

»» USB Modem User Guide

About the USB modems

Sierra Wireless USB wireless modems enable you to connect to the Internet, send and receive email, connect to a corporate network or virtual private network (VPN), or view streaming video, without the need for a cable.

The USB modems connect to a Type A USB port on your computer.

The modems are TRU-Install™ enabled. All the required software is on the modem. When you set up your modem, the software is installed on your computer. You do not need an installation CD.

The modems have a built-in antenna and may have a slot that accommodates a microSD™ external memory card. Depending on your service provider, a microSD card may be included in your package, or you may need to purchase it separately.

Services supported

Depending on the model, your modem supports speeds of up to 21 Mbps (Megabits per second). However, actual speed depends on the services offered by your service provider. Contact your service provider and visit www.sierrawireless.com for details.

Maximum theoretical data speeds are:

- Evolved High Speed Packet Access (Evolved HSPA or HSPA+)— up to 21 Mbps
- High Speed Download Packet Access (HSDPA)— up to 7.2 Mbps
- High Speed Upload Packet Access (HSUPA)— up to 5.76 Mbps
- Concurrent HSDPA/HSUPA (HSPA)— up to 3.6 Mbps download and up to 1.5 Mbps upload
- Universal Mobile Telecommunications System (UMTS)— 384 kbps (kilobits per second)
- Enhanced Data rates for GSM Evolution (EDGE)— 236 kbps
- General Packet Radio Service (GPRS)— 56 kbps

GPRS and EDGE are second generation (2G) data services. UMTS, HSDPA/HSUPA, and HSPA+ are 3G data services.

Note: If you purchased the modem from a GSM service provider, you may already have an account and a SIM card. Otherwise, your retailer should be able to give you the names of companies that provide these items.

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).

When establishing a connection, your modem uses the fastest available service. If, for example, you are using the modem in an area that has EDGE service but not UMTS or HSDPA/HSUPA service, the modem connects using EDGE service.

Once the connection is established, you have access to all Internet services.

Your account and coverage area

You must have an account with a GSM service provider to use the modem. To use the modem's 3G capability, your account must be with a service provider that offers HSPA, HSPA+ or UMTS service. (The modem is backwards compatible with 2G service.)

When you obtain your account, you are given a Subscriber Identity Module (SIM) card containing account information. Before you use the modem, you must insert the SIM card into it. (Depending on your service provider, the SIM card may already be inserted.)

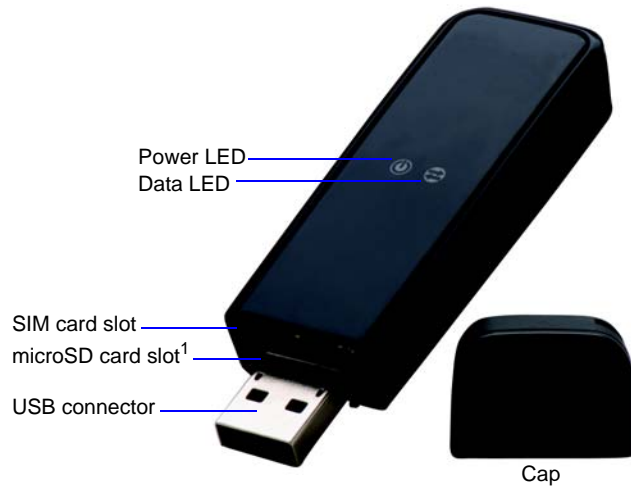
Your ability to obtain service depends on these factors:

- **Network coverage** — You must be within the network coverage area.
- **Service provider** — If you are within the coverage area of a network that is not operated by your own service provider, you can obtain service only 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.
- **Frequency band** — You cannot connect to networks operating in bands not supported by your modem, regardless of roaming agreements or account provisions.

Most service providers have coverage maps on their Web sites.

USB modem features



USB modems have a USB connector and slots for a SIM card and a microSD external storage card. LEDs on the front of the modem provide status information.



