

MTS1000+MTS1110

Dual 100G Optical Transmission Analyzer



The MTS1000+MTS1110 Ethernet tester is a go-anywhere compact, upgradeable solution including 1G to 100G Ethernet testing capabilities based on the latest IEEE standards. It features a journey-to-400G design for ultimate flexibility; start with up-to-100G testing and upgrade to 400G later. Covering the basics, it includes EtherBERT, TGEN, BERT, RFC2544, Fibre Channel (1X – 32X) and other core testing requirements. It supports a wide range of pluggable transceiver form factors, including SFP28, QSFP28, QSFP-DD, QSFP112, and OSFP.

The launch of MTS1000+MTS1110 portable dual 100G multi service transmission analyzer not only improves the performance standards of communication testing equipment, but also brings significant benefits to the entire communication industry. For device manufacturers, it helps ensure the high quality and stability of their products; For telecom operators, it improves the efficiency of network operation and reduces operating costs; For private network service providers, it ensures the high reliability and security of the private network.

- The instrument is equipped with a 10 inch high-definition display screen, which provides users with an unparalleled visual experience due to its clear, bright, and easy to read characteristics;
- Equipped with Linux operating system, the system is stable and reliable, making it easy to complete testing setup and exploration, greatly improving work efficiency;
- Integrated OTN, Ethernet and other transmission and data testing functions, supporting concurrent testing of multiple ports, further improving testing efficiency;
- Equipped with multiple communication methods such as Wi Fi and Bluetooth, it provides users with a more flexible and convenient way of testing and data transmission;
- The built-in GPS function can accurately locate the testing location, facilitating subsequent data analysis and network planning;

OPWILL

OPWILL TECHNOLOGIES (BEIJING) CO., LTD.

Platform Briefs: MTS1000



- Compact and lightweight designed;
- Graphical user interface, easy to operate;
- 10 inches outdoor-enhanced LCD colour touch screen;
- Ultra-high capacity field-exchangeable Li-ion battery pack extends testing time;
- Powerful modular intelligent network test platform;
- Remote control by PC using 10/100M Base-T port.

Key Feature:**Ethernet Function**

- Dual 100G QSFP28 test interface;
- Dual 10G SFP+ test interface;
- Network configuration testing and performance testing per standard ITU-T Y.1564(Coming Soon);
- Traffic scan according with MAC, IP, VLAN, MPLS label, and so on;
- IPv4 and IPv6 traffic generation;
- Service disruption test;
- [Support to upgrade for 400G and 200G Ethernet/flexE, FlexO, OTN](#)
- Perform throughput, latency, frame loss, and back-to-back measurements per industry-standard RFC2544;
- Generate up to 512 traffic flows with different MAC address, VLAN tags, MPLS, IP address, TCP/UDP, payload, and bandwidth;
- Ethernet BER and loopback testing at layer 1, layer 2, layer 3, and layer 4,;
- MAC and VLAN flooding;
- Smart loop mode for layer 1, layer 2, layer 3, and layer 4.
- Automatic test timing function, automatically generate and save the test report after the on-hook test is completed

OTN Function**Direct Mapping:**

- OTU4 <> ODU4 <> GFP <> Ethernet
- OTU4 <> ODU4 <> GMP <> Ethernet
- OTU2 <> ODU2 <> GFP <> Ethernet
- OTU2e <> ODU2e <> BMP <> Ethernet
- OTU1e <> ODU1e <> BMP <> Ethernet

First-order Mapping:

- OTU4 <> ODU4 <> ODU0/1/2/flex <> GFP <> Ethernet
- OTU4 <> ODU4 <> ODU1e/2e <> BMP <> Ethernet
- OTU2 <> ODU2 <> ODU0/1/flex <> GFP <> Ethernet

Second-order Mapping:

