New Approach to Electronic Component and Circuit Evaluation

A new concept in testing that combines the power of a vector network analyzer, a spectrum analyzer, and an optional impedance analyzer.

Take an innovative approach to evaluating electronic components and circuits. The Agilent Technologies combination analyzers family combines three analyzer functions in one powerful instrument: a vector network analyzer, a spectrum analyzer, and an optional impedance analyzer. Now you can use one analyzer for multiple testing needs.

Because many electronic components such as amplifiers require both vector network and spectrum parameters, you need a combination analyzer to meet new testing requirements such as:

- Measuring intermodulation distortion and phase performance of components used in digital communication systems.
- Characterizing monolithic IC’s or circuit blocks.

Compared with using separate analyzers, you save equipment cost and bench space with the Agilent 4395A/96B, and avoid time-consuming and messy signal cabling to multiple instruments.
Introducing the Agilent 4395A

An integrated solution delivering exceptional performance and high value to 500 MHz

Color TFT (thin film transistor) LCD with dual display
- Split-screen viewing for two independent channels
- VGA output for external monitor

Three analyzer functions give you maximum flexibility. Jump from one type of measurement to another with the push of a button.

Two independent channels provide flexibility
- Test both parameters in your selected analyzer mode (vector network, spectrum, or optional impedance)
- Get real-time data through fast alternate sweeps

Markers highlight key data points quickly:
- Up to eight markers per channel
- Delta marker
- Marker zoom
- Peak search, peak all, marker analysis functions and more

Powerful calibration/compensation

Synthesized source for network/impedance analysis provides:
- 1 MHz and 0.1 dB resolution
- 2- to 801-point sweep
- High-stability frequency reference (Option 4395A-1D5)

Optional impedance analysis:
- Option 4395A-010 adds impedance measurement function
- Agilent 43961A RF impedance test kit

Agilent IBASIC adds these capabilities:
- Test automation
- External instrument control through GPIB or digital I/O port
- Programming from an external keyboard
- Keystroke recording
- Customizing test setups for adjacent channel power and occupied bandwidth measurements
- Data analysis
- IBASIC program one key execution function

Test sets and accessories give you measurement options in 50 Ω or 75 Ω
- Agilent 87511A/B S parameter test set

1.44 MB floppy disk drive lets you save and recall in either LIF or MS-DOS® format:
- Test setups
- Calibration data
- Measurement data
- IBASIC programs
- Graphic (TIFF) files

Fast sweep improvements throughout

DC source (Option 4395A-001)

Vector network and high sensitive spectrum input ports offer:
- R, A, B ports for transmission and reflection measurements
- R, A, B ports for high sensitivity spectrum measurements
- 75 Ω impedance conversion (Option 4395A-1D7)

Test sets and accessories give you measurement options in 50 Ω or 75 Ω
- Agilent 87511A/B S parameter test set
Introducing the Agilent 4396B

An integrated solution delivering exceptional performance and high value to 1.8 GHz

Color TFT (thin film transistor) LCD with dual display
• Split-screen viewing for two independent channels
• VGA output for external monitor

Three analyzer functions give you maximum flexibility. Select the type of measurement with the push of a button.

Two independent channels provide flexibility
• Test parameters in either vector network, spectrum, or optional impedance
• Get real-time data through fast alternate sweeps

Markers highlight key data points quickly:
• Up to eight markers per channel
• Delta marker
• Marker zoom
• Peak search, peak all, and more

Powerful calibration/compensation

Fast sweep increases throughput

Vector network and high sensitive spectrum input ports offer:
• R, A, B ports for transmission and reflection measurements
• Spectrum monitoring on any network port

Spectrum analysis input port
• High Sensitivity
• 75 Ω impedance conversion (Option 4396B-1D7)

Synthesized source for network/impedance analysis provides:
• 1 mHz and 0.1 dB resolution
• 2- to 801-point sweep
• High-stability frequency reference (Option 4396B-1D5)

Optional impedance analysis:
• Option 4396B-010 adds impedance measurement function
• Agilent 43961A RF impedance test kit

IBASIC adds these capabilities:
• Test automation
• External instrument control through GPIB or digital I/O port
• Programming from an external keyboard
• Keystroke recording
• Customizing test setups for adjacent channel power and occupied bandwidth measurements
• Data analysis

