

PC57.12.210

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Type of Project: New IEEE Standard

Project Request Type: Initiation / New

PAR Request Date: 10 Dec 2020

PAR Approval Date: 10 Feb 2021

PAR Expiration Date: 31 Dec 2025

PAR Status: Active

1.1 Project Number: PC57.12.210

1.2 Type of Document: Recommended Practice

1.3 Life Cycle: Full Use

2.1 Project Title: Recommended Practice for On-load Capacity Switching Distribution Transformers

3.1 Working Group: Distribution - On-load Capacity Switching Distribution Transformers(PE/TR/Dist-WGC57.12.210)

3.1.1 Contact Information for Working Group Chair:

Name: Jinli Wang

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3.1.2 Contact Information for Working Group Vice Chair:

None

3.2 Society and Committee: IEEE Power and Energy Society/Transformers(PE/TR)

3.2.1 Contact Information for Standards Committee Chair:

Name: Bruce Forsyth

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3.2.2 Contact Information for Standards Committee Vice Chair:

None

3.2.3 Contact Information for Standards Representative:

Name: Stephen Shull

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4.1 Type of Ballot: Entity

4.2 Expected Date of submission of draft to the IEEE SA for Initial Standards Committee Ballot:

Mar 2024

4.3 Projected Completion Date for Submittal to RevCom: Dec 2024

5.1 Approximate number of entities expected to be actively involved in the development of this project: 5

5.2 Scope of proposed standard: This recommended practice provides guidance and references for the design, manufacture, testing and selection of oil-immersed on-load capacity switching distribution transformers with rated frequency of 50 Hz/60 Hz, voltages of 10 kV or below, and rated capacity of 750 kVA and below. On-load capacity switching distribution transformers are transformers with two rated capacities and equipped with additional components to control the operating capacity for energy saving purposes.

5.3 Is the completion of this standard contingent upon the completion of another standard? No

5.4 Purpose: This document provides technical and test requirements and terminologies for on-load capacity switching distribution transformers. This includes the technical parameters of the transformers corresponding to the rated capacity, functional and performance requirements of the on-load capacity regulating switches and controllers, test classification, items and methods.

5.5 Need for the Project: Light load and/or no-load operations of distribution transformers contribute a significant part of the power grid operation losses, especially with the rapid development of distributed energy resources (DER). This recommended practice provides a valuable reference for stakeholders when selecting and deploying the equipment.

The on-load capacity switching distribution transformer has two rated capacities and components allowing it to automatically adapt the capacity to load change, without interruption of the power supply. In areas with significant seasonal load peak, high load fluctuation, concentrated peak days and low annual average load, and/or with DER step up transformers, it can help to reduce the light load loss while maintaining safe operation in peak days/hours.

On-load capacity switching distribution transformers have been deployed in over 20 provinces in China, as well

as in several countries including Ethiopia, Malaysia, and Indonesia, and have provided economic and social benefits.

The existing standards relevant to distribution transformers cover the technical requirements, temperature rising, noise level grading, short circuit capability, insulation level, test, frequency response analysis, energy efficiency and application guidance of distribution transformers, and voltage regulating distribution transformers. There is no available standard for the on-load capacity switching distribution transformer.

5.6 Stakeholders for the Standard: Transformer manufacturers, electric power utilities, consulting companies, and engineering companies.

6.1 Intellectual Property

6.1.1 Is the Standards Committee aware of any copyright permissions needed for this project?

No

6.1.2 Is the Standards Committee aware of possible registration activity related to this project?

No

7.1 Are there other standards or projects with a similar scope? No

7.2 Is it the intent to develop this document jointly with another organization? No

8.1 Additional Explanatory Notes: