

External power supplies (Power adaptors)

How to meet requirements under energy efficiency regulations

External power supplies are covered by energy efficiency regulations. If you import, manufacture or sell external power supplies – even if they come packaged with a product – there are some requirements you must meet before you can legally sell them in Australia or New Zealand.

Effective date of regulation

The regulation became effective from 1 December 2008 in Australia and 9 June 2011 in New Zealand.

What is an external power supply?

External power supplies, also known as power adaptors, a.c. adaptors, or power-packs, are used to power or re-charge extra low voltage products, like laptop computers, mobile telephones, modems, printers and many other products, both fixed or portable.

The external power supply is often sold packaged with the product it will be used with.

Which external power supplies are covered by regulations?

If you import, manufacture or sell any external power supply that matches the following description, it is likely to be covered by energy efficiency regulations. For full details, refer to standard AS/NZS 4665

- **It converts mains AC electricity input into one extra low voltage AC or DC output.**

DC to DC converters aren't covered by the regulations.

- **It's output is 250W (or 250VA) or less.**

- **It has only one extra low voltage output.**

This can be either fixed or user selected using a selector switch. Some external power supplies have simultaneous multiple output voltages (e.g. some personal computer power supplies) – these aren't covered by the regulations. An external power supply with more than one output, even at the same voltage is not covered by the regulation.

- **It is designed to power and/or re-charge a separate product.**

It is often sold together with that product – e.g. a mobile phone that comes with a power supply/charger. It is sometimes hard-wired to the product they are powering, but it will always have a separate housing or case.

- **If it charges a battery and it does not physically attach directly to the batteries/battery pack.**

If a battery or battery pack is removed from the product being powered and plugs into the power supply, then it is not covered by the external power supply efficiency standards.

- **If it charges a battery and does not have a battery chemistry or type selector switch and an indicator light or state of charge meter.**

Exclusions and exemptions from external power supply efficiency regulations

Transformers or converters for extra low voltage lamps, as defined by AS/NZS 4879 are excluded.

LED drivers, as defined by IEC 61347.2.13 are excluded.

In Australia, therapeutic devices in the Australian Register of Therapeutic Goods in accordance with the Therapeutic Goods Act 1989 as amended by the Therapeutic Goods Amendment (Medical Devices) Bill 2002, the Therapeutic Goods (Medical Devices) Regulations 2002 and any subsequent amendments are exempt.

In Australia, the Trade Practices Act 1974 requires a part to be 'reasonably available' after the acquisition of goods by a consumer. Therefore an external power supply that is made available by a manufacturer directly to a consumer or to a service or repair facility after and separate from the original sale of the product requiring the external power supply as a service part or spare part shall be exempt from meeting MEPS requirements for a period of 5 years from the date of introduction of MEPS. I.e. until 30 November 2013.

Energy efficiency regulations and product standards

External power supplies, and many other products, are covered by Energy Efficiency Regulations. They must meet certain requirements before they can be legally sold in Australia or New Zealand.

For external power supplies, the relevant product standards are:

- AS/NZS 4665.1:2005, which includes the scope, test method and performance mark requirements.
- AS/NZS 4665.2:2005, which covers minimum energy performance (MEPS) requirements.
- The 2005 standards have been subject to amendments and may be subject to future amendments. It is the responsibility of manufacturers and importers to keep abreast of the current standards.
- The standards are available from www.saiglobal.com and www.standards.govt.nz

Legal requirements

• What are the legal requirements for retailers?

If you are a retailer, you must check that any external power supplies you sell (individually or packaged with another product) are registered.

You can check which products are registered on the energy rating website at www.eneryrating.gov.au.

• What are the legal requirements for importers and manufacturers?

If you import or manufacture an external power supply, even if it is packaged with another product, you must meet the following legal requirements.

External power supplies must be tested in accordance with the method described in the Standard AS/NZS 4665.1, to determine if their energy performance meets MEPS.