Note: 1. The microSD card slot location varies. On some USB modems, the microSD card slot is on the side of the modem.

LED operation

The USB modem has two LEDs that show the current status of the modem.

LED	State	Indicates
Power 	Off	Indicates one of the following states: <ul style="list-style-type: none"> • The modem is not inserted in the computer. • The computer is off or in “suspend and resume” mode. • The modem radio has been turned off using Watcher or another connection client.
	Solid Blue	The power is on, the modem is working normally.
	Blinking Blue	The firmware is being updated. Do not remove the modem from the computer.
	Blinking Amber	The modem is searching for service (initializing).
	Solid Amber	Modem error—either the modem is having a problem initializing (searching for service) or is offline because of a failure. Contact your service provider.
Data 	Off	The modem is unable to detect 2G or 3G service.
	Blinking Amber	The modem has detected a 2G network (EDGE, GPRS, GSM) and is ready to connect.
	Solid Amber	The modem is connected to a 2G network and is able to send and receive data.
	Blinking Blue	The modem has detected a 3G network (UMTS, HSPA, HSPA+) and is ready to connect.
	Solid Blue	The modem is connected to a 3G network and can send and receive data.

Connection management software

Your modem comes with Sierra Wireless Watcher[®], 3G Watcher for Mac[®], or other connection management software, depending on your carrier. Use this software to manage the modem and monitor your connections.

For information on Watcher features and using Watcher, refer to the online Help. From the main Watcher window, select **Help > Help Topics** (Windows) or **Help > Sierra Wireless 3G Watcher Help** (Mac).

Note: Watcher is compatible with earlier Sierra Wireless modems.

Watcher enables you to:

- Initiate data connections
- Determine signal strength, roaming status, GPRS, EDGE, UMTS, or HSDPA/HSUPA availability, and other network connection parameters
- Monitor the status of the modem and GSM service
- Send and receive SMS messages
- Enable or disable SIM security that prevents others from using your SIM card if it is lost or stolen
- Set options related to notifications and the Watcher window
- Create or modify an account profile

For more information about using Watcher, view the Online Help that comes with Watcher.

You do not need to run Watcher when you use the modem, but Watcher does provide useful status information.

*Note: If you are running Mac OS X 10.6 and later, you can use Apple WWAN Native Support (included with your Mac) to manage your connection. See the document Using Apple WWAN Native Support with Sierra Wireless modems, which is available with some Sierra Wireless modems and is installed in the **Applications > Sierra Wireless** folder.*

Launching Watcher (Windows)

Unless this feature has been disabled, Watcher launches automatically when you insert the modem. You can also launch Watcher by:

- Double-clicking the desktop shortcut, or
- Selecting **Start > Programs > Sierra Wireless > 3G Watcher > Sierra Wireless Watcher**.

Depending on how your profile is configured, your browser, VPN, or other program may launch automatically anytime you launch Watcher.

Launching 3G Watcher (Mac)

Watcher starts automatically at login. To disable this feature, go to **3G Watcher > Preferences**.

You can also start 3G Watcher by navigating to the **Applications > 3G Watcher** folder and double-clicking **3G Watcher**.

Depending on how your profile is configured, your browser, VPN, or other program may launch automatically anytime you launch Watcher.

Tips

To keep the 3G Watcher icon in the dock:

1. Launch 3G Watcher.
2. Click and hold the 3G Watcher icon in the dock.
3. From the pop-up menu, select **Keep in Dock**.

To start 3G Watcher automatically at login:

1. Launch 3G Watcher.
2. Click and hold the 3G Watcher icon in the dock.
3. From the pop-up menu, select **Open at Login**.

Reinstalling the software

Windows

If you need to reinstall or repair the Watcher software:

1. Go to **Start > Control Panel > Add or Remove Programs**.
2. Uninstall Watcher.
3. Insert the modem into your computer.
4. Follow the on-screen instructions.

