Wireless Mobile & Base Station Test Sets

- CDMA and TDMA
- New generation of base station test equipment
- Improve technician efficiency and enhance system performance
- Enhanced User Interface
- Rugged, portable design

7

HP 8935 Series Cellular/PCS Base Station Test Sets

The HP 8935 series is a flexible platform that currently includes two full featured, one-box test sets, for CDMA (E6380A) and for TDMA (E6381A). The 8935 series is designed to meet the needs of installation teams, service providers, and network equipment manufacturers. Building on the success of our previous generations of base station test equipment, this new generation of test gear heavily incorporates feedback from cellular and PCS service providers and network installation teams. For example, the HP 8935 Series utilizes a new, larger, bright electro-luminescent display for easily read data. A new convenient connector section allows unobtrusive, out-of-the-way hook up. A suitcase form factor provides better portability. The HP 8935's new "rugged design" combines a membrane keypad, a gasketed display, stand up operation, filtered airflow and an enclosure to help protect itself from bumps and shocks.

More importantly, the new HP 8935 incorporates a less intimidating, user-friendly interface with Windows® type pull down menus. This new interface, coupled with the HP 8935's faster measurement speed and automated software for vendor specific base stations results in less off-line time and improved system performance. Errors due to test variability are reduced and measurement data can be output to a printer or to the PCMCIA memory card. Additionally, firmware is user upgradeable with a PCMCIA card to Flash PROM. New features and capabilities can be added without returning the unit to a service center. To round out HP's new instrument, the HP 8935 Series includes options for new technician training programs to provide install teams and service providers educational opportunities in AMPS, CDMA, and TDMA technologies and base station test.

HP 8935 Series Key Feature Summary

- Power measurements
    - Average power
    - Channel power
- Site Tests (requires E6554A - RF Tools Hardware Accessory Kit)
    - Return loss (SWR) measurements
    - Cable fault location measurements
    - Insertion loss measurements
- Ruggedized design
- Large, electro-luminescent screen (important for outdoor testing)
- Convenient connector placement
- One-button user interface keys
- Pull-down menus
- Optional automation software
- User upgradeable firmware - PCMCIA to Flash PROM
- AM/FM signal generator
- AM/FM modulation analyzer
- Duplex offset generator
- RF power meter
- RF frequency counter/frequency error meter
- Audio frequency counter and power meter
- Spectrum analyzer with tracking generator (400 kHz-1GHz, 1.7-2 GHz)
- DC current meter
- GPIB/RS-232/parallel remote interfaces
- High-stability time base
- AC/DC voltmeter
- Digital oscilloscope
- Built-in I-BASIC controller
- Decoder for NAMPS

Rugged Design

The mechanical design of the HP 8935 Series addresses the physical requirements of today's base station which may be exposed to environmental elements. Ruggedized attributes include:
- Membrane keypad-resists moisture and dirt, easily cleaned, high reliability
- Gasketed display keeps moisture out
- Stand-up operation-needed for outdoor base stations with no place to set equipment
- Low center of gravity-to minimizes tip-overs when unit is standing
- Filtered air-flow-keeps dirt and dust out of instrument for improved reliability and safety

Portability

The newly enhanced mechanical design provides a "suitcase" form factor that is less bulky and more manageable. Total weight of the unit measures 49 lbs. No additional add-on boxes are required to implement receiver testing.

Key Literature

HP 8935 Series Brochure p/n 5966-4168E
HP 8935 CDMA Technical Specifications p/n 5968-3798E
HP 8935 TDMA Technical Specifications p/n 5966-3732E
HP 8935 Series Configuration Guide p/n 5968-3799E
HP 8935 CDMA Price List p/n 5968-3800EUS
HP 8935 TDMA Price List p/n 5967-3786EUS

E6380A CDMA Cellular/PCS Base Station Test Set

The E6380A is the CDMA member of the HP 8935 Series. This one-box solution characterizes Cellular (850MHz) AMPS/CDMA and PCS (1900 MHz) CDMA base stations. Specific CDMA oriented measurements made by the E6380A include:
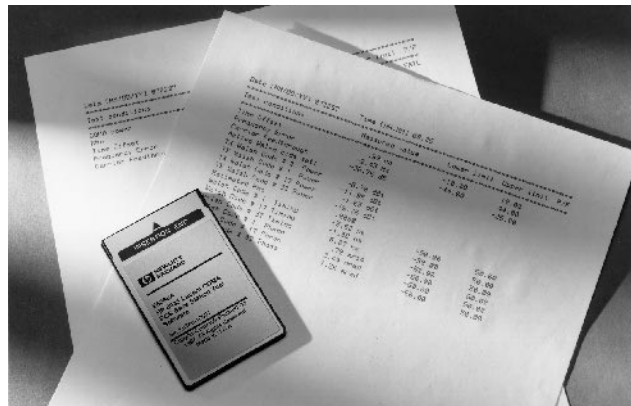- CDMA Signal quality measurements
    - Rho (ρ)
    - Non-intrusive Rho (ρ)
    - Time offset
    - Frequency error
    - Carrier feedthrough
- Code domain measurements
    - Code domain power (absolute & relative)
    - Code domain timing
    - Code domain phase
- Error vector magnitude, magnitude error, phase error
- PN offset search
- Reverse channel source with data buffer
- AWGN (built-in calibrated E_b/N_o levels)
- Support for CDMA reference clocks and triggers

