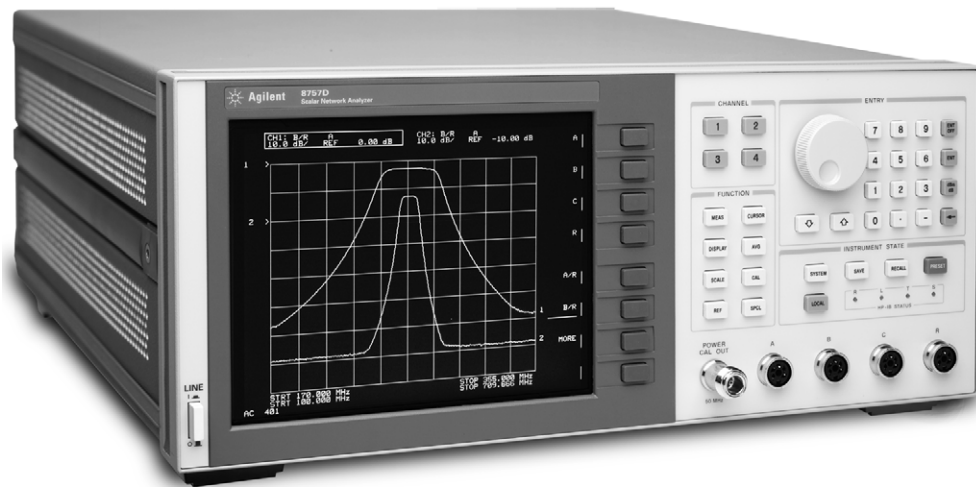


Agilent 8757D

Scalar Network Analyzers

10 MHz to 110 GHz

Configuration Guide



Agilent Technologies

Optimize your scalar analysis system to meet your specific measurement requirements. The Agilent 8757D measurement features provide greater system versatility and measurement throughout. This network analyzer forms the basis of a complete Agilent scalar measurement system. System components may be ordered separately, or as a complete package. The basic components of any scalar system include a scalar analyzer, a swept source, a directional bridge or coupler, and detectors. Other accessories such as a plotter, printer, or disk drive can be added to make a complete manual measurement system.

Agilent 8757D Scalar Network Analyzers

Test set options

- **8757D-700** standard test set
- **8757D-001** add fourth detector input
- **8757D-002** add internal power calibrator and a Type-N (m) to 3.5 (f) adapter
- **8757D-012** add fourth detector and internal power calibrator

Kit for rack flanges

- **8757D-908** add rack flange kit for instruments without handles
- **8757D-913** add rack flange kit for instruments with handles

Documentation

- **8757D-910** add extra manual set

Service options are available

Coaxial System Configurations

The following configurations allow scalar network analyzer measurements in the indicated frequency ranges and connector types. Ratioing is recommended for all configurations, since it improves the effective source match by removing the effects of source power variations versus frequency. When ratio measurements are not desired, the power splitter and one detector may be removed from the system. See Figure 1 for a block diagram of a basic scalar measurement system.

Other adapters might be necessary if the connectors of the device under test do not mate with the test port connectors. The test port connectors are documented for each of the configured systems below. Adapter ordering information is provided in the ordering guide on page six.

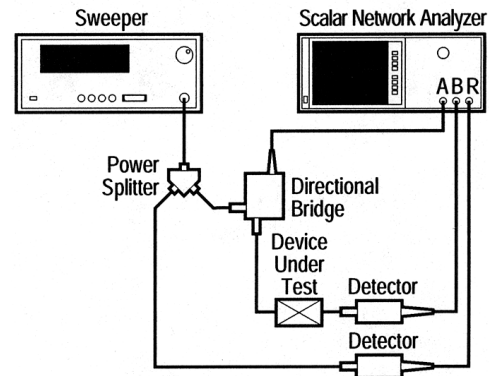


Figure 1. Basic scalar coaxial system, configured for ratio reflection and transmission measurements

