Wireless LAN CF Modular

OEM Installation Guide

Ver. 1.4

Statement of Conditions

The content described in this manual may be improved or changed at any time and it is subject to be changed without notice.

Manufacturer assumes no responsibility for errors contained herein or for direct, indirect, special, incidental or consequential damages with the furnishing, performance, or use of this manual or equipment supplied with it, even if manufacturer of its suppliers have been advised of the possibility of such damages.

Electronic Emission Notices

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.

(2) This device will accept any interference received, including interference that may cause undesired operation.

FCC Radio Frequency 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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user need to correct the interference at his area. If the equipment causes interference to radio or television reception, try to correct the interference by using one or more of the following measures:

- Plug the equipment into an outlet that is on a different circuit from the television or radio.
- Change the direction of the television or radio antenna until the interference disappears.
- Move the equipment to one side or the other of the television or radio.
- Move the equipment farther away from the television or radio.

To assure continued compliance, any changes or modifications not expressly approved by manufacturer could void the user’ s authority to operate the equipment.

FCC Radiation Exposure Statement

This device and its antennas must operate with 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. End users must be provided with specific operating instructions for satisfying RF exposure compliance.

This product has been certified in France, Germany, Italy, Spain, Sweden, UK, and US.

Regulatory information / Disclaimers

Installation and use of this device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications (including the antenna) made to this device that are not expressly approved by manufacturer may void the user' s authority to operate the equipment. The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution or attachment of connecting cables and equipment other than manufacturer specified. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines.

Modular Approval

This device is intended only form OEM integrators under the following conditions:

The antenna must be installed such that 20cm is maintained between the antenna and users, and

The transmitter module may not be co-located with any other transmitter or antenna.

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 devices where the antenna may be installed such that 20 cm may be maintained between the antenna and users. The final end product must be labeled in visible area with the following:

"Contains TX FCC ID: PB6-04021"

End Product Manual Information

The user manual for end users 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 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."

LIMITED WARRANTY

This product is warranted by manufacturer to be free from defects in material and workmanship for one (1) year from the date of purchase, unless otherwise stated.

During this period if this product is found to be defective in material or workmanship, manufacturer or one of its authorized service facilities will at its option either repair or replace this product without charge, subject to the following conditions, limitations and exclusions:

1. This warranty extends to the original consumer purchaser only and is not assignable or transferable.
2. This warranty shall not apply to any product which has been subjected to misuse, abuse, abnormal use, negligence, alteration or accident, or has had its serial number altered or removed.
3. This warranty does not apply to any defects or damage directly or indirectly caused by or resulting from the use of unauthorized replacement parts and/or service performed by unauthorized personnel.
4. This warranty does not apply to the software driver that accompanies this product.

This warranty is made expressly in lieu of all other warranties, expressed or implied, including but not limited to any implied warranty of merchantability of fitness for a particular purpose, and all other obligations on the part of Manufacturer provided, however, that if the disclaimer of implied warranties is ineffective under applicable law, the duration of any implied warranties arising by operation of law shall be limited to one (1) year from the date of purchase or such longer period as may be required by applicable law.

Manufacturer hereby disclaims any and all liabilities for consequential and incidental damages arising out of or in connection with any breach of this warranty or any other claim with respect to this product, including but not limited to claims of negligence, strict liability in tort or breach of contract.

Table of Contents

1. INTRODUCTION

Wireless LAN is local area networking without wires, which uses radio frequencies to transmit and receive data between PC' s or other network devices. Wireless LAN is able to configure independent networks and infrastructure networks. The former is suitable for small or temporary peer-to-peer configurations, and the later is offering fully distributed data connectivity via micro cells and roaming.

The WLAN CF module is designed to meet the mobility, performance, security, interoperability, management, and reliability requirements of IEEE 802.11b high data rate standard. It is easy to install the WLAN CF module on various devices with CF Type I card slot or PCMCIA TYPE II card slot using PCMCIA to Compact Flash adapter. It is able to communicate with other IEEE 802.11b compatible products to create a wireless LAN in your office or home.

