

CSA C22.2 No. 60335-2-107:20
(IEC 60335-2-107:2017+A1:2020+A2:2021, MOD)
National Standard of Canada

ANSI/OPEI 60335-2-107-2020, Amd. 2
American National Standard



**Household and similar electrical appliances — Safety —
Part 2-107: Particular requirements for robotic battery powered
electrical lawnmowers**



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Revision History

CSA C22.2 No. 60335-2-107:20

ANSI/OPEI 60335-2-107-2020, Amd. 2

Household and similar electrical appliances — Safety — Part 2-107:
Particular requirements for robotic battery powered electrical
lawnmowers

| Amendment 2 — August 2022 | Revision symbol (in margin) |
|--|-----------------------------|
| Title page Preface Clause 22.105.2 | |
| Update No. 1 — December 2020 | Revision symbol (in margin) |
| Title page and Clauses DV.1, 3.101DV, 3.110.2DV, 3.128DV, 3.138DV, 3.139DV, 6.1DV, 7.1DV.2, 7.12DV.1, 8.1.1DV, 8.1.4DV, 19.1DV, 20.102.4.1.1DV, 20.102.4.1.2DV, 20.102.4.1.4DV, 20.102.4.2.3DV, 21.101.5DV, 21.101.6DV, 22.105.3DV, 22.105.4DV, 29.101DV, FF.3DV, KK.19.4DV, and KK.24.1DV Preface Clauses 1, 3.101, 3.110.2, 3.128, 3.137, 6.1, 7.1, 7.11, 7.12, 8.1, 8.101.1, 8.101.3, 19.1, 20.102.2.1, 20.102.4.1.1, 20.102.4.1.2, 20.102.4.1.3, 20.102.4.2.2.3, 20.102.5.1, 20.102.5.3, 21.101.5, 21.101.6, 22.104, 22.105.1, 22.105.3, 22.105.4, 22.110, 29.101, FF.3, KK.3.2, KK.3.6, KK.19.4, and KK.24.1 Annex JJ Figures 109DV and 111DV | ① |

CSA C22.2 No. 60335-2-107:20 • ANSI/OPEI 60335-2-107-2020, Amd. 1, *Household and similar electrical appliances — Safety — Part 2-107: Particular requirements for robotic battery powered electrical lawnmowers*

First edition, dated January 31, 2020

SUMMARY OF TOPICS

The revisions to CSA C22.2 No. 60335-2-107:20 • ANSI/OPEI 60335-2-107-2020, Amd. 1 dated December 11, 2020 are issued to incorporate the following changes:

- Applying bold typeface to terms that have been defined in IEC Clause 3, which appear in the following clauses:

IEC: Clauses 1, 3.128, 6.1, 7.1, 7.11, 7.12, 8.101.1, 8.101.3, 20.102.2.1, 20.102.5.1, 20.102.5.3, 22.104, 22.105.1, 22.110, KK.3.2, and KK.3.6 and Annex JJ

National Differences: Clauses 3.101DV, 3.110.2DV, 3.128DV, 3.138DV, 3.139DV, 6.1DV, 7.1DV.2, 7.12DV.1, 19.1DV, 20.102.4.1.1DV, 20.102.4.1.2DV, 20.102.4.1.4DV, 20.102.4.2.3DV, 21.101.5DV, 21.101.6DV, 22.105.3DV, 22.105.4DV, 29.101DV, FF.3DV, KK.19.4DV, and KK.24.1DV

- Deletion of Clause DV.1
- Editorial revision to Clauses 8.1.1DV and 8.1.4DV
- Revision to Clause 20.102.4.1.4DV to correct two cross-references
- Revision to Figures 109DV and 111DV to correct technical errors

Standards Update Service

CSA C22.2 No. 60335-2-107:20

ANSI/OPEI 60335-2-107-2020, Amd. 2

August 2022

Title: *Household and similar electrical appliances — Safety — Part 2-107: Particular requirements for robotic battery powered electrical lawnmowers*

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Foreword (This foreword is not part of American National Standard
ANSI/OPEI 60335-2-107-2020, Amd. 2 / CSA C22.2 No. 60335-2-107:20.)

Consensus for this standard was achieved by use of the Canvass Method. Suggestions for improvements to this standard are welcomed. They should be sent to the Outdoor Power Equipment Institute, 1605 King Street, Alexandria, VA 22314.

