

AS IEC 60038:2022
IEC 60038:2009+AMD1:2021 CSV



Standard voltages



AS IEC 60038:2022

This Australian Standard ® was prepared by EL-034, Power Quality. It was approved on behalf of the Council of Standards Australia on 9 December 2022.

This Standard was published on 23 December 2022.

The following are represented on Committee EL-034:

- Australian Chamber of Commerce and Industry
- Australian Industry Group
- Australian Information Industry Association
- Bureau of Steel Manufacturers of Australia Limited
- Consumer Electronics Suppliers Association
- Consumers Federation of Australia
- Electrical Regulatory Authorities Council, Australia
- Energy Networks Australia
- Engineers Australia
- Lighting Council Australia
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This Standard was issued in draft form for comment as DR AS IEC 60038:2022.

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ISBN 978 1 76139 017 3

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First published as AS 60038—2000.
Second edition 2012.
Third edition 2022.



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Preface

This Standard was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee EL-034, Power Quality, to supersede AS 60038:2012.

The objective of this document is to specify requirements for the following:

- (a) AC transmission, distribution and utilization systems and equipment for use in such systems with standard frequencies 50 Hz and 60 Hz having a nominal voltage above 100 V.
- (b) AC and DC traction systems.
- (c) AC and DC equipment having nominal voltages below 120 V AC or below 750 V DC, the AC voltages being intended (but not exclusively) for 50 Hz and 60 Hz applications; such equipment covers batteries (from primary or secondary cells), other power supply devices (AC or DC), electrical equipment (including industrial and communication), and appliances.

This document does not apply to voltages representing or transmitting signals or measured values.

This document does not apply to standard voltages of components and parts used within electrical devices or items of equipment.

This document has the status of a horizontal standard in accordance with IEC Guide 108. As such, this document specifies standard voltage values which are intended to serve —

- (i) as preferential values for the nominal voltage of electrical supply and utilization systems; and
- (ii) as maximum, nominal, and minimum reference values for both equipment and power supply in both electricity supply and utilization systems so that product and power system committees can coordinate their documents.

NOTE 1 Two main reasons have led to the values specified in this document:

- (a) The values of nominal voltage (or highest voltage for equipment) specified in this standard are mainly based on the historical development of electrical supply systems throughout the world, since these values turned out to be the most common ones, and have achieved worldwide recognition.
- (b) The voltage ranges mentioned in this standard have been recognized to be the most appropriate ones as a basis for design and testing of electrical equipment and systems.

NOTE 2 It is nevertheless the task of system and product standards to define appropriate testing values, testing conditions and acceptance criteria.

NOTE 3 National Committees and individual systems can set values that differ from, but still comply with, the reference values in this document provided the values they set lie between the highest voltage for equipment and the lowest supply or utilization voltages in this document. Such variations can be required due to legacy or rating issues.

NOTE 4 To comply with this document, neither the lowest supply or utilization voltage can be lower than the lowest voltage for equipment.

NOTE 5 Some National Committees set different nominal values for supply and utilization.

While IEC 60038 is a parallel standard, the lowest 50 Hz utilization voltages in Table A.1 are in the informative Annex A, which is based on 3 % (lighting) and 5 % (other) maximum voltage drops in the consumer's premises. These come from the informative Annex G of IEC 60364-5-52:2009, *Low-voltage electrical installations — Part 5-52: Selection and erection of electrical equipment — Wiring systems*. AS/NZS 3000:2018, *Electrical installations (known as the Australian/New Zealand Wiring Rules)*, allows a normative maximum voltage to drop up to 5 % in both lighting and other consumer services. This results in the last column in Table A.1 for Lowest utilization voltage — Other (5 %) applying to both lighting and other consumer services in Australia.

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The terms “normative” and “informative” are used in Standards to define the application of the appendices or annexes to which they apply. A “normative” appendix or annex is an integral part of a Standard, whereas an “informative” appendix or annex is only for information and guidance.

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FOREWORD

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IEC 60038 edition 7.1 contains the seventh edition (2009-06) [documents 8/1260/FDIS and 8/1264/RVD] and its amendment 1 (2021-12) [documents 8/1600/FDIS and 8/1603/RVD].

This Final version does not show where the technical content is modified by amendment 1. A separate Redline version with all changes highlighted is available in this publication.