Test and Measurement Solutions for All Networks

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Company Profile

• GL Communications Inc, a global leader in Test and Measurement Solutions for telecommunications industry, has worked with almost all major telecom Equipment Vendors & Service Providers, for over 25 years, to meet the test requirements of telecom products & networks.

• GL prides itself on its comprehensive suite of telecom testing solutions to ensure 'quality & reliability' of variety of telecom networks. GL's test solutions cover wide array of networks - 4G (LTE), 3G (UMTS), All-IP, Ethernet, T1E1, T3E3, OPTICAL, and PSTN.

• Our solutions provide unprecedented capture, storage, visualization, centralized access & control, portability, convenience, & cost-effectiveness. The tools are widely used for conformance, performance, & automated testing.

• GL also provides consulting services for system design of wireless, satellite, fiber optic, & microwave networks, including testing & analysis to telecommunication companies all around the world. Please visit http://www.gl.com for more information.
Product at a Glance

Ethernet Test Solutions
All Protocols over IP, TCP, UDP
10 GigE, MPLS, VLAN
Signaling, Voice, Fax, Data, & Video QoS

Wireless Test Solutions
LTE, VoLTE, IMS, Diameter, UMTS, GPRS
Drive Testing, GPS Mapping
Signaling, Voice, Fax, Data, & Video QoS

TDM & PSTN Test Solutions
Signalling & Traffic
T1, E1, T3, E3, Analog, FXO, FXS

Fiber Optics Test Solutions
OC-3, OC-12, STM-1, STM-4
Channelized & Unchannelized

Voice, Fax, Data, & Video Quality
Wireless - 4G (LTE, VoLTE), 3G, 2G,
Bluetooth, Wi-Fi
IP, TDM, PSTN, PESQ, POLQA

Network-wide Monitoring Solutions
VoIP, TDM, Wireless
Signaling, Voice, Fax, Data, & Video QoS

GL Communications Inc.
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• Echo Measurement and Simulation, Echo Canceller Testing Solutions
Some of Our Customers

- 3 Com
- Accelerated Networks
- AHK Associates
- All Star Systems
- Altiga Networks
- Amerifax
- Analogic Systems
- AT&T
- Aztec Engineering
- Banby Industries
- Bartec
- Bell Atlantic
- Bi-Right Int'l.
- Boeing NA, Inc.
- Brook Trout
- Carinex Ltd.
- Cisco Systems
- Comsat
- Conexant
- Converse Information Systems
- Coppercom
- Digital Receiver
- Ditech
- Dynalink
- EC Tel
- ECI Telecom
- Edison
- Ericsson
- Farmer's Telephone
- General Dynamics
- Global One
- GTE Systems
- Harris Corp.
- Hughes Network Systems
- IDT
- IMS
- Infonet
- Innomedia
- InRange
- Intelsat
- IPVerse
- IQ Telecom
- Itopia
- Jetstream
- JSI Telephone
- WyteLara Tech
- Litton Industries
- Lockheed Martin
- Lucent Technologies
- Marker Communications
- Massachusetts Bay Transit Authority (MBTA)
- MCI Worldcom
- Maryland Mass Transit Administration (MTA)
- Memotec
- Merlin Interactive
- Mockingbird Networks
- Motorola
- NET
- NetAccess
- Newbridge
- Nextel Communications, Inc.
- Nokia
- Nortel Networks
- Novus
- NTC
- Octel
- Opuswave
- Pairgain
- Paratel
- Pilgrim Telephone
- PMC-Sierra
- Pulsecom
- Raychem
- Raytheon E-Systems
- RCS Co.
- RFB Cellular
- Safeco Ins.
- Salix
- Samsung
- Siemens
- Silicon Wireless
- Sonus Networks
- Sony Transcom
- Southeastern Pennsylvania Transportation Authority (SEPTA)
- Sprint
- Tachion Network Tech.
- Tekelec
- Telcordia Tech.
- Telebyte
- Teleglobe Canada, Inc.
- Tellabs, Inc.
- Tenzing
- Ticketmaster
- Troncom Corp.
- University of Michigan
- Virtual Access
- Vital Telecom
- Voicepump.com
- Washington Metropolitan Area Transit Authority (WMATA)
- World PCS
Test Solutions For Wireless Networks
Complete Wireless Lab Simulation

For more details, please visit - www.gl.com/maps.html
Typical LTE Network Lab Simulation

Analysis Solutions for All-IP networks (LTE, VoLTE, IMS,..)