1.1 Features

- Compliant with 11 Mbps 802.11b high-speed specification.
- Data rate 11/5.5/2/1 Mbps automatic fallback under noisy environment.
- Advanced Power Management for battery saving.
- Build an external antenna.
- Supports MS Windows 98/Me/2000/XP/CE, and Linux.
- Interoperable with IEEE 802.11b compliant equipment.
- Supports full mobility and seamless roaming from cell to cell.
- Plug-and-play installation and easy client management with utility software
- Supports point-to-point and point-to-multipoint access.
- Direct Sequence Spread Spectrum (DSSS) technology provides robust, interference-resistant and secure wireless connection.
- Wireless connection without the hassles and cost of cabling.
- Greater flexibility to locate or move networked PC' s.

1.2 Applications

- Home networking for device sharing - Remote access to corporate network information email, file transfer and terminal emulation.
- Frequently changing environments - Retailers, manufacturers and banks that frequently rearrange the workplace and change location.
- SOHO (Small Office and Home Office) users - SOHO users need easy and quick installation of a small computer network functions.
- Inter-building connection - The wireless building-to-building network installs quickly, requires no monthly lease fees, and provides the flexibility to reconfigure easily.
- Typical applications include hard-to-wire buildings, campuses, hospitals/medical offices, warehouse, security huts, exhibition centers, etc.
- Temporary LANs for special projects or occasions - Auditors require workgroups at customer sites. Trade shows, exhibitions, retailers, airline, and shipping companies need additional workstations for a peak period of data traffic.

1.3 Wireless LAN System

1.3.1 802.11 Ad-Hoc Configuration

An 802.11 Ad-Hoc wireless LAN is a group of computers, each equipped with one WLAN CF module, connected as an independent wireless LAN. Computers in a specific 802.11 Ad-Hoc wireless LAN must be configured at the same radio channel. 802.11 Ad-Hoc wireless LAN is applicable to a departmental scale for a branch or SOHO operation.

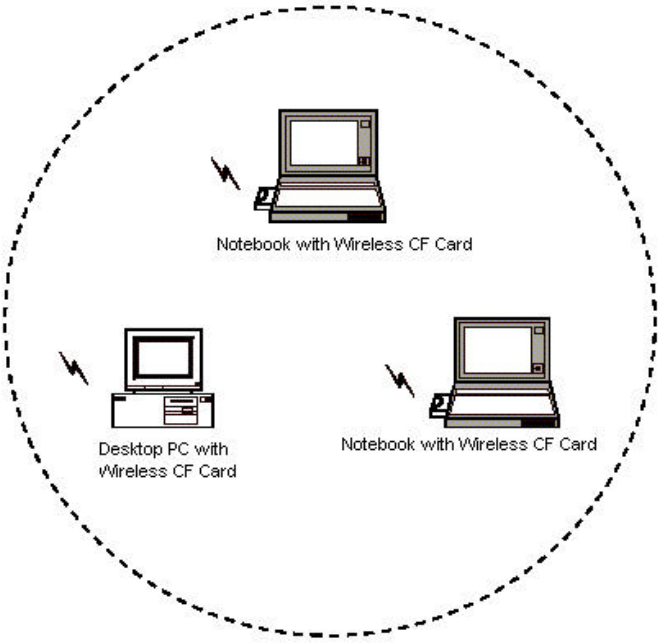

Figure 1-1 802.11 Ad-Hoc Configuration

1.3.2 Infrastructure Configuration

An integrated wireless and wired LAN is called an infrastructure configuration. A group of WLAN CF module and an Access Point (AP) is called a Basic Service Set (BSS). Each WLAN CF module in this BSS can be linked to any computer in the wired LAN infrastructure via the AP.

Infrastructure configuration not only extends the accessibility of a WLAN CF module to the wired LAN, but also doubles the effective wireless transmission range between two WLAN CF modules.

BSS ID is, in essential, the ID of each independent WLAN CF module. All WLAN CF modules configured without roaming options in this independent BSS must be configured with BSS ID of that AP. You may need to check BSS ID of your AP by using its vendor supplied program.

Infrastructure configuration is applicable to enterprise scale for wireless access to central database, or wireless application for mobile workers.

Two APs can be used as a point-to-point link between two LANs. LAN interconnection is applicable to a wireless backbone between buildings.

