

SWU-GEG100
54M Compact Flash
Wireless LAN Card

User's Manual

Rev 0.1

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. End users must follow the specific operating instructions for satisfying RF exposure compliance.

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

CyberTAN declared that SWU-GEG100 is limited in CH1~11 from 2400 to 2483.5 MHz by specified firmware controlled in USA.

About this manual

This User's Manual describes how to install and operate your Compact Flash Wireless LAN Card. Please read this manual before you install the product.

This manual includes the following topics:

- Product description and features.
- Software installation procedure.
- Specification

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Chapter 1 - Introduction

The SWU-GEG100 CF Card gives you the freedom to work your way, from wherever you want. An enhanced 802.11g featuring advanced silicon chip design from Marvell capable of delivering data transfer rates up to 54Mbps. Ready to run in Type II Compact Flash-equipped PDAs running Windows CE, the SWU-GEG100 CF Card is truly a “must-have” for all PDA users.

Features

- Compact Flash Type-II form factor.
- IEEE 802.11g compatible.
- Backward compatible with IEEE 802.11b standard.
- Wire-free access to networked resources from anywhere beyond the desktop.
- Delivers data rate up to 54 Mbps.
- 802.11g: Dynamically shifts between 54, 48, 36, 24, 18, 12, 9 and 6 Mbps network speed, based on signal strength, for maximum availability and reliability of connection.
- 802.11b: Dynamically shifts between 11M, 5.5M, 2M, and 1 Mbps network speed, based on signal strength, for maximum availability and reliability of connection.
- Allows users move between Access Points without resetting their connection reconfiguration.
- Built-In PCB antenna with diversity design (Two antennas required).
- Support advanced power management and power saving mode.
- Low CPU utilization through scatter gathers bus-mastering DMA architecture.
- Uses 2.4GHz frequency band, which complies with worldwide requirement.
- Fallback rat algorithm that sets the optimum transmission rate based on actual signal-to-noise ratio and packet loss information
- Supports most popular operating systems: Window 98SE/2000/ME/XP and WinCE/Linux.
- Ensures great security by providing the 64/128 bits Wired Equivalent Privacy (WEP) and WiFi Protected Access (WPA) defined in the IEEE standard.
- 802.11i and WPA2 Support
- 802.11e (WMM) Support
- Future driver upgradeable

What is Wireless LAN?

Wireless Local Area Network (WLAN) systems offer a great number of advantages over traditional wired systems. WLAN is flexible and easy to setup and manage. They are also more economical than wired LAN systems.

Using radio frequency (RF) technology, WLAN transmit and receive data through the air. WLAN combine data connectivity with user mobility. For example, users can roam from a conference room to their office without being disconnected from the LAN.

Using WLAN, users can conveniently access-shared information, and network administrators can configure and augment networks without installing or moving network cables.

WLAN technology provides users with many convenient and cost saving features:

- **Mobility:** WLAN provide LAN users with access to real-time information anywhere in their organization, providing service opportunities that are impossible with wired networks.
- **Ease of Installation:** Installing is easy for novice and expert users alike, eliminating the need to install network cables in walls and ceilings.
- **Scalability:** WLAN can be configured in a variety of topologies to adapt to specific applications and installations. Configurations are easily changed and range from peer-to-peer networks suitable for a small number of users to full infrastructure networks of thousands of users roaming over a broad area.

Wireless LAN Modes

Wireless LANs can be configured in one of two ways:

Ad-hoc Networking	Also known as a peer-to-peer network, an ad-hoc network is one that allows all workstations and computers in the network to act as servers to all other users on the network. Users on the network can share files, print to a shared printer, and access the Internet with a shared modem. However, with ad-hoc networking, users can only communicate with other wireless LAN computers that are in the wireless LAN workgroup, and are within range.
Infrastructure Networking	<p>Infrastructure networking differs from ad-hoc networking in that it includes an access point. Unlike the ad-hoc structure where users on the LAN contend the shared bandwidth, on an infrastructure network the access point can manage the bandwidth to maximize bandwidth utilization.</p> <p>Additionally, the access point enables users on a wireless LAN to access an existing wired network, allowing wireless users to take advantage of the wired networks resources, such as Internet, email, file transfer, and printer sharing.</p> <p>Infrastructure networking has the following advantages over ad-hoc networking:</p> <ul style="list-style-type: none">• Extended range: each wireless LAN computer within the range of the access point can communicate with other wireless LAN computers within range of the access point.• Roaming: the access point enables a wireless LAN computer to move through a building and still be connected to the LAN.• Wired to wireless LAN connectivity: the access point bridges the gap between wireless LANs and their wired counterparts.

