Agilent 8711B and 8712B, 300 kHz to 1.3 GHz
Agilent 8713B and 8714B, 300 kHz to 3 GHz

RF Economy Network Analyzers

Configuration Guide

This configuration guide describes standard configurations, options and compatible accessories. For full specifications, see Agilent 8711B and 8713B Data Sheets (literature number 5964-0111E) and the Agilent 8712B and 8714B Data Sheets (literature number 5964-0112E). Contact your Agilent representative at the offices listed on the back page of this guide if you need more information.

Standard RF Economy Network Analyzers

Standard analyzers include:

- 300 kHz to 1.3 GHz or 3 GHz synthesized source
- Built-in display, integrated transmission/reflection test set and built-in 3.5 inch disk drive
- Narrowband and broadband receivers
- Standard 50 ohm system (also available as 75 ohm system, Option 1EC)
- Type-N test port cable and 175 MHz demonstration filter
- One-year on-site warranty, where available, convertible to three-year return-to-Agilent with Option W08
- Operating and programming manuals, backup firmware, calibration data, and example program disks. Manual set includes User Guide (part number 08713-90003), Programming Guide (part number 08713-90004) and Service Guide (part number 08713-90005).

- ❏ **Agilent 8711B** scalar network analyzer, 300 kHz to 1.3 GHz
- ❏ **Agilent 8712B** vector network analyzer, 300 kHz to 1.3 GHz
- ❏ **Agilent 8713B** scalar network analyzer, 300 kHz to 3 GHz
- ❏ **Agilent 8714B** vector network analyzer, 300 kHz to 3 GHz

Options

- ❏ **75 ohms system impedance, Option 1EC**
  Converts to 75 ohm system impedance and substitutes 75 ohm Type-N connectors. Substitutes 75 ohm test port cable and demonstration filter. Use with 75 ohm calibration kits and accessories.
- ❏ **AM delay for 50 ohm systems, Option 1DA**
- ❏ **AM delay for 75 ohm systems, Option 1DB**
  (Option 1EC must also be ordered with 75 ohm systems) Adds amplitude modulation group delay capability to measure group delay in frequency-translation devices such as tuners and receivers. Includes two external broadband detectors and a power splitter. Not recommended for devices with limiting circuits, saturated amplifiers or automatic gain control. For nonfrequency translation devices the vector network analyzers 8712B or 8714B offer lower noise and better accuracy when measuring group delay.
- ❏ **HP Instrument BASIC (IBASIC)**
  Option 1C2 IBASIC is a subset of BASIC for creating and executing test programs inside the network analyzer, including keystroke capture and one-button macros, without the need for an external controller. Includes Instrument BASIC User's Handbook (part number 08712-90005) and IBASIC example program disk (part number 08712-10003).
- ❏ **Option 100 fault location and structural return loss**
  Full cable characterization in one package. Fault location includes convenience features unavailable in TDRs, including multi-bump, cable calibration, and cable loss measurements. Structural return loss, which is the return loss resulting from many small, equally spaced discontinuities, is easily and accurately measured. A user manual and instructional video tape are included.

Agilent Technologies
Innovating the HP Way

- **60 dB step attenuator, Option 1E1**
  Extends output power range down to –60 dBm.
- **Extra 50 ohm cable and Type-N (f-f) adapter, Option AFN**
- **Extra 75 ohm cable and Type-N (f-f) adapter, Option AFP**
- **Option AF4**
  This option deletes the Type-N cable and substitutes two N-to-BNC adapters and a BNC cable.
- **Keyboard, Option 1CL**
  Adds mini-DIN interface keyboard (part number C1405B, Option ABA), cable, and mini-DIN to DIN adapter (part number C1405-60015) to enhance IBASIC editing and instrument control capability. Keyboard overlay (part number 08712-80004) is supplied with every instrument.
- **Rack mount kit, Option 1CM**
- **Performance test software, Option 1FP**

Special Options

Special options are available for unique applications. Examples include multiport and reversing test sets. Contact your Agilent representative for more information.

Documentation

- **Deletes manual set, Option 0B0**
- **Deletes service guide, Option AVB**
- **Deletes programming guide, Option AV7**
- **Adds Agilent 8711B, 8713B manual set, Option 0B1;**
  Also available as part number 08713-90001.
- **Adds Agilent 8712B, 8714B manual set, Option 0B1;**
  Also available as part number 08712-90001.

