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ENERGY STAR Program requirements for Computer Servers – Draft 3

Comments by Bill Baxter and Reto Lutz

(1) Line 320: We fully understand the need to limit scope so as to complete tier 1 specification on schedule. Still, we'd like to see server appliances included in tier 1, addressing PSU efficiency and idle load. We'd like to see blades and storage equipment addressed by the release date for tier 2 at the very latest.

(2) Line 365: In Table 1, "Load" is not defined. Suggest definition be added to make clear "Load" means maximum rated load of a power supply.

(3) Line 365 + Line 415 onwards: We fully support the statement that efficiency targets also need to be implemented for 10% and 20% load. We will continue to see systems running in idle state for significant portions of a typical 24-hour period. Especially for high availability systems where two or more PSUs are running in a load-sharing configuration, the load of a PSU is very low at idle. Furthermore, we don't think that the mentioned requirements for efficiency are sufficiently challenging.
Our own recent testing leads us to believe that efficiency targets at 10 %, 20%, 50%, 100% load could reasonably be set at 80%, 90%, 94%, 90% PSU efficiency, respectively, for both Single- and Multi-Output PSUs.

(4) Line 425 onwards: We do not fully agree that the requirements for smaller power supplies need to be formulated differently. Today the data center halls get filled with lot of devices which would fall into this category (devices with idle power consumption between 50 W and 250 W). In a lot of cases, consumer electronics rated in their standard categories like Energy Star or 80 + have better efficiencies than systems considered to be installed in data centers. One potential way to address the energy consumption at low loads in small servers (or any server) could be: if data sheet shows that idle state loads power supply to at least 20% of rated power, then no requirements at 10% of power supply rated load need be imposed. We would object to waiving the efficiency at 10% otherwise.

(5) Line 366: We don't think that the suggested values for power factor are sufficiently challenging.
Our own recent testing leads us to believe that power factors at 10%, 20%, 50%, 100% load could reasonably be set at 0.85, 0.90, 0.95, 0.95 power factor, respectively. Lots of new devices on the market fulfill these requirements.

(6) Line 366: In Table 2, Power Factor values are shown as positive. Suggest clarification be added to make clear that power factor shall be greater than or equal to the indicated absolute values, and that these are generally 'leading' power factors.

(7) Line 444 onwards: Suggest clarifying that the idle consumption for a high availability system needs to be measured with the PSU configuration supporting high availability -- with multiple PSUs running as called for by the configuration.

(8)   Line 697: "Fan Power"—we can see no justification for exempting fan power from power supply efficiency measurements and calculations for single-output power supplies, and believe PSU fan power should be included in all cases.

(9)   Line 719: "Supply Voltage", there seems to be an error. Computer servers with single output power supplies should probably be tested at both 115 and 230 volts, if both voltages are supported.
   a.   According to the definitions at lines 278 and 285, the distinction between single- and multi-output power supplies is in whether there is one or more output DC voltages, not whether one or more input AC voltages are supported.
   b.   If section B is thus in error, then Table 5 will need to be corrected as well: input test conditions would be the same for both single-output and multi-output power supplies.

(10)   Line 510: "Standard Information Reporting Requirements", suggest requirement that percent load at which power supplies operate be reported for the minimum, maximum and typical configurations defined and tested.
This will enable end-users to understand: at what efficiency levels power supplies are being operated, during idle, for the various configurations.

(11)   Line 774: In section 5 "Effective Date" – strongly support maintaining schedule and achieving the February 1, 2009 effective date.

(12)   Line 779: strongly support the objective of implementing Tier 2 requirements by October 1, 2010, including an energy efficiency performance benchmark as described on line 626.

(13)   Line 406: Support the position that DC-DC power supplies should be held to the same standard as AC power supplies.

(14)   Line 455: Support the approach of showing absolute values of kW power consumption limits for various systems and components. This seems to be the simplest and most straight-forward approach.

(15)   Line 575: For intake temperature measurements a single rolling average of 60 seconds duration might be sufficient.

(16)   Line 612: We suggest that for tier 1, small systems with an idle consumption of less than 50 W could be excluded.

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