1.44 MB floppy disk drive lets you save and recall in either LIF or MS-DOS® format:
• Test setups
• Calibration data
• Measurement data
• IBASIC programs
• Graphic (TIFF) files

Test sets and accessories give you measurement options in 50 Ω or 75 Ω:
• Agilent 85046A/B S parameter test set

Markers highlight key data points quickly:
• Up to eight markers per channel
• Delta marker
• Marker zoom
• Peak search, peak all, and more

1.44 MB floppy disk drive lets you save and recall in either LIF or MS-DOS® format:
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• Graphic (TIFF) files

Test sets and accessories give you measurement options in 50 Ω or 75 Ω:
• Agilent 85046A/B S parameter test set
In the lab, evaluate your designs completely and accurately with one instrument. The Agilent 4395A and the Agilent 4396B reduce learning and testing time so you get precision measurements with improved efficiency.

On the production line, increase your throughput with the combination analyzer. A combination analyzer makes it faster and easier to switch between different types of tests. You can optimize production testing with these capabilities:

- High test speed for vector network analysis
- Fast narrow-band spectrum analysis with stepped FFT
- List sweep
- Limit lines
- Test automation with built-in IBASIC

The analyzer's small footprint saves valuable bench space in any environment.

The Agilent combination analyzers family, a full-capability combination analyzer, makes no trade-offs among vector network, spectrum, and impedance performance. The spectrum analyzer function is based on digital signal processing (DSP) technology to speed measurement computation. It is a breakthrough in test instruments, giving you outstanding performance at an attractive price.

### Exceptional Performance for Design and Manufacturing

Make all of the following measurements with the Agilent 4395A/96B:

<table>
<thead>
<tr>
<th>Vector network analysis</th>
<th>Spectrum analysis</th>
<th>Impedance analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attenuation</td>
<td>Adjacent channel power(^1)</td>
<td>Impedance (</td>
</tr>
<tr>
<td>Bandwidth</td>
<td>Carrier-to-noise</td>
<td>Admittance (</td>
</tr>
<tr>
<td>Center frequency</td>
<td>Flatness</td>
<td>Phase ((\theta))</td>
</tr>
<tr>
<td>Complex impedance</td>
<td>Frequency</td>
<td>Resistance (R)</td>
</tr>
<tr>
<td>Cross talk/isolation</td>
<td>Harmonic distortion</td>
<td>Reactance (X)</td>
</tr>
<tr>
<td>Directivity</td>
<td>Intermodulation distortion</td>
<td>Conductance ((\Gamma))</td>
</tr>
<tr>
<td>Flatness</td>
<td>Linearity</td>
<td>Susceptance (B)</td>
</tr>
<tr>
<td>Frequency response</td>
<td>Noise</td>
<td>Capacitance (C)</td>
</tr>
<tr>
<td>Gain/loss</td>
<td>Occupied bandwidth(^1)</td>
<td>Inductance (L)</td>
</tr>
<tr>
<td>Gain compression</td>
<td>On/off ratio</td>
<td>Dissipation factor (D)</td>
</tr>
<tr>
<td>Group delay</td>
<td>Phase noise</td>
<td>Quality factor (Q)</td>
</tr>
<tr>
<td>Insertion loss</td>
<td>Power</td>
<td>Reflection coefficient ((\Gamma))</td>
</tr>
<tr>
<td>Linearity</td>
<td>Sensitivity</td>
<td></td>
</tr>
<tr>
<td>Phase</td>
<td>Spurious</td>
<td></td>
</tr>
<tr>
<td>Reflection coefficient</td>
<td>Sidebands</td>
<td></td>
</tr>
<tr>
<td>Return loss</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ripple</td>
<td></td>
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</tr>
<tr>
<td>Rolloff</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VSWR</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Optional: Burst-signal analysis (Option 439xx-1D6)