Notes on Wireless LAN Configuration

When configuring a wireless LAN (WLAN), be sure to note the following points:

- Optimize the performance of the WLAN by ensuring that the distance between access points is not too far. In most buildings, WLAN Adapters operate within a range of 100 ~ 300 feet, depending on the thickness and structure of the walls.
- Radio waves can pass through walls and glass but not metal. If there is interference in transmitting through a wall, it may be that the wall has reinforcing metal in its structure. Install another access point to circumvent this problem.
- Floors usually have metal girders and metal reinforcing struts that interfere with WLAN transmission.

This concludes the first chapter. The next chapter deals with the hardware installation of the Adapter.

Chapter 2 – Driver Installation for Windows

The following sections cover Compact Flash Wireless LAN Card driver installation in the Windows Operating Systems.

Note!



You have to install your hardware first before you begin to install the drivers.

Please use extensible card to extend Compact Flash card to Card Bus.

Driver installation for Windows 2000

Follow the steps below to install the Compact Flash Wireless LAN Card drivers for Windows 2000.

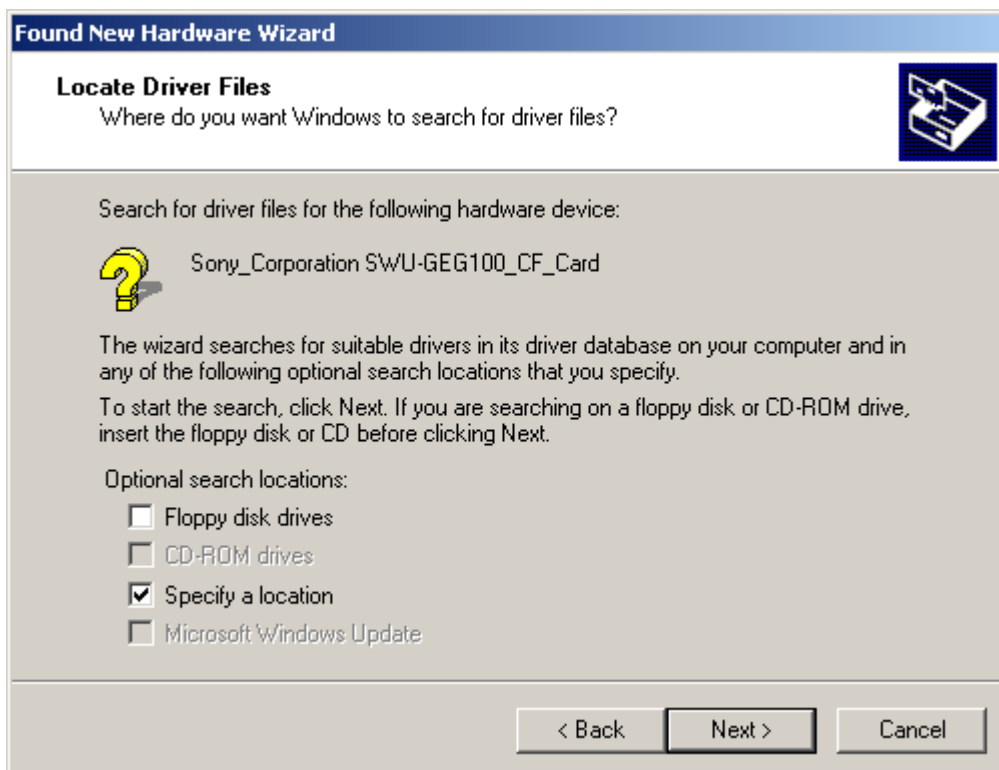
1. Insert the SWU-GEG100 to CardBus slot of notebook first.
2. After Windows 2000 detects the Compact Flash Wireless LAN Card, the *Found New Hardware Wizard* window appears. Click **Next** to start the installation.



