

July 15th, 2011

Ms. Verena Radulovic
U.S. Environmental Protection Agency

Subject: Feedback on "ENERGY STAR® Program Requirements - Product Specification for Displays - Eligibility Criteria Draft 1 Version 6.0"

Dear Ms. Verena Radulovic

With reference to your "ENERGY STAR® Program Requirements Product Specification for Displays Eligibility Criteria Draft 1 Version 6.0" sent to us on June 3, feedback from the Display Specialty Committee of Japan Electronics and Information Technology Industries Association (JEITA) is enclosed herein as an attached document.

Please note that the contents of this feedback are based on the results of questionnaire investigation with businesses participating in the Committee as well as discussions held in the Committee.

We kindly ask for your understanding on the captioned subject.

Sincerely,

Shigeru Koseki
Chairperson, Display Specialty Committee
Japan Electronics and Information Technology Industries Association

No.	Description in EnergyStar 6.0 draft1	Feedback						
1	(Page2) 1.DEFINITIONS G)Product Family Note: EPA has heard from stakeholders seeking clarity on how to qualify a family of displays where some family members have additional features. EPA is interested in ensuring that consumers receive high quality and accurate information on which products qualify as ENERGY STAR, however, EPA also seeks to avoid duplicative testing of models. EPA welcomes stakeholder feedback on how the definition of product family can be further clarified, especially given that in Section 4.2.1, EPA requires that the highest energy using configuration within the family shall be considered the Representative Model	The requirement that "the highest energy using configuration within the family shall be considered the Representative Model for testing purposes" poses no problem. However, as in the case of the networking capabilities that are described below, it may be difficult in some cases to meet the required criteria in that additional functionalities cause power consumption in Sleep Mode or On Mode to increase. We request that the user's convenience and a comprehensive reduction in power consumption by means of remote monitoring, etc. be taken into consideration, and that measures should be taken such as decreasing the power corresponding to such reduction in power consumption from the actual power consumption in cases where improvements by technical means is difficult.						
2	(page3) 2.1.1 Products that meet the definition of a display as specified herein and are powered directly from ac 86 mains, via an external power supply, or via a data or network connection, are eligible for ENERGY STAR qualification, with the exception of products listed in Section 2.2. Typical products that would be eligible for qualification under this specification include: i.Computer Monitors ii.Display with KVM functionality iii.Digital Picture Frames	As in the case of the networking capabilities, it may be difficult in some cases to meet the required criteria in that additional functionalities cause power consumption in Sleep Mode or On Mode to increase. We request that the user's convenience and a comprehensive reduction in power consumption by means of remote monitoring, etc. be taken into consideration, and that measures should be taken such as decreasing the power corresponding to such reduction in power consumption from the actual power consumption in cases where improvements by technical means is difficult and in cases where the required criteria are met in the as-shipped settings and the required criteria will not be met as a result of changes in the settings to be made by the user's explicit instruction *. *Measures shall be taken such as drawing attention to the user who is about to use by means of an OSD, etc.						
3	2.2.2 (page3) iv. Products that are component televisions. A component television is a product that is composed of two or more separate components (e.g., display device and tuner) that are marketed and sold as a television under a single model or system designation. A component television may have more than one power cord,	As a technical requirement, distinguishing form multi-media displays and displays for signage is difficult, and in this case only the method of marketing and selling is addressed as the requirement. Because such situation causes difficulty, this section should be deleted.						
4	(page3) 2.2.2 Note: Recognizing that screen sizes are growing, EPA is interested in stakeholder feedback on the value of expanding coverage in this specification to displays larger than 60” in diagonal screen size. EPA seeks more information on the prevalence of displays larger than 60” in	For displays exceeding 60", the hurdle is raised especially with regard to the power consumption in Sleep Mode as compared with displays 60" or less. Hence, we propose that the range of application be enlarged presupposing that regarding displays exceeding 60", the requirement for power consumption in Sleep Mode be relaxed (e.g. 1 W or less).						
5	(page4) 3.2.2 Networking Capabilities: Note: Currently, there are displays sold in the market that have networking capability (e.g. Ethernet, Wi-Fi) and may serve as the main connector to common peripherals and mobile devices. Due to these additional functionalities, the power consumption associated with these Displays may increase in the On, Off and Sleep mode. EPA welcomes stakeholder feedback regarding the prevalence of these products in the market and their associated	It is difficult to give a specific power consumption value that is expected to increase according to the type of a network.						
