Bluetooth 56K Wireless Modem

User's Manual

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Appendix A. AT Command

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1. Introduction

The Bluetooth 56k wireless modem provide a standard V90 Modem for WAN communication and access to Internet. This device is capable of running a complete Bluetooth software stack and in addition to this there is sufficient memory and processing power to also run the Dial-Up Networking (DUN) and fax Bluetooth software application profiles. This device has been developed as a cost-effective means of providing wireless Internet access in the home or office.

Package Contents

- Bluetooth 56K Wireless Modem
- AC adapter
- RJ-11 phone cable
- RS-232 Cable (DB-9pin)
- Quick Start Guide
- Driver CD (User's Manual inside)

Note:

If any of these items are missing from the retail package, contact your supplier immediately.

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2. Specifications

2.1. Features

V90 Modem

- Data modem
  - ITU-T V9.0 and K56flex
  - V.34 (33.6 kbps), V.32 bis, V.32, V.22 bis, V.22, V.23, and V. 21; Bell 212A and

103
    - V.42 LAPM, MNP 2-4, and MNP 10 error correction
    - V.42 bis and MNP 5 data compression
    - MNP 10EC™ enhanced cellular performance
    - V.250 and V.251 commands
- Fax modem send and receive rates up to 14.4 kbps
    - V.17, V.29, V.27 ter, and V.21 channel 2
    - EIA/TIA 578 Class 1 and T.31 Class 1.0, and EIA/TIA 578 Class 2 commands
- V.80 synchronous access mode supports host-based communication protocols with H.324 interface
- Telephony/TAM , V.253 commands
    - 2-bit and 4-bit Conexant ADPCM, 8-bit linear PCM, and 4-bit IMA coding
    - 8 kHz sample rate , Concurrent DTMF and Ring
- Flow control and speed buffering
- Automatic format/speed sensing
- V.22bis fast connect
- Built-in host/DTE interface with speeds up to 230.4 kbps
- Serial sync / Async data; parallel Async data
- Meets worldwide DC VI Masks requirements

Bluetooth Module

- Using BlueCore2-External in conjunction with a host ARM processor.
- The Bluetooth stack software is split at the conventional HCI point
- Bluetooth Specification V1.X
- CSR Blue Core2 , External Signal chip Bluetooth System.
- Full speed Class2(1) .
- Full embedded to RF COMM
- Virtually Class 1 performance with no external power amplifier
- Authentication is a mandatory feature of the Dial-up Networking and fax profiles.

2.2. Specifications

- Communication software compatible AT command sets
- 3.3V low power consumption
- Bluetooth or D-SUB9 interface Switch
- Provides LEDs for showing status information

2.3. Certification

- FCC Part 68 , 15 and CE

2.4. Environment Operating Ranges

- Operation : 25 ~ 80¢J
- Storage : -5 ~ 90¢J

2.5. Power Consumption

- Operation : 0.85w(Avg) 1.14W (Max)
- Standby : 0.26W

2.6. LED Indication

- Power LED indicator : Power ON
- Link LED indicator : Bluetooth Link with Host
- ACT LED indicator : Bluetooth Data TX/RX
- OH LED indicator : Modem OFF Hook
- TX LED indicator : Modem Data TX
- RX LED indicator : Modem Data RX

2.7. Driver Support

- Windows 98SE, Windows ME, Windows 2000, Windows XP

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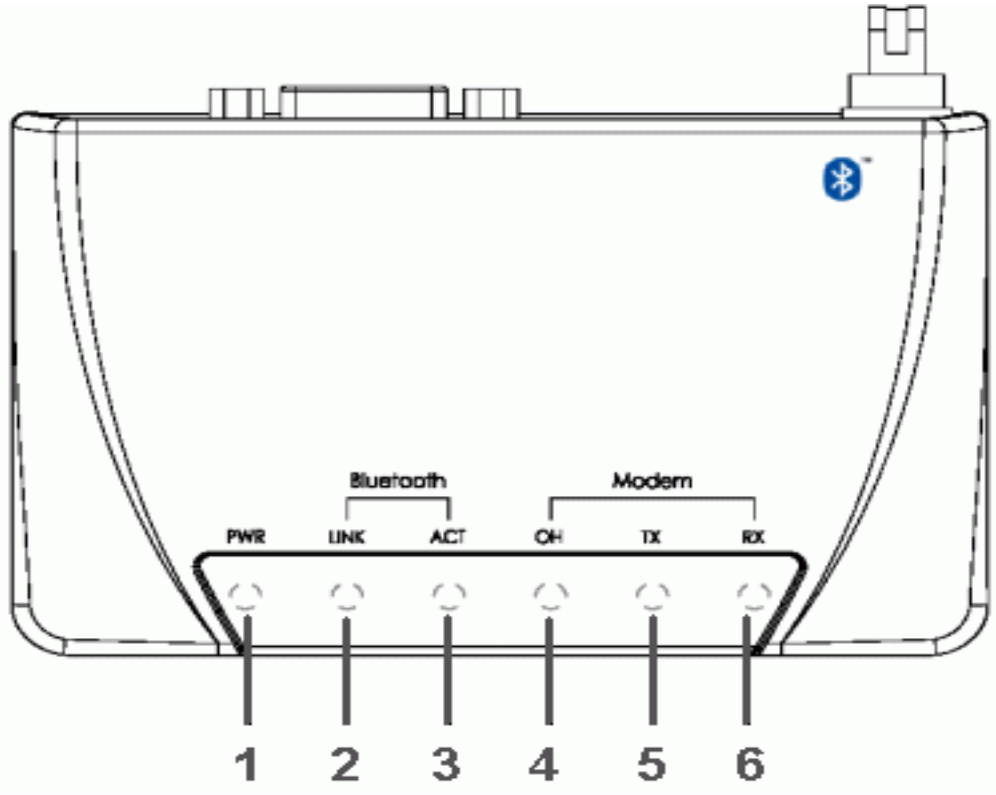
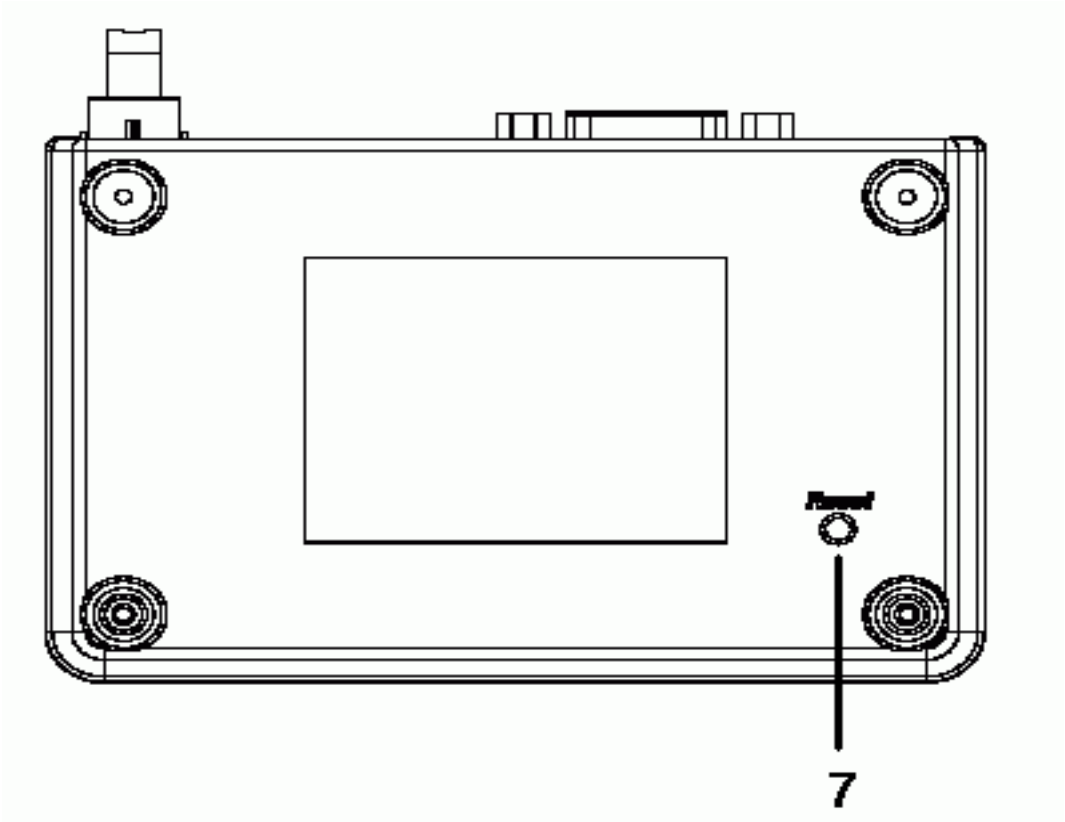
3. Product Shape


