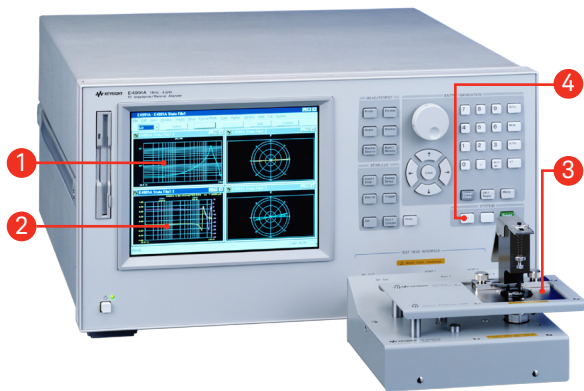


Keysight E4991A RF Impedance/Material Analyzer

Frequency ranges: 1 MHz to 3 GHz

An Industrial Standard in RF Impedance and Material Measurements

The Keysight Technologies, Inc. E4991A RF impedance/material analyzer provides a total solution for making highly accurate, repeatable, and stable measurements of surface mount devices (SMD) and dielectric/magnetic materials.

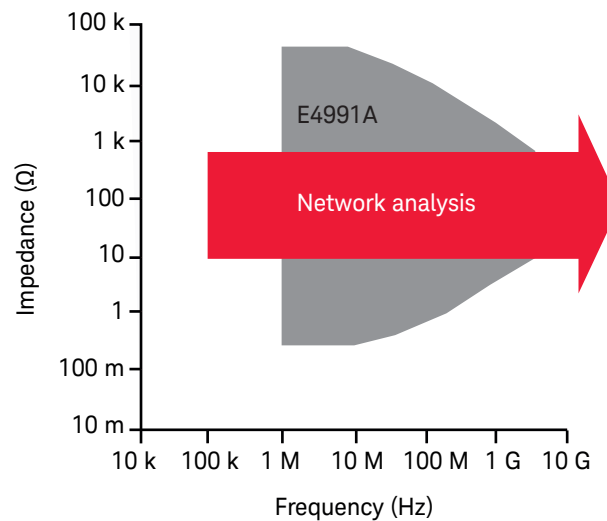


1. Max 801 sweep points
2. Equivalent circuit analysis
3. More than 9 test fixtures
4. Built-in VBA LAN/GPIB/USB Interfaces

Key features

1. High accuracy over a broad impedance measurement range
 - The E4991A enables accurate measurements over a broad range from 1/10 times lower impedance to 10 times higher impedance than network analyzer method.
 - 15 parameters: $|Z|$, $|Y|$, L, C, R, X, G, B, D, Q, θ_z , $|\Gamma|$, Γ_x , Γ_y , $\theta\Gamma$
 - Measurement range from 0.13 Ω to 20 k Ω (within 10 % accuracy)
 - 0.8 % basic accuracy
 - 0 to ± 40 V, ± 50 mA DC bias (Option 001)

Measurement range within 10 % accuracy



2. Material measurement firmware (Option 002)
 - Dielectric and magnetic material measurement firmware for measuring permittivity (ϵ_r) and permeability (μ_r) up to 1 GHz.



1. $|\epsilon_r|$, ϵ_r' , ϵ_r'' and $\tan \delta$ measurements by using the 16453A dielectric material test fixture
2. $|\mu_r|$, μ_r' , μ_r'' and $\tan \delta$ measurements by using the 16454A magnetic material test fixture

Models

Model	Description
E4991A	RF Impedance/Material Analyzer, 1 MHz to 3 GHz

Options

Model	Description	Publication number
E4991A-001	Adds DC bias source, 0 to ± 40 Vdc, ± 50 mAdc	
E4991A-002	Material measurement firmware	
E4991A-007	Temperature characteristic test kit	5988-9772EN
E4991A-010	Probe station connection kit	5988-3279EN
E4991A-800	Standard frequency reference	
E4991A-1D5	High stability frequency reference	
E4991A-810	Keyboard, PS/2	
E4991A-820	Mouse, PS/2	
E4991A-ABA	U.S. – English localization	
E4991A-ABJ	Japan – Japanese localization	
E4991A-1A7	17025 compliant calibration	
E4991A-A6J	ANSI Z540 compliant calibration	

For rack mount/handle kit options and more details on the option configuration, refer to the configuration guide 5989-8521EN.

Upgrade options

Refer to the configuration guide 5989-8521EN for the upgrades.

Application support literatures

Literature	Publication number
Impedance Measurement Handbook – 4th Edition – Application Note	5950-3000
New Generation Analyzer Offers Exceptional and Powerful Analysis Functions for RF Impedance Measurement – Configuration Guide	5988-0200EN

For additional literature and product information, refer to the following literatures

Literature	Publication number
E4991A RF Impedance/Material Analyzer – Technical Overview	5980-1234E
E4991A RF Impedance/Material Analyzer – Data Sheet	5980-1233E
E4991A RF Impedance/Material Analyzer – Configuration Guide	5989-8521EN

Recommended accessories

DUT	Fixture type	Model	Description
Lead	Axial/radial	16092A	≤ 500 MHz
		16194A	≤ 2 GHz, -55 to $+200$ °C
SMD/chip	SMD/chip	16092A	$\geq 1.6 \times 0.8$ (mm), ≤ 500 MHz
		16192A	$\geq 1.0 \times 0.5$ (mm), ≤ 2 GHz
		16196A/B/C/D	1608 (A), 1005 (B), 0603 (C), 0402 (D) in mm code, ≤ 3 GHz
		16194A	≤ 2 GHz, -55 to $+200$
Material	Dielectric	16197A	$\geq 0.6 \times 0.3$ (mm), ≤ 3 GHz
		16453A ¹	Permittivity, ≤ 1 GHz
	Magnetic	16454A ¹	Permeability, ≤ 1 GHz
	External DC bias	16200B	0 to ± 40 V, ± 5 A, ≤ 1 GHz

1. E4991A-002 is required to use the 16453A or the 16454A.

For other accessories, refer to the configuration guide 5989-8521EN.

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