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Novatel Wireless Revision History

Part Number	Revision	Description	Date
90026546	R1	Initial release	07 Oct 2011

FCC ID: PKRNVWMIFI4620

PN: 90026546_R1_DRAFTE_UG MiFi4620L_NVTL_07Oct2011_1.1
Please visit www.novatelwireless.com/ for the latest information about your device.

Contents

1

Getting Started

Overview

Congratulations on your purchase of the Novatel Wireless MiFi 4620L Intelligent Mobile Hotspot for 4G LTE and Wi-Fi!

This device operates over high-speed 4G LTE networks in the 700/800/1900 bands and Wi-Fi, enabling you to connect at high speeds to the Internet, your corporate Intranet, Wi-Fi enabled devices, and to access your email virtually anywhere!

The MiFi 4620L is backwards compatible to 3G networks, ensuring reliable connectivity when you need it most.

Features

- **Connect to High-Speed Wireless Data (4G LTE)**
- **Wi-Fi Connectivity**
- **Manage Wireless Network Activity**
  - **MiFi Settings** is an easy-to-use web-based interface that allows you to manage, monitor, and customize your Wi-Fi and 4G LTE connection.
- **Advanced embedded antenna design**
- **VPN capability**
- **Auto connectivity options**

Package Contents

The Novatel Wireless MiFi 4620L package includes:

- 4G LTE MiFi® 4620L
- 1500mAh Standard Lithium Ion Battery
- Wall Charger
- USB Cable (for software upgrades only)
- Protective Pouch
- Quick Start Guide

System Requirements

- Supported operating systems

  - Windows® 7, Vista® (SP2) 32/64-Bit; XP Home, Professional,Tablet (SP3) 32-Bit

  - Mac OS® X v10.4 or higher

- Internet browser software. For example: Microsoft Internet Explorer 6.0 or higher, Firefox, Safari, Opera, Chrome

- USB port: Type A

- Wi-Fi (802.11b or higher)

- Hard drive: 100 MB free hard disk space

- Memory (RAM): 128 MB

To use Wi-Fi mode, your computer needs Wi-Fi capability and Internet browser software only.

Your device must have proper data service to function properly. (See)

Components

FPO

❶ **Display:** Shows the device status, including network signal strength, roaming status, battery life, and the number of users connected with Wi-Fi. (See Service Display States on page 7.)

❷ **Power Button**: Powers the device on and off.

❸ **Service Status Indicator (LED)**: Shows the device status, including connection and error states. (See Service Status Indicator (LED) States on page 6.)

FPO

❶ **Micro USB Connector:** The wall charger connects here.

FPO

❶ **SIM Card Slot**: The SIM card is installed here.

❷ **Battery Compartment**: The battery contacts connect here.

❸ **Master Reset Button**: Insert a paperclip in the small hole to reset the device to factory settings. (See)

❹ **Battery Removal Divot**: When the battery is installed, insert a fingernail here and lift to easily remove it.

❺ **Network Name and Password Label (on the back cover; not shown)**: The pre-configured network name (SSID) and your network key are printed on a label affixed to the back of your device.

Service Status Indicator (LED) States

LED Color		Status	Description
No Light		Off	The device is powered off or otherwise is not getting power.
Amber		Solid	The device is in power down mode.
		Blinking	The device is powered off and also charging the battery.
Green		Solid	The device is powered on; 4G LTE service is available but not connected or connected while dormant.
		Blinking	The device is powered on and connected to the 4G LTE network and transmitting data.
Violet		Solid	The device is powered on; 3G 1X or EV-DO service is available but not connected or connected while dormant.
		Blinking	The device is powered on and connected to a 3G 1X or EV-DO network and transmitting data.
Red		Blinking	If this occurs during power up, no SIM card is inserted. All other times, this indicates an error or a SIM card failure.
White		Blinking	The device is powered on and the firmware is being upgraded. This LED only applies to over-the-air firmware updates.

Service Display States

Display Icon		Status	Description
No icons		The display is off, and the LED is also off.	The device is powered off or otherwise is not getting power.
Network signal strength		An antenna with 0-4 bars.	More bars indicate stronger signal.
XXX status		xxxx	xxxx
Battery status		A battery outline filled with bars; while charging, the bars cycle from 0-4 bars. When fully charged, the bars don't move. When the battery is very low, the battery outline blinks on and off every two seconds. Charge the battery immediately.	More bars indicate more battery life.
Wi-Fi status		A Wi-Fi logo.	If the icon is present, Wi-Fi is available.
xxxx status		xxxx	xxxx

Power Management

Your device will work from its battery or when plugged into a power source.

- **Battery** — Charge the battery by plugging in the wall charger. While the battery is charging the battery icon bars blink. When the battery is fully charged, the battery icon is solid.

- **Wall charger** — You can use the device when the charger is plugged into a wall socket. The MiFi battery charges while it is plugged in.

Before using the MiFi 4620L, read the battery safety information in the "Safety Hazards" section of this guide. (See Proper Battery Use and Disposal on page 71.)

Caring for Your Device

Like any electronic device, the device must be handled with care to ensure reliable operation. Novatel Wireless recommends the following guidelines:

- Protect the device from liquids, dust, and excessive temperatures.

- Do not apply adhesive labels to the device; they might cause the device to potentially overheat and they might alter the performance of the antenna.

- Store the device in a safe place when not in use.

2

Using the MiFi 4620L

Accessing the Network

4G LTE

With LTE bandwidth (700 MHz) you can get the broadband-like speed you require to work efficiently outside the home or office. You can connect to the Internet, corporate intranet, check your email and download attachments. 4G LTE gives you the freedom to stay productive and connected whether you're on the road or in a meeting across town.

4G Mobile Broadband with LTE*

- Download: Up to 100 Mbps (theoretical)

- Upload: Up to 50 Mbps (theoretical)

3G Mobile Broadband with EVDO Rev. A*

- Download: Peaks to 3.1 Mbps with typical download speeds of 600 kbps–1.4 Mbps

- Upload: Peaks to 1.4 Mbps with typical upload speeds of 500-800 kbps

Subject to Customer Agreement, Calling Plan, credit approval, and other service terms.

Mobile Broadband Rev.A speed claim based on our network tests with 5 MB FTP data files without compression. Your Mobile Broadband Rev. A-enabled device will indicate coverage when you are in a Mobile Broadband Rev. A service area. When outside the Rev. A service area, your wireless device will revert to Mobile Broadband Rev. 0 (typical download speeds will be 400–700 Kbps and upload speeds will be 60–80 Kbps). *Speeds shown are theoretical speeds. Actual throughput speed and coverage may vary by network operator. Speed claims not applicable when roaming.

Wi-Fi 802.11b/g/n
- 802.11b uses the 2.4 GHz frequency with a bandwidth of 11 Mbps.

- 802.11g uses the 2.4 GHz frequency with a bandwidth of 54 Mbps.

- 802.11n uses the 2.4 GHz frequency with a bandwidth of 150 Mbps.

Using the MiFi 4620L for the First Time

To get started, follow these steps.

