Flarion FPC 1000 Wireless Network Card User Guide

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Chapter 1. FPC 1000 Basics

1.1 About the FPC 1000

The Flarion® FPC 1000 is a wireless broadband network card, that enables high-speed wireless connectivity for subscribers. It is plug and play compatible with a standard Type II PCMCIA card slot. It runs on most operating systems that are available on computing devices such as notebook PCs (laptops) and Personal Digital Assistants (PDAs - Pocket PC).

The FPC 1000 is based on FLASH-OFDM® technology, which was designed around the Internet Protocol.

Figure 1: FPC 1000 Wireless Network Card

1.2 FPC 1000 Card Features and Benefits

The FPC 1000:

- Provides the freedom, flexibility and full mobility of wireless connectivity
- Enables the power of high-speed Internet access
- Allows for full connected mobility — even at vehicular speeds

1.3 FPC 1000 Applications

Examples of applications that can be used with the FPC 1000 include:

- Email (including large file attachments)
- High-Speed Web Browsing
- Virtual Private Network (VPN) access
- File Transfer
- Online gaming
- Streaming video and audio
- Video Conferencing

1.4 FPC 1000 Package Contents

The Flarion FPC 1000 PC Card package includes the following:

- FPC 1000 Wireless Network Card
- Antenna
- Extended Range Antenna Cable Kit
- Installation CD, which also includes this User Guide
- Quick Start Guide

1.5 PC Card Software

The FPC 1000 comes with the following software:

- Flarion Mobility Manager (FMM)
- Driver software

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1.5.1. About FMM

Flarion Mobility Manager provides a user interface with the functionality of the PC-1000 PC Card.

The FMM interface includes:

- Session information
  - Connection status
  - Connection time
  - Kilobytes sent and received
  - Signal strength
  - Signal quality
- Connection functionality
  - Enable
  - Disable
  - Exit
- Upgrade functionality
  - Manual upgrade check
  - Automated upgrade
- Help information
  - On line help
  - "About" information

1.5.2. About Driver Software

FPC 1000 driver software establishes the interface between the device and the operating system.

Chapter 2. Using FPC 1000 with a Notebook PC

The Flarion FPC 1000 wireless network card can be installed and used in a notebook PC, to provide high-speed mobile broadband connectivity.

This chapter details procedures for using the FPC 1000 with a notebook PC, including:

- Installing the FPC 1000
- Using the FPC 1000
- Troubleshooting the FPC 1000

2.1 Installing the FPC 1000

WARNING

FLARION MOBILITY MANAGER SOFTWARE NEEDS TO BE INSTALLED ON THE PC *BEFORE* INSERTING THE FPC 1000 WIRELESS CARD INTO THE PCMCIA SLOT. THE APPLICATION WILL NOT WORK IF THE FPC 1000 IS INSERTED BEFORE THE SOFTWARE IS INSTALLED.

Installing the FPC 1000 involves the following basic steps. Perform these steps in sequential order:

- Checking hardware and software requirements
- Installing Flarion Mobility Manager software
- Attaching the antenna to the PC Card
- Inserting the PC Card into the PCMCIA Slot (and automatically loading drivers)

2.1.1. Checking Hardware and Software Requirements

The FPC 1000 requires certain hardware and software capabilities of the notebook PC. Verify that the following hardware requirements are met:

Table 1: Hardware Requirements for the FPC 1000

Category	Requirement
Card Slot	Type II PCMCIA
RAM	128 MB
Hard Disk Space	10 MB
Disk Drive	CD-ROM
I/O Resources	1 IRQ, 256 Bytes I/O space
Suggested Minimum Processor Speed	600 Mhz

Verify that the notebook PC uses one of the following operating systems:

The FPC 1000 functions with notebook PCs that utilize the following operating systems:

- Windows® 98 SE
- Windows 2000
- Windows XP

Note:

The FPC 1000 may work on additional operating systems than those listed here. To see if the FPC 1000 works on a system not listed here, check with your Flarion representative.

2.1.2. Installing Flarion Mobility Manager Software

When it is clear that hardware and software requirements are met, installation may proceed. Flarion Mobility Manager software must be installed, prior to insertion of the PC-1000 card.

To install Flarion Mobility Manager:

1. Power on the PC and/or close any Windows programs that are running.

2. Insert the installation CD into the CD-ROM driver.
   The CD Launcher Menu appears (see Figure 2):

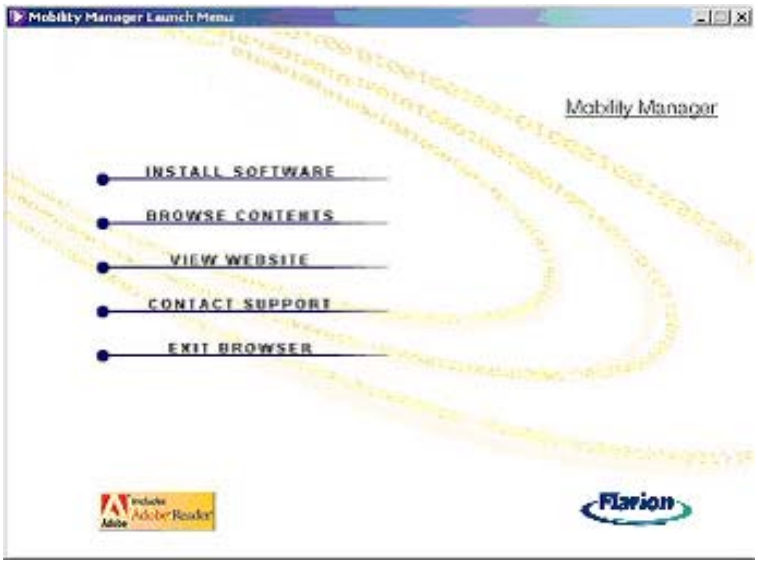

Figure 2: CD Launcher Menu

Note:

If the CD Launcher menu does not automatically appear:

1. *Click Start⇒Run⇒Open.*

2. *Type the letter of the CD Drive followed by install.exe (e.g.: D:\install.exe, where D is the CD-ROM drive). Alternately, click Browse to locate and select the install.exe file on the CD-ROM drive.*

3. *Click OK*
   The CD Launcher menu appears.

