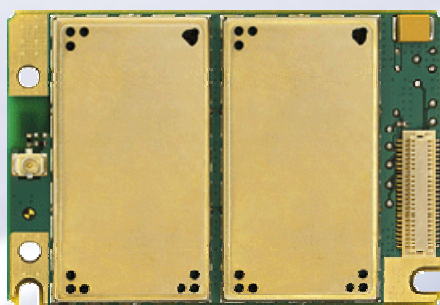


**SIEMENS**



# Getting Started with HC15

Siemens Cellular Engines

Version: 01  
DocID: HC15\_startup\_v01

User's Guide

Title: **Getting Started with HC15**

Version: **01**

Date: **January 22, 2007**

DocId: **HC15\_startup\_v01**

Status: **Confidential / Preliminary**

**General note**

Product is deemed accepted by Recipient and is provided without interface to Recipient's products. The Product constitutes Preview Release version and code and may be changed substantially before commercial release. The Product is provided on an "as is" basis only and may contain deficiencies or inadequacies. The Product is provided without warranty of any kind, express or implied. To the maximum extent permitted by applicable law, Siemens further disclaims all warranties, including without limitation any implied warranties of merchantability, fitness for a particular purpose and noninfringement of third-party rights. The entire risk arising out of the use or performance of the Product and documentation remains with Recipient. This Product is not intended for use in life support appliances, devices or systems where a malfunction of the product can reasonably be expected to result in personal injury. Applications incorporating the described product must be designed to be in accordance with the technical specifications provided in these guidelines. Failure to comply with any of the required procedures can result in malfunctions or serious discrepancies in results. Furthermore, all safety instructions regarding the use of mobile technical systems, including GSM products, which also apply to cellular phones, must be followed. Siemens AG customers using or selling this product for use in any applications do so at their own risk and agree to fully indemnify Siemens for any damages resulting from illegal use or resale. To the maximum extent permitted by applicable law, in no event shall Siemens or its suppliers be liable for any consequential, incidental, direct, indirect, punitive or other damages whatsoever (including, without limitation, damages for loss of business profits, business interruption, loss of business information or data, or other pecuniary loss) arising out the use of or inability to use the Product, even if Siemens has been advised of the possibility of such damages. Subject to change without notice at any time.

**Copyright**

Transmittal, reproduction, dissemination and/or editing of this document as well as utilization of its contents and communication thereof to others without express authorization are prohibited. Offenders will be held liable for payment of damages. All rights created by patent grant or registration of a utility model or design patent are reserved.

Copyright © Siemens AG 2007

**Trademark notice**

MS Windows® is a registered trademark of Microsoft Corporation.

## Contents

<b>1</b>	<b>Introduction</b> .....	<b>4</b>
1.1	Related Documents .....	4
<b>2</b>	<b>Installation and Configuration</b> .....	<b>5</b>
2.1	Technical Requirements for Running HC15 on DSB75.....	5
2.2	Installing Siemens Connection Manager and Preparing Driver Installation .....	6
2.3	Installing the Hardware .....	7
2.4	Installing USB and Ethernet Drivers.....	9
2.5	Installed Devices and Tools .....	12
2.6	Uninstalling Drivers and the Connection Manager .....	13
2.7	Uninstalling Drivers and Tools from Earlier HC15 Releases .....	14
2.7.1	Uninstalling Earlier Drivers .....	14
2.7.2	Uninstalling Earlier Connection Manager.....	14
<b>3</b>	<b>Using the HC15 Module</b> .....	<b>15</b>
3.1	AT Command Interpreter .....	15
3.2	Switching on the HC15 .....	16
3.3	Switching off the HC15 .....	16
3.4	Registering to the Network.....	16
3.5	Selecting UMTS or GSM.....	17
3.6	Attaching to the HSDPA or GPRS Network .....	18
3.7	Defining the PDP Context.....	18
3.8	Making a Voice Call (MO) .....	19
3.9	Answering a Voice Call (MT).....	19
3.10	HSDPA or GPRS Data Transfer .....	20
3.10.1	HSDPA or GPRS Data Transfer via Siemens Wireless Ethernet Adapter .....	20
3.10.2	HSDPA or GPRS Data Transfer via Dial-Up Network.....	21
<b>4</b>	<b>Appendix I</b> .....	<b>23</b>
4.1	Adding and Configuring a New Dial-Up Connection.....	23
4.1.1	Adding a New Dial-up Connection.....	23
4.1.2	Configuring a Dial-up Connection.....	26
4.2	Abbreviations .....	29
<b>5</b>	<b>Appendix II</b> .....	<b>30</b>

## Figures

Figure 1:	DSB75 with adapter board and mini antenna cable.....	7
Figure 2:	DSB75 with HC15 module and all accessories connected .....	8
Figure 3:	HC15-DSB75 adapter board – switch settings .....	30
Figure 4:	DSB75 Board – switches, connectors, LEDs (overview).....	31

## **1 Introduction**

HC15 is the first Siemens wireless module to offer UMTS and GSM capability on the same device. The benefit is that the HC15 includes HSDPA capability in a UMTS network and also all common mobile connectivity features like voice, short messages, GPRS and EGPRS.

The HC15 modules need to connect to an adequate host device, such as the Evaluation Board DSB75. Designed to help application manufacturers and system integrators to test and develop their HC15 host application, the DSB75 provides all interfaces and peripherals needed to run the HC15.

The purpose of this document is to guide you through the process of connecting the hardware, installing the software on a Windows XP system, and, last but not least, making the first data transmission via UMTS and HSDPA.

### **1.1 Related Documents**

- [1] HC15 AT Command Command Set
- [2] HC15 Hardware Interface Description
- [3] DSB75 Support Box – Evaluation Kit for Siemens Cellular Engines

---

## 2 Installation and Configuration

### 2.1 Technical Requirements for Running HC15 on DSB75

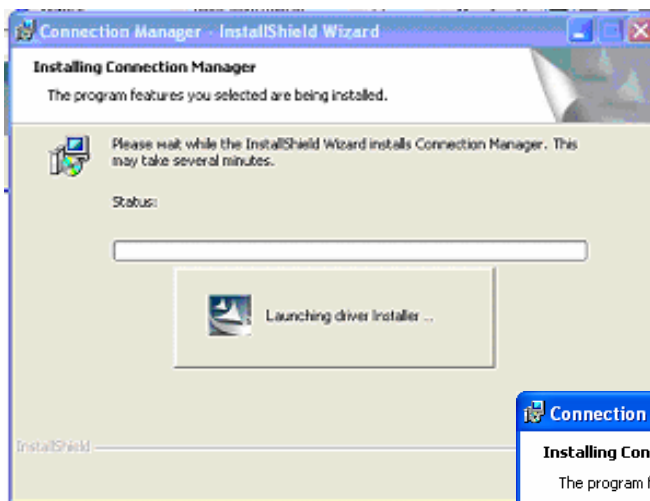
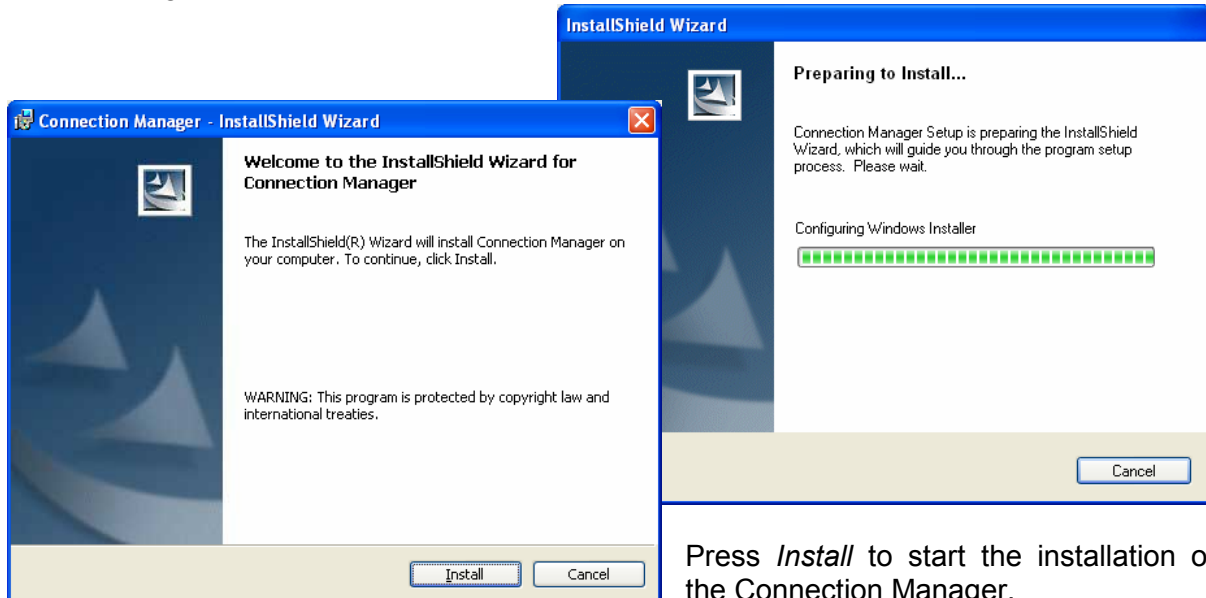
- HC15 module
- HC15 driver package contained in a zipped file: "HC15\_01000\_usb\_ndis\_driver.zip". Please follow the installation guidelines provided below: First install the Connection Manager and prepare the driver installation (see chapter 2.2), then connect the HC15 to the DSB75 (see chapter 2.3), finally install the drivers (see chapter 2.4).

NOTE: If drivers from earlier HC15 preview releases are still installed it is recommended to uninstall them first. See chapter 2.6.

- Windows XP computer, minimum USB 1.1 connector
  - USB cable
  - DSB75 Evaluation Board providing the application interface between the HC15 USB port and the computer's USB port.
  - Adapter for mounting the HC15 module onto the DSB75
  - 9 to 15 Volts power supply applied at the DSB75 for powering up the DSB75 and the connected HC15 module
  - 1 mini antenna cable (50 Ohms) from the Hirose U.FL connector on the HC15 module to the Hirose U.FL on the DSB75; 1 external RF antenna connecting to the SMA connector of the DSB75 (product name: SMARTEQ MiniMag), both delivered with DSB75
  - Metal plate for grounding the external RF antenna, min. 20 cm x 20 cm
  - Optional: Handset, e.g Handset for Siemens products from Votronic delivered with DSB75
  - Terminal program to control the USB port under Windows, for example Windows Hyperterminal
  - UICC card
  - Service provider settings for access to the GPRS and HSDPA services, as a rule the following:
    - APN (network operator specific Name of Access Point that connects the GSM network to the Internet)
    - Primary and secondary DNS
    - IP address (DHCP or static)
    - QoS settings
    - User name and password
- HC15 offers two ways to access the GPRS or HSDPA networks: either the Siemens Wireless Ethernet Adapter controlled by the Siemens Connection Manager or a dial-up network connection set up via the Siemens HSDPA Modem. For details see Chapter 3.10.
- Make sure to operate the HC15 always with the UICC card inserted in the DSB75 card reader and a valid SIM PIN entered. This is because most AT commands require SIM PIN authentication.