Localization Options
These options provide a localized user's guide at no extra charge. They include information on installation, instrument functions, optimized measurements, and calibration.

- **Taiwanese User's Guide, Option AB0;**
  Also available as part number 08712-90012.
- **Korean User's Guide, Option AB1;**
  Also available as part number 08712-90014.
- **Chinese User's Guide, Option AB2;**
  Also available as part number 08712-90015.
- **German User's Guide, Option ABD;**
  Also available as part number 08712-90010.
- **Spanish User's Guide, Option ABE;**
  Also available as part number 08712-90017.
- **French User's Guide, Option ABF;**
  Also available as part number 08712-90009.
- **Japanese User's Guide, Option ABJ;**
  Also available as part number 08712-90008.
- **Italian User's Guide, Option ABZ;**
  Also available as part number 08712-90011.

Warranties

One-year on-site service warranty is standard at no extra charge. Where on-site service is not available, one-year return-to-Agilent service is provided. Customers may convert the standard one-year on-site warranty to a three-year return-to-Agilent warranty at the time of purchase.

- **Converts one-year on-site warranty to three-year return-to-Agilent warranty, Option W08**
- **Two additional years of on-site service, Option W31**
  Total of 3 years on-site support (where available); not available with Option W08.
- **Four additional years of on-site service, Option W51**
  Total of 5 years on-site support (where available); not available with Option W08.
- **Commercial calibration certificate with test data, Option UK6**
  Can be ordered at time of original purchase.

Measurement Accessories

Accessories are available in these connector types: 3.5 mm, 50 ohm Type-N, BNC, 75 ohm Type-N, and Type-F. A calibration kit to improve measurement accuracy is recommended for each type of connector being measured. A complete line of RF accessories can be found in the Agilent Microwave Accessories Catalog, literature number 5091-4269E.

50 Ohm Accessories

❑ **Type-N precision calibration kit, Agilent 85032B**
50 ohm Type-N kit includes fixed terminations, open circuits, and short circuits in both connector sexes. Recommend deleting the two phase-matched 7 mm to Type-N adapters for both connector sexes female and male.
  ❑ **Option 001**
  Deletes 7 mm to Type-N phase-matched adapters

❑ **Type-N economy calibration kit, Agilent 85032E**
Standards include fixed termination and open-circuit/short-circuit combination in Type-N (m) only.

❑ **3.5 mm precision calibration kit, Agilent 85033D**
50 ohm 3.5 mm calibration standards for devices with 3.5 mm and SMA connectors. Includes fixed terminations, open circuits and short circuits in both sexes. Includes two pair of phase-matched 7 mm to 3.5 mm adapters for both sexes. Recommend deleting 7 mm adapters and ordering 11878A Type-N to 3.5 mm adapter kit.
  ❑ **Option 001**
  Deletes 7 mm to 3.5 mm adapters.

❑ **RF scalar detector, Agilent 86200B**
External scalar detector, 10 MHz to 3 GHz, 50 ohm Type-N (m) connector. (See literature number 5962-9931E for detailed technical specifications.) Two-meter detachable cable (part number 8120-5514) included; order 20-meter cable separately as part number 8120-5515.

❑ **Bridge, Agilent 86205A**
Used for external reflection measurements or coupling signal from main path. Nominal 16 dB coupling factor, 1.5 dB mainline loss and 30 dB directivity to 3 GHz. Includes three Type-N (f) connectors.

❑ **Two-way economy power splitter, part number 0955-0751**
Two-resistor splitter used for ratio measurement applications. Tracking flatness within ±0.25 dB and ±3 degrees of phase to 3 GHz. Insertion loss is 6 dB. 50 ohm Type-N (m) input and (f) output connectors.

❑ **Two-way power splitter, Agilent 11667A**
Two resistor splitter for ratio measurement applications. Tracking flatness within ±0.15 dB to 4 GHz. Insertion loss is 6 dB, specified to 18 GHz. 50 ohm Type-N (m) input and (f) output connectors.

❑ **Fixed attenuators, Agilent 11581A**
Provides a set of four attenuators (fixed 3 dB, 6 dB, 10 dB, and 20 dB) used for dropping power levels or improving match. Available separately as 8491A Options 003, 006, 010, 020 respectively, specified to 12.4 GHz. Includes a storage case.