3. On the CD Launcher menu, click “Install Software”.

4. Select the operating system to launch the Flarion Mobility Manager setup. The Mobility Manager Setup screen appears (see Figure 3).

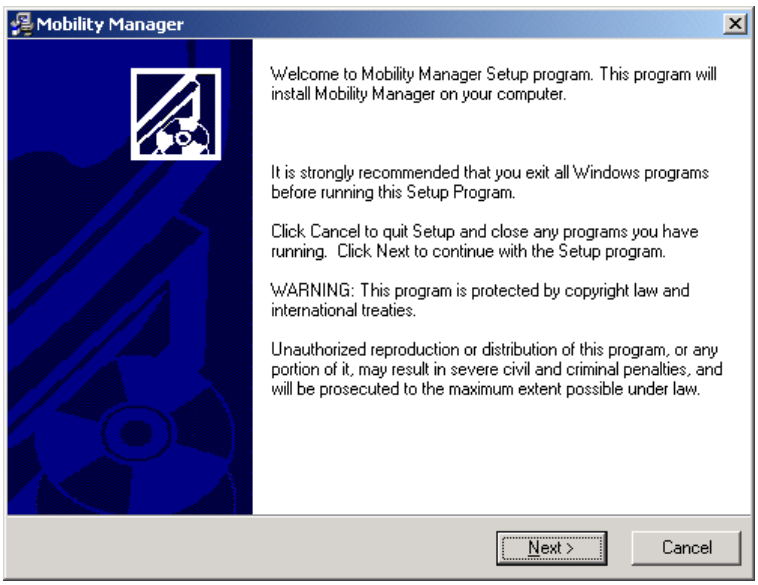

Figure 3: Mobility Manager Setup Screen

5. Follow the Mobility Manager on screen directions. Click "Next" after each step.

6. Click Finish to end the installation.

   Note:

   If the CD Launcher menu is still visible, click "Main Menu" and then "Exit Browser".

7. Remove the Flarion Mobility Manager CD from the PC.

2.1.3. Attaching the Antenna to the PC Card

When FMM installation is complete, attach the antenna to the FPC 1000 PC card.

The FPC 1000 ships with two types of antennas:

- Standard antenna
- Extended range antenna

2.1.3.1 Attaching the Standard Antenna

The standard antenna allows for improved signal quality and strength.

To attach the standard antenna to the FPC 1000:

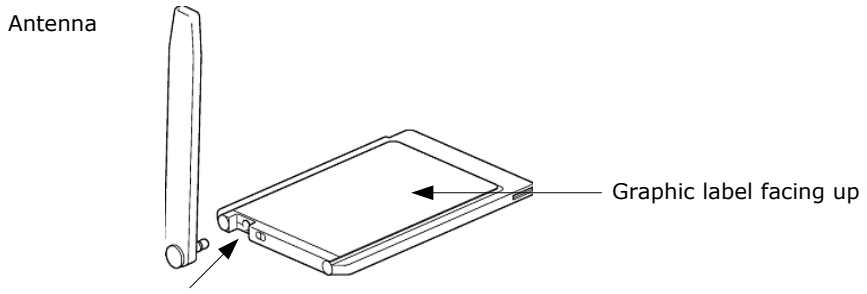

Figure 4: Attaching the Standard Antenna

1. Grasp the antenna with the attachment pin facing the FPC 1000
2. Place the antenna pin in the circular connector of the FPC 1000
3. Press firmly until it clicks

   Note:

   Keep the antenna in the up position to assure maximum performance.

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2.1.3.2 Attaching the Extended Range Antenna

The extended range antenna cable greatly improves signal strength and quality. It increases the operating range of the PC, and enhances connectivity and throughput.

To install the extended range antenna, follow the instructions in Figure 5:

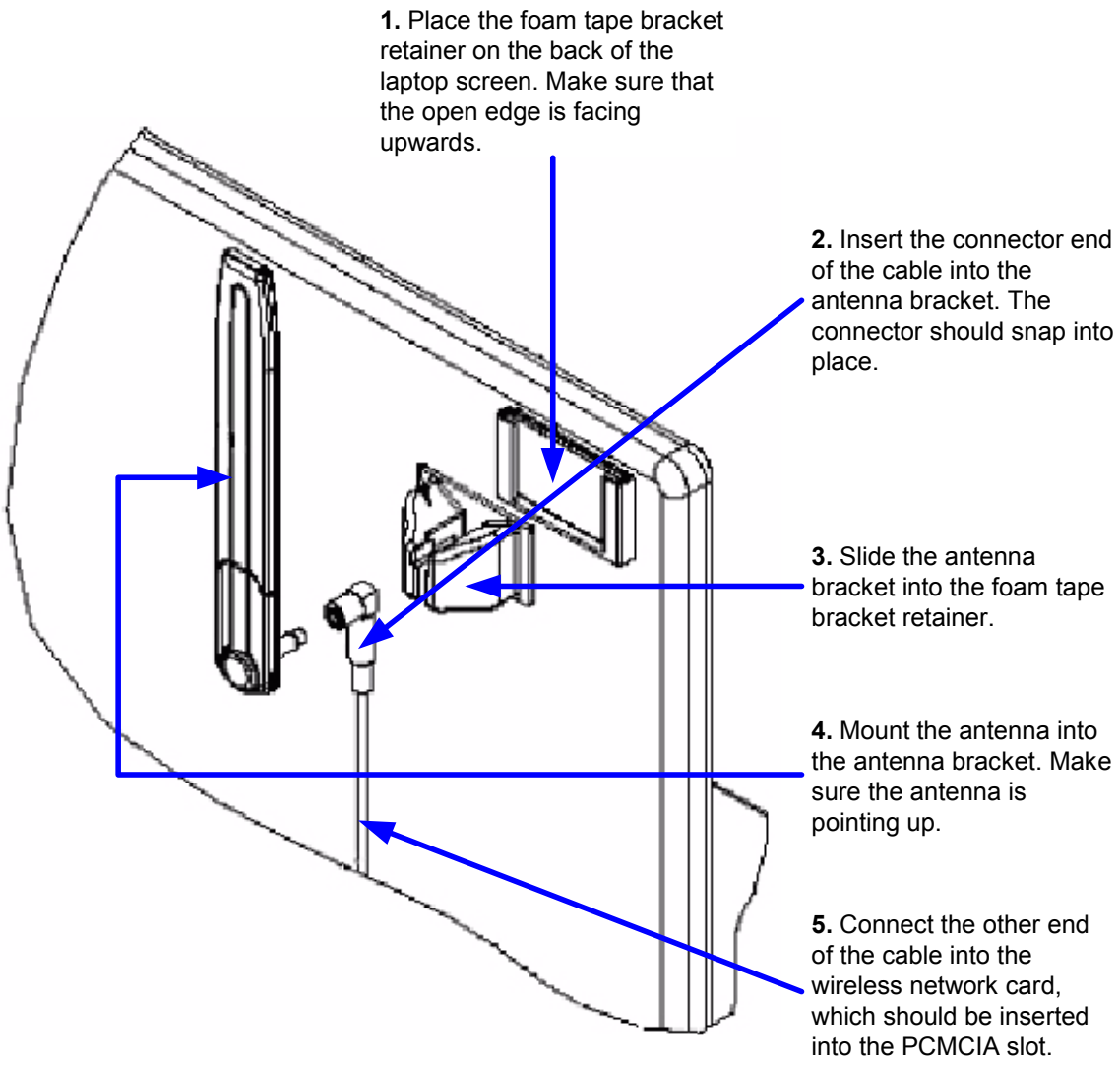

Figure 5: Installing the Extended Range Antenna Kit

When complete, the installed extended range antenna appears as in Figure 6.

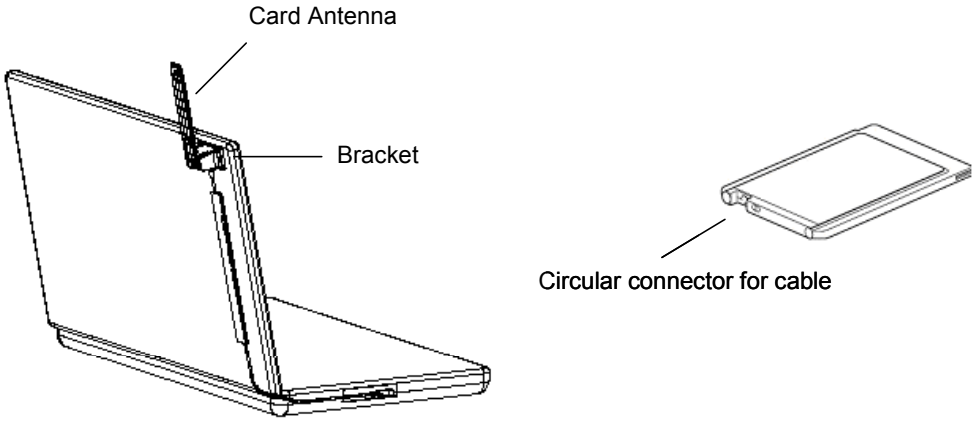

Figure 6: Installed Extended Range Antenna

Note:

The above figure shows the extended range antenna already installed. As such, the FPC 1000 is already inserted in the PCMCIA slot. Consult with the Inserting the FPC 1000 into the PCMCIA Slot *section for card insertion instructions.*

2.1.4. Inserting the FPC 1000 into the PCMCIA Slot

When software has been installed and the antenna attached, proceed to insert the FPC 1000 into the PCMCIA slot. Inserting the card will cause the software drivers to load.

To insert the FPC 1000 (and load device drivers):

1. Find an available Type II PCMCIA slot on the notebook PC
2. With the FPC connector facing the PCMCIA slot and the graphic label facing up insert the card fully into the slot.
    - A blue “connected” LED lights on the side of the card and blinks until the FPC 1000 connects to the network.
    - The “Found New Hardware Setup” appears. This prompts you for action according to the type of operating system on your PC.

2.1.4.1 Loading Device Drivers for Windows 98

1. When the Windows 98 SE hardware setup detects the FPC 1000, it presents a "Welcome to the Found New Hardware Setup" screen. If prompted, insert the original Windows operating system CD into the CD-ROM drive.

2. Select the option to install the software automatically (recommended) or to install from a specific location (advanced). Then click "Next".

3. From the "Completing the Found New Hardware Setup" page, click "Finish". If prompted, restart your PC.

   Note:

   It is recommended that Windows 98 SE users check with Microsoft to upgrade to the latest Service Packs.

2.1.4.2 Loading Device Drivers for Windows 2000/XP

1. When the Windows 2000/XP hardware setup detects the FPC 1000, the "Hardware Installation" (for XP users) or "Digital Signature Not Found" (for 2000 users) page appears, click "Continue Anyway" or "Yes".

Figure 7: Hardware Installation (Windows XP)

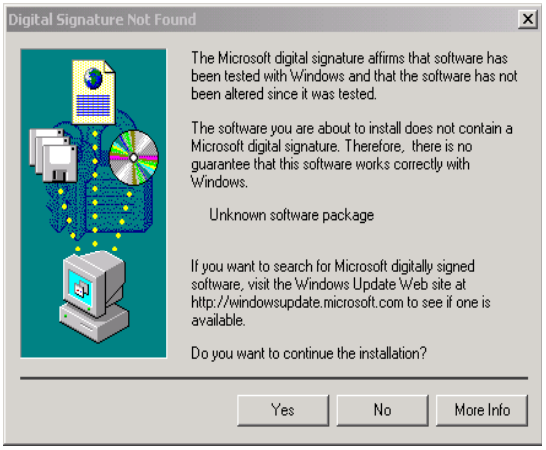

Figure 8: Digital Signature Not Found (Windows 2000)

2. From the "Completing the Found New Hardware Wizard" page, click "Finish".

3. If prompted, restart your PC.
   FPC 1000 Installation is now complete.

2.2 Using the FPC 1000

When the FPC 1000 software has been installed, the antenna attached and the FPC has been placed in the PCMCIA slot, the card is ready for use. Registered users can enjoy high-speed mobile connectivity.

