

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
airconditioners**



This Australian Standard® was prepared by Committee EL-054, Remote Demand Management of Electrical Products. It was approved on behalf of the Council of Standards Australia on 25 November 2008.

This Standard was published on 9 December 2008.

The following are represented on Committee EL-054:

- Airconditioning and Refrigeration Equipment Manufacturers Association of Australia
 - Australian Greenhouse Office, Department of the Environment, Water, Heritage and the Arts
 - Australian Industry Group
 - Australian Institute of Refrigeration Airconditioning and Heating
 - CSIRO Energy Technology
 - Consumer Electronics Suppliers Association
 - Consumers' Federation of Australia
 - Copper Development Centre—Australia
 - Energy Networks Association
 - Energy Users Association of Australia
 - The University of New South Wales
-

This Standard was issued in draft form for comment as DR 08197.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through the public comment period.

Keeping Standards up-to-date

Australian Standards® are living documents that reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued.

Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting www.standards.org.au

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at mail@standards.org.au, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

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
airconditioners**

First published as AS 4755.3.1—2008.

COPYRIGHT

© Standards Australia

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.

Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 8978 1

PREFACE

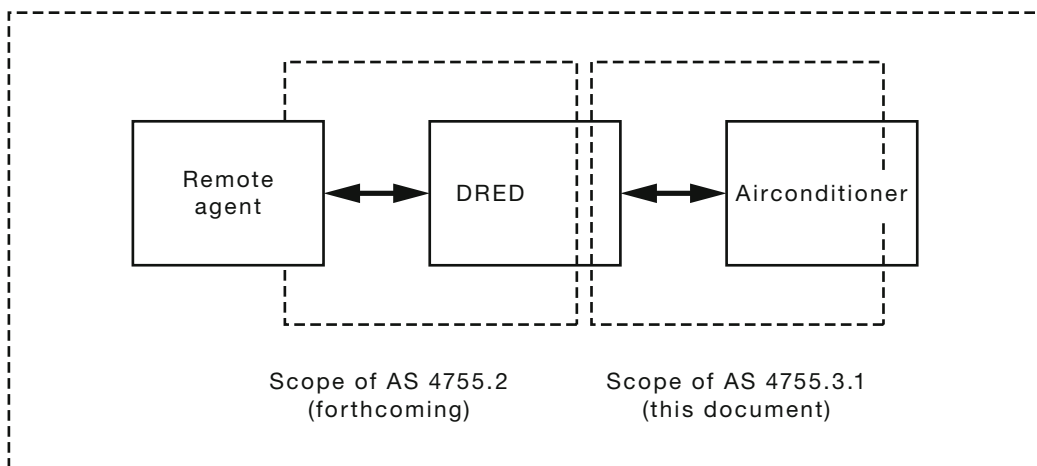
This Standard was produced by Standards Australia Committee EL-054, Remote Demand Management of Electrical Products.

This Standard forms part of a series of Standards that is intended to define the nomenclature, architecture and operational instructions for systems that can be used to remotely control electrical products. AS 4755—2007 will have its title and designation changed by amendment to become AS 4755.1. When complete, the series will comprise the following:

AS

- 4755 Demand response capabilities and supporting technologies for electrical products
- 4755.1 Part 1: Framework for demand response capabilities
- 4755.2.1 Part 2.1: Requirements of demand response systems and enabling devices—Architecture of demand response systems
- 4755.2.2 Part 2.2: Requirements of demand response systems and enabling devices—Requirements of demand response enabling devices
- 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 swimming pool equipment
- 4755.3.3 Part 3.3: Interaction of demand response enabling devices and electrical products—Operational instructions and connections for electric and electric-booster water heaters

The following figure depicts the structure of the Standards pertaining to the remote control of electrical products.



COVERAGE OF PARTS OF AS 4755

It is recommended that this Standard be read in conjunction with the other parts of AS 4755.

The AS 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.

This Standard pertains to a particular electrical product, the airconditioner. The Standard—

- (a) specifies the standard interface between an airconditioner and a Demand Response Enabling Device (DRED); and
- (b) specifies a standard set of operational instructions that are intended to reduce the electricity demand of the airconditioner during demand response events, by controlling or constraining its energy consumption.

Detailed Standards covering demand response operational instructions and interfaces with demand response enabling devices in water heaters, swimming pool pumps and other electrical products may also be prepared as needs are identified.

This Standard is intended to support demand response programs which 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 airconditioner users.

CONTENTS

	<i>Page</i>
SECTION 1 SCOPE AND GENERAL	
1.1 SCOPE	5
1.2 REFERENCED DOCUMENTS	5
1.3 DEFINITIONS	6
SECTION 2 OPERATIONAL INSTRUCTIONS	
2.1 GENERAL PRINCIPLES.....	7
2.2 DEMAND RESPONSE MODES.....	7
2.3 HEATING AND COOLING MODES.....	9
2.4 FAN OPERATION.....	9
2.5 RESPONSE TIMES AND RANDOMIZATION	9
SECTION 3 INTERFACES	
3.1 GENERAL	10
3.2 CONNECTION SPECIFICATION.....	10
3.3 PHYSICAL INTERFACES	11
3.4 TERMINAL BLOCK	11
3.5 RJ45 SOCKET	11
3.6 RELAY CONTACT SPECIFICATIONS	12
3.7 SIGNAL SPECIFICATION.....	13
3.8 OPTIONAL ELECTRICAL SUPPLY	13
3.9 LOCATION AND ACCESS.....	13
SECTION 4 COMMUNICATING AND VERIFYING DEMAND RESPONSE CAPABILITY	
4.1 REGISTRATION, LABELLING AND MARKING	14
4.2 MANUFACTURER'S LITERATURE	15
4.3 VERIFICATION OF CLAIMED DEMAND RESPONSE CAPABILITY	15

STANDARDS AUSTRALIA

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 airconditioners

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard—

- (a) defines a set of operational instructions that will meet the requirements of Remote Agents wishing to control the energy consumption of airconditioners; and
- (b) establishes a consistent approach to the configuration of interfaces between Demand Response Enabling Devices (DREDS) and airconditioners. This will provide assistance to manufacturers who wish to supply airconditioners preconfigured for connection to DREDS.

NOTE: Because of the unique functions and characteristics of each electrical product type Operational Instructions may vary depending on type of electrical product. It is intended that further standards will be drafted to define interfaces and operational instructions for other electrical products such as swimming pool equipment and water heaters as required.

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 household electrical appliances—Airconditioners and heat pumps
- 3828.1.1 Part 1.1: Test methods—Non-ducted airconditioners and heat pumps—Testing and rating for performance
- 3828.1.2 Part 1.2: Test methods—Ducted airconditioners and air-to-air heat pumps—Testing and rating for performance
- 3828.1.3 Part 1.3: Water-source heat pumps—Testing and rating for performance: Water-to-air and brine-to-air heat pumps
- 3828.2 Part 2: Energy labelling and minimum energy performance standard (MEPS) requirements
- 3828.3 Part 3: Calculation of performance for minimum energy performance standard (MEPS) requirements
- 60335 Household and similar electrical appliances—Safety
- 60335.1 Part 1: General requirements (IEC 60335-1 Ed.4.2, MOD)

* AS 4755—2007 will have its title and designation changed by amendment to become AS 4755.1.