6	(page5) 3.2.3Power Management: i. Products shall offer at least one power management feature that is enabled by default, and that can be used to automatically transition from On Mode to Sleep Mode (e.g., support for VESA Display Power Management Signaling [DPMS], enabled by default).	Because the title of the latest standard of VESA is the DPM Standard, it is better to change the description from DPMS to DPM .						
7	(page5) 3.3On Mode Requirements 3.3.1 For products with Automatic Brightness Control (ABC) enabled by default, On Mode power (PON), as calculated per Equation 1, shall be less than or equal to the Maximum On Mode Power Requirement (PON_MAX), as calculated per Table 1. Equation 1: Calculation of On Mode Power for Products with ABC Enabled by Default PON = (0.25 x Pbroadcast_10lux) + (0.25 x Pbroadcast_100lux) + (0.25 x Pbroadcast_150lux) + (0.25 x Pbroadcast_300lux) Where: □ PON is the calculated On Mode power, □ Pbroadcast_10lux is the measured On Mode power when tested with a minimum ambient light level of 10 lux. □ Pbroadcast_100lux is the measured On Mode power when tested with a minimum ambient light level of 100 lux. □ Pbroadcast_150lux is the measured On Mode power when tested with a minimum ambient light level of 150 lux. □ Pbroadcast_300lux is the measured On Mode power when tested with a minimum ambient light level of 300 lux	Conditions of surrounding illuminance under which equipment will actually be used may vary greatly with the use of such equipment, and it is difficult to specify uniform conditions. For instance, in the equation for calculation given in this section, when comparing a product performing ABC operation that is designed assuming that the product is used under 10-300 lux (e.g. a display for home use) with a product performing ABC operation that is designed assuming that the product is used under 100-2000 lux (e.g. a display for signage), it is obvious that the former product is put under disadvantageous conditions. Hence, we propose that the maximum illuminance conditions should be specified as the minimum illuminance (±10%) for demonstrating the maximum luminance (or electric power) by means of ABC functions, and only the percentage value in the illuminance conditions should be defined. Example: Product A (computer monitor) Maximum illuminance: 500 ± 50 [lux] Product B (digital photo frame) Maximum illuminance: 300 ± 30 [lux] Product C (display for display board) Maximum illuminance: 2000 ± 200 [lux] % value: 3%, 30%, 50%, 100%						
8	(page5-6) Note: EPA and the U.S. Department of Energy (DOE) are interested in improving the measurement associated with ABC enabled by default. Both EPA and DOE believe that the test conditions for room illuminance should be representative of consumer use. EPA is proposing adopting the proposed DOE Television testing conditions for ABC enabled by default. EPA intends to adopt the DOE test procedure once it is finalized. EPA is referencing the DOE recommendations for testing televisions to harmonize with the Version 6.0 draft specification for Televisions. While assigning different weights according to usage patterns would yield the most representative results, little information exists in this area. An average approach may be preferable because it will assume equal usage in each mode. EPA welcomes feedback on the assigned weights to each of the values and also testing ABC at three room illuminance levels instead of four. EPA also welcomes feedback on whether the proposed room illuminance levels are appropriate for displays which are intended for use in non-household	Since higher luminance are required to increase visibilityas as displays for outdoor use, power consumption increases even if the screen size remains unchanged. We request that such types of products be taken into consideration.						
9	3.3.2 For products that do not offer ABC, or for which ABC is not enabled by default, On Mode power 205 (PON), as calculated per the ENERGY STAR test method, shall be less than or equal to the Maximum On Mode Power Requirement (PON_MAX), as calculated per Table 1.	In the case of a display for signage, it is often incorporated in another cubicle that surrounds the display cubicle, in which case it is highly likely that trouble will occur when the ABC function is turned on at the as-shipped settings. Hence, we request that the requirement for as-shipped settings for sensor functions including the ABC function be excluded with regard to displays for signage.						
10	<table><tr><th colspan="2">Table 1: Calculation of Maximum On Mode Power Requirements (P_{ON MAX})</th></tr><tr><th>Product Type Diagonal Screen Size, <i>d</i> (inches)</th><th>P_{ON MAX} (watts) Where: ▪ <i>r</i> = Screen resolution in megapixels ▪ <i>A</i> = Viewable screen area, rounded to the nearest 0.1 square inches.</th></tr><tr><td>All sizes</td><td>TBD</td></tr></table>	Table 1: Calculation of Maximum On Mode Power Requirements (P _{ON MAX})		Product Type Diagonal Screen Size, <i>d</i> (inches)	P _{ON MAX} (watts) Where: ▪ <i>r</i> = Screen resolution in megapixels ▪ <i>A</i> = Viewable screen area, rounded to the nearest 0.1 square inches.	All sizes	TBD	It should be as specified in the current criteria (5.1). However, in addition to maintaining the current criteria, relaxation of criteria such as that in ErP Lot 3 is desirable with respect to high performance displays.
Table 1: Calculation of Maximum On Mode Power Requirements (P _{ON MAX})								
Product Type Diagonal Screen Size, <i>d</i> (inches)	P _{ON MAX} (watts) Where: ▪ <i>r</i> = Screen resolution in megapixels ▪ <i>A</i> = Viewable screen area, rounded to the nearest 0.1 square inches.							
All sizes	TBD							

