WLAN6060 Embedded Module
Evaluation Kit User's Guide

10/29/2002
(preliminary)

Confidential Information

WLAN6060(EB/EC) EVK User's Guide Revision Control

Revision	Date	Author	Engineering Approval	Marketing Approval	Operation Approval	Mark
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Table of Content

1 Introduction Information

1.1 Introduction

WLAN6060 EVK from SyChip Inc provides a platform for testing SyChip WLAN embedded modules (WLAN6060EB for BGA version and WLAN6060EC for 60-pin connector version).

Using easy to follow step by step directions, anyone can set up and configure a laptop computer to communicate with a host or enterprise hub. Some information will be needed about the network hub to enable communications. If you do not know your ESSID or your encryption algorithm, contact your in-house IT support person or system administrator.

Warnings:

THIS EQUIPMENT COMPLIES WITH PART 15 OF THE FCC RULES. ANY CHANGE OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE MANUFACTURER COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

THIS DEVICE MUST BE INSTALLED IN A LOCATION THAT IS NOT ACCESIBLE TO THE GENERAL PUBLIC. INSTALL THE DEVICE SO THAT THE ANTENNA IS MORE THAN 5 cm FROM UNSUSPECTING PERSONNEL. FAILURE TO INSTALL THIS DEVICE AS DESCRIBED WILL RESULT IN A FAILURE TO COMPLY WITH FCC RULES FOR RF EXPOSURE AND IS DISCOURAGED. ONLY ANTENNAS APPROVED WITH THE DEVICE MAY BE USED. NO EXTERNAL ANTENNAS MAY BE USED. THIS DEVICE MAY NOT BE CO-LOCATED WITH OTHER TRANSMITTERS WITHOUT FURTHER APPROVAL BY THE FCC.

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.

1.2 Scope

This User's Guide contains:
- WLAN6060(EB/EC) embedded module installation procedures for notebook computer
- Basic configuration for notebook computer
- The test setup and instruction of the WLAN6060(EB/EC) embedded module

1.3 Preparation

Before beginning the installation, verify the hardware package contains:
- A WLAN6060(EB/EC) embedded module
- A CF/PCMCIA test board with antenna

- PCMCIA to CF adapter
- A 6" coaxial cable jumper for the RF connection from the module to the antenna
- A WLAN6060(EB/EC) embedded module software and documentation CDROM

1.4   Supported Devices

The WLAN6060(EB/EC) embedded module has been qualified by SyChip Inc to support the following devices:
- Notebook computer (Windows NT/2000/XP) devices with CF/PCMCIA interface.
- PDA (Win CE 3.0/Pocket PC2002,2000) with CF/PCMCIA interface.

Refer to the documentation on the enclosed CDROM for installation and usage instructions.

2   Installation and Configuration

2.1   System Connection

WLAN6060(EB/EC) test board
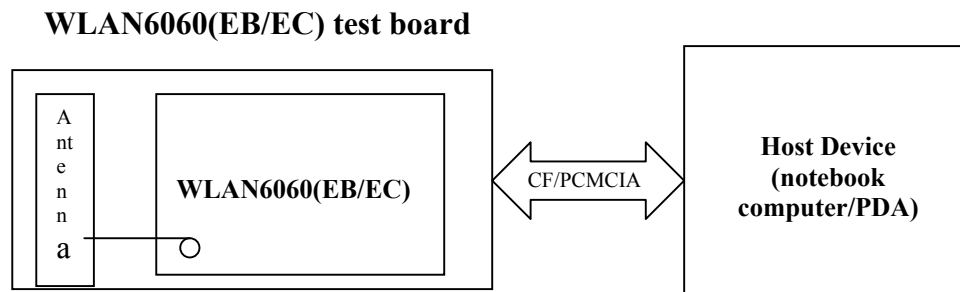
2.2   Installing WLAN6060EB(EC) embedded module EVK and Software to Windows based notebook computer

The installation of WLAN6060 embedded module driver and utility to notebook computer with Windows 2000/NT/XP system:

1. Insert the WLAN6060(EB/EC) Software and Documentation CDROM into the CDROM drive on the notebook computer
   An HTML (Web) page automatically displays
2. Click **Software Installation**
   A **File Download** window display
3. Check the **Run this program from its current location** option and click **OK**.
4. Follow the instruction displayed by the installer.
5. Finish of the installation to the host device.

