

IEEE Guide for Measuring Resistivity of Cable-Insulation Materials at High Direct Voltages

IEEE Std 402-1974



Published by The Institute of Electrical and Electronics Engineers, Inc 345 East 47th Street, New York, NY 10017, USA

August 8, 1974

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**Insulated Conductors Committee of the
IEEE Power Engineering Society**

Approved September 6, 1973
Reaffirmed March 10, 1982

IEEE Standards Board

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Approved September 6, 1973

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Foreword

(This foreword is not a part of IEEE Std 402-1974, Guide for Measuring Resistivity of Cable-Insulation Materials at High Direct Voltages.)

In recent years, the electrical industry has witnessed increasing interest in high voltage dc (HVDC) transmission for long distance power applications, largely as a result of gradual improvements in the efficiency and reliability of rectification and terminal equipments. Successful past experience, world-wide, has proven HVDC to be a practical economic solution under certain conditions, in such areas as long-distance bulk power transfer, asynchronous ties, frequency converters, and long submarine links.

In many long-distance dc transmission applications insulated conductors can play a significant role as terminal-end sections in urban areas, for example, as system stabilizing links, or as complete submarine cable connections between energy systems.

For HVDC insulated cable and accessories, one of the most important design tools comprises the Test Facilities and Procedures for accurate measurement of dc resistivity characteristics of candidate insulations.

In view of the growing interest regarding the advantages of HVDC cable system applications, the Tests and Measurements Subcommittee 12 of Insulated Conductors Committee approved the introduction of a new project in 1966, and appointed a Task Group to establish this standard.

The primary objective of the Task Group was to develop a document which would supplement available industry guides such as relevant ASTM standards, addressing the major problems involved in performing accurate measurements of cable-insulation resistivity at high dc stress levels, either in sheet specimen form or on model cable samples.

By 1971 the Task Group had completed the bulk of the committee work; however, necessary coordination, editorial revisions and modifications, and approvals by the Insulated Conductors Committee and by the IEEE Standards Board were not completed until 1973.

This standard represents a progressive step in the continuing effort to reflect state-of-the-art technology in electrical tests and measurements, and particularly in regard to the determination of dc resistivity characteristics of insulations. It is intended that the contents of this standard will be modified as future needs dictate, and suggestions for improvements of this document are welcomed.

The task group which developed this standard had the following membership:

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