ST330 xDSL Tester

User Manual V1.6

Introduction

Thank you very much for purchasing our product.

This User's Manual contains useful information about the functions, installation and wiring procedures, operation procedures, and the troubleshooting of the ST330. To ensure correct use, please read this manual thoroughly before operation. Keep this manual in a safe place for quick reference in the event a question arises.

Revisions

Edition: March 2007

Structure of the Manual

This User's Manual consists of the following 8 chapters.

Chapter Title	Description
1. Summarization	General introduction about ST330
2. Checking the Contents of the Package	Introduce the contents of the package.
3 . Safety	Describes the precautions to be taken in order to use the ST330 safely.
4. Notice in operation and using	Introduce some notice in operation and using.
5. System configuration and quick reference	Gives a diagram and structure introduction of the ST330.
6. Function and Specification	Give the specifications and functions of the instrument.
7. Operation	Give the instructions to useST330.
8. Analyzing and Solution for faults	Describes how to solve small fault of ST330 by yourself.

Contents

1. Summarization

ST330 is designed for present all kinds of xDSL line including ADSL, ADSL2, ADSL2+, READSL. It not only can test xDSL physical layer parameter and also can help you to confirm whether your line is proper to provide xDSL service. It also can evaluate your line quality. It also can have PPPoE dial, do IE network page browsing, and emulate user's PC+ Modem by inside Modem of ST330 to test the connection between user and ISP provider. You can have all kinds of test such as Ping, Ipconfig, Rouge, Tracert after successful dial. ST330 also can emulate the user's PC to test broadband IP line or have PPPoE dial by user's Modem to test the connection of IP network and Modem problem or to remove the problem arisen by computer.
ST330 takes 240X320 TFT true color LCD, touching screen and embedded system. So it is easy to operate and to see the test result.

2. Checking the contents of the package

Unpack the box and check the contents before operating the instruments. If some of the contents are not correct or missing or if there is physical damage, contact our company and the dealer from which you purchased them. If you are adding or replacing the standard or optional accessories indicated below, make sure to purchase them from us or your dealer.

Check that the model name and suffix code given on the name plate on the back of tester.

Model	Suffix Code	Specifications
ST330	-CN	Chinese
	-EN	English

Mark	Specifications
ADSL	ADSL Modem
ADSL2+	ADSL2+ Modem(ADSL/ADSL2/READSL)

Standard accessories

The following standard accessories are supplied with the instrument. Check whether all the contents are attached and undamaged.


Charger


Direct Ethernet Network line


Test cord


LCD protective board


Touching stick


User manual


List


Carry case


Handle

Optional accessories

The following optional accessories are available for purchase separately. When you receive the order, Check whether all the contents are attached and undamaged.

- Keyboard which can be linked to tester USB port
- Mouse which can be linked to tester USB port
- Memory key

3. Safety

Make sure to comply with the following safety precautions. Not complying might result in injury or death.

WARNING

- **Power Supply**

Ensure that the source voltage matches the voltage of the power supply or else maybe there will be some damage to the Tester.

- **Battery changing**

Please refer to the 7.10 item.

- **Do Not Operate in Explosive Atmosphere**

Do not operate the instrument in the presence of flammable liquids or vapors. Operation of any electrical instrument in such an environment constitutes a safely hazard.

- **Back cover**

Do not separate the top and bottom cover unless you are replacing the battery or Modem. Battery replacement should only be carried out by a person who received proper training. Some areas inside the instrument have high voltage that is dangerous if they are not handled properly.

- **LCD**

If, by accident, the surface of the LCD is damaged and the liquid, or let it touch the skin. If the liquid happens to come in contact with the eye or the mouth, immediately rinse with water. If it comes in contact with the skin or clothes, wipe it with alcohol and then wash it with soap and water. Otherwise, damage to the skin or clothes may result. In addition, be careful not to cut the skin (fingers, hands, etc) with the broken glass. Touching the edges of the broken glass can cause injury.

4. Notice in operation and using

4.1 General operation precautions

Test Interface

Please firstly connect the test cord to ST330 test interface and then connect to the test line. Please don't touch the metal pars of clamps to avoid the high dangerous voltage.

USB port

Don't input things with electricity to USB port and please don't short it by metal things.

Display screen

Protective board and film are affixed to the LCD at the time of shipment. Please remove it before use.

Cleaning

The instrument uses many plastic parts. When cleaning, wipe using a dry soft cloth. Do not use volatile chemicals since this might cause discoloring and deformation.

Protecting the case and operating panel

Do not pour volatile agents on the case or operation panel, this can l ead to malfunctioning.

When moving the instrument

Check that the power cord and connection cables are removed.
After use, unplug the power cord from the socket.

When the instrument is not used for a long period of time

When the instrument is not used for a long period of time, the battery characteristics may have deteriorated. The battery also may take longer to charge. If the operation period of fully charged battery is excessively short, the battery must be replaced. To replace the battery, see the "Battery Replacement Manual".

Malfunction

Never continue to use the instrument if there are any symptoms of trouble such as strange sounds, odors, or smoke coming from the instrument. In such cases, immediately turn OFF the power and unplug the power cord. If the instrument has malfunctioned, contact your dealer.

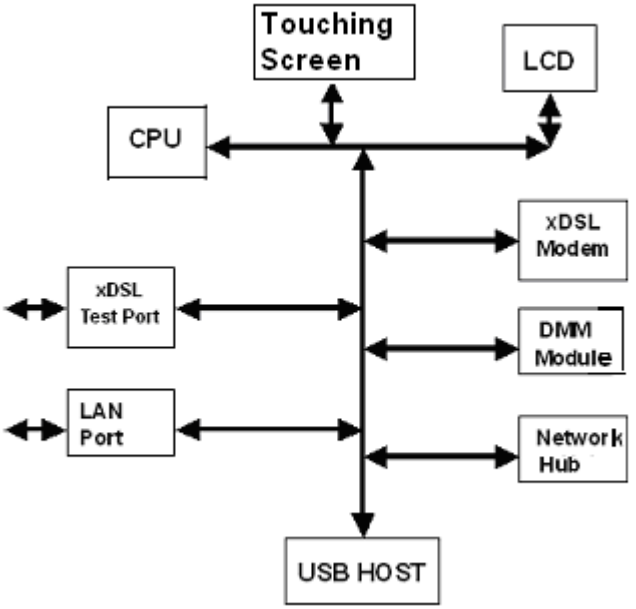
4.2 Suggestion for using

- Please charge the battery full before your first using and usually using. Please refer to 7.9 item about charging.
- When you operate function keys, please use touching stick and please click LCD proper.

- If there is any abnormal phenomenon, please press RESET key to reset or press OFF key to switch on again.
- Please don't put the instrument under the strong direct sunlight and near the origin of heat. Or else, there will be bad affect to circuit.
- Condensation may occur if the instrument is moved to another place where the ambient temperature is higher, or if the temperature if the room changes rapidly. In this case, let the instrument adjust to the new environment for at least one hour before using the instrument.
- Using the instrument near strong magnetic field sources will have adverse affects on the internal circuit of the instrument.
  If you are using a portable phone to transmit measured data, move the portable phone at least 1 m away from the instrument and Measuring Cables. The measured data can receive undesirable effects from the electromagnetic wave generated by the portable phone.

5. System configuration and quick reference

5.1 System configuration



- xDSL Port：For user xDSL line link and DMM test link.
- LAN Port：Ethernet port.
- xDSL Modem：Different Modem can perform different function.

Mainly include ADSL,

ADSL2, ADSL2+, READSL, VDSL, etc.

- USB HOST：Link USB equipment, keyboard, mouse and memory key.

5.2 Quick reference

5.2.1ST330 Front Panel

Indicator Lights

- **Power Indicator Light**
  Red color, power supplied
- **Ethernet Indicator Light:**
  Green color, normal Ethernet connection
  Shining green color, Ethernet data transmission
- **xDSL LINK Indicator Light**
  Shining green color, xDSL Modem being connected
  Green color, xDSL connected.
- **xDSL ACT Indicator Light**
  Shining green color, xDSL data transmission.

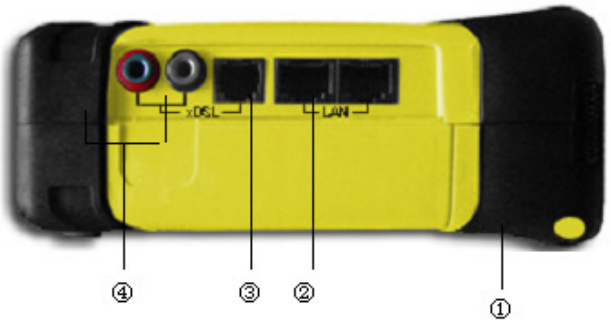
Buttons

- **ON**
  Switch on tester.
- **OFF**
  Switch off tester when there are abnormal phenomena, such as tester dead or slow run speed.
- **RESET**
  Reset system when there is an abnormal phenomenon occurs.

LCD Display

TFT true color screen, 240×320 lattice, touching screen.

5.2.2 ST330 Up side



Touching stick

Use it to point icons from display screen to have operation. Insert it into left up corner of tester when it is not used.

Ethernet port 1

It is RJ45 port. It is for linking Ethernet network cord or Broadband IP with RJ45 network line plugs. It is for cross network cord link. (NOTE : Ethernet port 1 and 2 cannot be used meantime)

Ethernet port 2

It is RJ45 port. It is for linking Ethernet network cord or Broadband IP with RJ45 network line plugs. It is for direct network cord link. (NOTE : Ethernet port 1 and 2 cannot be used meantime)

xDSL port

It is the port for both xDSL line and DMM test. There are two connection ways.
One is standard RJ11 port. It is for linking RJ11 port.
The other one is red & black port. It is for linking test cords.
These two ports are connected inside of the tester. User can use any one.