Bluetooth
Modem
PWR
LINK
ACT
OH
TX
RX
1
2
3
4
5
6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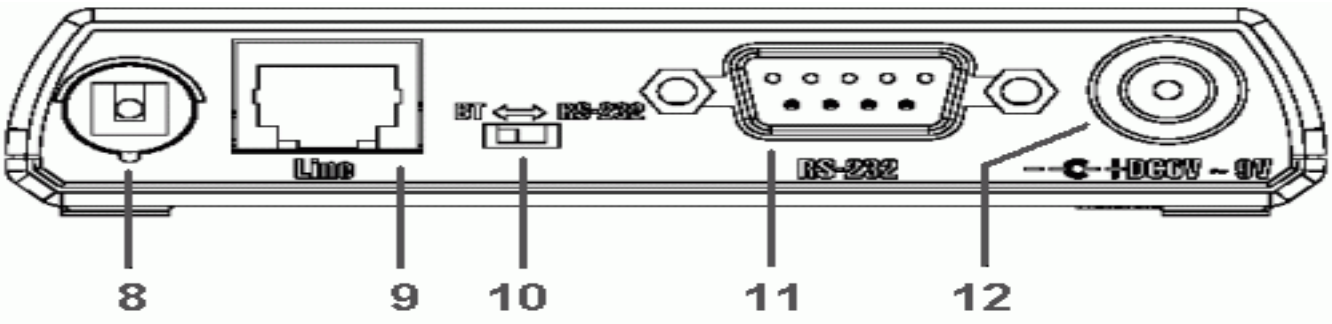

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1. Power LED indicator	7. Reset Button
2. Link LED indicator	8. Antenna
3. ACT LED indicator	9. RJ-11 Socket
4. OH LED indicator	10. Switch
5. TX LED indicator	11. RS-232 Connector
6. RX LED indicator	12. Power Jack

4. Bluetooth Modem Mode

Switch to "**BT**" side.

Connect the telephone line to the RJ-11 socket and plug AC adapter to an power outlet.

Please refer your Bluetooth software to operate the Bluetooth modem.

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5. 56K Modem Mode

Switch to "**RS-232**" side.

5.1 Windows98 Installation

1. Connect the telephone line to the RJ-11 socket and plug AC adapter to an power outlet, then plug RS-232 cable male head to RS-232 connector of Bluetooth 56K Wireless Modem and plug female head to your PC.

2. Make sure your PC is powered on and that you are running the Windows operating system. Then system will recognize the device and display the "**Add New Hardware Wizard**" dialog box. Please insert the driver CD and then click the "**Next**" button.

3. Select "**Search for the best driver for your device (Recommended)**", then click the "**Next**" button.

4. Select "**Specify a location**" and type "**G:\Modem**" (where G:\ is the path of your CD-ROM drive) in the location or you can click the "**Browse**" button to select, then click the "**Next**" button.

5. Click the "**Next**" button, the driver then installs itself.

6. Click the "**Finish**" button to complete the installation process.

5.2 WindowsME Installation

1. Connect the telephone line to the RJ-11 socket and plug AC adapter to an power outlet, then plug RS-232 cable male head to RS-232 connector of Bluetooth 56K Wireless Modem and plug female head to your PC.

2. Make sure your PC is powered on and that you are running the Windows operating system. Then system will recognize the device and display the "**Add New Hardware Wizard**" dialog box. Please insert the driver CD and then click the "**Next**" button.

3. Select "**Search for the best driver for your device.**" then choose "**Specify a location**" and type "**G:\Modem**" (where G:\ is the path of your CD-ROM drive) in the location or you can click the "**Browse**" button to select, then click the "**Next**" button.

