



Telecom Test PDA

User Manual

V7.0

Brief Introduction

First and foremost, thanks for buying our Telecom Test PDA. This user manual includes function introduction, installation, wiring, operation and problem solutions. In order to proper operation, please read this manual before using; keep the manual in a safe and convenient place for quick response when problems appear.

Note:

□ Due to the continuous improvement and refinement of the tester, please kindly forgive us not inform you of any modified manual.

□ We will try to make the manual accurate. If you find any mistakes, please inform us.

It is forbidden to copy all or part of the manual without any permission from manufacture.

CONTENTS

CHAPTER I SUMMARY AND SYSTEM STRUCTURE	1
1. Summary.....	1
2. Check the device and package.....	2
3. Structure and functions.....	4
4. Install SIM and TF Card.....	7
5. Main Features.....	8
CHAPTER II SPECIFICATIONS AND BASIC FUNCTIONS....	9
1. Technical Specifications	9
1.1 XDSL Index (Optional)	9
1.2 Optical Power Index (Optional)	11
1.3 Visual Fault Locator Index (Optional)	12
1.4 Speed Test Index	12
1.5 WIFI6 Index.....	12
1.6 HDMI (optional)	13
2. General Functions.....	13
2.1 OTG USB Function	13
2.2 Charge Function.....	14
2.3 Network Card	14
2.4 PPPoE Dial.....	14
CHAPTER III USAGE OF MAIN FUNCTIONS.....	15
1 Test Function	15
1.1 XDSL Test (Optional)	16

1.2 Modem Emulation (Need to be used with xDSL)	
.....	23
1.3 ONU Test (Optional)	24
1.4 Optical Power Test (optional)	36
1.5 Visual Fault Locator (Optional)	38
1.6 Cable Tracing (Optional)	39
1.7 Check Line Sequence (Optional)	40
1.8 Landline Telephone Function (Optional)	41
1.9 ONU Set	43
1.10 PING	45
1.11 TRACERT	47
1.12 Grab Packet	49
1.13 Auto Check	50
1.14 Check Terminal	51
1.15 IFCONFIG	52
1.16 DMM Test (Optional)	53
1.17 Setting	57
2 Barcode Scanning Test (Optional)	58
3 Wired speed test	59
4 WIFI6 Speed Test (Optional)	63
5 HDMI Function (Optional)	64
6 TDR Function (Optional)	65
7 OTDR test (Optional)	67
8 WIFI analysis (optional)	71

Chapter I Summary and System Structure

1. Summary

Telecom test PDA is based on android mobile phone platform, designed for meeting entire network requirement, whose functions including xDSL test, LAN test, optical power test, visual fault locator, cable tracing, check line sequence, HDMI, IPTV, DMM test, TDR test, landline telephone test, ONU (ONT) and Gigabit speed test, 2.5G speed test, WIFI 6 speed test, WIFI analyzer, OTDR and TDR. It is a hand-held comprehensive test equipment for the operation and maintenance of the entire network of operators.

Telecom test PDA can test many kinds of connect mode, including XDSL, LAN, Optical fiber. This device helps you to confirm whether the user line can open the business, and also evaluates the service quality you provide to the user. This device can not only emulate the user's PC to test the broadband IP line or PPPoE dial-up through the user Modem, but also can be used to verify the connectivity of the broadband IP network and the problem of the user Modem, or eliminate problems caused by user's PC malfunctions that leads to failing login web pages.

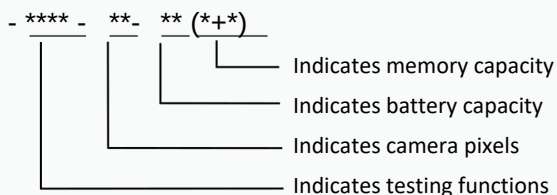
2. Check the device and package

Main Parts :

Please check whether the model number and suffix code on the label on the rear shell of the device match the requirements in the table below.

Device Label

PDA



Function Module	Module Code	Module Classification	Remarks
xDSL	V	VDSL2-AnnexA module	Optional, choose one
	3	35B-Annex A module	
	g	G.FAST module	
Bar code scan	2	2D Bar code module	optional
Power Meter	G	Optical power module with 162.5nm	Optional, choose one
	7	Optical power module with 157.7nm	
VFL	H	Visual fault module	Optional
Cable tracing	X	Cable tracing module	Optional
IPTV	I	IPTV module	Optional

DMM	D	DMM module	Optional
ONU	O	SFF ONU module	Optional
Landline telephone	T	Landline telephone module	Optional
SpeedTest	Q(2)	1 Gigabit and 2.5G port module	Standard
HDMI	M	HDMI module	Standard
OTDR	R	OTDR module	Optional
Check line sequence	W	Check network line sequence	Optional
TDR	8	Cable fault locator module	Optional
High precision GPS	U	High precision GPS module	Standard
WIFI Analyzer	a	Wifi 5 analysis module	Optional

Cam era	Code	Description	Remarks
Front camera	B	800W pixel	Standard
Rear camera	C	1600W pixel	Standard

Battery	Code	Description	Remarks
Battery	L	8200mAh Capacity	Standard

Memory capacity	Code	Description	Remarks
Memory capacity	4+64	RAM 4G、ROM 64G	Standard

3. Structure and functions

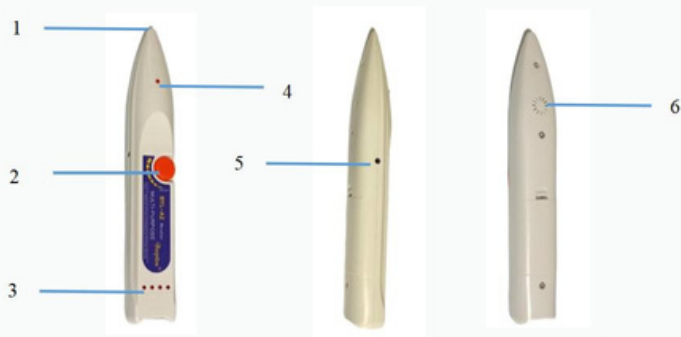




No.	Name	Function
1	Scanning window	Used to scanning 1D/ 2D code
2	Optical power port	Test optical power
3	VFL port	Red light test fiber optic connection
4	ONU port	ONU test interface
5	OTDR port	OTDR test interface
6	RJ45 port	Used in cable tracing and checking line sequence
7	USB port	Connect PC or charging
8	1.0G Net port	The port to connect with Ethernet, can be used for network test

9	2.5G Net port	The port to connect with Ethernet, can be used for network test
10	Indicator	Indicate the conditions of the equipment
11	Front camera	Make a photo or video
12	Telephone receiver	Telephone receiver
13	Display	Screen display
14	Keyboard	Function key, detailed functions as below
15	MIC	MIC
16	LED light	LED light also can be used as flashlight
17	Rear camera	Make a photo or video
18	Hand belt	Used for holding the equipment
19	Battery cover	Fix the battery
20	Battery cover screw	Fix or loose the battery cover
21	Loudspeaker	Equipment loudspeaker
22	Volume key	Adjust volume of phone call or the loud speak
23	Card port	Placing a SIM card and a TF card
24	Protection angle RJ11	Protect OTDR port
25	HDMI port	Used in xdsl, cable tracking, DMM, TDR.
26		Video source test input port

Cable Tracing Receiver



No.	Name	Function
1	Receiver probe	Antenna probe
2	Test button	Turn the button to turn on or off and adjust the volume
3	Indicator	Indicator of check line sequence
4	Indicator button	Light ON/OFF of Indicator
5	Earphone hole	Connect earphone
6	Loudspeaker	Audio signal generator loudspeaker

4. Install SIM and TF Card

Take out the SIM card tray with the card removal needle, if you need to insert the memory card, only choose SIM card or memory card in the position of card 2, they cannot be used at the same time. The positions of the SIM card and the card tray should match each other, and the metal contacts of the SIM card face up.

