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Agilent 8935
Base Station Test Set
Configuration Guide



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Agilent Technologies

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The 8935 Series Base Station Test Solution

Agilent Technologies provides customers with a complete solution for base station testing. This solution includes a test set for making measurements, a connection kit enabling the test set to be connected to a particular vendor's base station, and software for automating testing. In addition, hands-on training and other accessories are available.

The central component of the solution is a base station test set. Currently the 8935 series consists of two test sets, the E6380A for AMPS/CDMA testing, and the E6381A for AMPS/TDMA testing.

A base station test set provides a set of general capabilities. However, since many different vendors supply base stations, test methods will vary depending on the specific base station being tested. The 8935 series software and connection kits provide the necessary customization to turn a generic test set into a solution designed for testing base stations supplied by a particular network equipment manufacturer.

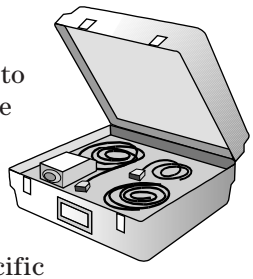
Software

Software for the 8935 series consists of a PCMCIA card that plugs into the front of the test set. Each software package is designed to test specific base stations manufactured by various vendors. The software allows the user to specify which tests are to be performed and what pass/fail limits should be used for each test.



On-screen connection diagrams guide the user through making the proper connections between the test set and the base station. Test results can be stored on a PCMCIA card, laptop, or printed out to a printer. Less user measurement experience is required when using software since the software determines the accuracy and consistency of the measurements. 8935 series software is most efficient when used in conjunction with a connection kit since all of the correct cables and connectors are readily available in the kit.

Connection Kits



Connection kits used with the 8935 series contain a set of hardware items that are used to connect the test set to the base station being tested. The connection kit includes the cables, connectors, adapters, and other hardware items necessary to connect to a specific vendor's base station. These items are housed in a protective plastic, foam-filled transit case. The kits are best used in conjunction with corresponding software. The software calls out items in the kit needed for particular measurements.

CDPD

The E6381A can be ordered with Option 003 in order to add CDPD MDBS capability. A hardware module is added inside the instrument, allowing it to make CDPD specific measurements. In addition, instrument software, which automates CDPD transmitter and receiver tests, and an MDBS connection kit are included with Option 003.

RF Tools Hardware Accessories (E6554A)

Built into the functionality of the 8935 series base station test sets is the capability to perform several general RF measurements.

These measurements include:

- swept gain
- swept insertion loss
- swept return loss
- distance to cable fault



The instrument guides the user through the process of making these measurements with step-by-step instructions and connection diagrams. In order to make the measurements, certain hardware elements are required. These elements include a VSWR bridge, resistive splitter, termination, short, cables, adapters, and attenuators. The RF Tools Hardware Accessories Kit (E6554A) consists of these hardware elements assembled in a foam-filled transit case. Alternatively, each base station connection kit can be ordered with Option 001. This option adds the RF accessories to the base station connection kit so that all cables, connectors, and accessories are located in one convenient transit case.

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Base Station Test Set Configurations

Hands-on Training
Hands-on base station testing provides wireless communications technicians with real-world experience in the testing of base stations. The student learns how to install and troubleshoot using the 8935 and software that is designed specifically for each manufacturer; Nortel, Lucent, and Ericsson. These two or three-day courses are delivered at the customer site and provide insight into measurement specifications and techniques for testing AMPS, TDMA, and CDMA technologies.

Ericsson (AMPS/TDMA)

Models Tested: *RBS 882 and RBS 884*

Base Station Test Software for the Agilent E6381A

E8304A Ericsson RBS 882 Base Station Test Software

Automated testing of RBS 882 radios in both AMPS and TDMA modes in the Cellular (850 MHz) frequency band. Performs both transmitter and receiver tests.

E6555A Ericsson RBS 884 Base Station Test Software

Automated testing of RBS 884 radios in both AMPS and TDMA modes and in both Cellular (850 MHz) and PCS (1900 MHz) frequency bands. Performs transmitter tests and an RSSI linearity receiver test.

