

How to calibrate a variable capacitor by step-up methods?

a variable capacitor by step-up methods. If the variable air capacitor, X, having a range from 100 to 1,100 pf, is to be calibrated at every 100-pf division mark, it is necessary to have a fixed air capacitor, S, of approximately 100 pf that can be connected in parallel with the variable capacitor under test in a precisely repeatable manner.

How to calibrate a capacitor with a LCR meter?

In our case, the capacitor is connected to the LCR meter via a 0.61 m cable. The calibration interpolation factor, $K_c = 0$, because all of the measurements are taken at direct calibration frequencies. The cable length factor, $K_d = 0.00025(1 + 50f)$, for the calibration interpolation factor is given for a cable length of 1 m.

Can a step-calibration method be used to calibrate a variable capacitor?

6. Conclusion Step-calibration methods can be employed for the calibration of variable capacitors. The few necessary items of equipment are generally available in any electrical measurements laboratory.

What is NIST capacitance & dissipation factor measurement system?

This measurement system will allow NIST to provide customers with measurement services for four-terminal-pair capacitance and dissipation factor. The capacitance range covered is from 10 nF to 100 mF. The frequencies measured are 100 Hz, 1 kHz, 10 kHz, and 100 kHz.

How do you calibrate a 1 nF capacitor?

There are several measuring methods that are available for calibrating 1 nF capacitors. They include calibration using a vector network analyzer in combination with a capacitance bridge. This method covers a very wide frequency range (up to 10 MHz) and is complex to perform.

Can a step-up method be used to calibrate a decade capacitor?

capacitance difference. An excellent description of a step-up method applied to the calibration of decade capacitors for both capacitance and dissipation factor has been described by Ford and Astbury of the British National Physical Laboratory.

To address the capacitance array mismatch in SAR ADCs, this paper proposes a novel capacitor calibration scheme based on the Time-to-Digital Converter (TDC). This ...

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In order to improve the accuracy of capacitor calibration, the backend ADC is with 9bit resolution. The raw output data of the core stages will be sent to the delay alignment array and output ...

This paper presents an all-digital background blind calibration technique for the capacitor mismatch problem in SAR ADCs. It utilizes the redundancy offered using a sub-radix-2 DAC ...

Fig. 3 Proposed capacitor mismatches calibration before calibration after calibration ENOB, bits 4 bit improvement mismatch error, % 10-2 14 13 12 11 10 9 10-3 Fig. 4 Monte Carlo simulation ...

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 ...

Use the following procedure to perform Low-Loss Capacitor calibration using the 7-mm calibration kit using Wizard. Low-Loss Capacitor calibration is executed only when there are ...

The involvement of the Republic of Kazakhstan in international comparisons and international accreditation further reinforces confidence in the quality of measurements in Kazakhstan. As a ...

Low-voltage power factor correction capacitors; High-Voltage Power Factor Correction Capacitors

Accurate calibration of capacitors that range in value from 0.01 mF to 100 mF over the frequency range from 100 Hz to 100 kHz is desired. There are several instruments available commercially ...

This paper presents a fully differential 12-bit SAR ADC with a novel capacitor mismatch calibration. The calibration calculates the capacitor mismatch via the metastability of the ...

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