.11b: 11,5.5,2,1 Mbps 802.11g: 54,48,36,24,18,12,9,6 Mbps 802011n: up to 150Mbps
<b>Operating Range</b>	Open Space: ~300M Indoor:~100M (The transmission speed may vary according to the environment)
<b>Security</b>	<ul style="list-style-type: none"> <li>◆ WEP 64-bit and 128-bit encryption</li> <li>◆ WPA(Wi-Fi Protected Access)</li> <li>◆ WPA2(Wi-Fi Protected Access)</li> </ul>

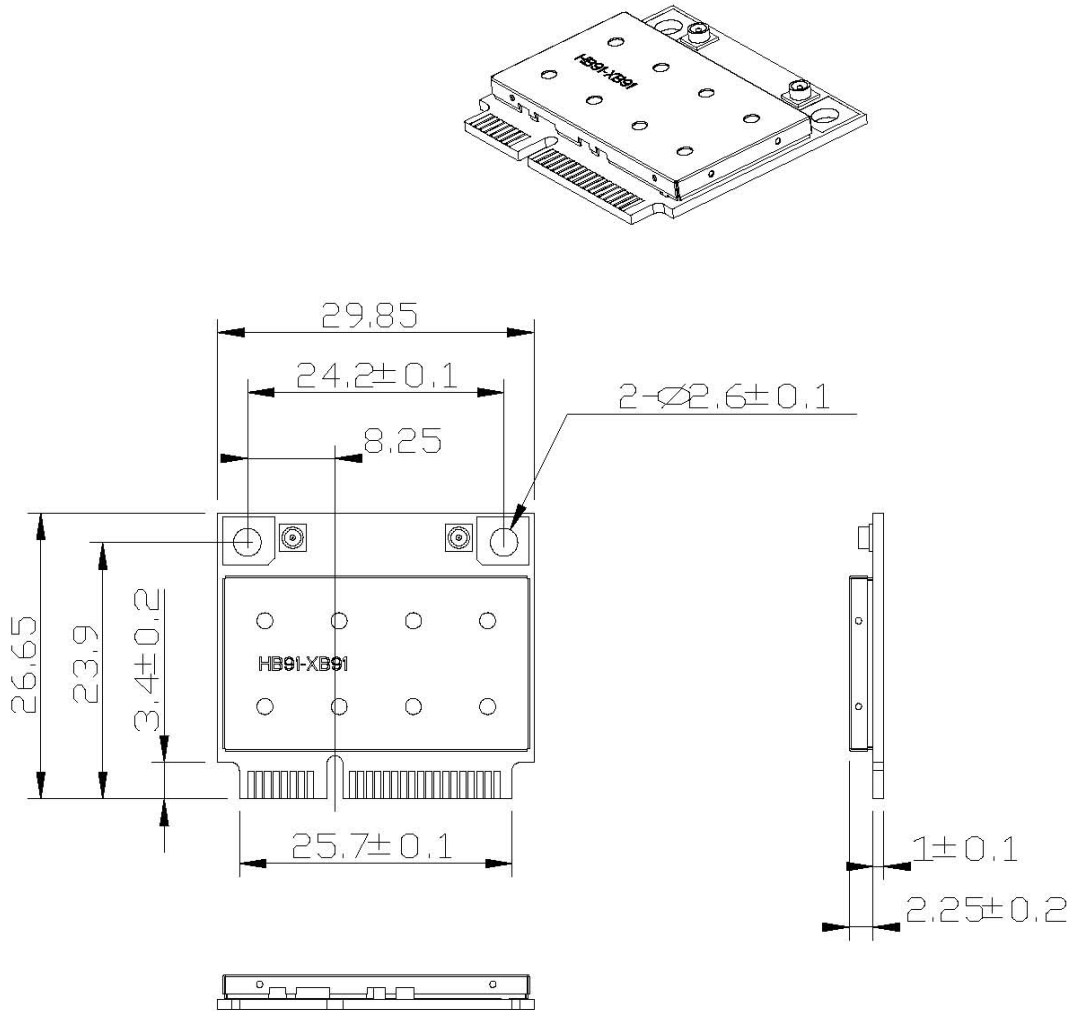
<b>Operating System Compatibility</b>	Windows XP/Vista
<b>Regulatory</b>	FCC / CE / NCC / Japan ...etc Details refer to Regulatory documentation

### 4-1. Power Consumption

States	States	States	States	Current (mA)
Max power saving (Battery mode)	HT40	L1	Cont Rx	285
			Cont Tx	405
			Idle(associated)	9
			Idle(unassociated)	9
			Radio Off	8
			Driver Disabled	7
	HT20	L1	Cont Rx	230
			Cont Tx	380
			Idle(associated)	9
			Idle(unassociated)	9
			Radio Off	8
			Driver Disabled	7
Max performance	HT40	L1	Cont Rx	285
			Cont Tx	405
			Idle(associated)	236
			Idle(unassociated)	9
			Radio Off	8
			Driver Disabled	7
	HT20	L1	Cont Rx	230
			Cont Tx	380
			Idle(associated)	195
			Idle(unassociated)	9
			Radio Off	8
			Driver Disabled	7



## 5. Mechanical Dimensions



Tolerances unless otherwise specified :  $\pm 0.15\text{mm}$

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## 6. Connector Pin-out Definitions

Pin No.	Definition	Basic Description	Type
1	NC	No connect. Should be left open.	
2	3.3v	3.3V power supply	VCC
3	NC	No connect. Should be left open	
4	GND	Ground	GND
5	NC	No connect. Should be left open	
6	NC	No connect. Should be left open.	
7	CLKREQ_L	Reference clock request.	
8	NC	No connect. Should be left open.	
9	GND	Ground	GND
10	NC	No connect. Should be left open.	
11	REFCLK-	Differential reference clock	
12	NC	No connect. Should be left open.	
13	REFCLK+	Differential reference clock	
14	NC	No connect. Should be left open.	
15	GND	Ground	GND
16	NC	No connect. Should be left open.	
17	NC	No connect. Should be left open.	
18	GND	Ground	GND
19	NC	No connect. Should be left open.	
20	W_DISABLE_L	WLAN disable control.	Input
21	GND	Ground	GND
22	PERST_L	PCI express fundamental reset	Input
23	PERn0	Differential transmit	Output
24	NC	No connect. Should be left open.	
25	PERp0	Differential transmit	Output
26	GND	Ground	GND
27	GND	Ground	GND
28	NC	No connect. Should be left open.	
29	GND	Ground	GND
30	NC	No connect. Should be left open.	
31	PETn0	Differential receive	Input
32	NC	No connect. Should be left open.	
33	PETp0	Differential receive	Input
34	GND	Ground	GND
35	GND	Ground	GND
36	NC	No connect. Should be left open.	
37	GND	Ground	GND
38	NC	No connect. Should be left open.	
39	NC	No connect. Should be left open.	
40	GND	Ground	GND
41	NC	No connect. Should be left open.	
42	NC	No connect. Should be left open.	
43	NC	No connect. Should be left open.	
44	LED_WLAN_L	Active low signal. The signal is used to provide status indicators via LED.	Output
45	NC	No connect. Should be left open.	
46	NC	No connect. Should be left open.	
47	NC	No connect. Should be left open.	
48	NC	No connect. Should be left open.	
49	NC	No connect. Should be left open.	
50	GND	Ground	GND
51	NC	No connect. Should be left open.	
52	3.3v	3.3V power supply	VCC

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