❑ **Accessory Type-N kit, Agilent 11853A**
Provides the RF components often required for measuring devices with 50 ohm Type-N connectors, dc to 18 GHz. Contains (m) to (m) adapter, (f) to (f) adapter, Type-N (m) and (f) shorts, and storage case. Adapters available separately as part number 1250-1475 for (m) to (m), and part number 1250-1472 for (f) to (f).

❑ **Accessory BNC kit, Agilent 11854A**
Provides the RF components generally required for measuring devices with 50 ohm BNC connectors, dc to 3 GHz. Contains four 50 ohm Type-N to BNC adapters (in all combinations of both connector sexes), plus BNC (m) short. Includes a storage case.

❑ **3.5 mm adapter kit, Agilent 11878A**
Provides the RF components generally needed when measuring 50 ohm SMA or 3.5 mm devices. Kit includes four Type-N to 3.5 mm adapters (in all combinations of both connector sexes). Available separately as part number 1250-1743 for Type-N (m) to 3.5 mm (m); part number 1250-1744 for Type-N (m) to 3.5 mm (f); part number 1250-1745 for Type-N (f) to 3.5 mm (f); and 1250-1750 for Type-N (f) to 3.5 mm (m). Includes a storage case.

□ **50 to 75 ohm minimum loss pad, Agilent 11852B**
Adapts from 50 ohm Type-N (f) to 75 ohm Type-N (m). Nominal insertion loss is 5.7 dB to 2 GHz. 75 ohm return loss is >30 dB and 50 ohm return loss is >26 dB. Maximum input power is +24 dBm.
□ **Option 004**
Substitutes 50 ohm Type-N (m) and 75 ohm Type-N (f) connectors.

□ **Test port economy cable, Agilent part number 8120-6469**
50 ohm Type-N (m), 0.61 m (2 ft) long. One cable is included with each standard instrument.

□ **Test port precision cable, Agilent part number 8120-4781**
50 ohm Type-N (m), 0.61 m (2 ft) long. Low SWR <1.1 to 2 GHz, high isolation, and phase-matched to ±2 degrees at 2 GHz.

□ **Long, phase-stable Type-N 50 ohm test port cable**
Includes male-male connector, 86217A Option 10 is 10 feet long, Option 15 is 15 feet long, and Option 30 is 30 feet long.

□ **Long, phase-stable Type-N 50 ohm test port cable**
Includes with male-female connector, 86217B Option 10 is 10 feet long, Option 15 is 15 feet long, and Option 30 is 30 feet long.

□ **Test port cable, part number 8120-1839**
50 ohm BNC (m) connectors, 0.61 m (2 ft) long.

□ **50 ohm adapter Type-N (f) to Type-N (f), part number 1250-0777**

□ **175 MHz bandpass demonstration filter, part number 0955-0759**
50 ohm Type-N demonstration filter, passband 150 to 200 MHz. Included with each 50 ohm system network analyzer.

75 Ohm Accessories

□ **Type-N precision calibration kit, Agilent 85036B**
75 ohm Type-N includes fixed loads, open circuits, and short circuits in both connector sexes. Precision phase-matched adapters are included for measurements on non-insertable devices.

□ **Type-N economy calibration kit, Agilent 85036E**
Standards include fixed termination, open-circuit/ short combination in Type-N (m) only.

□ **Type-F calibration kit, 85039A**
Includes 75 ohm Type-F load, open circuit, and four adapters for the measurement of devices with Type-F connectors.

□ **RF scalar detector, 86201B**
External scalar detector, 10 MHz to 3 GHz, 75 ohm Type-N (m) connector. For external or remote detection when internal detectors cannot be used. (See literature number 5962-9931E for detailed specifications.) Two-meter detachable cable (part number 8120-5514) included; order 20-meter cable as part number 8120-5515.

□ **Bridge, Agilent 86207A**
Used for external reflection measurements or coupling signal from main path. Nominal 16 dB coupling factor, 1.5 dB mainline loss and 30 dB directivity to 5 MHz, 40 dB to 1.3 GHz, 35 dB to 2 GHz, and 30 dB to 3 GHz. Includes three Type-N (f) connectors.

□ **Two-way power splitter, part number 0955-0752**
Two-resistor splitter used for ratio measurement applications. Tracking flatness is within ±0.25 dB and ±3 degrees of phase to 3 GHz. Insertion loss is 6 dB. 75 ohm Type-N (m) input and (f) output connectors.