Or, in Watcher:

1. Select **Tools > Software Installation Mode**.
2. Follow the on-screen instructions.

Note: Do not remove the modem until the software installation process is complete.

Mac

To uninstall 3G Watcher:

1. Select **3G Watcher > Uninstall 3G Watcher**.
2. Follow the on-screen instructions.

Connecting to the network

Windows

To use your account (and connect to your service provider's network), you need to have at least one profile set up on your modem. Depending on how your modem is configured, the profile may already be set up or you may need to create one.

Scenario	Required action
Watcher automatically detects or creates a default profile.	Click Connect ^a .
Watcher prompts you to create a data profile.	1. Click Yes , then....
<ul style="list-style-type: none">If Watcher opens the Options window Profile pane and pre-selects an appropriate profile (normally the name of your service provider) from the drop-down list...	a. Click OK to accept that profile (or choose another from the drop-down list). b. Click Connect ^a .
<ul style="list-style-type: none">If Watcher opens the Options window Profile pane, the Profile name field is blank, and your service provider is not included in the drop-down list...	You need to create a profile manually. Refer to the Watcher online help for details.

- a. The first time you insert the modem in the computer, it takes a few seconds for the modem to locate the network. While it is scanning for a network, the Connect button is unavailable.

Once the software is successfully installed and the profile is set up, the modem is ready to use.

Anytime you use the modem with the same computer, TRU-Install verifies that the correct software is already installed. This process takes a few seconds.

If you need to re-install the software, see page 14.

Mac

To connect to the network using 3G Watcher:

1. Select a profile from the drop-down list and click **Connect**.

Note: If you have a pre-paid wireless account, you'll need to have credit in your account before you can connect.

To end a high-speed connection, click **Disconnect**.

The first time you run 3G Watcher

Depending on your device, you may have an additional step the first time you run 3G Watcher.

Mac OS X 10.5.x and later

1. The first time you click **Connect**, the message "A new network interface has been detected." Click the **Network Preferences** button.
2. In the Network window, click **Apply**. Your modem connects to the network.

Mac OS X 10.4.11

1. After clicking **Connect**, open **System Preferences** and select **Network**.
2. When the "New Port Detected" message appears, click **OK**.
3. Click **Apply Now**. Your modem connects to the network.

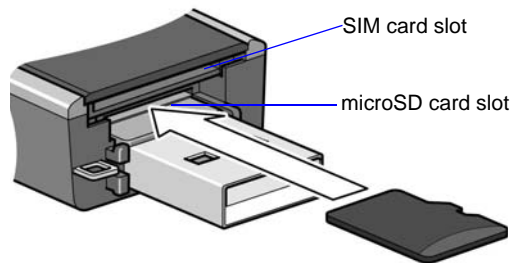
Using the microSD card

The USB modem can accommodate a microSD external storage card.

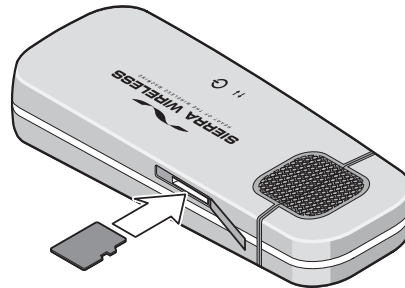
The microSD card appears as a USB memory drive when the modem is inserted in your computer. You can copy, paste, and drag files to and from it the same way as you can with any other external drive.

To use a microSD card:

1. If there is a non-functional microSD card installed:
 - a. Press it in and then release it.
 - b. Gently remove the non-functional microSD card.
2. Insert the microSD card into the lower slot at the end of the modem, as shown in the illustration. Be careful not to insert the microSD card in the SIM card slot.



