CAN/ULC 139:2025

Standard for Fire Test For Circuit Integrity Of Fire-Resistive Power, Instrumentation, Control, And Data Cables

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Standard for Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control, and Data Cables, CAN/ULC 139

Fourth Edition, Dated June 26, 2025

Summary of Topics

This new Fourth Edition of CAN/ULC 139 dated June 26, 2025 is being issued as a binational joint standard and incorporates changes from proposals dated June 7, 2024, December 19, 2024, and April 11, 2025.

The new requirements are substantially in accordance with Proposal(s) on this subject dated June 7, 2024, December 19, 2024, and April 11, 2025.

PLEASE NOTE THAT CERTAIN CODES MAY REFER TO A SUPERSEDED VERSION OF THIS STANDARD. IN THOSE INSTANCES, THE RELEVANT VERSIONS ARE AVAILABLE FOR PURCHASE.

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ULC Standards
Normes ULC

ULC Standards
CAN/ULC 139:2025
Fourth Edition

ULSE Inc.
UL 2196
Third Edition

Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control, and Data Cables

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Commitment for Amendments

This Standard is issued jointly by ULSE Inc. (ULSE) and ULC Standards. Amendments to this Standard will be made only after processing according to the Standards writing procedures by ULSE and ULC Standards.

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ULC Preamble

International Classification for Standards (ICS): 13.220.50, 29.060.20

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Attention is drawn to the possibility that some of the elements of this Canadian standard may be the subject of patents rights. ULC Standards shall not be held responsible for identifying any or all such patents rights.

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This Fourth Edition National Standard of Canada was based on, and superseded, the Third Edition.

This CAN/ULC 139 Standard is under continuous maintenance, whereby each revision is approved in compliance with the requirements of ANSI and SCC for accreditation of a Standards Development Organization. In the event that no revisions are issued for a period of four years from the date of publication, action to revise, reaffirm, or withdraw the standard shall be initiated.

This Standard is intended to be used for conformity assessment.

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B. Cheer	Ontario Building Officials Association	Authorities Having Jurisdiction	Ontario
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Preface

This is the common ULSE and ULC Standard for Fire Test for Circuit Integrity of Fire-Resistive Power, Instrumentation, Control and Data Cables. It is the Fourth edition of CAN/ULC 139, and the Third edition of UL 2196.

This common Standard was prepared by UL Standards & Engagement Inc. (ULSE), ULC Standards, and the Joint UL / ULC Task Group. The efforts and support of the Joint Task Group are gratefully acknowledged.

Only metric SI units of measurement are used in this Standard. If a value for measurement is followed by a value in other units in parentheses, the second value may be approximate. The first stated value is the requirement.

In Canada, there are two official languages, English and French. All safety warnings must be in French and English. Attention is drawn to the possibility that some Canadian authorities may require additional markings and/or installation instructions to be in both official languages.

Annexes A, B, and C are identified as Normative, as such, form mandatory parts of this Standard

Annex D identified as Informative, is for information purposes only.

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 identical standard between ULSE and ULC Standards.

An identical standard is a standard that is the same in technical content except for conflicts in Codes and Governmental Regulations. Presentation shall be word for word except for editorial changes.

Interpretations

The interpretation by the standards development organization of an identical or equivalent standard shall be 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 shall 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 The intent of this Standard is to evaluate the integrity of power, control, instrumentation, and data/communications cables (such as copper, coaxial, or optical fiber) for their ability to maintain circuit integrity when subjected to standard fire test exposure and associated hose stream test.

1.2 The power, control, instrumentation, and data/communications cables covered by this Standard are intended to comply with the following requirements:

a) In Canada:

1) CSA C22.1, Canadian Electrical Code (CEC), and the National Building Code of Canada;

b) In the United States:

1) NFPA 70®, *National Electrical Code*® (NEC®), and/or the International Fire Code, and/or NFPA 72, National Fire Alarm and Signaling Code, and/or NFPA 130, the Standard for Fixed Guideway Transit and Passenger Rail Systems, and/or NFPA 502, the Standard for Road Tunnels, Bridges, and Other Limited Access Highways, and/or NFPA 1225, the Standard for Emergency Services Communications.

NFPA 70®, *National Electrical Code*®, and NEC® are registered trademarks of the National Fire Protection Association, Quincy, MA.

1.3 Cables are subjected to the fire exposure in accordance with ULC S101, Standard Methods of Fire Endurance Tests of Building Construction and Materials and UL 263, Standard for Fire Tests of Building Construction and Materials. Following the fire test, the assembly shall be subjected to a hose stream test.

1.4 During the fire test, cables other than optical-fiber cables are continuously energized at their maximum rated voltage or maximum utilization voltage and evaluated for circuit integrity. Insulation resistance measurements are also taken to quantify leakage current.

1.5 In addition, during the fire tests, the data/communications cables are evaluated to determine their ability to support the transmission of data or communication signals per manufacturer's performance specifications.

