GET-100-S
Handheld Gigabit Ethernet Tester

GET-100-S Handheld Gigabit Ethernet Test Set is designed and manufactured by Shinewaytech, which is specialized 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.

Portable Structure Design, Comprehensive Ethernet Test Functions

- 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.

Key Feature

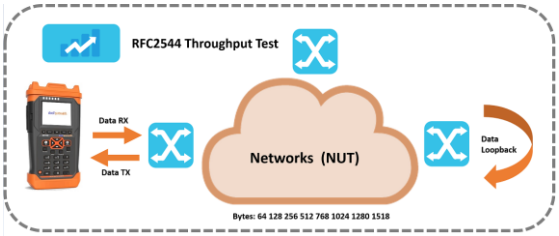
- Support full-duplex 10/100/1000 Mbps Ethernet data stream;
- Support RFC2544 (Includes: Throughput, Frame loss, Back-to-back; and Latency);
- Support Y.1564 (Optional);
- Support RFC3393;
- Support L1/L2/L3/L4 BERT test;
- Support to generate 8 data streams in maximum (MAC address, VLAN label, MPLS, 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

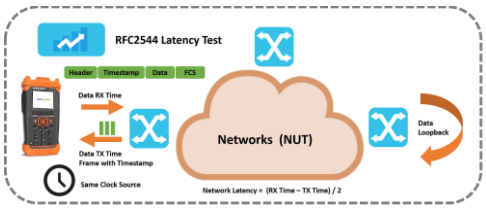
RFC2544 Test

GET-100-S 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.

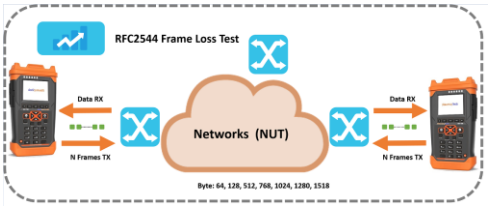
Throughput Test



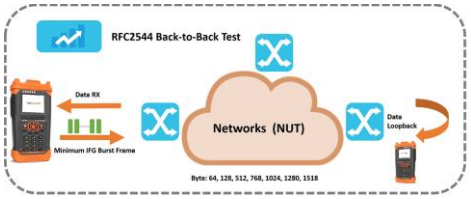
Latency Test



Frame Loss Test

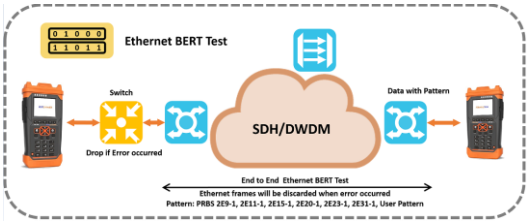


Back-to-back Test



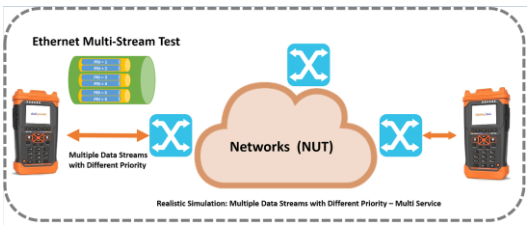
BERT Test

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

GET-100-S 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.



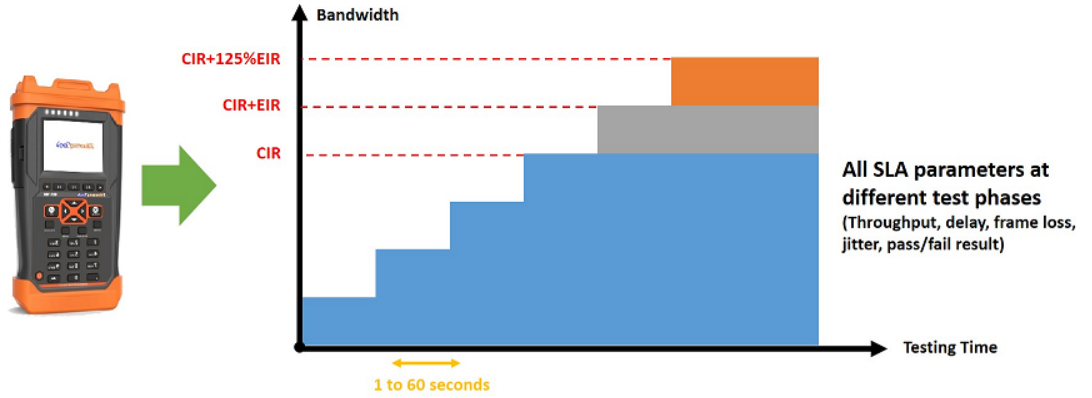
Ethernet Test with High Efficiency and High Convenience

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.

