

AS/NZS 3019:2022



Australian/New Zealand Standard™

Electrical installations — Periodic assessment



AS/NZS 3019:2022

This Joint Australian/New Zealand Standard™ was prepared by Joint Technical Committee EL-001, Wiring Rules. It was approved on behalf of the Council of Standards Australia on 21 July 2022 and by the New Zealand Standards Approval Board on 03 August 2022.

This Standard was published on 9 September 2022.

The following are represented on Committee EL-001:

- Australian Energy Council
- Australian Industry Group
- Communications, Electrical and Plumbing Union — Electrical Division
- Consumers Federation of Australia
- Electrical Regulatory Authorities Council
- Electrical Safety New Zealand Inc
- Electrical Workers Registration Board
- ElectroComms & Energy Utilities Industry Skills Council
- Energy Networks Australia
- Engineering New Zealand
- Engineers Australia
- Institute of Electrical Inspectors
- Master Electricians Australia
- Master Electricians NZ
- National Electrical and Communications Association
- National Electrical Switchboard Manufacturers Association
- The Manufacturers' Network
- WorkSafe New Zealand

This Standard was issued in draft form for comment as DR AS/NZS 3019:2021.

Keeping Standards up-to-date

Ensure you have the latest versions of our publications and keep up-to-date about Amendments, Rulings, Withdrawals, and new projects by visiting:

www.standards.org.au

www.standards.govt.nz

ISBN 978 1 76113 907 9

Australian/New Zealand Standard™

Electrical installations — Periodic assessment

Originated in New Zealand as NZS 3019(Int):2002.
Previous edition AS/NZS 3019:2007.
Fourth edition 2022.

© Standards Australia Limited/the Crown in right of New Zealand, administered by the New Zealand Standards Executive 2022

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Cth) or the Copyright Act 1994 (New Zealand).

Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-001 Wiring Rules, to supersede AS/NZS 3019:2007, *Electrical installations — Periodic verification*.

The document aims to provide the means to determine, as far as reasonably practicable, whether the installation and all its constituent equipment is in a safe condition for continued use, and that the electrical installation complies with safety requirements for the prevention of fire and the protection of persons and livestock from electric shock, see [Clause 2.6](#).

AS/NZS 3019 may be applied through legislative requirements, made in each State and Territory of Australia and in New Zealand.

This document includes general requirements for periodic assessment of electrical installations. Additional requirements for particular types of installations may be set by the relevant Standard. For example; AS/NZS 3001.1 for caravan parks and camping grounds, AS/NZS 3002 for installations at shows, carnival and event sites, AS/NZS 3004.1 for marinas, AS/NZS 3012 for installations at construction and demolition sites, AS/NZS 3003 for installations in medical areas, and the AS/NZS 60079 series for installations in hazardous areas.

The major changes in this edition are as follows:

- (a) The Sections are intended to be applied cumulatively rather than each section standing alone.
- (b) The testing requirements in [Section 4](#) are intended to minimize disruption to the continued use of the installation while the assessment is carried out.
- (c) Inspection and testing requirements have been updated to maintain alignment with AS/NZS 3000.
- (d) For New Zealand, a new [Section 6](#) has been added; to be applied where the safety of an existing installation should be of a higher standard than that which applied at the time(s) of original construction of the various parts of the installation, but where full compliance with the current requirements for a new installation is not warranted or required. NZ
- (e) Sample reporting forms have been revised to be more appropriate for purpose.

This Standard is accompanied by additional data in a ZIP file. The ZIP file contains editable PDF forms. The ZIP file may be obtained on purchase of the Standard in any format.

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

Contents

Preface	ii
1 Scope and general	1
1.1 Scope	1
1.2 Types of assessment covered	1
1.3 Exclusions	1
1.4 Normative references	2
1.5 Terms and definitions	2
2 General requirements	3
2.1 Safe practices	3
2.2 Risk assessment	3
2.3 Reporting of electrically unsafe installations	3
2.4 Previous records	3
2.5 Assessment requirements	3
2.5.1 General requirements	3
2.5.2 Benchmarks or criteria for assessment	4
2.5.3 Assessment methods	4
2.5.4 Dismantling of installation for inspection	4
2.5.5 Test methods	4
2.6 Danger to persons, livestock or property	4
2.7 Test equipment	4
2.8 Required competency	5
2.9 Frequency of periodic assessment	5
2.10 Reporting of periodic assessment	5
3 Assessment by basic visual inspection	6
3.1 General	6
3.2 Requirements	6
3.2.1 General	6
3.2.2 Switchboards	6
3.2.3 Metering equipment	6
3.2.4 Wiring systems including consumer mains and sub mains	7
3.2.5 Aerial wiring and catenary systems	7
3.2.6 Underground wiring systems	7
3.2.7 Earthing systems	7
3.2.8 Equipment	7
4 Assessment by detailed visual inspection and limited testing	8
4.1 General	8
4.2 Requirements	8
4.2.1 Detailed visual inspection	8
4.2.2 Limited testing requirements	9
5 Assessment by visual inspection and additional testing	11
5.1 Requirements	11
5.2 Insulation resistance	11
5.3 Polarity and correct connection	11
5.4 Polarization	11
5.5 Earth fault loop impedance	11
5.6 Protective device fault current rating	12
5.7 RCD assessment	12
5.8 Thermographic survey of switchboard equipment	12
5.9 Testing of final subcircuits supplied from an electrically separated supply	12
6 Assessment of enhanced safety	13
6.1 General	13
6.2 All installations	13

6.2.1	General.....	13
6.2.2	Inspection.....	13
6.2.3	Testing.....	13
6.3	Domestic and residential electrical installations.....	14
6.3.1	General.....	14
6.3.2	Inspection.....	14
6.4	Educational and childcare facilities.....	14
6.4.1	General.....	14
6.4.2	Inspection.....	14
Appendix A (informative) Periodic assessment report forms		15
Appendix B (informative) Thermography		19
Bibliography		22

Australian/New Zealand Standard

Electrical installations — Periodic assessment

1 Scope and general

1.1 Scope

This document sets out the requirements for periodic assessment of existing electrical installations which are connected to a low voltage a.c. supply system (exceeding 50 V a.c. but not exceeding 1 000 V a.c.).