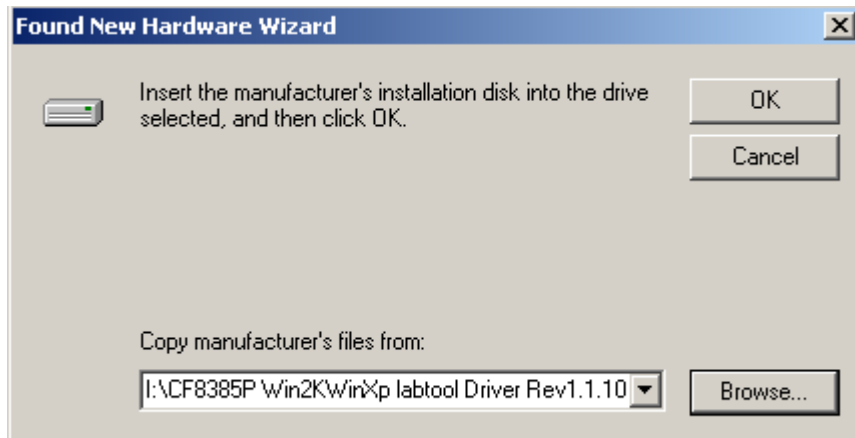
3. A screen appears prompting you to select an installation method. Select **Search for a suitable driver for my device (recommended)** and click **Next** to continue.



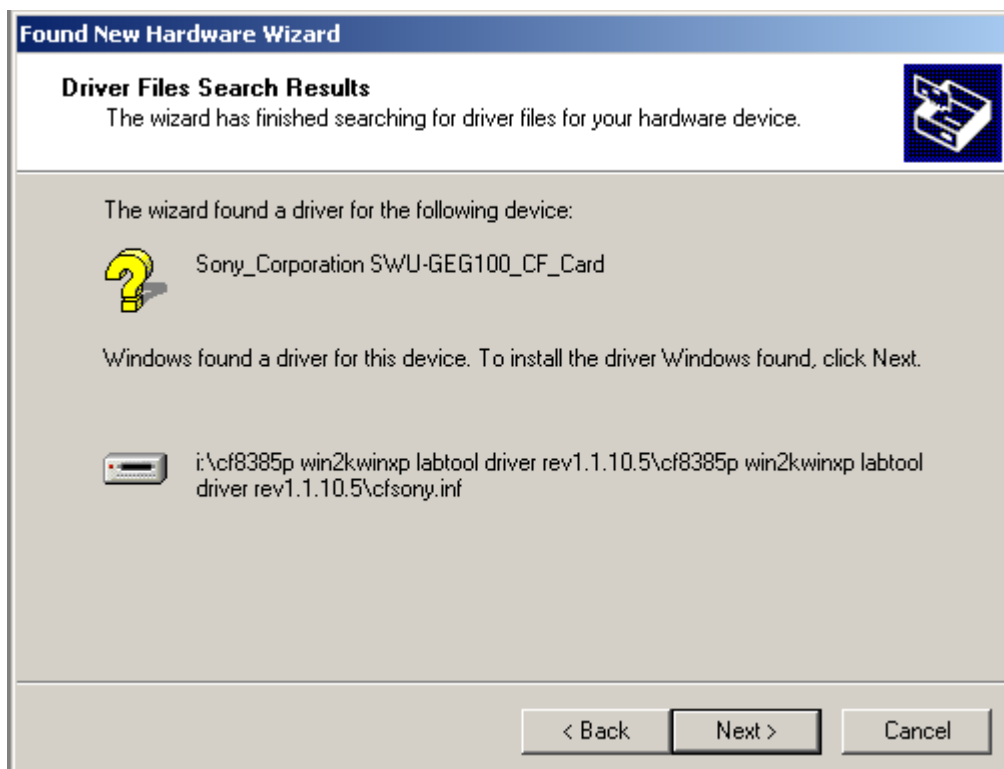
4. Ensure that the **driver** is copied to the PC.