5. MainFeatures

■ It adopts 1080*1920 IPS true color touch screen ■ It adopts the built-in Android 12.0 operation system ■ Support 4G network ■ Support TDD-LTE:B38/B40/B41 (2496MHZ-2690MHz) ■ Support FDD-LTE:B1/B3/B5/B7/B8/B20/B28 ■ Support WCDMA: B1/B2/B5/B8 ■ Support GSM/ GPRS/ EDGE GSM850 / EGSM900/ PCS1900/ DCS1 800 ■ Rechargeable 3.8V 8200mAh battery, support fast charging ■ Can make a phone call in earphone and listen to music. ■ Rear camera with 16 million pixels and support auto focus and flash function ■ Front camera with 8 million pixels and support auto focus ■ Support a/b/g/n/ac/ax, WIFI 2.4G and 5G dual-band ■ Support Bluetooth function ■ Support Flashlight function ■ Dimension: 190mm*90mm*46mm ■ Weight: About 660g

Chapter II Specifications and Basic Functions

1. Technical Specifications

1.1 XDSL Index (Optional)

ADSL2+ Module :

1) It can meet the following standards: ITU G.994.1 (G.hs), ITU G.992.5, ITU G.992.5 Annex L. The max connected distance is 6.5km. Be compatible with ADSL, ADSL2+ and READSL

2) It can test the transmission parameters in the DSL line: □ Attenuation: 0~63.5dB □ Noise Margin: 0~32dB □ Upstream Channel Rate (interweaved / fast mode): 0~1.2Mbps □ Downstream Channel Rate (interweaved / fast mode): 0~24Mbps □ The maximum rate and capacity ratio of upstream channel and downstream channel □ The modulating bits in the DMT sub-channel: 0~15 and each sub-channels' frequency points □ The number of error codes (CRC, HEC, FEC, NCD, OCD)

□ The output power of DSL

□ It can display every condition of the DSL line: lost signal and shutdown of link

VDSL2 Module

- 1) It can meet the ITU-T G993.2 (VDSL2), compatible with ADSL2+/ ADSL standard
- 2) It can test the transmission parameters in the DSL line:
 - Attenuation
 - Noise margin
 - Upstream channel rate(interweaved/fast mode): 0~100M
 - Downstream channel rate(interweaved/fast mode): 0~100M
 - The channel number of bits in the DMT
 - The maximum rate and capacity ratio of upstream channel and downstream channel: 0~100M
 - 0~15 and each sub-channels' frequency points
 - The number of error codes (CRC, HEC, FEC, NCD, OCD)
 - The output power of DSL
 - It can display every condition of the DSL line: lost signal and shutdown of link
 - DSLAM information
 - Error second
 - INP pulse protection
 - SNR channel figure
 - Channel noise margin figure
- 3) Support the first 7 profiles among the 8 transmission profiles (profile 8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a,) of VDSL2.

G.FAST Modem:

- 1) It can meet the ITU-T G.9700/G.9701 (G.Fast), compatible with VDSL2, ADSL2+ and ADSL standard.
- 2) It can test the transmission parameters in the DSL line:

- ☐ Attenuation
 - ☐ Noise margin
 - ☐ Upstream channel rate(inter-weaved/fast mode)
 - ☐ Downstream channel rate(inter-weaved/fast mode)
 - ☐ The maximum rate and capacity ratio of upstream channel and downstream channel
 - ☐ The number of bits in the DMT sub-channel: 0~15 and each sub-channels' frequency points
 - ☐ The number of error codes (CRC, HEC, FEC, LCD, OCD)
 - ☐ The output power of DSL
 - ☐ It can display every condition of the DSL line: lost signal and shutdown of link
 - ☐ Error second
 - ☐ INP pulse protection
 - ☐ SNR channel figure
 - ☐ Channel Hlog and QLN graphic display
- 3) Support the 8 transmission profiles(profile 8a, 8b, 8c, 8d, 12a, 12b, 17a, 30a) of VDSL2.
- 4) Support VDSL2 vectoring(35b)

1.2 Optical Power Index (Optional)

- ☐ Wavelength range (nm): 800~1700
- ☐ Photo-sensing material: InGaAs
- ☐ Power test range (dBm): -70~+3 (-50~+26)
- ☐ Error range: $\pm 5\%$
- ☐ Display distinguish ability
- ☐ Linear display: 0.1%

- ☐ Logarithmic display: 0.01 dBm
- ☐ Universal interface (FC、ST、SC)

1.3 Visual Fault Locator Index (Optional)

- ☐ Laser: FP-LD
- ☐ Wavelength: 650nm±20nm
- ☐ Output power: 5mw
- ☐ Connector: universal (FC、ST、SC)
- ☐ Working mode: CW or 2Hz modulation
- ☐ Applicable fiber: SM/MM

1.4 Speed Test Index

1) Speed test specification

- ☐ Support Gigabit speed test and 2.5G speed test

2) Network configuration

- ☐ Support DHCP, PPPOE and static IP Internet connection
- ☐ Can set the thread count
- ☐ Can set testing time
- ☐ Can set testing URL address

1.5 WIFI6 Index

1) Speed test specification

- ☐ Support wireless WIFI6 gigabit speed measurement
- ☐ Support 1024-QAM high-order modulation, maximum

support 160MHz bandwidth

- ☐ Support 802.11.ax and backward protocol compatibility

2) Network configuration:

- ☐ Can set the thread count
- ☐ Can set testing time
- ☐ Can set testing address

1.6 HDMI (optional)

1) Interface

- ☐ Support HDMI protocol interface

2) Resolution

- ☐ Support 4K, HD1080P, HD1080I, HD720P, SD480P, VGA, Auto resolution.

2. General Functions

2.1 OTG USB Function

Through USB OTG data line can connect PDA to USB, transfer files and data backup. The PDA support USB storage device including U disk, reader and phones which support large capacity USB storage function. After connecting USB equipment and upload successfully it can read the data in the USB storage equipment.

2.2 Charge Function

The device adopts type-C interface and supports fast charging. The device comes with a fast charging charger. Please use the direct charging charger to charging. It is recommended to use the standard charger for the device.

2.3 Network Card

To open the device's network card, pull down the prompt bar and

click the LAN 1 or LAN 2 icon , you can choose 

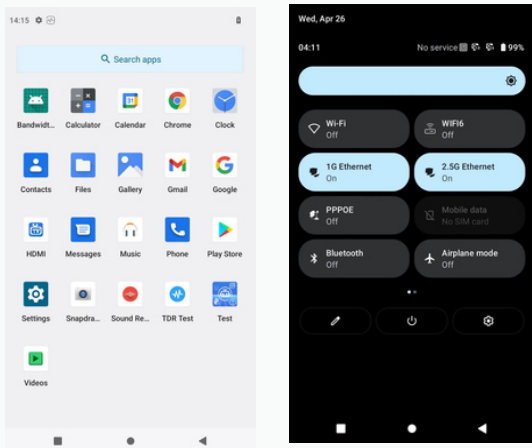
DHCP or STATIC from Ethernet IP mode. In DHCP mode, you can click Reacquire to enable the device to obtain an IP address from the DHCP server again. In the static IP state, you can modify the IP address, subnet mask, gateway and DNS of the network card. The DNS is divided into two, namely DNS1 and DNS2. DNS1 should be set first.

2.4 PPPoE Dial

To make PPPoE dial-up, pull down the prompt bar, click the PPPoE icon, the system pops up the PPPoE property window, enter the user name and password in the dial-up interface, and click Connect to make PPPoE dial-up and establish a PPPoE link.

Chapter III Usage of Main Functions

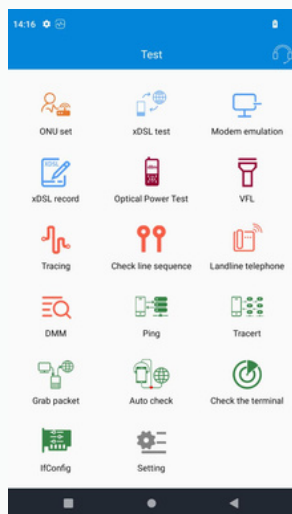
On the main interface, slide up from the bottom of the screen to pop up the main menu. As shown below.



Swipe up and down to view more menu items, press the back button to close the main menu, or drag the user's favorite function to the desktop, press and hold the icon to be moved, and then move the icon. Just drag the icon to where you want it and let go. (Note: Press and hold the icon during the operation).

1 Test Function

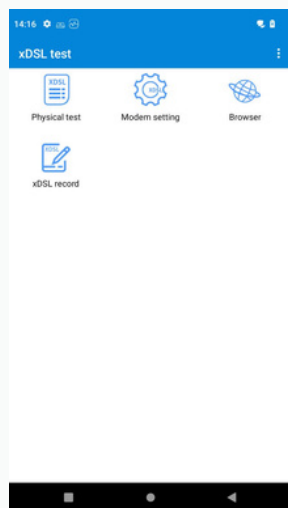
Installation and maintenance test is a professional test software for equipment, The test interface of the device is as follows.



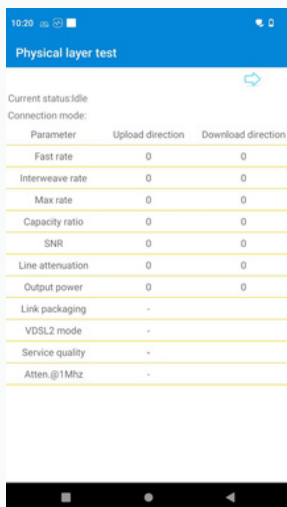
Each function is described as follows:

1.1 XDSL Test (Optional)

Test the xDSL line through the built-in Modem of the device. Including physical layer information, Modem settings, browser and xDSL records, this function needs to be used with a dedicated test line. The xDSL login interface is shown in the figure below:



Physical layer information is the physical layer parameters for testing xDSL lines, including xDSL connection status, connection mode, up/downlink rate, noise margin, line attenuation, output power, CRC error code, HEC error code, FEC error code, OCD error code, LCD error code and channel bit map. Use this function to verify whether there is a problem with the user line, as well as the data parameters of the measured user line, and solve the obstacles caused by the user Modem and computer. The value of each parameter will be displayed on the test interface to reflect the current state. Through the current status of xDSL, you can see the Handshake(connection) process between xDSL and local side equipment, and the connection mode is displayed as the current connection mode. As shown below:



Physical layer test

Current status: Idle
Connection mode: DSLAM: -

Parameter	Upload direction	Download direction
Fast rate	0	0
Interleave rate	0	0
Max rate	0	0
Capacity ratio	0	0
SNR	0	0
Line attenuation	0	0
Output power	0	0
Link packaging	-	-
VDSL2 mode	-	-
Service quality	-	-
Atten.@1MHz	-	-

