UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
AIR AND RADIATION

October 29, 2007

Dear ENERGY STAR® Computer Monitor Partner or Other Interested Stakeholder:

The U.S. Environmental Protection Agency (EPA) is beginning the process to examine and revise the ENERGY STAR specification for computer monitors. Tier 2 of the current ENERGY STAR Version 4.1 specification has been in effect since January 2006 and market share of qualified models is increasing steadily. To ensure that the ENERGY STAR mark continues to represent the top performers in terms of energy efficiency, EPA will be revisiting the current ENERGY STAR specification for computer monitors to determine new performance levels. In addition to revising performance levels, EPA is considering the following:

- Extending the ENERGY STAR specification for computer monitors to include professional displays and digital photo frames;
- Evaluating emerging display technologies including efficient backlighting;
- Analyzing display power consumption requirements in the context of display settings, built-in energy relevant features, and PC display interfaces;
- Reviewing the current test procedure and performance metric; and,
- Discussing future harmonization of television and computer monitor specifications.

These topics, including important dates for EPA's specification revision timeline, are summarized in the following ENERGY STAR PC Monitor discussion guide. Stakeholders are **requested to submit feedback in response to the broad questions posed in the discussion guide no later than Friday, November 23, 2007. Please send all comments via e-mail to Mehernaz Polad, ICF International, at mpolad@icfi.com.** On November 27, 2007, EPA will hold an online Web-based stakeholder meeting to discuss the feedback received from stakeholders on the ENERGY STAR PC Monitor discussion guide. More information on this meeting, including an agenda, will be forthcoming.

Thank you for your support of ENERGY STAR and we look forward to working with you on revising the ENERGY STAR computer monitor specification. Please contact me at (202) 343-9046 or kent.christopher@epa.gov with any questions or comments regarding this specification revision or to arrange a meeting if you would like to meet individually with EPA.

Sincerely,

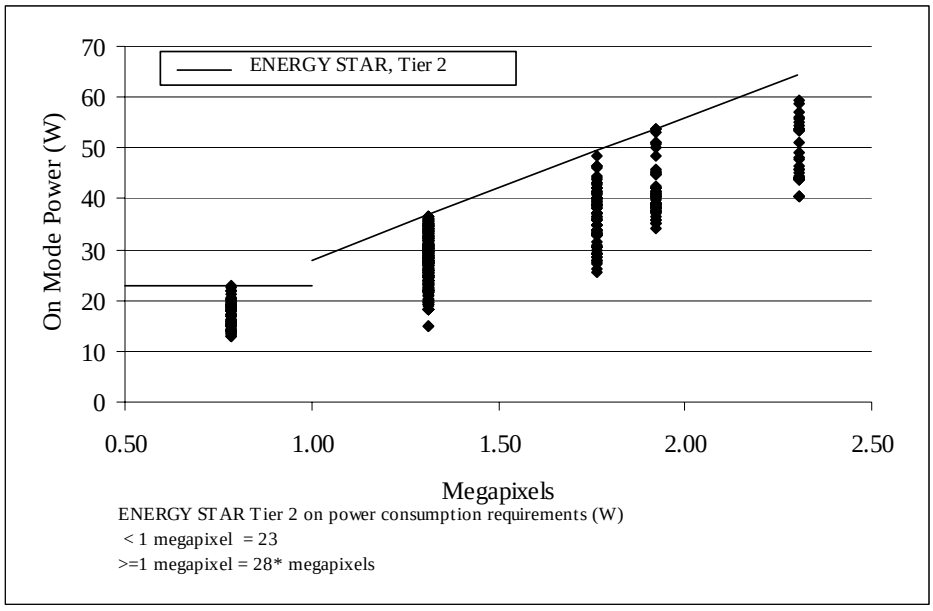
Christopher Kent

Christopher Kent, EPA Product Manager
ENERGY STAR Product Specification Development

ENERGY STAR Computer Monitor Discussion Guide

The U.S. Environmental Protection Agency (EPA) is beginning the process to examine and revise the ENERGY STAR specification for computer monitors. Tier 2 of the current ENERGY STAR Version 4.1 specification has been in effect since January 2006 and market share of qualified models is increasing steadily. On average, ENERGY STAR qualified monitors consume 20% less power than the Tier 2 on mode power requirements. Additionally, there is a wide distribution in on mode power consumption among typical resolution formats as shown in the figure below.

