User Manual

USB Wireless 802.11 b/g Adaptor

V 2.0

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MODEL NUMBER: WUBR-177G

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1. Introduction

Your PC comes with a built-in USB Wireless 802.11 b/g adaptor which allows it to function as a Wireless Local Area Network (WLAN) connecting with other wireless product(s). This product is an IEEE 802.11g Compliant device. It features automatic rate selection and advanced security features like WEP, 802.1x, WPA/WPA2 with TKIP and AES for stronger data encryption.

1.1 Inventory Checklist

Included with your HP PC should be the following items for your Wireless USB Adaptor:

- Documentation CD (Contains *Quick Installation Guide* and full User Manual)
- A high gain omni directional antenna as well as an attachment pad (See Chapter 2 for installation instructions)

***Note**: Not all PC Configurations ship with this external omni-directional antenna. If your PC did not come with an antenna in a plastic packet then there is a built-in internal antenna already installed in your PC. In such case please skip chapter 2 of this manual as your PC does not need an external antenna.*

1.2 Supported Security

In order to secure your network from passive or active intrusion, key features are enabled on **WindowsXP ® Wireless Zero Configuration**:

- WPA personal security
- WEP encryption

***Note**: In order to have the WPA encryption method, you must upgrade your Windows XP to Service Pack 2.*

Please see Chapter 3 for information on security settings for your USB Wireless adaptor.

2. Antenna Attachment

This chapter contains instructions for antenna installation.

***Note**: If you have already attached the antenna to your PC, please skip to Chapter 3.*

1. Please find a connector at one end of the antenna cable. Screw this connector (A) to the matching antenna receptable (B) located at the back of the computer chassis.

Figure 1: Antenna Attachment

2. Place the antenna in an elevated and open area for optimal wireless performance.

3. You can optionally use the 'attachment pad' which comes with the accessory kit to make your antenna base stick to any flat surface. Avoid using the front panel of your computer to stick the antenna

3. Security Setting

Security can be set up using WEP (Wired Equivalency Protocol) or WPA (Wi-Fi Protected Access). It is important to set up matching security types between devices. Be certain to check the type of security on your other wireless device(s) in order to decide which type of security needs to be set up on your PC.

WEP security was the original security standard provided for wireless 802.11 devices. WPA security which offers more advanced encryption technology is a more recent standard of security available.

4. WindowsXP® Wireless Zero Configuration

It is necessary to complete the steps in Chapter 2, Antenna Attachment prior to using WindowsXP Wireless Network Configuration.

If you have already established a wireless network with access to the internet and you would like to wirelessly connect this HP PC to your wireless network, use WindowsXP Zero Configuration (WindowsXP Wireless Auto Configuration).

4.1. Launching MicrosoftWindowsXP ® Wireless Network Configuration

To launch WindowsXP Wireless Network Configuration:

1. In the Systems Tray find the Wireless Networking icon.

Figure 2: Wireless Network Icon

***Note**: There may be multiple Network icons in the system tray. Choose the one for Wireless Network Connection as shown above.*

2. Select **View Available Wireless Networks** and the Wireless Network Connection dialog box will appear.

4.2. Setting the Network Key Automatically

The PC will begin functioning in Station Mode (as a Client) with your Wireless LAN Network as soon as the Network Key is set-up.

***Note**: If you do not have an existing wireless network you will need to set up your Gateway prior to using your PC in Station Mode.*

1. Find the Network Key (WEP Key or WPA Key) for your Wireless Network.

2. Select **View Available Wireless Networks** from the Wireless Network icon menu.
The Wireless Network Connection dialog box will appear.

