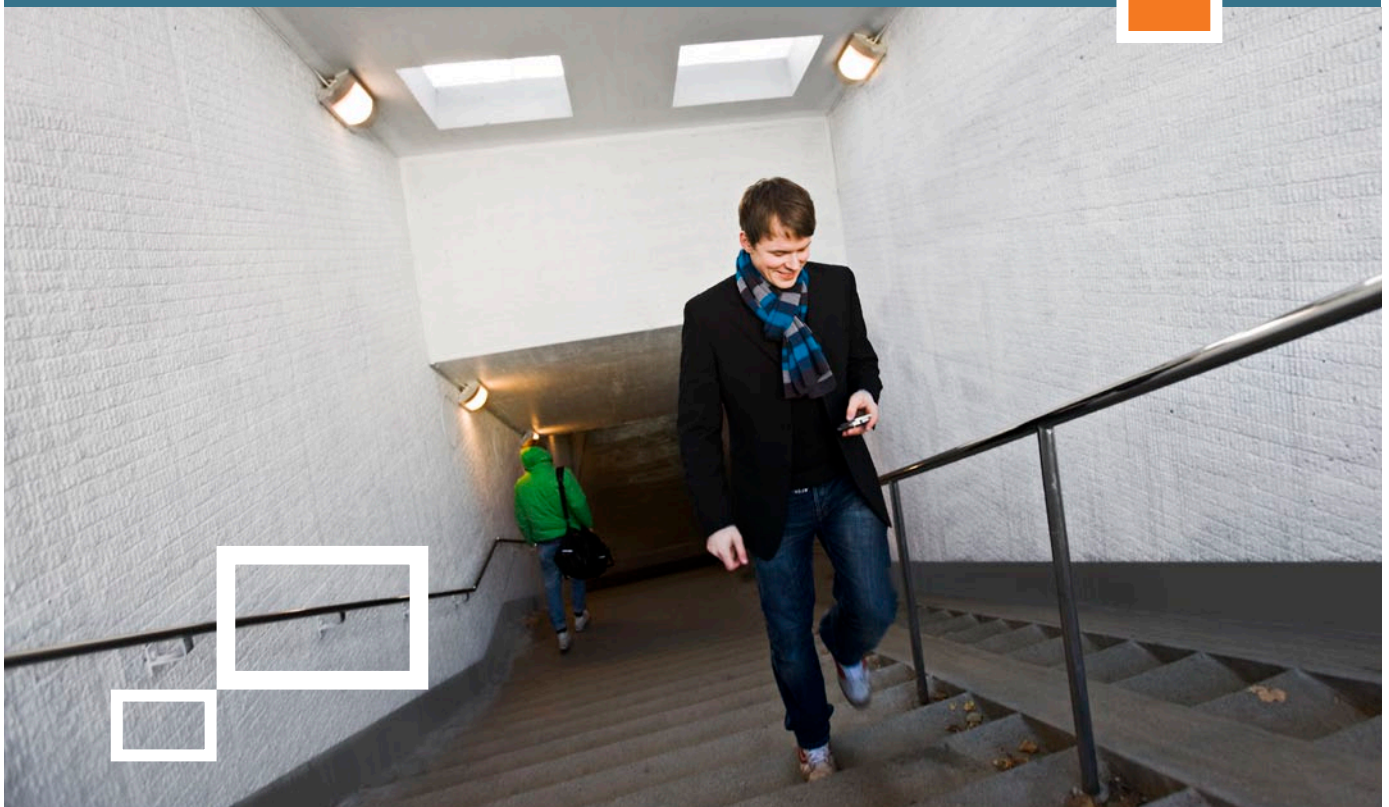


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TEMS™ POCKET 9.1
A COMPLETE MEASUREMENT SYSTEM
IN YOUR HAND



A VERSATILE, POWERFUL TESTING DEVICE BUILT INTO A CONVENTIONAL PHONE

TEMS™ Pocket 9.1 is a versatile handheld measurement platform that both engineers and non-technical staff can easily use to collect network measurements whenever and wherever the need arises.

A compact, lightweight, and robust measurement application, TEMS Pocket 9.1 runs on Nokia devices, enabling tests of GPRS/EDGE/WCDMA networks in virtually any location.

This simple yet powerful tool provides users with engineering trace records and a real-time visualization of the measured data on the display screen. Users can set up any desired connection such as speech calls or video telephony, exactly as a subscriber would. The important radio trace and Layer 3 information is then recorded during the connection sequence. Trace and logfiles are always recorded even if no test scripts are executed.