Inspection and/or testing is intended, as far as reasonably practicable, to determine whether the installation and all its constituent equipment is in a safe condition for continued use.

The assessment criteria in [Sections 3, 4, 5](#) and [6](#) are intended as benchmarks against which the installation is to be assessed.

This document does not require existing installations to be upgraded to meet the benchmarks. However, the document includes requirements for reporting any deficiencies identified.

NOTE Inspection and testing to this document does not necessarily provide evidence that the installation complied with the relevant requirements at the time of its construction.

1.2 Types of assessment covered

This document provides for periodic assessment by —

- (a) basic visual inspection;
- (b) detailed visual inspection and limited testing;
- (c) visual inspection and additional testing; and
- (d) assessment of enhanced safety (in New Zealand).

NZ

1.3 Exclusions

This document does not apply to the periodic assessment of the following electrical installations:

- (a) Installations designed and constructed to AS/NZS 3000 provisions relating to specific design and installation. Refer to the verification specification prepared for the installation as required by AS/NZS 3000.
- (b) Installations of the following types:
 - (i) Relocatable units and their site installations. Refer to the AS/NZS 3001 series.
 - (ii) Marinas and boat installations. Refer to the AS/NZS 3004 series.
 - (iii) Hazardous areas. Refer to AS/NZS 61241 series and AS/NZS 60079 series.
 - (iv) Electro-medical areas. Refer to AS/NZS 3003.
 - (v) Shows, carnivals and event installations. Refer to AS/NZS 3002.
 - (vi) Construction and demolition sites. Refer to AS/NZS 3012.

In New Zealand it does not apply to—

- (i) Electrical installations and equipment which operate at non-standard voltages and frequencies. Refer to NZS 6114;

NZ

- (ii) Mobile electro-medical relocatable installations. Refer to NZS 6115; and
- (iii) Areas of electrical installations where electrical animal stunning or meat conditioning occurs. Refer to NZS 6116.

NOTE Periodic testing of appliances is covered by AS/NZS 3760.

1.4 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document:

NOTE Documents referenced for informative purposes are listed in the Bibliography.

AS/NZS 3000, *Electrical installations (known as the Australian/New Zealand Wiring Rules)*

AS/NZS 3112, *Approval and test specification — Plugs and socket-outlets*

AS/NZS 3123, *Approval and test specification — Plugs, socket-outlets and couplers for general industrial application*

IEC 60309 (series), *Plugs, socket-outlets and couplers for industrial purposes*

1.5 Terms and definitions

For the purposes of this document the terms and definitions of AS/NZS 3000 and the following apply:

1.5.1

competent person

person who has acquired, through education, training, qualification or experience or a combination of these, the knowledge and skill enabling that person to perform the required task correctly

1.5.2

earth fault-loop impedance

EFLI

impedance of the earth fault-current loop (active-to-earth loop) starting and ending at the point-of-earth fault

1.5.3

may

indicates the existence of an option

1.5.4

reduced low voltage

RLV

supply voltage giving additional protection against electric shock

Note 1 to entry: For example, a single-phase system in which—

- (a) the nominal line-to-line voltage does not exceed 110 V a.c.;
- (b) the nominal line-to-earth voltage does not exceed 55 V a.c.; and
- (c) all exposed conductive parts are connected to the protective conductor.

1.5.5

shall

indicates a statement is mandatory

1.5.6

should

indicates a recommendation

2 General requirements

2.1 Safe practices

Electrical inspection and testing inherently involves a degree of hazard. A competent person performing the inspection and tests should ensure that safe practices are used.

This document prescribes some tests methods which require supply to be disconnected.

Tests where the supply is not connected minimize the risk of electric shock; however some tests require that the supply is connected and therefore additional precautions are required. AS/NZS 3017 and AS/NZS 4836 provide additional guidance.

2.2 Risk assessment

Before commencing inspection and testing, a site-specific risk assessment is required to identify risks and establish control methods.

The risk assessment and resulting control measures should consider the following:

- (a) The age and condition of the equipment being tested that may expose additional hazards.
- (b) Requirements of the regulatory authorities for the jurisdiction.
- (c) The safe work practices in work, health and safety legislation and as outlined in AS/NZS 4836.
- (d) Use of Personal Protective Equipment (PPE) that is suitable for the inspection and testing task.
- (e) Wearing of conductive body adornments and devices
- (f) Equipment and material containing asbestos.

2.3 Reporting of electrically unsafe installations

Defects which constitute an electrical hazard to persons, livestock or property (see [Clause 2.6](#)) shall be immediately reported to the owner or occupier. The owner or occupier shall be advised that immediate action is required to make the installation safe, e.g. disconnection or isolation.

NOTE Legislation may have other requirements regarding the reporting and making safe any electrically unsafe installations.

2.4 Previous records

Wherever possible, the records and recommendations of previous periodic assessments shall be acknowledged.

2.5 Assessment requirements

2.5.1 General requirements

Periodic assessment shall be performed to confirm whether the installation is electrically safe by —

- (a) confirming that the installation is not damaged or has not deteriorated so as to impair electrical safety; and
- (b) identifying installation defects and departures from the requirements of this document that may give rise to danger.