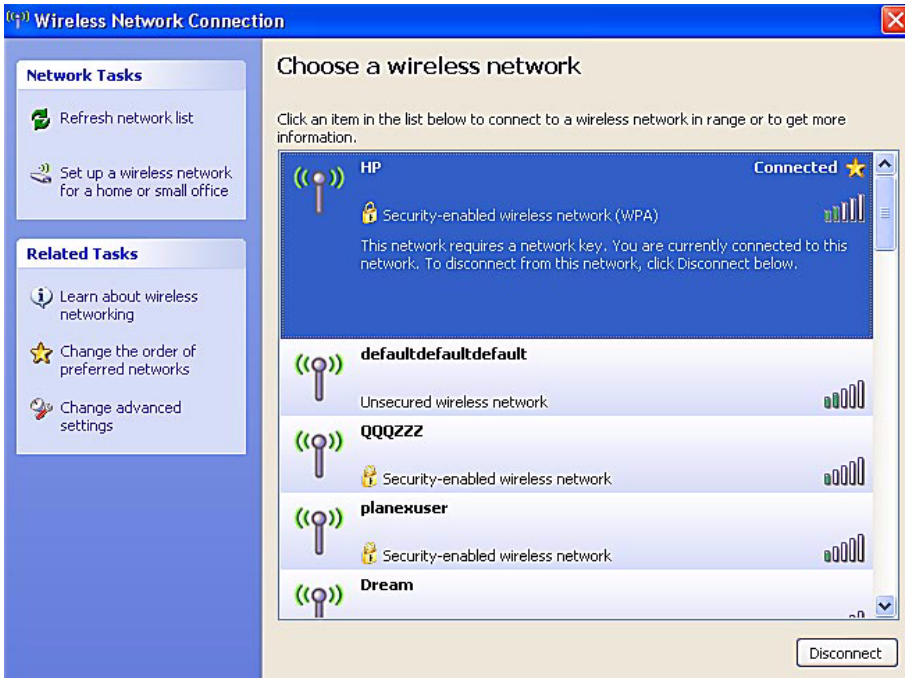

Figure 3: Wireless Network Connection dialog box

3. Select the Wireless Network of your choice by clicking on its name and the entire block will become highlighted.

4. Select **Connect** in the lower right corner.

The Wireless Network Connection dialog box will appear as shown below.

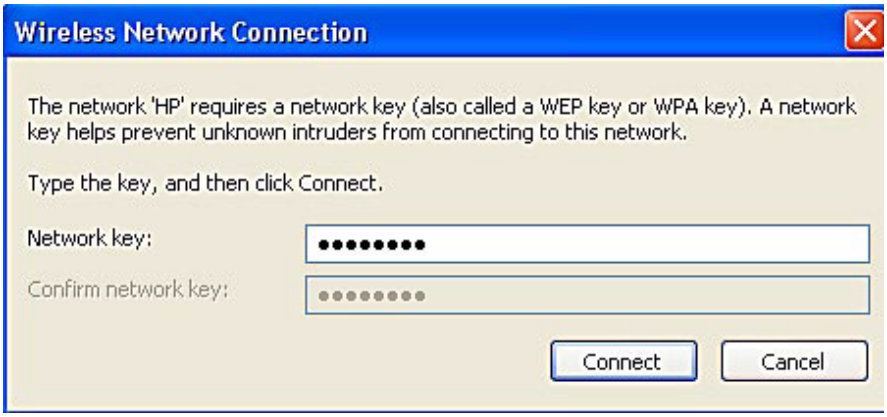

Figure 4: Wireless Network Connection dialog box

5. Enter your Network Key (WEP Key or WPA Key) for your Wireless Network.

6. Input the Network Key a second time into the "Confirm network key" field.

***Note**: If your network is using WEP encryption, then a HEX or an ASCII format is necessary when entering your Network Key:*

- HEX: 10 characters in HEX notation for 40 bit or 26 characters for 128 bit encryption.
- ASCII: 5 characters for 40 bit or 13 characters for 128 bit encryption.

If your network is using WPA it is necessary to enter an 8 – 63 character alphanumeric key-phrase.
The Network Key will accept any of these as it supports both WEP and WPA.

7. Select **Connect.**

The Wireless Network Connection dialog box appears as you are being connected.

Figure 5: Connecting to Wireless

After connection to a wireless network is established, a Wireless Network Connection dialog box, as shown below will appear.