The following organizations recognized as having an interest in the standardization of safety requirements for robotic battery powered electrical lawnmowers were contacted prior to the approval of this standard. Inclusion in this list does not necessarily imply that the organization concurred with the submittal of the proposal to ANSI.

Bryan Weller, Chairman
(The Toro Company)

Brandon Martin, Staff Liaison
(Outdoor Power Equipment Institute)

Consensus Body (Canvass) List:

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John Olson
Bryan Weller

General Interest

Consumer Reports (John Galeotafiore)
CSA Group (Leonard Letea)
TÜV Rheinland of North America (Scott Kendall)
Power Tools Institute (Joe Harding)
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CSA C22.2 No. 60335-2-107:20
**Household and similar electrical appliances — Safety —
Part 2-107: Particular requirements for robotic battery
powered electrical lawnmowers**
(IEC 60335-2-107:2017+A1:2020+A2:2021, MOD)

Note: For brevity, this Standard will be referred to as “CSA C22.2 No. 60335-2-107” throughout.

JANUARY 31, 2020

①

(Title page reissued: August 31, 2022)

This national standard is based on publication IEC 60335-2-107, Second Edition (2017), IEC Amendment 1 (2020), and IEC Amendment 2 (2021).

*Prepared by
International Electrotechnical Commission*



Reviewed by



CSA Group
CSA C22.2 No. 60335-2-107:20
First Edition
(IEC 60335-2-107:2017+
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Outdoor Power Equipment Institute
ANSI/OPEI 60335-2-107-2020, Amd. 2
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Preface

- ① This is the harmonized CSA Group and ANSI/OPEI standard for particular requirements for robotic battery powered electrical lawnmowers. This is consolidated edition 1.2 of CSA C22.2 No. 60335-2-107. This is the first edition of ANSI/OPEI 60335-2-107, Amd. 2.

This harmonized standard is based on IEC Publication 60335-2-107, Second edition, *Household and Similar Electrical Appliances — Safety — Part 2-107: Particular requirements for robotic battery powered electrical lawnmowers*, issued December 2017; IEC Amendment 1, issued February 2020; and IEC Amendment 2, issued November 2021. IEC 60335-2-107 is copyrighted by the IEC.

This harmonized standard was prepared by the CSA Group and the Outdoor Power Equipment Institute (OPEI). The efforts and support of the OPEI US Robotic Lawnmower Committee are gratefully acknowledged.

Where differences exist between this consolidated edition and the published edition and its amendments, those documents will take precedence.

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

This standard was reviewed by the CSA Subcommittee on Electrical Motor and Battery-Operated Cleaning Appliances for Industrial and Commercial Use, 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 CSA 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.

This standard has been approved by the American National Standards Institute (ANSI) as an American National Standard.

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CSA C22.2 No. 60335-2-107, *Household and similar electrical appliances — Safety — Part 2-107: Particular requirements for robotic battery powered electrical lawnmowers*, is to be used in conjunction with the second edition of CAN/CSA-C22.2 No. 60335-1:16. The particular requirements for robotic battery powered electrical lawnmowers are contained in this Part 2 Standard and CAN/CSA-C22.2 No. 60335-1: 16. The requirements of this Part 2 Standard, where stated, amend the requirements of CAN/CSA-C22.2 No. 60335-1:16. Where a particular subclause of CAN/CSA-C22.2 No. 60335-1:16 is not mentioned in CSA C22.2 No. 60335-2-107, the CAN/CSA-C22.2 No. 60335-1:16 subclause applies.

ANSI/OPEI 60335-2-107, Amd. 2, standard for safety for *Household and similar electrical appliances — Safety — Part 2-107: Particular requirements for robotic battery powered electrical lawnmowers*, is to be used in conjunction with the sixth edition of UL 60335-1. The requirements of this Part 2 Standard, where stated, amend the requirements of UL 60335-1. Where a particular subclause of UL 60335-1 is not mentioned in ANSI/OPEI 60335-2-107, Amd. 2, the UL 60335-1 subclause applies.

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Foreword

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International Standard IEC 60335-2-107 has been prepared by IEC technical committee 116: Safety of motor-operated electric tools.

This second edition cancels and replaces the first edition published in 2012. This edition constitutes a technical revision.

