ENERGY STAR® Revised Definitions and Scoping Updates for Computers Based on Draft 1 Comments

Note: Although EPA initially intended to propose levels for desktop-derived servers and thin clients with these proposed changes to definitions, stakeholders requested additional time to provide data on usage scenarios and product performance. As such, EPA is releasing this definitions document and will propose levels for all products this summer following the availability of the EEPA tool. Stakeholders are asked to provide any comments on this document Evan Haines, ICF International, at ehaines@icfi.com **by May 23, 2008**. EPA plans to release a comment response document on May 30, 2008 that summarizes replies to all comments received on this document. The European Commission remains committed to, fully engaged in, and supportive of this process and the changes proposed in this definitions document.

This definitions document attempts to achieve the following goals:

1. Compile and respond to feedback from stakeholders submitted in response to Draft 1, the April 8 online meeting, and a subsequent meeting on thin clients; and

2. Solidify definitions for product types intended to be covered by this specification in advance of data collection efforts this summer. As EPA has relayed previously, it is the Agency's intention to reach closure on these definitions such that EPA and stakeholders can direct attention to data collection and levels development once the BAPCO tool is available for use.

Changes tracked in the text reference changes from the text presented in Version 5.0 Draft 1 and, again, reflect stakeholder feedback received on that document and in subsequent meetings.

Commitments

Note: Among other elements, the ENERGY STAR Partner commitments contain a section related to labeling requirements and ENERGY STAR Logo Guidelines. Stakeholders commented on one element of these commitments, the electronic labeling option. EPA understands that Partners are working to minimize boot time in ways that could make a 5 second display of the logo at system start-up infeasible or undesirable.

While EPA reminds Partners that the electronic labeling option is an alternative to physical labeling of the product, EPA will further investigate proposals for electronic labeling that appropriately balance ample communication of ENERGY STAR qualification status within acceptable boot times. Below is the language for this portion of the labeling requirement as it appears in the current specification (and in Draft 1 of the Version 5.0 Specification), for reference:

- *provide clear and consistent labeling of ENERGY STAR qualified computers. The ENERGY STAR mark must be clearly displayed:*

  1. *On the top or front of the product. Labeling on the top or front of the product may be permanent or temporary. All temporary labeling must be affixed to the top or front of the product with an adhesive or cling-type application;*

     Electronic Labeling Option: Manufacturers have the option of using an alternative electronic labeling approach in place of this product labeling requirement, as long it meets the following requirements:

     - *The ENERGY STAR mark in cyan, black, or white (as described in "The ENERGY STAR Identity Guidelines" available at www.energystar.gov/logos) appears at system start-up. The electronic mark must display for a minimum of 5 seconds;*
     - *The ENERGY STAR mark must be at least 10% of the screen by area, may not be smaller than 76 pixels x 78 pixels, and must be legible.*

Performance for Special Distinction

Note: EPA proposes the following additions to the "Performance for Special Distinction" section of the Partner Commitments for Computer Partners:

- Join EPA's SmartWay Transport Partnership to improve the environmental performance of the company's shipping operations. SmartWay Transport works with freight carriers, shippers, and other stakeholders in the goods movement industry to reduce fuel consumption, greenhouse gases, and air pollution. For more information on SmartWay, visit www.epa.gov/smartway;

- Join EPA's Climate Leaders Partnership to inventory and reduce greenhouse gas emissions. Through participation, companies create a credible record of their accomplishments and receive EPA recognition as corporate environmental leaders. For more information on Climate Leaders, visit www.epa.gov/climateleaders;

- Join EPA's Green Power partnership. EPA's Green Power Partnership encourages organizations to buy green power as a way to reduce the environmental impacts associated with traditional fossil fuel-based electricity use. The partnership includes a diverse set of organizations including Fortune 500 companies, small and medium businesses, government institutions as well as a growing number of colleges and universities, visit http://www.epa.gov/grnpower/.

