Kinpo Electronics, Inc.

Apollo 2 ADSL Network Modem
Model No.: A200A(A2)

Installation Manual

Version : E1
Date : Oct. 22, 1999
Software: Itex

CONTENTS

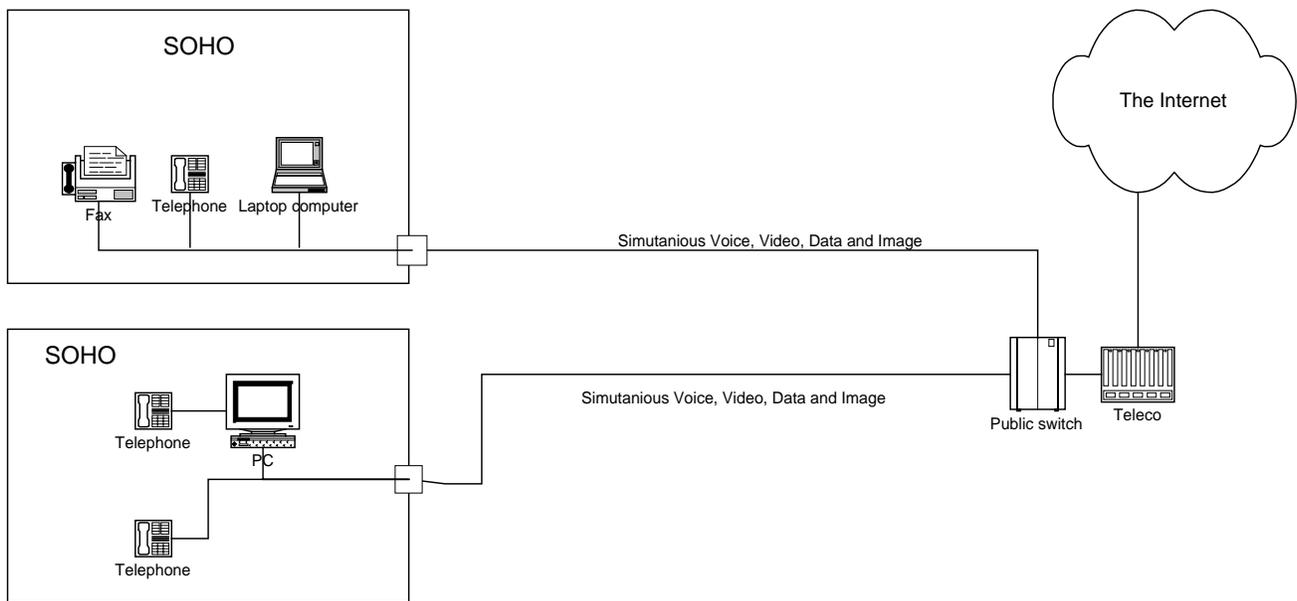**ABOUT THIS GUIDE**

1. INTRODUCTION

ADSL Network
This is a diagram showing how an ADSL network looks.

SOHO

Fax   Telephone Laptop computer

Simutanious Voice, Video, Data and Image

The Internet

SOHO

Telephone

PC

Telephone

Simutanious Voice, Video, Data and Image

Public switch   Teleco

System Requirement

The following equipment and information is required (at a minimum) to setup your ADSL network modem.

[PC system requirement]
1. IBM PC and it's compatibles with Pentium 100MHz CPU speed
2. 32Mbyte main memory and 10 Mbytes hard disk space
3. Microsoft Windows 98 (installation CD ready)

[ADSL network]
1. Subscribe to an ADSL service from your local telephone company or have access to an ADSL DSLAM.
2. An IP address, gateway and DNS numbers from your telephone company (for ADSL network configuration) or network administrator.
3. A VCI and VPI values from your telephone company (for ADSL network configuration) or network administrator.