➊   Confirm your computer meets the minimum system requirements. (See System Requirements on page 3.)

➋   Assemble the wall charger. (See Assemble the Wall Charger on page 13.)

➌   Install the 4G LTE SIM card. (See Install the 4G LTE SIM Card on page 13.)

➍   Insert and charge the battery. (See Insert and Charge the Battery on page 15.)

➎   Turn on the device. (See Power the MiFi 4620L On and Off on page 19.)

➏   Connect the device to your computer using Wi-Fi. (See Connecting to the MiFi Device on page 20.)

➐   Connect to MiFi Settings. (See Connect to MiFi Settings on page 20.)

Assemble the Wall Charger

The wall charger comes with a removable plug. You need to connect it before using the MiFi device for the first time. To assemble the wall charger, follow these steps.

❶   Remove the plug and the wall charger from the package.

❷   Slide the plug on to the wall charger.

Install the 4G LTE SIM Card

To install your new 4G SIM card, follow these steps.

❶   Open the cover located on the underside of the MiFi 4620L.

❷   Remove SIM card from the outer card, being careful not to touch the gold-colored contacts.

❸   Hold the card as shown with the gold-colored contact points facing down.

❹   Insert the SIM card into the slot. The 4G LTE SIM card MUST remain in the SIM card slot when in use.

Your SIM (Subscriber Identity Module) card is a small rectangular plastic card that stores your phone number and important information about your wireless service.

CAUTION!   Do not bend or scratch your SIM card. Avoid exposing your SIM card to static electricity, water, or dirt.

Remove the 4G LTE SIM Card

To remove the 4G LTE SIM card, follow these steps.

❶ Open the SIM card cover located on the underside of the MiFi 4620L. Press down on the small black tab to the left side of the SIM card slot.

❷ Gently remove the SIM card from the SIM card slot.

> **NOTE** Should your 4G LTE SIM card be lost or damaged, contact your network operator.

Insert and Charge the Battery

IMPORTANT   Before you use your device, be sure to charge the battery for at least three hours to ensure a full initial charge.

To insert and charge the battery, follow these steps.

❶   Press the button and then slide the cover to open the battery compartment, located on the bottom of the device. Set the cover aside.

FPO

❷   Align the gold-colored contacts on the battery with the gold-colored contacts on the device and gently slide the battery into place.

FPO

❸ Replace the cover by setting it on the device where the notches align, and then gently slide the cover back toward the release button until it clicks into place.

FPO

❹ Connect the micro USB end of the wall charger to the micro USB port on the device.

FPO

❺ Plug the other end of the wall charger into the appropriate electrical outlet. Charge for at least three hours.

CAUTION! Use only batteries and chargers with your device that have been approved by Novatel Wireless. The failure to use approved batteries and chargers may increase the risk that your device will overheat, catch fire, or explode, resulting in serious bodily injury, death, or property damage.

You are now ready to connect your computer or other Wi-Fi device to the MiFi 4620L.

Remove the Battery

To remove or replace the battery, follow these steps.

❶ Press the button and then slide the cover to open the battery compartment, located on the bottom of the device. Set the cover aside.

FPO

❷ Insert your fingernail into the battery removal divot and lift the battery out of the battery compartment.

FPO

Battery Tips

WARNING!   Use only batteries and chargers with your device that have been approved by Novatel Wireless. Always use Novatel Wireless original batteries and chargers. The warranty does not cover damage caused by non-Novatel Wireless batteries and/or chargers.

- It normally takes at least three hours to fully charge the battery with the wall charger.
- Do not use sharp objects to access the battery well, this may damage the device and the battery.
- Do not use excessive force to remove the battery or to access the battery well.
- The battery discharges more rapidly as additional devices access your MiFi device.
- Battery life depends on the network, signal strength, temperature, features, and accessories you use.
- Your device also works with an approved car charger.
- New batteries or batteries stored for a long time may take more time to charge.
- When charging your battery, keep it near room temperature.
- When storing your battery, keep it uncharged in a cool, dark, dry place.
- Never expose batteries to temperatures below -10°C (14°F) or above 60°C (140°F).
- Never leave the device in an unattended vehicle due to uncontrollable temperatures that may be outside the desired temperature for this device.
- Some batteries perform best after several full charge/discharge cycles.
- It is normal for batteries to gradually wear down and require longer charging times. If you notice a change in your battery life, it is probably time to purchase a new battery.

IMPORTANT   Whenever you remove or insert either the battery or the SIM card, ensure your MiFi device is not connected to any device or power source. Never use tools, knives, keys, pens or any type of object to force the door open or to remove the battery. Using any of these types of objects could result in puncturing the MiFi battery.

WARNING!   The failure to use approved batteries and chargers may increase the risk that your device will overheat, catch fire, or explode, resulting in serious bodily injury, death, or property damage. To avoid risk of explosion, never dispose of batteries in a fire.

Power the MiFi 4620L On and Off

Power On

- Press the Power Button until the LED turns on green or violet.

Power Off

- Press and hold the Power Button until the display turns white and the LED turns amber.

Activate Your Device

Your SIM card should come pre-activated and ready to connect. Insert the SIM card, power up the MiFi device, and connect.

If your SIM card did not come pre-activated or you need to re-activate your SIM card, you can:

- go to your network operator's retail store

- contact your network operator's customer service department

IMPORTANT   The MiFi 4620L requires an activated account with a wireless carrier to function.

Connecting to the MiFi 4620L

Now you can connect your computer to your MiFi 4620L using Wi-Fi.

Connect to MiFi Settings

To connect to the MiFi 4620L, follow these steps.

➊ Turn on your computer and turn on the MiFi 4620L.

The MiFi 4620L's LED should be solid green or violet, indicating the device is in service and ready to connect. The MiFi 4620L broadcasts its own wireless network.

➋ On your computer, use the Wi-Fi manager (Windows) or the AirPort menu bar icon (Mac OS X) to connect wirelessly to the MiFi 4620L wireless network.

Tip! The steps to connect to a Wi-Fi network vary depending on your operating system and whether you use the native application or third-party software. Generally, you click an icon in the Windows notification area where you can select **View Available Wireless Networks,** or click the Airport icon in the menu bar on a Mac. If you are unfamiliar with wireless networking on your computer, consult the computer help system.

➌ Connect to the network name found on the sticker on the back of the device. The name includes **MiFi4620L**. The Wi-Fi Key (also known as the Network Key) is also found on the sticker on the back of the device.

You can change device settings by connecting to the MiFi Settings on-device web page. (See Configuring MiFi Settings on page 23.)

IMPORTANT   Charge the battery completely before you connect your computer to your MiFi device. (See Insert and Charge the Battery on page 15.)

Using the MiFi 4620L After Setup is Complete

You can use the MiFi 4620L as a wireless mobile hotspot to connect your computer and/or (up to a total of five) other Wi-Fi enabled devices to the mobile broadband network.

You can customize the MiFi 4620L's settings using MiFi Settings. (See Configuring MiFi Settings on page 23.)

Normal Use

- The MiFi 4620L is powered on as soon as you press the power button and the display turns on.

