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ENERGY STAR® is a U.S. Environmental Protection Agency program helping businesses and individuals fight global warming through superior energy efficiency.

THE NEW ENERGY STAR VERSION 2.0 SPECIFICATION FOR EXTERNAL POWER SUPPLIES –

Powered by an ENERGY STAR® qualified adapter for a better environment

WHAT IT MEANS FOR CONSUMER ELECTRONICS MANUFACTURERS

In April 2008, the new ENERGY STAR Version 2.0 external power supply (EPS) specification was finalized and will become effective on November 1, 2008. To help makers of consumer electronics products better understand Version 2.0, this fact sheet:

- Provides an overview of the various energy efficiency standards for EPSs.
- Describes the benefits of specifying EPSs that comply with the Version 2.0 specification for your consumer electronics product.
- Gives instructions on how to comply with the Version 2.0 specification and join the ENERGY STAR program.

Overview of the Various EPS Specifications [1]

There are currently three different EPS specifications – California Energy Commission (CEC) Standards (required in California), EPA ENERGY STAR Specification (voluntary) and the federal standard (required nationwide). Their effective dates are described below.

- ENERGY STAR Version 1.1 EPS specification and the CEC Tier I EPS standard, which have identical efficiency requirements, ***are both currently in effect*.**
- CEC Tier II EPS standard and the federal standard[2] for EPSs, which have identical efficiency requirements and are more stringent than ENERGY STAR Version 1.1, ***will go into effect on July 1, 2008*.**
- ENERGY STAR Version 2.0 EPS specification (more stringent than the new CEC Tier II and the federal standard) will ***go into effect on November 1, 2008.***[3]

Compared to Version 1.1, the ENERGY STAR Version 2.0 EPS specification includes:

- More stringent active mode efficiency levels for low-voltage EPSs[4] and standard EPSs.
- More stringent no-load efficiency levels for AC/DC and AC/AC EPSs.
- Requirement that EPSs with greater than or equal to 100 watts input power must have a power factor of 0.9 or greater at 100% load when tested at 115 V.

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[1] See tables in Attachment 1 fully describing the CEC, ENERGY STAR, and federal criteria and see Attachment 2 for examples of efficiency levels that must be met for typical EPSs.
[2] As defined in the Energy Security and Independence Act of 2007 and part of the DOE appliance standards. Please contact Victor.petrolati@ee.doe.gov for more information. To review the CEC regulations: www.energy.ca.gov/appliances/index.html
[3] Other ENERGY STAR qualified products must use Version 2.0 qualified EPSs by the following deadlines: November 1, 2008 (telephony and televisions), January 1, 2009 (for set-top boxes), April 1, 2009 (for imaging equipment) and July 1, 2009 (for computers).
[4] A new category of EPS was defined, termed the Low Voltage External Power Supply. A low voltage model is an EPS with a nameplate output voltage of less than 6 volts and a nameplate output current greater than or equal to 550 milliamps (0.55 amperes).

Benefits of Specifying ENERGY STAR Qualified EPSs for Your Consumer Electronics Products and Joining ENERGY STAR

- ***Be an Environmental Leader.*** EPA can help promote your ENERGY STAR efforts to further enhance your company's reputation as an environmental leader. By specifying ENERGY STAR qualified Version 2.0 EPSs, your products use the most efficient EPSs available, more efficient than federal or California standards.
- ***Increase Sales by Promoting an Important Product Feature: Energy-Efficiency.*** Display the ENERGY STAR graphic for products using ENERGY STAR qualified EPSs. The ENERGY STAR mark is recognized as the symbol for energy efficiency around the world. Although the savings for a single product using a Version 2.0 qualified EPS are small, the collective savings for a product line can be enormous. For example, cell phone companies that have employed ENERGY STAR qualified EPSs have saved their customers millions of dollars in energy costs.
- ***Benefit from Ongoing ENERGY STAR Consumer Education Campaigns.*** The ENERGY STAR program works hard to raise awareness about the benefits of labeled products. EPA-sponsored public service announcements and public relations campaigns result in millions of dollars in ad equivalency and hundreds of millions of media impressions annually.
- ***Comply with Federal Purchasing Guidelines and Standards and International Criteria.*** Federal buyers are directed by Energy Policy Act of 2006 to purchase ENERGY STAR qualified products. Products using ENERGY STAR Version 2.0 qualified EPSs comply with mandatory federal and California standards (effective July 2008) and criteria in Australia, European Union, and China.

