

March 19th, 2012

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U.S. Environmental Protection Agency
Via e-mail: displays@energystar.gov

Re: Panasonic Comments on ENERGY STAR Displays Draft 3 Version 6.0 Specification

As a manufacturer and marketer of all television and professional display technologies, Panasonic appreciates the opportunity to review and comment on the ENERGY STAR Displays Draft 3 Version 6.0 specification. Panasonic continues to be a strong supporter of the ENERGY STAR brand and its program objectives, thus we are offering these additional comments for your consideration.

Definitions of On Mode, Sleep Mode, and Off Mode should be Harmonized with DOE TVs NOPR

Panasonic recommends harmonizing the On Mode, Sleep Mode, and Off Modes with the DOE TVs Notice of Proposed Rulemaking (NOPR). The DOE NOPR defines a Standby-passive mode; Standby-active, high mode; and Standby-active, low mode. Our understanding is that the Standby-active, high mode is equivalent to the TV Download Acquisition Mode which is actively exchanging/receiving data with/from an external source.

We also believe that the Standby-active, low mode may have a network connection enabled so that it can be switched into another mode via an external signal.

Sleep Mode Requirements with Data/Networking Capabilities:

Table 3 in the Eligibility Criteria lists the power allowances for Sleep mode with various data or networking capabilities connected during testing. We believe that these allowances are insufficient. In the case of a wired Fast Ethernet connection, a minimum of 0.2 watts allowance P_{DN} is recommended because in order to enable a Fast Ethernet connection, the Physical Layer LSI must be powered On. Typical LSI's for this function consume 174.9 mW or 161.37 mW. Thus, 0.2 watts (200 mW) is recommended for the extra allowance for the wired Fast Ethernet connection.

In the case of Wi-Fi connections, the required extra power could range up to 10 watts. This is because many Wi-Fi implementations require an external wireless transceiver to be connected to the display via a USB port. The display must power the transceiver as well as its internal circuitry required to complete the connection.

Panasonic recommends subtracting the power used by the external transceiver when reporting the standby power with an active wireless connection. The power will depend upon the specific manufacturer and model of the transceiver being used. This is supported by the Test Method Section 6.2.C.1.a which states that external peripheral devices shall not be connected to USB ports or other data ports on the UUT.

It should also be noted that professional signage displays will often use an Ethernet connection as a control port to remotely control the display. It would not be used for obtaining content from the Internet. In this respect, it may differ from a typical computer monitor's usage of the Ethernet connection.

Data/ Network Connection during On Mode Testing:

The Test Method Section 6.2.C.1.c states that the UUT shall maintain a live connection to the network for the duration of testing, disregarding any brief lapses. Does this imply that this connection is maintained during both On Mode and Sleep Mode power measurements? If so, Panasonic recommends that the Maximum On Mode Power Requirement be increased by the same power allowances for data or network capabilities which are added to the Maximum Sleep Mode Power Requirement.

On Mode Luminance:

Panasonic also supports ENERGY STAR's decision to test the On Mode of signage displays with diagonals of 30-inches or more at a luminance greater than or equal to 65% of the maximum luminance. This will best approximate the actual power experienced by the end users and will harmonize with the Television specification.

We recommend that the Test Method Section 7.3.A.8 (should be 7.3.A.2) specify that the luminance value L_{On} shall be measured using the procedure in Section 7.2 Luminance Testing.

Automatic Brightness Control (ABC):

We recommend the Test Method Section 5.I.3 be modified to require a black screen to be displayed while the ambient light is measured at the location of the ABC ambient light sensor. The IEC 62087 main menu screen, which is currently proposed to be displayed, may affect the repeatability of the ABC sensor illuminance measurement since this menu screen light may reflect more or less depending on the color and proximity of the test room walls.

Panasonic further recommends that the power measurements at 100 and 500 lux be removed from the test procedure. These measurements are not required for product qualification, but do represent an additional test burden.

Again, we are concerned about the accuracy and repeatability of this testing. The most important issue regarding Automatic Brightness Control (ABC) is the selection and weighting of the various ambient illumination levels required during the power measurements. The IEC 62087 committee chose 0 lux and 300 lux (or greater) as extreme values, which would be easy to supply to the ABC ambient light sensor while ensuring the display provided in a repeatable manner the minimum and maximum display brightness respectively.

Different third party laboratories must be able to supply the identical ambient illumination to the ABC sensor such that the measured power is reproducible. This is a major reason why the IEC 62087

committee chose the 0 lux and 300 lux (or greater) values. Intricate setup and measurement procedures are not needed with the IEC values since it is easy to achieve 0 lux by covering the ABC sensor, and 300 lux (or greater) can be achieved by increasing the illumination source until the ABC sensor becomes saturated thus providing the maximum brightness.