5.2.3 ST330 Down side

USB Port

To link memory key, keyboard or mouse. When to link memory key, it is used to upgrade tester software or exchange record file with tester; when to link keyboard, it is used as normal keyboard to type words; when to link mouse, it is used as normal mouse to carry out operation.

Charger Port

To link charger to charge inner battery.

5.2.4 Other parts

LCD screen protection board

To protect LCD screen during storage or long distance delivery. Please take it down and put it in the back of tester when you use the tester.

Test cord

Connect tester and the line using test cord. Please do not touch clamp metal to avoid dangerous.

Charger port

50Hz, AC220V

Error range is±10%

Output is 8.4V

There is one indicator light in charger. If it is in red color, it means the tester is being charged; when it is in green color, it means the battery is fully charged.

Ethernet cord

The network line attached with tester is direct one, and it is used for connection with hub. Cross network line also can

be linked to tester. It can be linked directly to Ethernet port when to link IP network line. When the Ethernet connection is normal, the ETHERNET indicator light will be bright.

6. Functions and specifications

6.1 xDSL test

Perform physical layer parameter test, network layer test and application layer test to confirm whether there is fault in user line or not.

1. Physical layer test specifications

G.SHDSL module

1) Standard: ITU-T G.991.2 (G.SHDSL), Test Mode: STU-C or STU-R ;

2) Test DSL line transmission parameters

Port Bitrate : 0 ~ 2320kbps

Noise Margin (SNRM) : 0 ~ 35.7dB

Attenuation ATTN : 0 ~ 37.0dB

XmitPower : 0 ~ 13.5dB

Error Statistic

1) ErrosrsLOSW

CRC Error

SEGA Error

ES

SES

UAS

LOSWS

ADSL2+ module

1) Standard: ITU G.994.1 (G.hs) , ITU G.992.5, ITU G.992.5 Annex L.

Be compatible with ADSL, ADSL2 and READSL ADSL.

2) DSL line transmission parameter:

- DSL line attenuation (dB):0 ~ 63.5
- DSL line noise margin (dB):0 ~ 32
- DSL line up channel speed (Mbps):0 ~ 1.2
- DSL line down channel speed (Mbps):0 ~ 24
- DSL line up/down maximum rate and capacity ratio
- DMT sub channel bit number: 0 ~ 15
- DSL line error number (CRC, HEC, FEC, NCD, OCD)
- DSL line local output power
- State display: signal loss, connection close.

ADSL2 module

1) Standard: ITU G.992.1 (G.DMT) , ITU G.992.2 (G. lite), ITU G.994.1 (G.hs)
ANSI T1.413 issue #2

2) DSL line transmission parameter:

- DSL line attenuation (dB):0 ~ 63.5
- DSL line noise margin (dB):0 ~ 32

- DSL line up channel speed (Mbps):0 ~ 1
- DSL line down channel speed (Mbps):0 ~ 8
- DSL line error number (CRC, HEC, FEC, NCD, OCD)
- DSL line local output power
- DSL line connection mode

2. PPPoE dial and PPPoE dial properties change

To emulate user MODEM and PC to have PPPoE dial.

3. Network layer test (Ping, Ipconfig, Tracert and Route)

4. IE Webpage browsing test function

6.2 LAN test

Perform PPPoE dial test of LAN or Broadband IP; network layer and application layer test of LAN; search PC in network.

- LAN port PPPoE Dial and properties change function.
- Network layer test (Ping, Ipconfig, Tracert and Route).
- Fixative IP scanning function.
- Webpage browsing function.

6.3 DMM test

Test user line AC/DC Voltage, Loop Resistance, Capacitance and Insulation.

	Unit	Test Range	Error
Voltage	V	0--100 DC	±2%
		100--200 DC	±5%
		200--400 DC	±5%

	V	0—100 AC	±2%
		100--400 AC	±5%
Loop Resistance	Ω	0—100	±3%
		100—500	±3%
		500—2000	±2%
		2000—20K	±2%
Capacitance	nF	0—10	±2 nF
		10—1000	±2%
Insulation	MΩ	0—1.0	±0.1 MΩ
		1.0—50	±10%

6.4 Modem emulation

Perform MODEM Emulation function to dial and log on internet to check faults.

6.5 File management

Browse test record, transfer record into PC or memory key.

6.6 Help

This part includes the system upgrade, function set, recalibrate and use notes. The system software can be upgrade by Ethernet or memory key.

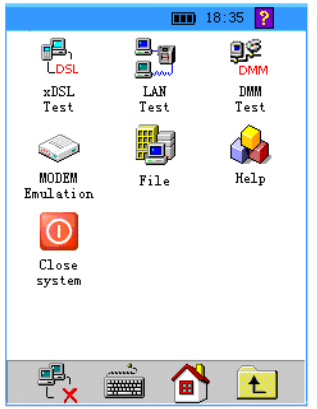
6.7 Other specifications

Memory capacity:	20 M
Display:	240×320 LCD, touch screen, Windows interface
Power Supply	External: From adapter, 9.6V DC Internal: Rechargeable 7.4 V 2100mAH Li-ion battery
Battery Duration:	8hs (except Modem status)
Dimensions/Weight:	176mm×130mm×60mm/0.7kg(With battery)

7. Operation

7.1 Switch on/off, restart

(1) Switch on: Press **ON** button in the right of instrument to switch on the tester. After 7 seconds, operation window will be displayed.



(2) Switch off: Point **Close System** icon from operation interface, point **OK** to switch off the tester from the window displayed.

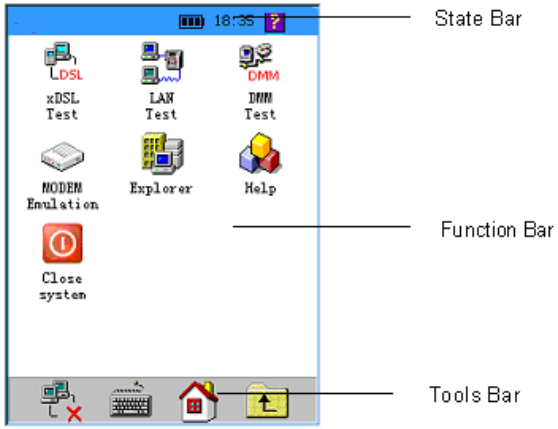
(3) OFF button: Press it in the right of the instrument to switch off the tester when there is abnormal operation phenomenon occurred. Suggestion: Switch off tester through system.

(4) RESET button: Press it to restart the tester when there is slow run speed or tester dead phenomenon.

7.2 Operation interface description

The main operation interface is divided into 3 parts.

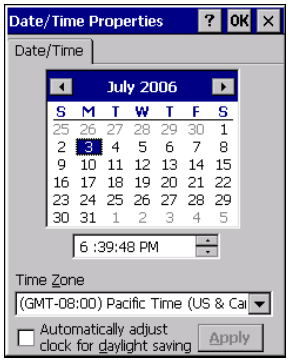
7.2.1 State bar



Battery: Show battery energy. It is divided into 3 parts. Please charge it soon when all 3 parts are empty.

12:00 Time: Show the current time. Point it to set date and time.

Point ? to enter into HELP window.



You can change the current date and time by touching stick and press **Apply** key to save it.

7.2.2 Function bar

Point different icon to have relevant test operation.

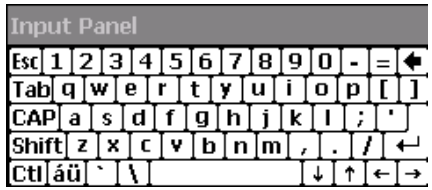
7.2.3 Tools bar

PPPoE Disconnection icon.

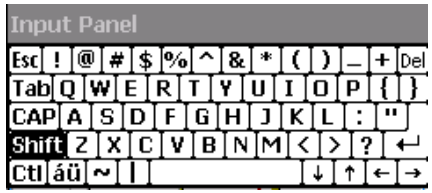
When dial is ok, change to . Point , to disconnect PPPoE connection from window displayed.

Input Panel

Point to display or hide Input Panel.



To input lowercase, number and interpunction.



Point **Shift** to input capital character and special symbols, parts of interpunction.

Homepage

Point it to return main operation interface.

Back

Point it to return upper interface.

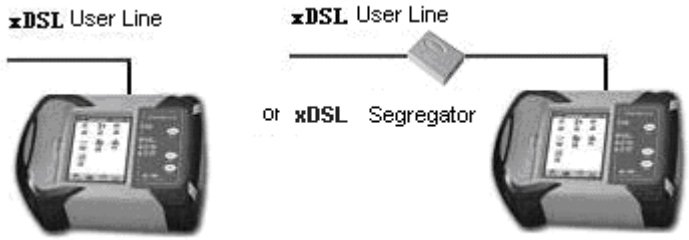
7.3 xDSL test

To validate DUN (DIAL-Up Networking) and test xDSL line performance through inside Modem.

xDSL test Includes physical layer test, modem parameter set, PPPoE properties, PPPoE dial, network layer test, webpage browsing, LOOPBACK, FTP client and webpage speed test functions.

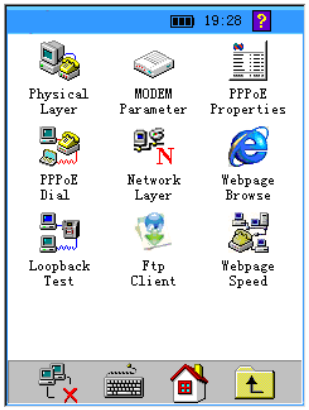
The function can emulate the user side equipment to have PPPoE dial, network test and webpage browsing. And it also can judge the testing line quality by physical layer parameters. It can exclude the fault because of user side equipment.