2.3   Configuring WLAN6060EB(EC)

After installed the driver into host device, you can now plug in the WLAN6060EB(EC) module EVK into CF slot in your host device. A green LED on the module is on to indicate the module status. The module automatically loads driver from the host device. You will also see an icon appearing on the low right corner bar.

You need to configure the module before you can be connected to the network. Double click the Pegasus icon, a "**Pegasus Wireless Settings**" windows will pop up.

Status Tab
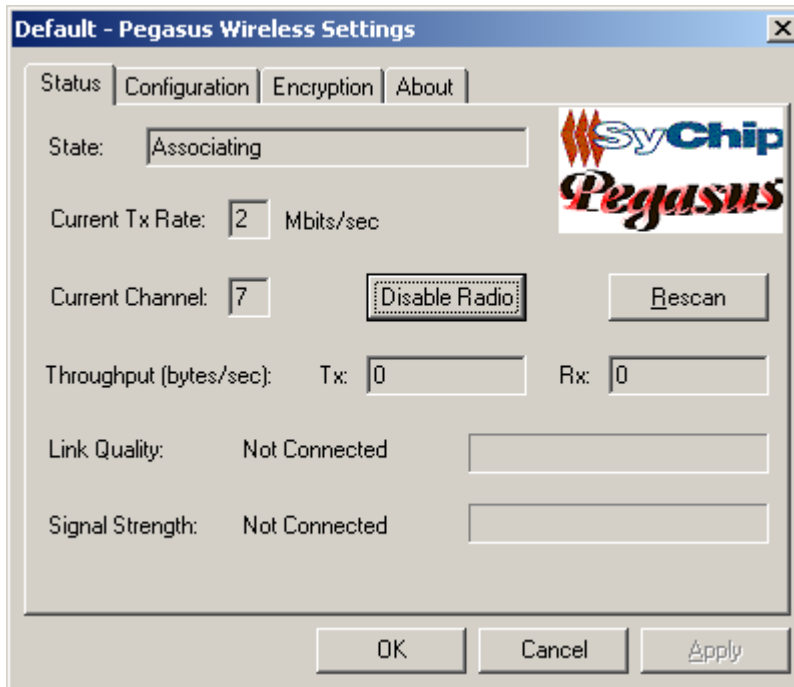
- **State**

It gives the current status of the module.
  - Associating: the module is searching the Access Point to associate with.
  - Associated: the module found an Access Point to associate with followed by MAC address.
- **Current TX Rate**

It shows the current transmit speed that can be 1Mb/s, 2Mb/s, 5.5Mb/s, and 11 Mb/s depending on the link quality.
- **Current Channel**

It shows the RF channel number currently used by the module.
- **Disable Radio**

This button is used to disable the radio link from the module.
- **Rescan**

Press this button to start a new search to find an access point with better link quality.
- **Throughput**

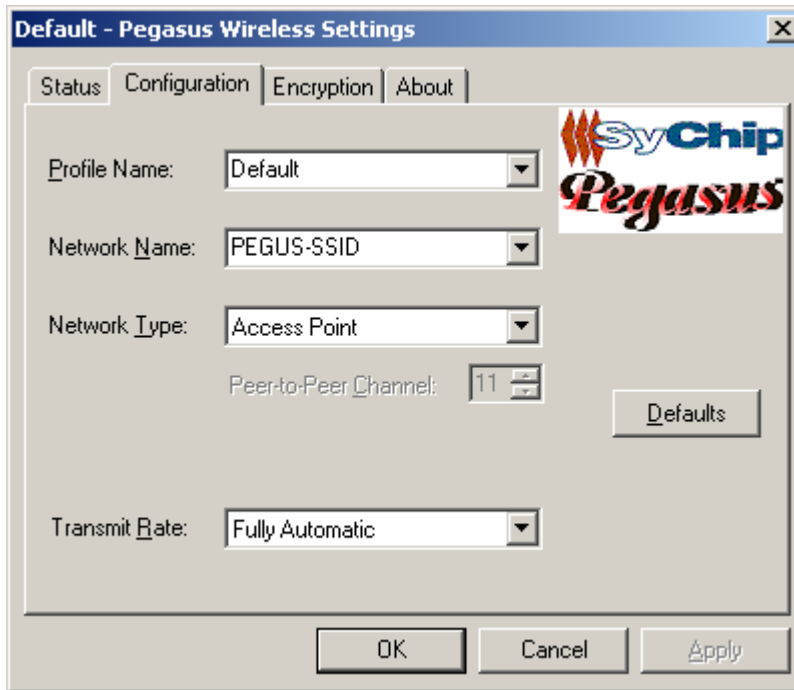It shows the data throughput between Host device and network.

