

# User's Manual

## 3Com Wireless 11g PCI Adapter

Model:WL-549

Brand :3Com

Version 1.0

*3Com Wireless 11g PCI Adapter*

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PART NUMBER 5188-3746

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# 1 Introduction

Welcome!

Your HP PC includes a 3Com Wireless 11g PCI Adapter. This device allows you to establish a wireless network using your HP PC as a Wireless Client (Station Mode) if you already have a wireless network running.

If you have already established a wireless network with access to the internet, you can wirelessly connect this HP PC to your wireless network

## 1.1 Inventory Checklist

Included with your HP PC should be the following items for your Wireless LAN 802.11 b/g Device:

- Documentation CD (Contains full User's Manual)
- Antenna (Screws to the connector on the back of your HP PC. See Chapter 2)
- Printed Quick Install Guide

## 1.2 Supported Security

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

- WPA/WPA2 personal security
- WEP encryption

Please see Chapter 3 for information on security settings for your Wireless LAN 802.11b/g Device .

## 2 Antenna Attachment

This chapter contains instructions for antenna installation.

### Important

*It is assumed that there is an existing wireless LAN network with an internet connection that has been set up on your computer prior to using Wireless LAN 802.11b/g Device . Please consult your ISP for further information.*

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

1. Screw the antenna connector (A) to the antenna jack (B) located on the back of the HP PC.

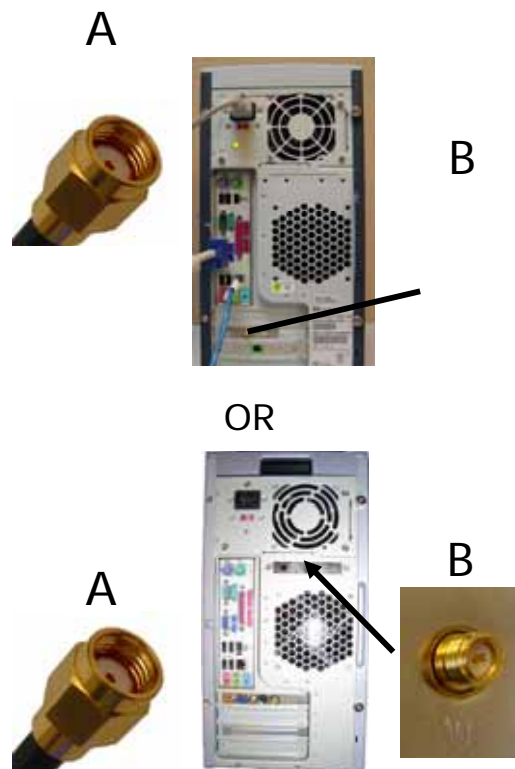


Figure 1: Antenna Attachment

2. Place the HP PC on a table or place the antenna in an elevated and open area to achieve the best wireless performance.

## 3 Windows® XP Wireless Zero Configuration

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

**Note:** *It is assumed that there is an existing wireless network with connection to the internet. If not, please consult your ISP for further information on establishing an internet connection.*

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 Windows® XP *Zero Configuration* (Windows® XP Wireless Network Configuration).

### 3.1 Launching Microsoft® Windows® XP Wireless Network Configuration

To launch Windows® XP Wireless Network Configuration:

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



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

Figure 2: Wireless Network Icon

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



### 3.2 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.

**Important**

*If you do not have an existing wireless network you will need to set up your Wireless Router or Access Point prior to using your PC in Station Mode.*