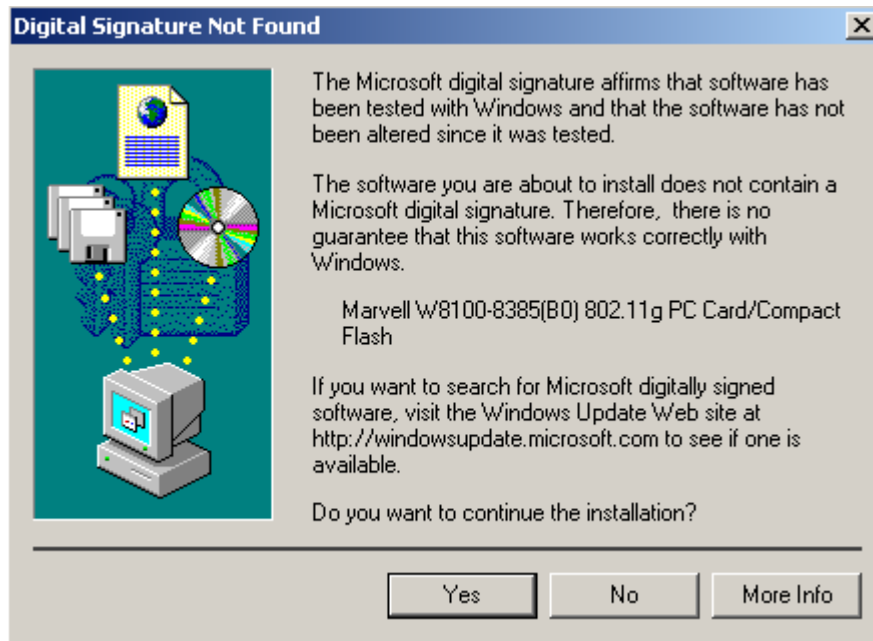
5. Click **Browse** button to point to the driver location.



6. The following screen appears showing the driver search result. Click **Next** to continue the installation.



7. The following screen appears. Click **Yes** to continue



8. The Windows has finished installing software for the device. Click **Finish** to finish the installation.



Driver installation for Windows XP

Note!

You have to install your hardware first before you begin to install the drivers.



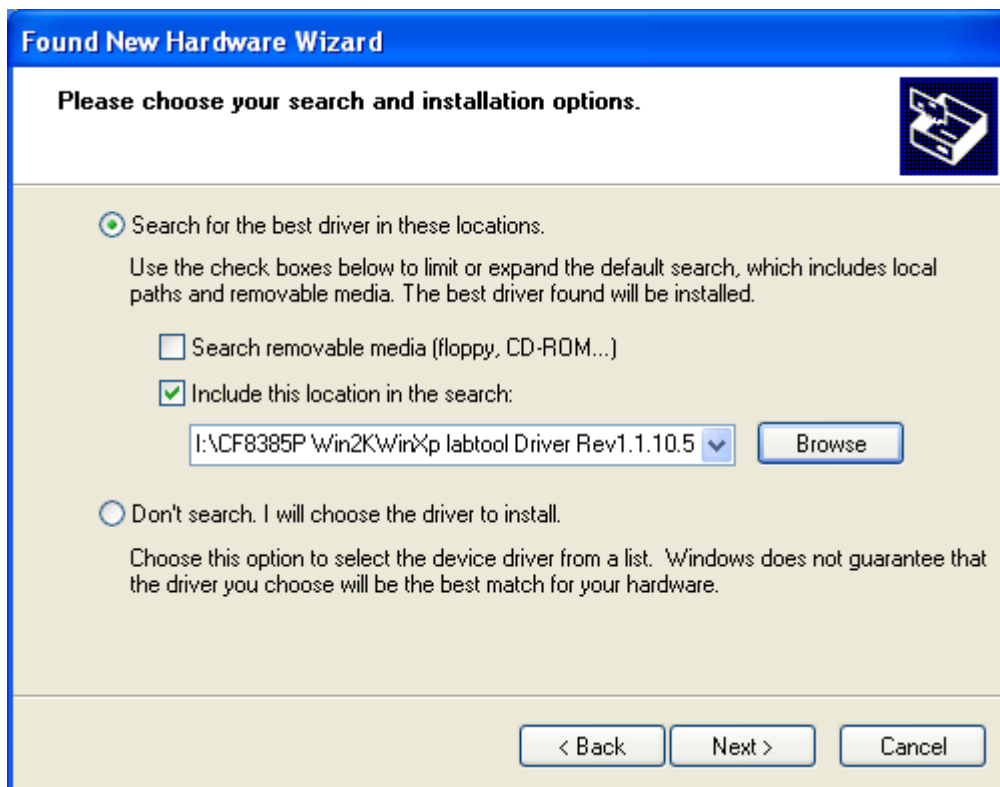
Please use extensible card to extend Compact Flash card to Card Bus.