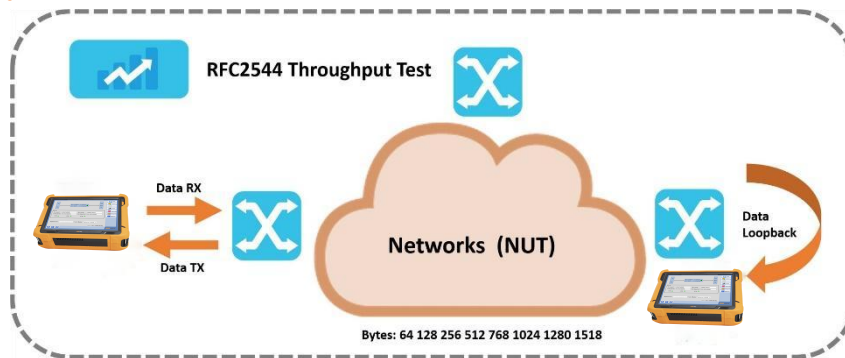
- OTU4 <> ODU4 <> ODU1 <> ODU0 <> GFP <> Ethernet
- OTU4 <> ODU4 <> ODU2 <> ODU0/1/flex <> GFP <> Ethernet
- OTU4 <> ODU4 <> ODU3 <> ODU0/1/2/flex <> GFP <> Ethernet
- OTU4 <> ODU4 <> ODU3 <> ODU1e/2e <> BMP <> Ethernet
- OTU2 <> ODU2 <> ODU1 <> ODU0 <> GFP <> Ethernet

Applications:

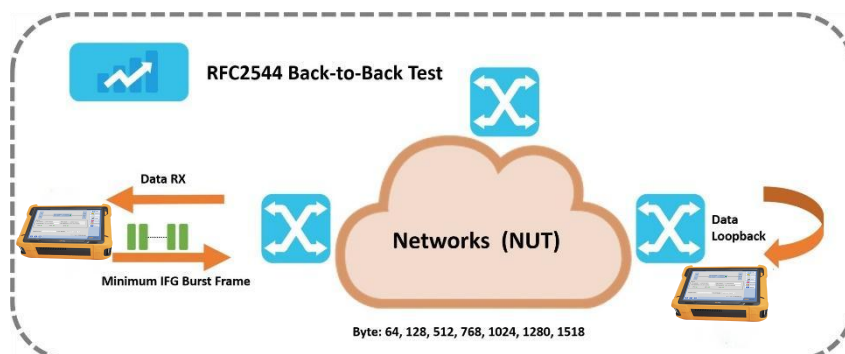
RFC2544 Test:

MTS1000+MTS1110 fully meets RFC2544 standard, supports Throughput; Latency; Frame loss; and Back-to-Back test in metro network, and can be able to generate a complete test report.

