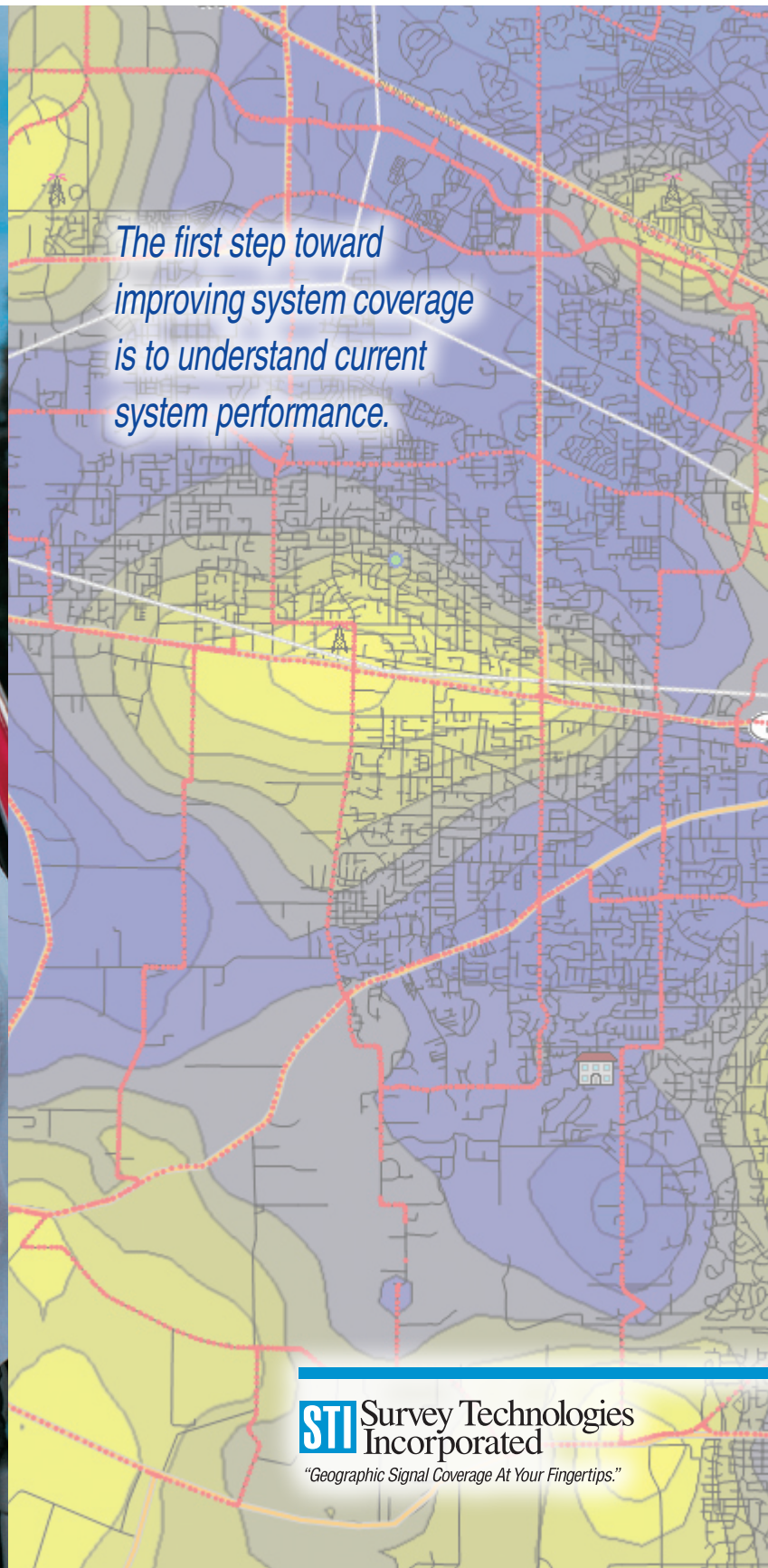


# STI Field Test 7

*Geographic Signal Coverage at your Fingertips.*



*The first step toward  
improving system coverage  
is to understand current  
system performance.*



**STI** Survey Technologies  
Incorporated

*"Geographic Signal Coverage At Your Fingertips."*

## Setting the Standard for Automated Measurement, Analysis and Report of Wireless System Signal Coverage

Survey Technologies supplies a variety of application specific receivers with STI Field Test 7. Interfaces exist for many popular spectrum analyzers, service monitors, and field strength meters you may already own. Parameters such as RSSI, P-25 BER, Modulation Fidelity and Audio SINAD can be measured. An interface is also available for direct connection of analog signals through an A/D converter.

STI has the ability to design custom interfaces for any kind of instrument with an RS-232, network, GPIB or TTL communications port and interface specification document.