1) Definitions:

A. Computer: A device which performs logical operations and processes data. Computers are composed of, at a minimum: (1) a central processing unit (CPU) to perform operations; (2) user input devices such as a keyboard, mouse, digitizer or game controller; and (3) a display screen to output information. For the purposes of this specification, computers include both stationary and portable units, including desktop computers, gaming consoles, integrated desktop computers, notebook computers, tablet PCs, small-scale servers with desktop components, thin clients, and workstations. Although computers must be capable of using input devices and displays, as noted in numbers 2 and 3 above, computer systems do not need to include these devices on shipment to meet this definition.

Components

B. Display: A display screen and its associated electronics encased in a single housing, or within the computer housing (e.g., notebook or integrated desktop computer), that is capable of displaying output information from a computer via one or more inputs, such as a VGA, DVI, and/or IEEE 1394. Examples of display technologies are the cathode-ray tube (CRT) and liquid crystal display (LCD).

Note: EPA is revising the Version 4.1 ENERGY STAR computer monitor specification. EPA will reflect any changes to the above display definition to mirror the definitions in the Monitor specification.

EPA received comments related to whether a monitor should be turned on or off when testing a notebook or integrated computer for ENERGY STAR qualification. EPA sees multiple advantages to leaving the display active during testing: it presents the most realistic power conditions for graphics cards and the system as a whole, and it provides incentive for power-saving display technologies (e.g. dynamic brightness control). Stakeholders are encouraged to comment on this topic and EPA intends to consider these comments when revising test conditions and procedures in future drafts.

C. External Power Supply: A component contained in a separate physical enclosure external to the computer casing and designed to convert line voltage ac input from the mains to lower dc voltage(s) for the purpose of powering the computer. An external power supply must connect to

the computer via a removable or hard-wired male/female electrical connection, cable, cord or other wiring.

D. Internal Power Supply: A component internal to the computer casing and designed to convert ac voltage from the mains to dc voltage(s) for the purpose of powering the computer components. For the purposes of this specification, an internal power supply must be contained within the computer casing but be separate from the main computer board. The power supply must connect to the mains through a single cable with no intermediate circuitry between the power supply and the mains power. In addition, all power connections from the power supply to the computer components must be internal to the computer casing (i.e., no external cables running from the power supply to the computer or individual components). Internal dc-to-dc converters used to convert a single dc voltage from an external power supply into multiple voltages for use by the computer are not considered internal power supplies.

Computer Types

E. Desktop Computer: A computer where the main unit is intended to be located in a permanent location, often on a desk or on the floor. Desktops are not designed for portability and utilize an external monitor, keyboard, and mouse. Desktops are designed for a broad range of home and office applications.

F. Small-Scale Server with Desktop Components: A computer that typically uses desktop components in a desktop form factor, but is designed explicitly to be a storage host for other computers. These products must be marketed as a server and have the following characteristics to be considered a small-scale server:

- Designed with no more than single processor capability (1 socket on board);
- Designed in a pedestal, tower, or other form factor similar to those of desktop computers such that all data processing, storage, and network interfacing is contained within one box/product;
- Intended to be operational 24 hours/day and 7 days/week, and unscheduled downtime is extremely low (on the order of hours/year);
- Capable of operating in a simultaneous multi-user environment serving several users through networked client units; and
- Shipped with an industry accepted operating system for home or low-end server applications (e.g., Windows NT, Windows Home Server, Mac OS X Server, Linux, UNIX and Solaris).

Small-Scale Servers with Desktop Components are designed to perform functions such as providing network infrastructure services (e.g., archiving) and hosting data/media. These products are not designed to process information for other systems or run web servers as a primary function.

This specification does not cover server computers as defined in the ENERGY STAR Version 1.0 computer server specification.

Note: In conjunction with the ENERGY STAR Computer Servers Specification (currently being developed), EPA intends to provide coverage of the range of computer products, from client to Enterprise Server. The following language is an excerpt from an ENERGY STAR Server definitions document forwarded to Server stakeholders on April 25, 2008:

The purpose of including … the [Computer Server] definition … is to (1) clearly delineate the types of computers covered by [the Computer Server] specification and (2) separate servers covered by this specification from those products being addressed in the Version 5.0 computer specification, which is currently under development. Therefore, any "low end" computer server that does not meet the definition above will continue to be covered by the computer specification. For example, a desktop-derived server targeted to run user installed enterprise applications and which meets all of the [Computer Server definition] requirements … is eligible for qualification under this server specification. All other desktop-derived servers, such as "home" or "media" servers, will continue to be covered by the computer specification.