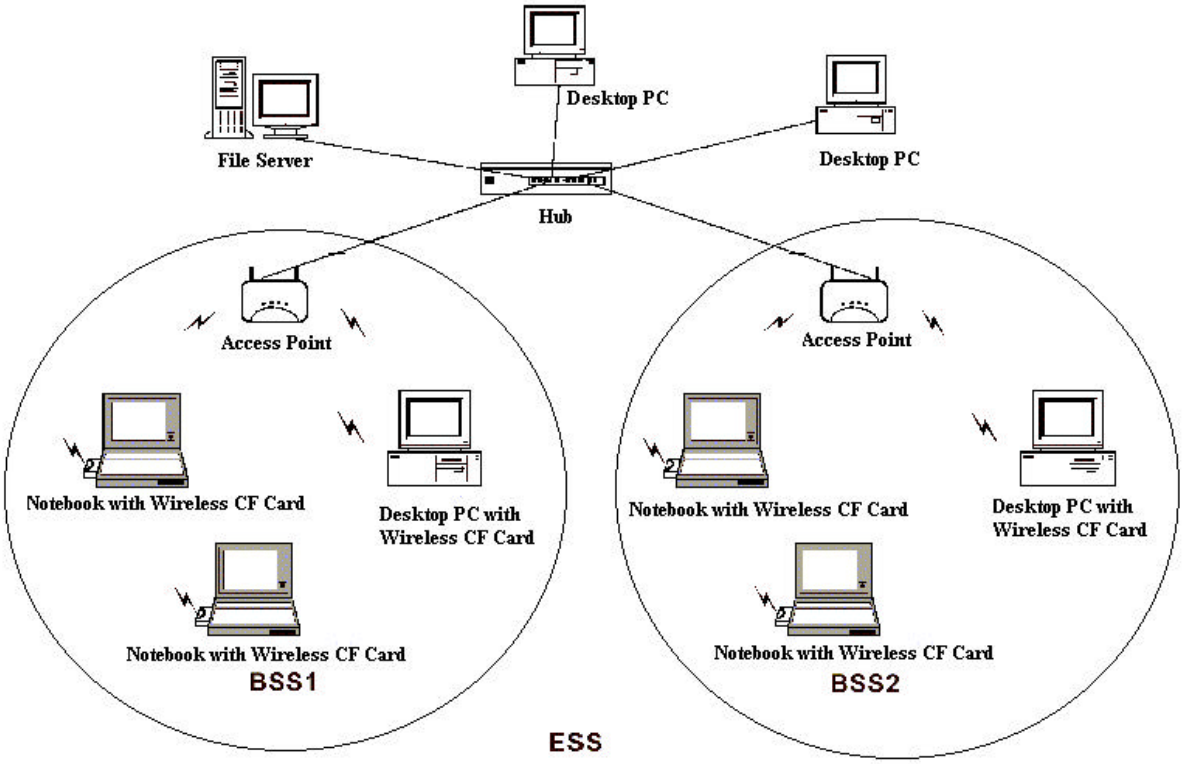

Figure 1-2 Infrastructure Configuration

The infrastructure configuration supports roaming capability for mobile workers. More than one BSS can be jointly configured as an Extended Service Set (ESS). On account of a continuous connection to the network, users within this ESS can roam freely. All WLAN CF module and APs within one ESS must be configured with the same ESS ID.

Before setting up an ESS for roaming, it would be helpful to achieve good performance by choosing a feasible radio channel and right places for APs.

