



Personal Computer Geolocation System (PCGS)

Flexible and Cost Effective TDOA Geolocation System



Custom Computer Solutions and Custom Renovation, LLC are pleased to announce the availability of an exciting product which can provide precise and near-instantaneous information about the locations from which Radio Frequency (RF) signals of interest are transmitted. The new PCGS system utilizes the very popular Time Difference of Arrival (TDOA) technique which has been used for years only in high-end military and DoD systems. This low-cost system is well suited for use by Federal, State, and Local Law Enforcement, as well as for military and DoD purposes.

Primary PCGS Applications:

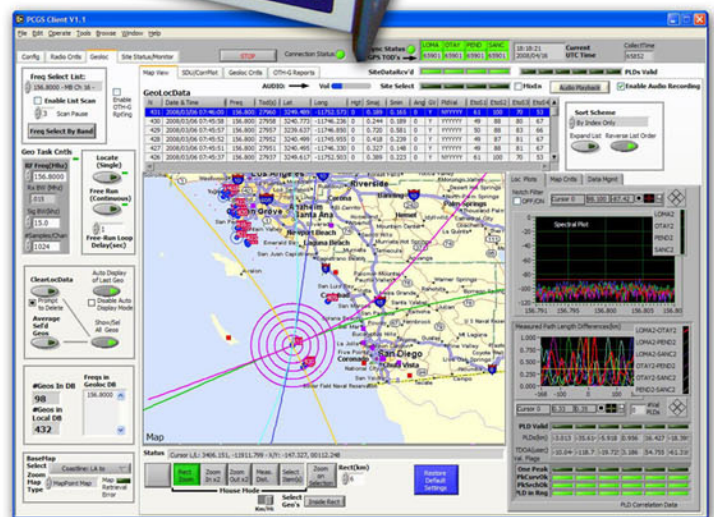
- Unattended 24/7 signal monitoring with automatic geolocation determination and data logging.
- Rapid Geolocation of RF interference sources.
- SIGINT applications.
- Potential use for Marine Search and Rescue and Vessel Assistance.
- DHS application for Anti-Terrorism and Border Security.
- Port and Harbor Security and Maritime Domain Awareness.
- Police and Law Enforcement application.
- Applications requiring remotely controllable mobile sensors.

Key System Features and Characteristics:

- Modular architecture.
- Audio Recording (multi-week capacity) and on-demand Playback (with direct correlation to geolocation results).
- Very simple setup and operation compared to systems utilizing typical DF subsystems (no initial or recurring "calibration" required).

PCGS- The Complete Geolocation Solution

The Personal Computer Geolocation System (PCGS) consists of a suite of three or more small, lightweight, and low power Remote RF Sensor Nodes (RSN's) which are controlled and operated by one or more "Client" computers over a private, wide-area, or Internet network. The flexibility also exists within the system architecture for the RSN equipment to host the Client software package; thereby enabling one of the RSN's to serve as both a sensor node and a base station. Thus, a wide range of possibilities exists for configuring and operating the system is available to the user.



PCGS Client displaying actual Marine Band Channel 16 activity in San Diego and Los Angeles areas.

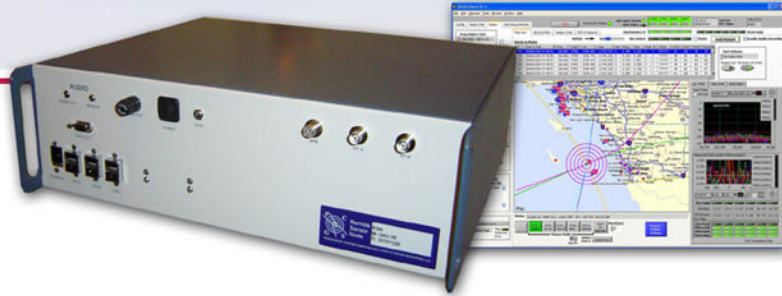
PCGS Client / Base Station Features:

- Software-only Windows-based application; can run on wide variety of PC's and laptop computers.
- Synchronous control of operations and activities at all remote sites via the available network interface.
- Capabilities to request signal intercept data from the remote sites, process the received data, and compute Lines of TDOA (LOTs) and geolocation fixes.
- Versatile mapping and display of LOTs and resulting fixes on MapPoint, Google, USGS maps.
- Receiver tuning/control by Radio Control Unit user interface, including the ability to load, modify, and save frequency lists and to auto detect new signal energy and populate into the frequency list.
- Spectral Display, signal/time, and pair wise Cross Correlation plots provide visualization of properties of the remote site signal data.



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- Provides real-time audio as well as playback control of previously recorded audio, correlated with individual geolocation data items.
- Provides for remote administration of all RSN's for software maintenance, debugging and updates.

PCGS Client Computer Included:

A PCGS Base Station/Client Computer with Windows OS and all PCGS Client software applications pre-installed is included with the purchase of a PCGS 3 or 4 Node system 'bundle'. The purchaser can select from several types to best suit the customer's needs.

PCGS Geolocation Performance Characteristics:

- PCGS is a mature system that has been used both operationally and in test/demo scenarios in "real world" system environments in both the San Diego and NYC/NJ/PA areas from 2001 to present. The US Coast Guard and FCC in San Diego have used it.
- Accuracy: variable, dependent on geometry/ placement of RSN's, the number of RSN's (3 vs 4 or more), RF signal bandwidth, received signal strength at the RSN's, and multipath considerations. A physical and RF site survey is strongly suggested before installation.
- Results achieved (actual versus reported position)
 - 50-250 meters for cases where very good geometry exists between RSN placement and transmitter to be located, good signal strength, and signal bandwidth > 40kHz.
 - 250-600 meters for moderate geometry condition and reasonably good signal bandwidth and received power.
 - 600-5000 meters for poor geometry or transmitter is widely separated from RSN's, or signal bandwidth/power are marginal.
- General Characteristics:
 - Power Requirements: 12 VDC, less than 40 watts, external AC/DC power adapter provided. Can be operated in a vehicle.
 - Dimensions: 3U x 19-inch rack mount, or with optional carry handles. 17"x5.25"x14.25"(W.H.D), IP51 rating
 - Weight: 22 lbs.

Optional/Custom Hardware Accessories and Software

- Ultra-wide broadband RF antenna.
- EV/DO wireless modem and internet service.
- Scanstar radio control server software (works with Scanstar "SentryNet" Client software).
- High-speed scanner and trunk tracker.
- HF antenna.
- Solar solution with enclosure. Dependent on location.
- External enclosure for hot/cold environments.
- Mobile solution dependent upon situation.
- Onsite Installation/Training/Assistance support.
- Remote "Whiteboard" support and assistance.
- Onsite (In-depth) pre-installation site surveys.
- Customized software features and enhancements.

Specification & price subject to change without notice due to continuing system development.

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