

[ TEMS™ PRODUCTS ]

# TEMS™ POCKET

A COMPLETE MEASUREMENT SMARTPHONE SYSTEM IN YOUR HAND



## A VERSATILE, POWERFUL TESTING DEVICE BUILT INTO A CONVENTIONAL PHONE

TEMS Pocket is a phone-based test tool developed for measuring the network performance and quality parameters of wireless networks. The tool collects measurement and event data for immediate monitoring or for processing by TEMS™ Discovery or other tools at a later time.

Because TEMS Pocket is designed as an integral part of the phone, it can be used continually, not only by engineers and technicians, but by people throughout the operator's organization.

Wireless operators need to collect data from their networks to test and measure coverage and quality. However, it isn't always practical to obtain network information with drive-test solutions, particularly with more than half of today's estimated data traffic and calls generated from indoor environments.\*

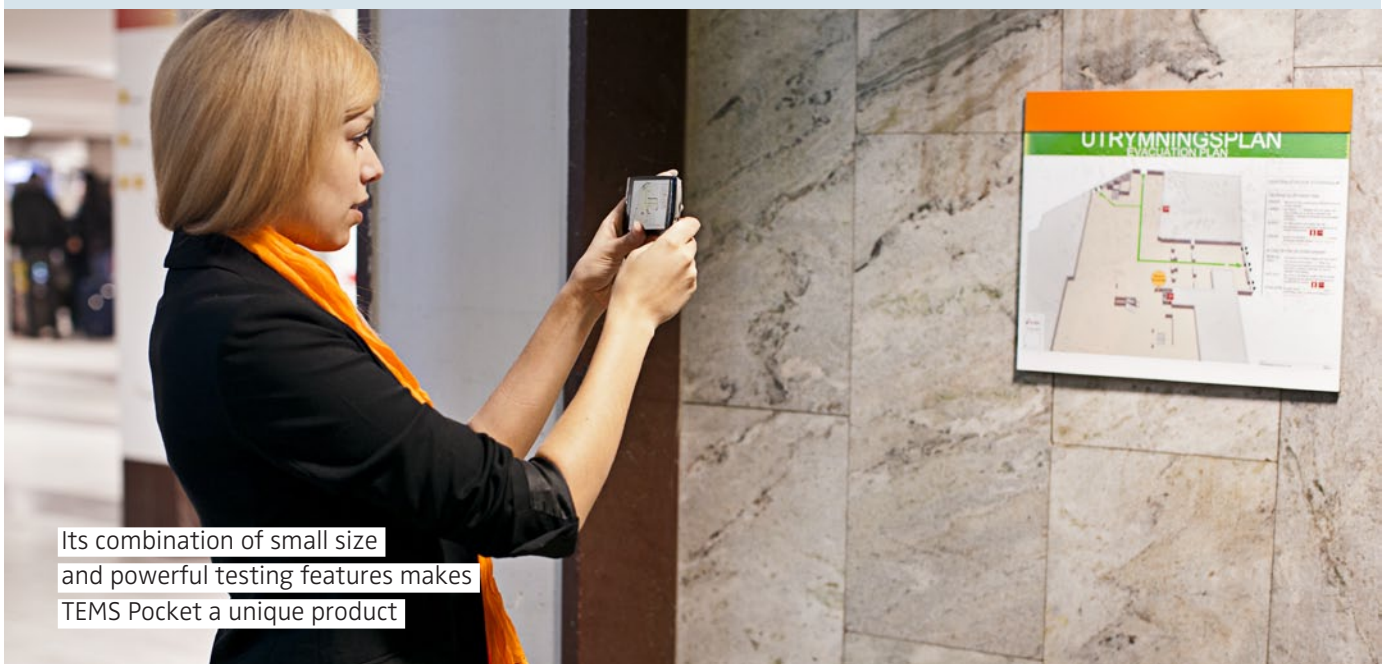
Using TEMS Pocket, operators can easily test locations such as inside restaurants, shopping malls, subways, trains, boats, event venues – anywhere that people go. This can be done while using TEMS Pocket as a regular phone. Small enough to fit in your hand, TEMS Pocket is powerful enough to capture a range of data which only a few years ago would have required laptops or even larger tools. It allows the tester to test as a user.

