

SHARP[®] LABORATORIES OF AMERICA

Via e-mail:
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United States Environmental Protection Agency
Office of Air and Radiation
Washington, D.C. 20460

Subject: **ENERGY STAR Displays Draft 2 Version 6.0 Specification**

COMMENTS OF SHARP LABS OF AMERICA

SHARP is an enthusiastic ENERGY STAR Partner and is committed to building high-efficiency, low energy-use products that enable our customers to minimize their environmental impact. The ENERGY STAR program continues to be the most effective approach for SHARP to communicate the low power consumption of our products to retailers and consumers.

On September 20th, EPA released Draft 2 of the Version 6.0 ENERGY STAR Specification for Displays.

SHARP offers the following comments, primarily with respect to signage displays:

The specification should be forward looking

For some time now, SHARP has been shipping the PN-E601 60-inch class signage display. Interestingly, this display has a diagonal measurement of 60-1/16". It would be unfortunate for a 60-inch class product to be excluded due to a fraction of an inch. At a

minimum, the cutoff should be expanded to include displays of 60.49" to include all 60-inch class products.

However, SHARP has recently introduced the PN-L702B 70-inch class Interactive Whiteboard Display with a 69-1/2" diagonal screen measurement. To include this product, the size limit would need to be increased further.

Moreover, SHARP has recently introduced a television with a 79.5" diagonal. While this is not a signage display, the television product demonstrates that future signage products above 70-inches are technically possible.

Further, in some signage installations, the displays are assembled to form a wall, as is possible with SHARP's thin bezel PN-V602 60-inch class product. When creating a video wall using an array of displays, installers generally prefer to use a smaller number of larger displays, rather than a larger number of smaller displays. The overall dimensions of such a video wall might be the same in each case, implying that there would be no power penalty for using larger displays of the same efficiency as the smaller display.

Rather than cap the size, EPA should base the version 6.0 specification purely on efficiency. This would ensure that the program is forward looking with respect to larger screen sizes.

Automatic Brightness Control

Automatic Brightness Control (ABC) is no more difficult to implement in signage displays than it is in televisions. The reward for ABC, however, should be smaller than it is for televisions for the following reasons:

- Signage displays are generally professionally installed. While TV consumers generally do not adjust their TV settings, installers generally adjust the signage

- Many locations have consistent lighting throughout their operating hours; however, there can be exceptions, like the dual-purpose restaurant example above.

Any ABC test method should have the brightness tested at a limited number of points (two) to keep testing complexity low. In order to avoid gaming, the test method should prevent an exceptional reward for a product with an exceptionally dark screen in the low brightness condition. The dark condition should not be as low as zero lux in order to ensure that the low light condition is somewhat likely to be engaged. SHARP recommends 15 lux for the low light condition. 300 lux should be adequate to saturate the ABC circuit and should be used for the high light condition.

A sleep mode timer should not be required to be on by default

In most professional display installations, the display is expected to operate throughout business hours. When an installer is working on a project, they might not leave the TV controls untouched for long enough to activate the sleep mode timer, so it is possible that they would not know to disable it. Later, after the installer leaves, the displays are likely to go into sleep mode. This could displease the client and installer alike, as the installer might need to make a special trip to troubleshoot the problem and resolve the issue.

On Mode test signal

As the project leader responsible for the development and video editing of IEC 62087 Ed. 2.0, I recommend that the Internet-content video signal (clause 11.7) be included when

measuring power. If this signal is not feasible, the white level video signal (11.5.3) or the three bar video signal (11.5.5) should be included as a component of the test. As shown in Annex C.3, the dynamic broadcast-content video signal is modeled on television programming, which is relatively dark. By contrast, many signage applications display text and images on a white background, similar to this very document. As shown in Figure C.1, there is virtually no white background content in the broadcast loop. The Internet-content video signal was developed specifically to address this shortcoming.

With no bright background signal in the test set, the test method would favor emissive displays over backlit displays, creating an uneven playing field.

A bright signal test pattern should contribute to 25 to 33% of the power measurement.

On Mode brightness level

A display with a relatively low peak brightness is more likely to be adjusted to the maximum brightness level, even without calibration equipment. A display with a high peak brightness is less likely to be adjusted to the peak brightness level, especially if the default brightness is reasonable, but below the peak. For this reason SHARP believes that the 65% proposal does not match likely behavior of the installers.

SHARP recommends that signage display testing be done at 650 cd/m^2 or the default setting, whichever is brighter. For signage displays that cannot attain 650 cd/m^2 , they should be tested at their maximum brightness setting.

Sleep Mode

A key difference between televisions and signage displays is that professional models generally need to be turned on and off through a wired control, rather than from an IR signal. This is beneficial from a power savings point of view in that a large number of displays may be

turned on and off remotely, making it more likely that the operators turn off the displays during off hours, also allowing the operating state of the displays to be put on a remote timer.

In IEC 62087, clause 4, this state is described as "Standby-active, low". By contrast, "Standby-passive" is the state that allows the device to be turned on with a remote control. These two states were defined separately specifically because of the different power requirements between them.

For this reason, SHARP asks that the 1W sleep mode requirement be preserved for signage displays.

Conclusion

SHARP strongly supports the Energy Star program and believes that it is best served by

- removing the size limit to be "future-proof",
- rewarding the inclusion of ABC, though less than with televisions,
- not requiring that a sleep timer be enabled by default,
- including a bright test signal for 25% to 33% of the power contribution.
- using a 650 cd/m² minimum brightness level, rather than 65%
- maintaining a 1W limit for Sleep Mode.

We hope that EPA strongly considers SHARP's comments as we work together to create an effective, accurate, and efficient next version of the Energy Star program for displays

Respectfully submitted,

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