WLAN6065SD Card
User Manual

10/01/2003
preliminary

Confidential Information

WLAN6065SD Card User Manual Version Control

Version	Date	Author	Engineering Approval	Marketing Approval	Operation Approval	Mark
Preliminary	10/01/2003	JC				

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1 Introduction Information

1.1 Introduction
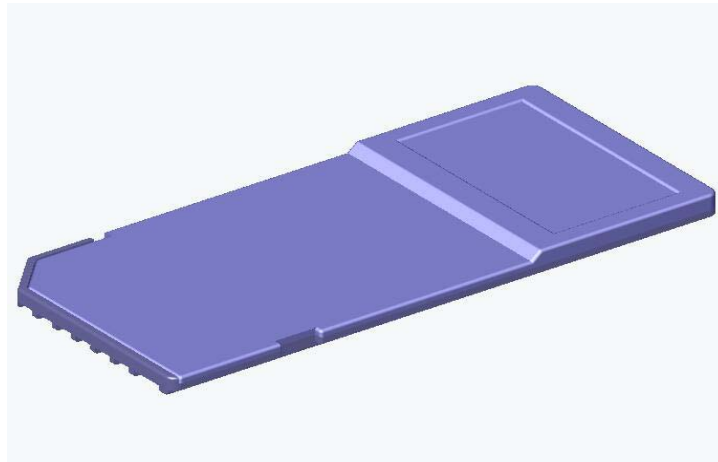
SyChip WLAN6065SD Network Interface Card

WLAN6065SD Card from SyChip Inc is a Secure Digital Card form factor Wireless LAN NIC(Network Interface Card) incorporating the popular wireless Ethernet standard 802.11b. It uses Direct Sequence Spread Spectrum (DSSS) Wireless LAN technology to provide bandwidths of up to 11Mbps at ranges of up to 400 feet. This card enables next generation Pocket PC/PDAs, Cellular Phones, and Ultra-thin notebook computers to access the internet, email, corporate networks and transfer streaming video or audio, images or large files from a WLAN-enabled environment. It allows an extension of the corporate resources by enabling the mobile workforce and telecommuters. The card is idea for vertical markets such as manufacturing floors, car rentals, retail spaces, hospitals etc. In the consumer market, this WLAN card is ideal for users of next generation Palms, Pocket PCs, Smartphones, printers and scanners. Additionally, the card gives users the ability to work whilst away from the office by connecting to the rapidly expanding public hotspot infrastructure. Such venues as coffee shops, airports, shopping malls, hotels, etc are offering this capability based on the IEEE802.11b standard. For mobile applications, battery life is extended through the use of enhanced power saving features, which reduce the current drain whilst in standby mode (the card is in this state for the majority of the time as it awaits data destined for it).

Not only does the WLAN6065SD Card roam seamlessly among multiple 802.11b wireless network access point, it also operates in peer to peer mode (without an access point) to download data from wirelessly equipped laptops without a cradle or network connection, and can share data directly with wireless PDAs.

This is a complete WLAN solution incorporating the Baseband Processor, Mac, Memory, VCO, Transceiver, Antenna, antenna switch and power amplifier and to realize a complete design. The card will be fully WiFi certified.

Key Features:

- Wi-Fi Certified – interoperable with other Wi-Fi certified WLAN products
- Very small footprint: card measured 54.0x24.0x2.1mm3.
- Complete IEEE802.11b functionality integrated BB/MAC, RF, VCO, PA and SD interface
- Reduced power consumption in standby mode
- User definable transmit data rate settings in Ad Hoc Mode
- Will support Win2000/NT/XP, WinCE (v3.0 or greater), Palm OS
- Support infrastructure or Peer to Peer connectivity

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 WAS DEVICE WAS EVALUATED FOR BODY SAR IN A PDA WITH A SEPARATION DISTANCE OF 0.0 CM. FAILURE TO INSTALL THIS DEVICE AS DESCRIBED WILLWILL 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   About this User Manual:

This User Manual contains:
- Information of safety and handling of WLAN6065SD Card
- WLAN6065SD Card installation procedures for Pocket PC/PDA
- Basic configuration and settings of WLAN6065SD Card for Pocket PC/PDA
- Troubleshooting of WLAN6065SD Card
- Update and support information
- Legal Information

Please be sure to read this User Manual before using the WLAN6065SD Card to ensure its proper handling.
- Please be sure to read "Safety Precautions" in the document since these describe important safety issues

- After reading this document, keep it in a convenient place for future reference.