Physical layer parameter1

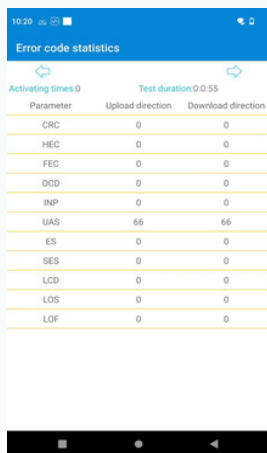


Physical layer parameters II

Current status: Idle
Connection mode: DSLAM: -

Band	Attenuation(dB)	SNR(dB)	Power(dBm)
U0	-	-	-
U1	-	-	-
U2	-	-	-
U3	-	-	-
U4	-	-	-
D1	-	-	-
D2	-	-	-
D3	-	-	-

Physical layer parameter2



Error code statistics

Activating times: 0
Test duration: 0:0:55

Parameter	Upload direction	Download direction
CRC	0	0
HEC	0	0
FEC	0	0
OCD	0	0
INP	0	0
UAS	66	66
ES	0	0
SES	0	0
LCD	0	0
LOS	0	0
LOF	0	0

Error codes statistics



Graphical display

The current status:

HandShake: Shaking hands(Connection)

Discovery: Discover the local side DSLAM

Training: Connection training

Showtime: Far-end DSLAM is connected.

Connection mode description:

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;

ADSL2/ADSL2+: in accordance with ITU-T G992.5;

ADSL2: in accordance with ITU-T G992.3 standard;

VDSL2: ITU-T G.993.2(VDSL2);

G. fast: ITU-T G.9700/G.9701 (G.FAST)

Physical layer parameter:

Activation Times: Displays the total number of Modem activations from the start of the test to the current time, and the number of activation will automatically increase by 1 each time it is activated.

Test duration: Displays the time from entering the physical layer test after the Modem is initialized successfully.

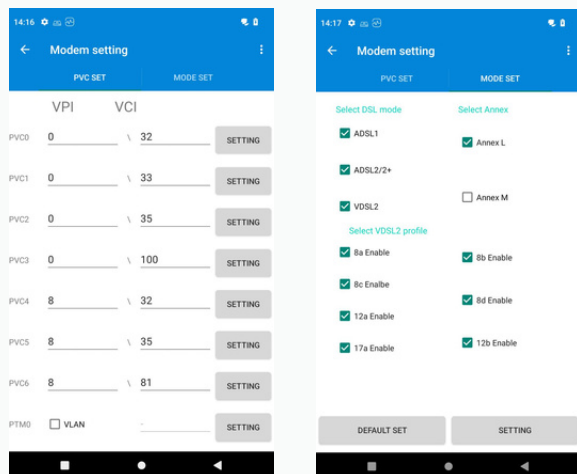
In the channel bit map interface, the user can view the channel bit value of the current connection and display it in a graphical manner.

If the user needs to view the test results in text mode, you can click the detail button to change to the text display mode.

Modem Setting

It includes Modem mode setting and VPI/VCI setting.

In Modem Setting, you can set up modem working mode and 7 groups VPI/VCI value. The setting interface will show current 7 groups of VPI/VCI values. If it needs to be modified, type new VPI/VCI value from VPI and VCI bar. Click "Set", and this group VPI/VCI will be set (can be saved even if power off)



Modem Setting

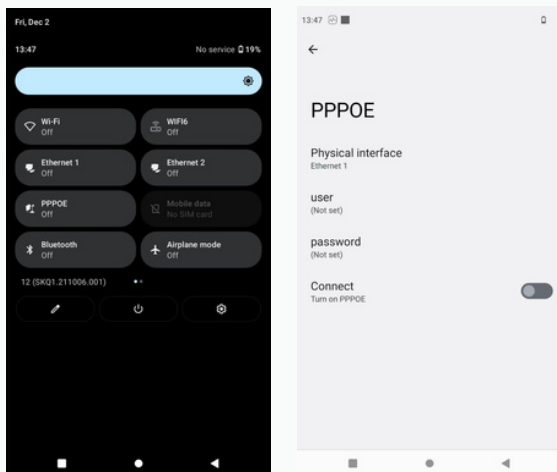
Note

If you want to modify the Modem mode, you must exit the xDSL test and re-enter the it, then the modification of the mode will take effect when connecting.

PPPoE

PPPoE dial-up is in the status bar, pull down the status bar, press and hold the PPPOE icon, a dial-up window pops up, add a user name and password, click the PPPOE dial-up connection to start PPPoE dial-up, and the device automatically remembers the user

name and password. After the dial-up is successful, you can log in to the Internet to test web browsing.



Brow ser

After the PPPoE dial-up is successful, click the browser icon, the device opens the browser, enter the URL to log in in the address bar, and click the confirmation key on the keyboard to log in to the URL to verify the connectivity of the xDSL channel. If other programs of the device also need to use the xDSL channel, when you press the return key, the program will prompt whether to exit with the Modem powered off or with the Modem powered on. If you need to use the xDSL channel externally, you need to exit with power on, and if you don't need it, choose to exit with power off. You can also directly press the home button to return to the home page, and then enter the menu for PPPoE dialing.

The xDSL test process is as follows:

xDSL line physical layer test -> PPPoE dial-up -> web page login test. If other programs need to use the xDSL network access, you need to choose to exit the Modem test with power when exiting the xDSL test. When testing, insert the telephone line into the RJ11 port, as shown in the figure below:

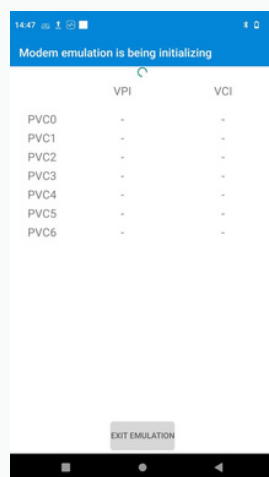


xDSL test wiring

Entering into xDSL test, then click Physical Layer Test interface, it can show data of activation situation, etc. When activation indicator bright for long time, it means the line activated, it can show the up/down stream rate, noise margin, attenuation, the output power, the error codes (CRC, HEC, FEC, OCD LCD) and parameter of channel bits graph, etc. User can check all test data by sliding screen under the test parameter interface. Then press PPPoE dial, input the user name and password and then do the landing page test after success dialing.

1.2 Modem Emulation (Need to be used with xDSL)

Being used to emulate user's Modem and eliminate faults of user's Modem. This function need to use professional test line. Click Modem Emulation icon can open the power of Modem, then the PDA will be under the Modem emulation status and show the Modem's VPI/VCI, please see the following picture:



Now, the PDA is used as Ethernet xDSL Modem. It can emulate user's Modem (If the VPI/VCI value needs to be modified, please modify it from Modem Setting in the xDSL test), PDA can used as Modem to realize PPPoE dial. It can eliminate the faults caused by user's Modem. If needs to exit Modem Emulation, please click Exit.

Modem emulation connection is as follow:



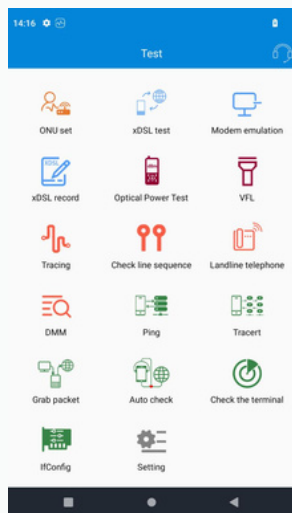
Modem Emulation Wiring

1.3 ONU Test (Optional)

The PDA with OUN test function as a professional tool for telecom operator to do the ONU (ONT) emulation test work, including OUN (ONT) test and ONU (ONT) emulation, it can fully simulate the ONU (ONT) function and can easily view the running parameters on the optical fiber line, efficient troubleshooting.

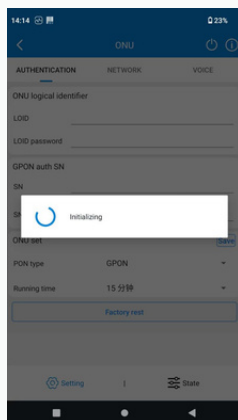
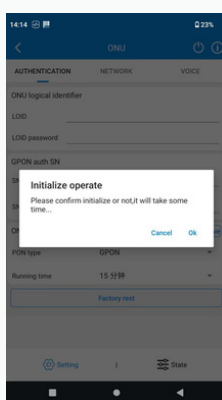
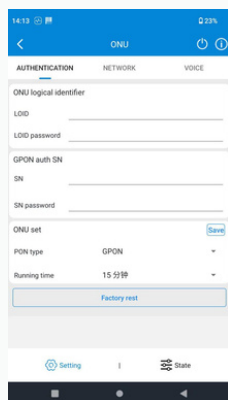
1. ONU Function and Use Method

Firstly, connect the PDA with ONU function to the telecom operator's optical line through fiber, open Test interface, including "ONU Test" and "ONU Emulation" functions, as shown below:



1. ONU Test

The "ONU" test is to completely replace the user ONU with the ONU function of the PDA. You can check various parameters of the ONU, configure registration parameters, and establish business connections. Click "ONU Test", the ONU test interface will pop up, click the initialization icon in the upper right corner, and the "Initialize operate" dialog window will pop up, click "OK" to initialize the ONU, wait for the ONU initialization to enter the ONU test interface. At the bottom of the "ONU" interface, there are "Setting", "State" icons, as shown in the figure below:



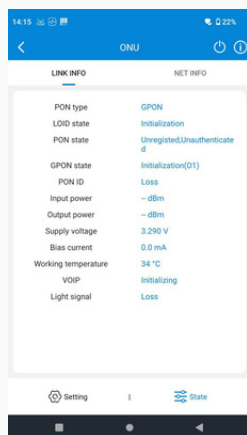
2.1 ONU State

Click the "State" icon, there are two interface options: "LINK INFO" and "NET INFO".

