AS 4755.3.1:2025

Australian STANDARD®

STANDARDS Australia

Demand response capabilities and supporting technologies for electrical products

Part 3.1: Interaction of demand response enabling devices and electrical products — Operational instructions and connections for air conditioners



AS 4755.3.1:2025

This Australian Standard® was prepared by EL-054, Remote Demand Management of Electrical Products. It was approved on behalf of Standards Australia's Standards Development and Accreditation Committee on 31 March 2025.

This Standard was published on 17 April 2025.

The following are represented on Committee EL-054:

Airconditioning & Refrigeration Equipment Manufacturers Association of Australia
Australian Energy Council
Australian Energy Market Operator
Australian Industry Group
Australian Institute of Refrigeration, Air Conditioning and Heating
Australian National University
Clean Energy Council
Consumer Electronics Suppliers Association
Consumers' Federation of Australia
CSIRO
Department of Climate Change, Energy, the Environment and Water
Department of Energy and Mining (SA)
Energy Networks Australia
International Copper Association Australia
Swimming Pool and Spa Association of Australia

This Standard was issued in draft form for comment as DR AS 4755.3.1:2024.

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

ISBN 978 1 76175 140 0

Demand response capabilities and supporting technologies for electrical products

Part 3.1: Interaction of demand response enabling devices and electrical products — Operational instructions and connections for air conditioners

Originated in Australia as AS 4755.3.1—2008.
Originated in New Zealand as AS/NZS 4755.3.1:2012.
Third edition 2014.
Fourth edition 2025.

Standards Australia Ltd 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 the publisher, unless otherwise permitted under the Copyright Act 1968 (Cth).

How to read this Standard

This page explains the meaning of the language and structure of this Standard.

Refer to Standards Australia's Standardisation Guide 006 for more details about drafting rules.

Australian and Australian/New Zealand Standards are voluntary unless they are referenced in legislation or called up in contracts.

Requirements

To conform to a Standard, all requirements in the Standard need to be met.

A requirement is any statement in the Standard which uses the word "shall".

Recommendations, permissions and possibilities

The following words are commonly used in Standards, but statements using them do not have to be followed to conform to the Standard:

(a) "should" means that something is recommended.

(b) "may" means that something is permitted.

(c) "can" means that something is possible.

Structure of Standards

A Standard always has the following parts:

(i) The Preface states who developed the Standard, what the Standard is aiming to do, and how it relates to other documents.

(ii) The Scope states what the Standard is about, what it covers and what it does not cover.

(iii) The Normative references clause lists other documents that are referenced in the Standard as part of requirements.

(iv) The Terms and definitions clause defines important terms to help with understanding the Standard.

A Standard may also include other parts, such as the following:

(1) A normative appendix sets additional requirements that need to be conformed to.

(2) An informative appendix provides additional information or guidance. They usually do not contain requirements. If an informative appendix does contain requirements, the Standard will explain when those requirements apply

(3) A Bibliography lists documents referenced in the Standard but not as part of requirements.

Many Standards include notes. Notes provide recommendations and/or guidance only. They never contain requirements.

© Standards Australia Limited 2025

Preface

This document was prepared by the Australian members of the Joint Standards Australia/Standards New Zealand Committee EL-054, Remote Demand Management of Electrical Products, to supersede AS/NZS 4755.3.1:2014.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this document as an Australian Standard rather than an Australian/New Zealand Standard.

The objective of this document is to set out the requirements for air conditioners that can respond to operational instructions from a remote agent with the use of a Demand Response Enabling Device (DRED).

A list of all parts in the AS/NZS 4755 series can be found in the Standards Australia online catalogue.

The major changes to this edition are as follows:

(a) The option for testing other than at T1 and H1 conditions has been removed.

(b) The reference power level for demand response has been changed from a relative value to a rated value.

(c) A new table is included that lists the rated capacity test conditions for different types of air conditioners.

(d) Appendix A ("Registration information for air conditioners complying with AS/NZS 4755.3.1") in AS/NZS 4755.3.1:2014 has been deleted because the content forms part of a regulatory role.

(e) Appendix B in AS/NZS 4755.3.1:2014 has been simplified to remove unnecessary items and is now an informative appendix.

(f) Appendix C ("Sequence of tests for determining and verifying demand response capability for air conditioners") in AS/NZS 4755.3.1:2014 has been deleted because the field-testing requirements in the document have been removed.

