

- 30 kHz to 3 or 6 GHz frequency range
- Integrated T/R or S-parameter test set
- Up to 110 dB dynamic range
- Large LCD display with VGA output for external monitors
- Display up to four parameters at the same time
- Save/recall instrument states and data to built-in floppy-disk drive
- Optional time-domain and swept-harmonic measurements

The 8753ET and 8753ES RF network analyzers offer an unbeatable combination of speed, performance, and ease of use to meet your measurement needs, whether in the R&D laboratory or on the production floor. With an integrated test set covering to 3 or 6 GHz, up to 110 dB of dynamic range, and both frequency and power sweeps, the 8753ET and 8753ES give you a powerful solution for characterizing the linear and nonlinear behavior of active and passive networks, devices, components, and subsystems.

Family Features

Selecting the transmission/reflection analyzers (ET model) or S-parameter analyzers (ES model) allows you to choose the optimum level of performance versus cost for your application. The network analyzers feature two independent measurement channels that can measure and display up to four parameters simultaneously. You can choose to display any combination of reflection and transmission parameters, with magnitude, phase, group-delay, Smith-chart, polar, SWR, or time-domain formats. Easy-to-use softkeys let you access measurement functions quickly, and you can view results in overlay or split-screen format on the crisp, LCD color display using up to four gratitudes. A VGA-compatible output has been added to drive larger external monitors for enhanced viewing.

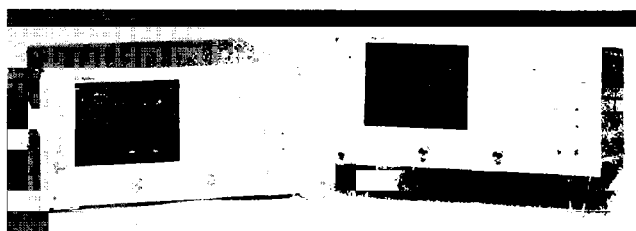
Test sequencing allows rapid, repeated execution of complex measurements with a single keystroke. In test-sequence mode, you make a measurement once from the front panel, and the analyzer stores the keystrokes so that the measurement can be repeated without any additional programming. You can also use a test sequence to control external devices through the parallel or GPIB port.

For measurements of mixers, tuners, and other frequency-translating devices, the frequency-offset mode allows the network analyzer source to be tuned independently from the receiver. Measurements of conversion loss, phase, group-delay, and mixer-tracking can easily be done, with either fixed or swept-IF testing.¹

Power-meter calibration provides leveled absolute power to devices that are sensitive to absolute input or output levels. The 8753ET/ES automatically controls an 436A, 437B, 438A, E4418B or E4419B power meter to set the power anywhere in the test setup with power-meter accuracy, or to calibrate the network analyzer receivers for accurate absolute-power measurements.

Other productivity features include a built-in floppy-disk drive supporting LIF, DOS, JPEG, and comma separated variable (CSV) formats, non-volatile memory, serial and parallel interfaces, a DIN keyboard interface, and a real-time clock for time-stamping of printouts and files. Limit testing, arbitrary frequency testing, and marker-tracking functions are included. You can reduce measurement time by using swept-list mode to choose specific frequencies to test, and to set independent IF bandwidths and power levels in each frequency range. Segmented calibration and interpolated error correction allow you to apply vector-accuracy enhancement over a subset of the analyzer's calibrated frequency range. The 8753ET/ES code compatibility with the 8753D/E enables you to leverage your existing software.

With Option 010, you can view reflection or transmission responses in the time domain. The analyzer computes the inverse FFT of the frequency-domain data to display the reflection or transmission coefficient versus time. Two time-domain analysis modes enable you to view the step or impulse response of your device. Time gating can be used to remove unwanted responses such as connector mismatch, and the gated results can be displayed in either the time or frequency domains.



