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CAN/CSA-C802.2-18
National Standard of Canada

Test method and minimum efficiency values for dry-type transformers

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Standards Council of Canada
600-55 Metcalfe Street
Ottawa, Ontario, K1P 6L5
Canada

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W. Wong	Hammond Power Solutions, Inc., Guelph, Ontario	
L. Contasti	CSA Group, Toronto, Ontario	*Project Manager*

Preface

This is the fourth edition of CAN/CSA-C802.2, *Test method and minimum efficiency values for dry-type transformers*. It supersedes the previous editions published in 2012, 2006, and 2000 under the title *Minimum efficiency values for dry-type transformers*.

This Standard is considered suitable for use for conformity assessment within the stated scope of the Standard.

This Standard was prepared by the Subcommittee on Dry-Type Transformer Efficiency, under the jurisdiction of the Technical Committee on Industrial Equipment and the Strategic Steering Committee on Performance, Energy Efficiency, and Renewables, and has been formally approved by the Technical Committee.

CSA Group acknowledges that the development of this Standard was made possible in part by the financial support of Natural Resources Canada (NRCan), Canadian Electricity Association (CEA), Independent Electricity System Operator (IESO), and SaskPower.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

Notes:

1) *Use of the singular does not exclude the plural (and vice versa) when the sense allows.*
2) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
3) *This Standard was developed by consensus, which is defined by* CSA Policy governing standardization — Code of good practice for standardization *as "substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity". It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.*
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   c) *wording of the proposed change; and*
   d) *rationale for the change.*

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Test method and minimum efficiency values for dry-type transformers

1 Scope

1.1

This Standard specifies efficiency values for dry-type transformers. The total ownership cost (TOC) methodology is recommended as the means for achieving these efficiencies, particularly for electric utilities. This Standard also specifies an optimal method for users other than utilities, based on a modified TOC methodology that meets the conditions of energy cost.

Note: *See Table 1 for minimum efficiency values.*

1.2

This Standard covers single-phase and three-phase self-contained units or components of larger assemblies, nominal frequency of 60 Hz, having a high-voltage winding of 35 kV or less, ANN, rated 15 to 833 kVA for single-phase and 15 to 7500 kVA for three-phase.

1.3

This Standard describes the special features that influence efficiency and provides modifications to the efficiency values specified in Table 1 where such modifications are necessary.

1.4

This Standard specifies the test methods and procedures for determining transformer efficiencies.

1.5

This Standard does not apply to

a) autotransformers;
b) grounding transformers;
c) rectifier transformers;
d) sealed transformers;
e) non-ventilated transformers (including encapsulated transformers);
f) testing transformers;
g) furnace transformers;
h) welding transformers;
i) drive (isolation) transformers with two or more output windings or a rated low-voltage line current greater than 1500 A;
j) special impedance transformers;
k) transformers with a nominal low-voltage line current of 4000 A or more;
l) on-load regulating transformers;
m) resistance grounding transformers;
n) transformers with two or more independent secondary windings for more than one independent output voltage for main power transformation. Any independent windings used to provide either single-phase or three–phase power to auxiliary devices are not included in the count of the