UL 1576

STANDARD FOR SAFETY

Flashlights and Lanterns

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UL Standard for Safety for Flashlights and Lanterns, UL 1576

Second Edition, Dated May 13, 2022

Summary of Topics

This revision of ANSI/UL 1576 dated December 16, 2024 includes updates to align UL 1576 2nd edition with the current edition of UL 4200A; Section 2, and 5.2.6

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 revised requirements are substantially in accordance with Proposal(s) on this subject dated September 27, 2024.

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CSA Group
CSA C22.2 No. 250.5:22
First Edition

ULSE Inc.
UL 1576
Second Edition

Flashlights and Lanterns

May 13, 2022

(Title Page Reprinted: December 16, 2024)

Approved American National Standard

ANSI/UL 1576-2024

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Preface

This is the harmonized CSA Group and ULSE standard for Flashlights and Lanterns. It is the first edition of CSA C22.2 No. 250.5 and the second edition of UL 1576. This edition of UL 1576 supersedes the previous edition published in 2018. This harmonized standard has been jointly revised on December 16, 2024. For this purpose, CSA Group and ULSE are issuing revision pages dated December 16, 2024.

This harmonized standard was prepared by CSA Group and ULSE. The effort and support of the Technical Harmonization Group on Flashlights and Lanterns are gratefully acknowledged.

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

This Standard was reviewed by the CSA Integrated Committee on Lighting Products (ICLP), under the jurisdiction of the CSA Technical Committee on Consumer and Commercial Products and the CSA Strategic Steering Committee on Requirements for Electrical Safety, and has been formally approved by the Technical Committee. 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.

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 identical standard for CSA Group and ULSE.

An identical standard is a standard that is exactly the same in technical content except for national differences resulting from conflicts in codes and governmental regulations. Presentation is word for word except for editorial changes.

Reasons for differences from IEC

This standard provides requirements for flashlights and lanterns for use in accordance with the electrical installation codes of Canada and the United States. This standard does not employ any IEC standard for base requirements.

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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1 Scope

1.1 This standard applies to flashlights and lanterns powered by secondary (rechargeable) batteries and general purpose primary (non-rechargeable) batteries with a maximum voltage of 75 V d.c. The terms flashlights and lanterns as used within this standard refer to products that are battery-powered.

1.2 Flashlights and lanterns that are battery-powered and also powered from a line-voltage supply are also covered within this standard, in accordance with CSA C22.1, Canadian Electrical Code (CE Code), Part I and the National Electrical Code (NEC), ANSI/NFPA 70, on circuits having a nominal voltage not exceeding 250 V.

1.3 These requirements also apply to automatic flashlights and lanterns which are normally connected to a line voltage supply and, upon loss of the line voltage supply, will turn on the lamp.

1.4 This standard is not used in conjunction with CSA C22.2 No. 250.0.

1.5 These requirements do not apply to:

a) Stand-alone battery chargers;

b) Cord and plug connected work lights and hand lights without batteries that are within the scope of UL 153 and CSA C22.2 No. 250.4;

c) Cord and plug connected portable luminaires other than work lights and hand lights, with or without batteries, that are within the scope of UL 153 and CSA C22.2 No. 250.4;

d) Aquarium lighting that is within the scope of UL 1018 and CSA C22.2 No. 250.4;

e) Emergency lighting that is within the scope of UL 924 and CSA C22.2 No. 141;

f) Products with ultraviolet (UV) radiation sources greater than “Exempt Group” as specified in IEC 62471 and CSA C22.2 No. 62471; and

g) Products intended for hazardous locations.

1.6 This standard alone is not intended to apply to permanently installed lighting that is capable of being battery powered, since it will not be sufficient to ensure that all hazards are considered for these products.

1.7 Most requirements for battery operation and charging are incorporated by reference to CSA C22.2 No. 0.23 and UL 2595 and are subject to the limitations of voltage in that standard.

Note: Products operating at voltages in excess of those specified in CSA C22.2 No. 0.23 and UL 2595 may require additional considerations.

1.8 Requirements for all battery-operated flashlights and lanterns are specified in Part I. Additional requirements for battery operated flashlights and lanterns that may also be connected to line-voltage supply for any purpose are specified in Part II.

1.9 The terms flashlights and lanterns are considered to be interchangeable and can be referred to as products within this Standard.

2 Reference publications

2.1 For undated references to Standards, such reference shall be considered to refer to the latest edition and all revisions to that edition up to the time when this Standard was approved. For dated references to

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Standards, such reference shall be considered to refer to the dated edition and all revisions published to that edition up to the time the Standard was approved.

