TC722
All-in-One 10G Transport Tester

Key Benefits

- 7" LCD touchscreen; professional, efficient UI experience
- Two 10Gbps SFP+ ports, two 10/100/1000Mbps RJ45 ports
- Dual ports can test different setups independently
- Complies with RFC 2544 standard Throughput, Latency, Frame Loss and Back-to-Back benchmarking
- Complies with ITU-T Y.1564 Service Activation Methodology (SAM) up to 10 independent streams
- Supports 3 VLAN tags (QinQ), 3 MPLS encapsulation labels, IPv6 protocol, runt and jumbo frame configuration
- Supports Terminal and Transparent Transmission test models
- Supports OTN, OTU-1, OTU-1e, OTU-1f, OTU-2, OTU-2e, OTU-2f test
- Supports SDH, STM-1, STM-4, STM-16, STM-64
- Supports external synchronize clock input, SyncE and IEEE 1588v2
- Supports optical power measurement
- Supports remote control
- Supports packet filtering and capturing

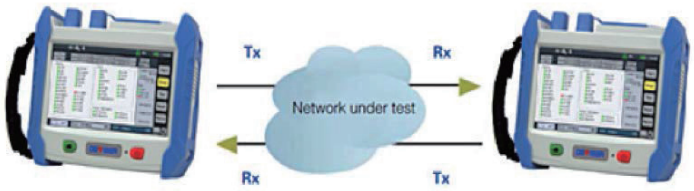
Product Overview

The TC722 is an all-in-one Transport Layer Tester released by Deviser to support full protocol testing at rates up to 10Gbps. The TC722 provides expert analysis for next-generation high-speed Metro and Carrier Transport networks, validating performance and connectivity while cutting OPEX and CAPEX. It is an efficient testing tool for service providers to satisfy client service level agreements (SLAs).

The TC722 is ideal for any transport testing task. It is fully equipped for Ethernet performance assessment; Metro Ethernet/SONET/SDH, and Mobile Backhaul installation, activation, or maintenance; point-to-point Ethernet access deployment; online troubleshooting for real-time information flow; and more. The tester supports multiple communication protocols to meet different testing requirements, including SyncE, IEEE 1588v2, E1/T1, SDH/SONET, and OTN.

Application Note

- Network engineering site installation and activation test
- Service providers can evaluate data transmission network performance with complete end-to-end testing
- PTN/IPRAN network configuring and performance testing
- Local, Metro Ethernet construction, deployment and maintenance
- Communication Teaching and Research

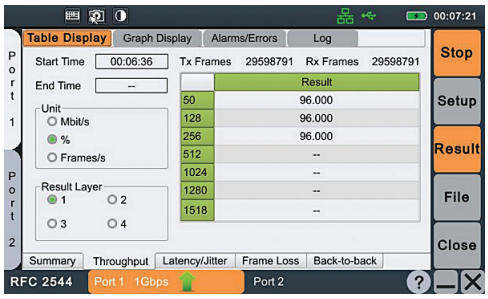


Common functions and operations:

The TC722 supports independent dual-port testing, allowing each port to conduct its own measurement. Functions include Ethernet RFC 2544, Y.1564, traffic generation and monitoring, BERT, loopback, pass through mode, SDH BER, RTD, APS, insert/discard specified tributary test, OTN BER, RTD, and APS main test functions - as well as ping, traceroute, HTTP, FTP, and other auxiliary test functions.

Ethernet RFC 2544 measurement:

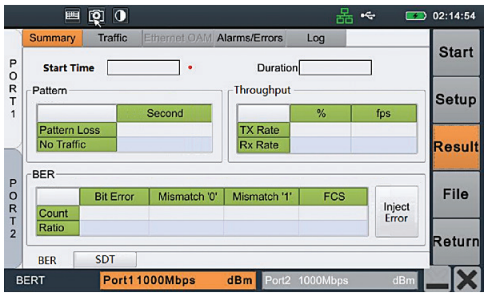
The RFC 2544 measurement function offers two modes: remote loopback and dual-sites. Use dual-sites mode to easily perform point-to-point symmetric and asymmetrical tests. The RFC 2544 application's test frame structure supports VLAN/QinQ/MPLS labels, and the maximum test rate can be matched to the line rate. For throughput measurements, users can freely define frame lengths once testing achieves up to eight different frame lengths.



RFC 2544 throughput measurement results

Ethernet BERT measurement:

The BERT measurement allows encapsulation testing on up to 4 layers. It supports VLAN/QinQ/MPLS label frame structures, eight PRBS (or user-defined) pattern bit error rate tests, and service interruption time tests. Encapsulate any test pattern into Ethernet frames in order to verify point-to-point characteristics on an Ethernet network, and insert bit errors or FCS errors during BERT testing in real-time. The BERT function also includes reverse-pattern settings.



Ethernet BERT results. Click "Insert" to insert a specified number of bit/FCS errors.

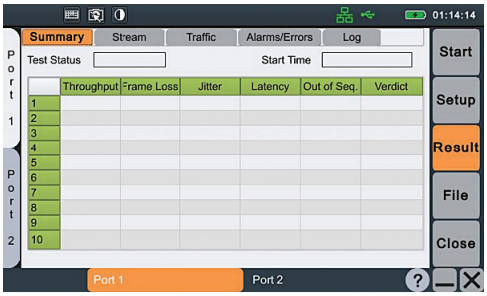
Ethernet Y.1564 measurement

Test network service configurations and performance in accordance with ITU-T Y.1564 standards, easily verifying the network's achievement of SLA. The TC722 supports 10 traffic channels, which can be independently configured with different IP addresses, VLAN tags, MPLS labels, frame size, bandwidth, and more. It can also detect 0-CIR \ CIR-EIR \ overshot bandwidth, frame delay, frame jitter, frame loss rate, and frame out-of-order.

Ethernet traffic generation and monitoring function

With up to 10 independently configurable traffic channels, each channel can have its own MAC address, IP address, frame length, and header format. Traffic can be generated in multiple ways: constant speed, sudden mode, ladder mode, or incremental mode. The TC722 can simulate multi-service test environment for triple play test scenarios.

Intelligently discover and connect to devices, then remotely trigger a loopback state or verify QoS point-to-point performance. Also included with this application is a 1588v2 protocol packet test, returning accurate readings on CRC error frames, jabber frames, runt frame signal loss alarm, optical power measurement, unicast frames, multicast frames, broadcast frames, pause frames, frame delay, frame jitter, frame loss, frames of different length range, and symbol error.



Ethernet traffic generation measurement screen

Ethernet Loopback

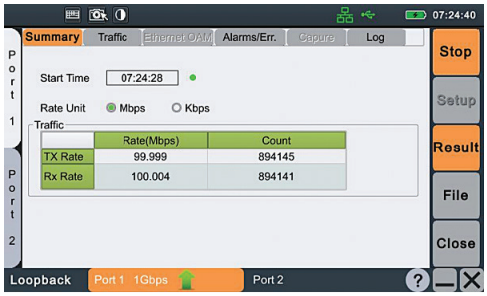
Up to 4 layers Smart Loopback function. This mode is divided into Transparent loopback: all traffic is looped back;

L2 loopback:
All traffic is looped back after switching MAC address

L2 Full unicast loopback:
All unicast traffic is looped back after switching MAC address

L3 loopback:
All traffic is looped back after switching MAC address and IP address

L4 loopback:
All traffic is looped back after switching MAC address, the IP address and Port.



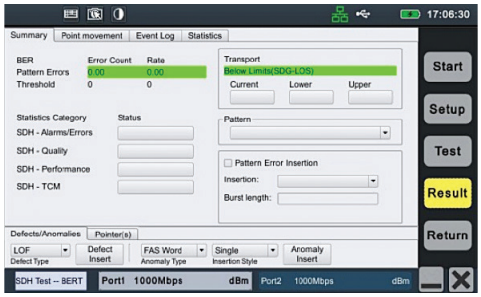
Ethernet Loopback measurement screen

Ethernet Pass Through Function

When the passthrough function is activated, the dual ports exchange data packets - those received by Port 1 are transmitted from Port 2, and vice versa - while the TC722 records send/receive and transmission rate readings. This function aids online troubleshooting of live traffic among customers, service providers, and carriers.

SDH BERT Measurement

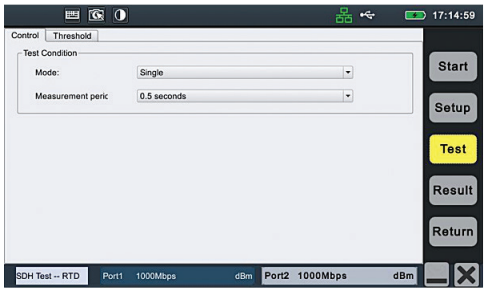
Designate either PRBS or fixed-sequence patterns as the payload. This tool supports c-12, c-3, c-4 to vc-4 multiplexing cascade, as well as four different rates: STM-1, STM-4, STM-16, and STM-64. Users can simulate real channels to complete basic error and alarm insertion, using the TC722 as the receiver to detect channel error.



SDH BERT measurement screen

SDH APS/OTN APS Measurement

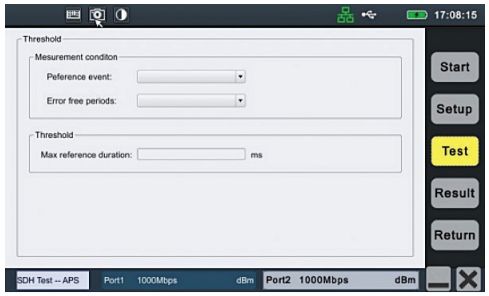
The RTD test determines the network's Round Trip Delay and QoS information.



