MERLIN U630 USER MANUAL

The information contained in this document is subject to change without notice and should not be construed as a commitment by Novatel Wireless Inc. unless such commitment is expressly given in a covering document.

1 GETTING STARTED
In This Section

- Description of Your UMTS Merlin
- The UMTS Package
- System Requirements
- Care of Your UMTS Merlin
- Installing MobiLink on Windows 2000
- Windows 2000 detects your UMTS Merlin
- Installing MobiLink on Windows XP
- Windows XP detects your UMTS Merlin

This section will walk you through how to get started using your UMTS Merlin, including software and driver installation, inserting the card so Microsoft Windows is able to detect and install the drivers for your UMTS Merlin and setting up a data session to connect to the Internet.

1.1 YOUR UMTS ACCOUNT

For information about your UMTS account, User Name, Password and Access Point Name, please contact your UMTS Service Provider

1.2 YOUR UMTS MERLIN

Your UMTS Merlin is a PC card that fits into the PC card slot (Type II, 5V) of most Windows based laptop computers. The U630 utilizes the UMTS (Universal Mobile Telecommunications System) Network to connect to the Internet transferring data at rates of 220-320 kbps, and bursts speeds of up to 384kbps. The Merlin U630 runs on Microsoft Windows 2000 and Microsoft Windows XP.
The MobiLink software will allow you to control and monitor your connection to the UMTS network. It will also allow you to send and receive SMS (Short Messaging Service), get online help and has an address book

1.3 THE UMTS PACKAGE

- ➢ Merlin U630 PC Card
- ➢ SIM (Subscriber Identification Module) -- Depending on Service Provider
- ➢ MobiLink software on installation CD
- ➢ Quick Start Guide

1.4 GETTING STARTED

Before you use your UMTS Merlin, you must first:

1. Have an active UMTS account with a UMTS Service Provider
2. Have a properly configured SIM (Provided by the Service Provider) – facilitates permission to use network
3. Install the MobiLink software, located on the installation CD
4. Insert SIM card into the UMTS Merlin U630 SIM card slot
5. Insert into the PC card slot on your PC for Microsoft Windows to detect and configure the UMTS Merlin
6. Launch MobiLink, create a profile if necessary and select the Connect button

IMPORTANT NOTICES: DO NOT INSERT THE MERLIN INTO THE PC CARD SLOT UNTIL YOU HAVE UNINSTALLED ANY PREVIOUSLY EXISTING UMTS SOFTWARE FROM YOUR COMPUTER AND INSTALLED THE MOBILINK SOFTWARE. UNINSTALL INSTRUCTIONS IN TROUBLESHOOTING SECTION. SEE WHEN I RUN THE MOBILINK SOFTWARE, I GET THE MESSAGE "NO CARD DETECTED

1.5 SYSTEM REQUIREMENTS

➢ 133 MHz or faster Pentium- compatible
➢ Windows 2000 or XP (Home and Professional)
➢ 64 MB RAM
➢ 16 MB available hard drive space
➢ CD-ROM drive
➢ Type II, PC CARD slot --- 5V

1.6 CARE OF YOUR MERLIN

Novatel Wireless recommends the following handling guidelines:

➢ Handle with care
➢ Avoid storing your UMTS Merlin in extreme temperatures
➢ Store the card in a dry and clean environment
➢ Avoid spilling any liquid or immersing the card in water
➢ Do not place any labels on the Antenna as this may alter the sensitivity of the antenna
➢ Do not place any labels on the card or the SIM as this may interfere with the PC card slot/SIM slot when inserting
➢ Do not force the Merlin into the PC card slot
➢ Ensure the edges of the SIM are smooth before inserting into SIM slot
➢ Do not force the SIM into the SIM slot
➢ Do not apply force on the top or bottom of the Merlin
➢ When transporting your laptop, remove the Merlin from the PC card slot

NOTE: TO REMOVE YOUR MERLIN, YOU MUST CLOSE MOBILINK, THEN STOP THE MERLIN USING THE PC CARD TRAY ICON LOCATED IN THE BOTTOM-RIGHT CORNER OF YOUR PC. CLICK THE ICON AND SELECT STOP FROM THE DIALOG BOX. ONCE YOUR CARD HAS BEEN STOPPED, PRESS THE PC CARD EJECT BUTTON LOCATED ON YOUR PC AND REMOVE THE CARD COMPLETELY FROM THE PC CARD SLOT.

1.7 INSTALLING MOBILINK

This portion of the guide will instruct you how to install the MobiLink software from the Installation CD

1.7.1 Windows 2000 Installation

1. Insert the installation CD in the CD drive of your PC
2. If the auto-run does not start, double-click on the Autorun.exe on the CD
3. The Welcome to Wireless window will appear as below
4. Choose Windows 2000 and XP

WELCOME TO WIRELESS WINDOW

5. The "Welcome to MobiLink Installation Wizard" window will appear. See Figure 1

FIGURE 1

6. Read the information and click **Next**

7. The "License Agreement" window will appear next. See Figure 2
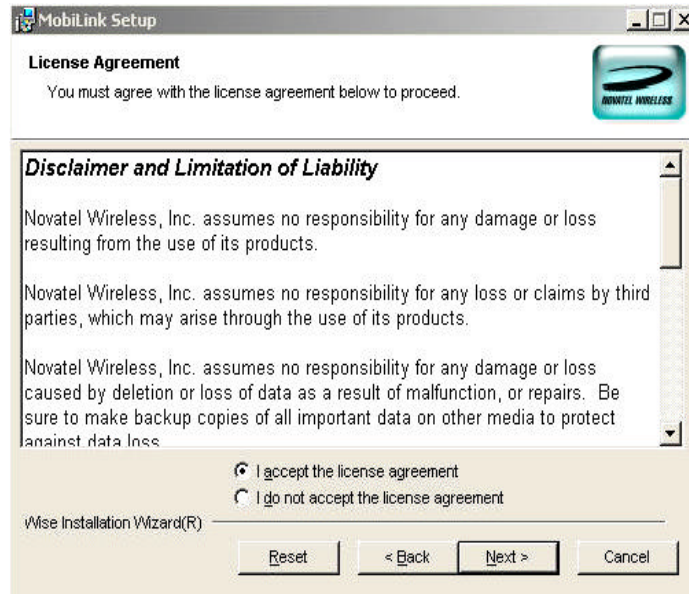
FIGURE 2

8. Read the License Agreement and acknowledge your agreement by selecting "I accept the license agreement". Then click **Next**

9. The "Updating System" window will appear and the software will begin initializing and installing. See Figure 3
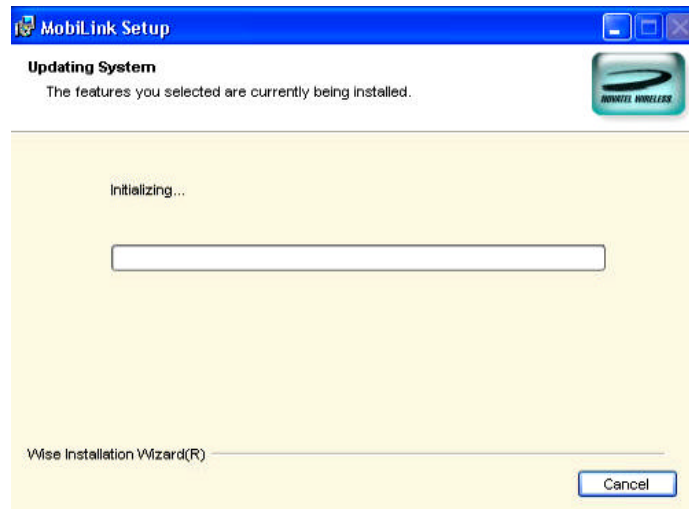
FIGURE 3

10. The "MobiLink has been successfully installed" window will appear. See Figure 4
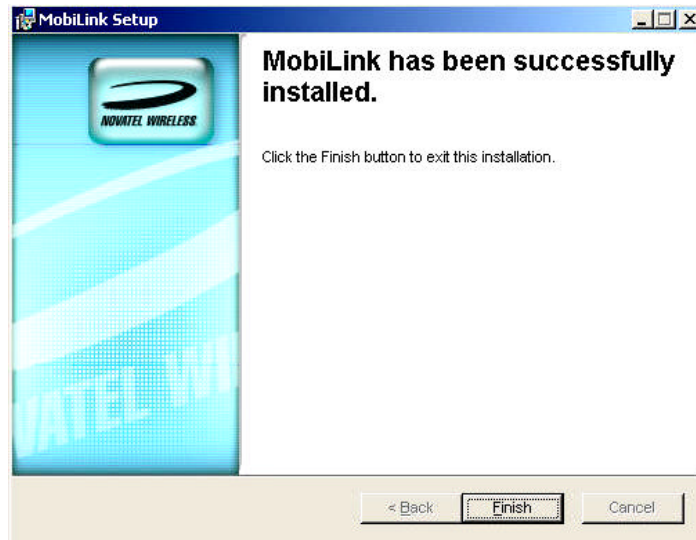
FIGURE 4