1.6 The fire exposure and hose stream tests are not intended to be representative of all fire conditions and impact conditions, respectively. It is likely that conditions will vary with changes in the amount, nature, distribution of fire loading, ventilation, compartment size and configuration, and heat conducting and dissipating characteristics of the compartment in which the cables are installed. These requirements provide a relative measure of fire performance of comparable assemblies under these specified fire exposure conditions. It is possible that any variation from the construction or operating condition tested, such as size, method of assembly and materials, will substantially change the performance characteristics of the cables.

1.7 The standardized fire and hose stream exposures for comparing the performance of cables represents one factor in determining the acceptability of cables for use in specific applications.

1.8 The construction and operation of the furnace and the general test conditions are intended to be in accordance with the requirements in ULC S101, Standard Methods of Fire Endurance Tests of Building Construction and Materials and UL 263, Standard for Fire Tests of Building Construction and Materials.

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2 Units of Measurement

2.1 The metric unit shall be designated as the official unit for purposes of this Standard. Where values of measurement are specified in both SI and English units, either unit is used. In cases of dispute, the metric unit shall be used.

3 Referenced Publications

3.1 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.

3.2 Products covered by this Standard shall comply with the referenced installation codes and standards noted in this Section as appropriate for the country where the product is to be used. When the product is intended for use in more than one country, the product shall comply with the installation codes and standards for all countries where it is intended to be used.

3.3 Throughout this Standard, the ULC standard references apply to products intended for use in Canada, while the UL standard references apply to products intended for use in the United States. Combined references are separated by a slash (“ / “) to denote the difference between the applicable requirements specified for use in Canada and the United States.

3.4 The following publications are referenced in this Standard:

CSA C22.1, *Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations*

CSA C22.2 No. 208, *Fire Alarm and Signal Cable*

National Building Code of Canada

NFPA 70®, *National Electrical Code®* (NEC®)

NFPA 72, *National Fire Alarm and Signaling Code*

NFPA 130, *Fixed Guideway Transit and Passenger Rail Systems*

NFPA 502, *Road Tunnels, Bridges, and Other Limited Access Highways*

NFPA 1225, *Emergency Services Communications*

UL 13, *Power-Limited Circuit Cables*

UL 263, *Fire Tests of Building Construction and Materials*

UL 444, *Communications Cables*

UL 1425, *Cables for Non-Power-Limited Fire-Alarm Circuits*

UL 1651, *Optical Fiber Cable*

UL 1655, *Community-Antenna Television Cables*

UL 1709, *Rapid Rise Fire Tests of Protection Materials for Structural Steel*

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ULC S101, *Standard Methods of Fire Endurance Tests of Building Construction and Materials*

ULC 524, *Installation of Fire Alarm Systems*

4 Glossary

For the purpose of this Standard, the following definitions apply.

4.1 CABLE CONSTRUCTION – A distinct design type as evidenced by number and size of conductors, conductor type, insulation type, shield type, and any individual insulation or overall jacket type, armor type, etc.

4.2 CABLE CONSTRUCTION FAMILY – A distinct group of cable construction types that have similar design features for a range of sizes and/or number of conductors all having the same circuit integrity rating.

4.3 CABLE TRAY – A unit or assembly of units or sections and associated fittings forming a structural system used to securely fasten or support cables and raceways.

4.4 CIRCUIT INTEGRITY – The ability of a power, instrumentation, or control cable to maintain voltage and current to the load or the ability of a data/communications cable to maintain the appropriate levels of data or communications transmission.

4.5 CIRCUIT INTEGRITY RATING – The time period during which the cable or cable system continues to operate in its designated manner under specified fire conditions and after the hose stream test for fire-resistive cable or free air installation circuit integrity cable.

4.6 DATA/COMMUNICATIONS CABLE – Cable used to transmit analog and/or digital signaling.

4.7 FIRESTOP SYSTEM – A specific construction of materials intended to prevent the spread of fire through an opening made in a fire-resistive structure for passage of penetrating items such as cables.

4.8 FIRE-RESISTIVE CABLE – Power, control, instrumentation, or data/communications cable in a system and evaluated in accordance with this Standard.

4.9 FREE AIR INSTALLATION CIRCUIT INTEGRITY CABLE – Power, instrumentation, control or data/communications cable in free air (not installed within a raceway) and evaluated in accordance with Annex B.

4.10 LOAD VOLTAGE ($E_{applied}$) – The voltage applied between phase and ground to the cable that determine circuit integrity and insulation resistance.

4.11 RACEWAY – An enclosed channel of metallic or nonmetallic materials designed expressly for support and routing wires or cables.

4.12 TEST ASSEMBLY – The cable and its means of securement, firestop system and any structure used to support the cable during the fire and hose stream tests.

4.13 UTILIZATION VOLTAGE – The maximum voltage anticipated during intended usage of a power, instrumentation, control or data/communications cable.

NOTE: Typical utilization voltages are 600 V, 480 V, 208 V, and 120 V.

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