

802.11abgn 2x2 Mini PCI-express WiFi module DHXA-222

User Manual

1. Introduction

Thank you for purchasing the WLAN 802.11 a/b/g/n 2x2 Mini PCI-express WiFi module that provides the easiest way to wireless networking. This User Manual contains detailed instructions in the operation of this product. Please keep this manual for future reference.

System Requirements

Laptop/ PC containing:

32-bit PCI Express Bus

32 MB memory or greater

300 MHz processor or higher

Microsoft Windows 2000, Windows Millennium Edition, Windows 98 Second Edition, Windows XP, or Windows NT 4.0 (with Service Pack 6)

2. Profile Management

Configure the wireless network adapter (wireless card) from the Profile Management tab of the Atheros Client Utility.

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|------------------------------------|--|
| ✧ Add a profile | ✧ Order profiles |
| ✧ Edit a profile | ✧ Switch to a different profile |
| ✧ Import a Profile | ✧ Remove a profile |
| ✧ Export a Profile | ✧ Connect to a Different Network |

The wireless network adapter works in either infrastructure mode (which uses an access point) or ad hoc mode (a group of stations participating in the wireless LAN).

Create or Modify a Configuration Profile

To add a new configuration profile, click New on the Profile Management tab.

To modify a configuration profile, select the configuration from the Profile list and click the Modify button.

The Profile Management dialog box displays the General tab. In profile management:

- ✧ [Edit the General tab.](#)
- ✧ [Edit the Security tab.](#)
- ✧ [Edit the Advanced tab.](#)

To configure a profile for ad hoc or access point (infrastructure) mode, edit the Network Type field on the Advanced tab.

Note that the ACU only allows the creation of 16 configuration profiles. After the

creation of 16 profiles, clicking the New button displays an error message.

Remove an old profile or modify an existing profile for a new use.

Remove a Configuration Profile

- I. Go to the Profile Management tab.
- II. Select the profile to remove from the list of configuration profiles.
- III. Click the Remove button.

3. TCP/IP Configuration

Configuring the TCP/IP Address for the network device:

1. After configuring the wireless network adapter properties, open the Control Panel and open Network and Dial-up Connections.
2. Find the Local Area Connection associated with the wireless network adapter. Rightclick that connection, and click Properties.
3. Select Internet Protocol (TCP/IP) and click Properties.
4. Click the radio button Use the following IP address, then enter an IP address and Subnet mask. Assigning an IP address and Subnet mask allows stations to operate in access point mode (infrastructure mode) or in ad hoc mode and to have Internet access. Default gateway and DNS server information is also required. IP configuration information (DHCP to assign the IP address, gateway and DNS server IP addresses) is usually obtained from the corporate IT staff.
5. Click OK to finish.

4. General Tab

In the Atheros Client Utility, access the General tab by clicking New or Modify on the Profile Management tab. Edit the fields in the General tab to configure the configuration profile. Make sure to also edit the Security and Advanced tabs.

Profile Name	Identifies the configuration profile. This name must be unique. Profile names are not case sensitive.
Client Name	Identifies the client machine.
Network Names (SSIDs)	The IEEE 802.11 wireless network name. This field has a maximum limit of 32 characters. Configure up to three SSIDs (SSID1, SSID2, and SSID3).

5. Security Tab

In the Atheros Client Utility, access the Security tab by clicking New or Modify on the Profile Management tab. Click the Security tab in the Profile Management window.

Edit the fields in the Security tab of Profile Management to configure the profile. To define the security mode, select the radio button of the desired security mode. Make sure to also edit the General and Advanced tabs.

WPA/WPA2	<p>Enables the use of Wi-Fi Protected Access (WPA).</p> <p>Choosing WPA/WPA2 opens the WPA/WPA2 EAP drop-down menu. The options include:</p> <ul style="list-style-type: none"> ✧ EAP-FAST ✧ EAP-TLS ✧ EAP-TTLS ✧ PEAP (EAP-GTC) ✧ PEAP (EAP-MSCHAP V2) ✧ LEAP
WPA/WPA2 Passphrase	<p>Enables WPA/WPA2 Passphrase security. Click on the Configure button and fill in the WPA/WPA2 Passphrase.</p>
802.1x	<p>Enables 802.1x security. This option requires IT administration. Choosing 802.1x opens the 802.1x EAP type drop-down menu. The options include:</p> <ul style="list-style-type: none"> ✧ EAP-FAST ✧ EAP-TLS ✧ EAP-TTLS ✧ PEAP (EAP-GTC) ✧ PEAP (EAP-MSCHAP V2) ✧ LEAP <p>If the access point that the wireless adapter is associating to has WEP set to Optional and the client has WEP enabled, make sure that Allow Association to Mixed Cells is checked on the Security Tab to allow association. Note: If the Lock checkbox is checked, you cannot change any values in this profile. See your system administrator.</p>
Pre-Shared Key (Static WEP)	<p>Enables the use of pre-shared keys that are defined on both the access point and the station.</p> <p>To define pre-shared encryption keys, choose the Pre-Shared Key radio button and click the Configure button to fill in the Define Pre-Shared Keys window.</p> <p>If the access point that the wireless adapter is associating to has WEP set to Optional and the client has WEP enabled, make sure that Allow Association to Mixed Cells is checked on the Security Tab to allow association.</p>

None	No security (not recommended).
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6. Specifications

Frequency range: 2.400 ~ 2.483GHz, 5.15 ~ 5.35GHz, 5.47 ~ 5.725GHz, 5.725 ~ 5.85GHz

Host interface: USB 2.0

Operation temperature: 0 ~ 60°C

Storage temperature: -20 ~ 80°C

7. Integration ins instruction

Step 1: install the WiFi module (DHXA-222) on mobile device

Setp 2: Plug the WiFi module to PCI Express Bus

Federal Communication Commission Interference 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.