- **Link Quality**

It gives both percentage and graphic display for signal to noise ratio.

- **Signal Strength**

It gives both percentage and graphic display for signal strength in Receiver.

Configuration Tab

- **Profile Name**

Profile file contains all configuration parameters for the module setting. You can use a default profile to configure the module, or use a specified profile for the module setting.

- **Network Name**

Network name (SSID) is the network ID your module associates with, which can be a domain name. *Check with your network administrator for Network Name (SSID)*.

- **Network Type**

Network type is the working mode your module is working on. The module can work in two modes. One is the "Access Point" mode, it is also called "Infrastructure" mode, which is used by default. The other one is "Peer to Peer" mode that is used to communicate between two module without an access point.

- **Peer-to-Peer Channel**

If you use "Peer to Peer " mode, you have to set your radio channel same as the channel your other party is using.
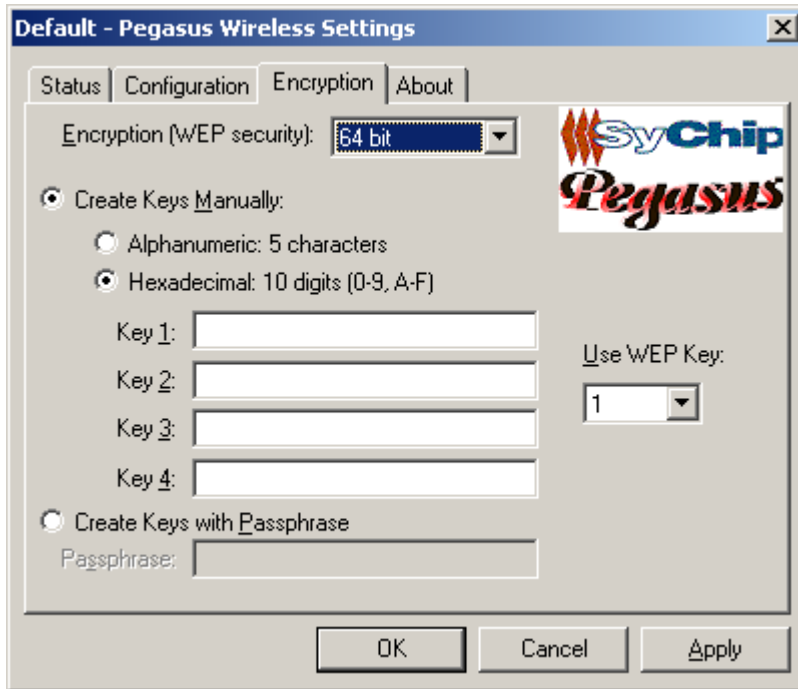
- **Defaults**

Defaults button is used for factory reset.

- **Transmit Rate**

You can manually select the transmit rate between 1M, 2M, 5.5M, 11Mbit/s. It is "Fully Automatic" by default.

Encryption Tab

- **Encryption (WEP Key)**

It provides the security for your wireless communication. By default, it is disabled for easy set up. It can be set with 64 bits long, or 128 bits long.