□ **Fixed attenuators, Agilent 86213A**
Provides a set of four 75 ohm Type-N attenuators (fixed 3 dB, 6 dB, 10 dB and 20 dB) used for dropping power levels or improving match. (Available separately as part numbers 0955-0765, 0955-0766, 0955-0767, 0955-0768, respectively.) Attenuation accuracy is ±0.5 dB. Includes a storage case.

□ **Type-N accessory kit, Agilent 11855A**
Includes four 75 ohm Type-N adapters, a short and termination, dc to 3 GHz. Adapters available separately as part numbers 1250-1528 (m-m), and 1250-1529 (f-f), respectively. Includes a storage case.

□ **BNC accessory kit, Agilent 11856A**
Includes four 75 ohm Type-N to 75 ohm BNC adapters for both connector sexes, a short and termination, dc to 2 GHz. Adapters available separately as part numbers 1250-1533 (m-m), 1250-1534 (f-m), 1250-1535 (m-f), and 1250-1536 (f-f), respectively. Includes a storage case.

□ **Type-F adapter kit, Agilent 86211A**
Adapter kit provides three 75 ohm, dc to 2 GHz, Type-N to Type-F adapters and a storage case. Available separately as part numbers 1250-2350 (f-f), 1250-2368 (f-m), 1250-2369 (m-m), respectively.

❑ **50 to 75 ohm minimum loss pad, Agilent 11852B**
Adapts from 50 ohm Type-N (f) to 75 ohm Type-N (m). Nominal insertion loss is 5.7 dB, dc to 2 GHz. 75 ohm return loss is >30 dB and 50 ohm return loss is >26 dB. Maximum input power is +24 dBm.
   ❑ **Option 004**
   Substitutes 50 ohm Type-N (m) and 75 ohm Type-N (f) connectors.
❑ **Test port cables, 11857B**
Includes a pair of 0.61 m (2 ft) dc to 2 GHz cables, 75 ohm Type-N (m) and (m) to (f).
❑ **Test port precision cable part number 8120-2408**
Both connectors are 75 ohm, Type-N (m) 0.61 m (2 ft). SWR <1.1 to 2 GHz. Phase match ±2 degrees at 2 GHz.
❑ **Test port precision cable, part number 8120-2409**
75 ohm, Type-N (m) to (f) connectors. 0.61 m (2 ft). SWR <1.1 to 2 GHz. Phase match ±2 degrees at 2 GHz.
❑ **Test port economy cable, part number 8120-6468**
75 ohm, Type-N (m) connectors, 0.61 m (2 ft). Includes one cable with each instrument that is ordered as a 75 ohm system.
❑ **Long, phase-stable Type-N 75 ohm test port cable**
Includes male-male connector, 86218A Option 10 is 10 feet long, Option 15 is 15 feet long, and Option 30 is 30 feet long.
❑ **Long, phase-stable Type-N 75 ohm test port cable**
Includes male-female connector, 86218B Option 10 is 10 feet long, Option 15 is 15 feet long, and Option 30 is 30 feet long.
❑ **Test port cable, part number 5063-0061**
75 ohm, BNC connector, 0.61 m (2 ft).
❑ **75 ohm adapter Type-N (f) to Type-N (f), part number 1250-1529**
❑ **175 MHz demonstration bandpass filter, part number 0955-0760**
Includes one 75 ohm Type-N demonstration filter with each instrument that is ordered as a 75 ohm system.

General Accessories
❑ **High-frequency probe, Agilent 85024A**
High-impedance probe (1 megohm with 0.7 pF) to perform in-circuit swept measurements without loading circuit under test. One probe may be powered directly from front panel of the network analyzer. 300 kHz to 3 GHz.
❑ **Pre-amplifier, Agilent 87405A**
Useful for preamplifying low-level inputs and making AM delay measurements at low power levels. 22 to 27 dB gain with +4 dBm output power. 10 MHz to 3 GHz. 50 ohms. Can be powered from front panel of network analyzer.
❑ **RF amplifier, Agilent 8347A**
Useful for pre-amplifying low-level inputs and making AM delay measurements at low power levels. Nominal 25 dB gain with leveled output power variable from +2 to +20 dBm. 100 kHz to 3 GHz. 50 ohms.
❑ **RF limiter, Agilent 11867A**
Protects the input circuits of network analyzer from high power levels. Limits at 0 dBm (1 mW) against input signals up to 1 watt average power and 10 watts peak power. Type-N (f) input and (m) output.
❑ **Antistatic mat kit, part number 85043-80013**
❑ **Hard transit case, part number 9211-2656**
Fiberglass, 28 x 24 x 12.25 inches deep, for instrument and accessories. Moss gray color.

