

October 1, 2010

U.S. Environmental Protection Agency  
[ENERGYSTARVerificationProgram@energystar.gov](mailto:ENERGYSTARVerificationProgram@energystar.gov)

**Re: Panasonic Comments on ENERGY STAR Displays Version 5.1**

Panasonic appreciates the opportunity to review and comment on the ENERGY STAR Partner Commitments and Product Specifications, per your correspondence to interested parties on September 14, 2010. Our letter specifically addresses comments on EPA's ENERGY STAR Displays Version 5.1 eligibility criteria and the specification itself. We have provided comments following the sequence of the document, which contain specific references to the page and section numbers.

**Eligibility Criteria Draft Displays Version 5.1**

- 1) Page 3, Section 3.3.2, Equation 2: Calculation of On Mode Power for Products without ABC Enabled by Default:

Panasonic recommends keeping the Displays Version 5.0 approach of simply measuring the On Mode power with the ABC disabled if the product ships with the ABC disabled. This is consistent with measuring the product in its as-shipped default condition. It also is a simpler measurement because there is no requirement to supply a specified light level to the ambient light sensor. However, if the Draft Displays Version 5.1 approach is adopted, then Equation 2 should be changed to:  $P_{ON} = P_H$

The Equation 2 given in Section 3.3.2 ( $P_{ON} = P_L$ ) is incorrect and will result in a lower power measurement than intended.

If the Equation 2 is changed to  $P_{ON} = P_H$  then the definition below it should also be changed to that for  $P_H$ .

**Comments Regarding ENERGY STAR Program Requirements Product Specification for Displays**

**Test Method**

- 1) Page 3 Section 4.F.1 Crest Factor: The draft requirement is much more difficult to practically achieve than the original ENERGY STAR Displays Version 5.0 approach which simply specifies; "An available current crest factor of 3 or more at its rated range value;"  
This is typical of many available current meters available on the market.  
Panasonic recommends the original Version 5.0 approach for these reasons.

On the other hand, the draft requirement is more difficult to achieve because it depends on an accurate determination of the peak current. It states; “The full-scale value of the selected current range multiplied by the crest factor for that range shall be at least 15% greater than the peak current.”

Since the peak current is transient (dynamic), it would require complicated measurements using an oscilloscope or power analysis equipment in order to determine the peak current. General practice would be to simply use a current meter with a crest factor of 3 or more at its rated range value as specified in the original Displays Version 5.0 Test Conditions and Instrumentation Section.

- 2) Page 3, Section 4.F.2 Bandwidth: This is an overly complicated requirement and requires an expensive power spectrum analyzer to determine the highest frequency component (harmonic) with a magnitude greater than 1% of the fundamental frequency. Panasonic recommends simply requiring a 3.0 kHz bandwidth as in Section 4.F.3 which is 50 times the fundamental frequency of the 60 Hz fundamental.
- 3) Page 4, Section 5.C.2 Light Measurements: Panasonic recommends revising the following statement to be consistent with the Displays Version 5.0 Test Conditions and Instrumentation, Section F. Light Measurement and Protocols. The requirement should be as follows:  
  
“The LMD shall measure a rectangular area that is the LESSER of (1) an area each side of which is 10% as long as the corresponding side of the viewable screen area, or (2) 500 pixels.”
- 4) Page 5, Section 7.A.6: In order to be consistent with the Displays Version 5.0, Panasonic recommends changing the “or” to an ‘and’ in the following requirement:  
“Warm up the UUT for at least 20 minutes and until the unit has completed initialization and is ready for use.”
- 5) Page 5, Section 8.1.1: Change the “6” to a “7” in the following:  
“Ensure that the UUT has been initialized per Section 7.”
- 6) Page 5, Section 8.1.2: Need to specify the full VESA reference:  
“Display the VESA FPDM2, A112-2F, AT01P test pattern.”
- 7) Page 5, Section 8.1.4: Need to specify the full VESA reference:  
“Display the VESA FPDM2, A112-2F, SET01K test pattern (8 shades of gray from full black (0 volts) to full white (0.7 volts)).”
- 8) Page 6, Section 8.1.7: Need to specify the full VESA reference:  
“Display the VESA FPDM2, A112-2H, L80 test pattern (full white (0.7 volts) box that occupies 80% of the image).”
- 9) Page 6, Section 8.2.1: Change the “6” to a “7” in the following:  
“Ensure that the UUT has been initialized per Section 7.”
- 10) Page 6, Section 8.2.2: Need to specify the full VESA reference:

“Display the VESA FPDm2, A112-2F, SET01K test pattern (8 shades of gray from full black (0 volts) to full white (0.7 volts)).”

- 11) Page 6, Section 8.2.5: Need to specify the full VESA reference:  
“Display the VESA FPDm2, A112-2H, L80 test pattern (full white (0.7 volts) box that occupies 80% of the image).”
- 12) Page 6, Section 8.2.7: In order to be consistent with Displays Version 5.0, Annex 1, Section 2.B.8.d, change “contrast” to “brightness” in the following:  
“Adjust the brightness control until the luminance of the white area of the screen is as specified in Table 3.”
- 13) Page 6, Section 8.2.10, If the UUT has ABC Enabled by Default: According to Displays Version 5.0, Annex 1, Section 3, Test Method for fixed pixel displays with ABC enabled by default, the luminance is NOT ADJUSTED to the Table 3 Luminance Settings. This is because the ABC will automatically adjust the screen luminance to pre-programmed unique values at the ambient levels of 0 and 300 lux. These values are not dictated by Table 3.

Panasonic recommends splitting Section 8.2 into two sections. One section for fixed-pixel displays with ABC NOT enabled by default, and another section for fixed-pixel displays with ABC enabled by default.

The section for displays with ABC NOT enabled by default would include the existing sections 8.2.1 through 8.2.9.

The section for displays with ABC enabled by default would include sections 8.2.1 and section 8.2.10.

- 14) Page 8, Section 9.1.A.3 True Power Factor: Commonly available power factor measurement instruments do not average the power factor value over a time period such as the 10-minute IEC 62087 dynamic-broadcast content.

CSA Draft Standard C382-10 Energy Efficiency Performance of Televisions (TVs) proposes the following method in Section 4.3.4 True Power factor: “Measurement shall also be made with the Automatic Brightness Control function, if such a function exists, disabled. If the Automatic Brightness Control function exists and cannot be disabled, then measurements shall be performed with light entering directly into the ambient light sensor at a level of 300 lux, or greater. Measurements shall be made by displaying the three bar video signal provided in IEC 62087 Ed. 2, Section 11.5.5, which displays three bars of white (100%) over a black (0%) background.”

Using the static three bar video signal allows a single repeatable measurement of the power factor without the need for averaging over a dynamic (varying) broadcast signal.

Again, Panasonic appreciates the opportunity to comment on the ENERGY STAR Displays Version 5.1 document. We welcome the opportunity to further clarify our comments and to work collaboratively with EPA in the process of finalizing this specification.

Sincerely,

Mark J. Sharp  
Group Manager  
Corporate Environmental Department

cc: Katharine Kaplan  
Owen Sanford