- The LED on the device becomes green (4G) or violet (3G) and blinks according to the connection speed.

Setting up a Temporary Hotspot

See Setting Up a Temporary Hotspot on page 28 for more information about setting up a temporary hotspot.

Security for the MiFi 4620L

The MiFi 4620L comes from the factory with security enabled. A sticker on the back panel includes the name of the wireless network (SSID) and the network password. You can change the security settings in the MiFi Settings Wi-Fi screen. (See Wi-Fi on page 26.)

MiFi Settings

Configuring MiFi Settings

You can configure the Wi-Fi settings on your device using the easy-to-use MiFi Settings web-based User Interface (MiFi Settings). It allows you to manage, monitor, and customize your Wi-Fi and 4G LTE mobile broadband connection.

The following sections describe how to connect to MiFi Settings, as well as each screen and the corresponding functionality.

Connect to MiFi Settings

To connect to MiFi settings, follow these steps.

❶ Turn on your computer and turn on the MiFi 4620L device.

MiFi 4620L's LED should be solid green (4G) or violet (3G), indicating the device is in service and ready to connect. MiFi 4620L broadcasts its own wireless network.

❷ On your computer, use the Wi-Fi manager (Windows) or the AirPort menu bar icon (Mac OS X) to connect wirelessly to the MiFi 4620L wireless network.

> **Tip!** The steps to connect to a Wi-Fi network vary depending on your operating system and whether you use the native application or third-party software. Generally, you click an icon in the Windows notification area where you can select **View Available Wireless Networks,** or click the Airport icon in the menu bar on a Mac. If you are unfamiliar with wireless networking on your computer, consult the computer help system.

❸ Connect to the network name found on the sticker on the device. The name includes **MiFi4620L.**

Open your browser and type **http://admin.mifi** or **http://192.168.1.1** into the address bar. Then press the **Enter** or **Return** key.

The Welcome Page opens. (See Welcome Page on page 24.)

❺ Type the password **admin** in the Login field in the upper right corner of the window.

The Welcome Page changes to the Home Page. (See Home on page 25.)

Welcome Page

The Welcome page is the first page you see after connecting and prior to logging in. It contains the status bar, the **Connect/Disconnect** button, the **Setup Wizard** button, and the **Update Firmware** button. You can access more information after you log in.

Login

Type the password (the default password is **admin**) in the Login field at the top right corner of the window.

Menu Bar

The Menu Bar is the primary navigation for MiFi Settings. You can access each feature under the appropriate menu.

Home

The Home page is the first screen you see after logging in to MiFi Settings. It is similar to the Welcome Page, but adds more options in the status bar. It is the main point of entry for everything you do in the browser interface.

FPO

Wi-Fi

The Wi-Fi menu takes you to the Wi-Fi screen.

FPO

The Wi-Fi screen is the screen you use to customize the Wi-Fi profiles. The Wi-Fi screen has the following section.

- **Wi-Fi Profiles** (See)

FPO

Wi-Fi Profiles

The Wi-Fi Profiles section has the following options.

- **Current Profile** — The wireless (802.11) profile currently in use.

- **Selected Profile** — The profile settings shown on the page. (See <u>Changing to a Different Profile</u> on page 29.)

- **Network Name (SSID)** — The name of the MiFi 4620L device's wireless network.

- **802.11 Mode** — The wireless network technology used. **802.11g + 802.11b + 802.11n** is most compatible, allowing both 802.11b, 802.11g, and 802.11n devices to connect to the wireless network.

- **WMM** — Wi-Fi Multimedia. Enables your device to stream multimedia files.

- **Channel** — If available, select **Auto**. With this setting, MiFi 4620L selects the best available channel. If the **Auto** setting is not available, you can experiment to see which channel provides the best results, or use the default setting.

- **Security** — The security type used to encrypt the wireless network.

    - WEP 64-bit (least secure, more compatible with older devices)

    - WEP 128-bit

    - WPA Personal/PSK (TKIP)

    - WPA2 Personal/PSK (AES)

    - WPA/WPA2 Personal Mixed Mode (most secure, less compatible with older devices)

IMPORTANT   You should use the Secure profile with the WPA/WPA2 Personal Mixed Mode security setting whenever possible.

- **Authentication** — This is locked to Open Access for all profiles.

- **Network Key** — The passkey for the wireless network. The default passkey is printed on a sticker on the device. The following security types support the corresponding passkey lengths.

    - WEP 64-bit – 5 ASCII characters or 10 HEX characters.

    - WEP 128-bit – 13 ASCII characters or 26 HEX characters.

    - WPA Personal/PSK (TKIP) – ASCII string, 8 to 63 characters in length.

    - WPA2 Personal/PSK (AES) – ASCII string, 8 to 63 characters in length.

Choosing a Profile

Your device comes with the Secure profile already set. The following profiles come with your device.

- **Secure** — This is the profile you should use most of the time. You can set up this profile with the security measures you need to use your device safely.

- **Temporary Hotspot** — This profile allows you set up a temporary hotspot to allow others nearby (maximum of five) to go online at the same time.

- **Open** — This profile is not secure and should be avoided.

Setting Up a Temporary Hotspot

You can use the device to set up a temporary hotspot to allow a maximum of five connections to your MiFi 4620L at one time.

The Temporary Hotspot profile is pre-set on your device. It generates a temporary network name (SSID) and network key so you can allow others to connect to your device without having to change your secure profile's security settings.

FPO

Set up a Temporary Hotspot

To set up a Temporary Hotspot, follow these steps.

❶ Connect to MiFi Settings and log in. (See <u>Configuring MiFi Settings</u> on page 23.)

❷ Go to the Wi-Fi screen. (See <u>Wi-Fi</u> on page 26.)

❸ On the Wi-Fi screen, select Temporary Hotspot as the selected profile.

A new (temporary) network name (SSID) and network key (Wi-Fi passkey) appears. Typically the temporary network name has the word "Temp" added.

❹ Click **Generate** to create a new network name and network key.

You should write down the new network name and network key.

❺ Click **Apply**. Others can now use the temporary network name (SSID) and network key to connect to your device.

(See <u>Wi-Fi</u> on page 26.) for more information about changing profiles.

Changing to a Different Profile

To use a different profile, follow these steps.

❶ Click the Selected Profile pop-up menu and choose a different profile.

❷ Wait a moment for the web page to update with the Wi-Fi settings for the selected profile.

❸ Click **Apply** to change to the new profile settings.

IMPORTANT Changing the profile ends all Wi-Fi connections to MiFi 4620L, including the current connection to MiFi Settings. You **must** re-connect your computer to MiFi 4620L using the new profile's Wi-Fi settings.

Be sure to write down the new network key (Wi-Fi passkey) before you finish changing the profile.

Updating

To update the current profile, follow these steps.

❶ Keep the same profile in the Selected Profile pop-up menu.

❷ Make changes to the profile settings.

❸ Click **Apply**.

- If you change the Network Name (SSID), security method, or network key you will need to re-connect with the Wi-Fi manager on your computer.