① **DV.1 — National Difference deleted**

This edition includes the following significant technical changes with respect to the previous edition:

- a) Clause 7: Markings and instructions, new requirements for markings, warnings and the instruction manual;
- b) Clause 8: Protection against access to live parts, new requirements for protection against electric shock for hazardous battery voltages;
- c) Clause 20: Stability and mechanical hazards, revised requirements for manual controller, manual stop, cutting means stopping time, traction drive stopping and restart procedures, as well as a new standing child foot probe test;
- d) Clause 22: Construction, revised requirements for disabling devices, working area, perimeter delimiter, sensors and manual controller, as well as new requirements for machine connectors used for charging and contact surfaces used as obstruction sensing devices;
- e) Clause 24: Components, revised requirements for switches;
- f) Clause 29: Clearances, creepage distances and solid insulation, revised requirements for the machine and non-mains-powered peripherals.

DV.2 D2 Modification by adding the following items after Item f) of the IEC Foreword to describe additional principal changes (National Differences) to the North American harmonized version of this standard (minor changes are not listed):

- gDV) Modified and updated Annex DVA to eliminate unnecessary component standards references and to clarify where there are additional requirements for components;
- hDV) Added national difference wording throughout the standard to better reflect when the additional component requirements of Annex DVA apply;
- iDV) Added national differences that include certain additional requirements of the national electrical codes or laws that have been applicable;
- jDV) Updated Scope to enable use of this standard for pre-selection of components and sub-assemblies, as appropriate;
- kDV) Clause 1: Heat;
- lDV) Clause 13: Leakage current and electric strength at operating temperature;
- mDV) Clause 14: Transient overvoltages;
- nDV) Clause 15: Moisture resistance;
- oDV) Clause 16: Leakage current and electric strength;
- pDV) Clause 22: Construction; and
- qDV) Clause 24: Components.

The text of this standard is based on the following documents:

| FDIS | Report on voting |
|--------------|------------------|
| 116/350/FDIS | 116/354/RVD |

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

This Part 2-107 is to be used in conjunction with the fifth edition (2010) of IEC 60335-1 and its amendments.

DV.3 DE Modification: Replace the above paragraph with the following:

This Part 2-107 is to be used in conjunction with the sixth edition (2016) of UL 60335-1 and the second edition (2016) of CAN/CSA-C22.2 No. 60335-1 and their amendments.

NOTE When “Part 1” is mentioned in this standard, it refers to IEC 60335-1.

DV.4 DE Modification: Replace the above NOTE with the following:

NOTE When “Part 1” is mentioned in this standard, it refers to UL 60335-1 / CAN/CSA-C22.2 No. 60335-1.

This Part 2-107 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert it into the IEC standard: Particular requirements for robotic battery powered electrical lawnmowers.

DV.5 DE Modification: Replace the above paragraph with the following:

This Part 2-107 supplements or modifies the corresponding clauses in UL 60335-1 / CAN/CSA-C22.2 No. 60335-1, so as to convert it into the standard: Particular requirements for robotic battery powered electrical lawnmowers.

When a particular subclause of Part 1 is not mentioned in this Part 2-107, that subclause applies as far as is relevant. Where this standard states “addition”, “modification” or “replacement”, the relevant text in Part 1 is to be adapted accordingly.

The following print types are used:
requirements: in roman type;
test specifications: in italic type;
notes: in small roman type.

The terms defined in Clause 3 are printed in **bold typeface**.

DV.6 DE Modification: to add the following item after the above paragraph:

The numbering system in the standard uses a space instead of a comma to indicate thousands and uses a comma instead of a period to indicate a decimal point. For example, 1 000 means 1,000 and 1,01 means 1.01.

Subclauses, notes and figures which are additional to those in Part 1 are numbered starting from 101. Additional annexes are lettered AA, BB, etc.

A list of all parts of the IEC 60335 series, under the general title: *Household and similar electrical appliances — Safety*, can be found on the IEC website.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC web site under “<http://webstore.iec.ch>” in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

Household and similar electrical appliances — Safety — Part 2-107: Particular requirements for robotic battery powered electrical lawnmowers

Introduction

It has been assumed in the drafting of this document that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This document recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of machines when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of machines.

This document takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the machine is connected to the supply mains. However, national wiring rules may differ.

If a machine within the scope of this document also incorporates functions that are covered by another Part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the machine in question over and above the general requirements.

This standard series is a product family standard series dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 Horizontal and generic standards covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 documents.

A machine that complies with the text of this document will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

A machine employing materials or having forms of construction differing from those detailed in the requirements of this document may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the document.