Peripherals

Economy network analyzers support interfaces in parallel (Centronics), serial (RS-232C) and GPIB, which conform to IEEE 488.2 and SCPI standard interface commands. Models change frequently; check with your Agilent representative on the latest peripheral models. Some peripherals not listed here may be compatible with network analyzers.

Controllers

Agilent network analyzers can be controlled by external computer via GPIB. (Note that optional IBASIC offers programming capability inside the network analyzer.) Consult with your Agilent representative for alternatives.

Printers

Network analyzer can print hardcopy directly to HP PCL (printer control language) printers. Some printers have options to specify their interface; consult your local Agilent representative for more details. The two most recommended models include:

❑ **HP DeskJet 540**
   The most economical monochrome printer, with color kit, offers color plots.
❑ **HP LaserJet 4L**
   The fastest monochrome printer. Other compatible printers include HP DeskJet models 310C, 320, 500, 500C, 520, 540, 550C, 560C, 1200C, PORT, and PLUS; HP LaserJet Series II, III, IIID, IIIP, 4, 4L, 4P; HP QuietJet; HP 3639A Paintjet; and HP ThinkJet; Epson LQ-570 and FX-85 parallel; and other HP PCL-compatible Epson 12-pin printers (graphics will have lower resolution). Other printers not listed here can also be compatible.

Plotters

Network analyzers can plot a copy of the analyzer's display directly to an HP-GL (HP graphics language) plotter, via GPIB, parallel, and serial interfaces. Compatible plotters include 7475A, 7550B, and compatible printers that accept HP-GL commands, such as LaserJet III and 4.

Disk drives

Measurement data, instrument states, calibration data, and IBASIC programs may be stored directly to an external disk drive. (Note that network analyzers have a built-in 3.5 inch disk drive.) Disk formats include both MS-DOS or HP standard CS-80 in LIF; data formats include binary, PCX, HP-GL, or ASCII. Compatible drives include 9122C 3.5 in dual floppy disk drive (available as 8720C Option 802, while supplies last) and 9153C "winchester" hard disk drive (compatible but no longer available). Other vendors may make compatible disk drives. For example, ISA Company Ltd. in Japan supplies a Model 1010, Option 9152, 3.5 inch floppy drive.

Monitors

A rear-panel video output can drive an external monitor, which meets composite video RS-343A specifications. These include: analog video with sync-on-green monochrome; 24.1 kHz horizontal scan rate (found with some multi-sync monitors); 60 Hz vertical refresh rate, 33.3 MHz pixel rate; 1 volt peak to peak (0.7 volt = white, 0 volt = black, –0.3 volt = sync); BNC connector, 75 ohm input impedance. HP 35721A, 35731A, and 35741A monitors are compatible, but are no longer available. Compatible monitors from other vendors include:

• 14-inch monitor, Sony GVM 1311Q, horizontal scan rate is 15 to 36 kHz
• 21-inch monitor, Sony GVM 2020, horizontal scan rate is 15 to 36 kHz
• 20-inch monitor, Mitsubishi, horizontal scan rate is 15.7 to 38 kHz

(Note that EGA and VGA are not compatible, and that many multi-sync monitors are not compatible with the 24.1 kHz scan rate. Some adjustments may be required; refer to operating manual.)

Interface cables

- **GPIB cable** to GPIB printer/plotter 1 m (3.3 ft), 10833A
- **GPIB cable,** 10833B 2 m (6.6 ft)
- **GPIB cable,** 10833C 4 m (13.2 ft)
- **GPIB cable,** 10833D 0.5 m (1.6 ft)
- **Parallel printer cable,** C2950A IEEE-1284 compliant A-B parallel cable 2 m (6.6 ft)
- **Parallel printer cable,** C2951A IEEE-1284 compliant A-B parallel cable 3 m (9.8 ft)
- **Centronics parallel printer cable** for HP LaserJet, C2912B, 25 pin (m) to 36 pin (m), 3 m (9.8 ft)
- **RS-232C printer cable,** C2913A, 1.2 m (3.9 ft)
- **Serial plotter cable,** C2914A, 25 pin (m) to 25 pin (m) 1.2 m (3.9 ft)
- **Serial plotter cable,** C2913A, 25 pin (m) to 25 pin (f) 1.2 m (3.9 ft)
- **Serial 9-pin (f) to 25-pin (m) cable** to serial printer/plotter, 24542G, 3 m (9.8 ft)

Upgrade Kits
Installation is not included in upgrade kits.