Two kinds of line link diagram:



The function can validate whether the user line is good and also can solve the fault from user Modem and user PC by data parameters from user line.

Link xDSL pair into RJ11 port directly or through xDSL separator. Point **xDSL Test** to enter into operation window.



Point different icons to have relevant test operation.

The steps for logon webpage by xDSL line, like following:

Set Modem parameter (VPI/VCI)→Set PPPoE Properties (Security)

→PPPoE Dial (Have PPPoE dial When the Link indicator is bright, Type

user name and password) → browse webpage or have network layer test.

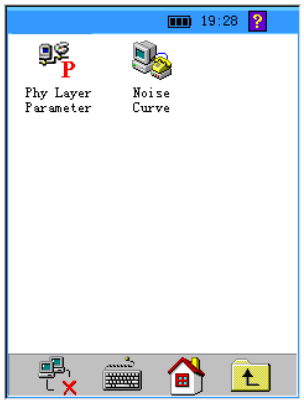
If it needs to test possibility of connection between Modem and OE (Office End), no set steps need to be done. If the xDSL Act indicator light

is bright, the physical layer test parameters need to be checked, please point it.

7.3.1 Physical layer test

Perform the test of the physical layer.

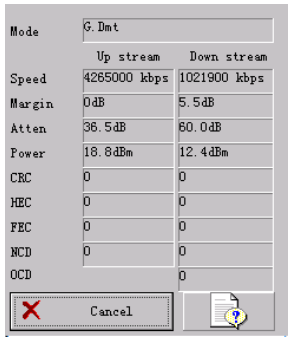
Point to enter the physical layer test window.

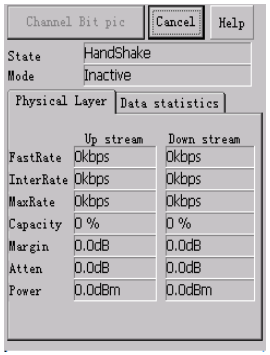


7.3.1.1 Physical layer parameters

Test xDSL line physical layer parameter. It includes xDSL connecting State, connecting Mode, Up/Down Stream Speed, Noise Margin, Attenuation, Output Power, CRC Error, CRC Error, HEC Error, FEC Error, OCD Error, NCD Error and Channel Bit pic.

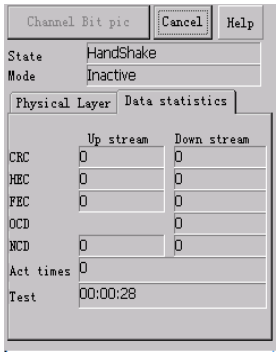
(1) Point **Physical Layer Test**, the **Preparing test environment** Window will be displayed, please wait for seconds till to enter into operation window.





ADSL2+ physical layer parameters 1

ADSL2+ physical layer parameters 2



ADSL Physical layer parameters

Every parameter value will be displayed. They will be refreshed in real time to show the current state. The connection process of xDSL line and OE (Office End) equipment will be displayed from **State** bar (Idle, Handshake, Training, and Showtime); the current connection mode will be displayed from **Mode** bar.

A. Current mode interpretation

Idle: no connection or trying to do connection.
HandShake: perform handshaking.
Discovery: the OE DSLAM is found.
Training: in the training of the connection.
Showtime: Remote DSLAM connected.

B. Connection mode interpretation

ADI：ADSL ADI mode；

G.DMT：ADSL G.DMT protocol mode, in accordance with ITU-T G992.1 standard；

G.LITE：ADSL G.LITE protocol mode，in accordance with ITU-T G992.2 standard；

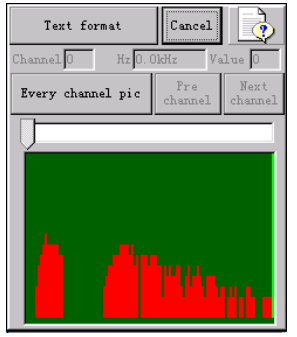
T1.413：ADSL T1.413 protocol mode，in accordance with ANSI T1.413 issue1 & Issue 2 standard.

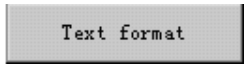
G.DMT.BIS：ADSL2 G.DMT.BIS protocol mode，in accordance with ITU-T G992.3 standard；

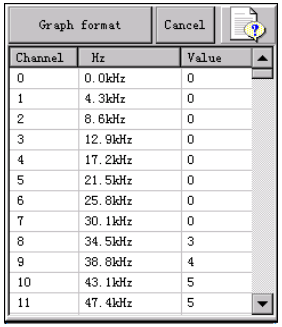
G.DMT.BISPLUS：ADSL2+ G.DMT.BISPLUS protocol mode ，in accordance with ITU-T G992.5

C. Physical layer parameters interpretation

Activate times: It counts the modem activated times from the beginning of the test. Once the modem is activated the number will tally up.
Test time: It will show the test time after the modem is initialized.
(2) Point **Channel Bit pic**, the Channel Bit pic will be displayed in red color.



Now the user can see the bit value of current connection which can also be displayed in map. If user needs to see the results in text you can point the  then the following window will be displayed.

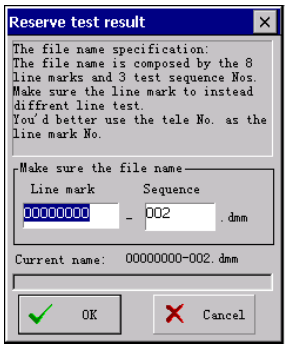


(3) Point **Cancel** to close bit map window.

(4) Point **Cancel** from **Physical layer Test** window, one test record window will be displayed.

(5) Point **Cancel** if you do not save record.

(6) Point **OK** if you save the record.

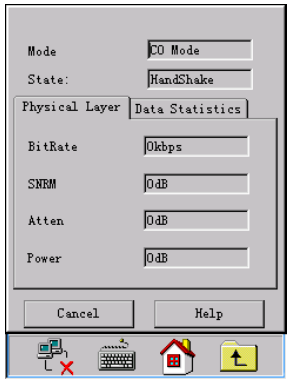


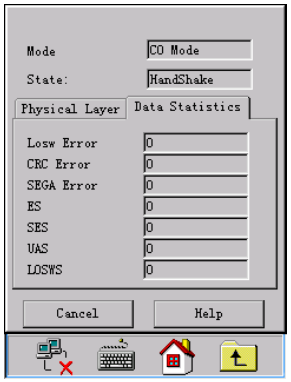
The default file name is **linexxxx-xxx.phy**, in which “x” means the number. User can modify the line number as telephone number.

7.3.1.2 G．SHDSL Modular

The physical parameters of DSL line includes XDSL port mode, present status, port rate, noise margin rate, attenuation, XmitPower, frame synch lost, circulation redundancy lost, subsection abnormal, error, serious error and frame synch.

Click  entering physical layer test window





G.SHDSL physical layer parameters

All the parameters on the display window will renew along with the test time changing to reflect the present situation

Present Status:

Idle：Not connecting or connecting

Handshake: Handling

Discovery：Find DSLAM

Training: Connecting training

Showtime: Distance DSLAM connection successfully.

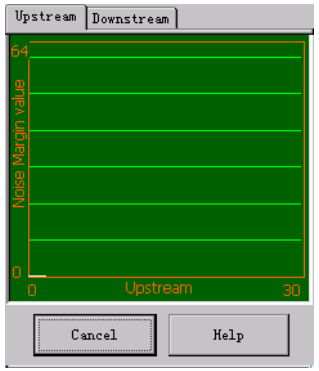
Click “off” button can close the window. If we click “off” button on the window of Physical layer, we will close the physical layer window. At the same time, it will indicate “Save test result or not”, if we do not need to save result, we can click cancel. If we press “ok”, we will enter the result save window.

The default file name of test result is xxxxxxxx-xxx.phy, x is number. The user can modify file name to line's phone number.(We also suggest you modify the number as to your phone numer, it is easier to remember.)

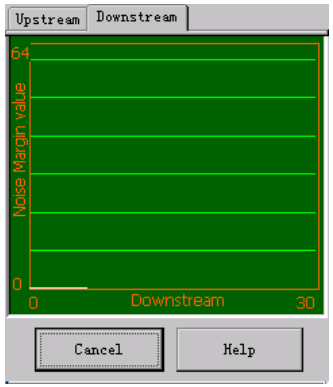
7.3.1.3 Noise curve

It used to browse the real time noise margin curve.

Point  noise margin icon it will display the following noise curve picture.



This part contains up stream noise margin curve and down stream noise margin curve. They are reflects the noise margin varies as the time pass. If user press "upstream" or "downstream" at the top of thewindow the below real time picture will change.

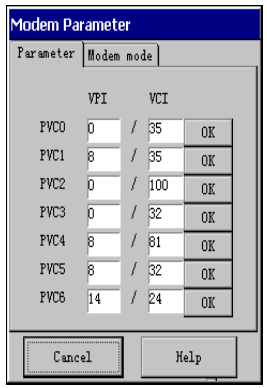


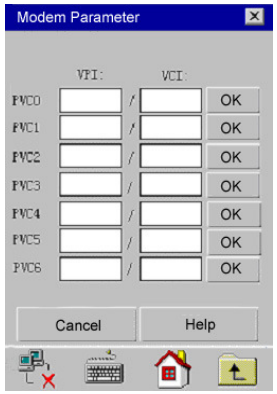
7.3.2 Modem parameter set

7.3.2.1 ADSL2/ADSL2+ modular

The function is to modify xDSL Modem parameters, VPI/VCI values.