Packet Capture Module

Packet Analysis Module

GL’s Packet Capture Modules
PacketScan™, LightSpeed1000, T1 E1 T3 E3 Analyzer Pods
Signaling and Traffic Simulation, Monitoring, & Conformance
Any-Network, Any-Interface

- Simulate and monitor all nodes and interfaces within a Wireless and Wired Network
- Setup a complete virtual Wireless and Wired Network Lab
- Suitable for Conformance, Performance, and Load Testing

For more details, please visit - www.gl.com/maps.html
GL offers a host of analysers and simulators for testing a variety of protocols.

Analysis may be done both in real-time and off-line.
NetSurveyorWeb™
Network Surveillance System

- T1 / E1, T3 / E3, SS7, SONET/SDH
- PSTN
  - ISDN, SS7, CAS
- Wireless Protocols
  - 4G, 3G, GSM
- All Protocols over IP
  - IP
  - VoIP Probe
  - PSTN Probe
    - T1/ E1 Probe
  - Database Server
  - Web Server
  - Call Records Protocol Decodes
  - Browser-based Access
Network-wide Voice, Video, & Data Quality Test Solutions
Any-Network, Any-Interface

- Wired and Wireless Networks
- POLQA, PESQ LQ/LQO/WB
- POLQA MOS, Jitter, Clipping, Levels
- Data Testing
- Fax and Modem Testing
- Call Events - Progress & Failures
- Delay Measurements – RTD, OWD
- E-Model, SNR, Signal Level
- Echo ERL, Delay
- QoS, Timeouts, Retransmissions

For more details, please visit - http://www.gl.com/completevqtsolutions.html
Network-wide Voice, Video, & Data Quality Test Solutions
A single platform to connect to any device under test

- Bluetooth®
- RJ-11 POTS lines (FXO)
- Handset Phones (POTS, Digital, VoIP)
- Balanced I/O interfaces
- Mobile audio interface acting as a headset connection to Smartphones (iPhone, Android, Blackberry)
- Mobile Radios with Push-to-Talk (PTT) functionality
- GPS sync ports for synchronization
- Work with GL’s T1 E1 Analyser for T1 E1 interfacing

VQuad™ Probe
Dual UTA and PC Interfaces

Voice Quality Testing

Wireless (Bluetooth®, Wi-fi, 3G, 4G, VoLTE)

VoIP

Analog, TDM

VQuad™

Dual UTA

VQuad™

POLQA
PESQ
PAMS
PSQM

VQT

TCP/IP

Voice Files

results

TCP/IP

Voice Files

results

Central Location

Database

WebViewer™

VQT

Voice Quality Testing

Wired and Wireless Networks
POLQA, PESQ LQ/LQO/WB
POLQA MOS, Jitter, Clipping, Levels
Data Testing
Fax and Modem Testing
Call Events - Progress & Failures
Delay Measurements – RTD, OWD
E-Model, SNR, Signal Level
Echo ERL, Delay
QoS, Timeouts, Retransmissions

For more details, please visit - [http://www.gl.com/completevqtsolutions.html](http://www.gl.com/completevqtsolutions.html)
Data Quality Test Solutions
On Wireless devices & Wired Broadband

For more details, please visit - www.gl.com/web-based-client-for-voice-and-data-quality-testing.html
Video Quality Test Solutions
On Wireless devices & Wired Broadband

For more details, please visit - www.gl.com/automated-video-quality-testing.html
Test Solutions
For
Ethernet Networks
Ethernet and Optical Hardware Platforms

PacketExpert™ - 1Gbps Quad Port Ethernet and Optical tester
Wirespeed BER, Record Playback, WAN Emulation, SLA Testing, Packet Broker

PacketExpert™ HD – 12 /24 Port Ethernet and Optical Tester

PacketExpert™ 10G Tablet Inspired

IPNetSim™ Handheld
WAN Emulation on field

IPNetSim™ 1Gbps, 10Gbps WAN Emulation - Simulates an entire IP Network

For more details, please visit - http://www.gl.com/voipanalysis_simulation.html
Simulate, Capture and Analyse with High Density Traffic