Base Station Connection Kits for the E6381A

E6556A Ericsson RBS 884 Base Station Connection Kit

Includes cables and connectors used to connect the test set to an Ericsson 884 base station.

E6556A **Opt 001** RF Tools Hardware Accessories Kit

Adds RF tools hardware accessories into the same transit case as the E6556A.

E6558A Ericsson RBS 884 and 882 Base Station Connection Kit

Includes cables and connectors used to connect the test set to an Ericsson 884 or 882 base station.

E6558A **Opt 001** RF Tools Hardware Accessories Kit

Adds RF tools hardware accessories into the same transit case as the E6558A.

Hands-on Training for the E6381A

H7210 **Opt 240** TDMA PCS/Cellular Ericsson 884 Hands-on Base Station Training

2-day course at customer site for 6 students

H7210 **Opt 241** TDMA/AMPS Cellular Ericsson 882 Hands-on Base Station Training

3-day course at customer site for 6 students

Sample Order:
Ericsson RBS 884 PCS TDMA test including RF Tools hardware, a five-year repair contract, and hands-on training.

Hardware
E6381A 8935 Series AMPS/TDMA Base Station Test Set . . . . . .qty 1
Option W50 (return repair service) . . . . . .qty 1

Software
E6555A Ericsson RBS 884 Base Station Test Software . . . . . .qty 1

Connection Kit
E6556A Ericsson RBS 884 Base Station Connection Kit qty1
Option 001 (adds RF tools hardware to connection kit) qty1

Hands-on Training
H7210 **Opt 240** TDMA PCS/Cellular Ericsson 884 Hands-on Base Station Training . .qty 1

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Base Station Test Set Configurations

Sample Order:
LGIC PCS CDMA (1900 MHz) base station test including RF tools hardware and a three-year repair contract

Hardware
E6380A 8935 Series CDMA Base Station Test Set . . . . . .qty 1
Option W30 (return repair service) . . . .qty 1

Software & Connection Kit
E6551A LGIC PCS CDMA Base Station Test Solution . . . . . .qty 1

E6551A **Opt 001** 8935 RF Tools Hardware Accessory Kit . . . . . .qty 1

Lucent (AMPS/CDMA)

Models Tested: *Autoplex Series II, PCS Minicell*

Base Station Test Software for the Agilent E6380A

E6385A Lucent AMPS/CDMA Base Station Test Software

This software is designed specifically to automate testing for AMPS/CDMA PCS and cellular base stations that are manufactured by Lucent Technologies. E6385A automates base station test by controlling the base station through the ECP.

Base Station Connection Kits for the E6380A

E8300A Lucent Base Station Connection Kit

Includes cables and connectors used to connect the test set to Lucent series II cellular (850 MHz) or PCS (1900 MHz) base stations.

E8300A **Opt 001** RF Tools Hardware Accessories Kit

Adds RF tools hardware accessories into the same transit case as the E8300A.

Hands-on Training for the E6380A

H7210 **Opt 210** CDMA PCS Lucent Hands-on Base Station Training

2-day course at customer site for 6 students

H7210 **Opt 211** CDMA/AMPS Cellular Lucent Hands-on Base Station Training

3-day course at customer site for 6 students

Sample Order:
Lucent Cellular CDMA (850 MHz) base station test including RF tools hardware, high-stability frequency reference, a three-year repair contract, and hands-on training.

Hardware
E6380A 8935 Series CDMA Base Station Test Set . . . . . .qty 1
Option W30 (return repair service) . . . . . .qty 1
Option 1D5 (high stability frequency reference) . . . . . .qty 1

Software
E6385A Lucent AMPS/CDMA Base Station Test Software . . . . . .qty 1

Connection Kit
E8300A Base Station Connection Kit . . . . . .qty 1
Option 001 (adds RF tools hardware to connection kit) . . . . . .qty 1

Hands-on Training
H7210 **Opt 211** CDMA/AMPS Cellular Lucent Hands-on Base Station Training . . .qty 1

Lucent AMPS/TDMA

Models Tested: *Autoplex Series II, PCS Minicell*

Base Station Test Software for the E6381A

E6559A Lucent Cellular Base Station Test Software

Automated testing of series II base stations in both AMPS and TDMA modes in the cellular (850 MHz) frequency band. Uses a laptop to communicate with the system's ECP. Provides full base station control.

