

What is the calibration service for voltage transformers and high-voltage capacitors?

The National Institute of Standards and Technology (NIST) calibration service for voltage transformers and high-voltage capacitors is described. The service for voltage transformers provides measurements of ratio correction factors and phase angles at primary voltages up to 170 kV and secondary voltages as low as 10 V at 60 Hz.

What voltage can a capacitor be calibrated at?

Calibrations at frequencies from 50-400 Hz are available over a more limited voltage range. The service for high-voltage capacitors provides measurements of capacitance and dissipation factor at applied voltages ranging from 100 V to 170 kV at 60 Hz depending on the nominal capacitance.

How difficult is it to calibrate capacitors for use as standards?

Selection and calibration of capacitors for use as Standards is a challenging task, especially since the accuracies required, depending on the application, can be very demanding for the test gear as well as for the secondary- and working-standards used.

What is a high-voltage capacitor?

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How accurate is a capacitor calibration?

The most accurate capacitor calibrations have an uncertainty of ± 25 ppm for capacitance and an uncertainty of $\pm 5 \times 10^{-6}$ for dissipation factor. For capacitors with large dissipation factors, the dissipation factor uncertainty is generally at least $\pm 1\%$ of the measured value $\pm 5 \times 10^{-6}$.

What is a capacitance calibration meter?

2. Capacitance Calibration The precision measurement of capacitors for the purpose of calibration is generally based on a national primary standard of high accuracy, secondary/working Standards derived from it, and a capacitance- (or LCR-) meter used for the measurement (i.e. calibration) of the devices under test (DUT).

The DVR Series of high voltage resistor/capacitor designed dividers are for the measurement of high voltage output sources or for the calibration of metering devices. They are dividers only, designed to interface with standard multi-meters and oscilloscopes commonly used. Both have selectable low-end impedance options. Two models: 0 - 150 kV & 0 - 300 kV ac/dc. DVR ...

Dissipation factor standards can also be used to calibrate the dissipation factor function of high voltage

capacitance bridges. One needs a known standard capacitor CS with negligible dissipation factor ($\tan \delta_S = 0$) and a dissipation factor standard with known capacitance CX and known dissipation factor $\tan \delta_X$. Fig. 2. Dissipation factor ...

HIGH-VOLTAGE STANDARD CAPACITORS ANALYSIS Pressurized gas capacitors can be used in high-voltage tests as: standards in bridge circuits for capacitance and loss factor measurement; part of potential dividers for high-voltage measurement; part of reference transforming dividers for calibration for instrument transformers [3][4][5]. This article deals with the capacitor as part of a ...

This paper presents a comprehensive methodology for the precise calibration of high-voltage capacitance and dissipation factor (DF) bridges. The technique involves meticulous adjustments using a digital high-precision phase and ratio-measuring system to determine ...

XVIII IMEKO WORLD CONGRESS Metrology for a Sustainable Development September, 17 - 22, 2006, Rio de Janeiro, Brazil INFLUENCE OF STANDARD CAPACITORS ON THE QUALITY OF HIGH VOLTAGE

Calibrations at frequencies from 50-400 Hz are available over a more limited voltage range. The service for high-voltage capacitors supports the measurement of capacitances and dissipation factors at applied voltages ranging from 100 V to 170 kV at.

calibrations of high-voltage power equipment depend on standard capacitors. This is the case of voltage transformers, high-voltage dividers [1], and tangent delta bridges, among others [2]. For these devices, high accuracy calibrations are needed.

In this measurement the reference capacitor and capacitance measuring bridge are traceable calibrated standards. The determination of the capacitance and dissipation factor of a capacitor is just as important in high-voltage technology as it is in electronics.

This paper presents an adapted technique to calibrate the AC voltage divider of AC high-voltage measuring systems up to 200 kV at the Egyptian National Institute of Standards. Two identical capacitors have been used as two similar AC high-voltage capacitive dividers. Firstly, the dividing ratios of two capacitors have been achieved by calibrating each capacitor ...

We understand that high voltage equipment is often heavy, permanently sited and difficult to move -- therefore we are fully equipped to work on site so that equipment and instrumentation can remain in situ. Services include: AC -- DC up to 400kV; VLF; Partial Discharge Detection; Capacitance and TanDelta Bridges; Standard Capacitors

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laboratory working Standards used in our calibration chain are Genrad (GR) air capacitors (type 1403; 1pF to 1000pF; also exhibiting excellent high frequency behaviour), a Genrad GR1615-P1 10nF hermetic Mica standard and a lab-built Mica low drift hermetic 100nF capacitor. The working standards are calibrated using a

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The suitability of a commercially available, compressed-gas-insulated, high voltage capacitor for precise measurement of ac voltages has been examined by national laboratories in the U.S.A. and Canada. The voltage, temperature, and pressure dependences and the mechanical stability of the capacitor were determined. It was found that by taking proper precautions the device is ...

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