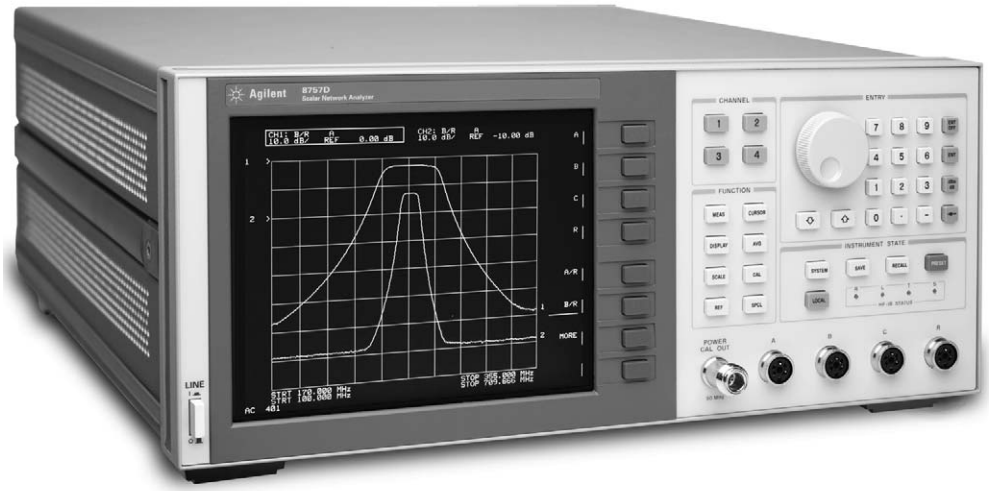
Agilent 8757D
Scalar Network Analyzers

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.

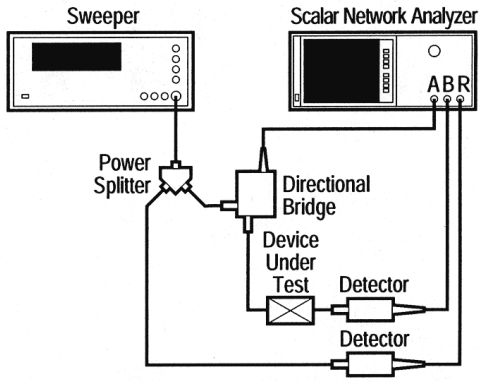


Figure 1. Basic scalar coaxial system, configured for ratio reflection and transmission measurements

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[2]	E8257D with Options 520, 007, IED	E8257D with Options 520, 007	E8257D with Options 540, 007 2.4mm (f) to 3.5mm (m) adapter	E8257D with Options 540, 007	E8257D with Options 550, 007
Synthesized sweeper (discontinued)	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 Test port type Through adapter	85027C Type-N (f) N/A	85027E 3.5 mm (m) Included with bridge	85027E 3.5 mm (m) Included with bridge	85027D 2.4 mm (m) 11900B 2.4 mm (f) to (f)	85027D 2.4 mm (m) 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

Note: Shaded items above have been discontinued.

1. These accessories required for ratio measurements only.
2. For higher output power and dynamic range, add option IEA to the E8247C/57C PSG Signal Generator.

Basic Measurement System Components

Sources

- **E8257D (Option 520, 007)** 250 kHz to 20 GHz synthesized sweeper with analog and pulse modulation
- **E8257D (Option 540, 007)** 250 kHz to 40 GHz synthesized sweeper with analog and pulse modulation
- **E8257D (Option 550, 007)** 250 kHz to 50 GHz synthesized sweeper with analog and pulse modulation

(for high output add option 1EA)
Extended service options available.