This section details usage of the FPC 1000, including

- General usage guidelines
- Using the Flarion Mobility Manager
- Removing the FPC 1000
- Removing the antenna

2.2.1. General Usage Guidelines

Use the following guidelines to assure proper functionality and effectiveness of the FPC 1000:

- When attaching the antenna, be sure to click it into the circular connector (see Figure 4).
- When inserting the FPC 1000, never force the card into the PCMCIA slot. When it is inserted correctly, the card's blue light will appear and blink until it connects to the network.
- Keep the antenna pointed upwards to ensure its optimum performance, but never forcefully bend it.
- When storing or transporting a notebook PC, remove the antenna and store it in a safe place.
- Keep the FPC 1000 away from liquids, excessive heat, and dust.

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2.2.2. Using the Flarion Mobility Manager

The Flarion Mobility Manager (FMM) enables monitoring of the wireless broadband connection, as well as connection and upgrade functionality.

After installation, the FMM icon appears on the PC desktop:

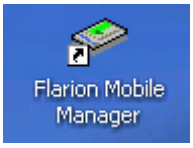

Figure 9: FMM Icon

After installation, and every time the FPC 1000 is inserted into the PCMCIA slot, the FMM system tray icon appears:

Figure 10: FMM System Tray Icon

After installation, and every time the FPC 1000 is inserted into the PCMCIA slot, the FMM application opens. If for any reason it does not open, initialize the program via the desktop or system tray icon.

Figure 11: FMM Indicators

FMM functionality includes

- Monitoring connection status and connection time
- Monitoring kilobytes received and sent
- Monitoring signal strength and quality
- Closing exiting and ending sessions
- Enabling and disabling the PC Card
- Upgrading software

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2.2.2.1 Monitoring Connection Status and Connection Time

FMM indicates either "Connected" or "Searching", depending on the Connection Status. The light on the side of the card also blinks until a connection is made. The Connection Time Indicator shows how long your notebook PC has been connected to the network. When you end the session (turn the computer off or disable the session), this value is reset to zero.

Figure 12: Connection Status and Connection Time

If Connection Status does not change to Connected after several seconds, check that:

- The PC is within the broadband coverage area
- The antenna is upright and inserted properly.
- The FPC 1000 is fully inserted into the PCMCIA card slot.
- The card is "Enabled" via the Options menu

2.2.2.2 Monitoring Kilobytes Received and Sent

To monitor the amount of data sent or received during your session, refer to the relevant indicators number of kilobytes:

Figure 13: Kilobytes Received and Sent

These indicators show the total number of bytes transmitted and received during the current session. When the session ends (when the PC is turned off or the session is disabled), these values are both reset to zero.

2.2.2.3 Monitoring Signal Strength and Quality

Signal strength shows the power level of the signal you are receiving. When the signal is strongest, four bars are shown. When it is weakest, one bar is shown. When the modem is searching for a signal, the bars will scan from left to right.

Signal Quality measures the actual quality of the signal (signal in relation to surrounding noise/interference, etc.).

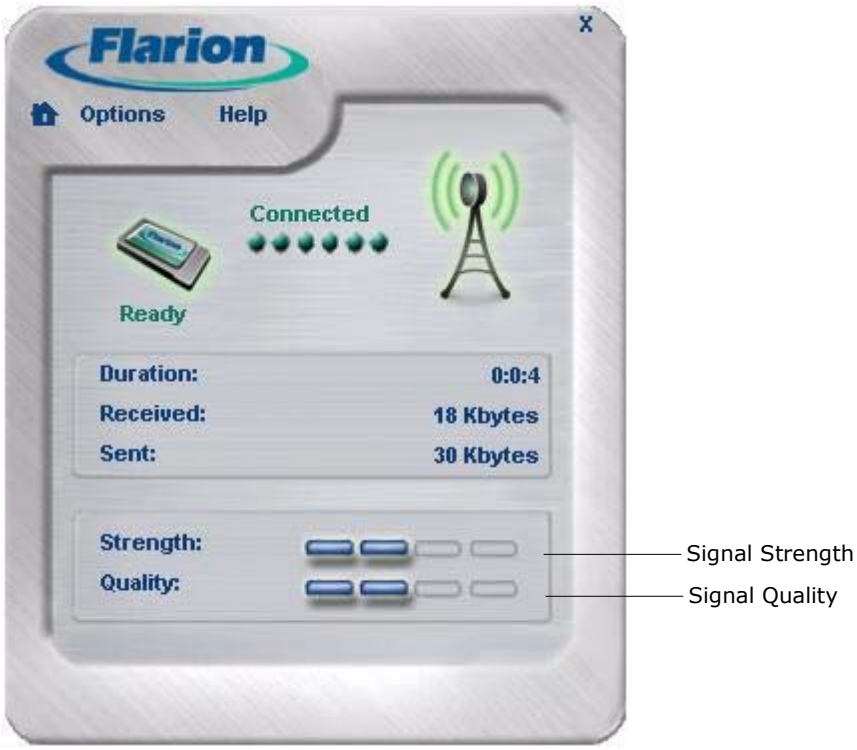

Figure 14: Signal Strength and Quality Indicators

2.2.2.4 Closing, Exiting and Ending Sessions

To close the Mobility Manager window, click the "X" in the top right corner. *Note that this does not end the session.* To relaunch FMM Mobility Manager, click the PC card icon on the system tray or desktop.