---

1. With IBASIC
2. With Option 439xx-010 and Agilent 43961A
## Major Specifications

**Agilent 4395A**

<table>
<thead>
<tr>
<th>Network analyzer specification</th>
<th>Spectrum analyzer specification</th>
<th>Impedance analyzer specification¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency range</td>
<td>Frequency range</td>
<td>Frequency range</td>
</tr>
<tr>
<td>10 Hz to 500 MHz</td>
<td>10 Hz to 500 MHz</td>
<td>100 kHz to 500 MHz</td>
</tr>
<tr>
<td>Frequency resolution</td>
<td>Noise sidebands</td>
<td>Meas. parameter</td>
</tr>
</tbody>
</table>
| 1 mHz                         | < –104 dBc/Hz typical at 10 kHz offset | [ Z ], [ θ ], R, X, | Y |,
|                               |                               | θ y, G, B, Cs, Cp, Ls, Lp, Rp, Rs, X, D, Q, |
|                               |                               | II, Γ, Γ x, Γ y                |
| Output power range            | Resolution bandwidth         | Z accuracy                       |
| –50 to 15 dBm                 | 1 Hz to 1 MHz in 1-3-10 steps | ±3% (typical, basic accuracy)    |
| Dynamic range                 | Dynamic range                 | Source level                     |
| 115 dB @ 10 Hz IFBW          | > 100 dB third-order free dynamic range | –56 dBm to +9 dBm (at DUT)    |
| Dynamic accuracy              | Level accuracy                | DC bias                          |
| ±0.05 dB/0.3 deg.            | Sensitivity                   | ±40 V (20 mA (max)) (Option 4395A-001) |
| Calibration                   |                               | DC source or external DC source is required. |
| Full two-port                 |                               | Compensation                     |
|                               |                               | OPEN/SHORT/LOAD port extension |

Standard features: Instrument BASIC, GPIB port, 3.5” floppy disk drive, direct print, RAM disk, VGA monitor output.

Optional features: Impedance measurement (Option 4395A-010), time-gated spectrum analysis (Option 4395A-1D6), high-stability frequency reference (Option 4395A-1D5), 50 Ω to 75 Ω spectrum input impedance conversion (Option 4395A-1D7), DC source (±40 V, 100 mA (ALC)) (Option 4395A-001).

1. 100 kHz to 500 MHz if using the Agilent 87511A/B S-parameter test set.
2. With Option 4395A-010 and the Agilent 43961A RF impedance test kit.

**Agilent 4396B**

<table>
<thead>
<tr>
<th>Network analyzer specification</th>
<th>Spectrum analyzer specification</th>
<th>Impedance analyzer specification¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency range</td>
<td>Frequency range</td>
<td>Frequency range</td>
</tr>
<tr>
<td>100 kHz to 1.8 GHz*</td>
<td>2 Hz to 1.8 GHz</td>
<td>100 kHz to 1.8 GHz</td>
</tr>
<tr>
<td>Frequency resolution</td>
<td>Noise sidebands</td>
<td>Meas. parameter</td>
</tr>
</tbody>
</table>
| 1 mHz                         | < –113 dBc/Hz typical at 10 kHz offset | [ Z ], [ θ ], R, X, | Y |,
|                               |                               | θ y, G, B, Cs, Cp, Ls, Lp, Rp, Rs, X, D, Q, |
|                               |                               | II, Γ, Γ x, Γ y                |
| Output power range            | Resolution bandwidth         | Z accuracy                       |
| –60 to 20 dBm                 | 1 Hz to 3 MHz in 1-3-10 steps | ±3% (typical, basic accuracy)    |
| Dynamic range                 | Dynamic range                 | Source level                     |
| > 120 dB @ 10 Hz IFBW         | > 100 dB third-order dynamic range | –66 dBm to +14 dBm (at DUT)    |
| Dynamic accuracy              | Overall level accuracy        | DC bias                          |
| ±0.05 dB/0.3 deg.            | Sensitivity                   | ±40 V (20 mA (max)) (External DC bias source is required.) |
| Calibration                   |                               | Compensation                     |
| Full two-port                 |                               | OPEN/SHORT/LOAD port extension |

Standard features: Instrument BASIC, GPIB port, 3.5” floppy disk drive, direct print, RAM disk, VGA monitor output.

Optional features: Impedance measurement (Option 4396B-010), time-gated spectrum analysis (Option 4396B-1D6), high-stability frequency reference (Option 4396B-1D5), 50 Ω to 75 Ω spectrum input impedance conversion (Option 4396B-1D7).