Or if the microSD card slot is on the side of the modem, insert the microSD card as shown in the illustration:



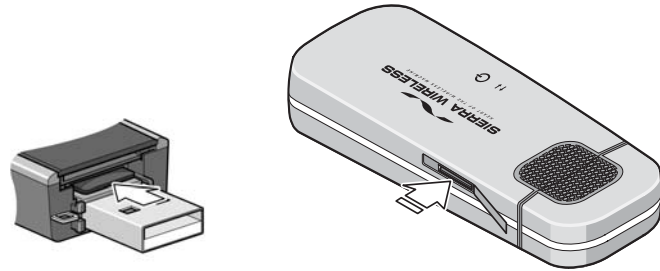
3. Insert the modem into the computer.

If the computer does not have Watcher installed, you may be given the option to install it. If you do not want to install Watcher, cancel the installation. You can use the microSD card without having Watcher installed.

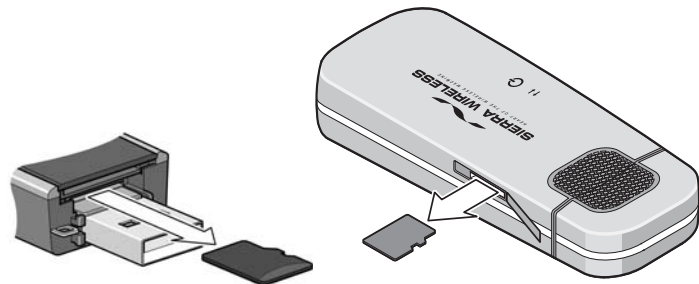
Removing the microSD card

To remove the microSD card:

1. Remove the cap.
-or-
If the microSD card slot is on the side of the modem, open the flap.
2. Push the microSD card in and then release it.



3. Gently pull the microSD card out.



Removing the SIM card

For instructions on inserting the SIM card, see the printed guide that came with your product.

Some USB modems have a SIM card slot with a “push to insert/push to release” design. To remove the SIM card from the modem:

1. Push the SIM card in to release it.
2. Pull the SIM card out of the slot. See [Figure 1](#).

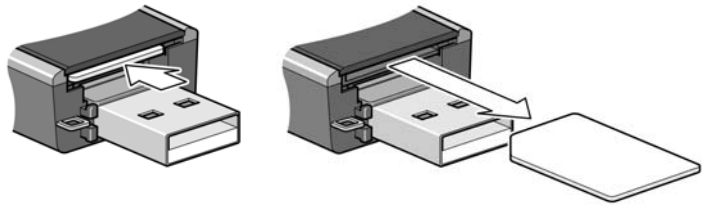


Figure 1: Removing the SIM card from the SIM card slot

Some USB modems have an internal tray for inserting and removing the SIM card. To remove the SIM card from the modem, slide out the SIM card tray and lift out the SIM card. See [Figure 2](#).

If you slide the tray completely out of the modem, carefully reinsert it. Do not dispose of the tray.

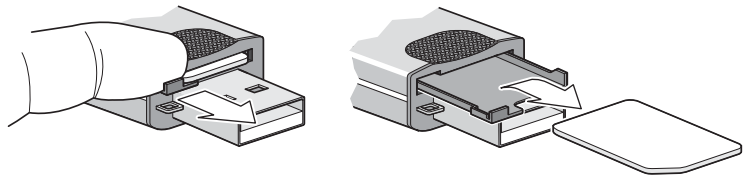


Figure 2: Removing the SIM card using a SIM card tray

Using the extension cable and clip

Some USB modems may come with an extension cable and clip. The extension cable and clip should be used if you have difficulty inserting the modem because of the orientation of your computer's USB slot or the thickness of your computer.

The clip fits on the top of your notebook computer and holds your modem.