How to Retain Your ENERGY STAR Partner Status as a Maker of Consumer Electronics Products Using Qualified EPSs

By November 1, 2008, products must use EPSs that meet Version 2.0 standards. To retain your ENERGY STAR Partner Status:

1) ***Update your product specifications to include EPSs meeting ENERGY STAR Version 2.0.*** Your supplier should not have difficulty finding EPSs that comply with Version 2.0. In fact, in EPA's specification development dataset, close to 70% of EPS makers had at least one model meeting the active and no-load requirements.
2) ***Test your products' EPSs – or ask your supplier to do so.*** Contact Robert Huang (contact info below) if you require assistance with EPS testing.
3) ***Re-submit your products to EPA ENERGY STAR.*** Use the Qualified Product Information (QPI) form for "Consumer Electronics Makers Using Adapters" found at: www.energystar.gov/powersupplies

How to Join ENERGY STAR as Maker of Consumer Electronics Products Using Qualified EPSs

If joining the ENERGY STAR program for the first time, please go to: www.energystar.gov/join

For More Information

Contact Robert Huang, ENERGY STAR Technical Contractor, The Cadmus Group, Inc. at 617-673-7117, rhuang@cadmusgroup.com

ATTACHMENT 1

EPA ENERGY STAR Version 1.1 EPS Voluntary Specification and CEC Tier I EPS Standard (Currently in Effect)

Energy-Efficiency Criteria for Active Mode

Nameplate Output Power (P_{no})	Minimum Average Efficiency in Active Mode (expressed as a decimal)
0 to ≤ 1 watt	≥ 0.49 * P_{no}
> 1 to ≤ 49 watts	≥ [0.09 * Ln (P_{no})] + 0.49
> 49 watts	≥ 0.84

Energy Consumption Criteria for No Load

Nameplate Output Power (P_{no})	Maximum Power in No-Load
0 to < 10 watts	≤ 0.5 watts
≥ 10 to ≤ 250 watts	≤ 0.75 watts

CEC Tier II EPS Standard and Federal Standard for EPS (Both Effective July 1, 2008)

Energy-Efficiency Criteria for Active Mode

Nameplate Output Power (P_{no})	Minimum Average Efficiency in Active Mode (expressed as a decimal)
< 1 watt	≥ 0.50 * P_{no}
≥ 1 to ≤ 51 watts	≥ [0.09 * Ln (P_{no})] + 0.50
> 51 watts	≥ 0.85

Energy Consumption Criteria for No Load

Nameplate Output Power (P_{no})	Maximum Power in No-Load
Any output	≤ 0.5 watts

EPA ENERGY STAR Version 2.0 EPS Voluntary Specification (Effective November 1, 2008)

Energy-Efficiency Criteria for Ac-Ac and Ac-Dc External Power Supplies in Active Mode: Standard Models

Nameplate Output Power (P_{no})	Minimum Average Efficiency in Active Mode (expressed as a decimal)
0 to ≤ 1 watt	≥ 0.480 * P_{no} + 0.140
> 1 to ≤ 49 watts	≥ [0.0626 * Ln (P_{no})] + 0.622
> 49 watts	≥ 0.870

Energy-Efficiency Criteria for Ac-Ac and Ac-Dc External Power Supplies in Active Mode: Low Voltage Models

Nameplate Output Power (P_{no})	Minimum Average Efficiency in Active Mode (expressed as a decimal)
0 to ≤ 1 watt	≥ 0.497 * P_{no} + 0.067
> 1 to ≤ 49 watts	≥ [0.0750 * Ln (P_{no})] + 0.561
> 49 watts	≥ 0.860

Energy Consumption Criteria for No-Load

Nameplate Output Power (P_{no})	Maximum Power in No-Load	
	AC-AC EPS	AC-DC EPS
0 to < 50 watts	≤ 0.5 watts	≤ 0.3 watts
≥ 50 to ≤ 250 watts	≤ 0.5 watts	≤ 0.5 watts

ATTACHMENT 2

Examination of the Different Efficiency Levels That Must Be Met for Typical Chargers[5]

Efficiency Levels for Typical Cell Phone Charger[6] (Nameplate Output Power=2.75 watts)		
	Maximum Power in No-Load	**Minimum Average Efficiency in Active Mode**
ENERGY STAR Version 1.1 and CEC Tier I (Currently Effective)	≤ 0.5 watts	58.1%
CEC Tier II Spec and Federal Standard (Effective July 1, 2008)	≤ 0.5 watts	59.1%
ENERGY STAR Version 2.0 (Effective November 1, 2008)	≤ 0.3 watts	63.7%

Efficiency Levels for Typical Laptop Charger[7] (Nameplate Output Power = 90 watts)		
	Maximum Power in No-Load	**Minimum Average Efficiency in Active Mode**
ENERGY STAR Version 1.1 and CEC Tier I (Currently Effective)	≤ 0.75 watts	84%
CEC Tier II Spec and Federal Standard (Effective July 1, 2008)	≤ 0.5 watts	85%
ENERGY STAR Version 2.0 (Effective July 1, 2009)	≤ 0.5 watts	87%

[5] EPSs were assumed to be putting out power at 75% of nameplate power.
[6] Motorola DCH3-05US-0300
[7] Dell NADP-90KB