A Brief introduction of the China External Power Supply Project

ZHANG Guoqin

China Certification Center for Energy Conservation Products

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About us

- The national authority organization for Energy-Efficiency labeling program in China
- Technical and policy research on the energy efficiency
- Provide technical supports to the Chinese government on energy efficiency issues
- Promote the E-E products in China
- Cooperation with the international organizations, governments and institutes in the energy efficiency field
The power supply market in China

- The saleroom of the AC/DC power supplies in China is about US$723 millions in China
- About 60% of the total market share
- The increase rate in 2002-2007 will be 12.4%
- About 39.1% of the power supplies are external power supplies due to the low labor-cost and the main suppliers for the mobile-phones, laptops and other movable consume electron products are transferred into China
energy savings & environment effects

- The efficient design can save 15% ~ 20% energy
- The stock of the power supplies is increased rapidly
- The most power plants in China use the fossil fuel
Barriers for the EE power supplies promotion

The energy-efficient power supply has more advantages such as small size, low weight, low operating temperature, high reliability and etc. but it still has some market barriers:

- The purchaser of the power supplies isn’t the end-user, needn’t pay for the electrical bills and is not the direct beneficiary for energy savings.
- A consumer normally buys a complete set of product rather than an individual power supply.
- There has not related information to support the consumer find an energy efficiency power supply.
- The drastically market competing and the reducing profit rate.
Project objective

- Develop a mutual accordant test procedure
- Develop a mutual accordant technical specification
- Launch the labeling program in China for EE external AC/DC power supplies
- Increase and enhance the international marketing for Chinese power supplies
- Provide technical support for the development of the national industrial policy for power supplies in China
Products efficiency

- The average efficiency of the liner power supplies is about 15% to 76%, and the average is 49%;
  No load power: 0.35 ~ 3.8W, Average: 1.02W

- The average efficiency of the switch power supplies is about 17% to 88%, and the average is 64%;
  No load power: 0.1 ~ 3.8W, Average: 0.92W

Data resource: 500 products measured by CECP in 2003
Average efficiency

Distribution of External Power Supplies and Proposed Specification

One to 51 Watts
Efficiency > 0.09Ln(Watts) + 0.50

Greater than 51 Watts
Efficiency > 85%

Less than One Watt
Efficiency > 0.5 * Rated Output Power

Percent of Qualifying Power Supplies = 24.8%
37.75% of measured power supplies qualify for no load power target.
The specification is based on the measurement on the 800 products in China, US and Australia.

- Been composed by two parts:
  - The average efficiency in the active model
  - The no load power

- The products must meet both the two parts

- The products must be tested according to the procedure provided in the specification
Scopes

- a single voltage external ac-dc power supply
- is designed to convert line voltage ac input into low voltage dc output;
- is able to convert to one dc output voltage at a time;
- is sold with, or intended to be used with, a product that constitutes the primary load;
- is contained in a separate enclosure from the end-use product;
Scopes (continue)

- is connected to the end-use product via a cable, cord or other wiring even when that wiring is permanent;
- does not have batteries or battery packs attached directly to the power supply unit;
- has only two output wires;
- does not have a battery chemistry or type selector switch and indicator light or state of charge meter;
- has wattage ratings less than or equal to 180 watts
Technical level: Average efficiency

- The average efficiency of the UUT test at the 100%, 75%, 50%, and 25% of the rated current
- Devoted into 3 categories by the rated output power

<table>
<thead>
<tr>
<th>Rated output power (W)</th>
<th>Minimum efficiency (denoted in decimal fraction)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 &lt; Po &lt; 1</td>
<td>0.5 * Po</td>
</tr>
<tr>
<td>1 ≤ Po &lt; 51</td>
<td>0.09 * Ln(Po) + 0.5</td>
</tr>
<tr>
<td>Po ≥ 51</td>
<td>0.85</td>
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</tbody>
</table>
Technical level: Average efficiency

- There are about 31.25% products can meet the requirement among the products less than 1 watt;
- There are about 24.12% products can meet the requirement among the products from 1 watt to 51 watt;
- There are about 28.57% products can meet the requirement among the products over 51 watt.
Technical level: No load power

- Input of a power supply is connected to an ac source consistent with the power supply’s nameplate ac voltage, but the output is not connected to a product or any other load.
- Devoted into 3 category by the rated output power

<table>
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<tr>
<th>Rated output power W</th>
<th>Maximum no load power W</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 &lt; Po ≤ 10</td>
<td>0.5</td>
</tr>
<tr>
<td>10 &lt; Po &lt; 180</td>
<td>0.75</td>
</tr>
</tbody>
</table>
There are about 42.65% products that meet the requirement among the products less than 10 watt.

There are about 31.44% products that meet the requirement among the products more than 10 watt.
Technical level: Generally

- The qualified percentage of the products is different by the output power category.
- About 17.5% can meet both the requirements for efficiency and no load power.
International cooperation

- One label application, two labels
- Avoid iterant test, save money and time
- Enhance the international compete
Goals

- Finished the harmonized specification in September
- Launch the program together at the China power supply exhibition in later September
- Provide helps for the Chinese manufacturers apply for the Energy star label
Next steps & our efforts

- Continue the cooperation
- Prepare for launching the labeling program in China
- Technical preparation for the mutual harmonization between CECP and Energy Star label
- Identify the possibility of expanding the cooperation category and field
- Seeking for the cooperation and harmonization with other countries and programs
Thank you!

Guoqin ZHANG
E-mail: zhanggq@cecp.org.cn
Tel: 010-84634191

No.3, Yuhuinanlu, Chaoyang District, Beijing