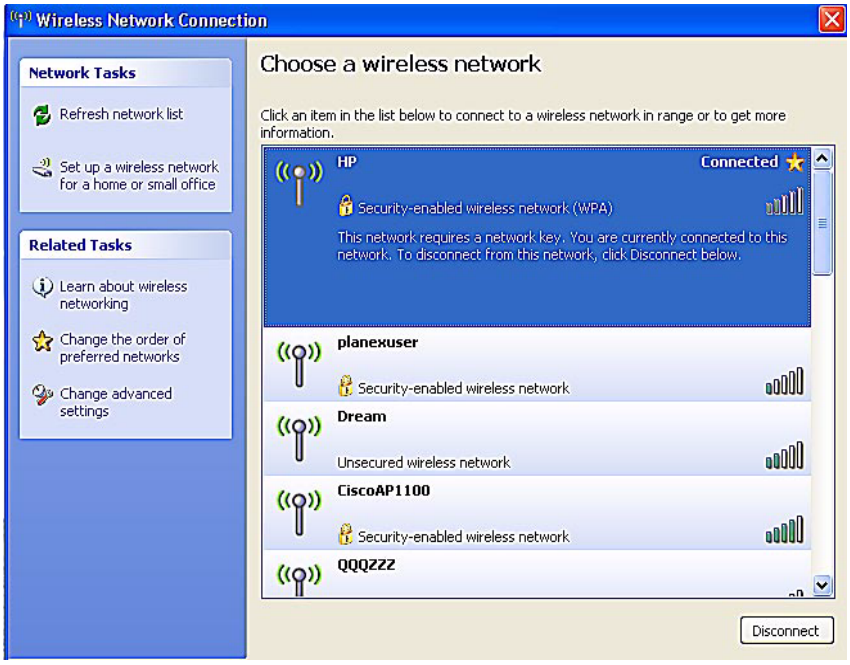

Figure 6: Wireless Network Connection dialog box

4.3. Setting the Network Key Manually

After launching the application (See Section 4.1, Launching the application) you will need to input the Network name and Network Key. The Network name and Network Key must both be set up for your HP PC to function with your current network in Station Mode.

Before manually setting up the Network name and Network Key on your HP PC you must identify this information on your current wireless network:

- Network name (SSID)
- Security WPA-PSK Key OR Security WEP Key

The Wireless Network Connection dialog box appears when you have launched WindowsXP Wireless Zero Configuration:

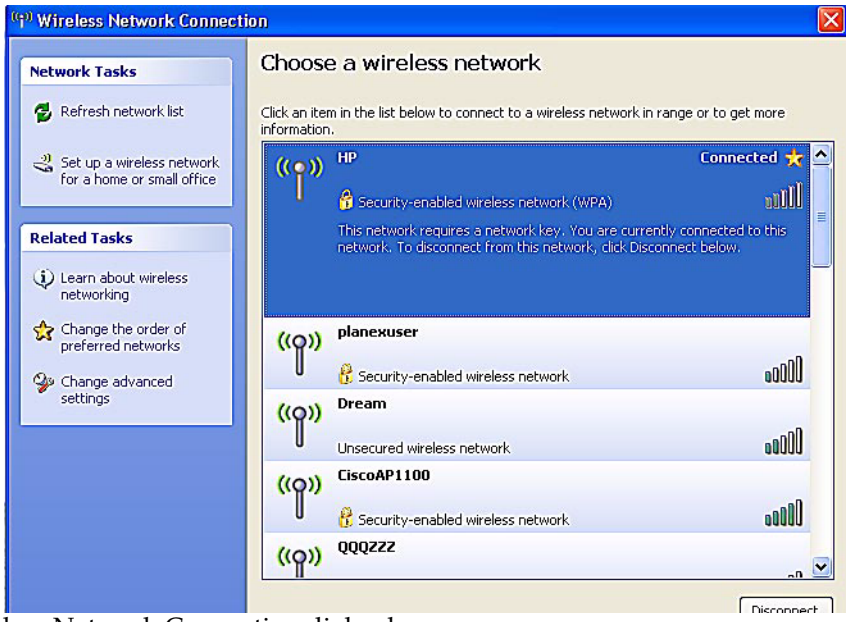

Figure 7: Wireless Network Connection dialog box

***Note**: Your Network name will appear in the Wireless Network Connection window. Any other listed available wireless networks represent the wireless networks established within range of your PC. These will vary and may not provide secured access to the internet.*

1. Choose your Wireless Network in the **Available Wireless Networks** selection box.

Your network will become highlighted as shown in figure 7.