LINK INFO

LINK INFO displays physical link layer information, as shown in the

following picture:



GPON link info

Through LINK INFO data, you can check ONU (ONT) registration state, link state and other parameters. The authentication and registration all passed, the main test value should be as below:

	EPON	GPON
LOIDState	Registered	Success
PONstatus	Authenticated	Success
OutputPower	+0.5~5dbm	+0.5~5dbm
InputPower	-27dbm~-8dbm	-27dbm~-8dbm
SupplyVoltage	3100~3500mV	3100~3500mV
BiasCurrent	0~90mA	0~90mA

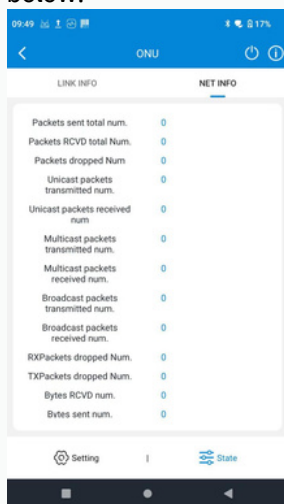
Interface parameter description:

MPCP: Whether to establish a point-to-point connection with the OLT, including two states "success" and "failure";

OAM: Whether the remote management connection with the OLT is established, including two states "established" and "not established";
 FEC: Whether forward error correction is enabled, including two states "available" and "not available"; Optical signal: whether the optical signal is normal, including two states "normal" and "lost".
 When there is no optical signal or the optical signal is weak, it will display "lost"; when the light signal is normal, it will display "normal".

NET INFO

When the network connection is established successfully, the network packet statistics are displayed in time. The interface is shown in the picture below:



□Packets sent num.: Total number of packets sent

□Packets RCVD num.: Total number of packets received

- ☐Packets dropped num.: Total number of packets lost
- ☐Unicast packets transmitted num: Total unicast number of packets sent
- ☐Unicast packets received num: Total unicast number of packets received
- ☐Multicast packets transmitted num: Total multicast number of packets sent
- ☐Multicast packets received num: Total multicast number of packets received
- ☐Broadcast packets transmitted num: Total broadcast number of packets sent
- ☐Broadcast packets received num: Total broadcast number of packets received
- ☐RXPackets dropped num.: Total received number of packets lost
- ☐TXPackets dropped num: Total sent number of packets lost
- ☐Bytes RCVD num.: Total number of bytes received
- ☐Bytes sent num.: Total number of bytes sent

2.2 ONU Setting

The internal parameters of the ONU are modified and configured to implement ONU access to the PON network and establish a network connection. In “ONU Test” to choose "Setting" interface there are AUTHENTICATION, and NETWORK, VOICE three options. In the AUTHENTICATION interface will display ONU type: EPON or GPON.

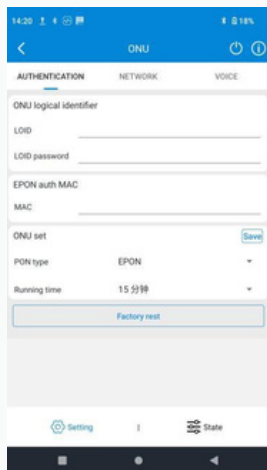
Note: The EPON and GPON authentication interfaces are different in the advanced settings, so set the ONU type on the PDA according to actual network.

Authentication

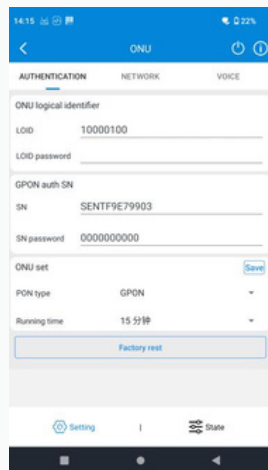
To modify the authentication configuration so that the ONU can

access the optical network and realize the inter working with the OLT. Under the Authentication setting interface, including the device LOID and advanced settings. Click "Show Advanced Settings" to display information such as SN/MAC, OUI, ACS user name, connection user name and so on Note: EPON contains MAC settings and GPON contains SN settings. Users need to configure the corresponding authentication

information according to the actual network. Please see the following picture:



EPON



GPON

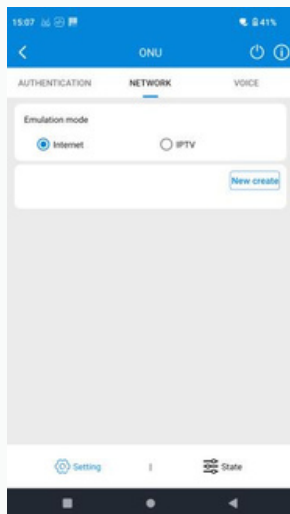
●LOID Password: When the ONU use LOID as the authentication mode, it must write.

●MAC: EPON authentication use MAC.

Note: When the ONU is EPON, you can select LOID or MAC which telecom operator supported. ● SN: GPON authentication needs SN.
Note: When the ONU is GPON, you can select the LOID or SN which telecom operator supported. After the LOID set, do not restart the ONU, other information will prompt to restart the ONU, only restart to take effect. The restore factory setting cannot delete the authentication configuration.

Under Network interface, the user can view and modify the existing network connection and add the new network connection.

Up to create 5 network (WAN) connections in this interface. View the internet connection, if the connection is successful, the status is Connected, if not connected or connected unsuccessful, the status is Unconnected. Click delete icon to delete the corresponding set of internet connection. Interface parameters (as shown below)



Emulation Mode:

Internet: ONU as bridge connect equipment, external devices connect to PDA through network cable and can perform PPPoE dialing and access to the network (ONU must have the connection mode of bridge and the business mode of Internet) IPTV: ONU as bridge connect equipment, IPTV set top box connect to PDA through network cable and connect IPTV network (ONU must have the connection mode of bridge and the business mode of Other).

Network Connection: including name, type, state. Name: For example, 1_TR069_R_VID_46, where 1 code means network connection index, TR069 on behalf of the business type, R on behalf of the connection mode, VID_46 on behalf of the VLAN ID of 46.

Create net connection	
Connection mode	PPPoE
Business mode	INTERNET
VLAN mode	Tag
VLAN ID	41
Multi cast VLAN ID	1
User name	test
Password	test

New create Cancel

Create net connection	
Connection mode	桥接
Business mode	INTERNET
VLAN mode	Tag
VLAN ID	41
Multi cast VLAN ID	1

New create Cancel

Type: The network connection mode.

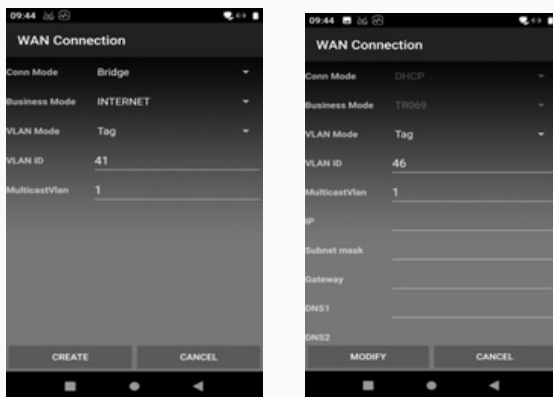
State: The current network connection status, connected means

the current network connection is success; unconnected means the connection to the current network is not established or failed.

Note: There is no state display when the network mode is bridge.

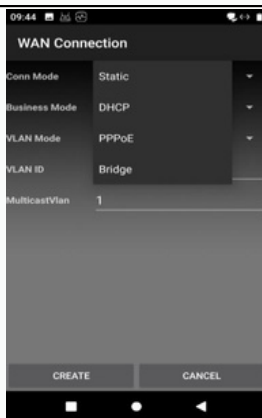
In the Network interface, click any network connection information; you can enter to view or modify the network connection information.

In the Network interface, click the “New Create” button to enter the new network connection interface. New WAN connection and modify WAN connection with similar content.