11. Click **Finish**, this completes the installation. Restart your PC.

1.7.2 Windows 2000 detects your UMTS Merlin

1. Insert the SIM card into the modem. The SIM card is required to connect to the Network

NOTE: SIM CARD CONTACT POINTS MUST FACE UPWARDS, AND THE ORIENTATION NOTCH MUST BE POSITIONED AS SHOWN IN THE PICTURE. PLEASE SEE SECTION 1.6 ON SIM CARE AND INSERTION
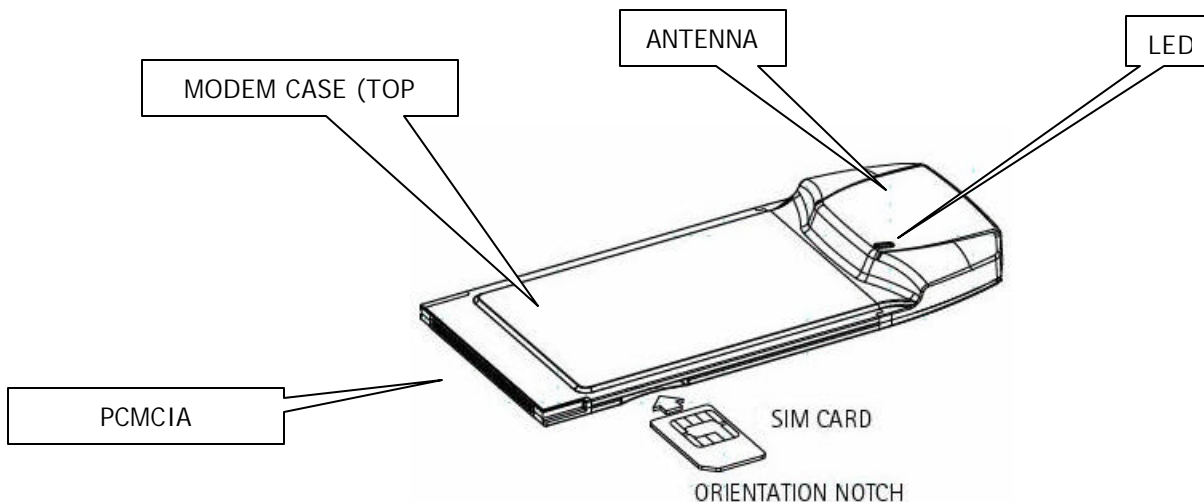
2. Insert the modem into the PC card slot of your PC. Windows reads the information from the Modem and installs drivers for each function of your UMTS Merlin.

   The "Novatel_Wireless Merlin_UMTS_Modem" window will appear momentarily, see Figure 5. Then the "Novatel Wireless UMTS Modem Parent" window will appear. See Figure 6
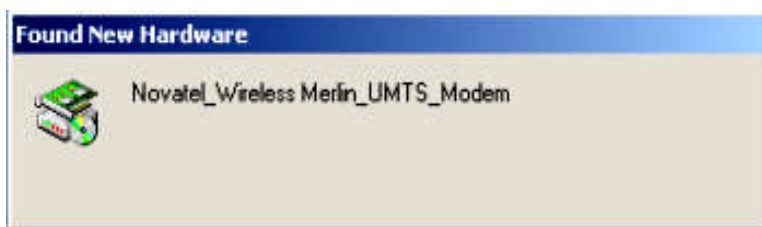
FIGURE 5
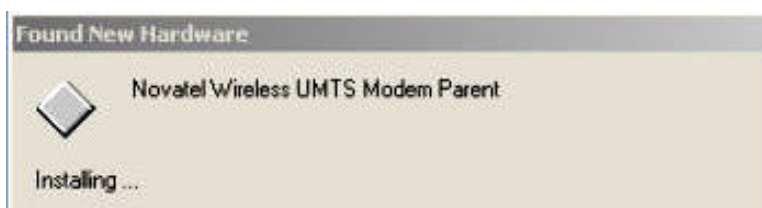
FIGURE 6

After the Novatel Wireless Parent driver is installed, a "multifunction device" driver will be installed. Additional drivers installed, are the Novatel Wireless Modem Primary Port and the Novatel Wireless Secondary Port. See Figure 7, 8, 9, and 10.

FIGURE 7

FIGURE 8

FIGURE 9

FIGURE 10

Windows has now detected and installed the drivers for your UMTS Merlin. Proceed to Section 2

1.7.3 Windows XP Installation

1. Insert the installation CD in the CD drive of your PC

2. If the auto-run does not start, double-click on the Autorun.exe on the CD

3. The Welcome to Wireless window will appear as below

WELCOME TO WIRELESS WINDOW

4. Choose Windows 2000 and XP

5. The "Welcome to MobiLink Installation Wizard" window will appear. See Figure 11

FIGURE 11

6. Read the information on the window and click **Next**

7. The "License Agreement" window will appear, see Figure 12. Read the License Agreement and acknowledge your agreement by selecting "I accept the license agreement". Then click **Next**
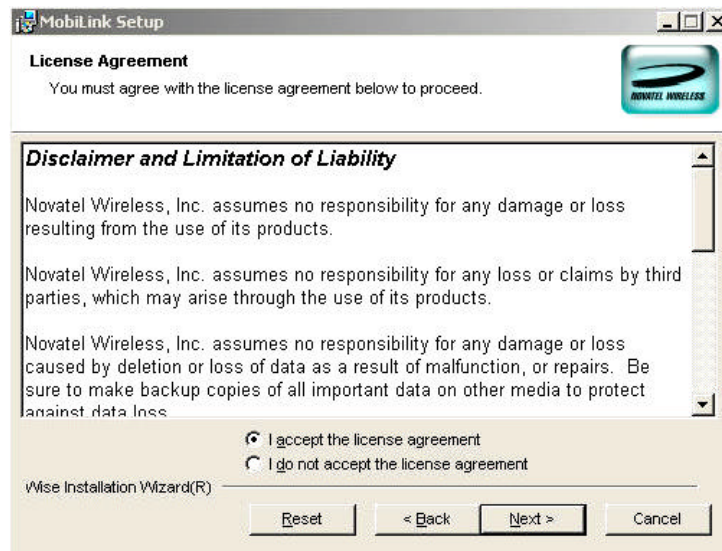
FIGURE 12

8. The "Updating System" window will appear and the software will start initializing and installing. See Figure 13
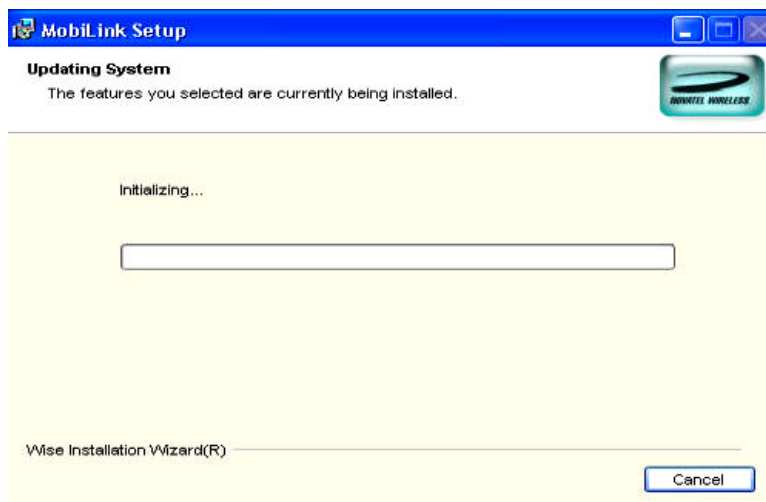
FIGURE 13

9. The "MobiLink has been successfully installed" window will appear after approximately 30 seconds. See Figure 14
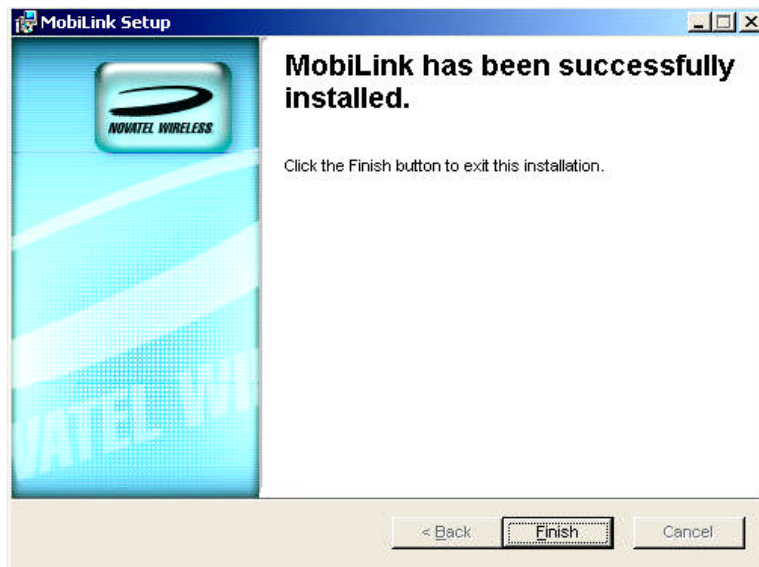
FIGURE 14

10. Click **Finish** to complete the installation. Restart your PC

1.7.4 Windows XP detects your UMTS Merlin

1. Insert the SIM card into the modem. This is only required to connect to the Network

NOTE: SIM CARD CONTACT POINTS MUST FACE UPWARDS, AND THE ORIENTATION NOTCH MUST BE POSITIONED AS SHOWN IN THE PICTURE. (SEE PICTURE IN SECTION 1.7.2). PLEASE SEE SECTION 1.1.6 ON SIM CARE AND INSERTION

