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**IEEE Standard Electrical, Dimensional, and
Related Requirements for
Outdoor Apparatus Bushings**

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**IEEE Standard Electrical, Dimensional, and
Related Requirements for
Outdoor Apparatus Bushings**

Approved June 3, 1976
IEEE Standards Board

Secretariat
Institute of Electrical and Electronics Engineers, Inc

Approved July 23, 1976
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Foreword

[This foreword is not part of IEEE Std 24-1977, IEEE Electrical, Dimensional, and Related Requirements for Outdoor Apparatus Bushings (ANSI C76.2-1977).]

This publication is based on the standard practices in the United States for outdoor apparatus bushings. It is the result of joint efforts of professional engineers, manufacturers, and users working together in American National Standards Committee C76 under the auspices of the American National Standards Institute (ANSI). The work was initially carried out under the auspices of the American Institute of Electrical Engineers (AIEE) [now the Institute of Electrical and Electronics Engineers (IEEE)] and the National Electrical Manufacturers Association (NEMA). The original standard, approved in 1942 as AIEE Std 21 (which became ASA C76.1-1943, American Standard for Apparatus Bushings) was prepared by the Joint Committee on Bushing Standardization of the Electric Machinery, Power Transmission and Distribution, and Protection Devices Committees of the AIEE.

A supplement and partial revision, ANSI C76.1-1958, American National Standard Electrical and Dimensional Characteristics of Outdoor Apparatus Bushings (used with Power Circuit Breakers and Outdoor Transformers), was prepared by the NEMA Joint Sections Committee on Outdoor Apparatus Bushings (composed of representatives of the High Voltage Insulator Section, Power Circuit Breakers Group, Switchgear Section, and the Transformer Section). It resulted from work by the regional associations of electrical utilities and filled the user's needs for dimensional interchangeability.

At the time of this supplement, ASA Sectional Committee C76 foresaw the need for a general revision and updating of the standard and asked AIEE and NEMA to submit recommendations. In NEMA, implementation of this request was undertaken by a Subcommittee of the Joint Sections Committee on Outdoor Apparatus Bushings and resulted in a proposal which was approved February 1960 by the Codes and Standards Committee for submission to C76 as the NEMA recommendation. In the AIEE a Joint Working Group consisting of members of the Transformer and Dielectric Test Committee of the Transformer Committee and of the Power Circuit Breaker Committee was established and developed a recommendation which was submitted to C76 in July 1960. The AIEE proposal was subsequently reviewed by the West Coast Subcommittee of the AIEE Transformers Committee which developed additional recommendations and submitted them to ASA Committee C76 in November 1960. Committee C76 appointed a special Working Group for Revision of C76.1 to consolidate the several proposals and recommendations. This became IEEE Std 21-1964 and was approved June 9, 1964, as ANSI C76.1-1964, American National Standard Requirements and Test Code for Outdoor Apparatus Bushings, ASA C76.1-1964; it was reaffirmed in 1970.

Work on a revision was initiated in Committee C76 in August 1968. A decision was made to separate the standard into three parts; the first (C76.1-1976) to cover the general requirements and test procedures, the second (C76.2-1976) to cover explicit ratings and dimensions, and the third to be an application guide. The latter is still under consideration. Other changes in this revision included: (1) test procedure updating, (2) adding 362 through 800 kV maximum system voltage bushing electrical ratings with wet switching impulse test values and coordination with switching surge spark-over values of arresters, and (3) establishing dual current ratings for 115 through 196 kV insulation class bushings, since circuit breakers have a lower temperature rise, permitting a larger current rating for a given maximum ambient temperature compared with transformers.

The American National Standards Committee on Apparatus Bushings Standardization, C76, had the following personnel at the time it approved this standard:

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