

TEMS INVESTIGATION 14.0

Product: Test and Measurement Tool

Solution Areas:

- network rollout
- optimization
- benchmarking
- Subscriber QoE
- In-building

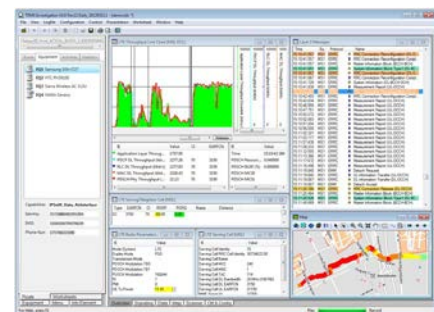
# TEMS™ invESTigaTion – EnTRUST YoUR nETWoRK To THE WoRLD’S LEaDing DRivE-TEST SoLUTion

Used in more than 180 countries worldwide, TEMS Investigation is the industry-standard tool for troubleshooting, verification, optimization and maintenance of wireless networks. TEMS Investigation supports all major technologies, making it the ideal testing tool at every stage of the network’s life cycle.

TEMS Investigation has been the top originator of drive-testing features and functions for two decades. It employs smart and exclusive functionality that solves specific problems, promotes cost-efficient work processes, minimizes human errors and improves productivity, allowing operators to focus on ensuring network quality. TEMS Investigation is a complete, cost-effective and conveniently compact solution for the active field engineer.

TEMS InvESTigaTion ENABLES opERaTors To:

- f Test from a user’s perspective. Performs geographically positioned air interface and service quality measurements with devices used by subscribers.
- f Custom-tailor test scenarios to match specific needs. From rollout to maintenance, TEMS Investigation’s exclusive measurement capabilities put the user in control.
- f Contain costs. Quick to set up and easy to use, its unique time-saving capabilities and exclusive control features promote efficient work processes.
- f Reduce time to market. Focus on early availability of new technologies, features and devices. Scalable, adaptable and constantly updated to meet evolving needs.
- f Maximize return on investment. Complete solution for multimode system verification, optimization, troubleshooting and analysis in relation to in-vehicle, in-building and pedestrian-area testing throughout the network life cycle. Flexible licensing and packaging to meet individual requirements.
- f Access a rich, exclusive feature set that gives you the freedom to perform the measurements and tests you want to perform without affecting end users.
- f Profit from our 20-year track record. Our unrivaled history of success sets a solid foundation for the innovations and advances to come. That makes TEMS Investigation the number-one choice for operators worldwide.



Essential throughout the network’s lifecycle

USE arEaS

- f Site verification and acceptance: Perform measurements to identify problems introduced during site installation and to validate equipment functionality.
- f Initial tuning (RF optimization): Evaluate and tune network design, hardware installation and parameter settings to ensure network coverage and quality from the start.
- f Network acceptance: Measure and report key performance indicators (KPIs) from a user’s perspective.
- f Service quality monitoring: Regular measurement campaigns locate and eliminate problems early, safeguarding high-quality service performance from a user’s perspective.
- f Network optimization and maintenance: Measurement activities maintain and improve network performance throughout the network’s life cycle.
- f Troubleshooting: Build targeted solutions based on findings related to site verification, initial tuning, optimization and service quality measurement campaigns. Investigate issues raised by O&M/OSS systems and customer complaints.
- f Network verification: Validate implementation of new RAN features and services from a user’s perspective.
- f Benchmarking: Perform field measurements to compare mobile network performance between service providers or to benchmark different devices’ behavior and performance.

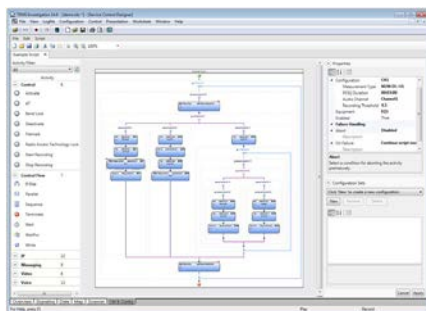




Prepare and perform indoor measurements more efficiently.



The highly flexible and intuitive user interface keeps training costs to a minimum and allows users to take full advantage of the product's powerful features.



The Service Control designer facilitates flexible and efficient creation of advanced test scripts.

## KEY FEATURES

### EXTENSIVE DEVICE PORTFOLIO

Each operator has unique testing needs, and with more than 300 verified measurement devices from over 30 vendors, TEMS Investigation offers matchless flexibility for customized solutions. Support for Android, Symbian and Windows Mobile-based smartphones, with new devices added continuously.

### TECHNOLOGIES

A large customer base and close cooperation with device and infrastructure vendors enable short lead times when introducing new technologies, chipsets and devices. Support for LTE (Fdd and Tdd), GSM, GPRS, EDGE, WCDMA, HSPA, HSPA+, TD-SCDMA, CDMA (IS-95 to EV-DO Rev B) and WiMAX.

### POWERFUL, EFFICIENT DATA COLLECTION

Flexible recording capabilities, automatic device detection; customizable workspaces users can share; advanced device control; strong, intuitive service control to manage and automate information gathering; event audio indicators; automatic upload of logfiles and real-time data presentation. Multiple devices can be connected and can run simultaneously, minimizing time spent collecting RF data, I2/I3 messages, IP information and service-related information.

### EXCLUSIVE MEASUREMENT AND CONTROL CAPABILITIES

With multiple use areas yielding substantial cost savings, the tool's unique control capabilities empower efficient work processes and give users around the world unparalleled control of their measurements. Features include phone behavior and cell control capabilities, information elements, quality assessment algorithms and device-scanning functionality.

### SERVICE PERFORMANCE TESTING

For voice, video telephony, FTP, HTTP, TCP, UDP, Ping, email, WAP, MMS, SMS, video streaming and VoIP. Quality assessment algorithms include PESQ and POIQA. Plus data service performance verification with generic device in any data access network.

### POWERFUL SCRIPT CREATION

Based on an intuitive flow chart (drag-and-drop) concept, the Service Control Manager facilitates flexible, efficient creation of advanced test scripts to automate service testing. Easy to create, adapt and reuse, scripts ensure consistent measurements.

### CONVENIENT INDOOR MEASUREMENTS

Take the full range of capabilities indoors. Creation and use of preplanned indoor test routes facilitate efficient work processes from preparation through execution and analysis. Supports iBwave format (building and floor plan information). Measurement process streamlined with TEMS Pocket and TEMS discovery. Manual pinpointing available. Combine with backpack solution and tablet PC.

### FLEXIBLE ANALYSIS CAPABILITIES

Thousands of information elements and events can be presented in more than 250 predefined presentation windows (line and bar charts, maps, status and message windows, event counters). Define customized events to locate problem areas. All presentation windows are synchronized and all settings are saved in workspaces for reuse and sharing between users.

### CONVENIENT EXPORT OF LOGFILES

Export logfiles to numerous formats. The export can optionally be done from a Microsoft Windows command prompt and can then be scheduled using generic Windows scheduling functions.

### TEMS PORTFOLIO SyNERGIES

Use TEMS Investigation to analyze logfiles from other TEMS products, or add TEMS™ Pocket functionality on your TEMS Investigation handset. TEMS™ discovery, a highly configurable and user-friendly post-processing solution, is recommended for use when large amounts of data are to be processed and analyzed, as well as for advanced report creation.