Its combination of small size and powerful testing features makes TEMS Pocket a unique product and the ideal tool for use in the different stages of the network life cycle – network planning, tuning, troubleshooting, as well as during tasks such as installation, rollout, site acceptance and service testing.

### A COMPLETE SOLUTION

TEMS Pocket works with TEMS™ Investigation to provide the most complete solution for network optimization. TEMS Pocket generates data collected with the same level of detail as TEMS Investigation and can also be connected as a user equipment device to TEMS Investigation.

Data from TEMS Pocket and TEMS Investigation can be analyzed using TEMS Discovery, creating a full solution.



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\* Already an estimated more than half of global wireless voice and data traffic is generated indoors; Analysys Mason anticipates this number to grow to over 80% for data traffic by 2016.

## PRODUCT OVERVIEW

**A compact, lightweight, robust measurement application that runs on Android™-based devices, TEMS Pocket enables testing of GSM/EDGE/WCDMA/HSPA/CDMA/EV-DO networks in virtually any location.**

TEMS Pocket Standard is the most basic package. It performs real-time monitoring of the mobile network with results displayed directly via graphical symbols. This is the ideal test tool for the field engineer who has no need to record information for later processing. This simple yet powerful tool provides users with engineering trace records and real-time visualization of measurement data on the display screen. It also comes equipped with automatic mobile application tests, including voice, FTP, HTTP, and idle mode measurements. Users can set up the desired connection such as voice and data calls, as the subscriber would.

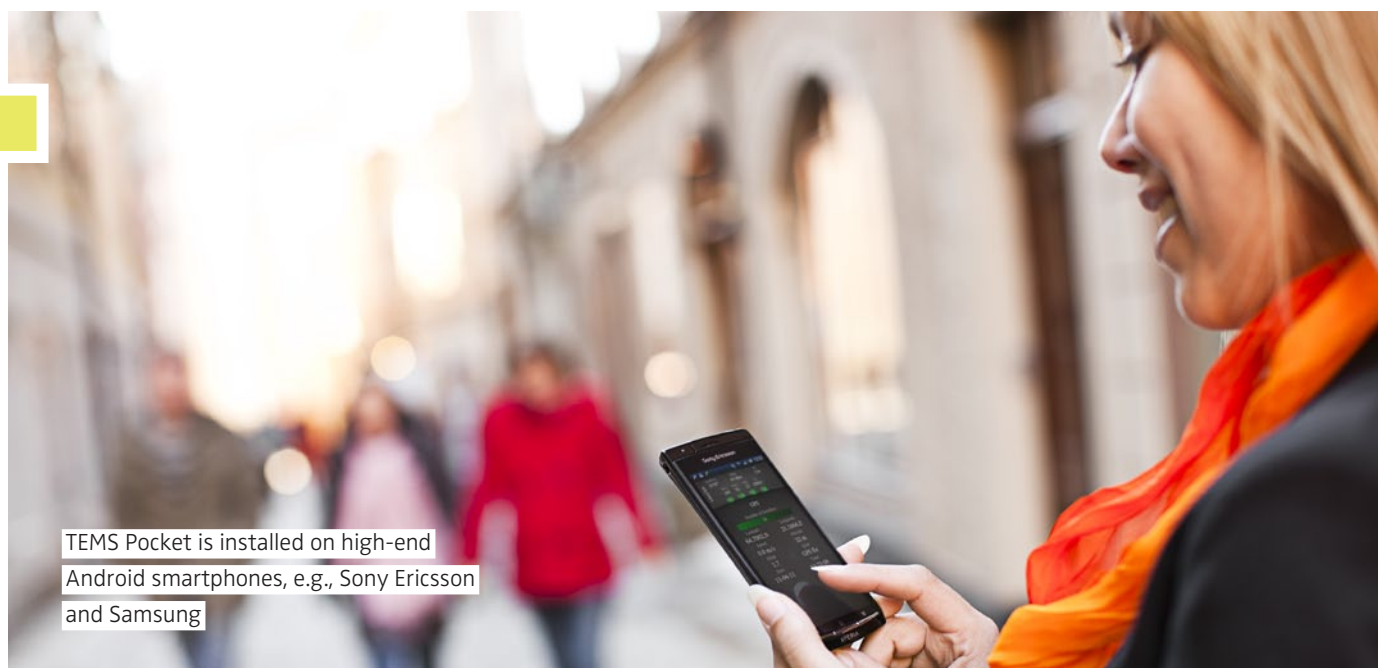
TEMS Pocket Professional is designed for the professional RF engineer who wants to carry the best available tool. It has all the features of TEMS Pocket Standard with additional functions that make it extremely cost-effective and convenient for network measurements. TEMS Pocket Professional can record network data together with GPS information. The captured information can then be transmitted over the air for efficient integration with a number