Connection Mode :

- Static : specify IP for the ONU (ONT) configuration
- DHCP : ONU (ONT) as a DHCP client, access to dynamic IP
- PPPoE : fill in the PPPoE account and password
- Bridge : ONU (ONT) as a bridge device



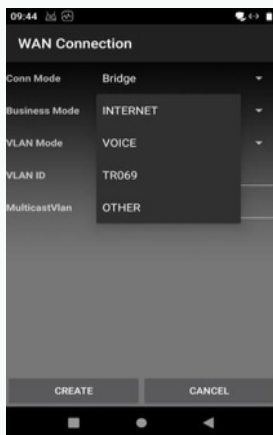
Business Mode : The purpose for network connection

□ INTERNET : the network connection as the Internet channel

□ VOICE : the network connection as a VOICE channel

□ TR069 : Use the network connection as ACS channel

□ OTHER : the network connection as the IPTV channel



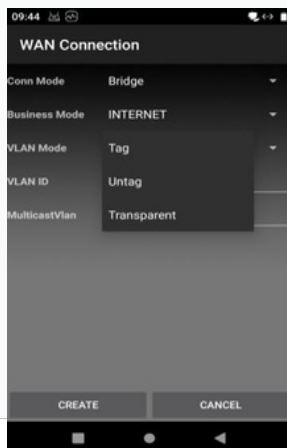
VLAN Mode : whether use VLAN or not

□ Tag : Configure the network connection with VLAN mode, must

set VLAN ID

□Untag: Configure the network connection with UNTAG mode

□Transparent: Configure the network connection with transparent mode



VLAN ID :

This item is valid when TAG is selected. Fill in the VLANID (1~4095) assigned by the operator.

After modifying or creating a new configuration, click the "Modify" or "New" button to configure the network connection to the ONU and actively connect to the network according to the connection.

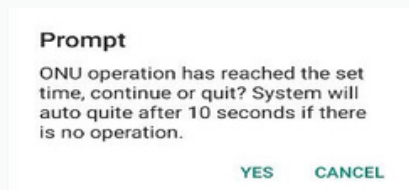
Voice function (optional): The curing function is realized through the ONU module, and the voice function can be realized by

configuring the parameters of the server on the



2.3 ONU Prompt Interface

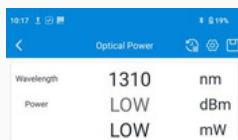
After setting the ONU operating time and ONU reach this setting time, there will show the hint "ONU operation has reached the set time, continue or quit? System will auto quit after 10 seconds if there is no operation" Choose YES to exit, choose Cancel to continue ONU test; if there is no choice within 10 seconds, ONU will exit automatically:



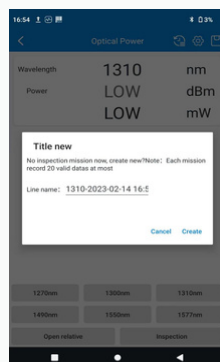
1.4 Optical Power Test (optional)

Optical power test can test the power of optic fiber signal, insert the pigtail of optical signal to be tested into the optical interface can test

optical power, interface as below:



The six wavelengths on screen is calibration wavelength, choose corresponding wavelength can test current optical power value. The test value will be shown in the unit of dBm and nW meantime. User can stop testing by pressing "Stop Test", and displayed the latest test result. Click "Save" key to save the current test result. Click "Insp" button can create inspection mission for line inspection operation, as shown below:



Input the name of the line to distinguish different lines. Inspection

significance: test different positions optical power value in one fiber, then draw the power curve (similar to the OTDR's test curve), you can view any attenuation values between 2 points. After establishing inspection mission, click on the inspection button, current optical power value will be added to the inspection record end and will be displayed by the curve graph. The two vertical lines are two movable cursors, drag the cursor to view the power value and difference of any two points.



1.5 Visual Fault Locator (Optional)

The device has red light source output, which can output continuous red light or 2Hz modulated light. Click the red light source, the device enters the red light source interface, as shown below:



Click "Open" to turn on the VFL, and click "Close" to turn off the VFL. CW/2Hz is the switch button of the continuous and modulated light, the tester can memorize the VFL mode automatically.

1.6 Cable Tracing (Optional)

The device can generate cable tracking signals. It can cooperate with the receiver to implement cable tracking and line discrimination. This function needs to be used with test line.

The device generates specific audio signal and injects it into the cable. The signal will leak the injected audio signal during the cable transmission process. The receiver can receive the leaked signal, it can find the trace of the line to distinguish different lines. Click the Tracing icon to enter into the tracing test interface. As shown below:

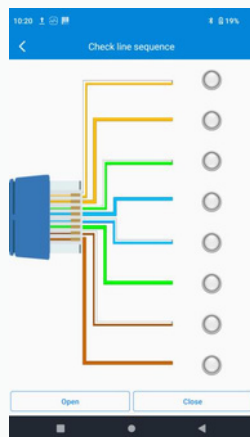


Click “Open”, tester start sending audio signal, and then click "Close" to stop the audio signal sending, and user can exit cable tracing by pressing return key.

Connect the cable to be tested to the RJ11 port on the right side of the device, and then click the start button, the tracking receiver will patrol along the line to be tested, so that it keeps sending out the audio signal of tracking, that is, the wiring track of the line can be found.

1.7 Check Line Sequence (Optional)

Click the check line sequence icon to enter the function interface, as shown below:



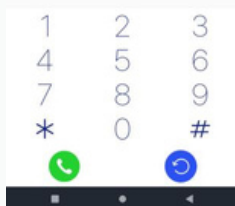
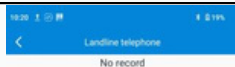
Insert one end of the network cable into the RJ45 interface under the device, and connect the other end to the line receiver, or connect to any router or switch, and click to OPEN, the device sends pulse signals in sequence, the network line sequence and continuity can be displayed on the screen or on the line receiver.

1.8 Landline Telephone Function (Optional)

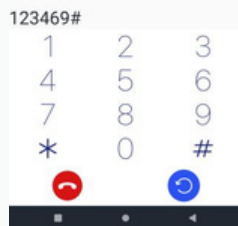
The device equipped with the landline telephone can make and answer the call; this function needs professional test line.

Instructions:

Click the "Landline Telephone" icon to open the landline telephone test interface. At this time, it is on-hook, as below left photo:



Hook on



Hook Off

Dial:

Click the green button on the left bottom of the interface, then the green button changed to red color, now, the entered phone number will be dialed automatic. Click the red button to finish talk.

Redial:

In hook-on state, 10 recently dialed numbers will be displayed on interface. Click the number to dial out, and long pressing can delete. Or click the green icon in the right bottom of the screen in the hook-on state to redial the number of last dialed.

Receive:

The left bottom green button will swing back and forth when there is a call, click the button to receive the call, click it after finishing the talk.

Exit:

Click return button twice continuously to exit the landline telephone test.

1.9 ONU Set

1. Function description

It supports network card wired Internet access mode (use 1G port in multi-network card machine), connect to specified IP address, store common IP address, use web page to open optical modem registration and setting page, register ONU or set corresponding parameters. The ONU registration method is divided into automatic connection and manual connection. The manual connection needs to add the selected address; the automatic connection method uses the dynamic address to configure the network card, and automatically jumps to the page according to the obtained gateway address; and the manual connection method needs to set the ONU address, use the static address to configure the network card, and finally jump to open the page according to the gateway address.

2. Instructions:

Automatic mode, blank display at the bottom of the page, click the OK button after selecting to realize the page jump, the page is as follows:



Auto Mode of ONU Set

In manual mode, the ONU address list is at the bottom of the page. The left side of each item in the list is the address remark, and the right side is the address, as shown in the following figure:



Manual Mode of ONU Set

Each item in the manual mode address list can be selected, and the background turns gray, as shown in the figure below:



The display of the ONU manual set

Each address in manual mode can be edited and deleted, and

each item can be displayed by sliding to the left, as shown in the figure below:



The Edit and delete button in the manual mode of ONU SET

After the mode selection is completed, connect the network cable and click OK. The device starts to automatically set the network card and log in to the ONU setting interface. Wait for the interface to be translucent.

After entering the ONU setting interface, manually enter the ONU login account password to log in to finish settings.

1.10 PING

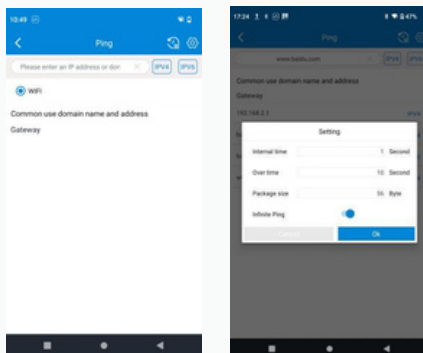
1. Function introduction

Implement the triggering of the PING function. The program can remember three commonly used addresses (gateway, baidu), and

can set and remember 10 historical test addresses. Supports IP and domain names to enter parameters. Optional parameters include packet length, number of times, and ipv4/ipv6. The results display includes: local IP (public network) attribution and operator, destination IP attribution and operator, number of packets sent, number of packets received, packet loss rate, maximum delay, minimum delay, average time delay, mean deviation. This function includes history record saving, browsing and exporting.