Continued on next page

Deleted: Desktop-Derived

Deleted: A desktop-derived server is a

Deleted: tower

Deleted: or applications

Deleted: For the purposes of this specification, a computer

Deleted: desktop-derived

Deleted: and placed on the market as a Class B product per the appropriate national RF Emissions requirements to the country of operation and has

Deleted: Designed to operate in a high-reliability, high-availability application environment where the computer must

Deleted: standard

Deleted: 2003 Server,

Deleted: OS/400, OS/390,

Deleted: Desktop-derived servers

Deleted: processing information for other systems,

Deleted: , data

Deleted: and

Deleted: ning

Note: *(continued from previous page)*

Understanding that a class of media servers intended to host data but not applications does not fit the scope of the current Computer Server specification, and that a class of formerly Desktop-Derived Servers contain baseboard management capabilities unparalleled in this primarily client-based Computer Specification, the *Desktop-Derived* category has been redefined as the ***Small-Scale Server with Desktop Components*** category. With these definitions, it is the intent of EPA to a) prevent gaps in program coverage to the extent possible for AC powered computer products and b) provide appropriate requirements for products scoped under the two programs.

The changes in definition provided with this document are intended to cover a class of small and low-end server designed to store and distribute data to networked client computers and not to host applications for the clients. This represents a compute model common in homes and some small businesses, where the client computers host applications and processing resources locally, utilizing the small-scale server only for file access and backup purposes. As this type of small-scale server becomes more prevalent in the digitally-connected home, EPA believes it is important to minimize the energy consumption of these devices by recognizing those that minimize idle power and take advantage of low power modes to the extent possible.

Finally, EPA is further considering digital front ends (DFE) devices for imaging equipment, currently subject to desktop-derived server requirements under the ENERGY STAR Computer Version 4.0 specification. Stakeholders have relayed that DFEs have different applications and different usage scenarios from products proposed for coverage by the ENERGY STAR Computer and Server Specifications. As such, stakeholders have proposed that tailored DFE requirements be developed and hosted in the Imaging Specification. EPA supports such an approach and will discuss a DFE definition and requirements (proposed for inclusion in the Version 1.1 Imaging Specification currently under revision) on a conference call **this Thursday, May 15, 2008, from 11:00am – 12:00pm Eastern**. RSVPs for this call should be directed to Bijit Kundu, ICF International, at bkundu@icfi.com. EPA anticipates that this call will be followed by subsequent discussion with stakeholders and interested parties are welcome to participate. Please let Bijit Kundu know of your interest.

G. Game Console: A stand-alone computer whose primary use is to play video games. For the purposes of this specification, game consoles must use a hardware architecture based on typical computer components (e.g., processors, system memory, video architecture, optical and/or hard drives, etc.). The primary input for game consoles are special hand held controllers rather than the mouse and keyboard used by more conventional computer types. Game consoles are also equipped with audio visual outputs for use with televisions as the primary display, rather than an external monitor or integrated display. These devices do not typically use a conventional operating system, but often perform a variety of multimedia functions such as: DVD/CD playback, digital picture viewing, and digital music playback.

H. Integrated Desktop Computer: A desktop system in which the computer and display function as a single unit which receives its ac power through a single cable. Integrated desktop computers come in one of two possible forms: (1) a system where the display and computer are physically combined into a single unit; or (2) a system packaged as a single system where the display is separate but is connected to the main chassis by a dc power cord and both the computer and display are powered from a single power supply. As a subset of desktop computers, integrated desktop computers are typically designed to provide similar functionality as desktop systems.

Note: The *Integrated Computer* product type has been changed to *Integrated* Desktop *Computer* here and in all other locations in the document to clearly reflect that this product type is a subset of the desktop computer category rather than one intended for portable use.

I. Thin Client: A computer independently powered by an internal or external power supply that relies on a connection to remote computing resources to obtain primary functionality. Main computing

(e.g. program execution, data storage, interaction with other Internet resources, etc.) takes place using the remote computing resources. Thin Clients covered by this specification are limited to devices with no rotational storage media integral to the computer.