1. Find the Network Key (WEP Key or WPA/WPA2 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.

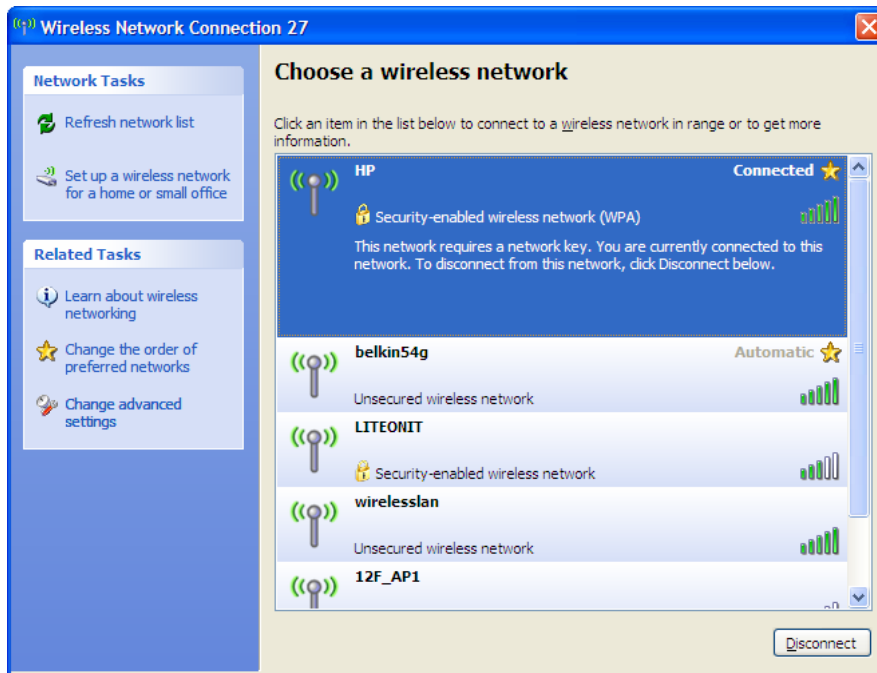


Figure 3: Wireless Network Connection dialog box

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.

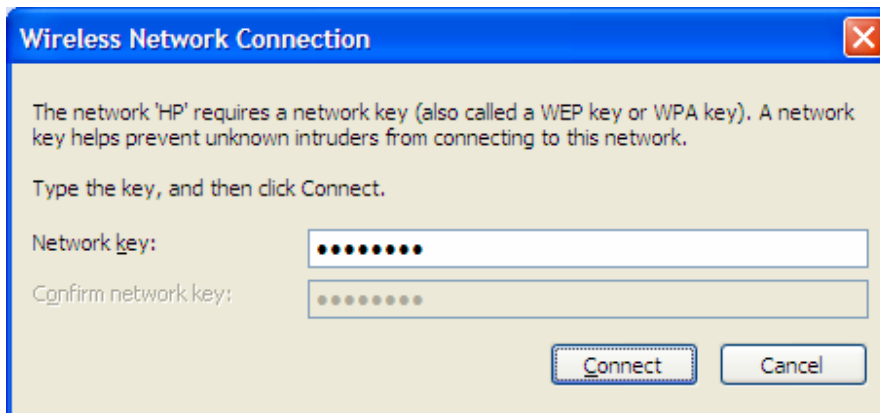


Figure 4: Wireless Network Connection dialog box

5. Enter your Network Key (WEP Key or WPA/WPA2 Key) for your Wireless Network.
6. Input the Network Key a second time into the “Confirm network key” box.

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

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

*If your network is using WPA/WPA2 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/WPA2.*

7. Select Connect.

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

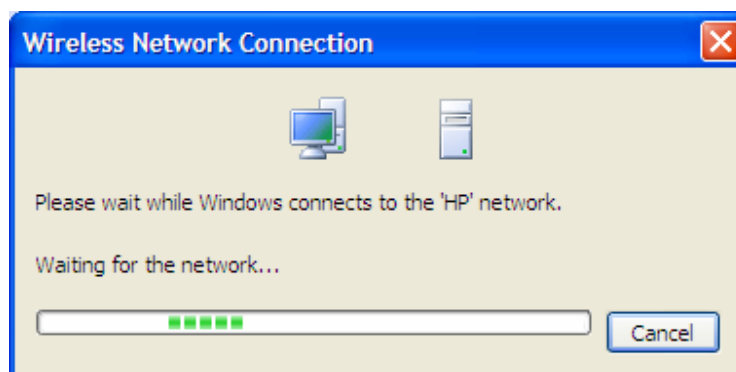


Figure 5: Connecting to Wireless

After connection to the network is established, the Wireless Network Connection dialog box will reappear showing the connection as shown in Figure 6.