To exit the Flarion Mobility Manager program, but keep the modem session running, click Options⇒Exit. This will remove the FPC card icon from the system tray. To reenter the program, click the icon on the desktop. The Flarion Mobility Manager window will pop up again and the icon will reappear in the system tray. *Note that exiting the Flarion Mobility Manager application does not end the session.*

Shutting down the PC ends the Flarion Wireless Broadband session. To end your session without having to shut down your PC, use the "Disable" function. Click Options⇒Disable. This is especially practical in places that allow for electronic devices, but not wireless communication (airplanes, hospitals). To begin another session, click Options⇒Enable.

Note:

Certain operating systems behave differently with regard to Enable/Disable functions. Refer to the Enabling and Disabling the FPC section for descriptions of these behaviors.

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Figure 15: Closing, Exiting and Ending

2.2.2.5 Enabling and Disabling the FPC 1000

To end a wireless broadband connection without shutting down the PC, click Options⇒Disable. To begin another session, click Options⇒Enable.

Certain operating systems act differently when the “Enable” or “Disable” function is selected:

- **Windows 2000/XP**
  - Enable: When searching for the connection, the Flarion Mobility Manager displays "Ready/Searching". When the connection is found, the Mobility Manager displays "Ready/Connected"
  - Disable: The Flarion Mobility Manager displays "Disabled"
- Windows 98 SE
  - Enable: When enabled, the Flarion Mobility Manager displays "Ready/Searching" when it is searching for a connection and "Ready/Connected" when the connection is found.
  - Disable: The Mobility Manager displays "Ready/Idle”

Note:

In Windows 98 SE, when the Mobility Manager is disabled, and then the notebook PC enters hibernate/standby mode, the status remains disabled. However, when the PC returns from hibernate/standby mode, the Mobility Manager search and connection automatically resumes. If disable is still desired, once again initiate the disable function (Tools⇒Disable).

2.2.2.6 Upgrading Software

2.2.2.6.1 About Software Upgrades

Upgrading FPC 1000 software assures that all the latest features and functionalities are available for use.

Upgrades to PC Card software may include any or all of the following software components:

- DSP Image
- PC Card Drivers
- Flarion Mobility Manager Program

Upgrade software will typically be issued as one of the following two packages:

- Full package (including DSP Image, PC Card Driver and Flarion Mobility Manager)
- DSP Image alone

2.2.2.6.2 Upgrade Methods

PC Card software can be upgraded with one of the following methods:

- Over-the-Air automatic upgrade
- Over-the-Air manual upgrade
- Complete package uninstall and reinstall

Note:

Several issues may affect the software upgrade process. Refer to Software Upgrade Notes on page 33 for details.

2.2.2.6.2.1 Over-the-Air Automatic Upgrade

During the course of connected operation, Flarion Mobility Manager maintains contact with an Over-the-Air (OTA) server. The server informs the FMM software when an upgrade is available. Notification typically appears in the form of the "Upgrade Available" message (see Figure 16).

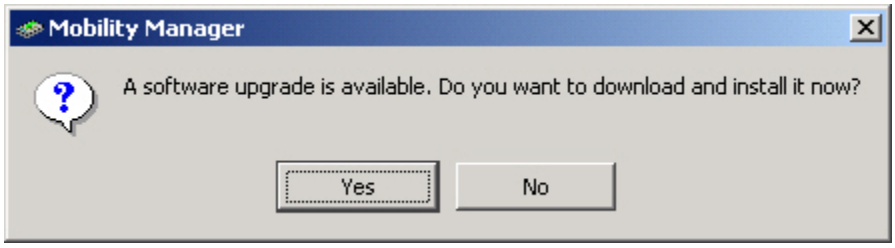

Figure 16: Upgrade Available Message

User notification follows these guidelines:

- When the full package upgrade is available, FMM automatically displays the "Upgrade Available" message"
- When **only DSP Image** upgrade is available, notification depends on user settings. These settings are configured in the FMM Information Screen – Advanced Tab (Options⇒Information⇒ Advanced):

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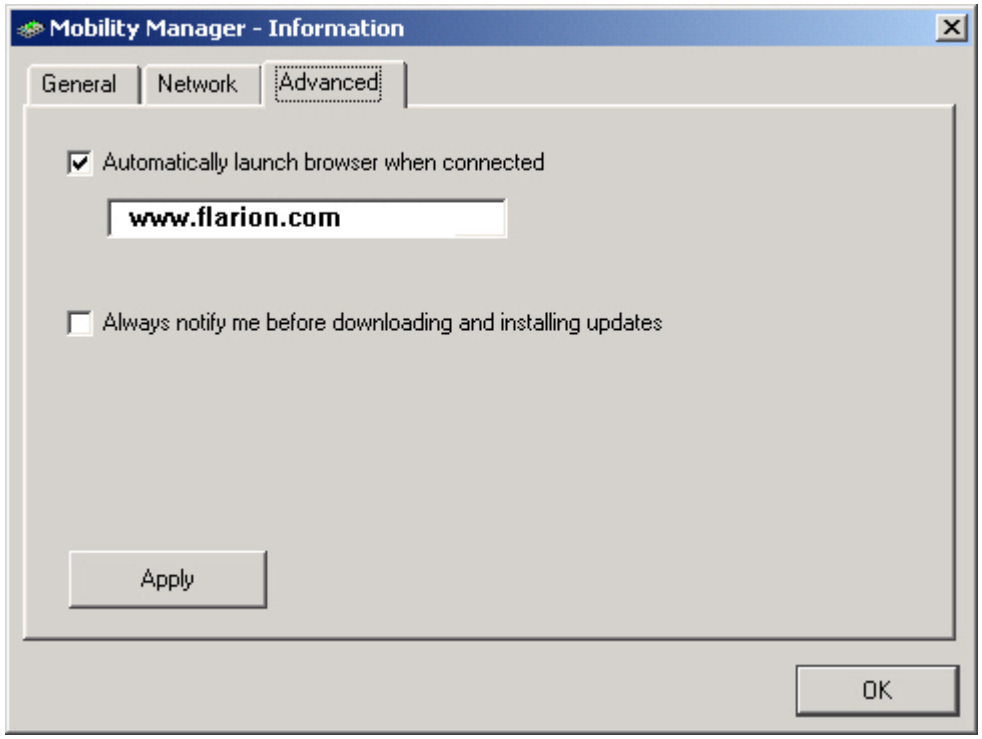

Figure 17: Information Screen – Advanced Tab

- When "Always notify me before downloading and installing updates" is selected, NMM will present the "Upgrade Available" message when a DSP Image update is available
- When "Always notify me before downloading and installing updates" is not selected, NMM will automatically upgrade DSP firmware, without prior notification.