## 2.2 Installing Siemens Connection Manager and Preparing Driver Installation

Before you start unpack the “HC15\_01000\_usb\_ndis\_driver.zip” file to a folder on your Windows XP system. Double-click the “autorun.exe” file from the unzipped driver package. The following installation sequence will run:

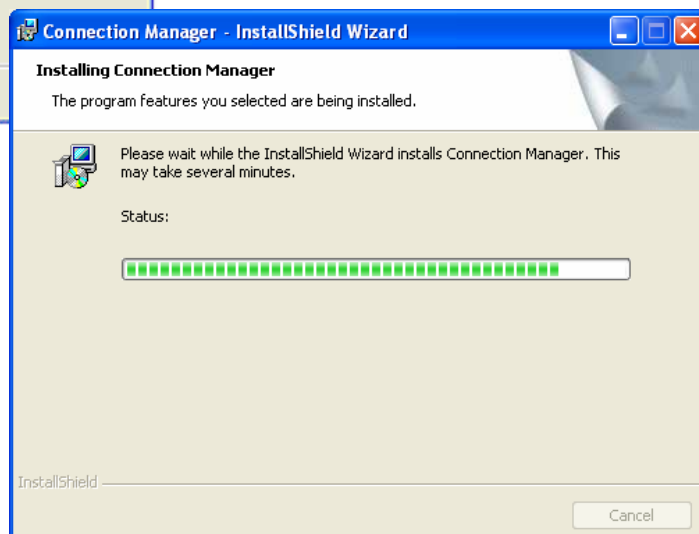


The progress of the installation will be indicated.

It is possible that there are up to 3 warning messages saying that the drivers are not digitally signed. Please ignore the messages and press *Continue anyway*.

Now the installation of the Connection Manager is completed, and the driver software is preinstalled. The installer will automatically finish the installation.

Next, connect the HC15 module as described in chapter 2.3.



## 2.3 Installing the Hardware

To properly connect the HC15 module and all accessories to the DSB75 Board follow these steps:

- Check that the all switches of the DSB75 Board are set as described in the Appendix.
- Attach the adapter board to the 80-pin header located on the DSB75 Board. Take gentle care that all pins are aligned correctly, then press down evenly on the adapter board until it is firmly seated.
- Connect the one end of the mini antenna to the Hirose U.FI connector of the DSB75 board and attach the other end to the Hirose U.FL connector located on the module's top side.
- Mount the HC15 module upside down onto the 50-pin board-to-board connector of the adapter board.
- Screw the external antenna (MiniMag) into the SMA connector on the DSB75. To improve the antenna performance use the metal plate for grounding. The external antenna should be positioned in the center of the metal plate.
- Connect the Western plug of the handset to the Western jack on the DSB75.
- Make sure that the power supply adapter is switched to 9 Volts, and connect the power cables to the red and black connectors of the DSB75.
- Plug the USB cable to the computer's USB port and to the USB port of the DSB75. See Chapter 2.4 to continue.

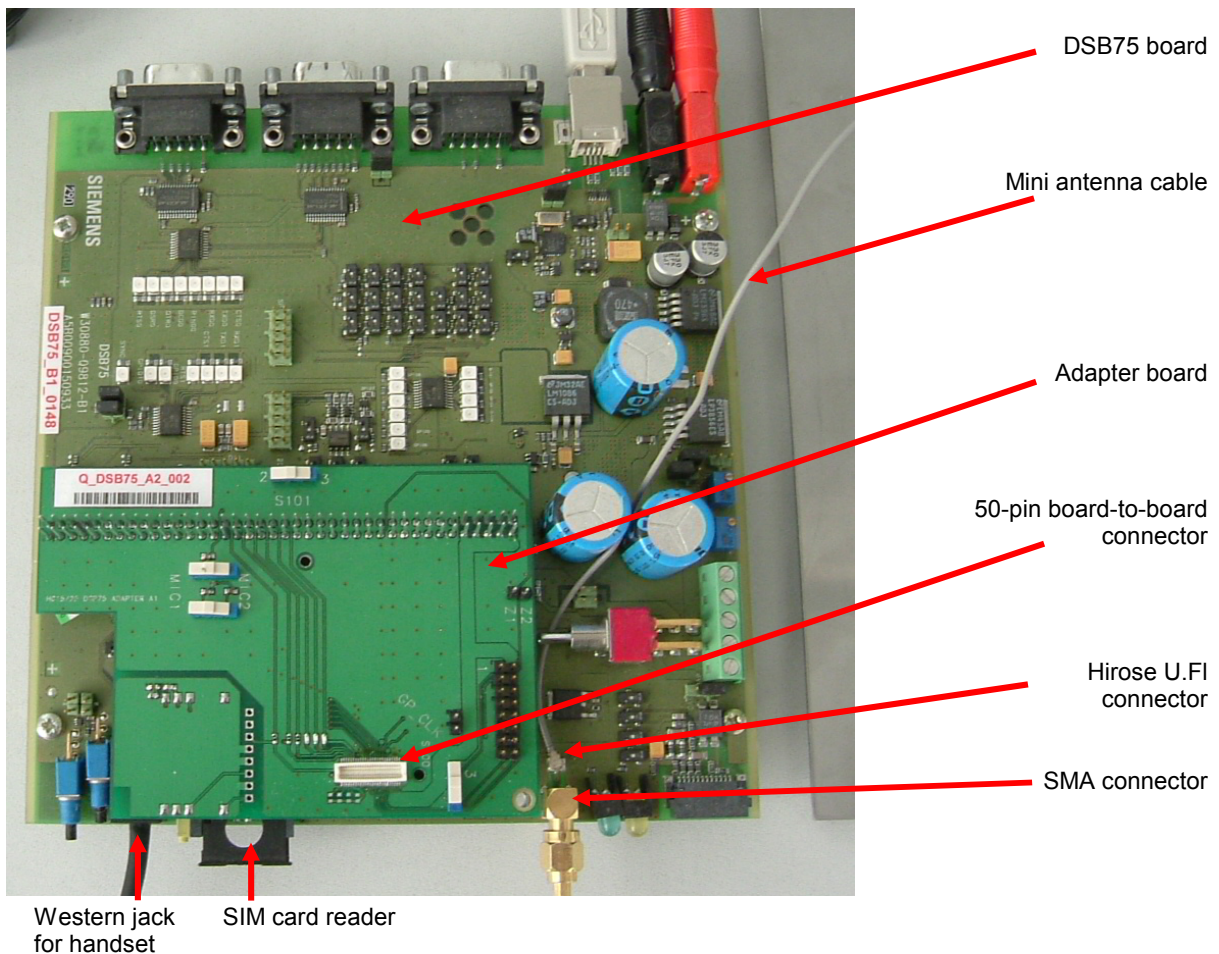


Figure 1: DSB75 with adapter board and mini antenna cable

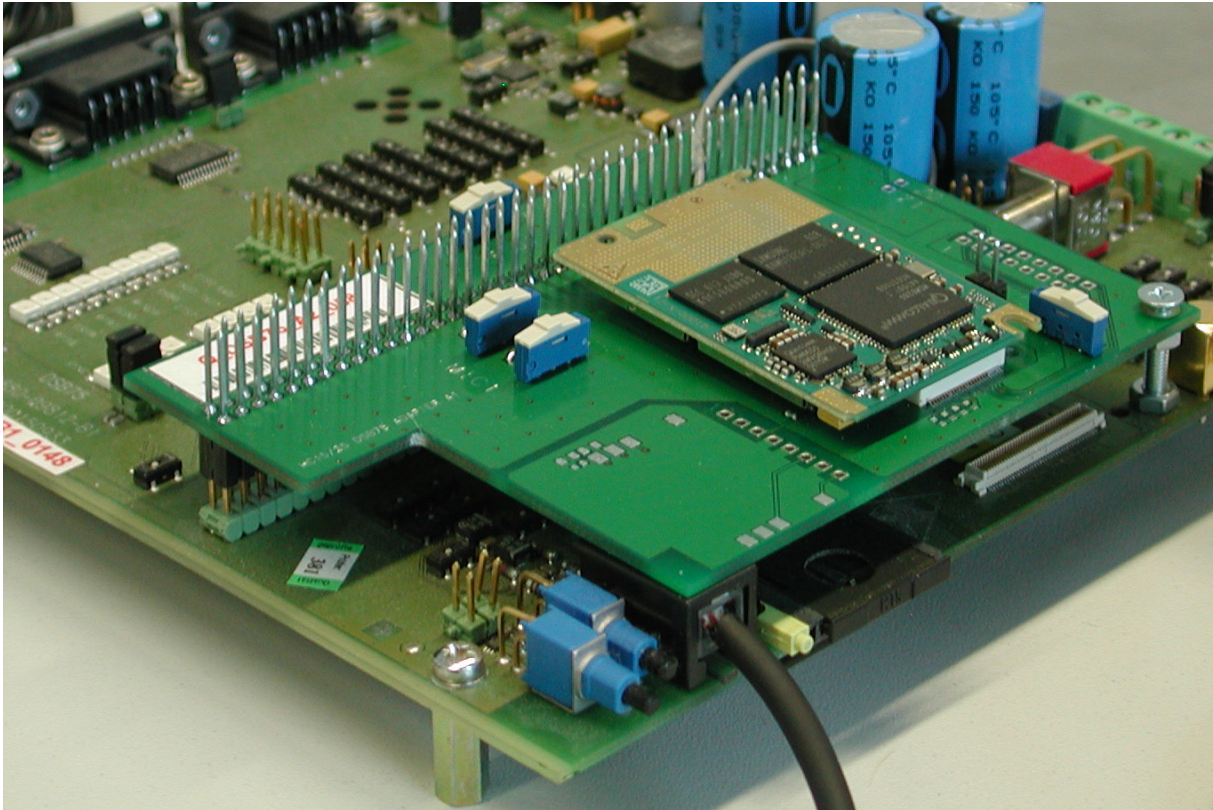


Figure 2: DSB75 with HC15 module and all accessories connected



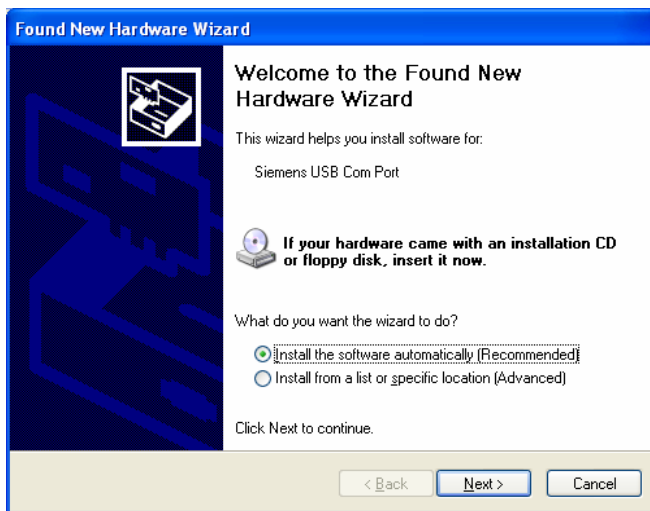
## 2.4 Installing USB and Ethernet Drivers

The HC15 driver package consists of three virtual devices, one by one automatically installed:

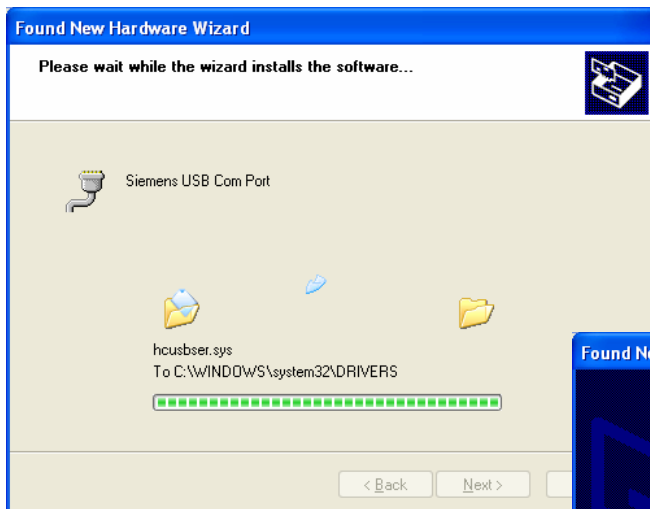
- Siemens USB Com Port driver
- Siemens Wireless Ethernet Adapter driver
- Siemens HSDPA USB Modem driver

During the installation, the HC15 USB interface will be assigned two virtual COM ports, one for the virtual modem port and one for the virtual application port. Windows will automatically allocate the next available COM port to each virtual interface.