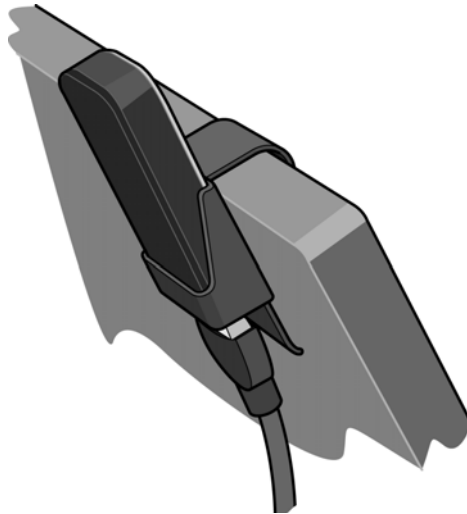
Note: To meet FCC (regulatory) requirements, use only the supplied extension cable and notebook computer clip; other cables and notebook computer clips should not be used.

The wireless modem and its antenna must not be collocated with any other transmitter or antenna within a host device.

Note: Do not insert the modem or the USB extension cable into a USB hub or, if your keyboard is separate from your notebook computer, a USB slot on your keyboard.

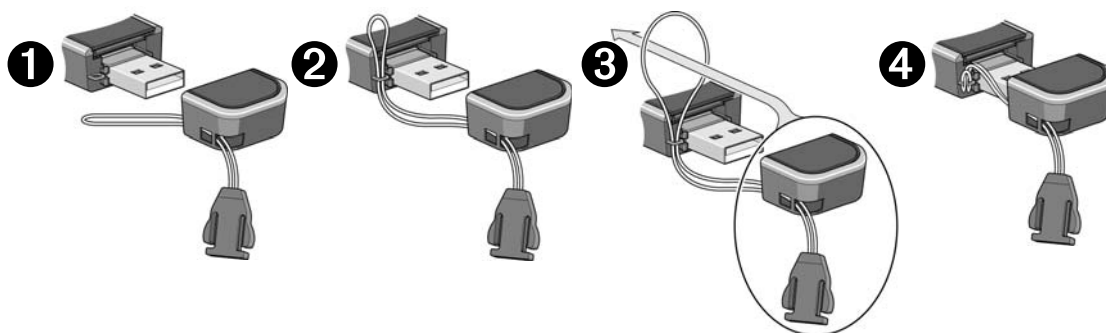
To use the extension cable and clip:

1. Place the clip on top of the notebook computer.
2. Connect the extension cable to the modem.
3. Place the modem in the clip holder.
4. Connect the other end of the extension cable to the USB slot on your computer.

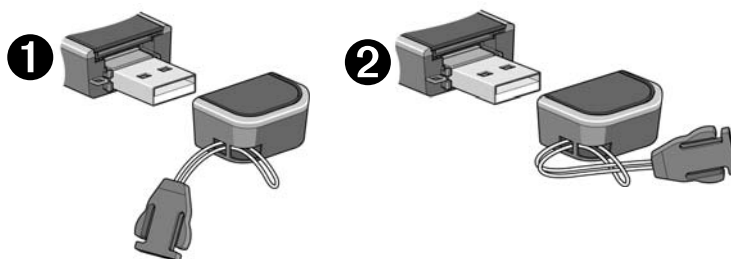


Attach the modem to the lanyard

To keep everything together, thread the lanyard through the cap and the modem, as shown in the illustrations.



Depending on the cap design, you can also attach the lanyard to the cap.



Care and maintenance

As with any electronic device, the modem must be handled with care to ensure reliable operation. Follow these guidelines when you use and store your modem:

- Do not apply adhesive labels to the SIM card. This may cause it to jam inside the slot, or prevent it from being inserted properly.
- When not installed in your computer, store the modem and SIM card in a safe place.
- USB-connected modems should fit easily into your computer's USB port. Forcing the modem into the port may damage the connector pins.
- Protect the modem from liquids, dust, and excessive heat. (See the [Environmental specifications](#) for maximum tolerances.)

Troubleshooting

This section describes possible problems and solutions for Windows XP and Vista users.

