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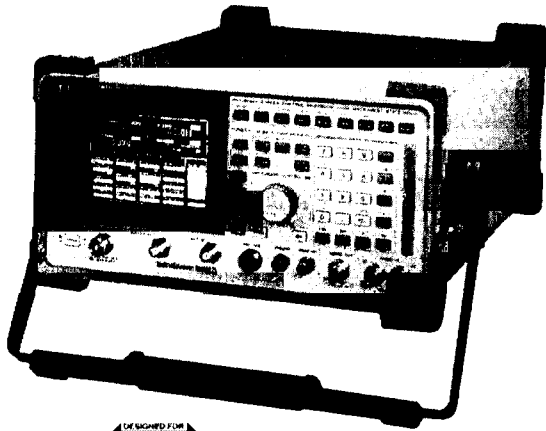
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HP 8921A



HP 8921A Cell Site Test Set

The HP 8921A cell site test set is a highly-portable, integrated solution for the installation and maintenance of AMPS and TACS cell sites. The HP 8921A incorporates more than twenty powerful instruments into a compact, 38-pound package. The integral IBASIC controller in the HP 8921A runs the HP 11807B cell site test software to fully automate base station test and adjustment procedures. Automation combined with accurate measurements increases technician efficiency to speed installation and maintenance procedures.

HP 8921A Features Summary

- 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
- AC/DC voltmeter
- SINAD/SNR/distortion meter
- Two variable frequency AF generators
- Digital oscilloscope
- Built-in IBASIC controller
- Spectrum analyzer with tracking generator
- Adjacent channel power meter
- Signaling encoder and decoder
- High-stability timebase
- DC current meter
- HP-IB/RS-232/parallel remote interfaces
- Upgradability to TDMA, CDMA, CDPD, or PCS test capability
- Optional cellular base station test software
- Optional cellular phone test software
- Optional radio interface card
- Optional Ericsson PCM reference

Upgrading for New Formats

Besides testing analog AMPS and TACS base stations, the HP 8921A is ready to grow with your measurement needs for digital cellular systems with upgrades available for:

- TDMA
- CDMA
- CDPD
- PCS

Portability

The small size combined with a total weight of 38 pounds results in less technician fatigue when servicing remote cell sites. For TDMA and CDMA base station test, the digital cellular adapters add only 14 pounds for a total weight of 52 pounds.

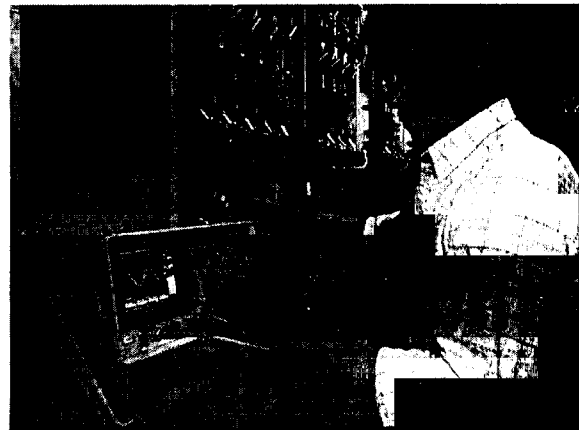
High-Performance Spectrum Analyzer

The spectrum analyzer of the HP 8921A has the wide dynamic range and synthesized frequency accuracy previously found only in expensive standalone spectrum analyzers. Wide dynamic range allows the HP 8921A to locate low level signals in the presence of high power transmitters. Synthesized frequency accuracy translates into high confidence that you've located the correct signals.

With frequency spans ranging from 1 GHz to as narrow as 5 kHz, the HP 8921A has the flexibility to look at the entire RF spectrum and then zoom in on the desired signals. The marker function displays the frequency and amplitude of any displayed signal. The marker-to-peak function displays the frequency and amplitude of the largest on-screen signal with a single keystroke.