CSA Standards

CSA C22.1:21, *Canadian Electrical Code, Part I*

CSA C22.2 No. 0:20, *Canadian Electrical Code, Part II, General Requirements*

CSA C22.2 No. 0.1:19, *General Requirements for Double-Insulated Equipment*

CSA C22.2 No. 0.2:16 (R2020), *Insulation Coordination*

CSA C22.2 No. 0.15-16, *Adhesive Labels*

CAN/CSA C22.2 No. 0.17-00 (R1018), *Evaluation of Properties of Polymeric Materials*

CSA C22.2 No. 0.23:15 (R2010), *General Requirements for Battery Powered Appliances*

CSA C22.2 No. 5-16, *Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures*

CSA C22.2 No. 18.1-13 (R2018), *Metallic Outlet Boxes*

CSA C22.2 No. 18.2-06 (R2016), *Nonmetallic Outlet Boxes*

CSA C22.2 No. 18.3-12 (R2017), *Conduit, Tubing and Cable Fittings*

CSA C22.2 No. 18.5-13 (R2020), *Positioning Devices*

CSA C22.2 No. 21-18, *Cord Sets and Power-Supply Cords*

CSA C22.2 No. 38-18, *Thermoset-Insulated Wires And Cables*

CSA C22.2 No. 42.1-13 (R2020), *General Use Receptacles, Attachment Plugs, And Similar Wiring Devices*

CSA C22.2 No. 43-17, *Lampholders*

CSA C22.2 No. 49-18, *Flexible Cords and Cables*

CSA C22.2 No. 62.2:21, *Low Voltage Transformers – Part 2: General Purpose Transformers*

CSA C22.2 No. 65-18, *Wire Connectors*

CSA C22.2 No. 66.1-06 (R2020), *Low Voltage Transformers – Part 1: General Requirements*

CSA C22.2 No. 66.2, *Low Voltage Transformers – Part 2: General Purpose Transformers*

CSA C22.2 No. 66.3-06 (R2020), *Low Voltage Transformers – Part 3: Class 2 and Class 3 Transformers*

CSA C22.2 No. 68-18, *Motor-Operated Appliances (Household And Commercial)*

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CSA C22.2 No. 74-16 (R2020), *Equipment For Use With Electric Discharge Lamps*

CSA C22.2 No. 75-17, *Thermoplastic-Insulated Wires And Cables*

CSA C22.2 No. 111-18, *General-Use Snap Switches*

CSA C22.2 No. 141-15 (R2020), *Emergency Lighting Equipment*

CSA C22.2 No. 144.1-16 (R2020), *Ground-Fault Circuit Interrupters*

CSA C22.2 No. 153-14 (R2020), *Electrical Quick-Connect Terminals*

CSA C22.2 No. 158-10 (R2019), *Terminal Blocks*

CSA C22.2 No. 177-13 (R2018), *Clock-operated switches*

CSA C22.2 No. 188-18, *Splicing Wire Connectors*

C22.2 No. 197-M83 (R2018), *PV Insulating Tape*

CSA C22.2 No. 198.1-06 (R2020), *Extruded Insulating Tubing*

CSA C22.2 No. 198.3:05 (R2019), *Coated Electrical Sleeving*

CSA C22.2 No. 210:15 (R2020), *Appliance Wiring Material Products*

CSA C22.2 No. 223:15 (R2020), *Power Supplies With Extra-Low-Voltage Class 2 Outputs*

CSA C22.2 No. 235-04 (R2017), *Supplementary Protectors*

CSA C22.2 No. 248 (series of standards), *Low-Voltage Fuses*

CSA C22.2 No. 248.1-11 (R2020), *Low-Voltage Fuses – Part 1: General Requirements*

CSA C22.2 No. 248.5:00 (R2019), *Low-Voltage Fuses – Part 5: Class G Fuses*

CSA C22.2 No. 248.14:00 (R2019), *Low-Voltage Fuses – Part 14: Supplemental Fuses*

CSA C22.2 No. 250.0-18, *Luminaires*

CSA C22.2 No. 250.4:20, *Portable Luminaires*

CSA C22.2 No. 256-14 (R2019), *Direct Plug-In Nightlights*

CSA C22.2 No. 270-16, *Arc Fault Protective Devices*

C22.2 No. 284-16 (R2020), *Nonindustrial photoelectric switches for lighting control*

CSA C22.2 No. 308-18, *Cord Reels And Multi-Outlet Assemblies*

CSA C22.2 No. 2459-08 (R2018), *Insulated Multi-Pole Splicing Wire Connectors*

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CSA C22.2 No. 4248.1-17, *Fuseholders – Part 1: General Requirements*

CSA C22.2 No. 4248.9-07 (R2016), *Fuseholders – Part 9: Class K*

CSA C22.2 No. 60320-1-19, *Appliance Couplers For Household And Similar General Purposes – Part 1: General Requirements*

CAN/CSA-C22.2 No. 60335-1:16, *Household and similar electrical appliances – Safety – Part 1: General requirements*

