



Fact Sheet

External Power Supplies: Minimum Energy Performance Standards Jan 2017

External power supplies (EPS) 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.

Legislative framework for Minimum Energy Performance Standards (MEPS)

EPS have been regulated for energy efficiency in Australia through the application of MEPS since 2008.

In October 2012, a single piece of Australian Government legislation, the *Greenhouse and Energy Minimum Standards (GEMS) Act 2012 (Act)*, replaced the various State and Territory laws that had previously been used to implement MEPS. The Act sets out participation requirements as well as a range of offences for non-compliance.

A key change from the previous State and Territory laws is the extension of coverage to include both the offer to supply and the commercial use of regulated products. If you purchase regulated EPS overseas and import them for your own commercial use they must still comply with the law, even though the supply event occurred outside Australia.

Specific requirements for EPS

In Australia, regulatory requirements for EPS are set under the *Greenhouse and Energy Minimum Standards (External Power Supplies) Determination 2014 (Determination)*. The Determination specifies what products **are** and **are not** covered, and incorporates requirements for MEPS and testing from the relevant Australian Standard by reference.

What products are covered

This Determination covers single output external power supply units with a maximum output power of 250 watts or 250 volt-amperes (VA) in the product classes set out below.

Product class	Products covered by the product class
1	single output EPS with <u>non</u> user selectable output voltage and with an alternating current input and a direct current output (a.c.–d.c.)
2	single output EPS with user selectable output voltage and with an alternating current input and a direct current output (a.c.–d.c.)

Product class	Products covered by the product class
3	single output EPS with <u>non</u> user selectable output voltage and with an alternating current input and an alternating current output (a.c.–a.c.)
4	single output EPS with user selectable output voltage and with an alternating current input and an alternating current output (a.c.–a.c.)

In this table - **user selectable output voltage** means a switch by which a user can select one of multiple output voltages.

What products are Not covered

The Determination explicitly excludes the following product classes:

- external power supplies with simultaneous multiple output voltages;
- direct current to direct current (d.c. to d.c.) voltage conversion equipment;
- single output external power supplies for transformers and electronic step-down converters for extra low voltage (ELV) lamps;
- therapeutic devices on the Australian Register of Therapeutic Goods in accordance with the Therapeutic Goods Act 1989 and the Therapeutic Goods (Medical Devices) Regulations 2002;
- direct current (d.c.) or battery powered equipment;

In addition to the classes above, EPS that are capable of multiple output voltages which are not user selectable on the device are not covered by the Determination.

These devices may change the output voltage depending on the end use product being connected or via some other selection method on the end use product. They are also sometimes referred to as 'quick charge' units which vary the voltage to charge the end product quickly at a higher voltage.

These products are out of scope as a result the definition of 'single output external power supply' found in Section 4 of the EPS Determination. Paragraph (b) of the definition

states that a single output external power supply has **one extra low voltage output** (either alternating current or direct current) that is **either at a fixed voltage or a user selectable voltage through a selector switch**. As these products change the voltage based on the end product, not a selector switch, they do not fit in the definition and are therefore out of scope.

GEMS Labelling Requirements

The International Efficiency Marking Protocol for External Power Supplies (IEMP) categorises the energy efficiency of EPS using roman numerals as a performance mark. An EPS must achieve a performance mark of at least III to be able to be sold in Australia or New Zealand (products with a performance mark of I or II cannot be sold).

To achieve performance mark III or more, an external power supply must meet the criteria at Table 1 below (which reproduces the requirements from Appendix A of AS/NZS 4665.1:2005 and IEMP Version 3.0) when tested at 230 Va.c. (or 240 Va.c. if applicable) and 50 Hz.

Families of Models

The Determination sets different family requirements depending on whether or not your product has a user selectable output voltage:

- **Multi-switch model—User selectable output voltage**

A model with a single output that provides a range of user selectable output voltages. They may be sold under different brand names or model numbers or both. Test reports may include one or more models having the same energy performance mark.

- **Non user selectable output voltage**

A range of non user selectable single output models based on common technically equivalent components (typically switchmode), but each model may have a different output voltage. They may be sold under different brand names or model numbers or both. Each member of the family is included on a single test report and has the same energy performance mark, but may have a different output voltage.

The family requirements for non-user selectable output voltage units, set out above, include the requirement that all members of the family be **based on common, technically equivalent components**. Where a family of non-user selectable single output models have common technically equivalent components, output power of the models may vary due to the differing internal power losses of each EPS or the variable current capability of the output components of each EPS.

The difference in output power that occurs in these circumstances should generally be small. A large difference in output power will be regarded by the GEMS Regulator as an indicator that the models in the proposed family **may** not have common technically equivalent components. For example, a 20 per cent difference in output power would be considered a large difference.

