Agilent 87075C Multiport Test Set

Technical Overview

A complete 75 Ω system for cable TV device manufacturers

Now, focus on testing, not reconnecting!

- For use with the Agilent 8711 C-Series of network analyzers
- 3 MHz to 1.3 GHz
- Optional two, six, or twelve ports

Agilent Technologies

Get higher device-test throughput with a complete system solution from Agilent

System solution for multiport device testing

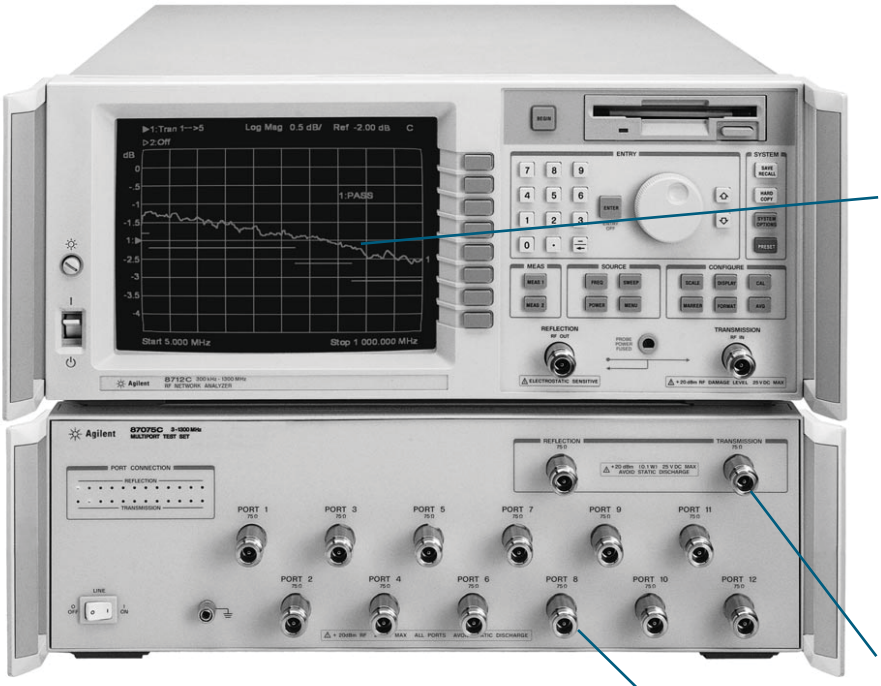
An Agilent Technologies 87075C test set coupled with an Agilent 8711C Series network analyzer offers far more than just switching capability. This complete solution offers fast measurement speed, ease of use, and convenience, as well as vastly improved calibration times (typically a 20 times improvement). The test set and network analyzer are fully specified at the test ports as a *system*, so your customers can have the most confidence in your products. Plus, you don't have the extra expense of an external computer and the extra development of calibration and control software to worry about – with an 8711 C-Series analyzer you get full internal switching and calibration control of the test system.

Quickly and completely characterize your devices with a single connection

The Agilent test system eliminates time-consuming reconnections of a device to a two-port network analyzer to test all its signal paths. By saving time, you keep your costs down and your volumes up so you can remain competitive in the fast-growing cable-TV device manufacturing industry.

Improve your device throughput and test accuracy An Agilent 87075C test set coupled with an 8711 C-Series RF network analyzer offers:

- Significant improvements in calibration time and the accuracy of your measurements, all with a single connection
- Local area networking capability and advanced automation capabilities for local and distributed control



The 8711 C-Series of RF network analyzers designed for high-volume production

- **LAN capability**
  Efficiently send new test parameters, test limit lines, and gather test data from your production line
- **IBASIC**
  Optional built-in BASIC instrument-controller for easy automation
- **Pass/fail testing**
  Automated pass/fail testing instantly and consistently compares measured data to your test limits
- **Large 9-inch display**
  See test results on a large easy-to-read display
-

