TFN

G25A

2.5G TRANSMISSION ANALYZER

OTDR NETWORK COMPREHENSIVE TESTER

Intelligent network testing platform

PIATFORM HIGHLIGHTS

COMMUNICATION TECHNOLOGY CONNECTION SERVICE TESTING FUNCTION

COMMUNICATION TECHNOLOGY CONNECTION
AND SERVICE TESTING FUNCTION

BE EASY TO CARRY

GRAPHICAL USER INTERFACE

RICH BUTTON DESIGN

A 6.5-INCH TOUCHSCREEN

EXPORT TEST RESULTS

12-HOUR RANGE

FEATURES IN-DEPTH UNDERSTANDING

FUNCTIONAL CHARACTERISTICS DEEP UNDERSTANDING

Support multiple testing functions

Support DSN/PDH testing function for DS1/DS3, E1/E3/E4 interfaces

Supports SDH/SONET testing function for STM-1/OC-3 electrical ports, STM-1/4/46, and OC-3/12/48 optical ports

Support 120 zone Ohmic E1 testing function based on RJ48 interface

PDH/SDH error testing and performance analysis

SDH/SONET overhead monitoring and control

Pointer monitoring and adjustment, generating G.783 pointer test sequence

Automatic protection switching time test

Supports payload mapping from VC4-16C/STS-48C to VC12NT2, VC11/VT1.5, including PDH/DSN payload (E1/E2/E3/E4DS1/DS3)

OTDR MODULE

Visual fault locator, light power, light source, online testing

OTDR MODULE

Supports 1310/1550NM wavelength and dynamic range up to 47DB

Short enough blind spot (event blind spot 0.5M, attenuation blind spot 2.5M) and up to 256000 sampling points to ensure accurate testing of OTDR throughout the entire fiber optic link

Supports online testing with a wavelength of 1490±16/1625±16NM, a dynamic range of up to 42DB, and the ability to pass through a 1:128 splitter at most

Support SR-4731. SOR file format

Fast with automatic trace diagnosis, one click setup, and event detection

The dual marking line function is used for distance, attenuation, and fusion loss measurement

Support PC offline analysis software for offline data analysis and printing

Support VFL visual fault locator function

Optional optical power meter and light source testing function

Optional IOTA intelligent optical link topology analysis and testing function

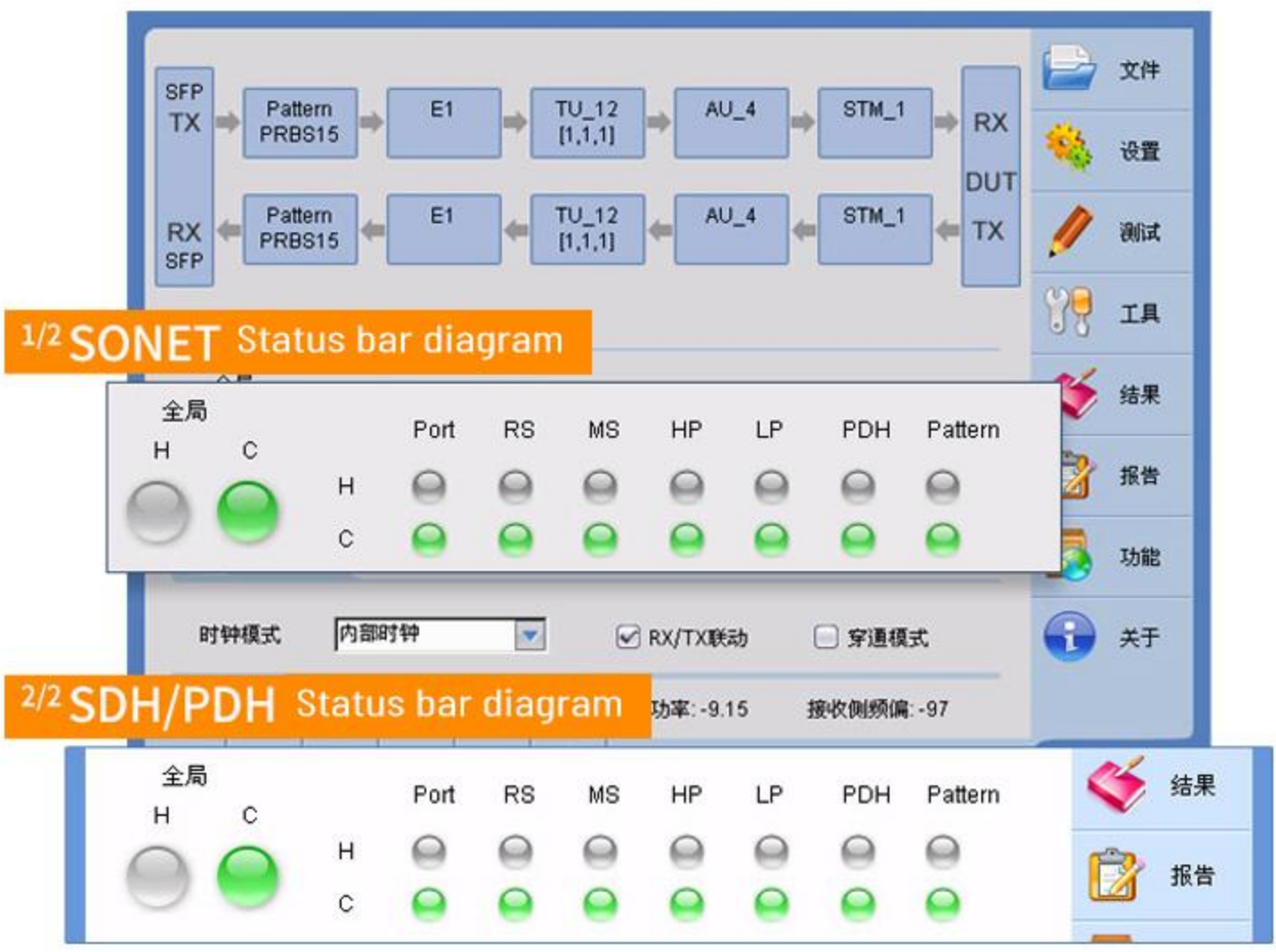
Optional INET intelligent network testing tool functionality

