UL 1686

STANDARD FOR SAFETY

Pin and Sleeve Configurations

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UL Standard for Safety for Pin and Sleeve Configurations, UL 1686

Fifth Edition, Dated September 5, 2023

Summary of Topics

This revision of ANSI/UL 1686 dated November 22, 2024 is being issued to add Figure C2.39 and Figure C2.40 and revise C2.1.

Text that has been changed in any manner or impacted by ULSE's electronic publishing system is marked with a vertical line in the margin.

The new and revised requirements are substantially in accordance with Proposal(s) on this subject dated August 9, 2024.

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This ANSI/UL Standard for Safety consists of the Fifth Edition including revisions through November 22, 2024. The most recent designation of ANSI/UL 1686 as an American National Standard (ANSI) occurred on November 22, 2024. ANSI approval for a standard does not include the Cover Page, Transmittal Pages, Title Page (front and back), or the Preface.

Comments or proposals for revisions on any part of the Standard may be submitted to ULSE at any time. Proposals should be submitted via a Proposal Request in the Collaborative Standards Development System (CSDS) at https://csds.ul.com.

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Preface

This is the harmonized ANCE, CSA Group, and ULSE standard for Pin and Sleeve Configurations. It is the first edition of NMX-J-864-ANCE, the first edition of CSA C22.2 No. 182.6, and the fifth edition of UL 1686. This edition of UL 1686 supersedes the previous edition published August 17, 2012. This harmonized standard has been jointly revised on November 22, 2024. For this purpose, CSA Group and ULSE are issuing revision pages dated November 22, 2024, and ANCE is issuing a new edition dated November 22, 2024.

This harmonized standard was prepared by the Association of Standardization and Certification (ANCE), CSA Group, and ULSE. The efforts and support of the Technical Harmonization Subcommittee 23H under CANENA on the Harmonization of Electrotechnical Standards of the Nations of the Americas (CANENA), are gratefully acknowledged.

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

The present Mexican standard was developed by the CT 23 Electrical Accessories (Wiring Devices) from the Comite de Normalizacion de la Asociacion de Normalizacion y Certificacion, A.C., CONANCE, with the collaboration of the electrical manufacturers and users.

This standard was reviewed by the CSA Integrated Committee on Wiring Devices, under the jurisdiction of the CSA Technical Committee on Wiring Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety (SCORES), and has been formally approved by the CSA Technical Committee. This standard has been developed in compliance with the Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

Application of Standard

Where reference is made to a specific number of samples to be tested, the specified number is to be considered a minimum quantity.

Note: 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.

Level of harmonization

This standard is published as an equivalent standard for ANCE, CSA Group, and ULSE.

An equivalent standard is a standard that is substantially the same in technical content, except as follows: Technical national differences are allowed for codes and governmental regulations as well as those recognized as being in accordance with NAFTA Article 905, for example, because of fundamental climatic, geographical, technological, or infrastructural factors, scientific justification, or the level of protection that the country considers appropriate. Presentation is word for word except for editorial changes.

Interpretations

The interpretation by the standards development organization of an identical or equivalent standard is based on the literal text to determine compliance with the standard in accordance with the procedural rules of the standards development organization. If more than one interpretation of the literal text has been identified, a revision is to be proposed as soon as possible to each of the standards development organizations to more accurately reflect the intent.

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INTRODUCTION

1 Scope

1.1 These configurations cover attachment plugs, receptacles, and cord connectors, for use in accordance with the National Electrical Code (NEC), NFPA 70 and CSA C22.1, Canadian Electrical Code, Part I (CE Code).

1.2 These configurations do not cover devices rated at more than 800 A or for more than 600 V.

2 Referenced Publications

2.1 Any undated reference to a code or standard appearing in the requirements of this Standard shall be interpreted as referring to the latest edition of that code or standard.

2.2 The following standards are referenced in this Standard, and portions of these referenced standards may be essential for compliance.

CSA C22.1, *Canadian Electrical Code (CE Code)*

IEC 60309-2, *Plugs, Fixed or Portable Socket-Outlets and Appliance Inlets for Industrial Purposes – Part 2: Dimensional Compatibility Requirements for Pin and Contact-Tube Accessories*

NFPA 70, *National Electrical Code*

3 Units of Measurement

3.1 The values given in SI (metric) units shall be normative. Any other values given shall be for information purposes only.

4 General

4.1 The information given in (a) – (h) applies to each configuration in Sections C1 – C5.

a) All dimensions are in inches. Metric values were derived by converting from English imperial units given in Annex A. If reference dimensions are needed, the metric dimensions shall be considered extended to be 3 decimal places from the Imperial units given in Annex A.

b) Decimal dimensions without tolerances shall be subject to a 0.0127 cm (±0.005 inch) tolerance. When metric values are used, they have been derived by converting from imperial units given in this standard. If a referee dimension is needed, the metric dimension shall be extended to 3 decimal places.

c) Angular dimensions without tolerances shall be subject to a ±1/2 degree tolerance.

d) Where two values are given for the same dimension, the larger is the maximum value and the smaller the minimum value.

e) Leading edges of pins and sleeves shall be free of burrs and sharp edges.

f) A contour, face dimension, yoke construction, or mounting ears and dimensions for any receptacle construction that is shown depicts an acceptable construction; other constructions may also be acceptable if tested and found to be equivalent.

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