On mode power for ENERGY STAR qualified monitors



Note: Power consumption test data is taken from US EPA's database of qualified ENERGY STAR computer monitors as reported to EPA by its manufacturing partners.

To ensure that the ENERGY STAR mark continues to represent the top performers in terms of energy efficiency, EPA will be revisiting the current ENERGY STAR specification for computer monitors to determine new performance levels. As with other ENERGY STAR office equipment specification revisions, the European Union (EU) and U.S. EPA will continue to work cooperatively throughout all phases of the specification revision process and reinforce the commitment to international coordination on the energy efficiency of goods traded worldwide. In addition to revised performance levels, the following additional modifications to the computer monitor specification are also being considered.

Product Categories with Significant Market Potential

EPA is interested in evaluating the energy efficiency potential of electronic displays greater than 30 inches in diagonal size, typically referred to as signage and/or professional displays. Stakeholder feedback during the Version 4.1 specification development process indicated that professional widescreen displays were unable to comply with the ENERGY STAR on mode power requirements. At that time, limited power consumption test data was available for the basis of setting an ENERGY STAR performance level. iSuppli projects that from 2007 to 2011 worldwide shipments of professional displays will increase from 5 million units to 22 million units, with North American shipments representing 40% of the market. Based on this market

potential, EPA is interested in stakeholder thoughts on including this product category for inclusion in the revised specification?

EPA also interested in evaluating the energy efficiency potential of digital photo frames. A recent IDC report shows that worldwide digital photo frame shipments reached 2.8 million units in 2006 with shipments projected to increase to 42.3 million units by 2011 (with U.S. sales representing over half the market). Based on this market potential, EPA is interested in stakeholder comments on including this product category for inclusion in the revised specification?

Technology Opportunities
EPA intends to evaluate the current market and energy savings opportunities for efficient backlighting technology. IDC reports that efficient backlighting technology not only reduces power consumption but also provides additional product benefits including less heat production and high image quality. IDC projects that LED backlighting will comprise over 30% of the PC monitor market in 2011 (IDC 2007). EPA will also evaluate emerging display technology opportunities, including predicted market adoption rates that have the potential to significantly reduce power consumption over the next several years.

Definitions
EPA is considering two minor modifications including updating the computer monitor definition to account for non-VGA, DVI, and/or IEEE 1394 connectors as well as streamlining mode definitions to be consistent with recent ENERGY STAR specification revisions (in particular televisions), which will result in the removal of the hard off mode from the definition list. EPA encourages stakeholders to provide us comments on this and other definitional issues they might have with the current specification.

Power requirements of display settings/configurations
In keeping with the current specification, EPA intends to evaluate power consumption by display setting configuration, including resolution and luminance.

Power requirements of built-in energy relevant features and PC Display interfaces
Many of today's standard computer monitors are sold with multiple PC Display interfaces and other built-in energy relevant features. This product trend is likely to continue as new digital interface standards are adopted and new display features are integrated to maximize functionality for consumers. As part of this specification revision, EPA will evaluate the power consumption requirements associated with built-in energy relevant features, including but not limited to: USB ports; tuners; speakers; audio amplifiers; sensors; and, optional add-in cards. EPA will also evaluate the power consumption requirements of various input connector types (such as VGA, DisplayPort, DVI) in each mode of operation. As part of this review, power management requirements will be analyzed to ensure that all ports not in active use will be powered down to their minimal power level.

EPA would like to discuss the power consumption effect when multiple input interfaces are connected to external equipment during end use operation. For example, if an ENERGY STAR monitor (with two primary connectors and two USB ports) is connected to both a PC and a television set and has two external devices connected to its USB ports, does the model continue to meet ENERGY STAR performance level requirements? EPA intends to explore this

emerging issue with industry to facilitate understanding as well as discuss program approaches, as necessary.

Testing
EPA intends to review applicable test methodologies such as the proposed revisions to IEC 62087 (Methods of measurement for the power consumption of audio, video, and related equipment) to ensure that the ENERGY STAR monitor test procedure reflects current industry standards and as much as possible, the typical use of a monitor, in particular luminance settings.

EPA also intends to clarify language contained in section 4 C (Color Controls and Peripherals) to require that built-in speakers, tuners, and other energy relevant product features with separate power controls be placed in their power configuration setting *as shipped to the consumer* during the product testing. This means that a model can be tested with separate power controls placed in their minimum power configuration only if the model is shipped to the consumer with power management features for any separate power controls enabled at the time of shipping.