Optional fiber optic end face microscope testing function

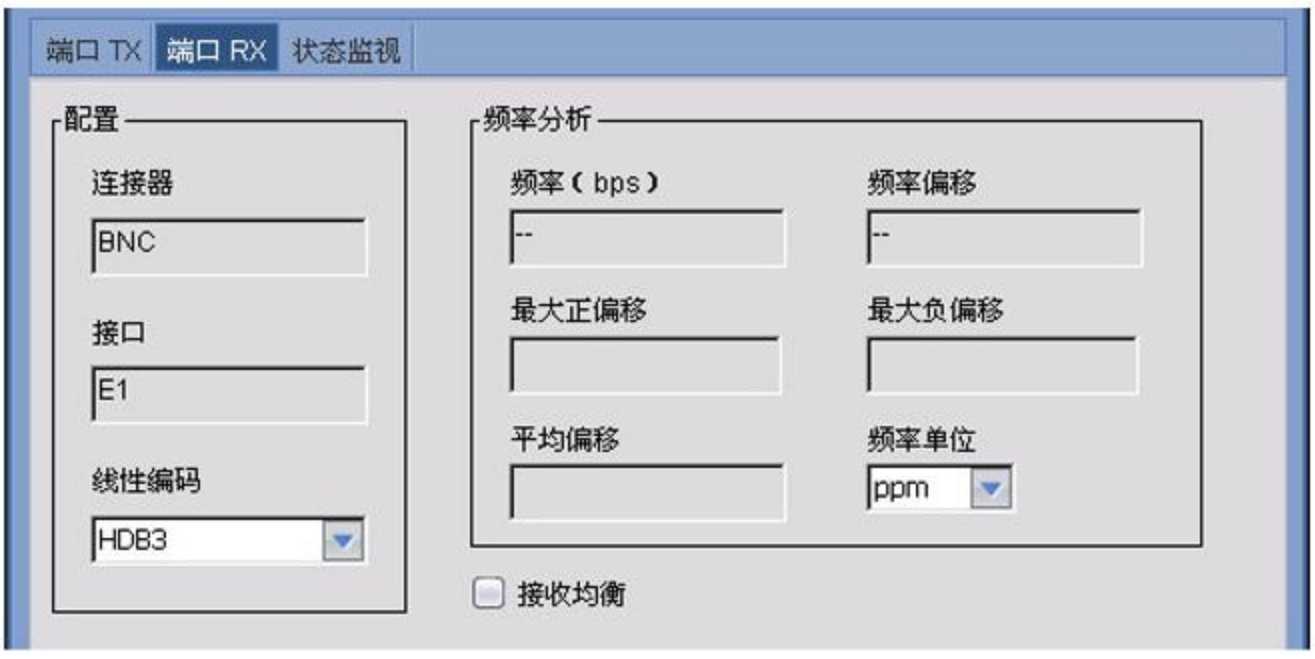
MULTIPLE TESTING MODES

Interface display

Schematic diagram of the main interface of SDH application program



Port RX schematic diagram

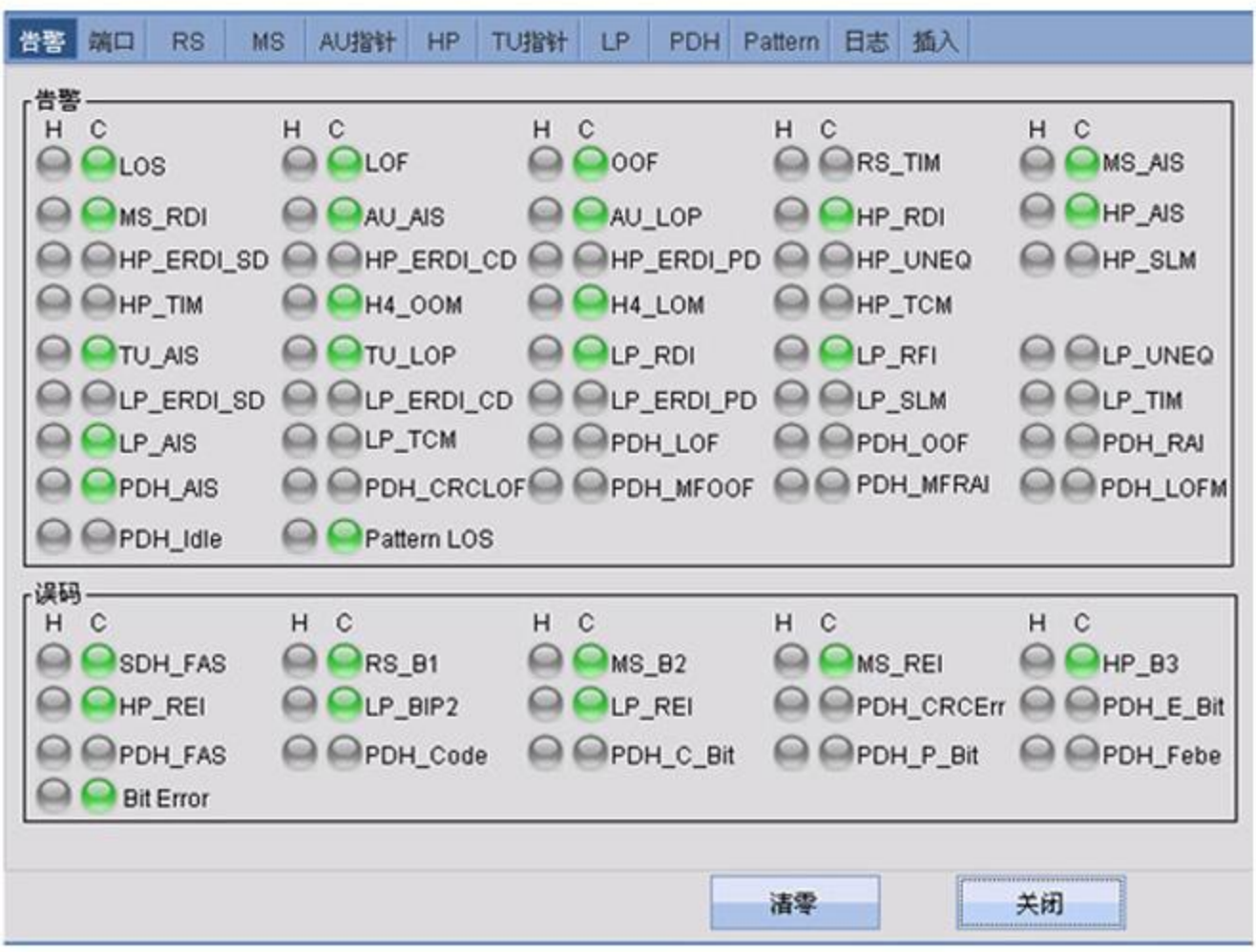


Port TX schematic diagram

MS TX schematic diagram

MS RX schematic diagram

Schematic diagram of status monitoring

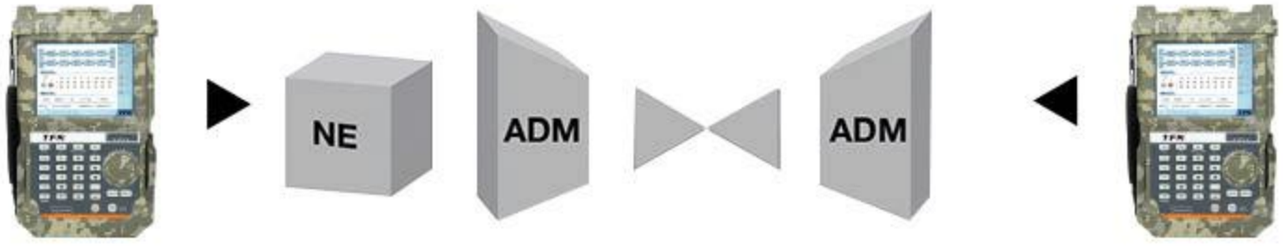


Off-line Testing

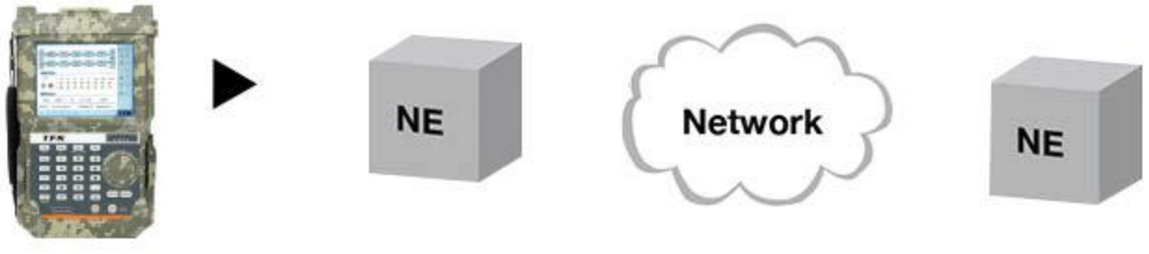
◎ End to end error free transmission verification

◎ Automatic protection switching verification

◎ SDH/SONET mapping verification



Loop back delay test



Online testing

◎ Through mode, advanced through mode

◎ Online monitoring and protection of nodes and optical splitters

◎ Cost monitoring and decoding

◎ Pointer monitoring

CONFIGURATION CHECKLIST

Host, instrument pack, battery, optical module, electronic CD, list, certificate of conformity, power adapter, 2M 75 ohm test cable LC/PC full duplex single-mode fiber optic test jumper, RJ48 to BNC test jumper