The 87075C multiport test set
Designed to improve your device throughput

- **3 MHz to 1.3 GHz, 75 Ω**
  Aimed at testing cable-TV devices
- **Innovative SelfCal technique**
  For fast, accurate measurements
- **Solid-state switching**
  For reliable, repeatable, and fast-switching
- **Optional two, six, or twelve port test sets**
  To meet all your multiport device-test needs

Get fast, accurate measurements with an unprecedented calibration technique

New SelfCal technique

With its advanced internally automated calibration capability, the 87075C is shipped from Agilent already calibrated at all measurement ports. You can use this default test-set calibration or complete your own test-set calibration. Now, between test-set calibrations, the system can be calibrated in a few seconds on-line with SelfCal. SelfCal uses transfer standards located inside the test set to bring the system to the same measurement-accuracy level as your test-set calibration. You save all the time previously required to connect the external standards, which is typically a 20-time improvement.

Reduce system-calibration time

A typical calibration time is one hour per shift per instrument for a monthly total of about 20 hours. SelfCal reduces this time to approximately 1 hour per month! You can easily set up the calibration intervals, so the analyzer does the work automatically.

Cut your system-calibration time by up to 20 times with the innovative SelfCal technique.

Reduce the number of RF connections

The 87075C test set provides switching capability to all measurement ports, which reduces RF interconnects. Connect your device only once, and quickly and easily measure all its signal paths and ports.

By reducing the number of RF connections you also:

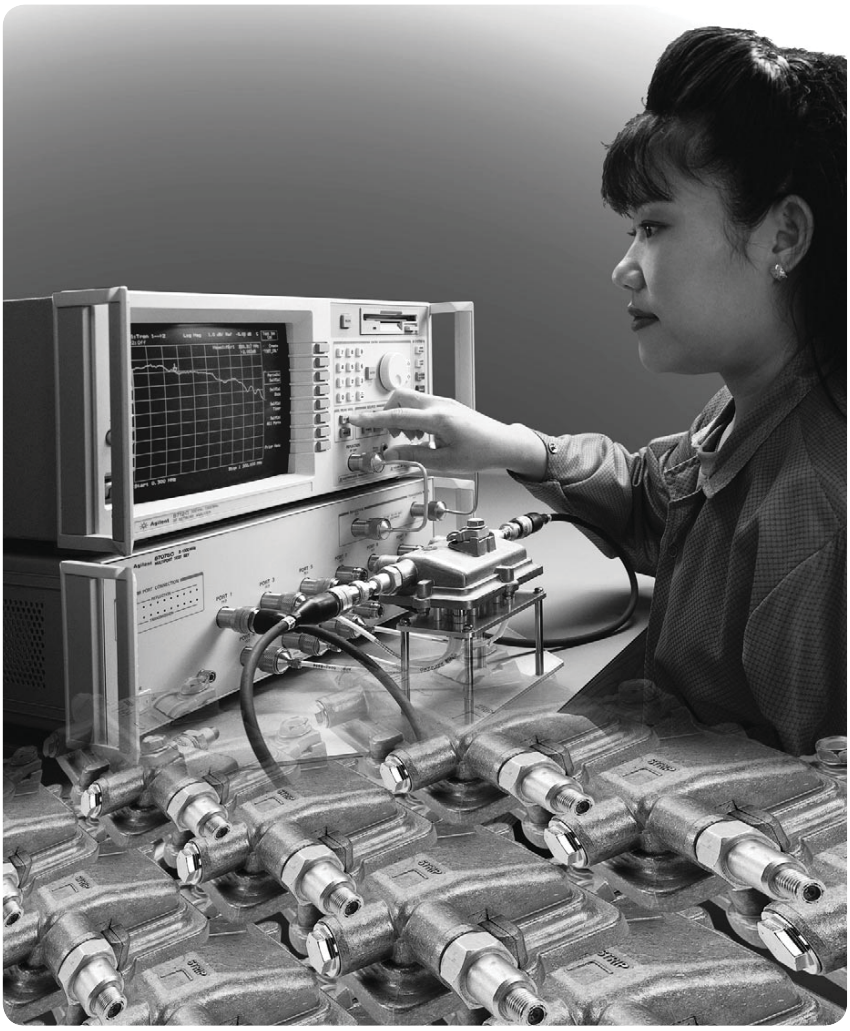
- Decrease tune-and-test times
- Reduce operator fatigue
- Lower risk of misconnection
- Reduce wear on cables, fixtures, connectors, and the device under test