After plugging the USB cable Windows detects the HC15 as a new USB device.

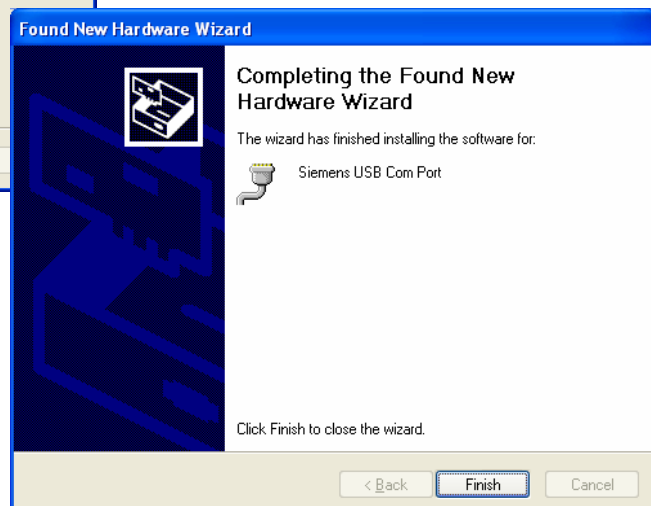


The *Found New Hardware Wizard* will start. Click *Next* to proceed with the installation of the “Siemens USB Com Port”.

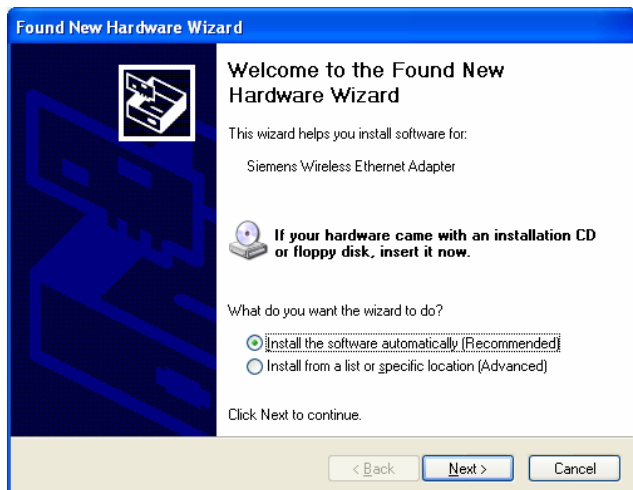


The progress of the driver installation is indicated.

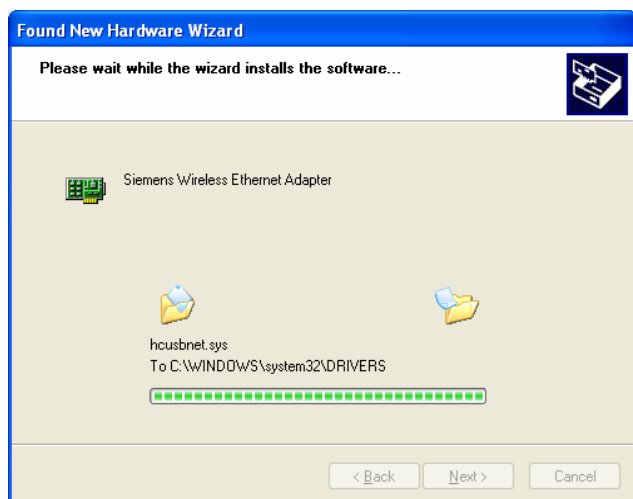
It is possible that there are up to 3 warning messages saying that the drivers are not digitally signed. Please ignore the messages and press *Continue* anyway.



Click *Finish* to complete the installation of the “Siemens USB Com Port”

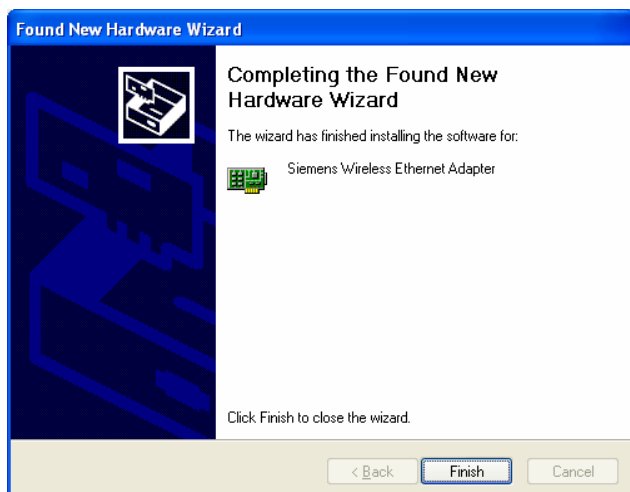


Now the installation of the “Siemens Wireless Ethernet Adapter” will start. Click *Next*.

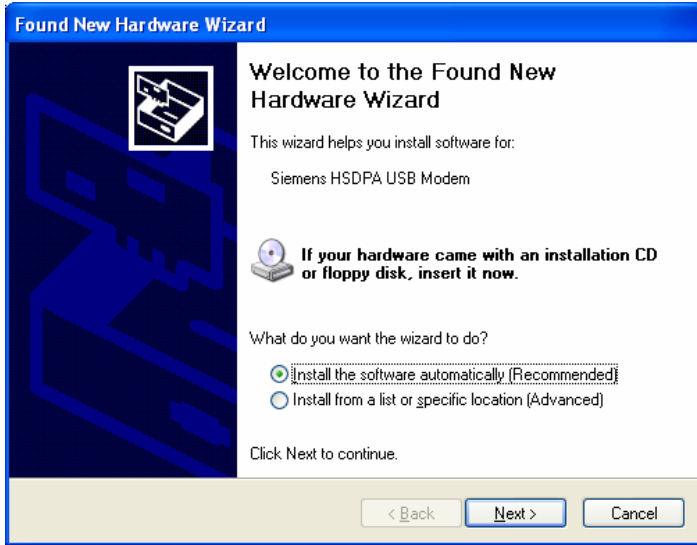


The progress of the driver installation is indicated.

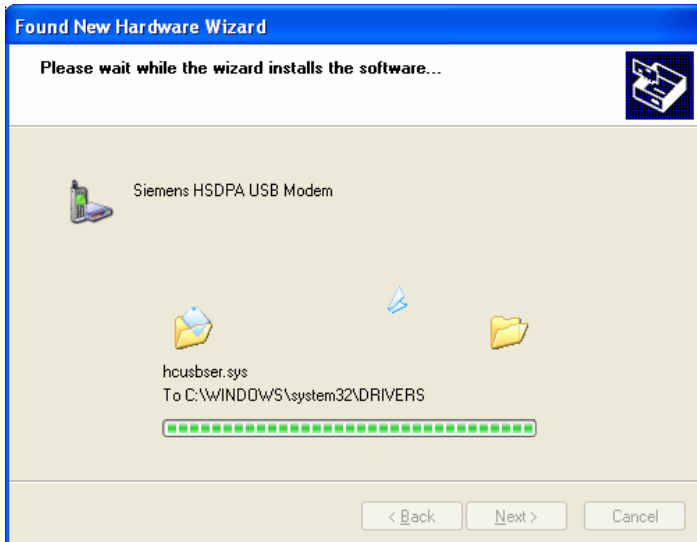
It is possible that there are up to 3 warning messages saying that the drivers are not digitally signed. Please ignore the messages and press *Continue* anyway.



Press *Finish* to complete the “Siemens Wireless Ethernet Adapter” installation.

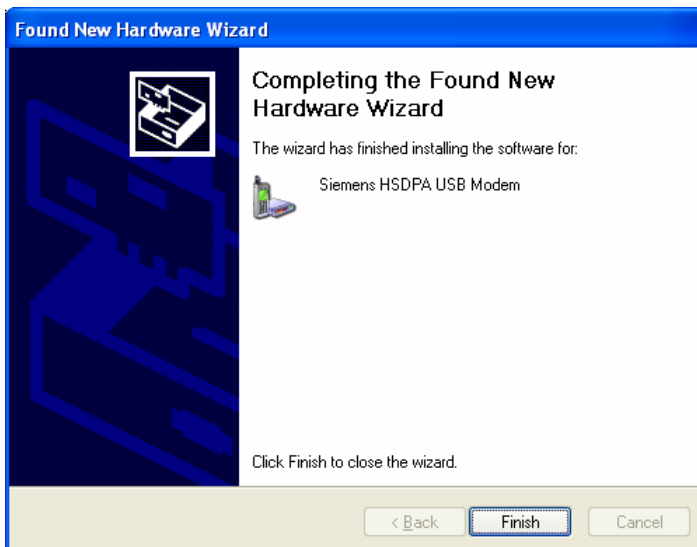


Now the installation of the “Siemens HSDPA USB Modem” will start. Click *Next*.



The progress of the driver installation is indicated.

It is possible that there are up to 3 warning messages saying that the drivers are not digitally signed. Please ignore the messages and press *Continue anyway*.

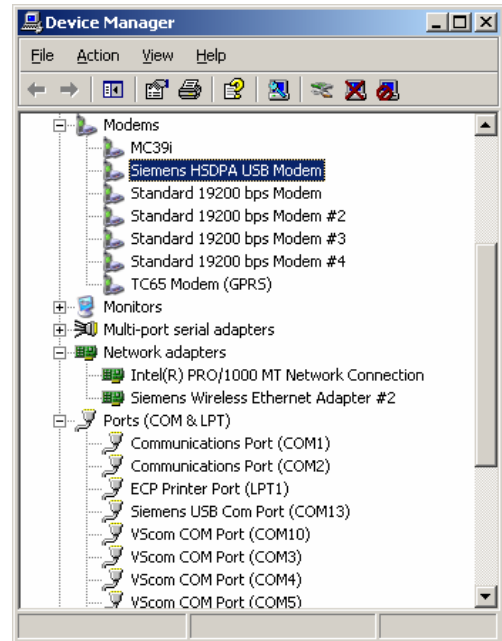


Press *Finish* to complete the “Siemens HSDPA USB Modem” installation.

Finally, you will get a message saying that the drivers are correctly installed.

## 2.5 Installed Devices and Tools

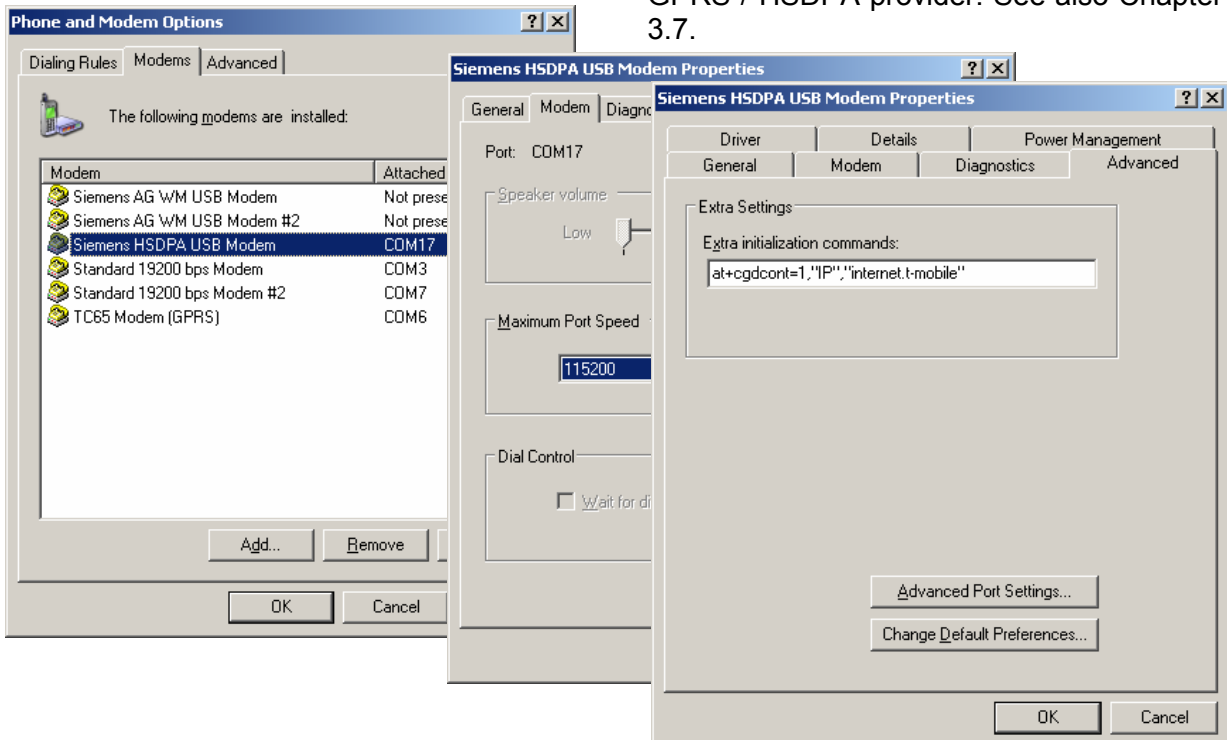
After successful installation, the devices listed below are available. Under Windows XP, you can use the *Device Manager* to check that all components are properly installed and configured.