Before you start:

```
+-------------------------------------------+
|        ITeX ADSL Network Modem            |
|   Installation and Configuration Flow Chart |
+-------------------------------------------+
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(Step 1) Insert ADSL Network Modem Card (NMC) → (Step 2) Connect NMC to ADSL Network

(Step 3) Installing Device Driver and Diagnostic Program

(Step 4) Reboot

(Step 5) Verifying the Device Driver Installation
— No → Troubleshooting (TBS xx.xx)
— Yes ↓

(Step 6) Configuring the ADSL Network
(1)TCP/IP
(2) Gateway
(3) DNS

(Step 7) Reboot

Step 8 Activating the Apollo 2 ADSL Network Modem

(Step 9) Monitoring the Apollo 2 ADSL Network Modem

End

2. INSTALLING THE ADSL NETWORK MODEM BOARD

Before installing the ITeX ADSL Network Modem board, please make sure that the following minimum system requirements are met.
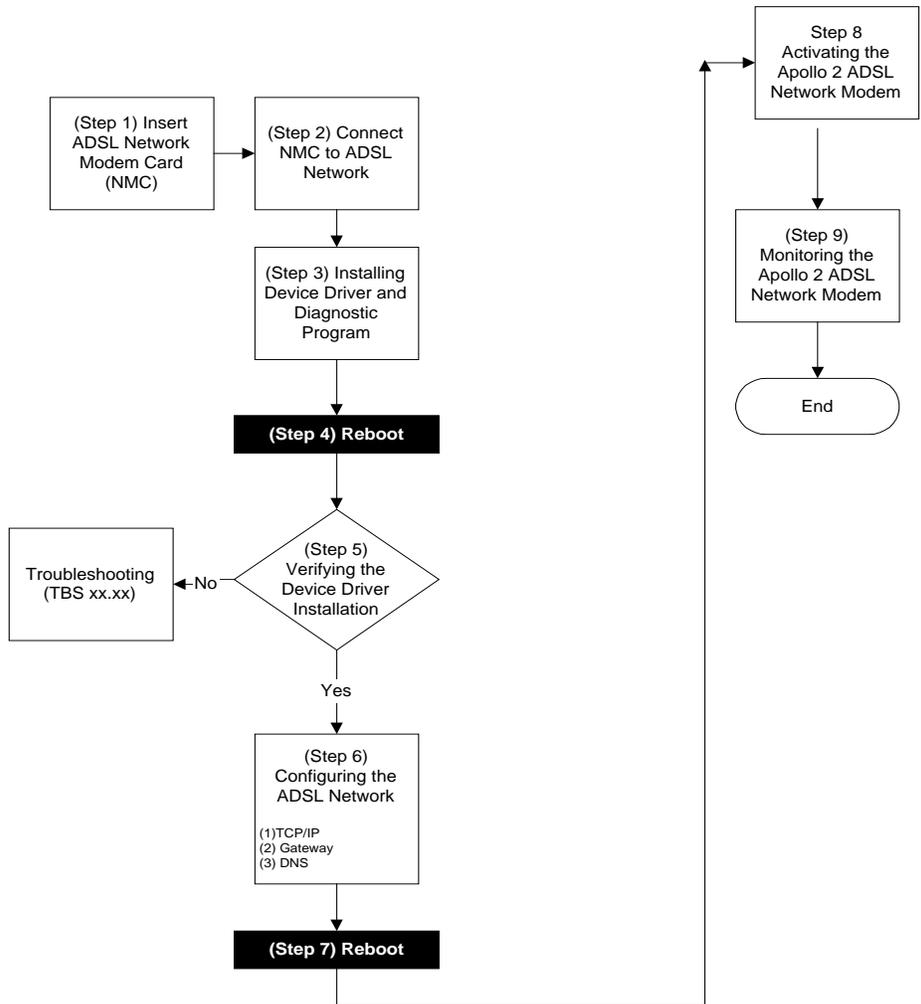
Minimum System Requirement
 [PC System Requirement]
1. IBM PC and its compatibles with Pentium 100MHz CPU speed
2. 32MB main memory and 10MB hard disk space
3. Microsoft Windows 98 (Installation CD)

[ADSL Network Subscription]
1. Subscribe to an ADSL service from your local telephone company or service provider or have access to an ADSL DSLAM.
2. An IP address, gateway and DNS numbers from the telephone company (for ADSL network configuration) or from your network administrator.
3. A VCI and VPI value from your telephone company (for ADSL network configuration) or network administrator.

Before installing the ITeX ADSL Network Modem, please make sure that the power to the computer is turned off. Remove the cover of the personal computer. Insert the ITeX ADSL Network Modem into one of the free PCI slots available. Consult your computer's manual for instructions on where to find the PCI slot. Make sure that the network modem is securely fastened into the computer.

Connect the ADSL phone line directly to the RJ-11 connector marked "L". If there is no marking, then connect the ADSL phone line to the top connector of the modem. Also, since the ITeX ADSL Network Modem comes equipped with an inline filter, you can attach a phone directly to the second RJ-11 jack.

3. INSTALLING THE APOLLO 2 DEVICE DRIVERS AND DIAGNOSTIC (ITeX ADSL A2 Test Application)

Please have the following information available in order to complete the installation and setup of the ITeX Apollo 2 ADSL Network Modem.

