ENERGY STAR® Version 6.0 - Notes on Draft 1 Dataset

Notebooks and Desktops Proposed TEC Levels

- **Dataset:**
  - The dataset analyzed is comprised of products submitted through the Version 6.0 Data Collection process and products qualified to the Version 5 Computers specification.
  - Duplicates were removed from consideration prior to analysis. Only 115 V data was used.
- **Analysis:**
  - **Categories:** Products were categorized according to the category criteria proposed and distributed with the Data Collection spreadsheets.
  - **Short Idle Power:** The Version 5 computers specification does not require the testing of models in their short idle mode. Thus, the power use in this mode was estimated through information gathered from the model data that was submitted from stakeholder during the data collection process. The difference between Short and Long Idle was analyzed and Short Idle was calculated to be 1.5 times Long Idle for Notebooks and 1.8 times Long Idle for Integrated Desktops (for Desktops, the Short and Long Idle values were assessed to be the same). This assumption was used to calculate a Short Idle value for all products in the ENERGY STAR dataset.
  - **Graphics:** The ENERGY STAR dataset does not contain enough information to correctly classify each discrete graphics implementation into the Ecma graphics categories [http://www.ecma-international.org/publications/standards/Categories_to_be_used_with_Ecma-383.htm]. Thus, for systems where the appropriate information was not available, the G3 graphics level was assumed for models with discrete graphics.
- **TEC Levels**
  - TEC levels were developed such that an appropriate number of products in each category would meet the proposed maximum TEC requirements. Requirements were calculated from combinations of base TEC values and appropriate adders. A chart of the pass rates by category can be found below:

Table 1: Desktop and Notebook Summary

Category	Total Number of Models in Category	Number of Models Meeting this proposal	Qualification %
NB0	213	55	25.82%
NB1	418	85	20.33%
NB2	1240	316	25.48%
NB3	91	20	21.98%
NB4	173	43	24.86%
DT0	250	61	24.40%
DT1	543	135	24.86%
DT2	317	80	25.24%
DT3/DT4	259	68	26.25%
Totals	3504	863	24.63%

- **Function Adders**
  - Function adders were developed to address power use of additional features and functions.
  - **Additional Storage**: Reflects aggressive estimates of idle power for Desktop and Notebook hard drive Idle power, scaled by the new TEC usage weightings.
  - **Memory**: Reflects public data on top tier memory technology from memory manufacturers.
  - **Graphics**: EPA was provided with Idle power consumption data for the majority of product lines from both major GPU manufacturers. The lowest idle value in each category was used to derive Short Idle power for Desktops, with long idle reduced by 33% in recognition of power management in this mode. For notebooks, an industry-cited assumption was used to scale down the Short Idle value. For engineering purposes, industry assumes that the same GPU installed in a notebook will consume 38% of its desktop Idle power due to greater integration of circuitry in notebook systems.
  - **Display Power**: The display power adder is based on the Draft 2 Version 6.0 Displays specification proposed On Mode Power Levels. The maximum allowable power of a display is calculated using the diagonal screen size and the resolution of the screen.

Small-scale Servers Development

- **Dataset**:
  - The dataset analyzed contained a qualification data from Version 5.
  - Duplicates were removed from consideration prior to analysis. Only 115 V data was used.

- **Analysis:**
  - To address the impact of the WOL adder in Off Mode, units submitted with WOL indicated as enabled during the test were given an adjusted Off Power level by subtracting the WOL adder from measured Off Power. This adjusted power was used to determine the Off power limit.

- Idle Power per installed hard drive was calculated for each product.
- Three scenarios were considered: (a) new Idle levels for the existing categorization, (b) revised categories based on the number of installed hard drives, and (c) a single base Idle level with adders per installed hard drive.
- Considering the limited availability of data in this product category, EPA has set levels that will drive greater efficiency while ensuring ample selection on the market.

Thin Client Development

- **Dataset**:
  - The dataset analyzed contained a combination of stakeholder data submitted to EPA during dataset development and qualification from Version 5.
  - Duplicates were removed from consideration prior to analysis. Only 115 V data was used.

- **Analysis:**
  - To address the impact of the WOL adder in Off Mode, units submitted with WOL indicated as enabled during the test were given an adjusted Off Power level by subtracting the WOL adder from measured Off Power. This adjusted power was used to determine the Off power limit.
  - Two scenarios were considered: (a) new Idle levels for the existing categorization, (b) revised categories based on Sleep Mode capability.
  - For Option B, pass rates of units were calculated for Idle.
  - Considering the limited availability of data in this product category, EPA has set levels that will drive greater efficiency while ensuring ample selection on the market.