4. Click the "**Next**" button, the driver then installs itself.

5. Click the "**Finish**" button to complete the installation process.

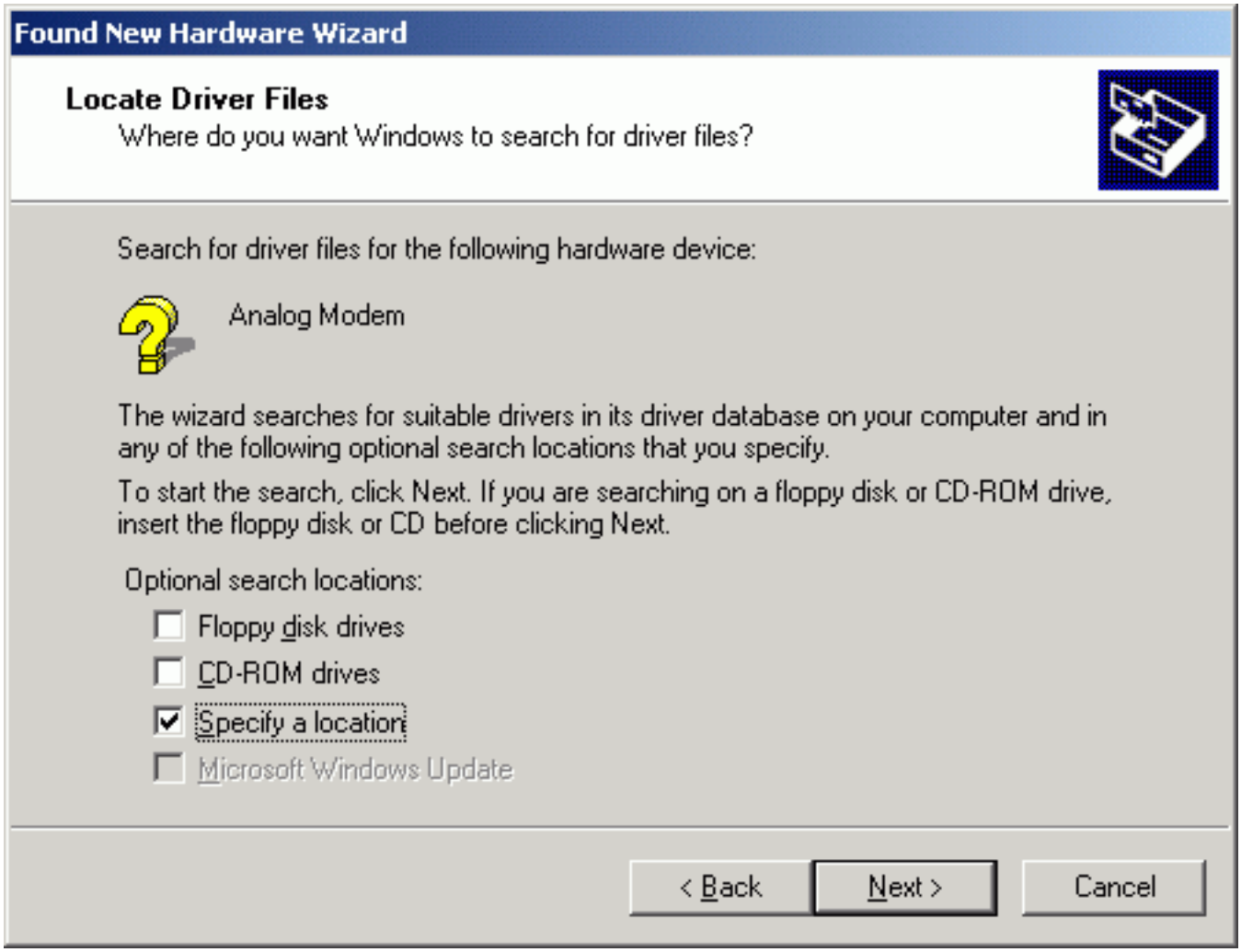
5.3 Windows2000 Installation

1. Connect the telephone line to the RJ-11 socket and plug AC adapter to an power outlet, then plug RS-232 cable male head to RS-232 connector of Bluetooth 56K Wireless Modem and plug female head to your PC.

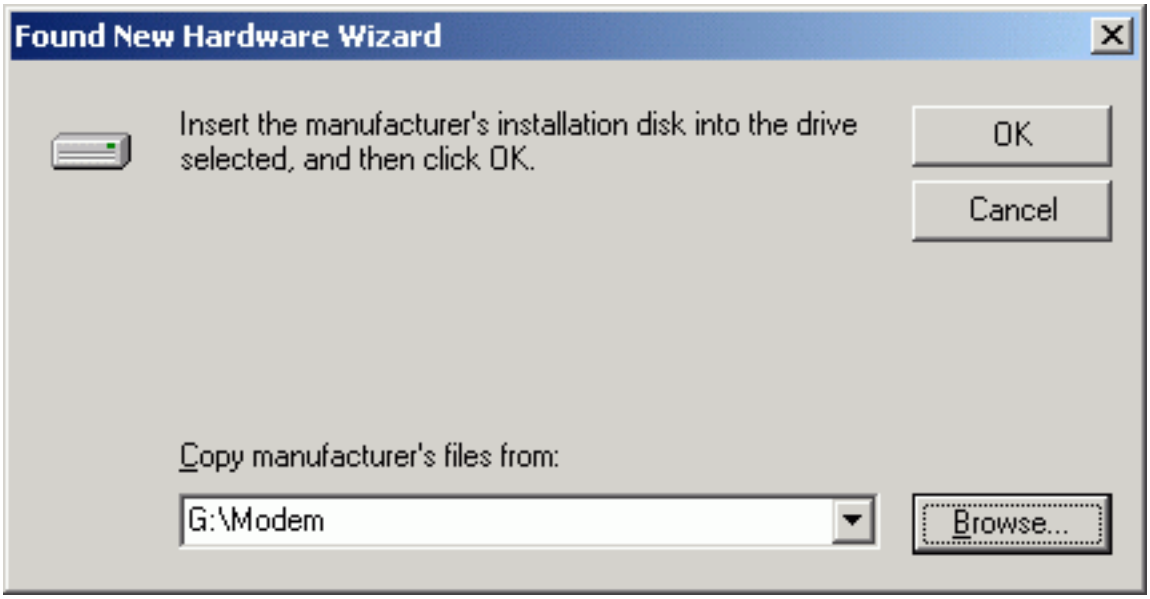
2. Make sure your PC is powered on and that you are running the Windows operating system. Then system will recognize the device and display the "**Found New Hardware Wizard**" dialog box. Please insert the driver CD then click the "**Next**" button.

