AirCard® 580 Wireless Modem

User Guide

2130351 v2

SIERRA WIRELESS

HEART OF THE WIRELESS MACHINE®

Important Notice

Due to the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or be totally lost. Although significant delays or losses of data are rare when wireless devices such as the Sierra Wireless modem are used in a normal manner with a well-constructed network, the Sierra Wireless modem should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or any other party, including but not limited to personal injury, death, or loss of property. Sierra Wireless accepts no responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the Sierra Wireless modem, or for failure of the Sierra Wireless modem to transmit or receive such data.

Safety and Hazards

Do not operate the Sierra Wireless modem in areas where blasting is in progress, where explosive atmospheres may be present, near medical equipment, near life support equipment, or any equipment which may be susceptible to any form of radio interference. In such areas, the Sierra Wireless modem **MUST BE POWERED OFF**. The Sierra Wireless modem can transmit signals that could interfere with this equipment.

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Note: Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is open. Sierra Wireless modems may be used at this time.

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5,515,013	5,617,106	5,629,960	5,682,602	5,748,449
5,845,216	5,847,553	5,878,234	5,890,057	5,929,815
6,169,884	6,191,741	6,199,168	6,327,154	6,339,405
6,359,591	6,400,336	6,643,501	6,516,204	6,561,851
6,653,979	D367,062	D372,248	D372,701	D416,857
D442,170	D452,495	D452,496	D453,733	D459,303

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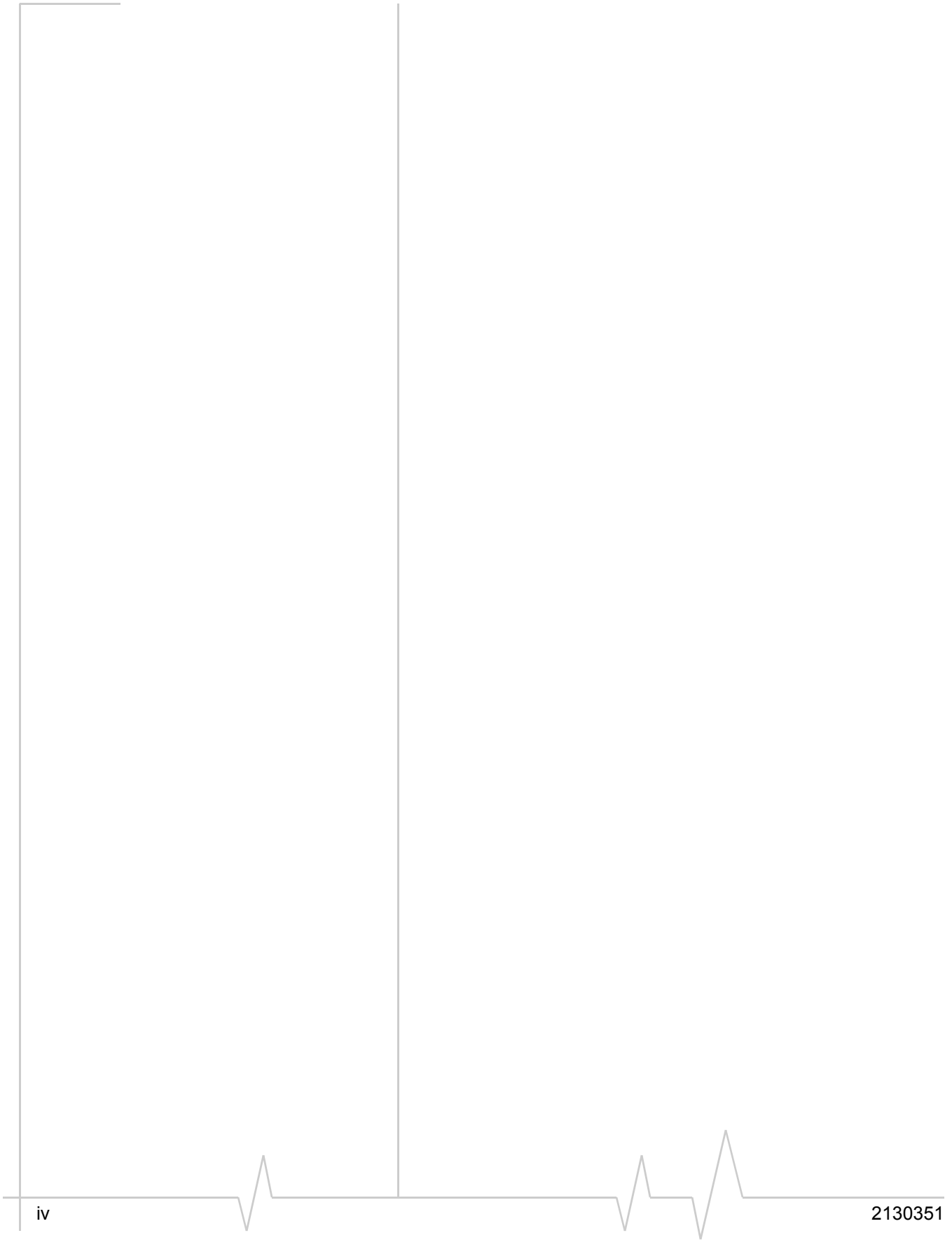
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1: Introducing the AirCard® 580 Wireless Modem

- Welcome
- Package contents
- Feature summary
- System components
- Care and maintenance

Note: Do not insert the AirCard into your PC Card slot prior to installing the software. It is important to install the software and driver in the correct order. (See Chapter 3: "Installation Procedures", beginning on page 9).

Welcome

The AirCard® 580 wireless modem is a dual-band wireless PC Card for CDMA 1xEV-DO wireless data networks in North America. It enhances the functionality of your notebook PC by adding access to high-speed wireless data.

The AirCard 580 functions as a wireless modem with WWAN (Wireless Wide Area Network) connectivity. This card allows you to connect to the Internet, send and receive e-mail, and connect to a corporate network without the need of a network cable or phone line.

Package contents

Your AirCard 580 package contains the following components:

- AirCard 580 wireless modem
- Card case for portable storage
- Installation CD containing the AirCard software and this User Guide
- Quick Start Guide
- Warranty Card

Feature summary

Note: For step by step instructions to access features of the AirCard 580, consult the online help available with Watcher.

The AirCard® 580 wireless modem is designed to provide a wide range of capabilities using CDMA (Code Division Multiple Access) network technology. Implementation of these features will depend on the particular service provider and account features you have chosen.

Contact your preferred service provider for details of the services and accounts available.

A Type II PC card wireless modem

The AirCard fits into the standard (Type II) PC Card slot available on most notebook PCs. Once installed and configured, the AirCard 580 connects to the high-speed CDMA 1xEV-DO wireless network. You just insert the AirCard 580, allow Watcher to autolaunch, click connect, then launch your Internet browser—you're on-line!

3G CDMA 1xEV-DO

The AirCard 580 operates on a high-speed Wireless Wide Area Network (WWAN) which leverages a wireless cellular technology called CDMA (Code Division Multiple Access).

CDMA technology provides a variety of connectivity features, depending on your service provider and account:

- **CMDA 1x EV-DO** is a premier high-speed data service, 3G (third generation) technology. This supports Internet connections with typical speeds of 300-500 kbps with bursts of 2 Mbps. Actual speed will depend on the network.

  Once the connection is established, you can open your browser and connect to any web site that is accessible through the Internet, or access other Internet services (such as e-mail).

- **cdma2000® 1xRTT,** is another variant of 3G technology. This supports packet data speeds of up to 144 kbps.

Additional AirCard 580 features

Beyond the features of high-speed wireless connectivity, the AirCard 580 provides additional software and hardware features:

- PIN security code to protect your AirCard and account from unauthorized use.
- A 32-bit Cardbus electrical interface that extends battery life.
- An Activation Wizard (page 14) to assist with configuring your CDMA accounts.

System components

Your AirCard 580 wireless modem is just one part of a system designed to provide you with a wide range of communication features. Every component of the system is needed to enable these capabilities.

Your host computing device

Your notebook PC hosts the AirCard hardware and runs the communication software: your web browser and e-mail application, and Watcher—the AirCard enabling software.

You may also have other software on your computer that can be used wirelessly with the AirCard 580, such as: file transfer protocol (FTP), chat or instant messaging, a VPN (Virtual Private Network) client, client software for a corporate server.

The AirCard 580 wireless modem

The AirCard fits into a standard Type II PC Card slot available on most notebook PCs.

The AirCard 580 provides all the advantages of CDMA 1xEV-DO where it is available while allowing you to use the older CDMA 1xRTT standard where 1xEV-DO has not yet been implemented. The benefits to you are that you can use the AirCard in any area that has coverage (assuming there are no account restrictions) and you will be able to take advantage of the fastest possible data transmission speed.

AirCard software and driver

Required to control, monitor, and manage your wireless connections is the Sierra Wireless Watcher™ software. The driver enables the AirCard to work with your computer's operating system.

The AirCard comes with a CD containing this software:

- An application called Watcher that you use to manage the AirCard and monitor your connections. (This User Guide outlines the details of Watcher).
- The driver software that forms the interface between the network card and your Windows® operating system.

The driver and application software *must* be installed before you insert the AirCard 580 for the first time. Detailed instructions are provided in Chapter 3: "Installation Procedures", beginning on page 9.

Service provider

Companies that operate CDMA networks and provide access to these networks are called *service providers*. You must have an account with a CDMA service provider to use the AirCard 580.