Powerful measurement solutions

Combine an S-parameter network analyzer with the time domain capability to provide a simple, deterministic method for tuning cavity-resonator bandpass filters. Comparing the filter's reflection response in time-domain with the response of a properly tuned filter reveals which resonators or coupling adjustments need to be tuned. With time-domain filter tuning, you can easily train new personnel for this complex task and greatly simplify fine-tuning and troubleshooting procedures.

For more advanced characterization of devices, Option 002 adds harmonic-measurement capability. Swept second and third-harmonic levels of an amplifier can be displayed absolutely or in dBc relative to the fundamental. With the press of a button, you can measure harmonics down to -40 dBc.

A high-stability frequency reference, Option ID5, improves the frequency accuracy of measurements of high-Q devices such as SAW and crystal resonators or dielectric-resonance filters.

ET Models

The 8753ET features a built-in 50-ohm transmission/reflection (T/R) test set providing a full range of magnitude and phase measurements. Frequency coverage is from 300 kHz to 3 or 6 GHz. The T/R capability provides a very high level of accuracy and convenience in making forward measurements of the device under test. Enhanced response calibration corrects for the effects of source match in a transmission measurement. Option 004 extends the standard -20 to +5 dBm source power range to -85 to +10 dBm.

ES Models

The 8753ES features a built-in 50-ohm or 75-ohm S-parameter test set providing a full range of magnitude and phase measurements. Full two-port error correction capability provides the highest level of accuracy and the S-parameter test set provides the convenience of making both forward and reverse sweep measurements without reversing the device under test. For configuration flexibility, Option 011 deletes the built-in test set so that you can select your own. The 8753ES Option 011 works with the 85046A/B and 85047A S-parameter test sets, and other specialized test sets for specific applications. Option 014 provides a configurable test set for maximum flexibility. For convenient, accurate measurements in noncoaxial environments, TRL^{*}/LRM^{*} calibration is available. Highly accurate measurements of non-insertable devices can also be achieved using the built-in adapter-removal calibration technique.

Agilent-qualified Channel Partners provide measurement hardware and software solutions that combine with Agilent's network analyzer products to offer a complete solution for your testing needs. For additional information, please refer to page 79.

¹Phase measurements require reference mixer

^{*}TRL^{*} and LRM^{*} are three-sampler implementations of the through-reflect-line and line-reflect-match calibration techniques.

8753ET
8753ES

Network Analyzers

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RF Network Analyzers, 30 kHz to 6 GHz

8753ET
8753ES

Specifications Summary

Test Sets

8753ET provides an integrated transmission/reflection test set with complete forward measurements in 50 ohm. 8753ES provides an integrated S-parameter test set with complete forward and reverse measurements in 50-ohm (standard) or 75-ohm (Option 075). External test sets supported with the 8753ES Option 011.

Upgrade Kits for the 8753ET and 8753ES

Upgrade kits retrofit the latest operating system or add optional measurement capability to existing network analyzers. To order, add a "U" to the end of the model number of the instrument to be upgraded, and specify the desired option(s):

Option 002 Harmonic-Measurements Upgrade

This upgrade kit adds harmonic-measurement capability (Option 002) to an 8753ET or 8753ES network analyzer. This kit includes installation at an Agilent service center.

Option 004 Step Attenuator Upgrade

This upgrade kit adds a step attenuator to the 8753ET network analyzer. This enables the output power range to operate from -85 to +10 dBm instead of the standard -20 to +5 dBm. This kit includes installation at an Agilent Service Center.

Option 006 6 GHz Upgrade for Standard Units

This kit extends the operating frequency range of the standard 8753ET or 8753ES from 3 GHz to 6 GHz. Includes installation at an Agilent service center. Not compatible with 8753ES Option 075 or Option 011.

Option 611 6 GHz Upgrade for Option 011 Units

This kit extends the operating frequency range of the 8753ES Option 011 from 3 GHz to 6 GHz. Includes installation at an Agilent service center.