TEMS Pocket Professional comes equipped with automatic mobile application tests, including speech quality MOS and mobile IP data tests (FTP, HTTP, Ping, etc.) and SMS/MMS.



KEY FEATURES AND BENEFITS

TEMS POCKET PROFESSIONAL BENEFITS

TEMS Pocket Professional offers automated execution of user-controlled pre-programmed scripts, such as HTTP test – pause – FTP test – pause – Ping test. This feature is especially valuable when the person taking network measurements is not an engineer.

Mobile application protocol stacks are applied in TEMS Pocket Professional in order to deliver an accurate subscriber view of QoS measurements and network performance. The most popular test parameters include real speech quality [PESQ (P.862)], drop call rates, failed call rates, FTP, WAP, and HTTP throughputs, Ping delays as well as delivery times and success rates for SMS and MMS.

TEMS Pocket has flexibility where different network technologies are involved. The same FTP tests, for example, can be run over GPRS, EDGE, WCDMA, and HSPA (HSDPA + HSUPA) networks in almost any location.

The TEMS Pocket phone screen with some unique GUI/MMI functionality has been specifically designed to give users the best access to measured results. One example is the user-definable charts, in which the user can select virtually any combination of numerical values for display in a line chart. Replaying the measured data on TEMS Pocket enables on-site troubleshooting without the need for a laptop computer.

User markers can be inserted, making it easy to identify special events during post-processing, aiding in the analysis and understanding of the situation.

The engineer perspective is also assessed, and covers data ranging from signal level, signal quality, and interference to serving/neighbor cells and Layer 3 messages and RF configuration parameters. This information is essential for effective troubleshooting and network optimization.

The troubleshooting capabilities of TEMS Pocket include a versatile set of forcing functions. 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 during measurement. Position markers are available along with the floor plan for post-processing. Optionally, the measurement data files can be automatically uploaded to an FTP server upon completion of the test sequence.

Various data analysis products are available to process TEMS Pocket 9.1 data, including premier post-processing solution TEMS™ Discovery, and QVoice Presentation, a client-server based product with extensive database handling functionality which can also be supplied for notebook use.

FEATURES OVERVIEW

- GSM/GPRS/EDGE/WCDMA and HSPA
- Speech, VT, FTP, HTTP, WAP, Ping, SMS and MMS testing
- Radio Interface Trace including Layer 3 Signaling
- Automatic Test Sequences (Scripting)
- Referenced Speech MOS Algorithm (ITU-T P.862)
- Speech Quality Evaluation MS-PSTN (DL), MS-to-MS (UL/DL)
- Measurement Data Replay on handset
- Indoor Maps
- User Definable Line Charts
- User Definable Markers
- Forcing Functions (System, GSM/WCDMA Band, Cell Lock, Override Cell Barring)
- Passive Monitoring Mode
- Automatic or Manual Wireless File Transfer
- Internal or External GPS
- Audio alerts for events
- Scan Mode



Measured QoS KPIs

	Service Accessibility		Service Integrity	Service Retainability
	Access Time	Access Success Rate		
Speech	Yes	Yes	MOS (ITU-T P.862)	Drop Rate
Video Telephony	Yes	Yes	-	Drop Rate
FTP DL/UL	Yes	Yes	Application & IP Throughput	Cut-Off Rate
HTTP	Yes	Yes	Application & IP Throughput	Cut-Off Rate
WAP	Yes	Yes	Application & IP Throughput	Cut-Off Rate
Ping	Yes	Yes	Round Trip Time	Failure Rate
SMS	Yes	Yes	Send/Retrieve and End-To-End Time	End-To-End Success Rate
MMS	Yes	Yes	Send/Retrieve and End-To-End Time	End-To-End Success Rate



Technical Specifications Nokia C5-00

- GSM 850/900/1800/1900 MHz
- WCDMA 900/2100 Mhz
- HSDPA Cat. 9 (10.2Mbps); HSUPA Cat. 5 (2Mbps)
- WCDMA
 - PS 384/384 kbps
 - CS Transparent 64kbps (video telephony)
 - Multi RAB
- GPRS/EDGE Multislot Class 32:
 - Timeslots Rx+Tx 5+3, max. 6 timeslots
- DTM Multislot Class 32:
 - Timeslots Rx+Tx 5+3, max. 6 timeslots
- Speech Codecs:
 - EFR, FR, HR
 - AMR FR, AMR HR
 - WCDMA AMR
- 3GPP Releases:
 - GERAN 3GPP Rel. 4
 - UTRAN 3GPP Rel. 6
 - Core 3GPP Rel. 6