

Product Sheet, GEEA Criteria 2007  
**External Power Supplies, Portable Personal Equipment,  
 Battery Chargers**



## Scope

All types of external power supplies, portable personal equipment and battery charger either sold as a separate product or as part of equipment.

The product group includes:

- External power supplies (sold as a separate product to supply an external product with power from the mains)
- Portable personal equipment (equipment that is sold as part of a product with non-removable rechargeable batteries and is sold with the aim of recharging batteries)
- Battery chargers (sold as a separate product to recharge removable rechargeable batteries)

## Criteria

An external power supply, portable personal equipment or battery charger complies with GEEA criteria if the following criteria are met:

Category	Criteria	Basis for criteria
External power supplies, portable personal equipment or battery chargers	The power consumption in no-load mode is <b>0.3 W</b> or less.	EU CoC with exception
	The power consumption in on mode must apply to the criteria defined in EU Code of Conduct.* Does not apply to battery chargers.	EU CoC

\* See Table: EU Code of Conduct on Energy Efficiency of External Power Supplies 'Energy-Efficiency Criteria for Active Mode'

## Definitions

Term	Definition
Load	The equipment is connected to the mains and performing its main function (i.e. supply power or charging rechargeable batteries).
No-load	The mode in which the equipment is connected to the mains and the load is disconnected from the equipment (i.e. external product turned off or fully recharged batteries).

## Test method

Measurements should be carried out according to the method specified in the "Test Method for Calculating the Energy Efficiency of Single Voltage External Ac-Dc and Ac-Ac Power Supplies (August 13, 2004)", issued by US EPA.

## Basis for criteria

EU CoC: EU Code of Conduct on Energy Efficiency of External Power Supplies - Version 2, 24 November 2004.

## Exceptions

Criteria	Code of Conduct	GEEA
Rated Output Power ( $\geq 60$ W and $< 150$ W)	0.5 W	0.3 W

**Table: Energy-Efficiency Criteria for Active Mode**

<b>Rated Output Power (<math>P_{no}</math>)</b>	<b>Minimum Four Point Average or 100 % Load Efficiency in Active Mode (expressed as a decimal)<sup>1</sup></b>
$0 < W < 1$	$\geq 0.49 * P_{no}$
$1 < W < 49$	$\geq [0.09 * \text{Ln} (P_{no})] + 0.49$
$49 < W < 150$	$\geq 0.84$ <sup>2</sup>

<sup>1</sup> ("Ln" refers to the natural logarithm. The algebraic order of operations requires that the natural logarithm calculation be performed first and then multiplied by 0.09, with the resulting output added to 0.49. (b) An efficiency of 0.84 in decimal form corresponds to the more familiar value of 84% when expressed as a percentage.

<sup>2</sup> Power supplies that have a power factor correction (PFC) to comply with EN61000-3-2 (above 75 W input power) have a 0.04 (4%) allowance, accordingly the minimum on mode load efficiency (100% or averaged) is relaxed to 0.80 (80%).