(1) Point  **MODEM Parameter** to enter into operation window.





ADSL2+ Module Setting Window **ADSL Module Setting Window**

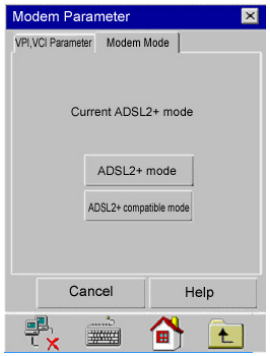
(2) The VPI/VCI parameters which were set before will be displayed. If it needs to be modified, type new VPI/VCI value from **VPI** and **VCI** bar. Point **OK**, and the Modem VPI/VCI will be set.

When the MODEM is ADSL2+, it also can be set as ADSL compatible

mode.

ADSL2+ Mode: It is standard ADSL2+ mode. The current connection mode can be automatically chosen according to OE mode.

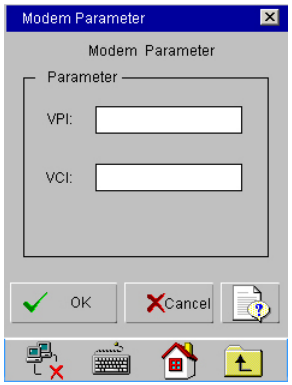
ADSL Compatible Mode: The ADSL2+ connection mode is unavailable under such mode.



If the MODEM Mode is modified as another kind of it, please exit the xDSL Test and re-enter it again.

Notice

(1) In the ADSL2+ Module, if the MODEM Mode is modified as another kind of it, please exit the xDSL Test and re-enter it again. Otherwise, the MODE Modifying will not be effective.



(2) The VPI/VCI parameters which were set before will be displayed. If it needs to be modified, type new VPI/VCI value from **VPI** and **VCI** bar. Point **OK**, and the Modem VPI/VCI will be set.

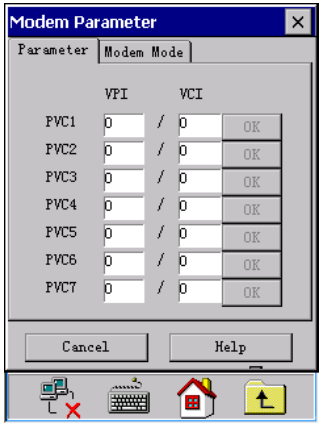
7.3.2.2 G. SHDSL modular

Functions

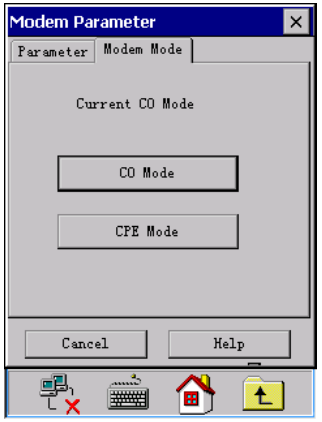
Modify XDSL Modem parameters, especially for VPI/VCI values.

Usage

When we need to modify Modems' parameters, click  , entering Modem parameters setting windows, like the following picture.



G.SHDSL modular modem Parameter setting

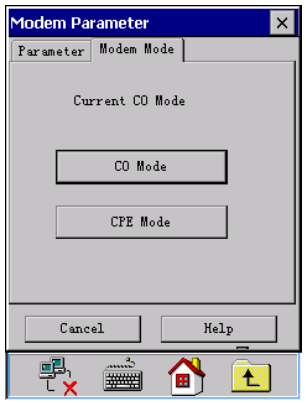


G.SHDSL mode setting window

Entering the window, the tester will display 7 groups VCI/VPI parameters on the window. If we need to modify them, we can input the value directly then press "OK".

G.SHDSL mode: We can set the tester as the DSLAM or user terminal mode as the test situation.

Present mode: display present setting mode of Modem I the tester. Like the following windows

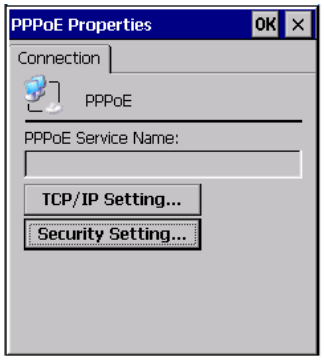


After Modem mode's modification, pls exit to xDSL test, and enter xDSL test again. It can make sure Modem initialization to active modified mode.

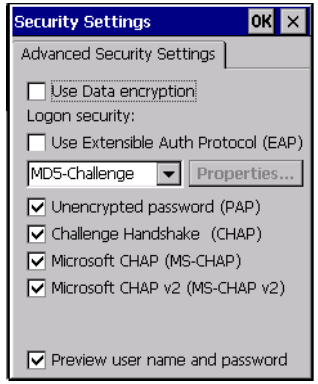
7.3.3 PPPoE properties

Check and modify PPPoE Dial Properties set.

(1) Point  **PPPoE Properties** icon to enter the operation window.



Point **Security Settings…** to enter into operation window.



Choose **Unencrypted password (PAP)** and **Preview user name and password**, cancel other options. Point **OK** to set it. Point ☒ from **Connection** window to close these windows.

.

Notice

- If there is wrong PPPoE set, PPPoE dial will be failed. Please be careful to modify PPPoE properties.
- All other parameters have already been well set. Please do not modify or delete anything except PPPoE to avoid fail use of network card and PPPoE Dial.

7.3.4 PPPoE dial

To build PPPoE Dial connection through inside xDSL Modem.

(1) Point  **PPPoE Dial** to enter into operation window.

(2) Type user name and password from the **User Name** and **Password**

bar. The “save password” default option is selected and can not be revised. Please keep Domain column be blank, otherwise, the PPPoE Dialing will be failed.

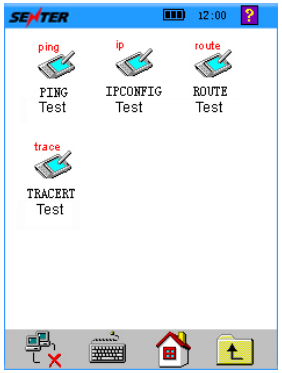
(3) Keep **Domain** be black. Point **OK**, displays like following:

(4) After PPPoE Dial connected,  will become as  , if it needs to be disconnected, point  , the connection window will be displayed, point **Cancel** to disconnect it.

7.3.5 Network layer test

After the PPPoE Dial connection through inside Modem, to have Network Layer Test (Ping, Ipconfig, Tracert and Route test).

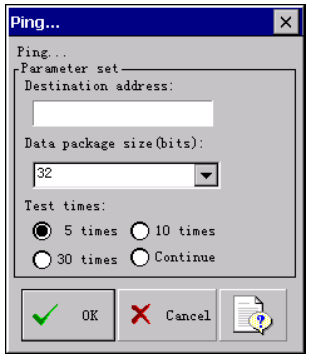
(1) Point  **Network Layer Test** to enter into operation window.



(2) Point different icon to have relevant test operation.

7.3.5.1 PING test

(1) Point **PING Test** to enter into operation window.



(2) Type IP address or domain name into **Destination** bar.

(3) Choose the data package size in the data package size bar.

(4) Choose Ping times from **Test times**. The default Ping times is 5 times.

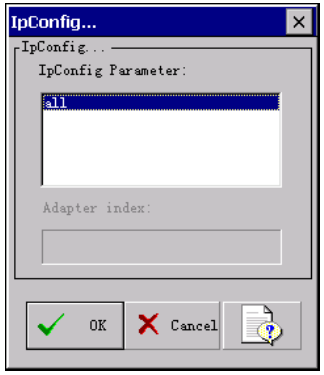
(5) Point **OK**, the Ping test process will be displayed in dynamic.

(6) When the Ping test result window displayed, point  which is in the right top corner of screen to close the window.

7.3.5.2 IPCONFIG test

The current TCP/IP, network configuration value, DHCP and DNS set will be displayed.

(1) Point **IPCONFIG Test** to enter into operation window.



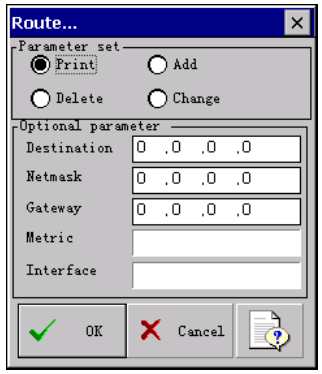
(2) Choose Ipconfig Parameter from **Ipconfig Parameter** bar, point **OK** to have Ipconfig test.

(3) One test result window will be displayed. Point  from the right top corner of screen to close the window after the Ipconfig result window displayed.

7.3.5.3 ROUTE test

(1) Point 

ROUTE Test to enter into operation window.



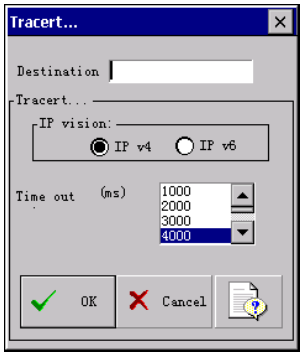
(2) Choose Route Parameter from **Parameter set** and point **OK** to have Route test. The default one is **Print**.

(3) One Route result window will be displayed. Point  from the right top corner of screen to close the window after the Route result window displayed.

7.3.5.4 TRACERT test

(1) Point 

TRACERT Test to enter into operation window.



(2) Type address or web address in **Destination** bar, choose parameter from **Tracert** bar, point **OK** to have Tracert Test.

(3) One Tracert result window will be displayed. Point  from the right top corner of screen to close the window after the Tracert result window displayed.