- **Create Keys Manually**
  - **Alphanumeric**

  This option let you choose 5 characters to be used in encryption.
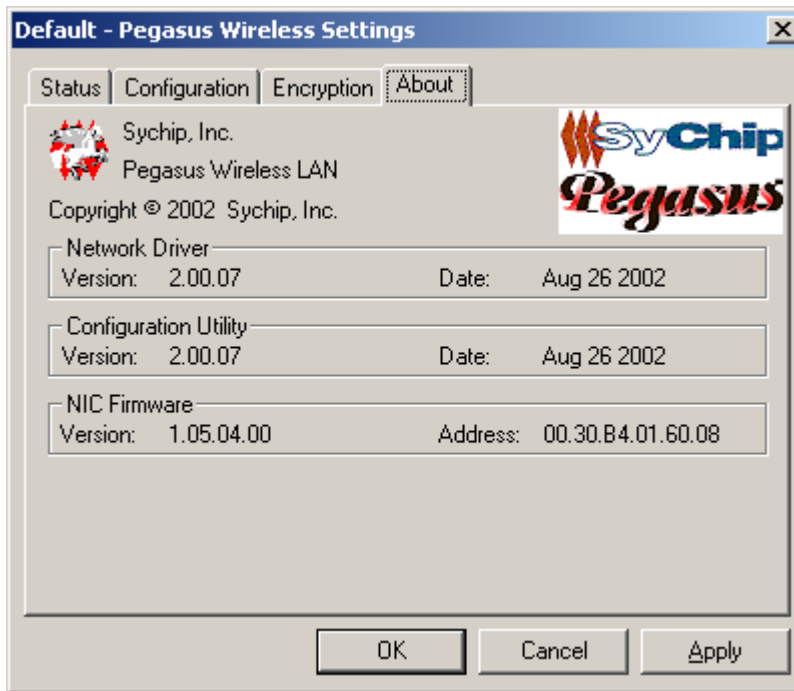 - **Hexadecimal**

  This option let you select 10 Hex digits (0-9, A-F) for each WEP Key, and then specify a WEP Key to be used from right scroll down menu window.

- **Create Keys with Passphrase**

This option can be used to generate an encryption code based on the phrase you entered in the window.

Check with your network administrator for security WEP Key you need to use.

About Tab

This window provides Version Number and time to be built for Network Driver, Configuration Utility, and NIC Firmware currently used in this module. One can check SyChip website for latest version, and download to the module.

2.4 Installing WLAN6060(EB/EC) embedded module and Software to Win CE devices

The installation of WLAN6060EB(EC) module driver and utility to Win CE (Pocket PC2002/2000, .NET) system requires a connection through Microsoft ActiveSync between the desktop or notebook PC and host device. The installation installer on the CDROM downloads the necessary files to the host device through the desktop or notebook PC.

1. Establish an ActiveSync connection between the desktop or notebook PC and the host device.
2. Insert the WLAN6060EB(EC) Software and Documentation CDROM into the CDROM drive on the notebook computer. An HTML (Web) page automatically displays
3. Click **Software Installation**. A **File Download** window display
4. Check the **Run this program from its current location** option and click **OK**.
5. Follow the instruction displayed by the installer.
6. Finish of the installation to the host device.

2.5 Plug-in the module
After installed the driver into host device, you can now plug in the EVK into CF slot in your host device. You will see an icon appearing on the low right corner bar.

2.6   Configuration

You need to configure the module before you can be connected to the network. Double click the Pegasus icon, a "**Pegasus Wireless Settings**" windows will pop up.

2.6.1   Status Tab

The status tab screen shows some important parameters that module is working with:
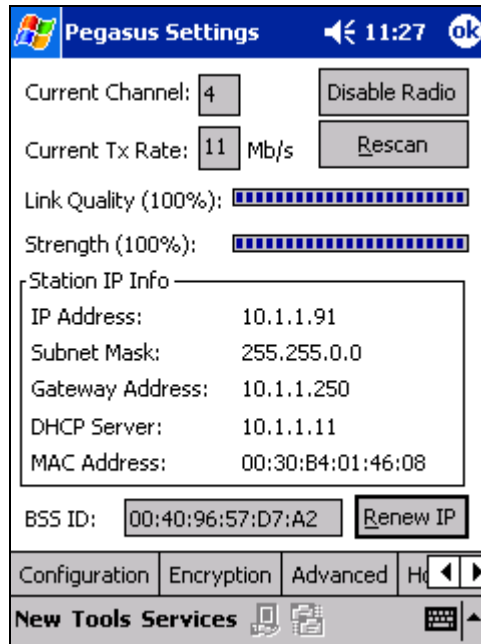