  Note:

  By default, "Always notify me before downloading and installing updates" is ***not*** *selected. Therefore, by default, DSP Image updates will occur without user intervention, when available.*

To change the default setting:

1. Check "Always notify me before downloading and installing updates
2. Click Apply
3. Click OK

Note:

If you click the OK button and do not click the Apply button, the dialog will be dismissed with no action taken.

To install the automatically detected upgrade:

1. In the Software Upgrade Available (see Figure 16) message, click Yes.

   Flarion Mobility Manager downloads the update (see Figure 18), and presents the Click OK to Update message (see Figure 19).

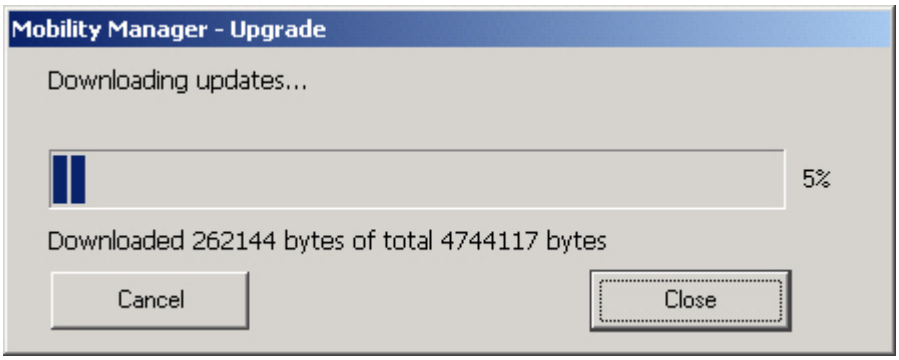

Figure 18: Downloading Update Message

Figure 19: Click OK to Update Message

2. In the Click OK to Update Mobility Manager message box, click OK.
   Flarion Mobility Manager installs the updated software.

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2.2.2.6.2.2 Over-the-Air Manual Upgrade

Users may wish to manually check if upgrades are available (rather than waiting for automated notification). This method enables immediate checking of upgrade availability, rather than waiting for a preset "polling" interval.

To manually check for upgrades:

1. From the Options menu, select Check for Upgrade…(see Figure 20).

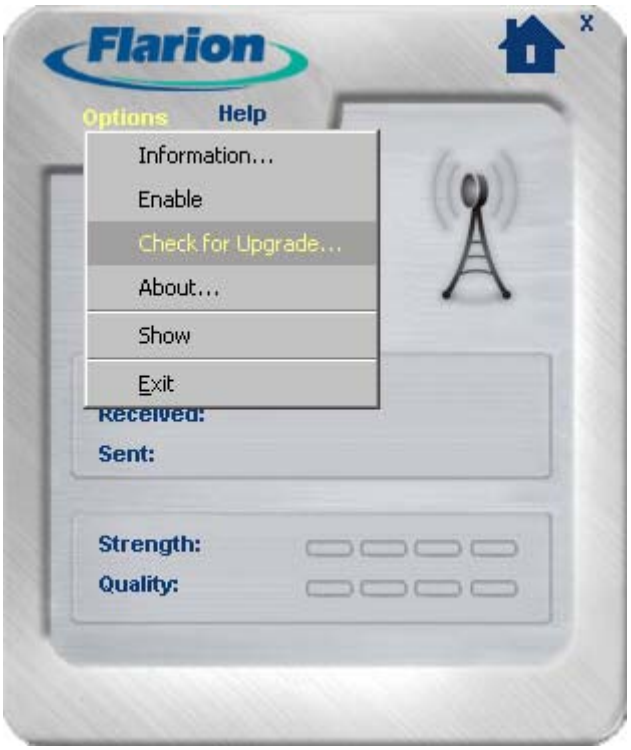

Figure 20: Check for Upgrade

Flarion Mobility Manager checks the Over-the-Air server for available upgrades.

- If no upgrade is available, the "No files need updating" message (see Figure 21) appears:

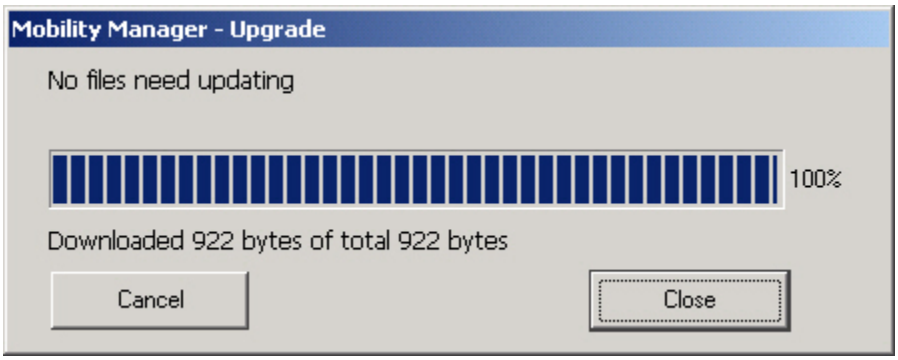

Figure 21: No Files Need Updating Message

- If an upgrade is available (whether DSP Image or full package), the Update Available message appears (see Figure 22), along with an Update Yes/No message (see Figure 23):