SDH RTD measurement screen

SDH APS/OTN APS Measurement

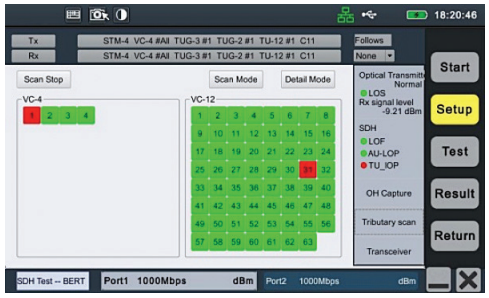
Directly test the device-switching function under various switching conditions, and conduct accurate measurements of the SDH/OTN network automatic protection switching (APS) and service disruption time. The TC722 can simulate a real device to record and monitor K1, K2 bytes in an ITU-T G.783 linear network in real time.



SDH APS measurement screen

SDH Insert/Discard Tributary Measurement

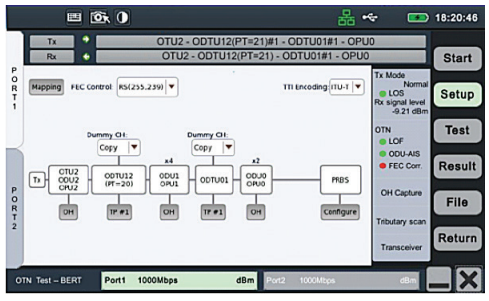
Inserts or discards the specified tributary. Also supports various error insertion operations: single, BER, Burst, alternating, continuous, and frame.



SDH insert / discard specified tributary measurement screen

OTN BERT Measurement

Measure BER and FEC performance, and analyze OTU-1, OTU-2, OTU-1E, OTU-2E, OTU-1F, OTU-2F optical signals in accordance with ITU-T G.709. The instrument supports a variety of in-service and out-of-service tests, and can do single-error, error rate, alternating, continuous, or random error insertion.



OTN BERT measurement screen

Specifications

Function		
Ethernet Measurement	RFC 2544	Throughput, Delay, Packet Delay Variation, Frame Loss, Back to Back
	Y.1564	Service configuration testing, service performance testing, supports up to 10 different traffic
	BERT	Support L1-L4 BERT support, insert error, frame error, PRBS, user-defined patterns
	Traffic generation and monitor	Supports up to 10 different traffic QoS and BER testing
	Smart Loopback	L1-L4
	Pass Through mode	Support
	Delay measurement	Round Trip Delay
	SyncE	Support BITS, Ethernet line clock, internal high-stability clock source
	VLAN	3 layers VLAN (QinQ)
	MPLS	3 layers MPLS
	IEEE1588v2	Support
	OAM	IEEE802.3 OAM
	IPv6	Support
SDH measurement	BERT	Insert errors, detect error
	RTD	Get network round trip delay and network QoS information
	APS	Automatic protection switching time and service interruption time test
	Insert/discard specified tributary test	Insert the specified tributary, discard the specified tributary.
OTN measurement	BERT	Insert errors, detect error
	RTD	Get network round trip delay and network QoS information
	APS	Automatic protection switching time and service interruption time test
Online help	Support	
Recovery factory settings	Support	
Name file in Chinese	Support	
File format	PDF, CSV	
Configure file	Save personalized configure file, can import and export	
Screen shot function	Support	
Touch-screen soft keyboard input	Support	
Browser	Support	
Auto shutdown / sleep	Support	
Language	English, Chinese	
General		
Display	7" 800 × 480 dot-matrix TFT touchscreen	
Interface	USB2.0 × 2, USB power supply DC5V±0.05V@500mA	
	LAN RJ-45 x 1	
	MicroSD × 1, up to 32GB	
Storage	Internal 8GB Flash memory	
	External support U disk storage	
Battery	7.4V 5300mAh Battery, 39.22Wh Maximum 4 hours operating time	
Supported Rates	10Base-T, 100Base-Tx, 1000Base-T, 1000Base-SX, 1000Base-LX, 1000Base-ZX, 10GBase-SR/SW, 10GBase-LR/LW, 10GBase-ER/EW	
Supported Standards	IEEE802.3, RFC 2544, RFC 3393, Y.1564, G.707, G.709, IEEE1588v2	
Supported Clock References	Internal high stability clock source, Ethernet line recovery clock, external clock (2.048Mbps, 1.544Mbps, 2.048MHz)	
Total Power Consumption	<12W	
Power Supply	AC parameters	100-240V 600mA 50~60Hz
	DC parameters	12V 5A maximum
	Total power	60W maximum
Mechanical and Environmental		
Dimensions (length × width × height)	206 mm x 171 mm x 75mm, (8.11" x 6.73" x 2.95")	
Weight	1.5kg (3.3 lbs)	
Operating Temperature Range	-10˚C~+50˚C	
Storage Temperature range	-20˚C~+70˚C	
Relative Humidity	0%-95% Non-condensing	
Battery Life	Over 3 hours	
Battery Charge Time	5 hours for full charge	