

Australian/New Zealand Standard™

Stand-alone power systems

Part 2: System design

STANDARDS
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AS/NZS 4509.2:2010

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-042, Renewable Energy Power Supply Systems and Equipment. It was approved on behalf of the Council of Standards Australia on 26 October 2010 and on behalf of the Council of Standards New Zealand on 22 October 2010. This Standard was published on 22 November 2010.

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We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

**RECONFIRMATION
OF
AS/NZS 4509.2:2010
Stand-alone power systems
Part 2: System design**

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Technical Committee EL-042 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

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Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 10 October 2016.

Approved for reconfirmation in New Zealand on behalf of the Standards Council of New Zealand on 13 December 2016.

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PREFACE

This Standard was prepared by Joint Standards Australia/Standards New Zealand Committee EL-042, Renewable Energy Power Supply Systems and Equipment to supersede AS 4509.2—2002 on publication.

The objective of this Standard is to provide information for the design of stand-alone power systems used for the supply of extra-low and low voltage electric power.

The following changes have been made to AS 4509.2—2002 in producing this edition:

- (a) The Standard is now joint with Standards New Zealand.
- (b) Basic design of a.c. bus systems has been included.
- (c) Referenced documents have been updated and the presentation has been brought into line with current style.

Any comments on the Standard that users wish to submit will be considered by Committee EL-042 when the Standard is next reviewed. Submissions should be forwarded to—

Projects Manager, EL-042
Standards Australia
GPO Box 476
SYDNEY NSW 2001

The term ‘informative’ has been used in this Standard to define the application of the appendix to which it applies. An ‘informative’ appendix is for information and guidance.

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out requirements and guidance for the design of stand-alone power systems with energy storage at extra-low voltage used for the supply of extra-low and low voltage electric power in a domestic situation. Equipment up to the system output terminals is covered.

The principles in this Standard are equally applicable to other systems including commercial and industrial applications and should be considered in the design of those systems.

Optimization of system design considering time of energy use is not covered by this Standard.

NOTE: A bibliography containing references to additional material is in Appendix G.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

- | | |
|----------|--|
| 1170 | Structural design actions |
| 1170.4 | Part 4: Earthquake actions in Australia |
| 1359 | Rotating electrical machines—General requirements |
| 1359.109 | Part 109: Noise limits |
| 3595 | Energy management programs—Guidelines for financial evaluation of a project |
| 4086 | Secondary batteries for use with stand-alone power systems |
| 4777 | Grid connection of energy systems via inverters |
| 4777.1 | Part 1: Installation requirements |
| 4777.2 | Part 2: Installation and maintenance |
| 62310 | Static transfer systems (STS) |
| 104.1 | Limits and methods of measurement of radio disturbance characteristics of electrical motor-operated and thermal appliances for household and similar purposes, electric tools and similar electrical apparatus |
| 1170 | Structural design actions |
| 1170.1 | Part 1: Permanent, imposed and other actions |
| 1170.2 | Part 2: Wind actions |
| 1768 | Lightning protection |
| 3000 | Electrical installations (known as the Australian/New Zealand Wiring Rules) |
| 3010 | Electrical installations—Generating sets |