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IEEE Standard for Qualifying Permanent Connections Used in Substation Grounding

IEEE Power and Energy Society

Sponsored by the
Substations Committee

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USA

IEEE Std 837™-2014
(Revision of
IEEE Std 837-2002)

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Abstract: Direction and methods for qualifying permanent connections used for substation grounding are provided in this standard. This standard particularly addresses the connection used within the grid system, the connection used to join ground leads to the grid system, and the connection used to join the ground leads to equipment and structures.

Keywords: conductor, conductor combination, connection, connection thermal capacity, control conductor, current loop cycle, equalizer, grid system, grounding, grounding connection, IEEE 837™, permanent connection

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Introduction

This introduction is not part of IEEE Std 837-2014, IEEE Standard for Qualifying Permanent Connections Used in Substation Grounding.

Working Group E9 of the IEEE PES Substations Committee began updating the standard in 2008. This standard has been updated to fulfill a need for standardization of terminology and test requirements for permanent grounding connections. The most significant changes were made to the EMF test criteria that address the connections to above-grade rigid structures and equipment ground pads. Many types of connections are available that may be used as permanent grounding connections even though they were designed for use as power connections. This standard provides a meaningful reproducible test program that will enable connection manufacturers to qualify their products as permanent grounding connections. The users can then be reasonably assured that the qualified permanent grounding connection will be capable of performing satisfactorily over the lifetime of the installation. This standard addresses the parameters for testing grounding connections on copper, steel, copper-bonded steel, copper-clad steel, galvanized steel, and stainless steel.

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IEEE Standard for Qualifying Permanent Connections Used in Substation Grounding

1. Overview

1.1 Scope

This standard provides direction and methods for qualifying permanent connections used for substation grounding. It particularly addresses the connection used within the grid system, the connection used to join ground leads to the grid system, and the connection used to join the ground leads to equipment and structures.

1.2 Purpose

The purpose of this standard is to give assurance to the user that a connection meeting the requirements of this standard will perform in a satisfactory manner over the lifetime of the installation, provided that the proper connection is selected for the application and that the connection is installed correctly. Grounding connections that meet the test criteria stated in this standard for a particular conductor size range and material should satisfy all of the criteria for connections as outlined in IEEE Std 80™ [B3].[1]

[1] The numbers in brackets correspond to those of the bibliography in Annex A.