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Adopting the International Electrical Commission (IEC) standard IEC620871, Ed. 2.0: Test Methods for displays less than 30” in diagonal screen size. In Version 5.0 of the specification, EPA indicated that it will explore testing all displays for On Mode power using the IEC 62087 test procedure to harmonize the test procedures for the ENERGY STAR Displays Product specification with the ENERGY STAR TV specification and other national and international standards. Therefore, EPA is proposing testing and measuring On Mode power for displays less than 30” using the IEC 62087, Ed.2.0 test method which is currently used to determine ENERGY STAR eligibility for display products 30”- 60” and for Televisions of all sizes. EPA asks that stakeholders share requests for clarification or guidance regarding application of this test method to displays less than 30” in diagonal screen size. In addition, EPA acknowledges that the IEC 62087 Ed. 2.0 test method may provide different On Mode power test results than the VESA Flat Panel Display Measurements (FPDM) Standard, Version 2.0, currently being used to test displays less than 30” in diagonal screen size. EPA is exploring display resolution. In preparation for this specification revision, EPA analyzed the following questions:
1) How is the amount of light transmitted through a display panel affected by the pixel size and resolution?
2) What is the estimated number of display products that are not ENERGY STAR qualified that would be affected by this change?
3) During the display design process, what is the determining factor in selecting a certain resolution? How does resolution affect power consumption?
Developing a better understanding of how displays 30”-32” in diagonal screen size are used

1) If the screen size remains unchanged, power consumption increases with higher resolution. This is caused by the fact that power consumption changes as the number of transistors increases and the transmission factor decreases as a result of an increase in wiring density.
2) 24.1inch: 1920x1200, 27.0 inch: 2560x1200, 29.8-inch: 2560x1600 monitors for use in wide color range (AdobeRGB)
3) Although there is a trend toward the use of large sized display boards, the applications of such boards are also expanding, and there can also be display boards of less than 30" in size. It is considered that the assumption of application based on size is difficult.