2. Insert the modem into the PC card slot of your PC. Windows reads the information from the Modem and connects drivers for each function of your UMTS Merlin. You will see a sequence of callouts near the bottom right of your computer screen, as windows connects all drivers for your UMTS Merlin. See Figure 15 through Figure 21
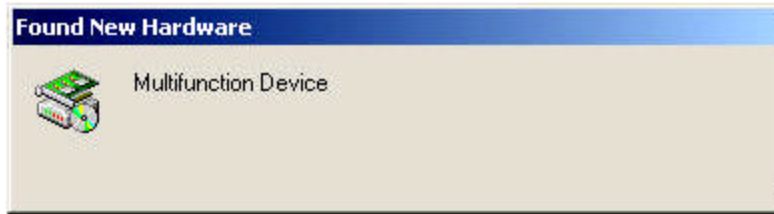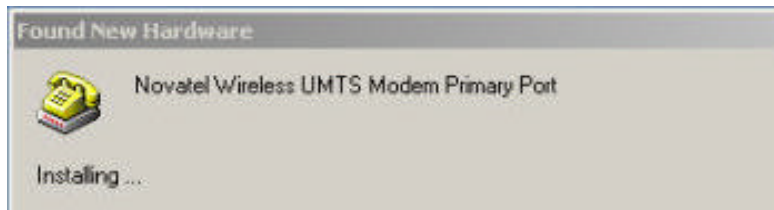
CALLOUT

FIGURE 15

FIGURE 16

FIGURE 17

FIGURE 18

FIGURE 19
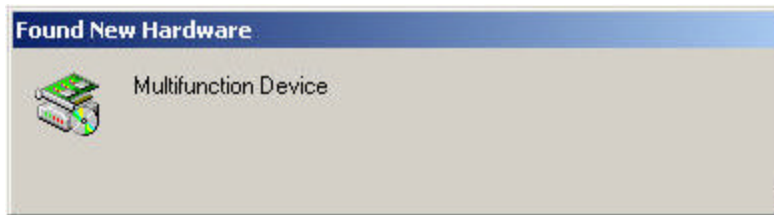

FIGURE 20
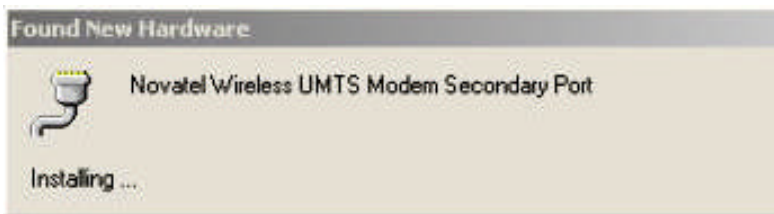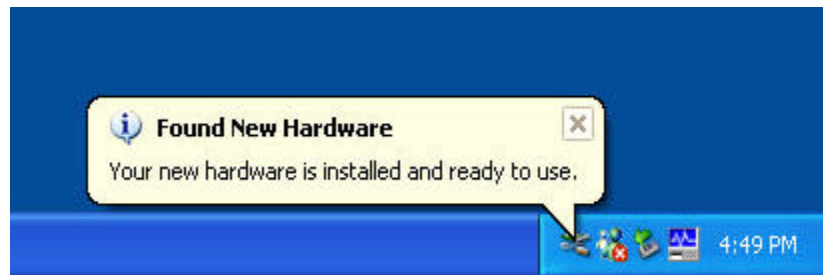

FIGURE 21

Windows has now detected and installed the drivers for your UMTS Merlin. Proceed to Section 2

2 MOBILINK

In This Section

- Starting MobiLink
- MobiLink's Main Window
- Using MobiLink to connect to and disconnect from the Network
- MobiLink's features
- Create a data session with MobiLink

This section will describe how to use Novatel's Connection Manager MobiLink, to connect to and disconnect from the Network along with the various functions associated with the buttons and the menu.

2.1 STARTING MOBILINK

To start MobiLink double-click on the MobiLink icon , located on your desktop.

2.1.1 Main Display Window

Connect/Disconnect Button:	Connects you to the network. Will change to Disconnect after Connected
Signal Strength Indicator	Black rectangular bars at right window. Active when in UMTS coverage
Web Browser Icon:	Launches Internet Explorer. Becomes active after connected to network
SMS Client Icon:	Launches SMS Client. Becomes active after attached to network.
Address Book Icon:	Launches an address book
Help Icon:	Launches online help
Menu Button:	Displays various features of MobiLink
Open/Close Profile Manager Button	Clicking this button will open or close the Profile Manager Screen. This button will only appear once attached. This button will not appear when modem is searching for Network or connected to the Network
Minimize Button:	Clicking this button shall cause the connection manager to shrink to the task bar.
Shrink Button:	Clicking this button shall cause the connection manager to change forms to a minimized view that displays only the key parameters.
Enlarge Button:	Clicking this button shall change the main display to the standard view.
Close Button:	Clicking this button shall close the window and exit the application.

2.1.2 Icon Display Window

▣ :	Indicates Roaming
⇩⇧ :	Data Session in process
✉ :	SMS is available
🔒 :	SIM Locked

2.1.3 Features

Click on the Menu Button will display various features of MobiLink.

Configuration Button displays:	
General Tab:	Customizes MobiLink's Window and launch settings
User Interface Tab:	Sets language and sound preferences
Network Tab:	Automatic setting will connect to the available UMTS network.
Settings Tab:	Profile preferences (i.e Always use default) SIM Lock (Lock SIM)
Properties Button Displays:	
Firmware Version:	This is software programmed in the modem
IMEI:	A unique number that identifies your modem on the network
Mobile Number:	SIM Number (a numeric number)
Manufacturer:	Novatel Wireless
Modem Type:	Merlin UMTS
About Button Displays:	MobiLink's version

2.1.4 Creating a data session

NOTE: PLEASE ENSURE YOU HAVE AN ACTIVE UMTS DATA ACCOUNT WITH A UMTS SERVICE PROVIDER, THE SIM MUST BE ENA BLED FOR UMTS AND SMS AS REQUIRED.

1. Double-click on the MobiLink icon , located on your desktop. Figure 23 will appear momentarily.

FIGURE 23

2. The MobiLink software will then initialize your UMTS Merlin. See Figure 24

FIGURE 24

3. You will then be prompted for a SIM PIN code (provided by your Service Provider). See Figure 25

NOTE: IF YOU ARE NOT PROMPTED FOR A SIM CODE, CONTINUE TO STEP 4.

FIGURE 25

NOTE: IF YOU ENTER THE SIM PIN CODE INCORRECTLY 3 TIMES, YOU WILL HAVE TO CONTA CT YOUR SERVICE PROVIDER AND OBTAIN A PUK CODE. SEE FIGURE 26
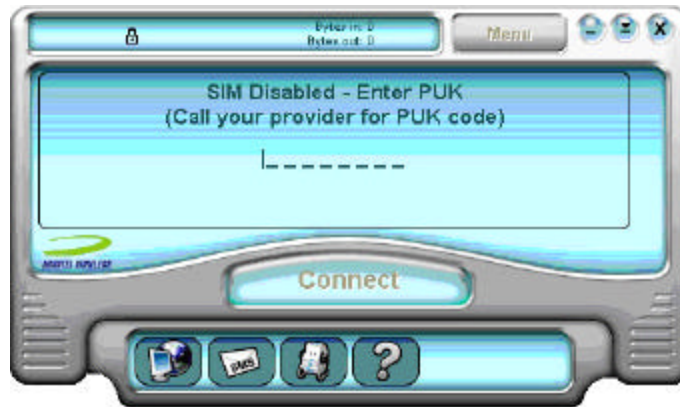
FIGURE 26

4. Your UMTS Merlin will then search for a UMTS network. See Figure 27

FIGURE 27

5. MobiLink will use a default profile to attach to the UMTS Network. If desired, you may create a new profile by following the ste ps below.

NOTE: IF A PROFILE EXISTS AND MOBILINK WAS SET UP TO USE IT (I.E ALWAYS USE DEFAULT PROFILE SETTING LOCATED IN MENU) THEN YOU WILL ATTACH TO THE NETWORK (INDICATED BY READY). GO TO STEP 8 AND CLICK ON CONNECT TO CONNECT TO THE UMTS NETWORK.

6. If you would like to create a new profile, click on the arrows on the left hand side of MobiLink's window to bring up the profile menu

Click arrows to access profile menu.
The Profile Icon is only accessible in the Ready state. It will not appear if the modem is in the Connect state or searching for the Network.

NOTE: BEFORE PROCEEDING TO THE NEXT STEP, YOU WILL NEED TO CREATE A PROFILE IF IT IS THE FIRST TIME THAT YOU ARE CONNECTING TO THE UMTS NETWORK, OR IF A PROFILE HAS NOT BEEN CREATED FOR YOU BY YOUR SERVICE PROVIDER. THE PROFILE INCLUDES THE FOLLOWING INFORMATION.