The "Found New Hardware" wizard appears when you insert the modem

If the Found New Hardware wizard appears when you insert the modem in a USB port:

1. Remove the modem from the USB port.
2. Close the Found New Hardware window:
 - (Windows XP) Click **Cancel**.
 - (Windows Vista) Click **Close**.
3. Check if there is a version of Watcher already installed on the system, and remove it:
 - a. On the Windows task bar, click **Start**, and then click **Control Panel**.
 - b. Display a list of installed programs:
 - (Windows XP) Double-click **Add or Remove Programs**.
 - (Windows Vista, default view) Under **Programs**, click **Uninstall a program**.
 - (Windows Vista, Classic view) Double-click **Programs and Features**.
 - c. If Watcher appears in the Currently Installed Programs list:
 - i. Click **Watcher**.
 - ii. Remove the program:
 - (Windows XP) Click **Remove**.
 - (Windows Vista) Click **Uninstall**.
 - iii. Re-insert the modem in the USB port. If an installation prompt appears, follow the on-screen instructions and then restart your computer to complete the installation.

MicroSD card is not working

If you cannot access the microSD card which is installed in your modem:

1. Verify that the microSD card is installed properly:
 - a. Remove the modem from the USB port.
 - b. Remove the microSD card from the modem.
 - c. Re-insert the microSD card in the modem, making sure to insert it correctly.

Technical specifications

Radio frequency and electrical specifications

The radio frequency bands that your modem supports will vary depending on your region and your modem model.

Transmit	GSM 1900 (PCS): 1850 – 1910 MHz GSM 1800 (DCS): 1710 – 1785 MHz EGSM 900: 880 – 915 MHz GSM 850: 824 – 849 MHz WCDMA 2100 (Band I): 1920 – 1980 MHz WCDMA 1900 (Band II): 1850 – 1910 MHz WCDMA 850 (Band V): 824 – 849 MHz WCDMA 800 (Band VI): 830 – 840 MHz WCDMA 900 (Band VIII) 880 - 915 MHz
Receive	GSM 1900 (PCS): 1930 – 1990 MHz GSM 1800 (DCS): 1805 – 1880 MHz EGSM 900: 925 – 960 MHz GSM 850: 869 – 894 MHz WCDMA 2100 (Band I): 2110 – 2170 MHz WCDMA 1900 (Band II): 1930 – 1990 MHz WCDMA 850 (Band V): 869 – 894 MHz WCDMA 800 (Band VI): 875 – 885 MHz WCDMA 900 (Band VIII) 925 – 960 MHz

Frequency band support

Technology	Bands	Location
2G	850 MHz (cellular band)	North America
	900 MHz (EGSM band)	Europe
	1800 MHz (DCS band)	Europe and Asia
	1900 MHz (PCS band)	North America
3G	WCDMA 850 (band V)	North America and Australia
	WCDMA 800 (band VI)	Japan
	WCDMA 900 (band VIII)	Europe, Asia, and Australia
	WCDMA 1900 (band II)	North America
	WCDMA 2100 (band I)	Europe, Asia, and Australia

Environmental specifications

Operating temperature	0°C to 50°C (32°F to 122°F)
Storage temperature	-20°C to +85°C (-4°F to +185°F)
Humidity	85%, non-condensing
Vibration	Random vibration, 10 to 1000 Hz, nominal 6G RMS in each of 3 mutually perpendicular axes. Test duration of 60 minutes for each axis, for a total test time of 3 hours (non-operating).
Drop	1 m on concrete on each of 6 faces, 2 times

Regulatory and safety information

Notice

Because of the nature of wireless communications, transmission and reception of data can never be guaranteed. Data may be delayed, corrupted (that is, 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 and its affiliates accept 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

The modem **MUST BE POWERED OFF** in all areas that may be susceptible to radio interference, in particular:

- Prohibited areas
Obey all signs and notices and follow all rules and regulations. Power off the modem when instructed to do so or when you suspect that it may cause interference or danger.
- In areas where blasting is in progress
- Where explosive atmospheres may be present
Areas with a potentially explosive atmosphere are not always clearly marked. Such areas include gas stations, fuel depots, chemical transfer or storage facilities, areas where blasting is in progress, areas where the air contains chemicals or particles such as grain, dust, or metal powders, and any other area where you would normally be advised to turn off your cellular phone or vehicle engine.
- Near medical or life-support equipment
Medical equipment may be susceptible to any form of radio interference. In such areas the modem can transmit signals that could interfere with this equipment.
- On board aircraft
In addition to Federal Aviation Authority (FAA) requirements, many airline regulations state that you must suspend wireless operations before boarding an aircraft. The

modem is capable of transmitting signals that could interfere with various onboard systems and controls.