### Siemens HSDPA USB Modem

- AT command and data interface, also referred to as “Modem” port if queried using the AT^SQPORT command.
- Intended particularly for HSDPA and GPRS data connections.
- The virtual COM port Windows has assigned to the AT command and data interface is listed in the *Device Manager* under *Modems*.
- The port number can be gathered from *Control Panel | Phone and Modem Options*. This COM port can be used to set up dial-up network connections. The bit rate set by default on the *Modem* property page is not relevant for USB and can be left unchanged. On the *Advanced* tab you can put the command string used to define the PDP context for your

GPRS / HSDPA provider. See also Chapter 3.7.



### Siemens USB Com Port

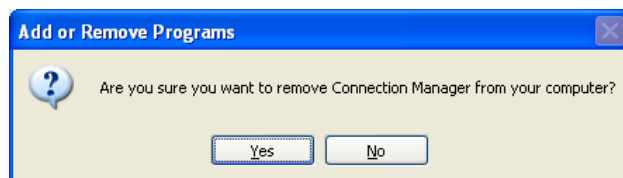
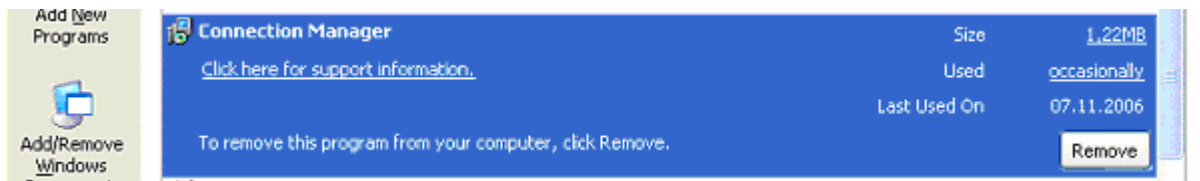
- AT command interface, also referred to as “Application” port if queried using the AT^SQPORT command.
- Mainly intended for controlling the HC15 module, for receiving URCs, can be used also for sending, receiving, writing and reading short messages. Not intended as data interface for HSDPA and GPRS.
- The virtual COM port Windows has assigned to this port is listed in the *Device Manager* under *Ports (COM&LPT)*.

### Siemens Wireless Ethernet Adapter

- Wireless network adapter intended for HSDPA and GPRS data connections.
- Listed in the *Device Manager* under *Network adapters*.
- Software controlled by the *Siemens Connection Manager*. To open the program in Windows XP, click *Start*, point to *Programs*, select *Siemens*, select *HSDPA USB Modem* and click *Connection Manager*. See chapters 3.10 and 3.10.1 for details of how to set up a connection.

## 2.6 Uninstalling Drivers and the Connection Manager

Select *Control Panel* -> *Add or Remove Programs* and *Connection Manager*  
Press *Remove* to select the uninstaller of the *Connection Manager* and the *HC15* drivers.



Please press Yes to start the uninstaller.

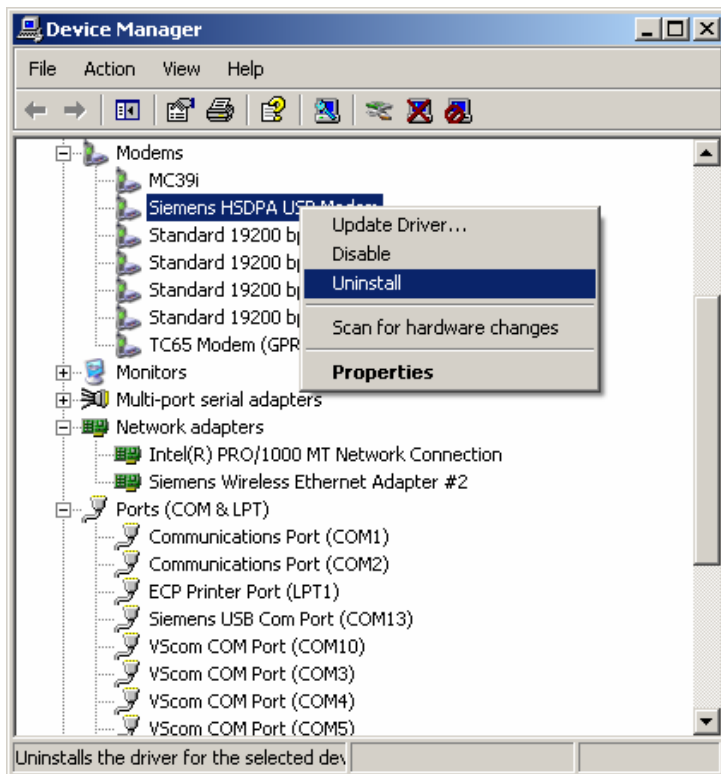
The *Connection Manager* and all *HC15* drivers will be removed.

## 2.7 Uninstalling Drivers and Tools from Earlier HC15 Releases

The following procedures apply only to drivers of earlier HC15 releases supplied as preview samples for testing only.

### 2.7.1 Uninstalling Earlier Drivers

Under Windows XP, open the *Device Manager* and select the drivers as described in chapter 2.5. Keep in mind that the drivers are listed in the *Device Manager* only when the module is switched on. Right-click the driver and, from the resulting menu, select *Uninstall*.



### 2.7.2 Uninstalling Earlier Connection Manager

Old versions of the Siemens Connection Manager were installed in Windows XP under *Program Files | Siemens | ConnectionManager*. To uninstall the program simply remove the "conman.exe" file.

### 3 Using the HC15 Module

The following examples show the basic steps required to register to the network, to select UMTS mode or GSM mode and to attach to HSDPA or GPRS.

The examples are based on a UICC card provisioned by the German network operator T-Mobile. The used UICC card is capable of UMTS and GSM and enables the subscriber to switch back and forth between both networks.

#### 3.1 AT Command Interpreter

AT commands can be entered on two interfaces of the HC15 module:

- Siemens HSDPA USB Com Port
- Siemens HSDPA USB Modem

Yet, we recommend that the Siemens HSDPA USB Com Port be used for controlling the HC15 module, eg. for entering AT commands and receiving URCs, while the Siemens HSDPA USB Modem is mainly intended for use as a modem. For greater detail refer to [1], especially the chapters "AT Command Interpreter" and "Unsolicited Result Code Presentation".

As described in Chapter 2.5, each interface is assigned a virtual COM port of its own, which enables accessing the interface from the host application or, accordingly, the dial-up connection. To easily identify both interfaces you can use the AT^SQPORT command:

AT^SQPORT Application	On the AT command interface, the Siemens HSDPA USB Com Port is referred to as "Application".
OK	
AT^SQPORT Modem	On the AT command interface, the Siemens HSDPA USB Modem is referred to as "Modem".
OK	

If you need to operate the HC15 from both interfaces at a time, bear in mind that both are handled by the same AT command interpreter. As a result, AT commands entered on both interfaces are not executed in parallel but sequentially, one after the other. So, an AT command issued on one interface will be buffered on this interface to be executed after the other interface has completed processing earlier AT command(s). The buffered command string is not echoed, but will be indicated when executed.

### 3.2 Switching on the HC15

The HC15 can be started by pressing the IGT key of the DSB75. Please wait approximately 2 seconds before using the module, for example before entering AT commands.

Disconnecting and plugging the USB cable during operation is not supported.

### 3.3 Switching off the HC15

To shut down the HC15 module, enter the AT^SMSO command. This enables the ME to save all data and perform an orderly shutdown.

```
AT^SMSO
OK
```

The ME switches off.

The HC15 module can also be switched off by using the IGT line as described in [1] (see AT^SCFG) and [1] (see section “Configuring the IGT Line for Use as ON/OFF Switch”).

### 3.4 Registering to the Network

Make sure to operate the HC15 always with the UICC card inserted in the DSB75 card reader and a valid SIM PIN entered. This is because most AT commands require SIM PIN authentication.

Write command: AT+CPIN=<pin>[, <new pin>]

```
at+cpin?
+CPIN: SIM PIN
OK
at+cpin=1234
OK
at+cpin?
+CPIN: READY
OK
```

Entering the SIM PIN.



### 3.5 Selecting UMTS or GSM

The GSM 07.07 operator selection command AT+COPS has been enhanced to enable the subscriber to select whether to use UMTS or GSM. You can quickly switch back and forth between both network types while the ME remains registered.

Write command: AT+COPS=<mode>[, <format>[, <oper>[, <act>]]]

The parameter <act> (access technology) can take the values listed below. The parameter is stored non-volatile.

- 0 GSM network
- 2 UMTS network

Note: By factory default, an automatic network selection mode is set which enables the ME to select either UMTS or GSM, depending on the network coverage. This automatic mode remains enabled until you explicitly set either UMTS or GSM using the <act> parameter of AT+COPS. Setting the <act> parameter forces the ME to select either UMTS only or accordingly, GSM only. If the specified network is not available, the network registration will be disabled.

```
at+cops?                               Querying the current network mode.
+COPS: 0,0,"T-Mobile D",2              The ME is registered to the German
OK                                       operator T-Mobile and uses UMTS.

at+cops=0,,0      #(or at+cops=,,0)    Selecting the GSM network.
OK
at+cops?          Query the current network type.
+COPS: 0,0,"T-Mobile D",0              The response confirms that the ME has
OK                                       changed to the GSM network.

at+cops=0,,2      #(or at+cops=,,2)    Selecting the UMTS network.
OK
at+cops?
+COPS: 0,0,"T-Mobile D",2

OK

at+cpin?          There is no need to enter the SIM PIN again.
+CPIN: READY

OK
```

Furthermore, the command AT+COPS serves to query or specify several modes of selecting the GSM network operator. These functions are not discussed in this document.

### 3.6 Attaching to the HSDPA or GPRS Network

After PIN authentication, the HC15 module automatically tries to attach to the HSDPA or, accordingly, GPRS network.

```
at+cgatt?  
+CGATT: 1  
  
OK
```

Querying the current service state.  
The ME is attached, depending on the selected network type (see AT+COPS), it is either attached to the HSDPA or GPRS service.

### 3.7 Defining the PDP Context

Use the AT+CGDCONT command to configure the correct provider settings. The PDP context is stored non-volatile.

Write command:

```
AT+CGDCONT=<cid>[, <PDP_type>[, <APN>[, <PDP_addr>]]]
```

```
at+cgdcont=1,"IP","internet.t-mobile"  
OK  
  
at+cgdcont?  
+CGDCONT: 1,"IP","internet.t-mobile","",0,0  
OK
```

Specifying the PDP context (example shows the APN of the German network provider T-Mobile).

Checking the current PDP context definition.

The focus of this document is only on the parameters <cid>, <PDP\_type> and <APN>. The string parameters must be enclosed in quotation marks.