7.3.6 Webpage browse

Logon and browse webpage.

(1) Point  **Webpage Browse** to open webpage browser

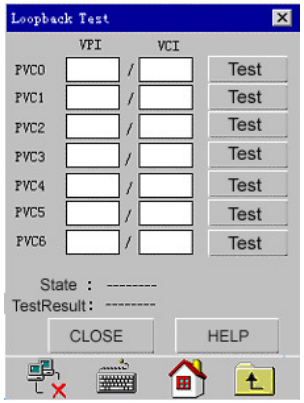
(2) Point **Address** bar, the Input Panel will be displayed.

(3) Type website address and point Enter using input panel to logon the web site.

7.3.7 LOOPBACK test

Ping Test for F5 OAM of ATM layer to verify ATM layer connection.

Point  **Loopback Test** icon to enter into operation window.



Choose PVC access, point **Test** to have its LOOPBACK test. The test result will be displayed. Test Result: Success or fail

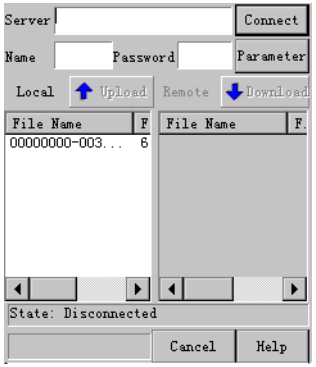
Notice:

The PVC chosen by user should be the same as line VPI/VCI, otherwise, the Loopback Test will be failed.

7.3.8 FTP client

The tester can provide the FTP client function test.

(1) Point  **FTP Client** icon to open the following FTP client window.

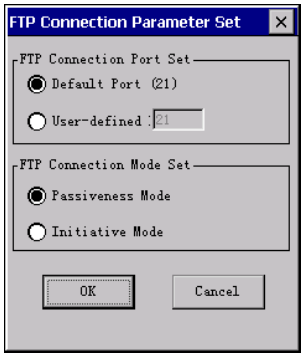


(2) Fill the IP address of the website will be tested in to the address bar and also the username and password then point the connect key to enter.

(3) Point the parameter key to select the FTP mode and port.

(4) The left blanket is the listing of the Local catalog while the right one is the listing of the remote catalog. And the connection state will be displayed at the down left corner.

(5) Point  to enter the FTP connection parameter setting.

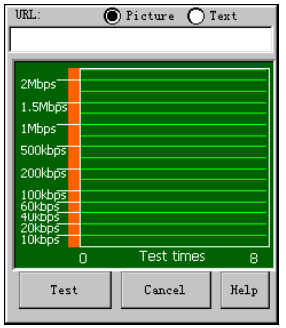


The user can set the port and connection mode

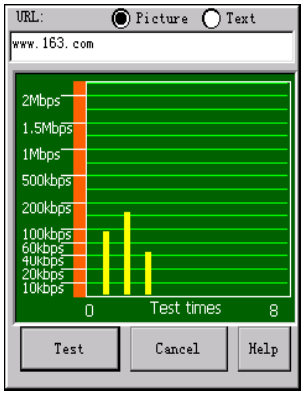
7.3.9 Webpage speed test

The webpage speed test is used to validate the network flux.

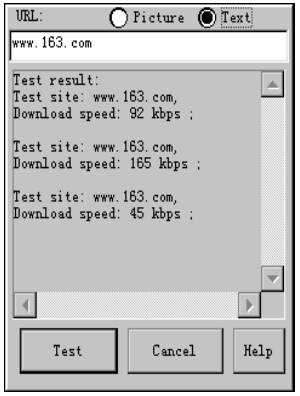
(1) Point  **Web Speed** test icon to open the speed test window.



(2) Input the website IP address into the address bar. Then press the test key to start the website speed test. The results will be displayed in form of picture or text according the option.



Result in picture



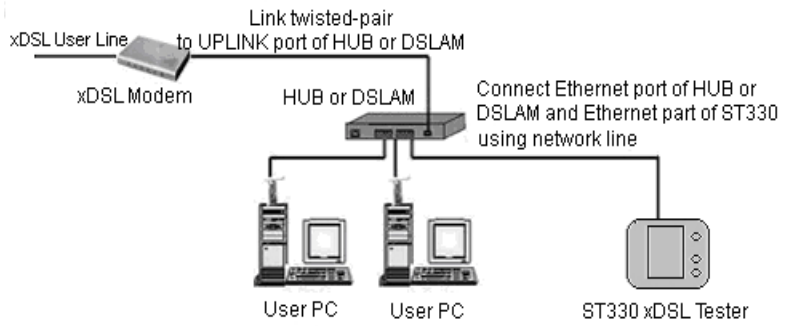
Result in text

Attentions:

1. In LAN test the user should set the gateway and DNS while in xDSL test canceling the gateway and DNS setting is necessary and connected through PPPoE.
2. Please do notice that fill the right address into the address bar. It can not get good effect while testing the website which is used to make address jump at the server.

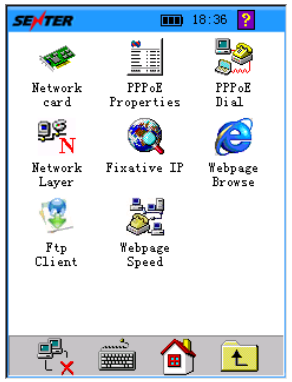
7.4 LAN test

For Ethernet and Broadband IP network test.



Emulate tester as user PC to have PPPoE DUN (Dial-Up Networking). It includes Network Card Properties, PPPoE Properties, PPPoE Dial, Network Layer Test(Ping, Ipconfig, Route and Tracert), Fixative IP Scan, Webpage Browse, FTP client and webpage speed test functions.

(1) Point **LAN Test** to enter into operation window.

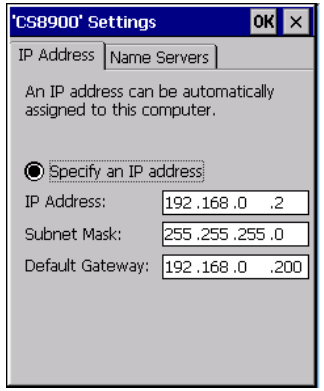


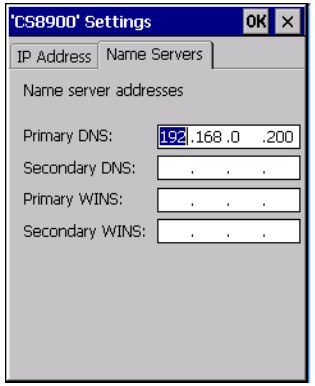
(2) Point different icon to have relevant test operation.

7.4.1 Network card properties

Check and modify network card properties, including IP address, gateway and DNS.

(1) Point **Network Card** to enter into operation window.



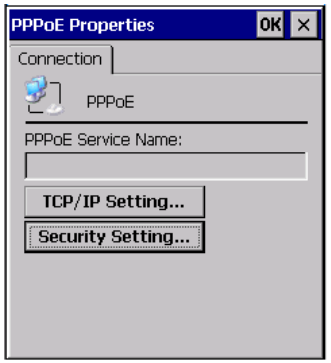


(2) User can modify IP address, gateway and DNS value from **IP address**, **Default** and **DNS** bar separately. Point **OK** to save it and point **Cancel** to close it.

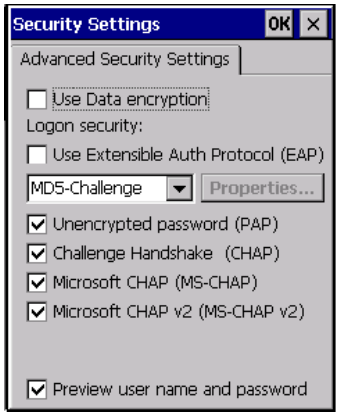
7.4.2 PPPoE properties

Check and modify PPPoE Security settings of PPPoE Properties.

(1) Point  **PPPoE Properties** to enter into operation window.



(2) Point **Security Settings…**to enter into operation window.



(3) Choose **Unencrypted Password (PAP)** and **Preview user name and password**, cancel other options. Point **OK** to set it.

(4) Point  from Connection window to close it.

Notice

- If there is wrong PPPoE set, PPPoE dial will be failed. Please be careful to modify PPPoE properties.
- All other parameters have already been well set. Please do not modify or delete anything except PPPoE to avoid fail use of network card and PPPoE Dial.

7.4.3 PPPoE dial

Build PPPoE Dial through outside Modem.

(1) Point **PPPoE Dial** to enter into operation window.

(2) Type user name and password from **User Name** and **Password** bar separately. Choose **Save password** to save it. The save password option is default and can not be revised.

(3) Keep **Domain** bar be black. Point **OK** to have DUN (Dial-Up Networking).

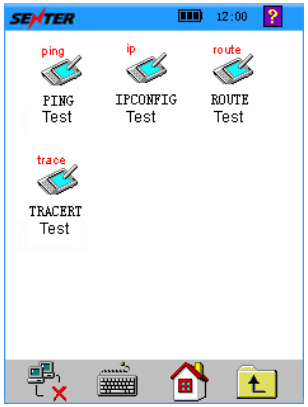
(4) After PPPoE Dial connected,  will become as  , if it needs to be disconnected, point  , the connection window will be displayed,

point **Cancel** to disconnect it.

7.4.4 Network layer test

After the PPPoE Dial connection through inside Modem, to have Network Layer Test (Ping, Ipconfig, Tracert and Route test).