Built-in Tracking Generator

The HP 8921A spectrum analyzer also includes a built-in tracking generator for tuning base station duplexers. With +13 dBm power output (over range), use the tracking generator as an input stimulus to the duplexer. The calibrated level of the spectrum analyzer ensures accurate adjustment of duplexers. Using the marker function of the spectrum analyzer, the rejection of the duplexer can be measured at any point of the filter response. Antenna return loss can be quickly and accurately measured onsite with the HP 8921A tracking generator. Using the tracking generator to drive the antenna through an external VSWR bridge, the reflected power can be measured on the HP 8921A spectrum analyzer. Other measurements performed with the tracking generator include insertion loss and frequency response of filters, cables, or attenuators. The tracking generator features calibrated output level from -137 to +7 dBm and variable frequency offset for IF to RF conversion measurements. Coupled with 1, 2, and 10 dB per division spectrum analyzer ranges, normalization, and marker capability, the tracking generator makes the HP 8921A ideal for all types of measurements and adjustments.



Automated Base Station Maintenance

For complex base station maintenance the HP 11807B cell site test software, running on the HP 8921A's internal controller, guides the user through each step of the procedure. Graphical displays show connection diagrams and highlight key adjustment points when required. Technicians spend less time learning and more time testing with the HP 8921A cell site test set.

Another software package, the HP 11807B Option 120, provides AMPS system information. The software uses the HP 8921A to scan for and decode local control channels, display system data, and measure key transmitter characteristics.

Key Literature

HP 8921A Brochure, p/n 5965-1579E

HP 8921A Technical Specifications, p/n 5965-1576E

HP 8921A Configuration Guide, p/n 5965-1577E

HP 8921A Price List, p/n 5965-1578E

Also available are videos showing automated testing of cell site equipment:

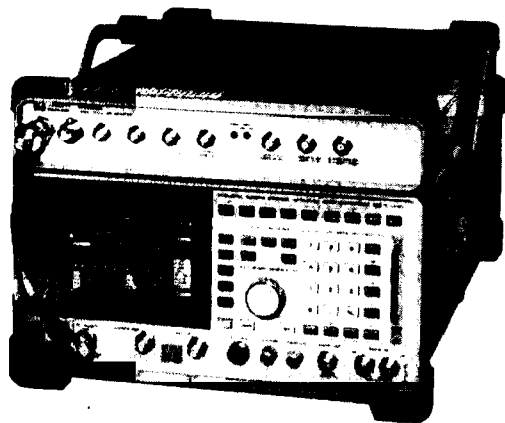
Optimize Motorola Cell Sites Fast	p/n 1000-1300
Install and Maintain Ericsson Cell Sites Fast	p/n 1000-1297
Install and Maintain AT&T Cell Sites Fast	p/n 1000-1304

To have a Hewlett-Packard representative help you place an order or to get more information call **1-800-452-4844**

MOBILE/CELLULAR RADIO TEST SETS

Cell Site Test Sets (cont'd)

HP 8921A, 83204A, 83205A



HP 8921A Option 600, 602, 603

HP 8921A Option 600, 602, 603 CDMA/CDPD Cell Site Test System

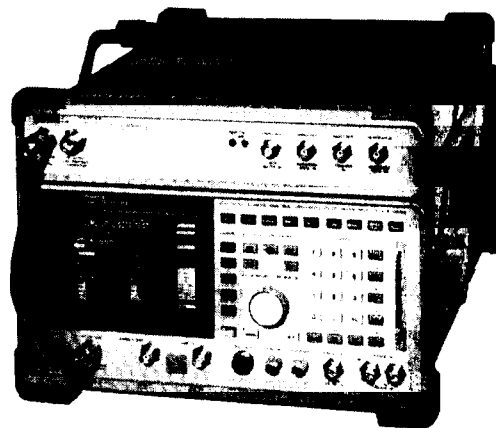
Option 600 for the HP 8921A adds the HP 83205A CDMA/CDPD cellular adapter to the cell site test set to provide testing of CDMA (IS-95A and IS-97) base station equipment. This system provides signal generation and analysis of QPSK/OQPSK signals. The system measures power in each Walsh-coded signal, code channel timing, and code channel phase relative to the pilot.

New HP 83205A CDPD test options quickly and accurately test key RF parameters on both the forward-channel transmitter and the reverse-channel receiver. CDPD software, included with all CDPD hardware, automates transmitter, receiver, and system tests—making it easy to standardize system maintenance with fast and accurate test procedures.