- **AM delay kit 50 ohms, 86221B**
- **AM delay kit 75 ohms, 86225B**
  Adds AM delay modulator and includes power splitter and two detectors. Also available as part number 08711-60062, which excludes external detectors and a power splitter.
- **IBASIC kit, Agilent 86224B**
  Adds IBASIC programming capability; also available as part number 08711-60068.
- **Step attenuator kit, Agilent 86223B**
  Adds a 60 dB attenuator to all models; also available as part number 08711-60067.
- **Firmware upgrade kit, Agilent 86226B**
  Provides the latest version firmware; also available as part number 08711-60069.
- **Rack mount kit,** 08711-60058 for use with or without handles.

Service and Support
- **Service kit, Agilent part number 08712-60012.**
  Service kit includes extender board, extender cables, voltage reference source, special wrench.

Recommended Test Equipment
Recommended test equipment for self support and performance of all required tests and adjustments after a repair:

- **Power meter, Agilent 437B or**
- **Dual channel power meter, Agilent 438A**
- **Power sensor, Agilent 8482A** (for both 50 and 75 ohm instruments)
- **Diode power sensor, Agilent 8481D** (for step attenuator options only)
- **Power sensor, Agilent 8483A** (for 75 ohm instruments)
- **Minimum loss pad, Agilent 11852B,** for 75 ohm (2 each)
- **50 ohm calibration kit, Agilent 85032B**
- **75 ohm calibration kit, Agilent 85036B**
- **Voltage reference, Agilent part number 08712-60031** (part of service kit part number 08712-60012)
- **Function generator, Agilent 8116A**
- **10 dB step attenuator, Agilent 8496A or 8496G**
- **Instrument controller, Agilent 9000** for series 200 and 300 computers

Additional test equipment may include Agilent 8560 Series or 8566A/B spectrum analyzer, and miscellaneous fixed attenuators, cables, adapters, and power splitters.

Spare Parts Kits
Spare parts kits include CPU, power supply, receiver, source, fractional-N boards and disk drive for self-support.
- **Spare parts kit, Agilent 86215A,** for 50 ohm 8711B and 8712B (part number 08712-60024)
- **Spare parts kit, Agilent 86215B,** for 75 ohm 8711B and 8712B (part number 08712-60025)
- **Spare parts kit, Agilent 86216A,** for 50 ohm 8713B and 8714B (part number 08713-60013)
- **Spare parts kit, Agilent 86216B,** for 75 ohm 8713B and 8714B (part number 08713-60014)

Agilent 8711A Upgrades and Spare Parts Kits

❏ **Firmware upgrade kit, Agilent 86226A**

Adds latest version firmware to the 8711A; also available as part number 08711-60063. Latest version includes many of the features found in the 8711B, including power sweep capability, 15 Hz system bandwidth, transmission and isolation calibration capability, automation enhancements in RAM disk, 600 dpi output, and PCX files. The 8711A cannot be upgraded with the AM delay option and 100 dB dynamic range capability. 8711As with serial break 3325A00801 and above have 2 Mbytes of FLASH ROM memory. Earlier serials had 1.5 Mbytes of memory, which is insufficient to support this current firmware.

❏ **Step attenuator kit, Agilent 86223A**

Adds 60 dB step attenuator to the 8711A; also available as part number 08711-60060.

❏ **Instrument BASIC kit, Agilent 86224A**

Adds Instrument BASIC to the 8711A; also available as part number 08711-60061. Spare parts kits include CPU, power supply, receiver, source, fractional-N boards and disk drive for self-support.

❏ **Spare parts kit, Agilent 86214A** for 50 ohm 8711A (part number 08711-60133)

❏ **Spare parts kit, Agilent 86214B** for 75 ohm 8711A (part number 08711-60134)

Agilent Technologies' Test and Measurement Support, Services, and Assistance

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 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.

Get assistance with all your test and measurement needs at:
www.agilent.com/find/assist

Agilent Technologies

Innovating the HP Way