Under Windows XP, the PDP context can, optionally, be entered on the *Modem* property page as described in Chapter 2.5.

### 3.8 Making a Voice Call (MO)

The commonly used GSM 07.07 dialing command ATD is fully applicable both in the UMTS and the GSM network.

To make a mobile originated voice call enter ATD, type the destination number and add a semicolon. The result code OK will be returned immediately after dialing, prior to call setup.

To end the call, use the AT+CHUP command (ATH is for data calls only).

atd030111111111; OK	The HC15 subscriber makes a voice call.
at+clcc +CLCC: 1,0,0,0,0,"030111111111",129,"Tom"	Checking the call status (MO call is active).
AT+CHUP OK	The HC15 subscriber terminates the call.
at+clcc OK	Checking the call status (no call).

### 3.9 Answering a Voice Call (MT)

A mobile terminated voice call is indicated by the RING URC. To answer the call, enter ATA.

To terminate the call use AT+CHUP.

### 3.10 HSDPA or GPRS Data Transfer

HC15 offers two alternatives to access the GPRS or HSDPA networks:

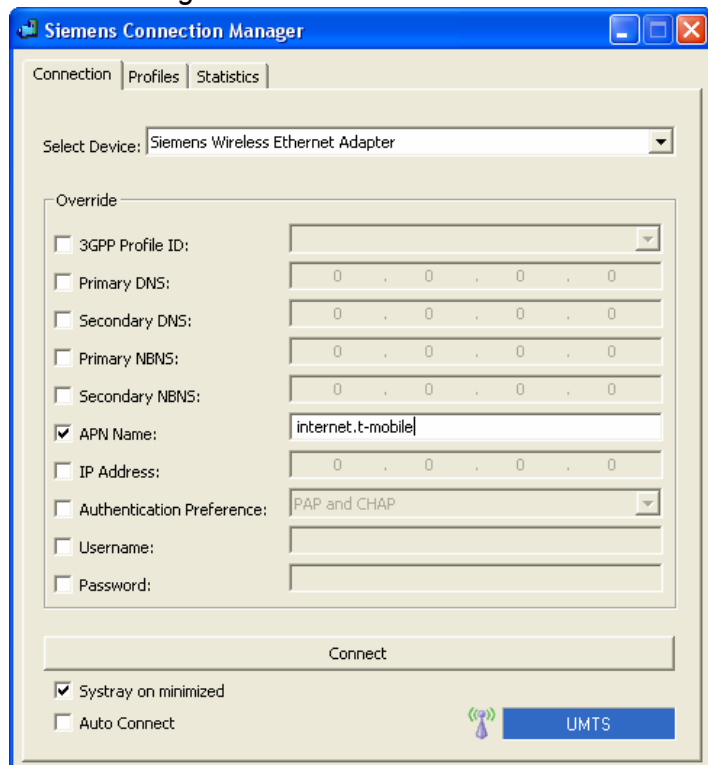
- The *Siemens Connection Manager* provided for the *Siemens Wireless Ethernet Adapter*. See chapter 3.10.1.
- A dial-up network connection via the installed *Siemens HSDPA Modem* as described in chapter 3.10.2.

In either case the ME must be registered to the network. So, before trying to connect to the data services ensure that SIM PIN authentication was done from the host application. To take advantage of HSDPA make sure that the <act> parameter of AT+COPS equals "2". For GPRS the parameter shall be "0". It is recommended to configure these settings on the *Siemens HSDPA USB Com Port*.

#### 3.10.1 HSDPA or GPRS Data Transfer via Siemens Wireless Ethernet Adapter

The easiest way is using the *Siemens Connection Manager* installed along with the HC15 driver package.

- To open the tool in Windows XP, click *Start*, point to *Programs*, select *Siemens*, select *HSDPA USB Modem* and click *Connection Manager*.
- Use the *Select Device* listbox to choose the *Siemens Wireless Ethernet Adapter*. When opened the first time or after disabling the adapter, the listbox may be empty.
- Check the *APN Name* box and enter the APN (Access Point Name) of your service provider.
- If necessary, check the *Authentication Preference* box and select the type of authentication protocol. Otherwise, PAP and CHAP apply by default. *Username* and *password* are also provider dependent.
- Press the *Connect* button to set up a connection. Then simply open your Internet browser. The box on the rightmost bottom represents the signal strength.
- To close the connection press the *Disconnect* button (available when connected).



The *Auto Connect* check box on the leftmost bottom can be activated if you want the Siemens Wireless Ethernet Adapter to automatically connect to the network each time you restart the HC15. This option can be used particularly with a flat rate subscription. In this case, take care that the SIM PIN authentication is also done automatically.

### 3.10.2 HSDPA or GPRS Data Transfer via Dial-Up Network

Before dialing, make sure that the virtual COM port is not used by any application (eg. by a terminal program or by the host application).

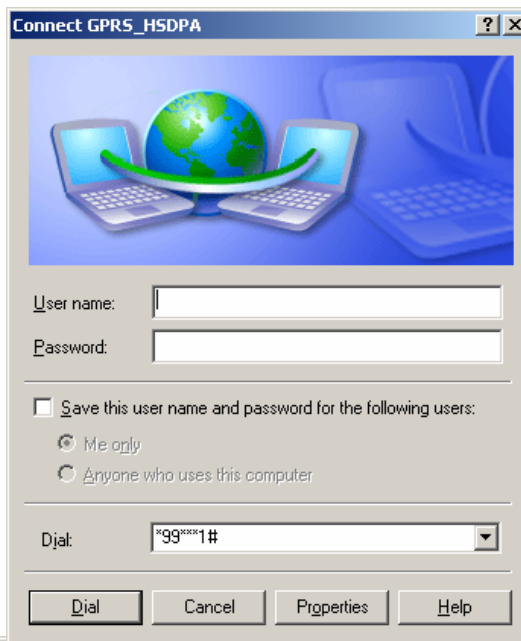
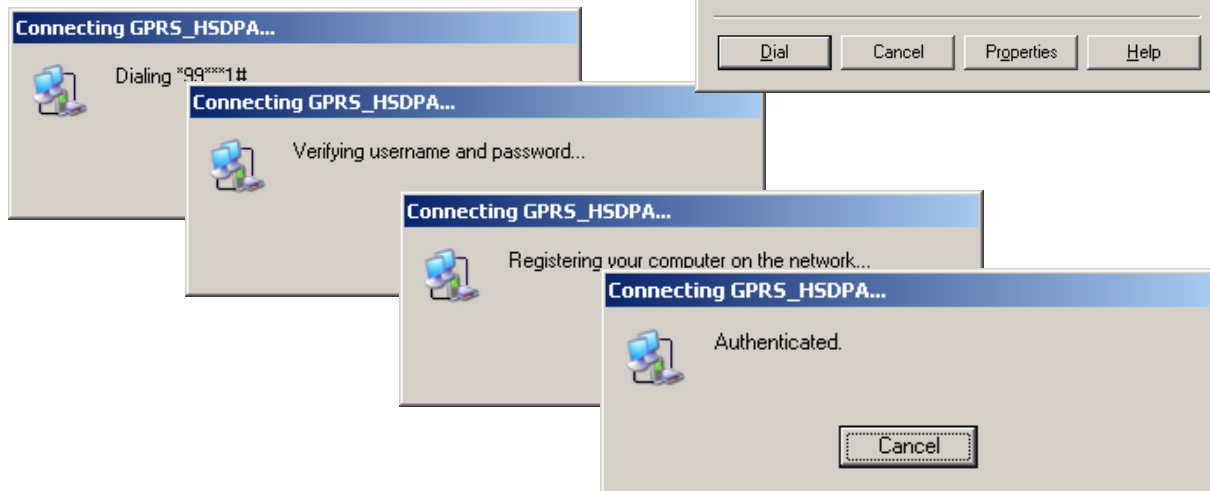
Also, ensure that you have the PDP context for your service provider defined by using the AT+CGDCONT command. The command string can be entered either on the *Modem* property page on the *Windows Control Panel* or in the host application (see Chapters 2.5 and 3.7).

From the *Control Panel*, choose *Network Connections* and select the dial-up connection created for HC15. (Instructions on how to create a new dialup connection can be found in chapter 4.1)

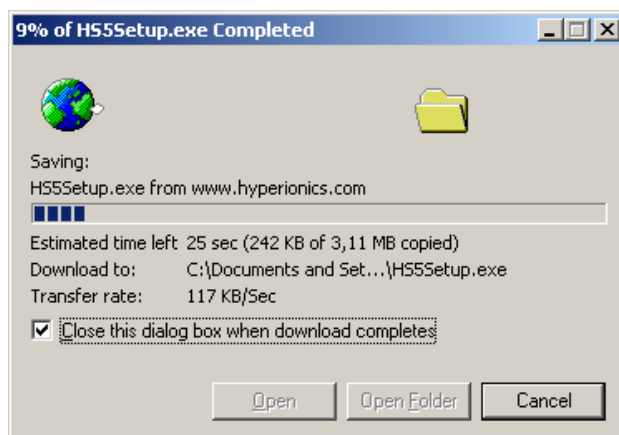
The correct dial string `*99***1#` should already be given, if entered in the *Phone number* box when the dial-up connection was added. Otherwise, you can type the number here before dialing.

User name and password may or may not be required, depending on the network operator.

The connection is properly established when the following messages are reported:



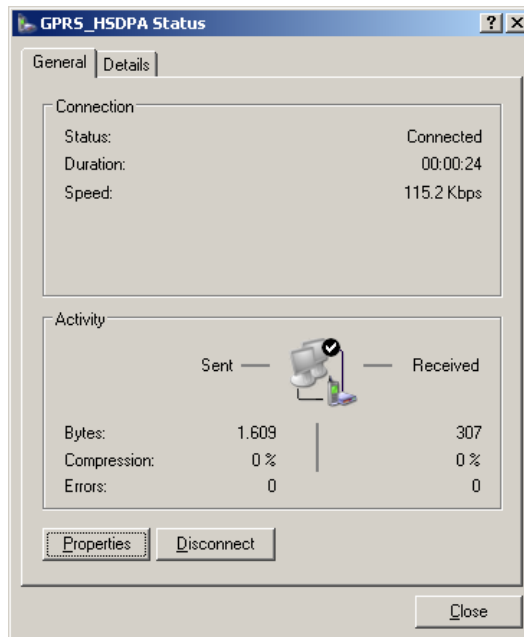
To verify the data rates for up- and/or downlink, you can use, for example, the file download status dialog of your Internet browser.



### Terminating the dial-up connection

To stop a HSDPA or GPRS data connection disconnect the dial-up connection. This can be done in two ways:

1. Double-click the dial-up network connection icon in the system tray. In the resulting connection status dialog press the *Disconnect* button.
2. The other way is available on the *Network Connections* page of the *Control Panel*: Right-click the active connection to open a context menu where to choose *Disconnect*.



Note that when you close the dial-up connection the echo will be automatically deactivated and needs to be activated again in the application.

