

Australian/New Zealand Standard™

**Performance of external power supplies**

**Part 1: Test method and energy  
performance mark**



## **AS/NZS 4665.1:2005**

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee TE-001, Safety of Electronic Equipment. It was approved on behalf of the Council of Standards Australia on 17 October 2005 and on behalf of the Council of Standards New Zealand on 28 October 2005.

This Standard was published on 10 November 2005.

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The following are represented on Committee TE-001:

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Australian Information Industry Association  
Australian Subscription Television and Radio Association  
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## Performance of external power supplies

### Part 1: Test method and energy performance mark

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## PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TE-001, Safety of Electronic Equipment.

*This Standard incorporates Amendment No. 1 (February 2009). The changes required by the Amendment are indicated in the text by a marginal bar and amendment number against the clause, note, table, figure or part thereof affected.*

The objective of this Standard is to provide designers, manufacturers, importers, test laboratories, regulators and users of mains input external power supplies having a single extra low voltage output with a test method to assess the energy efficiency of these devices. It also includes information on the energy performance mark.

This Standard was prepared in response to the publication of a plan for the regulation of external power supplies under the National Appliance and Equipment Energy Efficiency Program (NAEEEP) in 2004. This Standard draws upon a test method published in 2003 by the US Environmental Protection Agency (EPA) as part of the ENERGY STAR program, following input from several countries including Australia. The EPA test method is the de-facto standard in the United States and China. This AS/NZS Standard is technically similar to the EPA standard.

It is intended that this Standard should be proposed as the basis for an IEC Standard once it has been published in Australia.

This series consists of 2 parts. These are:

AS/NZS

4665 Performance of external power supplies

4665.1 Part 1: Test method and energy performance mark (this Standard)

4665.2 Part 2: Minimum energy performance standard (MEPS) requirements

Part 1 contains the test method for assessing the efficiency of external power supplies and includes information on the energy performance mark. It applies to power supplies with either d.c. or a.c. output up to 250 W or 250 VA respectively.

Part 2 specifies minimum energy performance standard (MEPS) requirements and 'high efficiency' levels for external power supplies. Regulatory authorities have advised that it is intended to mandate Part 2 of the Standard (AS/NZS 4465.2:2005) in regulations in Australia and New Zealand no earlier than 1 December 2008, except for marking requirements, which are intended to be mandated no earlier than 1 April 2009.

The terms 'normative' and 'informative' are used 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.

Statements expressed in mandatory terms in notes to figures, are deemed to be requirements of this Standard. 'Shall' indicates a requirement is mandatory, while 'should' indicates a recommendation and good practice.

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## STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

**Australian/New Zealand Standard**  
**Performance of external power supplies**

Part 1: Test method and energy performance mark

## SECTION 1 SCOPE AND GENERAL

**1.1 SCOPE**

This Standard specifies a test method for calculating the energy efficiency of external power supply units (often known as ‘a.c. adaptors’, ‘plug packs’ or ‘power-packs’) with mains supply input (nominally 115 V a.c. or 230 V a.c.) and a single output at extra low voltage (ELV), either a.c. or d.c., and a maximum output of 250 W or 250 VA.

Internal power supplies and external power supplies with multiple, simultaneous output voltages are excluded from the scope of this Standard.

D.c. or battery powered equipment is excluded from the scope of this Standard.

A1 | Power supplies within the scope of AS/NZS 4879 or IEC 61347.2.13 are excluded from the scope of this Standard.

The purpose of this Standard is to define a standardized test method to measure the efficiency of single voltage external power supplies across a defined range of load conditions.

Appendix A includes information on the energy performance mark.

**1.2 REFERENCED DOCUMENTS**

The following normative documents contain provisions which, through reference in this document, constitute provisions of this Standard:

AS 2706	Numerical values—Rounding and interpretation of limiting values
AS/NZS 62301	Household electrical appliances—Measurement of standby power
IEC 60050-300	International Electrotechnical Vocabulary—Electrical and electronic measurements and measuring instruments

**1.3 DEFINITIONS**

For the purpose of this Standard the following definitions apply. Terms defined in IEC 60050-300 also apply.

**1.3.1 Active mode**

Active mode refers to a condition in which the input of a power supply is connected to line voltage a.c. and the output is connected to a load drawing some power (i.e. any power output level other than no load).

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