- Profile Name – Your Name of choice
- User Name
- Password
- APN (Access Point Name) – (May be obtained by your Service Provider)

NOTE: THE NAMES CONTAINED IN THE FIGURES BELOW ARE FOR DEMONSTRATION PURPOSES ONLY

7. Click the **New** button to create a new profile. See Figure 28

FIGURE 28

8. The Profile Wizard window will be displayed. Please enter the appropriate information requested by the wizard to finish creating your profile. Click the down arrow button to continue until you are prompted to save the profile

Profile Wizard Step 3 of 4

Please enter the APN. If you don't know the APN, please contact your service provider.

APN: internet.com

Profile Wizard Step 4 of 4

FINISHED! Press the SAVE button to create this profile. Otherwise, click the CANCEL button to exit without saving. Your profile contains default values based on the carrier's specifications. If you need to modify any of the default values, please select your new profile in the Profile Selector screen, and click EDIT (NOT RECOMMENDED for normal use).

9. After saving your profile, select it and click on the **CONNECT** button. See Figure 29

FIGURE 29

10. While connecting you will see Figure 30
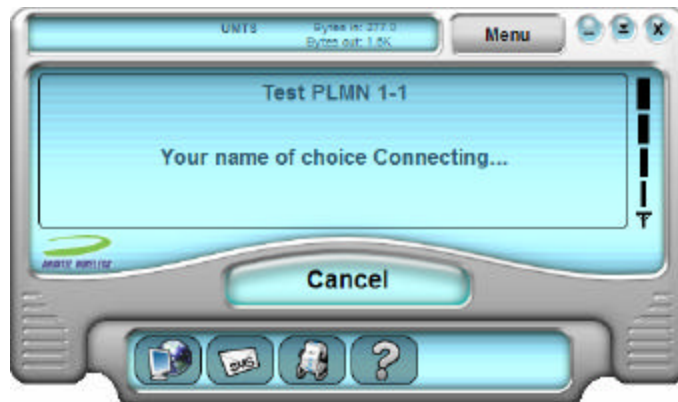
FIGURE 30

11. Once connected to the network you will see Figure 31
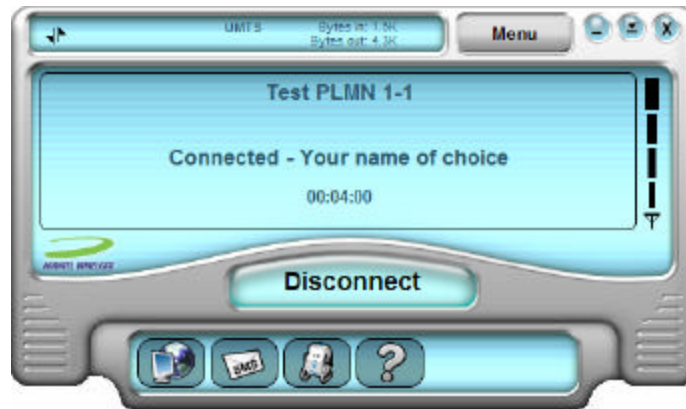
FIGURE 31

12. To disconnect from the network click on the **DISCONNECT** button. See Figure 32
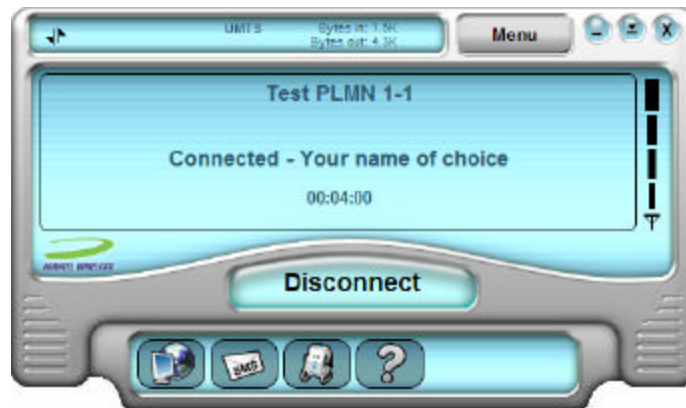
FIGURE 32

3   SENDING AND RECEIVING SMS MESSAGES

In This Section

- What is SMS
- Use The SMS client in MobiLink to send SMS messages
- Use the SMS client in MobiLink to read messages

This section will assist you in using the Short Messaging System client in MobiLink

3.1 WHAT IS SMS

Short Message Service (SMS) is the transmission of short text messages to and from mobile devices. Messages cannot be longer than 160 alpha-numeric characters and cannot contain any images or graphics.
To send or receive an SMS message you only have to be attached to the Network. You may also send and receive SMS messages while connected to the Network

NOTE: ANY SMS MESSAGES WILL BE SUBJECT TO THE TERMS AND AGREEMENTS OF YOUR SERVICE WIRELESS PROVIDER. THIS MEANS THE SENDING OF SMS MESSAGES MAY BE CHARGED AN ADDITIONAL FEE BY YOUR WIRELESS PROVIDER

NOTE: THE SMS CLIENT ICON WILL ONLY BECOME ACTIVE ONCE YOU ARE ATTACHED TO THE NETWORK. ATTACHED TO NETWORK: YOU CANNOT TRANSFER DATA CONNECTED TO NETWORK: YOU CAN TRANSFER DATA (BROWSE INTERNET, CHECK EMAIL ETC...)

3.1.1 MobiLink's SMS Window

List of SMS messages

Organizational folders for SMS

Selected SMS messages
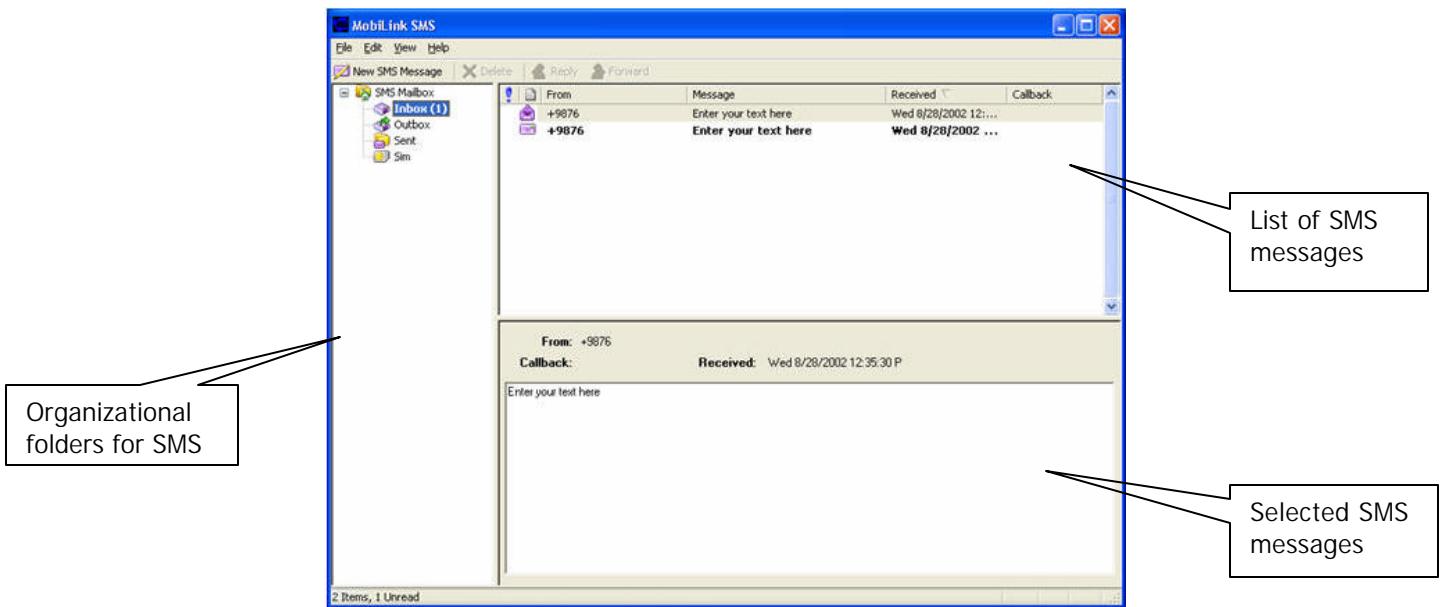
FIGURE 33

MobiLink SMS Toolbar Description

New SMS Message: Creates a new message
Delete: Deletes the selected SMS message(s)
Reply: Copies the sender field to a new message
Forward   Copies the message contents to a new message

SMS Mailbox Description

Inbox: contains received messages
Outbox: is a temporary storage place for messages waiting to be sent
Sent: stores the SMS messages that have been sent

3.1.2 Sending SMS Messages

1. Start MobiLink by Double-clicking on the MobiLink icon , located on your desktop.

2. After MobiLink initializes your UMTS Merlin, it searches for a Network and attempts to attach to the Network. If the attach process is successful you will see Figure 34
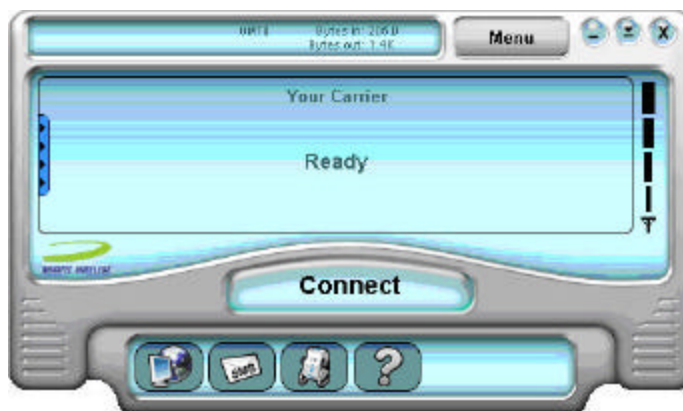
FIGURE 34

3. At this point you have successfully attached to the Network and will be able to send and receive SMS messages. Also, the SMS client icon will now be active

NOTE: AT THIS POINT YOU WILL NOT BE ABLE TO SEND OR RECEIVE DATA (BROWSE WEB OR CHECK EMAILS) UNLESS YOU CONNECT TO THE NETWORK BY CLICKING THE CONNECT BUTTON

4. Click on the SMS client icon (lower pane second icon from left) and the MobiLink SMS window will appear. See Figure 33 above.

