

June 20, 2011

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

Re: Panasonic Comments on ENERGY STAR TVs Draft 1 Version 6.0 Specification

Panasonic appreciates the opportunity to review and comment on the ENERGY STAR TVs Draft 1 Version 6.0 specification. As a manufacturer and marketer of all television technologies, Panasonic is a strong supporter of the ENERGY STAR brand and its program objectives. The latest Draft 1 Version 6.0 proposal, however, cannot be supported by Panasonic because it sets forth a single-technology only specification. In addition, several of the draft's proposals to fundamentally alter the measurement of automatic brightness control (ABC), and unnecessarily include internet measurements make this proposed specification unworkable and overly burdensome.

Proposed Spec is Technology Biased:

EPA's Draft 1 Version 6.0 specification would in effect create a requirement that can be met by only a single technology, based on products currently available on the market. Of the 431 models released since the fourth quarter of 2010, only 88 would meet the Version 6.0 specification, which includes 84 LED backlit LCD TV models. Clearly, the proposed specification is heavily tilted in favor of a single technology—LED backlit LCD TVs.

The predominance of LED models meeting the specification violates one of the ENERGY STAR Program's "Guiding Principles" that stipulates: "Energy efficiency can be achieved with several technology options, at least one of which is non-proprietary." ENERGY STAR's explanation of this principle suggests that several design options must be available for manufacturers to meet the required efficiency levels. Yet, the Version 6.0 specification would solidify the ENERGY STAR TVs into a program for LED-backlit LCD TVs only. Further, the Draft 1 Version 6.0 proposal would exacerbate the program's bias against larger-size TVs (above 50 inches).

Televisions above 50 inches are already penalized under the transformative Version 5.3 specification set to take effect on September 30, 2011, which caps their qualifying power consumption to 108 watts. Although some currently available TVs above 50 inches can meet Version 5.3, they are almost all smaller than 60 inches and LED-backlit LCD models. Consequently, consumers looking for information on energy efficient choices in the larger size TVs will be directed toward a single technology and almost always in sizes below 56 inches. Panasonic strongly believes this is contrary to ENERGY STAR's objectives and will ultimately diminish consumer acceptance and manufacturer support for the program.

Automatic Brightness Control (ABC):

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 that the TV provided in a repeatable manner the minimum and maximum display brightness respectively.

The 300 lux (or greater) value was considered to be an extremely bright illuminance that would not be encountered during normal viewing in a typical home environment. It was thought to be so high that all ABC sensors would be saturated and thus provide the maximum display brightness. In fact, the IEC 62087 specifies that this value of 300 lux or greater is only provided to the sensor if there is no capability to deactivate the ABC function.

In actual practice, the ABC circuit will generally begin to decrease the display brightness at a more reasonable illuminance level of around 100 lux or less. Ambient levels higher than this threshold will require the TV to provide its normal brightness for a given picture preset mode. The ENERGY STAR TVs Version 6 Draft 1, Equation 1, requires an equal weighting of the on mode power measured at ambient levels of 10, 100, 150, and 300 lux. Since the actual ABC circuit retains the normal brightness until the ambient falls below the threshold of around 100 lux, this Equation 1 applies a combined weight of 75% to the power at this normal brightness which is measured three times at 100, 150, and 300 lux. The only power measurement at a reduced brightness would occur at 10 lux, and would receive just a 25% weighting.

Previous ENERGY STAR TVs specifications Versions 3, 4, and 5 have allowed a more equal weighting of 45% to the power measured at the lower ambient. Therefore the Version 6 proposed Equation 1 will yield a higher calculated on mode power. The correction factor added to Equation 1 will result in an even higher power. This is because it assumes that the ABC features currently available in the market decrease the screen brightness in a linear fashion as the ambient is reduced from 300 to 10 lux, which is not the case.

It is clear that the Version 6.0 proposal will result in a significantly higher on mode power for TVs with ABC enabled compared with the current ENERGY STAR Version 5.3. This major discrepancy will need to be rectified before the Version 5.3 qualified product data base can be used to predict future qualification rates for the proposed Version 6.0.

Panasonic recommends that ENERGY STAR modify the ABC Equation 1 to be consistent with actual TV operation based upon realistic ambient levels. The Consumer Electronics Association (CEA) is currently in the process of enlisting TV installers to collect ambient illuminance data encountered in homes across the United States. We believe this data will be critical to support the development of a revised ABC formula which will measure and weight the On Mode power at realistic ambient levels. This will ensure that the true energy savings associated with the ABC function can be accounted. This ambient data collected by the CEA is also needed to apply the appropriate corrections such that Version 6 qualification rates utilizing a revised ABC formula can be predicted from the existing ENERGY STAR Version 5.3 qualified product data base.