Coaxial system configurations by frequency range and connector type

Frequency range	0.01 to 18 GHz	0.01 to 20 GHz	0.01 to 26.5 GHz	0.01 to 40 GHz	0.01 to 50 GHz
Connector type	Type-N	3.5 mm	3.5 mm	2.4 mm	2.4 mm
Analyzer	8757D	8757D	8757D	8757D	8757D
Synthesized sweeper	83620B with Option C01, or 83752A with Option 1ED	83620B or 83752A	83630B/L	83640B/L	83650B/L
Detector All have male connectors	85025A	85025E	85025E	85025D	85025D
Directional bridge	85027C	85027E	85027E	85027D	85027D
Test port type	Type-N (f)	3.5 mm (m)	3.5 mm (m)	2.4 mm (m)	2.4 mm (m)
Through adapter	N/A	Included with bridge	Included with bridge	11900B 2.4 mm (f) to (f)	11900B 2.4 mm (f) to (f)
Power splitter ¹	11667A Option 001	11667B	11667B	11667C	11667C
Adapter ¹ (power splitter to bridge)	Included with bridge	Part No. 1250-1748 3.5 mm (m) to (m)	Part No. 1250-1748 3.5 mm (m) to (m)	11900A 2.4 mm (m) to (m)	11900A 2.4 mm (m) to (m)
Reference detector ¹	85025A	85025E	85025E	85025D	85025D
System cable kit	85022A	85022A	85022A	85022A	85022A

1. These accessories required for ratio measurements only.

Millimeter-wave System Configurations

Scalar measurements to 110 GHz are facilitated by the use of the Agilent 83550 series millimeter-wave source modules. When these modules are driven by an 11 to 20 GHz, >+17 dBm microwave source, such as the Agilent 83623B, 83624B, or any

source in conjunction with an Agilent 8349B amplifier, they provide waveguide frequency coverage to 110 GHz. These efficient frequency multipliers offer internally leveled, high output power, and the high frequency accuracy and resolution of the driving microwave source.

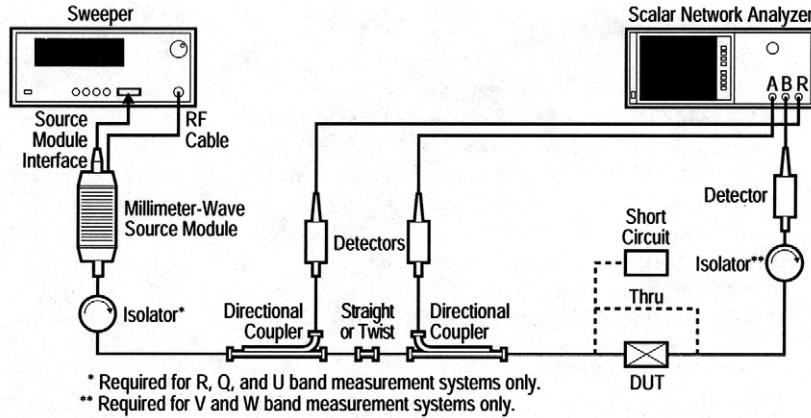


Figure 2. Block diagram for millimeter-wave ratio transmission and reflection measurements

Millimeter-wave system configurations by frequency range and connector type

Frequency range	26.5 to 40 GHz	33 to 50 GHz	40 to 60 GHz	50 to 75 GHz	75 to 110 GHz
Connector type	WR-28 (R band)	WR-22 (Q band)	WR-19 (U band)	WR-15 (V band)	WR-10 (W band)
Analyzer	8757D	8757D	8757D	8757D	8757D
Source					
Synthesized sweeper ¹	83752B	83752B	83752B	83752B	83752B
Source module	83623B/L 83554A	83623B/L 83555A	83623B/L 83556A	83623B/L 83557A	83623B/L 83558A
Detector (need 3)	R85026A	Q85026A	U85026A	85025C Option K57 and 85025C	85025C Option K71 and 85025C
Directional coupler (need 2)	R752C	Q752C	U752C	V752C	W752C
Isolator	R365A	Q365A	U365A	V365A	W365A
Fixed short	Pan No. 11644-20005	Pan No. 11644-20004	Pan No. 11644-20004	Pan No. 11644-20015	Pan No. 11644-20015
Support stand (need 2)	Pan No. 85100-60010	Pan No. 85100-60010	Pan No. 85100-60010	Pan No. 85100-60010	Pan No. 85100-60010
Straight or twist	3rd party vendor	3rd party vendor	3rd party vendor	3rd party vendor	3rd party vendor
System cable kit	85022A	85022A	85022A	85022A	85022A

1. You can choose between an individual synthesized sweeper (listed in the table above), or a combination of an 8349B amplifier and another 83601/8370 series synthesized sweeper.

Basic Measurement System Components

Sources

- **83620B** 0.01 to 20 GHz synthesized sweeper
- **83624B** 2 to 20 GHz synthesized sweeper, +17 dBm output power
- **83630B** 0.01 to 26.5 GHz synthesized sweeper
- **83640B** 0.01 to 40 GHz synthesized sweeper
- **83650B** 0.01 to 50 GHz synthesized sweeper

Extended service options available.