Deleted: i

Deleted: e

Deleted: centralized server

Note: The revisions to the thin client definition were developed based on stakeholder feedback to Draft 1 and in a thin client conference call on April 21, 2008. Stakeholders on that call reached consensus around ENERGY STAR addressing only desktop thin clients, with mobile TCs left for future versions of the program. EPA is interested in Stakeholder thoughts on how this definition could be modified to clearly communicate this point based on products on the market.

This definition focuses only on the client devices. In the future, EPA intends to investigate potential intersections with the Computer Server Specification (e.g. a requirement for servers sold with ENERGY STAR qualified Thin Clients Computers to also be ENERGY STAR qualified).

J. Notebook and Tablet Computers: A computer designed specifically for portability and to be operated for extended periods of time both with and without a direct connection to an ac power source. Notebooks and tablets must utilize an integrated monitor and be capable of operation off an integrated battery or other portable power source. In addition, most notebooks and tablets use an external power supply and have an integrated keyboard and pointing device, though tablets use touch-sensitive screens. Notebook and tablet computers are typically designed to provide similar functionality to desktops, including installation and operation of software in common with desktops, except within a portable device. For the purposes of this specification, docking stations are considered accessories and therefore, the performance levels associated with notebooks presented in Section 3, below, do not include them.

Note: The revisions listed above have been added to better delineate Notebooks/Tablets covered by this specification from Handhelds/PDAs. Stakeholders commented that a clearer split needed to be included and EPA believes that the modifications above effectively solidify the Notebook/Tablet category around products of similar capability to desktops that function through normal use on ac power in addition to portable operation.

K. Workstation: For the purposes of this specification, to qualify as a workstation, a computer must:

- Be marketed as a workstation;
- Have a mean time between failures (MTBF) of at least 15,000 hours based on either Bellcore TR-NWT-000332, issue 6, 12/97 or field collected data; and
- Support error-correcting code (ECC) and/or buffered memory.

In addition, a workstation must meet three of the following six optional characteristics:

- Have supplemental power support for high-end graphics (i.e., PCI-E 6-pin 12V supplemental power feed);
- System is wired for greater than x4 PCI-E on the motherboard in addition to the graphics slot(s) and/or PCI-X support;
- Does not support Uniform Memory Access (UMA) graphics;
- Includes 5 or more PCI, PCIe or PCI-X slots;
- Capable of multi-processor support for two or more processors (must support physically separate processor packages/sockets, i.e., not met with support for a single multi core processor); and/or
- Be qualified by at least 2 Independent Software Vendor (ISV) product certifications; these certifications can be in process, but must be completed within 3 months of qualification.

Operational Modes

L. Off Mode: The power consumption level in the lowest power mode which cannot be switched off (influenced) by the user and that may persist for an indefinite time when the appliance is connected to the main electricity supply and used in accordance with the manufacturer's instructions. For purposes of this specification, Off Mode correlates to ACPI System Level S5 state where applicable.

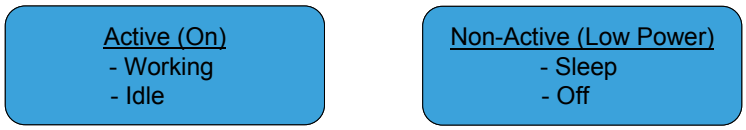
M. Sleep Mode: A low power state that the computer is capable of entering automatically after a period of inactivity or by manual selection. A computer with sleep capability can quickly "wake" in response to network connections or user interface devices with a latency of ≤ 5 seconds. For the purposes of this specification, Sleep mode most commonly correlates to ACPI System Level S3 (suspend to RAM) or S4 states.

Note: EPA is aware of improvements to delay time associated with the S4 state and that it is increasingly being grouped with sleep mode at an OS level. In response to stakeholder interest, EPA has proposed relocating the S4 state from Off to the Sleep Mode definition and added a provision on wake latency to ensure that enablement rates are not adversely impacted by lower power modes.