1. 300 kHz to 1.8 GHz if using the Agilent 85046A/B S-parameter test set.
2. With Option 4396B-010 and the Agilent 43961A RF impedance test kit.
Modern digital communication systems require high linearity of signal transmission. To meet this new requirement, electronic components must have well-characterized phase and magnitude performance. Spectrum measurements, such as intermodulation distortion, are key to achieving high system quality. Also impedance measurements are very important to develop the high quality design.

The Agilent 4395A/96B keeps up with your new demands by offering the capabilities you need in an easy-to-use instrument. Eliminate the extra work and cost associated with using multiple instruments. Follow these simple steps to test your components:

- Easily alternate between vector network and spectrum measurements.
- See two measurement parameters on the dual-display color TFT LCD.
- Use powerful marker functions and up to eight markers per channel for data searching.
- Save and recall calibration data, measurement data, and test programs with either internal RAM disk or floppy disk.
- Easily dump data directly from the analyzer to the centronics printer.

**Amplifiers**
Make both linear and non-linear measurements with the Agilent combination analyzer. You get wide dynamic range for accurate intermodulation distortion measurement.

**Mixers**
Measure mixer output easily with peak all and market list. Measure conversion signals for distortion and harmonics.

**Oscillators**
Predict oscillator stability by measuring the reflection coefficient in the vector network mode. Turn to the spectrum mode to see oscillation frequency, harmonics, and noise. Use marker zoom for measuring output level.
Filters
Characterize passband, stopband, group delay, and phase:
• Wide dynamic range. ±0.05 dB/±0.3 deg. gain/phase dynamic accuracy.
• Real-time tuning.
• High-stability frequency reference (Option 439xx-1D5) for narrow-band and high Q devices.

Two independent channels
With the Agilent 4395A, you determine the analyzer type (network, spectrum, or impedance) first, and then you can define each channel’s parameters under your selected analyzer type. Using the 4396B, you can define analyzer type for each channel independently. So if you see any unusual frequency response while making a network measurement on the Agilent 4396B, you can quickly switch to spectrum monitoring (source will be turned off) to identify spurious signals without changing DUT connection on the color LCD with dual display as shown in figure.
Accurate signal monitoring is critical for designing quality products. In today’s competitive environment, you need better spectrum measurement capabilities to stay ahead of the competition. The Agilent 4395A/96B, designed with new digital techniques, outperforms traditional analog spectrum analyzers.

- Improve testing speed up to 100 times for narrow RBW sweep. The analyzer’s stepped FFT technique (4395A: all RBWs, 4396B: RBW ≤ 3 kHz) breaks the speed barrier to give you lower noise floor without sacrificing speed.
- Fully synthesized source.
- 1 Hz RBW with 3:1 shape factor for close-in signals.

List sweep function can be used in not only network and impedance analysis, but also in spectrum analysis. List sweep separates the sweep frequency range into segments, and each segment can have an independent frequency range, number of sweep points, RBW, and power level settings. By using list sweep function, separate frequency bands can be measured in one sweep, or different RBW can be set for harmonics, IMD, and wide dynamic range measurements can be done in a shorter time.

- See close-in signals using the 1 Hz RBW with a 3:1 shape factor.

Monitor close-in low level signals such as the 60-Hz power line sideband ripple shown here. You get excellent spectral resolution from digital RBW filters (4395A: all RBWs, 4396B: RBW ≤ 3 kHz) with a shape factor as steep as 3:1.

**IMD measurement using list sweep function**

<table>
<thead>
<tr>
<th>Sweep time comparison at 100 kHz span and 100 Hz RBW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analog RBW SA</td>
</tr>
<tr>
<td>Agilent 4396B with stepped FFT</td>
</tr>
<tr>
<td>Agilent 4395A with stepped FFT</td>
</tr>
</tbody>
</table>

Get dramatic speed improvement, with no loss of accuracy, for narrow RBW sweeps. In addition, low phase noise provides improved signal resolution.

**Measure noise precisely. The analyzer’s low noise floor provides the sensitivity required for detecting low-level signals.**
Perform accurate burst signal analysis with time-gating (Option 439xx-1D6). Digital video bandwidth smooths noise faster than analog spectrum analyzers.