(g) Terms and definitions have been updated to make this document consistent with other parts of the AS/NZS 4755 series.

(h) Editorial changes have been made to improve the readability of the document.

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.

© Standards Australia Limited 2025

Contents

Preface ... **iii**

1 Scope and general ... **1**
1.1 Scope ... 1
1.2 Normative references ... 1
1.3 Terms and definitions ... 1

2 Operational instructions and demand response modes ... **3**
2.1 General principles ... 3
2.2 Demand response modes ... 3
2.2.1 General ... 3
2.2.2 DRM 2 and DRM 3 operation ... 4
2.3 Over-ride capability ... 5
2.4 Response times ... 5
2.5 Heating and cooling modes ... 5
2.6 Multiple operational instructions ... 6

3 Interfaces ... **6**
3.1 General ... 6
3.2 Physical interfaces ... 6
3.3 Pin assignments ... 6
3.3.1 Terminal block pin assignments ... 6
3.3.2 RJ45 connector pin assignment ... 7
3.3.3 RJ45 connector specifications ... 7
3.4 Circuitry of the demand response interface ... 7
3.5 Power supply to DRED ... 8
3.6 Location and access ... 8

4 Marking and documentation ... **8**
4.1 Marking ... 8
4.2 Documentation ... 8

5 Testing and verifying demand response capability ... **9**
5.1 General ... 9
5.2 General test provisions ... 9
5.3 Set-up for testing (all tests) ... 9
5.4 Testing responses to operational instructions ... 10
5.5 Verification of conformance to DRM 1 ... 11
5.5.1 Interrupting operation by a DRM 1 event ... 11
5.5.2 Switching on during a DRM 1 event ... 11
5.6 Verification of conformance to DRM 2 ... 12
5.6.1 Interrupting operation by a DRM 2 event ... 12
5.6.2 Switching on during a DRM 2 event ... 12
5.7 Verification of conformance to DRM 3 ... 13
5.7.1 Interrupting operation by a DRM 3 event ... 13
5.7.2 Switching on during a DRM 3 event ... 13
5.8 Test report ... 13

Appendix A (Informative) **Verification of claimed demand response capability for air conditioners** ... **15**

Australian Standard®

Demand response capabilities and supporting technologies for electrical products

Part 3.1: Interaction of demand response enabling devices and electrical products — Operational instructions and connections for air conditioners

1 Scope and general

1.1 Scope

This document sets out the requirements for air conditioners of the vapour compression type —

(a) that do not contain a Demand Response Enabling Device (DRED); and

(b) which have a demand response interface with the physical and electrical requirements to interface a DRED.

1.2 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.

AS/NZS 3823.1.1, *Performance of electrical appliances—Airconditioners and heat pumps, Part 1.1: Non-ducted airconditioners and heat pumps—Testing and rating for performance*

AS/NZS 3823.1.2, *Performance of electrical appliances—Airconditioners and heat pumps, Part 1.2: Ducted airconditioners and air-to-air heat pumps—Testing and rating for performance*

AS/NZS 3823.1.3, *Performance of electrical appliances—Airconditioners and heat pumps, Part 1.3: Water-source heat pumps—Water-to-air and brine-to-air heat pumps—Testing and rating of performance*

AS/NZS 3823.1.4, *Performance of electrical appliances—Airconditioners and heat pumps, Part 1.4: Multiple split-system airconditioners and air-to-air heat pumps—Testing and rating for performance*

AS/NZS 4755.1, *Demand response capabilities and supporting technologies for electrical products, Part 1: Demand Response Framework and requirements for Demand Response Enabling Devices (DREDs)*

AS/NZS 60335.1, *Household and similar electrical appliances—Safety, Part 1: General requirements*

AS/NZS ISO 5151, *Non-ducted air conditioners and heat pumps—Testing and rating for performance*

AS/NZS ISO 13256-1, *Water-source heat pumps — Testing and rating for performance, Part 1: Water-to-air and brine-to-air heat pumps*

ISO 13253, *Ducted air-conditioners and air-to-air heat pumps — Testing and rating for performance*

ISO 15042, *Multiple split-system air conditioners and air-to-air heat pumps — Testing and rating for performance*

1.3 Terms and definitions

For the purposes of this document, the following terms and definitions and those given in AS/NZS 4755.1 apply.

© Standards Australia Limited 2025