N. Idle State: The state in which the operating system and other software have completed loading, the machine is not asleep, and activity is limited to those basic applications that the system starts by default.

O. Active State: The state in which the computer is carrying out useful work in response to a) prior or concurrent user input or b) prior or concurrent instruction over the network. This state includes active processing, seeking data from storage, memory, or cache, including idle state time while awaiting further user input and before entering low power modes.

Note: Stakeholders requested a clarification regarding the relationship between Idle and Active in the specification. The explanation below was provided in the April 8 Stakeholder Online Meeting to clarify this point.



Version 4.0 contained two non-Active (low-power) modes, Sleep and Off, along with Idle, which was the sole proxy for Active in Tier 1. At the time of Tier 1 development, it was understood that the evaluation of Active would be further expanded into evaluation of the computer when completing computational tasks ("working," in the graphic above). As discussed in prior meetings and materials for this specification, the EEPA tool is intended to allow for this expanded view of Active.

Networking and Power Management

P. Network Interface: The components (hardware and software) whose primary function is to make the computer capable of communicating over one or more network technologies. For purposes of testing to this specification, Network Interface refers to the IEEE 802.3 wired Ethernet interface or IEEE 802.11 Wi-Fi.

Note: Stakeholders submitted multiple comments about wireless technologies and how they would be addressed in test procedures. The addition of Wi-Fi to the definition above was added accordingly. EPA currently envisions testing with live Ethernet connections as the preference for computers with both Ethernet and Wi-Fi capability, and that systems with only Wi-Fi network capability be tested with Wi-Fi powered on. Direct references to Ethernet or Wi-Fi technologies will be included along with elements of test procedures/conditions as appropriate and test conditions for the Wi-Fi connection will be investigated as the test procedures are developed.

Deleted: S4 or

Deleted: s

Deleted: , where applicable

Deleted: For purposes of testing and qualifying computers under this specification, this is t

Deleted: not precluding

Deleted: For the purposes of testing and qualifying computers under this specification, this is the state in which the EEPA workload is running, thereby automating the state as described above.

Q. Wake Event: A user, programmed, or external event or stimulus that causes the computer to transition from Sleep or Off to active mode of operation. Examples of wake events include, but are not limited to: movement of the mouse, keyboard activity, or a button press on the chassis, and in the case of external events, stimulus conveyed via a remote control, network, modem, etc.

R. Wake On LAN (WOL): Functionality which allows a computer to wake from Sleep or Off when directed by a network request.

Energy Efficiency Performance Assessment

S. Energy Efficiency Performance Assessment (EEPA): An evaluation of a computer's effectiveness in translating energy into desired work output based on the following test elements: performance data/score, power required to achieve this performance, and system characteristics.

T. EEPA Tool: Benchmark software that automates processes required for a computer to complete a workload and collect data on how the computer performs in addressing this workload. The EEPA tool has the following outputs required for evaluation under this specification: workload energy use, workload duration, modal power levels, and capability enumerations.

U. Workload: a defined set of computational activities to be performed over a period of time.

Shipment Channels

V. Enterprise Channels: Sales channels normally used by large and medium-sized business, government organizations, and educational institutions, with the intent of identifying machines that will be used in managed client/server environments

Note: Some stakeholders suggested that the term *Enterprise Channel* be modified to *Managed IT*. While this suggestion, applied primarily to the WOL shipment requirements, does identify end-user environments conducive to centralized management of low power modes and use of Wake on LAN, it is not clear if "Managed IT" would be a universally understood term for procurement entities. Accordingly, no changes to the definition are proposed.

2) Qualifying Products: Computers must meet the computer definition as well as one of the product type definitions provided in Section 1, above, to qualify as ENERGY STAR. The following table provides a list of the types of computers that are (and are not) eligible for ENERGY STAR.