Figure 1 Status window

Information Field

- **Current Channel**
  It shows the RF channel number currently used by the module.
- **Current TX Rate**
  It shows the current transmit speed that can be 1Mb/s, 2Mb/s, 5.5Mb/s, and 11 Mb/s depending on the link quality.
- **Link Quality**
  It gives both percentage and graphic display for signal to noise ratio.
- **Signal Strength**
  It gives both percentage and graphic display for signal strength in Receiver.
- **Station IP Info**
  This block gives the card IP information that include:
    - ❖ **IP Address**
    - ❖ **Subnet Mask**
    - ❖ **Gateway Address**
    - ❖ **DHCP Server**
    - ❖ **MAC Address**

Check with your network administrator for IP configuration information.

- **BSS ID**

It shows the MAC address of the Access Point the module associating with.

Operation Button
- **Disable Radio**

This button is used to disable the radio link from the module.
- **Rescan**

Press this button to start a rescan in current radio channel.
- **Renew IP**

Renew IP button allows one to reapply IP address from DHCP server.
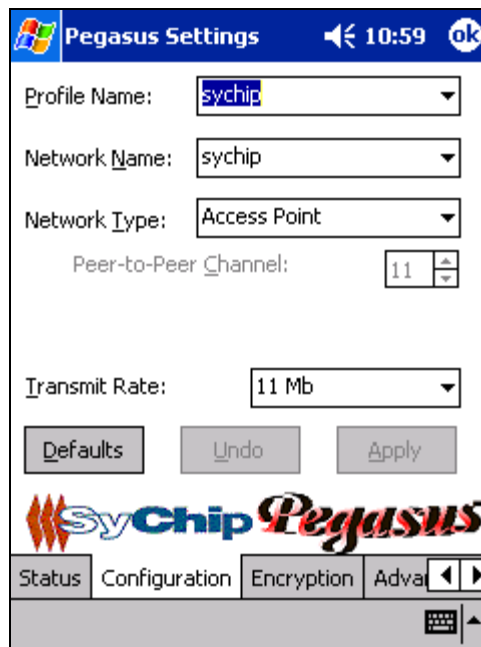
2.6.2 Configuration Tab

Figure 2 Configuration window

Information Field
- **Profile Name**

Profile file contains all configuration parameters for the module setting. You can use a default profile to configure the module, or use a specified profile for the module setting.
- **Network Name**

Network name (SSID) is the network ID your card associates with, which can be a domain name. ***Check with your network administrator for Network Name (SSID)***.
- **Network Type**

Network type is the working mode your module is working on. The module can work in two modes. One is the "Access Point" mode, it is also called "Infrastructure" mode, which is used by default. The other one is "Peer to Peer" mode that is used to communicate between two modules without an access point.
- **Peer-to-Peer Channel**

If you use "Peer to Peer " mode, you have to select your radio channel same as the channel your other party is using.

- **Transmit Rate**

You can manually select the transmit rate between 1Mb/s, 2Mb/s, 5.5Mb/s, and 11Mbit/s. It is "Fully Automatic" by default.

Operation Button

- **Defaults**

Defaults button is used for factory reset.

- **Undo**

Undo the change in configuration setting.