Increase customer confidence in your products with a fully specified system

For RF measurements, the calibration and RF specifications must be at the actual measurement ports. The 87075C coupled with an 8711 C-Series analyzer offers a fully specified test system.

Now you can correlate measurements across different test systems, and reduce your measurement uncertainties, which means you can tighten your product specifications and increase your competitiveness!

Agilent fully specifies the network analyzer and test set as a system so you have a complete measurement platform.



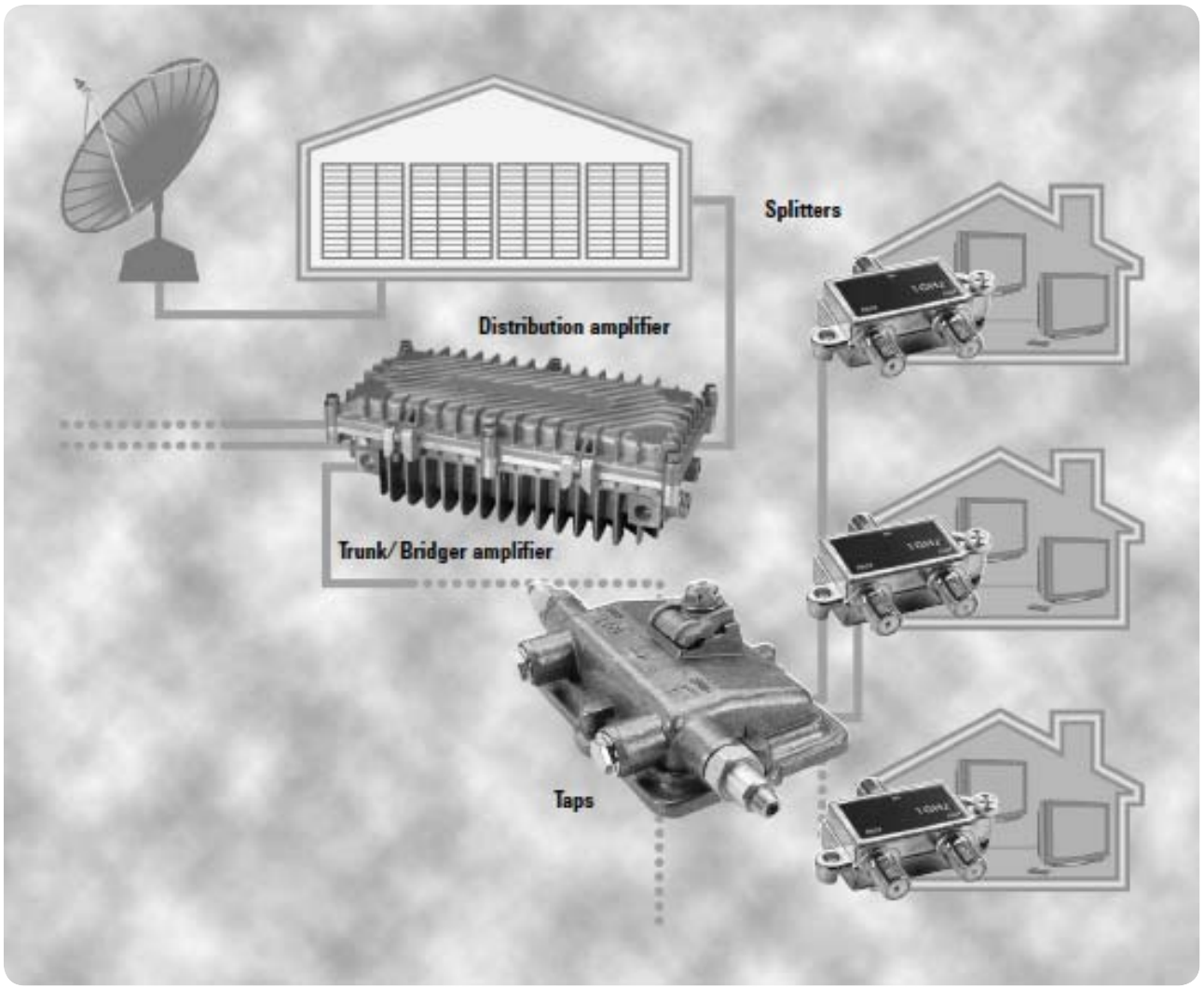
Designed for cable TV multiport device manufacturing