Concerning the display of device certification:

This product has been certified as conforming to technological standards for a wireless device as a small electrical data transmission system under electrical transmission law. Therefore, you do not need a license from a government agency to operate this system.

However, the following actions are punishable by law:
- Disassembly or modification of this product
- Removal of identification labels on the back of this product

1.3   Safety Precautions

1.4   Limitation of Liability

1.5   Usage Conditions

1.6   Warning

1.7   Caution

1.8   Handling Instructions

1.9   Notes

2   WLAN6065SD Package Contents

WLAN6065SD Card package from SyChip includes:

- 1 WLAN6065SD Card
- 1 WLAN6065SD software and document CD

3   WLAN6065SD Specifications

Supported Operating System: Win CE3.0 (Pocket PC2002)

Certification: Wi-Fi (802.11b)

Size (LxWxH mm3):   54.0x24.00x1.6 (2.1mm high for extended antenna section)

Weight(g):   4.3

Transmit Power(dBm):   13.0

Power ratings:
      DC (V)   3.3 (2.7~3.6)
      Current Consumption(mA):   297 (max)
                                      35 (average)
                                      15 (sleep)

Security Standards: WEP 64/128

4 Installation and Configuration

4.1 Preparation

Before operating the WLAN6065SD Card, refer to *Applying the Regulatory Country Stamp.* Once the regulatory stamp is affixed, register the WLAN6065SD Card at www.sychip.com/products/reg.

Before beginning the installation, verify the hardware package contains:
- A WLAN6065SD Card
- A WLAN6065SD Card software and documentation CD

4.2 Supported Devices

The WLAN6065SD card can be used in any platform that has the proper SDIO interface and Software drivers.

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

4.3 Installing WLAN6065SD Card and Software

WLAN6065SD   **Host Device**

SDIO Slot
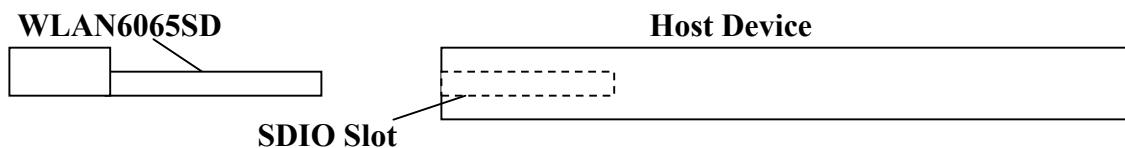
The WLAN6065SD Card driver and utility installation requires a connection through Microsoft ActiveSync between the desktop or notebook PC and the host device. The installation installer on the CDROM downloads the necessary files to the host device through the desktop or notebook PC.

1. Establish an ActiveSync connection between the desktop or notebook PC and the host device.
2. Insert the WLAN6065SD Card Software and Documentation CDROM into the CDROM drive on the desktop or notebook PC.
   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 of WLAN6065SD software to the host device.

4.4 Configuring WLAN6065SD Card

After installed the driver into host device, you can now plug in the WLAN6065SD card into SDIO slot in your host device. You will see an icon appearing on the low right corner bar.

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

4.4.2 Status Tab
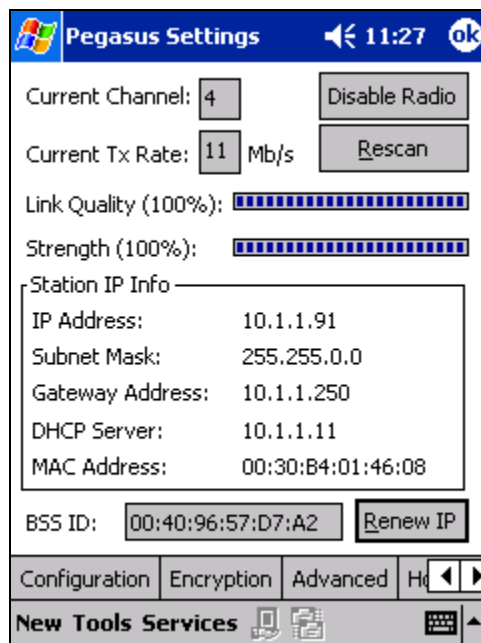The status tab screen shows some important parameters that card is working with:

Figure 1 Status window

Information Field
- **Current Channel**

It shows the RF channel number currently used by the card.

- **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 card associating with.

Operation Button

- **Disable Radio**

This button is used to disable the radio link from the card.