Note: You can use the Lock Code feature to prevent others from using your account should your AirCard be stolen. (See Chapter 4: "Watcher Basics", page 25 for more information on this security feature).

Each service provider has its own pricing options. There may be flat rate accounts, which provide you a maximum number of minutes of network usage for a fixed monthly fee. There may be accounts for which you are charged for network usage by the minute or by the amount of data transmitted.

Each AirCard 580 has been provisioned at the factory for use with a particular service provider. This sets the AirCard to use particular radio channels and enable services specific for that provider.

The process of setting up your account is called *activation*. Activation involves action by the service provider and configuration of the AirCard 580.

The procedure to configure (activate) your AirCard is covered in Chapter 3.

The CDMA wireless network

Note: More information about CDMA networks is available on the CDMA Development Group web site, **www.cdg.org**.

This is the worldwide infrastructure providing the radio coverage that allows you to stay connected. Made up of radio towers, and a variety of network switches, routers, and servers, the network is an interconnection of many service provider companies.

*Note: Most service providers have coverage maps on their web sites.*

There are CDMA networks, that operate in the frequency bands supported by the AirCard 580 throughout North America and parts of Latin America, Asia, New Zealand, and Australia. However, each service provider operates a network that covers a limited geographical area within the overall CDMA coverage area.

Note: The fee for service is usually higher when you are roaming (connecting to a network other than the one belonging to your service provider).

Most service providers have "roaming" agreements with other service providers, so that they can offer service outside of the coverage area of their own networks. For example, assuming you live in Seattle, Washington and travel frequently to Vancouver, Canada, you can obtain an account with a service provider in Seattle that has a roaming agreement with a service provider in Vancouver. You would then have local service in Seattle, and roaming service in Vancouver. (Most service providers charge more for roaming service than local service.)

Care and maintenance

As with any electronic device, the AirCard must be handled with care to ensure reliable operation. Follow these guidelines in using and storing the AirCard:

- Do not apply adhesive labels to the AirCard. This may cause the AirCard to become jammed inside the card slot.
- Optimal signal strength is usually obtained when the antenna is perpendicular to the modem. The antenna should bend easily at the hinge. Do not forcefully bend the antenna.
- When storing or transporting your PC in a case (such as a notebook case), remove the AirCard antenna and store it in a compartment where it cannot be crushed or broken.
- The AirCard should fit easily into your PC Card slot. Forcing the AirCard into a slot may damage connector pins.
- Protect the card from liquids, dust, and excessive heat. When not installed in your computer, store the AirCard in a safe place.
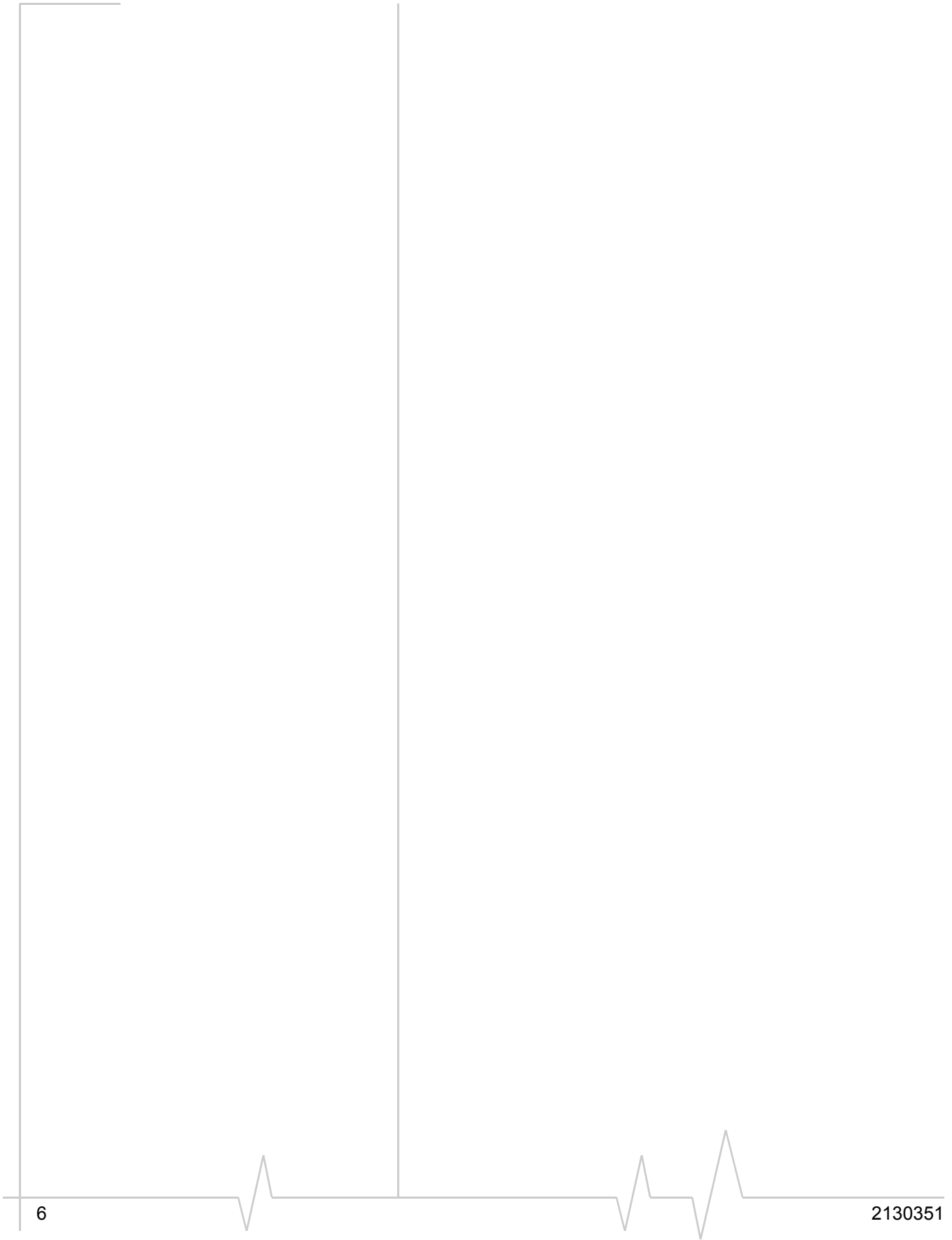
2: Getting Started

- The AirCard 580 software
- Your account and coverage area

Note: Do not insert the AirCard 580 into your notebook's PC card slot until you are prompted to do so by Watcher.

Before you can begin using the AirCard 580 wireless modem, you must:

1. Install the Watcher software and the AirCard drivers.
2. Obtain a CDMA account (if this wasn't done when you purchased the card).
3. Activate an account and configure the AirCard to use your account (unless the AirCard has been pre-activated).

This section provides an overview of this process.

The AirCard 580 software

The AirCard comes with this software:

- An application called Watcher™ that you use to manage the AirCard and monitor your connections.
- The driver software that forms the interface between the network card and your Windows operating system.

The Watcher software should be installed before you insert the AirCard 580 for the first time. Detailed instructions are provided in Chapter 3: "Installation Procedures".

Your account and coverage area

Companies that operate CDMA networks and provide access to those networks are called service providers. You must have an account with a CDMA service provider to use the AirCard 580. The process of setting up an account is called *activation*.

Before you can use the AirCard, you must install the AirCard software and ensure that your AirCard is configured to use your account. Instructions on completeing these steps are provided in the chapters that follow.

Once installed and configured, you can connect to the Internet with the AirCard in any area in which you may obtain CDMA 1x-EV-DO or 1xRTT service. Your ability to obtain CDMA service depends on these factors:

Note: The fee for service is usually higher when you are "roaming" (connected to a network other than the one belonging to your service provider).

- **Proximity to a CDMA network** - You must be within the coverage area of a CDMA network on which 1x-EV-DO and 1xRTT has been implemented, in order to use the AirCard.
- **Service provider** - If you are within the coverage area of a network that is not operated by your own service provider, you can only obtain service if there is a roaming agreement between your service provider and the network operator.
- **Account provisions** - Your account may restrict your usage to certain networks or limit the amount of time you can use the network.

Most service providers have coverage maps on their web sites.

Unless your AirCard has been pre-activated, Watcher automatically detects that no account has been configured when you run it for the first time. Watcher then runs the Activation Wizard to guide you through the activation and configuration process. (See Chapter 3 for complete steps on Activaton).

3: Installation Procedures

3

- Overview
- Part 1: AirCard 580 software installation
- Part 2: Inserting and removing the AirCard 580 and driver installation
- Part 3: Activating the AirCard 580 with a service provider

Note: Do not insert the AirCard 580 into your PC Card slot before installing the software.

Overview

This chapter is separated into three parts that guide you through the steps necessary to install and to begin using the AirCard 580.

The basic steps are:

1. Insert the AirCard 580 installation CD into your CD-ROM drive to install Watcher.

2. Insert the AirCard 580 into the PC Card slot to install the AirCard 580 driver.

3. If the AirCard 580 has not been pre-activated, use the Activation Wizard to configure the AirCard 580 (as described in Part 3 of this chapter: "Activating the AirCard 580 with a service provider," beginning on page 14).

Before you begin the installation process, ensure your PC meets the hardware requirements described below.

System requirements

The AirCard 580 wireless modem is supported on notebook PCs equipped with the following Windows® operating systems:

- Windows 98 SE
- Windows Me
- Windows 2000 with Service Pack 3
- Windows XP

To install the AirCard 580, you require these system resources

Note: The AirCard 580 is not designed to function in Handhelds and Pocket PCs, nor does it support SMS or voice services.