Follow the steps below to install the Compact Flash Wireless LAN Card drivers for Windows XP.

1. Insert the SWU-GEG100 to CardBus slot of notebook first.
2. After Windows XP detects the SWU-GEG100, the *Found New Hardware Wizard* window appears. Select **Install from a list or specific location (Advanced)** and copy the driver to the PC and click **Next** to continue.

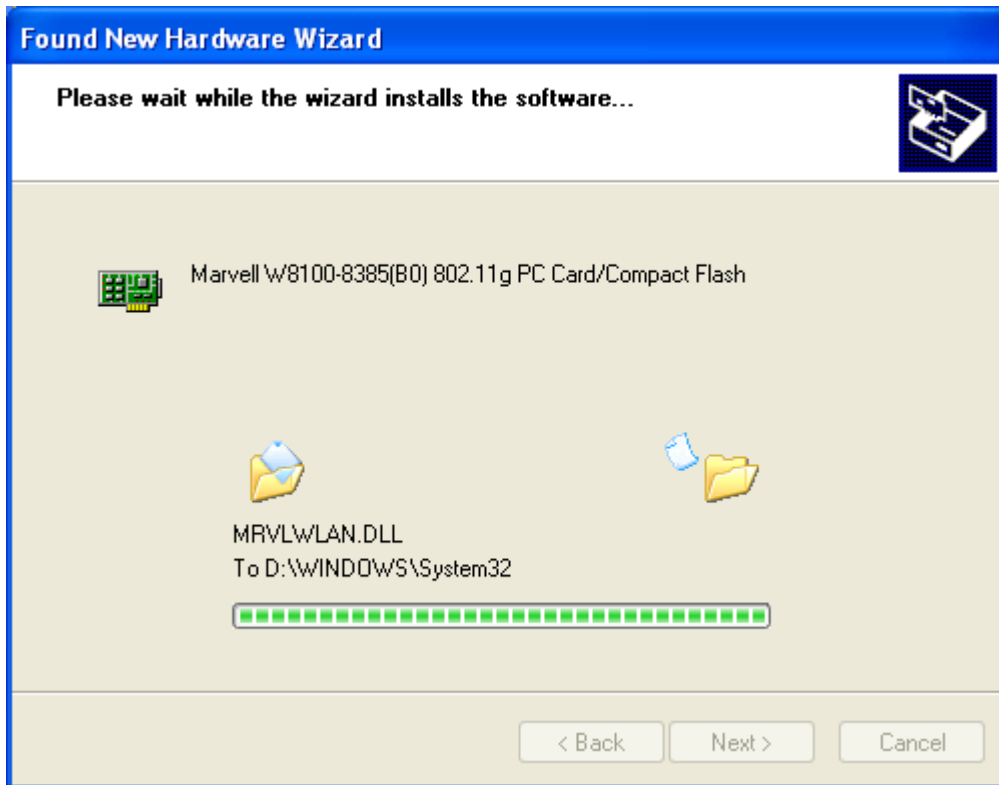


3. Click **Browse** button to point to the driver location and click **Next**.

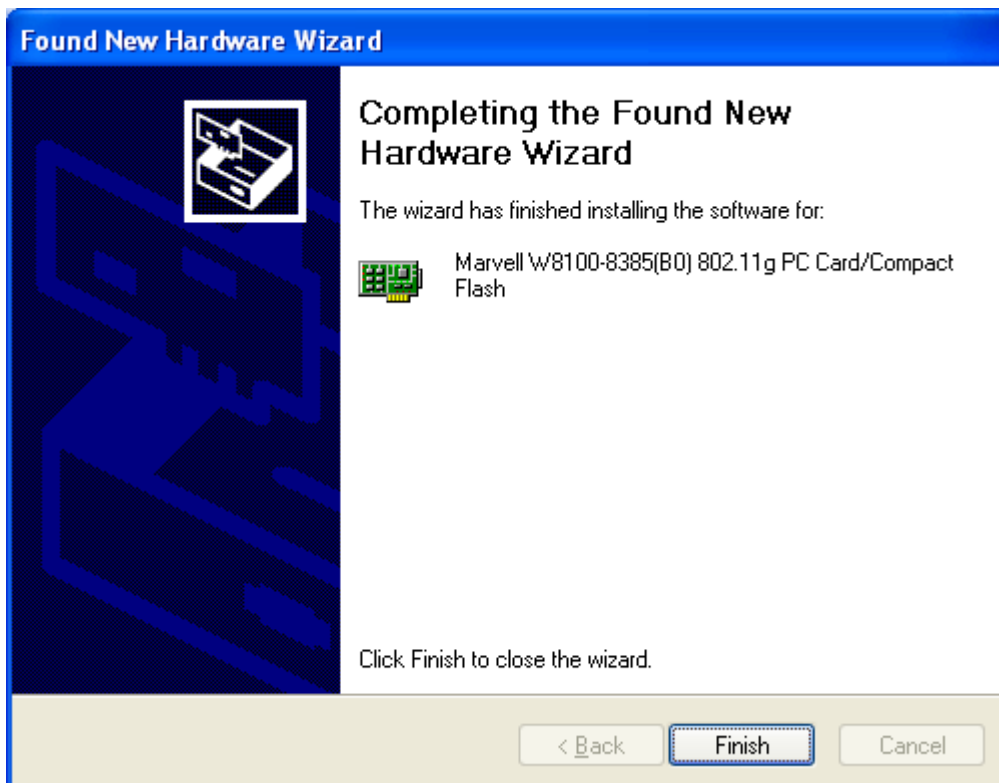


4. Click **Continue Anyway** to continue the installation.





5. The Windows has finished installing software for the device. Click **Finish** to finish the installation



Appendix A – Specifications

Specifications	
Product Name	802.11g WLAN CF Card
Interface	Compact Flash Type-II
Network Standard	IEEE802.11g/b COMPLIANCE
Data Rate	54Mbps with automatic fallback to 48, 36, 24,18,12,9 and 6 Mbps
Modulation	802.11g---- 54, 48, 36,24,18,12,9,6Mbps (OFDM) 802.11b---- CCK (11Mbps, 5.5Mbps), QPSK (2Mbps), BPSK (1Mbps)
Technique	Direct Sequence Spread Spectrum
Operating Frequency	2.412 ~ 2.462 GHz: North America 2.412 ~ 2.472 GHz: Europe ETSI and 2.412 ~ 2.472 GHz: Japan (ARIB STD-T66)