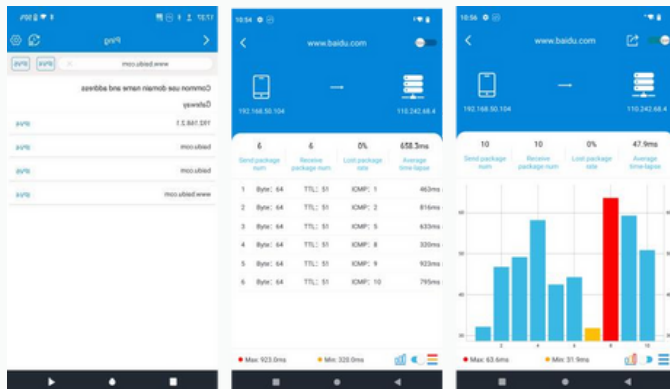
2. Operation

Click PING in the test app to enter the PING function. Click the setting button on the right side of the head to enter the settings page. The PING setting function sets various parameters of the PING function: internal time, over time, package size, infinite PING, and the number of package. The default is to close the infinite PING button. Turn on the infinite PING button to keep PING. After setting, click OK, and the setting parameters will take effect.



Click the history button on the right side to enter the history page.

Click the input box and enter the address, click the IPV4 or IPV6 button to jump to the PING test page, and the PING input address will display the result. You can also jump to the PING test page by clicking on the commonly used address



1.11 TRACERT

1. Introduction

Implement the triggering of the tracert function. And automatically and remember 10 historical test addresses. Both IP and domain names are supported. The result display includes: local IP (public network) attribution and operator, each hop IP attribution and operator. This function includes history record saving, browsing and exporting.

2. Operation

Click the input box to enter the tracer address and click OK to start the test. The entered address will be automatically saved, and a maximum of 10 records will be saved.

After the test, the save record button is turned off by default. After the function is over, click the share button in the upper right corner to share.

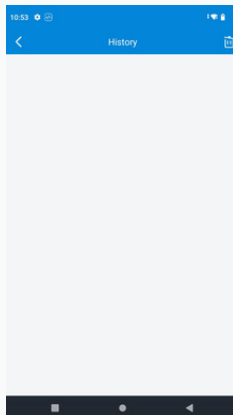
If you click the back button, if the current job is not over, a pop-up window will be prompted whether to interrupt the task and exit.

Click the history button on the right side to enter the history page.

Click on each historical record to view the details of the historical record.



跳数	IP	耗时
1	192.168.6.1	84ms 16ms 15ms
2	172.16.52.1	20ms 18ms 16ms
3	100.64.100.1	16ms 21ms 21ms
4	222.175.246.153	35ms 97ms 23ms
5	60.235.83.41	20ms 23ms *
6	60.235.81.73	33ms 21ms 21ms



1.12 Grab Packet

1. Introduction

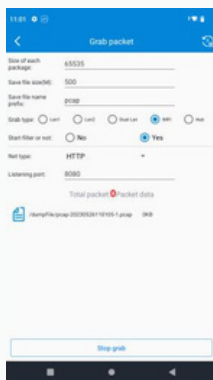
The Grab packet function can capture data packets passing through the network card, WIFI and data traffic, and can set the data size of each packet to realize the function of fixed-point analysis of data packets, and can also set corresponding filter conditions to capture fixed ports and fixed networks The function of type data packet. After the Grab Packet is completed, the captured data packet file will be saved to the dump File folder of the external storage of the PDA, and the time when the packet capture will be included in the storage file name.

2. Operating Instructions

Entering the packet capture interface, you can set the size of each packet of data, the size of the saved packet capture file, and the prefix name of the saved file; the packet capture type is the data packet that you want to capture passing through which network node, and it will vary according to different models different network types are displayed. If you choose the network port, please confirm

whether the network port is open and whether the setting is successful before starting to capture packets.

The filtering function can set which type of network packets to capture and which port the network data packets have passed through.



1.13 Auto Check

1. Introduction

Realize the trigger of Auto check. Enter the address that needs to be automatically diagnosed, and click the Start Diagnosis button to start diagnosing the network and display the diagnosis results.

Including the network type of the current device, local IP, DNS, gateway, whether it is connected to the external network, the DNS resolution result of the diagnostic destination, the destination delay,

the speed of opening the web page, and the schematic information. This function includes history record saving, browsing and exporting.

2. Operating

Enter the IP to be diagnosed and click Start Diagnosis to display the corresponding diagnosis results.



Click the history button on the right side of the head to enter the history page. Click on each historical record to view the details of the historical record. Swipe right to delete history.

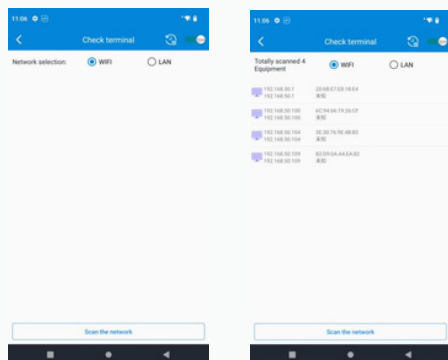
1.14 Check Terminal

1. Introduction

The terminal query function is to obtain the IP addresses and MAC addresses of all network access terminals in the current LAN, and the query records will be saved after the query is completed.

2. Operating :

After entering the query terminal function interface, select the network type (WIFI, network card) to be queried. When selecting a network card, you must first set up the network, and then click to scan the network. If the automatic save function is enabled, the scan record will be automatically saved.



1.15 IFCONFIG

1.1 Introduction

The ifconfig command is used to view and configure network devices. When the network environment changes, this command can be used to configure the network accordingly.

2.Operation

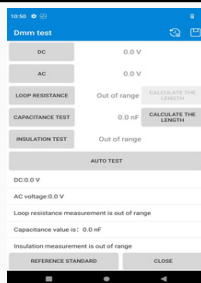
Display information after entering ifconfig. Click Refresh to view the refreshed information



1.16 DMM Test (Optional)

1.Introduction

Click “TEST”, choose “DMM” icon, you can enter DMM function, it needs to work with special test line. The device with touch screen, just click the item to be tested with a capacitance pen or finger, the test item will turn gray after it was selected, as shown in the “ DC Voltage Test’ figure below:



When exit the DMM test, if the line voltage is greater than the safe voltage, in order to protect the circuit, it is not allowed to exit the DMM test. When the voltage on the line is eliminated or the voltage is lower than the safe voltage, it can return to the main interface. The usual way to exit is to remove the test line. "Safe voltage": DC is 80V, AC is 50V, between AC50V~ AC80V, it is in a critical state, sometimes you can directly exit, sometimes it failed to exit. Anyway, it cannot exit at DC voltage and AC voltage greater than 80V.

1.1 DC Voltage Test

Through DC voltage test can test if there is a signal in the line. For ordinary telephone services bundled in the xDSL lines, if the line voltage is low or 0 V, it means the line is not in use or under bad insulation, like short circuit or open circuit, need to check the line and maintain the line. This test is only limited DC voltage, the test range is -400V~ +400V. When the test range is exceeded, the instrument will prompt "Out of range".

1.2 AC Voltage Test

AC voltage test can test the high-voltage alternating current in the line in order to protect the user. If encounter high-voltage

alternating current please remove the test clips carefully to avoid electric shock.

The test is limited to the AC voltage test in range of 0 ~ 290 V. The tester will prompt “out of range” when the test range is exceeded.

1.3 Loop Resistance Test

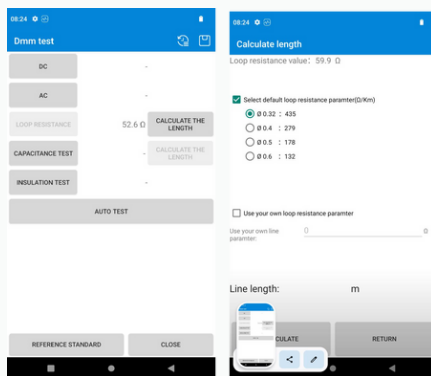
Using loop resistance test function can determine the length of cable. Conversely, if you know the length of the cable, the resistance test result will show whether the cable connection is good or not.

Calculation formula: $L = RL/RO$ (Km) -----①

①: RL is resistance measurements result (Ω), RO is the resistance (Ω) per kilometer.

General specifications for the 0.32 mm copper $RO = 435 \Omega$
 specifications for the 0.4 mm copper $RO = 279 \Omega$ specifications for the 0.5 mm copper $RO = 178 \Omega$ specifications for the 0.6 mm copper $RO = 132 \Omega$.

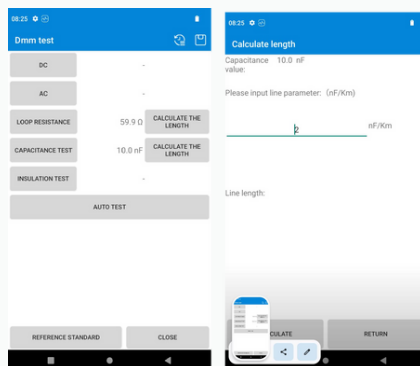
You can also use define parameters.



If the tester prompts “out of range”, that means the clips is not connected very good or loop resistance out of range, please check the test clips and test again. When test, if the line has voltage (voltage more than 2V), the tester will prompt “AC in the line”, it means you cannot test the loop resistance, please check the line and test again without electricity.

1.4 CapacitanceTest

Capacitance test function can judge the length of line. If there is no bridge tap or waters logged, we can get the length from the test result of the capacitance. Calculation formula: $L = C_{ab} / CO(Km)$ -----
----- ② ② : C_{ab} is capacitance test result (nF), CO is capacitance result (nF) per kilometer. Click Calculate length button on interface, you should input the parameters which can calculate the length of cable.