PRODUCT PARAMETERS

GENERAL CHARACTERISTICS

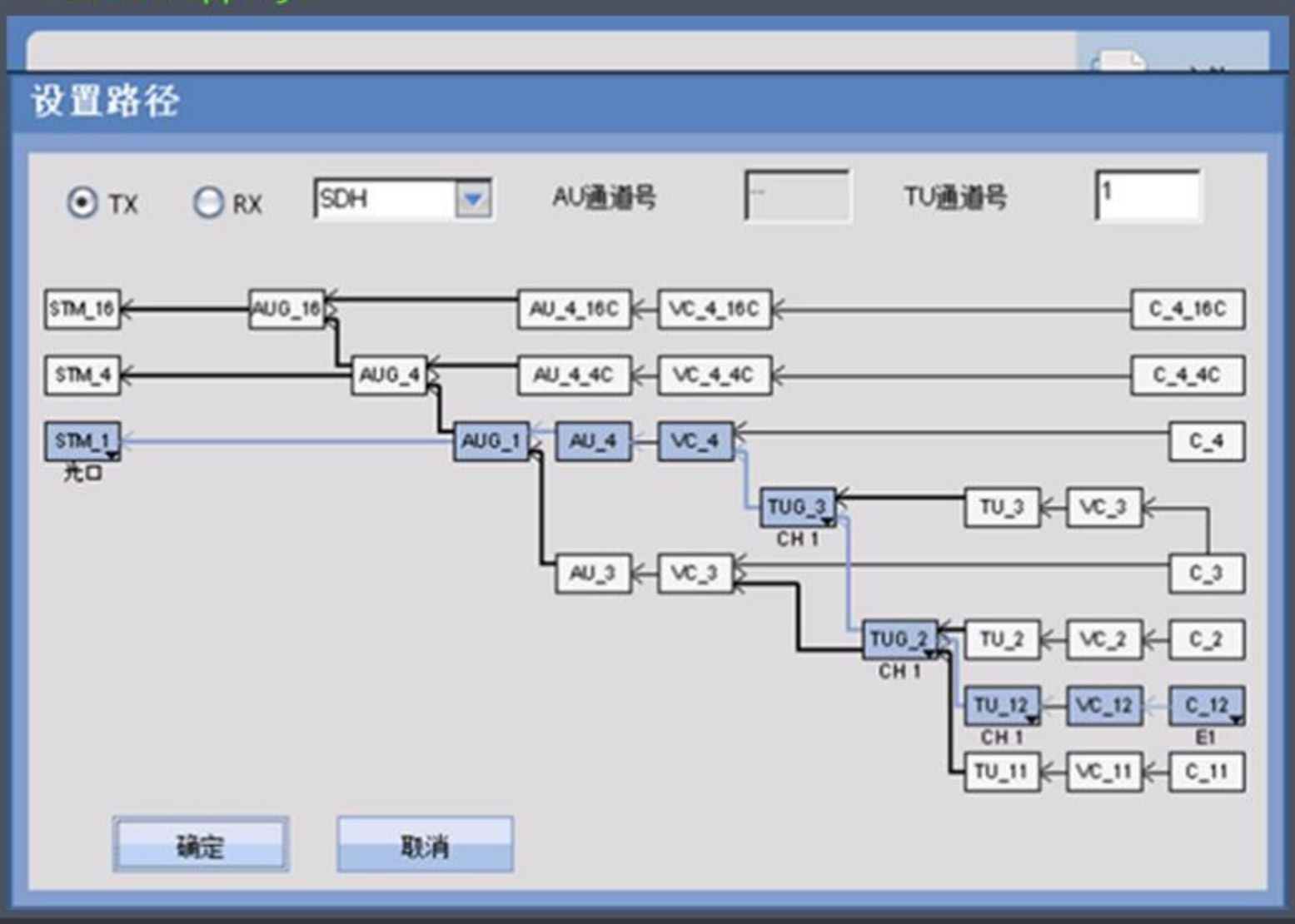
User interface	
Display screen	6.5 inch TFT touch screen display (640 x 480 resolution)
Business Interface	
USB data port	2 of USB2.0, A-type interface; 1 of USB2.0 Mini-B interface
Ethernet port	Ethernet 10/100, interface: RJ45 (port)
Storage capacity	8G
Other interfaces	
Audio interface	For connecting optional headphones, 3.5mm diameter jack
Other functions	
Size and weight	FT100：319(H)X 202 (W) X 105(D) MM; 2.8KGOTM2515 /2516/2517：25(H)X 97 (W) X 259(D) MM；0.4KG
Temperature	Working temperature: -10 ℃ to 50 ° C; Storage temperature: -40 ℃ to 70 ℃
Relative humidity	0% to 95% (non condensing)
Vibration	<1.5G (on three main axes) from 10Hz to 500Hz
Mechanical impact	<760CM on six faces and eight main edges (According to GR-196-CORE standard)
EMC	EN55022/CIPSR22, EN61000-3-2, EN55024
Battery and power supply	
Battery	Rechargeable and replaceable lithium-ion batteries Working time: 8 hours (typical value) Charging time: 6 hours (typical value) (25 ℃)
Power supply	Input: 100 to 240V (AC), 50Hz/60Hz, 1.6A Output: 19V, 4A