2. Select "**Install the software automatically (Recommended)**", then click the "**Next**" button.

3. Select "**Specify a location**" then click the "**Next**" button.

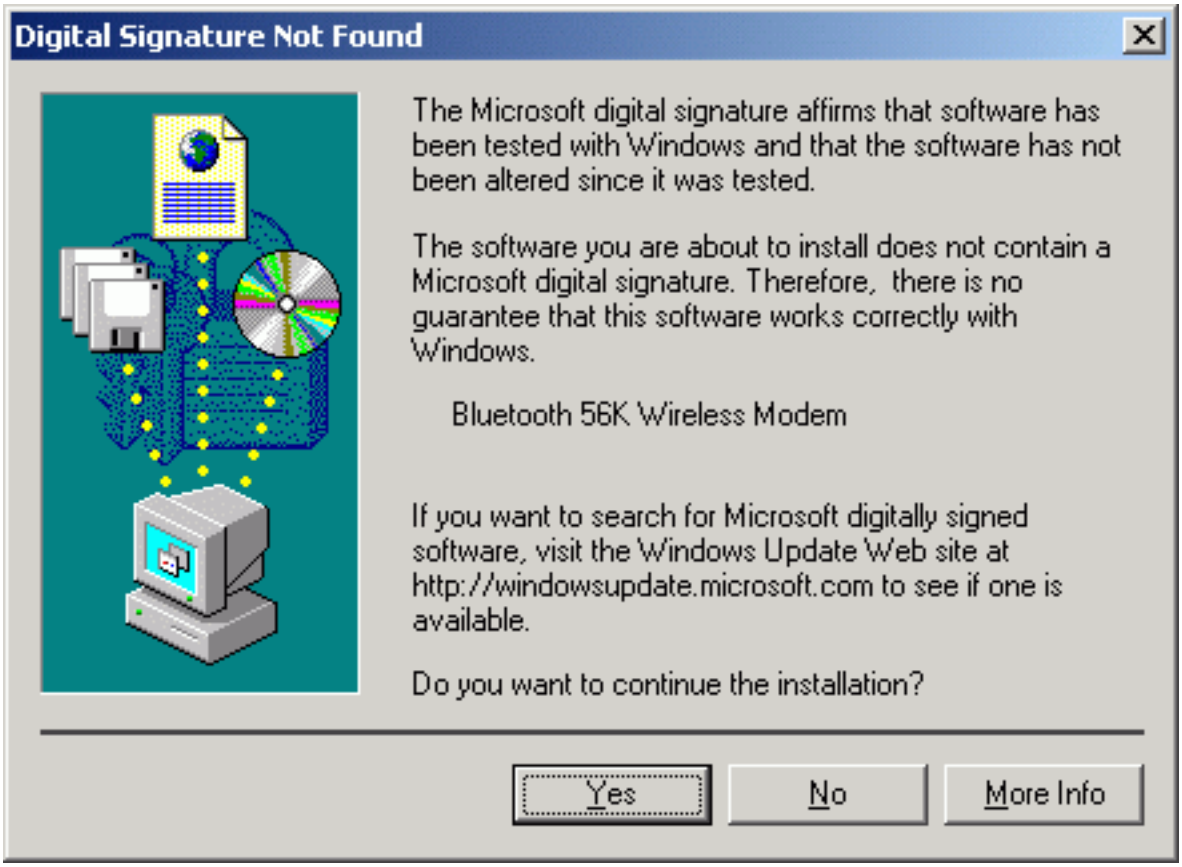


4. Type "**G:\Modem**" (where G:\ is the path of your CD-ROM drive) in the location or you can click the "**Browse**" button to select, then click the "**Next**" button.



5. Click the "**Next**" button, the driver then installs itself.

6. Windows will search for and recognize the driver of the device, then display one message. Please click the "**Yes**" button. Windows will then automatically copy the driver files and related files into the system.



7. After copying the driver files, click the "**Finish**" button to complete the installation process.

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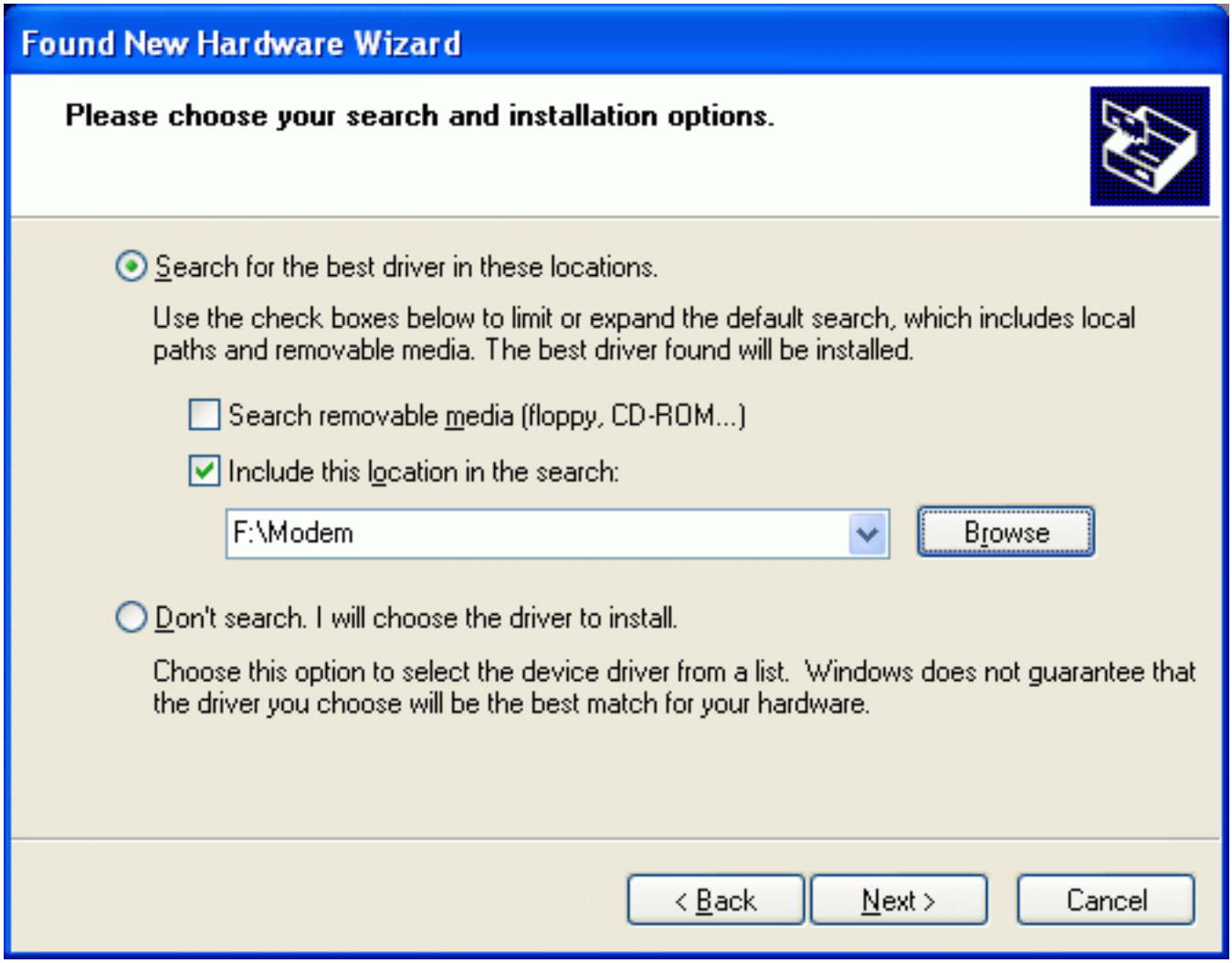
5.4 WindowsXP Installation

