AS/NZS 5603:2009
Reconfirmed 2017

AS/NZS 5603:2009

Australian/New Zealand Standard™

Stand-alone inverters—Performance requirements

STANDARDS Australia

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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 12 January 2009 and on behalf of the Council of Standards New Zealand on 15 January 2009.
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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.

This Standard was issued in draft form for comment as DR 08211.

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

RECONFIRMATION OF AS/NZS 5603:2009 Stand-alone inverters—Performance requirements

RECONFIRMATION NOTICE

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.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

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

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Australian/New Zealand Standard™

Stand-alone inverters—Performance requirements

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PREFACE

This Standard was produced by Joint Standards Australia/Standards New Zealand Committee EL-042, Renewable Energy Power Supply Systems and Equipment, with the assistance of the Research Institute for Sustainable Energy at Murdoch University, Western Australia, and the University of New South Wales.

The objective of this Standard is to provide manufacturers, test laboratories and users of inverters with a set of parameters and tests for assessing the performance of a stand-alone inverter.

The form in Appendix B, 'Stand-alone Inverter Performance Classification Schedule' may be reproduced freely for the purposes of reporting the results from the tests in this Standards.

The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the reference or appendix to which they apply. A ‘normative’ reference or appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

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S E C T I O N 1 S C O P E A N D G E N E R A L

1.1 SCOPE

This Standard specifies performance requirements for low voltage a.c. output inverters, both single-phase and three-phase, intended for use in stand-alone power systems with batteries. It applies to inverters with—

(a) ratings up to 10 kVA for single-phase units, or up to 30 kVA for three-phase units;

(b) a nominal a.c. voltage equivalent to the nominal supply voltage 230 V (single-phase) or 400 V (three-phase);

(c) a nominal a.c. frequency of 50 Hz; and

(d) nominal d.c. voltages up to 300 V between positive and negative or ±300 V d.c. with respect to earth and connected to a battery.

NOTES:

1 Although this Standard does not apply to larger systems or systems of different nominal voltage or nominal frequency, similar principles apply to such equipment.

2 This Standard does not specify EMC requirements, which for Australia are covered by the requirements of the *Radiocommunications Act 1992* and for New Zealand by the *Radiocommunications Regulations 2001*. For further guidance on Australian requirements, see the Australian Communications and Media Authority's document *Electromagnetic Compatibility—Information for suppliers of electrical and electronic products in Australia and New Zealand.*

1.2 REFERENCED DOCUMENTS

The following normative documents contain provisions that, through reference in this text, constitute provisions of this Standard.

AS
60038 Standard voltages

NZS/IEC
38 IEC standard voltages

IEC
61683 Photovoltaic systems—Power conditioners—Procedure for measuring efficiency

1.3 DEFINITIONS

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

1.3.1 Active mode

A mode of inverter operation whereby nominal voltage (plus/minus specified tolerances) is available/present on the a.c. terminals

1.3.2 Connect

An inverter connects when it goes from 'stop' mode to 'active' mode.