1. TCP/IP properties, this includes the PVC values (VPI and VCI), IP address, the gateway, and the domain name server. You will need this information to complete the configuration of the network modem card. Please contact your MIS manager for more information regarding the TCP/IP settings.
2. Windows 98 CD.

3.1 Windows 98

This installation guide will walk the user through the installation of the ITeX Apollo 2 ADSL Network Modem software drivers and help to configure the modem.

Windows will find the ITeX ADSL Network Modem and will search for a device driver for the card. Click Next.

The Add New Hardware Wizard window will appear. When prompted, select "search for the best driver for your device. (Recommended). Click "Next".


Insert the Apollo 2 ADSL Software Drivers CD into your CD-ROM drive and select the "Specify a location" option from the menu and type "Drive:\win95_98 or win98sec_2000 or nt4" (where drive is your CD-ROM drive). Click "Next".

Windows should find the NETITEX.INF file in the floppy disk drive. Click "Next" to continue.
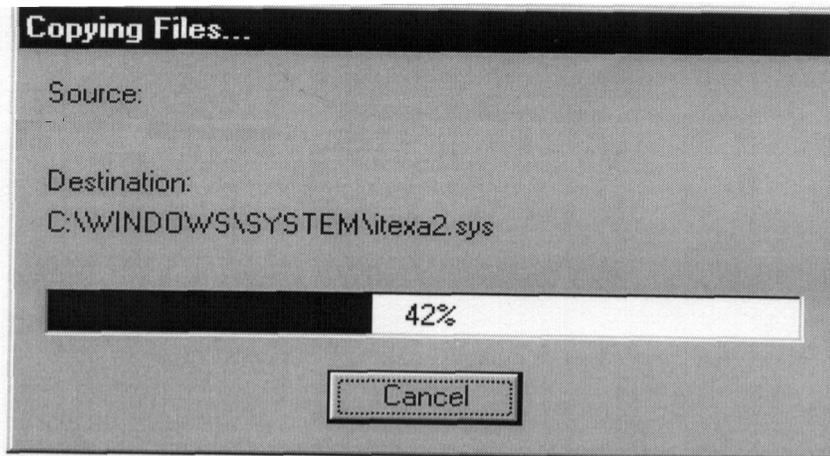
Windows will start to copy the drivers. Make sure that the Windows 98 CD is in the CD-ROM or that it is easily accessible.
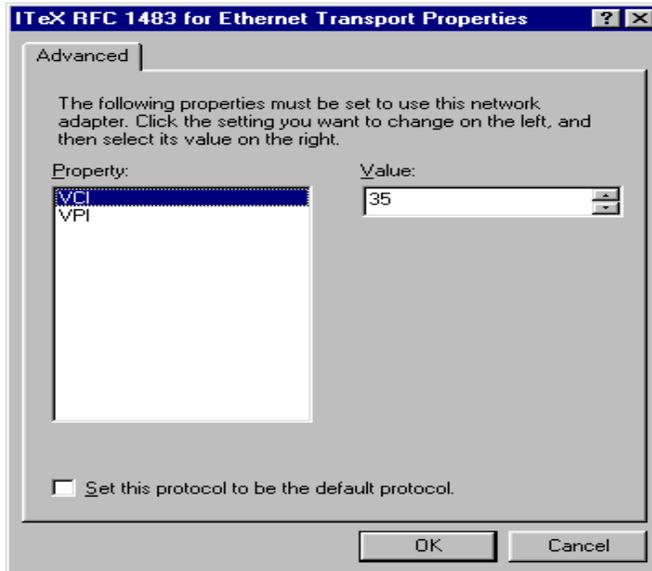
For RFC1483, the default PVC values are 8 and 35 for VPI and VCI respectively. If necessary, these values can be changed at this time.

Windows has finished installing all the ITeX ADSL Network Modem drivers. Click "Finish" to complete the installation.

Click "Yes" when prompted "Do you want to restart your computer now?"

3.2 INSTALLING THE APOLLO 2 MODEM ICON UTILITY

Note: The Apollo 2 modem icon utility is provided as a tool to monitor and test the Apollo 2 ADSL modem. Please refer to the User's Guide for more advanced information regarding this test application.

Windows will ask if you want to install the ITeX diagnostic software click **"Yes"** to continue. To install the software into the default folder, click **"Next".** Otherwise, click "Browse" to select a different folder. Click **"Next"** again to complete the installation. Select **"No"** when prompted if you want to restart your computer. Click **"OK".**

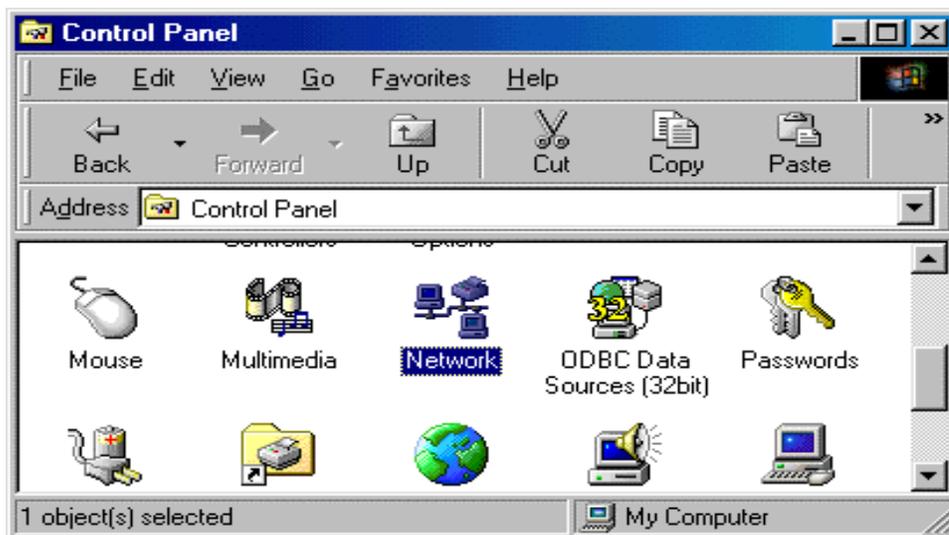## 4. Verifying the Driver Installation
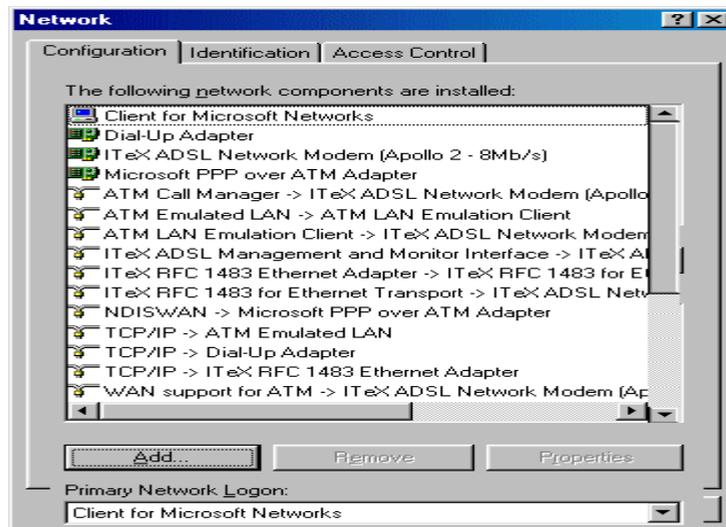