Amplifiers

- **8347A** 100 kHz to 3 GHz RF amplifier
- **8348A** 2 to 26.5 GHz microwave amplifier
- **8349B** 2 to 20 GHz microwave amplifier

Directional bridges¹

The following operate in AC or DC detection modes.

- **85027A** 0.01 to 18 GHz, 7 mm
- **85027B** 0.01 to 26.5 GHz, 3.5 mm (f)
- **85027C** 0.01 to 18 GHz, Type-N (f)
- **85027D** 0.01 to 50 GHz, 2.4 mm (m)
- **85027E** 0.01 to 26.5 GHz, 3.5 mm (m)

Precision detectors (For use with the 8757D only)

- **85037A** 0.01 to 18 GHz, type-N (m)
85037A-001 7-mm connector
(A Type-N (m) to 7-mm adapter is included to calibrate the 85037A-001 precision detector via the 8757D-002 internal power calibrator.)
- **85037B** 0.01 to 26.5 GHz, 3.5 mm (m)

Detectors

- **85025A** 0.01 to 18 GHz, Type-N (m)
85037A-001 7-mm connector
- **85025B** 0.01 to 26.5 GHz, 3.5 mm (m)
- **85025D** 0.01 to 50 GHz, 2.4 mm (m)
- **85025E** 0.01 to 26.5 GHz, 3.5 mm (m) with improved return loss

Detector adapters

- **85025C** SMA (m), AC or DC detection

Power splitters¹

- **11667A** DC to 18 GHz, all connectors Type-N (f)
1167A-001 Type-N (m) input connector
1167A-002 7-mm output connectors
- **11667B** DC to 26.5 GHz, 3.5 mm (f)
- **11667C** DC to 50 GHz, 2.4 mm (f)

Power dividers¹

- **11636A** DC to 18 GHz, Type-N (f)
- **11636B** DC to 26.5 GHz, 3.5 mm (f)

Basic Millimeter-Wave System Components

Millimeter-wave modules

- **83554A** 26.5 to 40 GHz, WR-28 waveguide
- **83555A** 33 to 50 GHz, WR-22 waveguide
- **83556A** 40 to 60 GHz, WR-19 waveguide
- **83557A** 50 to 75 GHz, WR-15 waveguide
- **83558A** 75 to 110 GHz, WR-10 waveguide

Waveguide detectors

- **R85026A** 26.5 to 40 GHz, WR-28
- **Q85026A** 33 to 50 GHz, WR-22
- **U85026A** 40 to 60 GHz, WR-19
- **85025CK-K71** 50 to 75 GHz, WR-15, must order with 85025C
- **85025CK-K71** 75 to 110 GHz, WR-10, must order with 85025C

Waveguide directional couplers

- **R752A/C/D** 26.5 to 40 GHz, 3/10/20 dB, WR-28
- **Q752A/C/D** 33 to 50 GHz, 3/10/20 dB, WR-22
- **U752A/C/D** 40 to 60 GHz, 3/10/20 dB, WR-19
- **V752C/D** 50 to 75 GHz, 10/20 dB, WR-15
- **W752C/D** 75 to 110 GHz, 10/20 dB, WR-10

Waveguide accessories

- **R365A** waveguide isolator, WR-28
- **Q365A** waveguide isolator, WR-22
- **U365A** waveguide isolator, WR-19
- **V365A** waveguide isolator, WR-15
- **W365A** waveguide isolator, WR-10
- **R910A** fixed load, WR-28
- **Q910A** fixed load, WR-22
- **V910C** fixed load, WR-15
- **W910C** fixed load, WR-10
- **Part No. 11644-20015** V/W fixed short, WR-15/10
- **Part No. 85100-60010** waveguide support stand
- **Part No. 85043-80013** anti-static mat
- **Part No. 11644-20004** Q/U fixed short, WR-22/19
- **Part No. 11644-20005** R fixed short, WR-28