Technical specifications

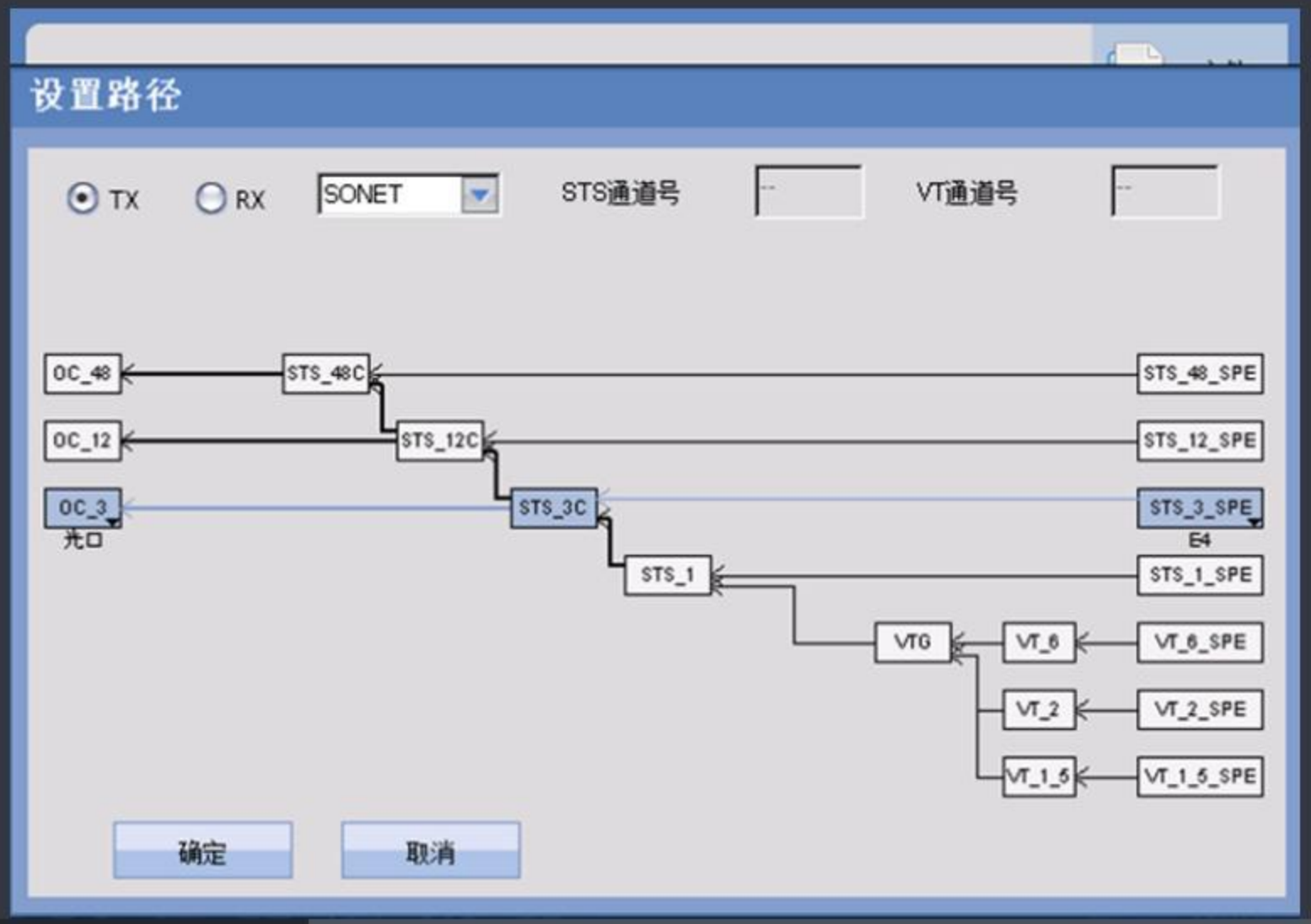
SDH/SONET testing

Test Port	· STM-16/STM-4/STM-1,OC-48/C-12/0C Optical interface: SFP, 1 unit User selectable optical modules: 1310nm, 1550nm · STM-LE, STS-3 electrical port; BNC, 1 pair
Test mode	· Offline testing · Online testing
Operation mode	· Point-to-point testing mode · Through mode · Advanced through mode: able to modify SOH/TOH overhead, insert error codes and alarms
Frame structure	· SDH: Compliant with ITU-TG.707 · SONET: Compliant with TELCORDIA GR-253
Line coding	NRZ
Clock reference	· Internal clock accuracy: 4.6 PPM, optimal for 2 PPM Frequency offset: ± 50PPM (1 PPM step size) · Restore Clock · TTL level external 2.048MHz clock · E1: 2.048MBPS, DS1: 1.544MBPS
Received signal rate	±50PPM TTL level external 2.048MHz clock · E1: 2.048MBPS, DS1: 1.544MBPS ± 50PPM
TCM frame format	ITU-T G.783, G.707 ANNEX D AND ANNEX E, POH Byte: HP-N1/LP-N1/LP-N2 FOR SDH, Z5/Z6 FOR SONET TCM Access Point ID (APID): 15 byte ASCII sequence, CRC-7
Scrambling code	· SDH: Compliant with ITU-T G.707 · SONET: Compliant with TELCORDIA GR-253

SDH Mapping



SONET Mapping



Alarm	Alarm monitoring and generation · SDH: LOS, LOF, OOF, MS-AIS, MS-RDI, AU-AIS, AU-LOP, HP-PLM, HP-UNEQ, HP-TIM, HP-RDI, TU-LOM, TU-AIS, TU-LOP, LP-PLM, LP-UNEQ,LP-TIM, LP-RDI, LP-RFI, LSS · SONET: LOS, LOF, OOF, AIS-L, RDI-L, AIS-P, LOP-P, TIM-P, PLM-P, UNEQ-P,RDI-P, LOM-V, AIS-V, LOP-V, PLM-V, UNEQ-V, RDI-V, TIM-V, LSS · TCM: TC-LTC, TC-TIM, TC-UNEQ, TC-AIS, TC-RDI, TC-ODI Alarm generation method: · Continuous · Alternating · Sudden
