

GL Consulting Services

Telecommunications – Engineering

Company Overview

- ◆ A cutting-edge telecommunications consulting company with 50+ People.
Founded in 1986.
- ◆ Certified Small Business Enterprise (SBE)/Disadvantaged Business Enterprise (DBE)/Minority Business Enterprise (MBE).
- ◆ Headquartered in Gaithersburg, MD, USA.
- ◆ Consulting contracts in United States and Canada.
- ◆ Expertise in all telecom networks including Land Mobile Radio, TDM, Ethernet/IP, Wireless, Microwave and Fiber Optic networks.
- ◆ Expertise in transit systems, including SCADA, security, access control, Automatic Train Control (ATC), Automatic Train Supervision (ATS), etc.
- ◆ Project management, proposal development, communications system design, cost estimates, procurement, vendor analysis and selection and field inspection.
- ◆ BS / MS / PhDs in Math, Science, Telecommunications, Engineering.
- ◆ Project Management Professional (PMP) Certifications
- ◆ Telecom Test and Measurement Solutions.

Consulting Projects

GL Communications Inc. has completed a diverse range of telecommunications consulting projects. Below are a few examples. More projects can be found on our webpage: https://www.gl.com/consulting_projects.html

P25 Phase 2 Radio Communications and Fiber Program: Washington Metropolitan Area Transit Authority (WMATA)

- ◆ Provided key lead engineering roles in fiber optic design, RF design and testing, CAD drafting and field inspections.
- ◆ Contractor/vendor selection support, equipment and hardware procurement support.
- ◆ Conducted contractor installation oversight, agency installation oversight, testing, commissioning support, documentation support and staff augmentation.

Power and Communications Supply for Digital Displays: WMATA

- ◆ Designed power and communication supply to all system components at multiple WMATA stations.
- ◆ Completed conduit sizing and routing designs.
- ◆ Created Professional Engineer stamped design drawing package, scope of work, cost estimate & bid package.

Metro Railcar and Train Control Replacement Project: Maryland Transit Administration (MDOT MTA)

- ◆ Designed and tested the Data Communication System and the Automatic Train Supervision System
- ◆ Participated in factory acceptance testing and field testing.
- ◆ Reviewed vendor proposals and participated in vendor selection and contract award.
- ◆ Lead quality assurance/quality control tasks and provided field support and inspection work at various locations.

Echo Mitigation System design and installation for the U.S. Coast Guard (as subcontractor to Motorola)

- ◆ Deployed an Echo Mitigation System at 5 equipment hubs in Alaska (Juneau, Anchorage, Valdez, Kodiak and Douglas Lab). The Echo Mitigation System consisted of GL's proprietary Octal T1 Card for connecting to DS1s carrying audio traffic from remote RF sites. The system added delay to audio streams so that redundant audio arrived in-phase at the dispatch site. This resulted in much clearer audio for the operators to listen to.
- ◆ GL's equipment demultiplexed each direction of a duplex T1 into its individual DS0s and then added a specific delay in accordance to a user defined configuration file.
- ◆ This project involved designing the Echo Mitigation System, writing test plans, physically deploying the equipment, measuring, and adding delay, verifying audio quality, documenting test results and providing post deployment support to the U.S. Coast Guard.

Transit Information Contact Center Administration and Operation: Maryland Transit Administration

- ◆ Operate and configure the Interactive Voice Response system.
- ◆ Manage recording applications used for call and screen recording.
- ◆ Generate reports on call center statistics.
- ◆ Ensured proper operation of all equipment in the contact center including VoIP equipment.

Products and Solutions

GL Communications Inc. manufactures telecommunications test equipment for all networks including Ethernet, SONET, TDM, Wireless and Analog networks. Below are two examples. More products can be found on our webpage: <https://www.gl.com/products.html>