Example of a non-conforming model:

* Example of 23" FHD model (maximum luminance: 400 cd/m2)
Moving picture content (IEC 62087 Ed.2.0 11-6) power consumption at 65% luminance on average: 44.1 W
Internet content (IEC 62087 Ed.2.0 11-7) power consumption at 65% luminance on average: 43.8 W
FPDM pattern indication, power consumption at 200 cd/m2 luminance: 37.9 W

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3.4 Luminance Requirements
3.4.1 Luminance shall be tested at the as-shipped value, which is greater than or equal to 65% of the maximum luminance.
Table 2: Luminance Requirements

Requirement	Luminance Value
Reporting and Testing	Greater than or equal to 65% of the maximum luminance.

The luminance value to be specified should be a fixed value.
Reason: The maximum luminance and the as-shipped value (%) vary greatly with each product, and it is unreasonable that the value for testing is specified indiscriminately as greater than or equal to 65% and that this value is specified as the requirement for luminance. For instance, some products involve a great value of the maximum luminance in terms of design, such as displays for outdoor use.

The fixed luminance specified in EnergyStar5.1 (less than 1.1 M pixels: 175 cd/m2, 1.1 M pixels or more: 200 cd/m2) should be used. However, if luminance does not decrease in the case of a large liquid crystal high-luminance panel, etc., measurement should be made at the lowest luminance.

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Note: EPA data analysis demonstrates that luminance plays an important role in the energy consumption of displays.
EPA proposes that Partner test and ship products at a luminance value greater than or equal to 65% of the maximum luminance to qualify ENERGY STAR products.
EPA proposes that for purposes of qualification partners report both the “as shipped” and maximum luminance values that reflect a ratio of at least 65% to EPA.
Based on EPA discussions with stakeholders and analyzing the differences in maximum luminance capabilities for different models with screen sizes less than 30” in diagonal screen size, EPA is evaluating whether the default testing luminance requirements initially outlined in the VESA based test procedure found in Version 5.1 (175 cd/m2 for displays with resolutions less than 1.1. MP and 200 cd/m2 for resolutions greater than or equal to 1.1 MP) is truly representative of how the displays are used by the end user. Data demonstrated that the maximum luminance levels for displays less than 30” can range from 230 cd/m2 to over 370 cd/m2.
The current ENERGY STAR qualified product list demonstrated that the majority of products tested under 30” in diagonal screen size utilized a luminance of at least 65% of the maximum luminance.
This proposed approach also aligns with the luminance values typically used for shipping products 30”- 60” in diagonal screen size.
The current ENERGY STAR qualified product list demonstrated that the majority of tested products between 30”-60” in diagonal screen size utilized a luminance of at least 65% of the maximum luminance.
Finally, this approach harmonizes with the approach used in the current Version 5.3 and draft Version 6.0 Televisions specification.
EPA recognizes that not all display products are used in similar settings for identical purposes and therefore welcomes stakeholder feedback regarding:
1. The appropriateness of this proposal to the full range of products suggested; and
2. The typical process manufacturers use in determining the ‘as-shipped’ luminance value.

(Although models not conforming to ENERGYSTAR5.1 are also included) the following cases can be considered.

With regard to the maximum value of 270 cd/m2, as-shipped value: 80 cd/m2 (equivalent to sRGB standard)
With regard to the maximum value of 360 cd/m2, as-shipped value: 160 cd/m2 (equivalent to AdobeRGB standard)

Because a product with higher luminance specifications becomes more disadvantageous, a fixed luminance value is more desirable.

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3.5 Sleep Mode Requirements
3.5.1 Measured Sleep Mode power (PSLEEP) shall be less than or equal to the Maximum Sleep Mode Power Requirement (PSLEEP_MAX), as specified in Table 3.
Table 3: Maximum Sleep Mode Power Requirements (P_{SLEEP_MAX})

P _{SLEEP_MAX} (watts)
0.5

The current criteria of 1.0 W should be maintained.
It is difficult for displays equipped with digital terminals to meet the requirement. Power consumption in standby mode resulting from communications functions also poses a problem.