of well-known third-party products as well as TEMS post-processing tools, including our premier post-processing solution, TEMS Discovery.

The TEMS Pocket phone screen has some unique graphical user interface/man-machine interface (GUI/MMI) functionality specifically designed to give users the best access to measured results. One example is the display of important RF parameters through intuitive indicators, instantly accessible anywhere in the application.

The engineering perspective is also assessed, and covers data ranging from signal level, signal quality, and interference to serving/neighbor cells and RF configuration parameters. This information is essential for effective troubleshooting and network optimization. The built-in GPS can be used in conjunction with TEMS Pocket to give accurate position information. For indoor testing, floor plans can be loaded for easy placement of position markers, which are available along with the floor plan for post processing.

Floor plans can also be bundled into complete packages – for example, for buildings or a group of floors. The support for MapInfo files enables automatic configuration and geo-positioning of the maps, saving time during setup and post processing. Furthermore, a previously recorded route can be used as a reference route to be followed by the user, increasing the speed and consistency of indoor testing.

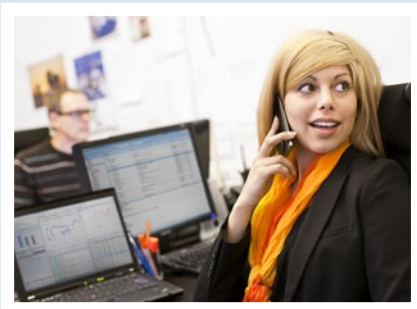


TEMS Pocket is installed on high-end Android smartphones, e.g., Sony Ericsson and Samsung

**TEMS Pocket is part of the TEMS™ Portfolio, a complete set of state-of-the-art solutions to test, measure, and analyze mobile networks anywhere subscribers go.**

**The TEMS Portfolio enables mobile network operators to:**

- **Optimize network performance while minimizing operational costs**
- **Ensure quality throughout the network life cycle**
- **Measure QoS against competitors to ensure satisfying subscriber experience and reduce churn**
- **Efficiently deploy new, revenue-generating, value-added services**
- **Support all major wireless technologies, from legacy to LTE**



Used together, TEMS Pocket, TEMS Investigation, and TEMS Automatic collect wireless network performance data from indoor, nomadic, and drive test environments. This data is then automatically uploaded to TEMS Discovery, which processes the data and then runs reports that the operator has predefined. These reports can be distributed to a list of key stakeholders. With access to such reports, RF engineers, RF managers, the RF director, and other network performance management personnel can more quickly and accurately identify problems for faster resolution. This not only saves on network operations costs but also helps to increase customer satisfaction and reduce customer churn.

Working with TEMS Discovery also simplifies indoor testing, as import and geo-location of floorplans can be done seamlessly. Simply drag and drop a metric into the map and the metric is displayed on the floor plan image. Relating this information to the outdoor macro network is as easy as 1-2-3 with three-step geo-locationing. This gives the engineer a “one network” approach when working with both indoor and outdoor scenarios.

TEMS Pocket can also, together with TEMS Discovery, serve as an entry-level indoor benchmarking system. Using one TEMS Pocket as master for providing indoor positioning, while carrying any number of additional devices, allows for accurate indoor positioning of multiple devices. Positioning for the slave devices is provided during post-processing. This helps to avoid device-to-device communication in the field which is a potential source for failure or data loss.

Devices offered with TEMS Pocket can also be expanded for use with TEMS Investigation. Shared devices means dual use in the field and less cost. For example, TEMS Pocket can be disconnected from TEMS Investigation during drive testing and then used to take an indoor sample or survey an otherwise hard-to-reach area.