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IEEE Guide for Methods of Power Factor Measurement for Low-Voltage Inductive Test Circuits

IEEE Power Engineering Society

Sponsored by the
Switchgear Committee



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Abstract: This guide provides methods for determining the value of power factor for inductive low-voltage (1000 volts ac and below) test circuits. These methods are used in determining power factor during short-circuit current tests in high power laboratories. It is preferred that these methods be used during short-circuit current testing. Alternatively, other methods (including use of computerized or digital techniques) may be used, but the method used must have been validated as producing results equivalent to those obtained using the methods in this guide. The methods described are intended for use in low-voltage test circuits (under 1000 volts ac), but may also be used for higher voltages.

Keywords: inductive test circuits, power factor

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Introduction

(This introduction is not part of IEEE Std C37.26-2003, IEEE Guide for Methods of Power Factor Measurement for Low-Voltage Inductive Test Circuits.)

This guide covers methods used to measure the power factor in low-voltage test circuits. Since the power factor measurement for high capacity test circuits is particularly difficult and different methods may yield different results, the methods that are least likely to yield error are recommended in this guide for any particular circuit condition.

This low-voltage guide was originally created and issued in 1972 as a compatible companion to the high-voltage American National Standard Methods for Determining the RMS Value of a Sinusoidal Current Wave and a Normal-Frequency Recovery Voltage for AC High-Voltage Circuit Breakers, ANSI C37.05-1964 (R1969) and American National Standard Methods for Determining Values of a Sinusoidal Current Wave, Normal-Frequency Recovery Voltage, and a Guide for Calculation of Fault Currents for Application of AC High-Voltage Circuit Breakers Rated on a Total Current Basis, ANSI C37.5-1969.

Use of the methods in this guide over several decades has demonstrated their validity, and this edition of the guide is only a minor editorial update of the material to present format and styles. No significant revisions to the basic technical content have been made.

It is recognized that laboratories may utilize computer-based data acquisition and analysis programs that may calculate values of test power factor. Such programs should be validated to assure that the results obtained are consistent with values obtained using the methods in this guide.

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