Failure to observe this instruction may lead to suspension or denial of cellular telephone services to the offender, legal action, or both.

Some airlines may permit the use of cellular phones while the aircraft is on the ground and the door is open. The modem may be used normally at this time.

- While operating a vehicle

The driver or operator of any vehicle should not use a wireless data device while in control of a vehicle. Doing so detracts from the driver or operator's ability to control and operate the vehicle. In some countries, using such communications devices while in control of a vehicle is an offence.

Regulatory information for North America

CAUTION: Unauthorized modifications or changes not expressly approved by Sierra Wireless, Inc. could void compliance with regulatory rules, and thereby your authority to use this equipment.

The design of the Sierra Wireless modems complies with U.S. Federal Communications Commission (FCC) and Industry Canada (IC) guidelines respecting safety levels of radio frequency (RF) exposure for portable devices, which in turn are consistent with the following safety standards previously set by Canadian, U.S. and international standards bodies:

- ANSI/IEEE C95.1-1999, *IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz*
- National Council on Radiation Protection and Measurements (NCRP) Report 86, -1986, *Biological Effects and Exposure Criteria for Radio Frequency Electromagnetic Fields*
- Health Canada, Safety Code 6, 1999, *Limits of Human Exposure to Radio frequency Electromagnetic Fields in the Frequency Range from 3 kHz to 300 GHz*
- International Commission on Non-Ionising Radiation Protection (ICNIRP) 1998, *Guidelines for limiting exposure to time-varying electric, magnetic, and electromagnetic fields (up to 300 GHz)*

Caution: *The Sierra Wireless USB modem must be 0.5 cm or more from users during operation, to satisfy FCC / IC RF exposure requirements. The Sierra Wireless USB modem has been tested for compliance with FCC / IC RF exposure limits in the notebook*

computer(s) configurations with horizontal and vertical USB slots and can be used in notebook computers with substantially similar physical dimensions, construction, and electrical and RF characteristics. This USB modem must not be used with any other antenna or transmitter that has not been approved to operate in conjunction with this modem. Note: This USB modem must not be used in any unapproved configurations. For details, contact Sierra Wireless.

Note: The Sierra Wireless USB modem is approved for normal-size notebook computers only (typically with 12 inches or larger display screens). For notebook computers with a display screen smaller than 12 inches or if the orientation of the USB slot does not allow for at least 0.5 cm between the modem and the user or bystanders, use the provided extension cable and clip to ensure a safe distance between the modem antenna and users or bystanders.

To meet FCC requirements, use only the supplied USB extension cable and laptop clip; other cables and laptop clips should not be used.

These devices comply with Part 15 of the FCC Rules. Operation is subject to the condition that these devices do not cause harmful interference.

Where appropriate, the use of the equipment is subject to the following conditions:

Warning: (EMI) – *United States FCC Information – This equipment has been tested and found to comply with the limits pursuant to Part 15 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 communication. 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:

- 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

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 Acquisitions 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.

Regulatory information for EU countries

Sierra Wireless hereby declares that the Sierra Wireless USB wireless modem conforms to all the essential requirements of Directive 1999/5/EC:

CE 0682

The Declaration of Conformity made under Directive 1999/5/EC is available for viewing at the following location in the EU community:

Sierra Wireless (UK), Limited
Lakeside House
1 Furzeground Way, Stockley Park East
Uxbridge, Middlesex
UB11 1BD
England

