AS/NZS 4755.3.1:2014

Australian/New Zealand 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

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee EL-054, Remote Demand Management of Electrical Products. It was approved on behalf of the Council of Standards Australia on 6 November 2014 and on behalf of the Council of Standards New Zealand on 31 October 2014.
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The following are represented on Committee EL-054:

Airconditioning and Refrigeration Equipment Manufacturers Association of Australia
Australian Industry Group
Clean Energy Council
Consumer Electronics Suppliers Association
Consumers Federation of Australia
Copper Development Centre Australia
CSIRO
Department of Industry (Commonwealth)
Electricity Engineers Association, New Zealand
Electricity Networks Association New Zealand
Energy Networks Association
Heating, Ventilation and Air Conditioning New Zealand
Smart Grid Australia
Swimming Pool and Spa Association of Australia

Additional Interests:

ChargePoint
Federal Chamber of Automotive Industries

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For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

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 AS/NZS 4755.3.1:2014.

Australian/New Zealand 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

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PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee EL-054, Remote Demand Management of Electrical Products, to supersede AS/NZS 4755.3.1:2012.

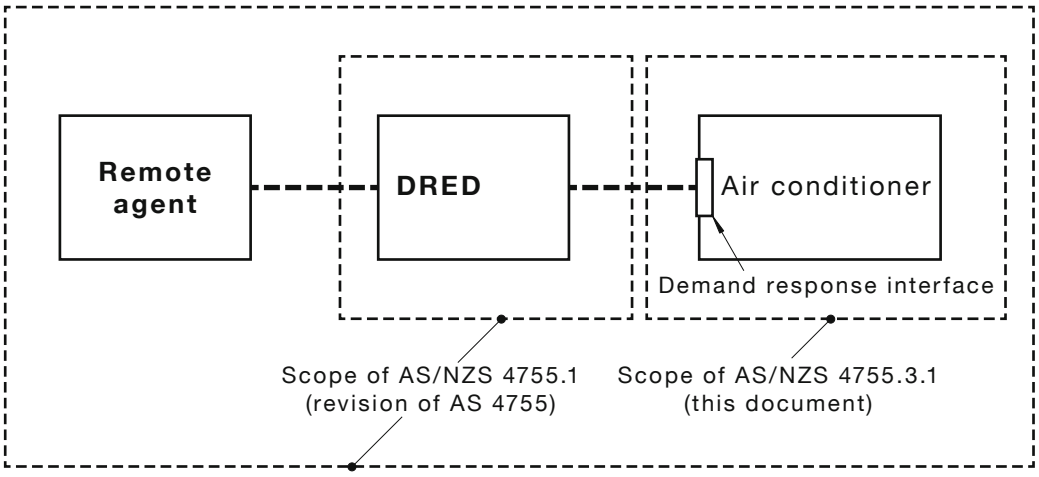
This Standard forms part of a series that is intended to define the nomenclature, architecture and operational instructions for systems that can be used to remotely control electrical products, and to define the demand response capabilities of products. AS 4755—2007, *Framework for demand response capabilities and supporting technologies for electrical products*, will have its title and designation changed to become AS/NZS 4755.1. When complete, the series will comprise the following:

AS/NZS		
4755		Demand response capabilities and supporting technologies for electrical products
4755.1	Part 1:	Framework for demand response capabilities and requirements for demand response enabling devices (DREDs)
4755.3.1	Part 3.1:	Interaction of demand response enabling devices and electrical products—Operational instructions and connections for air conditioners (this Standard)
4755.3.2	Part 3.2:	Interaction of demand response enabling devices and electrical products—Operational instructions and connections for devices controlling swimming pool pump-units
4755.3.3	Part 3.3:	Interaction of demand response enabling devices and electrical products—Operational instructions and connections for electric storage and electric-boosted storage water heaters
4755.3.4	Part 3.4:	Interaction of demand response enabling devices and electrical products—Operational instructions and connections for grid-connected charge/discharge controllers for electric vehicles (EVSEs)

Detailed standards covering demand response operational instructions and interfaces with demand response enabling devices (DREDs) for other electrical products may also be prepared as needs are identified.

The diagram below depicts the structure of this Standard, AS/NZS 4755.3.1. This Standard covers the interaction of air conditioners with DREDs.

This Standard does not cover all aspects of construction and performance, which may be subject to other standards.



