

OTP6126

Handheld Gigabit Ethernet Test Set



OTP6126 Handheld Gigabit Ethernet Test Set is designed and manufactured by OPWILL, which is specialised in one Gigabit Ethernet network deployment and comprehensive test, and compatible with indoor laboratory and outdoor field environment.

It can fully meet Ethernet standard, support the latest version of ITU-T; Y.1564; IETF RFC2544; IETF RFC3393; IEEE 802.3; IEEE802.1 standards or recommendations and so on.

- Compact and durable, specialised for outdoor field test;
- User friendly interface, with high resolution colour touch screen;
- Fast boot up technology;
- High quality, but reasonable price;
- Support comprehensive Ethernet test functions from installation and commission to operation and maintenance.

Portable Structure Design, Comprehensive Ethernet Test Functions



FEATURES

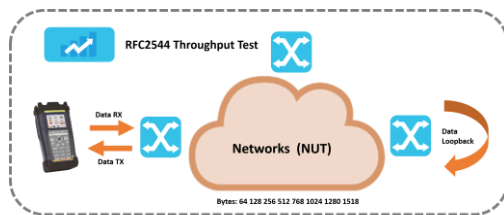
- Support full-duplex 10/100/1000 Mbps Ethernet data stream;
- Support RFC2544 (Includes: Throughput, Frame loss, Back-to-back; and Latency);
- Support Y.1564 (Optional);
- Support RFC3393;
- Support L1/L2/L3/L4 BERT test;
- Support to generate 8 data streams in maximum (MAC address, VLAN label, MPLS, IPV4/IPV6 address, Payload, and Bandwidth);
- Support to set flow priority according to CoS and ToS/DSCP;
- Support filter and package capture online;
- Support to verify SLA automatically by RFC2544 and Y.1564;
- Support dual-port through function;
- Support SDT (Service disruption test);
- Support 3 layer CoS configuration to verify Metro Ethernet service;
- Support to display test result graphically, easier to view;
- Specialised for One Gigabit Ethernet installation; operation; maintenance; and troubleshooting, or IP service.

Ethernet Test with High Efficiency and High Convenience

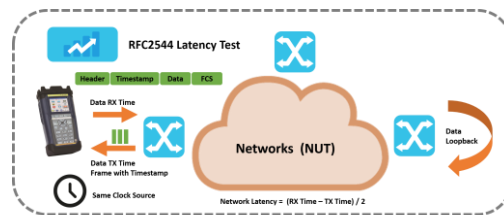
RFC2544 Test

OTP6126 Handheld Gigabit Ethernet Test Set 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.

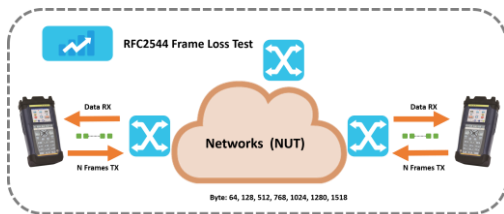
Throughput Test



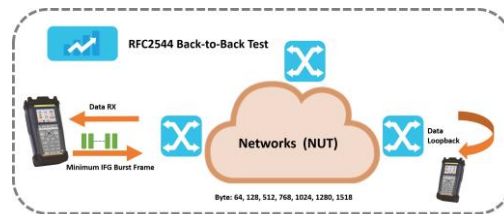
Latency Test



Frame Loss Test

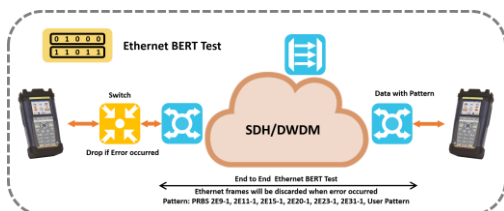


Back-to-back Test



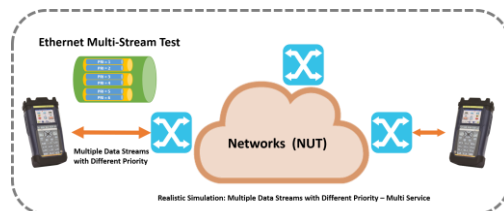
BERT Test

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 Analysis

OTP6126 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.