E6557A Lucent TDMA PCS Minicell Base Station Test Software

Automated testing of TDMA PCS Minicell base stations in the PCS (1900 MHz) band. Uses a laptop to communicate with the system's ECP. Provides full base station control.

Base Station Connection Kits for the E6381A

E8300A Lucent Base Station Connection Kit

Includes cables and connectors used to connect the test set to Lucent Series II Cellular (850 MHz) or PCS (1900 MHz) base stations.

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Base Station Test Set Configurations

E8300A **Opt 001** RF Tools Hardware Accessories Kit
Adds RF tools hardware accessories into the same transit case as the E8300A.

Hands-on Training for the E6381A

H7210 **Opt 242** TDMA PCS Lucent Hands-on Base Station Training
2-day course at customer site for 6 students

H7210 **Opt 243** TDMA/AMPS Lucent Cellular Hands-on Base Station Training
3-day course at customer site for 6 students

Sample Order:
Lucent PCS TDMA (1900 MHz) base station test including rubidium timebase option, three-year calibration service, and hands-on training.

Hardware
E6381A 8935 Series TDMA Base Station Test Set . . . . . .qty 1
Option AY5 (rubidium timebase) . . . .qty 1
Option W32 (three-year return calibration service) . . . . . .qty 1

Software
E6557A Lucent TDMA PCS Minicell Base Station Test Software . . . . . .qty 1

Connection Kit
E8300A Base Station Connection Kit qty1

Hands-on Training
H7210 **Opt 242** TDMA PCS Lucent Hands-on Base Station Training . . . . . .qty 1

Nortel (CDMA)

Models Tested: *Outdoor 1900 MHz PCS, FCP800, Macro, Indoor/Outdoor Metrocell and C800.*

Base Station Test Software for the Agilent E6380A

E6387A Nortel Cellular/PCS CDMA Base Station Test Software

Base Station Connection Kits for the E6380A

E8302A Nortel Base Station Connection Kit
Provides cables and connectors necessary to perform automated testing of Nortel CDMA PCS and cellular band base stations.

E8302A **Opt 001** RF Tools Hardware Accessories Kit
Adds RF tools hardware accessories into the same transit case as the E8302A.

Hands-on Training for the E6380A

H7210 **Opt 212** CDMA PCS Nortel Hands-on Base Station Training
2-day course at customer site for 6 students

H7210 **Opt 213** CDMA/AMPS Cellular Nortel Hands-on Base Station Training
3-day course at customer site for 6 students

Sample Order:
Nortel PCS CDMA (1900 MHz) base station test including RF tools hardware, a five-year repair contract and hands-on training.

Hardware
E6380A 8935 Series CDMA Base Station Test Set . . . . . .qty 1
Option W50
(return repair service) . . . . . .qty 1

Software
E6387A Nortel PCS CDMA Base Station Test Software . . . . . .qty 1

Connection Kit
E8302A Nortel Base Station Connection Kit . . . . . .qty 1
Option 001 (adds RF tools hardware to connection kit) . . . . . .qty 1

Hands-on Training
H7210 **Opt 212** CDMA PCS Nortel Hands-on Base Station Training . . .qty 1

Nortel AMPS/TDMA

Models Tested: *TRU and P-Series*

Base Station Test Software for the E6381A

E6389A Nortel TRU and P-Series Base Station Test Software
Automated testing of TRU radios in the AMPS and TDMA modes. Automated testing of P-Series AMPS radios.

Base Station Connection Kits for the E6381A

E8302A Nortel Base Station Connection Kit
Provides cables and connectors necessary to perform automated testing of TRU and P-Series radios using the E6389A software package.