2. Select **Change advanced settings** found on the left side of the dialog box.

The Wireless Network Connection Properties dialog box appears.

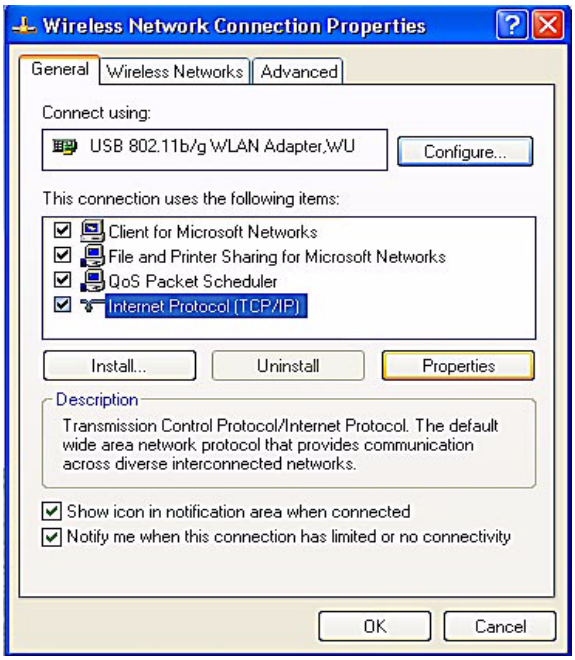

Figure 8: Wireless Network Connection Properties dialog box

3. Select the **General** tab in the Wireless Network Connection Properties dialog box.

4. Highlight **Internet Protocol (TCP/IP)** in the "This connection uses the following items:" selection box.

5. Select **Properties**.

The Internet Protocol (TCP/IP) Properties dialog box appears with the General tab displayed.

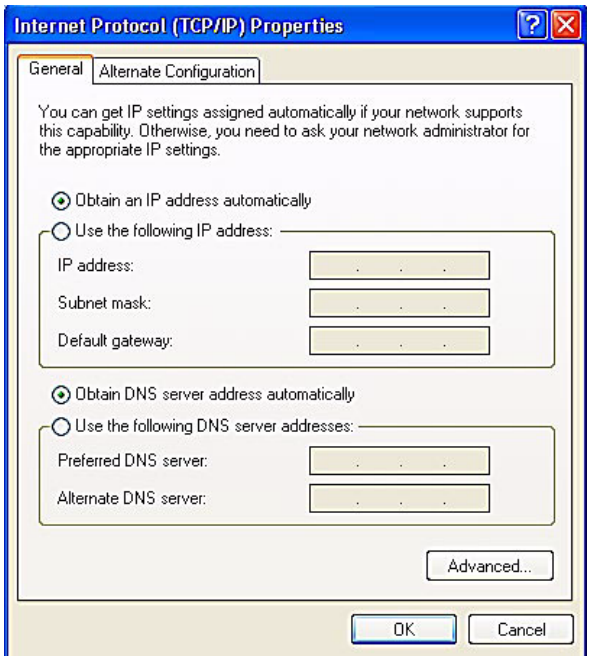

Figure 9: Internet Protocol (TCP/IP) Properties dialog box

6. Verify that the following choices are selected:
- Obtain an IP address automatically
- Obtain DNS server address automatically

7. Select **OK**.

You are returned to the Wireless Network Connection Properties dialog box.

For instructions on how to set WEP security refer to Section 4.3.1. For instructions on how to set WPA security refer to Section 4.3.2.

4.3.1 WEP: Setting the Network Key (Network Security)

This section gives instruction on how to correctly set up WEP security on your HP PC. If you are currently running a WPA enabled device, skip to Section 4.3.2, WPA: Setting the Network Key (Network Security).

In order to set up your Network Key (WEP security feature) you will need to do the following:

1. Open the Wireless Network Connection Properties dialog box:

- Right click on the Wireless Networks icon in the system tray.
- Select **View Available Wireless Networks** from the Wireless Networks Icon menu.