CSA C22.2 No. 60691:19, *Thermal-Links – Requirements And Application Guide*

CSA C22.2 No. 61058-1:17, *Switches For Appliances – Part 1: General Requirements*

CSA C22.2 No. 61058-1-1:17, *Switches For Appliances – Part 1-1: Requirements For Mechanical Switches*

CSA C22.2 No. 61058-1-2:17, *Switches For Appliances – Part 1-2: Requirements For Electronic Switches*

CSA C22.2 No. 62115:20, *Electric Toys*

CSA C22.2 No. 61730-1-19, *Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements For Construction*

CSA C22.2 No. 62471:12 (R2020), *Photobiological Safety of Lamps and Lamp Systems*

CAN/CSA-E60384-14:14 (R2018), *Fixed Capacitors For Use In Electronic Equipment – Part 14: Sectional Specification – Fixed Capacitors For Electromagnetic Interference Suppression And Connection To The Supply Mains*

CAN/CSA-E60730-1:15 (R2020), *Automatic Electrical Controls – Part 1: General Requirements*

CAN/CSA-E60730-2-7:18, *Automatic Electrical Controls – Part 2-7: Particular Requirements For Timers And Time Switches*

UL Standards

UL 20, *General Use Snap Switches*

UL 44, *Thermoset-Insulated Wires and Cables*

UL 62, *Flexible Cords and Cables*

UL 66, *Fixture Wire*

UL 73, *Motor-Operated Appliances*

UL 83, *Thermoplastic-Insulated Wires and Cables*

UL 94, *Tests for Flammability of Plastic Materials for Parts in Devices and Appliances*

UL 153, *Portable Electric Luminaires*

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UL 157, *Gaskets and Seals*

UL 224, *Extruded Insulating Tubing*

UL 248 (series of standards), *Low-Voltage Fuses*

UL 248-1, *Low-Voltage Fuses – Part 1: General Requirements*

UL 248-5, *Low-Voltage Fuses – Part 5: Class G Fuses*

UL 248-14, *Low-Voltage Fuses – Part 14: Supplemental Fuses*

UL 310, *Electrical Quick-Connect Terminals*

UL 355, *Cord Reels*

UL 486A-486B, *Wire Connectors*

UL 486C, *Splicing Wire Connectors*

UL 486E, *Aluminum and/or Copper Conductors*

UL 489, *Molded-Case Circuit Breakers, Molded-Case Switches and Circuit-Breaker Enclosures*

UL 496, *Lampholders*

UL 498, *Attachment Plugs and Receptacles*

UL 510, *Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape*

UL 514A, *Metallic Outlet Boxes*

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UL 514D, *Cover Plates for Flush-Mounted Wiring Devices*

UL 635, *Insulating Bushings*

UL 696, *Electric Toys*

UL 746C, *Polymeric Materials – Use in Electrical Equipment Evaluations*

UL 746E, *Polymeric Materials – Industrial Laminates, Filament Wound Tubing, Vulcanized Fibre, and Materials Used In Printed Wiring Boards*

UL 758, *Appliance Wiring Material*

UL 773A, *Nonindustrial Photoelectric Switches for Lighting Control*

UL 796, *Printed-Wiring Boards*

UL 817, *Cord Sets and Power-Supply Cords*

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UL 840, *Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment*

UL 917, *Clock-Operated Switches*

UL 924, *Emergency Lighting and Power Equipment*

UL 935, *Fluorescent-Lamp Ballasts*

UL 943, *Ground-Fault Circuit-Interrupters*

UL 943B, *Appliance Leakage-Current Interrupters*

UL 969, *Marking and Labeling Systems*

UL 969A, *Marking and Labeling Systems – Flag Labels, Flag Tags, Wrap-Around Labels and Related Products*

UL 1018, *Aquarium Equipment*

UL 1029, *High-Intensity Discharge Lamp Ballasts*

UL 1053, *Ground-Fault Sensing and Relaying Equipment*

UL 1059, *Terminal Blocks*

UL 1077, *Supplementary Protectors for Use in Electrical Equipment*

UL 1097, *Double Insulation Systems for Use in Electrical Equipment*

UL 1310, *Class 2 Power Units*

UL 1412, *Fusing Resistors and Temperature-Limited Resistors for Radio- and Television-Type Appliances*

UL 1441, *Coated Electrical Sleeving*

UL 1446, *Systems of Insulating Materials – General*

UL 1557, *Electrically Isolated Semiconductor Devices*

UL 1565, *Positioning Devices*

UL 1699, *Arc-Fault Circuit-Interrupters*

UL 1703, *Flat Plate Photovoltaic Modules and Panels*

UL 1786, *Direct Plug-In Nightlights*

UL 2459, *Insulated Multi-Pole Splicing Wire Connectors*

UL 2595, *General Requirements for Battery-Powered Appliances*

UL 4200A, *Products Incorporating Button Batteries or Coin Cell Batteries*

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UL 4248-1, *Fuseholders – Part 1: General Requirements*