Operating Channels	1~11 for N. America, 1~13 for Europe (ETSI) and Japan,
RF Output Power	8 dBm (54Mbps, OFDM, typical) 9 dBm (11Mbps, CCK, QPSK, BPSK, typical)
Antenna	Built-In PCB antenna with diversity.
LED Indicators	PWR----Power ACT--- Active
Coverage Area	Indoor: 20M@54Mbps, 35M@24Mbps, 60M@6Mbps, 100M@11Mbps
	Outdoor: 40M@54Mbps, 55M@48Mbps, 75M@36Mbps, 100M@24,18,12,9,6Mbps, 60M@11Mbps, 100M@5.5Mbps, 150M@2Mbps, 250M@1Mbps
EVM	EVM = -27dB @ OFDM EVM = 12%ms @ CCK
Frequency Accuracy	Sub-carrier Frequency \pm 20KHz
Receiver Sensitivity	-72 dBm @ 54M OFDM, 10% PER -88 dBm @ 11M CCK, 7% PER -83 dBm @ 6Mbps OFDM, 10% PER -91 dBm @ 1Mbps DBPSK, 7% PER
Power Consumption at Duty-Cycle Mode	TX power consumption Peak: 465mA @ OFDM RX power consumption Peak: 240mA @ OFDM TX power consumption Peak: 480mA @ CCK RX power consumption Peak: 240mA @ CCK Non-Active Peak: 225mA Power Saving Mode: Not available at this moment
Antenna Gain	-4~0 dBi

54M Wireless LAN CardBus Card User's Manual

Support OS	Microsoft Windows 98(SE), Windows 2K, Windows XP, Windows ME, Windows CE 3.0 / 4.0 / 5.0 Linux Kernel 2.4.16 and above.
Operating Temperature	0 to 55 °C
Humidity	20% to 95% Non-condensing
Dimensions (mm)	(W) 58.95mm × (D) 42.8mm × (H) 3.3mm
Weight (g)	30g
Voltage	3.3V