E8302A **Opt 001** RF Tools Hardware Accessories Kit
Adds RF tools hardware accessories into the same transit case as the E8302A.

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Base Station Test Set Configurations

Hands-on Training for the E6381A

H7210 **Opt 245** TDMA/AMPS Cellular Nortel Hands-on Base Station Training
3-day course at customer site for 6 students

Sample Order:
Nortel Cellular TDMA (850 MHz) base station test including RF tools hardware, three-year calibration service, three-year return repair service, and hands-on training.

Hardware

E6381A 8935 Series TDMA Base Station Test Set . . . . . .qty 1
Option W30 (three-year return repair service) . . . . . .qty 1
Option W32 (three-year return calibration service) . . . . . .qty 1

Software

E6389A Nortel TRU and P-Series Base Station Test Software . . . . . .qty 1

Connection Kit

E8302A Nortel Base Station Connection Kit . . . . . .qty 1
Option 001 (adds RF Tools hardware to connection kit) . . . . . .qty 1

Hands-on Training

H7210 **Opt 245** TDMA/AMPS PCS Hands-on Base Station Training . . .qty 1

Motorola (AMPS)

Models Tested: *LD and HD-II equipment with TTMPY serial control port*

Base Station Test Software for the Agilent E6380A

E8303A Motorola AMPS/NAMPS Base Station Test Software

Base Station Connection Kit for the E6380A

83202A **Opt 040** Motorola Base Station Connection Kit
Contains cables, connectors and couplers necessary for connecting E6380A to Motorola LD and HD-II equipment.

E6554A RF Tools Hardware Accessory Kit (non-vendor specific)
This RF Tools hardware accessories kit (E6554A) consists of non-vendor specific hardware elements assembled in a foam-filled transit case. These elements include a VSWR bridge, resistive splitter, termination, open, cables, adapters and attenuators.

Sample Order:
Motorola AMPS/NAMPS base station test software including RF Tools hardware and a five-year repair contract.

Hardware

E6380A 8935 Series CDMA Base Station Test Set . . . . . .qty 1
Option W50 (return repair service) . . . . . .qty 1

Software

E8303A Motorola AMPS/NAMPS base station test software . . . . . .qty 1

Connection Kit

83202A **Opt 040** Motorola Connection Kit . . .qty 1
83202A **Opt K12** HP Switch Matrix Adapter . . . . . .qty 1
E6554A 8935 RF Tools Hardware Accessory Kit . . . . . .qty 1

Samsung (CDMA)

Models Tested: *CDMA Cellular Micro Indoor, CDMA Cellular Mini Indoor/Outdoor and CDMA PCS Mini Indoor/Outdoor*

Base Station Test Software for the E6380A
Base Station Connection Kits for the E6380A

E6550A Samsung Cellular and PCS CDMA Base Station Test software and connection kit
This software combined with an E6380A CDMA test set, cables, and Samsung BTS control adapter are specifically designed to automate testing for cellular and PCS CDMA base transceiver stations (BTS) manufactured by Samsung.

E6550A **Opt 001** RF Tools Hardware Accessories Kit
Adds RF tools hardware accessories into the same transit case as the E6550A.

Sample Order:
Samsung PCS CDMA (1900 MHz) base station test including RF Tools hardware and a five-year repair contract.

Hardware

E6380A 8935 Series CDMA Base Station Test Set . . . . . .qty 1
Option W50 (return repair service) . .qty 1

Software & Connection Kit

E6550A Samsung PCS CDMA Base Station Test Software and Connection Kit . .qty 1

E6550A **Opt 001** 8935 RF Tools Hardware Accessory Kit qty1

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Instruments

AMPS/CDMA Cellular/PCS Base Station Test Set E6380A

AMPS/TDMA Cellular/PCS Base Station Test Set E6381A

Instrument Options — E638XA Options

High Stability Frequency Reference (E6380A only)[1] . . . . . .Option 1D5

Rubidium Timebase (E6381A only)[2] . . .Option AY5

CDPD MDBS Test Capability (E6381A only) . . . . . .Option 003

cdma2000 1x RTT (E6380A only) . . . . .Option 200

Enhanced Time Offset Precision Calibration

E6459A - Enhanced Time Offset Measurement kit. Measurement kit / application software for precision enhanced time offset measurements on E6380A test set to provide calibration numbers for Qualcomm SnapTrack (or similar) position location system.