- **Apply**

Apply change in configuration setting immediately.
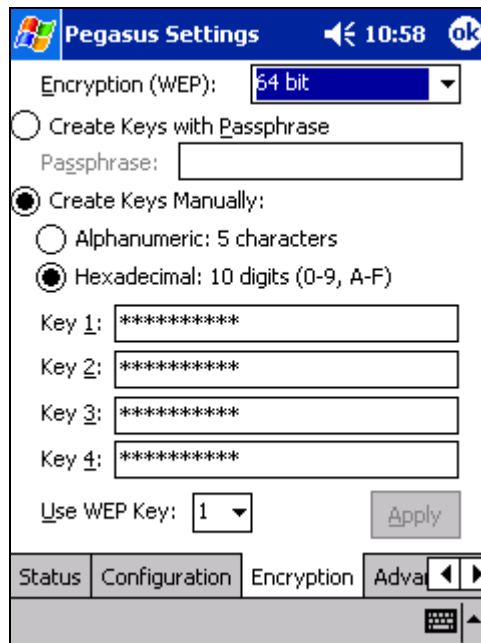
2.6.3 Encryption Tab

Figure 3 Encryption window

Information Field

- **Encryption (WEP Key)**

It provides the security for your wireless communication. By default, it is disabled for easy set up. It can be set to 64 bits or 128 bits long.

- **Create Keys with Passphrase**

This option can be used to generate an encryption code based on the phrase you entered in the window.

- **Create Keys Manually**
  - ❖ **Alphanumeric**

This option let one choose 5 or 13 characters (depending on the encryption length) for encryption.

❖ **Hexadecimal**

This option lets one to enter 10 or 26 digits (0-9, A-F, depending on the encryption length) for each WEP Key window, and then specify a WEP Key to be used from right scroll down menu window.

Check with your network administrator for security WEP Key you need to use.

Operation Button

• **Apply**

Apply change to encryption setting.
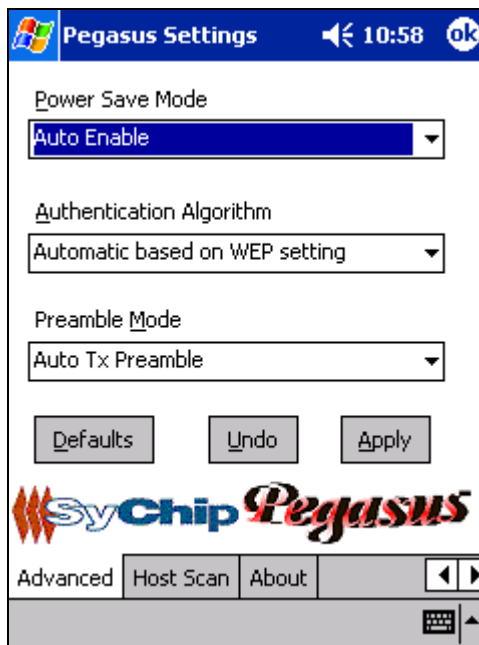
2.6.4   Advanced Setting Tab

Figure 4 Advanced setting window

Information Field

• **Power Save Mode**

One can select to set power save mode to be:

❖ **Disable**

❖ **Always Enable**

❖ **Auto Enable**

It is Always Enable by default.

• **Authentication Algorithm**

Authentication algorithm has three options:

❖ **WECA Compliant**

❖ **Must use Shared with WEP**

❖ **Automatic based on WEP setting**

It has been selected to Automatic based on WEP setting by default.

Note: WEP Key must be enabled and supported by the Access Point for this feature.

- **Preamble Mode**

One can select to set preamble to be:
- ❖ **Long TX Preamble**
- ❖ **Short TX Preamble**
- ❖ **Auto TX Preamble**

It's been set to Auto TX Preamble by default.

Operation Button
- **Default**

Default button reset the setting.
- **Undo**

Undo button undo the change for setting.
- **Apply**

Apply button applying the change to the module setting.
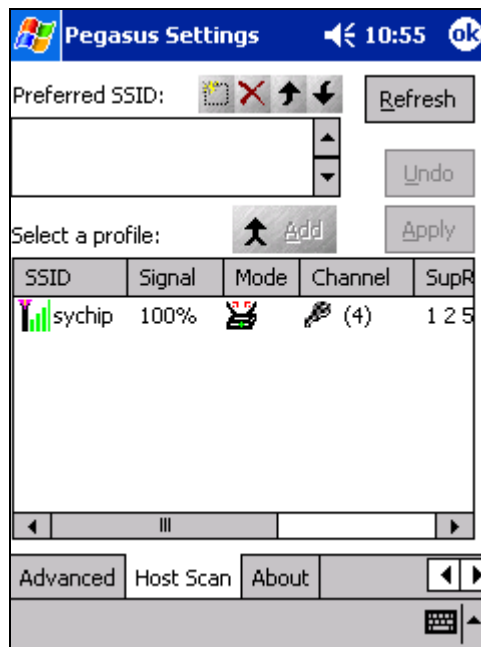
2.6.5 Host Scan Tab