Error code	Error code insertion and monitoring · SDH: FAS, B1,B2,MS-REI,HP-B3, HP-REI, LP-B3,LP-BIP2, LP-REI, BIT ERROR · SONET: FAS, B1,B2,REI-L,B3, REI-P, B3-V,BIP2-V,REI-V, BIT ERROR · TCM: TC-IEC, TC-BIP2,TC-REI,TC-OEI Error code insertion method: · Continuous · Alternating · Rate · Single · Sudden
Bit test pattern	Based on ITU-T0.181 BULK test pattern generation and detection test pattern support: PRBS9, PRBS11, PRBS15, PRBS20.PRBS23, PRBS31 The test pattern çan be reversed User defined pattern (pattern length: 16BIT step size)
Pointer	· Display pointer values on the sending and receiving sides · Support pointer event monitoring and generation · Supports all G.783 pointer test sequences
Overhead	· Generate segment overhead/transmission overhead and channel overhead bytes · Display the current segment cost/transmission cost and channel cost bytes · All expenses can.be.decoded, including the decoded JO, J1, J2 bytes · Bit error testing for all expenses or any specified expenses, such as DCC byte bit error testing · Continuous 256 frame overhead byte capture and decoding
SONET branch scanning	· Support DS1 signal embedding into VC-11 · Support EI signal embedding into VC-12 · Support E2 signal embedding into VC-2 · Support E3/DS3 signal embedding into VC-3 · Support E4 signal embedding into VC-4
SONET branch scanning	· Support DS1 signal embedding into VT1.5 · Support EI signal embedding into VT2 · Support E3/DS3 signal embedding into STS-1 · Support E4 signal embedding into STS-3C
Intelligent scanning	Capable of automatically scanning remote SDH/SONET configuration information, and automatically configuring ports and mappings