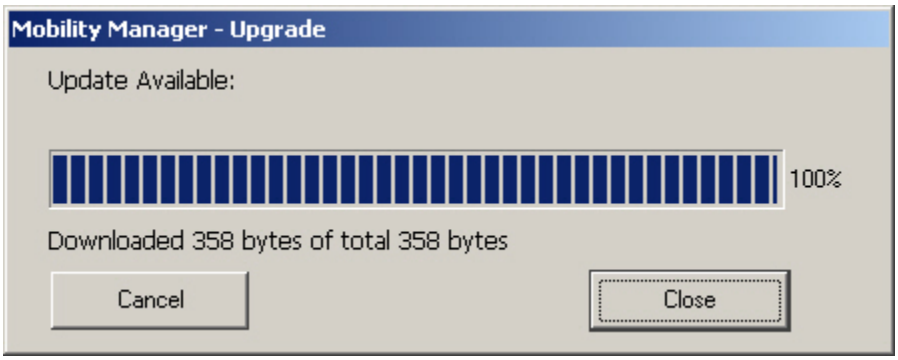

Figure 22: Update Available Message

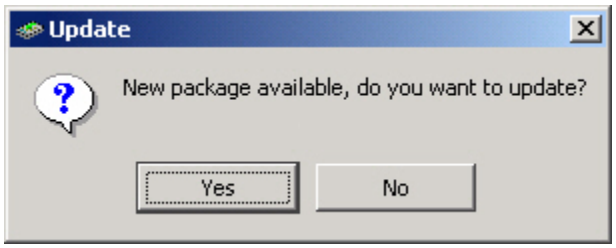

Figure 23: Update Yes/No Message

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To install the manually detected upgrade:

1. In the Update Yes/No message, click Yes.

   Mobility manager downloads the update (see Figure 24), and presents the Click OK to Update message (see Figure 25)

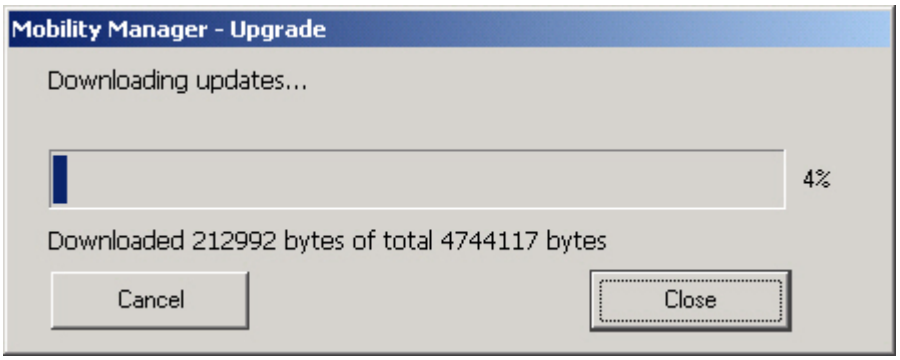

Figure 24: Downloading Updates Message

Figure 25: Click OK to Update Message

4. In the Click OK to Update Mobility Manager message box, click OK.

Flarion Mobility Manager installs the updated software

2.2.2.6.2.3 Complete Package Uninstall and Reinstall

In addition to Over-the-Air upgrade, PC Card software can be upgraded by uninstalling current software, and installing upgraded software.

To uninstall the Flarion Mobility Manager software:

1. Double click the “My Computer” icon on your desktop.
2. Double click the “Control Panel” icon in your “My Computer” folder.
3. Double click the “Add/Remove Programs” icon.
4. Scroll down to “Flarion Mobility Manager” and click it. Then click on “Change/Remove”. Follow instructions. Click “Next” and then “Finish”.
5. The software is now uninstalled.

To install upgraded software:

1. Access the latest version of the FPC 1000 complete software package
2. Follow software installation instructions (refer to Installing the FPC 1000).

2.2.2.7 Software Upgrade Notes

Several issues apply to the FPC 1000 upgrade process:

- Third party firewall programs may affect over-the-air upgrade. If the over-the-air upgrade does not work, you may need to disable all third party firewalls before retrying. Check with third party firewall software user instructions on how to disable.
- The situation may occur that users stop download of upgrade software before completion. When download is resumed, it will continue from where it was halted.
- When upgrading driver software on a PC running Windows 98 SE, users will be prompted to reboot the computer for the changes to take effect.
- PCs running Windows 2000 and Windows XP require user login, per configured user rights. These rights affect the upgrade process as follows:
    - Users logged in as “Administrators” have full rights regarding upgrade. They can install software upgrades as detailed in the preceding sections.
    - Users logged in as “Power Users” will be able to upgrade FMM software and DSP image, but will receive an error message when trying to install a new driver. To enable a driver upgrade, the current FMM session must be closed, and then a user with “Administrator” rights must log in to the PC to perform the upgrade.
    - Users logged in as “Users” or as any other available user type will not be able to upgrade PC Card software. To enable a software upgrade, the current FMM session must be closed, and a user with “Administrator” rights must log in to the PC to perform the upgrade.

2.2.3. Removing the FPC 1000

To remove the FPC 1000 from the PC:

1. Click the Unplug or Eject Hardware icon on your system tray.

2. From the options presented, select “Stop FLASH-OFDM NIC device”. Click “Stop”.

   A dialog box appears notifying you that it is safe to eject the card

3. Press the Ejector button at the side of the PCMCIA slot and remove the card from the slot.

Note:

To restart the device after it has been stopped in this way, the PC card must be physically removed and reinserted into the slot.

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2.2.4. Removing the Antenna from the FPC 1000

When transporting the FPC 1000, it may be helpful remove the antenna.

WARNING

WHEN REMOVING THE ANTENNA FROM THE PC CARD, DO NOT PULL FROM THE TOP OF THE ANTENNA. THIS MAY CAUSE THE ANTENNA TO BREAK.