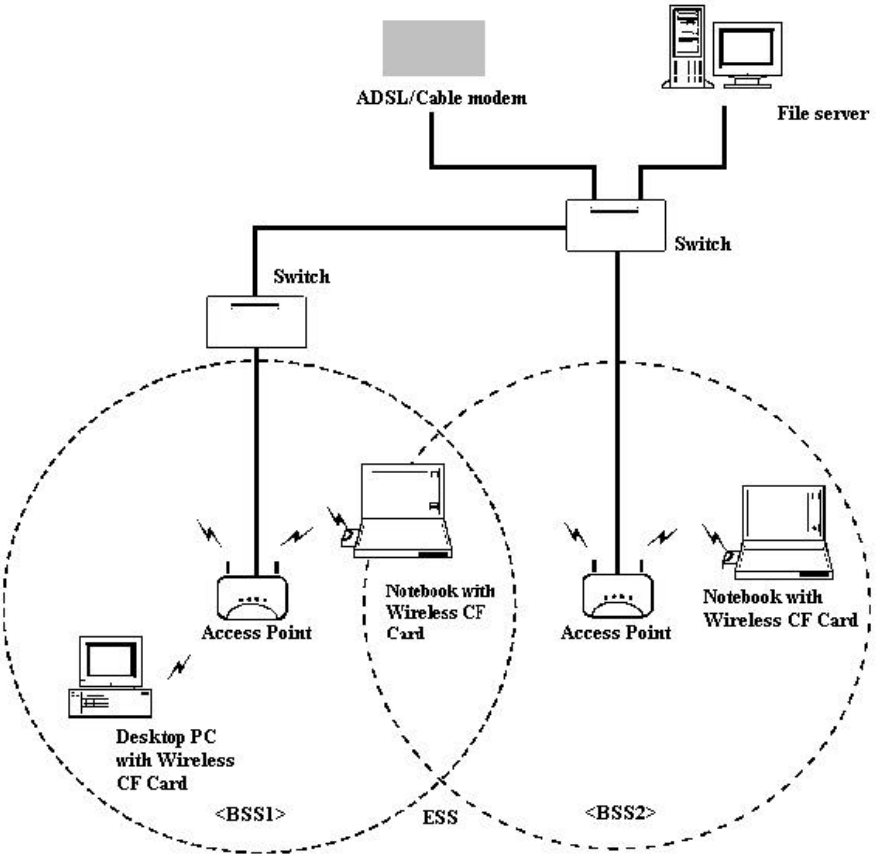

Figure 1-3 Seamless Roaming

2. INSTALLATION

Use the procedures described in this chapter to install your WLAN CF module under MS Windows 98/Me /2000 /XP, and Linux.

(Note that unplug the WLAN CF module from your device before upgrading the new driver/utility, otherwise you may have trouble during installation process.)

2.1 Product Kit

Before starting installation, please make sure the WLAN CF module package you purchased includes the following items:

1) WLAN CF module.
2) CD-ROM (including Driver/Utility and Installation guide).
3) Quick Start Guide.

If anything is missing, please contact your vendor.

2.2 Minimum Requirements

To install the WLAN CF module successfully, your device (notebook, desktop, PDA, etc.) should meet the following minimum requirements:

1) A CF or PCMCIA slot compliant with Release 2.1 of the PCMCIA specification.
2) Windows 98, Me, 2000, XP or Linux operating system.
3) Minimum 10 Mbytes free disk space for installing the driver and the utility program.

2.3 Installing the Utility and Driver

Depending on the operating system you use, to implement the Utility and Driver. Then go to Section 3 to continue the procedure.

2.4 Installing the WLAN CF Module

After the Utility and Driver of finishing is implement, OEM manufacturer can plug WLAN CF module in device, and fix the antenna in the appointed position. Assemble housing of Device afterwards.

Note: The WLAN module is connected to the antenna by a coiled antenna cable, which is designed to meet the FCC rules. It is hereby stated that any possible OEM shipment of the module shall carry such a coiled antenna cable. Antenna installation must be far away from the human body to exceed 20cm.

3. SPECIFICATIONS

General	
Standard compliance	Compliant IEEE 802.11b Standard
Security	WEP 64-bit, 128-bit, encryption MD5
Hardware	
RF Range	Frequency range: 2.4 ~ 2.4835GHz
Data rate	11Mbps / 5.5Mbps / 2Mbps / 1Mbps
Modulation	DSSS (Direct Sequence Spread Spectrum) DBPSK/DQPSK/CCK
Coding	1, 2Mbps: 11 chip/bit Barker Coding 5.5, 11Mbps: Complementary Code Keying
Number of channels	Europe: 13 (3 non-overlapping) US: 11 (3 non-overlapping) France: 4 (1 non-overlapping) Japan: 14 (3 non-overlapping)
Host Interface	CF type I
Transmit power	+15dBm (Typ.)
Receive sensitivity	-83dBm (Typ.) for 11Mbps; -86dBm (Typ.) for 5.5Mbps; -89dBm (Typ.) for 2Mbps; -91dBm (Typ.) for 1Mbps (@BER 10E-5)
Software	
Driver Support	MS Windows 98/Me/2000/XP/Linux/Windows CE
Utility	User setup and diagnostic tool
Mechanical	
Dimensions	60 x 43 x 7 mm (w/o antenna)
Weight	18 grams
Environmental	
Temperature	0 ~ 55°C (operation), -20 ~ +65°C (storage)
Relative Humidity	95% (non-condensing)
Certificate	
EMC	U.S.: FCC Part 15, sections 15.247, 15.205, 15.209 Europe: ETS 300 328, ETS 300 826, CE Marked