- If you change other settings, your computer will re-connect automatically after MiFi 4620L restarts.

Tip! Some Wi-Fi clients become confused if the security is changed and the network name is not. If you change security settings and do not get asked for the new network key when you try to reconnect, delete the existing old network name from your Preferred Networks list on your wireless device. Then you can reconnect.

IMPORTANT Changing the Network Name (SSID), security method, or network key (Wi-Fi passkey) ends all Wi-Fi connections to MiFi 4620L, including the current connection to MiFi Settings. You **must** re-connect your computer to MiFi 4620L using the new profile's Wi-Fi settings.

Be sure to write down the new network key (Wi-Fi passkey) before you finish changing the profile.

Updating a Profile Not Currently in Use

To update a profile not currently in use, follow these steps.

❶ Change the Selected Profile pop-up menu to a different profile.

❷ Wait a moment for the web page to update with the Wi-Fi settings for the selected profile.

❸ Change the settings.

NOTE The Temporary Hotspot profile cannot be changed directly. You must click **Generate** to generate a new network name (SSID) and network key.

❹ Click **Update Profile** to save the changes.

OR

Click **Apply** to update the profile and also make it the current profile.

Buttons

- **Update Profile** — Click this button to add changes to a profile not currently in use. This does not affect the existing Wi-Fi connection between your computer and the device.

- **Apply** — Click this button to apply changes to the current profile.

- **Revert** — Click this button to return changed profile settings to the previous settings.

- **Generate** — Click this button (available for the Temporary Hotspot profile only) to generate a network name (SSID) and network key for the **Temporary Hotspot** profile. The remaining Temporary Hotspot settings are copied from the **Secure** profile.

LAN

The LAN menu takes you to the LAN screen.

FPO

The LAN screen gives you settings and information about MiFi 4620L's network. The LAN screen is divided into the following sections.

- **TCP/IP** (See TCP/IP on page 32.)

- **Connected Devices** (See Connected Devices on page 32.)

FPO

TCP/IP

- **IP Address** — The IP address for MiFi 4620L.

- **Subnet Mask** — The subnet mask network setting for MiFi 4620L. The default value 255.255.255.0 is standard for small (class "C") networks. If you change the LAN IP Address, ensure you use the correct Subnet Mask for the IP address range containing the LAN IP address.

- **MAC Address** — The Media Access Controller (MAC) or physical address for MiFi 4620L.

- **DHCP Address Range** — The range of IP addresses reserved for use by MiFi 4620L's DHCP server table. If a device with a static IP address wants to connect to MiFi 4620L's network, the static IP should be outside of the DHCP address range. Most devices do not have a static IP.

Connected Devices

- **IP Address** — The IP address for the connected device.

- **IP Type** — This can be **DHCP** if the IP address came from MiFi 4620L, or **ARP** if the ARP protocol was used.

- **Hostname** — The network name for the connected device (if available).

- **MAC Address** — The MAC address for the connected device.

  NOTE   The MAC address on the Windows operating system is called the **Physical Address**.

- **Date/Time** — The date/time the device was detected by the network.

Buttons

- **Refresh** — Click this button to re-load the LAN screen to show changes to the list of connected devices, such as a device that recently joined or left the network.

- **Apply** — Click this button to apply any changes you made to MiFi 4620L's IP address or subnet mask.

IMPORTANT   Changing MiFi 4620L's IP address causes the device to re-start. This stops all Wi-Fi and Internet connections. You **must** re-connect your computer to MiFi 4620L using the new IP address.

Be sure to write down the new IP address before you finish changing the profile.

WWAN

The WWAN menu takes you to the WWAN screen.

> **FPO**

The WWAN screen gives you information about the MiFi 4620L device's Internet connection. The WWAN screen is divided into the following sections.

- **Internet Connection** (See Internet Connection on page 34.)

- **WWAN Settings** (See WWAN Settings on page 34.)

> **FPO**

Internet Connection

The Internet Connection section shows device settings and status.

- **Status** — The status of the Internet connection, usually **Connected** or **Disconnected**.

- **Technology** — The type of technology used to connect to the Internet.

- **Received** — The amount of data received from the network.

- **Transmitted** — The amount of data sent to the network.

- **Connected Time** — How long the device has been connected to the network.

- **IP Address** — The Internet Protocol (IP) address that identifies this device on the network.

- **Mask** — The mask is a standard address that covers the MiFi device's network behind the larger Internet.

- **Gateway** — The address of the server used to access the Internet.

- **DNS** — The address of the Domain Name Server (DNS).

WWAN Settings

To configure the settings, follow these steps.

❶ Select the **Auto-connect** check box to automatically connect to the Internet when the device is turned on.

> **NOTE** The APN is the Access Point Name the device uses to connect to the Internet. This is automatically provided by your wireless carrier.

❷ Set the WWAN Preferred Mode to the type of technology you want to use to connect to the Internet.

Buttons

- **Connect** — Click this button to connect to the Internet.

- **Disconnect** — Click this button to disconnect from the Internet.

Security

The Security menu takes you to the following screens:

- **Password** — Allows you to change your administrative password.

- **MAC Filter** — Allows you to enable or disable MAC Filtering, and to create a Trusted Client List.

- **Port Filtering** — Allows you to enable or disable Port Filtering, and to identify the application that are allowed to access the Internet.

Password

The Password screen enables you to set the administration password. This is the password you use to log in to MiFi Settings. It is set to **admin** by default. The Password screen contains the following section.

- **Set Administration Password** (See Set Administration Password on page 36.)

Set Administration Password

The default password is **admin**. To set or change the administration password, follow these steps.

❶ Type your current password in the **Current Password** box.

❷ Type the new password (it must have between 4 and 64 characters) in the **New Password** box.

❸ Type it again in the **Verify New Password** box.

❹ Click **Apply**.

Next time you log in to MiFi Settings, you need to use the new password.

Buttons

- **Apply** — Click this button to apply any changes made to the password settings.

- **Revert** — Click this button to return password settings to the previous settings.

IMPORTANT   Record your administration password. If you forget it, you have to reset the device before you can use MiFi Settings. (See How do I reset the MiFi 4620L device back to factory settings? on page 60.)

MAC Filter

The MAC Filter screen enables you to allow specific devices to connect to MiFi 4620L's wireless network. For example, if you put the MAC address for your Wi-Fi-enabled mobile phone and the MAC addess for your computer in the MAC Filter Trusted Client List, then only those devices can connect to MiFi 4620L. The MAC Filter screen is divided into the following sections.

- **Enable MAC Filter** (See Enable MAC Filter on page 38.)

- **Trusted Client List** (See Trusted Client List on page 39.)

- **Add Trusted Client MAC Address** (See Trusted Client List on page 39.)

FPO

Trusted devices still need the correct network name (SSID) and network key (Wi-Fi passkey).

NOTE The MAC address on the Windows operating system is called the **Physical Address**.

IMPORTANT Do not enable MAC filtering unless you have added your own computer's MAC address to the trusted client list. Otherwise you will be unable to access the device.