SDH/SONET test results

State	Current Port Information · Monitoring line alarms and errors · Input level indication of optical interface · Input level indication of electrical interface · Actual interface speed · Trequency offset
Statistics	Statistics: alarms (seconds and ratios), error codes (numbers, numbers and ratios), pointer operations
Histogram	All alarms and errors can be displayed in graphical mode, allowing users to easily view all alarms and errors at a glance
Error code performance	G.821/G.826/G.828/G.829/M.2100/M.2110 analysis of received signals, based on detected errors and alarms: ES, SES, BBEAS, UAS, EFS, etc
APS	APS (Automatic Protection Switching) Testing and Analysis · Measure APS switching time. Automatic judgment failure when exceedir · Trigger Event () Users can choose all PDH/DSN, SDH/SONET alarms or error codes, error code thresholds · The number of switches indicated by the APS protocol · K1/K2 Byte Setting and Display · APS switching time measurement resolution: 1US
Resolution: 0.1US	Resolution: 0.1US Maximum testing time: 10.0S

PDH/DSN testing

Test Port	· PDH: E1, E3, E4 1 unit · DSN: DS1, DS3 1 unit Interface: BNC, RJ48 (only applicable for E1 interface testing)
Test mode	· Offline testing · Online testing
Standard	· E1: Compliant with ITU-TG.7032.048MBPS · DS1: Compliant with ANSIT1.1021.544MBPS · E3: Compliant with ITU-TG.70334.368MBPS · DS3: Compliant with ANSI44.736MBPS · E4: Compliant with ITU-TG.703139.264MBPS
Test Port	· E1: 75Ω (unbalanced), 120Ω (balanced) · DS1: 100Ω · E3: 75Ω · DS3: 75Ω · E4: 75Ω
Line coding	· E1: HDB3, AMI · DS1: B8ZS, AMI · E3: HDB3 · DS3: B3ZS, · E4: CMI
Frame structure	· E1: Non framing, PCM30, PCM31, PCM30CRC, PCM31CRC · DS1: Unconventional frame, SF-D4, ESF · E3: Unconventional frames, framing · DS3: Unconventional frames, framing · E4: Unconventional frames, framing
Clock reference	· Internal clock accuracy: 4.6PPM Frequency offset: ± 125PPM (1PPM step size) · Restore Clock · TL level external 2.048MHz clock · E1: 2.048MBPS, DS1: 1.544MBPS
Received signal rate	±150PPM Frequency offset display accuracy: soil 1PPM

Test Port	· E1: Terminal, monitoring · DS1: Terminal, monitoring · E3: Terminal, monitoring · DS3: Terminal, monitoring · E4: Terminal
Alarm	Alarm generation and monitoring · E1: LOS, LOF, OOF, RAI, AIS, CRCLOFM, MFASOOF, LOFMFAS, MFASRAI, LSS · DS1: LOS, LOF, OOF, RAI, AIS, LSS · E3: LOS, LOF, AIS, RDI · DS3: LOS, LOF, AIS, RAI, LSS, IDLE · E4: LOS, LOF, AIS, RAI, LSS Alarm generation method: ·Continuous ·Alternating ·Sudden
Error code	Error code insertion and monitoring · E1: FAS, CRC4, E-BIT, CODE, BIT · DS1: FAS, CODE, BIT, CRC6 · E3: FAS, BIT · DS3: FAS, C-BIT, P-BIT, FEBE, BIT · E4: FAS, BIT Error code insertion method: · Continuous · Alternating · Rate · Single · Sudden
Bit pattern	Pattern generation and detection based on ITU-T0.181BULK testing Test pattern support: PRBS9, PRBS11, PRBS15, PRBS20.PRBS23, PRBS31 The test pattern can be reversed User defined pattern (pattern length: 16BIT step size)

PDH/DSN test results

State	Current interface information · Monitoring line alarms and error code displays · Input level display · Actual interface speed · Frequency offset
Statistics	Statistics: Alarm (seconds and ratio), Error code (number, number and ratio), Frequency offset display
Histogram	All alarms and errors can be displayed in graphical mode, allowing users to easily view all alarms and errors at a glance
Error code performance	Analysis of G.821/G.826/M.2100 receiving models, based on detected errors and alarms: ES, SES, AS, UAS, EFS, etc
APS	APS (Automatic Protection Switching) Testing and Analysis · Measure APS switching time. Automatic judgment failure when exceedi · Trigger Event () Users can choose all PDH/DSN alarms or error codes, error code thresh · The number of switches indicated by the APS protocol · APS switching time measurement resolution: 1US
Loop back delay measurement	Resolution: 0.1US Maximum testing time: 10.0S