Additionally, where a family of non-user selectable single output models have common technically equivalent components, it would be expected that they would generally be of similar size and shape. A large difference in size or shape will also be regarded by the GEMS Regulator as an indicator that the models in the proposed family may not have common technically equivalent components.

If there is a large difference in output power, or size or shape, within the family, you may be

asked to provide further information at registration to demonstrate that the family members are based on common, technically equivalent components.

Registration

More information available [here](#).

Monitoring and Enforcement

The E3 Compliance Program incorporates a range of compliance activities including the national check-testing program and retail surveillance. Check-testing aims to ensure the compliance of products with energy efficiency regulations. It also provides the community and other stakeholders with information that demonstrates that the overall efficiency goals of the program are being met and that those suppliers not meeting their responsibilities are identified and sanctioned. Regular check-testing is undertaken on a range of domestic and commercial product types. Results of previous check-testing and surveillance activity and information on the E3 compliance program are available at:

<http://www.energyrating.gov.au/about/legislation/compliance-policy/>

Table 1

AS/NZS 4665.1:2005 and IEMP Performance Requirements ¹				
MARK	Nameplate Output Power (P _{no}) ²	No-Load Mode Power ³	Nameplate Output Power (P _{no})	Average Efficiency in Active Mode ⁴
III	0 to < 10 W	≤ 0.5	0 to 1 W	≥ 0.49 x P _{no}
	10 to 250 W	≤ 0.75	> 1 to 49 W	≥ 0.09 x ln(P _{no}) + 0.49
			> 49 to 250 W	≥ 0.84
IV	0 to 250 W	≤ 0.5	0 to < 1 W	≥ 0.5 x P _{no}
			1 to 51 W	≥ 0.09 x ln(P _{no}) + 0.5
			> 51 to 250 W	≥ 0.85
V	0 to < 50 W	AC-DC: ≤ 0.3 AC-AC: ≤ 0.5	0 to ≤ 1 W	Basic Voltage: ≥ 0.480 x P _{no} + 0.140 Low Voltage ⁵ : ≥ 0.497 x P _{no} + 0.067
			> 1 to ≤ 49 W	Basic Voltage: ≥ 0.0626 x ln(P _{no}) + 0.622 Low Voltage: ≥ 0.0750 x ln(P _{no}) + 0.561
	≥ 50 to ≤ 250 W	≤ 0.5	> 49 to 250 W	Basic Voltage: ≥ 0.870 Low Voltage: ≥ 0.860
VI	0 to ≤ 49 W	AC-DC: ≤ 0.100 AC-AC: ≤ 0.210	0 to ≤ 1 W	Basic Voltage: ≥ 0.5 x P _{no} + 0.16 Low Voltage: ≥ 0.517 x P _{no} + 0.087
			> 1 to ≤ 49 W	Basic Voltage: ≥ 0.071 x ln(P _{no}) - 0.0014 x P _{no} + 0.67 Low Voltage: ≥ 0.0834 x ln(P _{no}) - 0.0014 x P _{no} + 0.609
	> 49 to ≤ 250 W	≤ 0.210	> 49 to ≤ 250 W	Basic Voltage: ≥ 0.880 Low Voltage: ≥ 0.870
	> 250 W	≤ 0.500	> 250 W	≥ 0.875
VII	Reserved for future use.			

¹ The requirements for marks III – V are set out in Appendix A of AS/NZS 4665.1:2005. The requirements for mark VI (for products on which the registrant wishes to display this mark) are set out in IEMP Version 3.0.
² P_{no} is the Nameplate Output Power of the unit under test.
³ In Australia and New Zealand, AC-AC external power supplies are not required to meet the no-load mode power requirements.
⁴ “ln” refers to the natural logarithm.
⁵ A low-voltage model is an EPS with nameplate output voltage of less than 6 volts and nameplate output current greater than or equal to 550 milliamperes. A basic-voltage model is an EPS that is not a low-voltage model.

For more detailed information go to:

On-line registration instructions:

www.energyrating.gov.au/resources/program-publications/?viewPublicationID=2139

EPS information:

<http://www.energyrating.gov.au/products/external-power-supplies/>

The standards are available from SAI Global or Standards New Zealand:

www.saiglobal.com

www.standards.co.nz

Purchase IEC Standards:

www.saiglobal.com

The information in this document is provided as guidance only. This document has been developed to help registrants of external power supplies to better understand their responsibilities under the legislative framework in Australia. For registrants of products in Australia, this document should be read in conjunction with the *Greenhouse and Energy Minimum Standards (GEMS) Act 2012* and its supporting Regulations and Instruments. Changes to legislation may affect the information in this document. Ultimately, persons are responsible for determining their obligations under the law, and for applying the law to their individual circumstances. This document does not constitute legal advice and is not a substitute for independent professional advice.