It is recommended that this Standard be read in conjunction with AS/NZS 4755.1.

The AS/NZS 4755 series creates a framework that will allow off-the-shelf equipment, communications technologies and electrical products to be integrated and adapted so that demand management solutions may be developed and deployed in a timely and economical fashion.

Although the series has been developed to support situations where demand response is initiated or managed by a remote agent, with the consent of the owner or user of the electrical product, there is no technical barrier that prevents the owner or user managing the operation of compliant electrical products through their own home area network, via the demand response interface.

This Standard pertains to a particular electrical product, the air conditioner. The Standard specifies, for air conditioners—

(a) a standard demand response interface;

(b) a standard set of operational instructions;

(c) the required responses to the operational instructions;

(d) the markings to be applied to products complying with the standard; and

(e) the methods of testing to verify compliance.

This Standard is intended to support demand response programs that optimize the operation of the electricity supply system and allow the efficient planning and use of capital equipment, while minimizing the risks to the comfort and amenity of air conditioner users.

The costs and benefits of making this Standard mandatory are the subject of consideration by Australian and New Zealand Governments. If compliance were mandated, it would also be mandatory to register product details with the regulators of the national energy labelling and minimum energy performance standards program. Information about the status of this Standard and registration procedures (if required) is available at the Australian Government Energy Rating website (www.energyrating.gov.au).

The principal differences between this and the previous edition are as follows:

(i) The reference power level for demand response has been changed from an absolute value (i.e. the energy used while operating at rated capacity in a controlled test environment) to a relative value (i.e. the energy used during normal operation at the same temperature and humidity conditions, either in a controlled environment or in the field).

(ii) A test to ensure that response in DRM 2 differs from response in DRM 3 has been added.

(iii) The prohibition on over-capacity operation (Clause 2.7 in the previous edition) has been removed.

(iv) The required response in the event that the DRED transmits more than one OI at a time has been added (in a new Clause 2.7). This Clause will take effect from the date of publication of this Standard. However, Australian regulatory authorities have indicated that, in the event that compliance with this Standard becomes mandatory, they intend to accept products that would otherwise comply with this Standard (i.e. other than with Clause 2.7) as compliant for up to 3 years from publication of this revision. Users of this Standard should check the Australian Government Energy Rating website (www.energyrating.gov.au) regarding its status for regulatory purposes.

(v) A new Clause 3.7, *Optional low voltage power supply*, has been added. This does not require the provision of such a power supply but specifies requirements for cases where it is provided.

(vi) Section 5, *Testing and verifying demand response capability*, has been clarified. The clarifications include the specification of the most severe conditions under which compliance is required to be tested, and the addition of an alternative method of demonstrating compliance.

(vii) Definitions and terminology have been updated to make this Standard consistent with the other parts of the AS/NZS 4755 series.

For the status of products that have been registered under the previous versions of this Standard, users should check the Australian Government Energy Rating website (www.energyrating.gov.au).

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

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

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SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard—

(a) applies to air conditioners that do not contain a DRED, and have a demand response interface intended to connect with a DRED;

(b) specifies a set of operational instructions that will meet the requirements of remote agents wishing to control the energy consumption of air conditioners;

(c) specifies the responses required to the operational instructions;

(d) specifies two alternative methods of connecting the demand response interface to the DRED; and

(e) provides methods of testing to verify compliance.

Air conditioners covered by this Standard include, but are not restricted to, single-phase and three-phase air conditioners of the vapour compression type that fall within the scope of the AS/NZS 3823 series.

NOTE: If compliance with this Standard is made mandatory by the relevant Australian and New Zealand regulatory authorities, then any exclusion of product types, limitations on cooling output or other criteria for limiting regulatory scope will be stated in the regulations.

1.2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS	
4755*	Framework for demand response capabilities and supporting technologies for electrical products
AS/NZS	
3000	Electrical installations (known as the Australian/New Zealand Wiring Rules)
3823	Performance of electrical appliances—Air conditioners and heat pumps (series)
3823.2	Part 2: Energy labelling and minimum energy performance standard (MEPS) requirements
4755	Demand response capabilities and supporting technologies for electrical products (series)
4755.1*	Part 1: Framework for demand response capabilities and requirements for demand response enabling devices (DREDs)

* The definitions currently in AS 4755—2007 will be included in the forthcoming AS/NZS 4755.1.