

AS/NZS 61000.6.1:2025



Australian/New Zealand Standard™

Electromagnetic compatibility (EMC)

Part 6.1: Generic standards — Immunity standard for residential, commercial and light-industrial environments (IEC 61000-6-1:2016 (ED. 3.0), MOD)



currently in review, click buy full version

AS/NZS 61000.6.1:2025

This Joint Australian/New Zealand Standard™ was prepared by Joint Technical Committee TE-003, Electromagnetic Compatibility. It was approved on behalf of Standards Australia's Standards Development and Accreditation Committee on 28 February 2025 and by the New Zealand Standards Approval Board on 05 February 2025.

This Standard was published on 28 March 2025.

The following are represented on Committee TE-003:

- Association of Accredited Certification Bodies
- Australian Broadcasting Corporation
- Australian Industry Group
- Consumer Electronics Suppliers Association
- Department of Defence (Australian Government)
- EMC Society of Australia
- Energy Networks Australia
- Engineers Australia
- Free TV Australia
- Lighting Council New Zealand
- Ministry of Business, Innovation and Employment (MBIE)
- National Measurement Institute
- Wireless Institute of Australia

This Standard was issued in draft form for comment as DR AS/NZS 61000.6.1:2024.

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 76175 109 7

Australian/New Zealand Standard™

Electromagnetic compatibility (EMC)

**Part 6.1: Generic standards — Immunity
standard for residential, commercial and light-
industrial environments (IEC 61000-6-1:2016 (ED.
3.0), MOD)**

Originated as AS/NZS 61000.6.1:2006.
Second edition 2025.



© IEC Geneva Switzerland 2025 — All rights reserved

© Standards Australia Limited/the Crown in right of New Zealand, administered by the New Zealand Standards Executive 2025

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 either the IEC or the publisher, unless otherwise permitted under the Copyright Act 1968 (Cth) or the Copyright Act 1994 (New Zealand). If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please see the contact details on the back cover or the contact us page of the website for further information.

Preface

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TE-003 Electromagnetic Compatibility to supersede AS/NZS 61000.6.1:2006, *Electromagnetic compatibility (EMC), Part 6.1: Generic standards - Immunity for residential, commercial and light industrial environments*.

The objective of this document is to define the immunity test requirements for equipment specified in the scope in relation to continuous and transient, conducted and radiated disturbances, including electrostatic discharges.

This document is an adoption with national modifications, and has been reproduced from, IEC 61000-6-1:2016, *Electromagnetic compatibility (EMC) – Part 6-1: Generic standards – Immunity standard for residential, commercial and light-industrial environments*.

The modifications are additional requirements and are set out in [Appendix ZZ](#), which has been added at the end of the source text.

As this document has been reproduced from an international document, a full point substitutes for a comma when referring to a decimal marker.

Australian or Australian/New Zealand Standards that are identical adoptions of international normative references may be used interchangeably. Refer to the online catalogue for information on specific Standards.

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.

Contents

Preface	ii
FOREWORD	iv
INTRODUCTION	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Performance criteria	4
5 Conditions during testing	5
6 Product documentation	5
7 Applicability	5
8 Measurement uncertainty	5
9 Immunity test requirements	6
Annex A (informative) Guidance for product committees	11
Bibliography	13
Appendix ZZ (normative) Modifications to IEC 61000-6-1:2016 for Australia and New Zealand	14

List of Figures

Figure 1 — Equipment ports	3
----------------------------------	---

List of Tables

Table A.1 — Immunity tests and test levels to be considered in future or for particular product families	11
--	----

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61000-6-1 has been prepared by IEC technical committee 77: Electromagnetic compatibility.

This third edition cancels and replaces the second edition published in 2005. This edition constitutes a technical revision.