Enable MAC Filter

The **Enable MAC Filter** checkbox enables or disables the MAC Filter feature.

FPO

- When the feature is **enabled** (checked), you must add the MAC address for the device to the Trusted Client List. If a device not in the list tries to connect to the MiFi 4620L wireless network, the connection is blocked even if the device has the correct network name (SSID) and network key (Wi-Fi passkey).

- When the feature is **disabled** (un-checked), any device with the correct network name (SSID) and network key (Wi-Fi passkey) can connect to the MiFi 4620L wireless network.

Find the MAC Address on a Computer

The Media Access Controller (MAC) Address is also known as a hardware or physical address for a device (usually a network adapter). It consists of six pairs of numbers and letters (for example, 00-21-9B-1C-64-34).

You can view the MAC address for any device connected to the MiFi wireless network from the Wi-Fi screen. (See Wi-Fi on page 26.)

> **Tip!** You can cut and paste your computer's MAC address from the Wi-Fi Clients section of the Wi-Fi screen.
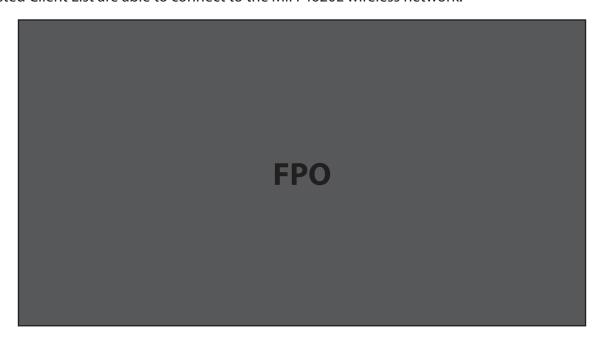
If the computer is not connected to the MiFi wireless network, you can find the MAC address directly. To find the MAC address, follow one of these steps.

- On a Windows PC, the MAC address is the Physical Address. You can find the Physical Address by running **ipconfig /all** from the cmd window.

  » To run **ipconfig/all**, select **Start > All Programs** (or **Programs**) > **Accessories** > **Command Prompt** to open the Command Prompt window. Then type **ipconfig/all** and press the **Return** or **Enter** key.

- On a Mac, the MAC address is the AirPort ID.

  » To find the AirPort ID, open the **Apple** (□) **Menu** > **System Preferences** > **Network**. In the list, click **AirPort**. Click **Advanced**. A sheet opens. Click the **AirPort** tab. The AirPort ID is at the bottom of the sheet.

IMPORTANT   Windows only: Make sure you get the MAC address for the wireless network adapter and not the Ethernet controller (NIC), if the computer has both.

Trusted Client List

The Trusted Client List section displays the MAC address(es) of trusted devices. Only devices in the Trusted Client List are able to connect to the MiFi 4620L wireless network.

Add Trusted Client MAC Address

To add a device to the Trusted Client List, follow these steps.

❶ Type the Wi-Fi-enabled device's MAC address in the **Add Trusted Client MAC Address** field. You can use either ":" or "-" as the separator (for example, 00:21:9B:1C:64:34 or 00-21-9B-1C-64-34).

> **Tip!** You can cut and paste your computer's MAC address from the Wi-Fi Clients section of the Wi-Fi screen.

❷ Click **Add Client**.

❸ Repeat steps 1 and 2 as needed.

❹ When the list is complete, click **Apply**.

Remove a Device from the Trusted Client List

To remove a device from the Trusted Client List, follow these steps.

❶ Click on the device in the Trusted Client List to select it.

❷ Click **Delete**.

Buttons

- **Delete Client** — Click this button to remove a device from the Trusted Client List.

- **Add Client** — Click this button to add the MAC address typed in the Add Trusted Client MAC Address field to the Trusted Client List.

- **Apply** — Click this button to save changes made to the list.

- **Revert** — Click this button to discard changes made to the list.

Port Filtering

The Port Filtering screen allows you to block outgoing Internet connections. You can set a list of Allowed Applications to only allow certain programs to connect to the Internet. The Port Filtering screen is divided into the following sections.

- **Enable Port Filtering** (See Enable Port Filtering on page 42.)

- **Allowed Applications** (See Allowed Applications on page 42.)

- **Custom Applications** (See Custom Applications on page 43.)

FPO

Enable Port Filtering

The **Enable Port Filtering** checkbox enables or disables the Port Filtering feature.

- When the feature is **enabled** (checked), you must select a port filtering application in the Allowed Applications list to allow that application to connect to the Internet. For example, if you select VPN in the Allowed Applications list but do not select HTTP, you can connect to a VPN server but you cannot connect to a web page using your Internet browser.

- When the feature is **disabled** (un-checked), any application can connect to the Internet.

FPO

Allowed Applications

Enable each port filtering application that needs to be able to access the Internet. When port filtering is enabled, all other applications are blocked.

FPO

Custom Applications

This page is not available unless the Port Filtering feature is enabled.

Click **Custom Applications** to open the Custom Port Filtering screen. You can define and enable custom Port Filtering applications. You need to know details of the traffic used and generated by the applications you wish to define.

The Custom Applications section uses check boxes to enable port filtering for custom applications. Similar to the Allowed Applications list, you must enable custom applications so they can connect to the Internet. The Custom Applications screen has the following options.

- **Application Name** — Type a name for the application.

- **Ports** — Click the **Ports** link to show the Port Definition Panel. Click **Hide** when you finish defining the current application. Click **Apply** when you finish defining all applications.

- **Port Definition Panel** — This allows you to define the ports used by this application. The background shading and dialog title indicates the current application.

Port Ranges

You can define up to five port ranges for each application. Each port range has the following options.

- **Start Port** — Type the beginning of the range of port numbers used by outgoing traffic for this application. Use as many rows as necessary to define the required number of port ranges. Unused rows can be left blank.

- **End Port** — Type the end of the range of port numbers. If the port is a single port instead of a range, type the same value for both the Start Port and the End Port.

- **Protocol** — For each port range (each row), select the protocol (TCP, UDP, or both) used by that port range.

You can define all of your applications before you click **Apply** to save your changes.

Use the **Ports** and **Hide** links as necessary to open and close the Port Definition Panel so you can define the ports for each application as needed.

Buttons

- **Apply** — Click this button to save changes made to the applications and/or port ranges.

- **Revert** — Click this button to discard changes made to the applications and/or port ranges.

Advanced

The Advanced Menu includes the following screens:

- **Advanced Settings** — Allows you to configure your Access Point, Router and System settings.

- **Config File** — Allows you to backup and restore your configuration files.

- **Diagnostics** — Provides detailed System information and status information. You can also restart or reset your device on this screen.

- **Port Forwarding** — Allows you to select your Port Forwarding applications and enter the IP addresses on the WAN.

- **Power Management** — Allows you to select the time interval for automatic shutdown (from never to after 60 minutes) for your device when it is idle and on battery power.

FPO

Advanced Settings

The Advanced Settings screen is divided into the following sections.

- **Access Point** (See Access Point on page 46.)

- **Router** (See Router on page 47.)