Use these powerful spectrum analysis capabilities, combined with vector network analysis, for design and test in these applications:

- CATV
- GPS
- GSM
- HDTV
- VSAT
- VCR
- Optical disk drives
- Mobile radio
- Cellular communications

Time domain view of RF and trigger signals with gating

You can use time gating to accurately characterize burst-modulated signals used in data storage, television, and video equipment. Narrow gating (4395A: 6 ms min. 4396B: 2 ms min.) is ideal for testing disk drives.

View the amplitude and modulation characteristics of a repetitive signal in Zero Span. The analyzer functions as a tunable receiver.
Accurate Direct Impedance Measurement

The Agilent 4395A/96B can perform direct impedance measurements with the addition of Option 439xx-010 and the Agilent 43961A RF impedance test kit. Covering from 100 kHz, impedance parameters $|Z|$, $\theta$, $C$, $L$, $Q$, $D$ and more are measured and displayed directly on the color TFT LCD display. For the Agilent 4395A, the Option 4395A-001 DC source is available to apply to the device, up to ±40 V maximum.

Direct display of impedance data
The impedance measurement capability provides powerful display choices, allowing direct parameter versus frequency display. Measure and display capacitance, inductance, and impedance magnitude and phase, and more, as functions of frequency. In addition, a lumped equivalent circuit function aids component modeling and simulation.

Many applicable fixtures and powerful error compensation
Many 7-mm connector type test fixtures can be used for the Agilent combination analyzer with Option 439xx-010 and the 43961A impedance test kit because the 43961A employs the 7-mm connector as the measurement port. So, you can select an appropriate fixture among them. The combination analyzer with Option 439xx-010 has the powerful OPEN/SHORT/LOAD compensation, and port extension compensation, which eliminate any errors introduced by the test fixture and allow accurate direct impedance measurements.
Maximize your throughput with the Agilent combination analyzer family. The analyzer is designed for high-volume testing:

- Fast vector network measurement speed
- List sweep for fast testing at selected frequencies
- Built-in IBASIC for test automation
- Limit lines for pass/fail test
- RAM disk with fast data access
- Digital I/O port for controlling handlers or non-GPIB test equipment
- VGA monitor output for an even larger display, improving productivity and reducing viewing fatigue

**Limit functions**
The built-in limit lines allow you to screen parts automatically and quickly.

**What is IBASIC?**
IBASIC is a subset of the HT BASIC programming language. It is included in the standard Agilent 4395A/96B. IBASIC is extremely powerful, yet easy to use. You can automate testing, make customized programs, perform data analysis, and control external equipment with IBASIC. It supports an external keyboard for your convenience, and for effortless programming, it provides keystroke recording, which logs test code sequences as you push the buttons on the front panel.

You can control additional equipment without an external computer. By adding some external signal sources and RF switches, you can construct a cost-effective, high-speed test system for production.

The 4396B system (example shown in the block diagram) provides high-throughput, automated testing of gain, phase, and intermodulation distortion for components.

Integrate different instruments into a test system example with the Agilent 4396B

**IBASIC program one key execution**
(Agilent 4395A only)
The Agilent 4395A has a unique one key execution function. It allows you to select your desired IBASIC program in RAM disk or floppy disk, and to run it by simply pressing the softkey. It’s beneficial to undertake your first function in the Agilent 4395A.
Ordering Information

Agilent 4395A
Network/spectrum/impedance analyzer

Furnished accessory
Power cable and CD-ROM (manual)
Note: Test fixtures, a keyboard, and a printed manual are not furnished as standard.

Configuration guide
Choose the option from the groups <A>, <B>, and <C> depending on your requirement. Then, choose the appropriate options from the option groups <D>, <E>, <F>, and <G>.

Choose ONE and ONLY one
(Options are mutually exclusive)

Choose any combination

• <A> For DC bias source
  4395A-700 no DC bias source
  4395A-001 DC bias source

• <B> For frequency reference function
  4395A-800 standard frequency reference
  4395A-1D5 high stability frequency reference

• <C> For time-gated spectrum analysis
  4395A-706 no time-gated spectrum analysis
  4395A-1D6 time-gated spectrum analysis

• <D> For impedance measurement function
  4395A-010 impedance measurement function

• <E> For accessories
  4395A-1D7 50 Ω - 75 Ω minimum loss pad
  4395A-810 keyboard
  4395A-1CM rackmount kit
  4395A-1CN front handle kit
  4395A-1CP handle/rack mount kit

• <F> For calibration certificate
  4395A-1A7 ISO 17025 compliant calibration

• <G> For manual¹
  4395A-ABA U.S. - English localization
  4395A-ABJ Japan - Japanese localization
  4395A-ABF France – French localization
  4395A-0BW Service documentation, assembly level

Agilent 4396B
Network/spectrum/impedance analyzer

Furnished accessory
Power cable and CD-ROM (manual)
Note: Test fixtures, a keyboard, and a printed manual are not furnished as standard.