Option 010 Time-Domain Upgrade

This upgrade kit adds time-domain-analysis capability (Option 010) to an existing 8753ET or 8753ES network analyzer. This kit is user-installable.

Option 099 Firmware Upgrade Kit

This kit provides the latest version of firmware for the 8753ET or 8753ES network analyzer. The kit is user-installable. This kit may be optionally downloaded from Agilent's web site: www.agilent.com/find/firmware

Option 1D5 High-Stability Frequency Reference Upgrade

This option adds a high-stability frequency reference (Option 1D5) to an 8753ET or 8753ES network analyzer. Includes installation at an Agilent service center.

Key Literature

8753ET/ES Network Analyzer Brochure, p/n 5968-5159E
8753ET/ES Network Analyzer Technical Specifications, p/n 5968-5160E
8753ET/ES Network Analyzer Configuration Guide, p/n 5968-5158E

For more information, visit our web site: www.agilent.com/find/8753

	8753ET	8753ES	8753ES Option 011
Impedance	50 ohm (standard)	50 ohm (standard) 75 ohm (Option 075)	Depends on test set
Minimum frequency	300 kHz	30 kHz	300 kHz (30 kHz with Option 006)
Maximum frequency	3 GHz (6 GHz with Option 006)	3 GHz (6 GHz with Option 006)	3 GHz (6 GHz with Option 006)
Frequency resolution	1 Hz	1 Hz	1 Hz
Max. source power	5 dBm (10 dBm with Option 004)	10 dBm (8 dBm with Option 075 or Option 014)	20 dBm (18 dBm between 3 to 6 GHz with Option 006)
Min. source power	-20 dBm (-85 dBm with Option 004)	-85 dBm	-5 dBm
Power resolution	0.01 dB	0.01 dB	0.01 dB
Power flatness	< ± 0.5 dB	± 1 dB	± 1 dB
Power sweep range	25 dB	25 dB	25 dB
System dynamic range (>300kHz)	100 dB to 110 dB	100 dB to 110 dB	Depends on test set
Test port connector	Type-N (f)	7 mm (75 ohm Type-N (f) with Option 075)	Depends on test set

Data applies at 25° C ±5° C. See product literature for more complete specifications and for total measurement uncertainty after error correction.

Size: 222mm H x 425mm W x 457mm D (8.75in x 16.75in x 18in)

Weight: 21kg (46 lb) net; 35kg (77 lb) shipping

External S-Parameter Test Sets

The S-parameter test sets provide the capability to measure reflection and transmission characteristics (including S-parameters) of two-port devices in either direction with a single connection. The test sets are controlled from the analyzer and include programmable step attenuators. These test sets are used with the 8753A/B/C or the 8753D/E/ES Option 011 only.

85046A/B S-Parameter Test Sets

The 85046A/B test sets provide the capability to simultaneously measure the transmission and reflection characteristics of 50-ohm and 75-ohm devices, respectively.

Specifications Summary

	85046A	85046B
Impedance	50 Ω	75 Ω
Frequency Range	300 kHz to 3 GHz	300 kHz to 2 GHz
Directivity	35 dB to 1.3 GHz 30 dB to 3.0 GHz	35 dB to 1.3 GHz 30 dB to 2.0 GHz
Typical Tracking Transmission Magnitude, Phase ^{1,2,3}		
0.3 MHz to 2.0 MHz	± 1.5 dB, $\pm 20^\circ$	± 1.5 dB, $\pm 20^\circ$
2.0 MHz to Fmax	± 1.5 dB, $\pm 10^\circ$	± 1.5 dB, $\pm 10^\circ$
Reflection Magnitude, Phase ^{1,2,3}		
0.3 MHz to 2.0 MHz	± 1.5 dB, $\pm 25^\circ$	± 1.5 dB, $\pm 25^\circ$
2.0 MHz to Fmax	± 1.5 dB, $\pm 10^\circ$	± 1.5 dB, $\pm 10^\circ$
Effective Source Match ³ (test ports)		
0.3 MHz to 2.0 MHz	14 dB	14 dB
2.0 MHz to 1.3 GHz	20 dB	17 dB
2.0 MHz to Fmax	16 dB	16 dB
RF Connectors		
Test Ports	Precision 7 mm	75 Ω Type-N (female)
All Others	50 Ω Type-N (female)	50 Ω Type-N (female)

¹Degrees, specified as deviation from linear phase.