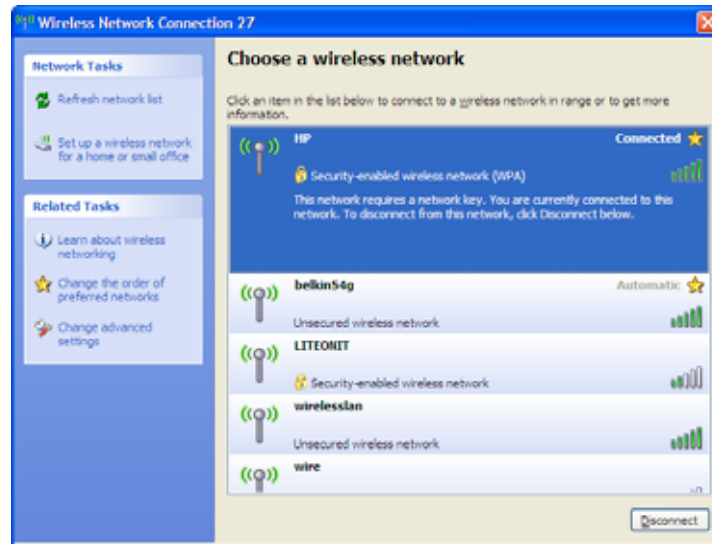


Figure 6: Wireless Network Connection dialog box

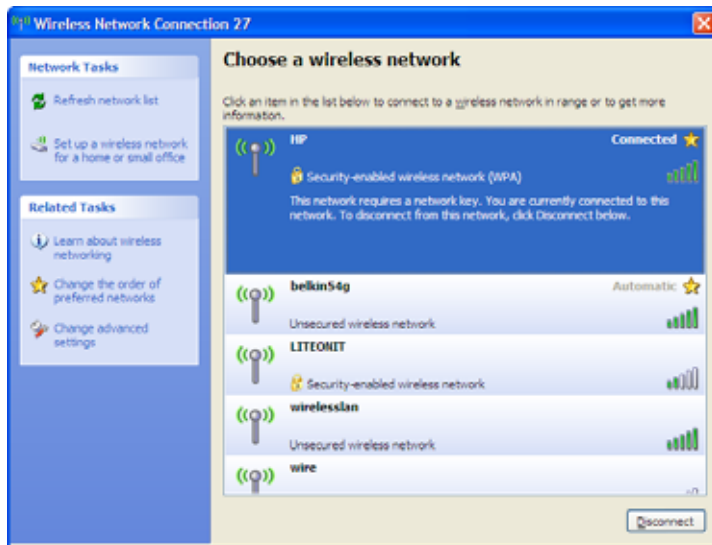
### 3.3 Setting the Network Key Manually

After launching the application (See Section 3.1, 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 Windows® XP Wireless Zero Configuration:



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

Figure 7: Wireless Network Connection dialog box

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.

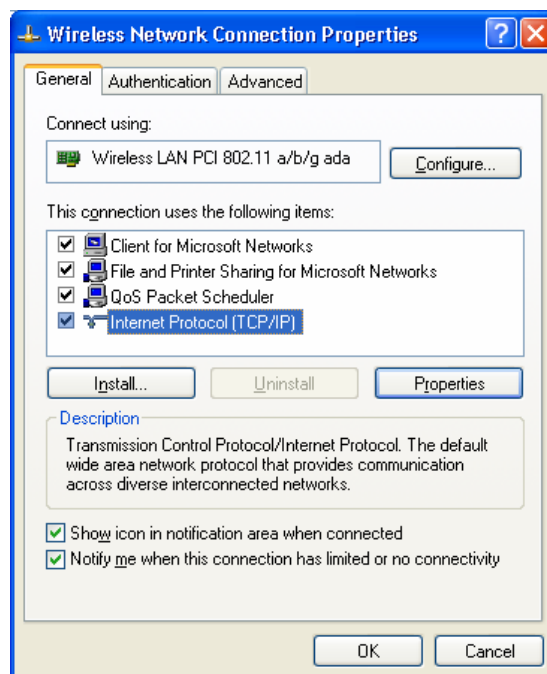


Figure 8: Wireless Network Connection Properties dialog box

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.