Directional bridges[1]

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 splitters[1]

- **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 dividers[1]

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

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-K57** 50 to 75 GHz, WR-15, must order with 85025C
- **85025CK-K71** 75 to 110 GHz, WR-10, must order with 85025C

Waveguide accessories

- **Part No. 11644-20015** V/W fixed short, WR-15/10
- **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)
- **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**

Upgrade Kits

- **Hardware upgrades**
  86383C 8757D upgrade kit[1]
  (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)

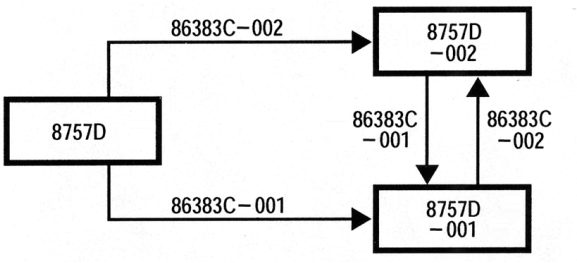


Figure 2. Hardware upgrade paths

Millimeter-wave System Configurations Based on Discontinued Products

The information below is provided as a reference for users who currently own these products, or those who are considering purchasing them from a used equipment supplier.

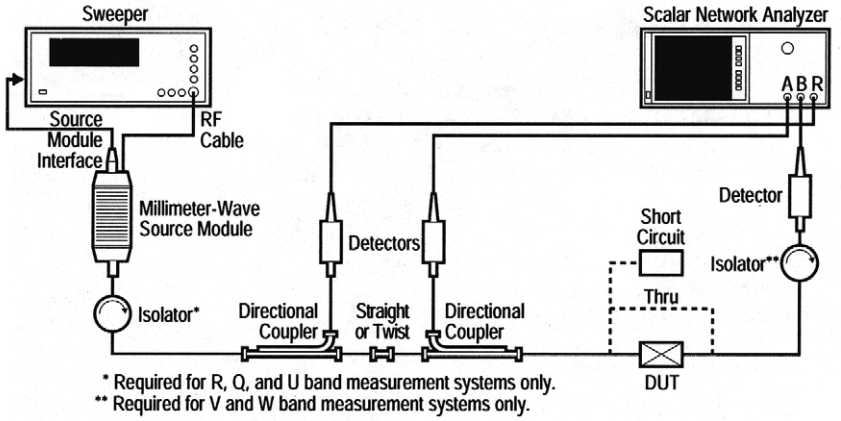


Figure 3. Block diagram for millimeter-wave ratio transmission and reflection measurements

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	E8257D Options 520, 007, IEA	E8257D Options 520, 007, IEA	E8257D Options 520, 007, IEA	E8257D Options 520, 007, IEA	E8257D Options 520, 007, IEA
Source module (discontinued)	83554A[2]	83555A[2]	83556A[2]	83557A[2]	83558A[2]
Detector (need 3)	R85026A	Q85026A	U85026A	85025CK Option K57 and 85025C	85025CK Option K71 and 85025C
Directional coupler (need 2) (discontinued)	R band (R752C[3])	Q band (Q752C[3])	U band (U752C[3])	V band V752C[3])	W band W752C[3])
Isolator (discontinued)	R band (R365A[4])	Q band (Q365A[4])	U band (U365A[4])	V band (V365A[4])	W band (W365A[4])
Fixed short	11644-20005	11644-20004	11644-20004	11644-20015	11644-20015
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

Note: Shaded items above have been discontinued.

1. Installation not included.
2. The Agilent 8355xA source modules have been discontinued as of 2005. However, they are still compatible with this configuration.
3. The Agilent x752C directional couplers have been discontinued as of 2002. However, they are still compatible with this configuration as well as other equivalent products.
4. The Agilent x365A isolators have been discontinued as of 2002. However, they are still compatible with this configuration as well as other equivalent products.

Literature Guide

- *Agilent 8757D/E scalar network analyzers,* Data Sheet, publication number 5091-2471E
- *Improving network analyzer measurements of frequency-translating devices,* Application Note 1287-7, publication number 5966-3318E
- *Network analyzer measurements: filter and amplifier examples,* Application Note 1287-4, publication number 5965-7710E
- *Microwave component measurements; amplifier measurements using the scalar network analyzer,* Product Note 345-1, publication number 5954-1599
- *Improving scalar network analysis using the PSG signal generator and the 8757D scalar network analyzer,* Application Note 1435, publication number 5988-8432EN

Web Resources

Visit our Web sites for additional product information and literature.

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