5. Click on the New SMS Message button on the MobiLink SMS Window toolbar. Figure 35 below will appear.

6. In the **To** box, type the phone number of each recipient, separating names with a semicolon (;). To add phone numbers from the Address Book, click the To button and then select the phone number.

7. Type your message, and then click **Send** on the toolbar

NOTE: WHEN YOU SEND A NEW MESSAGE OR REPLY TO A MESSAGE, YOU CAN ASSIGN THE MESSAGE A PRIORITY SO THE RECIPIENT KNOWS IF THE MESSAGE IS EITHER AN EMERGENCY OR URGENT MESSAGE. IN THE COMPOSE MESSAGE WINDOW, CLICK THE EMERGENCY OR URGENT BUTTON ON THE TOOLBAR
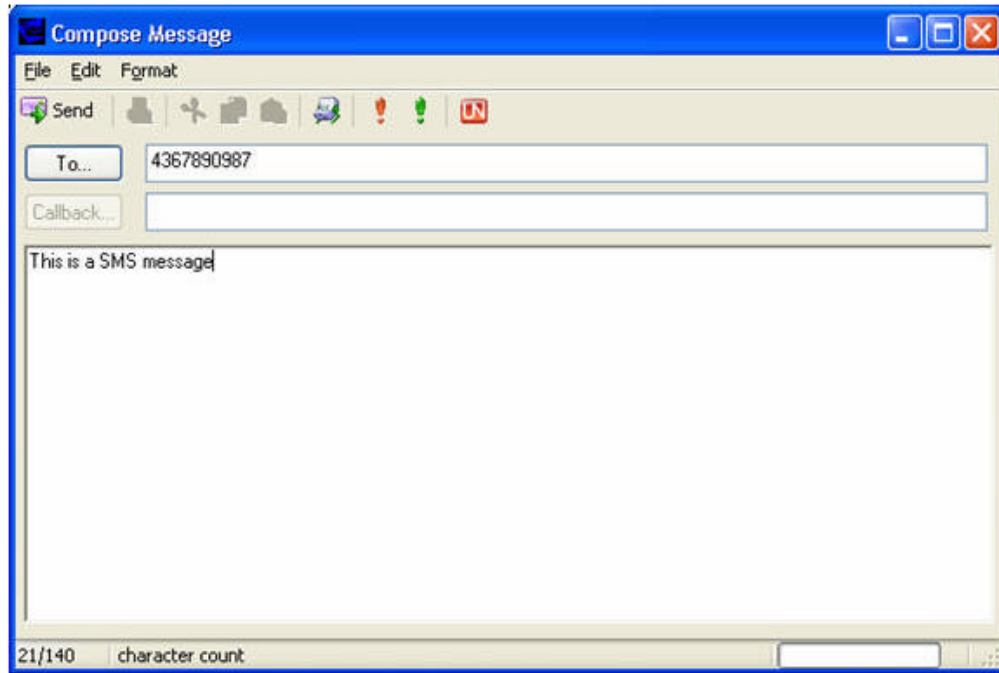
3.1.3 Receiving and Reading SMS Messages

Once you are attached to the Network (See figure 34), you are able to receive SMS messages.   MobiLink will notify you when you receive an SMS message. You will see figure 36.
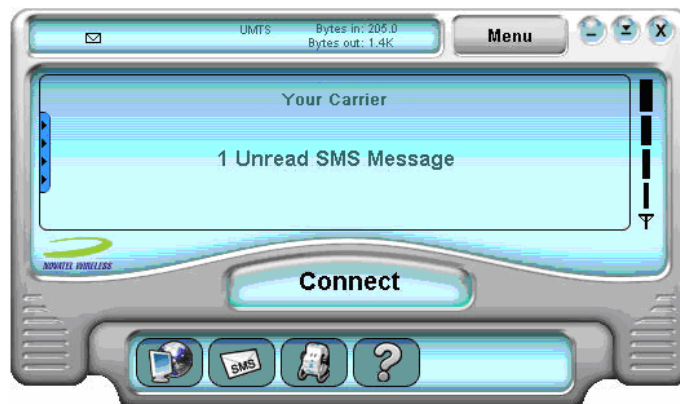
FIGURE 36

If you are **connected** to the Network, all you have to do is move your mouse cursor on the **envelope icon** in the icon display window (top pane MobiLink's window) and it will indicate if you have a message.

After the SMS Client receives your messages you can read messages by selecting the SMS client icon (lower pane second icon from left) MobiLink's SMS window will appear. See Figure 33 above.

1. Click the **Inbox** icon in the Folders list.
2. To view the message in the lower pane, click the **message** in the message list.

You may also view messages from the **Outbox** and **Sent** folders.

4 DETERMINE MERLIN STATES

In This Section

- Determine the current state of your UMTS Merlin, by interpreting the cadence (flashing sequence) and colour of the Light Emitting Diode

----

The Light Emitting Diode (LED) is a device that lights up when power is applied to it. Interpreting the LED's flashing sequence and color, will provide you with the current state of your UMTS Merlin. See Table 1 below.

Cadence (flashing sequence)	LED Display	Merlin State	Cause	Remedy
(1/4sec) 250ms ON (1/4sec) 250ms OFF	RED	Merlin trying to read SIM	The modem is unable to read the SIM. An error has occurred in the modem firmware.	See Section 5, Problem 5
ON (Not flashing)	RED	Merlin Searching for wireless service	The Merlin is not receiving a signal from the wireless network	See Section 5, Problem 6
(1/4sec) 250ms ON (1 3/4sec) 1750ms OFF	BLUE	Your Merlin is currently receiving a UMTS circuit switched (CS) signal from the network and has registered on the circuit switched (CS) domain		
(1/4sec) 250ms ON (1/4sec) 250ms OFF (1/4sec) 250ms ON (1 3/4sec) 1750ms OFF	BLUE	Your Merlin is currently receiving a UMTS packet switched (PS) signal from the network and has registered on the packet switched (PS) domain (also CS i.e PS or PS+CS)		
ON (Not flashing)	BLUE	Your Merlin is currently PDP context activated on the UMTS system.		
(1/4sec) 250ms ON (1 3/4sec) 1750ms OFF	GREEN	Your Merlin is currently receiving a GSM circuit switched (CS) signal from the network and has registered on the GSM circuit switched (CS) domain		
(1/4sec) 250ms ON (1/4sec) 250ms OFF (1/4sec) 250ms ON (1 3/4sec) 1750ms OFF	GREEN	Your Merlin is currently receiving a GSM/GPRS packet switched (PS) signal from the network and has registered on the GSM/GPRS packet switched (PS) domain. (also CS i.e PS or CS)		
ON (Not flashing)	GREEN	Your Merlin is currently PDP (Packet Data Protocol) context activated on the GSM/GPRS system		

NOTE: WHEN THE MODEM TRANSITIONS FROM ONE STATE TO ANOTHER, THE ACTUAL LED DISPLAY WILL NOT CHANGE IMMEDIATELY, RATHER, IT WILL ONLY CHANGE ONCE THE MODEM HAS CONFIRMED THAT THE NEW STATE IS VALID. FOR EXAMPLE, WHEN THE MODEM IS TAKEN OUT OF A SERVICE AREA IT MIGHT TAKE THE MODEM 10 TO 90 SECONDS TO CONFIRM THAT NO SERVICE IS AVAILABLE ATWHICH TIME THE LED DISPLAY WILL CHANGE STATES ACCORDINGLY.

PDP (Packet Data Protocol) Context Activation Process: To connect to a PDN (Packet Data Network), such as the Internet, some sort of session description information needs to exist (i.e. type of IP network, quality of service, IP address etc…) to enable agreement on the characteristics of any data flow between the network and the mobile terminal. This is essentially, what PDP 'context' activation is.

Circuit Switched (CS) Data connection is basically similar to a land line modem dial up call. A dedicated connection is set up for the duration of the call regardless of whether data is transferred or not.

A Packet Switched (PS) Data connection is typically set up once. Within packet-switched networks, data is divided (disassembled and packaged) into packets before it is sent. Packets are routed through the networks based on a destination address contained within each packet. Once all the packets arrive at their respective destinations the data is recompiled (unpacked and assembled). There is no need to re-establish the connection before each transmission.