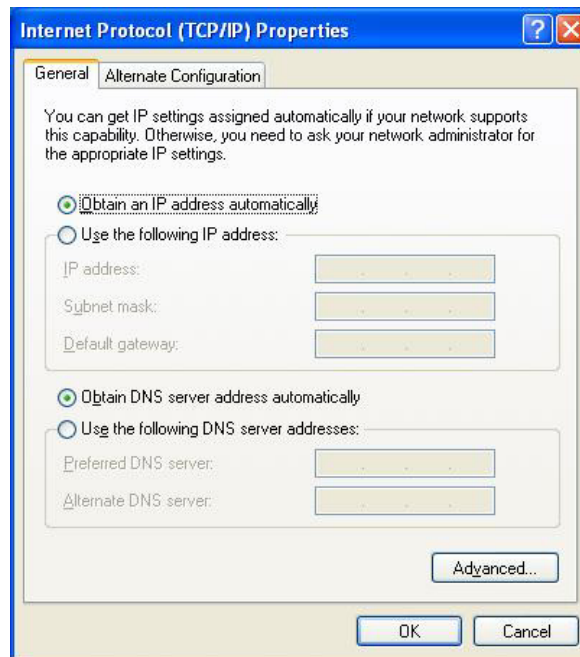


Figure 9: Internet Protocol (TCP/IP) Properties dialog box

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

*Note: Obtaining an IP address automatically is recommended. If static IP address settings are preferred, refer to your own wireless network settings.*

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 3.3.1. For instructions on how to set WPA/WPA2 security refer to Section 3.3.2.

### 3.3.1 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/WPA2 enabled device, skip to Section 3.3.2, WPA/WPA2: 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 I con 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.

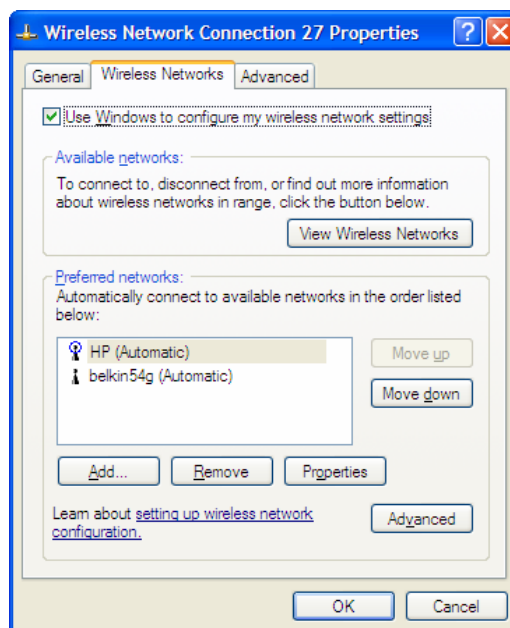


Figure 10: Manually adding a Wireless Network

2. Select Add under the Preferred networks selection box. The Wireless Network Properties dialog box appears.

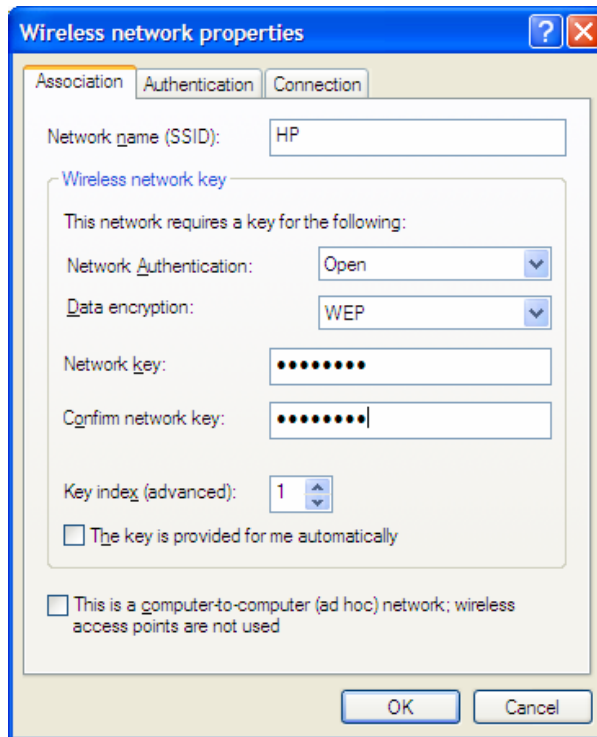


Figure 11: Wireless Network Properties dialog box

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 Router.