Figure 5 Host scan window

This function tab provides a tool to find a new Access Point with better service quality. It works in the procedure define below:
- **Refresh**

Press this button to initial a new search for all available Access Point around. One should be able to see all Access Points with SSID, Signal, Mode, Channel, Support Rate, and BSSID on the bottom half of the screen.
- **Select a Profile**

By highlighting one Access Point, one selects it as a profile to work on.
- ❖ Press **Apply** button to use this Access Point for card association immediately.

❖ Press **Add** button to pop up the setting window for entering WEP Key, click OK to add it to your **Preferred SSID** table showing on the upper screen.
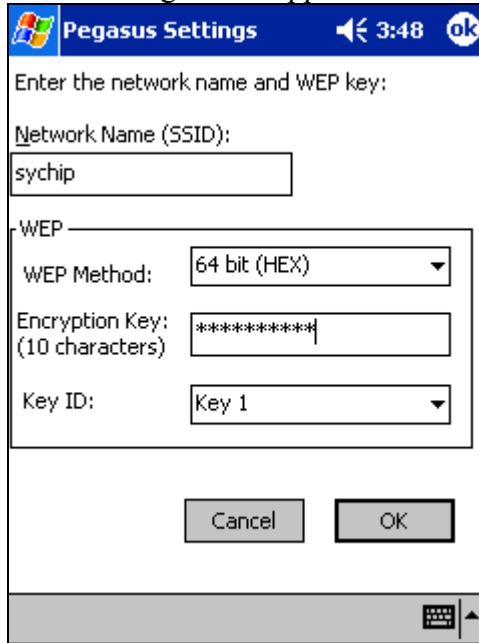

Figure 6 Profile setting window

- **Preferred SSID Table**
  For each profile in the table, one can make the following change by using icon tools on right side:
  ❖ **Modify** the setting will let one to change the card configuration setting
  ❖ **Delete** from table will delete the highlighted profile
  ❖ Change order **higher** will move profile upper
  ❖ Change order **lower** will move profile lower

2.6.6   About Tab

Figure 7 About window

This window provides Version Number and time to be built for Network Driver, Configuration Utility, and NIC Firmware currently used in this module. One can check SyChip website for latest version, and download to the module.

2.7   Removing the EVK

You should always stop the module before removing the EVK from the Host Device slot. To stop the module, right click the icon on the task bar and select the option **Wireless Radio Off.**

3   Troubleshooting

The following scenarios could be encountered when using the WLAN6060(EB/EC) in a Windows NT/2000/XP environment:

The notebook computer does not Recognize WLAN6060(EB/EC)

The notebook computer displays an Unrecognized Card dialog box when the test board is inserted.

This means the WLAN6060(bBB/EB) driver was not loaded or was loaded incorrectly. If this is the case the driver files require reinstallation. Refer to the *WLAN6060(EB/EC) installation* section of this document.

An IP Address is Not Recognized by the notebook computer

- Check with system administrator for proper configuration settings.
- Remove and reinsert the test board or turn off and turn on the notebook computer for changes to the IP address to take effect.

4 Documentation Updates

All latest documentation, software version and drivers will be updated on SyChip's Web site at *www.sychip.com/download* . Please feel free to visit and download for your applications.

5 Contact Information

Customer Support

SyChip Inc provides its customers with prompt and accurate customer support. If the SyChip Customer Support specialists cannot solve a problem, access to all technical disciplines within SyChip becomes available for further assistance and support. SyChip Customer Support responds to calls by email, telephone of fax within the time limits set forth in individual contractual agreements. When contacting SyChip Customer Support, please provide the following information:

- Serial number of the unit
- Model number or product name
- Software type and version number.
- Order number

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