- **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.
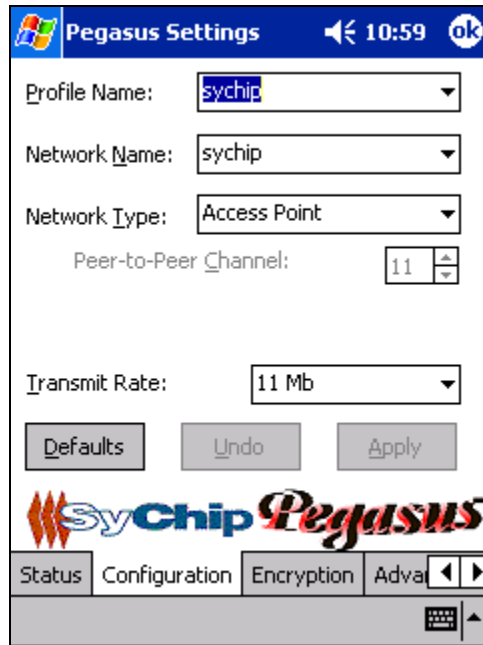
4.4.3 Configuration Tab

Figure 2 Configuration window

Information Field

- **Profile Name**

Profile file contains all configuration parameters for card setting. You can use a default profile to configure the card, or use a specified profile for card 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 card is working on. Pegasus card 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 radio cards 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.
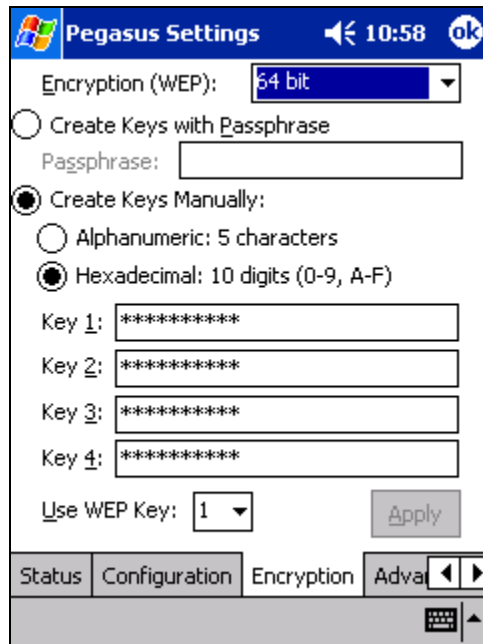
4.4.4 Encryption Tab

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.
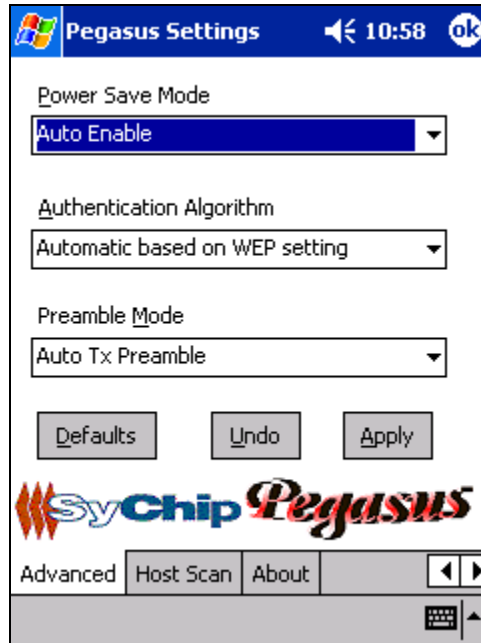
4.4.5 Advanced Setting Tab

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 card setting.

4.4.6   Host Scan Tab
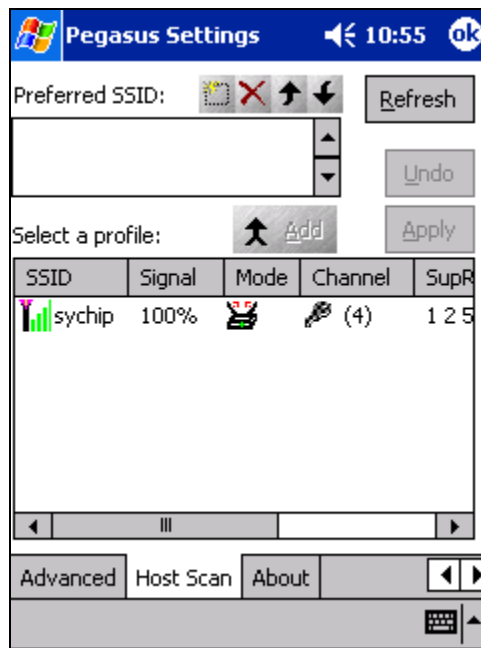
Figure 5 Host scan window

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.