²Fmax is the upper frequency limit of the associated test set.

³Can be improved through accuracy enhancement.

Includes: Four 190-mm (7.5 in) cables with Type-N (male) connectors for connection to the 8753. One 8753 test set interconnect cable.

Physical Characteristics

Size: 90 mm H x 426 mm W x 508 mm D (3.5 in x 16.75 in x 20 in)

Weight: Net, 6.8 kg (15 lb); shipping, 9.1 kg (20 lb)

85047A S-Parameter Test Set

The 85047A test set includes a frequency doubler that can be switched in to measure 3 MHz to 6 GHz in a single sweep or switched out to measure 300 kHz to 3 GHz in a single sweep. The 8753B/C controls the frequency doubler. (The 8753D/E/ES Options 006 and 011 with built-in 6 GHz source does not use the frequency doubler, but are still compatible with the 85047A.) Option 006 (6 GHz receiver) is required to activate the 85047A.

Specifications Summary

Impedance: 50 Ω

Frequency Ranges

300 kHz to 3 GHz and 3 MHz to 6 GHz (8753B/C);

300 kHz to 6 GHz (8753D/E/ES Options 006 and 011)

Directivity

300 kHz to 1.3 GHz: 35 dB;

1.3 GHz to 3 GHz: 30 dB

3 GHz to 6 GHz: 25 dB

Typical Tracking

Transmission Magnitude, Phase

300 kHz to 3 GHz: ± 1.5 dB, $\pm 10^\circ$;

3 GHz to 6 GHz: +0.5, -2.5 dB, $\pm 20^\circ$

Reflection Magnitude, Phase

00 kHz to 3 GHz: ± 1.5 dB, $\pm 10^\circ$;

3 GHz to 6 GHz: ± 1.5 dB, $\pm 20^\circ$

Effective Source Match

300 kHz to 1.3 GHz: 20 dB;

1.3 GHz to 3 GHz: 16 dB

3 GHz to 6 GHz: 14 dB

RF Connectors

Test Ports: Precision 7 mm

All Others: 50 Ω Type-N (female)

Includes: Four 190 mm (7.5 in) cables with Type-N (male) connectors for connection to the 8753, one 8753 test set interconnect cable.

Physical Characteristics

Size: 90 mm H x 426 mm W x 508 mm D (3.5 in x 16.75 in x 20 in)

Weight: Net, 10 kg (22 lb); shipping, 15 kg (33 lb)

External Test Set Switching

Option 009 replaces the standard solid-state RF test port switch with a mechanical RF switch. 8753 system specifications for standard and Option 009 test sets are identical. Nominal insertion loss of the solid-state switch is less than 2 dB (at 3 GHz) or 3 dB (at 6 GHz), relative to a mechanical switch.

Special Test Sets

Special test sets are available to configure the 8753ES for specific applications. Some examples are listed below. Contact Agilent for details about these products or for information about additional special options for 8753 network analyzers.

Option H16 Low Noise Floor

Adds the ability to reverse the port 2 coupler to increase the forward dynamic range by about 13 dB.

Option H39 Three-Port Test Set

Adds a third test port and switching to provide all transmission and reflection measurements for three-port devices.

Option H68 Extended frequency range above 6 GHz

Allows characterization of components up to 6.8 GHz.

Option H85 High power test set

Adds access to signal paths to allow the addition of an external amplifier, high power attenuators or isolators for handling up to 20 Watts of power at the test ports. Standard solid-state transfer switch is replaced by mechanical switch and internal attenuators are added.