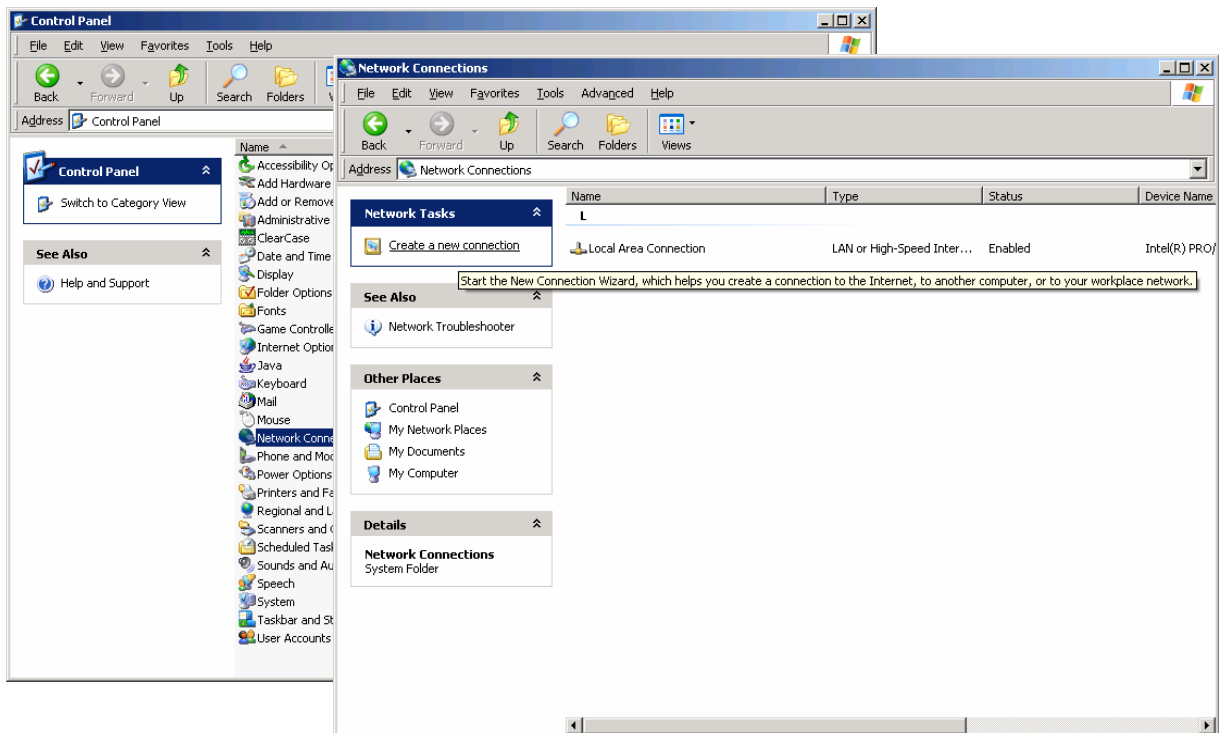
## 4 Appendix I

### 4.1 Adding and Configuring a New Dial-Up Connection

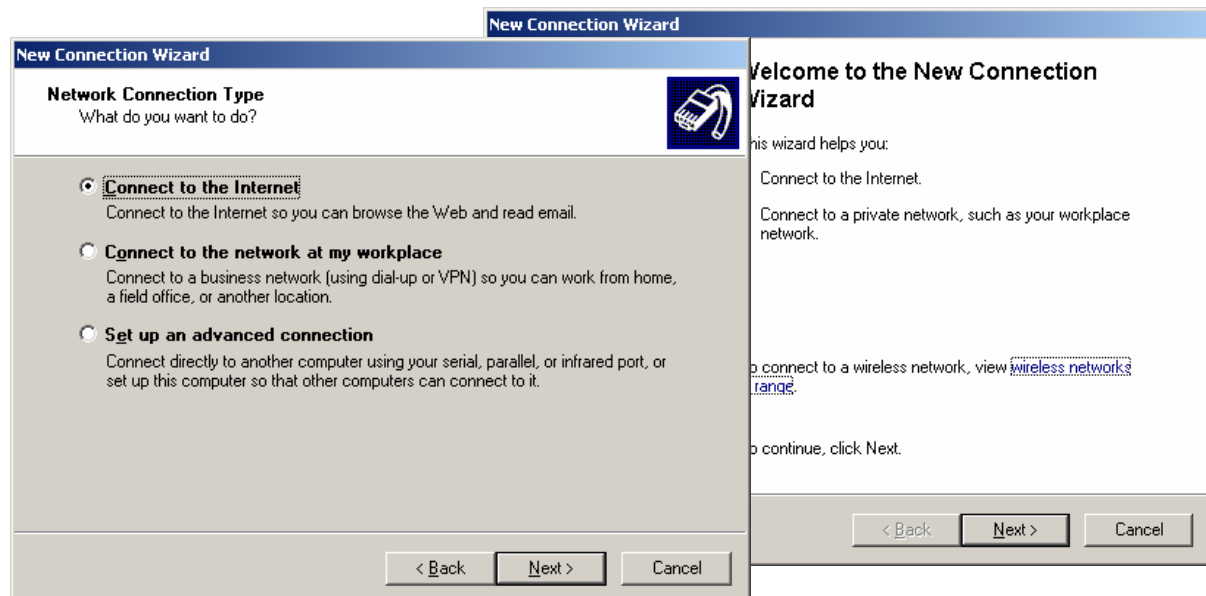
This chapter describes how to create and configure a new dial-up connection when using the installed Siemens HSDPA USB Modem to access the GPRS or HSDPA network:

#### 4.1.1 Adding a New Dial-up Connection

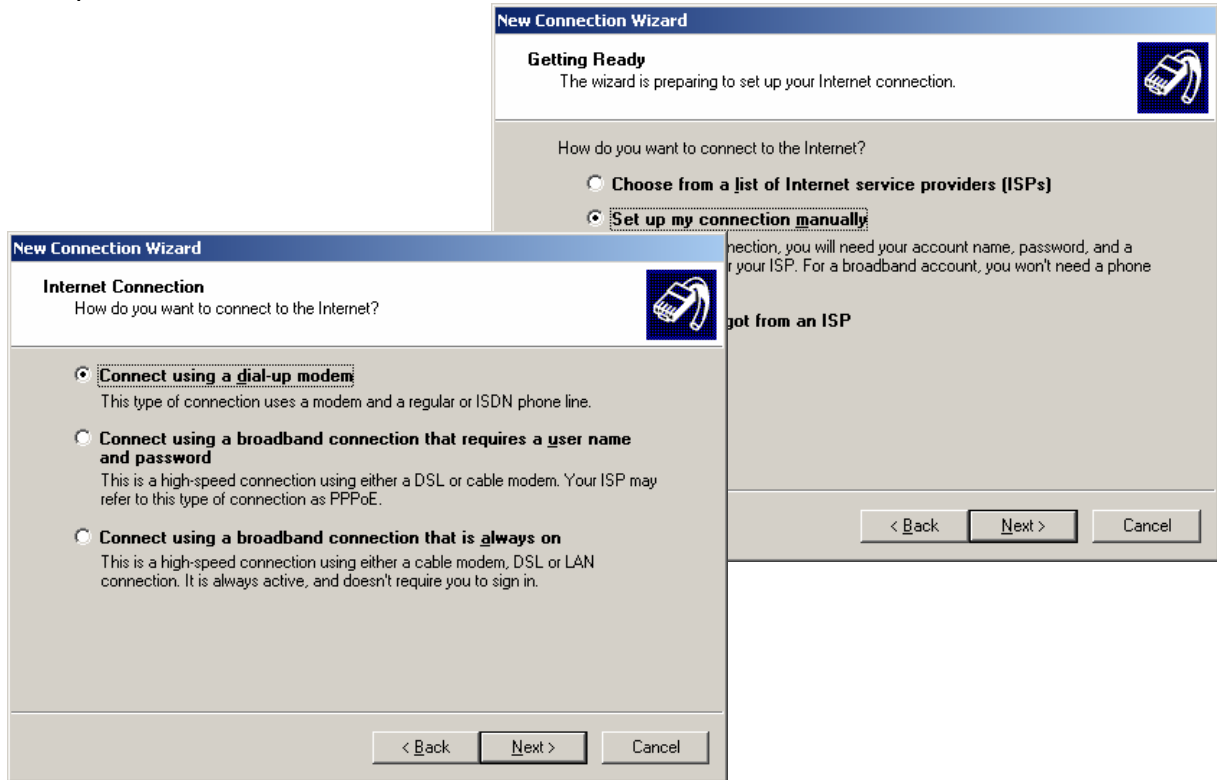
Open the *Control Panel*, double-click *Network Connections*, select *Create a new connection* on the left side of the panel.



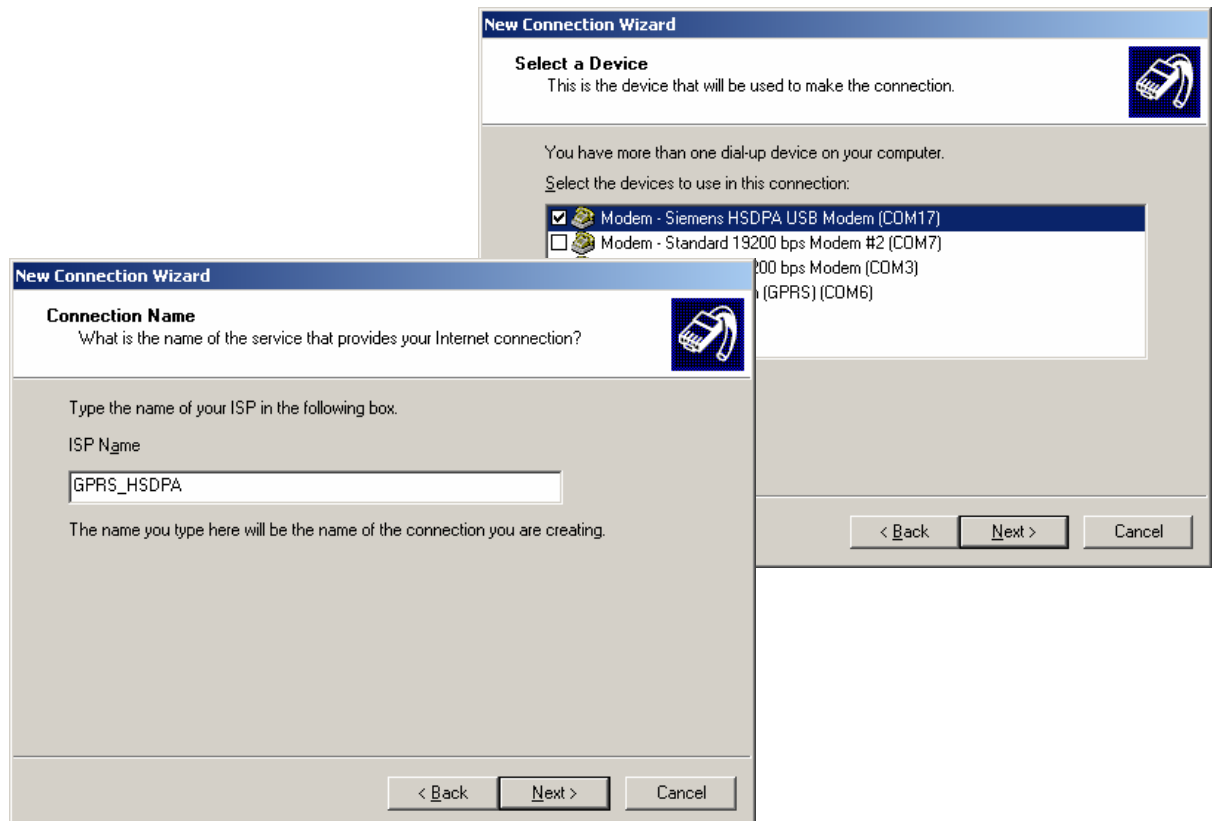
The *Network Connection Wizard* opens. Click *Next* to continue. Put a check mark on *Connect to the Internet* and click *Next*.



Select the option *Set up my connection manually* and click *Next*. Select *Connect using a dial-up modem* and click *Next*.