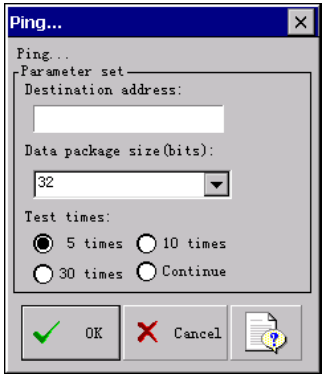
(1) Point **Network Layer Test** to enter into operation window.



(2) Point different icon to have relevant test operation.

7.4.4.1 PING test

(1) Point **PING Test** to enter into operation window.



(2) Type IP address or domain name into **Destination** bar. Choose Ping times from **Test times**. The default Ping times is 5 times.

(3) Select data package size in the data package size bar.

(4) Point **OK**, the Ping test process will be displayed in dynamic.

(5) When Ping test result window displayed, point ✕ which is in the right top corner of screen to close the window.

7.4.4.2 IPCONFIG test

The current TCP/IP, network configuration value, DHCP and DNS set will be displayed.

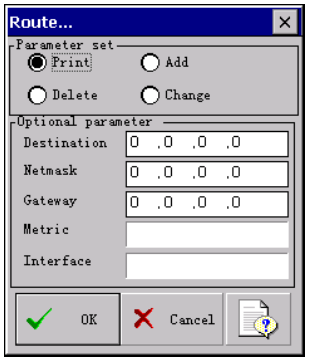
(1) Point **IPCONFIG Test** to enter into Ipconfig test window.

(2) Choose Ipconfig Parameter from **Ipconfig Parameter** bar, point **OK** to have Ipconfig test.

(3) One test result window will be displayed. Point ✕ from the right top corner of screen to close the window after the Ipconfig result window displayed.

7.4.4.3 ROUTE test

(1) Point **ROUTE Test** to enter into operation window.

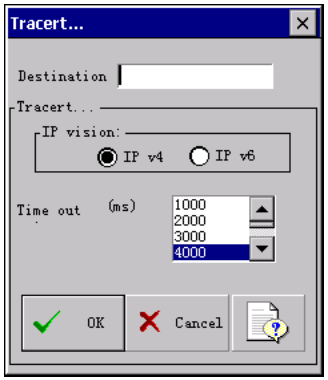


(2) Choose Route Parameter from **Parameter set** and point **OK** to have Route test. The default one is **Print**.

(3) One Route result window will be displayed. Point ✕ from the right top corner of screen to close the window after the Route result window displayed.

7.4.4.4 TRACERT test

(1) Point trace **TRACERT Test** to enter into operation window.



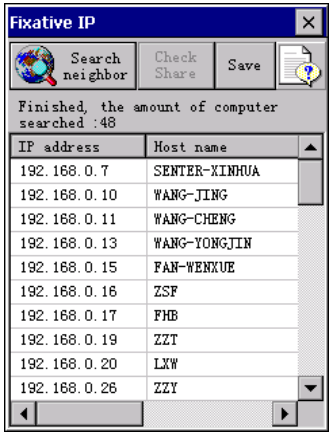
(2) Type address or web address in **Destination** bar, choose parameter from **Tracert** bar, point **OK** to have Tracert Test.

(3) One Tracert result window will be displayed. Point ✕ from the right top corner of screen to close the window after the Tracert result window displayed.

7.4.5 Fixative IP test

To scan PC which is in the same network part with tester in same LAN. The IP address and name of PC on line will be displayed.

(1) Point **Fixative IP** to enter into operation interface**.**



(2) Link Ethernet network line well, the Ethernet indicator light will be bright.

(3) Point **OK** to search PC which is in the same network part and LAN. The IP address and PC name will be displayed once one PC is searched.

7.4.6 Webpage browse

Logon and browse webpage.

(1) Point **Webpage Browse** to open webpage browser.

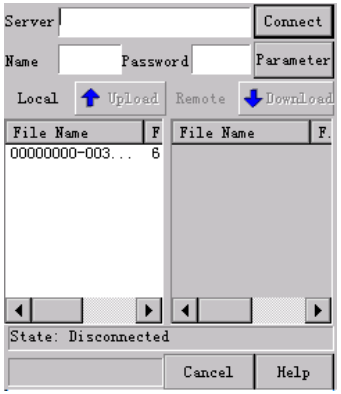
(2) Point **Address** bar, the Input Panel will be displayed.

(3) Type website address and point Enter using input panel to logon the web site.

7.4.7 FTP client

The tester can provide the FTP client test function.

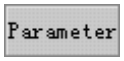
(1) Point  **FTP Client** icon to open the following FTP client window.



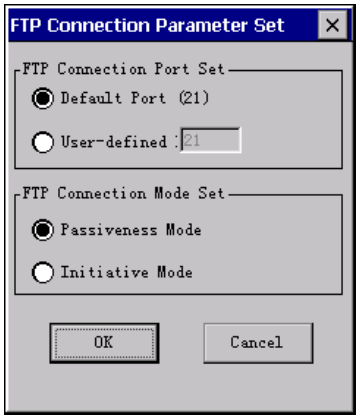
(2) Fill the IP address of the website will be tested in to the address bar and also the username and password then point the connect key to enter.

(3) Point the **Parameter** key to select the FTP mode and port.

(4) The left blanket is the listing of the Local catalog while the right one is the listing of the remote catalog. And the connection state will be displayed at the down left corner.

(5) Point 

to enter the FTP connection parameter setting.

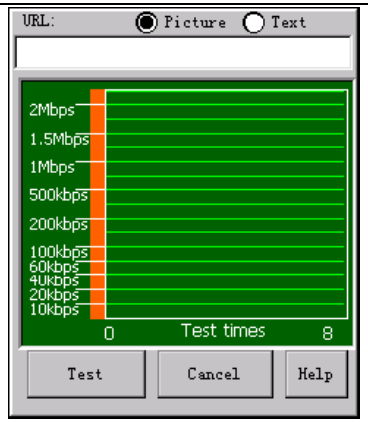


The user can set the port and connection mode.

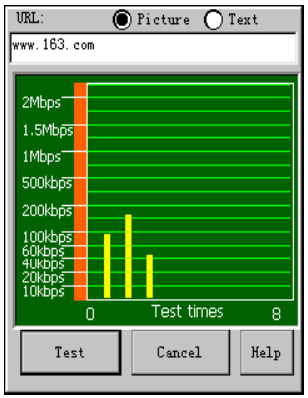
7.4.8 Webpage speed test

The webpage speed test is for validating the network flux.

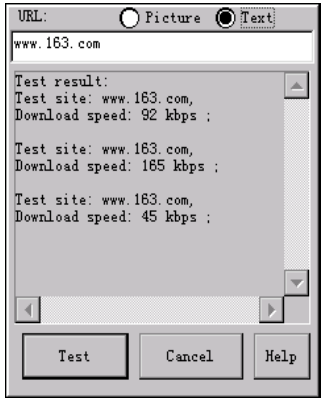
(1) Point  **Web Speed** test icon to open the speed test window.



(2) Input the website IP address into the address bar. Then press the test key to start the website speed test. The results will be displayed in form of picture or text according the option.



Result in picture



Result in text

Attentions:

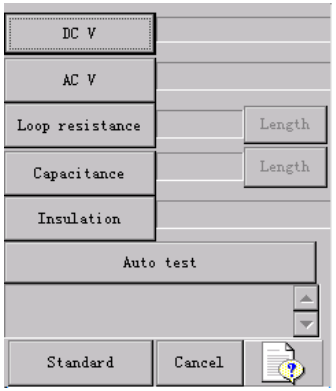
(1) In LAN test the user should set the gateway and DNS while in xDSL test canceling the gateway and DNS setting is necessary and connected through PPPoE.

(2) Please do notice that fill the right address into the address bar. It can not get good effect while testing the website which is used to make address jump at the server.

7.5 DMM test

AC/DC Voltage, Loop Resistance, Capacitance and Insulation Resistance can be tested by built-in MΩ. The lineman will be informed whether there is dangerous voltage in the line or 48V voltage of tel line or not.

(1) Point DMM **DMM Test** to enter into operation window.



(2) Connect the test cord and the line which will be tested, point different icon to have relevant test operation.

DC Voltage Test:

To test whether there is signal in the test line or not. It only can be operated for DC voltage test. The test range is –262 ~262V. When it exceeds test range. The tester warns as “Over max”.

AC Voltage Test:

To test whether there is high AC voltage in the line or not in order to avoid dangers for lineman. When there is high AC voltage, please take off test clamp carefully.

It is only for AC voltage test. The test range is -262 ~ 262V. When it exceeds the range, the tester warns as “Over max”.

Loop Resistance Test:

To calculate line length. If the line length is known, to adjust whether the line connection is right or not.

Calculate line length using loop resistance value tested:

$$L=R_L/R_O\ (\text{Km})\ \text{----------}\square$$

In expressions □: R_L is loop resistance value(Unit: Ω),R_O is loop resistance value per kilo (Unit: Ω) .

For 0.32mm diameter of copper line, R_O=435.2Ω; for 0.4mm diameter of copper line, R_O=278.5Ω; for 0.5mm diameter of copper line, R_O=178.3Ω.
If it displays “Over max”, it means the test clamp is not well linked, or line is not loop linked, or the loop resistance exceeds range. Please check the test clamp or link the line well and have test again.

If there is voltage (> 2V) in the line, it displays “AC in line”. It means there is voltage in the line, the loop resistance cannot be tested. Please check the line and have test when there is no voltage.

Capacitance Test:

The line length can be calculated with capacitance tested if there is no bridge connection in the line and it is not soggy.

$$L=C_{ab}/C_O(\text{Km})。\ \text{----------}\square$$

In the expression □, C_{ab} is capacitance value (Unit: nF), C_O is capacitance value per kil (Unit: nF).
If it displays “Over max” during the test process, it means the line capacitance exceeds range or there is fault in the line. Please check the line and have test again.