Taps and splitters

The 87075C multiport test set can be used with a quick-connect fixture to allow fast and easy high-volume testing of the frequency response, return loss, and isolation between all tap and splitter ports.

Distribution and trunk/bridger amplifiers

Use the Agilent multiport test system to test forward-and-reverse frequency response, gain, and slope as well as return loss on all amplifier ports. You can also test the isolation between all the amplifier's outputs.



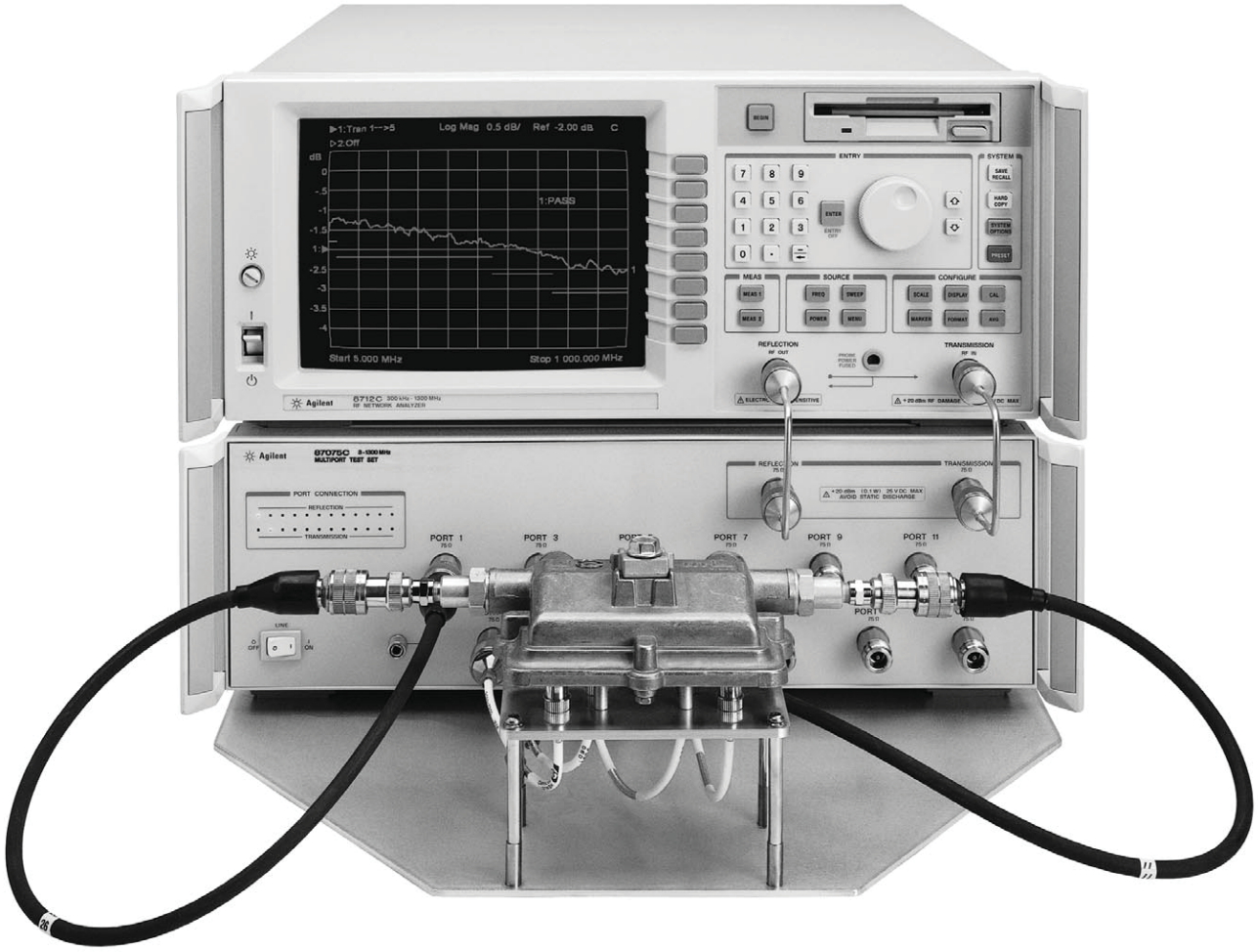
Cable TV distribution system showing typical multiport devices that can be measured with the Agilent 87075C multiport test set and 8711 C-Series network analyzer system