If the tester prompts “out of range”, that means capacitance value out of range or the cable have faults, please test again after checking the line.

When test, if the line have voltage (voltage more than 2V), the tester will prompt "AC in the line", and then return to the test menu. This means the line has electricity and cannot test the capacitance, please check the line and retest after cutting the electricity.

1.5 Insulation Test

Insulation test can test the insulation status of the line. If the insulation resistance value is small, it means the insulation is bad; this will affect the xDSL line transmission quality and need to repair. Generally for xDSL line, insulation resistance value should be more than 10 M Ω .

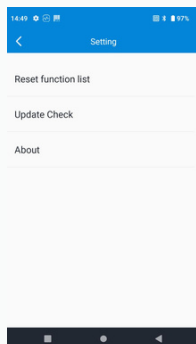
In this test, if the line has voltage more than 2 V, the tester will prompt "AC in the line". This means the line have electricity and cannot test the insulation, please check the line and retest after cutting the electricity. If the line resistance value over range, the tester will show "out of range", that means the insulation is good.



Notice: When does insulation test, the equipment will emerge 100V dangerous voltage, please do not touch the cable clip!

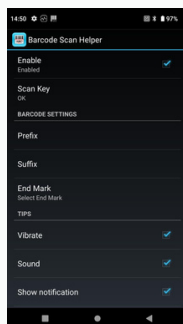
1.17 Setting

In the 'TEST' main interface, click the "Setting" option to enter the setting interface, as shown in the figure below:



2 Bar code Scanning Test (Optional)

Open the "Bar code Scan Helper" software on the device interface.
The interface is shown below:



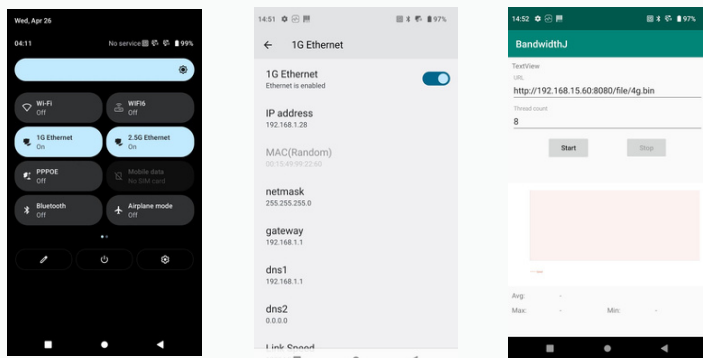
In this interface, open barcode scanning, and press OK key on keyboard to trigger scan command. At this time, you scan barcode and get the scanning result. The device can scan continuously and enter the results one by one.

3 Wired speed test

1. Module setting

Open the up slide menu, the 1G Ethernet and 2.5G Ethernet icons will show, select the network card as needed. Function description: 1G Ethernet is Gigabit speed test module, 2.5G Ethernet is 2.5G speed test module. Instructions: Connect the test line with the network port of the device, open and set the corresponding Ethernet card, then set the static or dynamic internet access mode according to the actual environment. 2. Network cable connection 2.1 DHCP speed test Function description: network card dynamic speed test.

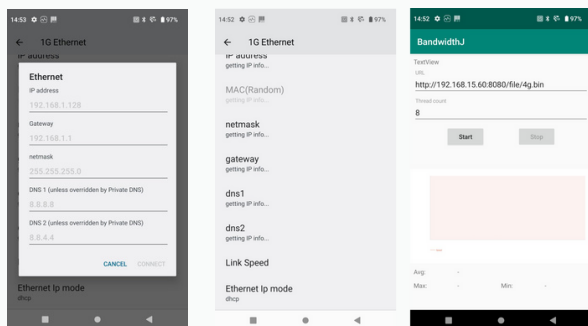
Instructions: Long pressing the 1G Ethernet icon bar to enter the Ethernet setting, select the Ethernet IP mode as DHCP, open the Speed test software, type the correct URL, and click Start. Interface is shown below:



2.2 STATIC speed test

Function description: enter the correct static address to perform the static speed test of the network card

Instructions: Long pressing the 1G Ethernet icon in the prompt bar to enter the Ethernet setting, select the Ethernet IP mode as STATIC, type the correct static IP address, open the speed test software, type the correct IP, and click Start. As shown below:



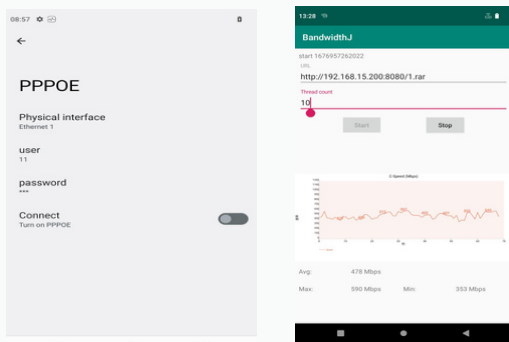
2.3 PPPOE speed test

Function description: connect the PPPOE account for PPPOE speed test.

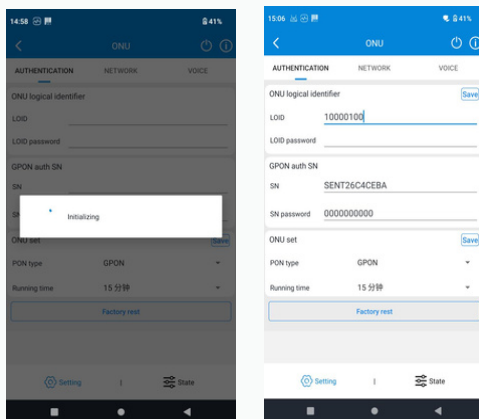
Instructions: pull down the prompt bar, firstly open network card

icon, then long press the PPPOE

setting interface, add a PPPOE account, open PPPOE connection, connect to the PPPOE account, and finally open the speed test software, type the correct IP, click Start. The interface is shown below:



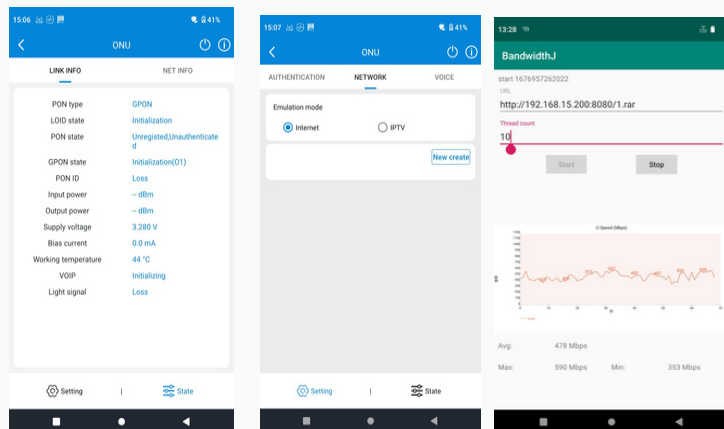
3.ONU speed test 3.1 ONU initialization Function description:ONU initialization Instructions: Connect the test line to optical fiber port of the device, open the ONU, and wait for the ONU initialization. As shown below:



3.2 Connect internet

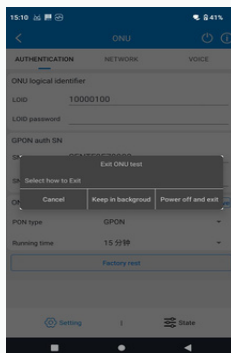
Function description: Connect to ONU network.

Instructions: Open the ONU setting interface, enter the authentication option, set the correct ONU parameters, click network options, and add the correct network connection. Wait for successful ONU registration and network status in the ONU setting becomes connected, then you can open Speed test software, type the correct IP, click the Start option to start testing, the interface is shown as below:



3.3 Exit ONU speed test

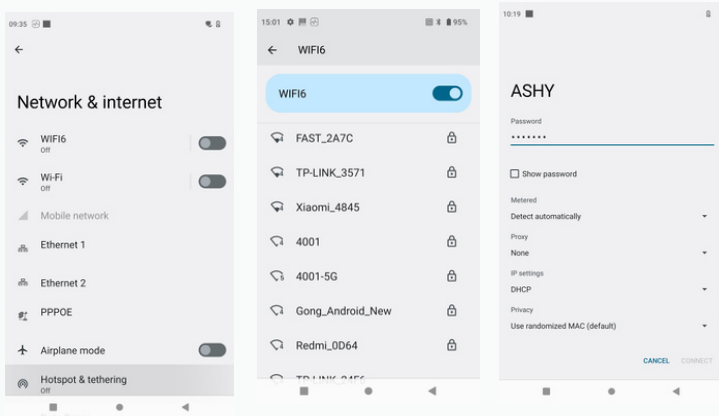
Function description: exit ONU speed test. Instructions for use: Click Stop button in speed test software to stop test. Double click to return under the ONU test interface, the LCD displays "Exit ONU test". Select the exit method according to your situation, the interface is shown as below:



4 WIFI6 Speed Test (Optional)

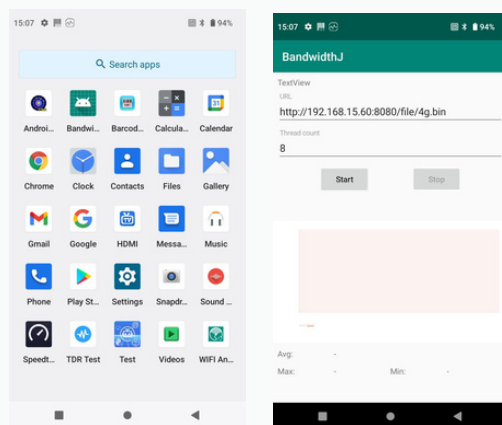
1.Initialization

Function description: Power on the WIFI6 speed test module and does some initialization work. Instructions: In the settings, open the "WIFI6" under "Network and the Internet", select the network, and enter the password to connect.