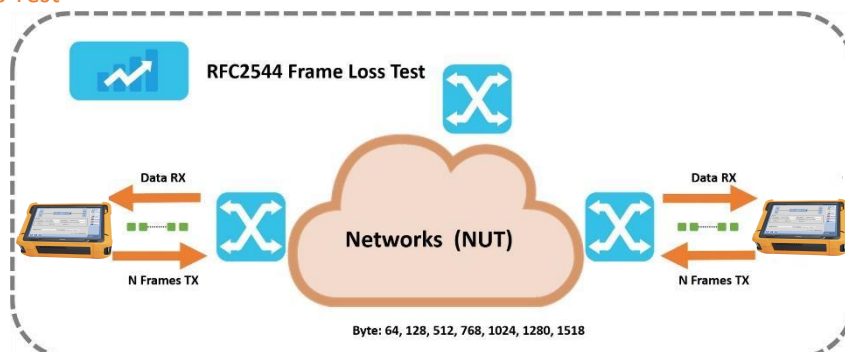
Throughput



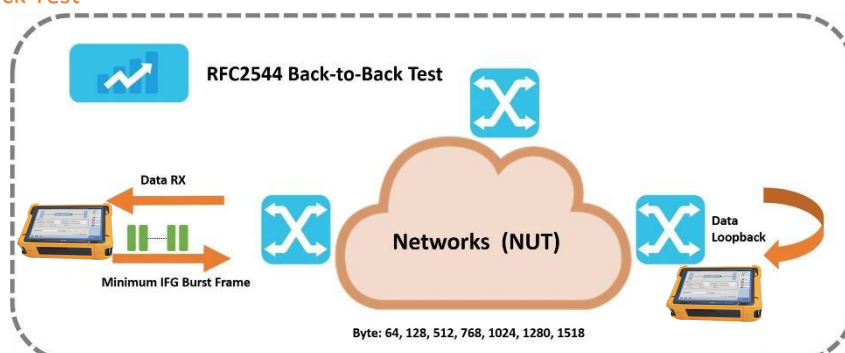
Latency



Frame Loss Test

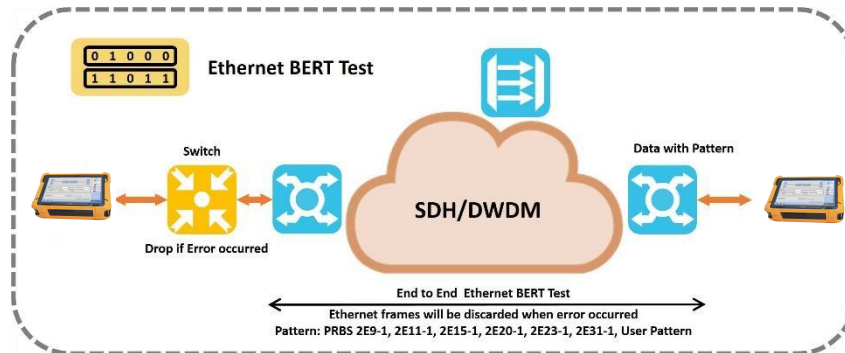


Back-to-back Test



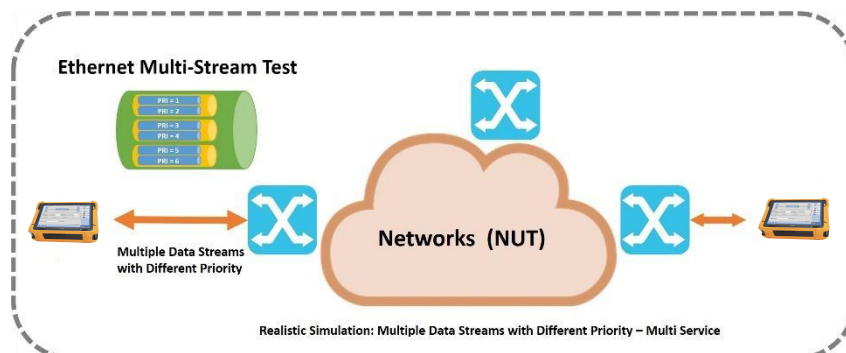
BERT Test:

Ethernet BERT test adopts the similar principle of SDH BERT test. It is by transferring the Ethernet frames with special test code, then analyse these frames at the receiver to test the network.



Multi-Stream Test:

MTS1000+MTS1110 supports to generate multiple data streams to test the forward ability of these service in Ethernet network. In addition, multiple data streams can be set as different priority.

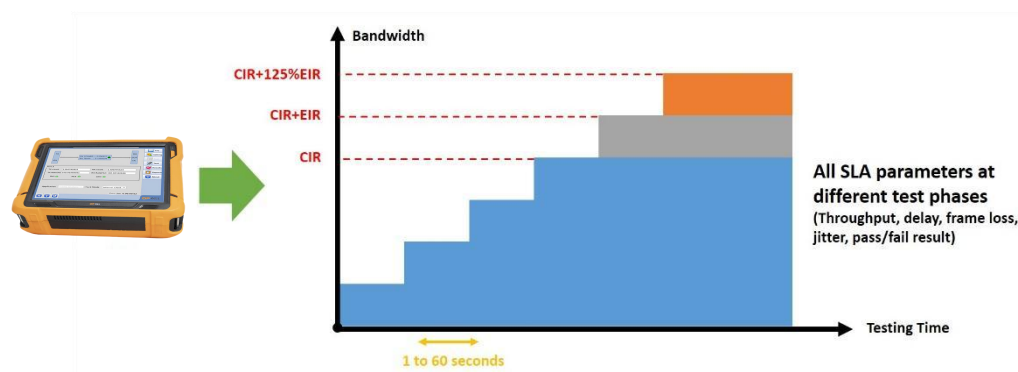


Y.1564 Test:

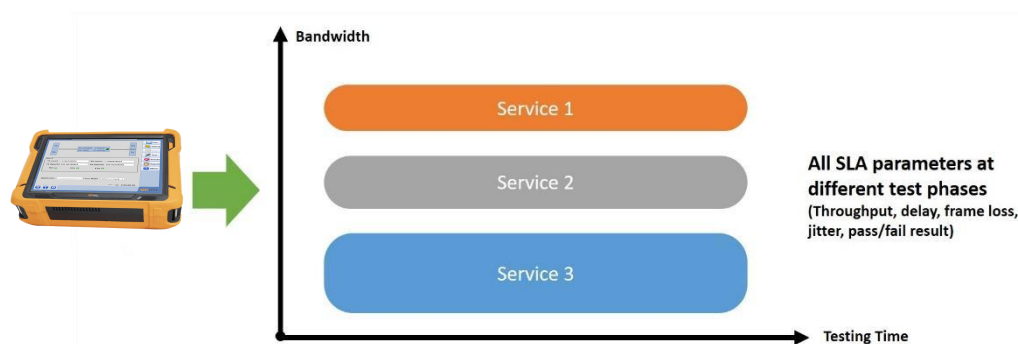
RFC2544 was the most popular standard for Ethernet test. However, it is specially designed for indoor network facilities test, not suitable for outdoor field test. Hence, ITU-T Y.1564sam is particularly introduced for telecom operator to do Ethernet network service launch and fault diagnosis. Compared with RFC2544, it includes critical SLA standards such as packet jitter identification and QoS measurements, which could increase test speed promptly, save test time and resource, and optimises QoS.

Network Configuration Test

Network configuration test will conduct a test for every service to verify whether the service configuration is correct or not, and whether all specific KPI or SLA parameters have been satisfied.

**Performance Test**

When the configuration of every service has been checked, and verified successfully, MTS1000+MTS1110 will conduct a test for the quality of service simultaneously.



General Specifications: MTS1000+MTS1110

GENERAL SPECIFICATIONS	
User Interface	
Screen	10 Inch TFT Touch Screen (1280 x 800);
Other Interface	
USB	• USB2.0, 2 • USB3.0, 2
HDMI	• HDMI, 1
Ethernet	Ethernet 10/100/1000G, RJ45 (for remote control the instrument);
Storage	32G (Optional 64G);
Physical Specifications	
Temperature	• Operating: -10°C to 50°C; • Storage:-40°C to 70°C;
Relative Humidity	0% to 95%(non-condensing);
Size(H×W×D)	• MTS1000: 197.8mm x 286.9mm x 101.4mm;
Weight	• MTS1000: 4.0kg;
Vibrancy	10Hz to 500Hz < 1.5g (on 3 main axes);
Mechanical Shock	6 sides, 8 edges < 760cm, according to GR-196-CORE;
EMC	• EN55022/CIPSR22; • EN61000-3-2; • EN55024;
Battery and Power Supply	
Battery	• Rechargeable Li-Ion batteries; • Working time: 2 hours • Charging time: 6 hours
Power Source	• Input: 100-240VAC, 50-60Hz,1.6A; • Output: 13.8~15VDC, 10A.