From the Start menu, select settings and open the control panel. Double click on the Network icon. Verify that the following network components were installed:

- ITeX ADSL Network Modem (Apollo 2 - 8MB/s)
- ATM Call Manager → ITeX ADSL Network Modem (Apollo 2 - 8MB/s)
- ATM Emulated LAN → ATM LAN Emulation Client
- ATM LAN Emulation Client→ITeX ADSL Network Modem(Apollo2-8MB/s)
- ITeX ADSL Management and Monitor Interface→ITeX ADSL Network Modem (Apollo 2 - 8MB/s)
- ITeX RFC1483 Ethernet Adapter → ITeX RFC1483 for Ethernet Transport
- ITeX RFC1483 for Ethernet Transport → ITeX ADSL Network Modem (Apollo 2 - 8MB/s)
- TCP/IP → ATM Emulated LAN
- TCP/IP → Dial up Adapter
- TCP/IP → ITeX ADSL Network Modem(Apollo2-8MB/s)
- TCP/IP → ITeX RFC1483 Ethernet Adapter

Click "Cancel" to close the Network window.
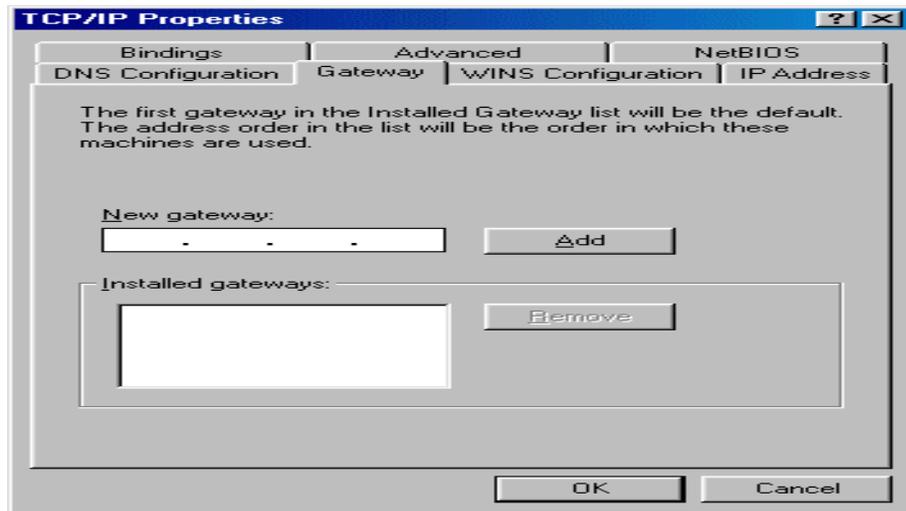

5. CONFIGURING THE ADSL NETWORK FOR RFC1483

From the Start menu, select settings and open the control panel. Double click on the Network icon. The Network window will appear.
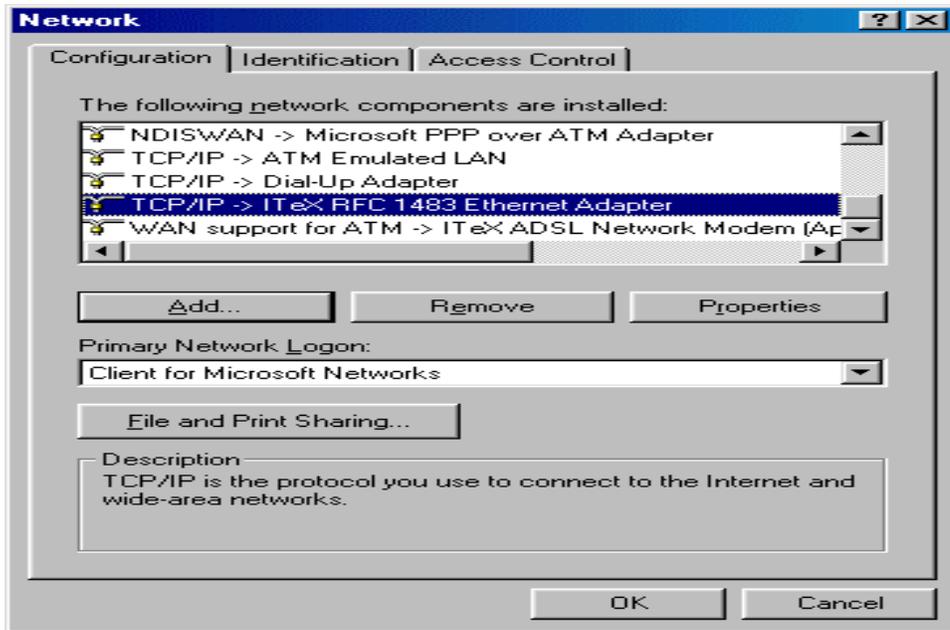
Select the Configuration tab and scroll through the installed network components list. Highlight the TCP/IP → ITeX RFC1483 Ethernet Adapter component and click "Properties". The TCP/IP Properties window will appear.
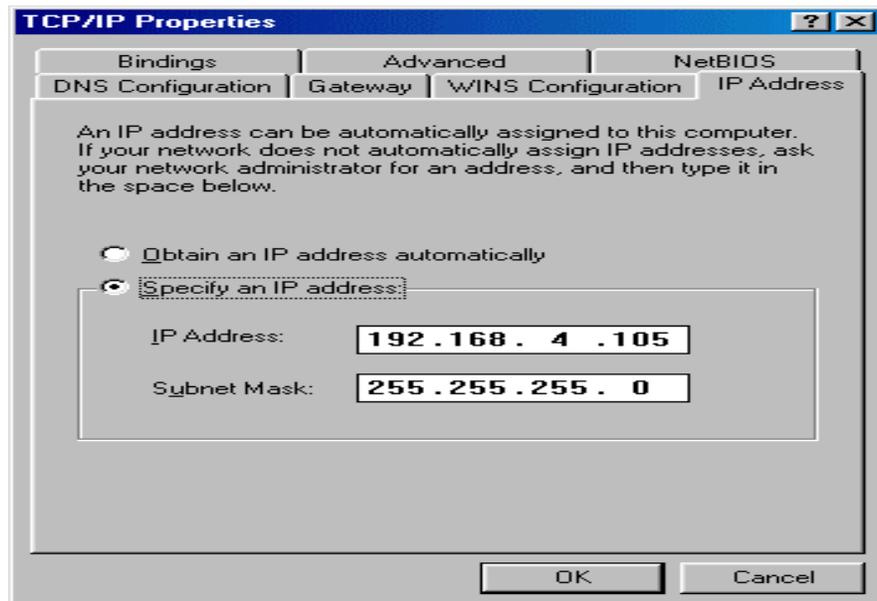
To setup the IP Address, select the IP Address tab and then select the "Specify an IP address" option. Enter the IP Address and Subnet Mask settings.

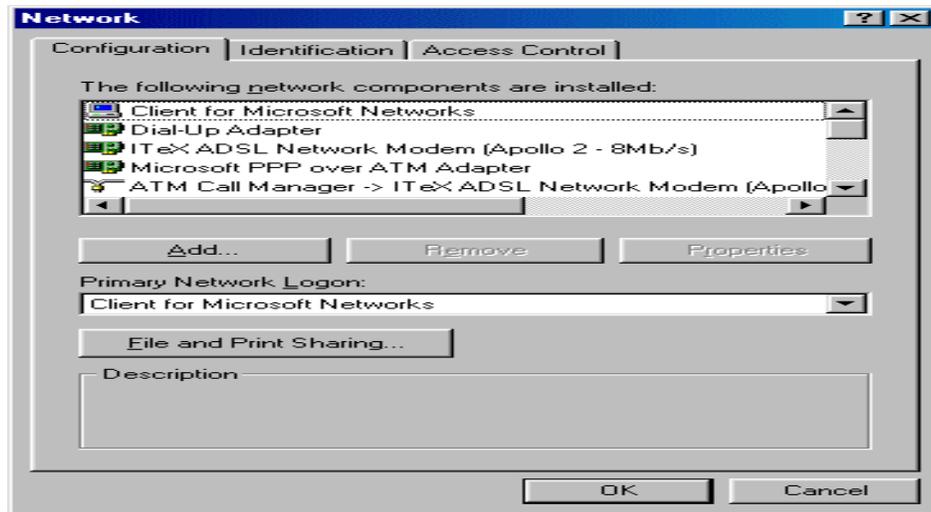To setup a new gateway, enter the setting in the new gateway section and click "Add". This will add the setting into the installed gateways.
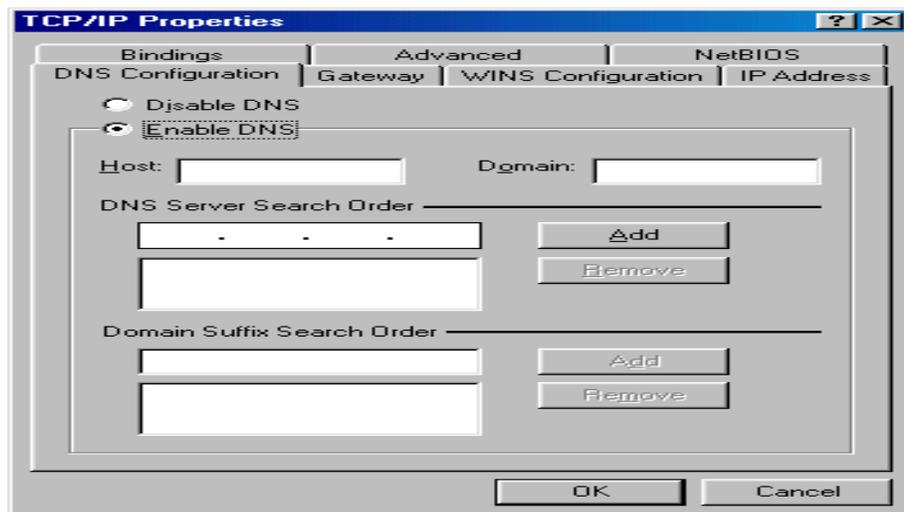
To configure the Domain Name Server, simply select the Enable DNS option. Enter the Host and Domain settings. Enter the DNS Server search order and click "Add".

Once all the TCP/IP properties have been set, click "OK" to return to the Network window.

Click "OK" to close the Network window.

Click "No" when prompted "Do you want to restart your computer now?"

SETTING THE PVC VALUES FOR RFC1483

For RFC1483, the VPI and VCI have a default setting of 8 and 35 respectively. To change the values for RFC1483, follow these instructions:

Using the Modem Icon Utility to set the PVC values
Refer to the User's Guide to the Modem Icon Utility.