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

- a) improvement of the environmental description;
- b) extension of the frequency range for the radio-frequency electromagnetic field test according to IEC 61000-4-3;

- c) amended test levels at particular frequencies for the radio-frequency electromagnetic field test according to IEC 61000-4-3;
- d) change of the repetition frequency for the fast transients immunity test according to IEC 61000-4-4;
- e) introduction of requirements according to IEC 61000-4-34;
- f) revision of the test levels;
- g) consideration of measurement uncertainty;
- h) addition of [Annex A](#).

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

FDIS	Report on voting
77/520/FDIS	77/522/RVD

Full information on the voting for the approval of this standard 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.

A list of all parts in the IEC 61000 series, published under the general title *Electromagnetic compatibility (EMC)*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website 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.

INTRODUCTION

IEC 61000 is published in separate parts according to the following structure:

Part 1: General

General considerations (introduction, fundamental principles)

Definitions, terminology

Part 2: Environment

Description of the environment

Classification of the environment

Compatibility levels

Part 3: Limits

Emission limits

Immunity limits (insofar as they do not fall under the responsibility of the product committees)

Part 4: Testing and measurement techniques

Measurement techniques

Testing techniques

Part 5: Installation and mitigation guidelines

Installation guidelines

Mitigation methods and devices

Part 6: Generic standards

Part 9: Miscellaneous

Each part is further subdivided into several parts, published either as International Standards or as Technical Specifications or Technical Reports, some of which have already been published as sections. Others will be published with the part number followed by a dash and a second number identifying the subdivision (example: IEC 61000-6-1).

Australian/New Zealand Standard

Electromagnetic compatibility (EMC)

Part 6.1: Generic standards — Immunity standard for residential, commercial and light-industrial environments (IEC 61000-6-1:2016 (ED. 3.0), MOD)

1 Scope

This part of IEC 61000 for EMC immunity requirements applies to electrical and electronic equipment intended for use in residential, commercial, public and light-industrial locations. Immunity requirements in the frequency range 0 Hz to 400 GHz are covered. No tests need to be performed at frequencies where no requirements are specified.

This generic EMC immunity standard is applicable if no relevant dedicated product or product-family EMC immunity standard exists.

This standard applies to electrical and electronic equipment intended to be operated in

- residential locations, as defined in 3.8, both indoor and outdoor,
- commercial, public and light industrial locations, as defined in 3.9, both indoor and outdoor.

This standard applies also to equipment which is battery operated or is powered by a non-public, but non-industrial, low voltage power distribution system if this equipment is intended to be used in the locations defined in 3.8 or 3.9.

This standard defines the immunity test requirements for equipment specified in the scope in relation to continuous and transient, conducted and radiated disturbances, including electrostatic discharges.

The immunity requirements have been selected to ensure an adequate level of immunity for equipment operating within residential, commercial, public and light-industrial locations. The levels do not, however, cover extreme cases, which may occur at any location, but with an extremely low probability of occurrence. Not all disturbance phenomena have been included for testing purposes in this standard, but only those considered as relevant for the equipment covered by this standard. These test requirements represent essential electromagnetic compatibility immunity requirements. They are specified for each port considered.

NOTE 1 Information on other disturbance phenomena is given in IEC TR 61000-4-1.

NOTE 2 Safety considerations are not covered by this standard.

NOTE 3 In special cases, situations will arise where the levels of disturbances may exceed the test levels specified in this standard, for example where a hand-held transmitter is used in proximity to equipment. In these instances, special mitigation measures may have to be employed.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60050-161, *International Electrotechnical Vocabulary – Part 161: Electromagnetic compatibility* (available at: www.electropedia.org)

IEC 61000-4-2:2008, *Electromagnetic compatibility (EMC) – Part 4-2: Testing and measurement techniques – Electrostatic discharge immunity test*

IEC 61000-4-3:2006, *Electromagnetic compatibility (EMC) – Part 4-3: Testing and measurement techniques – Radiated, radio-frequency, electromagnetic field immunity test*