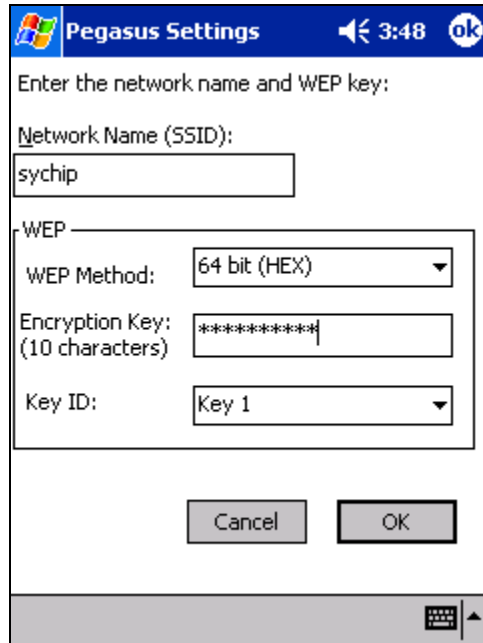**Figure 6 Profile setting window**

- **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

4.4.7 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 card. One can check SyChip website for latest version, and download to the card.

4.5 Removing the radio card

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

Refer to the *WLAN6065SD Card User Manual* on the CDROM for detailed information on configuration settings.

5 Troubleshooting

The following scenarios could be encountered when using the WLAN6065SD Card in a Windows CE environment:

The Pocket PC does not Recognize WLAN6065SD Card

The Pocket PC displays an Unrecognized Card dialog box when the WLAN6065SD Card is inserted.

This means the WLAN6065SD Card driver was not loaded or was loaded incorrectly. If this is the case the driver files require reinstallation. Refer to the *WLAN6065SD Card installation* section of this document.

An IP Address is Not Recognized by the Pocket PC

Remove and reinsert the wlan6065SD Card or turn off and on the Pocket PC for changes to the IP address to take effect.

6   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.

7   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

SyChip Inc. worldwide Customer Support contact information:

SyChip Inc.
Parkway Centre II
2805 Dallas parkway, Suite 400
Plano, TX 75093
Telephone: (972)836-0010
Fax: (972)633-0327
Email: support@sychip.com

8 Legal Information

8.1   Applying the Regulatory Country Stamp

A regulatory Label is applied on the back of the WLAN6065SD Card.

The regulatory label signifies that the WLAN6065SD Card is approved for use in the following countries:

- United States
- Canada
- Australia
- Japan
- Europe Union (except Belgium and France)

For approved countries other than those listed above, a sheet of adhesive country stamps may be enclosed within the WLAN6065SD Card package.

To apply the country stamp:

1. Peel the stamp appropriate to the country where the WLAN6065SD Card is used.
2. Apply the country stamp on the bottom right-hand corner of the regulatory label located on the back of the WLAN6065SD Card.

For countries that have not received regulatory approval, an adhesive country stamp is not enclosed. Refer to www.sychip.com for the latest list of approved countries.

! Operation of the device without a regulatory label or the correct country stamp is illegal.

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Danish	Undertegnede SyChip, Inc. erklærer herved, at følgende udstyr Wideband Transmission System Radio overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
Dutch	Hierbij verklaart SyChip, Inc. dat het toestel [Wideband Transmission System Radio in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG. Bij deze verklaart [Naam van de fabrikant] dat deze [naam /type van het apparaat] voldoet aan de essentiële eisen en aan de overige relevante bepalingen van Richtlijn 1999/5/EC.
English	Hereby, SyChip, Inc., declares that this Wideband Transmission System Radio is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
German	Hiermit erklärt SyChip, Inc., dass sich dieser/diese/dieses Wideband Transmission System Radio in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet. Hiermit erklärt SyChip, Inc. die Übereinstimmung des Gerätes Wideband Data Transmission System Radio mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 1999/5/EG.
Greek	? ? ??? ?????S? SyChip, Inc. ???O??? ? ?? Wideband Data Transmission System Radio S?? ? ? ? F O?? ?? ? ??? S ?? S ? ?S?O? ? ?S ???? ??? S? ?S ??? ? ?S ?? ?? ? S S?? ? ??? S ? ?? ? ?? ?S ?? S ? ?? G?? S 1999/5/??.
Finnish	SyChip, Inc. vakuuttaa täten että Wideband Data Transmission System Radio tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
French	Par la présente SyChip, Inc. déclare que l'appareil Wideband Data Transmission System Radio est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE. Par la présente, SyChip, Inc. déclare que ce Wideband Data Transmission System Radio est conforme aux exigences essentielles et aux autres dispositions de la directive 1999/5/CE qui lui sont applicables.
Italian	Con la presente SyChip, Inc. dichiara che questo Wideband Data Transmission System Radio è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Portuguese	SyChip, Inc. declara que esteWideband Data Transmission System Radio está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Spanish	Por medio de la presente SyChip, Inc. declara que el Wideband Data Transmisión System Radio cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
Swedish	Härmed intygar SyChip, Inc. att denna Wideband Data Transmission System Radio står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