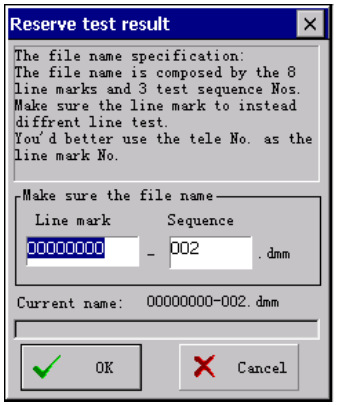
If there is voltage (> 2V) in the line, it displays “AC in line. It means there is voltage in the line, and the capacitance cannot be tested. Please check the line and have test when there is no voltage.

Insulation Test:

If there is small insulation resistance value, it means there is bad insulation in the line. The ADSL transmission performance will be influenced. The maintenance is required. ADSL line insulation resistance value should be more than 10MΩ.

If there is voltage (> 2V) in the line, it displays “AC in line”. It means there is voltage in the line, the insulation cannot be tested. Please check the line and have test when there is no voltage. If the line insulation resistance exceeds the range, it displays “〉 50.0 MΩ”, it means the line insulation is good.

(3) Point **Cancel** to close DMM test window. There is note message of test result storage. Press **OK** to save record and press **Cancel** to close it.



The default file name is linexxxx-xxx.dmm in which x is number. User can modify it as telephone number.

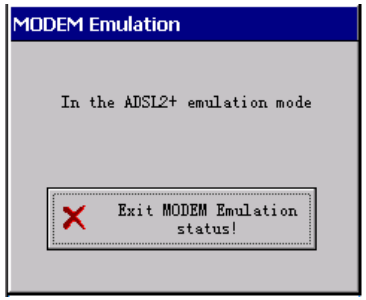
Notice

It is good for management that the line number of DMM record file name is the same as physical layer test record line number.

7.6 Modem emulation

Emulate user Modem to test whether there is fault in user Modem or not.

(1) Point  **MODEM Emulation** to enter into operation window.



(2)The tester will emulate user Modem to realize PPPoE DUN (Dial-Up Network).If the VPI/VCI value needs to be modified, please modify it from Modem Parameter window.

(3)If it needs to exit Modem Emulation state, please point **Exit MODEM Emulation Status!** to exit it.

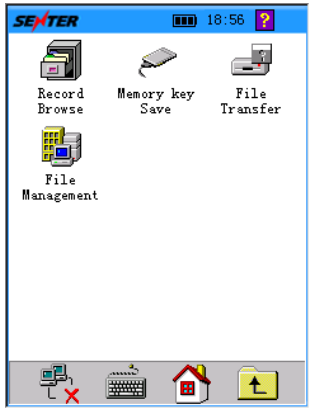
NOTES

Because of great power loss when the tester is in MODEM state. We limit the MODEM Emulation state in 15 minutes. If it exceeds 15 minutes, the MODEM will be switched off by tester automatically.

7.7 File management

To manage and check files save in tester, including record browse, save data in memory key and file transfer functions

(1) Point  **File Management** to enter into operation window.

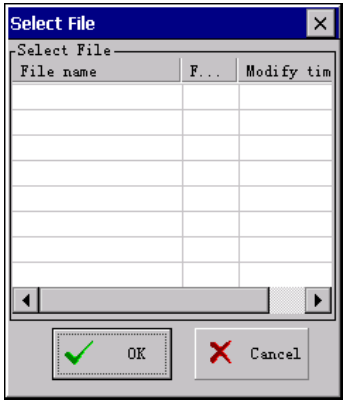


(2) Point different icon to have relative test operation.

7.7.1 Record browse

Browse test record, including information of DMM test, physical layer parameter, and channel bit pic.

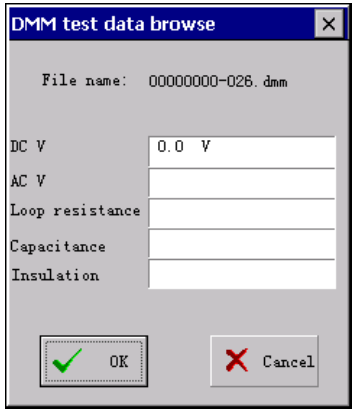
(1) Point  **Record Browse** to enter into operation window.



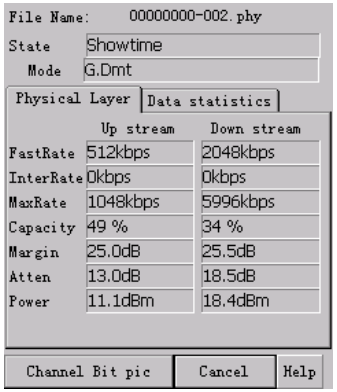
The file which postfix is “dmm” is the DMM test record; the file which postfix is “phy” is the physical layer test record.

Choose the files which will be checked from select file dialog box and choose the needed recording file from the list. Then confirm and open the relevant file and the record will be displayed,

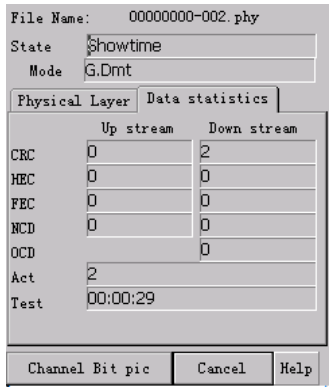
DMM Test Record window:



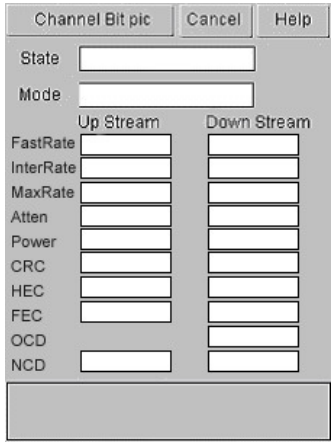
Physical Layer Parameter Test Record window:



ADSL2+ module test record 1



ADSL2+ module test record 2



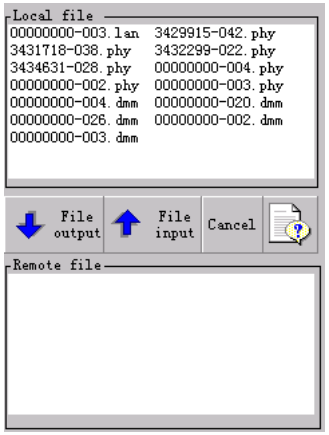
ADSL module test record

Point “Channel Bit Pic”, the channel bit pic will be displayed. Point Cancel button and close the window.

7.7.2 Memory key save

Transfer files saved in tester or memory key to each other. Make sure to insert memory key into tester, and the memory key is not in write-protect state.

(1) Point  **Memory key Save** to enter into operation window.



(2) The file saved in tester will be displayed in the **Local file** bar; the file

saved in memory key will be displayed in **Remote file** bar.

(3) Choose file from **Local file** bar, then point 

to transfer file into memory key;

(4) choose file from **Remote file** bar, then point 

to copy file into tester.

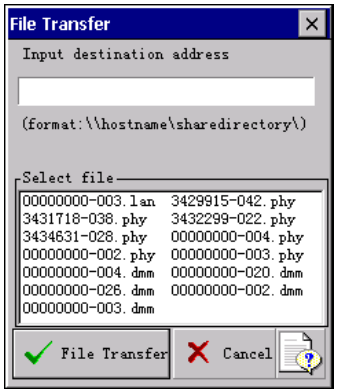
(5) Point **Cancel** to close the window.

7.7.3 File transfer

Copy test record from tester to Share directory in other PC in LAN. Make sure the IP address of tester and PC are in the same network part, and there is one share directory.

(1) Link network line into **Ethernet** port well, the Ethernet indicator light will be bright.

(2) Point  **File Transfer** to enter into operation window.



(3) Type address into **Input destination address** bar, choose file will be transferred from **Select file** bar, point **File Transfer**, the file chosen will be transferred to the directory.

Notice

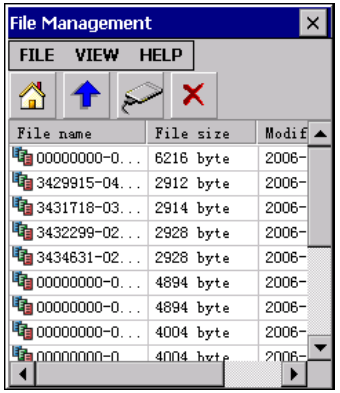
1. Please type in right format when the destination address is inputted.

2. If it is the first time to visit destination address, the user name and password window will be displayed. If you have no user name and password, just point **OK**.

7.7.4 File management

Manage files saved in the tester, including file deletion and file transferring to memory key.

(1) Point the  **File Management** to enter the window:



(2) Press  to return to the root catalog.

(3) Press  to return the next higher level.

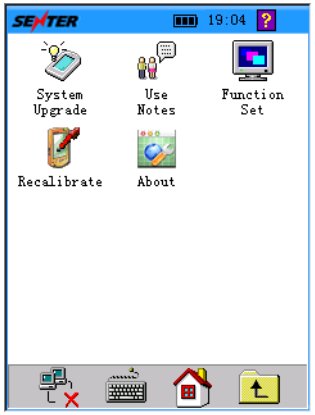
(4) Press  to copy the file to the memory key.

(5) Press  to delete file.

7.8 Help

Providing information on system upgrading, operation, function setting, recalibrate and about.

(1) Point  **HELP** to enter into operation window.



(2) Point different icon to have relevant test operation.

