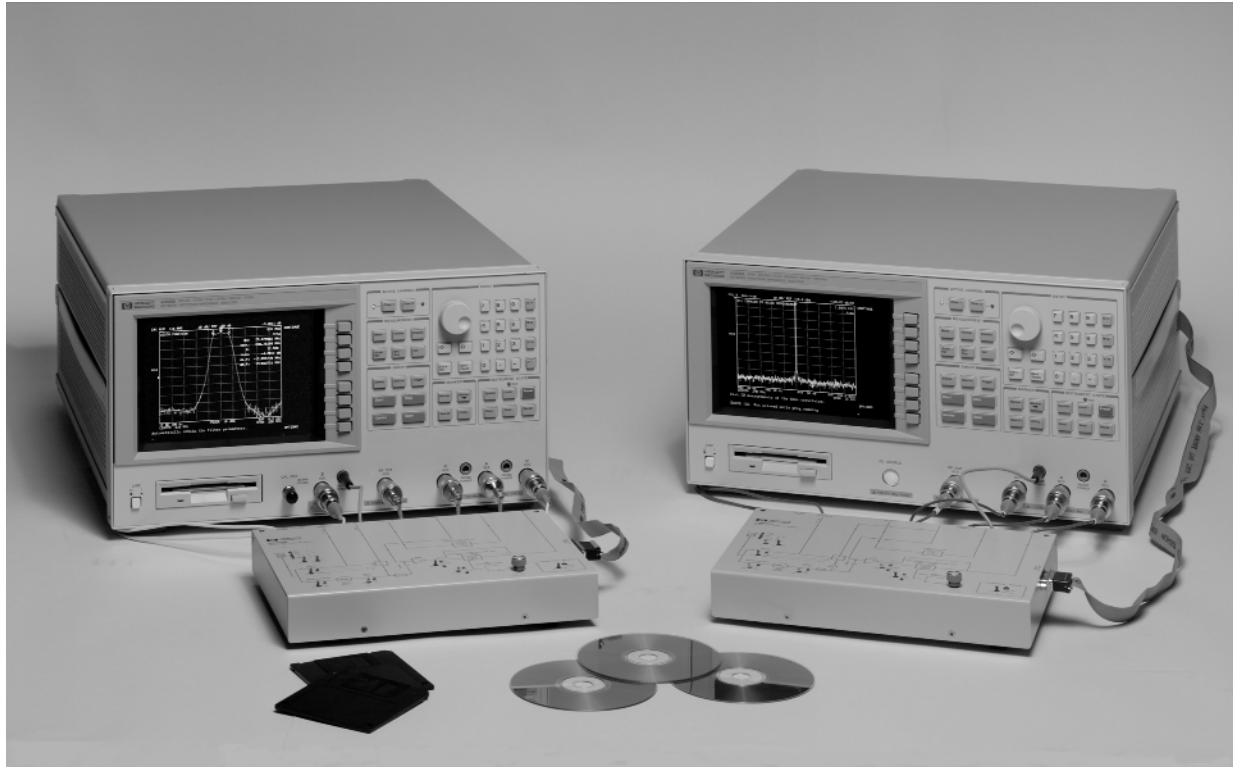

HP 4395A/HP 4396B Special Option U01

Product Overview

**HP 4395A/HP 4396B
Network/Spectrum/
Impedance Analyzer**

*Teach Your Students RF Circuit Theory and
Practices Using Hewlett-Packard's New Swept
Measurements Educator's Package*



Teach Your Students RF Circuit Theory and Practices Using Hewlett-Packard's New Swept Measurements Educator's Package

Hewlett-Packard, a world leader in RF circuit development and evaluation, has developed a package to increase your efficiency and effectiveness in the classroom. This package contains tools to help you instruct your students on RF/LF circuits and systems and typical measurements that need to be made on systems and components. Lecture material and automated demos of the concepts are at the heart of this tool set.

The Presentation/Lecture material has a review of what Spectrum (frequency domain), Network (e.g. gain-phase), and Impedance measurements are and then discusses numerous applications for the systems and components that are usually evaluated with these measurement techniques. Basic concepts like transmission and reflection are also covered.

The package is based on the leading Combination Analyzers in the marketplace: the HP 4395A or HP 4396B. These Combination Analyzers perform Spectrum signal measurement and analysis, swept Network measurements and, optionally, swept Impedance measurement and analysis. An automated demonstration kit, which contains typical devices like amplifiers, oscillators, filters, etc., is also a key part of the package.

How to use the Package?

The package is very versatile and can be used in many ways. Typically, you may choose all or some of the lecture slides to discuss the basic topic of interest and the measurements and analysis that are associated with that application. Present these slides (with or without other existing material) stopping occasionally to demonstrate actual measurements being made on a real signal or device under test. The demonstrations can be made automatically by choosing from menu choices on the analyzer. The analyzer has a VGA output so if you have a projection system, these demonstrations can easily be made in the middle of your presentation increasing its effectiveness. If a projector is not available, measurements can be made as lab station exercises.

Which Curriculums are a good fit?

Virtually all communications curriculums and many others will benefit from this package. These concepts and measurements are related to the following topics:

- Wireless Communications
- Control Systems
- Filters
- Audio/Acoustics
- Circuits
- Power Supplies
- Analog Active Circuits
- Digital Communications
- Linear Networks

How else can I use this package?