Technical Specifications: MTS1000+MTS1110

TECHNICAL SPECIFICATIONS	
Ethernet	
Port	Optical interface: Two 100G QSFP28; Two 10G SFP+; <i>User selectable optical module: 850nm, 1310nm, 1550nm.</i>
Ethernet Feature	Auto negotiation, flow control;
Configuration	Monitor/Generate, pass-through;
Encapsulation	Ethernet type II, IEEE802.3 with 802.2, IEEE802.3 with SNAP;
Configuration, Monitoring, and Generation	
Traffic Generation	- Variable line rate traffic generation, up to full line rate; - Traffic generate mode: continuous, burst, ramp, n-frame, n-burst, n-ramp; - Adjustable frame size: 46 bytes to 16000 bytes; - Frame size: fixed, increase, decrease, random; - User-defined traffic mix of unicast and broadcast frames; - Fixed, increase, decrease, random MAC/IP identifier; - User programmable DSCP/TOS byte; - Configurable IP and Ethernet source and destination addresses (support IPv4 and IPv6 addressing); - User programmable TCP/UDP address; - Generate pause frames, respond to pause frames; - Answer incoming ARP, ping requests;
Stacked VLAN	- Up to 3 user-settable VLAN tags; - Parameters per VLAN tag: - Ethernet type II 0x8100 (802.1Q), 0x88a8 (802.1ad), 0x9100, 0x9200, 0x9300; - User-defined VLAN ID, CFI, VLAN priority; - Address fixed, increments, decrement, random generation supported;
Multi stream	Number of streams: up to 512 streams per port can be activated;
Error Injection	FCS, IP check sum error, UDP/TCP check sum Error, bit error, BER test sequence error;
Alarm generation	No link;
Result, Monitoring and Generation	
Status	- Link status, interface type, jabber detected, frames present, MPLS/VLAN, speed, full or half duplex, signal present, bit rate of incoming Ethernet signal, auto negotiation complete; - Link partner abilities: speed/duplex; - Indicators of utilisation, throughput, errored frames; - Signal level indication for optical Ethernet interfaces;
Performance Statistics	Utilisation, throughput, frame rate;
Frame Statistics	- Total frames, total testing frames, total not testing frames, Unicast/multicast/broadcast frames, number of pause frames; - Total VLAN frames; - Total MPLS frames; - Total errored framed, number of oversized, normal, and runt frame, number of FCS errored;
Frame Distribution Statistics	Total valid/frames, <64, 64-127, 128-511, 512-1023, 1024-1518, >1518;

Result, Monitoring and Generation	
Multi stream	Display information per stream: • Frame loss count/rate, throughput, latency, packet jitter, frames and bytes received and transmitted;
Transmit Statistics	Total frames, unicast/multicast/broadcast;
Filter	Filter condition support: • Source and destination MAC/IP, IPv6, VLAN ID and VLAN Priority, MPLS, IP TOS, TCP/UDP source and destination port, Ethernet type and IP protocol;
BER Test and Service Disruption Test	
BER Test	• Generation and detection of test pattern, count of errors in received test pattern; • Pattern generation: layer 1 to layer 4; • Frame loss count and frame loss seconds; • BER measurement results; • Test pattern: PRBS9, PRBS11, PRBS15, PRBS20, PRBS23, PRBS31, CRPRJ, JTPAT, SPAT, 32bits user defined;
Error Injection	FCS, IP check sum error, UDP/TCP check sum error, BIT error, BER test sequence error;
Service Disruption Test	Service disruption test activated as part of BER test: • Max/avg service disruption test, resolution: 0.1us; • Number of service disruption;
Loopback	
Loopback Test	• Layer 1 to layer 4 loopback test; • Advanced loopback test: • Packet loss setting: percentage, packet count, time; • Loopback drop enable: protocol loss, protocol pass, control, CRC error, IP/TCP/UDP error;
RFC2544	
RFC2544 Test	• Switch/Router test and single ended network test mode: • Throughput, frame loss, latency, back-to-back; • End-to-End network test mode (2 units in local-remote setup): • Throughput, frame loss, back-to-back;
Y.1564 (Comming Soon)	
Service Activation Test	ITU-T Y.1564 service activation test: • Up to 8 services per port; • Colour-aware and non-colour-aware in combinations; • Test modes: one-way (uni-or bi-directional), round-trip; • Verification against service acceptance criteria: information rate, frame transfer delay, frame delay variation, frame loss rate, availability;
Service Configuration Test	• Subtest for: CIR, EIR, traffic policing; • Step duration: 1-60s (user define); • Number of steps: 1 to 4; • Result: pass/fail indication, IR (min/avg/max), FL (Count/FLR), FTD, FDV (min/avg/max (during measurement));
Service Performance Test	• All services tested simultaneously at CIR; • Duration 15min, 2hours, 24 hours, or user defined; • Result: pass/fail indication, IR (min/avg/max), FL (count/FLR), FTD, FDV (min/avg/max (during measurement));
Remote Smart Loopback Test	
Remote Smart Loopback	• Use as local unit control another remote unit for RFC2544 and Y.1564 bi-directional testing; • Support layer 1 to layer 4 smart loopback test;