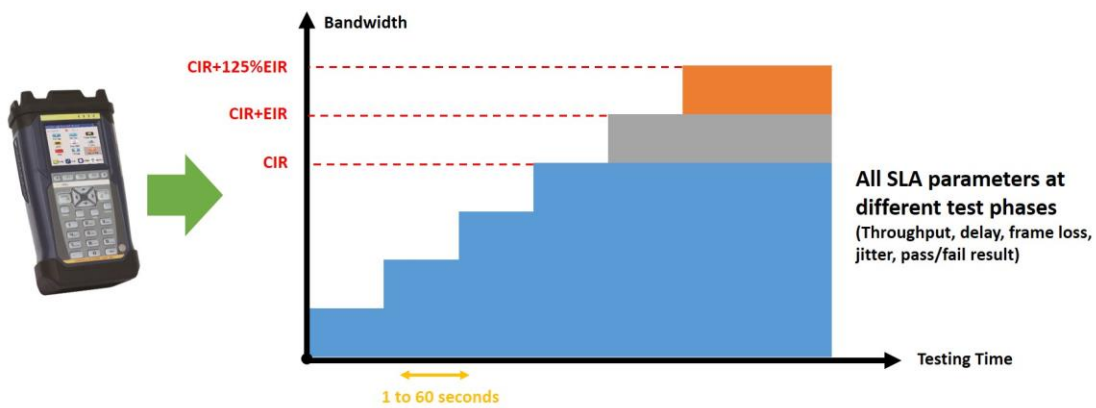
Ethernet Test with High Efficiency and High Convenience

Y.1564 New Standard for Ethernet Test (Optional)

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.1564 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, OTP6126 will conduct a test for the quality of service simultaneously.



General Specifications: OTP6126

| GENERAL SPECIFICATIONS | |
|---------------------------------|--|
| User Interface | |
| Screen | 3.5 inch TFT touch screen (320×240); |
| Other Interface | |
| USB | <ul style="list-style-type: none"> • USB2.0, type A,1; • USB2.0 type B, 1; |
| Ethernet | 10/100M Base-T, RJ45; |
| Storage | 128M; |
| Physical Specifications | |
| Size | 80(H)x 135 (W) x 250(D) mm; |
| Weight | 1.1kg; |
| Temperature | <ul style="list-style-type: none"> • Operating: -10°C to 50°C; • Storage: -40°C to 70°C; |
| Relative Humidity | 0% to 95% (non-condensing); |
| EMC | <ul style="list-style-type: none"> • EN55022/CIPSR22; • EN61000-3-2; • EN55024; |
| Battery and Power Supply | |
| Battery | <ul style="list-style-type: none"> • Rechargeable Li-Lon battery; • Working time: 8 hour; • Charging time: <3 hours (typical: 25°C); |
| Power Supply | <ul style="list-style-type: none"> • Input: 100-240V AC, 50-60Hz, 2A; • Output: 15V DC, 2A. |

Technical Specifications: OTP6126

| TECHNICAL SPECIFICATIONS | |
|--|---|
| Ethernet | |
| Port | <ul style="list-style-type: none"> Electrical interface: 2 ports, 10/100/1000M Base-T; Optical interface: 2 ports, 100/1000M Base-X; <i>User selectable optical module: 850nm, 1310nm, 1550nm.</i> |
| Ethernet Feature | Auto negotiation, full and half duplex, 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 | <ul style="list-style-type: none"> 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: 38 bytes to 16000 bytes; Frame size: constant, iMAX, random; User-defined traffic mix of unicast and broadcast frames; Fixed or increment 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 (ON/OFF); |
| Stacked VLAN | <ul style="list-style-type: none"> Up to 3 user-settable VLAN tags; Parameters per VLAN tag: <ul style="list-style-type: none"> Ethernet type II 0x8100 (802.1Q), 0x88a8 (802.1ad), 0x9100, 0x9200, or 0x9300; User-defined VLAN ID, CFI, VLAN priority; |
| Multi stream | Number of streams: up to 8 streams per port can be activated; |
| Error Injection | FCS, IP check sum error, CRC4 error, bit error; |
| Alarm generation | No link; |
| Result, Monitoring and Generation | |
| Status | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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; |