5 TROUBLESHOOTING

In This Section

- Troubleshooting common problems

This section will assist you in resolving common problems that might arise during installation or connecting to the network

Problem 1: Cannot install MobiLink
Problem 2: When I run the MobiLink software, I get the message "No Card Detected" what does this mean?
Problem 3: When I insert the modem, I get "Unknown_PCMCIA_Manufacturer" instead of "Novatel_Wireless Merlin_UMTS_Modem
Problem 4: When I run the MobiLink software, I get the message "SIM not Found – Check Orientation?"
Problem 5: Modem cannot read SIM. LED Flashing RED
Problem 6: When I run MobiLink software, the Window "searching for network" is displayed continuously
Problem 7: Cannot browse the Web

1.1 CANNOT INSTALL MOBILINK

POSSIBLE CAUSE: YOU DON'T HAVE ADMINISTRATIVE PRIVILEGES

RESOLUTION:

Windows 2000 and XP

1. Talk to your system administrator if applicable
2. Log onto your computer as an administrator, or create an user account with administrator privileges

1.2 PROBLEM: WHEN I RUN THE MOBILINK SOFTWARE, I GET THE MESSAGE "NO CARD DETECTED"

POSSIBLE CAUSES: YOU HAVE NOT INSERTED YOUR UMTS MERLIN PROPERLY INTO THE PC CARD SLOT OF YOUR PC, OR WINDOWS DID NOT INSTALL THE DRIVERS CORRECTLY, OR YOU MIGHT HAVE A CONFLICT.

RESOLUTION:

For Windows 2000 and XP

1. Remove Card, reboot PC and try again or go to step 2
2. Insert your Novatel Wireless UMTS U630 modem into your PC CARD slot to install the drivers onto your computer. If you have already done so and still receive this error then you must check to see if the drivers have been installed properly.
3. Right click **My Computer Icon** (for Windows 2000 this is usually on the desktop, and for Windows XP this is usually in the Start menu) > **Manage** --- See Window 1
4. Select **Device Manager** --- See Window 2
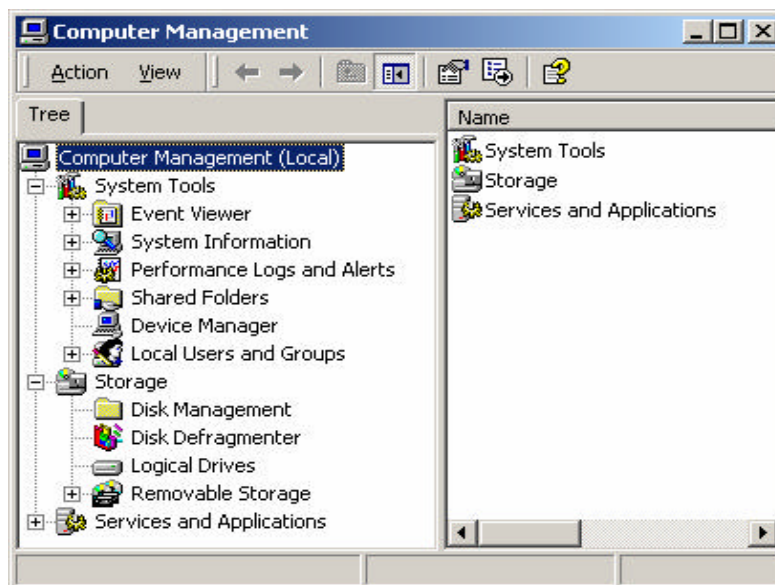
WINDOW 1
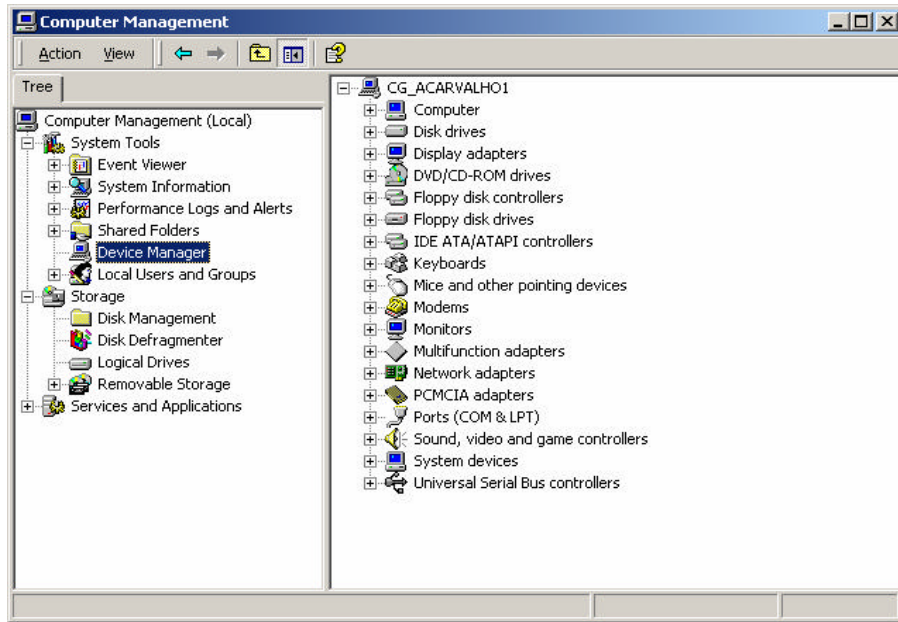
WINDOW 2

5. Expand Modems, Multifunction Adapter and Ports category by clicking on the + sign. See Window 3
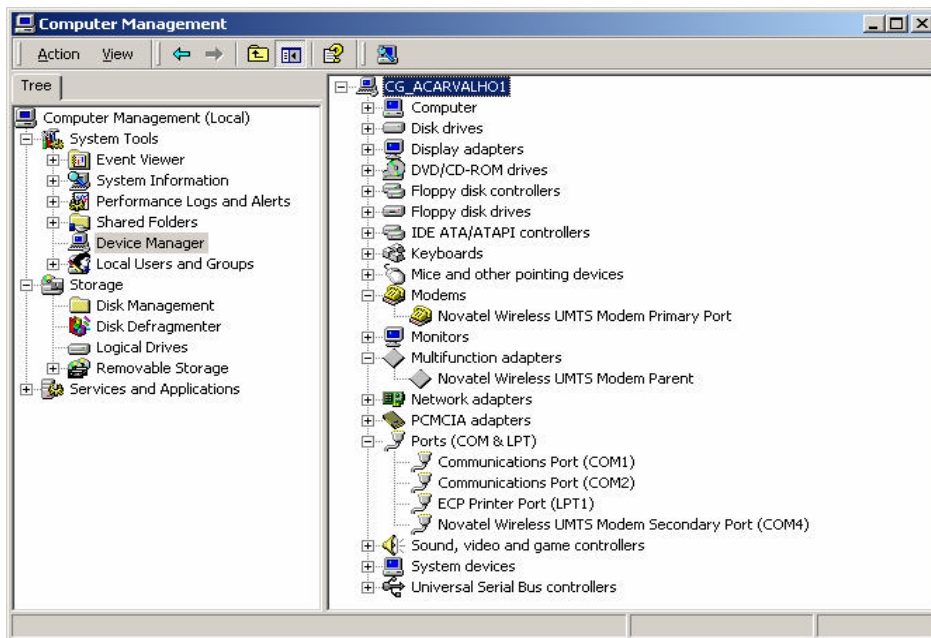
WINDOW 3

6. Check and see if you have a yellow exclamation mark or red X on any device. If you do, try the following.

   - Reboot your PC or
   - Uninstall and reinstall the drivers (Do not have the Merlin plugged in when reinstalling)

To Uninstall follow these steps. For Windows 2000 and XP

1. Go to **Start** > **settings** > **control panel** > **Add or remove programs** > Select **MobiLinK** and click **Remove**. Make sure your modem is plugged in while uninstalling. (See Windows help if necessary)
2. Remove the modem from the PC slot
3. Reboot and reinstall. Go to Section 1.1.7 Installing MobiLink.

1.3   PROBLEM: WHEN I INSERT THE MODEM, I GET UNKNOWN_PCMCIA_MANUFACTURER" INSTEAD OF "NOVATEL_ WIRELESS MERLIN_UMTS_MODEM

POSSIBLE CAUSE: HARDWARE FAILURE INSIDE THE MODEM

RESOLUTION: REPLACE MODEM

1.4   PROBLEM: WHEN I RUN THE MOBILINK SOFTWARE, I GET THE MESSAGE "SIM NOT FOUND – CHECK ORIENTATION

POSSIBLE CAUSE: PROBLEM WITH YOUR SIM CARD.

RESOLUTION:

1. Make sure you have inserted the SIM card exactly as the picture in this manual, or on the back of Merlin or Quick Start Guide, noting the location and orientation of the bevel corner
2. Make sure the contacts of the SIM card are clean

1.5   PROBLEM: MODEM CANNOT READ SIM. LED FLASHING RED

POSSIBLE CAUSE: SIM LOCKED OR SIM SELF DESTRUCTED

RESOLUTION

1. Enter in your PIN as required. See Section 2.1.4 Creating a data session
2. Contact your Service Provider if you entered your PIN number incorrectly 3 times. You will require a PUK code.
3. If you enter the PUK code incorrectly 3 times, the SIM is designed to self destruct. You will have to be issued a new SIM. Contact your Service Provider.
4. Depending on where you purchased your Modem, the Modem could have a Service Provider Lock (SIMLOCK) which ties the modem to a particular set of SIMs. Please contact the Service Provider to unlock the Modem.