Configuration guide
Choose the option from the groups <A> and <B> depending on your requirement. Then, choose the appropriate options from the option groups <C>, <D>, <E>, and <F>.

Choose ONE and ONLY one
(Options are mutually exclusive)

Choose any combination

• <A> For frequency reference function
  4396B-800 standard frequency reference
  4396B-1D5 high stability frequency reference

• <B> For time-gated spectrum analysis
  4396B-706 no time-gated spectrum analysis
  4396B-1D6 time-gated spectrum analysis

• <C> For impedance measurement function
  4396B-010 impedance measurement function

• <D> For accessories
  4396B-1D7 50 Ω - 75 Ω minimum loss pad
  4396B-810 keyboard
  4396B-1CM rackmount kit
  4396B-1CN front handle kit
  4396B-1CP handle/rack mount kit

• <E> For calibration certificate
  4396B-1A7 ISO 17025 compliant calibration

• <F> For manual¹
  4396B-ABA U.S. - English localization
  4396B-ABJ Japan - Japanese localization
  4396B-0BW service documentation, assembly level

¹. Printed manual is not furnished as standard.
Test sets, splitters, and directional bridges

S-parameter test sets allow both forward and reverse measurements with a single connection of your DUT.

Agilent 87511A – 50 Ω S-parameter (100 kHz to 500 MHz), 7-mm test port (Option 87511A-800) or type-N test port (Option 87511A-001)

Agilent 87511B – 75 Ω S-parameter (100 kHz to 500 MHz), type-N test port

Agilent 85046A – 50 Ω S-parameter (300 kHz to 3 GHz), 7-mm test port

Agilent 85046B – 75 Ω S-parameter (300 kHz to 2 GHz), type-N test port

Transmission/reflection (T/R) test kits allow measurements in one direction only. Includes test set, short, load, and DUT return cable.

Agilent 87512A

Agilent 87512B

50 Ω (dc-2 GHz)

type-N connectors

Agilent 87512B

75 Ω (dc-2 GHz)

type-N connectors

These type-N power splitters allow transmission measurements only in a single direction.

Agilent 11850C
50 Ω 3-way power splitter (dc-3 GHz)

Agilent 11850D
75 Ω 3-way power splitter (dc-2 GHz)

Agilent 11667A
50 Ω 2-way power splitter (dc-18 GHz)

These high-directivity RF bridges are designed for accurate reflection measurements and signal-leveling applications.

Agilent 86205A
50 Ω RF bridge
(300 kHz to 6 GHz)

Agilent 86207A
75 Ω RF bridge
(300 kHz to 3 GHz)

4. Calibration kits

A complete line of kits make calibrating your analyzer fast and easy.

Agilent 85031B 50 Ω, 7-mm
Agilent 85032B 50 Ω, type-N
Agilent 85033D 50 Ω, 3.5-mm
Agilent 85036B 75 Ω, type-N

5. Accessory kits

These kits furnish RF components generally required for use with test sets and splitters.

Agilent 11853A 50 Ω, type-N short circuits and adapters

Agilent 11854A 50 Ω, type-N to BNC adapters

Agilent 11855A 75 Ω, type-N terminations and adapters

Agilent 11856A 75 Ω, type-N to BNC adapters

6. Cable kits

For reliable connections between the test set and the DUT.

Agilent 11851B 50 Ω type-N RF cable kit (for type-N splitters or T/R test sets)

Agilent 11857B 75 Ω type-N test port return cables

Agilent 11857D 50 Ω 7-mm test port return cables

1. To convert test port to type-N, use Agilent 11524A 7-mm to type-N(f) adapter.
7. Probes

Extend the capabilities of the analyzer directly to your circuit.