Restrictions (English)

Austria: Use of plug-in radio devices only with host equipment and external antennas as declared by the manufacturer

France: Limited to 2446.5-2483.5 with some geographical contstraints and e.i.r.p limited to -20dBW/MHz.Indoor: 10 mW eirp in 2400-2446 MHz. Inside private area: 2446-2483.5 MHz with 100 mW with authorisation. Outside private area: the band is not opened.

Belgium: E.I.R.P limited to 10 mW.

Hungary: Processing gain: min 10 dB, Antenna type: integral or external with max gain 6 dBi.

Italy: None If used outside of own premises, general authorisation is required.

Luxembourg: None System provider for third party traffic may require a telecommunications Act licence

The Netherlands: 10 mW licence free indoor and outdoor.
100 mW licence free indoor only. 100 mW with licence outdoor within 2451- 2471 MHz. Protection of existing use Government and ENG/OB.

United Kingdom: System provider for third party traffic may require a Wireless Telegraphy and/or Telecommunictions Act Licence.

Restricciones en español

Austria: Uso de dispositivos de radio enchufables solamente con el equipo de anfitrión y antenas externas según lo declarado por el fabricante.

Francia: Limitado a 2446,5-2483,5 con algunos contstraints y e.i.r.p geográficos limitados a -20dBW/MHz.Indoor: eirp de 10 mW en 2400-2446 megaciclo. Área privada interior: 2446-2483,5 megaciclos con 100 mW con la autorización. Área privada exterior: la venda no se abre.

Bélgica: E.I.R.P limitado a 10 mW.

Hungría: Proceso de aumento: DB del minuto 10, tipo de la antena: integral o externo con dBi máximo del aumento 6.

Italia: No se requiere ninguno si está utilizada fuera de propias premisas, autorización general.

Luxemburgo: Ningunos abastecedor del sistema para el tráfico de los terceros pueden requerir una licencia del acto de telecomunicaciones los

Países Bajos: 10 de interior libres de la licencia del mW y al aire libre. 100 de interior libres de la licencia del mW solamente. 100 mW con la licencia al aire libre dentro de 2451- 2471 megaciclos. Protección del gobierno existente del uso y de ENG/OB.

Reino Unido: El abastecedor del sistema para el tráfico de los terceros puede requerir una telegrafía y/o una licencia sin hilos del acto de Telecommunictions.

Restrictions en français

L'Autriche: Utilisation des dispositifs par radio embrochables seulement avec l'équipement central et les antennes externes comme avoué par le fabricant.

France: Limité à 2446,5-2483,5 avec des certains contstraints et e.i.r.p géographiques limités à -20dBW/MHz.Indoor: eirp de 10 mW dans 2400-2446 mégahertz. Secteur privé intérieur: 2446-2483,5 mégahertz avec 100 mW avec l'autorisation. Secteur privé extérieur: la bande n'est pas ouverte.

La Belgique: E.I.R.P limité à 10 mW.

La Hongrie: Traitement du gain: DB de la minute 10, type d'antenne: intégral ou externe avec le maximum du gain 6 dBi.

L'Italie: Aucun si utilisé en dehors de de propres lieux, autorisation générale n'est exigé.

Le Luxembourg: Aucun fournisseur de système pour le trafic de tiers peut ne pas exiger un permis de Loi de télécommunications

Lles Hollandes: d'intérieur libres de permis de 10 mW et extérieurs. d'intérieur libres de permis de 100mW seulement. 100 mW avec le permis extérieur à moins de 2451- 2471 mégahertz. Protection de gouvernement existant d'utilisation et d'ENG/OB.

Royaume Uni: Le fournisseur de système pour le trafic de tiers peut exiger une télégraphie et/ou un permis sans fil de Loi de Telecommunictions.