1.6 PROBLEM: WHEN I RUN MOBILINK SOFTWARE, THE WINDOW "SEARCHING FOR NETWORK" WILL BE DISPLAYED CONTINUOUSLY

POSSIBLE CAUSE: OUT OF UMTS COVERAGE AREA

RESOLUTION: RELOCATE TO AN AREA OF COVERAGE. CONTACT YOUR SERVICE PROVIDER FOR DETAILS OF THEIR COVERAGE AREAS.

1.7 PROBLEM: CANNOT BROWSE THE WEB

POSSIBLE CAUSE 1: INCORRECT USER NAME, PASSWORD OR ACCESS POINT NAME (APN).

RESOLUTION 1: CHECK YOUR PROFILE FOR AN INCORRECT ENTRY OF THE ABOVE PARAMETERS. RE-ENTER THE PARAMETERS OR CONTACT YOUR SERVICE PROVIDER IF NECESSARY TO CONFIRM.

POSSIBLE CAUSE 2: NO IP ADDRESS

RESOLUTION 2:
IF YOU ARE CERTAIN THAT, THE USER NAME, PASSWORD AND ACCESS POINT NAME ARE CORRECT, CHECK TO SEE IF YOU ARE GETTING AN IP ADDRESS.

Windows 2000 and XP

1. Click **Start** > **Run** and type in **Command** in the Run Window

2. A DOS window should open. See Window 4
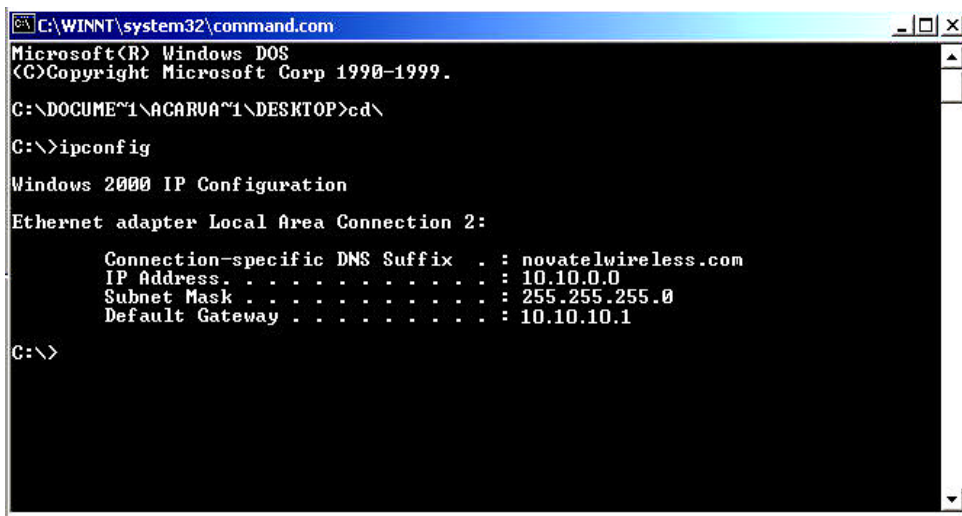
WINDOW 4

3. Type in **cd** and hit enter this will get you to the root directory

4. Type in **ipconfig** and hit enter.   You should have an IP address. If you don't have an IP address, please contact your Service Provider.

POSSIBLE CAUSE 3: INCORRECT SERVER SETTINGS

RESOLUTION 3:

1. In Internet Explorer go to **Tools** > **Internet Options** > **Connections**
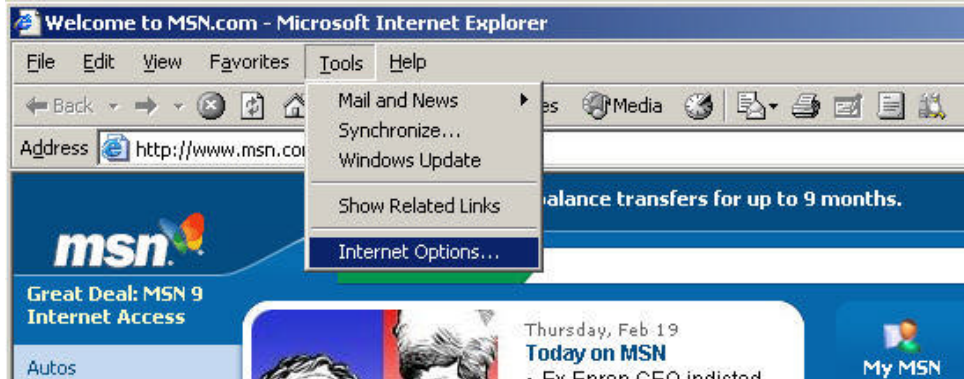
2. In Dial Up and Virtual Private Network Setting double click on 3G Connection – See Window
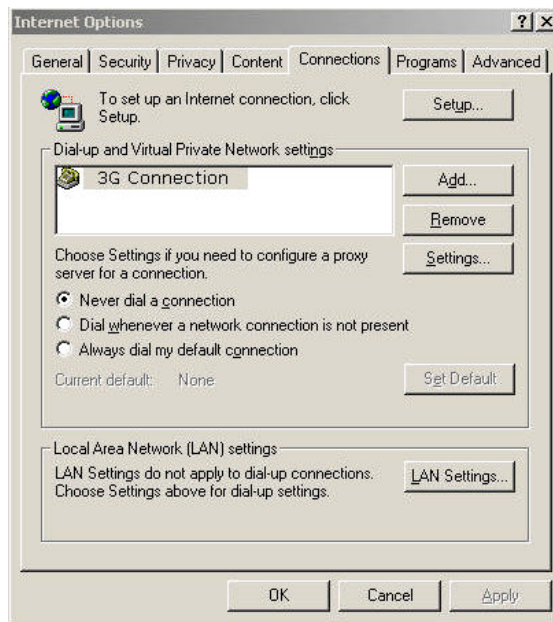
WINDOW 5

3. Check appropriate boxes if you are using a proxy server. See Window 6
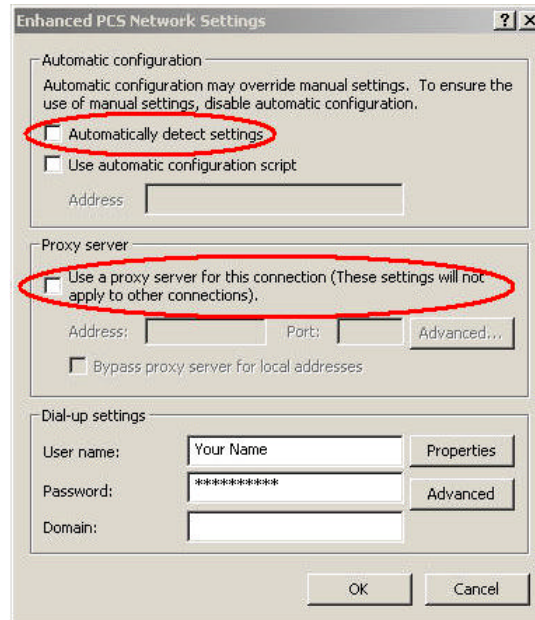
FIGURE 6

POSSIBLE CAUSE 4: DNS SERVER PROBLEMS

RESOLUTION 4:

Windows 2000 and XP

1. Click **Start** > **Run** and type in **Command** in the Run Window

2. A DOS window should open. See Window 7
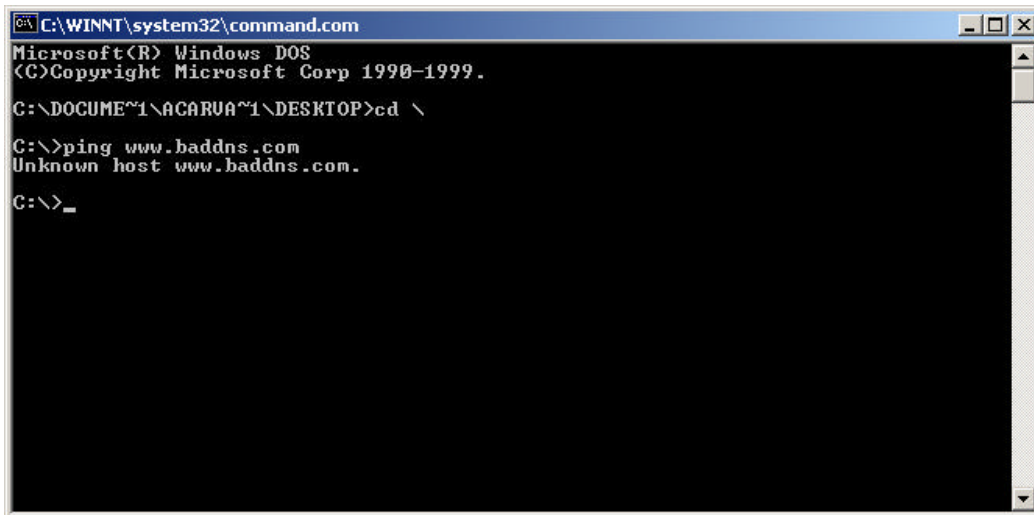
WINDOW 7

3. At the C prompt type in PING www.nvtl.com

    - Response: Unknown host www.nvtl.com --- Usually faulty DNS. Call your Network Provider
    - Response: Pinging nvtl.com [216.65.221.49] with 32 bytes of data. DNS ok even if you don't get reply.