The Agilent multiport test system helps you:

- Reduce the number of connections by providing switching capability for the required number of measurement ports
- Reduce the time necessary for calibration with an innovative calibration technique with installation and on-line calibration (SelfCal)
- Get a fully specified system at the RF measurement ports for a verifiable interface

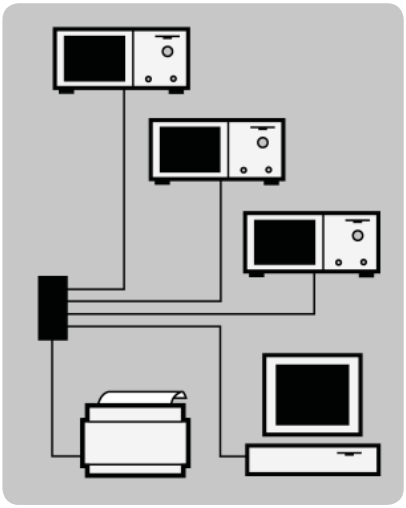
Compatibility

The 87075C multiport test set is comatible with the 8711C, 8712C, 8713C and 8714C RF network analyzers configured with the 75-Ω Option 1EC.



The Agilent 87075C multiport test set coupled with the 8711 C-Series of RF network analyzer helps you get high device throughput.

Additional productivity and ease-of-use features

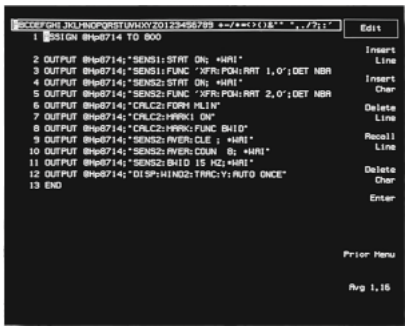


LAN connection for system networking

Optional local-area-network (LAN) connectivity provides a complete interface to your test-process-management software systems. The Agilent 8711 C-Series provides the improved device analysis and data-archival requirements that customers and regulatory agencies demand.