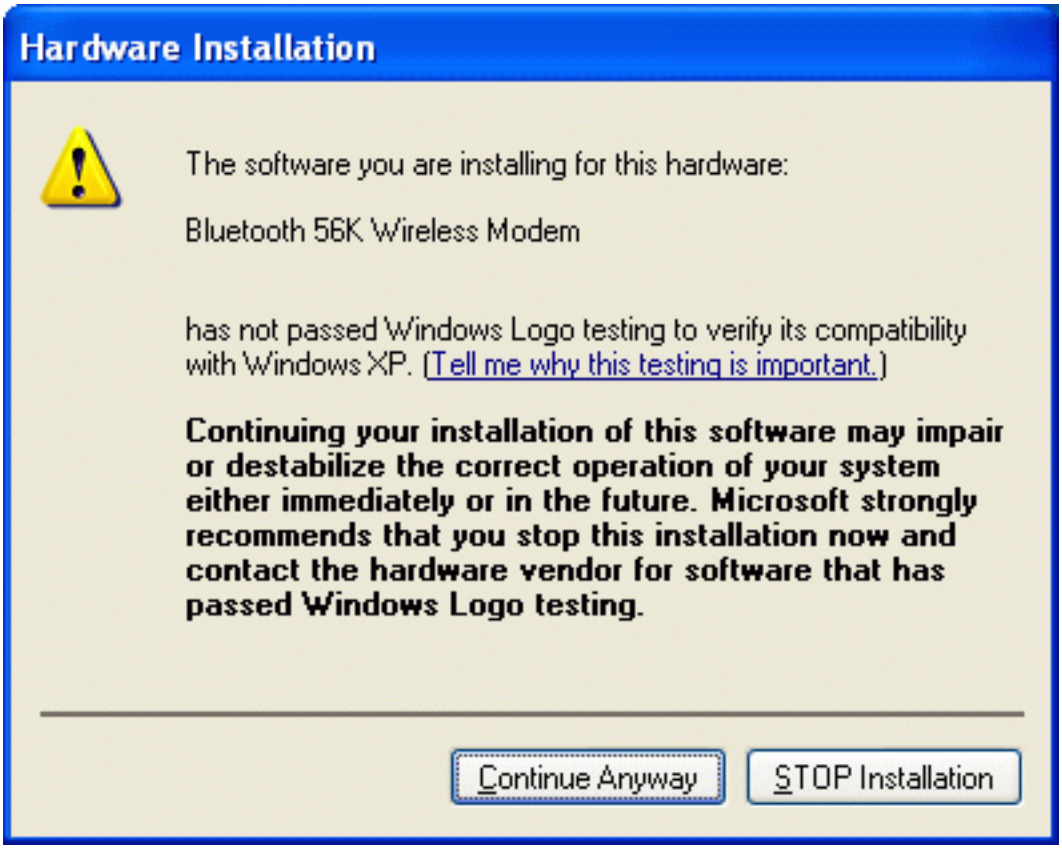
1. Connect the telephone line to the RJ-11 socket and plug AC adapter to an power outlet, then plug RS-232 cable male head to RS-232 connector of Bluetooth 56K Wireless Modem and plug female head to your PC.

2. Make sure your PC is powered on and that you are running the Windows operating system. Then system will recognize the device and display the "**Found New Hardware Wizard**" dialog box. Select "**Install from a list or specific location (Advanced)**", insert the driver CD then click the "**Next**" button.

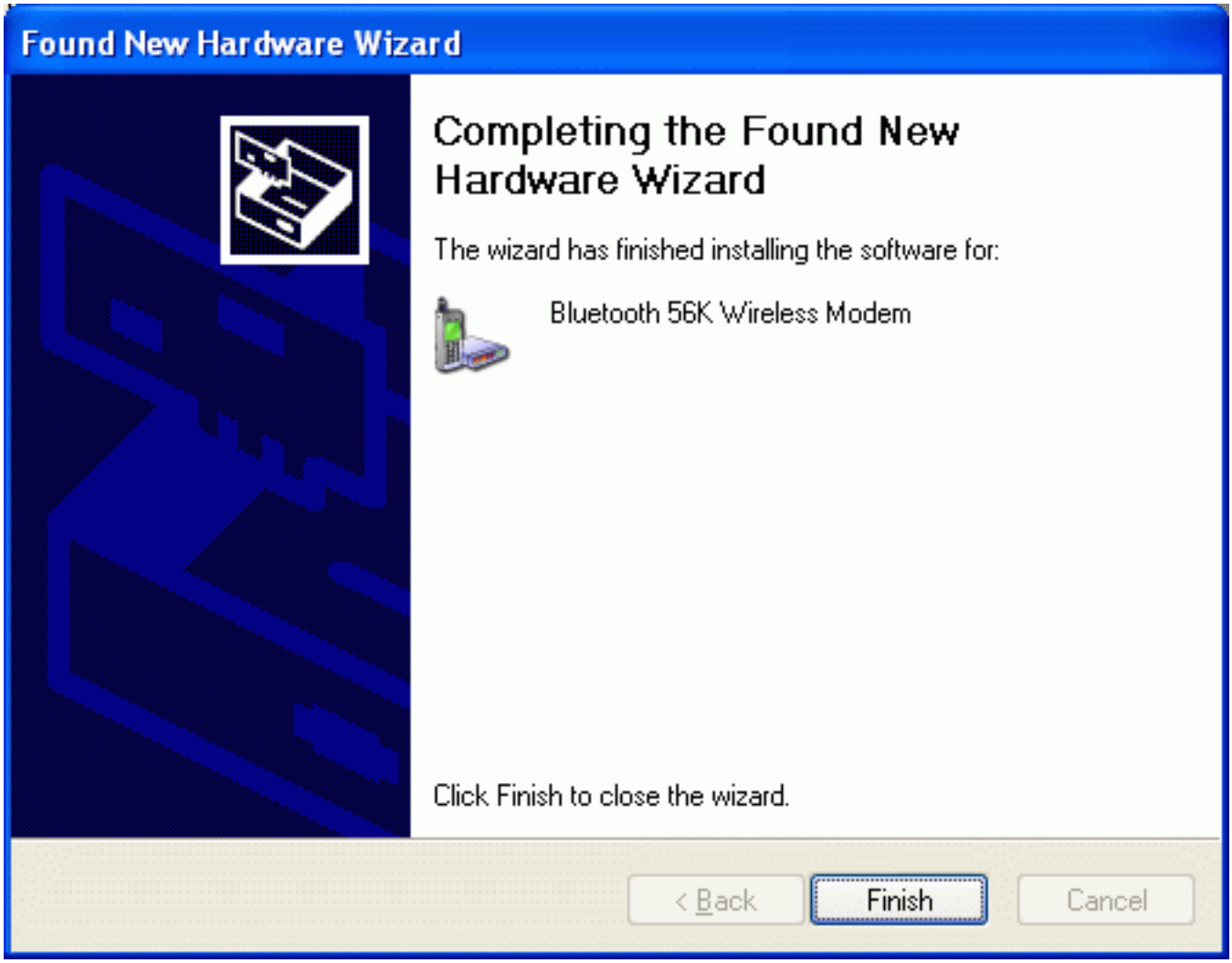
3. Select "**Search for the best driver in these locations.**" and choose "**Include this location in the search:**" then type "**F:\Modem**" in the location. Click the "**Next**" button.



4. Windows will search for and recognize the driver of the device, then display one message. Please click the "**Continue Anyway**" button. Windows will then automatically copy the driver files and related files into the system.



5. After copying the driver files, click the "**Finish**" button to complete the installation process.



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5.5 SuperVoice software Installation¡@

SuperVoice provides data and voice access via connect to internet that capabilities to Microsoft based operating system.