HP 8921A Option 600 Features Summary

All HP 8921A standard features, plus:

- Measurements of waveform quality ρ (rho), frequency error, time offset, and carrier feedthrough
- Code domain power, timing, and phase analysis
- Average power and CDMA channel power measurements
- CDMA QPSK/OQPSK RF source with data buffer and IS-95 reverse link coding
- Built-in AWGN (Added White Gaussian Noise) source for calibrated E_s/N_c settings
- Includes both 14.4 and 9.6 Kbps vocoder rate sets



HP 8921A Option 500, 502, 503

HP 8921A Option 500, 502, 503 TDMA/CDPD Cell Site Test System

The HP 8921A Option 500 adds the HP 83204A to the HP 8921A to provide testing of TDMA (IS-136) base station equipment. This unit adds $\pi/4$ DQPSK signal generation and analysis to the powerful analog features of the standard HP 8921A. A custom screen provides control of the TDMA source and provides selection of several measurement modes, making all test results visible in one place.

New HP 83204A CDPD test options quickly and accurately test key RF parameters on both the forward-channel transmitter and the reverse-channel receiver. CDPD software, included with all CDPD hardware, automates transmitter, receiver, and system tests—making it easy to standardize system maintenance with fast and accurate test procedures.

HP 8921A Option 500 Features Summary

All HP 8921A standard features, plus:

- Measurements of TDMA modulation accuracy, including phase error, magnitude error, and error vector magnitude (EVM)
- Measurements of I/Q origin offset and frequency error
- Measurements of adjacent and alternate channel power
- TDMA power measurement
- $\pi/4$ DQPSK signal generator
- $\pi/4$ DQPSK modulation analyzer
- Continuous/pulsed RF power meter
- Bit-error rate meter
- Baseband data source

HP 83204A TDMA/CDPD Cellular Adapter

For those who already own the HP 8921A cell site test set, the HP 83204A TDMA/CDPD cellular adapter can be added to upgrade the unit to provide TDMA (IS-136) and CDPD tests on cell site equipment. Once added, all TDMA test features described above are available for manual use as well as under HP 11807B software control.

HP 83202A Interface Kits

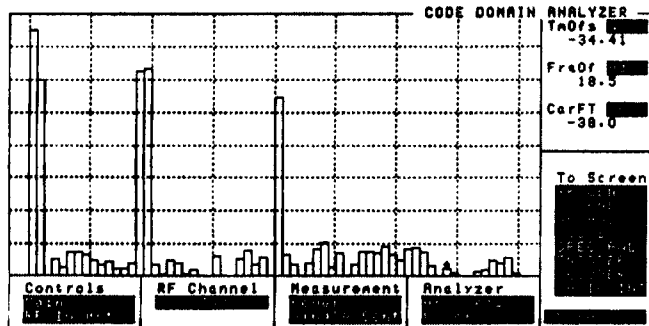
Order the HP 83202A base station connection kit to receive the necessary cables, connectors, and adapters to connect the HP 8921A to a specific type of base station. Available options include connection kits for Motorola, General Electric/Northern Telecom, Ericsson, and AT&T base stations. The 83202A provides everything needed to test base stations with the HP 8921A. Some connection kits also include an interface/switch box to more fully automate the testing process.

HP 83202A Base Station Connection Kits

- Option 040 Motorola Connection Kit
- Option 042 Ericsson Connection Kit
- Option 043 AT&T Connection Kit
- Option 044 GE and Northern Telecom Connection Kit
- Option 070 Motorola AMPS/NAMPS MicroC•I•T•E Connection Kit

Key Literature

HP 8921A Brochure, p/n 5965-1579E
 HP 8921A Technical Specifications, p/n 5965-1576E
 HP 8921A Configuration Guide, p/n 5965-1577E
 HP 8921A Price List, p/n 5965-1578E



HP 83205A CDMA/CDPD Cellular Adapter

For those who already own HP 8921As, the HP 83205A CDMA/CDPD cellular adapter can be added to upgrade the unit to perform the CDMA/CDPD tests described above for the HP 8921A Option 600. Note: Older HP 8921As may require an upgrade for complete CDMA capabilities.