Table 3-1: System Resource Requirements

Card Slots	1 Type II PCMCIA (PC Card) Slot
Disk Drive	CD-ROM (for installation only)

Table 3-1: System Resource Requirements (cont.)

Processor	Pentium 150 MHz or higher
Memory	at least 32 MB
Disk Space	at least 14 MB
Dial-up Networking	DUN bound to TCP/IP

Part 1: AirCard 580 software

Windows 98 SE, Me, 2000, and XP installation procedures

To install Watcher and the AirCard 580 drivers:

Windows 2000 & XP: You may require administrative privileges to install the AirCard 580.

1. The Installation CD launches automatically. Select Install Watcher and a welcome window appears.

2. Click Next on the Watcher Setup Welcome window.

3. Use the Next and Back buttons to navigate through the wizard noting the following:
   - You must click Yes to indicate your acceptance of the terms of the license agreement to proceed with the installation.
   - Use the default settings for the Destination Location and Program Folder unless you have special requirements and an advanced understanding of PC configuration. (The Destination Location dictates where the software is installed. The Program Folder dictates the name assigned to the software in Add/Remove Programs in the Control Panel.)
   - To customize Watcher to launch automatically each time your notebook PC starts up, select the Run Watcher at Start up check box. To add the Watcher shortcut to your desktop, providing you with the option of launching Watcher by double clicking an icon on your desktop (as well as from the Start menu), select the Desktop Shortcut check box. (You may select both).
   - Click Finish to close the last screen of the wizard.

Windows Me: It is recommended that your restart your PC at this time before proceeding with the insertion of the AirCard 580 and driver installation.

Windows 98 SE: Allow your notebook PC to fully restart before proceeding with the insertion of the AirCard 580 and driver installation.

4. Skip to step 5 if you did *not* check the option Run Watcher at Start up from the Setup window (refer to step 3).

Skip to step 6 if you *did* check the option Run Watcher at Start up from the Setup window (refer to step 3).

5. If you selected the Desktop Shortcut option *only* from the Watcher Setup window (refer to step 3) in order to manually launch Watcher, double-click the Watcher icon located on your desktop or access Watcher from the Windows Start menu: **Start > Programs > Watcher**.

Figure 3-1: AirCard 580 Watcher desktop icon

6. Watcher launches and the system tray icon appears:

Figure 3-2: Watcher System tray icon

7. Watcher instructs you to insert the AirCard 580. Continue to Part 2: Inserting the AirCard 580 and driver installation.
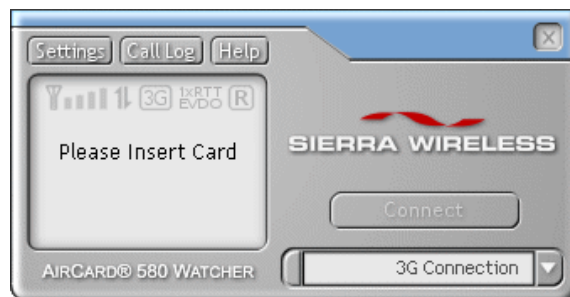
Figure 3-3: Watcher Full Mode view - Please Insert Card

Part 2: Inserting and removing the AirCard 580 and driver installation

This section outlines proper insertion and removal of the AirCard 580 into your notebook PC and explains the steps of driver installation.

Inserting the AirCard 580

To insert the AirCard 580 into your notebook PC:

Note: Before inserting the AirCard 580 into your PC Card slot, it is recommended that you remove the Installation CD from your CD-ROM drive.

1. Insert the AirCard 580 into the PC Card slot with the label facing up. Then, raise the antenna so that it is fully extended and pointed up at a 90 degree angle. Use in any other configuration may exceed FCC RF Exposure Limits. When you insert the AirCard, the following should occur:

•   If sound effects are enabled, the PC beeps.

•   The PC Card icon appears in the status area, if it is not already displayed for another card, (and unless the feature has been disabled).

•   Watcher launches (unless the auto launch feature has been disabled).

•   The AirCard 580 is powered as soon as you insert it.

WARNING: Once the card is inserted, DO NOT physically remove the AirCard 580 until you have reviewed instructions for proper removal on page 12. Removing the AirCard 580 improperly may damage your notebook PC.

Removing the AirCard 580

Note: If your AirCard 580 has not been activated, you will need to follow the steps required for activation to begin using the AirCard 580. (See Part 3: "Activating the AirCard 580" in this Chapter, beginning on page 14.)

To remove the AirCard 580 (Windows 98 SE, 2000, Me, or XP):

1. Verify that Watcher is disconnected and that a connection is no longer active. (See Chapter 4: Watcher Basics, beginning on page 17 for more information).

2. Right or left-click on the Watcher icon found in the system tray and select Exit from the menu.

3. Double-click the Unplug/Eject Hardware PC Card icon in the system tray to display the option to stop the card.

Windows 2000 & Me   Windows XP   Windows 98 SE

Figure 3-4: Unplug/Eject hardware icons

4. Select the following menu selection from the "Unplug or Eject Hardware" window for your operating system and click **Stop** to proceed:
   · Windows 98 SE and Me ONLY: Select "Wireless PC Card USB Open Host Controller"
   · Windows 2000 ONLY: Select "Standard OpenHCD USB Host Controller"
   · Windows XP ONLY: Select "Lucent USB OpenHost Controller"

5. Select the appropriate menu selection for your opening system from the "Stop a Hardware Device" window. (Refer to step 4)

6. Once the "Safe to Remove Hardware" message appears, click **OK**.

7. You may now remove the AirCard 580 from your notebook. Use the ejector button on your notebook to eject the AirCard 580 from the slot. Do not pull the AirCard 580 out by the antenna.

Tip: Windows shortcut for Unplug/Eject and Stop Hardware steps: Left-click on the "Unplug and Eject Hardware" icon found in the system tray. A menu appears. Select the appropriate selection for your operating system (see step 5) and click OK when the Safe to Remove Hardware window appears.

Correct
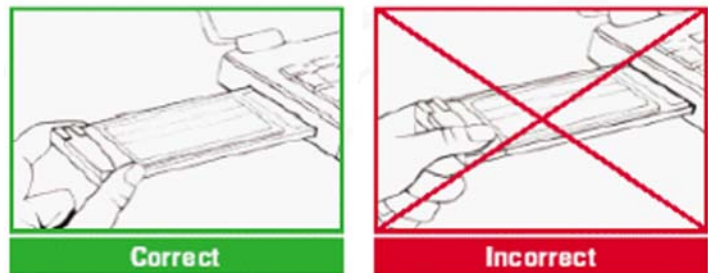
When inserting and removing the PC Card, grip both sides

Incorrect

Do not handle or remove the PC Card by pulling on the antenna

Figure 3-5: Proper PC card insertion and removal

Driver installation

driver:

A driver is software that provides the interface between a device (such as the AirCard 580) and the operating system on your PC (such as Windows Me).

1. Once the card is properly inserted, your Windows operating systems will notify you that new hardware has

been detected. Please review the following notes on page 12:

Windows 98 SE/2000/Me: Once you have inserted the card properly your Windows operating system will notify you that new hardware has been detected. Please wait for the "Found New Hardware" function to complete the automated tasks. (Multiple windows will appear briefly. Once complete you will be prompted to begin activation).

Windows XP: Once you have inserted the card properly, your Windows operating system will notify you that new hardware has been detected. Please wait for the "Found New Hardware" function to complete the automated tasks. (Multiple ToolTips will appear briefly in the system tray. Once complete you will be prompted to begin activation).

If you previously installed drivers for your AirCard 580, a message will appear:

- If you have installed an *earlier* version of the drivers, click Yes to upgrade to the current version. (Recommended).
- If you have already installed the *current* version of the drivers onto your PC, click Yes to keep the current drivers.
- In the event that you have installed a *later* version of the drivers, click Yes to keep the latest version of drivers on your PC.

Part 3: Activating the AirCard 580 with a service provider

In order to use you AirCard 580, you must have an account set up with a service provider. The process of setting up an account is called *activation*.

Note: If you cancel the Activation Wizard before Activation is complete, an Activation Alert Notification will be displayed explaining that you must activate your card in order to connect to the Internet or other Internet dependent function, such as email.

Follow these steps for activation:

1. Write down and keep handy the following activation information. (This information can be found on the packaging materials found inside the box, if the card was shipped to you. If you do not have this information, contact your service provider).
   - ESN (located on the bottom of the AirCard 580
   - Activation Code (six-digits, e.g. 000000)
   - MIN (Mobile Identification Number)
   - MDN (Mobile Directory Number)
   - SID (System Identification Number)
   - MCC (Mobile Country Code)
   - MNC (Mobile Network Code)

2. Once the AirCard 580 is properly installed into the Type II PC Card slot of your notebook PC, the Activation Wizard automatically appears. If you choose to activate the AirCard 580 at a later time, click **Cancel**. The Activation Wizard may be launched manually by accessing the **Settings** menu in Watcher: **Settings > General**.

3. Once the Activation Wizard launches, read the instructions and click **Next**.

4. Follow the on-screen instructions of the Activation Wizard and click **Finish**, when complete. You will need to wait a few moments for the AirCard 580 to automatically reset.

Note: If you receive a message explaining that "Activation Failed" check to ensure that you are in a strong signal area.

You are now ready to use the Sierra Wireless AirCard 580!