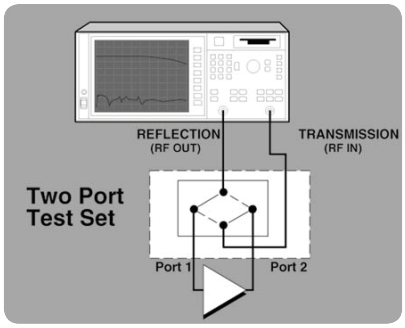
Make forward and reverse measurements with a T/R network analyzer

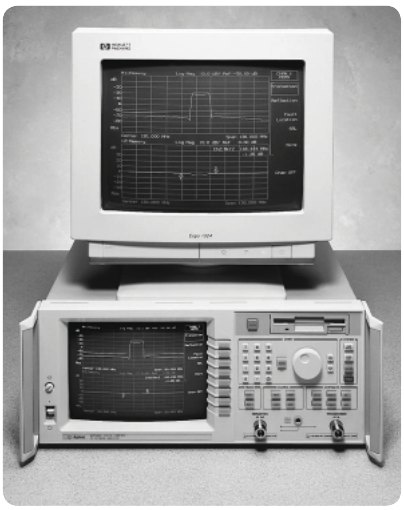
By using an external multiport test set like the 87075C with an 8711C, both forward and reverse transmission and reflection measurements can be made with a single connection.



Easy programming for automation

With the Agilent 8711C Instrument BASIC (IBASIC) option, you get a full- featured, built-in instrument controller for fast, flexible, and complete measurement customization. Even if you don't have programming experience, you can use IBASIC to perform complex computation and control to record keystrokes and automate your manual measurements.

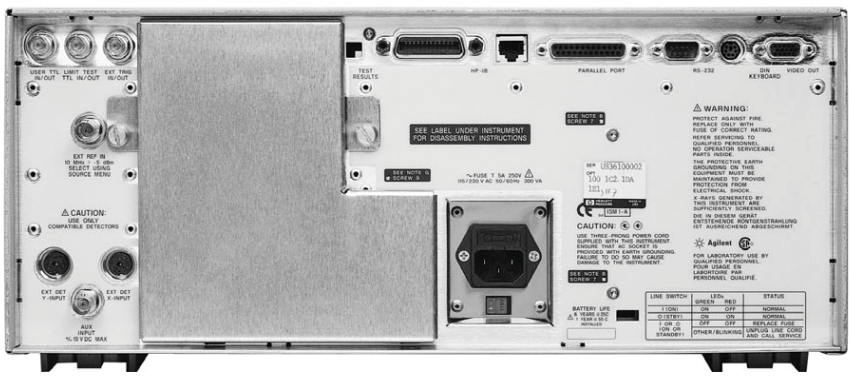




Large display and external VGA monitor

Your technicians and operators will appreciate how the large display of the analyzer enhances their ability to see measurement information in your manufacturing environment. You can also connect an analyzer to a standard VGA monitor and see measurement results in color on an even larger and easier-to-read screen.

In this example, a two-port test set allows a transmission/reflection-based network analyzer to make measurements in both forward and reverse directions.



Rear-panel connectivity

- LAN capability
- GPIB, Centronics parallel, and RS-232C serial interfaces
- VGA output
- TTL-level signal for part-handler-control
- DIN Interface

Agilent 87075C specifications and characteristics[1]

Frequency range	3 MHz to 1300 MHz
Noise floor [2]	–84 dBm
Receiver dynamic range	See 8711 C-Series data sheet
Measurement dynamic range[3]	60 dB
Connector type	Type-N Female, 75 Ω
Maximum test port power	
Measurement Level Damage	+16 dBm
Level	+20 dBm
Port-to-port isolation	60 dB
Port-to-port insertion loss	
Reflection to Port n	*6 dB*
Port n to Transmission	*7 dB*
Multiport system residuals	
Transmission Measurement	
• Source Match	
◦ Corrected	30 dB
◦ Uncorrected	14 dB
• Load match	16 dB
Reflection Measurement	
• Directivity	40 dB
• Source Match	30 dB
◦ Corrected	14 dB
◦ Uncorrected	20 dB
• Load Match	

Port Switching Time	*1 second*
Test Set Settling Time	*10 msec*
SelfCal calibration time[4]	*2 seconds*
Reflection	*4 seconds*
Transmission	
Line power	
Frequency	50/60 Hz
Voltage	100/120/220/240 V
Cabinet dimensions	132.8 mm H x 425 mm W x 495 mm D
Weight	
Net	7.7 kg
Shipping	11.3 kg

Environmental

General conditions

ESD (electrostatic discharge) must be eliminated by use of static-safe work procedures and an antistatic bench mat.