| Result, Monitoring and Generation | |
|--------------------------------------|--|
| Frame Distribution Statistics | <ul style="list-style-type: none"> Total valid/frames, <64, 64-127, 128-511, 512-1023, 1024-1518, >1518; |
| Multi stream | Display information per stream: <ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none"> 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; |
| Service Disruption Test | Service disruption test activated as part of BER test: <ul style="list-style-type: none"> Max/avg service disruption test, resolution: 0.1us; Number of service disruption; |
| Loopback and Pass Through | |
| Loopback Test | <ul style="list-style-type: none"> Layer 1 to layer4 loopback test; Advanced loopback test: <ul style="list-style-type: none"> Packet loss setting: percentage, packet count, time; Loopback drop enable: protocol loss, protocol pass, control, CRC error, IP/TCP/UDP error; |
| Pass Through Test | <ul style="list-style-type: none"> Pass through monitoring function between 2x 1GE electrical or 2x1GE optical ports; Advanced pass through test; Packet loss setting: percentage, packet count, time; Pass through drop enable: protocol loss, protocol pass, control, CRC error, IP/TCP/UDP error; |
| RFC3393 | |
| Jitter Test | <ul style="list-style-type: none"> G.711, G.723.1, G.729 and so on VoIP packet jitter test; Jitter result: hits, min, max, current, average; |
| RFC2544 | |
| RFC2544 Test | <ul style="list-style-type: none"> Switch/router test and single ended network test mode: <ul style="list-style-type: none"> Throughput, frame loss, latency, back-to-back; End-to-end network test mode (2 units in local-remote setup): <ul style="list-style-type: none"> Throughput, frame loss, back-to-back; |
| Service Activation Test (Y.1564) | |
| Service Activation Test | ITU-T Y.1564 Service Activation Test: <ul style="list-style-type: none"> Up to 8 services per port; Colour-aware and non-colour-aware in combinations; Test modes: one-way (uni- or bi-directional, symmetrical, or asymmetrical), round-trip; |
| Service Activation Test | <ul style="list-style-type: none"> Verification against service acceptance criteria: information rate, frame transfer delay, frame delay variation, frame loss rate, availability; |

| Service Activation Test (Y.1564) | |
|-----------------------------------|---|
| Service Configuration Test | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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; |
| Advanced IP Tools | |
| PING | For connectivity and configuration check: <ul style="list-style-type: none"> • Round trip time (RTT); • Support IPv4, TTL, URL; |
| Trace Route | Trace IP route over IP network: <ul style="list-style-type: none"> • Information per hop: PING time, number of ping timeouts; |
| VCT Cable Test | Use for CAT5 cable connectivity check: <ul style="list-style-type: none"> • Status: pass/fail; • Channel; • Pair Skew; • Fault location; • Polarity; |
| Flow Control | Flow control Time, us: <ul style="list-style-type: none"> • Pause time: total, last, max, min; • Pause frame count: TX, RX; |
| FTP Upload/Download | Use for FTP server and client emulation: <ul style="list-style-type: none"> • Support IPv4 and URL; • File upload/download; • Username/password; • Result: pass/fail indication, upload/download time display; |
| HTTP | WEB access: <ul style="list-style-type: none"> • Support IPv4 and URL; • HTTP access pass/fail; |
| Advanced PING (<i>Topology</i>) | Advance/fast PING, PING segments of the IP one by one in one time: <ul style="list-style-type: none"> • IP address range: start, end • Timeout (ms); • Send count; • Status: pass/fail indication; |
| 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; |
| Statistics | MPLS frame count; |
| Ethernet Frame Capture | |
| Buffer Size | <ul style="list-style-type: none"> • 16Kbytes; • When capture buffer full: stop; |
| Capture Data | CAP format for display in Wireshark. |