STI Field Test 7 is automated signal measurement and analysis software that can be interfaced with most signal measurement instruments or RF receivers. STI Field Test 7 includes a GPS receiver, street map data for the entire United States and Canada with major highways worldwide, an RF instrument interface/driver, manual and one year warranty, allowing you to integrate your laptop PC and digital radio test set or spectrum analyzer to create a coverage verification system that meets your requirements.

The versatile STI Field Test 7 interface software allows for connection to the proprietary or application-specific receiver of your choice. The types of signal measurements taken are limited only by the capabilities of the RF measurement instrument used. This unique feature ensures a long and useful life for your STI system.

From digital BER, to analog SINAD, and signal strength to modulation fidelity, STI Field Test 7 is the automated field measurement and analysis package to measure mobile communication system coverage and performance.

## Automated Signal Measurements with STI Field Test 7

### Signal Acquisition Has Never Been This Easy

Simply start the signal measurement process and drive your STI Field Test System throughout an area of interest. Field Test 7 and the measurement hardware will automate the measurement process to acquire an adequate density of measurements. STI Field Test 7 will automate signal strength measurements at each specified frequency, average the measurements according to your setup, combine latitude and longitude information from the GPS and create a Microsoft Access™ measurement database.

Measurement data can be exported as Excel, comma or tab delimited files for further manipulation or import into coverage prediction applications

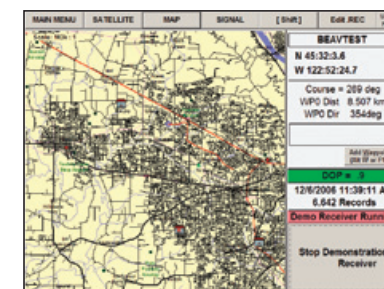
### Acquisition Displays

As measurements are taken, signal readings and their locations are displayed in real time.

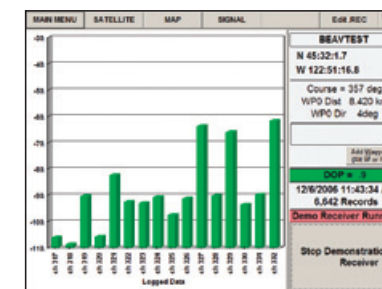
The Map Display in STI Field Test 7 is a real-time display showing measurement positions during the drive test. Street Map data for the United States and Canada is included. Optionally, the user can provide .TAB or .SHP file map.

The Signal Display is also a real-time display showing the results of each signal measurement cycle.

## STI Field Test 7 Acquisition Displays



**Map Display**  
Showing measurement locations and current position on the map.

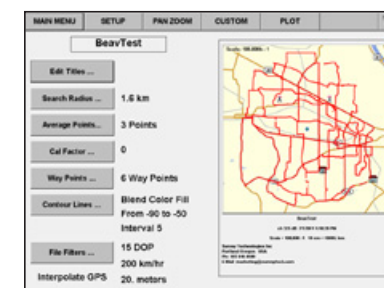


**Signal Display**  
Last set of signal measurements.

## Automated Signal Measurements with STI Field Test 7

### Contour Plots (Macro Analysis)

The primary form of signal coverage analysis is a contour plot generated from measurements taken during the drive-test. Contour plots are the best method to graphically display large amounts of data in an easily understandable format. Blend and Custom are the two types of contour plots. Blend Plots display signal strength variation across



**Contour Plot Setup Window**  
Contour plots can be created and viewed even in the field, or printed as an easy to understand report document.

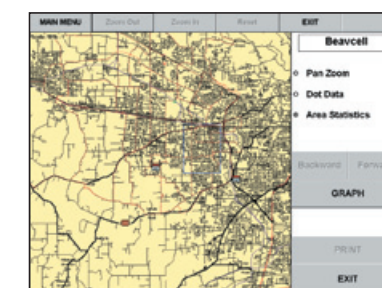
geography; Custom Plots demonstrate coverage as grades of service.

### Point and Area (Micro Analysis)

Once signal anomalies have been identified with a contour plot, point and area analysis allows the raw data to be recalled and analyzed in detail. In area analysis mode a polygon can be scribed over a subset of data points to view signal value statistics within that region.

With data point analysis, select a single data point to recall and display measured values graphically, as a bar chart or digital values. You may step forward or backward along the drive path recalling information specific to each measurement point.

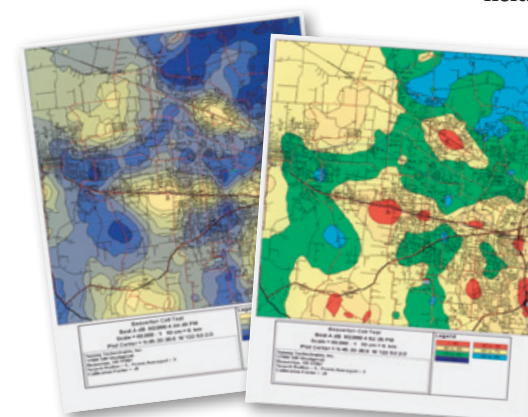
STI Field Test 7 automates the field testing process and translates thousands of signal measurements into clear concise reports in a cost effective manner. This type of system verification is critical for new site set-up, coverage verification, system optimization and ongoing maintenance.