- **System** (See on page 47.)

Access Point

The **SSID broadcast enable** check box enables or disables the SSID broadcast feature.

- If this is **enabled** (checked), MiFi 4620L's wireless network appears in the **Available Wireless Networks** list on your computer or portable device.

- If this is **disabled** (un-checked), the MiFi 4620L is not listed and its network name (SSID) must be typed manually to connect a device.

Router

The **DHCP Server enable** check box enables or disables the DHCP server feature.

- If this is **enabled** (checked), the DHCP Server automatically allocates an IP address to each of your wireless clients. Normally, this should be enabled.

- If this is **disabled** (un-checked), each Wireless client should have a fixed IP address, set on the client.

FPO

The **VPN Passthrough enable** check box enables or disables the VPN Passthrough feature.

- If this is **enabled** (checked), this feature allows VPN clients to connect through MiFi 4620L to remote VPN Servers. Normally, this option should be enabled.

- If this is **disabled** (un-checked), VPN clients are not allowed to connect.

FPO

System

The **System log enable** check box enables or disables the System log feature.

- If this is **enabled** (checked), you can view the system log on the Diagnostics screen. (See Advanced: Diagnostics on page 51.)

- If this is **disabled** (un-checked), you cannot view the system log on the Diagnostics screen.

The **Language** menu changes the MiFi Settings Web UI language.

The **Date/Time Format** menu changes the format of the date to reflect that used in the US or Europe. It changes the format of the time to a 12- or 24-hour clock.

Buttons

- **Apply** — Click this button to save changes.
- **Revert** — Click this button to return to the previous settings.

Config File

The Config File screen provides the ability to download (back up) a copy of the configuration settings from MiFi 4620L to a file on your computer, or restore (upload) a previously-saved configuration file from your computer to MiFi 4620L.

This configuration file contains all settings for the Access Point and Router functions of the MiFi 4620L. You need the administration password to change this. The Config File screen is divided into the following sections.

- **Config File Download** (See)

- **Config File Upload** (See)

Config File Download

Click **Download File** to download a copy of the current configuration, and store the file on your computer. You are prompted to save the file; you can choose to rename it.

FPO

Config File Upload

Use this feature to restore a previously-saved configuration file to MiFi 4620L. This overwrites all existing settings with the information stored in the config file. To upload a configuation file, follow these steps.

➊ Click **Browse** (Windows) or **Choose File** (Mac) to browse to the config file you previously downloaded to your computer.

➋ Click **Upload File** to begin uploading the chosen file. After upload finishes, the config file is immediately applied, and MiFi 4620L restarts.

FPO

WARNING!   Uploading a configuration file changes ALL of the existing settings to match the configuration file. If the Wi-Fi settings change, you will lose this connection, and will need to reconnect using the new settings.
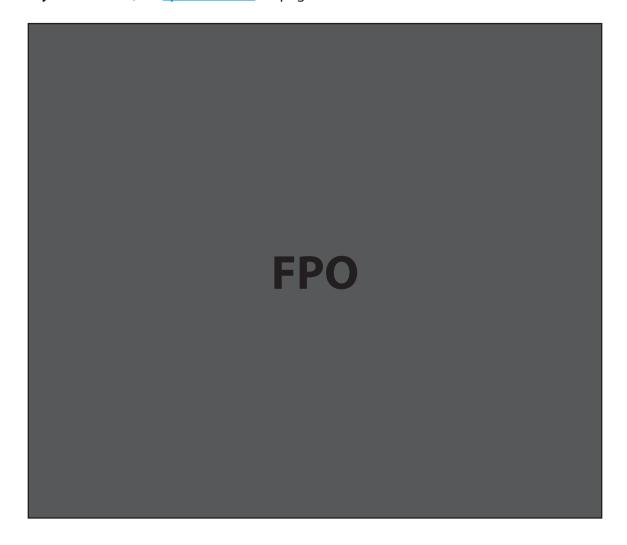
Buttons

- **Download File** — Click this button to download a particular file.
- **Upload File** — Click this button to upload a particular file.

Diagnostics

The Diagnostics screen shows information about the MiFi 4620L firmware and other system-level information. You can also view the system log. This screen is used mostly for troubleshooting and is not required for normal operation. The Diagnostics screen is divided into the following sections.

- **System Information** (See System Information on page 52.)

- **System Status** (See System Status on page <?>.

System Information

The System Information section contains detailed information about the MiFi 4620L.

FPO

<u>**MiFi**</u>

- **Manufacturer** — The manufacturer of the MiFi 4620L.

- **Model** — The model number or name of the MiFi 4620L.

- **IMEI** — The International Mobile Equipment Identity (IMEI) number for the MiFi 4620L.

- **Serial Number** — Each MiFi 4620L has a unique serial number.

- **Router FW Version** — The router firmware version.

- **AP FW Version** — For the Access Point component, the version of the firmware currently installed.

- **SIM Status** — The status of the SIM card.

<u>**Modem**</u>

- **MEID** — The Mobile Equipment Identifier (MEID) is used by the mobile data network to identify this particular modem.

- **Phone No. (MDN)** — The Phone Number or Mobile Directory Number (MDN) is used by the mobile data network to identify this particular data service.

- **MIN (MSID)** — The Mobile Identification Number (MIN) or Mobile Station ID (MSID) is the number associated with the home service provider and the wireless phone number.

- **Home SID** — System identifier for the home network.

- **Modem FW Version** — The modem firmware version.

- **PRL Version** — The version of the Preferred Roaming List (PRL), which tells the modem which non-home carrier towers should provide roaming coverage.

System Status

The System Status section displays detailed information on the status of the modem and a system log of various operations.

- **Modem Status** — Click this button to view more information about the modem status. This information is mostly used for troubleshooting.

- **System Log** — Click this button to view the System Log. The System Log records various operations, and is mostly used for troubleshooting.

Buttons

- **Restart** — Click this button to restart the MiFi 4620L. All Internet connections, and all Wi-Fi connections, are lost during the restart.

- **Reset to Factory Defaults** — Click this button to reset all Access Point and Router settings to their factory default values. All existing settings are lost.

WARNING!   The "Reset to Factory Defaults" operation overwrites ALL existing settings. If the Wi-Fi settings change, you will lose this connection, and need to reconnect using the new settings. (See How do I reset the Access Point and Router settings back to factory settings? on page 61.)

Port Forwarding

The Port Forwarding feature allows incoming traffic (from the Internet) to be forwarded to a particular computer or device on the MiFi 4620L's wireless network. Normally, incoming traffic from the Internet is blocked.

You need to use Port Forwarding to allow Internet users to access any server you are running on your computer, such as a Web server, FTP server, or E-mail server. Also, for some online games, Port Forwarding must be used for the game to function correctly. The Port Forwarding screen has the following section.

- **Port Forwarding Applications** (See

FPO

IMPORTANT   Port forwarding creates a security risk. This feature should be disabled when it is not required.

Port Forwarding Applications

To use any of the common server applications listed, follow these steps:

❶   Install the application on a computer that is connected to the MiFi 4620L's wireless network (WLAN).