The Wireless Network Connection dialog box appears.

- Select **Change advanced settings** on the left side of the dialog box.

The Wireless Network Connection Properties dialog box appears.

· Select the **Wireless Networks** tab as shown in figure 10 below.

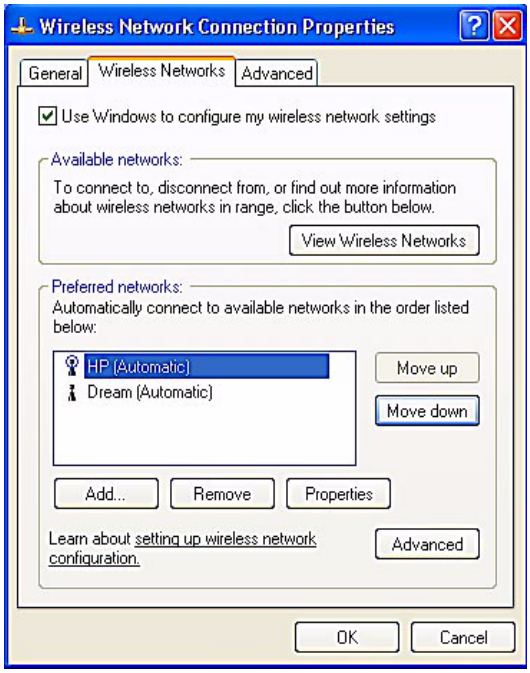

Figure 10: Manually adding a Wireless Network

2. Select **Add** under the Preferred networks selection box.

The Wireless Network Properties dialog box appears.

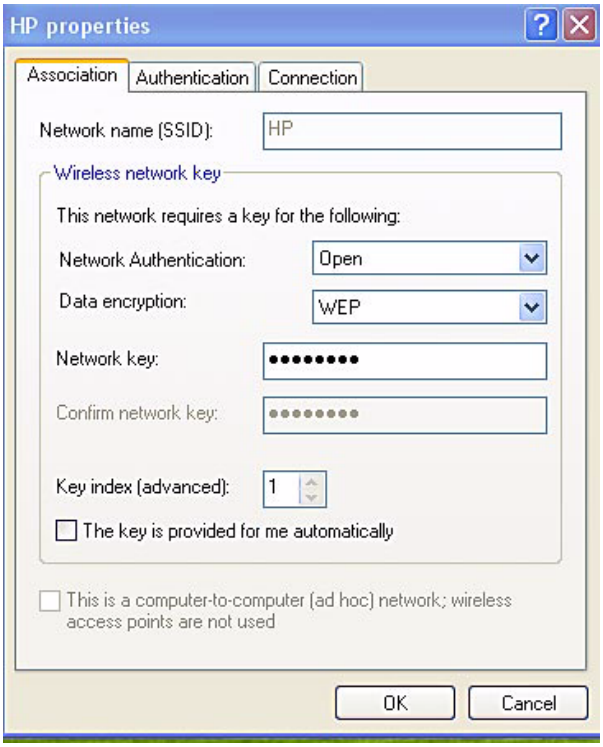

Figure 11: Wireless Network Properties dialog box

3. Input your Network name (SSID).

4. Uncheck the box “The key is provided for me automatically”.

5. Verify that the Network Authentication is set to **Open**.

6. Verify that the Data Encryption is set to **WEP**.

7. Input the Network Key of your Access Point, Wireless Broadband Router or Wireless Gateway.

Note: Either a HEX or ASCII format is necessary when using the WEP interface. Your WEP enabled device should already have either HEX or ASCII format pass-phrase associated. Consult the information asked for in section 4.2.

· HEX: 10 characters in HEX notation for 40 bit, or 26 characters for 128 bit.
· ASCII: 5 characters for 40 bit, 13 characters for 128 bit.

8. Input the Network Key a second time into the "Confirm network key" box.

9. Select **OK**.

You are returned to the Wireless Network Connection Properties dialog box and are able to verify your connection.

4.3.2 WPA: Setting the Network Key (Network Security)

This section gives instruction on how to correctly set up WPA security on your HP PC. If you are currently running a WEP enabled device, return to Section 4.3.1, WEP: Setting the Network Key (Network Security).

