

# NETWORK ANALYZERS

## Microwave Network Analyzer Accessories

### HP 8510, 8720 Series



HP 85060C

### Microwave Network Analyzer Accessories

Microwave accessories for the HP 8720C and the HP 8510C series network analyzers include calibration kits, verification kits, cables, and adapters for 7 mm, 3.5 mm, Type N, 2.4 mm, and 1.85 mm coaxial; WR-90, WR-62, WR-42, and WR-28 waveguide. Millimeter-wave accessories for the HP 8510C series network analyzers include WR-22, WR-29, WR-15, and WR-10 waveguide connector interfaces. The standards used in the 3.5 mm, Type N, and 2.4 mm kits use precision slotless connectors (PSC-3.5, PSC-N, and PSC-2.4).

#### Calibration Kits

Error-correction procedures require that the systematic errors in the measurement system be characterized by measuring known devices (standards) on the system over the frequency range of interest. HP offers two types of calibration kits: mechanical or electronic.

#### Electronic Calibration (ECal) System

The electronic calibration system consists of a control unit and a connector specific calibration module. ECal modules are used as transfer standards. Electronic calibrations have the fewest connections and least operator interaction, while providing extremely repeatable measurements. Using the insertable ECal module with precision adapters, a non-insertable calibration can be performed with two additional connections. Or, for greater convenience, non-insertable ECal modules are available. Operation of the ECal system is through the network analyzer front panel or through HP-IB programming.

#### HP 85060C Electronic Calibration Control Unit

The HP 85060C electronic calibration control unit interfaces with the HP 8510B/C, 8719C, 8720C, 8722C, and 8753C/D network analyzers via HP-IB. The control unit provides various communication lines and temperature control for the ECal module.

#### Electronic Calibration Kits

The ECal kit requires an HP 85060C control unit for operation. Each standard calibration kit contains the two-port calibration module and a torque wrench for proper connection. Options are available to add a lowband module to the kit, and to change the sex of the connectors of the module.

#### Mechanical Calibration Kits

All network analyzer mechanical calibration kits contain precision standard devices to characterize the systematic errors of the HP 8720 series or 8510C network analyzer system.

Each mechanical calibration kit also contains adapters to change the sex of the test port and a torque wrench for proper connection. Each kit contains standard definitions on disk for the HP 8510C. (These definitions are already included in the HP 8720 series.)

#### Verification Kits

Measuring known devices, other than the calibration standards, is a straightforward way of verifying that the network analyzer system is operating properly. HP offers verification kits that include precision air-lines, mismatch airlines, and precision fixed attenuators. Traceable measurement data is shipped with each kit on disk.

Verification kits may be recertified by Hewlett-Packard. This recertification includes a new measurement of all standards, as well as new data and uncertainties. Certification in compliance with MIL-STD 45662A is also available.

#### Verification Kit Summary

| Verification kit | Connector type | Frequency range (GHz) | Price   |
|------------------|----------------|-----------------------|---------|
| 85051B           | 7 mm           | 0.045 to 18           | \$6,010 |
| 85053B           | 3.5 mm         | 0.045 to 26.5         | \$6,010 |
| 85055A           | Type-N         | 0.045 to 18           | \$6,010 |
| 85057B           | 2.4 mm         | 0.045 to 50           | \$6,700 |
| R11645A          | WR-2B          | 26.5 to 40            | \$5,680 |
| Q11645A          | WR-22          | 33 to 50              | \$5,680 |
| U11645A          | WR-19          | 40 to 60              | \$5,680 |
| V11645A          | WR-15          | 50 to 75              | \$5,680 |
| W11645A          | WR-10          | 75 to 110             | \$5,850 |

#### Mechanical Calibration Kits

| Calibration kit | Connector type | Frequency range (GHz) | Price    |
|-----------------|----------------|-----------------------|----------|
| 85050B          | 7 mm           | 0.045 to 18           | \$7,160  |
| 85050C          | 7 mm           | 0.045 to 18           | \$7,210  |
| 85050D          | 7 mm           | 0.045 to 18           | \$2,625  |
| 85052B          | 3.5 mm         | 0.045 to 26.5         | \$9,630  |
| 85052C          | 3.5 mm         | 0.045 to 26.5         | \$10,600 |
| 85052D          | 3.5 mm         | 0.045 to 26.5         | \$5,030  |
| 85054B          | Type N         | 0.045 to 18           | \$10,950 |
| 85054D          | Type N         | 0.045 to 18           | \$6,250  |
| 85056A          | 2.4 mm         | 0.045 to 50           | \$10,700 |
| 85056D          | 2.4 mm         | 0.045 to 50           | \$6,130  |
| 85056K          | 2.92 mm        | 0.045 to 40           | \$8,100  |
| 85058D          | 1.85 mm        | 0.045 to 65           | \$8,740  |
| X11644A         | WR-90          | 8.2 to 12.4           | \$4,805  |
| P11644A         | WR-62          | 12.4 to 18.0          | \$4,805  |
| K11644A         | WR-42          | 18.0 to 26.5          | \$4,945  |
| R11644A         | WR-28          | 26.5 to 40            | \$4,370  |
| Q11644A         | WR-22          | 33 to 50              | \$4,750  |
| U11644A         | WR-19          | 40 to 60              | \$5,170  |
| V11644A         | WR-15          | 50 to 75              | \$5,130  |
| W11644A         | WR-10          | 75 to 110             | \$5,250  |

#### Electronic Calibration Modules

| Calibration kit | Connector type | Frequency range (GHz) | Description/contents                              | Price     |
|-----------------|----------------|-----------------------|---------------------------------------------------|-----------|
| 85080A          | 7 mm           | 1 to 18               | One two-port ECal module and collet remover       | \$8,750   |
| Opt 001         | 7 mm           | 0.045 to 2            | Adds lowband ECal module                          | + \$4,500 |
| 85080C          |                |                       | Control unit                                      | \$6,100   |
| 85062A          | 3.5 mm (m-f)   | 1 to 26.5             | One two-port ECal module and m-m and f-f adapters | \$8,750   |
| Opt 001         | 3.5 mm (m-f)   | 0.045 to 2            | Adds lowband ECal module                          | + \$4,500 |
| Opt 00F         | 3.5 mm (f-f)   |                       | Changes connectors to f-f                         | + \$0     |
| Opt 00M         | 3.5 mm (m-m)   |                       | Changes connectors to m-m                         | + \$0     |
| 85062A          | Type-N (m-f)   | 1 to 18               | One two-port ECal module                          | \$8,750   |
| Opt 001         | Type-N (m-f)   | 0.045 to 2            | Adds lowband ECal module                          | + \$4,500 |
| Opt 00F         | Type-N (f-f)   |                       | Changes connectors to f-f                         | + \$0     |
| Opt 00M         | Type-N (m-m)   |                       | Changes connectors to m-m                         | + \$0     |