Hardware Support — E638XA Options

Three-Year Return Repair Service[3] . . . .Option W30

Five-Year Return Repair Service[4] . . . . .Option W50

Three-Year Return Calibration Service . .Option W32

Five-Year Return Calibration Service . .Option W52

Three-Year Return Standards Compliant Calibration Service . . . . . .Option W34

Five-Year Return Standards Compliant Calibration Service . . . . . .Option W54

Commercial Calibration Certificate with Test Data . . . . . .Option UK6

Printers

Printer required for screen and test printouts. Supported printers include those printers that emulate the Epson FX80 and LQ 850, as well as the HP DeskJet, LaserJet, ThinkJet, and QuietJet models.

1 Provides increased accuracy when the RF analyzer is used to make frequency accuracy measurements.
2 Provides increased accuracy when the RF analyzer or TDMA analyzer is used to make frequency accuracy measurements.
3 Adds two years of return repair service to the 8935 Series Test Set. One year of return repair service is standard. Ordering this option provides a total of three years of return repair service.
4 Adds four years of return repair service to the E638X. One year of return repair service is standard. Ordering this option provides a total of five years of return repair service.
5 Windows is a registered U.S. trademark of Microsoft Corp.

PCMCIA Memory Cards (for data storage)

64 KB SRAM card with battery 83230A

1 MB SRAM card with battery 83231A

Rack Mount

19” Plain Shelf for 8935 Series Test Sets . . .J1520A

Accessories

RF Tools Hardware Accessories Kit E6554A

Antenna 08920-61060

Instrument Side Impact Cover E6380-61823

Manuals — E638XA Options

Manuals on CD ROM only (E6380A instrument only) . . . . . .Option OBC

Manuals on paper and CD ROM (instrument only) . . . . . .Option OBK

Upgrades & Retrofits — E638XART Options

High Stability Frequency Reference (E6380A only) . . . . . .#RD5

Instrument Side Impact Cover . . . . . .#R23

cdma2000 1x RTT (E6380A only, see order instructions) . . .#R2A,B,C

Precision Time Offset Calibration (see order instructions) . . . . . .#12A, B, C

Software Support & Accessories

IBASIC Development Tools 83224A

IBASIC Tool kit (includes development software, HP BASIC for Windows, GPIB interface card, GPIB cable, and programmer’s guide) 83224A . . . .Opt 001

IBASIC Tool kit (development software only) 83224A . . . . . .Opt 002

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Agilent Technologies aims to maximize the value you receive, while minimizing your risk and problems. We strive to ensure that you get the test and measurement capabilities you paid for and obtain the support you need. Our extensive support resources and services can help you choose the right Agilent products for your applications and apply them successfully. Every instrument and system we sell has a global warranty. Support is available for at least five years beyond the production life of the product. Two concepts underlie Agilent's overall support policy: "Our Promise" and "Your Advantage."

Our Promise
Our Promise means your Agilent test and measurement equipment will meet its advertised performance and functionality. When you are choosing new equipment, we will help you with product information, including realistic performance specifications and practical recommendations from experienced test engineers. When you use Agilent equipment, we can verify that it works properly, help with product operation, and provide basic measurement assistance for the use of specified capabilities, at no extra cost upon request. Many self-help tools are available.

Your Advantage
Your Advantage means that Agilent offers a wide range of additional expert test and measurement services, which you can purchase according to your unique technical and business needs. Solve problems efficiently and gain a competitive edge by contracting with us for calibration, extra-cost upgrades, out-of-warranty repairs, and on-site education and training, as well as design, system integration, project management, and other professional engineering services. Experienced Agilent engineers and technicians worldwide can help you maximize your productivity, optimize the return on investment of your Agilent instruments and systems, and obtain dependable measurement accuracy for the life of those products.

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