E6381A TDMA Cellular/PCS Base Station Test Set

The E6381A is the TDMA member of the HP 8935 Series. This one-box solution characterizes Cellular (850 MHz) AMPS/TDMA and PCS (1900 MHz) TDMA base stations. The E6381A test set provides verification of base station performance using its built in TDMA analyzer. An optional rubidium oscillator is available which provides extremely accurate frequency error measurements. Specific TDMA measurements made by the E6381A include:

- Modulation quality
    Error Vector Magnitude EVM
    Phase Error
    Magnitude Error
    Carrier feedthrough
- Average power
- Frequency Error
- Channel power
- Adjacent channel power
- First and second alternate channel power

In addition, a pi/4 DQPSK TDMA signal generator is also included in the E6381A. This generator makes the E6381A receiver test capable.

HP 8935 Series Software for Automated Base Station Installation and Maintenance

Developed from manufacturer's recommended installation and maintenance procedures, the HP 8935 Series base station specific test software ensures complete base station testing. Software enhancements for vendor specific base station equipment provides structured, automated testing. A simple menu-driven user interface requires less technical expertise to retrieve consistent reported measurements. Less skilled technicians can make measurements with the same confidence as their highly skilled/experienced counterparts. The software is contained on a PCMCIA card.

HP 8935 Series Connection Kits

Order the HP 8935 Series base station connection kit to receive the necessary cables, connectors, and adapters to connect the HP 8935 Series to a specific type of base station. Connection kit hardware is housed in a foam filled case.

Total HP Support for Your Base Station Test Needs

HP offers a variety of options to support base station testing and to keep your solution up-to-date with the latest technology. HP also offers start-up assistance and formal training programs. Additional HP consulting/training is also available as needed.

Ordering Information

E6380A HP 8935 Series CDMA Cellular/PCS Base Station Test Set

   Opt 1D5 High Stability Frequency Reference
   Opt 0BK Paper and CD-ROM Manual
   Opt 0BC Manual on CD-ROM Only
   Opt W30 Two years additional warranty
   Opt K03 Two-piece fiberglass transit case
   Opt K04 Two-piece hinged fiberglass transit case
   Opt K05 Two-piece hinged lightweight fiberglass case
   Opt K06 Two-piece hinged lightweight fiberglass case with wheels and telescoping handle
   Opt UK6 Commercial calibration certificate with test data
   Opt W30 Two years additional warranty
   Opt W32 Three year return calibration service
   Opt W34 Three year return standards compliant calibration service
   Opt W50 Four years additional warranty
   Opt W52 Five year return calibration service
   Opt W54 Five year return standards compliant calibration service
   RT R58 Firmware upgrade kit

Software for the E6380A CDMA Base Station Test Set:
E6385A Lucent CDMA/AMPS Base Station Test Software
E6387A Nortel CDMA PCS Base Station Test Software
E6550A Samsung CDMA Base Station Test Solution
E6551A LGIC CDMA Base Station Test Solution
E8303A Motorola AMPS/NAMPS Base Station Test Software

Connection kits for the E6380A CDMA Base Station Test Set:
E6554A RF Tools Hardware Accessory Kit
E8300A Lucent base station connection kit
E8300A Option 001 Lucent RF tools hardware accessory kit
E8302A Nortel Base Station Connection Kit
E8302A Option 001 Nortel RF tools hardware accessory kit
E8202A Option 040 Motorola base station connection kit
E6550A Option 001 Samsung RF tools hardware accessory kit
E6551A Option 001 LGIC RF tools hardware accessory kit
E6381A HP 8935 Series TDMA Cellular/PCS Base Station Test Set

   Opt 003 CDPD Test Module
   Opt AY5 Rubidium Timebase
   Opt 0BK Paper
   Opt W30 Two Years Additional Warranty

Software for the E6381A TDMA Base Station Test Set:
E8304A Ericsson RBS 882 AMPS/TDMA Base Station Test Software
E6555A Ericsson RBS 884 AMPS/TDMA Base Station Test Software
E6559A Lucent Cellular AMPS/TDMA Base Station Test Software
E6557A Lucent TDMA PCS Base Station Test Software
E6389A Nortel TRU/P-Series AMPS/TDMA Base Station Test Software

Connection kits for the E6381A TDMA Base Station Test Set
E6556A Ericsson RBS 884 Base Station Connection Kit
E6558A Ericsson RBS 882 and 884 Base Station Connection Kit
E8300A Lucent Base Station Connection Kit
E8302A Nortel Base Station Connection Kit
E6554A RF Tools Hardware Accessory Kit

7