



IEEE Standard for Qualification of Class 1E Connection Assemblies for Nuclear Power Generating Stations

IEEE Power Engineering Society

Sponsored by the
Nuclear Power Engineering Committee

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IEEE Standard for Qualification of Class 1E Connection Assemblies for Nuclear Power Generating Stations

Sponsor
Nuclear Power Engineering Committee
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IEEE Power Engineering Society

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Abstract: The basic requirements for qualifying Class 1E Connection Assemblies and interfaces that are to be used in nuclear power generating stations are described in this standard. The principles, methods, and procedures described are intended to be used for qualifying Connection Assemblies, maintaining and extending qualification, and updating qualification, as required, if the Connection Assembly is modified. The qualification requirements in this standard, when met, demonstrate and document the ability of the Connection Assembly to perform safety function(s) under applicable service conditions including design basis events, reducing the risk of common-cause Connection Assembly failure.

Keywords: age, age conditioning, aging, baseline parameter, cable, cable assembly, condition monitoring, Connection Assemblies, connector, equipment qualification, generic qualification, harsh environment, interface, margin, mild environment, nuclear, qualification methods, qualified life, radiation, safety-related function, significant aging mechanism, termination, test plan, test sequence, type testing

The Institute of Electrical and Electronics Engineers, Inc.
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Introduction

This introduction is not part of IEEE Std 572-2006, IEEE Standard for Qualification of Class 1E Connection Assemblies for Nuclear Power Generating Stations.

This standard is the result of a review of IEEE Std 572-1985 and present practices in Connection Assembly qualification. This revision incorporates current practices and lessons learned from the implementation of previous versions of this standard by the nuclear industry.

The following issues are clarified or changed in this revision:

- The scope of this standard was expanded to provide guidance for the qualification of most types of Connection Assemblies. This was accomplished by providing broad-based generic guidelines for the testing of all types of Connection Assemblies. It is the consensus of the working group that this guidance will enable the proper qualification of most types of Connection Assemblies. The guidance allows for special cases that may require additional tests and verification to meet specific designs or applications.
- The wording, definitions, references, and word usage of this standard were updated to be consistent with IEEE Std 323TM-2003.^a
- An important concept in equipment qualification is the recognition that significant degradation could be caused by aging mechanisms occurring from the environments during the service life, and therefore safety-related cables and connector assemblies should be in a state of degradation prior to imposing design basis event simulations. Previous versions of IEEE Std 572 and IEEE Std 323 recognized that the period of time for which acceptable performance was demonstrated is the qualified life. The concept of qualified life continues in this revision and the latest revision of IEEE Std 323. This revision and the latest revision of IEEE Std 323 also recognize that the condition of the equipment for which acceptable performance was demonstrated is the qualified condition. Thus, new license renewal and life extension options are available by assuring the qualified equipment continues to remain in a qualified condition.

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^a Additional information on references can be found in Clause 2.

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Fred Roy, *Vice-chair*

J. Hardy, *Secretary*

R. Boddulas
Choon-Hoon Chung
Yasutaka Eguchi
G. Elam

D. Merriman
Steve Sandberg
J. Tawfik
Marek Tengler

Marco Van Uffelen
Carl Weber

Invaluable assistance and support was provided by D. Olsaver.

The Subcommittee on Qualification (SC2) of Nuclear Power Engineering Committee that recommended approval of this standard had the following membership:

Satish K. Aggarwal, *Chair*

Patrick Gove, *Secretary*

Bohumil Bartonicek
Paul D. Baughman
Anup K. Behera
Steven D. Benson
Brij Bharteey
Thomas Brewington
Nissen M. Burstein
Steve Casadevall
Suresh Channarasappa
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Javier A. Chicote
Sun Yeong Choi
Choon-Hoon Chung
James M. Dean
Liviu Nicolae Delcea
Dennis E. Dellinger
Philip DiBenedetto
Michael Dougherty
Quang H. Duong
Frank Drumm
Yasutaka Eguchi
Walter Emerson
Artur J. Faya
Wells D. Fargo

Robert Francis
James F. Gleason
William L. Hadovski
Hideo Harada
Peter Helander
Thomas R. Hency III
Jerrell C. Henley
Dirk C. Hopp
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Yao-Tung Hsu
In-Koo Hwang
Craig S. Irish
Serena A. Jagtiani
Frank W. Kloer
Sushant Kapur
Mohsin Khan
Henry Leung
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P. G. McQuillan
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Marek Tengler
Marco Van Uffelen
Laszlo Varga
Carl Weber
John Wheless
John White
Toni Wittamore
Richard T. Wood
Toshio Yamamoto

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John D. MacDonald, *Secretary*

Satish K. Aggarwal
Ijaz Ahmad
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Munnu Bajpai
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William G. Bloethe
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