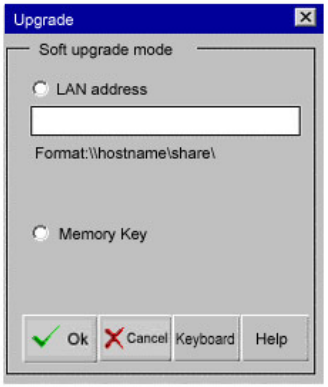
7.8.1 System upgrade

There are two ways to upgrade the software.

1. Upgrade software through LAN.
2. Upgrade software through memory key.

The test software can be downloaded through www.senter.com.cn.

(1) Point  **System Upgrade** to enter into System Upgrade window, to choose the upgrade mode.



(2) User chooses software upgrade method from LAN and Memory key methods.

- LAN mode

  (1) Make sure the IP address of tester and PC is in the same network part.

  (2) Copy the upgrade file from www.senter.com.cn to one share file.

  (3) Input route of upgrade file from LAN route bar, point **OK**.

- Memory key mode

  (1) Copy the upgrade file from www.senter.com.cn to the memory key.

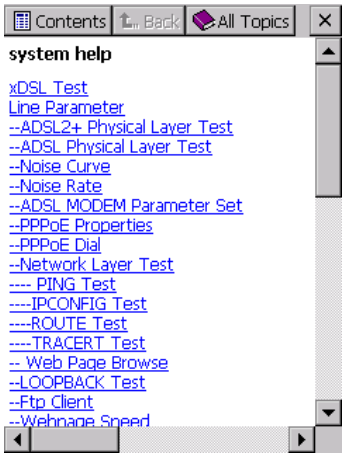
  (2) Insert memory key into tester through USB port.

  Copy the upgrade file into the root directory of memory key, then click OK to complete the upgrade of the system.

7.8.2 Use notes

Introduce different kinds of function and operation way.

(1) Point  **Use Notes** to enter into operation window.

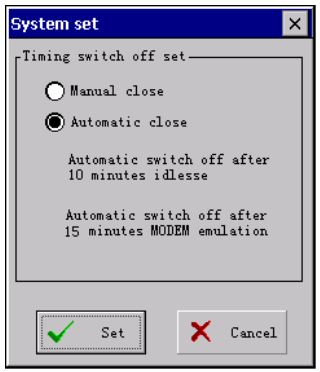


(2) Point different title to check introduction.

7.8.3 Function set

To perform the Manual close/ Automatic close switch set. The user can open/close timing switching off by this function set.

(1) Point  **function set** icon to enter the function set window.



(2)If you choose the **Manual close** option the instrument will be closed by yourself. If you do not close the instrument it will keep on open.

(3)Once select **Automatic close** option the tester will auto switch off after 10 minutes' idle to save power or 15 minutes modem emulation. We regard **Automatic close** as our default option in order to save power.

(4) The revising of the switching off is effective in current operation. If

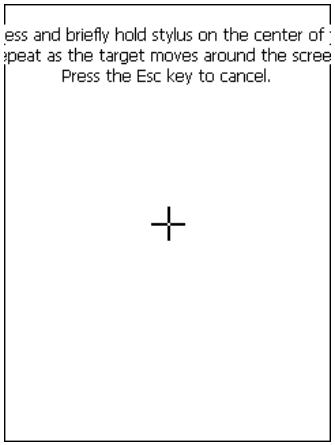
you close the tester setting will be the default automatic close.

(5) Please do remember to press the **set** key to save your option.

7.8.4 Recalibrate

This part provides the accuracy recalibrating of screen response to the touching stick.

(1) Point  **recalibrate** icon to enter the recalibrate window.



(2) Point  to confirm the center of the screen. Then the  will move to the four corners of the screen automatically. Please point the  when it reach different corners to help the instrument to perform the recalibrating of the screen's different part. After the four corners is confirmed please point **enter** key to confirm the recalibrate setting.

7.8.5 About

Software vision and manufacturer information.

Point **About** to check relevant information.

7.9 Charge

There is note message of low battery and it will be switched off automatically in 1 minute.

(1) Switch off tester, insert charger input plug into AC 220V power supply, the indicator light will be green color.

(2) Insert charger output plug into tester CHARGER port, the indicator light will be red color, it means the tester is being charged.

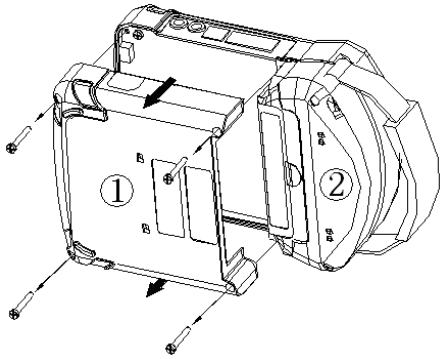
(3) After the indicator light becomes green color, the tester has been fully charged. Please take off the charger.

7.10 Battery Replacement

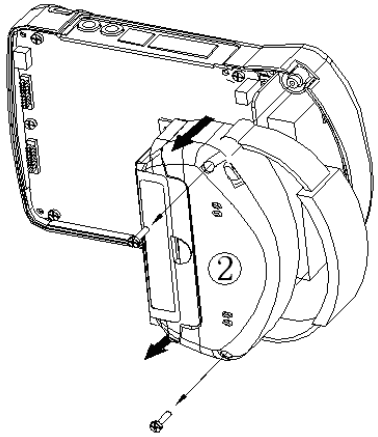
The battery is 7.4V 2700mAh Li battery and its measure is (W × L × H)

≤ 46mm×99mm×14mm. And there is a 2mm bumper to help prevent collision between shell and battery. We (manufacturer) could provide new paying battery to replace the old to the customers. It is also OK to take the other factory's battery which could meet requirements. But we suggest take the manufacturer's battery. Please ask the professional staff to replace the battery by following steps.

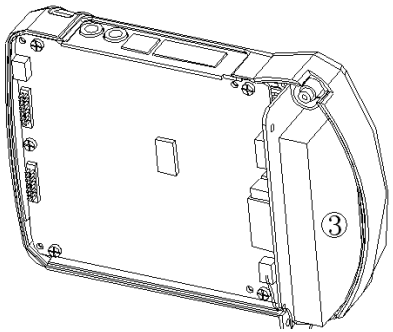
Step 1: Please release the 4 screws by "+" type screw driver on the back shell □and pull the back shell □ backward vertically.



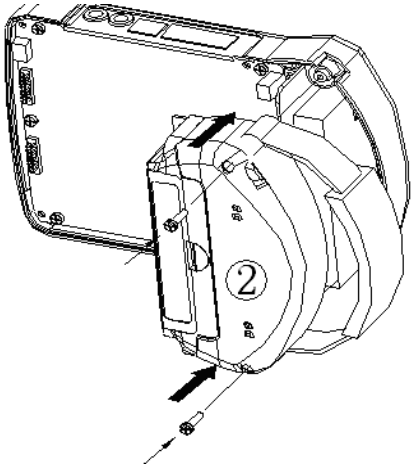
Step 2: Please release the 2 screws on back shell □ and pull the back shell □ backward vertically.



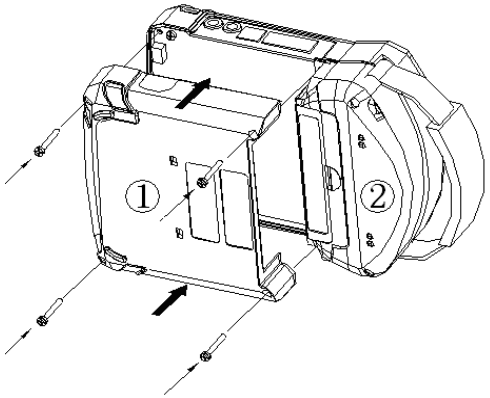
Step 3: Unbolt the pin between battery □ and printed board. Then replace the old battery □ with the new one. And insert the battery □ pin into the X6 seat of the printed board. Please do notice that keep the anode & cathode in the right positions.



Step 4: Cover the body with back shell □ and screw on the two screws.



Step 5: put the back shell □ on the body and screw on the 4 screws. Please notice that align the connectors on back shell□ and body. And the last thing is to screw on the 4 screws.



8. Analyzing and Solution for faults

Phenomenon	Reason	Solution
Unable switch on tester	Low battery	Charge tester
Under the xDSL test state, link ST330 to the ADSL line, the	1. Bad link for test line. 2. If no signal in the line,	1. Please have test after confirm the well connection.

inner Modem cannot be in activation for long time	please test whether there is 48V voltage by DMM test function.	2. If there is no voltage, it means there is no service in the line.
Failed modem initialization	1. User set the network card properties as DHCP mode. 2. User forbids the using of network card.	1. Modify the network card properties and set a fixed IP address. 2. Make network properties in normal status.
After enter into xDSL test, the under voltage warning will be display in a very short time.	The power of the Modem is big and the electricity will be consumed fast by the xDSL test in the low power.	Confirm the full charge when you have the xDSL test.
Memory key cannot be identified	Not all the memory keys can be identified by tester.	Please try again, or to change another brand of memory key.
PPPoE Dial connection fialed.	To confirm the right user name and password, and the PPPoE Properties setting.	Modify the PPPoE property according as the connection request of the line and input the right code when dialing.
Webpage browse failed	Confirm successful PPPoE dial	First dial the PPPoE No. Then change a web address to confirm the mistake is not because the server.
Ethernet indicator light is dark when the Ethernet cord is linked into tester	Network cord is divided into cross and direct network cord.	Please try another Ethernet port.

Telecom Test Solutions
Melbourne, Australia
Tel: 03 9023 0189
Fax: 03 9700 0583
E-mail: info@telecomtest.com.au