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 transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

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 device is intended only for OEM integrators under the following conditions:

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and

- 2) The transmitter module may not be co-located with any other transmitter or antenna.

As long as 2 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed

IMPORTANT NOTE: In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.

End Product Labeling

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: “Contains FCC ID: VPQ-PIXIUMDHXA222”. The grantee's FCC ID can be used only when all FCC compliance requirements are met.

Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user’s manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

Industry Canada statement:

This device complies with ISED's licence-exempt RSSs. 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.

Le présent appareil est conforme aux CNR d'ISED applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Radiation Exposure Statement:

This equipment complies with ISED 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.

Déclaration d'exposition aux radiations:

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED 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.

DETACHABLE ANTENNA USAGE

This radio transmitter (IC: 7392A- DHXA222 / Model: DHXA-222) has been approved by ISED to operate with the antenna type listed below with 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: 7392A- DHXA222 / Model: DHXA-222) a été approuvé par ISED pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal. Les types d'antenne non inclus dans cette liste, et dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

Approved antenna(s) list

Type	Gain (dBi)	Frequency
PCB	-0.77	2.4~2.4835 GHz

	1.26	5.15~5.25 GHz
	1.26	5.25~5.35 GHz
	0.17	5.47~5.725GHz
	1.83	5.725~5.825GHz

**This device is intended only for OEM integrators under the following conditions:
(For module device use)**

- 1) The antenna must be installed such that 20 cm is maintained between the antenna and users, and
- 2) The transmitter module may not be co-located with any other transmitter or antenna.
- 3) Module approval valid only when the module is installed in the tested host or compatible series of host which have similar RF exposure characteristic with equal or larger antenna separation distance.

As long as 3 conditions above are met, further transmitter test will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed.

Cet appareil est conçu uniquement pour les intégrateurs OEM dans les conditions suivantes: (Pour utilisation de dispositif module)

- 1) L'antenne doit être installée de telle sorte qu'une distance de 20 cm est respectée entre l'antenne et les utilisateurs, et
- 2) Le module émetteur peut ne pas être coïmplanté avec un autre émetteur ou antenne.
- 3) Approbation du Module valable que lorsque le module est installé dans l'hôte testé ou de la série de l'hôte compatible qui ont même caractéristique de l'exposition aux RF avec la distance égale ou supérieure séparation antenne.

Tant que les 3 conditions ci-dessus sont remplies, des essais supplémentaires sur l'émetteur ne seront pas nécessaires. Toutefois, l'intégrateur OEM est toujours responsable des essais sur son produit final pour toutes exigences de conformité supplémentaires requis pour ce module installé.

End Product Labeling FOR MOBILE DEVICE USAGE

This transmitter module is authorized only for use in device where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in a visible area with the following: "Contains IC:

7392A-DHXA222”.

Plaque signalétique du produit final

Ce module émetteur est autorisé uniquement pour une utilisation dans un dispositif où l'antenne peut être installée de telle sorte qu'une distance de 20cm peut être maintenue entre l'antenne et les utilisateurs. Le produit final doit être étiqueté dans un endroit visible avec l'inscription suivante: "Contient des IC: 7392A-DHXA222".

Manual Information To the End User

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.

The end user manual shall include all required regulatory information/warning as show in this manual.

Manuel d'information à l'utilisateur final

L'intégrateur OEM doit être conscient de ne pas fournir des informations à l'utilisateur final quant à la façon d'installer ou de supprimer ce module RF dans le manuel de l'utilisateur du produit final qui intègre ce module.

Le manuel de l'utilisateur final doit inclure toutes les informations réglementaires requises et avertissements comme indiqué dans ce manuel.

Caution :

- (i) 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;
- (ii) 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;
- (iii) 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; and
- (iv) the worst-case tilt angle(s) necessary to remain compliant with the e.i.r.p. elevation mask requirement set forth in Section 6.2.2(3) shall be clearly indicated.
- (v) 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.

Avertissement:

Le guide d'utilisation des dispositifs pour réseaux locaux doit inclure des instructions précises sur les restrictions susmentionnées, notamment :

- (i) 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;

(ii) le gain maximal d'antenne permis pour les dispositifs utilisant les bandes de 5250 à 5350 MHz et de 5470 à 5725 MHz doit être conforme à la limite de la p.i.r.e.;

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

(iv) les pires angles d'inclinaison nécessaires pour rester conforme à l'exigence de la p.i.r.e. applicable au masque d'élévation, et énoncée à la section 6.2.2 3), doivent être clairement indiqués.

(v) 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.