Operating temperature (Indoor use only)	0 ° to 55 °C
Altitude	0 to 4,600 m (15,000 ft)
Storage temperature	–40 °C to +70 °C

1. *This part provides several types of performance information:* ***Specifications*** *describe the test set's warranted performance over a temperature range of 20 °C to 30 °C, unless otherwise stated.* ***Supplemental Characteristics (indicated by italics)*** *are typical, but nonguaranteed parameters, intended to provide useful information in using the product.*

   The following conditions must be met for the test set to meet its specifications:
   - *The test set must be used with an Agilent 8711C, 8712C, 8713C or 8714C network analyzer (with 1-MByte SRAM and firmware revision 4.5 or later).*
   - *The analyzer must have had its performance verified within the last year.*
   - *Both instruments must be warmed up for at least 30 minutes after turn-on.*
   - *A valid test-set calibration must have been performed on the system within the last 30 days using valid standards.*
   - *A SelfCal must have been performed by the system within the last 60 minutes.*
2. *Medium-wide system bandwidth.*
3. *Limited by port-to-port isolation.*
4. *Assumes 201-point measurement, medium-system bandwidth.*

Ordering information

Agilent 87075C multiport test set

Includes:

Power cord, test-set calibration disk as well as:

87075-60026	Interconnect cable (reflection port)
87075-60028	Interconnect cable (transmission port)
8120-6818	Parallel port interface cable
87075-90005	87075C User's and Service Guide

Standard options

(Must order one of the following options with 87075C)

Option 002	Two-port system
Option 006	Six-port system
Option 012	Twelve-port system

Other options

Option 1CM	Rack-mount kit

Includes:

87075-60027	Interconnect cable (reflection port)
87075-60029	Interconnect cable (transmission port)

(These cables are shipped with Option 1CM only. Use these cables if you are rack-mounting your system, or if the bottom feet of the analyzer have been removed.)

Option UK6 Commercial calibration certificate with

87075-60026

87075-60028

8120-6818

Option 002 *Option 006* *Option 012*

Also available (order separately)

Cables

8120-2408	75 Ω Type-N to Type-N cable (M-M)
8120-2409	75 Ω Type-N to Type-N cable (M-F)
8120-8396	75 Ω Type-N to Type-F cable (M-M)
8120-8397	75 Ω Type-N to Type-F cable (M-F)

Precision adapters

85039-60010	Type-N (M) to Type-F (M)
85039-60011*	Type-N (F) to Type-F (M)
85039-60013*	Type-N (M) to Type-F (F)
85039-60014	Type-N (F) to Type-F (F)
85039-60002*	Type-F (F) to Type-F (F)
85039-60006*	Type-F (M) to Type-F (M)
85039-60012	Type-F (M) to Type-F (F)

**included in 85039B*

Commercial adapters

1250-2350	Type-F (F) to Type-F (F)
1250-2369	Type-N (M) to Type-F (M)
1250-2368	Type-N (F) to Type-F (M)

Calibration kits

HP 85039B	75 Ω Type-F calibration kit
◦ **Option 00M**	Male standards only
◦ **Option 00F**	Female standards only
HP 85036B	75 Ω Type-N calibration kit
HP 85036E	Economy 75 Ω Type-N calibration kit

Related products

Agilent 87075A/B custom multiport test sets. See literature number 5964-3830E for further information. Multiple switching test sets are also available through Agilent's special handling.

8120-2408 *8120-2409* *8120-8396* *8120-8397*

85039-60002 *85039-60006* *85039-60012*

85039-60010 *85039-60011* *85039-60013* *85039-60014*

1250-2350 *1250-2369* *1250-2368*

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www.agilent.com/find/removealldoubt

Product specifications and descriptions in this document subject to change without notice.

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