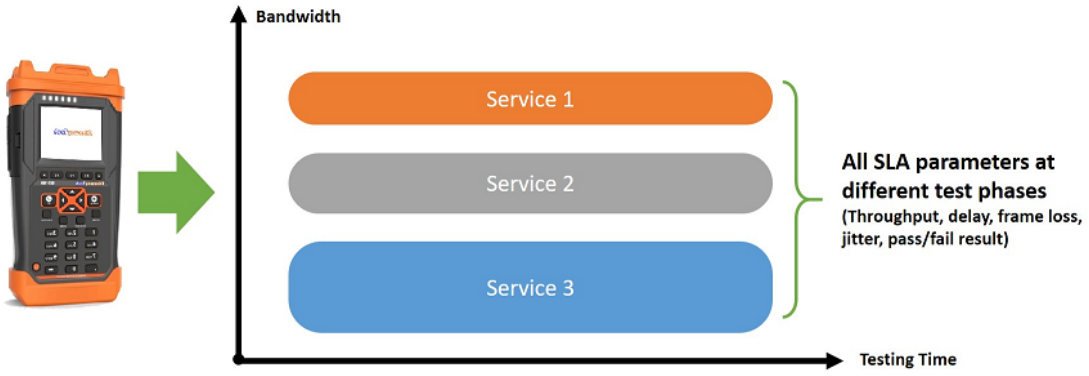
Network Configuration Test

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, GET-100-SD will conduct a test for the quality of service simultaneously.



General Specifications

User Interface	
Screen	3.5 inch TFT touch screen (320×240);
Other Interface	
USB	• 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	• Operating: -10°C to 50°C; • Storage: -40°C to 70°C;
Relative Humidity	0% to 95% (non-condensing);
EMC	• EN55022/CIPSR22; • EN61000-3-2; • EN55024;
Battery and Power Supply	
Battery	• Rechargeable Li-Lon battery; • Working time: 8 hour; • Charging time: <3 hours (typical: 25°C);
Power Supply	• Input: 100-240V AC, 50-60Hz, 2A; • Output: 15V DC, 2A.

Technical Specifications

Ethernet	
Port	• Electrical interface: 2 ports, 10/100/1000M Base-T; • Optical interface: 2 ports, 100/1000M Base-X; ***User selectable optical module: 850nm, 1310nm, 1550nm.***
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	• 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	• Up to 3 user-settable VLAN tags;
	• Parameters per VLAN tag:
	  • 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	• 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;
Result, Monitoring and Generation	
Frame Distribution Statistics	• Total valid/frames, <64, 64-127, 128-511, 512-1023, 1024-1518, >1518;
Multi stream	**Display information per steam:** • 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;
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 and Pass Though	

Loopback Test	• Layer 1 to layer4 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;

Pass Through Test	• Pass through monitoring function between 2× 1GE electrical or 2×1GE 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	• G.711, G.723.1, G.729 and so on VoIP packet jitter test; • Jitter result: hits, min, max, current, average;
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;

Service Activation Test (Y.1564)	
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, symmetrical, or asymmetrical), round-trip;
Service Activation Test	• 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	• 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;		
Advanced IP Tools			
PING	**For connectivity and configuration check:**		
	• Round trip time (RTT);	• Support IPv4, TTL, URL;	
Trace Route	**Trace IP route over IP network:** • Information per hop: PING time, number of ping timeouts;		
VCT Cable Test	**Use for CAT5 cable connectivity check:**		
	• Status: pass/fail; • Fault location;	• Channel; • Polarity;	• Pair Skew;
Flow Control	**Flow control Time, us:**		
	• Pause time: total, last, max, min;	• Pause frame count: TX, RX;	
FTP Upload/ Download	**Use for FTP server and client emulation:**		
	• Support IPv4 and URL; • Username/password;	• File upload/download; • Result: pass/fail indication, upload/download time display;	
HTTP	**WEB access:**		
	• Support IPv4 and URL;	• HTTP access pass/fail;	
Advanced PING *(Topology)*	**Advance/fast PING, PING segments of the IP one by one in one time:**		
	• IP address range: start, end • Send count;	• Timeout (ms); • 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	• 16Kbytes;	• When capture buffer full: stop;	
Capture Data	CAP format for display in Wireshark.		

Module	Description
GET-100-S	Handheld Gigabit Ethernet Tester;
	Dual 10/100/1000M Base-T electrical interface;
	Dual 1000M Base-X optical interface;
	Advance auto-negotiation, can set the remote equipment auto-negotiation the speed and duplex as you want;
	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	RJ45 electrical port dust proof cap - black - rubber, two
43170030	100-240V input and 15V output AC/DC power adapter, one;
18080030	User manual and remote control software, one;
20060350	9cm Stylus Pen, one;
19070021	package, one;
18040011	One year warranty service;
18010010	Factory test report, one;
18010020	Calibration certificate, one.
Optional Software	
OPAP-Y1564AGeEth	Y.1564 standard service configuration and performance test for SLA QoS with CIR/EIR/Traffic

	Dropped for GE;
OPAP-DPY1564AGeEth ***(Need to order OPAP-Y1564AGeEth first)***	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;
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	Lithium polymer rechargeable battery;
OPAP-One warranty	One year extended warranty service;
OPAP-Two warranty	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.

* Specifications subject to change without notice