6 PRODUCT SPECIFICATION

In This Section

- Technical and Environmental Specifications

6.1 TECHNICAL SPECIFICATION

This section outlines the technical and environmental specifications of your Merlin U630

Name:	Merlin U630
Model:	NRM–U630
Approvals:	CE Mark (Europe), FCC (North America)
Dimensions:	120.6 x 54 x 10.8 mm
Wireless Network – Dual Mode:	UMTS and GPRS
PC Card Standard:	Type II PC Card 5V

TABLE 1

Technology:	WCDMA (FDD)
Band Designation:	UMTS
Transmit Band:	1920MHz – 1980MHz
Receive Band:	2110MHz – 2170MHz
Power Output – Transmit Power:	Class 3 (+24dBm)

TABLE 2

Technology:	GPRS
Band Designation:	E-GSM
Multi Class	MS-10 (maximum: 4 RX, 2 TX, 5 slots)
Transmit Band:	880MHz – 915MHz
Receive Band:	925MHz – 960MHz
Power Output – Transmit Power:	Class 4 (+33dBm)
Band Designation	DCS
Transmit Band	1710MHz – 1785MHz
Receive Band	1805MHz – 1880MHz
Power Output – Transmit Power:	Class 1 (+30dBm)
Band Designation	PCS
Transmit Band	1850MHz – 1910MHz
Receive Band	1930MHz- 1990MHz
Power Output – Transmit Power:	Class 1 (+30dBm)

TABLE 3

6.1.1 Environmental Specifications

Operating Temperature	0° Celsius to+55° Celsius
Storage Temperature	-20° Celsius to +65° Celsius
Relative Humidity	95% maximum – Non Condensing
Vibration	147 m/s^2 (15Gpeak) 10hz-2000hz

7 SAFETY AND REGULATIONS

In This Section

- Wireless Communication
- Safety and Hazards
- Regulatory Information

7.1 WIRELESS COMMUNICATIONS

IMPORTANT NOTICE

Due to the transmission and reception properties of wireless communications, data can occasionally be lost or delayed. This can be due to the variation in radio signal strength that results from changes in the characteristics of the radio transmission path. Although data loss is rare, the environment where you operate the modem may adversely affect communications.

Variations in radio signal strength are referred to as fading. Fading is caused by several different factors including signal reflection, the ionosphere, and interference from other radio channels.

Novatel Wireless or its partners will not be held responsible for damages of any kind resulting from the delays or errors in data transmitted or received with the Merlin U630, or failure of the Merlin U630 to transmit or receive such data.

7.2 SAFETY HAZARDS

Do not operate the Merlin U630 in an environment that may be susceptible to radio interference resulting in danger specifically;

➢ Areas where prohibited by the law
  o Follow any special rules and regulations and obey all signs and notices. Always turn off the host device and remove the modem from the card slot when instructed to do so, or when you suspect that it may cause interference or danger.

➢ Where explosive atmospheres may be present
  o Do not operate your modem in any area where a potentially explosive atmosphere may exist. Sparks in such areas could cause an explosion or fire resulting in bodily injury or even death. Be aware and comply with all signs and instructions.

  o Users are advised not to operate the modem while at a refueling point or service station. Users are reminded to observe restrictions on the use of radio equipment in fuel depots (fuel storage and distribution areas), chemical plants or where blasting operations are in progress.

  o Areas with a potentially explosive atmosphere are often but not always clearly marked. Potential locations can include gas stations, below deck on boats, chemical transfer or storage facilities, vehicles using liquefied petroleum gas (such as propane or butane), 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 vehicle engine.

➢ Near Medical and life support equipment
  o Do not operate your modem in any area where medical equipment, life support equipment, or near any equipment that may be susceptible to any form of radio interference. In such areas, the host communications device must be turned off. The modem may transmit signals that could interfere with this equipment.

➢ On an aircraft, either on the ground or airborne
  o In addition to FAA requirements, many airline regulations state that you must suspend wireless operations before boarding an airplane. Please ensure that the host device is turned off and your modem is removed from the card slot prior to boarding aircraft in order to comply with these regulations. The modem can transmit signals that could interfere with various onboard systems and controls.

➢ While operating a vehicle
  o The driver or operator of any vehicle should not operate a wireless data device while in control of a vehicle. Doing so will detract from the driver or operator's control and operation of that vehicle. In some countries, operating such communications devices while in control of a vehicle is an offence.

➢ Electrostatic Discharge (ESD)
  o Electrical and electronic devices are sensitive to electrostatic discharge (ESD). The MobiLink software will attempt to re-initialize the device should a substantial electrostatic discharge reset the device. If the software is not operational after an ESD occurance, then restart MobiLink. See section 2.1.4.

7.3 REGULATORY NOTICES

This device has been tested to and conforms to the regulatory requirements of the European Union and has attained CE Marking. The CE Mark is a conformity marking consisting of the letters "CE". The CE Mark applies to products regulated by certain European health, safety and environmental protection legislation. The CE Mark is obligatory for products it applies to: the manufacturer affixes the marking in order to be allowed to sell his product in the European market.
The CE Marking is not a quality-mark. Foremost, it refers to the safety rather than to the quality of a product. Secondly, CE Marking is mandatory for the product it applies to, whereas most quality markings are voluntary. The product conforms to the essential requirements of the R&TTE directive 1999/5/EC in order to attain CE Marking. The applicable sections of the following standards are used to demonstrate compliance to this requirement.

R&TTE REQUIREMENT	DESCIPLINE	APPLIED STANDARD
Article 3.1(a)	Health	ICNIRP 1998 European Council Rec. 1999/519 EC
Article 3.1(a)	Safety	IEC 60950-1
Article 3.1(b)	EMC	EN 301 489-1 EN 301 489-7 EN 301 489-24
Article 3.2	Spectrum	EN 301 511 EN 301 908-1 EN 301 908-2

ICNRP 1998
International Commission on Non-Ionizing Radiation Protection

ETSI EN 60950
Safety of Information Technology Equipment

ETSI EN 301 489-01
Electromagnetic compatibility and Radio Spectrum Matters (ERM) Electromagnetic Compatibility (EMC) standard for radio equipment and services.
Part 1: Common Technical requirements

ETSI EN 301 489-07
Electromagnetic compatibility and Radio Spectrum Matters (ERM) ElectroMagnetic Compatibility (EMC) standard for radio equipment and services.
Part 7: Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS)

ETSI EN 301 489-24
Electromagnetic compatibility and Radio Spectrum Matters (ERM) ElectroMagnetic Compatibility (EMC) standard for radio equipment and services.
Part 24: Specific conditions for IMT-2000 CDMA Direct Spread (URTA) for Mobile and portable radio and ancillary equipment.

ETSI EN 301 511
Global System for Mobile communications (GSM):
Harmonized EN for mobile stations in the GSM 900 and GSM1800 bands covering essential requirements under article 3.2 of the R&TTE directive (1999/5/ED)

ETSI EN 301 908-01
Electromagnetic compatibility and Radio Spectrum Matters (ERM) Base Stations (BS) and User Equipment (UE) for IMT-2000 Third-Generation cellular networks.

ETSI EN 301 908-02
Electromagnetic compatibility and Radio Spectrum Matters (ERM) Base Stations (BS) and User Equipment (UE) for IMT-2000 Third-Generation cellular networks.
Part 2: Harmonized EN for IMT-2000,
CDMA Direct Spread (UTRA FDD) (UE) covering essential requirements of article 3.2 of the R&TTE Directive

7.4 REGULATORY NOTICES

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:

1. This device may not cause harmful interference.

2. 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 MERLIN PC CARD MODEM OEM 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.

NOTE: The Radio Frequency (RF) emitter installed in your modem must not be located or operated in conjunction with any other antenna or transmitter.

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.

7.5 REGULATORY NOTICES

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

FCC Equipment Authorization ID: **NBZNRM-U630**

Your wireless modem is a radio transmitter and receiver. It is designed and manufactured not to exceed the exposure limits for radio frequency (RF) energy set by the Federal Communications Commission (FCC) of the U.S. Government. These limits are part of comprehensive guidelines and establish permitted levels of RF energy for the general population. The guidelines are based on standards that were developed by independent scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons, regardless of age and health.

The exposure standard for wireless devices including mobile phones and wireless modems uses a unit of measurement known as the Specific Absorption Rate, or SAR. Tests for SAR are conducted using standard operating positions reviewed by the FCC with the device under test transmitting at its highest certified power level in all frequency bands. Although the SAR is determined at the highest certified power level, the actual SAR level of the phone or modem while operating can be well below the maximum value. This is because the phone or modem is designed to operate at multiple power levels so as to use only the power required to reach the network. In general, the closer you are to a wireless base station antenna, the lower the power output.

Before this device is made available for sale to the public, it must be tested and certified to the FCC that it does not exceed the limit established by the government-adopted requirement for safe exposure. The tests are performed in positions and locations (for example, at the ear or worn on the body) as required by the FCC for each model.
The FCC has granted an Equipment Authorization for this wireless modem with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. The highest SAR value for this modem when tested for compliance against FCC standards was 0.255mW/g

8 APPENDIX

External Antenna to be determined

9 DOCUMENT CONTROL

REVISION CONTROL

Revision Number	Revision History
Rev A	Draft