In a standby state (Sleep Mode) of waiting for a signal from external equipment in networking functions, etc., cases where it is difficult to meet the required criteria can be considered. Taking account of convenience of the user, in cases where the required criteria are met in the as-shipped settings and the required criteria will not be met as a result of changes in the settings to be made by the user's explicit instruction*, we request that measures should be taken such as exclusion of the application of the requirement.
*Measures shall be taken such as drawing attention to the user who is about to use by means of an OSD, etc.

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Note: EPA recognizes that some display products have multiple Sleep Modes and welcomes stakeholder feedback on the commonality and characteristics of these multiple Sleep Modes and their associated power consumption. EPA also welcomes feedback on any additional features that could increase power consumption in Sleep Mode.

As in the case of the networking capabilities, it may be difficult in some cases to meet the required criteria in that additional functionalities cause power consumption in Sleep Mode or On Mode to increase. We request that the user's convenience and a comprehensive reduction in power consumption by means of remote monitoring, etc. be taken into consideration, and that measures should be taken such as decreasing the power corresponding to such reduction in power consumption from the actual power consumption in cases where improvements by technical means is difficult and in cases where the required criteria are met in the as-shipped settings and the required criteria will not be met as a result of changes in the settings to be made by the user's explicit instruction*.
*Measures shall be taken such as drawing attention to the user who is about to use by means of an OSD, etc.

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Note: EPA is proposing 0.5 watts for both Sleep and Off Mode power requirements to harmonize with the EU Ecodesign regulation (EC No. 1275/2008), which sets maximum allowed power consumption for Off Mode at 0.5 watts and for Standby Mode for most products also at 0.5 watts. These requirements are scheduled to take effect in January 2013. Over half of ENERGY STAR qualified products less than 30” in diagonal screen size would currently be able meet a requirement of maximum Sleep Mode power consumption at 0.5 watts. EPA welcomes stakeholder feedback to determine whether a maximum allowance of 0.5 watts for Sleep and Off Modes would be feasible for displays that are intended for commercial, rather than household, use (e.g. professional signage), and that are 30”- 60” in diagonal screen size. EPA currently has limited data from its qualified product list for displays greater than 30”in diagonal screen size and therefore also seeks test data of non-qualified products for Sleep and Off Modes.

With regard to displays for business use such as displays for signageetc., their product cycle is longer than that of those for home use, and we request that a period for preparation corresponding to this situation be specified. For instance, the period would be one year after the period of the start of application of this requirement to displays for home use.

17	(page10) 6 USER INTERFACE 6.1.1 Partners are encouraged to design products in accordance with the user interface standard IEEE 369 P1621: Standard for User Interface Elements in Power Control of Electronic Devices Employed in Office/Consumer Environments. For details, see http://eetd.LBL.gov/Controls . i.In the event that IEEE P1621 is not adopted, Partner shall provide EPA with rationale for avoidance.	Are there any problems in terms of consistency with the provisions specified in IEC 60417-5009? What are the specific meanings of "rationale"?
18	(page11) 7 EFFECTIVE DATE 374 7.1.1 Effective Date: The Version 6.0 ENERGY STAR Display Products specification shall take effect on the dates specified in Table 6. To qualify for ENERGY STAR, a product model shall meet the ENERGY STAR specification in effect on its date of manufacture. The date of manufacture is specific to each unit and is the date (e.g., month and year) on which a unit is considered to be completely assembled. 7.1.2 Future Specification Revisions: EPA reserves the right to change this specification should technological and/or market changes affect its usefulness to consumers, industry, or the environment. In keeping with current policy, revisions to the specification are arrived at through stakeholder discussions. In the event of a specification revision, please note that the ENERGY STAR qualification is not automatically granted for the life of a product model.	With regard to displays for business use such as displays for signage etc., their product cycle is longer than that of those for home use, and we request that a period for preparation corresponding to this situation be specified. For instance, the period would be one year after the period of the start of application of this requirement to displays for home use.