For further assistance, contact your service provider.
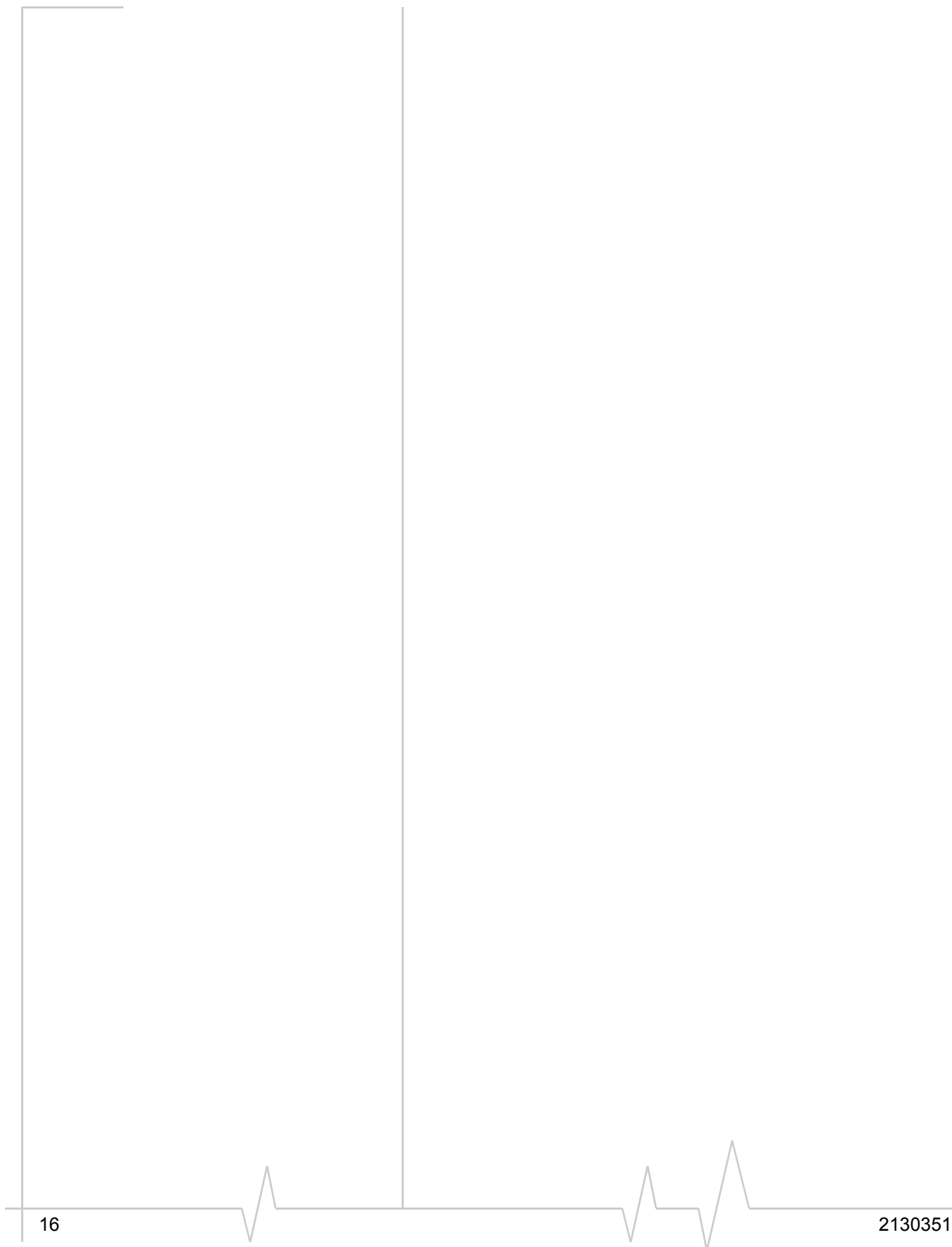
>>|4: Watcher™ Basics

- Launching and exiting Watcher
- Connect and disconnect
- Components of the Watcher window
- System tray mode

Launching and exiting Watcher

Watcher is the application that allows you to manage and monitor the connection between the AirCard 580 wireless modem and the CDMA network. You use Watcher to:

- Determine your signal strength, roaming status, 1xEV-DO high-speed data availability, and other network connection parameters
- Initiate data calls
- View call statistics
- Customize features and options

Anytime you use the AirCard you must run Watcher. Once you make a connection in Watcher, you can launch whatever application you want to use (such as your web browser or e-mail application).

Launching Watcher

Depending on your settings, Watcher launches automatically anytime you turn on your notebook PC. (See "Action Buttons: Settings", further in this chapter on page 29).

You can also launch Watcher by:

- Double-clicking the Watcher icon on your desktop

                                     - or -

- **Start > Programs > Watcher**

Watcher launches in Full Mode view by default and the system tray icon also appears:

System Tray Icon

Exiting Watcher

In order to close and exit Watcher, you must ensure that you are disconnected from the network. (See "Connect / Disconnect" in this chapter on page 19).

1. Click the Watcher system tray icon found in the system tray and a menu appears:
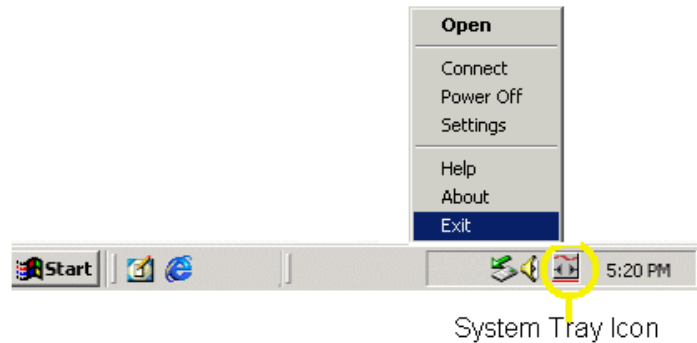
Figure 4-6: System tray shortcut menu

2. Select **Exit** from the menu. (This closes and exits Watcher and the icon disappears from the system tray).

Powering the AirCard 580 (On/Off)

To power the AirCard 580 on and off:

1. Click the Watcher icon found in your system tray.
2. Select "Power Off Card" or "Power On Card" from the shortcut menu.
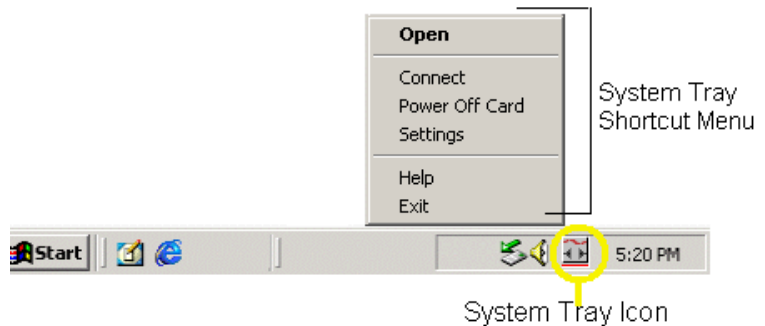
Figure 4-7: System tray icon and menu

Note: Powering Off the AirCard 580 does not mean that you have exited Watcher.

WARNING: Do not eject theAirCard 580 from your notebook PC until you have followed the Unplug/Eject Hardware instructions for proper removal [See Chapter 3, page 12]. Removing the card improperly may damage your computer.

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Connect and disconnect

Connect to your service provider's wireless network

Once you have properly inserted the AirCard 580 wireless modem into your notebook PC's Type II PC Card slot. Watcher notifies that it is "Ready" to connect to the network.

1. Click the **Connect** button to establish a connection.
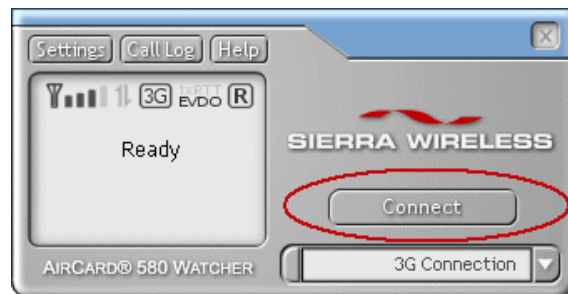
Figure 4-8: Watcher in Full Mode view - Connect action button

2. Watcher will take a few moments to connect to the network. Once a connection is established, the dialog box at the bottom of the Watcher window displays the word "Connected," notifying that a connection has been established. The **Connect** button changes to read **Disconnect**.

Disconnect from your service provider's wireless network

1. To end the current connection, click the **Disconnect** button.
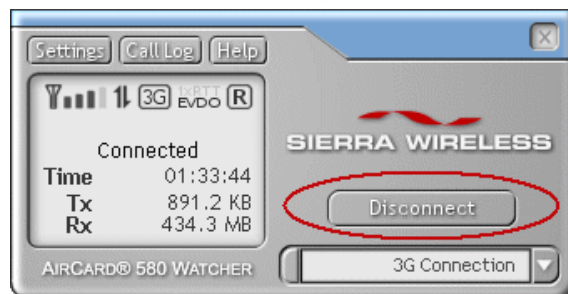
Figure 4-9: Watcher in Full Mode view - Disconnect action button

2. The dialog box returns to the "Ready" state, notifying that the current session is no longer active.

Components of the Watcher window
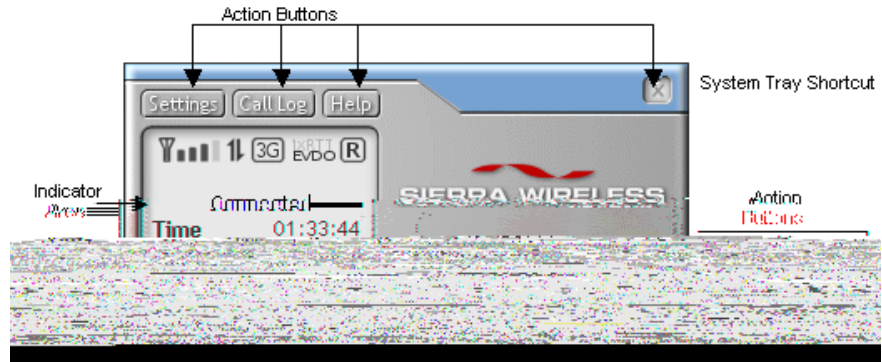
Figure 4-10: Full Mode view of Watcher

Each time Watcher launches, it launches in Full Mode view. In Full Mode view all menus, indicators, and buttons are displayed.