2.Test

Open the speed test software "BandwidthJ" on the main interface. In the speed test function interface, set the speed test address and thread number, click "Start" in the interface to test, the test data will be prompted below, as shown in the figure below.



5 HDMI Function (Optional)

1. Function description

The device can instead of TV.

2.Operation method

Open the TV set-top box, turn on the TV function on the device, and use the HDMI cable to connect the TV set-top box and the device. After the device automatically recognizes and analyzes the resolution of the video source, it will automatically play the audio and video. As shown below:



6 TDR Function (Optional)

Check the device power and use a test line to connect the cable. After connection, open the APP named “TDR Test” on the device. After the app is turned on, the device will automatically test with default parameters. After that, users adjust and test according to their needs.

1. Manual test

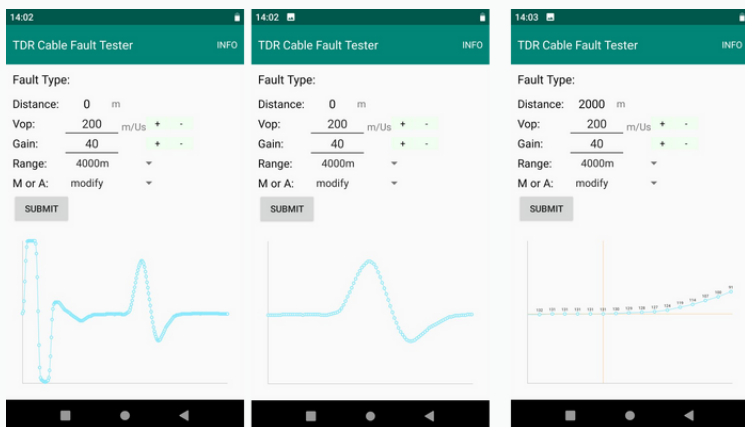
Adjust the gain and range manually, find the appropriate waveform, and locate the fault point in the selected waveform.

If the approximate distance of the fault point is known, you can select the corresponding range in advance; adjust the gain to find a suitable waveform according to the gain setting parameter from small to large. If the fault distance is unknown, the gain can be set to about 45, then increase the range in turn, until find a larger reflected wave, and then adjust the gain, find a suitable wave form.

After waveform is selected, locate the fault point. Zoom the X-axis at the reflection point in the front of reflected wave, check the value of the waveform point and find the original inflection point. After click, you will see the distance value. Finally, set corresponding VOP according to cable type, you can find the actual fault point distance.

2.Auto test

Auto test means the TDR module automatically adjust the gain, select the range, and find suitable waveform, and automatically calculate the distance of fault point and judge the fault type. In auto test mode, do no need to set the gain and range. You can set the VOP in advance according to cable type, and set to auto test mode. Finally, click the test button. Fault Type shows the fault type, the distance shows the fault distance, VOP shows the wave speed set, Gain shows the current waveform's gain value, Range shows the range where the current fault point is located.



7 OTDR test (Optional)

Open the OTDR app, the test interface has 5 parts: Setting, File, Save, Upgrade, Test, as shown below:



3.7.1 Setting

Press “Setting” button, then into Setting module, this module is used to set the testing parameters.



After entering the settings page, click save to save the current setting parameter; click cancel to exit the parameter setting page; click default configuration to restore the test parameter to the default test parameter. ■ Test Range: the test range of the current testing ■ Test Pulse Width: the width pulse of the current testing The above two parameters are automatically selected by default. But you can also manually select the Test Range, and the system will automatically select the corresponding pulse width. The optimum Test Range for manual selection should be twice the link length. ■ Test Duration: the test duration of the current testing, the default value is 15s. ■ Test Mode: Average test and Real time test, optional ■ Index of refraction: The Ior of the current testing. ■ Non-reflective Threshold: The Non-reflective Threshold of the current testing. ■ Reflective Threshold: The Reflective Threshold of the current testing. ■ End Loss Threshold: The End Loss Threshold of current testing.

3.7.2 Test

Test steps as below:

1. Clean the test adaptor with alcohol
2. Insert the optical fiber into the testing port. (Note: please align the groove position)
3. Click "Test" button to start testing; click "Stop" to stop the testing.

Note:

Please don't test live fiber with this 1310/1550nm otdr module, otherwise, the internal components will be damaged. Do not look directly at the laser outlet of the device during the testing! It is very harmful to the eyes. After the test is completed, the A B positioning rod will be displayed in the graph. Click the mark A to operate the A positioning rod, and click the mark B to operate the B positioning rod. Click the events in the list, and the operable positioning rod will move to the corresponding position. Long press the 1 3 buttons on the physical keyboard to move the A or B positioning rod. Curve can be zoomed in or out with gestures.

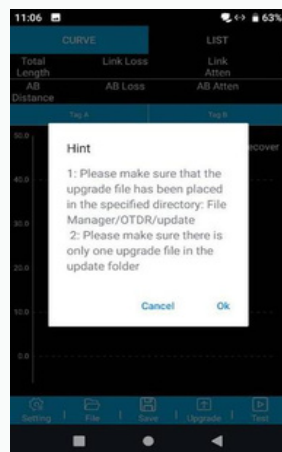
**3.7.3 Save**

After the testing is completed, click "Save" to save the current test results. When saving, enter the file name and save it as "file name + time" by default; If you do not enter a file name, it will be saved as: "test + time" by default. Click the "File" to view the stored results.

3.7.4 File



Before the upgrade, rename the upgrade file to "update", put it under the root directory /OTDR/update, and click "Upgrade" to upgrade the OTDR module. Do not exit the app during the upgrade process!

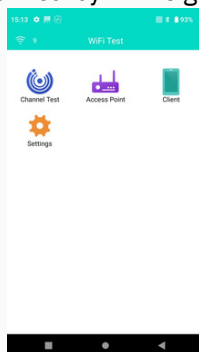


8 WIFI analysis (optional)

WiFi analysis function provides channel test, access point query,

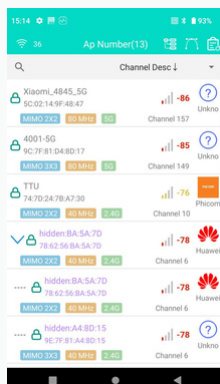
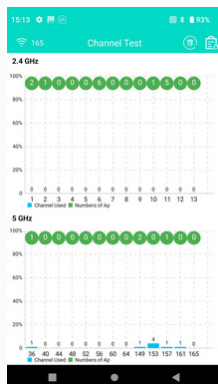
client search function of nearby WiFi signals, the App icon is .

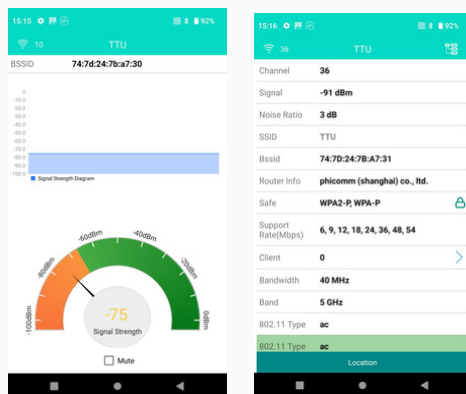
3.8.1 Home page



Enter the home page, the upper left corner will scan the nearby WiFi information, and refresh the display in real time. Click the below corresponding function icon to enter the detailed interface of the function.

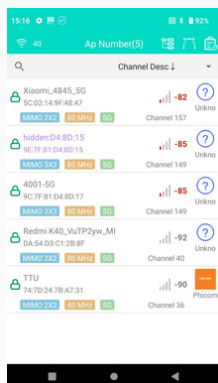
3.8.2 Channel test





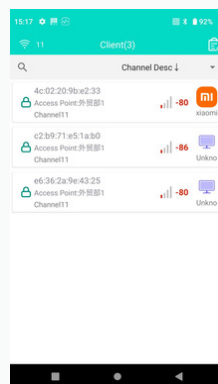
The channel test interface will show the number of WIFI under each channel at 2.4G and 5G frequencies and refresh them in real time. Click the bar graph of each channel to see the detail information of each access point, and then click each access point to see the specific information of the WIFI, including the signal value, noise value, noise ratio and other information, and then click the location button to see the signal strength of the wifi, and it will make a sound at the same time. You can judge the distance between the WIFI and you through the sound.

3.8.3 Access point



The access point interface can display all the access points that can be searched near the current position in real time, and display the strength of the WiFi signal, the hardware device manufacturer, the channel number and other information through the graphical interface. Click each access point to enter the detailed interface (Same as the access point information interface of the channel test).

3.8.4 Client



The client interface shows all the available WiFi client information near the current position.