EPA is interested in receiving your comments and issues concerning the current test procedure for monitors, in particular with regards to section 4 F (Luminance Test Patterns and Procedures). However, stakeholders are strongly encouraged to provide comments on any aspect of the current test procedure.

Qualifying Monitors with Multiple PC Display Interfaces
EPA will evaluate the most appropriate method for ensuring that display models shipped with multiple PC display interfaces meet the ENERGY STAR performance levels in all modes of operation and for each connector provided to a consumer. This means, for example, that a model shipped with a VGA, DVI, and DisplayPort connector must not exceed the on, sleep and off mode performance levels when connected to an external device through the VGA, DVI, or DisplayPort interface.

Performance Metric
EPA solicits industry feedback to determine the continued relevance of resolution as the basis for ENERGY STAR on mode performance requirements. EPA raises this issue on account of the following: 1) the overall degree of importance to the design of the specification, 2) the extent to which products covered under the PC monitor specification are converging with products covered under the TV specification and the degree to which these two specifications can be streamlined moving into the future, 3) functionality for integrating additional product categories into the specification. EPA and the EU will consider outcomes from the European EUP (Eco-design of Energy-using Products) activities regarding the performance metrics, which supported monitor screen size as a better predictor of on mode power consumption than resolution. Possible metrics being considered include screen size and a combination of resolution and screen size.

Display versus Computer Monitor?
In keeping with all potential modifications highlighted above, EPA is interested in receiving comments from stakeholders on the possible future broadening of the ENERGY STAR computer monitor specification from focusing on computer monitors to the more general terminology of electronic “display” as the primary equipment to be covered. This will better facilitate the addition of future product categories as well as begin to address convergence between similar

product classes. EPA is very interested in stakeholder comments on the future convergence of display equipment specifications.

Webinar on ENERGY STAR Computer Monitor Specification Revision
EPA is proposing to conduct a Web-based stakeholder meeting on **Tuesday, November 27, 2007** to discuss the ENERGY STAR computer monitor specification revision. The Webinar will focus on the following:

- Discuss feedback regarding topics presented in this discussion guide;
- Discuss feedback regarding the ENERGY STAR monitor test methodology, including the relevance of the current luminance settings;
- Develop a power consumption test data collection plan that addresses and supports any recommended changes to the current test procedure; and,
- Discuss any additional industry feedback on topics not addressed in this discussion guide.

Industry Feedback and Resources
As with all ENERGY STAR specification development and revision efforts, EPA intends to run a transparent, open, and inclusive process that results in a high quality end product in a reasonable amount of time. As EPA moves forward with revising the ENERGY STAR monitor specification, we will solicit input from stakeholders on an ongoing basis. The exchange of ideas and information between EPA, industry, and other interested parties is critical to developing a meaningful specification and contributing to the overall success of ENERGY STAR. As such, we welcome and look forward to your input and participation in all aspects of the specification development process. Additionally, EPA encourages all stakeholders to visit the ENERGY STAR Website periodically at: http://www.energystar.gov/productdevelopment for important updates and resources. In addition to official documents, presentations and draft revisions of the specification, this Web page also will include written comments EPA receives from stakeholders, unless marked as confidential.

Specification Revision Time Line
It is EPA's intent to release a first draft of the revised ENERGY STAR monitor specification by **February 2008**. EPA intends to finalize the revision by **July 2008** with the specification effective approximately nine months later, in **April 2009**.

Thank you for your support of ENERGY STAR and we look forward to working with you on revising the ENERGY STAR computer monitor specification. This specification revision offers an excellent opportunity to extend the ENERGY STAR mark to additional product categories, address applicable technology issues, and deliver a superior level of energy efficiency in the marketplace.

Resources

IDC. 2007. *Worldwide PC Monitor 2007-2011 Forecast: Widescreens Take Over* Document 206575. May. 89 pp.

IDC. 2007. *Digital Frame 2007-2011 Forecast: Reigniting Softdisplay Imaging Solutions*. Document 208307. August. 36 pp.

iSuppli. 2007. *North America Leads Signage Market in Q107*. Signage and Professional Displays Market Tracker Q2 2007.

U.S. EPA. *ENERGY STAR Program Requirements for Computer Monitors Version 4.1*. Available online at http://energystar.gov/