In order to set up your Network Key (WPA security feature) you will need to do the following:

1. Open the Wireless Network Connection Properties dialog box:

- Right click on the Wireless Networks icon in the system tray.
- Select **View Available Wireless Networks** from the Wireless Networks icon menu.

The Wireless Network Connection dialog box appears.

- Select **Change advanced settings** on the left side of the dialog box.

The Wireless Network Connection Properties dialog box appears.

- Select the Wireless Networks tab as shown in figure 12 below.

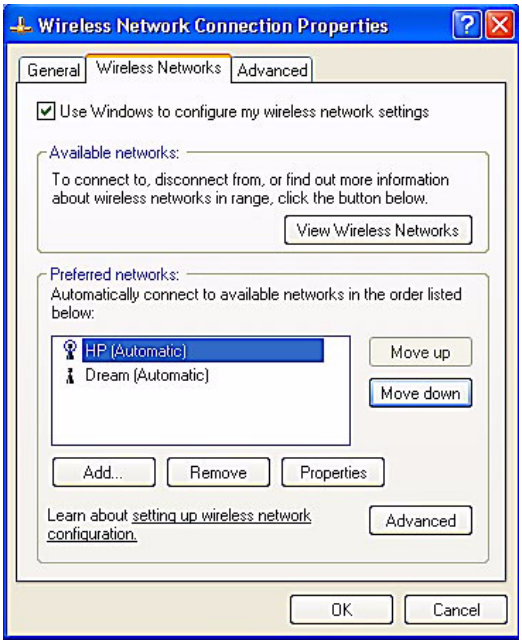

Figure 12: Wireless Network Connection Properties dialog box

2. Select **Add** under the Preferred networks selection box.

The Wireless Network Properties dialog box appears as shown in figure 13.

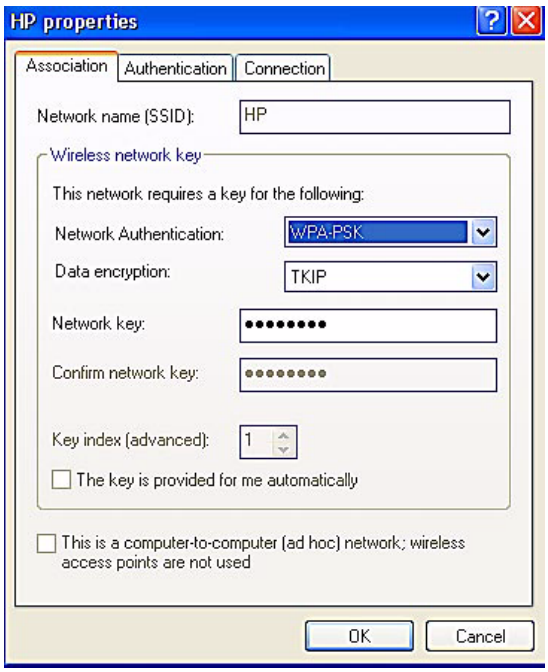

Figure 13: Wireless Network Properties dialog box

3. Uncheck the box "The key is provided for me automatically".

4. Verify that the Network Authentication is set to **WPA-PSK**.

5. Verify that the Data Encryption is set to **TKIP or AES**.

6. Input the Network Key of your Access Point, Wireless Broadband Router or Wireless Gateway.

__Note__: A 8 – 63 character alphanumeric key-phrase is necessary when using the WPA interface. WPA does not require HEX or ASCII notation which is common with WEP keys. Your WPA enabled device should already have a 8 – 63 character alphanumeric key-phrase. Consult the information asked for in Section 4.2.

7. Input the Network Key a second time into the "Confirm network key" box.

8. Select **OK.**

You are returned to the Wireless Network Connection Properties dialog box and are able to verify your connection.