UL 4248-9, *Fuseholders – Part 9: Class K*

UL 5085-1, *Low Voltage Transformers: General Requirements*

UL 5085-2, *Low Voltage Transformers: General Purpose Transformers*

UL 5085-3, *Low Voltage Transformers, Class 2 and Class 3 Transformers*

UL 60320-1, *Appliance Couplers For Household And Similar General Purposes – Part 1 General Requirements*

UL 60384-14, *Fixed Capacitors for Use in Electronic Equipment – Part 14: Sectional Specification: Fixed Capacitors for Electromagnetic Interference Suppression and Connection to the Supply Mains*

UL 60691, *Thermal-Links (Thermal Cutoffs) for Use in Electrical Appliances and Components*

UL 60730-1, *Automatic Electrical Controls for Household and Similar Electric al Controls for Household and Similar Use; Part 1: General*

UL 60730-2-7, *Automatic Electrical Controls for Household and Similar Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Timers and Time Switches*

UL 61058-1, *Switches for Appliances – Part 1: General Requirements*

UL 61058-1-1, *Switches For Appliances – Part 1-1: Requirements For Mechanical Switches*

UL 61058-1-2, *Switches For Appliances – Part 1-2: Requirements For Electronic Switches*

UL 61730-1, *Photovoltaic (PV) Module Safety Qualification – Part 1: Requirements For Construction*

ASTM Standards

ASTM E230/E230M, *Standard Specification and Temperature-Electromotive Force (emf) Tables for Standardized Thermocouples*

IEC Standards

IEC 60384-14, *Fixed Capacitors for Use in Electronic Equipment Part 14: Sectional Specification: Fixed Capacitors for Electromagnetic Interference Suppression and Connection to the Supply Mains*

IEC 60384-16, *Fixed Capacitors for Use in Electronic Equipment – Part 16: Sectional Specification: Fixed Metallized Polypropylene Film Dielectric D.C. Capacitors*

IEC 60417 DATABASE, *Graphical Symbols For Use On Equipment*

IEC 60825-1, *Safety Of Laser Products – Part 1: Equipment Classification And Requirements*

IEC 62471, *Photobiological Safety of Lamps and Lamp Systems*

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ISO Standards

ISO 7010, *Graphical Symbols – Safety Colours And Safety Signs – Registered Safety Signs*

NFPA Standards

ANSI/NFPA 70, *National Electrical Code*

NEMA Standards

ANSI/NEMA WD 6-2016, *Wiring Devices-Dimensional Specifications*

3 Definitions

3.1 The following definitions apply in this Standard.

Note: Defined terms are shown as bolded text throughout the standard.

3.2 APPLIANCE COUPLER – A single-outlet, female contact device for attachment to a flexible cord as part of a detachable power-supply cord to be connected to an appliance inlet (motor attachment plug).

3.3 APPLIANCE INLET (MOTOR ATTACHMENT PLUG) – A male contact device mounted on an end product appliance to provide an integral blade configuration for the connection of an appliance coupler or cord connector.

3.4 AUTOMATIC FLASHLIGHT OR LANTERN – A flashlight or lantern incorporating a switching device which, when the unit is connected to a line voltage supply, will maintain an open circuit between the battery and lamp and, upon loss of the line voltage supply, will close the circuit between the battery and the lamp.

3.5 BATTERY, PRIMARY – A battery which can only be discharged once. It is not designed to be rechargeable and must be protected from a charging current.

3.6 BATTERY, SECONDARY – A battery intended to be discharged and recharged many times.

3.7 CHILD-APPEALING FEATURE – A feature that provides visual appeal and attraction to children in the form of shape, decoration, bright colors, or unusual illuminations.

3.8 LOW VOLTAGE CIRCUIT – A circuit involving a peak open-circuit potential of not more than 42.4 V a.c. or 60 V d.c. supplied by a battery, by a Class 2 transformer or power unit, or by a combination of a transformer and a fixed impedance that as a unit, complies with all performance requirements for a Class 2 transformer or power unit. A circuit derived from a line-voltage circuit by connecting a resistance in series with the supply circuit as a means of limiting the voltage and current, is not considered to be a low voltage circuit.

3.9 PORTABLE PRODUCT – A product that is easily carried or moved from one place to another in normal use.

3.10 RISK OF ELECTRIC SHOCK – A risk of electric shock is considered to exist:

a) At any part if the potential between the part and earth ground or any other accessible part is greater than 42.4 V peak or 60 V continuous dc and such that a continuous current through a 1500 ohm resistor connected across the potential exceeds 0.5 mA rms; or

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