To install **SuperVoice** for the first time on a system:

1. The program will autorun when you insert the software CD to CD drive of your PC.

2. Follow the directions displayed in the **SuperVoice** installation program. Specify a path name in which you want **SuperVoice** to be installed.

3. Reboot your system when prompted by the setup program. Once the system is running again, you can use **SuperVoice** software.

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Appendix A. AT Command

Command	Function	Default	Range	Reported by &Vn
A/ **	Repeat last command	none	-	no
A	Answer	none	-	no
Bn *	Select ITU-T or Bell	1	0-3	yes
B0	Selects ITU-T V.22 at 1200 bps and ITU-T V.21 at 300 bps	¡@	¡@	¡@
B1	Select Bell 212A at 1200 bps and Bell 103J at 300 bps	¡@	¡@	¡@
B2	Selects ITU-T V.23 only. The originating modem transmits to 75 bps (and receives at 1200 bps); the answering modem receives at 75 bps (and transmits at 1200 bps)	¡@	¡@	¡@
B3	Select ITU-T V.23 only. The originating modem transmits at 1200 bps (and receives at 75 bps); the answering modem receives at 1200 bps (and transmits at 75 bps)	¡@	¡@	¡@
Cn	Carrier control option	1	0,1	no
C0	Transmit carrier always off	¡@	¡@	¡@

C1	Normal transmit carrier	¡@	¡@	¡@
D	Dial command	none	-	no
En *	Command mode echo	1	0,1	yes
E0	Disable echo	¡@	¡@	¡@
E1	Enable echo	¡@	¡@	¡@
Fn	Online echo	1	0,1	no
F0	Enables online echo	¡@	¡@	¡@
F1	Disables online echo	¡@	¡@	¡@
Hn	Switch hook control	0	0,1	no
H0	Hangs up the telephone line	¡@	¡@	¡@
H1	Picks up the telephone line	¡@	¡@	¡@
In	Identification/checksum option	0	0-14, 20-24	no
I0	Reports product code	¡@	¡@	¡@

I1	Reports modem chip firmware version	¡@	¡@	¡@
I2	Verifies ROM checksum	¡@	¡@	¡@
I3	Reports chipset name	¡@	¡@	¡@
I4	Reserved	¡@	¡@	¡@
I5	Reserved for modem chip hardware configuration	¡@	¡@	¡@
I6	Country code	¡@	¡@	¡@
I7	Version of board manufacturer firmware	¡@	¡@	¡@
I8	Features of modem firmware	¡@	¡@	¡@
I10	Modem board configuration-bits set by board manufacturer	¡@	¡@	¡@
I11	Modem board configuration-bits set by board manufacturer	¡@	¡@	¡@
I14	SAFE device	¡@	¡@	¡@
I20	Cirrus Logic silicon version	¡@	¡@	¡@
I21	Cirrus Logic firmware version	¡@	¡@	¡@
I22	Cirrus Logic manufacturer name	¡@	¡@	¡@

I23	Cirrus Logic product model	¡@	¡@	¡@
Ln *	Speaker volume control	2	0-3	yes
L0	Low speaker volume	¡@	¡@	¡@
L1	Low speaker volume	¡@	¡@	¡@
L2	Medium speaker volume	¡@	¡@	¡@
L3	High speaker volume	¡@	¡@	¡@
Mn *	Speaker control	1	0-3	yes
M0	Speaker always off	¡@	¡@	¡@
M1	Speaker on until carrier present	¡@	¡@	¡@
M2	Speaker always on	¡@	¡@	¡@
M3	Speaker off during dialing; speaker on until carrier present	¡@	¡@	¡@
Nn *	Select data rate handshake	1	0,1	yes
N0	Handshake only at DTE-to-modem data rate	¡@	¡@	¡@
N1	Begins handshake at DTE-to-modem data rate and falls to highest compatible rate	¡@	¡@	¡@

On	Go online	0	0,1	no
O0	Returns modem to data mode	¡@	¡@	¡@
O1	Retrains equalizer and then returns to data mode	¡@	¡@	¡@
P *	Select pulse dialing	none	-	yes
Qn *	Result code display control	0	0,1	yes
Q0	Enables result codes	¡@	¡@	¡@
Q1	Disables result codes	¡@	¡@	¡@
Sn	Select an S-register	none	0-37	no
Sn=X	Write to an S-register	none	n=0-37 X=0-255	no
Sn?	Read from an S-register	none	0-37	no
T *	Select tone dialing	none	-	no
Vn	Result code form	1	0,1	yes
V0	Choose numeric form	¡@	¡@	¡@

V1	Choose verbose (text) form	¡@	¡@	¡@
Wn *	Response code data rate	0	0-4	yes
W0	Reports DTE speed response codes	¡@	¡@	¡@
W1	Reports DTE speed response codes	¡@	¡@	¡@
W2	Reports DTE speed response codes	¡@	¡@	¡@
W3	Reports DTE speed response codes and information on error correction and data compression	¡@	¡@	¡@
W4	Reports protocol, data compression, and DTE data rate	¡@	¡@	¡@
Xn *	Result code type	4	0-4	yes
X0	Enable result codes 0-4; disables detection of busy and dial tone	¡@	¡@	¡@
X1	Enables result codes 0-5, 10, and above; disables busy and dial tone detection	¡@	¡@	¡@
X2	Enables result codes 0-6 and 10 and above; disables busy detection and enables dial tone detection	¡@	¡@	¡@
X3	Enables result codes 0-5, 7, and 10 and above; enables busy detection and disables dial tone detection	¡@	¡@	¡@
X4	Enable result codes 0-7 and 10 and above; enables busy and dial tone detection	¡@	¡@	¡@

Yn *	Long space disconnect	0	0,1	yes
Y0	Disables long space disconnect	¡@	¡@	¡@
Y1	Enables long space disconnect	¡@	¡@	¡@
Zn	Recall stored profile	0	0,1	no
Z0	Resets modem and recalls user profile 0	¡@	¡@	¡@
Z1	Resets modem and recalls user profile 1	¡@	¡@	¡@
&Cn *	DCD (data carrier detect)option	1	0,1	yes
&C0	Ignores remote modem status; DCD always on	¡@	¡@	¡@
&C1	DCD set according to remote modem status	¡@	¡@	¡@
&Dn	DTR (data terminal ready) option	2	0-3	yes
&D0	In async mode, modem ignores DTR	¡@	¡@	¡@
&D1	Modem switches from data mode to command mode when an on-to-off transition of DTR occurs	¡@	¡@	¡@
&D2	When DTR switches off, the modem goes onhook and disables auto-answer mode; when DTR switches on, auto-answer is enabled	¡@	¡@	¡@
&D3	Turning off DTR re-initializes the modem and resets values except UART registers	¡@	¡@	¡@