**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 3.2.*

- *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.

### 3.3.2 WPA/WPA2: Setting the Network Key (Network Security)

This section gives instruction on how to correctly set up WPA/WPA2 security on your HP PC. If you are currently running a WEP enabled device, return to Section 3.3.1, WEP: Setting the Network Key (Network Security).

In order to set up your Network Key (WPA/WPA2 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.

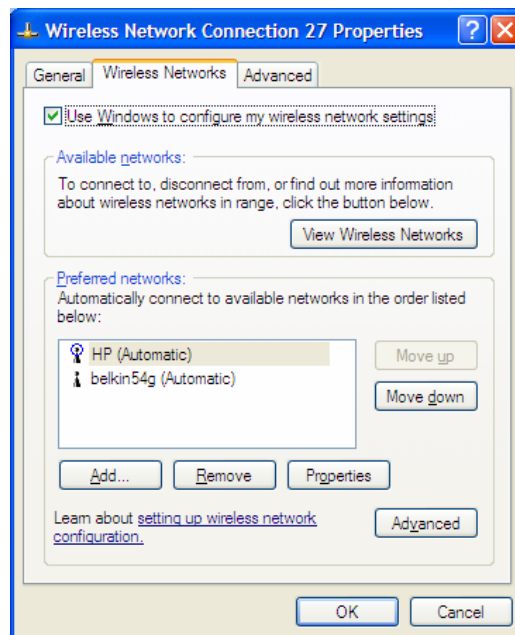


Figure 12: Wireless Network Connection Properties dialog box



2. Select Add under the Preferred networks selection box.  
The Wireless Network Properties dialog box appears as shown in figure 15.

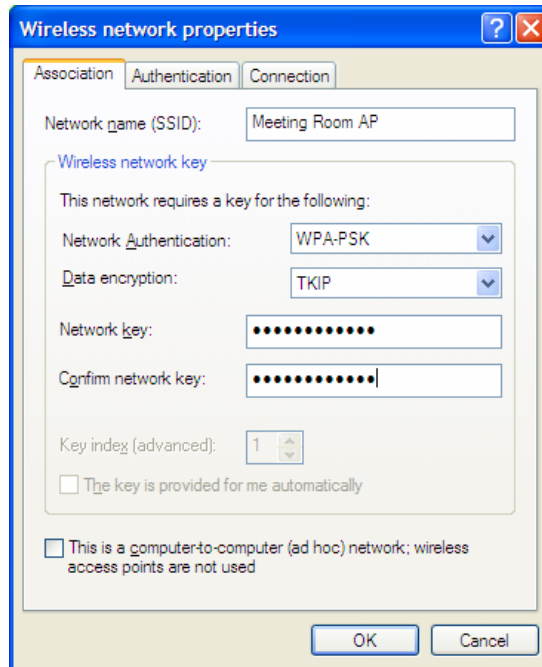


Figure 13: Wireless Network Properties dialog box

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 Router.

**Note:** A 8 – 63 character alphanumeric key-phrase is necessary when using the WPA/WPA2 interface. WPA/WPA2 does not require HEX or ASCII notation common with WEP keys. Your WPA/WPA2 enabled device should already have a 8 – 63 character alphanumeric key-phrase. Consult the information asked for in Section 3.2.

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.

## Terms

- **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.
- **Router**

A gate or entrance into a network. The ISP connecting a home to the internet is generally the router 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.

## Terms

### 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 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.
- **WPA2** WPA2 is the next generation of Wi-Fi security. It is the Wi-Fi Alliance's interoperable implementation of the ratified IEEE 802.11i standard.
- **WPA Personal AES** (Advanced Encryption Standard). See WPA/WPA2.
- **WPA Personal TKIP** (Temporal Key Integrity Protocol). See WPA/WPA2.