❷   Ensure the computer is connected to the MiFi 4620L, and record the computer's IP address for the MiFi Settings Web UI.

❸   On the Port Forwarding screen, type the computer's IP Address in the **IP Address on WLAN** field beside the application name.

❹   Enable the corresponding application on this screen by selecting its check box.

❺   Save your changes by clicking **Apply**.

❻   Click **Home** to go to the Home screen, and make a note of MiFi 4620L's IP address.

Tell the person or company that needs port forwarding to connect to the MiFi 4620L's IP address (by default, this is **http://admin.mifi** or **http://192.168.1.1**). Connection requests are forwarded to the IP address specified in step 3.

Buttons
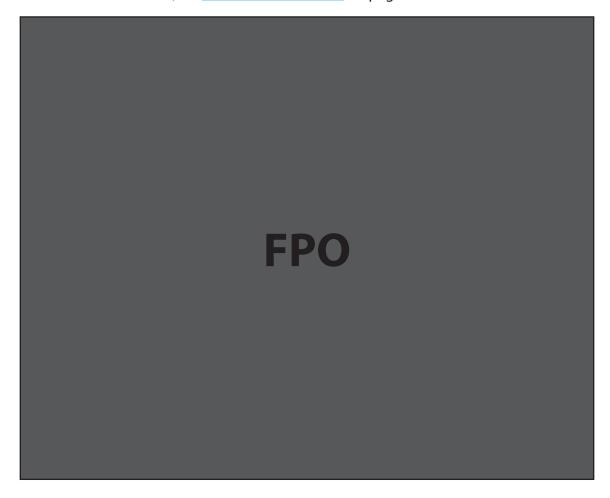
- **Apply** — Click this button to save changes made to port forwarding.

- **Revert** — Click this button to return to the previous settings.

IMPORTANT   When no longer needed, the application should be disabled on this screen by de-selecting its check box, and saving change(s) by clicking **Apply**. Leaving applications enabled unnecessarily creates a security risk.

Power Management

The MiFi 4620L can turn itself off when not in use. When using battery power, automatic shutdown greatly extends the battery life. To start up again, press the power button. The Power Management screen contains the following section.

- **Automatic Shutdown** (See Automatic Shutdown on page <?>.

FPO

Automatic Shutdown

When powered by the battery, the MiFi 4620L automatically shuts down after being idle for the selected time period, provided that no Wi-Fi devices are connected to the MiFi device. Timer settings have no effect when the MiFi 4620L is connected to the wall charger.

To select an Automatic Shutdown time between 2-60 minutes, choose the desire time interval from the drop down menu. To prevent automatic shutdown, select **Never**.

FPO

Buttons

- Click **Apply** to save changes.

- Click **Revert** to return to previous settings.

4

Troubleshooting

Overview
Common Problems and Solutions
Technical Support

Overview

When properly installed, the MiFi 4620L is a highly reliable product. Most problems are caused by one of these issues:

- System resources required by the device are being used by other devices.

- Network coverage is unavailable due to coverage area, an account problem, or a network problem.

The following tips can help solve many common problems encountered while using the device.

First Steps

- Make sure you are using the device in the correct geographic region.

- Ensure that your wireless coverage extends to your current location.

- Ensure you have an active subscription plan.

- Restarting your computer and your modem can resolve many issues.

IMPORTANT   Before contacting support, be sure to restart both your computer and your device.

Common Problems and Solutions

The following are some common problems and solutions.

My MiFi 4620L just powered off without my pressing the power button. Why?

This may occur under any of the following circumstances.

- » Pressing the Master Reset button
- » Restarting the device
- » Switching profiles
- » Restoring the configuration settings
- » Battery depletion

To restore battery power, follow these steps.

1. Manually press the power button to turn it back on.
2. If the battery is depleted, charge the device with the wall charger.

How do I reset the MiFi 4620L back to factory settings?

The master reset button is in a small hole located on the bottom of the device, underneath the battery cover. This button returns the device to factory settings, including re-setting the network name (SSID) and network key (Wi-Fi passkey) to those printed on the sticker affixed to the back of the device. To reset the device, follow these steps.

1. Place one end of an unfolded paper clip into the master reset button hole.
2. Press the paper clip on the button until the LED blinks green one full blink and then a very brief blink (about five seconds).

FPO

How do I reset the Access Point and Router settings back to factory settings?

To reset the access point and router settings, follow these steps.

Connect to MiFi Settings by connecting your computer to the MiFi wireless network and going to **http://admin.mifi** or **http://192.168.1.1** in your browser.

3. Connect to the Diagnostics screen. (See Advanced: Diagnostics on page 49.) The Diagnostics screen has a **Reset to Factory Defaults** button. This button resets all Access Point and Router settings to their factory default values. All existing settings are lost.

Update the Firmware on the MiFi 4620L

[Additional information forthcoming.]

Technical Support

> **IMPORTANT**   Before contacting support, be sure to re-start both your computer and the device.

Technical Support

For additional information and technical support for Novatel Wireless devices, you can visit the Novatel Wireless Data Technical Support page at www.novatelwireless.com/support.

Product Specifications and Regulatory Information

Product Specifications

General

Name:	Novatel Wireless MiFi 4620L
Model:	MiFi 4620L
Approvals:	FCC (North America)
Weight:	85 g / 3 oz
Dimensions:	90 mm x 60 mm x 13 mm, 3.54 in x 2.36 in x 0.51 in
Wireless Network – Dual Mode:	LTE, CDMA 1X/EV-DO Rev A
Wireless Network – Wi-Fi Mode	802.11 b/g/n
Default SSID	Novatel MiFi4620L XXXX_XXXX (see the sticker on the back of your device for your ID)
Battery	
• Size	1500 mAh
• Time required for full charge	2.5-3 hours (when not in use)
Chip Set:	QUALCOMM® MDM9600
Interface Type:	Type B USB Port for Micro USB, used by the wall charger

Technology/Bands

Technology:	LTE, CDMA Rev A, Rev 0, 1XRTT
Band Designation:	LTE 700 MHz CDMA 1x/EV-DO RA; 800/1900 MHz
Transmit Band:	824.7-848.31 MHz/1851.25-1908.75 MHz
Receive Band:	869.7-893.31 MHz/1931.25-1988.75 MHz

Environmental

Operating Temperature:	-10 ° C to +45° C (14°F to 113° F)
Storage Temperature:	-20° C to 60° C (-4° F to 140° F)
Drop:	1 meter (3.28 feet) drop, no damage – fully operational
Vibration Stability:	5 Hz to 500 Hz, 0.1 octave/second

Regulatory Statements

Federal Communications Commission Notice (FCC – United States)

Electronic devices, including computers and wireless modems, generate RF energy incidental to their intended function and are therefore subject to FCC rules and regulations.

This equipment has been tested to, and found to be within the acceptable 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 residential environment.

This equipment generates radio frequency energy and is designed for use in accordance with the manufacturer's user manual. However, there is no guarantee that interference will not occur in any particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are 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 the 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/television technician for help.