OTP6126 Ordering Information

| OTP6126 STANDARD CONFIGURAIOTN | |
|--|---|
| Module | Description |
| OTP6126 | Handheld Gigabit Ethernet Tester; |
| | Dual 10/100/1000M Base-T electrical interface; |
| | Dual 1000M Base-X optical interface; |
| | Layer 1 to Layer 4 BERT test; |
| | Up to 8 streams generation and analysis with MAC/VLAN/IP/TCP/UDP; |
| | RFC2544 standard test with Throughput, Latency, Frame Loss, and Back-to-Back; |
| | Bi-directional RFC2544 test; |
| | RFC3393 Jitter test for VoIP packets; |
| | Layer 1 to Layer 4 loopback and smart loopback test; |
| | Through mode for Ethernet network monitoring; |
| | Enable to drop data packet under though and loopback mode; |
| | Up to 1000M streams generation with 3 Layer VLAN; |
| | Ping, Trace Route, FTP Download/Upload, and HTTP tools; |
| | Ethernet service disruption test; |
| | Packet capture and analysis to 1000M rate; |
| | Cable test with CAT5 length and fault measurement; |
| | Bi-directional test; |
| | Enable to generate frame with random length; |
| Enable to generate data streams with increment MAC and IP; | |
| Layer 1 bandwidth statistics; | |
| Remote control by PC; | |
| Accessories Code | Accessories Description |
| 16080010 | LC/PC to LC/PC full-duplex single-mode fibre, 3 meter, one; |
| 16060040 | CAT5 cable, 3 meter, one; |
| 14020090 | 1.25G 1310nm 15Km LC SFP optical modules, two; |
| 05020050 | SFP optical port dust proof cap - black - rubber, two |
| 05020060 | RI45 electrical port dust proof cap - black - rubber, two |
| 43170030 | OTP6100 100-240V input and 15V output AC/DC power adapter, one; |
| 18080030 | OTP6100 disc include OTP6126 user manual and OPWILL remote control software, one; |
| 20060350 | 9cm Stylus Pen, one; |
| 19070021 | OTP6200 package, one; |
| 18040011 | One year warranty service; |
| 18010010 | Factory test report, one; |
| 18010020 | Calibration certificate, one. |

OTP6126 OPTIONAL CONFIGURATION

| Optional Software | |
|---|--|
| OPAP-Y1564AGeEth | Y.1564 standard service configuration and performance test for SLA QoS with CIR/EIR/Traffic Dropped for GE; |
| OPAP-DPY1564AGeEth <i>(Need to order OPAP-Y1564AGeEth first)</i> | Bi-directional Y.1564 test; |
| OPAP-IPv6AGeEth | IPv6 feature, the test interface can set IPv6 address and can generate stream with IPv6; |
| OPAP-ScanAGeEth | Traffic scan according with destination MAC/IP, source MAC/IP, 3 Layer VLAN, 3 Layer MPLS in-service test; |
| OPAP-EautoAGeEth | Advance auto-negotiation, can set the remote equipment auto-negotiation the speed and duplex as you want; |
| OAPA-EPINGAGeEth | Advance/Fast PING, PING segments of the IP one by one in one time; |
| OPAP-3MPLSAGeEth | Up to 1000M streams generation with 3 Layer MPLS label; |
| OPAP-DPRFC2544AGeEth | Enhancement RFC2544 test, support different upstream and downstream rates setup for Throughput, Frame Loss and Back-to- Back test; |
| OPAP-FXAGeEth | Dual 100M Base-X optical ports; |
| Optional Hardware | |
| 43160020 | OTP6100 lithium polymer rechargeable battery; |
| OPAP-Onewarranty | One year extended warranty service; |
| OPAP-Twowarranty | Two years extended warranty service; |
| 14020160 | 1.25G-850nm-550m-MM-LC-SFP-DDM; |
| 14020090 | 1.25G-1310nm-15km-SM-LC-SFP-DDM; |
| 14020340 | 1.25G-1550nm-40km-SM-LC-SFP-DDM. |

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: www.OPWILL.com

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