Using the Apollo 2 Test Application to set the PVC values
From the Start menu, select **"Programs",** select **"ITeX ADSL",** select **"A2",** then click on **"Mapi"** to execute the test application. Open the **"Configuration"** tab. Select **"PVC Setup for RFC1483".** Enter a pair of recommended VPI/VCI values from the table below, click "PVC Setting" to apply these values and to create a new PVC setup.

Parameter	Value	Meaning
VPI	0 - 255	Virtual Path Identifier
VCI	0 - 255	Virtual Channel Identifier

Close the ITeX ADSL Test Application window and restart the computer. Configuring the ADSL modem for RFC1483 is completed.

6. CONFIGURING THE ADSL NETWORK FOR RFC1577

Note: Windows 98 2nd Edition is required to support RFC1577

The next few steps are used to help in identifying the bindings of TCP/IP to each protocol from the network component window.

From the **"Start"** menu, select **"Settings"**, select **"Control Panel"**, open the Network icon. Scroll through the installed network component window and look for any form of a TCP/IP binding, i.e. TCP/IP or TCP/IP → ATM Emulated LAN. If no TCP/IP binding exists, then click **"Add"**, select **"Protocol"**, click **"Add"**, select **"Microsoft"** from the manufacturer window, select **"TCP/IP"** from the protocol window. Click **"OK"**. If a TCP/IP binding exists, skip to the next paragraph.

Scroll through the installed network component window looking for the following component: TCP/IP → ATM Emulated LAN. If this network component is not found, click **"Add"**, select **"Adapter"**, click **"Add"**, select "Microsoft" from the manufacturer window, select **"Dial up Adapter"** from the network adapter window, click **"OK"**. Return to the network configuration window. If this network component is found, skip to the next paragraph.

From the Network Configuration tab, select **"TCP/IP → ATM Emulated LAN"** from the configuration window, click **"Properties"**. Select the **"Advanced"** tab, and change the **"Allow Binding to ATM"** value to **"Yes"**. Click **"OK"**.
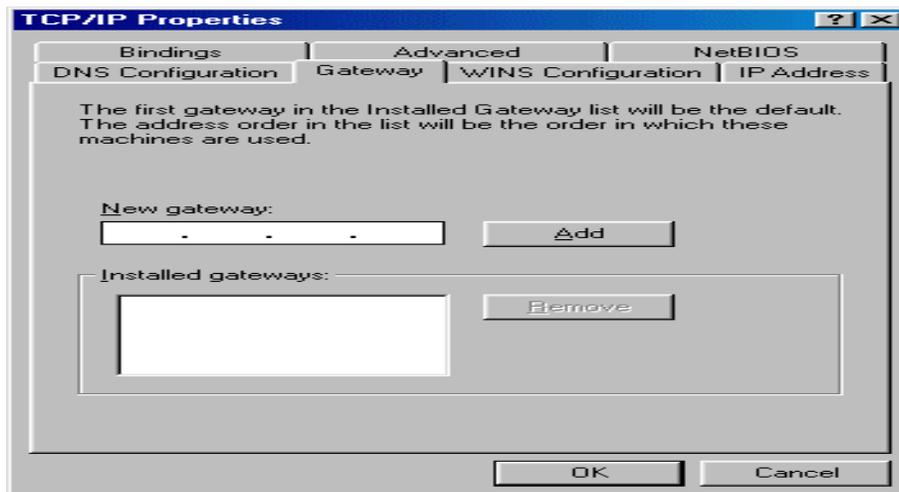
Highlight the **"ITeX A2 ADSL NIC"** adapter in the installed components list of the Network configuration window, click **"Add"**, select **"Protocol"**, click **"Add"**, select **"Microsoft"** from the manufacturers window, select **"TCP/IP"** from the protocol window, click **"OK"**.