Products Covered by Version 5.0 Specification	Products Not Covered by Version 5.0 Specification
• Desktop Computers • Integrated Desktop Computer Systems • Notebook Computers/Tablet PCs • Workstations • Game Consoles • Small-Scale Servers with Desktop Components • Thin Clients	• Computer Servers (as defined in Version 1.0 computer server specification) • Handhelds and PDAs

Deleted: Desktop-Derived

Note: Handhelds and PDAs have remained outside the scope of this specification as it is understood that these devices are intended for operation nearly independently of the AC mains, connecting only to charge an internal battery; this usage pattern is closer to the End Use Products/Primarily Portable Products ENERGY STAR category than the other products covered by the Computer Specification. In response to stakeholder comments to define Handhelds and PDAs, revisions to the definition of the closest product category covered by this specification, Notebooks/Tablets, have been included in definition J, above.

3) Energy Efficiency and Power Management Criteria:

(A) Power Supply Efficiency Requirements

Computers Using an Internal Power Supply:

Note: EPA received limited comments related to the Climate Savers (CSCI) program's internal power supply acceptance criteria proposal; a whitepaper detailing this proposal was distributed via email on April 10, 2008.

After careful consideration, EPA has decided to maintain internal power supply testing guidelines and not adopt CSCI's proposal. While the proposal did provide for power supply manufacturing process variations, concerns were raised about how this proposal, based on the mean results of a mass-produced power supply, would coexist with binary (pass/fail) requirements of the overall ENERGY STAR program. Essentially, making use of a construct that results in the mean of a sample passing conflicts with the ENERGY STAR program's approach, which requires that all products that earn the ENERGY STAR fully meet the program requirements.

Note: External Power Supply (EPS) requirements in this draft have been updated to directly reference ENERGY STAR Version 2.0 EPS requirements. In the time since the release of the Draft 1 Computer Specification, these EPS requirements have been finalized and will go into effect for Computers covered in this specification on the effective date of the overall V5.0 Computer specification, July 2009.

(B) Efficiency and Performance Requirements:

Note: As written in the introductory notes to this document, stakeholders requested additional time to provide data on usage scenarios and product performance. Accordingly, EPA will propose levels for all products this summer following the availability of the EEPA tool.

(C) Power Management Requirements:

Table 5: Power Management Requirements

Note: EPA received numerous comments about products available on the market that ship with Wi-Fi network capability and no Ethernet. To account for these devices and the lack of a technology-appropriate WOL equivalent for Wi-Fi, the requirements below reflect where applicable only to Ethernet.

Specification Requirement		Applicable to	
Shipment Requirements			
Sleep Mode	Shipped with a Sleep mode which is set to activate within 30 minutes of user inactivity	Desktop Computers	√
		Integrated Desktop Computers	√
		Notebook Computers/Tablet PCs	√
		Workstations	√
		Game Consoles	
		Small-Scale Servers with Desktop Components	
		Thin Clients	√
Display Sleep Mode	Shipped with the display's Sleep mode set to activate within 15 minutes of user inactivity	Desktop Computers	√
		Integrated Desktop Computers	√
		Notebook Computers/Tablet PCs	√
		Workstations	√

		Game Consoles	
		Small-Scale Servers with Desktop Components(if display is present)	√
		Thin Clients	√
Network Requirements for Power Management			
~~Ethernet~~	~~All Ethernet network interfaces shall comply with IEEE 802.3az – "Energy Efficient Ethernet"~~	~~All Computers~~	

Note: As stated in the April 8th online meeting, EPA has decided to remove the IEEE 802.3az requirement from Version 5.0. EPA intends to adopt this standard in future versions of the program as the standards process finalizes.

Wake on LAN (WOL)	Computers with Ethernet capability shall have the ability to enable and disable WOL for Sleep mode	Desktop Computers	√
		Integrated Desktop Computers	√
		Notebook Computers/Tablet PCs	√
		Workstations	√
		Game Consoles	
		Small-Scale Servers with Desktop Components	√
		Thin Clients	√
	Computers with Ethernet capability must be shipped with Wake On LAN (WOL) enabled from the Sleep mode when operating on ac power (i.e. notebooks may automatically disable WOL when disconnected from the mains). Applies to computers shipped through Enterprise Channels, only.	Desktop Computers	√
		Integrated Desktop Computers	√
		Notebook Computers/Tablet PCs	√
		Workstations	√
		Game Consoles	
		Small-Scale Servers with Desktop Components	√
		Thin Clients	√

Note: EPA intends to maintain a WOL capability requirement for computers with Ethernet. While the WOL shipment requirement for sleep in systems shipped through Enterprise Channels is also maintained in the table above, comments have been received suggesting that this requirement be dropped. EPA does see the value in allowing IT in enterprise environments to manage networked systems without impacting low power mode energy savings, Stakeholders who wish to investigate the possibility of removing this requirement are encouraged to provide comments and justifications in writing.