MPLS	
Number of MPLS Header	Up to 3 MPLS header set by user;
Parameter per MPLS Header	User defined label, Exp and TLL fields in each MPLS header: • Label fixed, increment, decrement, random generation;
Statistics	MPLS frame count;
Ethernet Frame Capture	
Capture Buffer Size	• 200Mbytes; • When capture buffer full: stop;
Capture Frame Slicing	Can capture frame length by user defined;
Capture Data	CAP format for display in Wireshark.

MTS1000 + MTS1110 Ordering Information

MTS1000+MTS1110 STANDARD CONFIGURAIOTN	
Module	Description
MTS1000	Test platform, support SDH, OTN, Ethernet, Packet Ethernet
MTS1110 Ethernet Function	100 Gigabit Ethernet test module;
	Two 100G SFP+ optical interface;
	Layer 1 to Layer 4 BERT test;
	Up to 16 streams generation and analysis with MAC/VLAN/IP/TCP/UDP;
	RFC2544 standard test with Throughput, Latency, Frame Loss, Back-to-Back and Jitter;
	Layer 1 to Layer 4 loopback and smart loopback test;
	Enable to drop data packet under loopback mode;
	Up to 100G streams generation with 3 Layer VLAN;
	Ping, Trace Route, FTP Download/Upload, and HTTP tools;
	Ethernet service disruption test;
	Packet capture and analysis to 100G rate;
	Enable to generate frame with increment, decrement, random length;
	Enable to generate data streams with increment, decrement, random MAC, IP, VLAN, MPLS, and Port Number;
	Remote control by PC;
Accessories Code	Accessories Description
N/A	LC/UPC to LC/UPC full-duplex single-mode fibre, 3 meter, two;
	SMA fibre, one;
	SFP+ 10G optical modules, two;
	QSFP28 100G LR4 optical modules, two;
	MTS1000 100-240V input and 19V output AC/DC power adapter, one;
	MTS1110 disc include user manual and OPWILL remote control software, one;
	MTS1000 package, one;
	Factory test report, one;
	Calibration certificate, one;
	One year warranty service.

MTS1110 OPTIONAL CONFIGURATION**Optional Ethernet Software**

OPAP-IPv6TGeEth	IPv6 feature, the test interface can set IPv6 address and also can generate stream with IPv6;
OPAP-ScanTGeEth	Traffic scan according with destination MAC/IP, source MAC/IP, 3 Layer VLAN, 3 Layer MPLS in-service test;
OPAP-3MPLSTGeEth	Up to 100G rates generation with 3 Layer MPLS label;
OPAP-128StreamsTGeEth	Up to 128 streams generation and analysis with MAC/VLAN/IP/TCP/UDP for 100G port;
OPAP-512StreamsTGeEth	Up to 512 streams generation and analysis with MAC/VLAN/IP/TCP/UDP for 100G port;

Optional OTN Software

OPAP-OverheadOTN	OTN overhead edit and monitoring;
OPAP-AlarmOTN	OTN Alarm generation and monitoring, error injection and monitoring;
OPAP-FECOTN	FEC test according with ITU-T O.182;
OPAP-APSOTN	APS and SDT test;
OPAP-100GEOTN	100GE mapping over OTU4 test;
OPAP-RoundOTN	Round trip delay test;
OPAP-ModuleCheckOTN	QSFP28 check and PCS test;
OPAP-RemoteOTN	Remote control by PC;

Optional Hardware

OPAP-Onewarranty	One year extended warranty service;
OPAP-Twowarranty	Two years extended warranty service;

Notes: Product ordering information may update along with the product upgrade, please refer to the final version provided by our sales.

Please visit our website for the further information: En.opwill.com

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