**Agilent 41800A** 5 Hz to 500 MHz active probe

**Agilent 41802A** 5 Hz to 100 MHz 1 Ω input adapter

**Agilent 54701A** 2.5 GHz high-impedance probe (requires Agilent 1743A probe offset and power control module)

**Agilent 85024A** 300 MHz to 3 GHz high frequency probe

**Agilent 1141A** dc to 200 MHz differential probe

**Agilent 11940A** 9 kHz to 30 MHz close-field probe set

**Agilent 11941A** 30 MHz to 1 GHz close-field probe set

**Agilent 11945A** 9 kHz to 1 GHz close-field probe set

8. Impedance test kit

The Agilent 4395A/96B can perform direct impedance measurements with the addition of Option 439xx-010 and the Agilent 43961A RF impedance test kit. The Agilent 43961A includes a test adapter, an N(m)-N(m) cable, OPEN/SHORT/LOAD calibration standard, and carrying case.

**Agilent 43961A RF impedance test kit**

9. Test fixtures for impedance measurement

**16191A** bottom electrode SMD test fixture (DC to 2 GHz)

**16192A** parallel electrode SMD test fixture (DC to 2 GHz)

**16194A** high temperature component test fixture (DC to 2 GHz)

**16196A** 1608 (mm)/0603 (inch) parallel electrode SMD test fixture (DC to 3 GHz)

**16196B** 1005 (mm)/0402 (inch) parallel electrode SMD test fixture (DC to 3 GHz)

**16196C** 0603 (mm)/0201 (inch) parallel electrode SMD test fixture (DC to 3 GHz)

16092A spring clip test fixture (DC to 500 MHz)

16093A Binding post test fixture (DC to 250 MHz)

16093B Binding post test fixture (DC to 125 MHz)

Test fixtures and DUT sizes

<table>
<thead>
<tr>
<th>DUT Sizes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agilent 16191A</td>
<td>Agilent 16192A</td>
</tr>
<tr>
<td>L=2.0 - 12.0 mm</td>
<td>L=1.0 - 20.0 mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>DUT Sizes</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agilent 16194A</td>
<td></td>
</tr>
<tr>
<td>L=2.0 - 15.0 mm</td>
<td>L=5.0 - 4.5 mm</td>
</tr>
</tbody>
</table>
General Characteristics

**Agilent 4395A**

**Remote programming interface:** GPIB interface operates according to IEEE 488.1-1987 and IEEE 488.2-1987 and IEC 625 standards.

I/O port: 8 bit I/O, 24 bit I/O

Printer: Centronics parallel I/O port (Agilent PCL3)

**Temperature:** Operating: 0 °C to 40 °C; storage, -20 °C to 60 °C

**Humidity:** Operating: 15% < RH < 95%

**Power:** 100/120/220/240 V ±10%, 47 Hz to 63 Hz, 300 VA max.

**Connectors:** 50 Ω type-N(f)

**Probe power:** +15 V @ 300 mA, -12.6 V @ 160 mA, GND

**Display:** 8.4 inch color TFT LCD

**Weight:** 21 kg (46 lb.) typical

**Dimensions:** 235 mm H x 425 mm W x 553 mm D (9.25 in. x 16.75 in. x 21.72 in.)

**Agilent 4396B**

**Remote programming interface:** GPIB interface operates according to IEEE 488.1-1987 and IEEE 488.2-1987 and IEC 625 standards.

I/O port: 8 bit I/O

Printer: Centronics parallel I/O port (Agilent PCL3)

**Temperature:** Operating: 0 °C to 40 °C; storage, -20 °C to 60 °C

**Humidity:** Operating: 15% < RH < 95%

**Power:** 100/120/220/240 V ±10%, 47 Hz to 63 Hz, 300 VA max.

**Connectors:** 50 Ω type-N(f)

**Probe power:** +15 V @ 300 mA, -12.6 V @ 160 mA, GND.

**Display:** 8.4 inch color TFT LCD

**Weight:** 21.5 kg (47 lb.) typical

**Dimensions:** 235 mm H x 425 mm W x 553 mm D (9.25 in. x 16.75 in. x 21.72 in.)

1. Disk drive operating region: 10 °C to 40 °C and 15% to 80% RH.

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Additional literature

For detailed specifications, refer to the Agilent 4395A Data Sheet (literature number 5965-9340E), or Agilent 4396B Data Sheet (literature number 5965-6311E).
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