Glossary

• Access Point (AP)	A hardware device (possibly a PC) that can act as a communication hub for wireless devices enabling them to connect to a wired LAN (Local Area Network) or to one another.
• ASCII (American Standard Code for Information Interchange)	A code used for encryption that represents letters with numbers.
• Broadband Router	A device which lets multiple client devices share a single internet connection (like DSL, Cable modem or T1). Generally Broadband Routers offer rudimentary network address translations and firewall features.
• Client	A device that acquires networking services from another device like another PC or access point.
• DNS Server	Domain Name System / Service / Server is a service available on the internet that translates domain names into IP addresses.
• Encryption	The most efficient way to achieve data security online. Encryption is a method of coding data. Generally it is necessary to provide a secret key or password in order to receive decoded information when encrypted.
• Gateway	A gate or entrance into a network. The ISP connecting a home to the internet is generally the gateway in a residence.
• HEX	A numbering system used in encryption. HEX is a 16 symbol system consisting of the numbers 0 – 9 and A – F.
• IP Address	An address that identifies devices on a TCP/IP network (eg; 192.168.0.2).
• ISP (Internet Service Provider)	A company that provides access to the internet.

Continued

• MAC Address	Media Access Control Address. On an 802.11 network the MAC address is used to identify each node of the network.
• Network Name	See SSID.
• Network Key	Network password.
• SSID (Service Set Identifier)	The unique identifier attached to the header of packets sent over a Wireless Local Area Network (WLAN). The SSID differentiates Wireless LANs from one another. For this reason an SSID must be entered on each wireless device attempting to connect on the WLAN.
• Station	See Client.
• WEP	Wired Equivalency Protocol. WEP is an 802.11 encryption standard that provides security for wireless LANs.
• Wireless LAN	A wireless version of Ethernet, the Wireless Local Area Network enables wireless internet access through your SoftAP™ or broadband router.
• Wireless Network	See Wireless LAN.
• WPA	Wi-Fi Protected Access. WPA is an addition to the security in the 802.11 standard. It is an enhancement to the original security implementation for 802.11 devices.
• WPA Personal AES	(Advanced Encryption Standard). See WPA.
• WPA Personal TKIP	(Temporal Key Integrity Protocol). See WPA.

Appendix A: Troubleshooting

Problems	Recommended Solutions
My WPA security settings are not working properly.	Verify that your Network Keys are entered correctly. If the problem persists . . . . . . Reconfigure your wireless network setting to WEP security.
I am unable to see my Network name in the Available wireless networks section of the Wireless Network Connection dialog box on my HP PC.	Verify your Network name and Security settings. If the problem persists..... Consult the users manual for your Wireless Gateway or Access Point.
I am having difficulty with my VPN connection.	Check your VPN server administrator/ IT Department for wireless connection support and requirements.
Internet Gaming issues	For assistance with internet gaming issues please refer to Microsoft internet gaming site.

Appendix B: Regulatory Notices

Regulatory Notices

Federal Communication Commission Notices

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.

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.
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.

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

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 (for example, digital device emissions, PC peripheral requirements, etc.).

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 (for example : PC, desktop, mobile device.). The final end product must be labeled in a visible area with the following:
Contains TX FCC ID: MXF-U950529G

Manual Information That Must be Included
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 users manual of the end product which integrate this module.
The users manual for OEM integrators must include the following information in a prominent location
" IMPORTANT NOTE: To comply with FCC RF exposure compliance requirements, the antenna used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.
Gemtek declares that US model of WUBR-177G (FCC ID: MXF-U950529G) is limited in CH1-CH11 for 2.4G band by specific firmware controlled by the manufacturer and is not user changeable.

European Notices

EC Conformance Declaration
This device compliance with the Essential Requirements of the R&TTE Directive of the European Union (1999/5/EC). This equipment meets the following conformance standards:
EN 60950 (IEC 60950) - Product Safety
EN 300 328 - Technical requirements for 2.4 GHz radio equipment
EN 301 893 – Technical requirements for 5GHz radio equipment
EN 301 489-1 / EN 301 489-17 - EMC requirements for radio equipment
Declaration of Conformity in Languages of the European Community

English	Hereby, Gemtek Technology Corp, declares that this Radio LAN device is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Finnish	Valmistaja Gemtek Technology Corp vakuuttaa täten että Radio LAN device tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Dutch	Hierbij verklaart Gemtek Technology Corp dat het toestel Radio LAN device in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG. Bij deze Gemtek Technology Corp dat deze Radio LAN device voldoet aan de essentiële eisen en aan de overige relevante bepalingen van Richtlijn 1999/5/EC.
French	Par la présente Gemtek Technology Corp déclare que l'appareil Radio LAN device est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
Swedish	Härmed intygar Gemtek Technology Corp att denna Radio LAN device står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
Danish	Undertegnede Gemtek Technology Corp erklærer herved, at følgende udstyr Radio LAN device overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.