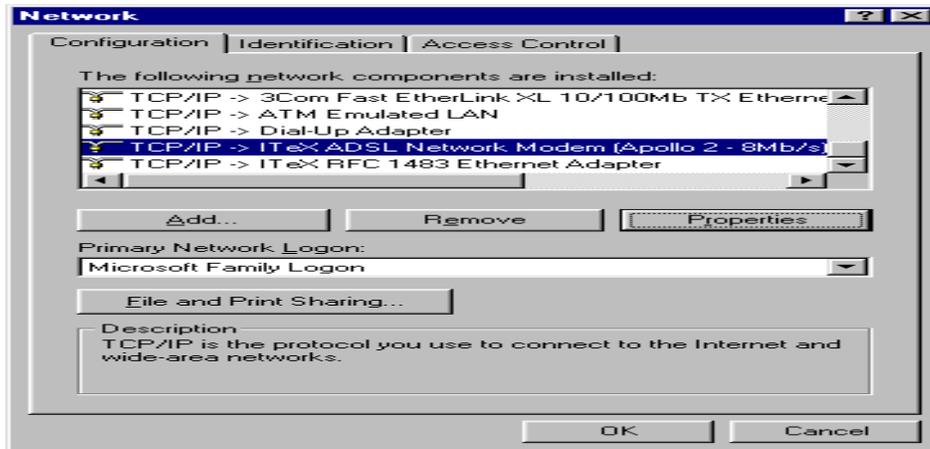
From the Network configuration window, select the "TCP/IP → ITeX ADSL Network Modem (Apollo 2 - 8 Mb/s)" option in the configuration tab, click "Properties". The TCP/IP Properties window will appear.
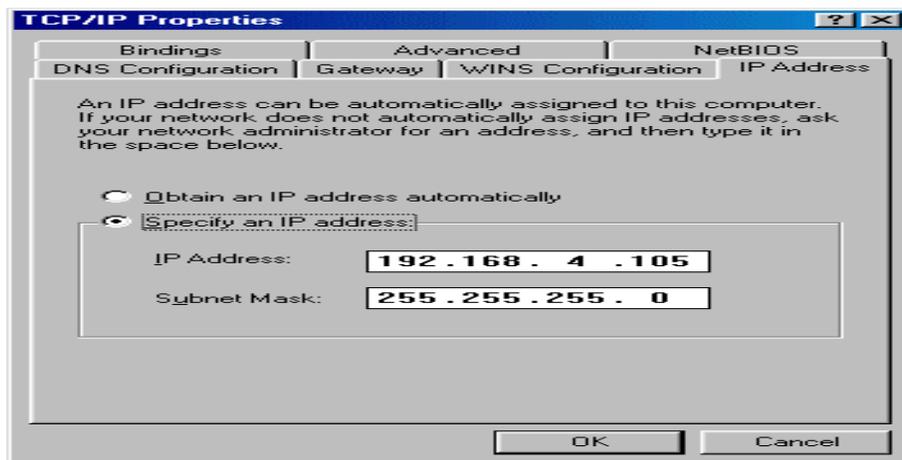
To setup the IP Address, select the IP Address tab and then select the "Specify an IP address" option. Enter the IP Address and Subnet Mask settings.

To setup a new gateway, enter the setting in the new gateway section and click "Add". This will add the setting into the installed gateways.
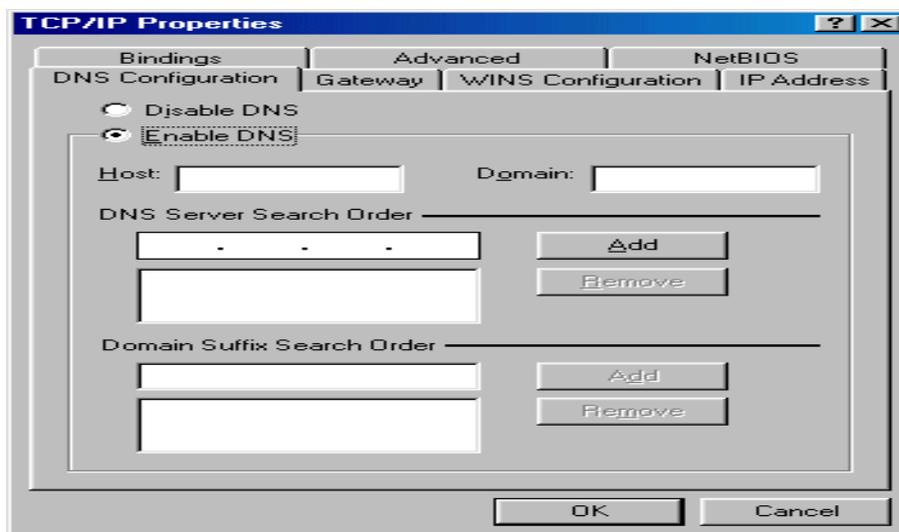
To configure the Domain Name Server, simply select the Enable DNS option. Enter the Host and Domain settings. Enter the DNS Server search order and click "Add".
Once all the TCP/IP properties have been set, click "OK" to return to the Network window.

Click "OK" to close the Network window.

Click "No" when prompted "Do you want to restart your computer now?"

Configuring the ADSL modem for RFC1577 is completed.

SETTING THE PVC VALUES FOR RFC1577

From the Start menu, select **"Programs"**, select **"ITeX ADSL"**, select **"A2"**, then click on **"Mapi"** to execute the test application. Open the "Configuration" tab. Select **"PVC Setup for RFC1577"**. Enter a pair of recommended VPI/VCI values from the table below, click **"PVC Setting"** to apply these values and to create a new PVC setup.

Parameter	Value	Meaning
VPI	0 - 255	Virtual Path Identifier
VCI	0 - 255	Virtual Channel Identifier

For first time setups, windows creates a PVC key registry, click "OK" to create a PVC key in the registry, click "OK" at the successful window. The PVC setting will be updated when the system is restarted.

Close the ITeX ADSL A2 Test Application window and restart the computer.

1. **CONFIGURING THE ADSL NETWORK FOR PPP OVER ATM**

Note: Windows 98 2nd Edition is required to support PPP over ATM

7.1 SETTING UP PPP OVER ATM

From the Start menu, select Setting, then open the Control Panel. Open the Network icon. The Network window will appear. In the configuration window, scroll through the installed network components and verify that the "Dial up adapter" is installed(The Dial up Adapter will have to be installed if it does not exist). Click **"Add"** to add a network component. Double click on **"Adapter"**. Click **"Add"**, Choose Microsoft in the Manufacture section and the Microsoft PPP over ATM Adapter in the "Network Adapters" section. Click **"OK"** to return to the Configuration window.