The window contains:
- The indicator area which contains icons showing your signal strength, coverage, and roaming status.
- Action buttons to connect and disconnect, links to customization menus, a digital help guide, and a shortcut that closes Full Mode view and enables System Tray Mode.

In the alternate view, System Tray Mode, Watcher remains running in the background but no window is displayed. This feature provides the option of keeping your desktop clear of multiple windows.
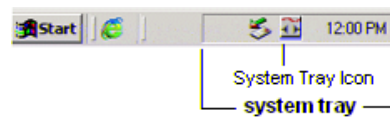
Indicator area and icons

Depending on the AirCard 580's operating status, various icons are displayed in the Indicator Area.

Table 4-2: Indicator Area Icons

Icon	Meaning
	The Signal Strength icon displays when Watcher is turned on. The bars indicate the strength of the radio signal. Four bars signify that the signal strength is at its maximum peak. The strength will change depending on where you are.
	This displays when no signal is available or when the AirCard 580 is powered off. The antenna symbol is red and the bars are dimmed. When this occurs, no connection is possible for one of the following reasons: • No antenna is attached • You are outside the CDMA network coverage area • The signal strength is too weak • A network or account problem is preventing the AirCard 580 from obtaining service
	The Service Indicator icons display which network service is currently available at your location (3G - 1xEV-DO and 1xRTT or 2G) 1xEV-DO service is the default connection. This icon displays "3G 1x EVDO" and communicates that the 1xEV-DO network is available. Watcher defaults to the best available network connection once connected. (For example: if all three connection types are available, Watcher selects the 1xEV-DO connection first, by default, because it is the premier service). The "3G 1xRTT" icon signifies that because the 1xEV-DO network is currently unavailable, Watcher establishes a session with the next best network connection available (1xRTT). The "2G" icon signifies that only the 2G network is available. The "3G 1xEVDO" icon becomes dimmed and 3G changes to read 2G. The icon is "off" (dimmed) when no service is available.

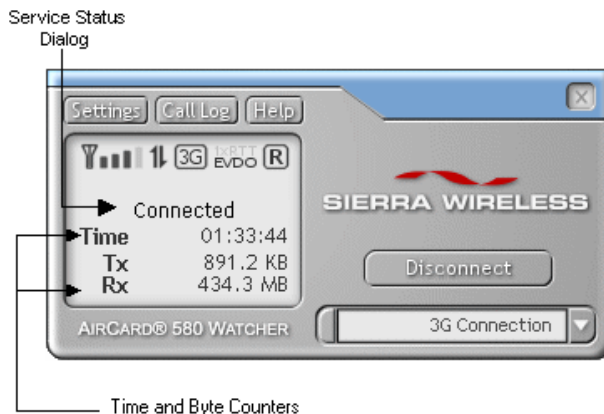| Icon	Meaning
® ®	The Roaming Status indicator shows whether you are roaming onto the network of a service provider other than your own. When the indicator is off (gray), you are within the local coverage area of your service provider. When the indicator is on (solid black), you are in a "preferred" roaming area. When the indicator is blinking, you are within the coverage area of a CDMA network but not in a "preferred" roaming area. *Note: Your coverage area and account charges depend upon your service provider and the type of account you have. There may be surcharges for roaming service that vary based on whether you are in a preferred or non-preferred roaming area. If there is no roaming agreement between your service provider and the local carrier, you may be unable to complete calls.*
↑↓ ↑↓	The Connection Indicator icon signifies that a connection is established. The icon flashes while you are in the process of connection and remains static once you are connected. If the Connection Indicator icon is dimmed, there is no connection, nor is a connection attempt in progress.

Service status area and counters

Figure 4-11: Full Mode view - service status and counters

The Service Status Dialog area displays messages related to the status or progress of a connection.

Service status dialog

Table 4-3: Service Status Dialog and Associated Icon

Service Status Dialog	Description	Associated System Tray Icon
Please Insert Card	No card is detected	
Card is Off	AirCard 580 is powered off	
Ready	Service is available	
No Service	No service is available	
Connecting	Attempting to make a connection	
Connected 1xEV-DO *or* Connected 1xRTT	A connection is established (1xEV-DO or 1xRTT - active or dormant)	
Dormant / Connected	A connection is established but no data transfer is in progress	
Disconnecting	Disconnecting the current call	
Call Lost	Call is dropped; transient state returning to Ready	
Card is Locked	The modem security feature has been enabled	

Connection timer

The connection timer displays the duration of the current data call and begins as soon as a connection is established. The time format is 00hrs: 00min: 00sec.

Byte counter

The byte counter displays the amount of data transmitted and received during a session as soon as a connection is established. The measurements are listed in kilobytes and megabytes.

For 0-999 kilobytes, the format is displayed as:
" XXX kb" (i.e. 7 kb, 68 kb, or 768 kb).

For 1 megabyte and up, the format is displayed as:
" XXX.X Mb" (i.e. 1.0 MB, 3.2 MB, or 132.3 MB).

Action buttons

The action buttons allow you to customize Watcher and monitor your connections.

Connect / disconnect

When a connection has not been made, the action button reads **Connect**. To initiate a connection, click **Connect**. Once a connection is established, the button changes to read **Disconnect**. Select **Disconnect** to terminate your session.

Tip: Once you are in System Tray Mode, you may easily return to the Full Mode view. Simply click the system tray icon and select Open from the menu.

System tray shortcut

When viewing Watcher in Full Mode, you have the option to "minimize" the Full Mode window and monitor your connection status from the System Tray Mode view. The icon located in the system tray communicates your connection status similarly to the service status dialog in Full Mode. By clicking on the system tray icon, you are activating the System Tray Mode.

Note: Clicking on the System Tray shortcut does not close the Watcher application.

Settings

The settings tool allows you to customize Watcher. Once you click this button, a window with two tabs appears: General and About.

General tab

You are able to customize options and alert settings by accessing the general tab. An explanation of options and alerts is outlined below.

Tip: In order to change the default settings on any of the options, simply place or remove a check mark in the designated check box for each option. You may do so by clicking the mouse on the check box.

Table 4-4: Settings Menu - General Tab Options

Option	Choices	Description
Start in System Tray Mode	In Full Mode (default) In System Tray Mode	You are able to customize the viewing mode of Watcher. Click "System Tray Mode" to monitor your connections from the system tray only (See System Tray Mode on page 26). If you prefer to monitor your connections in Full Mode view, select the default option, "In Full Mode" (See Full Mode on page 20).
Run AirCard 580 Watcher at Startup	On (default) Off	This default setting can be changed during installation.

Option	Choices	Description
Enable Auto-Connect	On Off (Default)	When this option is enabled, Watcher automatically establishes a connection at startup, and automatically reestablishes a connection if the connection is dropped. If you prefer to manually establish a connection, select Off (default).
Call Lost Alert	On (default) Off	When enabled, a pop-up window and warning sound notify you when a connection is dropped.
Card Eject Warning	On (default) Off	When enabled, a message regarding proper card removal is displayed when you exit Watcher.
Tray Mode Alert	On (default) Off	When enabled, you are prompted to indicate whether you want to close Watcher or minimize Watcher when you select the system tray shortcut action button.
Network	Hybrid mode 1xEV-DO only 1xRTT only	Network type selection through a pull down menu.
Roaming	Enabled Disabled	You may enable or disable roaming by accessing this pull-down menu.
Security Lock	On Off (default)	For security purposes, you have the option to lock the AirCard 580 when not in use. Each time you use the AirCard 580, you are asked to enter a four-digit passcode. Place a checkmark in the check box entitled, "Lock Card" to enable this feature. The default lock code is the last four digits of your MIN (Mobile Identification Number). To change your code, select "Change Lock Code" and follow the on-screen instructions. *Tip: Contact your service provider if you cannot remember your MIN.*
Run Activation Wizard	--	You may manually launch the Activation Wizard from the general tab. Select "Run Activation Wizard" and follow the on-screen instructions.

About tab

The About Tab lists useful information about your device and provides direct access to a digital help file.

Call log

The call log lists a summary of all data calls made. A window appears displaying the following options:

Table 4-5: Call Log Column Descriptions

Column Header	Format	Descriptions
Call Type	3G 2G	Indicates the type of call initiated. Click on the column header to sort by "Call Type".
Phone Number	15 digits	Destination data phone number, if available.
Date and Time	YYYY MMM DD hh:mm am (or pm)	Date and time when the data call was made.
Duration	*hh:mm:ss* OR *mm:ss*	Duration of the data call.
Bytes In	Examples: 7 KB, 68 KB, 768 KB, 3.2 MB, 343.3 MB, 1.3GB	Indicates the total amount of data received during a session.
Bytes Out	Examples: 7 KB, 68 KB, 768 KB, 3.2 MB, 343.3 MB, 1.3GB.	Indicates the total amount of data transmitted during a session.

