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Data Sheet

August 15, 2026

AGILENT / KEYSIGHT

Agilent/Keysight 16451B

Keysight Agilent 16451B Dielectric Test Fixture DC to 30 MHz ASTM D150 The Keysight 16451B is a parallel-plate dielectric test fixture for solid materials, compliant with ASTM D150, specified DC to 30 MHz. OEM impedance-accessories catalog lists 4-terminal-pair BNC, plus or minus 42 V peak (AC+DC), 0.8 m cable, 3700 g, electrodes A/B/C/D, and 0 to 55 C operation with E4980A/AL, E4981A, and E4990A. Permittivity and dissipation-factor measurements of disc and film dielectrics using contacting, thin-film, or air-gap methods. The Keysight 16451B is a parallel-plate dielectric test fixture for solid materials, compliant with ASTM D150, specified DC to 30 MHz. OEM impedance-accessories catalog lists 4-terminal-pair BNC, plus or minus 42 V peak (AC+DC), 0.8 m cable, 3700 g, electrodes A/B/C/D, and 0 to 55 C operation with E4980A/AL, E4981A, and E4990A. Permittivity and dissipation-factor measurements of disc and film dielectrics using contacting, thin-film, or air-gap methods. Guarded electrodes to absorb fringe capacitance



MODEL

**Agilent / Keysight
16451B**

CALIBRATION

**Available on
request**

CONDITION

Used

STATUS

In stock

RFQ / SKU

16451B

LISTING

<https://aumictechlabs.com/products/16451b-2/>

NIST-traceable cal

SAM registered

30-day returns

NAICS 423690 · 811210 · 541380

This unit

The Keysight 16451B is a dielectric test fixture for measuring the dielectric constant and dissipation factor of solid dielectric materials in compliance with ASTM D150. Operating on the parallel plate method, it forms a capacitor by sandwiching the test material between two electrodes and incorporates a guard electrode to suppress fringe capacitance effects. The fixture

connects to LCR meters and impedance analyzers via 4-terminal pair BNC connectors and operates from DC to 30 MHz. Four interchangeable electrode sets A, B, C, and D - accommodate flat, smooth, rough, or extremely thin materials across sample diameters from 10 mm to 56 mm and thicknesses up to 10 mm. The 16451B withstands ± 42 V peak maximum (AC + DC) and functions in ambient temperatures from 0 °C to 55 °C at humidity levels up to 95% RH at 40 °C. Complete with multiple electrode configurations, attachment for error compensation, and carrying case, this fixture delivers accurate characterization of dielectric properties across wide material variety and frequency spans.

Technical Specifications

Frequency Range: DC to 30 MHz
Maximum Voltage: ± 42 V peak (AC + DC combined)
Connector Type: 4-Terminal Pair, BNC
Operating Temperature: 0 °C to 55 °C
Operating Humidity: $\leq 95\%$ RH at 40 °C
Cable Length: Approximately 0.8 m
Weight: Approximately 3.7 kg including accessories

Key Features

- Guard electrode design minimizes stray capacitance at electrode edges
- Four electrode sets for diverse material types and geometries
- Electrode A (38 mm diameter) for flat, smooth materials; sample diameter 40–56 mm
- Electrode B (5 mm diameter) for flat, smooth materials; sample diameter 40–56 mm
- Electrodes C and D for rough or extremely thin materials; sample diameter 10–56 mm
- Thin film electrode options for sample diameters up to 50 mm (Electrode C) and 14 mm (Electrode D)
- All sample types limited to thickness ≤ 10 mm
- Includes error compensation attachment and hex key for electrode replacement

Typical Applications

- Characterization of polymer films and sheets
- Evaluation of ceramic and composite dielectric properties
- Quality control testing of insulating materials
- Research and development of advanced dielectric systems

Compatibility & Integration

Works with LCR meters and impedance analyzers supporting 4-terminal pair measurement configuration. Compatible with Keysight 4194A and 4294A impedance analyzers.