&F	Load factory defaults	none	-	no
&Gn *	Guard tone option (1200 bps and 2400 bps only)	0	0-2	yes
&G0	Disables guard tone	¡@	¡@	¡@
&G1	Enables 500-Hz guard tone	¡@	¡@	¡@
&G2	Enables 1800-Hz guard tone	¡@	¡@	¡@
&Jn *	Auxiliary relay control	0	0-1	yes
&J0	Auxiliary relay never operated	¡@	¡@	¡@
&J1	Activates auxiliary relay when modem is offhook	¡@	¡@	¡@
&Kn	Select serial port flow control	3	0, 3, 4	yes
&K0	Disables flow control	¡@	¡@	¡@
&K3	Bidirectional hardware flow control	¡@	¡@	¡@
&K4	XON/XOFF software flow control	¡@	¡@	¡@
&M0 *	Communication mode option-modem supports only async mode	0	0	no
&Pn *	Dial pulse ratio	0	0,1	yes

&P0	Sets 10-pps pulse dial with 39% / 61% makebreak	¡@	¡@	¡@
&P1	Sets 10-pps pulse dial with 33% / 67% makebreak	¡@	¡@	¡@
&Q0 *	Communication modem option-modem support only async mode	0	0	yes
&Sn *	DSR (data set ready) option	0	0, 1	yes
&S0	DSR is always active	¡@	¡@	¡@
&S1	DSR active only during handshaking and when carrier is lost	¡@	¡@	¡@
&Un *	Disable Trellis coding	0	0,1	yes
&U0	Enable Trellis coding with QAM as fallback	¡@	¡@	¡@
&U1	QAM modulation only	¡@	¡@	¡@
&Vn	View active and stored profiles	0	0, 1, 3	no
&V0	View stored profile 0	¡@	¡@	¡@
&V1	View stored profile 1	¡@	¡@	¡@
&V3	View relay and general-purpose input-output status	¡@	¡@	¡@
&Wn	Stored active profile	0	0, 1	no

&W0	Store in user profile 0	¡@	¡@	¡@
&W1	Store in user profile 1	¡@	¡@	¡@
&Yn *	Select stored profile on power up	0	0, 1	yes
&Y0	Recall stored profile 0 on power-up	¡@	¡@	¡@
&Y1	Recall stored profile 1 on power-up	¡@	¡@	¡@
&Zn=x	Store telephone number (up to 30 digits) to location 'n'(0-3)	none	n=0-3 x=0-9 A B C D # * T P R W @ , ! ;	no
%En *	Auto-retrain control	1	0, 1	yes
%E0	Disables auto-retrain	¡@	¡@	¡@
%E1	Enables auto-retrain	¡@	¡@	¡@
%Gn *	Rate renegotiation	0	0, 1	yes
%G0	Disabled	¡@	¡@	¡@
%G1	Enable	¡@	¡@	¡@

-Cn *	Generate data modem calling tone	1	0-2	yes
-Cn	Calling tone disabled	¡@	¡@	¡@
-C1	1300-Hz calling tone enabled	¡@	¡@	¡@
-C2	V.8 calling tone and 1300-Hz calling tone	¡@	¡@	¡@
+GMI?	Identify modem manufacturer	none	-	no
+GMM?	Identify product model	none	-	no
+GMR?	Identify product revision	none	-	no
+MS=m	Modulation selections	V90, 1, 300,0	See note +	no

+ See full command description in the CL-MD56XX Programmer's Guide for parameter ranges. For data mode, the factory default setting is AT+MS=V90, 1, 300, 0 to send at speeds of 31,200 bps and below and receive at speeds of 53,333 bps and below.

* Value saved in NVRAM.

** Command not preceded by an 'AT'.

Error Correction and Data Compression

V.42/V.42 bis MNP AT Commands

Command	Function	Default	Range	Reported by &Vn

&An *	Set auto-reliable fallback character	13	0-127	yes
%Cn *	MNP 5 data compression control	1	0,1	yes
%C0	No compression	¡@	¡@	¡@
%C1	Enables MNP 5 data compression	¡@	¡@	¡@
\An *	MNP block size	3	0-3	yes
\A0	Maximum 64 characters	¡@	¡@	¡@
\A1	Maximum 128 characters	¡@	¡@	¡@
\A2	Maximum 192 characters	¡@	¡@	¡@
\A3	Maximum 256 characters	¡@	¡@	¡@
\Bn *	Transmit break	none	0-9	no
\Cn *	Set auto-reliable buffer	0	0-2	yes
\C0	No data buffering	¡@	¡@	¡@
\C1	Four-second buffer until 200 characters in the buffer or detection of a SYN character	¡@	¡@	¡@
\C2	No buffering. Connects non-V.42 modems to V.42 modem	¡@	¡@	¡@

\Gn *	Set modem port flow control	0	0, 1	yes
\G0	Disables port flow control	¡@	¡@	¡@
\G1	Sets port flow control to XON/XOFF	¡@	¡@	¡@
\Jn *	bps rate adjust control	0	0, 1	yes
\J0	Disable rate adjust	¡@	¡@	¡@
\J1	Enable rate adjust	¡@	¡@	¡@
\Kn *	Set break control	5	0-5	yes
In connect state, transmits break to remote (if in reliable mode):				
\K0, 2, 4	Enters command mode, no break sent	¡@	¡@	¡@
\K1	Destructive/expedited	¡@	¡@	¡@
\K3	Nondestructive/expedited	¡@	¡@	¡@
\K5	Nondestructive/nonexpedited	¡@	¡@	¡@
In command state, transmits break to remote (if in reliable mode):				
\K0, 1	Destructive/expedited	¡@	¡@	¡@
\K2, 3	Nondestructive/expedited	¡@	¡@	¡@

\K4, 5	Nondestructive/nonexpedited	¡@	¡@	¡@
In connect state, receives break at modem port (if in direct mode):				
\K0, 2, 4	Immediately sends break and enters command state	¡@	¡@	¡@
\K1, 3, 5	Immediately sends the break through	¡@	¡@	¡@
In connect state, receives break at modem port and sends to serial port:				
\K0, 1	Destructive/expedited	¡@	¡@	¡@
\K2, 3	Nondestructive/expedited	¡@	¡@	¡@
\K4, 5	Nondestructive/nonexpedited	¡@	¡@	¡@
\Nn *	Set operating mode	3	0-4	yes
\N0, 1	Selects Buffer (Normal) mode with speed buffering	¡@	¡@	¡@
\N2	Selects MNP reliable mode	¡@	¡@	¡@
\N3	Selects V.42 auto-reliable mode	¡@	¡@	¡@
\N4	Selects V.42 reliable mode	¡@	¡@	¡@
\O	Originate reliable link	none	-	no
\Qn *	Set serial port flow control	3	0-3	yes