In the configuration window, the following two bindings will now exist:
      NDISWAN -> Microsoft PPP over ATM Adapter
      WAN support for ATM -> ITeX A2 ADSL NIC

Click **"OK"**, Windows may ask to insert the Windows 98 CD. Make sure that the Windows 98 CD is in the CD-ROM, click **"OK"**. Restart the computer

7.2 ESTABLISHING A PPP OVER ATM CONNECTION

From the Start menu, select Programs, select Accessories, select Communications, and then double click on Dial-Up Networking. Double click on the "Make New Connection" icon. Type in a name for the computer you are dialing. Select the PPP ATM Adapter option in the "Select a device:" section. Click Configure.

The Quality of Service window will appear. For Type, select "Unspecified Bit Rate". For Rate, select 25Mbps. For Circuit type, select Permanent Virtual Circuit and enter VPI and VCI values. For Framing, select "Null Encapsulation". Click OK, click Next, enter "0" or any telephone number. Select the country and click Next. Click Finish. Windows will generate a dial up network icon which will be used for activating the PPP over ATM connection. Insert the Windows 98 CD into the CD-ROM when prompted. Click OK to exit the Communications window. Restart the computer.

8. ACTIVATING THE APOLLO 2 ADSL NETWORK MODEM

For RFC1483 and RFC1577:
Once the drivers are installed and the setup is complete, the ITeX ADSL Network Modem is ready to run. Each time the computer is turned on, the modem automatically connects to the central office equipment. Simply run the internet browser software to verify.

For PPP over ATM:
From the Start menu, select Program, select Accessories, select Communications, select dial up network. Double click on the dial up network icon that was created.

When the "Connect to" window appears, enter the user name and password. Click on "Connect" and enter the user name, password, and logon domain information in the user logon window. Click OK. If the connection is established, Windows will display a connection established window. Click Close. PPP over ATM is now running.

9. MONITORING THE APOLLO 2 ADSL NETWORK MODEM

There are two ways to monitor the Apollo 2 ADSL network modem. The first is by using the Modem Icon utility on the task bar. The second method is by using the Apollo 2 Diagnostics (ITeX ADSL Test Application).