16451B Characteristics / Specifications

PARAMETER	VALUE
Model	16451B
Instrument Type	Dielectric test fixture
Frequency Range	DC to 30 MHz
Maximum Voltage	plus or minus 42 V peak (AC plus DC)
Terminal Connector	4-terminal pair BNC
Cable Length	0.8 m from connector to electrodes
Weight	3700 g including accessories
Operating Temperature	0 C to 55 C
Applicable Instruments	E4980A/AL, E4981A, E4990A
Standard	ASTM D150
ElectrodeAMut Diameter	40 mm to 56 mm
ElectrodeAMut Thickness	less than or equal to 10 mm
ElectrodeAGuarded Diameter	38 mm
ElectrodeAMax Frequency	30 MHz
ElectrodeBMut Diameter	10 mm to 56 mm
ElectrodeBMut Thickness	less than or equal to 10 mm
ElectrodeBGuarded Diameter	5 mm
ElectrodeBMax Frequency	30 MHz
ElectrodeCMut Diameter	56 mm
ElectrodeCMut Thickness	less than or equal to 10 mm
ElectrodeDMut Diameter	20 mm to 56 mm class
Measurement Methods	contacting rigid, contacting thin film, non-contacting air gap
Permittivity Of Air E	8.854e-12 F/m
Guard Function	absorbs fringe capacitance at electrode edge
Osc Level Example With E4990a	500 mV catalog example

PARAMETER	VALUE
Adapter Setup Example	1 m

General Specifications & Supplementary Characteristics

PARAMETER	VALUE
Operating temperature	0 C to 55 C
Operating Temperature	0 C to 55 C
Applicable Instruments	E4980A/AL, E4981A, E4990A
Standard	ASTM D150
ElectrodeAMut Diameter	40 mm to 56 mm
ElectrodeAMut Thickness	less than or equal to 10 mm
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ElectrodeAMax Frequency	30 MHz
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ElectrodeCMut Thickness	less than or equal to 10 mm
ElectrodeDMut Diameter	20 mm to 56 mm class
Measurement Methods	contacting rigid, contacting thin film, non-contacting air gap
Permittivity Of Air E	8.854e-12 F/m
Guard Function	absorbs fringe capacitance at electrode edge
Osc Level Example With E4990a	500 mV catalog example
Adapter Setup Example	1 m Notes From Keysight Accessories Catalog for Impedance Measurements 16451B section and 16451B operation/service manual frequency/voltage/electrode tables. Permittivity error equations are supplemental characteristics that include the host analyzer Az/Ad terms.

Full OEM specifications

Complete technical content extracted from the manufacturer datasheet. Sparse OEM tables are reconstructed as tables below; other text is preserved as paragraphs.

Specifications	
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PARAMETER	VALUE
Model	16451B
Instrument Type	Dielectric test fixture
Frequency Range	DC to 30 MHz
Maximum Voltage	plus or minus 42 V peak (AC plus DC)
Terminal Connector	4-terminal pair BNC
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ElectrodeAMax Frequency	30 MHz
ElectrodeBMut Diameter	10 mm to 56 mm
ElectrodeBMut Thickness	less than or equal to 10 mm
ElectrodeBGuarded Diameter	5 mm
ElectrodeBMax Frequency	30 MHz
ElectrodeCMut Diameter	56 mm
ElectrodeCMut Thickness	less than or equal to 10 mm
ElectrodeDMut Diameter	20 mm to 56 mm class
Measurement Methods	contacting rigid, contacting thin film, non-contacting air gap
Permittivity Of Air E0	8.854e-12 F/m
Guard Function	absorbs fringe capacitance at electrode edge
Osc Level Example With E4990a	500 mV catalog example
Adapter Setup Example	1 m

Notes

From Keysight Accessories Catalog for Impedance Measurements 16451B section and 16451B operation/service manual frequency/voltage/electrode tables. Permittivity error equations are supplemental characteristics that include the host analyzer Az/Ad terms.

Available from Aumictech

Used and refurbished unit evaluated in-house. Calibration: Available on request. Used · In stock.

Request a quote: sales@aumictech.com · +1 (484) 841-9341

Aumictech

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NIST-traceable calibration · SAM registered ·
30-day returns
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Technical content from manufacturer specifications. Unit photo/stock from Aumictech listing when available. Specifications subject to OEM documentation and unit condition.