Finally, it should be noted that the on mode power calculated by the ABC formula must be both accurate and repeatable. Different third party laboratories must be able to supply the identical ambient illumination to the ABC sensor such that the 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.

If ENERGY STAR Version 6.0 specifies absolute illuminance values, it will also be necessary to provide a detailed measurement procedure. This should take into account at least 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. It is recommended that the number of measurements be limited to no more than two or three.

Internet –Content Testing:

The Draft 1 Test Method, Section 5.2.C.2 Test Materials, specifies that; “On mode power tests must be repeated using the Internet-content video signal as defined in IEC 62087 Ed. 2.0 Section 11.7”. This video signal was developed in 2007 and 2008 to represent various web-pages encountered while browsing the Internet. The IEC 62087 Ed. 2 Annex C.4 (informative) states; “Current statistics show that the number of hours that television sets are used to view Internet content vs. broadcast content is very low.”

Although the number of Internet-capable TVs has increased in very recent years, only a very limited amount of television viewing of web-pages is occurring. Instead, the Internet connection is primarily being used to stream video content, which has essentially the same characteristics as the IEC 62087 dynamic broadcast-content video signal currently being used to measure On Mode power. Panasonic’s own data indicates that approximately 86% of the Internet viewing on its televisions is for video and music-related content. In addition, the viewing of any type of Internet-content is far less prevalent than typical broadcast-content.

Therefore Panasonic feels there is no need to duplicate the on mode power measurements using the IEC 62087 Internet-content. This measurement serves no practical purpose, and only makes the measurements more time consuming and costly.

Networking Features Additional Testing:

The Draft 1 Test Method, Section 5.4.A Additional Testing, specifies that the on mode and sleep mode power measurements be performed with networking features in the activated state in addition to the deactivated state. This will unnecessarily double the time and cost of these power measurements. Panasonic recommends that an independent study be performed to quantify the incremental power needed to supply a network connection. Realistically, this should be a very small number since similar network connections are performed easily by a variety of battery powered laptops and smart phone devices. This power should not be significant compared to the on mode power. This certainly does not justify the doubling of the cost to perform two sets of on mode power measurements.

ENERGY STAR Should Retain Its Sole Focus on Energy Efficiency:

By proposing to add a requirement that LCD TV manufacturers source from suppliers who have demonstrated reduced use of fluorinated gases, and add new toxicity and packaging recyclability into ENERGY STAR criteria, the program's basis for success may be jeopardized. Other organizations are actively addressing these issues so there is no need for the ENERGY STAR criteria to include them. The ENERGY STAR brand in large measure has been successful due to its clear, succinct message of promoting energy efficiency. Adding new criteria unrelated to its efficiency messaging will likely confuse consumers and diminish the ENERGY STAR branding efforts. Consequently, Panasonic recommends that ENERGY STAR not add any sourcing requirements for LCD TV manufacturers or add additional requirements on toxicity or recyclability.

Proposed Effective Date Will Create Additional Burdens Upon Manufacturers

The Draft 1 Version 6.0 proposed effective date of late Spring/early Summer 2012 fails to recognize the design, testing, and labeling burdens to manufacturers created by rapid specification transitions. By "refreshing" the specification after only 7-8 months, manufacturers and retailers will be expected to disrupt normal product development cycles, commit additional time and resources toward already expensive certification testing, and ensure proper labeling appears on product packaging, owners manuals, and on the products themselves.

Given the already aggressive power limits to be implemented under Version 5.3 this fall, rushing into the Version 6.0 specification a scant few months later seems unwise and could further inhibit manufacturer participation in the program. Instead of looking to implement rapid changes in the specification, Panasonic recommends an April 2013 effective date for Version 6.0. This date will better align the specification with new product release timing and allow 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 tool by which consumers can make better informed choices about their purchases of energy efficient products. We are concerned, however, that Draft 1 Version 6.0 specification would move the ENERGY STAR TVs program in a dangerous direction that could threaten the program's acceptance among consumers, participation by manufacturers, and ultimately, its future viability.

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,

Mark J. Sharp
Group Manager
Panasonic Corporation of North America

cc: Owen Sanford