Optical Systems Division

3M Center, Building 235-1E-54
St. Paul, MN 55144-1000
651 733-1110

February 29, 2012

Ms. Verena Radulovic
United States Environmental Protection Agency
Office of Air and Radiation
Washington, D.C. 20460

Dear Ms. Radulovic:

In response to your memo dated February 10, 2012, 3M is providing input on Draft 3 of ENERGY STAR Program Requirements for Displays Version 6.0. We appreciate the opportunity to provide comments, and we continue to support the EPA's efforts to improve energy efficiency in display devices.

3M commends the EPA's decision to maintain power testing at a fixed luminance for displays less than 30". By conducting power certification at a fixed luminance for products of a given class, the ENERGY STAR program is recognizing the most efficient (power at a specific performance) displays. This is important, because the highest efficiency displays will consume the least amount of power at whatever brightness is required by end-user. Since no one can predict the ultimate needs of the end-user, rewarding efficient displays is the best way for the EPA to ensure its ENERGY STAR program is achieving real power savings in the field.

3M's primary recommendation is for the EPA to extend its focus on efficiency to all classes of displays. In the current draft, the power requirements for ENERGY STAR qualified Signage (between 30" and 61") are based on the performance of the display in its "as-shipped" or default condition. There is little to no data regarding the end-use requirements of Signage, but anecdotal evidence indicates that there is a wide range of lighting conditions associated with these types of displays (bright airports, dark indoor shopping centers, etc.). Compared to computer monitors, the installation of Signage is more likely to be conducted by a professional who has the know-how to adjust the display settings to provide an optimal picture in a specific ambient lighting condition. Because of the uncertainty of how the final digital sign will be used, 3M recommends the EPA base its power requirements for Signage on fixed luminance. By rewarding high efficiency, the EPA can be certain that ENERGY STAR certified Signage is consuming the least amount of power possible for the given application requirements. In the spirit of harmonizing with the other displays, and considering the likely capabilities of all Signage, 3M recommends that testing and qualification for Signage be conducted at a luminance level of 200 cd/m^2. However, a higher fixed luminance would also be acceptable.

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Definitions Section

We are supportive of the creation and definition of the enhanced-performance displays category. We recommend a reporting requirement be added to validate conformance to the defined criteria. Measurement should be included for static contrast ratio and color gamut. This will eliminate the ambiguity of specifications, provide additional useful information to consumers, and account for the natural product variability.

Most Signage displays are for use in public venues, and as such they do not include controls assessable to the viewer. It is recommended to further distinguish signage displays as display devices with a toggled power switch. The challenge of trying to define signage displays could be eliminated by applying an efficiency based test consistent with computer monitors. This would make the qualification of the display independent of the final display settings and provide assurance to the consumer that an ENERGY STAR display is efficient regardless of the use mode.

Maximum Measured Luminance is useful data to collect, and it can assist consumers in their purchasing decision. This data will be useful in the future to understand design trends and the performance of the various categories of displays covered by the ENERGY STAR criteria.

Criteria Section 3.3.1

In ENERGY STAR's interest to maintain a relevant standard over a two year cycle, we recommend considering the newest models when evaluating the on-mode criteria. The current data set includes older CCFL and LED based designs.

Criteria Section 3.3.3

In order for ABC to be impactful to power savings, the display needs to experience variability in the ambient lighting environment. The majority of desktop monitors are sold into business environments where uniform lighting is expected for ergonomic reasons. Therefore the power savings due to ABC will be mainly in the home environment. The unintended result is that the efficiency requirement may be relaxed even if the display will not realize any power savings from ABC. Also important to incentivizing ABC adoption is a simple test method that does not add to the burden of qualification or product design.

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Test Method

The testing method for low voltage DC powered displays is easy to implement and can expand to USB 3.0 connected displays as those become available. We are supportive of the current method.

We are understanding of the complication of measuring the ABC sensor illuminance in a way that correlates well between the test and the users ambient environment. In our laboratory, we would dim an incandescent room light to the prescribed illuminance levels for test purposes. One potential solution to the directionality of the ambient light would be to use a calibrated integrating sphere light source with a known exit port illuminance. This port could be placed as near to the ABC sensor as physically possible for the testing. This might address concerns about the directionality of the light source.

As questions arise around these comments, please contact us for further discussion.

Sincerely,

Shannon Siefken
Applications Engineer
slsiefken@mmm.com

Dave Lamb
Senior Research Specialist
djlamb@mmm.com

cc: Bizhan Zhumagali, ICF