To remove the antenna from the FPC 1000:

1. Rotate the antenna so that it aligns with the FPC 1000.

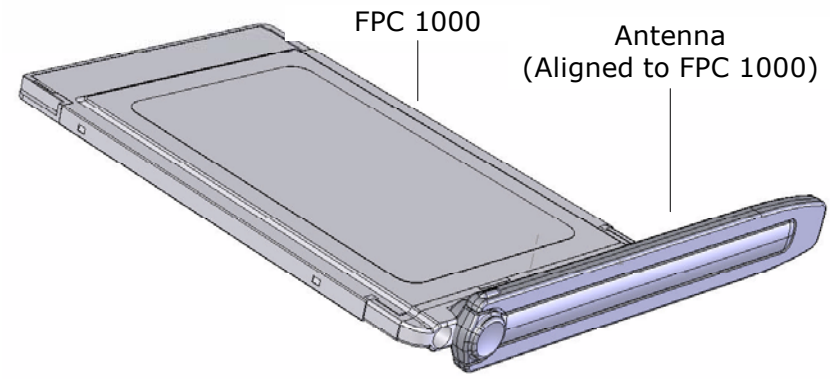

Figure 26: Antenna Aligned with the FPC 1000

2. Grasp the antenna by the molded antenna grips.

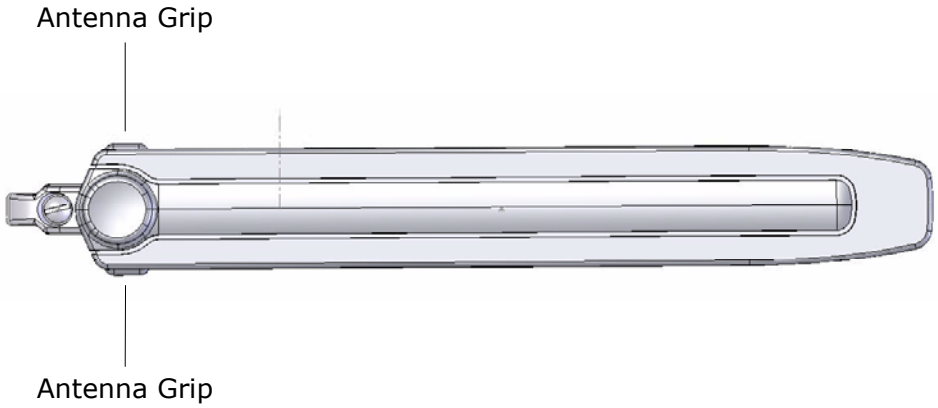

Figure 27: Antenna Grips

3. Pull the antenna out of the FPC 1000.

2.3 Troubleshooting the FPC 1000

When properly installed and used, the Flarion Wireless Broadband PC Card is very reliable. Problems that arise are likely to be because:

- Wireless Broadband coverage is not available.
- The FPC 1000 is not compatible with the operating system in your PC. The following operating systems do not work with the wireless network card: Windows 95, Windows 98 (Gold Edition), and NT 4.0.
- Other devices are using the system resources that are required for the FPC 1000 to function
- The wrong driver has been installed.

Identify possible causes and solutions to problems from the Troubleshooting Table.

Table 2: FPC 1000 Troubleshooting Table (for Notebook Usage)

Card Problems	Possible Causes	Suggestions
The Flarion Mobility Manager icon says "Disabled".	The card is not fully inserted. You disabled the session but forgot to enable it. The driver was stopped from the system tray. The software was not successfully installed.	Reinsert the card. The blue light should appear when inserted properly. In the Flarion Mobility Manager window, Click "Options", then "Enable". Remove and reinsert the PC card. Uninstall and then reinstall the software correctly.

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Card Problems	Possible Causes	Suggestions
The blue light (LED) on the side of the PC card fails to illuminate after *driver* installation, OR "Driver Installation Error" message displays after *software* installation.	Unsuccessful driver installation.	An ft1000clean.exe utility is provided on the distribution CD under the Tools directory to resolve unsuccessful driver installation. Use the following procedure to resolve the above problems during a full installation: 1. Eject the PC card from the system. 2. Uninstall the software package via My Computer→Control Panel→Add/Remove Programs→Flarion Mobility Manager →Change/Remove. 3. Run ft1000clean.exe (located on the distribution CD under the Tools directory). 4. Reboot the system as instructed by the ft1000clean.exe utility. 5. Reinstall the software package following the normal installation procedure. For an upgrade installation: 1. Eject the PC card from the system. 2. Run ft1000clean.exe (located on the distribution CD under the Tools directory). 3. Reboot the system as instructed by the ft10000clean.exe utility. 4. Run Upgrade.exe located under the 'UpgradeCache' directory in the Flarion Mobility Manager folder. 5. Select "yes" when prompted by Upgrade.exe to repair the current Flarion Mobility Manager. 6. Insert the PC card after completion of Upgrade.

Card Problems	Possible Causes	Suggestions
Windows asks you to restart your computer before the "click to finish" message appears from the installation.	You may have inserted the PC card before completing the software installation.	Choose "No" or "Cancel" and then restart your computer manually after clicking "Finish" on the installation setup.
The extended range cable connector becomes loose and separated from the PC card.	The extension cable connector is not properly installed.	Insert the extended range antenna cable into the PC card until you hear a click. Carefully follow the instructions given in this guide regarding the Extended Range Cable Antenna.
The PC card cannot be enabled after restarting.	The driver was stopped from the system tray.	See the section titled "Removing the FPC 1000."
Your computer locks up.	You probably ejected and re-inserted the PC card while it was enabled, which causes the computer to lock up.	Make sure that you disable the card and follow the proper removal steps before unplugging it See the section titled "Removing the FPC 1000."
The Flarion Mobility Manager flashes on the screen and then disappears.		Click the PC card icon that is located in your system tray or desktop, which will bring the Flarion Mobility Manager window back.
The over-the-air upgrade does not work.	3rd party firewalls are preventing upgrades.	Disable the firewall before attempting to upgrade. We recommend you check with the third party firewall software user instructions on how to disable.

Appendix A. Technical Specifications

A.1 Environmental Specifications

Operating Temperature:	-30 to +60 C
Storage Temperature:	-30 C to +85 C
Humidity:	95%

A.2 Mechanical Specifications

PCMCIA Type II Unextended Card