Network Analyzers

Accessories

8753ET/ES
85046A/B
85047A

Transit Cases

Agilent offers a complete line of sturdy transit cases in valise and tote styles. The cases protect your instrument from shock, vibration, moisture, impact, and contamination, providing a secure enclosure for shipping. Model 9211-2651 (standard) or model 9211-7522 (tote) fit the 8753ET/ES.

Key Literature


8753ET/ES Network Analyzer Brochure, p/n 5968-5159E
8753ET/ES Network Analyzer Technical Specifications, p/n 5968-5160E
8753ET/ES Network Analyzer Configuration Guide, p/n 5968-5158E

For more information, visit our web site: www.agilent.com/find/8753

Ordering Information

Price

Note: A complete system consists of a network analyzer, calibration kit, and cables. Calibration kits and cables can be found in the Accessories section beginning on pg. 299.

8753ET Network Analyzer, 300 kHz to 3 GHz	\$24,750
Opt 002 Harmonic Measurement Capability	+\$3,640
Opt 004 Built-in Step Attenuator	+\$1,030
Opt 006 6 GHz Frequency Extension	+\$5,050
Opt 010 Time-Domain Capability	+\$5,460
Opt 1D5 High-Stability Frequency Reference	+\$1,030
8753ES Network Analyzer, 30 kHz to 3 GHz	\$31,700
Opt 002 Harmonic Measurement Capability	+\$3,610
Opt 006 6 GHz Frequency Extension	+\$5,050
Opt 010 Time-Domain Capability	+\$5,460
Opt 011 Delete Built-in Test Set	-\$6,508
Opt 014 Configurable Test Set	\$2,550
Opt 075 75 Ω Impedance	\$0
Opt 1D5 High-Stability Frequency Reference	+\$1,030
85047A 50 Ω S-Parameter Test Set, 6 GHz	\$11,350
Opt 009 Mechanical Test Port Switch	-\$1,040
Opt 913 Rackmount Kit (5062-4069)	+\$42 

85046A 50 Ω S-Parameter Test Set, 3 GHz	\$9,460
Opt 009 Mechanical Test Port Switch	-\$1,040
Opt 913 Rackmount Kit (5062-4069)	+\$42 
85046B 75 Ω S-Parameter Test Set, 300 kHz, 2 GHz	\$9,460
Opt 009 Mechanical Test Port Switch	-\$1,040
Opt 913 Rackmount Kit (5062-4069)	+\$42 

Options may be added to an 8753E family analyzer after initial purchase by ordering one of the following upgrade kits. To order an upgrade kit, specify the instrument's model number followed by a "U" to indicate upgrade, along with the option(s) you want to retrofit.

8753ET Upgrade Kits	
Opt 002 Harmonic Measurements Upgrade	+\$3,610
Opt 004 Step Attenuator Upgrade	+\$1,030
Opt 006 6 GHz Upgrade for Standard Units	+\$5,050
Opt 010 Time-Domain Upgrade	+\$5,460
Opt 099 Firmware Upgrade Kit	+\$100
Opt 1D5 High-Stability Frequency Reference Upgrade	+\$1,030
8753ES Upgrade Kits	
Opt 002 Harmonic Measurements Upgrade	+\$3,640
Opt 006 6 GHz Upgrade for Standard Units	+\$6,120
Opt 010 Time-Domain Upgrade	+\$5,520
Opt 099 Firmware Upgrade Kit	+\$100
Opt 1D5 High-Stability Frequency Reference Upgrade	+\$1,030
Opt 611 6 GHz Upgrade for Option 011 Units	+\$6,120

Transit Cases

9211-2651 Standard Transit Case	\$950
9211-7522 Tote-Style Transit Case	\$1,350

 Indicates QuickShip availability.

For more information on compatible printers, visit our web site: www.agilent.com/find/pcg