**Point and Area Analysis Display**  
Create an area of measurements to be analyzed and/or a single measurement to be recalled.

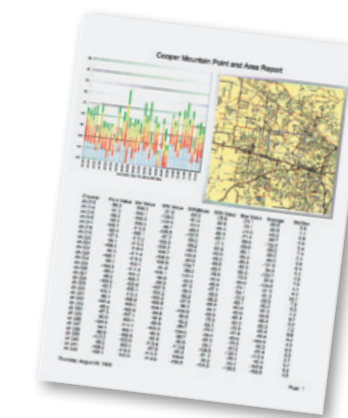


**Area Analysis Display**  
Displays maximum average and minimum values of frequencies within the specified region.



**Blend Plot**  
Signal strength contours are displayed at periodic levels such as 3 dB, and can be converted to the units of your choice, such as, dBuV, dBm or dBu.

**Custom Contour Plot**  
Custom contour plot showing grades of service.



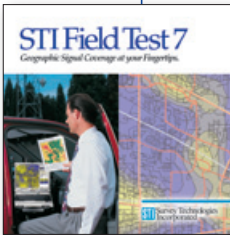
**Point and Area Analysis Report**  
Quantitative point and area report results.

## STI System Configurations and Options

### STI Field Test 7 Software

A demonstration mode allows you to view a drive test and an indoor test conducted previously.

You can view acquisition displays, analyze data with contour plots, conduct data point analysis and create reports of the indoor and drive test projects just as you will with your STI Field Test System.



STI Field Test 7

Follow the instructions on the STI Field Test 7 CD for installing the software on your compatible PC, print the Field Test 7 Demo PDF found on the CD in the Read Me directory or on your PC after the software is installed at C:\STI7\Read Me\Field Test 7 Demo PDF and follow along in the Field Test 7 software.

### The STI-9400 System

The STI-9400 is a turn-key Field Test System also available from STI integrated to meet your measurement requirements. The STI-9400 comes with a ruggedized touchscreen laptop PC, STI Field Test 7 software, GPS receiver, scanning RSSI measurement hardware, street data for the USA and Canada, one year warranty and manual. It is integrated with additional receiver options to meet your specific RF coverage measurement requirements.



STI-9400

### Tile Analysis and Report, Option 71 – Tiling

Tiling is an optional software function of STI Field Test 7 that provides a means of quantifying signal coverage for system acceptance and proof of performance testing. In this mode a region of interest is divided into equal-size geographic areas called tiles. Data acquisition is conducted as usual. The grid of geographic tiles is displayed during data acquisition to indicate to the operator when a qualifying number of measurements have been made in each tile area.

After data collection, the area of interest can be analyzed statistically. A verifiable specification statement for a communications system using this quantitative form of analysis might read, "Tile sizes will be 30 second rectangles. After qualifying 80% of the tiles in this geographic area with at least 10 measurement samples, at least 95% of the qualified tiles must have 100% of their measurements above -95 dBm."

You can automatically produce tile reports indicating the number of measurements in every tile, the percent of measurements above the threshold level for every tile and summary statistics for the entire area of measurement. The tile methodology can also be used with signal quality metrics like SINAD, Bit Error Rate, or Modulation Fidelity for a thorough acceptance test plan.

### Option 31 – Push to Talk/ GPS Timer

This option uses the accuracy of GPS time to automate the timing of a measurement process. The PTT/GPS timer is used for uplink or inbound RF link testing by keying on a radio in the test vehicle while the STI software automates measurements at the base. It is also used to key on repeaters for measurements during the hang-time of these intermittent transmissions.

### Option 81 – Indoor Measurement Capability

Automated signal coverage measurement and analysis is now possible for office buildings, hospitals, parking structures and shopping malls. An STI-9400 or STI Field Test 7 package equipped with the indoor measurement option allows you to import a building floor plan for referencing measurement locations inside buildings.



Above: Option 81 - Indoor Measurements

Left: Indoor Test Results of Shopping Mall

## Company Profile

Survey Technologies, Inc. was founded in 1991 to improve and automate the acquisition, analysis and report of RF signal coverage.

The primary output of STI systems are various reports

containing accurate signal measurement statistics and plots of coverage created from drive test measurements.

Corporate headquarters are located in Portland, Oregon, USA.

## STI Survey Technologies Incorporated

"Geographic Signal Coverage At Your Fingertips."

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