This device complies with Part 15 of the Federal Communications Commission (FCC) Rules. Operation is subject to the following two conditions.

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

WARNING: DO NOT ATTEMPT TO SERVICE THE WIRELESS COMMUNICATION DEVICE YOURSELF. SUCH ACTION MAY VOID THE WARRANTY. THE MiFi 4620L MODEM IS FACTORY TUNED. NO CUSTOMER CALIBRATION OR TUNING IS REQUIRED. CONTACT NOVATEL WIRELESS TECHNICAL SUPPORT FOR INFORMATION ABOUT SERVICING YOUR WIRELESS COMMUNICATION DEVICE.

FCC CAUTION: Any changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

MODIFICATIONS: The FCC requires that you be notified that any changes or modifications made to this device that are not expressly approved by Novatel Wireless, Inc. may void your authority to operate the equipment.

NOTE: The Radio Frequency (RF) emitter installed in your modem must not be located or operated in conjunction with any other antenna or transmitter, unless specifically authorized by Novatel Wireless Technologies.

RF Exposure Content

FCC Equipment Authorization ID: **PKRNVWMIFI4620**

This device is authorized for use in mobile and portable applications.

This product has been evaluated for SAR and meets the FCC Guidelines for exposure to radio waves.

For better signal reception, coverage range and data throughput, do not place the router near any physical obstruction, including in a pocket or in close proximity of any object. For RF Safety, a mandatory minimum of 10 mm (1 cm) should be maintained between the device and any part of a human body when using the device. Increasing the separation between the device and the body will result in better reception and reduced exposure to radio energy.

6

Glossary

Glossary

- **3G** — Third Generation. 3G refers to the third generation of mobile telephony technology.

- **4G LTE** — Fourth Generation. 4G LTE refers to the fourth generation of mobile telephony technology.

- **802.11 (b, g, n)** — A set of WLAN communication standards in the 2.4, 3.6 and 5 GHz frequency bands.

- **bps** — Bits per second. The rate of data flow.

- **Broadband** — High-capacity high-speed transmission channel with a wider bandwidth than conventional modem lines. Broadband channels can carry video, voice, and data simultaneously.

- **CDMA** — Code Division Multiple Access. It is the underlying channel access method used by some mobile phone standards.

- **DHCP** — Dynamic Host Configuration Protocol. Software found in servers and routers that automatically assigns temporary IP addresses to clients logging into an IP network.

- **DHCP Server** — A server or service with a server that assigns IP addresses.

- **DNS** — Domain Name System. A system for converting host names and domain names into IP addresses on the Internet or on local networks that use the TCP/IP protocol.

- **Firmware** — A computer program embedded in an electronic device. Firmware usually contains operating code for the device.

- **Hotspot** — A WiFi (802.11) access point or the area covered by an access point. Used for connecting to the Internet.

- **HTTP** — Hypertext Transfer Protocol. An application-level protocol for accessing the World Wide Web over the Internet.

- **IEEE —** Institute of Electrical and Electronics Engineers. An international technical/professional society that promotes standardization in technical disciplines.

- **IMEI** — International Mobile Equipment Identity. Used in LTE networks to identify the device. It is usually printed on the device and can often be retrieved using a USSD code.

- **IP** — Internet Protocol. The mechanism by which packets are routed between computers on a network.

- **IP Type** — The type of service provided over a network.

- **IP address** — Internet Protocol address. The address of a device attached to an IP network (TCP/IP network).

- **ISP** — Internet Service Provider. Also referred to as the service carrier, an ISP provides Internet connection service. (*See* Network Operator)

- **Kbps** — Kilobits per second. The rate of data flow.

- **LAN** — Local Area Network. A type of network that lets a group of computers, all in close proximity (such as inside an office building), communicate with one another. It does not use common carrier circuits though it can have gateways or bridges to other public or private networks.

- **MAC Address** — Media Access Control. A number that uniquely identifies each network hardware device. MAC addresses are 12-digit hexadecimal numbers. This is also known as the physical or hardware address.

- **Mbps** — Megabits per second.

- **MSID** — Mobile Station IDentifier. A number for a mobile phone that identifies that phone to the network. These numbers are carrier specific.

- **Network Operator** — The vendor who provides your wireless access. Known by different names in different regions, some examples are: wireless provider, network provider, and service provider.

- **Network Technology** — The technology on which a particular network provider's system is built; such as CDMA or EVDO.

- **Port** — A virtual data connection used by programs to exchange data. It is the endpoint in a logical connection. The port is specified by the port number.

- **Port Forwarding** — A process that allows remote devices to connect to a specific computer within a private LAN.

- **Port Number** — A 16-bit number used by the TCP and UDP protocols to direct traffic on a TCP/IP host. Certain port numbers are standard for common applications.

- **PRL** — Preferred Roaming List. A list that your wireless phone or device uses to determine which networks to connect with when you are roaming. (Network operator specific).

- **Protocol** — A standard that enables connection, communication, and data transfer between computing endpoints.

- **Proxy** — A firewall mechanism that replaces the IP address of a host on the internal (protected) network with its own IP address for all traffic passing through it.

- **Rev A** — CDMA EV-DO Rev. A is a leading-edge wireless technology with higher data rates and higher system capacity. It is a fully backward compatible standard and remains interoperable with deployed EV-DO networks and devices around the world. The increased data rates on Rev. A's physical layer enable richer applications and services. For more information, visit www.cdg.org.

- **Router** — A device that directs traffic from one network to another.

- **SIM** — Subscriber Identification Module. Found in GSM network technology, the SIM is a card containing identification information for the subscriber and their account. The SIM card can be moved to different devices.

- **SSID** — Service Set IDentifier. The name assigned to a WiFi network.

- **TCP/IP** — Transmission Control Protocol/Internet Protocol. The set of communications protocols used for the Internet and other similar networks.

- **USB** — Universal Serial Bus. A connection type for computing device peripherals such as a printer, mobile modem, etc. USB connectors may be used for data transfer or charging.

- **USB Port Types** — The USB ports on computers and hubs have a rectangular Type A socket, and peripheral devices have a cable with a Type A plug. Peripherals that do not have an attached cable have a square Type B socket on the device and a separate cable with a Type A and Type B plug. Ports and connectors are available in different sizes (for example, standard, mini, and micro).

- **VPN** — Virtual Private Network. A secure private network that runs over the public Internet. Commonly used to connect to an office network from elsewhere.

- **WWAN** — Wireless Wide Area Network. A public network that extends beyond architectural, geographical, or political boundaries (unlike a LAN, which is usually a private network located within a room, building, or other limited area).

- **WEP** — Wired Equivalent Privacy. An IEEE standard security protocol for 802.11 networks. Superseded by WPA and WPA2.

- **WiFi** — Wireless Fidelity. Any system that uses the 802.11 standard developed and released in 1997 by the IEEE.

- **WiFi Client** — A wireless device that connects to the Internet via WiFi.

- **WPA/WPA2** — WiFi Protected Access. A security protocol for wireless 802.11 networks from the WiFi Alliance.