Please refer to the User's Guide to the Modem Icon Utility or the Apollo 2 ADSL Test Application User's Guide for more information on how to monitor the Apollo 2 ADSL network modem.

10. UNINSTALLING THE APOLLO 2 ADSL NETWORK MODEM AND TEST APPLICATION

To uninstall the software drivers:

- Right click on the "My Computer" icon; select Properties; select Device Manager; Scroll down to "Network Adapters". Open the "Network Adapters" folder.

- Right click "ITeX A2 ADSL NIC" and click "Remove". Click "OK" when prompted with a warning about removing and adapter. Click "OK" to close the Systems window.

To uninstall the test application:

- From the Start menu, select "Programs", select "ITeX ADSL", select "Uninstall ADSL", then click on the "Uninstall Test Application".

11. SPECIFICATIONS

– Compliant with ANSI T1.413 Issue 2, ITU G.992.1(G.dmt), ITU G.992.2(G.lite), UAWG 1.0
– Compatible with full rate T1.413 DSLAM (Alcatel) at central office (CO) side.
– DMT (Discrete Multi-Tone) modulation
– Splitter operation
– Full rate operation with downstream up to 8Mbps and upstream up to 640Kbps
– Rate adaptive at 32 Kbps steps depending on the line condition
– Up to 18Kft loop reach
– Support for Windows 95/98/2000 and Win NT 4.0
– Full ATM protocol stacks implementation over ADSL, ATM TC layer, ATM layer with traffic shaping, AAL layer (AAL5 & SAR), RFC 1483/1577, PPP over ATM
– Software upgradable

Interface :
– 32 bits 33MHz PCI interface, PCI 2.2 power management, Plug and Play
– RJ-11 port x1 for Line
– RJ-11 port x1 for Telephone

System Requirement:
– Pentium II processor, Windows 95/98/2000 and NT 4.0, 64M RAM

Physical Dimensions:
– Width : 18.4 mm
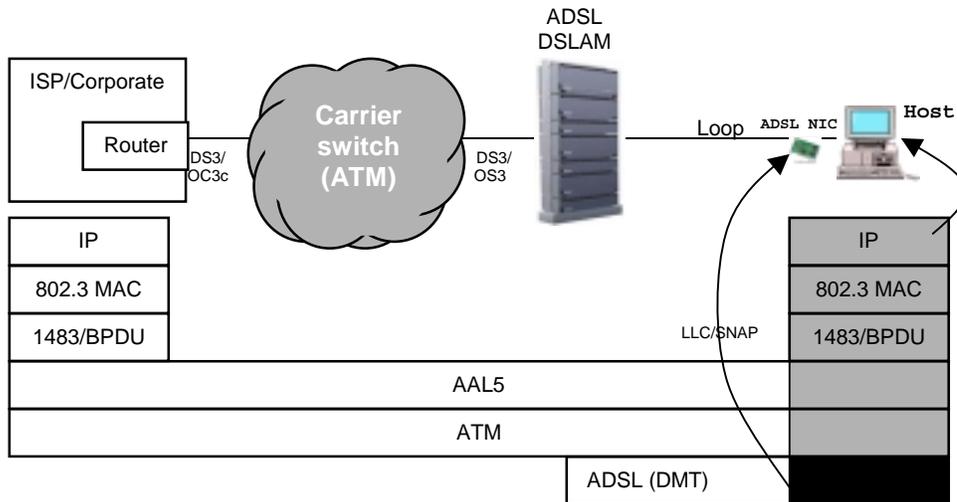– Height : 107 mm
– Depth : 167 mm

Operating Temperature : 32 - 104 F (0 - 40 C)
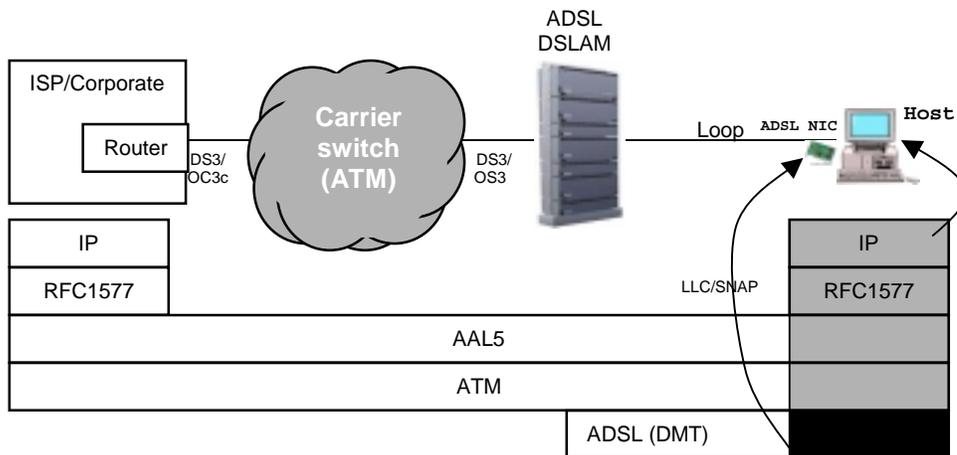
Regulatory Approvals : FCC Class B

Apollo 2 End-to-End Application Scenarios

End to end applications can be accommodated by the following three scenarios:

Bridged Ethernet over ATM PVC (RFC 1483 BPDU)

Classical IP over ATM (RFC 1577)

PPP over ATM (RFC 2364)

ISP/Corporate

Router

Carrier switch (ATM)

DS3/OC3c

DS3/OS3

ADSL DSLAM

Loop

ADSL NIC

Host

| IP |
| ppp |
| LLC |

| IP |
| PPP |
| LLC |

| AAL5 |
| ATM |

ADSL (DMT)