To reset the counter (and begin counting from 0):

1. Select Reset.
2. Select Yes to confirm that you want to delete the entries. The Last Reset Time is then updated with the current date and time.

The Help button provides access to Watcher Help, a digital help guide. Click Help and the About Tab in the Settings menu appears. Select AirCard 580 Watcher Help and Help opens in a separate window. (See "Action Buttons: Settings - About Tab" on page 25).

System Tray Mode

Figure 4-12: System tray area

If you prefer to minimize the Full Mode view of Watcher, you can still monitor your connections with the System Tray Icon.

system tray: a section of the task bar in Windows which displays the clock and icons of certain programs. Sometimes referred to as the notification or status area.
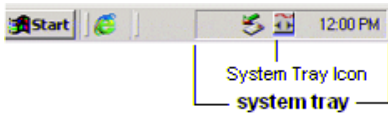
System Tray Icon

Watcher launches in Full Mode view by default. Once the program launches, an icon appears simultaneously in the system tray on your desktop. This icon changes colors according to the current status of your connection. By moving the mouse pointer over the icon, ToolTips appear explaining the current status of Watcher. Once you exit Watcher, the system tray icon disappears.

AirCard 580 Watcher: Ready ——ToolTip
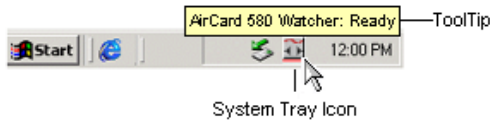
System Tray Icon

ToolTip: Pop-up text box that displays information about a particular application. These text boxes may be viewed when the mouse pointer is placed on the particular icon.

Table 4-6: System Tray Icon meanings

Icon	Description	ToolTip
	Ready - Watcher is ready to make a connection	AirCard 580 Watcher: Ready
	Connecting - Icon flashes as it attempts to make a connection	AirCard 580 Watcher: Connecting
	Connected - Connection is established and data transfer is in progress	AirCard 580 Watcher: Connected
	Dormant / Connected - Icon color is yellow, signifying that the connection is established, but idle (no data transmission is occurring)	AirCard 580 Watcher: Dormant/Connected
	No Service - Icon color is red; card has no service	AirCard 580 Watcher: No Service
	Off - Icon color is gray, signifying that the power to the card is off	AirCard 580 Watcher: Card is Off
	No Card is Detected - Icon color is gray	AirCard 580 Watcher: Please Insert Card
	Modem Locked - Icon color is gray; security lock is enabled	AirCard 580 Watcher: Card is Locked

Note: When you select "Exit" from the system tray menu, you are "exiting" the Watcher program/application. Clicking on the system tray shortcut action button while in Full Mode does not close and exit Watcher; it only minimizes Watcher from Full Mode view. Remember: the Watcher system tray icon is only visible while Watcher is running.

System tray menu

Click the system tray icon to display a menu with these options:

Table 4-7: System Tray Menu Options

Menu Item	Action
Open	Maximizes Watcher to Full Mode view.
Connect or **Disconnect**	Select to Connect or Disconnect a data call session.
Power On Card or **Power Off Card**	Select to Power On or Off the AirCard 580.
Settings	Open the Settings window.
Help	Open the About tab in the Settings window. The About tab displays a direct link to the digital Watcher Help guide.
Exit	Close the Watcher application. Once you have exited Watcher, the system tray icon disappears.

5: Alert Windows

Understanding alert windows

Alerts that are windows generated by Watcher in response to your selections. Close an alert window by selecting **Yes, No,** or **OK.** You also have the option to "turn off" an alert so that it never appears again either from the alert window itself, or by manually shutting it off. To manually shut off an alert, access the **Settings** menu in Full Mode view or click the system tray icon in the system tray of your notebook PC to access the shortcut menu. (See Chapter 4, pages 20-26).

Following are different alerts that may appear during use:

3G service alert

If 3G service is currently unavailable at your location, an alert appears explaining that you need to try to reconnect again.

Auto-connect alert

Watcher includes a convenient auto-connect feature. When a call is lost due to poor signal strength, Watcher automatically attempts to reconnect to your service provider's network. The auto-connect alert appears whenever this instance occurs.

Auto-connection failure alert

The auto-connect feature attempts to reconnect to your service provider's network if a call has been lost. If, after three times, the auto-connect feature is unsuccessful, the auto-connection failure alert appears. Click **Yes** to resume auto-connection attempts.

Call lost alert

A visual and audible alert occurs whenever a connection has been inadvertently lost, due to poor signal strength or being outside a local coverage area. Select **OK** to acknowledge the notice and close the window.

Card eject warning

This warning appears when you exit Watcher. Follow the instructions displayed for proper removal of the AirCard 580.

WARNING: Removing theAirCard 580 improperly may damage your notebook PC. See page 12 for complete instructions on proper removal of the AirCard 580 from your notebook PC.

Connection in progress alert

A "Connection in Progress" or "Connection is still Active" alert occurs if you attempt to your select **Exit** or **Power Off** the AirCard 580 from the system tray shortcut menu prior to terminating your connection.

When a connection is in progress, you cannot exit or power off the AirCard 580 without first terminating the connection. Select **Disconnect** from Full Mode view or the system tray icon shortcut menu.

Click **No** to dismiss the alert message and keep Watcher power on and the connection active.

Power on card alert

If the AirCard 580 has been "powered off," an attempt to connect by clicking the **Connect** or **Settings** buttons causes this alert to appear. Click **Yes** to close the alert window and power on the AirCard 580.

Note: You must turn the AirCard 580 power on before making a connection. Access the shortcut menu by clicking the system tray icon and selecting "Power On".

Reset call log confirmation

When you reset the Call Log, a confirmation message appears. Select **Yes** to confirm the deletion of the current entries and to reset the Last Reset Time to the current time.

Security lock enabled alert

A connection cannot be made while the security lock feature is enabled. If a connection attempt is made the security lock is on, an alert appears explaining that the card is locked.

You may disable the feature from the **Settings** menu.

Security enter lock code

For security purposes, you have the option to lock the AirCard 580 when not in use. Each time you use the AirCard 580, you will be asked for a four-digit passcode. The default lock code is the last four digits of your MIN (Mobile Identification Number). Contact you service provider if you cannot remember your MIN. You may change your lock code by accessing the **Settings** menu.

Security incorrect lock code

An alert appears if the security lock code entered is incorrect. Click **OK** to dismiss the dialog and re-enter the correct lock code.

Software mismatch alert

This alert appears if the Watcher software version you are installing is older than the modem software. Click **OK** to dismiss the dialog.

Note: You may continue to use the AirCard 580 after closing the alert window, even with the software mismatch. Please contact your service provider to check when the latest software upgrades are available.

Tray mode alert

In order to run Watcher System Tray Mode rather than Full Mode, you must click the System Tray Icon. When this action occurs, an alert appears explaining that you have switched modes. In order to turn off the alert in the future, place a check mark in the check box next to "Do not show this Alert in the future."
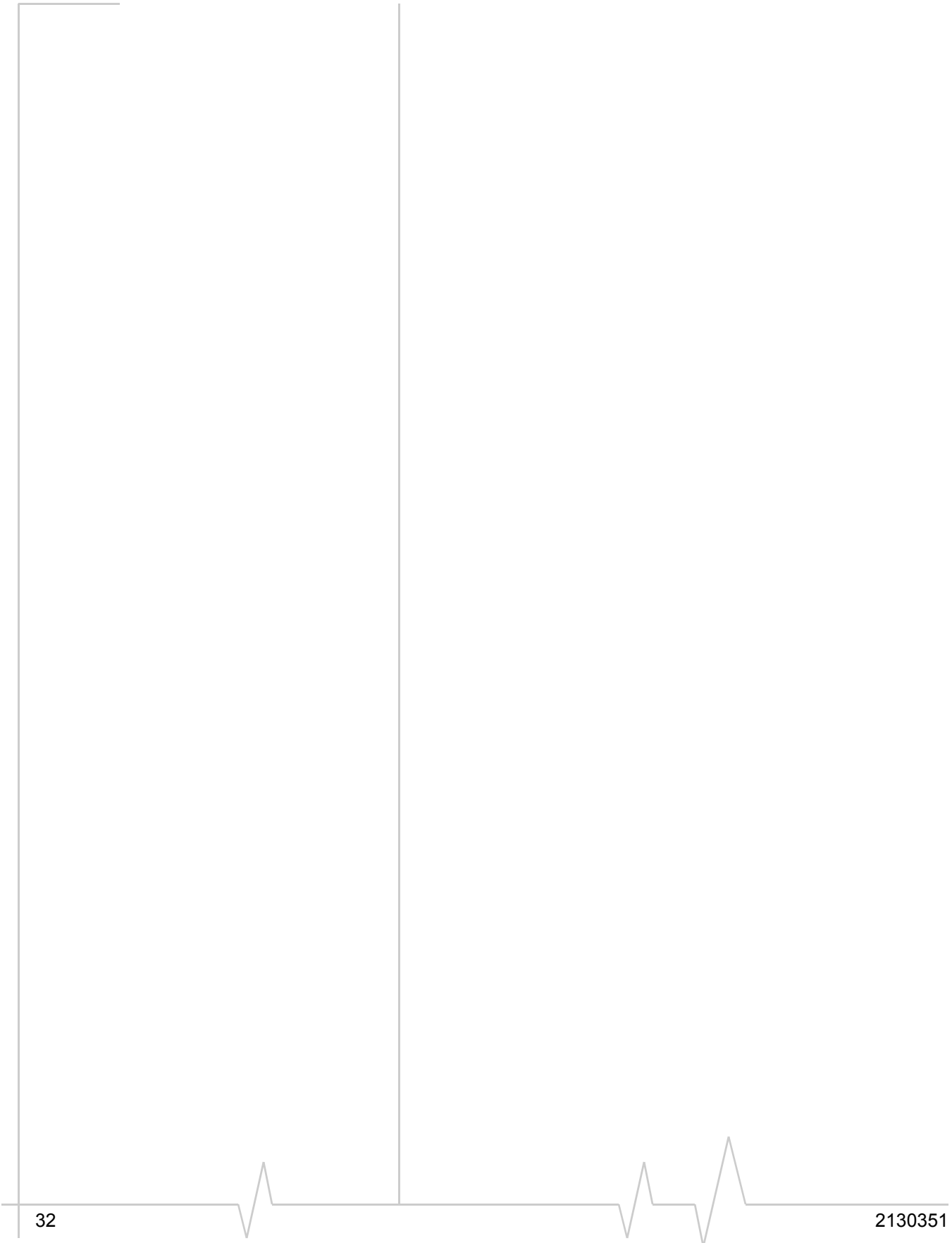
>> 6: Troubleshooting Tips   6