Network Connectivity	Computers with Ethernet capability must maintain full network connectivity while in Sleep mode, according to a platform-independent industry standard.	Desktop Computers	√
		Integrated Desktop Computers	√
		Notebook Computers/Tablet PCs	√
		Workstations	
		Game Consoles	
		Small-Scale Servers with Desktop Components	
		Thin Clients	√
Wake Management	Computers with Ethernet capability shall be capable of both remote and scheduled wake events from Sleep mode.	Desktop Computers	√
		Integrated Desktop Computers	√
		Notebook Computers/Tablet PCs	√
		Workstations	√
		Game Consoles	

	Manufacturers shall ensure, where the manufacturer has control (i.e., configured through hardware settings rather than software settings), that these settings can be managed centrally, as the client wishes, with tools provided by the manufacturer. Applies to computers shipped through Enterprise Channels, only.	Small-Scale Servers with Desktop Components	√
		Thin Clients	√

Test Procedures:

Qualifying Families of Products:

Note: ENERGY STAR Program Requirements for Computers V4.0, Section 4C, Qualifying Families of Products reads:

Models that are unchanged or that differ only in finish from those sold in a previous year may remain qualified without the submission of new test data assuming the specification remains unchanged. If a product model is offered in the market in multiple configurations or styles, as a product "family" or series, the partner may report and qualify the product under a single model number, as long as all of the models within that family or series meet either of the following requirements:

- *Computers that are built on the same platform and are identical in every respect except for housing and color may be qualified through submission of test data for a single, representative model.*
- *If a product model is offered in the market in multiple configurations, the partner may report and qualify the product under a single model number that represents the highest power configuration available in the family, rather than reporting each and every individual model in the family. In this case, the highest configuration would consist of: the highest power processor, the maximum memory configuration, the highest power GPU, etc. For desktop systems which meet the definition for multiple desktop categories (as defined in section 3.A.2) depending on the specific configuration, manufacturers will have to submit the highest power configuration for each category under which they would like the system to qualify. For example, a system that could be configured either as a Category A or a Category B desktop would require a submittal of the highest power configuration for both categories in order to qualify as ENERGY STAR. If a product could be configured to meet all three categories, it would then have to submit data for the highest power configuration in all categories. Manufacturers will be held accountable for any efficiency claims made about all other models in the family, including those not tested or for which data was not reported.*

On November 20, 2007, EPA distributed a memo regarding the above section of the V4.0 specification that outlined concerns with how qualifying families was being implemented. Despite efforts of stakeholders to remedy problems with their implementation of section 4C, concerns continue. As such, EPA is now proposing the following:

All units/configurations associated with a product model designation, for which a Partner is seeking ENERGY STAR qualification, must meet the ENERGY STAR requirements. If a Partner wishes to qualify configurations of a model for which non-qualifying alternative configurations exist, qualifying configurations must be listed wherever marketed under a unique identifier in the model name/number covering these configurations that can be traced back to the ENERGY STAR list of qualified products (e.g. model A1234 for baseline configurations and A1234-ES for ENERGY STAR qualifying configurations).

Note: Below is a revised Version 5.0 development timeline.

- May 14: Definitions/Scoping Document (this document)
- May 30: EPA comment response document
- June: data call; EEPA tool available and distributed
  - Early to Mid July: Data due (4-5 weeks)
- Early August: Distribute Draft 2 with levels
  - Mid August: In person stakeholder meeting
  - Late August: Comments due
- Early September: Distribute Draft 3; second revision of levels
  - Mid to Late September: Comments due
- Early October: Distribute Draft Final
  - Mid October: Comments due
- Late October: Distribute Final Version 5.0
- July 2009: Version 5.0 Specification goes into effect