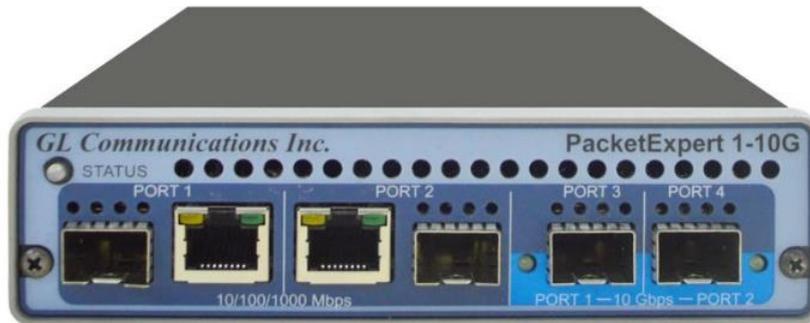


Figure 1: PacketExpert 10GX for Ethernet Testing

- ◆ Complete Ethernet testing solution for up to 10 Gbps.
- ◆ Bit error rates, throughput, round trip delay, packet loss and more.
- ◆ Industry standard testing modules including RFC 2544, ITU-T Y.1564, RFC 6349 and more.
- ◆ Wirespeed network tap and recording capabilities.
- ◆ Supports electrical and optical connections through SFPs.
- ◆ Available in portable and rackmount versions.



Figure 2: Dual UTA HD for Voice Quality Testing

- ◆ Complete Voice Quality Testing solution for all telephony endpoints.
- ◆ Connect to Push to Talk Radios, cell phones, 2 Wire Analog, 4 Wire Analog phones and more.
- ◆ Measure voice quality using industry standard algorithms including POLQA and PESQ as well as DAQ.
- ◆ Automation through easy to use scripting.
- ◆ Measure delay, echo, signal strength, speech, and noise level, etc.
- ◆ Available in portable and rackmount versions.

Expertise

Wireless Communications

- ◆ Cellular/PCS System Design and Relocation
- ◆ GSM/CDMA/UMTS Expertise
- ◆ Broadband/WiMAX Capabilities (Fixed and Mobile)
- ◆ Land Mobile Radio Engineering
- ◆ Propagation Studies
- ◆ Wireless Quality Test & Analysis
- ◆ Off-Air Wireless Monitoring and Analysis
- ◆ Wireless Protocol Analysis and Emulation

Satellite Communications

- ◆ Software Development/Testing
- ◆ TDMA/CDMA Expertise
- ◆ Test and Control Plans Development
- ◆ Propagation Studies and Link Analysis

Terrestrial Communications

- ◆ SMR/ESMR System Design
- ◆ Public Safety
- ◆ Microwave Network Design
- ◆ Fiber-Optic System Design, Test and Inspection

Telecom Test Equipment & Solutions

- ◆ Voice, Video, and Data Quality Test Solutions
- ◆ Ethernet/IP Testing & Analysis
- ◆ TDM Testing
- ◆ Emulation for Analog, TDM, IP & Wireless
- ◆ Optical Testing
- ◆ TDM, Packet, and Wireless Protocol Analysis
- ◆ Network Surveillance System
- ◆ Wireless Network Simulation (5G, 4G, 3G, 2G, IP, TDM)
- ◆ Voice Quality Testing Software

Technical Services

- ◆ Project Management
- ◆ System Design and Planning
- ◆ Technical Specification Development
- ◆ Bid Proposals Evaluation
- ◆ Vendor Equipment Analysis and Selection/Cost Estimates
- ◆ Training
- ◆ Procurement

Transit Systems

- ◆ Supervisory Control and Data Acquisition (SCADA)
- ◆ Automatic Train Control (ATC)
- ◆ Automatic Train Supervision (ATS)
- ◆ CCTV Security and Access Control
- ◆ Public Address and LED Signs

Engineering Services

- ◆ Network Engineering
- ◆ Electrical systems design
- ◆ Site Surveys
- ◆ Radio Site Location Design
- ◆ Site Acquisition Support
- ◆ Frequency and Interference Studies

IT Solutions

- ◆ Customized Software and Hardware Development
- ◆ Remote Access Methodologies
- ◆ LAN/WAN Designs
- ◆ Database Design

Contacts

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DBE/MBE Certifications

- ◆ Washington Metropolitan Area Transit Authority (WMATA - Washington, DC)
- ◆ MDOT Maryland Transit Administration (MTA - Baltimore, MD)
- ◆ Virginia DOT
- ◆ New Jersey DOT
- ◆ Metropolitan Washington Airports Authority (Washington DC)
- ◆ Metropolitan Atlanta Rapid Transit Authority (MARTA)
- ◆ Southeastern Pennsylvania Transportation Authority (SEPTA - Philadelphia, PA)
- ◆ Others coming soon