The Watcher Help file includes descriptions of most common error messages and troubleshooting tips, including answers to frequently asked questions. Look in the table of contents under Frequently Asked Questions and Troubleshooting.

For help with other problems:

- Consult the Sierra Wireless website at **www.sierrawireless.com**. There is a troubleshooting wizard and an extensive knowledge base that can be searched to address most problems.
- Contact your service provider.

My AirCard 580 becomes noticeably hot after using it for a while, is this normal?

Like all wireless network cards, the AirCard 580 generates heat in its normal operation and is also heated by the host computer. For this reason it is recommended that you allow the AirCard 580 to cool down after extensive operation so that it may become cool to the touch before you remove it from your notebook PC.

How do I log in to my Virtual Private Network (VPN)?

Once you establish a connection to the Internet with the AirCard 580 and Watcher, open the VPN application and sign in as you normally do.

How do I un-install Watcher?

Before you attempt to un-install the software, ensure that you have powered off the card and exited Watcher.

1. Access the Add/Remove Programs utility in the Control Panel.

Start > Settings > Control Panel > Add/Remove Programs

2. Select Sierra Wireless AirCard® 580 Watcher to un-install and click **Change/Remove**.

3. Follow the on-screen instructions.

(For further information on specific operating systems, consult Windows® Help (Start > Help).

A "Location Information" window has popped up asking for dialing information. Do I need to put any information in this window?

Windows 98 SE & Windows Me ONLY: During Watcher software loading, if the computer has never had any modem configuration performed, the Location Information screen may pop up. This window has nothing to do with Watcher software. Windows just thinks a modem is being loaded and is asking for dialing information. Simply put in the area code of the computer's location. The remaining requested information can be left blank or dummy information can be put in. Information in this window will not affect the AirCard 580. After entering the information click Close. (This only applies if the computer also uses a dialup modem).

I use Windows 98 SE and I've noticed that my computer is

On the second attempt by Windows 98 SE to go i247-nto Standby Mode, the system may become sluggish and unusable. The computer must be rebooted at this point in order to recover and restore normal operating speed.

It is recommended to inhibit Standby Mode by selecting Standby "Never" option under the 'Power Manager' menu options in the Control Panel. It is also recommended not to use Start >Shutdow > Standby .

When do do "With the message you) T -13.5904 -1.2048 TD0.0016 Tc0.0004 Tw (a Windows 2000 operating system load and has not ha243.7(d)6(an)6(y) T message: "The feature yo u are tr yi other removable disk that is

Why won't my laptop hibernate or go into standby since I loaded Watcher software?

Due to power control issues with the AirCard 580 and Windows 2000 SP2 and earlier, a standby / hibernate blocker has been written into Watcher software. If the laptop is upgraded to Windows 2000 SP3, the software will see this and restore the standby and hibernate functionality.

My card exhibits very slow data rates, and/or automatically ends the connection.

A corresponding pop-up error window highlighting an issue with the USB driver follows the disconnection. This is not an issue with the USB driver, but is related to insufficient laptop power supply current to maintain the wireless connection. The AirCard 580 wireless modem has been designed and is compliant to the 32-bit Cardbus electrical interface specification. Cardbus has been a standard in the PC Notebook industry since late 1997. Cardbus operates at 3.3 Volts, as compared to the older wireless network card standards which operate at 5 Volts. This lower voltage provides Cardbus implementations, including the AirCard 580 wireless modem, with some key advantages for power management and overall power efficiency. Unfortunately, some PC notebook implementations have hardware compatibility issues, particularly with respect to power delivery for high-current devices like the AirCard 580. We have tested a number of laptops from various vendors and have found some models where insufficient power has been observed. These include:

· IBM X23/X24

· Gateway Solo 9550

· Sony C1

If you have any additional questions, please contact your service provider.
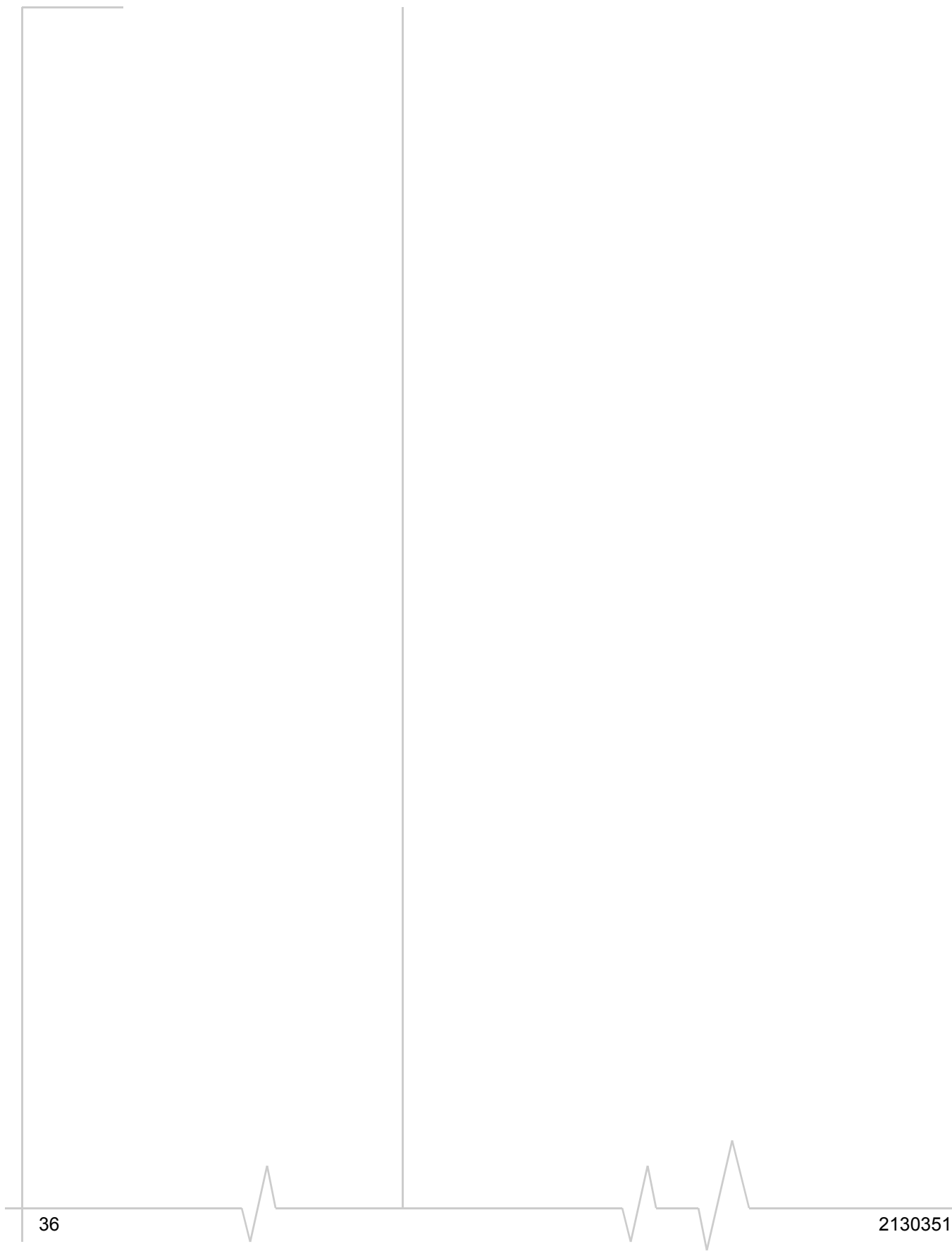
7: Technical Specifications

7

- LED operation
- Radio frequency and electrical specifications
- Environmental specifications

This chapter describes the function of the LED, and provides technical product data for the AirCard 580 wireless modem.

LED operation

The AirCard 580 has a single red/green LED on the antenna end of the card. The LED operates as follows:

Table 7-1: LED operation

LED Behavior	Indicates
Solid amber*	The AirCard is powering up.
Blinking amber	The AirCard is searching for a channel.
Solid green	A call is in progress.
Blinking green	The AirCard has acquired a channel and is in idle mode (no call is in progress).
Solid red	An error has occurred.