Submission of a test report is not required, but you must retain a copy for five years and provide a copy within a prescribed period if requested by regulatory authorities.

Energy performance is measured at 0, 25, 50, 75 and 100% of the manufacturer's specified (nameplate) output power rating at 230V a.c. 50 Hz. If the nameplate only specifies 240 Va.c., then it shall be tested at 240 Va.c.

Testing using standards equivalent to AS/NZS4665.1 from other jurisdictions or programmes are also acceptable.

If you import or manufacture an external power supply, even if it is packaged with another product, you must meet the following legal requirements.

External power supplies are required to meet minimum energy performance standards (MEPS).

An international protocol categorises the energy efficiency of external power supplies using roman numerals as a performance mark.

An external power supply must achieve a performance mark of least III to be able to be sold in Australia or New Zealand (products with a performance mark of I and II cannot be sold).

To achieve performance mark III, an external power supply must meet the following criteria when tested at 230 Va.c. (or 240 Va.c. if applicable) and 50 Hz. Testing at 115 Va.c. is not required.

MEPS performance mark III

Minimum efficiency performance - mark III		
Nameplate power output (P _{no}) Watts	Average efficiency	
0 to 1	≥ 0.49 x P _{no}	
> 1 to 49	≥ 0.09Ln(P _{no})+0.49 to a maximum of 0.8400	
> 49 to 250	≥ 0.8400	
P _{no} is the nameplate output power of the unit under test.		
Ln refers to the natural logarithm (base e). The algebraic order of operations requires that the natural logarithm calculation be performed first.		
Maximum no-load power – mark III		
Nameplate power output (P _{no}) Watts	AC - DC	AC -AC
0 to <10	≤ 0.5	N/A
10 to 250	≤ 0.75	N/A

High Efficiency Products:

MEPS performance mark IV

Minimum efficiency performance - mark IV		
Nameplate power output (P _{no}) Watts	Average efficiency	
0 to 1	$\geq 0.5 \times P_{no}$	
> 1 to 51	$\geq 0.09 \ln(P_{no}) + 0.5$	
>51 to 250	≥ 0.85	
Type and Nameplate Power Output (P _{no}) Watts	No Load Power Watts	
AC – DC 0 to 250	≤ 0.5	
AC – AC 0 to 250	N/A	

MEPS performance mark V

Minimum efficiency performance - mark V		
Output specifications	Active mode efficiency requirements	
	Nameplate output power (P _{no}) Watts	Average active mode efficiency
Output voltage < 6 Volts	0 to 1	$\geq 0.497 \times P_{no} + 0.067$
And Output current ≥ 0.550 Amps	>1 to 49	$\geq 0.075 \ln(P_{no}) + 0.561$
	>49 to 250	≥ 0.86
All other models	0 to 1	$\geq 0.480 \times P_{no} + 0.140$
	>1 to 49	$\geq 0.0626 \times \ln(P_{no}) + 0.622$
	>49 to 250	≥ 0.87

Maximum no-load power – mark V		
Nameplate output power (P _{no}) Watts	No-load power consumption requirements Watts	
	AC – AC	AC - DC
0 to < 50	N/A	≤ 0.3
≥ 50 to 250	N/A	≤ 0.5

For more information on the MEPS requirements and performance marking, including higher efficiency marks IV and V, see the Standard AS/NZS 4665.1 and 4665.2

External power supplies that are covered by energy efficiency regulations must be properly registered before they can be sold in Australia or New Zealand.

To register a product, you must complete an on-line application through the energy rating website at www.energyrating.gov.au.

If your product is already registered in Australia (i.e. a valid registration through the energyrating website) you do not need to register it again for New Zealand.



For more detailed information go to:

<http://www.energyrating.gov.au/products-themes/home-entertainment/external-power-supplies/meps/>

MEPS Requirements

<http://infostore.saiglobal.com/store/Details.aspx?ProductID=1101592>

AS/ANZ 4665