\Q0	Disables flow control	¡@	¡@	¡@
\Q1	XON/XOFF software flow control	¡@	¡@	¡@
\Q2	Unidirectional hardware flow control	¡@	¡@	¡@
\Q3	Bidirectional hardware flow control	¡@	¡@	¡@
\T0 *	Disables inactivity timer	0	0-90	yes
\U	Accept reliable link	none	-	no
\Xn *	Set XON/XOFF pass-through	0	0, 1	yes
\X0	Processes flow control characters	¡@	¡@	¡@
\X1	Processes flow control characters and passes to local or remote	¡@	¡@	¡@
\Y	Switch to reliable mode	none	-	no
\Z	Switch to normal mode	none	-	no
-Jn *	Set V.42 detect phase	1	0, 1	yes
-J0	Disables the V.42 detect phase	¡@	¡@	¡@
-J1	Enables the V.42 detect phase	¡@	¡@	¡@

"Hn *	V.42 bis compression control	3	0-3	yes
"H0	Disables V.42 bis	¡@	¡@	¡@
"H1	Enables V.42 bis only when transmitting data	¡@	¡@	¡@
"H2	Enables V.42 bis only when receiving data	¡@	¡@	¡@
"H3	Enables V.42 bis for both transmitting and receiving data	¡@	¡@	¡@
"On	V.42 bis string length	32	6-250	yes

* Value saved in NVRAM

The fax modem support four operating modes: buffer (normal), MNP reliable, V.42 auto-reliable, and V.42 reliable. These four modes are selected by the **\Nn** command. They allow the DCE to communicate with remote modems that may or may not support error correction and data compression. Speed buffering, which is used for all operating modes, allows the DTE-to-modem data rate to be different from the modem-to-modem data rate. This is accomplished by using transmitter and receiver buffers in the modem. Thus the DTE-to-modem data rate can be set for 2400 bps when the modem-to-modem data rate is 300 bps without causing any data errors. In all data modes, the DTE-to-modem data rate can be set for any valid speed between 300 bps to 115,200 bps (that is, the modem autobouds up to 115,200 bps). The modem-to-modem data rates can be set to 300, 1200, 2400, 4800, 7200, 9600, 12,200, 14,400, 16,800, 19,200, 21,600, 24,000, 26,400, 28,800, 31,200, and 33,600 bps. Each operating mode is explained in more detail in the following tables.

Operating Modes

ModeFeatures	¡@
Buffer (normal) **\N0** or **\N1**	No error correction/data compression, but speed buffering is supported.

MNP Reliable **\N2**	MNP 2-5 connection only. If an MNP connection cannot be established, the modem hangs up.
V.42 Auto-Reliable **\N3**	V.42/V.42 bis with fallback to MNP 2-5 or normal mode.
V.42 Reliable **\N4**	V.42, V.42 bit or MNP 2-5 only connection. If a V.42/V.42 bis/MNP 2-5 connection cannot be established, the modem hangs up.

Connection types corresponding to **\Nn** settings are provided in below.¡@

Resulting \Nn Connection Types

¡@	**\Nn Settings (Answer Modem)**			
\Nn Settings **(Originate Modem)**	**\N0 or \N1** **(Buffer)**	**\N2** **(MNP Reliable)**	**\N3** **(V.42 Autoreliable)**	**\N4** **(V.42 Reliable)**
\N0 or \N1 (Buffer)	Buffer (normal) mode	Modem hangs up	Buffer (normal) mode	Modem hangs up
\N2 (MNP Reliable)	Modem hangs up	MNP 2-5	MNP 2-5	MNP 2-5

\N3 (V.42 Auto-reliable)	Buffer (normal) mode	V.42/V.42 bis	V.42/V.42 bis	V.42/V.42 bis
\N4 (V.42 Reliable)	Modem hangs up	V.42/V.42 bis	V.42/V.42bis	V.42/V.42 bis

NOTES:

1) MNP 5 requires the modem to be configured for **%C1.**

2) V.42 bis requires the modem to be configured for **"H3.**

3) Refer to **\Cn** and **%An** commands for more information about auto-reliable mode.

The list of command needs to enter a specific error correction or data compression mode are as follow:

V.42 bis with fallback to MNP 5, &F \N3 or \N3 "H3 %C1

MNP2-4 or V.42:

V.42 bis with fallback to V.42/MNP2-4: &F \N4 %C0 or \N4 %C0 "H3 -J1

V.42 bis only: &F \N4 -J0 or \N4 -J0 "H3

V.42 only: &F \N4 -J0 "H0 or \N4 -J0 "H0

MNP5 with fallback to MNP2-4: &F \N2 or \N2 %C1

MNP2-4 only: &F \N2 %C0 or \N2 %C0

Fax Class 1 AT Commands

The 56-kbps fax modem implements the EIA-578 data/fax Class 1 AT command set standard. This AT command set allows a DTE (with Class 1 communication software) and a CL-MD56XX-based modem to communicated with Group 3 fax machines. In addition, these product provide fax identity and test commands. This manual should be used with the Class 1 Fax Application Note and the specifications for EIA/TIA-578, ITU-T T.30, and T.4. The Cirrus Logic Class 1 Fax Application Note shows several examples of how the use the fax AT commands and how to originate and answer a fax call.¡@

Fax Identity Commands

The fax identity commands are **AT+FMFR?, AT+FMDL?, AT+FMI?, AT+FMM?, AT+FMR?,** and **AT+FREV?.** These commands respond back with modem manufacturer, product model, and product revision information.

FAX Identity Commands

Command	Function	Default	Range	Reported by &Vn
+FMDL?	Identifies product model	none	-	no
+FMFR?	Identifies modem manufacturer	none	-	no
+FMI?	Identifies modem manufacturer	none	-	no
+FMM?	Identifies product mode	none	-	no
+FMR?	Identifies product version	none	-	no
+FREV?	Identifies product version	none	-	no

NOTE: To originate a call, answer, and hang up, use the **ATD, ATA,** and **ATHn** commands, respectively.

Fax Class 1 Commands¡@

The fax Class 1 AT commands are divided into three types: class selection and capabilities, data stream transfers, and silence-time timers. All fax mode commands, except the silence-time timers, must be the last command on the command line.

Each command may be used as follows:

+F<command>? Reads current setting

+F<command> = ? Reads permissible settings

+F<command> = <parameter> Sets parameters

FAX Class 1 AT Commands

Command	Function	Default	Range	Reported by &Vn
+FAE=n	Fax/data autorecognition	0	0, 1	no
+FCLASS=1	Mode selection	0	0, 1, 8, 80	yes
+FRH=n	Receive HDLC data	none	3	no
+FRM=n	Receive data	none	24, 48, 72, 73, 74, 96, 97, 98, 121, 122, 145, 146	no
+FRS=n	Wait for silence	none	1-255	no
+FTH=n	Transmit HDLC data	none	3	no
+FTM=n	Transmit data	none	24, 48, 72, 73, 74, 96, 97, 98, 121, 122, 145, 146	no
+FTS=n	Stop transmission and pause	none	0-255	no

NOTE: To originate a call, answer, and hang up, use the **ATD, ATA,** and **ATHn** commands, respectively.

NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection. This equipment generates, uses and can radiated radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

Shielded RS-232 cable interface cables must be used in order to comply with emission limits.

Changes or modifications not expressly approved by the party responsible for compliance could void the user‘s authority to operate the equipment.