## Appendix A: Troubleshooting

Problem	Recommended Solution
My WPA/WPA2 security settings are not working properly.	<ul style="list-style-type: none"><li>• Verify that your Network Keys are entered correctly.</li></ul> If the problem persists..... <ul style="list-style-type: none"><li>• Reconfigure your wireless network setting to WEP security.</li></ul>
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.	<ul style="list-style-type: none"><li>• Verify your Network name and Security settings.</li></ul> If the problem persists..... <ul style="list-style-type: none"><li>• Consult the user's manual for your Wireless Router or Access Point.</li></ul>
I am having difficulty with my VPN connection.	<ul style="list-style-type: none"><li>• Check your VPN server for related problems.</li></ul>
Internet Gaming issues	<ul style="list-style-type: none"><li>• For assistance with internet gaming issues please refer to Microsoft's internet gaming site.</li></ul>

## Appendix B: Regulatory Notices

### Regulatory Notices

- To identify this product refer to the part or model number on the product label

### 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.

To maintain compliance with FCC RF exposure compliance requirements, please avoid direct contact to the transmitting antenna during transmitting.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

## European Notices

### EC Conformance Declaration

This device complies 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, LITE-ON 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 LITE-ON 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 LITE-ON 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 LITE-ON 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 LITE-ON 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 LITE-ON 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 LITE-ON Technology Corp erklærer herved, at følgende udstyr Radio LAN device overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.

## European Notices

### Continued

German	Hiermit erklärt LITE-ON Technology Corp, dass sich dieser/diese/dieses Managed Accces Point in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet". (BMWi)
	Hiermit erklärt LITE-ON 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 LITE-ON 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 LITE-ON 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	LITE-ON Technology Corp declara que este Radio LAN device está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Malti	Hawnhekk, LITE-ON 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 LITE-ON Technology Corp seadme RLAN device vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
Hungarian	Alulírott, LITE-ON Technology Corp nyilatkozom, hogy a RLAN device megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
Slovak	LITE-ON Technology Corp týmto vyhlasuje, že RLAN device spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
Czech	LITE-ON Technology Corp tímto prohlašuje, že tento RLAN device je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
Slovene	Šiuo LITE-ON Technology Corp deklaruoja, kad šis RLAN device atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
Lithuanian	Šiuo LITE-ON Technology Corp deklaruoja, kad šis RLAN device atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.

Latvian

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

## **IC CAUTION**

“ 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 Class B digital apparatus complies with Canada RSS-210. Cet appareil numerique de la classe B est conforme a la norme CNR-210 du Canada.

The abbreviation, IC, before the registration number signifies that registration was performed based on a Declaration of Conformity indicating that Industry Canada technical specifications were met. It does not imply that Industry Canada approved the equipment. (DoC)

The term “ IC : ” before the certification/ registration number only signifies that the Industry Canada technical specifications were met.

This device has been designed to operate with an antenna having a maximum gain of 2 dBi. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.

### IMPORTANT NOTE:

#### Radiation Exposure Statement:

This equipment complies with IC 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.

*(The user manual of transmitter devices equipped with detachable antennas shall contain the following information in a conspicuous location: )*

This device has been designed to operate with an antenna having a maximum gain of 0.597dB. Antenna having a higher gain is strictly prohibited per regulations of IndustryCanada. The required antenna impedance is 50 ohms.



## Appendix C: Product Specifications

Specifications: Model Number  
WL-549

### 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: 410 mA Max; RX: 260 mA  
Dimensions 120 x 40.0 x 3.60mm (4.72 x 1.57 x 0.14 in.)  
Antenna External Antenna  
LED Indicator Power / Link(Green):  
Blink: Radio on and scanning, On: Link established  
ACT(Green):  
Blink: Data transmitting  
Host Interface PCI specification v.2.3

Specifications: Model Number

WL-549

Continued

Standards Conformance

Wireless Standard IEEE 802.11b/g, Wi-Fi, WPA/WPA2

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 ~ 2.5GHz

Polarization Vertical

Connector Reverse SMA Connector

Gain 802.11b/g:  
Dipole antenna with cable:0.597dBi

Radiation Omni-directional

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**NCC 警語：**

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。