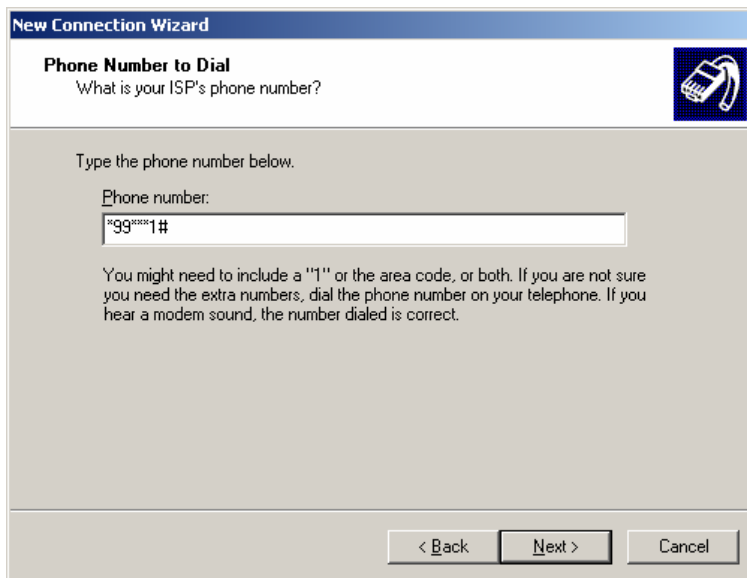
Select the modem driver that you want to use for the dial-up connection. Click *Next* to continue. Type an appropriate *Connection name* and click *Next*.



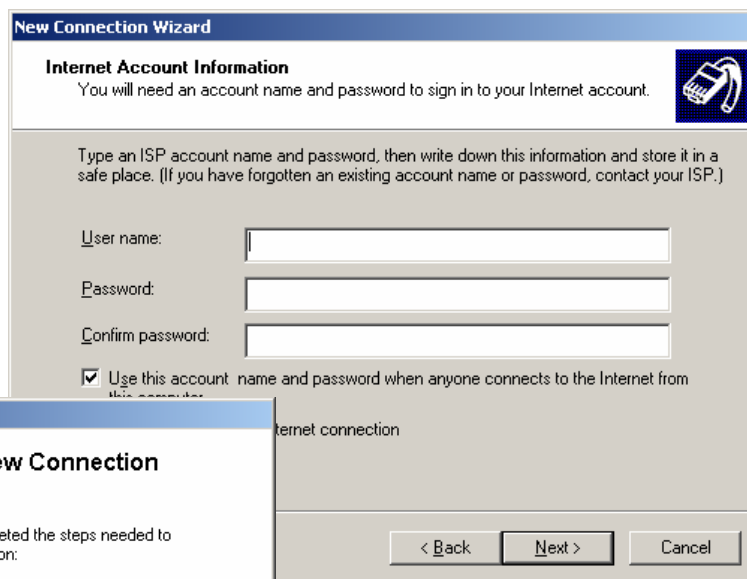


In the *Phone number* box, put the dial string *\*99\*\*\*1#* commonly used to access the GPRS network.

Note: The number "1" added before the hash determines that the first PDP context shall be used. The number must be identical to the <cid> value set with AT+CGDCONT (see Chapter 3.7)



Depending on the network, you may be required to put a *User name* and a *Password* for the dial-up connection. If not required, you may leave all boxes empty. Click *Next* and, in the resulting dialog, click *Finish*.

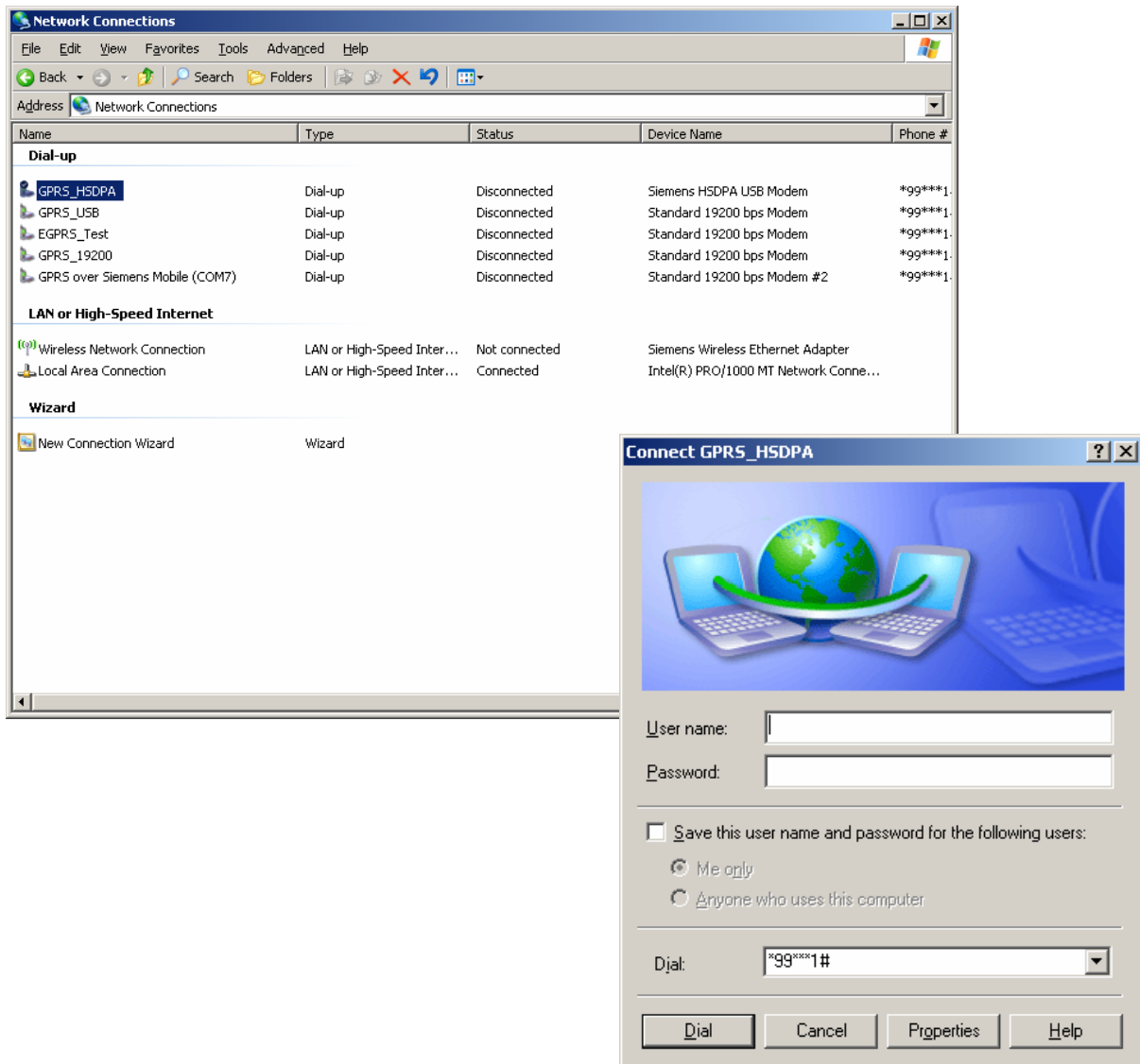


This will cause the *Connect...* dialog to appear (screen is shown in Chapter 4.1.2). Yet, at this moment, it is recommended that you press *Cancel* in order to check, and if necessary, to configure the dial-up connection as described in Chapter 4.1.2.

## 4.1.2 Configuring a Dial-up Connection

Every newly created dial-up connection should be configured before using it to establish a PPP connection.

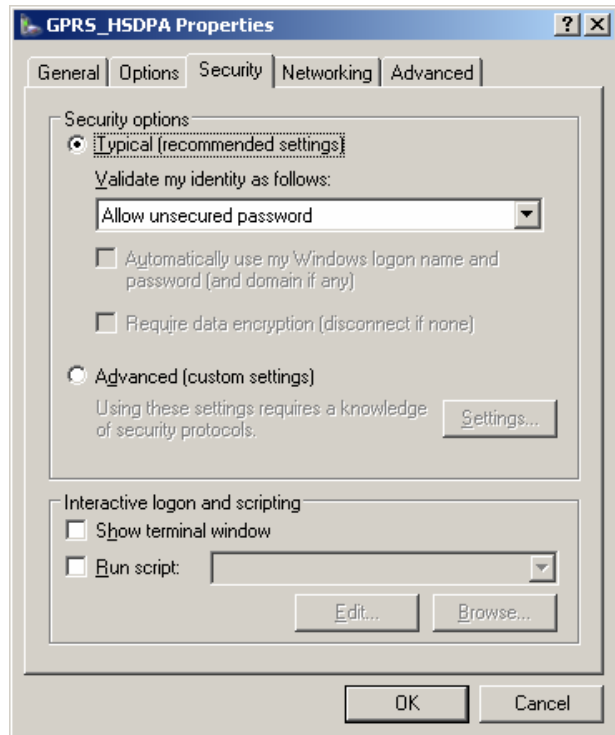
Open the *Control Panel*, double-click *Network Connections*, select the dial-up connection you want to configure. In the resulting *Connect...* dialog, press the *Properties* button.



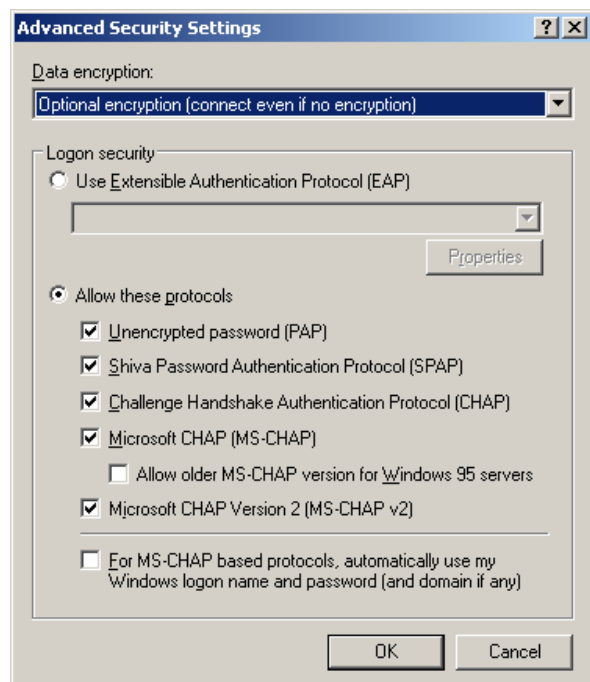
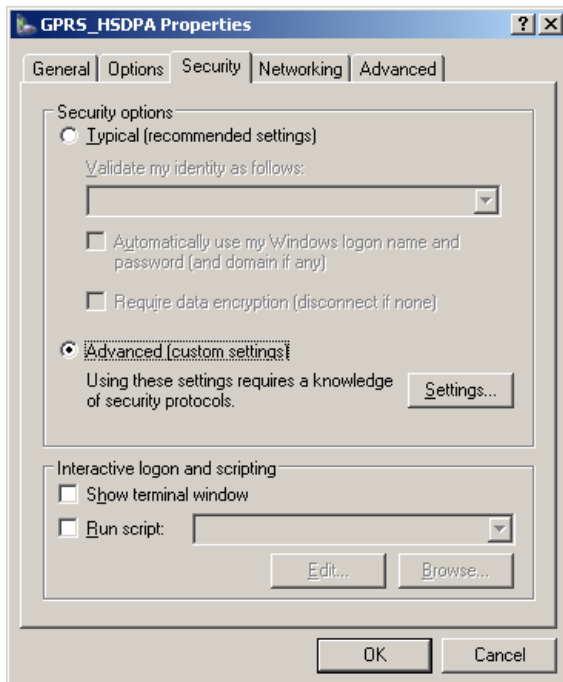
On the *General* tab, select the modem you want to configure. The correct dial string \*99\*\*\*1# should already be given, if entered before in the *Phone number* box when the dial-up connection was added (see Chapter 4.1.1).

Select the *Security* tab to verify or edit authentication options for PPP connections.

By default, MS Windows XP enables the option *Typical* with unsecured passwords for the commonly used but unsafe PAP authentication method. As this is the minimum level of security supported in all networks the setting usually enables the subscriber to make a connection, though at the expense of security.