German	Hiermit erklärt Gemtek Technology Corp, dass sich dieser/diese/diese Managed Accces Point in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet". (BMWi) Hiermit erklärt Gemtek Technology Corp die Übereinstimmung des Gerätes RLAN device mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 1999/5/EG. (Wien)
Greek	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ LITE-ON Technology Corp ΔΗΛΩΝΕΙ ΟΤΙ RLAN device ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ
Italian	Con la presente Gemtek Technology Corp dichiara che questo Radio LAN device è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Spanish	Por medio de la presente Gemtek Technology Corp declara que el Radio LAN device cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Portuguese	Gemtek Technology Corp declara que este Radio LAN device está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Malti	Hawnhekk, Gemtek Technology Corp, jiddikjara li dan RLAN device jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC
Estonian	Käesolevaga kinnitab Gemtek Technology Corp seadme RLAN device vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
Hungarian	Alulírott, Gemtek Technology Corp nyilatkozom, hogy a RLAN device megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
Slovak	Gemtek Technology Corp týmto vyhlasuje, že RLAN device spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Czech	Gemtek Technology Corp tímto prohlašuje, že tento RLAN device je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Slovene	Šiuo Gemtek Technology Corp deklaruoja, kad šis RLAN device atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Lithuanian	Šiuo Gemtek technology Corp deklaruoja, kad šis RLAN device atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.

Latvian	Ar šo Gemtek Technology Corp deklarē, ka RLAN device atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.

IC CAUTION

IC statement: 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.

This device has been designed to operate with an antenna having a maximum gain of 0 dBi. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

IMPORTANT NOTE:

IC Radiation Exposure Statement:

This equipment complies with IC radiation exposure limits set forth for an uncontrolled environment. End users must follow the specific operating instructions for satisfying RF exposure compliance. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

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

Appendix C: Product Specifications

Model Number WUBR177G

Functional Criteria	
Data Rate	Up to 54 Mbps
Operating Range	802.11b/g: 30m (indoor), 200 m (outdoor)
Radio Signal	
Modulation	Orthogonal Frequency Division Multiplexing (OFDM)
Operating Frequency	USA (FCC), Canada (IC): 802.11b/g: 2412~2462 MHz (Ch1~Ch11) Europe (ETSI): 802.11b/g : 2412~2472 MHz (Ch1~Ch13)
Operating Channel	USA, Canada: 11 Channels (802.11b/g) Europe: 13 Channels (802.11b/g)
Physical Characteristics	
Power Consumption	TX: 350/305mA Max in 802.11b/g mode RX: 145 mA Max in 802.11b/g mode
Dimensions	4.5x 1.25 x1.25 in.
Antenna	External Antenna
LED Indicator	No LED Indicator
Host Interface	USB specification v.2.0
Standards Conformance	
Wireless Standard	IEEE 802.11 b/g, Wi-Fi, WPA

Model Number WUBR177G

Environmental	
Temperature	Operating: 0 to 55 C (32 to 131 F) Storage: -20 to 75 C (-4 to 167 F)
Humidity	5 to 90% (non-condensing)
Certification	
Emissions	EN 55022 Class B EN 61000-4-2/3/4/6/11 FCC Part 15 (B)
Safety	EN60950
ETSI	EN300328, EN301893, EN301489
Software Drivers	
NDIS Drivers	Windows XP Professional SP2
Antenna Specification	
Antenna Type	External Antenna
Frequency Band	2.4 ~ 2.4835GHz
Polarization	Vertical
Connector	Reverse SMA Connector
Gain	802.11b/g: 0dBi
Radiation	Omni-directional

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