1. Connector types refer to the test port (or output) connector unless otherwise specified.

Other Measurement Accessories

Standards

- **909A** 50 ohm termination, 7 mm
 - **Option 012** 50 ohm termination, Type-N (m)
- **909D** 50 ohm termination, 3.5 mm (m)
 - **Option 011** 50 ohm termination, 3.5 mm (f)
- **8490D** Option 010 50 ohm 10 dB pad, 2.4 mm (m)
- **8491B** Option 010 50 ohm 10 dB pad, Type-N (m)
- **8492A** Option 010 50 ohm 10 dB pad, 7 mm
- **8493C** Option 010 50 ohm 10 dB pad, 3.5 mm (m)
- **11512A** 50 ohm short, Type-N (m)
- **85138A** 50 ohm termination, 2.4 mm (m)
- **85138B** 50 ohm termination, 2.4 mm
- **85140A** short, 2.4 mm (m)
- **85141A** open, 2.4 mm (m)
- **85141B** open, 2.4 mm (f)
- **Part No. 1250-1530** 75 ohm short, Type-N (m)
- **Part No. 1250-1532** 75 ohm termination, Type-N (m)
- **Part No. 85021-60001** open/short, 7 mm
- **Part No. 85027-60004** open/short, 3.5 mm (f)
- **Part No. 85032-60001** 50 ohm open, Type-N (m)
- **Part No. 85037-60001** open/short, 3.5 mm (m)

Other accessories

- **11613B** calibrator
- **11679A** 7.6 m (25 ft) extension cable
- **11679B** 61 m (200 ft) extension cable
- **11852B** 50/75 ohm minimum loss pad
- **85022A** system cable kit
- **Disk drive** Agilent no longer offers Option 802, the 9122C disk drive. 8757D/E compatible disk drives are available from ISA, Inc. In the U.S., contact Saaya, Inc. (formerly known as ISA, Inc.). Elsewhere, contact ISA Company, Ltd at www.isa-j.co.jp/

Adapters

- **R281A** 2.4 mm (f) to WR-28
- **R281B** 2.4 mm (m) to WR-28
- **Q281A** 2.4 mm (f) to WR-22
- **Q281B** 2.4 mm (m) to WR-22
- **11900A** 2.4 mm (m) to (m)
- **11900B** 2.4 mm (f) to (f)
- **11900C** 2.4 mm (m) to (f)
- **Part No. 1250-1745** Type-N (m) to (m)
- **Part No. 1250-1743** 3.5 mm (m) to Type-N (m)
- **Part No. 1250-1746** 7 mm to 3.5 mm (m)
- **Part No. 1250-1747** 7 mm to 3.5 mm

Directional bridge connector savers

- **Part No. 85027-60002** 3.5 mm (m) to (m)
(For use with the 85027B directional bridge only)
- **Part No. 85027-60003** 3.5 mm (m) to (f)
(For use with the 85027B directional bridge only)
- **Part No. 85027-60005** 3.5 mm (f) to (f)
- **Part No. 85027-60006** 3.5 mm (f) to (m)
- **Part No. 85027-60007** 3.5 mm (m) to (m)

Peripherals

For a list of compatible printers, consult our printer-compatibility guide Web page. Its URL location is www.agilent.com/find/pcg

Software and Upgrade Kits

Software

(BASIC and 2 Mbytes of memory are required for use.)

- **Part No. 86399-10001** amplifier test software

Upgrade kits

- **Hardware upgrades**

86383C 8757D upgrade kit¹

(order one or both of the following options)

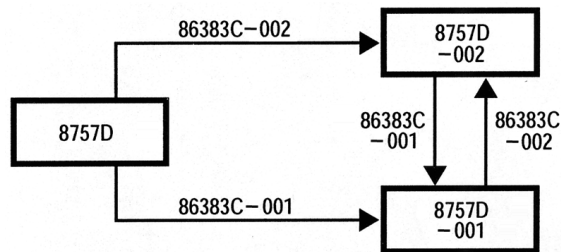
- **86383C-001** modifies 8757D to include 8757D-001 (fourth detector input)
- **86383C-002** modifies 8757D to include 8757D-002 (internal power calibrator)

- **Firmware upgrades**

Part No. 08757-60098 8757E firmware kit

Part No. 08757-60099 8757C firmware kit

Part No. 08757-60129 8757D firmware kit



Literature Guide

- *Agilent 8757D/E scalar network analyzers*, Data Sheet, literature number 5091-2471E
- *Improving network analyzer measurements of frequency-translating devices*, Application Note 1287-7, literature number 5966-3318E
- *Network analyzer measurements: filter and amplifier examples*, Application Note 1287-4, literature number 5965-7710E
- *Microwave component measurements; amplifier measurements using the scalar network analyzer*, Product Note 345-1, literature number 5954-1599

1. Installation not included.

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