1U Compact Rack Servers with High-Density NIC Cards  Up to 100 k to 200 k Sustained Calls with Multiple Servers Capture and Analyse with High Density Traffic

For more details, please visit -  http://www.gl.com/voipanalysis_simulation.html
Analysis & Simulation Solutions for All-IP networks

For more details, please visit - http://www.gl.com/voipanalysis_simulation.html

GL Communications Inc.
Supported Codecs

- G.711 (A-Law and µ-law)
- G.711 Application II (A-Law and µ-law with VAD)
- G.722, G.722.1
- G729, G729B (8kbps)
- G726 (40, 32, 24, 16kbps)
- GSM HR, GSM (13.2kbps), GSM EFR (12.2 kbit/s)
- ILBC_15_2 (for 20 msec), ILBC_13_33 (for 30 msec)
- SPEEX (Narrow band and Wideband)
- Video codecs include H263++ CIF 190, 350, 512 kbps, QCIF 64, 80, 128 kbps, and H264

- Other optional codec include (must be purchased with additional license)
  - AMR (Narrow band and Wideband)
  - EVRC, EVRC0 (Rates - 1/8, ½ and 1)
  - EVRCB, EVRCB0 (Rates - 1/8, ½ and 1)
  - EVRC-C
  - SMV (Modes - 0, 1, 2 and 3)
Call-Detail-Records – Finding the Calls-of-Interest

For more details, please visit - http://www.gl.com/call-data-recording-and-analysis.html
Test Solutions
For
TDM (T1,E1,T3,E3) Networks
T1 E1 Datacom Hardware Platforms

For more details, please visit - http://www.gl.com/hardware_platforms.html

- **tProbe**
  - Portable USB based T1 E1 VF FXO FXS & Serial Data Analyzer

- **Quad / Octal T1 E1 PCIe Card**
- **Dual HD Universal T1 E1 PCI Card**

- **tScan16™ - T1 E1 Analysis**
  - (16 Port Rx Only)

- **Dual T1 E1 Express (PCIe) T1/E1 Analyzer**
- **Dual T1 E1 Express (PCIe) T1/E1 Analyzer**
- **Portable USB based Dual T1 E1 Analysis Unit**

**GL Communications Inc.**
Analog FXO FXS Hardware Platforms

For more details, please visit - http://www.gl.com/hardware_platforms.html

- tProbe™ - Dual T1 E1 VF FXO FXS Datacom Analyser
- Dual UTA
- VQuad™ Probe - all-in-one self-contained VQuad™ with Dual UTA
For more details, please visit - http://www.gl.com/2Wire-Analog-Bulk-Call-Generator.html

MAPS™ APS

MAPS™ APS-24, 48, 96, or 192 Port

- Bulk call generator in minutes!
- Plug and play
- Assessment of Voice Quality, Fax Quality
- Tones and Digits Detection
- Scalable from hundreds to thousands of calls
- Remoting, Automation, Scripting, Reporting

GL Communications Inc.
T1 E1, T3E3, IP Emulation and Analysis

For more details, please visit - http://www.gl.com/t1e1testing.html

GL Communications Inc.
For more details, please visit - http://www.gl.com/tprobe-datacom-analyzer.html
T3 E3 and Optical Hardware Platforms

LightSpeed1000™ - Quad Port
Optical Tester – Channelized and Unchannelized

USB based T3 E3 Analyser Unit
Handheld Test Solutions for IP, TDM, & PSTN

PacketShark™ (Ethernet/ IP Tester)

LinkTest™ DualE1 (LTS010)

vHandi (VQT290)

IPNetSim™ Handheld WAN Emulation on field

For more details, please visit - [www.gl.com/handportableunits.html](http://www.gl.com/handportableunits.html)
Test Solutions
For
Fiber Optic Networks
Testing Channelized and Concatenated Optical Networks

For more details, please visit [http://www.gl.com/OC3-OC12-analysis-emulation-card.html](http://www.gl.com/OC3-OC12-analysis-emulation-card.html)
Compact and Cost-effective Test Solution for Channelized Optical Networks

For more details, please visit - http://www.gl.com/testing-channelized-optical-carriers.html
Thank you

Contact us

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