If ENERGY STAR Displays Version 6.0 specifies absolute illuminance values for testing ABC, it will also be necessary to provide a detailed measurement procedure. This procedure should take into account at minimum the following items:

- 1) The illumination source collimation and direction
- 2) The illumination source frequency spectrum
- 3) The illumination source stability over time
- 4) The meter used to measure the illumination source
- 5) The ABC sensor location
- 6) The ABC sensor collection angle
- 7) The test room wall reflectivity

Given the complexity, time required, and associated accumulative error of making measurements at multiple absolute illumination values, Panasonic recommends the measurements be taken at 0 lux and 300 lux. As noted above, the 0 and 300 lux values were selected for ease and repeatability of the measurement.

Computer Monitor Luminance Adjustment Requires a Procedure:

The Test Method Section 7.3.A.1 specifies that products less than 30 inches and any computer monitor 30 inches or more should be adjusted to achieve a luminance of 200 cd/m². This should reference the procedure detailed in Section 7.3.C for luminance adjustment.

It should also be noted that Sections 7.3.A.1 and 7.3.C.7 state that the “brightness control” should be adjusted to achieve 200 cd/m². In order to allow for products of various technologies using alternate names for picture adjustment controls, perhaps the noted sections should simply replace “brightness control” with “appropriate controls”.

Stability of Power Measurements:

The Test Method Section 6.2.A.3 states that power measurements shall be recorded after “voltage measurements” are stable to within 1%. We believe that “voltage measurements” should be changed to “power measurements”.

We also recommend that this power stability requirement should be changed to 2% instead of 1%. This would be consistent with the DOE TVs NOPR (FR January 19, 2012) Section 5.2 which requires a 2% power stability after warm-up.

Power Measurement Reporting:

The Test Method Section 7.4.C requires the average volts, amps, and watt-hours to be recorded during the power measurement. Not all power meters display the average volts and amps. Panasonic recommends removing this recording requirement.

The voltage tolerance is already required to be within 1% according to the Test Method Section 5.B Table 1 so there is no reason to record the average voltage. It should be noted that in order to comply with this tight 1% voltage tolerance, most test facilities will employ an AC power stabilizer.

The amperage is not relevant provided that the power meter crest factor requirement in the Test Method Section 5.G.1 is satisfied. In the case of products powered by a low-voltage DC input, the current must satisfy the USB hub specifications in the Test Method Section 5.C.3.b. Also, if the power meter provides a Power Factor measurement reading directly, then the current should not be necessary to record.

Similarly, it is not necessary to record the watt-hours. Only the power measurement is of relevance and must be recorded. It should be noted that the watt-hours is implied by the power measurement since the time of the test is 10 minutes.

ENERGY STAR Should Retain Its Sole Focus on Energy Efficiency:

By proposing to add new toxicity and recyclability requirements into ENERGY STAR criteria, the program's connection with consumers may be threatened. Consumers look to ENERGY STAR as a clear, easy to understand guide to the most energy efficient products available. They do not expect nor necessarily demand that ENERGY STAR qualified products be anything more than energy efficient. There also does not appear to be any direct correlation between the proposed toxicity and recyclability requirements, and what is described by EPA as "poor quality or otherwise undesirable products."

Also, the EPA concedes that international harmonization cannot be achieved with the proposed new non-energy requirements so they are not included for products sold outside of the U.S. Does this mean, for example, that European consumers do not care about the toxicity or recyclability of their ENERGY STAR products or that they are more accepting of "poor quality or otherwise undesirable products?"

If the specific toxicity requirements must remain in the final specification, Panasonic recommends that all 40 exemptions of the RoHS Directive be included, not just a selective few. Further, if the general toxicity and recyclability requirements remain in the Displays Version 6 Program Requirements, EPA should more clearly specify exactly what documentation may be requested.

The ENERGY STAR brand across its 20-year history has been successful in large measure due to its clear, succinct message of promoting energy efficiency. Adding new criteria unrelated to its efficiency messaging will likely confuse consumers and potentially diminish the ENERGY STAR branding efforts. Consequently, Panasonic recommends that ENERGY STAR not add any additional non energy-related requirements on toxicity or recyclability.

Proposed Effective Date:

Panasonic recommends an April 2013 effective date for Version 6.0. This date better aligns the specification with new product release timing and allows for engineering resources to be efficiently utilized in getting more efficient designs out to the market.

Panasonic has been a longtime proponent of the ENERGY STAR program and believes its partnership with EPA has provided a valuable service to consumers, helping them to make better informed choices about their purchases of energy efficient products. Our comments on the Displays draft specification are intended to improve its application should EPA determine it can be applied to such a broad, diverse product lineup ranging from the smallest digital picture frames to the largest professional displays.

As always, Panasonic appreciates the opportunity to comment on the ENERGY STAR Program and welcomes the opportunity to further discuss our views with you.

Sincerely,

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