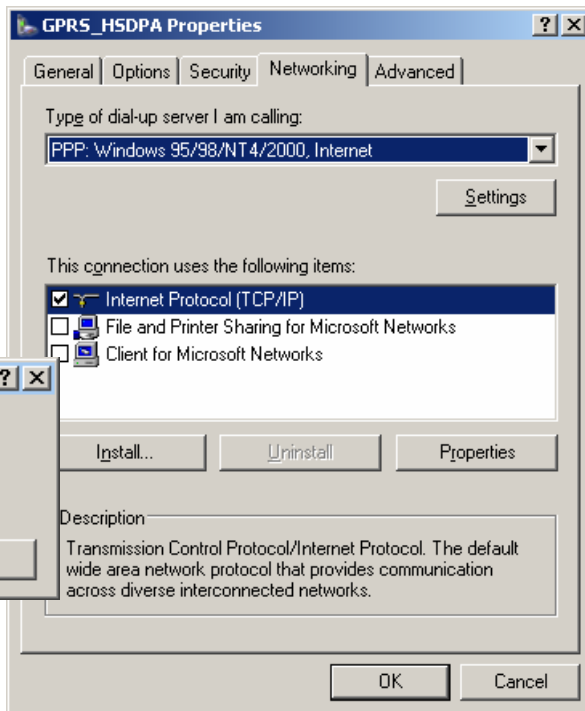
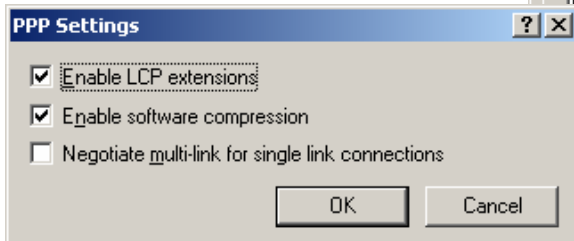
Many network operators apply more secure authentication methods for PPP connections, such as CHAP. For access to these networks, activate the *Advanced (custom setting)* option and press the *Settings* button. On the resulting *Advanced Security Settings* property page, enable / disable the authentication protocols according to the information provisioned by your service provider.



**Note:** If an attempt to connect to a HSDPA or GPRS network fails, check that the authentication protocols are properly set.

On the *Networking* tab, the default settings are acceptable in most cases: The drop-down menu shows *PPP: Windows 95/98/NT/2000, Internet* for the type of dialup server as default.

In the *PPP settings* box, verify that *Enable LCP extensions*, *Enable software compression* are selected and click *OK*.



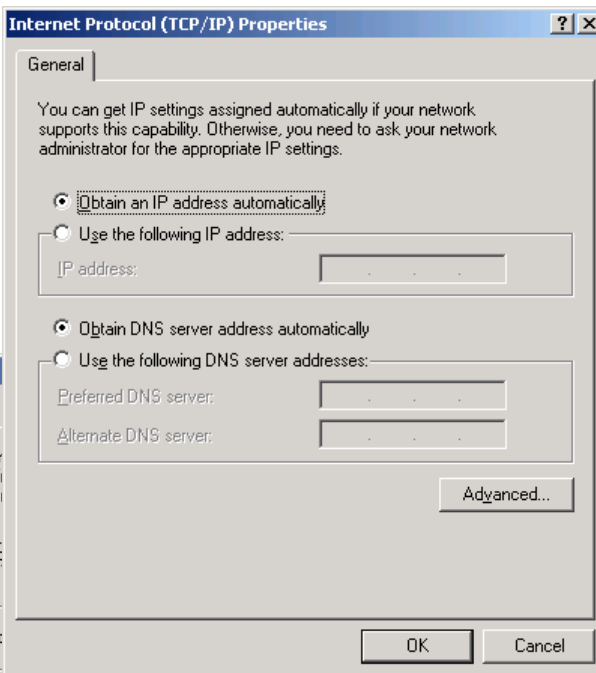
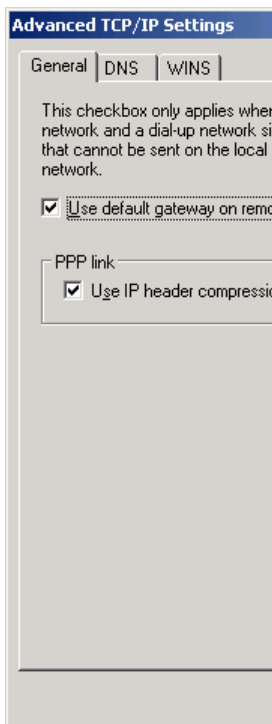
Select the *Internet Protocol (TCP/IP)* on the *Networking* tab and press the *Properties* button to go to the *General* page:

In most cases, it is sufficient to accept the default settings:

*Obtain an IP address automatically* and *Obtain DNS server address automatically*.

Otherwise, you have to select the options *Use the following IP address / Use the following DNS addresses* and specify the IP addresses provisioned by your network operator.

The *Advanced* button opens a further property page where you can set your preferences when working in a local network and a dial-up network at the same time.



## 4.2 Abbreviations

Abbreviation	Description
APN	Access Point Name
CHAP	Challenge Handshake Authentication Protocol
GPRS	General Packet Radio Service
HSDPA	High-Speed Downlink Packet Access
IP	Internet Protocol
ME	Mobile Equipment
MO	Mobile Originated
MT	Mobile Terminated
PAP	Password Authentication Protocol
PDP context	Packet Data Protocol context
TA	Terminal Adapter
TE	Terminal Equipment
UICC	Universal Integrated Circuit Card
UMTS	Universal Mobile Telecommunication System
URC	Unsolicited Result Code

## 5 Appendix II

This chapter refers to the DSB75 Board and the adapter board needed to mount a HC15 module onto the DSB75 Board.

The focus is on the configuration of several switches you may be required to change for use with HC15. A detailed description of the DSB75 Board is given in [3].

Please check that all slide switches (S100 – S103) on your HC15-DSB75 adapter board are set as shown in Figure 3.

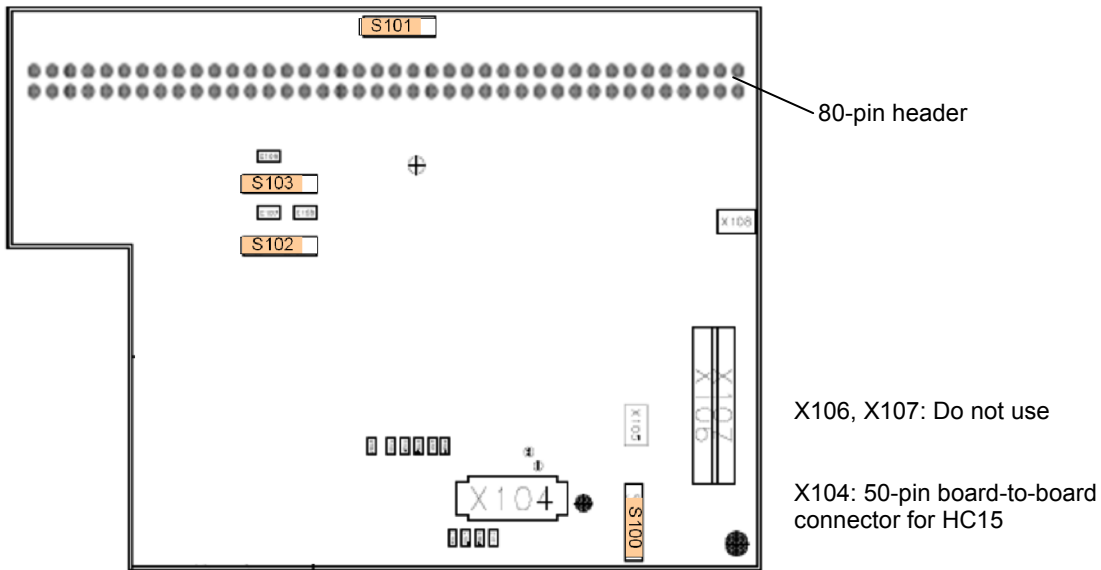


Figure 3: HC15-DSB75 adapter board – switch settings

Figure 4 shows the DSB75 Board and provides an overview of the connectors and switches relevant for HC15. Please note that the factory settings of the DSB75 Board are not fully applicable to HC15. The switches marked red or yellow must be set as shown. The switches marked green need not be changed.

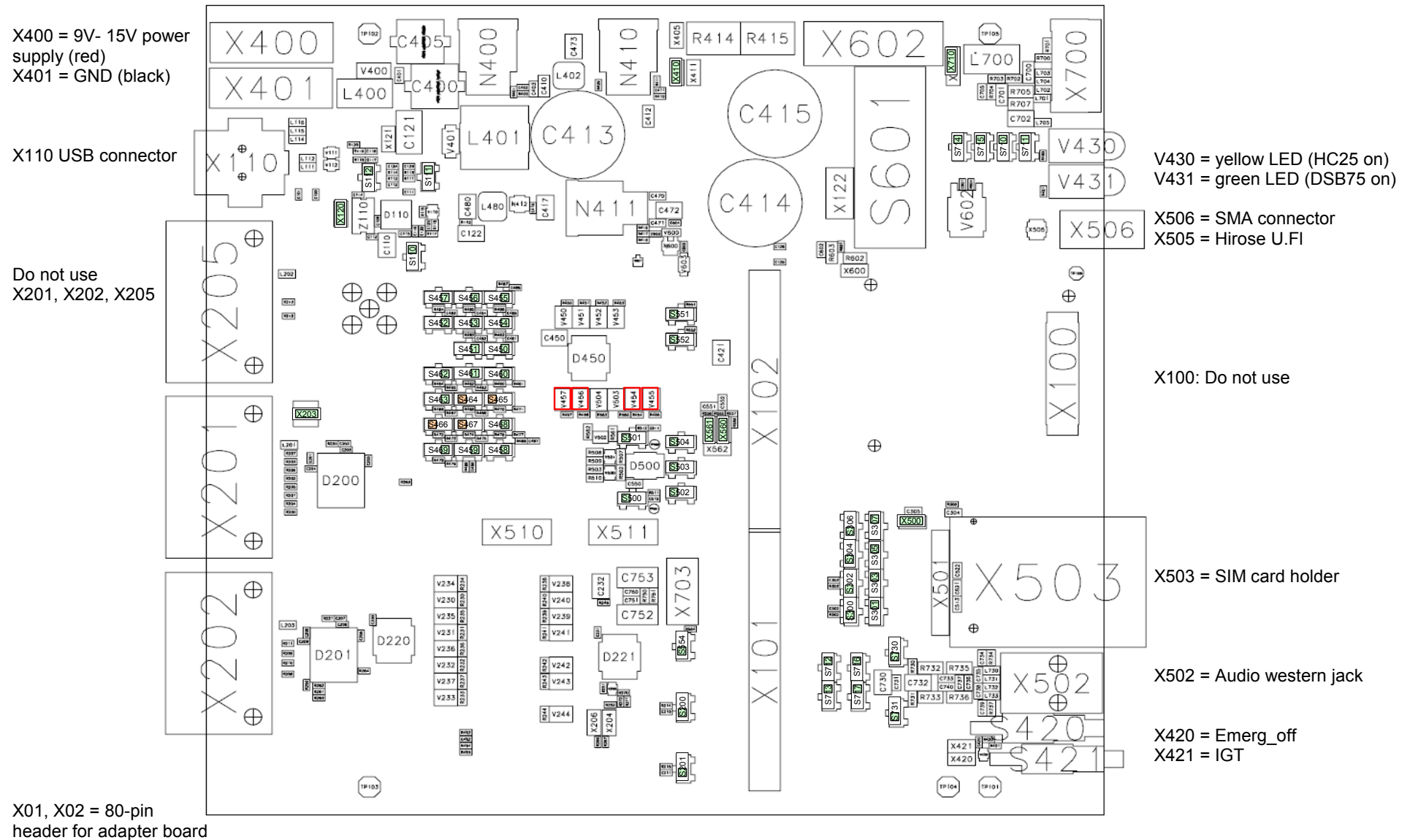


Figure 4: DSB75 Board – switches, connectors, LEDs (overview)