As mentioned previously, the package is based on high performance combination analyzers. These analyzers fit numerous applications for research, lab stations, and other courses.

Here is what you get:

- Combination Analyzer (HP Model 4395A or HP Model 4396B)
- Lecture Package of over 100 slides
- Demonstration Kit
- Automation Program for analyzer and demo kit

Here are some more details on the pieces:

The lecture material contains over 100 "slides" (single page images). These slides are provided to you as both Microsoft PowerPoint® files and Lotus Freelance® files on CD-ROM. The slides can be very easily modified allowing you to customize the material for your needs. Those customizations may take the form of just deleting non-applicable slides for your specific topic, re-arranging the slide order, or actually editing the individual slide content. For example, if you were integrating this package into a Filters course, you would normally eliminate some slides that are simply not applicable to that topic. You may also want to add or modify some slides to achieve better linkage with your overall course material, textbook, or labs.

You will need to have either Microsoft PowerPoint® or Lotus Freelance® on your computer to use the material. The material can either be printed onto transparencies (in color or black and white) or projected using a VGA (LCD) projector. If you use a

VGA projector, you have the added benefit of being able to easily and rapidly show measurement demonstrations (the Combination Analyzers have VGA outputs).

Fully describing the Combination Analyzers is outside the scope of this document. Below is a brief summary but we refer you to the following HP literature to receive a thorough understanding of the products and capabilities:

- HP 4395A / HP 4396B Product Overview (HP P/N 5965-9347E)
- HP 4395A Technical Data Sheet (HP P/N 5965-9340E)
- HP 4396B Technical Data Sheet (HP P/N 5965-6311E)

The HP 4395A and HP 4396B products are very similar in their functions, operation, and measurement capabilities. The main difference between the 2 is frequency coverage; the 4395A is basically a lower frequency version of the 4396B.

| | HP 4395A | HP 4396B |
|---------------------------|--|---|
| Spectrum Analysis | 10 Hz to 500 MHz <-104 dBc/Hz Phase Noise | 2 Hz to 1.8 GHz <-113 dBc/Hz Phase Noise |
| Network Analysis | 10 Hz to 500 MHz >115 dB Dynamic Range | 100 kHz to 1.8GHz >120dB Dynamic Range |
| Impedance Analysis | 100 kHz to 500 MHz ±3% Basic Accuracy | 100 kHz to 1.8GHz ±3% Basic Accuracy |

The measurement demonstration kit contains the following functional blocks and devices, which can be measured by the combination analyzer: Amplifier, Filter, Pulse-Modulated Oscillator and variable Bandwidth Filter. Active circuits and components in the kit are housed in a steel box that normally sits in front of the analyzer. This box has connections to be made to the analyzer ports and also gets its power supply from the analyzer. All cables and adapters are included. The demonstration kit comes in a custom carrying case to avoid pieces from getting lost.

The demonstration kit can be used manually or with an automation program provided. The automation program (provided) comes on a floppy disc that you insert into the analyzer's floppy drive. If you insert the disc prior to powering up the analyzer, it will automatically load and run the demonstration kit program. At that point a menu is provided giving you more than 10 choices of measurements to be made using the demonstration kit. A digital control cable allows the analyzer to drive the demonstration box to ensure error-free results.

Ordering information

10 Hz to 500 MHz version:

4395A Network/Spectrum/Impedance Analyzer

Options

U01 Education Package

001 Add DC Source

010 Add Impedance Measurement Function

1A2 Delete Keyboard

1D5 Add High Stability Frequency Reference

1D6 Add Time-Gated Spectrum Analysis

1D7 50Ω to 75Ω Minimum Loss Pad

ABA English Localization

UK6 Commercial Cal. Certificate with Test Data

100 kHz to 1.8 GHz version:

4396B Network/Spectrum/Impedance Analyzer

Options

U01 Education Package

010 Add Impedance Measurement Function

1A2 Delete Keyboard

1D5 Add High Stability Frequency Reference

1D6 Add Time-Gated Spectrum Analysis

1D7 50Ω to 75Ω Minimum Loss Pad

ABA English Localization

UK6 Commercial Cal. Certificate with Test Data

For more information about Hewlett-Packard Test and Measurement products, applications, services, and for a current sales office listing, visit our web site, <http://www.hp.com/go/tmdir>. You can also contact one of the following centers and ask for a test and measurement sales representative.

United States:

Hewlett-Packard Company
Test and Measurement Call Center
P.O. Box 4026
Englewood, CO 80155-4026
1 800 452 4844

Canada:

Hewlett-Packard Canada Ltd.
5150 Spectrum Way
Mississauga, Ontario
L4W 5G1
(905) 206 4725

Europe:

Hewlett-Packard
European Marketing Centre
P.O. Box 999
1180 AZ Amstelveen
The Netherlands
(31 20) 547 9900

Japan:

Hewlett-Packard Japan Ltd.
Measurement Assistance Center
9-1, Takakura-Cho, Hachioji-Shi,
Tokyo 192, Japan
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Fax: (81) 426 56 7840

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Hewlett-Packard Australia Ltd.
31-41 Joseph Street
Blackburn, Victoria 3130, Australia
1 800 629 485

Asia Pacific:

Hewlett-Packard Asia Pacific Ltd.
17-21/F Shell Tower, Times Square,
1 Matheson Street, Causeway Bay,
Hong Kong
Tel: (852) 2599 7777
Fax: (852) 2506 9285

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