*   Amber is used to describe the color of the LED when both red and green are lit.

Radio frequency and electrical specifications

Table 7-2: Radio frequency and electrical specifications

Approvals	Compliant with: IS-95A, IS-96B, IS2000, Release 1.0 (CDMA2000® 1X) IS-707-A Data, IS-856 (CDMA2000® 1xEV-DO) IS-866, IS-878, IS-890 CDMA Developers Group FCC (ID: PNF-PC3220P)
Voltage	+3.3Vdc from PCMCIA slot
Current	Maximum: 950 mA Typical: 370 mA (1xRTT) 470 mA (1xEV-DO)
Transmitter Power	200 mW (+23 dBm)
Transmit	PCS: 1805 to 1870 MHz Cellular: 824 to 849 MHz
Receive	PCS: 1715 to 1780 MHz Cellular: 868 to 894 MHz
Channel Spacing	1.25 MHz
Freq. Stability	±150 Hz

Environmental specifications

Table 7-3: Environmental specifications

Operating Temp.	-10 to +60°C (ambient, outside PCMCIA enclosure)
Storage Temp.	-20 to +65°C
Humidity	95%, non-condensing
Vibration	15 g peak 10 to 2000 Hz (non-operating)
Drop	30" (76.2 cm) on to vinyl covered concrete

8: Regulatory and Safety Information

8

- Regulatory notices
- Safety hazards

United States of America

FCC

This Section outlines important regulatory notices concerning your new AirCard.

Regulatory Notices

This device complies with Parts 15, 22, and 24 of the FCC rules. This PC card has been tested with the typical laptop computer with the side loading PCMCIA bay. This PC card must not be co-location or operated in conjunction with any other antenna or transmitter. Use of this device in any other configuration may exceed the FCC RF Exposure compliance limit. Operation of this device is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesirable operations.

Sierra Wireless stipulates that the antenna should be more than 1.5 cm (0.60") from by-standers and 1.0cm (0.39") from the user. When in use, the antenna should be fully extended upward at a 90-degree angle.
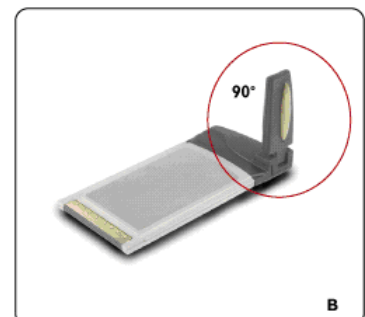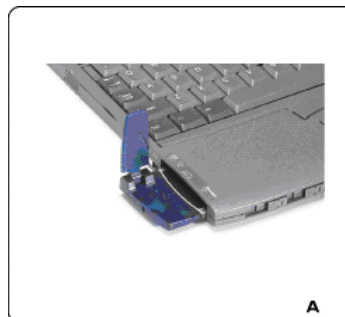
FCC ID: N7N-PC3220P

CAUTION: Unauthorized modification or changes not expressly approved could void compliance with RF exposure guidelines.

WARNING: This equipment has been tested and found to comply with the limits pursuant to Part 15, 22, and 24 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in an appropriate 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 communi-cation. 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 or more 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

WARNING: This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference causing equipment standard entitled "Digital Apparatus," ICES-003 of the Department of Communications.

WARNING: Cet appareil numerique respecte les limites de bruits radioelectriques applicables aux appareils numeriques de Classe B prescrites dans la norme sur le materiel brouilleur. "Appareils Numer-iques," NMB-003 edictee par le ministre de Communications.

If you have purchased this product under a United States Government contract, it shall be subject to restrictions as set forth in subparagraph (C)(1)(ii) of Defense Federal Acquisi-tions Regulations (DFARs) Section 252.227-7013 for Department of Defense contracts, and as set forth in Federal Acquisitions Regulations (FARs) Section 52.227-19 for civilian agency contracts or any successor regulations. If further government regulations apply, it is your responsibility to ensure compliance with such regulations.

Safety Information

This section outlines important liability and safety guidelines concerning your new PC Card.

Important Notice

Because of the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (i.e., have errors) or totally be lost. Although significant delays or losses of data are rare when wireless devices such as the PC Card-Model AirCard 580 CDMA modem are used in a normal manner with a well constructed network, they should not be used in situations where failure to transmit or receive data could result in damage of any kind to the user or another party, including but not limited to personal injury, death or loss of personal property. No responsibility for damages of any kind resulting from delays or errors in data transmitted or received using the PC Card-Model AirCard 580 CDMA modem, or for failure of the PC Card-Model AirCard 580 to transmit or receive such data.

Safety and Hazards

Blasting Areas and Hospitals

Do not operate the Sierra Wireless AirCard® 580 wireless modem in areas where blasting is in progress, where explosive atmospheres may be present, near medical equipment, life support equipment, or any equipment which may be susceptible to any form of radio interference. In such areas the Sierra Wireless AirCard® 580 wireless modem MUST BE POWERED OFF. It can transmit signals that could interfere with this equipment.

Aircraft

Do not operate the Sierra Wireless AirCard® 580 wireless modem in any aircraft whether the aircraft is on the ground or in flight. In aircraft, the Sierra Wireless AirCard® 580 wireless modem MUST BE POWERED OFF. When operating it can transmit signals that could interfere with various onboard systems.

Driving

The driver or operator of any vehicle should not operate the Sierra Wireless AirCard® 580 wireless modem while in control of a vehicle. Doing so will detract from the driver or operator's control and operation of that vehicle. In some jurisdictions, operating such communications devices while in control of a vehicle is an offense.
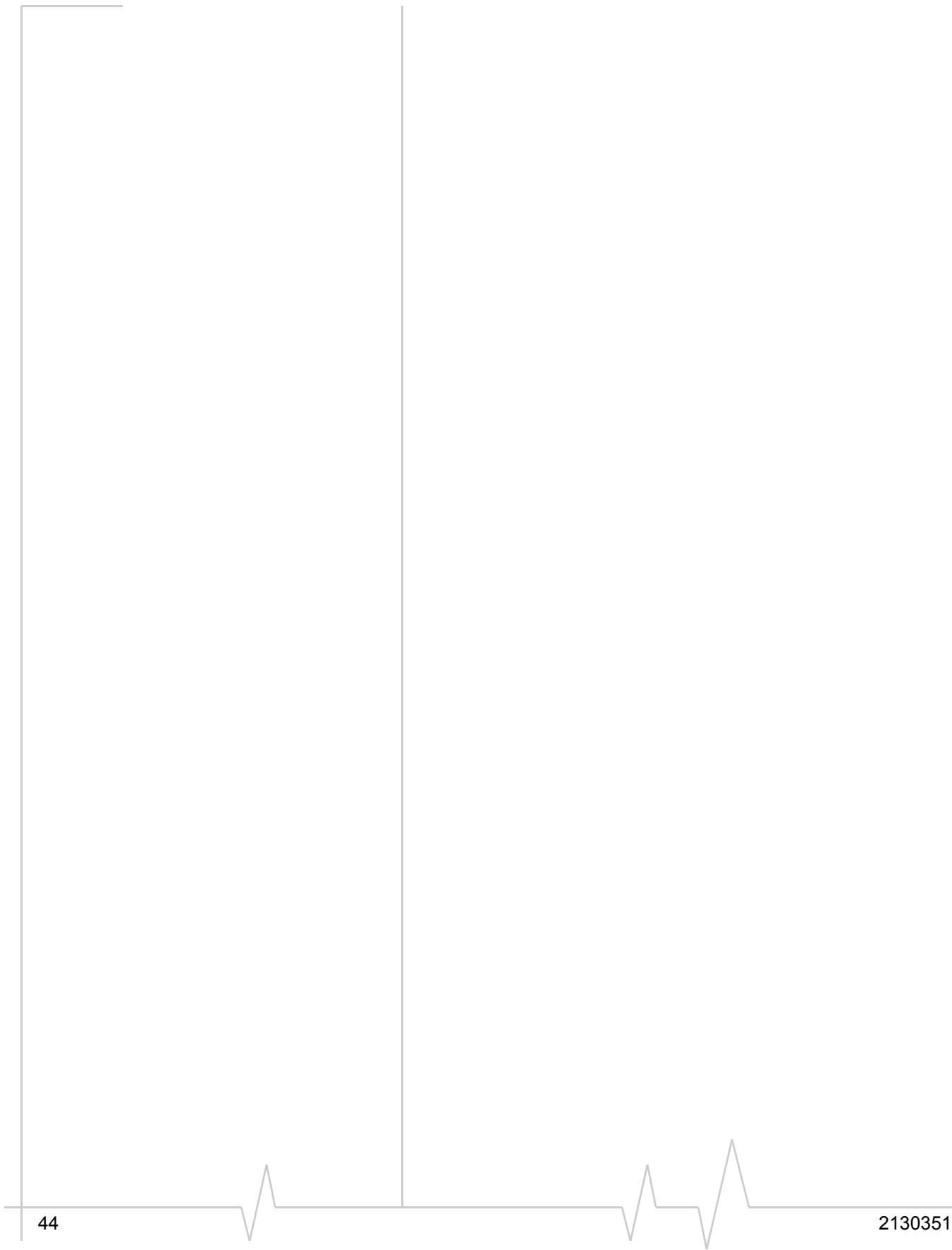
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